U.S. Department of Housing and Urban Development
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Environmental Assessment
Determinations and Compliance Findings for HUD-assisted Projects
24 CFR Part 58

Project Information

Project Name: Princeville Levee Floodgate Repairs

Project Location: Four levee floodgate culvert locations along the Tar River, Princeville, Edgecombe County, NC 27886

Federal Agency: U.S. Department of Housing & Urban Development (HUD)

Responsible Entity: North Carolina Office of Recovery and Resiliency (NCORR)

Grant Recipient: Town of Princeville, 201 South Main Street, Princeville, North Carolina 27886

State/Local Identifier: B-16-DL-37-0001

Preparer: Andrea Gievers, Environmental SME, NCORR

Certifying Officer Name and Title: Laura H. Hogshead, Director, NCORR

Direct Comments to:

Andrea Gievers
Environmental SME
NCORR - Community Development
Andrea.L.Gievers@Rebuild.NC.gov
(845) 682-1700

Project Location:

Four levee floodgate culvert locations along the Tar River, Princeville, Edgecombe County, NC 27886 (Subject Property). *(The structure site locations are also identified on the original US Army Corps of Engineers [USACE] Princeville Dike General Plan, Vicinity Map and Index of Drawings Dike Sections "A" and "B", Plate G-1 dated February 15, 1965, included in the USACE Princeville Dike Repairs Operation and Maintenance Manual dated July 2001, and recorded in Map Book 13, Pages 93-109 in the Edgecombe County, NC Register of Deeds Office.)*

Structure Site Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]**:**

The proposed project is a CDBG-DR eligible activity pursuant to Section 105(a)(2), *Public Facilities and Improvements* of the Housing and Community Development Act (HCDA) of 1974, which includes: the acquisition, construction, reconstruction, or installation (including design features and improvements with respect to such construction, reconstruction, or installation that promotes energy efficiency) of public works, facilities (except for buildings for the general conduct of government), and site or other improvements.

The Town of Princeville, North Carolina proposes to perform inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. The existing levee segments of the proposed project were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. The Town's procured designer is conducting design analysis calculations for these levees, which also contain culverts with flap gates in the existing levee segments, installed by NCDOT in 2018 as backflow prevention devices. The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville Levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events (**Attachment 1:** Design Plans). The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. The Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4.

The proposed project will occur at four floodgate culvert locations (Subject Property), identified above, located along the intersection of the USACE protective levee and the Tar River (**Attachment 1:** Design Plans and USACE Notice of Preliminary Jurisdictional Determination). This project is anticipated to consist of construction activities that include earthwork, access road

construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of potential ground disturbance, with most of the work occurring in areas of previous ground disturbance. The Subject Property contains areas classified as shaded Zone "X" (areas between the limits of the base flood and the 0.2-percent-annual-chance or 500-year floodplain), Zone "AE" (100-year floodplain), and FEMA-designated regulatory floodway, as denoted by Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) in **Attachment 4**. Areas anticipated to be addressed have experienced severe flooding in the past (See Hurricane Matthew and Floyd Extent Map from June 2017 Meeting in **Attachment 1**).

Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due in part to the functional failure of the Princeville floodgates located along the USACE levee bordering the Tar River. According to the Coastal Resilience Center, approximately 450 homes were destroyed during the hurricane and subsequent flooding, and an estimated 80 percent of the Town was underwater. Many of the Town's commercial and institutional structures were damaged. The Town Hall, Princeville Elementary School, and the Princeville Volunteer Fire Department were completely destroyed. The floodgate structures were submerged underwater for at least five days. The underwater submersion of these floodgates caused weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. According to the Project Information Form, the proposed project objective is to "[e]valuate the existing flood risk reduction system at Princeville; its current level of flood flow exclusion, and where needed; provide a cost-effective technically-sound and environmentally acceptable plan to better promote the exclusion of floodwaters from the town to a frequency substantially lower than that which currently exists, and so doing reduce monetary flood inundation damage potential by at least 75%." Further, the proposed project design "restores the effectiveness of the floodgates to prevent [the] Tar River overtopping, back flow, and channel control of the outflow of stormwater from the community's stormwater collection and discharge systems."

The Princeville Levee succumbed to two storms less than 20 years apart, Hurricane Floyd in 1999 and Hurricane Matthew in 2016, that overtopped its defenses with floodwaters circumventing the levee and inundating most of the Town. Following Hurricane Matthew, the Town of Princeville undertook to design construction upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. Without the proposed project, there is also the potential decertification of the levee by FEMA which would result in virtually the whole town being mapped as 100-year floodplain and the subsequent requirement for the costly elevation of structures and flood insurance for homeowners according to the Princeville Recovery Plan. There has been widespread community and Town leadership support for the proposed project.

Existing Conditions and Trends [24 CFR 58.40(a)]:

The existing levee segments of the proposed project were constructed between 1965 to 1967 by the USACE but are maintained by Edgecombe County. Based on the original design drawings, the structures consist of existing asphalt coated corrugated metal pipes ranging in size from 48-inch to 60-inch inside diameter. Concrete headwalls are located on the inlet and outlet sides of the pipe. Flapper gates are mounted to the outlet headwalls to help keep flows from the Tar River from entering the landward side of the dike. The downstream structure outlet headwalls have approximately 10-foot deep driven sheetpile cutoffs to help avoid undercutting of the outlet headwalls. The inlet and outlet areas were designed to have 25-foot long riprap erosion blankets on the inlet and outlet sides of the structure. The inlet side (landside) of the structures were designed to have a 12-inch thick riprap layer underlain by a 6-inch thick filter layer. The outlet headwall (downstream) was designed to have a 4-foot long riprap apron (with a thickness of 2 feet to 6 inches) tapering to a 12-inch thick riprap layer over the remainder of the 25-foot length. (See Preliminary Engineering Report, Princeville Dike Floodgate Repairs, SM&E, dated September 14, 2017.)

During the Preliminary Engineering Report's observations and conversations with Edgecombe County personnel, the structures were ascertained to have sustained damage over the years due to periodic flooding and weathering over time. As shown in Appendix I of the Preliminary Engineering Report, the concrete headwalls have begun to deteriorate, and the riprap blankets have been washed out. Without the riprap blankets, the soil foundations of the headwalls have been undercut, sustained erosion is occurring due to lack of energy dissipation at the outlet, and the flapper gates fail to perform properly. Modifications to the riprap erosion blankets are required to improve the functionality of the flapper gates. During the Hurricane Matthew storm event, the floodgate structures were submerged underwater for at least five days resulting in weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. The proposed repairs are intended to restore the existing structures to their former as-built condition according to the Preliminary Engineering Report.

The proposed project activities will occur in Edgecombe County's Princeville Levee easement area. Site 1 is surrounded by wooded, undeveloped land with the Tar River further north and to the west; South Main Street then wooded, vacant land to the east; and wooded, vacant land to the south. Sites 2 and 3 are situated with the Tar River to the north; wooded, undeveloped land to the northeast; agricultural land to the southeast; residential and commercial properties to the west; and commercial and industrial properties to the south. Site 4 is situated with residential properties to the north; White Acre Farm, a roadside farm (Willoughby Inc.), Carolina Family Health Center, and residential properties to the east; wooded, undeveloped land then U.S. Highway 64 East to the west; and U.S. Highway 64 East to the south.

Funding Information

Grant Number	HUD Program	Funding Amount
B-16-DL-37-0001	CDBG-DR	$850,658.00

Estimated Total HUD Funded Amount: $850,658.00

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]**:** $850,658.00

Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6		
Airport Hazards 24 CFR Part 51 Subpart D	Yes ☐ No ☒	Based on guidance provided by HUD Fact Sheet #D1, the National Plan of Integrated Airport Systems (NPIAS) was reviewed for airports located near the Subject Property. There are no civilian, commercial service airports located within 2,500 feet of the Subject Property. There are no military airports located within 15,000 feet of the Subject Property. No additional review is required. **Attachment 2:** NEPAssist Airport Map with 15,000-foot Buffer
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal	Yes ☐ No ☒	Based on the U.S. Fish and Wildlife Service (USFWS) Coastal Barrier Resources System Map, the Subject Property is not located in or immediately adjacent (within 150 feet) to a Coastal Barrier Resource System Unit or

Barrier Improvement Act of 1990 [16 USC 3501]		Otherwise Protected Area (OPA). No additional review is required. **Attachment 3:** USFWS CBRS Map
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes ☐ No ☒	The FEMA FIRMs were consulted for the Subject Property. Site 1 is located on FEMA FIRM panel 3720473800K, effective on 06/02/2015. Sites 2 and 3 are located on FEMA FIRM panels 3720473800K and 3720474800K, both effective on 06/02/2015. Site 4 is located on FEMA FIRM panel 3720473700J, effective on 11/03/2004. Preliminary FIRMs (PFIRMs) are not available for the Town of Princeville according to the FEMA Map Service Center. The Town of Princeville is a participating community in good standing in the regular program of the National Flood Insurance Program (NFIP). The proposed project includes work in areas located within a FEMA-designated regulatory floodway. Since the proposed project involves repairing floodgates at an existing levee, the activities are a functionally dependent use. Thus, the proposed project activities may receive federal funding despite location in a regulatory floodway and compliance with 24 CFR 55 and Executive Order (EO) 11988 is required (See 24 CFR 55.1[c][1]). While the proposed project activities occur in areas classified as shaded Zone "X" (areas between the limits of the base flood and the 0.2-percent-annual-chance or 500-year floodplain), Zone "AE" (100-year floodplain), and FEMA-designated regulatory floodway, flood insurance is not required for the proposed project. This proposed project involves repairing floodgates at an existing levee and constructing access roads. The proposed project does not include an insurable structure

		according to the NFIP Flood Insurance Manual effective October 1, 2022. **Attachment 4:** FEMA FIRMs
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes ☐ No ☒	According to the NC Nonattainment/ Maintenance Status for Each County by Year for All Criteria Pollutants (EPA Green Book), Edgecombe County is in a maintenance area for 8-hour Ozone (1997). The construction and operation of the proposed improvement is exempted from NC State air quality permit requirements under 15A NCAC 02Q. 0102(d) since emissions will be below the established thresholds. Thus, the proposed project's emissions are automatically considered de minimis (40 CFR § 93.153(c)(2)) and the proposed project is considered compliant with the State Implementation Plan. The proposed project would not exceed de minimis emissions levels for federal general conformity purposes (40 CFR § 93.153(c)(2)). The proposed project involves repairing floodgates at an existing levee and constructing access roads. The proposed project will not generate vehicular traffic. The proposed project will not result in siting any new source of air pollutants. Any air quality impacts would be short-term and localized during construction and, therefore, no significant adverse impacts to air quality are anticipated. Construction-related activities (land clearing, grading) can cause short-term exposures to sensitive receptors from particulate matter (PM 10) such as fugitive dust and emissions from construction equipment. Mitigation measures for dust control will be implemented to reduce potential impacts to air quality during construction. The proposed project will conform to NC Air Quality Management

		regulations during and following construction. The contractor will use Best Management Practices (BMPs) to reduce fugitive dust generation and diesel emissions. BMPs can include wetting the grading site during dry conditions; maintaining vegetative cover as much as possible around cleared areas; a water truck to stabilize potential dust during high traffic times or high wind days on heavily-travelled access roads and storage areas; and operating construction vehicles and machinery at reduced speeds to reduce soil disturbance and fugitive dust potential. BMPs to mitigate the generation of emissions during construction include limiting use of vehicles and other machinery to construction hours only and removal once construction is completed. Radon is not considered a risk for this proposed project since the proposed project does not involve enclosed structures with indoor air quality concerns and Edgecombe County is a Level 3 Radon Zone with predicted average indoor radon screening levels less than 2 pCi/L (Low Potential) according to the U.S. Environmental Protection Agency (EPA) (see **Attachment 5**). No additional steps are required for radon testing and mitigation. Therefore, there will be no significant impact to air quality from the proposed project. The operation of the proposed project following the completion of construction activities will not increase emissions. Any air quality impacts would be short-term and localized during construction, and no significant adverse impacts to air quality are anticipated. Thus, the proposed project is in compliance with this section. **Attachment 5**: NC Nonattainment/ Maintenance Status for Each County by Year

		for All Criteria Pollutants (EPA Green Book) and EPA NC Radon Level Map. *See also, Recent Updates: Federal Register Notices Published or Effective After March 31, 2023 | Green Book | US EPA online* *https://www3.epa.gov/airquality/greenbook/adden.html*
Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)	Yes ☐ No ☒	The Subject Property is located in Edgecombe County which is not one of the 20 coastal counties included in the State's Coastal Management Program. A Consistency Determination is not required to be submitted to the NC Division of Coastal Management (NC DCM). NC DCM carries out the State's Coastal Area Management Act (CAMA), the Dredge and Fill Law and the federal Coastal Zone Management Act of 1972 in the 20 coastal counties, using rules and policies of the NC Coastal Resources Commission, known as the CRC. No further action is required. The proposed project is in compliance with the Coastal Zone Management Act. **Attachment 6**: NC DCM Counties Map
Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)	Yes ☐ No ☒	A site inspection was conducted at the Subject Property on December 19, 2021 by Bill Blankenship, and no hazards were identified. There is *no* proposed change in land use. According to NEPAssist, the Subject Property is not identified on a list of Superfund National Priorities or Comprehensive Environmental Response Superfund National Priorities or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) List, or equivalent State list compiled by the US EPA. According to the NC Department of Environmental Quality (DEQ) Underground Storage Tanks (UST) Section, the Petroleum UST and Non-UST Databases did *not* indicate any petroleum releases within the proposed project area. The NC DEQ UST Section also reviewed the proposed project and determined that this project should not

		have any adverse impact upon groundwater (see **Attachment 23**). **NC DEQ requires notification of the proper regional office if "orphan" USTs are discovered during any excavation operation** (see **Attachment 23**). **Any soils excavated during construction that show evidence of petroleum contamination, such as stained soil, odors, or free product must be reported immediately to the local Fire Marshal to determine whether explosive or inhalation hazards exist and the Washington Regional Office UST Section. Any petroleum-contaminated soils must be handled in accordance with all applicable regulations** (see **Attachment 23**). According to NEPAssist, there are no Superfund sites within a one-mile radius search of the Subject Property. According to NEPAssist, there is one Air Emission Facility, HC Composites LLC, within a one-mile radius search of the Subject Property (Site 1). According to NEPAssist, there are two Toxic Release Inventory (TRI) Sites, Empire Industries Inc. and HC Composites LLC, within a one-mile radius search of the Subject Property (Site 1). According to NEPAssist, there are three Brownfields Sites (116 Commercial Rd, 124 Commercial Rd and 306 Mutual Blvd in Princeville) within a one-mile radius search of the Subject Property. According to NEPAssist, there are two NPDES water dischargers (Town of Tarboro WWTP and HC Composites LLC) within a one-mile radius search of the Subject Property. According to NEPAssist, there are twelve RCRA Hazardous Waste Facilities within a one-mile radius search of the Subject Property. These include Carolina Enterprises Caldwell, Winchester Powerboats Inc., Doug Henry Chevrolet Oldsmobile, Delux Cleaners of Tarboro Inc., Carolina Telephone & Telegraph Co., Royster Clark Inc., Walmart Supercenter #2730, NCDOT Div. 4 Edgecombe Bridge #104, HC Composites

		LLC, Lowes of Tarboro #3022, Charles E. Hussey & Assoc. Inc., and Dixie Yarns Inc. HC Composites LLC has only Clean Air Act violations identified but is listed as in compliance with procedures. Empire Industries Inc. is located at the same address as Carolina Enterprises Caldwell and according to the ECHO Facility Report, it is in compliance and shut down in 1997. The three Brownfields Sites (116 Commercial Rd, 124 Commercial Rd and 306 Mutual Blvd in Princeville) are in the assessment phase for petroleum soil contamination from former use as truck stops and a gas station, respectively. The Town of Tarboro WWTP has had no identified violations for the past year. Carolina Enterprises Caldwell, Royster Clark, Inc., Dixie Yarns Inc. (as Fieldcrest Cannon Inc) are in compliance and shut down. Delux Cleaners of Tarboro Inc., Winchester Powerboats Inc., NCDOT Div. 4 Edgecombe Bridge #104, Doug Henry Chevrolet Oldsmobile, and Charles E. Hussey & Assoc. Inc. have been in compliance for 12 quarters and have no violations identified. Walmart Supercenter #2730 and Lowes of Tarboro #3022 are retail Small Quantity Generators and Dixie Yarns is a Very Small Quantity Generator. Carolina Telephone & Telegraph Co. uses various spent halogenated solvents for degreasing and operations. Due to the distance from the Subject Property, groundwater and surface flow directions, type of potential contamination, compliance status, and intended use of the Subject Property to remain as an existing levee system, these sites do not pose a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. According to a NC DEQ Facility Screening Report and the NC DEQ DWM comment, a pre-regulated landfill site, the Princeville

		Dump on Jenkins Street is located within a one-mile radius search of Site 4. Although the Princeville Dump is located just over 1,400 feet from Site 4, Site 4 is topographically upgradient with U.S. Highway 64 East in between. According to the NC DEQ DWM comment, this is the only Superfund site located near the Subject Property. The attached DWM Site Locator Tool Results also noted multiple dry cleaners, UST active facilities and incidents, AST incidents, and six land use restrictions and/or notices located within a one-mile radius of the Subject Property. Due to the distance from the Subject Property, groundwater and surface flow directions, type of potential contamination, compliance status, and intended use of the Subject Property to remain as an existing levee system, these sites do not pose a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. Historical Sanborn and aerial maps were reviewed and do not provide historical use information for this site (which was developed with the levee system circa 1967) that would pose a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property as an existing levee system. Based on a site visit and review of available environmental records for the Subject Property and surrounding area, the Subject Property is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. Therefore, a Phase I Environmental Site Assessment (ESA) or Phase II Investigation is not warranted.

		Attachment 7: NEPAssist and NC DEQ DWM Maps and Reports, EPA ECHO and Facility Reports, Site Inspection Documentation, and Historical Sanborn and Aerial Maps and **Attachment 23:** State Environmental Clearinghouse Comments
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes ☒ No ☐	A NC Natural Heritage Program (NHP) database query report and USFWS Information for Planning and Consultation (IPaC) Official Species List were prepared for the proposed project. According to the NC NHP database, there are three federally-listed species within the proposed project area. These species are the endangered Tar River Spinymussel (Elliptio steinstansana), threatened Atlantic Pigtoe (Fusconaia masoni) which are freshwater bivalves and the endangered Carolina Madtom (Noturus furiosus), a freshwater fish. Within one-mile of the proposed project area, the NC NHP identified two additional federally-listed species, the threatened amphibian Neuse River Waterdog (Necturus lewisi), and endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). The NC NHP database also identifies the Neuse River Waterdog USFWS Critical Habitat within the proposed project area. The Official Species List identified a total of six threatened, endangered or candidate species and no critical habitat for the proposed project area. These species include the threatened Neuse River Waterdog (Necturus lewisi), endangered Carolina Madtom (Noturus furiosus), endangered Tar River Spinymussel (Parvaspina steinstansana), threatened Atlantic Pigtoe (Fusconaia masoni), threatened Yellow Lance (Elliptio lanceolate), and candidate Monarch Butterfly (Danaus plexippus). The USFWS Critical Habitat Mapper identifies critical habitat in the Tar River for the Neuse River Waterdog and Atlantic Pigtoe. However, no surface water impacts are proposed.

		There are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. The Official Species List identified eight migratory birds including the Bald Eagle (Haliaeetus leucocephalus), Red-headed Woodpecker (Melanerpes erythrocephalus), American Kestrel Falco (sparverius Paulus), Brown-headed Nuthatch (Sitta pusilla), Chimney Swift (Chaetura pelagica), Prairie Warbler (Dendroica discolor), Prothonotary Warbler (Protonotaria citrea), and Wood Thrush (Hylocichla mustelina). On April 21, 2021, Axiom Environmental, Inc. (Axiom) conducted field surveys for both the Bald Eagle and Red-cockaded Woodpecker. The study areas contained no suitable habitat for either species, and no evidence of Bald Eagle species was found within 0.5 mile of the study areas. In addition, due to the regular mowing of the levee, habitat is considered poor to unsuitable for Monarch Butterflies. According to the project engineer, there will be an estimated total of 0.33 acres of trees removed for the proposed project (Site 1 – 0.03; Site 2 – 0.14; Site 3 – 0.09; and Site 4 – 0.07 acres). It is anticipated that due to the proposed project site mostly small trees will be removed and any migratory birds in the area will temporarily leave the area during repairs and construction. The USACE staff representative, Mr. Billy Standridge, said that since there are no impacts planned for the Tar River, aquatic species did not need to be addressed. The USFWS has tasked the USACE with making determinations regarding protected species' issues in Condition 18(c) of the permit application. The USACE has received and reviewed the permit application, told Axiom that the permit application is considered

		complete by the USACE, and the permit will be issued based on the information provided. Therefore, the proposed project was determined to have "no effect" on the proposed, threatened, endangered, or candidate species and proposed or designated critical habitat under USFWS jurisdiction, and a "no Eagle Act permit required" determination for the Bald Eagle. A self-certification letter and online project review certification package were completed and submitted to the USFWS Raleigh Field Office (FO) on August 15, 2022, and updated and resubmitted on September 8, 2022. No official comment has been received by USFWS. ***The Applicant will update this determination annually for multi-year activities.*** NOAA NMFS identifies critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) in the Tar-Pamlico River. NCORR consulted with the NC Wildlife Resources Commission (WRC) since the Tar-Pamlico River is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603. Also, NC WRC has designated the Tar River at this location as a primary nursery area (PNA). NC WRC responded that the area is subject to the NC DWR Tar-Pamlico Basin Buffer Rules to ensure the cognizance of nutrient, sedimentation and erosion that may enter into this river basin. On September 6, 2022, NC WRC Coastal Coordinator, Ms. Maria Dunn, said "the NCWRC has no specific recommendations for the proposal other than noting the **important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system**." **NC WRC also requests that if any project**

		modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area. NCORR submitted a project review request package to the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service for consultation under the Magnuson-Stevens Act and Wildlife Coordination Act for the Atlantic Sturgeon. On September 9, 2022, Mr. Pace Wilber, the South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division, responded to NCORR's request that "[b]ased on the description of the work and the locations being near but not within the Tar River, **we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates.**" The following permits will be obtained prior to commencing work: USACE Clean Water Act (CWA) Section 404 Nationwide Permit #3 (Maintenance) to authorize impacts to wetlands and streams, USACE CWA Section 408 Permit, a NC Division of Water Resources (NC DWR) CWA Section 401 Water Quality Certification, and NC DWR Tar-Pamlico River Riparian Buffer Authorization. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed project shall be obtained before commencing work and appended to the environmental review record

		(ERR) when received from the permitting agencies. Therefore, the proposed project will have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat. The proposed project is in compliance with this section. **Attachment 8**: USFWS Correspondence and USFWS Raleigh FO 10-step Package, NC WRC Correspondence and Submission Package, and NOAA NMFS Correspondence and Submission Package
Explosive and Flammable Hazards 24 CFR Part 51 Subpart C	Yes ☐ No ☒	The proposed project does not involve the development of a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries). The proposed project involves repairing floodgates at an existing levee and constructing access roads which does not involve development or construction that will be regularly used by people, a rehabilitation/ modernization project that will increase the number of people using a structure or increase residential densities, a rehabilitation/ modernization project that will make a vacant building habitable or land use conversion. Based on the proposed project description, there are no proposed activities that would require further evaluation under 24 CFR Part 51 Subpart C. The proposed project is in compliance with HUD's explosive and flammable hazard requirements.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes ☐ No ☒	Since the proposed project involves repairing floodgates and constructing access roads at an existing levee built circa 1967, the proposed project activities are exempt and, thus, will not convert farmland to nonagricultural use. There will be construction of new access roads, but it is taking place within an area committed to the Princeville Levee System by easement for water storage. According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service

		(NRCS) Resource Soil Scientist, Ms. Laurie Muzzy, "[d]am or levee construction is subject to the FPPA; however, the Princeville levee was constructed prior to Aug 4, 1984, and already used for water storage. So that project does not fall under the jurisdiction of the FPPA, according to Section 523.10 (B. Lands Not Subject to Provisions of FPPA) and 523.11 (C. Activities Not Subject to Provisions of FPPA)." *See* Section 523.10(6) land in water storage, including lands that have been acquired or planned for water storage prior to August 5, 1984, and Sections 523.11(C)(3) projects planned or constructed prior to August 4, 1984 (FPPA, Part 658) and (4) projects on land already in urban development or used for water storage. According to the USDA NRCS Soil Survey, the soil at Site 1 consists of Tarboro loamy sand, 0 to 6 percent slopes (TaB) and Wehadkee silt loam (Wh) which are both *not* prime farmland. According to the USDA NRCS Soil Survey, the soil at Sites 2 and 3 consist of Tarboro loamy sand, 0 to 6 percent slopes (TaB), Ballahack fine sandy loam (Ba), and Wehadkee silt loam (Wh). The Ballahack fine sandy loam (Ba) is prime farmland, if drained, but only accounts for approximately 0.2 acre of this project area. According to the USDA NRCS Soil Survey, the soil at Site 4 consists of Roanoke loam (Ro) which is farmland of statewide importance but accounts for approximately 0.3 acre in the project area. The proposed project is exempt from the Farmland Protection Policy Act (FPPA). Thus, no further review is required. The proposed project is in compliance with this section. **Attachment 9:** USDA NRCS Correspondence and Soil Surveys

Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes ☒ No ☐	The FEMA FIRMs were consulted for the Subject Property. Site 1 is located on FEMA FIRM panel 3720473800K, effective on 06/02/2015. Sites 2 and 3 are located on FEMA FIRM panels 3720473800K and 3720474800K, both effective on 06/02/2015. Site 4 is located on FEMA FIRM panel 3720473700J, effective on 11/03/2004. Preliminary FIRMs (PFIRMs) are not available for the Town of Princeville according to the FEMA Map Service Center. The proposed project includes work in areas located within a FEMA-designated regulatory floodway. Since the proposed project involves repairing floodgates at an existing levee, the activities are a functionally dependent use. Thus, the proposed project activities may receive federal funding despite location in a regulatory floodway (See 24 CFR 55.1[c][1]). Compliance with 24 CFR 55 and EO 11988 is required since the proposed project activities occur in areas classified as shaded Zone "X" (areas between the limits of the base flood and the 0.2-percent-annual-chance or 500-year floodplain), Zone "AE" (100-year floodplain), and FEMA-designated regulatory floodway. The proposed project will result in temporary and permanent impacts to 0.11 acres of 100-year floodplain and 1.37 acres of floodway. These impacts will consist of excavation, fill and channel repair in the 100-year floodplain and excavation, fill and channel repair in FEMA-designated regulatory floodway. A Floodplain Development Permit and no-rise certification for the proposed project were obtained and concluded that it will not increase base flood elevations within the FEMA floodplain. The 8-step EO 11988 Floodplain Management Determination was completed pursuant to 24 CFR 55.20 and is included in **Attachment 10**.

		Attachment 10: EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	Yes ☐ No ☒	According to the Town of Princeville website, "Princeville's town hall, originally built as a schoolhouse in the 1920s, was badly damaged, and past floods destroyed many other older structures. ***Princeville, for much of its history, has been so concerned about survival that historic preservation has been almost impossible"*** (emphasis added). NCORR submitted a Section 106 review package to the North Carolina State Historic Preservation Office (SHPO) on August 17, 2022 via the State Environmental Clearinghouse. The NC SHPO responded on December 30, 2022 that "[w]e have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed." According to the HUD Tribal Directory Assessment Tool (TDAT), the Catawba Indian Nation and the Tuscarora Nation are the only federally-recognized Tribes with interests in Edgecombe County, North Carolina. NCORR sent a Section 106 review package to the Catawba Indian Nation's Chief and Tribal Historic Preservation Office (THPO) on August 17, 2022. The Catawba Indian Nation's THPO responded on September 19, 2022 that the "Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**" NCORR sent a Section 106 review package to the

		Tuscarora Nation's Chief Tom Jonathan and THPO on August 17, 2022. The Environmental Review Record will be updated if a response is received. The proposed project is in compliance with this section. **Attachment 11:** SHPO Response; NCORR SHPO Submission Package, HUD TDAT Results, Catawba Indian Nation THPO Response; Catawba Indian Nation Chief and THPO Section 106 Review Packages; and Tuscarora Nation Chief and THPO Section 106 Review Packages
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes ☐ No ☒	The proposed project is not a noise-sensitive use. The proposed project does not involve new construction for residential use or rehabilitation of an existing residential property. Rather, the proposed project provides timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster. Thus, 24 CFR Part 51 Subpart B does not apply to this infrastructure improvement project. The proposed project activities are not expected to generate excessive noise during the short-term construction work or long-term operation. Short-term construction noise will be limited to daytime hours. Construction equipment will be required to meet local sound control requirements. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Therefore, the proposed project is not expected to generate any significant adverse noise impacts. The

		proposed project is in compliance with this section.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes ☐ No ☒	No sole source aquifers are located in North Carolina according to the U.S. EPA. No further action is required. The proposed project is in compliance with this section. **Attachment 12**: U.S. EPA Sole Source Aquifers Map
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes ☒ No ☐	Compliance with 24 CFR 55 and EO 11990 is required since some proposed project activities occur in wetlands. According to the USFWS National Wetland Inventory (NWI) Map, there are federally NWI-mapped wetlands on and near the Subject Property. Axiom completed wetland and stream delineations, the riparian buffer determination, and the protected species survey. The proposed project will result in temporary impacts to 0.027 acres of NWI-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub) and permanent impacts to 0.007 acres of NWI-mapped and USACE verified delineated wetlands. These impacts will consist of hand clearing, fill and channel repair in wetlands. A USACE PJD and Clean Water Act (CWA) Section 404 Nationwide Permit #3 (NWP #3) for Maintenance has been issued for the wetland and stream impacts. NC DEQ Division of Water Resources (NC DWR) has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization. A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution

		Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, measures will be implemented to ensure the proposed project will have no further impacts to wetlands and the Tar River during construction. The proposed project activities will be completed in accordance with all applicable federal, State and local laws, regulations, and permit requirements and conditions. All necessary permits will be identified and obtained prior to commencing work and appended to the ERR. The 8-step EO 11990 Protection of Wetlands Determination was completed pursuant to 24 CFR 55.20 and is included in **Attachment 10**. The proposed project is in compliance with this section. **Attachment 10:** EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination
Wild and Scenic Rivers Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes ☐ No ☒	The proposed project will not affect a listed or study Wild and Scenic River in the DOI NPS Nationwide Rivers Inventory (NRI) or National Wild and Scenic Rivers System (WSR). According to the NRI and WSR Maps, there are no listed river segments located within one mile of the Subject Property. The closest listed river segment is Fishing Creek which is located *over three miles* north of the Subject Property (one mile above NC 561 bridge to confluence with Tar

		River). Mr. Jeffrey Duncan, NPS Southeast Regional Aquatic Ecologist and Wild and Scenic Rivers Coordinator confirmed there is no need for consultation on this proposed project. Thus, there are no impacts anticipated from the proposed project on a WSR or NRI river. The proposed project is in compliance with this section. **Attachments 13:** NEPAssist Maps of DOI NPS Nationwide Rivers Inventory and National Wild and Scenic Rivers System and Showing 3-mile Distance from Closest WSR to Proposed Project Site, and NPS Correspondence. See also, Eligible and Suitable Rivers Map, at https://nps.maps.arcgis.com/apps/webappviewer/index.html?id=df0f4455dc5f41bb919a3a1a49c60174
ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	Yes ☐ No ☒	According to the EJSCREEN Report for Princeville, NC, there is an approximately 95% minority population and 58% low-income population, both of which are higher than State and national averages. According to the NC DEQ Community Mapping System, a portion of Princeville is located in the NC DEQ Potentially Underserved Block Groups 2019. According to the Edgecombe County Hurricane Matthew Resilient Redevelopment Plan, Princeville "has flooded multiple times since Hurricane Floyd and strained the resources of underserved residents who often are unable to pay for home elevations or new homes outside of flood zones. Recovery and prevention from hurricane and flood impacts tends to be more difficult in these communities. Over time, recurring impacts strain the mental and physical capabilities of residents and further damage communities."

		The proposed project will not subject the community to environmental conditions that may have disproportional effects on low-income or minority populations. Rather, this proposed project will assist the Town of Princeville's residents and community to be protected from future devastating storm damage and flooding. The proposed project aims to mitigate floodwaters from accessing areas frequently inundated during storm events. These repairs are necessary to have a correctly functioning levee system to protect the residents and community from devastating flooding during and after future storm events. The mitigation of future flooding is essential to a strong and successful economy and a safe place to live in the Town of Princeville. Thus, the proposed project does not contribute to or promote environmental injustice. The proposed project is in compliance with this section. **Attachment 14**: EJSCREEN Standard Reports (Princeville and Four Structure Sites), EJSCREEN ACS Summary Reports, EJSCREEN Census 2010 Summary Reports, NC DEQ Community Mapping System Map, Executive Order 13146 - Princeville, and CDC Report for Edgecombe County

Environmental Assessment Factors [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

Impact Codes: Use an impact code from the following list to make the determination of impact for each factor.
(1) Minor beneficial impact
(2) No impact anticipated
(3) Minor Adverse Impact – May require mitigation
(4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
LAND DEVELOPMENT		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	1	The land use will remain unchanged. The proposed project activities will be conducted wholly within the Edgecombe County's Princeville Levee easement area. The Subject Property is zoned as AR-30 Rural Residential according to the Edgecombe County Parcel Maps. The necessary repairs to the floodgates aim to mitigate floodwaters from accessing areas frequently inundated during storm events. This will help the land uses in these areas to remain unchanged. The proposed project will also protect historic areas from future flooding. The repair of the levee floodgates is listed as an ongoing disaster recovery effort (#2) in the Town's Final Comprehensive Plan which notes that the floodgates will "help protect the Town from flooding and release stormwater to the Tar River during normal events." According to the Town's Final Comprehensive Plan, "[p]lans are underway to enhance the levee which may provide additional protection, but for the near future mitigation measures are needed to protect existing buildings from flooding and safeguard future development from the impacts of flood waters." Thus, the proposed project is in conformance with the Town's

		Comprehensive Plan and will be beneficial to the continuity of land uses in the Town of Princeville. **Attachment 15:** Recovery Efforts page in Town of Princeville's Final Comprehensive Plan and Edgecombe County Parcel Maps See Town of Princeville's Final Comprehensive Plan, at https://file.ac/jki-sdtGtUw/ and Edgecombe County's Comprehensive Plan 2014-2034, at https://cms5.revize.com/revize/edgecombenc/Departments/Planning,%20Inspections%20&%20E-911/Edgecombe%20County%20Comprehensive%20Plan%20June%202014.pdf
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	2	The soil analysis is available in the USDA NRCS Soil Surveys for the four structure sites. According to the USDA NRCS Soil Survey, the soil at Site 1 consists of Tarboro loamy sand, 0 to 6 percent slopes (TaB) and Wehadkee silt loam (Wh). According to the USDA NRCS Soil Survey, the soil at Sites 2 and 3 consist of Tarboro loamy sand, 0 to 6 percent slopes (TaB), Ballahack fine sandy loam (Ba), and Wehadkee silt loam (Wh). According to the USDA NRCS Soil Survey, the soil at Site 4 consists of Roanoke loam (Ro). The proposed project will repair floodgates at an existing levee and must be conducted at the four levee floodgate culvert locations. A slope stability analysis was completed and reviewed by USACE for the proposed new access roads' construction in order to determine their potential effects on levee slope stability. The Slope Stability Analysis Report (Report) evaluated existing conditions and expected post-construction slope stability conditions at fifteen (15) critical cross-sections related to stability along the riverside face along the landside face. The Report reviewed the attached Geotechnical Subsurface Investigation and hand auger borings, identifying four (4) primary soil strata comprising the levee at the requested critical cross-sections. At these critical cross-sections, the levee typically consists of (ordered from higher to lower elevations) (i) New and Existing Fill Soils; (ii) Soft Transitional Clay Layer; (iii) Undivided Coastal Plains

		Soils; and (iv) Cape Fear Formation Soils. With the exception of the Soft Transitional Clay Layer, the soils encountered within and directly below the levee generally consisted of coarse-grained soils (sands). Additionally, the groundwater table was generally encountered within the Undivided Coastal Plains soils and below the toe elevations of the levee. Due to the generally coarse-grained nature of a majority of the encountered soils and the absence of detected groundwater within the fine-grained soil layer, the Report concluded that the soil mass within and directly below the levee will behave as a drained system. Based on the above-described geometries, estimated soil conditions, and construction data, the slope stability analyses found existing conditions and post-construction Factors of Safety against slope instability were greater than 1.4 at all critical slip planes for all cross-sections. The following permits will be obtained, if applicable, prior to commencing work: USACE Clean Water Act (CWA) Section 404 Nationwide Permit #3 (Maintenance), USACE CWA Section 408 Permit, NC DWR CWA Section 401 Water Quality Certification, NC DWR Tar-Neuse River Riparian Buffer Authorization, NC DEMLR Erosion and Sediment Control Permit, NPDES Construction Stormwater Permit (NCG010000), Floodplain Development Permit and no-rise certification. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, measures will be implemented to ensure the proposed project will have no further impacts to the surrounding area including wetlands and the Tar River during construction. **Any fill material will come from an approved source, and applicable NC regulations on erosion control permit might apply. The soils will be confirmed to be "clean" fill and that it meets project requirements**

		prior to importing the material. The proposed project will be designed in a way to balance the grading and not require any off-site material, if possible. No soil removal is planned. However, should soil need to be removed from the site, it will be quantified and only exported to an approved site per NC requirements. **Attachment 9:** USDA NRCS Soil Surveys and **Attachment 16:** Slope Stability Analysis Report and Geotechnical Subsurface Investigation
Hazards and Nuisances including Site Safety and Noise	2	There is no change in land use proposed. Based on a site visit and review of available environmental records for the Subject Property and surrounding area, the Subject Property is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. Construction-related activities can cause short-term exposures such as fugitive dust and emissions. The proposed project will conform to NC Air Quality Management regulations during and following construction. It is recommended that construction activities are conducted in a manner to ensure acceptable air quality during these activities (e.g., through minimization of volatile organic compounds and nitrogen oxides emissions, mindful operation of gas-powered construction equipment to avoid prolonged idling, or fugitive dust management during construction). The contractor will use BMPs to reduce fugitive dust generation and diesel emissions. (See Clean Air Act section.) The proposed project activities are not expected to generate excessive noise during the short-term construction work nor long-term operation. Short-term construction noise will be limited to daytime hours. Construction equipment will be required to meet local sound control requirements. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Therefore, the proposed project is not

		expected to generate any hazards, nuisances or noise impacts. **Attachment 7**: NEPAssist and NC DEQ DWM Maps and Reports, EPA ECHO and Facility Reports, Site Inspection Documentation, and Historical Sanborn and Aerial Maps and **Attachment 23:** State Environmental Clearinghouse Comments
Energy Consumption	2	The proposed project would not cause an increase in long-term energy consumption. The proposed project will repair floodgates at an existing levee and construct access roads. The only anticipated increase in energy consumption will be temporarily during construction.

Environmental Assessment Factor	Impact Code	Impact Evaluation
SOCIOECONOMIC		
Employment and Income Patterns	2	The proposed project will not adversely affect employment opportunities or income patterns and is not likely to impact traffic and potential customer access to residences and businesses in the area, either during construction or regular operation of the pre-existing levee. There will be a temporary increase in jobs associated with the proposed project's construction activities. Before the 1999 Hurricane Floyd flooding, the Town was home to thirty-seven businesses, including auto mechanic and body shops, beauty parlors, barber shops, a lawyer's office, truck stops, a restaurant, and car dealers. Town officials were trying to secure a post office and bank. During the Hurricane Matthew storm event, a large majority of the 2,357 residents were displaced by floodwaters. Approximately 450 homes were destroyed during the hurricane and subsequent flooding, and an estimated 80 percent of the Town was underwater. Many of the Town's commercial and institutional structures were damaged. Princeville, for much of its history, has been so concerned about survival that historic preservation has been almost impossible. (See Town's website, at https://www.townofprinceville.com/town-of-princeville-nc-history.html.) The proposed project aims to mitigate floodwaters from accessing areas frequently inundated during storm events. These repairs are necessary to have a correctly

		functioning levee system to protect the residents and community from devastating flooding during and after future storm events. The mitigation of future flooding is essential to a strong and successful economy in the Town of Princeville.
Demographic Character Changes, Displacement	2	The proposed project will not cause any change in the demographic character of the area. The proposed project does not involve residential or commercial development activities. The proposed project will not deny any population within the local community potential for growth. The proposed project will not act as an isolation feature within the local area or community. Also, the proposed project does not present the potential to cause the displacement of individuals or families, destroy jobs, local businesses or public community facilities, or disproportionately affect particular populations. Rather, this proposed project will assist the Town of Princeville's residents and community to be protected from displacement due to devastating future storm events and flooding. Many of the Town of Princeville's residents have been displaced due to historic flooding and storm events with some housing remaining vacant since Hurricane Floyd. According to the Town's Final Comprehensive Plan, "[t]he Town is hopeful that residents displaced from flooding will return and that new housing that is planned will allow the Town to grow in the future." See Town of Princeville's Final Comprehensive Plan, at https://file.ac/jki-sdtGtUw/

Environmental Assessment Factor	Impact Code	Impact Evaluation
COMMUNITY FACILITIES AND SERVICES		
Educational and Cultural Facilities	2	The Princeville Elementary School, Princeville Montessori School, Princeville Child Development (preschool), and Princeville Museum Welcome Center are located in Princeville within one mile of the Subject Property. The Princeville Elementary School was completely destroyed during Hurricane Matthew. The proposed project will not introduce any new populations that would increase student enrollment in the district. Thus, the proposed project will not have an adverse impact on educational or cultural facilities. Rather, the proposed project aims to mitigate floodwaters from accessing areas frequently inundated during storm events. These repairs

		are necessary to have a correctly functioning levee system to protect the residents, the community, and their educational and cultural facilities from devastating future storm damage and flooding. **Attachment 17:** NEPAssist Map 1-mile Radius Schools and Google Maps Schools and Museums Search Results
Commercial Facilities	2	Portions of Princeville have been designated as an U.S. Dept of Treasury Opportunity Zone, which is an economic development tool used to spur economic development and job creation in distressed communities by providing tax benefits to investors. There are approximately thirty-one businesses located in the small town of Princeville (See https://www.chamberofcommerce.com/united-states/north-carolina/princeville/). Before the 1999 Hurricane Floyd flooding, the Town was home to thirty-seven businesses, including auto mechanic and body shops, beauty parlors, barber shops, a lawyer's office, truck stops, a restaurant, and car dealers. Town officials were trying to secure a post office and bank. Princeville's Town Hall, originally built as a schoolhouse in the 1920s, was badly damaged by the recent flood, and past floods destroyed many other older structures. (See https://www.townofprinceville.com/town-of-princeville-nc-history.html.) During Hurricane Matthew, many of the Town's commercial and institutional structures were damaged. According to the Princeville Recovery Plan (p. 138), "small businesses have a low probability of success in much of the town due to residual risk identified by the US Army Corps of Engineers regarding the status of the Princeville Levee." The proposed project aims to mitigate floodwaters from accessing areas frequently inundated during storm events. These repairs are necessary to have a correctly functioning levee system to protect the residents and community from devastating flooding during and after future storm events. The mitigation of future flooding is essential to a strong and successful commercial presence in the Town of Princeville. **Attachment 18:** Princeville U.S. Dept of Treasury Opportunity Zone Map, Chamber of Commerce Webpage, and Google Maps Businesses Search Results

Health Care and Social Services	2	The proposed project will not introduce any new development that would increase the demand for routine or emergency health services. ECU Health Edgecombe Hospital and Vidant Medical Center are located approximately 3 miles from Princeville in neighboring Tarboro. Freedom Hill Community Health Center and other nearby medical groups also serve Princeville residents. The Edgecombe County Department of Social Services and local organizations provide social services to the community. The proposed project involves repairing floodgates at an existing levee to mitigate flooding within the community which, in turn, will improve access and transportation for health care and social services during storm events. **Attachment 19:** Google Maps Health Care and Social Services Search Results
Solid Waste Disposal / Recycling	2	All construction wastes will be appropriately disposed of according to the type of waste generated and construction waste management practices in an appropriate, legally compliant receiving facility. The NC DEQ DWM Solid Waste Section (Section) commented that "[f]or any planned or proposed projects, it is recommended that during any land clearing, construction, the Town of Princeville and/or its contractors would make every feasible effort to minimize the generation of waste, to recycle materials for which viable markets exist, and to use recycled products and materials in the development of this project where suitable. **Any waste generated by and of the projects that cannot be beneficially reused or recycled must be disposed of at a solid waste management facility permitted by the Division. The Section strongly recommends that the Town of Princeville require all contractors to provide proof of proper disposal for all generated waste to permitted facilities.**" In addition, the NC DEQ notes that "[a]ny open burning associated with subject proposal must be in compliance with 15A NCAC 2D.1900." Further, demolition or renovations of structures containing asbestos material must be in compliance with 15A NCAC 20.1110(a)(1) which requires notification and removal prior to demolition. **Attachment 23:** State Environmental Clearinghouse Comments from NC DEQ

Waste Water / Sanitary Sewers	2	The proposed project will not introduce any new development that would generate waste water. Mitigative measures such as BMPs will be utilized during construction to prevent soil and/ or debris from being washed offsite. The proposed project is not anticipated to include the discharge of sewer to surfaces of the Subject Property or surrounding properties. The proposed project will not create waste water or affect waste water service in the area. Any additional waste water generated during construction activities would be temporary. Thus, the proposed project will not have an impact on local waste water/ sanitary sewers.
Water Supply	2	Water supply wells were not identified at the Subject Property. The proposed project will not increase demand for water, except as needed during short-term construction. According to NC DWR's Public Water Supply section, plan approval is required for any relocation of existing water lines during construction, and the construction, expansion, or alteration of a public water system. All public water supply systems must comply with State and federal drinking water monitoring requirements. Plans must be submitted when required to the DWR/Public Water Supply Section (see **Attachment 23**). The proposed project is not anticipated to adversely impact water supply and service in the area. Thus, the proposed project will not have an impact on local water supplies.
Public Safety - Police, Fire and Emergency Medical	2	The proposed project will not generate new demand for police, fire, or emergency services. The Princeville Volunteer Fire Department (Station 17), Tarboro Police Department, Edgecombe County Sheriff's Office, Edgecombe County Emergency Service, and other services are available in the area. During Hurricane Matthew, the Princeville Volunteer Fire Department was completely destroyed. The proposed project involves repairing floodgates at an existing levee to mitigate flooding within the community which, in turn, will protect the residents, community and facilities and also improve access and transportation for public safety services during and following storm events. **Attachment 20:** Google Maps Public Safety Services Search Results

Parks, Open Space and Recreation	2	The proposed project will not introduce new development that would generate demand for open space resources or impede open space access. There are three Town public parks, Riverside Heritage Park, Powell Park, and Mutual Park, listed in the Town of Princeville's Title IX: General Regulations, Chapter 96 Parks and Recreation, Section 96.001. Freedom Site and the Tar River Baptismal Site are important landmarks located in Princeville. According to the Princeville Community Floodprint, "Princeville has great potential to support a wide range of outdoor recreational activities. Connecting existing environmental assets and opportunities (such as the Tar River, Levee Trail, and canals) to adjacent community points of interest (such as Princeville Elementary and Heritage Park) will enable the Town to provide residents and visitors with an interconnected network of passive and active recreational features that contribute to community health." According to TrailLink, the "Princeville Heritage Trail, unveiled in 2002, commemorates the historical significance of this oldest city in the United States to have been incorporated by African Americans. The trail runs atop the grassy levee that follows the southern bank of a Tar River, providing scenic views of the waterway." The proposed project will not adversely affect this community treasure. The proposed project does not redevelop or change the land use of this area, but rather addresses floodgates needing repair along the existing levee. Rather, the proposed project activities will occur at four levee floodgate culvert locations and involves repairing floodgates and constructing access roads which will provide easier levee maintenance. Therefore, the proposed project is not anticipated to have adverse impacts to parks, open spaces or recreational areas. **Attachment 21:** Google Maps Parks Search Results, Planning Princeville's Heritage Trail, and Trail Map
Transportation and Accessibility	2	The proposed project will not introduce new development that generates continuing demand for transportation access or transportation services. The proposed project involves repairing floodgates at an existing levee to mitigate flooding within the community which, in turn, will improve access and transportation during and following storm events.

Environmental Assessment Factor	Impact Code	Impact Evaluation
NATURAL FEATURES		
Unique Natural Features, Water Resources	2	According to the NC NHP database query report, there are two Natural Areas within the Subject Property and within one mile, the TAR/Lower Tar River Aquatic Habitat and Tarboro Floodplain (see **Attachment 23**). In addition, the only Managed Area on the Subject Property is the USFWS Critical Habitat - Neuse River Waterdog. There are many Managed Areas identified within one mile of the Subject Property including 15 County and Town Open Areas, one NC WRC Tar River Game Land, 80 NC Hazard Mitigation Buyout Properties, 15 Conservation Reserve Enhancement Program Easements (NC Department of Agriculture, Division of Soil and Water Conservation), and one NC Division of Mitigation Services Easement. However, minimal impacts are anticipated due to the use of BMPs and compliance with all applicable federal, State and local laws, regulations, and permit requirements and conditions. The Tar River is located near the proposed project activities but there are no plans for surface water work. There are USACE verified streams located on the Subject Property. The proposed project will result in temporary and permanent impacts to 0.05 acres of stream. These impacts will consist of temporary dewatering and channel repair in stream. A USACE PJD and CWA Section 404 NWP #3 for Maintenance has been issued for the wetland and stream impacts (see **Attachment 10**). A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. NC DWR has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization. NC DWR CWA Section 401 Water Quality Certification(s) including 15A NCAC 02H .0500 certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323 and will be complied with, as applicable (see **Attachment 23**). Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if

		one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, measures will be implemented to ensure the proposed project will have no additional impacts to Unique Natural Features or Water Resources, including streams and the Tar River during construction. The proposed project activities will be completed in accordance with all applicable federal, State and local laws, regulations, and permit requirements and conditions. All necessary permits will be identified and obtained prior to commencing work and appended to the ERR. **Attachment 8**: USFWS Correspondence and USFWS Raleigh FO 10-step Package, NC WRC Correspondence and Submission Package, and NOAA NMFS Correspondence and Submission Package; **Attachment 10:** EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination; and **Attachment 23:** State Environmental Clearinghouse Comments
Vegetation, Wildlife	2	The proposed project was determined to have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat under USFWS jurisdiction, and a "no Eagle Act permit required" determination for the Bald Eagle. A self-certification letter and online project review certification package were completed and submitted to the USFWS Raleigh Field Office (FO) on August 15, 2022, and updated and resubmitted on September 8, 2022. NOAA NMFS identifies critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) in the Tar-Pamlico River. NCORR consulted with the NC WRC since the Tar-Pamlico River is identified as an inland AFSA under 15A NCAC 10C .0603. Also, NC WRC has designated the Tar River at this location as a PNA. NC WRC responded that the area is subject to the NC DWR Tar-Pamlico Basin Buffer Rules to ensure the cognizance of nutrient, sedimentation and erosion that may enter into this river basin. On September 6, 2022, NC WRC Coastal Coordinator, Ms. Maria Dunn,

		said "the NCWRC has no specific recommendations for the proposal other than noting the **important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system**." **NC WRC also requests that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area.** NCORR submitted a project review request package to the NOAA Fisheries Service for consultation under the Magnuson-Stevens Act and Wildlife Coordination Act for the Atlantic Sturgeon. On September 9, 2022, Mr. Pace Wilber, the South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division, responded to NCORR's request that "[b]ased on the description of the work and the locations being near but not within the Tar River, **we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates.**" The following permits will be obtained prior to commencing work: USACE CWA Section 404 NWP #3 (Maintenance) to authorize impacts to wetlands and streams, USACE CWA Section 408 Permit, a NC DWR Section 401 Water Quality Certification, and NC DWR Tar-Pamlico River Riparian Buffer Authorization. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. The project designs have been completed in accordance with agency input to minimize impacts to the environment and community. The proposed project is not anticipated to introduce nuisance plant species to the Subject Property such as invasive species, or plants that disrupt native plant communities. Native plants will be utilized during grass planting and landscaping activities at the Subject Property. Additionally, the proposed project will implement, as applicable, the following voluntary conservation measures to benefit wildlife and, in particular, pollinators: plant native trees, shrubs, and flowering plants in landscaping, use plants that bloom spring through fall, and

		remove/control invasive plant species present. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed project shall be obtained before commencing work and appended to the ERR when received from the permitting agencies. **Attachment 8**: USFWS Correspondence and USFWS Raleigh FO 10-step Package, NC WRC Correspondence and Submission Package, and NOAA NMFS Correspondence and Submission Package
Other Factors Climate Change EO 14008	1	According to NOAA, climate change is likely increasing the intensity of tropical cyclones. The Town of Princeville sits adjacent to the Tar River and, due to the elevation, has flooded six times between 1800 and 1958. Princeville is situated almost entirely within the Tar River floodplain. After a major flood in 1958, Town officials approached the USACE with a proposal to build a dam. In 1967, the Corps of Engineers built a three-mile long, $4 million earthen levee along the south bank of the Tar River to address the frequent and severe flooding. The levee could accommodate thirty-seven feet of water; since flood waters had never exceeded thirty-three feet, residents felt safe at last. In 1999, Hurricane Floyd's heavy rains allowed floodwaters to initially enter the Town through a number of ungated culverts located under a section of U.S. Highway 64. This record flood then overtopped the levee in one location, ultimately circumvented the levee at its north end, and inundated the Town with floodwaters. The Town was submerged and suffered catastrophic flooding and the damage or destruction of nearly all 1,000 residential structures. In some areas of Princeville, water rose 23 feet above the streets, and it took ten days for the waters to completely recede after river levels subsided enough that the floodwaters drained or could be pumped from the Town. (See https://www.townofprinceville.com/town-of-princeville-nc-history.html.) During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due in part to the functional failure of the Princeville floodgates located along the USACE levee bordering the Tar River. According to the Coastal Resilience Center, about 450

		homes were destroyed during the hurricane and subsequent flooding, and an estimated 80 percent of the Town was underwater. Many of the Town's commercial and institutional structures were damaged as well. The Town Hall, Princeville Elementary School, and the Princeville Volunteer Fire Department were completely destroyed. (See **Attachment 1**: Hurricane Matthew and Floyd Extent Map from June 2017 Meeting). The Princeville Levee succumbed to two major storms less than 20 years apart, Hurricane Floyd in 1999 and Hurricane Matthew in 2016, that overtopped its defenses with floodwaters, circumventing the levee, and inundating most of the Town. Following Hurricane Matthew, the Town of Princeville undertook to design construction upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Town of Princeville has selected the proposed project to assist its residents and community to be protected from future storm damage and flooding. (See Princeville, NC Hurricane Matthew Recovery Plan, November 2018, at https://coastalresiliencecenter.unc.edu/wp-content/uploads/sites/845/2018/12/Princeville-Recovery-Plan.pdf.) According to the EJSCREEN website's Climate Change Data, Princeville has a 0.46 average change in drought (5-year SPEI), no projected coastal flood hazards and no projected sea level rise. There is projected 100-year floodplain for large portions of Princeville. Princeville contains 0% properties at wildfire risk in 2022 and 79% properties at wildfire risk in 2052, and Princeville contains 78, 80, 91% properties at flood risk in 2022 and 77, 81, 90% properties at flood risk in 2052. The data from the EJSCREEN shows concerns for projected 100-year floodplain and flood risk with climate change. According to the Climate Mapping for Resilience and Adaptation Tool (CMRAT) data for the proposed project site's census tract, there is a relatively high risk (National Risk Index Ratings) of Extreme Heat and Drought, very low risk for Wildfire, and relatively high risk for Flooding, and very low risk for Coastal Inundation (**Attachment 22**). This data shows concerns for extreme heat, drought and flooding in the area with climate change.

		Attachment 22: EJSCREEN website's Climate Change Data for Princeville and CMRAT Data for Edgecombe County See https://www.climate.gov/news-features/understanding-climate/climate-change-probably-increasing-intensity-tropical-cyclones and CMRAT, at https://resilience.climate.gov/
Other Factors Environmental Justice Impacts	2	According to the EJSCREEN Report for Princeville, NC, there is an approximately 95% minority population and 58% low-income population, both of which are higher than State and national averages. According to the NC DEQ Community Mapping System, a portion of Princeville is located in the NC DEQ Potentially Underserved Block Groups 2019. Princeville is the first municipality in America incorporated by former slaves (1885). At the end of the Civil War, freed slaves occupied low-lying land in the Tar River floodplain, purchased plots from local landowners, and eventually incorporated the town as the "Town of Princeville." Princeville was built on low-lying ground in a bend in the Tar River. Because of its low-lying location, Princeville has been repeatedly flooded many times since its founding. (See USACE's Integrated Feasibility Report and Environmental Assessment.) In 1965-1967, USACE built a levee along the Tar River to address the frequent and severe flooding. Once this levee was constructed, the Town did not experience severe flooding again until Hurricane Floyd in 1999 (a greater than 0.2% event), when the Town suffered catastrophic flooding and the damage or destruction of nearly all 1,000 residential structures. Floodwaters initially entered the Town through a number of ungated culverts located under a section of U.S. Highway 64. This record flood then overtopped the levee in one location, ultimately circumvented the levee at its north end, and inundated the Town with floodwaters. Up to 20 feet of water stood in Princeville for nearly 10 days until river levels subsided enough that the floodwaters drained or could be pumped from the Town. As a result of the catastrophic flooding and historical significance of the Town, then-President Clinton issued Executive Order 13146, which established a "President's

		Council on the Future of Princeville, North Carolina." The Executive Order directed the President's Interagency Council to consider, among other things: "…the unique historic and cultural importance of Princeville in American history; the views and recommendations of the relevant State and local governments, the private sector, citizens, community groups and non-profit organizations, on actions that they could take to enhance the future of Princeville and its citizens; and, agency assessments and recommendations to repair and rebuild Princeville, and to the extent practicable, protect Princeville from future floods." The Council's report was submitted in August 2000, and recommended quickly bringing the citizens of Princeville home while rebuilding toward a more disaster-resistant community. The Council's report, EO 13146, EO 12898 and community and agency input were used to determine the best and most feasible storm damage prevention solutions for the future of Princeville. The Town of Princeville has selected the proposed project to assist its residents and community to be protected from future storm damage and flooding. (See Princeville, NC Hurricane Matthew Recovery Plan, November 2018 and USACE's Integrated Feasibility Report and Environmental Assessment.) The proposed project will not subject the community to environmental conditions that may have disproportional effects on low-income or minority populations. The proposed project does not site a nuisance or hazard in a potential environmental justice area, but rather repairs the levee floodgates to function properly. The proposed project aims to mitigate floodwaters from accessing areas frequently inundated during storm events. These repairs are necessary to have a correctly functioning levee system to protect the residents and community from devastating flooding during and after future storm events. The mitigation of future flooding is essential for the safety of residents in the Town of Princeville. Thus, the proposed project does not contribute to or promote environmental injustice. **Attachment 14**: EJSCREEN Standard Reports (Princeville and Four Structure Sites), EJSCREEN ACS Summary Reports, EJSCREEN Census 2010 Summary

		Reports, NC DEQ Community Mapping System Map, Executive Order 13146 - Princeville, and CDC Report for Edgecombe County
Other Factors	2	None identified.

Additional Studies Performed:

- Slope Stability Analysis Report (Revised Report of Engineering Evaluation), NV5, dated October 19, 2022
- Geotechnical Subsurface Investigation (Princeville Flood Risk Management Investigation and Design Analysis Report), Catlin Engineers and Scientists, dated October 2020
- Preliminary Engineering Report, Princeville Dike Floodgate Repairs, SM&E, dated September 14, 2017
- No-Rise Certification Package
- USACE Preliminary Jurisdictional Determination (PJD)
- Geotechnical Report, NV5 (TerraTech)

Related Previous Reports:

- Princeville Community Floodprint, NC State University Coastal Dynamics Design Lab, dated September 2020
- Effect of Repeated Rise and Fall of Water Level on Seepage-Induced Deformation and Related Stability Analysis of Princeville Levee, Engineering Geology, Volume 266, 105458 dated March 5, 2020
- Princeville, North Carolina Hurricane Matthew Recovery Plan dated November 2018 (Prepared by: Hurricane Matthew Disaster Recovery and Resilience Initiative, Coastal Resilience Center, and The University of North Carolina at Chapel Hill)
- Town of Princeville, NC, Hurricane Matthew Flood Assessment Study dated January 4, 2017
- USACE's Flood Risk Management, Integrated Feasibility Report and Environmental Assessment, Final Report dated December 2015 (Rev April 2016)
- USACE's Integrated Feasibility Report and Environmental Assessment dated March 2014, Final Report dated December 2015
- Tar River Basin Flood Analysis and Mitigation Strategies Study, NCDOT, dated May 1, 2014
- Town of Princeville, NC, Hazard Mitigation Plan dated September 27, 2004
- Executive Order 13146—President's Council on the Future of Princeville, North Carolina dated February 29, 2000

Field Inspection (Date and completed by)**:**

- December 19, 2021 by Bill Blankenship, Project Manager
- April 21, 2021 by Axiom Environmental, Inc. (Axiom)

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]**:**

- Fact Sheet #D1: Siting HUD-Assisted Projects in Accident Potential Zones
- US EPA NEPAssist Tool, at https://nepassisttool.epa.gov/nepassist/nepamap.aspx
- Airport Data and Information Portal (ADIP), at https://adip.faa.gov/agis/public/#/public
- USFWS CBRS Mapper, at https://www.fws.gov/CBRA/Maps/Mapper.html
- FEMA Map Service Center, at https://msc.fema.gov/portal/home and https://hazards.fema.gov/femaportal/prelimdownload/searchResult.action
- Hurricane Matthew and Floyd Extent Map from June 2017 Meeting, at https://coastalresiliencecenter.unc.edu/crc-projects/hurricane-matthew-recovery/hurricane-matthew-recovery-engagement/hurricane-matthew-recovery-princeville/
- US EPA, North Carolina Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants, at https://www3.epa.gov/airquality/greenbook/anayo_nc.html
- US EPA, Recent Updates: Federal Register Notices Published or Effective After March 31, 2023, at https://www3.epa.gov/airquality/greenbook/adden.html
- NC DEQ CAMA Counties, https://deq.nc.gov/about/divisions/coastal-management/about-coastal-management/cama-counties
- USFWS NWI Mapper, at https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/
- NC DEQ DWM Site Locator, at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=7dd59be2750b40bebebfa49fc383f688
- UNC University Libraries, Digitized Historical Maps: North Carolina Sanborn® Maps, at https://guides.lib.unc.edu/historicalmaps/sanborn
- Google Maps and Google Earth
- USFWS Raleigh Field Office
- NC NHP
- USFWS Information for Planning and Consultation (IPaC), at https://ipac.ecosphere.fws.gov/
- NC NHP Data Explorer Tool, at https://ncnhde.natureserve.org/
- USFWS and NOAA NMFS Critical Habitat Mappers
- Kirk Rundle, District 3 Fisheries Biologist, NC WRC
- Maria T. Dunn, Coastal Coordinator, NC WRC
- Pace Wilber, South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division
- Billy W. Standridge, Regulatory Specialist, USACE, Wilmington Civil Works District, South Atlantic Division

- USDA NRCS Soil Survey, at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
- National Register of Historic Places, at https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466
- NC HPOWEB, at https://nc.maps.arcgis.com/home/item.html?id=79ea671ebdcc45639f0860257d5f5ed7
- HUD Tribal Directory Assessment Tool (TDAT), at https://egis.hud.gov/tdat/
- Catawba Indian Nation
- Tuscarora Nation
- NC State Historic Preservation Office
- US EPA Map of Sole Source Aquifer Locations, at https://www.epa.gov/dwssa/map-sole-source-aquifer-locations
- NPS, Jeffrey Duncan, Southeast Regional Aquatic Ecologist, Wild and Scenic Rivers Coordinator
- Nationwide Rivers Inventory Map, at https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm
- North Carolina, National and Wild Scenic Rivers System, at https://www.rivers.gov/north-carolina.php
- Eligible and Suitable Rivers Map, at https://nps.maps.arcgis.com/apps/webappviewer/index.html?id=df0f4455dc5f41bb919a3a1a49c60174
- EJSCREEN Standard Report
- EJSCREEN ACS Summary Report
- EJSCREEN Census 2010 Summary Report
- NC DEQ Community Mapping, at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1eb0fbe2bcfb4cccb3cc212af8a0b8c8
- CDC, National Environmental Public Health Tracking Network, at https://ephtracking.cdc.gov/InfoByLocation/?FIPS=37065&topics=1,10,2,3,4,5,6,7,8
- Executive Order 13146—President's Council on the Future of Princeville, North Carolina, February 29, 2000, at https://www.presidency.ucsb.edu/documents/executive-order-13146-presidents-council-the-future-princeville-north-carolina
- USACE's Flood Risk Management, Integrated Feasibility Report and Environmental Assessment, Final Report, December 2015 (Rev. April 2016), at https://wwwcache.wral.com/asset/news/local/wral_investigates/2017/02/02/16495162/273389-ARMY_CORPS-_RevisedPrinceville_Final_Report_8Apr2016.pdf
- Town of Princeville, NC, Hurricane Matthew Flood Assessment Study, January 4, 2017, at 273390-Town_of_Princeville_-_Hurricane_Matthew_Flood_Assessment_Study_-_1.4.17.docx.pdf (wral.com)
- Tar River Basin Flood Analysis and Mitigation Strategies Study, NCDOT, May 1, 2014, at https://files.nc.gov/rebuildnc/documents/files/tar_mitigation_report.pdf
- Edgecombe County, at https://www.edgecombecountync.gov/departments/planning_inspections_and_e-911/planning_services.php
- Edgecombe County Parcel Maps, at https://taxpa.edgecombecountync.gov/paas/

- Comprehensive Plan 2014-2034, Edgecombe County, at https://cms5.revize.com/revize/edgecombenc/Departments/Planning,%20Inspections%20&%20E-911/Edgecombe%20County%20Comprehensive%20Plan%20June%202014.pdf
- Town of Princeville, at https://www.townofprinceville.com/
- Chamber of Commerce.com, at https://www.chamberofcommerce.com/united-states/north-carolina/princeville/
- Town of Princeville, North Carolina, Hazard Mitigation Plan, September 27, 2004, at https://cms5.revize.com/revize/edgecombenc/Departments/Planning,%20Inspections%20&%20E-911/PRINCEVILLE%20HAZ%20MIT.pdf
- Town of Princeville's Final Comprehensive Plan, at https://file.ac/jki-sdtGtUw/
- Town of Princeville Comprehensive Plan website, at https://princevilletownplan.com/
- Town of Princeville Ordinances, at https://www.townofprinceville.com/documents/princeville-nc-ordinance.html?start=0
- Princeville, North Carolina Hurricane Matthew Recovery Plan, November 2018 (Prepared by: Hurricane Matthew Disaster Recovery and Resilience Initiative, Coastal Resilience Center, and The University of North Carolina at Chapel Hill), at https://coastalresiliencecenter.unc.edu/wp-content/uploads/sites/845/2018/12/Princeville-Recovery-Plan.pdf
- Coastal Resilience Center, Hurricane Matthew Recovery – Princeville, at https://coastalresiliencecenter.unc.edu/crc-projects/hurricane-matthew-recovery/hurricane-matthew-recovery-engagement/hurricane-matthew-recovery-princeville/
- Design Teams Gather to Plan Princeville's Future, Residents Urged to Get Involved, August 22, 2017, at https://www.ncdps.gov/design-teams-gather-plan-princevilles-future
- Princeville Residents Debate Rebuilding After Matthew, WRAL News, October 24, 2016, at https://www.wral.com/princeville-residents-debate-rebuilding-after-matthew/16158676/
- After Matthew, Flaws in Levee Design Left Princeville Underwater — Again, WRAL News, February 2, 2017, at https://www.wral.com/after-matthew-flaws-in-levee-design-left-princeville-under-water-again/16492492/
- Princeville Had Plan, But Not Action, to Avoid Another Flood, WRAL News, October 24, 2016, at https://www.wral.com/weather/video/16496744/
- Despite Levee, Floodwaters Invade Princeville, WRAL News, October 13, 2016, at https://www.wral.com/depite-levee-floodwaters-invade-princeville/16110677/
- Study Finds Flooding Damage to Levees is Cumulative — And Often Invisible, Spring/ Summer 2020 NC State Engineering magazine, April 23, 2020, at https://www.engr.ncsu.edu/news/2020/04/23/study-finds-flooding-damage-to-levees-is-cumulative-and-often-invisible-2/
- Effect of Repeated Rise and Fall of Water Level on Seepage-Induced Deformation and Related Stability Analysis of Princeville Levee, Engineering Geology, Volume 266, 105458, March 5, 2020, at https://www.sciencedirect.com/science/article/abs/pii/S0013795219300122
- Nash Edgecombe Wilson (N.E.W.) Regional Hazard Mitigation Plan, November 2020, at https://cms5.revize.com/revize/edgecombenc/Departments/Emergency%20Services/Permits%20and%20Plans/NEW%20Regional%20HMP%20Final%20Plan.pdf

- N.E.W. Regional Hazard Mitigation Plan, 2015-2020, at https://nashcountync.gov/DocumentCenter/View/1680/NEW-Regional-Hazard-Mitigation-Plan-2015-2020?bidId=
- Edgecombe County, Hurricane Matthew Resilient Redevelopment Plan, May 2017, at https://files.nc.gov/rebuildnc/documents/matthew/rebuildnc_edgecombe_plan_combined.pdf
- U.S. Treasury Opportunity Zones, at https://www.irs.gov/newsroom/opportunity-zones
- North Carolina State Parks, at https://www.ncparks.gov/find-a-park
- Princeville Community Floodprint, NC State University Coastal Dynamics Design Lab, September 2020, at https://www.coastaldynamicsdesignlab.com/princeville-floodprint
- TrailLink, Princeville Heritage Trail, at https://www.traillink.com/trail/princeville-heritage-trail/
- NCORR Community Recovery/ Infrastructure (CRI) Program, Project Information Form (original), May 24, 2019
- NCORR Community Recovery/ Infrastructure (CRI) Program, Project Information Form (amended), March 9, 2021
- Climate Change is Probably Increasing the Intensity of Tropical Cyclones, NOAA, March 9, 2021, at https://www.climate.gov/news-features/understanding-climate/climate-change-probably-increasing-intensity-tropical-cyclones
- Climate Mapping for Resilience and Adaptation Tool, at https://resilience.climate.gov/
- State Environmental Clearinghouse

Attachments:

- **Attachment 1:** Design Plans, USACE Notice of Jurisdictional Determination, and Hurricanes Flood Extent Map;
- **Attachment 2:** NEPAssist Airport Map with 15,000-foot Buffer;
- **Attachment 3:** USFWS CBRS Map;
- **Attachment 4:** FEMA FIRMs;
- **Attachment 5:** NC Nonattainment/ Maintenance Status for Each County by Year for All Criteria Pollutants (EPA Green Book) and EPA NC Radon Level Map;
- **Attachment 6:** NC DCM Counties Map;
- **Attachment 7**: NEPAssist and NC DEQ DWM Maps and Reports, EPA ECHO and Facility Reports, Site Inspection Documentation, and Historical Sanborn and Aerial Maps
- **Attachment 8:** USFWS Correspondence and USFWS Raleigh FO 10-step Package, NC WRC Correspondence and Submission Package, and NOAA NMFS Correspondence and Submission Package
- **Attachment 9:** USDA NRCS Correspondence and Soil Surveys
- **Attachment 10:** EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination
- **Attachment 11:** SHPO Response; NCORR SHPO Submission Package, HUD TDAT Results, Catawba Indian Nation THPO Response; Catawba Indian Nation Chief and THPO Section 106 Review Packages; and Tuscarora Nation Chief and THPO Section 106 Review Packages

- **Attachment 12**: U.S. EPA Sole Source Aquifers Map
- **Attachments 13:** NEPAssist Maps of DOI NPS Nationwide Rivers Inventory and National Wild and Scenic Rivers System and Showing 3-mile Distance from Closest WSR to Proposed Project Site, and NPS Correspondence
- **Attachment 14**: EJSCREEN Standard Reports (Princeville and Four Structure Sites), EJSCREEN ACS Summary Reports, EJSCREEN Census 2010 Summary Reports, NC DEQ Community Mapping System Map, Executive Order 13146 - Princeville, and CDC Report for Edgecombe County
- **Attachment 15:** Recovery Efforts page in Town of Princeville's Final Comprehensive Plan and Edgecombe County Parcel Maps
- **Attachment 16:** Slope Stability Analysis Report and Geotechnical Subsurface Investigation
- **Attachment 17:** NEPAssist Map 1-mile Radius Schools and Google Maps Schools and Museums Search Results
- **Attachment 18:** Princeville U.S. Dept of Treasury Opportunity Zone Map, Chamber of Commerce Webpage, and Google Maps Businesses Search Results
- **Attachment 19:** Google Maps Health Care and Social Services Search Results
- **Attachment 20:** Google Maps Public Safety Services Search Results
- **Attachment 21:** Google Maps Parks Search Results, Planning Princeville's Heritage Trail, and Trail Map
- **Attachment 22:** EJSCREEN website's Climate Change Data for Princeville and CMRAT Data for Edgecombe County
- **Attachment 23:** State Environmental Clearinghouse Comments

List of Permits to Be Obtained (later identified permits will be added to the ERR)**:**
All applicable federal, State, and local permits will be identified and obtained prior to starting construction.

- USACE CWA Section 404 Nationwide Permit #3 for Maintenance
- USACE CWA Section 408 Permit (USACE-owned structure)
- NC DWR CWA Section 401 Water Quality Certification
- NC DWR Tar-Pamlico River Riparian Buffer Authorization
- NC DEMLR Erosion and Sediment Control Permit (letter of consent submitted to Edgecombe County)
- NC DOT Driveway Permits
- Edgecombe County Floodplain Development Permit and No-rise Certification

Public Outreach [24 CFR 50.23 & 58.43]**:**
(There have been numerous meetings on the proposed project with key meetings noted below.)

- The FONSI/NOI-RROF/Final Notice and Public Explanation of a Proposed Activity in a 100-year Floodplain and Wetland was published in the Rocky Mount Telegram newspaper on April 20, 2023 and sent via Federal Express and email to Interested Agencies, Parties and Individuals. See attached FONSI/NOI-RROF/Final Notice and Public Explanation of a Proposed Activity in a 100-year Floodplain and Wetland, affidavit, and distribution list.
- The 24 CFR 55.20 Early Notice was published in the Rocky Mount Telegram newspaper on December 8, 2022, and sent via Federal Express and email to Interested Agencies, Parties and Individuals. (See **Attachment 10**.)
- The proposed project's Draft EA was submitted to the NC State Environmental Clearinghouse for agency review from August 18, 2022 to September 19, 2022. The Early Notice and FONSI/NOI-RROF/Final Notice and Public Explanation of a Proposed Activity in a 100-year Floodplain and Wetland were also submitted to the NC State Environmental Clearinghouse for agency review and comment.
- Town Open Houses, July 21, July 29, and August 16, 2017
- Community Design Workshop, August 25-29, 2017
- Town of Princeville Planning Board, September 17, 2020 (approved Final Princeville Community Floodprint)
- Town of Princeville Board of Commissioners, September 21, 2020 (formally adopted Final Princeville Community Floodprint)
- Princeville Comprehensive Plan and Ordinance Update, Steering Committee 1 Presentation, November 4, 2020
- Princeville Comprehensive Plan and Ordinance Update, Board of Commissioners Presentation, December 20, 2020
- Princeville Comprehensive Plan and Ordinance Update, Public Meeting 1, February 11, 2021
- Princeville Comprehensive Plan and Ordinance Update, Public Meeting 2 Boards, July 10, 2021
- Town of Princeville Budget Hearing 2021-2022, June 21, 2021

Cumulative Impact Analysis [24 CFR 58.32]**:**

The proposed project and its potential environmental impacts were evaluated in accordance with 24 CFR 58 requirements to determine whether it meets federal, State, and local environmental standards. This evaluation included a review of cumulative impacts on the environment resulting from the proposed project's incremental impacts combined with other past, present, and reasonably foreseeable future actions undertaken by any party. The proposed project does not negatively impact the surrounding environment or Subject Property and will not have an adverse environmental or health effect on end users.

The Town of Princeville has selected the proposed project to assist its residents and community to be protected from future storm damage and flooding. There has been widespread support from the leadership and citizens of Princeville to regain improved functionality of the levee system through

the proposed project. Hurricane Matthew and the destruction caused from suffering through multiple catastrophic disasters in the span of less than 20 years has taken a major economic and mental toll on the Town of Princeville. The Town, Edgecombe County, along with State and federal partners have hosted multiple community engagement meetings and design workshops. USACE, university students, professors, and private engineering firms have all presented data on ways to effectively improve the design of the Princeville Levee to better protect the community. The benefits of this proposed project to the community of the Town of Princeville cannot be understated.

Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]:

The main alternative is the "No Action" Alternative for the current proposed action. During the Hurricane Matthew storm event, the floodgate structures were submerged underwater for at least five days. The underwater submersion of these floodgates caused weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. According to the Project Information Form, the proposed project objective is to "[e]valuate the existing flood risk reduction system at Princeville; its current level of flood flow exclusion, and where needed; provide a cost-effective technically-sound and environmentally acceptable plan to better promote the exclusion of floodwaters from the town to a frequency substantially lower than that which currently exists, and so doing reduce monetary flood inundation damage potential by at least 75%." Further, the proposed project design "restores the effectiveness of the floodgates to prevent [the] Tar River overtopping, back flow, and channel control of the outflow of stormwater from the community's stormwater collection and discharge systems."

Numerous alternative and concerted projects have been considered to address Princeville's historic flooding over the years. (See Town of Princeville's Final Comprehensive Plan.) As a result of Hurricane Floyd in 1999, Princeville experienced catastrophic flooding and the damage or destruction of nearly all 1,000 residential structures. Floodwaters initially entered the Town through a number of ungated culverts located under a section of U.S. Highway 64. This flood of record then overtopped the levee in one location and ultimately circumvented the levee at its north end, inundating the Town with floodwaters. Up to twenty feet of water stood in Princeville for nearly 10 days until river levels subsided enough that the floodwaters drained or could be pumped from the town.

In the aftermath of Hurricane Floyd, President Clinton issued Executive Order 13146, which established a President's Council on the Future of Princeville, North Carolina to consider "…the unique historic and cultural importance of Princeville in American history; the views and recommendations of the relevant State and local governments, the private sector, citizens, community groups and non-profit organizations, on actions that they could take to enhance the future of Princeville and its citizens; and, agency assessments and recommendations to repair and rebuild Princeville, and to the extent practicable, protect Princeville from future floods." The Council's report was submitted in August 2000, and recommended quickly bringing the citizens of Princeville home while rebuilding toward a more disaster-resistant community. The Council's report, EO 13146, EO 12898, and community and agency input were used to determine the best

and most feasible storm damage prevention solutions for the future of Princeville. The Town of Princeville has selected the proposed project to assist its residents and community to be protected from future storm damage and flooding.

In 2001, USACE was authorized and funded to prepare a feasibility study to address flood risk management issues. Multiple structural and non-structural measures and alternatives were examined during the course of the feasibility study. The Feasibility Scoping Meeting, held in 2006, discussed the likelihood that many of the most responsive plans might lack economically-justified alternatives that would meet the current guidance requiring National Economic Development (NED) justification. At that time, the entire vertical team agreed to pursue alternatives that addressed all areas of flood risk, including extending the existing levee. The Final Array of Alternatives consisted of a No-Action Plan and an array of structural and non-structural alternatives. Each alternative was formulated to provide an incremental solution to flood risk at the least cost for a given increment of flooding, as well as a suite of non-structural measures considered to be critical to the success of each alternative. These non-structural measures included a flood warning and evacuation plan, continued floodplain management and updating of local building and zoning codes, and a flood risk management education and communication plan (for both the community and local schools). All of these non-structural components were ultimately deemed essential for an adequate flood risk management strategy for the Town and would substantially reduce remaining levels of flood risk after construction or implementation of any structural plan elements.

Consideration of all factors evaluated resulted in a plan that was most responsive to flood risk, while not causing unacceptable impacts to adjacent and downstream assets. According to the April 2016 Final Report, six alternatives were identified and evaluated, including no action and 1) Flap gate additions and culvert modifications; 2) Flap gates, Hwy 33/64 interchange raising, and low shoulder levee on Hwy 64; 3) Flap gates, Hwy 33/64 interchange raising, and higher shoulder levee on Hwy 64; 4) Flap gates, Hwy 33/64 interchange raising, higher shoulder levee on Hwy 64, plus levee extension and Hwy 258 & 111 raises & ltd Shiloh Farm Road raises; 5) Flap gates, Hwy 33/64 interchange raising, higher shoulder levee on Hwy 64, plus levee extension, Hwy 258 & 111 raises & ltd Shiloh Farm Road raises, and other measures such as raise bridges; and 6) Flap gates, Hwy 33/64 interchange raising, higher shoulder levee on Hwy 64, plus levee extension, Hwy 258 & 111 raises & ltd Shiloh Farm Road raises, and other measures such as raise bridges at higher elevation. Alternatives 1 through 3 did not meet the basic objectives established for a project for flood risk reduction, and left considerable life and safety threat unresolved, thus, were incorporated as necessary elements of Alternatives 4 through 6, in order to provide a complete and substantial flood risk management system. After a full evaluation of various opportunities/alternatives and their costs and impacts, Alternative 4 was selected as the recommended plan by the USACE.

A five-day Community Design Workshop was held on August 25-29, 2017 as an intensive design-based event in addition to Town open houses on July 21, July 29, and August 16, 2017. The Princeville Recovery Plan and the Coastal Resilience Center Website discusses the workshops, alternatives, and community input received. The open houses were held for residents of Princeville in order to provide them with the time and space needed to talk in depth with UNC Coastal Resilience Center's Hurricane Matthew Disaster Recovery and Resilience Initiative (HMDRRI) Team members about greenspace, affordable housing, infrastructure, mitigation, health issues, and

other recovery topics important to them. The meetings also served to create the Town's vision for the recovery plan and to identify associated goals. Members of the community also participated in discussions with the design team throughout the five-day workshop and associated field visits. This resulted in the Princeville Community Floodprint Resiliency Plan and the Recovery Plan. Town staff worked with the municipal planning team at Stewart, Inc. to craft a new Town Comprehensive Plan that builds on these efforts and engages a broad spectrum of the community to develop implementable strategies towards the community's goals. The Town's Final Comprehensive Plan noted thirteen ongoing recovery projects since 2017 including 1) stormwater repair project; 2) *this floodgate project*; 3) USACE levee expansion, extension, and associated improvements; 4) Town Hall rehabilitation and wet floodproofing; 5) senior center reconstruction; 6) museum upgrades and interactive space; 7) Heritage Park rehabilitation and walking trail; 8) farmers' market construction; 9) 53-acre development; 10) 88-acre land use planning; 11) residential structures' elevation; 12) Floodprint project's resilient development blueprint; and 13) water and wastewater system upgrades. The repair of the levee floodgates is listed as an ongoing disaster recovery effort (#2) in the Town's Final Comprehensive Plan and notes that the floodgates will "help protect the Town from flooding and release stormwater to the Tar River during normal events." Levee repair is prioritized as the #1 project in the Edgecombe County, Hurricane Matthew Resilient Redevelopment Plan, May 2017.

No Action Alternative [24 CFR 58.40(e)]:

The No Action Alternative is not considered feasible since Princeville has been historically subjected to devastating flooding and storm damage, and action is critically necessary to protect the residents and community from future storm events. One concern with the No Action Alternative is the potential decertification of the levee by FEMA which would result in virtually the whole town being mapped as 100-year floodplain and subsequent requirement for the costly elevation of structures and flood insurance for homeowners according to the Princeville Recovery Plan. The Council's report, EO 13146, EO 12898, and community and agency input were used to determine the best and most feasible storm damage prevention solutions for the future of Princeville. With the No Action Alternative, the Town of Princeville would have to redevelop and re-evaluate options to assist its residents and community to be protected from future storm damage and flooding. Meanwhile, the community would be in danger of flooding and the levee's functional failure during future storm events.

The existing levee segments of the proposed project were constructed between 1965 to 1967 by the USACE but are maintained by Edgecombe County. According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. When levees fail, or are overtopped, the results can be catastrophic. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. Deterioration of the levee and, in particular, these sections addressed by the proposed project, have been studied and discussed in the Preliminary Engineering Report and Effect of Repeated Rise and Fall of Water Level on Seepage-Induced Deformation and Related Stability Analysis of Princeville Levee, Engineering Geology, Volume 266, 105458, March 5, 2020. During the Preliminary Engineering Report's observations and conversations with

Edgecombe County personnel, the structures were ascertained to have sustained damage over the years due to periodic flooding and weathering over time. As shown in Appendix I of the Preliminary Engineering Report, the concrete headwalls have begun to deteriorate, and the riprap blankets have been washed out. Without the riprap blankets, the soil foundations of the headwalls have been undercut, sustained erosion is occurring due to lack of energy dissipation at the outlet, and the flapper gates fail to perform properly. Modifications to the riprap erosion blankets are required to improve the functionality of the flapper gates. During the Hurricane Matthew storm event, the floodgate structures were submerged underwater for at least five days resulting in weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. The proposed repairs are intended to restore the structures to their former as-built condition according to the Preliminary Engineering Report. Thus, the No Action Alternative is not feasible in relation to the desired objective.

Summary of Findings and Conclusions:

The preceding Statutory Checklist and Environmental Assessment Checklist, and the discussion below, document that the proposed work will comply with regulations in 24 CFR part 58 and that there are no direct or cumulative adverse environmental impacts anticipated as a result of the proposed action.

Mitigation Measures and Conditions [40 CFR 1505.2(c)]:

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Any change to the approved scope of work will require re-evaluation by the Certifying Officer for compliance with NEPA and other laws and Executive Orders.

This review does not address all federal, state, and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state, and local laws. Failure to obtain all appropriate federal, state, and local environmental permits and clearances may jeopardize federal funding. Guidelines, recommendations, and requirements identified during agency and the State Environmental Clearinghouse inter-agency review shall be considered and required, where applicable.

Law, Authority, or Factor	Mitigation Measure
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Any air quality impacts would be short-term and localized during construction and, therefore, no significant adverse impacts to air quality are anticipated. Construction-related activities (land clearing, grading) can cause short-term exposures to sensitive receptors from particulate matter (PM 10) such as fugitive dust and emissions from construction equipment. Mitigation measures for dust control will be implemented to reduce potential impacts to air quality during construction. The proposed project will conform to NC Air Quality Management regulations during and following construction. The contractor will use Best Management Practices (BMPs) to reduce fugitive dust generation and diesel emissions. BMPs can include wetting the grading site during dry conditions; maintaining vegetative cover as much as possible around cleared areas; a water truck to stabilize potential dust during high traffic times or high wind days on heavily-travelled access roads and storage areas; and operating construction vehicles and machinery at reduced speeds to reduce soil disturbance and fugitive dust potential. BMPs to mitigate the generation of emissions during construction include limiting use of vehicles and other machinery to construction hours only and removal once construction is completed.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Short-term construction noise will be limited to daytime hours. Construction equipment will be required to meet local sound control requirements. The proposed project activities will be completed in accordance with all applicable federal, State and local laws, regulations, and permit requirements and conditions.
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402 **Vegetation, Wildlife**	The proposed project was determined to have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat under USFWS jurisdiction, and a "no Eagle Act permit required" determination for the Bald Eagle. A self-certification letter and online project review certification package were completed and submitted to the USFWS Raleigh Field Office (FO) on August 15, 2022, and updated and resubmitted on September 8, 2022. No official comment has been received by USFWS. ***The Applicant will update this determination annually for multi-year activities.***

	NC WRC responded that the area is subject to the NC DWR Tar-Pamlico Basin Buffer Rules to ensure the cognizance of nutrient, sedimentation and erosion that may enter into this river basin. On September 6, 2022, NC WRC Coastal Coordinator, Ms. Maria Dunn, said "the NCWRC has **no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system**." **NC WRC also requests that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area.** On September 9, 2022, Mr. Pace Wilber, the South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division, responded to NCORR's request that "[b]ased on the description of the work and the locations being near but not within the Tar River, **we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates.**" The following permits will be obtained prior to commencing work: USACE CWA Section 404 NWP #3 (Maintenance) to authorize impacts to wetlands and streams, USACE CWA Section 408 Permit, a NC DWR Section 401 Water Quality Certification, and NC DWR Tar-Pamlico River Riparian Buffer Authorization. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. The project designs have been completed in accordance with agency input to minimize impacts to the environment and community. The proposed project is not anticipated to introduce nuisance plant species to the Subject Property such as invasive species, or plants that disrupt native plant communities. Native plants will be utilized during grass planting and landscaping activities at the Subject Property. Additionally, the proposed project will implement, as applicable, the following

	voluntary conservation measures to benefit wildlife and, in particular, pollinators: plant native trees, shrubs, and flowering plants in landscaping, use plants that bloom spring through fall, and remove/control invasive plant species present. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed project shall be obtained before commencing work and appended to the ERR when received from the permitting agencies.
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Compliance with 24 CFR 55 and EO 11998 is required since the proposed project activities occur in areas classified as shaded Zone "X" (500-year floodplain), Zone "AE" (100-year floodplain), and FEMA-designated regulatory floodway. A Floodplain Development Permit and no-rise certification for the proposed project were obtained and concluded that it will not increase base flood elevations within the FEMA floodplain. The EO 11988 Floodplain Management Determination is included in **Attachment 10**.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Compliance with 24 CFR 55 and EO 11990 is required since some proposed project activities occur in wetlands. There are federally NWI-mapped wetlands and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub) located on the Subject Property. A USACE PJD and CWA Section 404 NWP #3 for Maintenance has been issued for the wetland and stream impacts. NC DWR has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization. A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, measures will be implemented to ensure the proposed project will have

	no further impacts to wetlands and the Tar River during construction. The proposed project activities will be completed in accordance with all applicable federal, State and local laws, regulations, and permit requirements and conditions. All necessary permits will be identified and obtained prior to commencing work and appended to the ERR. The 8-step EO 11990 Protection of Wetlands Determination was completed pursuant to 24 CFR 55.20 and is included in **Attachment 10**.
Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)	NC DEQ requires notification of the proper regional office if "orphan" USTs are discovered during any excavation operation (see **Attachment 23**). Any soils excavated during construction that show evidence of petroleum contamination, such as stained soil, odors, or free product must be reported immediately to the local Fire Marshal to determine whether explosive or inhalation hazards exist and the Washington Regional Office UST Section. Any petroleum-contaminated soils must be handled in accordance with all applicable regulations (see **Attachment 23**).
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	Any fill material will come from an approved source, and applicable NC regulations on erosion control permit might apply. The soils will be confirmed to be "clean" fill and that it meets project requirements prior to importing the material. The proposed project will be designed in a way to balance the grading and not require any off-site material, if possible. No soil removal is planned. However, should soil need to be removed from the site, it will be quantified and only exported to an approved site per NC requirements.
Solid Waste Disposal / Recycling	The NC DEQ DWM Solid Waste Section (Section) commented that "[f]or any planned or proposed projects, it is recommended that during any land clearing, construction, the Town of Princeville and/or its contractors would make every feasible effort to minimize the generation of waste, to recycle materials for which viable markets exist, and to use recycled products and materials in the development of this project where suitable. **Any waste generated by and of the projects that cannot be beneficially reused or recycled must be disposed of at a solid waste management facility permitted by the Division. The Section strongly recommends that the Town of Princeville require all contractors to provide proof of**

	proper disposal for all generated waste to permitted facilities." In addition, the NC DEQ notes that "[a]ny open burning associated with subject proposal must be in compliance with 15A NCAC 2D.1900." Further, demolition or renovations of structures containing asbestos material must be in compliance with 15A NCAC 20.1110(a)(1) which requires notification and removal prior to demolition.
Unique Natural Features, Water Resources	There are USACE verified streams located on the Subject Property. The proposed project will result in temporary and permanent impacts to 0.05 acres of stream. These impacts will consist of temporary dewatering and channel repair in stream. A USACE PJD and CWA Section 404 NWP #3 for Maintenance has been issued for the wetland and stream impacts (see **Attachment 10**). A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. NC DWR has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization. NC DWR CWA Section 401 Water Quality Certification(s) including 15A NCAC 02H .0500 certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323 and will be complied with, as applicable (see **Attachment 23**). Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, measures will be implemented to ensure the proposed project will have no additional impacts to Unique Natural Features or Water Resources, including streams and the Tar River during construction. The proposed project activities will be completed in accordance with all applicable federal, State and local

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	laws, regulations, and permit requirements and conditions. All necessary permits will be identified and obtained prior to commencing work and appended to the ERR.

Determination:

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]
The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]
The project may significantly affect the quality of the human environment.

Preparer Signature: Andrea Sievers Date: 4/18/23

Name/Title/Organization: Andrea Gievers, Environmental SME, NCORR

Certifying Officer Signature: DocuSigned by: Laura H. Hogshead D8561D53476B499... Date: 4/18/2023

Name/Title: Laura H. Hogshead, Director, NCORR

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

ATTACHMENT 1:

Proposed Project Location

Design Plans,
USACE Notice of Jurisdictional Determination, and
Hurricanes Matthew and Floyd Flood Extent Map

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PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

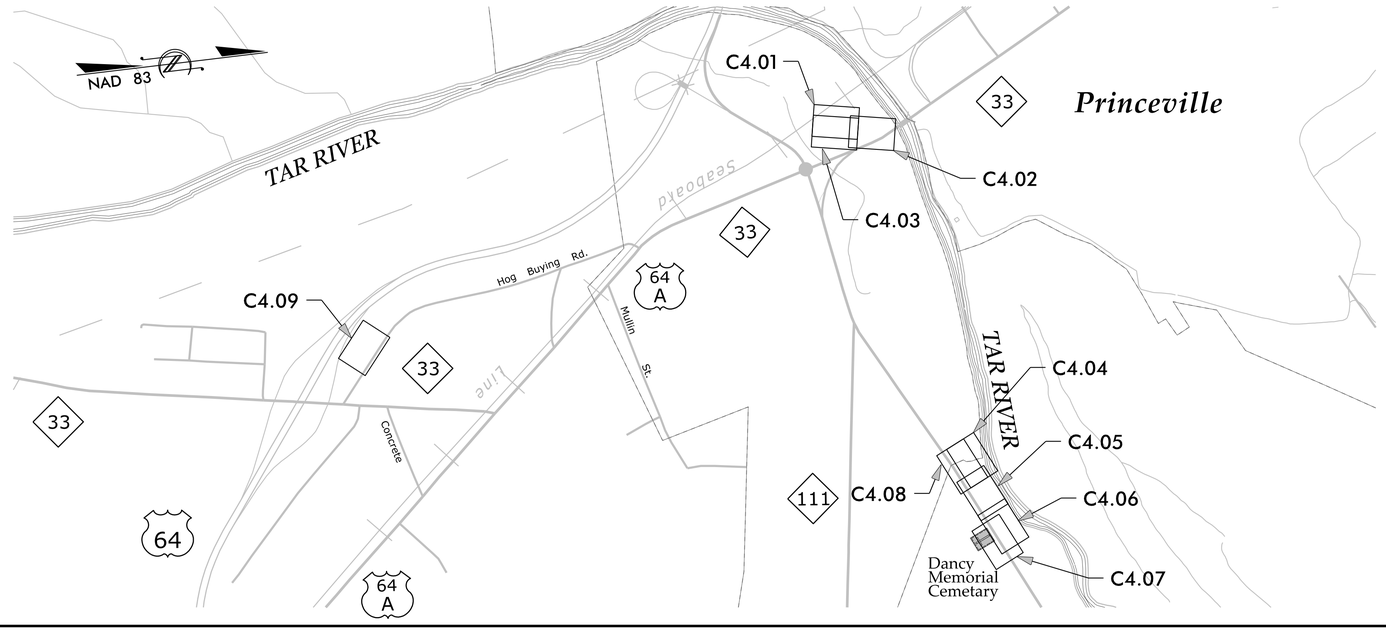
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

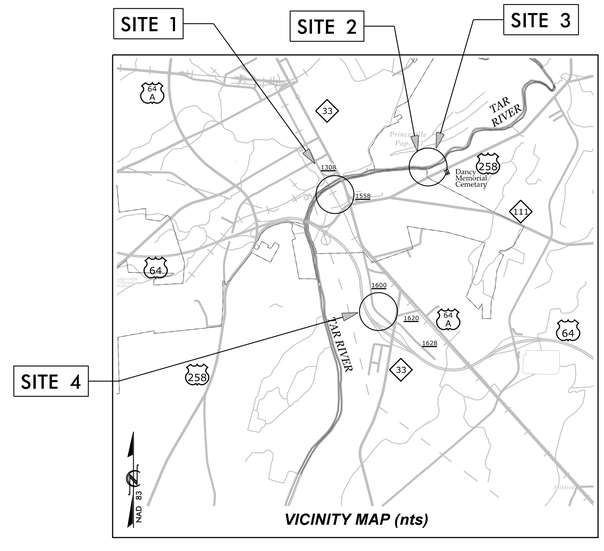
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

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CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

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General Notes

1. All construction shall be in accordance with the latest edition of "NCDOT 2018 Standards and Specifications for Roads and Structures" and "NCDOT 2018 Roadway Standard Drawings" and with the standards and specifications of the Town of Princeville.
2. Existing utilities noted at the time of the field survey are shown for size, material, type, and relative location only. This plan is not a comprehensive inventory or an as-built survey of existing site utilities. The Contractor is to determine the existence and location of all utilities within the work area.
3. The Contractor shall be responsible for the location and/or relocation of all utilities in coordination with the appropriate utility agency or company. The Contractor is required to call 'The NC One Call Center' (1-800-632-4949) before digging.
4. The Contractor shall be responsible for repairing or replacing any existing site features, facilities or improvements that are damaged during the demolition or construction operation that are not indicated to be removed or abandoned.
5. Install tree protection fence and clearing and grubbing erosion control measures prior to any demolition and/or construction activity on site.
6. All disturbed slopes must be stabilized within the time frame indicated on the Ground Stabilization Table (see Erosion Control Plan). All other disturbed areas must be stabilized with the time frame indicated on the Ground Stabilization Table.
7. Contractor is to field locate proposed site improvements that require demolition of existing structures for verification by the Engineer prior to demolition.
8. Construction debris to be removed from the site and properly disposed of by the Contractor. All project waste and demolition materials to be disposed of in accordance with applicable NCDEQ Standards. Contractor to provide written verification of proper disposal to owner.
9. Any buried waste, construction debris or trash which is found during the construction operation shall be thoroughly excavated and removed from the site to an approved facility prior to the placement of any permanent fill material or pavement construction.
10. Contractor to prevent surface and air movement of dust from disturbed soil surfaces through sprinkling until it is wet. Contractor is to maintain dust control measures through dry weather periods until all disturbed areas have been stabilized.
11. All stockpile areas and temporary spoil areas shall be protected by silt fence.
12. All site work shall produce surface grades adequate for storm water runoff to prevent standing water on all developed areas and to meet existing grades in smooth transition.
13. To minimize damage to existing trees, the Contractor shall cut, rather than tear roots.
14. The Contractor is responsible for furnishing and maintaining all work zone signage relative to the work to be performed for the location indicated on the project plan set. All barricading and signage shall conform to the latest edition of "NC-Manual on Uniform Traffic Control Devices for Work Zone."
15. An on-site pre-construction meeting must be held prior to any construction activity.
16. All existing site features shall remain unless noted to be removed or demolished.
17. Construction staging and access limits to be approved by the Owner prior to any construction activity on site.
18. The Contractor shall be responsible for all construction staking. Horizontal and vertical site control coordinates and elevations are shown on sheet C2.01. The contractor is responsible for all site layout, construction staking, and as-built surveys.
19. Topography, existing conditions, easement, and right-of-way survey conducted by Sungate Design Group, PA on 4/6/2021, 4/8/2021, 4/9/2021, and 5/19/2021. Coordinates shown on plan are referenced to NAD 83 (2011) horizontal datum and NAVD 88 vertical datum.
20. The contractor shall note that the drawings may not show every offset, transition, fitting, etc. that may be required. The contractor shall install such standard appurtenances as required to closely follow the grades and alignments depicted on the plans.
21. If departures from the specifications or drawings are deemed necessary by the contractor, details of such departures and reasons therefore shall be submitted to the Owner for review. No departures from contract documents shall be made without the written permission of the Owner.
22. **All dimensions and grades shown on the plans shall be field verified by the Contractor prior to the start of construction in the area. The Contractor shall notify the Owner if any errors or discrepancies exist between the project plans and the field conditions that require plan or grade modification prior to the start of construction of the improvements in the area. No extra compensation shall be paid to the Contractor for any work redone due to grades or dimensions shown incorrectly on these plans, if such notification is not provided to the Owner prior to the initiation of the subject construction and receipt of authorization to proceed with the plans construction as revised by the Engineer.**
23. Construction operations shall be limited to the hours during the day as specified by the Owner.
24. Site access and construction shall be limited to the areas shown on the construction drawings. Any damage or excavation of the existing levee is prohibited.

Riprap Gradation Requirements						
		% Finer by Weight				
		Class of Riprap				
Weight (lbs)	Size (in)	A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GENERAL NOTES

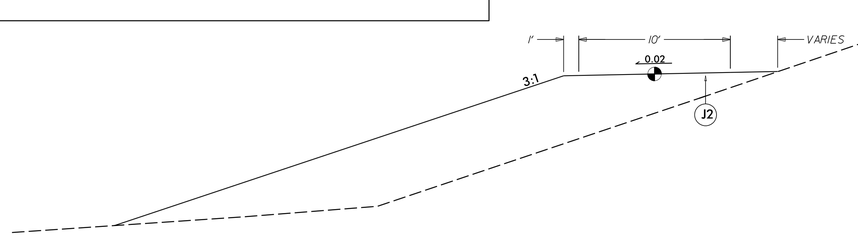
PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C20I
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.02

9/9/2021
Floodgate_Rdy_psh_C102.dgn
Layout

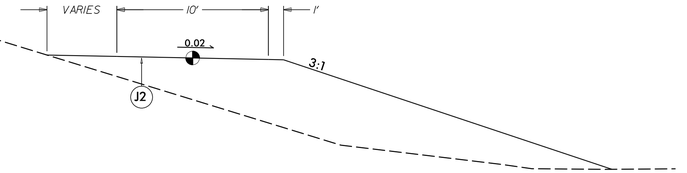
DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

J2	PROP. 6" AGGREGATE BASE COURSE.



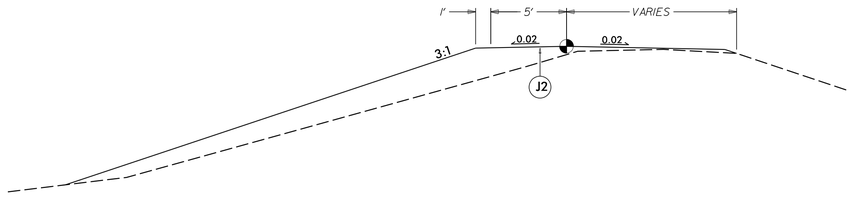
TYPICAL SECTION NO. 1

10+00 to 16+20 -AR1-
10+00 to 12+80 -AR3-
16+10 to 21+80 -AR3-
10+00 to 10+50 -AR5-



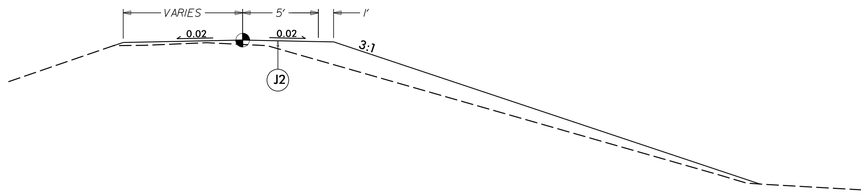
TYPICAL SECTION NO. 2

10+30 to 12+30 -AR2-
22+30 to 22+70 -AR3-
10+10 to 10+15 -AR3B-
10+20 to 10+25 -AR3B-
10+30 to 10+35 -AR3B-
10+60 to 10+70 -AR5-
10+80 to 13+20 -AR5-



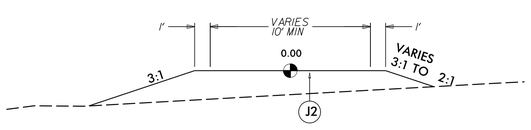
TYPICAL SECTION NO. 3

16+20 to 16+70 -AR1-
12+80 to 13+20 -AR3-
15+60 to 16+10 -AR3-
21+80 to 22+20 -AR3-



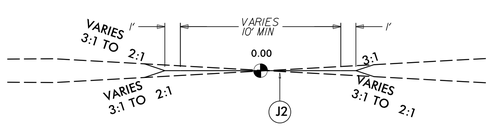
TYPICAL SECTION NO. 4

12+30 to 12+80 -AR2-
22+20 to 22+30 -AR3-
13+20 to 13+70 -AR5-



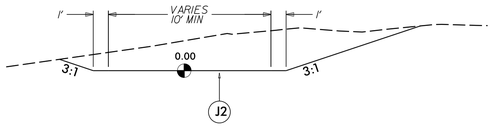
TYPICAL SECTION NO. 5

10+10 to 10+60 -AR1A-
10+10 to 10+40 -AR2A-
22+70 to 23+17 -AR3-
10+10 to 10+80 -AR3A-
10+15 to 10+20 -AR3B-
10+35 to 10+50 -AR3B-
10+15 to 10+30 -AR4-
10+10 to 10+40 -AR5A-



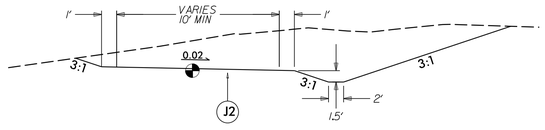
TYPICAL SECTION NO. 6

10+40 to 10+70 -AR2A-
10+25 to 10+30 -AR3B-
10+50 to 10+60 -AR3B-
10+30 to 10+50 -AR4-
10+50 to 10+60 -AR5-
10+70 to 10+80 -AR5-
10+40 to 10+50 -AR5A-



TYPICAL SECTION NO. 7

10+50 to 10+70 -AR4-
10+50 to 11+00 -AR4A-



TYPICAL SECTION NO. 8

10+05 to 10+50 -AR4A-

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by:
Joshua G. Dalton
1B9ADC1C1490409...

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

TYPICALS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C103
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C1.03**

9/9/2021
Floodgate_Rdy_psh_C103.dgn
Layout

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

NAD 83

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776209.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

NORTH CAROLINA
PROFESSIONAL
SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

9/9/2021
Floodgate_Rdy_psh_C201.dgn
Rhino 7.0

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

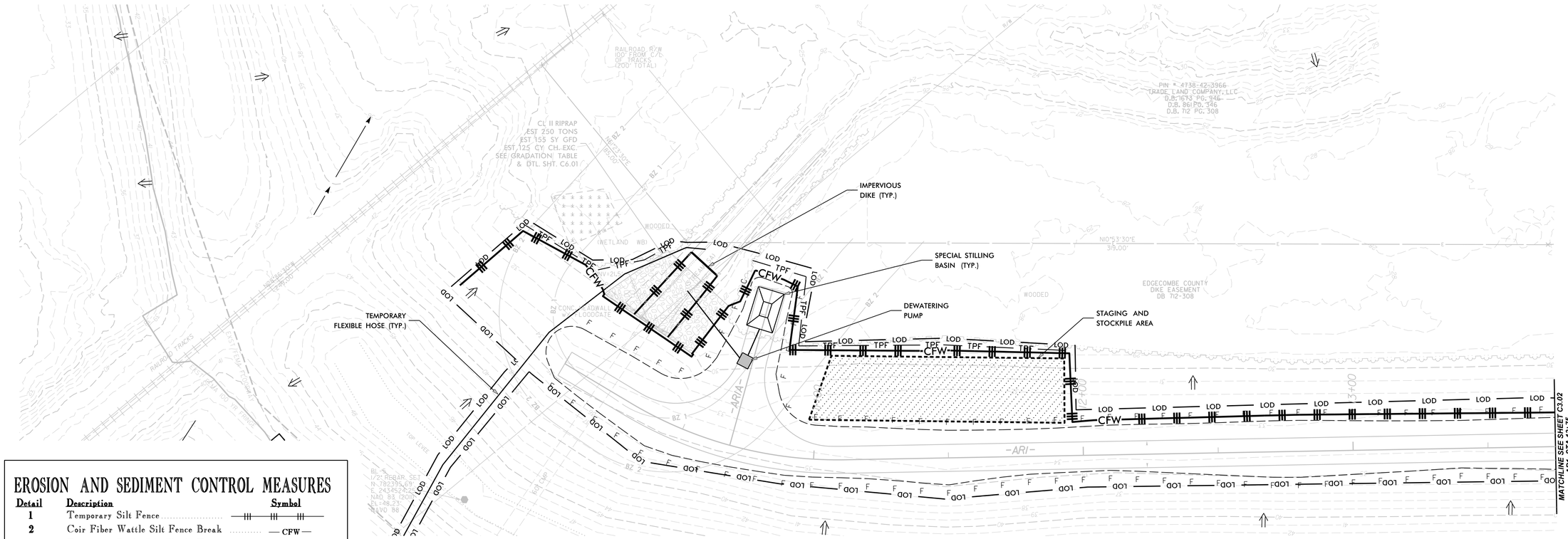
NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″=20′

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton 1B09A0BC1E9A40A...

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON NORTH CAROLINA

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C301
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.01**

9/9/2021
Floodgate_Rdy_psh_C301.dgn
Ben Kay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872



Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 15+30 to Sta. 16+70 –AR1– LT (570 SY)
Sta. 10+50 to Sta. 12+80 –AR2– RT (450 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C302
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.02**

9/9/2021
Floodgate_Rdy_psh_C302.dgn
User:rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

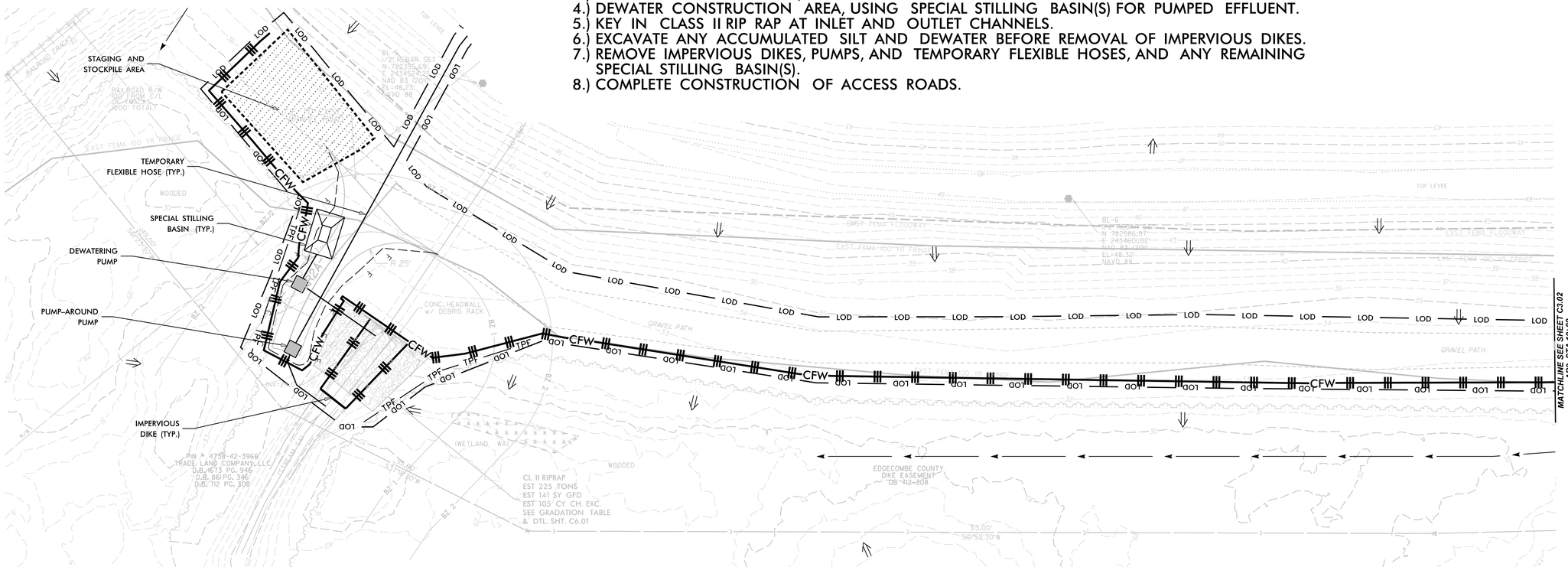
NAD 83

20' 10' 0 20' 40'

SCALE: 1" = 20'

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL 26971
JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C303
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

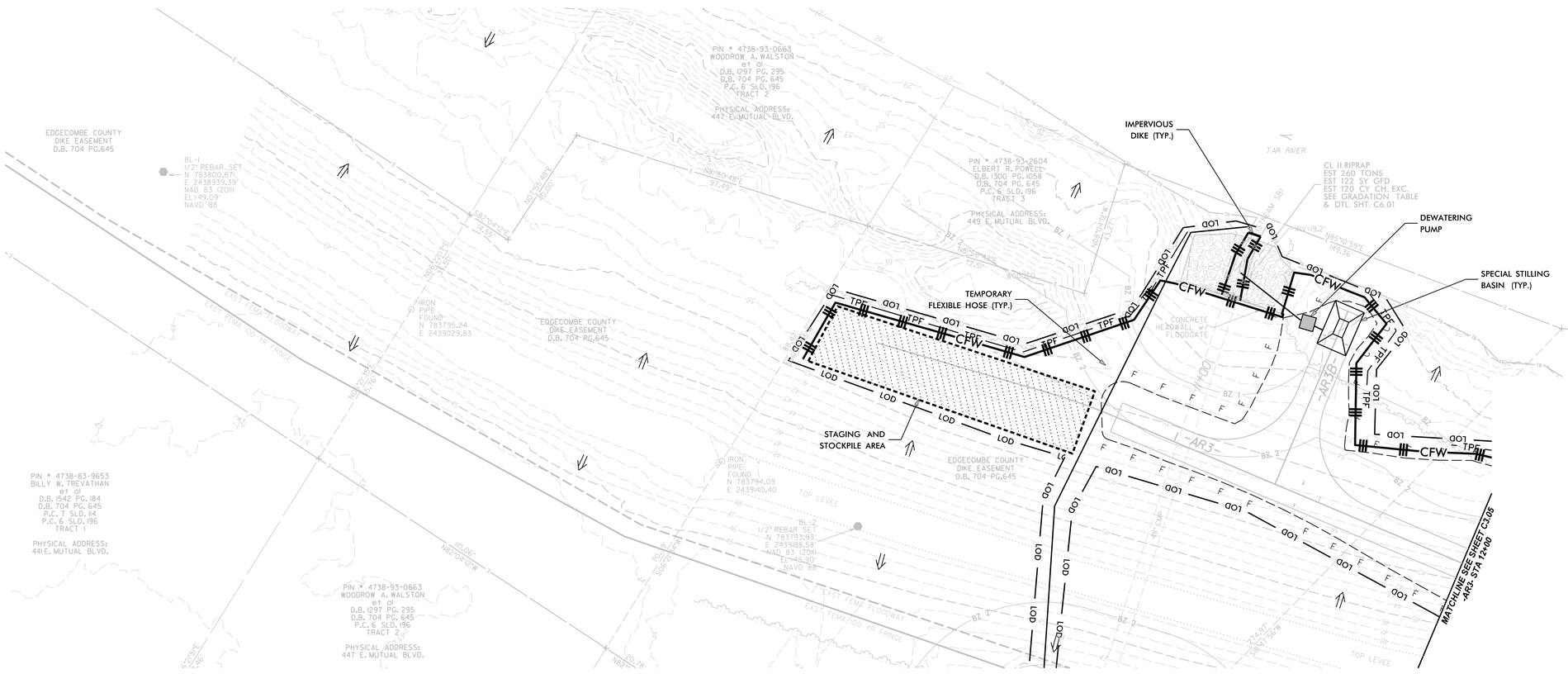
SHEET NO. C3.03

9/9/2021
Floodgate_Rdy_psh_C303.dgn
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+80 to Sta. 12+00 –AR3– LT (55 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C304
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.04**

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9/9/2021
Floodgate_Rdy_psh_C304.dgn
Harvey

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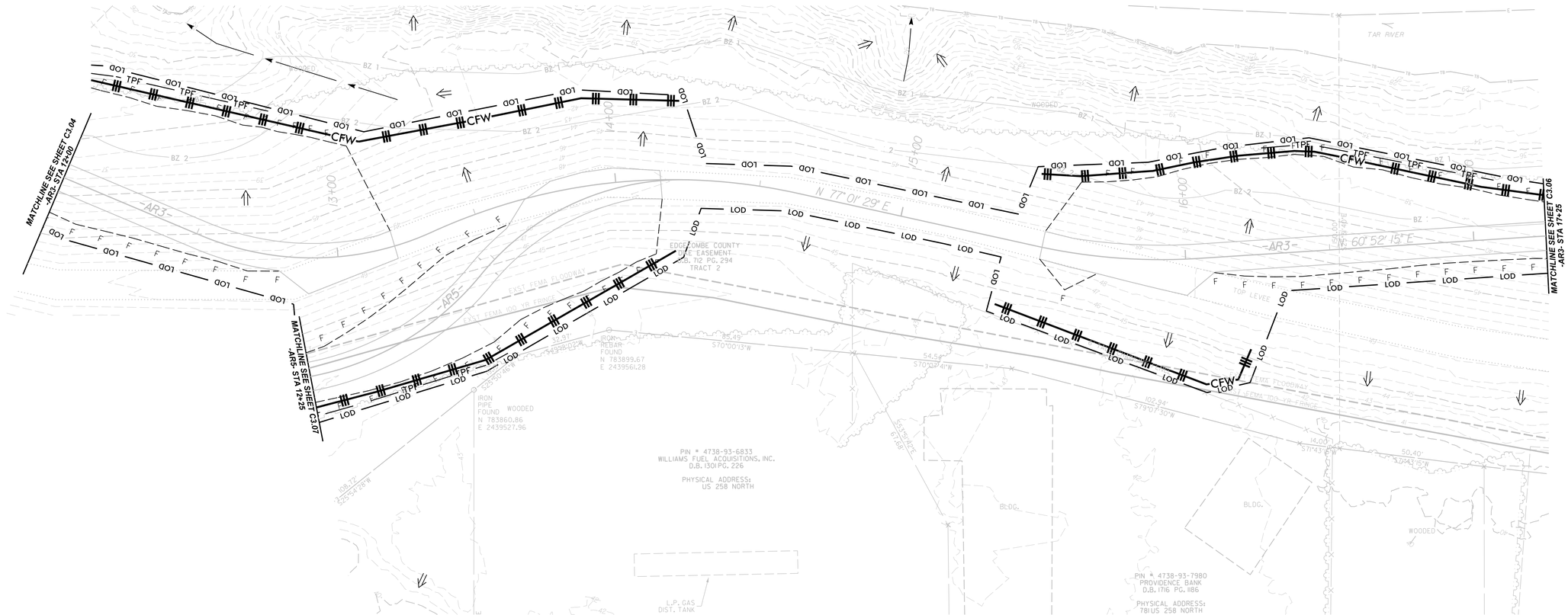
20' 10' 0 20' 40'
SCALE: 1" = 20'

NAD 83

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 12+00 to Sta. 13+10 –AR3– LT (355 SY)
Sta. 15+90 to Sta. 16+60 –AR3– LT (200 SY)



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL 26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C305
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.05

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jharvey

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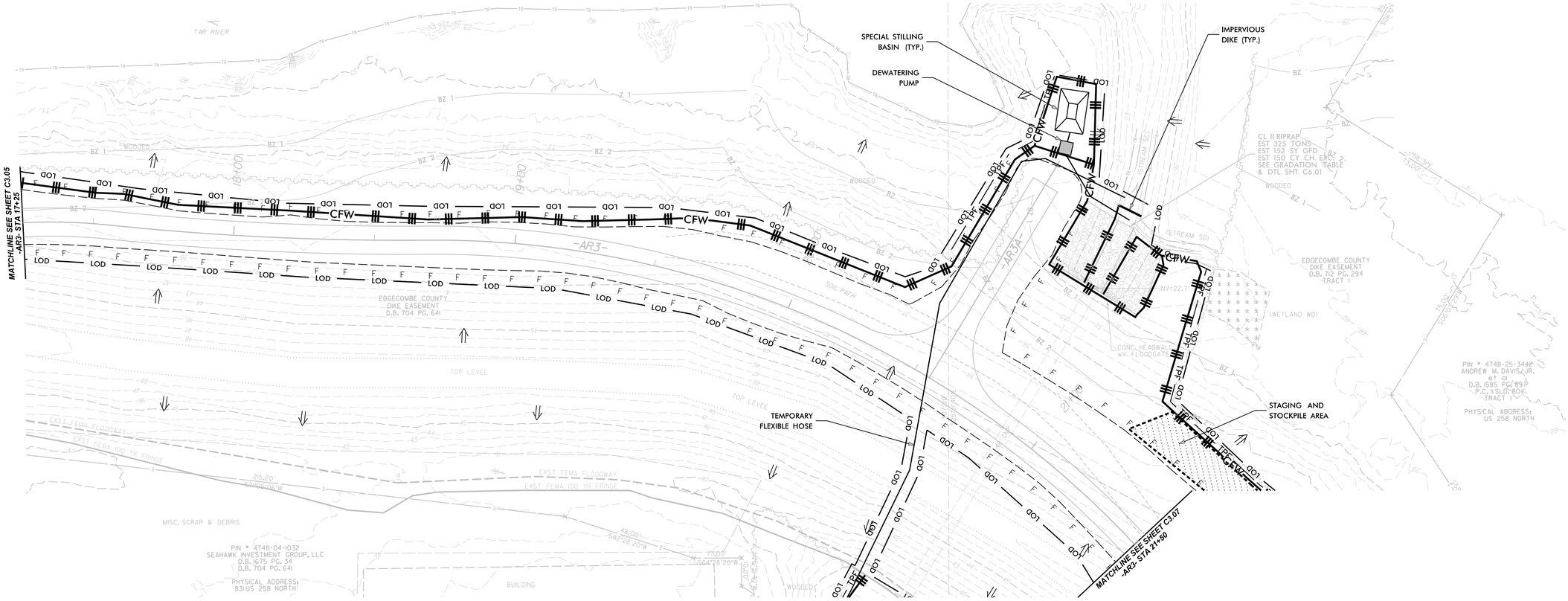
PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C306
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.06

9/9/2021
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Harvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

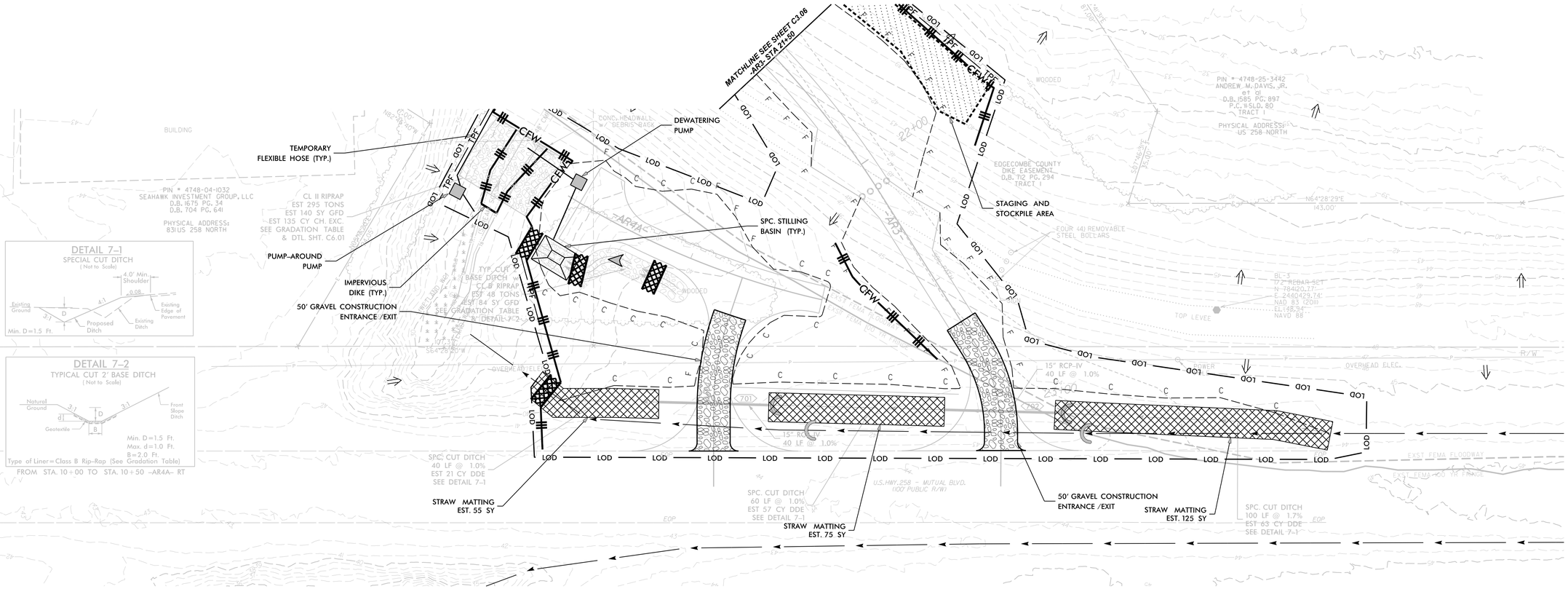
20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′

NAD 83

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)

Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT

Place Straw Matting for Erosion Control on Slope as Work Allows.
Sta. 21+50 to Sta. 22+10 –AR3– LT (185 SY)

NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	TPF
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF
8	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
10B9ADBC1489455...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C307
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.07**

9/9/2021
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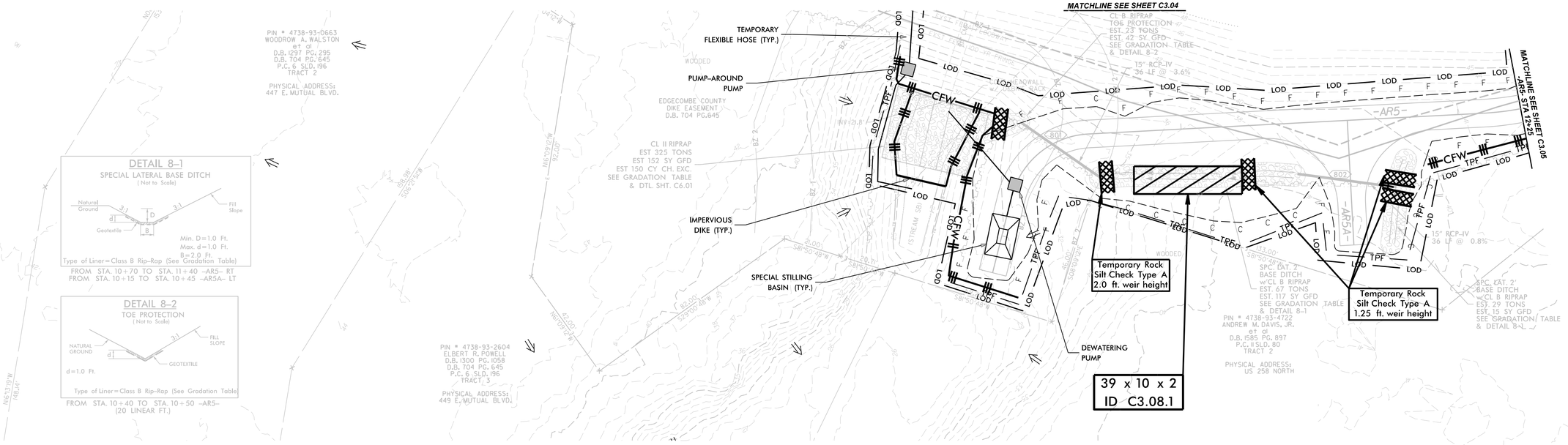
barclay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.


SCALE: 1"=20'
20' 10' 0 20' 40'
NAD 83
MATCHLINE SEE SHEET C3.04
MATCHLINE SEE SHEET C3.05
TEMPORARY FLEXIBLE HOSE (TYP.)
PUMP-AROUND PUMP
IMPERVIOUS DIKE (TYP.)
SPECIAL STILLING BASIN (TYP.)
DEWATERING PUMP
Temporary Rock Silt Check Type A 2.0 ft. weir height
Temporary Rock Silt Check Type A 1.25 ft. weir height
39 x 10 x 2
ID C3.08.1
CL II RIPRAP
EST 325 TONS
EST 152 SY GFD
EST 150 CY CH. EXC.
SEE GRADATION TABLE
& DTL. SHT. C6.01
CL B RIPRAP
TOE PROTECTION
EST. 73 TONS
EST. 42 SY GFD
SEE GRADATION TABLE
& DETAIL 8-2
15" RCP-IV
36 LF @ 3.6%
15" RCP-IV
36 LF @ 0.8%
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 67 TONS
EST. 117 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 29 TONS
EST. 15 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645
PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG.645
P.C. 6 SLD. 196
TRACT 2
PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.
PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3
PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.
PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 6 SLD. 80
TRACT 2
PHYSICAL ADDRESS:
US 258 NORTH
-AR5-
-AR5A-
WETLAND
(STREAM SB1)
WETLAND
WETLAND
WETLAND

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

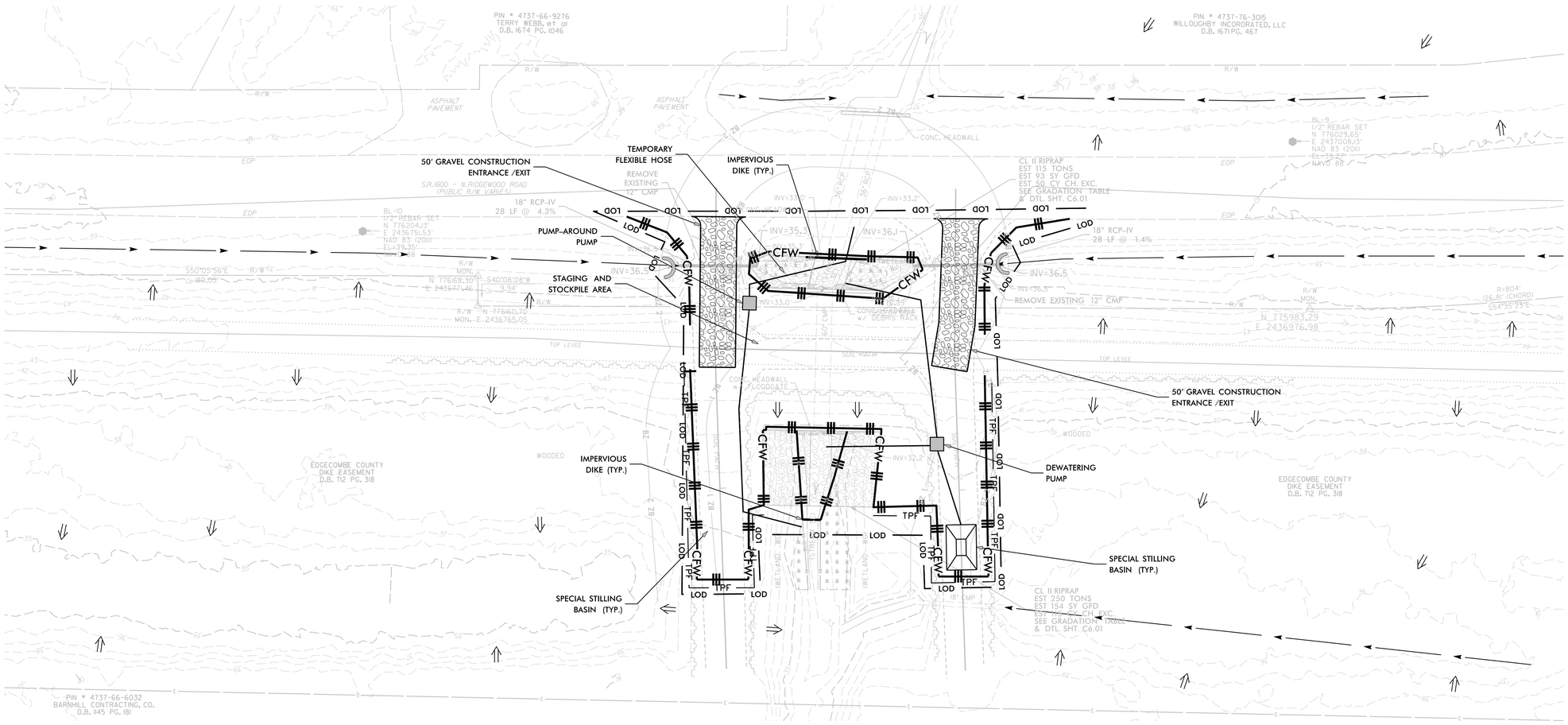
20' 10' 0 20' 40'

SCALE: 1" = 20'

NAD 83

PHASING FOR SHEET C3.09:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C309
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.09**

9/9/2021
Floodgate_Rdy_psh_C309.dgn
Harvey

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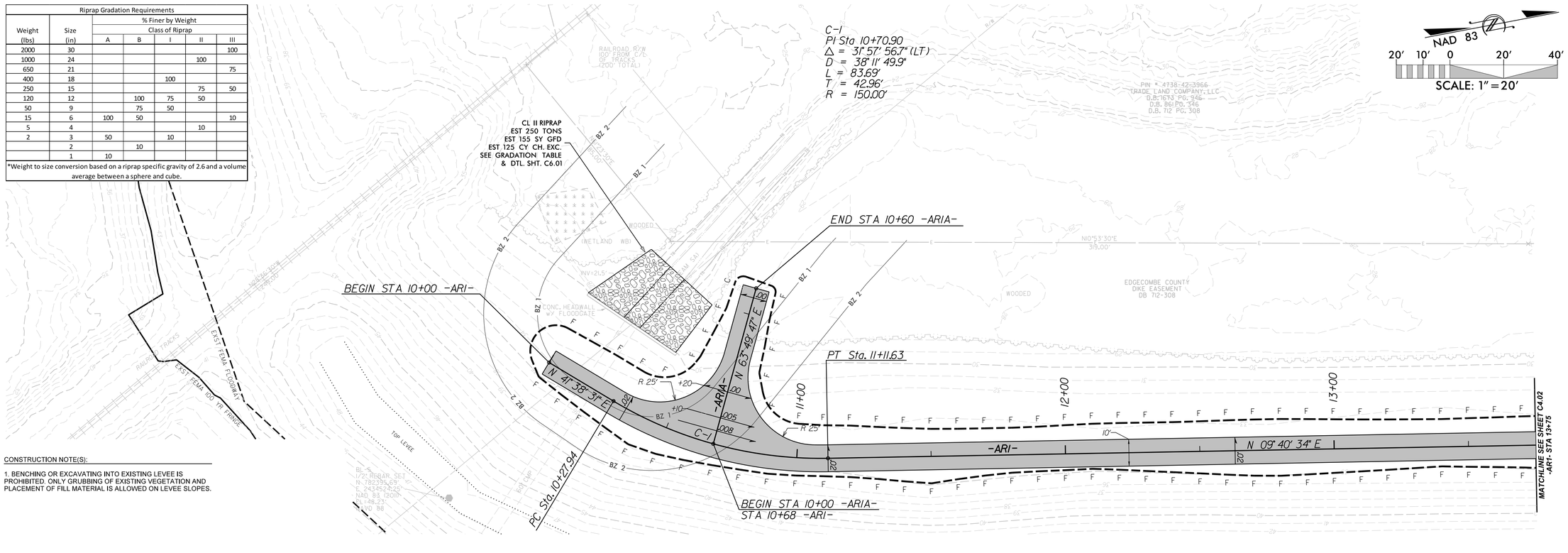
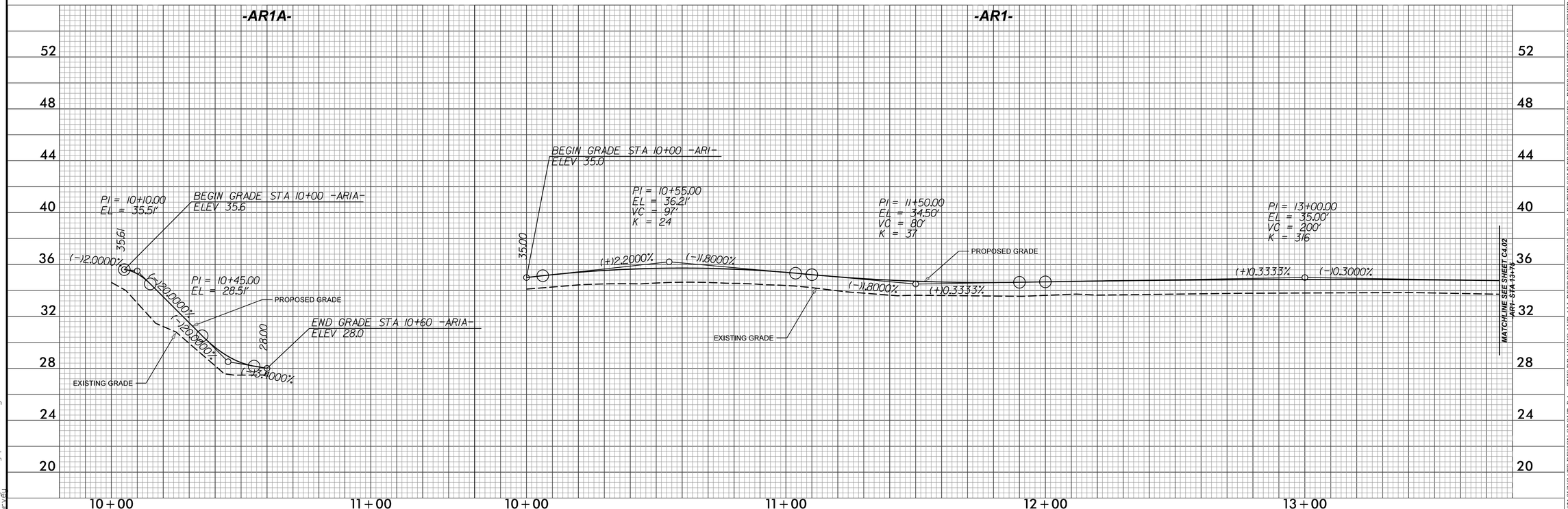
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
1284200516F8C3...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C401
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.01

9/9/2021
Floodgate_Rdy_psh_C401.dgn
User:rch

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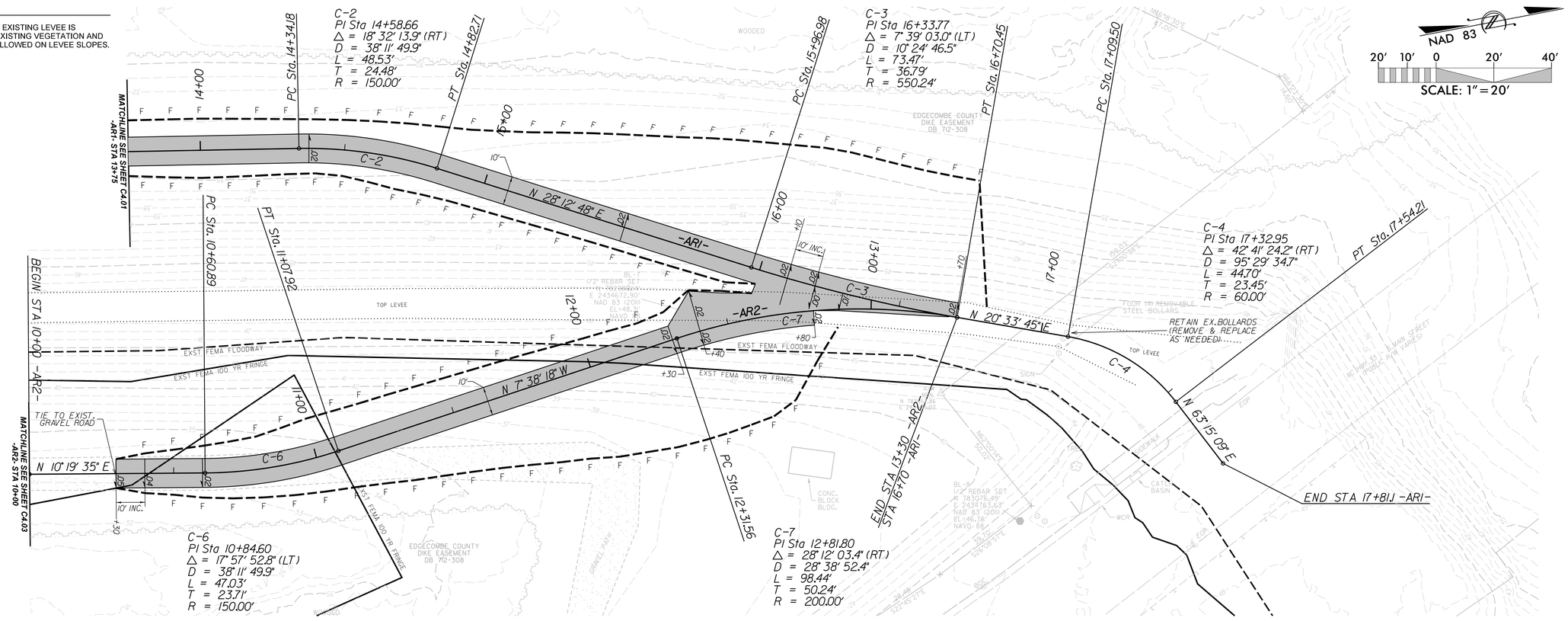
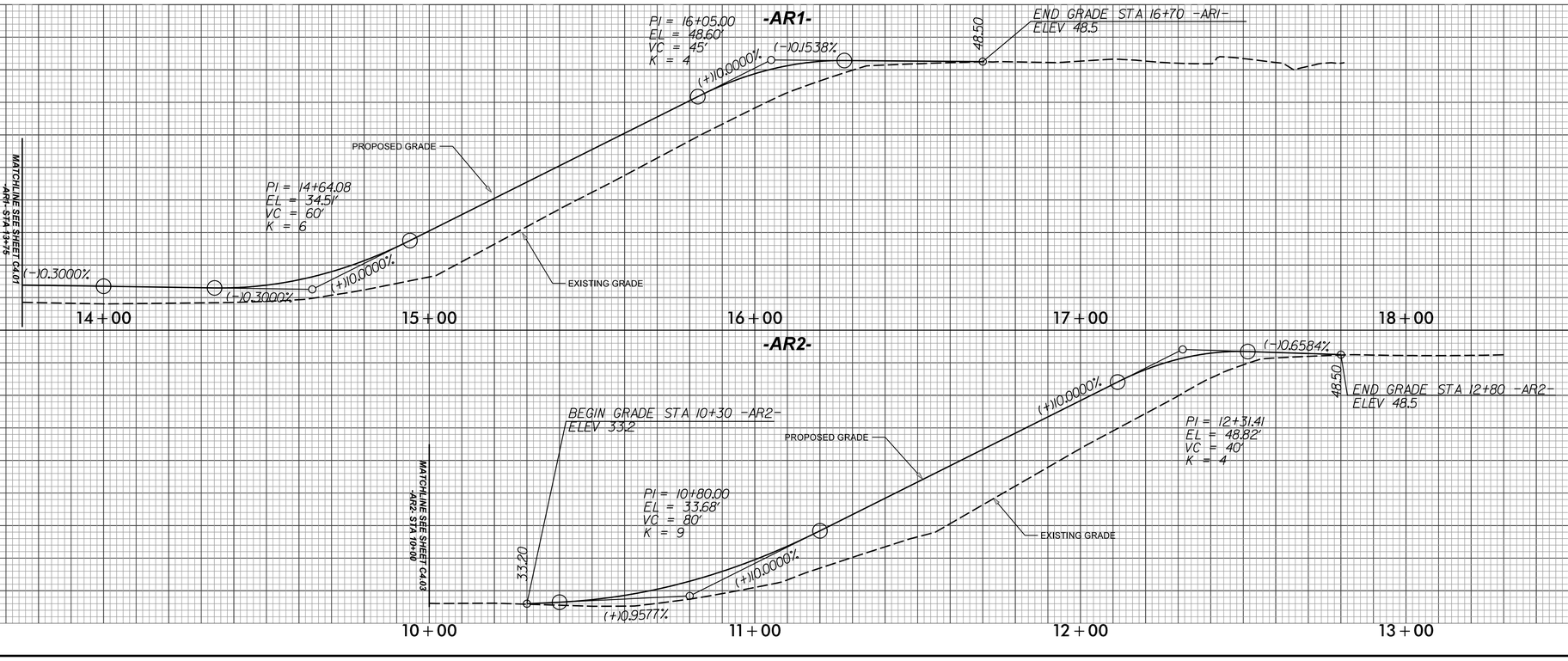
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.





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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C402
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.02

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CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

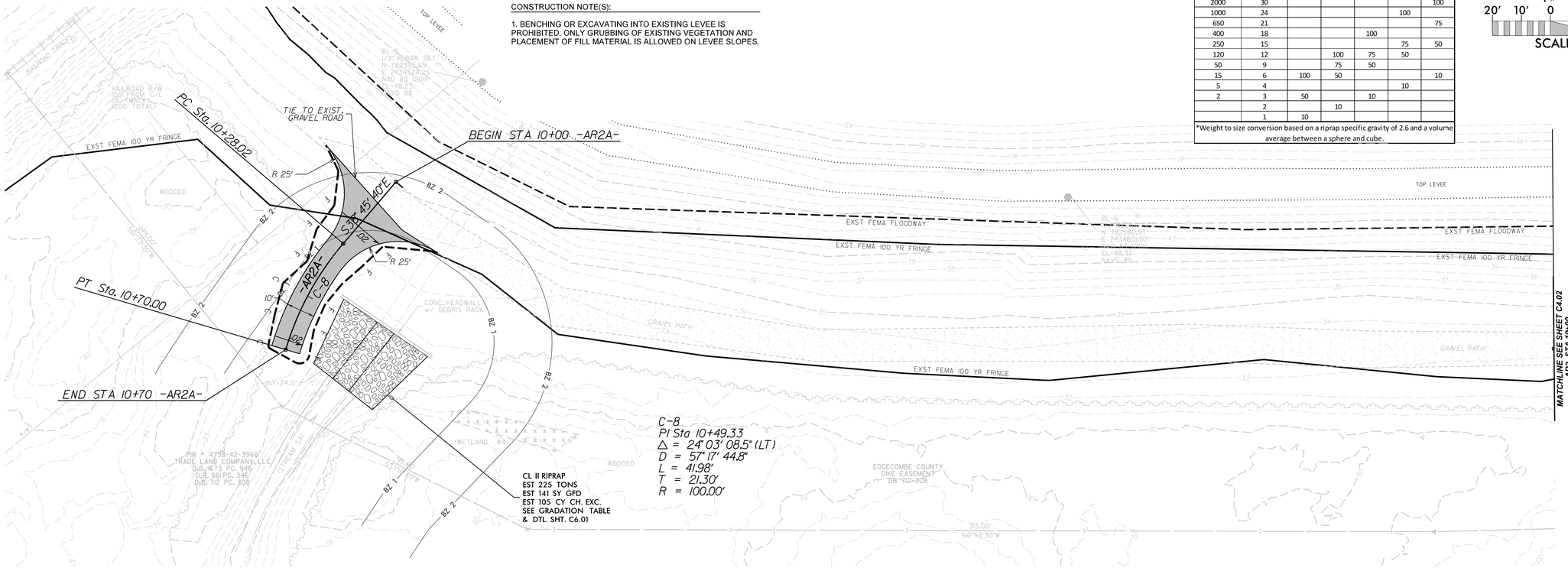
Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

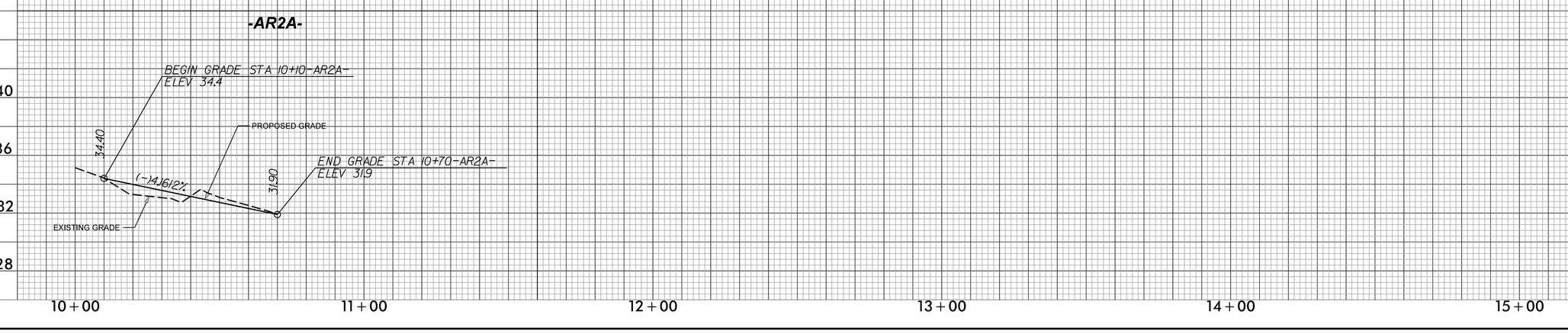
*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′





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RALEIGH, NORTH CAROLINA 27606
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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C403
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.03

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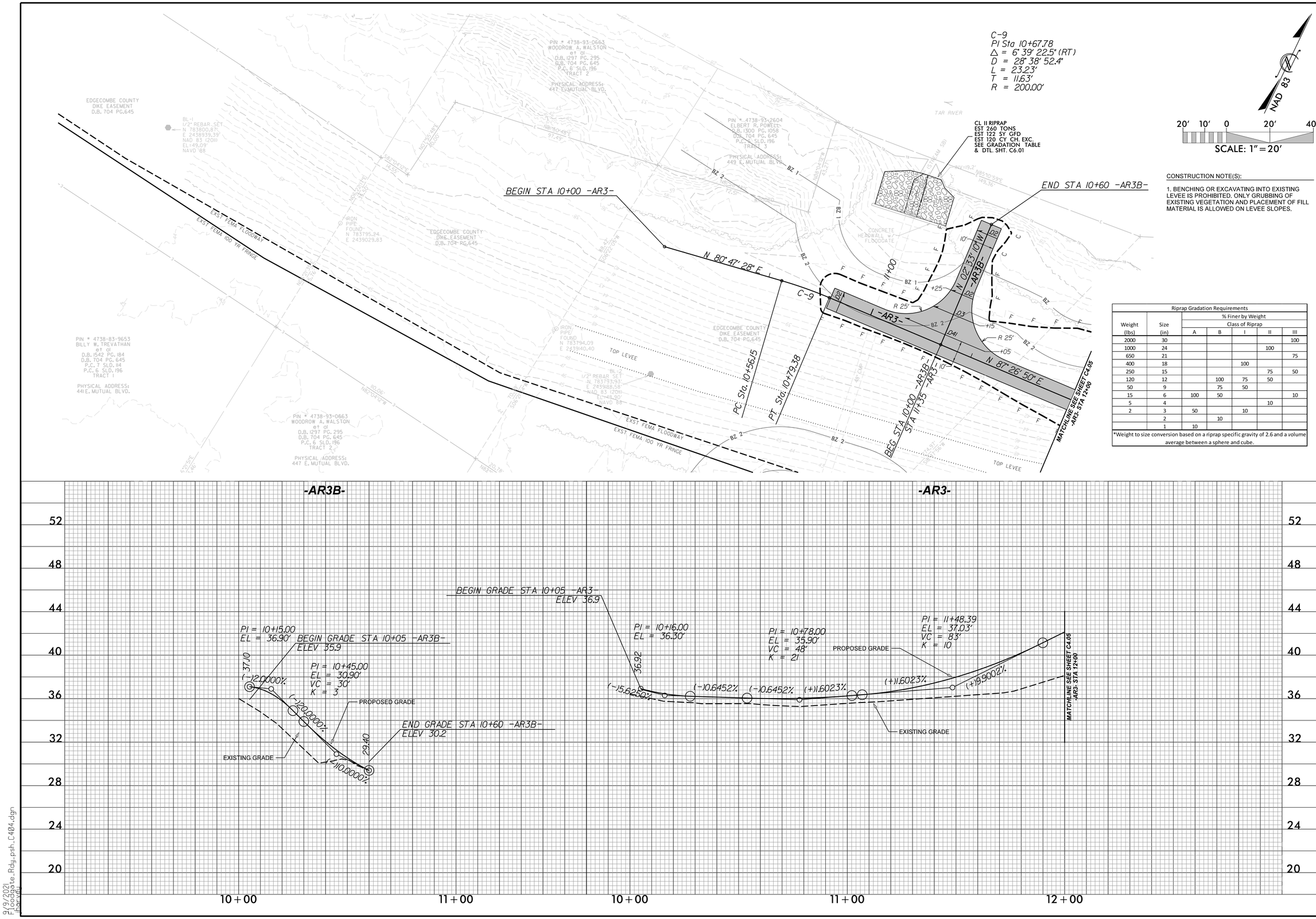

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
		% Finer by Weight				
		Class of Riprap				
Weight (lbs)	Size (in)	A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL
26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C404
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.04

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jharvey

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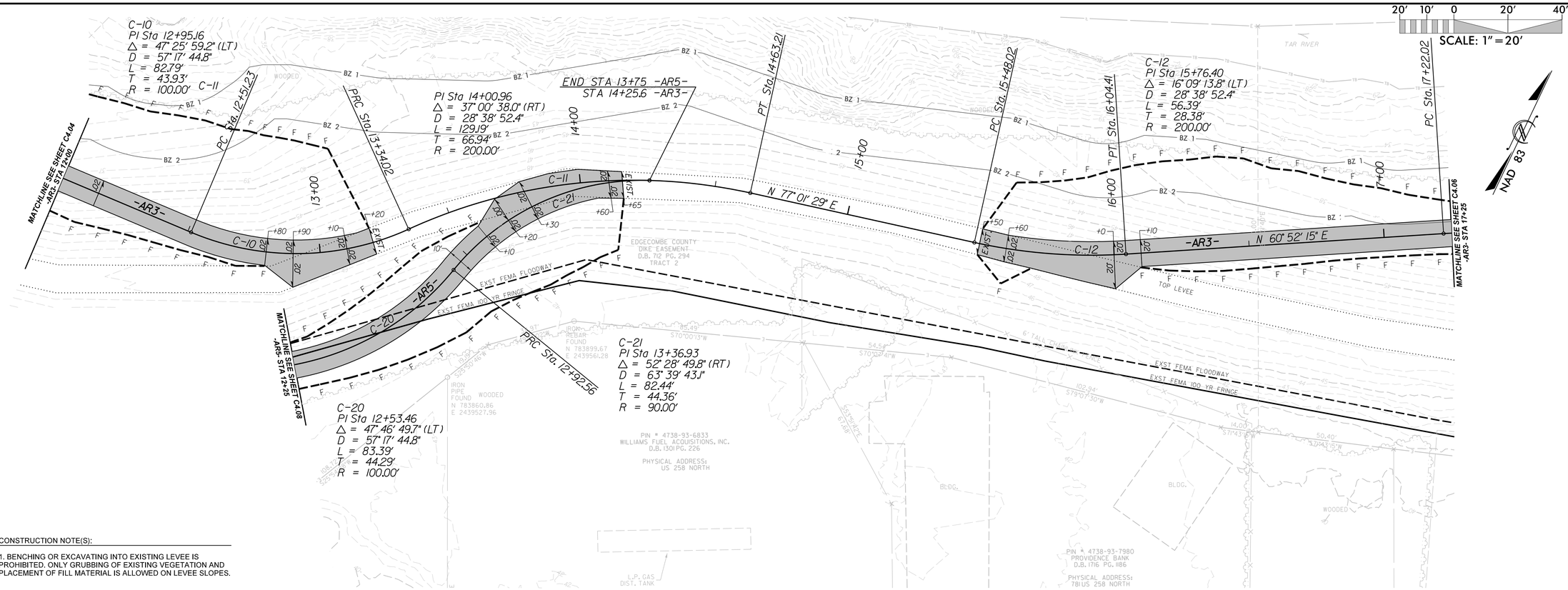
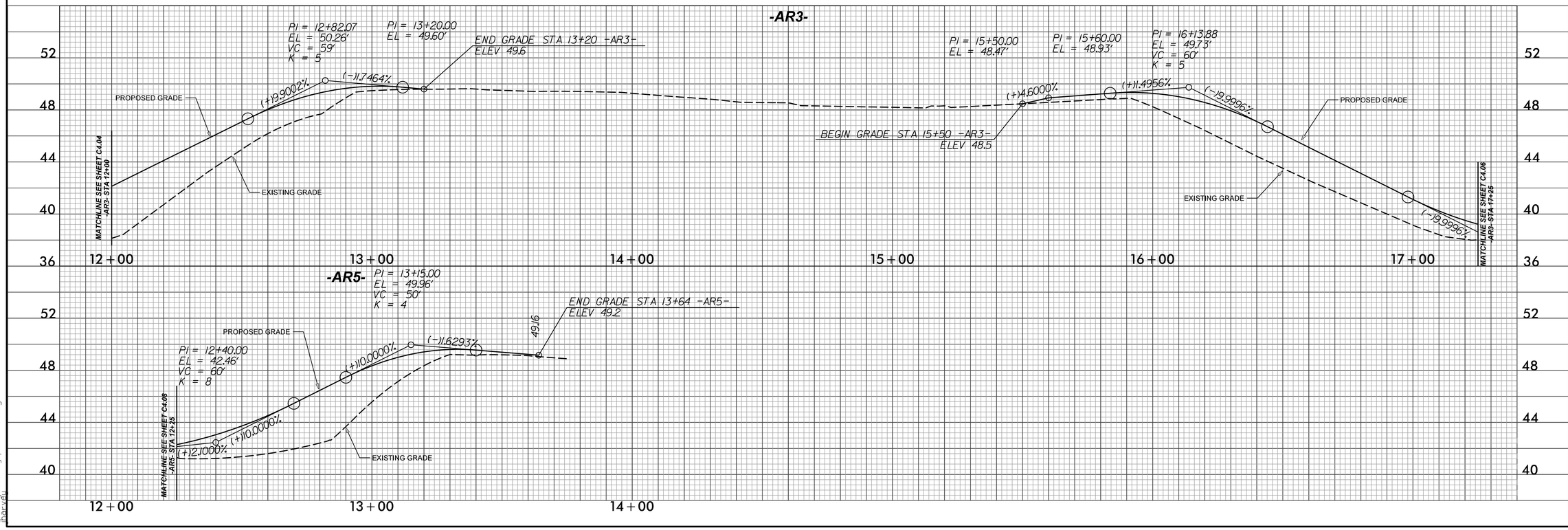


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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DocuSigned by: Joshua G. Dalton
PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C405
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.05

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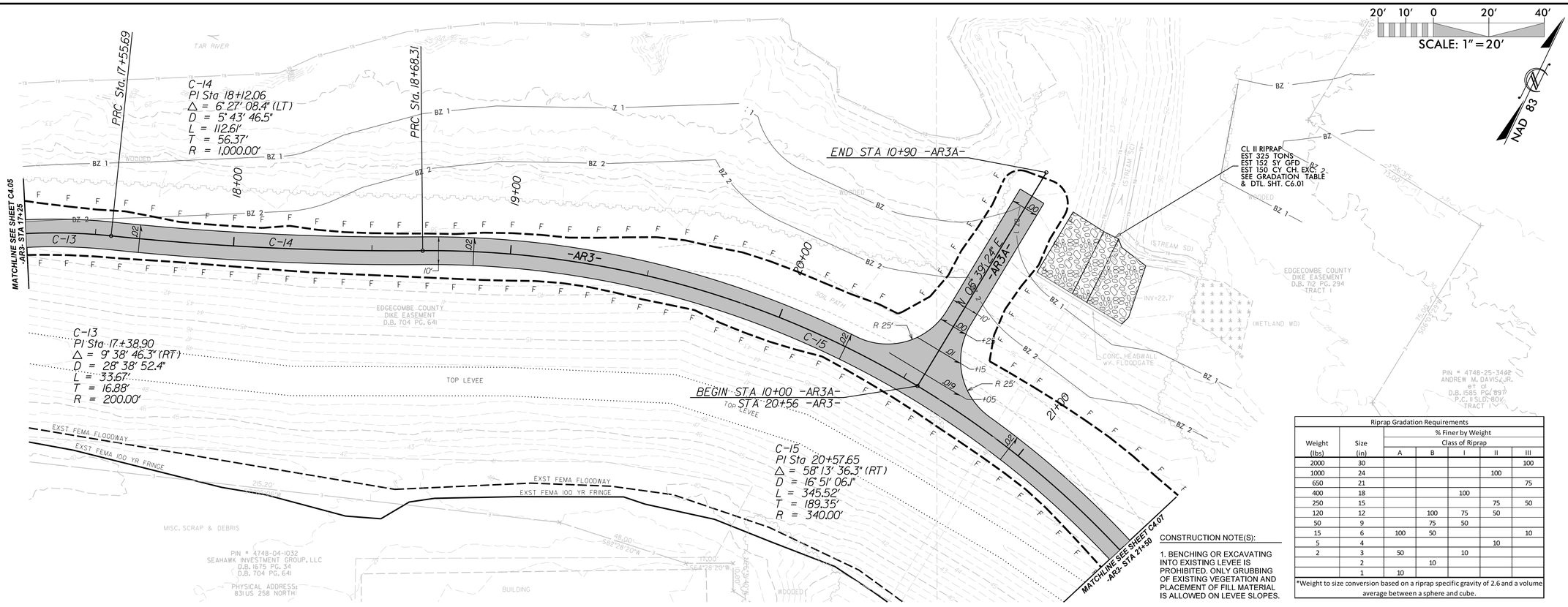
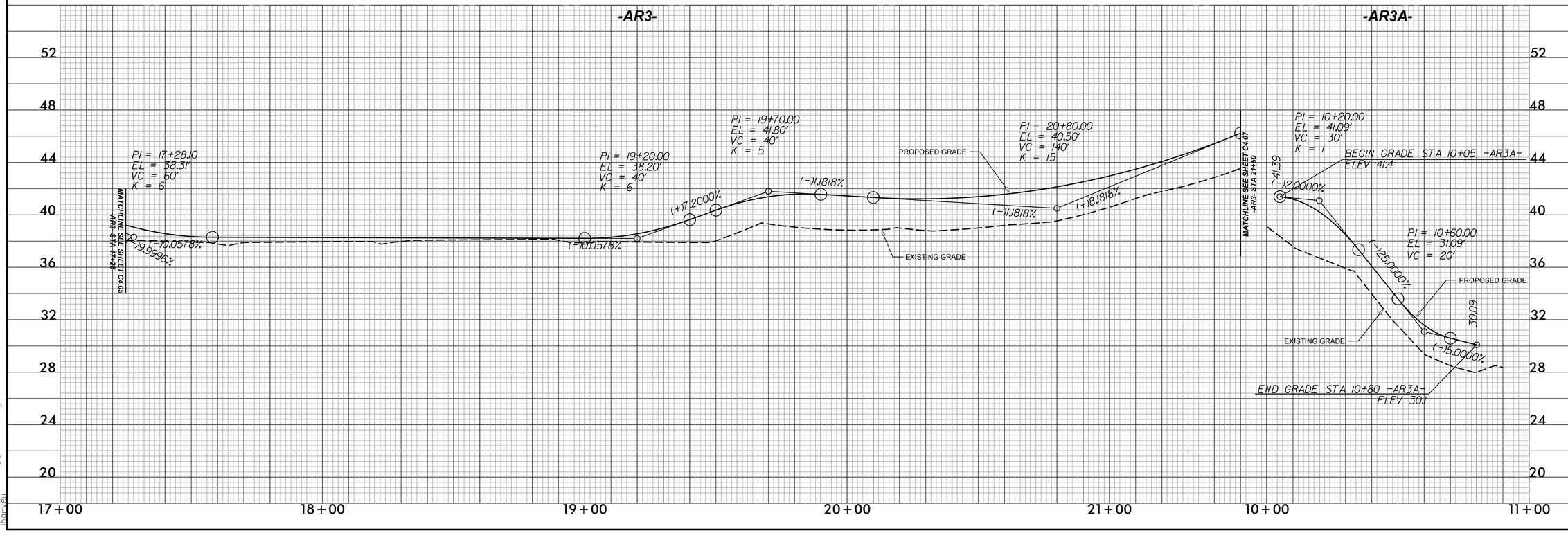


Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C406
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.06

9/9/2021
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Harvell

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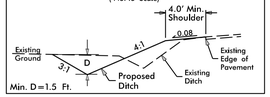
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

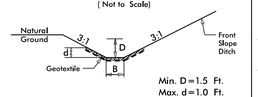
1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

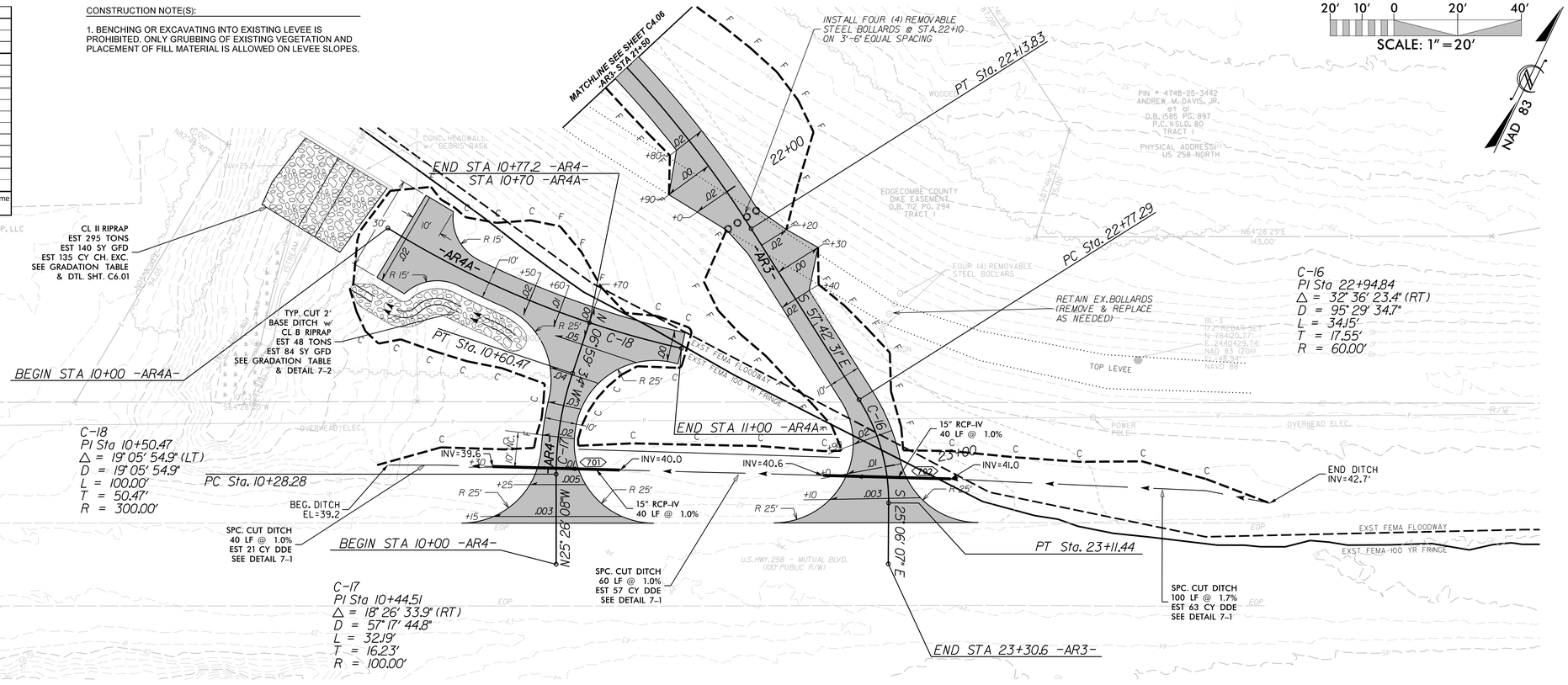


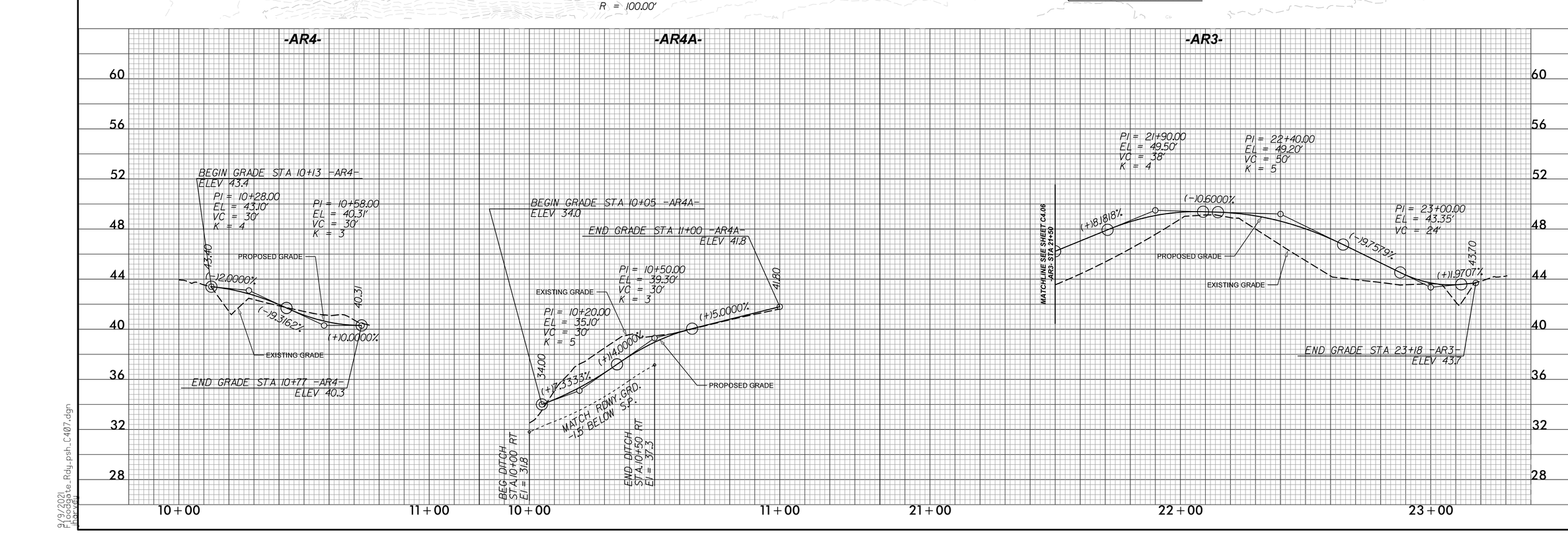
Min. D=1.5 Ft.

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton, PE
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C407
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C4.07**

9/9/2021
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Harrell

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Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

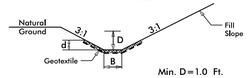
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

SCALE: 1" = 20'

NAD 83

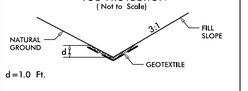
DETAIL 8–1
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

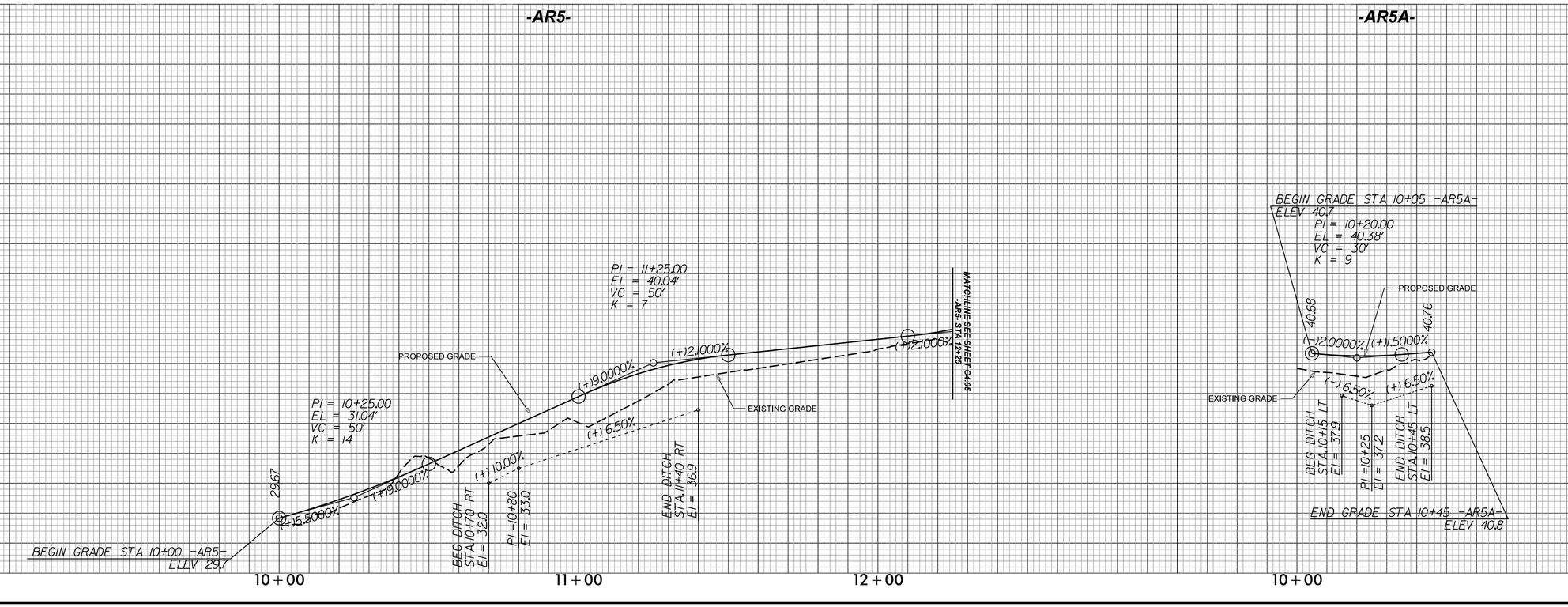
FROM STA. 10+70 TO STA. 11+40 –AR5– RT
FROM STA. 10+15 TO STA. 10+45 –AR5A– LT

DETAIL 8–2
TOE PROTECTION
(Not to Scale)



d = 1.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

FROM STA. 10+40 TO STA. 10+50 –AR5–
(20 LINEAR FT.)



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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C408
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.08

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User:rch

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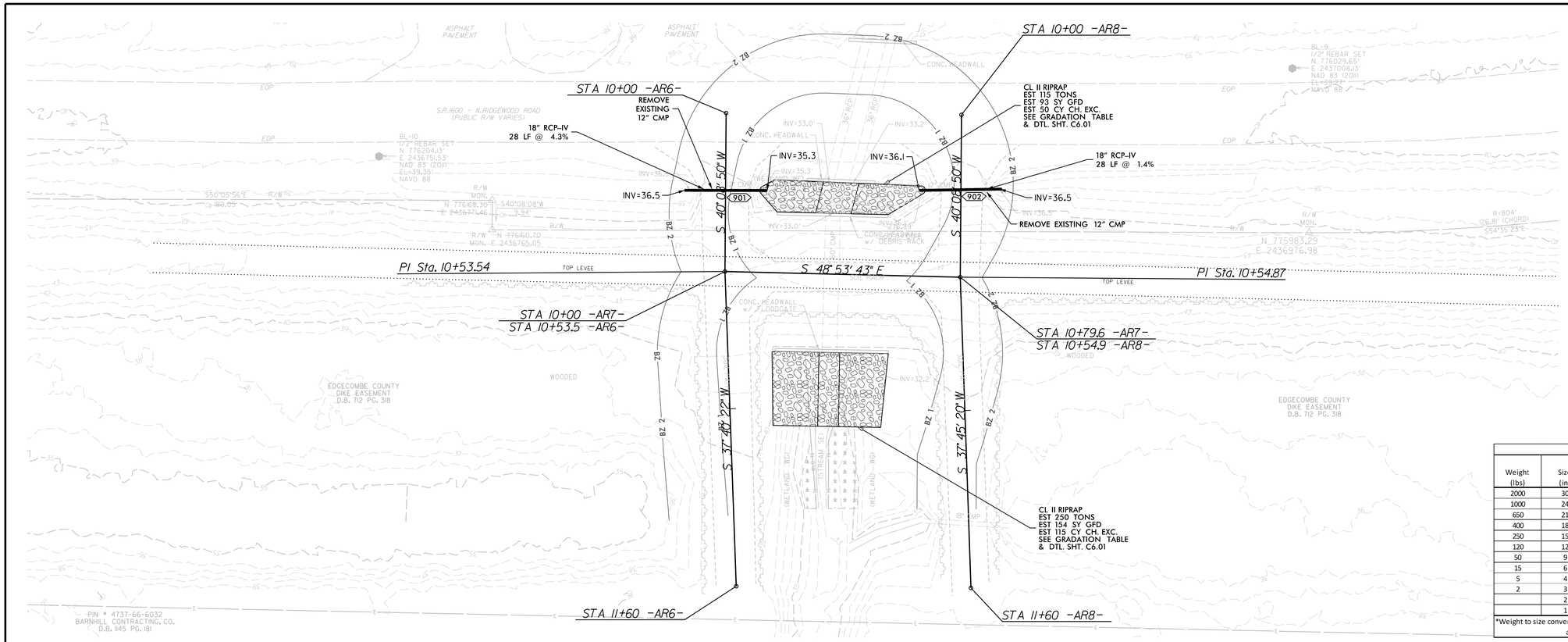
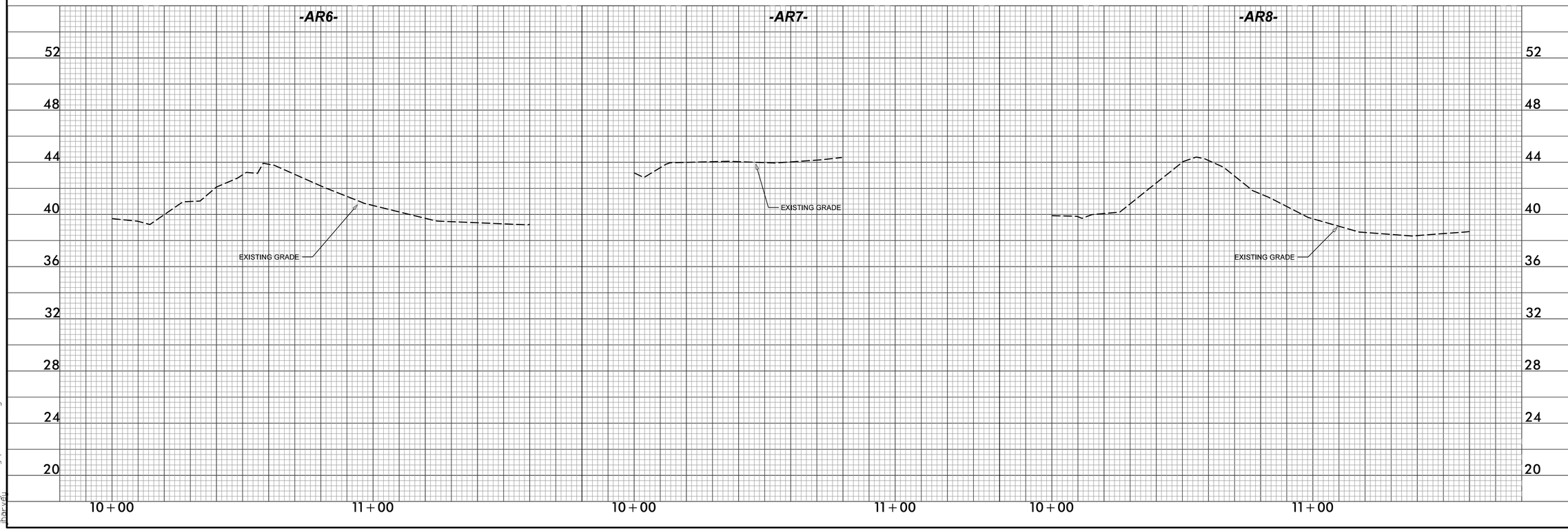


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight				
		Class of Riprap				
		A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
9/9/2021

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C409
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.09

9/9/2021
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Harrell

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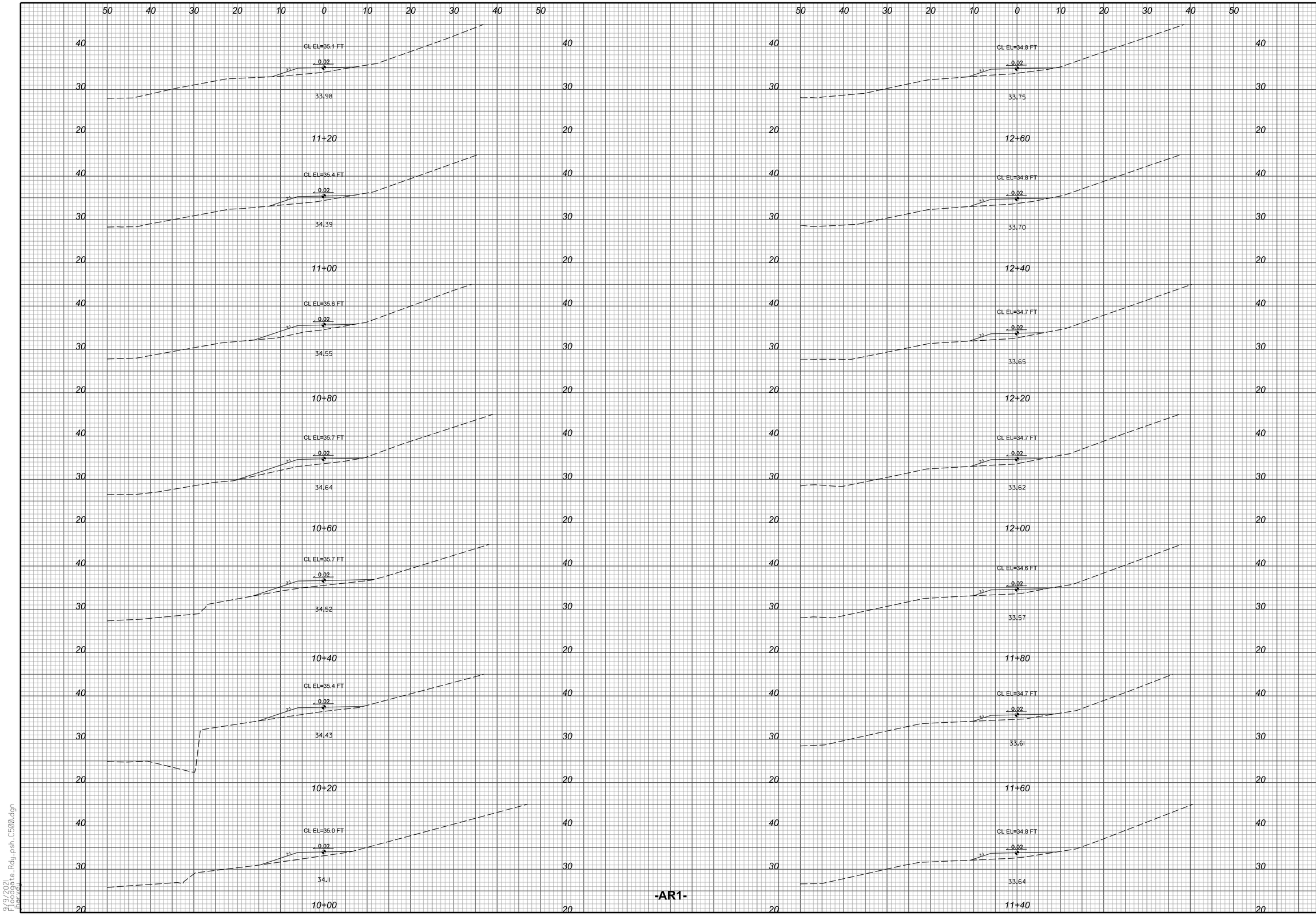

-AR1-

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RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

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Joshua G. Dalton
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9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C501
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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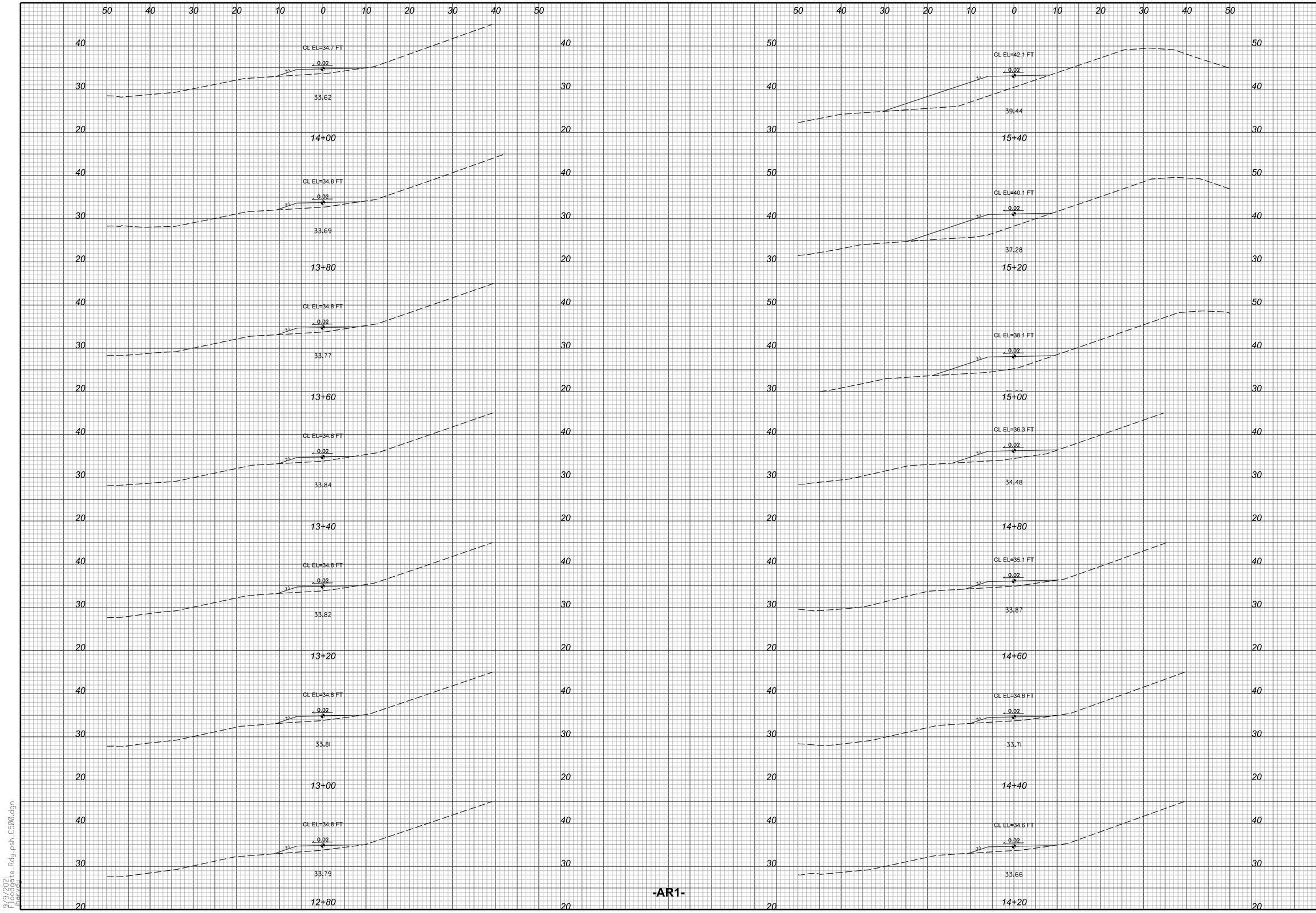

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Joshua G. Dalton
NORTH CAROLINA
PROFESSIONAL
SEAL
26971
ENGINEER
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C502
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C5.02

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User: rch

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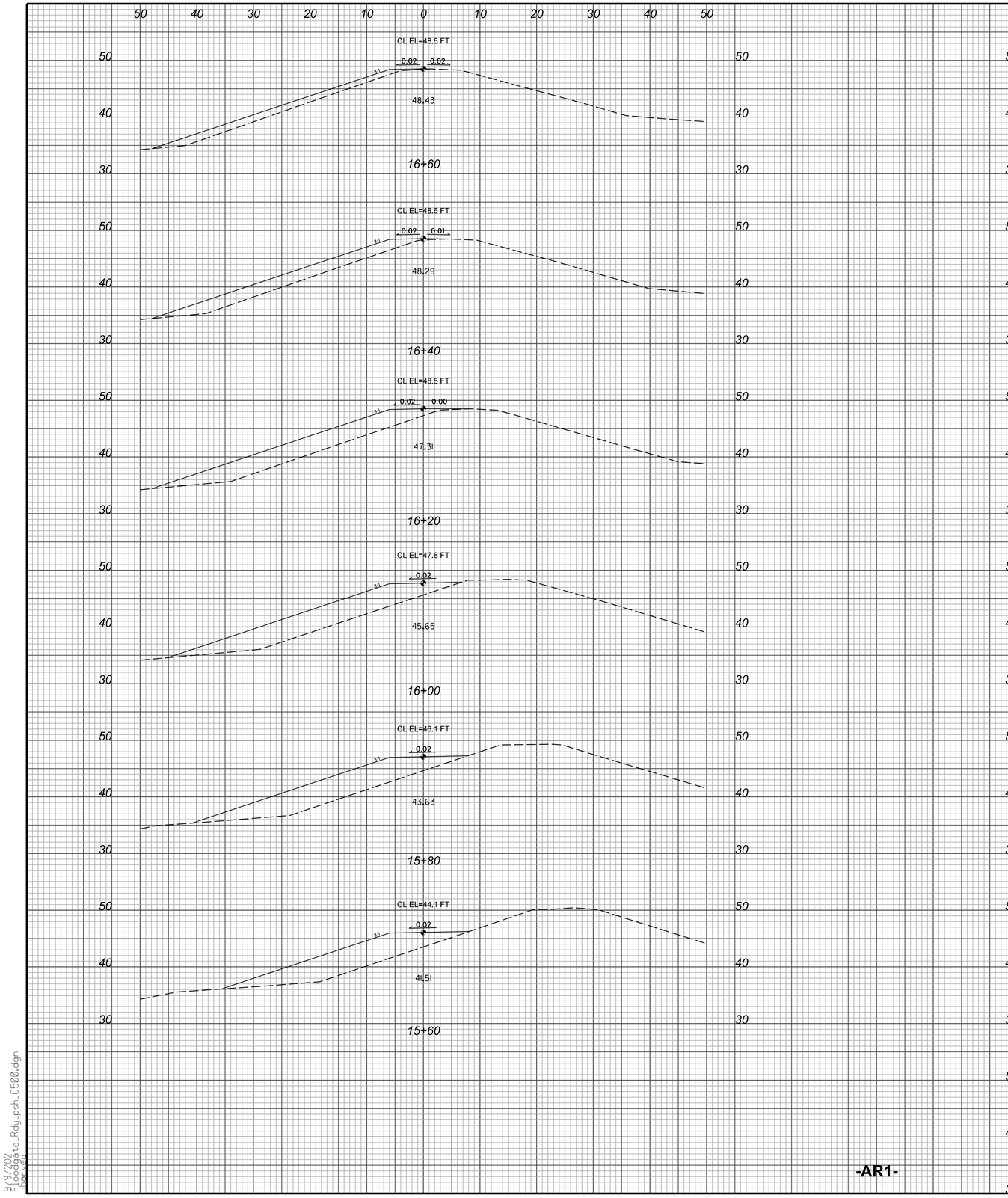

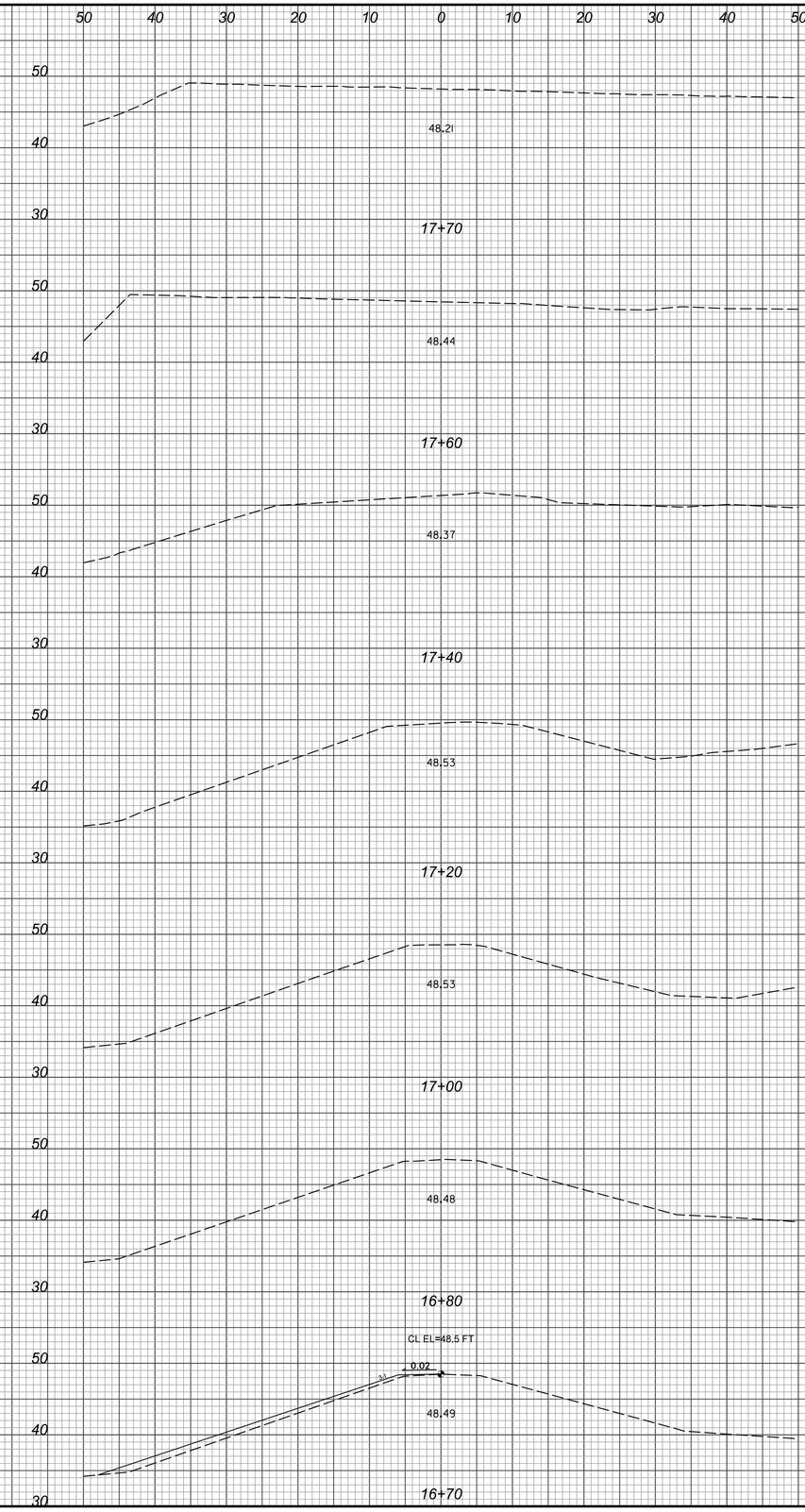

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D81A2BC1498422...

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PRINCEVILLE, EDGECOMBE COUNTY, NC
CROSS SECTIONS - SITE 1 -AR1-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C503
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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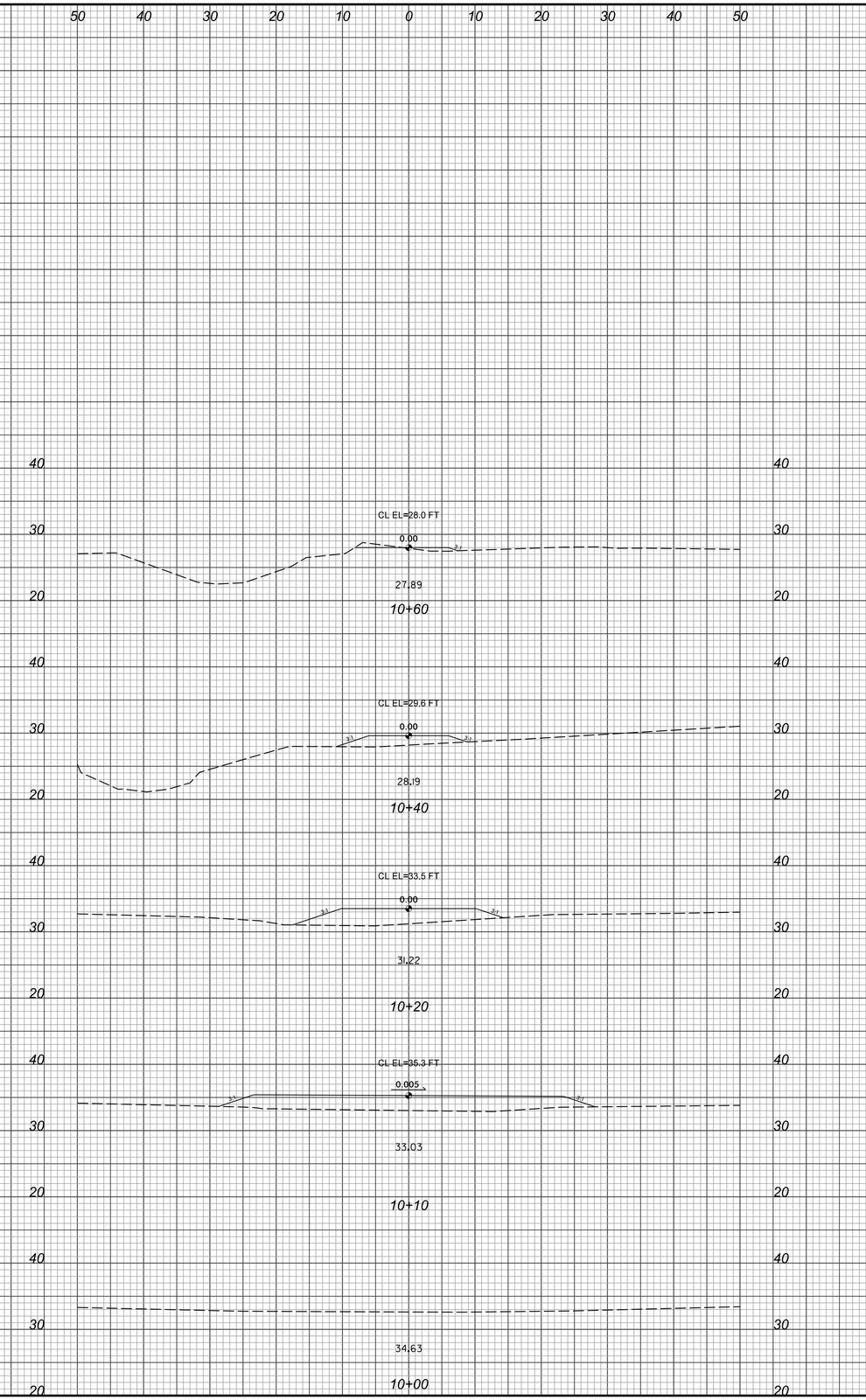

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C504
DATE: 6-16-2021
DRAWN BY:
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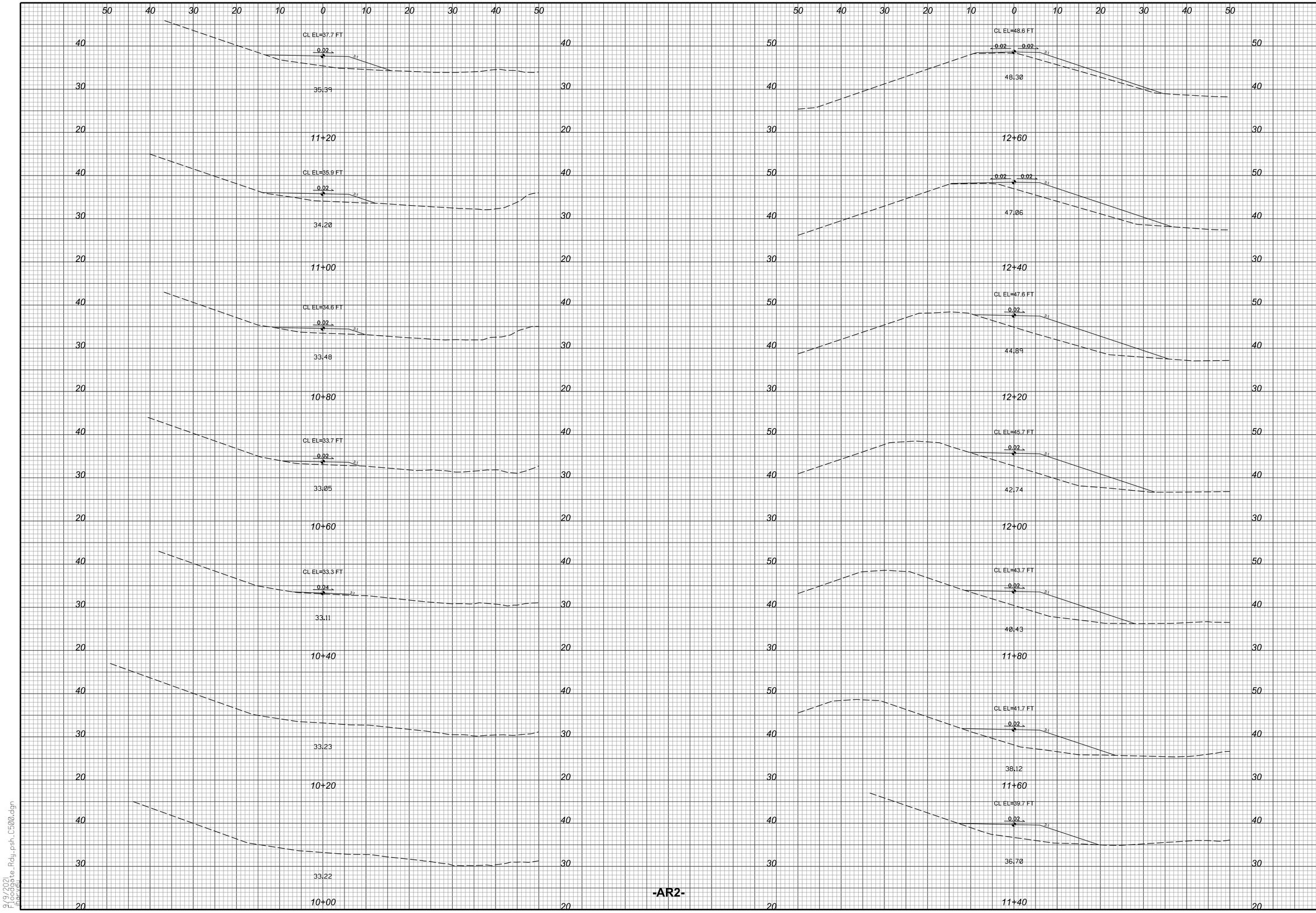

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9B5D9BC1B6BC4...

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C505
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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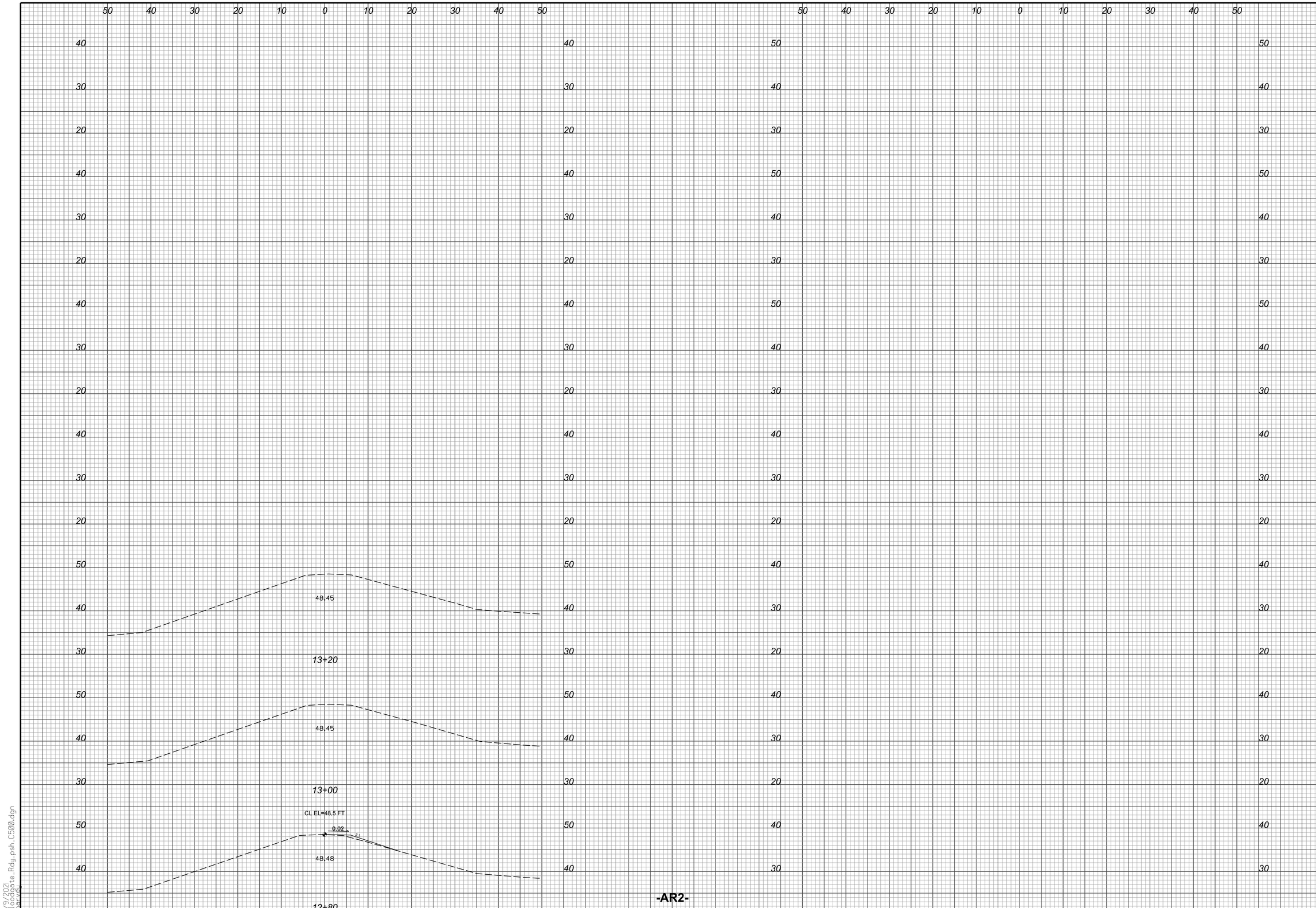

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C506
DATE: 6-16-2021
DRAWN BY:
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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2A-

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PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C507
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
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SHEET NO.	C5.07

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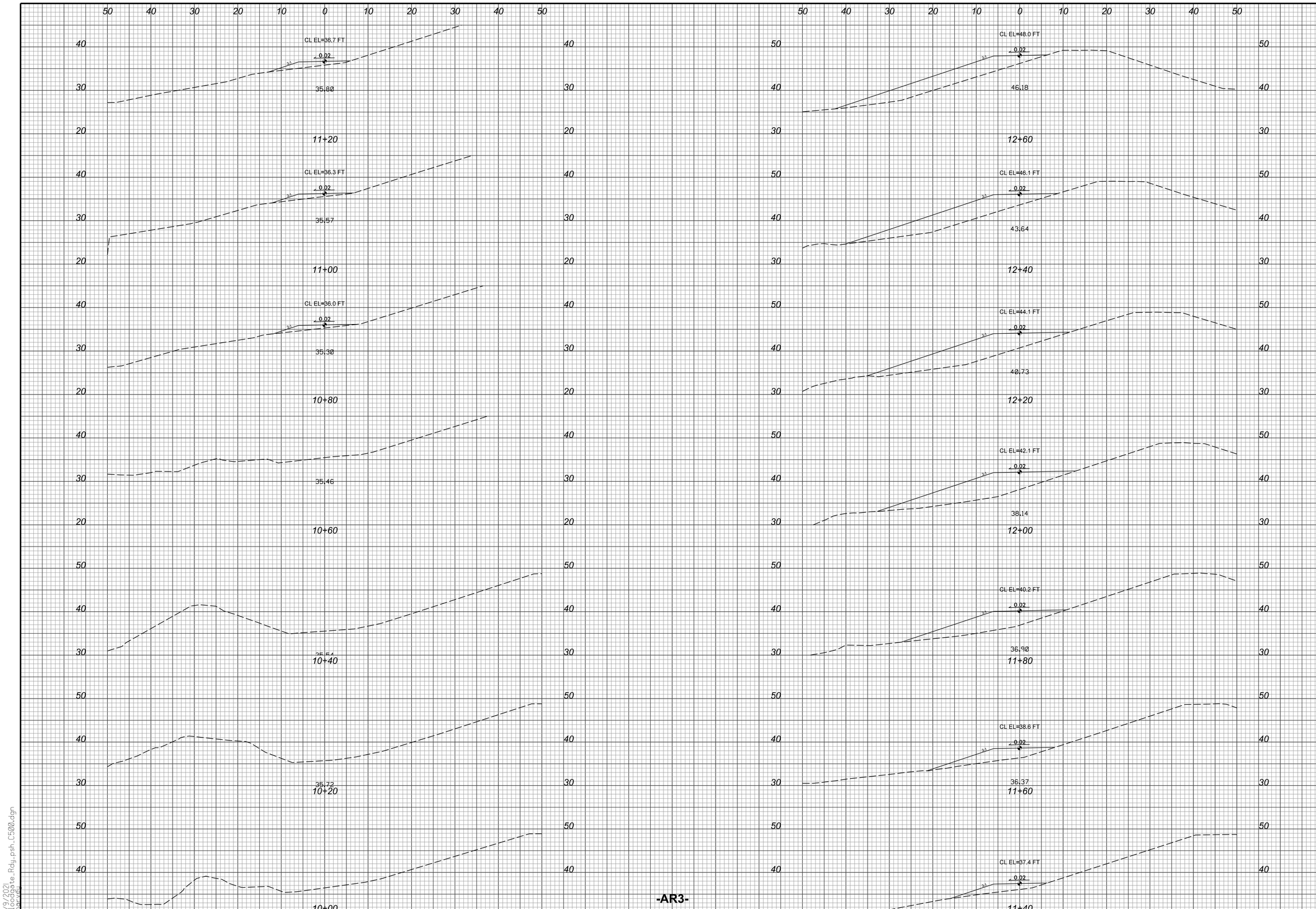

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C508
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
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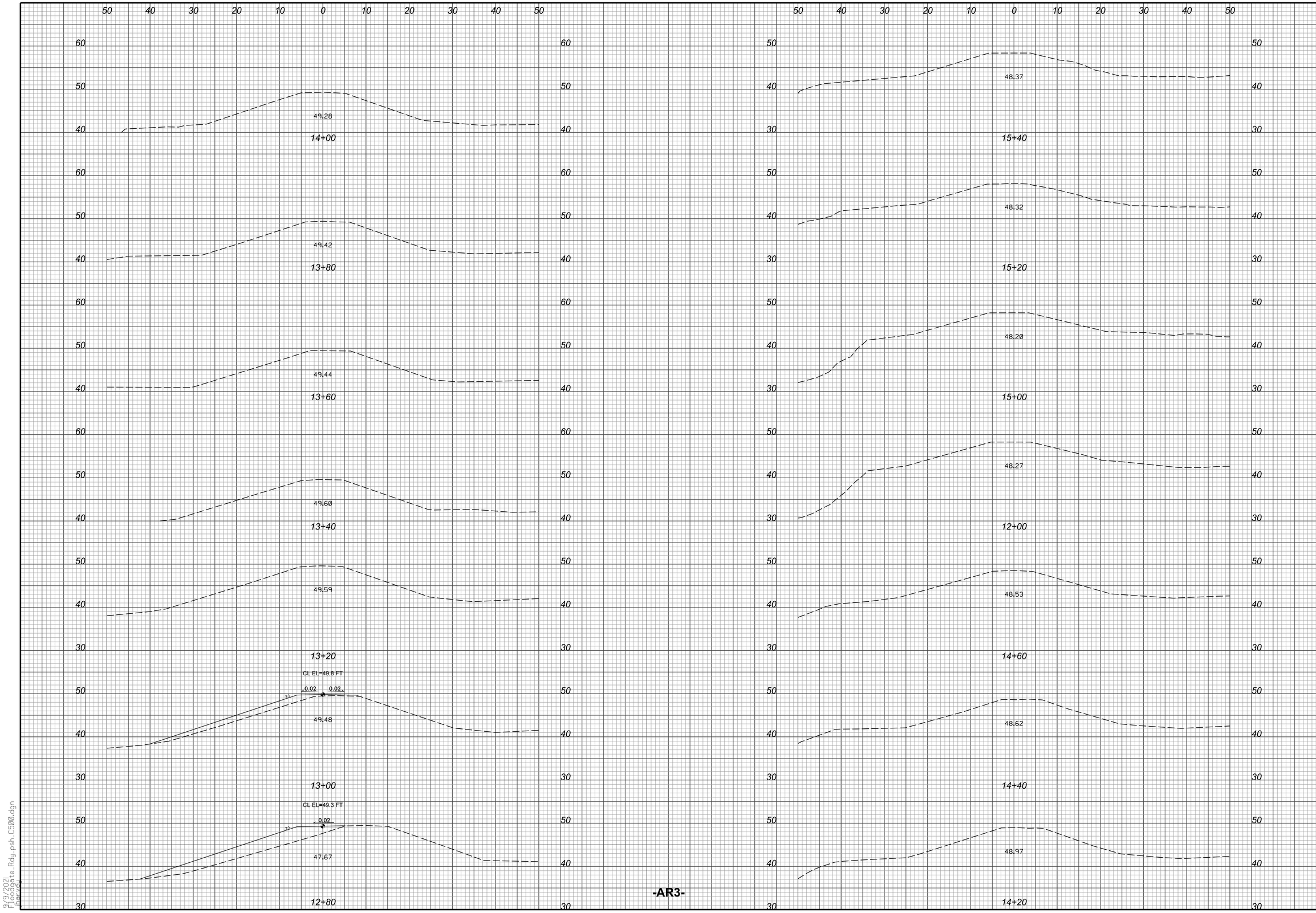

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C509
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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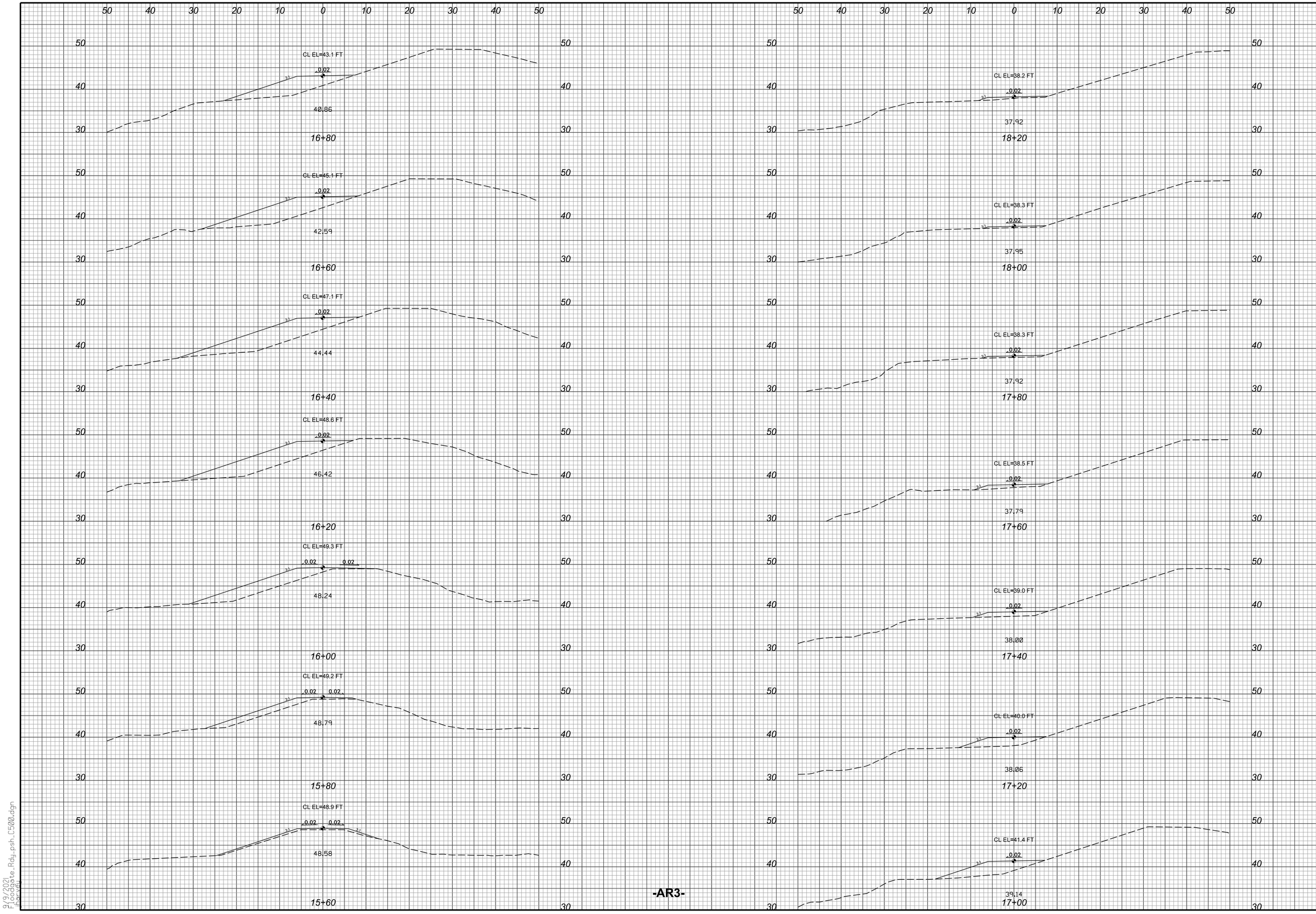

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
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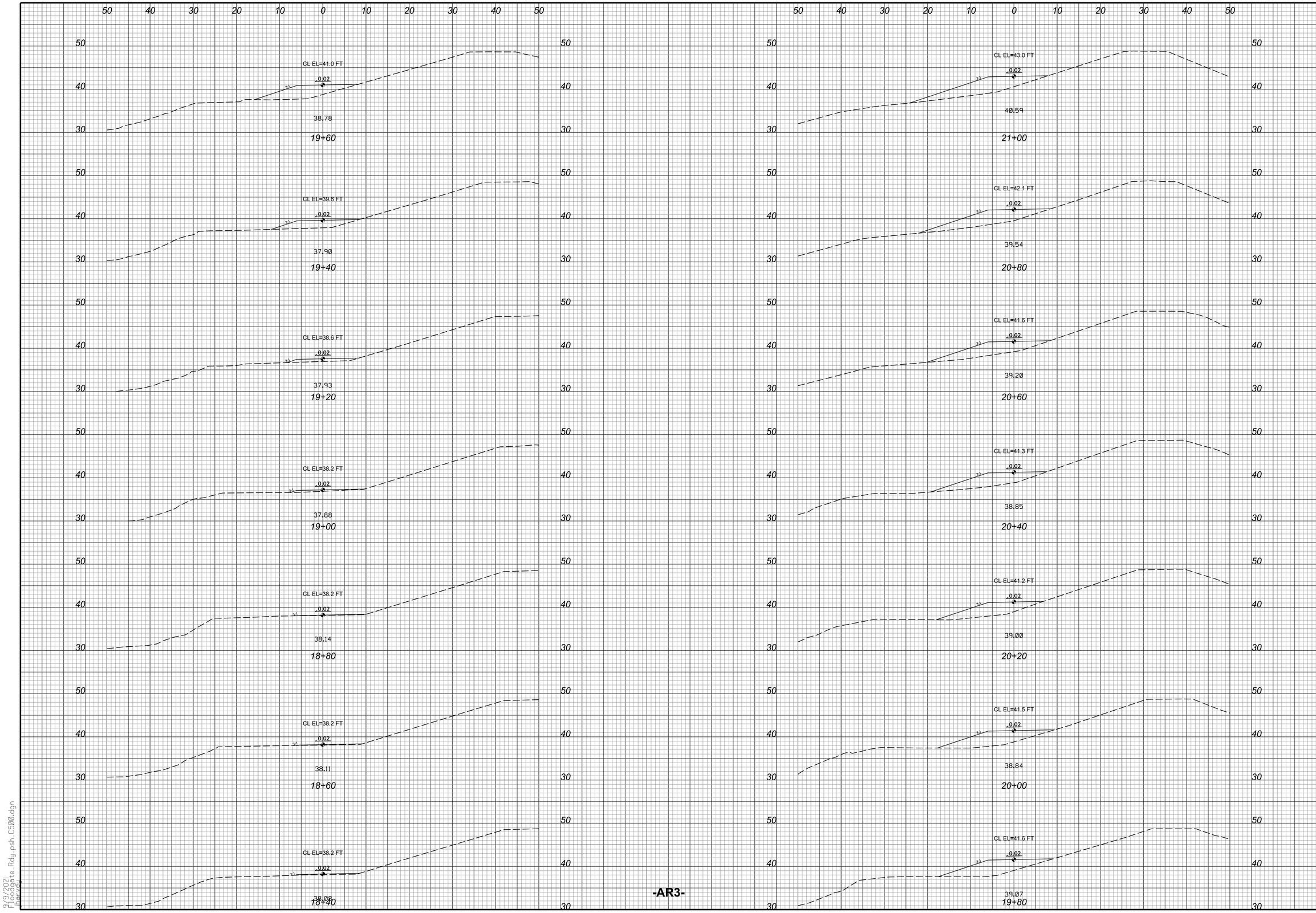

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DocuSigned by:
Joshua G. Dalton
D8B8A2B0C1404E3...

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C5II
DATE: 6-16-2021
DRAWN BY:
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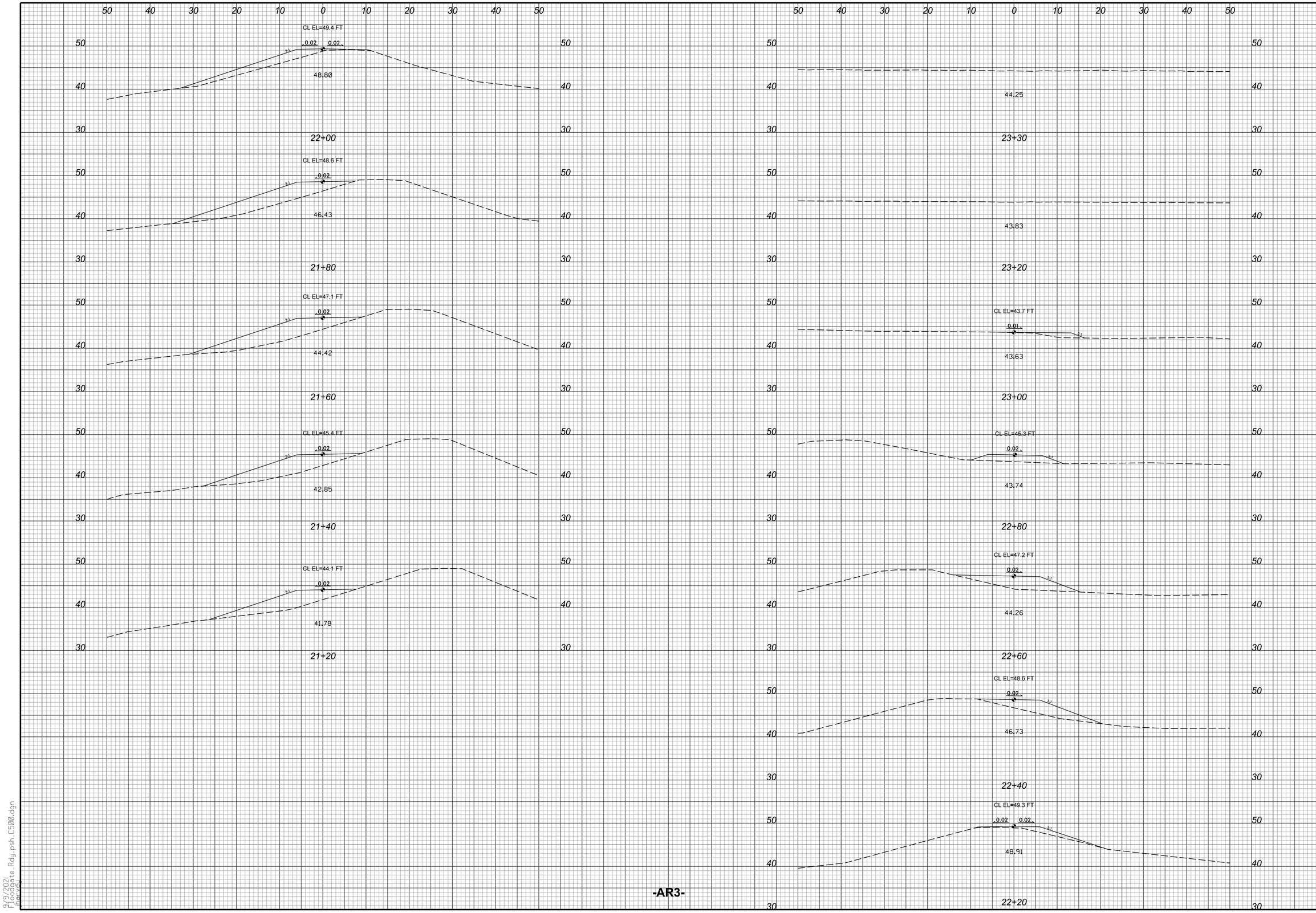

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C512
DATE: 6-16-2021
DRAWN BY:
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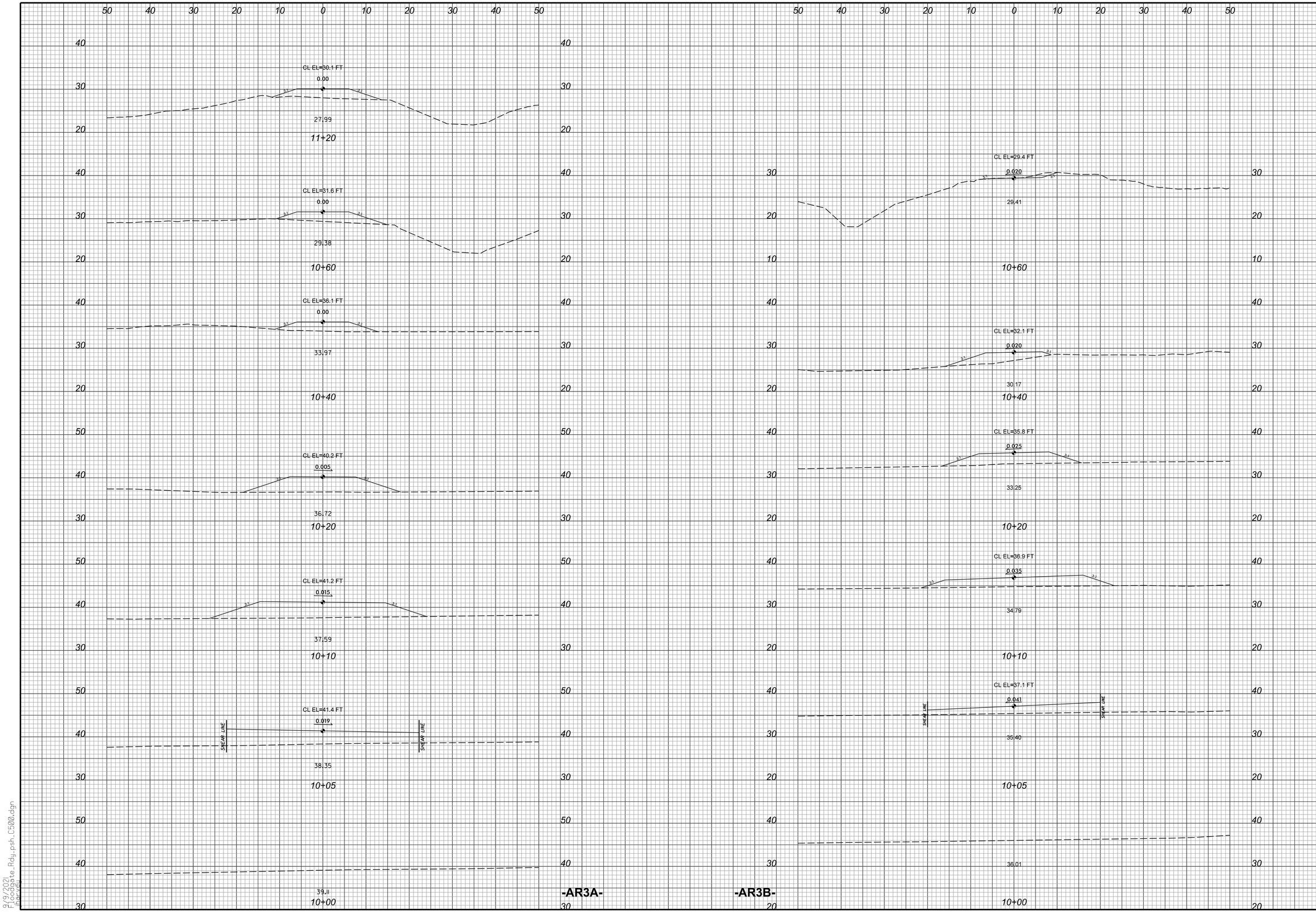

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3A-, -AR3B-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C513
DATE: 6-16-2021
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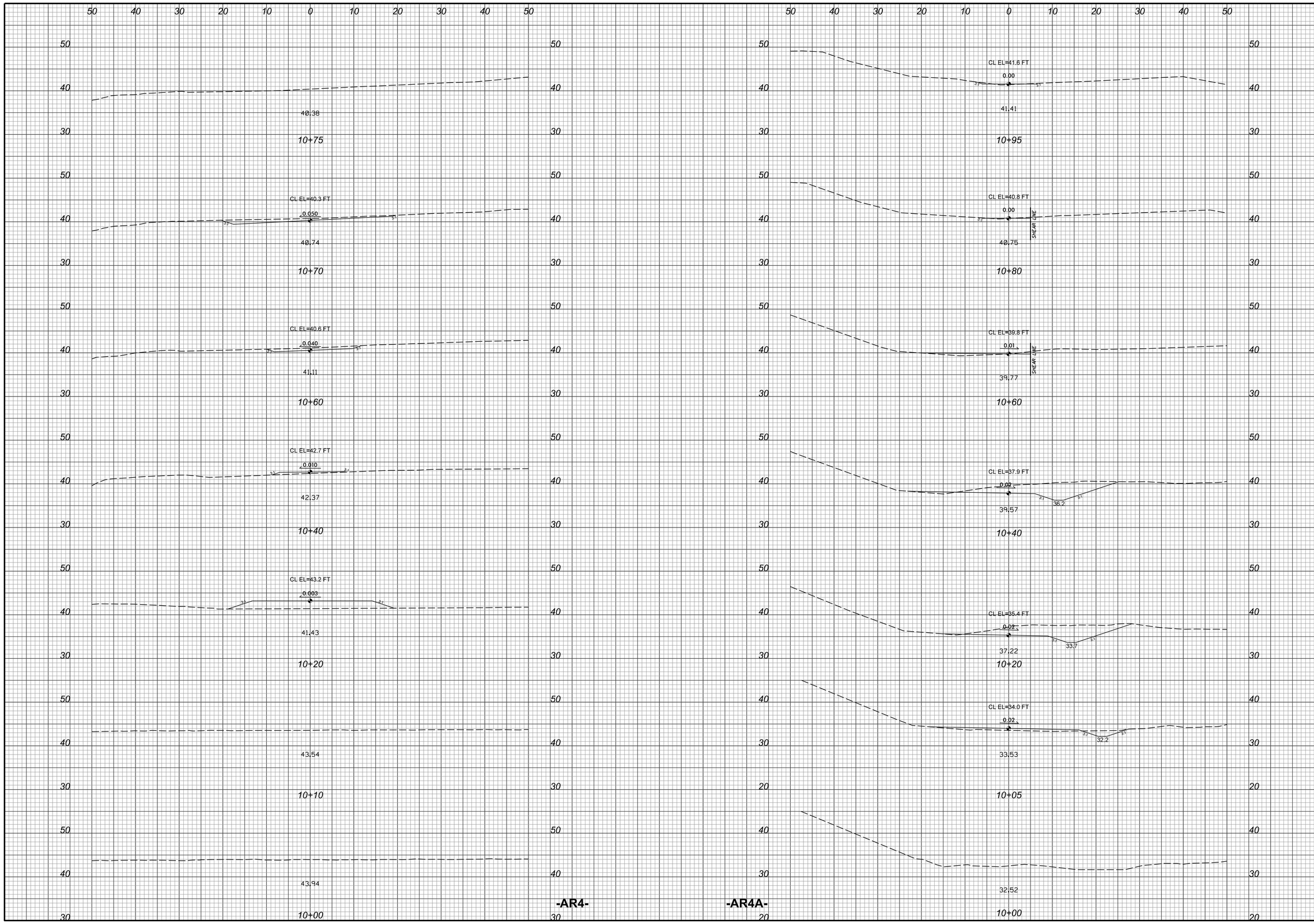

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[illegible]

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR4- -AR4A-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C514
DATE: 6-16-2021
DRAWN BY:
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RALEIGH, NORTH CAROLINA 27606
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Joshua G. Dalton
(08A2DBC1489442...)

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CROSS SECTIONS - SITE 2-3 -AR5-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C515
DATE:	6-16-2021
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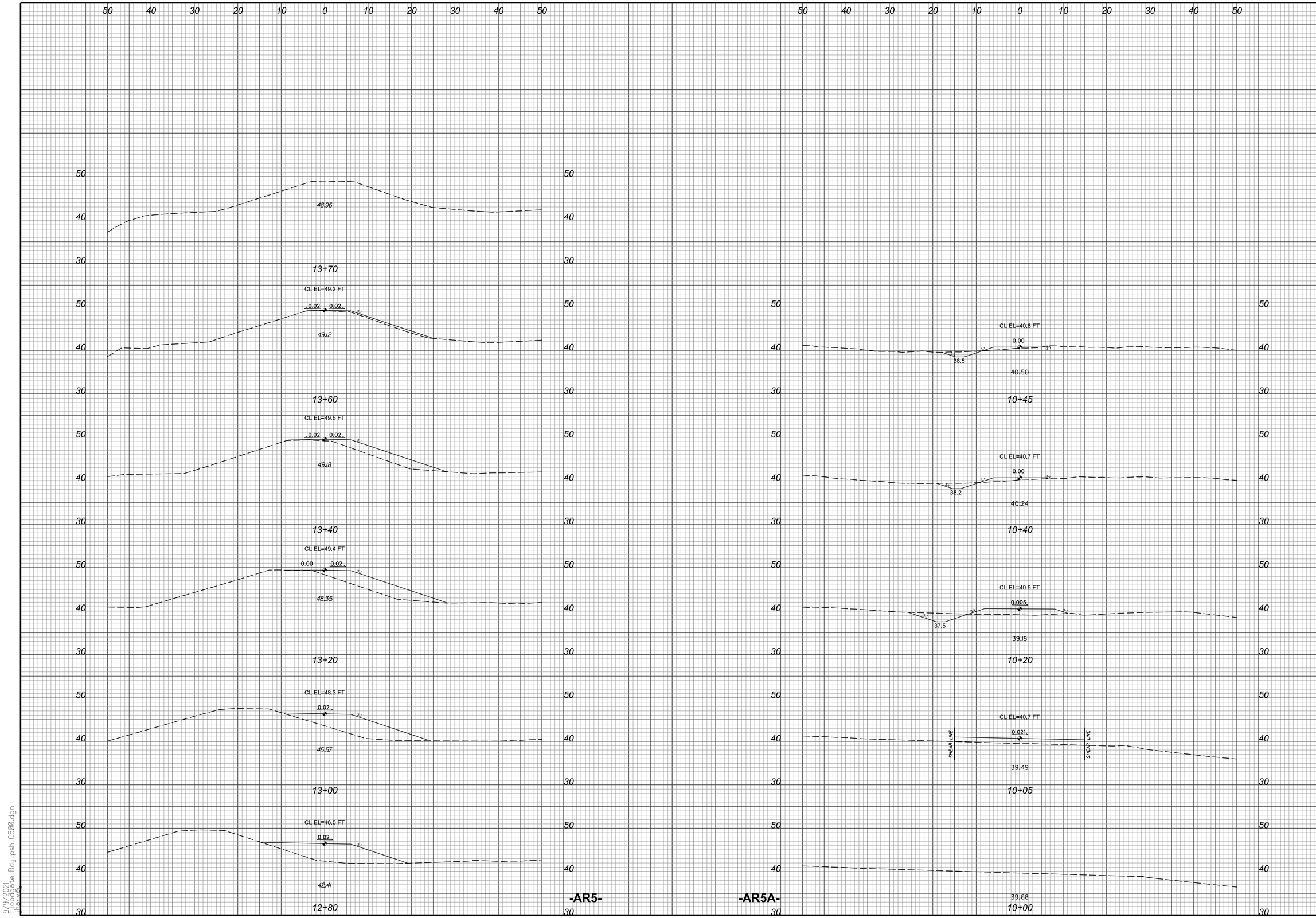

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR5-, -AR5A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C516
DATE: 6-16-2021
DRAWN BY:
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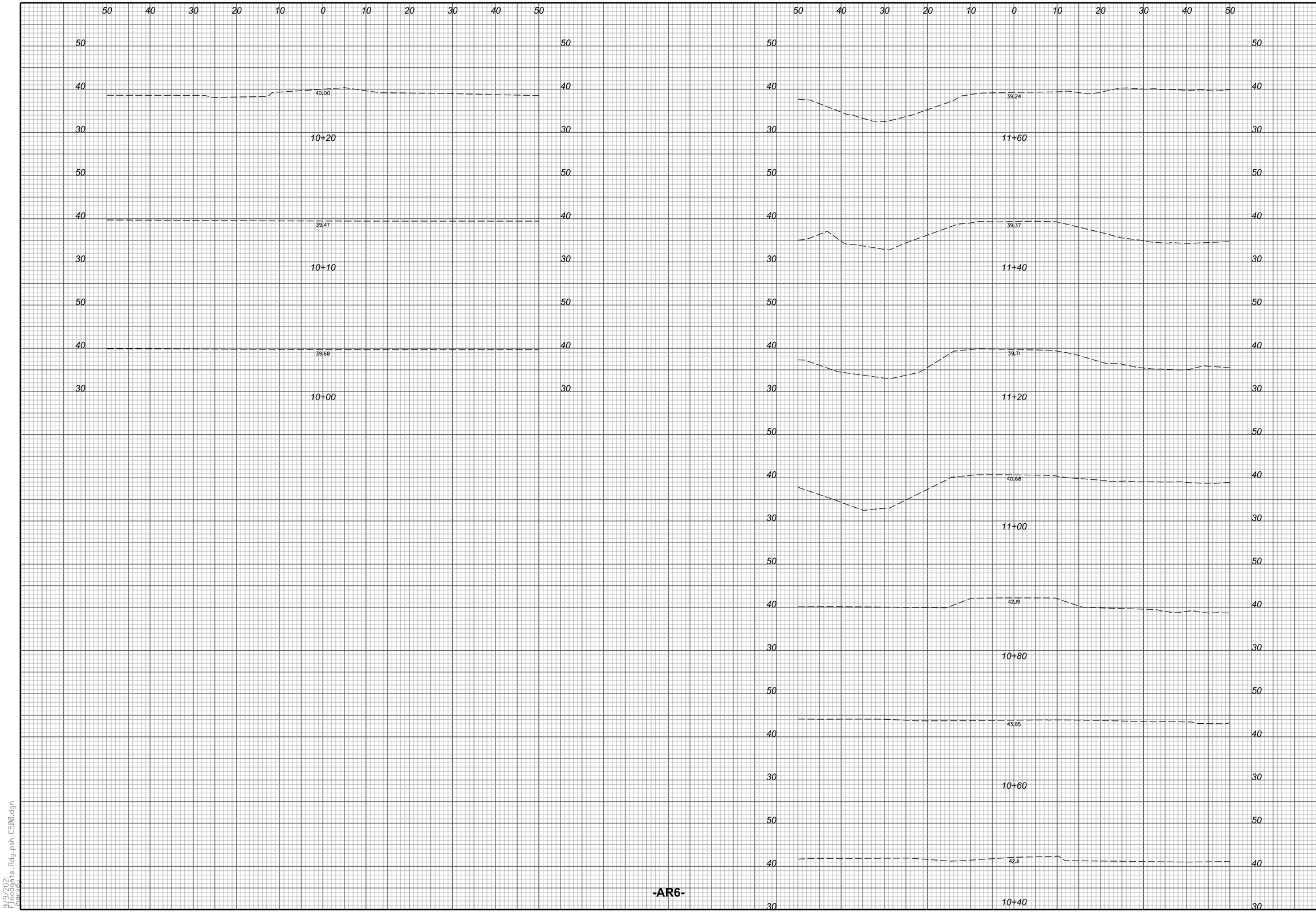

-AR6-

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Joshua G. Dalton
(RDA/DFG)1400044C3
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR6-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C517
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C5.17

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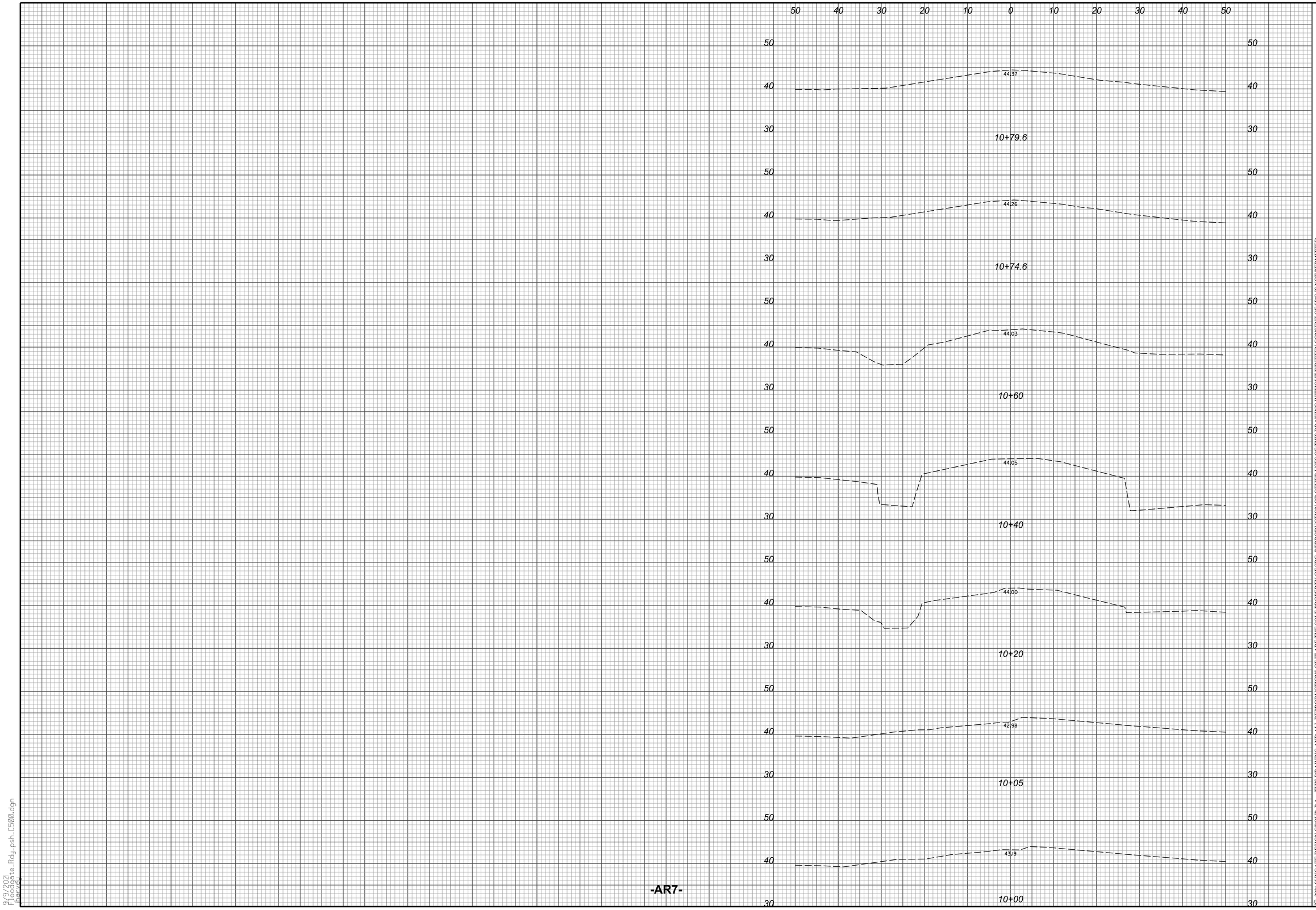

-AR7-

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Joshua G. Dalton
1084A0801A9A45
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR7-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C518
DATE: 6-16-2021
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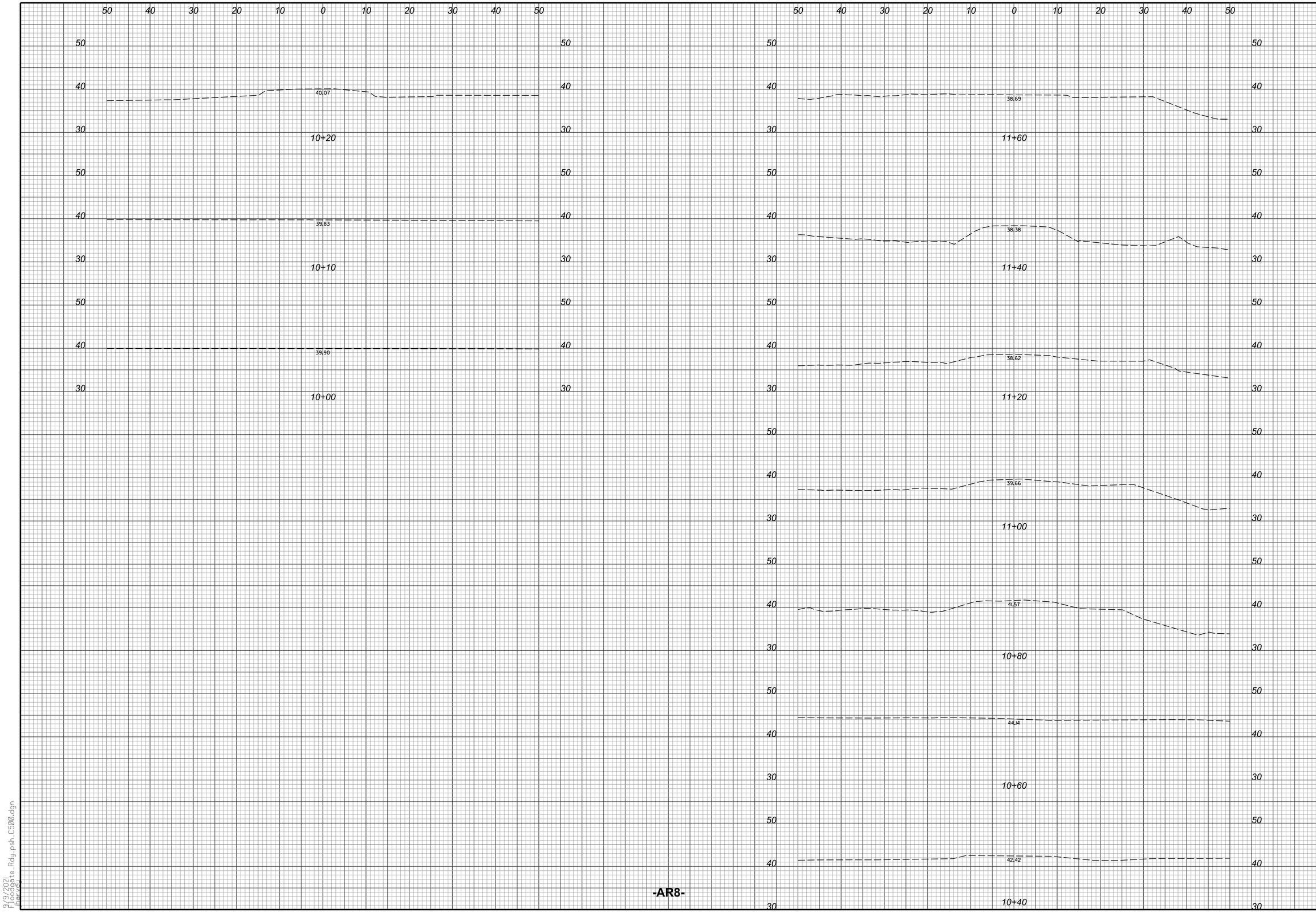

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR8-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C519
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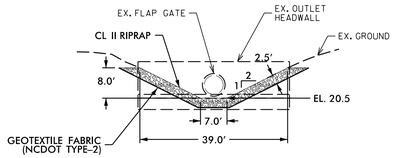
SITE 1

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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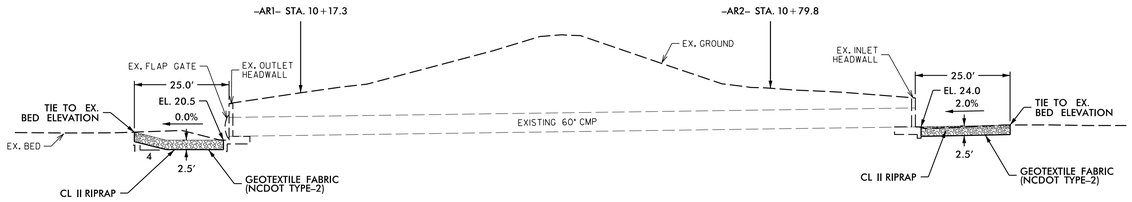
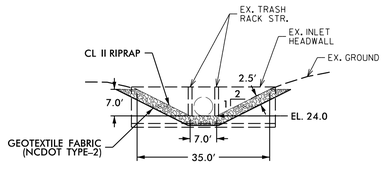


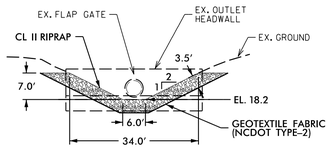
INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 2

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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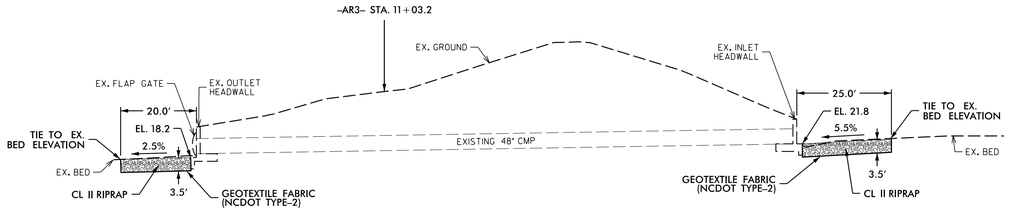
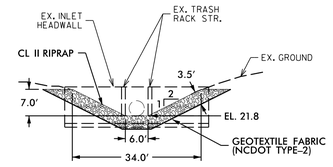


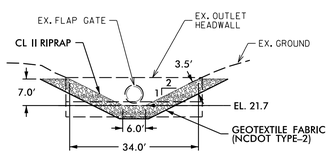
INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 3

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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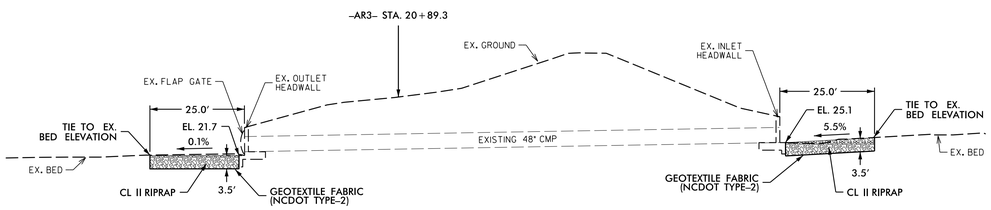
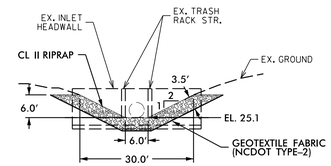
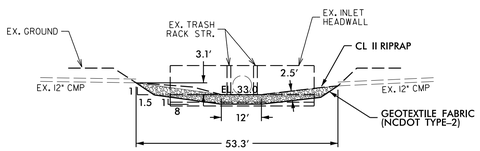


INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 4



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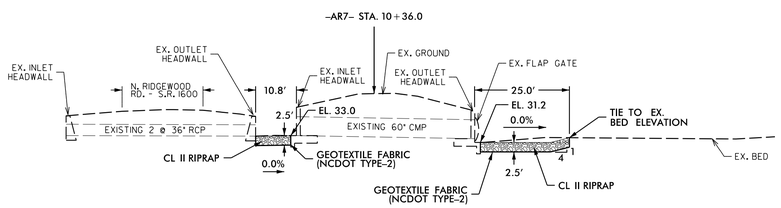
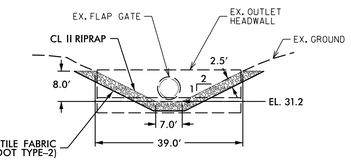


INLET & OUTLET CHANNEL PROFILE

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL

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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CHANNEL PROFILES & TYPICAL SECTIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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CONSTRUCTION SEQUENCE

1. Obtain a Land Disturbing Permit.
2. Submit documentation required under the site NPDES stormwater permit for construction activity (NCG010000) to Stormwater Inspections throughout the project.
3. Schedule a pre-construction conference with NCDEQ Erosion Control Officer and Erosion Control Design Engineer. Contact DEMLR Raleigh Regional Office at least 48 hours prior to commencing the land-disturbing activity at (919) 791-4200.
4. Erosion and Sediment Control (E&SC) permit and Certificate of Coverage (COC) must be obtained before any land disturbing activities occur.
5. Per NPDES requirements, a rain gauge, self-inspections records, permit, Certificate of Coverage, and E&SC Plan are required to be maintained on-site and accessible during inspection. It is recommended that these items be placed in a permits box at the beginning or entrance of project.
6. Construction activities that have an E&SC Plan approved on or after April 1, 2019 are required to fill out and submit an electronic Notice of Intent (e-NOI) form. All construction activities are required to follow the new NCG01 permit regardless of when plans were approved.
7. The contractor shall conduct self-inspections of the erosion and sediment control measures and complete the following combined self-inspection form found on the DEMLR website:
   https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/NPDES%20General%20Permits/DEMLR-CSW-Monitoring-Form-Rev-August-8-2019.pdf. Twelve months of complete inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in a permits box.
8. Self-inspections for erosion and sedimentation control measures are to be performed at least once every seven calendar days and within 24 hours of every rain event of greater than 1 inch. Any needed repairs shall be made immediately to maintain measures as details on this plan. A rain gauge shall be installed at the project site for monitoring.
9. Install all temporary erosion and sediment control measures including silt fence, tree protection, and inlet protection. Limit clearing and land disturbing activity to the area necessary to install the permitted measures.
10. Begin clearing and grubbing.
11. Stabilize any bare areas resulting from construction activity within times frames established by NCG-01 ground cover stabilization guidelines.
12. Increase maintenance frequency where approved measures fail to prevent accelerated erosion, off-site sedimentation, or repetitive non-compliance issues.
13. At sites 1 through 4:
    a. Install special stilling basin(s).
    b. Install pumps and temporary flexible hoses.
    c. Install impervious dikes, and begin pumping operations for stream diversion.
    d. Dewater construction area, using special stilling basin(s) for pumped effluent.
    e. Key in Class II rip rap at inlet and outlet channels.
    f. Excavate any accumulated silt and dewater before removal of impervious dikes.
    g. Remove impervious dikes, pumps, and temporary flexible hoses, and any remaining special stilling basin(s).
    h. Complete construction of access roads.
14. Maintain all erosion and sediment control measures in good working order. Silt fence, inlet protection and other similar measures must be cleaned out before they are half full. Clogged stone filters must be refreshed or replaced. Silt fence cannot have holes or tears.
15. Stabilize site as areas are brought up to finished grade with vegetation, paving, mulch, matting, etc. Seed and mulch denuded areas per Ground Stabilization.
16. Perimeter silt fence will be maintained throughout the project until permanent ground cover is established.
17. Once the site is completely stabilized, remove temporary erosion control measures and seed out any resulting bare areas.
18. When vegetation has become established, call for a final site inspection by the Erosion Control Design Engineer.
19. When the project is complete, the permittee shall contact DEMLR to close out the E&SC Plan. After DEMLR informs the permittee of the project close out, via inspection report, the permittee shall visit deq.nc.gov/NCG01 to submit an electronic Notice of Termination (e-NOT). A $100 annual general permit fee will be charged until the e-NOT has been filled out.

General Maintenance Requirements:

-1. All erosion and sediment control practices will be checked for stability and operation following every runoff producing rainfall, but in no case less than once every week. Any needed repairs will be made immediately to maintain all practices as designed.

-2. All seeded areas will be fertilized, reseeded as necessary, and mulched according to specifications in the vegetative plan to maintain a vigorous, dense vegetative cover.

VEGETATIVE PLAN

Seedbed Preparation

1. Chisel compacted areas and spread topsoil 2 to 3 inches deep over adverse soil conditions, if available.
2. Rip the entire area to a depth of not less than 5 inches, unless directed otherwise.
3. Remove all loose rock, roots and other obstructions 3 inches or larger on median, leaving surface reasonably smooth and uniform.
4. Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mixture below).
5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 2 to 3 inches deep.
6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7. Mulch within 24 hours after seeding and anchor mulch.
8. Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be more than 60% damaged, re-establish following the original lime, fertilizer and seeding rates.

Mixture

Agricultural Limestone	2 tons/acre in sandy soils (3 tons/acre in clay soils or per soil tests)
Fertilizer	1,000 lbs/acre – 10-10-10
Superphosphate	500 lbs/acre – 20% analysis
Mulch	2 tons/acre – small grain straw
Anchor	Asphalt emulsion at 400 gals/acre

Seeding Schedule

For Shoulders, Side Ditches, Slopes (Max 3:1):

Date	Type	Planting Rate
Aug 15– Nov 1	Tall Fescue	300 lbs/acre
Nov 1– Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1– Apr 15	Tall Fescue	300 lbs/acre
Apr 15– Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1– Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	125 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)

For Shoulders, Side Ditches, Slopes (3:1 to 2:1):

Date	Type	Planting Rate
Mar 1– Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza);
Mar 1– Apr 15	Add Tall Fescue	120 lbs/acre
Mar 1– Jun 30	Or add Hulled Common Bermudagrass	25 lbs/acre
Jun 1– Sept 1	Tall Fescue AND Browntop Mullet or Sorghum-Sudan Hybrids***	120 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Mullet); 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1– Mar 1	Sericea Lespedeza (unhulled – unscarified) AND Tall Fescue	70 lbs/acre (Sericea Lespedeza); 120 lbs/acre (Tall Fescue)
Nov 1– Mar 1	AND Abruzzi Rye	25 lbs/acre

The Contractor shall select a nurse crop from the table below that is best suited to the specific site conditions and characteristics. The nurse crop shall be added to and applied along with the permanent vegetative mixture.

Consult Erosion Control Design Engineer for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those that do well under local conditions; other seeding rate combinations are possible.

*** TEMPORARY: Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12" in height before mowing; otherwise, fescue may be shaded out.

Riparian Seeding and Mulching

Riparian Seeding and Mulching shall be performed on the disturbed areas of riparian areas within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

August 1 - June 1		May 1 – September 1	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Mulch within 24 hours of seeding and anchor mulch.

Mulch 2 tons/acre – small grain straw
Anchor Asphalt emulsion at 400 gals/acre

HERBACEOUS PLANTS-Seeding recommendations for immediate stabilization/nurse crops
(2 to 5 weeks for development; effectiveness goal: 6 months to 1 year stabilization) **Table 6.11.a**

NURSE CROP SPECIES

Common Name	Botanical Name	Native / Introduced	Seeding Rates lbs/acre	Fertilization/ limestone lbs/acre	Optimal Planting Dates: Mountains	Piedmont	Coastal Plains	Sun/Shade tolerant	Wetlands	Riparian Buffers	Invasive Yes or No	Installation / Maintenance Considerations	Other information, commentary
Rye Grain	*Secale cereale*	I	40 lbs	By soil test	11/1 - 4/30	8/15 - 4/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	
Wheat	*Triticum aestivum*	I	30 lbs	By soil test	11/1 - 4/30	8/15 - 5/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
German Millet	*Setaria italica*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Browntop Millet	*Urochloa ramosa*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Sudangrass (hybrids)	*Sorghum saccharatum* *S. bicolor ssp.Drummondi*	I	15 lbs	By soil test	NR	NR	4/15 - 8/15	Sun	No	No	Yes	Crop should be cut / disc prior to planting primary or long term vegetation	Use only where plants and seed can be contained and controlled.
Kobe Lespedeza	*Kummerowia striata v. kobe*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Coastal Plain
Korean Lespedeza	*Kummerowia stipulacea*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Piedmont and Mountains. May become invasive

NOTES:
1. Seeding rates are for hulled seed unless otherwise noted.
2. Fertilizer & Limestone - rates to be applied in absense of soils tests. Recommended application rate assumes significantly disturbed site soils with little or no residual value.
3. NR means Species not recommended for this region or application area.
4. Invasive designation as determined by the N.C. Exotic Pest Plant Council and N.C. Native Plant Society .
5. Sprigging is not recommended for immediate stabilization unless terrain is flat heavy mulch is applied and no other immediate stabilization method is practical.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C6.02**

9/9/2021
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Date:

Page:

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
· Temporary grass seed covered with straw or other mulches and tackifiers. · Hydroseeding · Rolled erosion control products with or without temporary grass seed · Appropriately applied straw or other mulch · Plastic sheeting	· Permanent grass seed covered with straw or other mulches and tackifiers · Geotextile fabrics such as permanent soil reinforcement matting · Hydroseeding · Shrubs or other permanent plantings covered with mulch · Uniform and evenly distributed ground cover sufficient to restrain erosion · Structural methods such as concrete, asphalt or retaining walls · Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

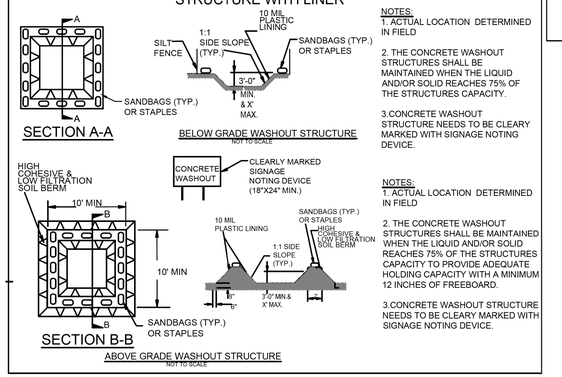
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE: 11/12/2020

NCG-01 GROUND COVER & MATERIALS HANDLING

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:
SHEET NO. C6.03

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Date:

Page:

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "Zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the measures inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Indication of whether the measures were operating properly 5. Description of maintenance needs for the measure 6. Description, Evidence, and date of corrective actions taken
(3) Stormwater discharge outfalls(SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the discharge outfalls inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration 5. Indication of visible sediment leaving the site 6. Description, Evidence, and date corrective actions taken
(4) Perimeter of Site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If visible Sedimentation is found outside site limits, then record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 3) An explanation as to the actions taken to control future releases
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If the stream or wetland has increased visible sedimentation or has visible increased turbidity from the construction activity, then a record of the following shall be made: 1) Description, Evidence and date of corrective actions taken 2)Records of required reports to the appropriate Division Regional Office per Part III, Section C, Item(2)(a) of this permit
(6) Ground Stabilization Measures	After each phase of grading.	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Document Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframe (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• Within 24 hours, an oral or electronic notification. • Within 7 Calendar Days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related caused, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• Within 24 Hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible.* The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE:11/12/2020

NCG-01 SELF INSPECTION

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.04

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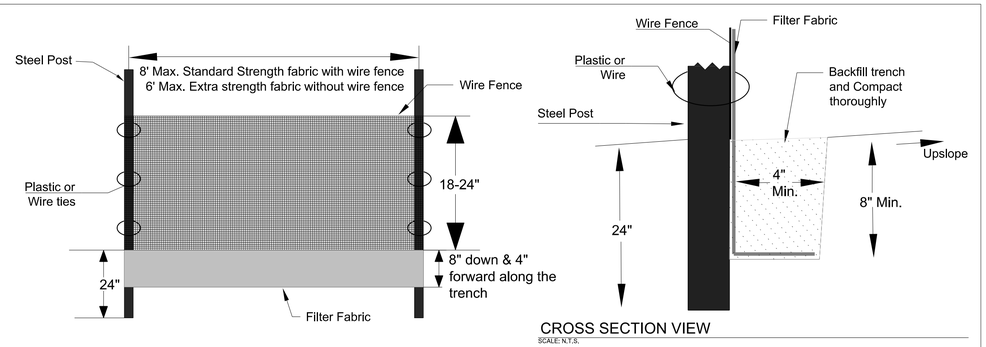
Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements					
	Test Material	Units	Supported[1] Silt Fence	Un-Supported[1] Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
Machine Direction			400	550	MARV
			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.60	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated poylmer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.



CROSS SECTION VIEW
SCALE: N.T.S.

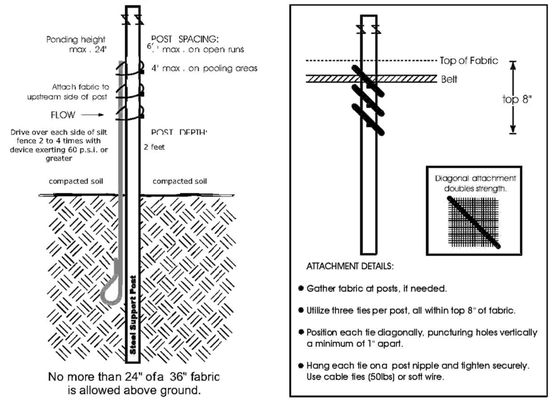
Construction:
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches.
6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
7. Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
8. Place 12 inches of fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

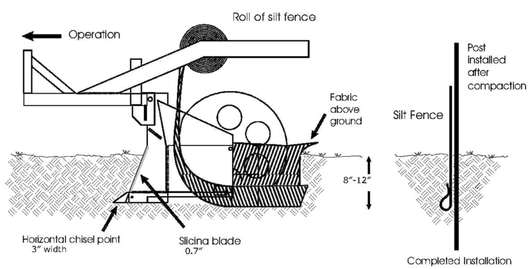
Maintenance:
1. Inspect sediment fences at least once a week and after each 1 inch or greater rainfall. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

DETAIL - SILT FENCE

SCALE: N.T.S

The Slicing Method





Vibratory plow is not acceptable because of horizontal compaction

Figure 6.62b Schematics for using the slicing method to install a sediment fence. Adapted from *Silt Fence that Works*

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
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9/9/2021
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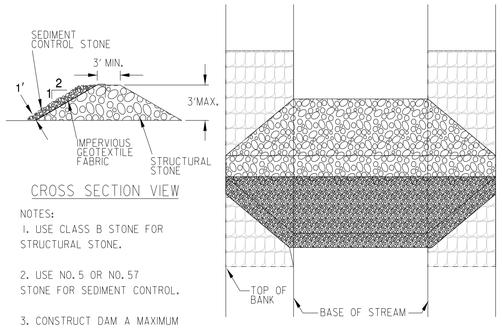


CROSS SECTION VIEW

TOP VIEW

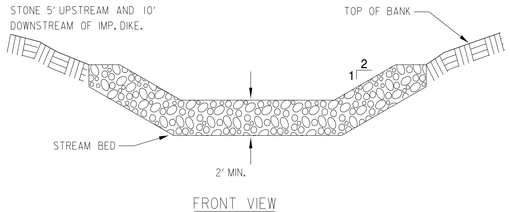
NOTES:
1. USE CLASS B STONE FOR STRUCTURAL STONE.

2. USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.

3. CONSTRUCT DAM A MAXIMUM OF 1 FT. ABOVE NORMAL FLOW DEPTH.

4. TOE IN IMPERVIOUS MATERIAL

5. LINE BANKS WITH CLASS B STONE 5' UPSTREAM AND 10' DOWNSTREAM OF IMP. DIKE.



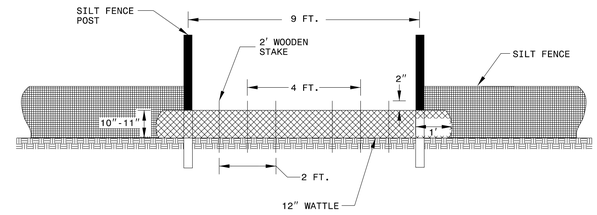
FRONT VIEW

DETAIL - IMPERVIOUS DIKE - STONE LINED WITH POLYPROPYLENE

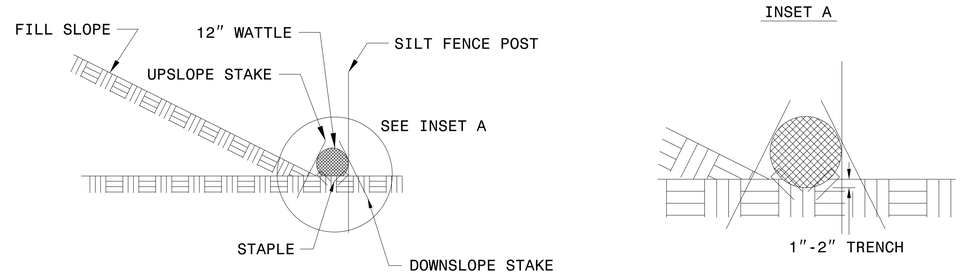
SCALE: N.T.S

CONSTRUCTION SEQUENCE:
- PREPARE THE CHANNEL AND OVERBANKS FOR INSTALLATION.
- REMOVE ALL BRANCHES AND DEBRIS FROM THE AREA WHERE THE STONE DIKE WILL BE PLACED.
- MAKE SURE THAT THERE ARE NO SHARP ROCKS OR ROOTS THAT CAN PUNCTURE THE GEOTEXTILE.
- DO NOT EXCAVATE THE EXISTING CHANNEL OR BANKS.
- PLACE THE HIGH TENSILE IMPERVIOUS GEOTEXTILE WITH THE CENTER OVER THE PROPOSED DIKE UTILIZE A SMALL AMOUNT OF STONE TO HOLD DOWN THE GEOTEXTILE WHILE ADJUSTMENTS ARE BEING MADE.
- THERE SHOULD BE ENOUGH EXTRA GEOTEXTILE ON EACH SIDE OF THE DIKE TO WRAP UP AND OVER THE STONE DIKE TO MAKE IT IMPERVIOUS.
- PILE STONE ON TOP OF THE GEOTEXTILE TO CREATE THE DIKE STRUCTURE.
- ROLL GEOTEXTILE UP OVER THE STONE TO FORM AN IMPERVIOUS DIKE.
- ROLL THE TOP LAYER FROM THE UPSTREAM TO DOWNSTREAM DIRECTION. SECURE GEOTEXTILE WITH METAL FENCE STAKES OR OTHER SUITABLE MATERIAL.

MAINTENANCE:
- PERIODICALLY INSPECT DIKE FOR DAMAGE AND LEAKS AND REPAIR AS NEEDED.
- REMOVE IMPOUNDED TRASH AND SEDIMENT.



VIEW FROM SLOPE



SIDE VIEW

DETAIL - SILT FENCE COIR FIBER WATTLE BREAK

SCALE: N.T.S

MAINTENANCE:
- IF THE NATURAL FIBERS OF THE WATTLE BECOME TOO SATURATED WITH DEBRIS AND SEDIMENT AND REMOVAL OF THE ITEMS IS NOT POSSIBLE, WATTLE BREAKS SHOULD BE REPLACED.
- STAKES SHOULD BE USED TO ANCHOR THE WATTLE BREAKS ADEQUATELY TO THE GROUND TO PREVENT SCOURING AND WASHOUT DURING STORM EVENTS.

CONSTRUCTION SPECIFICATIONS:

INNER MATERIAL	- COCONUT FIBERS
DIMENSIONS	- MINIMUM DIAMETER OF 12 INCHES AND A MAXIMUM OF 20 INCHES - LENGTH OF 10 FEET - DENSITY OF 3.5 LB/FT^3

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.06

9/9/2021
Floodgate_Rdy_psh_C600.dgn
Joshua

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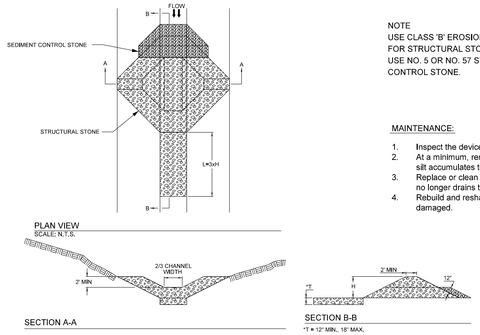
Ditch Spacing For Temporary Rock Silt Check Type 'A'	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



NOTE
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

MAINTENANCE:

1. Inspect the device after each significant rainfall.
2. At a minimum, remove silt from the device when silt accumulates to one-half the height of the weir.
3. Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
4. Rebuild and reshape rock weir and check when the device is damaged.

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'A'

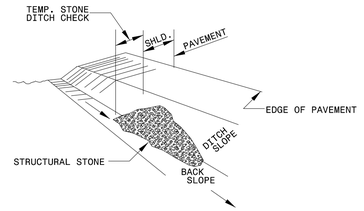
SCALE: N.T.S

Construction Specifications:

Structural Stone	- Use Class B structural stone. - Install stone at a minimum depth of 12 inches. - Install sediment control stone on the upgradient face of the structural stone.
Side Slopes	- 2:1 or flatter.
Weir	- Weir length should be $\frac{2}{3}$ of the channel width. - The weir height shall be a minimum of 1 foot. - The depth of the weir shall be a minimum of 1 foot.

Maintenance:

- Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
- Remove sediment when accumulation reaches one-half the height of the weir.
- Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
- Rebuild and reshape rock weir and check when the device is damaged.



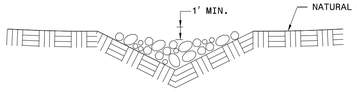
ISOMETRIC VIEW

NOTES:

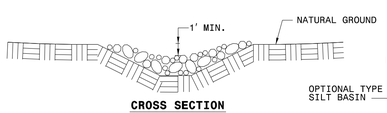
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

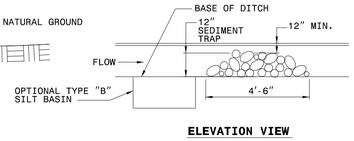
Ditch Spacing For Temporary Rock Silt Check Type 'B'	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH



ELEVATION VIEW

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'B'

SCALE: N.T.S

Construction Specifications:

Installation	- The center of the rock silt check shall be at least 1-foot lower than the outer edges (top of the channel sides). - The maximum height at the center of the rock check should not exceed 2 feet. - The side slopes of the check shall be 2:1 or flatter.
Slope	- Maximum spacing between the checks should place the toe of the upstream check at the top of the downstream check.

Maintenance:

- Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
- Remove silt from device when it accumulates.
- Rebuild and reshape device and weir when the device is damaged or as necessary.
- Cleanout when clogged by straw, limbs, or other debris.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by: Joshua C. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.07

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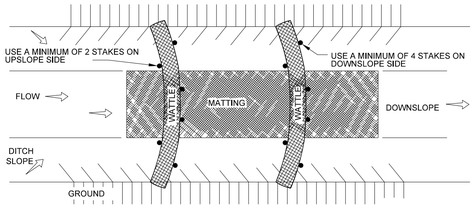
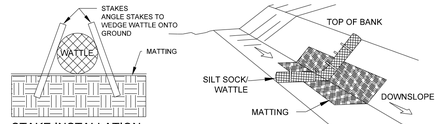


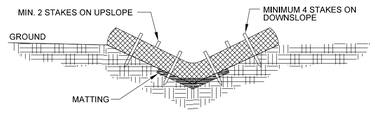
PLAN VIEW
SCALE: N.T.S.



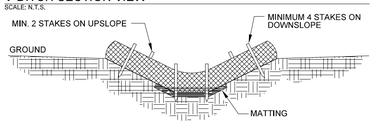
STAKE INSTALLATION
CROSS-SECTION

ISOMETRIC VIEW

Ditch Spacing For 12 Inch Silt Sock/Wattle	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



V-DITCH SECTION VIEW
SCALE: N.T.S.



TRAPEZOIDAL DITCH SECTION VIEW
SCALE: N.T.S.

NOTES:
1. Other materials providing equivalent protection against erosive velocities may be substituted for use in silt socks or wattles.
2. Use a minimum 12 inch diameter silt sock/wattle.
3. Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform.
4. Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.
5. Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and scour slopes, or as directed.
6. Install a minimum of two upslope stakes and four downslope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch.
7. The use of Polyacrylamide (PAM) is recommended. Apply 2-3 ounces of anionic PAM on top of sock/wattle. Apply 1-2 ounces to matting on either side of sock/wattle. Reapply after each 1,0 inch rainfall.

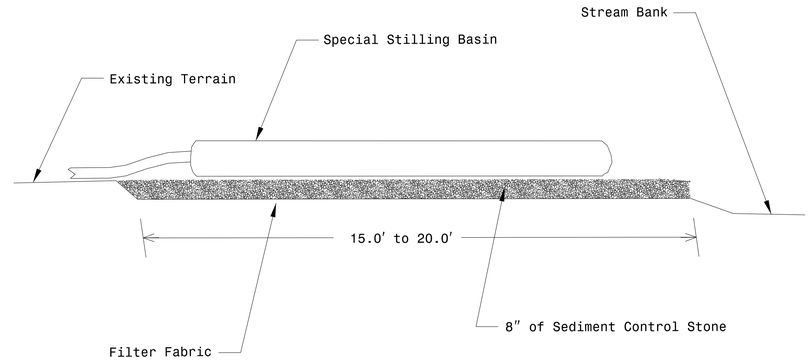
MAINTENANCE:
1. Inspect silt sock/wattle(s) weekly and after each rain of 1 inch or greater. Remove accumulated sediment and any debris.
2. Silt sock/Wattle(s) must be replaced if clogged or torn,
3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
4. Reinstall if damaged or dislodged.
5. Silt socks/Wattles shall be inspected untill land disturbance is compete and the area above the measure is permanently stabilized.

DETAIL - SILT SOCK / WATTLE FOR CHECK DAM
SCALE: N.T.S

Construction Specifications:

Matting	- Install matting in accordance with Section 1631 of the Standard Specifications.
Staples	- Provide staples made of 0.125-inch diameter steel wire formed into a U-shape no less than 12 inches in length. - Install staples approximately every 1 foot on both sides of the wattle and at each end to secure it to the soil.
Stakes	- Use 2-foot wooden stakes with a 2-inch by 2-inch nominal cross section. - Install a minimum of 2 upslope stakes and 4 downslope stakes at an angle to wedge the wattle to the bottom of the ditch. - Drive stakes into the ground a minimum of 10 inches with no more than 2 inches projecting from the top of the wattle.
Flocculant	- Flocculant shall be in powder form and anionic and neutrally charged. - Soil samples should be obtained from areas where wattles will be placed and from off-site material used to construct the roadway. Samples should be analyzed to determine the appropriate flocculant to be used in each wattle. - Flocculant used should be listed on the NCDENR DWR website as an approved product for use in North Carolina. - Flocculant should be applied over the lower center portion of the wattle where the water will flow at a rate of 2 ounces per wattle. - Apply 1 ounce of flocculant on each side of the wattle. - Flocculant should be evaluated and applied after every rainfall event that is equal to or exceeds 0.5 inches.
Overlap	- Overlap adjoining sections of wattles a minimum of 1 foot.

Maintenance:
- The upstream side of the wattle should be maintained to allow the water to flow through, reduce velocity, distribute flocculant and allow sedimentation to occur.
- If the natural fibers of the wattle become too saturated with debris, sediment, etc., and removal of these items is not possible, the wattle should be replaced.
- Stakes should be used to anchor the wattle adequately to the ground to prevent scouring and washout during storm events.
- Maintain excelsior pad beneath the wattle.



MAINTENANCE:
1. The special stilling basin shall be disposed of and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
2. The inlet of the bag should be inspected periodically for damage and/or blockage
3. Sediment control stone shall be replaced if damaged by high flows or bag failure.

Note: Provide Stabilized Outlet to Streambank
Not To Scale

DETAIL - SPECIAL STILLING BASIN
SCALE: N.T.S

Construction Specifications:

Special Stilling Basin	- The bag shall be placed on a rock pad constructed of at least 8 inches of sediment control stone. The bag may also be placed on wooden pallets to elevate it above natural ground. - The rock pad should extend at least 1 foot past the bag on all sides. - The special stilling basin should be placed on level ground. - The special stilling basin shall be placed so that incoming water flows into the bag without causing erosion. - Temporary slope drain pipe(s) or pump discharge hoses will be attached to the special stilling basin(s) so that water is routed directly into the special stilling basin(s). - The special stilling basin may be cut to allow slope drain pipe to be inserted if needed and tied of tightly. The remaining sleeve or spout of the bag, if present, may be used to connect more than one special stilling basin in series, as directed. If not used in this manner, the sleeve shall be tied off tightly to allow the bag to contain the effluent and force it to filter through the sides of the special stilling basin. - When being utilized in drilled pier construction, the special stilling basin should be constructed such that it is portable and can be used adjacent to each drilled pier.

Maintenance:
- The special stilling basin shall be disposed and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
- The inlet of the bag should be inspected periodically for damage and/or blockage.
- Sediment contorl stone shall be replaced if damaged by high flows or bag failure.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G Dalton
ENGINEERING SERVICES
PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
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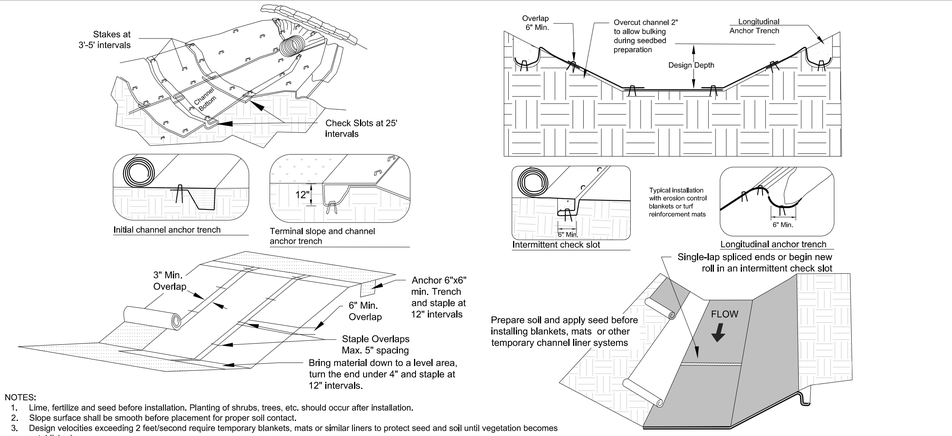
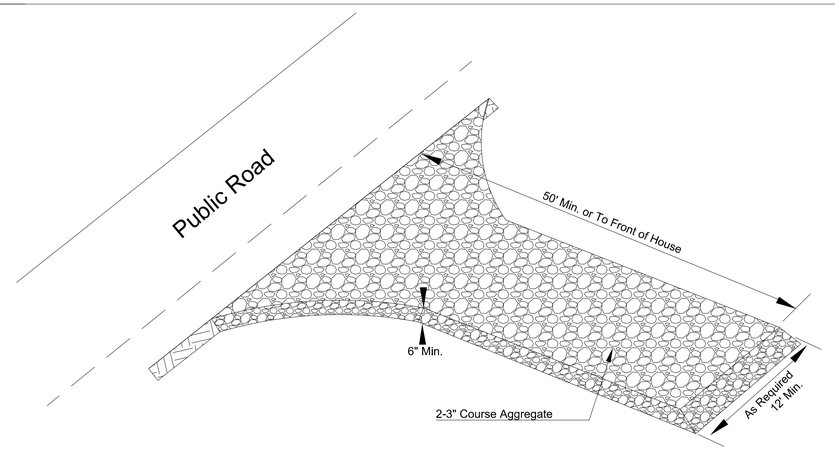


NOTES:
1. Lime, fertilize and seed before installation. Planting of shrubs, trees, etc. should occur after installation.
2. Slope surface shall be smooth before placement for proper soil contact.
3. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
4. Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals.
5. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
6. For installation on a slope, place RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP. Pin using staples or pins in a 3 feet center-to-center pattern.
7. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
8. Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats
9. Check slots to be constructed per manufacturers specifications.
10. Staking or stapling layout per manufacturers specification.
11. If there is a berm at the top of slope, anchor upslope of the berm.
12. Do not stretch blankets/matting tight, allow the rolls to conform to any irregularities.
13. For slopes less than 3H:1V, rolls may be placed in horizontal strips.

MAINTENANCE:
1. Inspect Rolled Erosion Control Products at least weekly and after each rain of 1 inch or greater; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

DETAIL - ROLLED EROSION CONTROL PRODUCTS (RECP)

SCALE: N.T.S



Construction:
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

Maintenance:
1. Per NCG-01 inspect at least once a week and after each 1 inch or greater rainfall; make any required repairs immediately.
2. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2 inch stone.
3. Immediately remove all objectionable materials spilled, washed or tracked onto public roadways.

DETAIL - CONSTRUCTION ENTRANCE / EXIT

SCALE: N.T.S

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
10809DBC34594C1
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.09

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jharvey

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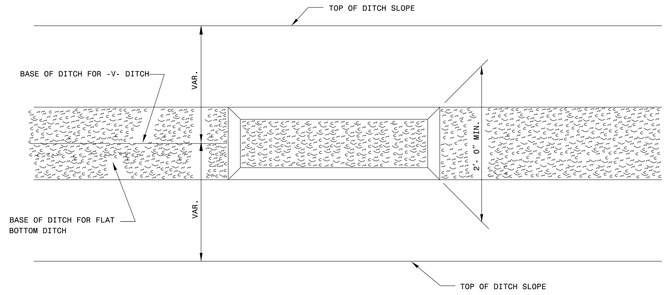
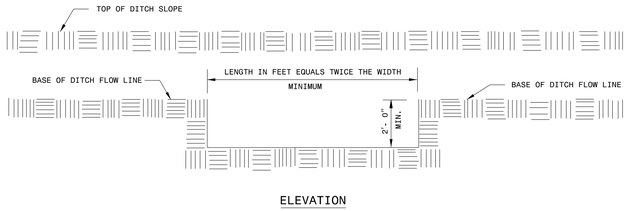


PLAN



ELEVATION

DETAIL - SILT BASIN - TYPE B

SCALE: N.T.S

Construction Specifications:

Silt Basin - Type B	- Construct basins with an excavated depth of at least 2 feet from the base of the ditch flow line. - Construct basins with non-vertical side slopes and not greater than 1.5:1 slope. - For silt basins at drainage outlets, install a minimum of 3 coir fiber baffles in the basin, with a spacing of ¼ the basin length and in accordance with Section 1640 of the Standard Specifications. - Install a minimum of 2 coir fiber baffles in basins with less than 20 feet of length at a spacing of ⅓ the basin length.

Maintenance:

- Inspect the basin on a regular basis and after every significant rainfall event (½ inch or greater).
- At a minimum, clean out the basins when they are approximately one-half full.
- Check for damage to coir fiber baffles and repair and/or replace the baffles.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041

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DATE: 6-16-2021

DRAWN BY:

REVIEWED BY: RCH

REVISIONS:

SHEET NO. C6.10

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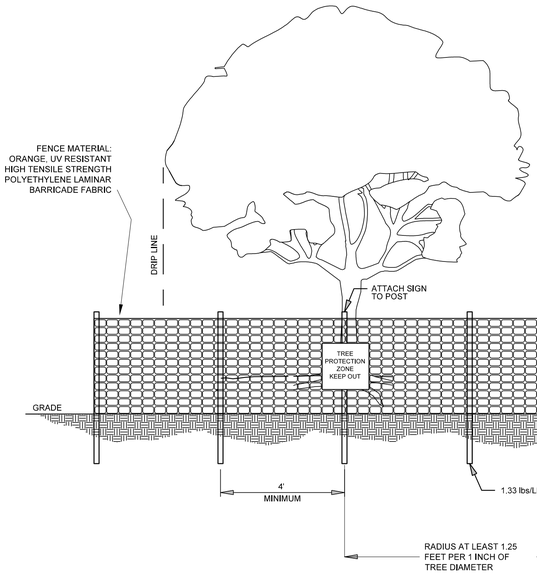


MATURE TREE PROTECTION ZONE RADIUS

TRUNK DIAMETER	GOOD PROTECTION	BETTER PROTECTION	BEST PROTECTION
8 INCHES	10 FEET	12 FEET	20 FEET
12 INCHES	15 FEET	18 FEET	30 FEET
16 INCHES	20 FEET	24 FEET	40 FEET
20 INCHES	25 FEET	30 FEET	50 FEET

NOTES:
1. Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
2. Select trees to be preserved before siting roads, buildings or other structures.
3. Minimize trenching in areas with trees. Place several utilities in the same trench.
4. Prohibit or restrict access to tree protection zones(TPZ). Post "Keep Out" signs on all sides of fencing and do not store construction equipment or materials in TPZ.
5. Monitor trees using a professional or train your staff to monitor tree health during and after construction on a regular, frequent basis.
6. Assign a crew member to weekly TPZ fence integrity checks. Repair and replace TPZ fencing as needed.

MAINTENANCE:
1. Prune any damaged trees. In spite of precautions, some damage to protected trees may occur. In such cases, repair any damage to the crown, trunk, or root system immediately.
2. Repair roots by cutting off the damaged areas and painting them them with tree paint. Spread peat moss or moist topsoil over exposed roots.
3. Repair damage to bark by trimming around the damaged area, taper the cut to provide drainage and paint with tree paint.
4. Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts to avoid peeling bark from healthy areas of the tree.

DETAIL - TREE PROTECTION ZONES

SCALE: N.T.S

Figure 6.05c Tree protection zone guidelines.

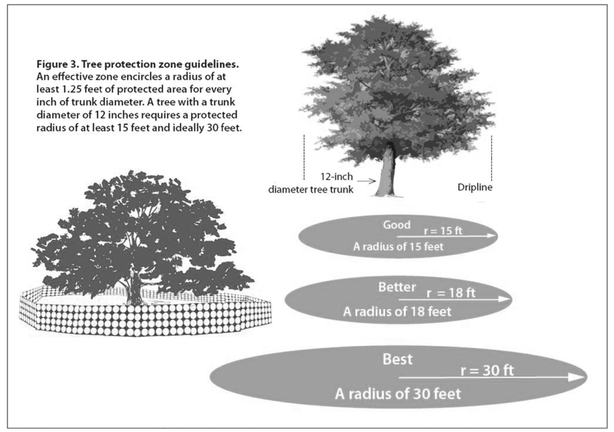
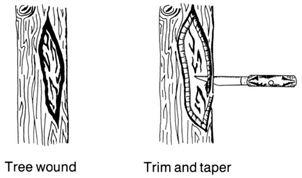
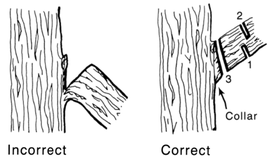


Figure 6.05d Wound repair and pruning of damaged trees.

Trim bark wounds with a tapered cut, then apply tree paint.



Prune damaged branches with three cuts to avoid peeling bark from the trunk when limb falls.



References

Construction and Tree Protection, AG-685 (Revised) North Carolina Cooperative Extension Service

Design Criteria

The following general criteria should be considered when developing sites in wooded areas:

- Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
- Locate roadways, storage areas, and parking pads away from valuable tree stands. Follow natural contours, where feasible, to minimize cutting and filling in the vicinity of trees.
- Select trees to be preserved before siting roads, buildings, or other structures.
- Minimize trenching in areas with trees. Place several utilities in the same trench.
- Designate groups of trees and individual trees to be saved on the erosion and sedimentation control plan.
- **Do not excavate, traverse, or fill closer than the drip line, or perimeter of the canopy, of trees to be saved**.

Construction Specifications

1. Erect TPZ fences. Restrict access to TPZs, with tall, bright, protective fencing. Most fencing is inexpensive and durable enough to last throughout most construction projects. Temporary tree protection fencing should be erected before clearing, deliveries and other construction activities begin on the site.

2. Prohibit or restrict access to TPZs. All on-site workers should be aware of the TPZs and the restrictions on activities within the zones. Use these TPZ guidelines for the best effect:

• Post "keep out" signs on all sides of fencing. Do not store construction equipment or materials in TPZs.

• Prohibit construction activities near the most valuable trees, and restrict activities around others.

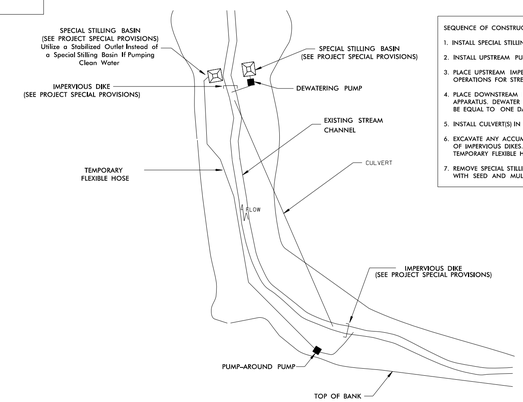
• Assess crew and contractor penalties, if necessary, to keep the TPZs intact.

3. Monitor trees. Vigilance is required to protect trees on construction sites. Use a tree professional or train your staff to monitor tree health during and after construction on a regular, frequent basis. Watch for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.

4. Monitor TPZ fences. Assign a crewmember the weekly responsibility of checking the integrity of TPZ fences. Repair and replace TPZ fencing as needed.

5. Optimize tree health. Assign a trained crewmember or hire a professional to complete regular tree maintenance tasks, including watering, fertilization, and mulching to protect tree roots. Consult a tree professional for advice on these practices if needed. Survival of protected trees will increase if these practices continue during construction. Healthy trees require undisturbed healthy soils. Do not cause injuries to trees and roots. Do not change the soil, grade, drainage, or aeration without protecting priority trees

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

DETAIL - EXAMPLE OF PUMP-AROUND OPERATION

SCALE: N.T.S

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua C. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

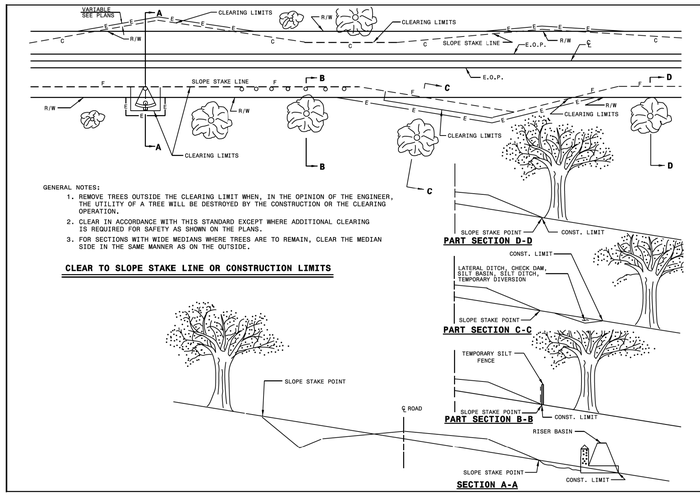
EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C6.11**

9/9/2021
Floodgate_Rdy_psh_C600.dgn
Harrell

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

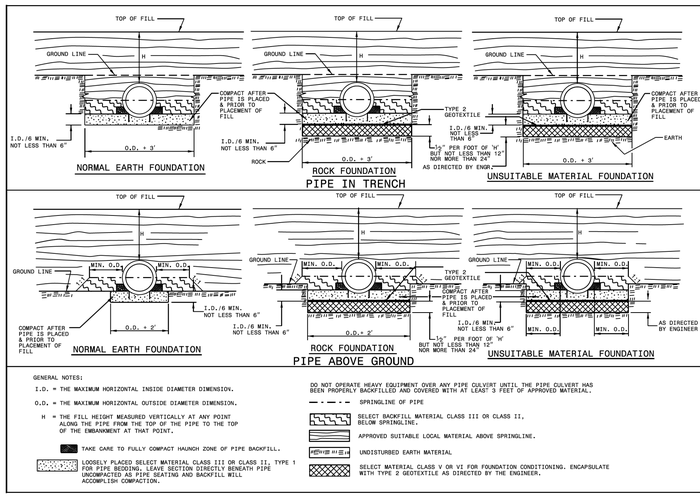


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF CLEARING
METHOD - II

SHEET 1 OF 1
200.02



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	136	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					68

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	324
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≥ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

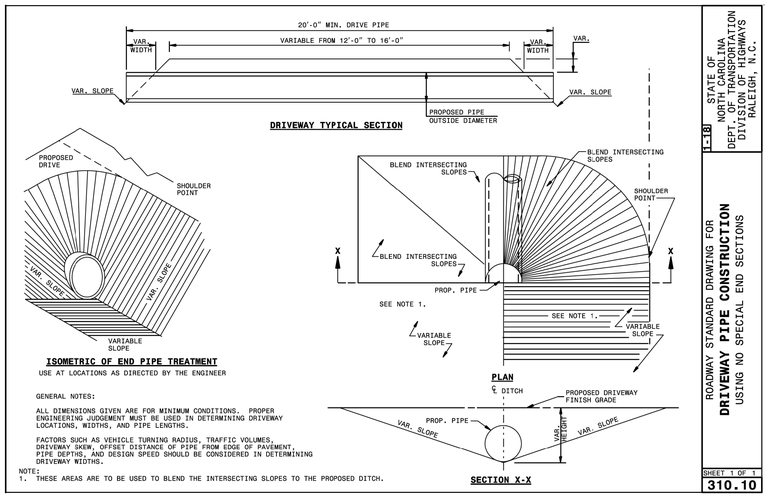
1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300.01

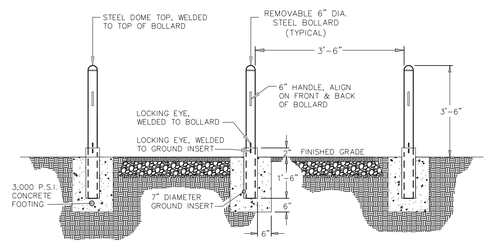


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
DRIVEWAY PIPE CONSTRUCTION
USING NO SPECIAL END SECTIONS

SHEET 1 OF 1
310.10



REMOVABLE STEEL BOLLARD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
CERTIFICATE OF COMPLETION 4B4A2A
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

SITE DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C603
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C6.12

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9/9/2021 Floodgate_Rdy_psh_C600.dgn Shawn

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

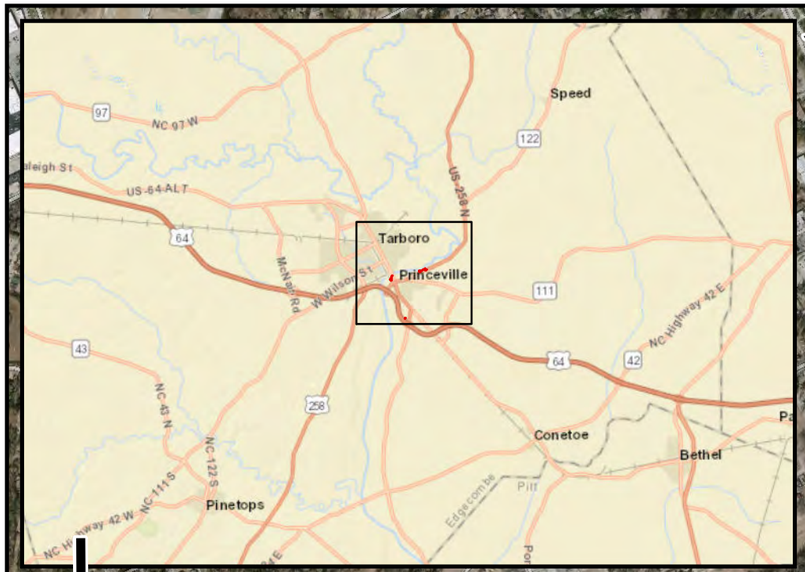
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

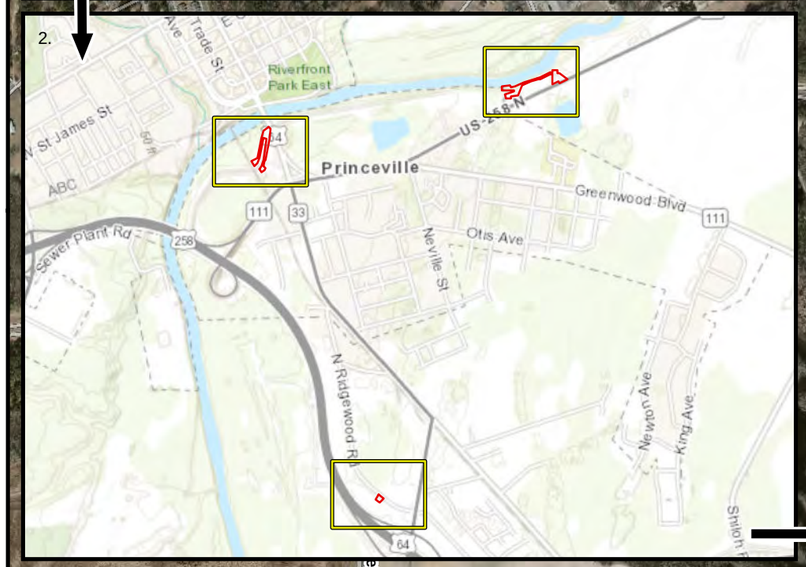
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

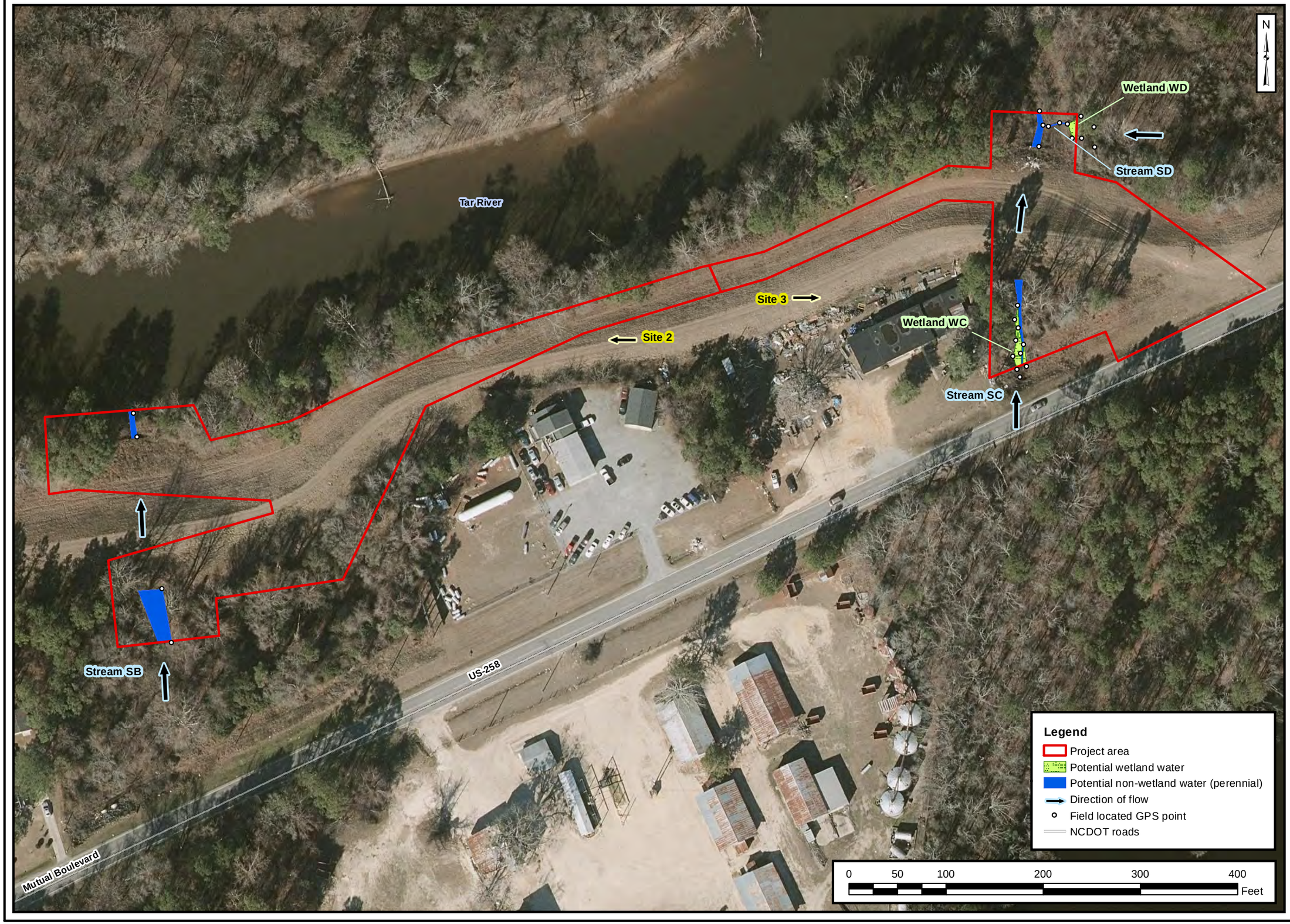
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

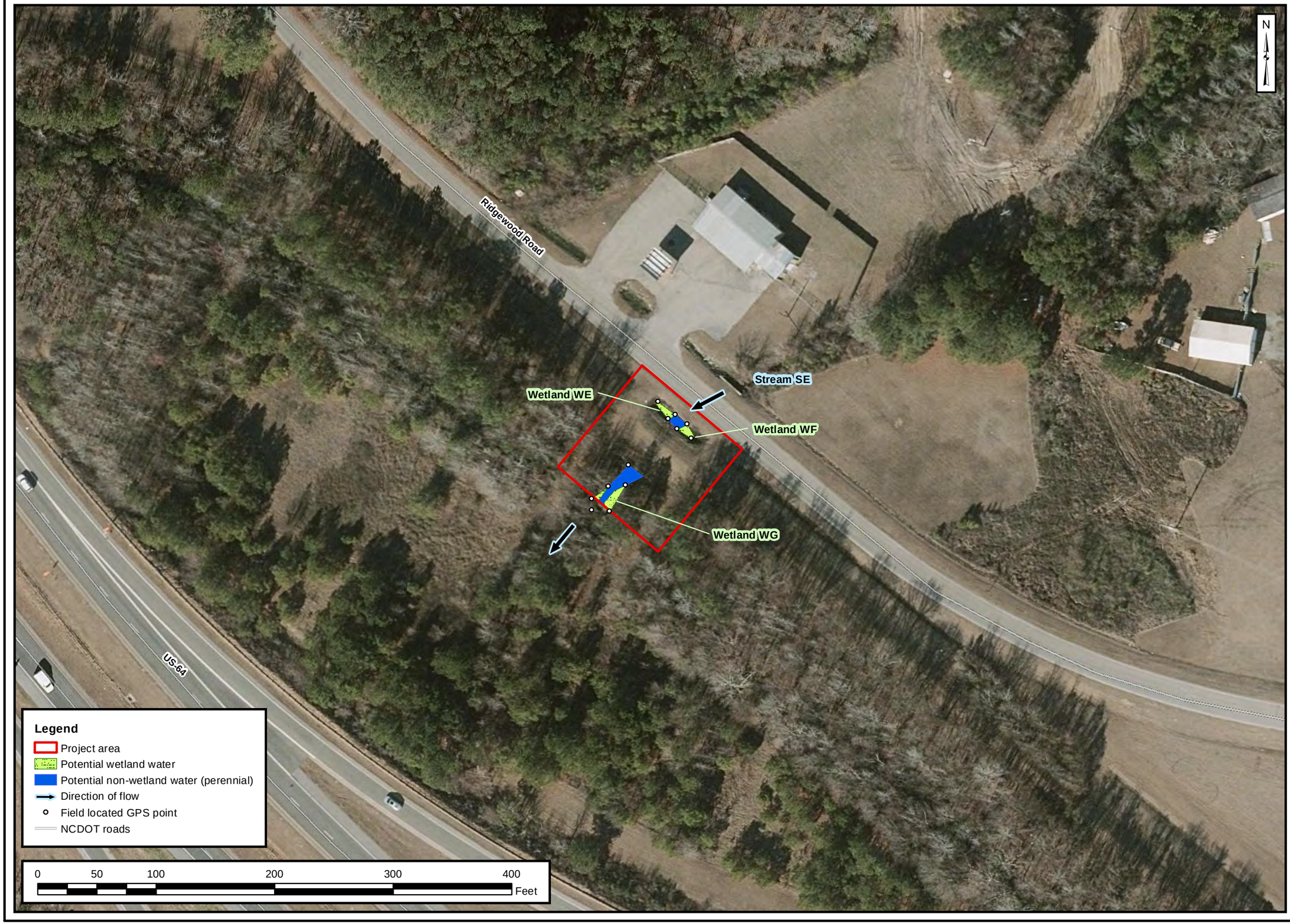
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Princeville Hurricane Matthew and Floyd Flood Extent

- 52 Acre Site
- Parcels
- Princeville ETJ Boundary
- Princeville Levee
- Building Footprint
- Hurricane Matthew Extent
- Hurricane Floyd Extent

Data Sources: NC One Map, US Census, Edgecombe County

Produced by HMDRRI 6/16/17

N

0 1,250 2,500 5,000 Feet

State Hwy 33
N Shiloh Farm Rd
258
State Hwy 122
River View St
Mutual Blvd
State Hwy 111
Greenwood Blvd
Princeville Dike
64
Suggs St
Glass St
Pioneer St
Bridgers Pl
Dancy St
Walston St
Lowes Ct
E 1st St
Geddie St
3rd St
4th St
5th St
6th St
Otis Ave
Neville St
Bell St
Howard St
Church St
Beasley St
Snowden St
Walter St
2nd St
Second St
Strickland Dr
Russell Dr
Clinton Dr
State Hwy 111 N
Firestone Ln
Worsley Ln
William St
Mullins St
S Main St
N Ridgewood Rd
Bohnie Ln
Tolbert Pl
Newton Ave
King Ave
Martin Dr
S Shiloh Farm Rd
State Rd 1523
Webb Ln
Carney St
Shaw St
Lynch Dr
Harris Hill Ln
Pennys Ln
Center St
Concrete Rd
N Lucky Ln
Bertha Ln
Lakeside Ln
Lone Pine Ln
Young Ln
Carol Ln
State Rd 1628
Ridgewood Rd
State Hwy 33 E
State Rd 1600
Jenkins St
Bogey St
Evelyn Ln
Clark St

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ATTACHMENT 1A:

Site Visit Photographs







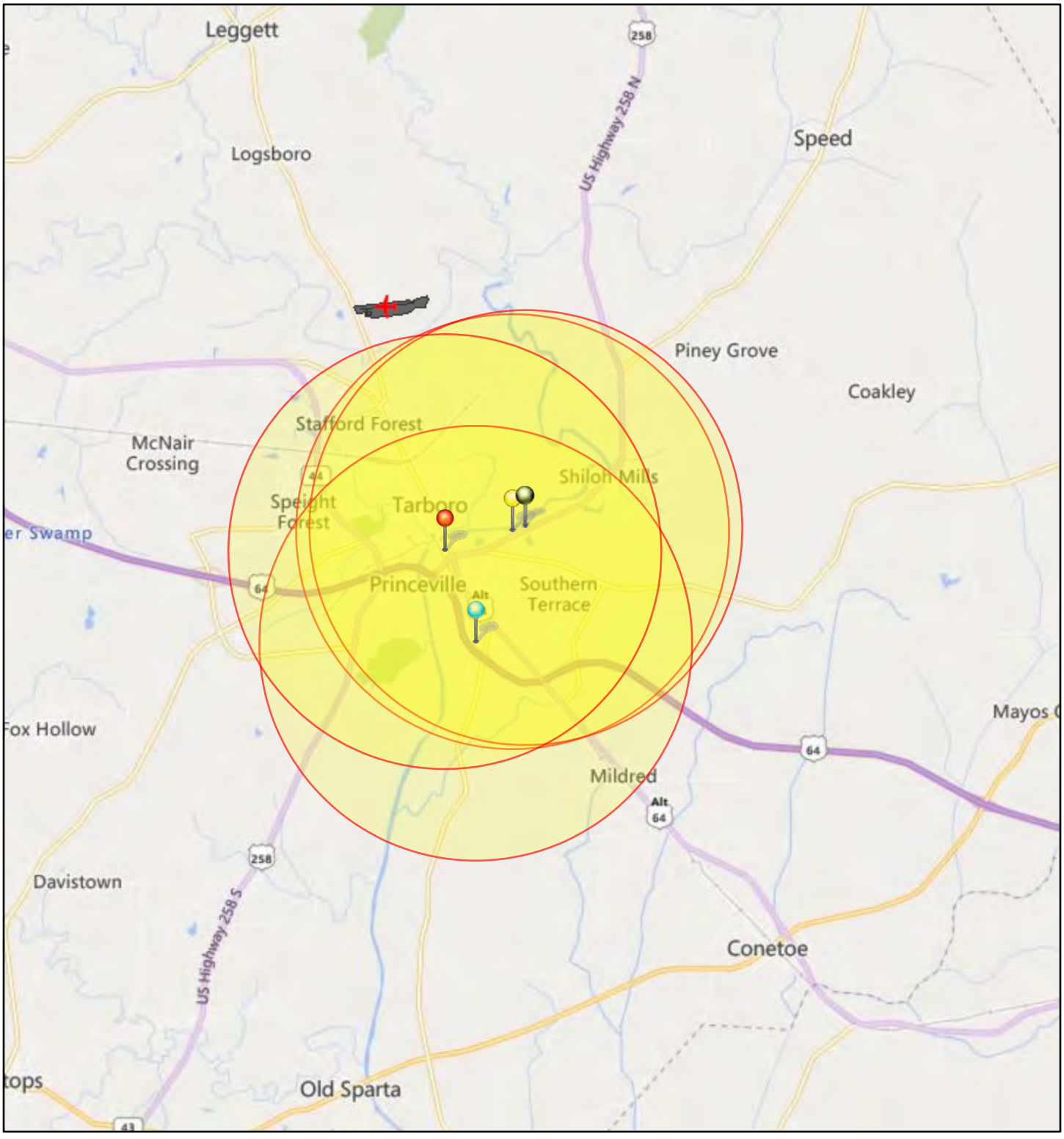


ATTACHMENT 2:

Airport Hazards

NEPAssist Airport Map with 15,000-foot buffer

Princeville Levee Floodgate Repairs - Airports 15,000 feet



March 21, 2022

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Structure 1

Structure 2

Structure 4

Project Buffer

Airport Points

Structure 3

Airport Polygons

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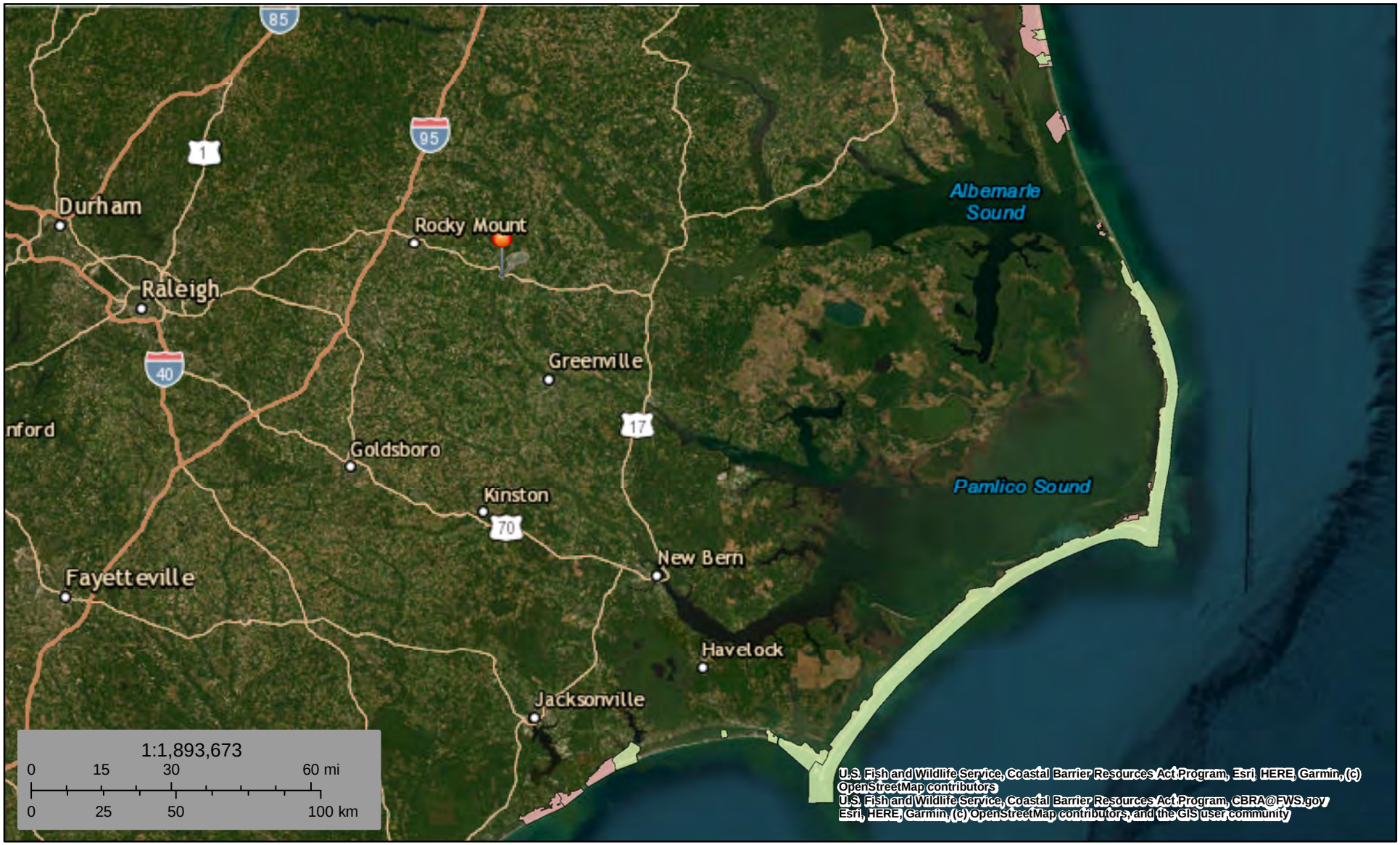
ATTACHMENT 3:

CBRS

USFWS CBRS Map

U.S. Fish and Wildlife Service
Coastal Barrier Resources System

Princeville Levee Floodgate Repair



March 22, 2023

CBRS Units

- Otherwise Protected Area
- System Unit

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at https://www.fws.gov/library/collections/official-coastal-barrier-resources-system-maps. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation) as to whether the property or project site is located "in" or "out" of the CBRS.

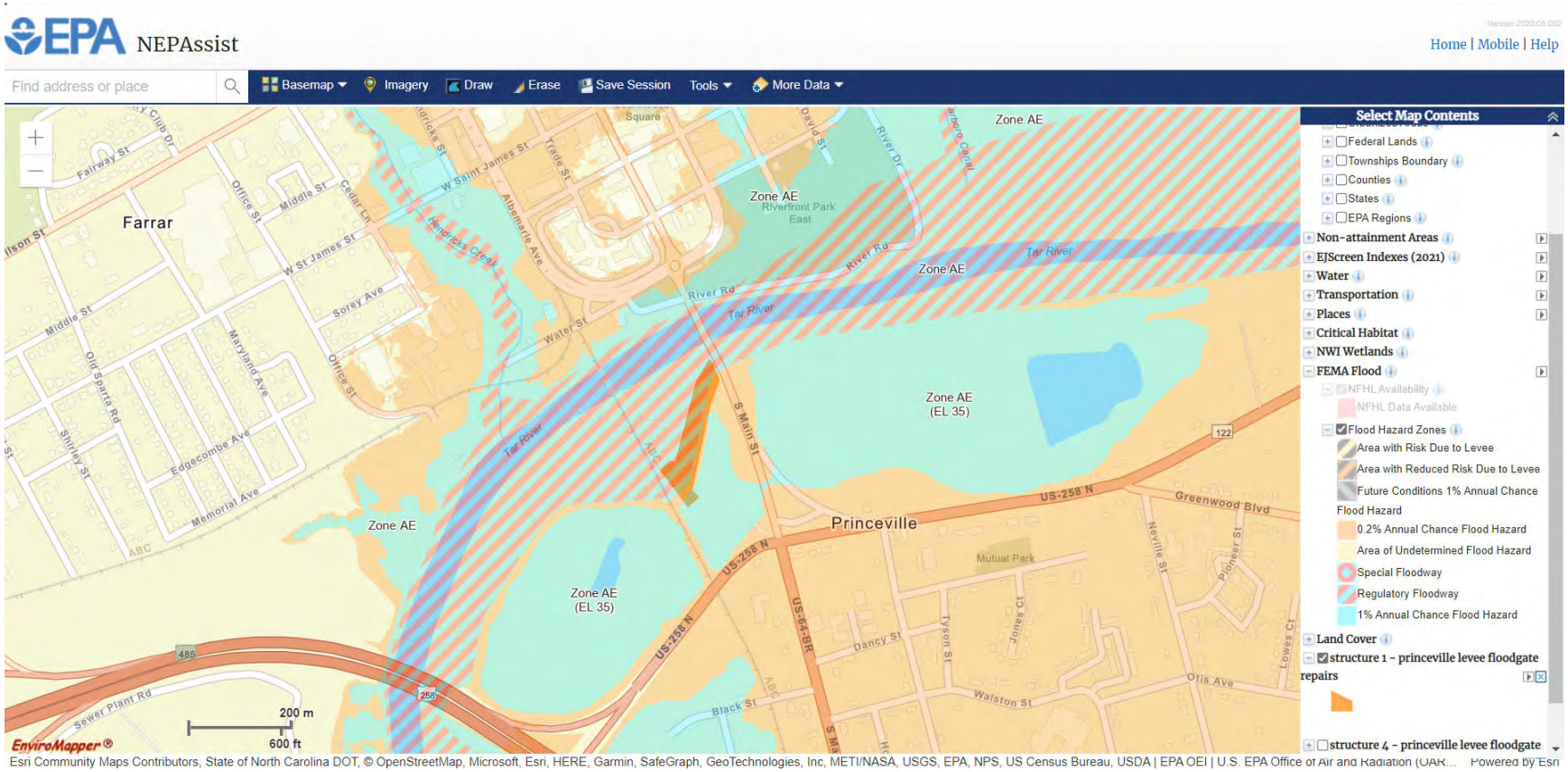
CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward

ATTACHMENT 4:

FEMA FIRMs

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

Princeville Levee Floodgate Repairs – Structure 1



National Flood Hazard Layer FIRMette

FEMA

77°32'16"W 35°53'46"N



77°31'39"W 35°53'17"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

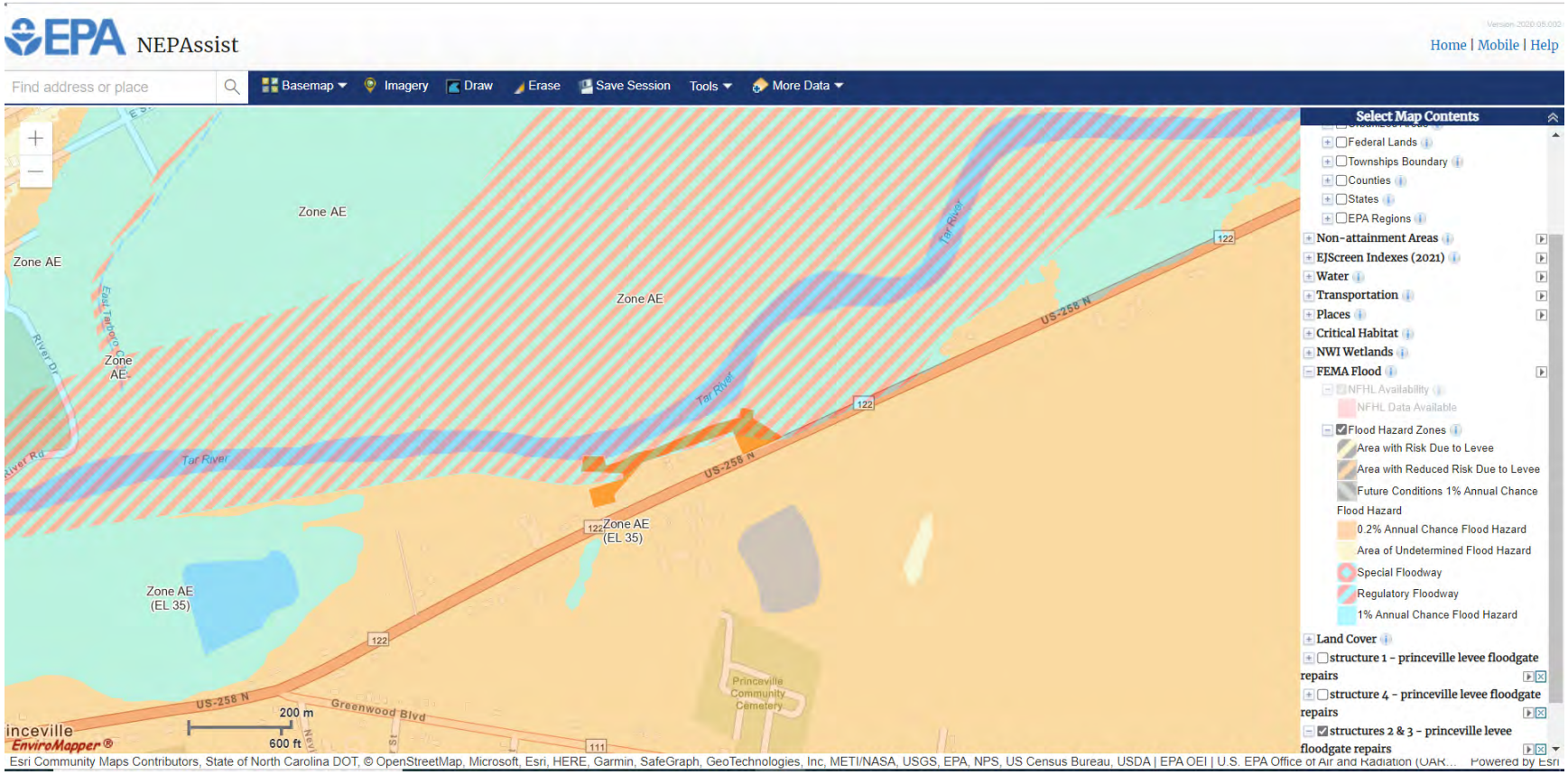
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 5:28 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

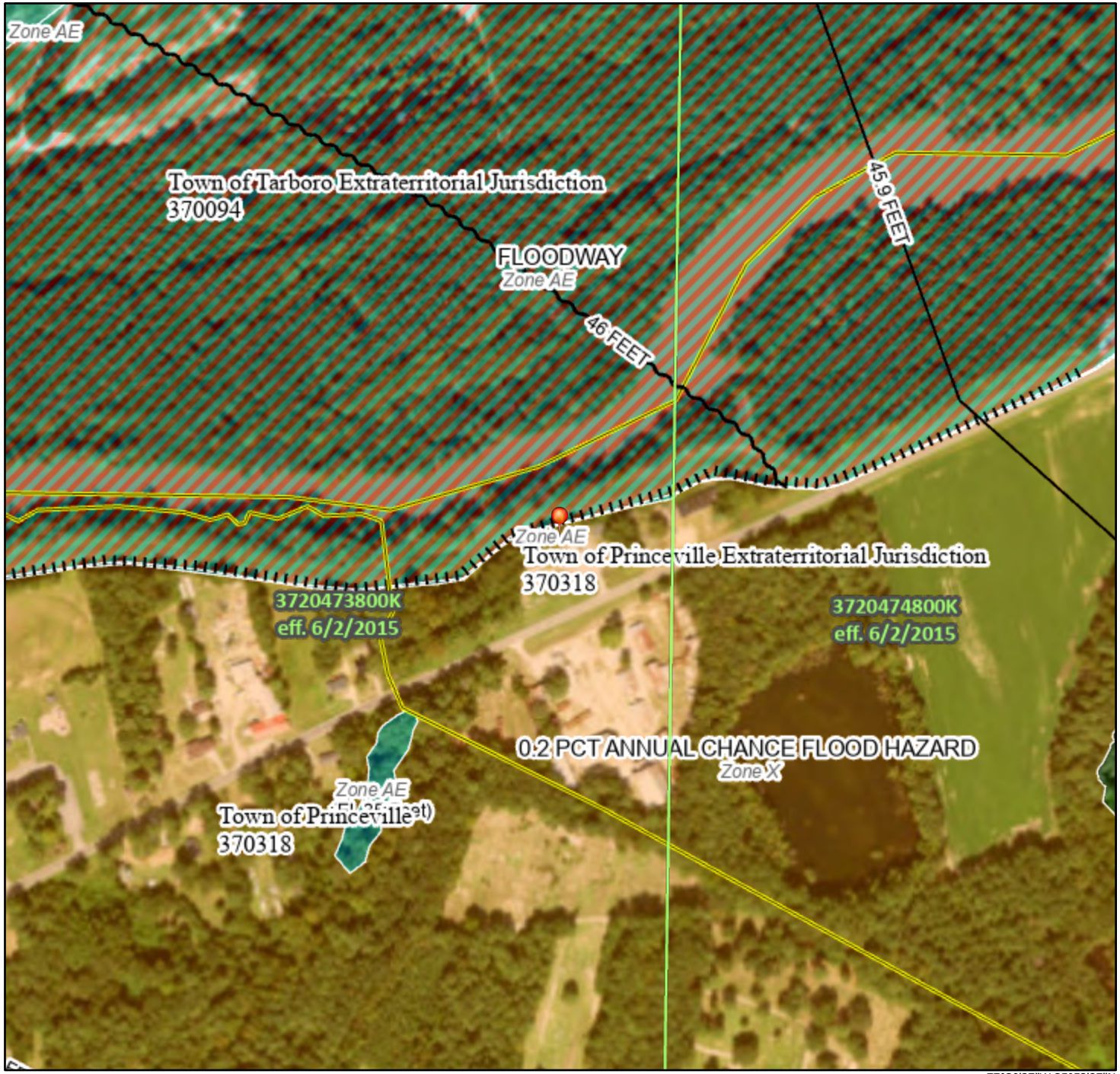
Princeville Levee Floodgate Repairs – Structures 2 & 3



National Flood Hazard Layer FIRMette

FEMA

77°31'14"W 35°53'56"N



77°30'37"W 35°53'27"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 5:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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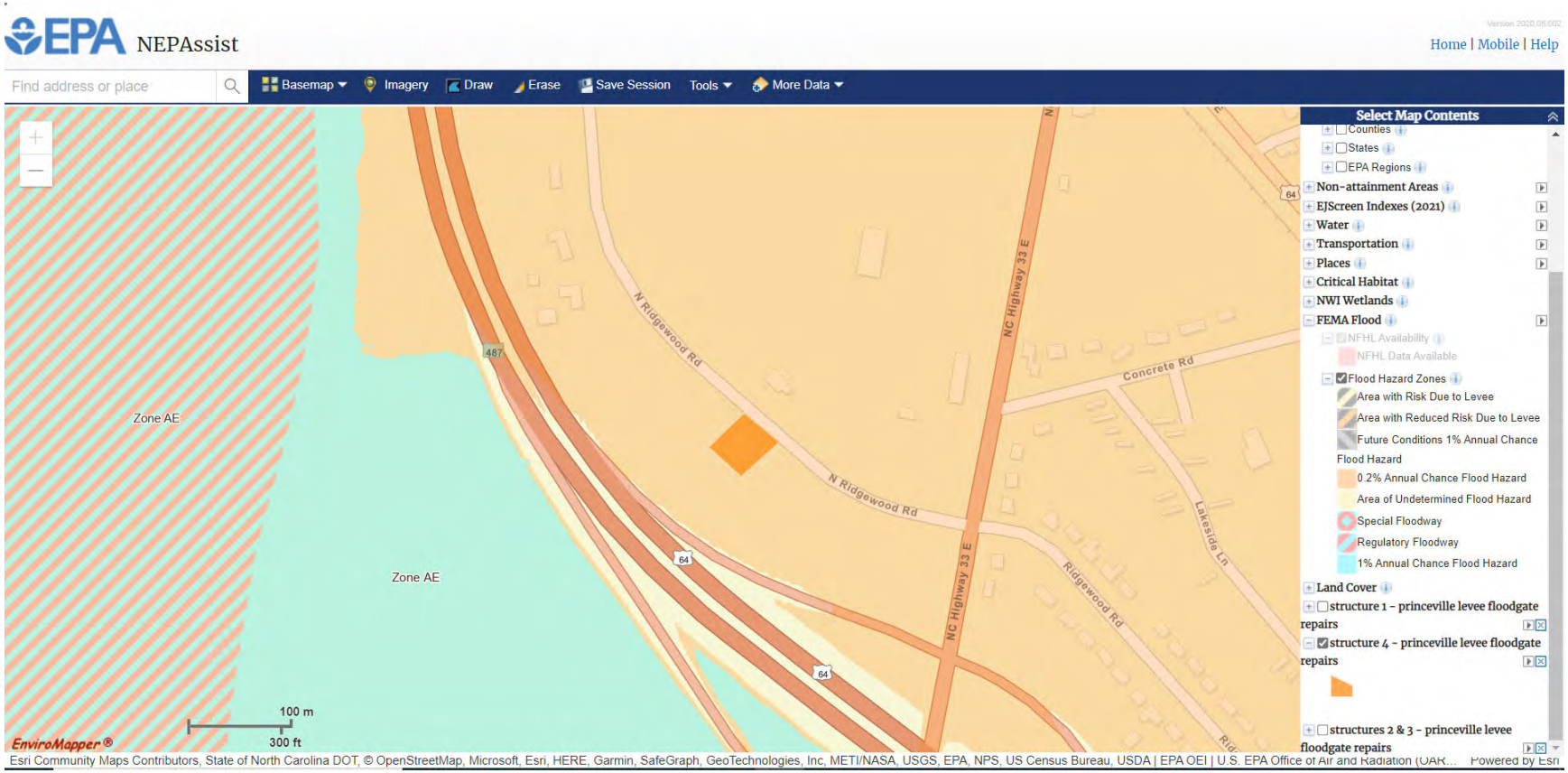
Princeville Levee Floodgate Repairs – Structure 4



National Flood Hazard Layer FIRMette

FEMA

77°31'50"W 35°52'38"N



77°31'13"W 35°52'9"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
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- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 5:37 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal	CRS Entry Date	Curr Eff Date	Curr Class	% Disc SFHA	% Disc Non SFHA
370091K	PINETOPS, TOWN OF	EDGECOMBE COUNTY	01/09/74	03/28/80	06/02/15	03/28/80	No					
370160F	PINEVILLE, TOWN OF	MECKLENBURG COUNTY	06/21/74	03/18/87	09/02/15	03/18/87	No	10/01/91	10/01/20	5	25%	10%
370599#	PINK HILL, TOWN OF	LENOIR COUNTY		07/02/04	(NSFHA)	01/26/12	No					
370372L	PITT COUNTY *	PITT COUNTY	06/30/78	01/06/83	06/19/20	01/06/83	No	10/01/02	10/01/18	8	10%	05%
370420K	PITTSBORO, TOWN OF	CHATHAM COUNTY	10/20/78	02/02/07	11/17/17	02/02/07	No					
370618#	PLEASANT GARDEN, TOWN OF	GUILFORD COUNTY		06/18/07	03/16/09	03/17/09	No					
370249#	PLYMOUTH, TOWN OF	WASHINGTON COUNTY	05/20/77	08/19/85	02/04/09	08/19/85	No	10/01/94	10/01/99	8	10%	05%
370194#	POLK COUNTY*	POLK COUNTY	11/29/74	01/01/87	10/02/08	01/01/87	No					
370286#	POLKTON, TOWN OF	ANSON COUNTY	02/10/78	09/03/08	10/16/08	08/20/08	No					
370634#	POLKVILLE, TOWN OF	CLEVELAND COUNTY		02/20/08	02/20/08	03/22/12	No					
370142K	POLLOCKSVILLE, TOWN OF	JONES COUNTY	03/15/74	09/04/86	06/15/22	09/04/86	No					
370485J	PRINCETON, TOWN OF	JOHNSTON COUNTY		10/20/00	06/20/18	02/14/97	No					
370318K	PRINCEVILLE, TOWN OF	EDGECOMBE COUNTY	07/25/75	04/15/80	06/02/15	04/15/80	No					
370635#	PROCTORVILLE, TOWN OF	ROBESON COUNTY		01/19/05	01/05/07	10/24/12	No					
370132#	RAEFORD, CITY OF	HOKE COUNTY	12/20/74	06/03/86	12/18/07	06/03/86	No					
370243N	RALEIGH, CITY OF	WAKE COUNTY	06/28/74	08/15/78	07/19/22	08/15/78	No	10/01/91	10/01/14	10		0%
370198#	RAMSEUR, TOWN OF	RANDOLPH COUNTY	02/15/74	03/01/87	03/16/09	03/01/87	No					
370199#	RANDLEMAN, CITY OF	RANDOLPH COUNTY	11/22/74	07/01/87	03/16/09	07/01/87	No					
370195C	RANDOLPH COUNTY *	RANDOLPH COUNTY	01/03/75	07/16/81	11/17/17	07/16/81	No					
370324#	RANLO, TOWN OF	GASTON COUNTY	06/27/75	03/03/03	11/04/09	03/03/03	No					
370079#	RED CROSS, TOWN OF	STANLY COUNTY		09/03/08	06/16/09	07/29/10	No					
370516#	RED OAK, TOWN OF	NASH COUNTY		01/20/82	06/18/13	01/22/99	No					
370204#	RED SPRINGS, TOWN OF	ROBESON COUNTY	04/01/77	05/01/87	01/05/07	05/01/87	No					
370209#	REIDSVILLE, CITY OF	ROCKINGHAM COUNTY	08/01/75	09/29/78	09/28/07	09/29/78	No					
370643#	RENNERT, TOWN OF	ROBESON COUNTY		01/19/05	01/05/07	06/23/11	No					
370041#	RHODHISS, TOWN OF	BURKE COUNTY/CALDWELL COUNTY	06/21/74	07/03/86	07/07/09	07/03/86	No					
370176#	RICH SQUARE, TOWN OF	NORTHAMPTON COUNTY		02/04/09	(NSFHA)	04/25/19	No					
370511#	RICHFIELD, TOWN OF	STANLY COUNTY		09/21/00	06/16/09(M)	01/31/12	No					
370341K	RICHLANDS, TOWN OF	ONSLOW COUNTY	07/11/75	07/03/86	06/19/20	07/03/86	No					
370348#	RICHMOND COUNTY*	RICHMOND COUNTY	07/28/78	09/06/89	07/07/14	09/06/89	No					
370432K	RIVER BEND, TOWN OF	CRAVEN COUNTY	05/14/82	08/19/86	06/15/22	08/19/86	No	05/01/10	05/01/10	8	10%	05%
370117#	ROANOKE RAPIDS, CITY OF	HALIFAX COUNTY	03/08/74	04/17/78	02/04/09	04/17/78	No					
370166#	ROBBINS, TOWN OF	MOORE COUNTY	11/22/74	07/03/86	01/02/08	07/03/86	No					
370106#	ROBBINSVILLE, TOWN OF	GRAHAM COUNTY	06/14/74	12/01/89	04/19/10	12/01/89	No					
370156#	ROBERSONVILLE, TOWN OF	MARTIN COUNTY	06/07/74	07/01/87	02/04/09	07/01/87	No					
370202K	ROBESON COUNTY *	ROBESON COUNTY	07/28/78	02/17/89	12/06/19	02/17/89	No					
370350#	ROCKINGHAM COUNTY*	ROCKINGHAM COUNTY	06/16/78	05/15/91	01/02/09	05/15/91	No					
370201#	ROCKINGHAM, CITY OF	RICHMOND COUNTY	06/11/76	09/06/89	09/03/08	09/06/89	No					
370214#	ROCKWELL, TOWN OF	ROWAN COUNTY	03/08/74	05/15/78	06/16/09	05/15/78	No					
370092#	ROCKY MOUNT, CITY OF	EDGECOMBE COUNTY/NASH COUNTY	03/01/74	05/01/78	06/18/13	05/01/78	No	10/01/92	10/01/19	7	15%	05%
	THE TOWN OF BATTLEBORO (370088) , EDGECOMBE COUNTY, WAS MERGED INTO THE CITY OF ROCKY MOUNT EFFECTIVE 7-1-96.											
370468K	ROLESVILLE, TOWN OF	WAKE COUNTY		03/03/92	07/19/22	07/31/01	No					
370258#	RONDA, TOWN OF	WILKES COUNTY	09/06/74	07/03/86	12/03/09(M)	07/03/86	No					
370421#	ROPER, TOWN OF	WASHINGTON COUNTY	06/21/74	08/05/85	02/04/09	08/05/85	No	10/01/94	10/01/99	8	10%	05%
	FORMERLY UNDER WASHINGTON COUNTY											
370375#	ROSE HILL, TOWN OF	DUPLIN COUNTY		02/16/06	02/16/07	07/17/06	No					
375358#	ROSMAN, TOWN OF	TRANSYLVANIA COUNTY	06/03/72	06/02/72	04/19/10	06/02/72	No					
370351B	ROWAN COUNTY *	ROWAN COUNTY	07/28/78	11/01/79	11/16/18	11/01/79	No					
370347K	ROXBORO, CITY OF	PERSON COUNTY	01/13/78	09/14/90	12/06/19	03/25/91	No					
370605#	ROXOBEL, TOWN OF	BERTIE COUNTY		02/04/09	08/03/09	02/04/09	No					

ATTACHMENT 5:

Clean Air Act

North Carolina Nonattainment/
Maintenance Status for Each County by Year for All
Criteria Pollutants and EPA NC Radon Level Map

North Carolina Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Data is current as of March 31, 2023

Listed by County, NAAQS, Area. The 8-hour Ozone (1997) standard was revoked on April 6, 2015 and the 1-hour Ozone (1979) standard was revoked on June 15, 2005.

* The 1997 Primary Annual PM-2.5 NAAQS (level of 15 µg/m^3) is revoked in attainment and maintenance areas for that NAAQS. For additional information see the PM-2.5 NAAQS SIP Requirements Final Rule, effective October 24, 2016. (81 FR 58009)

Change the State:
NORTH CAROLINA GO

Important Notes

Download National Dataset: dbf | xls | Data dictionary (PDF)

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
NORTH CAROLINA								
Cabarrus County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	04 05 06 07 08 09 10 11 12 13	01/02/2014	Moderate	Whole	178,011	37/025
Cabarrus County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Part	176,928	37/025
Catawba County	PM-2.5 (1997)-NAAQS revoked	Hickory-Morganton-Lenoir, NC	05 06 07 08 09 10	12/19/2011 *	Former Subpart 1	Whole	154,358	37/035
Chatham County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	04 05 06	12/26/2007	Former Subpart 1	Part	32,372	37/037
Davidson County	1-Hour Ozone (1979)-NAAQS revoked	Greensboro-Winston-Salem-High Point, NC	92	11/08/1993	Moderate	Whole	162,878	37/057
Davidson County	PM-2.5 (1997)-NAAQS revoked	Greensboro-Winston Salem-High Point, NC	05 06 07 08 09 10	12/19/2011 *	Former Subpart 1	Whole	162,878	37/057

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Davie County	1-Hour Ozone (1979)-NAAQS revoked	Greensboro-Winston-Salem-High Point, NC	92	11/08/1993	Moderate	Part	1	37/059
Durham County	1-Hour Ozone (1979)-NAAQS revoked	Raleigh-Durham, NC	9293	06/17/1994	Moderate	Whole	267,587	37/063
Durham County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	040506	12/26/2007	Former Subpart 1	Whole	267,587	37/063
Durham County	Carbon Monoxide (1971)	Raleigh-Durham, NC	929394	09/18/1995	Moderate <= 12.7ppm	Whole	267,587	37/063
Edgecombe County	8-Hour Ozone (1997)-NAAQS revoked	Rocky Mount, NC	040506	01/05/2007	Former Subpart 1	Whole	56,552	37/065
Forsyth County	1-Hour Ozone (1979)-NAAQS revoked	Greensboro-Winston-Salem-High Point, NC	92	11/08/1993	Moderate	Whole	350,670	37/067
Forsyth County	Carbon Monoxide (1971)	Winston-Salem, NC	9293	11/07/1994	Moderate <= 12.7ppm	Whole	350,670	37/067
Franklin County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	040506	12/26/2007	Former Subpart 1	Whole	60,619	37/069
Gaston County	1-Hour Ozone (1979)-NAAQS revoked	Charlotte-Gastonia, NC	929394	07/05/1995	Moderate	Whole	206,086	37/071
Gaston County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	040506070809101112 13	01/02/2014	Moderate	Whole	206,086	37/071
Gaston County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Part	190,849	37/071

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Granville County	1-Hour Ozone (1979)-NAAQS revoked	Raleigh-Durham, NC	9293	06/17/1994	Moderate	Part	17,725	37/077
Granville County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	040506	12/26/2007	Former Subpart 1	Whole	59,916	37/077
Guilford County	1-Hour Ozone (1979)-NAAQS revoked	Greensboro-Winston-Salem-High Point, NC	92	11/08/1993	Moderate	Whole	488,406	37/081
Guilford County	PM-2.5 (1997)-NAAQS revoked	Greensboro-Winston Salem-High Point, NC	050607080910	12/19/2011 *	Former Subpart 1	Whole	488,406	37/081
Haywood County	8-Hour Ozone (1997)-NAAQS revoked	Haywood and Swain Counties (Great Smoky NP), NC	040506070809	01/06/2010	Former Subpart 1	Part	985	37/087
Iredell County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	040506070809101112 13	01/02/2014	Moderate	Part	68,089	37/097
Iredell County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Part	65,899	37/097
Johnston County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	040506	12/26/2007	Former Subpart 1	Whole	168,878	37/101
Lincoln County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	040506070809101112 13	01/02/2014	Moderate	Whole	78,265	37/109
Lincoln County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Part	64,189	37/109

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Mecklenburg County	1-Hour Ozone (1979)-NAAQS revoked	Charlotte-Gastonia, NC	929394	07/05/1995	Moderate	Whole	919,628	37/119
Mecklenburg County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	040506070809101112 13	01/02/2014	Moderate	Whole	919,628	37/119
Mecklenburg County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Whole	919,628	37/119
Mecklenburg County	Carbon Monoxide (1971)	Charlotte, NC	929394	09/18/1995	Not Classified	Whole	919,628	37/119
Nash County	8-Hour Ozone (1997)-NAAQS revoked	Rocky Mount, NC	040506	01/05/2007	Former Subpart 1	Whole	95,840	37/127
Orange County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	040506	12/26/2007	Former Subpart 1	Whole	133,801	37/135
Person County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	040506	12/26/2007	Former Subpart 1	Whole	39,464	37/145
Rowan County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	040506070809101112 13	01/02/2014	Moderate	Whole	138,428	37/159
Rowan County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Part	130,057	37/159
Swain County	8-Hour Ozone (1997)-NAAQS revoked	Haywood and Swain Counties (Great Smoky NP), NC	040506070809	01/06/2010	Former Subpart 1	Part	3,288	37/173
Union County	8-Hour Ozone (1997)-NAAQS revoked	Charlotte-Gastonia-Rock Hill, NC-SC	040506070809101112 13	01/02/2014	Moderate	Whole	201,292	37/179

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Union County	8-Hour Ozone (2008)	Charlotte-Rock Hill, NC-SC	12 13 14	08/27/2015	Marginal	Part	176,055	37/179
Wake County	1-Hour Ozone (1979)-NAAQS revoked	Raleigh-Durham, NC	92 93	06/17/1994	Moderate	Whole	900,993	37/183
Wake County	8-Hour Ozone (1997)-NAAQS revoked	Raleigh-Durham-Chapel Hill, NC	04 05 06	12/26/2007	Former Subpart 1	Whole	900,993	37/183
Wake County	Carbon Monoxide (1971)	Raleigh-Durham, NC	92 93 94	09/18/1995	Moderate <= 12.7ppm	Whole	900,993	37/183

Important Notes

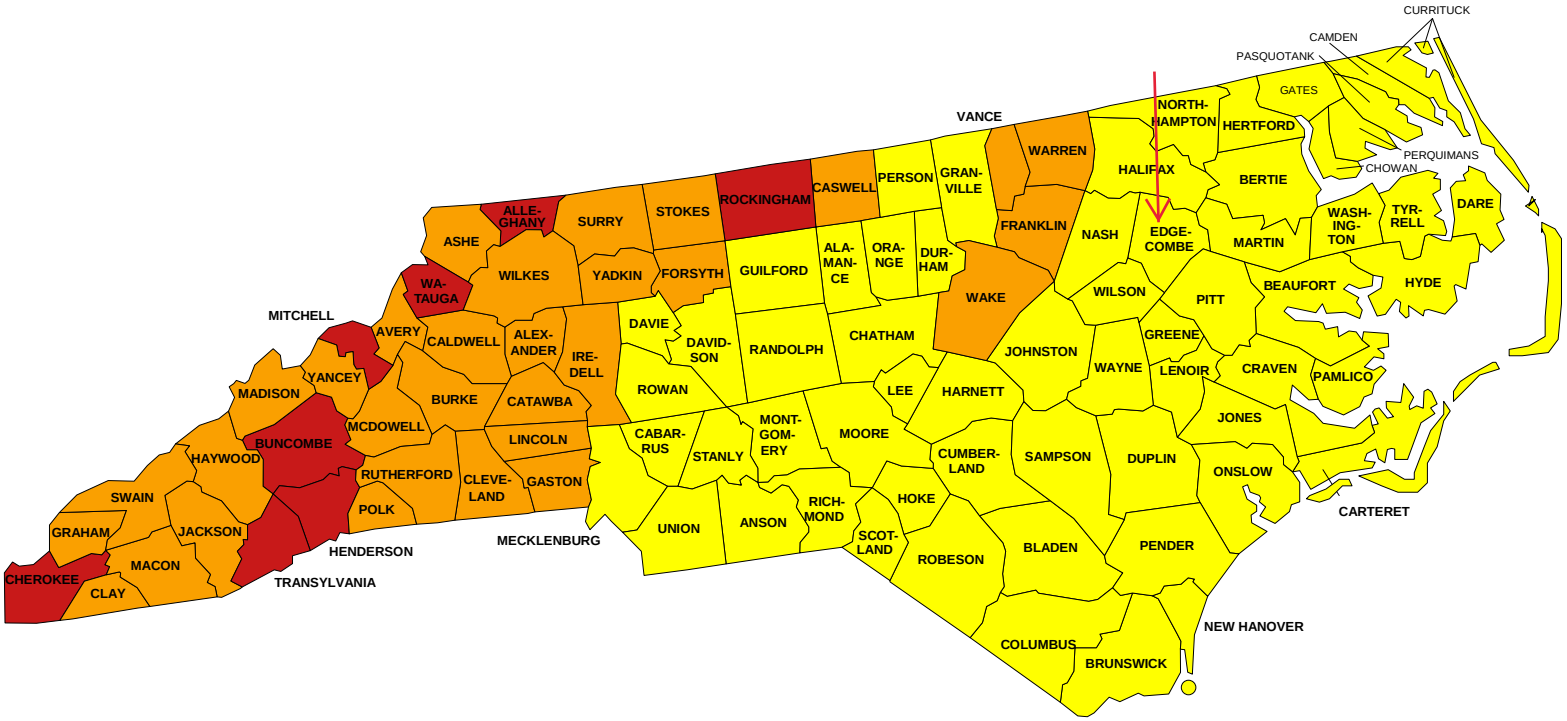
NORTH CAROLINA - EPA Map of Radon Zones

http://www.epa.gov/radon/zonemap.html

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

All homes should be tested, regardless of zone designation.



Zone 1 Zone 2 Zone 3

IMPORTANT: Consult the publication entitled "Preliminary Geologic Radon Potential Assessment of North Carolina" (USGS Open-file Report 93-292-D) before using this map. http://energy.cr.usgs.gov/radon/grpinfo.html This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.

ATTACHMENT 6:

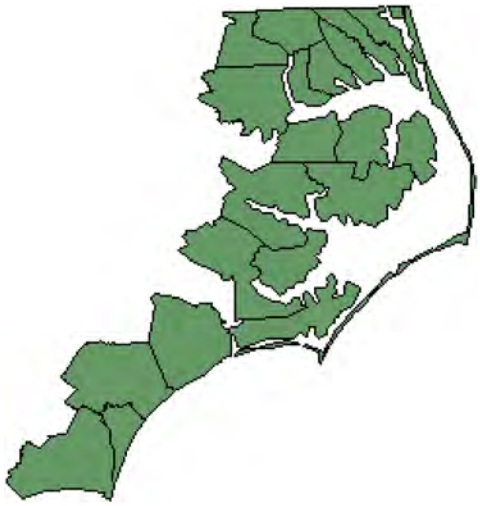
Coastal Zone Management

NC Division of Coastal Zone Management Counties Map

NORTH CAROLINA
Environmental Quality

CAMA Counties

The following counties are subject to the rules and policies of the Coastal Resources Commission, which administers the Coastal Area Management Act. If you are planning to develop in one of these counties, check to see whether your project is also in an Area of Environmental Concern (https://deq.nc.gov/about/divisions/coastal-management/coastal-management-rules/coastal-development-rules). If it is, you may need a CAMA permit.

CAMA Counties		
• Beaufort • Bertie • Brunswick • Camden • Carteret • Chowan • Craven • Currituck • Dare • Gates	• Hertford • Hyde • New Hanover • Onslow • Pamlico • Pasquotank • Pender • Perquimans • Tyrrell • Washington	

Showing 1 to 1 of 1 entries

About Coastal Management

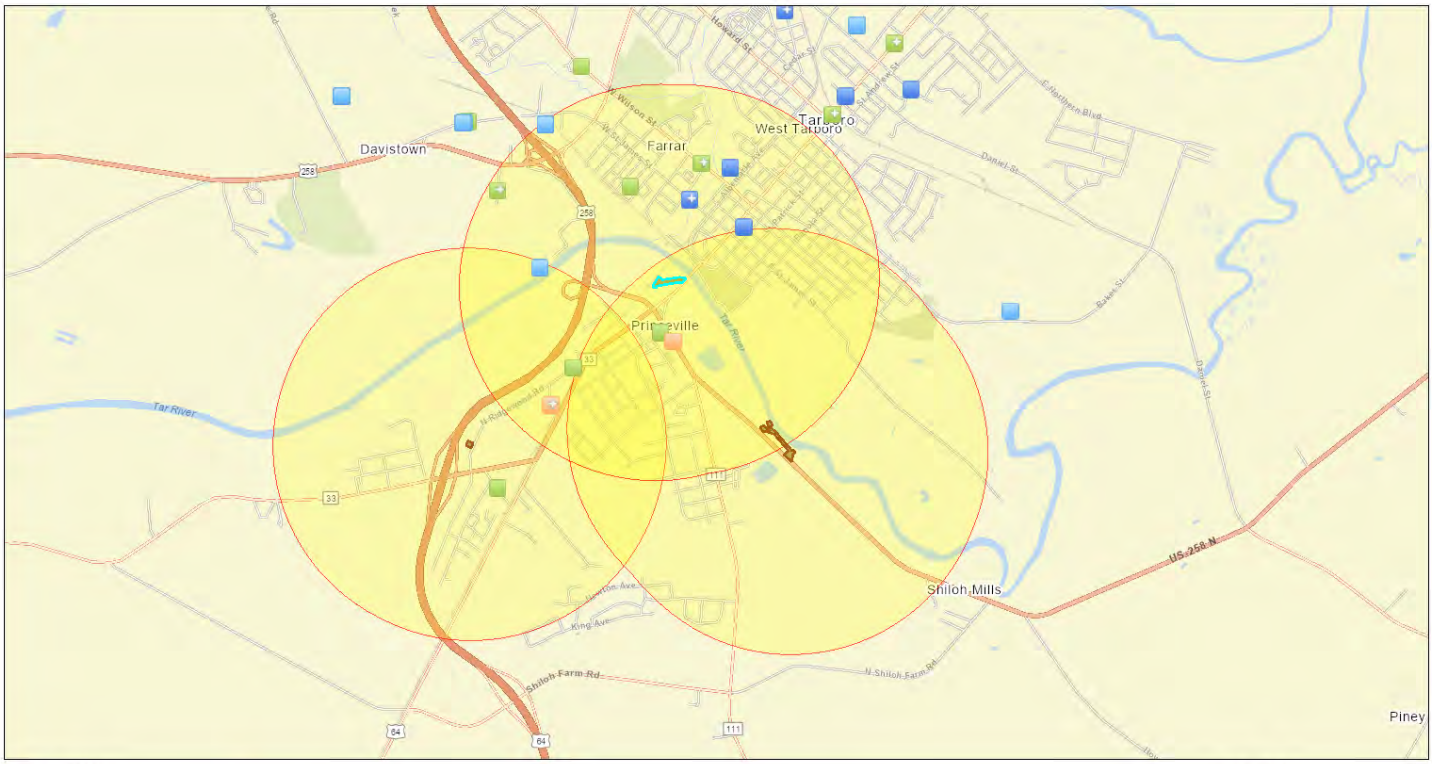
ATTACHMENT 7:

Contamination and Toxic Substances

NEPAssist and NC DEQ DWM Maps and Reports, EPA ECHO and Facility Reports, and Site Inspection Documentation, and Historical Sanborn and Aerial Maps (See also State Environmental Clearinghouse Comments in **Attachment 23**.)

NEPAssist Report

EPA Facilities - One-mile Radius Structure 1



June 16, 2022

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0 0.5 1 2 km

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

- Water Dischargers (NPDES)
- Air Pollution (ICIS-AIR)
- Air Pollution (ICIS-AIR)
- Toxic Releases (TRI)
- Toxic Releases (TRI)
- Brownfields (ACRES)
- Brownfields (ACRES)
- Hazardous Waste (RCRAInfo)
- Hazardous Waste (RCRAInfo)
- EPA Facilities - One-mile Radius Structures 2 & 3
- EPA Facilities - One-mile Radius Structure 1
- EPA Facilities - One-mile Radius
- Project Buffer
- structure 1 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structures 2 & 3 - princeville levee floodgate repairs

Input Coordinates: 35.893049,-77.532272,35.892721,-77.532101,35.892306,-77.532299,35.890836,-77.532694,35.890727,-77.532541,35.890523,-77.532784,35.890705,-77.532972,35.891193,-77.533421,35.891353,-77.533197,35.891346,-77.533062,35.892685,-77.532649,35.893085,-77.532352,35.893049,-77.532272

Project Area	0.00 sq mi
Within 1 mile of an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within 1 mile of an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a Federal Land?	no
Within 1 mile of an impaired stream?	yes
Within 1 mile of an impaired waterbody?	yes
Within 1 mile of a waterbody?	yes
Within 1 mile of a stream?	yes
Within 1 mile of an NWI wetland?	Available Online
Within 1 mile of a Brownfields site?	yes
Within 1 mile of a Superfund site?	no
Within 1 mile of a Toxic Release Inventory (TRI) site?	yes
Within 1 mile of a water discharger (NPDES)?	yes

Within 1 mile of a hazardous waste (RCRA) facility?	yes
Within 1 mile of an air emission facility?	yes
Within 1 mile of a school?	yes
Within 1 mile of an airport?	no
Within 1 mile of a hospital?	no
Within 1 mile of a designated sole source aquifer?	no
Within 1 mile of a historic property on the National Register of Historic Places?	yes
Within 1 mile of a Toxic Substances Control Act (TSCA) site?	no
Within 1 mile of a Land Cession Boundary?	no
Within 1 mile of a tribal area (lower 48 states)?	no
Within 1 mile of the service area of a mitigation or conservation bank?	no
Within 1 mile of the service area of an In-Lieu-Fee Program?	yes

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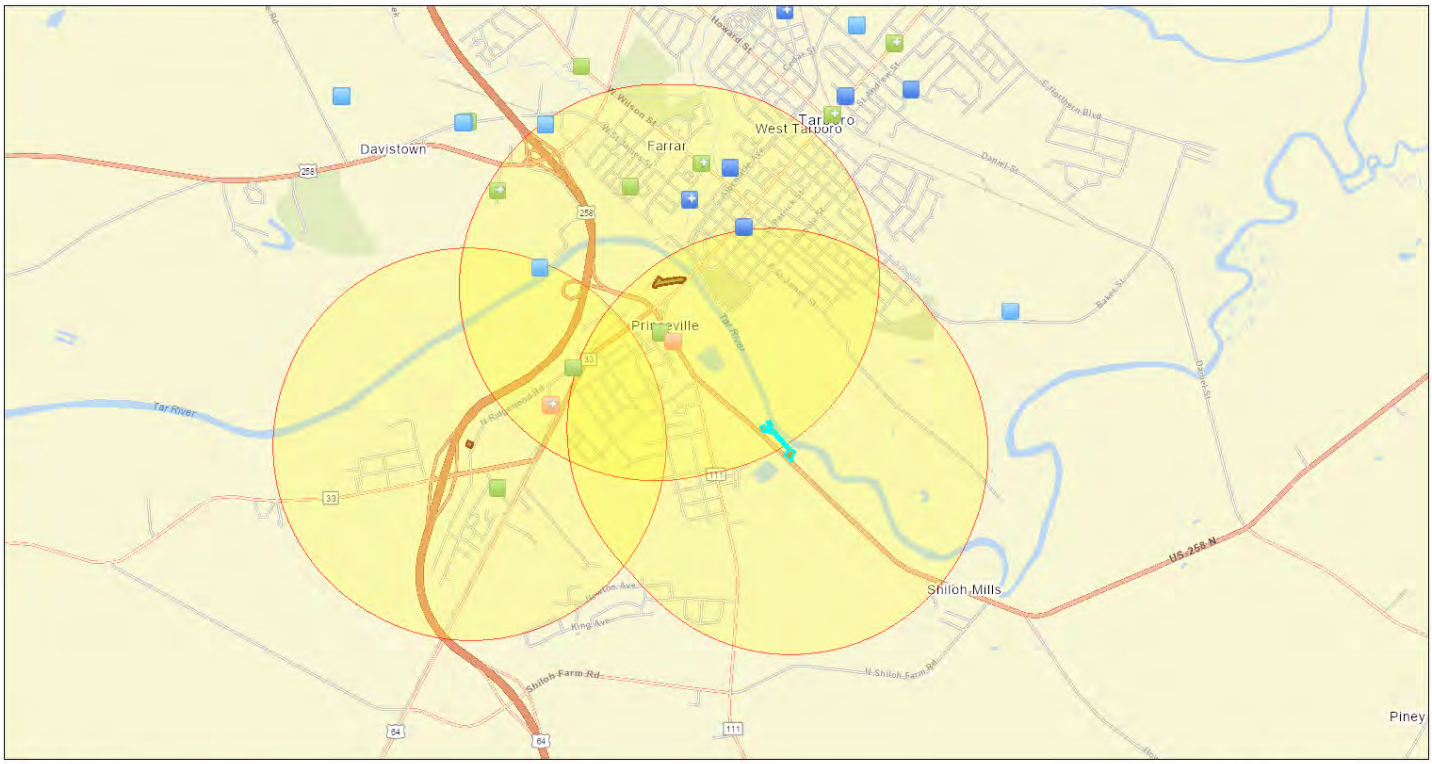
NEPAssist Report

EPA Facilities - One-mile Radius Structures 2 & 3



June 16, 2022

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0 0.5 1 2 km

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

- Water Dischargers (NPDES)
- Air Pollution (ICIS-AIR)
- Air Pollution (ICIS-AIR)
- Toxic Releases (TRI)
- Toxic Releases (TRI)
- Brownfields (ACRES)
- Brownfields (ACRES)
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- EPA Facilities - One-mile Radius
- EPA Facilities - One-mile Radius
- Project Buffer
- structure 1 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structures 2 & 3 - princeville levee floodgate repairs

Input Coordinates: 35.895297,-77.512931,35.894970,-77.513802,35.895377,-77.514027,35.894861,-77.515913,35.894308,-77.516515,35.894184,-77.516461,35.894075,-77.516955,35.894402,-77.517054,35.894591,-77.516327,35.894672,-77.516345,35.894708,-77.517234,35.894984,-77.517171,35.894984,-77.516749,35.894817,-77.516686,35.894883,-77.516407,35.895035,-77.516066,35.895647,-77.513883,35.895807,-77.513847,35.895763,-77.513542,35.895618,-77.513560,35.895297,-77.512931

Project Area	0.01 sq mi
Within 1 mile of an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within 1 mile of an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
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Within 1 mile of an impaired stream?	yes
Within 1 mile of an impaired waterbody?	yes
Within 1 mile of a waterbody?	yes
Within 1 mile of a stream?	yes
Within 1 mile of an NWI wetland?	Available Online
Within 1 mile of a Brownfields site?	yes
Within 1 mile of a Superfund site?	no

Within 1 mile of a Toxic Release Inventory (TRI) site?	no
Within 1 mile of a water discharger (NPDES)?	no
Within 1 mile of a hazardous waste (RCRA) facility?	yes
Within 1 mile of an air emission facility?	no
Within 1 mile of a school?	yes
Within 1 mile of an airport?	no
Within 1 mile of a hospital?	no
Within 1 mile of a designated sole source aquifer?	no
Within 1 mile of a historic property on the National Register of Historic Places?	yes
Within 1 mile of a Toxic Substances Control Act (TSCA) site?	no
Within 1 mile of a Land Cession Boundary?	no
Within 1 mile of a tribal area (lower 48 states)?	no
Within 1 mile of the service area of a mitigation or conservation bank?	no
Within 1 mile of the service area of an In-Lieu-Fee Program?	yes

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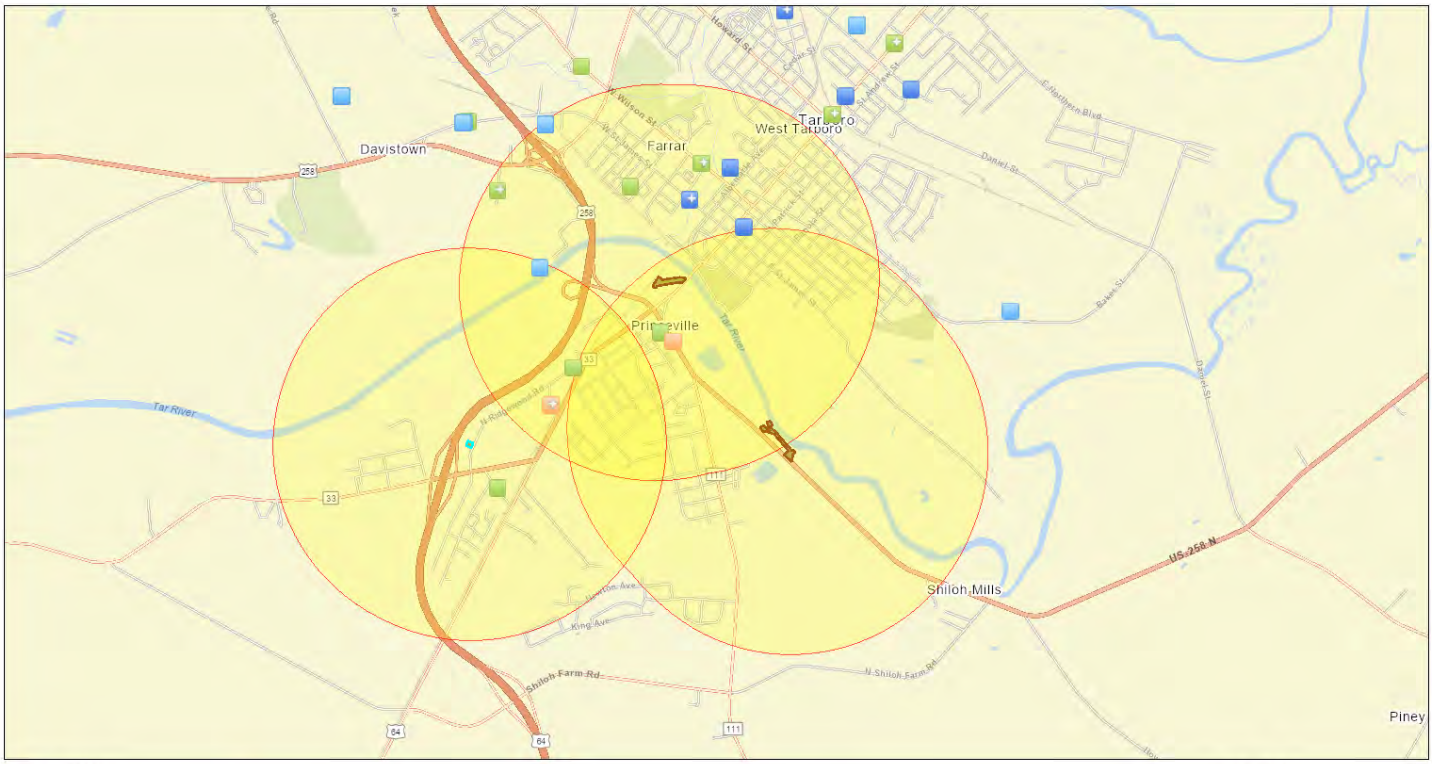
NEPAssist Report

EPA Facilities - One-mile Radius Structure 4



June 16, 2022

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State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

- Water Dischargers (NPDES)
- Air Pollution (ICIS-AIR)
- Air Pollution (ICIS-AIR)
- Toxic Releases (TRI)
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- Project Buffer
- structure 1 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structures 2 & 3 - princeville levee floodgate repairs

Input Coordinates: 35.873659,-77.525552,35.873412,-77.525175,35.873113,-77.525579,35.873368,-77.525930,35.873659,-77.525552

Project Area	0.00 sq mi
Within 1 mile of an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within 1 mile of an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within 1 mile of a Federal Land?	no
Within 1 mile of an impaired stream?	yes
Within 1 mile of an impaired waterbody?	yes
Within 1 mile of a waterbody?	yes
Within 1 mile of a stream?	yes
Within 1 mile of an NWI wetland?	Available Online
Within 1 mile of a Brownfields site?	yes
Within 1 mile of a Superfund site?	no
Within 1 mile of a Toxic Release Inventory (TRI) site?	no
Within 1 mile of a water discharger (NPDES)?	yes
Within 1 mile of a hazardous waste (RCRA) facility?	yes

Within 1 mile of an air emission facility?	no
Within 1 mile of a school?	yes
Within 1 mile of an airport?	no
Within 1 mile of a hospital?	no
Within 1 mile of a designated sole source aquifer?	no
Within 1 mile of a historic property on the National Register of Historic Places?	no
Within 1 mile of a Toxic Substances Control Act (TSCA) site?	no
Within 1 mile of a Land Cession Boundary?	no
Within 1 mile of a tribal area (lower 48 states)?	no
Within 1 mile of the service area of a mitigation or conservation bank?	no
Within 1 mile of the service area of an In-Lieu-Fee Program?	yes

Created on: 6/16/2022 10:42:33 AM

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Report question: *Within 1 of a Air emissions site?* yes

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name **Distance**

HC COMPOSITES LLC (TARBORO,NC) (https://enviro.epa.gov/enviro/airsquery.detail_plt_view?p_id=NC0000003703300170) 0.98 mile

REGISTRY_ID: 110007659033
LATITUDE: 35.8876
LONGITUDE: -77.55041
PGM_SYS_ACRNM: AIR
PGM_SYS_ID: NC0000003703300170
LOCATION_ADDRESS: 1090 WEST SAINT JAMES STREET
CITY_NAME: TARBORO
COUNTY_NAME:
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: NC065
HUC_CODE:

Detailed Facility Report



Detailed Facility Report

Facility Summary

HC COMPOSITES LLC

1090 WEST SAINT JAMES STREET, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110007659033
EPA Region: 04
Latitude: 35.8876
Longitude: -77.55041
Locational Data Source: EIS
Industries: Transportation Equipment Manufacturing
Indian Country: N

Enforcement and Compliance Summary

Statute	CAA
Compliance Monitoring Activities (5 years)	4
Date of Last Compliance Monitoring Activity	08/18/2022
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	8
Qtrs with Significant Violation	7
Informal Enforcement Actions (5 years)	7
Formal Enforcement Actions (5 years)	4
Penalties from Formal Enforcement Actions (5 years)	$12,048
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Statute	CWA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	03/20/2012
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	03/29/2011
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): Operating Major (NC0000003703300170)
Clean Water Act (CWA): Minor, Permit Effective (NCG190054)
Resource Conservation and Recovery Act (RCRA): Active SQG, (NCD048961668)
Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): 8053511
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): 27886HCCMP19WSA
Compliance and Emissions Data Reporting Interface (CEDRI): CEDRI10140082

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110007659033					N	35.8876	-77.55041
ICIS-Air	CAA	NC0000003703300170	Major Emissions	Operating	CAAMACT, CAASIP, CAATVP		N	35.8876	-77.55041
CEDRI	CAA	CEDRI10140082					N	35.8876	-77.55041
EIS	CAA	8053511					N	35.8876	-77.55041
ICIS-NPDES	CWA	NCG190054	Minor: General Permit Covered Facility	Effective		06/30/2025	N	35.553611	-77.511944
TRI	EP313	27886HCCMP19WSA	Toxics Release Inventory	Last Reported for 2021			N	35.8876	-77.55041
RCRAInfo	RCRA	NCD048961668	SQG	Active (H)			N	35.892927	-77.544986

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110007659033	HC COMPOSITES LLC	1090 WEST SAINT JAMES STREET, TARBORO, NC 27886	Edgecombe County
ICIS-Air	CAA	NC0000003703300170	HC COMPOSITES LLC	1090 WEST SAINT JAMES STREET, TARBORO, NC 27886	Edgecombe County

System	Statute	Identifier	Facility Name	Facility Address	Facility County
CEDRI	CAA	CEDRI10140082	HC COMPOSITES LLC	1090 WEST SAINT JAMES ST, TARBORO, NC 27886	Edgecombe County
EIS	CAA	8053511	HC COMPOSITES LLC	1090 WEST SAINT JAMES STREET, TARBORO, NC 27886	Edgecombe County
ICIS-NPDES	CWA	NCG190054	H C COMPOSITES LLC	1090 W ST JAMES ST, TARBORO, NC 27886	Edgecombe County
TRI	EP313	27886HCCMP19WSA	HC COMPOSITES LLC	1090 W ST JAMES ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD048961668	H C COMPOSITES LLC	1090 WEST SAINT JAMES ST, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
TRI	27886HCCMP19WSA	3732	Boat Building And Repairing
ICIS-Air	NC0000003703300170	3732	Boat Building And Repairing
ICIS-NPDES	NCG190054	3732	Boat Building And Repairing

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
TRI	27886HCCMP19WSA	336612	Boat Building
EIS	8053511	336612	Boat Building
ICIS-Air	NC0000003703300170	336612	Boat Building
RCRAInfo	NCD048961668	336612	Boat Building

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
NCG190054	401	General provisions

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/23/2023*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*01/30/2023*	*Reviewed: 02/23/2023 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/23/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/23/2022*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	08/18/2022	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/22/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*04/26/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/22/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*01/31/2022*	*Reviewed: 04/26/2022 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*01/07/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*11/29/2021*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	08/19/2021	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*03/24/2021*	*Reviewed: 03/24/2021 Facility Reported Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*03/24/2021*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/28/2020*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*02/27/2020*	*Reviewed: 03/10/2020 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/04/2020*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/04/2020*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/06/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/31/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/31/2019*	

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/23/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*03/14/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*02/25/2019*	*Reviewed: 04/10/2019 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/13/2019*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	02/12/2019	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/06/2018*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/20/2018*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/09/2018*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	05/18/2018	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CAA	NC0000003703300170	No	03/18/2023	8	03/17/2023
CWA	NCG190054	No	12/31/2022	0	03/17/2023
RCRA	NCD048961668	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
CAA (Source ID: NC0000003703300170)					04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status				No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Violation Identified	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation
	HPV History									Unaddressed-State	Unaddressed-State	Unaddressed-State	Unaddressed-State	Unaddressed-State	Unaddressed-State	Addressed-State
	Violation Type	Agency	Programs	Pollutants												
CAA	HPV	NC	CAAMACT, CAASIP, CAATVP	VOLATILE ORGANIC COMPOUNDS (VOCS), Styrene								02/18/2022	→	08/29/2022		
CAA	HPV	NC	CAATVP	Styrene										09/08/2022	→	02/27/2023
CAA	HPV	NC	CAATVP	FACIL						07/29/2021	→	→	→	08/29/2022		
CAA	FRV	NC	CAAMACT, CAASIP, CAATVP	VOLATILE ORGANIC COMPOUNDS (VOCS), Styrene								01/28/2022 02/22/2022				
CAA	FRV	NC	CAATVP	FACIL					06/25/2021	→	11/29/2021					
CAA	FRV	NC	CAATVP	Styrene										07/21/2022 08/23/2022		

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: NCG190054)		01/01-03/31/20	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/17/23
	Facility-Level Status	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Undetermined

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
	Quarterly Noncompliance Report History													

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD048961668)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	07/21/2022
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	01/28/2022
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	06/25/2021
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	07/15/2019
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	02/19/2019
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	07/16/2018
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	06/01/2018

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000104	State	--	02/06/2023	1	02/06/2023	$0	$4,256	--	$0	$0
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000095	State	--	06/24/2022	1	07/26/2022	$0	$0	--	$0	$0
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000093	State	--	06/24/2022	1	07/26/2022	$0	$6,468	--	$0	$0
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000071	State	--	08/13/2019	1	10/22/2019	$0	$1,324	--	$0	$0

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
No data records returned						

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
Ozone	No	--	Yes	8-Hour Ozone (1997)
Lead	No	--	No	--
Particulate Matter	No	--	No	--
Carbon Monoxide	No	--	No	--
Sulfur Dioxide	No	--	No	--

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

Air Pollutant Report TRI Pollution Prevention Report

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers
27886HCCMP19WSA	2021	73,005	--	0	--	--	73,005	--
27886HCCMP19WSA	2020	50,478	--	0	--	--	50,478	--
27886HCCMP19WSA	2019	74,205	--	0	--	--	74,205	--
27886HCCMP19WSA	2018	45,316	--	0	--	--	45,316	--
27886HCCMP19WSA	2017	10,577	--	0	--	--	10,577	--
27886HCCMP19WSA	2016	10,188	--	0	--	--	10,188	--
27886HCCMP19WSA	2015	8,099	--	0	--	--	8,099	--
27886HCCMP19WSA	2014	8,627	--	0	--	--	8,627	--
27886HCCMP19WSA	2013	7,829	--	0	--	--	7,829	--
27886HCCMP19WSA	2012	8,917	--	0	--	--	8,917	--

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Cumene	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	--	--	--	--	--	--	--	--	--	--
Methyl methacrylate	--	--	--	--	--	--	--	--	--	--
Styrene	73,005	50,478	74,205	45,316	10,577	10,188	8,099	8,627	7,829	8,917
Toluene	--	--	--	--	--	--	--	--	--	--
Xylene (mixed isomers)	--	--	--	--	--	--	--	--	--	--
n-Hexane	--	--	--	--	--	--	--	--	--	--

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	36
Ozone	63
Diesel Particulate Matter	58
Air Toxics Cancer Risk	82
Air Toxics Respiratory Hazard Index	66
Traffic Proximity	77
Lead Paint	55
Risk Management Plan (RMP) Facility Proximity	89
Hazardous Waste Proximity	67
Superfund Proximity	41
Underground Storage Tanks (UST)	84
Wastewater Discharge	87

Number of EJ Indexes Above 80th Percentile
4

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	2,735
Population Density	870/sq.mi.
Housing Units in Area	1,173

General Statistics (ACS (American Community Survey))	
Total Persons	2,614
Percent People of Color	48%
Households in Area	1,138
Households on Public Assistance	28
Persons With Low Income	791
Percent With Low Income	33%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.8876
Center Longitude	-77.55041
Land Area	99%
Water Area	1%

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	195 (7%)
Minors 17 years and younger	577 (21%)
Adults 18 years and older	2,159 (79%)
Seniors 65 years and older	647 (24%)

Race Breakdown (U.S. Census) - Persons (%)	
White	1,187 (43%)
African-American	1,465 (54%)
Hispanic-Origin	65 (2%)
Asian/Pacific Islander	6 (0%)
American Indian	4 (0%)
Other/Multiracial	75 (3%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	118 (6.08%)
9th through 12th Grade	196 (10.1%)
High School Diploma	629 (32.41%)
Some College/2-year	327 (16.85%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	541 (27.87%)

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	209 (18.33%)
$15,000 - $25,000	90 (7.89%)
$25,000 - $50,000	330 (28.95%)
$50,000 - $75,000	146 (12.81%)
Greater than $75,000	365 (32.02%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Report question: *Within 1 of a Toxic releases site?* yes

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name **Distance**

EMPIRE INDUSTRIES INC BUTTON DIV (TARBORO,NC) (https://enviro.epa.gov/facts/tri/ef-facilities/#/Facility/27886MPRFC710PO) 0.62 mile

REGISTRY_ID: 110001485839
LATITUDE: 35.89925
LONGITUDE: -77.54031
PGM_SYS_ACRNM: TRIS
PGM_SYS_ID: 27886MPRFC710PO
LOCATION_ADDRESS: 710 POPLAR ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

Name	Distance
☐ HC COMPOSITES LLC (TARBORO,NC) (https://enviro.epa.gov/facts/tri/ef-facilities/#/Facility/27886HCCMP19WSA)	0.98 mile

REGISTRY_ID: 110007659033
LATITUDE: 35.8876
LONGITUDE: -77.55041
PGM_SYS_ACRNM: TRIS
PGM_SYS_ID: 27886HCCMP19WSA
LOCATION_ADDRESS: 1090 W ST JAMES ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE COUNTY
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

An official website of the United States government
Here is how you know

MENU

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Plant Information

CAROLINA ENTERPRISES PLT 2
710 POPLAR STREET
TARBORO, NC 27886
EPA Plant ID: 110001485839

Operating Status:	X	**HPV Flag:**	
Operating Status Description:	PERMANENTLY CLOSED	**State Registration Number:**	
State County Compliance Source:	3706500130	**Government Facility Code Description:**	PRIVATELY OWNED/OPERATED
Region Code:	04	**Class Code:**	B
Primary SIC Code:	3965	**Class Code Description:**	POTENTIAL UNCONTROLLED EM
Primary SIC Description:	FASTENERS, BUTTONS, NEEDL	**Compliance Status:**	9
NAICS Code:	339993	**Compliance Status Description:**	IN COMPLIANCE - SHUT DOWN
NAICS Code Description:	Fastener, Button, Needle, and Pin Manufacturing	**Date Plant Information Last Updated:**	05/19/2014

Air Program Information

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code Description
0	SIP	X	PERMANENTLY CLOSED			B	POTENTIAL UNCONTROLLED EM

Pollutant Data

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code	Polluta Descrip
0	PT	TOTAL PARTICULATE MATTER	A	ATTAINMENT AREA FOR A GIV	9	IN COMPLIANCE - SHUT DOWN	B	POTENT UNCON EM

Compliance Monitoring Strategy

CMS Start Date	FY2008 CMS Indicator	FY2008 CMS Indicator Description	FY2009 CMS Indicator	FY2009 CMS Indicator Description

Plant Actions

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Resul Code
90000		0			00	RO START ACTION	01-FEB-95		
00023		0	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	09-JUL-97		MV
00022		0	PX	STATE/LOCAL PCE/OFF-SITE	RA	PERMIT RPT - ANNUAL REPORTING CONDITION	30-JUL-97		MV
00021		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	08-AUG-96		MC
00020		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	30-OCT-91		01
00018		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	13-SEP-88		
00016		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	13-SEP-88		
00015		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	01-OCT-85		
00013		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	16-FEB-84		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Resul Code
00011		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	15-DEC-83		
00009		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	27-AUG-82		
00007		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	24-FEB-82		
00006		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	24-FEB-82		
00002		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	04-DEC-80		

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

Detailed Facility Report



Detailed Facility Report

Facility Summary

CAROLINA ENTERPRISES CALDWELL

710 POPLAR STREET, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110001485839
EPA Region: 04
Latitude: 35.89925
Longitude: -77.54031
Locational Data Source: FRS
Industries: Miscellaneous Manufacturing
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	08/21/1997
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Inactive Other, (NCD991298910)

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): 27886MPRFC710PO

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110001485839					N	35.89925	-77.54031
TRI	EP313	27886MPRFC710PO	Toxics Release Inventory	Last Reported for 1995			N	35.89924	-77.54031
RCRAInfo	RCRA	NCD991298910	Other	Inactive ( )			N		

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110001485839	CAROLINA ENTERPRISES CALDWELL	710 POPLAR STREET, TARBORO, NC 27886	Edgecombe County
TRI	EP313	27886MPRFC710PO	EMPIRE INDUSTRIES INC BUTTON DIV	710 POPLAR ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD991298910	CAROLINA ENTERPRISES CALDWELL	710 POPLAR ST, TARBORO, NC 27886-0427	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
TRI	27886MPRFC710PO	3961	Costume Jewelry
TRI	27886MPRFC710PO	3963	
TRI	27886MPRFC710PO	3965	Fasteners, Buttons, Needles, & Pins

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
TRI	27886MPRFC710PO	339993	Fastener, Button, Needle, and Pin Manufacturing
RCRAInfo	NCD991298910	339993	Fastener, Button, Needle, and Pin Manufacturing

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCD991298910	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD991298910)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	12
Ozone	22
Diesel Particulate Matter	24
Air Toxics Cancer Risk	35
Air Toxics Respiratory Hazard Index	24
Traffic Proximity	29
Lead Paint	39
Risk Management Plan (RMP) Facility Proximity	47
Hazardous Waste Proximity	30
Superfund Proximity	11
Underground Storage Tanks (UST)	55
Wastewater Discharge	44

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	5,335
Population Density	1,730/sq.mi.
Housing Units in Area	2,503

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	288 (5%)
Minors 17 years and younger	1,123 (21%)
Adults 18 years and older	4,212 (79%)
Seniors 65 years and older	1,133 (21%)

General Statistics (ACS (American Community Survey))

General Statistics (ACS (American Community Survey))	
Total Persons	3,729
Percent People of Color	47%
Households in Area	1,654
Households on Public Assistance	5
Persons With Low Income	1,154
Percent With Low Income	33%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.89925
Center Longitude	-77.54031
Land Area	98%
Water Area	2%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	279 (16.9%)
$15,000 - $25,000	187 (11.33%)
$25,000 - $50,000	404 (24.47%)
$50,000 - $75,000	281 (17.02%)
Greater than $75,000	500 (30.28%)

Race Breakdown (U.S. Census) - Persons (%)	
White	2,536 (48%)
African-American	2,646 (50%)
Hispanic-Origin	136 (3%)
Asian/Pacific Islander	27 (1%)
American Indian	5 (0%)
Other/Multiracial	121 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	174 (6.11%)
9th through 12th Grade	270 (9.48%)
High School Diploma	883 (31%)
Some College/2-year	524 (18.4%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	865 (30.37%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

NEPAssist

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US Environmental Protection Agency (//www.epa.gov)



Report question: *Within 1 of a Brownfields site?* yes

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name	Distance
116 COMMERCIAL ROAD (PRINCEVILLE,NC) (https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:143101)	0.79 mile

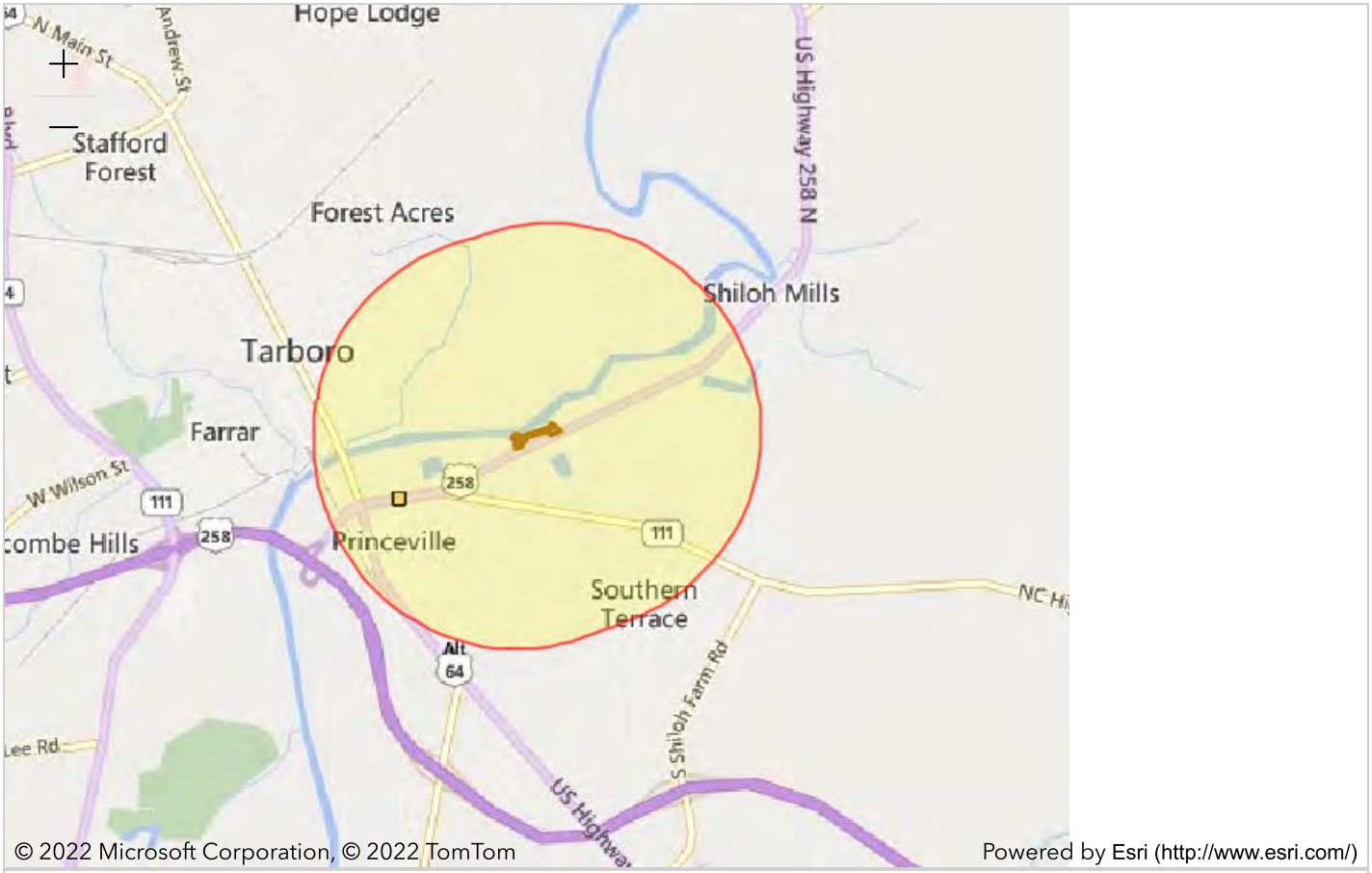
REGISTRY_ID: 110054626099
LATITUDE: 35.88019
LONGITUDE: -77.52656
PGM_SYS_ACRNM: ACRES
PGM_SYS_ID: 143101
LOCATION_ADDRESS: 116 COMMERCIAL ROAD
CITY_NAME: PRINCEVILLE
COUNTY_NAME:
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE:
HUC_CODE:

Name	Distance
☐ 306 MUTUAL BOULEVARD (PRINCEVILLE,NC) (https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:150741) **REGISTRY_ID:** 110054625955 **LATITUDE:** 35.89043 **LONGITUDE:** -77.52737 **PGM_SYS_ACRNM:** ACRES **PGM_SYS_ID:** 150741 **LOCATION_ADDRESS:** 306 MUTUAL BOULEVARD **CITY_NAME:** PRINCEVILLE **COUNTY_NAME:** EDGECOMBE **STATE_CODE:** NC **EPA_REGION:** Region 4 **POSTAL_CODE:** 27886 **FIPS_CODE:** **HUC_CODE:**	0.29 mile
☐ 124 COMMERCIAL ROAD (PRINCEVILLE,NC) (https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:143102) **REGISTRY_ID:** 110054626106 **LATITUDE:** 35.8801 **LONGITUDE:** -77.52612 **PGM_SYS_ACRNM:** ACRES **PGM_SYS_ID:** 143102 **LOCATION_ADDRESS:** 124 COMMERCIAL ROAD **CITY_NAME:** PRINCEVILLE **COUNTY_NAME:** **STATE_CODE:** NC **EPA_REGION:** Region 4 **POSTAL_CODE:** 27886 **FIPS_CODE:** **HUC_CODE:**	0.81 mile

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Report question: *Within 1 of a Brownfields site?* yes

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

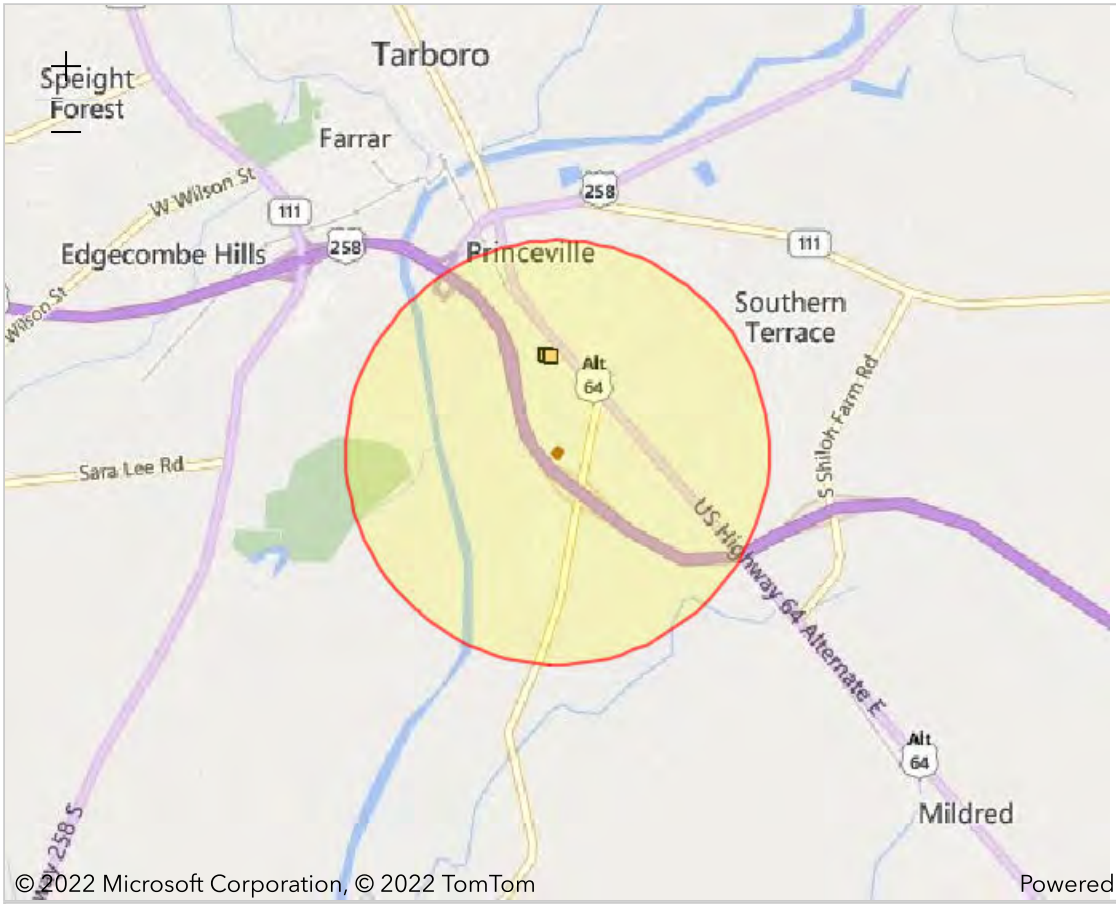
Name	Distance
306 MUTUAL BOULEVARD (PRINCEVILLE,NC) (https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:150741)	0.64 mile

REGISTRY_ID: 110054625955
LATITUDE: 35.89043
LONGITUDE: -77.52737
PGM_SYS_ACRNM: ACRES
PGM_SYS_ID: 150741
LOCATION_ADDRESS: 306 MUTUAL BOULEVARD
CITY_NAME: PRINCEVILLE
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE:
HUC_CODE:

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Report question: ***Within 1 of a Brownfields site?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name	Distance
116 COMMERCIAL ROAD (PRINCEVILLE,NC) (https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:143101)	0.45 mile

REGISTRY_ID: 110054626099
LATITUDE: 35.88019
LONGITUDE: -77.52656
PGM_SYS_ACRNM: ACRES
PGM_SYS_ID: 143101
LOCATION_ADDRESS: 116 COMMERCIAL ROAD
CITY_NAME: PRINCEVILLE
COUNTY_NAME:
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE:
HUC_CODE:

Name	Distance
☐ 124 COMMERCIAL ROAD (PRINCEVILLE,NC) (https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:143102) **REGISTRY_ID:** 110054626106 **LATITUDE:** 35.8801 **LONGITUDE:** -77.52612 **PGM_SYS_ACRNM:** ACRES **PGM_SYS_ID:** 143102 **LOCATION_ADDRESS:** 124 COMMERCIAL ROAD **CITY_NAME:** PRINCEVILLE **COUNTY_NAME:** **STATE_CODE:** NC **EPA_REGION:** Region 4 **POSTAL_CODE:** 27886 **FIPS_CODE:** **HUC_CODE:**	0.45 mile

Property Details for 116 Commercial Road

On this page:

- Profile Information
- Property Location
- Property Progress
- CAs Associated with this Property
- Assessment Activities at this Property
- Contaminants and Media
- Cleanup Activities
- Institutional & Engineering Controls
- Redevelopment and Other Leveraged Accomplishments
- Additional Property Attributes

Legal Notices

Profile Information

Property Alias	
Property Owner	
ACRES Property ID	**143101**
Property Address	**116 Commercial Road Princeville, NC 27886**
Size	**4.39**

Parcel Numbers	**4737-68-3393**
Latitude/Longitude	**35.879638 / -77.5268059**
Congressional District	**1**
Property Contact	**Egetter, David**
	Egetter.David@epa.gov
	404-562-4300

Property Location



Property Progress

Assessment	☑
Clean Up	✖

Institutional Controls in Place 

Engineering Controls in Place 

Ready for Anticipated Use 

Redevelopment Underway 

CAs Associated with this Property

CA Name	CA #	State	Type	Announcement Year
Upper Coastal Plain Council of Governments	BF95482811	NC	Assessment	2011

Assessment Activities at this Property

Activity	EPA Funding	Start Date	Completion Date	CA	Accomplishment Counted?	Counted When?
Phase I Environmental Assessment	$2,500.00	02/01/2012	03/27/2012	Upper Coastal Plain Council of Governments	Y	FY13

Is Cleanup Necessary? **Unknown**
EPA Assessment Funding: **$2,500.00**
Leveraged Funding:
Total Funding: **$2,500.00**

Contaminants and Media

Contaminant Found	Remediating Action for Contaminants
Media Affected	Remediating Action for Media
Soil	**NOT Cleaned up**

Cleanup Activities

There are no current cleanup activities.

Cleanup/Treatment Implemented:
Cleanup/Treatement Categories:
Addl Cleanup/Treatment info:
Address of Data Source:

Institutional and Engineering Controls

Indicate whether Institutional Controls are required

Categories of Controls

Additional Institutional Controls Information

Address of Data Source (URL if available)

Are Institutional Controls in Place

Date Institutional Controls were put in place

Indicate whether Engineering Controls are required

Categories of Controls

Additional Engineering controls information

Address of Data Source (URL if available)

Indicate whether Engineering Controls are in place

Date Engineering Controls were put in place

Redevelopment and Other Leveraged Accomplishments

There are no current redevelopment activities.

Number of Redevelopment Jobs Leveraged:
Actual Acreage of Greenspace Created:
Leveraged Funding:

Additional Property Attributes

Property Highlights	**Former Use: The 4.39 acre property consists of a 7,974 squre foot building, one car wash facility and asphalt-paved parking areas. It appears the site was operated as a truck stop from 1983-2002, and undeveloped prior to 1983. The site was part of a larger tract until it was subdivided in 2009. Douglas Boyd is the current owner of the site.**
Predominant Past Usage	
What types of funding are being used on this property?	**Petroleum**
State and Tribal Program Information	
Date No Further Action Letter Received	
Date Letter/Signed Report Received from a Qualified Professional	
Other Cleanup Documentation	

LAST UPDATED ON FEBRUARY 8, 2017

Property Details for 124 Commercial Road

On this page:

- Profile Information
- Property Location
- Property Progress
- CAs Associated with this Property
- Assessment Activities at this Property
- Contaminants and Media
- Cleanup Activities
- Institutional & Engineering Controls
- Redevelopment and Other Leveraged Accomplishments
- Additional Property Attributes

Legal Notices

Profile Information

Property Alias	
Property Owner	
ACRES Property ID	**143102**
Property Address	**124 Commercial Road Princeville, NC 27886**
Size	**5.52**

Parcel Numbers	**4737-67-5849**
Latitude/Longitude	**35.878535 / -77.526362**
Congressional District	**1**
Property Contact	**Egetter, David** **Egetter.David@epa.gov** **404-562-4300**

Property Location



Property Progress

Assessment	☑
Clean Up	✖

Institutional Controls in Place 

Engineering Controls in Place 

Ready for Anticipated Use 

Redevelopment Underway 

CAs Associated with this Property

CA Name	CA #	State	Type	Announcement Year
Upper Coastal Plain Council of Governments	BF95482811	NC	Assessment	2011

Assessment Activities at this Property

Activity	EPA Funding	Start Date	Completion Date	CA	Accomplishment Counted?	Counted When?
Phase I Environmental Assessment	$2,500.00	02/01/2012	03/23/2012	Upper Coastal Plain Council of Governments	Y	FY13

Is Cleanup Necessary? **Unknown**
EPA Assessment Funding: **$2,500.00**
Leveraged Funding:
Total Funding: **$2,500.00**

Contaminants and Media

Contaminant Found	Remediating Action for Contaminants
Media Affected	Remediating Action for Media
Unknown	**NOT Cleaned up**

Cleanup Activities

There are no current cleanup activities.

Cleanup/Treatment Implemented:
Cleanup/Treatement Categories:
Addl Cleanup/Treatment info:
Address of Data Source:

Institutional and Engineering Controls

Indicate whether Institutional Controls are required

Categories of Controls

Additional Institutional Controls Information

Address of Data Source (URL if available)

Are Institutional Controls in Place

Date Institutional Controls were put in place

Indicate whether Engineering Controls are required

Categories of Controls

Additional Engineering controls information

Address of Data Source (URL if available)

Indicate whether Engineering Controls are in place

Date Engineering Controls were put in place

Redevelopment and Other Leveraged Accomplishments

There are no current redevelopment activities.

Number of Redevelopment Jobs Leveraged:
Actual Acreage of Greenspace Created:
Leveraged Funding:

Additional Property Attributes

Property Highlights	**Former Use: The northern half of the site consists of a 96 square foot shed, chain-link fencing and equipment from its former use as a truck stop. This equipment includes a 1,500 AST, filling stations and an oil/water treatment system associated with a car wash. The southern half of the property is undeveloped with a mix of grass, woodland and wooded swampland. The site operated as a truck stop from 1983-1999. The site was part of the adjacent northern parcel until being subdivided in 2009. The site was undeveloped prior to 1983. The site is owned by Ngoc Pham Beamon since 1999.**
Predominant Past Usage	
What types of funding are being used on this property?	**Petroleum**
State and Tribal Program Information	
Date No Further Action Letter Received	
Date Letter/Signed Report Received from a Qualified Professional	
Other Cleanup Documentation	



LAST UPDATED ON FEBRUARY 8, 2017

Property Details for 306 Mutual Boulevard

On this page:

- Profile Information
- Property Location
- Property Progress
- CAs Associated with this Property
- Assessment Activities at this Property
- Contaminants and Media
- Cleanup Activities
- Institutional & Engineering Controls
- Redevelopment and Other Leveraged Accomplishments
- Additional Property Attributes

Legal Notices

Profile Information

Property Alias	
Property Owner	
ACRES Property ID	**150741**
Property Address	**306 Mutual Boulevard Princeville, NC 27886**
Size	**.51**

Parcel Numbers	**4738-62-2012**
Latitude/Longitude	**35.889804 / -77.5272449**
Congressional District	**1**
Property Contact	**Egetter, David**
	Egetter.David@epa.gov
	404-562-4300

Property Location



Property Progress

Assessment	☑
Clean Up	✖

Institutional Controls in Place 

Engineering Controls in Place 

Ready for Anticipated Use 

Redevelopment Underway 

CAs Associated with this Property

CA Name	CA #	State	Type	Announcement Year
Upper Coastal Plain Council of Governments	BF95482811	NC	Assessment	2011

Assessment Activities at this Property

Activity	EPA Funding	Start Date	Completion Date	CA	Accomplishment Counted?	Counted When?
Phase I Environmental Assessment	$3,785.00	02/01/2012	06/25/2012	Upper Coastal Plain Council of Governments	Y	FY13

Is Cleanup Necessary? **Unknown**
EPA Assessment Funding: **$3,785.00**
Leveraged Funding:
Total Funding: **$3,785.00**

Contaminants and Media

Contaminant Found	Remediating Action for Contaminants
Media Affected	Remediating Action for Media

Cleanup Activities

There are no current cleanup activities.

Cleanup/Treatment Implemented:
Cleanup/Treatement Categories:
Addl Cleanup/Treatment info:
Address of Data Source:

Institutional and Engineering Controls

Indicate whether Institutional Controls are required
Categories of Controls
Additional Institutional Controls Information

Address of Data Source (URL if available)

Are Institutional Controls in Place

Date Institutional Controls were put in place

Indicate whether Engineering Controls are required

Categories of Controls

Additional Engineering controls information

Address of Data Source (URL if available)

Indicate whether Engineering Controls are in place

Date Engineering Controls were put in place

Redevelopment and Other Leveraged Accomplishments

There are no current redevelopment activities.

Number of Redevelopment Jobs Leveraged:
Actual Acreage of Greenspace Created:
Leveraged Funding:

Additional Property Attributes

Property Highlights	**Former Use: The vacant 0.51 acre parcel is zoned C (commercial) and contains a 24 square-foot water pump house and 400 square-foot former power plant. The Town of Princeville has owned the site since 3/31/10. The property belonged to the Matthewson family from 1991-2010, Mary M. Davis and Willie Raphael Matthewson, Sr. from 1973-2010 and Betty Jones prior to 1973. The site was most recently used as a night club; prior to that it operated as a gasoline station.**
Predominant Past Usage	
What types of funding are being used on this property?	**Petroleum**
State and Tribal Program Information	
Date No Further Action Letter Received	
Date Letter/Signed Report Received from a Qualified Professional	
Other Cleanup Documentation	



LAST UPDATED ON FEBRUARY 8, 2017

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US Environmental Protection Agency (//www.epa.gov)



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Report question: ***Within 1 of a Water dischargers site?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name	Distance
☐ TOWN OF TARBORO (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NCL020605)	0.59 mile

REGISTRY_ID: 110022546146
LATITUDE: 35.8832
LONGITUDE: -77.5383
PGM_SYS_ACRNM: NPDES
PGM_SYS_ID: NCL020605
LOCATION_ADDRESS: PO BOX 220
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: NC065
HUC_CODE:

☐ H C COMPOSITES LLC (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NCG190054)	0.98 mile

REGISTRY_ID: 110007659033
LATITUDE: 35.8876
LONGITUDE: -77.55041
PGM_SYS_ACRNM: NPDES
PGM_SYS_ID: NCG190054
LOCATION_ADDRESS: 1090 W ST JAMES ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: NC065
HUC_CODE:

Name	Distance
☐ TARBORO WWTP (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NC0020605) **REGISTRY_ID:** 110022546146 **LATITUDE:** 35.8832 **LONGITUDE:** -77.5383 **PGM_SYS_ACRNM:** NPDES **PGM_SYS_ID:** NC0020605 **LOCATION_ADDRESS:** US HWY 64 BYPASS **CITY_NAME:** TARBORO **COUNTY_NAME:** EDGECOMBE **STATE_CODE:** NC **EPA_REGION:** Region 4 **POSTAL_CODE:** 27886 **FIPS_CODE:** NC065 **HUC_CODE:**	0.59 mile
☐ TARBORO WWTP (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NCG110036) **REGISTRY_ID:** 110022546146 **LATITUDE:** 35.8832 **LONGITUDE:** -77.5383 **PGM_SYS_ACRNM:** NPDES **PGM_SYS_ID:** NCG110036 **LOCATION_ADDRESS:** US HWY 64 BYPASS **CITY_NAME:** TARBORO **COUNTY_NAME:** EDGECOMBE **STATE_CODE:** NC **EPA_REGION:** Region 4 **POSTAL_CODE:** 27886 **FIPS_CODE:** NC065 **HUC_CODE:**	0.59 mile

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US Environmental Protection Agency (//www.epa.gov)



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Report question: *Within 1 of a Water dischargers site?* yes

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name	Distance
☐ TOWN OF TARBORO (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NCL020605)	0.97 mile

REGISTRY_ID: 110022546146
LATITUDE: 35.8832
LONGITUDE: -77.5383
PGM_SYS_ACRNM: NPDES
PGM_SYS_ID: NCL020605
LOCATION_ADDRESS: PO BOX 220
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: NC065
HUC_CODE:

☐ TARBORO WWTP (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NC0020605)	0.97 mile

REGISTRY_ID: 110022546146
LATITUDE: 35.8832
LONGITUDE: -77.5383
PGM_SYS_ACRNM: NPDES
PGM_SYS_ID: NC0020605
LOCATION_ADDRESS: US HWY 64 BYPASS
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: NC065
HUC_CODE:

Name	Distance
☐ TARBORO WWTP (TARBORO,NC) (https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12&npdesid=NCG110036)	0.97 mile

REGISTRY_ID: 110022546146
LATITUDE: 35.8832
LONGITUDE: -77.5383
PGM_SYS_ACRNM: NPDES
PGM_SYS_ID: NCG110036
LOCATION_ADDRESS: US HWY 64 BYPASS
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: NC065
HUC_CODE:

Detailed Facility Report



Detailed Facility Report

Facility Summary

TARBORO WWTP

US HWY 64 BYPASS, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110022546146
EPA Region: 04
Latitude: 35.8832
Longitude: -77.5383
Locational Data Source: FRS
Industries: --
Indian Country: N

Enforcement and Compliance Summary

Statute	CWA
Compliance Monitoring Activities (5 years)	5
Date of Last Compliance Monitoring Activity	01/06/2022
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	9
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): Minor, Permit Effective (NCL020605), Major, Permit Effective (NC0020605), Minor, Permit Effective (NCG110036)

Resource Conservation and Recovery Act (RCRA): No Information

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110022546146					N	35.8832	-77.5383
ICIS-NPDES	CWA	NCL020605	Minor: Associated Permit Record	Effective	Biosolids	12/31/2025	N	35.8832	-77.5383
ICIS-NPDES	CWA	NC0020605	Major: NPDES Individual Permit	Effective	Biosolids, POTW, Pretreatment	09/30/2024	N	35.883333	-77.5375
ICIS-NPDES	CWA	NCG110036	Minor: General Permit Covered Facility	Effective		05/31/2023	N	35.883333	-77.5375

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110022546146	TARBORO WWTP	US HWY 64 BYPASS, TARBORO, NC 27886	Edgecombe County
ICIS-NPDES	CWA	NCL020605	TOWN OF TARBORO	PO BOX 220, TARBORO, NC 27886	Edgecombe County
ICIS-NPDES	CWA	NC0020605	TARBORO WWTP	US HWY 64 BYPASS, TARBORO, NC 27886	Edgecombe County
ICIS-NPDES	CWA	NCG110036	TARBORO WWTP	US HWY 64 BYPASS, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
ICIS-NPDES	NC0020605	4952	Sewerage Systems
ICIS-NPDES	NCG110036	4952	Sewerage Systems

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description

No data records returned

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
NC0020605	401	General provisions
NCG110036	401	General provisions

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CWA	NC0020605	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	01/06/2022	
CWA	NC0020605	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	08/30/2021	
CWA	NC0020605	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	12/05/2019	
CWA	NC0020605	ICIS-NPDES	Inspection/Evaluation	Pretreatment - Audit	State	09/25/2019	
CWA	NC0020605	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	09/25/2018	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	NCL020605	No	12/31/2022	0	03/17/2023
CWA	NC0020605	No	12/31/2022	9	03/17/2023
CWA	NCG110036	No	12/31/2022	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: NCL020605)					**01/01-03/31/20**	**04/01-06/30/20**	**07/01-09/30/20**	**10/01-12/31/20**	**01/01-03/31/21**	**04/01-06/30/21**	**07/01-09/30/21**	**10/01-12/31/21**	**01/01-03/31/22**	**04/01-06/30/22**	**07/01-09/30/22**	**10/01-12/31/22**	**01/01-03/17/23**
	Facility-Level Status				No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Undetermined
	Quarterly Noncompliance Report History																
CWA (Source ID: NC0020605)					**01/01-03/31/20**	**04/01-06/30/20**	**07/01-09/30/20**	**10/01-12/31/20**	**01/01-03/31/21**	**04/01-06/30/21**	**07/01-09/30/21**	**10/01-12/31/21**	**01/01-03/31/22**	**04/01-06/30/22**	**07/01-09/30/22**	**10/01-12/31/22**	**01/01-03/17/23**
	Facility-Level Status				Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Undetermined
	Quarterly Noncompliance Report History				Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Resolved	Resolved	Resolved	
	Pollutant	**Disch Point**	**Mon Loc**	**Freq**													
▸ CWA	Coliform, fecal MF, MFC broth, 44.5 C	001 - M	Effluent Gross	NMth				3%									
	Late or Missing Discharge Monitoring Report (DMR) Measurements																
	Counts of Late DMR Measurements				6	6	6	6	6	6	6	6	6	6	6	6	
	Counts of Missing DMR Measurements							2									
CWA (Source ID: NCG110036)					**01/01-03/31/20**	**04/01-06/30/20**	**07/01-09/30/20**	**10/01-12/31/20**	**01/01-03/31/21**	**04/01-06/30/21**	**07/01-09/30/21**	**10/01-12/31/21**	**01/01-03/31/22**	**04/01-06/30/22**	**07/01-09/30/22**	**10/01-12/31/22**	**01/01-03/17/23**
	Facility-Level Status				No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Undetermined
	Quarterly Noncompliance Report History																

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
030201030202	Town Creek-Tar River	TAR RIVER	No	No	--	Yes

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use
NC	2022	NC28-(80)	TAR RIVER	Good - With Restoration Plan	--	--	Insufficient Information	--	Fully Supporting	--

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	29
Ozone	51
Diesel Particulate Matter	34
Air Toxics Cancer Risk	38
Air Toxics Respiratory Hazard Index	53
Traffic Proximity	8
Lead Paint	52
Risk Management Plan (RMP) Facility Proximity	67
Hazardous Waste Proximity	39
Superfund Proximity	32
Underground Storage Tanks (UST)	54
Wastewater Discharge	62

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	1,765
Population Density	572/sq.mi.
Housing Units in Area	826

General Statistics (ACS (American Community Survey))	
Total Persons	1,983
Percent People of Color	79%
Households in Area	784
Households on Public Assistance	5
Persons With Low Income	1,122
Percent With Low Income	58%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.883185
Center Longitude	-77.538304
Land Area	98%
Water Area	3%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	137 (17.47%)
$15,000 - $25,000	135 (17.22%)
$25,000 - $50,000	287 (36.61%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	126 (7%)
Minors 17 years and younger	418 (24%)
Adults 18 years and older	1,347 (76%)
Seniors 65 years and older	347 (20%)

Race Breakdown (U.S. Census) - Persons (%)	
White	464 (26%)
African-American	1,266 (72%)
Hispanic-Origin	34 (2%)
Asian/Pacific Islander	2 (0%)
American Indian	2 (0%)
Other/Multiracial	31 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	115 (9.44%)
9th through 12th Grade	184 (15.11%)
High School Diploma	461 (37.85%)
Some College/2-year	201 (16.5%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	162 (13.3%)

Income Breakdown (ACS (American Community Survey)) - Households (%)	
$50,000 - $75,000	131 (16.71%)
Greater than $75,000	94 (11.99%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

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US Environmental Protection Agency (//www.epa.gov)



Report question: ***Within 1 of a Hazardous waste site?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name

CAROLINA ENTERPRISES CALDWELL (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=

REGISTRY_ID: 110001485839
LATITUDE: 35.89925
LONGITUDE: -77.54031
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD991298910
LOCATION_ADDRESS: 710 POPLAR ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886-0427
FIPS_CODE: 37065
HUC_CODE:

WINCHESTER POWERBOATS INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=

REGISTRY_ID: 110070862062
LATITUDE: 35.88275
LONGITUDE: -77.52855
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCR000135210
LOCATION_ADDRESS: 78 N RIDGEWOOD RD
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

DOUG HENRY CHEVROLET OLDSMOBILE (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=

REGISTRY_ID: 110004045453
LATITUDE: 35.89454
LONGITUDE: -77.5479
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD986193027
LOCATION_ADDRESS: 809 W WILSON ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

Name

☐ DELUX CLEANERS OF TARBORO INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110006828889
LATITUDE: 35.889799
LONGITUDE: -77.528573
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD982164444
LOCATION_ADDRESS: 107 CHURCH ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

☐ CAROLINA TELEPHONE & TELEGRAPH CO (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110004036070
LATITUDE: 35.893896
LONGITUDE: -77.538527
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD982153405
LOCATION_ADDRESS: 107 CHESTERFIELD ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

☐ ROYSTER CLARK INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110018687740
LATITUDE: 35.89553
LONGITUDE: -77.53898
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCR000012856
LOCATION_ADDRESS: 495 WEST ST JAMES ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

☐ WALMART SUPERCENTER #2730 (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110004059624
LATITUDE: 35.88242
LONGITUDE: -77.54637
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCR000011767
LOCATION_ADDRESS: 110 RIVER OAKS DR
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

☐ NC DOT DIV 4 EDGECOMBE BRIDGE #104 (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110045552237
LATITUDE: 35.89177
LONGITUDE: -77.54218
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCP110911078
LOCATION_ADDRESS: EDGECOMBE COUNTY BRIDGE #104
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

☐ H C COMPOSITES LLC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110007659033
LATITUDE: 35.8876
LONGITUDE: -77.55041
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD048961668
LOCATION_ADDRESS: 1090 WEST SAINT JAMES ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

Name

☐ LOWE'S OF TARBORO #3022 (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110071193276
LATITUDE: 35.88245
LONGITUDE: -77.54644
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCR000171843
LOCATION_ADDRESS: 111 RIVER OAKS DRIVE
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

☐ CHARLES E HUSSEY & ASSOC INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110004058938
LATITUDE: 35.89738
LONGITUDE: -77.54167
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCR000010744
LOCATION_ADDRESS: 500 W WILSON ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

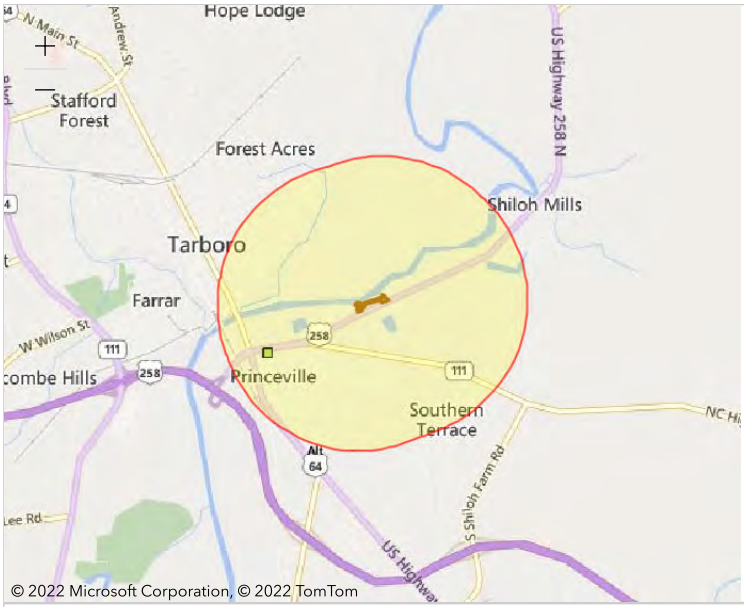
☐ DIXIE YARNS INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?

fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=
REGISTRY_ID: 110001501456
LATITUDE: 35.89377
LONGITUDE: -77.54301
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD986231041
LOCATION_ADDRESS: 101 FAIRLEY ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Powered by Esri (http://www.esri.com/)

Report question: ***Within 1 of a Hazardous waste site?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name

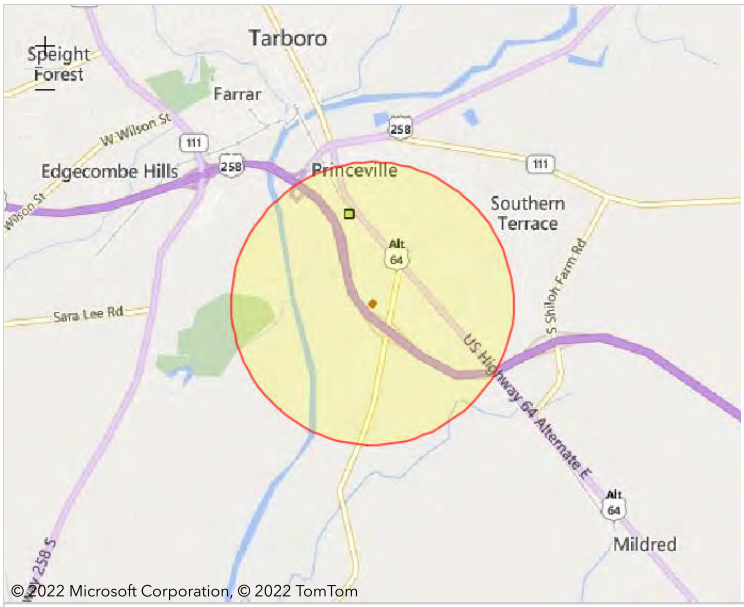
DELUX CLEANERS OF TARBORO INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA

REGISTRY_ID: 110006828889
LATITUDE: 35.889799
LONGITUDE: -77.528573
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCD982164444
LOCATION_ADDRESS: 107 CHURCH ST
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Powered by Esri (http://www.esri.com/)

Report question: ***Within 1 of a Hazardous waste site?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

1 meters Submit

Name

☐ WINCHESTER POWERBOATS INC (TARBORO,NC) (https://enviro.epa.gov/enviro/efsystemquery.rcrainfo?fac_search=handler_id&fac_search_type=Equal+To&postal_code=&location_address=&add_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA

REGISTRY_ID: 110070862062
LATITUDE: 35.88275
LONGITUDE: -77.52855
PGM_SYS_ACRNM: RCRAINFO
PGM_SYS_ID: NCR000135210
LOCATION_ADDRESS: 78 N RIDGEWOOD RD
CITY_NAME: TARBORO
COUNTY_NAME: EDGECOMBE
STATE_CODE: NC
EPA_REGION: Region 4
POSTAL_CODE: 27886
FIPS_CODE: 37065
HUC_CODE:

An official website of the United States government
Here is how you know

MENU

Search EPA.gov

Plant Information

CAROLINA ENTERPRISES PLT 2
710 POPLAR STREET
TARBORO, NC 27886
EPA Plant ID: 110001485839

Operating Status:	X	**HPV Flag:**	
Operating Status Description:	PERMANENTLY CLOSED	**State Registration Number:**	
State County Compliance Source:	3706500130	**Government Facility Code Description:**	PRIVATELY OWNED/OPERATED
Region Code:	04	**Class Code:**	B
Primary SIC Code:	3965	**Class Code Description:**	POTENTIAL UNCONTROLLED EM
Primary SIC Description:	FASTENERS, BUTTONS, NEEDL	**Compliance Status:**	9
NAICS Code:	339993	**Compliance Status Description:**	IN COMPLIANCE - SHUT DOWN
NAICS Code Description:	Fastener, Button, Needle, and Pin Manufacturing	**Date Plant Information Last Updated:**	05/19/2014

Air Program Information

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code Description
0	SIP	X	PERMANENTLY CLOSED			B	POTENTIAL UNCONTROLLED EM

Pollutant Data

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code	Polluta Descrip
0	PT	TOTAL PARTICULATE MATTER	A	ATTAINMENT AREA FOR A GIV	9	IN COMPLIANCE - SHUT DOWN	B	POTENT UNCON EM

Compliance Monitoring Strategy

CMS Start Date	FY2008 CMS Indicator	FY2008 CMS Indicator Description	FY2009 CMS Indicator	FY2009 CMS Indicator Description

Plant Actions

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Resul Code
90000		0			00	RO START ACTION	01-FEB-95		
00023		0	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	09-JUL-97		MV
00022		0	PX	STATE/LOCAL PCE/OFF-SITE	RA	PERMIT RPT - ANNUAL REPORTING CONDITION	30-JUL-97		MV
00021		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	08-AUG-96		MC
00020		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	30-OCT-91		01
00018		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	13-SEP-88		
00016		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	13-SEP-88		
00015		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	01-OCT-85		
00013		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	16-FEB-84		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Resul Code
00011		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	15-DEC-83		
00009		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	27-AUG-82		
00007		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	24-FEB-82		
00006		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	24-FEB-82		
00002		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	04-DEC-80		

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

Detailed Facility Report



Detailed Facility Report

Facility Summary

WINCHESTER POWERBOATS INC

78 N RIDGEWOOD RD, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110070862062
EPA Region: 04
Latitude: 35.88275
Longitude: -77.52855
Locational Data Source: FRS
Industries: Transportation Equipment Manufacturing
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	06/07/2006
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): No Information
Resource Conservation and Recovery Act (RCRA): Inactive Other, (NCR000135210)
Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information
Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Known Data Problems

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110070862062					N	35.88275	-77.52855
RCRAInfo	RCRA	NCR000135210	Other	Inactive ( )			N		

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110070862062	WINCHESTER POWERBOATS INC	78 N RIDGEWOOD RD, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCR000135210	WINCHESTER POWERBOATS INC	78 N RIDGEWOOD RD, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description

No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
RCRAInfo	NCR000135210	336612	Boat Building

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCR000135210	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCR000135210)		04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation / Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
Ozone	No	--	Yes	8-Hour Ozone (1997)
Lead	No	--	No	--
Particulate Matter	No	--	No	--
Carbon Monoxide	No	--	No	--
Sulfur Dioxide	No	--	No	--

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or

"EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	38
Ozone	65
Diesel Particulate Matter	50
Air Toxics Cancer Risk	84
Air Toxics Respiratory Hazard Index	69
Traffic Proximity	80
Lead Paint	62
Risk Management Plan (RMP) Facility Proximity	82
Hazardous Waste Proximity	53
Superfund Proximity	45
Underground Storage Tanks (UST)	82
Wastewater Discharge	73

Number of EJ Indexes Above 80th Percentile
4

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	1,955
Population Density	672/sq.mi.
Housing Units in Area	902

General Statistics (ACS (American Community Survey))	
Total Persons	1,755
Percent People of Color	88%
Households in Area	649
Households on Public Assistance	1
Persons With Low Income	1,138
Percent With Low Income	65%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.88275
Center Longitude	-77.52855
Land Area	97%
Water Area	3%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	123 (18.95%)
$15,000 - $25,000	132 (20.34%)
$25,000 - $50,000	219 (33.74%)
$50,000 - $75,000	121 (18.64%)
Greater than $75,000	54 (8.32%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	144 (7%)
Minors 17 years and younger	519 (27%)
Adults 18 years and older	1,436 (73%)
Seniors 65 years and older	388 (20%)

Race Breakdown (U.S. Census) - Persons (%)	
White	284 (15%)
African-American	1,642 (84%)
Hispanic-Origin	32 (2%)
Asian/Pacific Islander	1 (0%)
American Indian	6 (0%)
Other/Multiracial	22 (1%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	125 (11.8%)
9th through 12th Grade	175 (16.53%)
High School Diploma	446 (42.12%)
Some College/2-year	173 (16.34%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	88 (8.31%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

Detailed Facility Report

Detailed Facility Report

Facility Summary

DOUG HENRY CHEVROLET OLDSMOBILE

809 W WILSON ST, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110004045453
EPA Region: 04
Latitude: 35.89454
Longitude: -77.5479
Locational Data Source: FRS
Industries: --
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	11/26/2007
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Active VSQG, (NCD986193027)

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110004045453					N	35.89454	-77.5479
RCRAInfo	RCRA	NCD986193027	VSQG	Active (H)			N	35.889108	-77.561888

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110004045453	DOUG HENRY CHEVROLET OLDSMOBILE	809 W WILSON ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD986193027	DOUG HENRY CHEVROLET OLDSMOBILE	809 W WILSON ST, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description

No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description

No data records returned

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCD986193027	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD986193027)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	37
Ozone	64
Diesel Particulate Matter	58
Air Toxics Cancer Risk	84
Air Toxics Respiratory Hazard Index	68
Traffic Proximity	84
Lead Paint	88
Risk Management Plan (RMP) Facility Proximity	86
Hazardous Waste Proximity	63
Superfund Proximity	42
Underground Storage Tanks (UST)	91
Wastewater Discharge	87

Number of EJ Indexes Above 80th Percentile
6

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	4,783
Population Density	1,492/sq.mi.
Housing Units in Area	2,232

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	290 (6%)
Minors 17 years and younger	997 (21%)
Adults 18 years and older	3,786 (79%)
Seniors 65 years and older	1,101 (23%)

General Statistics (ACS (American Community Survey))

General Statistics (ACS (American Community Survey))	
Total Persons	3,615
Percent People of Color	43%
Households in Area	1,622
Households on Public Assistance	23
Persons With Low Income	1,079
Percent With Low Income	32%
Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.89454
Center Longitude	-77.5479
Land Area	99%
Water Area	1%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	319 (19.64%)
$15,000 - $25,000	150 (9.24%)
$25,000 - $50,000	416 (25.62%)
$50,000 - $75,000	255 (15.7%)
Greater than $75,000	484 (29.8%)

Race Breakdown (U.S. Census) - Persons (%)	
White	2,483 (52%)
African-American	2,147 (45%)
Hispanic-Origin	128 (3%)
Asian/Pacific Islander	23 (0%)
American Indian	5 (0%)
Other/Multiracial	126 (3%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	153 (5.5%)
9th through 12th Grade	267 (9.6%)
High School Diploma	935 (33.61%)
Some College/2-year	449 (16.14%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	832 (29.91%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

Detailed Facility Report

Detailed Facility Report

Facility Summary

DELUX CLEANERS OF TARBORO INC

107 CHURCH ST, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110006828889
EPA Region: 04
Latitude: 35.889799
Longitude: -77.528573
Locational Data Source: FRS
Industries: --
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	07/18/2005
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): No Information
Resource Conservation and Recovery Act (RCRA): Active
VSQG, (NCD982164444)
Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information
Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Known Data Problems

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110006828889					N	35.889799	-77.528573
RCRAInfo	RCRA	NCD982164444	VSQG	Active (H)			N	35.886313	-77.527534

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110006828889	DELUX CLEANERS OF TARBORO INC	107 CHURCH ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD982164444	DELUX CLEANERS OF TARBORO INC	107 CHURCH ST, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description

No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description

No data records returned

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCD982164444	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD982164444)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	49
Ozone	77
Diesel Particulate Matter	62
Air Toxics Cancer Risk	98
Air Toxics Respiratory Hazard Index	83
Traffic Proximity	83
Lead Paint	77
Risk Management Plan (RMP) Facility Proximity	92
Hazardous Waste Proximity	70
Superfund Proximity	57
Underground Storage Tanks (UST)	98
Wastewater Discharge	86

Number of EJ Indexes Above 80th Percentile
6

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	3,023
Population Density	1,038/sq.mi.
Housing Units in Area	1,375

General Statistics (ACS (American Community Survey))	
Total Persons	2,455
Percent People of Color	80%
Households in Area	970
Households on Public Assistance	1
Persons With Low Income	1,370
Percent With Low Income	57%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.889799
Center Longitude	-77.528573
Land Area	97%
Water Area	3%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	156 (16.08%)
$15,000 - $25,000	176 (18.14%)
$25,000 - $50,000	340 (35.05%)
$50,000 - $75,000	179 (18.45%)
Greater than $75,000	119 (12.27%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	202 (7%)
Minors 17 years and younger	752 (25%)
Adults 18 years and older	2,271 (75%)
Seniors 65 years and older	552 (18%)

Race Breakdown (U.S. Census) - Persons (%)	
White	684 (23%)
African-American	2,280 (75%)
Hispanic-Origin	56 (2%)
Asian/Pacific Islander	2 (0%)
American Indian	2 (0%)
Other/Multiracial	55 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	154 (9.94%)
9th through 12th Grade	212 (13.69%)
High School Diploma	587 (37.9%)
Some College/2-year	256 (16.53%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	249 (16.07%)

An official website of the United States government

RCRAInfo Facility Information

<< Return

CAROLINA TELEPHONE & TELEGRAPH CO Handler ID: NCD982153405 107 CHESTERFIELD ST TARBORO, NC 27886 **County Name:** EDGECOMBE **Latitude:** 35.893896 **Longitude:** -77.538527 **Hazardous Waste Generator:** **Owner Name:** SPRINT		**You can navigate within the map with your mouse.*

No BIENNIAL REPORT data is available for the facility listed above.

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE	ZIP CODE	PHONE	TYPE OF CONTACT
HARDING BOB	14111 CAPITAL BLVDT	WAKE FOREST	NC	27587-5900	919-554-7530	Public
BOB HARDING	14111 CAPITAL BLVDT	WAKE FOREST	NC	27587-5900	919-554-7530,	Permit

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE
Not in a universe

No PROCESS INFORMATION is available for the facility listed above.

No NAICS Codes are available for the facility listed above.

LIST OF WASTE CODES AND DESCRIPTIONS

WASTE CODE	WASTE DESCRIPTION

F001	THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F003	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F005	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Go To Top Of The Page

Total Number of Facilities Retrieved: 1

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

Detailed Facility Report



Detailed Facility Report

Facility Summary

CAROLINA ENTERPRISES CALDWELL

710 POPLAR STREET, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110001485839
EPA Region: 04
Latitude: 35.89925
Longitude: -77.54031
Locational Data Source: FRS
Industries: Miscellaneous Manufacturing
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	08/21/1997
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Inactive Other, (NCD991298910)

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): 27886MPRFC710PO

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110001485839					N	35.89925	-77.54031
TRI	EP313	27886MPRFC710PO	Toxics Release Inventory	Last Reported for 1995			N	35.89924	-77.54031
RCRAInfo	RCRA	NCD991298910	Other	Inactive ( )			N		

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110001485839	CAROLINA ENTERPRISES CALDWELL	710 POPLAR STREET, TARBORO, NC 27886	Edgecombe County
TRI	EP313	27886MPRFC710PO	EMPIRE INDUSTRIES INC BUTTON DIV	710 POPLAR ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD991298910	CAROLINA ENTERPRISES CALDWELL	710 POPLAR ST, TARBORO, NC 27886-0427	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
TRI	27886MPRFC710PO	3961	Costume Jewelry
TRI	27886MPRFC710PO	3963	
TRI	27886MPRFC710PO	3965	Fasteners, Buttons, Needles, & Pins

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
TRI	27886MPRFC710PO	339993	Fastener, Button, Needle, and Pin Manufacturing
RCRAInfo	NCD991298910	339993	Fastener, Button, Needle, and Pin Manufacturing

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCD991298910	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD991298910)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	12
Ozone	22
Diesel Particulate Matter	24
Air Toxics Cancer Risk	35
Air Toxics Respiratory Hazard Index	24
Traffic Proximity	29
Lead Paint	39
Risk Management Plan (RMP) Facility Proximity	47
Hazardous Waste Proximity	30
Superfund Proximity	11
Underground Storage Tanks (UST)	55
Wastewater Discharge	44

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	5,335
Population Density	1,730/sq.mi.
Housing Units in Area	2,503

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	288 (5%)
Minors 17 years and younger	1,123 (21%)
Adults 18 years and older	4,212 (79%)
Seniors 65 years and older	1,133 (21%)

General Statistics (ACS (American Community Survey))

General Statistics (ACS (American Community Survey))	
Total Persons	3,729
Percent People of Color	47%
Households in Area	1,654
Households on Public Assistance	5
Persons With Low Income	1,154
Percent With Low Income	33%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.89925
Center Longitude	-77.54031
Land Area	98%
Water Area	2%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	279 (16.9%)
$15,000 - $25,000	187 (11.33%)
$25,000 - $50,000	404 (24.47%)
$50,000 - $75,000	281 (17.02%)
Greater than $75,000	500 (30.28%)

Race Breakdown (U.S. Census) - Persons (%)	
White	2,536 (48%)
African-American	2,646 (50%)
Hispanic-Origin	136 (3%)
Asian/Pacific Islander	27 (1%)
American Indian	5 (0%)
Other/Multiracial	121 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	174 (6.11%)
9th through 12th Grade	270 (9.48%)
High School Diploma	883 (31%)
Some College/2-year	524 (18.4%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	865 (30.37%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

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Plant Information

ROYSTER CLARKINACTIVE****
P O BOX 250
TARBORO, NC 27886
EPA Plant ID: 110038978005

Operating Status:	X	**HPV Flag:**	
Operating Status Description:	PERMANENTLY CLOSED	**State Registration Number:**	
State County Compliance Source:	3706500156	**Government Facility Code Description:**	PRIVATELY OWNED/OPERATED
Region Code:	04	**Class Code:**	B
Primary SIC Code:	5039	**Class Code Description:**	POTENTIAL UNCONTROLLED EM
Primary SIC Description:	CONSTRUCTION MATERIALS, N	**Compliance Status:**	9
NAICS Code:		**Compliance Status Description:**	IN COMPLIANCE - SHUT DOWN
NAICS Code Description:		**Date Plant Information Last Updated:**	05/19/2014

Air Program Information

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code Description
0	SIP	X	PERMANENTLY CLOSED			B	POTENTIAL UNCONTROLLED EM

Pollutant Data

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code	Polluta Descrip
0	PT	TOTAL PARTICULATE MATTER	A	ATTAINMENT AREA FOR A GIV	9	IN COMPLIANCE - SHUT DOWN	B	POTENT UNCON EM

Compliance Monitoring Strategy

CMS Start Date	FY2008 CMS Indicator	FY2008 CMS Indicator Description	FY2009 CMS Indicator	FY2009 CMS Indicator Description

Plant Actions

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code
90000		0			00	RO ACTION START	27-OCT-02		

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

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RCRAInfo Facility Information

<< Return

WALMART SUPERCENTER #2730 Handler ID: NCR000011767 110 RIVER OAKS DR TARBORO, NC 27886 **County Name:** EDGECOMBE **Latitude:** 35.88242 **Longitude:** -77.54637 **Hazardous Waste Generator:** Small Quantity Generator **Owner Name:** WAL-MART STORES EAST, LP		**You can navigate within the map with your mouse.*

No BIENNIAL REPORT data is available for the facility listed above.

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE	ZIP CODE	PHONE	TYPE OF CONTACT
CALDWELL ROSE	P.O. BOX 8041	BENTONVILLE	AR	72712-8041	479-277-8972	Public
ROSE CALDWELL	P.O. BOX 8041	BENTONVILLE	AR	72712-8041	479-277-8972,	Permit

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE
Small Quantity Generator

No PROCESS INFORMATION is available for the facility listed above.

LIST OF NAICS CODES AND DESCRIPTIONS

NAICS CODE	NAICS DESCRIPTION
452311	WAREHOUSE CLUBS AND SUPERCENTERS
45291	WAREHOUSE CLUBS AND SUPERCENTERS
455211	WAREHOUSE CLUBS AND SUPERCENTERS
452910	WAREHOUSE CLUBS AND SUPERCENTERS

LIST OF WASTE CODES AND DESCRIPTIONS

WASTE CODE	WASTE DESCRIPTION
D001	IGNITABLE WASTE
D002	CORROSIVE WASTE
D003	REACTIVE WASTE
D004	ARSENIC
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D010	SELENIUM
D011	SILVER
D013	LINDANE (1,2,3,4,5,6-HEXA-CHLOROCYCLOHEXANE, GAMMA ISOMER)

D016	2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
D018	BENZENE
D024	M-CRESOL
D025	P-CRESOL
D026	CRESOL
D027	1,4-DICHLOROBENZENE
D030	2,4-DINITROTOLUENE
D035	METHYL ETHYL KETONE
D039	TETRACHLOROETHYLENE
P001	2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%
U002	2-PROPANONE (I) (OR) ACETONE (I)
U034	ACETALDEHYDE, TRICHLORO- (OR) CHLORAL
U035	BENZENEBUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) CHLORAMBUCIL

U058	2H-1,3,2-OXAZAPHOSPHORIN-2-AMINE, N,N-BIS(2-CHLOROETHYL)TETRAHYDRO-, 2-OXIDE (OR) CYCLOPHOSPHAMIDE
U072	BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE
U089	DIETHYLSTILBESTEROL (OR) PHENOL, 4,4'-(1,2-DIETHYL-1,2-ETHENEDIYL)BIS, (E)-
U122	FORMALDEHYDE
U129	CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE
U132	HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS[3,4,6-TRICHLORO-
U134	HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)
U150	L-PHENYLALANINE, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) MELPHALAN
U154	METHANOL (I) (OR) METHYL ALCOHOL (I)
U165	NAPHTHALENE
U188	PHENOL
U200	RESERPINE (OR) YOHIMBAN-16-CARBOXYLIC ACID, 11,17-DIMETHOXY-18-[(3,4,5-TRIMETHOXYBENZOYL)OXY]-, METHYL ESTER, (3BETA, 16BETA, 17ALPHA, 18BETA, 20ALPHA)-
U205	SELENIUM SULFIDE (OR) SELENIUM SULFIDE SES2 (R,T)

U249	ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS
U279	CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE
U411	PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

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Total Number of Facilities Retrieved: 1

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

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RCRAInfo Facility Information

<< Return

NC DOT DIV 4 EDGECOMBE BRIDGE #104 Handler ID: NCP110911078 EDGECOMBE COUNTY BRIDGE #104 TARBORO, NC 27886 **County Name:** EDGECOMBE **Latitude:** 35.89177 **Longitude:** -77.54218 **Hazardous Waste Generator:** **Owner Name:** NC DOT DIV 4		**You can navigate within the map with your mouse.*

BIENNIAL REPORT SUMMARY

REPORT YEAR	GENERATION (Tons)	MANAGEMENT (Tons)	WASTE RECEIVED (Tons)	WASTE SHIPPED (Tons)	INCINERATION (Tons)	DISPOSAL (Tons)	ACUTE GENERATION (Tons)
2011	6.4			6.4			

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE	ZIP CODE	PHONE	TYPE OF CONTACT
BEAMER RYAN	PO BOX 3165	WILSON	NC	27895	252-296-3609	Public
RYAN BEAMER	PO BOX 3165	WILSON	NC	27895	252-296-3609,	Permit

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE
Not in a universe

No PROCESS INFORMATION is available for the facility listed above.

LIST OF NAICS CODES AND DESCRIPTIONS

NAICS CODE	NAICS DESCRIPTION
23731	HIGHWAY, STREET, AND BRIDGE CONSTRUCTION

No Waste Codes are available for the facility listed above.

Go To Top Of The Page

Total Number of Facilities Retrieved: 1

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

Detailed Facility Report

Detailed Facility Report

Facility Summary

NC DOT DIV 4 EDGECOMBE BRIDGE #104

EDGECOMBE COUNTY BRIDGE #104, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110045552237
EPA Region: 04
Latitude: 35.89177
Longitude: -77.54218
Locational Data Source: FRS
Industries: Heavy and Civil Engineering Construction
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	--
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Inactive Other, (NCP110911078)

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110045552237					N	35.89177	-77.54218
RCRAInfo	RCRA	NCP110911078	Other	Inactive ( )			N		

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110045552237	NC DOT DIV 4 EDGECOMBE BRIDGE #104	EDGECOMBE COUNTY BRIDGE #104, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCP110911078	NC DOT DIV 4 EDGECOMBE BRIDGE #104	EDGECOMBE COUNTY BRIDGE #104, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description

No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
RCRAInfo	NCP110911078	23731	Highway, Street, and Bridge Construction

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCP110911078	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCP110911078)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	37
Ozone	64
Diesel Particulate Matter	58
Air Toxics Cancer Risk	84
Air Toxics Respiratory Hazard Index	68
Traffic Proximity	84
Lead Paint	88
Risk Management Plan (RMP) Facility Proximity	86
Hazardous Waste Proximity	63
Superfund Proximity	42
Underground Storage Tanks (UST)	91
Wastewater Discharge	87

Number of EJ Indexes Above 80th Percentile
6

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	3,912
Population Density	1,279/sq.mi.
Housing Units in Area	1,884

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	244 (6%)
Minors 17 years and younger	818 (21%)
Adults 18 years and older	3,094 (79%)
Seniors 65 years and older	879 (22%)

General Statistics (ACS (American Community Survey))

General Statistics (ACS (American Community Survey))	
Total Persons	3,421
Percent People of Color	48%
Households in Area	1,447
Households on Public Assistance	13
Persons With Low Income	1,076
Percent With Low Income	34%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.89177
Center Longitude	-77.54218
Land Area	98%
Water Area	2%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	219 (15.15%)
$15,000 - $25,000	152 (10.51%)
$25,000 - $50,000	387 (26.76%)
$50,000 - $75,000	246 (17.01%)
Greater than $75,000	442 (30.57%)

Race Breakdown (U.S. Census) - Persons (%)	
White	1,840 (47%)
African-American	1,962 (50%)
Hispanic-Origin	87 (2%)
Asian/Pacific Islander	11 (0%)
American Indian	5 (0%)
Other/Multiracial	94 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	173 (6.81%)
9th through 12th Grade	246 (9.68%)
High School Diploma	820 (32.26%)
Some College/2-year	413 (16.25%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	764 (30.06%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

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Plant Information

HC COMPOSITES LLC
1090 WEST SAINT JAMES STREET
TARBORO, NC 27886
EPA Plant ID: 110007659033

Operating Status:	O	**HPV Flag:**	
Operating Status Description:	OPERATING	**State Registration Number:**	
State County Compliance Source:	3706500170	**Government Facility Code Description:**	PRIVATELY OWNED/OPERATED
Region Code:	04	**Class Code:**	A
Primary SIC Code:	3732	**Class Code Description:**	ACTUAL OR POTENTIAL EMISS
Primary SIC Description:	BOAT BUILDING AND REPAIRI	**Compliance Status:**	C

NAICS Code:	336612	**Compliance Status Description:**	IN COMPLIANCE WITH PROCED
NAICS Code Description:	Boat Building	**Date Plant Information Last Updated:**	09/16/2014

Air Program Information

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code Description	Compliance Status	Compliance Status Description
0	SIP	O	OPERATING			A	ACTUAL OR POTENTIAL EMISS	C	IN COMPLIANCE WITH PROCED
M	MACT (SECTION 63 NESHAPS)	O	OPERATING	VVVV	NEW AND EXISTING BOAT MANUFACTURING FACILITIES	A	ACTUAL OR POTENTIAL EMISS	C	IN COMPLIANCE WITH PROCED

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code Description	Compliance Status	Compliance Status Description
V	TITLE V PERMITS	O	OPERATING			A	ACTUAL OR POTENTIAL EMISS	C	IN COMPLIANCE WITH PROCED

Pollutant Data

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code	Pollutant Class Description
0	FACIL	FACILITY-WIDE PERMIT REQUIREMENTS	A	ATTAINMENT AREA FOR A GIV	C	IN COMPLIANCE WITH PROCED	B	POTENTIAL UNCONTROLLED EM
0	PM10	PARTICULATE MATTER < 10 UM	A	ATTAINMENT AREA FOR A GIV	3	IN COMPLIANCE - INSPECTIO	B	POTENTIAL UNCONTROLLED EM
0	VE	VISIBLE EMISSIONS	A	ATTAINMENT AREA FOR A GIV	3	IN COMPLIANCE - INSPECTIO	B	POTENTIAL UNCONTROLLED EM
0	VOC	VOLATILE ORGANIC COMPOUNDS	A	ATTAINMENT AREA FOR A GIV	3	IN COMPLIANCE - INSPECTIO	B	POTENTIAL UNCONTROLLED EM

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code	Pollutant Class Description
0	100425	STYRENE AKA-ETHENYLBENZENE	A	ATTAINMENT AREA FOR A GIV	3	IN COMPLIANCE - INSPECTIO	A	ACTUAL OR POTENTIAL EMISS
M	FACIL	FACILITY-WIDE PERMIT REQUIREMENTS	A	ATTAINMENT AREA FOR A GIV	C	IN COMPLIANCE WITH PROCED	B	POTENTIAL UNCONTROLLED EM
M	VOC	VOLATILE ORGANIC COMPOUNDS	A	ATTAINMENT AREA FOR A GIV	9	IN COMPLIANCE - SHUT DOWN	A	ACTUAL OR POTENTIAL EMISS
M	100425	STYRENE AKA-ETHENYLBENZENE	A	ATTAINMENT AREA FOR A GIV	3	IN COMPLIANCE - INSPECTIO	A	ACTUAL OR POTENTIAL EMISS
V	FACIL	FACILITY-WIDE PERMIT REQUIREMENTS	A	ATTAINMENT AREA FOR A GIV	C	IN COMPLIANCE WITH PROCED	B	POTENTIAL UNCONTROLLED EM
V	100425	STYRENE AKA-ETHENYLBENZENE	A	ATTAINMENT AREA FOR A GIV	3	IN COMPLIANCE - INSPECTIO	A	ACTUAL OR POTENTIAL EMISS

Compliance Monitoring Strategy

CMS Start Date	FY2008 CMS Indicator	FY2008 CMS Indicator Description	FY2009 CMS Indicator	FY2009 CMS Indicator Description
01-APR-05	A	TITLE V MAJOR	A	TITLE V MAJOR

Plant Actions

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
90013	90009	V	VR	VIOLATION RESOLVED	AS	VIOLATION RESOLVED	26-FEB-10	$4229				
90012	90009	V	8C	STATE/LOCAL ADMINISTRATIVE ORDER ISSUED	X1	STATE ORDER ISSUED	29-APR-09	$4229				
90011	90009	V	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	18-MAR-09					
90010	90009	V	PX	STATE/LOCAL PCE/OFF-SITE	PX	STATE CONDUCTED PCE/ OFF-SITE	01-MAR-09					
90009	90009	V	2E	STATE/LOCAL DAY ZERO	04	STATE DAY ZERO	15-APR-09				ADMIN	

HPV Day Zero Action:	Date: 15-APR-09	Type: 04	Description: STATE DAY ZERO	
HPV Discovery:	Date: 01-MAR-09	Type: 04	Description: STATE CONDUCTED PCE/ OFF-SITE	
HPV Addressing Action:	Date: 29-APR-09	Type: X1	Description: STATE/LOCAL ADMINISTRATIVE ORDER ISSUED	Penalty: $4229
HPV Resolution:	Date: 26-FEB-10	Type: VR	Description: VIOLATION RESOLVED	
Violation:	Pollutant: ADMIN	Type Codes: GC5	Identifier: S	

90008	90004	V	VR	VIOLATION RESOLVED	AS	VIOLATION RESOLVED	16-OCT-08	$3229				
90007	90002	V	VR	VIOLATION RESOLVED	AS	VIOLATION RESOLVED	04-AUG-08	$2229				

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
90006	90004	V	8C	STATE/LOCAL ADMINISTRATIVE ORDER ISSUED	X1	STATE ORDER ISSUED	08-NOV-07	$4229				
90005	90004	V	PX	STATE/LOCAL PCE/OFF-SITE	PX	STATE CONDUCTED PCE/ OFF-SITE	10-SEP-07					
90004	90004	V	2E	STATE/LOCAL DAY ZERO	04	STATE DAY ZERO	25-OCT-07				FACIL	

HPV Day Zero Action:	Date: 25-OCT-07	Type: 04	Description: STATE DAY ZERO	
HPV Discovery:	Date: 10-SEP-07	Type: 04	Description: STATE CONDUCTED PCE/ OFF-SITE	
HPV Addressing Action:	Date: 08-NOV-07	Type: X1	Description: STATE/LOCAL ADMINISTRATIVE ORDER ISSUED	Penalty: $4229
HPV Resolution:	Date: 16-OCT-08	Type: VR	Description: VIOLATION RESOLVED	
Violation:	Pollutant: FACIL	Type Codes: GC5	Identifier: S	

90003	90002	V	8C	STATE/LOCAL ADMINISTRATIVE ORDER ISSUED	X1	STATE ORDER ISSUED	29-MAY-07	$2229				
90002	90002	V	2E	STATE/LOCAL DAY ZERO	04	STATE DAY ZERO	15-APR-07				FACIL	

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme

HPV Day Zero Action:	Date: 15-APR-07	Type: 04	Description: STATE DAY ZERO
HPV Discovery:	Date:	Type: 04	Description:
HPV Addressing Action:	Date: 29-MAY-07	Type: X1	Description: STATE/LOCAL ADMINISTRATIVE ORDER ISSUED — Penalty: $2229
HPV Resolution:	Date: 04-AUG-08	Type: VR	Description: VIOLATION RESOLVED
Violation:	Pollutant: FACIL	Type Codes: GC5	Identifier: S

90001		V	CC	TITLE V ANNUAL COMPL CERT DUE/RECEIVED BY EPA	CC	TITLE V COMPLIANCE CERTIFICATION DUE/RECVD BY EPA						
90000		0			00	RO ACTION START	27-OCT-02					
00040		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	28-FEB-14		MC	IN COMPLIANCE		
00039		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	07-FEB-14		MC	IN COMPLIANCE		
00039		M	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	07-FEB-14		MC	IN COMPLIANCE		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
00039		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	07-FEB-14		MC	IN COMPLIANCE		
00038		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	13-FEB-13		MC	IN COMPLIANCE		
00037		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	06-DEC-12		MC	IN COMPLIANCE		
00037		M	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	06-DEC-12		MC	IN COMPLIANCE		
00037		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	06-DEC-12		MC	IN COMPLIANCE		
00036		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	12-FEB-12		MC	IN COMPLIANCE		
00035		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	24-JAN-12		MC	IN COMPLIANCE		
00035		M	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	24-JAN-12		MC	IN COMPLIANCE		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
00035		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	24-JAN-12		MC	IN COMPLIANCE		
00034		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	17-FEB-11		MC	IN COMPLIANCE		
00033		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	10-FEB-11		MC	IN COMPLIANCE		
00033		M	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	10-FEB-11		MC	IN COMPLIANCE		
00033		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	10-FEB-11		MC	IN COMPLIANCE		
00032		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	24-FEB-10		MC	IN COMPLIANCE		
00032		M	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	24-FEB-10		MC	IN COMPLIANCE		
00032		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	24-FEB-10		MC	IN COMPLIANCE		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
00031		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	10-FEB-10		MC	IN COMPLIANCE		
00030		V	PX	STATE/LOCAL PCE/OFF-SITE	RO	PERMIT RPT - OTHER REPORTING CONDITION	26-MAR-09		01	ACTION ACHIEVED		
00029		V	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	18-MAR-09		MV	IN VIOLATION		
00028		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	11-MAR-09		MC	IN COMPLIANCE		
00027		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	20-MAR-09		MV	IN VIOLATION		
00026		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	13-JAN-09		MC	IN COMPLIANCE		
00026		M	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	13-JAN-09		MC	IN COMPLIANCE		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
00026		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	13-JAN-09		MC	IN COMPLIANCE		
00025		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	29-FEB-08		MC	IN COMPLIANCE		
00024		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	12-FEB-08		MC	IN COMPLIANCE		
00023		V	PX	STATE/LOCAL PCE/OFF-SITE	RS	PERMIT RPT - SEMIANNUAL CONDITION	01-OCT-07		MC	IN COMPLIANCE		
00022		V	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	10-SEP-07		MV	IN VIOLATION		
00021		V	PX	STATE/LOCAL PCE/OFF-SITE	RS	PERMIT RPT - SEMIANNUAL CONDITION	01-OCT-07		MV	IN VIOLATION		
00020		V	PX	STATE/LOCAL PCE/OFF-SITE	RO	PERMIT RPT - OTHER REPORTING CONDITION	17-APR-07		MC	IN COMPLIANCE		
00019		V	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	28-MAR-07		MV	IN VIOLATION		
00018		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	27-MAR-07		MV	IN VIOLATION		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
00017		V	SR	TV COMPLIANCE CERTIFICATION REVIEW BY STATE/LOCAL	SR	TITLE V COMPLIANCE CERTIFICATION REVIEW BY STATE	15-MAR-07		MV	IN VIOLATION		
00016		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	21-MAR-06		MC	IN COMPLIANCE		
00015		0	PX	STATE/LOCAL PCE/OFF-SITE	RO	PERMIT RPT - OTHER REPORTING CONDITION	08-MAR-05		01	ACTION ACHIEVED		
00014		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	12-JAN-05		MC	IN COMPLIANCE		
00013		0			00		02-SEP-03		01	ACTION ACHIEVED		
00012		0	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	12-AUG-03		MV	IN VIOLATION		
00011		0	PX	STATE/LOCAL PCE/OFF-SITE	RO	PERMIT RPT - OTHER REPORTING CONDITION	12-AUG-03		MV	IN VIOLATION		
00010		0			00		31-JUL-03		MC	IN COMPLIANCE		
00009		0	PX	STATE/LOCAL PCE/OFF-SITE	RO	PERMIT RPT - OTHER REPORTING CONDITION	01-JUL-03		MC	IN COMPLIANCE		

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Results Code	Results Code Description	Pollutant Code	Regio Data Eleme
00008		0	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	29-APR-03		MC	IN COMPLIANCE		
00007		0			00		07-APR-03		01	ACTION ACHIEVED		
00006		0	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	04-MAR-03		MV	IN VIOLATION		
00005		0			00		28-JAN-03		01	ACTION ACHIEVED		
00004		0	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	14-JAN-03		MV	IN VIOLATION		
00003		0	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	23-AUG-02		MV	IN VIOLATION		
00002		0	PX	STATE/LOCAL PCE/OFF-SITE	RO	PERMIT RPT - OTHER REPORTING CONDITION	23-AUG-02		MV	IN VIOLATION		
00001		V	FS	STATE/LOCAL CONDUCTED FCE/ON-SITE	FS	STATE CONDUCTED FCE/ ON-SITE	22-OCT-01		MC	IN COMPLIANCE		

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

Detailed Facility Report



Detailed Facility Report

Facility Summary

HC COMPOSITES LLC

1090 WEST SAINT JAMES STREET, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110007659033
EPA Region: 04
Latitude: 35.8876
Longitude: -77.55041
Locational Data Source: EIS
Industries: Transportation Equipment Manufacturing
Indian Country: N

Enforcement and Compliance Summary

Statute	CAA
Compliance Monitoring Activities (5 years)	4
Date of Last Compliance Monitoring Activity	08/18/2022
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	8
Qtrs with Significant Violation	7
Informal Enforcement Actions (5 years)	7
Formal Enforcement Actions (5 years)	4
Penalties from Formal Enforcement Actions (5 years)	$12,048
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Statute	CWA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	03/20/2012
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	03/29/2011
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): Operating Major (NC0000003703300170)
Clean Water Act (CWA): Minor, Permit Effective (NCG190054)
Resource Conservation and Recovery Act (RCRA): Active SQG, (NCD048961668)
Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): 8053511
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): 27886HCCMP19WSA
Compliance and Emissions Data Reporting Interface (CEDRI): CEDRI10140082

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110007659033					N	35.8876	-77.55041
ICIS-Air	CAA	NC0000003703300170	Major Emissions	Operating	CAAMACT, CAASIP, CAATVP		N	35.8876	-77.55041
CEDRI	CAA	CEDRI10140082					N	35.8876	-77.55041
EIS	CAA	8053511					N	35.8876	-77.55041
ICIS-NPDES	CWA	NCG190054	Minor: General Permit Covered Facility	Effective		06/30/2025	N	35.553611	-77.511944
TRI	EP313	27886HCCMP19WSA	Toxics Release Inventory	Last Reported for 2021			N	35.8876	-77.55041
RCRAInfo	RCRA	NCD048961668	SQG	Active (H)			N	35.892927	-77.544986

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110007659033	HC COMPOSITES LLC	1090 WEST SAINT JAMES STREET, TARBORO, NC 27886	Edgecombe County
ICIS-Air	CAA	NC0000003703300170	HC COMPOSITES LLC	1090 WEST SAINT JAMES STREET, TARBORO, NC 27886	Edgecombe County

System	Statute	Identifier	Facility Name	Facility Address	Facility County
CEDRI	CAA	CEDRI10140082	HC COMPOSITES LLC	1090 WEST SAINT JAMES ST, TARBORO, NC 27886	Edgecombe County
EIS	CAA	8053511	HC COMPOSITES LLC	1090 WEST SAINT JAMES STREET, TARBORO, NC 27886	Edgecombe County
ICIS-NPDES	CWA	NCG190054	H C COMPOSITES LLC	1090 W ST JAMES ST, TARBORO, NC 27886	Edgecombe County
TRI	EP313	27886HCCMP19WSA	HC COMPOSITES LLC	1090 W ST JAMES ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD048961668	H C COMPOSITES LLC	1090 WEST SAINT JAMES ST, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
TRI	27886HCCMP19WSA	3732	Boat Building And Repairing
ICIS-Air	NC0000003703300170	3732	Boat Building And Repairing
ICIS-NPDES	NCG190054	3732	Boat Building And Repairing

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
TRI	27886HCCMP19WSA	336612	Boat Building
EIS	8053511	336612	Boat Building
ICIS-Air	NC0000003703300170	336612	Boat Building
RCRAInfo	NCD048961668	336612	Boat Building

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
NCG190054	401	General provisions

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/23/2023*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*01/30/2023*	*Reviewed: 02/23/2023 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/23/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/23/2022*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	08/18/2022	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/22/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*04/26/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/22/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*01/31/2022*	*Reviewed: 04/26/2022 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*01/07/2022*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*11/29/2021*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	08/19/2021	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*03/24/2021*	*Reviewed: 03/24/2021 Facility Reported Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*03/24/2021*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/28/2020*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*02/27/2020*	*Reviewed: 03/10/2020 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/04/2020*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/04/2020*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/06/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/31/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/31/2019*	

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/23/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*03/14/2019*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Title V CCR*	*State*	*02/25/2019*	*Reviewed: 04/10/2019 Facility Reported No Deviations*
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*02/13/2019*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	02/12/2019	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*08/06/2018*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/20/2018*	
CAA	*NC0000003703300170*	*ICIS-Air*	*Inspection/Evaluation*	*PCE Off-Site*	*State*	*07/09/2018*	
CAA	NC0000003703300170	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	05/18/2018	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CAA	NC0000003703300170	No	03/18/2023	8	03/17/2023
CWA	NCG190054	No	12/31/2022	0	03/17/2023
RCRA	NCD048961668	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
CAA (Source ID: NC0000003703300170)					04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status				No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Violation Identified	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation	High Priority Violation
	HPV History									Unaddressed-State	Unaddressed-State	Unaddressed-State	Unaddressed-State	Unaddressed-State	Unaddressed-State	Addressed-State
	Violation Type	Agency	Programs	Pollutants												
CAA	HPV	NC	CAAMACT, CAASIP, CAATVP	VOLATILE ORGANIC COMPOUNDS (VOCS), Styrene								02/18/2022	→	08/29/2022		
CAA	HPV	NC	CAATVP	Styrene										09/08/2022	→	02/27/2023
CAA	HPV	NC	CAATVP	FACIL						07/29/2021	→	→	→	08/29/2022		
CAA	FRV	NC	CAAMACT, CAASIP, CAATVP	VOLATILE ORGANIC COMPOUNDS (VOCS), Styrene								01/28/2022 02/22/2022				
CAA	FRV	NC	CAATVP	FACIL					06/25/2021	→	11/29/2021					
CAA	FRV	NC	CAATVP	Styrene										07/21/2022 08/23/2022		

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: NCG190054)		01/01-03/31/20	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/17/23
	Facility-Level Status	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	Undetermined

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
	Quarterly Noncompliance Report History													

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD048961668)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	07/21/2022
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	01/28/2022
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	06/25/2021
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	07/15/2019
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	02/19/2019
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	07/16/2018
CAA	ICIS-Air	NC0000003703300170	Notice of Violation	State	06/01/2018

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000104	State	--	02/06/2023	1	02/06/2023	$0	$4,256	--	$0	$0
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000095	State	--	06/24/2022	1	07/26/2022	$0	$0	--	$0	$0
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000093	State	--	06/24/2022	1	07/26/2022	$0	$6,468	--	$0	$0
CAA	ICIS-Air	OTHER	AIR/NC0000003703300170	Administrative - Formal	NC000A0000370330017000071	State	--	08/13/2019	1	10/22/2019	$0	$1,324	--	$0	$0

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
No data records returned						

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
Ozone	No	--	Yes	8-Hour Ozone (1997)
Lead	No	--	No	--
Particulate Matter	No	--	No	--
Carbon Monoxide	No	--	No	--
Sulfur Dioxide	No	--	No	--

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

Air Pollutant Report TRI Pollution Prevention Report

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers
27886HCCMP19WSA	2021	73,005	--	0	--	--	73,005	--
27886HCCMP19WSA	2020	50,478	--	0	--	--	50,478	--
27886HCCMP19WSA	2019	74,205	--	0	--	--	74,205	--
27886HCCMP19WSA	2018	45,316	--	0	--	--	45,316	--
27886HCCMP19WSA	2017	10,577	--	0	--	--	10,577	--
27886HCCMP19WSA	2016	10,188	--	0	--	--	10,188	--
27886HCCMP19WSA	2015	8,099	--	0	--	--	8,099	--
27886HCCMP19WSA	2014	8,627	--	0	--	--	8,627	--
27886HCCMP19WSA	2013	7,829	--	0	--	--	7,829	--
27886HCCMP19WSA	2012	8,917	--	0	--	--	8,917	--

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Cumene	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	--	--	--	--	--	--	--	--	--	--
Methyl methacrylate	--	--	--	--	--	--	--	--	--	--
Styrene	73,005	50,478	74,205	45,316	10,577	10,188	8,099	8,627	7,829	8,917
Toluene	--	--	--	--	--	--	--	--	--	--
Xylene (mixed isomers)	--	--	--	--	--	--	--	--	--	--
n-Hexane	--	--	--	--	--	--	--	--	--	--

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	36
Ozone	63
Diesel Particulate Matter	58
Air Toxics Cancer Risk	82
Air Toxics Respiratory Hazard Index	66
Traffic Proximity	77
Lead Paint	55
Risk Management Plan (RMP) Facility Proximity	89
Hazardous Waste Proximity	67
Superfund Proximity	41
Underground Storage Tanks (UST)	84
Wastewater Discharge	87

Number of EJ Indexes Above 80th Percentile
4

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	2,735
Population Density	870/sq.mi.
Housing Units in Area	1,173

General Statistics (ACS (American Community Survey))	
Total Persons	2,614
Percent People of Color	48%
Households in Area	1,138
Households on Public Assistance	28
Persons With Low Income	791
Percent With Low Income	33%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.8876
Center Longitude	-77.55041
Land Area	99%
Water Area	1%

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	195 (7%)
Minors 17 years and younger	577 (21%)
Adults 18 years and older	2,159 (79%)
Seniors 65 years and older	647 (24%)

Race Breakdown (U.S. Census) - Persons (%)	
White	1,187 (43%)
African-American	1,465 (54%)
Hispanic-Origin	65 (2%)
Asian/Pacific Islander	6 (0%)
American Indian	4 (0%)
Other/Multiracial	75 (3%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	118 (6.08%)
9th through 12th Grade	196 (10.1%)
High School Diploma	629 (32.41%)
Some College/2-year	327 (16.85%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	541 (27.87%)

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	209 (18.33%)
$15,000 - $25,000	90 (7.89%)
$25,000 - $50,000	330 (28.95%)
$50,000 - $75,000	146 (12.81%)
Greater than $75,000	365 (32.02%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

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RCRAInfo Facility Information

<< Return

LOWE'S OF TARBORO #3022 Handler ID: NCR000171843 111 RIVER OAKS DRIVE TARBORO, NC 27886 **County Name:** EDGECOMBE **Latitude:** 35.88245 **Longitude:** -77.54644 **Hazardous Waste Generator:** Small Quantity Generator **Owner Name:** LOWE'S HOME CENTERS, LLC		**You can navigate within the map with your mouse.*

No BIENNIAL REPORT data is available for the facility listed above.

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE	ZIP CODE	PHONE	TYPE OF CONTACT
TENBORG BOBBI	1000 LOWE'S BLVD.	MOORESVILLE	NC	28117	704-758-2955	Public
BOBBI TENBORG	LOWE'S BLVD.	MOORESVILLE	NC	28117	704-758-2955,	Permit

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE
Small Quantity Generator

No PROCESS INFORMATION is available for the facility listed above.

LIST OF NAICS CODES AND DESCRIPTIONS

NAICS CODE	NAICS DESCRIPTION
444110	HOME CENTERS

LIST OF WASTE CODES AND DESCRIPTIONS

WASTE CODE	WASTE DESCRIPTION

D001	IGNITABLE WASTE
D002	CORROSIVE WASTE
D004	ARSENIC
D005	BARIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D011	SILVER
D016	2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
D018	BENZENE
D027	1,4-DICHLOROBENZENE
D035	METHYL ETHYL KETONE
D039	TETRACHLOROETHYLENE
U002	2-PROPANONE (I) (OR) ACETONE (I)
U072	BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

U134	HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)
U154	METHANOL (I) (OR) METHYL ALCOHOL (I)
U159	2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)
U165	NAPHTHALENE
U210	ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE
U240	2,4-D, SALTS & ESTERS (OR) ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS (OR) DICHLOROPHENOXYACETIC ACID 2,4-D
U249	ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS
U279	CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE
U411	PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

Go To Top Of The Page

Total Number of Facilities Retrieved: 1

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

Detailed Facility Report

Detailed Facility Report

Facility Summary

CHARLES E HUSSEY & ASSOC INC

500 W WILSON ST, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110004058938
EPA Region: 04
Latitude: 35.89738
Longitude: -77.54167
Locational Data Source: FRS
Industries: --
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	10/30/2000
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Active VSQG, (NCR000010744)

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110004058938					N	35.89738	-77.54167
RCRAInfo	RCRA	NCR000010744	VSQG	Active (H)			N	35.889108	-77.561888

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110004058938	CHARLES E HUSSEY & ASSOC INC	500 W WILSON ST, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCR000010744	CHARLES E HUSSEY & ASSOC INC	500 W WILSON ST, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description

No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description

No data records returned

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCR000010744	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCR000010744)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	37
Ozone	64
Diesel Particulate Matter	58
Air Toxics Cancer Risk	84
Air Toxics Respiratory Hazard Index	68
Traffic Proximity	84
Lead Paint	88
Risk Management Plan (RMP) Facility Proximity	86
Hazardous Waste Proximity	63
Superfund Proximity	42
Underground Storage Tanks (UST)	91
Wastewater Discharge	87

Number of EJ Indexes Above 80th Percentile
6

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	5,080
Population Density	1,741/sq.mi.
Housing Units in Area	2,399

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	269 (5%)
Minors 17 years and younger	1,052 (21%)
Adults 18 years and older	4,028 (79%)
Seniors 65 years and older	1,107 (22%)

General Statistics (ACS (American Community Survey))

General Statistics (ACS (American Community Survey))	
Total Persons	3,716
Percent People of Color	46%
Households in Area	1,644
Households on Public Assistance	9
Persons With Low Income	1,144
Percent With Low Income	33%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.89738
Center Longitude	-77.54167
Land Area	98%
Water Area	2%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	283 (17.19%)
$15,000 - $25,000	180 (10.94%)
$25,000 - $50,000	410 (24.91%)
$50,000 - $75,000	279 (16.95%)
Greater than $75,000	494 (30.01%)

Race Breakdown (U.S. Census) - Persons (%)	
White	2,415 (48%)
African-American	2,515 (50%)
Hispanic-Origin	135 (3%)
Asian/Pacific Islander	25 (0%)
American Indian	5 (0%)
Other/Multiracial	120 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	174 (6.13%)
9th through 12th Grade	269 (9.48%)
High School Diploma	901 (31.76%)
Some College/2-year	495 (17.45%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	862 (30.38%)

LAST UPDATED ON SEPTEMBER 21, 2022

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Plant Information

FIELDCREST CANNON INC ** INACTIVE **
101 FAIRLEY STREET
TARBORO, NC 27886
EPA Plant ID: 110001501456

Operating Status:	X	**HPV Flag:**	
Operating Status Description:	PERMANENTLY CLOSED	**State Registration Number:**	
State County Compliance Source:	3706500148	**Government Facility Code Description:**	PRIVATELY OWNED/OPERATED
Region Code:	04	**Class Code:**	B
Primary SIC Code:	2281	**Class Code Description:**	POTENTIAL UNCONTROLLED EM
Primary SIC Description:	YARN MILLS, EXCEPT WOOL	**Compliance Status:**	9
NAICS Code:	313111	**Compliance Status Description:**	IN COMPLIANCE - SHUT DOWN
NAICS Code Description:	Yarn Spinning Mills	**Date Plant Information Last Updated:**	09/16/2014

Air Program Information

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code Description
0	SIP	X	PERMANENTLY CLOSED			B	POTENTIAL UNCONTROLLED EM

Pollutant Data

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code	Polluta Descrip
0	PT	TOTAL PARTICULATE MATTER	A	ATTAINMENT AREA FOR A GIV	9	IN COMPLIANCE - SHUT DOWN	B	POTENT UNCON EM

Compliance Monitoring Strategy

CMS Start Date	FY2008 CMS Indicator	FY2008 CMS Indicator Description	FY2009 CMS Indicator	FY2009 CMS Indicator Description

Plant Actions

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Resul Code
90000		0			00	RO ACTION START	27-OCT-02		
00003		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	09-FEB-99		MC
00002		0	7D	STATE/LOCAL PSD PERMIT ISSUED	75	STATE PERMIT ISSUED	11-FEB-99		01
00001		0	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	31-JAN-96		MC

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

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RCRAInfo Facility Information

<< Return

DIXIE YARNS INC Handler ID: NCD986231041 101 FAIRLEY ST TARBORO, NC 27886 **County Name:** EDGECOMBE **Latitude:** 35.89377 **Longitude:** -77.54301 **Hazardous Waste Generator:** Very Small Quantity Generator **Owner Name:** DIXIE YARNS INC		**You can navigate within the map with your mouse.*

No BIENNIAL REPORT data is available for the facility listed above.

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE	ZIP CODE	PHONE	TYPE OF CONTACT
FULLER RON	PO BOX 400	TARBORO	NC	27886	919-823-3191	Public
RON FULLER	PO BOX 400	TARBORO	NC	27886	919-823-3191,	Permit

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE
Very Small Quantity Generator

No PROCESS INFORMATION is available for the facility listed above.

No NAICS Codes are available for the facility listed above.

LIST OF WASTE CODES AND DESCRIPTIONS

WASTE CODE	WASTE DESCRIPTION
D001	IGNITABLE WASTE
D008	LEAD
D018	BENZENE

D039	TETRACHLOROETHYLENE
D040	TRICHLORETHYLENE
F001	THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F002	THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F003	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F005	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Go To Top Of The Page

Total Number of Facilities Retrieved: 1

Detailed Facility Report



Detailed Facility Report

Facility Summary

DIXIE YARN > TI CARO INCORPORATED

101 FAIRLY STREET, TARBORO, NC 27886

FRS (Facility Registry Service) ID: 110001501456
EPA Region: 04
Latitude: 35.89377
Longitude: -77.54301
Locational Data Source: FRS
Industries: --
Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	11/10/1993
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Active VSQG, (NCD986231041)

Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110001501456					N	35.89377	-77.54301
RCRAInfo	RCRA	NCD986231041	VSQG	Active (H)			N	35.89488	-77.543854

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110001501456	DIXIE YARN > TI CARO INCORPORATED	101 FAIRLY STREET, TARBORO, NC 27886	Edgecombe County
RCRAInfo	RCRA	NCD986231041	DIXIE YARNS INC	101 FAIRLEY ST, TARBORO, NC 27886	Edgecombe County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description

No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description

No data records returned

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	NCD986231041	No	03/18/2023	0	03/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: NCD986231041)			04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23
	Facility-Level Status		No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency												

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	37
Ozone	64
Diesel Particulate Matter	58
Air Toxics Cancer Risk	84
Air Toxics Respiratory Hazard Index	68
Traffic Proximity	84
Lead Paint	88
Risk Management Plan (RMP) Facility Proximity	86
Hazardous Waste Proximity	63
Superfund Proximity	42
Underground Storage Tanks (UST)	91
Wastewater Discharge	87

Number of EJ Indexes Above 80th Percentile
6

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	4,511
Population Density	1,435/sq.mi.
Housing Units in Area	2,158

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	268 (6%)
Minors 17 years and younger	933 (21%)
Adults 18 years and older	3,579 (79%)
Seniors 65 years and older	1,005 (22%)

General Statistics (ACS (American Community Survey))

General Statistics (ACS (American Community Survey))	
Total Persons	3,575
Percent People of Color	45%
Households in Area	1,554
Households on Public Assistance	14
Persons With Low Income	1,079
Percent With Low Income	33%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	35.89377
Center Longitude	-77.54301
Land Area	98%
Water Area	2%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	258 (16.59%)
$15,000 - $25,000	157 (10.1%)
$25,000 - $50,000	402 (25.85%)
$50,000 - $75,000	267 (17.17%)
Greater than $75,000	471 (30.29%)

Race Breakdown (U.S. Census) - Persons (%)	
White	2,144 (48%)
African-American	2,236 (50%)
Hispanic-Origin	108 (2%)
Asian/Pacific Islander	22 (0%)
American Indian	5 (0%)
Other/Multiracial	105 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	167 (6.17%)
9th through 12th Grade	258 (9.53%)
High School Diploma	881 (32.53%)
Some College/2-year	438 (16.17%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	828 (30.58%)

LAST UPDATED ON SEPTEMBER 21, 2022

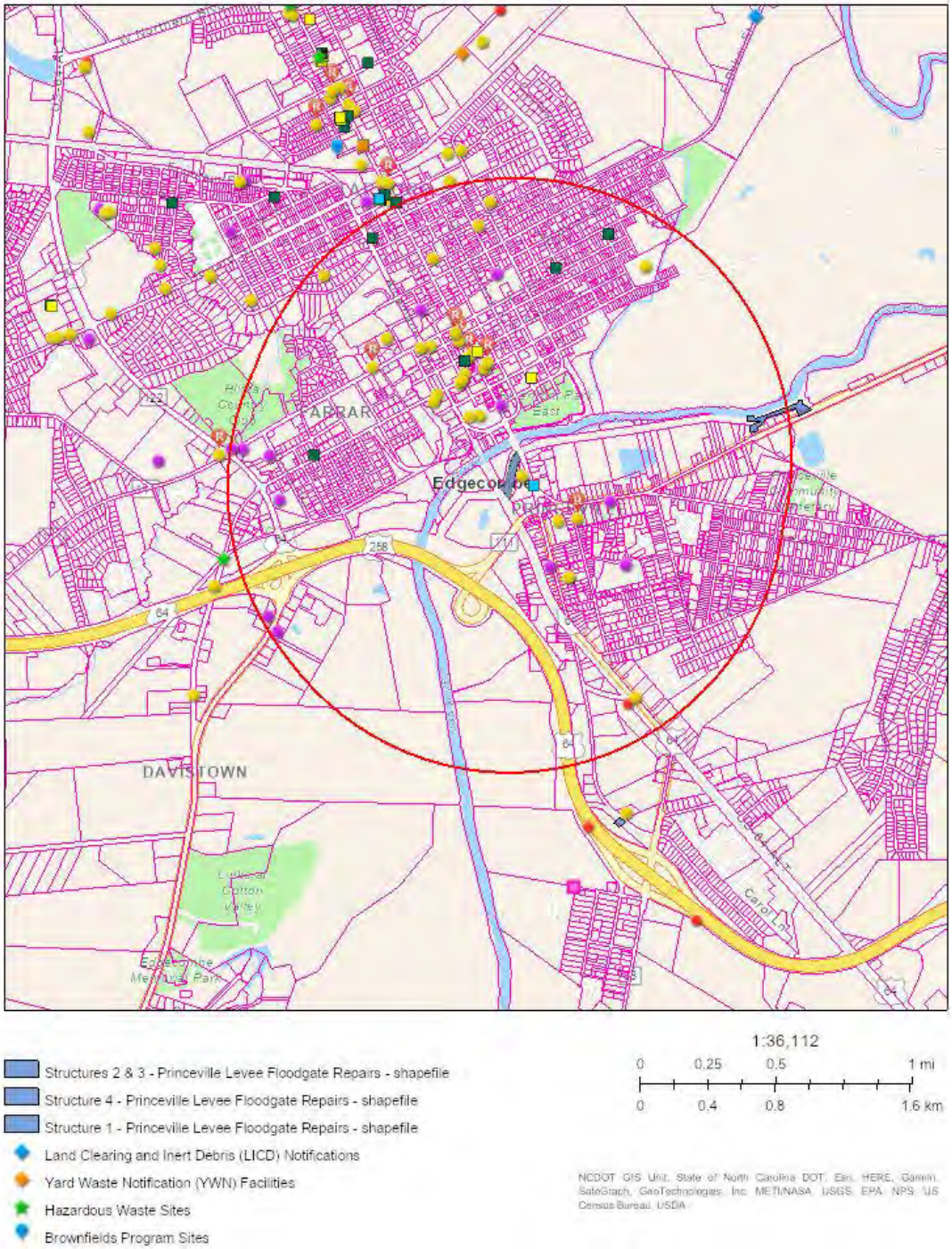
DATA REFRESH INFORMATION

Princeville Screening Report - Structure 1 (one-mile)

Area of Interest (AOI) Information

Area : 98,590,114.86 ft²

Aug 16 2022 7:59:39 Eastern Daylight Time



DryCleaning Compliance

#	Facility_ID	Facility_Name	Count
1	330002C	Dry Cleaning by Wayne	1

DryCleaning Historical Boiler Inspections

#	Drycleaner	InspDate	Count
1	TWO HOUR CLEANERS	5/14/1978	1
2	WORKMANS CLEANERS	5/8/1977	1

DryCleaning City Directories

#	Drycleaner	Address	Count
1	Eastside Washerette	1001 Bradley Avenue, Tarboro,NC	1
2	Pal's Cleaners	1001 Bradley Avenue, Tarboro,NC	1
3	Two Hour Cleaners	107 West Church Street, Tarboro,NC	1
4	Bell's Cleaners Inc	107 West Church, Tarboro,NC	1
5	Two Hour Cleaners	107 West Church, Tarboro,NC	1
6	Albemarle Self Service Laundry	1107 Albemarle Avenue, Tarboro,NC	1
7	Workman's Cleaners	209 St Patrick Street, Tarboro,NC	1
8	Workman's Cleaners	209 St Patrick, Tarboro,NC	1
9	Workman's Cleaners	209 St. Patrick, Tarboro,NC	1
10	East Side Cleaners & Dyers	626 East Wilson, Tarboro,NC	1
11	Saint James Street Laundermat	800 West St James Street, Tarboro,NC	1

UST Incidents

#	IncidentNumber	IncidentName	Count
1	3852	SMOOT WHOLESALE-WILSON ST. WHSE	1
2	7230	ALBERMARLE RETIREMENT CENTER	1
3	12309	TARBORO HOMESTEAD BANK	1
4	12601	USPS TARBORO	1
5	12947	S & J GROCERY	1
6	12951	JERRY AMOCO	1
7	16154	DICKENS, JEROME	1
8	21308	DMV BUILDING-FORMER	1
9	21976	PRINCEVILLE MONTESSORI SCHOOL	1
10	22125	PRINCEVILLE MONTESSORI SCHOOL	1
11	22614	PATTILLO ELEMENTARY SCHOOL - FORMER	1
12	22697	NAPA AUTO PARTS	1
13	22953	HANDY MART # 13	1
14	23579	TARBORO AUTO CENTER / CITGO	1
15	23834	TARBORO AUTO CENTER / CITGO	1
16	26020	C.B. MARTIN MIDDLE SCHOOL	1
17	26245	CAROLINA TELEPHONE (ST. JAMES ST.)	1
18	26307	MCDOWELL PROPERTY (FRANCIS)	1
19	26775	COLONIAL MOTORS [FORMER]	1
20	26858	TEAM FORD SITE(FORMER)	1
21	26875	PETERS, FRANCES PROEPRTY	1
22	33231	TARBORO - 107 CHURCH ST	1
23	33446	FRMR CAR ENT PL 2	1
24	33533	Bridgers Food Store	1
25	33557	IGA Grocery Store	1
26	39057	Wilson Residence, Jennifer	1
27	39817	PNC Bank - Main	1
28	48489	tarboro water treatment plant	1

AST Incidents

#	IncidentNumber	IncidentName	Count
1	7567	SOUTHERN STATES - TARBORO	1

UST Active Facilities

#	FACILID	FACILNAME	Count
1	00-0-0000015125	EUGENIA H. JENKINS	1
2	00-0-0000015352	BRIDGERS FOOD STORE	1
3	00-0-0000016045	VAL-U-PAK, INC.	1
4	00-0-0000016490	PRINCEVILLE VOL. FIRE DEPT.	1
5	00-0-0000016492	H. HARVEY JAMES III	1
6	00-0-0000023718	PUBLIC WORKS COMPLEX	1
7	00-0-0000025766	EP-MART 1	1
8	00-0-0000036158	EP MART #15 (PREV KWIK MART)	1
9	00-0-0000036190	PRINCEVILLE MONTESSORI SCHOOL	1
10	00-0-0000036407	SPEEDWAY #8658	1
11	00-0-0000036596	RACEWAY 848	1
12	00-0-0000036959	MURPHY EXPRESS 8505	1
13	00-0-0000042550	EP MART #18	1

Land Use Restriction and/or Notices

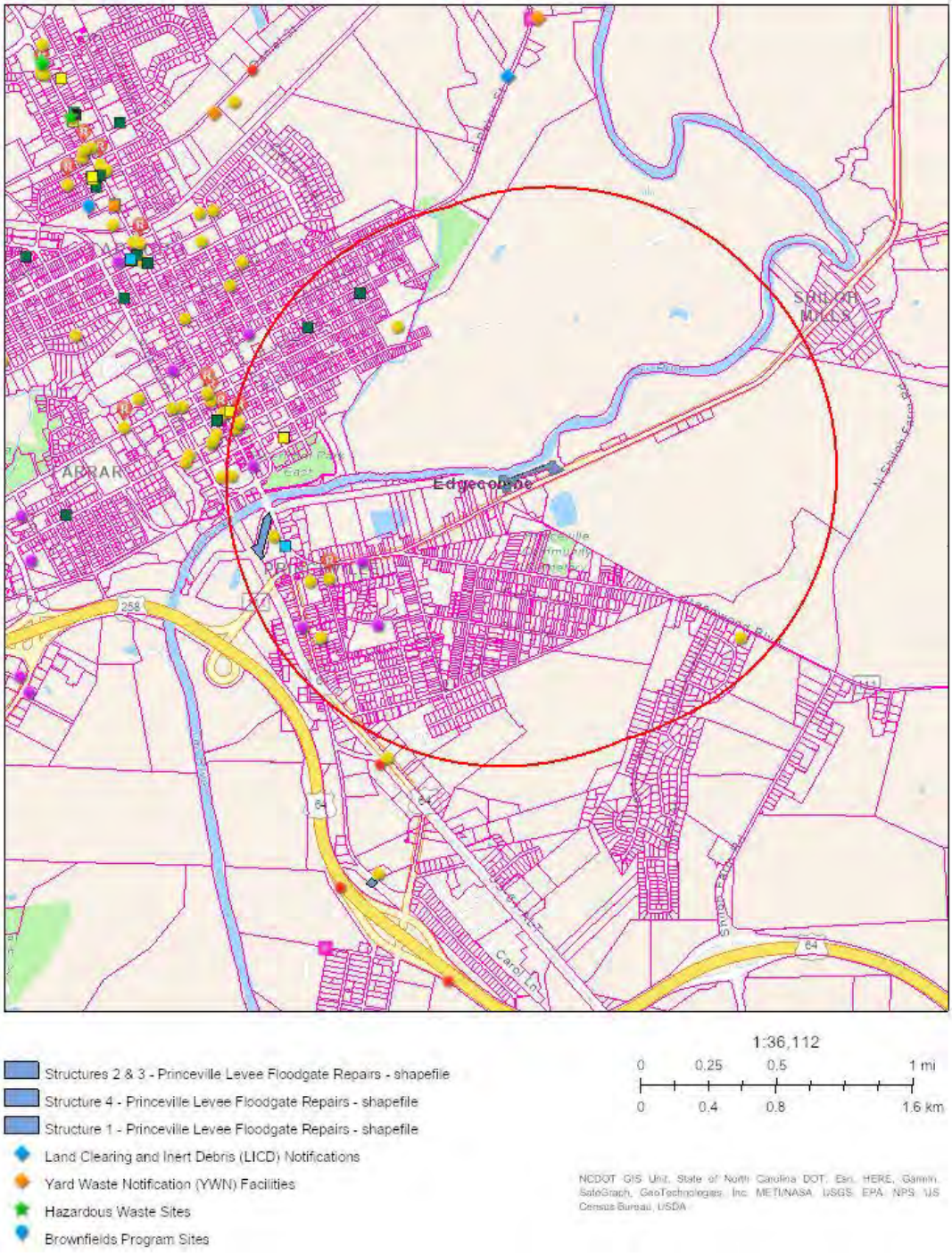
#	Prj_Number	Prj_Name	Count
1	RA-1995	TARBORO HOMESTEAD BANK	1
2	RA-3710	NAPA AUTO PARTS	1
3	RA-4150	CAROLINA TELEPHONE (ST. JAMES ST.)	1
4	RA-5227	COLONIAL MOTORS [FORMER]	1
5	RA-5699	TARBORO - 107 CHURCH ST	1
6	RA-7712	PNC Bank - Main	1

Princeville Screening Report - Structures 2 & 3 (one-mile)

Area of Interest (AOI) Information

Area : 103,642,545.13 ft²

Aug 16 2022 8:04:41 Eastern Daylight Time



DryCleaning Compliance

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DryCleaning Historical Boiler Inspections

#	Drycleaner	InspDate	Count
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DryCleaning City Directories

#	Drycleaner	Address	Count
1	Eastside Washerette	1001 Bradley Avenue, Tarboro,NC	1
2	Pal's Cleaners	1001 Bradley Avenue, Tarboro,NC	1
3	Workman's Cleaners	209 St Patrick Street, Tarboro,NC	1
4	Workman's Cleaners	209 St Patrick, Tarboro,NC	1
5	Workman's Cleaners	209 St. Patrick, Tarboro,NC	1
6	East Side Cleaners & Dyers	626 East Wilson, Tarboro,NC	1

UST Incidents

#	IncidentNumber	IncidentName	Count
1	7230	ALBERMARLE RETIREMENT CENTER	1
2	21308	DMV BUILDING-FORMER	1
3	21976	PRINCEVILLE MONTESSORI SCHOOL	1
4	22125	PRINCEVILLE MONTESSORI SCHOOL	1
5	22614	PATTILLO ELEMENTARY SCHOOL - FORMER	1
6	22953	HANDY MART # 13	1
7	26088	DAVIS, EMMA - RESIDENCE	1
8	26245	CAROLINA TELEPHONE (ST. JAMES ST.)	1
9	33231	TARBORO - 107 CHURCH ST	1
10	33533	Bridgers Food Store	1

UST Active Facilities

#	FACILID	FACILNAME	Count
1	00-0-0000015352	BRIDGERS FOOD STORE	1
2	00-0-0000016045	VAL-U-PAK, INC.	1
3	00-0-0000016490	PRINCEVILLE VOL. FIRE DEPT.	1
4	00-0-0000036190	PRINCEVILLE MONTESSORI SCHOOL	1
5	00-0-0000036407	SPEEDWAY #8658	1

Land Use Restriction and/or Notices

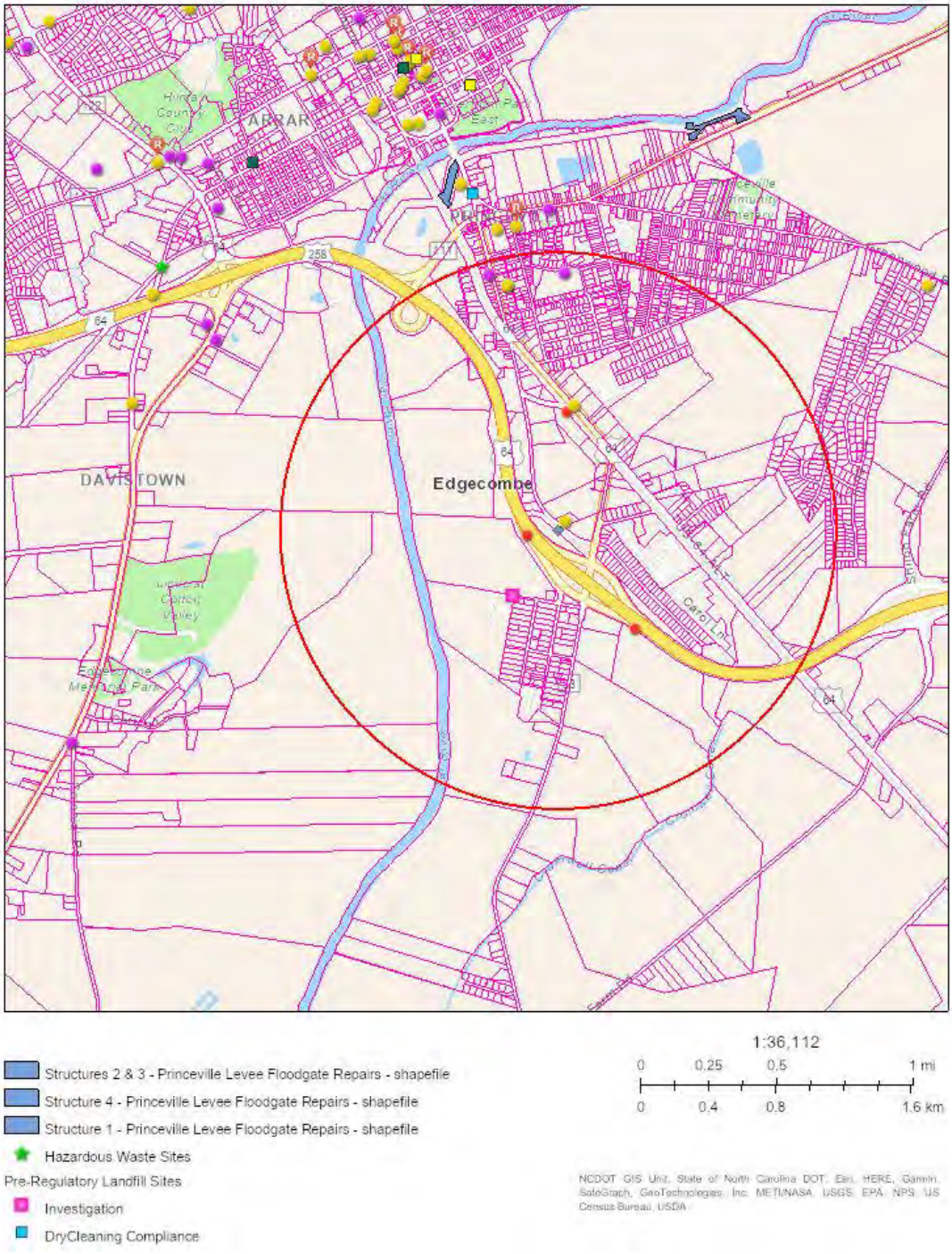
#	Prj_Number	Prj_Name	Count
1	RA-4150	CAROLINA TELEPHONE (ST. JAMES ST.)	1
2	RA-5699	TARBORO - 107 CHURCH ST	1

Princeville Screening Report - Structure 4 (one-mile)

Area of Interest (AOI) Information

Area : 90,686,801.22 ft²

Aug 16 2022 8:09:40 Eastern Daylight Time



Pre-Regulatory Landfill Sites

#	EPAID	SITENAME	Count
1	NONCD0000297	Princeville Dump	1

UST Incidents

#	IncidentNumber	IncidentName	Count
1	12947	S & J GROCERY	1
2	21976	PRINCEVILLE MONTESSORI SCHOOL	1
3	22125	PRINCEVILLE MONTESSORI SCHOOL	1
4	33370	Village Mart	1

AST Incidents

#	IncidentNumber	IncidentName	Count
1	7567	SOUTHERN STATES - TARBORO	1
2	92487	Sygma Spill	1
3	92792	KM Pulley Trucking	1

UST Active Facilities

#	FACILID	FACILNAME	Count
1	00-0-0000015352	BRIDGERS FOOD STORE	1
2	00-0-0000036190	PRINCEVILLE MONTESSORI SCHOOL	1

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
MICHAEL SCOTT
Director

NORTH CAROLINA
Environmental Quality

Date: August 29, 2022

To: Michael Scott, Director
Division of Waste Management

Through: Janet Macdonald
Inactive Hazardous Sites Branch

From: Katie C Tatum
Inactive Hazardous Sites Branch

Subject: NEPA Project # 23-0029, Town of Princeville, Edgecombe County, North Carolina

The Superfund Section has reviewed the proximity of sites under its jurisdiction to the Town of Princeville project. Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.

One (1) Superfund Section site was identified within one mile of the project as shown on the attached reports. The Superfund Section recommends that site files be reviewed to ensure that appropriate precautions are incorporated into any construction activities that encounter potentially contaminated soil or groundwater. Superfund Section files can be viewed at: http://deq.nc.gov/waste-management-laserfiche.

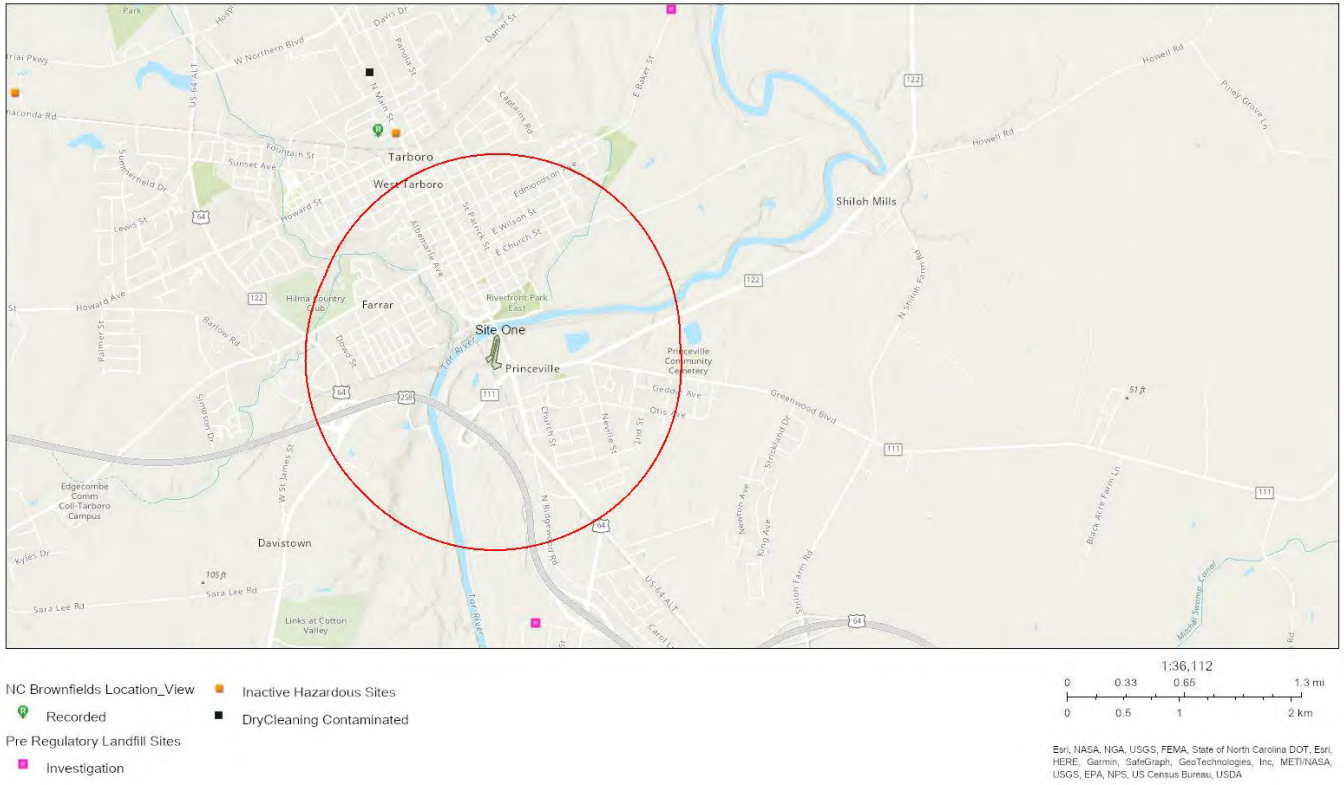
Please contact Janet Macdonald at 919.707.8349 if you have any questions concerning the Superfund Section review portion of this SEPA/NEPA inquiry.

Superfund Section Only: SEPA/NEPA

Area of Interest (AOI) Information **Edgecombe County** **NEPA project 23-0029** **(Site 1)**

Area : 2,301.13 acres

Aug 29 2022 11:04:27 Eastern Daylight Time



Superfund Section Only
Edgecombe County NEPA project 23-0029
Site One

Summary

Name	Count	Area(acres)	Length(mi)
Certified DSCA Sites	0	N/A	N/A
Federal Remediation Branch Sites	0	N/A	N/A
Inactive Hazardous Sites	0	N/A	N/A
Pre-Regulatory Landfill Sites	0	N/A	N/A
Brownfields Program Sites	0	N/A	N/A

Superfund Section Only: SEPA/NEPA

Area of Interest (AOI) Information **Edgecombe County** **NEPA project 23-0029** **(Sites 2 & 3)**

Area : 2,408.28 acres

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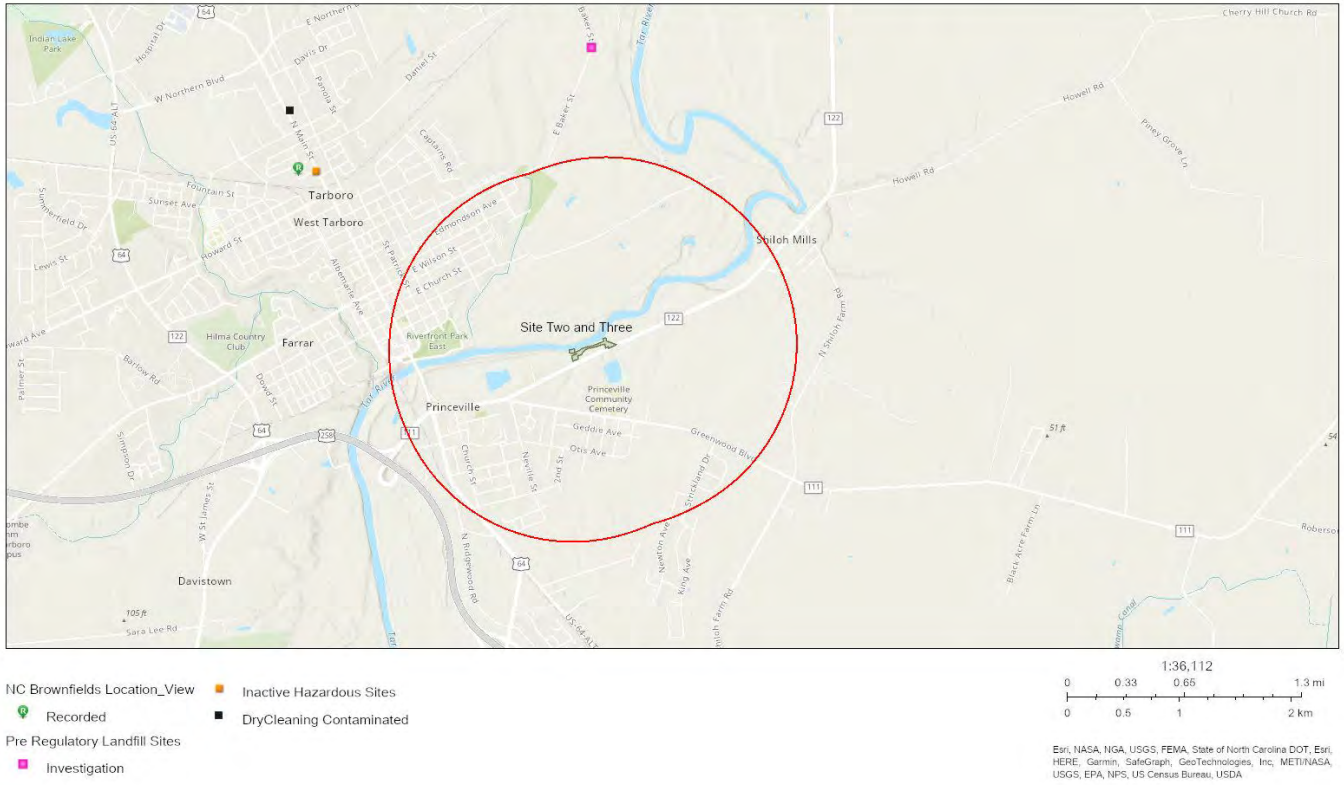


Superfund Section Only
Edgecombe County NEPA project 23-0029
Sites 2 & 3

Summary

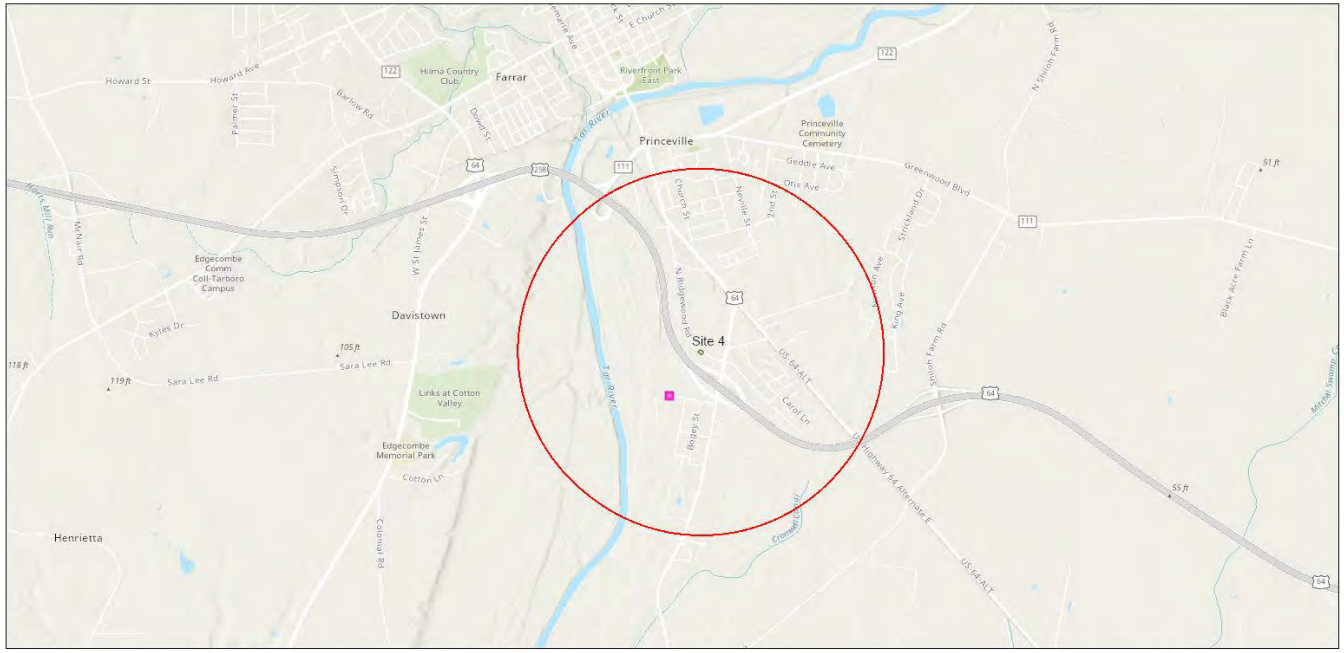
Name	Count	Area(acres)	Length(mi)
Certified DSCA Sites	0	N/A	N/A
Federal Remediation Branch Sites	0	N/A	N/A
Inactive Hazardous Sites	0	N/A	N/A
Pre-Regulatory Landfill Sites	0	N/A	N/A
Brownfields Program Sites	0	N/A	N/A

Superfund Section Only: SEPA/NEPA

Area of Interest (AOI) Information **Edgecombe County** **NEPA project 23-0029** **(site 4)**

Area : 2,065.51 acres

Aug 29 2022 11:45:04 Eastern Daylight Time



Pre Regulatory Landfill Sites

Investigation

1:36,112

0 0.33 0.65 1.3 mi

0 0.5 1 2 km

Esri, NASA, NGA, USGS, FEMA, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Superfund Section Only
Edgecombe County NEPA project 23-0029
Site 4

Summary

Name	Count	Area(acres)	Length(mi)
Certified DSCA Sites	0	N/A	N/A
Federal Remediation Branch Sites	0	N/A	N/A
Inactive Hazardous Sites	0	N/A	N/A
Pre-Regulatory Landfill Sites	1	N/A	N/A
Brownfields Program Sites	0	N/A	N/A

Pre-Regulatory Landfill Sites

#	EPAID	SITENAME	Count
1	NONCD0000297	Princeville Dump	1

LANDFILL SITE ASSESSMENT
Princeville Dump
NONCD0000297
Edgecombe County
HURRICANE LANDFILL ASSESSMENT PROJECT
STATE OF NORTH CAROLINA
CONTRACT NO. N200016
S&ME PROJECT NO. 1040-00-345F
VOLUME VI OF IX

Prepared for:

North Carolina Department of Environment and Natural Resources
Superfund Section
Inactive Sites Branch
401 Oberlin Road
Raleigh, North Carolina 27604

Prepared by:

S&ME, Inc.
3118 Spring Forest Road
Raleigh, North Carolina 27616

Christopher Hamblet
Environmental Scientist

Edmund Woloszyn, Jr., R.E.M.
Manager, Technical Applications Dept.

October 26, 2000

DATA SUMMARY SHEET

Site Name:	Princeville Dump
Site Identification Number:	NONCD0000297
County:	Edgecombe County
Date Reported:	October 26, 2000
Location:	Jenkins Street (SR 1622)
Site Entrance Coordinates:	Northing NAD83 (m): 742476 Easting NAD83 (m): 236155
Landfill Size:	~2 Acres
Date Opened:	1965
Date Closed:	1974
Directions:	Exit US Hwy. 64 at the State Hwy. 33 interchange. Go south on Hwy. 33 about one-half mile. Turn right on Dowens Street and proceed to Jenkins Street. Turn right on Jenkins Street. At the T-intersection, turn left on Jenkins Street and follow the road back to the power line easement.
Owner:	W.S. Clark Farms
Owner Contact:	S. Clark Jenkins
Owner Address:	PO. Box 310 1602 St. Andrews Street Tarboro, NC 27886
Owner Telephone Number:	(252) 823-7029

Notable Public Record Findings:

- According to the Land Disposal Site Investigation Report for the Princeville Refuse Disposal Area dated March 22, 1968, the site began operation in 1965 and received household and commercial waste. The site was listed as having surface drainage problems. The disposal area was approximately 5 acres in size and reportedly received an average of 6,240 cubic yards of solid waste per year.

- According to the Land Disposal Site Modification Report for the Princeville Dump dated June 18, 1974, the site was closed on April 1, 1974.

- In the 1989 aerial photograph, what appears to be exposed debris can be seen in the fill area at the northern portion of the power line easement.

Notable Site Observations:

- Exposed debris, including rusted drums, appliances, truck frames, and tires, were observed at the site.
- Debris, including shoes and plastic materials, was observed in nearby trees, possibly left behind by the high flood waters.

Identified Areas Of Concern:

- Overflow channel to the borrow-pit lake that flows adjacent to piles of debris at the site.
- Borrow-pit lake located north of the dump site.
- Rusted drums and other debris observed in the wooded area east of the power line easement.
- Tar River located west of the dump site.
- Sixteen (16) potable wells and one (1) shallow well within the search radius.

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Appendix II Database Listings (VISTA Report)
Appendix III Copies of Public Record Files
Appendix IV Questionnaire Forms
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Appendix VI Photograph Record

1.0 INTRODUCTION

The purpose of this study is to evaluate the condition of the Princeville Dump, a closed landfill located in Edgecombe County. The study was undertaken on behalf of the North Carolina Department of Environment and Natural Resources (NCDENR), Superfund Section, Inactive Sites Branch (hereafter referred to as the Branch). The goal of this assessment is to provide the Branch with information regarding the Princeville Dump in order that the Branch may identify and evaluate potential threats to public health and/or the environment presented by this site. Such conditions may have resulted from or have been exacerbated by floodwaters or other causes related to Hurricane Floyd in September 1999. This report describes the procedures and results of this assessment including but not limited to: 1) obtaining the site's location and ownership information; 2) describing the site's current land use and the land use within 1,000 feet of the limits of the waste disposal area, (hereafter referred to as the search radius); and, 3) identifying Areas-of-Concern at the site that may merit further evaluation by NCDENR as to the need for possible corrective actions.

1.1 Methods

The methods used for this assessment of the Princeville Dump are described in detail in the document *Site Assessment Plan, Hurricane Landfill Assessment Project, State of North Carolina Contract No. N200016* prepared by S&ME and dated July 14, 2000 (hereafter referred to as the SAP). In accordance with that plan, S&ME performed the following tasks to survey the site:

Task 1 –Identify and confirm the site location. This task involved the review of aerial photographs, maps, and interviews of people potentially knowledgeable of the site. Once identified, this location was confirmed by physical observation in the field.

Task 2 - Review available public records regarding the Princeville Dump to identify current ownership of the site, to collect readily available historical and current information of the site, and to review public records for other sites listed in environmental databases for an area within the search radius.

Task 3 – Interview owners, neighbors, and local public officials to gather local knowledge regarding the historical aspects of the site's operational history and to obtain current environmental-related information about the site.

Task 4 – Conduct an on-site reconnaissance of the property and a non-invasive reconnaissance of the adjacent properties within the search radius for visual indications of Areas-of-Concern (AOCs), current site usage, site and vicinity characteristics, surface water bodies, water intakes, and water supply wells.

1.2 Limitations

Limitations to the scope of work detailed in the SAP may be imposed by limited or no public records regarding the site, difficulty in finding the actual location of the waste deposits, and the presence of physical obstructions, such as paved areas and dense vegetation. Based on the tasks described above, the limitations for this site are as follows:

- Portions of the waste disposal area were covered by dense brush.
- S&ME collected coordinate data at areas-of-concern, water supply wells and site entrance locations using a differentially corrected global positioning system unit. These coordinates were not obtained by a registered land surveyor and are not intended to represent surveyed locations for use in legal documents (e.g., deeds, tax maps, property maps, etc.). These coordinates are intended for general information purposes only and not to be used as surveyed data points.

2.0 SITE IDENTIFICATION AND LOCATION

Initial information on the identification and location of the Princeville Dump was provided by the Branch in the form of their "Old Landfill" database. The site's estimated latitude and longitude coordinates were plotted on a digitized United States Geological Survey (USGS) Topographic Map. Using this preliminary location, S&ME reviewed NCDENR's Solid Waste Division's Landfill Section's files to obtain additional information about the site and its location.

Attempts were made to obtain aerial photographs of the site taken during the time that the site was operational to better approximate the site's location and limits of operation. A recent aerial photograph was also sought to show the site's current condition and vicinity characteristics/land use within the search radius. The search for aerial photographs included sources at the North Carolina Department of Transportation, Photogrammetry Unit in Raleigh, North Carolina and the United States Department of Agriculture's Soil Conservation Service Office and the county tax and planning offices. Copies of aerial photographs reviewed by S&ME are included as Appendix I.

To verify the landfill location from information found in NCDENR files and as observed in the aerial photographs and file records, S&ME made a preliminary site non-entry visit. During this visit, attempts were also made to contact local residents for additional confirmation of site history and location.

Based on the methods for identifying and verifying the site's location as described above, the following information relating to the closed dump was determined:

Site Name:	Princeville Dump
Site Identification Number:	NONCD0000297
Site's Address:	Jenkins Street (SR 1622) Tarboro, NC 27886
County:	Edgecombe County
Coordinates of Site's Entrance:	Northing NAD83 (m): 742476 Easting NAD83 (m): 236155
Landfill Size:	~2 Acres
Date Opened:	1965
Date Closed:	1974
Directions to the Site:	Exit US Hwy. 64 at the State Hwy. 33 interchange. Go south on Hwy. 33 about one-half mile. Turn right on Dowens Street and proceed to Jenkins Street. Turn right on Jenkins Street. At the T-intersection, turn left on Jenkins Street and follow road back to the power line easement.

Details of the public records review, ownership information search, initial site visit and site reconnaissance are described in the following sections.

3.0 PUBLIC RECORD REVIEW

Once the site's location was verified, S&ME proceeded with a review of readily available NCDENR public records. The purpose of the public record review was to identify the site's owner and to collect copies of public documents that may be relevant for evaluating the site. To identify available files at NCDENR's central or regional offices, S&ME reviewed several State and EPA databases. These environmental regulatory database listings were obtained from VISTA Information Solutions, Inc. (VISTA) of San Diego, California regarding the Princeville Dump and possible sites/facilities within the search radius. A copy of the VISTA report is provided in Appendix II.

In addition to researching available public files at the state level, S&ME contacted local government agencies (e.g., county/city agencies, planners, health departments, utility agencies, etc.) to obtain information regarding the site's history and current status. Information sought from these agencies included current or recent construction/building permits, drinking water usage and problems, availability of utilities (municipal water supplies, community well systems, sewer services, etc.), and waste disposal history for municipally operated sites.

The results of our review of NCDENR and local records regarding the Princeville Dump are presented in Sections 3.1 through 3.3. Details of records judged pertinent to the site are included in Appendix III.

3.1 NCDENR Files

S&ME reviewed the database listings obtained from NCDENR and from the VISTA report concerning North Carolina State Inactive Hazardous Sites. The Princeville Dump was not listed as a North Carolina State Hazardous Site. No North Carolina State Hazardous Sites were identified within the search radius.

3.2 Other NCDENR Files

Additional NCDENR files were reviewed based on information gathered from the Branch files or the VISTA report. Based on the findings for the Princeville Dump, files of the Division Water Resources, Division of Waste Management, Division of Water Quality, and the Division of Air Quality were reviewed. Our review of this information did not indicate the presence of other listed sites within the search radius.

S&ME reviewed the NC Solid Waste Section files regarding the Princeville Dump. According to the Land Disposal Site Investigation Report for the Princeville Refuse Disposal Area dated March 22, 1968, the site began operations in 1965 and received household and commercial waste. The site was listed as having surface drainage problems. The site was approximately reported to be five acres in size and received an average of 6,240 cubic yards of solid waste per year. However, after the site reconnaissance, S&ME determined that the extent of fill was only about 2 acres (see Figures 1 and 2). According to the Land Disposal Site Modification Report for the Princeville Dump dated June 18, 1974, the site was closed on April 1, 1974.

S&ME reviewed the U.S. Fish and Wildlife Service National Wetlands Inventory map of the Old Sparta Quadrangle dated 1994. According to the wetlands map, the western portion of the property adjacent to the Tar River has been classified as forested palustrine wetlands that are temporarily or seasonally flooded.

3.3 City/County Files and Interviews

S&ME visited and interviewed local county agencies and agency representatives to collect historical and current information regarding the Princeville Dump. The following local agencies and their representatives were contacted or visited regarding the Princeville Dump:

- Mr. A. B. Whitley, III, District Conservationist, USDA Soil Conservation Service
- Mr. Bridgers, former Mayor of Princeville

During the interviews, S&ME inquired about the site's current and past use and history. The former district sanitarian, Mr. Fred Wood, was asked a standard set of questions listed in a questionnaire form. A copy of the questionnaire form or a Record of Communication for each interview is included in Appendix IV of this report. The following is a summary of responses to our inquiries.

Mr. Whitley stated that he was aware of the Princeville Dump site and said that it was an unmanned, informal site where dumping had occurred. He indicated that the former Mayor of Princeville, Mr. Bridgers, may have some historical knowledge of the site. S&ME contacted Mr. Bridgers, but he stated that he was not aware of dumping at the site's location.

3.4 Aerial Photographs

S&ME reviewed aerial photographs dated November 1964 and March 1989 showing the site. These photographs were obtained from the US Department of Agriculture – Soil Conservation Service and the Edgecombe County Tax Office. Copies of these photographs are included in Appendix I.

Date	Scale	Source	Frame Reference
11/29/64	No scale	U.S. Dept. of Agriculture-Natural Resources Conservation Service	ABR-1FF-114
3/89	1"=400'	Edgecombe County Tax Office	4737

The site appears mostly undeveloped and wooded in the November 1964 photograph. A power line easement crosses the eastern portion of the site. An unpaved road can be seen in the central portion of the site.

In the March 1989 aerial photograph, what appears to be exposed debris can be seen in the fill area at the northern portion of the power line easement. Most of the easement appears to have been used for agriculture. The site access road can be seen on the northern portion of the site. The remaining portion of the property appears undeveloped and wooded.

3.5 Record Review Summary

Based on our public record review and interviews of state and local agency representatives, the following is a summary of our findings:

- According to the Land Disposal Site Investigation Report for the Princeville Refuse Disposal Area dated March 22, 1968, the site began operation in 1965 and received household and commercial waste. The site was listed as having surface drainage problems. The disposal area was approximately 5 acres in size and received an average of 6,240 cubic yards of solid waste per year.

- According to the Land Disposal Site Modification Report for the Princeville Refuse Disposal Area dated June 18, 1974, the site was closed on April 1, 1974.

- In the March 1989 aerial photograph, what appears to be exposed debris can be seen in the fill area at the northern portion of the power line easement.

- According to the U.S. Fish and Wildlife Service National Wetlands Inventory map dated 1994, the western portion of the property adjacent to the Tar River has been classified as forested palustrine wetlands that are temporarily or seasonally flooded.

4.0 OWNERSHIP INFORMATION

After the location of the Princeville Dump was confirmed, the site's ownership information was obtained from the Edgecombe County County Tax office and Register of Deeds office. S&ME used the information obtained from the public records review to identify and locate the site's tax identification number, tax parcel number, street address, owner's mailing address, size and relevant deed information. Copies of documents obtained from the County Revenue office and Register of Deeds office are included in Appendix V. A summary of site information is as follows:

Owner Name	Address	City	State	Zip	Phone
W.S. Clark Farms	PO. Box 310 1602 St. Andrews Street	Tarboro	NC	27886	(252) 823-7029

Owner Name	Tax ID	PIN	Deed Book Ref
W.S. Clark Farms	6480	4737-44-6480	Book 1145/ Page 0480

5.0 INITIAL SITE VISIT

S&ME performed an initial site visit on August 31, 2000. The purpose of the initial visit was to verify the location of the Princeville Dump, to gather information regarding land use characteristics of the site, its vicinity, to perform a well survey within the search radius, and to interview neighbors. Information gained during the public record search and review of topographic maps and aerial photographs was also used to assist in identifying the site and its physical setting.

5.1 Topography

S&ME examined the USGS topographic map of the Old Sparta Quadrangle, dated 1981 (Figure 1). Based on our review of this source and our site reconnaissance, the topography around the dump site is relatively flat, but slopes gradually west toward the banks of the Tar River. The Tar River forms the west boundary of the property where the dump site is located.

5.2 Land Use/Development

Based on our initial site visit and our review of the topographic map and recent aerial photographs, the site and its vicinity are described as follows:

The Princeville Dump and vicinity are in a rural setting. The borrow-pit lake and the power line easement occupy the property north of the site. The property east of the site is both wooded and residential. The residential areas consist mostly of single family homes. The property south of the site is either wooded or part of the power line easement. The power line easement is covered by tall grasses and shrubs. The property west of the site is undeveloped, consisting of wooded and wetland areas situated between the waste disposal area and the Tar River.

S&ME reviewed the U.S. Fish and Wildlife Service National Wetlands Inventory map of the Old Sparta Quadrangle dated 1994. According to the wetlands map, the area west of the power line easement to the Tar River has been classified as forested palustrine wetlands that are temporarily or seasonally flooded.

5.3 Groundwater and Surface Water Resources

During the preliminary site visit, S&ME conducted a visual well survey along roadways that were within the search radius looking for evidence of wells and public and private water systems. Where permission was received to access the property, well locations were recorded using a dGPS. Otherwise, the well locations were estimated using the property address or dGPS coordinates from a street location closest to the well's location. Sixteen (16) water supply wells and one (1) shallow well were identified within the search radius. Pertinent information on these wells is shown on Table 1. The locations of these wells are shown on Figure 3.

Based on information collected from interviews of county personnel, the site area is not served by a public or community water supply system. This information was confirmed by observations in the vicinity of the site during the initial site visit.

Using topographic maps, aerial photographs and visual observations during the of initial site visit, S&ME identified the following surface water bodies within the search radius:

- A borrow-pit lake located north of the dump site (see Figure 3).
- An overflow channel for the borrow-pit lake flows adjacent along the north side of the dump site (see Figure 3).
- The Tar River is located west of the dump site. This section of the river adjacent to the property boundary flows north to south (see Figure 3).

In addition to identifying surface water bodies within the search radius, S&ME also attempted to identify surface water intakes for drinking water supply systems. No surface water intake systems were identified within the search radius.

6.0 SITE RECONNAISSANCE

Once access permission to the site was obtained from the property owner, S&ME performed a site reconnaissance at the Princeville Dump. The purpose for the site reconnaissance was to record the physical characteristics of the site, which included the identification, if any, of AOCs or potential AOCs. As described in the SAP, AOCs included, but were not limited to, the following conditions in the waste disposal area:

- Slope failure
- Excessive Erosion
- Leachate seeps
- Significant settling
- Standing Water
- Stressed vegetation
- Human activity
- Stained soil
- Noticeable odors

S&ME personnel looked for visual evidence of water inundation on the site as an indication of flooding, and interviewed people knowledgeable of the site to determine if they were aware of flooding from Hurricane Floyd.

During the site reconnaissance, observations of AOCs and general site conditions were recorded and color photographs were taken (Appendix VI). Using dGPS coordinates, S&ME recorded the latitude and longitude of the site entrance and AOCs to the extent that they were identified at the site. The coordinates are in North American Datum of 1983, North Carolina Plane Coordinate System in meters, as requested by the branch.

S&ME also attempted to establish coordinates of points on the site's property boundaries. Where property markers were not readily evident, property boundaries were estimated using information made available to S&ME by the owner/occupant of the site, Tax Map information or from aerial photographs. S&ME also obtained GPS coordinates on the boundary of the waste disposal areas. The following sections describe our observations made during our site reconnaissance.

6.1 Site Description

The dump site is approximately two acres in size on a 46-acre tract. The property is generally wooded and undeveloped other than the area of the power line easement. The easement crosses the property, including the waste disposal area, in an approximate north-south-direction. Exposed debris at the site are present in the power line easement near the access road as well as in wooded areas adjacent to the power line easement. The Tar River is approximately 1,200 feet west of the debris area. The dump site is accessed by a dirt road off of Jenkins Street parallel to the borrow-pit lake. At the time of our site reconnaissance, S&ME observed visual evidence of flooding. Plastic, shoes, and pieces of wood were observed hanging in nearby trees, presumably left behind by the flood waters. In addition, many homes that are adjacent to the dump site property had evidence of flood damage, such as mud from high flood waters on the outside walls. Many nearby homes were abandoned.

6.2 Waste Disposal Area

S&ME walked the site to identify the limits of the waste disposal area (fill area). During our reconnaissance, S&ME could not ascertain the limits of the fill area based on visual observations. The size of the fill area was estimated using aerial photographs. However, exposed debris was observed at the dump site. Piles of debris, limbs and branches near the access road had become overgrown with tall grasses and shrubs. Appliances, tires, concrete, bricks, wood pallets, limbs and residential trash were exposed in the power line easement area. Rusted drums, old truck frames, and an above-ground storage tank were observed in wooded areas at the site. The overflow channel for the borrow-pit lake is adjacent to the piles of debris within the power line easement.

6.3 Areas of Concern

The coordinates, descriptions and related photographs of the AOCs are described in detail in Table 2. There were five AOCs located on or near the site. The first AOC is the overflow channel from the borrow-pit lake that flows adjacent to piles of debris at the

site. The second AOC is the borrow-pit lake itself, which is located north of the dump site. The third AOC is the wooded area east of the power line easement where rusted drums and other debris were observed. The Tar River located west of the dump site is also identified as the fourth AOC. The fifth AOC is the presence of sixteen (16) potable wells and one (1) shallow well within the search radius.

7.0 SUMMARY

S&ME performed assessment activities for the Princeville Dump following the procedures presented in the *Site Assessment Plan, Hurricane Landfill Assessment Project, State of North Carolina Contract No. N200016* prepared by S&ME, Inc. dated July 14, 2000. The following is a summary of assessment findings.

7.1 Site Location and Ownership

Site Information

Site Name:	Princeville Dump
Site Identification Number:	NONCD0000297
Site's Address	Jenkins Street (SR 1622) Tarboro, NC 27886
County:	Edgecombe County
Coordinates of Site's Entrance:	Northing NAD83 (m): 742476 Easting NAD83 (m): 236155
Landfill Size:	~2 Acres
Date Opened:	1965
Date Closed:	1974
Directions to the Site:	Exit US Hwy. 64 at the State Hwy. 33 interchange. Go south on Hwy. 33 about one-half mile. Turn right on Dowens Street and proceed to Jenkins Street. Turn right on Jenkins Street. At the T-intersection, turn left on Jenkins Street and follow road back to the power line easement.

Site Owner Information

Owner Name:	W.S. Clark Farms
Owner Contact:	S. Clark Jenkins
Owner Mailing Address:	PO. Box 310 1602 St. Andrews Street Tarboro, NC 27886
Owner Telephone Number:	(252) 823-7029
Tax parcel number/PIN No.:	6480/4737-44-6480
Deed Reference:	Book 1145/Page 0480

7.2 Public Record Review

The following public records were reviewed for the Princeville Dump and for sites listed on environmental database listings within the search radius.

Agency	Item Copied
Edgecombe County Tax Office	GIS Land Records, Cadastrals
USDA-NRCS	Aerial Photos
Edgecombe County Register of Deeds	Deed
NCDENR-Solid Waste Section	Land Disposal Site Investigation Report, 3/22/68
NCDENR-Solid Waste Section	Land Disposal Site Modification Report, 6/18/74
US Fish and Wildlife Service	National Wetland Inventory Map

- According to the Land Disposal Site Investigation Report for the Princeville Refuse Disposal Area dated March 22, 1968, the site began operation in 1965 and received household and commercial waste. The site was listed as having surface drainage problems. The disposal area was approximately 5 acres in size and received an average of 6,240 cubic yards of solid waste per year.

- According to the Land Disposal Site Modification Report for the Princeville Dump dated June 18, 1974, the site was closed on April 1, 1974.

- In the 1989 aerial photograph, what appears to be exposed debris can be seen in the fill area at the northern portion of the power line easement.

- According to the U.S. Fish and Wildlife Service National Wetlands Inventory map dated 1994, the area west of the power line easement to the Tar River has been classified as forested palustrine wetland that are temporarily or seasonally flooded.

7.3 Site Vicinity Setting/Characteristics

Based on a review of topographic maps, available aerial photographs, and site reconnaissance, the site and vicinity characteristics are generally rural. A borrow-pit lake and a power line easement occupy the property north of the dump site. The property east of the dump site is both wooded and residential, with the residential sites consisting

mostly of single family homes. The property south of the dump site is either wooded or part of the power line easement. The power line easement is covered by tall grasses and shrubs. The property west of the dump site is undeveloped, consisting of wooded and wetland areas located between the dump and the Tar River.

During our review of the site and vicinity characteristics, S&ME performed a well survey and a survey for surface water bodies and surface water intakes at and within the search radius. There are sixteen (16) potable wells and one (1) shallow well, all east and topographically upgradient of the dump site. One stream or drainage channel flows parallel and north of the dump site, and one borrow-pit lake is north of the dump site. No surface water intakes were identified within the search radius.

7.4 Site Reconnaissance

S&ME performed a site reconnaissance at Princeville Dump on August 31, 2000. Using aerial photographs, the site was estimated at approximately two acres in size on a 46-acre site. The property is generally wooded and undeveloped other than the area of the power line easement, the property is generally wooded and undeveloped. Exposed debris at the site is present in the power line easement near the access road as well as in wooded areas adjacent to the power line easement. The Tar River is approximately 1,200 feet west of the debris area.

7.5 Areas of Concern

S&ME observed five AOCs during our site reconnaissance and found evidence in the public record of other potential concerns:

- Overflow channel to the borrow-pit lake that flows adjacent to piles of debris at the site.
- Borrow-pit lake located north of the dump site.

- Rusted drums and other debris observed in the wooded area east of the power line easement.
- Tar River located 1,200 feet west of the dump site.
- Sixteen (16) potable wells and one (1) shallow well within the search radius.

TABLES

Table 1
WELL SURVEY RESULTS
Page 1 of 2

Well Number	Northing NAD83 (meters)	Easting NAD83 (meters)	Owner's Name	Street Address	Type of Well	Distance and directions from site	Operational? (Yes/No)	In Use? (Yes/No)
Well 1	742610	236094	Chaney	Rt. 7 Box 446 Princeville, NC	Potable	550 ft. east of site	Yes	Yes
Well 2	742591	235991	No Data	Rt. 7 Box 429 Princeville, NC	Potable	1,000 ft. southeast of site	Yes	Yes
Well 3	742538	235684	R.E. Hays	Rt. 7 Box 431 Princeville, NC	Potable	1,250 ft. south of site	Yes	Yes
Well 4	742533	235660	No Data	Rt. 7 Box 432 Princeville, NC	Potable	1,350 ft. south of site	Yes	Yes
Well 5	742547	235716	T. and K. Dewery	Rt. 7 Box 436 Princeville, NC	Potable	1,250 ft. southeast of site	Yes	Yes
Well 6	742579	235877	Richard Flint	Rt. 7 Box 440 Princeville, NC	Potable	900 ft. southeast of site	Yes	No
Well 7	742750	236093	Exum	Rt. 7 Box 408 Princeville, NC	Potable	1,000 ft. east of site	Yes	Yes
Well 8	742742	236055	Stalls	Rt. 7 Box 409 Princeville, NC	Potable	1,050 ft. east of site	Yes	Yes
Well 9	742726	235959	John Abrams	Rt. 7 Box 413 Princeville, NC	Potable	1,100 ft. east of site	Yes	Yes
Well 10	742719	235927	No Data	Rt. 7 Box 414 Princeville, NC	Potable	1,100 ft. east of site	Yes	Yes
Well 11	742716	235899	Hucks	Rt. 7 Box 416 Princeville, NC	Potable	1,200 ft. east of site	Yes	Yes
Well 12	742710	235869	No Data	Rt. 7 Box 417 Princeville, NC	Potable	1,200 ft. east of site	Yes	Yes
Well 13	742688	235736	Howard Parrish	Rt. 7 Box 419 Princeville, NC	Potable	1,400 ft. southeast of site	Yes	Yes

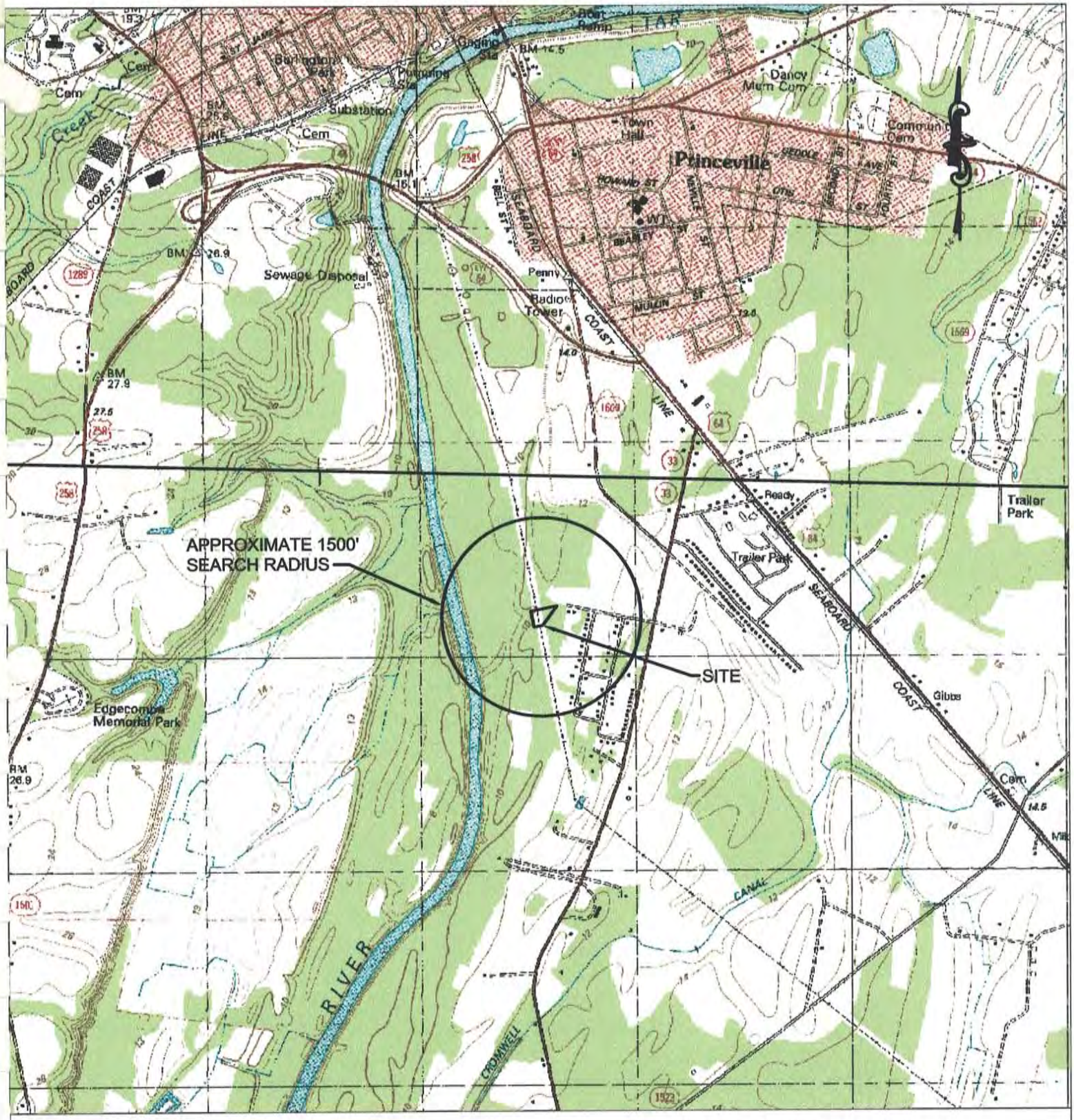
Table 1
WELL SURVEY RESULTS
Page 2 of 2

Well Number	Northing NAD83 (meters)	Easting NAD83 (meters)	Owner's Name	Street Address	Type of Well	Distance and directions from site	Operational? (Yes/No)	In Use? (Yes/No)
Well 14	742741	236018	No Data	Rt. 7 Box 412 Princeville, NC	Potable	1,300 ft. east of site	Yes	Yes
Well 15	742748	236055	No Data	Rt. 7 Box 410 Princeville, NC	Potable	1,200 ft. east of site	Yes	Yes
Well 16	742755	236093	Denny	Rt. 7 Box 411 Princeville, NC	Potable	1,200 ft. east of site	Yes	Yes
Well 17	742424	236138	W.S. Clark Farms	P.O. Box 310 Tarboro, NC	Shallow	On-site	No	No

Table 2
AREAS OF CONCERN

AOC Number	Northing Central Point Coordinate NAD83 (meters)	Easting Central Point Coordinate NAD83 (meters)	Description	Estimated Size	Photograph Reference
1	742370	236194	Overflow channel to the borrow-pit lake.	~ 400 ln. ft.	2
2	742370	236212	Borrow-pit lake north of landfill.	~3.0 ac	2
3	742402	236135	Exposed drums and debris.	~1.0 ac	3,4,5
4	741987	236134	Tar River located west of dump site.	N/A	No data
5	See Table 1		Sixteen (16) potable wells and one (1) shallow well within the search radius	N/A	No data

FIGURES



2000 0 2000

GRAPHIC SCALE IN FEET

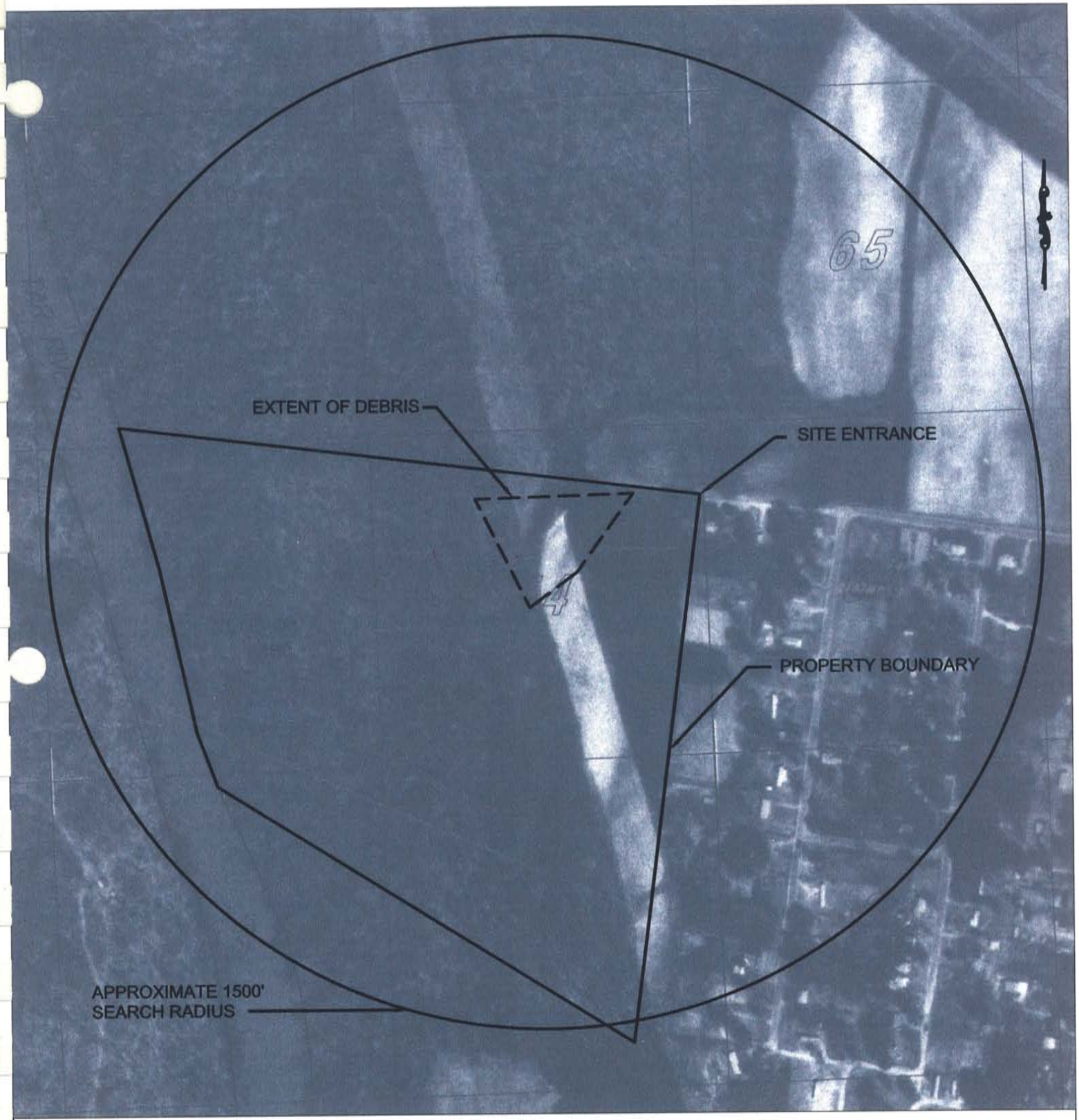
TARBORO, NC USGS QUADRANGLE DATED 1981
OLD SPARTA, NC USGS QUADRANGLE DATED 1981

VICINITY SITE MAP

PRINCEVILLE DUMP
PRINCEVILLE, NC

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING · TESTING

Job No. 1040-00-345F
Scale: 1" = 2000'
Fig No. 1



400 0 400

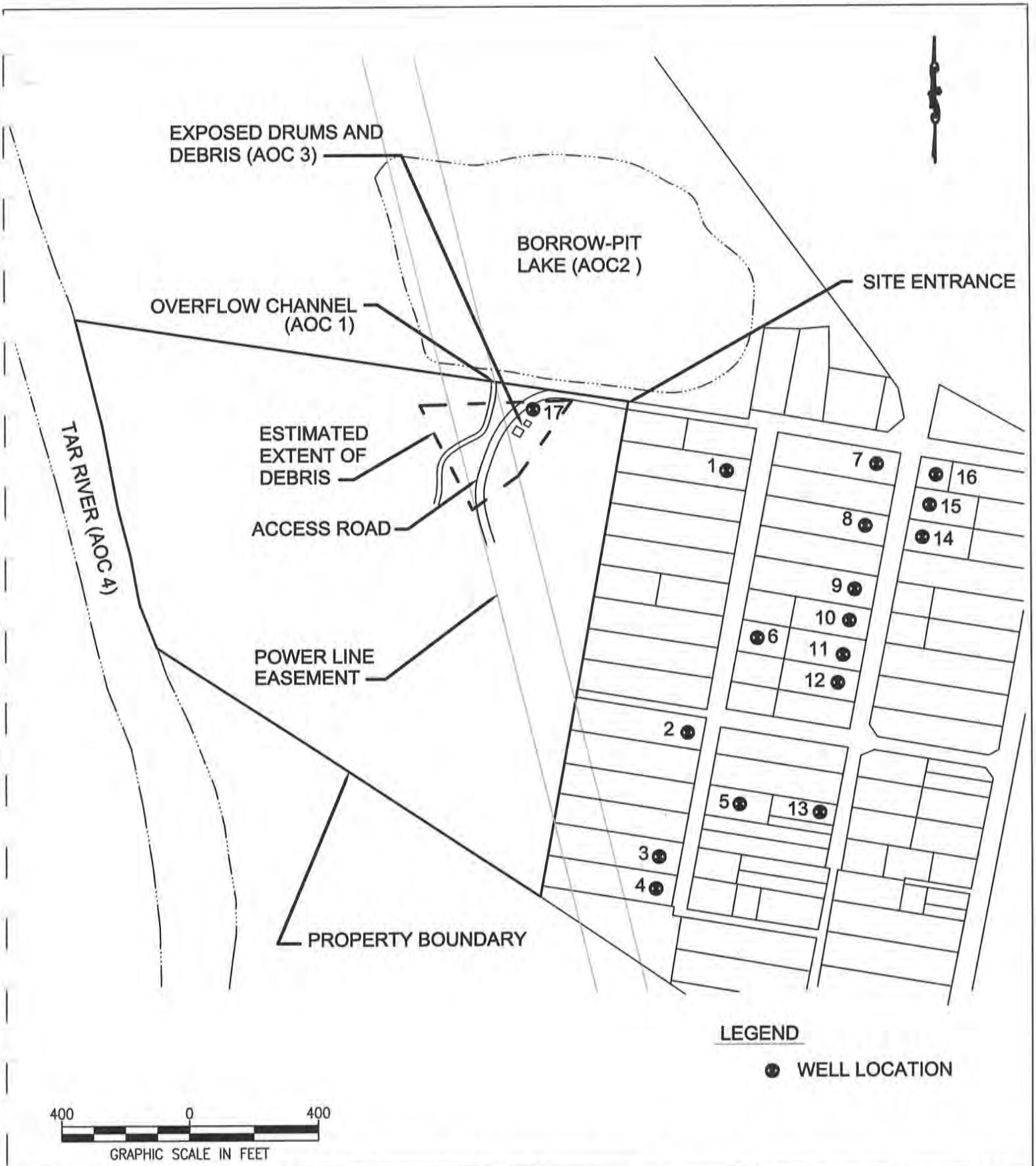
GRAPHIC SCALE IN FEET

PROPERTY PLAN

PRINCEVILLE DUMP
PRINCEVILLE, NC

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING · TESTING

Job No. 1040-00-345F
Scale: 1" = 400'
Fig No. 2



WASTE DISPOSAL AREA

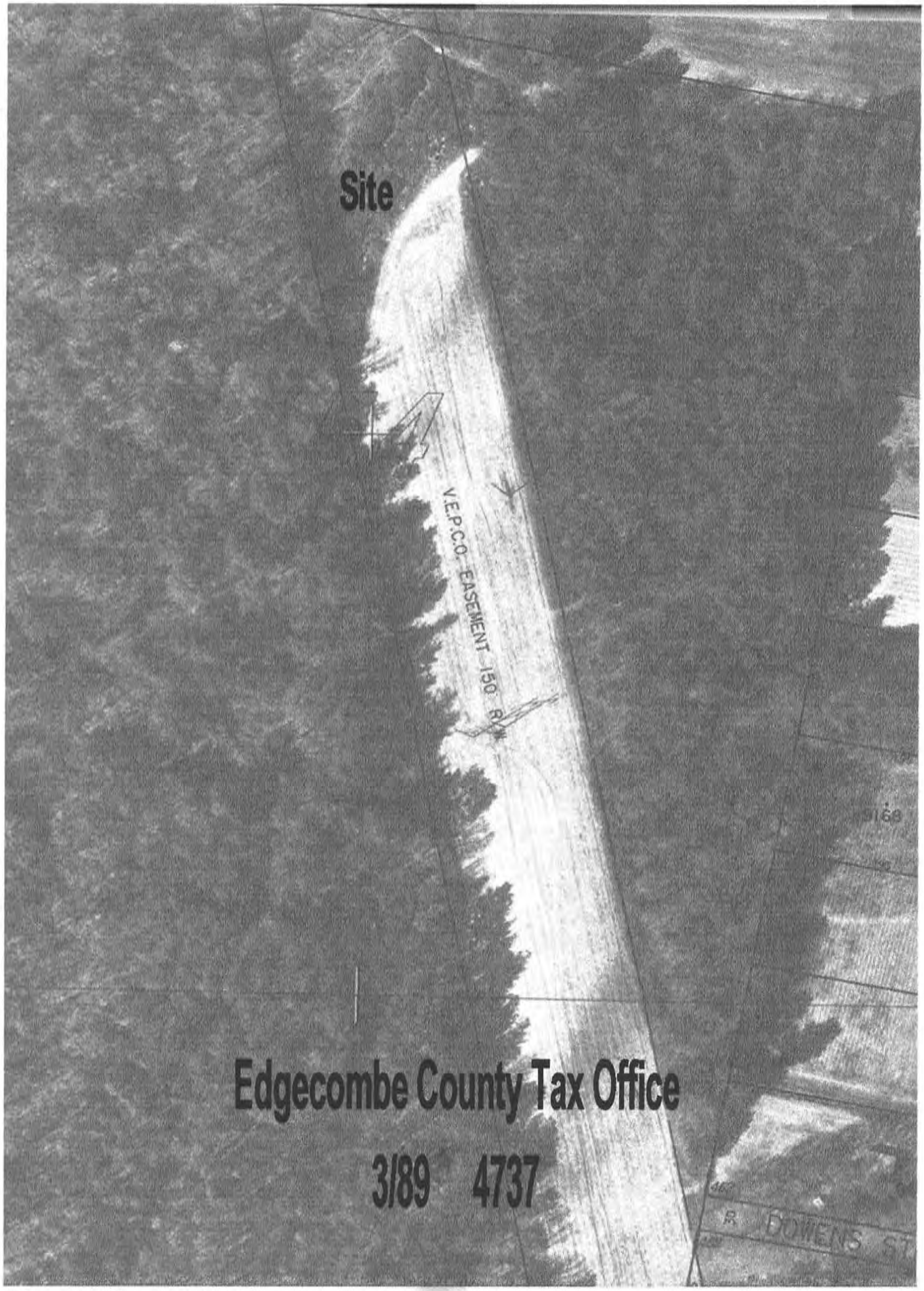
PRINCEVILLE DUMP
PRINCEVILLE, NC

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING · TESTING

Job No. 1040-00-345F
Scale: 1" = 400'
Fig No. 3

APPENDIX I


Site
USDA - Soil Conservation Service
Aerial Photograph Dated 11/29/64
ABR-1FF-114


Site
V.E.P.C.O. EASEMENT 150 R/W
Edgecombe County Tax Office
3/89 4737
R DOWENS ST

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: 1040-00-345 F Princeville Dump Jenkins Road Princeville, NC Latitude/Longitude: (35.867661, 77.530707)	Chris Hamblet SME, Inc. 3118 Springforest Road Raleigh, NC 27616

Site Distribution Summary Agency / Database - Type of Records			within 5/8 mile	5/8 to 3/4 mile	3/4 to 1 mile	1 to 1 1/2 mile
A) Databases searched to 1 1/2 mile:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS	RCRA Corrective Actions	0	0	0	0
STATE	SPL	State equivalent priority list	0	0	0	0
B) Databases searched to 1 mile:						
STATE	SCL	State equivalent CERCLIS list	0	0	0	-
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	0	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	0	-
STATE REG CO	LUST	Leaking Underground Storage Tanks	0	0	0	-
STATE/ REG/CO	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	0	-
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	0	0	0	-
C) Databases searched to 3/4 mile:						
US EPA	RCRA Viol	RCRA violations/enforcement actions	0	0	-	-
US EPA	TRIS	Toxic Release Inventory database	0	0	-	-
STATE	UST/AST	Registered underground or aboveground storage tanks	0	0	-	-

Site Distribution Summary

Agency / Database - Type of Records			within 5/8 mile	5/8 to 3/4 mile	3/4 to 1 mile	1 to 1 1/2 mile
D) Databases searched to 5/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	0	-	-	-
US EPA	GNRTR	RCRA registered small or large generators of hazardous waste	0	-	-	-
STATE	SPILLS	State spills list	0	-	-	-

This report meets the ASTM standard E-1527 for standard federal and state government database research in a Phase I environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.

LIMITATION OF LIABILITY
Customer proceeds at its own risk in choosing to rely on VISTA services, in whole or in part, prior to proceeding with any transaction. VISTA cannot be an insurer of the accuracy of the information, errors occurring in conversion of data, or for customer's use of data. VISTA and its affiliated companies, officers, agents, employees and independent contractors cannot be held liable for accuracy, storage, delivery, loss or expense suffered by customer resulting directly or indirectly from any information provided by VISTA.

NOTES

SITE ASSESSMENT PLUS REPORT (EXTENDED BY 1/2 MILE)

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 5/8 mile)	A			B						C			D		
	VISTA ID DISTANCE DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
No Records Found																

MAP ID	SITES IN THE SURROUNDING AREA (within 5/8 - 3/4 mile)	A			B						C			D		
	VISTA ID DISTANCE DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
No Records Found																

MAP ID	SITES IN THE SURROUNDING AREA (within 3/4 - 1 mile)	A			B						C			D		
	VISTA ID DISTANCE DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
No Records Found																

MAP ID	SITES IN THE SURROUNDING AREA (within 1 - 1 1/2 mile)	A			B						C			D		
	VISTA ID DISTANCE DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
No Records Found																

UNMAPPED SITES	VISTA ID	A			B						C			D		
		NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
WAREHOUSE ROUTE 1 TARBORO (SR 1600) TARBORO, NC 27886	2468675												X			
FARMER OIL CO. HIGHWAY 258 NORTH TARBORO, NC 27886	2445224												X			
BARNHILL CONTRACTING - APCO NCSR 1518 TARBORO, NC 27886	4066231								X							
DD GROCERY 258 NORTH TARBORO, NC 27886	2458639												X			
W J EASON STORE HWY 64 TARBORO, NC 27886	2466037												X			
BARNHILL CONTRACTING COMPANY SR 1243 TARBORO, NC 27886	3664681								X							
EVERETTE GROCERY GRILL (SOL N.C. HIGHWAYS 97 258 TARBORO, NC 27886	2447803												X			
W. NORTHERN BOULEVARD TARBORO, NC 27886	5014092							X								
N MAIN ST. TARBORO, NC 27886	3057734							X								
NC DOT - TARBORO STATE ROAD 1006 TARBORO, NC 27886	8686281							X								
LONG TRAILER CO INC HWY 44 WEST/TARBORO TARBORO, NC 27886	5165344								X							
MAIN CHURCH ST. TARBORO, NC 27886	5298767							X								
258 COUNTRY STORE ROUTE 4 TARBORO, NC 27886	2465303												X			
TARBORO AIRPORT HWY 33 TARBORO, NC 27886	6470521												X			
W.L. JONES HIGHWAY 258 SO. DAVISTOWN ROAD TARBORO, NC 27886	2452311												X			
HANDY MART #13 U.S. 64 BUSINESS TARBORO, NC 27886	2469178												X			

UNMAPPED SITES	VISTA ID	A			B							C			D		
		NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS		RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
HANDY MART #12 MAIN HOWARD STREET TARBORO, NC 27886	4432746							X									
NC DOT - TARBORO (DIV FOUR) S.R. 1205 2 MILES SW TARBORO TARBORO, NC 27886	6583521													X			
WALSTON'S GROCERY ROUTE 2 HWY 97 TARBORO, NC 27886	2463888													X			
CENTRE ST. ANDREW ST. TARBORO, NC 27886	3056214							X									
TARBORO ASPHALT PLANT TARBORO, NC 27886	5541959													X			
TARBORO T.S. TARBORO, NC 27886	3256126													X			
QUIGLESS FARM RTE 1 TARBORO, NC 27886	2462390													X			
EDGECOMBE COUNTY LANDFILL SR 1601 TARBORO, NC 27886	2461040								X								
BOYD'S SHELL MAIN HOWARD AVENUE TARBORO, NC 27886	5013750							X									
BATTS GROCERY HOWARD AVENUE EXTENSION TARBORO, NC 27886	2455074							X						X			
US 64 NC33 TARBORO, NC 27886	3058062							X									
HELIPORT TARBORO - EDGECOMBE AIRPORT TARBORO, NC 27886	3259740													X			
258 MINI MART HWY 258 TARBORO, NC 27886	3259259													X			
CAROLINA ENTERPRISES PLANT #1 DANIEL STREET EXTENSION TARBORO, NC 27886	2452126													X			
LEWIS' GROCERY TARBORO HIGHWAY TARBORO, NC 27886	2468661													X			
JENKINS CORP. ST JAMES STREET EXT TARBORO, NC 27886	2468187													X			
RICHARD TREVATHAN ROUTE 3, BOX 264 TARBORO, NC 27886	2464796													X			

UNMAPPED SITES	VISTA ID	A			B						C			D		
		NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
LONG'S SUPERMARKET ROUTE 2, BOX 387 TARBORO, NC 27886	3889013												X			
WALTER L. LANIER ROUTE 3, BOX 196 TARBORO, NC 27886	2464795												X			
EDGECOMBE FIRE TOWER ROUTE 3, BOX 143 TARBORO, NC 27886	2464793												X			
CLOTEA EDWARDS RTE 4 BOX 670 TARBORO, NC 27886	2465305												X			
VILLAGE MART ROUTE 7, BOX 447 TARBORO, NC 27886	7252555												X			
HOLLOMAN'S MID LAKES GROCERY HWY.64 BOX 303A TARBORO, NC 27886	5384429												X			
PO BOX 1470/ 1 ROYSTER ST TARBORO, NC 27886	5347422							X								
PO BOX 1157 TARBORO, NC 27886	5346709							X								
NC ARMY NATIONAL GUARD ARMORY P.O. BOX 1176 WALNUT PANOLA ST. TARBORO, NC 27886	5384570												X			
L W GROCERY GRILL #1 ROUTE 2, HWY 258 TARBORO, NC 27886	5014388												X			
RT 6, BOX 133 TARBORO, NC 27886	3058931							X								
F.S. ROYSTER MERCANTILE CO. 1 ROYSTER STREET TARBORO, NC 27886	1780973												X			
LONG TRAILER CO ROUTE 2 BOX 1 TARBORO, NC 27886	2463885												X			
PECK'S SHOP ROUTE 1, BOX 995 TARBORO, NC 27886	2462389												X			
JIMMY DAIL ROUTE 1, BOX 849 TARBORO, NC 27886	2462388												X			
CALICO HWY 102 TARBORO, NC 27886	2463099												X			

UNMAPPED SITES	VISTA ID	A			B						C			D		
		NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
ROBERSON SCHOOL P.O. BOX 610 RURAL RD 1527 TARBORO, NC 27886	2461477												X			
RT 3, BOX 175 TARBORO, NC 27886	6581826							X								
VILLAGE MART P.O. BOX 445 TARBORO, NC 27886	2445230												X			

SITE ASSESSMENT PLUS REPORT (EXTENDED BY 1/2 MILE)

DETAILS

PROPERTY AND THE ADJACENT AREA (within 5/8 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 5/8 - 3/4 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 3/4 - 1 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1 - 1 1/2 mile)

No Records Found

UNMAPPED SITES

VISTA Address*:	BARNHILL CONTRACTING - APCO NCSR 1518 TARBORO, NC 27886	VISTA ID#:	4066231
STATE SWLF - Solid Waste Landfill / SRC# 355		Agency ID:	33E

Agency Address:	*BARNHILL CONTRACTING - APCO NCSR 1518 TARBORO, NC*
Facility Type:	*INERT*
Facility Status:	*NOT AVAILABLE*
Permit Status:	*NOT AVAILABLE*

VISTA Address*:	BARNHILL CONTRACTING COMPANY SR 1243 TARBORO, NC 27886	VISTA ID#:	3664681
STATE SWLF - Solid Waste Landfill / SRC# 355		Agency ID:	33C

Agency Address:	*BARNHILL CONTRACTING COMPANY SR 1243 TARBORO, NC*
Facility Type:	*INERT*
Facility Status:	*NOT AVAILABLE*
Permit Status:	*NOT AVAILABLE*

VISTA Address*:	W. NORTHERN BOULEVARD TARBORO, NC 27886	VISTA ID#:	5014092
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	11159

Agency Address:	*W. NORTHERN BOULEVARD TARBORO, NC 0*
Facility ID:	*11159*
Leak ID#:	*4*
Leak Date:	*4/1/1993*
Leak Report Date:	*11/9/1993*
Substance:	*GASOLINE DIESEL*
Remediation Status:	*FOLLOW UP*
Priority:	*65E*
Ranking:	*L*
Media Affected:	*SOIL*
Description / Comment:	*VISUALLY CONTAMINATED SOILS FROM 2 USTS EXCAVATE.*

VISTA Address*:	N MAIN ST. TARBORO, NC 27886	VISTA ID#:	3057734
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	05663

Agency Address:	*N MAIN ST TARBORO, NC 0*
Facility ID:	*05663*
Leak ID#:	*3*
Leak Date:	*5/1/1990*
Leak Report Date:	*6/8/1990*
Substance:	*GASOLINE DIESEL*

Remediation Status:	RESPONSE
Priority:	100E
Ranking:	L
Media Affected:	SOIL
Description / Comment:	UPON DISCOVERY OF UST ON PROPERTY RRO HAND AUGERED IMMEDIATELY ADJACENT TO TANK AND FOUND FREE PRODUCT ON WATER TABLE

VISTA Address*:	NC DOT - TARBORO STATE ROAD 1006 TARBORO, NC 27886	VISTA ID#:	8686281
STATE LUST - State Leaking Underground Storage Tank / SRC# 352		EPA/Agency ID:	N/A

Agency Address:	NC DOT - TARBORO STATE ROAD 1006 TARBORO, NC
Leak ID#:	5712
Remediation Event:	TOTAL # CLAIMS: 1
Remediation Status:	INIT REMEDIAL ACTION
Priority:	LOW
Description / Comment:	OLD CITY OF TARBORO DOT MAINT FACILITYSUM OF AMT REQUESTED: $61495.94 SUM OF AMT APPROVED: $59650.35

VISTA Address*:	LONG TRAILER CO INC HWY 44 WEST/TARBORO TARBORO, NC 27886	VISTA ID#:	5165344
STATE SWLF - Solid Waste Landfill / SRC# 354		Agency ID:	33A

Agency Address:	LONG TRAILER CO INC HWY 44 WEST/TARBORO TARBORO, NC
Facility Type:	RUBBLE FILL (DEMO,ETC)
Facility Status:	CLOSED
Permit Status:	NOT AVAILABLE

VISTA Address*:	MAIN CHURCH ST. TARBORO, NC 27886	VISTA ID#:	5298767
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	12309

Agency Address:	MAIN CHURCH ST. TARBORO, NC 0
Facility ID:	12309
Leak ID#:	3
Leak Date:	5/26/1994
Leak Report Date:	6/28/1994
Substance:	GASOLINE DIESEL
Remediation Status:	RESPONSE
Priority:	80E
Ranking:	L
Media Affected:	SOIL
Description / Comment:	SAMPLING CONFIRMED SOIL AND GW CONTAMINATION ON SITE

VISTA Address*:	HANDY MART #12 MAIN HOWARD STREET TARBORO, NC 27886	VISTA ID#:	4432746

STATE LUST - State Leaking Underground Storage Tank / SRC# 352	EPA/Agency ID:	N/A

Agency Address:	HANDY MART #12 MAIN HOWARD STREET TARBORO, NC
Leak ID#:	10821
Remediation Event:	TOTAL # CLAIMS: 15
Remediation Status:	INIT REMEDIAL ACTION
Priority:	LOW
Description / Comment:	SUM OF AMT REQUESTED: $134044.03 , SUM OF AMT APPROVED: $127184.92

STATE LUST - State Leaking Underground Storage Tank / SRC# 357	Agency ID:	10821

Agency Address:	MAIN HOWARD TARBORO, NC 0
Facility ID:	10821
Leak ID#:	3
Leak Date:	2/22/1990
Leak Report Date:	8/29/1993
Substance:	GASOLINE DIESEL
Remediation Status:	RESPONSE
Priority:	105E
Ranking:	/
Media Affected:	SOIL
Description / Comment:	GASOLINE VAPORS AT EXPLOSIVE LEVELS IN UNDERGROUND TELEPHONE VAULT UNDER INTERSECTION OF MAIN ST. AND HOWARD AVE.

VISTA Address*:	CENTRE ST. ANDREW ST. TARBORO, NC 27886	VISTA ID#:	3056214

STATE LUST - State Leaking Underground Storage Tank / SRC# 357	Agency ID:	05712

Agency Address:	CENTRE ST. ANDREW ST. TARBORO, NC 0
Facility ID:	05712
Leak ID#:	1
Leak Date:	6/5/1990
Leak Report Date:	7/6/1990
Substance:	GASOLINE DIESEL
Remediation Status:	RESPONSE
Priority:	85D
Ranking:	L
Media Affected:	SOIL
Description / Comment:	RRO INVESTIGATED SITE AND FOUND SOIL CONTAMINATION IN AREA OF EXCAVATED TANKS.

VISTA Address*:	EDGECOMBE COUNTY LANDFILL SR 1601 TARBORO, NC 27886	VISTA ID#:	2461040

STATE SWLF - Solid Waste Landfill / SRC# 354		Agency ID:	3301
Agency Address:	*EDGECOMBE COUNTY LANDFILL SR 1601 TARBORO, NC*		
Facility Type:	*MUNICIPAL FACILITY*		
Facility Status:	*CLOSED*		
Permit Status:	*NOT AVAILABLE*		

STATE SWLF - Solid Waste Landfill / SRC# 355		Agency ID:	3302-T
Agency Address:	*EDGCOMBE COUNTY TRANSFER STATION SR 1601 TARBORO, NC*		
Facility Type:	*TRANSFER STATION*		
Facility Status:	*NOT AVAILABLE*		
Permit Status:	*NOT AVAILABLE*		

STATE SWLF - Solid Waste Landfill / SRC# 355		Agency ID:	3301
Agency Address:	*EDGCOMBE COUNTY CDLF SR 1601 TARBORO, NC*		
Facility Type:	*CONSTRUCTION/DEMOLITION*		
Facility Status:	*NOT AVAILABLE*		
Permit Status:	*NOT AVAILABLE*		

VISTA Address*:	BOYD'S SHELL MAIN HOWARD AVENUE TARBORO, NC 27886	VISTA ID#:	5013750

STATE LUST - State Leaking Underground Storage Tank / SRC# 352		EPA/Agency ID:	N/A
Agency Address:	*BOYD'S SHELL MAIN HOWARD AVENUE TARBORO, NC*		
Facility ID:	*0-002322*		
Leak ID#:	*5449*		
Remediation Event:	*TOTAL # CLAIMS: 12*		
Remediation Status:	*INIT REMEDIAL ACTION*		
Priority:	*LOW*		
Description / Comment:	*SUM OF AMT REQUESTED: $133702.24 . SUM OF AMT APPROVED: $96575.52*		

STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	05449
Agency Address:	*MAIN HOWARD TARBORO, NC 0*		
Facility ID:	*05449*		
Leak ID#:	*3*		
Leak Date:	*2/22/1990*		
Leak Report Date:	*2/26/1990*		
Substance:	*GASOLINE DIESEL*		
Remediation Status:	*RESPONSE*		
Priority:	*140E*		
Ranking:	*L*		
Media Affected:	*SOIL*		

Description / Comment:	*GASOLINE VAPORS AT EXPLOSIVE LEVELS IN UNDERGROUND TELEPHONE VAULT UNDER INSECTION OF MAIN HOWARD AVE*

VISTA Address*:	**BATTS GROCERY** **HOWARD AVENUE EXTENSION** **TARBORO, NC 27886**	VISTA ID#:	2455074
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	14662

Agency Address:	*HOWARD AVE EXTENSION (SR1208)* *TARBORO, NC 0*
Facility ID:	*14662*
Leak ID#:	*1*
Leak Date:	*7/1/1994*
Leak Report Date:	*10/18/1995*
Substance:	*GASOLINE DIESEL*
Remediation Status:	*RESPONSE*
Priority:	*95B*
Ranking:	*H*
Media Affected:	*SOIL*
Description / Comment:	*MINOR SOIL CONTAMINATION CONFIRMED FROM UST LEAKS*

VISTA Address*:	**US 64 NC33** **TARBORO, NC 27886**	VISTA ID#:	3058062
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	07567

Agency Address:	*US 64 NC33* *TARBORO, NC 0*
Facility ID:	*07567*
Leak ID#:	*4*
Leak Date:	*12/18/1991*
Leak Report Date:	*4/22/1992*
Substance:	*GASOLINE DIESEL*
Remediation Status:	*REMEDIAL ACTION*
Priority:	*125B*
Ranking:	*B*
Media Affected:	*SOIL*
Description / Comment:	*TANK TEST FAILED;*

VISTA Address*:	**PO BOX 1470/ 1 ROYSTER ST** **TARBORO, NC 27886**	VISTA ID#:	5347422
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	08039

Agency Address:	*PO BOX 1470/ 1 ROYSTER ST* *TARBORO, NC 0*
Facility ID:	*08039*
Leak ID#:	*2*
Leak Date:	*1/27/1991*
Leak Report Date:	*6/3/1992*
Substance:	*GASOLINE DIESEL*
Remediation Status:	*CLOSED OUT*
Media Affected:	*SOIL*

Description / Comment:	CONTAMINATION FOUND AFTER UST REMOVAL

VISTA Address*:	PO BOX 1157 TARBORO, NC 27886	VISTA ID#:	5346709
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	08040

Agency Address:	PO BOX 1157 TARBORO, NC 0
Facility ID:	08040
Leak ID#:	3
Leak Date:	11/8/1990
Leak Report Date:	6/3/1992
Substance:	GASOLINE DIESEL
Remediation Status:	CLOSED OUT
Media Affected:	SOIL
Description / Comment:	SURFACE STAINING DISCOVERED DURING UST REMOVAL

VISTA Address*:	RT 6, BOX 133 TARBORO, NC 27886	VISTA ID#:	3058931
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	05892

Agency Address:	RT 6, BOX 133 TARBORO, NC 0
Facility ID:	05892
Leak ID#:	4
Leak Date:	6/22/1990
Leak Report Date:	9/5/1990
Substance:	GASOLINE DIESEL
Remediation Status:	CLOSED OUT
Priority:	130C
Ranking:	C
Media Affected:	SOIL
Description / Comment:	CONTAM. OF WELL WATER CONFIRMED THROUGH LAB ANALYSIS.

VISTA Address*:	RT 3, BOX 175 TARBORO, NC 27886	VISTA ID#:	6581826
STATE LUST - State Leaking Underground Storage Tank / SRC# 357		Agency ID:	15548

Agency Address:	RT 3, BOX 175 TARBORO, NC 0
Facility ID:	15548
Leak ID#:	4
Leak Date:	8/20/1994
Leak Report Date:	5/29/1996
Substance:	HEATING OIL
Remediation Status:	RESPONSE
Priority:	100A
Ranking:	A
Media Affected:	SOIL
Description / Comment:	KEROSENE WAS FOUND IN BORED WELL



SITE ASSESSMENT PLUS REPORT (EXTENDED BY 1/2 MILE)

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1 1/2 MILE

NPL
SRC#: 19

VISTA conducts a database search to identify all sites within 1.5 mile of your property.
The agency release date for National Priorities List was April, 2000.

The NPL Report is the US EPA's registry of the nation's worst uncontrolled or abandoned hazardous waste sites. NPL sites are targeted for possible long-term remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

SPL
SRC#: 350

VISTA conducts a database search to identify all sites within 1.5 mile of your property.
The agency release date for Annual Report to the North Carolina General Assembly was November, 1998.

This database is provided by the Department of Environmental Health Natural Resources, Superfund Section. The agency may be contacted at: 919-733-2801.

CORRACTS
SRC#: 14

VISTA conducts a database search to identify all sites within 1.5 mile of your property.
The agency release date for RCRIS Corrective Action Sites was December, 1999.

The CORRACTS database contains information concerning RCRA facilities that have conducted, or are currently conducting a corrective action. A Corrective Action Order is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may also be imposed as a requirement of receiving and maintaining a TSDF permit.

RCRIS-TSDC
SRC#: 556

VISTA conducts a database search to identify all sites within 1.5 mile of your property.
The agency release date for RCRIS TSDs Subject to Corrective Action was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDCs are treatment, storage and/or disposal facilities that are subject to corrective action under RCRA.



B) DATABASES SEARCHED TO 1 MILE

CERCLIS
SRC#: 17

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Comprehensive Environmental Response, Compensation and Liability Information Sys was January, 2000.

The CERCLIS database is a comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites. These sites have either been investigated, or are currently under investigation by the U.S. EPA for the release, or threatened release of hazardous substances. Once a site is placed in CERCLIS, it may be subjected to several levels of review and evaluation, and ultimately placed on the National Priorities List (NPL).

NFRAP
SRC#: 18

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for No Further Remedial Action Planned was December, 1999.

The No Further Remedial Action Planned Report (NFRAP), also known as the CERCLIS Archive, contains information pertaining to sites which have been removed from the U.S. EPA's CERCLIS database. NFRAP sites may be sites where, following an initial investigation, either no contamination was found, contamination was removed quickly without need for the site to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration.

SCL
SRC#: 351

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Annual Report to the North Carolina General Assembly was November, 1998.

This database is provided by the Department of Environmental Health Natural Resources, Superfund Section. The agency may be contacted at: 919-733-2801. The State Inventory includes the following categories: NPL List; State Site Priority List (SPL); Sites with Investigations Pending; Responsible Party Voluntary Remedial Action Sites; State Cleanup Sites; No Further Action Sites; and Duplicate Sites.

RCRIS-TSD
SRC#: 12

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for RCRIS Treatment, Storage and Disposal Facilities was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

SWLF
SRC#: 23

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for USGS Solid Waste Landfills was December, 1991.

This database is provided by the United States Geological Survey. The agency may be contacted at: 703-648-5613.



SWLF
SRC#: 354

VISTA conducts a database search to identify all sites within 1 mile of your property
The agency release date for Inactive and Closed Solid Waste Facilities was September, 1999.

This database is provided by the Dept. of Environmental Health Natural Resources, Solid Hazardous Waste Mgmt. The agency may be contacted at: 919-733-0692.

SWLF
SRC#: 355

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Solid Waste Facilities was September, 1999.

This database is provided by the Dept. of Environmental Health Natural Resources, Solid Hazardous Waste Mgmt. The agency may be contacted at: 919-733-0692.

LUST
SRC#: 352

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for North Carolina State Trust Fund Sites was December, 1999.

This database is provided by the Department of Environmental Health Natural Resources, Ground Water Operations. The agency may be contacted at: 919-715-6187

LUST
SRC#: 357

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Incident Report was March, 2000.

This database is provided by the Department of Environmental Health Natural Resources, Ground Water Operations. The agency may be contacted at: 919-715-6187

USGS-WELLS
SRC#: 3

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for USGS Water Wells was March, 1998.

The Ground Water Site Inventory (GWSI) database was provided by the United States Geological Survey (USGS). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used or documented during research.

C) DATABASES SEARCHED TO 3/4 MILE

RCRIS-VIOL
SRC#: 11

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for RCRIS Facilities with Violations was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. The RCRIS Other report contains information concerning facilities that are "unclassified" within the RCRIS database (not classified as a Large Quantity Generator, Transporter, etc.)



UST
SRC#: 353

VISTA conducts a database search to identify all sites within 3/4 mile of your property
The agency release date for Underground Storage Tanks was July, 1999.

This database is provided by the Department of Environmental Health Natural Resources, Div of Environmental Mgt. The agency may be contacted at 919-733-1308 Be advised that some states do not require registration of heating oil tanks, especially those used for residential purposes.

TRIS
SRC#: 2

VISTA conducts a database search to identify all sites within 3/4 mile of your property
The agency release date for Toxic Release Inventory System was January, 1998.

All facilities that manufacture, process, or import toxic chemicals in quantities in excess of 25,000 pounds per year are required to register with the EPA under Section 313 of the Superfund Amendments and Reauthorization Act (SARA Title III) of 1986. Data contained in the TRIS system covers approximately 20,000 sites and 75,000 chemical releases.

D) DATABASES SEARCHED TO 5/8 MILE

ERNS
SRC#: 8

VISTA conducts a database search to identify all sites within .625 mile of your property.
The agency release date for Emergency Response Notification System was August, 1999.

ERNS is a national computer database system that is used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party

RCRA-LQG
SRC#: 16

VISTA conducts a database search to identify all sites within .625 mile of your property
The agency release date for RCRIS Large Quantity Generators was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRIS-SQG
SRC#: 15

VISTA conducts a database search to identify all sites within .625 mile of your property.
The agency release date for RCRIS Small Quantity Generators was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small Quantity Generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.



SPILLS
SRC#: 356

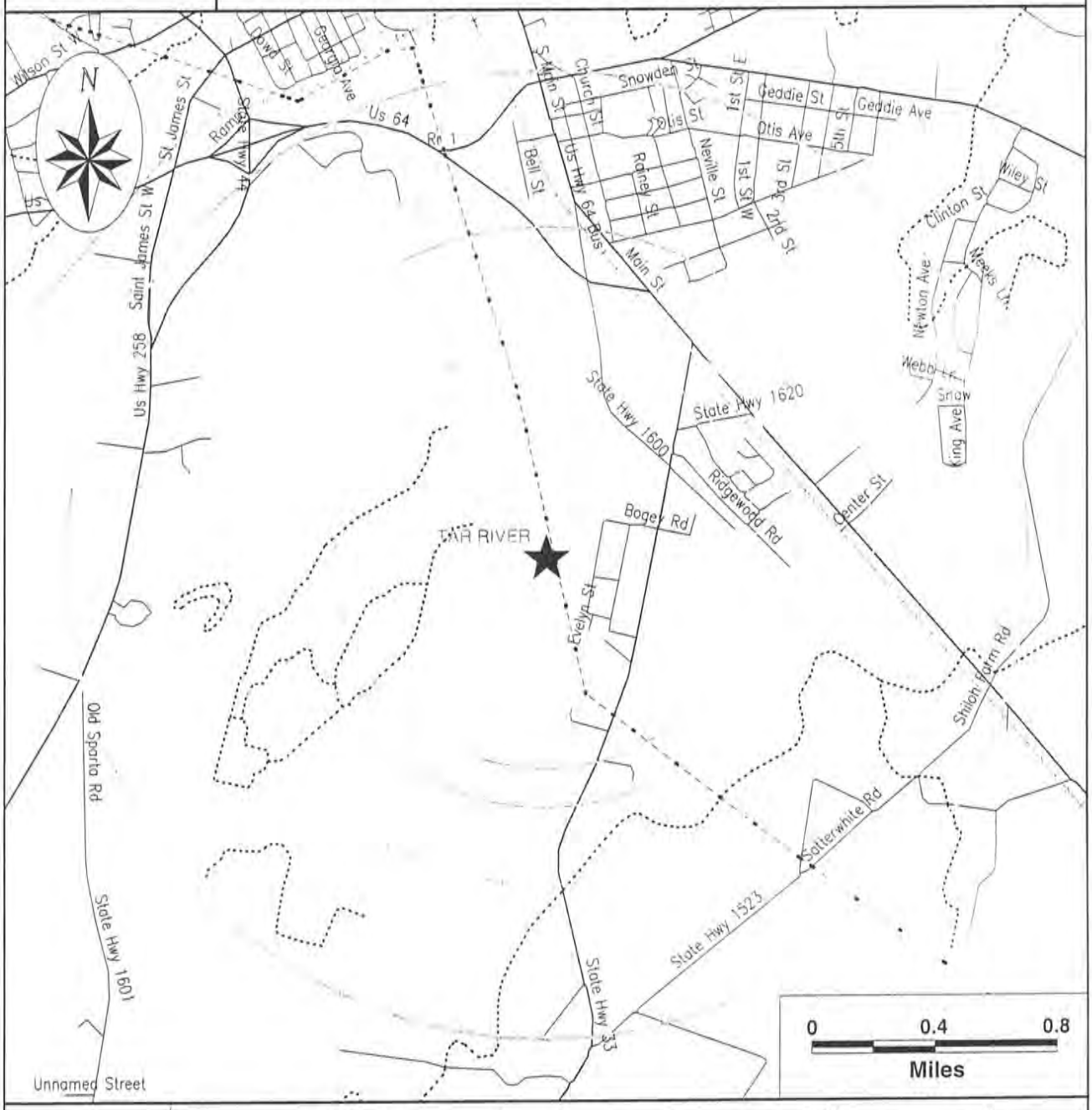
VISTA conducts a database search to identify all sites within .625 mile of your property.
The agency release date for Incident Report was March, 2000.

This database is provided by the Department of Environmental Health Natural Resources, Ground Water Operations. The agency may be contacted at: 919-715-6187.

End of Report

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

Map of Sites within 1 1/2 Miles



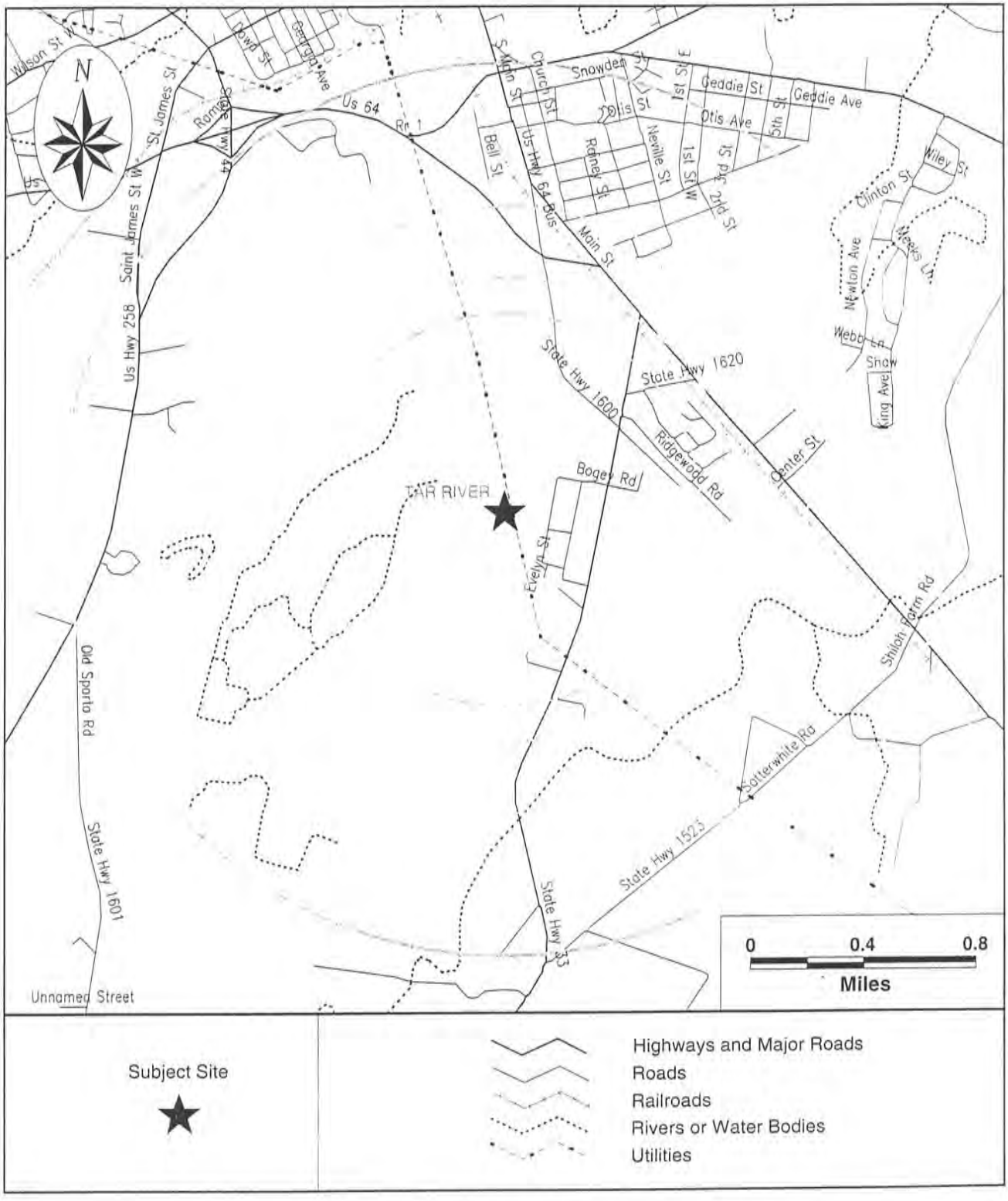
Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 1/2 mi.	1 mi.	3/4 mi.	5/8 mi.
	Single Sites	◆	□	△	○
	Multiple Sites	◆	□	△	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

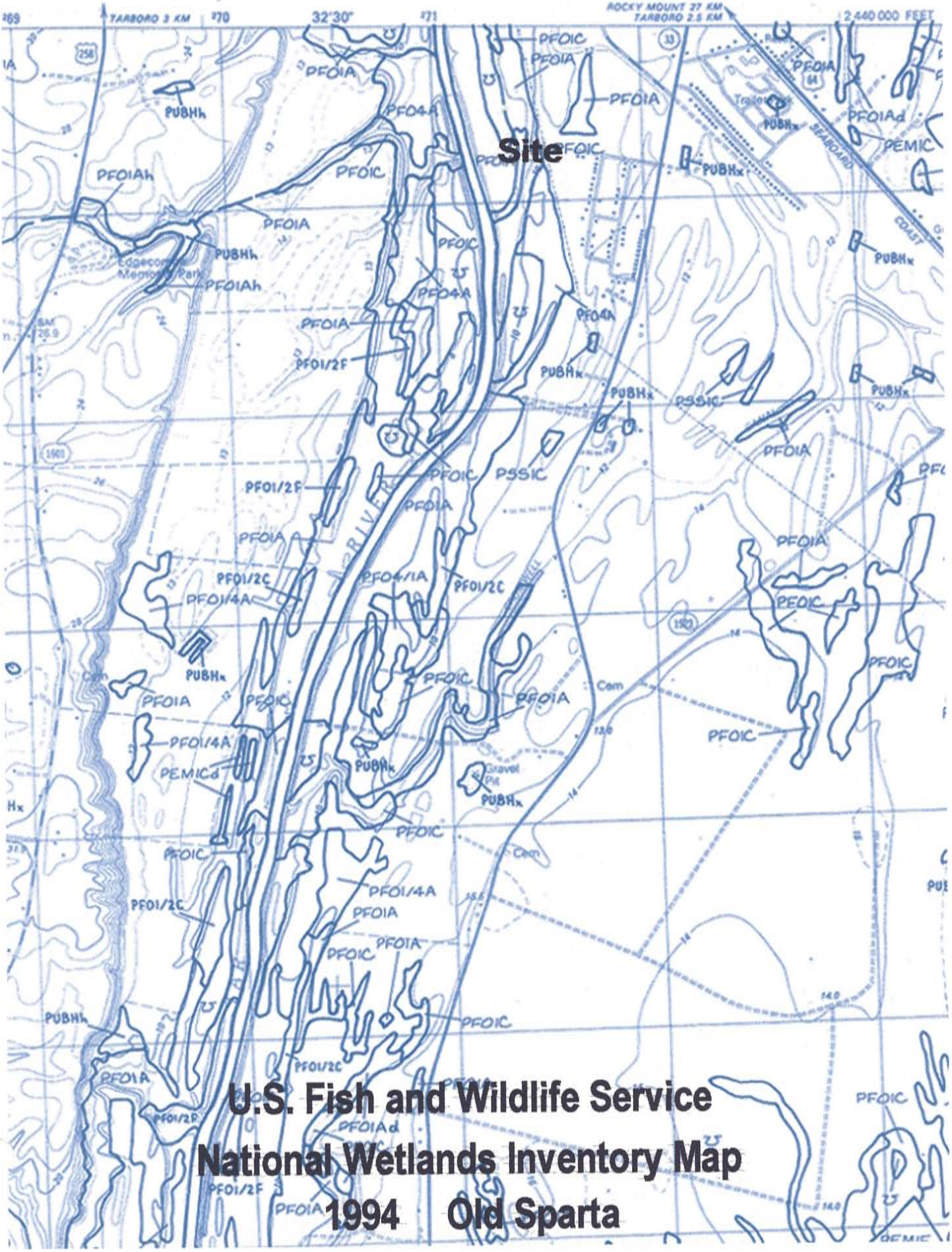
If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

SITE ASSESSMENT PLUS REPORT (EXTENDED BY 1/2 MILE)

Street Map



APPENDIX III


Site
U.S. Fish and Wildlife Service
National Wetlands Inventory Map
1994 Old Sparta

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

Form Approved
Budget Bureau No. 68-S-67022

COMMUNITY SOLID WASTE PRACTICES

LAND DISPOSAL SITE INVESTIGATION REPORT

2 (1)

STATE: NC	2 3: 3 2	2. COUNTY: Edgecombe	4 5 6: 0 6 5
3. SITE LOCATION (Political Jurisdiction): Princeville	7 8 9 10: 3 7 2 0		
4. NAME OF SITE: Princeville Refuse Disposal Area	11 12 13	5. ADDRESS OF SITE: Located adjacent to the Tar River, Princeville	14: 1
6. DATE OF SURVEY: DAY 15 16: 2 2; MONTH 17 18: 3; YEAR 19 20: 6 8			
7. NAME OF PERSON COMPLETING FORM: Fred J. Wood	8. TITLE: Dist. Sanitarian	9. ORGANIZATION AND ADDRESS: NC S.B.H. Raleigh	

10. POLITICAL JURISDICTIONS SERVED BY LAND DISPOSAL SITE

NAME OF POLITICAL JURISDICTION		ESTIMATED PERCENTAGE OF JURISDICTION SERVED BY SITE	AVERAGE DISTANCE OF SITE FROM CENTER OF SOURCE AREA (Miles)
Princeville	21 22 23 24: 3 7 2 0	25 26: 1 0 0	27 28: 1
	29 30 31 32	33 34	35 36
	37 38 39 40	41 42	43 44
	45 46 47 48	49 50	51 52

FOR ADDITIONAL ENTRIES, CHECK HERE ☐ (53) AND MAKE ENTRIES IN ITEM #45

11. SITE OPERATED BY
- [x] PUBLIC AGENCY
- [ ] PRIVATE AGENCY

54

12. SITE OWNED BY
- [ ] PUBLIC AGENCY
- [x] PRIVATE AGENCY

55

13. IS OPERATION REGULATED BY A HEALTH AUTHORITY? ☐ YES ☒ NO

IF YES, INDICATE LEVEL OF PRINCIPAL AUTHORITY (Check one only): ☐ COMMUNITY ☐ COUNTY ☐ STATE ☐ OTHER _____ (Specify)

56 57

14. GENERAL CHARACTER OF SITE (Check one only)
- [ ] QUARRY OR BORROW PIT
- [ ] GULLY-CANYON
- [x] LEVEL AREAS
- [ ] OTHER _____ (Specify)
- [ ] HILLSIDE
- [ ] MARSH, TIDELAND OR FLOOD PLAIN

Do not use 58

15. YEAR SITE PLACED IN OPERATION: 19 59 60: 6 5

16. ANTICIPATED LIFE REMAINING (Years): 61 62 63: 2 0

17. TOTAL AREA OF SITE (Acres): 64 65 66 67: 5

18. AREA TO BE USED FOR LAND DISPOSAL (Acres): 68 69 70 71: 4

19. ZONING / LAND USE SURROUNDING FACILITY (Check predominant type only)

ZONING
- [x] NONE
- [ ] RESIDENTIAL
- [ ] COMMERCIAL
- [ ] INDUSTRIAL
- [ ] AGRICULTURAL
- [ ] OTHER _____ (Specify)

LAND USE
- [ ] RESIDENTIAL
- [ ] COMMERCIAL
- [ ] INDUSTRIAL
- [x] AGRICULTURAL
- [ ] OTHER _____ (Specify)

72 73

20. IS USE OF COMPLETED SITE PLANNED? ☐ YES ☒ NO

IF YES, CHECK PREDOMINANT USE ONLY: ☐ RECREATIONAL AREA OR PARK ☐ PARKING LOT ☐ LIGHT CONSTRUCTION ☐ HEAVY CONSTRUCTION ☐ AGRICULTURE ☐ OTHER _____ (Specify) ☐ USE NOT DETERMINED

74

21. WILL PUBLIC AGENCY CONTROL COMPLETED SITE USE? ☐ YES ☒ NO

22. MATERIAL USED FOR COVER (Check one only): ☒ NONE ☐ EARTH ☐ OTHER _____ (Specify)

75 76

23. FREQUENCY OF COVER (Check one only): ☒ NONE ☐ DAILY (End of each working day) ☐ DAILY (Except face) ☐ OTHER _____ (Specify)

24. IS SPREADING AND COMPACTION OF REFUSE HANDLED IN APPROXIMATELY TWO-FOOT LAYERS OR LESS? ☐ YES ☒ NO

77 78

25. NUMBER OF DAYS DISPOSAL SITE COULD NOT BE USED BECAUSE OF WEATHER CONNECTED CONDITIONS (Enter average per year): 79 80: 0

26. GENERAL CHARACTER OF OPERATION (Judgment evaluation - check appropriate categories)

2 (14)

APPEARANCE	IS BLOWING PAPER CONTROLLED?	IS BLOWING PAPER CONSIDERED TO BE A NUISANCE?	ROUTINE BURNING	ARE THERE SURFACE DRAINAGE PROBLEMS?	ARE THERE LEACHING PROBLEMS?
☐ SIGHTLY	☐ YES	☐ YES	☐ NONE	☒ YES	☐ YES
☒ UNSIGHTLY	☒ NO	☒ NO	☒ UNCONTROLLED	☐ NO	☒ NO
15	16	17	☐ PLANNED AND LIMITED 18	19	20

PHS-4944-2 (4-67)

LAND DISPOSAL SITE INVESTIGATION REPORT (Page 2)

27. CONTROL PROGRAMS

		YES	NO	Do not use
RODENT CONTROL PROGRAM	NEEDED	X		21
	PROVIDED		X	22
FLY CONTROL PROGRAM	NEEDED	X		23
	PROVIDED		X	24
BIRD CONTROL PROGRAM	NEEDED		X	25
	PROVIDED		X	26
DUST CONTROL PROGRAM	NEEDED		X	27
	PROVIDED		X	28
ODOR CONTROL PROGRAM	NEEDED		X	29
	PROVIDED		X	30

28. IS LOWEST PART OF FILL IN WATER TABLE? ☐ YES ☒ NO — 31

29. FIRE PROTECTION ☒ NONE ☐ WATER ☐ FIREBREAK ☐ OTHER _____ (Specify) — 7

30. NUMBER OF TIMES FIRE CONTROL EQUIPMENT WAS REQUIRED AT SITE IN THE PAST YEAR 0 (33 34 35)

31. IS SALVAGING PERMITTED? ☒ YES ☐ NO — 36

32. IS SALVAGING PRACTICED? ☒ YES ☐ NO — 37

33. ESTIMATED NUMBER OF LOADS DEPOSITED DAILY (Average)

FROM PUBLIC COLLECTION VEHICLES (Enter number)	FROM PRIVATE COLLECTION VEHICLES (Enter number)	FROM OTHER VEHICLES (Specify) (Enter number)
2 (38 39 40)	(41 42 43)	(44 45 46)

3 (14)

34. ARE QUANTITATIVE RECORDS KEPT IN ANY FORM? ☐ YES ☒ NO — Do not use 47

35. QUANTITIES OF SOLID WASTES RECEIVED ANNUALLY

TONS WEIGHED								
	48	49	50	51	52	53	54	
TONS ESTIMATED								
	55	56	57	58	59	60	61	
CUBIC YARDS					6	2	4	0
	62	63	64	65	66	67	68	69

36. GENERAL CLASSIFICATION OF SOLID WASTES ACCEPTED AT DISPOSAL SITE (Check those accepted)

☒ HOUSEHOLD (70) ☐ INDUSTRIAL (72) ☐ INSTITUTIONAL (74)

☒ COMMERCIAL (71) ☐ AGRICULTURAL (73) ☐ INCINERATOR RESIDUE ONLY (75)

37. CHECK ANY ITEMS LISTED BELOW WHICH ARE EXCLUDED FROM THE DISPOSAL SITE

☐ ALL PUTRESCIBLES (15) ☐ SEWAGE SOLIDS (21) ☐ TIRES (27)

☐ ALL NON-COMBUSTIBLES (16) ☒ JUNKED AUTOMOBILES (22) ☐ HAZARDOUS MATERIALS (28)

☐ ALL COMBUSTIBLES (17) ☐ LARGE APPLIANCES (23) ☐ OTHER (Specify) (29) _____

☐ GARBAGE (18) ☐ DEMOLITION WASTES (24) ☐ OTHER (Specify) (31) _____

☐ DEAD ANIMALS (19) ☐ CONSTRUCTION DEBRIS (25)

☐ WASTE OIL (20) ☐ STREET SWEEPINGS (26) ☐ OTHER (Specify) (33) _____

30 — 32 — 34

38. EQUIPMENT AVAILABLE (Average utilized daily)

	NUMBER
DRAGLINE OR SHOVEL-TYPE EXCAVATORS (35 36)	0
SCRAPERS (Self-propelled) (37 38)	0
TRACTORS (Track or Rubber Tire) (Bulldozer or High Lift Loader) (39 40)	0
TRUCKS (41 42)	0
OTHER _____ (Specify) Do not use (43) (44 45)	0
OTHER _____ (Specify) Do not use (46) (47 48)	0

39. TOTAL NUMBER OF EMPLOYEES ON SITE (Average daily) 0 (49 50)

40. HOURS OF DAILY OPERATION (On a 24-hour clock) BEGIN 09 (51 52) END 17 (53 54)

41. NUMBER OF DAYS OPERATED PER WEEK 3 (55)

42. ANNUAL OPERATING COST (Including supervision and equipment maintenance) $ 100 (56 57 58 59 60 61 62)

43. IS THIS A SANITARY LANDFILL? ☐ YES ☒ NO — 63

44. IF SOURCES OTHER THAN REPORTER DESIGNATED IN ITEM 7 WERE UTILIZED IN COMPLETING THIS FORM, INDICATE BELOW THE SOURCES USED AND ITEM NUMBERS

NAME OF PERSON	TITLE	ORGANIZATION	ITEM NUMBER(S)
Mr Dorthy Adkins	Town Clerk	Princeville	10-13, 15-26, 27-4

ENVIRONMENTAL PROTECTION AGENCY
Office of Solid Waste Management Programs

Mailed 6-28-74

Form Approved
O.M.B. No. 158-R0038

Community Solid Waste Practices

LAND DISPOSAL SITE MODIFICATION REPORT

1. STATE: N.C. (2 3)
2. COUNTY: Edgecombe (4 5 6)
3. SITE LOCATION (POLITICAL JURISDICTION): Princeville (7 8 9 10)
4. NAME OF SITE: Princeville Refuse Disposal Area (11 12 13)
5. ADDRESS OF SITE: next to Tar River (14)
6. DATE OF REPORT: DAY 18 (15 16) MONTH 06 (17 18) YEAR 74 (19 20)
7. NAME OF PERSON COMPLETING FORM: Billy W. Morris
8. TITLE: Dist. San.
9. ORGANIZATION AND ADDRESS: N.C. Division of Health Services

10. Original Land Disposal Site Problems (check appropriate categories)

- [x] Burning (21)
- [x] Water Pollution (22)
- [x] Lack of Daily Cover (23)

11. Site Has Been (check A or B and appropriate actions completed)

A [x] Eliminated and; (24)
- [x] Rats Eradicated (25)
- [x] Burning Stopped (26)
- [x] Water Pollution Corrected (27)
- [x] Access Prohibited (28)
- [x] Site Covered (29)
- [ ] Other _____ (Specify) (30)

B [ ] Converted to Sanitary Landfill and; (31)
- [ ] Rats Eradicated (32)
- [ ] Burning Stopped (33)
- [ ] Water Pollution Corrected (34)
- [ ] Daily Cover Practiced (35)
- [ ] Other _____ (Specify) (36)

12. Reason for Modification (check one)

- [x] Law (37)
- [ ] Operation Completed (38)
- [ ] Other _____ (Specify) (39)

13. Date Modification Completed: Day 01 (40 41) Month 04 (42 43) Year 75 (44 45)

14. Waste Formerly Hauled to the Eliminated Site Now Being Hauled to:

	County	Site Location	Name of Site	Address	Tons or Percent
A	Edgecombe	S.R. 1601	Edgecombe Co. Landfill	S.R. 1601	100%
B					
C					
D					
E					

EPA-128 (C1R)
(Rev. 11-72)

ENVIRONMENTAL PROTECTION AGENCY
Office of Solid Waste Management Programs

4-3-74

Form Approved
O.M.B. No. 158-R0039

Community Solid Waste Practices
LAND DISPOSAL SITE MODIFICATION REPORT

1. STATE (2-3)	2. COUNTY (4-5-6)	3. SITE LOCATION (POLITICAL JURISDICTION) (7-8-9-10)
N.C.	Edgecombe	Pinetops

4. NAME OF SITE (11-12-13)	5. ADDRESS OF SITE (14)	6. DATE OF REPORT (15-16 / 17-18 / 19-20)
Pinetops Dump SUB VC	Co. Rd. 1124 W. of Town 1	DAY 25 MONTH 04 YEAR 74

7. NAME OF PERSON COMPLETING FORM	8. TITLE	9. ORGANIZATION AND ADDRESS
Billy W. Morris	Dist. San.	N.C. Division of Health Services

10. Original Land Disposal Site Problems (check appropriate categories)

- [x] Burning (21)
- [x] Water Pollution (22)
- [x] Lack of Daily Cover (23)

11. Site Has Been (check A or B and appropriate actions completed)

A [x] Eliminated and; (24)
- [x] Rats Eradicated (25)
- [x] Burning Stopped (26)
- [x] Water Pollution Corrected (27)
- [x] Access Prohibited (28)
- [x] Site Covered (29)
- [ ] Other _____ (Specify) (30)

B [ ] Converted to Sanitary Landfill and; (31)
- [ ] Rats Eradicated (32)
- [ ] Burning Stopped (33)
- [ ] Water Pollution Corrected (34)
- [ ] Daily Cover Practiced (35)
- [ ] Other _____ (Specify) (36)

12. Reason for Modification (check one)

- [x] Law (37)
- [ ] Operation Completed (38)
- [ ] Other _____ (Specify) (39)

13. Date Modification Completed (40-41 / 42-43 / 44-45)

Day 01 Month 04 Year 74

14. Waste Formerly Hauled to the Eliminated Site Now Being Hauled to:

	County	Site Location	Name of Site	Address	Tons or Percent
A	Edgecombe	Edgecombe Co.	Edgecombe Co. Landfill	S.R. 1605	100%
B					
C					
D					
E					

EPA-128 (Cin)
(Rev. 11-72)

APPENDIX IV

Hurricane Landfill As ,sment Questionnaire

Contract Number N200016

County:	Edgecombe	**Site's DENR ID Number:**	NONCD0000297
Site Name:	Princeville Dump	**S&ME, Inc. Project Number:**	1040-00-345 F

Question	Owner / Occupant / Public Official / Neighbor			Comments
1. Is the *Site* or any *adjoining Site* currently used for disposal of **trash, construction debris, used vehicles** and/or **other wastes**?	(Yes)	No	Unk[1]	
2. Is the *Site* or any *adjoining Site* used in the past for disposal of trash, construction debris, used vehicles and/or other wastes?	(Yes)	No	Unk	
3. Are you aware of any asbestos or asbestos containing materials disposed of at the *Site*?	Yes	No	(Unk)	
4. Are you aware of any **transformers, capacitors**, or any **hydraulic equipment** that was disposed of on the Site or for which there are any records indicating the presence of **PCBs**?	Yes	(No)	Unk	
5. Have you any knowledge of exposed waste materials on the Site.	Yes	(No)	Unk[1]	
6. Are there currently, or to the best of your knowledge have there been previously, any industrial **drums** (typically 55 gal (208 L) or **sacks of chemicals** located on the Site or at the facility?	Yes	(No)	Unk	
7. Are you aware or is there evidence of stained surface water or seeps at the site or adjacent to the *Site*?	Yes	No	(Unk)	
8. Are there currently, or to the best of your knowledge have there been previously, any **pits, ponds**, or **lagoons** located on the *Site*?	Yes	(No)	Unk	
9. Are there any streams on or flowing next to the *Site*?	(Yes)	No	Unk	
10. Is there currently any stained soil on the *Site* or unusual odors emanating from the *Site*?	Yes	(No)	Unk	
11. To the best of your knowledge have there been previously any **stained soil** on the *Site* or **unusual odors** emanating from the Site?	(Yes)	No	Unk	
12. Are there any areas of stressed vegetation or dead trees on the *Site*?	Yes	(No)	Unk	
13. Are there currently or to the best of your knowledge have there been previously any registered or unregistered storage tanks (above or underground) located on the *Site*?	Yes	(No)	Unk	

S&ME

Hurricane Landfill A. .sment Questionnaire
Contract Number N200016

County:	Edgecombe	**Site's DENR ID Number:**	NONCD0000297
Site Name:	Princeville Dump	**S&ME, Inc. Project Number:**	1040-00-345 F

Question	Owner / Occupant / Public Official / Neighbor			Comments
14. To the best of your knowledge, have there been any fires on the *Site*?	(Yes)	No	Unk	
15. Is the *Site* or adjoining properties served by a private well or non-public water system?	(Yes)	No	Unk	
16. If there is a private well non-public water system currently used on or are used at adjoining properties, have there been any unusual tastes, odors, or color in the water? Has the water been tested by the Health Dept.?	Yes	(No)	Unk	
17. Are you aware or suspect that groundwater is contaminated at the site or from adjoining property to the site?	Yes	(No)	Unk	
18. Are you aware of any erosion on the *Site*?	Yes	(No)	Unk	
19. Does the *owner* or *occupant* of the *Site* have any knowledge of environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the *Site* or any facility located on the *Site*?	Yes	(No)	Unk	

20. Miscellaneous Comments

This questionnaire was completed by:

Name: Dan Tomczak
Title: Environmental Scientist
Address: S&ME, Inc.
3118 Spring Forest Rd Raleigh, NC 27616
Phone No.: 919-872-2660
Date: 9-12-00

Person(s) responding to the questionnaire:

Name: Fred J. Wood
Address: 2614 Brookridge Circle Greenville, NC 27858
Phone No.: 252-756-3717
Relationship to Site: retired - Solid Waste Division
Date/Time: 9-12-00 9:30
(e.g., Owner, Occupant, Neighbor, Fire Marshal, Sheriff, or other Agency Representative)

Record of Communication

Project Name HLA - Edgecombe County **Location** Princeville Dump

Communications with: Mr. S Clark Jenkins

of: Clark Farms

Location: Tarboro, NC **Phone:** (252) 823-7029

Communication via: ( ) Telephone Conversation ( ) Discussions During Site Inspection

(X) Office Visitation/Meeting at Clark Farms office **( ) Other** _____

Recorded by: Dan Tomczak **of** S&ME

at: (time) 11:50 **on (date)** 8/7/00

Re: site access permission

Subject: properties of Princeville Dump and site north of Tarboro Landfill

Summary of Communication: Chris Hamblet and I introduced ourselves to Mr. Jenkins. He said that he had forwarded the site access permission letter to his lawyer. He said that the letter was "vague" and "was not interested" in giving us permission to access his properties. He said that any additional communication would be made by his lawyer. Chris and I asked him if we could answer any questions regarding the letter, but he stated that he "had nothing more to say".

~~**Conclusions, Actions Taken, Required, or Recommended:**~~ Chris and I thanked him for his time and left his office.

Follow up Required: When, With and By Whom: _____

Record of Communication

Project Name HLA - Edgecombe County Location Princeville Dump

Communications with: Mr. S. Clark Jenkins

of: Clark Farms

Location: Tarboro, NC Phone: (252) 823-7029

Communication via: (X) Telephone Conversation ( ) Discussions During Site Inspection

( ) Office Visitation/Meeting at _____ ( ) Other _____

Recorded by: Dan Tomczak of S&ME

at: (time) ___:___ on (date) 8/8/00

Re: site access permission

Subject: properties of Princeville Dump and site north of Tarboro Landfill

Summary of Communication: I phoned Mr. Jenkins and asked him if I could have the name and phone number of his lawyer to give to John Walch of NCDWM. He responded by asking "do I not speak English?" and then said that we would be contacted by his lawyer. He said that he now felt that he was being "harrassed" about this issue. I responded by stating that I only wanted his lawyer's name to give to NCDWM. He then stated that "we would not be given permission to access his property" and any further communications would be made through his lawyer. After he stated I thanked him for his time and ended the conversion.

~~Conclusions, Actions Taken, Required, or Recommended:~~

Follow up Required: When, With and By Whom: _____

APPENDIX V

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

FAX TRANSMITTAL RECORD

DATE: 8/28/00

TO: Ed Wobsteyn

FAX #: 790-9827

FROM: John Wolak, Superfund Section

RE: Landfill Access

Number of pages (including cover) 6

Comments:

Confirm receipt of document(s):

_____, Superfund Section (919) 733-2801, ext. _____

SF/slb(C:\WPWIN60\WPDOCS\SF\SF-FAX.FRM)

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER

FAX COVER SHEET

POYNER SPRUILL LLP
ATTORNEYS AT LAW

The information contained in the attached communication may be protected by attorney/client privilege. If you believe that it has been sent to you in error, do not read it. Please call 919.783.2915 and explain that you have received this communication in error. Then destroy it, or return it to the sender. Thank you.

TO			
Name	**Company**	**Telephone No.**	**Fax No.**
Wallace Finlator	Attorney General's Office	716-6600	716-6939

TOTAL PAGES (Including This Cover Sheet): 5

SUBJECT:

FROM

Name: Timothy F. Sullivan

Telephone: 919.783.2991

Date: August 29, 2000 **Time:**

COMMENTS: Wallace - Here are executed copies of the 2 site access permission forms re: the W.S. Clark Farms properties we discussed. Please call if you have any questions.

Tim

3500 Glenwood Avenue, Raleigh, NC 27612 • P.O. Box 10096, Raleigh, NC 27605-0096 • 919.783.6400 Tel • 919.783.1075 Fax

SITE ACCESS PERMISSION FORM

Site Name: Princeville Dump

Address: Bogey Farms

County: Edgecombe

Site ID Number: NONCD 0000297

I grant the State of North Carolina's contractor, S&ME, Inc., permission to inspect my property on 8/31/00 & 9/1/00 for the presence of hazards caused by the property's possible past use as a landfill or open dump. I understand that this inspection is for information gathering purposes only and S&ME will not be performing any invasive activities during this inspection, and is limited to a visual inspection.

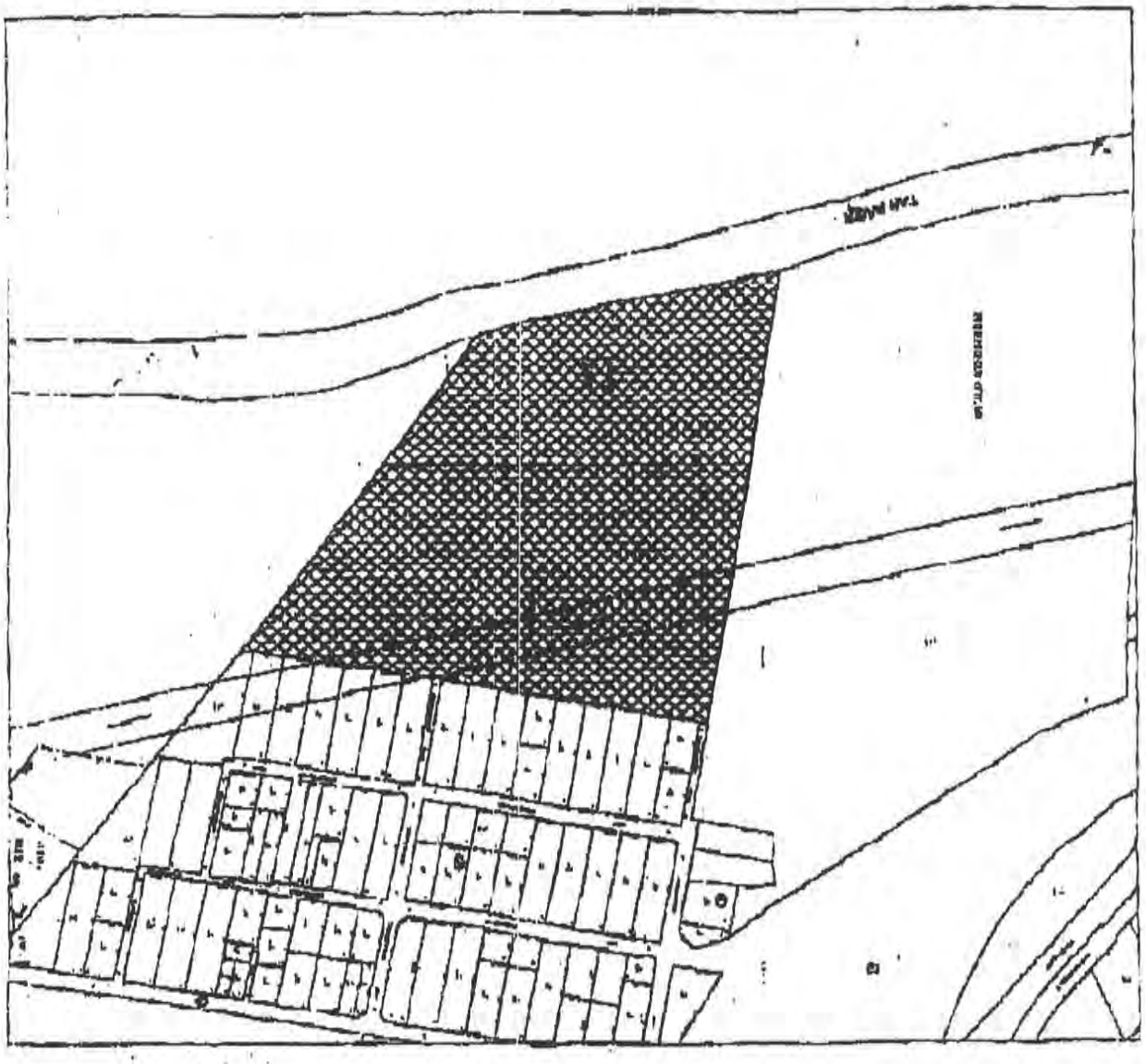
By signing this form, I am not assuming responsibility for any hazards that are found.

W. S. Clark Farms,
a North Carolina Partnership
By:

Property Owner: S. Clark Jenkins, Partner **Date:** 8/29/00
(signature)

Edgecombe County
Land Records / GIS

1 inch = 564.7719 Feet.
Date: 8/28/2000



Edgecombe County

Land Records / GIS



1 Inch = 564.7713 Feet.

Date : 7/26/2000

PIN=4737-44-6480
MAP=4737
ACCOUNT=84677
OWNER_1=W S CLARK FARMS
OWNER_2=
ADDRESS=P O BOX 310
CITYST=TARBORO, NC
ZIP= 27886
BK_PG=1145/0480
DOC_DATE=06/02/95
SALES_PRIC=
ADDL_REF=
PCLASSCODE=4
TAX_CODE=F06
STREET_NBR=
STREET_DIR=
STREET=SR 1001
STREET_SUF=
PROPERTY_D=BOGEY FARM
TWP=01
S_D_CODE=
S_D_LOT=
BLDG_VALUE=0
LAND_VALUE=15270
DEFERRMENT=8902
NET_VALUE=6368
ACREAGE=45.8000

Prepared by Edward B. Simmons, Attorney at Law

NORTH CAROLINA

EDGECOMBE COUNTY

WARRANTY DEED

THIS DEED, made this 20th day of April, 1995 from PLUMMER AND ASSOCIATES, a New York General Partnership, (also known as Plummer Associates, see Certificate of Assumed Name dated May 4, 1987 and recorded in Book 2, page 90, Edgecombe Public Registry), hereinafter called the Grantor, to W. S. CLARK FARMS, a North Carolina General Partnership, Post Office Box 250, Tarboro, North Carolina 27886, hereinafter called the Grantee;

WITNESSETH:

That the Grantor, for valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has bargained and sold and by these presents does bargain, sell and convey unto the Grantee, in fee simple, real property located in No. Two and No. One Townships, Edgecombe County, North Carolina and more particularly described on Schedule A which is attached hereto and incorporated herein by reference.

TO HAVE AND TO HOLD the aforesaid real property and all privileges and appurtenances thereto belonging to the Grantee in fee simple forever.

AND the Grantor covenants with the Grantee, its sucessors and assigns, that it is seized of said premises in fee and that it has the right to convey the same in fee simple; that the same are free and clear of all encumbrances; and that it will warrant and defend the title to the same against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the Grantor has hereunto caused this instrument to be executed in its partnership name by its duly authorized partners, this the day and year first above written.

PLUMMER AND ASSOCIATES, A
New York General Partnership

By: _____ (SEAL)
Francis P. Jenkins, Jr.
Partner

By: _____ (SEAL)
Christie L. Jenkins
Custodian for Lindsay V.
Jenkins under the New York
Uniform Gift to Minors Act
Partner

By: _____ (SEAL)
Christie L. Jenkins
Custodian for Francis P.
Jenkins III under the New York
Uniform Gift to Minors Act
Partner

By: _____ (SEAL)
Christie L. Jenkins
Custodian for Elizabeth M.
Jenkins under the New York
Uniform Gift to Minors Act
Partner

STATE OF North Carolina
COUNTY OF Edgecombe

I, Patricia F. Holland, a Notary Public in and for said County and State, do hereby certify that personally appeared before me this day FRANCIS P. JENKINS, JR. known to me to be one of the Partners of the general partnership of PLUMMER AND ASSOCIATES, a New York General Partnership, (also known as Plummer Associates, see Certificate of Assumed Name dated May 4, 1987 and recorded in Book 2, page 90, Edgecombe Public Registry), and to me known to be the person described in and who executed the foregoing instrument in the partnership name of PLUMMER AND ASSOCIATES, and he acknowledged that he executed the same as the act and deed of said partnership for the uses and purposes therein expressed.

Witness my hand and seal, this 28th day of April, 1995.

My commission expires June 5, 1996.

Patricia F. Holland
Notary Public

STATE OF North Carolina
COUNTY OF Edgecombe

I, Patricia F. Holland, a Notary Public in and for said County and State, do hereby certify that personally appeared before me this day CHRISTIE L. JENKINS in her capacity as Custodian for Lindsay V. Jenkins, Francis P. Jenkins III and Elizabeth M. Jenkins, under the New York Uniform Gifts to Minors Act, to me known to be the person described in and who executed the foregoing instrument in the partnership name of PLUMMER AND ASSOCIATES, a New York General Partnership, (also known as Plummer Associates, see Certificate of Assumed Name dated May 4, 1987 and recorded in Book 2, page 90, Edgecombe Public Registry), and she acknowledged that she executed the same as the act and deed of said partnership for the uses and purposes therein expressed.

Witness my hand and seal, this 28th day of April, 1995.

My commission expires June 5, 1996.

Patricia F. Holland
Notary Public

NORTH CAROLINA, EDGECOMBE COUNTY
The foregoing certificate (s) of
Patricia F. Holland
A Notary Public, is (are) certified to be correct. This instrument was presented for registration and recorded in this office in Book 1145 Page 480
This 2 day of June 1995
at 3:55 o'clock P M.
Gladys Shelton Pitt
Register of Deeds
By Bettie L. Godfrey Assistant

(over)

SCHEDULE A

PARCEL ONE: Being located near the Town of Princeville in Township No. 2, Edgecombe County, North Carolina, and being all of that property referred to as the Bottoms Farm, and at various times referred to as the Barlow or Sessoms Land, and containing 107 acres, more or less, located on both sides of S.R. 1523 (also known as Shiloh Farm Road) and more particularly described as follows:

Those two parcels of land lying and being situate south of the road leading from Mildred to Tarboro (currently U. S. Highway 64) and being Lot No. 2 containing 55 acres and Lot No. 3 containing 52.75 acres as shown and described on the map entitled "Subdivision of W. A. Hart near Tarboro, Scale 1" = 400' Date 12-12-13, Eng. R.R. Brown," and recorded in Map Book 3, page 341, Edgecombe County Public Registry. It is the identical land conveyed to W. S. Clark and Sons, Incorporated by Stephen L. Beaman, Bankruptcy Trustee, by deed recorded in Book 958, page 402 of said Registry (FIRST TRACT therein); and being all of Tract No. 2 conveyed by deed from W. S. Clark Farms to Plummer and Associates, recorded in Book 1116, page 624, Edgecombe Public Registry.

PARCEL TWO: BEGINNING at a hickory standing on the bank of Tar River, a corner of Lot No. 3, thence running S. 52 deg. E. 43.85 chains to a stake standing on the east side of the old Sparta Road, a corner of Lot No. 3, thence S. 72 deg. 45 min. E. 11.97 chains to a stake on a ditch, a corner of Lot No. 3, thence S. 31 deg. E. 31 chains to a stake on the canal, corner of Lot No. 3, thence up the canal the following courses and distances, N. 62 deg. 15 min. E. 5 chains, N. 71 deg. 45 min. E. 3.60 chains, N. 64 deg. 15 min. E. 3 chains, N. 56 deg. E. 5.18 chains, N. 29 deg. 45 min. E. 3.09 chains N. 1 deg. 30 min. E. 4.15 chains, N. 9 deg. W. 4.27 chains, N. 10 deg. 5 min. E. 3.10 chains and N. 28 deg. E. 1.72 chains to a corner on said canal with Lot No. 1, thence along the line of Lot No. 1, N. 57 deg. W. 47.10 chains to a stake standing on the east side of the Old Sparta Road, a corner of Lot No. 1, thence along the line of Lot No. 1 and along and with said road N. 13 deg. E. 15.58 chains to a stake standing on the east side of said road at the mouth of the lane, a corner of Lot No. 1, thence along and with said lane and the line of Lot No. 1, N. 79 deg. W. 46.40 chains to a stake on the bank of Tar River, a corner of said Lot No. 1, thence down said River to the beginning, containing 210.63 acres, more or less.

BUT THERE IS EXPRESSLY EXCEPTED FROM SAID PROPERTY that portion thereof shown as residential lots and streets on four maps recorded in Map Book 9, at page 4, Map Book 9 at page 8, Map Book 10, at page 1, and Map Book 10, at page 2, of the Edgecombe Public Registry and reference is hereby made to said maps for further description of said excepted property.

The above-described tract of land was conveyed to W. S. Clark & Sons, Inc. by W. C. Bogey and wife, Annie C. Bogey, by Deed duly recorded in Book 354, page 242, Edgecombe Public Registry, to which Deed reference is made for further description. This property is also known as the Bogey Farm, containing approximately 171 acres.

Prepared by Edward B. Simmons, Attorney at Law, Tarboro, North Carolina

NORTH CAROLINA

EDGECOMBE COUNTY

THIS DEED OF RELEASE, made and entered into this the 21st day of April, 1995, by and between First Title Insurance Company, Trustee, hereinafter called Trustee, and FBS AG Credit, Inc., hereinafter called Beneficiary (whether a corporation or one or more persons), parties of the first part; and W. S. Clark Farms, S. Clark Jenkins Francis P. Jenkins, Jr. and/, parties of the second part, (whether a corporation or one or more persons);

WITNESSETH:

THAT WHEREAS, said parties of the second part heretofore executed to the said Trustee a certain Deed of Trust dated September 24, 1992, and recorded in Book 1091, Page 08 and re-recorded in Book 1103, page 183, in the office of the Register of Deeds of Edgecombe County, North Carolina, to secure a certain note or notes therein set out in the amount of $ 617,497.00 and payable to the Beneficiary; and whereas, said Beneficiary is the owner and holder of said note or notes; and whereas, said parties of the second part have requested the said Beneficiary to release from the lien of said Deed of Trust so much of the land therein conveyed as is hereinafter described and the said Beneficiary has agreed to do so and has requested said Trustee to join in said release,

NOW, THEREFORE, said parties of the first part, for and in consideration of the sum of Five and no/100 ($5.00) Dollars paid to them by the parties of the second part, the receipt of which is hereby acknowledged, have remised and released, and by these presents do remise, release, and forever quitclaim unto the said parties of the second part, their heirs, successors, and assigns that certain tract or parcel of land situated in Edgecombe County, North Carolina, and more particularly described as follows:

See Schedule A which is attached hereto and incorporated herein by reference.

TO HAVE AND TO HOLD, said lands and premises, together with all privileges and appurtenances thereunto belonging, to them, the said parties of the second part, and their heirs, successors and assigns, free and discharged from the lien of the Deed of Trust recorded in Book 1091, Page 08, in the office of the Register of Deeds of Edgecombe County, North Carolina, and hereinabove referred to.

But it is understood and agreed that this release shall apply only to so much of said lands as are herein expressly described and conveyed and that as to the remainder of said lands described in said Deed of Trust, said Deed of Trust shall be and remain in full force and effect.

IN WITNESS WHEREOF, the said Trustee, of the first part, ~~has hereunto set his hand and seal~~, and the said FBS AG Credit, Inc., of the first part, ~~has~~ have caused this instrument to be signed in its ~~name by its~~ corporate name by its duly authorized officers and its corporate seal hereunto attached, all by authority duly given, the day and year first above written.

(CORPORATE SEAL)

ATTEST: Patsy J. Edwards
~~Secretary~~ Asst. Secretary

FIRST TITLE INSURANCE COMPANY, Trustee

By: Kimberly M. Isbell
~~Vice~~ Assistant Vice President

(CORPORATE SEAL)

ATTEST: Tokie Akrie
Assistant Secretary

FBS AG CREDIT, INC.

BY: David A. Davis
Assistant Vice President

STATE OF ~~COLORADO~~ North Carolina
COUNTY OF Wake

I, the undersigned, a Notary Public in and for said County and State, do hereby certify that Patsy J. Edwards personally appeared before me this day and acknowledged that she is ASST. Secretary of FIRST TITLE INSURANCE COMPANY, a corporation, Trustee, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its Vice President, sealed with its corporate seal, and attested by ~~himself~~ her as its Asst. Secretary.

Witness my hand and seal, this 26th day of May, 1995.

My commission expires 5-18-97.

Connie Morgan Caudle
Notary Public

(SEAL)

~~NORTH CAROLINA~~ STATE OF COLORADO
CITY AND COUNTY OF DENVER

I, Jean E. Miller, a Notary Public, do hereby certify that Tokie Akrie personally came before me this day and acknowledged that ~~he~~ she is Asst. Secretary of FBS AG CREDIT, INC., a corporation, and that by authority duly given, and as the act of the corporation, the foregoing instrument was signed in its name by its Asst. Vice President, sealed with its corporate seal, and attested by ~~himself~~ her as its Asst. Secretary.

Witness my hand and Notarial Seal this the 24th day of May 19 95.

My Commission Expires: 7/28/96

Jean E. Miller
Notary Public 950 Seventeenth Street
Denver, CO 80202

NORTH CAROLINA
Edgecombe County

The foregoing certificate of Connie Morgan Caudle and Jean E. Miller, each a Notary Public, is certified to be correct. This instrument was presented for registration and recorded in this office in Book 1145, Page 484.

This the 2 day of June, 19 95 at 3:55 o'clock P. M.

Gladys Shelton P.T.T.
Register of Deeds
By: Kelli L. Godfrey Asst.

SCHEDULE A

PARCEL ONE:

Being located near the Town of Princeville in Township No. 2, Edgecombe County, North Carolina, and being all of that property referred to as the Bottoms Farm, and at various times referred to as the Barlow or Sessoms Land, and containing 107 acres, more or less, located on both sides of S.R. 1523 (also known as Shiloh Farm Road, and more particularly described as follows:

Those two parcels of land lying and being situate south of the road leading from Mildred to Tarboro (currently U.S. Highway 64) and being Lot No. 2 containing 55 acres and Lot No. 3 containing 52.75 acres as shown and described on the map entitled "Subdivision of W. A. Hart near Tarboro, Scale 1"=400' Date 12-12-13, Eng. R.R. Brown", and recorded in Map Book 3, Page 341, Edgecombe County Public Registry. It is the identical land conveyed to W. S. Clark and Sons, Incorporated by Stephen L. Beaman, Bankruptcy Trustee, by deed recorded in Book 958, Page 402 of said Registry (FIRST TRACT therein); and being all of Tract No. 2 conveyed by deed from W. S. Clark Farms to Plummer and Associates, recorded in Book 1116, Page 624, Edgecombe Public Registry.

PARCEL TWO:

Being located near the Town of Princeville in Township No. 1, Edgecombe County, North Carolina, and being all of that part of the Bogey Farm located on the east side of N.C. Highway 33 containing 97 acres, more or less, and more particularly described as follows:

Beginning at a point in the eastern right of way line of N.C. Highway 33 located S. 72 deg. 45 min. E. from an Iron Stake located in the western right of way line of N.C. Highway 33, a road connecting the Town of Tarboro to the north and the community of Penny Hill to the south, the southern Controll [sic] Corner shown on "Property of W. S. Clark & Sons recorded in Map Book 10, Page 1, Edgecombe Public Registry: from said Iron Stake, across N.C. Highway 33 and through the BEGINNING POINT thus determined along and with the Lancaster line, S. 72 deg. 45 min. E., 790 feet to a point; thence continuing with the Lancaster line, S. 31 deg. 00 min. E., 2046 feet to the bank of a canal, cornering; thence the following courses and distances along and with the north and west bank of the canal: N. 62 deg. 15 min. E., 330 feet; N. 71 deg. 45 min. E., 237.6 feet; N. 64 deg. 15 min. E., 198 feet; N. 56 deg. 00 min. E., 341.8 feet; N. 29 deg. 45 min. E., 203.9 feet; N. 01 deg. 30 min. E., 273.9 feet; N. 9 deg. 00 min. W., 281.8 feet; N. 10 deg. 15 min. E., 204.6 feet; and N. 28 deg. 00 min. E., 119.5 feet to a common corner with Davenport, cornering; thence with the Davenport line (now Barnhill Contracting Company and Edgecombe-Martin County Electric Membership Corporation), N. 57 deg. 00 min. W., 3108.6 feet to a point in the eastern right of way line of N.C. Highway 33, cornering; thence along and with the eastern right of way line of N.C. Highway 33, S. 13 deg. 00 min. W. to a point in the Lancaster line located S. 72 deg. 45 min. E. from an Iron Stake in the western right of way line of N.C. Highway 33, the point and place of BEGINNING; and being all of that property shown in the map entitled "Bogey Farm, Property of W. S. Clark & Sons, located in No. 2 [No. 1] Township, Edgecombe Co., N.C., Map by Robert F. Wilson, R.L.S., Tarboro, N.C., Scale: 1"=400', Feb. 16, 1952" which is located on the east side of N.C. Highway 33, and being a part of that property conveyed to W. S. Clark & Sons, Inc. by W. C. Bogey and his wife, Annie C. Bogey, by deed dated January 12, 1957, recorded in Book 354, Page 242, Edgecombe Public Registry; and being part of Tract No. 1 conveyed by deed from W. S. Clark Farms to Plummer and Associates, recorded in Book 1116, Page 624, Edgecombe Public Registry.

Partial Release
(Trust Deed)

Whereas W.S. CLARK FARMS, a North Carolina Partnership executed a certain trust deed to Robert L. Clinkscales as trustee and Metropolitan Life Insurance Company of New York, New York, beneficiary, dated September 11, 1989, to secure the payment of THREE HUNDRED TEN THOUSAND AND NO/100 DOLLARS, said trust deed being of record in the office of the Register of Deeds of Edgecombe County, North Carolina, In Book 1036 of Trust Deeds, on Page 211-219; and

Whereas, Metropolitan Life Insurance Company has been requested to release a tract of 108 acres, more or less, of the premises described in said trust deed from the lien thereof:

Now, therefore, know all men by these presents, that in consideration of the sum of FIFTY FIVE THOUSAND AND NO/100 DOLLARS, lawful money of the United States of America, paid to the Metropolitan Life Insurance Company, at the execution and delivery hereof, the receipt of which is hereby acknowledged, said Robert L. Clinkscales, trustee, as aforesaid, and Metropolitan Life Insurance Company, beneficiary, as aforesaid, have remised, released, and quit-claimed, and by these presents do remise, release and quit-claim unto the said mortgagor, his heirs and assigns, land and premises situate in the County of Edgecombe and State of North Carolina, to wit:

Tract 1: (Barlow or Sessoms Land)
Those two parcels of land lying and being situate in No. 2 Township, Edgecombe County, North Carolina on the south side of the road leading from Mildred to Tarboro and being Lot No. 2 containing 55 acres and Lot No. 3 containing 52.75 acres as shown and described on the Map entitled, "Subdivision W.A. Hart near Tarboro, Scale 1" 400' Date 12-12-13, Eng. R. R. Brown" and recorded in Map Book 3, page 341, Edgecombe County Public Registry. It is the identical land conveyed to Samuel N. Clark by William A. Hart and wife, Lizzie D. Hart, by deed recorded in Book 172, page 72 of said Registry and devised by the said Samuel N. Clark to his son, Sam N. Clark, Jr. by Will filed in the Office of the Clerk of Superior Court of Edgecombe County. Reference is made to said Map, Deed and Will and to the records therein referred to for further description. Containing in all 108 acres more or less.

To Have and to Hold, the Same With the Appurtenances unto the said mortgagors, his heirs and assigns, forever freed, exonerated and discharged of and from the lien of said trust deed, and of every part thereof, provided always, nevertheless, that nothing herein contained shall in anywise affect, alter or diminish the lien or encumbrance of the aforesaid trust deed on the remaining part of said real estate, described in said trust deed, or the remedies at law for recovering from the said party, his heirs, executors, administrators, and assigns, the balance of said trust deed indebtedness with interest.

In Witness Whereof, said Robert L. Clinkscales, trustee, as aforesaid, has hereunto set his hand and seal; and Metropolitan Life Insurance Company, as aforesaid, has hereunto set its corporate seal attested by its proper officers this 2nd day of June, 1995.

Robert L. Clinkscales [SEAL]
Robert L. Clinkscales, trustee

METROPOLITAN LIFE INSURANCE COMPANY

ATTEST

By Leo T. Rasmussen by
LEO T. RASMUSSEN SENIOR VICE PRESIDENT

Darrell J. Smith
Assistant Secretary
DARRELL J. SMITH

STATE OF NORTH CAROLINA)
)ss.:
COUNTY OF Edgecombe)

I, Billie Pickette, a Notary Public in and for said County and State, do hereby certify that Robert L. Clinkscales, personally appeared before me this date and acknowledged the due execution of the foregoing instrument as trustee.

Witness my hand and official seal this 2nd day of June, 1995

My commission expires: 9-9-96

Billie Pickette
Notary Public

STATE OF KANSAS)
)ss.:
COUNTY OF JOHNSON)

This is to certify that on the 16th day of May, 1995, before me personally came LEO T. RASMUSSEN, with whom I am personally acquainted, who being by me duly sworn, says that he is the SENIOR VICE PRESIDENT and that DARRELL J. SMITH is the Assistant Secretary of the Metropolitan Life Insurance Company, the Corporation described in, and which executed the foregoing instrument; that he knows the common seal of the said Corporation; that the seal affixed to the foregoing instrument is the common seal; and the name of the Corporation was subscribed thereto by the said LEO T. RASMUSSEN and that the said SENIOR VICE PRESIDENT and Assistant Secretary subscribed their names thereto and the common seal was affixed all by order of the Board of Directors of the said Corporation, and that the said instrument is the act and deed of the said Corporation.

Witness my hand and official seal this 16th, day of May, 1995.

NONA KAY JAIMES
Notary Public - State of Kansas
My Appt. Expires 9-13-97

Nona Kay Jaimes
Notary Public

X16 64 96 - W.S. CLARK FARMS - Edgecombe County, North Carolina

NORTH CAROLINA, EDGECOMBE COUNTY
The foregoing certificate(s) of Billie Pickette and Nona Kay Jaimes each a Notary Public (is) (are) certified to be correct. This instrument was presented for registration and recorded in Book 1145 Page 487 this the 2 day of June 19 95 at 3:55 o'clock P M.
Gladys Shelton Pitt, *Register of Deeds* By Bettie L. Godfrey
Asst./Deputy

(Partial Release Page 2)

Partial Release
(Trust Deed)

Whereas W.S. Clark Farms, A North Carolina Partnership, executed a certain trust deed to Robert L. Clinkscales as trustee and Metropolitan Life Insurance Company of New York, New York, beneficiary, dated December 9, 1994, to secure the payment of ONE MILLION EIGHT HUNDRED FIFTY THOUSAND AND NO/100 DOLLARS, said trust deed being of record in the office of the Register of Deeds of Edgecombe County, North Carolina, in Book 1135 of Trust Deeds, on Page 909 and with the Register of Deeds of Martin County, North Carolina, in Book X-14 of Trust Deeds, on Page 76; and

Whereas, Metropolitan Life Insurance Company has been requested to release a tract of 171 acres, more or less, of the premises described in said trust deed from the lien thereof:

Now, therefore, know all men by these presents, that in consideration of the sum of NINETY THREE THOUSAND AND NO/100 DOLLARS, lawful money of the United States of America, paid to the Metropolitan Life Insurance Company, at the execution and delivery hereof, the receipt of which is hereby acknowledged, said Robert L. Clinkscales, trustee, as aforesaid, and Metropolitan Life Insurance Company, beneficiary, as aforesaid, have remised, released, and quit-claimed, and by these presents do remise, release and quit-claim unto the said mortgagor, his heirs and assigns, land and premises situate in the County of Edgecombe and State of North Carolina, to wit:

For legal description, see attached Exhibit A.

To Have and to Hold, the Same With the Appurtenances unto the said mortgagors, his heirs and assigns, forever freed, exonerated and discharged of and from the lien of said trust deed, and of every part thereof, provided always, nevertheless, that nothing herein contained shall in anywise affect, alter or diminish the lien or encumbrance of the aforesaid trust deed on the remaining part of said real estate, described in said trust deed, or the remedies at law for recovering from the said party, his heirs, executors, administrators, and assigns, the balance of said trust deed indebtedness with interest.

In Witness Whereof, said Robert L. Clinkscales, trustee, as aforesaid, has hereunto set his hand and seal; and Metropolitan Life Insurance Company, as aforesaid, has hereunto set its corporate seal attested by its proper officers this 15th day of March, 1995.

Robert L. Clinkscales [SEAL]
Robert L. Clinkscales, trustee

METROPOLITAN LIFE INSURANCE COMPANY

By Leo T. Rasmussen
LEO T. RASMUSSEN SENIOR VICE PRESIDENT

ATTEST

Assistant Secretary
DARRELL J. SMITH

(Partial Release Page 1)

STATE OF NORTH CAROLINA)
)ss.:
COUNTY OF Edgecombe)

I, Karen Dew, a Notary Public in and for said County and State, do hereby certify that Robert L. Clinkscales, personally appeared before me this date and acknowledged the due execution of the foregoing instrument as trustee.

Witness my hand and official seal this 15th day of March, 1995

My commission expires: Jan. 30, 2000

Karen Dew
Notary Public

OFFICIAL SEAL
KAREN DEW
NOTARY PUBLIC–NORTH CAROLINA
EDGECOMBE COUNTY, NC
My Commission Expires _____

STATE OF KANSAS)
)ss.:
COUNTY OF JOHNSON)

This is to certify that on the 1st day of March, 1995, before me personally came LEO T. RASMUSSEN, with whom I am personally acquainted, who being by me duly sworn, says that he is the SENIOR VICE PRESIDENT and that DARRELL J. SMITH is the Assistant Secretary of the Metropolitan Life Insurance Company, the Corporation described in, and which executed the foregoing instrument; that he knows the common seal of the said Corporation; that the seal affixed to the foregoing instrument is the common seal; and the name of the Corporation was subscribed thereto by the said LEO T. RASMUSSEN and that the said SENIOR VICE PRESIDENT and Assistant Secretary subscribed their names thereto and the common seal was affixed all by order of the Board of Directors of the said Corporation, and that the said instrument is the act and deed of the said Corporation.

Witness my hand and official seal this 1st, day of March, 1995.

NONA KAY JAIMES
Notary Public – State of Kansas
My Appt. Expires 9-13-97

Nona Kay Jaimes
Notary Public

NORTH CAROLINA, EDGECOMBE COUNTY
The foregoing certificate (s) of Karen Dew and Nona Kay Jaimes, each
A Notary Public, is (are) certified to be correct.
This instrument was presented for registration and recorded in this office in Book 1145 Page 489
This 2 day of June 1995
at 3:55 o'clock P M.
Gladys Shelton Pitt
Register of Deeds
By Bettie L. Godfrey Assistant

X17 00 42 W.S. Clark Farms

(Partial Release Page 2)

(over) 19

EXHIBIT A

(BOGEY FARM, APPROXIMATELY 171 ACRES, NUMBER 1 TOWNSHIP, EDGECOMBE COUNTY)

That certain tract or parcel of land lying and being in No. 1 Township, Edgecombe County, North Carolina, being well known as the Bogey Farm, adjoining the lands of W. E and W. L. Page, Mrs. Effie Latham and others, and being Lot No. 2 in the division of the Home Place of the late W. M. Edmondson and more particularly described as follows: Beginning at a hickory standing on the bank of Tar River, a corner of Lot No. 3, thence running south 52 degrees east 43.85 chains to a stake standing on the east side of the old Sparta Road, a corner of Lot No. 3, thence south 72 degrees 45 minutes east 11.97 chains to a stake on a ditch, a corner of Lot No. 3, thence south 31 degrees east 31 chains to a stake on the canal, corner of Lot No. 3 thence up the canal the following courses and distances, north 62 degrees 15 minutes east 5 chains, north 71 degrees 45 minutes east 3.60 chains, north 64 degrees 15 minutes east 3 chains, north 56 degrees east 5.18 chains, north 29 degrees 45 minutes east 3.09 chains, north 1 degree 30 minutes east 4.15 chains, north 9 degrees west 4.27 chains, north 10 degrees 5 minutes east 3.10 chains and north 28 degrees east 1.72 chains to a corner on said canal with Lot No. 1, thence along the line of Lot No. 1, north 57 degrees west 47.10 chains to a stake standing on the east side of the old Sparta Road, a corner of Lot No. 1, thence along the line of Lot No. 1 and along and with said road north 13 degrees east 15.58 chains to a stake standing on the east side of said road at the mouth of the lane, a corner of Lot No. 1 thence along and with said lane and the line of Lot No. 1, north 79 degrees west 46.40 chains to a stake on the bank of Tar River, a corner of said lot no. 1, thence down said River to the beginning, containing 210.63 acres, more or less, and being the identical lot or parcel of land described in deed from T. L. Collin's and others to Annie C. Bogey, duly recorded in Book 275, page 519 of the Edgecombe County Registry, to which reference is hereby made. The above described tract of land was conveyed to W. S. Clark & Sons, Inc. by W. C. Bogey and wife, Annie C. Bogey by deed duly recorded in Book 354, page 242, Edgecombe Public Registry, to which deeds and the deeds and other records therein referred to reference is made for further description. THERE IS EXPRESSLY EXCEPTED FROM THE ABOVE-DESCRIBED TRACT OF LAND that portion thereof shown as residential lots and streets on four maps recorded in Map Book 9, at page 4, Map Book 9, at page 8, Map Book 10, at page 1, and Map Book 10, at page 2 of the Edgecombe Public Registry and reference is hereby made to said maps for further description of said excepted property.

Prepared by Edward B. Simmons, Attorney at Law

NORTH CAROLINA

EDGECOMBE COUNTY

WARRANTY DEED

THIS DEED, made this 20th day of April, 1995 from W. S. CLARK FARMS, a North Carolina General Partnership, hereinafter called the Grantor, to H. M. ETHERIDGE, JR. and wife, SHIRLEY DAVENPORT ETHERIDGE, Route 4, Box 9, Tarboro, North Carolina 27886, hereinafter called the Grantees;

WITNESSETH:

That the Grantor, for valuable consideration paid by the Grantees, the receipt of which is hereby acknowledged, has bargained and sold and by these presents does bargain, sell and convey unto the Grantees, in fee simple, real property located in No. Two and No. One Townships, Edgecombe County, North Carolina and more particularly described on Schedule A which is attached hereto and incorporated herein by reference.

STATE OF NORTH CAROLINA Real Estate Excise Tax 500.00 P.B. 10702 JUN-2-95

TO HAVE AND TO HOLD the aforesaid real property and all privileges and appurtenances thereto belonging to the Grantees in fee simple forever.

AND the Grantor covenants with the Grantees, their heirs and assigns, that it is seized of said premises in fee and that it has the right to convey the same in fee simple; that the same are free and clear of all encumbrances; and that it will warrant and defend the title to the same against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the Grantor has hereunto caused this instrument to be executed in its partnership name by its duly authorized partners, this the day and year first above written.

W. S. CLARK FARMS, A North Carolina General Partnership

By: _____ (SEAL)
Francis P. Jenkins, Jr.
Partner

By: _____ (SEAL)
S. Clark Jenkins
Partner

STATE OF North Carolina
COUNTY OF Edgecombe

I, Patricia F. Holland, a Notary Public in and for said County and State, do hereby certify that personally appeared before me this day FRANCIS P. JENKINS, JR. known to me to be one of the Partners of the general partnership of W. S. CLARK FARMS and to me known to be the person described in and who executed the foregoing instrument in the partnership name of W. S. CLARK FARMS, and he acknowledged that he executed the same as the act and deed of said partnership for the uses and purposes therein expressed.

Witness my hand and seal, this 11th day of ~~April~~ May, 1995.

My commission expires June 5, 1996.

Patricia F. Holland
Notary Public

STATE OF NORTH CAROLINA
COUNTY OF EDGECOMBE

I, Patricia F. Holland, a Notary Public in and for said County and State, do hereby certify that personally appeared before me this day S. CLARK JENKINS known to me to be one of the Partners of the general partnership of W. S. CLARK FARMS and to me known to be the person described in and who executed the foregoing instrument in the partnership name of W. S. CLARK FARMS, and he acknowledged that he executed the same as the act and deed of said partnership for the uses and purposes therein expressed.

Witness my hand and seal, this 11th day of ~~April~~, 1995.

My commission expires June 5, 1996. May

Patricia F. Holland
Notary Public

NORTH CAROLINA, EDGECOMBE COUNTY
The foregoing certificate (s) of
Patricia F. Holland.
A Notary Public, is (are) certified to be correct.
This instrument was presented for registration
and recorded in this office in Book 1145 Page 492
This 2 day of June 1995
at 3:56 o'clock P M.
Gladys Shelton Pitt
Register of Deeds
By Bettie L. Godley, Assistant

(over) 494

SCHEDULE A

PARCEL ONE:

Being located near the Town of Princeville in Township No. 2, Edgecombe County, North Carolina, and being all of that property referred to as the Bottoms Farm, and at various times referred to as the Barlow or Sessoms Land, and containing 107 acres, more or less, located on both sides of S.R. 1523 (also known as Shiloh Farm Road, and more particularly described as follows:

Those two parcels of land lying and being situate south of the road leading from Mildred to Tarboro (currently U.S. Highway 64) and being Lot No. 2 containing 55 acres and Lot No. 3 containing 52.75 acres as shown and described on the map entitled "Subdivision of W. A. Hart near Tarboro, Scale 1"=400' Date 12-12-13, Eng. R.R. Brown", and recorded in Map Book 3, Page 341, Edgecombe County Public Registry. It is the identical land conveyed to W. S. Clark and Sons, Incorporated by Stephen L. Beaman, Bankruptcy Trustee, by deed recorded in Book 958, Page 402 of said Registry (FIRST TRACT therein); and being all of Tract No. 2 conveyed by deed from W. S. Clark Farms to Plummer and Associates, recorded in Book 1116, Page 624, Edgecombe Public Registry.

PARCEL TWO:

Being located near the Town of Princeville in Township No. 1, Edgecombe County, North Carolina, and being all of that part of the Bogey Farm located on the east side of N.C. Highway 33 containing 97 acres, more or less, and more particularly described as follows:

Beginning at a point in the eastern right of way line of N.C. Highway 33 located S. 72 deg. 45 min. E. from an Iron Stake located in the western right of way line of N.C. Highway 33, a road connecting the Town of Tarboro to the north and the community of Penny Hill to the south, the southern Controll [sic] Corner shown on "Property of W. S. Clark & Sons recorded in Map Book 10, Page 1, Edgecombe Public Registry: from said Iron Stake, across N.C. Highway 33 and through the BEGINNING POINT thus determined along and with the Lancaster line, S. 72 deg. 45 min. E., 790 feet to a point; thence continuing with the Lancaster line, S. 31 deg. 00 min. E., 2046 feet to the bank of a canal, cornering; thence the following courses and distances along and with the north and west bank of the canal: N. 62 deg. 15 min. E., 330 feet; N. 71 deg. 45 min. E., 237.6 feet; N. 64 deg. 15 min. E., 198 feet; N. 56 deg. 00 min. E., 341.8 feet; N. 29 deg. 45 min. E., 203.9 feet; N. 01 deg. 30 min. E., 273.9 feet; N. 9 deg. 00 min. W., 281.8 feet; N. 10 deg. 15 min. E., 204.6 feet; and N. 28 deg. 00 min. E., 113.5 feet to a common corner with Davenport, cornering; thence with the Davenport line (now Barnhill Contracting Company and Edgecombe-Martin County Electric Membership Corporation), N. 57 deg. 00 min. W., 3108.6 feet to a point in the eastern right of way line of N.C. Highway 33, cornering; thence along and with the eastern right of way line of N.C. Highway 33, S. 13 deg. 00 min. W. to a point in the Lancaster line located S. 72 deg. 45 min. E. from an Iron Stake in the western right of way line of N.C. Highway 33, the point and place of BEGINNING; and being all of that property shown in the map entitled "Bogey Farm, Property of W. S. Clark & Sons, located in No. 2 [No. 1] Township, Edgecombe Co., N.C., Map by Robert F. Wilson, R.L.S., Tarboro, N.C., Scale: 1"=400', Feb. 16, 1952" which is located on the east side of N.C. Highway 33, and being a part of that property conveyed to W. S. Clark & Sons, Inc. by W. C. Bogey and his wife, Annie C. Bogey, by deed dated January 12, 1937, recorded in Book 354, Page 242, Edgecombe Public Registry; and being part of Tract No. 1 conveyed by deed from W. S. Clark Farms to Plummer and Associates, recorded in Book 1116, Page 624, Edgecombe Public Registry.

APPENDIX VI

PHOTOGRAPH RECORD

S&ME Project Number: 1040-00-345 F **Project Name:** Princeville Dump

Site Location: Jenkins Street (SR 1622), Princeville, North Carolina



Photograph No. 1	Site entrance off of Jenkins Street.



Photograph No. 2:	Areas of Concern 1 and 2: Borrow-pit lake spilling into overflow channel.

PHOTOGRAPH RECORD

S&ME Project Number: 1040-00-345 F **Project Name:** Princeville Dump

Site Location: Jenkins Street (SR 1622), Princeville, North Carolina



Photograph No. 3	Area of Concern 3: Exposed drum..



Photograph No. 4:	Area of Concern 3: Exposed drum and debris.

PHOTOGRAPH RECORD

S&ME Project Number: 1040-00-345 F **Project Name:** Princeville Dump

Site Location: Jenkins Street (SR 1622), Princeville, North Carolina



Photograph No. 5	Area of Concern 3: Exposed above ground storage tank.



Photograph No. 6:	Site view looking south down the power line easement.

SINCE
1881

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

310 Hubert Street
Raleigh, North Carolina 27603-2302
T 919.828.3441 I F 919.828.5751
NC License #F-0266

March 23, 2018

Ms. Ann Shields
North Carolina Department of Environmental Quality
Pre-Regulatory Landfill Unit
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Reference: **Remedial Investigation – First Phase and Delineation Event**
Princeville Dump
Tarboro, Edgecombe County, NC
Site Identification Number – NONCD0000297
Task Orders 297FP-3, and 297DP-1 & DP-2
F&R Project Nos. 66U-0303-0001 and 66U-0303-0002

Dear Ms. Shields:

Froehling and Robertson, Inc. (F&R) has completed the requested remedial investigation-contaminant delineation phase activities as authorized by the North Carolina Department of Environmental Quality (NCDEQ) Pre-Regulatory Landfill Unit. Please find a Report summarizing the work attached. These activities were conducted in general accordance with State Contract No. N15001i.

Should you have any questions concerning the attached report, please contact our Raleigh office (919) 828-3441.

Sincerely,
FROEHLING & ROBERTSON, INC.

For: John Palmer, P.G.
Senior Geologist

Benjamin A. Whitley, P.E.
GeoEnvironmental Services Manager

Attached: Figures, Tables, & Appendices

1.0 INTRODUCTION

Froehling and Robertson, Inc. (F&R) has prepared this combined *Remedial Investigation – First Phase and Delineation Event* (this Report) for the Princeville Dump (NONCD0000297) located off Jenkins Street in Tarboro, Edgecombe County, North Carolina. This Report summarizes the activities performed by F&R as requested by the North Carolina Department of Environmental Quality (NCDEQ) Pre-Regulatory Landfill Unit (the Unit) within its initial Request for Remedial Investigation (RFRI) - First Phase, Task Order 297FP-3 dated April 24, 2017; and, within its subsequent RFRI - First Delineation Event dated August 8, 2017. The goal of these two phases of work was to conduct first phase and delineation event characterizations of the project area.

In accordance with Task 297FP-3, F&R prepared a Work Plan for evaluation of the project area by means of a sensitive environments review, a water source/receptor survey, vegetative clearing / geophysical survey, research of local geologic / hydrogeologic conditions, and preparation of site and vicinity maps as directed by the Unit in the RFRI. F&R completed those planned field activities between July 27 and August 14, 2017. In addition, and in accordance with Task 297DP-1, F&R prepared a Work Plan for evaluation of the Site by means of an above-ground vapor survey, a surface water/sediment investigation, a waste disposal boundary delineation, a buried waste characterization, a soil cover investigation, a groundwater investigation, and a landfill gas investigation, as directed by the Unit. Portions of those planned field activities were conducted between January 16 and February 7, 2018. F&R has prepared a **USGS Vicinity Map** as **Figure 1**, and an illustration of the project area entitled **Site Map** as **Figure 2**. The completed portions of this investigations were performed in general accordance with the approved Work Plans, and F&R's *Standard Operating Procedures and Quality Assurance Manual* and State Contract N15001i.

1.1 Land Use

According to the Edgecombe County GIS website, the suspected waste disposal area (the Site) is located approximately 1,450 feet west of the intersection of Jenkins Street and NC 33 East, south of the Town of Princeville, North Carolina. The Site is located within a total of two tracts identified by Edgecombe County Parcel #'s 473744648000 (herein identified as the primary property) and 473755657700 (herein identified as the secondary property). The latitude and longitude for the entrance to the Site (Latitude 35.869991 and Longitude 77.529399), and the approximate center of the suspected Site (Latitude 35.869677 and Longitude 77.529847). According to the Edgecombe County GIS website, the two properties containing the Site have not been assigned a specific zoning designation.

Much of the western portion of the primary tract remains undeveloped and wooded; however, the eastern portion of that property has been somewhat developed for the purpose of livestock production in the vicinity of an overhead power line passing through the property. An abandoned mobile home structure and multiple livestock sheds and enclosures were noted to exist upon the primary property, as illustrated in **Figure 2**. Much of the secondary tract is likewise undeveloped; however, a portion of that property contains a pond utilized by the public for the purpose of sport fishing. Both tracts are bounded to the west by the Tar River.

1.2 Discovery

- The areal extent of the Site was not fully identified during the September 13, 2017 geophysical survey conducted by Geo Solutions Ltd. Surface debris and livestock production areas (with associated sheds, storage trailers, and abandoned vehicles) halted survey progress to the south; and, thick vegetation and swamp conditions halted survey progress to the west. Scattered surface waste and partially buried waste were noted in the northeastern and southern portions of the Site. These conditions limited the overall effectiveness of the geophysical survey.
- Buried waste was not identified within the suspected waste disposal area, or the adjacent portions of the project area. As buried waste was not identified during delineation boring operations, Unit personnel cancelled the remainder of the planned assessment activities on January 30, 2018, including the above-ground vapor survey, buried waste characterization, soil cover investigation, groundwater investigation, and landfill gas investigation activities.
- Due to intermittent surface waste observed in livestock areas, offset borings were advanced around and between the active livestock pens in several locations associated with boring B-11 and B-12. In addition, surface waste was observed westward of planned delineation boring B-16. As such, borings were advanced westward of B-16, until reaching the area of standing water situated west of the Site.

2.0 SENSITIVE ENVIRONMENT REVIEW

F&R conducted a sensitive environment review in accordance with the Guidelines for Addressing Pre-Regulatory Landfills and Dumps and the Guidelines for Assessment and Cleanup. A summary has been prepared as **Table 1, Sensitive Environments Research Summary**, and copies of return correspondence from each designated agency that provided a written response are included in **Appendix A, Sensitive Environment Review**.

One positive response was received from Heather Patt, NC DEQ Division of Water Resources (DWR) determined that this area is classified as "Environmentally Sensitive" or "State-Designated Areas for Protection or Maintenance of Aquatic Life." The DWR correspondence stated that the (project) area drains into the Tar River, and that it was recommended that any activity on this property should minimize sediment, metal, and nutrient runoff to surface water. Further, the DWQ noted that the groundwater leaving this site likely contributes to the (river) base flow, and if contaminated could lead to the degradation of the aquatic life in this system

Other positive responses were not received by F&R with respect to the sensitive environment survey conducted under this evaluation.

3.0 GEOLOGIC, HYDROGEOLOGIC, AND HYDROLOGIC CONDITIONS

3.1 Local Geology

According to the Geologic Map of North Carolina (USGS et al, 1985), the disposal area is situated on the boundary between a window of the Cretaceous-aged Cape Fear Formation, and the (greater) Tertiary-aged Yorktown/Duplin Formations. The Cape Fear is characterized as sandstone and sandy mudstone, yellowish to bluish gray, mottled red to yellowish orange, indurated, graded and laterally continuous bedding, blocky clay, faint cross-bedding, feldspar and mica common. The Yorktown is characterized as fossiliferous clay with varying amounts of fine grained sand, bluish gray, shell material commonly concentrated in lenses. The Duplin is characterized as shelly, medium to coarse grained sand, sandy marl, and limestone, bluish gray.

3.2 Local Hydrogeology

According to the Hydrogeologic Framework Database provided by the DWR, the City of Tarboro Well Station ID# J 26H, located approximately 1.6 miles north-northwest of the Site boundary is the closest recorded well. This location would place the Tarboro well across the Tar River groundwater divide. The boring log associated with this well indicates the surficial aquifer intercepts the Upper Cape Fear confining unit at a depth of 10 feet, with the Upper Cape Fear aquifer beginning at a depth of 25 feet bgs and continuing to great depth. As presented in the DWR web page education and technical assistance section, Upper Cape Fear aquifer is a principal aquifer acting as a significant source of ground water for potable water supply and other agriculture or industrial interests in large portions of North Carolina.

According to the NC DEQ, the Site is not located within a designated wellhead protection area.

3.3 Local Hydrology

According to the NCDEQ Classifications website, the Site is located within the greater Neuse River Basin, and the adjacent Tar River is classified as C waters (WS-IV moderately to highly

developed watershed or protected area, and/or NSW nutrient sensitive waters requiring additional nutrient management).

Surface water from the Site would appear to flow into the drainage swale which bisects the Site. The swale drains to a linear swamp area that appears to act as the Site's western boundary, and according to the topography presented in the NC DEQ surface water classifications interactive mapping website, eventually enters the Tar River approximately 700 feet east of the Site.

4.0 WATER SOURCE / RECEPTOR SURVEY

On August 14, 2017, F&R conducted a water supply well survey of residences and businesses located within 1,000 feet of the Site. This reconnaissance consisted of traversing all streets and roadways within the 1,000 foot radius study area, visually identifying existing water supply wells and municipal water meter connections. One water supply well (herein identified as PW-1) was observed within the approximate center of the parcel encompassing the majority of the Site, and is currently supplying water to the livestock production facility operating there. Five water supply wells (identified as PW-2 & PW-3, and PW-5 through PW-7) were observed adjacent to existing residences and are assumed to be supplying water to those homes. One water supply well (identified as PW-4) was observed within an undeveloped parcel.

Two additional water supply wells were observed (identified as IW-1 and IW-2) and mapped. F&R was approached by the owner / former owner of the wells during the survey, and was informed that both of these very shallow wells (five to eight feet in depth) are used solely for the purpose of irrigation / livestock maintenance. Tax parcel number, physical address, well owner and address, approximate distance from and direction to the Site have been compiled using Edgecombe County records, and are presented in **Table 2, Summary of Water Supply Well Survey Data**. The locations of the water supply wells observed during this survey are illustrated in **Figure 3, Water Supply Well and Receptor Map.**

5.0 CLEARING AND GEOPHYSICAL INVESTIGATION

5.1 Site Clearing

Geo Solutions Ltd. utilized hand-clearing methods to access heavily vegetated portions of the Site during performance of the geophysical survey. The majority of the heavy vegetation requiring additional clearing effort was encountered along the western perimeter of the Site, where walking trails were necessary to provide access for the geophysical survey crew.

5.2 Geophysical Survey

Geo Solutions Ltd. completed an electromagnetic (EM) geophysicaI investigation August 1, 2017, within an area encompassing the suspected waste disposal area. The survey utilized a geophysical profiler operating under Geonics Model EM-31 mode, using a Geophex GEM-2. The survey was conducted using an approximate 50-foot grid pattern that extended a minimum of 25 feet beyond the estimated limits of the suspected Site. For a detailed description of the applied technique and survey methodology refer to Geo Solution's report dated August 1, 2017, attached within **Appendix B, Geophysical lnvestigation** of this Report.

The areal extent of the Site was not fully identified during the August 2017 EM survey. Thick vegetation, swamp conditions, surface debris, livestock production areas, and sheds / storage trailers / abandoned vehicles impeded progress both to the south and to the west. Although not fully understood at that time, the areal extent of the Site identified through geophysical methods was reported by Geo Solutions as significantly larger than the suspected limits of waste presented in the NCDEQ-approved Work Plan. Geo Solution's Figure 5 depicts their August 2017 interpretation of the disposal area. The coordinates collected by Geo Solutions to represent the current extent of the disposal area are listed in their report. The limits of waste identified through the EM are illustrated in **Figure 4, Geophysical Survey Map** of this Report.

6.0 SURFACE WATER AND SEDIMENT INVESTIGATION

6.1 Surface Water Sampling

On January 16, 2018, F&R collected surface water samples from six planned locations to include the two northern adjacent ponds, and the drainage feature that flows along the western boundary of the Site (designated as SW-1 through SW-6). The locations of the surface water sampling points are illustrated in **Figure 2.** After measuring and documenting water quality parameters, the surface water samples were promptly placed into laboratory-supplied containers via a properly decontaminated Teflon scoop. Surface water sampling details were recorded upon field logs, which are included in **Appendix C, Field Documentation**. The surface water samples were submitted to ConTest Analytical Laboratory, East Long Meadow, MA (ConTest) for analysis of Volatile Organic Compounds (VOCs) by SW-846 Method 8260B (with TICs), Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D (with TICs), 1,4-dioxane by EPA Method 8260SIM, 14 Metals by EPA Method 6020, Mercury by EPA Method 7470, Ammonia by SM 4500, and Nitrate and Sulfate by EPA Method 300.

A summary of the detected compounds and TICS is presented in the attached **Table 3, Surface Water Analytical Results Summary**. Laboratory analytical reports for sampling activities

conducted under this investigation are included in **Appendix D, Laboratory Report and Certification**.

6.2 Sediment Sampling

Sediment sampling was likewise completed by F&R on January 16, 2018. Sediment samples were removed from the same locations from which the surface water samples were collected (as described in Section 2.1, and likewise illustrated in **Figure 2**). The sediment was collected using a properly decontaminated shovel, placed into a clean plastic bag, and screened with a photoionization detector (PID) to detect VOCs. Sediment sampling details were recorded upon field logs, which are included in **Appendix C**. The sediment samples were promptly placed into laboratory-supplied containers, and submitted to ConTest for laboratory analysis of the same suite of parameters outlined in Section 2.1 above.

A summary of the detected compounds are presented in the attached **Table 4, Sediment Analytical Results Summary**. TICS reported to exist in the sediments samples were presented in **Table 4A, Sediment Tentatively Identified VOC and SVOC Summary**.

7.0 WASTE BOUNDARY DELINEATION

7.1 Delineation Boring Activities

On January 16, 2018, and concurrently with soil and surface water sampling activities, F&R utilized hand-held global positioning system (GPS) technology to flag each planned delineation boring location, as well as all planned groundwater and landfill gas assessment locations. On January 29 and 30, 2018, F&R and Quantex conducted waste delineation boring activities along the perimeter of the suspected Site. Quantex used a track mounted 7720 GeoProbe and continuous flight, solid-stem augers to advance 35 exploratory borings to a depth of 10 to 15 feet below ground surface (bgs).

The initial delineation boring locations were chosen by the Unit. When buried waste was not observed, subsequent borings were advanced in a direction toward the Site. In addition, offset borings were advanced around and between the active livestock pens in several locations associated with boring B-11 and B-12, and beyond boring location B-16 when surface waste was observed between the suspected Site and the wetland area situated west of the Site. No soil sampling or soil screening via field instruments was conducted during boundary delineation activities, and soil cuttings generated from boreholes were used to backfill the boring from which it was removed. Each soil boring location was marked using a pin flag inscribed with the boring designation.

The F&R geologist prepared a boring log for each series of delineation borings; these logs have been placed in **Appendix C**. Surficial soils were generally observed as silty very fine to fine sands with varying amounts of clay, underlain by medium to coarse sands. Groundwater was observed to vary from approximately 6.0 to 9.0 feet below the ground surface across the project area. All delineation boring locations are illustrated in **Figure 5, Delineation Boring Location Map**.

7.2 Surface Waste

As previously introduced, surface waste consisting primarily of household wastes, structural debris, vehicle components and tires, and scrap metal was noted in multiple areas of the Site during the waste boundary delineation operations described in Section 7.1. Both scattered and concentrated areas of surface waste were observed. The majority of the waste did not appear to be recent in origin, and was not observed as discreet piles. Much of the surface waste was mixed into the upper surface of the soils, apparently through livestock production and other activities occurring over the years. On February 7, 2018, F&R returned to the Site to collect the coordinates of each delineation boring location, as well as map the areas of concentrated surface waste described above. See **Figure 6** for the approximate locations of these surface waste observations.

8.0 INVESTIGATION DERIVED WASTE AND BORING ABANDONMENT

Obvious evidence of significant contamination was not identified during field activities; as such, no investigation derived waste was containerized during this assessment. Soil cuttings generated during drilling activities were utilized to backfill the boring from which it was removed, or were spread on the ground surface adjacent to the location of the individual borings. Water generated from decontamination activities was likewise placed within the limits of the Site.

9.0 QUALITY ASSURANCE DISCUSSION

This assessment was generally conducted under those Quality Control Assurance/Quality Control (QA/QC) procedures outlined in Appendix D: Standard Field Protocols of the Inactive Hazardous Sites Program Guidelines for Addressing Pre-Regulatory Landfills and Dumps, November 2015. One duplicate surface water sample (SW-Dup) and one duplicate sediment sample (SD-Dup) were collected at surface water/sediment sampling location SW/SD-4.

The laboratory reported that all samples submitted under this task order were received in acceptable condition, and processed within the appropriate holding times. Those technical issues considered relevant by the laboratory have been included in the F&R Quality Assurance

and Quality Control Laboratory Data Review form placed as a cover sheet upon the laboratory analytical reports included in **Appendix B** of this Report.

10.0 LIMITATIONS

These services have been performed, under authorization of the North Carolina Department of Environmental Quality for specific application on this project. These services have been performed in accordance with generally accepted environmental and hydrogeological practices. No other warranty, expressed or implied is made. As with any subsurface investigation, actual conditions exist only at the precise locations from which samples were taken. Certain inferences are based on the results of sampling and related testing to form a professional opinion of conditions in areas beyond those from which samples were taken. The information within this report is based upon information provided to us by others, our sampling and testing results and our Site observations. We have not verified the completeness or accuracy of the information provided by others, unless otherwise noted. Our observations are based upon conditions readily visible at the Site at the time of our Site visits.

11.0 SOLE USE STATEMENT

The report was prepared solely for the intended use of NCDEQ Inactive Hazardous Sites Branch performed in the scope of work for Task Orders 297FP-3, and 297DP-1 & DP-2. Use of this document for other purposes is at the sole risk of the user.

12.0 CERTIFICATION

I certify that, to the best of my knowledge, after thorough investigation, the information contained in or accompanying this certification is true, accurate, and complete.

Benjamin Whitley

Benjamin A. Whitley, P.E.
GeoEnvironmental Services Manager

Before me personally appeared Benjamin Whitley to me known and known to me to be the person described in and who executed the foregoing instrument, and acknowledge to and before me that Benjamin Whitley executed said instrument for the purposes therein expressed.

Witness my hand and official seal this 23rd day of March, 2018.

Paula R. Gibson — *Notary Public*

June 24, 2018 — *My Commission Expires On*

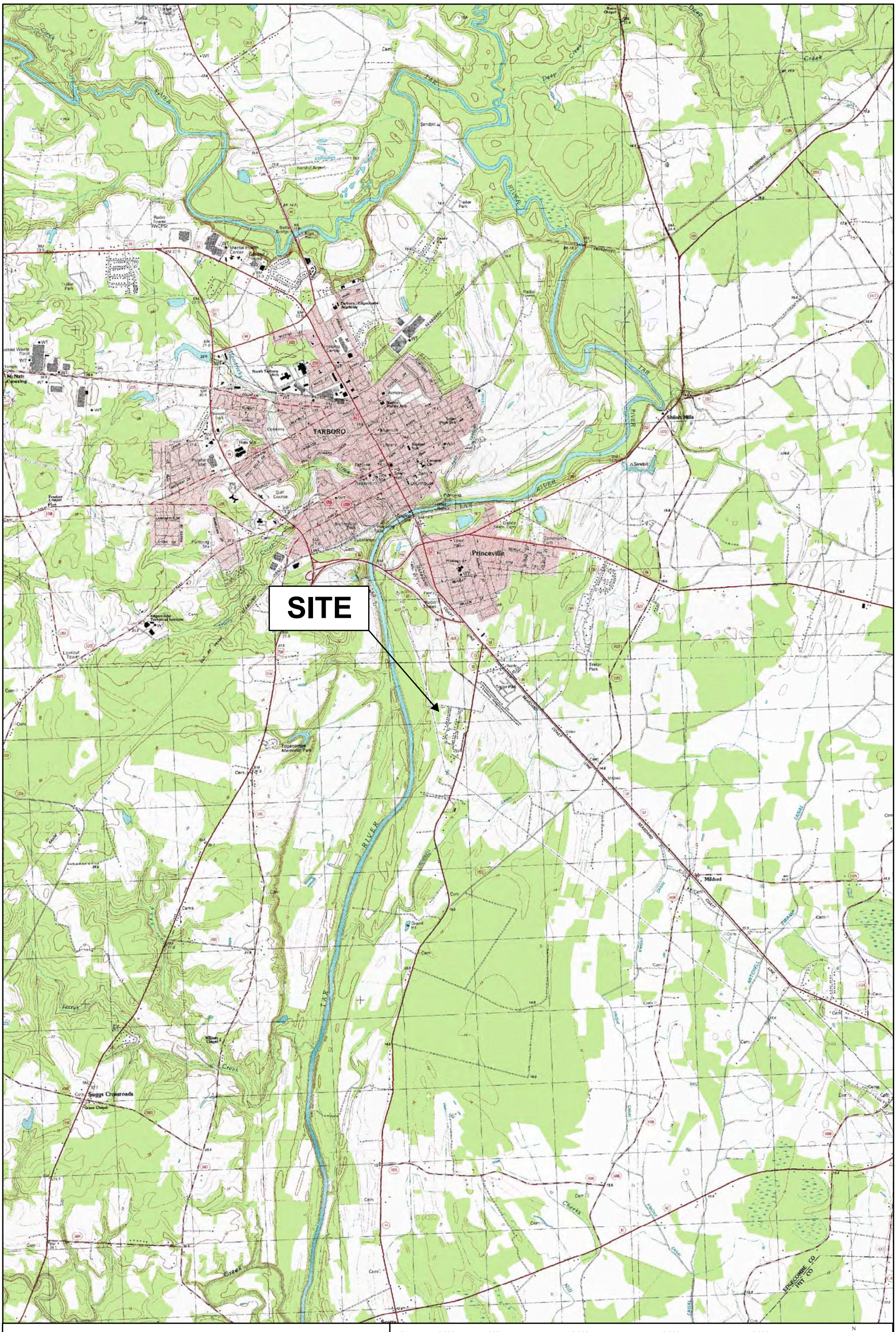
North Carolina — *State Of*

Wake — *County Of*

Official Seal

PAULA R GIBSON NOTARY PUBLIC JOHNSTON COUNTY, N.C.

FIGURES



Vicinity Map

0 2,000 4,000 8,000 12,000 16,000 Feet

N

SINCE 1881

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ
Project:	Princeville Dump
Location	Princeville, Edgecombe County, NC
F&R Project No.:	66U-0303-0001
Data:	USGS
Date:	March 2018

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

Scale: 1:48,000 1 inch = 4,000 feet

FIGURE No.: 1

POND

SW-1

POND

SW-2

SW-3

UNDEVELOPED AREA

SW-4

ABANDONED MOBILE HOME

ACCESS ROAD

LINEAR POND (APPARENT FORMER RIVER CHANNEL)

SW-5

CLEARED AREA

UNPAVED DRIVEWAY

SWAMP CONDITIONS

SW-6

LIVESTOCK USAGE

JENKINS ST

UNDEVELOPED AREA

MIXED LIVESTOCK PRODUCTION AND STORAGE AREA (MUCH METAL DEBRIS SCATTERED THROUGHOUT)

UNPAVED DRIVEWAY

CLEARED AREA

UNDEVELOPED AREA

TRAIL

SWAMP CONDITIONS

ABANDONED VEHICLES

POWER LINE

BOGEY ST

DOWENS ST

Legend

- Surface Water/Sediment Sample Location
- Structure
- Tree Line
- Geophysical WDA Boundary
- 40 Topographic Elevation Contours
- Parcel Boundaries

Site Map

0 75 150 300 450 600 Feet

N

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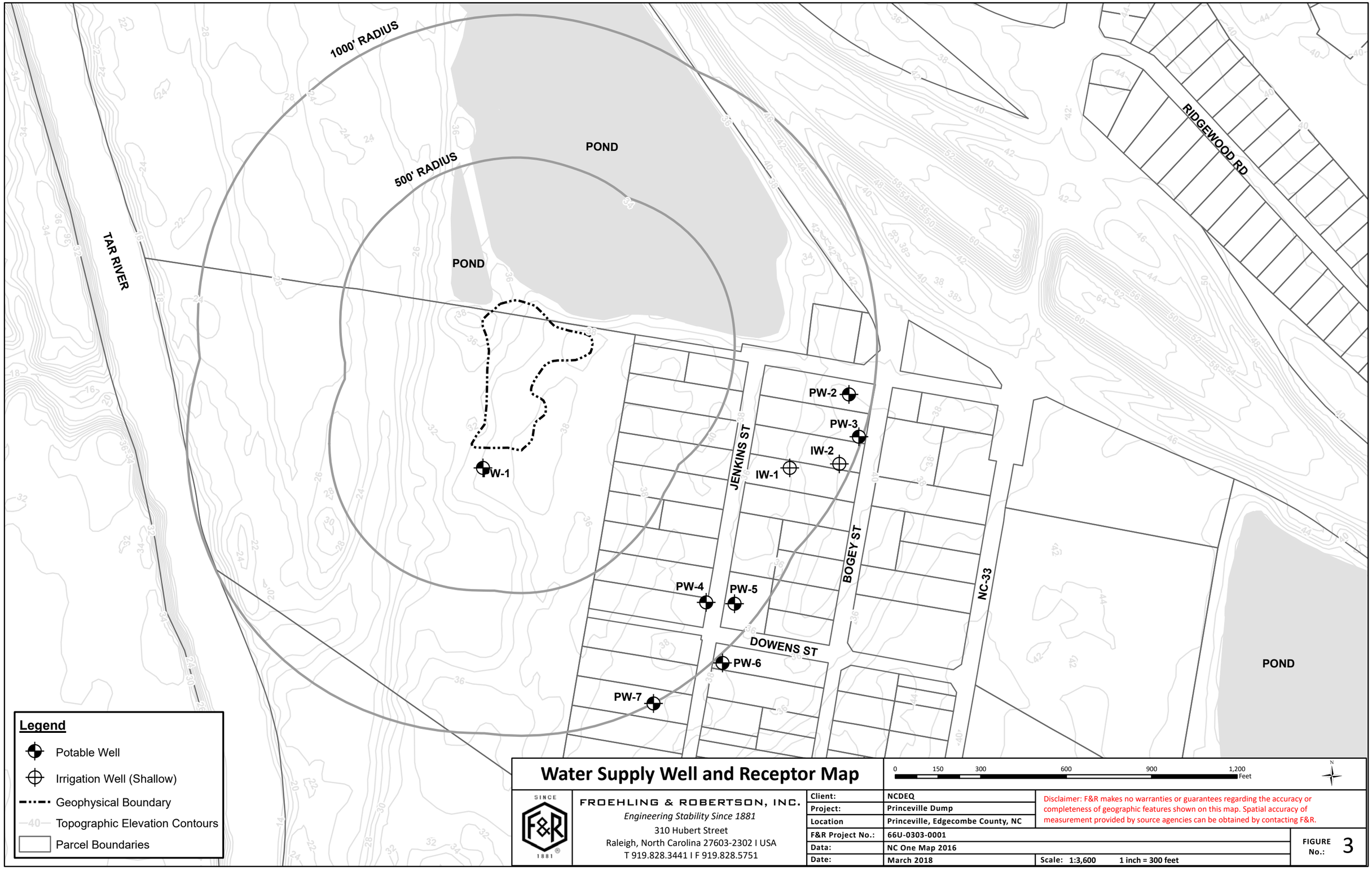
Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ	Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.	
Project:	Princeville Dump		
Location	Princeville, Edgecombe County, NC		
F&R Project No.:	66U-303-0001		
Data:	NC One Map 2016		
Date:	March 2018	Scale: 1:1,800 1 inch = 150 feet	

FIGURE No.: 2



Water Supply Well and Receptor Map

FROEHLING & ROBERTSON, INC.
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310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ
Project:	Princeville Dump
Location	Princeville, Edgecombe County, NC
F&R Project No.:	66U-0303-0001
Data:	NC One Map 2016
Date:	March 2018

Scale: 1:3,600 1 inch = 300 feet

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

FIGURE No.: 3

POND

POND

PLANNED GEOPHYSICAL GRID

GEOPHYSICAL BOUNDARY (FULL EXTENT NOT DETERMINED)

JENKINS ST

Legend

- Geophysical Boundary
- Planned Geophysical Grid
- 40 — Topographic Elevation Contours
- Parcel Boundaries

Geophysical Survey Map

0 60 120 240 360 480 Feet

N

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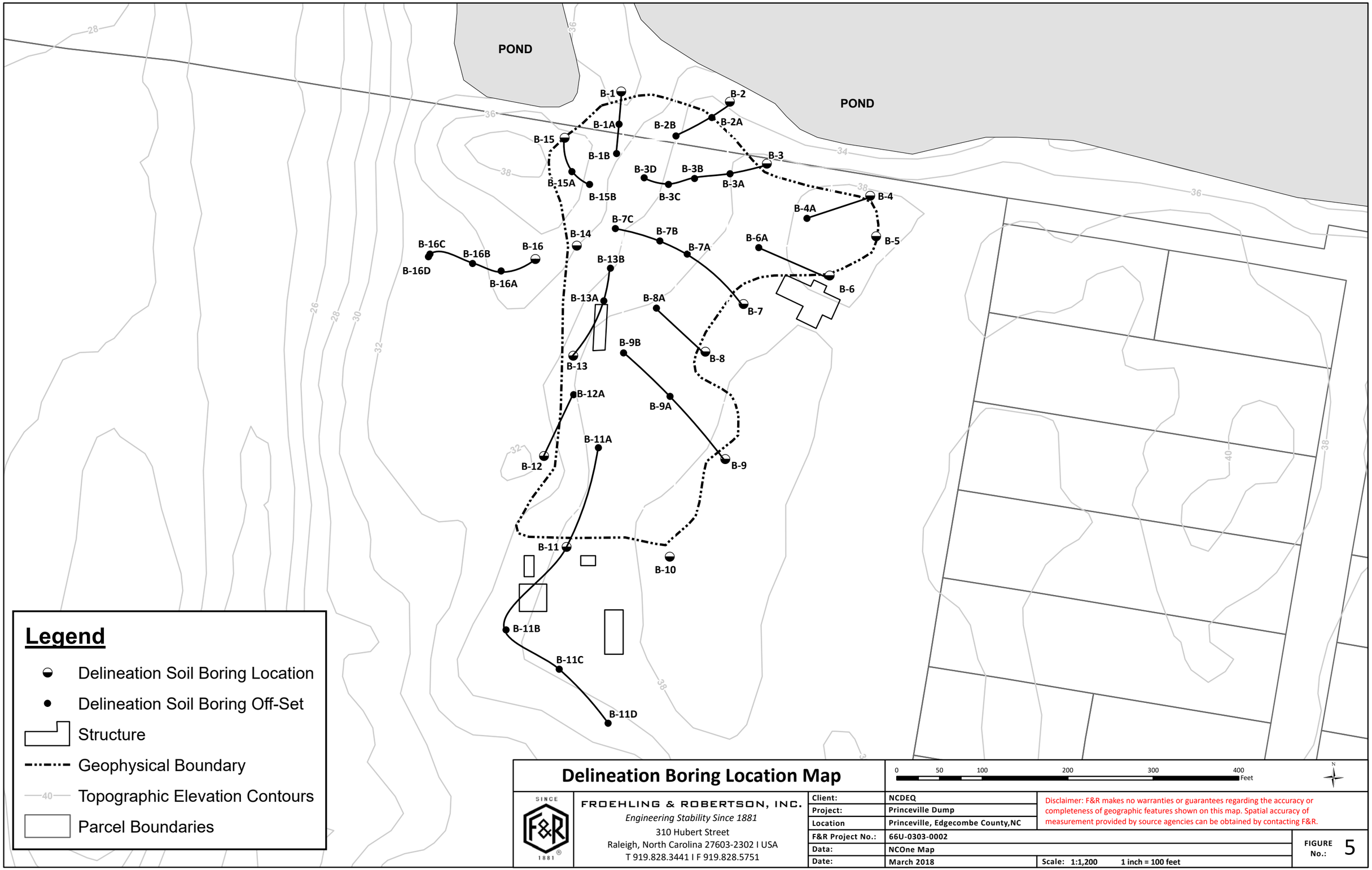
Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ
Project:	Princeville Dump
Location	Princeville, Edgecombe County, NC
F&R Project No.:	66U-0303-0001 Task Order 297 FP-3
Data:	NC One Map 2016
Date:	September 2017

Scale: 1:1,440 1 inch = 120 feet

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

FIGURE No.: 4



Legend

- Delineation Soil Boring Location
- Delineation Soil Boring Off-Set
- Structure
- Geophysical Boundary
- Topographic Elevation Contours
- Parcel Boundaries

Delineation Boring Location Map

0 50 100 200 300 400 Feet

N

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ
Project:	Princeville Dump
Location	Princeville, Edgecombe County,NC
F&R Project No.:	66U-0303-0002
Data:	NCOne Map
Date:	March 2018

Scale: 1:1,200 1 inch = 100 feet

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

FIGURE No.: 5

POND

POND

Legend

- Concentrated Surface Waste
- Geophysical Boundary
- 40 Topographic Elevation Contours
- Parcel Boundaries

Concentrated Surface Waste Map

0 50 100 200 300 400 Feet

N

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ
Project:	Princeville Dump
Location	Princeville, Edgecombe County,NC
F&R Project No.:	66U-0303-0002
Data:	NCOne Map
Date:	March 2018

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

Scale: 1:1,200 1 inch = 100 feet

FIGURE No.: 6

TABLES

TABLE 1
Sensitive Environment Survey Summary
Princeville Dump
Tarboro, Edgecombe County, NC
ID N0NC0000386
Task Orders 9389FP-3

E3B2:D3B2:D4B2:E4B2:B2:E4	Name & Contact Info	Sensitive Environments	Sensitive Environments Identified (YES / NO)
NC Division of Conservation, Planning, and Community Affairs – Natural Heritage Program	Email: natural.heritage@ncdcr.gov Website: http://portal.ncdenr.org/web/nhp/data-services (website inoperative)	State Parks Areas Important to Maintenance of Unique Natural Communities Sensitive Areas Identified Under the National Estuary Program Designated State Natural Areas State Seashore, Lakeshore and River Recreational Areas Rare species(state and federal Threatened and Endangered) Sensitive Aquatic Habitat State Wild & Scenic Rivers	**NO (Rodney Butler, NCNHP: Noted that while the property resides within the Tarboro River Floodplain, no documented "element" occurances are known to exist within the project area. However, multiple potential "element" occurances have been documented to exist within 0ne-mile of the project area.)**
National Park Service - Public Affairs Office	Anita Barnett Anita_Barnett@nps.gov (404) 507-5706 http://www.nps.gov/rivers	National Seashore, Lakeshore and River Recreational Areas National Parks or Monuments Federal Designated Wild & Scenic Rivers	No Response Received
US Forest Service	Heather Luczak Hluczak@fs.fed.us (828) 257- 4817	National Parks or Monuments	NO

TABLE 1
Sensitive Environment Survey Summary
Princeville Dump
Tarboro, Edgecombe County, NC
ID N0NC0000386
Task Orders 9389FP-3

E3B2:D3B2:D4B2:E4B2:B2:E4	Name & Contact Info	Sensitive Environments	Sensitive Environments Identified (YES / NO)
NC Division of Water Resources	Ian McMillan Ian.Mcmillan@ncdenr.gov (919) 807-6364 or Melanie Williams Melanie.Williams@ncdenr.gov (919) 707-9000 Ask for Clean Water Act 305b report	State-Designated Areas for Protection or Maintenance of Aquatic Life	Yes. Heather Patt, DWR: noted that the area drains into the Tar River, and that it was recommended that any activity on this property should minimize sediment, metal, and nutrient runoff to surface water. Further, the DWQ noted that the groundwater leaving this site likely contributes to base flow, and if contaminated could lead to the degradation of the aquatic life in this system.
NC Division of Forest Resources	Chris CarlsonChris Carlson Chris.Carlson@ncdenr.gov (919) 857-4819	State Preserves and Forests	No Response Received
US Fish & Wildlife Service	Pete Benjamin Pete_Benjamin@fws.gov (919) 856-4520 x 11	Endangered Species Terrestrial Areas Utilized for breeding by Large or Dense Aggregations of Animals National or State Wildlife Refuges	No Response Received
NC Department of Natural and Cultural Resources	Renee Gledhill-Earley (919) 807 – 6579 email: environmental.review@ncdcr.gov	National and State Historical Sites	NO
NC Division of Coastal Management	Ted Tyndall Ted.Tyndall@ncdenr.gov (252) 808-2808 http://dcm2.enr.state.nc.us	Areas Identified Under Coastal Protection Legislation Coastal Barriers or Units of a Coastal Barrier Resources System. Marine Sanctuaries	No Response Received

TABLE 1
Sensitive Environment Survey Summary
Princeville Dump
Tarboro, Edgecombe County, NC
ID N0NC0000386
Task Orders 9389FP-3

E3B2:D3B2:D4B2:E4B2:B2:E4	Name & Contact Info	Sensitive Environments	Sensitive Environments Identified (YES / NO)
NC Wildlife Resources Commission	David Cox (919) 707-0366 David.Cox@ncwildlife.org	National or State Wildlifeor State Wildlife Refuges State lands designated for wildlife or game management Migratory Pathways and Feeding Areas Critical for Maintenance of Anadromous Fish Species within River Reaches or Areas in Lakes or Coastal Tidal Waters in which such Fish Spend Extended Periods of Time Spawning Areas Critical for the Maintenance of Fish/Shellfish Species within River, Lake or Coastal Tidal Waters. Areas Likely to serve as a natural area	No Response Received
US Army Corps of Engineers	Dorothy Harrington Dorothy. Harrington@usace.army.mil (919) 554-4884, x 28	Wetlands	No Response Received

TABLE 2
Summary of Water Supply Well Survey Data
Princeville Dump
Princeville, Edgecomb County, NC
ID# NONCD0000297

WSW Number	Tax Parcel#	Physical Address	Well Owner	Owner Address	Approximate Distance from Disposal Area (in feet)	Cardinal Direction from Disposal Area
PW-1	473744648000	Off Jenkins Street	Moore, Johnny Ray et al	PO Box 38 Conetoe, NC 27819	Within WDA	NA
PW-2	473764660000	Beamon, Tom	Bryant, Wanda Sue Webb et al	2237 Maple Swamp Rd, Whitakers, NC 27891	960	East
PW-3	473764548900	317 Bogey St, Lot 37 Bogey Farms S/D	Denny, Martha Louise L Life est	478 Filmore Rd, Tarboro, NC 27886	990	East
PW-4	4737630080400	147 Jenkins Street, Lot 46 Bogey Farms S/D	Edgecombe County	PO Box 10 Tarboro, NC 27819	840	Southeast
PW-5	473763386400	142 Jenkins Street, Lots 30 & 31 Bogey Farms S/D	Hucks, Dennis T	142 Jenkins St. Tarboro, NC 27886	910	Southeast
PW-6	473763463300	114 Jenkins Street, Lot 17 Bogey Farms S/D	Higgins, Carolyn D Jenkins	2051 Love Shop Rd Halifax, VA 24558	1015	Southeast
PW-7	473753956000	Jenkins Street, Lot 43 Bogey Farms S/D	Beamon, Tom	333 Mutual Blvd Tarboro, NC 27886	1000	Southeast
IW-1	473764536900	301 Bogey Street, Lot 36 Bogey Farms S/D	Edgecombe County	PO Box 10 Tarboro, NC 27819	810	East-Southeast
IW-2	473764523900	Bogey Street	Abrams, John N et al	2221 Oak Dr, Tarboro, NC 27886	960	East-Southeast

Parcel and Owner Information per Edgecombe County GIS website.
PW-x - Potable Well Location
IW-x - Irrigation Well Location (per Property Occupant)

TABLE 3
Surface Water Analytical Results Summary (Detections Only)
Princeville Dump
Tarboro, Edgecombe County, NC
ID NONCD0000297
Task Order 297DP-2

Sample ID	SW-1		SW-2		SW-3		SW-4		SW-DUP		SW-5		SW-6		Trip Blank 1	Trip Blank 2	Trip Blank 3
Collection Date	1/16/2018		1/16/2018		1/16/2018		1/16/2018		(Duplicate of SW-4)		1/16/2018		1/16/2018		1/16/2018	NA	NA
Parameter	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Result	Result
VOCs by EPA Method 8260 B																	
Ethylbenzene	ND		ND		ND		ND		ND		ND		ND		0.17 J	0.15 J	0.17 J
p-Isopropyltoluene (p-Cymene)	ND		ND		ND		ND		2.1		ND		ND		ND	ND	ND
Toluene	ND		0.40	J	ND		ND		ND		ND		ND		ND	ND	ND
m+p Xylene	ND		ND		ND		ND		ND		ND		ND		0.48 J	0.47 J	0.46 J
o-Xylene	ND		ND		ND		ND		ND		ND		ND		0.32 J	0.32 J	0.29 J
1,4 Dioxane by EPA Method 8260 C SIM																	
1,4 Dioxane	ND		ND		ND		ND		ND		ND		ND		NT	NT	NT
SVOCs by EPA Method 8270 D																	
SVOCs	ND		ND		ND		ND		ND		ND		ND		NT	NT	NT
Metals by EPA Method 6020 A-B and 7470A																	
Antimony	0.51	R-04, J	0.47	J	0.33	J	0.22	J	ND		ND		ND				
Arsenic	ND		2.1		0.94		0.81		1.2		ND		ND				
Chromium	ND		2		ND		ND		ND		ND		ND				
Copper	ND		3.9	J	0.99	J	ND		0.77	J	ND		ND				
Iron	85	J	6600		340		1400		6300		580		570		NT	NT	NT
Lead	ND		3.1		0.37	J	ND		0.63	J	ND		ND				
Manganese	6.1		110		18		130		220		24		43				
Nickel	ND		1.3	J	ND		ND		ND		ND		ND				
Zinc	ND		31		ND		10	J	13	J	ND		ND				
Ammonia as N by SM19-22 4500 NH3 C																	
Ammonia as N	ND		ND		ND		ND		ND		ND		ND		NT	NT	NT
Nitrate and Sulfate by EPA Method 300 (mg/L)																	
Nitrate as N	ND		ND		0.13		0.072		0.079		0.066		1.2		NT	NT	NT
Sulfate	10		15		14		6.1		11		8.4		9.6				
SVOC TICS Reported in Surface Water Samples - (No VOC TICS were Reported)																	
.beta.-Pinene	62		ND		ND		ND		ND		ND		ND				
1S-.alpha.-Pinene	610		ND		ND		ND		ND		ND		ND		ND	ND	ND
Cyclohexene, 1-methyl-4-(1-...	40		ND		ND		ND		ND		ND		ND				

Results reported in ug/L, Except Ammonia, Nitrate, Sulfate reported in mg/L

ND	Not Detected
NT	Not Tested
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration.
R-04	Duplicate relative percent difference (RPD) is a less useful indicator of sample precision for sample results that are <5 times the reporting limit (RL).
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
TICs	Tentatively Identified Compounds

TABLE 4
Sediment Analytical Results Summary (Detections Only)
Princeville Dump
Tarboro, Edgecombe County, NC
ID NONCD0000297
Task Order 297DP-2

Sample ID	SD-1		SD-2		SD-3		SD-5		Trip Blank 1	Trip Blank 2
Collection Date	1/16/2018		1/16/2018		1/16/2018		1/16/2018		1/16/2018	1/16/2018
Parameter	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Result
VOCs by EPA Method 8260 B										
Acetone	0.023	J	0.054	J	0.037	J	0.20	J	ND	ND
p-Isopropyltoluene (p-Cymene)	ND		ND		ND		0.0054		ND	ND
Toluene	ND		ND		ND		0.0069		ND	ND
1,4 Dioxane by EPA Method 8260 C SIM										
1,4 Dioxane	ND		ND		ND		ND		NT	NT
SVOCs by EPA Method 8270 D										
Benzoic Acid	ND		ND		ND		1.3	J	NT	NT
Metals by EPA Method 6020 A-B and 7470A										
Antimony	ND		0.37	J	ND		ND			
Arsenic	0.42		0.98		0.34		3.2			
Beryllium	0.072	J	0.81		0.056	J	0.59	J		
Cadmium	ND		0.11	J	ND		0.23	J		
Chromium	4.4	J	9.7		1.8	J	6.1	J		
Copper	1.7	J	6.7	J	0.57	J	5.6	J		
Iron	2200	MS-19	4100		960		6800			
Lead	2.8		28		1.7	J	21		NT	NT
Manganese	7.2		56		7.5		19			
Mercury	ND		0.027	J	ND		0.021	J		
Nickel	1.2	J	3.6	J	0.45	J	2.9	J		
Selenium	ND		0.40	J	ND		0.52	J		
Silver	0.0093	J	0.033	J	ND		0.017	J		
Thallium	0.032	J	0.12		0.0084	J	0.16			
Zinc	4.0	J	31		2.8	J	27			
Ammonia as N by SM19-22 4500 NH3 C										
Ammonia as N	ND		ND		ND		ND		NT	NT
Nitrate and Sulfate by EPA Method 300										
Nitrate as N	1.7	J	4.2		1.9	J	3.0	J	NT	NT
Sulfate	240	J	ND		ND		ND			

Results reported in mg/Kg

ND	Not Detected
NT	Not Tested
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningfu
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration.

TABLE 4A
Sediment Tentatively Identified VOC and SVOC Summary
Princeville Dump
Tarboro, Edgecombe County, NC
ID NONCD0000297
Task Order 297DP-2

Sample ID	SD-1	SD-2	SD-3	SD-5	Trip Blank 1	Trip Blank 2
Collection Date	1/16/2018	1/16/2018	1/16/2018	1/16/2018	1/16/2018	1/16/2018
Parameter	Result	Result	Result	Result	Result	Result
No VOC TICS Were Reported						
VOCs						
SVOCs by EPA Method 8270 D						
(Z)-14-Tricosenyl formate						
.beta.-Sitosterol				4		
1,15-Hexadecadiene			0.32			
16-Octadecenal				4.5		
2-Butanone, 4-hydroxy-						
2-Furancarboxaldehyde, 5-(h...						
2-Furanmethanol						
2-Propenoic acid, 3-(4-hydr...						
3-Hydroxy-4-methoxybenzoic ...						
4-((1E)-3-Hydroxy-1-propeny...		0.43		3.3		
7-Isopropenyl-1,4a-dimethyl...				2		
9-Octadecenoic acid, (E)-						
Benzoic acid, 4-hydroxy-3,5...						
Bicyclo[10.8.0]eicosane, cis-						
Cyclobutane, methyl-					0.0093	
eicosane		0.26	0.69			
Furfural						
Heneicosane				5.6		
Hentriacontane						
Heptadecane				7.4		
Hexadecanal				0.92		
Hexadecenoic acid, Z-11-		0.3				
n-Hexadecanoic acid		0.48	0.57	3.2		
Nonacosane						
Nonadecane, 9-methyl-			0.51			
Octacosane						
Octadecanal				4.8		
Oxirane, heptadecyl-			0.37			
Oxirane, hexadecyl-						
Pentanoic acid, 4-oxo-						
Phenanthrene, 3,9-bis(1,1-d...						
p-Hydroxycinnamic acid						
Picein						
Squalene			0.41			
Stigmasterol, 22,23-dihydro-						
Tridecane, 1-iodo-						
Urs-12-ene, 3-methoxy-, (3....			0.29			
vanillin						
Vitamin E			0.18	2		

Results reported in mg/Kg
All reported values should be considered and estimate.
PSRG Preliminary Soil Remediation Goal
VOCs Volatile Organic Compounds
SVOCs Semi-Volatile Organic Compounds

APPENDICES

APPENDIX A
Sensitive Environments Research Summary

John Palmer

From: Butler, Rodney A <Rodney.Butler@ncdcr.gov>
Sent: Friday, June 09, 2017 8:57 AM
To: John Palmer
Subject: Princeville Dump
Attachments: project_report_princeville_dump_7672_7672.pdf

Follow Up Flag: FollowUp
Flag Status: Flagged

Thank you for contacting North Carolina's Natural Heritage Program (NCNHP) about the '**Princeville Dump**' project. Attached is a response letter, which contains information on rare species, natural communities, managed areas, and natural areas that are in or within a mile of your project area. This information may assist you with natural resources permitting requirements associated with your projects. Note that NCNHP is a non-regulatory agency and as such, we cannot assess impacts or determine mitigation measures. Please contact me if you have any questions, or if I can be of further assistance.

You may also be interested in our Natural Heritage Data Explorer (NHDE) website (https://ncnhde.natureserve.org/). This website allows you to submit project review requests online and receive a customized report of natural heritage resources within and near project areas in less than 10 minutes. All you need to do is attend training and create a user account and subscription. Please see the NHDE Home page for details training dates.

Within the next few months, the Natural Heritage Program may implement fees to defray costs associated with online access to natural heritage data, project review, environmental services, and field surveys, as authorized by § 113A-164.12. Fees collected will allow NCNHP to continue to provide these services and operate the Natural Heritage Data Explorer (NHDE). We will post more information to our website as soon as the fees are approved. If you have immediate questions, please contact me.

The above referenced project submitted through the Natural Heritage Data Explorer (NHDE) was flagged for Natural Heritage Program staff review because the project area you provided intersects or is adjacent to one or more Element Occurrences with candidate, threatened, or endangered status under the federal Endangered Species Act (ESA).

The record that triggered the review of this project is for Tar River Spinymussel (Elliptio steinstansana), which has endangered status under the ESA. You may wish to contact the U.S. Fish and Wildlife Service – Asheville Ecological Services Field Office at 828-258-3939 for assistance if you have any questions regarding the presence of this species.

Rodney A. Butler
Business Services Coordinator
Division of Land and Water Stewardship
NC Dept. of Natural and Cultural Resources
919.707.8603 office
rodney.butler@ncdcr.gov

121 West Jones Street | 1651 Mail Service Center | Raleigh, North Carolina 27699-1651

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

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North Carolina Department of Natural and Cultural Resources
Natural Heritage Program

Governor Roy Cooper

Secretary Susi H. Hamilton

NCNHDE-3791

June 27, 2017

Ben Whitley
Froehling & Robertson, INC
310 Hubert St.
Raleigh, NC 27603
RE: Re-Do of Princeville Dump

Dear Ben Whitley :

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, or conservation/managed areas within the proposed project boundary. These results are presented in the attached 'Documented Occurrences' tables and map.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists and is included for reference. Tables of natural areas and conservation/managed area within a one-mile radius of the project area, if any, are also included in this report.

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve (DNP), Registered Heritage Area (RHA), Clean Water Management Trust Fund (CWMTF) easement, or an occurrence of a Federally-listed species is documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919.707.8603.

Sincerely,
NC Natural Heritage Program

MAILING ADDRESS:
1651 Mail Service Center
Raleigh, NC 27699-1651

Telephone: (919) 707-8107
www.ncnhp.org

LOCATION:
121 West Jones Street
Raleigh, NC 27603

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Intersecting the Project Area
Re-Do of Princeville Dump
June 27, 2017
NCNHDE-3791

No Element Occurrences are Documented within the Project Area

There are no documented element occurrences (of medium to very high accuracy) that intersect with the project area. Please note, however, that although the NCNHP database does not show records for rare species within the project area, it does not necessarily mean that they are not present; it may simply mean that the area has not been surveyed. Th use of Natural Heritage Program data should not be substituted for actual field surveys if needed, particularly if the project area contains suitable habitat for rare species. If rare species are found, the NCNHP would appreciate receiving this information so that we may update our database.

Natural Areas Documented Within Project Area

Site Name	Representational Rating	Collective Rating
Tarboro Floodplain	R3 (High)	C5 (General)

Managed Areas Documented Within Project Area*

Managed Area Name	Owner	Owner Type
Tar River Game Land	NC Wildlife Resources Commission	State

*NOTE: If the proposed project intersects with a conservation/managed area, please contact the landowner directly for additional information. If the project intersects with a Dedicated Nature Preserve (DNP), Registered Natu Heritage Area (RHA), or Federally-listed species, NCNHP staff may provide additional correspondence regarding the project.

Definitions and an explanation of status designations and codes can be found at https://ncnhde.natureserve.org/content/help. Data query generated on June 27, 2017; source: NCNHP, Q2 April 2017. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
Re-Do of Princeville Dump
June 27, 2017
NCNHDE-3791

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Amphibian	12606	Necturus lewisi	Neuse River Waterdog	2015-01-12	E	3-Medium	Species of Concern	Special Concern	G2	S2
Crustacean	29726	Orconectes carolinensis	North Carolina Spiny Crayfish	2004-07-14	E	3-Medium	---	Special Concern	G3	S3
Freshwater Bivalve	1206	Alasmidonta undulata	Triangle Floater	2013-10-16	E	3-Medium	Species of Concern	Threatened	G4	S3
Freshwater Bivalve	14068	Elliptio roanokensis	Roanoke Slabshell	2015-05-07	E	3-Medium	Species of Concern	Threatened	G3	S3
Freshwater Bivalve	21438	Elliptio steinstansana	Tar River Spinymussel	2001-10-04	E	3-Medium	Endangered	Endangered	G1	S1
Freshwater Bivalve	8246	Lampsilis cariosa	Yellow Lampmussel	2013-10-16	E	3-Medium	Species of Concern	Endangered	G3G4	S3
Freshwater Bivalve	7902	Lampsilis radiata	Eastern Lampmussel	2013-10-16	E	3-Medium	---	Threatened	G5	S3
Freshwater Bivalve	29527	Villosa constricta	Notched Rainbow	1998-09-21	E	3-Medium	Species of Concern	Special Concern	G3	S3
Freshwater Fish	11292	Noturus furiosus	Carolina Madtom	2007-06-13	E	3-Medium	Species of Concern	Threatened	G2	S2
Reptile	10800	Heterodon simus	Southern Hognose Snake	1995-Pre	E	5-Very Low	Species of Concern	Special Concern	G2	S2

Natural Areas Documented Within a One-mile Radius of the Project Area

Site Name	Representational Rating	Collective Rating
Tarboro Floodplain	R3 (High)	C5 (General)
TAR/Lower Tar River Aquatic Habitat	n/a (Not Applicable)	C1 (Exceptional)

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
Tar River Game Land	NC Wildlife Resources Commission	State

Definitions and an explanation of status designations and codes can be found at https://ncnhde.natureserve.org/content/help. Data query generated on June 27, 2017; source: NCNHP, Q2 April 2017. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-3791: Re-Do of Princeville Dump



June 27, 2017

1:21,279

0 0.175 0.35 0.7 mi

0 0.275 0.55 1.1 km

- Project Boundary
- Buffered Project Boundary
- Natural Heritage Element Occurrence (NHEO)
- NHP Natural Area (NHNA)
- Managed Area (MAREA)

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

John Palmer

From: Patt, Heather <heather.patt@ncdenr.gov>
Sent: Monday, May 15, 2017 3:21 PM
To: John Palmer
Subject: [Junk released by Allowed List] Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

Dear Mr. Palmer,

In reviewing the information for the Princeville Dump property off of Jenkins St in Princeville, NC, I determined that this area is classified as "Environmentally Sensitive" or "State-Designated Areas for Protection or Maintenance of Aquatic Life". This area drains into the Tar River. We recommend any activity on this property should minimize sediment, metal, and nutrient runoff to surface water. The groundwater leaving this site likely contributes to the base flow and if contaminated could lead to the degradation of the aquatic life in this system.

Information on all monitored waters (305b-Integrated Report) within the State can be found here: http://deq.nc.gov/about/divisions/water-resources/planning/modeling-assessment/water-quality-data-assessment/integrated-report-files.

If you have any additional questions please let me know.

~Heather

Heather Patt
Basin Planner
DEQ- Division of Water Resources
1611 MSC, Raleigh, NC 27699-1617
office: 919-707-9117
fax: 919-733-3558
heather.patt@ncdenr.gov
http://deq.nc.gov/about/divisions/water-resources/planning/basin-planning

Nothing Compares

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: John Palmer [mailto:JPalmer@FandR.com]
Sent: Monday, May 15, 2017 10:56 AM

To: Mcmillan, Ian ; Williams, Melanie
Subject: Sensitive Environments Information Request

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

FROEHLING & ROBERTSON, INC.
310 Hubert Street, Raleigh, NC 27603 | USA
T 919.828.1341 | F 919.828.5751 | M 919.630.1945
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John Palmer

From: DCR - Environmental_Review <Environmental.Review@ncdcr.gov>
Sent: Thursday, June 08, 2017 4:11 PM
To: John Palmer
Subject: RE: Sensitive Environments Information Request
Attachments: ER 17-0930.pdf

Follow Up Flag: FollowUp
Flag Status: Flagged

Our response is attached. Thank you.

Renee Shearin
Environmental Review Technician, State Historic Preservation Office
North Carolina Department of Natural and Cultural Resources
(919) 807-6584 Office
renee.shearin@ncdcr.gov

109 East Jones Street | 4603 Mail Service Center | Raleigh, North Carolina 27699

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

Please submit all Environmental Review projects to environmental.review@ncdcr.gov. Only one project per email. Allow at least 30 days for our review. We try hard to complete the reviews in fewer days, but under state and federal regulations we have a mandatory 30 days.

See http://www.hpo.ncdcr.gov/er/er_email_submittal.html for guidelines on submitting projectsfor environmental review.

Do not send .zip, .tif files, downloads, or links to websites as we are not able to process these types of items. The message size, including all attachments, should be no larger than 20 megabytes.

From: John Palmer [mailto:JPalmer@FandR.com]
Sent: Monday, May 15, 2017 10:51 AM
To: DCR - Environmental_Review
Subject: Sensitive Environments Information Request

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

June 8, 2017

John Palmer
Froehling & Robertson, Inc.
310 Hubert Street
Raleigh, NC 27603

Re: Inactive Hazardous Site, Princeville Dump, Jenkins Street, Princeville, Edgecombe County, ER 17-0930

Dear Mr. Palmer:

Thank you for your email of May 15, 2017, concerning the above project.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Ramona M. Bartos

John Palmer

From: Luczak, Heather L -FS <hluczak@fs.fed.us>
Sent: Monday, May 15, 2017 11:08 AM
To: John Palmer
Subject: RE: Sensitive Environments Information Request

Mr. Palmer,
There are no Designated and Proposed Federal Wilderness and Natural Areas, National Preserves and Forests, or Federal Land Designated for the Protection of Natural Ecosystems within 500 feet of the site located on at Jenkins Street, in Princeville, Edgecombe County, North Carolina.

Heather Luczak
Forest NEPA Coordinator

Forest Service
National Forests in NC

p: 828-257-4817
f: 828-259-0567
hluczak@fs.fed.us

160 Zillicoa St. Suite A
Asheville, NC 28805
www.fs.fed.us



Caring for the land and serving people

From: John Palmer [mailto:JPalmer@FandR.com]
Sent: Monday, May 15, 2017 10:55 AM
To: Luczak, Heather L -FS
Subject: Sensitive Environments Information Request

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 11:02 AM
To: 'Anita_Barnett@nps.gov'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 11:01 AM
To: 'Ted.Tyndall@ncdenr.gov'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

FROEHLING & ROBERTSON, INC.
310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 11:03 AM
To: 'Chris.Carlson@ncdenr.gov'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 11:04 AM
To: 'David.Cox@ncwildlife.org'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

FROEHLING & ROBERTSON, INC.
310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 10:51 AM
To: 'environmental.review@ncdcr.gov'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 10:53 AM
To: 'Harrington@usace.army.mil'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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310 Hubert Street, Raleigh, NC 27603 | USA
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 10:55 AM
To: 'Hluczak@fs.fed.us'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 10:56 AM
To: 'Ian.Mcmillan@ncdenr.gov'; 'melanie.williams@ncdenr.gov'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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310 Hubert Street, Raleigh, NC 27603 | USA
T 919.828.1341 | F 919.828.5751 | M 919.630.1945
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John Palmer

From: John Palmer
Sent: Monday, May 15, 2017 10:58 AM
To: 'natural.heritage@ncdcr.gov'
Subject: Sensitive Environments Information Request
Attachments: Princeville Dump S.E. Request Package 5-15-17.pdf

F&R is conducting an environmental assessment as directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch.

This site is located at (off) Jenkins Street, in Princeville, Edgecombe County, North Carolina; please find our request for sensitive environments information package attached. Please email or fax your response, and we very much appreciate any assistance you might be in this matter.

Respectfully,

John Palmer, P.G.
Senior Geologist

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Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.522.0304
NC License #F-0266

May 15, 2017

Reference: Request for Sensitive Environment(s) Information
Princeville Dump

To Whom it may concern:

Froehling & Robertson, Inc. is conducting an environmental assessment under the Guidelines for Assessment and Cleanup directed by the NCDEQ Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch. These Guidelines mandate a sensitive environments evaluation be performed the site, and properties within 500 feet of the perimeter of a former disposal area.

The facility under assessment:

Princeville Dump
(off) Jenkins Street
Princeville, Edgecombe County, NC
Pin Number: 4737-44-648

NCDENR IHSB ID #: NONCD0000297

The center of the closed disposal appears to be approximately:
Latitude:
35.86988
Longitude:
77.53015

A site vicinity map has been prepared and attached to this correspondence. The suspected boundary of the waste disposal area is illustrated on the map, as well as appropriate radius lines. One relatively modern farm/storage structure is currently located within, or adjacent to the boundary of the suspected WDA boundary illustrated on the attached maps.

This project entails the completion of a Remedial Investigation-First Phase Report to include this sensitive environment evaluation, as well as a geophysical survey for this unlined, pre-regulatory landfill. The table that follows has been published by the NCDEQ IHSB listing contact info for the governmental entities believed to be principally responsible for maintaining data concerning various types of sensitive environments. F&R requests that your office provide any information

on the existence of the sensitive environments **within 500 feet of the site**, in accordance with the third column of the following table:

Department or Office	Name & Contact Info	Sensitive Environments	Sensitive Environments Identified (YES / NO)
NC Division of Conservation, Planning, and Community Affairs – Natural Heritage Program	Email: natural.heritage@ncdcr.gov Website: http://portal.ncdenr.org/web/nhp/data-services (website inoperative)	State Parks Areas Important to Maintenance of Unique Natural Communities Sensitive Areas Identified Under the National Estuary Program Designated State Natural Areas State Seashore, Lakeshore and River Recreational Areas Rare species(state and federal Threatened and Endangered) Sensitive Aquatic Habitat State Wild & Scenic Rivers	
National Park Service - Public Affairs Office	Anita Barnett Anita_Barnett@nps.gov (404) 507-5706 http://www.nps.gov/rivers	National Seashore, Lakeshore and River Recreational Areas National Parks or Monuments Federal Designated Wild & Scenic Rivers	
US Forest Service	Heather Luczak Hluczak@fs.fed.us (828) 257- 4817	Designated and Proposed Federal Wilderness and Natural Areas National Preserves and Forests	

		Federal Land Designated for the Protection of Natural Ecosystems	
NC Division of Water Resources	Ian McMillan Ian.Mcmillan@ncdenr.gov (919) 807-6364 or Melanie Williams Melanie.Williams@ncdenr.gov (919) 707-9000 *Ask for Clean Water Act 305b report*	State-Designated Areas for Protection or Maintenance of Aquatic Life	
NC Division of Forest Resources	Chris Carlson Chris.Carlson@ncdenr.gov (919) 857-4819	State Preserves and Forests	
US Fish & Wildlife Service	Pete Benjamin Pete_Benjamin@fws.gov (919) 856-4520 x 11	Endangered Species Terrestrial Areas Utilized for breeding by Large or Dense Aggregations of Animals National or State Wildlife Refuges	
NC Department of Natural and Cultural Resources	Renee Gledhill-Earley (919) 807 – 6579 email: environmental.review@ncdcr.gov	National and State Historical Sites	
NC Division of Coastal Management	Ted Tyndall Ted.Tyndall@ncdenr.gov (252) 808-2808 http://dcm2.enr.state.nc.us	Areas Identified Under Coastal Protection Legislation Coastal Barriers or Units of a Coastal Barrier Resources System. Marine Sanctuaries	
NC Wildlife Resources Commission	David Cox (919) 707-0366 David.Cox@ncwildlife.org	National or State Wildlife Refuges State lands designated for wildlife or game management	

		Migratory Pathways and Feeding Areas Critical for Maintenance of Anadromous Fish Species within River Reaches or Areas in Lakes or Coastal Tidal Waters in which such Fish Spend Extended Periods of Time Spawning Areas Critical for the Maintenance of Fish/Shellfish Species within River, Lake or Coastal Tidal Waters. Areas Likely to serve as a natural area attractive to terrestrial ecological receptors Areas of stressed vegetation or wildlife	
US Army Corps of Engineers	Dorothy Harrington Dorothy.Harrington@usace.army.mil (919) 554-4884, x 28	Wetlands	

Please forward this completed form, and/or any comments to:

Email: jpalmer@fandr.com

US Mail: John Palmer - Froehling & Robertson, Inc - 310 Hubert Street, Raleigh, NC 27603

Your cooperation in this matter is greatly appreciated. Should you have any questions concerning this sensitive environment information request, please contact our Raleigh office (919) 828-3441.

Respectfully,
FROEHLING & ROBERTSON, INC.

John Palmer, P.G.
Senior Geologist

Attached: Site & Vicinity Maps



Site Map

0 55 110 220 330 440 Feet

N

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Engineering Stability Since 1881
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Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ	Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.
Project:	Princeville Dump	
Location	Princeville, Edgecombe County, NC	
F&R Project No.:	66U-0303-0001 Task Order 297 FP-3	FIGURE No.: 1
Data:	NC One Map 2016	
Date:	May 2017	Scale: 1:1,200 1 inch = 100 feet



Vicinity Map

0 165 330 660 990 1,320 Feet

N

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Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
T 919.828.3441 I F 919.828.5751

Client:	NCDEQ	Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.	
Project:	Princeville Dump		
Location	Princeville, Edgecombe County, NC		
F&R Project No.:	66U-0303-0001 Task Order 297 FP-3		FIGURE No.: 2
Data:	NC One Map 2016		
Date:	May 2017	Scale: 1:3,600 1 inch = 300 feet	

APPENDIX B
Geophysical Investigation

Geo Solutions Ltd.

August 03, 2017

Mr. John Palmer
Froehling & Robertson, Inc.
310 Hubert Street
Raleigh, North Carolina 27603

Re: Pre-Regulatory Waste Dump Site Princeville, NC

Dear Mr. Palmer:

Geo Solutions Limited, Inc. (Geo Solutions) is pleased to submit this report for a geophysical evaluation at a suspected former dump site located in Princeville, North Carolina.

Background
An aerial photograph of the approximate site location is presented in Figure 1 below:



Figure 1. Aerial Photograph of approximate location of suspected dump site (outlined in solid red and extended survey area in dashed red). The approximate location of proposed grid presented in yellow.

This area represents approximately two acres however the survey was extended well beyond the proposed limits. At the time of this field survey the nature of the potential dump material was not known.

Field Evaluation

Geo Solutions completed all field work on August 01, 2017. Geo Solutions conducted the following geophysical investigations to assist in the delineation of the buried waste:

1. Geo Solutions completed an electromagnetic evaluation (EM) of the approximately 2-acre site by collecting data on a minimum of 50-ft grid (most of the work was completed on a grid less than 10 ft interval. Geo Solutions extended the limits of the survey out to cover approximately 5-acres however the survey density was less due to restricted access (heavy vegetative cover, buildings, and surface debris).

2. The EM unit was hand carried to extend the survey lines into the heavily vegetative areas and livestock pens.

3. The EM evaluation was completed using an EM geophysical profiler operating under Geonics Model EM-31 mode using a Geophex GEM-2. The EM unit was towed on a custom sled by an All Terrane Vehicle (ATV) except in the heavily vegetative areas and livestock pens where it was hand carried.

4. The location of the EM profile lines were located using a GPS unit reporting in UTM and later converted to latitude/longitude coordinates (reported to 7th order) (Figure 2).

5. Geo Solutions compiled site maps showing the EM results. The results show the in-phase and apparent conductivity values and identified surface features that may affect the results of the evaluation (i.e., metal culverts and surface debris). From this information, the extent of the landfill material within the surveyed area was evaluated and presented on a map (Figures 3 and 4 for in-phase data and apparent conductivity respectively).

6. The boundaries of the waste material was identified using geographic coordinates starting from the northern most point of the fill, proceeding clockwise full circle (Figure 5) using the composite data presented in Figures 3 and 4.

Results and Conclusions

Geo Solutions completed an EM evaluation to estimate the lateral distribution of suspected buried waste material. The type of waste material can be estimated based on the in-phase and apparent conductivity (quadrature) response. Metal debris commonly expresses higher responses in the in-phase mode. Whereas, more conductive material exhibits stronger responses in the quadrature mode (presented here as apparent conductivity). Figures 3 and 4 illustrate the in-phase and apparent conductivity results.

Based on the combined results of in-phase and apparent conductivity, Geo Solutions created a composite map that best illustrates the responses of the two collection modes (Figure 5). Geo Solutions estimated the lateral limits of potential fill by outlining the areas that exhibited strong EM responses. The outline of potential fill is presented in Figure 5 however, the landfill appears to extend southwest of the area surveyed. The EM survey indicates that the waste fill extends to the southwest of the areas surveyed. Further, the waste materials are exposed in the livestock pens southwest of the survey area. The survey boundary could not be extended farther south at the time of the survey due to heavy vegetative cover. It is recommended to extend the survey boundary southward to characterize the landfill extents in this area. However, this will require selectively clearing profile lines (walking trails spaced approximately 50 feet apart) south of the current survey area. In addition to the area delineated as containing potential buried fill, scattered surface debris including tires, rims, and various metallic and non-metallic debris are visible at the surface outside of this area. This is thought to be related to the past flooding events in the area distributing the waste material outside the original burial location. These surface features were detected during the EM survey and are noted on Figure 5.

By comparing the initial area to be surveyed (under contract) shown in Figure 1 and the area of potential fill in Figure 5 it has been determined that the area of potential fill is much larger than initially suspected.

Geo Solutions used 30 survey points (shown in Figure 5) to outline the estimated extent of fill within the surveyed area however, the potential waste fill extends southwest of the surveyed area. The station coordinates are presented in geographic coordinates below:

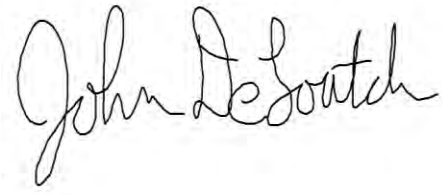
Station	Longitude	Latitude
1	-77.5300296	35.8702633
2	-77.5298402	35.8703055
3	-77.5296170	35.8702450
4	-77.5295035	35.8701528
5	-77.5293893	35.8700405
6	-77.5292165	35.8699968
7	-77.5289550	35.8699461
8	-77.5289523	35.8697751

9	-77.5291383	35.8697127
10	-77.5294066	35.8697138
11	-77.5295129	35.8696665
12	-77.5296330	35.8695312
13	-77.5296842	35.8693996
14	-77.5295271	35.8693286
15	-77.5295036	35.8692008
16	-77.5296365	35.8691170
17	-77.5296744	35.8689434
18	-77.5298071	35.8688483
19	-77.5299552	35.8688807
20	-77.5301708	35.8688762
21	-77.5303952	35.8688917
22	-77.5303376	35.8689919
23	-77.5302277	35.8691023
24	-77.5302060	35.8692895
25	-77.5301923	35.8694676
26	-77.5301894	35.8696365
27	-77.5301647	35.8698171
28	-77.5301939	35.8699515
29	-77.5302460	35.8701102
30	-77.5301106	35.8702008

Geo Solutions is pleased to have been provided this opportunity, please give me a call should you have any questions concerning the above information.

Very truly yours,

GEO SOLUTIONS LIMITED, INC.



John DeLoatch, PG
Geologist

FIGURE 2



LEGEND

Indicates Location of EFEM Data Point

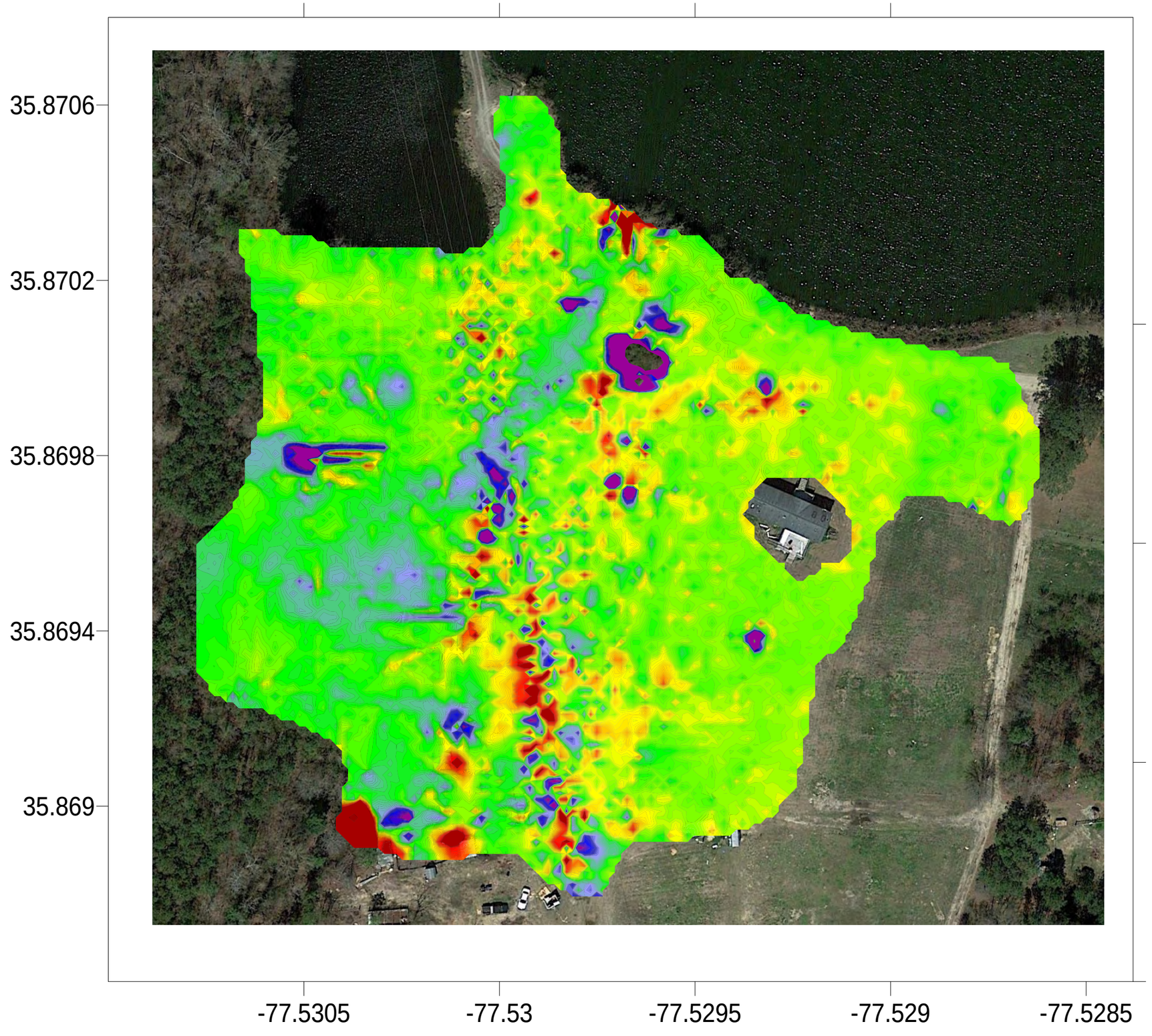
MULTIFREQUENCY EM GEOPHYSICAL SURVEY
Princeville, NC

0 100
SCALE IN FEET

Surveyed: 8/01/2017

Geo Solutions Ltd.

FIGURE 3



LEGEND

In-Phase DATA 9810 Hz

1850
1550
1250
950
650
350
50
-250
-550
-850
-1150
-1450
-1750
-10000

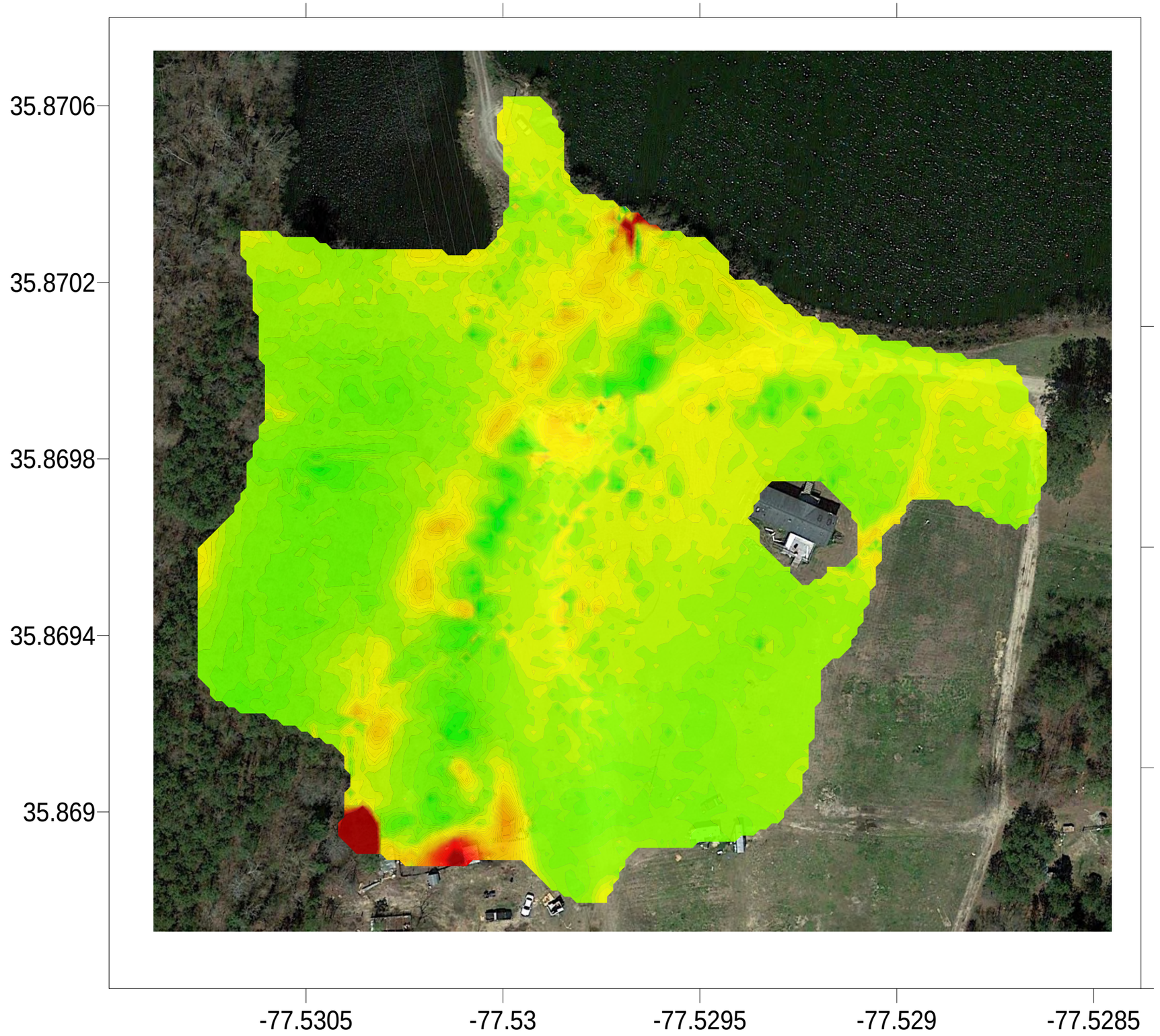
MULTIFREQUENCY EM GEOPHYSICAL SURVEY
Princeville, NC

0 100
SCALE IN FEET

Surveyed: 8/01/2017

Geo Solutions Ltd.

FIGURE 4



LEGEND

Apparent Conductivity DATA 32190 Hz

1850
1550
1250
950
650
350
50
-250
-550
-850
-1150
-1450
-1750
-10000

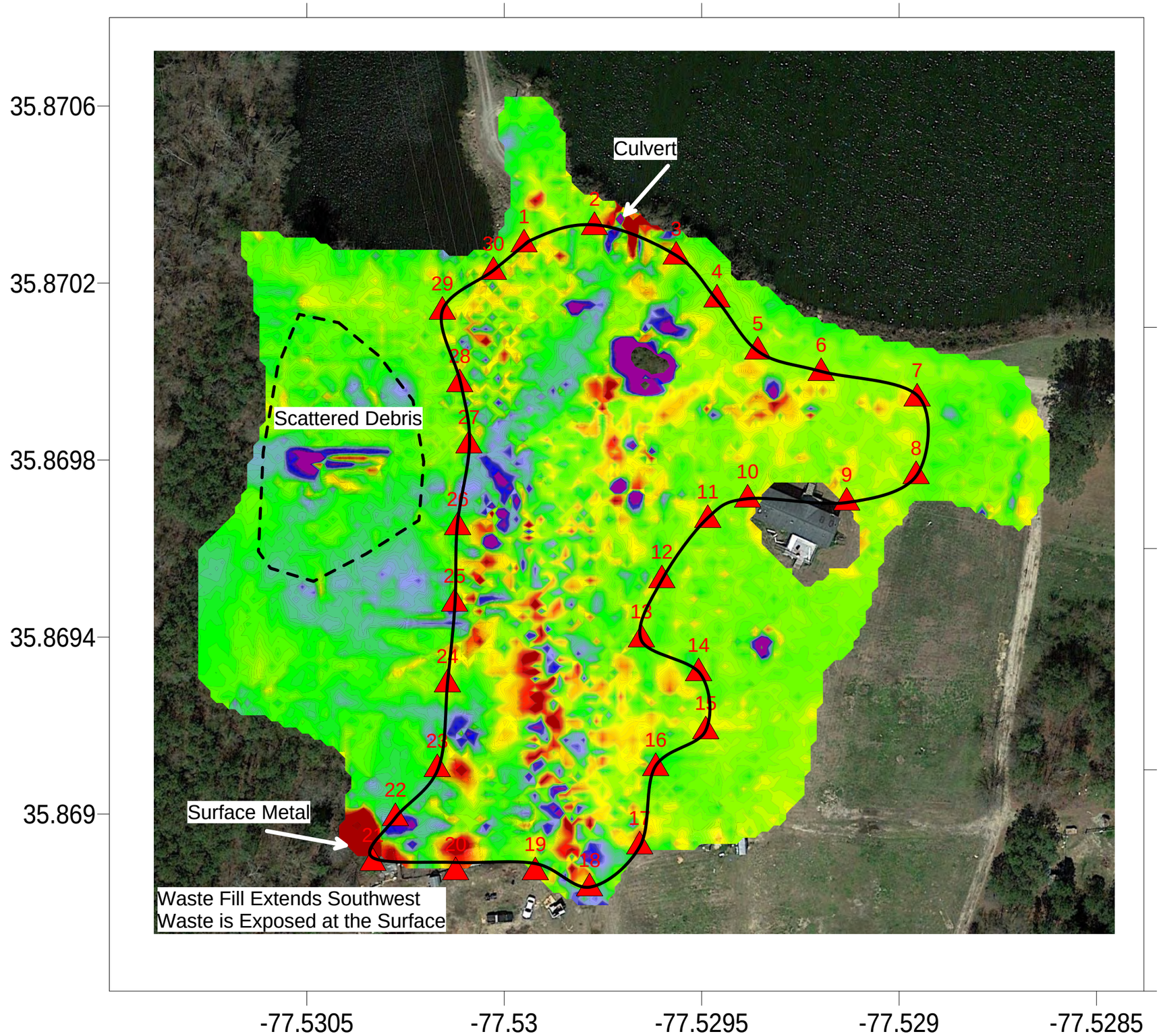
MULTIFREQUENCY EM GEOPHYSICAL SURVEY
Princeville, NC

0 100
SCALE IN FEET

Surveyed: 8/01/2017

Geo Solutions Ltd.

FIGURE 5



LEGEND

Composite Data Outline of Suspected Landfill

5

MULTIFREQUENCY EM GEOPHYSICAL SURVEY
Princeville, NC

0 100
SCALE IN FEET

Surveyed: 8/01/2017

Geo Solutions Ltd.

APPENDIX C
Field Documentation

GROUNDWATER SAMPLING FORM

Page 1 of 1

Site Name: PRINCEVILLE
Project No.: 66J-0303-0002

Date: 1/16/18
Personnel: WRD / JP

Well ID: SW-1 / SD-1
Well Depth:
Screen Depth:
Pump Depth:

Well Dia.:
Depth to Water:
Well Volume:
[2" = water column x 0.163]

Notes: SD-1 SAMPLED @ 1210
VOC = 0.0 PPM

Time (24 hr)	Water Level (datum TOC)	Purge Volume	Temp (°C)	Spec. Cond. (µS/cm)	pH (std. unit)	Turbidity (NTU)
1204	—	—	7.2	113.4	7.03	4.46
Criteria:			+/- 1	+/- 10%	+/- 0.1	< 10

Sample ID: SW-1
Sample Time: 1205

Parameters Measured with: YSI PROF-16F101843
HANNA 98703-9036

SINCE F&R 1881

GROUNDWATER SAMPLING FORM

Page 1 of 1

Site Name: PRWCEVILLE
Project No.: 66W-0303-0002

Date: 1/16/18
Personnel: WRS / JP

Well ID: SW-2 / SD-2
Well Depth:
Screen Depth:
Pump Depth:

Well Dia.:
Depth to Water:
Well Volume:
[2" = water column x 0.163]

Notes: SD-2 SAMPLED @ 1230
VOC = 0.0 PPM

Time (24 hr)	Water Level (datum TOC)	Purge Volume	Temp (°C)	Spec. Cond. (µS/cm)	pH (std. unit)	Turbidity (NTU)
1224			9.1	142.8	6.69	360
Criteria:			+/- 1	+/- 10%	+/- 0.1	< 10

Sample ID: SW-2
Sample Time: 1225

Parameters Measured with: YSI PROF-16F101843
HANNA 98703-9036

GROUNDWATER SAMPLING FORM

Page 1 of 1

Site Name: PRINCEVILLE
Project No.: 66V-0303-0002

Date: 1/16/18
Personnel: W.D. + J.P.

Well ID: SW-3 / SD-3
Well Depth:
Screen Depth:
Pump Depth:

Well Dia.:
Depth to Water:
Well Volume:
[2" = water column x 0.163]

Notes: SD-3 SAMPLED @ 1130
VOC READING = 0.1 PPM

Time (24 hr)	Water Level (datum TOC)	Purge Volume	Temp (°C)	Spec. Cond. (µS/cm)	pH (std. unit)	Turbidity (NTU)
1124			6.8	153.0	7.41	4.46
Criteria:			+/- 1	+/- 10%	+/- 0.1	< 10

Sample ID: SW-3 / SD-3
Sample Time: 1125

Parameters Measured with: YSI PROF-16F 10/843
HANNA 98703-9036

GROUNDWATER SAMPLING FORM

Page 1 of 1

Site Name: PRUDEVILLE
Project No.: 660-0303-0002

Date: 1/16/18
Personnel:

Well ID: SW-4 / SD-4
Well Depth:
Screen Depth:
Pump Depth:

Well Dia.:
Depth to Water:
Well Volume:
[2" = water column x 0.163]

Notes: SD-4 SAMPLED @ 1315
VOC = 0.0 PPM
(SD-DUP / SW-DUP) PULLED FROM THIS LOCATION

Time (24 hr)	Water Level (datum TOC)	Purge Volume	Temp (°C)	Spec. Cond. (µS/cm)	pH (std. unit)	Turbidity (NTU)
1310			9.2	115.5	6.91	23.1
Criteria:			+/- 1	+/- 10%	+/- 0.1	< 10

Sample ID: SW-4
Sample Time: 1310

Parameters Measured with: YSI PROF-16F101843
HANNA 98703 - 9036

GROUNDWATER SAMPLING FORM

Page 1 of 1

Site Name: PRINCEVILLE
Project No.: 660-0303-0002

Date: 1/16/18
Personnel:

Well ID: SW-5 / SD-5
Well Depth:
Screen Depth:
Pump Depth:

Well Dia.:
Depth to Water:
Well Volume:
[2" = water column x 0.163]

Notes: SD-5 sampled @ 1410
VOC = 0.0 PPM

Time (24 hr)	Water Level (datum TOC)	Purge Volume	Temp (°C)	Spec. Cond. (µS/cm)	pH (std. unit)	Turbidity (NTU)
1405			9.6	95.6	6.80	14.5
Criteria:			+/- 1	+/- 10%	+/- 0.1	< 10

Sample ID: SW-5
Sample Time: 1405

Parameters Measured with: YSI PROF - 16F101843
NANNA 98703 - 9036

GROUNDWATER SAMPLING FORM

Page 1 of 1

Site Name: PRINCEVILLE
Project No.: 660-0303-0002

Date: 1/16/18
Personnel:

Well ID: SW-6 / SD-6
Well Depth:
Screen Depth:
Pump Depth:

Well Dia.:
Depth to Water:
Well Volume:
[2" = water column x 0.163]

Notes: SD-6 SAMPLED @ 1450
VOCs = 0.1 PPM

Time (24 hr)	Water Level (datum TOC)	Purge Volume	Temp (°C)	Spec. Cond. (µS/cm)	pH (std. unit)	Turbidity (NTU)
1444	—	—	10.0	147.8	6.31	5.26
Criteria:			+/- 1	+/- 10%	+/- 0.1	< 10

Sample ID: SW-6
Sample Time: 1445

Parameters Measured with: YSI PROF - 16F101843
HANNA 98703 - 9036

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-1
Project #	66U-0303-0001	Date	1/30/18
F&R Staff	J.P.	Time	1425
Drilling Co.	QUANTEX	GW Depth	6.5' → 6.0'
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	5.5	SILTY V.FN → FN SAND W/ CLAY; 10 → 30% FWGS, MOIST; YLW/BRWN				
5.5	10.0	SILTY CLAYEY FN → MED SAND; ~10 → 25% FWGS, MOIST → WET, ORG/BRWN				
0.0	5.0	SAME				
5.0	9.5	SILTY CLAYEY FN → MED SAND; ~10 → 25% FWGS, MOIST → WET, ORG/BRWN				
9.5	15.0	SILTY FN → CS SAND W/ CLAY; ~5 → 15% FWGS, WET, BRWN/GRAY				
0.0	4.0	SAME				
4.0	10.0	SAME				

B-1

B-1-A (IN)

B-1-B (IN)

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-2
Project #	66V-0303-0001	Date	~~1510~~ 1/30/18
F&R Staff	J.P.	Time	1510
Drilling Co.	QUANTEX	GW Depth	3.5 ~~4.0~~ → 4.5'
Driller	MIKE & MARK	Elevation	

Depth From	Depth To	Classification	PID	Notes
0.0	~~4~~ 4.5	SILTY CLAYEY V.FN → FN SAND; 10 → 35% FINES, V. MOIST, ORG / GRAY		
4.5	10.0	SILTY CLAYEY FN → MED SAND; 10 → 20% FINES, V. MOIST → WET, YLW / BROWN		
0.0	3.5	SAME.		
3.5	10.0	SILTY FP → MED SAND W/ CLAY; ~5 → 15% FINES, V. MOIST → WET, GRAY		GW @ ~ 3.5' BGS THIS IS @ DRAWDOWN

B-2

B-2-A (IW)

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-3
Project #	66U-0303-0001	Date	1 | 30
F&R Staff	J.P.	Time	0940
Drilling Co.	QUANTEX	GW Depth	6.0 → 6.5' BLS
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	4.0	SILTY V. FN→FN SAND; MIS→30% FINES, MOIST → V. MOIST, YLW/BRWN				
4.0	10.0	SILTY FN → MED SAND; 5→15% FINES, V. MOIST, ORG/BRWN				
0.0	4.0	SAME				
4.0	10.0	SAME				
0.0	4.5	SAME				
4.5	10.0	SAME				
0.0	4.5	SAME				
4.5	10.0	SAME				

B-3

B-3-A (1.5')

B-3-B (1.5')

B-3-C (1.5')

SOME SURFACE WASTE IS SCATTERED IN VICINITY OF ALL THESE BORINGS

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-4
Project #	66U-0303-0001	Date	1/30/18
F&R Staff	J.P.	Time	1530
Drilling Co.	QUANTEX	GW Depth	~8.0'
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	~~6.0~~ 5.5	SILTY V. FN → FN SAND; ~10 → 25% FINES, MOIST, YLW/BRN				
5.5 (B-4-A (IN))	~~6.0~~ 9.5	SILTY FN → MED SAND W/ CLAY; ~5 → 15% FINES, V. MOIST → WET, OLG/BRN				
9.5	15.0	SILTY MED → VCS SAND, ~5 → 10% FINES, WET, GRAY/BRN				
0.0	6.0	SAME				
B-4 6.0		SAME				

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-6 + B-5
Project #	660-0303-0001	Date	
F&R Staff	J.P.	Time	0835 + 0845
Drilling Co.	QUANTEX	GW Depth	~~NOT DETECTED~~ ~8.0'
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	5.5	SILTY V. FN → FN SAND; ~10 → 30% FINES, MOIST → V. MOIST, YLW/GRAY				B-5 + B-6 ARE SAME!!
5.5	10.0	SILTY FN → MED SAND; ~5 → 15% FINES, V. MOIST → WET, YLW/GRAY				
0.0	5.0	SILTY V. FN → FN SAND; 15 → 30% FINES, MOIST, YLW/GRAY				
5.0	10.0	SILTY FN → MED SAND W/CLAY; ~10 → 20% FINES, MOIST → WET, OLIVE/GRAY				

B-5 & B-6

B-6A (IN)

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-7
Project #	66U-0303-0001	Date	~~2~~ 1/30/18
F&R Staff	J.P.	Time	0800
Drilling Co.	QUANTEX	GW Depth	~8.0?
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	5.0	SILTY V.FN → FN SAND; ~15 → 30% FWGS; MOIST → V. MOIST, YLW/ORN				
5.0	10.0	SILTY ~~V~~FN → MED SAND W/ CLAY; ~10 → 20% FWGS, V. MOIST → WET, ORG/GRN				
0.0	6.0	SAME				
6.0	10.0	SAME				
0.0	1.5	SAME				
1.5	10.0	SILTY FN → MED SAND W/ CLAY; ~5 → 15% FWGS, V. MOIST → WET, ORG/BRWN				
0.0	4.5	SAME				
4.5	10.0	SILTY FN → MED SAND; ~10 → 20% FWGS, V. MOIST → WET, ORG/BRWN				

B-7

B-7-A (IN)

B-7-B (IN)

B-7-C (IN)

* WASTE/SURFACE SOILS ARE INTERMIXED TO DEPTH OF 12" BGS @ ~~B-7~~ B-7-B & B-7-C

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-B
Project #	660-0303-0001	Date	1/29/18
F&R Staff	J.P.	Time	
Drilling Co.	QUANTEX	GW Depth	7.5'
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	4.0	SILTY CLAYEY V. FN SAND; 20→35% FINES, V. MOIST, BROWN/GRAY				
4.0	10.0	SANDY CLAYEY SILT; ~10→30% V. FN SAND, V. MOIST→WET, OLIVE/BROWN				
0.0	3.5	SAME				* ADDED B-B-A ON 1/30/18
~~3.5~~	~~9.0~~	~~SILTY FN→CS SAND; ~5→15%~~ ~~FINES~~				
3.5	9.0	SAME				* GW @ 7.0' BLS
9.0	15.0	SILTY FN→CS SAND; ~5→15% FINES, WET, GRAY/BROWN				

B-B

B-B-A (IN)

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-9
Project #	66V-0303-0001	Date	1/24
F&R Staff	J.P.	Time	1420
Drilling Co.	QUANTEX	GW Depth	~8.0' BLS → 7.0' BLS
Driller	MIKE & MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	3.5	SILTY CLAYEY V.FU SAND; ~30→40% FINES, V. MOIST, BRWN/GRY				
3.5	8.0	SANDY CLAYEY SILT; ~15→25% V. FU SAND, V. MOIST → WET, DK BRWN/ORNGE				B-9
8.0	10.0	SILTY FU→CS SAND; ~5→15% FINES, WET, ~~BRN/BRWN~~ GRAY/BRWN				
0.0	4.0	SILTY CLAYEY V.FU SAND; SAME PROPERTIES				B-9-A (1")
4.0	8.0	SAME				
8.0	10.0	SAME				
0.0	4.5	SAME, GRAY/BRWN				B-9-B (1")
4.5	10.0	SILTY FU→MED SAND; 10→20% FINES, V. MOIST → WET, DK/BRWN				

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-10
Project #	660-0303-0001	Date	1/29
F&R Staff	J.P.	Time	1310
Drilling Co.	QUANTEX	GW Depth	~7.5'
Driller	MIKE & MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
B-10						
0.0	4.5	SILTY V. FN TO FN SAND W/ CLAY; ~15→20% FWGR, V. MOIST, DKL BRN				
4.5	10.0	SILTY *FN→~~MED~~ COARSE SAND W/ CLAY; ~5→10% FWGS, V. MOIST→WET, DKL/BRN				

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-11
Project #	660-0303-0001	Date	12/29
F&R Staff	J.P.	Time	
Drilling Co.	QUANTEX	GW Depth	~7.0' BLS
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
B-11		V.FN → MED				(112')
0.0	4.0	SILTY SAND (DISTURBED?); ~10% FINES, V. MOIST; GRY/BROWN				
4.0	10.0	SILTY FN → CS SAND; ~5 → 10% FINES, V. MOIST → WET, GRY/BRWN				
0.0	5.0	SILTY FINE → MED SAND; ~10 → 15% FINES, V. MOIST, GRY/BRWN				
5.0	10.0	SILTY CLAYEY V.FN → FN SAND; ~15 → 25% FINES, V. MOIST → WET, GRY/BRWN				
0.0	5.0	SAME AS ABOVE				
5.0	10.0	" " "				
0.0	4.0	" " "				
4.0	10.0	" " "				
0.0	4.5	" " "				
4.5	10.0	" " "				

OFFSET (1)

OFFSET (2)

OFFSET (3)

B-11

B-11-A (IN)

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-12
Project #	660-0303-0001	Date	1/24
F&R Staff	J.P.	Time	1325
Drilling Co.	QUANTEX	GW Depth	
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	4.0	SILTY V. FN → FN SAND W/ CLAY; ~20 → 25% FWGS, V. MOIST, ORG/BRN				
B-12 4.0	10.0	SILTY V. FN → MED SAND W/ CLAY; ~5 → 10% FWGS, V. MOIST → WET; ORG/BRN				
B-12-A 0.0	1.5	SURFACE WASTES (ASH + MASONRY)				
~~OFFSET~~ 1.5	4.0	SILTY V. FN → FN SAND W/ CLAY; ~20 → 25% FWGS, V. MOIST, ORG BRN				
4.0	10.0	SAME				
0.0	4.0	SAME				
B-12 OFFSET 4.0	15.0	~~SAME~~ SILTY V. FN → CS SAND W/ CLAY; 5 → 15% FWGS, V. MOIST → WET, ORG/BROWN				
B-12-A OFFSET		B/C WASTE @ SURFACE INSIDE			COAT	BRN

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-13
Project #	660-0303-0001	Date	1/24/18
F&R Staff	J.P.	Time	1525
Drilling Co.	QUANTEX	GW Depth	~ 7.0' BLS → 7.5'
Driller	MIKE & MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	4.0	SILTY V.FN → FN SAND W/ CLAY; ~ 20 → 30% FWGS, V. MOIST, OLIVE BROWN				B-13
4.0	10.0	SILTY CLAYEY FN → MED SAND; 10 → 15% FWGS, V. MOIST → WET, YELLOW BROWN				
0.0	3.5	SILTY V.FN → FN SAND W/ CLAY; SAME PROPS				B-13-A (1W)
3.5	10.0	SAME				
0.0	4.0	SILTY V.FN → FN SAND; ~ 10 → 20% FWGS, MOIST → V. WET, YLW/BRN				B-13-B (1W)
4.0	10.0	SILTY FN → CS SAND W/ CLAY; ~ 5 → 10% FWGS, V. MOIST → WET, ORG/BRN				
* SAME		SURFACE WASTE SCATTERED	AROUND		B-13B	

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-14
Project #	66U-0303-0001	Date	1/30/18
F&R Staff	J.P.	Time	1340
Drilling Co.	QUANTEX	GW Depth	~6.0 ?
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	5.0	SILTY V. FN → FN SAND W/ CLAY; 15→25% FWGS, MOIST → V. MOIST, ORG/BRN				
5.0	10.0	SILTY FN → MED SAND; ~10→15% FWGS, V. MOIST → WET, ORG/BRN				

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-1F
Project #	66U-0303-0001	Date	1/30
F&R Staff	J.P.	Time	1400
Drilling Co.	QUANTEX	GW Depth	6.0 → 6.F'
Driller	MIKE & MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	5.F	SILTY CLAY V. FN SAND; ~25→40%. FEWES, MOIST → V. MOIST, ORG / CLAY				
5.5	12.0	SILTY V. FN → MED SAND W/ CLAY; ~10→40% FWOS, V. MOIST → WET BRWN / GRAY				
12.0	15.0	SILTY FN → CS SAND W/ CLAY; ~5→15% FWES, WET, GRAY / BRWN → GRAY				
0.0	5.0	SAME				
5.0	10.0	SAME (EXCEPT 10→30% FWES)				
0.0	4.F	SAME				
4.F	10.0	SAME (AS B-1F)				

B-1F-A (1N)

B-1F

B-1F-B (1N)

Drilling Method/Rig Type: GEOPROBE / AUGERS

BORING / SAMPLING LOG

Project	PRINCEVILLE DUMP	Boring ID	B-16
Project #	66U-0303-0001	Date	1/30/18
F&R Staff	J.P.	Time	1120
Drilling Co.	QUANTEX	GW Depth	~ 8.5 → 9.0' BLS
Driller	MIKE + MARK	Elevation	

Depth From	Depth To	Classification	Depth From	Depth To	PID	Notes
0.0	5.5	SILTY CLAYEY V. FN SAND; ~20 → 40% FINES, MOIST, ~~ORG~~ / BRWN				B-16
5.5	10.0	SILTY FN → MED SAND; ~10 → 20% FINES, V. MOIST → WET, ORG / BRWN				
0.0	3.0	~~CLAYE~~ CLAYEY SANDY SILT; ~80 → 90% FINES, MOIST, BRWN / ORANGE				B-16-A (OUT)
3.0	10.0	CLAYEY SILTY FN → MED SAND; 20 → 30 % FINES, V. MOIST → WET, ORG / BRWN				
0.0	2.5	SAME				B-16-B (OUT)
2.5	10.0	SAME				
0.0	4.0	~~SANDY~~ SILTY, SAND; ~20 → 35% FINES V. MOIST → WET, ORG / BRWN				B-16-A (IN)
4.0	10.0	SAME				
+ SOME SURFACE WASTE 0 → 12" BLS IN VICINITY OF B-16-A, ADDITIONAL TIRES AROUND B-16-B.						

Drilling Method/Rig Type: GEOPROBE / AUGERS

APPENDIX D
Laboratory Report and Certification

FROEHLING & ROBERTSON, INC.
QUALITY ASSURANCE AND QUALITY CONTROL
LABORATORY DATA REVIEW

Project Name	Princeville Dump
F&R Project No.	66U-03003-0002
Date of Review	February 8, 2018

1.0 Project Identification

Project Description	Surface Water and Sediments Sampling
Project Location	off Jenkins Road, Edgecombe County, NC
NCDEQ ID	NONCD0000297
PRLF Task Order(s)	297DP-1 and DP-2

2.0 Laboratory Information

Primary Laboratory Name	Con-Test (The laboratory states its N.C. certification status for all analytes tested, within the "Certifications" Section of each report.)
Location	39 Spruce Street, East Longmeadow, MA 01028
Con-test Lab Report IDs, and Sample Collection Dates	18A0479, 1/16/2018

3.0 Chain of Custody and Log-in Review(s)

COC Item	Yes	No	Comments
COC Signed by All Parties	X		
Correct Project No. on COC	X		
Cooler Temperature in Compliance	X		
Samples Received Within Holding Time	X		
Samples Received in Acceptable Condition	X		
QA/QC Samples Received in Acceptable Condition	X		

4.0 Laboratory Quality Control Review

QC Item	Yes	No	Comments
Samples Analyzed Outside of Holding Time		X	
Matrix Spike and Matrix Spike Duplicate Included in Analysis	X		
Method Blank Included in Analysis	X		
Surrogate Recovery Monitored	X		
Were Any Samples Reported as Rejected		X	
QC Qualifiers Identified	X		Reference definitions of qualifiers in the Glossary section of each Contest Laboratory Report. Qualification details are presented below, organized by Method:

According to the Con-Test Case Narrative presented in the individual laboratory reports identified above:

EPA 6020A-B:
All dilutions were performed as per standard operating procedure.

The following individual issues were identified by the laboratory:
L-07: Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria. 1,1,2,2-Tetrachloroethane, B195164-BSD1; 1,2-Dibromo-3-chloropropane (DBCP), B195170-BSD1; and, 1,4-Dioxane, B195164-BS1; 2,4-Dinitrophenol, B195090-BS1; Benzoic Acid, B195090-BS1; and, Hexachlorocyclopentadiene, B195090-BS1.

MS-07: Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated. Antimony, 18A0479-10[SD-1], B195113-MS1; and, Silver, 18A0479-01[SW-1], B195094-MS1.

MS-08: Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated. Hexachloroethane, B195090-MS1.

MS-09: Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated. Aniline, 18A0479-10[SD-1], B195090-MS1, B195090-MSD1; Benzidine, 18A0479-10[SD-1], B195090-MS1, B195090-MSD; Hexachlorocyclopentadiene, 18A0479-10[SD-1], B195090-MS1, B195090-MSD1; and, Pyridine; 18A0479-10[SD-1], B195090-MS1, B195090-MSD1.

MS-19: Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated. Iron, 18A0479-10[SD-1], B195113-MS1.

MS-22: Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria. 3-Nitroaniline, B195090-MS1.

MS-23: Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound. 3,3-Dichlorobenzidine, B195090-MS1; and, 4-Chloroaniline, B195090-MS1.

R-04: Duplicate relative percent difference (RPD) is a less useful indicator of sample precision for sample results that are <5 times the reporting limit (RL). Antimony, 18A0479-01[SW-1], B195094-DUP1.

R-05: Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound. 2,4-Dinitrophenol, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1; and, Benzidine, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1.

R-06: Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample. 3,3-Dichlorobenzidine, 18A0479-10[SD-1], B195090-MSD1; 4-Chloroaniline, 18A0479-10[SD-1], B195090-MSD1; Bis(2-chloroethyl)ether, 18A0479-10[SD-1], B195090-MS1, B195090-MSD1; and, Hexachlorocyclopentadiene, 18A0479-10[SD-1], B195090-MS1, B195090-MSD1.

V-04: Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated. 1,4-Dinitrophenol, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1; Benzidine, 18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1.

V-05: Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated. 4-Nitrophenol, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1; Benzidine, 18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1, B195090-BLK1, B195090-

BS1, B195090-BSD1, B195090-MS1, B195090-MSD1; Bis(2-Ethylhexyl)phthalate, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1; and, Hexachlorocyclopentadiene, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1.

V-16: Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result. Pentachloronitrobenzene, 18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1, B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1.

V-19: Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated. Hexachlorocyclopentadiene, 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1.

V-34: Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated. 3,3-Dichlorobenzidine 18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1; and, 4-Chloroaniline, 18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1.

The Laboratory reports that all results are within defined quality control objectives unless otherwise qualified via QC Qualifiers above.

5.0 Data Review Summary

F&R has reviewed the analytical results for the samples collected and submitted to the laboratory for quality and validity. Quality control and assurance concerns have been discussed within the report, and accuracy and precision were determined by an evaluation of the laboratory control spike recovery and laboratory duplicate analysis, respectively.

F&R did not identify significant qualitative or quantitative limitations associated with the laboratory analytical results. Therefore, the laboratory data appears suitable for its intended use.

Reviewed By	John Palmer, P.G.

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

January 25, 2018

John Palmer
Froehling & Robertson - Raleigh, NC
310 Hubert Street
Raleigh, NC 27603

Project Location: Princeville Dump
Client Job Number:
Project Number: 66U-0300-0001
Laboratory Work Order Number: 18A0479

Enclosed are results of analyses for samples received by the laboratory on January 16, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kerry K. McGee
Project Manager

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Froehling & Robertson - Raleigh, NC
310 Hubert Street
Raleigh, NC 27603
ATTN: John Palmer

REPORT DATE: 1/25/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 66U-0300-0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18A0479

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Princeville Dump

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SW-1	18A0479-01	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	
SW-2	18A0479-02	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	
SW-3	18A0479-03	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	
SW-4	18A0479-04	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	

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Froehling & Robertson - Raleigh, NC
310 Hubert Street
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REPORT DATE: 1/25/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 66U-0300-0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18A0479

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Princeville Dump

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SW-5	18A0479-05	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	
SW-6	18A0479-06	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	
Trip Blank 1	18A0479-07	Trip Blank Water		SW-846 8260B	
				SW-846 8260C	
Trip Blank 2	18A0479-08	Trip Blank Water		SW-846 8260B	
				SW-846 8260C	
Trip Blank 3	18A0479-09	Trip Blank Water		SW-846 8260B	
				SW-846 8260C	
SD-1	18A0479-10	Soil		ASTM D516-07 Modified	
				SM 21-22 4500 NO3 F Modified	
				SM 2540G	
				SM21-22 4500 NH3 C Modified	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	

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Froehling & Robertson - Raleigh, NC
310 Hubert Street
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ATTN: John Palmer

REPORT DATE: 1/25/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 66U-0300-0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18A0479

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Princeville Dump

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SD-2	18A0479-11	Soil		ASTM D516-07 Modified SM 21-22 4500 NO3 F Modified SM 2540G SM21-22 4500 NH3 C Modified SW-846 6020A-B SW-846 7471B SW-846 8260B SW-846 8260C SW-846 8260C SIM SW-846 8270D	
SD-3	18A0479-12	Soil		ASTM D516-07 Modified SM 21-22 4500 NO3 F Modified SM 2540G SM21-22 4500 NH3 C Modified SW-846 6020A-B SW-846 7471B SW-846 8260B SW-846 8260C SW-846 8260C SIM SW-846 8270D	
SD-4	18A0479-13	Soil		ASTM D516-07 Modified SM 21-22 4500 NO3 F Modified SM 2540G SM21-22 4500 NH3 C Modified SW-846 6020A-B SW-846 7471B SW-846 8260B SW-846 8260C SW-846 8260C SIM SW-846 8270D	

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Froehling & Robertson - Raleigh, NC
310 Hubert Street
Raleigh, NC 27603
ATTN: John Palmer

REPORT DATE: 1/25/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 66U-0300-0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18A0479

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Princeville Dump

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SD-5	18A0479-14	Soil		ASTM D516-07 Modified SM 21-22 4500 NO3 F Modified SM 2540G SM21-22 4500 NH3 C Modified SW-846 6020A-B SW-846 7471B SW-846 8260B SW-846 8260C SW-846 8260C SIM SW-846 8270D	
SD-6	18A0479-15	Soil		ASTM D516-07 Modified SM 21-22 4500 NO3 F Modified SM 2540G SM21-22 4500 NH3 C Modified SW-846 6020A-B SW-846 7471B SW-846 8260B SW-846 8260C SW-846 8260C SIM SW-846 8270D	
Trip Blank 1	18A0479-16	Trip Blank Soil		SW-846 8260B SW-846 8260C	
Trip Blank 2	18A0479-17	Trip Blank Soil		SW-846 8260B SW-846 8260C	
SD-Dup	18A0479-18	Soil		ASTM D516-07 Modified SM 21-22 4500 NO3 F Modified SM 2540G SM21-22 4500 NH3 C Modified SW-846 6020A-B SW-846 7471B SW-846 8260B SW-846 8260C SW-846 8260C SIM SW-846 8270D	

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Froehling & Robertson - Raleigh, NC
310 Hubert Street
Raleigh, NC 27603
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PURCHASE ORDER NUMBER:

PROJECT NUMBER: 66U-0300-0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18A0479

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Princeville Dump

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SW-Dup	18A0479-19	Ground Water		ASTM D516-07	
				SM 21-22 4500 NO3 F	
				SM19-22 4500 NH3 C	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8260B	
				SW-846 8260C	
				SW-846 8260C SIM	
				SW-846 8270D	

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EXECUTIVE SUMMARY

Client ID: **Trip Blank 2**

Lab ID: **18A0479-17**

No Results Detected

Con-Test does not accept liability for the consequences of any actions taken solely on the basis of the information provided in the Executive Summary section of this report. Users must review this report in its entirety to determine data usability and assessment.

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EXECUTIVE SUMMARY

Client ID: **SW-1** Lab ID: **18A0479-01**

Analyte	Results/Qual		DL	RL	Units	Method
.beta.-Pinene	62				µg/L	SW-846 8270D
1S-.alpha.-Pinene	610				µg/L	SW-846 8270D
Cyclohexene, 1-methyl-4-(1-...	40				µg/L	SW-846 8270D
Antimony	0.51	R-04, J	0.19	2.0	µg/L	SW-846 6020A-B
Iron	85	J	27	100	µg/L	SW-846 6020A-B
Manganese	6.1		0.39	2.0	µg/L	SW-846 6020A-B
Sulfate	10		0.92	2.0	mg/L	ASTM D516-07

Client ID: **SW-2** Lab ID: **18A0479-02**

Analyte	Results/Qual		DL	RL	Units	Method
Toluene	0.40	J	0.17	1.0	µg/L	SW-846 8260B
Antimony	0.47	J	0.19	2.0	µg/L	SW-846 6020A-B
Arsenic	2.1		0.72	0.80	µg/L	SW-846 6020A-B
Chromium	2.0		1.0	2.0	µg/L	SW-846 6020A-B
Copper	3.9	J	0.72	10	µg/L	SW-846 6020A-B
Iron	6600		27	100	µg/L	SW-846 6020A-B
Lead	3.1		0.28	2.0	µg/L	SW-846 6020A-B
Manganese	110		0.39	2.0	µg/L	SW-846 6020A-B
Nickel	1.3	J	0.75	10	µg/L	SW-846 6020A-B
Zinc	31		9.8	20	µg/L	SW-846 6020A-B
Sulfate	15		0.92	2.0	mg/L	ASTM D516-07

Client ID: **SW-3** Lab ID: **18A0479-03**

Analyte	Results/Qual		DL	RL	Units	Method
Antimony	0.33	J	0.19	2.0	µg/L	SW-846 6020A-B
Arsenic	0.94		0.72	0.80	µg/L	SW-846 6020A-B
Copper	0.99	J	0.72	10	µg/L	SW-846 6020A-B
Iron	340		27	100	µg/L	SW-846 6020A-B
Lead	0.37	J	0.28	2.0	µg/L	SW-846 6020A-B
Manganese	18		0.39	2.0	µg/L	SW-846 6020A-B
Nitrate as N	0.13		0.035	0.050	mg/L	SM 21-22 4500 NO3 F
Sulfate	14		0.92	2.0	mg/L	ASTM D516-07

Client ID: **SW-4** Lab ID: **18A0479-04**

Analyte	Results/Qual		DL	RL	Units	Method
Antimony	0.22	J	0.19	2.0	µg/L	SW-846 6020A-B
Arsenic	0.81		0.72	0.80	µg/L	SW-846 6020A-B
Iron	1400		27	100	µg/L	SW-846 6020A-B
Manganese	130		0.39	2.0	µg/L	SW-846 6020A-B
Zinc	10	J	9.8	20	µg/L	SW-846 6020A-B
Nitrate as N	0.072		0.035	0.050	mg/L	SM 21-22 4500 NO3 F
Sulfate	6.1		0.92	2.0	mg/L	ASTM D516-07

Client ID: **SW-5** Lab ID: **18A0479-05**

Analyte	Results/Qual		DL	RL	Units	Method
Iron	580		27	100	µg/L	SW-846 6020A-B
Manganese	24		0.39	2.0	µg/L	SW-846 6020A-B
Nitrate as N	0.066		0.035	0.050	mg/L	SM 21-22 4500 NO3 F
Sulfate	8.4		0.92	2.0	mg/L	ASTM D516-07

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Client ID: **SW-6** Lab ID: **18A0479-06**

Analyte	Results/Qual		DL	RL	Units	Method
Iron	570		27	100	µg/L	SW-846 6020A-B
Manganese	43		0.39	2.0	µg/L	SW-846 6020A-B
Nitrate as N	1.2		0.035	0.050	mg/L	SM 21-22 4500 NO3 F
Sulfate	9.6		0.92	2.0	mg/L	ASTM D516-07

Client ID: **Trip Blank 1** Lab ID: **18A0479-07**

Analyte	Results/Qual		DL	RL	Units	Method
Ethylbenzene	0.17	J	0.13	1.0	µg/L	SW-846 8260B
m+p Xylene	0.48	J	0.26	2.0	µg/L	SW-846 8260B
o-Xylene	0.32	J	0.13	1.0	µg/L	SW-846 8260B

Client ID: **Trip Blank 2** Lab ID: **18A0479-08**

Analyte	Results/Qual		DL	RL	Units	Method
Ethylbenzene	0.15	J	0.13	1.0	µg/L	SW-846 8260B
m+p Xylene	0.47	J	0.26	2.0	µg/L	SW-846 8260B
o-Xylene	0.32	J	0.13	1.0	µg/L	SW-846 8260B

Client ID: **Trip Blank 3** Lab ID: **18A0479-09**

Analyte	Results/Qual		DL	RL	Units	Method
Ethylbenzene	0.17	J	0.13	1.0	µg/L	SW-846 8260B
m+p Xylene	0.46	J	0.26	2.0	µg/L	SW-846 8260B
o-Xylene	0.29	J	0.13	1.0	µg/L	SW-846 8260B

Client ID: **SD-1** Lab ID: **18A0479-10**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.023	J	0.023	0.097	mg/Kg dry	SW-846 8260B
Arsenic	0.42		0.035	0.22	mg/Kg dry	SW-846 6020A-B
Beryllium	0.072	J	0.021	0.29	mg/Kg dry	SW-846 6020A-B
Chromium	4.4	J	0.20	5.5	mg/Kg dry	SW-846 6020A-B
Copper	1.7	J	0.26	5.5	mg/Kg dry	SW-846 6020A-B
Iron	2200	MS-19	1.5	11	mg/Kg dry	SW-846 6020A-B
Lead	2.8		0.072	2.2	mg/Kg dry	SW-846 6020A-B
Manganese	7.2		0.17	5.7	mg/Kg dry	SW-846 6020A-B
Nickel	1.2	J	0.20	5.5	mg/Kg dry	SW-846 6020A-B
Silver	0.0093	J	0.0035	0.096	mg/Kg dry	SW-846 6020A-B
Thallium	0.032	J	0.0052	0.070	mg/Kg dry	SW-846 6020A-B
Zinc	4.0	J	0.40	11	mg/Kg dry	SW-846 6020A-B
% Solids	76.6				% Wt	SM 2540G
Nitrate as N	1.7	J	0.87	2.7	mg/Kg dry	SM 21-22 4500 NO3 F M
Sulfate	240	J	120	260	mg/Kg dry	ASTM D516-07 Modified

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Client ID: **SD-2** Lab ID: **18A0479-11**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.054	J	0.030	0.13	mg/Kg dry	SW-846 8260B
4-((1E)-3-Hydroxy-1-propeny...	0.43				mg/Kg dry	SW-846 8270D
eicosane	0.26				mg/Kg dry	SW-846 8270D
Hexadecenoic acid, Z-11-	0.30				mg/Kg dry	SW-846 8270D
n-Hexadecanoic acid	0.48				mg/Kg dry	SW-846 8270D
Antimony	0.37	J	0.26	3.1	mg/Kg dry	SW-846 6020A-B
Arsenic	0.98		0.047	0.29	mg/Kg dry	SW-846 6020A-B
Beryllium	0.81		0.028	0.39	mg/Kg dry	SW-846 6020A-B
Cadmium	0.11	J	0.019	0.55	mg/Kg dry	SW-846 6020A-B
Chromium	9.7		0.26	7.2	mg/Kg dry	SW-846 6020A-B
Copper	6.7	J	0.34	7.2	mg/Kg dry	SW-846 6020A-B
Iron	4100		2.0	14	mg/Kg dry	SW-846 6020A-B
Lead	28		0.095	2.9	mg/Kg dry	SW-846 6020A-B
Manganese	56		0.23	7.5	mg/Kg dry	SW-846 6020A-B
Mercury	0.027	J	0.0042	0.042	mg/Kg dry	SW-846 7471B
Nickel	3.6	J	0.27	7.2	mg/Kg dry	SW-846 6020A-B
Selenium	0.40	J	0.081	1.2	mg/Kg dry	SW-846 6020A-B
Silver	0.033	J	0.0046	0.13	mg/Kg dry	SW-846 6020A-B
Thallium	0.12		0.0070	0.093	mg/Kg dry	SW-846 6020A-B
Zinc	31		0.53	14	mg/Kg dry	SW-846 6020A-B
% Solids	57.8				% Wt	SM 2540G
Nitrate as N	4.2		1.2	3.6	mg/Kg dry	SM 21-22 4500 NO3 F M

Client ID: **SD-3** Lab ID: **18A0479-12**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.037	J	0.024	0.10	mg/Kg dry	SW-846 8260B
1,15-Hexadecadiene	0.32				mg/Kg dry	SW-846 8270D
eicosane	0.69				mg/Kg dry	SW-846 8270D
n-Hexadecanoic acid	0.57				mg/Kg dry	SW-846 8270D
Nonadecane, 9-methyl-	0.51				mg/Kg dry	SW-846 8270D
Oxirane, heptadecyl-	0.37				mg/Kg dry	SW-846 8270D
Squalene	0.41				mg/Kg dry	SW-846 8270D
Urs-12-ene, 3-methoxy-, (3....	0.29				mg/Kg dry	SW-846 8270D
Vitamin E	0.18				mg/Kg dry	SW-846 8270D
Arsenic	0.34		0.034	0.21	mg/Kg dry	SW-846 6020A-B
Beryllium	0.056	J	0.020	0.28	mg/Kg dry	SW-846 6020A-B
Chromium	1.8	J	0.19	5.3	mg/Kg dry	SW-846 6020A-B
Copper	0.57	J	0.25	5.3	mg/Kg dry	SW-846 6020A-B
Iron	960		1.5	11	mg/Kg dry	SW-846 6020A-B
Lead	1.7	J	0.070	2.1	mg/Kg dry	SW-846 6020A-B
Manganese	7.5		0.17	5.5	mg/Kg dry	SW-846 6020A-B
Nickel	0.45	J	0.20	5.3	mg/Kg dry	SW-846 6020A-B
Thallium	0.0084	J	0.0051	0.068	mg/Kg dry	SW-846 6020A-B
Zinc	2.8	J	0.39	10	mg/Kg dry	SW-846 6020A-B
% Solids	79.1				% Wt	SM 2540G
Nitrate as N	1.9	J	0.92	2.9	mg/Kg dry	SM 21-22 4500 NO3 F M

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Client ID: **SD-4** Lab ID: **18A0479-13**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.63	J	0.23	0.97	mg/Kg dry	SW-846 8260B
(Z)-14-Tricosenyl formate	2.6				mg/Kg dry	SW-846 8270D
4-((1E)-3-Hydroxy-1-propeny...	8.3				mg/Kg dry	SW-846 8270D
Furfural	2.9				mg/Kg dry	SW-846 8270D
Hentriacontane	11				mg/Kg dry	SW-846 8270D
n-Hexadecanoic acid	3.2				mg/Kg dry	SW-846 8270D
p-Hydroxycinnamic acid	4.4				mg/Kg dry	SW-846 8270D
Picein	3.7				mg/Kg dry	SW-846 8270D
Tridecane, 1-iodo-	8.4				mg/Kg dry	SW-846 8270D
Arsenic	11		0.20	1.2	mg/Kg dry	SW-846 6020A-B
Beryllium	1.6	J	0.12	1.7	mg/Kg dry	SW-846 6020A-B
Cadmium	0.80	J	0.078	2.3	mg/Kg dry	SW-846 6020A-B
Chromium	18	J	1.1	31	mg/Kg dry	SW-846 6020A-B
Copper	29	J	1.4	31	mg/Kg dry	SW-846 6020A-B
Iron	18000		8.5	61	mg/Kg dry	SW-846 6020A-B
Lead	31		0.40	12	mg/Kg dry	SW-846 6020A-B
Manganese	120		0.98	32	mg/Kg dry	SW-846 6020A-B
Mercury	0.053	J	0.019	0.19	mg/Kg dry	SW-846 7471B
Nickel	9.1	J	1.1	31	mg/Kg dry	SW-846 6020A-B
Selenium	1.5	J	0.35	5.2	mg/Kg dry	SW-846 6020A-B
Silver	0.099	J	0.020	0.54	mg/Kg dry	SW-846 6020A-B
Thallium	0.29	J	0.029	0.39	mg/Kg dry	SW-846 6020A-B
Zinc	120		2.3	62	mg/Kg dry	SW-846 6020A-B
% Solids	13.3				% Wt	SM 2540G
Nitrate as N	5.8	J	5.5	17	mg/Kg dry	SM 21-22 4500 NO3 F M

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Client ID: **SD-5** Lab ID: **18A0479-14**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.20	J	0.060	0.26	mg/Kg dry	SW-846 8260B
p-Isopropyltoluene (p-Cymene)	0.0054		0.0020	0.0051	mg/Kg dry	SW-846 8260B
Toluene	0.0069		0.0020	0.0051	mg/Kg dry	SW-846 8260B
Benzoic Acid	1.3	J	0.51	2.8	mg/Kg dry	SW-846 8270D
.beta.-Sitosterol	4.0				mg/Kg dry	SW-846 8270D
16-Octadecenal	4.5				mg/Kg dry	SW-846 8270D
4-((1E)-3-Hydroxy-1-propeny...	3.3				mg/Kg dry	SW-846 8270D
7-Isopropenyl-1,4a-dimethyl...	2.0				mg/Kg dry	SW-846 8270D
Heneicosane	5.6				mg/Kg dry	SW-846 8270D
Heptadecane	7.4				mg/Kg dry	SW-846 8270D
Hexadecanal	0.92				mg/Kg dry	SW-846 8270D
n-Hexadecanoic acid	3.2				mg/Kg dry	SW-846 8270D
Octadecanal	4.8				mg/Kg dry	SW-846 8270D
Vitamin E	2.0				mg/Kg dry	SW-846 8270D
Arsenic	3.2		0.076	0.46	mg/Kg dry	SW-846 6020A-B
Beryllium	0.59	J	0.044	0.63	mg/Kg dry	SW-846 6020A-B
Cadmium	0.23	J	0.030	0.89	mg/Kg dry	SW-846 6020A-B
Chromium	6.1	J	0.42	12	mg/Kg dry	SW-846 6020A-B
Copper	5.6	J	0.55	12	mg/Kg dry	SW-846 6020A-B
Iron	6800		3.2	23	mg/Kg dry	SW-846 6020A-B
Lead	21		0.15	4.7	mg/Kg dry	SW-846 6020A-B
Manganese	19		0.37	12	mg/Kg dry	SW-846 6020A-B
Mercury	0.021	J	0.0067	0.067	mg/Kg dry	SW-846 7471B
Nickel	2.9	J	0.43	12	mg/Kg dry	SW-846 6020A-B
Selenium	0.52	J	0.13	1.9	mg/Kg dry	SW-846 6020A-B
Silver	0.017	J	0.0075	0.21	mg/Kg dry	SW-846 6020A-B
Thallium	0.16		0.011	0.15	mg/Kg dry	SW-846 6020A-B
Zinc	27		0.86	23	mg/Kg dry	SW-846 6020A-B
% Solids	35.6				% Wt	SM 2540G
Nitrate as N	3.0	J	1.8	5.7	mg/Kg dry	SM 21-22 4500 NO3 F M

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Client ID: **SD-6** Lab ID: **18A0479-15**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.68		0.15	0.64	mg/Kg dry	SW-846 8260B
Toluene	0.012	J	0.0051	0.013	mg/Kg dry	SW-846 8260B
Benzoic Acid	46		3.6	20	mg/Kg dry	SW-846 8270D
2-Butanone, 4-hydroxy-	6.3				mg/Kg dry	SW-846 8270D
2-Furancarboxaldehyde, 5-(h...	11				mg/Kg dry	SW-846 8270D
2-Furanmethanol	2.2				mg/Kg dry	SW-846 8270D
3-Hydroxy-4-methoxybenzoic ...	7.1				mg/Kg dry	SW-846 8270D
4-((1E)-3-Hydroxy-1-propeny...	7.9				mg/Kg dry	SW-846 8270D
9-Octadecenoic acid, (E)-	2.3				mg/Kg dry	SW-846 8270D
Benzoic acid, 4-hydroxy-3,5...	2.4				mg/Kg dry	SW-846 8270D
Bicyclo[10.8.0]eicosane, cis-	2.3				mg/Kg dry	SW-846 8270D
eicosane	6.4				mg/Kg dry	SW-846 8270D
Furfural	6.9				mg/Kg dry	SW-846 8270D
Hentriacontane	6.1				mg/Kg dry	SW-846 8270D
n-Hexadecanoic acid	3.1				mg/Kg dry	SW-846 8270D
Pentanoic acid, 4-oxo-	4.3				mg/Kg dry	SW-846 8270D
Stigmasterol, 22,23-dihydro-	2.8				mg/Kg dry	SW-846 8270D
vanillin	3.3				mg/Kg dry	SW-846 8270D
Arsenic	4.1		0.13	0.81	mg/Kg dry	SW-846 6020A-B
Beryllium	1.5		0.078	1.1	mg/Kg dry	SW-846 6020A-B
Cadmium	0.41	J	0.053	1.6	mg/Kg dry	SW-846 6020A-B
Chromium	13	J	0.74	21	mg/Kg dry	SW-846 6020A-B
Copper	8.0	J	0.98	21	mg/Kg dry	SW-846 6020A-B
Iron	15000		5.8	42	mg/Kg dry	SW-846 6020A-B
Lead	28		0.27	8.3	mg/Kg dry	SW-846 6020A-B
Manganese	44		0.66	22	mg/Kg dry	SW-846 6020A-B
Mercury	0.046	J	0.013	0.13	mg/Kg dry	SW-846 7471B
Nickel	5.0	J	0.77	21	mg/Kg dry	SW-846 6020A-B
Selenium	1.1	J	0.23	3.4	mg/Kg dry	SW-846 6020A-B
Silver	0.045	J	0.013	0.37	mg/Kg dry	SW-846 6020A-B
Thallium	0.24	J	0.020	0.27	mg/Kg dry	SW-846 6020A-B
Zinc	48		1.5	41	mg/Kg dry	SW-846 6020A-B
% Solids	20.2				% Wt	SM 2540G
Nitrate as N	8.9	J	3.7	11	mg/Kg dry	SM 21-22 4500 NO3 F M
Sulfate	530	J	440	950	mg/Kg dry	ASTM D516-07 Modified

Client ID: **Trip Blank 1** Lab ID: **18A0479-16**

Analyte	Results/Qual		DL	RL	Units	Method
Cyclobutane, methyl-	0.0093				mg/Kg wet	SW-846 8260C

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Client ID: **SD-Dup** Lab ID: **18A0479-18**

Analyte	Results/Qual		DL	RL	Units	Method
Acetone	0.89	J	0.27	1.2	mg/Kg dry	SW-846 8260B
2-Propenoic acid, 3-(4-hydr...	3.6				mg/Kg dry	SW-846 8270D
4-((1E)-3-Hydroxy-1-propeny...	7.4				mg/Kg dry	SW-846 8270D
n-Hexadecanoic acid	5.0				mg/Kg dry	SW-846 8270D
Nonacosane	9.5				mg/Kg dry	SW-846 8270D
Octacosane	6.7				mg/Kg dry	SW-846 8270D
Octadecanal	3.8				mg/Kg dry	SW-846 8270D
Oxirane, hexadecyl-	3.7				mg/Kg dry	SW-846 8270D
Phenanthrene, 3,9-bis(1,1-d...	4.5				mg/Kg dry	SW-846 8270D
Picein	4.4				mg/Kg dry	SW-846 8270D
Arsenic	18		0.21	1.3	mg/Kg dry	SW-846 6020A-B
Beryllium	2.0		0.12	1.7	mg/Kg dry	SW-846 6020A-B
Cadmium	1.0	J	0.083	2.5	mg/Kg dry	SW-846 6020A-B
Chromium	21	J	1.2	32	mg/Kg dry	SW-846 6020A-B
Copper	29	J	1.5	32	mg/Kg dry	SW-846 6020A-B
Iron	43000		8.9	65	mg/Kg dry	SW-846 6020A-B
Lead	34		0.42	13	mg/Kg dry	SW-846 6020A-B
Manganese	130		1.0	34	mg/Kg dry	SW-846 6020A-B
Mercury	0.068	J	0.020	0.20	mg/Kg dry	SW-846 7471B
Nickel	13	J	1.2	32	mg/Kg dry	SW-846 6020A-B
Selenium	1.6	J	0.36	5.3	mg/Kg dry	SW-846 6020A-B
Silver	0.13	J	0.021	0.57	mg/Kg dry	SW-846 6020A-B
Thallium	0.38	J	0.031	0.41	mg/Kg dry	SW-846 6020A-B
Zinc	190		2.4	64	mg/Kg dry	SW-846 6020A-B
% Solids	13.0				% Wt	SM 2540G
Nitrate as N	20		6.0	19	mg/Kg dry	SM 21-22 4500 NO3 F M

Client ID: **SW-Dup** Lab ID: **18A0479-19**

Analyte	Results/Qual		DL	RL	Units	Method
p-Isopropyltoluene (p-Cymene)	2.1		0.15	2.0	µg/L	SW-846 8260B
Arsenic	1.2		0.72	0.80	µg/L	SW-846 6020A-B
Copper	0.77	J	0.72	10	µg/L	SW-846 6020A-B
Iron	6300		27	100	µg/L	SW-846 6020A-B
Lead	0.63	J	0.28	2.0	µg/L	SW-846 6020A-B
Manganese	220		0.39	2.0	µg/L	SW-846 6020A-B
Zinc	13	J	9.8	20	µg/L	SW-846 6020A-B
Nitrate as N	0.079		0.035	0.050	mg/L	SM 21-22 4500 NO3 F
Sulfate	11		0.92	2.0	mg/L	ASTM D516-07

Con-Test does not accept liability for the consequences of any actions taken solely on the basis of the information provided in the Executive Summary section of this report. Users must review this report in its entirety to determine data usability and assessment.

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 6020, all dilutions were performed as per standard operating procedure.

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SW-846 6020A-B

Qualifications:

MS-07

Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

Antimony

18A0479-10[SD-1], B195113-MS1

Silver

18A0479-01[SW-1], B195094-MS1

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:

Iron

18A0479-10[SD-1], B195113-MS1

R-04

Duplicate relative percent difference (RPD) is a less useful indicator of sample precision for sample results that are <5 times the reporting limit (RL).

Analyte & Samples(s) Qualified:

Antimony

18A0479-01[SW-1], B195094-DUP1

SW-846 8260B

Qualifications:

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

1,1,2,2-Tetrachloroethane

B195164-BSD1

1,2-Dibromo-3-chloropropane (DB

B195170-BSD1

1,4-Dioxane

B195164-BS1

SW-846 8270D

Qualifications:

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol

B195090-BS1

Benzoic Acid

B195090-BS1

Hexachlorocyclopentadiene

B195090-BS1

MS-08

Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

Analyte & Samples(s) Qualified:

Hexachloroethane

B195090-MS1

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MS-09

Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

Analyte & Samples(s) Qualified:

Aniline
18A0479-10[SD-1], B195090-MS1, B195090-MSD1

Benzidine
18A0479-10[SD-1], B195090-MS1, B195090-MSD1

Hexachlorocyclopentadiene
18A0479-10[SD-1], B195090-MS1, B195090-MSD1

Pyridine
18A0479-10[SD-1], B195090-MS1, B195090-MSD1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

3-Nitroaniline
B195090-MS1

MS-23

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

3,3-Dichlorobenzidine
B195090-MS1

4-Chloroaniline
B195090-MS1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol
18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1

Benzidine
18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1

R-06

Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.

Analyte & Samples(s) Qualified:

3,3-Dichlorobenzidine
18A0479-10[SD-1], B195090-MSD1

4-Chloroaniline
18A0479-10[SD-1], B195090-MSD1

Bis(2-chloroethyl)ether
18A0479-10[SD-1], B195090-MS1, B195090-MSD1

Hexachlorocyclopentadiene
18A0479-10[SD-1], B195090-MS1, B195090-MSD1

V-04

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol
18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

Benzidine
18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1

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V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Nitrophenol

18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

Benzidine

18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1, B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

Bis(2-Ethylhexyl)phthalate

18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

Hexachlorocyclopentadiene

18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

Pentachloronitrobenzene

18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1, B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

V-19

Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.

Analyte & Samples(s) Qualified:

Hexachlorocyclopentadiene

18A0479-10[SD-1], 18A0479-11[SD-2], 18A0479-12[SD-3], 18A0479-13[SD-4], 18A0479-14[SD-5], 18A0479-15[SD-6], 18A0479-18[SD-Dup], B195090-BLK1, B195090-BS1, B195090-BSD1, B195090-MS1, B195090-MSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

3,3-Dichlorobenzidine

18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1

4-Chloroaniline

18A0479-01[SW-1], 18A0479-02[SW-2], 18A0479-03[SW-3], 18A0479-04[SW-4], 18A0479-05[SW-5], 18A0479-06[SW-6], 18A0479-19[SW-Dup], B195084-BLK1, B195084-BS1, B195084-BSD1

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:20	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	109	70-130		1/19/18 18:20
Toluene-d8	89.2	70-130		1/19/18 18:20
4-Bromofluorobenzene	80.4	70-130		1/19/18 18:20

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 18:20	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 18:20	EEH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 4:10	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	65.0	40-160		1/20/18 4:10	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:04	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	32.8	15-110		1/19/18 14:04
Phenol-d6	22.5	15-110		1/19/18 14:04
Nitrobenzene-d5	57.2	30-130		1/19/18 14:04
2-Fluorobiphenyl	58.1	30-130		1/19/18 14:04
2,4,6-Tribromophenol	65.8	15-110		1/19/18 14:04
p-Terphenyl-d14	59.6	30-130		1/19/18 14:04

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
.beta.-Pinene	62	µg/L	1328810	3.071	1	000127-91-3	96	SW-846 8270D	1/17/18	1/19/18 14:04	BGL
1S-.alpha.-Pinene	610	µg/L	13093600	2.865	1	007785-26-4	96	SW-846 8270D	1/17/18	1/19/18 14:04	BGL
Cyclohexene, 1-methyl-4-(1-...	40	µg/L	859138	3.277	1	005989-54-8	95	SW-846 8270D	1/17/18	1/19/18 14:04	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	0.51	2.0	0.19	µg/L	2	R-04, J	SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Arsenic	ND	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 14:53	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Chromium	ND	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Copper	ND	10	0.72	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Iron	85	100	27	µg/L	2	J	SW-846 6020A-B	1/18/18	1/23/18 11:58	MJH
Lead	ND	2.0	0.28	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Manganese	6.1	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 14:53	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:05	EJB
Nickel	ND	10	0.75	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Silver	ND	1.0	0.15	µg/L	2	MS-07	SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH
Zinc	ND	20	9.8	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:41	MJH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-1 | Sampled: 1/16/2018 12:05

Sample ID: 18A0479-01

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	ND	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/22/18	1/22/18 11:48	MMH
Sulfate	10	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Toluene	0.40	1.0	0.17	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 18:44	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	109	70-130		1/19/18 18:44
Toluene-d8	90.8	70-130		1/19/18 18:44
4-Bromofluorobenzene	80.5	70-130		1/19/18 18:44

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 18:44	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 18:44	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 4:36	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	75.8	40-160		1/20/18 4:36	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:27	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	33.9	15-110		1/19/18 14:27
Phenol-d6	24.1	15-110		1/19/18 14:27
Nitrobenzene-d5	57.7	30-130		1/19/18 14:27
2-Fluorobiphenyl	56.9	30-130		1/19/18 14:27
2,4,6-Tribromophenol	60.2	15-110		1/19/18 14:27
p-Terphenyl-d14	63.2	30-130		1/19/18 14:27

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	µg/L			1			SW-846 8270D	1/17/18	1/19/18 14:27	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	0.47	2.0	0.19	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Arsenic	2.1	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 14:57	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Chromium	2.0	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Copper	3.9	10	0.72	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Iron	6600	100	27	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Lead	3.1	2.0	0.28	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Manganese	110	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 14:57	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:07	EJB
Nickel	1.3	10	0.75	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Silver	ND	1.0	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH
Zinc	31	20	9.8	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:44	MJH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-2 | Sampled: 1/16/2018 12:25

Sample ID: 18A0479-02

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	ND	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/23/18	1/23/18 11:27	MMH
Sulfate	15	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:07	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	111	70-130		1/19/18 19:07
Toluene-d8	91.4	70-130		1/19/18 19:07
4-Bromofluorobenzene	79.8	70-130		1/19/18 19:07

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 19:07	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 19:07	EEH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 5:03	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	75.7	40-160		1/20/18 5:03	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 14:48	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	34.8	15-110		1/19/18 14:48
Phenol-d6	24.5	15-110		1/19/18 14:48
Nitrobenzene-d5	55.9	30-130		1/19/18 14:48
2-Fluorobiphenyl	60.4	30-130		1/19/18 14:48
2,4,6-Tribromophenol	62.1	15-110		1/19/18 14:48
p-Terphenyl-d14	62.0	30-130		1/19/18 14:48

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	µg/L			1			SW-846 8270D	1/17/18	1/19/18 14:48	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	0.33	2.0	0.19	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Arsenic	0.94	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:16	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Chromium	ND	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Copper	0.99	10	0.72	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Iron	340	100	27	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Lead	0.37	2.0	0.28	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Manganese	18	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:16	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:03	EJB
Nickel	ND	10	0.75	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Silver	ND	1.0	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH
Zinc	ND	20	9.8	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:48	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-3 | Sampled: 1/16/2018 11:25

Sample ID: 18A0479-03

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	0.13	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/23/18	1/23/18 11:27	MMH
Sulfate	14	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:30	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	112	70-130		1/19/18 19:30
Toluene-d8	93.1	70-130		1/19/18 19:30
4-Bromofluorobenzene	79.6	70-130		1/19/18 19:30

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 19:30	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 19:30	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 5:30	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	69.9	40-160		1/20/18 5:30	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:11	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	34.4	15-110		1/19/18 15:11
Phenol-d6	24.8	15-110		1/19/18 15:11
Nitrobenzene-d5	59.7	30-130		1/19/18 15:11
2-Fluorobiphenyl	59.8	30-130		1/19/18 15:11
2,4,6-Tribromophenol	62.7	15-110		1/19/18 15:11
p-Terphenyl-d14	64.8	30-130		1/19/18 15:11

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	µg/L			1			SW-846 8270D	1/17/18	1/19/18 15:11	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	0.22	2.0	0.19	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Arsenic	0.81	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 14:50	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Chromium	ND	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Copper	ND	10	0.72	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Iron	1400	100	27	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Lead	ND	2.0	0.28	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Manganese	130	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 14:50	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:08	EJB
Nickel	ND	10	0.75	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Silver	ND	1.0	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH
Zinc	10	20	9.8	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 14:58	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-4 | Sampled: 1/16/2018 13:10

Sample ID: 18A0479-04

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	0.072	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/23/18	1/23/18 11:27	MMH
Sulfate	6.1	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 19:53	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	110	70-130		1/19/18 19:53
Toluene-d8	89.2	70-130		1/19/18 19:53
4-Bromofluorobenzene	81.2	70-130		1/19/18 19:53

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 19:53	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 19:53	EEH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 5:57	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	79.0	40-160		1/20/18 5:57	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:34	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	36.6	15-110		1/19/18 15:34
Phenol-d6	25.0	15-110		1/19/18 15:34
Nitrobenzene-d5	62.1	30-130		1/19/18 15:34
2-Fluorobiphenyl	62.8	30-130		1/19/18 15:34
2,4,6-Tribromophenol	67.5	15-110		1/19/18 15:34
p-Terphenyl-d14	68.8	30-130		1/19/18 15:34

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	µg/L			1			SW-846 8270D	1/17/18	1/19/18 15:34	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Arsenic	ND	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:20	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Chromium	ND	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Copper	ND	10	0.72	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Iron	580	100	27	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Lead	ND	2.0	0.28	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Manganese	24	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:20	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:10	EJB
Nickel	ND	10	0.75	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Silver	ND	1.0	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH
Zinc	ND	20	9.8	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:02	MJH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-5 | Sampled: 1/16/2018 14:05

Sample ID: 18A0479-05

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	0.066	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/23/18	1/23/18 11:27	MMH
Sulfate	8.4	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:17	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	111	70-130		1/19/18 20:17
Toluene-d8	90.6	70-130		1/19/18 20:17
4-Bromofluorobenzene	80.5	70-130		1/19/18 20:17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 20:17	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 20:17	EEH

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Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 6:23	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	75.4	40-160		1/20/18 6:23	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 15:56	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	33.6	15-110		1/19/18 15:56
Phenol-d6	22.7	15-110		1/19/18 15:56
Nitrobenzene-d5	54.0	30-130		1/19/18 15:56
2-Fluorobiphenyl	57.9	30-130		1/19/18 15:56
2,4,6-Tribromophenol	64.4	15-110		1/19/18 15:56
p-Terphenyl-d14	62.5	30-130		1/19/18 15:56

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	µg/L			1			SW-846 8270D	1/17/18	1/19/18 15:56	BGL

con-test® ANALYTICAL LABORATORY
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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Arsenic	ND	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:23	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Chromium	ND	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Copper	ND	10	0.72	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Iron	570	100	27	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Lead	ND	2.0	0.28	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Manganese	43	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:23	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:11	EJB
Nickel	ND	10	0.75	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Silver	ND	1.0	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH
Zinc	ND	20	9.8	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:05	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-6 | Sampled: 1/16/2018 14:45

Sample ID: 18A0479-06

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	1.2	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/23/18	1/23/18 11:27	MMH
Sulfate	9.6	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 1 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-07

Sample Matrix: Trip Blank Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 1 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-07

Sample Matrix: Trip Blank Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Ethylbenzene	0.17	1.0	0.13	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 13:59	EEH
m+p Xylene	0.48	2.0	0.26	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 13:59	EEH
o-Xylene	0.32	1.0	0.13	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 13:59	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,2-Dichloroethane-d4	112	70-130		1/19/18	13:59
Toluene-d8	92.0	70-130		1/19/18	13:59
4-Bromofluorobenzene	80.5	70-130		1/19/18	13:59

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 1 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-07

Sample Matrix: Trip Blank Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 13:59	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 13:59	EEH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 2 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-08

Sample Matrix: Trip Blank Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 2 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-08

Sample Matrix: Trip Blank Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Ethylbenzene	0.15	1.0	0.13	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:23	EEH
m+p Xylene	0.47	2.0	0.26	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 14:23	EEH
o-Xylene	0.32	1.0	0.13	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 14:23	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	108	70-130		1/19/18 14:23
Toluene-d8	91.1	70-130		1/19/18 14:23
4-Bromofluorobenzene	78.3	70-130		1/19/18 14:23

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 2 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-08

Sample Matrix: Trip Blank Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 14:23	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 14:23	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 3 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-09

Sample Matrix: Trip Blank Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 3 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-09

Sample Matrix: Trip Blank Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Ethylbenzene	0.17	1.0	0.13	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 14:47	EEH
m+p Xylene	0.46	2.0	0.26	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 14:47	EEH
o-Xylene	0.29	1.0	0.13	µg/L	1	J	SW-846 8260B	1/19/18	1/19/18 14:47	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	111	70-130		1/19/18 14:47
Toluene-d8	90.8	70-130		1/19/18 14:47
4-Bromofluorobenzene	79.7	70-130		1/19/18 14:47

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 3 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-09

Sample Matrix: Trip Blank Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 14:47	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 14:47	EEH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.023	0.097	0.023	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Acrylonitrile	ND	0.0058	0.0024	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00097	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Benzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Bromobenzene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Bromochloromethane	ND	0.0019	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Bromodichloromethane	ND	0.0019	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Bromoform	ND	0.0019	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Bromomethane	ND	0.0097	0.0041	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
2-Butanone (MEK)	ND	0.039	0.017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
tert-Butyl Alcohol (TBA)	ND	0.039	0.020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
n-Butylbenzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
sec-Butylbenzene	ND	0.0019	0.00097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
tert-Butylbenzene	ND	0.0019	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00097	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Carbon Disulfide	ND	0.0058	0.0042	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Carbon Tetrachloride	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Chlorobenzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Chlorodibromomethane	ND	0.00097	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Chloroethane	ND	0.019	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Chloroform	ND	0.0039	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Chloromethane	ND	0.0097	0.0062	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
2-Chlorotoluene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
4-Chlorotoluene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0019	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2-Dibromoethane (EDB)	ND	0.00097	0.00097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Dibromomethane	ND	0.0019	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2-Dichlorobenzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,3-Dichlorobenzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,4-Dichlorobenzene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
trans-1,4-Dichloro-2-butene	ND	0.0039	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.019	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1-Dichloroethane	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2-Dichloroethane	ND	0.0019	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1-Dichloroethylene	ND	0.0039	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
cis-1,2-Dichloroethylene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
trans-1,2-Dichloroethylene	ND	0.0019	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2-Dichloropropane	ND	0.0019	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,3-Dichloropropane	ND	0.00097	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
2,2-Dichloropropane	ND	0.0019	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1-Dichloropropene	ND	0.0019	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
cis-1,3-Dichloropropene	ND	0.00097	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
trans-1,3-Dichloropropene	ND	0.00097	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Diethyl Ether	ND	0.019	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00097	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,4-Dioxane	ND	0.097	0.056	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Ethylbenzene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Hexachlorobutadiene	ND	0.0019	0.00097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
2-Hexanone (MBK)	ND	0.019	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Isopropylbenzene (Cumene)	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0039	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Methylene Chloride	ND	0.019	0.0069	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.019	0.0073	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Naphthalene	ND	0.0039	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
n-Propylbenzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Styrene	ND	0.0019	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1,1,2-Tetrachloroethane	ND	0.0019	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1,2,2-Tetrachloroethane	ND	0.00097	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Tetrachloroethylene	ND	0.0019	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Tetrahydrofuran	ND	0.0097	0.0021	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Toluene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2,3-Trichlorobenzene	ND	0.0019	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2,4-Trichlorobenzene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,3,5-Trichlorobenzene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1,1-Trichloroethane	ND	0.0019	0.00097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1,2-Trichloroethane	ND	0.0019	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Trichloroethylene	ND	0.0019	0.00097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0097	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2,3-Trichloropropane	ND	0.0019	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0097	0.00087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,2,4-Trimethylbenzene	ND	0.0019	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
1,3,5-Trimethylbenzene	ND	0.0019	0.00058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
Vinyl Chloride	ND	0.0097	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
m+p Xylene	ND	0.0039	0.0016	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF
o-Xylene	ND	0.0019	0.00068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:14	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	84.5	70-130		1/19/18 17:14
Toluene-d8	99.3	70-130		1/19/18 17:14
4-Bromofluorobenzene	103	70-130		1/19/18 17:14

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 17:14	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.0019	0.0017	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 1:02	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	100	40-160		1/20/18 1:02	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.22	0.067	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Acenaphthylene	ND	0.22	0.074	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Acetophenone	ND	0.44	0.087	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Aniline	ND	0.44	0.13	mg/Kg dry	1	MS-09	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Anthracene	ND	0.22	0.064	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzidine	ND	0.86	0.55	mg/Kg dry	1	MS-09, R-05, V-05	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzo(a)anthracene	ND	0.22	0.059	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzo(a)pyrene	ND	0.22	0.069	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzo(b)fluoranthene	ND	0.22	0.063	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzo(g,h,i)perylene	ND	0.22	0.098	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzo(k)fluoranthene	ND	0.22	0.069	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Benzoic Acid	ND	1.3	0.24	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Bis(2-chloroethoxy)methane	ND	0.44	0.085	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Bis(2-chloroethyl)ether	ND	0.44	0.087	mg/Kg dry	1	R-06	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Bis(2-chloroisopropyl)ether	ND	0.44	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.44	0.17	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4-Bromophenylphenylether	ND	0.44	0.074	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Butylbenzylphthalate	ND	0.44	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Carbazole	ND	0.22	0.057	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4-Chloroaniline	ND	0.86	0.10	mg/Kg dry	1	R-06	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4-Chloro-3-methylphenol	ND	0.86	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2-Chloronaphthalene	ND	0.44	0.084	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2-Chlorophenol	ND	0.44	0.080	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4-Chlorophenylphenylether	ND	0.44	0.074	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Chrysene	ND	0.22	0.069	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Dibenz(a,h)anthracene	ND	0.22	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Dibenzofuran	ND	0.44	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Di-n-butylphthalate	ND	0.44	0.097	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1,2-Dichlorobenzene	ND	0.44	0.078	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1,3-Dichlorobenzene	ND	0.44	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1,4-Dichlorobenzene	ND	0.44	0.080	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
3,3-Dichlorobenzidine	ND	0.22	0.068	mg/Kg dry	1	R-06	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,4-Dichlorophenol	ND	0.44	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Diethylphthalate	ND	0.44	0.080	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,4-Dimethylphenol	ND	0.44	0.082	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Dimethylphthalate	ND	0.44	0.078	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4,6-Dinitro-2-methylphenol	ND	0.44	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,4-Dinitrophenol	ND	0.86	0.25	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,4-Dinitrotoluene	ND	0.44	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,6-Dinitrotoluene	ND	0.44	0.078	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Di-n-octylphthalate	ND	0.44	0.23	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.44	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Fluoranthene	ND	0.22	0.073	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Fluorene	ND	0.22	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	0.44	0.078	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Hexachlorobutadiene	ND	0.44	0.078	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Hexachlorocyclopentadiene	ND	0.44	0.094	mg/Kg dry	1	MS-09, R-06, V-05, V-19	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Hexachloroethane	ND	0.44	0.089	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Indeno(1,2,3-cd)pyrene	ND	0.22	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Isophorone	ND	0.44	0.086	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1-Methylnaphthalene	ND	0.22	0.085	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2-Methylnaphthalene	ND	0.22	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2-Methylphenol	ND	0.44	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
3/4-Methylphenol	ND	0.44	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Naphthalene	ND	0.22	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2-Nitroaniline	ND	0.44	0.074	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
3-Nitroaniline	ND	0.44	0.064	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4-Nitroaniline	ND	0.44	0.074	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Nitrobenzene	ND	0.44	0.084	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2-Nitrophenol	ND	0.44	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
4-Nitrophenol	ND	0.86	0.097	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
N-Nitrosodimethylamine	ND	0.44	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
N-Nitrosodiphenylamine	ND	0.44	0.091	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
N-Nitrosodi-n-propylamine	ND	0.44	0.091	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Pentachloronitrobenzene	ND	0.44	0.11	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Pentachlorophenol	ND	0.44	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Phenanthrene	ND	0.22	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Phenol	ND	0.44	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Pyrene	ND	0.22	0.073	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
Pyridine	ND	0.44	0.072	mg/Kg dry	1	MS-09	SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1,2,4,5-Tetrachlorobenzene	ND	0.44	0.080	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
1,2,4-Trichlorobenzene	ND	0.44	0.080	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,4,5-Trichlorophenol	ND	0.44	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL
2,4,6-Trichlorophenol	ND	0.44	0.074	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:02	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	64.0	30-130		1/18/18 16:02
Phenol-d6	64.6	30-130		1/18/18 16:02
Nitrobenzene-d5	59.9	30-130		1/18/18 16:02
2-Fluorobiphenyl	61.3	30-130		1/18/18 16:02
2,4,6-Tribromophenol	58.1	30-130		1/18/18 16:02
p-Terphenyl-d14	62.2	30-130		1/18/18 16:02

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8270D	1/18/18	1/18/18 16:02	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.4	0.19	mg/Kg dry	5	MS-07	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Arsenic	0.42	0.22	0.035	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:38	MJH
Beryllium	0.072	0.29	0.021	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:38	MJH
Chromium	4.4	5.5	0.20	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Copper	1.7	5.5	0.26	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Iron	2200	11	1.5	mg/Kg dry	5	MS-19	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Lead	2.8	2.2	0.072	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Manganese	7.2	5.7	0.17	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Mercury	ND	0.031	0.0031	mg/Kg dry	1		SW-846 7471B	1/22/18	1/22/18 14:12	EJB
Nickel	1.2	5.5	0.20	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Selenium	ND	0.90	0.061	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:38	MJH
Silver	0.0093	0.096	0.0035	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Thallium	0.032	0.070	0.0052	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH
Zinc	4.0	11	0.40	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:38	MJH
Cadmium	ND	0.42	0.014	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:51	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-1 | Sampled: 1/16/2018 12:10

Sample ID: 18A0479-10

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	37	36	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	1.7	2.7	0.87	mg/Kg dry	1	J	SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	240	260	120	mg/Kg dry	1	J	ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	76.6			% Wt	1		SM 2540G	1/18/18	1/19/18 7:28	MRL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.054	0.13	0.030	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Acrylonitrile	ND	0.0077	0.0032	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0013	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Benzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Bromobenzene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Bromochloromethane	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Bromodichloromethane	ND	0.0026	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Bromoform	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Bromomethane	ND	0.013	0.0054	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
2-Butanone (MEK)	ND	0.051	0.023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
tert-Butyl Alcohol (TBA)	ND	0.051	0.027	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
n-Butylbenzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
sec-Butylbenzene	ND	0.0026	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
tert-Butylbenzene	ND	0.0026	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0013	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Carbon Disulfide	ND	0.0077	0.0055	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Carbon Tetrachloride	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Chlorobenzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Chlorodibromomethane	ND	0.0013	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Chloroethane	ND	0.026	0.0019	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Chloroform	ND	0.0051	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Chloromethane	ND	0.013	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
2-Chlorotoluene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
4-Chlorotoluene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0026	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2-Dibromoethane (EDB)	ND	0.0013	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Dibromomethane	ND	0.0026	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2-Dichlorobenzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,3-Dichlorobenzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,4-Dichlorobenzene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
trans-1,4-Dichloro-2-butene	ND	0.0051	0.0027	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.026	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1-Dichloroethane	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2-Dichloroethane	ND	0.0026	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1-Dichloroethylene	ND	0.0051	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
cis-1,2-Dichloroethylene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
trans-1,2-Dichloroethylene	ND	0.0026	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2-Dichloropropane	ND	0.0026	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,3-Dichloropropane	ND	0.0013	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
2,2-Dichloropropane	ND	0.0026	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1-Dichloropropene	ND	0.0026	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
cis-1,3-Dichloropropene	ND	0.0013	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
trans-1,3-Dichloropropene	ND	0.0013	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Diethyl Ether	ND	0.026	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.0013	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,4-Dioxane	ND	0.13	0.074	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Ethylbenzene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Hexachlorobutadiene	ND	0.0026	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
2-Hexanone (MBK)	ND	0.026	0.014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Isopropylbenzene (Cumene)	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0051	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Methylene Chloride	ND	0.026	0.0091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.026	0.0098	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Naphthalene	ND	0.0051	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
n-Propylbenzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Styrene	ND	0.0026	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1,1,2-Tetrachloroethane	ND	0.0026	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1,2,2-Tetrachloroethane	ND	0.0013	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Tetrachloroethylene	ND	0.0026	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Tetrahydrofuran	ND	0.013	0.0028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Toluene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2,3-Trichlorobenzene	ND	0.0026	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2,4-Trichlorobenzene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,3,5-Trichlorobenzene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1,1-Trichloroethane	ND	0.0026	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1,2-Trichloroethane	ND	0.0026	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Trichloroethylene	ND	0.0026	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Trichlorofluoromethane (Freon 11)	ND	0.013	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2,3-Trichloropropane	ND	0.0026	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.013	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,2,4-Trimethylbenzene	ND	0.0026	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
1,3,5-Trimethylbenzene	ND	0.0026	0.00077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
Vinyl Chloride	ND	0.013	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
m+p Xylene	ND	0.0051	0.0022	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF
o-Xylene	ND	0.0026	0.00090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 19:33	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	85.3	70-130		1/19/18 19:33
Toluene-d8	100	70-130		1/19/18 19:33
4-Bromofluorobenzene	101	70-130		1/19/18 19:33

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 19:33	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.0032	0.0027	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 1:29	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	140	40-160		1/20/18 1:29	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.29	0.088	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Acenaphthylene	ND	0.29	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Acetophenone	ND	0.59	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Aniline	ND	0.59	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Anthracene	ND	0.29	0.085	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzidine	ND	1.1	0.74	mg/Kg dry	1	R-05, V-05	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzo(a)anthracene	ND	0.29	0.078	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzo(a)pyrene	ND	0.29	0.092	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzo(b)fluoranthene	ND	0.29	0.083	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzo(g,h,i)perylene	ND	0.29	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzo(k)fluoranthene	ND	0.29	0.092	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Benzoic Acid	ND	1.7	0.31	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Bis(2-chloroethoxy)methane	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Bis(2-chloroethyl)ether	ND	0.59	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Bis(2-chloroisopropyl)ether	ND	0.59	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.59	0.23	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4-Bromophenylphenylether	ND	0.59	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Butylbenzylphthalate	ND	0.59	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Carbazole	ND	0.29	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4-Chloroaniline	ND	1.1	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4-Chloro-3-methylphenol	ND	1.1	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2-Chloronaphthalene	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2-Chlorophenol	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4-Chlorophenylphenylether	ND	0.59	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Chrysene	ND	0.29	0.092	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Dibenz(a,h)anthracene	ND	0.29	0.18	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Dibenzofuran	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Di-n-butylphthalate	ND	0.59	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1,2-Dichlorobenzene	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1,3-Dichlorobenzene	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1,4-Dichlorobenzene	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
3,3-Dichlorobenzidine	ND	0.29	0.090	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,4-Dichlorophenol	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Diethylphthalate	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,4-Dimethylphenol	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Dimethylphthalate	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4,6-Dinitro-2-methylphenol	ND	0.59	0.56	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,4-Dinitrophenol	ND	1.1	0.34	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,4-Dinitrotoluene	ND	0.59	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,6-Dinitrotoluene	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Di-n-octylphthalate	ND	0.59	0.31	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.59	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Fluoranthene	ND	0.29	0.097	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Fluorene	ND	0.29	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Hexachlorobutadiene	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Hexachlorocyclopentadiene	ND	0.59	0.12	mg/Kg dry	1	V-05, V-19	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Hexachloroethane	ND	0.59	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Indeno(1,2,3-cd)pyrene	ND	0.29	0.21	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Isophorone	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1-Methylnaphthalene	ND	0.29	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2-Methylnaphthalene	ND	0.29	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2-Methylphenol	ND	0.59	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
3/4-Methylphenol	ND	0.59	0.19	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Naphthalene	ND	0.29	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2-Nitroaniline	ND	0.59	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
3-Nitroaniline	ND	0.59	0.085	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4-Nitroaniline	ND	0.59	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Nitrobenzene	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2-Nitrophenol	ND	0.59	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
4-Nitrophenol	ND	1.1	0.13	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
N-Nitrosodimethylamine	ND	0.59	0.37	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
N-Nitrosodiphenylamine	ND	0.59	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
N-Nitrosodi-n-propylamine	ND	0.59	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Pentachloronitrobenzene	ND	0.59	0.14	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Pentachlorophenol	ND	0.59	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Phenanthrene	ND	0.29	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Phenol	ND	0.59	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Pyrene	ND	0.29	0.097	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Pyridine	ND	0.59	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1,2,4,5-Tetrachlorobenzene	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
1,2,4-Trichlorobenzene	ND	0.59	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,4,5-Trichlorophenol	ND	0.59	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL
2,4,6-Trichlorophenol	ND	0.59	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:27	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	54.8	30-130		1/18/18 16:27
Phenol-d6	56.0	30-130		1/18/18 16:27
Nitrobenzene-d5	52.5	30-130		1/18/18 16:27
2-Fluorobiphenyl	53.6	30-130		1/18/18 16:27
2,4,6-Tribromophenol	49.0	30-130		1/18/18 16:27
p-Terphenyl-d14	54.1	30-130		1/18/18 16:27

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
4-((1E)-3-Hydroxy-1-propeny...	0.43	mg/Kg dry	126443	5.976	1	1000297-95-5	98	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
eicosane	0.26	mg/Kg dry	95550	11.236	1	000112-95-8	91	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
Hexadecenoic acid, Z-11-	0.30	mg/Kg dry	88211	6.482	1	002416-20-8	96	SW-846 8270D	1/18/18	1/18/18 16:27	BGL
n-Hexadecanoic acid	0.48	mg/Kg dry	140589	6.507	1	000057-10-3	95	SW-846 8270D	1/18/18	1/18/18 16:27	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	0.37	3.1	0.26	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Arsenic	0.98	0.29	0.047	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:37	MJH
Beryllium	0.81	0.39	0.028	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:37	MJH
Chromium	9.7	7.2	0.26	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Copper	6.7	7.2	0.34	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Iron	4100	14	2.0	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Lead	28	2.9	0.095	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Manganese	56	7.5	0.23	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Mercury	0.027	0.042	0.0042	mg/Kg dry	1	J	SW-846 7471B	1/22/18	1/22/18 14:13	EJB
Nickel	3.6	7.2	0.27	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Selenium	0.40	1.2	0.081	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:37	MJH
Silver	0.033	0.13	0.0046	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Thallium	0.12	0.093	0.0070	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH
Zinc	31	14	0.53	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 9:16	MJH
Cadmium	0.11	0.55	0.019	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 9:54	MJH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-2 | Sampled: 1/16/2018 12:30

Sample ID: 18A0479-11

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	48	48	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	4.2	3.6	1.2	mg/Kg dry	1		SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	ND	340	160	mg/Kg dry	1		ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	57.8			% Wt	1		SM 2540G	1/18/18	1/19/18 7:28	MRL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.037	0.10	0.024	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Acrylonitrile	ND	0.0061	0.0025	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0010	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Benzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Bromobenzene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Bromochloromethane	ND	0.0020	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Bromodichloromethane	ND	0.0020	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Bromoform	ND	0.0020	0.0014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Bromomethane	ND	0.010	0.0042	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
2-Butanone (MEK)	ND	0.040	0.018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
tert-Butyl Alcohol (TBA)	ND	0.040	0.021	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
n-Butylbenzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
sec-Butylbenzene	ND	0.0020	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
tert-Butylbenzene	ND	0.0020	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Carbon Disulfide	ND	0.0061	0.0043	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Carbon Tetrachloride	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Chlorobenzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Chlorodibromomethane	ND	0.0010	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Chloroethane	ND	0.020	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Chloroform	ND	0.0040	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Chloromethane	ND	0.010	0.0065	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
2-Chlorotoluene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
4-Chlorotoluene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2-Dibromoethane (EDB)	ND	0.0010	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Dibromomethane	ND	0.0020	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2-Dichlorobenzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,3-Dichlorobenzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,4-Dichlorobenzene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
trans-1,4-Dichloro-2-butene	ND	0.0040	0.0021	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.020	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1-Dichloroethane	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2-Dichloroethane	ND	0.0020	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1-Dichloroethylene	ND	0.0040	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
cis-1,2-Dichloroethylene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
trans-1,2-Dichloroethylene	ND	0.0020	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2-Dichloropropane	ND	0.0020	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,3-Dichloropropane	ND	0.0010	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
2,2-Dichloropropane	ND	0.0020	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1-Dichloropropene	ND	0.0020	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
cis-1,3-Dichloropropene	ND	0.0010	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
trans-1,3-Dichloropropene	ND	0.0010	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Diethyl Ether	ND	0.020	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.0010	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,4-Dioxane	ND	0.10	0.058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Ethylbenzene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Hexachlorobutadiene	ND	0.0020	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
2-Hexanone (MBK)	ND	0.020	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Isopropylbenzene (Cumene)	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Methylene Chloride	ND	0.020	0.0072	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.020	0.0077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Naphthalene	ND	0.0040	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
n-Propylbenzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Styrene	ND	0.0020	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1,1,2-Tetrachloroethane	ND	0.0020	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1,2,2-Tetrachloroethane	ND	0.0010	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Tetrachloroethylene	ND	0.0020	0.0013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Tetrahydrofuran	ND	0.010	0.0022	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Toluene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2,3-Trichlorobenzene	ND	0.0020	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2,4-Trichlorobenzene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,3,5-Trichlorobenzene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1,1-Trichloroethane	ND	0.0020	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1,2-Trichloroethane	ND	0.0020	0.0012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Trichloroethylene	ND	0.0020	0.0010	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Trichlorofluoromethane (Freon 11)	ND	0.010	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2,3-Trichloropropane	ND	0.0020	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.010	0.00091	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,2,4-Trimethylbenzene	ND	0.0020	0.00081	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
1,3,5-Trimethylbenzene	ND	0.0020	0.00061	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
Vinyl Chloride	ND	0.010	0.0011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
m+p Xylene	ND	0.0040	0.0017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF
o-Xylene	ND	0.0020	0.00071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 17:42	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	84.1	70-130		1/19/18 17:42
Toluene-d8	99.5	70-130		1/19/18 17:42
4-Bromofluorobenzene	103	70-130		1/19/18 17:42

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 17:42	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

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Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.0020	0.0017	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 1:56	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	103	40-160		1/20/18 1:56	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	0.064	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Acenaphthylene	ND	0.21	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Acetophenone	ND	0.43	0.085	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Aniline	ND	0.43	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Anthracene	ND	0.21	0.062	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzidine	ND	0.83	0.54	mg/Kg dry	1	R-05, V-05	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzo(a)anthracene	ND	0.21	0.057	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzo(a)pyrene	ND	0.21	0.067	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzo(b)fluoranthene	ND	0.21	0.061	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzo(g,h,i)perylene	ND	0.21	0.095	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzo(k)fluoranthene	ND	0.21	0.067	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Benzoic Acid	ND	1.3	0.23	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Bis(2-chloroethoxy)methane	ND	0.43	0.082	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Bis(2-chloroethyl)ether	ND	0.43	0.085	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Bis(2-chloroisopropyl)ether	ND	0.43	0.092	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.43	0.17	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4-Bromophenylphenylether	ND	0.43	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Butylbenzylphthalate	ND	0.43	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Carbazole	ND	0.21	0.056	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4-Chloroaniline	ND	0.83	0.099	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4-Chloro-3-methylphenol	ND	0.83	0.092	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2-Chloronaphthalene	ND	0.43	0.081	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2-Chlorophenol	ND	0.43	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4-Chlorophenylphenylether	ND	0.43	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Chrysene	ND	0.21	0.067	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Dibenz(a,h)anthracene	ND	0.21	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Dibenzofuran	ND	0.43	0.075	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Di-n-butylphthalate	ND	0.43	0.094	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1,2-Dichlorobenzene	ND	0.43	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1,3-Dichlorobenzene	ND	0.43	0.073	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1,4-Dichlorobenzene	ND	0.43	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
3,3-Dichlorobenzidine	ND	0.21	0.066	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,4-Dichlorophenol	ND	0.43	0.073	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Diethylphthalate	ND	0.43	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,4-Dimethylphenol	ND	0.43	0.080	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Dimethylphthalate	ND	0.43	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4,6-Dinitro-2-methylphenol	ND	0.43	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,4-Dinitrophenol	ND	0.83	0.25	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,4-Dinitrotoluene	ND	0.43	0.070	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,6-Dinitrotoluene	ND	0.43	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Di-n-octylphthalate	ND	0.43	0.22	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.43	0.070	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Fluoranthene	ND	0.21	0.071	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Fluorene	ND	0.21	0.070	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	0.43	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Hexachlorobutadiene	ND	0.43	0.076	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Hexachlorocyclopentadiene	ND	0.43	0.091	mg/Kg dry	1	V-05, V-19	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Hexachloroethane	ND	0.43	0.086	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Indeno(1,2,3-cd)pyrene	ND	0.21	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Isophorone	ND	0.43	0.083	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1-Methylnaphthalene	ND	0.21	0.082	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2-Methylnaphthalene	ND	0.21	0.075	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2-Methylphenol	ND	0.43	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
3/4-Methylphenol	ND	0.43	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Naphthalene	ND	0.21	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2-Nitroaniline	ND	0.43	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
3-Nitroaniline	ND	0.43	0.062	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4-Nitroaniline	ND	0.43	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Nitrobenzene	ND	0.43	0.081	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2-Nitrophenol	ND	0.43	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
4-Nitrophenol	ND	0.83	0.094	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
N-Nitrosodimethylamine	ND	0.43	0.27	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
N-Nitrosodiphenylamine	ND	0.43	0.088	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
N-Nitrosodi-n-propylamine	ND	0.43	0.088	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Pentachloronitrobenzene	ND	0.43	0.10	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Pentachlorophenol	ND	0.43	0.10	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Phenanthrene	ND	0.21	0.11	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Phenol	ND	0.43	0.073	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Pyrene	ND	0.21	0.071	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Pyridine	ND	0.43	0.070	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1,2,4,5-Tetrachlorobenzene	ND	0.43	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
1,2,4-Trichlorobenzene	ND	0.43	0.077	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,4,5-Trichlorophenol	ND	0.43	0.097	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL
2,4,6-Trichlorophenol	ND	0.43	0.072	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 16:52	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	57.3	30-130		1/18/18 16:52
Phenol-d6	59.1	30-130		1/18/18 16:52
Nitrobenzene-d5	56.9	30-130		1/18/18 16:52
2-Fluorobiphenyl	56.6	30-130		1/18/18 16:52
2,4,6-Tribromophenol	54.8	30-130		1/18/18 16:52
p-Terphenyl-d14	60.8	30-130		1/18/18 16:52

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
1,15-Hexadecadiene	0.32	mg/Kg dry	167202	13.54	1	021964-51-2	86	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
eicosane	0.69	mg/Kg dry	356637	11.239	1	000112-95-8	95	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
n-Hexadecanoic acid	0.57	mg/Kg dry	252278	6.507	1	000057-10-3	99	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Nonadecane, 9-methyl-	0.51	mg/Kg dry	263709	12.667	1	013287-24-6	93	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Oxirane, heptadecyl-	0.37	mg/Kg dry	194919	12.341	1	067860-04-2	94	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Squalene	0.41	mg/Kg dry	211940	10.627	1	007683-64-9	91	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Urs-12-ene, 3-methoxy-, (3....	0.29	mg/Kg dry	150247	14.111	1	014021-28-4	86	SW-846 8270D	1/18/18	1/18/18 16:52	BGL
Vitamin E	0.18	mg/Kg dry	92587	12.909	1	010191-41-0	99	SW-846 8270D	1/18/18	1/18/18 16:52	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.3	0.19	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Arsenic	0.34	0.21	0.034	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:44	MJH
Beryllium	0.056	0.28	0.020	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:44	MJH
Chromium	1.8	5.3	0.19	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Copper	0.57	5.3	0.25	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Iron	960	11	1.5	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Lead	1.7	2.1	0.070	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Manganese	7.5	5.5	0.17	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Mercury	ND	0.031	0.0031	mg/Kg dry	1		SW-846 7471B	1/22/18	1/22/18 14:15	EJB
Nickel	0.45	5.3	0.20	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Selenium	ND	0.88	0.059	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:44	MJH
Silver	ND	0.093	0.0034	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Thallium	0.0084	0.068	0.0051	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH
Zinc	2.8	10	0.39	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:44	MJH
Cadmium	ND	0.40	0.014	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:05	MJH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-3 | Sampled: 1/16/2018 11:30

Sample ID: 18A0479-12

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	37	37	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	1.9	2.9	0.92	mg/Kg dry	1	J	SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	ND	230	110	mg/Kg dry	1		ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	79.1			% Wt	1		SM 2540G	1/18/18	1/19/18 7:28	MRL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.63	0.97	0.23	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Acrylonitrile	ND	0.058	0.024	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0097	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Benzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Bromobenzene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Bromochloromethane	ND	0.019	0.014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Bromodichloromethane	ND	0.019	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Bromoform	ND	0.019	0.014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Bromomethane	ND	0.097	0.041	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
2-Butanone (MEK)	ND	0.39	0.17	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
tert-Butyl Alcohol (TBA)	ND	0.39	0.20	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
n-Butylbenzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
sec-Butylbenzene	ND	0.019	0.0097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
tert-Butylbenzene	ND	0.019	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0097	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Carbon Disulfide	ND	0.058	0.042	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Carbon Tetrachloride	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Chlorobenzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Chlorodibromomethane	ND	0.0097	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Chloroethane	ND	0.19	0.015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Chloroform	ND	0.039	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Chloromethane	ND	0.097	0.062	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
2-Chlorotoluene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
4-Chlorotoluene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.019	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2-Dibromoethane (EDB)	ND	0.0097	0.0097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Dibromomethane	ND	0.019	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2-Dichlorobenzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,3-Dichlorobenzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,4-Dichlorobenzene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
trans-1,4-Dichloro-2-butene	ND	0.039	0.020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.19	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1-Dichloroethane	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2-Dichloroethane	ND	0.019	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1-Dichloroethylene	ND	0.039	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
cis-1,2-Dichloroethylene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
trans-1,2-Dichloroethylene	ND	0.019	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2-Dichloropropane	ND	0.019	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,3-Dichloropropane	ND	0.0097	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
2,2-Dichloropropane	ND	0.019	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1-Dichloropropene	ND	0.019	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
cis-1,3-Dichloropropene	ND	0.0097	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
trans-1,3-Dichloropropene	ND	0.0097	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Diethyl Ether	ND	0.19	0.017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.0097	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,4-Dioxane	ND	0.97	0.56	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Ethylbenzene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Hexachlorobutadiene	ND	0.019	0.0097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
2-Hexanone (MBK)	ND	0.19	0.11	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Isopropylbenzene (Cumene)	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.039	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Methylene Chloride	ND	0.19	0.069	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.19	0.074	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Naphthalene	ND	0.039	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
n-Propylbenzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Styrene	ND	0.019	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1,1,2-Tetrachloroethane	ND	0.019	0.017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1,2,2-Tetrachloroethane	ND	0.0097	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Tetrachloroethylene	ND	0.019	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Tetrahydrofuran	ND	0.097	0.021	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Toluene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2,3-Trichlorobenzene	ND	0.019	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2,4-Trichlorobenzene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,3,5-Trichlorobenzene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1,1-Trichloroethane	ND	0.019	0.0097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1,2-Trichloroethane	ND	0.019	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Trichloroethylene	ND	0.019	0.0097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Trichlorofluoromethane (Freon 11)	ND	0.097	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2,3-Trichloropropane	ND	0.019	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.097	0.0087	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,2,4-Trimethylbenzene	ND	0.019	0.0078	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
1,3,5-Trimethylbenzene	ND	0.019	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
Vinyl Chloride	ND	0.097	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
m+p Xylene	ND	0.039	0.017	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF
o-Xylene	ND	0.019	0.0068	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 21:24	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	85.3	70-130		1/19/18 21:24
Toluene-d8	98.8	70-130		1/19/18 21:24
4-Bromofluorobenzene	101	70-130		1/19/18 21:24

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 21:24	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.021	0.018	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 2:23	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	98.7	40-160		1/20/18 2:23	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	1.3	0.38	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Acenaphthylene	ND	1.3	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Acetophenone	ND	2.6	0.50	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Aniline	ND	2.6	0.72	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Anthracene	ND	1.3	0.37	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzidine	ND	5.0	3.2	mg/Kg dry	1	R-05, V-05	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzo(a)anthracene	ND	1.3	0.34	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzo(a)pyrene	ND	1.3	0.40	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzo(b)fluoranthene	ND	1.3	0.36	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzo(g,h,i)perylene	ND	1.3	0.56	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzo(k)fluoranthene	ND	1.3	0.40	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Benzoic Acid	ND	7.5	1.4	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Bis(2-chloroethoxy)methane	ND	2.6	0.49	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Bis(2-chloroethyl)ether	ND	2.6	0.50	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Bis(2-chloroisopropyl)ether	ND	2.6	0.55	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Bis(2-Ethylhexyl)phthalate	ND	2.6	0.99	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-Bromophenylphenylether	ND	2.6	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Butylbenzylphthalate	ND	2.6	0.61	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Carbazole	ND	1.3	0.33	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-Chloroaniline	ND	5.0	0.59	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-Chloro-3-methylphenol	ND	5.0	0.55	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2-Chloronaphthalene	ND	2.6	0.48	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2-Chlorophenol	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-Chlorophenylphenylether	ND	2.6	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Chrysene	ND	1.3	0.40	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Dibenz(a,h)anthracene	ND	1.3	0.78	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Dibenzofuran	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Di-n-butylphthalate	ND	2.6	0.56	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1,2-Dichlorobenzene	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1,3-Dichlorobenzene	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1,4-Dichlorobenzene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
3,3-Dichlorobenzidine	ND	1.3	0.39	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,4-Dichlorophenol	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Diethylphthalate	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,4-Dimethylphenol	ND	2.6	0.47	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Dimethylphthalate	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4,6-Dinitro-2-methylphenol	ND	2.6	2.4	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,4-Dinitrophenol	ND	5.0	1.5	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,4-Dinitrotoluene	ND	2.6	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,6-Dinitrotoluene	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Di-n-octylphthalate	ND	2.6	1.3	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	2.6	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Fluoranthene	ND	1.3	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Fluorene	ND	1.3	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Hexachlorobutadiene	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Hexachlorocyclopentadiene	ND	2.6	0.54	mg/Kg dry	1	V-05, V-19	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Hexachloroethane	ND	2.6	0.51	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Indeno(1,2,3-cd)pyrene	ND	1.3	0.92	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Isophorone	ND	2.6	0.50	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1-Methylnaphthalene	ND	1.3	0.49	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2-Methylnaphthalene	ND	1.3	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2-Methylphenol	ND	2.6	0.64	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
3/4-Methylphenol	ND	2.6	0.81	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Naphthalene	ND	1.3	0.65	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2-Nitroaniline	ND	2.6	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
3-Nitroaniline	ND	2.6	0.37	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-Nitroaniline	ND	2.6	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Nitrobenzene	ND	2.6	0.48	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2-Nitrophenol	ND	2.6	0.68	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-Nitrophenol	ND	5.0	0.56	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
N-Nitrosodimethylamine	ND	2.6	1.6	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
N-Nitrosodiphenylamine	ND	2.6	0.53	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
N-Nitrosodi-n-propylamine	ND	2.6	0.53	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Pentachloronitrobenzene	ND	2.6	0.61	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Pentachlorophenol	ND	2.6	0.62	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Phenanthrene	ND	1.3	0.66	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Phenol	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Pyrene	ND	1.3	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Pyridine	ND	2.6	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1,2,4,5-Tetrachlorobenzene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
1,2,4-Trichlorobenzene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,4,5-Trichlorophenol	ND	2.6	0.58	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL
2,4,6-Trichlorophenol	ND	2.6	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:17	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	47.6	30-130		1/18/18 17:17
Phenol-d6	49.1	30-130		1/18/18 17:17
Nitrobenzene-d5	45.0	30-130		1/18/18 17:17
2-Fluorobiphenyl	44.7	30-130		1/18/18 17:17
2,4,6-Tribromophenol	43.1	30-130		1/18/18 17:17
p-Terphenyl-d14	43.8	30-130		1/18/18 17:17

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
(Z)-14-Tricosenyl formate	2.6	mg/Kg dry	189222	12.338	1	077899-10-6	89	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
4-((1E)-3-Hydroxy-1-propeny...	8.3	mg/Kg dry	511556	5.967	1	1000297-95-5	97	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Furfural	2.9	mg/Kg dry	118066	2.586	1	000098-01-1	96	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Hentriacontane	11	mg/Kg dry	758347	12.673	1	000630-04-6	97	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
n-Hexadecanoic acid	3.2	mg/Kg dry	197156	6.507	1	000057-10-3	99	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
p-Hydroxycinnamic acid	4.4	mg/Kg dry	273746	6.079	1	000501-98-4	94	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Picein	3.7	mg/Kg dry	299380	8.417	1	000530-14-3	95	SW-846 8270D	1/18/18	1/18/18 17:17	BGL
Tridecane, 1-iodo-	8.4	mg/Kg dry	601869	11.239	1	035599-77-0	93	SW-846 8270D	1/18/18	1/18/18 17:17	BGL

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Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	13	1.1	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Arsenic	11	1.2	0.20	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:46	MJH
Beryllium	1.6	1.7	0.12	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:46	MJH
Chromium	18	31	1.1	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Copper	29	31	1.4	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Iron	18000	61	8.5	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Lead	31	12	0.40	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Manganese	120	32	0.98	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Mercury	0.053	0.19	0.019	mg/Kg dry	1	J	SW-846 7471B	1/22/18	1/22/18 14:16	EJB
Nickel	9.1	31	1.1	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Selenium	1.5	5.2	0.35	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:46	MJH
Silver	0.099	0.54	0.020	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Thallium	0.29	0.39	0.029	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH
Zinc	120	62	2.3	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:46	MJH
Cadmium	0.80	2.3	0.078	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:08	MJH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-4 | Sampled: 1/16/2018 13:15

Sample ID: 18A0479-13

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	210	210	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	5.8	17	5.5	mg/Kg dry	1	J	SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	ND	1400	640	mg/Kg dry	1		ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	13.3			% Wt	1		SM 2540G	1/18/18	1/19/18 7:28	MRL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.20	0.26	0.060	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Acrylonitrile	ND	0.015	0.0064	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Benzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Bromobenzene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Bromochloromethane	ND	0.0051	0.0036	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Bromodichloromethane	ND	0.0051	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Bromoform	ND	0.0051	0.0036	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Bromomethane	ND	0.026	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
2-Butanone (MEK)	ND	0.10	0.045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
tert-Butyl Alcohol (TBA)	ND	0.10	0.054	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
n-Butylbenzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
sec-Butylbenzene	ND	0.0051	0.0026	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
tert-Butylbenzene	ND	0.0051	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0026	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Carbon Disulfide	ND	0.015	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Carbon Tetrachloride	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Chlorobenzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Chlorodibromomethane	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Chloroethane	ND	0.051	0.0038	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Chloroform	ND	0.010	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Chloromethane	ND	0.026	0.016	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
2-Chlorotoluene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
4-Chlorotoluene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0051	0.0028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2-Dibromoethane (EDB)	ND	0.0026	0.0026	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Dibromomethane	ND	0.0051	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2-Dichlorobenzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,3-Dichlorobenzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,4-Dichlorobenzene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
trans-1,4-Dichloro-2-butene	ND	0.010	0.0054	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.051	0.0033	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1-Dichloroethane	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2-Dichloroethane	ND	0.0051	0.0033	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1-Dichloroethylene	ND	0.010	0.0028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
cis-1,2-Dichloroethylene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
trans-1,2-Dichloroethylene	ND	0.0051	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2-Dichloropropane	ND	0.0051	0.0033	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,3-Dichloropropane	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
2,2-Dichloropropane	ND	0.0051	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1-Dichloropropene	ND	0.0051	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
cis-1,3-Dichloropropene	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
trans-1,3-Dichloropropene	ND	0.0026	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Diethyl Ether	ND	0.051	0.0046	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.0026	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,4-Dioxane	ND	0.26	0.15	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Ethylbenzene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Hexachlorobutadiene	ND	0.0051	0.0026	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
2-Hexanone (MBK)	ND	0.051	0.028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Isopropylbenzene (Cumene)	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
p-Isopropyltoluene (p-Cymene)	0.0054	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.010	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Methylene Chloride	ND	0.051	0.018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.051	0.019	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Naphthalene	ND	0.010	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
n-Propylbenzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Styrene	ND	0.0051	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1,1,2-Tetrachloroethane	ND	0.0051	0.0046	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1,2,2-Tetrachloroethane	ND	0.0026	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Tetrachloroethylene	ND	0.0051	0.0033	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Tetrahydrofuran	ND	0.026	0.0056	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Toluene	0.0069	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2,3-Trichlorobenzene	ND	0.0051	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2,4-Trichlorobenzene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,3,5-Trichlorobenzene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1,1-Trichloroethane	ND	0.0051	0.0026	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1,2-Trichloroethane	ND	0.0051	0.0031	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Trichloroethylene	ND	0.0051	0.0026	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Trichlorofluoromethane (Freon 11)	ND	0.026	0.0028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2,3-Trichloropropane	ND	0.0051	0.0028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.026	0.0023	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,2,4-Trimethylbenzene	ND	0.0051	0.0020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
1,3,5-Trimethylbenzene	ND	0.0051	0.0015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
Vinyl Chloride	ND	0.026	0.0028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
m+p Xylene	ND	0.010	0.0044	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF
o-Xylene	ND	0.0051	0.0018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:01	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	84.5	70-130		1/19/18 20:01
Toluene-d8	101	70-130		1/19/18 20:01
4-Bromofluorobenzene	102	70-130		1/19/18 20:01

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 20:01	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.0051	0.0043	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 2:49	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	93.2	40-160			1/20/18 2:49

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.48	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Acenaphthylene	ND	0.48	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Acetophenone	ND	0.95	0.19	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Aniline	ND	0.95	0.27	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Anthracene	ND	0.48	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzidine	ND	1.9	1.2	mg/Kg dry	1	R-05, V-05	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzo(a)anthracene	ND	0.48	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzo(a)pyrene	ND	0.48	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzo(b)fluoranthene	ND	0.48	0.13	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzo(g,h,i)perylene	ND	0.48	0.21	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzo(k)fluoranthene	ND	0.48	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Benzoic Acid	1.3	2.8	0.51	mg/Kg dry	1	J	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Bis(2-chloroethoxy)methane	ND	0.95	0.18	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Bis(2-chloroethyl)ether	ND	0.95	0.19	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Bis(2-chloroisopropyl)ether	ND	0.95	0.20	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.95	0.37	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-Bromophenylphenylether	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Butylbenzylphthalate	ND	0.95	0.23	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Carbazole	ND	0.48	0.12	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-Chloroaniline	ND	1.9	0.22	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-Chloro-3-methylphenol	ND	1.9	0.20	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2-Chloronaphthalene	ND	0.95	0.18	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2-Chlorophenol	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-Chlorophenylphenylether	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Chrysene	ND	0.48	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Dibenz(a,h)anthracene	ND	0.48	0.29	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Dibenzofuran	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Di-n-butylphthalate	ND	0.95	0.21	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1,2-Dichlorobenzene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1,3-Dichlorobenzene	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1,4-Dichlorobenzene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
3,3-Dichlorobenzidine	ND	0.48	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,4-Dichlorophenol	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Diethylphthalate	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,4-Dimethylphenol	ND	0.95	0.18	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Dimethylphthalate	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4,6-Dinitro-2-methylphenol	ND	0.95	0.91	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,4-Dinitrophenol	ND	1.9	0.54	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,4-Dinitrotoluene	ND	0.95	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,6-Dinitrotoluene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Di-n-octylphthalate	ND	0.95	0.50	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.95	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Fluoranthene	ND	0.48	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Fluorene	ND	0.48	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Hexachlorobutadiene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Hexachlorocyclopentadiene	ND	0.95	0.20	mg/Kg dry	1	V-05, V-19	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Hexachloroethane	ND	0.95	0.19	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Indeno(1,2,3-cd)pyrene	ND	0.48	0.34	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Isophorone	ND	0.95	0.19	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1-Methylnaphthalene	ND	0.48	0.18	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2-Methylnaphthalene	ND	0.48	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2-Methylphenol	ND	0.95	0.24	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
3/4-Methylphenol	ND	0.95	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Naphthalene	ND	0.48	0.24	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2-Nitroaniline	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
3-Nitroaniline	ND	0.95	0.14	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-Nitroaniline	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Nitrobenzene	ND	0.95	0.18	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2-Nitrophenol	ND	0.95	0.25	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-Nitrophenol	ND	1.9	0.21	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
N-Nitrosodimethylamine	ND	0.95	0.60	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
N-Nitrosodiphenylamine	ND	0.95	0.20	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
N-Nitrosodi-n-propylamine	ND	0.95	0.20	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Pentachloronitrobenzene	ND	0.95	0.23	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Pentachlorophenol	ND	0.95	0.23	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Phenanthrene	ND	0.48	0.25	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Phenol	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Pyrene	ND	0.48	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Pyridine	ND	0.95	0.15	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1,2,4,5-Tetrachlorobenzene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
1,2,4-Trichlorobenzene	ND	0.95	0.17	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,4,5-Trichlorophenol	ND	0.95	0.22	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL
2,4,6-Trichlorophenol	ND	0.95	0.16	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 17:42	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	39.0	30-130		1/18/18 17:42
Phenol-d6	39.0	30-130		1/18/18 17:42
Nitrobenzene-d5	37.4	30-130		1/18/18 17:42
2-Fluorobiphenyl	35.0	30-130		1/18/18 17:42
2,4,6-Tribromophenol	36.8	30-130		1/18/18 17:42
p-Terphenyl-d14	35.4	30-130		1/18/18 17:42

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
.beta.-Sitosterol	4.0	mg/Kg dry	863242	14.182	1	000083-46-5	95	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
16-Octadecenal	4.5	mg/Kg dry	952746	13.546	1	056554-87-1	93	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
4-((1E)-3-Hydroxy-1-propeny...	3.3	mg/Kg dry	674104	5.967	1	1000297-95-5	98	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
7-Isopropenyl-1,4a-dimethyl...	2.0	mg/Kg dry	498928	9.851	1	000473-08-5	86	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Heneicosane	5.6	mg/Kg dry	1202820	12.673	1	000629-94-7	97	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Heptadecane	7.4	mg/Kg dry	1574790	11.242	1	000629-78-7	95	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Hexadecanal	0.92	mg/Kg dry	196271	10.82	1	000629-80-1	87	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
n-Hexadecanoic acid	3.2	mg/Kg dry	659871	6.51	1	000057-10-3	97	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Octadecanal	4.8	mg/Kg dry	1028680	12.344	1	000638-66-4	91	SW-846 8270D	1/18/18	1/18/18 17:42	BGL
Vitamin E	2.0	mg/Kg dry	435229	12.909	1	010191-41-0	99	SW-846 8270D	1/18/18	1/18/18 17:42	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	5.1	0.41	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Arsenic	3.2	0.46	0.076	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:48	MJH
Beryllium	0.59	0.63	0.044	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:48	MJH
Chromium	6.1	12	0.42	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Copper	5.6	12	0.55	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Iron	6800	23	3.2	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Lead	21	4.7	0.15	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Manganese	19	12	0.37	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Mercury	0.021	0.067	0.0067	mg/Kg dry	1	J	SW-846 7471B	1/22/18	1/22/18 14:18	EJB
Nickel	2.9	12	0.43	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Selenium	0.52	1.9	0.13	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:48	MJH
Silver	0.017	0.21	0.0075	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Thallium	0.16	0.15	0.011	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH
Zinc	27	23	0.86	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:48	MJH
Cadmium	0.23	0.89	0.030	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:12	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-5 | Sampled: 1/16/2018 14:10

Sample ID: 18A0479-14

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	82	81	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	3.0	5.7	1.8	mg/Kg dry	1	J	SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	ND	550	250	mg/Kg dry	1		ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	35.6			% Wt	1		SM 2540G	1/18/18	1/19/18 7:28	MRL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.68	0.64	0.15	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Acrylonitrile	ND	0.039	0.016	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0064	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Benzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Bromobenzene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Bromochloromethane	ND	0.013	0.0090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Bromodichloromethane	ND	0.013	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Bromoform	ND	0.013	0.0090	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Bromomethane	ND	0.064	0.027	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
2-Butanone (MEK)	ND	0.26	0.11	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
tert-Butyl Alcohol (TBA)	ND	0.26	0.13	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
n-Butylbenzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
sec-Butylbenzene	ND	0.013	0.0064	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
tert-Butylbenzene	ND	0.013	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0064	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Carbon Disulfide	ND	0.039	0.028	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Carbon Tetrachloride	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Chlorobenzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Chlorodibromomethane	ND	0.0064	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Chloroethane	ND	0.13	0.0097	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Chloroform	ND	0.026	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Chloromethane	ND	0.064	0.041	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
2-Chlorotoluene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
4-Chlorotoluene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.013	0.0071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2-Dibromoethane (EDB)	ND	0.0064	0.0064	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Dibromomethane	ND	0.013	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2-Dichlorobenzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,3-Dichlorobenzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,4-Dichlorobenzene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
trans-1,4-Dichloro-2-butene	ND	0.026	0.014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.13	0.0084	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1-Dichloroethane	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2-Dichloroethane	ND	0.013	0.0084	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1-Dichloroethylene	ND	0.026	0.0071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
cis-1,2-Dichloroethylene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
trans-1,2-Dichloroethylene	ND	0.013	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2-Dichloropropane	ND	0.013	0.0084	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,3-Dichloropropane	ND	0.0064	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
2,2-Dichloropropane	ND	0.013	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1-Dichloropropene	ND	0.013	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
cis-1,3-Dichloropropene	ND	0.0064	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
trans-1,3-Dichloropropene	ND	0.0064	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Diethyl Ether	ND	0.13	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.0064	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,4-Dioxane	ND	0.64	0.37	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Ethylbenzene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Hexachlorobutadiene	ND	0.013	0.0064	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
2-Hexanone (MBK)	ND	0.13	0.070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Isopropylbenzene (Cumene)	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.026	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Methylene Chloride	ND	0.13	0.046	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.13	0.049	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Naphthalene	ND	0.026	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
n-Propylbenzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Styrene	ND	0.013	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1,1,2-Tetrachloroethane	ND	0.013	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1,2,2-Tetrachloroethane	ND	0.0064	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Tetrachloroethylene	ND	0.013	0.0084	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Tetrahydrofuran	ND	0.064	0.014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Toluene	0.012	0.013	0.0051	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2,3-Trichlorobenzene	ND	0.013	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2,4-Trichlorobenzene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,3,5-Trichlorobenzene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1,1-Trichloroethane	ND	0.013	0.0064	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1,2-Trichloroethane	ND	0.013	0.0077	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Trichloroethylene	ND	0.013	0.0064	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Trichlorofluoromethane (Freon 11)	ND	0.064	0.0071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2,3-Trichloropropane	ND	0.013	0.0071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.064	0.0058	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,2,4-Trimethylbenzene	ND	0.013	0.0051	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
1,3,5-Trimethylbenzene	ND	0.013	0.0039	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
Vinyl Chloride	ND	0.064	0.0071	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
m+p Xylene	ND	0.026	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF
o-Xylene	ND	0.013	0.0045	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:29	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	85.6	70-130		1/19/18 20:29
Toluene-d8	99.8	70-130		1/19/18 20:29
4-Bromofluorobenzene	100	70-130		1/19/18 20:29

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 20:29	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.012	0.010	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 3:16	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	87.0	40-160		1/20/18 3:16	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.84	0.25	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Acenaphthylene	ND	0.84	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Acetophenone	ND	1.7	0.33	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Aniline	ND	1.7	0.48	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Anthracene	ND	0.84	0.24	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzidine	ND	3.3	2.1	mg/Kg dry	1	R-05, V-05	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzo(a)anthracene	ND	0.84	0.22	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzo(a)pyrene	ND	0.84	0.26	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzo(b)fluoranthene	ND	0.84	0.24	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzo(g,h,i)perylene	ND	0.84	0.37	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzo(k)fluoranthene	ND	0.84	0.26	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzoic Acid	46	20	3.6	mg/Kg dry	4		SW-846 8270D	1/18/18	1/19/18 16:40	BGL
Bis(2-chloroethoxy)methane	ND	1.7	0.32	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Bis(2-chloroethyl)ether	ND	1.7	0.33	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Bis(2-chloroisopropyl)ether	ND	1.7	0.36	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Bis(2-Ethylhexyl)phthalate	ND	1.7	0.65	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-Bromophenylphenylether	ND	1.7	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Butylbenzylphthalate	ND	1.7	0.40	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Carbazole	ND	0.84	0.22	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-Chloroaniline	ND	3.3	0.39	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-Chloro-3-methylphenol	ND	3.3	0.36	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Chloronaphthalene	ND	1.7	0.32	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Chlorophenol	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-Chlorophenylphenylether	ND	1.7	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Chrysene	ND	0.84	0.26	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Dibenz(a,h)anthracene	ND	0.84	0.52	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Dibenzofuran	ND	1.7	0.29	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Di-n-butylphthalate	ND	1.7	0.37	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1,2-Dichlorobenzene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1,3-Dichlorobenzene	ND	1.7	0.29	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1,4-Dichlorobenzene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
3,3-Dichlorobenzidine	ND	0.84	0.26	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,4-Dichlorophenol	ND	1.7	0.29	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Diethylphthalate	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,4-Dimethylphenol	ND	1.7	0.31	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Dimethylphthalate	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4,6-Dinitro-2-methylphenol	ND	1.7	1.6	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,4-Dinitrophenol	ND	3.3	0.96	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,4-Dinitrotoluene	ND	1.7	0.27	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,6-Dinitrotoluene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Di-n-octylphthalate	ND	1.7	0.88	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	1.7	0.27	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Fluoranthene	ND	0.84	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Fluorene	ND	0.84	0.27	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Hexachlorobutadiene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Hexachlorocyclopentadiene	ND	1.7	0.36	mg/Kg dry	1	V-05, V-19	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Hexachloroethane	ND	1.7	0.34	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Indeno(1,2,3-cd)pyrene	ND	0.84	0.60	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Isophorone	ND	1.7	0.33	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1-Methylnaphthalene	ND	0.84	0.32	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Methylnaphthalene	ND	0.84	0.29	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Methylphenol	ND	1.7	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
3/4-Methylphenol	ND	1.7	0.54	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Naphthalene	ND	0.84	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Nitroaniline	ND	1.7	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
3-Nitroaniline	ND	1.7	0.24	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-Nitroaniline	ND	1.7	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Nitrobenzene	ND	1.7	0.32	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Nitrophenol	ND	1.7	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-Nitrophenol	ND	3.3	0.37	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
N-Nitrosodimethylamine	ND	1.7	1.1	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
N-Nitrosodiphenylamine	ND	1.7	0.35	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
N-Nitrosodi-n-propylamine	ND	1.7	0.35	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Pentachloronitrobenzene	ND	1.7	0.40	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Pentachlorophenol	ND	1.7	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Phenanthrene	ND	0.84	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Phenol	ND	1.7	0.29	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Pyrene	ND	0.84	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Pyridine	ND	1.7	0.27	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1,2,4,5-Tetrachlorobenzene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
1,2,4-Trichlorobenzene	ND	1.7	0.30	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,4,5-Trichlorophenol	ND	1.7	0.38	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2,4,6-Trichlorophenol	ND	1.7	0.28	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:07	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	45.6	30-130		1/18/18 18:07
2-Fluorophenol	49.1	30-130		1/19/18 16:40
Phenol-d6	47.6	30-130		1/18/18 18:07
Phenol-d6	50.7	30-130		1/19/18 16:40
Nitrobenzene-d5	42.1	30-130		1/18/18 18:07
Nitrobenzene-d5	49.7	30-130		1/19/18 16:40
2-Fluorobiphenyl	43.4	30-130		1/18/18 18:07
2-Fluorobiphenyl	51.0	30-130		1/19/18 16:40
2,4,6-Tribromophenol	46.0	30-130		1/18/18 18:07
2,4,6-Tribromophenol	48.6	30-130		1/19/18 16:40
p-Terphenyl-d14	46.4	30-130		1/18/18 18:07
p-Terphenyl-d14	49.6	30-130		1/19/18 16:40

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Butanone, 4-hydroxy-	6.3	mg/Kg dry	416806	2.359	1	000590-90-9	87	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Furancarboxaldehyde, 5-(h...	11	mg/Kg dry	1021460	4.268	1	000067-47-0	89	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
2-Furanmethanol	2.2	mg/Kg dry	145744	2.666	1	000098-00-0	94	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
3-Hydroxy-4-methoxybenzoic ...	7.1	mg/Kg dry	1050790	5.43	1	000645-08-9	97	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
4-((1E)-3-Hydroxy-1-propeny...	7.9	mg/Kg dry	1293220	5.97	1	1000297-95-5	99	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
9-Octadecenoic acid, (E)-	2.3	mg/Kg dry	382168	7.088	1	000112-79-8	99	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Benzoic acid, 4-hydroxy-3,5...	2.4	mg/Kg dry	393842	6.137	1	000530-57-4	98	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Bicyclo[10.8.0]eicosane, cis-	2.3	mg/Kg dry	243574	13.546	1	1000155-82-2	97	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
eicosane	6.4	mg/Kg dry	685990	11.242	1	000112-95-8	95	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Furfural	6.9	mg/Kg dry	453535	2.579	1	000098-01-1	96	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Hentriacontane	6.1	mg/Kg dry	649395	12.673	1	000630-04-6	94	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
n-Hexadecanoic acid	3.1	mg/Kg dry	498906	6.51	1	000057-10-3	96	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Pentanoic acid, 4-oxo-	4.3	mg/Kg dry	286953	3.548	1	000123-76-2	87	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
Stigmasterol, 22,23-dihydro-	2.8	mg/Kg dry	299079	14.179	1	1000214-20-7	99	SW-846 8270D	1/18/18	1/18/18 18:07	BGL
vanillin	3.3	mg/Kg dry	490213	4.92	1	000121-33-5	97	SW-846 8270D	1/18/18	1/18/18 18:07	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	9.0	0.73	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Arsenic	4.1	0.81	0.13	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:50	MJH
Beryllium	1.5	1.1	0.078	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:50	MJH
Chromium	13	21	0.74	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Copper	8.0	21	0.98	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Iron	15000	42	5.8	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Lead	28	8.3	0.27	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Manganese	44	22	0.66	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Mercury	0.046	0.13	0.013	mg/Kg dry	1	J	SW-846 7471B	1/22/18	1/22/18 14:20	EJB
Nickel	5.0	21	0.77	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Selenium	1.1	3.4	0.23	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:50	MJH
Silver	0.045	0.37	0.013	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Thallium	0.24	0.27	0.020	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH
Zinc	48	41	1.5	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:50	MJH
Cadmium	0.41	1.6	0.053	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:15	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-6 | Sampled: 1/16/2018 14:50

Sample ID: 18A0479-15

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	140	140	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	8.9	11	3.7	mg/Kg dry	1	J	SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	530	950	440	mg/Kg dry	1	J	ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	20.2			% Wt	1		SM 2540G	1/18/18	1/19/18 7:29	MRL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 1 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-16

Sample Matrix: Trip Blank Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Acrylonitrile	ND	5.0	0.58	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Benzene	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Bromobenzene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Bromochloromethane	ND	1.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Bromodichloromethane	ND	0.50	0.30	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Bromoform	ND	1.0	0.21	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Bromomethane	ND	2.0	0.94	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
2-Butanone (MEK)	ND	20	2.4	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
tert-Butyl Alcohol (TBA)	ND	20	2.2	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
n-Butylbenzene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
sec-Butylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
tert-Butylbenzene	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Carbon Disulfide	ND	4.0	1.0	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Carbon Tetrachloride	ND	5.0	0.25	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Chlorobenzene	ND	1.0	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Chlorodibromomethane	ND	0.50	0.10	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Chloroethane	ND	2.0	0.28	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Chloroform	ND	2.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Chloromethane	ND	2.0	0.55	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
2-Chlorotoluene	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
4-Chlorotoluene	ND	1.0	0.14	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2-Dibromoethane (EDB)	ND	0.50	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Dibromomethane	ND	1.0	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2-Dichlorobenzene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,3-Dichlorobenzene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,4-Dichlorobenzene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1-Dichloroethane	ND	1.0	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2-Dichloroethane	ND	1.0	0.19	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1-Dichloroethylene	ND	1.0	0.21	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
cis-1,2-Dichloroethylene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
trans-1,2-Dichloroethylene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2-Dichloropropane	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,3-Dichloropropane	ND	0.50	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
2,2-Dichloropropane	ND	1.0	0.21	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1-Dichloropropene	ND	2.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
cis-1,3-Dichloropropene	ND	0.50	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
trans-1,3-Dichloropropene	ND	0.50	0.11	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Diethyl Ether	ND	2.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 1 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-16

Sample Matrix: Trip Blank Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,4-Dioxane	ND	50	26	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Ethylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Hexachlorobutadiene	ND	0.60	0.59	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
2-Hexanone (MBK)	ND	10	1.5	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Isopropylbenzene (Cumene)	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
p-Isopropyltoluene (p-Cymene)	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Methylene Chloride	ND	5.0	3.2	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Naphthalene	ND	2.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
n-Propylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Styrene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Tetrachloroethylene	ND	1.0	0.27	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Tetrahydrofuran	ND	10	1.1	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Toluene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2,3-Trichlorobenzene	ND	5.0	0.14	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2,4-Trichlorobenzene	ND	1.0	0.19	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,3,5-Trichlorobenzene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1,1-Trichloroethane	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1,2-Trichloroethane	ND	1.0	0.24	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Trichloroethylene	ND	1.0	0.20	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2,3-Trichloropropane	ND	2.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,2,4-Trimethylbenzene	ND	1.0	0.18	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
1,3,5-Trimethylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
Vinyl Chloride	ND	2.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
m+p Xylene	ND	2.0	0.26	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF
o-Xylene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 12:37	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	90.4	70-130		1/19/18 12:37
Toluene-d8	101	70-130		1/19/18 12:37
4-Bromofluorobenzene	105	70-130		1/19/18 12:37

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 1 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-16

Sample Matrix: Trip Blank Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyclobutane, methyl-	0.0093	mg/Kg wet	82753	2.309	1	000598-61-8	86	SW-846 8260C	1/19/18	1/19/18 12:37	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 2 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-17

Sample Matrix: Trip Blank Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Acrylonitrile	ND	5.0	0.58	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Benzene	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Bromobenzene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Bromochloromethane	ND	1.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Bromodichloromethane	ND	0.50	0.30	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Bromoform	ND	1.0	0.21	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Bromomethane	ND	2.0	0.94	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
2-Butanone (MEK)	ND	20	2.4	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
tert-Butyl Alcohol (TBA)	ND	20	2.2	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
n-Butylbenzene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
sec-Butylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
tert-Butylbenzene	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Carbon Disulfide	ND	4.0	1.0	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Carbon Tetrachloride	ND	5.0	0.25	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Chlorobenzene	ND	1.0	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Chlorodibromomethane	ND	0.50	0.10	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Chloroethane	ND	2.0	0.28	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Chloroform	ND	2.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Chloromethane	ND	2.0	0.55	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
2-Chlorotoluene	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
4-Chlorotoluene	ND	1.0	0.14	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2-Dibromoethane (EDB)	ND	0.50	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Dibromomethane	ND	1.0	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2-Dichlorobenzene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,3-Dichlorobenzene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,4-Dichlorobenzene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1-Dichloroethane	ND	1.0	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2-Dichloroethane	ND	1.0	0.19	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1-Dichloroethylene	ND	1.0	0.21	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
cis-1,2-Dichloroethylene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
trans-1,2-Dichloroethylene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2-Dichloropropane	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,3-Dichloropropane	ND	0.50	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
2,2-Dichloropropane	ND	1.0	0.21	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1-Dichloropropene	ND	2.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
cis-1,3-Dichloropropene	ND	0.50	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
trans-1,3-Dichloropropene	ND	0.50	0.11	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Diethyl Ether	ND	2.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 2 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-17

Sample Matrix: Trip Blank Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,4-Dioxane	ND	50	26	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Ethylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Hexachlorobutadiene	ND	0.60	0.59	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
2-Hexanone (MBK)	ND	10	1.5	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Isopropylbenzene (Cumene)	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
p-Isopropyltoluene (p-Cymene)	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Methylene Chloride	ND	5.0	3.2	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Naphthalene	ND	2.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
n-Propylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Styrene	ND	1.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Tetrachloroethylene	ND	1.0	0.27	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Tetrahydrofuran	ND	10	1.1	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Toluene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2,3-Trichlorobenzene	ND	5.0	0.14	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2,4-Trichlorobenzene	ND	1.0	0.19	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,3,5-Trichlorobenzene	ND	1.0	0.17	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1,1-Trichloroethane	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1,2-Trichloroethane	ND	1.0	0.24	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Trichloroethylene	ND	1.0	0.20	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2,3-Trichloropropane	ND	2.0	0.22	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,2,4-Trimethylbenzene	ND	1.0	0.18	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
1,3,5-Trimethylbenzene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
Vinyl Chloride	ND	2.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
m+p Xylene	ND	2.0	0.26	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF
o-Xylene	ND	1.0	0.13	mg/Kg wet	1		SW-846 8260B	1/19/18	1/19/18 13:04	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	89.4	70-130		1/19/18 13:04
Toluene-d8	101	70-130		1/19/18 13:04
4-Bromofluorobenzene	104	70-130		1/19/18 13:04

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: Trip Blank 2 | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-17

Sample Matrix: Trip Blank Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg wet			1			SW-846 8260C	1/19/18	1/19/18 13:04	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.89	1.2	0.27	mg/Kg dry	1	J	SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Acrylonitrile	ND	0.070	0.029	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.012	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Benzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Bromobenzene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Bromochloromethane	ND	0.023	0.016	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Bromodichloromethane	ND	0.023	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Bromoform	ND	0.023	0.016	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Bromomethane	ND	0.12	0.049	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
2-Butanone (MEK)	ND	0.47	0.20	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
tert-Butyl Alcohol (TBA)	ND	0.47	0.24	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
n-Butylbenzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
sec-Butylbenzene	ND	0.023	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
tert-Butylbenzene	ND	0.023	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.012	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Carbon Disulfide	ND	0.070	0.050	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Carbon Tetrachloride	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Chlorobenzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Chlorodibromomethane	ND	0.012	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Chloroethane	ND	0.23	0.018	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Chloroform	ND	0.047	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Chloromethane	ND	0.12	0.075	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
2-Chlorotoluene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
4-Chlorotoluene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.023	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2-Dibromoethane (EDB)	ND	0.012	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Dibromomethane	ND	0.023	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2-Dichlorobenzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,3-Dichlorobenzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,4-Dichlorobenzene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
trans-1,4-Dichloro-2-butene	ND	0.047	0.025	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.23	0.015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1-Dichloroethane	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2-Dichloroethane	ND	0.023	0.015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1-Dichloroethylene	ND	0.047	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
cis-1,2-Dichloroethylene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
trans-1,2-Dichloroethylene	ND	0.023	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2-Dichloropropane	ND	0.023	0.015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,3-Dichloropropane	ND	0.012	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
2,2-Dichloropropane	ND	0.023	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1-Dichloropropene	ND	0.023	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
cis-1,3-Dichloropropene	ND	0.012	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
trans-1,3-Dichloropropene	ND	0.012	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Diethyl Ether	ND	0.23	0.021	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.012	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,4-Dioxane	ND	1.2	0.67	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Ethylbenzene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Hexachlorobutadiene	ND	0.023	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
2-Hexanone (MBK)	ND	0.23	0.13	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Isopropylbenzene (Cumene)	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.047	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Methylene Chloride	ND	0.23	0.083	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.23	0.089	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Naphthalene	ND	0.047	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
n-Propylbenzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Styrene	ND	0.023	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1,1,2-Tetrachloroethane	ND	0.023	0.021	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1,2,2-Tetrachloroethane	ND	0.012	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Tetrachloroethylene	ND	0.023	0.015	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Tetrahydrofuran	ND	0.12	0.026	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Toluene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2,3-Trichlorobenzene	ND	0.023	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2,4-Trichlorobenzene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,3,5-Trichlorobenzene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1,1-Trichloroethane	ND	0.023	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1,2-Trichloroethane	ND	0.023	0.014	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Trichloroethylene	ND	0.023	0.012	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Trichlorofluoromethane (Freon 11)	ND	0.12	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2,3-Trichloropropane	ND	0.023	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.12	0.011	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,2,4-Trimethylbenzene	ND	0.023	0.0093	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
1,3,5-Trimethylbenzene	ND	0.023	0.0070	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
Vinyl Chloride	ND	0.12	0.013	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
m+p Xylene	ND	0.047	0.020	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF
o-Xylene	ND	0.023	0.0082	mg/Kg dry	1		SW-846 8260B	1/19/18	1/19/18 20:57	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	85.0	70-130		1/19/18 20:57
Toluene-d8	98.5	70-130		1/19/18 20:57
4-Bromofluorobenzene	97.6	70-130		1/19/18 20:57

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	mg/Kg dry			1			SW-846 8260C	1/19/18	1/19/18 20:57	MFF

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.023	0.019	mg/Kg dry	1		SW-846 8260C SIM	1/19/18	1/20/18 3:43	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	94.4	40-160		1/20/18 3:43	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	1.3	0.39	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Acenaphthylene	ND	1.3	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Acetophenone	ND	2.6	0.52	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Aniline	ND	2.6	0.74	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Anthracene	ND	1.3	0.38	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzidine	ND	5.1	3.3	mg/Kg dry	1	R-05, V-05	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzo(a)anthracene	ND	1.3	0.35	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzo(a)pyrene	ND	1.3	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzo(b)fluoranthene	ND	1.3	0.37	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzo(g,h,i)perylene	ND	1.3	0.58	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzo(k)fluoranthene	ND	1.3	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Benzoic Acid	ND	7.7	1.4	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Bis(2-chloroethoxy)methane	ND	2.6	0.50	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Bis(2-chloroethyl)ether	ND	2.6	0.52	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Bis(2-chloroisopropyl)ether	ND	2.6	0.56	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Bis(2-Ethylhexyl)phthalate	ND	2.6	1.0	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-Bromophenylphenylether	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Butylbenzylphthalate	ND	2.6	0.62	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Carbazole	ND	1.3	0.34	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-Chloroaniline	ND	5.1	0.60	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-Chloro-3-methylphenol	ND	5.1	0.56	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2-Chloronaphthalene	ND	2.6	0.49	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2-Chlorophenol	ND	2.6	0.47	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-Chlorophenylphenylether	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Chrysene	ND	1.3	0.41	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Dibenz(a,h)anthracene	ND	1.3	0.80	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Dibenzofuran	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Di-n-butylphthalate	ND	2.6	0.57	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1,2-Dichlorobenzene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1,3-Dichlorobenzene	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1,4-Dichlorobenzene	ND	2.6	0.47	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
3,3-Dichlorobenzidine	ND	1.3	0.40	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,4-Dichlorophenol	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Diethylphthalate	ND	2.6	0.47	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,4-Dimethylphenol	ND	2.6	0.49	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Dimethylphthalate	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4,6-Dinitro-2-methylphenol	ND	2.6	2.5	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,4-Dinitrophenol	ND	5.1	1.5	mg/Kg dry	1	R-05, V-04	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,4-Dinitrotoluene	ND	2.6	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,6-Dinitrotoluene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Di-n-octylphthalate	ND	2.6	1.4	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	2.6	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Fluoranthene	ND	1.3	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Fluorene	ND	1.3	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Hexachlorobutadiene	ND	2.6	0.46	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Hexachlorocyclopentadiene	ND	2.6	0.55	mg/Kg dry	1	V-05, V-19	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Hexachloroethane	ND	2.6	0.52	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Indeno(1,2,3-cd)pyrene	ND	1.3	0.94	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Isophorone	ND	2.6	0.51	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1-Methylnaphthalene	ND	1.3	0.50	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2-Methylnaphthalene	ND	1.3	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2-Methylphenol	ND	2.6	0.65	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
3/4-Methylphenol	ND	2.6	0.83	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Naphthalene	ND	1.3	0.67	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2-Nitroaniline	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
3-Nitroaniline	ND	2.6	0.38	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-Nitroaniline	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Nitrobenzene	ND	2.6	0.49	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2-Nitrophenol	ND	2.6	0.69	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-Nitrophenol	ND	5.1	0.57	mg/Kg dry	1	V-05	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
N-Nitrosodimethylamine	ND	2.6	1.7	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
N-Nitrosodiphenylamine	ND	2.6	0.54	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
N-Nitrosodi-n-propylamine	ND	2.6	0.54	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Pentachloronitrobenzene	ND	2.6	0.62	mg/Kg dry	1	V-16	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Pentachlorophenol	ND	2.6	0.63	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Phenanthrene	ND	1.3	0.68	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Phenol	ND	2.6	0.45	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Pyrene	ND	1.3	0.43	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Pyridine	ND	2.6	0.42	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1,2,4,5-Tetrachlorobenzene	ND	2.6	0.47	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
1,2,4-Trichlorobenzene	ND	2.6	0.47	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,4,5-Trichlorophenol	ND	2.6	0.59	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL
2,4,6-Trichlorophenol	ND	2.6	0.44	mg/Kg dry	1		SW-846 8270D	1/18/18	1/18/18 18:31	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	46.6	30-130		1/18/18 18:31
Phenol-d6	47.6	30-130		1/18/18 18:31
Nitrobenzene-d5	44.6	30-130		1/18/18 18:31
2-Fluorobiphenyl	45.2	30-130		1/18/18 18:31
2,4,6-Tribromophenol	43.9	30-130		1/18/18 18:31
p-Terphenyl-d14	44.5	30-130		1/18/18 18:31

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Propenoic acid, 3-(4-hydr...	3.6	mg/Kg dry	204247	6.079	1	007400-08-0	96	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
4-((1E)-3-Hydroxy-1-propeny...	7.4	mg/Kg dry	419995	5.967	1	1000297-95-5	98	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
n-Hexadecanoic acid	5.0	mg/Kg dry	285033	6.507	1	000057-10-3	95	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Nonacosane	9.5	mg/Kg dry	543282	11.239	1	000630-03-5	95	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Octacosane	6.7	mg/Kg dry	381925	12.673	1	000630-02-4	90	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Octadecanal	3.8	mg/Kg dry	214520	13.546	1	000638-66-4	91	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Oxirane, hexadecyl-	3.7	mg/Kg dry	212337	12.341	1	007390-81-0	94	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Phenanthrene, 3,9-bis(1,1-d...	4.5	mg/Kg dry	335997	8.997	1	055125-03-6	90	SW-846 8270D	1/18/18	1/18/18 18:31	BGL
Picein	4.4	mg/Kg dry	330030	8.417	1	000530-14-3	93	SW-846 8270D	1/18/18	1/18/18 18:31	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	14	1.1	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Arsenic	18	1.3	0.21	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:51	MJH
Beryllium	2.0	1.7	0.12	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:51	MJH
Chromium	21	32	1.2	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Copper	29	32	1.5	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Iron	43000	65	8.9	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Lead	34	13	0.42	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Manganese	130	34	1.0	mg/Kg dry	5		SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Mercury	0.068	0.20	0.020	mg/Kg dry	1	J	SW-846 7471B	1/22/18	1/22/18 14:21	EJB
Nickel	13	32	1.2	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Selenium	1.6	5.3	0.36	mg/Kg dry	5	J	SW-846 6020A-B	1/24/18	1/25/18 8:51	MJH
Silver	0.13	0.57	0.021	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Thallium	0.38	0.41	0.031	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH
Zinc	190	64	2.4	mg/Kg dry	5		SW-846 6020A-B	1/24/18	1/25/18 8:51	MJH
Cadmium	1.0	2.5	0.083	mg/Kg dry	5	J	SW-846 6020A-B	1/18/18	1/24/18 10:19	MJH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SD-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-18

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	210	210	mg/Kg dry	1		SM21-22 4500 NH3 C Modified	1/20/18	1/23/18 10:00	MMH
Nitrate as N	20	19	6.0	mg/Kg dry	1		SM 21-22 4500 NO3 F Modified	1/23/18	1/23/18 11:27	MMH
Sulfate	ND	1400	660	mg/Kg dry	1		ASTM D516-07 Modified	1/19/18	1/19/18 12:55	IS
% Solids	13.0			% Wt	1		SM 2540G	1/18/18	1/19/18 7:29	MRL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,4-Dioxane	ND	50	26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Hexachlorobutadiene	ND	0.60	0.59	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Isopropylbenzene (Cumene)	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
p-Isopropyltoluene (p-Cymene)	2.1	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Naphthalene	ND	2.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
1,3,5-Trimethylbenzene	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260B	1/19/18	1/19/18 20:40	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	110	70-130		1/19/18 20:40
Toluene-d8	91.0	70-130		1/19/18 20:40
4-Bromofluorobenzene	78.6	70-130		1/19/18 20:40

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
Tentatively Identified Compounds	0.0	µg/L			1	NA		SW-846 8260C	1/19/18	1/19/18 20:40	EEH
No TICs Found	0.0	µg/L			1			SW-846 8260C	1/19/18	1/19/18 20:40	EEH

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS (SIM)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	2.0	1.7	µg/L	1		SW-846 8260C SIM	1/19/18	1/20/18 6:50	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	71.9	40-160		1/20/18 6:50	

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Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Acenaphthylene	ND	5.0	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Acetophenone	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Aniline	ND	5.0	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Anthracene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzidine	ND	20	9.4	µg/L	1	V-04, V-05	SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzo(a)anthracene	ND	5.0	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzo(a)pyrene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzo(b)fluoranthene	ND	5.0	5.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzo(g,h,i)perylene	ND	5.0	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzo(k)fluoranthene	ND	5.0	2.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Benzoic Acid	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Bis(2-chloroethoxy)methane	ND	10	4.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Bis(2-chloroethyl)ether	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Bis(2-chloroisopropyl)ether	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4-Bromophenylphenylether	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Butylbenzylphthalate	ND	10	3.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Carbazole	ND	10	4.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4-Chloroaniline	ND	10	3.9	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4-Chloro-3-methylphenol	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2-Chloronaphthalene	ND	10	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2-Chlorophenol	ND	10	1.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4-Chlorophenylphenylether	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Chrysene	ND	5.0	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Dibenz(a,h)anthracene	ND	5.0	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Dibenzofuran	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Di-n-butylphthalate	ND	10	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1,2-Dichlorobenzene	ND	5.0	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1,3-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1,4-Dichlorobenzene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
3,3-Dichlorobenzidine	ND	10	2.2	µg/L	1	V-34	SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,4-Dichlorophenol	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Diethylphthalate	ND	10	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,4-Dimethylphenol	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Dimethylphthalate	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4,6-Dinitro-2-methylphenol	ND	10	5.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,4-Dinitrophenol	ND	10	6.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,4-Dinitrotoluene	ND	10	5.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,6-Dinitrotoluene	ND	10	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Di-n-octylphthalate	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	2.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Fluoranthene	ND	5.0	4.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Fluorene	ND	5.0	4.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobenzene	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Hexachlorobutadiene	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Hexachlorocyclopentadiene	ND	10	6.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Hexachloroethane	ND	10	1.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Indeno(1,2,3-cd)pyrene	ND	5.0	4.2	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Isophorone	ND	10	1.8	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2-Methylnaphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2-Methylphenol	ND	10	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
3/4-Methylphenol	ND	10	4.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Naphthalene	ND	5.0	1.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2-Nitroaniline	ND	10	6.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
3-Nitroaniline	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4-Nitroaniline	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Nitrobenzene	ND	10	4.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2-Nitrophenol	ND	10	2.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
4-Nitrophenol	ND	10	2.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
N-Nitrosodimethylamine	ND	10	1.3	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
N-Nitrosodiphenylamine	ND	10	1.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
N-Nitrosodi-n-propylamine	ND	10	4.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Pentachloronitrobenzene	ND	10	2.9	µg/L	1	V-16	SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Pentachlorophenol	ND	10	3.4	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Phenanthrene	ND	5.0	2.9	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Phenol	ND	10	2.5	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Pyrene	ND	5.0	2.6	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
Pyridine	ND	5.0	4.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	2.1	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
1,2,4-Trichlorobenzene	ND	5.0	1.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,4,5-Trichlorophenol	ND	10	4.0	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL
2,4,6-Trichlorophenol	ND	10	3.7	µg/L	1		SW-846 8270D	1/17/18	1/19/18 16:18	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	36.2	15-110		1/19/18 16:18
Phenol-d6	25.3	15-110		1/19/18 16:18
Nitrobenzene-d5	62.2	30-130		1/19/18 16:18
2-Fluorobiphenyl	63.3	30-130		1/19/18 16:18
2,4,6-Tribromophenol	63.0	15-110		1/19/18 16:18
p-Terphenyl-d14	65.6	30-130		1/19/18 16:18

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED)

Analyte	Results	Units	Response	RT	DF	CAS #	Q#	Method	Date Prepared	Date/Time Analyzed	Analyst
No TICs Found	0.0	µg/L			1			SW-846 8270D	1/17/18	1/19/18 16:18	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Arsenic	1.2	0.80	0.72	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:27	WSD
Beryllium	ND	0.80	0.25	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Cadmium	ND	1.0	0.19	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Chromium	ND	2.0	1.0	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Copper	0.77	10	0.72	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Iron	6300	100	27	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Lead	0.63	2.0	0.28	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Manganese	220	2.0	0.39	µg/L	2		SW-846 6020A-B	1/22/18	1/23/18 15:27	MJH
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	1/18/18	1/19/18 10:13	EJB
Nickel	ND	10	0.75	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Selenium	ND	10	4.2	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Silver	ND	1.0	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Thallium	ND	0.40	0.15	µg/L	2		SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH
Zinc	13	20	9.8	µg/L	2	J	SW-846 6020A-B	1/18/18	1/19/18 15:09	MJH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Princeville Dump | Sample Description: | Work Order: 18A0479

Date Received: 1/16/2018

Field Sample #: SW-Dup | Sampled: 1/16/2018 00:00

Sample ID: 18A0479-19

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.30	0.30	mg/L	1		SM19-22 4500 NH3 C	1/20/18	1/23/18 10:00	MMH
Nitrate as N	0.079	0.050	0.035	mg/L	1		SM 21-22 4500 NO3 F	1/23/18	1/23/18 11:27	MMH
Sulfate	11	2.0	0.92	mg/L	1		ASTM D516-07	1/19/18	1/19/18 12:55	IS

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

ASTM D516-07

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195203	100	100	01/19/18
18A0479-02 [SW-2]	B195203	100	100	01/19/18
18A0479-03 [SW-3]	B195203	100	100	01/19/18
18A0479-04 [SW-4]	B195203	100	100	01/19/18
18A0479-05 [SW-5]	B195203	100	100	01/19/18
18A0479-06 [SW-6]	B195203	100	100	01/19/18
18A0479-19 [SW-Dup]	B195203	100	100	01/19/18

ASTM D516-07 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195201	1.01	100	01/19/18
18A0479-11 [SD-2]	B195201	1.02	100	01/19/18
18A0479-12 [SD-3]	B195201	1.09	100	01/19/18
18A0479-13 [SD-4]	B195201	1.07	100	01/19/18
18A0479-14 [SD-5]	B195201	1.03	100	01/19/18
18A0479-15 [SD-6]	B195201	1.04	100	01/19/18
18A0479-18 [SD-Dup]	B195201	1.07	100	01/19/18

SM 21-22 4500 NO3 F

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195161	25.0	25.0	01/22/18

SM 21-22 4500 NO3 F

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-02 [SW-2]	B195365	25.0	25.0	01/23/18
18A0479-03 [SW-3]	B195365	25.0	25.0	01/23/18
18A0479-04 [SW-4]	B195365	25.0	25.0	01/23/18
18A0479-05 [SW-5]	B195365	25.0	25.0	01/23/18
18A0479-06 [SW-6]	B195365	25.0	25.0	01/23/18
18A0479-19 [SW-Dup]	B195365	25.0	25.0	01/23/18

SM 21-22 4500 NO3 F Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195364	1.20	50.0	01/23/18
18A0479-11 [SD-2]	B195364	1.20	50.0	01/23/18
18A0479-12 [SD-3]	B195364	1.10	50.0	01/23/18
18A0479-13 [SD-4]	B195364	1.10	50.0	01/23/18
18A0479-14 [SD-5]	B195364	1.24	50.0	01/23/18
18A0479-15 [SD-6]	B195364	1.08	50.0	01/23/18
18A0479-18 [SD-Dup]	B195364	1.03	50.0	01/23/18

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18A0479-10 [SD-1]	B195103	01/18/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18A0479-11 [SD-2]	B195103	01/18/18
18A0479-12 [SD-3]	B195103	01/18/18
18A0479-13 [SD-4]	B195103	01/18/18
18A0479-14 [SD-5]	B195103	01/18/18
18A0479-15 [SD-6]	B195103	01/18/18
18A0479-18 [SD-Dup]	B195103	01/18/18

SM19-22 4500 NH3 C

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195223	100	100	01/20/18
18A0479-02 [SW-2]	B195223	100	100	01/20/18
18A0479-03 [SW-3]	B195223	100	100	01/20/18
18A0479-04 [SW-4]	B195223	100	100	01/20/18
18A0479-05 [SW-5]	B195223	100	100	01/20/18
18A0479-06 [SW-6]	B195223	100	100	01/20/18
18A0479-19 [SW-Dup]	B195223	100	100	01/20/18

SM21-22 4500 NH3 C Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195224	1.06	100	01/20/18
18A0479-11 [SD-2]	B195224	1.08	100	01/20/18
18A0479-12 [SD-3]	B195224	1.01	100	01/20/18
18A0479-13 [SD-4]	B195224	1.06	100	01/20/18
18A0479-14 [SD-5]	B195224	1.03	100	01/20/18
18A0479-15 [SD-6]	B195224	1.08	100	01/20/18
18A0479-18 [SD-Dup]	B195224	1.10	100	01/20/18

Prep Method: SW-846 3050B-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195113	1.49	50.0	01/18/18
18A0479-11 [SD-2]	B195113	1.49	50.0	01/18/18
18A0479-12 [SD-3]	B195113	1.49	50.0	01/18/18
18A0479-13 [SD-4]	B195113	1.53	50.0	01/18/18
18A0479-14 [SD-5]	B195113	1.50	50.0	01/18/18
18A0479-15 [SD-6]	B195113	1.49	50.0	01/18/18
18A0479-18 [SD-Dup]	B195113	1.49	50.0	01/18/18

Prep Method: SW-846 3050B-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10RE1 [SD-1]	B195469	1.52	50.0	01/24/18
18A0479-11RE1 [SD-2]	B195469	1.51	50.0	01/24/18
18A0479-12RE1 [SD-3]	B195469	1.51	50.0	01/24/18
18A0479-13RE1 [SD-4]	B195469	1.52	50.0	01/24/18
18A0479-14RE1 [SD-5]	B195469	1.52	50.0	01/24/18
18A0479-15RE1 [SD-6]	B195469	1.53	50.0	01/24/18
18A0479-18RE1 [SD-Dup]	B195469	1.51	50.0	01/24/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 3005A-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195094	50.0	50.0	01/18/18
18A0479-02 [SW-2]	B195094	50.0	50.0	01/18/18
18A0479-03 [SW-3]	B195094	50.0	50.0	01/18/18
18A0479-04 [SW-4]	B195094	50.0	50.0	01/18/18
18A0479-05 [SW-5]	B195094	50.0	50.0	01/18/18
18A0479-06 [SW-6]	B195094	50.0	50.0	01/18/18
18A0479-19 [SW-Dup]	B195094	50.0	50.0	01/18/18

Prep Method: SW-846 3005A-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01RE1 [SW-1]	B195306	50.0	50.0	01/22/18
18A0479-02RE1 [SW-2]	B195306	50.0	50.0	01/22/18
18A0479-03RE1 [SW-3]	B195306	50.0	50.0	01/22/18
18A0479-04RE1 [SW-4]	B195306	50.0	50.0	01/22/18
18A0479-05RE1 [SW-5]	B195306	50.0	50.0	01/22/18
18A0479-06RE1 [SW-6]	B195306	50.0	50.0	01/22/18
18A0479-19RE1 [SW-Dup]	B195306	50.0	50.0	01/22/18

Prep Method: SW-846 7470A Prep-SW-846 7470A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195110	6.00	6.00	01/18/18
18A0479-02 [SW-2]	B195110	6.00	6.00	01/18/18
18A0479-03 [SW-3]	B195110	6.00	6.00	01/18/18
18A0479-04 [SW-4]	B195110	6.00	6.00	01/18/18
18A0479-05 [SW-5]	B195110	6.00	6.00	01/18/18
18A0479-06 [SW-6]	B195110	6.00	6.00	01/18/18
18A0479-19 [SW-Dup]	B195110	6.00	6.00	01/18/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10RE1 [SD-1]	B195200	0.628	50.0	01/22/18
18A0479-11RE1 [SD-2]	B195200	0.614	50.0	01/22/18
18A0479-12RE1 [SD-3]	B195200	0.618	50.0	01/22/18
18A0479-13RE1 [SD-4]	B195200	0.595	50.0	01/22/18
18A0479-14RE1 [SD-5]	B195200	0.625	50.0	01/22/18
18A0479-15RE1 [SD-6]	B195200	0.590	50.0	01/22/18
18A0479-18RE1 [SD-Dup]	B195200	0.576	50.0	01/22/18

Prep Method: SW-846 5035-SW-846 8260B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195170	6.75	10.0	01/19/18
18A0479-11 [SD-2]	B195170	6.73	10.0	01/19/18
18A0479-12 [SD-3]	B195170	6.26	10.0	01/19/18
18A0479-13 [SD-4]	B195170	3.86	10.0	01/19/18
18A0479-14 [SD-5]	B195170	5.48	10.0	01/19/18

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Sample Extraction Data

Prep Method: SW-846 5035-SW-846 8260B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-15 [SD-6]	B195170	3.85	10.0	01/19/18
18A0479-16 [Trip Blank 1]	B195170	5.00	10.0	01/19/18
18A0479-17 [Trip Blank 2]	B195170	5.00	10.0	01/19/18
18A0479-18 [SD-Dup]	B195170	3.30	10.0	01/19/18

Prep Method: SW-846 5030B-SW-846 8260B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195164	5	5.00	01/19/18
18A0479-02 [SW-2]	B195164	5	5.00	01/19/18
18A0479-03 [SW-3]	B195164	5	5.00	01/19/18
18A0479-04 [SW-4]	B195164	5	5.00	01/19/18
18A0479-05 [SW-5]	B195164	5	5.00	01/19/18
18A0479-06 [SW-6]	B195164	5	5.00	01/19/18
18A0479-07 [Trip Blank 1]	B195164	5	5.00	01/19/18
18A0479-08 [Trip Blank 2]	B195164	5	5.00	01/19/18
18A0479-09 [Trip Blank 3]	B195164	5	5.00	01/19/18
18A0479-19 [SW-Dup]	B195164	5	5.00	01/19/18

Prep Method: SW-846 5035-SW-846 8260C SIM

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195180	6.71	5.00	01/19/18
18A0479-11 [SD-2]	B195180	5.41	5.00	01/19/18
18A0479-12 [SD-3]	B195180	6.39	5.00	01/19/18
18A0479-13 [SD-4]	B195180	3.59	5.00	01/19/18
18A0479-14 [SD-5]	B195180	5.50	5.00	01/19/18
18A0479-15 [SD-6]	B195180	4.22	5.00	01/19/18
18A0479-18 [SD-Dup]	B195180	3.39	5.00	01/19/18

Prep Method: SW-846 5035-SW-846 8260C SIM

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195179	5	5.00	01/19/18
18A0479-02 [SW-2]	B195179	5	5.00	01/19/18
18A0479-03 [SW-3]	B195179	5	5.00	01/19/18
18A0479-04 [SW-4]	B195179	5	5.00	01/19/18
18A0479-05 [SW-5]	B195179	5	5.00	01/19/18
18A0479-06 [SW-6]	B195179	5	5.00	01/19/18
18A0479-19 [SW-Dup]	B195179	5	5.00	01/19/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-10 [SD-1]	B195090	30.0	1.00	01/18/18
18A0479-11 [SD-2]	B195090	30.0	1.00	01/18/18
18A0479-12 [SD-3]	B195090	30.0	1.00	01/18/18
18A0479-13 [SD-4]	B195090	30.0	1.00	01/18/18
18A0479-14 [SD-5]	B195090	30.0	1.00	01/18/18
18A0479-15 [SD-6]	B195090	30.0	1.00	01/18/18

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Sample Extraction Data

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18A0479-15RE1 [SD-6]	B195090	30.0	1.00	01/18/18
18A0479-18 [SD-Dup]	B195090	30.0	1.00	01/18/18

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18A0479-01 [SW-1]	B195084	1000	1.00	01/17/18
18A0479-02 [SW-2]	B195084	1000	1.00	01/17/18
18A0479-03 [SW-3]	B195084	1000	1.00	01/17/18
18A0479-04 [SW-4]	B195084	1000	1.00	01/17/18
18A0479-05 [SW-5]	B195084	1000	1.00	01/17/18
18A0479-06 [SW-6]	B195084	1000	1.00	01/17/18
18A0479-19 [SW-Dup]	B195084	1000	1.00	01/17/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195164 - SW-846 5030B										
Blank (B195164-BLK1)				Prepared & Analyzed: 01/19/18						
Acetone	ND	50	µg/L							
Acrylonitrile	ND	5.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	20	µg/L							
tert-Butyl Alcohol (TBA)	ND	20	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	4.0	µg/L							
Carbon Tetrachloride	ND	5.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
trans-1,4-Dichloro-2-butene	ND	2.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	2.0	µg/L							
cis-1,3-Dichloropropene	ND	0.50	µg/L							
trans-1,3-Dichloropropene	ND	0.50	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.50	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195164 - SW-846 5030B										
Blank (B195164-BLK1)				Prepared & Analyzed: 01/19/18						
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							
n-Propylbenzene	ND	1.0	µg/L							
Styrene	ND	1.0	µg/L							
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L							
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L							
Tetrachloroethylene	ND	0.50	µg/L							
Tetrahydrofuran	ND	10	µg/L							
Toluene	ND	1.0	µg/L							
1,2,3-Trichlorobenzene	ND	5.0	µg/L							
1,2,4-Trichlorobenzene	ND	1.0	µg/L							
1,3,5-Trichlorobenzene	ND	1.0	µg/L							
1,1,1-Trichloroethane	ND	1.0	µg/L							
1,1,2-Trichloroethane	ND	1.0	µg/L							
Trichloroethylene	ND	1.0	µg/L							
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L							
1,2,3-Trichloropropane	ND	2.0	µg/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
1,3,5-Trimethylbenzene	ND	1.0	µg/L							
Vinyl Chloride	ND	2.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 1,2-Dichloroethane-d4	*27.3*		µg/L	25.0		109	70-130			
Surrogate: Toluene-d8	*22.7*		µg/L	25.0		90.8	70-130			
Surrogate: 4-Bromofluorobenzene	*19.8*		µg/L	25.0		79.0	70-130			
LCS (B195164-BS1)				Prepared & Analyzed: 01/19/18						
Acetone	98.7	50	µg/L	100		98.7	70-160			†
Acrylonitrile	10.5	5.0	µg/L	10.0		105	70-130			
tert-Amyl Methyl Ether (TAME)	7.21	0.50	µg/L	10.0		72.1	70-130			
Benzene	10.2	1.0	µg/L	10.0		102	70-130			
Bromobenzene	11.6	1.0	µg/L	10.0		116	70-130			
Bromochloromethane	11.0	1.0	µg/L	10.0		110	70-130			
Bromodichloromethane	10.7	0.50	µg/L	10.0		107	70-130			
Bromoform	11.8	1.0	µg/L	10.0		118	70-130			
Bromomethane	5.41	2.0	µg/L	10.0		54.1	40-160			†
2-Butanone (MEK)	110	20	µg/L	100		110	40-160			†
tert-Butyl Alcohol (TBA)	97.4	20	µg/L	100		97.4	40-160			†
n-Butylbenzene	8.78	1.0	µg/L	10.0		87.8	70-130			
sec-Butylbenzene	9.36	1.0	µg/L	10.0		93.6	70-130			
tert-Butylbenzene	8.33	1.0	µg/L	10.0		83.3	70-130			
tert-Butyl Ethyl Ether (TBEE)	7.89	0.50	µg/L	10.0		78.9	70-130			
Carbon Disulfide	9.79	4.0	µg/L	10.0		97.9	70-130			
Carbon Tetrachloride	9.93	5.0	µg/L	10.0		99.3	70-130			
Chlorobenzene	10.8	1.0	µg/L	10.0		108	70-130			
Chlorodibromomethane	11.4	0.50	µg/L	10.0		114	70-130			
Chloroethane	8.63	2.0	µg/L	10.0		86.3	70-130			
Chloroform	10.2	2.0	µg/L	10.0		102	70-130			
Chloromethane	7.37	2.0	µg/L	10.0		73.7	40-160			†
2-Chlorotoluene	11.0	1.0	µg/L	10.0		110	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B195164 - SW-846 5030B												
LCS (B195164-BS1)				Prepared & Analyzed: 01/19/18								
4-Chlorotoluene	10.9	1.0	µg/L	10.0		109		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	10.6	5.0	µg/L	10.0		106		70-130				
1,2-Dibromoethane (EDB)	11.9	0.50	µg/L	10.0		119		70-130				
Dibromomethane	11.8	1.0	µg/L	10.0		118		70-130				
1,2-Dichlorobenzene	10.3	1.0	µg/L	10.0		103		70-130				
1,3-Dichlorobenzene	10.8	1.0	µg/L	10.0		108		70-130				
1,4-Dichlorobenzene	10.3	1.0	µg/L	10.0		103		70-130				
trans-1,4-Dichloro-2-butene	9.32	2.0	µg/L	10.0		93.2		70-130				
Dichlorodifluoromethane (Freon 12)	6.76	2.0	µg/L	10.0		67.6		40-160				†
1,1-Dichloroethane	9.88	1.0	µg/L	10.0		98.8		70-130				
1,2-Dichloroethane	10.8	1.0	µg/L	10.0		108		70-130				
1,1-Dichloroethylene	9.10	1.0	µg/L	10.0		91.0		70-130				
cis-1,2-Dichloroethylene	9.85	1.0	µg/L	10.0		98.5		70-130				
trans-1,2-Dichloroethylene	9.96	1.0	µg/L	10.0		99.6		70-130				
1,2-Dichloropropane	11.0	1.0	µg/L	10.0		110		70-130				
1,3-Dichloropropane	11.0	0.50	µg/L	10.0		110		70-130				
2,2-Dichloropropane	10.1	1.0	µg/L	10.0		101		40-130				†
1,1-Dichloropropene	8.83	2.0	µg/L	10.0		88.3		70-130				
cis-1,3-Dichloropropene	8.64	0.50	µg/L	10.0		86.4		70-130				
trans-1,3-Dichloropropene	10.3	0.50	µg/L	10.0		103		70-130				
Diethyl Ether	8.97	2.0	µg/L	10.0		89.7		70-130				
Diisopropyl Ether (DIPE)	9.51	0.50	µg/L	10.0		95.1		70-130				
1,4-Dioxane	141	50	µg/L	100		**141**	*	40-130			L-07	†
Ethylbenzene	9.58	1.0	µg/L	10.0		95.8		70-130				
Hexachlorobutadiene	9.94	0.50	µg/L	10.0		99.4		70-130				
2-Hexanone (MBK)	103	10	µg/L	100		103		70-160				†
Isopropylbenzene (Cumene)	8.98	1.0	µg/L	10.0		89.8		70-130				
p-Isopropyltoluene (p-Cymene)	8.87	1.0	µg/L	10.0		88.7		70-130				
Methyl tert-Butyl Ether (MTBE)	9.15	1.0	µg/L	10.0		91.5		70-130				
Methylene Chloride	9.65	5.0	µg/L	10.0		96.5		70-130				
4-Methyl-2-pentanone (MIBK)	113	10	µg/L	100		113		70-160				†
Naphthalene	7.54	2.0	µg/L	10.0		75.4		40-130				†
n-Propylbenzene	9.79	1.0	µg/L	10.0		97.9		70-130				
Styrene	9.38	1.0	µg/L	10.0		93.8		70-130				
1,1,1,2-Tetrachloroethane	11.6	1.0	µg/L	10.0		116		70-130				
1,1,2,2-Tetrachloroethane	13.0	0.50	µg/L	10.0		130		70-130				
Tetrachloroethylene	11.5	0.50	µg/L	10.0		115		70-130				
Tetrahydrofuran	13.0	10	µg/L	10.0		130		70-130				
Toluene	11.0	1.0	µg/L	10.0		110		70-130				
1,2,3-Trichlorobenzene	9.09	5.0	µg/L	10.0		90.9		70-130				
1,2,4-Trichlorobenzene	8.23	1.0	µg/L	10.0		82.3		70-130				
1,3,5-Trichlorobenzene	8.91	1.0	µg/L	10.0		89.1		70-130				
1,1,1-Trichloroethane	9.32	1.0	µg/L	10.0		93.2		70-130				
1,1,2-Trichloroethane	11.9	1.0	µg/L	10.0		119		70-130				
Trichloroethylene	10.2	1.0	µg/L	10.0		102		70-130				
Trichlorofluoromethane (Freon 11)	7.85	2.0	µg/L	10.0		78.5		70-130				
1,2,3-Trichloropropane	11.4	2.0	µg/L	10.0		114		70-130				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.74	1.0	µg/L	10.0		77.4		70-130				
1,2,4-Trimethylbenzene	8.99	1.0	µg/L	10.0		89.9		70-130				
1,3,5-Trimethylbenzene	9.34	1.0	µg/L	10.0		93.4		70-130				
Vinyl Chloride	7.89	2.0	µg/L	10.0		78.9		40-160				†

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195164 - SW-846 5030B										
LCS (B195164-BS1)				Prepared & Analyzed: 01/19/18						
m+p Xylene	20.8	2.0	µg/L	20.0		104	70-130			
o-Xylene	9.15	1.0	µg/L	10.0		91.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	*23.8*		µg/L	25.0		95.2	70-130			
Surrogate: Toluene-d8	*27.1*		µg/L	25.0		108	70-130			
Surrogate: 4-Bromofluorobenzene	*25.3*		µg/L	25.0		101	70-130			
LCS Dup (B195164-BSD1)				Prepared & Analyzed: 01/19/18						
Acetone	96.4	50	µg/L	100		96.4	70-160	2.41	25	†
Acrylonitrile	11.2	5.0	µg/L	10.0		112	70-130	5.90	25	
tert-Amyl Methyl Ether (TAME)	7.10	0.50	µg/L	10.0		71.0	70-130	1.54	25	
Benzene	10.3	1.0	µg/L	10.0		103	70-130	0.390	25	
Bromobenzene	11.3	1.0	µg/L	10.0		113	70-130	2.63	25	
Bromochloromethane	11.3	1.0	µg/L	10.0		113	70-130	2.78	25	
Bromodichloromethane	10.4	0.50	µg/L	10.0		104	70-130	3.03	25	
Bromoform	11.8	1.0	µg/L	10.0		118	70-130	0.00	25	
Bromomethane	5.69	2.0	µg/L	10.0		56.9	40-160	5.05	25	†
2-Butanone (MEK)	107	20	µg/L	100		107	40-160	3.00	25	†
tert-Butyl Alcohol (TBA)	96.1	20	µg/L	100		96.1	40-160	1.38	25	†
n-Butylbenzene	8.96	1.0	µg/L	10.0		89.6	70-130	2.03	25	
sec-Butylbenzene	9.52	1.0	µg/L	10.0		95.2	70-130	1.69	25	
tert-Butylbenzene	8.45	1.0	µg/L	10.0		84.5	70-130	1.43	25	
tert-Butyl Ethyl Ether (TBEE)	7.76	0.50	µg/L	10.0		77.6	70-130	1.66	25	
Carbon Disulfide	9.00	4.0	µg/L	10.0		90.0	70-130	8.41	25	
Carbon Tetrachloride	9.90	5.0	µg/L	10.0		99.0	70-130	0.303	25	
Chlorobenzene	11.1	1.0	µg/L	10.0		111	70-130	2.92	25	
Chlorodibromomethane	10.6	0.50	µg/L	10.0		106	70-130	7.19	25	
Chloroethane	8.98	2.0	µg/L	10.0		89.8	70-130	3.98	25	
Chloroform	10.4	2.0	µg/L	10.0		104	70-130	1.94	25	
Chloromethane	7.66	2.0	µg/L	10.0		76.6	40-160	3.86	25	†
2-Chlorotoluene	10.9	1.0	µg/L	10.0		109	70-130	0.548	25	
4-Chlorotoluene	11.2	1.0	µg/L	10.0		112	70-130	3.08	25	
1,2-Dibromo-3-chloropropane (DBCP)	10.9	5.0	µg/L	10.0		109	70-130	2.51	25	
1,2-Dibromoethane (EDB)	11.6	0.50	µg/L	10.0		116	70-130	2.46	25	
Dibromomethane	11.4	1.0	µg/L	10.0		114	70-130	4.05	25	
1,2-Dichlorobenzene	10.5	1.0	µg/L	10.0		105	70-130	1.93	25	
1,3-Dichlorobenzene	11.0	1.0	µg/L	10.0		110	70-130	1.92	25	
1,4-Dichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130	2.40	25	
trans-1,4-Dichloro-2-butene	9.66	2.0	µg/L	10.0		96.6	70-130	3.58	25	
Dichlorodifluoromethane (Freon 12)	6.65	2.0	µg/L	10.0		66.5	40-160	1.64	25	†
1,1-Dichloroethane	10.0	1.0	µg/L	10.0		100	70-130	1.51	25	
1,2-Dichloroethane	10.7	1.0	µg/L	10.0		107	70-130	1.12	25	
1,1-Dichloroethylene	9.30	1.0	µg/L	10.0		93.0	70-130	2.17	25	
cis-1,2-Dichloroethylene	9.90	1.0	µg/L	10.0		99.0	70-130	0.506	25	
trans-1,2-Dichloroethylene	9.84	1.0	µg/L	10.0		98.4	70-130	1.21	25	
1,2-Dichloropropane	10.8	1.0	µg/L	10.0		108	70-130	1.65	25	
1,3-Dichloropropane	10.8	0.50	µg/L	10.0		108	70-130	1.74	25	
2,2-Dichloropropane	9.91	1.0	µg/L	10.0		99.1	40-130	2.10	25	†
1,1-Dichloropropene	8.82	2.0	µg/L	10.0		88.2	70-130	0.113	25	
cis-1,3-Dichloropropene	8.50	0.50	µg/L	10.0		85.0	70-130	1.63	25	
trans-1,3-Dichloropropene	10.2	0.50	µg/L	10.0		102	70-130	1.46	25	
Diethyl Ether	9.23	2.0	µg/L	10.0		92.3	70-130	2.86	25	
Diisopropyl Ether (DIPE)	9.39	0.50	µg/L	10.0		93.9	70-130	1.27	25	

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B195164 - SW-846 5030B												
LCS Dup (B195164-BSD1)				Prepared & Analyzed: 01/19/18								
1,4-Dioxane	130	50	µg/L	100		130		40-130	8.17	50		† ‡
Ethylbenzene	9.70	1.0	µg/L	10.0		97.0		70-130	1.24	25		
Hexachlorobutadiene	10.1	0.50	µg/L	10.0		101		70-130	1.89	25		
2-Hexanone (MBK)	99.3	10	µg/L	100		99.3		70-160	3.39	25		†
Isopropylbenzene (Cumene)	8.87	1.0	µg/L	10.0		88.7		70-130	1.23	25		
p-Isopropyltoluene (p-Cymene)	9.15	1.0	µg/L	10.0		91.5		70-130	3.11	25		
Methyl tert-Butyl Ether (MTBE)	9.35	1.0	µg/L	10.0		93.5		70-130	2.16	25		
Methylene Chloride	10.0	5.0	µg/L	10.0		100		70-130	3.76	25		
4-Methyl-2-pentanone (MIBK)	110	10	µg/L	100		110		70-160	2.60	25		†
Naphthalene	7.62	2.0	µg/L	10.0		76.2		40-130	1.06	25		†
n-Propylbenzene	9.92	1.0	µg/L	10.0		99.2		70-130	1.32	25		
Styrene	9.54	1.0	µg/L	10.0		95.4		70-130	1.69	25		
1,1,1,2-Tetrachloroethane	11.3	1.0	µg/L	10.0		113		70-130	3.06	25		
1,1,2,2-Tetrachloroethane	13.2	0.50	µg/L	10.0		**132**	*	70-130	1.14	25	L-07	
Tetrachloroethylene	10.8	0.50	µg/L	10.0		108		70-130	6.44	25		
Tetrahydrofuran	12.0	10	µg/L	10.0		120		70-130	7.85	25		
Toluene	10.7	1.0	µg/L	10.0		107		70-130	2.68	25		
1,2,3-Trichlorobenzene	9.13	5.0	µg/L	10.0		91.3		70-130	0.439	25		
1,2,4-Trichlorobenzene	8.51	1.0	µg/L	10.0		85.1		70-130	3.35	25		
1,3,5-Trichlorobenzene	8.86	1.0	µg/L	10.0		88.6		70-130	0.563	25		
1,1,1-Trichloroethane	9.39	1.0	µg/L	10.0		93.9		70-130	0.748	25		
1,1,2-Trichloroethane	11.8	1.0	µg/L	10.0		118		70-130	0.845	25		
Trichloroethylene	10.2	1.0	µg/L	10.0		102		70-130	0.196	25		
Trichlorofluoromethane (Freon 11)	7.70	2.0	µg/L	10.0		77.0		70-130	1.93	25		
1,2,3-Trichloropropane	11.8	2.0	µg/L	10.0		118		70-130	3.19	25		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	7.91	1.0	µg/L	10.0		79.1		70-130	2.17	25		
1,2,4-Trimethylbenzene	8.99	1.0	µg/L	10.0		89.9		70-130	0.00	25		
1,3,5-Trimethylbenzene	9.38	1.0	µg/L	10.0		93.8		70-130	0.427	25		
Vinyl Chloride	8.11	2.0	µg/L	10.0		81.1		40-160	2.75	25		†
m+p Xylene	21.0	2.0	µg/L	20.0		105		70-130	1.24	25		
o-Xylene	9.13	1.0	µg/L	10.0		91.3		70-130	0.219	25		
Surrogate: 1,2-Dichloroethane-d4	*24.3*		µg/L	25.0		97.2		70-130				
Surrogate: Toluene-d8	*26.8*		µg/L	25.0		107		70-130				
Surrogate: 4-Bromofluorobenzene	*25.6*		µg/L	25.0		103		70-130				
Batch B195170 - SW-846 5035												
Blank (B195170-BLK1)				Prepared & Analyzed: 01/19/18								
Acetone	ND	0.10	mg/Kg wet									
Acrylonitrile	ND	0.0060	mg/Kg wet									
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet									
Benzene	ND	0.0020	mg/Kg wet									
Bromobenzene	ND	0.0020	mg/Kg wet									
Bromochloromethane	ND	0.0020	mg/Kg wet									
Bromodichloromethane	ND	0.0020	mg/Kg wet									
Bromoform	ND	0.0020	mg/Kg wet									
Bromomethane	ND	0.010	mg/Kg wet									
2-Butanone (MEK)	ND	0.040	mg/Kg wet									
tert-Butyl Alcohol (TBA)	ND	0.040	mg/Kg wet									
n-Butylbenzene	ND	0.0020	mg/Kg wet									
sec-Butylbenzene	ND	0.0020	mg/Kg wet									
tert-Butylbenzene	ND	0.0020	mg/Kg wet									

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195170 - SW-846 5035										
Blank (B195170-BLK1)				Prepared & Analyzed: 01/19/18						
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.020	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
trans-1,4-Dichloro-2-butene	ND	0.0040	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.020	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.020	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							
n-Propylbenzene	ND	0.0020	mg/Kg wet							
Styrene	ND	0.0020	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet							
Tetrachloroethylene	ND	0.0020	mg/Kg wet							
Tetrahydrofuran	ND	0.010	mg/Kg wet							
Toluene	ND	0.0020	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B195170 - SW-846 5035											
Blank (B195170-BLK1)				Prepared & Analyzed: 01/19/18							
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet								
Trichloroethylene	ND	0.0020	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.010	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet								
Vinyl Chloride	ND	0.010	mg/Kg wet								
m+p Xylene	ND	0.0040	mg/Kg wet								
o-Xylene	ND	0.0020	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0402*		mg/Kg wet	0.0500		80.4	70-130				
Surrogate: Toluene-d8	*0.0493*		mg/Kg wet	0.0500		98.6	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0508*		mg/Kg wet	0.0500		102	70-130				
LCS (B195170-BS1)				Prepared & Analyzed: 01/19/18							
Acetone	0.202	0.10	mg/Kg wet	0.200		101	70-160				†
Acrylonitrile	0.0184	0.0060	mg/Kg wet	0.0200		92.1	70-130				
tert-Amyl Methyl Ether (TAME)	0.0202	0.0010	mg/Kg wet	0.0200		101	70-130				
Benzene	0.0238	0.0020	mg/Kg wet	0.0200		119	70-130				
Bromobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130				
Bromochloromethane	0.0251	0.0020	mg/Kg wet	0.0200		125	70-130				
Bromodichloromethane	0.0189	0.0020	mg/Kg wet	0.0200		94.7	70-130				
Bromoform	0.0185	0.0020	mg/Kg wet	0.0200		92.6	70-130				
Bromomethane	0.0182	0.010	mg/Kg wet	0.0200		91.2	40-130				†
2-Butanone (MEK)	0.203	0.040	mg/Kg wet	0.200		102	70-160				†
tert-Butyl Alcohol (TBA)	0.192	0.040	mg/Kg wet	0.200		95.8	40-130				†
n-Butylbenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.7	70-130				
sec-Butylbenzene	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130				
tert-Butylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-160				†
tert-Butyl Ethyl Ether (TBEE)	0.0180	0.0010	mg/Kg wet	0.0200		90.0	70-130				
Carbon Disulfide	0.0199	0.0060	mg/Kg wet	0.0200		99.4	70-130				
Carbon Tetrachloride	0.0193	0.0020	mg/Kg wet	0.0200		96.7	70-130				
Chlorobenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
Chlorodibromomethane	0.0193	0.0010	mg/Kg wet	0.0200		96.7	70-130				
Chloroethane	0.0200	0.020	mg/Kg wet	0.0200		100	70-130				
Chloroform	0.0207	0.0040	mg/Kg wet	0.0200		103	70-130				
Chloromethane	0.0184	0.010	mg/Kg wet	0.0200		91.9	70-130				
2-Chlorotoluene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
4-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0158	0.0020	mg/Kg wet	0.0200		79.0	70-130				
1,2-Dibromoethane (EDB)	0.0212	0.0010	mg/Kg wet	0.0200		106	70-130				
Dibromomethane	0.0213	0.0020	mg/Kg wet	0.0200		107	70-130				
1,2-Dichlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		98.0	70-130				
1,3-Dichlorobenzene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130				
1,4-Dichlorobenzene	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130				
trans-1,4-Dichloro-2-butene	0.0145	0.0040	mg/Kg wet	0.0200		72.7	70-130				
Dichlorodifluoromethane (Freon 12)	0.0163	0.020	mg/Kg wet	0.0200		81.3	40-160			J	†
1,1-Dichloroethane	0.0221	0.0020	mg/Kg wet	0.0200		111	70-130				
1,2-Dichloroethane	0.0166	0.0020	mg/Kg wet	0.0200		83.2	70-130				
1,1-Dichloroethylene	0.0197	0.0040	mg/Kg wet	0.0200		98.6	70-130				
cis-1,2-Dichloroethylene	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130				
trans-1,2-Dichloroethylene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195170 - SW-846 5035										
LCS (B195170-BS1)				Prepared & Analyzed: 01/19/18						
1,2-Dichloropropane	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130			
1,3-Dichloropropane	0.0204	0.0010	mg/Kg wet	0.0200		102	70-130			
2,2-Dichloropropane	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130			
1,1-Dichloropropene	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130			
cis-1,3-Dichloropropene	0.0198	0.0010	mg/Kg wet	0.0200		99.2	70-130			
trans-1,3-Dichloropropene	0.0193	0.0010	mg/Kg wet	0.0200		96.7	70-130			
Diethyl Ether	0.0211	0.020	mg/Kg wet	0.0200		105	70-130			
Diisopropyl Ether (DIPE)	0.0192	0.0010	mg/Kg wet	0.0200		96.0	70-130			
1,4-Dioxane	0.229	0.10	mg/Kg wet	0.200		114	40-160			†
Ethylbenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130			
Hexachlorobutadiene	0.0187	0.0020	mg/Kg wet	0.0200		93.3	70-160			
2-Hexanone (MBK)	0.172	0.020	mg/Kg wet	0.200		86.2	70-160			†
Isopropylbenzene (Cumene)	0.0239	0.0020	mg/Kg wet	0.0200		120	70-130			
p-Isopropyltoluene (p-Cymene)	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0201	0.0040	mg/Kg wet	0.0200		101	70-130			
Methylene Chloride	0.0207	0.020	mg/Kg wet	0.0200		104	40-160			†
4-Methyl-2-pentanone (MIBK)	0.166	0.020	mg/Kg wet	0.200		83.2	70-160			†
Naphthalene	0.0173	0.0040	mg/Kg wet	0.0200		86.4	40-130			†
n-Propylbenzene	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130			
Styrene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130			
1,1,1,2-Tetrachloroethane	0.0196	0.0020	mg/Kg wet	0.0200		98.2	70-130			
1,1,2,2-Tetrachloroethane	0.0208	0.0010	mg/Kg wet	0.0200		104	70-130			
Tetrachloroethylene	0.0231	0.0020	mg/Kg wet	0.0200		116	70-130			
Tetrahydrofuran	0.0198	0.010	mg/Kg wet	0.0200		99.0	70-130			
Toluene	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130			
1,2,3-Trichlorobenzene	0.0173	0.0020	mg/Kg wet	0.0200		86.6	70-130			
1,2,4-Trichlorobenzene	0.0171	0.0020	mg/Kg wet	0.0200		85.7	70-130			
1,3,5-Trichlorobenzene	0.0180	0.0020	mg/Kg wet	0.0200		90.2	70-130			
1,1,1-Trichloroethane	0.0190	0.0020	mg/Kg wet	0.0200		95.1	70-130			
1,1,2-Trichloroethane	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130			
Trichloroethylene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130			
Trichlorofluoromethane (Freon 11)	0.0167	0.010	mg/Kg wet	0.0200		83.3	70-130			
1,2,3-Trichloropropane	0.0186	0.0020	mg/Kg wet	0.0200		93.1	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.0189	0.010	mg/Kg wet	0.0200		94.6	70-130			
1,2,4-Trimethylbenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.7	70-130			
1,3,5-Trimethylbenzene	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130			
Vinyl Chloride	0.0188	0.010	mg/Kg wet	0.0200		94.0	40-130			†
m+p Xylene	0.0397	0.0040	mg/Kg wet	0.0400		99.2	70-130			
o-Xylene	0.0194	0.0020	mg/Kg wet	0.0200		97.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0405*		mg/Kg wet	0.0500		80.9	70-130			
Surrogate: Toluene-d8	*0.0499*		mg/Kg wet	0.0500		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0505*		mg/Kg wet	0.0500		101	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B195170 - SW-846 5035												
LCS Dup (B195170-BSD1)				Prepared & Analyzed: 01/19/18								
Acetone	0.173	0.10	mg/Kg wet	0.200		86.7		70-160	15.0	25		†
Acrylonitrile	0.0174	0.0060	mg/Kg wet	0.0200		87.1		70-130	5.58	25		
tert-Amyl Methyl Ether (TAME)	0.0192	0.0010	mg/Kg wet	0.0200		96.2		70-130	5.07	25		
Benzene	0.0227	0.0020	mg/Kg wet	0.0200		114		70-130	4.48	25		
Bromobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.4		70-130	1.04	25		
Bromochloromethane	0.0251	0.0020	mg/Kg wet	0.0200		125		70-130	0.00	25		
Bromodichloromethane	0.0180	0.0020	mg/Kg wet	0.0200		89.8		70-130	5.31	25		
Bromoform	0.0184	0.0020	mg/Kg wet	0.0200		92.2		70-130	0.433	25		
Bromomethane	0.0179	0.010	mg/Kg wet	0.0200		89.7		40-130	1.66	25		†
2-Butanone (MEK)	0.186	0.040	mg/Kg wet	0.200		93.2		70-160	8.59	25		†
tert-Butyl Alcohol (TBA)	0.188	0.040	mg/Kg wet	0.200		94.1		40-130	1.75	25		†
n-Butylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.1		70-130	3.75	25		
sec-Butylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.6		70-130	3.74	25		
tert-Butylbenzene	0.0186	0.0020	mg/Kg wet	0.0200		93.1		70-160	1.60	25		†
tert-Butyl Ethyl Ether (TBEE)	0.0181	0.0010	mg/Kg wet	0.0200		90.3		70-130	0.333	25		
Carbon Disulfide	0.0196	0.0060	mg/Kg wet	0.0200		97.8		70-130	1.62	25		
Carbon Tetrachloride	0.0179	0.0020	mg/Kg wet	0.0200		89.5		70-130	7.73	25		
Chlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102		70-130	2.80	25		
Chlorodibromomethane	0.0193	0.0010	mg/Kg wet	0.0200		96.4		70-130	0.311	25		
Chloroethane	0.0203	0.020	mg/Kg wet	0.0200		102		70-130	1.59	25		
Chloroform	0.0191	0.0040	mg/Kg wet	0.0200		95.3		70-130	8.15	25		
Chloromethane	0.0181	0.010	mg/Kg wet	0.0200		90.4		70-130	1.65	25		
2-Chlorotoluene	0.0202	0.0020	mg/Kg wet	0.0200		101		70-130	0.00	25		
4-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.4		70-130	0.103	25		
1,2-Dibromo-3-chloropropane (DBCP)	0.0134	0.0020	mg/Kg wet	0.0200		**67.0**	*	70-130	16.4	25	L-07	
1,2-Dibromoethane (EDB)	0.0202	0.0010	mg/Kg wet	0.0200		101		70-130	5.12	25		
Dibromomethane	0.0209	0.0020	mg/Kg wet	0.0200		104		70-130	2.18	25		
1,2-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.6		70-130	1.44	25		
1,3-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.3		70-130	6.24	25		
1,4-Dichlorobenzene	0.0176	0.0020	mg/Kg wet	0.0200		88.0		70-130	3.79	25		
trans-1,4-Dichloro-2-butene	0.0154	0.0040	mg/Kg wet	0.0200		76.9		70-130	5.61	25		
Dichlorodifluoromethane (Freon 12)	0.0172	0.020	mg/Kg wet	0.0200		86.0		40-160	5.62	25	J	†
1,1-Dichloroethane	0.0215	0.0020	mg/Kg wet	0.0200		108		70-130	2.75	25		
1,2-Dichloroethane	0.0161	0.0020	mg/Kg wet	0.0200		80.6		70-130	3.17	25		
1,1-Dichloroethylene	0.0199	0.0040	mg/Kg wet	0.0200		99.3		70-130	0.707	25		
cis-1,2-Dichloroethylene	0.0202	0.0020	mg/Kg wet	0.0200		101		70-130	3.97	25		
trans-1,2-Dichloroethylene	0.0208	0.0020	mg/Kg wet	0.0200		104		70-130	0.385	25		
1,2-Dichloropropane	0.0206	0.0020	mg/Kg wet	0.0200		103		70-130	0.00	25		
1,3-Dichloropropane	0.0187	0.0010	mg/Kg wet	0.0200		93.7		70-130	8.29	25		
2,2-Dichloropropane	0.0193	0.0020	mg/Kg wet	0.0200		96.4		70-130	5.94	25		
1,1-Dichloropropene	0.0223	0.0020	mg/Kg wet	0.0200		112		70-130	4.12	25		
cis-1,3-Dichloropropene	0.0190	0.0010	mg/Kg wet	0.0200		95.0		70-130	4.33	25		
trans-1,3-Dichloropropene	0.0184	0.0010	mg/Kg wet	0.0200		91.9		70-130	5.09	25		
Diethyl Ether	0.0204	0.020	mg/Kg wet	0.0200		102		70-130	3.18	25		
Diisopropyl Ether (DIPE)	0.0187	0.0010	mg/Kg wet	0.0200		93.5		70-130	2.64	25		
1,4-Dioxane	0.181	0.10	mg/Kg wet	0.200		90.6		40-160	23.1	50		† ‡
Ethylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.3		70-130	1.70	25		
Hexachlorobutadiene	0.0177	0.0020	mg/Kg wet	0.0200		88.7		70-160	5.05	25		
2-Hexanone (MBK)	0.157	0.020	mg/Kg wet	0.200		78.7		70-160	9.02	25		†
Isopropylbenzene (Cumene)	0.0227	0.0020	mg/Kg wet	0.0200		114		70-130	5.32	25		
p-Isopropyltoluene (p-Cymene)	0.0185	0.0020	mg/Kg wet	0.0200		92.5		70-130	1.93	25		
Methyl tert-Butyl Ether (MTBE)	0.0197	0.0040	mg/Kg wet	0.0200		98.5		70-130	2.21	25		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195170 - SW-846 5035										
LCS Dup (B195170-BSD1)				Prepared & Analyzed: 01/19/18						
Methylene Chloride	0.0209	0.020	mg/Kg wet	0.0200		104	40-160	0.577	25	†
4-Methyl-2-pentanone (MIBK)	0.157	0.020	mg/Kg wet	0.200		78.3	70-160	6.06	25	†
Naphthalene	0.0166	0.0040	mg/Kg wet	0.0200		82.8	40-130	4.26	25	†
n-Propylbenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	1.79	25	
Styrene	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130	3.85	25	
1,1,1,2-Tetrachloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.6	70-130	2.68	25	
1,1,2,2-Tetrachloroethane	0.0207	0.0010	mg/Kg wet	0.0200		104	70-130	0.385	25	
Tetrachloroethylene	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	5.79	25	
Tetrahydrofuran	0.0184	0.010	mg/Kg wet	0.0200		92.0	70-130	7.33	25	
Toluene	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	4.92	25	
1,2,3-Trichlorobenzene	0.0162	0.0020	mg/Kg wet	0.0200		81.0	70-130	6.68	25	
1,2,4-Trichlorobenzene	0.0170	0.0020	mg/Kg wet	0.0200		85.2	70-130	0.585	25	
1,3,5-Trichlorobenzene	0.0164	0.0020	mg/Kg wet	0.0200		82.0	70-130	9.52	25	
1,1,1-Trichloroethane	0.0182	0.0020	mg/Kg wet	0.0200		90.9	70-130	4.52	25	
1,1,2-Trichloroethane	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130	1.60	25	
Trichloroethylene	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-130	8.33	25	
Trichlorofluoromethane (Freon 11)	0.0164	0.010	mg/Kg wet	0.0200		81.8	70-130	1.82	25	
1,2,3-Trichloropropane	0.0181	0.0020	mg/Kg wet	0.0200		90.3	70-130	3.05	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.0189	0.010	mg/Kg wet	0.0200		94.5	70-130	0.106	25	
1,2,4-Trimethylbenzene	0.0181	0.0020	mg/Kg wet	0.0200		90.6	70-130	2.29	25	
1,3,5-Trimethylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130	2.27	25	
Vinyl Chloride	0.0186	0.010	mg/Kg wet	0.0200		93.2	40-130	0.855	25	†
m+p Xylene	0.0394	0.0040	mg/Kg wet	0.0400		98.6	70-130	0.657	25	
o-Xylene	0.0197	0.0020	mg/Kg wet	0.0200		98.3	70-130	1.23	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0412*		mg/Kg wet	0.0500		82.4	70-130			
Surrogate: Toluene-d8	*0.0494*		mg/Kg wet	0.0500		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0513*		mg/Kg wet	0.0500		103	70-130			

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QUALITY CONTROL

Tentatively Identified Compounds - Volatile Compounds (ESTIMATED VALUES REPORTED) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195164 - SW-846 5030B										
Blank (B195164-BLK1)				Prepared & Analyzed: 01/19/18						
Tentatively Identified Compounds	0.0		µg/L							
No TICs Found	0.0		µg/L							
Batch B195170 - SW-846 5035										
Blank (B195170-BLK1)				Prepared & Analyzed: 01/19/18						
No TICs Found	0.0		mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS (SIM) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195179 - SW-846 5035										
Blank (B195179-BLK1)				Prepared: 01/19/18 Analyzed: 01/20/18						
1,4-Dioxane	ND	2.0	µg/L							
Surrogate: 1,4-Dioxane-d8	*8.05*		µg/L	10.0		80.5	40-160			
LCS (B195179-BS1)				Prepared & Analyzed: 01/19/18						
1,4-Dioxane	10.7	2.0	µg/L	10.0		107	60-140			
Surrogate: 1,4-Dioxane-d8	*8.70*		µg/L	10.0		87.0	40-160			
LCS Dup (B195179-BSD1)				Prepared: 01/19/18 Analyzed: 01/20/18						
1,4-Dioxane	10.5	2.0	µg/L	10.0		105	60-140	1.61	20	
Surrogate: 1,4-Dioxane-d8	*8.71*		µg/L	10.0		87.1	40-160			
Batch B195180 - SW-846 5035										
Blank (B195180-BLK1)				Prepared: 01/19/18 Analyzed: 01/20/18						
1,4-Dioxane	ND	0.0020	mg/Kg wet							
Surrogate: 1,4-Dioxane-d8	*8.05*		µg/L	10.0		80.5	40-160			
LCS (B195180-BS1)				Prepared & Analyzed: 01/19/18						
1,4-Dioxane	0.0107	0.0020	mg/Kg wet	0.0100		107	60-140			
Surrogate: 1,4-Dioxane-d8	*8.70*		µg/L	10.0		87.0	40-160			
LCS Dup (B195180-BSD1)				Prepared: 01/19/18 Analyzed: 01/20/18						
1,4-Dioxane	0.0105	0.0020	mg/Kg wet	0.0100		105	60-140	1.61	20	
Surrogate: 1,4-Dioxane-d8	*8.71*		µg/L	10.0		87.1	40-160			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195084 - SW-846 3510C										
Blank (B195084-BLK1)				Prepared: 01/17/18 Analyzed: 01/19/18						
Acenaphthene	ND	5.0	µg/L							
Acenaphthylene	ND	5.0	µg/L							
Acetophenone	ND	10	µg/L							
Aniline	ND	5.0	µg/L							
Anthracene	ND	5.0	µg/L							
Benzidine	ND	20	µg/L							V-04, V-05
Benzo(a)anthracene	ND	5.0	µg/L							
Benzo(a)pyrene	ND	5.0	µg/L							
Benzo(b)fluoranthene	ND	5.0	µg/L							
Benzo(g,h,i)perylene	ND	5.0	µg/L							
Benzo(k)fluoranthene	ND	5.0	µg/L							
Benzoic Acid	ND	10	µg/L							
Bis(2-chloroethoxy)methane	ND	10	µg/L							
Bis(2-chloroethyl)ether	ND	10	µg/L							
Bis(2-chloroisopropyl)ether	ND	10	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L							
4-Bromophenylphenylether	ND	10	µg/L							
Butylbenzylphthalate	ND	10	µg/L							
Carbazole	ND	10	µg/L							
4-Chloroaniline	ND	10	µg/L							V-34
4-Chloro-3-methylphenol	ND	10	µg/L							
2-Chloronaphthalene	ND	10	µg/L							
2-Chlorophenol	ND	10	µg/L							
4-Chlorophenylphenylether	ND	10	µg/L							
Chrysene	ND	5.0	µg/L							
Dibenz(a,h)anthracene	ND	5.0	µg/L							
Dibenzofuran	ND	5.0	µg/L							
Di-n-butylphthalate	ND	10	µg/L							
1,2-Dichlorobenzene	ND	5.0	µg/L							
1,3-Dichlorobenzene	ND	5.0	µg/L							
1,4-Dichlorobenzene	ND	5.0	µg/L							
3,3-Dichlorobenzidine	ND	10	µg/L							V-34
2,4-Dichlorophenol	ND	10	µg/L							
Diethylphthalate	ND	10	µg/L							
2,4-Dimethylphenol	ND	10	µg/L							
Dimethylphthalate	ND	10	µg/L							
4,6-Dinitro-2-methylphenol	ND	10	µg/L							
2,4-Dinitrophenol	ND	10	µg/L							
2,4-Dinitrotoluene	ND	10	µg/L							
2,6-Dinitrotoluene	ND	10	µg/L							
Di-n-octylphthalate	ND	10	µg/L							
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	µg/L							
Fluoranthene	ND	5.0	µg/L							
Fluorene	ND	5.0	µg/L							
Hexachlorobenzene	ND	10	µg/L							
Hexachlorobutadiene	ND	10	µg/L							
Hexachlorocyclopentadiene	ND	10	µg/L							
Hexachloroethane	ND	10	µg/L							
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/L							
Isophorone	ND	10	µg/L							
1-Methylnaphthalene	ND	5.0	µg/L							
2-Methylnaphthalene	ND	5.0	µg/L							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195084 - SW-846 3510C										
Blank (B195084-BLK1)				Prepared: 01/17/18 Analyzed: 01/19/18						
2-Methylphenol	ND	10	µg/L							
3/4-Methylphenol	ND	10	µg/L							
Naphthalene	ND	5.0	µg/L							
2-Nitroaniline	ND	10	µg/L							
3-Nitroaniline	ND	10	µg/L							
4-Nitroaniline	ND	10	µg/L							
Nitrobenzene	ND	10	µg/L							
2-Nitrophenol	ND	10	µg/L							
4-Nitrophenol	ND	10	µg/L							
N-Nitrosodimethylamine	ND	10	µg/L							
N-Nitrosodiphenylamine	ND	10	µg/L							
N-Nitrosodi-n-propylamine	ND	10	µg/L							
Pentachloronitrobenzene	ND	10	µg/L							V-16
Pentachlorophenol	ND	10	µg/L							
Phenanthrene	ND	5.0	µg/L							
Phenol	ND	10	µg/L							
Pyrene	ND	5.0	µg/L							
Pyridine	ND	5.0	µg/L							
1,2,4,5-Tetrachlorobenzene	ND	10	µg/L							
1,2,4-Trichlorobenzene	ND	5.0	µg/L							
2,4,5-Trichlorophenol	ND	10	µg/L							
2,4,6-Trichlorophenol	ND	10	µg/L							
Surrogate: 2-Fluorophenol	*66.0*		µg/L	200		33.0	15-110			
Surrogate: Phenol-d6	*44.2*		µg/L	200		22.1	15-110			
Surrogate: Nitrobenzene-d5	*53.8*		µg/L	100		53.8	30-130			
Surrogate: 2-Fluorobiphenyl	*55.6*		µg/L	100		55.6	30-130			
Surrogate: 2,4,6-Tribromophenol	*116*		µg/L	200		57.9	15-110			
Surrogate: p-Terphenyl-d14	*57.8*		µg/L	100		57.8	30-130			
LCS (B195084-BS1)				Prepared: 01/17/18 Analyzed: 01/19/18						
Acenaphthene	29.9	5.0	µg/L	50.0		59.8	40-140			
Acenaphthylene	29.4	5.0	µg/L	50.0		58.9	40-140			
Acetophenone	28.8	10	µg/L	50.0		57.6	40-140			
Aniline	26.3	5.0	µg/L	50.0		52.6	40-140			
Anthracene	31.6	5.0	µg/L	50.0		63.1	40-140			
Benzidine	30.8	20	µg/L	50.0		61.7	40-140			V-04, V-05
Benzo(a)anthracene	30.7	5.0	µg/L	50.0		61.4	40-140			
Benzo(a)pyrene	31.9	5.0	µg/L	50.0		63.9	40-140			
Benzo(b)fluoranthene	30.3	5.0	µg/L	50.0		60.6	40-140			
Benzo(g,h,i)perylene	33.4	5.0	µg/L	50.0		66.8	40-140			
Benzo(k)fluoranthene	30.3	5.0	µg/L	50.0		60.7	40-140			
Benzoic Acid	16.7	10	µg/L	50.0		33.4	10-130			†
Bis(2-chloroethoxy)methane	32.8	10	µg/L	50.0		65.6	40-140			
Bis(2-chloroethyl)ether	29.6	10	µg/L	50.0		59.3	40-140			
Bis(2-chloroisopropyl)ether	31.9	10	µg/L	50.0		63.8	40-140			
Bis(2-Ethylhexyl)phthalate	34.1	10	µg/L	50.0		68.2	40-140			
4-Bromophenylphenylether	32.6	10	µg/L	50.0		65.2	40-140			
Butylbenzylphthalate	32.8	10	µg/L	50.0		65.7	40-140			
Carbazole	30.6	10	µg/L	50.0		61.3	40-140			
4-Chloroaniline	21.5	10	µg/L	50.0		43.1	40-140			V-34
4-Chloro-3-methylphenol	30.2	10	µg/L	50.0		60.4	30-130			
2-Chloronaphthalene	25.9	10	µg/L	50.0		51.8	40-140			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B195084 - SW-846 3510C											
LCS (B195084-BS1)				Prepared: 01/17/18 Analyzed: 01/19/18							
2-Chlorophenol	28.8	10	µg/L	50.0		57.7	30-130				
4-Chlorophenylphenylether	29.9	10	µg/L	50.0		59.7	40-140				
Chrysene	30.5	5.0	µg/L	50.0		61.1	40-140				
Dibenz(a,h)anthracene	33.2	5.0	µg/L	50.0		66.4	40-140				
Dibenzofuran	30.0	5.0	µg/L	50.0		60.0	40-140				
Di-n-butylphthalate	31.3	10	µg/L	50.0		62.6	40-140				
1,2-Dichlorobenzene	26.9	5.0	µg/L	50.0		53.7	40-140				
1,3-Dichlorobenzene	25.5	5.0	µg/L	50.0		51.1	40-140				
1,4-Dichlorobenzene	25.6	5.0	µg/L	50.0		51.2	40-140				
3,3-Dichlorobenzidine	25.3	10	µg/L	50.0		50.6	40-140			V-34	
2,4-Dichlorophenol	28.9	10	µg/L	50.0		57.7	30-130				
Diethylphthalate	30.0	10	µg/L	50.0		59.9	40-140				
2,4-Dimethylphenol	30.1	10	µg/L	50.0		60.3	30-130				
Dimethylphthalate	31.0	10	µg/L	50.0		61.9	40-140				
4,6-Dinitro-2-methylphenol	28.0	10	µg/L	50.0		55.9	30-130				
2,4-Dinitrophenol	21.0	10	µg/L	50.0		42.0	30-130				
2,4-Dinitrotoluene	32.0	10	µg/L	50.0		63.9	40-140				
2,6-Dinitrotoluene	33.2	10	µg/L	50.0		66.5	40-140				
Di-n-octylphthalate	32.0	10	µg/L	50.0		64.0	40-140				
1,2-Diphenylhydrazine (as Azobenzene)	32.2	10	µg/L	50.0		64.4	40-140				
Fluoranthene	30.1	5.0	µg/L	50.0		60.1	40-140				
Fluorene	29.3	5.0	µg/L	50.0		58.7	40-140				
Hexachlorobenzene	30.4	10	µg/L	50.0		60.7	40-140				
Hexachlorobutadiene	29.0	10	µg/L	50.0		58.0	40-140				
Hexachlorocyclopentadiene	29.8	10	µg/L	50.0		59.6	30-140				†
Hexachloroethane	27.4	10	µg/L	50.0		54.8	40-140				
Indeno(1,2,3-cd)pyrene	32.8	5.0	µg/L	50.0		65.5	40-140				
Isophorone	30.7	10	µg/L	50.0		61.4	40-140				
1-Methylnaphthalene	28.2	5.0	µg/L	50.0		56.5	40-140				
2-Methylnaphthalene	31.3	5.0	µg/L	50.0		62.6	40-140				
2-Methylphenol	28.8	10	µg/L	50.0		57.5	30-130				
3/4-Methylphenol	29.3	10	µg/L	50.0		58.6	30-130				
Naphthalene	28.4	5.0	µg/L	50.0		56.9	40-140				
2-Nitroaniline	38.1	10	µg/L	50.0		76.1	40-140				
3-Nitroaniline	29.8	10	µg/L	50.0		59.5	40-140				
4-Nitroaniline	31.0	10	µg/L	50.0		61.9	40-140				
Nitrobenzene	29.1	10	µg/L	50.0		58.3	40-140				
2-Nitrophenol	30.7	10	µg/L	50.0		61.3	30-130				
4-Nitrophenol	31.6	10	µg/L	50.0		63.3	10-130				†
N-Nitrosodimethylamine	26.0	10	µg/L	50.0		52.1	40-140				
N-Nitrosodiphenylamine	38.2	10	µg/L	50.0		76.3	40-140				
N-Nitrosodi-n-propylamine	29.3	10	µg/L	50.0		58.5	40-140				
Pentachloronitrobenzene	30.7	10	µg/L	50.0		61.4	40-140			V-16	
Pentachlorophenol	29.5	10	µg/L	50.0		58.9	30-130				
Phenanthrene	31.1	5.0	µg/L	50.0		62.1	40-140				
Phenol	28.2	10	µg/L	50.0		56.4	20-130				†
Pyrene	32.4	5.0	µg/L	50.0		64.9	40-140				
Pyridine	20.5	5.0	µg/L	50.0		41.0	10-140				†
1,2,4,5-Tetrachlorobenzene	28.2	10	µg/L	50.0		56.3	40-140				
1,2,4-Trichlorobenzene	28.2	5.0	µg/L	50.0		56.4	40-140				
2,4,5-Trichlorophenol	29.4	10	µg/L	50.0		58.9	30-130				
2,4,6-Trichlorophenol	30.8	10	µg/L	50.0		61.7	30-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B195084 - SW-846 3510C											
LCS (B195084-BS1)				Prepared: 01/17/18 Analyzed: 01/19/18							
Surrogate: 2-Fluorophenol	*119*		µg/L	200		59.4	15-110				
Surrogate: Phenol-d6	*121*		µg/L	200		60.5	15-110				
Surrogate: Nitrobenzene-d5	*63.0*		µg/L	100		63.0	30-130				
Surrogate: 2-Fluorobiphenyl	*62.2*		µg/L	100		62.2	30-130				
Surrogate: 2,4,6-Tribromophenol	*127*		µg/L	200		63.7	15-110				
Surrogate: p-Terphenyl-d14	*68.0*		µg/L	100		68.0	30-130				
LCS Dup (B195084-BSD1)				Prepared: 01/17/18 Analyzed: 01/19/18							
Acenaphthene	29.7	5.0	µg/L	50.0		59.4	40-140	0.704	20		
Acenaphthylene	29.1	5.0	µg/L	50.0		58.2	40-140	1.20	20		
Acetophenone	28.9	10	µg/L	50.0		57.8	40-140	0.381	20		
Aniline	25.9	5.0	µg/L	50.0		51.8	40-140	1.61	50		‡
Anthracene	30.1	5.0	µg/L	50.0		60.2	40-140	4.83	20		
Benzidine	31.8	20	µg/L	50.0		63.6	40-140	3.16	20	V-04, V-05	
Benzo(a)anthracene	30.7	5.0	µg/L	50.0		61.4	40-140	0.0326	20		
Benzo(a)pyrene	31.6	5.0	µg/L	50.0		63.2	40-140	1.01	20		
Benzo(b)fluoranthene	30.2	5.0	µg/L	50.0		60.4	40-140	0.297	20		
Benzo(g,h,i)perylene	32.2	5.0	µg/L	50.0		64.4	40-140	3.57	20		
Benzo(k)fluoranthene	30.5	5.0	µg/L	50.0		61.0	40-140	0.460	20		
Benzoic Acid	16.8	10	µg/L	50.0		33.6	10-130	0.717	50		† ‡
Bis(2-chloroethoxy)methane	29.5	10	µg/L	50.0		59.0	40-140	10.6	20		
Bis(2-chloroethyl)ether	28.8	10	µg/L	50.0		57.6	40-140	2.87	20		
Bis(2-chloroisopropyl)ether	30.4	10	µg/L	50.0		60.8	40-140	4.91	20		
Bis(2-Ethylhexyl)phthalate	32.5	10	µg/L	50.0		65.0	40-140	4.89	20		
4-Bromophenylphenylether	30.5	10	µg/L	50.0		61.1	40-140	6.46	20		
Butylbenzylphthalate	31.5	10	µg/L	50.0		63.0	40-140	4.13	20		
Carbazole	29.2	10	µg/L	50.0		58.4	40-140	4.85	20		
4-Chloroaniline	21.7	10	µg/L	50.0		43.5	40-140	0.924	20	V-34	
4-Chloro-3-methylphenol	30.8	10	µg/L	50.0		61.5	30-130	1.87	20		
2-Chloronaphthalene	28.0	10	µg/L	50.0		55.9	40-140	7.61	20		
2-Chlorophenol	29.0	10	µg/L	50.0		58.0	30-130	0.484	20		
4-Chlorophenylphenylether	31.4	10	µg/L	50.0		62.8	40-140	4.96	20		
Chrysene	30.8	5.0	µg/L	50.0		61.5	40-140	0.750	20		
Dibenz(a,h)anthracene	32.1	5.0	µg/L	50.0		64.1	40-140	3.52	20		
Dibenzofuran	30.6	5.0	µg/L	50.0		61.1	40-140	1.78	20		
Di-n-butylphthalate	29.3	10	µg/L	50.0		58.6	40-140	6.60	20		
1,2-Dichlorobenzene	26.7	5.0	µg/L	50.0		53.5	40-140	0.485	20		
1,3-Dichlorobenzene	26.5	5.0	µg/L	50.0		52.9	40-140	3.58	20		
1,4-Dichlorobenzene	25.2	5.0	µg/L	50.0		50.5	40-140	1.45	20		
3,3-Dichlorobenzidine	26.4	10	µg/L	50.0		52.7	40-140	4.02	20	V-34	
2,4-Dichlorophenol	29.7	10	µg/L	50.0		59.5	30-130	3.00	20		
Diethylphthalate	31.6	10	µg/L	50.0		63.2	40-140	5.39	20		
2,4-Dimethylphenol	27.4	10	µg/L	50.0		54.8	30-130	9.49	20		
Dimethylphthalate	30.5	10	µg/L	50.0		60.9	40-140	1.60	50		‡
4,6-Dinitro-2-methylphenol	27.4	10	µg/L	50.0		54.8	30-130	1.95	50		‡
2,4-Dinitrophenol	21.0	10	µg/L	50.0		42.0	30-130	0.00	50		‡
2,4-Dinitrotoluene	32.9	10	µg/L	50.0		65.8	40-140	2.93	20		
2,6-Dinitrotoluene	33.9	10	µg/L	50.0		67.8	40-140	2.00	20		
Di-n-octylphthalate	30.4	10	µg/L	50.0		60.8	40-140	5.10	20		
1,2-Diphenylhydrazine (as Azobenzene)	29.0	10	µg/L	50.0		58.0	40-140	10.4	20		
Fluoranthene	30.4	5.0	µg/L	50.0		60.8	40-140	1.09	20		
Fluorene	31.3	5.0	µg/L	50.0		62.6	40-140	6.50	20		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195084 - SW-846 3510C										
LCS Dup (B195084-BSD1)				Prepared: 01/17/18 Analyzed: 01/19/18						
Hexachlorobenzene	29.3	10	µg/L	50.0		58.7	40-140	3.45	20	
Hexachlorobutadiene	28.2	10	µg/L	50.0		56.4	40-140	2.66	20	
Hexachlorocyclopentadiene	31.1	10	µg/L	50.0		62.2	30-140	4.27	50	† ‡
Hexachloroethane	27.1	10	µg/L	50.0		54.1	40-140	1.32	50	‡
Indeno(1,2,3-cd)pyrene	31.9	5.0	µg/L	50.0		63.9	40-140	2.54	50	‡
Isophorone	27.7	10	µg/L	50.0		55.5	40-140	10.1	20	
1-Methylnaphthalene	28.4	5.0	µg/L	50.0		56.9	40-140	0.776	20	
2-Methylnaphthalene	31.7	5.0	µg/L	50.0		63.4	40-140	1.14	20	
2-Methylphenol	29.6	10	µg/L	50.0		59.3	30-130	3.01	20	
3/4-Methylphenol	29.6	10	µg/L	50.0		59.2	30-130	1.02	20	
Naphthalene	28.5	5.0	µg/L	50.0		57.0	40-140	0.211	20	
2-Nitroaniline	39.1	10	µg/L	50.0		78.1	40-140	2.62	20	
3-Nitroaniline	29.9	10	µg/L	50.0		59.8	40-140	0.469	20	
4-Nitroaniline	33.1	10	µg/L	50.0		66.1	40-140	6.59	20	
Nitrobenzene	27.8	10	µg/L	50.0		55.6	40-140	4.71	20	
2-Nitrophenol	28.8	10	µg/L	50.0		57.5	30-130	6.40	20	
4-Nitrophenol	31.3	10	µg/L	50.0		62.5	10-130	1.14	50	† ‡
N-Nitrosodimethylamine	28.7	10	µg/L	50.0		57.3	40-140	9.62	20	
N-Nitrosodiphenylamine	36.7	10	µg/L	50.0		73.3	40-140	4.04	20	
N-Nitrosodi-n-propylamine	29.1	10	µg/L	50.0		58.3	40-140	0.445	20	
Pentachloronitrobenzene	31.6	10	µg/L	50.0		63.3	40-140	2.98	20	V-16
Pentachlorophenol	30.9	10	µg/L	50.0		61.7	30-130	4.64	50	‡
Phenanthrene	30.9	5.0	µg/L	50.0		61.8	40-140	0.452	20	
Phenol	28.6	10	µg/L	50.0		57.2	20-130	1.41	20	†
Pyrene	31.1	5.0	µg/L	50.0		62.2	40-140	4.25	20	
Pyridine	22.4	5.0	µg/L	50.0		44.9	10-140	9.09	50	† ‡
1,2,4,5-Tetrachlorobenzene	30.1	10	µg/L	50.0		60.3	40-140	6.76	20	
1,2,4-Trichlorobenzene	28.2	5.0	µg/L	50.0		56.4	40-140	0.106	20	
2,4,5-Trichlorophenol	31.5	10	µg/L	50.0		63.0	30-130	6.83	20	
2,4,6-Trichlorophenol	32.6	10	µg/L	50.0		65.2	30-130	5.58	50	‡
Surrogate: 2-Fluorophenol	*127*		µg/L	200		63.7	15-110			
Surrogate: Phenol-d6	*122*		µg/L	200		61.1	15-110			
Surrogate: Nitrobenzene-d5	*57.5*		µg/L	100		57.5	30-130			
Surrogate: 2-Fluorobiphenyl	*65.7*		µg/L	100		65.7	30-130			
Surrogate: 2,4,6-Tribromophenol	*134*		µg/L	200		66.9	15-110			
Surrogate: p-Terphenyl-d14	*64.6*		µg/L	100		64.6	30-130			
Batch B195090 - SW-846 3546										
Blank (B195090-BLK1)				Prepared & Analyzed: 01/18/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							
Anthracene	ND	0.17	mg/Kg wet							
Benzidine	ND	0.66	mg/Kg wet							R-05, V-05
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Benzoic Acid	ND	1.0	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195090 - SW-846 3546										
Blank (B195090-BLK1)				Prepared & Analyzed: 01/18/18						
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							V-05
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
Carbazole	ND	0.17	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							
4-Chloro-3-methylphenol	ND	0.66	mg/Kg wet							
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
4-Chlorophenylphenylether	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
4,6-Dinitro-2-methylphenol	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							R-05, V-04
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachlorocyclopentadiene	ND	0.34	mg/Kg wet							V-05, V-19
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
1-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
2-Nitroaniline	ND	0.34	mg/Kg wet							
3-Nitroaniline	ND	0.34	mg/Kg wet							
4-Nitroaniline	ND	0.34	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							V-05
N-Nitrosodimethylamine	ND	0.34	mg/Kg wet							
N-Nitrosodiphenylamine	ND	0.34	mg/Kg wet							
N-Nitrosodi-n-propylamine	ND	0.34	mg/Kg wet							
Pentachloronitrobenzene	ND	0.34	mg/Kg wet							V-16

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B195090 - SW-846 3546												
Blank (B195090-BLK1)				Prepared & Analyzed: 01/18/18								
Pentachlorophenol	ND	0.34	mg/Kg wet									
Phenanthrene	ND	0.17	mg/Kg wet									
Phenol	ND	0.34	mg/Kg wet									
Pyrene	ND	0.17	mg/Kg wet									
Pyridine	ND	0.34	mg/Kg wet									
1,2,4,5-Tetrachlorobenzene	ND	0.34	mg/Kg wet									
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet									
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet									
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet									
Surrogate: 2-Fluorophenol	*4.16*		mg/Kg wet	6.67		62.3		30-130				
Surrogate: Phenol-d6	*4.29*		mg/Kg wet	6.67		64.4		30-130				
Surrogate: Nitrobenzene-d5	*2.03*		mg/Kg wet	3.33		60.8		30-130				
Surrogate: 2-Fluorobiphenyl	*2.09*		mg/Kg wet	3.33		62.8		30-130				
Surrogate: 2,4,6-Tribromophenol	*3.73*		mg/Kg wet	6.67		56.0		30-130				
Surrogate: p-Terphenyl-d14	*2.29*		mg/Kg wet	3.33		68.8		30-130				
LCS (B195090-BS1)				Prepared & Analyzed: 01/18/18								
Acenaphthene	0.789	0.17	mg/Kg wet	1.67		47.3		40-140				
Acenaphthylene	0.747	0.17	mg/Kg wet	1.67		44.8		40-140				
Acetophenone	0.724	0.34	mg/Kg wet	1.67		43.4		40-140				
Aniline	0.569	0.34	mg/Kg wet	1.67		34.1		10-140				†
Anthracene	0.809	0.17	mg/Kg wet	1.67		48.5		40-140				
Benzidine	1.01	0.66	mg/Kg wet	1.67		60.7		40-140			R-05, V-05	
Benzo(a)anthracene	0.819	0.17	mg/Kg wet	1.67		49.1		40-140				
Benzo(a)pyrene	0.798	0.17	mg/Kg wet	1.67		47.9		40-140				
Benzo(b)fluoranthene	0.767	0.17	mg/Kg wet	1.67		46.0		40-140				
Benzo(g,h,i)perylene	0.844	0.17	mg/Kg wet	1.67		50.6		40-140				
Benzo(k)fluoranthene	0.771	0.17	mg/Kg wet	1.67		46.2		40-140				
Benzoic Acid	0.405	1.0	mg/Kg wet	1.67		**24.3**	*	30-130			L-07, J	
Bis(2-chloroethoxy)methane	0.840	0.34	mg/Kg wet	1.67		50.4		40-140				
Bis(2-chloroethyl)ether	0.851	0.34	mg/Kg wet	1.67		51.1		40-140				
Bis(2-chloroisopropyl)ether	0.814	0.34	mg/Kg wet	1.67		48.8		40-140				
Bis(2-Ethylhexyl)phthalate	0.722	0.34	mg/Kg wet	1.67		43.3		40-140			V-05	
4-Bromophenylphenylether	0.825	0.34	mg/Kg wet	1.67		49.5		40-140				
Butylbenzylphthalate	0.771	0.34	mg/Kg wet	1.67		46.2		40-140				
Carbazole	0.814	0.17	mg/Kg wet	1.67		48.8		40-140				
4-Chloroaniline	0.579	0.66	mg/Kg wet	1.67		34.8		10-140			J	†
4-Chloro-3-methylphenol	0.814	0.66	mg/Kg wet	1.67		48.8		30-130				
2-Chloronaphthalene	0.710	0.34	mg/Kg wet	1.67		42.6		40-140				
2-Chlorophenol	0.762	0.34	mg/Kg wet	1.67		45.7		30-130				
4-Chlorophenylphenylether	0.766	0.34	mg/Kg wet	1.67		46.0		40-140				
Chrysene	0.810	0.17	mg/Kg wet	1.67		48.6		40-140				
Dibenz(a,h)anthracene	0.826	0.17	mg/Kg wet	1.67		49.6		40-140				
Dibenzofuran	0.785	0.34	mg/Kg wet	1.67		47.1		40-140				
Di-n-butylphthalate	0.766	0.34	mg/Kg wet	1.67		46.0		40-140				
1,2-Dichlorobenzene	0.694	0.34	mg/Kg wet	1.67		41.7		40-140				
1,3-Dichlorobenzene	0.679	0.34	mg/Kg wet	1.67		40.8		40-140				
1,4-Dichlorobenzene	0.676	0.34	mg/Kg wet	1.67		40.6		40-140				
3,3-Dichlorobenzidine	0.563	0.17	mg/Kg wet	1.67		33.8		20-140				†
2,4-Dichlorophenol	0.774	0.34	mg/Kg wet	1.67		46.5		30-130				
Diethylphthalate	0.756	0.34	mg/Kg wet	1.67		45.4		40-140				
2,4-Dimethylphenol	0.826	0.34	mg/Kg wet	1.67		49.6		30-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B195090 - SW-846 3546												
LCS (B195090-BS1)				Prepared & Analyzed: 01/18/18								
Dimethylphthalate	0.780	0.34	mg/Kg wet	1.67		46.8		40-140				
4,6-Dinitro-2-methylphenol	0.740	0.34	mg/Kg wet	1.67		44.4		30-130				
2,4-Dinitrophenol	0.488	0.66	mg/Kg wet	1.67		**29.3**	*	30-130			L-07, R-05, V-04, J	
2,4-Dinitrotoluene	0.784	0.34	mg/Kg wet	1.67		47.0		40-140				
2,6-Dinitrotoluene	0.803	0.34	mg/Kg wet	1.67		48.2		40-140				
Di-n-octylphthalate	0.729	0.34	mg/Kg wet	1.67		43.7		40-140				
1,2-Diphenylhydrazine (as Azobenzene)	0.791	0.34	mg/Kg wet	1.67		47.5		40-140				
Fluoranthene	0.813	0.17	mg/Kg wet	1.67		48.8		40-140				
Fluorene	0.787	0.17	mg/Kg wet	1.67		47.2		40-140				
Hexachlorobenzene	0.796	0.34	mg/Kg wet	1.67		47.8		40-140				
Hexachlorobutadiene	0.705	0.34	mg/Kg wet	1.67		42.3		40-140				
Hexachlorocyclopentadiene	0.664	0.34	mg/Kg wet	1.67		**39.9**	*	40-140			L-07, V-05, V-19	
Hexachloroethane	0.690	0.34	mg/Kg wet	1.67		41.4		40-140				
Indeno(1,2,3-cd)pyrene	0.851	0.17	mg/Kg wet	1.67		51.1		40-140				
Isophorone	0.819	0.34	mg/Kg wet	1.67		49.1		40-140				
1-Methylnaphthalene	0.747	0.17	mg/Kg wet	1.67		44.8		40-140				
2-Methylnaphthalene	0.816	0.17	mg/Kg wet	1.67		48.9		40-140				
2-Methylphenol	0.718	0.34	mg/Kg wet	1.67		43.1		30-130				
3/4-Methylphenol	0.772	0.34	mg/Kg wet	1.67		46.3		30-130				
Naphthalene	0.755	0.17	mg/Kg wet	1.67		45.3		40-140				
2-Nitroaniline	0.792	0.34	mg/Kg wet	1.67		47.5		40-140				
3-Nitroaniline	0.727	0.34	mg/Kg wet	1.67		43.6		30-140				†
4-Nitroaniline	0.829	0.34	mg/Kg wet	1.67		49.7		40-140				
Nitrobenzene	0.751	0.34	mg/Kg wet	1.67		45.1		40-140				
2-Nitrophenol	0.784	0.34	mg/Kg wet	1.67		47.1		30-130				
4-Nitrophenol	0.571	0.66	mg/Kg wet	1.67		34.2		30-130			V-05, J	
N-Nitrosodimethylamine	0.682	0.34	mg/Kg wet	1.67		40.9		40-140				
N-Nitrosodiphenylamine	0.945	0.34	mg/Kg wet	1.67		56.7		40-140				
N-Nitrosodi-n-propylamine	0.751	0.34	mg/Kg wet	1.67		45.1		40-140				
Pentachloronitrobenzene	0.789	0.34	mg/Kg wet	1.67		47.3		40-140			V-16	
Pentachlorophenol	0.707	0.34	mg/Kg wet	1.67		42.4		30-130				
Phenanthrene	0.807	0.17	mg/Kg wet	1.67		48.4		40-140				
Phenol	0.885	0.34	mg/Kg wet	1.67		53.1		30-130				
Pyrene	0.820	0.17	mg/Kg wet	1.67		49.2		40-140				
Pyridine	0.573	0.34	mg/Kg wet	1.67		34.4		30-140				†
1,2,4,5-Tetrachlorobenzene	0.727	0.34	mg/Kg wet	1.67		43.6		40-140				
1,2,4-Trichlorobenzene	0.733	0.34	mg/Kg wet	1.67		44.0		40-140				
2,4,5-Trichlorophenol	0.702	0.34	mg/Kg wet	1.67		42.1		30-130				
2,4,6-Trichlorophenol	0.784	0.34	mg/Kg wet	1.67		47.0		30-130				
Surrogate: 2-Fluorophenol	*3.32*		mg/Kg wet	6.67		49.8		30-130				
Surrogate: Phenol-d6	*3.38*		mg/Kg wet	6.67		50.7		30-130				
Surrogate: Nitrobenzene-d5	*1.62*		mg/Kg wet	3.33		48.6		30-130				
Surrogate: 2-Fluorobiphenyl	*1.61*		mg/Kg wet	3.33		48.4		30-130				
Surrogate: 2,4,6-Tribromophenol	*3.36*		mg/Kg wet	6.67		50.4		30-130				
Surrogate: p-Terphenyl-d14	*1.69*		mg/Kg wet	3.33		50.7		30-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B195090 - SW-846 3546												
LCS Dup (B195090-BSD1)				Prepared & Analyzed: 01/18/18								
Acenaphthene	0.983	0.17	mg/Kg wet	1.67		59.0	40-140	21.9		30		
Acenaphthylene	0.931	0.17	mg/Kg wet	1.67		55.9	40-140	21.9		30		
Acetophenone	0.902	0.34	mg/Kg wet	1.67		54.1	40-140	21.9		30		
Aniline	0.832	0.34	mg/Kg wet	1.67		49.9	10-140	37.6		50		† ‡
Anthracene	0.994	0.17	mg/Kg wet	1.67		59.6	40-140	20.5		30		
Benzidine	1.42	0.66	mg/Kg wet	1.67		84.9	40-140	**33.3**	*	30	R-05, V-05	
Benzo(a)anthracene	1.03	0.17	mg/Kg wet	1.67		61.9	40-140	23.0		30		
Benzo(a)pyrene	1.01	0.17	mg/Kg wet	1.67		60.6	40-140	23.3		30		
Benzo(b)fluoranthene	0.853	0.17	mg/Kg wet	1.67		51.2	40-140	10.6		30		
Benzo(g,h,i)perylene	1.05	0.17	mg/Kg wet	1.67		63.2	40-140	22.1		30		
Benzo(k)fluoranthene	0.970	0.17	mg/Kg wet	1.67		58.2	40-140	22.9		30		
Benzoic Acid	0.607	1.0	mg/Kg wet	1.67		36.4	30-130	39.9		50	J	‡
Bis(2-chloroethoxy)methane	1.04	0.34	mg/Kg wet	1.67		62.5	40-140	21.4		30		
Bis(2-chloroethyl)ether	0.953	0.34	mg/Kg wet	1.67		57.2	40-140	11.3		30		
Bis(2-chloroisopropyl)ether	0.995	0.34	mg/Kg wet	1.67		59.7	40-140	20.0		30		
Bis(2-Ethylhexyl)phthalate	0.880	0.34	mg/Kg wet	1.67		52.8	40-140	19.6		30	V-05	
4-Bromophenylphenylether	0.994	0.34	mg/Kg wet	1.67		59.6	40-140	18.6		30		
Butylbenzylphthalate	0.940	0.34	mg/Kg wet	1.67		56.4	40-140	19.8		30		
Carbazole	1.01	0.17	mg/Kg wet	1.67		60.8	40-140	21.8		30		
4-Chloroaniline	0.772	0.66	mg/Kg wet	1.67		46.3	10-140	28.5		30		†
4-Chloro-3-methylphenol	1.01	0.66	mg/Kg wet	1.67		60.7	30-130	21.6		30		
2-Chloronaphthalene	0.830	0.34	mg/Kg wet	1.67		49.8	40-140	15.6		30		
2-Chlorophenol	0.956	0.34	mg/Kg wet	1.67		57.4	30-130	22.6		30		
4-Chlorophenylphenylether	0.978	0.34	mg/Kg wet	1.67		58.7	40-140	24.3		30		
Chrysene	1.01	0.17	mg/Kg wet	1.67		60.6	40-140	21.9		30		
Dibenz(a,h)anthracene	1.06	0.17	mg/Kg wet	1.67		63.4	40-140	24.5		30		
Dibenzofuran	0.994	0.34	mg/Kg wet	1.67		59.6	40-140	23.5		30		
Di-n-butylphthalate	0.940	0.34	mg/Kg wet	1.67		56.4	40-140	20.4		30		
1,2-Dichlorobenzene	0.847	0.34	mg/Kg wet	1.67		50.8	40-140	19.8		30		
1,3-Dichlorobenzene	0.842	0.34	mg/Kg wet	1.67		50.5	40-140	21.3		30		
1,4-Dichlorobenzene	0.836	0.34	mg/Kg wet	1.67		50.2	40-140	21.2		30		
3,3-Dichlorobenzidine	0.764	0.17	mg/Kg wet	1.67		45.9	20-140	30.4		50		† ‡
2,4-Dichlorophenol	0.982	0.34	mg/Kg wet	1.67		58.9	30-130	23.6		30		
Diethylphthalate	0.967	0.34	mg/Kg wet	1.67		58.0	40-140	24.4		30		
2,4-Dimethylphenol	1.01	0.34	mg/Kg wet	1.67		60.4	30-130	19.7		30		
Dimethylphthalate	0.981	0.34	mg/Kg wet	1.67		58.8	40-140	22.8		30		
4,6-Dinitro-2-methylphenol	0.879	0.34	mg/Kg wet	1.67		52.7	30-130	17.1		30		
2,4-Dinitrophenol	0.675	0.66	mg/Kg wet	1.67		40.5	30-130	**32.3**	*	30	R-05, V-04	
2,4-Dinitrotoluene	1.03	0.34	mg/Kg wet	1.67		61.8	40-140	27.1		30		
2,6-Dinitrotoluene	1.03	0.34	mg/Kg wet	1.67		62.1	40-140	25.2		30		
Di-n-octylphthalate	0.884	0.34	mg/Kg wet	1.67		53.0	40-140	19.2		30		
1,2-Diphenylhydrazine (as Azobenzene)	0.960	0.34	mg/Kg wet	1.67		57.6	40-140	19.3		30		
Fluoranthene	1.00	0.17	mg/Kg wet	1.67		60.1	40-140	20.8		30		
Fluorene	0.997	0.17	mg/Kg wet	1.67		59.8	40-140	23.6		30		
Hexachlorobenzene	0.986	0.34	mg/Kg wet	1.67		59.1	40-140	21.3		30		
Hexachlorobutadiene	0.869	0.34	mg/Kg wet	1.67		52.2	40-140	20.9		30		
Hexachlorocyclopentadiene	0.761	0.34	mg/Kg wet	1.67		45.7	40-140	13.6		30	V-05, V-19	
Hexachloroethane	0.845	0.34	mg/Kg wet	1.67		50.7	40-140	20.3		30		
Indeno(1,2,3-cd)pyrene	1.07	0.17	mg/Kg wet	1.67		63.9	40-140	22.3		30		
Isophorone	0.995	0.34	mg/Kg wet	1.67		59.7	40-140	19.4		30		
1-Methylnaphthalene	0.929	0.17	mg/Kg wet	1.67		55.8	40-140	21.8		30		
2-Methylnaphthalene	1.01	0.17	mg/Kg wet	1.67		60.8	40-140	21.6		30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B195090 - SW-846 3546												
LCS Dup (B195090-BSD1)				Prepared & Analyzed: 01/18/18								
2-Methylphenol	0.930	0.34	mg/Kg wet	1.67		55.8		30-130	25.7	30		
3/4-Methylphenol	0.981	0.34	mg/Kg wet	1.67		58.9		30-130	23.8	30		
Naphthalene	0.919	0.17	mg/Kg wet	1.67		55.2		40-140	19.6	30		
2-Nitroaniline	1.04	0.34	mg/Kg wet	1.67		62.7		40-140	27.6	30		
3-Nitroaniline	0.961	0.34	mg/Kg wet	1.67		57.7		30-140	27.7	30		†
4-Nitroaniline	1.07	0.34	mg/Kg wet	1.67		64.2		40-140	25.4	30		
Nitrobenzene	0.916	0.34	mg/Kg wet	1.67		55.0		40-140	19.8	30		
2-Nitrophenol	0.954	0.34	mg/Kg wet	1.67		57.3		30-130	19.6	30		
4-Nitrophenol	0.676	0.66	mg/Kg wet	1.67		40.6		30-130	16.9	50	V-05	‡
N-Nitrosodimethylamine	0.843	0.34	mg/Kg wet	1.67		50.6		40-140	21.1	30		
N-Nitrosodiphenylamine	1.17	0.34	mg/Kg wet	1.67		70.4		40-140	21.6	30		
N-Nitrosodi-n-propylamine	0.925	0.34	mg/Kg wet	1.67		55.5		40-140	20.7	30		
Pentachloronitrobenzene	0.967	0.34	mg/Kg wet	1.67		58.0		40-140	20.3	30	V-16	
Pentachlorophenol	0.897	0.34	mg/Kg wet	1.67		53.8		30-130	23.7	30		
Phenanthrene	0.996	0.17	mg/Kg wet	1.67		59.7		40-140	20.9	30		
Phenol	1.12	0.34	mg/Kg wet	1.67		67.1		30-130	23.3	30		
Pyrene	1.00	0.17	mg/Kg wet	1.67		60.2		40-140	20.0	30		
Pyridine	0.681	0.34	mg/Kg wet	1.67		40.8		30-140	17.2	30		†
1,2,4,5-Tetrachlorobenzene	0.892	0.34	mg/Kg wet	1.67		53.5		40-140	20.4	30		
1,2,4-Trichlorobenzene	0.896	0.34	mg/Kg wet	1.67		53.8		40-140	20.1	30		
2,4,5-Trichlorophenol	0.911	0.34	mg/Kg wet	1.67		54.7		30-130	26.0	30		
2,4,6-Trichlorophenol	0.971	0.34	mg/Kg wet	1.67		58.3		30-130	21.4	30		
Surrogate: 2-Fluorophenol	*4.11*		mg/Kg wet	6.67		61.6		30-130				
Surrogate: Phenol-d6	*4.19*		mg/Kg wet	6.67		62.8		30-130				
Surrogate: Nitrobenzene-d5	*1.97*		mg/Kg wet	3.33		59.1		30-130				
Surrogate: 2-Fluorobiphenyl	*1.95*		mg/Kg wet	3.33		58.6		30-130				
Surrogate: 2,4,6-Tribromophenol	*4.34*		mg/Kg wet	6.67		65.0		30-130				
Surrogate: p-Terphenyl-d14	*2.03*		mg/Kg wet	3.33		61.0		30-130				
Matrix Spike (B195090-MS1)		**Source: 18A0479-10**		Prepared & Analyzed: 01/18/18								
Acenaphthene	1.07	0.22	mg/Kg dry	2.18	ND	49.1		40-140				
Acenaphthylene	1.00	0.22	mg/Kg dry	2.18	ND	46.2		40-140				
Acetophenone	0.979	0.44	mg/Kg dry	2.18	ND	45.0		40-140				
Aniline	0.726	0.44	mg/Kg dry	2.18	ND	**33.4**	*	40-140			MS-09	
Anthracene	1.07	0.22	mg/Kg dry	2.18	ND	49.1		40-140				
Benzidine	0.000870	0.86	mg/Kg dry	2.18	ND	**0.0400**	*	40-140			MS-09, V-05, J	
Benzo(a)anthracene	1.07	0.22	mg/Kg dry	2.18	ND	49.1		40-140				
Benzo(a)pyrene	1.08	0.22	mg/Kg dry	2.18	ND	49.7		40-140				
Benzo(b)fluoranthene	0.995	0.22	mg/Kg dry	2.18	ND	45.8		40-140				
Benzo(g,h,i)perylene	0.916	0.22	mg/Kg dry	2.18	ND	42.1		40-140				
Benzo(k)fluoranthene	1.11	0.22	mg/Kg dry	2.18	ND	51.1		40-140				
Benzoic Acid	1.24	1.3	mg/Kg dry	2.18	ND	57.0		40-140			J	
Bis(2-chloroethoxy)methane	1.12	0.44	mg/Kg dry	2.18	ND	51.4		40-140				
Bis(2-chloroethyl)ether	1.01	0.44	mg/Kg dry	2.18	ND	46.4		40-140			R-06	
Bis(2-chloroisopropyl)ether	1.09	0.44	mg/Kg dry	2.18	ND	50.3		40-140				
Bis(2-Ethylhexyl)phthalate	0.985	0.44	mg/Kg dry	2.18	ND	45.3		40-140			V-05	
4-Bromophenylphenylether	1.04	0.44	mg/Kg dry	2.18	ND	47.9		40-140				
Butylbenzylphthalate	1.10	0.44	mg/Kg dry	2.18	ND	50.5		40-140				
Carbazole	1.07	0.22	mg/Kg dry	2.18	ND	49.0		40-140				
4-Chloroaniline	0.585	0.86	mg/Kg dry	2.18	ND	**26.9**	*	40-140			MS-23, J	
4-Chloro-3-methylphenol	1.05	0.86	mg/Kg dry	2.18	ND	48.3		30-130				
2-Chloronaphthalene	0.973	0.44	mg/Kg dry	2.18	ND	44.7		40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B195090 - SW-846 3546											
Matrix Spike (B195090-MS1)		**Source: 18A0479-10**		Prepared & Analyzed: 01/18/18							
2-Chlorophenol	1.04	0.44	mg/Kg dry	2.18	ND	47.7		30-130			
4-Chlorophenylphenylether	1.05	0.44	mg/Kg dry	2.18	ND	48.3		40-140			
Chrysene	1.04	0.22	mg/Kg dry	2.18	ND	48.0		40-140			
Dibenz(a,h)anthracene	0.935	0.22	mg/Kg dry	2.18	ND	43.0		40-140			
Dibenzofuran	1.07	0.44	mg/Kg dry	2.18	ND	49.1		40-140			
Di-n-butylphthalate	1.04	0.44	mg/Kg dry	2.18	ND	48.0		40-140			
1,2-Dichlorobenzene	0.942	0.44	mg/Kg dry	2.18	ND	43.3		40-140			
1,3-Dichlorobenzene	0.934	0.44	mg/Kg dry	2.18	ND	42.9		40-140			
1,4-Dichlorobenzene	0.926	0.44	mg/Kg dry	2.18	ND	42.6		40-140			
3,3-Dichlorobenzidine	0.741	0.22	mg/Kg dry	2.18	ND	**34.1**	*	40-140			MS-23
2,4-Dichlorophenol	1.04	0.44	mg/Kg dry	2.18	ND	48.0		30-130			
Diethylphthalate	1.04	0.44	mg/Kg dry	2.18	ND	47.8		40-140			
2,4-Dimethylphenol	1.08	0.44	mg/Kg dry	2.18	ND	49.8		30-130			
Dimethylphthalate	1.04	0.44	mg/Kg dry	2.18	ND	47.9		40-140			
4,6-Dinitro-2-methylphenol	0.969	0.44	mg/Kg dry	2.18	ND	44.5		30-130			
2,4-Dinitrophenol	1.29	0.86	mg/Kg dry	2.18	ND	59.3		30-130			V-04
2,4-Dinitrotoluene	1.09	0.44	mg/Kg dry	2.18	ND	50.0		40-140			
2,6-Dinitrotoluene	1.10	0.44	mg/Kg dry	2.18	ND	50.6		40-140			
Di-n-octylphthalate	1.32	0.44	mg/Kg dry	2.18	ND	60.8		40-140			
1,2-Diphenylhydrazine (as Azobenzene)	1.02	0.44	mg/Kg dry	2.18	ND	46.7		40-140			
Fluoranthene	1.11	0.22	mg/Kg dry	2.18	ND	50.9		40-140			
Fluorene	1.09	0.22	mg/Kg dry	2.18	ND	50.0		40-140			
Hexachlorobenzene	1.00	0.44	mg/Kg dry	2.18	ND	46.1		40-140			
Hexachlorobutadiene	0.941	0.44	mg/Kg dry	2.18	ND	43.2		40-140			
Hexachlorocyclopentadiene	0.359	0.44	mg/Kg dry	2.18	ND	**16.5**	*	30-130			MS-09, R-06, V-05, V-19, J
Hexachloroethane	0.821	0.44	mg/Kg dry	2.18	ND	**37.7**	*	40-140			MS-08
Indeno(1,2,3-cd)pyrene	1.13	0.22	mg/Kg dry	2.18	ND	51.9		40-140			
Isophorone	1.09	0.44	mg/Kg dry	2.18	ND	49.9		40-140			
1-Methylnaphthalene	0.978	0.22	mg/Kg dry	2.18	ND	45.0		40-140			
2-Methylnaphthalene	1.08	0.22	mg/Kg dry	2.18	ND	49.6		40-140			
2-Methylphenol	0.948	0.44	mg/Kg dry	2.18	ND	43.6		30-130			
3/4-Methylphenol	1.04	0.44	mg/Kg dry	2.18	ND	47.9		30-130			
Naphthalene	1.00	0.22	mg/Kg dry	2.18	ND	46.2		40-140			
2-Nitroaniline	1.07	0.44	mg/Kg dry	2.18	ND	49.2		40-140			
3-Nitroaniline	0.868	0.44	mg/Kg dry	2.18	ND	**39.9**	*	40-140			MS-22
4-Nitroaniline	0.966	0.44	mg/Kg dry	2.18	ND	44.4		40-140			
Nitrobenzene	1.02	0.44	mg/Kg dry	2.18	ND	46.8		40-140			
2-Nitrophenol	1.03	0.44	mg/Kg dry	2.18	ND	47.2		30-130			
4-Nitrophenol	0.884	0.86	mg/Kg dry	2.18	ND	40.6		30-130			V-05
N-Nitrosodimethylamine	1.00	0.44	mg/Kg dry	2.18	ND	46.1		40-140			
N-Nitrosodiphenylamine	1.20	0.44	mg/Kg dry	2.18	ND	55.1		40-140			
N-Nitrosodi-n-propylamine	1.01	0.44	mg/Kg dry	2.18	ND	46.6		40-140			
Pentachloronitrobenzene	1.02	0.44	mg/Kg dry	2.18	ND	46.7		40-140			V-16
Pentachlorophenol	1.16	0.44	mg/Kg dry	2.18	ND	53.5		30-130			
Phenanthrene	1.05	0.22	mg/Kg dry	2.18	ND	48.5		40-140			
Phenol	1.18	0.44	mg/Kg dry	2.18	ND	54.3		30-130			
Pyrene	1.12	0.22	mg/Kg dry	2.18	ND	51.3		40-140			
Pyridine	0.719	0.44	mg/Kg dry	2.18	ND	**33.0**	*	40-140			MS-09
1,2,4,5-Tetrachlorobenzene	1.00	0.44	mg/Kg dry	2.18	ND	46.1		40-140			
1,2,4-Trichlorobenzene	0.991	0.44	mg/Kg dry	2.18	ND	45.6		40-140			
2,4,5-Trichlorophenol	1.02	0.44	mg/Kg dry	2.18	ND	46.8		30-130			
2,4,6-Trichlorophenol	1.09	0.44	mg/Kg dry	2.18	ND	50.2		30-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes
Batch B195090 - SW-846 3546												
Matrix Spike (B195090-MS1)		**Source: 18A0479-10**		Prepared & Analyzed: 01/18/18								
Surrogate: 2-Fluorophenol	*4.41*		mg/Kg dry	8.70		50.7		30-130				
Surrogate: Phenol-d6	*4.52*		mg/Kg dry	8.70		52.0		30-130				
Surrogate: Nitrobenzene-d5	*2.13*		mg/Kg dry	4.35		49.0		30-130				
Surrogate: 2-Fluorobiphenyl	*2.16*		mg/Kg dry	4.35		49.7		30-130				
Surrogate: 2,4,6-Tribromophenol	*4.60*		mg/Kg dry	8.70		52.9		30-130				
Surrogate: p-Terphenyl-d14	*2.25*		mg/Kg dry	4.35		51.8		30-130				
Matrix Spike Dup (B195090-MSD1)		**Source: 18A0479-10**		Prepared & Analyzed: 01/18/18								
Acenaphthene	1.27	0.22	mg/Kg dry	2.18	ND	58.4		40-140	17.3		30	
Acenaphthylene	1.19	0.22	mg/Kg dry	2.18	ND	54.8		40-140	17.1		30	
Acetophenone	1.18	0.44	mg/Kg dry	2.18	ND	54.4		40-140	18.9		30	
Aniline	0.849	0.44	mg/Kg dry	2.18	ND	**39.0**	*	40-140	15.7		30	MS-09
Anthracene	1.29	0.22	mg/Kg dry	2.18	ND	59.2		40-140	18.6		30	
Benzidine	0.213	0.86	mg/Kg dry	2.18	ND	**9.80**	*	40-140			30	MS-09, V-05, J
Benzo(a)anthracene	1.30	0.22	mg/Kg dry	2.18	ND	59.9		40-140	19.7		30	
Benzo(a)pyrene	1.32	0.22	mg/Kg dry	2.18	ND	60.6		40-140	19.8		30	
Benzo(b)fluoranthene	1.22	0.22	mg/Kg dry	2.18	ND	55.9		40-140	20.0		30	
Benzo(g,h,i)perylene	1.16	0.22	mg/Kg dry	2.18	ND	53.3		40-140	23.4		30	
Benzo(k)fluoranthene	1.39	0.22	mg/Kg dry	2.18	ND	64.1		40-140	22.5		30	
Benzoic Acid	1.55	1.3	mg/Kg dry	2.18	ND	71.4		40-140	22.5		30	
Bis(2-chloroethoxy)methane	1.37	0.44	mg/Kg dry	2.18	ND	63.0		40-140	20.4		30	
Bis(2-chloroethyl)ether	1.49	0.44	mg/Kg dry	2.18	ND	68.7		40-140	**38.9**	*	30	R-06
Bis(2-chloroisopropyl)ether	1.30	0.44	mg/Kg dry	2.18	ND	59.7		40-140	17.2		30	
Bis(2-Ethylhexyl)phthalate	1.16	0.44	mg/Kg dry	2.18	ND	53.3		40-140	16.3		30	V-05
4-Bromophenylphenylether	1.27	0.44	mg/Kg dry	2.18	ND	58.2		40-140	19.3		30	
Butylbenzylphthalate	1.30	0.44	mg/Kg dry	2.18	ND	59.7		40-140	16.7		30	
Carbazole	1.30	0.22	mg/Kg dry	2.18	ND	59.9		40-140	20.0		30	
4-Chloroaniline	0.945	0.86	mg/Kg dry	2.18	ND	43.4		40-140	**47.1**	*	30	R-06
4-Chloro-3-methylphenol	1.29	0.86	mg/Kg dry	2.18	ND	59.4		30-130	20.7		30	
2-Chloronaphthalene	1.17	0.44	mg/Kg dry	2.18	ND	54.0		40-140	18.8		30	
2-Chlorophenol	1.24	0.44	mg/Kg dry	2.18	ND	56.8		30-130	17.3		30	
4-Chlorophenylphenylether	1.25	0.44	mg/Kg dry	2.18	ND	57.6		40-140	17.6		30	
Chrysene	1.30	0.22	mg/Kg dry	2.18	ND	59.6		40-140	21.6		30	
Dibenz(a,h)anthracene	1.16	0.22	mg/Kg dry	2.18	ND	53.2		40-140	21.3		30	
Dibenzofuran	1.28	0.44	mg/Kg dry	2.18	ND	58.7		40-140	17.8		30	
Di-n-butylphthalate	1.23	0.44	mg/Kg dry	2.18	ND	56.3		40-140	16.0		30	
1,2-Dichlorobenzene	1.09	0.44	mg/Kg dry	2.18	ND	50.3		40-140	14.9		30	
1,3-Dichlorobenzene	1.07	0.44	mg/Kg dry	2.18	ND	49.0		40-140	13.3		30	
1,4-Dichlorobenzene	1.05	0.44	mg/Kg dry	2.18	ND	48.4		40-140	12.9		30	
3,3-Dichlorobenzidine	1.08	0.22	mg/Kg dry	2.18	ND	49.7		40-140	**37.4**	*	30	R-06
2,4-Dichlorophenol	1.31	0.44	mg/Kg dry	2.18	ND	60.1		30-130	22.4		30	
Diethylphthalate	1.23	0.44	mg/Kg dry	2.18	ND	56.4		40-140	16.5		30	
2,4-Dimethylphenol	1.34	0.44	mg/Kg dry	2.18	ND	61.5		30-130	21.0		30	
Dimethylphthalate	1.25	0.44	mg/Kg dry	2.18	ND	57.6		40-140	18.4		30	
4,6-Dinitro-2-methylphenol	1.17	0.44	mg/Kg dry	2.18	ND	53.9		30-130	19.1		30	
2,4-Dinitrophenol	1.63	0.86	mg/Kg dry	2.18	ND	75.2		30-130	23.7		30	V-04
2,4-Dinitrotoluene	1.27	0.44	mg/Kg dry	2.18	ND	58.4		40-140	15.5		30	
2,6-Dinitrotoluene	1.28	0.44	mg/Kg dry	2.18	ND	58.9		40-140	15.1		30	
Di-n-octylphthalate	1.61	0.44	mg/Kg dry	2.18	ND	74.2		40-140	19.9		30	
1,2-Diphenylhydrazine (as Azobenzene)	1.20	0.44	mg/Kg dry	2.18	ND	55.4		40-140	16.9		30	
Fluoranthene	1.33	0.22	mg/Kg dry	2.18	ND	61.3		40-140	18.5		30	
Fluorene	1.27	0.22	mg/Kg dry	2.18	ND	58.4		40-140	15.5		30	

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes
Batch B195090 - SW-846 3546												
Matrix Spike Dup (B195090-MSD1)		**Source: 18A0479-10**			Prepared & Analyzed: 01/18/18							
Hexachlorobenzene	1.22	0.44	mg/Kg dry	2.18	ND	56.1		40-140	19.5		30	
Hexachlorobutadiene	1.12	0.44	mg/Kg dry	2.18	ND	51.6		40-140	17.6		30	
Hexachlorocyclopentadiene	0.528	0.44	mg/Kg dry	2.18	ND	**24.3**	*	30-130	**38.0**	*	30	MS-09, R-06, V-05, V-19
Hexachloroethane	0.996	0.44	mg/Kg dry	2.18	ND	45.8		40-140	19.3		30	
Indeno(1,2,3-cd)pyrene	1.22	0.22	mg/Kg dry	2.18	ND	55.9		40-140	7.39		30	
Isophorone	1.32	0.44	mg/Kg dry	2.18	ND	60.5		40-140	19.1		30	
1-Methylnaphthalene	1.20	0.22	mg/Kg dry	2.18	ND	55.0		40-140	20.1		30	
2-Methylnaphthalene	1.33	0.22	mg/Kg dry	2.18	ND	61.3		40-140	21.2		30	
2-Methylphenol	1.18	0.44	mg/Kg dry	2.18	ND	54.1		30-130	21.5		30	
3/4-Methylphenol	1.27	0.44	mg/Kg dry	2.18	ND	58.5		30-130	20.0		30	
Naphthalene	1.20	0.22	mg/Kg dry	2.18	ND	55.3		40-140	18.0		30	
2-Nitroaniline	1.27	0.44	mg/Kg dry	2.18	ND	58.5		40-140	17.2		30	
3-Nitroaniline	1.17	0.44	mg/Kg dry	2.18	ND	53.7		40-140	29.4		30	
4-Nitroaniline	1.31	0.44	mg/Kg dry	2.18	ND	60.1		40-140	30.0		30	
Nitrobenzene	1.20	0.44	mg/Kg dry	2.18	ND	55.3		40-140	16.6		30	
2-Nitrophenol	1.26	0.44	mg/Kg dry	2.18	ND	58.0		30-130	20.7		30	
4-Nitrophenol	0.976	0.86	mg/Kg dry	2.18	ND	44.9		30-130	9.92		30	V-05
N-Nitrosodimethylamine	1.15	0.44	mg/Kg dry	2.18	ND	52.9		40-140	13.7		30	
N-Nitrosodiphenylamine	1.46	0.44	mg/Kg dry	2.18	ND	67.3		40-140	19.9		30	
N-Nitrosodi-n-propylamine	1.20	0.44	mg/Kg dry	2.18	ND	55.3		40-140	17.0		30	
Pentachloronitrobenzene	1.23	0.44	mg/Kg dry	2.18	ND	56.4		40-140	18.9		30	V-16
Pentachlorophenol	1.32	0.44	mg/Kg dry	2.18	ND	60.9		30-130	12.8		30	
Phenanthrene	1.29	0.22	mg/Kg dry	2.18	ND	59.2		40-140	20.0		30	
Phenol	1.46	0.44	mg/Kg dry	2.18	ND	67.1		30-130	21.0		30	
Pyrene	1.37	0.22	mg/Kg dry	2.18	ND	63.0		40-140	20.5		30	
Pyridine	0.828	0.44	mg/Kg dry	2.18	ND	**38.1**	*	40-140	14.2		30	MS-09
1,2,4,5-Tetrachlorobenzene	1.18	0.44	mg/Kg dry	2.18	ND	54.3		40-140	16.3		30	
1,2,4-Trichlorobenzene	1.17	0.44	mg/Kg dry	2.18	ND	53.8		40-140	16.6		30	
2,4,5-Trichlorophenol	1.18	0.44	mg/Kg dry	2.18	ND	54.4		30-130	15.1		30	
2,4,6-Trichlorophenol	1.29	0.44	mg/Kg dry	2.18	ND	59.3		30-130	16.7		30	
Surrogate: 2-Fluorophenol	*5.26*		mg/Kg dry	8.70		60.4		30-130				
Surrogate: Phenol-d6	*5.45*		mg/Kg dry	8.70		62.7		30-130				
Surrogate: Nitrobenzene-d5	*2.55*		mg/Kg dry	4.35		58.7		30-130				
Surrogate: 2-Fluorobiphenyl	*2.56*		mg/Kg dry	4.35		58.9		30-130				
Surrogate: 2,4,6-Tribromophenol	*5.62*		mg/Kg dry	8.70		64.5		30-130				
Surrogate: p-Terphenyl-d14	*2.75*		mg/Kg dry	4.35		63.1		30-130				

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QUALITY CONTROL

Tentatively Identified Compounds - SV Compounds (ESTIMATED VALUES REPORTED) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195084 - SW-846 3510C										
Blank (B195084-BLK1)				Prepared: 01/17/18 Analyzed: 01/19/18						
No TICs Found	0.0		µg/L							
Batch B195090 - SW-846 3546										
Blank (B195090-BLK1)				Prepared & Analyzed: 01/18/18						
Furan, 2,5-dimethyl-	0.56		mg/Kg wet							

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes
Batch B195094 - SW-846 3005A											
Blank (B195094-BLK1)				Prepared: 01/18/18 Analyzed: 01/19/18							
Antimony	ND	2.0	µg/L								
Beryllium	ND	0.80	µg/L								
Cadmium	ND	1.0	µg/L								
Chromium	ND	2.0	µg/L								
Copper	ND	10	µg/L								
Iron	ND	100	µg/L								
Lead	ND	2.0	µg/L								
Nickel	ND	10	µg/L								
Selenium	ND	10	µg/L								
Silver	ND	1.0	µg/L								
Thallium	ND	0.40	µg/L								
Zinc	ND	20	µg/L								
LCS (B195094-BS1)				Prepared: 01/18/18 Analyzed: 01/19/18							
Antimony	412	10	µg/L	500		82.4	80-120				
Beryllium	564	4.0	µg/L	500		113	80-120				
Cadmium	538	5.0	µg/L	500		108	80-120				
Chromium	525	10	µg/L	500		105	80-120				
Copper	1040	50	µg/L	1000		104	80-120				
Iron	4290	500	µg/L	4000		107	80-120				
Lead	563	10	µg/L	500		113	80-120				
Nickel	523	50	µg/L	500		105	80-120				
Selenium	530	50	µg/L	500		106	80-120				
Silver	506	5.0	µg/L	500		101	80-120				
Thallium	555	2.0	µg/L	500		111	80-120				
Zinc	1100	100	µg/L	1000		110	80-120				
LCS Dup (B195094-BSD1)				Prepared: 01/18/18 Analyzed: 01/19/18							
Antimony	417	10	µg/L	500		83.3	80-120	1.09		20	
Beryllium	546	4.0	µg/L	500		109	80-120	3.13		20	
Cadmium	526	5.0	µg/L	500		105	80-120	2.32		20	
Chromium	507	10	µg/L	500		101	80-120	3.43		20	
Copper	1020	50	µg/L	1000		102	80-120	2.74		20	
Iron	4170	500	µg/L	4000		104	80-120	2.86		20	
Lead	545	10	µg/L	500		109	80-120	3.25		20	
Nickel	505	50	µg/L	500		101	80-120	3.34		20	
Selenium	520	50	µg/L	500		104	80-120	2.08		20	
Silver	495	5.0	µg/L	500		99.0	80-120	2.10		20	
Thallium	542	2.0	µg/L	500		108	80-120	2.26		20	
Zinc	1070	100	µg/L	1000		107	80-120	2.83		20	
Duplicate (B195094-DUP1)	**Source: 18A0479-01**			Prepared: 01/18/18 Analyzed: 01/19/18							
Antimony	1.18	2.0	µg/L		0.507			**79.9**	*	20	R-04, J
Beryllium	ND	0.80	µg/L		ND			NC		20	
Cadmium	ND	1.0	µg/L		ND			NC		20	
Chromium	ND	2.0	µg/L		ND			NC		20	
Copper	1.50	10	µg/L		ND			NC		20	J
Iron	89.0	100	µg/L		85.1			4.59		20	J
Lead	0.306	2.0	µg/L		ND			NC		20	J
Nickel	ND	10	µg/L		ND			NC		20	
Selenium	ND	10	µg/L		ND			NC		20	
Silver	ND	1.0	µg/L		ND			NC		20	
Thallium	ND	0.40	µg/L		ND			NC		20	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B195094 - SW-846 3005A											
Duplicate (B195094-DUP1)		**Source: 18A0479-01**		Prepared: 01/18/18 Analyzed: 01/19/18							
Zinc	ND	20	µg/L		ND				NC	20	
Matrix Spike (B195094-MS1)		**Source: 18A0479-01**		Prepared: 01/18/18 Analyzed: 01/19/18							
Antimony	453	10	µg/L	500	ND	90.6		75-125			
Beryllium	567	4.0	µg/L	500	ND	113		75-125			
Cadmium	539	5.0	µg/L	500	ND	108		75-125			
Chromium	522	10	µg/L	500	ND	104		75-125			
Copper	1040	50	µg/L	1000	ND	104		75-125			
Iron	4400	500	µg/L	4000	ND	110		75-125			
Lead	553	10	µg/L	500	ND	111		75-125			
Nickel	523	50	µg/L	500	ND	105		75-125			
Selenium	536	50	µg/L	500	ND	107		75-125			
Silver	360	5.0	µg/L	500	ND	**72.0**	*	75-125			MS-07
Thallium	551	2.0	µg/L	500	ND	110		75-125			
Zinc	1100	100	µg/L	1000	ND	110		75-125			
Batch B195110 - SW-846 7470A Prep											
Blank (B195110-BLK1)				Prepared: 01/18/18 Analyzed: 01/19/18							
Mercury	ND	0.00010	mg/L								
LCS (B195110-BS1)				Prepared: 01/18/18 Analyzed: 01/19/18							
Mercury	0.00193	0.00010	mg/L	0.00200		96.7		80-120			
LCS Dup (B195110-BSD1)				Prepared: 01/18/18 Analyzed: 01/19/18							
Mercury	0.00184	0.00010	mg/L	0.00200		91.8		80-120	5.26	20	
Duplicate (B195110-DUP1)		**Source: 18A0479-03**		Prepared: 01/18/18 Analyzed: 01/19/18							
Mercury	ND	0.00010	mg/L		ND				NC	20	
Matrix Spike (B195110-MS1)		**Source: 18A0479-03**		Prepared: 01/18/18 Analyzed: 01/19/18							
Mercury	0.00192	0.00010	mg/L	0.00200	ND	96.1		75-125			
Batch B195113 - SW-846 3050B											
Blank (B195113-BLK1)				Prepared: 01/18/18 Analyzed: 01/24/18							
Antimony	ND	2.7	mg/Kg wet								
Chromium	ND	6.2	mg/Kg wet								
Copper	ND	6.2	mg/Kg wet								
Iron	ND	12	mg/Kg wet								
Lead	ND	2.5	mg/Kg wet								
Manganese	ND	6.5	mg/Kg wet								
Nickel	ND	6.2	mg/Kg wet								
Silver	ND	0.11	mg/Kg wet								
Thallium	ND	0.080	mg/Kg wet								
Cadmium	ND	0.48	mg/Kg wet								

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B195113 - SW-846 3050B											
LCS (B195113-BS1)				Prepared: 01/18/18 Analyzed: 01/24/18							
Antimony	43.1	21	mg/Kg wet	65.1		66.3		3.8-212			
Chromium	80.0	49	mg/Kg wet	82.6		96.8		81.8-118.2			
Copper	182	49	mg/Kg wet	171		106		83.6-116.4			
Iron	12200	99	mg/Kg wet	14100		86.3		60.4-139.7			
Lead	108	20	mg/Kg wet	92.3		117		82.8-117			
Manganese	217	51	mg/Kg wet	222		97.8		82-118			
Nickel	142	49	mg/Kg wet	137		104		82.5-118.2			
Silver	44.9	0.87	mg/Kg wet	40.7		110		79.6-120.4			
Thallium	157	0.63	mg/Kg wet	153		102		81-119			
Cadmium	224	3.8	mg/Kg wet	193		116		82.4-117.6			
LCS Dup (B195113-BSD1)				Prepared: 01/18/18 Analyzed: 01/24/18							
Antimony	41.4	22	mg/Kg wet	65.1		63.6		3.8-212	4.03	30	
Chromium	74.3	51	mg/Kg wet	82.6		90.0		81.8-118.2	7.33	30	
Copper	168	51	mg/Kg wet	171		98.1		83.6-116.4	7.87	30	
Iron	11300	100	mg/Kg wet	14100		80.0		60.4-139.7	7.47	30	
Lead	96.4	20	mg/Kg wet	92.3		104		82.8-117	11.4	30	
Manganese	216	53	mg/Kg wet	222		97.1		82-118	0.676	30	
Nickel	133	51	mg/Kg wet	137		97.0		82.5-118.2	6.88	30	
Silver	42.3	0.89	mg/Kg wet	40.7		104		79.6-120.4	6.06	30	
Thallium	145	0.65	mg/Kg wet	153		95.0		81-119	7.39	30	
Cadmium	212	3.9	mg/Kg wet	193		110		82.4-117.6	5.64	30	
Duplicate (B195113-DUP1)		**Source: 18A0479-10**		Prepared: 01/18/18 Analyzed: 01/24/18							
Antimony	ND	2.3	mg/Kg dry		ND				NC	35	
Chromium	4.15	5.4	mg/Kg dry		4.43				6.40	35	J
Copper	1.56	5.4	mg/Kg dry		1.71				9.02	35	J
Iron	1950	11	mg/Kg dry		2180				11.3	35	
Lead	3.03	2.2	mg/Kg dry		2.77				9.15	35	
Manganese	6.38	5.6	mg/Kg dry		7.19				12.0	35	
Nickel	1.13	5.4	mg/Kg dry		1.19				5.17	35	J
Silver	0.00773	0.096	mg/Kg dry		0.00928				18.2	35	J
Thallium	0.0304	0.069	mg/Kg dry		0.0322				5.80	35	J
Cadmium	ND	0.41	mg/Kg dry		ND				NC	35	
Matrix Spike (B195113-MS1)		**Source: 18A0479-10**		Prepared: 01/18/18 Analyzed: 01/24/18							
Antimony	12.1	9.4	mg/Kg dry	21.7	ND	**56.0**	*	75-125			MS-07
Chromium	24.1	22	mg/Kg dry	21.7	4.43	90.7		75-125			
Copper	44.2	22	mg/Kg dry	43.4	1.71	98.0		75-125			
Iron	1960	43	mg/Kg dry	173	2180	**-126**	*	75-125			MS-19
Lead	23.7	8.7	mg/Kg dry	21.7	2.77	96.7		75-125			
Manganese	26.2	23	mg/Kg dry	21.7	7.19	87.8		75-125			
Nickel	22.1	22	mg/Kg dry	21.7	1.19	96.5		75-125			
Silver	21.7	0.38	mg/Kg dry	21.7	ND	100		75-125			
Thallium	20.9	0.28	mg/Kg dry	21.7	0.0322	96.2		75-125			
Cadmium	23.4	1.6	mg/Kg dry	21.7	ND	108		75-125			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195200 - SW-846 7471										
Blank (B195200-BLK1)				Prepared & Analyzed: 01/22/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B195200-BS1)				Prepared & Analyzed: 01/22/18						
Mercury	10.6	1.9	mg/Kg wet	9.36		113	73.7-126.3			
LCS Dup (B195200-BSD1)				Prepared & Analyzed: 01/22/18						
Mercury	9.61	2.0	mg/Kg wet	9.36		103	73.7-126.3	9.55	30	
Duplicate (B195200-DUP1)		**Source: 18A0479-10RE1**		Prepared & Analyzed: 01/22/18						
Mercury	ND	0.032	mg/Kg dry		ND			NC	35	
Matrix Spike (B195200-MS1)		**Source: 18A0479-10RE1**		Prepared & Analyzed: 01/22/18						
Mercury	0.205	0.032	mg/Kg dry	0.211	ND	97.3	75-125			
Batch B195306 - SW-846 3005A										
Blank (B195306-BLK1)				Prepared: 01/22/18 Analyzed: 01/23/18						
Arsenic	ND	0.80	µg/L							
Manganese	ND	2.0	µg/L							
LCS (B195306-BS1)				Prepared: 01/22/18 Analyzed: 01/23/18						
Arsenic	544	4.0	µg/L	500		109	80-120			
Manganese	496	10	µg/L	500		99.3	80-120			
LCS Dup (B195306-BSD1)				Prepared: 01/22/18 Analyzed: 01/23/18						
Arsenic	533	4.0	µg/L	500		107	80-120	1.98	20	
Manganese	486	10	µg/L	500		97.2	80-120	2.06	20	
Duplicate (B195306-DUP1)		**Source: 18A0479-04RE1**		Prepared: 01/22/18 Analyzed: 01/23/18						
Arsenic	0.776	0.80	µg/L		0.807			3.89	20	J
Manganese	133	2.0	µg/L		133			0.324	20	
Matrix Spike (B195306-MS1)		**Source: 18A0479-04RE1**		Prepared: 01/22/18 Analyzed: 01/23/18						
Arsenic	531	4.0	µg/L	500	ND	106	75-125			
Manganese	615	10	µg/L	500	133	96.3	75-125			
Batch B195469 - SW-846 3050B										
Blank (B195469-BLK1)				Prepared: 01/24/18 Analyzed: 01/25/18						
Arsenic	0.17	0.17	mg/Kg wet							J
Beryllium	ND	0.23	mg/Kg wet							
Selenium	ND	0.70	mg/Kg wet							
Zinc	ND	8.3	mg/Kg wet							

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195469 - SW-846 3050B										
LCS (B195469-BS1)				Prepared: 01/24/18 Analyzed: 01/25/18						
Arsenic	154	2.0	mg/Kg wet	147		105	83-117			
Beryllium	53.5	2.7	mg/Kg wet	53.4		100	82.8-117.2			
Selenium	197	8.4	mg/Kg wet	187		105	79.1-121.4			
Zinc	195	100	mg/Kg wet	189		103	79.9-120.1			
LCS Dup (B195469-BSD1)				Prepared: 01/24/18 Analyzed: 01/25/18						
Arsenic	149	2.1	mg/Kg wet	147		101	83-117	3.50	30	
Beryllium	50.8	2.8	mg/Kg wet	53.4		95.2	82.8-117.2	5.12	30	
Selenium	186	8.7	mg/Kg wet	187		99.6	79.1-121.4	5.65	30	
Zinc	186	100	mg/Kg wet	189		98.4	79.9-120.1	4.58	30	
Duplicate (B195469-DUP1)		**Source: 18A0479-11RE1**		Prepared: 01/24/18 Analyzed: 01/25/18						
Arsenic	1.09	0.29	mg/Kg dry		0.982			10.1	35	
Beryllium	0.983	0.39	mg/Kg dry		0.805			19.9	35	
Selenium	0.494	1.2	mg/Kg dry		0.401			20.8	35	J
Zinc	31.7	14	mg/Kg dry		31.4			0.947	35	
Matrix Spike (B195469-MS1)		**Source: 18A0479-11RE1**		Prepared: 01/24/18 Analyzed: 01/25/18						
Arsenic	32.6	1.2	mg/Kg dry	28.8	0.982	109	75-125			
Beryllium	34.4	1.6	mg/Kg dry	28.8	0.805	117	75-125			
Selenium	34.0	4.8	mg/Kg dry	28.8	0.401	116	75-125			
Zinc	83.4	58	mg/Kg dry	57.7	31.4	90.2	75-125			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195103 - % Solids										
Duplicate (B195103-DUP6)	**Source: 18A0479-14**			Prepared: 01/18/18 Analyzed: 01/19/18						
% Solids	32.7		% Wt		35.6			8.53	20	
Batch B195161 - SM 21-22 4500 NO3 F										
Blank (B195161-BLK1)				Prepared & Analyzed: 01/22/18						
Nitrate as N	ND	0.050	mg/L							
LCS (B195161-BS1)				Prepared & Analyzed: 01/22/18						
Nitrate as N	2.5		mg/L	2.50		98.8	86.3-114			
LCS Dup (B195161-BSD1)				Prepared & Analyzed: 01/22/18						
Nitrate as N	2.4		mg/L	2.50		97.6	86.3-114	1.22	6.73	
Batch B195201 - ASTM D516-07 Modified										
Blank (B195201-BLK1)				Prepared & Analyzed: 01/19/18						
Sulfate	ND	200	mg/Kg wet							
LCS (B195201-BS1)				Prepared & Analyzed: 01/19/18						
Sulfate	1900	200	mg/Kg wet	2000		94.2	87.7-116			
LCS Dup (B195201-BSD1)				Prepared & Analyzed: 01/19/18						
Sulfate	1900	200	mg/Kg wet	2000		96.4	87.7-116	2.26	5.27	
Duplicate (B195201-DUP1)	**Source: 18A0479-10**			Prepared & Analyzed: 01/19/18						
Sulfate	230	250	mg/Kg dry		240			4.07	13.3	J
Matrix Spike (B195201-MS1)	**Source: 18A0479-10**			Prepared & Analyzed: 01/19/18						
Sulfate	2600	250	mg/Kg dry	2540	240	91.7	47.6-131			
Batch B195203 - ASTM D516-07										
Blank (B195203-BLK1)				Prepared & Analyzed: 01/19/18						
Sulfate	ND	2.0	mg/L							
LCS (B195203-BS1)				Prepared & Analyzed: 01/19/18						
Sulfate	19	2.0	mg/L	20.0		94.2	87.7-116			
LCS Dup (B195203-BSD1)				Prepared & Analyzed: 01/19/18						
Sulfate	19	2.0	mg/L	20.0		96.4	87.7-116	2.26	5.27	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195203 - ASTM D516-07										
Duplicate (B195203-DUP1)	**Source: 18A0479-01**			Prepared & Analyzed: 01/19/18						
Sulfate	11	2.0	mg/L		10			5.20	13.3	
Matrix Spike (B195203-MS1)	**Source: 18A0479-01**			Prepared & Analyzed: 01/19/18						
Sulfate	30	2.0	mg/L	20.0	10	99.2	47.6-131			
Batch B195223 - SM19-22 4500 NH3 C										
Blank (B195223-BLK1)				Prepared: 01/20/18 Analyzed: 01/23/18						
Ammonia as N	ND	0.30	mg/L							
LCS (B195223-BS1)				Prepared: 01/20/18 Analyzed: 01/23/18						
Ammonia as N	5.0	0.30	mg/L	5.00		100	85.2-110			
LCS Dup (B195223-BSD1)				Prepared: 01/20/18 Analyzed: 01/23/18						
Ammonia as N	5.0	0.30	mg/L	5.00		100	85.2-110	0.00	8.64	
Batch B195224 - SM21-22 4500 NH3 C Modified										
Blank (B195224-BLK1)				Prepared: 01/20/18 Analyzed: 01/23/18						
Ammonia as N	ND	30	mg/Kg wet							
LCS (B195224-BS1)				Prepared: 01/20/18 Analyzed: 01/23/18						
Ammonia as N	500	30	mg/Kg wet	500		100	85.2-110			
LCS Dup (B195224-BSD1)				Prepared: 01/20/18 Analyzed: 01/23/18						
Ammonia as N	500	30	mg/Kg wet	500		100	85.2-110	0.00	8.64	
Batch B195364 - SM 21-22 4500 NO3 F Modified										
Blank (B195364-BLK1)				Prepared & Analyzed: 01/23/18						
Nitrate as N	ND	2.5	mg/Kg wet							
LCS (B195364-BS1)				Prepared & Analyzed: 01/23/18						
Nitrate as N	2.4		mg/Kg	2.50		96.4	86.3-114			
LCS Dup (B195364-BSD1)				Prepared & Analyzed: 01/23/18						
Nitrate as N	2.5		mg/Kg	2.50		98.4	86.3-114	2.05	6.73	
Batch B195365 - SM 21-22 4500 NO3 F										
Blank (B195365-BLK1)				Prepared & Analyzed: 01/23/18						
Nitrate as N	ND	0.050	mg/L							

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B195365 - SM 21-22 4500 NO3 F										
LCS (B195365-BS1)				Prepared & Analyzed: 01/23/18						
Nitrate as N	2.4		mg/L	2.50		96.4	86.3-114			
LCS Dup (B195365-BSD1)				Prepared & Analyzed: 01/23/18						
Nitrate as N	2.5		mg/L	2.50		98.4	86.3-114	2.05	6.73	
Duplicate (B195365-DUP1)	**Source: 18A0479-02**			Prepared & Analyzed: 01/23/18						
Nitrate as N	ND	0.050	mg/L		ND			NC	20.3	
Matrix Spike (B195365-MS1)	**Source: 18A0479-02**			Prepared & Analyzed: 01/23/18						
Nitrate as N	3.8	0.050	mg/L	4.00	ND	94.2	69.1-117			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
MS-07	Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.
MS-08	Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
MS-09	Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
MS-23	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.
R-04	Duplicate relative percent difference (RPD) is a less useful indicator of sample precision for sample results that are <5 times the reporting limit (RL).
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
R-06	Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.
V-04	Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-19	Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
ASTM D516-07 in Water	
Sulfate	NY,NH,MA,CT,RI,VA,NC
SM 21-22 4500 NO3 F in Water	
Nitrate as N	CT,MA,NH,NY,RI,ME,NC,VA
SM19-22 4500 NH3 C in Water	
Ammonia as N	NY,MA,CT,RI,VA,NC,ME
SM21-22 4500 NH3 C Modified in Soil	
Ammonia as N	NC
SW-846 6020A-B in Soil	
Antimony	NY,NC
Arsenic	NY,VA,NH,NC
Beryllium	VA,NY,NH,NC
Chromium	NY,NC
Copper	NY,NC
Iron	NY,NC
Lead	NY,NC
Manganese	NY,NC
Nickel	NY,NC
Selenium	NY,VA,NH,NC
Silver	NY,NC
Thallium	VA,NY,NH,NC
Zinc	NY,NC
Cadmium	NY,NC
SW-846 6020A-B in Water	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,RI,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Iron	NC
Lead	CT,NH,NY,ME,VA,NC
Manganese	CT,NH,NY,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7470A in Water	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8260B in Soil	
Acetone	NC
Acrylonitrile	NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260B in Soil	
tert-Amyl Methyl Ether (TAME)	NC
Benzene	NC
Bromobenzene	NC
Bromochloromethane	NC
Bromodichloromethane	NC
Bromoform	NC
Bromomethane	NC
2-Butanone (MEK)	NC
tert-Butyl Alcohol (TBA)	NC
n-Butylbenzene	NC
sec-Butylbenzene	NC
tert-Butylbenzene	NC
tert-Butyl Ethyl Ether (TBEE)	NC
Carbon Disulfide	NC
Carbon Tetrachloride	NC
Chlorobenzene	NC
Chlorodibromomethane	NC
Chloroethane	NC
Chloroform	NC
Chloromethane	NC
2-Chlorotoluene	NC
4-Chlorotoluene	NC
1,2-Dibromo-3-chloropropane (DBCP)	NC
1,2-Dibromoethane (EDB)	NC
Dibromomethane	NC
1,2-Dichlorobenzene	NC
1,3-Dichlorobenzene	NC
1,4-Dichlorobenzene	NC
trans-1,4-Dichloro-2-butene	NC
Dichlorodifluoromethane (Freon 12)	NC
1,1-Dichloroethane	NC
1,2-Dichloroethane	NC
1,1-Dichloroethylene	NC
cis-1,2-Dichloroethylene	NC
trans-1,2-Dichloroethylene	NC
1,2-Dichloropropane	NC
1,3-Dichloropropane	NC
2,2-Dichloropropane	NC
1,1-Dichloropropene	NC
cis-1,3-Dichloropropene	NC
trans-1,3-Dichloropropene	NC
Diethyl Ether	NC
Diisopropyl Ether (DIPE)	NC
1,4-Dioxane	NC
Ethylbenzene	NC
Hexachlorobutadiene	NC
2-Hexanone (MBK)	NC

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260B in Soil	
Isopropylbenzene (Cumene)	NC
p-Isopropyltoluene (p-Cymene)	NC
Methyl tert-Butyl Ether (MTBE)	NC
Methylene Chloride	NC
4-Methyl-2-pentanone (MIBK)	NC
Naphthalene	NC
n-Propylbenzene	NC
Styrene	NC
1,1,1,2-Tetrachloroethane	NC
1,1,2,2-Tetrachloroethane	NC
Tetrachloroethylene	NC
Tetrahydrofuran	NC
Toluene	NC
1,2,3-Trichlorobenzene	NC
1,2,4-Trichlorobenzene	NC
1,3,5-Trichlorobenzene	NC
1,1,1-Trichloroethane	NC
1,1,2-Trichloroethane	NC
Trichloroethylene	NC
Trichlorofluoromethane (Freon 11)	NC
1,2,3-Trichloropropane	NC
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NC
1,2,4-Trimethylbenzene	NC
1,3,5-Trimethylbenzene	NC
Vinyl Chloride	NC
m+p Xylene	NC
o-Xylene	NC
SW-846 8260B in Water	
Acetone	NC
Acrylonitrile	NC
tert-Amyl Methyl Ether (TAME)	NC
Benzene	NC
Bromobenzene	NC
Bromochloromethane	NC
Bromodichloromethane	NC
Bromoform	NC
Bromomethane	NC
2-Butanone (MEK)	NC
tert-Butyl Alcohol (TBA)	NC
n-Butylbenzene	NC
sec-Butylbenzene	NC
tert-Butylbenzene	NC
tert-Butyl Ethyl Ether (TBEE)	NC
Carbon Disulfide	NC
Carbon Tetrachloride	NC
Chlorobenzene	NC

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260B in Water	
Chlorodibromomethane	NC
Chloroethane	NC
Chloroform	NC
Chloromethane	NC
2-Chlorotoluene	NC
4-Chlorotoluene	NC
1,2-Dibromo-3-chloropropane (DBCP)	NC
1,2-Dibromoethane (EDB)	NC
Dibromomethane	NC
1,2-Dichlorobenzene	NC
1,3-Dichlorobenzene	NC
1,4-Dichlorobenzene	NC
trans-1,4-Dichloro-2-butene	NC
Dichlorodifluoromethane (Freon 12)	NC
1,1-Dichloroethane	NC
1,2-Dichloroethane	NC
1,1-Dichloroethylene	NC
cis-1,2-Dichloroethylene	NC
trans-1,2-Dichloroethylene	NC
1,2-Dichloropropane	NC
1,3-Dichloropropane	NC
2,2-Dichloropropane	NC
1,1-Dichloropropene	NC
cis-1,3-Dichloropropene	NC
trans-1,3-Dichloropropene	NC
Diethyl Ether	NC
Diisopropyl Ether (DIPE)	NC
1,4-Dioxane	NC
Ethylbenzene	NC
Hexachlorobutadiene	NC
2-Hexanone (MBK)	NC
Isopropylbenzene (Cumene)	NC
p-Isopropyltoluene (p-Cymene)	NC
Methyl tert-Butyl Ether (MTBE)	NC
Methylene Chloride	NC
4-Methyl-2-pentanone (MIBK)	NC
Naphthalene	NC
n-Propylbenzene	NC
Styrene	NC
1,1,1,2-Tetrachloroethane	NC
1,1,2,2-Tetrachloroethane	NC
Tetrachloroethylene	NC
Tetrahydrofuran	NC
Toluene	NC
1,2,3-Trichlorobenzene	NC
1,2,4-Trichlorobenzene	NC
1,3,5-Trichlorobenzene	NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260B in Water	
1,1,1-Trichloroethane	NC
1,1,2-Trichloroethane	NC
Trichloroethylene	NC
Trichlorofluoromethane (Freon 11)	NC
1,2,3-Trichloropropane	NC
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NC
1,2,4-Trimethylbenzene	NC
1,3,5-Trimethylbenzene	NC
Vinyl Chloride	NC
m+p Xylene	NC
o-Xylene	NC
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Acetophenone	NY,NH,ME,NC,VA
Aniline	NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzidine	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA
Benzoic Acid	NY,NH,ME,NC,VA
Bis(2-chloroethoxy)methane	CT,NY,NH,ME,NC,VA
Bis(2-chloroethyl)ether	CT,NY,NH,ME,NC,VA
Bis(2-chloroisopropyl)ether	CT,NY,NH,ME,NC,VA
Bis(2-Ethylhexyl)phthalate	CT,NY,NH,ME,NC,VA
4-Bromophenylphenylether	CT,NY,NH,ME,NC,VA
Butylbenzylphthalate	CT,NY,NH,ME,NC,VA
Carbazole	NC
4-Chloroaniline	CT,NY,NH,ME,NC,VA
4-Chloro-3-methylphenol	CT,NY,NH,ME,NC,VA
2-Chloronaphthalene	CT,NY,NH,NC,VA
2-Chlorophenol	CT,NY,NH,ME,NC,VA
4-Chlorophenylphenylether	CT,NY,NH,ME,NC,VA
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA
Dibenzofuran	CT,NY,NH,ME,NC,VA
Di-n-butylphthalate	CT,NY,NH,ME,NC,VA
1,2-Dichlorobenzene	NY,NH,ME,NC,VA
1,3-Dichlorobenzene	NY,NH,ME,NC,VA
1,4-Dichlorobenzene	NY,NH,ME,NC,VA
3,3-Dichlorobenzidine	CT,NY,NH,ME,NC,VA
2,4-Dichlorophenol	CT,NY,NH,ME,NC,VA
Diethylphthalate	CT,NY,NH,ME,NC,VA

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
2,4-Dimethylphenol	CT,NY,NH,ME,NC,VA
Dimethylphthalate	CT,NY,NH,ME,NC,VA
4,6-Dinitro-2-methylphenol	CT,NY,NH,ME,NC,VA
2,4-Dinitrophenol	CT,NY,NH,ME,NC,VA
2,4-Dinitrotoluene	CT,NY,NH,ME,NC,VA
2,6-Dinitrotoluene	CT,NY,NH,ME,NC,VA
Di-n-octylphthalate	CT,NY,NH,ME,NC,VA
1,2-Diphenylhydrazine (as Azobenzene)	NY,NH,ME,NC,VA
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	NY,NH,ME,NC,VA
Hexachlorobenzene	CT,NY,NH,ME,NC,VA
Hexachlorobutadiene	CT,NY,NH,ME,NC,VA
Hexachlorocyclopentadiene	CT,NY,NH,ME,NC,VA
Hexachloroethane	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
Isophorone	CT,NY,NH,ME,NC,VA
1-Methylnaphthalene	NC
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
2-Methylphenol	CT,NY,NH,ME,NC,VA
3/4-Methylphenol	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
2-Nitroaniline	CT,NY,NH,ME,NC,VA
3-Nitroaniline	CT,NY,NH,ME,NC,VA
4-Nitroaniline	CT,NY,NH,ME,NC,VA
Nitrobenzene	CT,NY,NH,ME,NC,VA
2-Nitrophenol	CT,NY,NH,ME,NC,VA
4-Nitrophenol	CT,NY,NH,ME,NC,VA
N-Nitrosodimethylamine	CT,NY,NH,ME,NC,VA
N-Nitrosodiphenylamine	CT,NY,NH,ME,NC,VA
N-Nitrosodi-n-propylamine	CT,NY,NH,ME,NC,VA
Pentachloronitrobenzene	NY,NC
Pentachlorophenol	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Phenol	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA
Pyridine	CT,NY,NH,ME,NC,VA
1,2,4,5-Tetrachlorobenzene	NY,NC
1,2,4-Trichlorobenzene	CT,NY,NH,ME,NC,VA
2,4,5-Trichlorophenol	CT,NY,NH,ME,NC,VA
2,4,6-Trichlorophenol	CT,NY,NH,ME,NC,VA
2-Fluorophenol	NC
SW-846 8270D in Water	
Acenaphthene	CT,NY,NC,ME,NH,VA
Acenaphthylene	CT,NY,NC,ME,NH,VA
Acetophenone	NY,NC
Aniline	CT,NY,NC,ME,VA

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Water	
Anthracene	CT,NY,NC,ME,NH,VA
Benzidine	CT,NY,NC,ME,NH,VA
Benzo(a)anthracene	CT,NY,NC,ME,NH,VA
Benzo(a)pyrene	CT,NY,NC,ME,NH,VA
Benzo(b)fluoranthene	CT,NY,NC,ME,NH,VA
Benzo(g,h,i)perylene	CT,NY,NC,ME,NH,VA
Benzo(k)fluoranthene	CT,NY,NC,ME,NH,VA
Benzoic Acid	NY,NC,ME,NH,VA
Bis(2-chloroethoxy)methane	CT,NY,NC,ME,NH,VA
Bis(2-chloroethyl)ether	CT,NY,NC,ME,NH,VA
Bis(2-chloroisopropyl)ether	CT,NY,NC,ME,NH,VA
Bis(2-Ethylhexyl)phthalate	CT,NY,NC,ME,NH,VA
4-Bromophenylphenylether	CT,NY,NC,ME,NH,VA
Butylbenzylphthalate	CT,NY,NC,ME,NH,VA
Carbazole	NC
4-Chloroaniline	CT,NY,NC,ME,NH,VA
4-Chloro-3-methylphenol	CT,NY,NC,ME,NH,VA
2-Chloronaphthalene	CT,NY,NC,ME,NH,VA
2-Chlorophenol	CT,NY,NC,ME,NH,VA
4-Chlorophenylphenylether	CT,NY,NC,ME,NH,VA
Chrysene	CT,NY,NC,ME,NH,VA
Dibenz(a,h)anthracene	CT,NY,NC,ME,NH,VA
Dibenzofuran	CT,NY,NC,ME,NH,VA
Di-n-butylphthalate	CT,NY,NC,ME,NH,VA
1,2-Dichlorobenzene	CT,NY,NC,ME,NH,VA
1,3-Dichlorobenzene	CT,NY,NC,ME,NH,VA
1,4-Dichlorobenzene	CT,NY,NC,ME,NH,VA
3,3-Dichlorobenzidine	CT,NY,NC,ME,NH,VA
2,4-Dichlorophenol	CT,NY,NC,ME,NH,VA
Diethylphthalate	CT,NY,NC,ME,NH,VA
2,4-Dimethylphenol	CT,NY,NC,ME,NH,VA
Dimethylphthalate	CT,NY,NC,ME,NH,VA
4,6-Dinitro-2-methylphenol	CT,NY,NC,ME,NH,VA
2,4-Dinitrophenol	CT,NY,NC,ME,NH,VA
2,4-Dinitrotoluene	CT,NY,NC,ME,NH,VA
2,6-Dinitrotoluene	CT,NY,NC,ME,NH,VA
Di-n-octylphthalate	CT,NY,NC,ME,NH,VA
1,2-Diphenylhydrazine (as Azobenzene)	NY,NC
Fluoranthene	CT,NY,NC,ME,NH,VA
Fluorene	NY,NC,ME,NH,VA
Hexachlorobenzene	CT,NY,NC,ME,NH,VA
Hexachlorobutadiene	CT,NY,NC,ME,NH,VA
Hexachlorocyclopentadiene	CT,NY,NC,ME,NH,VA
Hexachloroethane	CT,NY,NC,ME,NH,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NC,ME,NH,VA
Isophorone	CT,NY,NC,ME,NH,VA
1-Methylnaphthalene	NC

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Water	
2-Methylnaphthalene	CT,NY,NC,ME,NH,VA
2-Methylphenol	CT,NY,NC,NH,VA
3/4-Methylphenol	CT,NY,NC,NH,VA
Naphthalene	CT,NY,NC,ME,NH,VA
2-Nitroaniline	CT,NY,NC,ME,NH,VA
3-Nitroaniline	CT,NY,NC,ME,NH,VA
4-Nitroaniline	CT,NY,NC,ME,NH,VA
Nitrobenzene	CT,NY,NC,ME,NH,VA
2-Nitrophenol	CT,NY,NC,ME,NH,VA
4-Nitrophenol	CT,NY,NC,ME,NH,VA
N-Nitrosodimethylamine	CT,NY,NC,ME,NH,VA
N-Nitrosodiphenylamine	CT,NY,NC,ME,NH,VA
N-Nitrosodi-n-propylamine	CT,NY,NC,ME,NH,VA
Pentachloronitrobenzene	NC
Pentachlorophenol	CT,NY,NC,ME,NH,VA
Phenanthrene	CT,NY,NC,ME,NH,VA
Phenol	CT,NY,NC,ME,NH,VA
Pyrene	CT,NY,NC,ME,NH,VA
Pyridine	CT,NY,NC,ME,NH,VA
1,2,4,5-Tetrachlorobenzene	NY,NC
1,2,4-Trichlorobenzene	CT,NY,NC,ME,NH,VA
2,4,5-Trichlorophenol	CT,NY,NC,ME,NH,VA
2,4,6-Trichlorophenol	CT,NY,NC,ME,NH,VA
2-Fluorophenol	NC

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

con-test ANALYTICAL LABORATORY

18A0479

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc # 379 Rev 1_03242017

CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Company Name:
Address: FAR / 310 HUBERT ST. RALEIGH
Phone: 919-828-3441 / 919-630-1945
Project Name:
Project Location: PRINCEVILLE DUMP
Project Number: 66W-0300-0001
Project Manager: JOHN PALMER
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: J. PALMER

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: (STANDARD)

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: JPALMER@FARDR.COM
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1] Matrix Code	Conc Code	8260 + TICs	8270 + TICs	1,4 Dioxane 8260/SIM	14 Metals	Mercury	Ammonia	Nitrate + Sulfate
01	SW-1	1/16/18 1205			X			X	X	X	X	X	X	X
02	SW-2	1/16/18 1225												
03	SW-3	1/16/18 1125												
04	SW-4	1/16/18 1310												
05	SW-5	1/16/18 1405												
06	SW-6	1/16/18 1445			X			X	X	X	X	X	X	X
07	Trip Blank 1	1/16/18						X						
08	Trip Blank 2	1/16/18						X						
09	Trip Blank 3	1/16/18						X						
10														

# of Containers
[2] Preservation Code
[3] Container Code

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments: STANDARD TURN / RUN TICS
48 HR HOLD!

Run SD-Dup & SW-Dup for all analyses per John P.

-KKM 1/18/18

) indicate possible sample concentration
c Code column above:
- Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
	1/16/18 1720
Received by: (signature)	Date/Time:
	1/16/18 1720
Relinquished by: (signature)	Date/Time:
	1/16/18 1830
ved by: (signature) 2.8	Date/Time: 10:52 1.17.18
quished by: (signature)	Date/Time:
ved by: (signature)	Date/Time:

North Carolina Detection Limit Requirements
☐ 2L
☐ GWPC
☐ SWSL
☐ IHSB
☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☑ IHSB Orphaned Landfill
☐ State Lead
☐ Other:

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☑ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ AIHA-LAP, LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

con-test ANALYTICAL LABORATORY

1810479

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 379 Rev 1 03242017

CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Company Name:	FTR
Address:	310 Hubert St. Raleigh
Phone:	919-838-3441 / 919-630-1945
Project Name:	
Project Location:	Princeville Dump
Project Number:	664-0300-0001
Project Manager:	John Palmer
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	J. Palmer

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: (Standard)

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: JPalmer@ftrinc.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1]Matrix Code	Conc Code	8260 + TICS	8270 + TICS	1,4 Dioxane 8260/SIM	1,4 Metals	Mercury	Ammonia	NITRATE + SULFATE					# of Containers	[2] Preservation Code	[3] Container Code
10	SD-1	1/16/18 1210			X			X	X	X	X	X	X	X							
11	SD-2	1/16/18 1230			X			X	X	X	X	X	X	X							
12	SD-3	1/16/18 1130																			
13	SD-4	1/16/18 1315																			
14	SD-5	1/16/18 1410																			
15	SD-6	1/16/18 1450			X			X	X	X	X	X	X	X							
16	Trip Blank 1	1/16/18						X													
17	Trip Blank 2	1/16/18						X													

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:
Standard Turn / Run TICS
48 Hr Hold!

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
	1/16/18 1720
Received by: (signature)	Date/Time:
	1/16/18 1720
Relinquished by: (signature)	Date/Time:
	1/16/18 1830
Received by: (signature)	Date/Time: 10:52
	1.17.18
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

North Carolina Detection Limit Requirements
☐ 2L
☐ GWPC
☐ SWSL
☐ IHSB
☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☑ IHSB Orphaned Landfill
☐ State Lead
☐ Other:

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☑ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ AIHA-LAP, LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

IMPORTANT!
A FedEx Express National Service Disruption is in effect. Learn More

FedEx® Tracking

771232302081

Ship date:		Actual delivery:
Tue 1/16/2018	**Delivered**	**Wed 1/17/2018 10:52 am**
Raleigh, NC US	*Signed for by: P.PBLAKE*	EAST LONGMEADOW, MA US

6 Piece shipment

Travel History

Date/Time	Activity	Location
1/17/2018 - Wednesday		
10:52 am	Delivered	EAST LONGMEADOW, MA
8:58 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
8:48 am	At local FedEx facility	WINDSOR LOCKS, CT
7:34 am	At destination sort facility	EAST GRANBY, CT
5:50 am	Departed FedEx location	INDIANAPOLIS, IN
12:32 am	Arrived at FedEx location	INDIANAPOLIS, IN
1/16/2018 - Tuesday		
8:55 pm	Left FedEx origin facility	DURHAM, NC
6:28 pm	Picked up	RALEIGH, NC
5:15 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	771232302081	**Service**	FedEx Priority Overnight
Master tracking number	771232302574	**Weight**	15 lbs / 6.8 kgs
Dimensions	24x13x14 in.	**Delivered To**	Shipping/Receiving
Total pieces	6	**Total shipment weight**	15 lbs / 6.8 kgs
Terms	Third Party	**Shipper reference**	80
Packaging	Your Packaging	**Special handling section**	Deliver Weekday, Additional Handling Surcharge
Standard transit	1/17/2018 by 10:30 am		

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39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client F+R

Received By PB Date 1.17.18 Time 10:52

How were the samples received? In Cooler T - 5 No Cooler ____ On Ice T No Ice ____
Direct from Sampling ____ Ambient ____ Melted Ice ____

By Gun # 557 Actual Temp - 2.8, 2.1, 2.3, 2.4, 2.3

Were samples within Temperature? 2-6°C T By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? F

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? T Who was notified? Lucy

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? T On COC? T

Do all samples have the proper pH? Acid T Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	14	1 Liter Plastic		16 oz Amb.	
HCL-	45	500 mL Amb.		500 mL Plastic	14	8oz Amb/Clear	7
Meoh-	9	250 mL Amb.		250 mL Plastic	7	4oz Amb/Clear	7
Bisulfate-	32	Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

2 Extra Samples Received, Not on COC

Water Sample "SW-Dup" } added as last 2 samples on W.O.
Soil Sample "SD-Dup"

Samples ph@1

An official website of the United States government
Here is how you know

Plant Information

DRY CLEANING BY WAYNE
107 N CHURCH STREET
TARBORO, NC 27886
EPA Plant ID: 110018735582

Operating Status:	X	**HPV Flag:**	
Operating Status Description:	PERMANENTLY CLOSED	**State Registration Number:**	
State County Compliance Source:	3706500180	**Government Facility Code Description:**	PRIVATELY OWNED/OPERATED
Region Code:	04	**Class Code:**	B
Primary SIC Code:	7216	**Class Code Description:**	POTENTIAL UNCONTROLLED EM
Primary SIC Description:	DRY CLEANING PLANTS, EXCE	**Compliance Status:**	9
NAICS Code:	812320	**Compliance Status Description:**	IN COMPLIANCE - SHUT DOWN
NAICS Code Description:	Drycleaning and Laundry Services (except Coin-Operated)	**Date Plant Information Last Updated:**	09/16/2014

Air Program Information

Air Program Code	Air Program Description	Air Program Status	Air Program Status Description	Air Program Subpart	Air Program Subpart Description	Class Code	Class Code De
M	MACT (SECTION 63 NESHAPS)	X	PERMANENTLY CLOSED	M	DRY CLEANERS PERCHLOROETHYLENE	B	POTENTIAL UNCONTRO EM

Pollutant Data

Air Program Code	Pollutant Code / CAS Number	Pollutant / CAS Description	Attain Indicator	Attain Indicator Description	Pollutant Compliance Status	ES Pollutant Compliance Description	Pollutant Class Code
M	127184	TETRACHLOROETHYLENE (PERCHLOROETHYLENE)	A	ATTAINMENT AREA FOR A GIV	9	IN COMPLIANCE - SHUT DOWN	B

Compliance Monitoring Strategy

CMS Start Date	FY2008 CMS Indicator	FY2008 CMS Indicator Description	FY2009 CMS Indicator	FY2009 CMS Indicator Description

Plant Actions

Action Number	Key Action Numbers	Air Program Codes	National Action Type	National Action Description	Action Type	Action Description	Date Achieved	Penalty Amount	Resul Code
90000		M			00	RO ACTION START	04-DEC-06		
00003		M	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	03-OCT-02		MC
00002		M	7C	STATE/LOCAL NOV ISSUED	56	STATE NOTICE OF VIOLATION	09-OCT-01		MV
00001		M	PS	STATE/LOCAL PCE/ON-SITE	27	STATE COMPLIANCE INSPECTION - LEVEL 2 OR GREATER	09-OCT-01		MV

Data Refresh Information <https://epa.gov/resources/echo-data/about-the-data#sources>

INFRASTRUCTURE NEPA REVIEW QUESTIONNAIRE & SITE VISIT	
Project Name: Princeville Levee Floodgate Repairs/Drainage **Address(es)**: Tar River; Princeville, NC 27886 **HUD Program**: Hurricane Matthew Storm Recovery **HUD Funding Amount**: $810,510.00 **Non-HUD Program**: Not Applicable **Non-HUD Funding Amount**: $0.00 **Non-HUD Funding Source**: Not Applicable **Non-HUD Funding Amount**: $0.00 **Non-HUD Funding Source**: Not Applicable **Non-HUD Funding Amount**: $0.00 **Project Description**: Replacement of concrete headwalls and floodgate infrastructure; installation of rip-rap armoring, and mitigation measures to prevent future erosion and flooding. **State/Local Identifier:** 81 FR 83254, 11-21-16; 82 FR 5591, 1-18-17	
Type of Facility	☒Public owned ☐Industrial ☐Commercial ☐Residential
Land Use Type and # Units (check all that apply)	☐Single Family Residential ☐Multi-family Residential ☐Commercial ☐Industrial ☒Public services ☐Vacant, list previous use:
Names of Non-residential Tenants on the Property and # Units (Companies, Organizations, Public Services, Vacant and if for lease, etc.)	Town of Princeville, Edgecombe County, North Carolina
Project Type (check all that apply)	☐Acquisition of Property ☐Demolition ☐New Construction ☒Rehabilitation of Existing ☐Expansion of Existing ☒Replacement of Existing ☐Relocation ☐Leasing ☐Machinery and Equipment (tools) ☐Other, explain:
Other Non-HUD Funding will be Used for this Project	☐Yes, list source(s) and amount: ☒No
Reason/Need for Project	Prevention of future flooding and erosion events

Project Location and Project Plans	Attach site plans, if available. Plans are: ☐Pending ☐Preliminary ☐30% or other %: ___ ☒Final ☐If no plans are available, draw on tax maps (to be provided.) Please verify correct parcels and street addresses identified on tax maps.
Square Footage of Project	323,400 sq. ft.
Soil Disturbance from Project	☒Yes, cause and depth: Rehabilitation and replacement ☐No ☐Unknown
Fill Needed for Project	☐Yes, source: ☒No ☐Unknown
Site Inspections and/or Site Photographs	☒Yes, please attach. ☐Pending ☐No
Past Use of Site	☐ Used as a dump, sanitary landfill or mine waste disposal area? Other: Flood Control Measures
Environmental Inspections (Check all that apply. Identify if completed or pending and attach, if available. Include if previously done for site)	☐None ☐Phase I ESA ☐Phase 2 ESA/Limited Site or Remedial Investigation (soils test) ☐Phase 3 ESA ☐Vapor Testing ☐Phase I Archeological Survey ☐Asbestos Inspection ☐Lead Inspection ☐Noise Assessment ☐Traffic Study ☐H&H Study ☒Other: Slope Analysis, Subsurface Geotechnical Investigation
Historic Properties (Not Applicable)	☐Year Structure Built ☐Year Developed ☐Identified Historical Building or Property (onsite or adjacent?): NO
Aboveground (AST) or Underground (UST) Storage Tanks Onsite, adjacent or proposed?	☐Yes, type and gallons, if known ☒No ☐Unknown ☐Offsite, if known
Other Hazardous Materials used onsite (Large Quantity Chemicals, Fuels, etc.)	List, if known: None Observed

Permits Required for Project (Identify Type, Status and attach if available)	☒Yes, list type and status: USACE 401/404/408 ☐No ☐Unknown/TBD
If New Construction, connecting to existing utilities (sewer and water), **energy efficient**	☐Yes ☒No, explain: Rehab and reconstruction of floodgate infrastructure
Parks Located Nearby	☐Yes, type: ☒No ☐Unknown
Wetland, Lake, River or Ocean on or adjacent to site	☒Yes Type and Location: Freshwater Shrub
Transportation at the Site (note if adding/upgrading/ using existing) (NOT Applicable)	☐Sidewalks ☐Bike Paths ☐Bus Access ☐Train Access
Agency Consults already completed? Previous NEPA review completed?	☐Yes ☒No ☐Unknown
Other adjacent properties owned by same Subrecipient?	☐Yes, and Addresses: ☒No
Other projects on site or adjacent property by Subrecipient not included in Project Description/ Environmental Review?	☐Yes ☒No ☐Unknown
Private or Non-HUD funds committed before NEPA done? *(Choice Limiting Action)*	☐Yes ☒No ☐Unknown

Site Suitability, Access, and Compatibility with Surrounding Development

for recording impacts considered under Item 26 of HUD-Form 4128

Project Name	Investigator(s)	Site Visit Date
Princeville Levee Floodgate Repairs/Drainage	B. Blankenship	12/19/2021

ZONING

Is the project in compliance or conformance with local zoning?

[X] Yes [ ] No (explain) _____

[ ] Not applicable (explain) _____

SITE OBSERVATIONS

Soil Stability, Erosion, and Drainage

Describe slope at project site (Steep, Moderate, Slight, Level):
Moderate Slope

***Check** those features that were observed on or adjacent to the property at the time of the visit.

Natural Hazards			
	Faults, fractures	X	Slope-failures from rains
	Cliffs, bluffs, crevices		Hazardous terrain features
X	Evidence of slope erosion		High water table
X	Unstable slope conditions		Other (Specify):

Check all items that apply:

Wetlands Onsite or Adjacent			
	Drainage ways		Marsh, bogs, swamps
X	Streams, Rivers		Ponds
	Coastline		Lake

Explain Wetlands onsite or adjacent below:

Toxic Chemicals and Contamination Onsite or Adjacent			
	Distressed Vegetation		Abandoned Machinery, Cars, etc.
	Oil/Chemical Spill(s)		Transformers
	Soil Staining, Pools of Liquid		Fill Vent Pipes, Pipelines
	Fire hazard materials		Railroad Terminal or Crossing
	Hazards in vacant lots		Other hazardous chemical storage
	AST and/or UST *(Below)*		Loose /Empty Barrels
	Quarries or other excavations		Dumps/sanitary landfills or mining
	Unsightly land uses		Inadequate screened drainage catchments
	Gas, smoke, fumes		Odors
	High pressure gas or liquid petroleum transmission lines on site		Other (Specify)

Explain Toxic Chemical and Contamination onsite or adjacent below:
None Observed

Above Ground Storage Tanks

Are any above ground storage tanks visible from the site?

☐ Yes ☒ No

If yes, are these tanks 100-gallons or larger?

☐ Yes ☒ No

List Visible Tanks				
Tank Location	Tank Contents	Tank Size	Flammable? (Yes or No)	Pressurized? (Yes or No)

Proposed mitigation strategies (concrete pad, barrier, etc.) if siting of any tanks?

Underground Storage Tanks

List visible tanks				
Tank Location	Tank Contents	Tank Size	Flammable? (Yes or No)	Pressurized? (Yes or No)

Bill Blankenship 12/19/2021

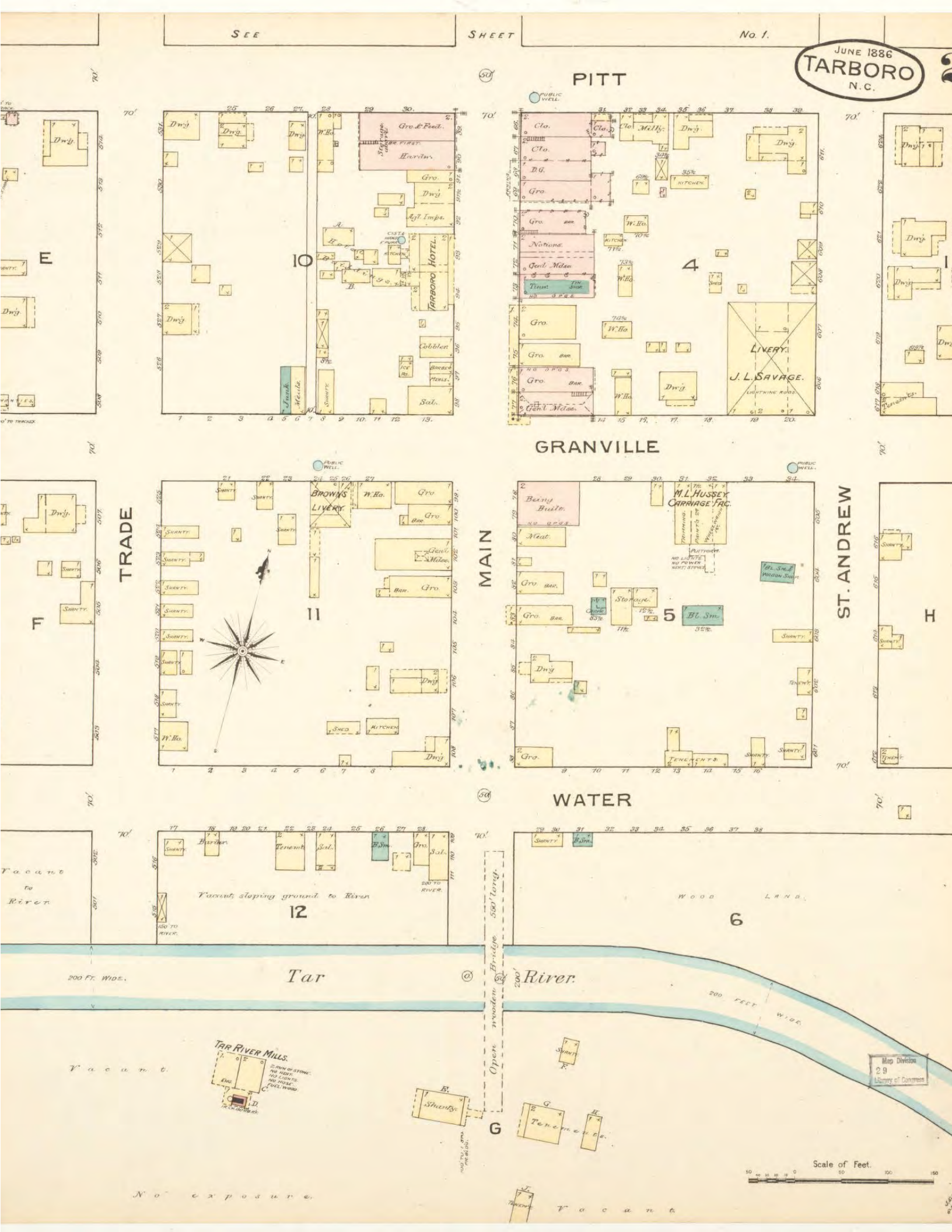
Lead Investigator's Signature Date











SEE SHEET No. 1.
JUNE 1886
TARBORO
N.C.
PITT
GRANVILLE
TRADE
MAIN
ST. ANDREW
WATER
TARBORO HOTEL
LIVERY.
J. L. SAVAGE.
BROWNS LIVERY.
M. L. HUSSEY CARRIAGE FAC.
Vacant sloping ground to River
Vacant to River
WOOD LAND
Tar River
200 FT. WIDE.
200 FEET WIDE.
Open wooden Bridge 550' long.
TAR RIVER MILLS.
Vacant.
No exposure.
Scale of Feet.
Map Division
29
Library of Congress

FFC912.33
T17.3

3 SHEETS. (1892)



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	H	
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" Hotel		2
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Hyatt, J. B., Carriage Shop		2
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	R	
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	S	
Shackleford, J. F., Knit'g Mill & Coal Sheds		1
	T	
Tar River Mills		1
Tarboro Oil Mills		1
Town Hall		3

TARBORO OIL MILLS.
TAR RIVER MILLS.
EDGECOMBE AGRICULTURAL WKS.
G. HOWARD.
RIVERVIEW KNITTING MILL.
J.F. SHACKLEFORD.
J.F. SHACKLEFORD'S Coal Sheds.
TARBORO OIL MILLS. Fertilizer
TARBORO Fertilizer Fac.
Sheds.
Driveway to Boat Landing
Scale of Feet
MAIN ST.
ST. ANDREW ST.
ST. JOHN
ST. JAMES
ST. ANDREWS
ST. PATRICKS
ST. DAVID
PARK
WILSON
CHURCH
MAIN
PITT
GRANVILLE
WATER
TRADE
HENDRICK
RIVER
Tar River.
Tar
River.
BAPTIST CHURCH. (COLORED)
COTTON PLATFORM.
WATER
ISLAND.
UNCOVERED WOODEN BRIDGE OVER TAR RIVER 550' LONG.
Scattered Dwgs. Beyond
Scattered Dwgs.
Dry Kiln
Sawing & Planing
Lumber Shed
Shanty
Depot.
Freight Shed.
Platform on Piles.
Seed Ho.
Storage Shed.
Driveway
Shanties
Brown Shed
Hill Shed.
Off.
Shed.
W. Ho.
Platform.
Vac.
Cotton Shed.
Moulding Shop.
Mach. Shop.
Pattern Shop
Drwg.
Shanties
Knitting Mill
Packing & Store Rm.
Engine & Boiler
Coal Bin
Sluice
Bluff
Cemetery
Bridge
Ferry
Ferry Landing
Ferry Cabin
Ferry Road
Ferry Wharf
Ferry Store
Ferry Warehouse
Ferry Scales
Ferry Office
Ferry Boat
Ferry Boat Landing
Ferry Boat Slip
Ferry Boat Dock
Ferry Boat Pier
Ferry Boat Wharf
Ferry Boat Warehouse
Ferry Boat Office
Ferry Boat Scales
Ferry Boat Store
Ferry Boat Shed
Ferry Boat Cabin
Ferry Boat Road

FFC 912.33
T17.4

4 SHEETS
SHEET 1

SANBORN-PERRIS MAP CO., LIMITED
117 & 119 Broadway
NEW YORK

Population 3000
No Steam & No Hand Engines
2 Independent Hose Carts
Water Facilities SEE NOTE

Prevailing Winds S.W.

TARBORO.

EDGECOMBE CO., N.C.

APR. 1896.

SCALE 50 FT. TO AN INCH.

COPYRIGHT 1896 BY THE SANBORN-PERRIS MAP CO. LIMITED

33066
Vol 2-18

NOTE.
WATER WKS. SUPPLY FROM HENDRICKS CREEK.
PUMPED INTO WOODEN TANK. ELEV. 63'. CAP. 200,000 GAL.
ONE 40 H.P. HORIZ. LOCOMOTIVE BOILER FOR
NORTHINGTON H.P. (DUPLEX.) MAINS 5" & 4".
HYDRANTS AS SHOWN.

INDEX.

SPECIALS.

B
Baptist Church, Water St.,
" " Main St.,
Bryan Hotel,
C
Central Tobacco Warehouse,
E
Edgecombe Machine Shop,
" Co. Oil Co.,
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Hotel Farrar,
Hussey, M. L., Carriage Factory,
Hyatt, J. B., Carriage Shop,
J
Jeffreys Warehouse,
M
Methodist Church,
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Pioneer Tobacco Warehouse,
Presbyterian Church,
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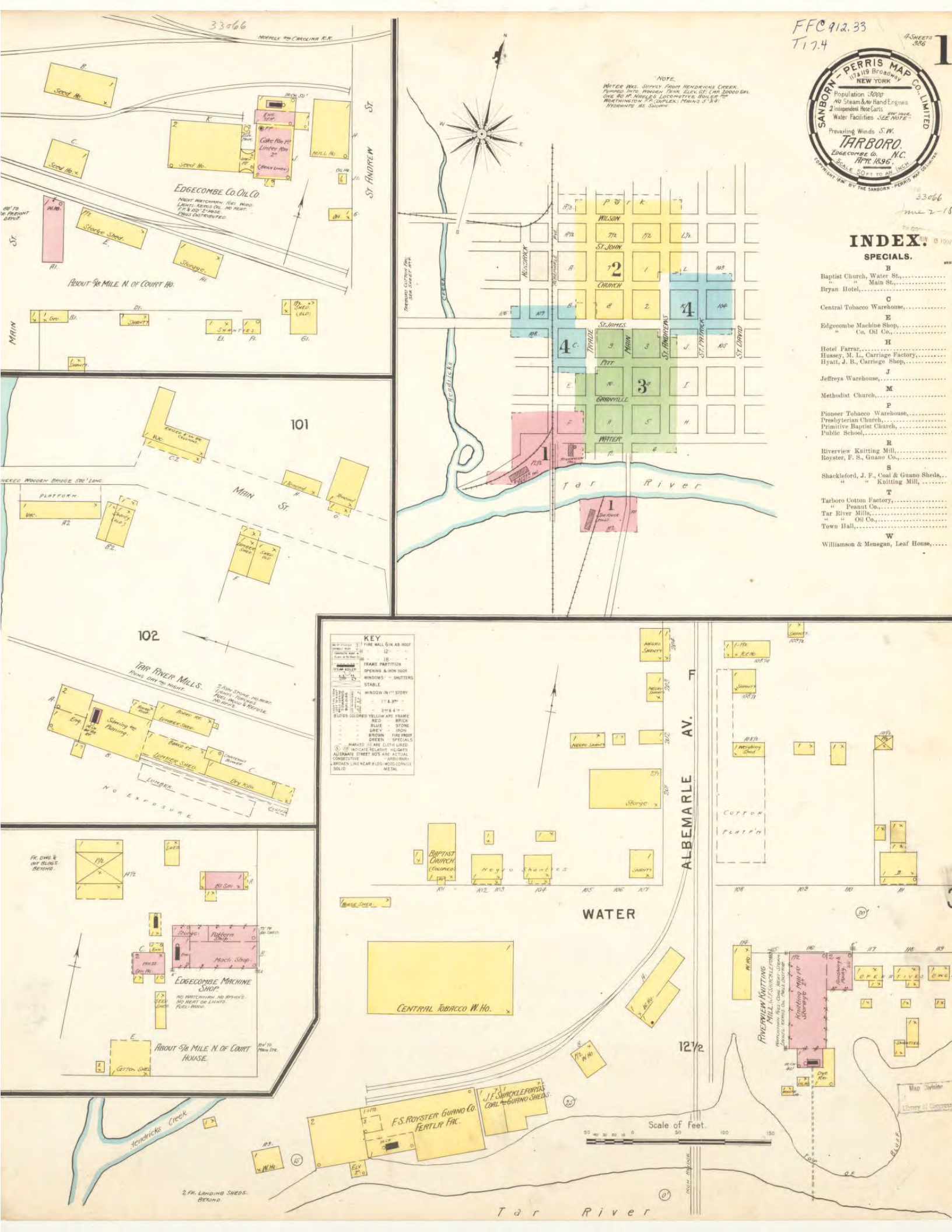
Public School,
R
Riverview Knitting Mill,
Royster, F. S., Guano Co.,
S
Shackleford, J. F., Coal & Guano Sheds,
" " Knitting Mill,
T
Tarboro Cotton Factory,
" Peanut Co.,
Tar River Mills,
" " Oil Co.,
Town Hall,
W
Williamson & Menegan, Leaf House,



FFC912.33
T17.5

SANBORN-PERRIS MAP CO., LIMITED
11 Broadway
NEW YORK
Population 4500.
No Steam & No Hand Engines
3 Independent Hose Carts
Water Facilities See Note.
Prevailing Winds S.W.
TARBORO,
EDGECOMBE CO., N.C.
OCT. 1901.
SCALE 50 FT. TO AN INCH.

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14-20
COPY B
Library of Congress
No. 10904
Map & Chart

MILL No. 2

Weaving 150 Looms 4'. Raising Gears. Carding, Roving, Spinning & Spooling, 2nd Floor.

Opener 1st Picker Rm 2nd

TARBORO COTTON FACTORY.

Night & Sunday Watchman, American Electric Stationary Clock, 9 Stations, Hourly Rounds, 1900-03. C. K. L. Hose Reel & Grinnell Automatic Sprinklers in both Mills & Cotton W. Ho. No. 2. Dry System in W. Ho. wet in Mills. Goodrich, Sprinkler Head in Office. 1 Worthington Duplex 7 P. 500 Gals per min. 1 Shaw Duplex 5 P. 250 Gals per min. 1 Reservoir 80000 Gals. Supplied by City Water 1 Eastern 50000 Gals supplied by own water from roofs. Gravity & direct pressure on Sprinklers. Gravity & City pressure on Revd. Tank used for Sprinklers only. Water System connected to City Water Mains by 8" main. Check Valve in main so Mill Pumps cannot pump into City mains. Iron fire mains inside all through. Power & Heat-Steam. Fuel-Wood. Lights-Elect. Note: From Hose connection on Hydrants is supplied with a base valve.

Reservoir 50000 Gals.

Shipping. Warping. MILL No. 1. Spooling. Side Lights. Spinning. Roving. Carding.

Picker

Office

Tarboro Water Works: Owned & operated by the Town. System: Gravity. Direct Pressure can be used but gravity pressure is found to direct. Elevated W. Tank on steel, Tower 100'. Elevation of Tank from level of Town 100'. Capy 80000 Gals. Pump No. 1 capy 2.5 by Pope & St. John 2nd Cyl. 10" Stroke. Water pumped from 18 driven wells 2" to 8" & from 25' to 100' deep. 2 Deming Triplex Plunger Pumps. Capy. 250 Gals per min. each. Ponds driven by 4" Otto Gas Engines. 18 H. each. Power Gasoline. Kept in 2 Buried Tanks, 50 Gal. Capy each. 4 Miles of Mains-8" & 6" & 4". 83 Hyds. Daily consumption 30000 Gals. Pumped Lives within 100 feet of Pump No. 1. 403 Telephone. Fire Dept: Volunteer. 3 Hose Cos. 10 men each. Whits. One H. & L. Co. 25 Men. Capacity 1500 Ft. C. K. L. Hose. All apparatus drawn by Hand. Fire Alarm given by Bell on John Hall, which locates the fire district.

K. Oil Ho. Service No. 2

J. Cotton W. Ho. No. 1.

Cotton W. Ho. No. 2.

ST. JAMES

Cotton W. Ho. No. 3.

Waste Ho.

Horse Power House (Mules)

Hendricks Creek.

Worthington Duplex Pump 12"x12"x10" Stroke 2 Vertical Cyls. 10" x 10" Each.

Gasoline Tanks Under Ground 50 Gal. Each.

CITY WATER WORKS.

2 Deming Triplex Plunger Power Pumps, Capy 500 Gals. per min. Each. 2 Otto Gas Engines, 125 H. each. Power Building.

CITY ELECT. LIGHT STA.

No Hose. Power Steam. Fuel-Wood & Coal. Lights-Elect.

Storage W. Ho.

Tool House

Scale of Feet.

50 40 30 20 10 0 50 100 150

HENDRICKS

2

70'

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SPECIALS

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Baptist Church		3	
" "	Colored	4	
Bryan Hotel		4	

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Central Tobacco Warehouse		6	
City Electric Light Station		1	
" Water Works		1	
Court House		5	

E

Edgecomb Machine Shop		6	
" "	Co. Oil Co	6	

H

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Howard & Co., Cotton W. Ho.		1	
" "	Gin	6	
Hussey M. L., Carriage F'ctv		5	

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O

Opera House		2	

P

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Pittman's Sanitarium		5	
Presbyterian Church		5	
Primitive Baptist Church		4	
Public School		2	

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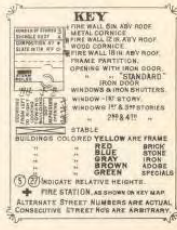
" " Oil Co.		6	
Town Hall		2	

NOTE,—House numbers given are arbitrary.

KEY



ATLANTIC COAST LINE R.R.

1½ Miles N.W. of Court Ho.

Storage & Packing 1st & Best Knitting Co.

In Course of Erection. To be 2 Sty.

RUNNYMEDE HOSIERY MILLS.

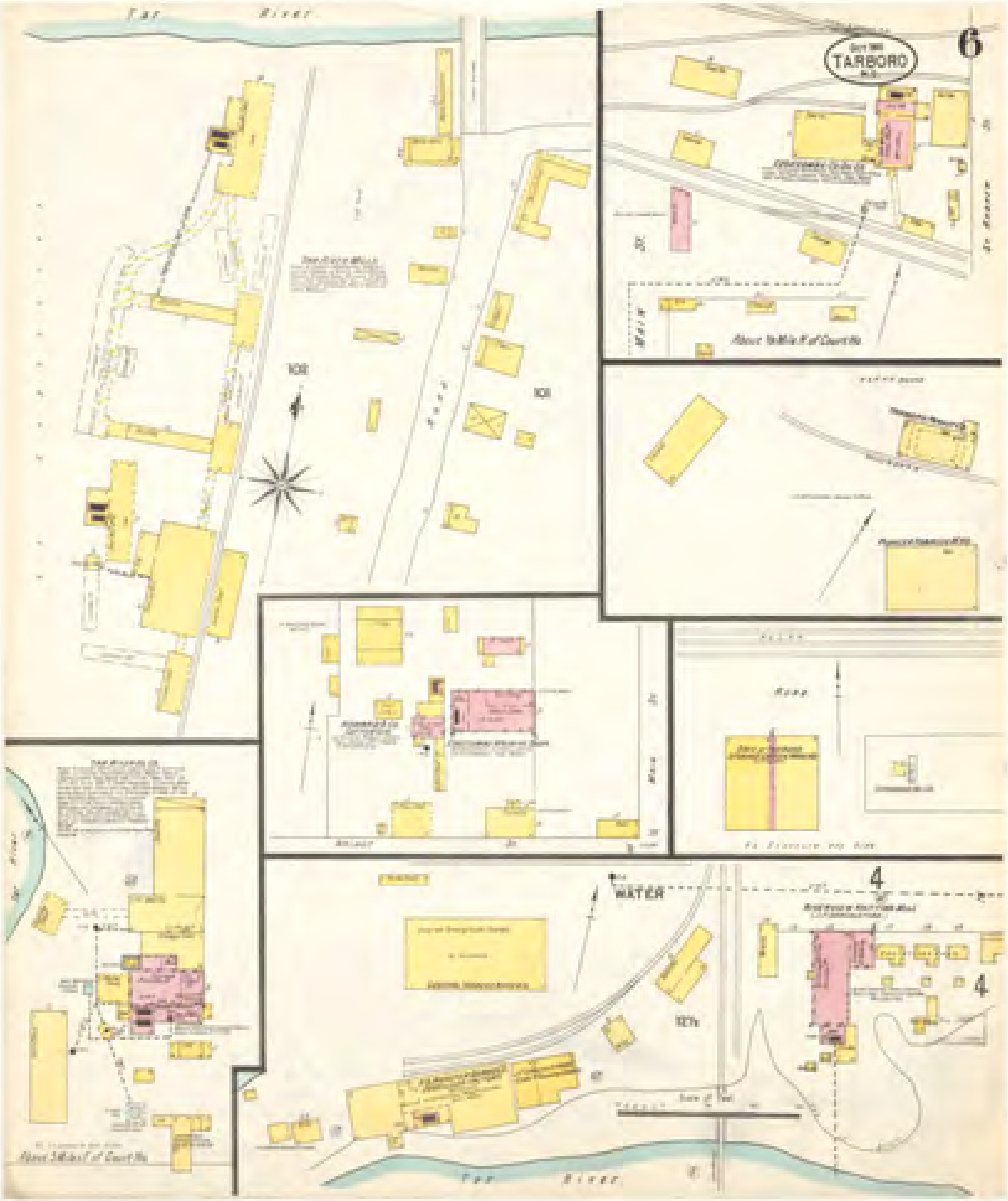
No Watchman. No Hose. Iron Fire Mains. Auto Power & Heat-Steam. Fuel-Wood. Lights-Elect.

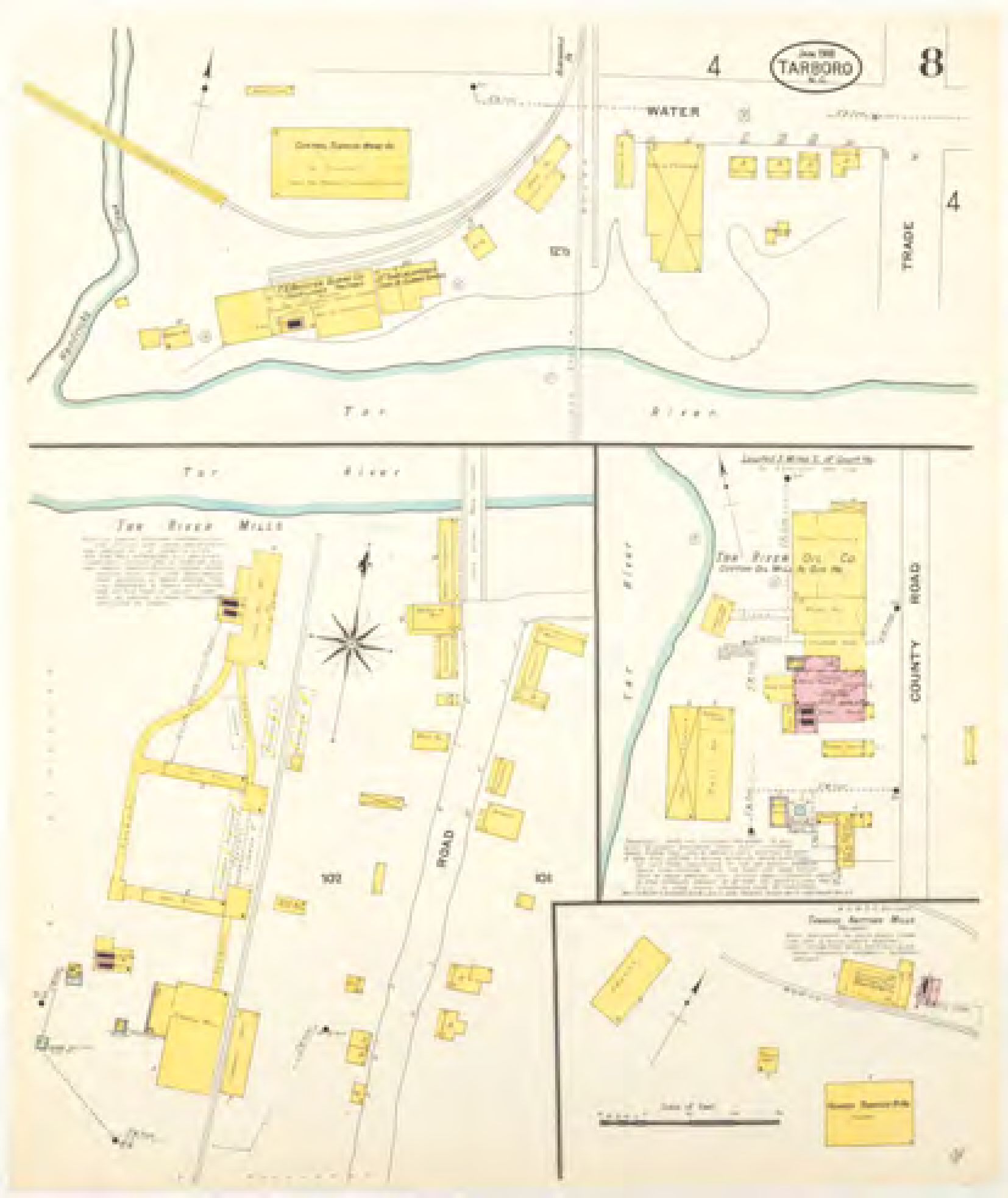
A. C. L. R. R.

ALBEMARLE AVE.

HOWARD & CO. Cotton W. Ho.

60' WALNUT ST.


Tar River
6
TARBORO
WATER
4
Tar River


4
TARBORO
N. C.
8
WATER
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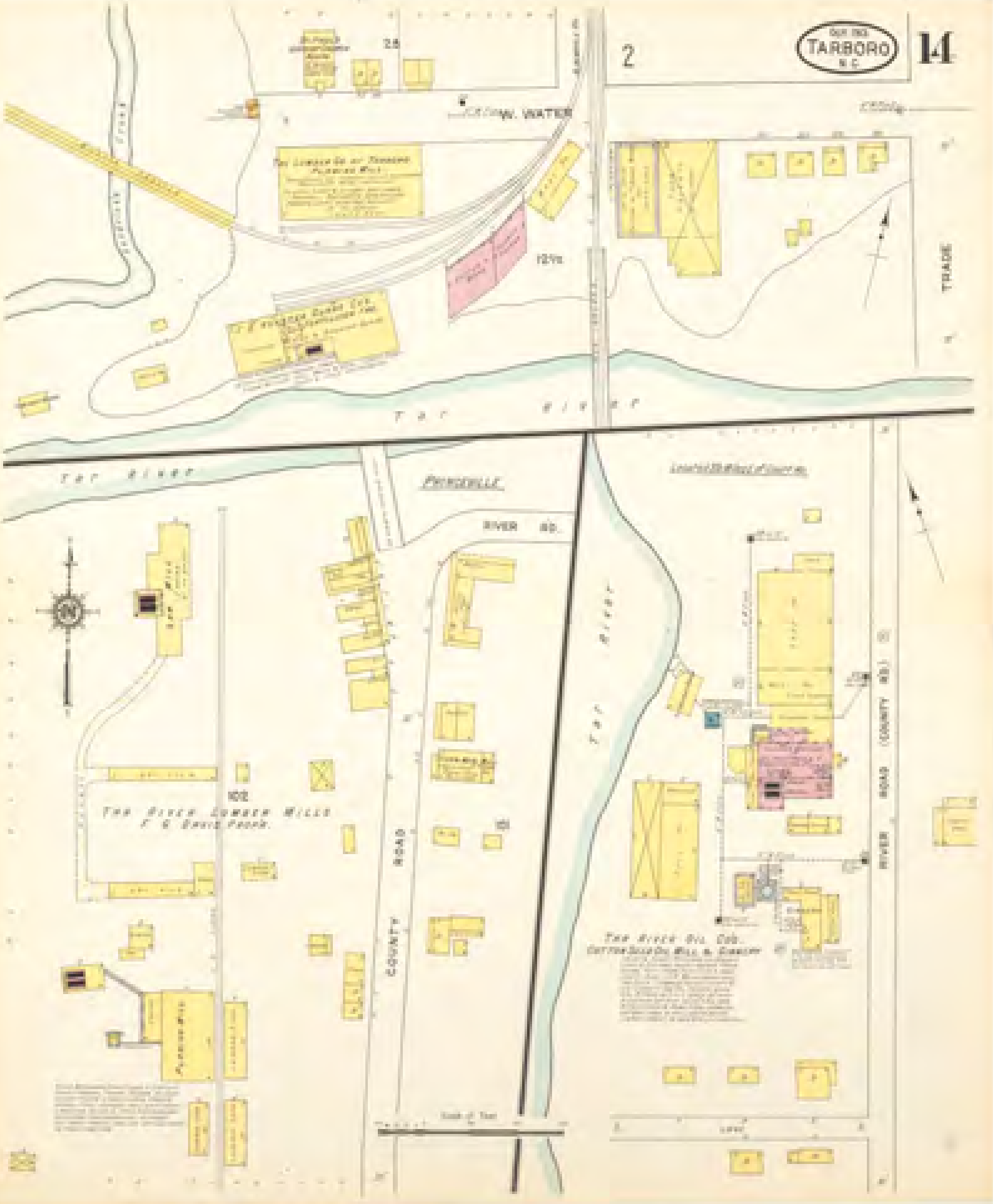
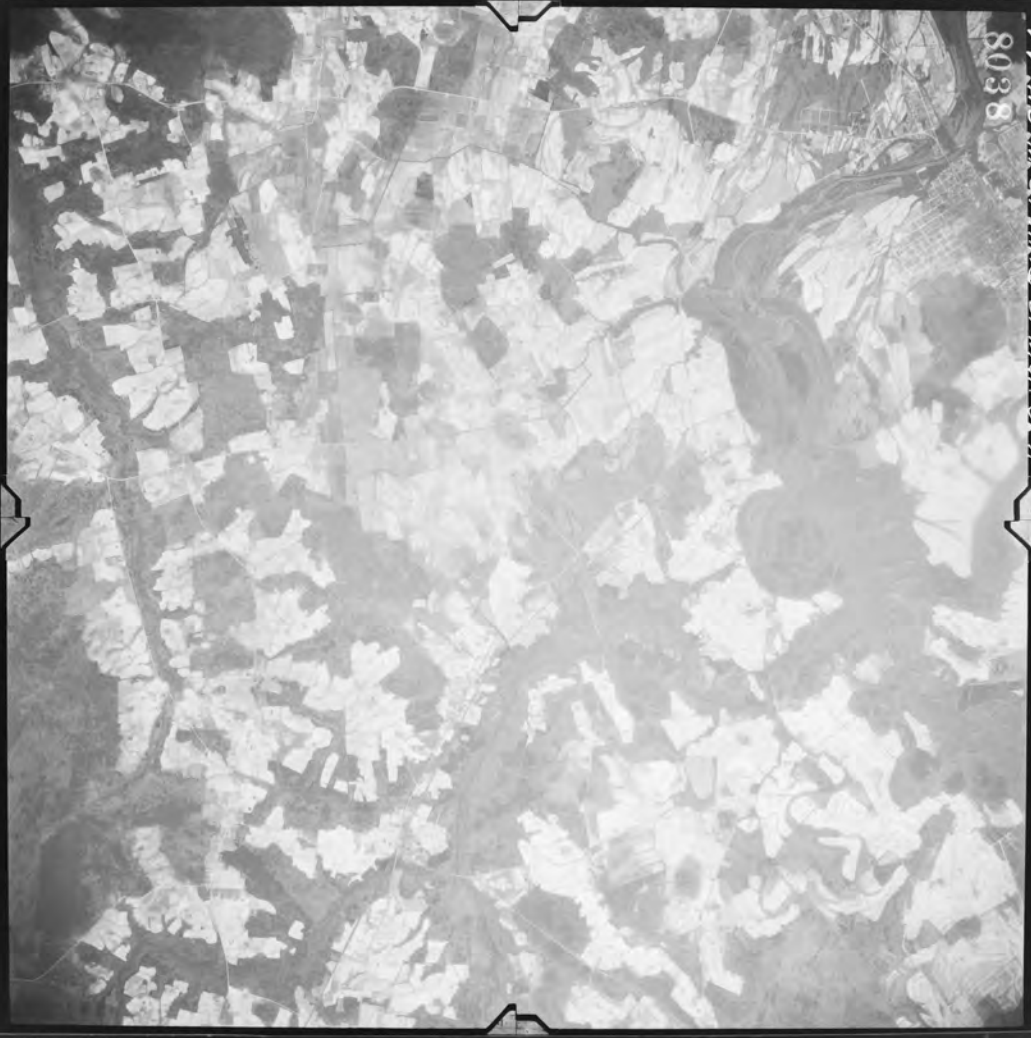
TRADE
Tar River
Tar River
TAR RIVER MILLS
ROAD
Tar River
TAR RIVER OIL CO
COUNTY ROAD



TARBORO
N.C.
14
2
W. WATER
TRADE
Tar River
PRINCEVILLE
RIVER RD.
COUNTY ROAD
RIVER ROAD (COUNTY RD.)
102
101



USGS
science for a changing world

USGS
science for a changing world

ATTACHMENT 8:

Endangered Species

USFWS Correspondence and USFWS Raleigh FO 10-step Package, NC WRC Correspondence and Submission Package, and NOAA NMFS Correspondence and Submission Package

USFWS Correspondence and USFWS Raleigh FO 10-step Package

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, September 8, 2022 1:18 PM
To: john_ellis@fws.gov
Cc: leigh_mann@fws.gov
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC & Self-Cert Update
Attachments: NCORR Early Notice Princeville Levee 090822 POST.pdf; USFWS NCORR Princeville Floodgates Self Cert pkg 8.15.22 rev 9.8.22.pdf; Self-Certification - Princeville Levee Floodgate Repairs

Hello:

Please find attached the **Public Notice** for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* posting September 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC.

I updated the attached **Self-Certification Letter and supporting No Effect documentation** for your records to include Critical Habitat on the Species Conclusion List and the NC WRC email response. According to the USFWS Critical Habitat Mapper, there is critical habitat present for the Neuse River Waterdog, Atlantic Pigtoe and Carolina Madtom in the nearby Tar River. However, the majority of the proposed project activities (disturbance) will take place on the man-made levees through which the floodgate pipes drain. These levees are regularly maintained by mowing to prevent shrub and tree roots from destabilizing the structures. The USACE representative said that since there are no impacts planned for the Tar River, we did not need to address aquatic species. NCORR consulted with NCWRC to ensure all required mitigation measures are identified since the Tar-Pamlico River is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603 and NOAA NMFS critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). Ms. Maria Dunn at NC WRC responded that "[w]hile no in-water work is proposed, the area is also subject to the NCDWR Tar-Pamlico Basin Buffer Rules. The establishment of these rules demonstrate the need to be cognizant of nutrient as well as sedimentation and erosion that enter this river basin. As far as the Princeville Levee Floodgate Repairs – Draft EA, the NCWRC has no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system. I request that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area."

The following permits will be obtained prior to commencing work: USACE Nationwide Permit 3 (Maintenance) to authorize impacts to wetlands and streams, USACE Section 408 Permit, a NC Division of Water Resources (NCDWR) Section 401 Water Quality Certification, and NCDWR Tar-Neuse River Riparian Buffer Authorization. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov

(845) 682-1700

North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

August 15, 2022

Mr. John Ellis
U.S. Fish and Wildlife Service
Raleigh ES Field Office
P.O. Box 33726
Raleigh, NC 27636-3726

Sent Via Email: Raleigh@fws.gov
Leigh_Mann@fws.gov

RE: Section 7 Project Review - No Effect Determination
NCORR - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Mr. Ellis:

The North Carolina Office of Recovery and Resiliency (NCORR) as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD) is considering funding this proposed Infrastructure Recovery Program project, Princeville Levee Floodgate Repairs located at Four levee floodgate culvert locations along the Tar River in Princeville, Edgecombe County, NC 27886. The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided in part by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

The purpose of this letter is to provide the U.S. Fish and Wildlife Service – Raleigh ES Field Office (USFWS) notice of the proposed project and to document compliance with Section 7 of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as well as the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–712) and the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668c, 54 Stat. 250), as amended.

We have reviewed the proposed project using the USFWS Raleigh Ecological Services' online 10-step project review process and made "**no effect**" determinations for proposed/listed species and/or proposed/designated critical habitat and a "**no Eagle Act permit required**" determination for eagles. Please find attached the Self-certification Letter and 10-step Project Review Package prepared in conjunction with Axiom Environmental, Inc. for the proposed project in accordance with all instructions provided, using the best available information to reach our conclusions.

The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. Project implementation would be conditioned upon issuance of applicable Federal, State and local permits and would be constructed in accordance with all permit conditions. The proposed project would not jeopardize the continued existence of ESA species or destroy or adversely modify their critical habitat.

A NC Natural Heritage Program (NHP) database query report and USFWS Information for Planning and Consultation (IPaC) Official Species List were prepared for the proposed project. According to the NC NHP database, there are three federally-listed species within the proposed project area. The endangered Tar River Spinymussel (Elliptio steinstansana), threatened Atlantic Pigtoe (Fusconaia masoni) which are freshwater bivalves and the endangered Carolina Madtom (Noturus furiosus) freshwater fish. Within one-mile of the proposed project area, the NC NHP identified an additional two species including the threatened Neuse River Waterdog (Necturus lewisi) amphibian and endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). The Official Species List identified a total of six threatened, endangered or candidate species and no critical habitat for the proposed project area. These species include the threatened Neuse River Waterdog (Necturus lewisi), endangered Carolina Madtom (Noturus furiosus), endangered Tar River Spinymussel (Parvaspina steinstansana), threatened Atlantic Pigtoe (Fusconaia masoni), threatened Yellow Lance (Elliptio lanceolate), and candidate Monarch Butterfly (Danaus plexippus). There are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. The Official Species List identified eight migratory birds including the Bald Eagle (Haliaeetus leucocephalus), Red-headed Woodpecker (Melanerpes erythrocephalus), American Kestrel Falco (sparverius Paulus), Brown-headed Nuthatch (Sitta pusilla), Chimney Swift (Chaetura pelagica), Prairie Warbler (Dendroica discolor), Prothonotary Warbler (Protonotaria citrea), and Wood Thrush (Hylocichla mustelina).

On April 21, 2021, Axiom Environmental, Inc. (Axiom) conducted field surveys for both bald eagle and red-cockaded woodpecker. The study areas contained no suitable habitat for either species, and no evidence of Bald Eagle was found within 0.5 mile of the study areas. The Monarch Butterfly's primary food source is milkweed (Asclepias sp.). Big threats to milkweeds are spraying and mowing. The majority of the proposed project activities (disturbance) will take place on the man-made levees through which the floodgate pipes drain. These levees are regularly maintained by mowing to prevent shrub and tree roots from destabilizing the structures. This regular mowing is expected to reduce or eliminate milkweeds and other herbs and promote faster-growing grasses. Due to the regular mowing, levee habitat will be considered poor to unsuitable for Monarch Butterflies. According to the project engineer, there will be an estimated total of 0.33 acres of trees removed for the proposed project (Structure 1 – 0.03; Structure 2 – 0.14; Structure 3 – 0.09; and Structure 4 – 0.07 acres). It is anticipated that due to the proposed project site mostly small trees will be removed and any migratory birds in the area will temporarily leave the area during repairs and construction.

During a field visit on June 24, 2021, the USACE project representative (Billy Standridge) notified Axiom that, based on project plans, there will be no need to conduct surveys for aquatic species. The USACE representative said that since there are no impacts planned for the Tar River, we did not need to address aquatic species. For this project, Axiom completed field work and document review in support of the generation of an application for U.S. Army Corps of Engineers (USACE or Corps or district engineer) Nationwide Permit 3 (Maintenance). For this process, the USFWS has tasked the USACE with making determinations regarding protected species issues in Condition 18(c) of the permit application. The USACE has received and reviewed our permit application, told us that our permit application is considered complete by the USACE, and he plans to issue the permit based on the information we have provided. NOAA NMFS identifies critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) in the Tar-Pamlico River. NCORR is consulting with the NC Wildlife Resources Commission (WRC) District 3 Fisheries Biologist since the Tar-Pamlico River is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603. NCORR sent consultation information to Karen Greene at NOAA but did not receive a response. The following permits will be obtained prior to commencing work: USACE Nationwide Permit 3 (Maintenance) to authorize impacts to wetlands and streams, USACE Section 408 Permit, a NC Division of Water Resources (NCDWR) Section 401 Water Quality Certification, and NCDWR Tar-Neuse River Riparian Buffer Authorization. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions.

NCORR is submitting the above information as notification of its **No Effect** determination and requests *acknowledgement* from USFWS that they have received this determination that the proposed project would have No Effect on migratory birds, endangered/threatened species, or critical habitat for species under USFWS jurisdiction.

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Attachments:

- Self-certification Letter
- 10-step Project Review Package

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
P.O. Box 33726
Raleigh, NC 27636-3726

Date: 8/11/22

Self-Certification Letter

Project Name Princeville Levee Floodgate Repairs

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Raleigh Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended (Eagle Act). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA and Eagle Act conclusions. Based on your analysis, mark all the determinations that apply:

- [x] "no effect" determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- [ ] "may affect, not likely to adversely affect" determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- [ ] "may affect, likely to adversely affect" determination for the Northern long-eared bat (Myotis septentrionalis) and relying on the findings of the January 5, 2016, Programmatic Biological Opinion for the Final 4(d) Rule on the Northern long-eared bat;
- [x] "no Eagle Act permit required" determinations for eagles.

We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the "no effect" or "not likely to adversely affect" determinations for proposed and listed species and proposed and designated critical habitat; the "may affect" determination for Northern long-eared bat; and/or the "no Eagle Act permit required" determinations for eagles. Additional coordination with this office is not needed. Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species. Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat, or bald eagles becomes available, this determination may be reconsidered. This certification letter is valid for 1 year. Information about the online project review process including instructions, species information, and other information regarding project reviews within North Carolina is available at our website http://www.fws.gov. If you have any questions, you can write to us at Raleigh@fws.gov or please contact Leigh Mann of this office at 919-856-4520, ext. 10.

Sincerely,

/s/Pete Benjamin

Pete Benjamin
Field Supervisor
Raleigh Ecological Services

Enclosures - project review package

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Phone: (919) 856-4520 Fax: (919) 856-4556

In Reply Refer To: August 11, 2022
Project Code: 2022-0031777
Project Name: Structure 1 - Princeville Levee Floodgate Repairs

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). If your project area contains suitable habitat for any of the federally-listed species on this species list, the proposed action has the potential to adversely affect those species. If suitable habitat is present, surveys should be conducted to determine the species' presence or absence within the project area. The use of this species list and/or North Carolina Natural Heritage program data should not be substituted for actual field surveys.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
(919) 856-4520

Project Summary

Project Code: 2022-0031777

Project Name: Structure 1 - Princeville Levee Floodgate Repairs

Project Type: Levee / Dike - Maintenance/Modification

Project Description: During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Following the storm event, the Town of Princeville undertook to design and construct upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events.

The proposed project will occur mainly at four levee floodgate culvert locations (Subject Property), identified above, located along the intersection of the USACE protective levee and the Tar River. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential in an area of previous ground disturbance.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.891804750000006,-77.53267595258313,14z



Counties: Edgecombe County, North Carolina

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Amphibians

NAME	STATUS
Neuse River Waterdog *Necturus lewisi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6772	Threatened

Fishes

NAME	STATUS
Carolina Madtom *Noturus furiosus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/528	Endangered

Clams

NAME	STATUS
Atlantic Pigtoe *Fusconaia masoni* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5164	Threatened
Tar River Spinymussel *Parvaspina steinstansana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1392	Endangered
Yellow Lance *Elliptio lanceolata* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4511	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jul 15
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

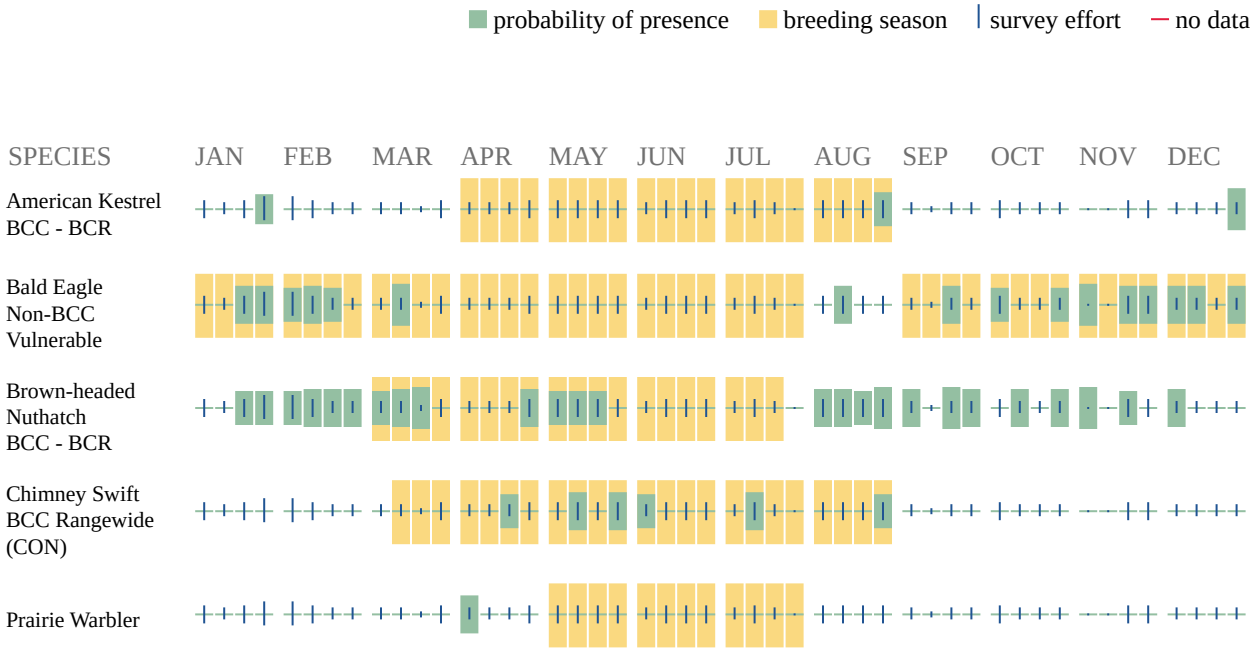
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

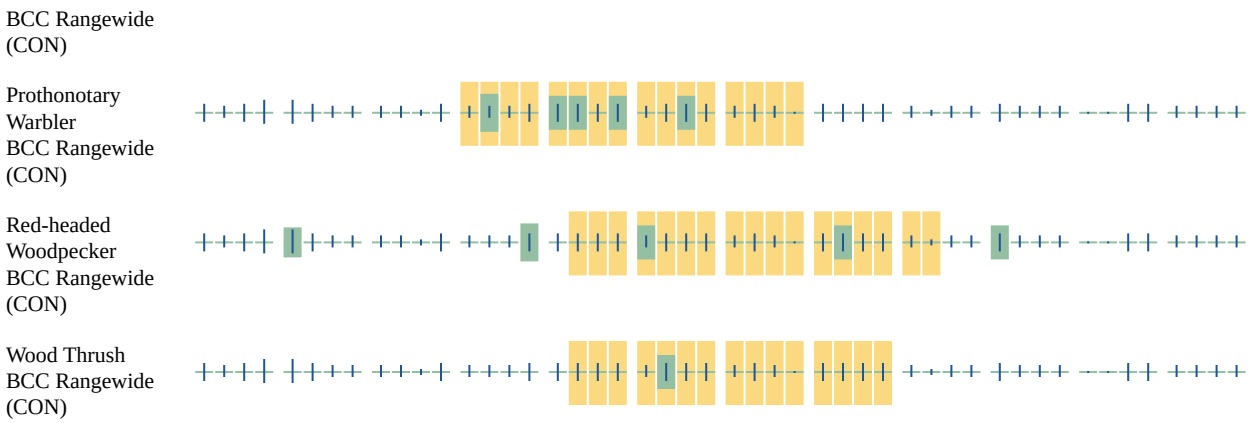
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
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How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
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Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency:	State of North Carolina
Name:	Andrea Gievers
Address:	North Carolina Office of Recovery and Resiliency (NCORR)
Address Line 2:	200 Park Offices Drive
City:	Durham
State:	NC
Zip:	27713
Email	andrea.l.gievers@rebuild.nc.gov
Phone:	8456821700

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Phone: (919) 856-4520 Fax: (919) 856-4556

In Reply Refer To: August 11, 2022
Project Code: 2022-0031746
Project Name: Structures 2 & 3 - Princeville Levee Floodgate Repairs

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). If your project area contains suitable habitat for any of the federally-listed species on this species list, the proposed action has the potential to adversely affect those species. If suitable habitat is present, surveys should be conducted to determine the species' presence or absence within the project area. The use of this species list and/or North Carolina Natural Heritage program data should not be substituted for actual field surveys.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
(919) 856-4520

Project Summary

Project Code: 2022-0031746
Project Name: Structures 2 & 3 - Princeville Levee Floodgate Repairs
Project Type: Levee / Dike - Maintenance/Modification
Project Description: During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Following the storm event, the Town of Princeville undertook to design and construct upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events.

The proposed project will occur mainly at four levee floodgate culvert locations (Subject Property), identified above, located along the intersection of the USACE protective levee and the Tar River. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential in an area of previous ground disturbance.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.894940899999995,-77.51594927945405,14z



Counties: Edgecombe County, North Carolina

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Amphibians

NAME	STATUS
Neuse River Waterdog *Necturus lewisi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6772	Threatened

Fishes

NAME	STATUS
Carolina Madtom *Noturus furiosus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/528	Endangered

Clams

NAME	STATUS
Atlantic Pigtoe *Fusconaia masoni* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5164	Threatened
Tar River Spinymussel *Parvaspina steinstansana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1392	Endangered
Yellow Lance *Elliptio lanceolata* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4511	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jul 15
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
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Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

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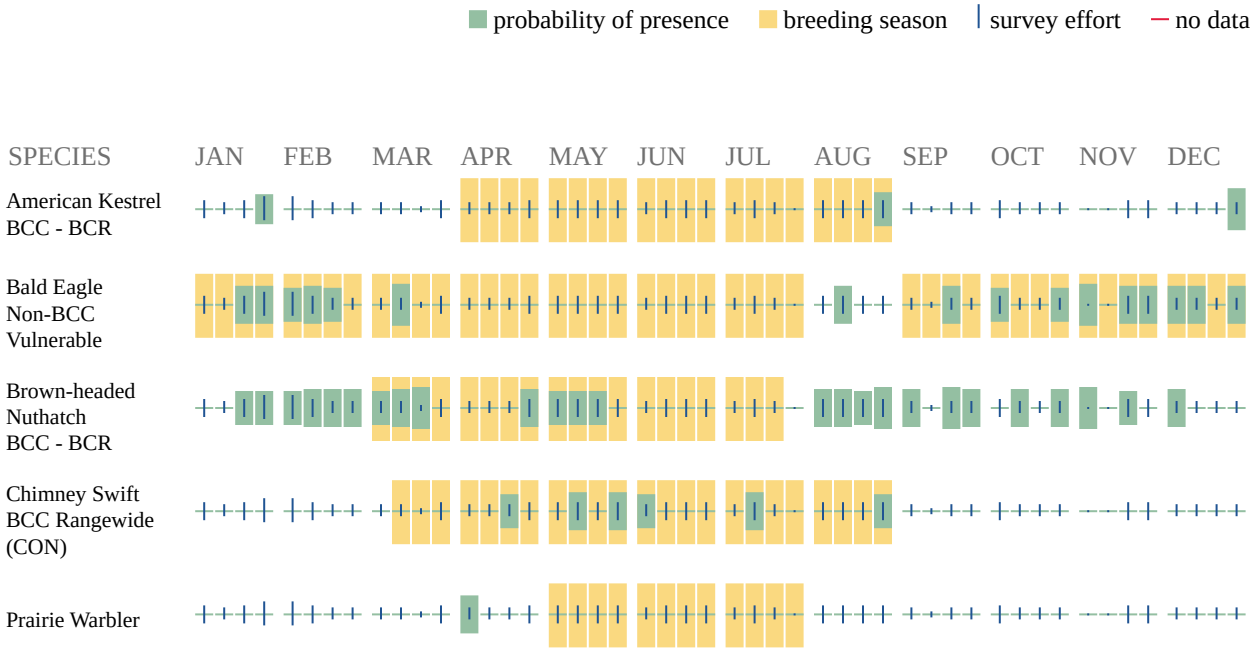

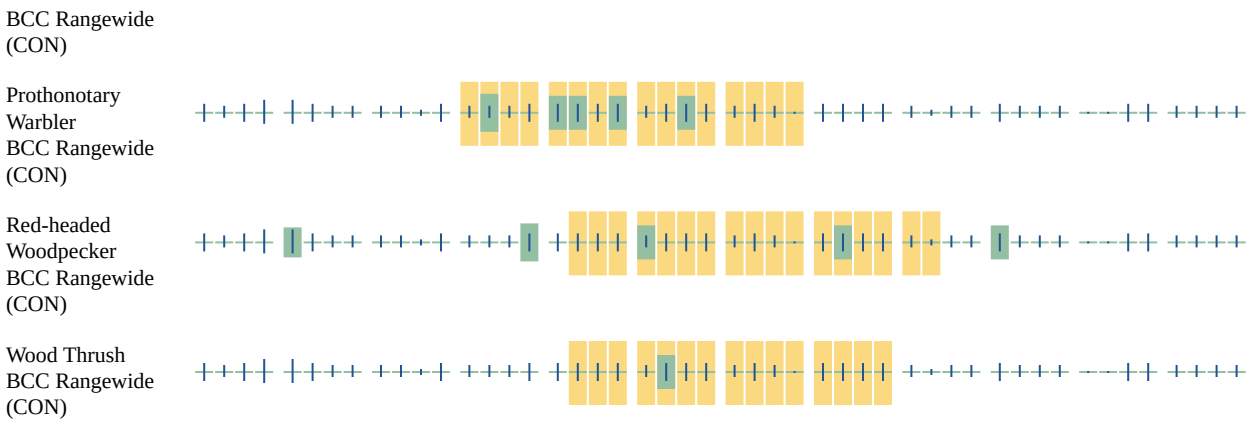

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For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency:	State of North Carolina
Name:	Andrea Gievers
Address:	North Carolina Office of Recovery and Resiliency (NCORR)
Address Line 2:	200 Park Offices Drive
City:	Durham
State:	NC
Zip:	27713
Email	andrea.l.gievers@rebuild.nc.gov
Phone:	8456821700

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Phone: (919) 856-4520 Fax: (919) 856-4556

In Reply Refer To: August 11, 2022
Project Code: 2022-0031781
Project Name: Structure 4 - Princeville Levee Floodgate Repairs

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). If your project area contains suitable habitat for any of the federally-listed species on this species list, the proposed action has the potential to adversely affect those species. If suitable habitat is present, surveys should be conducted to determine the species' presence or absence within the project area. The use of this species list and/or North Carolina Natural Heritage program data should not be substituted for actual field surveys.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
(919) 856-4520

Project Summary

Project Code: 2022-0031781

Project Name: Structure 4 - Princeville Levee Floodgate Repairs

Project Type: Levee / Dike - Maintenance/Modification

Project Description: During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Following the storm event, the Town of Princeville undertook to design and construct upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events.

The proposed project will occur mainly at four levee floodgate culvert locations (Subject Property), identified above, located along the intersection of the USACE protective levee and the Tar River. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential in an area of previous ground disturbance.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.87338495,-77.52556352228999,14z



Counties: Edgecombe County, North Carolina

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Amphibians

NAME	STATUS
Neuse River Waterdog *Necturus lewisi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6772	Threatened

Fishes

NAME	STATUS
Carolina Madtom *Noturus furiosus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/528	Endangered

Clams

NAME	STATUS
Atlantic Pigtoe *Fusconaia masoni* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5164	Threatened
Tar River Spinymussel *Parvaspina steinstansana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1392	Endangered
Yellow Lance *Elliptio lanceolata* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4511	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jul 15
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

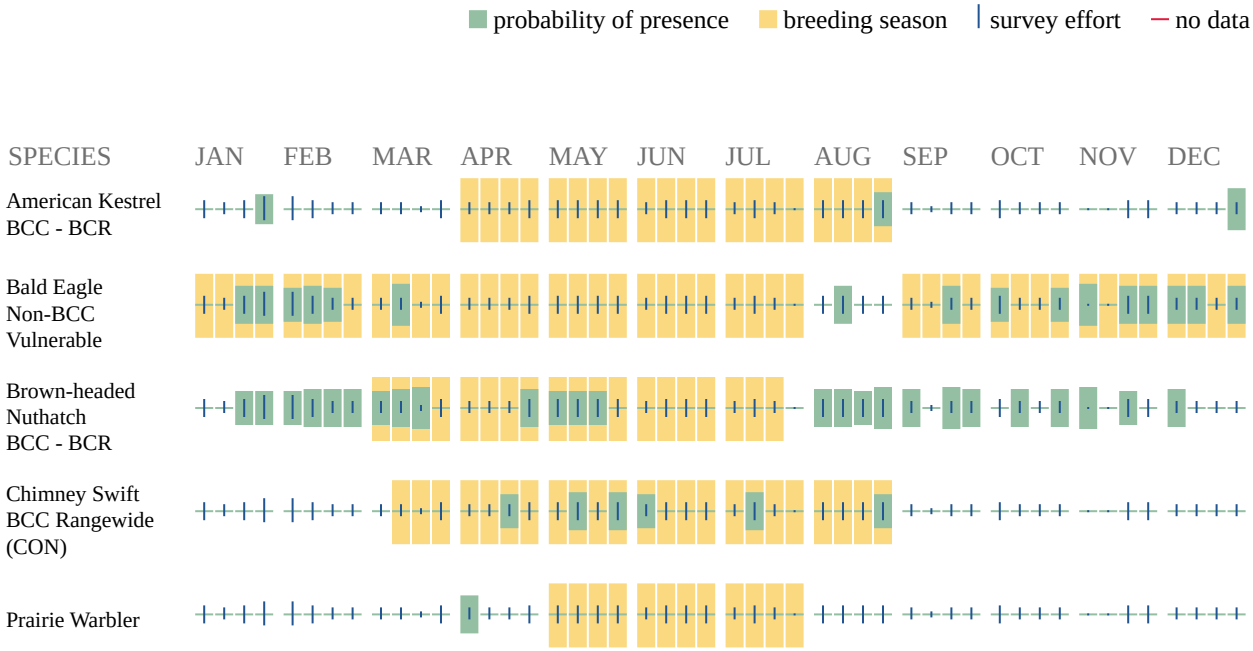
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

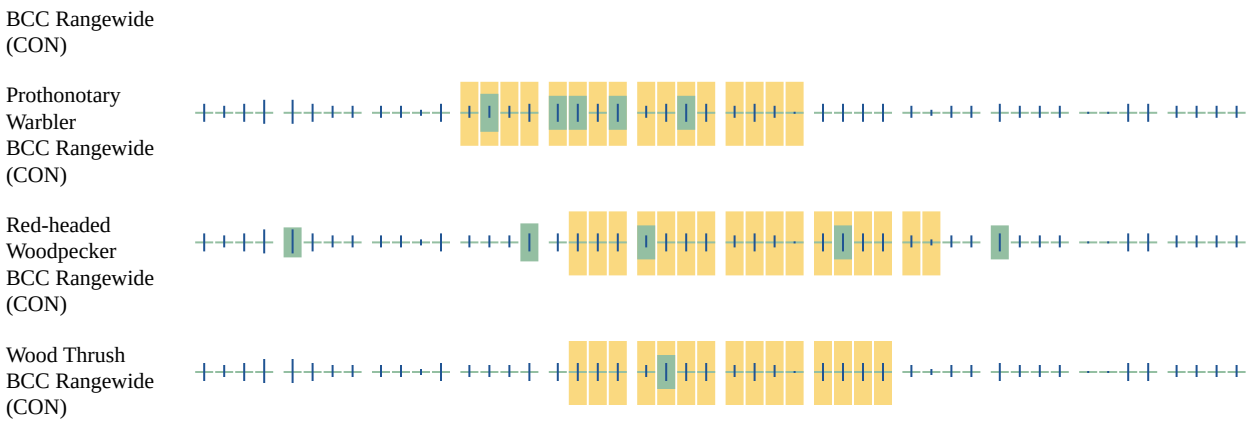
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency:	State of North Carolina
Name:	Andrea Gievers
Address:	North Carolina Office of Recovery and Resiliency (NCORR)
Address Line 2:	200 Park Offices Drive
City:	Durham
State:	NC
Zip:	27713
Email	andrea.l.gievers@rebuild.nc.gov
Phone:	8456821700

NC DEPARTMENT OF
NATURAL AND CULTURAL RESOURCES

Roy Cooper, **Governor**
D. Reid Wilson, **Secretary**
Misty Buchanan
Deputy Director, Natural Heritage Program

NCNHDE-18603

July 12, 2022

Andrea Gievers
NCORR
P.O. Box 110465
Durham, NC 27709
RE: Princeville Levee Floodgate Repairs

Dear Andrea Gievers:

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary. These results are presented in the attached 'Documented Occurrences' tables and map.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists. Tables of natural areas and conservation/managed areas within a one-mile radius of the project area, if any, are also included in this report.

If a Federally-listed species is documented within the project area or indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here: https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=37.

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Land and Water Fund easement, or an occurrence of a Federally-listed species is documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919-707-8603.

Sincerely,
NC Natural Heritage Program

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Intersecting the Project Area
Princeville Levee Floodgate Repairs
July 12, 2022
NCNHDE-18603

Element Occurrences Documented Within Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Crustacean	29726	Orconectes carolinensis	North Carolina Spiny Crayfish	2020-01-17	E	3-Medium	---	Special Concern	G3	S3
Freshwater Bivalve	1206	Alasmidonta undulata	Triangle Floater	2017-11-07	E	3-Medium	---	Threatened	G4	S3
Freshwater Bivalve	14068	Elliptio roanokensis	Roanoke Slabshell	2017-08-01	E	3-Medium	---	Special Concern	G3	S3
Freshwater Bivalve	21438	Elliptio steinstansana	Tar River Spinymussel	2001-10-04	E	3-Medium	Endangered	Endangered	G1	S1
Freshwater Bivalve	19338	Fusconaia masoni	Atlantic Pigtoe	2019-05-20	B	3-Medium	Threatened	Endangered	G1	S3
Freshwater Bivalve	8246	Lampsilis cariosa	Yellow Lampmussel	2016-11-09	E	3-Medium	---	Endangered	G3G4	S3
Freshwater Bivalve	7902	Lampsilis radiata	Eastern Lampmussel	2019-10-15	E	3-Medium	---	Threatened	G5	S3
Freshwater Bivalve	25398	Lasmigona subviridis	Green Floater	1982-09-08	X?	3-Medium	---	Endangered	G3	S2
Freshwater Fish	11292	Noturus furiosus	Carolina Madtom	2007-06-13	E	3-Medium	Endangered	Threatened	G2	S2
Mayfly	35287	Asioplax dolani	a mayfly	2007-06-28	E	3-Medium	---	Significantly Rare	G4	S2

Natural Areas Documented Within Project Area

Site Name	Representational Rating	Collective Rating
TAR/Lower Tar River Aquatic Habitat	R1 (Exceptional)	C2 (Very High)
Tarboro Floodplain	R3 (High)	C5 (General)

Managed Areas Documented Within Project Area*

Managed Area Name	Owner	Owner Type
USFWS Critical Habitat - Neuse River Waterdog	US Fish and Wildlife Service	Federal

*NOTE: If the proposed project intersects with a conservation/managed area, please contact the landowner directly for additional information. If the project intersects with a Dedicated Nature Preserve (DNP), Registered Natural Heritage Area (RHA), or Federally-listed species, NCNHP staff may provide additional correspondence regarding the project.

Definitions and an explanation of status designations and codes can be found at https://ncnhde.natureserve.org/help. Data query generated on July 12, 2022; source: NCNHP, Q1, April 2022. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
Princeville Levee Floodgate Repairs
July 12, 2022
NCNHDE-18603

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Amphibian	12606	Necturus lewisi	Neuse River Waterdog	2019-08-01	AB	3-Medium	Threatened	Special Concern	G2	S2
Crustacean	29726	Orconectes carolinensis	North Carolina Spiny Crayfish	2020-01-17	E	3-Medium	---	Special Concern	G3	S3
Freshwater Bivalve	1206	Alasmidonta undulata	Triangle Floater	2017-11-07	E	3-Medium	---	Threatened	G4	S3
Freshwater Bivalve	14068	Elliptio roanokensis	Roanoke Slabshell	2017-08-01	E	3-Medium	---	Special Concern	G3	S3
Freshwater Bivalve	21438	Elliptio steinstansana	Tar River Spinymussel	2001-10-04	E	3-Medium	Endangered	Endangered	G1	S1
Freshwater Bivalve	19338	Fusconaia masoni	Atlantic Pigtoe	2019-05-20	B	3-Medium	Threatened	Endangered	G1	S3
Freshwater Bivalve	8246	Lampsilis cariosa	Yellow Lampmussel	2016-11-09	E	3-Medium	---	Endangered	G3G4	S3
Freshwater Bivalve	7902	Lampsilis radiata	Eastern Lampmussel	2019-10-15	E	3-Medium	---	Threatened	G5	S3
Freshwater Bivalve	25398	Lasmigona subviridis	Green Floater	1982-09-08	X?	3-Medium	---	Endangered	G3	S2
Freshwater Bivalve	29527	Villosa constricta	Notched Rainbow	1998-09-21	H?	3-Medium	---	Threatened	G3	S3
Freshwater Fish	38942	Acipenser oxyrinchus oxyrinchus	Atlantic Sturgeon	2018-04-17	E	4-Low	Endangered	Endangered	G3T3	S2
Freshwater Fish	11292	Noturus furiosus	Carolina Madtom	2007-06-13	E	3-Medium	Endangered	Threatened	G2	S2
Mayfly	35287	Asioplax dolani	a mayfly	2007-06-28	E	3-Medium	---	Significantly Rare	G4	S2

Natural Areas Documented Within a One-mile Radius of the Project Area

Site Name	Representational Rating	Collective Rating
TAR/Lower Tar River Aquatic Habitat	R1 (Exceptional)	C2 (Very High)
Tarboro Floodplain	R3 (High)	C5 (General)

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
Edgecombe County Open Space	Edgecombe County	Local Government
Edgecombe County Open Space	Edgecombe County	Local Government
Edgecombe County Open Space	Edgecombe County	Local Government
Edgecombe County Open Space	Edgecombe County	Local Government
Tar River Game Land	NC Wildlife Resources Commission	State
Town of Princeville Open Space	Town of Princeville	Local Government
Town of Princeville Open Space	Town of Princeville	Local Government
Town of Princeville Open Space	Town of Princeville	Local Government
Town of Princeville Open Space	Town of Princeville	Local Government
Town of Princeville Open Space	Town of Princeville	Local Government
Town of Princeville Open Space	Town of Princeville	Local Government
Town of Tarboro Open Space	Town of Tarboro	Local Government
Town of Tarboro Open Space	Town of Tarboro	Local Government
Town of Tarboro Open Space	Town of Tarboro	Local Government
Town of Tarboro Open Space	Town of Tarboro	Local Government
Town of Tarboro Open Space	Town of Tarboro	Local Government
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
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NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Edgecombe County	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
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NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
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NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
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NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
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NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
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NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State

Managed Areas Documented Within a One-mile Radius of the Project Area

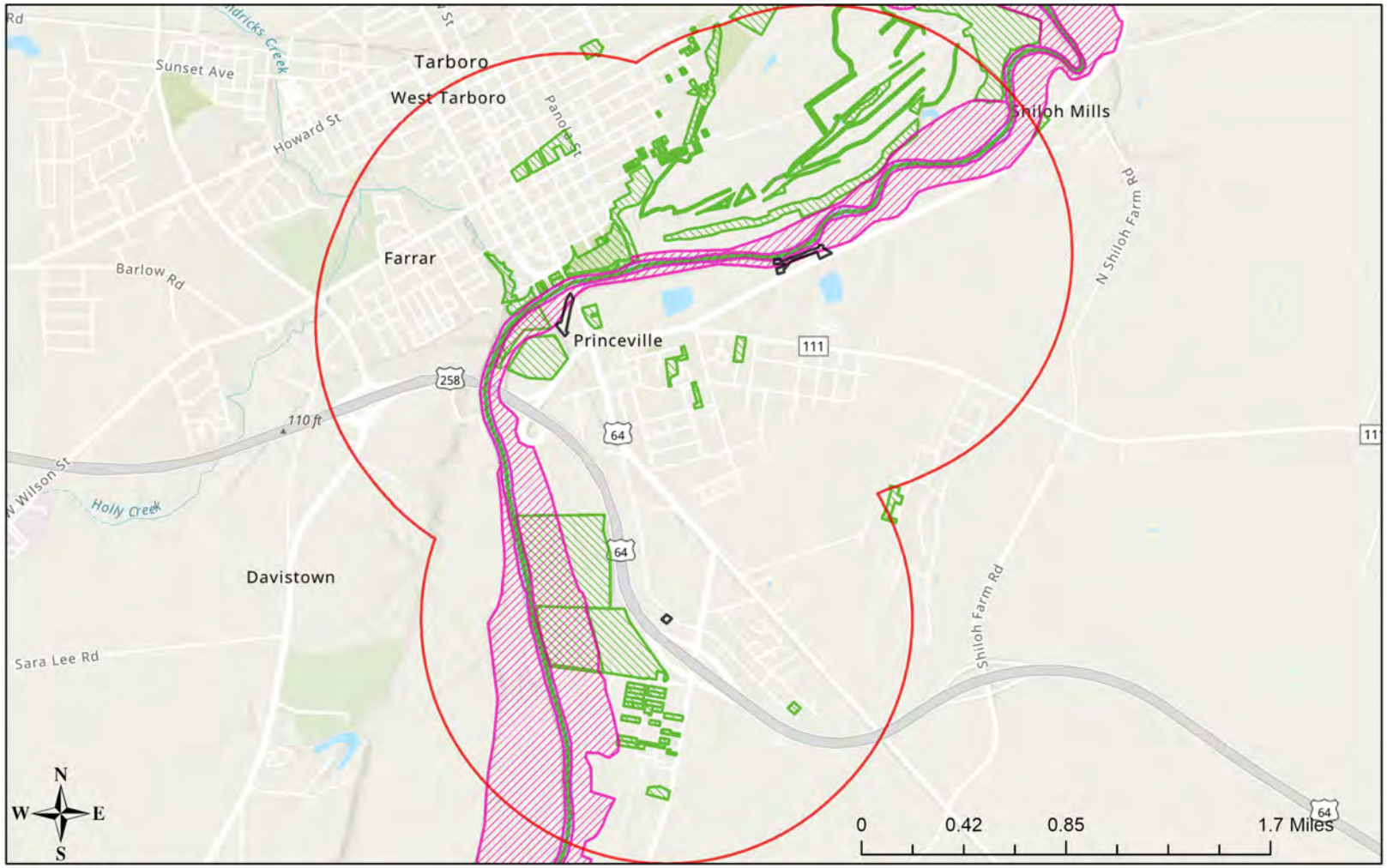
Managed Area Name	Owner	Owner Type
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
NC Hazard Mitigation Buyout Property - Tarboro	NC DPS, Division of Emergency Management	State
USFWS Critical Habitat - Neuse River Waterdog	US Fish and Wildlife Service	Federal
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
Conservation Reserve Enhancement Program Easement	NC Department of Agriculture, Division of Soil and Water Conservation	State
NC Division of Mitigation Services Easement	NC DEQ, Division of Mitigation Services	State

Definitions and an explanation of status designations and codes can be found at https://ncnhde.natureserve.org/help. Data query generated on July 12, 2022; source: NCNHP, Q1, April 2022. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-18603: Princeville Levee Floodgate Repairs



July 12, 2022

- Managed Area (MAREA)
- NHP Natural Area (NHNA)
- Buffered Project Boundary
- Project Boundary

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Critical Habitat for Threatened & Endangered Species [USFWS]

Final Linear Features

Final Polygon Features

Proposed Linear Features

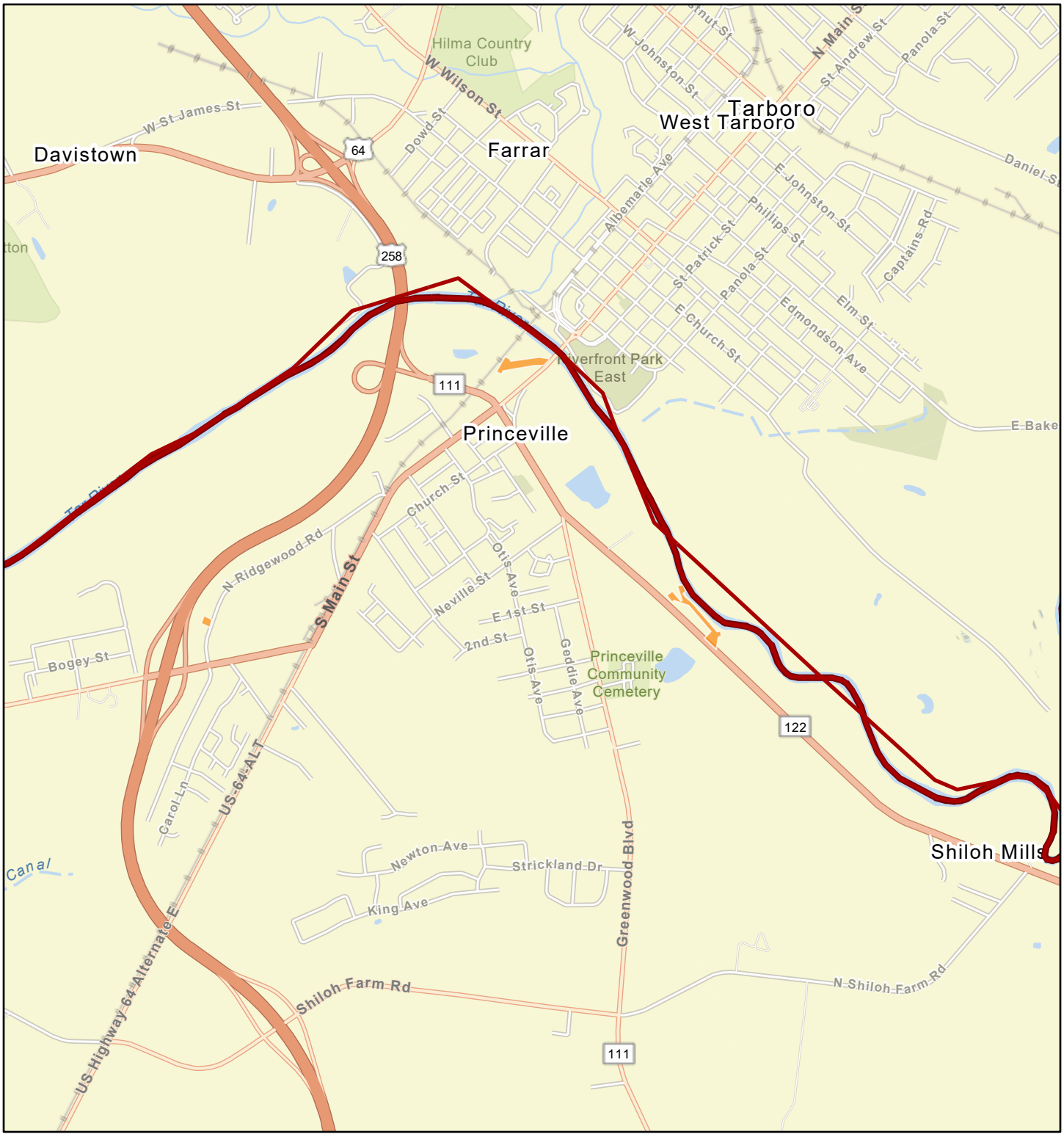
Proposed Polygon Features



A specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

U.S. Fish and Wildlife Service | NC CGIA, Maxar | Esri Community Maps Contributors, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Critical Habitat - Tar River



June 16, 2022

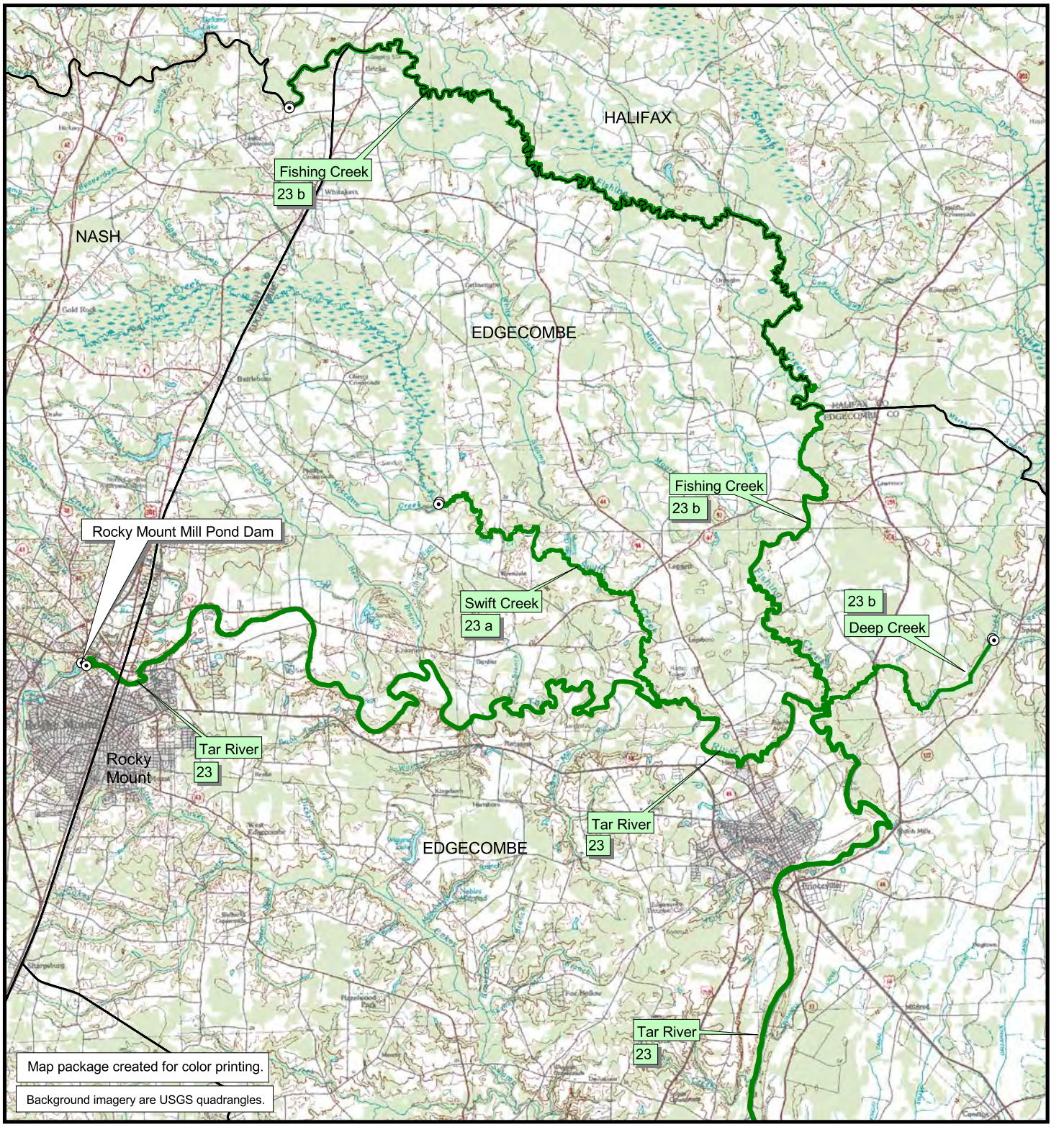
1:36,112

0 0.33 0.65 1.3 mi

0 0.5 1 2 km

- Critical Habitat - Linear Features - Final
- Critical Habitat - Polygon Features - Final
- structure 1 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structures 2 & 3 - princeville levee floodgate repairs

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA



Legend

Anadromous Fish Spawning Areas (AFSA)

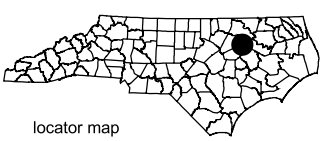
- latitude/longitude point
- boundary line
- coastal AFSA waters (MFC)
- joint AFSA waters (MFC + WRC)
- inland AFSA waters (WRC)

- MFC and WRC rule identification are located with water body name.
- Marine Fisheries Commission (MFC) AFSA rule boundaries id'd in 15A NCAC 03R .0115.
- Waters in both MFC and WRC jurisdictions are id'd in MFC rule.
- Wildlife Resources Commission (WRC) AFSA rule boundaries id'd in 15A NCAC 10C .0603.

Anadromous Fish Spawning Areas (AFSA)

Tar River - Pamlico River Area

Map 1



Datum: NAD83
Projection: NC State Plane
Date: December 2007

0.8 0 0.8 Miles

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This map was produced by the Geographic Information Systems (GIS) Program. Informational data used to create this map were collected from federal, state, county and private organizations. This map is a general guide to assist the public and is for illustrative purposes only. While every effort is made to keep this map up-to-date, it is not intended to replace any official source. Under no cirucmstances shall the state of North Carolina be liable for any actions taken or omissions made from reliance on any information contained herein from whatever source nor shall the State be liable for any other consequences from any such action.

NMFS Critical Habitat Report - Princeville Levee Structure 1

Area of Interest (AOI) Information

Area : 98,590,114.86 ft²

Jul 12 2022 13:37:22 Eastern Daylight Time



Summary

Name	Count	Area(ft²)	Length(ft)
All Critical Habitat Polyline	1	N/A	12,602.13
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

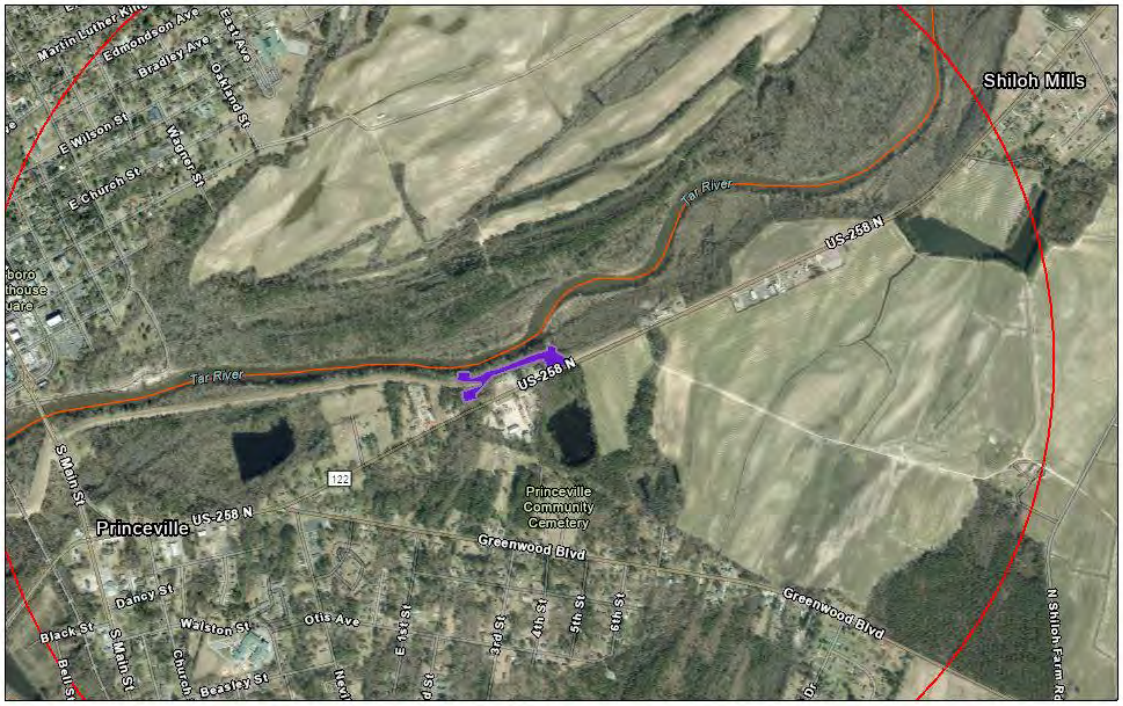
#	Listed Entity	Common Name	Scientific Name	Length(ft)
1	Sturgeon, Atlantic (Atlantic subspecies)[Carolina DPS]	Sturgeon, Atlantic	Acipenser oxyrinchus oxyrinchus	12,602.13

NMFS Critical Habitat Report - Princeville Levee Structures 2 & 3

Area of Interest (AOI) Information

Area : 103,642,545.13 ft²

Jul 12 2022 13:41:52 Eastern Daylight Time



All_critical_habitat_line_20220404

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Esri Community Maps Contributors, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

Summary

Name	Count	Area(ft²)	Length(ft)
All Critical Habitat Polyline	1	N/A	12,401.70
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

#	Listed Entity	Common Name	Scientific Name	Length(ft)
1	Sturgeon, Atlantic (Atlantic subspecies)[Carolina DPS]	Sturgeon, Atlantic	Acipenser oxyrinchus oxyrinchus	12,401.70

NMFS Critical Habitat Report - Princeville Levee Structure 4

Area of Interest (AOI) Information

Area : 90,686,801.22 ft²

Jul 12 2022 13:44:33 Eastern Daylight Time



Summary

Name	Count	Area(ft²)	Length(ft)
All Critical Habitat Polyline	1	N/A	8,875.88
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

#	Listed Entity	Common Name	Scientific Name	Length(ft)
1	Sturgeon, Atlantic (Atlantic subspecies)[Carolina DPS]	Sturgeon, Atlantic	Acipenser oxyrinchus oxyrinchus	8,875.88

Gievers, Andrea

From: Dunn, Maria T.
Sent: Tuesday, September 6, 2022 11:12 AM
To: Gievers, Andrea
Subject: FW: Essential Fish Habitat - Princeville, Edgecombe County, NC

Good morning Ms. Gievers. I hope you are well.

I work in the Habitat Conservation Division of the NC Wildlife Resources Commission and review proposals within the 30 eastern counties of North Carolina to provide technical guidance on projects and their impacts and benefits to wildlife and public trust resources. These reviews include participation on conservation committees, scoping processes, as well as USACE and NCDEQ permit application reviews. I am aware of the Princeville project and have reviewed the NCDWR / USACE PCN and currently have the State Clearing House review proposal. Any comments our agency has would be expressed during these reviews.

The Tar River at this location is designated critical habitat for Atlantic sturgeon by NMFS and as critical habitat for Carolina madtom, and Neuse River waterdog by the USFWS. It is also designated as a primary nursery area (PNA) by the NCWRC and may have other state and federally listed species, including a suite of freshwater mussels, in the vicinity. While no in-water work is proposed, the area is also subject to the NCDWR Tar-Pamlico Basin Buffer Rules. The establishment of these rules demonstrate the need to be cognizant of nutrient as well as sedimentation and erosion that enter this river basin.

As far as the Princeville Levee Floodgate Repairs – Draft EA, the NCWRC has no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system. I request that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area.

Thank you for contacting staff within the NCWRC. If you have any additional comments or questions, please do not hesitate to call or email.

Maria

Maria T. Dunn
Coastal Coordinator

NC Wildlife Resources Commission
943 Washington Sq. Mall
Washington, NC 27889
office: 252-948-3916

www.ncwildlife.org

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Rundle, Kirk R <kirk.rundle@ncwildlife.org>
Sent: Tuesday, September 6, 2022 8:32 AM

To: Dunn, Maria T. <maria.dunn@ncwildlife.org>
Subject: RE: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hi Maria,

Do you want to respond to this? We discussed this project in an e-mail on July 13. Let me know and I will be glad to respond if you like. As you mentioned most of this work is outside of the river so I am not too concerned.

Thanks and I hope you are doing good.
Kirk

From: Gievers, Andrea <andrea.l.gievers@rebuild.nc.gov>
Sent: Friday, September 2, 2022 10:48 AM
To: Rundle, Kirk R <kirk.rundle@ncwildlife.org>
Cc: maria.dunn@ncnwildlife.org
Subject: RE: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hello Mr. Rundle:

Does WRC have any concerns or questions regarding the *Town of Princeville Levee Floodgate Repairs Project?* The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is considering funding this Infrastructure Recovery Program project. The proposed project location is at four levee floodgate culvert locations along the Tar River in Princeville, Edgecombe County, NC 27886 (See USACE JD). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate located along the USACE levee bordering the Tar River. The majority of the proposed project activities (disturbance) will take place on the man-made levees through which the floodgate pipes drain. These levees are *regularly maintained by mowing* to prevent shrub and tree roots from destabilizing the structures. The USACE representative said that since there are *no impacts planned for the Tar River*, we did not need to address aquatic species. However, NCORR is consulting with the NCWRC to ensure all required mitigation measures are identified since the Tar-Pamlico River is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603 and NOAA NMFS critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). The following permits will be obtained prior to commencing work: USACE Nationwide Permit 3 (Maintenance) to authorize impacts to wetlands and streams, USACE Section 408 Permit, a NC Division of Water Resources (NCDWR) Section 401 Water Quality Certification, and NCDWR Tar-Neuse River Riparian Buffer Authorization. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Please feel free to contact me if you have any questions. Thank you for your time and assistance!

Sincerely,

Andrea Gievers

From: Gievers, Andrea
Sent: Tuesday, July 12, 2022 11:44 AM
To: Rundle, Kirk R <kirk.rundle@ncwildlife.org>
Subject: FW: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hi Mr. Rundle:

Thank you so much for assisting me in finding the correct Essential Fish Habitat and ESA consultation contact. Please feel free to contact me if you have any questions. Thank you!

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

From: Gievers, Andrea
Sent: Thursday, July 7, 2022 7:18 AM
To: SVC_WRC.PublicInquiry-FishWildlife <PublicInquiry-FishWildlife@ncwildlife.org>
Cc: maria.dunn@ncnwildlife.org
Subject: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hello:

I am looking for the correct contact person for consultation on a HUD-funded levee floodgate repair project along the Tar River in Princeville, Edgecombe County, NC. I am requesting consultation on the project to identify any possible effects and necessary mitigation on Essential Fish Habitat. I have attached the project description and USACE JD with project location maps. Thank you so much for your time and assistance!

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

From: Gievers, Andrea
Sent: Wednesday, June 15, 2022 1:35 PM
To: karen.greene@noaa.gov
Subject: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hello Ms. Greene:

I am assisting the NC Office of Recovery and Resiliency with HUD Part 58 environmental reviews on Infrastructure projects. I am not sure if you are the correct person to assist me, but feel free to forward my request. I am reviewing a levee floodgate repair project along the Tar River in Princeville, Edgecombe County, NC. I am requesting consultation on the project to identify any possible effects and necessary mitigation on Essential Fish Habitat. I have attached the project description and USACE JD with project location maps for your review. Feel free to contact me if you have any questions. Thank you so much for your time and assistance!

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

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Species Conclusions Table

Project Name: Princeville Levee Floodgate Repairs

Date: 9/8/22 - updated to add Critical Habitat

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Neuse River Waterdog	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Carolina Madtom	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Atlantic Pigtoe	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Tar River Spinymussel	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Yellow Lance	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Monarch Butterfly	No effect	No effect	No suitable habitat. The levee area/ site is mostly mowed and maintained.
Bald Eagle	Unlikely to disturb nesting bald eagles	No Eagle Act Permit Required	No evidence of Bald Eagle was found within 0.5 mile of the study areas
Atlantic Sturgeon (NHP; WRC for NMFS)	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Critical Habitat for Neuse River Waterdog, Atlantic Pigtoe & Carolina Madtom	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.

Acknowledgement: I agree that the above information about my proposed project is true. I used all of the provided resources to make an informed decision about impacts in the immediate and surrounding areas.

Andrea Sievers

Signature /Title

9/8/22

Date

Species Conclusions Table

Project Name: Princeville Levee Floodgate Repairs

Date: 8/11/22

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Neuse River Waterdog	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Carolina Madtom	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Atlantic Pigtoe	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Tar River Spinymussel	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Yellow Lance	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.
Monarch Butterfly	No effect	No effect	No suitable habitat. The levee area/ site is mostly mowed and maintained.
Bald Eagle	Unlikely to disturb nesting bald eagles	No Eagle Act Permit Required	no evidence of Bald Eagle was found within 0.5 mile of the study areas
Atlantic Sturgeon (NHP; WRC for NMFS)	No effect	No effect	No in-water work proposed. USACE and DWR permits and conditions apply.

Acknowledgement: I agree that the above information about my proposed project is true. I used all of the provided resources to make an informed decision about impacts in the immediate and surrounding areas.

Andrea Sievers

Signature /Title

8/11/22

Date

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

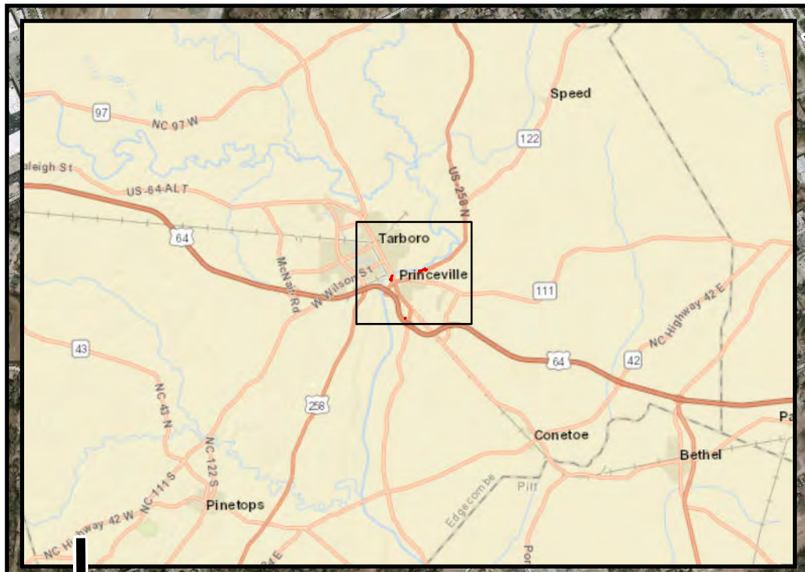
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

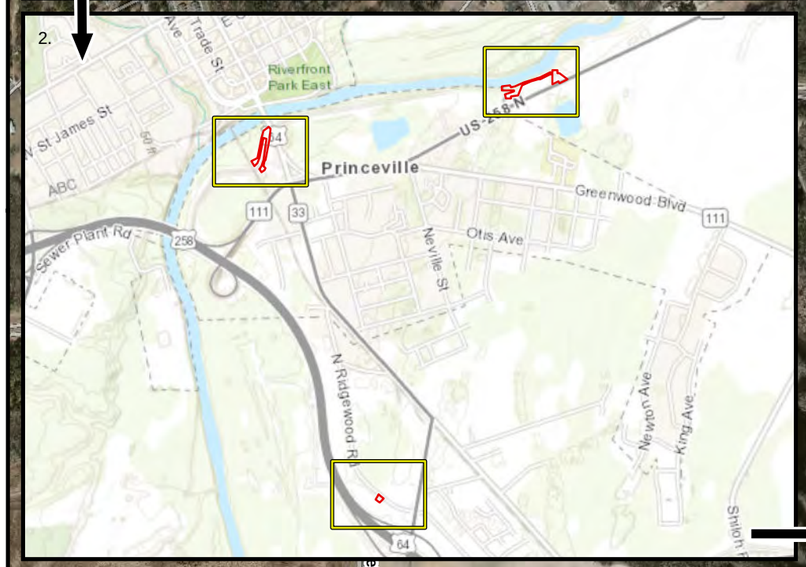
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

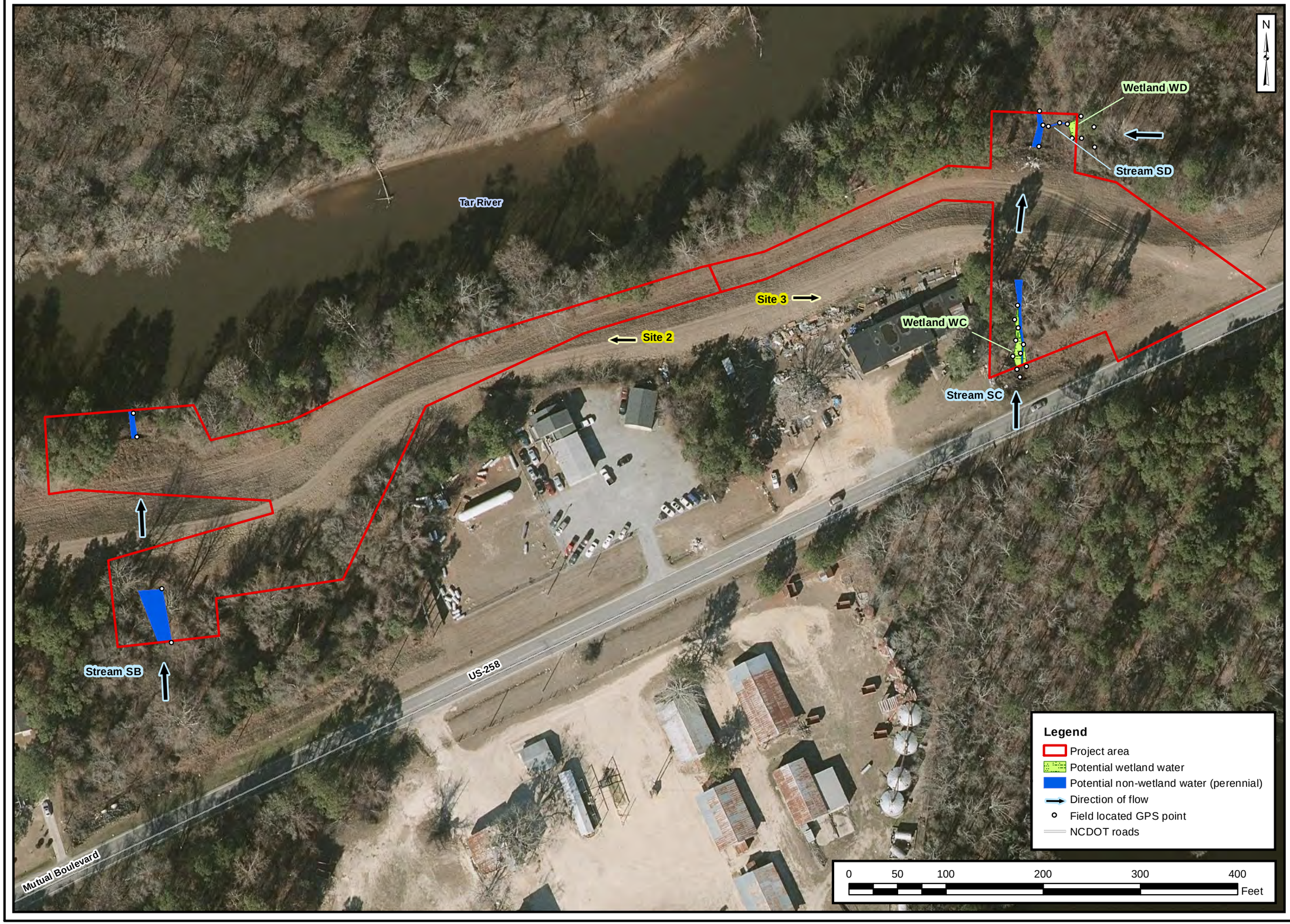
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

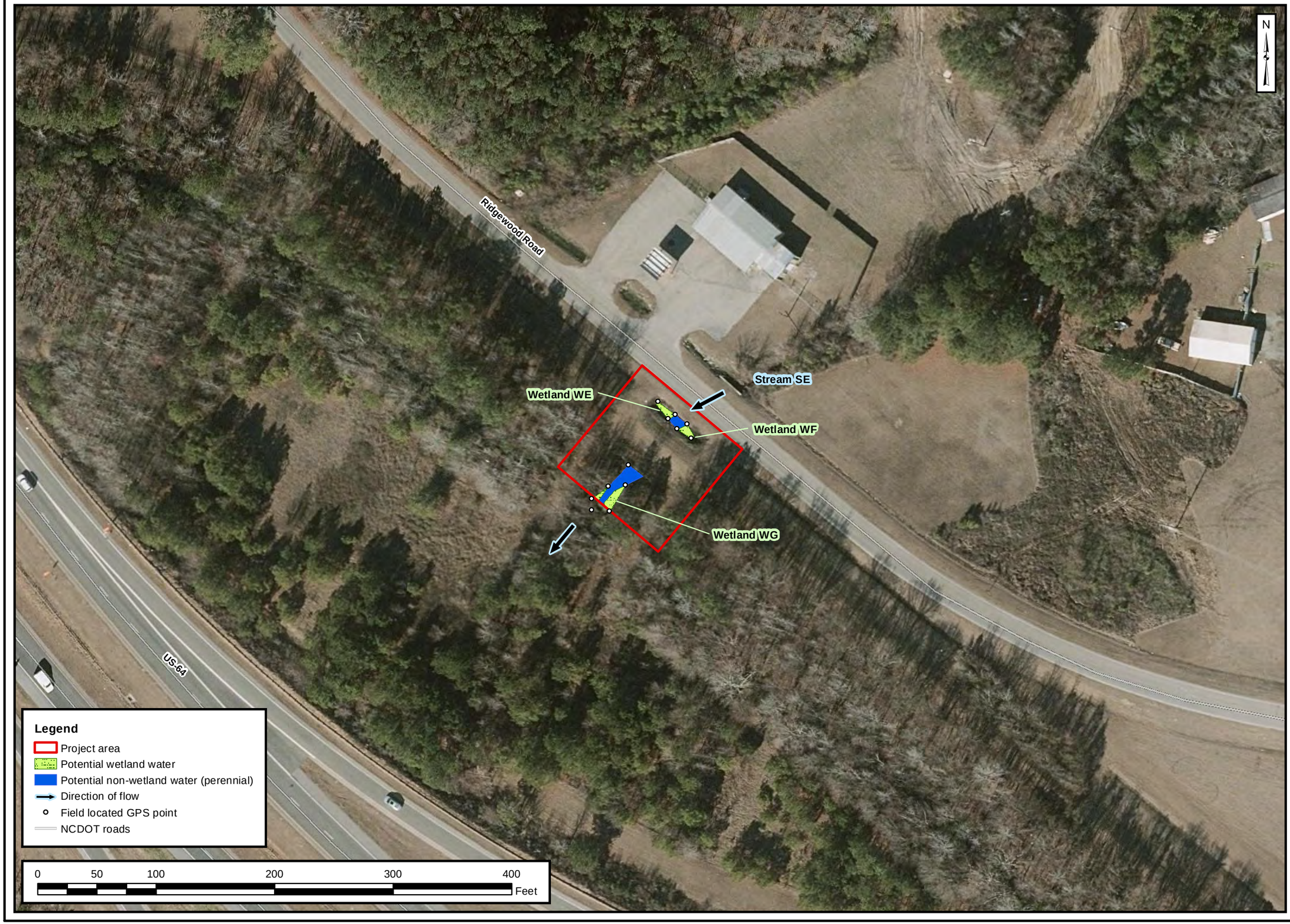
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)









NC WRC Correspondence and Submission Package

Gievers, Andrea

From: Dunn, Maria T.
Sent: Monday, December 19, 2022 7:21 AM
To: Gievers, Andrea
Subject: RE: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC

Good morning.

NCWRC has received the early notice and is familiar with the project. We have reviewed and commented as necessary on the project during the NC State Clearinghouse circulations as well as during appropriate state and federal regulatory permit application reviews. We have no further comment at this time.

Thank you for contacting our agency. Please do not hesitate if I can provide additional assistance.

Maria

Maria T. Dunn
Coastal Coordinator

NC Wildlife Resources Commission
943 Washington Sq. Mall
Washington, NC 27889
252-495-5554

www.ncwildlife.org

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Gievers, Andrea <andrea.l.gievers@rebuild.nc.gov>
Sent: Thursday, December 8, 2022 10:07 AM
To: Dunn, Maria T. <maria.dunn@ncwildlife.org>
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency

Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Email correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

Gievers, Andrea

From: Dunn, Maria T.
Sent: Tuesday, September 6, 2022 11:12 AM
To: Gievers, Andrea
Subject: FW: Essential Fish Habitat - Princeville, Edgecombe County, NC

Follow Up Flag: Follow up
Flag Status: Completed

Good morning Ms. Gievers. I hope you are well.

I work in the Habitat Conservation Division of the NC Wildlife Resources Commission and review proposals within the 30 eastern counties of North Carolina to provide technical guidance on projects and their impacts and benefits to wildlife and public trust resources. These reviews include participation on conservation committees, scoping processes, as well as USACE and NCDEQ permit application reviews. I am aware of the Princeville project and have reviewed the NCDWR / USACE PCN and currently have the State Clearing House review proposal. Any comments our agency has would be expressed during these reviews.

The Tar River at this location is designated critical habitat for Atlantic sturgeon by NMFS and as critical habitat for Carolina madtom, and Neuse River waterdog by the USFWS. It is also designated as a primary nursery area (PNA) by the NCWRC and may have other state and federally listed species, including a suite of freshwater mussels, in the vicinity. While no in-water work is proposed, the area is also subject to the NCDWR Tar-Pamlico Basin Buffer Rules. The establishment of these rules demonstrate the need to be cognizant of nutrient as well as sedimentation and erosion that enter this river basin.

As far as the Princeville Levee Floodgate Repairs – Draft EA, the NCWRC has no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system. I request that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area.

Thank you for contacting staff within the NCWRC. If you have any additional comments or questions, please do not hesitate to call or email.

Maria

Maria T. Dunn
Coastal Coordinator

NC Wildlife Resources Commission
943 Washington Sq. Mall
Washington, NC 27889
office: 252-948-3916

www.ncwildlife.org

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Rundle, Kirk R <kirk.rundle@ncwildlife.org>
Sent: Tuesday, September 6, 2022 8:32 AM
To: Dunn, Maria T. <maria.dunn@ncwildlife.org>
Subject: RE: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hi Maria,

Do you want to respond to this? We discussed this project in an e-mail on July 13. Let me know and I will be glad to respond if you like. As you mentioned most of this work is outside of the river so I am not too concerned.

Thanks and I hope you are doing good.
Kirk

From: Gievers, Andrea <andrea.l.gievers@rebuild.nc.gov>
Sent: Friday, September 2, 2022 10:48 AM
To: Rundle, Kirk R <kirk.rundle@ncwildlife.org>
Cc: maria.dunn@ncnwildlife.org
Subject: RE: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hello Mr. Rundle:

Does WRC have any concerns or questions regarding the *Town of Princeville Levee Floodgate Repairs Project?* The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is considering funding this Infrastructure Recovery Program project. The proposed project location is at four levee floodgate culvert locations along the Tar River in Princeville, Edgecombe County, NC 27886 (See USACE JD). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate located along the USACE levee bordering the Tar River. The majority of the proposed project activities (disturbance) will take place on the man-made levees through which the floodgate pipes drain. These levees are *regularly maintained by mowing* to prevent shrub and tree roots from destabilizing the structures. The USACE representative said that since there are *no impacts planned for the Tar River*, we did not need to address aquatic species. However, NCORR is consulting with the NCWRC to ensure all required mitigation measures are identified since the Tar-Pamlico River is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603 and NOAA NMFS critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). The following permits will be obtained prior to commencing work: USACE Nationwide Permit 3 (Maintenance) to authorize impacts to wetlands and streams, USACE Section 408 Permit, a NC Division of Water Resources (NCDWR) Section 401 Water Quality Certification, and NCDWR Tar-Neuse River Riparian Buffer Authorization. The proposed project activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Please feel free to contact me if you have any questions. Thank you for your time and assistance!

Sincerely,

Andrea Gievers

From: Gievers, Andrea
Sent: Tuesday, July 12, 2022 11:44 AM
To: Rundle, Kirk R <kirk.rundle@ncwildlife.org>
Subject: FW: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hi Mr. Rundle:

Thank you so much for assisting me in finding the correct Essential Fish Habitat and ESA consultation contact. Please feel free to contact me if you have any questions. Thank you!

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

From: Gievers, Andrea
Sent: Thursday, July 7, 2022 7:18 AM
To: SVC_WRC.PublicInquiry-FishWildlife <PublicInquiry-FishWildlife@ncwildlife.org>
Cc: maria.dunn@ncnwildlife.org
Subject: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hello:

I am looking for the correct contact person for consultation on a HUD-funded levee floodgate repair project along the Tar River in Princeville, Edgecombe County, NC. I am requesting consultation on the project to identify any possible effects and necessary mitigation on Essential Fish Habitat. I have attached the project description and USACE JD with project location maps. Thank you so much for your time and assistance!

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

From: Gievers, Andrea
Sent: Wednesday, June 15, 2022 1:35 PM
To: karen.greene@noaa.gov
Subject: Essential Fish Habitat - Princeville, Edgecombe County, NC

Hello Ms. Greene:

I am assisting the NC Office of Recovery and Resiliency with HUD Part 58 environmental reviews on Infrastructure projects. I am not sure if you are the correct person to assist me, but feel free to forward my request. I am reviewing a levee floodgate repair project along the Tar River in Princeville, Edgecombe County, NC. I am requesting consultation on the project to identify any possible effects and necessary mitigation on Essential Fish Habitat. I have attached the

project description and USACE JD with project location maps for your review. Feel free to contact me if you have any questions. Thank you so much for your time and assistance!

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

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Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

DocuSign Envelope ID: ADEC4376-E6A2-4606-B577-3E9C8F909D6D

U.S. Department of Housing and Urban Development
451 Seventh Street, SW
Washington, DC 20410
www.hud.gov

espanol.hud.gov

Environmental Review for Activity/Project that is Exempt or Categorically Excluded Not Subject to Section 58.5

Pursuant to 24 CFR Part 58.34(a) and 58.35(b)

Project Information

Project Name: Princeville Levee Floodgate Repairs

Responsible Entity: North Carolina Office of Recovery and Resiliency (NCORR)

Grant Recipient: Town of Princeville, North Carolina

State/Local Identifier: B-16-DL-37-0001

Preparer: Andrea Gievers, Environmental SME, NCORR

Certifying Officer Name and Title: Laura Hogshead, Director, NCORR

Project Location: Four structure locations near Tar River, Princeville, Edgecombe County, NC 27886. *(The structure locations are also identified on the original US Army Corps of Engineers [USACE] Princeville Dike General Plan, Vicinity Map and Index of Drawings Dike Sections "A" and "B", Plate G-1 dated February 15, 1965 included in the USACE Princeville Dike Repairs Operation and Maintenance Manual dated July 2001.)*

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

DocuSign Envelope ID: ADEC4376-E6A2-4606-B577-3E9C8F909D6D

Description of the Proposed Project [24 CFR 58.32; 40 CFR 1508.25]**:**

The proposed project is a CDBG-DR eligible activity pursuant to Section 105(a)(2), *Public Facilities and Improvements* of the Housing and Community Development Act (HCDA) of 1974, which includes: the acquisition, construction, reconstruction, or installation (including design features and improvements with respect to such construction, reconstruction, or installation that promotes energy efficiency) of public works, facilities (except for buildings for the general conduct of government), and site or other improvements.

The existing levee segments of the proposed project were constructed in 1967 by the USACE but is maintained by Edgecombe County. The Town's procured designer is conducting design analysis calculations for these levees, which also contain culverts with flap gates in the existing levee segments, installed by NCDOT in 2018 as backflow prevention devices. The design engineer will provide analysis, reporting, testing, as well as, plans, specifications, material and cost estimates, and contract documents to repair the channels and headwalls of the existing floodgates. This scope includes survey and geotechnical services which will provide more accurate assessments of construction parameters.

During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Following the storm event, the Town of Princeville undertook to design and construct upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events.

The proposed project will occur mainly at four structure locations (Subject Property), identified above, located along the intersection of the USACE protective levee and the Tar River (**Attachment 1:** Design Plans and USACE Notice of Preliminary Jurisdictional Determination). This project is anticipated to consist of construction activities that include earthwork, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 4.4 acres of ground disturbance potential, with the total 4.4 acres being an area of previous ground disturbance. The Subject Property contains areas classified as Zone "X" and "AE" areas, including FEMA-designated regulatory floodway, as denoted by Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). Areas anticipated to be addressed have experienced flooding in the past.

This environmental review is for Soft Costs associated with the proposed project which are Exempt Activities per 24 CFR 58.34(a): (1) Environmental and other studies, (3) Administrative and management activities, and (8) Engineering or design costs. A separate review is required under 24 CFR 58 for Choice Limiting Actions and the proposed project's construction activities.

Level of Environmental Review Determination:

☒ Activity/Project is Exempt per 24 CFR 58.34(a): (1) Environmental and other studies, (3) Administrative and management activities, and (8) Engineering or design costs

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

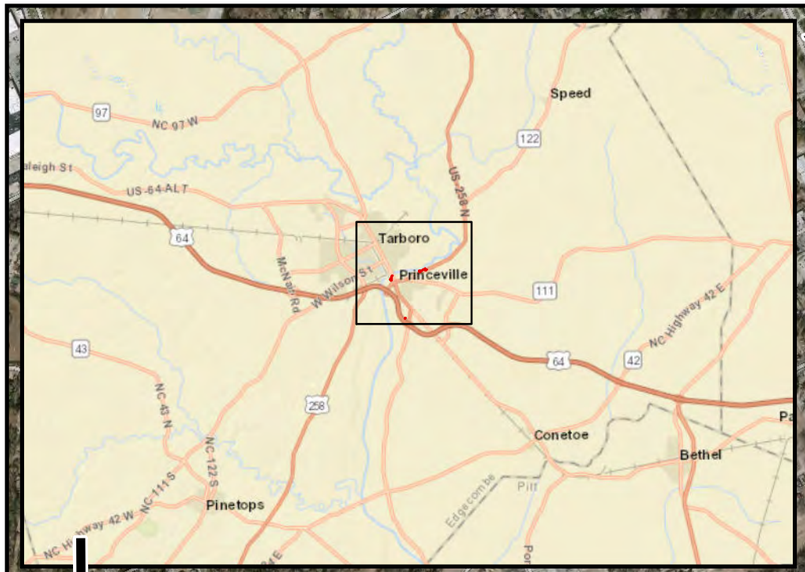
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

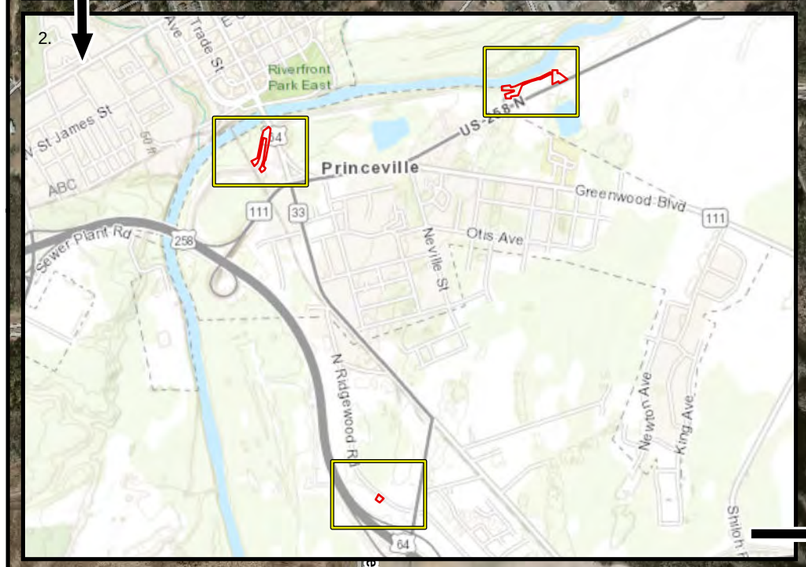
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

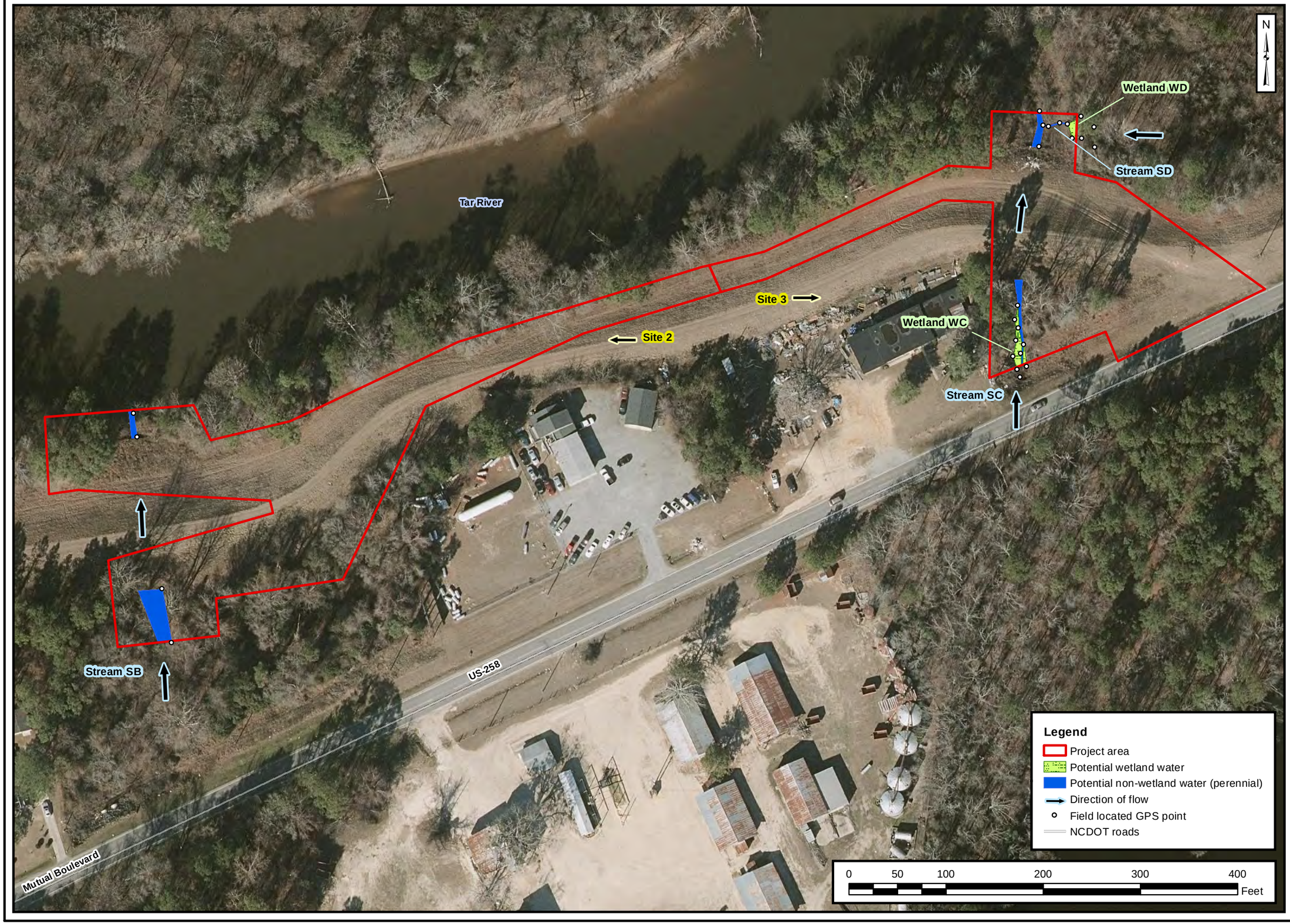
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

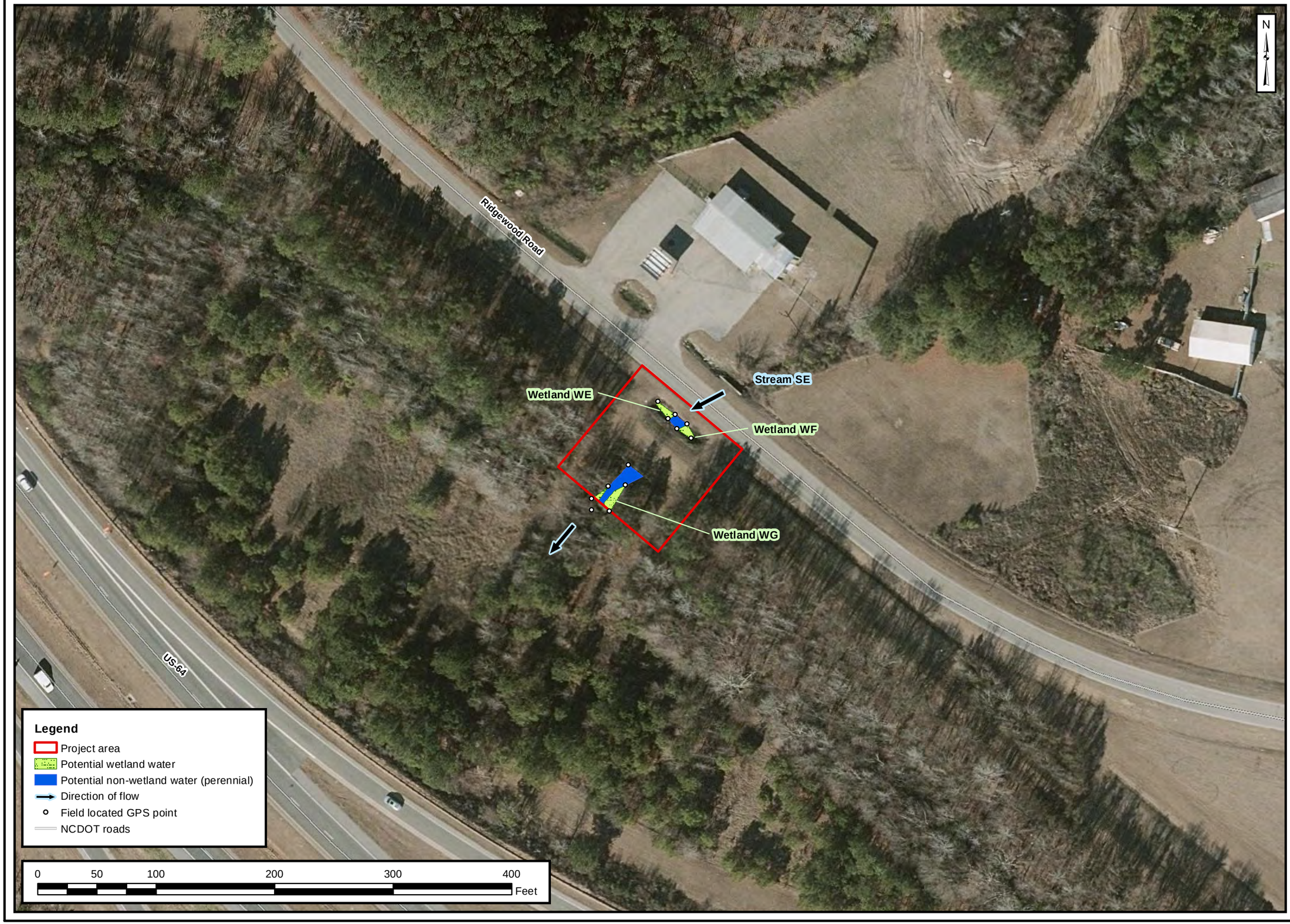
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

NOAA NMFS Correspondence and Submission Package

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 9:59 AM
To: Pace Wilber - NOAA Federal
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. *(There has been no project change, only educational information added to this notice.)* Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>
Sent: Friday, September 9, 2022 3:39 PM
To: Gievers, Andrea
Cc: fritz.rohde
Subject: [External] Re: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC & No Effect Determination

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Hello Andrea.

Our Protected Resources Division in St Petersburg, Florida, conducts consultations under the Endangered Species Act. That division's web page provides information on its consultation process. https://www.fisheries.noaa.gov/southeast/endangered-species-conservation/esa-section-7-interagency-consultation-southeast-united-states

I (along with Fritz Rohde and Twyla Cheatwood who are based in Beaufort, North Carolina) work in the Habitat Conservation Division, and we conduct consultations under the Magnuson-Stevens Act and the Fish and Wildlife Coordination Act. Under these Acts, we evaluate and comment on impacts to Atlantic sturgeon and their oceanic, estuarine, and riverine habitats from proposed federal actions, which includes funding like you described by HUD. Based on the description of the work and the locations being near but not within the Tar River, we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates.

Please let us know if you have any questions about comments.

Pace Wilber, Ph.D.
South Atlantic and Caribbean Branch Chief
Habitat Conservation Division
NOAA Fisheries Service
331 Ft Johnson Road
Charleston, SC 29412

On Thu, Sep 8, 2022 at 2:34 PM Gievers, Andrea <andrea.l.gievers@rebuild.nc.gov> wrote:

> Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* posting September 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. In addition, the No Effect determination package is attached for your review. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM

Environmental SME

Community Development

NC Office of Recovery and Resiliency

Andrea.L.Gievers@Rebuild.NC.Gov

(845) 682-1700

Email correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

--

Pace Wilber, Ph.D.
South Atlantic and Caribbean Branch Chief
Habitat Conservation Division
NOAA Fisheries Service
331 Ft Johnson Road
Charleston, SC 29412

843-592-3024 (NOAA Google Voice)
Pace.Wilber@noaa.gov

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, September 8, 2022 7:07 PM
To: pace.wilber@noaa.gov
Subject: FW: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC & No Effect Determination
Attachments: NCORR Early Notice Princeville Levee 090822 POST.pdf; NCORR NOAA Princeville Levee Repair No Effect Package rdcd.pdf

I am not sure if this was delivered, so my apologies if you receive it twice. Thanks!

Sincerely,

Andrea Gievers

From: Gievers, Andrea
Sent: Thursday, September 8, 2022 2:30 PM
To: pace.wilber@noaa.gov
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC & No Effect Determination

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* posting September 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. In addition, the No Effect determination package is attached for your review. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

September 8, 2022

Mr. Pace Wilber
Branch Chief, Southeast Regional Office
Habitat Conservation Division/Atlantic & Caribbean Branch
PO Box 12559
Charleston, SC 29422-2559

Sent Via Email: pace.wilber@noaa.gov

RE: Section 7 Project Review - No Effect Determination
NCORR - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Mr. Wilber:

The North Carolina Office of Recovery and Resiliency (NCORR) as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD) is considering funding this proposed Infrastructure Recovery Program project, Princeville Levee Floodgate Repairs located at Four levee floodgate culvert locations along the Tar River in Princeville, Edgecombe County, NC 27886. The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

Mailing Address:
Post Office Box 110465
Durham, NC 27709

NCORR
NORTH CAROLINA OFFICE OF RECOVERY AND RESILIENCY

Phone: (984) 833-5350
www.ncdps.gov
www.rebuild.nc.gov

An Equal Opportunity Employer

The purpose of this letter is to provide the National Oceanic and Atmospheric Administration (NOAA) Fisheries – Southeast Regional Office notice of the proposed project and to document compliance with Section 7 of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884).

We have reviewed the proposed project using the ESA Section 7: Interagency Consultation in the Southeast United States review process and made "**no effect**" determinations for the identified proposed/listed species and/or proposed/designated critical habitat. The Tar-Pamlico River is a designated critical habitat and Essential Fish Habitat for the endangered Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) under NOAA Fisheries jurisdiction. We have assessed the critical habitats that overlap with the action area and for the proposed project made a "no effect" determination on the Atlantic sturgeon and its critical habitat in the Tar-Pamlico River. The proposed project would not jeopardize the continued existence of ESA species or destroy or adversely modify their critical habitat.

Table 1: ESA-listed Species/Critical Habitat in the Action Area and Effect Determination

Species	ESA Listing Status	Listing Rule/Date	Most Recent Recovery Plan/Outline Date	Effect Determination (Species/ Critical Habitat)
Fish				
Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) (Carolina DPS)	Endangered	77 FR 5914/ February 6, 2012	2018 Recovery Outline	No effect

The proposed project entails inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and constructing permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. The existing levee segments of the proposed project were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. The four floodgate culvert locations include Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), and Site 4 (35.873450, -77.525434) (See attachments). The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. Project implementation would be conditioned upon issuance of applicable federal, state and local permits before commencement of work and would be constructed in accordance with all permit conditions.

Further, the majority of the proposed project activities (disturbance) will take place on the man-made levees through which the floodgate pipes drain. These levees are regularly maintained by mowing to prevent shrub and tree roots from destabilizing the structures. During a field visit on June 24, 2021, the USACE project representative (Billy Standridge) notified Axiom Environmental, Inc. (Axiom) that, based on project plans, there will be no need to conduct surveys for aquatic species. The USACE representative said that since there are no impacts planned for the Tar River, we did not need to address aquatic species. For this project, Axiom completed field work and document review in support of the generation of an application for U.S. Army Corps of Engineers (USACE or Corps or district engineer) Nationwide Permit 3 (Maintenance). For this process, the USFWS has tasked the USACE with making determinations regarding protected species issues in Condition 18(c) of the permit application. The USACE has received and reviewed our permit application, told us that our permit application is considered complete by the USACE, and he plans to issue the permit based on the information we have provided.

According to the USFWS Critical Habitat Mapper, there is also critical habitat present for the Neuse River Waterdog, Atlantic Pigtoe and Carolina Madtom in the Tar River. In addition, the NC Wildlife Resources Commission (WRC) has jurisdiction over the Tar-Pamlico River because it is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603. NCORR consulted with NCWRC to ensure all required mitigation measures are identified before commencement of work. Ms. Maria Dunn at NCWRC responded that "[w]hile no in-water work is proposed, the area is also subject to the NCDWR Tar-Pamlico Basin Buffer Rules. The establishment of these rules demonstrate the need to be cognizant of nutrient as well as sedimentation and erosion that enter this river basin. As far as the Princeville Levee Floodgate Repairs – Draft EA, the NCWRC has no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system. I request that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area."

The following permits will be obtained prior to commencing work: USACE Nationwide Permit 3 (Maintenance) to authorize impacts to wetlands and streams, USACE Section 408 Permit, a NC Division of Water Resources (NCDWR) Section 401 Water Quality Certification, and NCDWR Tar-Neuse River Riparian Buffer Authorization. The proposed project activities will be completed in accordance with all applicable federal, state, and local laws, regulations, and permit requirements and conditions. Therefore, NCORR has made this "no effect" determination on the Atlantic sturgeon and its critical habitat in the Tar-Pamlico River.

NCORR is submitting the above information as notification of its **No Effect** determination and requests *acknowledgement* from NOAA that they have received this determination that the proposed project would have No Effect on endangered/threatened species, or critical habitat for species under NOAA jurisdiction.

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Attachments:

- Proposed Project Locations - Critical Habitat Maps
- USACE Jurisdictional Determination dated 6/28/21
- Site Plans

NMFS Critical Habitat Report - Princeville Levee Structure 1

Area of Interest (AOI) Information

Area : 98,590,114.86 ft²

Jul 12 2022 13:37:22 Eastern Daylight Time



Summary

Name	Count	Area(ft²)	Length(ft)
All Critical Habitat Polyline	1	N/A	12,602.13
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

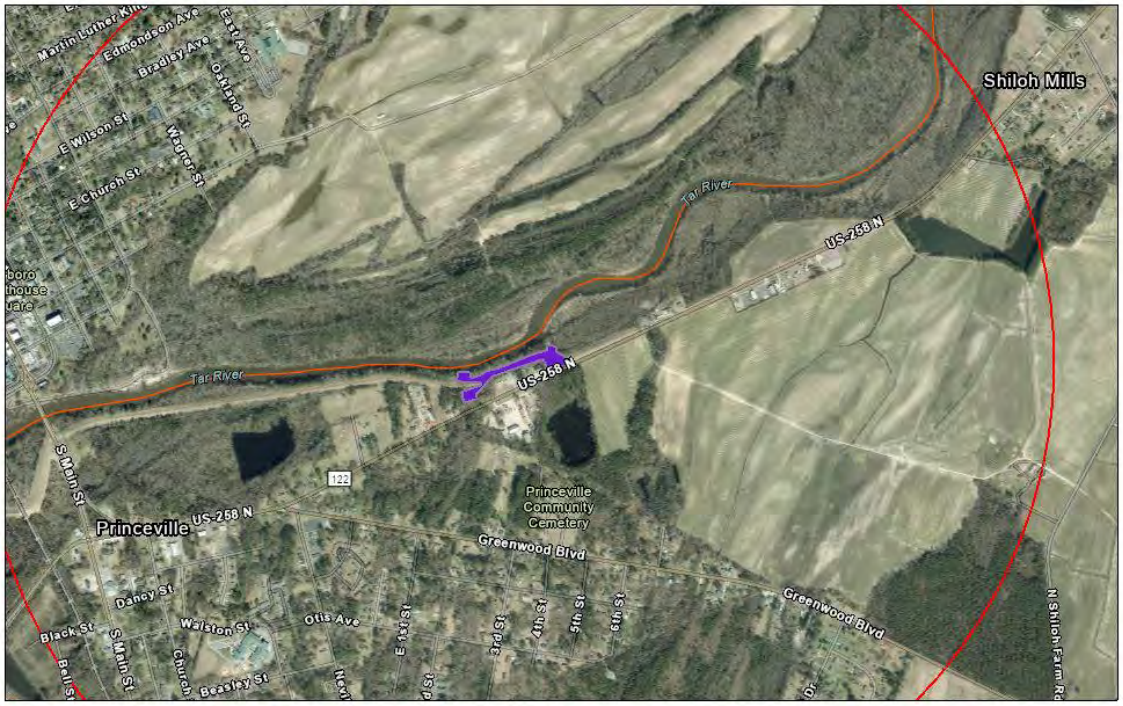
#	Listed Entity	Common Name	Scientific Name	Length(ft)
1	Sturgeon, Atlantic (Atlantic subspecies)[Carolina DPS]	Sturgeon, Atlantic	Acipenser oxyrinchus oxyrinchus	12,602.13

NMFS Critical Habitat Report - Princeville Levee Structures 2 & 3

Area of Interest (AOI) Information

Area : 103,642,545.13 ft²

Jul 12 2022 13:41:52 Eastern Daylight Time



All_critical_habitat_line_20220404

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Esri Community Maps Contributors, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

Summary

Name	Count	Area(ft²)	Length(ft)
All Critical Habitat Polyline	1	N/A	12,401.70
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

#	Listed Entity	Common Name	Scientific Name	Length(ft)
1	Sturgeon, Atlantic (Atlantic subspecies)[Carolina DPS]	Sturgeon, Atlantic	Acipenser oxyrinchus oxyrinchus	12,401.70

NMFS Critical Habitat Report - Princeville Levee Structure 4

Area of Interest (AOI) Information

Area : 90,686,801.22 ft²

Jul 12 2022 13:44:33 Eastern Daylight Time



Summary

Name	Count	Area(ft²)	Length(ft)
All Critical Habitat Polyline	1	N/A	8,875.88
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

#	Listed Entity	Common Name	Scientific Name	Length(ft)
1	Sturgeon, Atlantic (Atlantic subspecies)[Carolina DPS]	Sturgeon, Atlantic	Acipenser oxyrinchus oxyrinchus	8,875.88

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

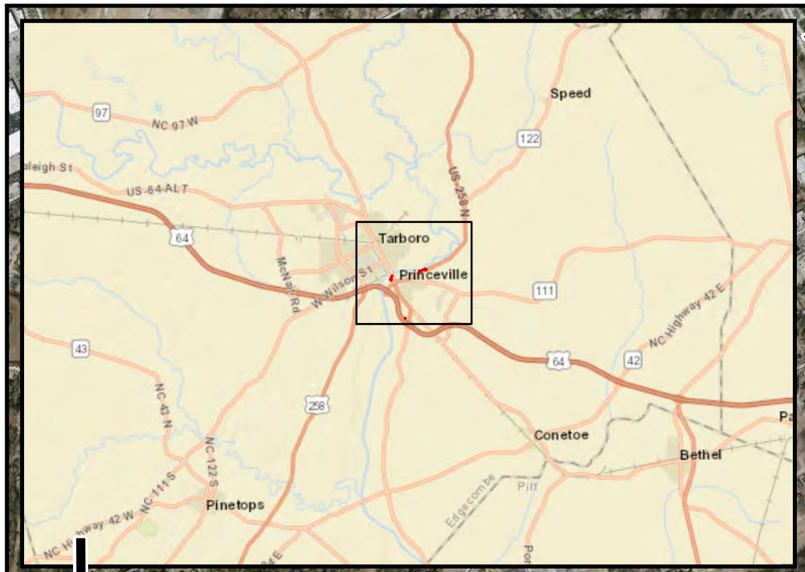
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

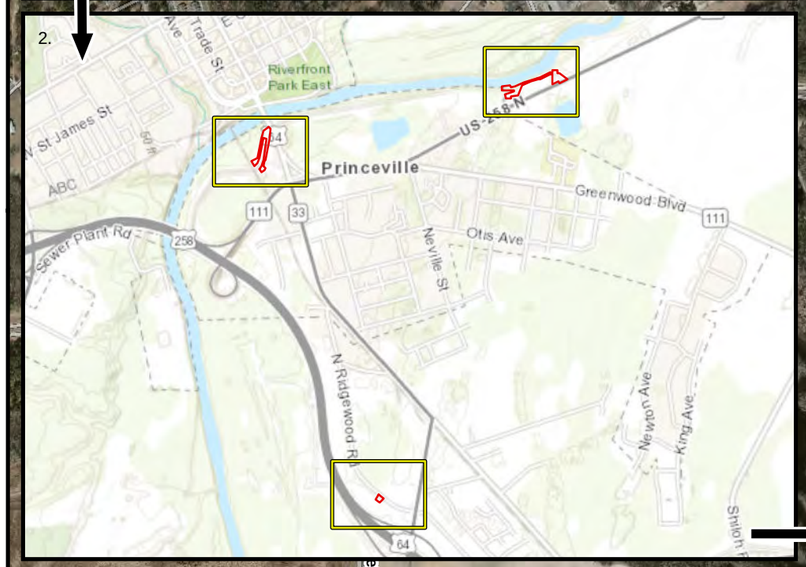
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

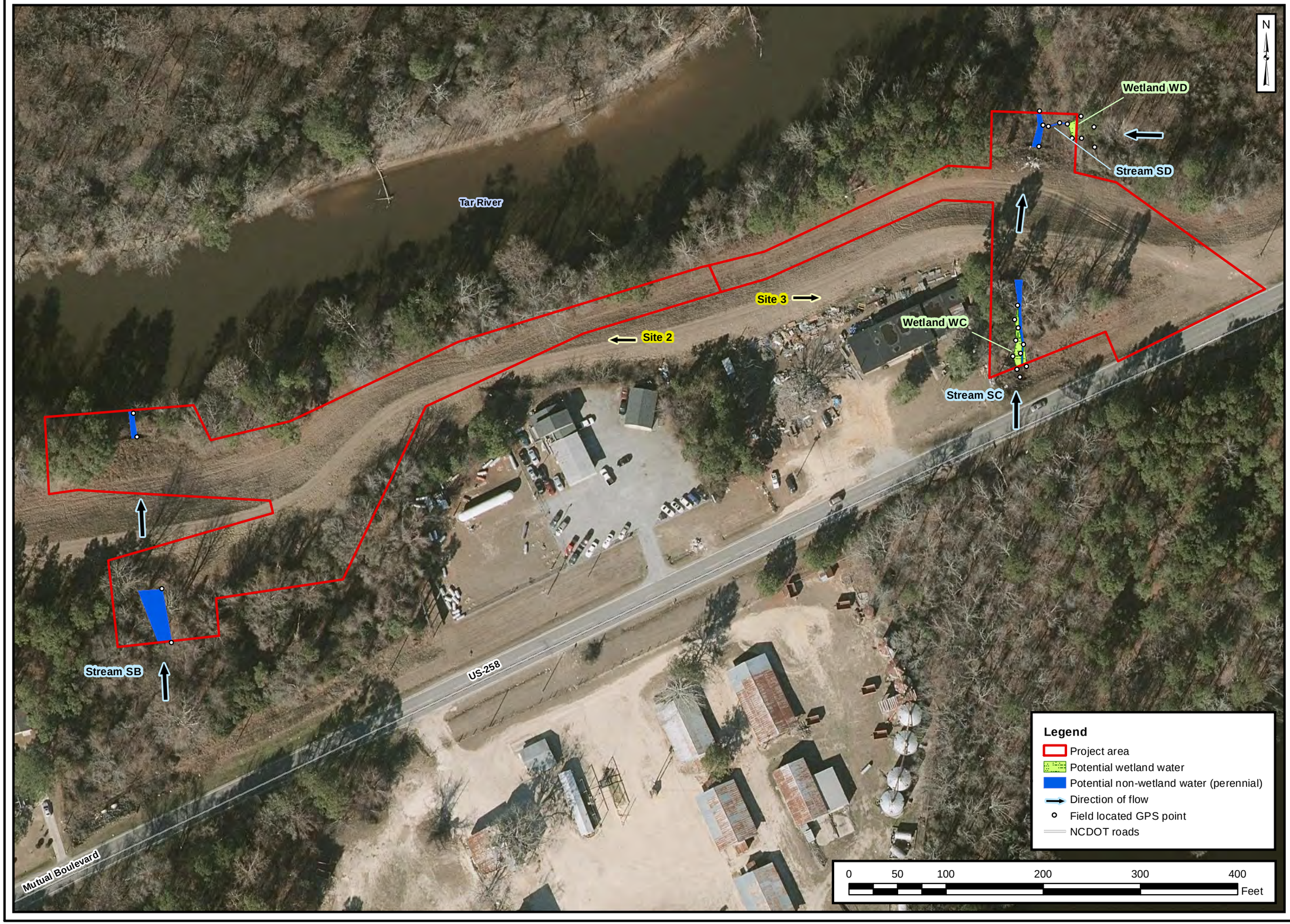
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

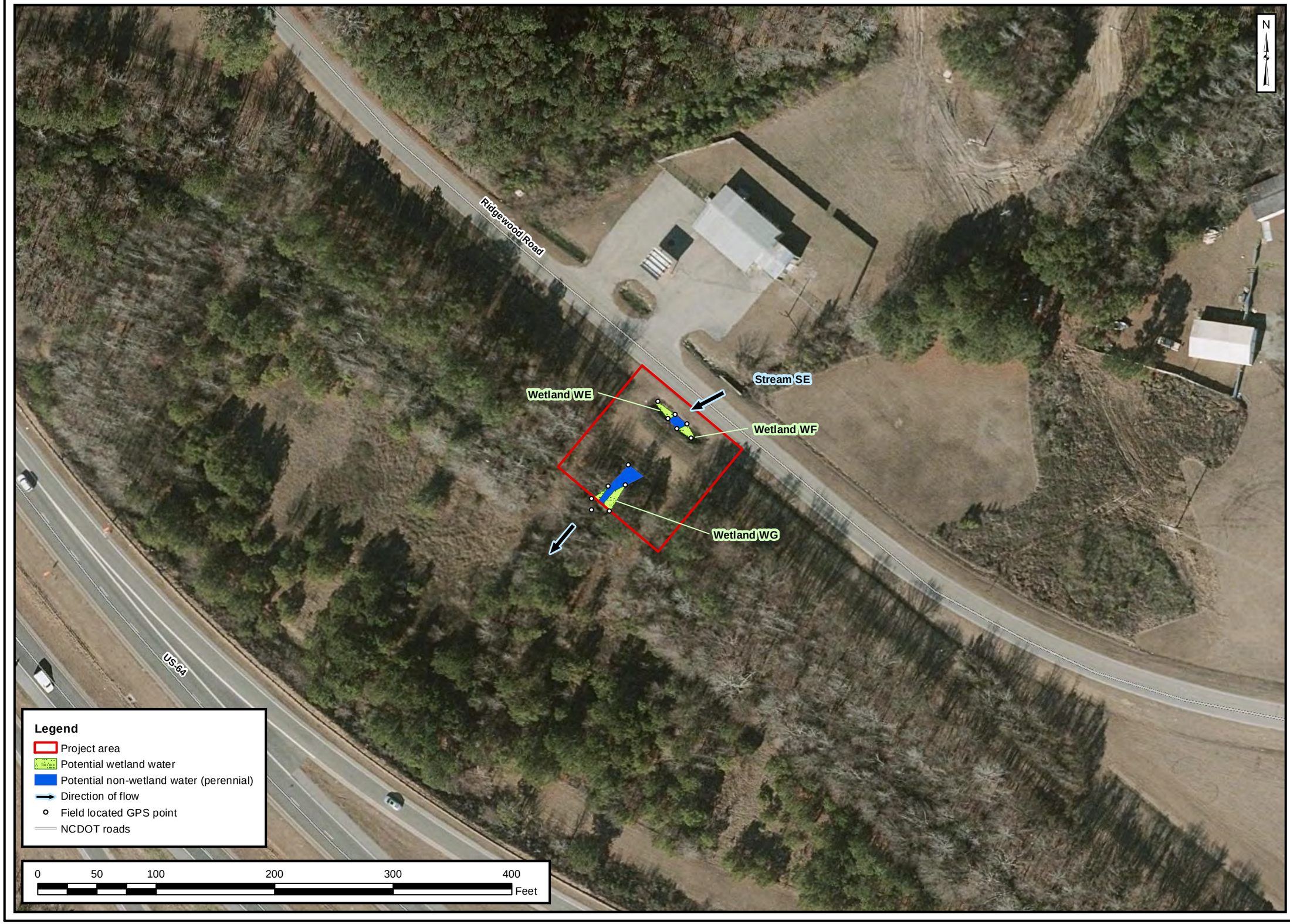
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

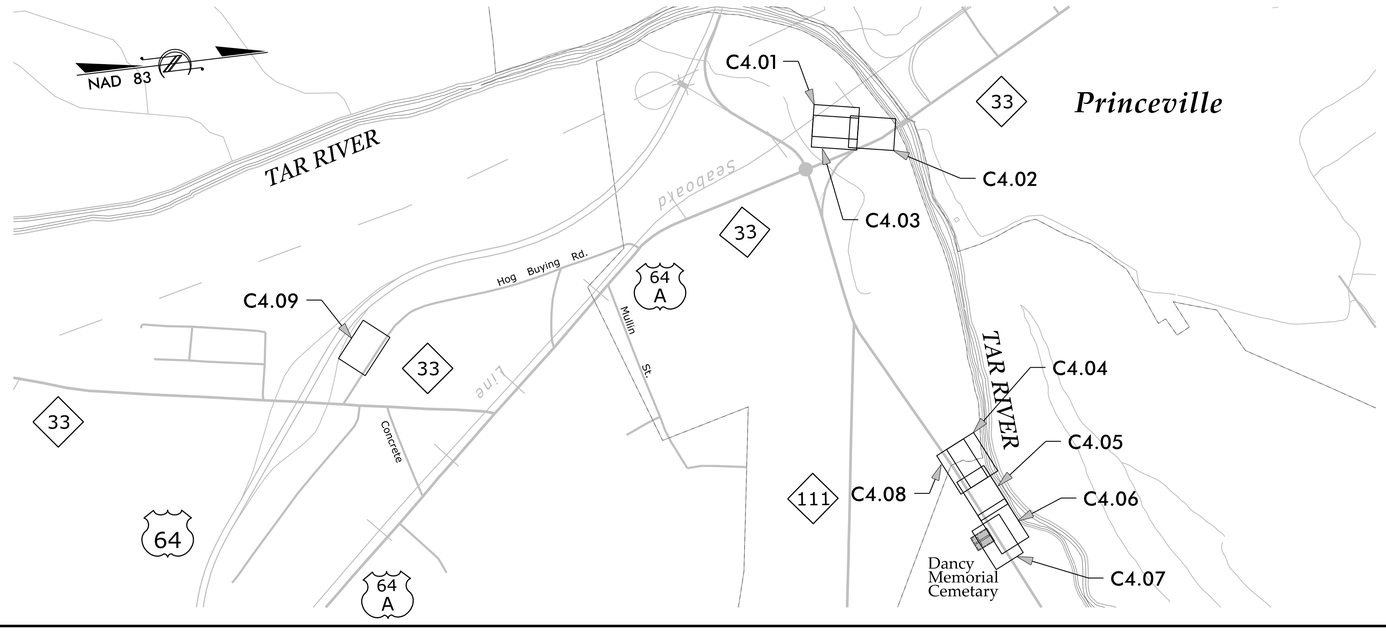
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

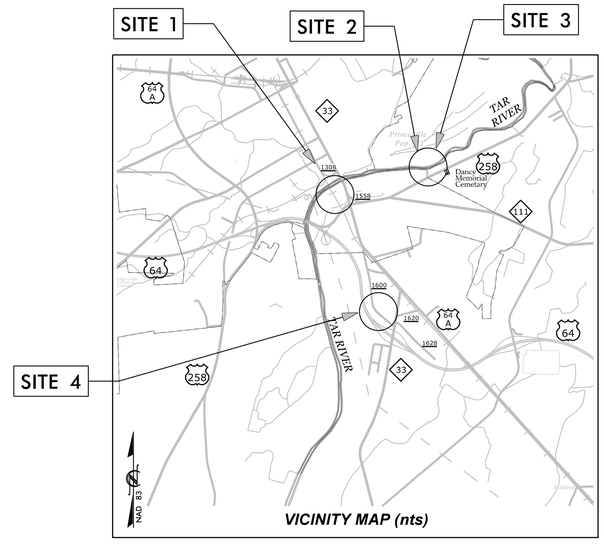
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

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CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

General Notes

1. All construction shall be in accordance with the latest edition of "NCDOT 2018 Standards and Specifications for Roads and Structures" and "NCDOT 2018 Roadway Standard Drawings" and with the standards and specifications of the Town of Princeville.
2. Existing utilities noted at the time of the field survey are shown for size, material, type, and relative location only. This plan is not a comprehensive inventory or an as-built survey of existing site utilities. The Contractor is to determine the existence and location of all utilities within the work area.
3. The Contractor shall be responsible for the location and/or relocation of all utilities in coordination with the appropriate utility agency or company. The Contractor is required to call 'The NC One Call Center' (1-800-632-4949) before digging.
4. The Contractor shall be responsible for repairing or replacing any existing site features, facilities or improvements that are damaged during the demolition or construction operation that are not indicated to be removed or abandoned.
5. Install tree protection fence and clearing and grubbing erosion control measures prior to any demolition and/or construction activity on site.
6. All disturbed slopes must be stabilized within the time frame indicated on the Ground Stabilization Table (see Erosion Control Plan). All other disturbed areas must be stabilized with the time frame indicated on the Ground Stabilization Table.
7. Contractor is to field locate proposed site improvements that require demolition of existing structures for verification by the Engineer prior to demolition.
8. Construction debris to be removed from the site and properly disposed of by the Contractor. All project waste and demolition materials to be disposed of in accordance with applicable NCDEQ Standards. Contractor to provide written verification of proper disposal to owner.
9. Any buried waste, construction debris or trash which is found during the construction operation shall be thoroughly excavated and removed from the site to an approved facility prior to the placement of any permanent fill material or pavement construction.
10. Contractor to prevent surface and air movement of dust from disturbed soil surfaces through sprinkling until it is wet. Contractor is to maintain dust control measures through dry weather periods until all disturbed areas have been stabilized.
11. All stockpile areas and temporary spoil areas shall be protected by silt fence.
12. All site work shall produce surface grades adequate for storm water runoff to prevent standing water on all developed areas and to meet existing grades in smooth transition.
13. To minimize damage to existing trees, the Contractor shall cut, rather than tear roots.
14. The Contractor is responsible for furnishing and maintaining all work zone signage relative to the work to be performed for the location indicated on the project plan set. All barricading and signage shall conform to the latest edition of "NC-Manual on Uniform Traffic Control Devices for Work Zone."
15. An on-site pre-construction meeting must be held prior to any construction activity.
16. All existing site features shall remain unless noted to be removed or demolished.
17. Construction staging and access limits to be approved by the Owner prior to any construction activity on site.
18. The Contractor shall be responsible for all construction staking. Horizontal and vertical site control coordinates and elevations are shown on sheet C2.01. The contractor is responsible for all site layout, construction staking, and as-built surveys.
19. Topography, existing conditions, easement, and right-of-way survey conducted by Sungate Design Group, PA on 4/6/2021, 4/8/2021, 4/9/2021, and 5/19/2021. Coordinates shown on plan are referenced to NAD 83 (2011) horizontal datum and NAVD 88 vertical datum.
20. The contractor shall note that the drawings may not show every offset, transition, fitting, etc. that may be required. The contractor shall install such standard appurtenances as required to closely follow the grades and alignments depicted on the plans.
21. If departures from the specifications or drawings are deemed necessary by the contractor, details of such departures and reasons therefore shall be submitted to the Owner for review. No departures from contract documents shall be made without the written permission of the Owner.
22. **All dimensions and grades shown on the plans shall be field verified by the Contractor prior to the start of construction in the area. The Contractor shall notify the Owner if any errors or discrepancies exist between the project plans and the field conditions that require plan or grade modification prior to the start of construction of the improvements in the area. No extra compensation shall be paid to the Contractor for any work redone due to grades or dimensions shown incorrectly on these plans, if such notification is not provided to the Owner prior to the initiation of the subject construction and receipt of authorization to proceed with the plans construction as revised by the Engineer.**
23. Construction operations shall be limited to the hours during the day as specified by the Owner.
24. Site access and construction shall be limited to the areas shown on the construction drawings. Any damage or excavation of the existing levee is prohibited.

Riprap Gradation Requirements						
		% Finer by Weight				
		Class of Riprap				
Weight (lbs)	Size (in)	A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GENERAL NOTES

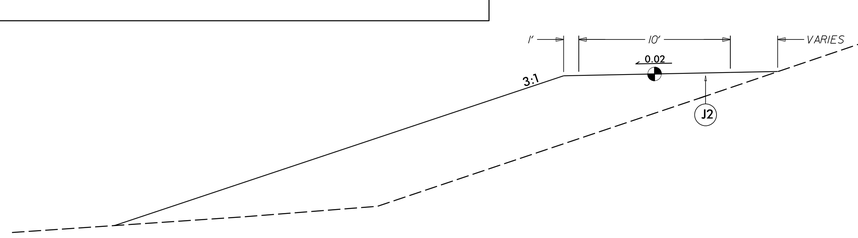
PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C20I
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.02

9/9/2021
Floodgate_Rdy_psh_C102.dgn
Layout

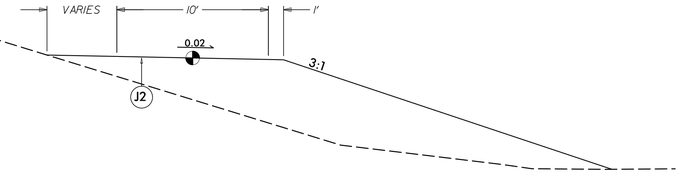
DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

J2	PROP. 6" AGGREGATE BASE COURSE.



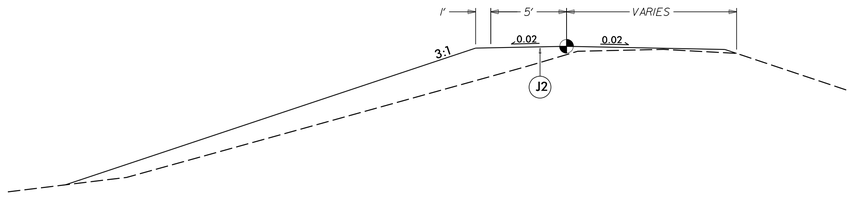
TYPICAL SECTION NO. 1

10+00 to 16+20 -AR1-
10+00 to 12+80 -AR3-
16+10 to 21+80 -AR3-
10+00 to 10+50 -AR5-



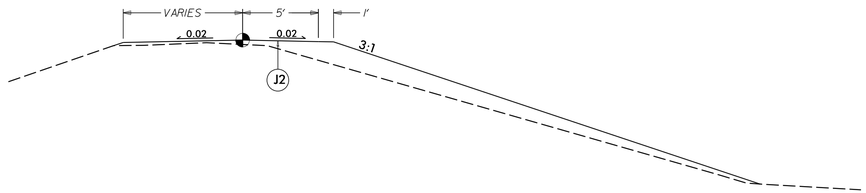
TYPICAL SECTION NO. 2

10+30 to 12+30 -AR2-
22+30 to 22+70 -AR3-
10+10 to 10+15 -AR3B-
10+20 to 10+25 -AR3B-
10+30 to 10+35 -AR3B-
10+60 to 10+70 -AR5-
10+80 to 13+20 -AR5-



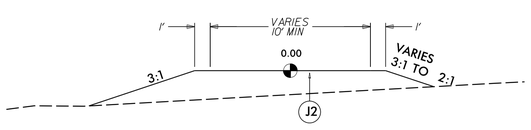
TYPICAL SECTION NO. 3

16+20 to 16+70 -AR1-
12+80 to 13+20 -AR3-
15+60 to 16+10 -AR3-
21+80 to 22+20 -AR3-



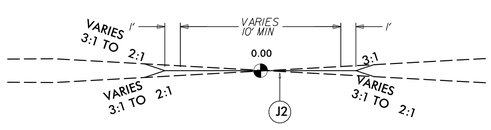
TYPICAL SECTION NO. 4

12+30 to 12+80 -AR2-
22+20 to 22+30 -AR3-
13+20 to 13+70 -AR5-



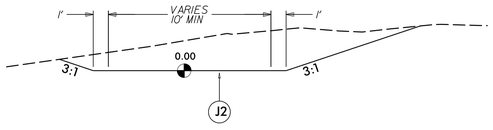
TYPICAL SECTION NO. 5

10+10 to 10+60 -AR1A-
10+10 to 10+40 -AR2A-
22+70 to 23+17 -AR3-
10+10 to 10+80 -AR3A-
10+15 to 10+20 -AR3B-
10+35 to 10+50 -AR3B-
10+15 to 10+30 -AR4-
10+10 to 10+40 -AR5A-



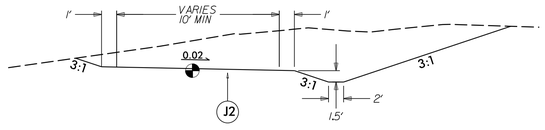
TYPICAL SECTION NO. 6

10+40 to 10+70 -AR2A-
10+25 to 10+30 -AR3B-
10+50 to 10+60 -AR3B-
10+30 to 10+50 -AR4-
10+50 to 10+60 -AR5-
10+70 to 10+80 -AR5-
10+40 to 10+50 -AR5A-



TYPICAL SECTION NO. 7

10+50 to 10+70 -AR4-
10+50 to 11+00 -AR4A-



TYPICAL SECTION NO. 8

10+05 to 10+50 -AR4A-

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by:
Joshua G. Dalton
1B9ADC1C1490409...

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

TYPICALS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C103
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C1.03**

9/9/2021
Floodgate_Rdy_psh_C103.dgn
Layout

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

83 GVD

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776204.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

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9/9/2021
Floodgate_Rdy_psh_C201.dgn
Plan view

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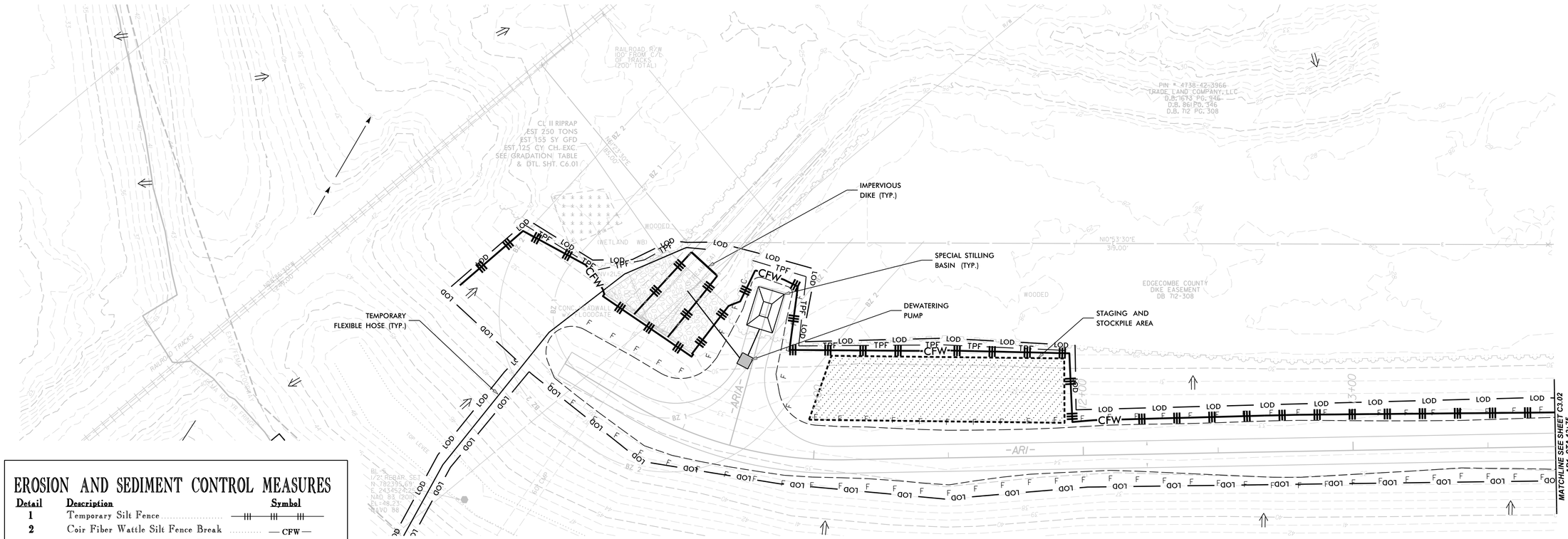
NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″=20′

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton 1B09A0BC1E9A40A...

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON NORTH CAROLINA

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C301
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.01**

9/9/2021
Floodgate_Rdy_psh_C301.dgn
Ben Kay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872



Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 15+30 to Sta. 16+70 –AR1– LT (570 SY)
Sta. 10+50 to Sta. 12+80 –AR2– RT (450 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C302
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.02**

9/9/2021
Floodgate_Rdy_psh_C302.dgn
User:rch

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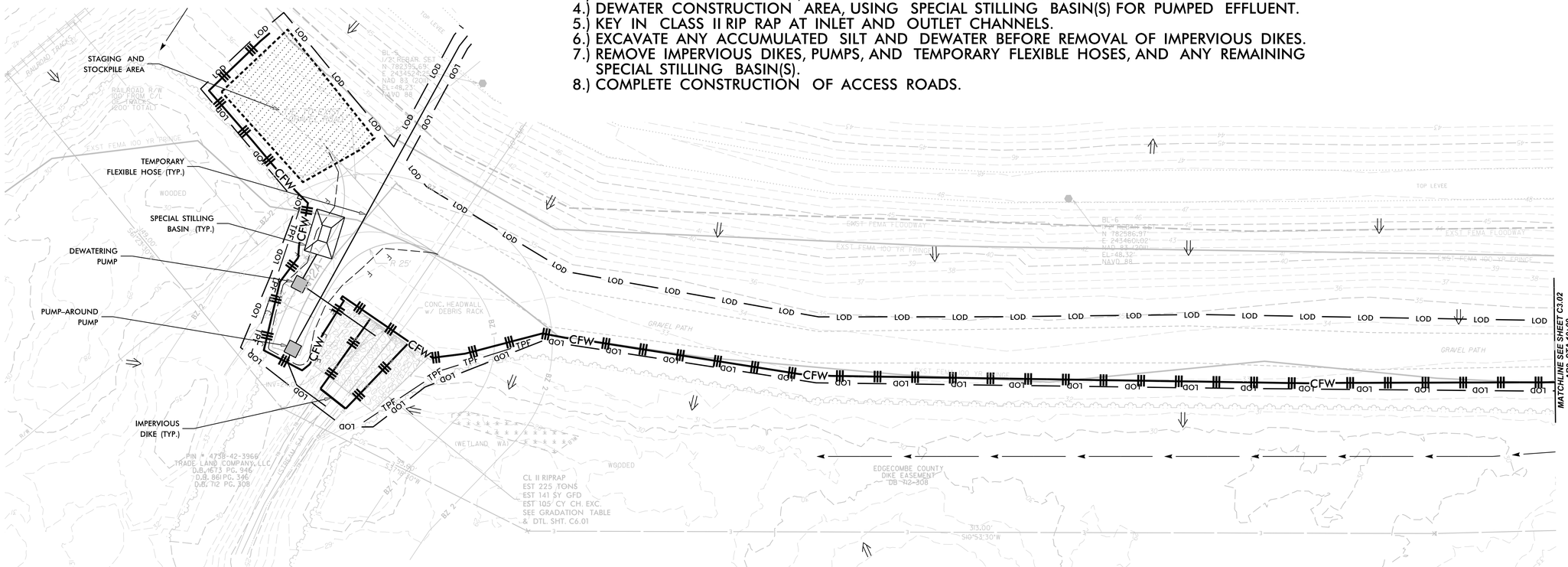
NAD 83

20' 10' 0 20' 40'

SCALE: 1" = 20'

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
Joshua G. Dalton
Registered Agent

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

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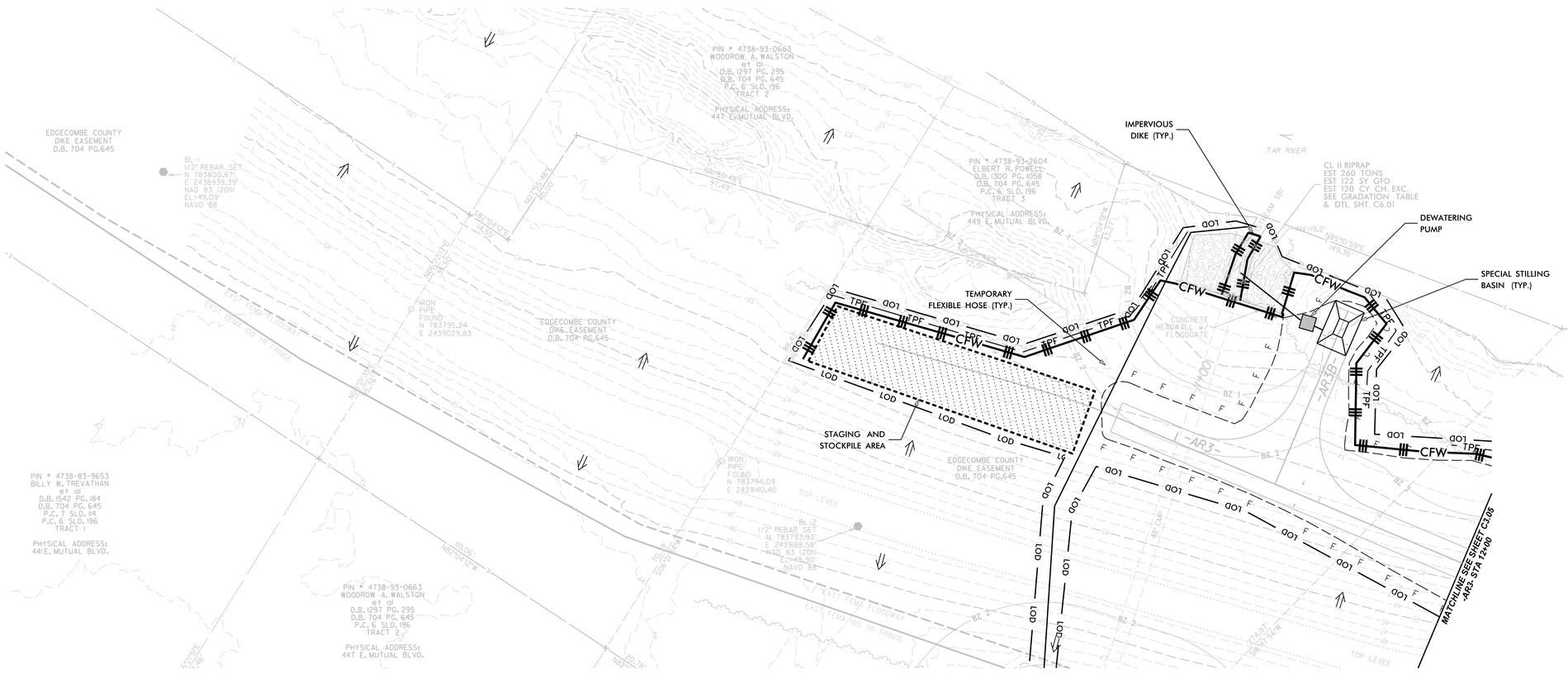
PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C303
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:
SHEET NO. C3.03

9/9/2021
Floodgate_Rdy_psh_C303.dgn
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+80 to Sta. 12+00 –AR3– LT (55 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C304
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.04**

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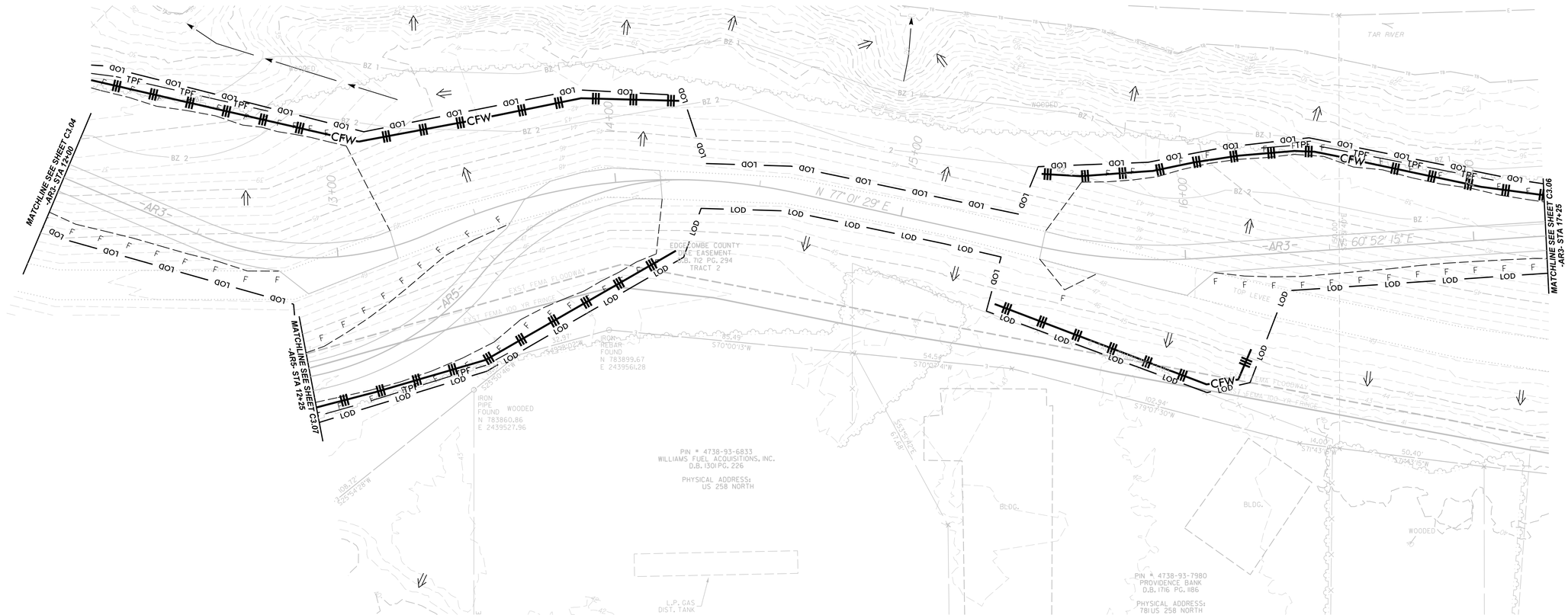
9/9/2021
Floodgate_Rdy_psh_C304.dgn
Harvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

20' 10' 0 20' 40'
SCALE: 1" = 20'

NAD 83

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 12+00 to Sta. 13+10 –AR3– LT (355 SY)
Sta. 15+90 to Sta. 16+60 –AR3– LT (200 SY)



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
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5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL 26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C305
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.05

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9/9/2021
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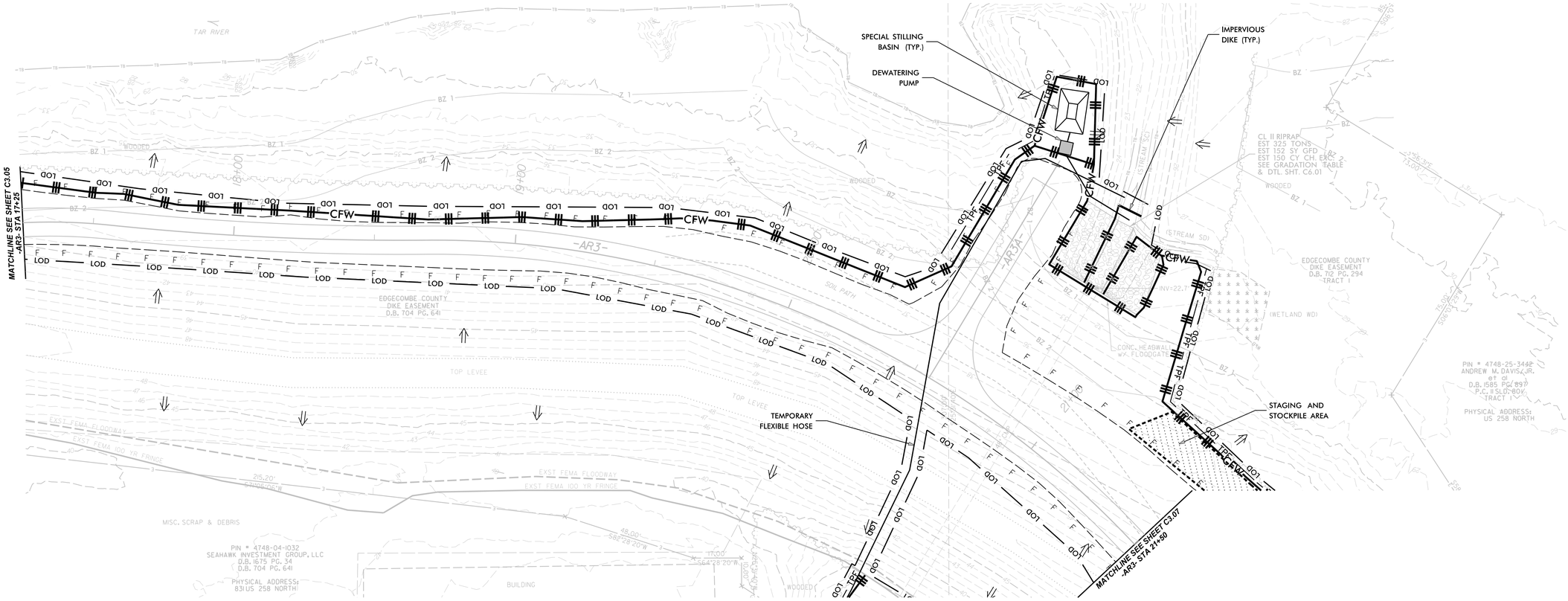
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
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3	Temporary Rock Silt Check Type-A	
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5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C306
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.06

9/9/2021
Floodgate_Rdy_psh_C306.dgn
Harvey

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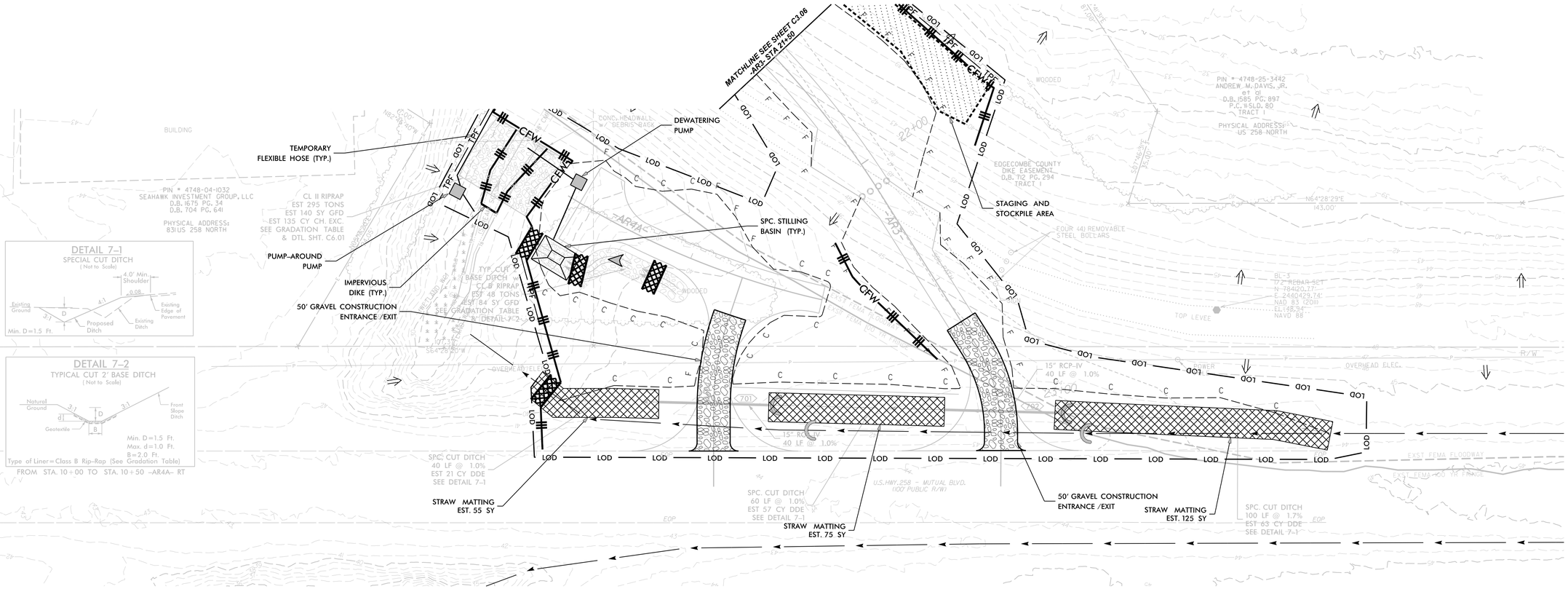
20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′

NAD 83

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)

Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT

Place Straw Matting for Erosion Control on Slope as Work Allows.
Sta. 21+50 to Sta. 22+10 –AR3– LT (185 SY)

NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	TPF
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF
8	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
10B9ADBC1489455...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C307
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

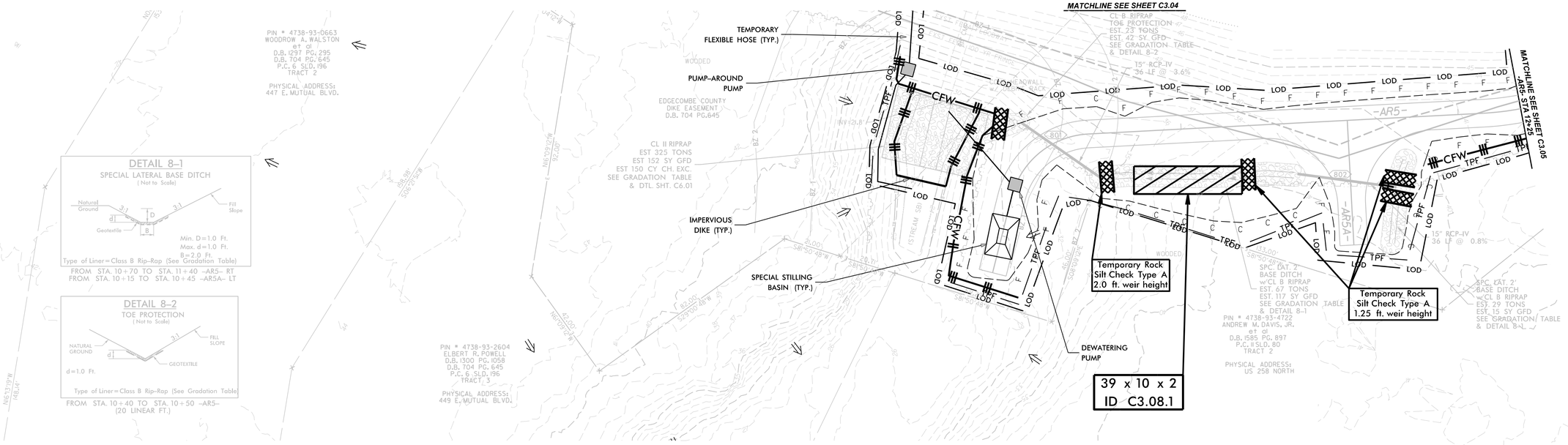
SHEET NO. **C3.07**

9/9/2021
Floodgate_Rdy_psh_C307.dgn
barclay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.


SCALE: 1"=20'
20' 10' 0 20' 40'
NAD 83
MATCHLINE SEE SHEET C3.04
MATCHLINE SEE SHEET C3.05
TEMPORARY FLEXIBLE HOSE (TYP.)
PUMP-AROUND PUMP
IMPERVIOUS DIKE (TYP.)
SPECIAL STILLING BASIN (TYP.)
DEWATERING PUMP
Temporary Rock Silt Check Type A 2.0 ft. weir height
Temporary Rock Silt Check Type A 1.25 ft. weir height
39 x 10 x 2
ID C3.08.1
CL II RIPRAP
EST 325 TONS
EST 152 SY GFD
EST 150 CY CH. EXC.
SEE GRADATION TABLE
& DTL. SHT. C6.01
CL B RIPRAP
TOE PROTECTION
EST. 73 TONS
EST. 42 SY GFD
SEE GRADATION TABLE
& DETAIL 8-2
15" RCP-IV
36 LF @ 3.6%
15" RCP-IV
36 LF @ 0.8%
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 67 TONS
EST. 117 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 29 TONS
EST. 15 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645
PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG.645
P.C. 6 SLD. 196
TRACT 2
PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.
PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3
PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.
PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 6 SLD. 80
TRACT 2
PHYSICAL ADDRESS:
US 258 NORTH
-AR5-
-AR5A-
WETLAND
(STREAM SB1)
WETLAND
WETLAND
WETLAND

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

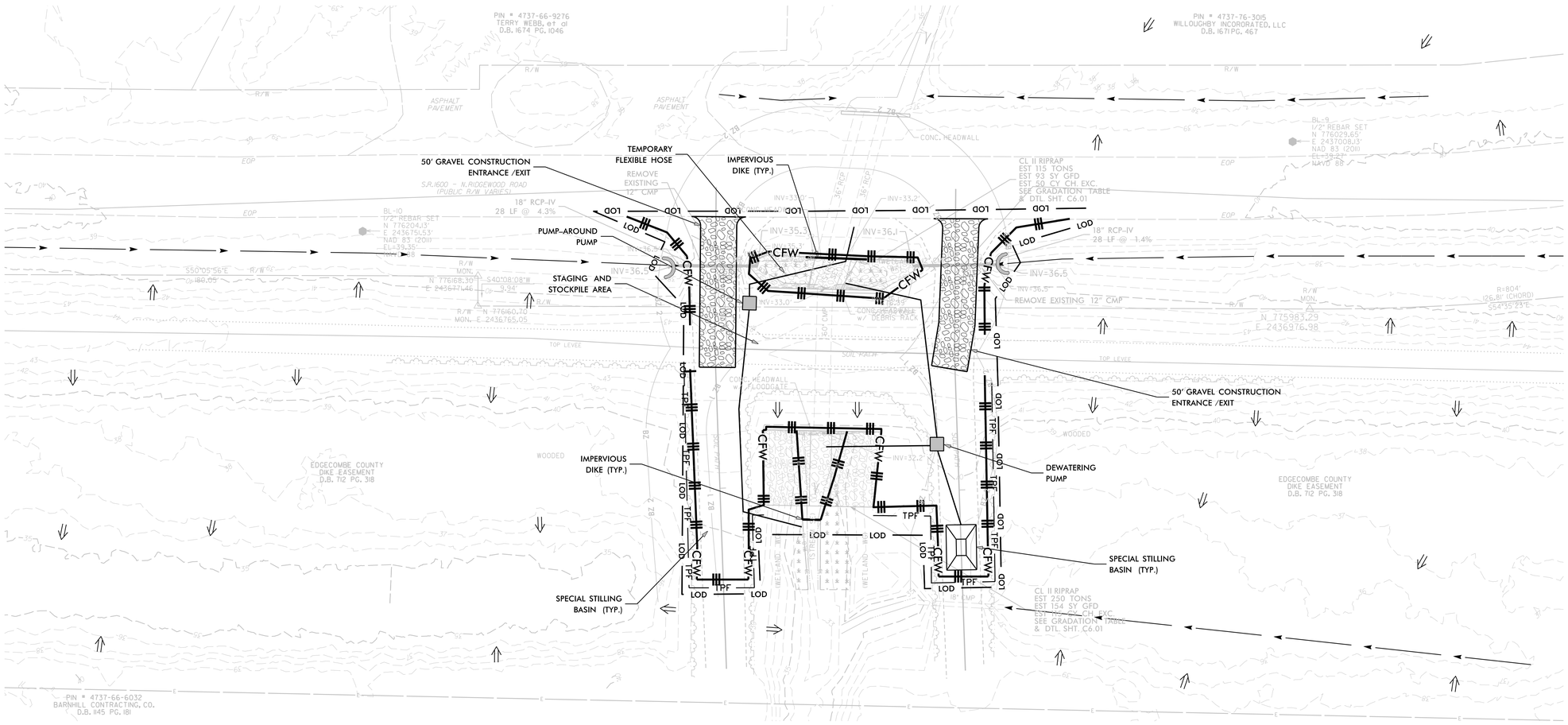
20' 10' 0 20' 40'

SCALE: 1" = 20'

NAD 83

PHASING FOR SHEET C3.09:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C309
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.09**

9/9/2021
Floodgate_Rdy_psh_C309.dgn
Harvey

ATTACHMENT 9:

Farmlands Protection

USDA NRCS Correspondence
and Soil Surveys

Gievers, Andrea

From: Muzzy, Laura - FPAC-NRCS, RALEIGH, NC <Laura.Muzzy@usda.gov>
Sent: Tuesday, January 17, 2023 12:20 PM
To: Gievers, Andrea
Subject: [External] Farmland Protection Policy Act (FPPA) information
Attachments: FPPA Procedure for Applicants NRCS-NC.pdf; FPPA_Manual official reg Part523.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Hi, Andrea,
Great to talk to you today! I hope I can help a tiny bit with FPPA review to make any rebuild projects smoother for your team. Feel free to forward this email to anyone who might find it useful.

The Farmland Protection Policy Act is essentially a review system that the USDA-NRCS uses to track the loss of farmland (I know: it's sad that we lose farmland, but at the very least we should do our best to protect the *prime/unique* farmland, so that's why we do this).
First of all, the FPPA is only applicable when a project receives financial or technical assistance from a Federal Agency *and* irreversibly converts farmland to nonagricultural use. The attached document **FPPA Procedure for Applicants in NC** will help applicants go through the application if the project fits those parameters.
The attached **FPPA Manual** has in-depth information about lands and activities covered (page 6). If the project is all under the urbanized area, no need to do an FPPA application.
If there's any uncertainty about whether or not land being used in a specific project is an urbanized area, it's the first thing I would check is this NEPAssist tool under Boundaries, and check the Urbanized Areas box. NEPAssist is currently using the 2019 US Census Bureau TIGER data for Urbanized Areas so they are of course subject to change! USGS topographical maps can also be helpful in determining urbanized areas, as they would have a pink tint overlay on urban land. Another example of urban designations is also on p. 21 of the FPPA Manual; for example, streets in areas with 30 structures in 40 acres, utilities/services structures, and gas stations are considered Urban Land and therefore exempt for FPPA.

As for the Princeville levee project: Dam or levee construction *is* subject to the FPPA; however, the Princeville levee was constructed prior to Aug 4, 1984, and already used for water storage. So that project does not fall under the jurisdiction of the FPPA, according to Section 523.10 (B. Lands Not Subject to Provisions of FPPA) and 523.11 (C. Activities Not Subject to Provisions of FPPA):

> 523.10
> (6) Land in water storage, including lands that have been acquired or planned for water storage prior to August 5, 1984 (See Section 523.11C.)
>
> 523.11
> C. Activities Not Subject to Provisions of FPPA
> These activities include:
> (1) Federal permitting and licensing
> (2) Projects planned and competed without the assistance of a Federal agency
> (3) Projects planned or constructed prior to August 4, 1984 (FPPA, Part 658)
> (4) Projects on land already in urban development or used for water storage

(5) Construction within an existing right-of-way purchased on or before August 4, 1984

I am always happy to answer questions or talk about any concerns.
Have a good day!

best,

Laurie F. Muzzy *(she/her)*
Resource Soil Scientist | USDA-Natural Resources Conservation Service
m: (919) 737-3640
o: (919) 873-2158
4407 Bland Road, suite #117
Raleigh, NC 27609

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Edgecombe County, North Carolina

Princeville Levee Floodgate Repairs - Structure 1



July 13, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

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Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

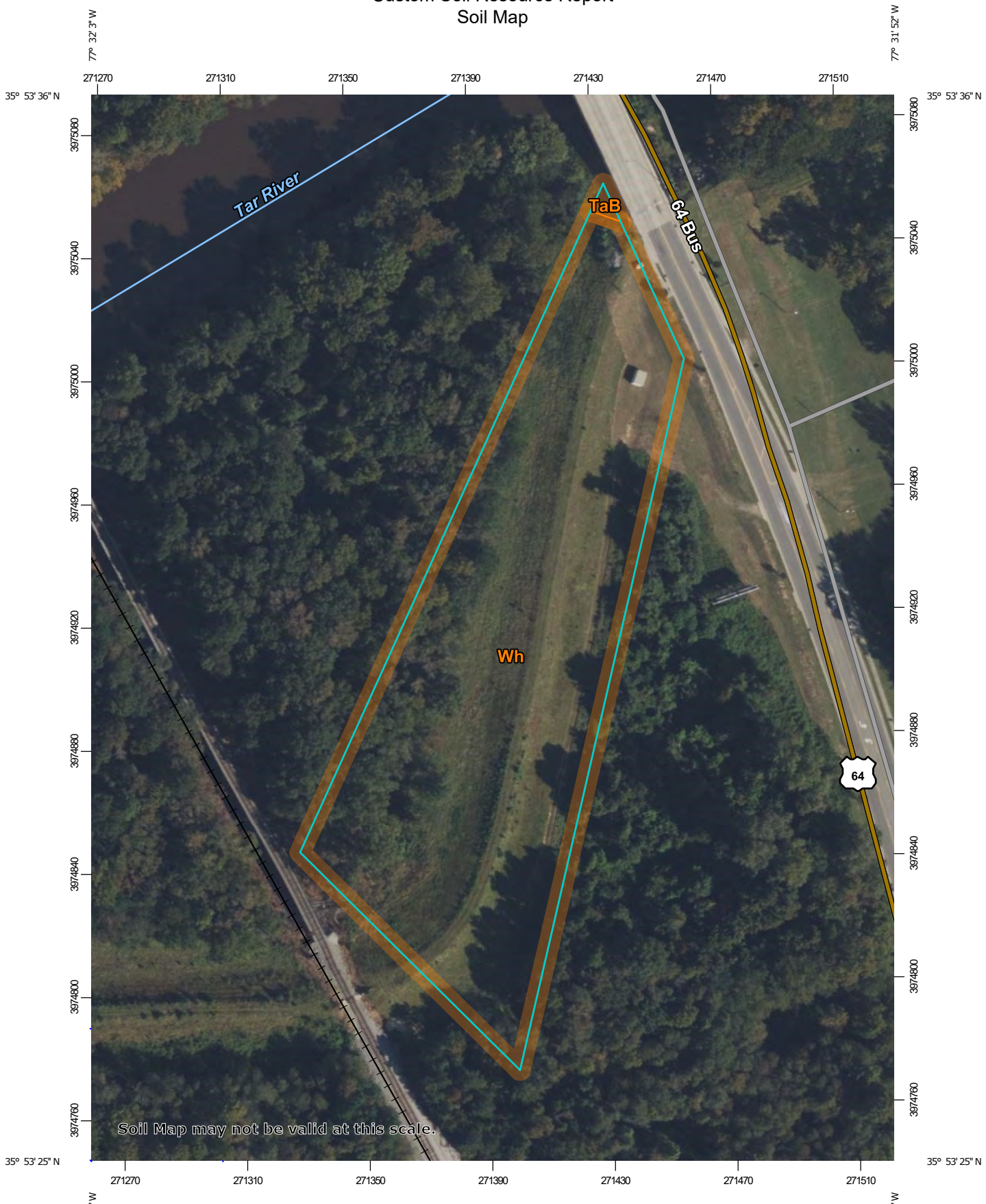
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,690 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Edgecombe County, North Carolina
Survey Area Data: Version 19, Jan 21, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 1, 2020—Nov 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
TaB	Tarboro loamy sand, 0 to 6 percent slopes	0.0	0.3%
Wh	Wehadkee silt loam	3.9	99.7%
Totals for Area of Interest		**3.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Edgecombe County, North Carolina

TaB—Tarboro loamy sand, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 132x7
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Not prime farmland

Map Unit Composition

Tarboro and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tarboro

Setting

Landform: Ridges on stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy fluviomarine deposits and/or alluvium

Typical profile

A - 0 to 9 inches: loamy sand
C1 - 9 to 48 inches: sand
C2 - 48 to 99 inches: gravelly sand

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Hydric soil rating: No

Wh—Wehadkee silt loam

Map Unit Setting

National map unit symbol: 132xh
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Not prime farmland

Map Unit Composition

Wehadkee, undrained, and similar soils: 80 percent
Wehadkee, drained, and similar soils: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wehadkee, Undrained

Setting

Landform: Depressions on flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 7 inches: loam
Bg - 7 to 58 inches: loam
Cg - 58 to 84 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Wehadkee, Drained

Setting

Landform: Depressions on flood plains
Down-slope shape: Concave
Across-slope shape: Linear

Parent material: Loamy alluvium

Typical profile

A - 0 to 7 inches: loam
Bg - 7 to 58 inches: loam
Cg - 58 to 84 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

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Custom Soil Resource Report for Edgecombe County, North Carolina

Princeville Levee Floodgate Repairs - Structures 2 & 3



July 13, 2022

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:2,160 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Edgecombe County, North Carolina
Survey Area Data: Version 19, Jan 21, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 1, 2020—Nov 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Ballahack fine sandy loam	0.2	7.7%
TaB	Tarboro loamy sand, 0 to 6 percent slopes	2.6	89.9%
Wh	Wehadkee silt loam	0.1	2.3%
Totals for Area of Interest		**2.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Edgecombe County, North Carolina

Ba—Ballahack fine sandy loam

Map Unit Setting

National map unit symbol: 132rf
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Ballahack, undrained, and similar soils: 80 percent
Ballahack, drained, and similar soils: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ballahack, Undrained

Setting

Landform: Flats on stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy, loamy and clayey fluviomarine deposits

Typical profile

Ap - 0 to 37 inches: fine sandy loam
Cg1 - 37 to 49 inches: sandy clay loam
Cg2 - 49 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Ballahack, Drained

Setting

Landform: Flats on stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy, loamy and clayey fluviomarine deposits

Typical profile

A - 0 to 37 inches: fine sandy loam
Cg1 - 37 to 49 inches: sandy clay loam
Cg2 - 49 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

TaB—Tarboro loamy sand, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 132x7
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Not prime farmland

Map Unit Composition

Tarboro and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tarboro

Setting

Landform: Ridges on stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy fluviomarine deposits and/or alluvium

Typical profile

A - 0 to 9 inches: loamy sand
C1 - 9 to 48 inches: sand

C2 - 48 to 99 inches: gravelly sand

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Hydric soil rating: No

Wh—Wehadkee silt loam

Map Unit Setting

National map unit symbol: 132xh
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Not prime farmland

Map Unit Composition

Wehadkee, undrained, and similar soils: 80 percent
Wehadkee, drained, and similar soils: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wehadkee, Undrained

Setting

Landform: Depressions on flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 7 inches: loam
Bg - 7 to 58 inches: loam
Cg - 58 to 84 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Wehadkee, Drained

Setting

Landform: Depressions on flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 7 inches: loam
Bg - 7 to 58 inches: loam
Cg - 58 to 84 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Edgecombe County, North Carolina

Princeville Levee Floodgate Repairs - Structure 4



July 13, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:383 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 15 30 60 90

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Edgecombe County, North Carolina
Survey Area Data: Version 19, Jan 21, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 1, 2020—Nov 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ro	Roanoke loam	0.3	100.0%
Totals for Area of Interest		**0.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Edgecombe County, North Carolina

Ro—Roanoke loam

Map Unit Setting

National map unit symbol: 132x5
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Roanoke, undrained, and similar soils: 85 percent
Roanoke, drained, and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Roanoke, Undrained

Setting

Landform: Depressions on stream terraces, backswamps on stream terraces
Landform position (three-dimensional): Flat
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Old clayey alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 7 inches: loam
BAg - 7 to 10 inches: loam
Btg - 10 to 43 inches: clay
BCg - 43 to 52 inches: clay
Cg - 52 to 80 inches: gravelly sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Roanoke, Drained

Setting

Landform: Depressions on stream terraces, backswamps on stream terraces
Landform position (three-dimensional): Flat

Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Old clayey alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 7 inches: loam
BAg - 7 to 10 inches: loam
Btg - 10 to 43 inches: clay
BCg - 43 to 52 inches: clay
Cg - 52 to 80 inches: gravelly sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

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ATTACHMENT 10

EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination

Princeville Levee Floodgate Repairs Project

EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination

Infrastructure Recovery Program

April 18, 2023

Introduction & Overview

The purpose of Executive Order (EO) 11988 Floodplain Management is "to avoid to the extent possible the long- and short-term adverse impacts associated with occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." The purpose of EO 11990 Protection of Wetlands is "to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." This determination contains the analysis prescribed by 24 CFR Part 55.

This proposed action involves U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant Program – Disaster Recovery (CDBG-DR) funding to perform inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. The analysis that follows focuses on floodplain and wetland impacts, as there are direct wetland and floodplain impacts associated with this proposed action. Based on the existing levee system, need for repairs, type of land use, and other case characteristics described herein, it is concluded that there is a reasonable basis to proceed with funding for this proposed action within floodplain and wetland. The HUD CDBG-DR funding is administered through the North Carolina Office of Recovery and Resiliency (NCORR) Infrastructure Recovery Program which is developing sustainable and resilient communities. Thus, alternatives preventing or impeding the development of sustainable and resilient communities are not considered reasonable alternatives.

Description of Proposed Action & Land Use

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters, in part due to the functional failure of the Princeville floodgates located along the USACE levee bordering the Tar River. Following the storm event, the Town of Princeville undertook to design construction upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. Areas anticipated to be addressed have experienced flooding in the past (See Attachment 1: Hurricanes Matthew and Floyd Extent Map from June 2017 Meeting in *Princeville Levee Floodgate Repairs Project Environmental Assessment [EA] Environmental Review Record [ERR]*).

The proposed action consists of the Town of Princeville, North Carolina performing inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and constructing permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. The existing levee segments of the proposed action were constructed in 1965 to 1967 by the US Army Corps of Engineers (USACE) but are maintained by Edgecombe County. The Town's procured designer conducted design analysis calculations for these levees, which also contain culverts with flap gates in the existing levee segments, installed by NC Department of Transportation (NCDOT) in 2018 as backflow prevention devices. The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original

Princeville Levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events (**Appendix 1**: Design Plans). The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance, and flood-fighting operations, therefore, no new access roads are proposed at Site 4.

Proposed location

Four levee floodgate culvert locations along the Tar River, Princeville, Edgecombe County, NC 27886 (Subject Property). *(The structure site locations are also identified on the original USACE Princeville Dike General Plan, Vicinity Map and Index of Drawings Dike Sections "A" and "B", Plate G-1 dated February 15, 1965, included in the USACE Princeville Dike Repairs Operation and Maintenance Manual dated July 2001, and recorded in Map Book 13, Pages 93-109 in the Edgecombe County, NC Register of Deeds Office.)*

Structure Site Location	**Reference Station**	**Approximate Location**
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

The proposed action will occur mainly at four floodgate culvert locations (Subject Property), identified above, located along the intersection of the USACE protective levee and the Tar River (**Appendix 1**: Design Plans and USACE Notice of Preliminary Jurisdictional Determination). This proposed action is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with most of the work occurring in areas of previous ground disturbance.

The Subject Property contains areas classified as shaded Zone "X" (areas between the limits of the base flood and the 0.2-percent-annual-chance or 500-year floodplain), Zone "AE" (100-year floodplain), and FEMA-designated regulatory floodway, as denoted by Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) in **Appendix 1**. Preliminary FIRMs (PFIRMs) are not available for the Town of Princeville according to the FEMA Map Service Center. The FEMA FIRMs were consulted for the Subject Property. Site 1 is located on FEMA FIRM panel 3720473800K, effective on 06/02/2015. Sites 2 and 3 are located on FEMA FIRM panels 3720473800K and 3720474800K, both effective on 06/02/2015. Site 4 is located on FEMA FIRM panel 3720473700J, effective on 11/03/2004. The proposed action includes work in areas located within a FEMA-designated regulatory floodway. Since the proposed action involves repairing floodgates at an existing levee, the activities are a functionally dependent use. Thus, the proposed action activities may receive federal funding despite location in a regulatory floodway and compliance with 24 CFR 55 and EO 11988 is required (See 24 CFR 55.1(c)(1)). The proposed action does not include an insurable structure according to the National Flood Insurance Program (NFIP) Flood Insurance Manual effective October 1, 2022.

Applicable Regulatory Procedure Per EO 11988 and EO 11990

The proposed action corresponds with a noncritical action not excluded under 24 CFR §55.12, and the use is a functionally dependent use. Funding is permissible for the use in the floodplain, floodway, and wetland if the proposed action is processed under 24 CFR §55.20 and the findings of the determination are affirmative to suggest that the proposed action may proceed.

In accordance with 24 CFR 55, the proposed action's activity to repair floodgates at an existing levee and construct access roads occurs in the Town of Princeville that is a participating community in good standing in the regular program of the National Flood Insurance Program (NFIP). Substantial Improvement/ Substantial Damage calculations do not apply to this proposed action. However, this proposed action involves "modification" of floodplain and floodway. The proposed action's levee floodgate repairs are allowed in floodway since it is classified as non-critical action, is a functionally dependent use that must necessarily be in close proximity to water (24 CFR §55.2[b][6]) and is being processed under 24 CFR 55.20. As such, the full eight-step floodplain determination process in §55.20 is required, and the following analysis examines each step in an EO 11988 floodplain management determination process.

Based on information from the USACE Preliminary Jurisdictional Determination (PJD) (see **Appendix 1**), there will be "new construction" in National Wetlands Inventory (NWI)-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub) and streams. Thus, in accordance with the decision-making process set forth in 24 CFR Part 55, the following analysis also examines each step in an EO 11990 wetlands protection determination process.

Step 1. **Determine Whether the Proposed Action is Located in the 100-year Floodplain (500-year for Critical Actions) or results in New Construction in Wetlands.**

According to the FEMA FIRMs, the proposed action occurs in areas classified as 500-year floodplain, 100-year floodplain (Special Flood Hazard Area [SFHA] - Zone "AE"), and FEMA-designated regulatory floodway (**Appendix 1**). The proposed action is considered "modification" of floodplain and floodway as the activities will involve excavation, fill, and channel repair in the 100-year floodplain and excavation, fill and channel repair in FEMA-designated regulatory floodway. Communities must regulate development in floodways to ensure that there are no increases in upstream flood elevations. A Floodplain Development Permit and no-rise certification obtained for the proposed action concluded that it will not increase base flood elevations within the FEMA floodplain (**Appendix 1**).

Based on the USACE PJD, the proposed action is located in NWI-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub) and streams, as shown in **Appendix 1**. The proposed action is considered "new construction" in wetlands as the activities will involve hand clearing, fill and channel repair in wetlands. In addition, there will be temporary dewatering and channel repair in streams. The USACE Clean Water Act (CWA) Section 404 Nationwide Permit #3 (NWP #3) for Maintenance has been issued for the wetland and stream impacts. A CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. The NC Department of Environmental Quality (DEQ) Division of Water Resources (NC DWR) has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization for the proposed action.

The proposed action's activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. All necessary permits will be identified and obtained prior to commencing work and appended to the *Princeville Levee Floodgate Repairs Project EA ERR* when received from the permitting agencies.

Step 2. **Initiate Public Notice for Early Review of Proposal.**

Because the proposed action is located in floodplain, floodway and wetlands, NCORR published an early notice that allowed for public and agency input on the decision to provide funding for construction and development activities. The early public notice and 15-day comment period is complete. No new, substantive public comments were received. Mr. Daniel Webb, Edgecombe County, had previously requested railway access to cross the tracks for maintenance purposes at the end of Site 4 to be incorporated into the proposed project but this was deemed to be outside of the proposed project's scope and timeline. The U.S. EPA commented that the "EPA has not identified any significant environmental impacts associated with the proposed activity and has no further comments."

The early notice and corresponding 15-day public comment period started on December 8, 2022, with the "Early Notice and Public Review of a Proposed Activity in a 100-Year Floodplain and Wetland" being published in the Rocky Mount Telegram newspaper and the 15-day period expiring on December 23, 2022. The notice targeted local residents within the community, including those in the floodplain. The notice was also posted at https://www.rebuild.nc.gov/about/plans-policies-reports/environmental-reviews and sent via Federal Express and email to the following federal and State agencies on December 8, 2022: HUD NC Field Office; Federal Emergency Management Agency (FEMA); U.S. Environmental Protection Agency (EPA); U.S Fish and Wildlife Service (USFWS); National Oceanic and Atmospheric Administration (NOAA) Fisheries Service; USACE; NC Wildlife Resource Commission (WRC); and NC State Environmental Clearinghouse. The notice was also sent to Edgecombe County and the Town of Princeville. Project information has been sent to the NC State Historic Preservation Office (SHPO), Catawba Indian Nation, and Tuscarora Nation for review and comment under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (See *Princeville Levee Floodgate Repairs Project EA ERR*). (See **Appendix 2** for the early notice distributed to these agencies, the newspaper publication affidavit, distribution list, and comments received).

Step 3. **Identify and Evaluate Practicable Alternatives to Locating the Proposed Action in a 100-year Floodplain or Wetland.**

The North Carolina Infrastructure Recovery Program empowers the State's most impacted communities with the technical expertise needed to develop thorough and implementable reconstruction plans to build physically, socially, and economically resilient and sustainable communities.

The main alternative is the "No Action" Alternative for the current proposed action. The "No Action" Alternative is not considered feasible since Princeville has been historically subjected to devastating flooding and storm damage, and action is necessary to protect the residents and community from future storm events. One concern with the "No Action" Alternative is the potential decertification of the levee by FEMA which would result in virtually the whole town being mapped as 100-year floodplain and subsequent requirement for the costly elevation of structures and flood insurance for homeowners according to the Princeville Recovery Plan.

This proposed action involves repairing floodgates at an existing levee and constructing access roads. The proposed action must be performed at the existing floodgates, and project designs have been completed in accordance with agency input to minimize impacts to the environment and community. The existing levee segments of the proposed action were constructed between 1965 to 1967 by the USACE but are maintained by Edgecombe County. According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. When levees fail, or are overtopped, the results can be catastrophic. Levees can and do deteriorate over time and must be maintained

to retain their effectiveness. Deterioration of the levee and, in particular, these sections addressed by the proposed action have been studied and discussed in the Preliminary Engineering Report and Effect of Repeated Rise and Fall of Water Level on Seepage-Induced Deformation and Related Stability Analysis of Princeville Levee, Engineering Geology, Volume 266, 105458, March 5, 2020. During the Preliminary Engineering Report's observations and conversations with Edgecombe County personnel, the structures were ascertained to have sustained damage over the years due to periodic flooding and weathering over time. As shown in Appendix I of the Preliminary Engineering Report, the concrete headwalls have begun to deteriorate and the riprap blankets have been washed out. Without the riprap blankets, the soil foundations of the headwalls have been undercut, sustained erosion is occurring due to lack of energy dissipation at the outlet, and the flapper gates fail to perform properly. Modifications to the riprap erosion blankets are required to improve the functionality of the flapper gates. During the Hurricane Matthew storm event, the floodgate structures were submerged underwater for at least five days resulting in weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. The proposed repairs are intended to restore the existing structures to their former as-built condition according to the Preliminary Engineering Report. The "No Action" Alternative is not feasible in relation to the desired objective. Therefore, the "No Action" Alternative examined is not considered desirable, and the proposed action is still practicable in light of potential adverse impacts on the floodplain and wetlands and the potential to disrupt the natural, social, economic and beneficial functions and values of the floodplain and wetlands.

Numerous alternative and concerted projects have been considered to address Princeville's historic flooding over the years. (See Town of Princeville's Final Comprehensive Plan.) As a result of Hurricane Floyd in 1999, Princeville experienced catastrophic flooding and the damage or destruction of nearly all 1,000 residential structures. Floodwaters initially entered the Town through a number of ungated culverts located under a section of U.S. Highway 64. This flood of record then overtopped the levee in one location and ultimately circumvented the levee at its north end, inundating the Town with floodwaters. Up to twenty feet of water stood in Princeville for nearly 10 days until river levels subsided enough that the floodwaters drained or could be pumped from the town.

In the aftermath of Hurricane Floyd, President Clinton issued Executive Order 13146, which established a President's Council on the Future of Princeville, North Carolina to consider "…the unique historic and cultural importance of Princeville in American history; the views and recommendations of the relevant State and local governments, the private sector, citizens, community groups and non-profit organizations, on actions that they could take to enhance the future of Princeville and its citizens; and, agency assessments and recommendations to repair and rebuild Princeville, and to the extent practicable, protect Princeville from future floods." The Council's report was submitted in August 2000, and recommended quickly bringing the citizens of Princeville home while rebuilding toward a more disaster-resistant community. The Council's report, EO 13146, EO 12898, and community and agency input were used to determine the best and most feasible storm damage prevention solutions for the future of Princeville. The Town of Princeville has selected the proposed action to assist its residents and community to be protected from future storm damage and flooding.

In 2001, USACE was authorized and funded to prepare a feasibility study to address flood risk management issues. Multiple structural and non-structural measures and alternatives were examined during the course of the feasibility study. The Feasibility Scoping Meeting, held in 2006, discussed the likelihood that many of the most responsive plans might lack economically-justified alternatives that would meet the current guidance requiring National Economic Development (NED) justification. At that time, the entire vertical team agreed to pursue alternatives that addressed all areas of flood risk, including extending the existing levee. The Final Array of Alternatives consisted of a No-Action Plan and an array of structural and non-structural alternatives. Each alternative was formulated to provide an incremental solution to flood risk at the least cost for a given increment of flooding, as well as a suite of non-structural measures considered to

be critical to the success of each alternative. These non-structural measures included a flood warning and evacuation plan, continued floodplain management and updating of local building and zoning codes, and a flood risk management education and communication plan (for both the community and local schools). All of these non-structural components were ultimately deemed essential for an adequate flood risk management strategy for the Town and would substantially reduce remaining levels of flood risk after construction or implementation of any structural plan elements. Consideration of all factors evaluated resulted in a plan that was most responsive to flood risk, while not causing unacceptable impacts to adjacent and downstream assets. According to the April 2016 Final Report, six alternatives were identified and evaluated, including no action and 1) Flap gate additions and culvert modifications; 2) Flap gates, Hwy 33/64 interchange raising, and low shoulder levee on Hwy 64; 3) Flap gates, Hwy 33/64 interchange raising, and higher shoulder levee on Hwy 64; 4) Flap gates, Hwy 33/64 interchange raising, higher shoulder levee on Hwy 64, plus levee extension and Hwy 258 & 111 raises & ltd Shiloh Farm Road raises; 5) Flap gates, Hwy 33/64 interchange raising, higher shoulder levee on Hwy 64, plus levee extension, Hwy 258 & 111 raises & ltd Shiloh Farm Road raises, and other measures such as raise bridges; and 6) Flap gates, Hwy 33/64 interchange raising, higher shoulder levee on Hwy 64, plus levee extension, Hwy 258 & 111 raises & ltd Shiloh Farm Road raises, and other measures such as raise bridges at higher elevation . Alternatives 1 through 3 did not meet the basic objectives established for a project for flood risk reduction, and left considerable life and safety threat unresolved, thus, were incorporated as necessary elements of Alternatives 4 through 6, in order to provide a complete and substantial flood risk management system. After a full evaluation of various opportunities/alternatives and their costs and impacts, Alternative 4 was selected as the recommended plan by the USACE.

A five-day Community Design Workshop was held on August 25-29, 2017 as an intensive design-based event in addition to Town open houses on July 21, July 29, and August 16, 2017. The Princeville Recovery Plan and the Coastal Resilience Center Website discusses the workshops, alternatives, and community input received. The open houses were held for residents of Princeville in order to provide them with the time and space needed to talk in depth with UNC Coastal Resilience Center's Hurricane Matthew Disaster Recovery and Resilience Initiative (HMDRRI) Team members about greenspace, affordable housing, infrastructure, mitigation, health issues, and other recovery topics important to them. The meetings also served to create the Town's vision for the recovery plan and to identify associated goals. Members of the community also participated in discussions with the design team throughout the five-day workshop and associated field visits. This resulted in the Princeville Community Floodprint Resiliency Plan and the Recovery Plan. Town staff worked with the municipal planning team at Stewart, Inc. to craft a new Town Comprehensive Plan that builds on these efforts and engages a broad spectrum of the community to develop implementable strategies towards the community's goals. The Town's Final Comprehensive Plan noted thirteen ongoing recovery projects since 2017 including 1) stormwater repair project; 2) *this floodgate project*; 3) USACE levee expansion, extension, and associated improvements; 4) Town Hall rehabilitation and wet floodproofing; 5) senior center reconstruction; 6) museum upgrades and interactive space; 7) Heritage Park rehabilitation and walking trail; 8) farmers' market construction; 9) 53-acre development; 10) 88-acre land use planning; 11) residential structures' elevation; 12) Floodprint project's resilient development blueprint; and 13) water and wastewater system upgrades. The repair of the levee floodgates is listed as an ongoing disaster recovery effort (#2) in the Town's Final Comprehensive Plan and notes that the floodgates will "help protect the Town from flooding and release stormwater to the Tar River during normal events." Levee repair is prioritized as the #1 project in the Edgecombe County, Hurricane Matthew Resilient Redevelopment Plan, May 2017.

The above-identified alternatives will be re-evaluated in response to public comments received.

Step 4. **Identify and Evaluate Potential Direct and Indirect Impacts Associated with the Occupancy or Modification of 100-year Floodplain and Wetland and the Potential Direct and Indirect Support of Floodplain and Wetland Development that Could Result from Proposed Action.**

The focus of floodplain evaluation should be on adverse impacts to lives and property, and on natural and beneficial floodplain values. Natural and beneficial values include consideration of potential for adverse impacts on water resources such as natural moderation of floods, water quality maintenance, and groundwater recharge.

According to the FEMA Report - A Unified National Program for Floodplain Management, the two definitions commonly used in evaluating actions in floodplain are "structural" and "non-structural" activities. Per the report, structural activity is usually intended to mean adjustments that modify the behavior of floodwaters through the use of measures such as public works dams, levees, and channel work. Non-structural is usually intended to include all other adjustments (e.g., regulations, insurance, etc.) in the way society acts when occupying or modifying a floodplain. These definitions are used in describing impacts that may arise in association with potential advancement of this case.

Natural Moderation of Floods, Water Quality Maintenance, and Groundwater Recharge

According to the FEMA FIRMs, the proposed action occurs in areas classified as 500-year floodplain, 100-year floodplain (SFHA - Zone "AE"), and FEMA-designated regulatory floodway (**Appendix 1**). The proposed action is considered "modification" of floodplain and floodway as the activities will involve excavation, fill, and channel repair in the 100-year floodplain and excavation, fill and channel repair in FEMA-designated regulatory floodway. The proposed action will result in temporary and permanent impacts to 0.11 acres of 100-year floodplain and 1.37 acres of floodway. These impacts will consist of excavation, fill, and channel repair in the 100-year floodplain and in FEMA-designated regulatory floodway. Mitigation measures for the proposed action includes best management practices (BMPs) for erosion and sedimentation control such as silt fencing which will be utilized during construction.

Natural floodplains and wetlands provide flood risk reduction benefits by slowing runoff and storing flood water. The regulatory floodway refers to the channel of the Tar River and adjacent land areas that are reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in floodways to ensure that there are no increases in upstream flood elevations. A Floodplain Development Permit and no-rise certification obtained for the proposed action concluded that it will not increase base flood elevations within the FEMA floodplain (see **Appendix 1**).

Natural floodplains and wetlands provide important functions for water quality maintenance and groundwater recharge. A USACE PJD and Clean Water Act (CWA) Section 404 Nationwide Permit #3 (NWP #3) for Maintenance has been issued for the wetland and stream impacts. NC DEQ Division of Water Resources (NC DWR) has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization. A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, measures will be implemented to ensure the proposed project will have no further impacts to natural floodplains, wetlands

and the Tar River during construction. This will ensure that water quality and the ability to maintain water quality and allow for groundwater recharge are not impacted by the proposed action.

This proposed action involves repairing floodgates at an existing levee and constructing access roads. The proposed action must be performed at the existing floodgates, and project designs have been completed in accordance with agency input to minimize impacts to the environment and community. According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. When levees fail, or are overtopped, the results can be catastrophic. The proposed action is necessary to prevent future storm events from flooding the affected areas of the Town of Princeville. Thus, while the proposed action would directly affect the floodplain, it is not anticipated to have an adverse effect on the floodplain for the surrounding communities or environment.

Living Resources such as Flora and Fauna

For this proposed action, the USFWS Raleigh Ecological Services' online 10-step project review process was completed. The proposed action was determined to have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat under USFWS jurisdiction, and a "no Eagle Act permit required" determination for the Bald Eagle. The USACE representative, Billy Standridge, said that since there are no impacts planned for the Tar River, aquatic species did not need to be addressed. The USFWS has tasked the USACE with making determinations regarding protected species issues in Condition 18(c) of the permit application. The USACE has received and reviewed our permit application, told Axiom that the permit application is considered complete by the USACE, and the permit will be issued based on the information provided. NCORR submitted the Self-Certification Letter and online project review certification package to the USFWS Raleigh Field Office (FO) on August 15, 2022. On September 8, 2022, the Self-Certification Letter and supporting No Effect documentation, updated to include the Critical Habitat on the Species Conclusion List and the NC WRC email response, was sent to the USFWS Raleigh FO. No official comment has been received by USFWS. The Applicant will update this determination annually for multi-year activities.

NCORR consulted with the NC WRC since the Tar-Pamlico River is identified as an inland Anadromous Fish Spawning Area (AFSA) under 15A NCAC 10C .0603. Also, NC WRC has designated the Tar River at this location as a primary nursery area (PNA). NC WRC responded that the area is subject to the NC DWR Tar-Pamlico Basin Buffer Rules to ensure the cognizance of nutrient, sedimentation and erosion that may enter into this river basin. The NC WRC said, "it has no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system." NC WRC also requests that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area. NCORR submitted a project review request package to the NOAA Fisheries Service for consultation under the Magnuson-Stevens Act and Wildlife Coordination Act for the Atlantic Sturgeon. On September 9, 2022, Pace Wilber, the South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division, responded to NCORR's request that "[b]ased on the description of the work and the locations being near but not within the Tar River, we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates."

The project designs have been completed in accordance with agency input to minimize impacts to the environment and community. The proposed action is not anticipated to introduce nuisance plant species to the Subject Property such as invasive species, or plants that disrupt native plant communities. Additionally, the proposed action will implement the following voluntary conservation measures to benefit wildlife and, in particular, pollinators: plant native trees, shrubs, and flowering plants in landscaping, use plants that bloom spring through fall and remove/control invasive plant species present. The proposed action activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed action shall be obtained before commencing work and appended to the ERR when received from the permitting agencies. The following permits will be obtained, if applicable, prior to commencing work: USACE NWP #3 (Maintenance) to authorize impacts to wetlands and streams, USACE CWA Section 408 Permit, NC DWR CWA Section 401 Water Quality Certification, NC DWR Tar-Neuse River Riparian Buffer Authorization, NC DEMLR Erosion and Sediment Control Permit, NPDES Construction Stormwater Permit (NCG010000), Floodplain Development Permit and no-rise certification. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. The proposed action has been determined to have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat. Thus, as designed and with mitigation measures implemented, the proposed action will have no or minimal impacts to living resources, such as flora and fauna, during construction and operation as an existing levee system.

Impacts to Property and Lives

The Town of Princeville sits adjacent to the Tar River and, due to the elevation, has flooded six times between 1800 and 1958. Princeville is situated almost entirely within the Tar River floodplain. After a major flood in 1958, Town officials approached the USACE with a proposal to build a dam. (See USACE's Integrated Feasibility Report and Environmental Assessment.) In 1965-1967, USACE built a levee along the Tar River to address the frequent and severe flooding. Once this levee was constructed, the Town did not experience severe flooding again until Hurricane Floyd in 1999 (a greater than 0.2% event), when the Town suffered catastrophic flooding and the damage or destruction of nearly all 1,000 residential structures. Floodwaters initially entered the Town through a number of ungated culverts located under a section of U.S. Highway 64. This record flood then overtopped the levee in one location, ultimately circumvented the levee at its north end, and inundated the Town with floodwaters. Up to 20 feet of water stood in Princeville for nearly 10 days until river levels subsided enough that the floodwaters drained or could be pumped from the Town. According to the Edgecombe County Hurricane Matthew Resilient Redevelopment Plan, Princeville "has flooded multiple times since Hurricane Floyd and strained the resources of underserved residents who often are unable to pay for home elevations or new homes outside of flood zones. Recovery and prevention from hurricane and flood impacts tends to be more difficult in these communities. Over time, recurring impacts strain the mental and physical capabilities of residents and further damage communities." Many of the Town of Princeville's residents have been displaced due to historic flooding and storm events with some housing remaining vacant since Hurricane Floyd.

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters in part due to the functional failure of the Princeville floodgates located along the USACE levee bordering the Tar River. According to the Coastal Resilience Center, about 450 homes were destroyed during the hurricane and subsequent flooding, and an estimated 80 percent of the Town was underwater. Many of the Town's commercial and institutional structures were damaged as well. According to the Town of Princeville website, "Princeville's town hall, originally built as a schoolhouse in the 1920s, was badly damaged, and past floods destroyed many other older structures. ***Princeville, for much of its history, has been so***

concerned about survival that historic preservation has been almost impossible" (emphasis added). The Town Hall, Princeville Elementary School, and the Princeville Volunteer Fire Department were completely destroyed. The floodgate structures were submerged underwater for at least five days. The underwater submersion of these floodgates caused weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding.

Following the Hurricane Matthew storm event, the Town of Princeville undertook to design construction upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Town of Princeville has selected the proposed action to assist its residents and community to be protected from future storm damage and flooding. According to the Project Information Form, the proposed project objective is to "[e]valuate the existing flood risk reduction system at Princeville; its current level of flood flow exclusion, and where needed; provide a cost-effective technically-sound and environmentally acceptable plan to better promote the exclusion of floodwaters from the town to a frequency substantially lower than that which currently exists, and so doing reduce monetary flood inundation damage potential by at least 75%." Further, the proposed project design "restores the effectiveness of the floodgates to prevent [the] Tar River overtopping, back flow, and channel control of the outflow of stormwater from the community's stormwater collection and discharge systems."

According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. When levees fail, or are overtopped, the results can be catastrophic. Thus, the proposed action is critical to prevent future storm events from flooding the affected areas of the Town of Princeville, and potentially having "catastrophic" results to property and lives. The proposed project repairs are necessary to have a correctly functioning levee system to protect the residents, the community, and property, from devastating flooding during and after future storm events. The mitigation of future flooding is essential for the safety of residents in the Town of Princeville. Therefore, the proposed action is not anticipated to have adverse impacts to property and lives, but rather aims to provide critically necessary protection of property and lives in the surrounding area during storm events.

Cultural Resources such as Archaeological, Historic and Recreational Aspects

Princeville is the first municipality in America incorporated by former slaves (1885). At the end of the Civil War, freed slaves occupied low-lying land in the Tar River floodplain, purchased plots from local landowners, and eventually incorporated the town as the "Town of Princeville." Princeville was built on low-lying ground in a bend in the Tar River. Because of its low-lying location, Princeville has been repeatedly flooded many times since its founding. (See USACE's Integrated Feasibility Report and Environmental Assessment.) Based on the EJSCREEN Report for Princeville, NC, there is an approximately 95% minority population and approximately 58% low-income population, both of which are higher than State and national averages. According to the NC DEQ Community Mapping System, a portion of Princeville is located in the NC DEQ Potentially Underserved Block Groups 2019.

According to the Town of Princeville website, "Princeville's town hall, originally built as a schoolhouse in the 1920s, was badly damaged, and past floods destroyed many other older structures. ***Princeville, for much of its history, has been so concerned about survival that historic preservation has been almost impossible"*** (emphasis added). President Clinton issued a statement after Hurricane Floyd that stressed the enormous importance of honoring the "long and proud history of this uniquely important town" and of the steps needed to preserve its "special and significant place in our nation's history." The proposed project aims to mitigate floodwaters from accessing areas frequently inundated during storm events. These repairs are necessary to have a correctly functioning levee system to protect the residents, the community, property,

and important historic and cultural resources from devastating flooding during and after future storm events. The Subject Property is a mostly grass-covered, undeveloped approximately 7.7-acre levee system area. The existing levee segments of the proposed action were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. This proposed action is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with most of the work occurring in areas of previous ground disturbance. As part of this review, the NC SHPO, Chief and Tribal Historic Preservation Offices (THPO) of all applicable Tribes, Nations, and Communities were consulted regarding any historic properties of religious and cultural significance in the area that could be affected by the proposed actions. The NC SHPO responded on December 30, 2022 that "[w]e have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed." According to the HUD Tribal Directory Assessment Tool (TDAT), the Catawba Indian Nation and Tuscarora Nation are the only federally-recognized tribes with interests in Edgecombe County, North Carolina. On September 19, 2022, the Catawba Indian Nation's THPO responded that "[t]he Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites, or Native American archaeological sites within the boundaries of the proposed project areas. However, the Catawba are to be notified if Native American artifacts and/ or human remains are located during the ground disturbance phase of this project." On August 17, 2022, NCORR consulted with the Tuscarora Nation for discussion of historic properties in the proposed project area that may have religious and cultural significance. A response has not been received but will be included in the *Princeville Levee Floodgate Repairs Project EA* ERR when received. The SHPO, Catawba Indian Nation, and Tuscarora Nation Section 106 review and consultation documentation is included in the *Princeville Levee Floodgate Repairs Project EA ERR*.

The proposed action will not introduce new development that would generate demand for open space/ recreational resources or impede open space access. According to the Princeville Community Floodprint, "Princeville has great potential to support a wide range of outdoor recreational activities. Connecting existing environmental assets and opportunities (such as the Tar River, Levee Trail, and canals) to adjacent community points of interest (such as Princeville Elementary and Heritage Park) will enable the town to provide residents and visitors with an interconnected network of passive and active recreational features that contribute to community health." According to TrailLink, the "Princeville Heritage Trail, unveiled in 2002, commemorates the historical significance of this oldest city in the United States to have been incorporated by African Americans. The trail runs atop the grassy levee that follows the southern bank of a Tar River, providing scenic views of the waterway." The proposed action does not redevelop or change the land use of this area, but rather addresses floodgates needing repair along the existing levee. Therefore, the proposed action is not anticipated to have adverse impacts to the Princeville Heritage Trail or other open spaces or recreational areas.

Agricultural, Aquacultural, and Forestry Resources

The Subject Property and immediate area are located in Edgecombe County's Princeville Levee easement area. The Subject Property is a mostly grass-covered, undeveloped approximately 7.7-acre levee system area. The existing levee segments of the proposed action were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. The Subject Property is dedicated to the existing levee system for "water storage" and not used for agriculture and, thus, is not expected to have an adverse impact on agricultural resources. (See Section 523.10[6] land in water storage, including lands that have been acquired or planned for water storage prior to August 5, 1984, and Sections 523.11[C][3] projects planned or constructed prior to August 4, 1984 [FPPA, Part 658] and [4] projects on land already in urban development or used for water storage.) The NC WRC said, "it has no specific recommendations for the proposal other

than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system." On September 9, 2022, Pace Wilber, the South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division, responded to NCORR's request that "[b]ased on the description of the work and the locations being near but not within the Tar River, we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates." Therefore, the proposed action is not expected to have an adverse impact on aquacultural resources. According to the project engineer, there will be an estimated total of 0.33 acres of trees removed for the proposed action (Structure 1 – 0.03; Structure 2 – 0.14; Structure 3 – 0.09; and Structure 4 – 0.07 acres). It is anticipated that due to the Subject Property conditions, mostly small trees will be removed. Therefore, the proposed action is not expected to have an adverse impact on forestry resources. Overall, the proposed action is not anticipated to have an effect on agricultural, aquacultural or forestry resources.

Wetland Evaluation

The purpose of wetland evaluation is to consider factors relevant to a proposed action's effect on the survival and quality of any wetlands to be disturbed. These factors should include public health (including water supply and water quality), maintenance of natural systems, cost increases attributed to construction in wetland, and other uses of wetland in the public interest. According to the USFWS NWI Map, there are federally-mapped wetlands situated on and near the Subject Property. Axiom completed wetland and stream delineations, the riparian buffer determination, and the protected species survey. A USACE JD has been issued for the wetland and stream delineations. The proposed action will result in temporary impacts to 0.027 acres of NWI-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub) and 0.05 acres of stream. The proposed action will result in permanent impacts to approximately 0.007 acres of NWI-mapped and USACE verified delineated wetlands and 0.05 acres of stream. Overall, the functions and values associated with the impacted wetland are limited due to small acreage, low diversity, and man-made influences, however, some wildlife habitat, flood flow protection, and water quality functions exist.

Mitigation measures for the proposed action includes BMPs for erosion and sedimentation control such as silt fencing which will be utilized during construction. Additional mitigation measures will include a NC DEMLR Erosion and Sedimentation Control Plan and applicable permit requirements and conditions. The USACE CWA Section 404 NWP #3 for Maintenance has been issued for the wetland and stream impacts. A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. NC DWR CWA Section 401 Water Quality Certification(s) including 15A NCAC 02H .0500 certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323 and will be complied with, as applicable. According to NC DEQ, the proposed action should ensure compliance with Tar-Pamlico Riparian Buffer Rules. The NC DWR has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization for the proposed action. The proposed action's activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. All necessary permits will be identified and obtained prior to commencing work and appended to the *Princeville Levee Floodgate Repairs Project EA ERR* when received from the permitting agencies.

Public Health, Safety, and Welfare, Including Water Supply, Quality, Recharge, and Discharge; Pollution; Flood and Storm Hazards and Hazard Protection; and Sediment and Erosion

Wetlands have unique natural characteristics that play an integral role in the ecology of the watershed. The

natural and beneficial functions and values related to hydrology and water quality include slowing down stormwater runoff, providing surface and subsurface retention, and filtering out pollutants. Further, wetlands provide flood risk reduction benefits by slowing runoff and storing flood water. The proposed action entails inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and constructing permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. When levees fail, or are overtopped, the results can be catastrophic. The proposed action is necessary to prevent future storm events from flooding the affected areas of the Town of Princeville which is a threat to public safety. Therefore, the proposed action should not increase impacts to *public health, safety, and welfare*, but rather aims to provide protection for public safety in the surrounding area during storm events.

Water supply wells were not identified at the Subject Property. The proposed action will not increase demand for water, except as needed during short-term construction. The proposed action should not impact the municipal water supply of the region. According to NC DWR's Public Water Supply section, plan approval is required for relocation of existing water lines during construction, and the construction, expansion, or alteration of a public water system. All public water supply systems must comply with State and federal drinking water monitoring requirements. Plans must be submitted when required to the NC DWR/ Public Water Supply Section (see *Princeville Levee Floodgate Repairs Project EA ERR*). The proposed action will not introduce any new development that would generate waste water. The proposed action is not anticipated to include the discharge of sewer to surfaces of the Subject Property or surrounding properties. The proposed action will not create waste water or affect waste water service in the area. Any additional waste water generated during construction activities would be temporary.

A USACE PJD and CWA Section 404 NWP #3 for Maintenance has been issued for the wetland and stream impacts. A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. NC DWR CWA Section 401 Water Quality Certification(s) including 15A NCAC 02H .0500 certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323 and will be complied with, as applicable. According to NC DEQ, the proposed action should ensure compliance with Tar-Pamlico Riparian Buffer Rules. NC DWR has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization. Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. According to NC WRC and NOAA, standard measures and BMPs employed should be sufficient to limit sedimentation into the river from construction and from later operation of the flood gates. This will also ensure that water quality and the ability to maintain water quality and allow for groundwater recharge are not impacted by the proposed action. Thus, measures will be implemented to ensure the proposed action will have no further impacts to wetlands and the Tar River during construction.

The proposed action's activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed action shall be obtained before commencing work and appended to the *Princeville Levee Floodgate Repairs Project EA ERR* when received from the permitting agencies.

Maintenance of Natural Systems, Including Conservation and Long-Term Productivity of Existing Flora and Fauna; Species and Habitat Diversity and Stability; Natural Hydrologic Function; Wetland Type; Fish; Wildlife; Timber; and Food and Fiber Resources

The proposed action will occur mainly at four floodgate culvert locations (Subject Property) located along the intersection of the USACE protective levee and the Tar River. The Subject Property is a mostly grass-covered, undeveloped approximately 7.7-acre levee system area located in Edgecombe County's Princeville Levee easement area. According to the project engineer, there will be an estimated total of 0.33 acres of trees removed for the proposed action (Structure 1 – 0.03; Structure 2 – 0.14; Structure 3 – 0.09; and Structure 4 – 0.07 acres). It is anticipated that due to the Subject Property conditions, mostly small trees will be removed. The existing levee segments of the proposed action were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. For this proposed action, the USFWS Raleigh Ecological Services' online 10-step project review process was completed. The proposed action was determined to have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat under USFWS jurisdiction, and a "no Eagle Act permit required" determination for the Bald Eagle. The USACE representative, Billy Standridge, said that since there are no impacts planned for the Tar River, aquatic species did not need to be addressed. The USFWS has tasked the USACE with making determinations regarding protected species issues in Condition 18(c) of the permit application. The USACE has received and reviewed the permit application, told Axiom that the permit application is considered complete by the USACE, and the permit will be issued based on the information provided. NCORR submitted the Self-Certification Letter and online project review certification package to the USFWS Raleigh FO) on August 15, 2022. On September 8, 2022, the Self-Certification Letter and supporting No Effect documentation, updated to include the Critical Habitat on the Species Conclusion List and the NC WRC email response, was sent to the USFWS Raleigh FO. No official comment has been received by USFWS. The Applicant will update this determination annually for multi-year activities.

NCORR consulted with the NC WRC since the Tar-Pamlico River is identified as an inland AFSA under 15A NCAC 10C .0603. Also, NC WRC has designated the Tar River at this location as a PNA. NC WRC responded that the area is subject to the NC DWR Tar-Pamlico Basin Buffer Rules to ensure the cognizance of nutrient, sedimentation and erosion that may enter into this river basin. The NC WRC said, "it has no specific recommendations for the proposal other than noting the important habitats that are within the immediate area and that best management practices must be implemented to avoid sedimentation and erosion from entering the system." NC WRC also requests that if any project modification occurs, that contact is made with state and federal resource agencies due to the sensitive habitats in the area. NCORR submitted a project review request package to the NOAA Fisheries Service for consultation under the Magnuson-Stevens Act and Wildlife Coordination Act for the Atlantic Sturgeon. On September 9, 2022, Pace Wilber, the South Atlantic and Caribbean Branch Chief of NOAA Fisheries Service's Habitat Conservation Division, responded to NCORR's review request that "[b]ased on the description of the work and the locations being near but not within the Tar River, we believe the work would have no effect on Atlantic sturgeon or their habitats within the Tar River provided standard measures are employed to limit sedimentation into the river from construction and from later operation of the flood gates."

The project designs have been completed in accordance with agency input to minimize impacts to the environment and community. The proposed action is not anticipated to introduce nuisance plant species to the Subject Property such as invasive species, or plants that disrupt native plant communities. Native plants will be utilized in the Subject Property's landscaping design. Additionally, the proposed action will implement, as applicable, the following voluntary conservation measures to benefit wildlife and, in particular, pollinators: plant native trees, shrubs, and flowering plants in landscaping, use plants that bloom spring through fall, and remove/control invasive plant species present. The proposed action activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit

requirements and conditions. Permits required for this proposed action shall be obtained before commencing work and appended to the ERR when received from the permitting agencies. The following permits will be obtained, if applicable, prior to commencing work: USACE NWP #3 (Maintenance) to authorize impacts to wetlands and streams, USACE CWA Section 408 Permit, NC DWR CWA Section 401 Water Quality Certification, NC DWR Tar-Neuse River Riparian Buffer Authorization, NC DEMLR Erosion and Sediment Control Permit, NPDES Construction Stormwater Permit (NCG010000), Floodplain Development Permit and no-rise certification. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. The proposed action has been determined to have "no effect" on proposed, threatened, endangered, or candidate species and proposed or designated critical habitat. In addition, the Subject Property is dedicated to the existing levee system for "water storage" and not used for timber or agriculture and, thus, is not expected to have an adverse impact on timber and food and fiber resources. (See Section 523.10[6] land in water storage, including lands that have been acquired or planned for water storage prior to August 5, 1984, and Sections 523.11[C][3] projects planned or constructed prior to August 4, 1984 [FPPA, Part 658] and [4] projects on land already in urban development or used for water storage.) Thus, as designed and with mitigation measures implemented, the proposed action will have no or minimal impacts on living resources including natural systems such as flora and fauna, timber, and food and fiber resources.

Cost Increases Attributed to Wetland-Required New Construction and Mitigation Measures to Minimize Harm to Wetlands that May Result from Such Use

Princeville Levee Floodgate Repairs Project				
Working in Wetlands & Floodplains - Estimated Additional Costs				
	Sungate	Axiom	Construction	Total
Wetland Delineation		$475.00		$475.00
Wetland Field Surveying	$920.00			$920.00
Wetland Permit Development	$680.00	$5,000.00		$5,680.00
Wetland Permit Fee (NCDWR)	$325.00			$325.00
Wetland Hand Clearing			$100.00	$100.00
Wetland Permanent Fill			$480.00	$480.00
Floodplain No-Rise Certification	$8,800.00			$8,800.00
			Total:	$16,780.00

The proposed project activities involve work in areas classified as 500-year floodplain, 100-year floodplain (SFHA - Zone "AE"), FEMA-designated regulatory floodway and wetland. Additional costs associated with work in the wetlands and floodplain have been identified and broken out in the table above. These costs include Wetland Delineation: $475, Wetland Field Surveying: $920, Wetland Permit Development: $5,680, Wetland Permit Fee (NC DWR): $325, Wetland Hand Clearing: $100, Wetland Permanent Fill: $480, and Floodplain No-rise Certification: $8,800 for a combined total of $16,780. There is $8,800 in total costs for work in wetlands. There is also the additional cost for publication of the Early Notice ($438.60) and Final Notice (which was combined with the FNOSI/NOIRROF) in the newspaper. It was not feasible to design the proposed action to completely avoid the wetlands due to the necessary repairs and access roads for existing levee system structures. However, the project designs have been created to have minimal impacts on the smallest amount of wetlands possible, while still completing the proposed action. The proposed action will result in permanent impacts to approximately 0.007 acres of NWI-mapped and USACE verified delineated wetlands. Since the impacts to wetlands are less than one acre, no compensatory mitigation is required.

Other Uses of Wetland in the Public Interest, Including Recreational, Scientific, and Cultural Uses

The proposed action will occur mainly at four floodgate culvert locations (Subject Property) located along the intersection of the USACE protective levee and the Tar River. The Subject Property is a mostly grass-covered, undeveloped approximately 7.7-acre levee system area. The existing levee segments of the proposed action were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. The proposed action will result in permanent impacts to approximately 0.007 acres of NWI-mapped and USACE verified delineated wetlands. There are no identifiable recreational, scientific, or cultural uses of the small, impacted wetland (0.007 acre) that will be affected by the proposed action.

According to TrailLink, the "Princeville Heritage Trail, unveiled in 2002, runs atop the grassy levee that follows the southern bank of a Tar River, providing scenic views of the waterway." The proposed action is not anticipated to have adverse impacts to recreational and scientific uses of the wetlands. As part of the 24 CFR 58 environmental review, the NC SHPO, Catawba Indian Nation, and Tuscarora Nation were consulted regarding historic properties of religious and cultural significance in the area that could be affected by the proposed action. On December 30, 2022, the NC SHPO responded that the project will have no effect on historic properties. On September 19, 2022, the Catawba Indian Nation's THPO responded that the "Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. However, the Catawba are to be notified if Native American artifacts and/ or human remains are located during the ground disturbance phase of this project." On August 17, 2022, NCORR consulted with the Tuscarora Nation for discussion of historic properties in the proposed project area that may have religious and cultural significance. A response has not been received but will be included in the *Princeville Levee Floodgate Repairs Project EA ERR* when received. The SHPO, Catawba Indian Nation, and Tuscarora Nation Section 106 review and consultation documentation is included in the *Princeville Levee Floodgate Repairs Project EA ERR*.

Step 5. **Where Practicable, Design or Modify the Proposed Action to Minimize the Potential Adverse Impacts to and from the 100-Year Floodplain and the Wetland and to Restore and Preserve its Natural and Beneficial Functions and Values.**

This proposed action involves repairing floodgates at an existing levee and constructing access roads. The proposed action must be performed at the existing floodgates, and project designs have been completed in accordance with agency input to minimize impacts to the floodplain, wetlands, environment and community. According to the FEMA FIRMs, the proposed action occurs in areas classified as 500-year floodplain, 100-year floodplain (SFHA - Zone "AE"), and FEMA-designated regulatory floodway (**Appendix 1**). The proposed action is considered "modification" of floodplain and floodway as the activities will involve excavation, fill, and channel repair in the 100-year floodplain and excavation, fill and channel repair in FEMA-designated regulatory floodway. The proposed action will result in temporary and permanent impacts to 0.11 acres of 100-year floodplain and 1.37 acres of floodway. Mitigation measures for the proposed action includes BMPs for erosion and sedimentation control such as silt fencing which will be utilized during construction. A Floodplain Development Permit and no-rise certification for the proposed action were obtained and concluded that it will not increase base flood elevations within the FEMA floodplain (see **Appendix 1**).

The proposed action will result in temporary impacts to 0.027 acres of NWI-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub) and 0.05 acres of stream. The proposed action will result in permanent impacts to 0.007 acres of NWI-mapped and USACE verified delineated wetlands and 0.05 acres of stream. These impacts will consist of hand clearing, fill and channel repair in wetlands and temporary dewatering and channel repair in stream. The natural and beneficial functions and

values related to hydrology and water quality include slowing down stormwater runoff, providing surface and subsurface retention, and filtering out pollutants. It was not feasible to design the proposed action to completely avoid the floodplain, floodway and wetlands due to the necessary repairs and access roads for existing structures. However, the project designs have been created to have minimal impacts on the smallest amount of wetlands possible, while still completing the proposed action. Since the impacts to wetlands are less than one acre, no compensatory mitigation is required.

A USACE PJD and CWA Section 404 NWP #3 for Maintenance has been issued for the wetland and stream impacts. A USACE CWA Section 408 Permit has been approved and is being obtained from USACE before commencing work. NC DWR CWA Section 401 Water Quality Certification(s) including 15A NCAC 02H .0500 certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323 and will be complied with, as applicable. According to NC DEQ, the proposed action should ensure compliance with Tar-Pamlico Riparian Buffer Rules. NC DWR has issued the CWA Section 401 Water Quality Certification and Tar-Pamlico River Riparian Buffer Authorization.

Also, the NC DEMLR Erosion and Sediment Control Permit will be obtained. The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion and sedimentation control plan will be required if one or more acres are to be disturbed. The plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater Permit (NCG010000) is also required should design features meet minimum requirements. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. The short-term construction impacts will be mitigated by BMPs for debris, dust, and erosion control during construction activities. Native plants will be used in the Subject Property's landscaping design. Thus, measures will be implemented to ensure the proposed action will have no further impacts to the floodplain, floodway, wetlands and the Tar River during construction. The proposed action activities will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed action shall be obtained before commencing work and appended to the *Princeville Levee Floodgate Repairs Project EA ERR* when received from the permitting agencies.

Step 6. **Reevaluate the Alternatives and Proposed Action.**

The main alternative is the "No Action" Alternative for the current proposed action. The "No Action" Alternative is not considered feasible since Princeville has been historically subjected to devastating flooding and storm damage, and action is critically necessary to protect the residents and community from future storm events. One concern with the "No Action" Alternative is the potential decertification of the levee by FEMA which would result in virtually the whole town being mapped as 100-year floodplain and subsequent requirement for the costly elevation of structures and flood insurance for homeowners according to the Princeville Recovery Plan. The Council's report, EO 13146, EO 12898, and community and agency input were used to determine the best and most feasible storm damage prevention solutions for the future of Princeville. With the No Action Alternative, the Town of Princeville would have to redevelop and re-evaluate options to assist its residents and community to be protected from future storm damage and flooding. Meanwhile, the community would be in danger of flooding and the levee's functional failure during future storm events.

This proposed action involves repairing floodgates at an existing levee and constructing access roads. The proposed action must be performed at the existing floodgates. The existing levee segments of the proposed action were constructed between 1965 to 1967 by the USACE but are maintained by Edgecombe County. According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect

against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. When levees fail, or are overtopped, the results can be catastrophic. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. Deterioration of the levee and, in particular, these sections addressed by the proposed action have been studied and discussed in the Preliminary Engineering Report and Effect of Repeated Rise and Fall of Water Level on Seepage-Induced Deformation and Related Stability Analysis of Princeville Levee, Engineering Geology, Volume 266, 105458, March 5, 2020. During the Preliminary Engineering Report's observations and conversations with Edgecombe County personnel, the structures were ascertained to have sustained damage over the years due to periodic flooding and weathering over time. As shown in Appendix I of the Preliminary Engineering Report, the concrete headwalls have begun to deteriorate and the riprap blankets have been washed out. Without the riprap blankets, the soil foundations of the headwalls have been undercut, sustained erosion is occurring due to lack of energy dissipation at the outlet, and the flapper gates fail to perform properly. Modifications to the riprap erosion blankets are required to improve the functionality of the flapper gates. During the Hurricane Matthew storm event, the floodgate structures were submerged underwater for at least five days resulting in weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. The proposed repairs are intended to restore the existing structures to their former as-built condition according to the Preliminary Engineering Report. The "No Action" Alternative is not feasible in relation to the desired objective. Therefore, the "No Action" Alternative examined is not considered desirable, and the proposed action is still practicable in light of potential adverse impacts on the wetlands and the potential to disrupt the natural and beneficial functions and values of the wetlands.

Numerous alternative and concerted projects have been considered to address Princeville's historic flooding over the years. As a result of Hurricane Floyd in 1999, Princeville experienced catastrophic flooding and the damage or destruction of nearly all 1,000 residential structures. Floodwaters initially entered the Town through a number of ungated culverts located under a section of U.S. Highway 64. This flood of record then overtopped the levee in one location and ultimately circumvented the levee at its north end, inundating the Town with floodwaters. Up to twenty feet of water stood in Princeville for nearly 10 days until river levels subsided enough that the floodwaters drained or could be pumped from the town.

In the aftermath of Hurricane Floyd, President Clinton issued Executive Order 13146, which established a President's Council on the Future of Princeville, North Carolina to consider "…the unique historic and cultural importance of Princeville in American history; the views and recommendations of the relevant State and local governments, the private sector, citizens, community groups and non-profit organizations, on actions that they could take to enhance the future of Princeville and its citizens; and, agency assessments and recommendations to repair and rebuild Princeville, and to the extent practicable, protect Princeville from future floods." The Council's report was submitted in August 2000, and recommended quickly bringing the citizens of Princeville home while rebuilding toward a more disaster-resistant community. The Council's report, EO 13146, EO 12898, and community and agency input were used to determine the best and most feasible storm damage prevention solutions for the future of Princeville. The Town of Princeville has selected the proposed action to assist its residents and community to be protected from future storm damage and flooding.

In 2001, USACE was authorized and funded to prepare a feasibility study to address flood risk management issues. Multiple structural and non-structural measures and alternatives were examined during the course of the feasibility study. The Feasibility Scoping Meeting, held in 2006, discussed the likelihood that many of the most responsive plans might lack economically-justified alternatives that would meet the current guidance requiring National Economic Development (NED) justification. At that time, the entire vertical team agreed to pursue alternatives that addressed all areas of flood risk, including extending the existing levee. The Final Array of Alternatives consisted of a No-Action Plan and an array of structural and non-structural alternatives. Each alternative was formulated to provide an incremental solution to flood risk at

the least cost for a given increment of flooding, as well as a suite of non-structural measures considered to be critical to the success of each alternative. These non-structural measures included a flood warning and evacuation plan, continued floodplain management and updating of local building and zoning codes, and a flood risk management education and communication plan (for both the community and local schools). All of these non-structural components were ultimately deemed essential for an adequate flood risk management strategy for the Town and would substantially reduce remaining levels of flood risk after construction or implementation of any structural plan elements.

A five-day Community Design Workshop was held on August 25-29, 2017 as an intensive design-based event in addition to Town open houses on July 21, July 29, and August 16, 2017. The Princeville Recovery Plan and the Coastal Resilience Center Website discusses the workshops, alternatives, and community input received. The open houses were held for residents of Princeville in order to provide them with the time and space needed to talk in depth with UNC Coastal Resilience Center's Hurricane Matthew Disaster Recovery and Resilience Initiative (HMDRRI) Team members about greenspace, affordable housing, infrastructure, mitigation, health issues, and other recovery topics important to them. The meetings also served to create the Town's vision for the recovery plan and to identify associated goals. Members of the community also participated in discussions with the design team throughout the five-day workshop and associated field visits. This resulted in the Princeville Community Floodprint Resiliency Plan and the Recovery Plan. Town Staff worked with the Municipal Planning team at Stewart, Inc. to craft a new Town Comprehensive Plan that builds on these efforts and engages a broad spectrum of the community to develop implementable strategies towards the community's goals. The repair of the levee floodgates is listed as an ongoing disaster recovery effort (#2) in the Town's Final Comprehensive Plan which notes that the floodgates will "help protect the Town from flooding and release stormwater to the Tar River during normal events." The proposed project repairs are necessary to have a correctly functioning levee system to protect the residents, the community, property, and important historic and cultural resources from devastating flooding during and after future storm events.

Implementation of the proposed action will abide by all applicable federal, State, and local laws, regulations, and permit requirements and conditions. Permits required for this proposed action shall be obtained before commencing work and appended to the *Princeville Levee Floodgate Repairs Project EA ERR* when received from the permitting agencies. The impacts of these alternatives will be re-evaluated in response to any public comments received.

Step 7. **Issue Findings and Public Explanation.**

It is the finding of this report that there is no better alternative than to provide funding for the Princeville Levee Floodgate Repairs Project. The Council's report, EO 13146, EO 12898, and community and agency input were used to determine the best and most feasible storm damage prevention solutions for the future of Princeville. The Town of Princeville would have to redevelop and re-evaluate options to assist its residents and community to be protected from future storm damage and flooding. Meanwhile, the community would be in danger of flooding and the levee's functional failure during future storm events.

A final notice, formally known as "Final Notice and Public Explanation of a Proposed Activity in a 100-year Floodplain and Wetland" was published in accordance with 24 CFR 55. However, this notice was combined with the Notice of Finding of No Significant Impact (FONSI) and Notice of Intent to Request Release of Funds (NOI-RROF) for a 15-day comment period. The 15-day comment period started with the combined notice publishing in the Rocky Mount Telegram newspaper on April 20, 2023, and expires on May 5, 2023. The notice was also posted at https://www.rebuild.nc.gov/about/plans-policies-reports/environmental-reviews and sent via Federal Express and email to the following state and federal agencies on April 20, 2023: HUD NC Field Office; FEMA; EPA; USFWS; NOAA Fisheries Service;

USACE; NC WRC; and NC State Environmental Clearinghouse. The notice was also sent to Edgecombe County and the Town of Princeville. Project information has been sent to the NC SHPO, Catawba Indian Nation, and Tuscarora Nation for review and comment under Section 106 of the NHPA (See Attachment 11 in *Princeville Levee Floodgate Repairs Project EA ERR*). (See **Appendix 3** for the final notice distributed to these agencies, the newspaper publication affidavit [to be added after publication], distribution list, and comments received [to be added after end of comment period]). Any comments received will be addressed, if significant, and added to the EA. If modifications result from public comment, these will be made prior to proceeding with the submission of a request for release of funds.

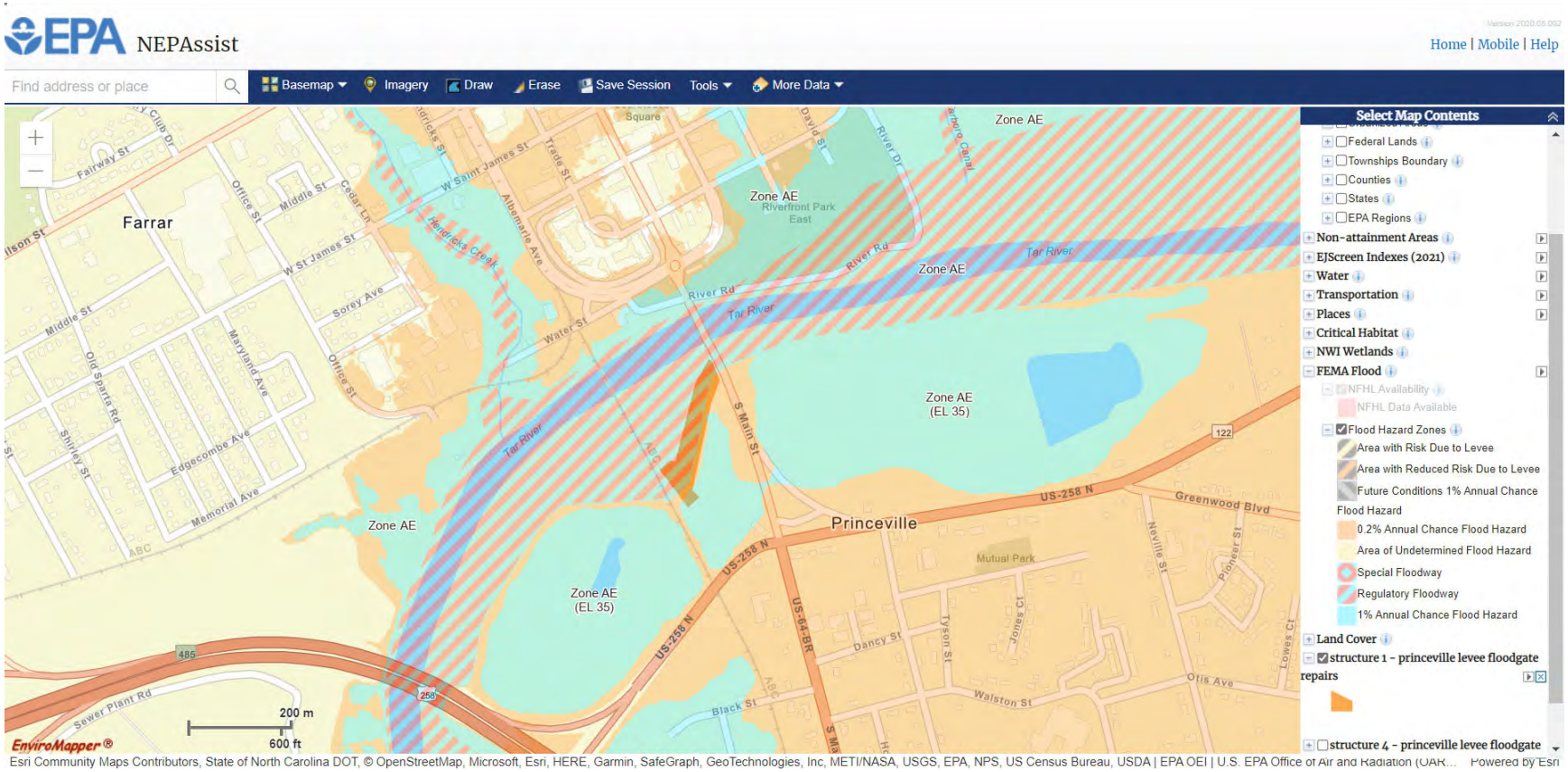
Step 8. **Implementation and Continuing Responsibility of the Responsible Entity and Recipient.**

NCORR is the responsible entity and will provide educational materials, when available. It is acknowledged there is a continuing responsibility by the responsible entity to ensure, to the extent feasible and necessary, compliance with the Steps herein.

Appendix 1

- **FEMA FIRMs data**
- **USACE Jurisdictional Determination**
- **National Wetlands Inventory Maps**
- **Design Plans**
- **Floodplain Development Permit**
- **No Rise Certification**
- **USACE CWA Section 408 Public Notice**
- **USACE CWA Section 404 NWP #3 and Conditions**
- **NC DWR Tar-Pamlico River Riparian Buffer Authorization**

Princeville Levee Floodgate Repairs – Structure 1



National Flood Hazard Layer FIRMette

FEMA

77°32'16"W 35°53'46"N



77°31'39"W 35°53'17"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

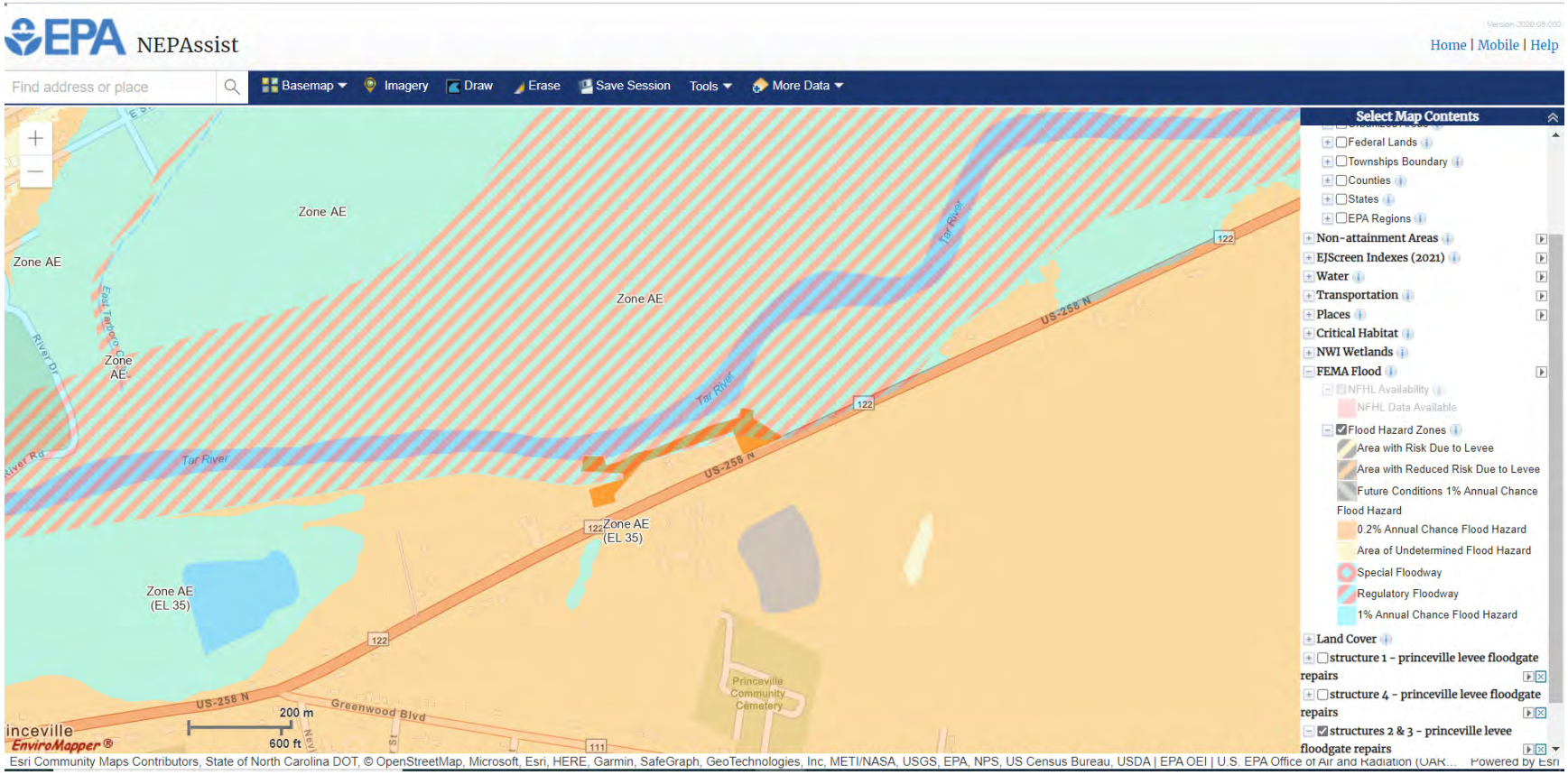
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 5:28 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

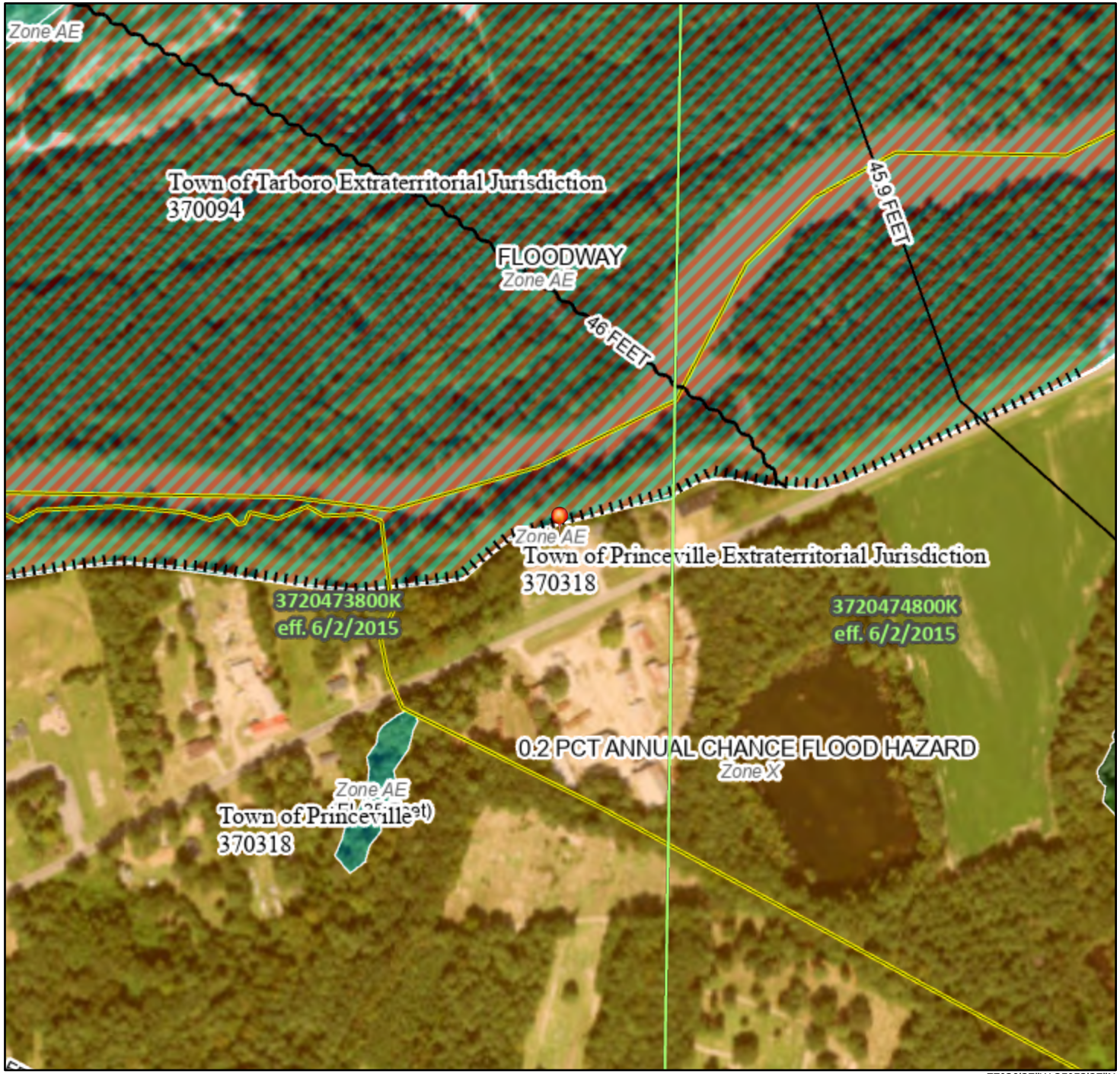
Princeville Levee Floodgate Repairs – Structures 2 & 3



National Flood Hazard Layer FIRMette

FEMA

77°31'14"W 35°53'56"N



77°30'37"W 35°53'27"N

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1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

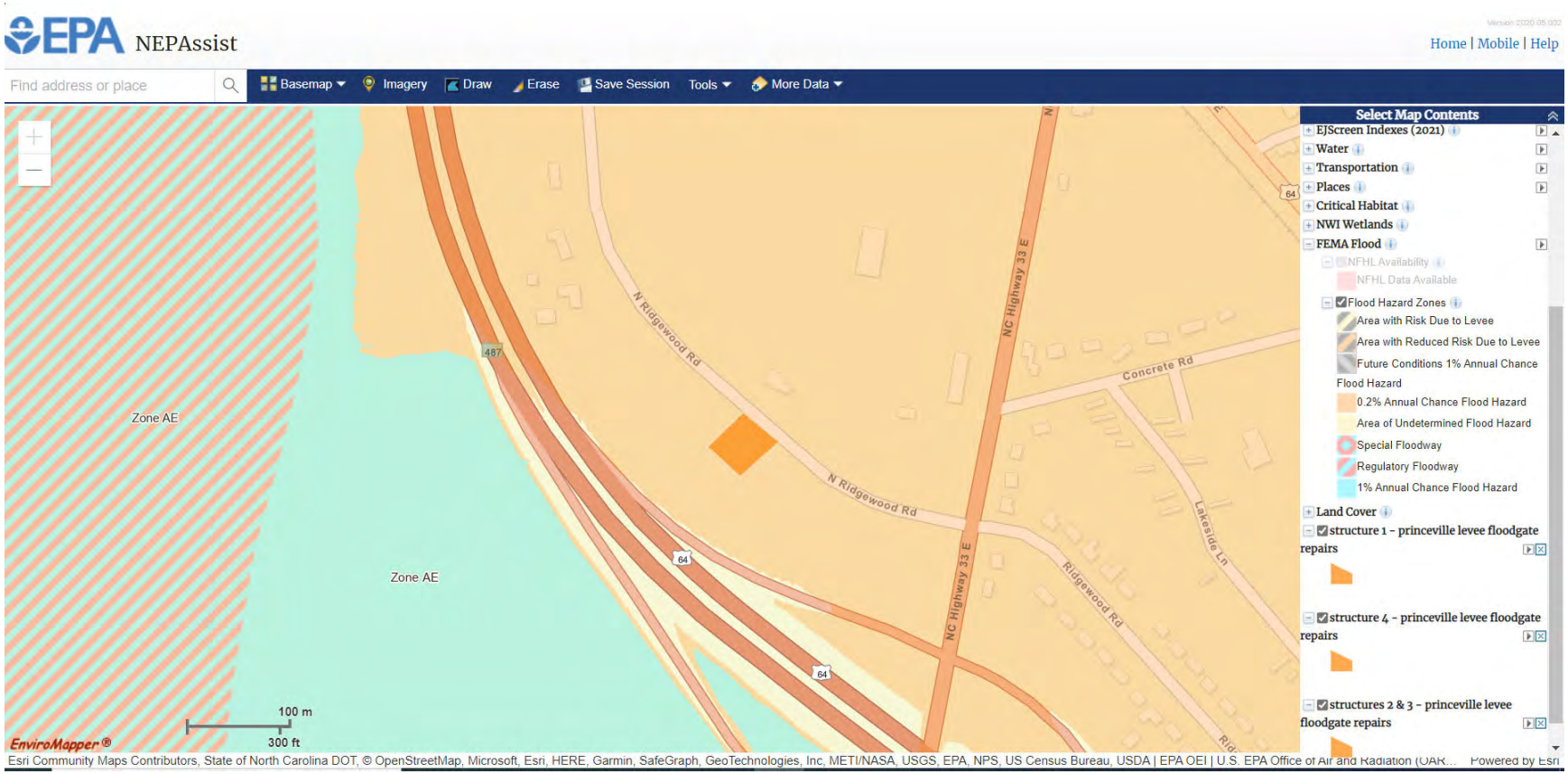
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 5:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Princeville Levee Floodgate Repairs – Structure 4



National Flood Hazard Layer FIRMette

FEMA

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77°31'13"W 35°52'9"N

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1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 5:37 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

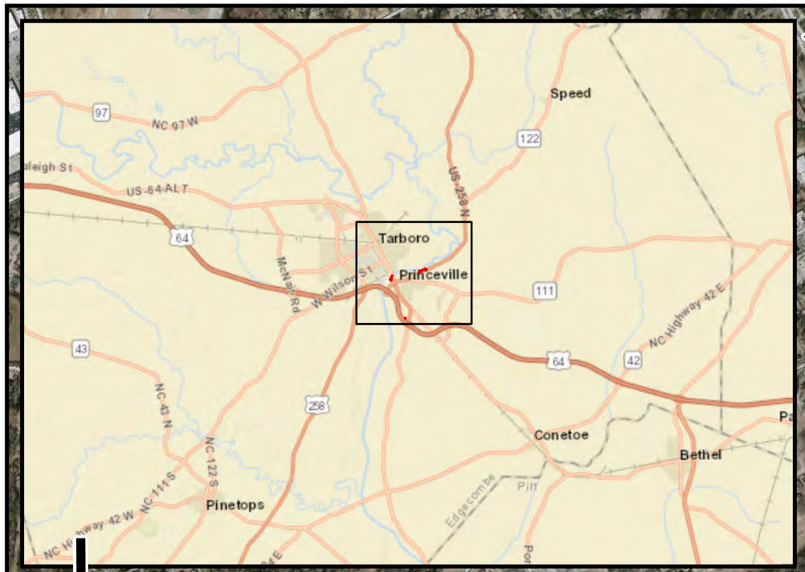
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

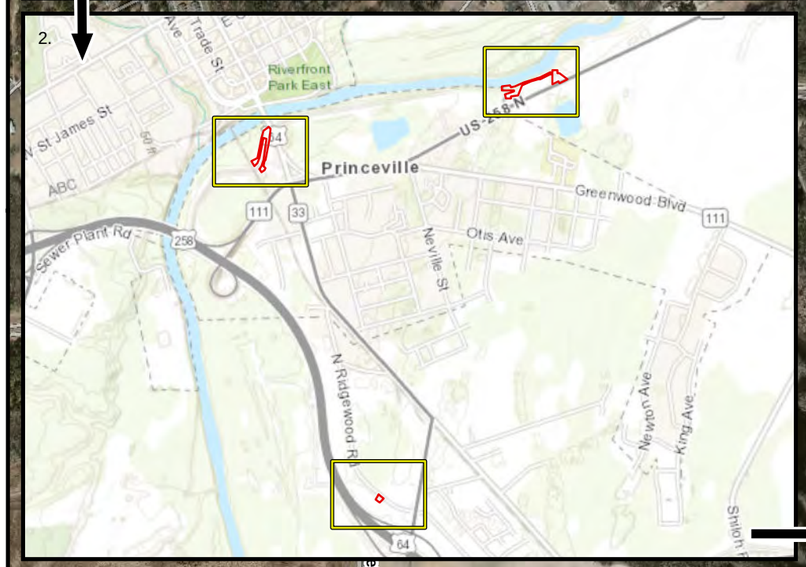
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

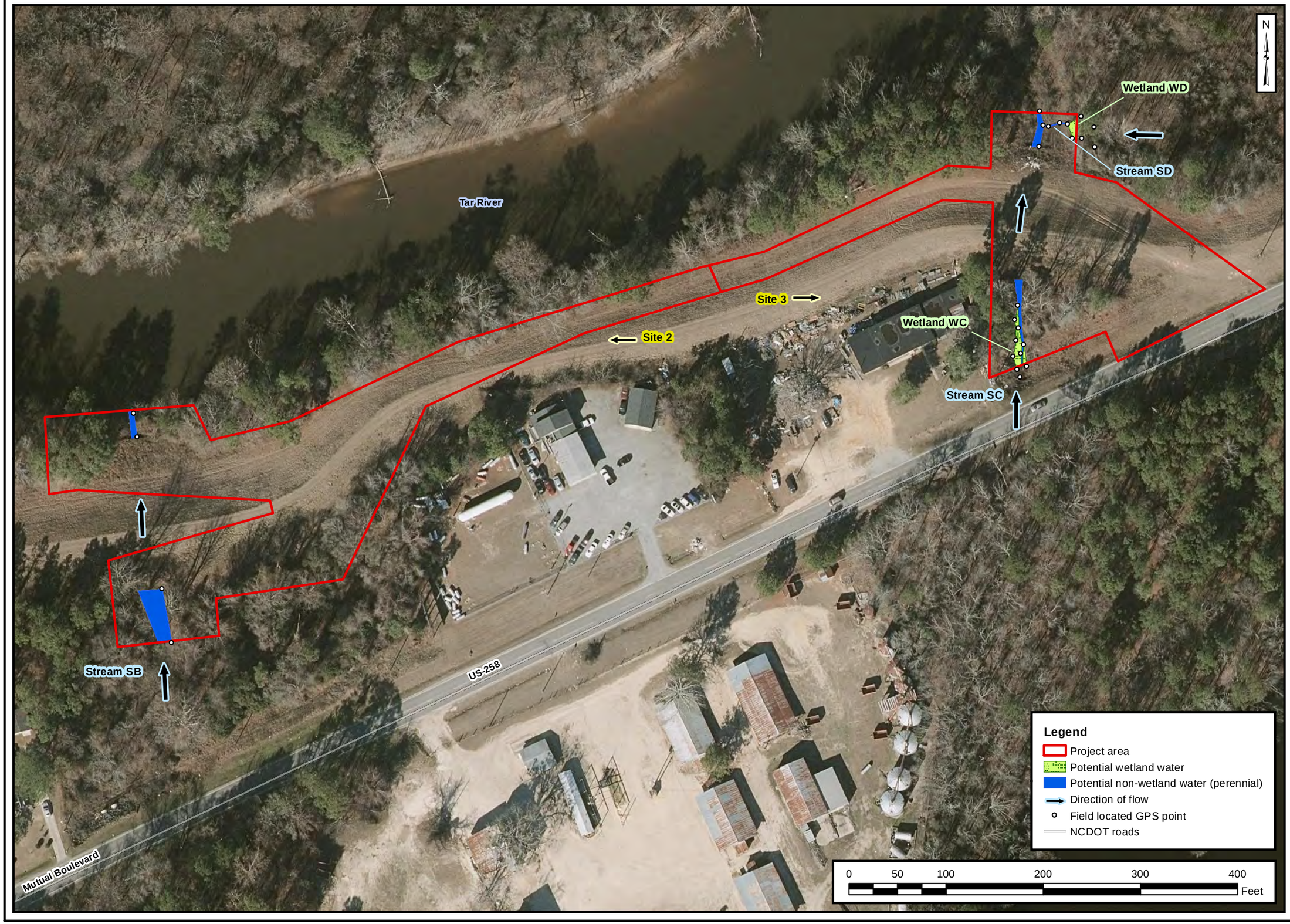
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

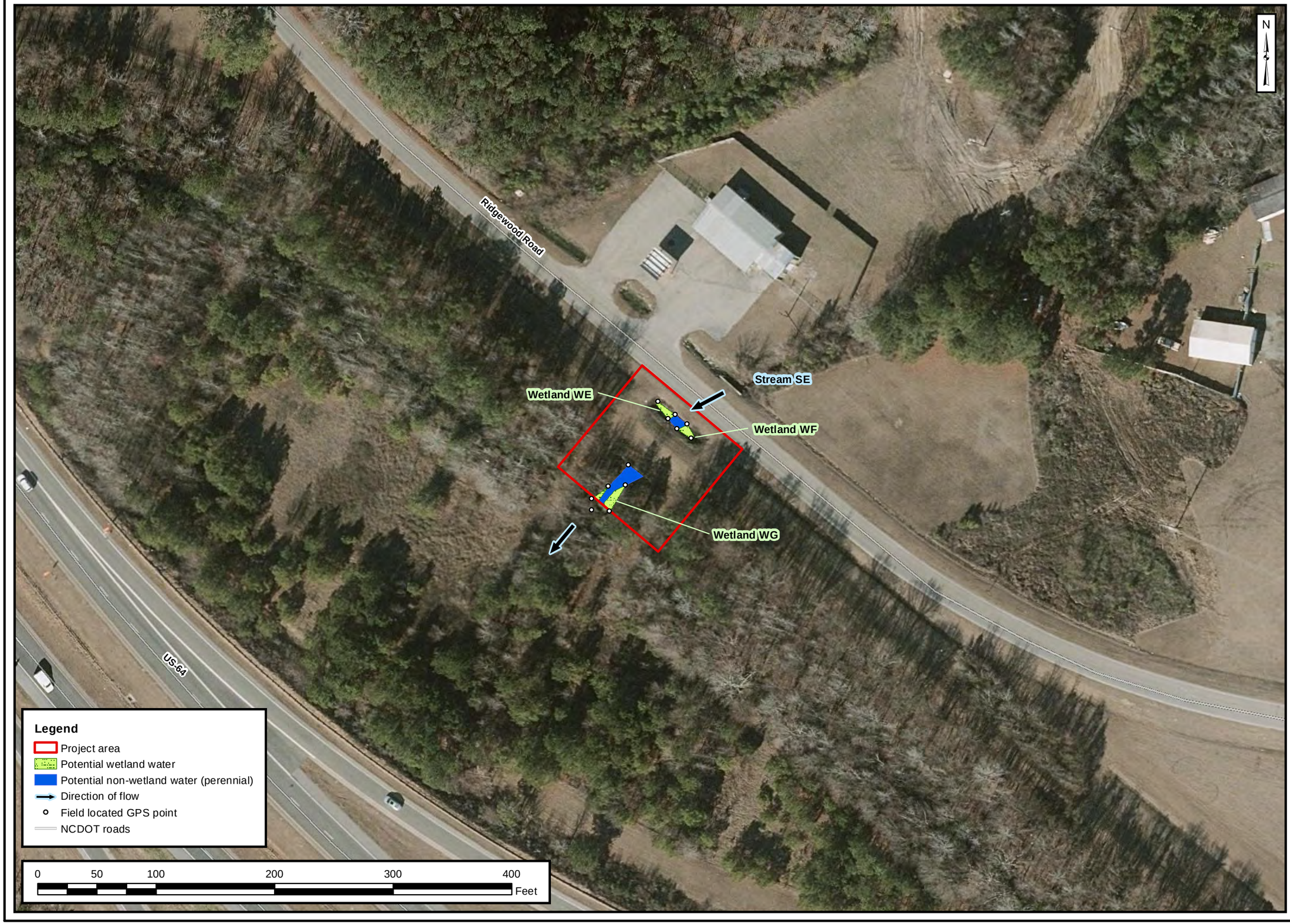
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Princeville Levee Floodgate Repairs NWI Map - Structure 1



August 16, 2022

structure 1 - princeville levee floodgate repairs

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other

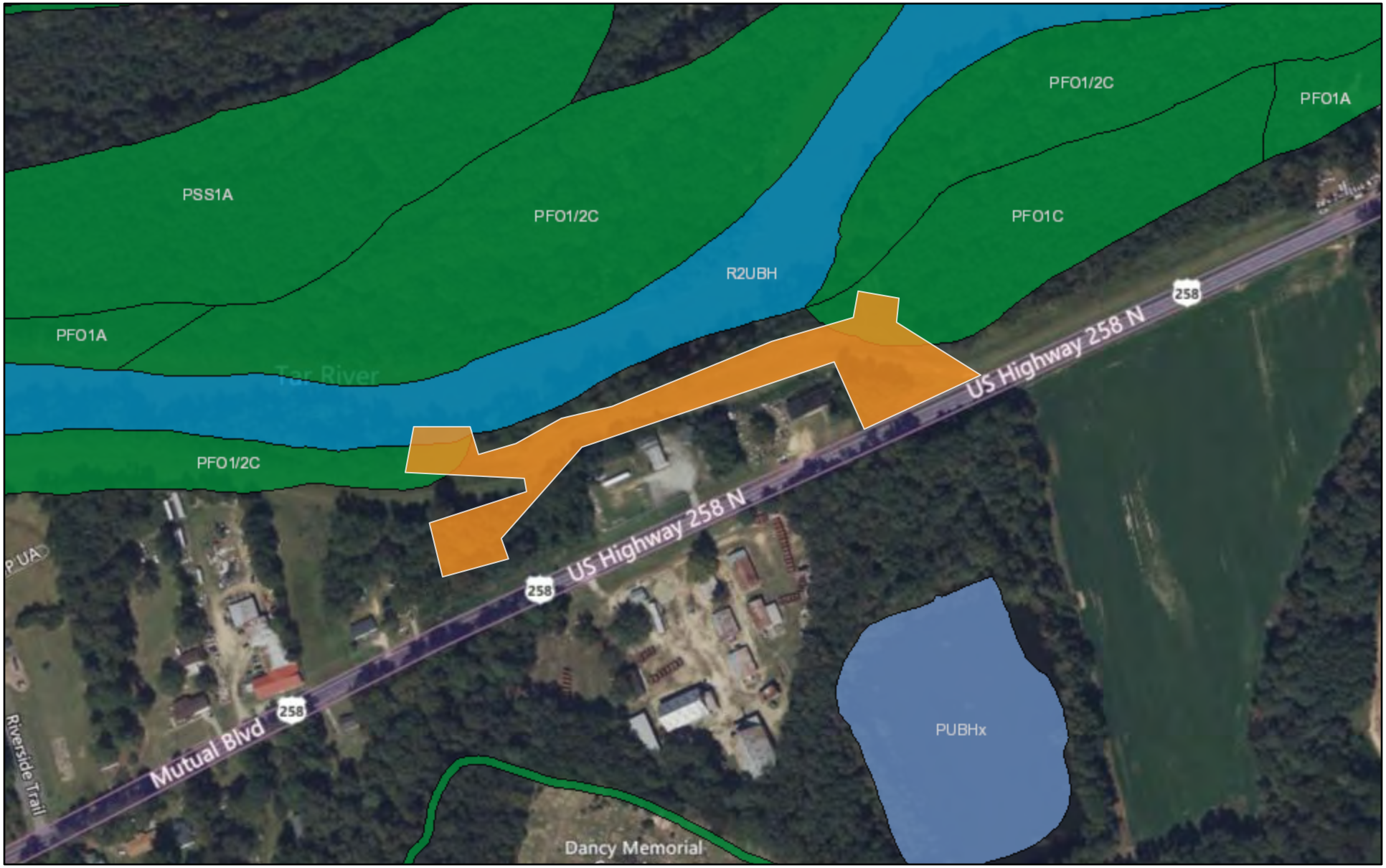
1:4,514

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.2 km

U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov, © 2022 Microsoft Corporation © 2022 Maxar

Princeville Levee Floodgate Repairs NWI Map - Structures 2 & 3



August 16, 2022

structures 2 & 3 - princeville levee floodgate repairs

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other

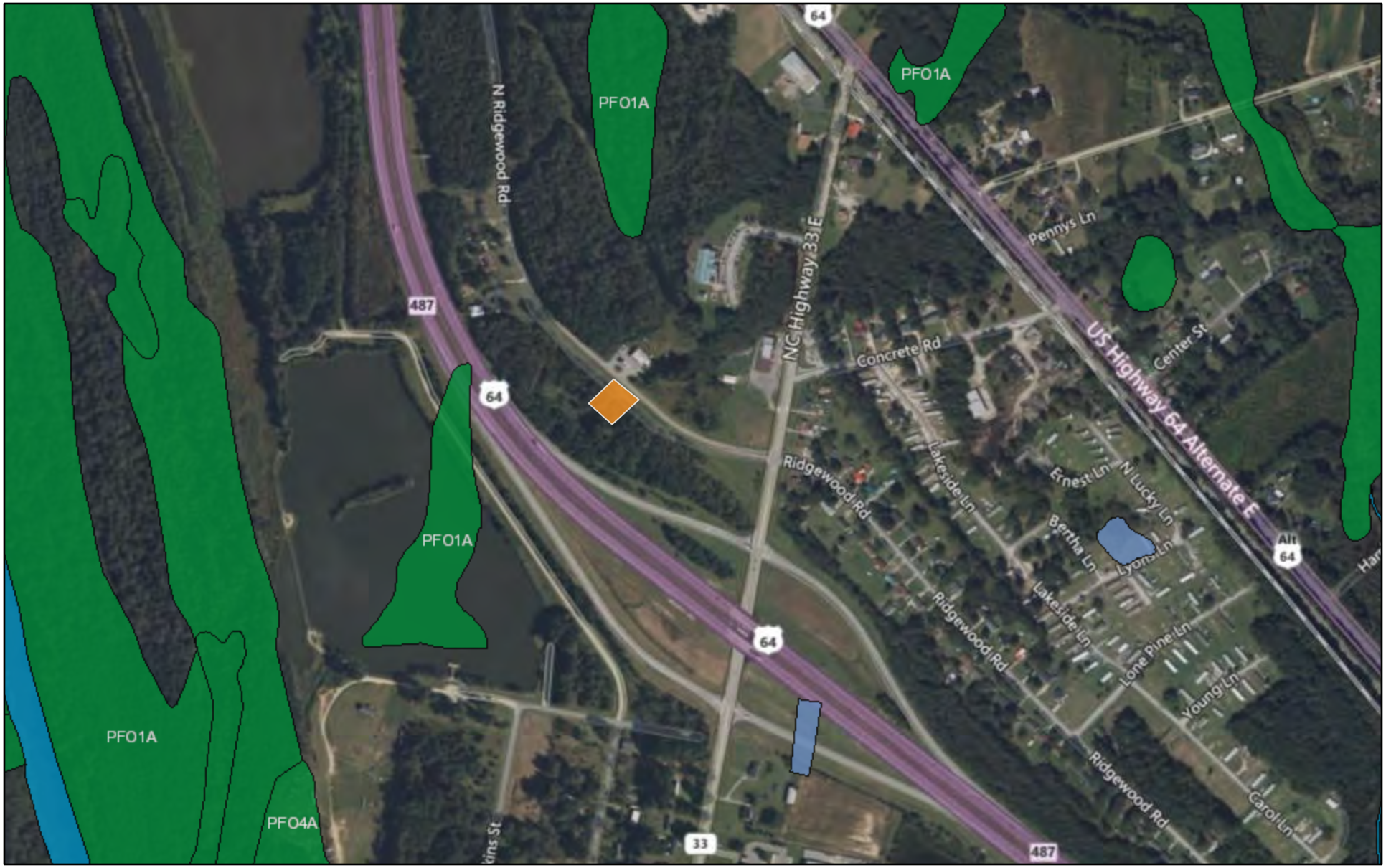
1:4,514

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.2 km

U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov, © 2022 Microsoft Corporation © 2022 Maxar

Princeville Levee Floodgate Repairs NWI Map - Structure 4



August 16, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov, © 2022 Microsoft Corporation © 2022 Maxar

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PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

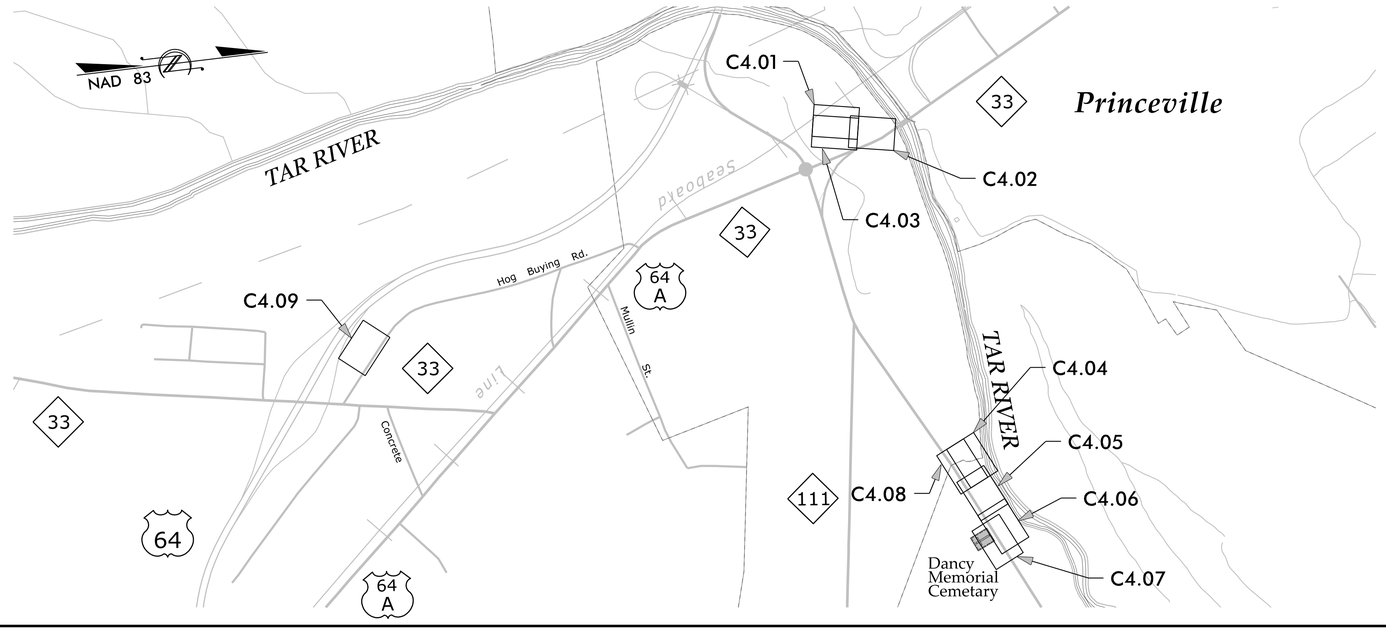
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

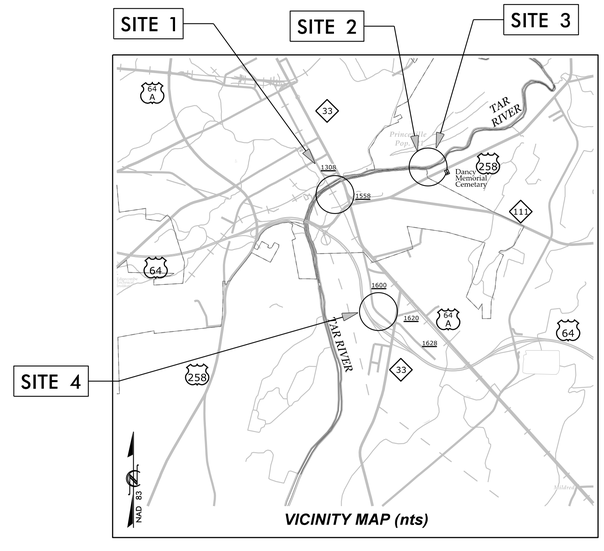
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

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CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

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General Notes

1. All construction shall be in accordance with the latest edition of "NCDOT 2018 Standards and Specifications for Roads and Structures" and "NCDOT 2018 Roadway Standard Drawings" and with the standards and specifications of the Town of Princeville.
2. Existing utilities noted at the time of the field survey are shown for size, material, type, and relative location only. This plan is not a comprehensive inventory or an as-built survey of existing site utilities. The Contractor is to determine the existence and location of all utilities within the work area.
3. The Contractor shall be responsible for the location and/or relocation of all utilities in coordination with the appropriate utility agency or company. The Contractor is required to call 'The NC One Call Center' (1-800-632-4949) before digging.
4. The Contractor shall be responsible for repairing or replacing any existing site features, facilities or improvements that are damaged during the demolition or construction operation that are not indicated to be removed or abandoned.
5. Install tree protection fence and clearing and grubbing erosion control measures prior to any demolition and/or construction activity on site.
6. All disturbed slopes must be stabilized within the time frame indicated on the Ground Stabilization Table (see Erosion Control Plan). All other disturbed areas must be stabilized with the time frame indicated on the Ground Stabilization Table.
7. Contractor is to field locate proposed site improvements that require demolition of existing structures for verification by the Engineer prior to demolition.
8. Construction debris to be removed from the site and properly disposed of by the Contractor. All project waste and demolition materials to be disposed of in accordance with applicable NCDEQ Standards. Contractor to provide written verification of proper disposal to owner.
9. Any buried waste, construction debris or trash which is found during the construction operation shall be thoroughly excavated and removed from the site to an approved facility prior to the placement of any permanent fill material or pavement construction.
10. Contractor to prevent surface and air movement of dust from disturbed soil surfaces through sprinkling until it is wet. Contractor is to maintain dust control measures through dry weather periods until all disturbed areas have been stabilized.
11. All stockpile areas and temporary spoil areas shall be protected by silt fence.
12. All site work shall produce surface grades adequate for storm water runoff to prevent standing water on all developed areas and to meet existing grades in smooth transition.
13. To minimize damage to existing trees, the Contractor shall cut, rather than tear roots.
14. The Contractor is responsible for furnishing and maintaining all work zone signage relative to the work to be performed for the location indicated on the project plan set. All barricading and signage shall conform to the latest edition of "NC-Manual on Uniform Traffic Control Devices for Work Zone."
15. An on-site pre-construction meeting must be held prior to any construction activity.
16. All existing site features shall remain unless noted to be removed or demolished.
17. Construction staging and access limits to be approved by the Owner prior to any construction activity on site.
18. The Contractor shall be responsible for all construction staking. Horizontal and vertical site control coordinates and elevations are shown on sheet C2.01. The contractor is responsible for all site layout, construction staking, and as-built surveys.
19. Topography, existing conditions, easement, and right-of-way survey conducted by Sungate Design Group, PA on 4/6/2021, 4/8/2021, 4/9/2021, and 5/19/2021. Coordinates shown on plan are referenced to NAD 83 (2011) horizontal datum and NAVD 88 vertical datum.
20. The contractor shall note that the drawings may not show every offset, transition, fitting, etc. that may be required. The contractor shall install such standard appurtenances as required to closely follow the grades and alignments depicted on the plans.
21. If departures from the specifications or drawings are deemed necessary by the contractor, details of such departures and reasons therefore shall be submitted to the Owner for review. No departures from contract documents shall be made without the written permission of the Owner.
22. **All dimensions and grades shown on the plans shall be field verified by the Contractor prior to the start of construction in the area. The Contractor shall notify the Owner if any errors or discrepancies exist between the project plans and the field conditions that require plan or grade modification prior to the start of construction of the improvements in the area. No extra compensation shall be paid to the Contractor for any work redone due to grades or dimensions shown incorrectly on these plans, if such notification is not provided to the Owner prior to the initiation of the subject construction and receipt of authorization to proceed with the plans construction as revised by the Engineer.**
23. Construction operations shall be limited to the hours during the day as specified by the Owner.
24. Site access and construction shall be limited to the areas shown on the construction drawings. Any damage or excavation of the existing levee is prohibited.

Riprap Gradation Requirements						
		% Finer by Weight				
		Class of Riprap				
Weight (lbs)	Size (in)	A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GENERAL NOTES

PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C20I
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.02

9/9/2021
Floodgate_Rdy_psh_C102.dgn
Layout

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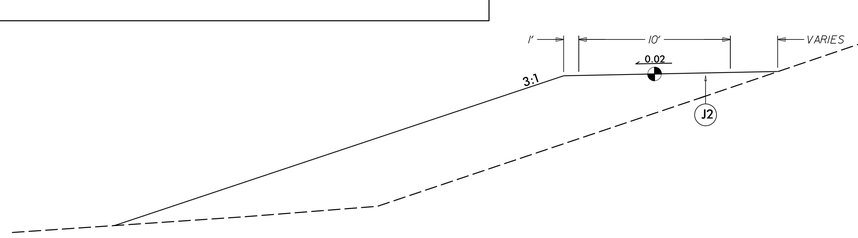
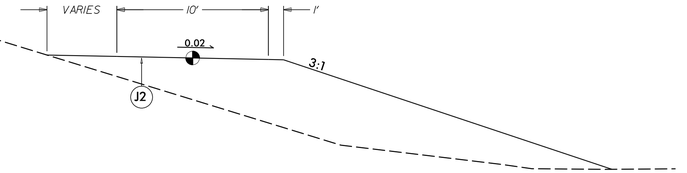
J2	PROP. 6" AGGREGATE BASE COURSE.



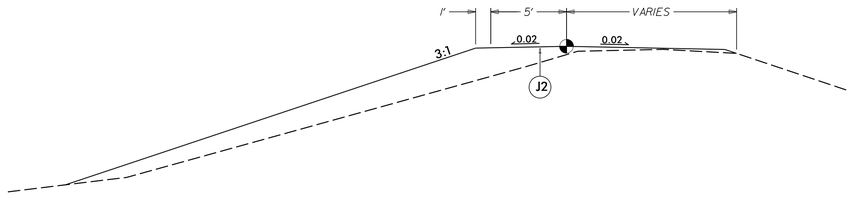
TYPICAL SECTION NO. 1

10+00 to 16+20 -AR1-
10+00 to 12+80 -AR3-
16+10 to 21+80 -AR3-
10+00 to 10+50 -AR5-



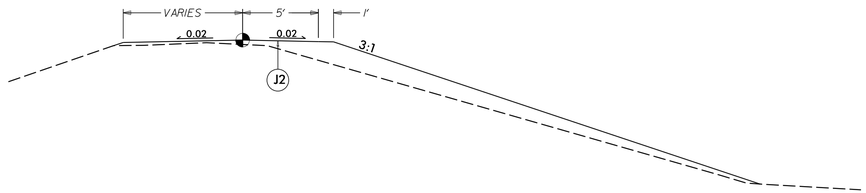
TYPICAL SECTION NO. 2

10+30 to 12+30 -AR2-
22+30 to 22+70 -AR3-
10+10 to 10+15 -AR3B-
10+20 to 10+25 -AR3B-
10+30 to 10+35 -AR3B-
10+60 to 10+70 -AR5-
10+80 to 13+20 -AR5-



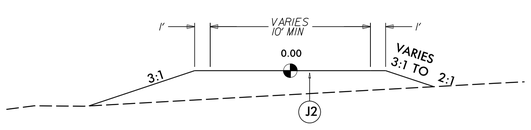
TYPICAL SECTION NO. 3

16+20 to 16+70 -AR1-
12+80 to 13+20 -AR3-
15+60 to 16+10 -AR3-
21+80 to 22+20 -AR3-



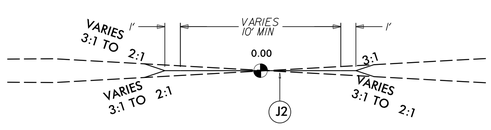
TYPICAL SECTION NO. 4

12+30 to 12+80 -AR2-
22+20 to 22+30 -AR3-
13+20 to 13+70 -AR5-



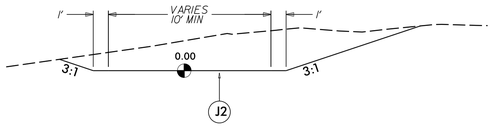
TYPICAL SECTION NO. 5

10+10 to 10+60 -AR1A-
10+10 to 10+40 -AR2A-
22+70 to 23+17 -AR3-
10+10 to 10+80 -AR3A-
10+15 to 10+20 -AR3B-
10+35 to 10+50 -AR3B-
10+15 to 10+30 -AR4-
10+10 to 10+40 -AR5A-



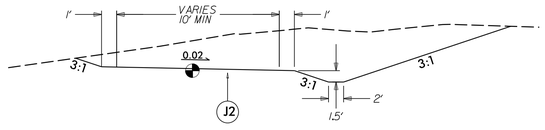
TYPICAL SECTION NO. 6

10+40 to 10+70 -AR2A-
10+25 to 10+30 -AR3B-
10+50 to 10+60 -AR3B-
10+30 to 10+50 -AR4-
10+50 to 10+60 -AR5-
10+70 to 10+80 -AR5-
10+40 to 10+50 -AR5A-



TYPICAL SECTION NO. 7

10+50 to 10+70 -AR4-
10+50 to 11+00 -AR4A-



TYPICAL SECTION NO. 8

10+05 to 10+50 -AR4A-

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by:
Joshua G. Dalton
1B9ADC1C1490409...

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

TYPICALS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C103
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C1.03**

9/9/2021
Floodgate_Rdy_psh_C103.dgn
Layout

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SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

NAD 83

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776209.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

NORTH CAROLINA
PROFESSIONAL
SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

9/9/2021
Floodgate_Rdy_psh_C201.dgn
Rhino 7.0

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

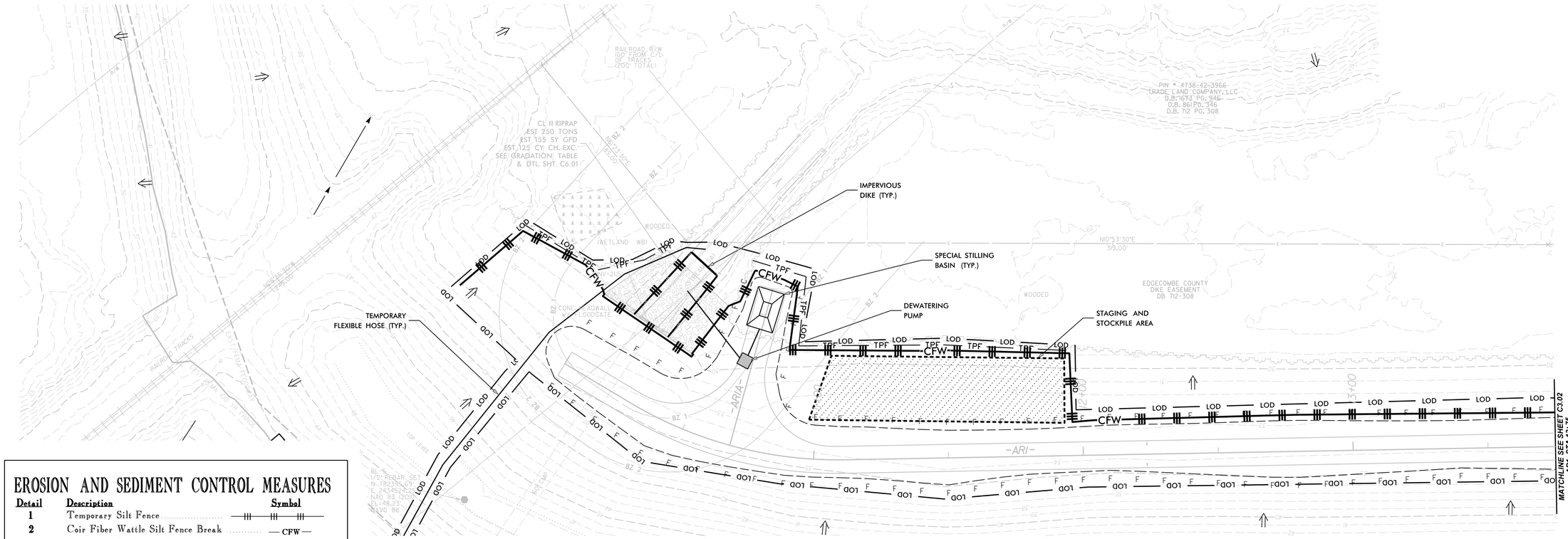
NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″=20′

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton 1B09A0BC1E9A40A...

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON NORTH CAROLINA

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C301
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.01**

9/9/2021
Floodgate_Rdy_psh_C301.dgn
Ben Kay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872



Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 15+30 to Sta. 16+70 –AR1– LT (570 SY)
Sta. 10+50 to Sta. 12+80 –AR2– RT (450 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C302
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.02**

9/9/2021
Floodgate_Rdy_psh_C302.dgn
User:rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

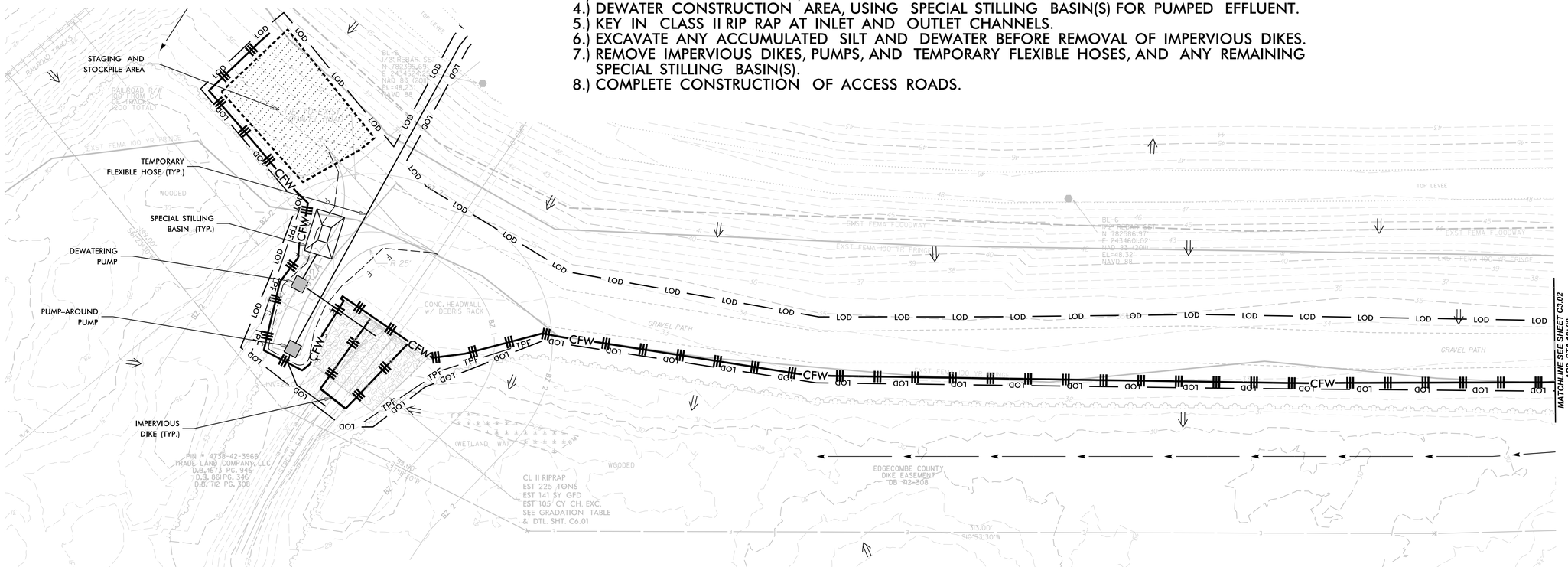
NAD 83

20' 10' 0 20' 40'

SCALE: 1" = 20'

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
Joshua G. Dalton
Registered Agent

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

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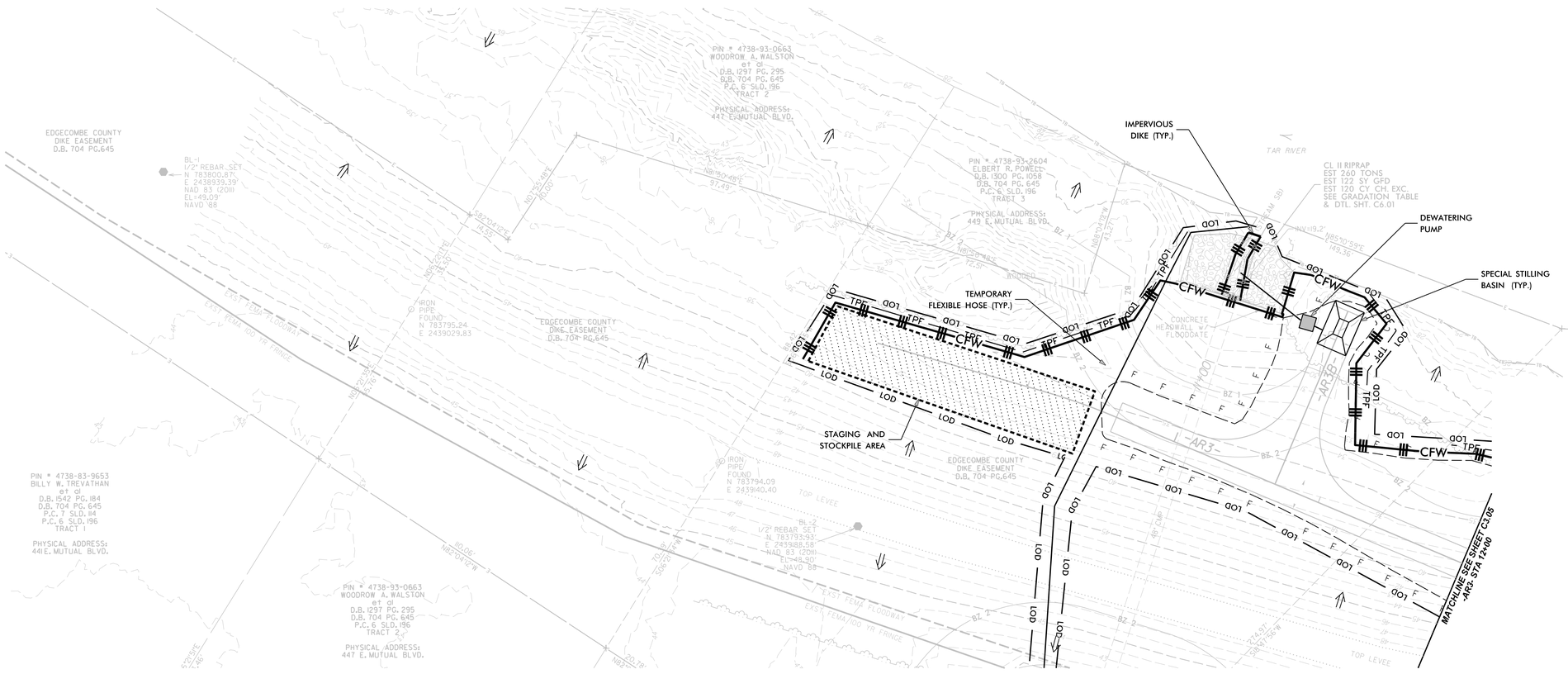
PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C303
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:
SHEET NO. C3.03

9/9/2021
Floodgate_Rdy_psh_C303.dgn
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+80 to Sta. 12+00 –AR3– LT (55 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C304
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.04**

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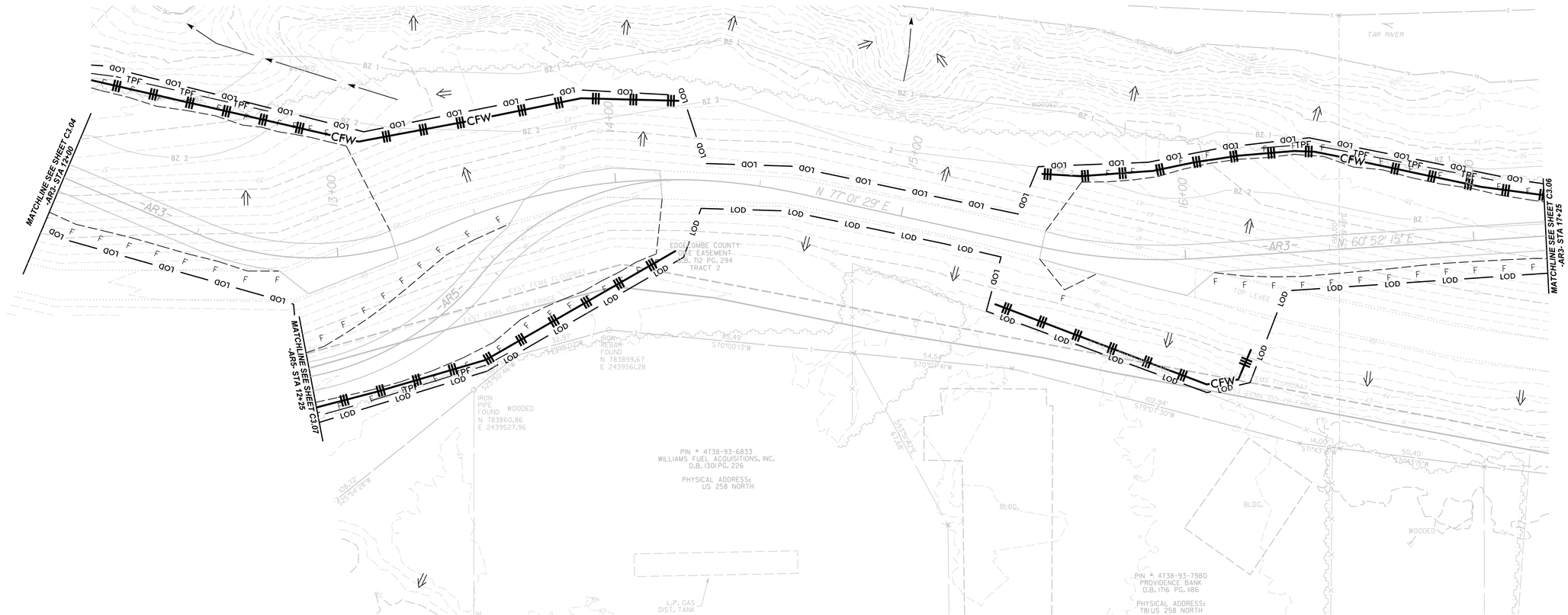
9/9/2021
Floodgate_Rdy_psh_C304.dgn
Harvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

20' 10' 0 20' 40'
SCALE: 1" = 20'

NAD 83

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 12+00 to Sta. 13+10 –AR3– LT (355 SY)
Sta. 15+90 to Sta. 16+60 –AR3– LT (200 SY)



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL
26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C305
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C3.05

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9/9/2021
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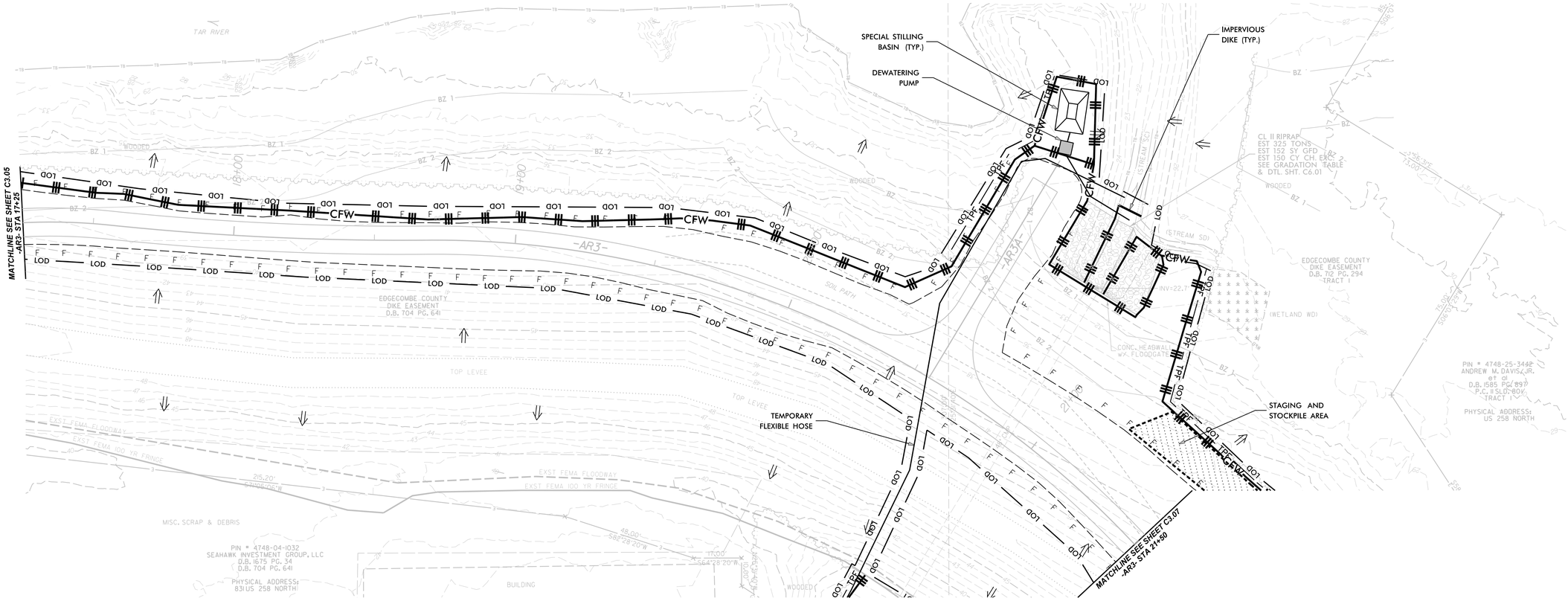
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C306
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.06

9/9/2021
Floodgate_Rdy_psh_C306.dgn
Harvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

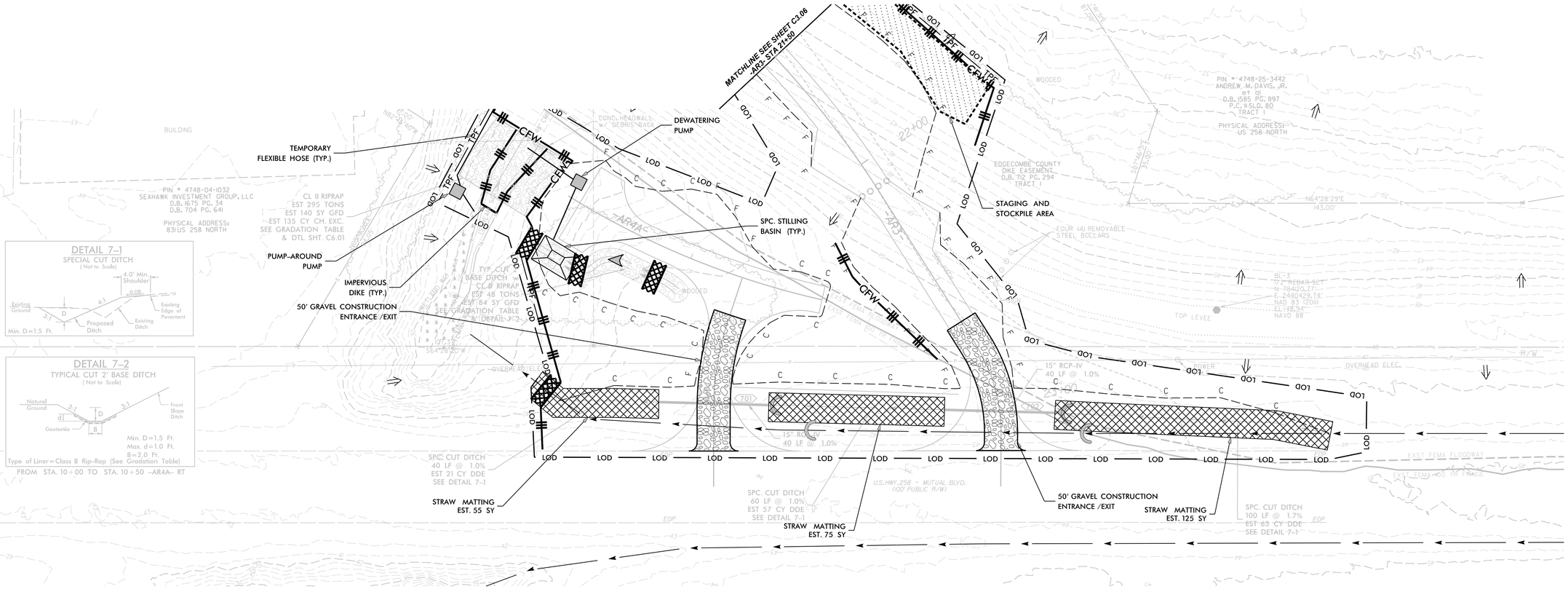
20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′

NAD 83

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)

Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT

Place Straw Matting for Erosion Control on Slope as Work Allows.
Sta. 21+50 to Sta. 22+10 –AR3– LT (185 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	TPF
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF
8	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
10B9ADBC1489455...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C307
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

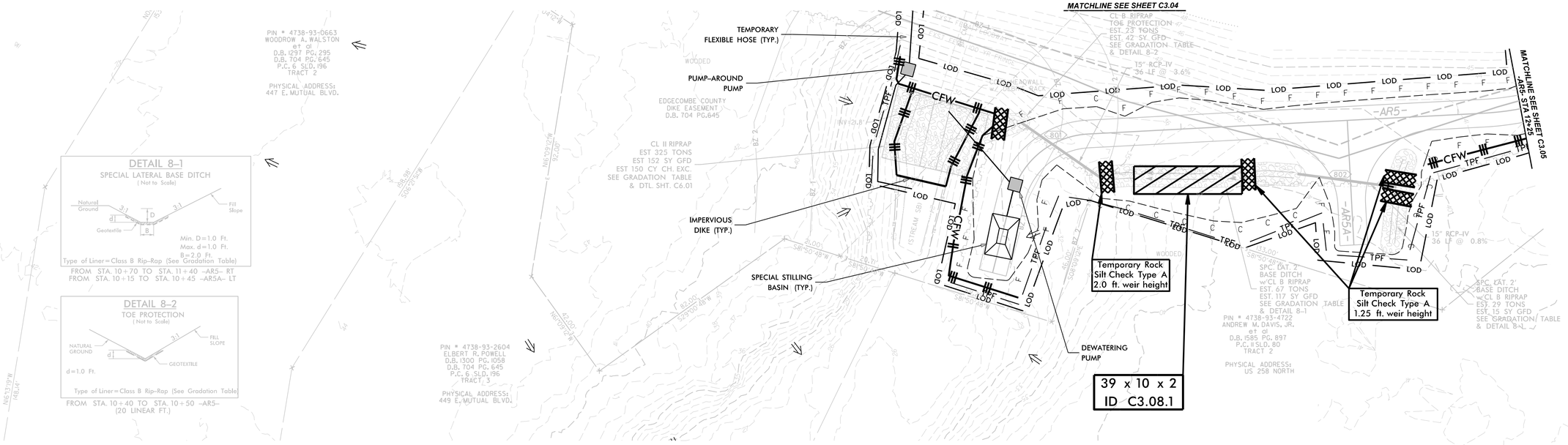
SHEET NO. **C3.07**

9/9/2021
Floodgate_Rdy_psh_C307.dgn
barclay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.


SCALE: 1"=20'
20' 10' 0 20' 40'
NAD 83
MATCHLINE SEE SHEET C3.04
MATCHLINE SEE SHEET C3.05
TEMPORARY FLEXIBLE HOSE (TYP.)
PUMP-AROUND PUMP
IMPERVIOUS DIKE (TYP.)
SPECIAL STILLING BASIN (TYP.)
DEWATERING PUMP
Temporary Rock Silt Check Type A 2.0 ft. weir height
Temporary Rock Silt Check Type A 1.25 ft. weir height
39 x 10 x 2
ID C3.08.1
CL II RIPRAP
EST 325 TONS
EST 152 SY GFD
EST 150 CY CH. EXC.
SEE GRADATION TABLE
& DTL. SHT. C6.01
CL B RIPRAP
TOE PROTECTION
EST. 73 TONS
EST. 42 SY GFD
SEE GRADATION TABLE
& DETAIL 8-2
15" RCP-IV
36 LF @ 3.6%
15" RCP-IV
36 LF @ 0.8%
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 67 TONS
EST. 117 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 29 TONS
EST. 15 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645
PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG.645
P.C. 6 SLD. 196
TRACT 2
PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.
PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3
PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.
PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 6 SLD. 80
TRACT 2
PHYSICAL ADDRESS:
US 258 NORTH
-AR5-
-AR5A-
WETLAND
(STREAM SB1)
WETLAND
WETLAND
WETLAND

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

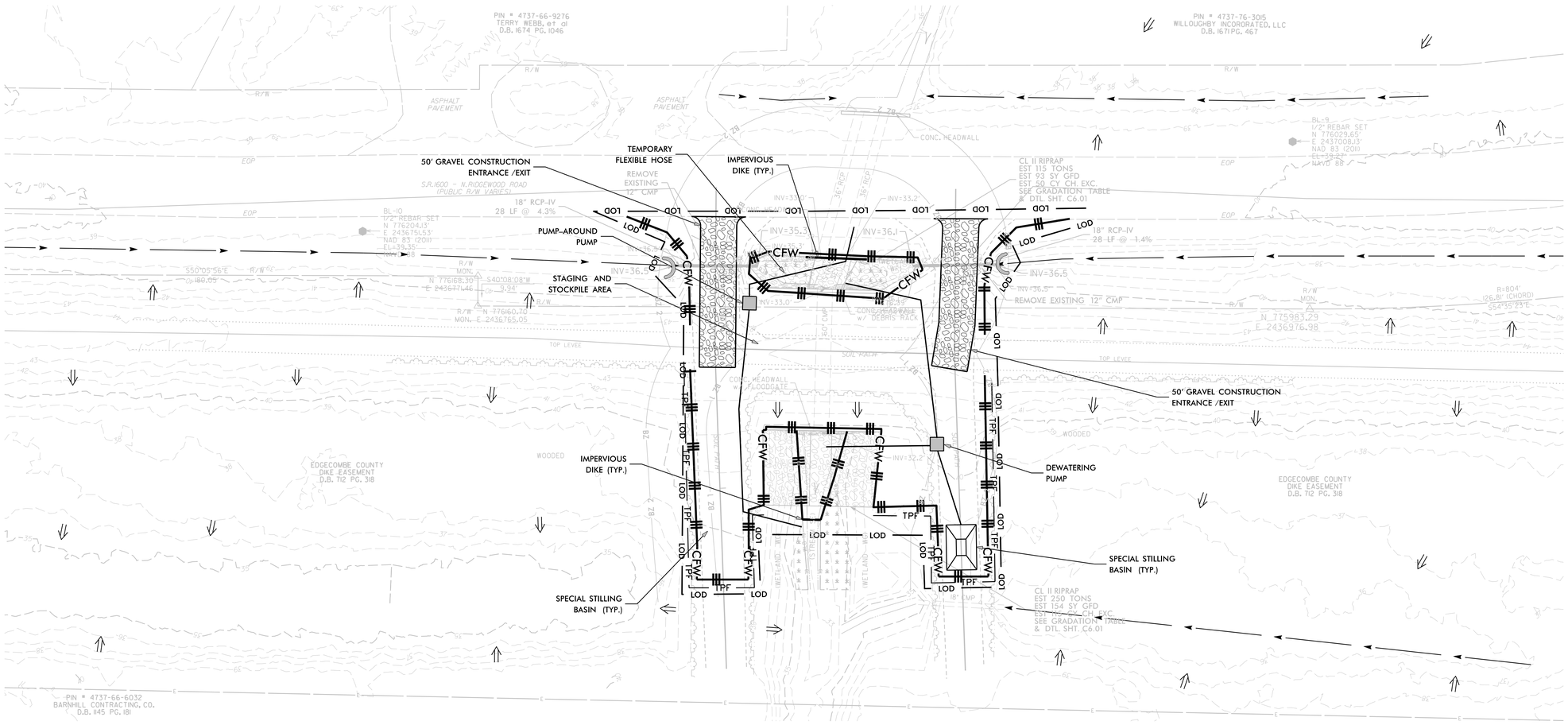
20' 10' 0 20' 40'

SCALE: 1" = 20'

NAD 83

PHASING FOR SHEET C3.09:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C309
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

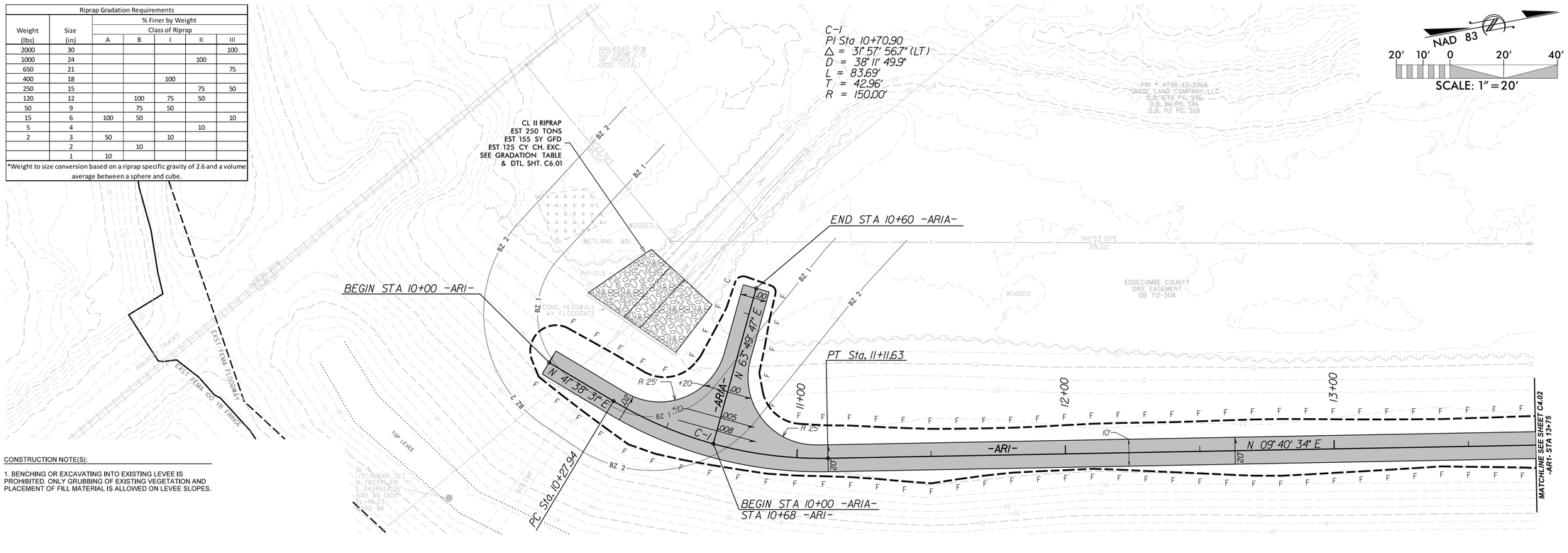
SHEET NO. **C3.09**

9/9/2021
Floodgate_Rdy_psh_C309.dgn
Harvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

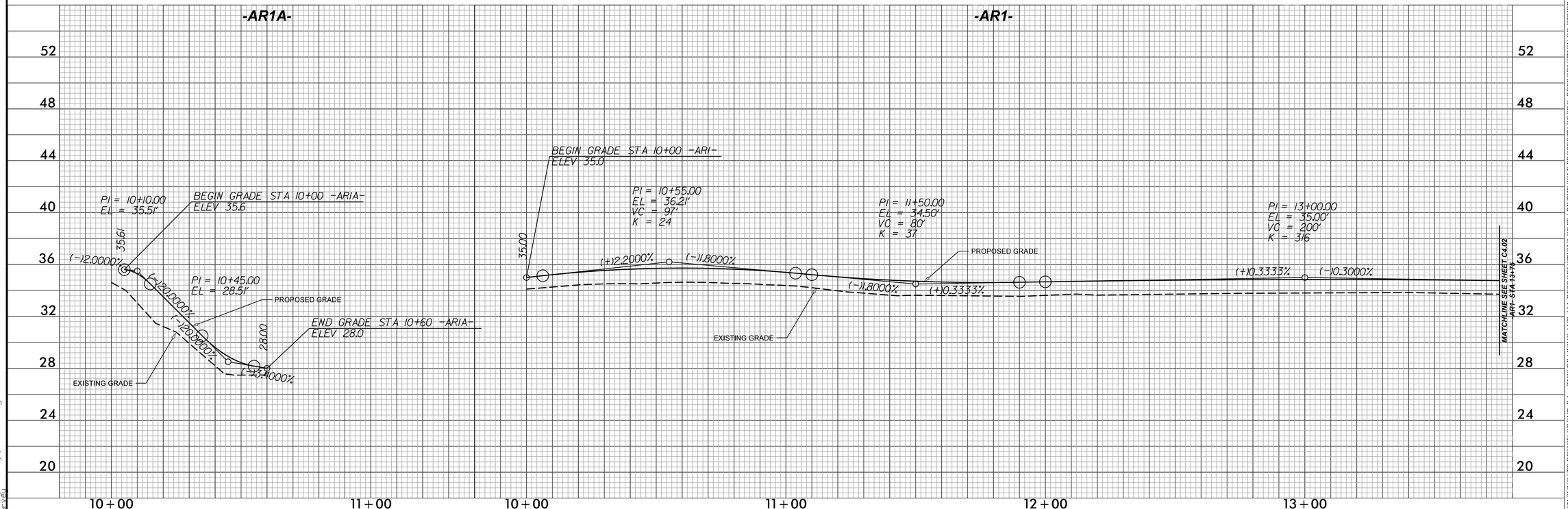
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
1284200516F8C3...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C401
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

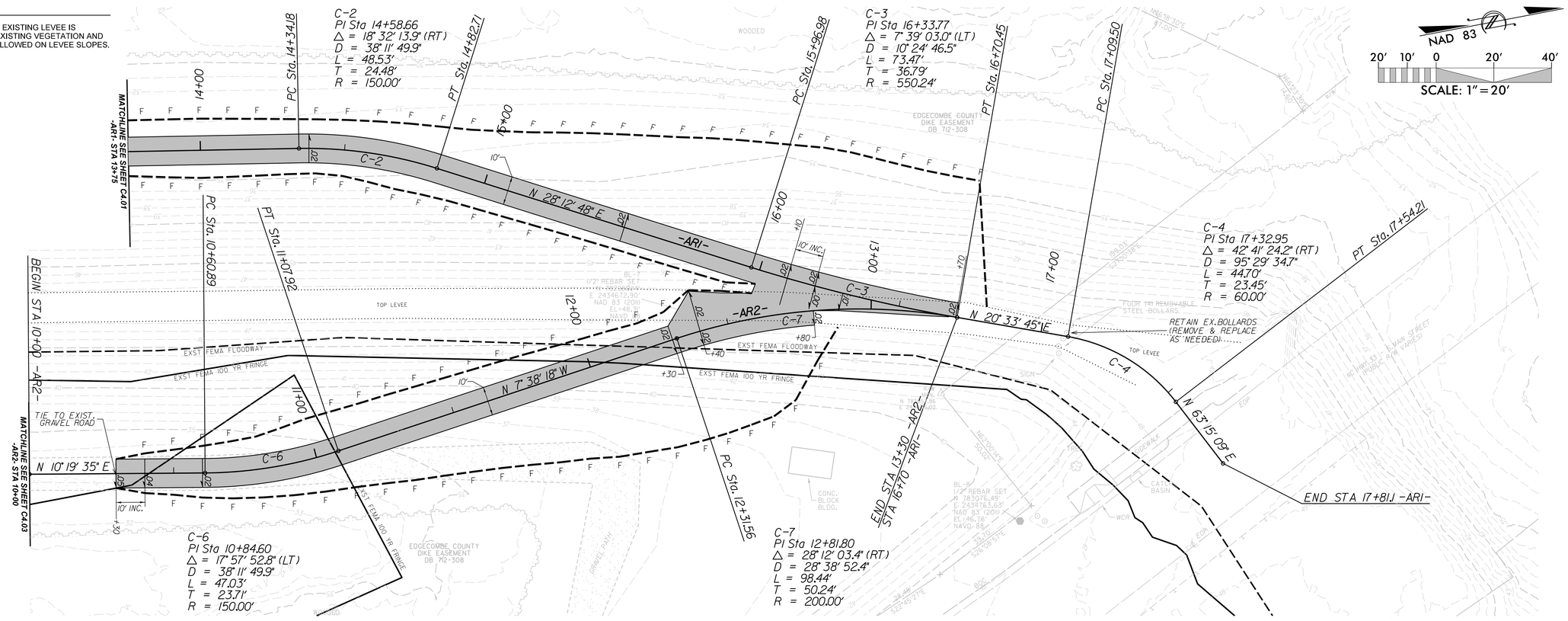
SHEET NO. C4.01

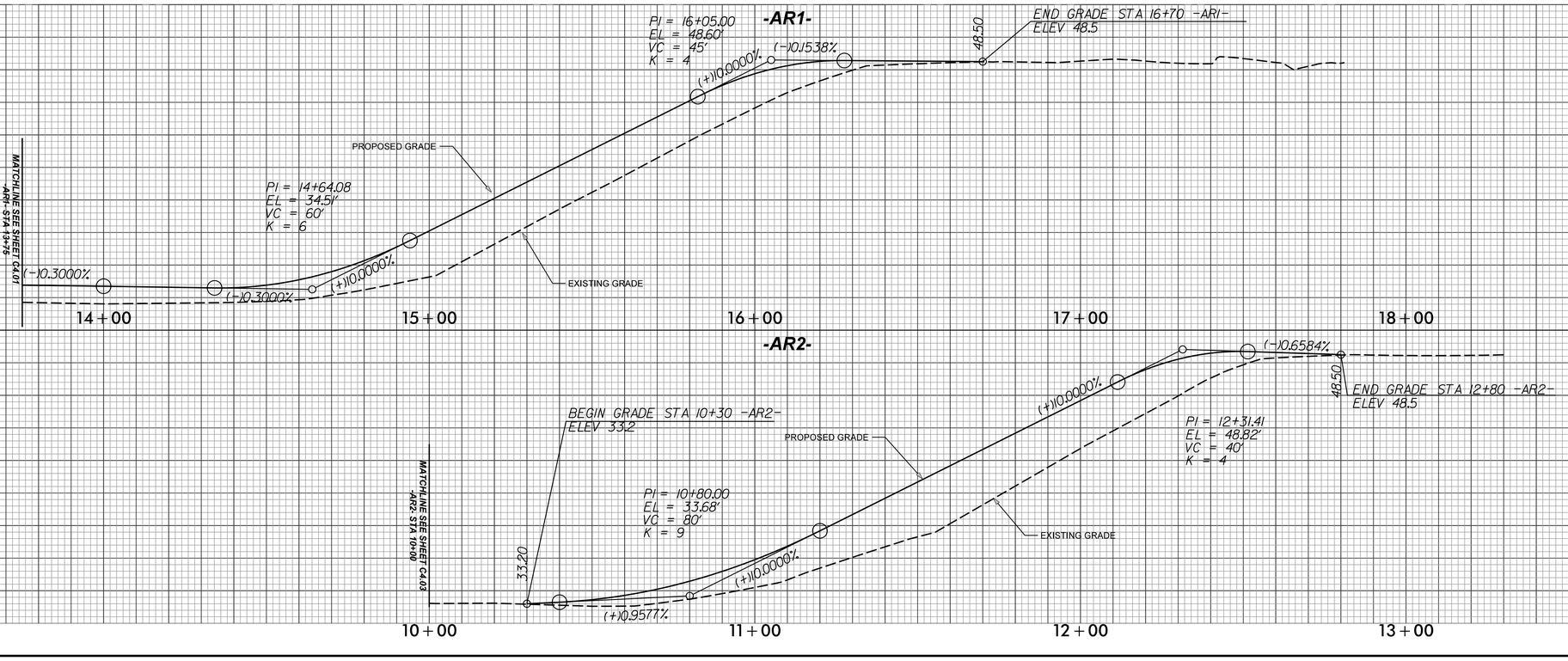
9/9/2021
Floodgate_Rdy_psh_C401.dgn
User:rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.





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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C402
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.02

9/9/2021
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User:rch

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CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

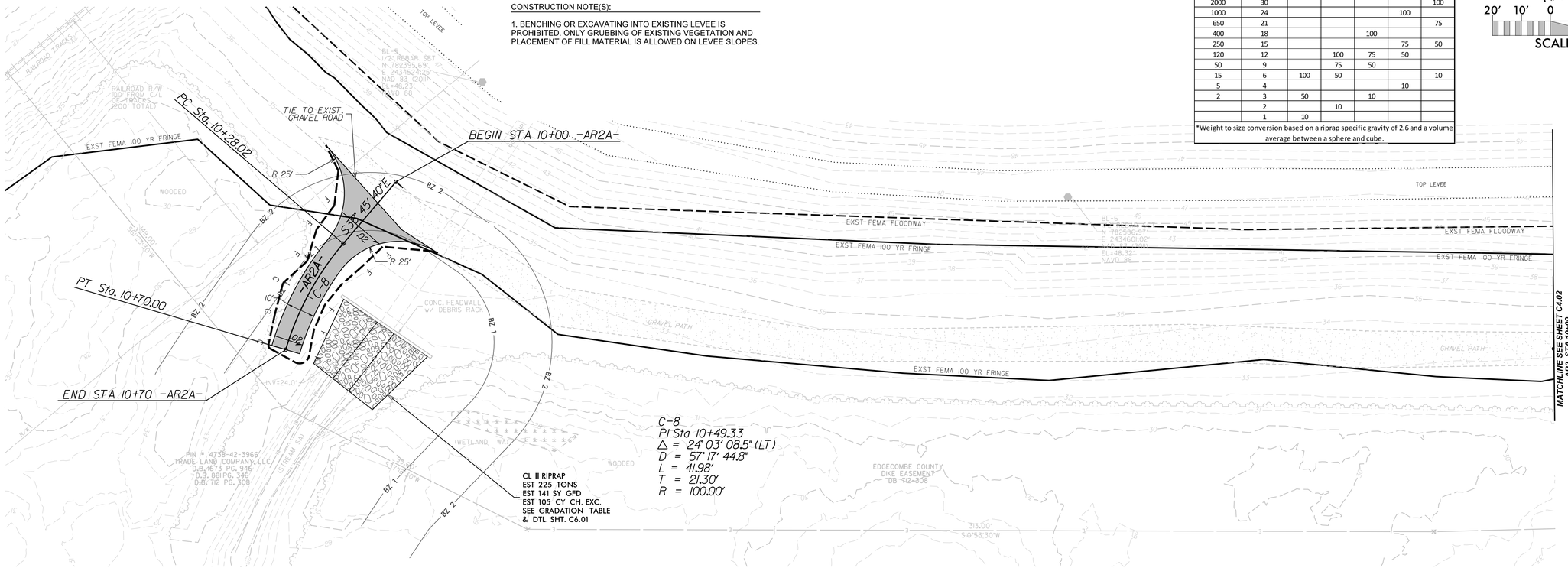
Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

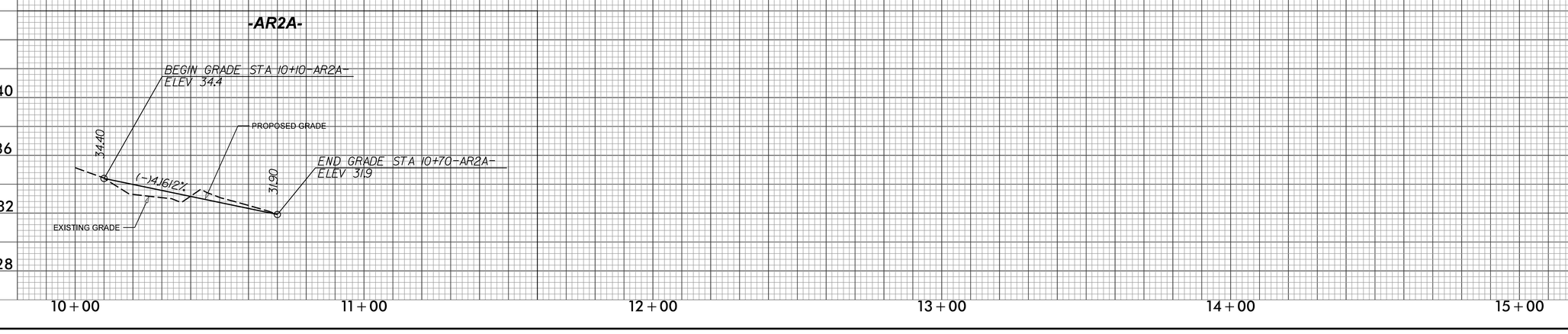
*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

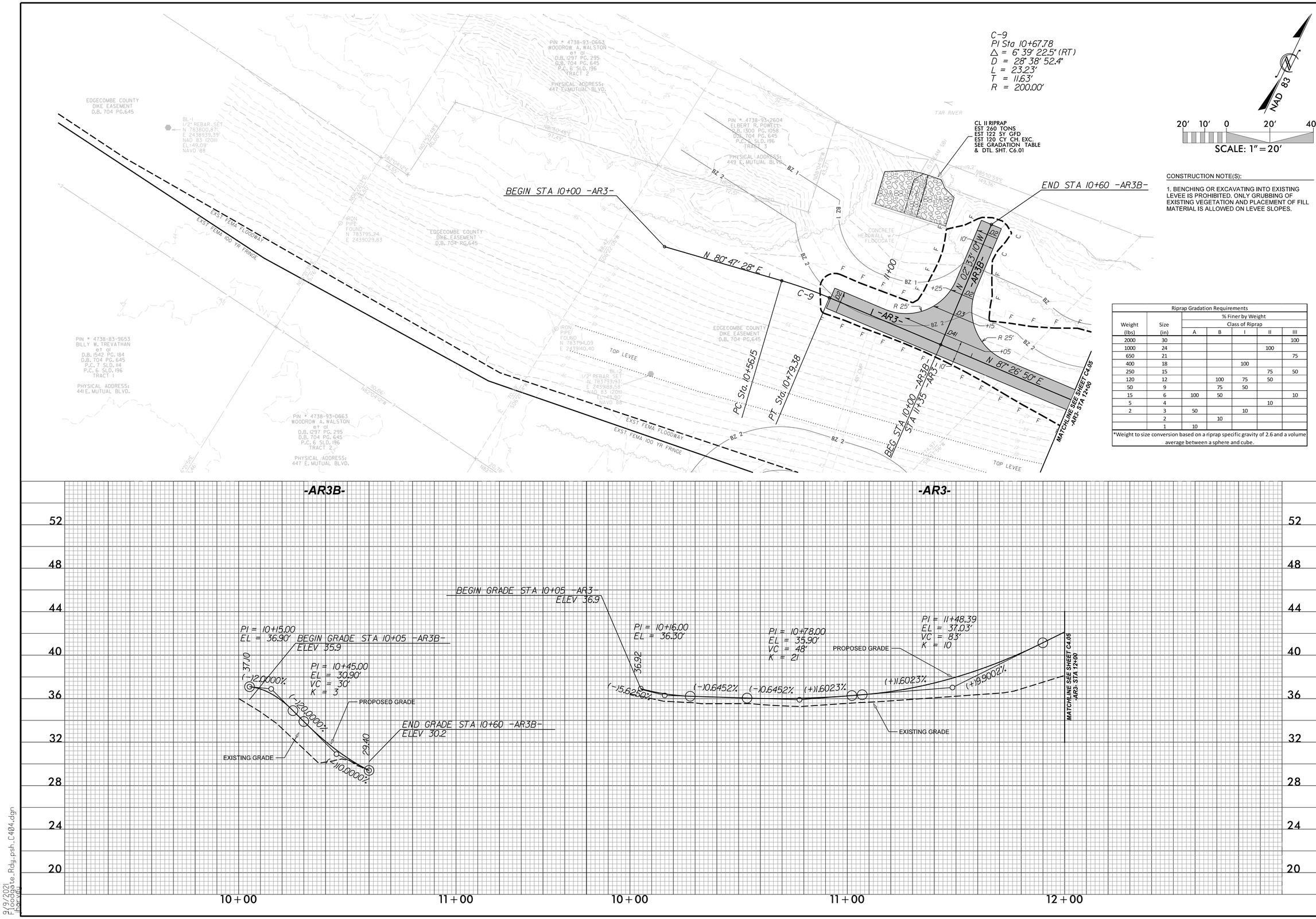
PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C403
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.03

9/9/2021
Floodgate_Rdy_psh_C403.dgn
User: rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
		% Finer by Weight				
		Class of Riprap				
Weight (lbs)	Size (in)	A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL 26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C404
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.04

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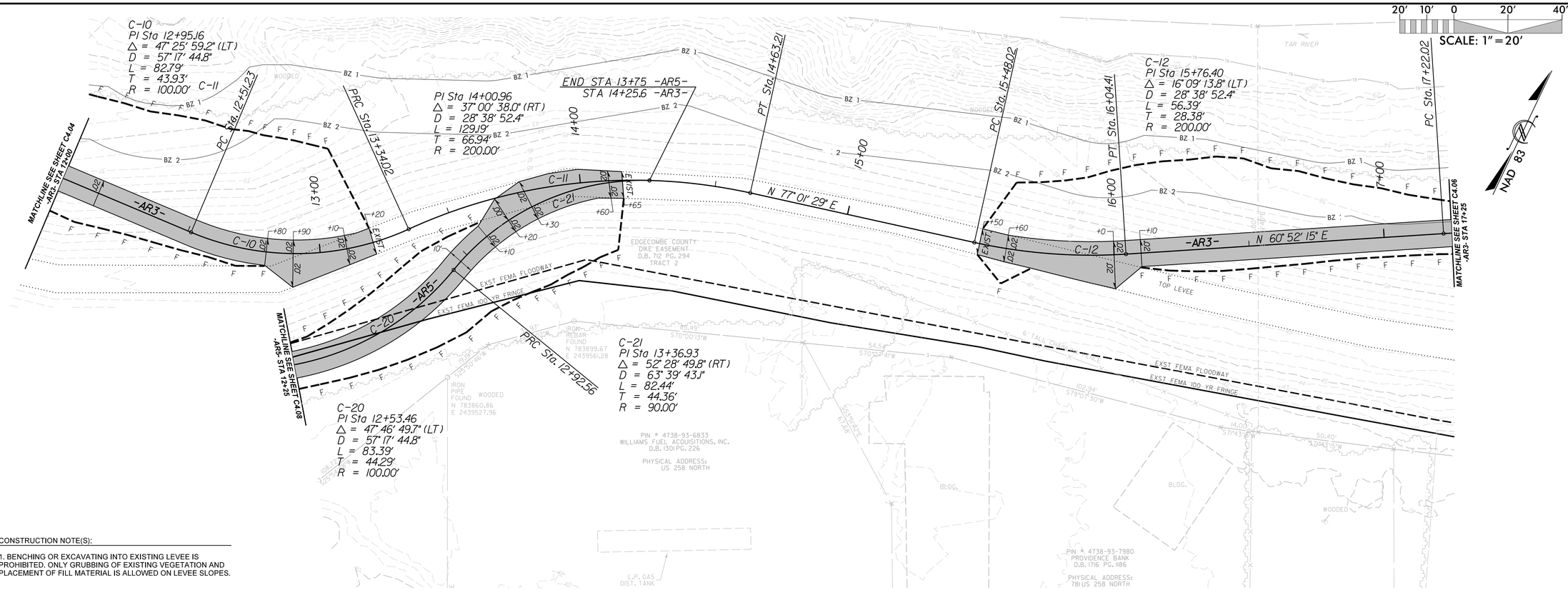
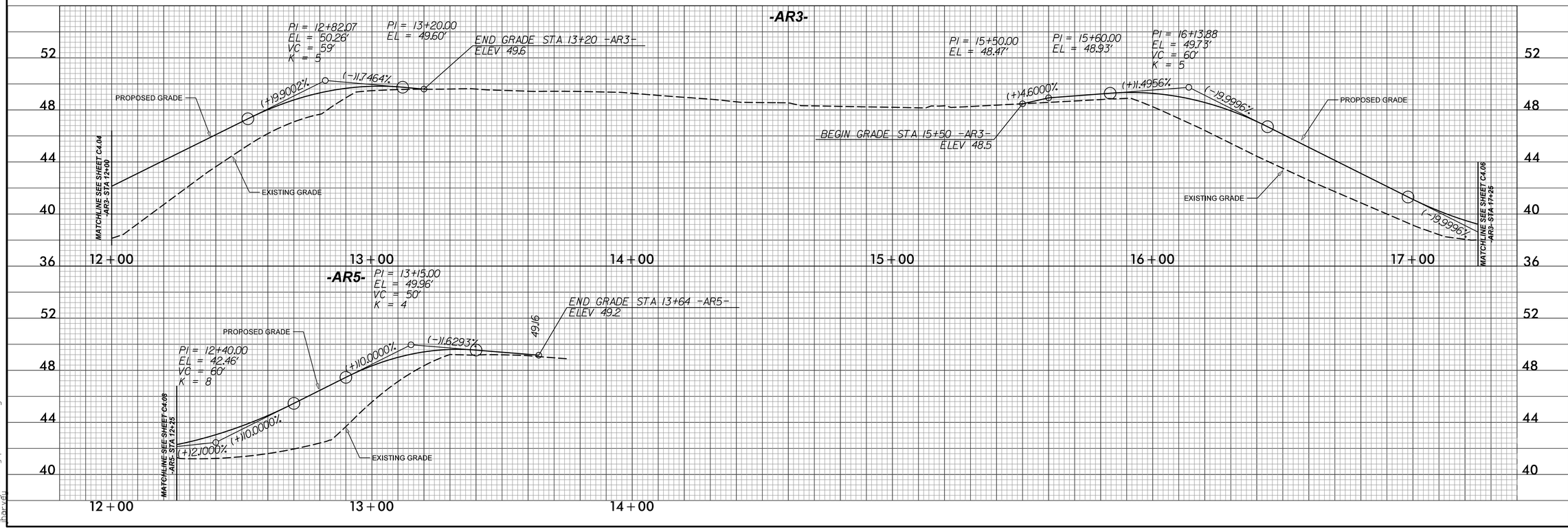
Floodgate_Rdy_psh_C404.dgn
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



9/9/2021
Floodgate_Rdy_psh_C405.dgn
User:rch

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C405
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.05

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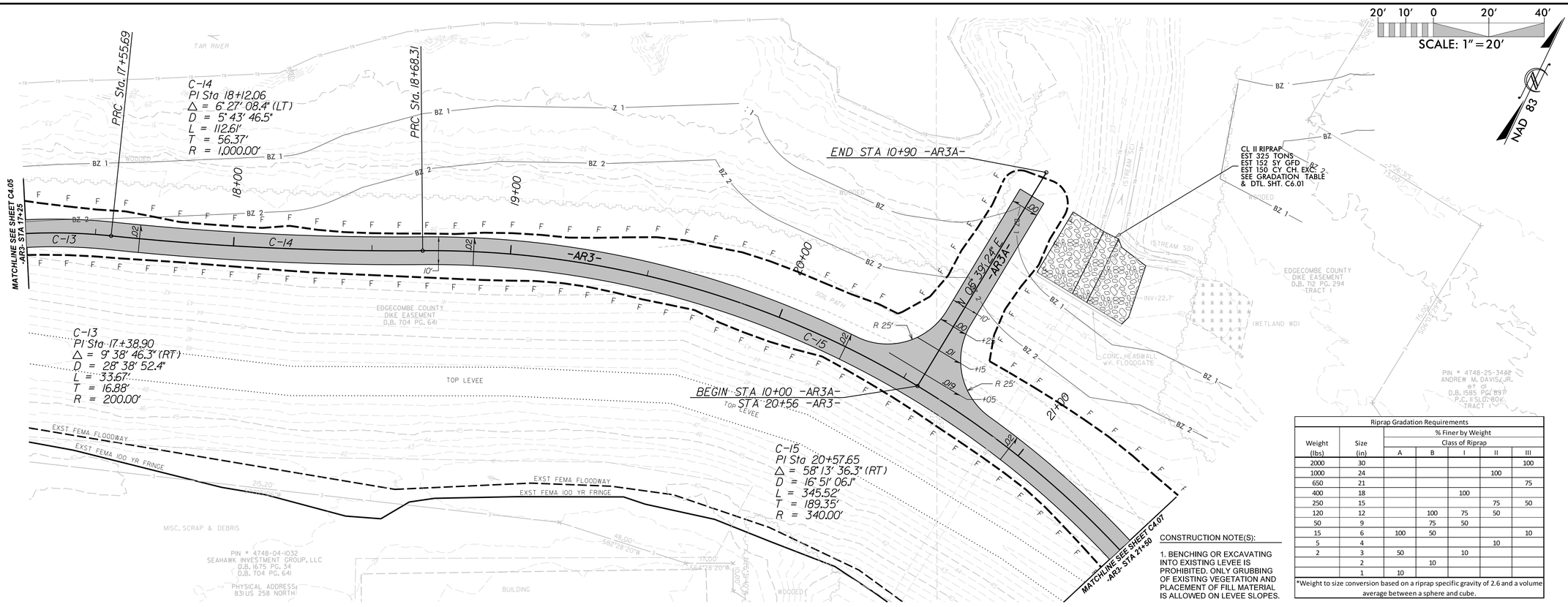
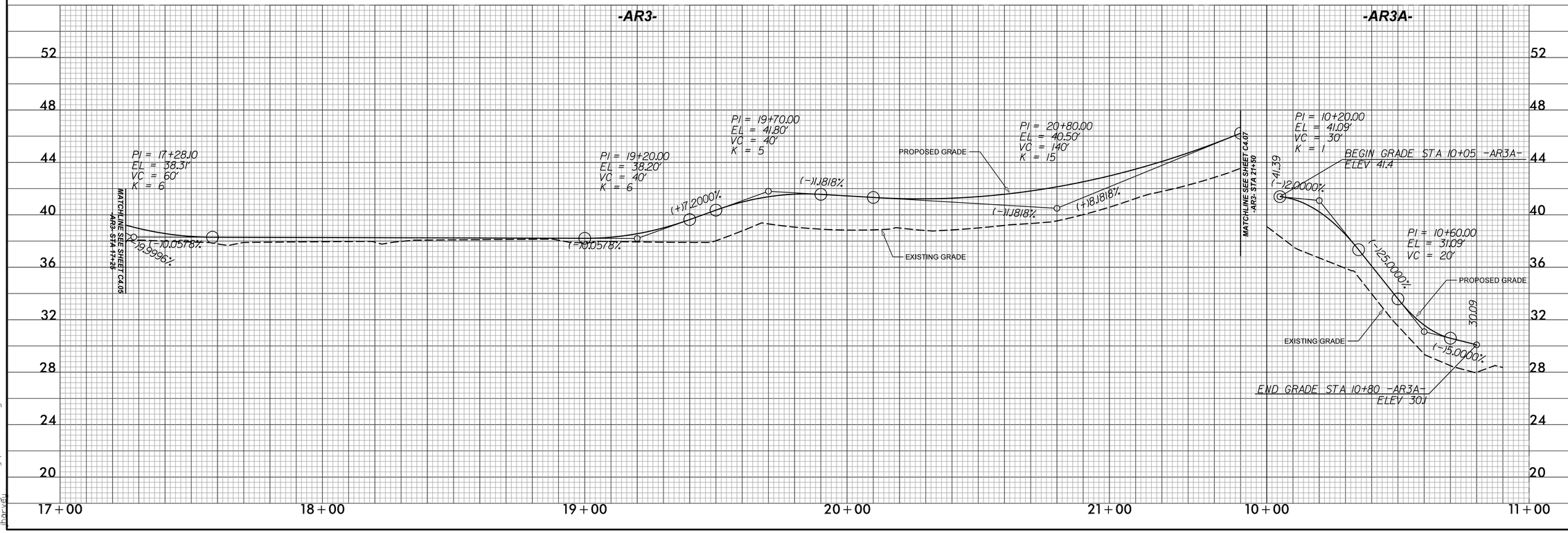


Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C406
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.06

9/9/2021
Floodgate_Rdy_psh_C406.dgn
Harvell

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

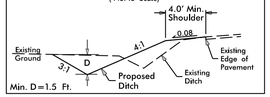
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

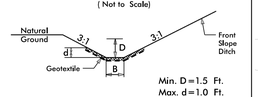
1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

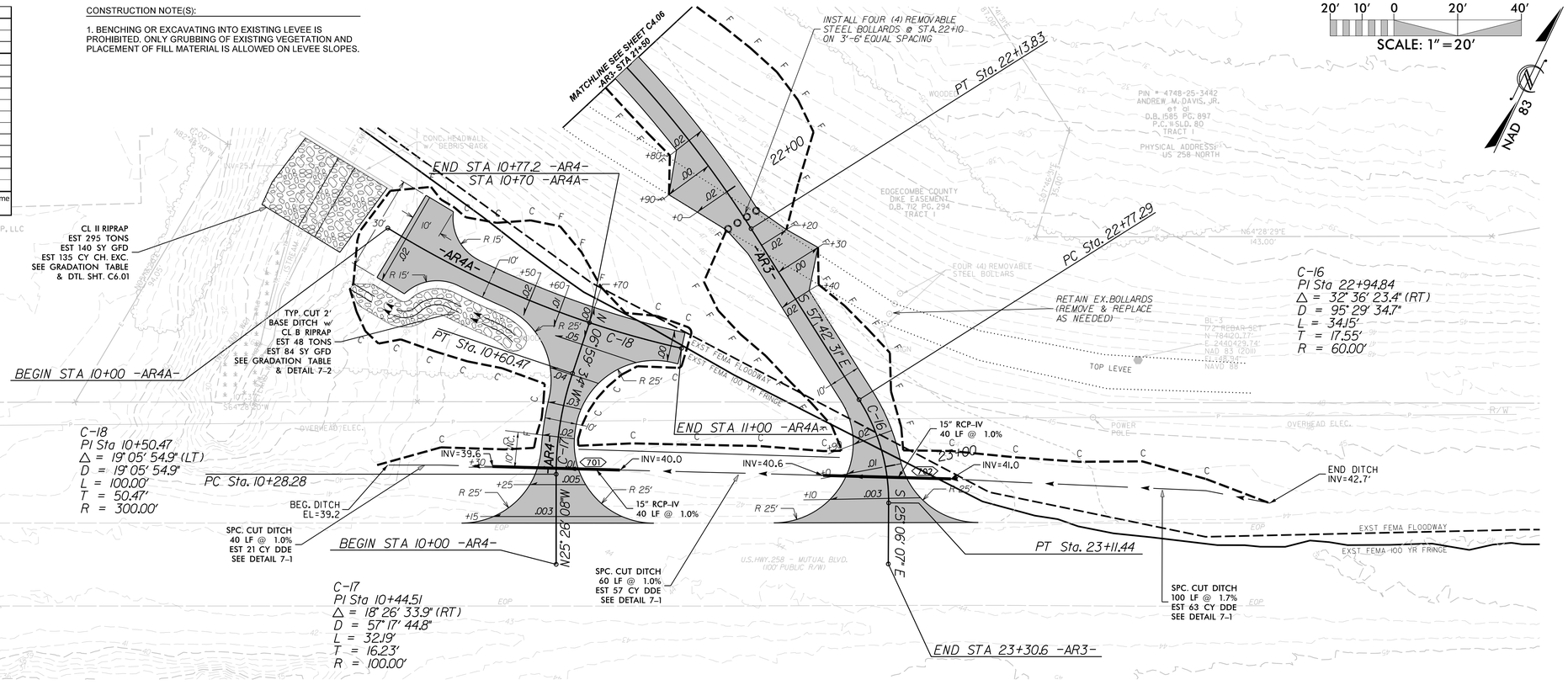


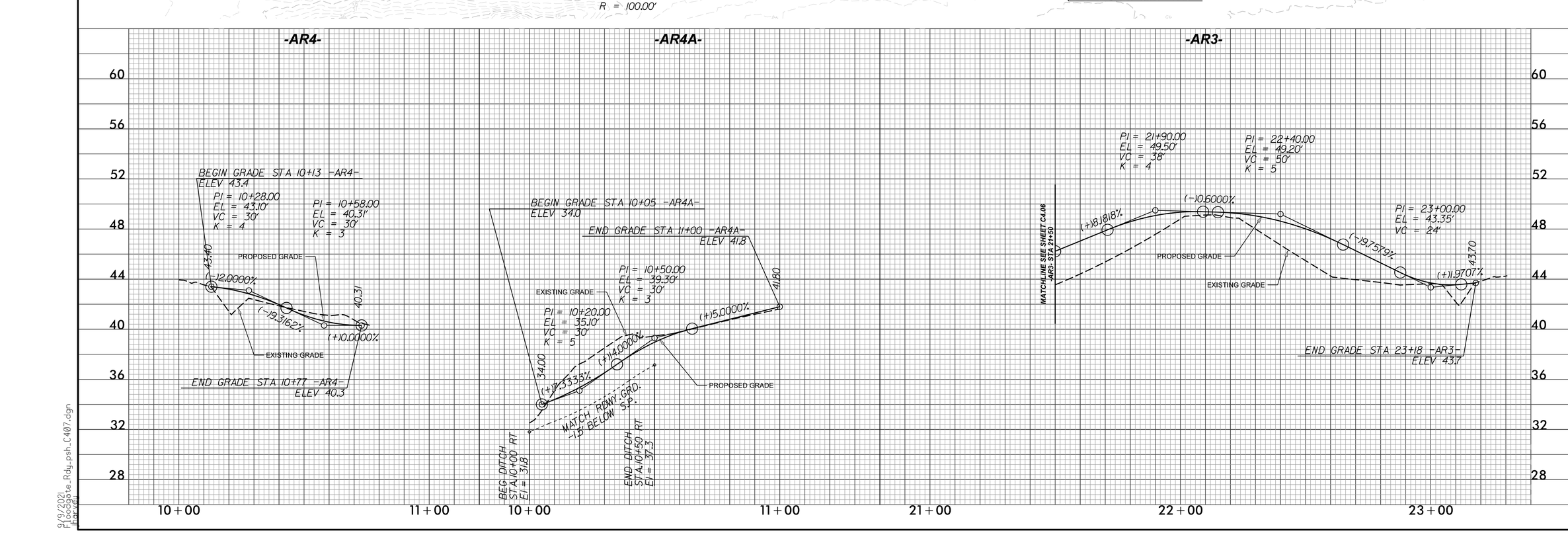
Min. D=1.5 Ft.

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT





SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton, PE
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C407
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C4.07**

9/9/2021
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Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

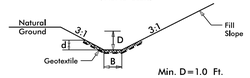
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

SCALE: 1" = 20'

NAD 83

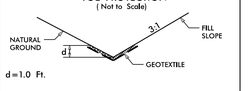
DETAIL 8–1
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

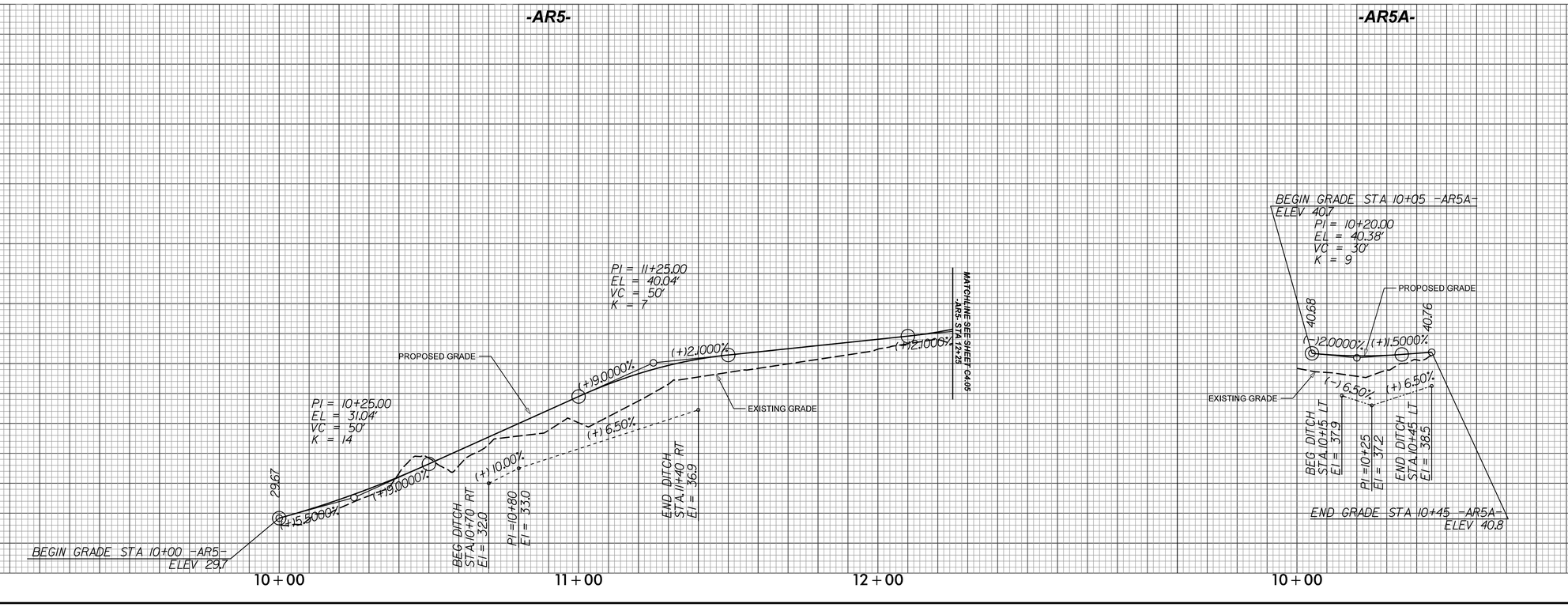
FROM STA. 10+70 TO STA. 11+40 –AR5– RT
FROM STA. 10+15 TO STA. 10+45 –AR5A– LT

DETAIL 8–2
TOE PROTECTION
(Not to Scale)



d = 1.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

FROM STA. 10+40 TO STA. 10+50 –AR5–
(20 LINEAR FT.)



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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C408
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.08

9/9/2021
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User:rch

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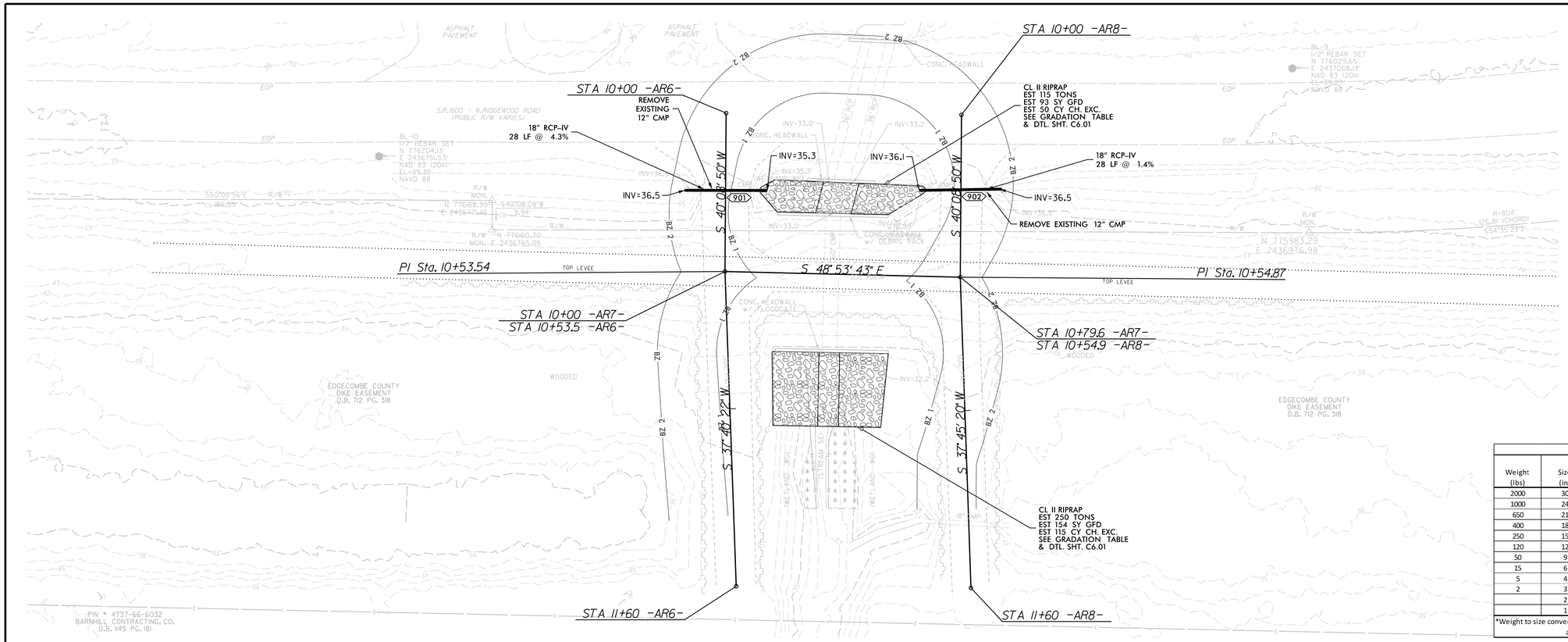
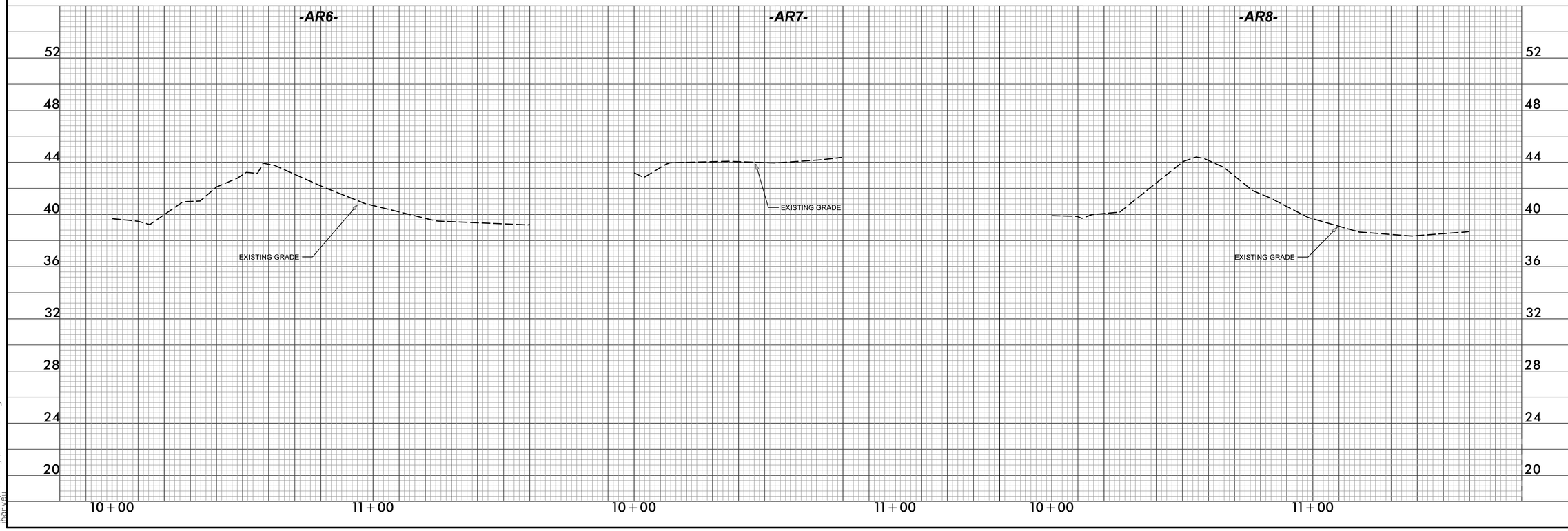


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight				
		Class of Riprap				
		A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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DocuSigned by: Joshua G. Dalton
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C409
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.09

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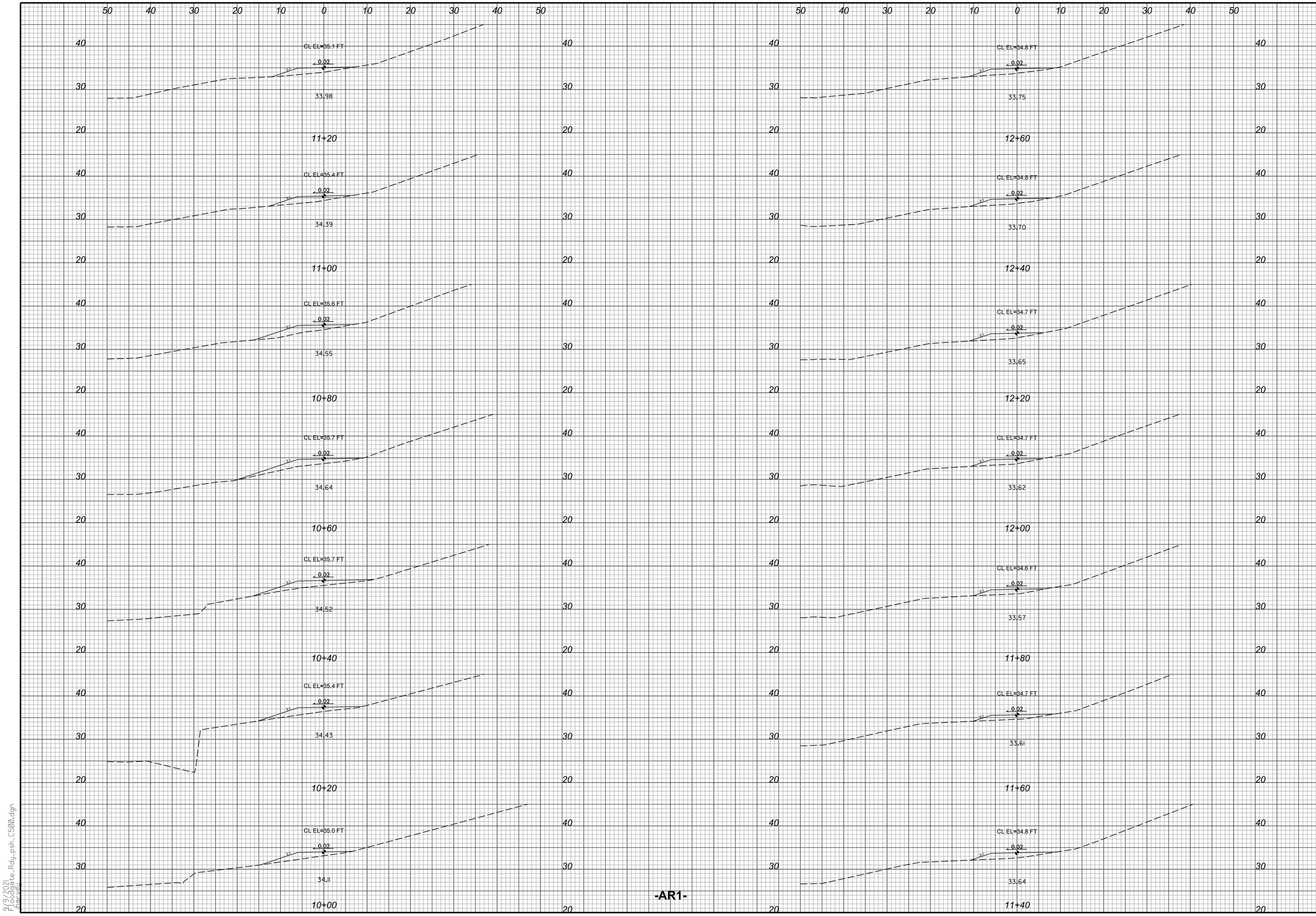

-AR1-

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1880AD6C1656AC3
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C501
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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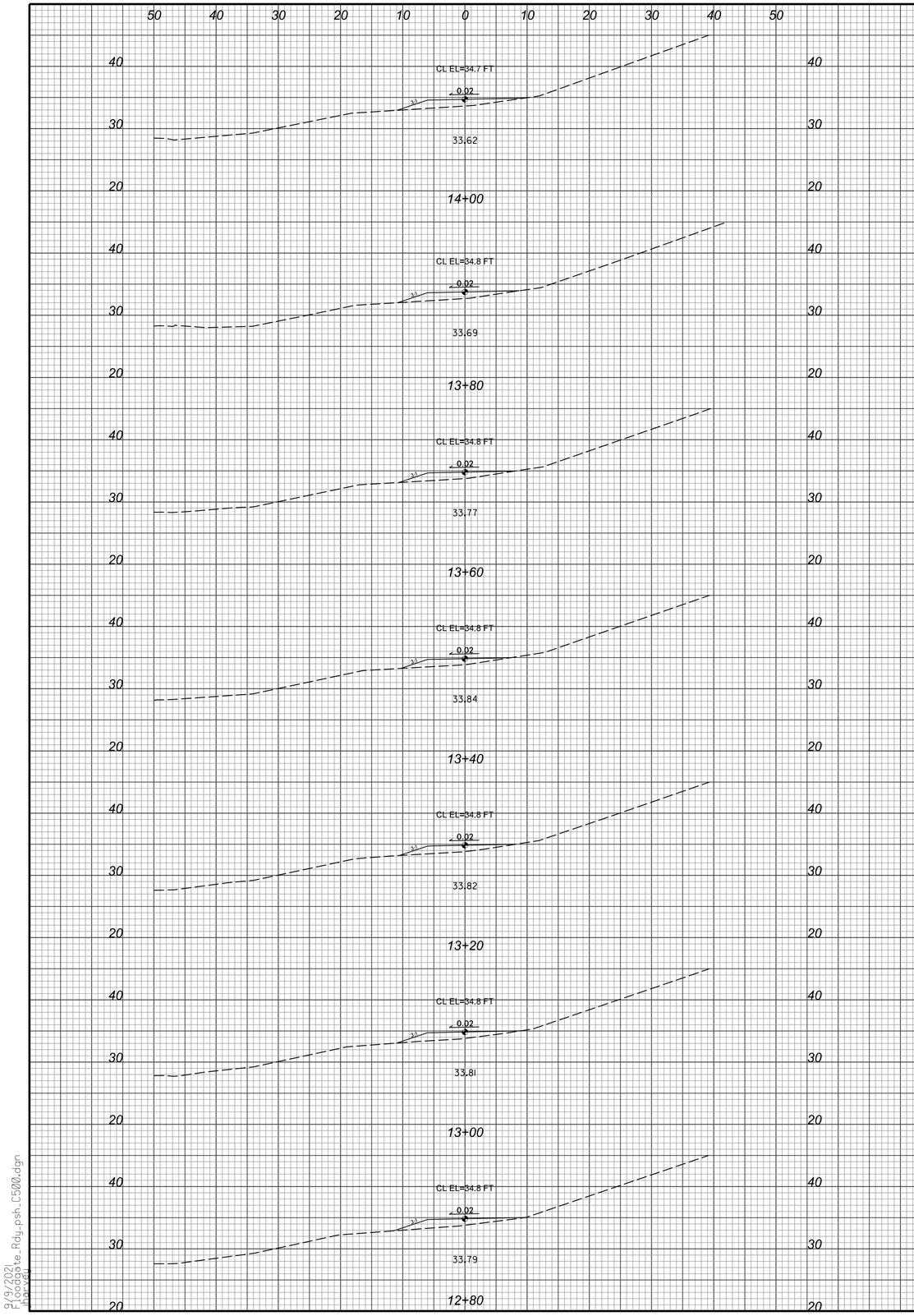

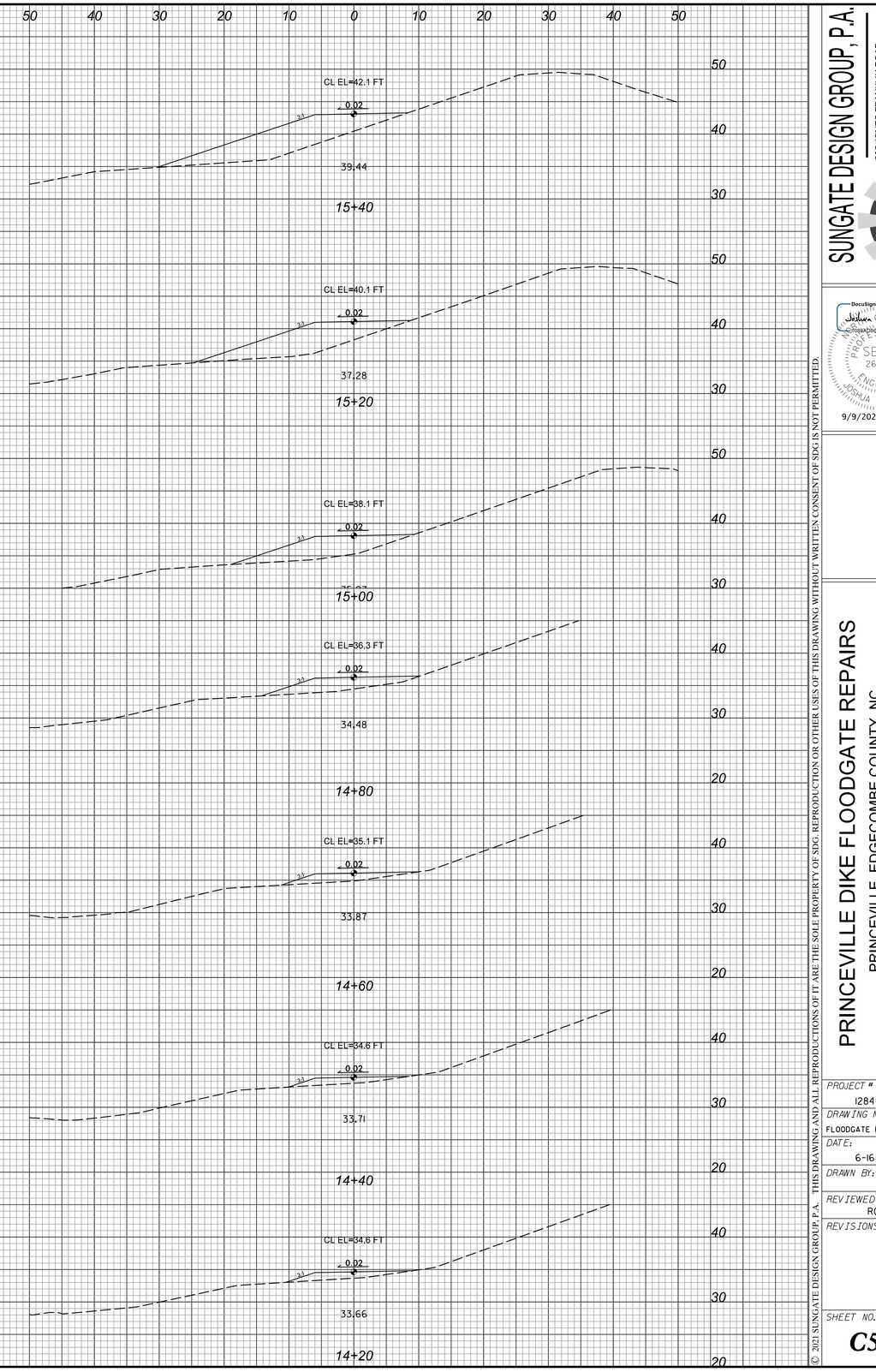

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C502
DATE:	6-16-2021
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REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C5.02

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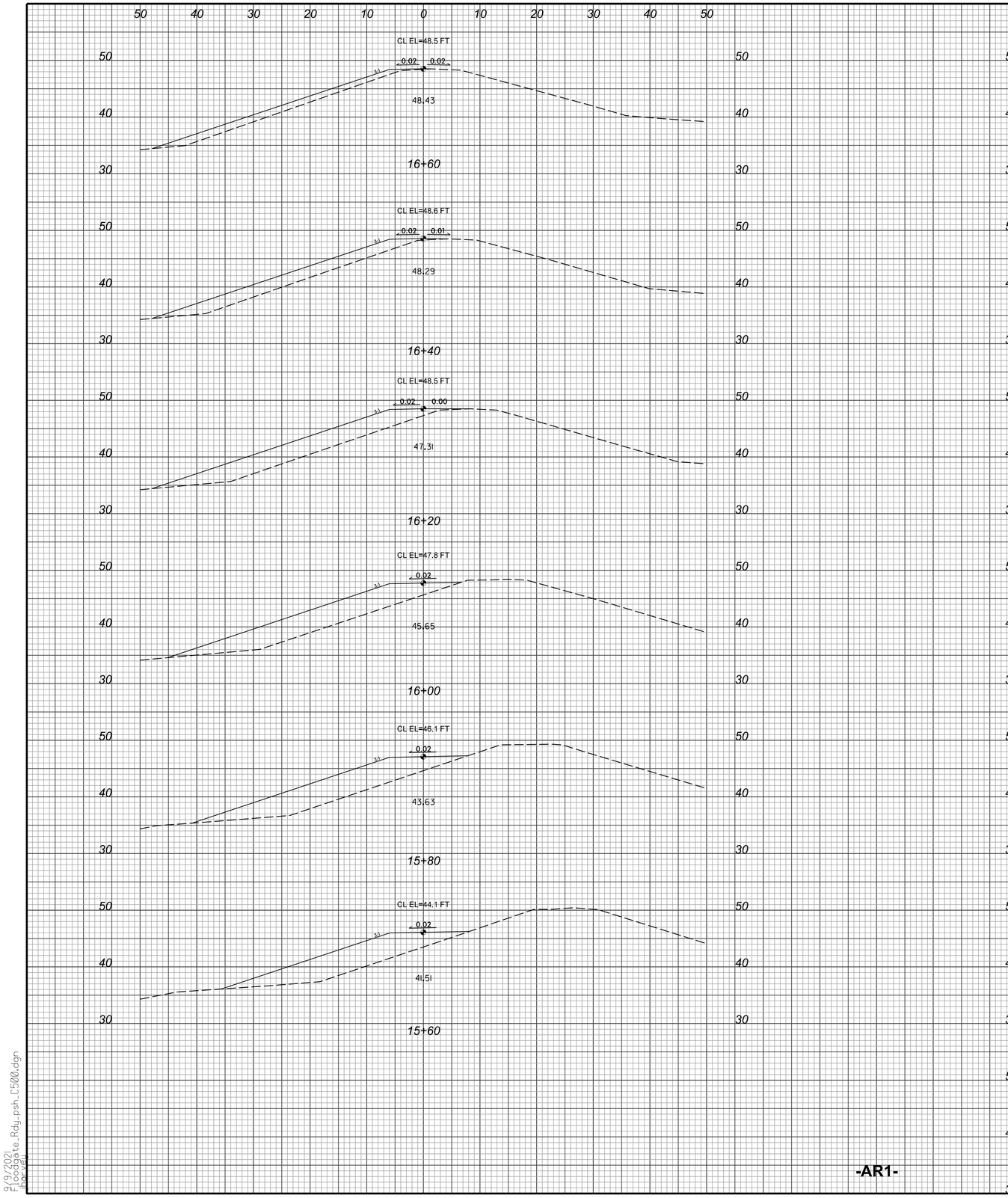

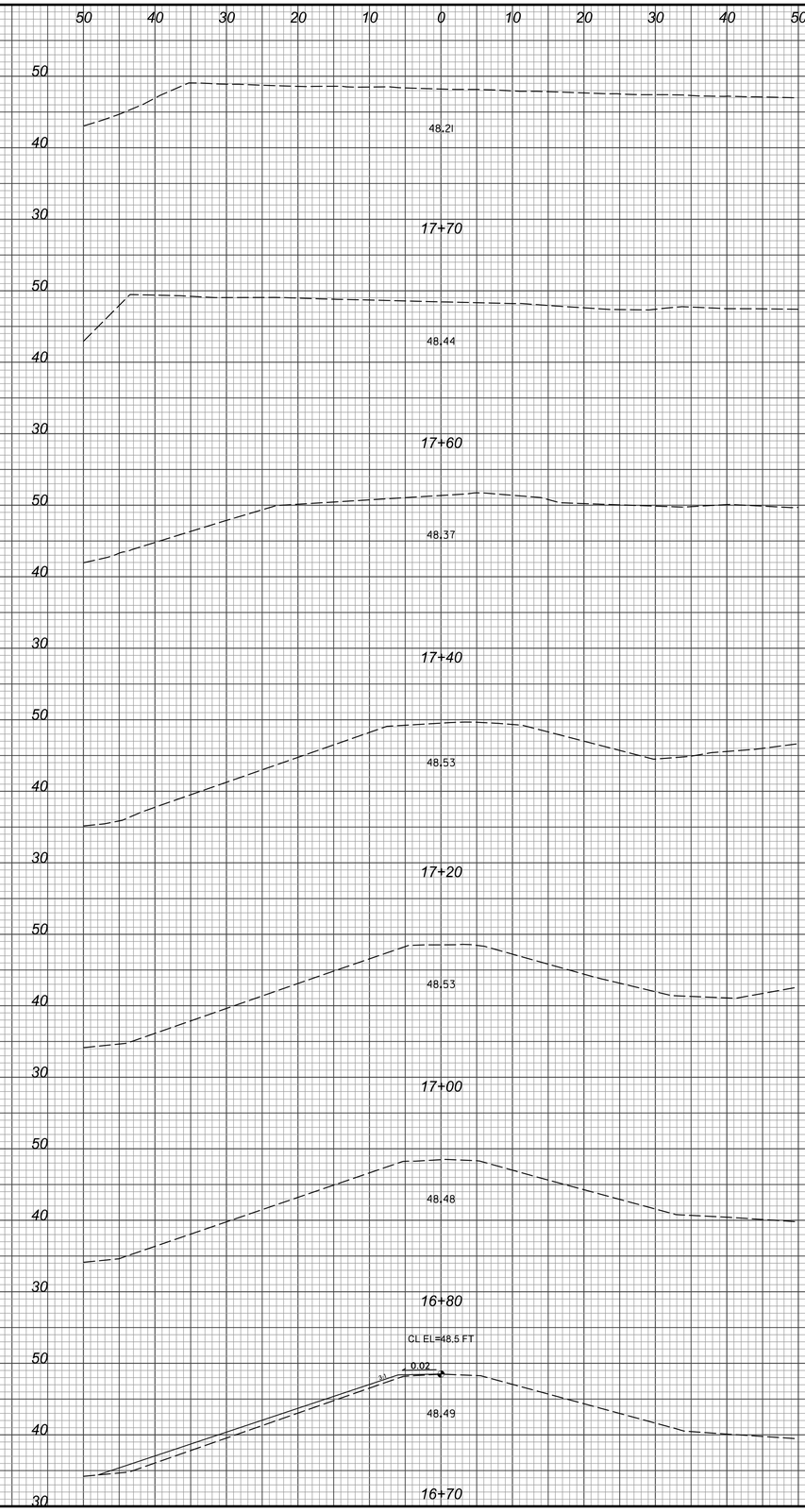

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D81A2BC1498422...

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PRINCEVILLE, EDGECOMBE COUNTY, NC
CROSS SECTIONS - SITE 1 -AR1-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C503
DATE: 6-16-2021
DRAWN BY:
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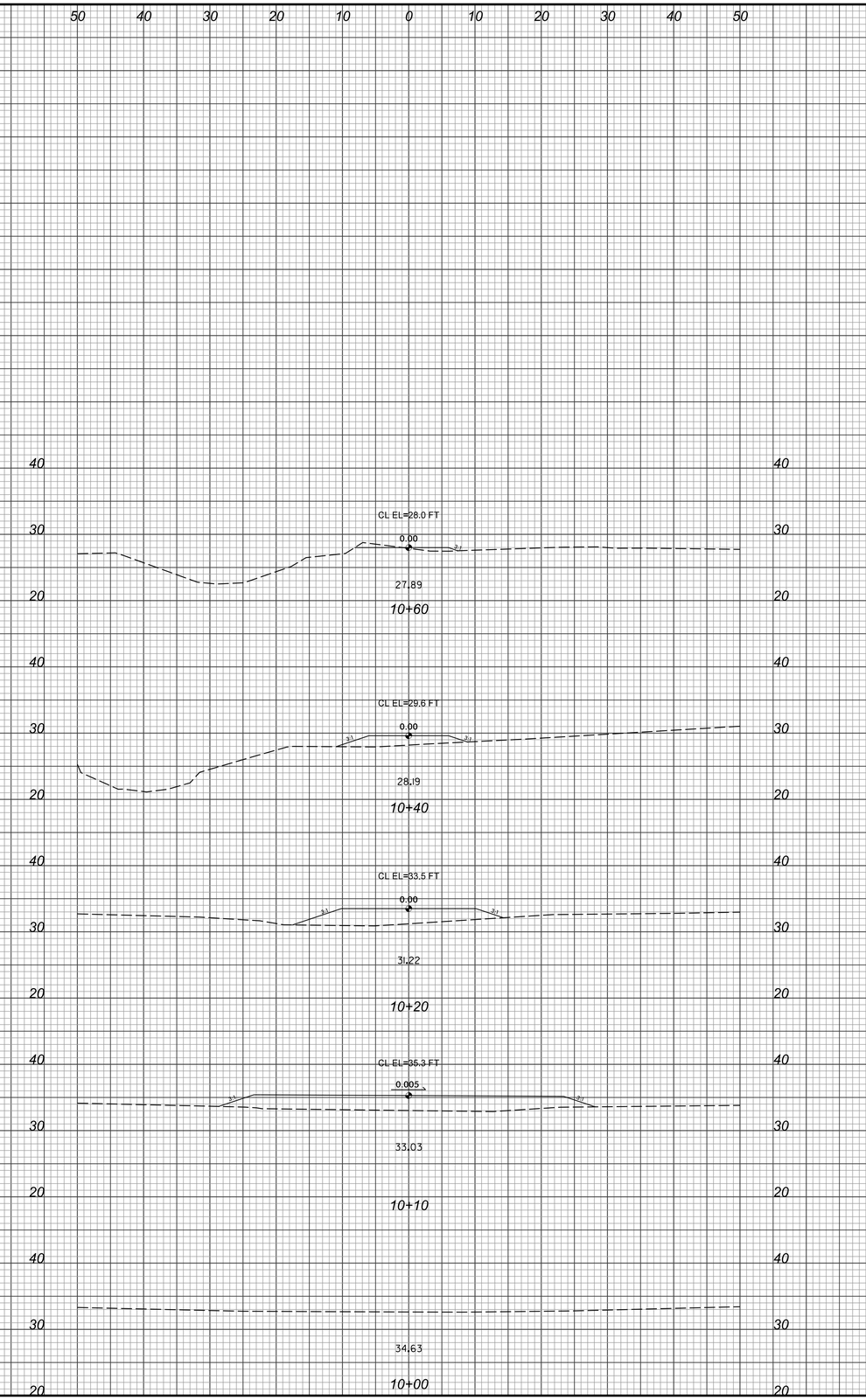

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CROSS SECTIONS - SITE 1 -AR1A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C504
DATE: 6-16-2021
DRAWN BY:
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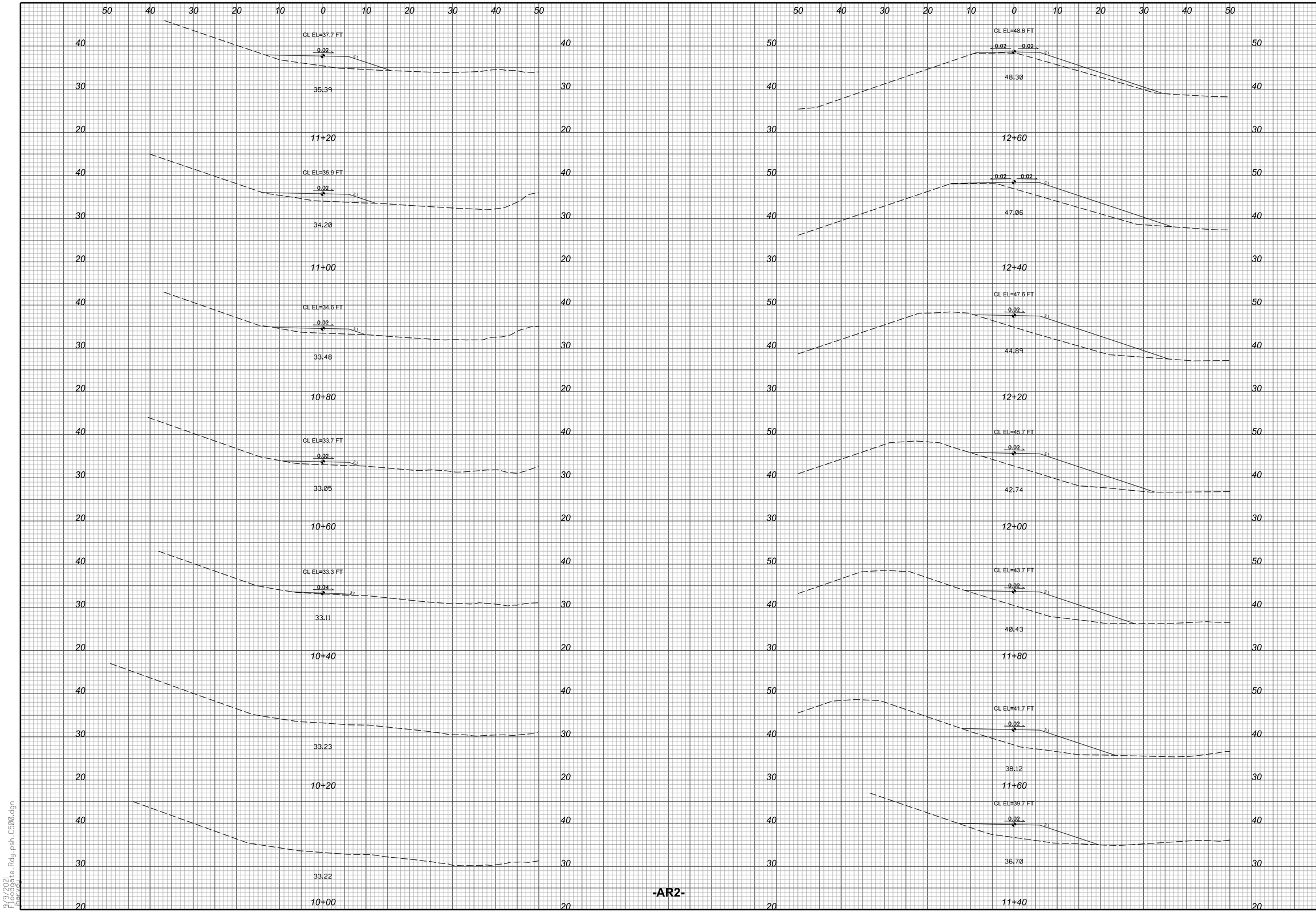

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9B5D9BC1B6BC4...

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9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C505
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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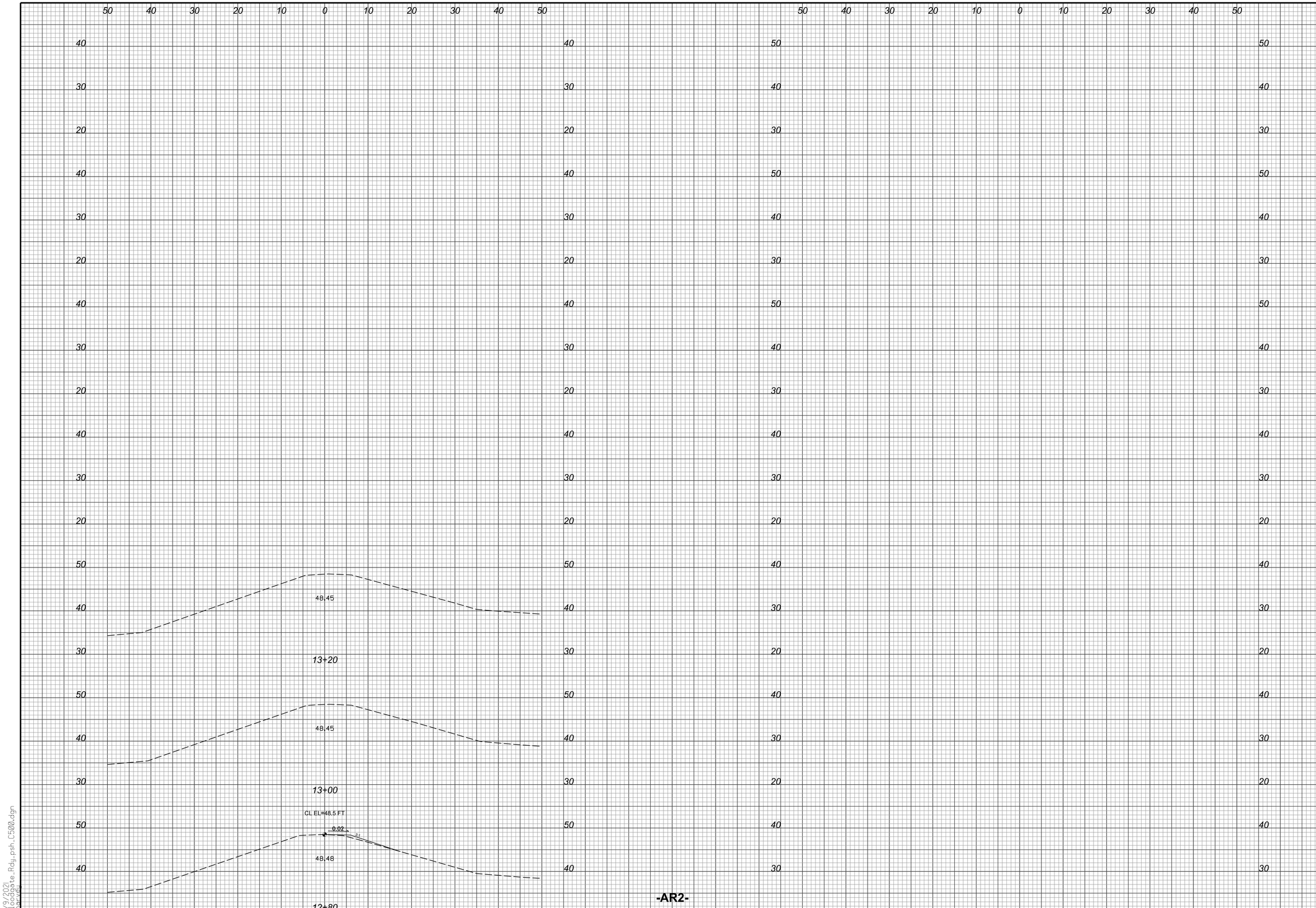

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C506
DATE: 6-16-2021
DRAWN BY:
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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2A-

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PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C507
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C5.07

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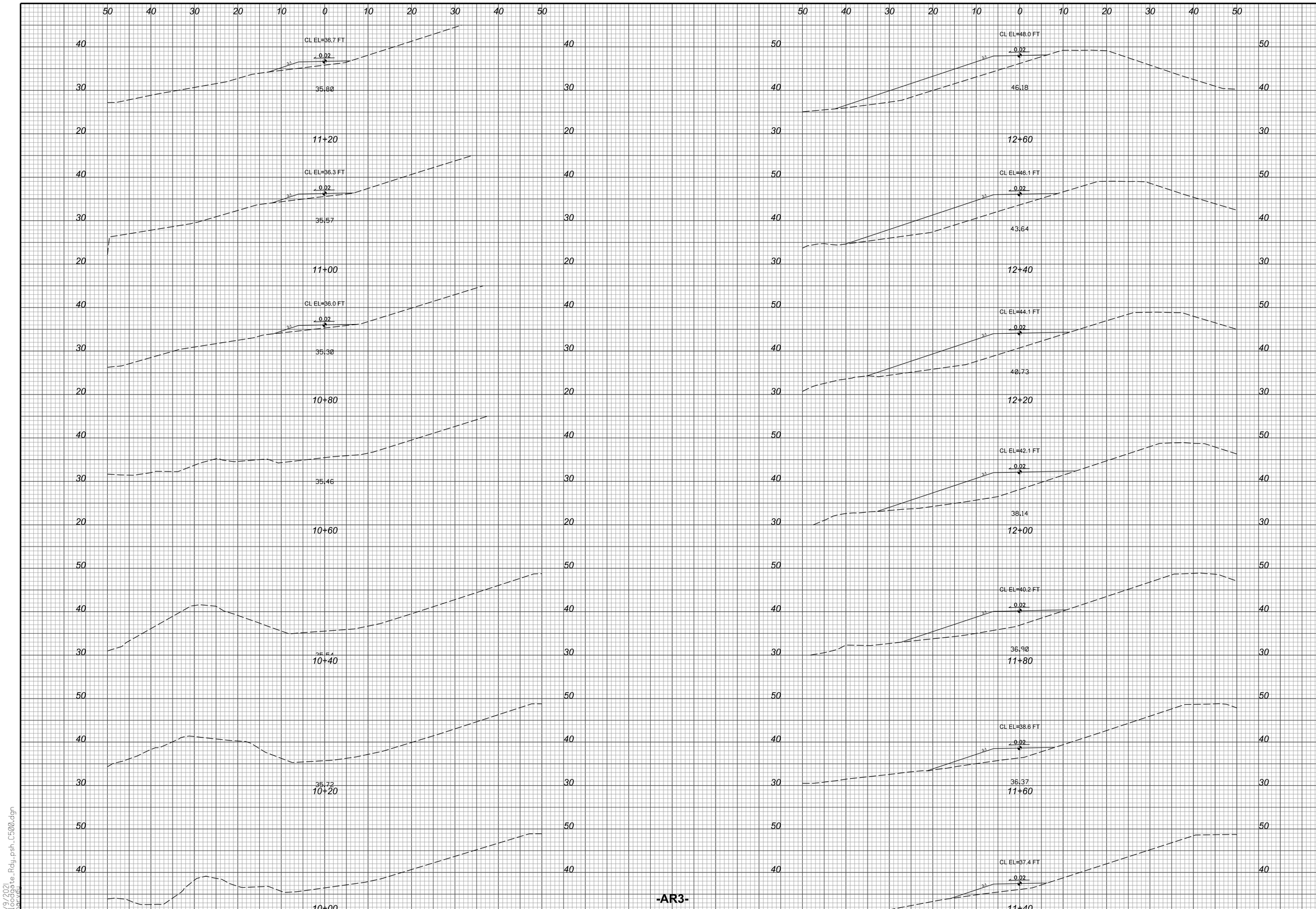

-AR3-

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10692DBC1499403

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C508
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C5.08

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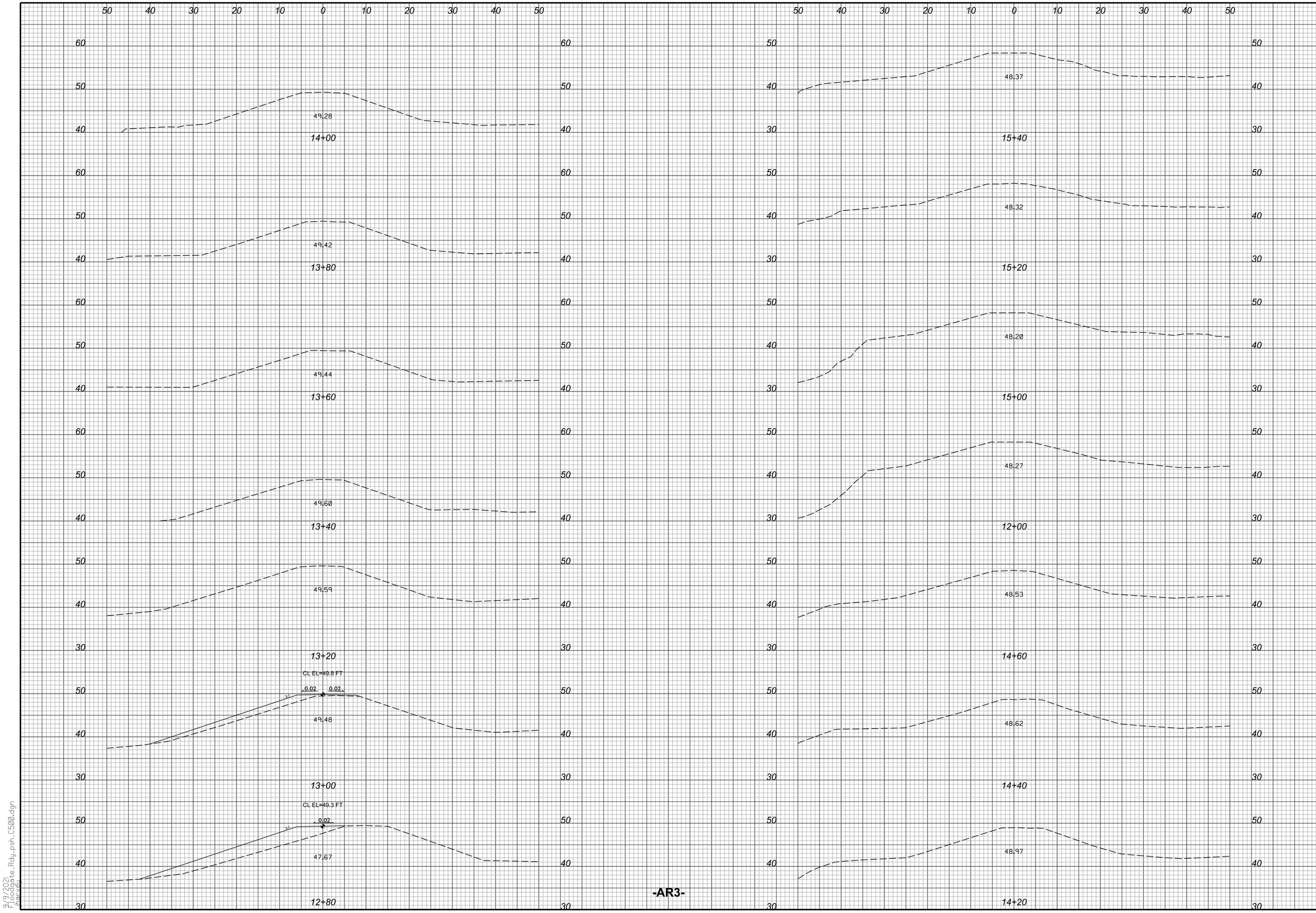

-AR3-

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C509
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C5.09

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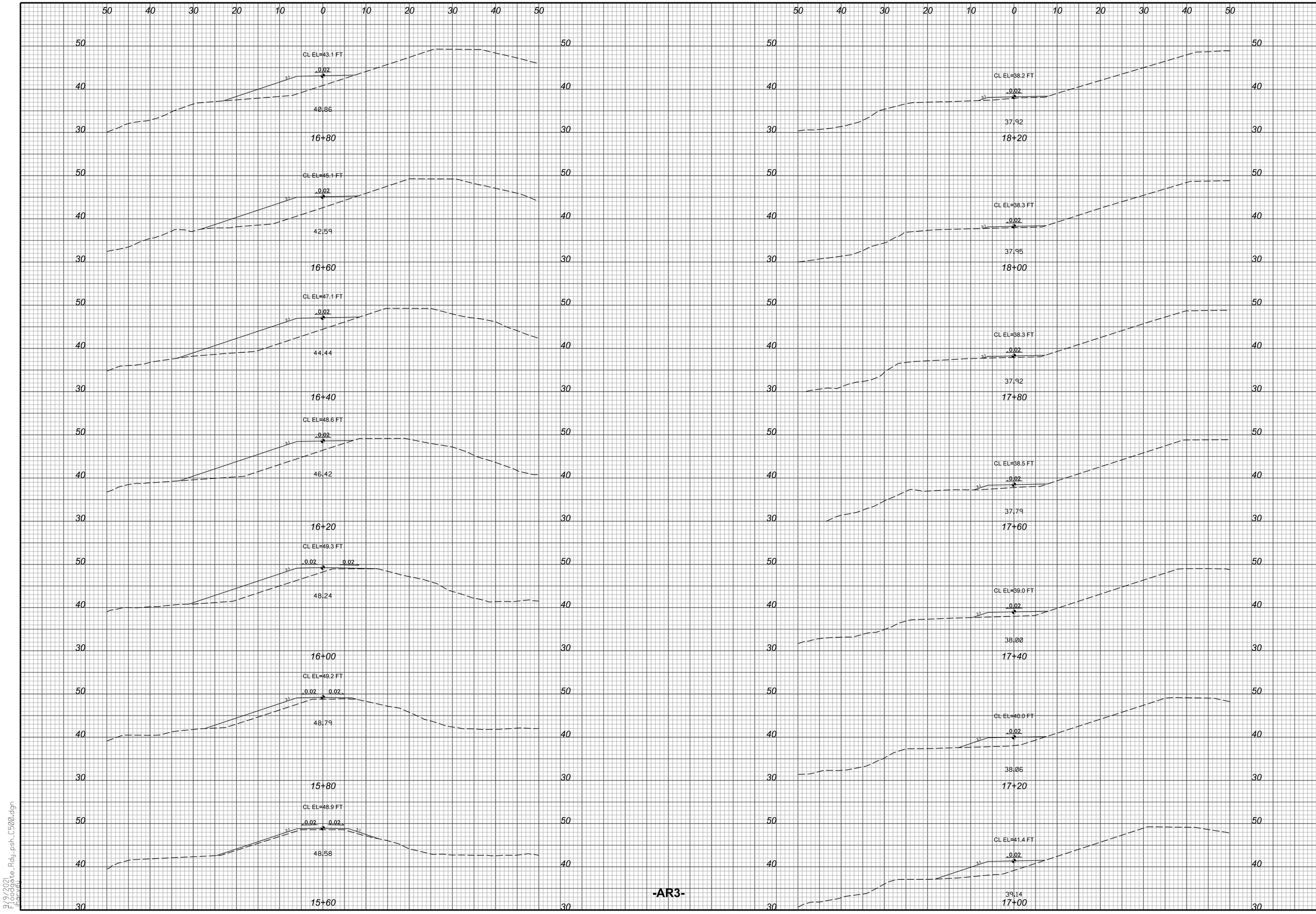

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C510
DATE: 6-16-2021
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REVIEWED BY: RCH
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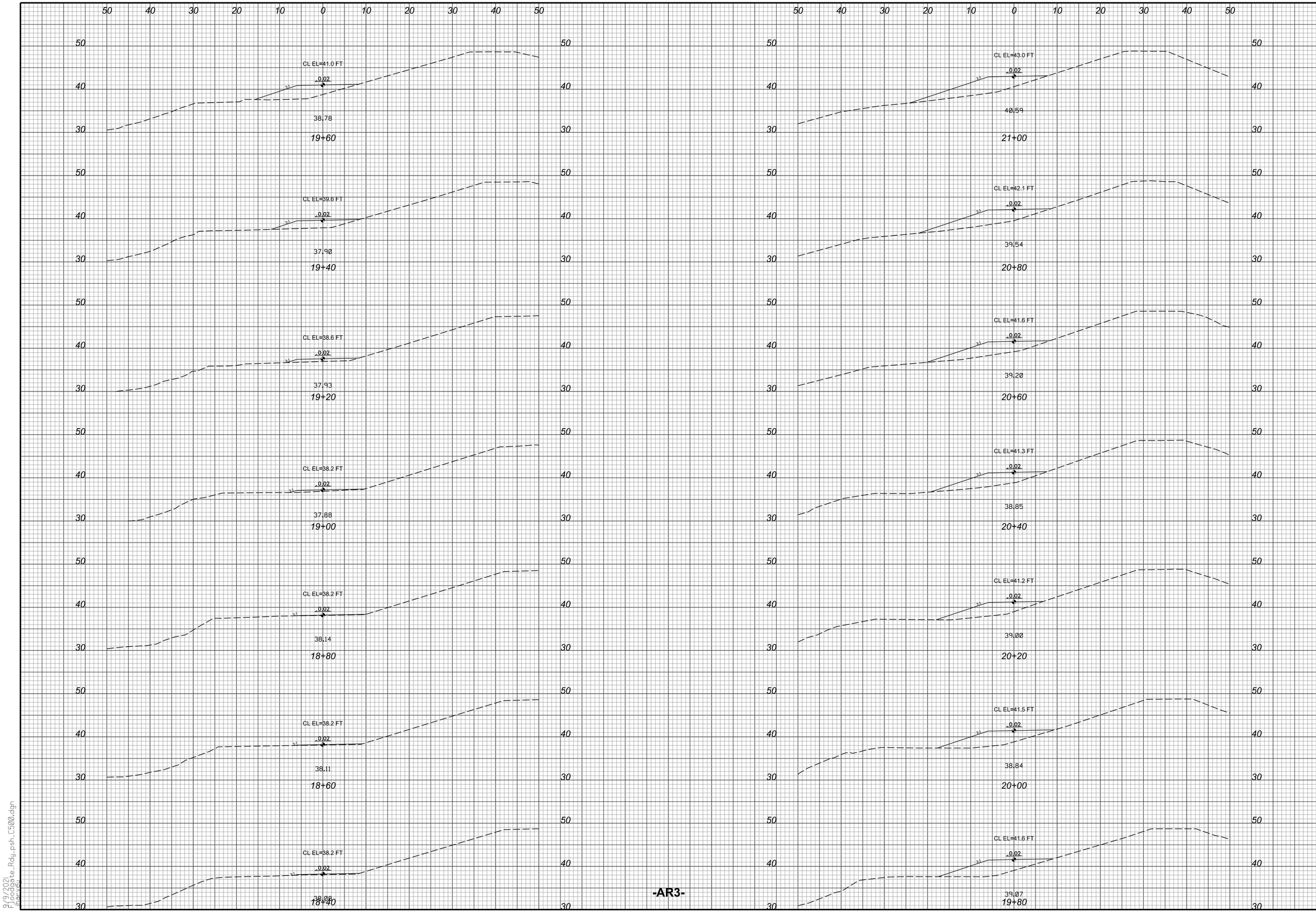

-AR3-

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D8B8A2B0C1404E3...

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C5II
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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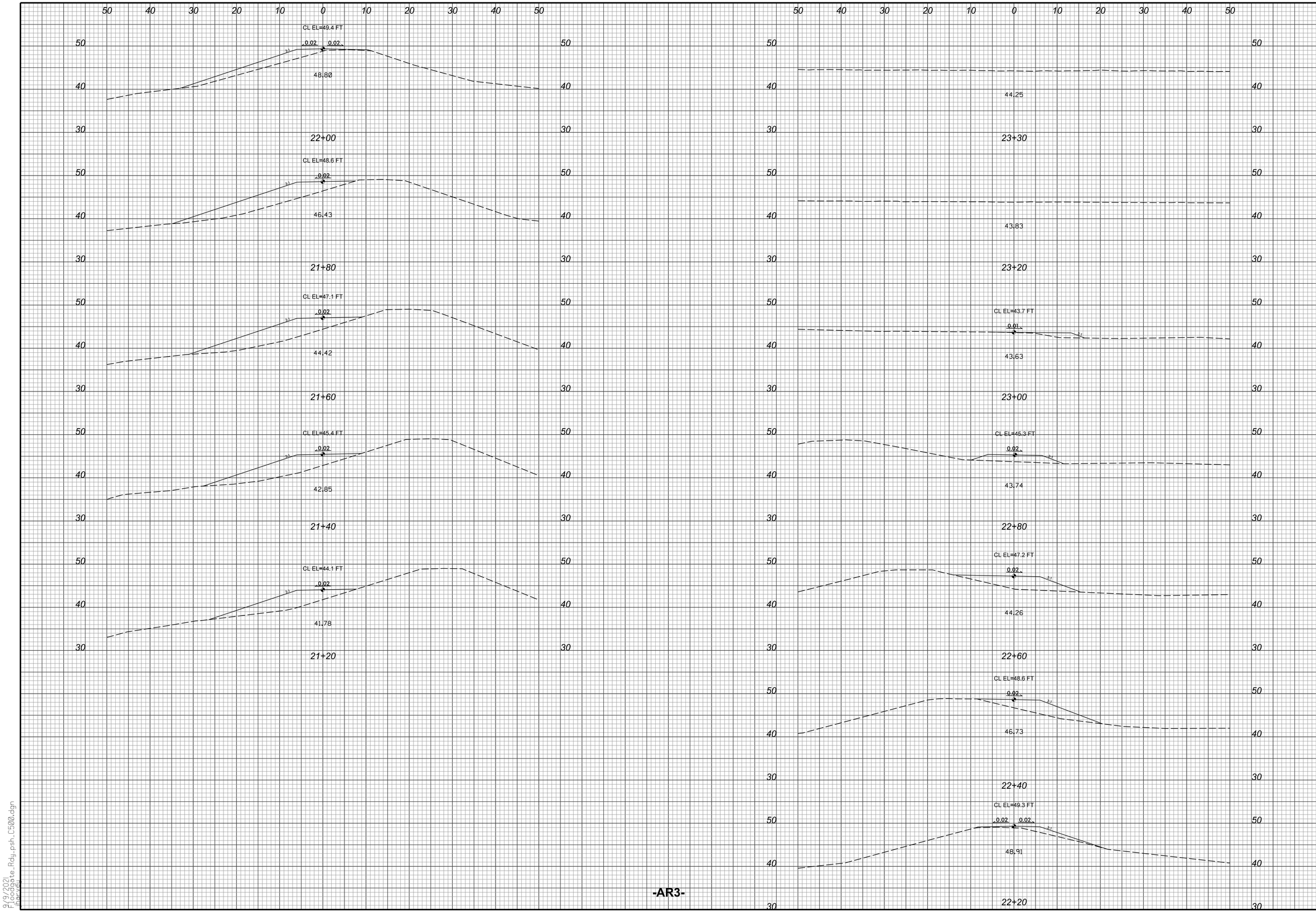

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Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C512
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C5.12

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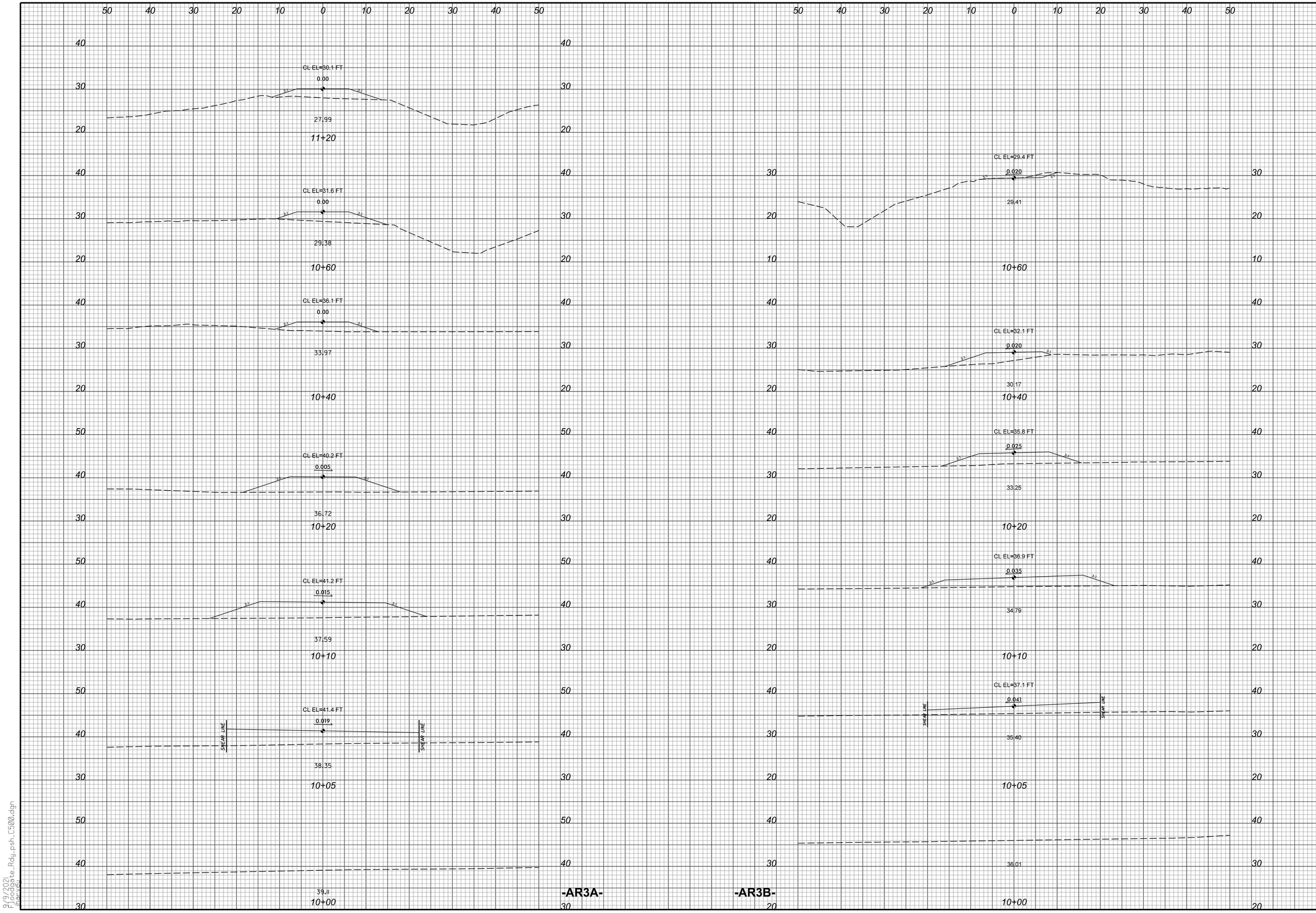

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RALEIGH, NORTH CAROLINA 27606
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9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3A-, -AR3B-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C513
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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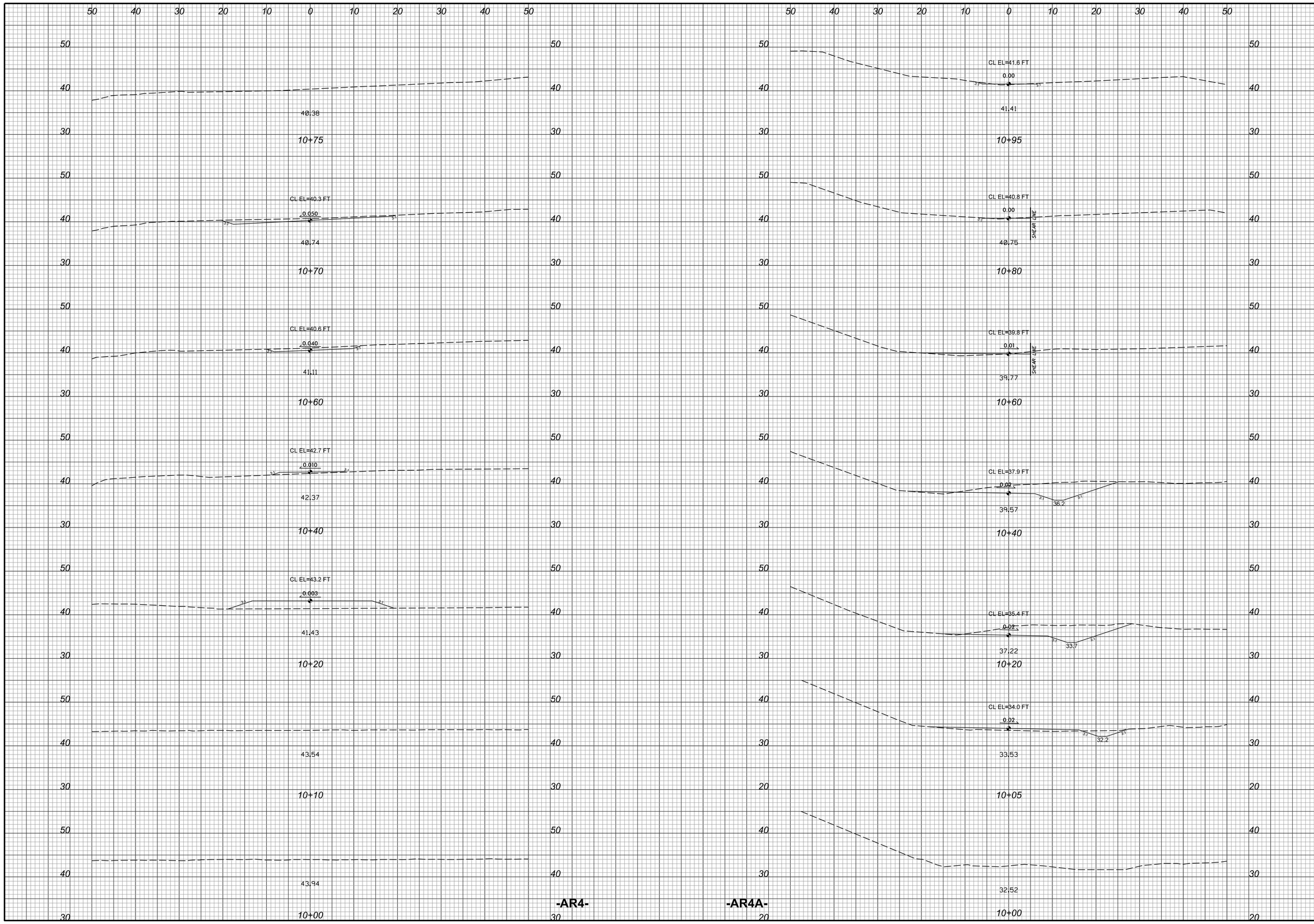

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR4- -AR4A-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C514
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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-AR5-

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DocuSigned by:
Joshua G. Dalton
(08A2DBC1489442...)

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR5-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C515
DATE:	6-16-2021
DRAWN BY:	
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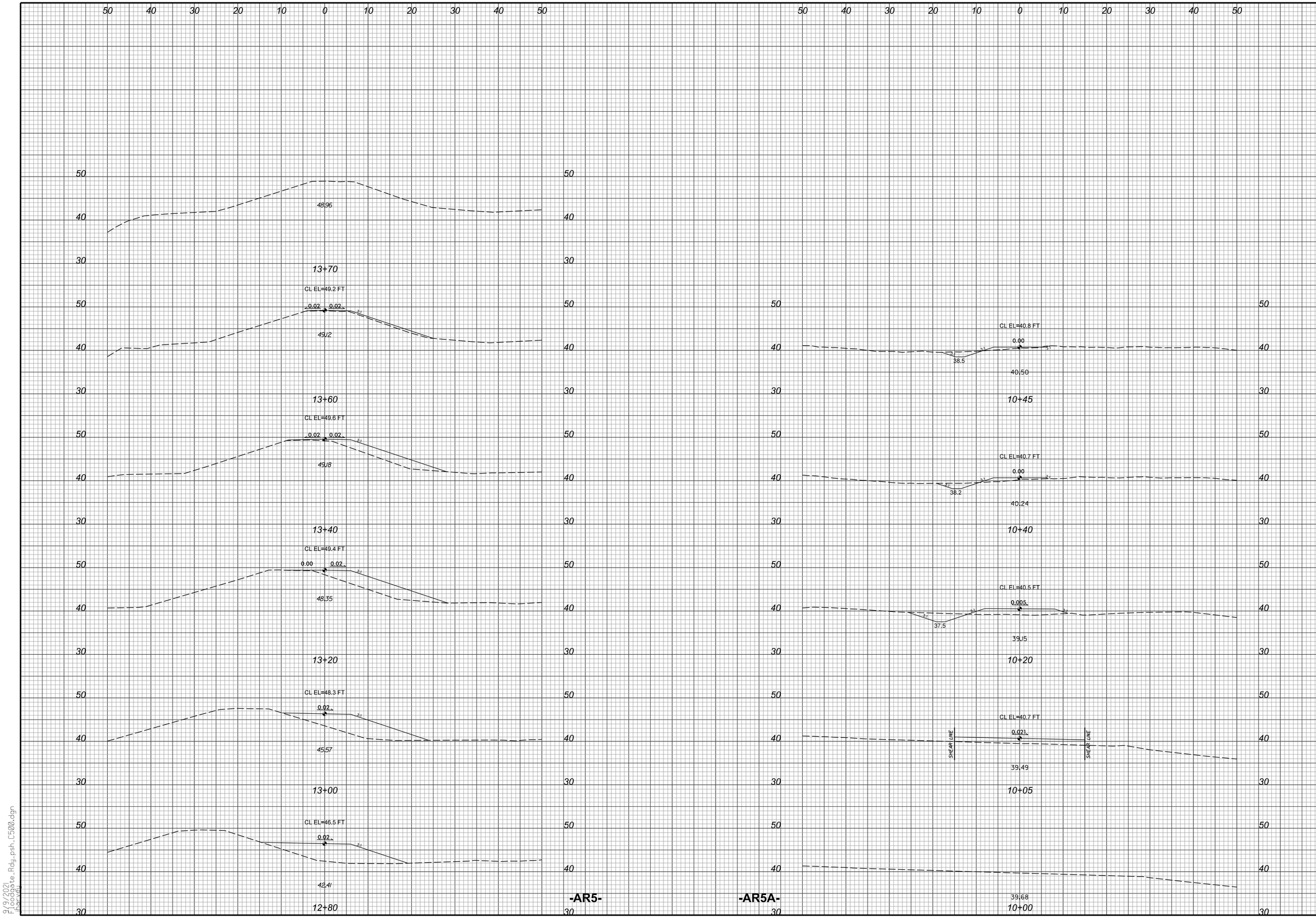

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR5-, -AR5A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C516
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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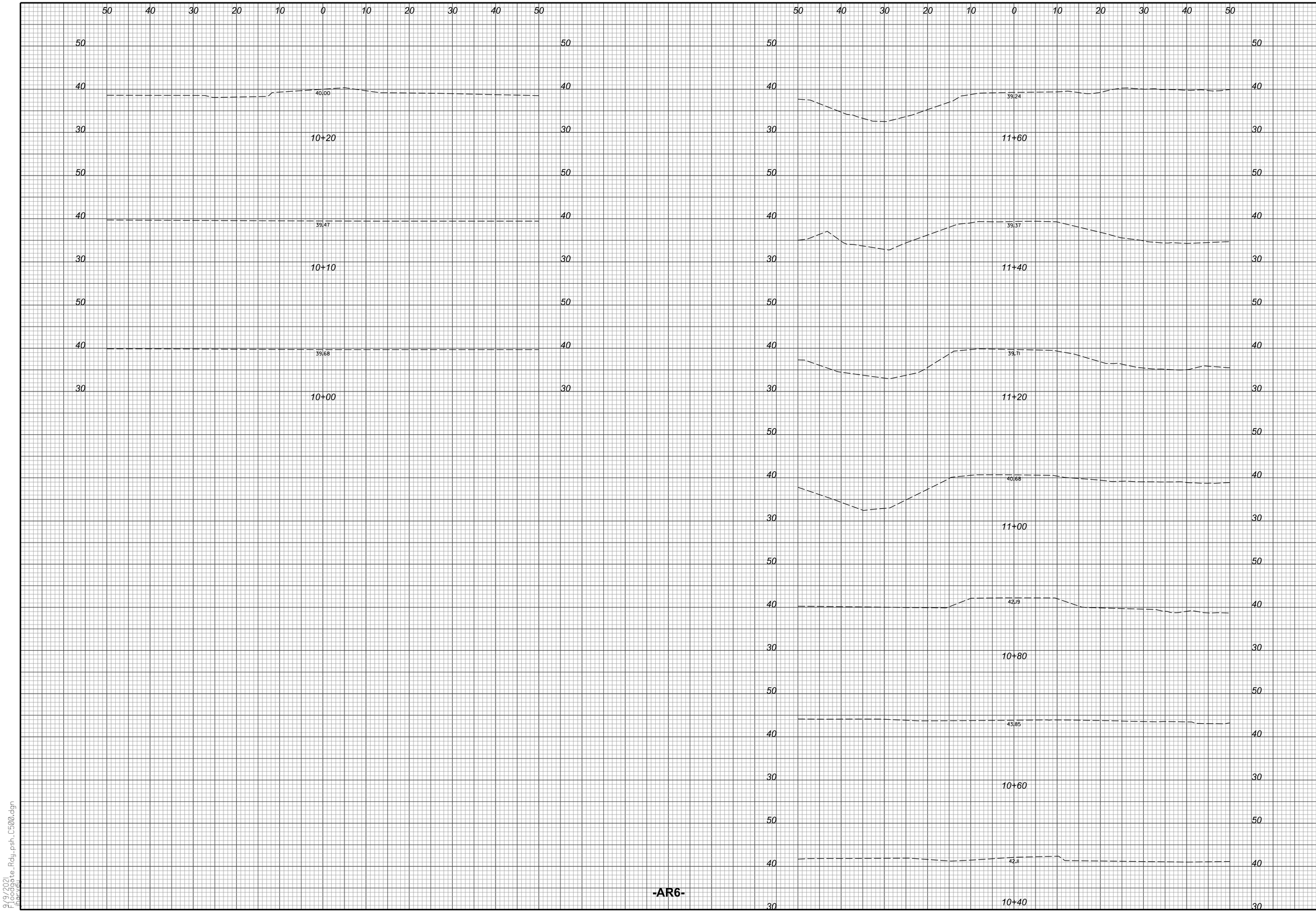

-AR6-

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Joshua G. Dalton
(RDA/DFG)1400044C3
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR6-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C517
DATE: 6-16-2021
DRAWN BY:
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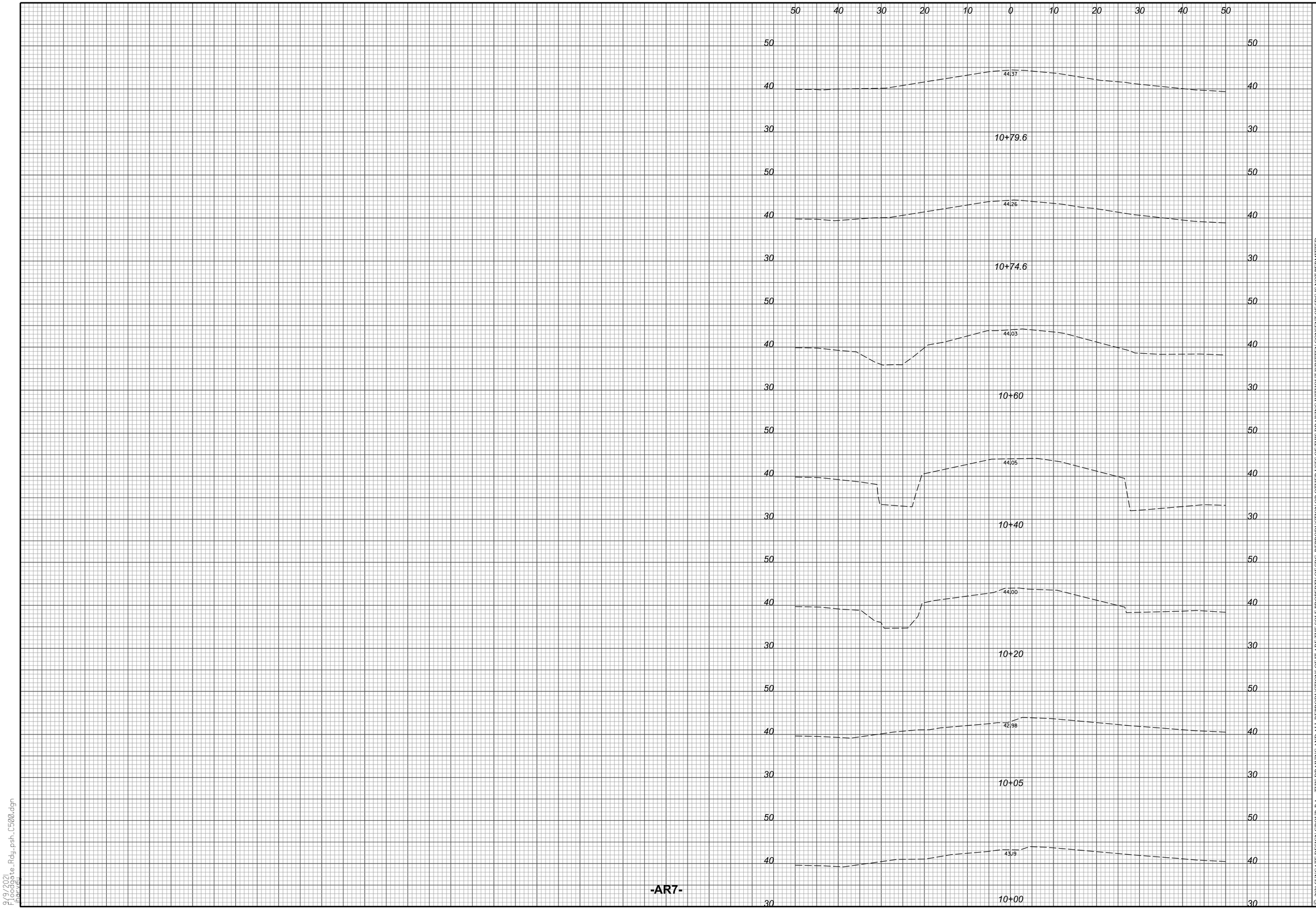

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Joshua G. Dalton
1084A0801A9A45
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR7-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C518
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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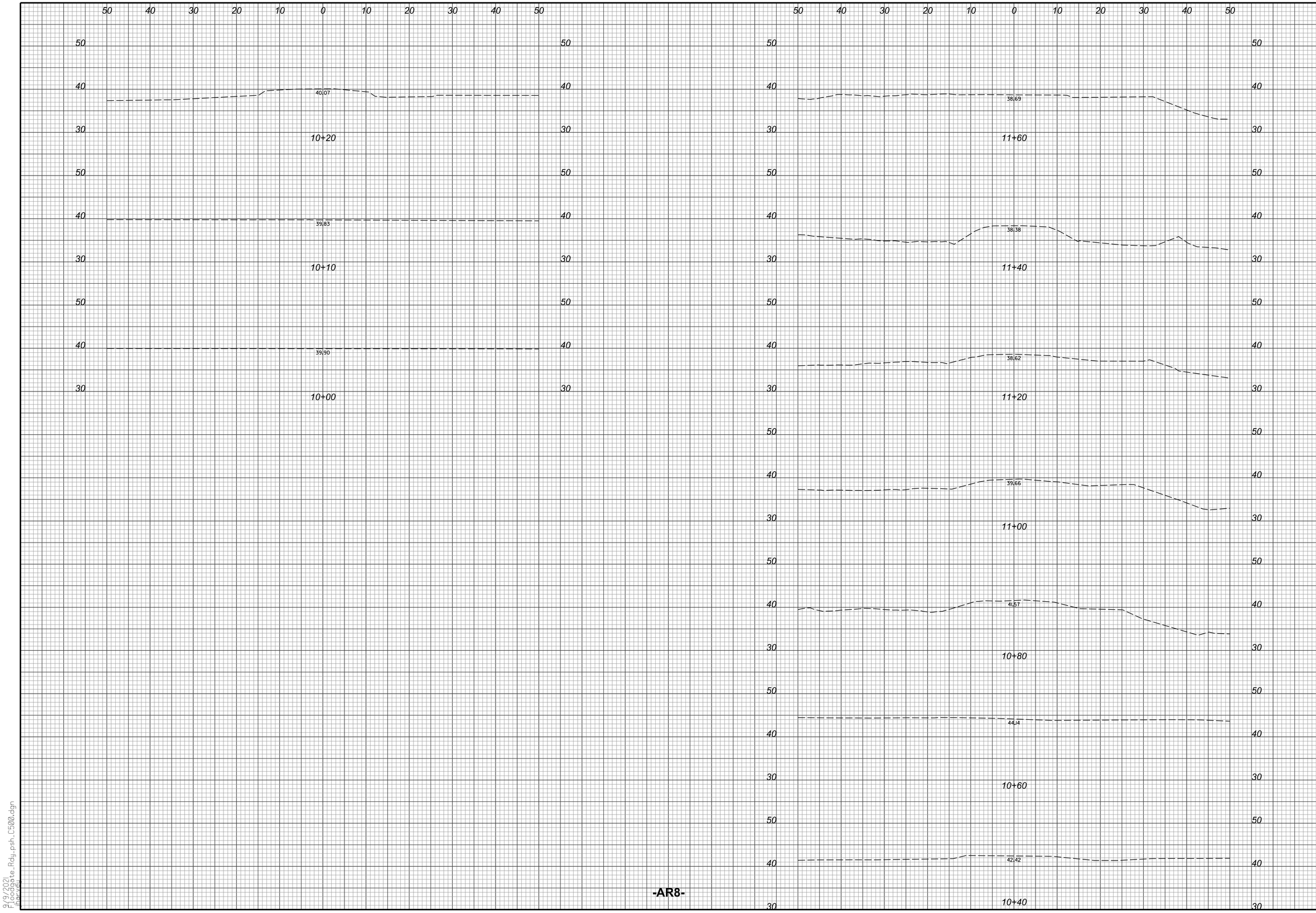

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR8-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C519
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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SITE 1

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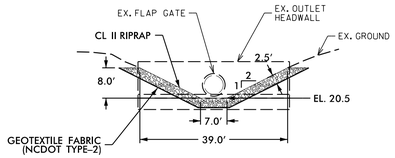
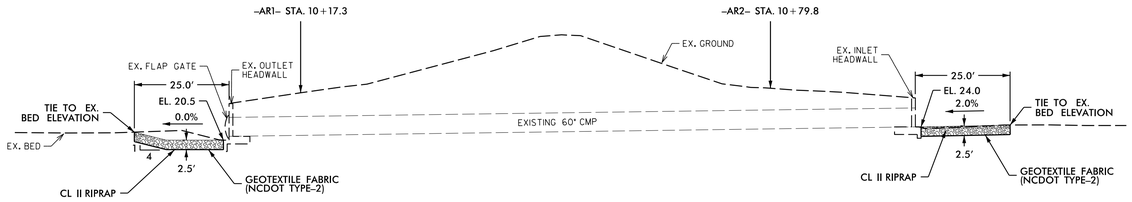
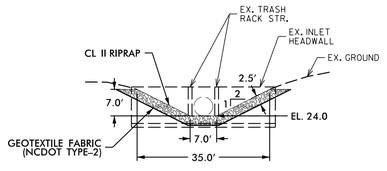


TYPICAL SECTION – OUTLET CHANNEL



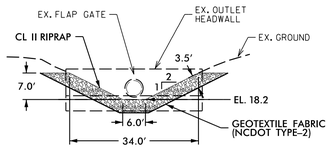
INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 2

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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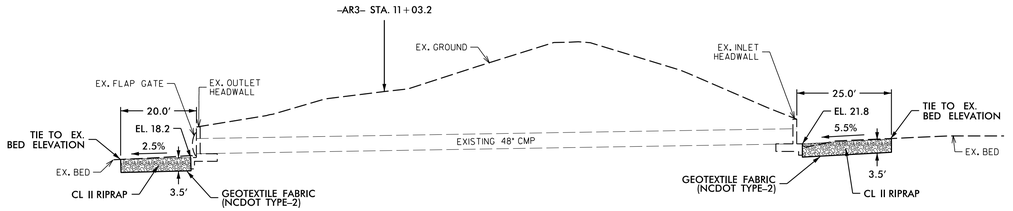
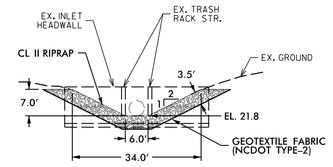


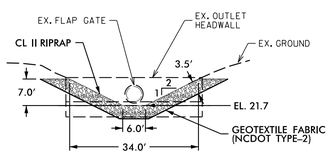
INLET & OUTLET CHANNEL PROFILE



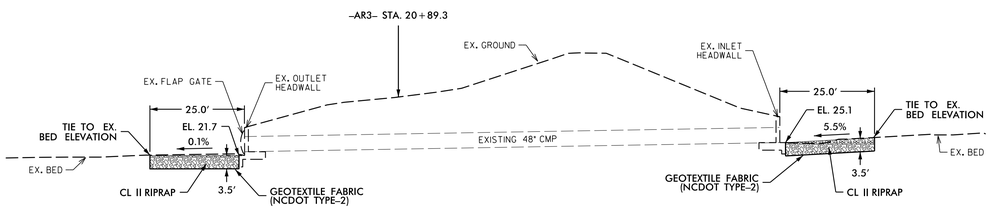
TYPICAL SECTION – INLET CHANNEL

SITE 3

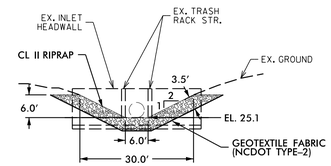
NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL

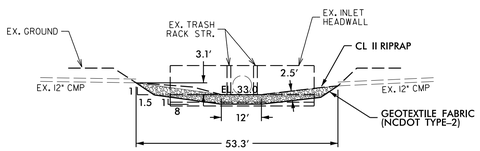


INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 4



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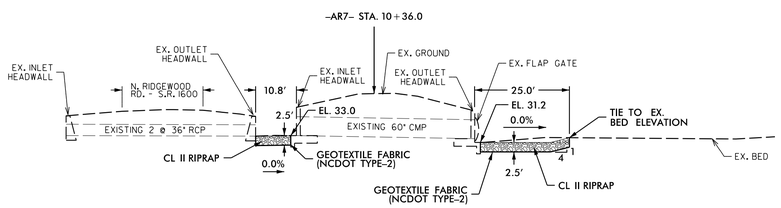
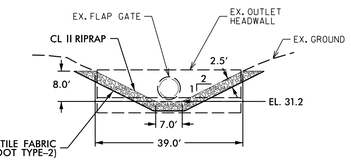


INLET & OUTLET CHANNEL PROFILE

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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DocuSigned by: Joshua G. Dalton
C8A0A5D1D0AC3...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CHANNEL PROFILES & TYPICAL SECTIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

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CONSTRUCTION SEQUENCE

1. Obtain a Land Disturbing Permit.
2. Submit documentation required under the site NPDES stormwater permit for construction activity (NCG010000) to Stormwater Inspections throughout the project.
3. Schedule a pre-construction conference with NCDEQ Erosion Control Officer and Erosion Control Design Engineer. Contact DEMLR Raleigh Regional Office at least 48 hours prior to commencing the land-disturbing activity at (919) 791-4200.
4. Erosion and Sediment Control (E&SC) permit and Certificate of Coverage (COC) must be obtained before any land disturbing activities occur.
5. Per NPDES requirements, a rain gauge, self-inspections records, permit, Certificate of Coverage, and E&SC Plan are required to be maintained on-site and accessible during inspection. It is recommended that these items be placed in a permits box at the beginning or entrance of project.
6. Construction activities that have an E&SC Plan approved on or after April 1, 2019 are required to fill out and submit an electronic Notice of Intent (e-NOI) form. All construction activities are required to follow the new NCG01 permit regardless of when plans were approved.
7. The contractor shall conduct self-inspections of the erosion and sediment control measures and complete the following combined self-inspection form found on the DEMLR website:
   https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/NPDES%20General%20Permits/DEMLR-CSW-Monitoring-Form-Rev-August-8-2019.pdf. Twelve months of complete inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in a permits box.
8. Self-inspections for erosion and sedimentation control measures are to be performed at least once every seven calendar days and within 24 hours of every rain event of greater than 1 inch. Any needed repairs shall be made immediately to maintain measures as details on this plan. A rain gauge shall be installed at the project site for monitoring.
9. Install all temporary erosion and sediment control measures including silt fence, tree protection, and inlet protection. Limit clearing and land disturbing activity to the area necessary to install the permitted measures.
10. Begin clearing and grubbing.
11. Stabilize any bare areas resulting from construction activity within times frames established by NCG-01 ground cover stabilization guidelines.
12. Increase maintenance frequency where approved measures fail to prevent accelerated erosion, off-site sedimentation, or repetitive non-compliance issues.
13. At sites 1 through 4:
    a. Install special stilling basin(s).
    b. Install pumps and temporary flexible hoses.
    c. Install impervious dikes, and begin pumping operations for stream diversion.
    d. Dewater construction area, using special stilling basin(s) for pumped effluent.
    e. Key in Class II rip rap at inlet and outlet channels.
    f. Excavate any accumulated silt and dewater before removal of impervious dikes.
    g. Remove impervious dikes, pumps, and temporary flexible hoses, and any remaining special stilling basin(s).
    h. Complete construction of access roads.
14. Maintain all erosion and sediment control measures in good working order. Silt fence, inlet protection and other similar measures must be cleaned out before they are half full. Clogged stone filters must be refreshed or replaced. Silt fence cannot have holes or tears.
15. Stabilize site as areas are brought up to finished grade with vegetation, paving, mulch, matting, etc. Seed and mulch denuded areas per Ground Stabilization.
16. Perimeter silt fence will be maintained throughout the project until permanent ground cover is established.
17. Once the site is completely stabilized, remove temporary erosion control measures and seed out any resulting bare areas.
18. When vegetation has become established, call for a final site inspection by the Erosion Control Design Engineer.
19. When the project is complete, the permittee shall contact DEMLR to close out the E&SC Plan. After DEMLR informs the permittee of the project close out, via inspection report, the permittee shall visit deq.nc.gov/NCG01 to submit an electronic Notice of Termination (e-NOT). A $100 annual general permit fee will be charged until the e-NOT has been filled out.

General Maintenance Requirements:

-1. All erosion and sediment control practices will be checked for stability and operation following every runoff producing rainfall, but in no case less than once every week. Any needed repairs will be made immediately to maintain all practices as designed.

-2. All seeded areas will be fertilized, reseeded as necessary, and mulched according to specifications in the vegetative plan to maintain a vigorous, dense vegetative cover.

VEGETATIVE PLAN

Seedbed Preparation

1. Chisel compacted areas and spread topsoil 2 to 3 inches deep over adverse soil conditions, if available.
2. Rip the entire area to a depth of not less than 5 inches, unless directed otherwise.
3. Remove all loose rock, roots and other obstructions 3 inches or larger on median, leaving surface reasonably smooth and uniform.
4. Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mixture below).
5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 2 to 3 inches deep.
6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7. Mulch within 24 hours after seeding and anchor mulch.
8. Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be more than 60% damaged, re-establish following the original lime, fertilizer and seeding rates.

Mixture

Agricultural Limestone	2 tons/acre in sandy soils (3 tons/acre in clay soils or per soil tests)
Fertilizer	1,000 lbs/acre – 10-10-10
Superphosphate	500 lbs/acre – 20% analysis
Mulch	2 tons/acre – small grain straw
Anchor	Asphalt emulsion at 400 gals/acre

Seeding Schedule

For Shoulders, Side Ditches, Slopes (Max 3:1):

Date	Type	Planting Rate
Aug 15– Nov 1	Tall Fescue	300 lbs/acre
Nov 1– Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1– Apr 15	Tall Fescue	300 lbs/acre
Apr 15– Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1– Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	125 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)

For Shoulders, Side Ditches, Slopes (3:1 to 2:1):

Date	Type	Planting Rate
Mar 1– Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza);
Mar 1– Apr 15	Add Tall Fescue	120 lbs/acre
Mar 1– Jun 30	Or add Hulled Common Bermudagrass	25 lbs/acre
Jun 1– Sept 1	Tall Fescue AND Browntop Mullet or Sorghum-Sudan Hybrids***	120 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Mullet); 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1– Mar 1	Sericea Lespedeza (unhulled – unscarified) AND Tall Fescue	70 lbs/acre (Sericea Lespedeza); 120 lbs/acre (Tall Fescue)
Nov 1– Mar 1	AND Abruzzi Rye	25 lbs/acre

The Contractor shall select a nurse crop from the table below that is best suited to the specific site conditions and characteristics. The nurse crop shall be added to and applied along with the permanent vegetative mixture.

Consult Erosion Control Design Engineer for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those that do well under local conditions; other seeding rate combinations are possible.

*** TEMPORARY: Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12" in height before mowing; otherwise, fescue may be shaded out.

Riparian Seeding and Mulching

Riparian Seeding and Mulching shall be performed on the disturbed areas of riparian areas within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

August 1 - June 1		May 1 – September 1	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Mulch within 24 hours of seeding and anchor mulch.

Mulch 2 tons/acre – small grain straw
Anchor Asphalt emulsion at 400 gals/acre

HERBACEOUS PLANTS-Seeding recommendations for immediate stabilization/nurse crops
(2 to 5 weeks for development; effectiveness goal: 6 months to 1 year stabilization) **Table 6.11.a**

NURSE CROP SPECIES

Common Name	Botanical Name	Native / Introduced	Seeding Rates lbs/acre	Fertilization/ limestone lbs/acre	Optimal Planting Dates: Mountains	Piedmont	Coastal Plains	Sun/Shade tolerant	Wetlands	Riparian Buffers	Invasive Yes or No	Installation / Maintenance Considerations	Other information, commentary
Rye Grain	*Secale cereale*	I	40 lbs	By soil test	11/1 - 4/30	8/15 - 4/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	
Wheat	*Triticum aestivum*	I	30 lbs	By soil test	11/1 - 4/30	8/15 - 5/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
German Millet	*Setaria italica*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Browntop Millet	*Urochloa ramosa*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Sudangrass (hybrids)	*Sorghum saccharatum* *S. bicolor ssp.Drummondi*	I	15 lbs	By soil test	NR	NR	4/15 - 8/15	Sun	No	No	Yes	Crop should be cut / disc prior to planting primary or long term vegetation	Use only where plants and seed can be contained and controlled.
Kobe Lespedeza	*Kummerowia striata v. kobe*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Coastal Plain
Korean Lespedeza	*Kummerowia stipulacea*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Piedmont and Mountains. May become invasive

NOTES:
1. Seeding rates are for hulled seed unless otherwise noted.
2. Fertilizer & Limestone - rates to be applied in absense of soils tests. Recommended application rate assumes significantly disturbed site soils with little or no residual value.
3. NR means Species not recommended for this region or application area.
4. Invasive designation as determined by the N.C. Exotic Pest Plant Council and N.C. Native Plant Society .
5. Sprigging is not recommended for immediate stabilization unless terrain is flat heavy mulch is applied and no other immediate stabilization method is practical.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
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SHEET NO. **C6.02**

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GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
· Temporary grass seed covered with straw or other mulches and tackifiers. · Hydroseeding · Rolled erosion control products with or without temporary grass seed · Appropriately applied straw or other mulch · Plastic sheeting	· Permanent grass seed covered with straw or other mulches and tackifiers · Geotextile fabrics such as permanent soil reinforcement matting · Hydroseeding · Shrubs or other permanent plantings covered with mulch · Uniform and evenly distributed ground cover sufficient to restrain erosion · Structural methods such as concrete, asphalt or retaining walls · Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

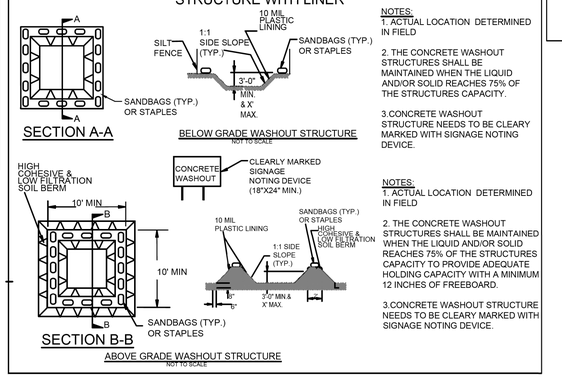
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE: 11/12/2020

NCG-01 GROUND COVER & MATERIALS HANDLING

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
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PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "Zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the measures inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Indication of whether the measures were operating properly 5. Description of maintenance needs for the measure 6. Description, Evidence, and date of corrective actions taken
(3) Stormwater discharge outfalls(SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the discharge outfalls inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration 5. Indication of visible sediment leaving the site 6. Description, Evidence, and date corrective actions taken
(4) Perimeter of Site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If visible Sedimentation is found outside site limits, then record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 3) An explanation as to the actions taken to control future releases
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If the stream or wetland has increased visible sedimentation or has visible increased turbidity from the construction activity, then a record of the following shall be made: 1) Description, Evidence and date of corrective actions taken 2)Records of required reports to the appropriate Division Regional Office per Part III, Section C, Item(2)(a) of this permit
(6) Ground Stabilization Measures	After each phase of grading.	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Document Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframe (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• Within 24 hours, an oral or electronic notification. • Within 7 Calendar Days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related caused, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• Within 24 Hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible.* The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE:11/12/2020

NCG-01 SELF INSPECTION

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
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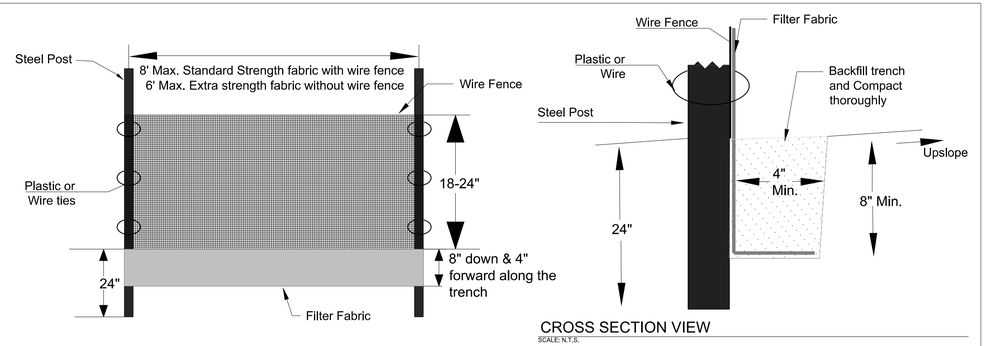
Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements					
	Test Material	Units	Supported[1] Silt Fence	Un-Supported[1] Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
Machine Direction			400	550	MARV
			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.60	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated poylmer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.



CROSS SECTION VIEW
SCALE: N.T.S.

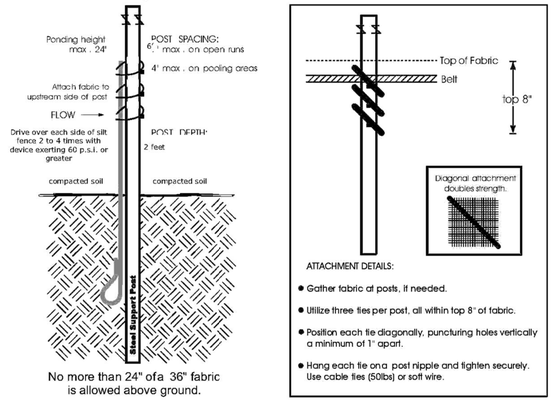
Construction:
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches.
6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
7. Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
8. Place 12 inches of fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

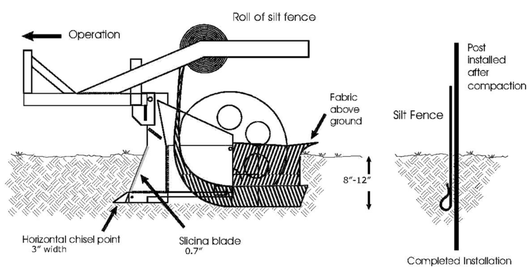
Maintenance:
1. Inspect sediment fences at least once a week and after each 1 inch or greater rainfall. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

DETAIL - SILT FENCE

SCALE: N.T.S

The Slicing Method





Vibratory plow is not acceptable because of horizontal compaction

Figure 6.62b Schematics for using the slicing method to install a sediment fence. Adapted from *Silt Fence that Works*

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.05

9/9/2021
Floodgate_Rdy_psh_C600.dgn
Parker

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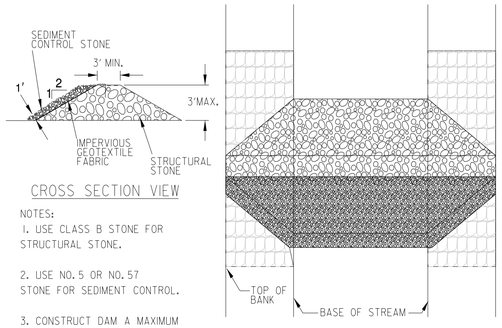


CROSS SECTION VIEW

TOP VIEW

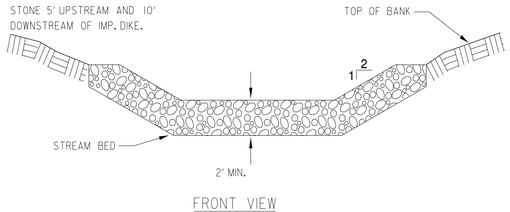
NOTES:
1. USE CLASS B STONE FOR STRUCTURAL STONE.

2. USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.

3. CONSTRUCT DAM A MAXIMUM OF 1 FT. ABOVE NORMAL FLOW DEPTH.

4. TOE IN IMPERVIOUS MATERIAL

5. LINE BANKS WITH CLASS B STONE 5' UPSTREAM AND 10' DOWNSTREAM OF IMP. DIKE.



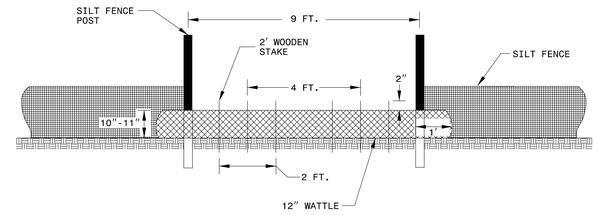
FRONT VIEW

DETAIL - IMPERVIOUS DIKE - STONE LINED WITH POLYPROPYLENE

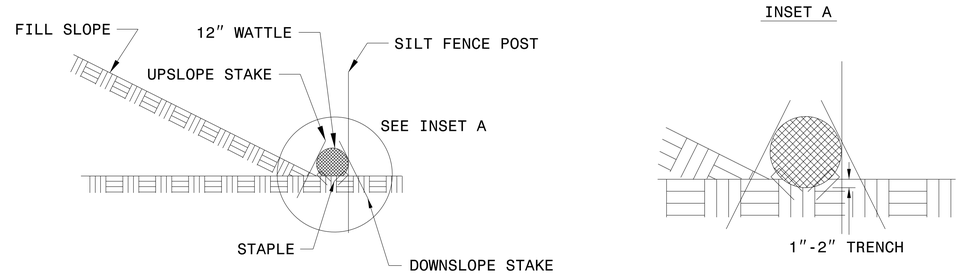
SCALE: N.T.S

CONSTRUCTION SEQUENCE:
- PREPARE THE CHANNEL AND OVERBANKS FOR INSTALLATION.
- REMOVE ALL BRANCHES AND DEBRIS FROM THE AREA WHERE THE STONE DIKE WILL BE PLACED.
- MAKE SURE THAT THERE ARE NO SHARP ROCKS OR ROOTS THAT CAN PUNCTURE THE GEOTEXTILE.
- DO NOT EXCAVATE THE EXISTING CHANNEL OR BANKS.
- PLACE THE HIGH TENSILE IMPERVIOUS GEOTEXTILE WITH THE CENTER OVER THE PROPOSED DIKE UTILIZE A SMALL AMOUNT OF STONE TO HOLD DOWN THE GEOTEXTILE WHILE ADJUSTMENTS ARE BEING MADE.
- THERE SHOULD BE ENOUGH EXTRA GEOTEXTILE ON EACH SIDE OF THE DIKE TO WRAP UP AND OVER THE STONE DIKE TO MAKE IT IMPERVIOUS.
- PILE STONE ON TOP OF THE GEOTEXTILE TO CREATE THE DIKE STRUCTURE.
- ROLL GEOTEXTILE UP OVER THE STONE TO FORM AN IMPERVIOUS DIKE.
- ROLL THE TOP LAYER FROM THE UPSTREAM TO DOWNSTREAM DIRECTION. SECURE GEOTEXTILE WITH METAL FENCE STAKES OR OTHER SUITABLE MATERIAL.

MAINTENANCE:
- PERIODICALLY INSPECT DIKE FOR DAMAGE AND LEAKS AND REPAIR AS NEEDED.
- REMOVE IMPOUNDED TRASH AND SEDIMENT.



VIEW FROM SLOPE



SIDE VIEW

DETAIL - SILT FENCE COIR FIBER WATTLE BREAK

SCALE: N.T.S

MAINTENANCE:
- IF THE NATURAL FIBERS OF THE WATTLE BECOME TOO SATURATED WITH DEBRIS AND SEDIMENT AND REMOVAL OF THE ITEMS IS NOT POSSIBLE, WATTLE BREAKS SHOULD BE REPLACED.
- STAKES SHOULD BE USED TO ANCHOR THE WATTLE BREAKS ADEQUATELY TO THE GROUND TO PREVENT SCOURING AND WASHOUT DURING STORM EVENTS.

CONSTRUCTION SPECIFICATIONS:

INNER MATERIAL	- COCONUT FIBERS
DIMENSIONS	- MINIMUM DIAMETER OF 12 INCHES AND A MAXIMUM OF 20 INCHES - LENGTH OF 10 FEET - DENSITY OF 3.5 LB/FT^3

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.06

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Floodgate_Rdy_psh_C600.dgn
Joshua

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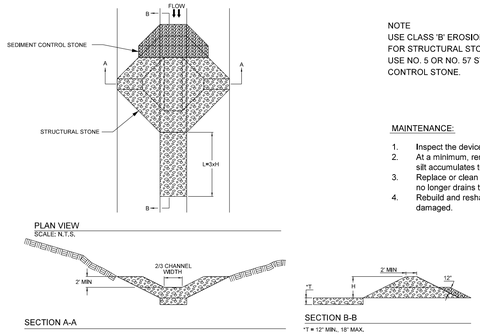
Ditch Spacing For Temporary Rock Silt Check Type 'A'	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



NOTE
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

MAINTENANCE:

1. Inspect the device after each significant rainfall.
2. At a minimum, remove silt from the device when silt accumulates to one-half the height of the weir.
3. Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
4. Rebuild and reshape rock weir and check when the device is damaged.

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'A'

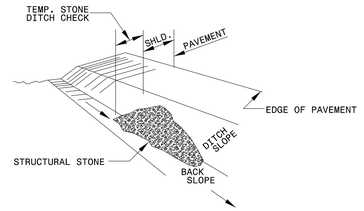
SCALE: N.T.S

Construction Specifications:

Structural Stone	- Use Class B structural stone. - Install stone at a minimum depth of 12 inches. - Install sediment control stone on the upgradient face of the structural stone.
Side Slopes	- 2:1 or flatter.
Weir	- Weir length should be $\frac{2}{3}$ of the channel width. - The weir height shall be a minimum of 1 foot. - The depth of the weir shall be a minimum of 1 foot.

Maintenance:

- Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
- Remove sediment when accumulation reaches one-half the height of the weir.
- Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
- Rebuild and reshape rock weir and check when the device is damaged.



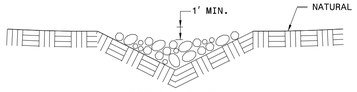
ISOMETRIC VIEW

NOTES:

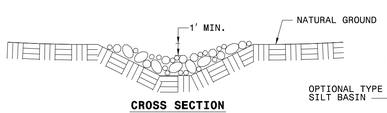
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

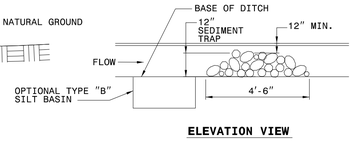
Ditch Spacing For Temporary Rock Silt Check Type 'B'	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH



ELEVATION VIEW

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'B'

SCALE: N.T.S

Construction Specifications:

Installation	- The center of the rock silt check shall be at least 1-foot lower than the outer edges (top of the channel sides). - The maximum height at the center of the rock check should not exceed 2 feet. - The side slopes of the check shall be 2:1 or flatter.
Slope	- Maximum spacing between the checks should place the toe of the upstream check at the top of the downstream check.

Maintenance:

- Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
- Remove silt from device when it accumulates.
- Rebuild and reshape device and weir when the device is damaged or as necessary.
- Cleanout when clogged by straw, limbs, or other debris.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.07

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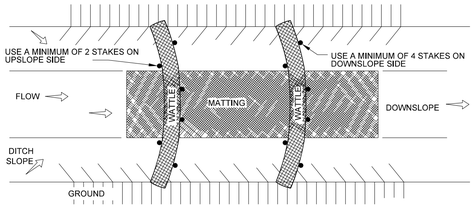
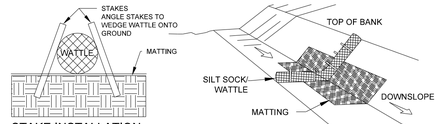


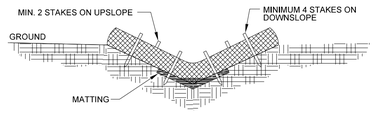
PLAN VIEW
SCALE: N.T.S.



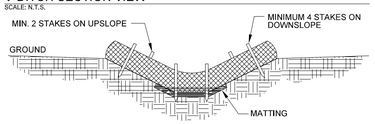
STAKE INSTALLATION
CROSS-SECTION

ISOMETRIC VIEW

Ditch Spacing For 12 Inch Silt Sock/Wattle	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



V-DITCH SECTION VIEW
SCALE: N.T.S.



TRAPEZOIDAL DITCH SECTION VIEW
SCALE: N.T.S.

NOTES:
1. Other materials providing equivalent protection against erosive velocities may be substituted for use in silt socks or wattles.
2. Use a minimum 12 inch diameter silt sock/wattle.
3. Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform.
4. Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.
5. Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and scour slopes, or as directed.
6. Install a minimum of two upslope stakes and four downslope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch.
7. The use of Polyacrylamide (PAM) is recommended. Apply 2-3 ounces of anionic PAM on top of sock/wattle. Apply 1-2 ounces to matting on either side of sock/wattle. Reapply after each 1,0 inch rainfall.

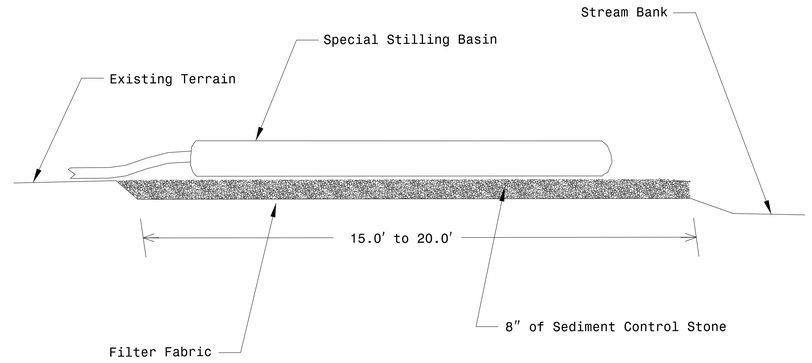
MAINTENANCE:
1. Inspect silt sock/wattle(s) weekly and after each rain of 1 inch or greater. Remove accumulated sediment and any debris.
2. Silt sock/Wattle(s) must be replaced if clogged or torn,
3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
4. Reinstall if damaged or dislodged.
5. Silt socks/Wattles shall be inspected untill land disturbance is compete and the area above the measure is permanently stabilized.

DETAIL - SILT SOCK / WATTLE FOR CHECK DAM
SCALE: N.T.S

Construction Specifications:

Matting	- Install matting in accordance with Section 1631 of the Standard Specifications.
Staples	- Provide staples made of 0.125-inch diameter steel wire formed into a U-shape no less than 12 inches in length. - Install staples approximately every 1 foot on both sides of the wattle and at each end to secure it to the soil.
Stakes	- Use 2-foot wooden stakes with a 2-inch by 2-inch nominal cross section. - Install a minimum of 2 upslope stakes and 4 downslope stakes at an angle to wedge the wattle to the bottom of the ditch. - Drive stakes into the ground a minimum of 10 inches with no more than 2 inches projecting from the top of the wattle.
Flocculant	- Flocculant shall be in powder form and anionic and neutrally charged. - Soil samples should be obtained from areas where wattles will be placed and from off-site material used to construct the roadway. Samples should be analyzed to determine the appropriate flocculant to be used in each wattle. - Flocculant used should be listed on the NCDENR DWR website as an approved product for use in North Carolina. - Flocculant should be applied over the lower center portion of the wattle where the water will flow at a rate of 2 ounces per wattle. - Apply 1 ounce of flocculant on each side of the wattle. - Flocculant should be evaluated and applied after every rainfall event that is equal to or exceeds 0.5 inches.
Overlap	- Overlap adjoining sections of wattles a minimum of 1 foot.

Maintenance:
- The upstream side of the wattle should be maintained to allow the water to flow through, reduce velocity, distribute flocculant and allow sedimentation to occur.
- If the natural fibers of the wattle become too saturated with debris, sediment, etc., and removal of these items is not possible, the wattle should be replaced.
- Stakes should be used to anchor the wattle adequately to the ground to prevent scouring and washout during storm events.
- Maintain excelsior pad beneath the wattle.



MAINTENANCE:
1. The special stilling basin shall be disposed of and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
2. The inlet of the bag should be inspected periodically for damage and/or blockage
3. Sediment control stone shall be replaced if damaged by high flows or bag failure.

Note: Provide Stabilized Outlet to Streambank
Not To Scale

DETAIL - SPECIAL STILLING BASIN
SCALE: N.T.S

Construction Specifications:

Special Stilling Basin	- The bag shall be placed on a rock pad constructed of at least 8 inches of sediment control stone. The bag may also be placed on wooden pallets to elevate it above natural ground. - The rock pad should extend at least 1 foot past the bag on all sides. - The special stilling basin should be placed on level ground. - The special stilling basin shall be placed so that incoming water flows into the bag without causing erosion. - Temporary slope drain pipe(s) or pump discharge hoses will be attached to the special stilling basin(s) so that water is routed directly into the special stilling basin(s). - The special stilling basin may be cut to allow slope drain pipe to be inserted if needed and tied of tightly. The remaining sleeve or spout of the bag, if present, may be used to connect more than one special stilling basin in series, as directed. If not used in this manner, the sleeve shall be tied off tightly to allow the bag to contain the effluent and force it to filter through the sides of the special stilling basin. - When being utilized in drilled pier construction, the special stilling basin should be constructed such that it is portable and can be used adjacent to each drilled pier.

Maintenance:
- The special stilling basin shall be disposed and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
- The inlet of the bag should be inspected periodically for damage and/or blockage.
- Sediment contorl stone shall be replaced if damaged by high flows or bag failure.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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ENGINEERING SERVICES
PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
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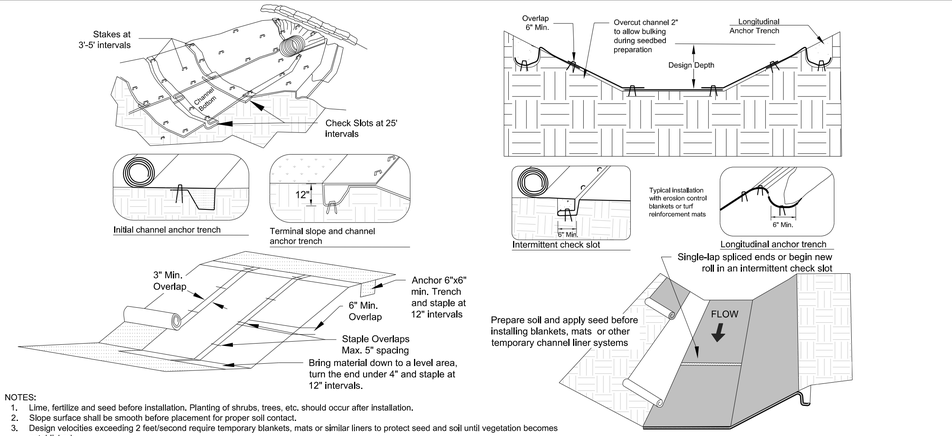
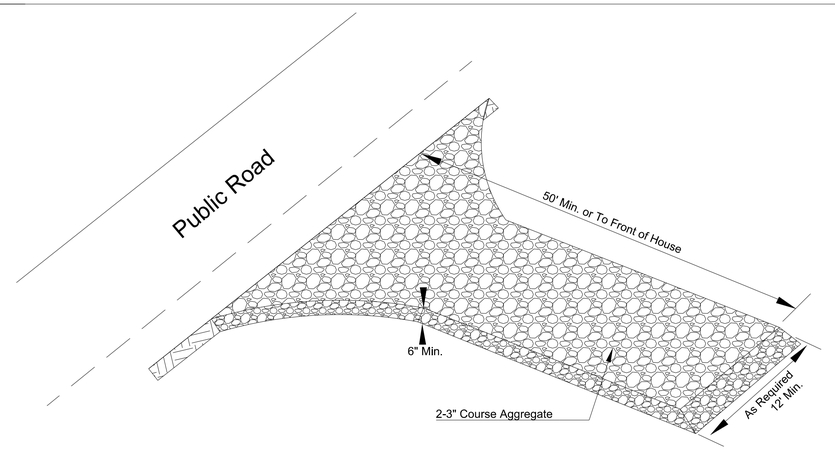


NOTES:
1. Lime, fertilize and seed before installation. Planting of shrubs, trees, etc. should occur after installation.
2. Slope surface shall be smooth before placement for proper soil contact.
3. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
4. Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals.
5. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
6. For installation on a slope, place RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP. Pin using staples or pins in a 3 feet center-to-center pattern.
7. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
8. Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats
9. Check slots to be constructed per manufacturers specifications.
10. Staking or stapling layout per manufacturers specification.
11. If there is a berm at the top of slope, anchor upslope of the berm.
12. Do not stretch blankets/matting tight, allow the rolls to conform to any irregularities.
13. For slopes less than 3H:1V, rolls may be placed in horizontal strips.

MAINTENANCE:
1. Inspect Rolled Erosion Control Products at least weekly and after each rain of 1 inch or greater; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

DETAIL - ROLLED EROSION CONTROL PRODUCTS (RECP)

SCALE: N.T.S



Construction:
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

Maintenance:
1. Per NCG-01 inspect at least once a week and after each 1 inch or greater rainfall; make any required repairs immediately.
2. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2 inch stone.
3. Immediately remove all objectionable materials spilled, washed or tracked onto public roadways.

DETAIL - CONSTRUCTION ENTRANCE / EXIT

SCALE: N.T.S

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
10809DBC34594C1
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.09

9/9/2021
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jharvey

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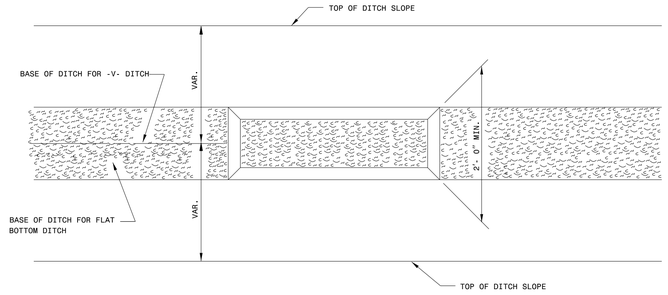
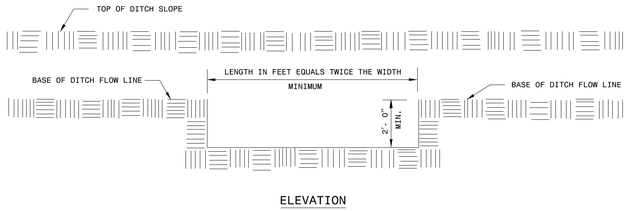


PLAN



ELEVATION

DETAIL - SILT BASIN - TYPE B

SCALE: N.T.S

Construction Specifications:

Silt Basin - Type B	- Construct basins with an excavated depth of at least 2 feet from the base of the ditch flow line. - Construct basins with non-vertical side slopes and not greater than 1.5:1 slope. - For silt basins at drainage outlets, install a minimum of 3 coir fiber baffles in the basin, with a spacing of ¼ the basin length and in accordance with Section 1640 of the Standard Specifications. - Install a minimum of 2 coir fiber baffles in basins with less than 20 feet of length at a spacing of ⅓ the basin length.

Maintenance:

- Inspect the basin on a regular basis and after every significant rainfall event (½ inch or greater).
- At a minimum, clean out the basins when they are approximately one-half full.
- Check for damage to coir fiber baffles and repair and/or replace the baffles.

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041

DRAWING NAME: FLOODGATE RDY PSH C600

DATE: 6-16-2021

DRAWN BY:

REVIEWED BY: RCH

REVISIONS:

SHEET NO. C6.10

9/9/2021
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User:rch

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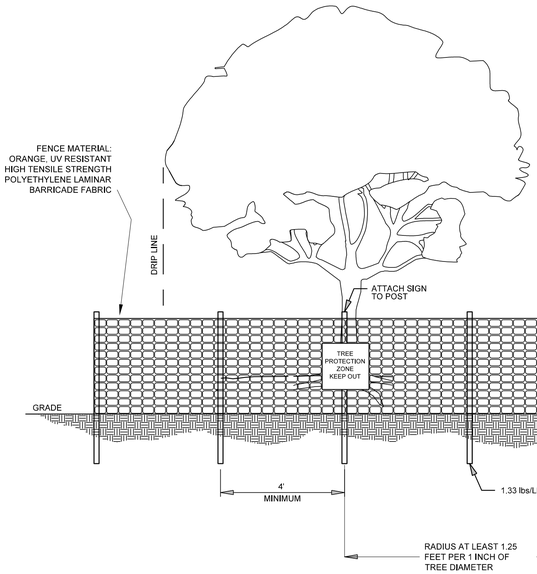


MATURE TREE PROTECTION ZONE RADIUS

TRUNK DIAMETER	GOOD PROTECTION	BETTER PROTECTION	BEST PROTECTION
8 INCHES	10 FEET	12 FEET	20 FEET
12 INCHES	15 FEET	18 FEET	30 FEET
16 INCHES	20 FEET	24 FEET	40 FEET
20 INCHES	25 FEET	30 FEET	50 FEET

NOTES:
1. Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
2. Select trees to be preserved before siting roads, buildings or other structures.
3. Minimize trenching in areas with trees. Place several utilities in the same trench.
4. Prohibit or restrict access to tree protection zones(TPZ). Post "Keep Out" signs on all sides of fencing and do not store construction equipment or materials in TPZ.
5. Monitor trees using a professional or train your staff to monitor tree health during and after construction on a regular, frequent basis.
6. Assign a crew member to weekly TPZ fence integrity checks. Repair and replace TPZ fencing as needed.

MAINTENANCE:
1. Prune any damaged trees. In spite of precautions, some damage to protected trees may occur. In such cases, repair any damage to the crown, trunk, or root system immediately.
2. Repair roots by cutting off the damaged areas and painting them them with tree paint. Spread peat moss or moist topsoil over exposed roots.
3. Repair damage to bark by trimming around the damaged area, taper the cut to provide drainage and paint with tree paint.
4. Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts to avoid peeling bark from healthy areas of the tree.

DETAIL - TREE PROTECTION ZONES

SCALE: N.T.S

Figure 6.05c Tree protection zone guidelines.

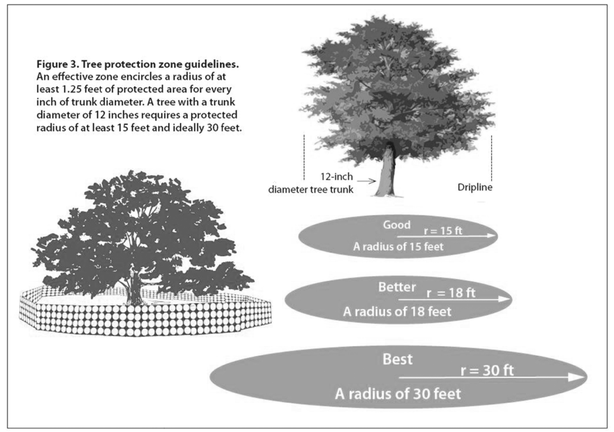
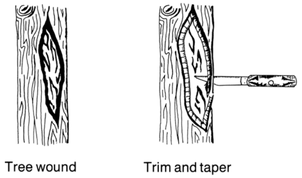
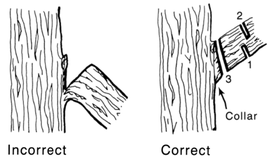


Figure 6.05d Wound repair and pruning of damaged trees.

Trim bark wounds with a tapered cut, then apply tree paint.



Prune damaged branches with three cuts to avoid peeling bark from the trunk when limb falls.



References

Construction and Tree Protection, AG-685 (Revised) North Carolina Cooperative Extension Service

Design Criteria

The following general criteria should be considered when developing sites in wooded areas:

- Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
- Locate roadways, storage areas, and parking pads away from valuable tree stands. Follow natural contours, where feasible, to minimize cutting and filling in the vicinity of trees.
- Select trees to be preserved before siting roads, buildings, or other structures.
- Minimize trenching in areas with trees. Place several utilities in the same trench.
- Designate groups of trees and individual trees to be saved on the erosion and sedimentation control plan.
- **Do not excavate, traverse, or fill closer than the drip line, or perimeter of the canopy, of trees to be saved**.

Construction Specifications

1. Erect TPZ fences. Restrict access to TPZs, with tall, bright, protective fencing. Most fencing is inexpensive and durable enough to last throughout most construction projects. Temporary tree protection fencing should be erected before clearing, deliveries and other construction activities begin on the site.

2. Prohibit or restrict access to TPZs. All on-site workers should be aware of the TPZs and the restrictions on activities within the zones. Use these TPZ guidelines for the best effect:

• Post "keep out" signs on all sides of fencing. Do not store construction equipment or materials in TPZs.

• Prohibit construction activities near the most valuable trees, and restrict activities around others.

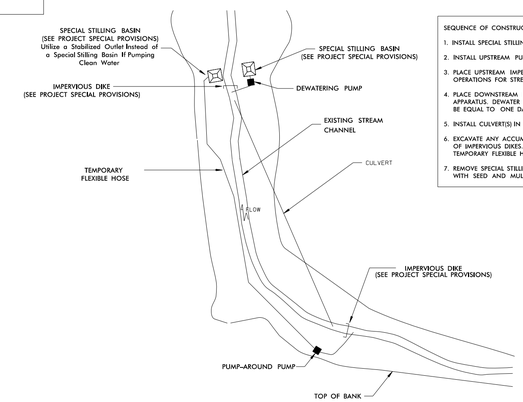
• Assess crew and contractor penalties, if necessary, to keep the TPZs intact.

3. Monitor trees. Vigilance is required to protect trees on construction sites. Use a tree professional or train your staff to monitor tree health during and after construction on a regular, frequent basis. Watch for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.

4. Monitor TPZ fences. Assign a crewmember the weekly responsibility of checking the integrity of TPZ fences. Repair and replace TPZ fencing as needed.

5. Optimize tree health. Assign a trained crewmember or hire a professional to complete regular tree maintenance tasks, including watering, fertilization, and mulching to protect tree roots. Consult a tree professional for advice on these practices if needed. Survival of protected trees will increase if these practices continue during construction. Healthy trees require undisturbed healthy soils. Do not cause injuries to trees and roots. Do not change the soil, grade, drainage, or aeration without protecting priority trees

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

DETAIL - EXAMPLE OF PUMP-AROUND OPERATION

SCALE: N.T.S

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua C. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C6.11**

9/9/2021
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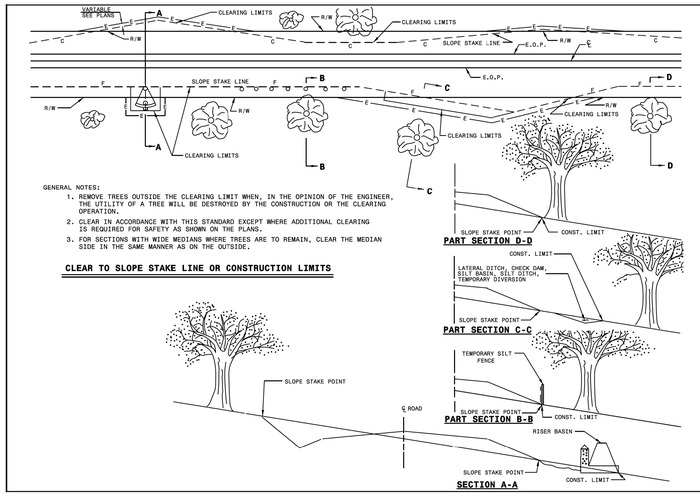
Harrell

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

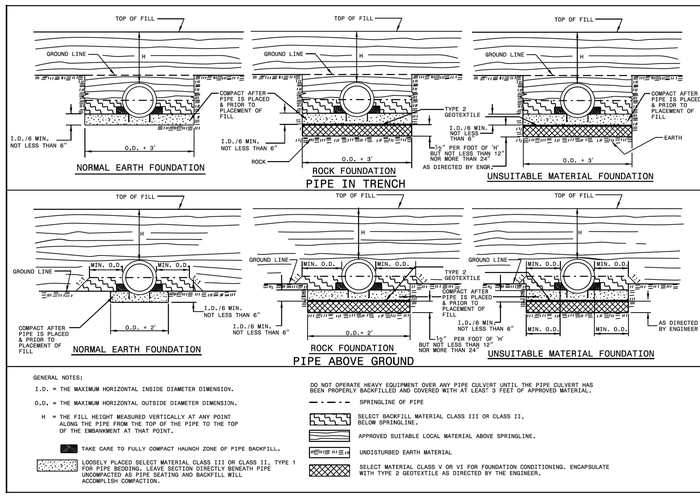


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF CLEARING
METHOD - II

SHEET 1 OF 1
200.02



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	136	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					68

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	324
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≥ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

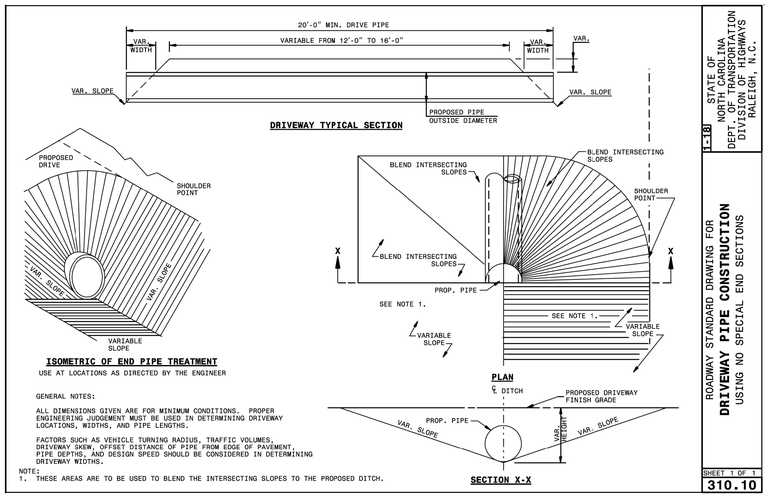
1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300.01

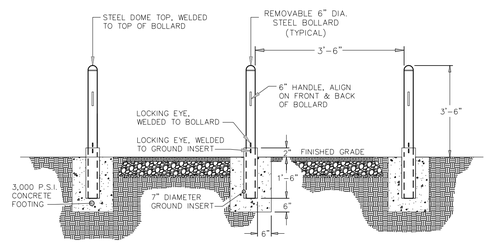


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
DRIVEWAY PIPE CONSTRUCTION
USING NO SPECIAL END SECTIONS

SHEET 1 OF 1
310.10



REMOVABLE STEEL BOLLARD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
CERTIFICATE OF COMPLETION 4B4A2A
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

SITE DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C603
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C6.12

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9/9/2021 Floodgate_Rdy_psh_C600.dgn Shawn

THIS CARD MUST BE DISPLAYED ON OUTSIDE OF BUILDING OR PREMISES FOR WHICH IT IS ISSUED AND BE VISIBLE FROM STREET

EDGECOMBE COUNTY
NORTH CAROLINA

FLOODPLAIN
DEVELOPMENT PERMIT

PERMIT #: 21-004

DATE: 8-26-21
(This permit expires 180 days from this date)

HAS BEEN ISSUED TO

Randall C. Howard
(NAME)

LOCATION: Edgecombe County / Princeville
Dike Easement

TYPE OF CONSTRUCTION: Floodgate repairs

Edgecombe County Planning & Inspections
252-641-7802

EDGECOMBE COUNTY
FLOODPLAIN DEVELOPMENT PERMIT

Permit Number: 21-004 Issuance Date: 08/26/2021 PIN: N/A Dike Easement

In accordance with the Edgecombe County Flood Damage Prevention Ordinance, a Floodplain Development Permit is hereby granted to:

(Name) Randall C. Howard/Sungate Design Group
to conduct development activities within the area of special flood hazard on property located at:

Edgecombe County Dike Easement

recorded in Book N/A Page N/A , Registry of Edgecombe County.

Planning Jurisdiction: Princeville
This property is located in a Special Flood Hazard Area,

FIRM Data: Flood Zone: AE Floodway Map Panel No.: 3720473800 & 3720474800 Suffix K
Map Panel Date: 6/2/15 Map Index Date: 6/2/15
Base Flood Elevation(s) (1) 44.9 (2) 45.6 (3) 45.8 (NAVD 1988)
Regulatory Flood Protection Elevation N/A (NAVD 1988)

Regulatory Floodway / Non Encroachment Area Info:
Inside Regulatory Floodway / Non Encroachment Area X
Outside Regulatory Floodway / Non Encroachment Area
No Regulatory Floodway / Non Encroachment Area

This Permit is issued to the aforementioned individual, firm, partnership, etc. for the purpose noted above and in accordance with the Edgecombe County Flood Damage Prevention Ordinance, Floodplain Development Permit No. 21-004 and attachments thereto; and is subject to the following modifications and/or performance reservations:

1. Permit issued for the following development only.
   Excavation: Fill: X Grading: X Utility Construction:
   Road Construction: X Residential Construction: Nonresidential Construction:
   Addition: Renovation: Other (specify): DWMH
   (Comments/Limitations): No Rise Certification attached
2. The lowest floor and all attendant utilities shall be at or above N/A feet. (NAVD 1988)
3. Pursuant to Section 12-2.10(3) of the Edgecombe County Flood Damage Prevention Ordinance, it shall be the duty of the permit holder to submit to the Floodplain Administrator the Elevation/Floodproofing Certification within 21 calendar days after establishment of the lowest floor. Fill material shall not encroach into the floodway of Tar River (Name of Watercourse).
4. Proper Erosion and Sediment control measures shall be installed and maintained in accordance with North Carolina State Standards during fill operations.
5. Provide a minimum of two (2) openings in the foundation wall having a total area of **not less than n/a square inches**. The bottom of the openings shall not be greater than one (1) foot above the ground elevation at the perimeter of the foundation wall. The access area to the crawl space may be utilized to meet these criteria provided a mesh or screen door is used.
   Note: Vent opening area requirement is calculated at 1 sq. in. per sq. ft of structures footprint below BFE.
6. Mobile / Manufactured home shall be installed in accordance with the Edgecombe County Flood Hazard District Overlay Requirements Section B(3).
7. Any below BFE enclosures may only be used for parking vehicles, building access, and storage.
8. Upon completion of foundation construction, contact Floodplain Administrator's office for foundation inspection.
   Failure to comply with the Edgecombe County Flood Damage Prevention Ordinance including any modifications and/or performance reservations could result in assessment of civil penalties or initiation of civil or criminal court actions.

Revised this 26th day of August, 2021.

Katrina Braswell
Floodplain Administrator for Edgecombe County

SECTION 2 – NO-RISE CERTIFICATION

This document is to certify that I am a duly qualified engineer licensed to practice in the State of North Carolina. It is to further certify that the attached technical data supports the fact that the proposed Princeville Levee Floodgate Repairs project will not increase the base flood elevations or floodway elevations, or impact the floodway widths, on the Tar River at published cross-sections in the Flood Insurance Study (FIS) for Town of Princeville, dated Revised: June 2, 2015, and will not increase the base flood elevations or floodway elevations, or impact the floodway widths at unpublished cross-sections in the area of the proposed development.

Joshua G. Dalton, PE

Name

Project Manager

Title

905 Jones Franklin Rd.

Address

Raleigh, NC 27606

6-16-2021

Date



6-16-2021

Seal and Signature

FOR COMMUNITY USE ONLY

☑ Approved ☐ Disapproved

Katina Braswell

Planning Director — Katina Braswell — 8-16-21

Name and Title | Signature | Date

North Carolina Department of Public Safety

Emergency Management

Roy Cooper, Governor
Casandra Skinner Hoekstra, Interim Secretary

William C. Ray, Director

August 13, 2021

Katina Braswell
Edgecombe County Planning Director
201 St. Andrew Street
Tarboro, NC 27886

Subject: No-Rise Certification Study for Proposed Princeville Levee Floodgate Repairs Project, Town of Princeville, Edgecombe County

Dear Ms. Braswell:

The North Carolina Department of Public Safety Division of Emergency Management Risk Management National Flood Insurance Program (NCNFIP) staff has reviewed the Engineering No-Rise Study Report and Certification for the proposed Princeville Levee Floodgate Repairs Project in Town of Princeville, Edgecombe County, North Carolina. The Report was prepared by Joshua G. Dalton, P.E., with Sungate Design Group, PA, dated on June 16, 2021. The report was received in this office on July 2, 2021.

Based on the information provided, the NCNFIP review indicates the report meets the requirements of the Federal Emergency Management Agency's (FEMA) guidance for a no-rise certification. The NCNFIP finds no objection to the conclusion of no increase in base flood elevation or floodway elevation as contained in the certification.

A Floodplain Development Permit will be required prior to construction.

If you have any questions or concerns with the items herein, please contact me at (919) 825-2317, by email at jintao.wen@ncdps.gov or at the address shown on the footer of this document.

Sincerely,

Jintao Wen

Jintao Wen, Ph.D., P.E.
NC NFIP Engineer
NC Emergency Management

MAILING ADDRESS:
4218 Mail Service Center
Raleigh, NC 27699-4218
Flood.nc.gov

OFFICE LOCATION:
4105 Reedy Creek Road
Raleigh, NC 27607
Telephone: (919) 825-2341

An Equal Opportunity Employer

cc: Milton Carpenter, CFM, NC NFIP Central Branch Planner
Steve Garrett, CFM, NC NFIP Coordinator

File

Community Development Block Grant

Disaster Recovery Project

Princeville Levee Floodgate Repairs

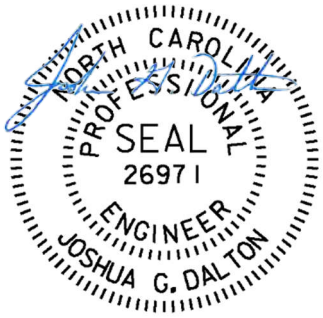
Tar River No-Rise Certification

for

Town of Princeville
Edgecombe County, NC

201 South Main Street
Tarboro, NC 27886

June 16, 2021



Prepared By:

SUNGATE DESIGN GROUP, PA
905 Jones Franklin Road
Raleigh, N. C. 27606
Firm License No. C-890

CLOMR for Tar River

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SECTION 3 **EFFECTIVE FIRM**
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3720473800K
3720474800K

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SECTION 5 **COMPARISON TABLES**

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Project Model

SECTION 1 - REPORT

Tar River – No-Rise Certification
Town of Princeville, Edgecombe Co, NC

Prepared by: Sungate Design Group, PA
905 Jones Franklin Road
Raleigh, North Carolina

For: Town of Princeville
201 South Main Street
Tarboro, NC 27886

Date: June 16, 2021

Introduction

The Town of Princeville has received Community Development Block Grant - Disaster Recovery (CDBG-DR) funding from the U.S. Department of Housing and Urban Development (HUD) for repairs to the Princeville Levee along the Tar River in the Town of Princeville, Edgecombe County, NC. The Tar River flows along the north and west boundary of the Town and the town is protected from flooding by an earthen levee system built by the US Army Corps of Engineers (USACE) in 1965. Streams and channels conveying stormwater from the town are piped under the levee through corrugated metal pipes with flap gates on the outlet end to allow water out to the river, but not in from the river. The Tar River at this location is part of a FEMA Detailed Study, as shown in the Effective FIS # 37065CV000C for Edgecombe County and Incorporated Areas, dated Revised: June 2, 2015.

The Princeville Levee Floodgate Repairs project proposes to repair inlet and outlet channels at four existing floodgates along the Princeville Levee and construct permanent access roads to each floodgate for construction and future maintenance activities. The floodgate locations are described as Sites 1 thru 4 in the attached Construction Plans. Sites 1, 2, and 3 are partially located in a FEMA regulated floodplain. The repairs will consist of excavation and regrading approximately 25 linear feet of each inlet and outlet channel and the installation of a rip rap channel lining. Temporary impervious dikes and a pump-around system for dewatering are anticipated during channel repairs. Access roads leading from public right-of-way to each channel will also be constructed. The roads will be constructed using fill material at an elevation to avoid cutting into the existing levee but minimize the amount of fill placed in the regulated floodplain. Access road locations, typical sections, profiles, and cross-sections are shown in the included Construction Plans.

Effective Model

The Effective HEC-RAS model (version 4.0), entitled Tar River – AUGUST 20,2010 4650, was downloaded from the NC FRIS website. The model contains two plans entitled Revised and Tar River. The Revised plan contains two profiles, a 100-YEAR, and 100-YEAR FW profile with

encroachment stations. The Tar River plan contains seven profiles, a 10-YEAR, 50-YEAR, 100-YEAR, 500-YEAR, FLOYD, 10%100-yr, and 95 % Conf. 100-yr profile. For this project the Revised plan will be used to establish the No-Rise Certification.

Site 1 is bounded by published cross-sections at RS 243633 and RS 247087, and Sites 2 and 3 are bounded by published cross-sections at RS 247087 and RS 252004, in the Effective FIS. The 100-YEAR profile and 100-YR FW water-surface elevations in the Effective model were compared to the Effective FIS between RS 243633 and RS 252004 and found to match exactly when rounded to the nearest tenth of a foot. Both the Effective model and FIS are reference to NAVD 88. No negative surcharges or surcharges greater than 1.00 feet were observed in the Effective model between the published project limits, however, surcharges greater than 1.00 feet were observed upstream of the project.

It was observed that the 100-YR FW encroachment widths in the Effective model do not match those shown on the Effective FIRM, with some locations being significantly different. It was also observed that the 100-year Flood Fringe and Floodway on the east side of the river, within the project limits, appear to be shown on the land side of the levee. Upon further review, the Floodway Data Table in the Effective FIS notes the floodway widths for RS 243633, RS 247087, and RS 252004 have been adjusted to ensure compliance with FEMA policy regarding the mapping of floodways on levees.

Duplicate Effective

The Revised plan in the Effective HEC-RAS model discussed above was used to create the Duplicate Effective plan (Duplicate). The plan was run in HEC-RAS (version 4.1) and ran without errors. The Duplicate 100-YEAR and 100-YR FW profiles were compared to the Effective model within the published project limits (RS 243633 to RS 252004). 100-YEAR water-surface elevations match exactly. 100-YR FW water-surface elevations varied by 0.01 feet at RS 247087 and RS 252004. The difference in 100-YR FW water-surface elevations between the Effective and Duplicate models is most likely due to computational differences between the two model versions. HEC-RAS version 4.1 will be used for this project.

Existing Conditions

The Duplicate Effective plan was used to create the Existing Conditions plan (Existing). The existing cross-section at RS 245050 was modified to cross perpendicular to the proposed access roads and levee. Geometry was also updated using field survey data collected by Sungate Design Group, PA (Sungate) and supplemented with 2014 QL2 bare-earth LiDAR downloaded from the NC Spatial Data Download website. New cross-sections at RS 245115, RS 245278, RS 250174, RS 250376, RS 250459, RS 250361, RS 250805, RS 250976, RS 251201, and RS 251452 were added to the Existing plan for comparison to the Proposed Conditions plan. Cross-section geometry for new sections was created using field survey data collected by Sungate and supplemented with 2014 QL2 bare-earth LiDAR data. All geometry data used is referenced to NAVD 88. Tar River bed elevations for new cross-sections were set by interpolating the bed elevation between existing sections.

Manning's n values for new cross-sections were set using values established by the effective model and referencing current ortho-imagery. Contraction and expansion coefficients were set to 0.1 and 0.3, respectively, for all new sections, per HEC-RAS modeling guidelines. Downstream reach lengths were set measuring along the effective streamline and match the difference in river stationing between sections. Encroachment stationing for new sections and modified section at RS 245050 were initially set based on the Effective FIRM, however numerous stations fell outside the 100-year floodplain width or inside the channel and had to be adjusted. Adjustments to encroachment stations for new sections from RS 250174 to RS 251452 were also required to remove surcharges greater than 1.00 feet. Existing sections at RS 247087 and RS 252004 have ineffective flow on the right side of the cross-section, as shown on the included work map. Ineffective flow for new sections bounded by the two existing sections was scaled from the work map and set accordingly at the new sections in the Existing plan.

Proposed Conditions

The Existing Conditions plan was used to create the Proposed plan. Cross-section geometry for sections at RS 245050, RS 245115, RS 245278, RS 250376, RS 250459, RS 250805, RS 250967, RS 251201, and RS 251452 were revised to match proposed Construction Plans inside the floodplain. No other changes to the plan were made. No negative surcharges or surcharges greater than 1.00 feet were observed within the project limits.

Results

When comparing the Proposed 100-YEAR profile to the Existing 100-YEAR profile, no increases in water-surface elevations were observed and a maximum decrease in water-surface elevations of 0.01 feet were observed at multiple sections. When comparing the Proposed 100-YR FW profile to the Existing 100-YR FW profile, no increases in water-surface elevations were observed and a maximum decrease of 0.01 feet was observed at RS 250376. Based on the results of the model, this project should qualify for a No-Rise Certification.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
TAR RIVER								
1956	195,588	1,950	31,542	1.6	38.2	38.2	39.2	1.0
1979	197,930	1,860	35,385	1.4	38.8	38.8	39.8	1.0
1999	199,932	2,300	40,100	1.2	39.2	39.2	40.2	1.0
2027	202,733	2,725	41,348	1.2	39.7	39.7	40.6	0.9
2089	208,947	1,675	33,153	1.4	40.6	40.6	41.6	1.0
2102	210,220	2,362	40,655	1.2	40.7	40.7	41.7	1.0
2128	212,787	2,175	43,909	1.1	41.0	41.0	42.0	1.0
2163	216,325	2,300	35,290	1.3	41.5	41.5	42.5	1.0
2195	219,544	1,980	46,809	1.0	41.9	41.9	42.9	1.0
2222	222,195	1,800	32,799	1.4	42.2	42.2	43.2	1.0
2254	225,423	1,550	32,569	1.5	42.4	42.4	43.4	1.0
2287	228,738	2,100	37,284	1.3	42.7	42.7	43.7	1.0
2323	232,255	2,200	37,444	1.3	42.9	42.9	43.9	1.0
2349	234,886	1,950	33,233	1.4	43.2	43.2	44.1	0.9
2375	237,457	2,180	37,902	1.2	43.5	43.5	44.5	1.0
Project Limits 2436	243,633	618[2]	13,062	3.6	44.6	44.6	45.5	0.9
2471	247,087	926[2]	18,120	2.6	45.4	45.4	46.4	1.0
2520	252,004	3,253[2]	45,394	1.0	45.9	45.9	46.9	1.0
2540	253,976	3,200	45,831	1.0	46.0	46.0	47.0	1.0
2565	256,527	3,740	58,950	0.8	46.2	46.2	47.1	0.9
2585	258,478	4,000	55,165	0.9	46.3	46.3	47.3	1.0
2679	267,935	5,020	77,433	0.6	46.7	46.7	47.7	1.0
2699	269,891	3,430	52,511	0.9	46.8	46.8	47.7	0.9
2750	274,961	6,400	118,176	0.4	47.7	47.7	48.7	1.0
2784	278,394	6,413	115,122	0.4	47.7	47.7	48.7	1.0
2820	281,986	5,166	109,764	0.4	47.7	47.7	48.7	1.0

[1]Feet above mouth

[2]These widths consider adjustments made to ensure compliance with FEMA policy regarding the mapping of floodways on levees

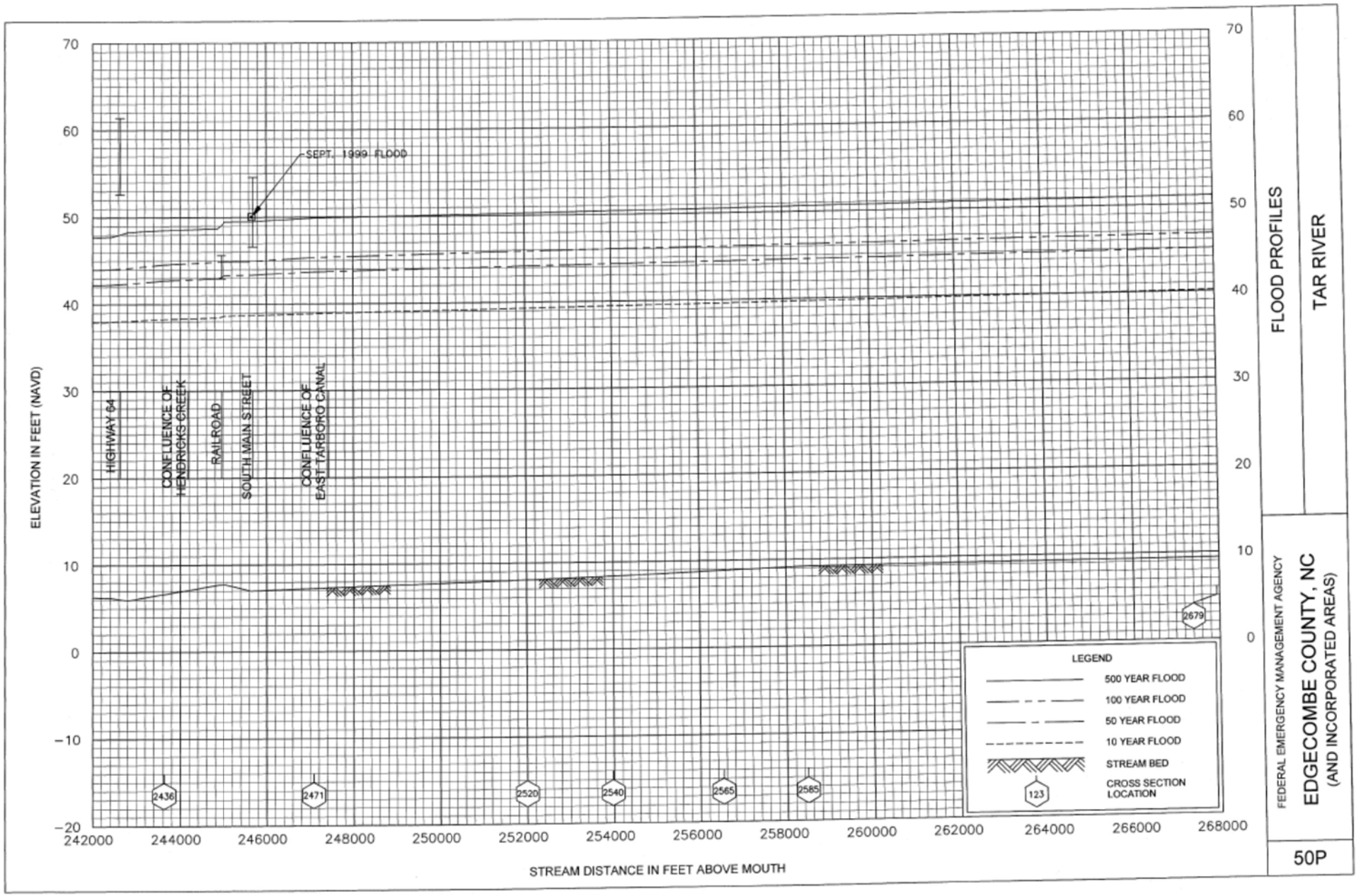
TABLE 18

FEDERAL EMERGENCY MANAGEMENT AGENCY

EDGECOMBE COUNTY, NC AND INCORPORATED AREAS

FLOODWAY DATA

TAR RIVER


ELEVATION IN FEET (NAVD)
70
60
50
40
30
20
10
0
−10
−20
242000
244000
246000
248000
250000
252000
254000
256000
258000
260000
262000
264000
266000
268000
STREAM DISTANCE IN FEET ABOVE MOUTH
SEPT. 1999 FLOOD
HIGHWAY 64
CONFLUENCE OF HENDRICKS CREEK
RAILROAD
SOUTH MAIN STREET
CONFLUENCE OF EAST TARBORO CANAL
2436
2471
2520
2540
2565
2585
2679
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
123
CROSS SECTION LOCATION
FLOOD PROFILES
TAR RIVER
FEDERAL EMERGENCY MANAGEMENT AGENCY
EDGECOMBE COUNTY, NC
(AND INCORPORATED AREAS)
50P

Site Photos



RS 245115 - Top of Levee Looking North Toward NC 33 Bridge over Tar River



RS 245115 - Top of Levee Looking South Toward R.R. Crossing over Tar River



RS 250294 – Top of Levee Looking East



RS – 251201 – Top of Levee Looking North Toward Tar River

SECTION 2 – NO-RISE CERTIFICATION

This document is to certify that I am a duly qualified engineer licensed to practice in the State of North Carolina. It is to further certify that the attached technical data supports the fact that the proposed Princeville Levee Floodgate Repairs project will not increase the base flood elevations or floodway elevations, or impact the floodway widths, on the Tar River at published cross-sections in the Flood Insurance Study (FIS) for Town of Princeville, dated Revised: June 2, 2015, and will not increase the base flood elevations or floodway elevations, or impact the floodway widths at unpublished cross-sections in the area of the proposed development.

Joshua G. Dalton, PE

Name

Project Manager

Title

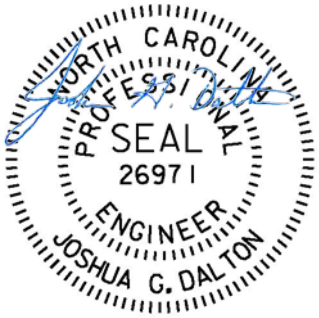
905 Jones Franklin Rd.

Address

Raleigh, NC 27606

6-16-2021

Date



6-16-2021

Seal and Signature

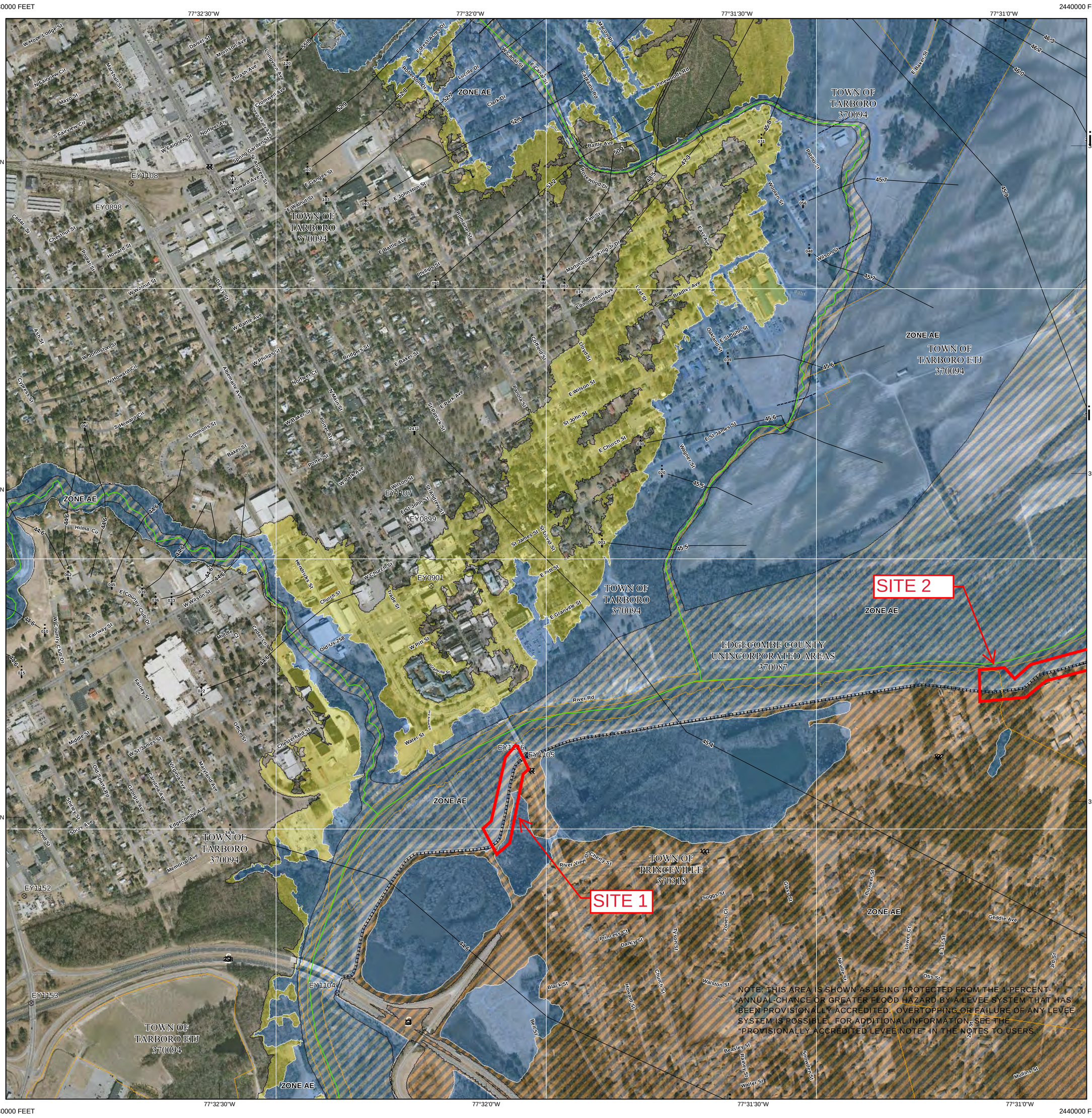
FOR COMMUNITY USE ONLY

☐ Approved ☐ Disapproved

Name and Title | Signature | Date

SECTION 3 – FFECTIVE FIRM

(See Attached)



NORTH CAROLINA Cooperating Technical State
FEMA'S COOPERATING TECHNICAL PARTNER

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map flood hazard areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://FRIS.NC.GOV/FRIS

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A,V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth Less Than One Foot or With Drainage Areas of Less Than One Square Mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*

OTHER AREAS

- Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Accredited or Provisionally Accredited Levee, Dike, or Floodwall
- Non-accredited Levee, Dike, or Floodwall
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- BM5510 ? — National Geodetic Survey bench mark
- BM5510 Z — Contractor Est. NCFMP Survey bench mark
- 012 — 18.2 — Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline

OTHER FEATURES

- Hydrographic Feature
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at http://www.ncfloodmaps.com, or contact the FEMA Map Service Center.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the North Carolina Floodplain Mapping Program (NCFMP). The source of this information can be determined from the metadata available in the digital FLOOD database and in the Technical Support Data Notebook (TSDN).

ACCREDITED LEVEE NOTES TO USERS: If an accredited levee note appears on this panel check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

PROVISIONALLY ACCREDITED LEVEE NOTES TO USERS: If a Provisionally Accredited Levee (PAL) note appears on this panel, check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by November 9, 2012. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicates the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flooding zones the AE Zone category has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

Limit of Moderate Wave Action (LiMWA)

COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

This map may include approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/habitatconservation/coastal_barrier.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

CBRS Area — Otherwise Protected Area

SCALE

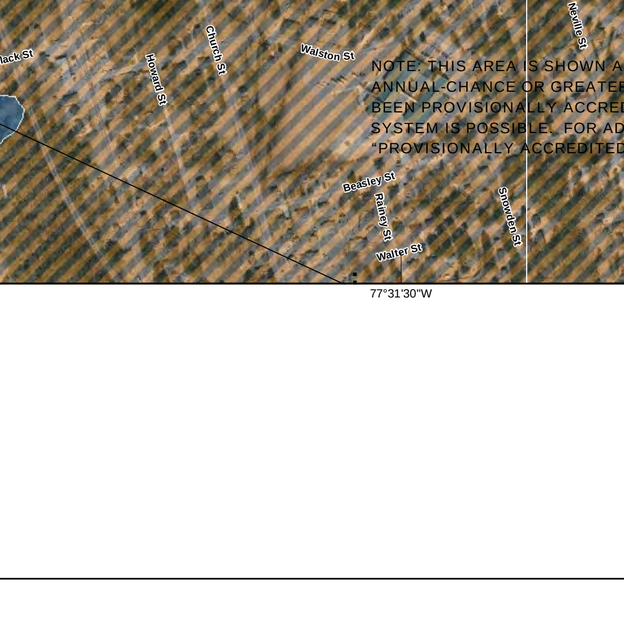
Map Projection:
North Carolina State Plane Projection Feet (Zone 3200)
Datum: NAD 1983 (Horizontal), NAVD 1988 (Vertical)

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

PANEL LOCATOR



National Flood Insurance Program

FEMA

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 4738

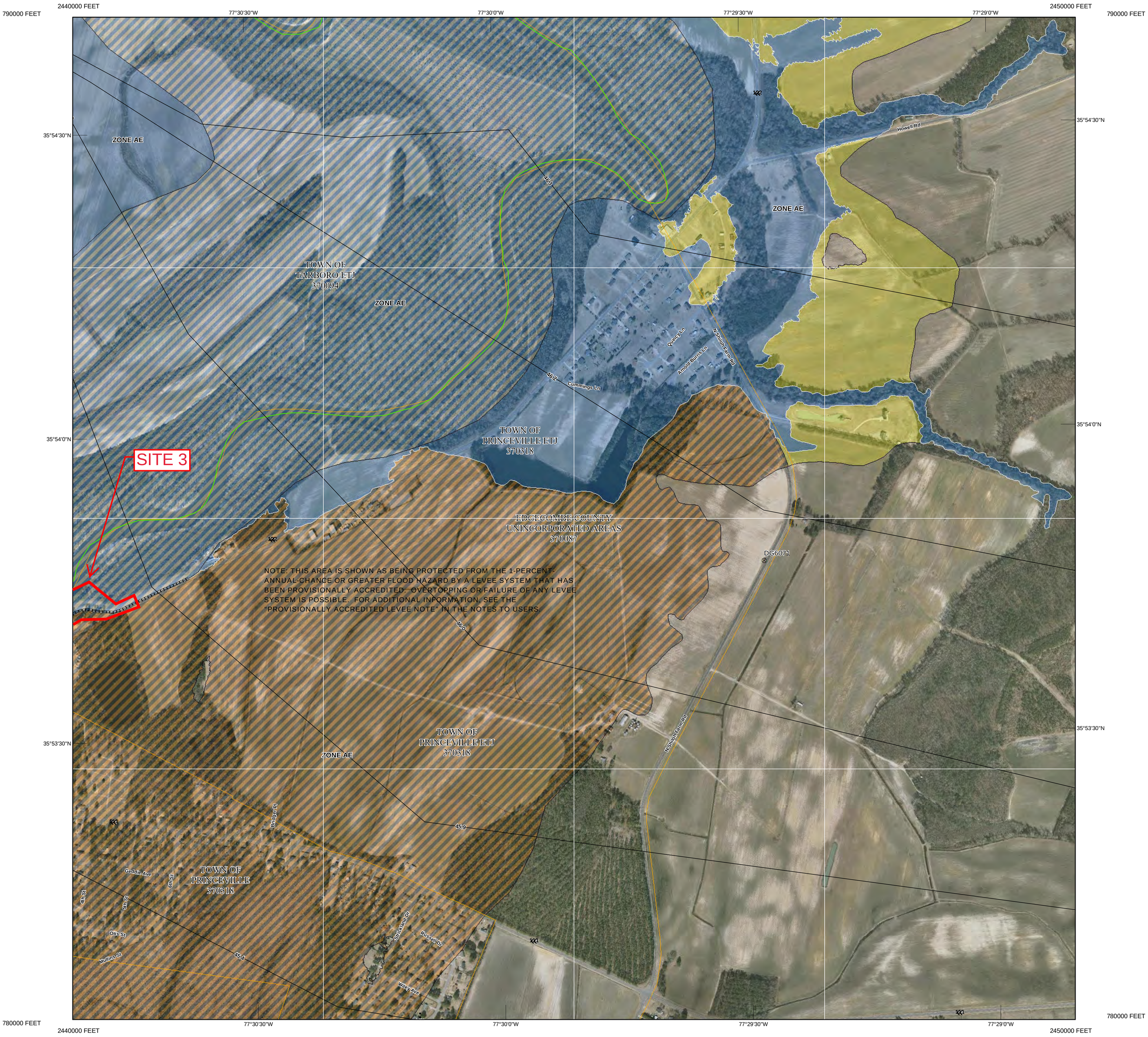
FEMA

Panel Contains:

COMMUNITY	CID	PANEL	SUFFIX
PRINCEVILLE, TOWN OF	370318	4738	K
TARBORO, TOWN OF	370094	4738	K

MAP NUMBER
3720473800K

EFFECTIVE DATE
06/02/2015



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- BM5510 ? — National Geodetic Survey bench mark
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- Coastal Transect Baseline
- Profile Baseline

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- Limit of Study
- Jurisdiction Boundary

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Limit of Moderate Wave Action (LiMWA)

COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

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CBRS Area — Otherwise Protected Area

SCALE

Map Projection:
North Carolina State Plane Projection Feet (Zone 3200)
Datum: NAD 1983 (Horizontal), NAVD 1988 (Vertical)

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 4748

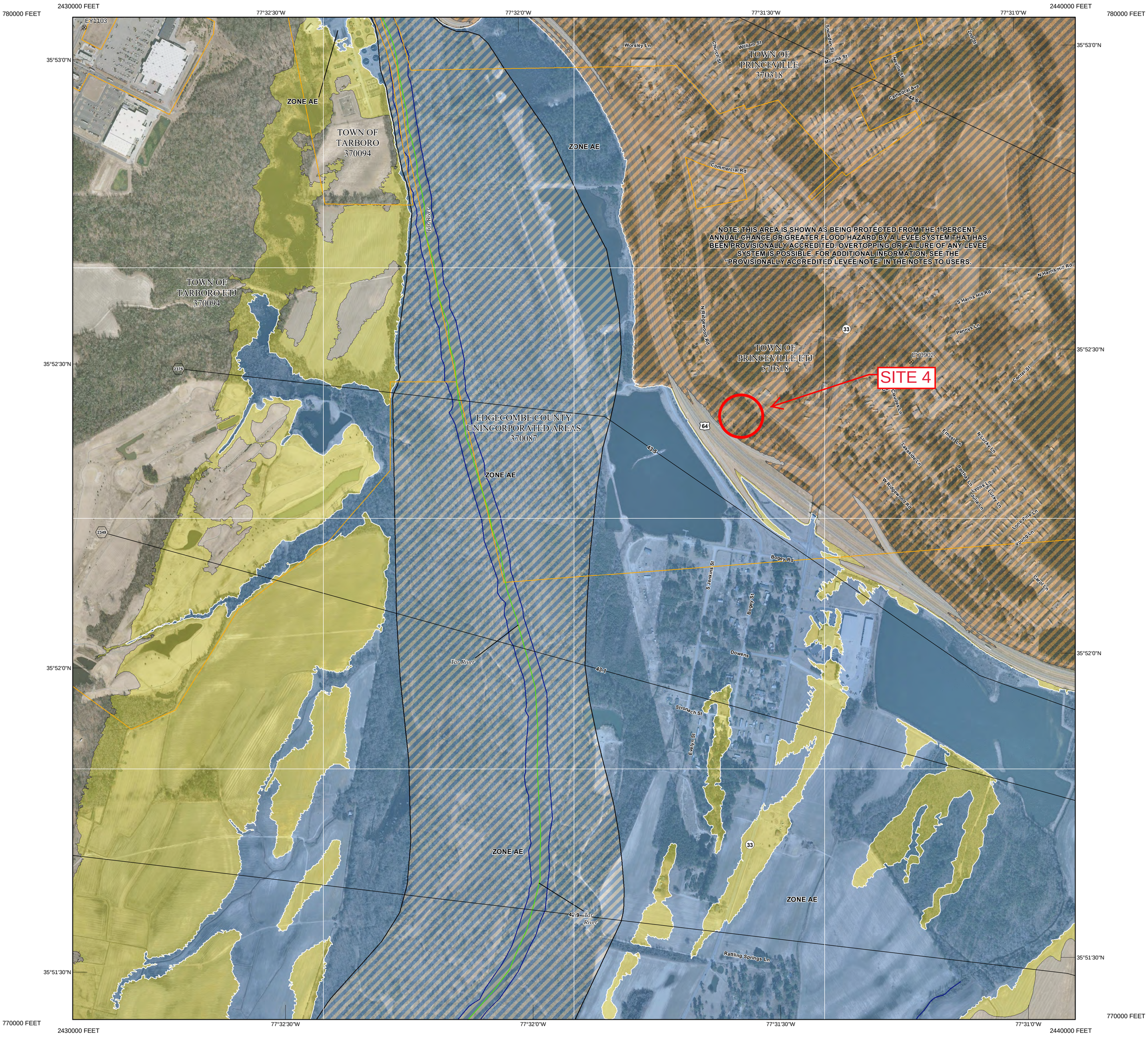
FEMA

Panel Contains:

COMMUNITY	CID	PANEL	SUFFIX
EDGECOMBE COUNTY	370087	4748	K
PRINCEVILLE, TOWN OF	370318	4748	K
TARBORO, TOWN OF	370094	4748	K

MAP NUMBER
3720474800K

EFFECTIVE DATE
06/02/2015



NORTH CAROLINA Cooperating Technical State
FEMA'S COOPERATING TECHNICAL PARTNER

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map flood hazard areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://FRIS.NC.GOV/FRIS

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A,V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth Less Than One Foot or With Drainage Areas of Less Than One Square Mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*

OTHER AREAS
- Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Accredited or Provisionally Accredited Levee, Dike, or Floodwall
- Non-accredited Levee, Dike, or Floodwall

OTHER FEATURES
- BM5510 North Carolina Geodetic Survey bench mark
- BM5510 National Geodetic Survey bench mark
- BM5510 Contractor Est. NCFMP Survey bench mark
- 012 18.2 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at http://www.ncfloodmaps.com, or contact the FEMA Map Service Center.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

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Limit of Moderate Wave Action (LiMWA)

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CBRS Area

Otherwise Protected Area

SCALE

Map Projection:
North Carolina State Plane Projection Feet (Zone 3200)
Datum: NAD 1983 (Horizontal), NAVD 1988 (Vertical)

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

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PANEL LOCATOR

FEMA
National Flood Insurance Program

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 4737

Panel Contains:

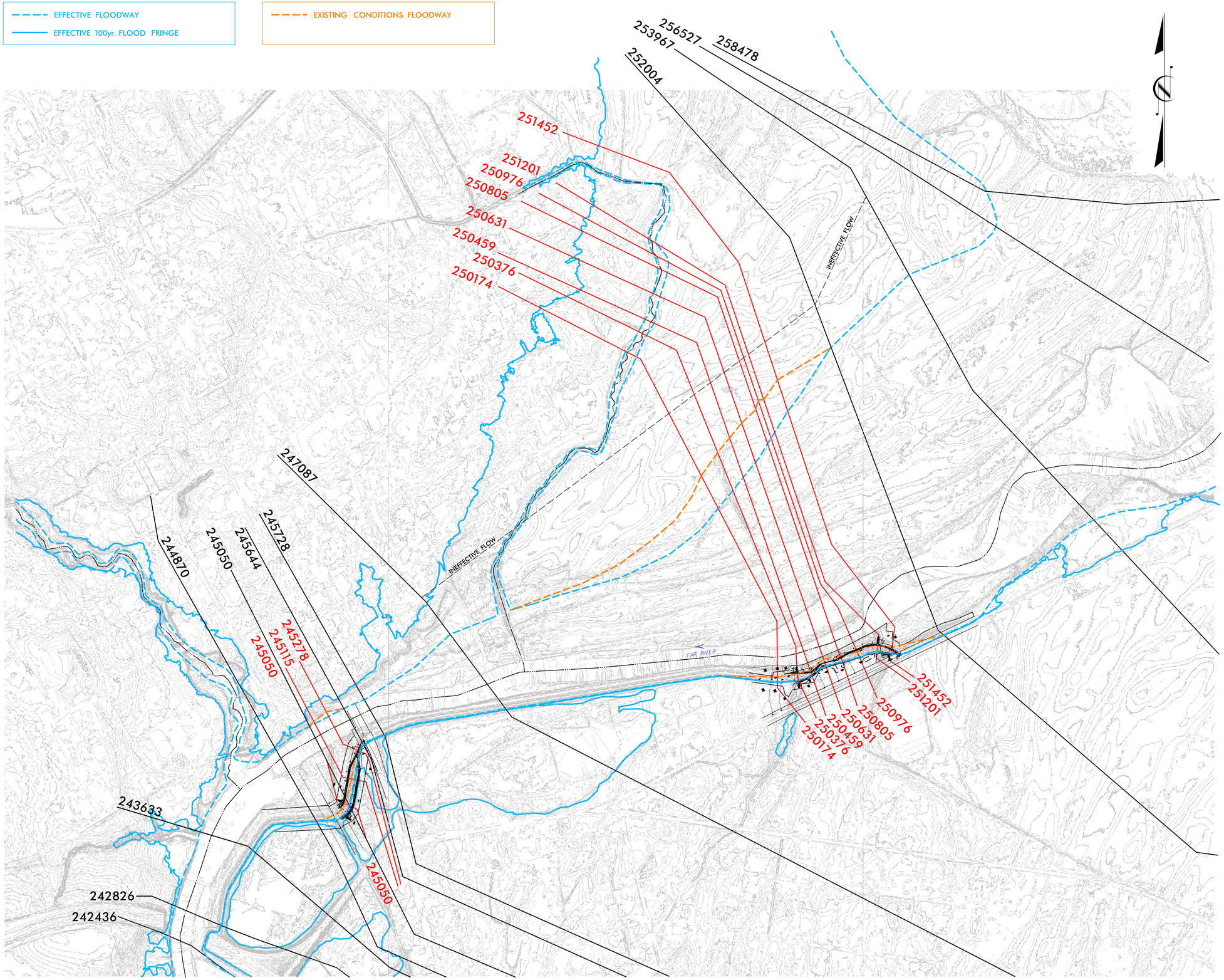
COMMUNITY	CID	PANEL	SUFFIX
EDGECOMBE COUNTY	370087	4737	J
PRINCEVILLE, TOWN OF	370318	4737	J
TARBORO, TOWN OF	370094	4737	J

MAP NUMBER
3720473700J

EFFECTIVE DATE
11/3/2004

SECTION 4 – CERTIFIED TOPOGRAPHIC WORK MAP

(See Attached)



PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

6-16-2021

CERTIFIED TOPOGRAPHIC MAP

PRINCEVILLE LEVEE FLOODGATE REPAIRS

TAR RIVER

TOWN OF PRINCEVILLE

EDGECOMBE CO, NC

NAD 83 (2011)

NAVD 88

500' 250' 0 500' 1000'

SCALE: 1" = 500'

5/14/99

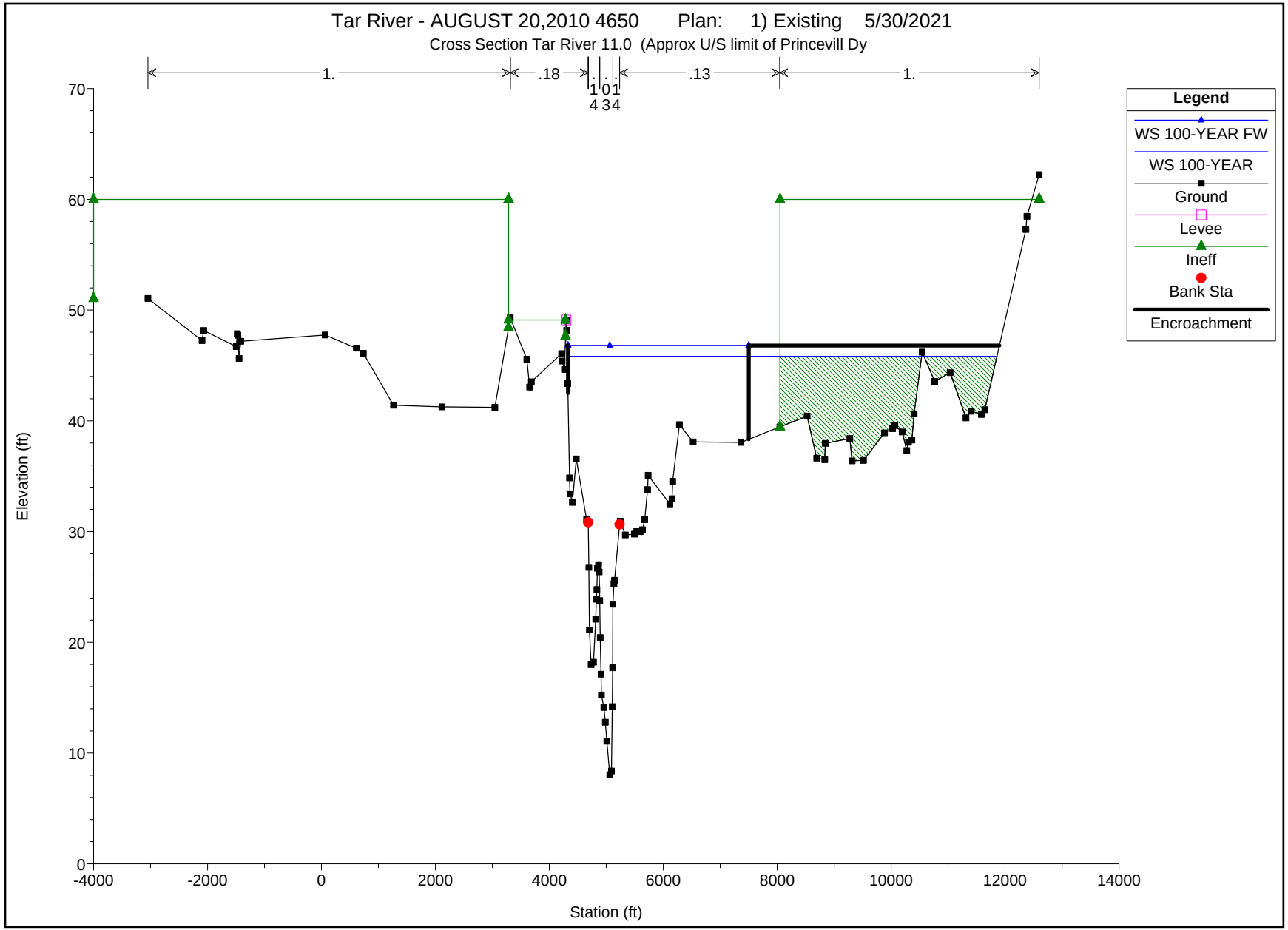
SECTION 5 - COMPARISON TABLES

(See Attached)

River Station (RS)	Plan	W.S. Elev 100-YEAR (ft)	W.S. Elev 100-YR FW (ft)	Prof Delta WS (ft)	Top Width Floodplain (ft)	Top Width FW (ft)	Encro. Sta LT (ft)	Encro. Sta RT (ft)	Project Impact 100-YEAR Proposed-Existing (ft)	Project Impact 100-YR FW Proposed-Existing (ft)
253976	Duplicate	46.05	47.02	0.97	4247.40	3200.00	4300.00	7500.00		
253976	Existing	45.96	46.92	0.96	4247.40	3200.00	4300.00	7500.00		
253976	Proposed	45.96	46.92	0.96	4247.40	3200.00	4300.00	7500.00	0.00	0.00
252004	Duplicate	45.91	46.90	0.99	3736.25	3173.00	4327.00	7500.00		
252004	Existing	45.82	46.79	0.97	3735.90	3173.00	4327.00	7500.00		
252004	Proposed	45.82	46.79	0.97	3735.89	3173.00	4327.00	7500.00	0.00	0.00
251452	Existing	45.78	46.75	0.97	3567.20	3134.00	466.00	3600.00		
251452	Proposed	45.78	46.75	0.97	3561.59	3134.00	466.00	3600.00	0.00	0.00
251201	Existing	45.71	46.69	0.98	3449.02	2934.00	566.00	3500.00		
251201	Proposed	45.71	46.69	0.98	3448.98	2934.00	566.00	3500.00	0.00	0.00
250976	Existing	45.67	46.65	0.98	3343.26	2869.00	531.00	3400.00		
250976	Proposed	45.67	46.65	0.98	3343.25	2869.00	531.00	3400.00	0.00	0.00
250805	Existing	45.65	46.63	0.98	3302.49	2744.00	556.00	3300.00		
250805	Proposed	45.65	46.63	0.98	3288.77	2744.00	556.00	3300.00	0.00	0.00
250631	Existing	45.62	46.60	0.98	3221.73	2633.00	567.00	3200.00		
250631	Proposed	45.62	46.60	0.98	3221.73	2633.00	567.00	3200.00	0.00	0.00
250459	Existing	45.62	46.59	0.97	3217.36	2583.00	517.00	3100.00		
250459	Proposed	45.61	46.59	0.97	3207.47	2583.00	517.00	3100.00	-0.01	0.00
250376	Existing	45.60	46.57	0.97	3169.33	2490.00	510.00	3000.00		
250376	Proposed	45.59	46.56	0.97	3169.32	2490.00	510.00	3000.00	-0.01	-0.01
250174	Existing	45.58	46.54	0.97	3061.24	2317.00	583.00	2900.00		
250174	Proposed	45.57	46.54	0.97	3061.24	2317.00	583.00	2900.00	-0.01	0.00
247087	Duplicate	45.38	46.36	0.97	1339.41	800.50	4799.50	5600.00		
247087	Existing	45.30	46.25	0.95	1338.24	800.50	4799.50	5600.00		
247087	Proposed	45.30	46.25	0.95	1338.22	800.50	4799.50	5600.00	0.00	0.00
245728	Duplicate	44.99	45.95	0.96	509.40	322.00	4793.00	5115.00		
245728	Existing	44.90	45.84	0.94	508.84	322.00	4793.00	5115.00		
245728	Proposed	44.90	45.84	0.94	508.83	322.00	4793.00	5115.00	0.00	0.00
245686		Bridge	Bridge							
245644	Duplicate	44.93	45.83	0.89	509.28	322.00	4793.00	5115.00		
245644	Existing	44.84	45.71	0.87	508.72	322.00	4793.00	5115.00		
245644	Proposed	44.84	45.71	0.87	508.71	322.00	4793.00	5115.00	0.00	0.00
245278	Existing	44.90	45.79	0.89	698.32	535.00	4650.00	5185.00		
245278	Proposed	44.89	45.79	0.89	693.00	535.00	4650.00	5185.00	-0.01	0.00
245115	Existing	44.87	45.76	0.89	916.83	750.00	4403.00	5153.00		
245115	Proposed	44.87	45.76	0.89	916.82	750.00	4403.00	5153.00	0.00	0.00
245050	Duplicate	44.94	45.84	0.91	1015.60	825.00	4395.00	5220.00		
245050	Existing	44.82	45.72	0.90	1004.99	924.30	4210.00	5134.30		
245050	Proposed	44.82	45.72	0.90	1004.98	924.30	4210.00	5134.30	0.00	0.00
244960		Bridge	Bridge							
244870	Duplicate	44.85	45.72	0.87	1015.59	825.00	4395.00	5220.00		
244870	Existing	44.85	45.72	0.87	1015.59	825.00	4395.00	5220.00		
244870	Proposed	44.85	45.72	0.87	1015.59	825.00	4395.00	5220.00	0.00	0.00
243633	Duplicate	44.60	45.50	0.90	693.20	467.10	4691.90	5159.00		
243633	Existing	44.60	45.50	0.90	693.20	467.10	4691.90	5159.00		
243633	Proposed	44.60	45.50	0.90	693.20	467.10	4691.90	5159.00	0.00	0.00
242826	Duplicate	44.18	45.06	0.89	536.05	387.00	4763.00	5150.00		
242826	Existing	44.18	45.06	0.89	536.05	387.00	4763.00	5150.00		
242826	Proposed	44.18	45.06	0.89	536.05	387.00	4763.00	5150.00	0.00	0.00

SECTION 6 – CROSS-SECTION PLOTS

(See Attached)


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
Cross Section Tar River 11.0 (Approx U/S limit of Princevill Dy
1.
.18
.13
1.
1 0 1
4 3 4
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
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30
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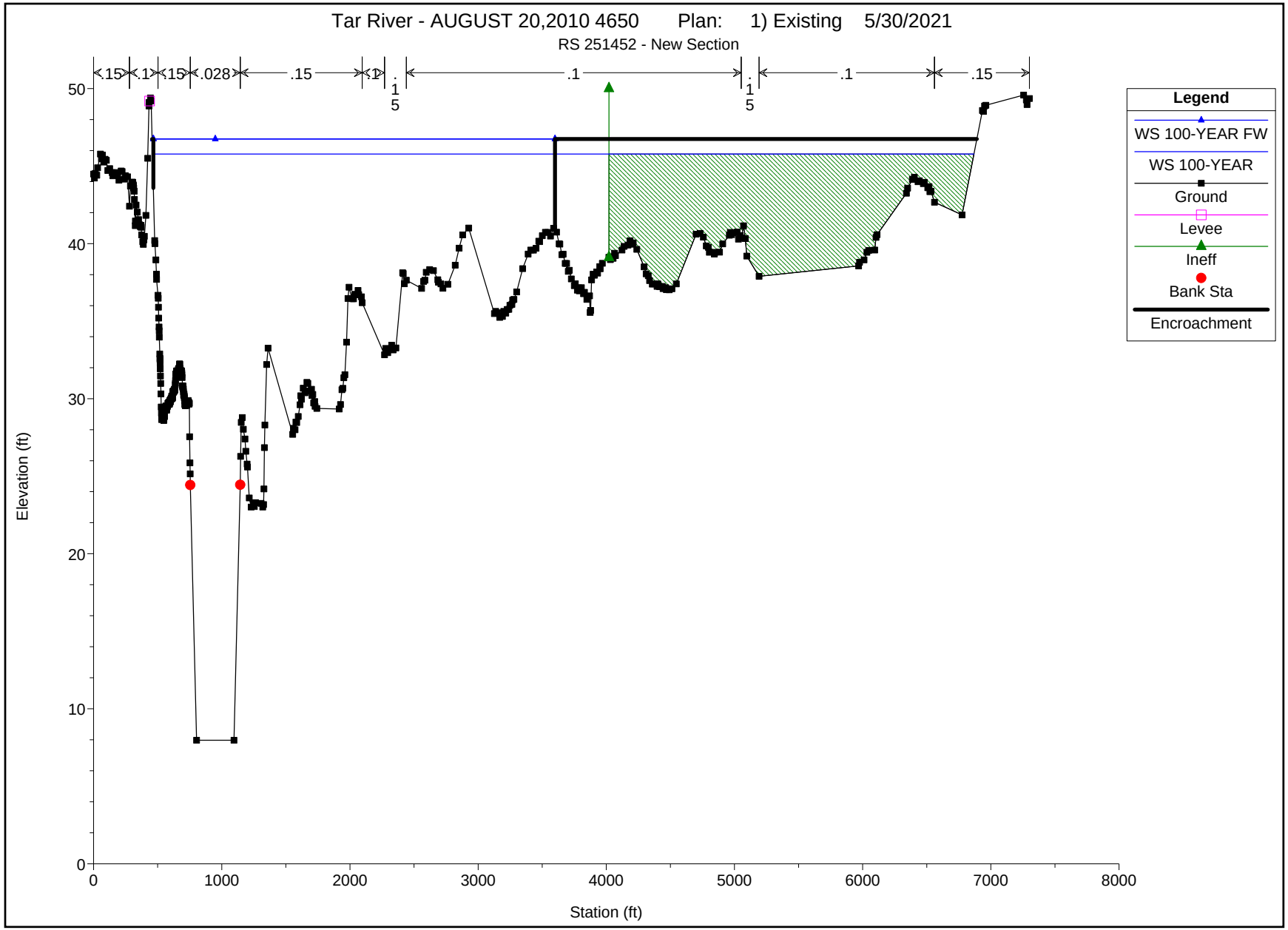
Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 251452 - New Section
.15
.1
.15
.028
.15
.1
.15
.1
.15
.1
.15
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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7000
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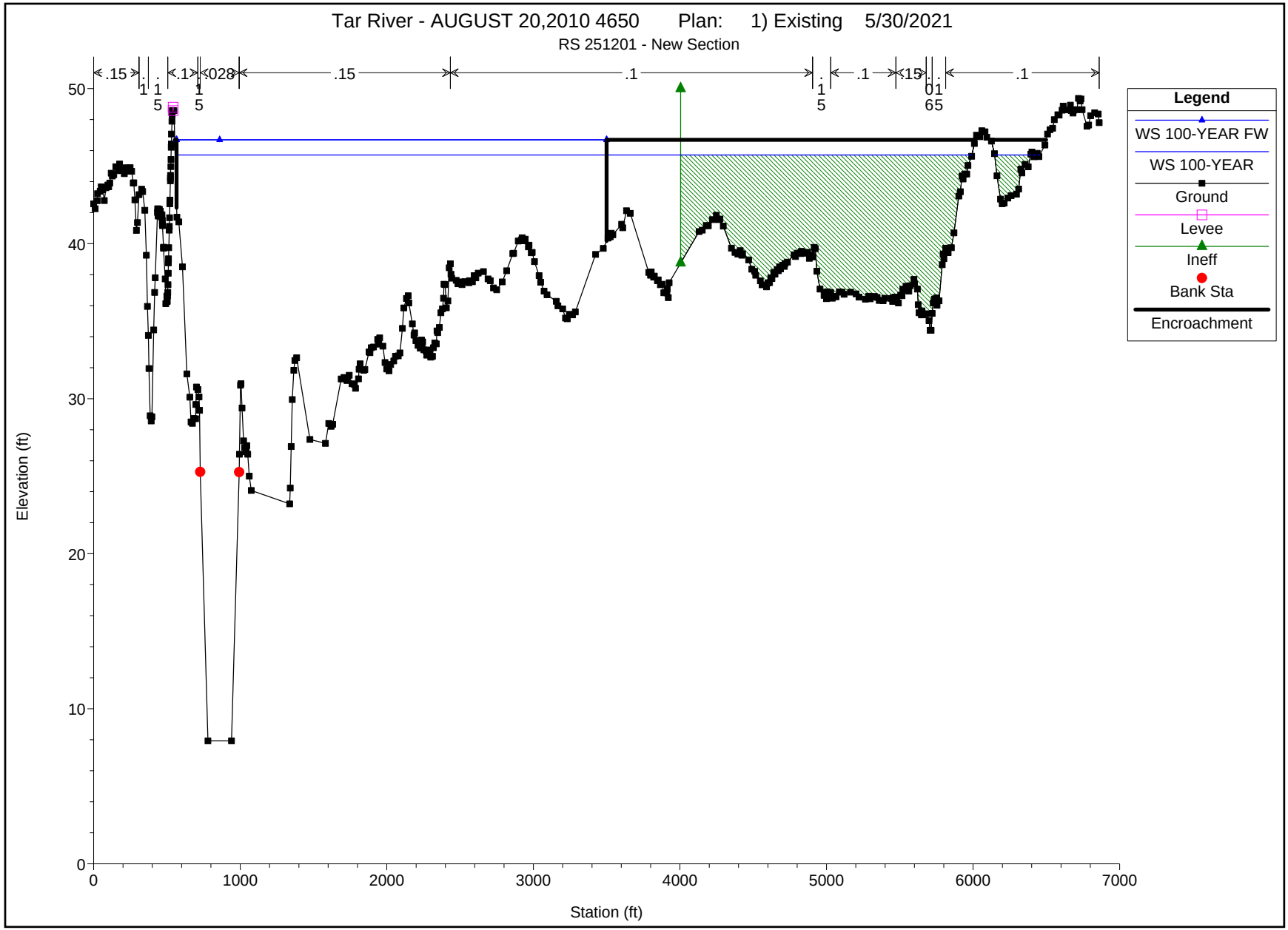
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RS 251201 - New Section
.15
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.028
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Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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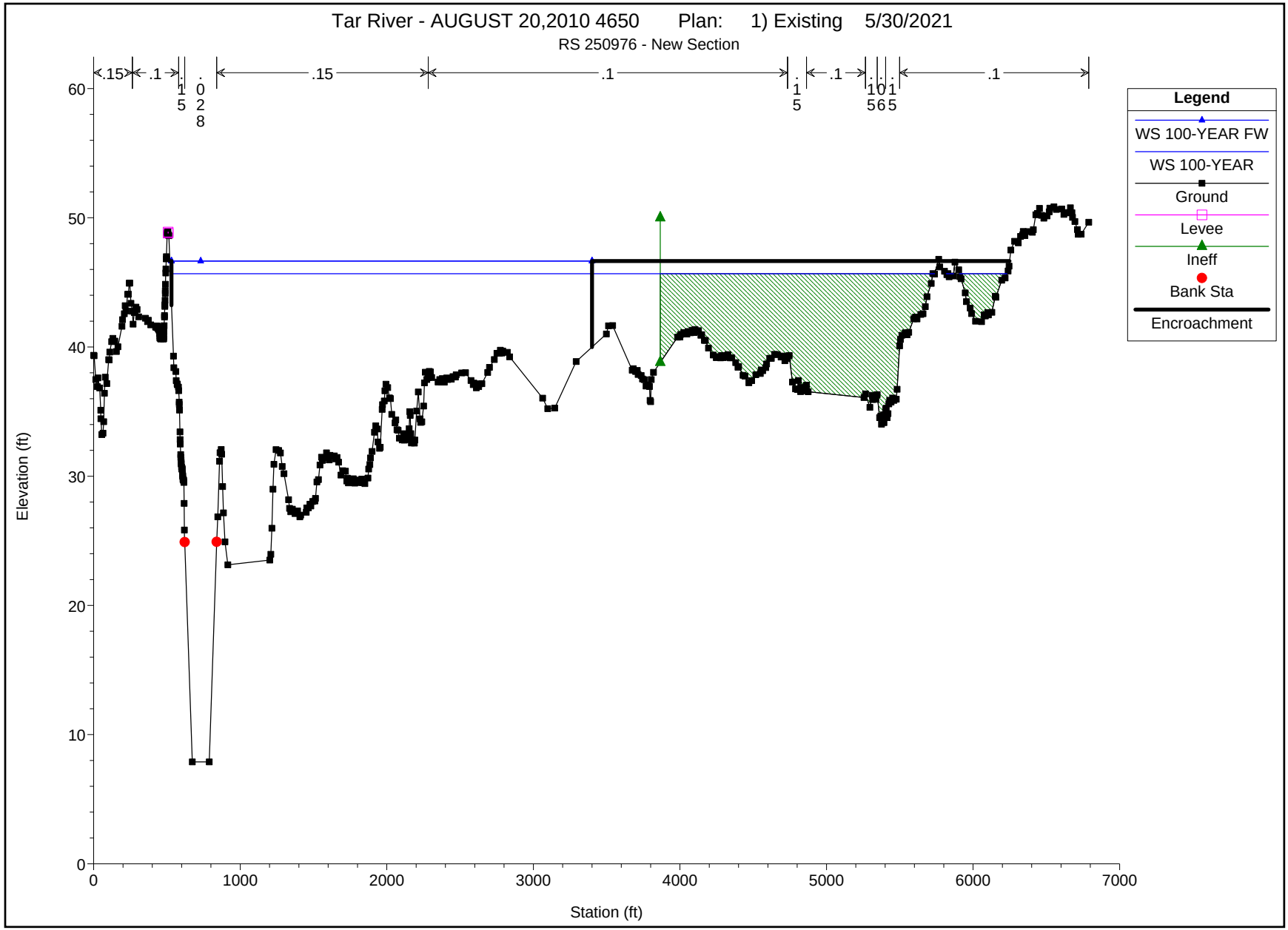
Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 250976 - New Section
.15
.1
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.1
.1
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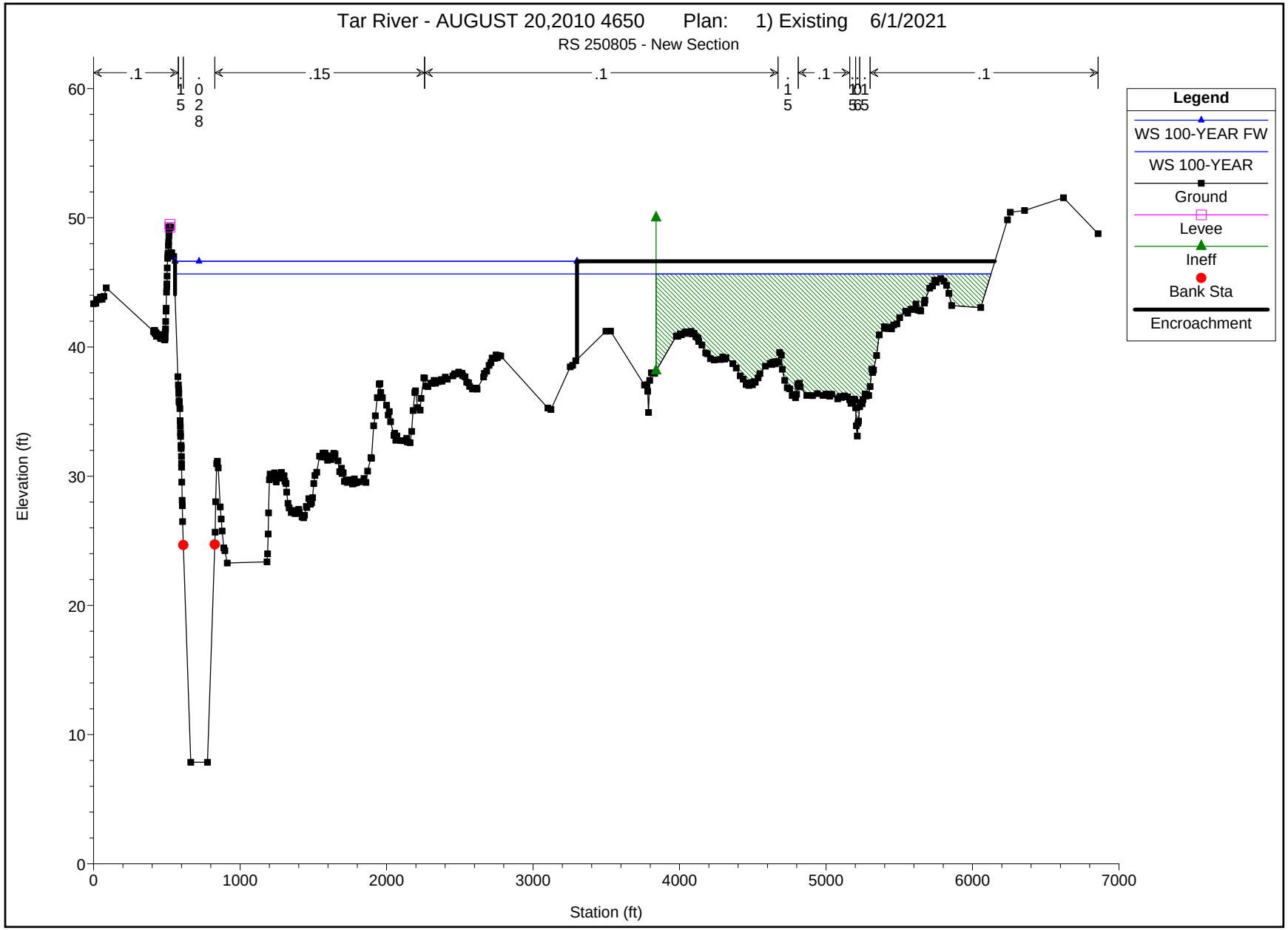

Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 6/1/2021
RS 250805 - New Section
.1
.15
.1
.1
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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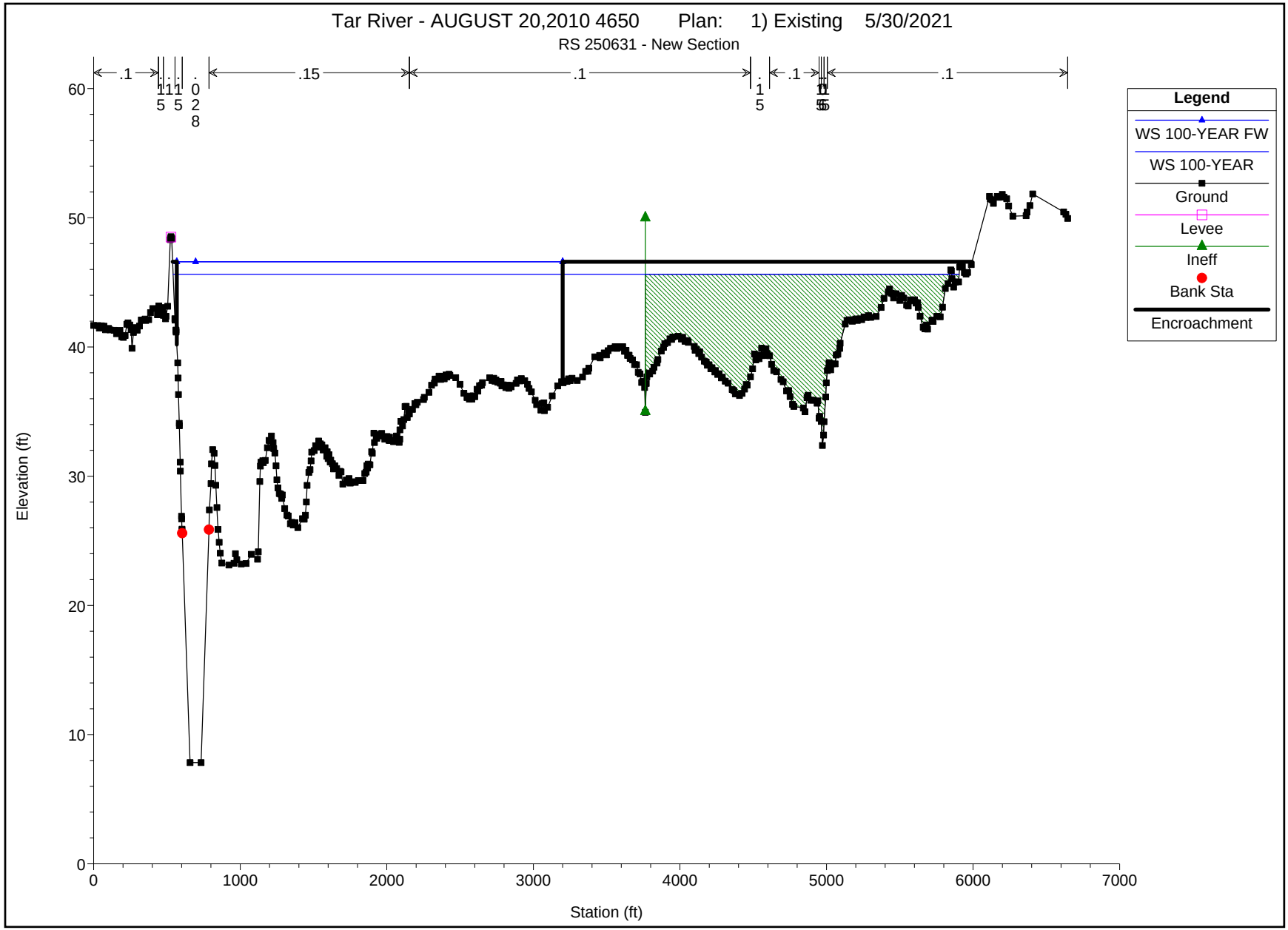
Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 250631 - New Section
.1
.15
.1
.1
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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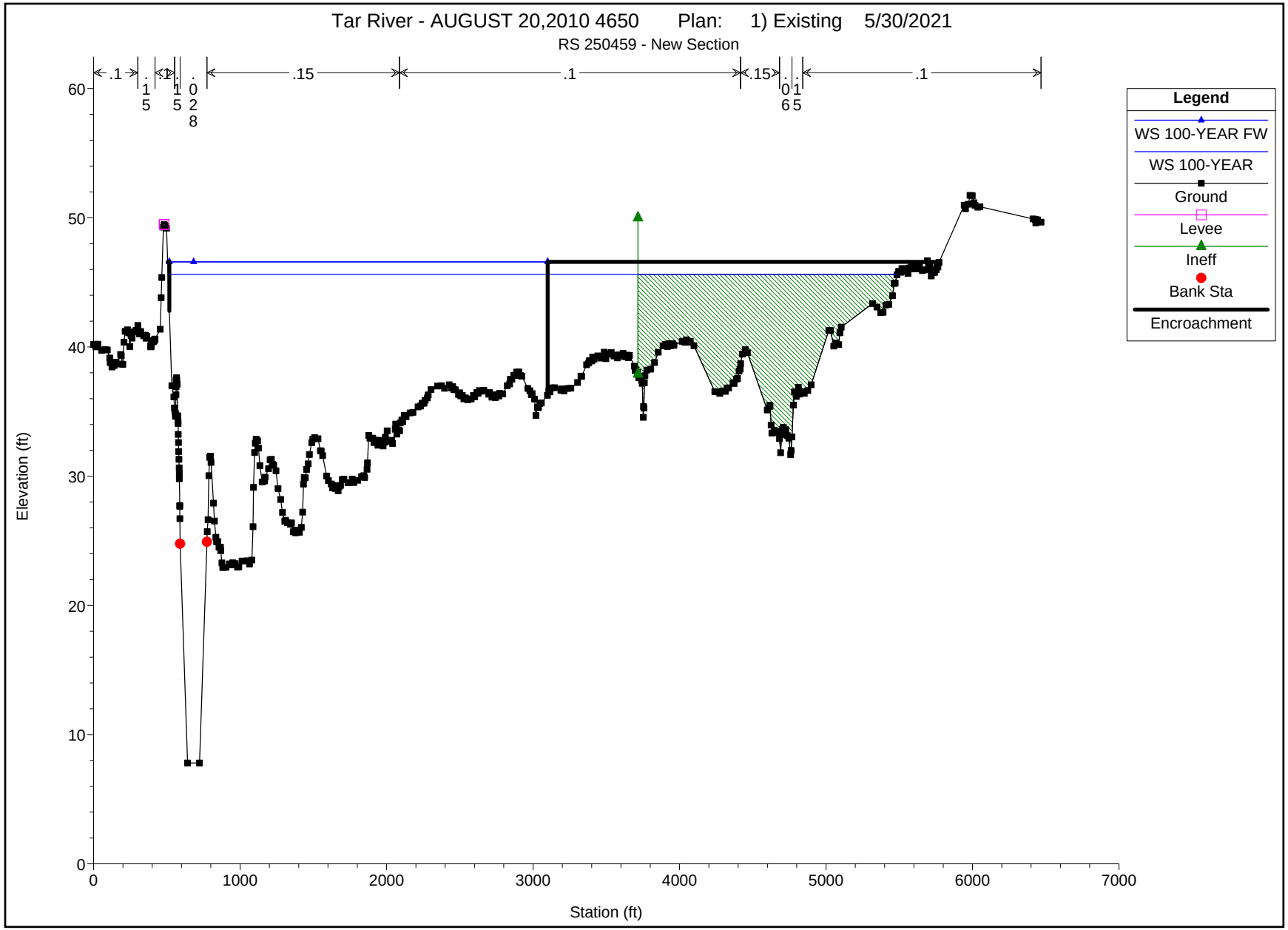
7000


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 250459 - New Section
.1
.15
.1
.15
.1
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.028
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.065
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Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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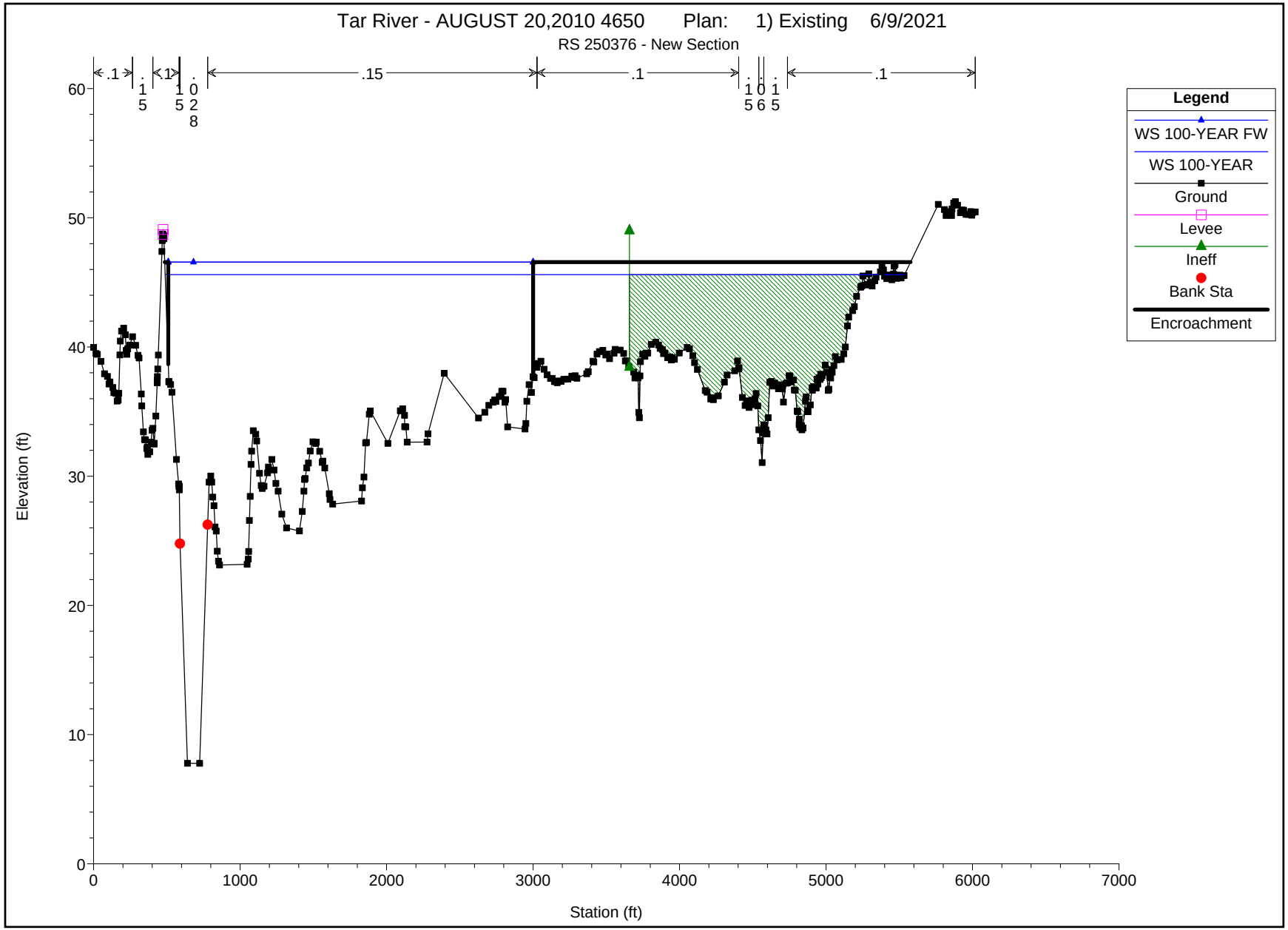
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RS 250376 - New Section
.1
.15
.1
.1
.15
.1
.028
.101
.165
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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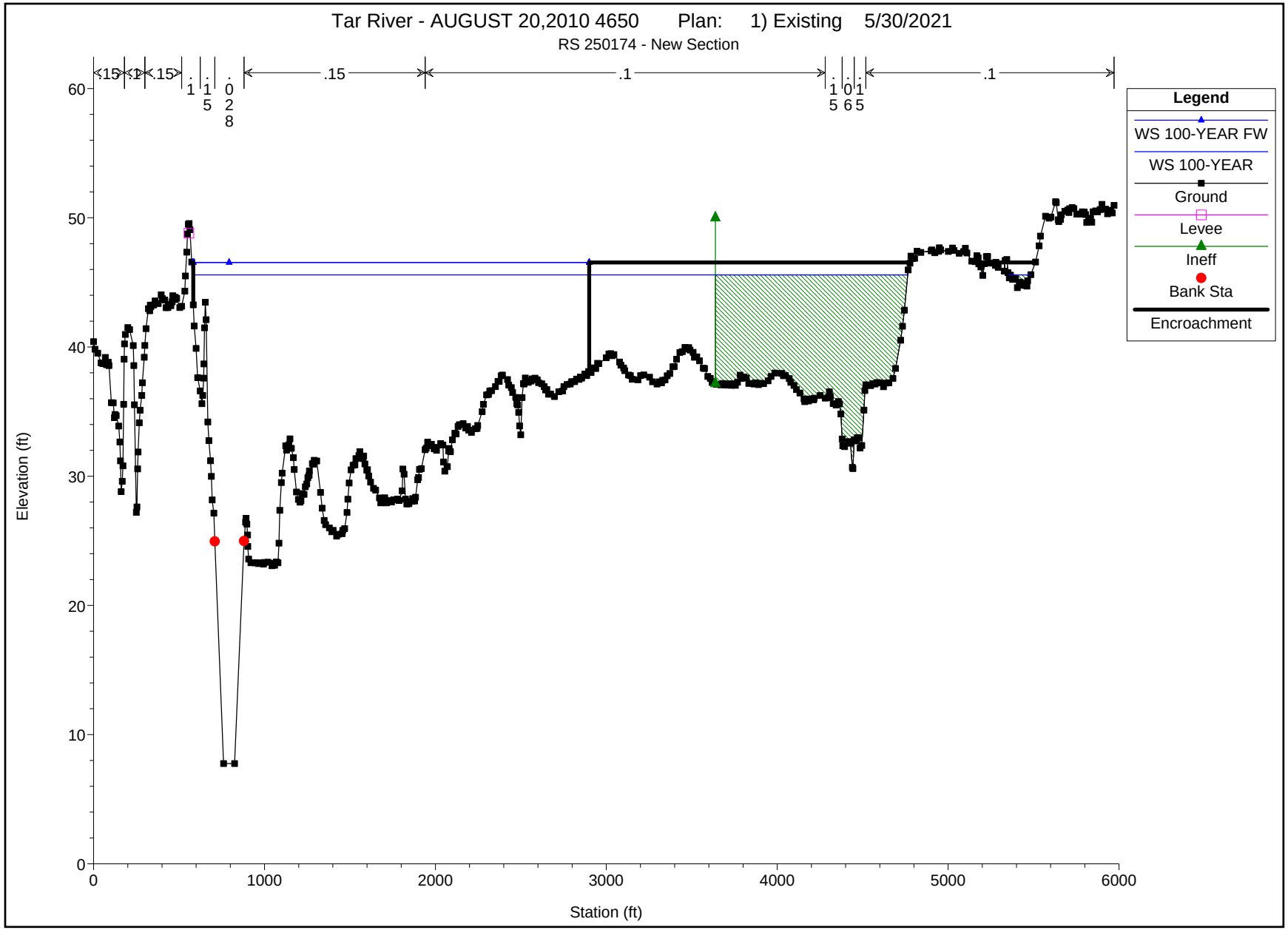
Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 250174 - New Section
.15
.1
.15
.1
.15
.115
.028
.1
.165
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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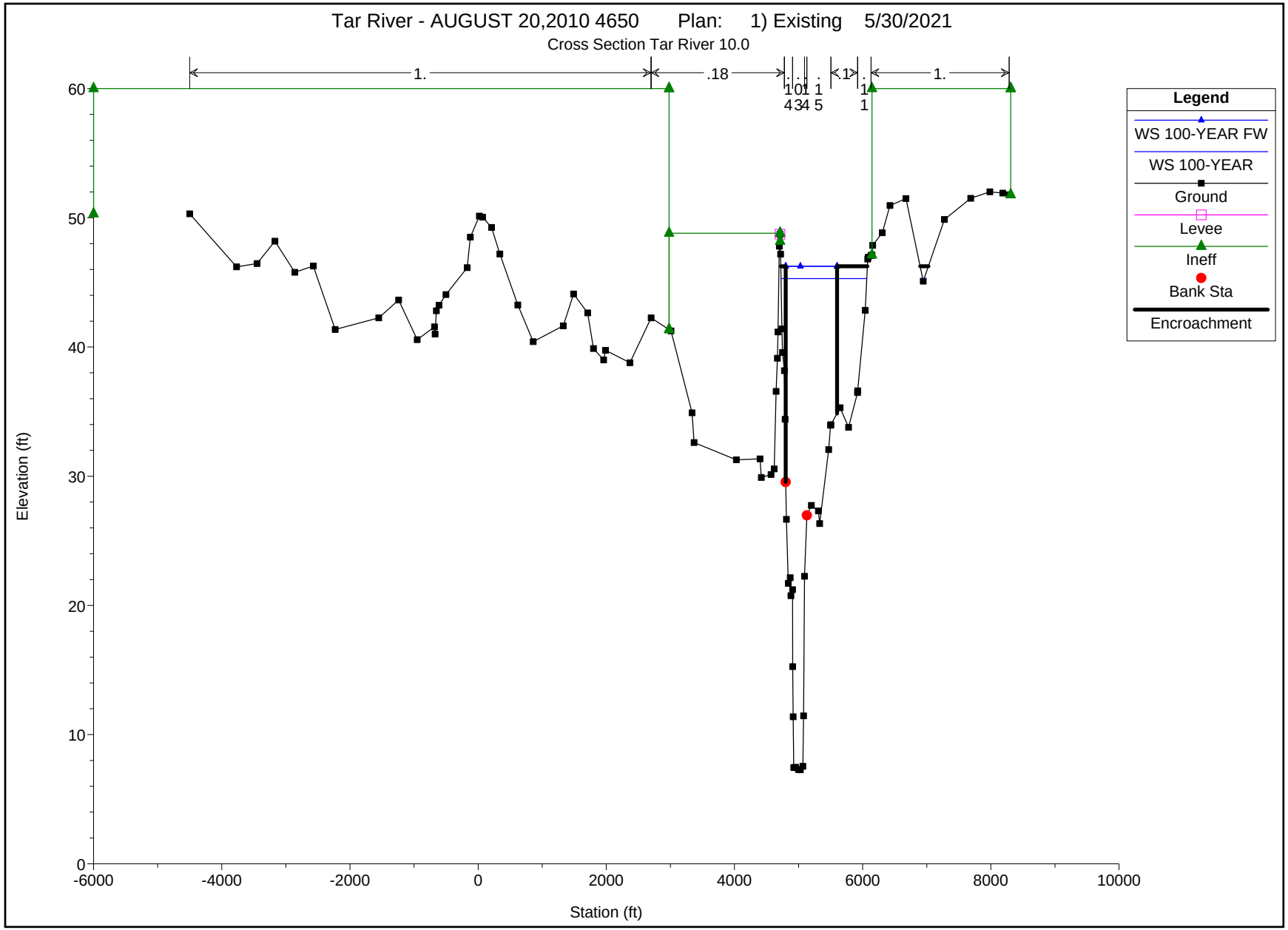
5000
6000


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
Cross Section Tar River 10.0
1.
.18
.1
1.
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
60
50
40
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-4000
-2000
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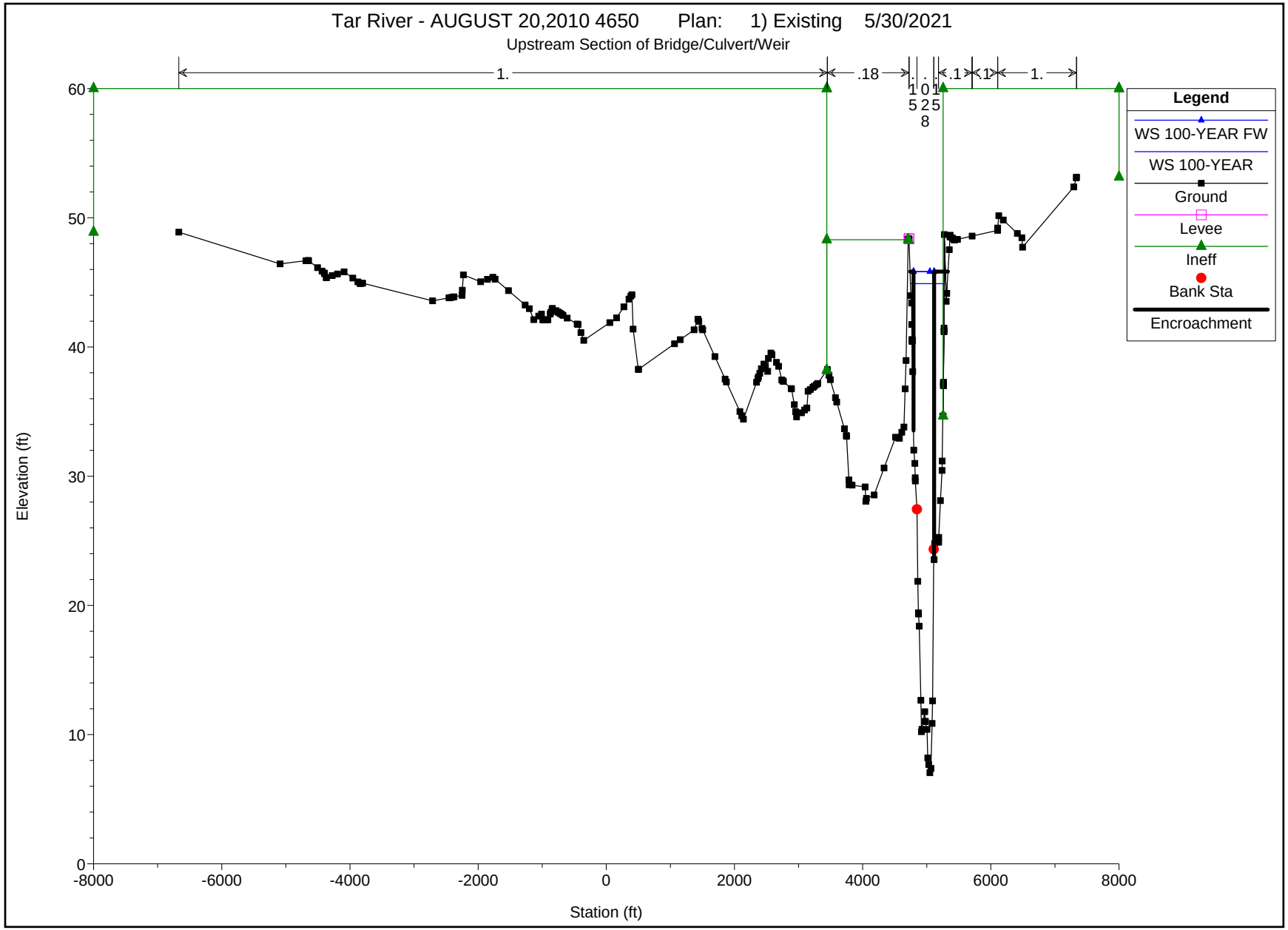
10000


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
Upstream Section of Bridge/Culvert/Weir
1.
.18
.1
1
1.
1015258
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
60
50
40
30
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10
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-6000
-4000
-2000
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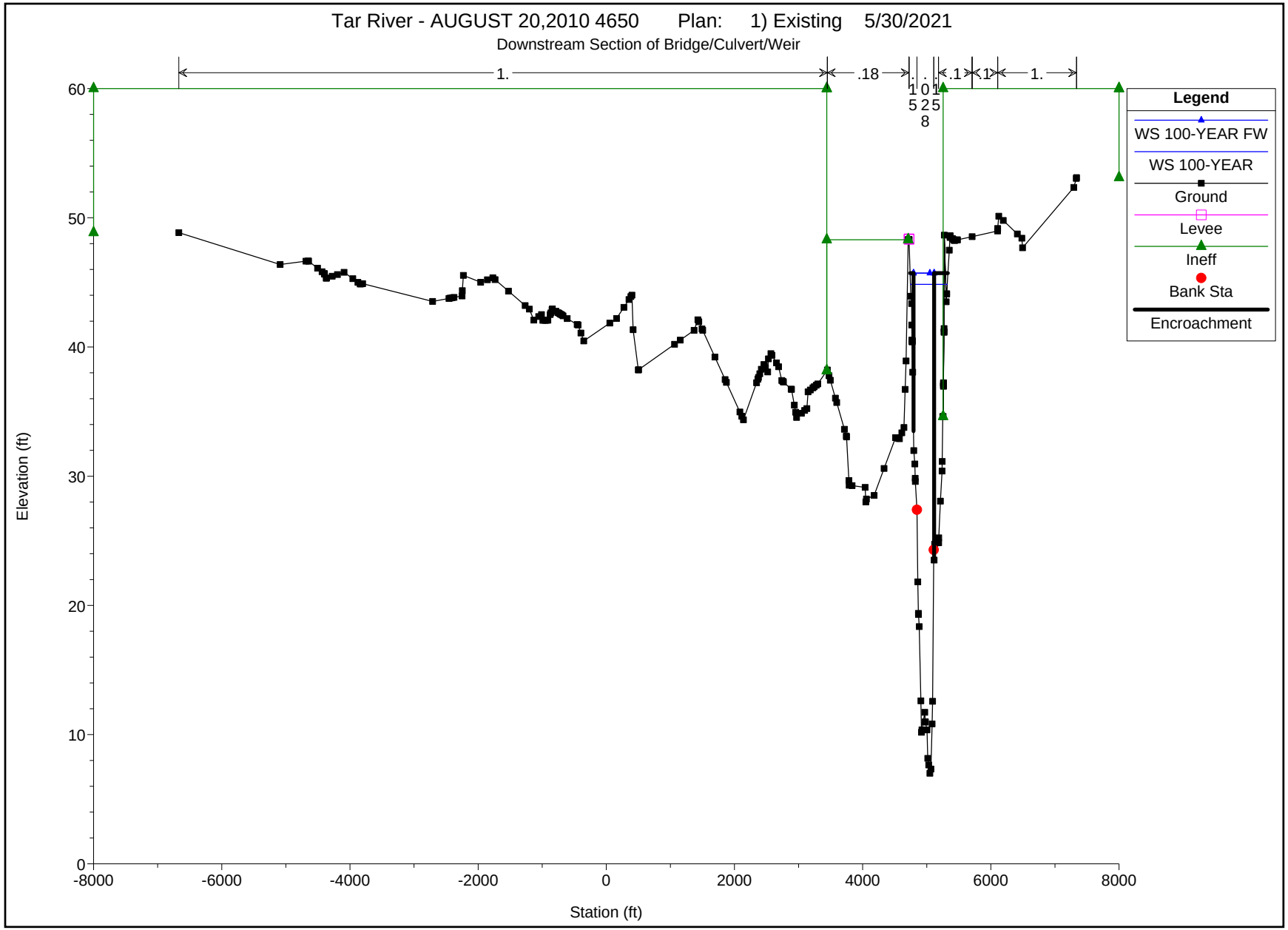
4000
6000
8000


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
Downstream Section of Bridge/Culvert/Weir
1.
.18
.1
.1
1.
1015258
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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50
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-4000
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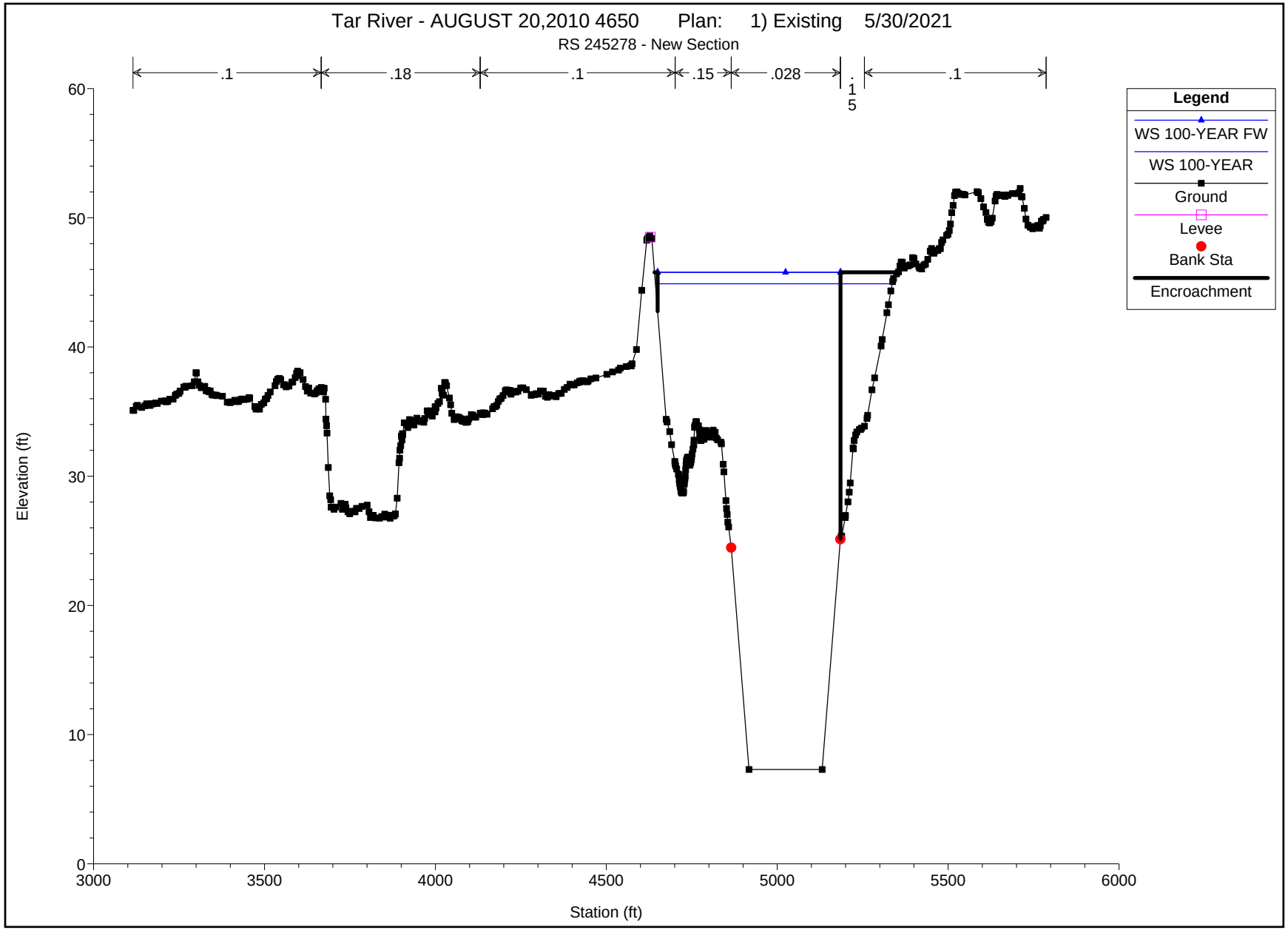
6000
8000


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 245278 - New Section
.1
.18
.1
.15
.028
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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30
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3000
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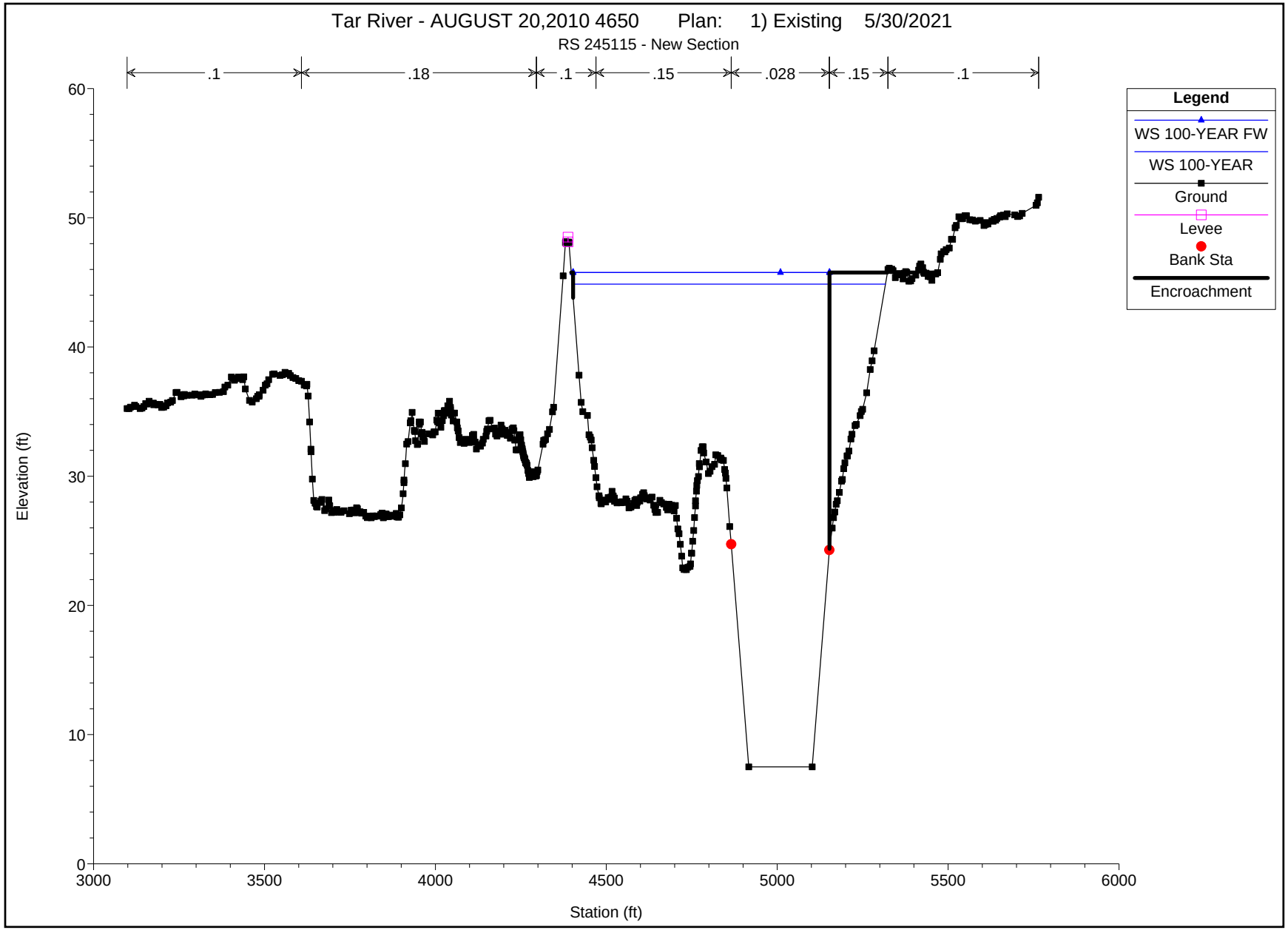
5500
6000


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 245115 - New Section
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.15
.028
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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30
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3000
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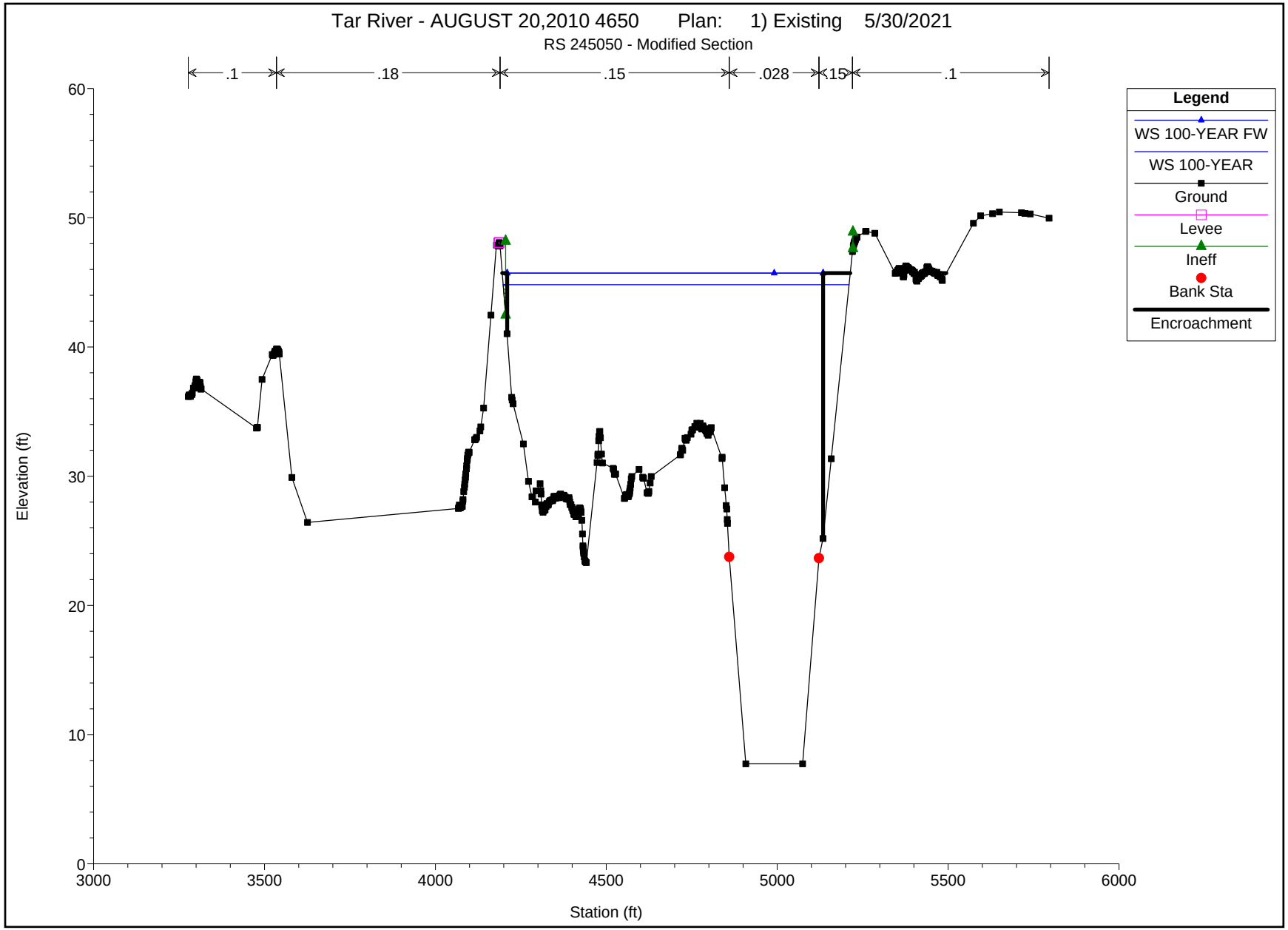
Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
RS 245050 - Modified Section
.1
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.15
.028
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
50
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3000
3500
4000
4500
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5500
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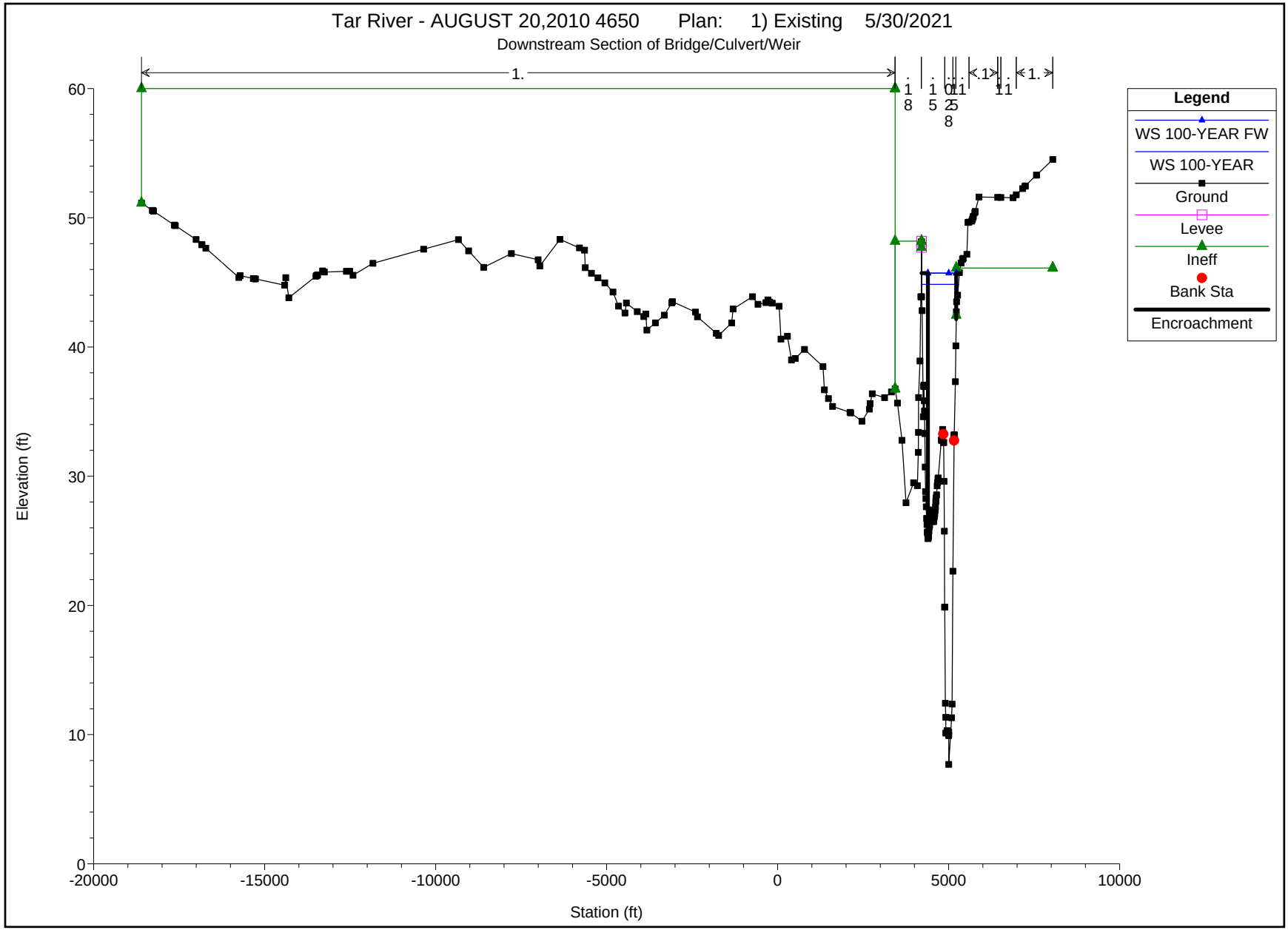
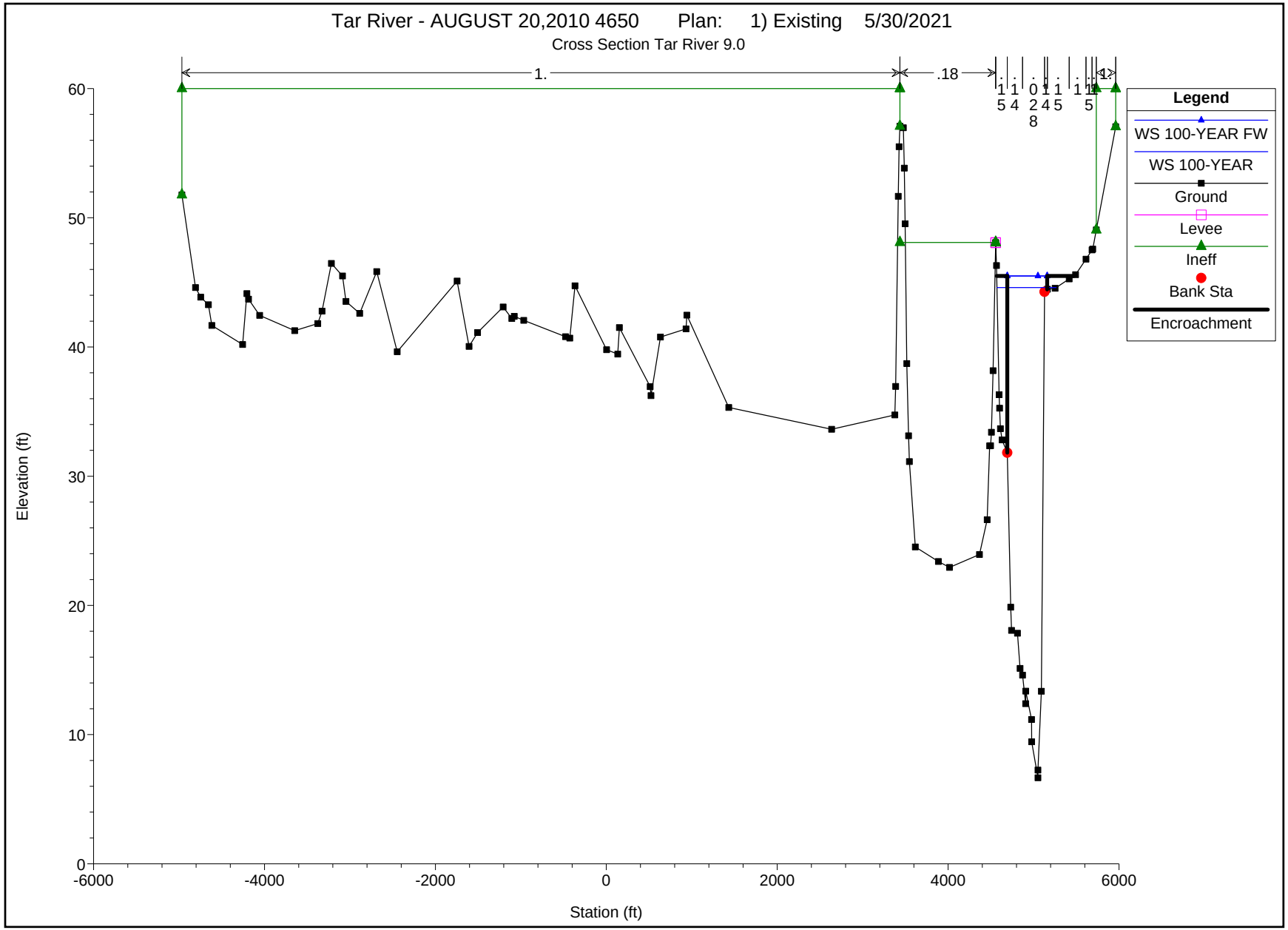
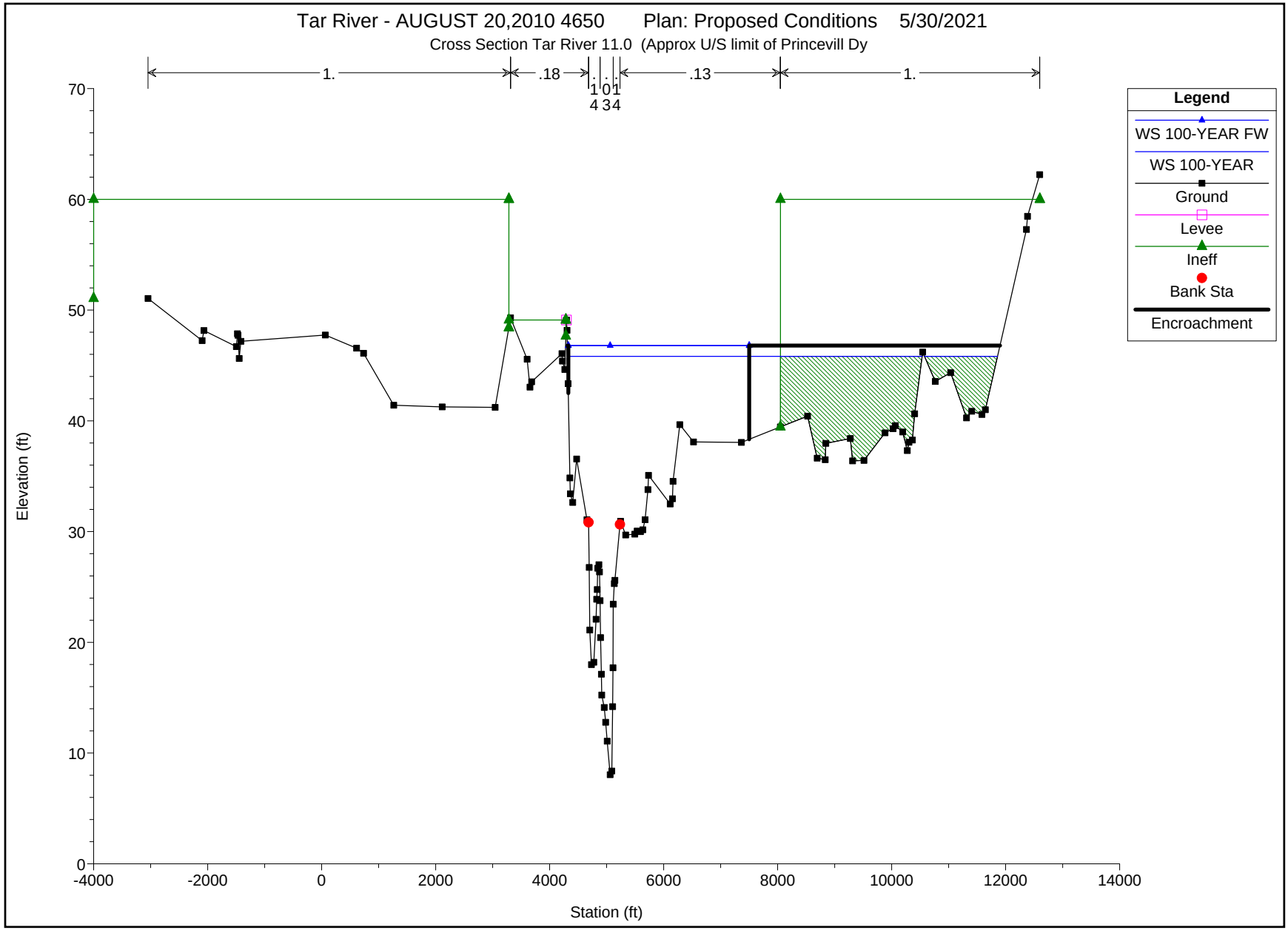


Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
Downstream Section of Bridge/Culvert/Weir
Elevation (ft)
Station (ft)
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment



Tar River - AUGUST 20,2010 4650 Plan: 1) Existing 5/30/2021
Cross Section Tar River 9.0
1.
.18
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
60
50
40
30
20
10
0
-6000
-4000
-2000
0
2000
4000
6000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
Cross Section Tar River 11.0 (Approx U/S limit of Princevill Dy
1.
.18
.13
1.
1 0 1
4 3 4
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
70
60
50
40
30
20
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-4000
-2000
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2000
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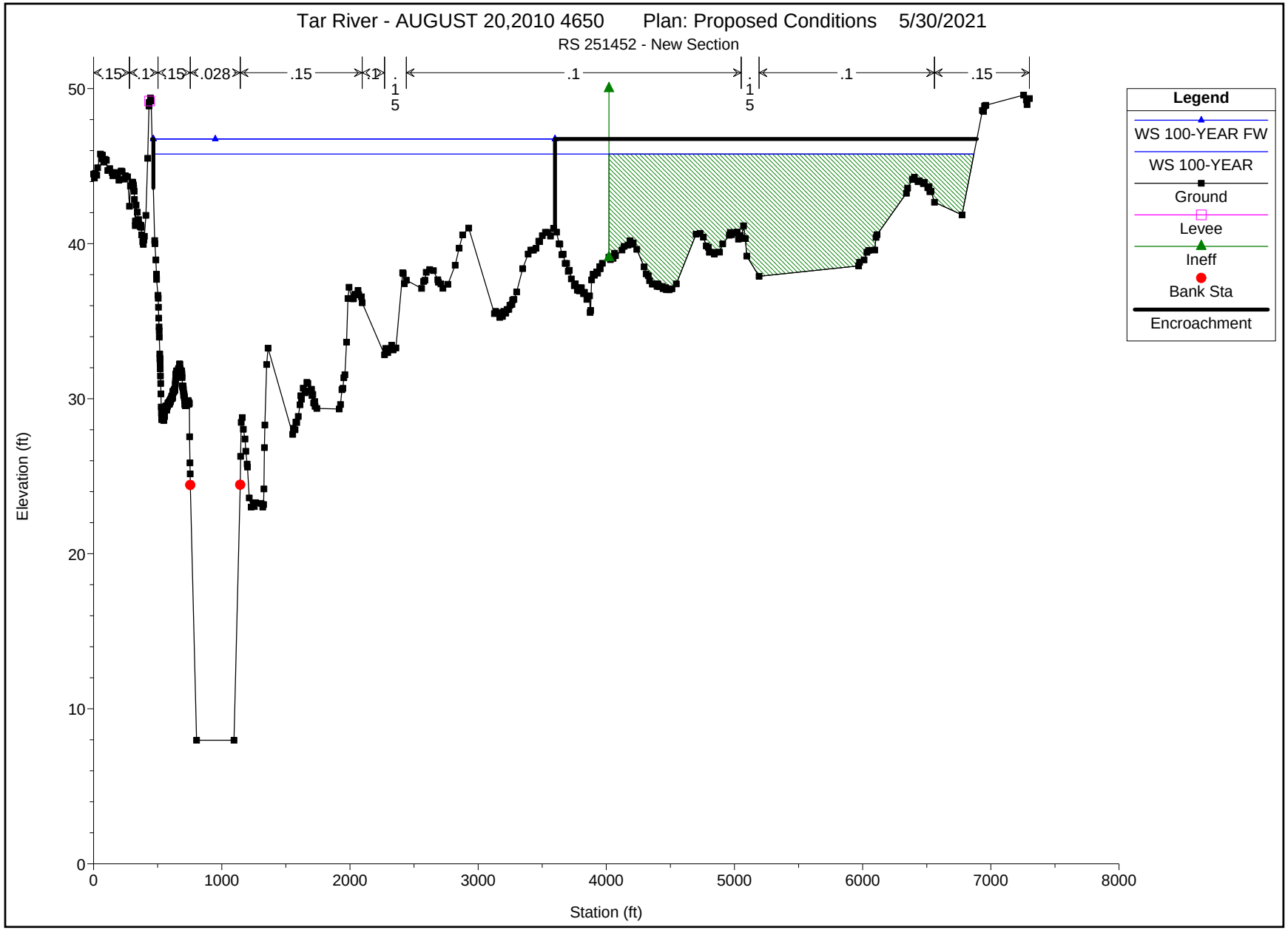
8000
10000
12000
14000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 251452 - New Section
.15
.1
.15
.028
.15
.1
.15
.1
.15
.1
.15
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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10
20
30
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50
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1000
2000
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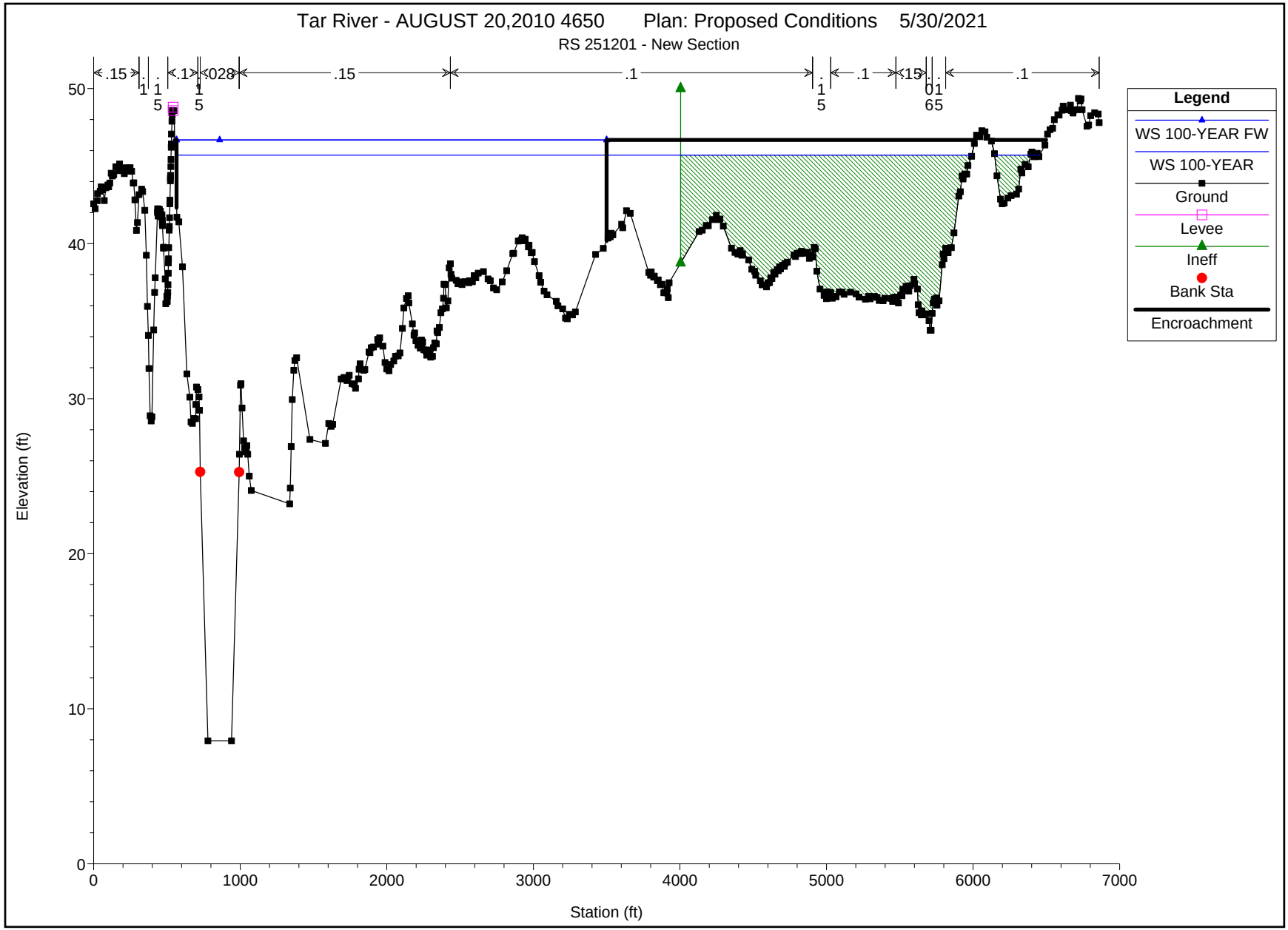
7000
8000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 251201 - New Section
.15
.1
.1
.028
.15
.1
.1
.1
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
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50
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1000
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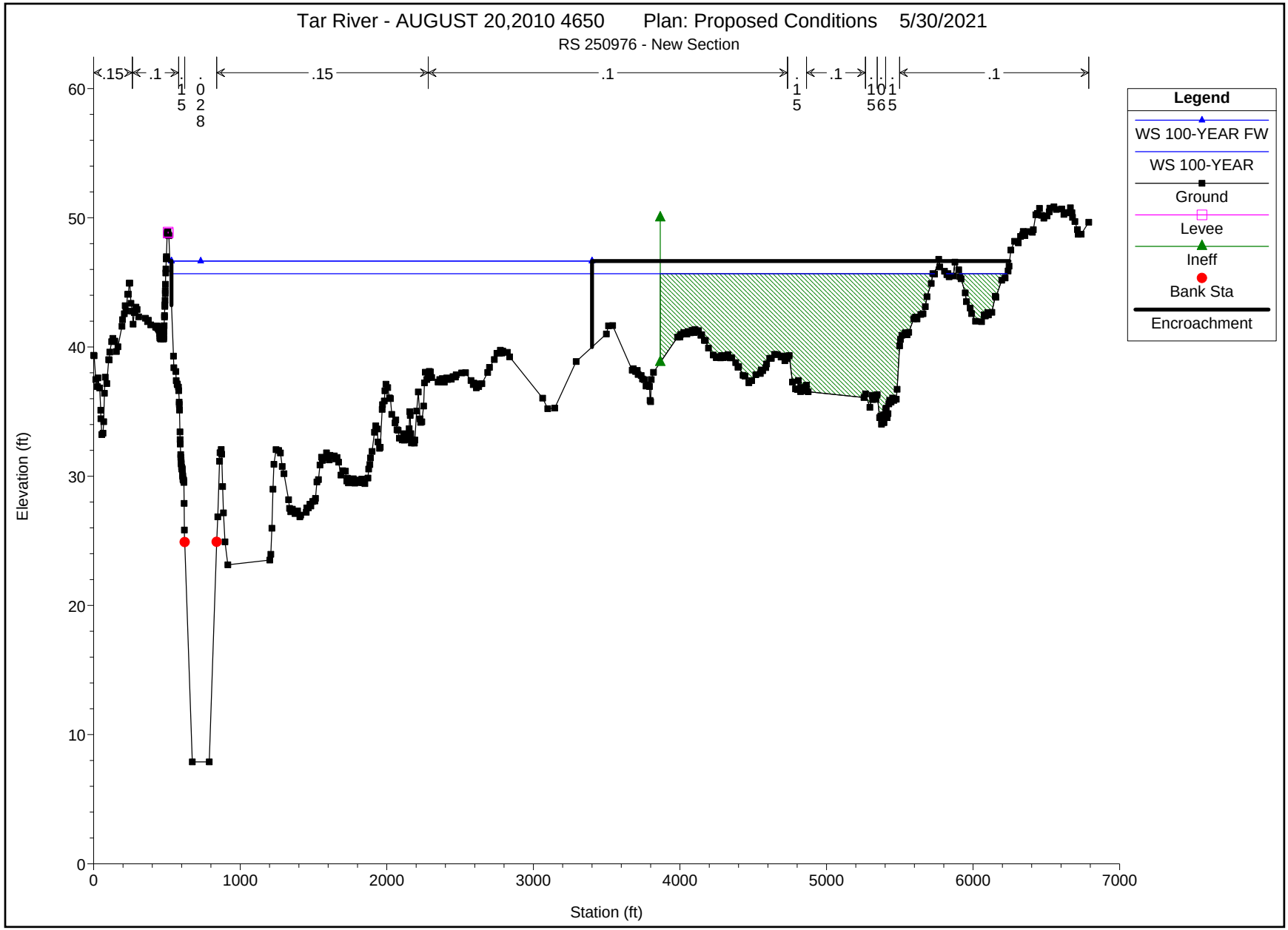
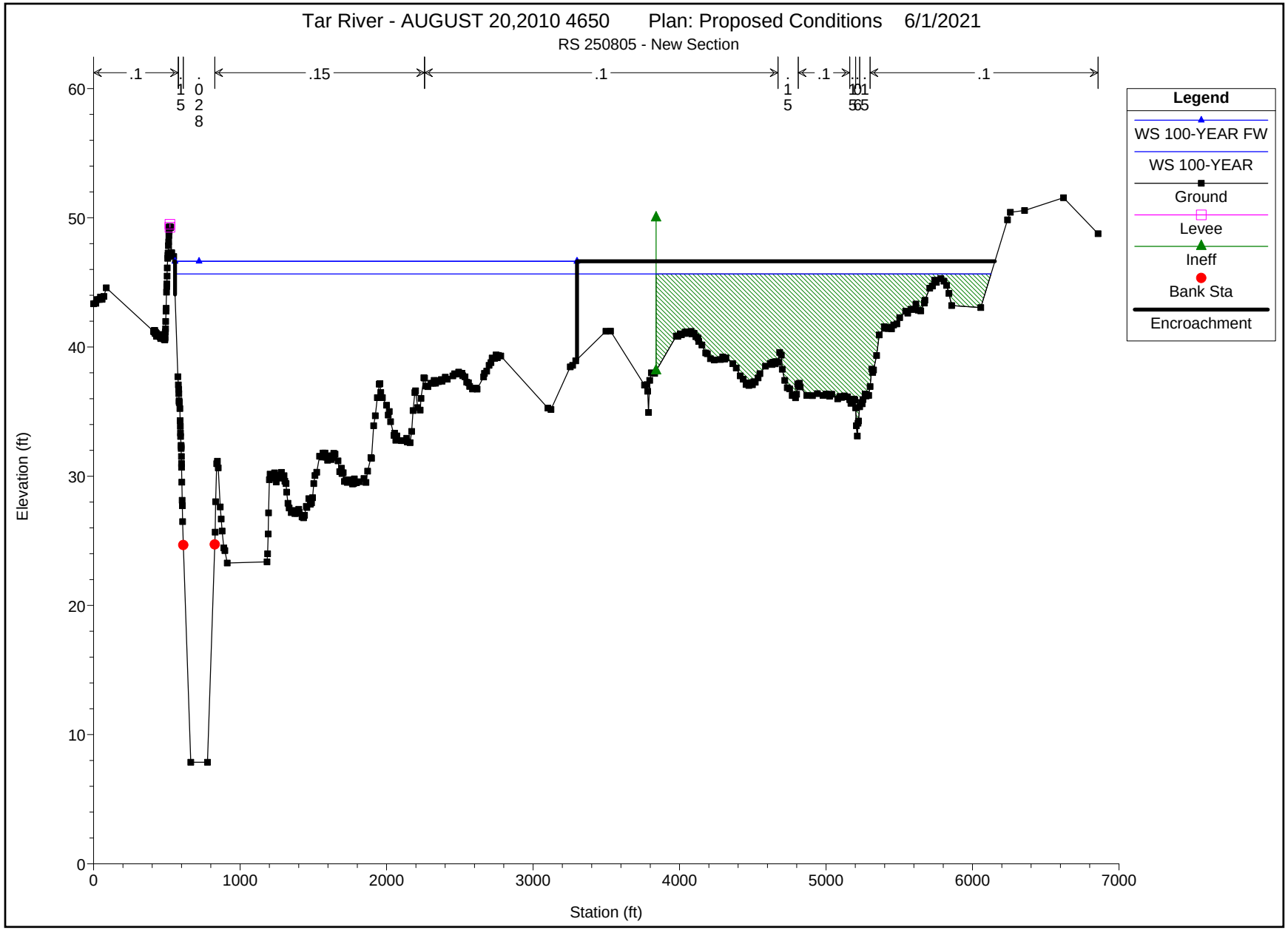
5000
6000
7000



Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 250976 - New Section
.15
.1
.15
.028
.15
.1
.15
.1
.15
.1
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000



Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 6/1/2021
RS 250805 - New Section
.1
.15
.1
.1
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
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50
60
0
1000
2000
3000
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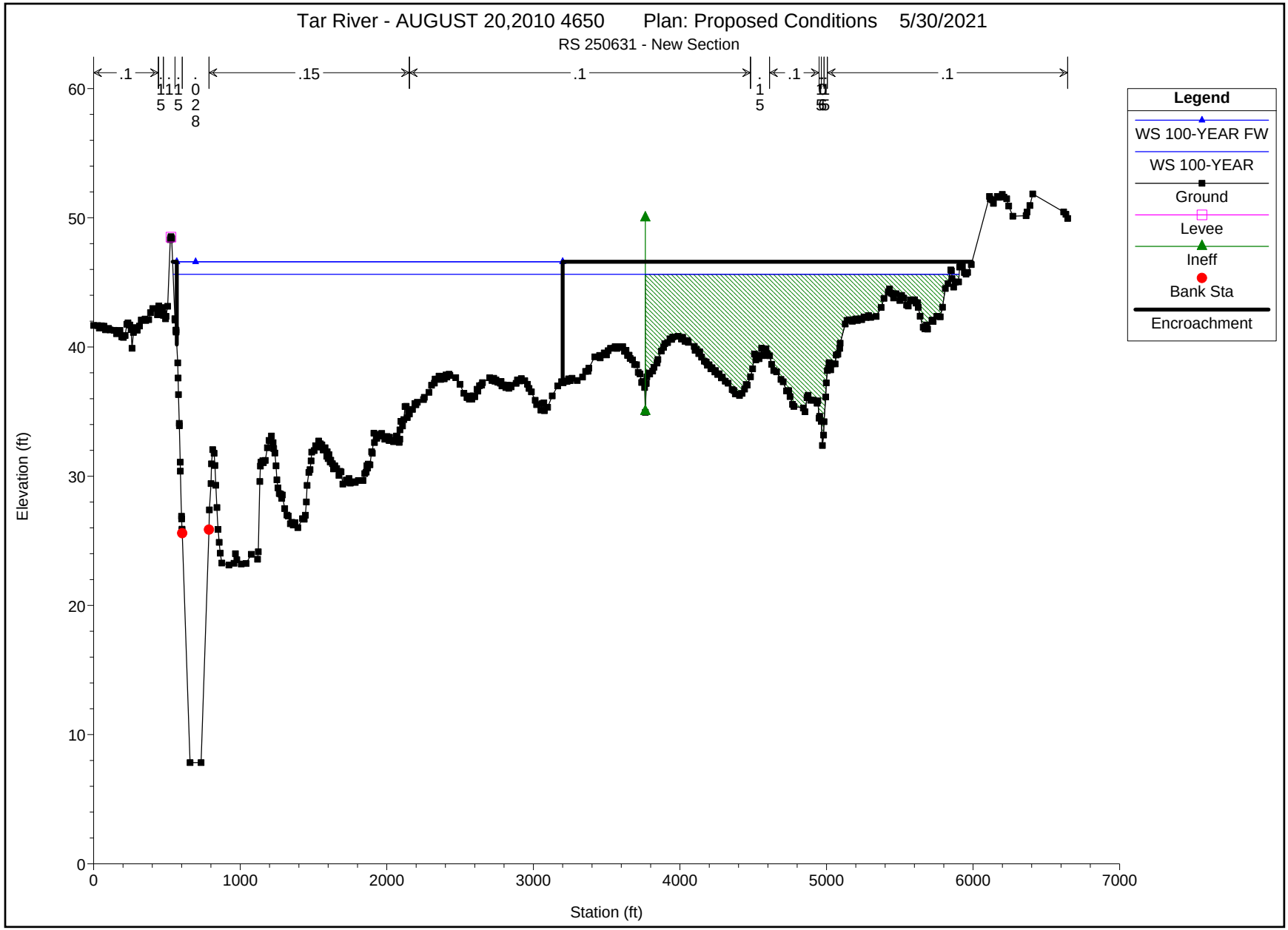
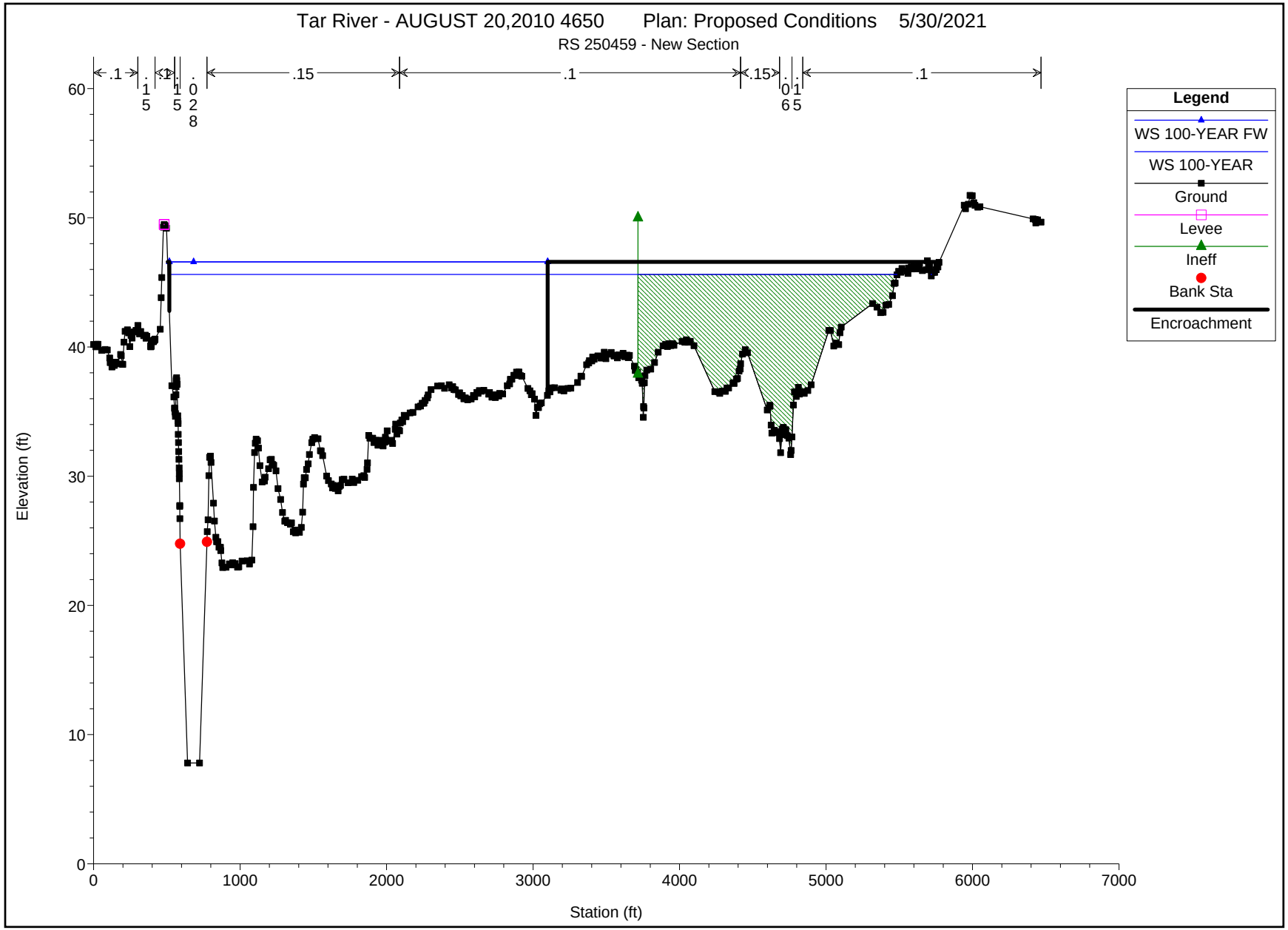
6000
7000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 250631 - New Section
.1
.15
.1
.1
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000



Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 250459 - New Section
.1
.15
.1
.15
.028
.15
.1
.15
.06
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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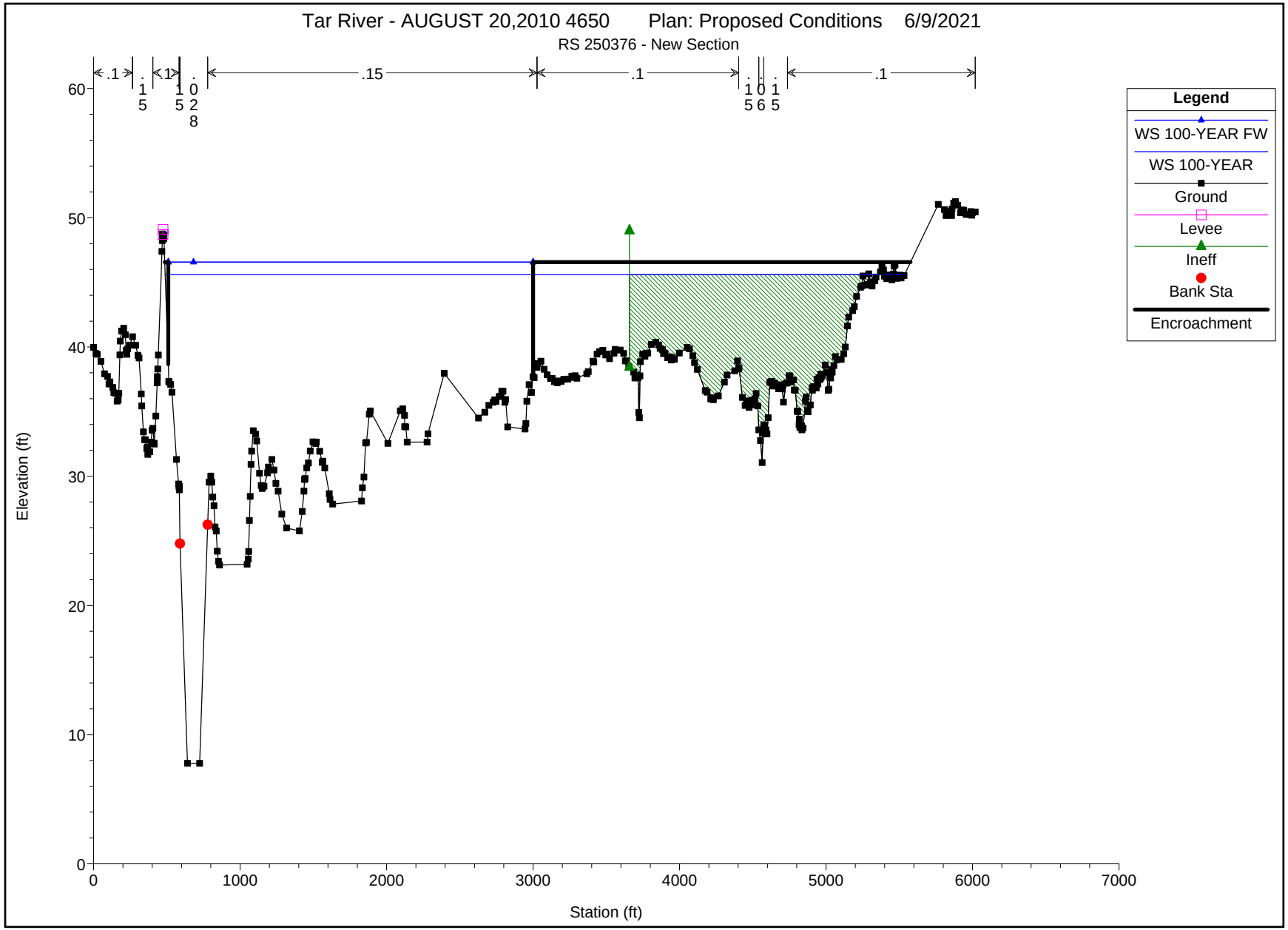
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 6/9/2021
RS 250376 - New Section
.1
.15
.1
.1
.15
.1528
.1565
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
50
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4000
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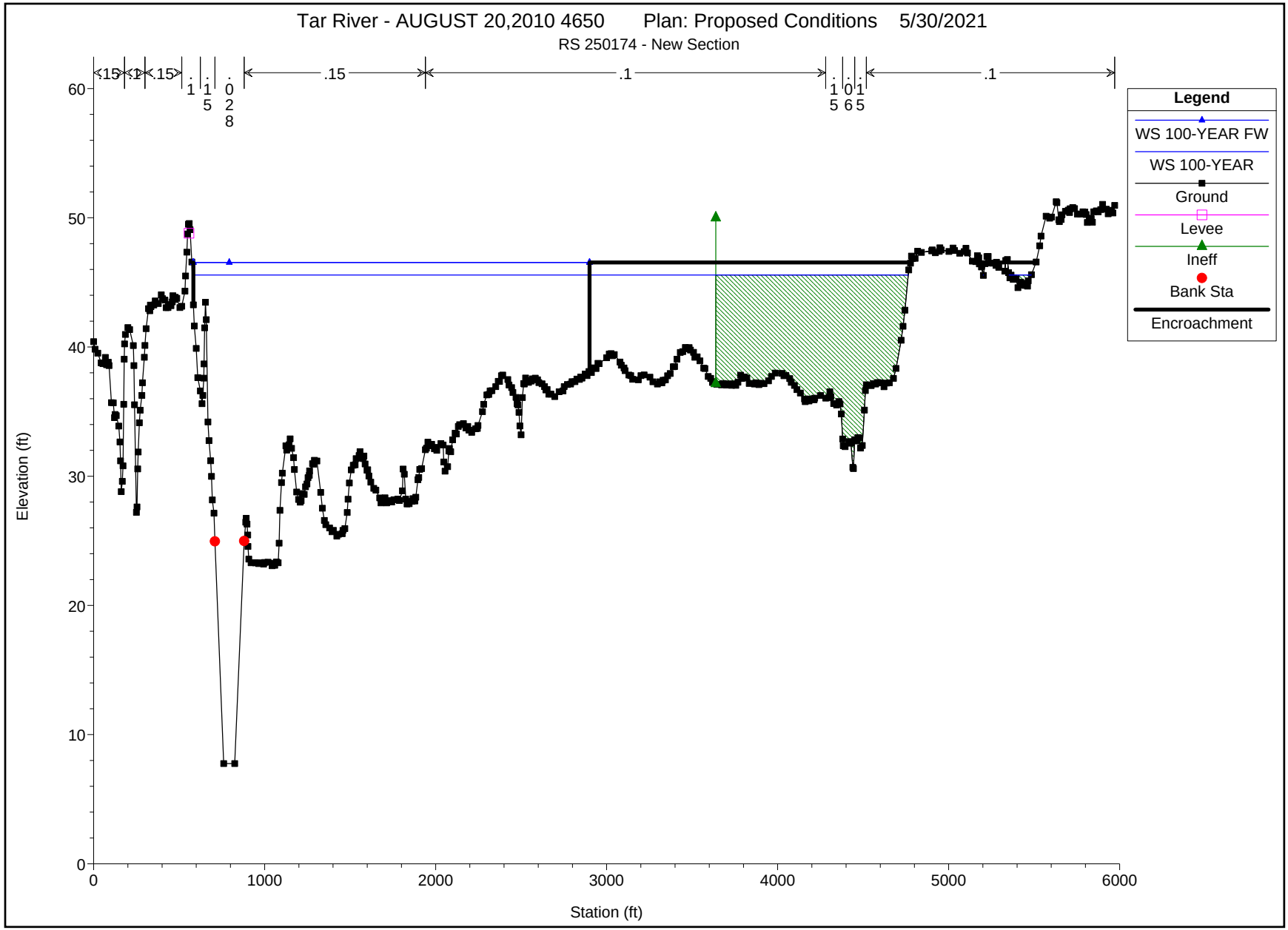
6000
7000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 250174 - New Section
.15
.1
.15
.1
.15
.115
.028
.1
.165
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
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20
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60
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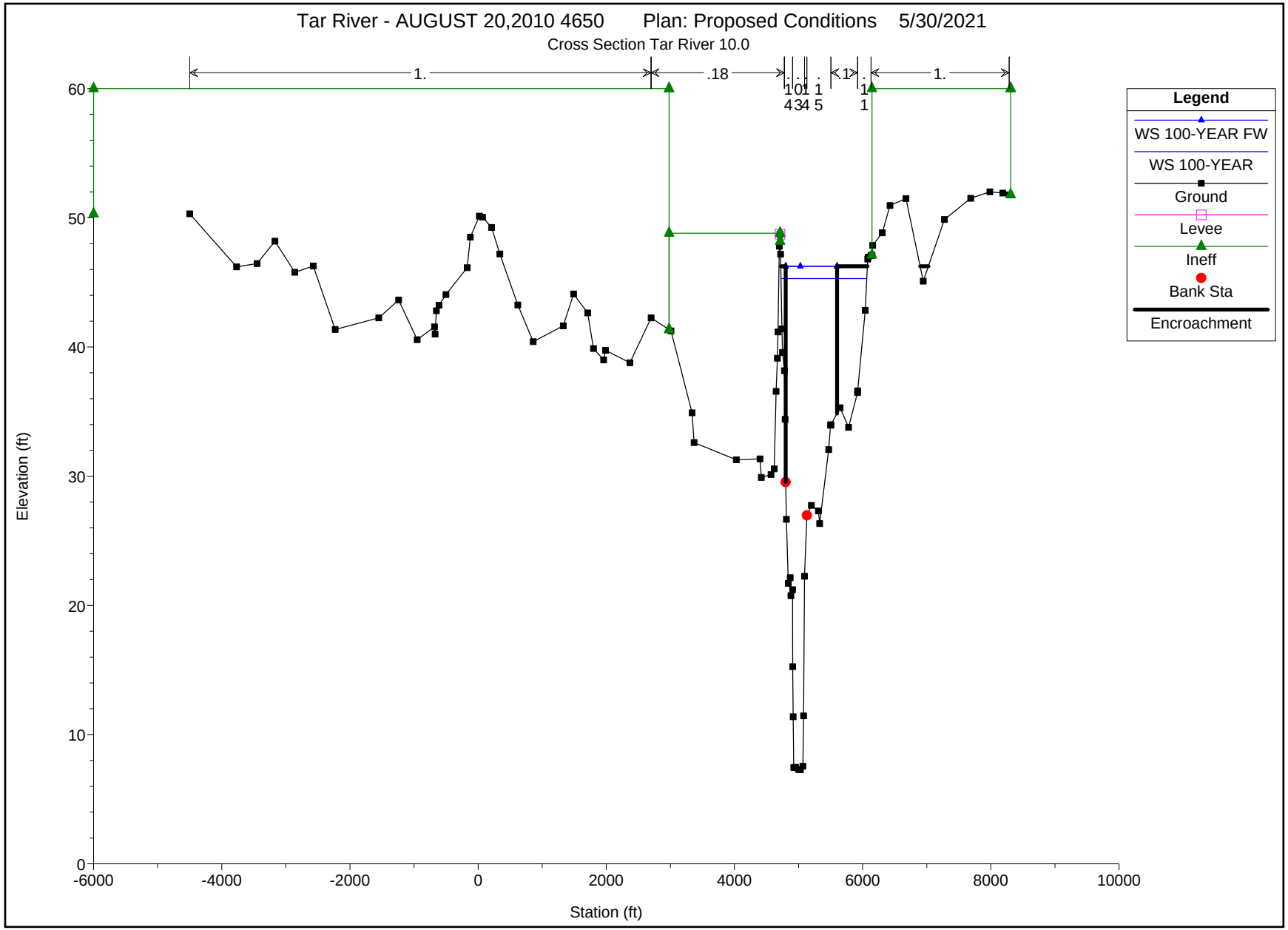
3000
4000
5000
6000



Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
Cross Section Tar River 10.0
1.
.18
.1
1.
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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50
40
30
20
10
0
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-4000
-2000
0
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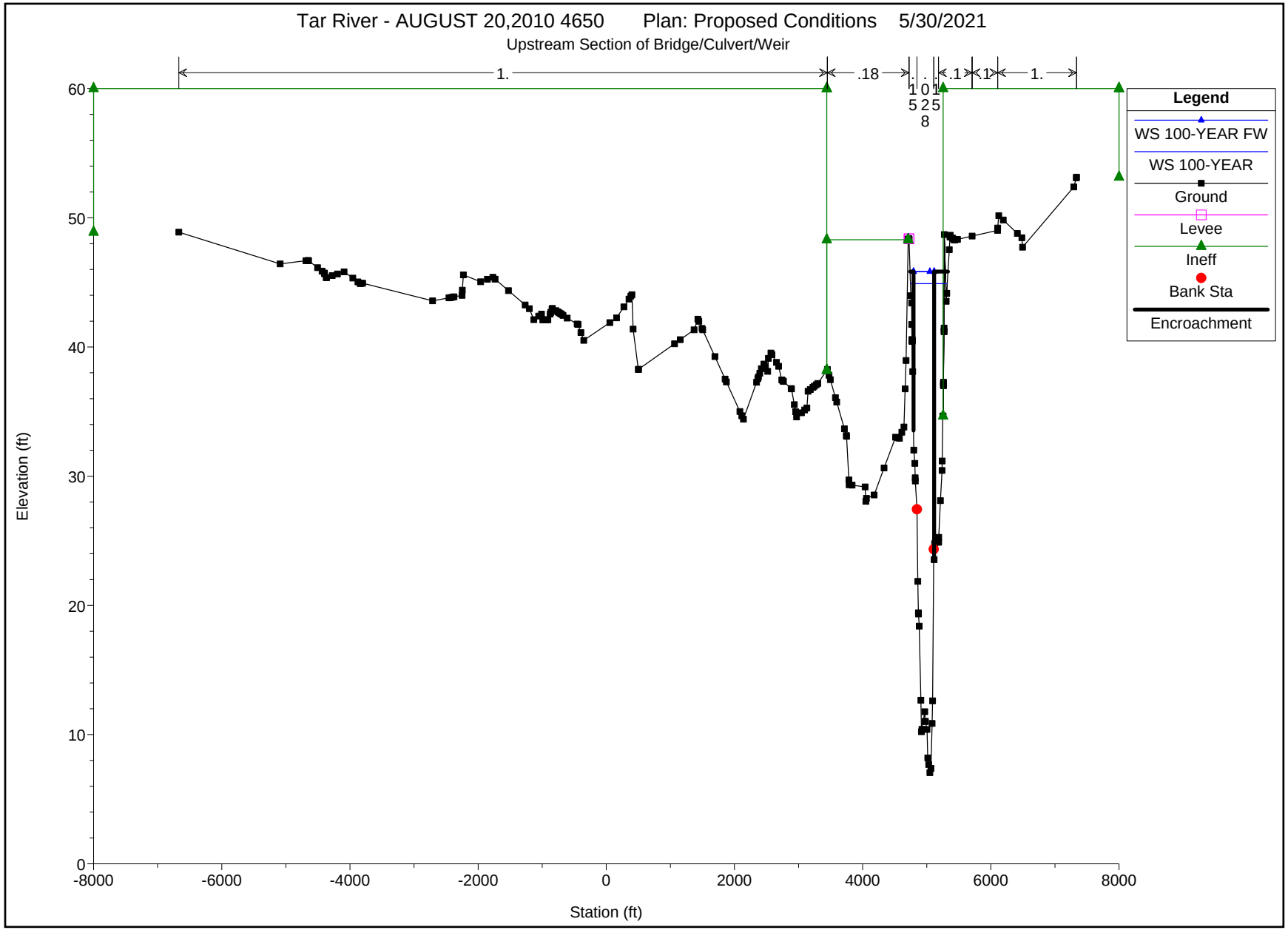
4000
6000
8000
10000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
Upstream Section of Bridge/Culvert/Weir
1.
.18
.1
.1
1.
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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50
40
30
20
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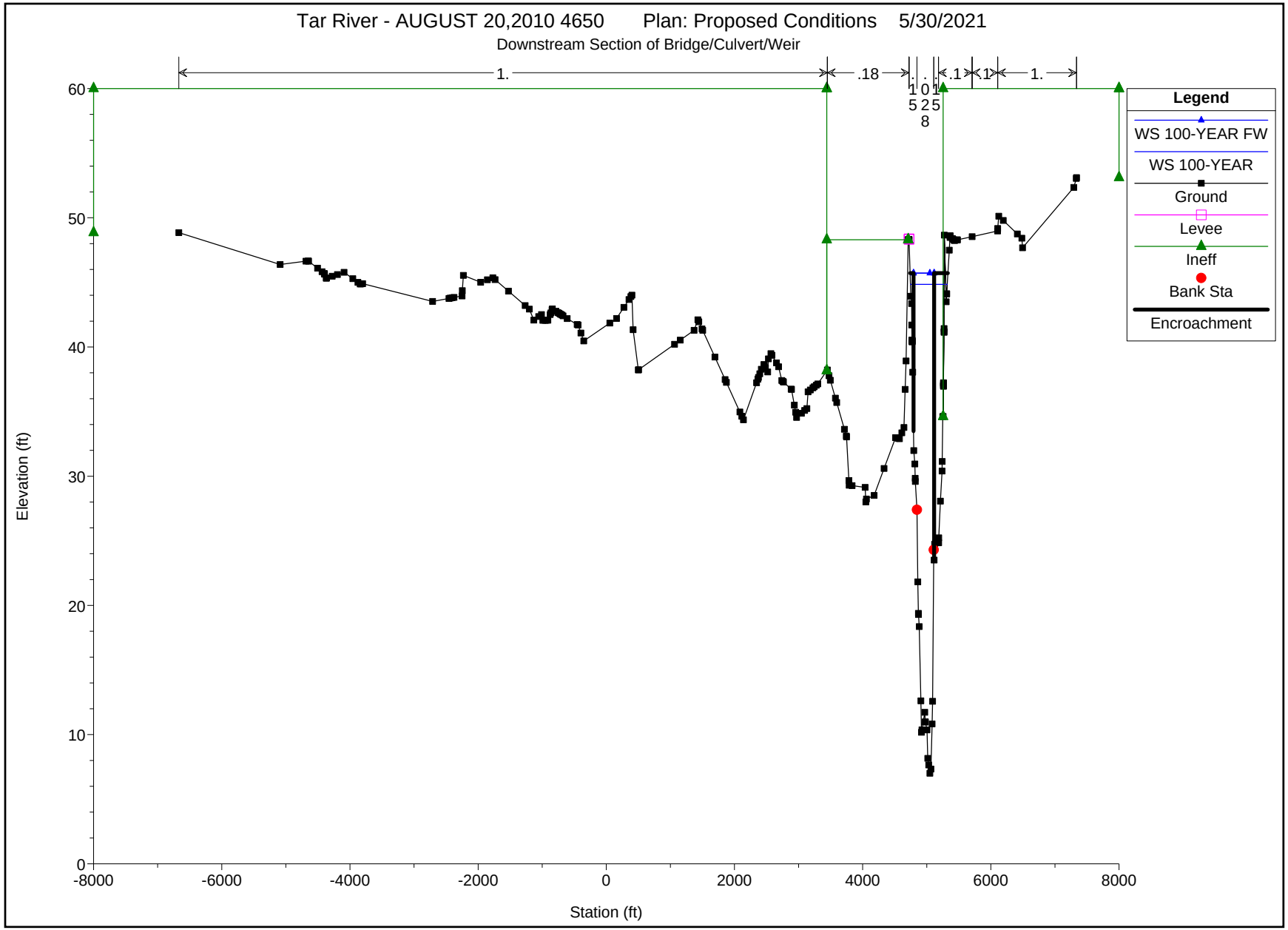
-6000
-4000
-2000
0
2000
4000
6000
8000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
Downstream Section of Bridge/Culvert/Weir
1.
.18
.1
1
1.
1015258
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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50
40
30
20
10
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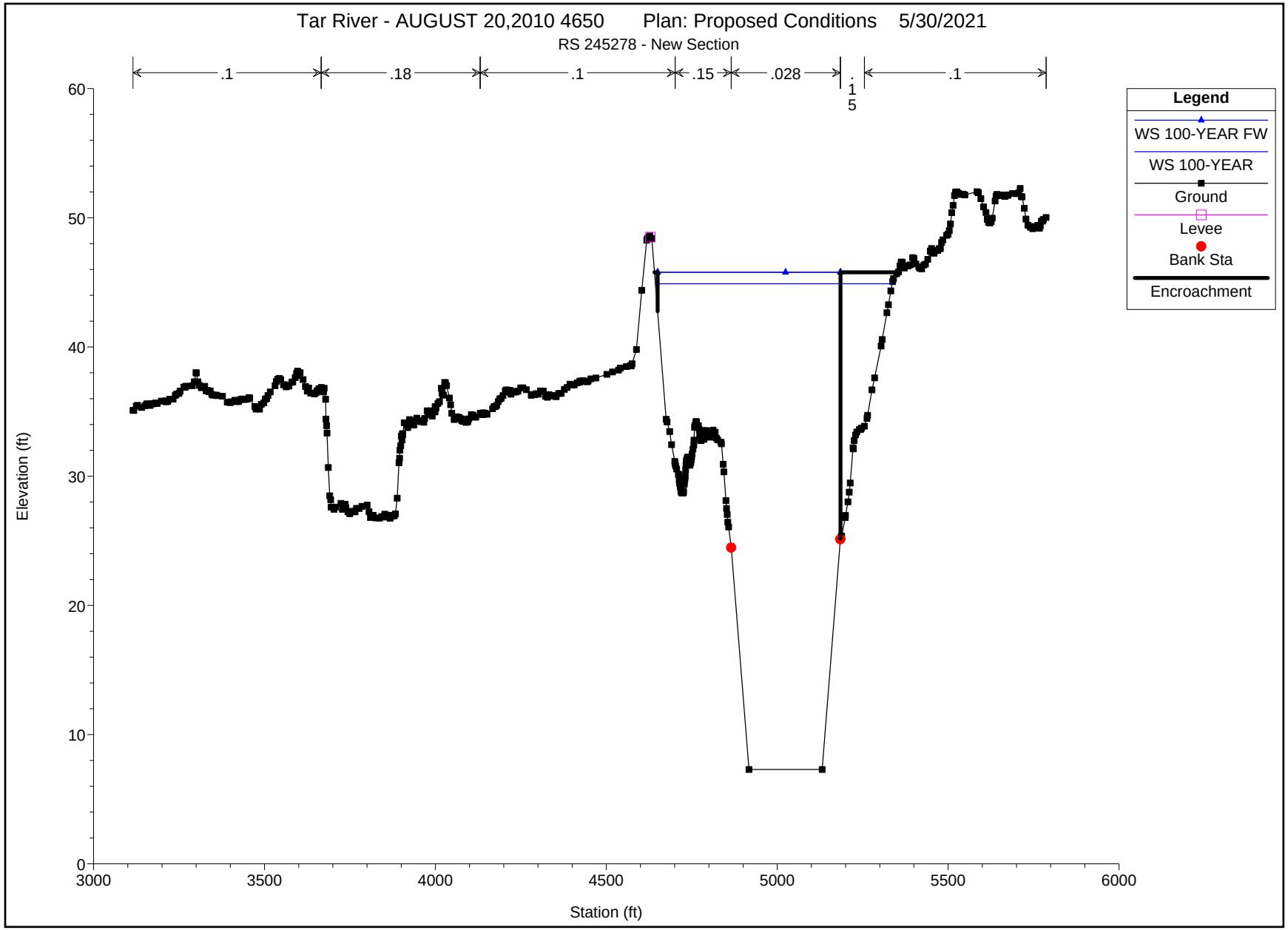
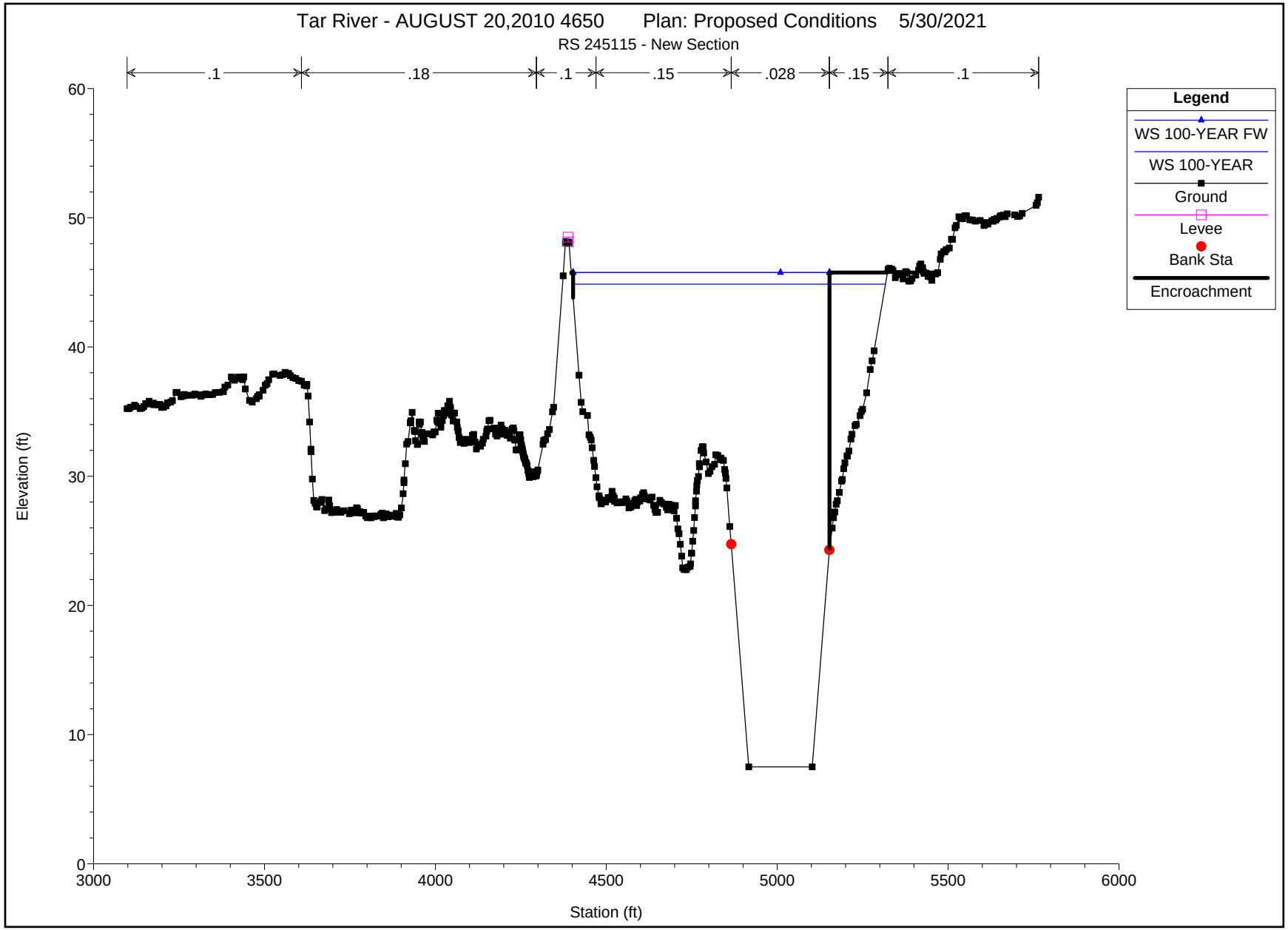
-8000
-6000
-4000
-2000
0
2000
4000
6000
8000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 245278 - New Section
.1
.18
.1
.15
.028
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
3000
3500
4000
4500
5000
5500
6000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 245115 - New Section
.1
.18
.1
.15
.028
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
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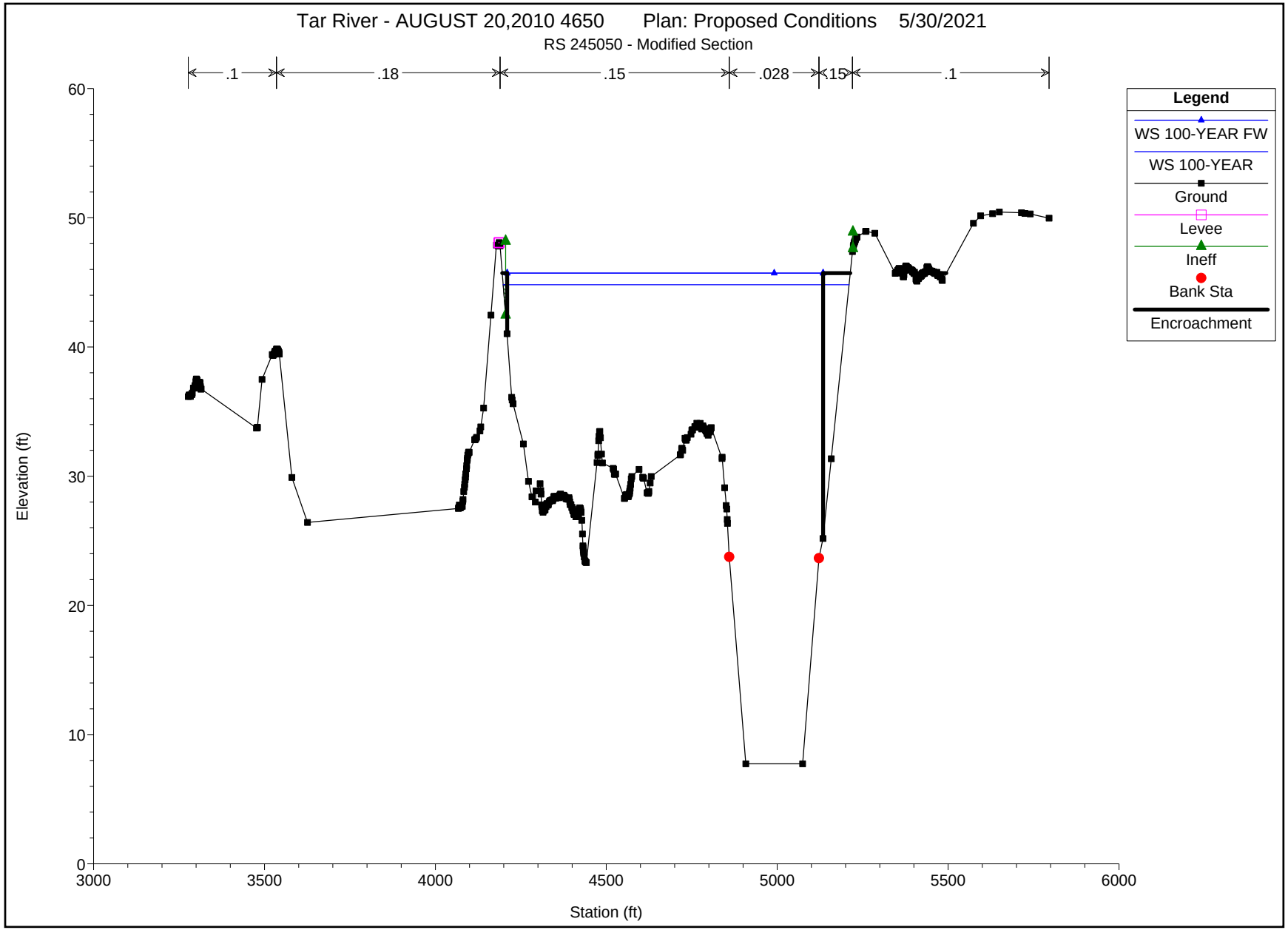
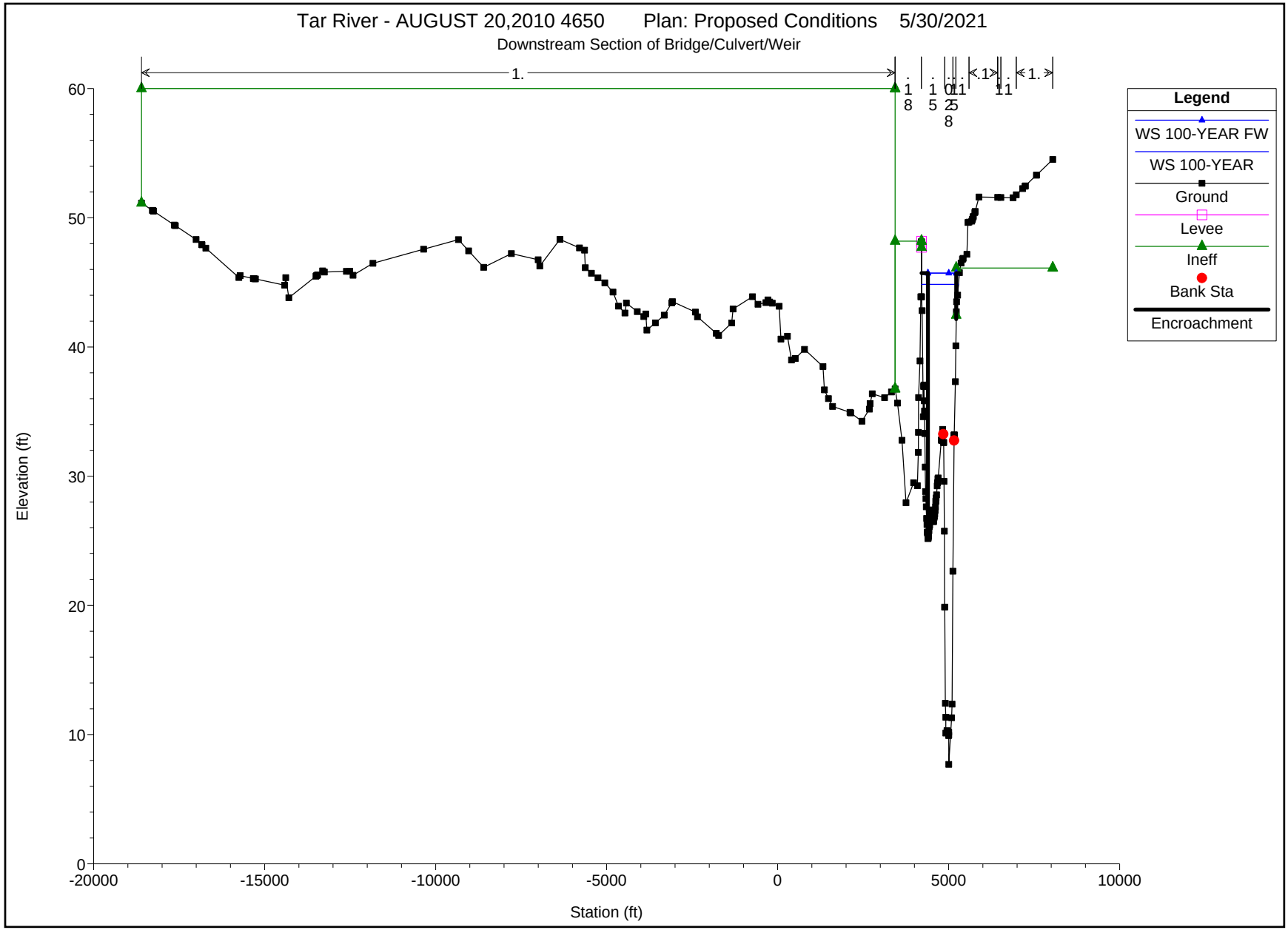
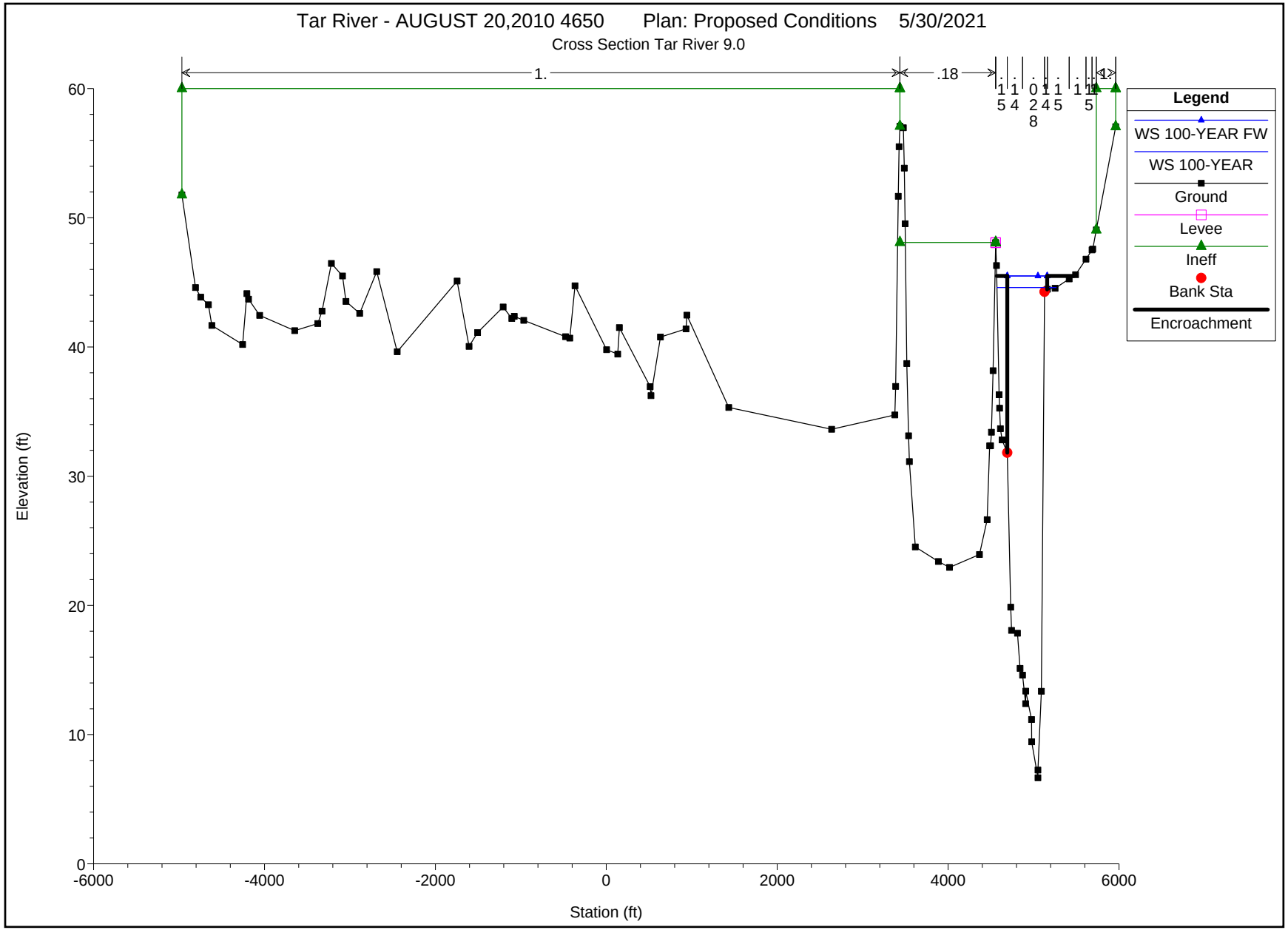
3000
3500
4000
4500
5000
5500
6000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
RS 245050 - Modified Section
.1
.18
.15
.028
.15
.1
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
3000
3500
4000
4500
5000
5500
6000


Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
Downstream Section of Bridge/Culvert/Weir
Elevation (ft)
Station (ft)
60
50
40
30
20
10
0
-20000
-15000
-10000
-5000
0
5000
10000
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment



Tar River - AUGUST 20,2010 4650 Plan: Proposed Conditions 5/30/2021
Cross Section Tar River 9.0
1.
.18
Legend
WS 100-YEAR FW
WS 100-YEAR
Ground
Levee
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
60
50
40
30
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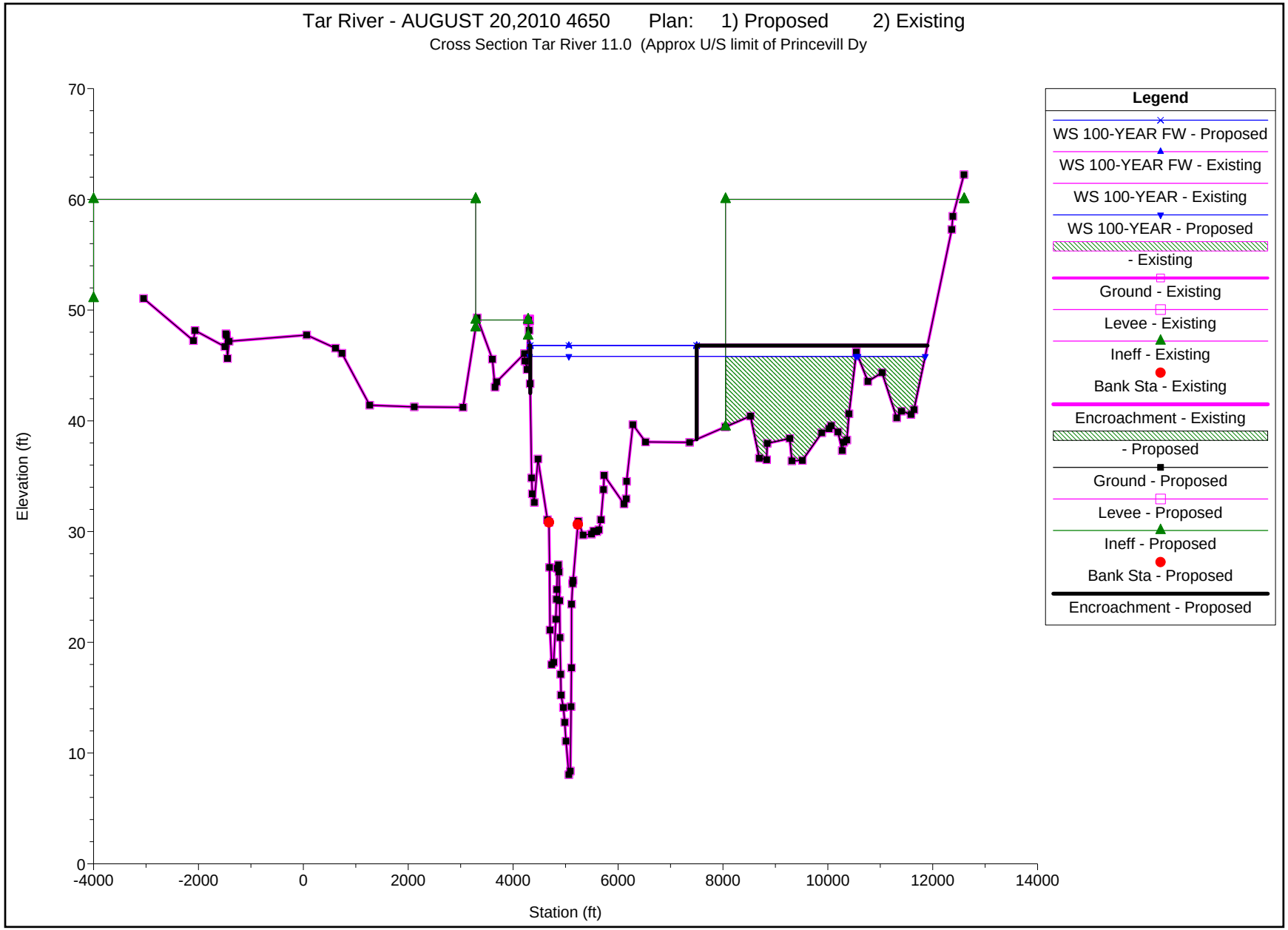
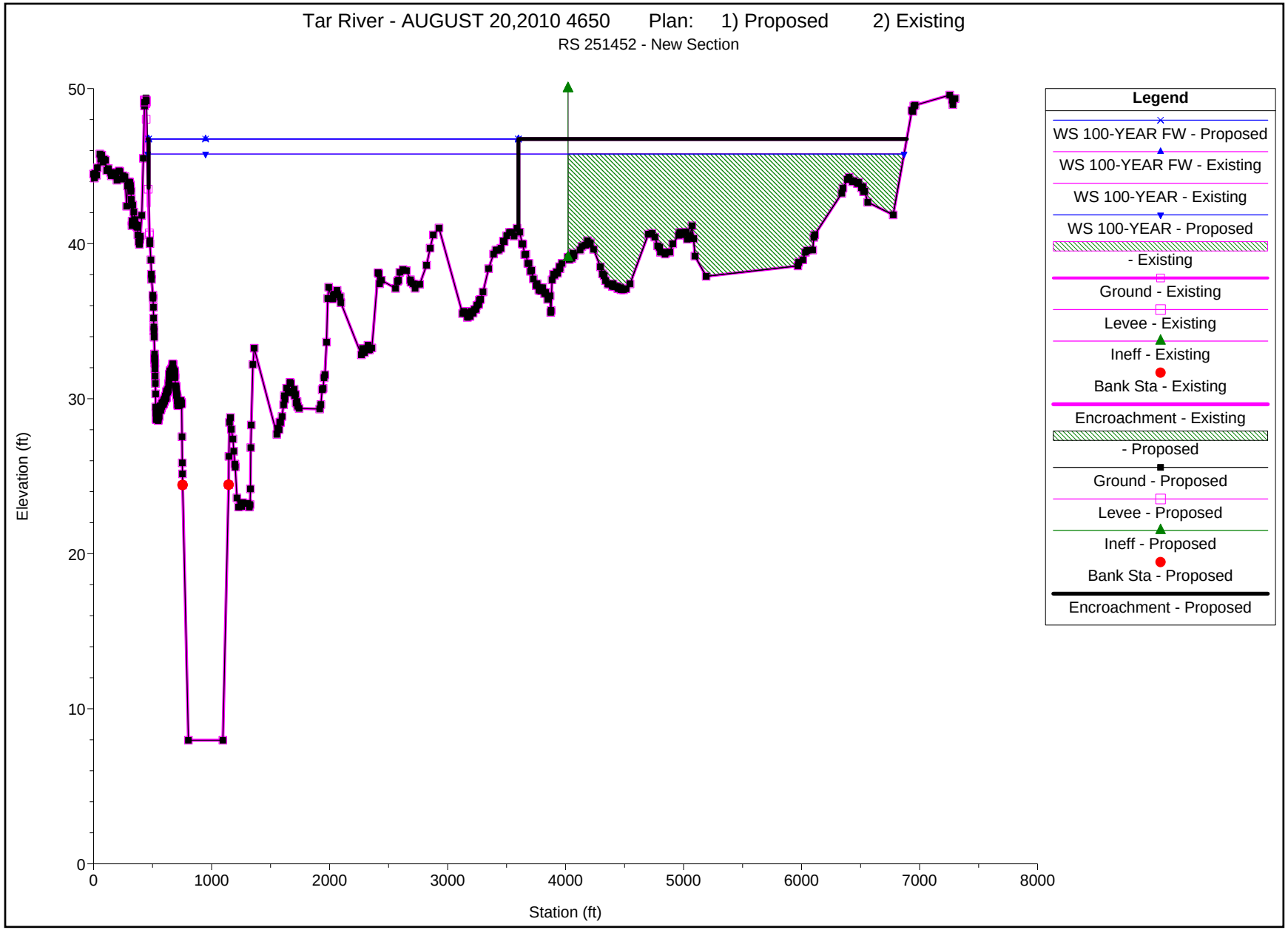
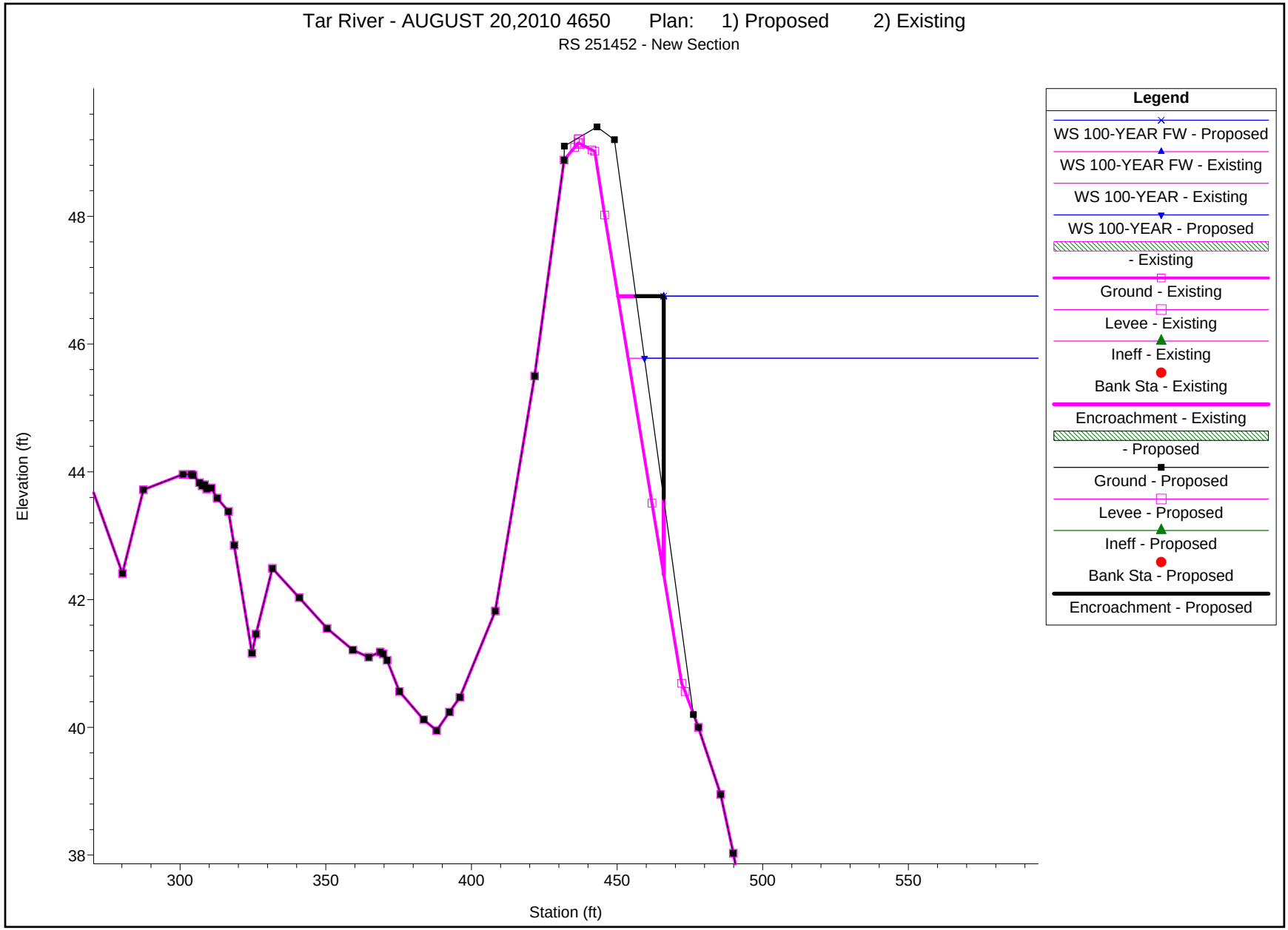
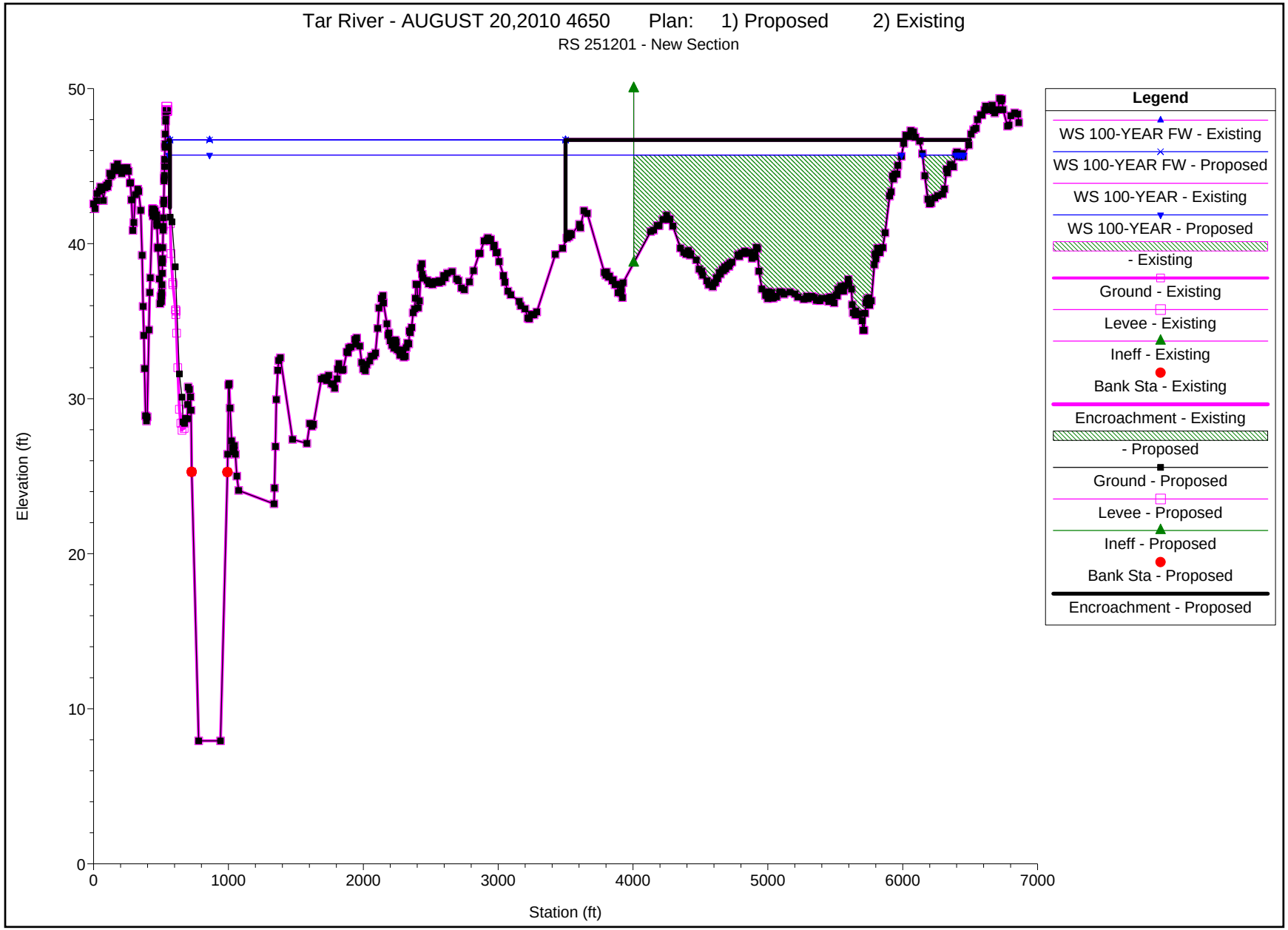
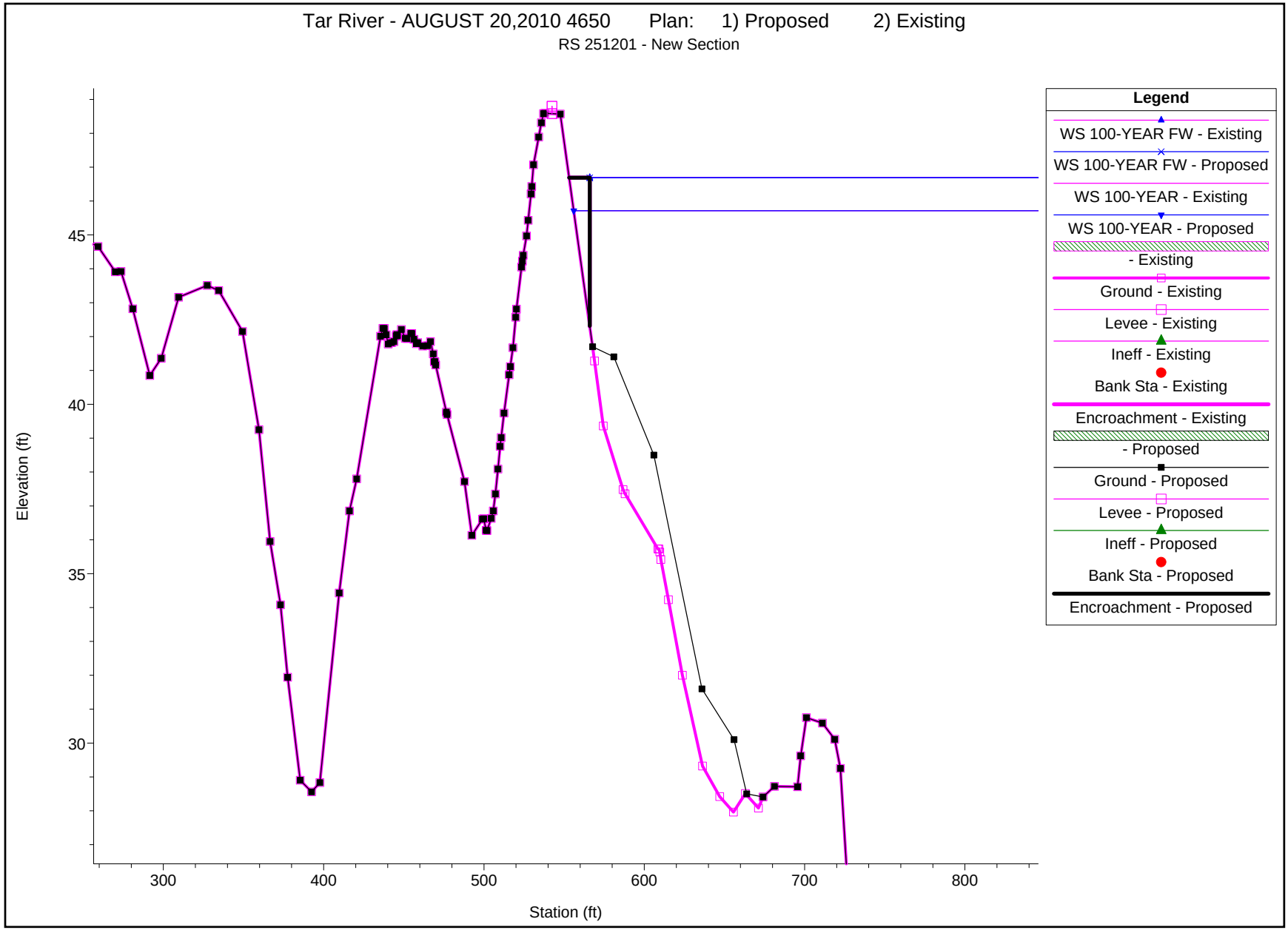
10
0
-6000
-4000
-2000
0
2000
4000
6000

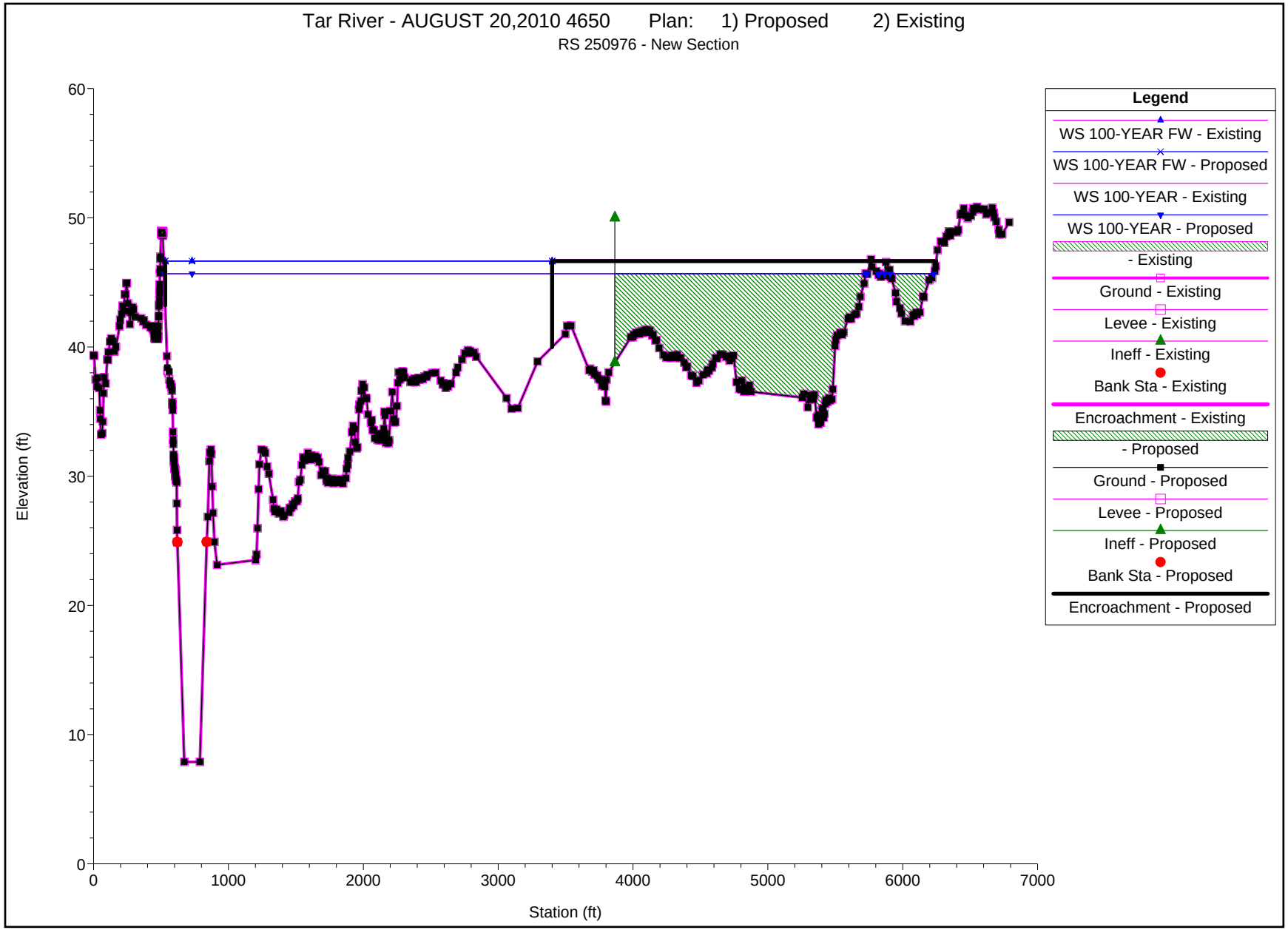

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
Cross Section Tar River 11.0 (Approx U/S limit of Princevill Dy
Elevation (ft)
Station (ft)
70
60
50
40
30
20
10
0
-4000
-2000
0
2000
4000
6000
8000
10000
12000
14000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

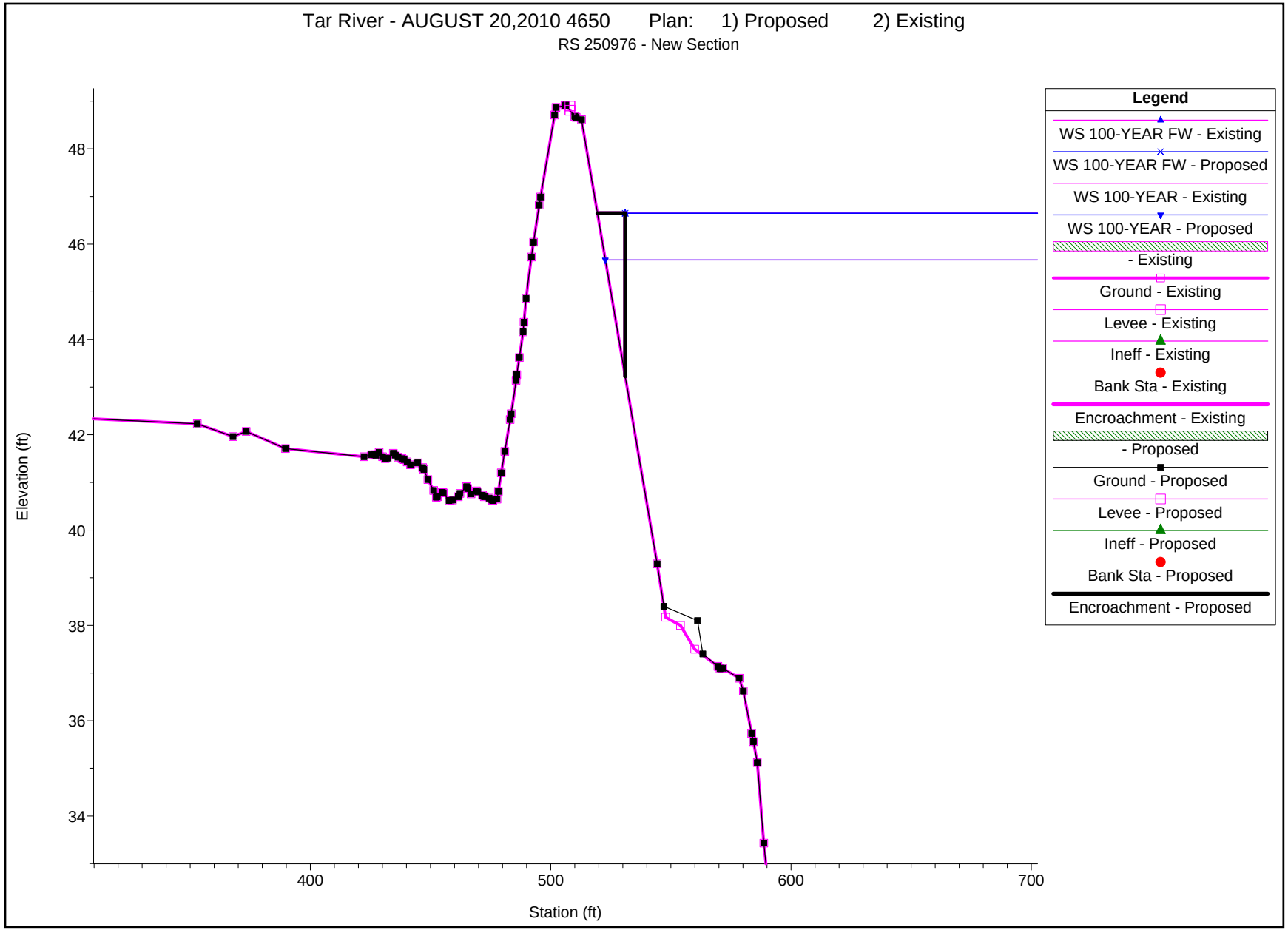

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 251452 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
0
1000
2000
3000
4000
5000
6000
7000
8000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

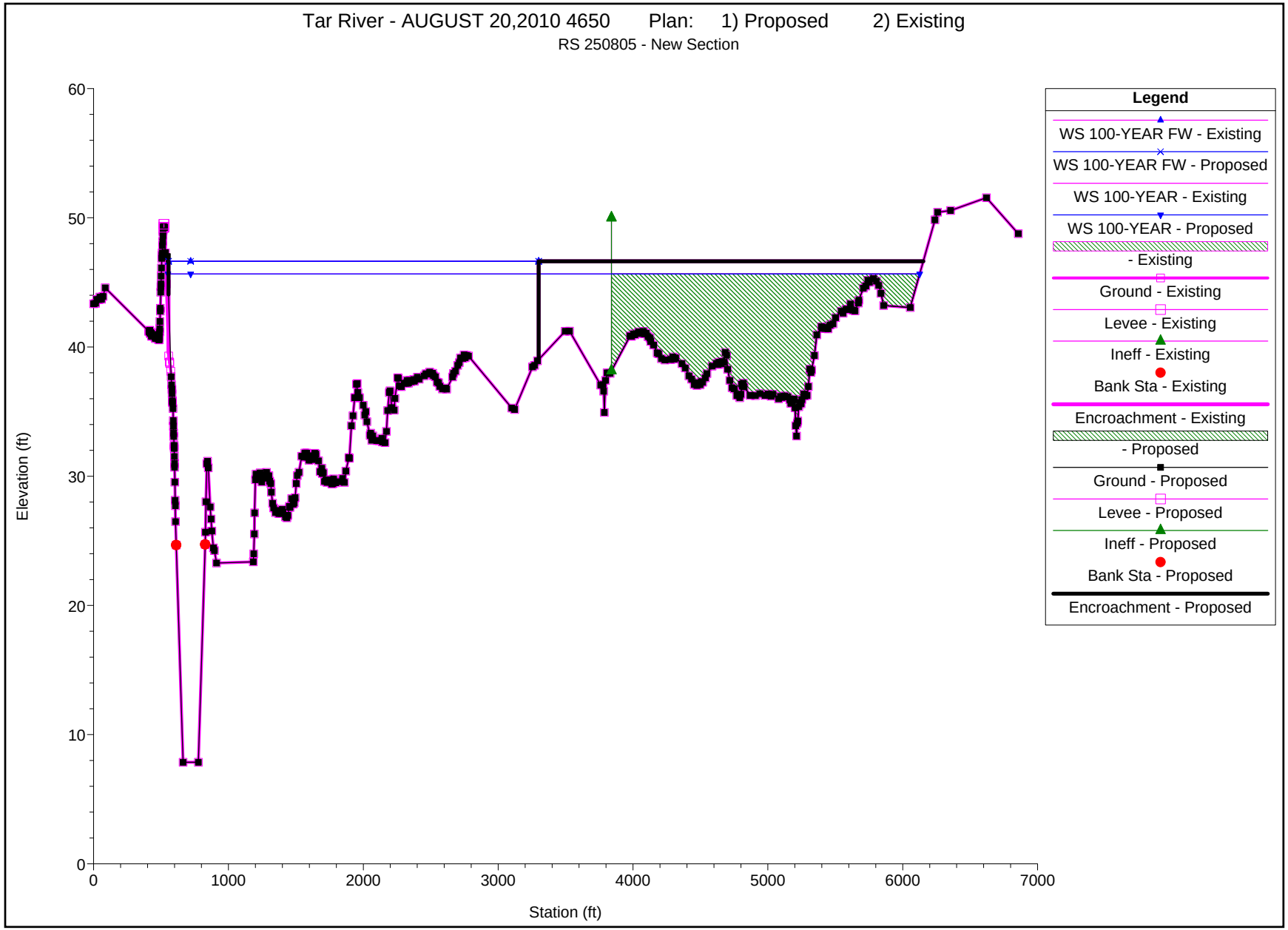

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 251452 - New Section
Elevation (ft)
48
46
44
42
40
38
300
350
400
450
500
550
Station (ft)
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

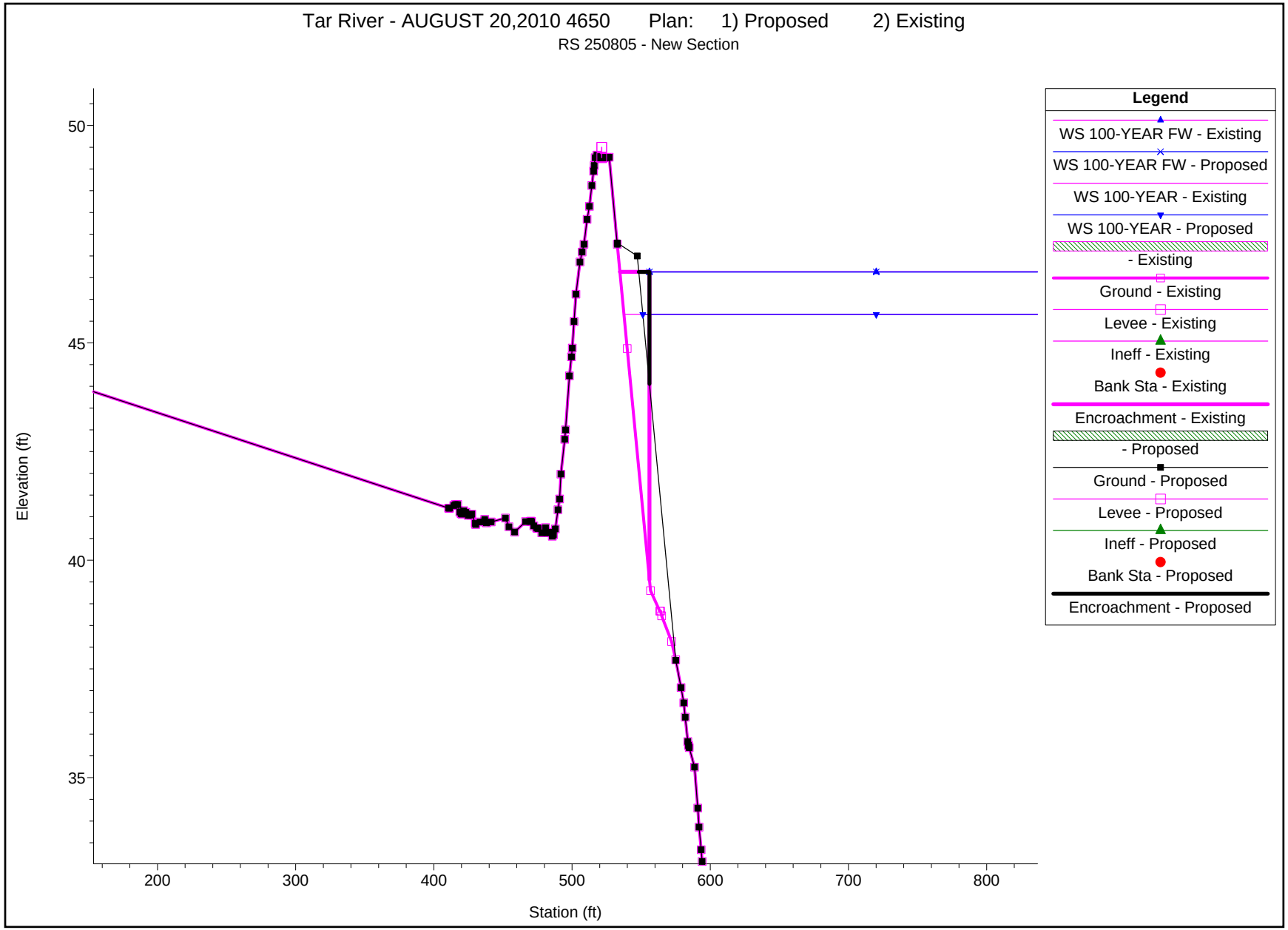

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 251201 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
0
1000
2000
3000
4000
5000
6000
7000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

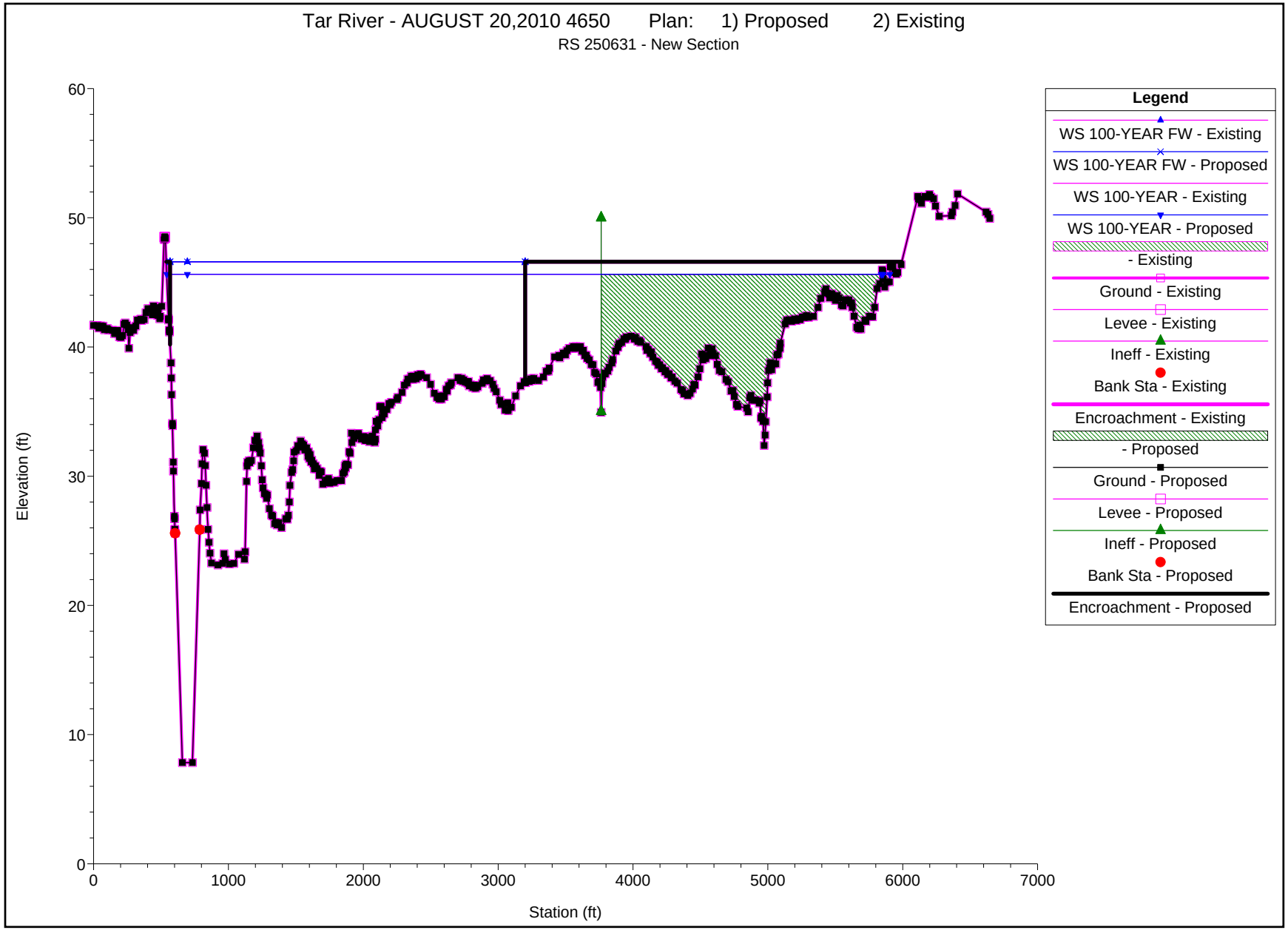

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 251201 - New Section
Elevation (ft)
45
40
35
30
300
400
500
600
700
800
Station (ft)
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

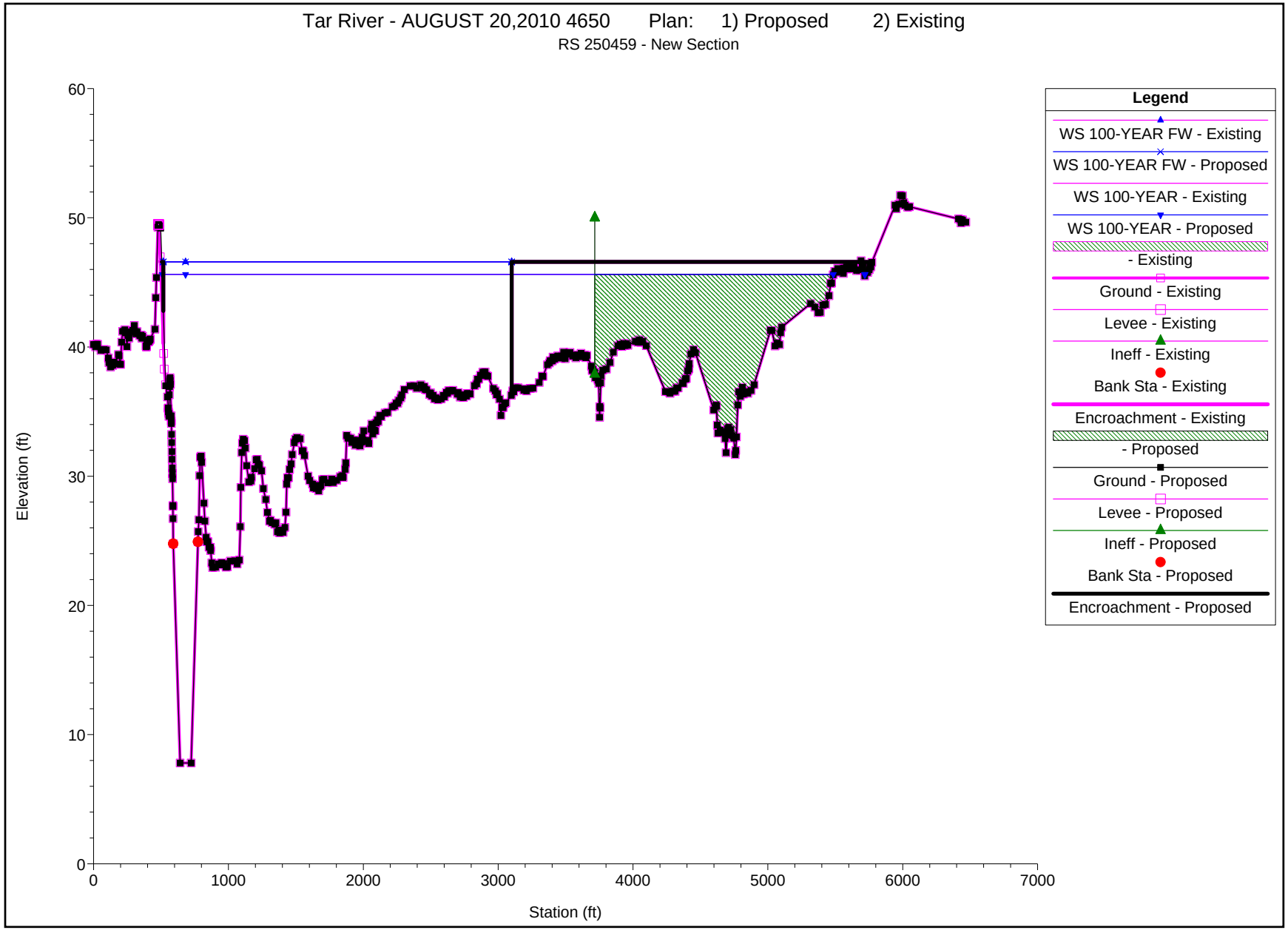

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250976 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

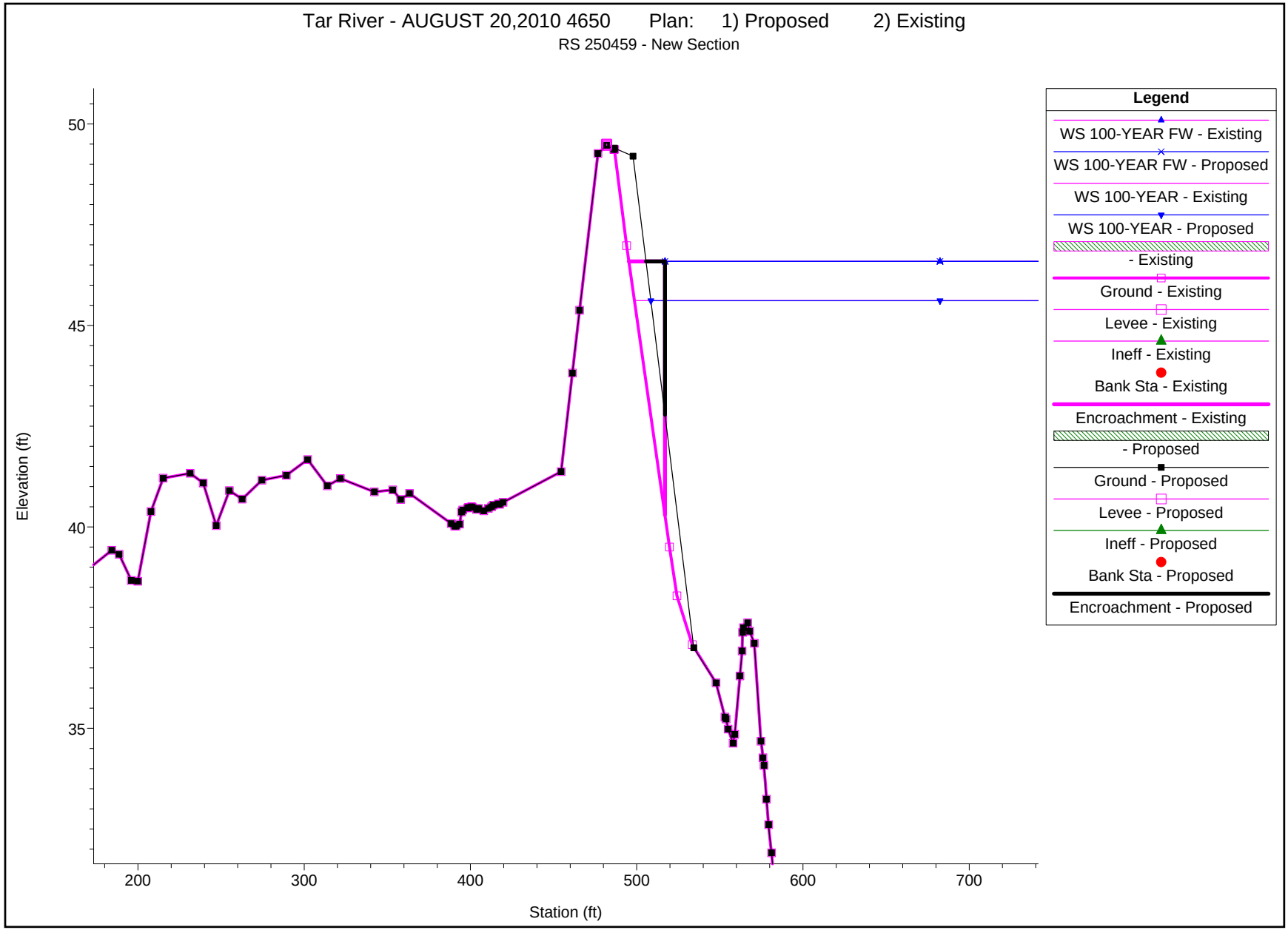

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250976 - New Section
Elevation (ft)
48
46
44
42
40
38
36
34
400
500
600
700
Station (ft)
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

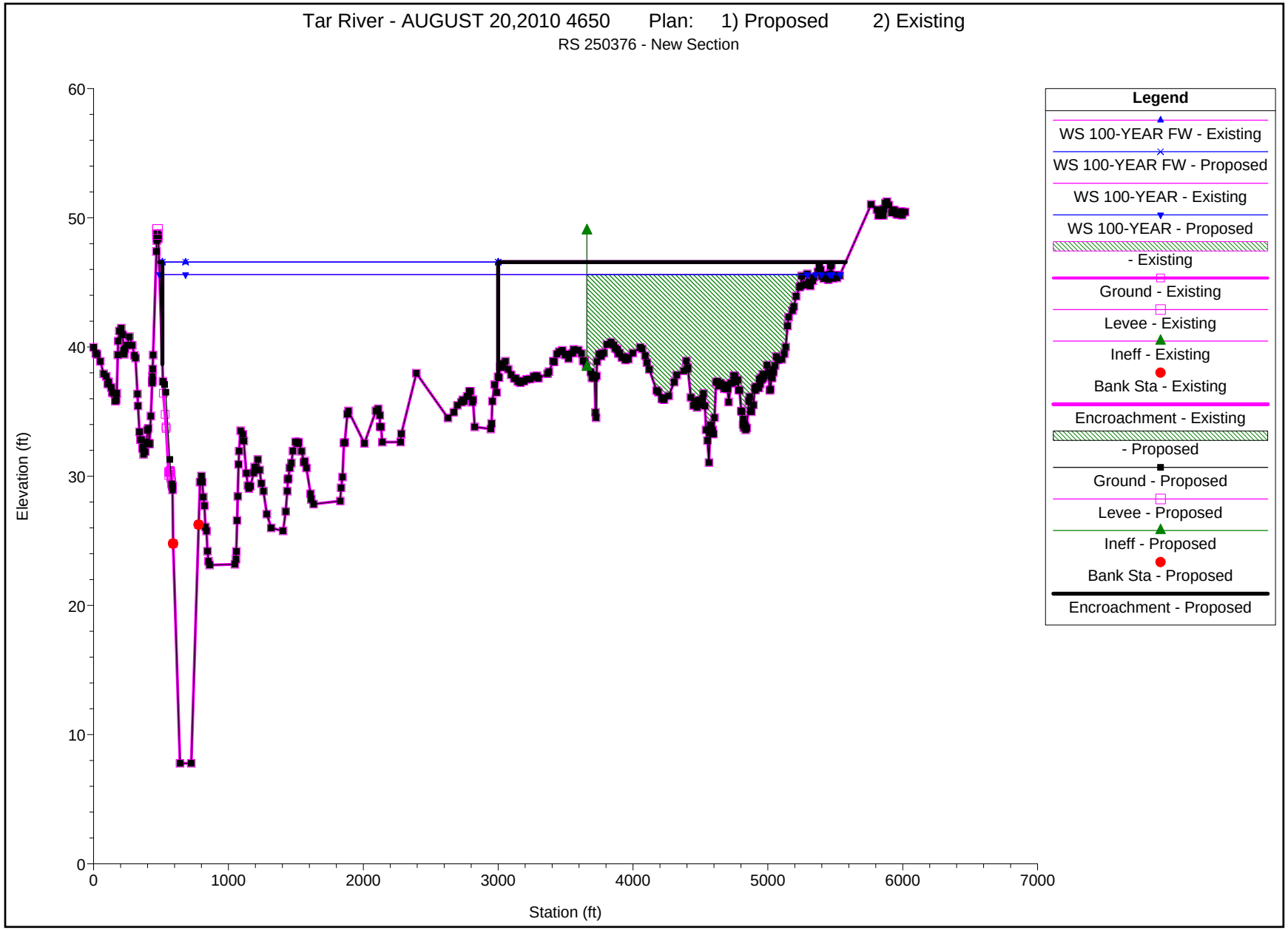

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250805 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

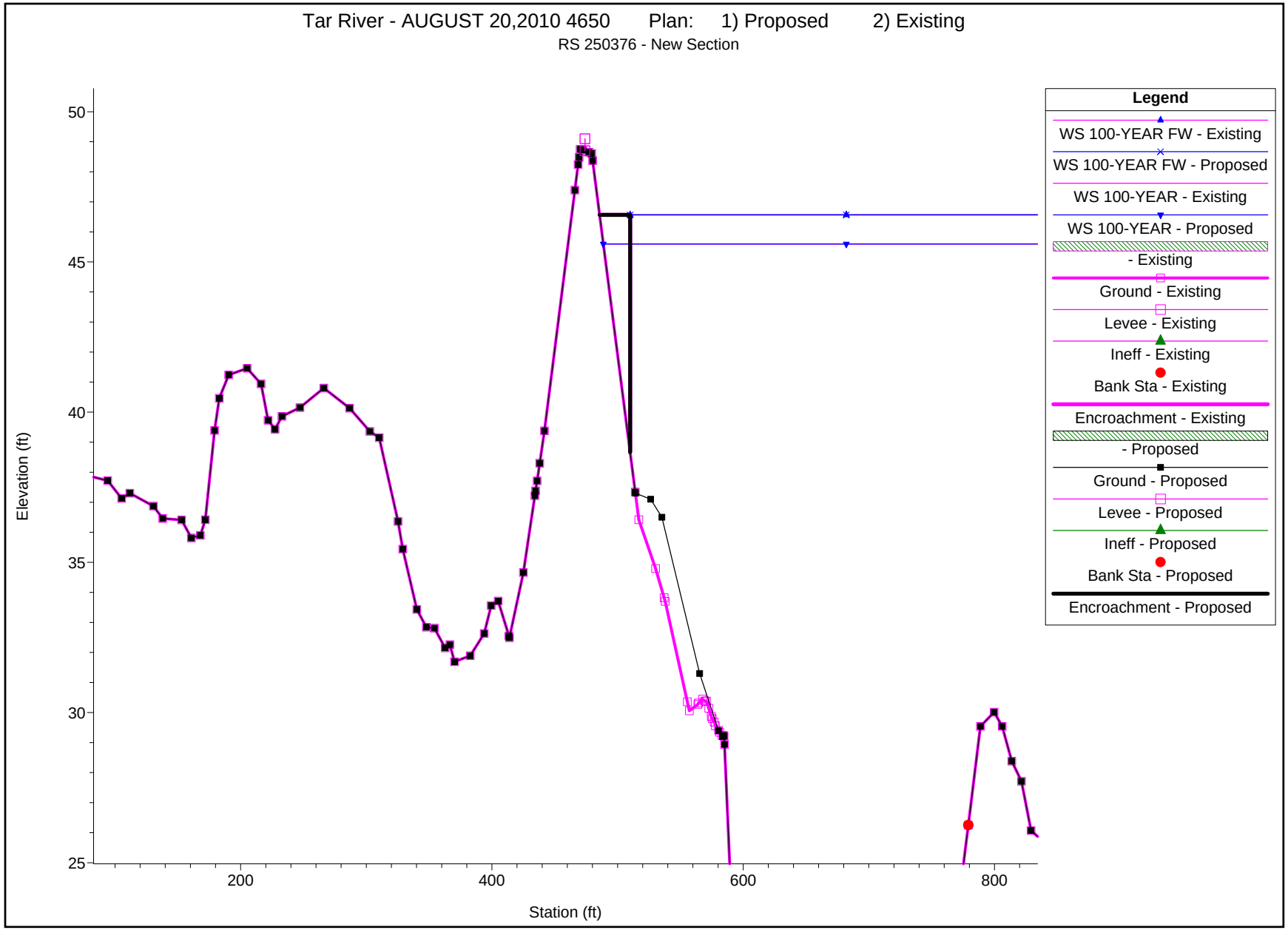

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250805 - New Section
Elevation (ft)
50
45
40
35
200
300
400
500
600
700
800
Station (ft)
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

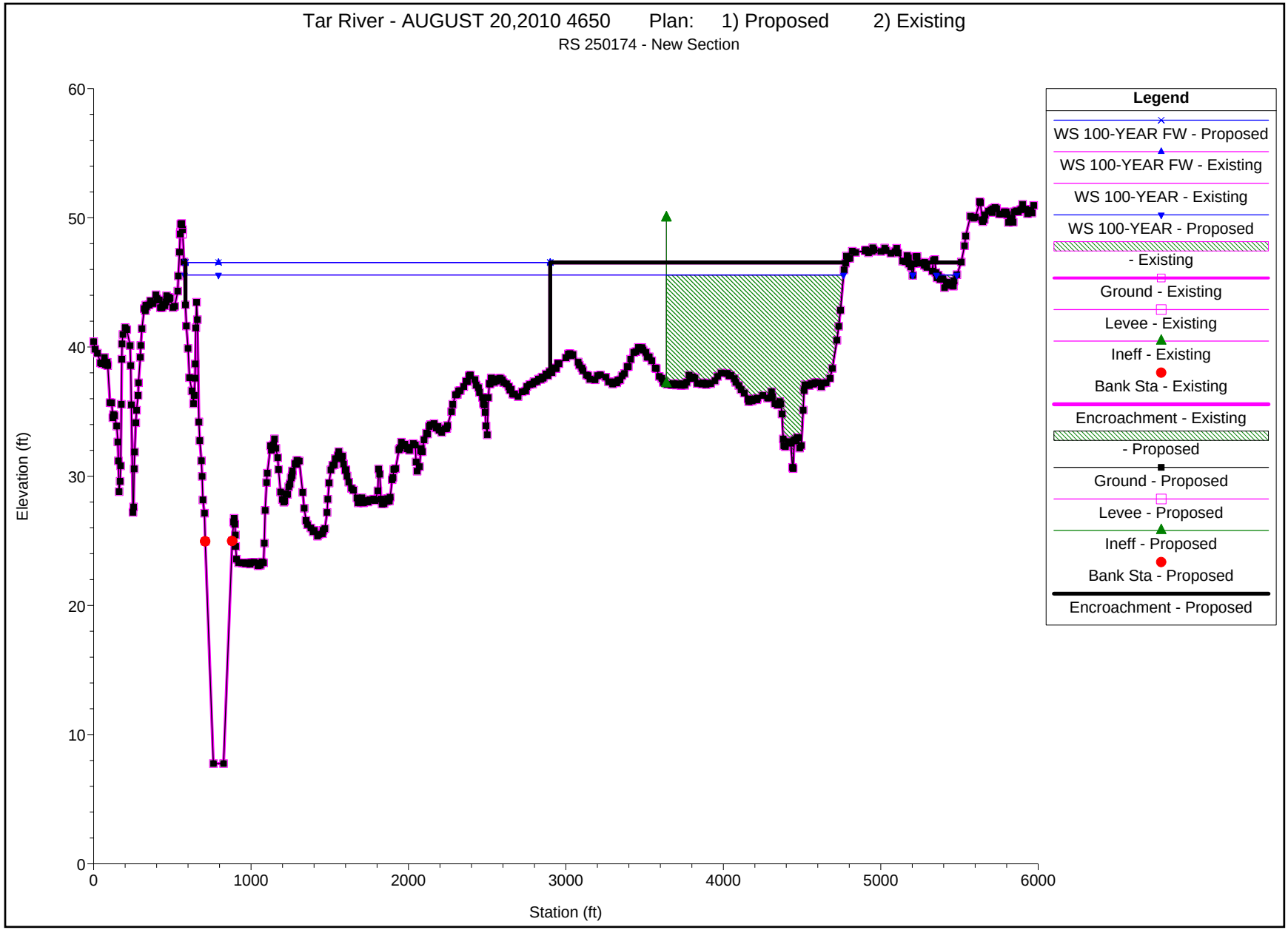

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250631 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

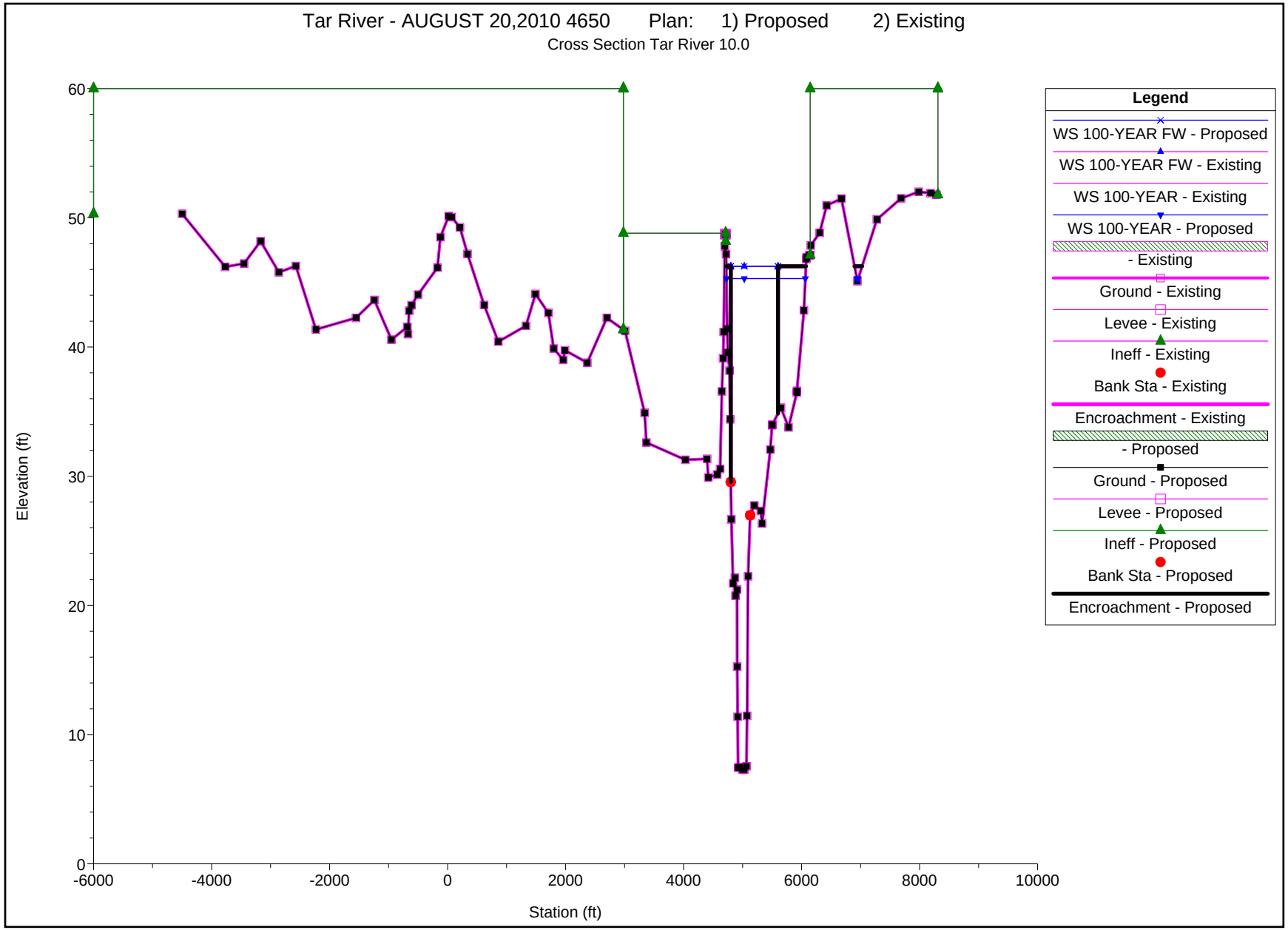

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250459 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

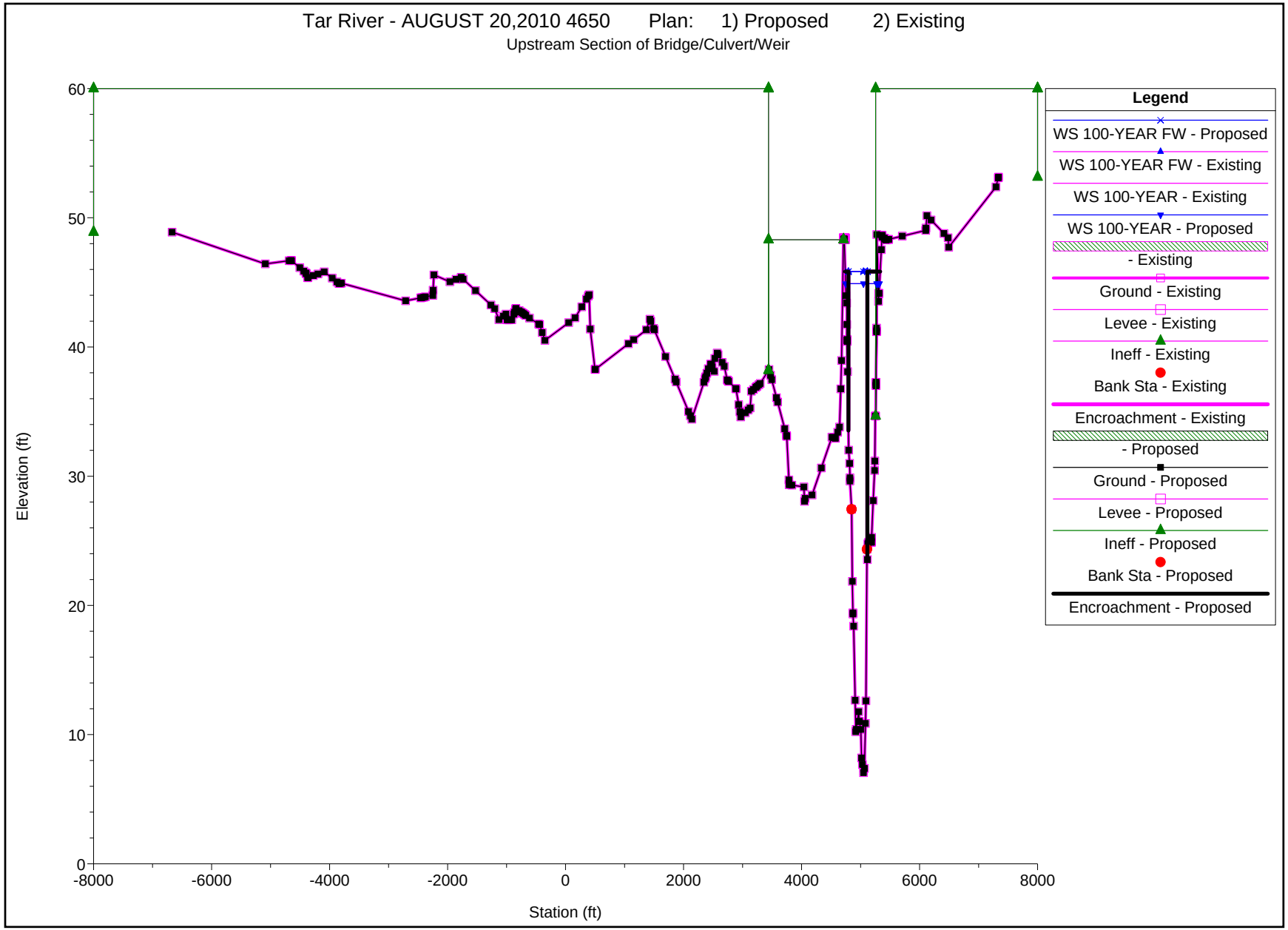

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250459 - New Section
Elevation (ft)
50
45
40
35
200
300
400
500
600
700
Station (ft)
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

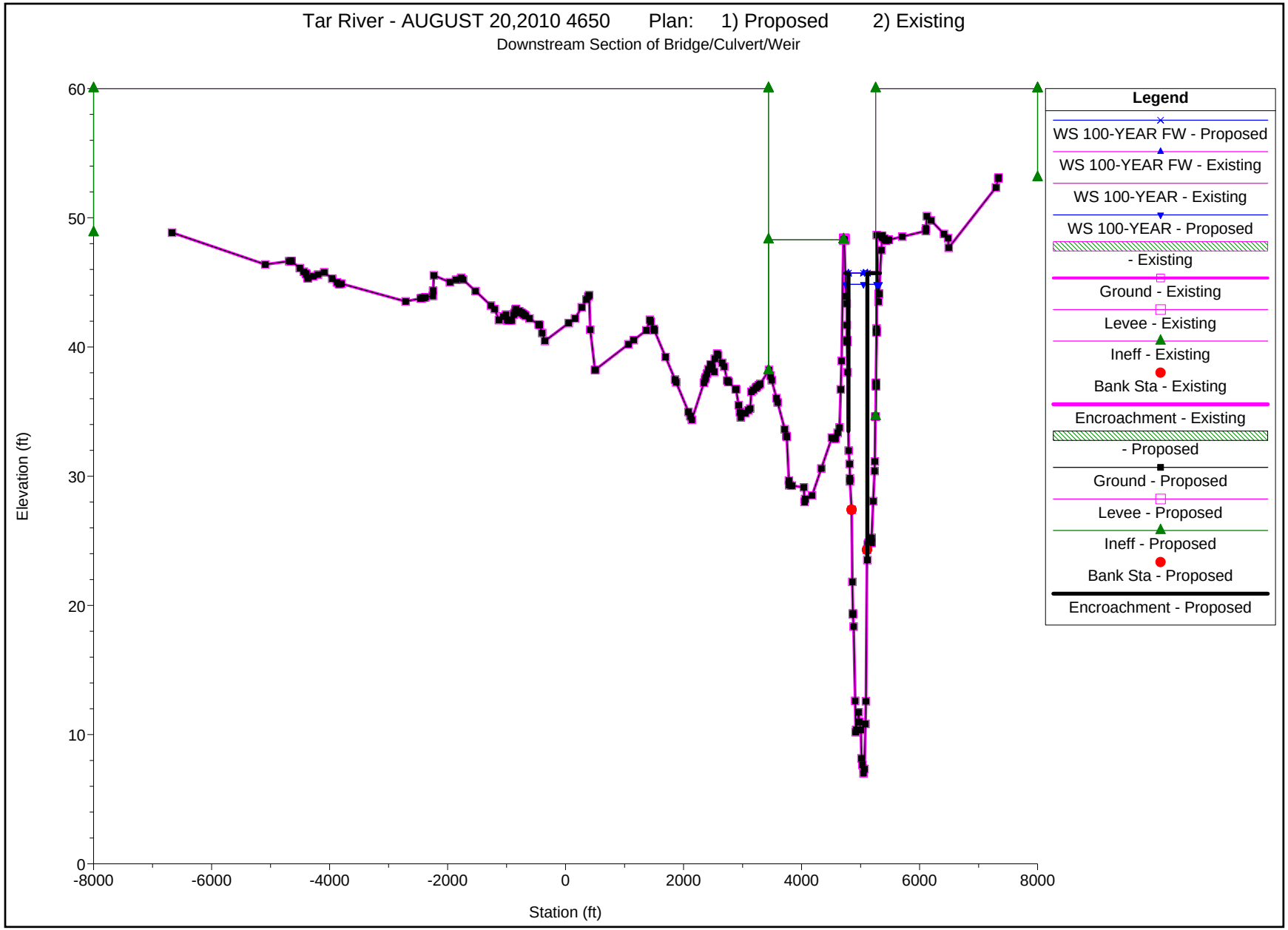

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250376 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
7000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

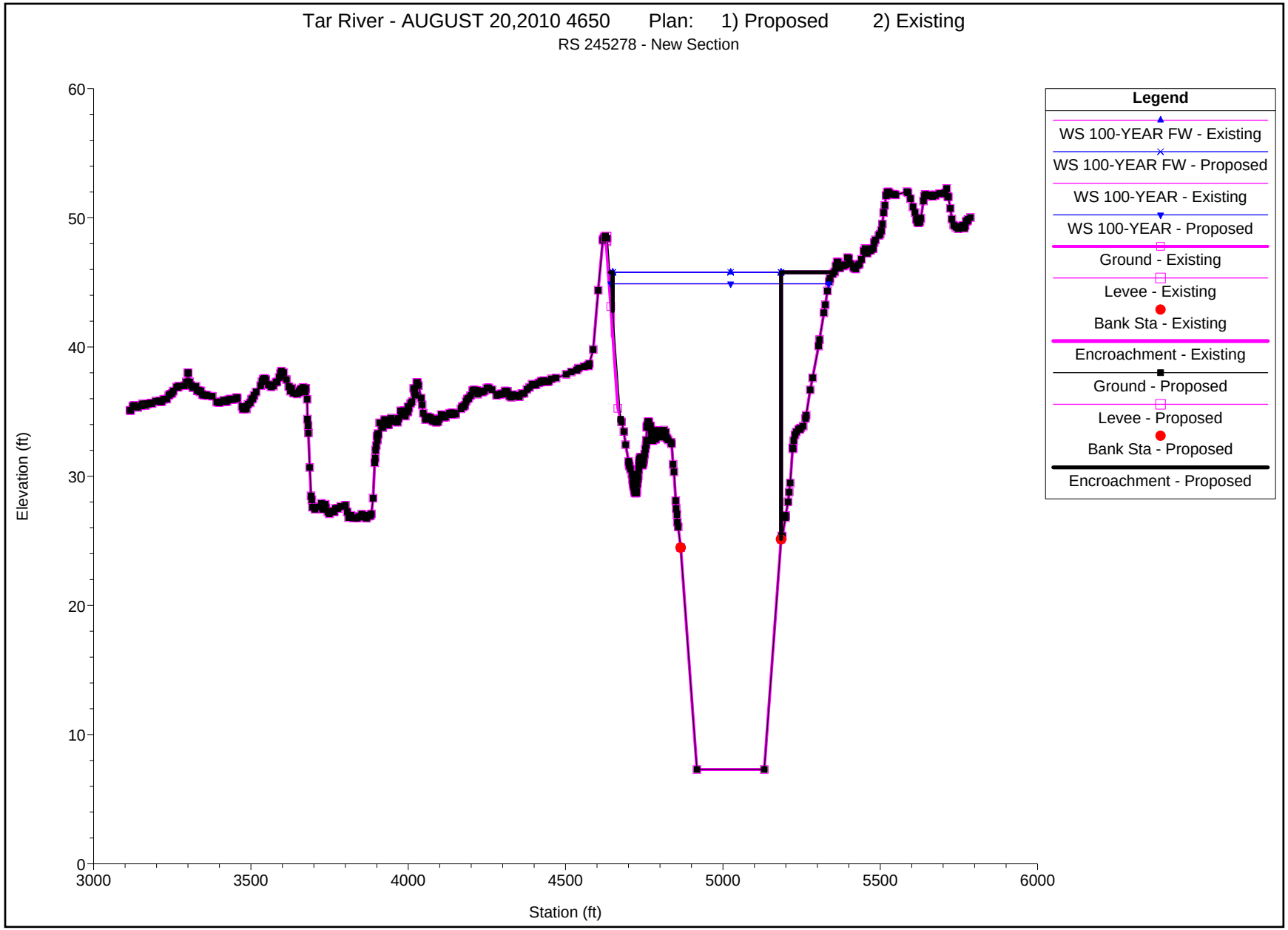

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250376 - New Section
Elevation (ft)
Station (ft)
50
45
40
35
30
25
200
400
600
800
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

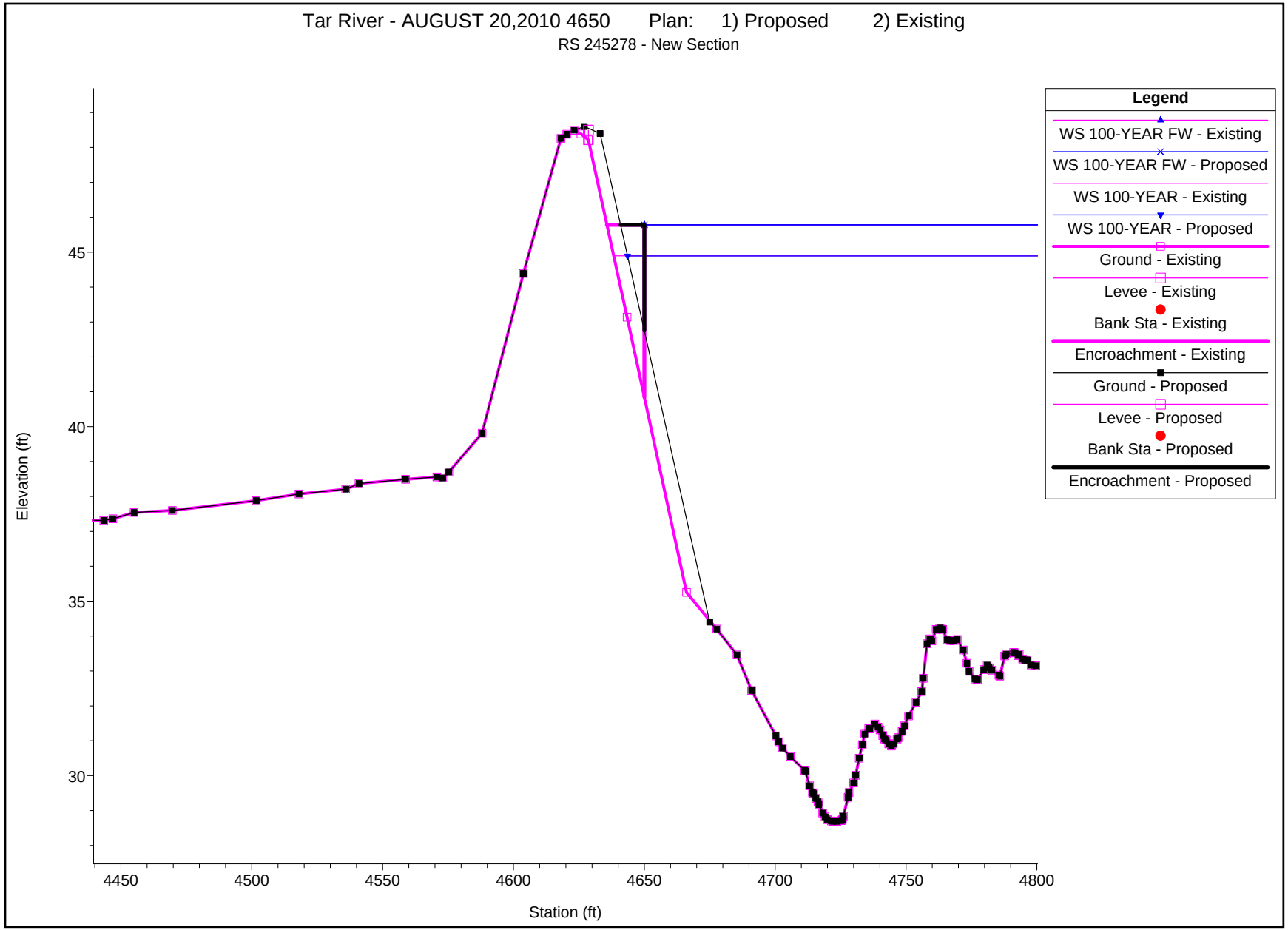

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 250174 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

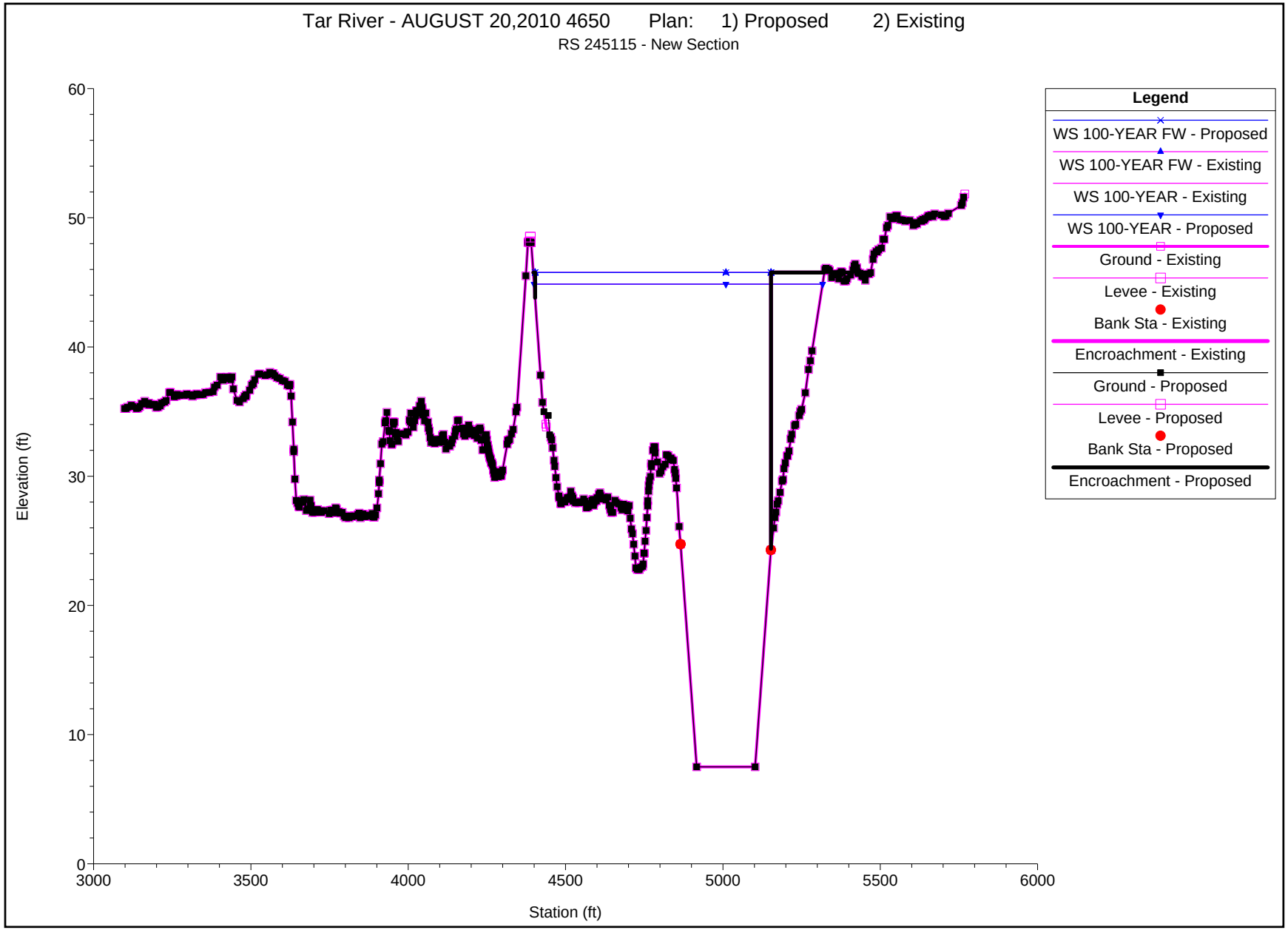

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
Cross Section Tar River 10.0
Elevation (ft)
Station (ft)
60
50
40
30
20
10
0
-6000
-4000
-2000
0
2000
4000
6000
8000
10000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

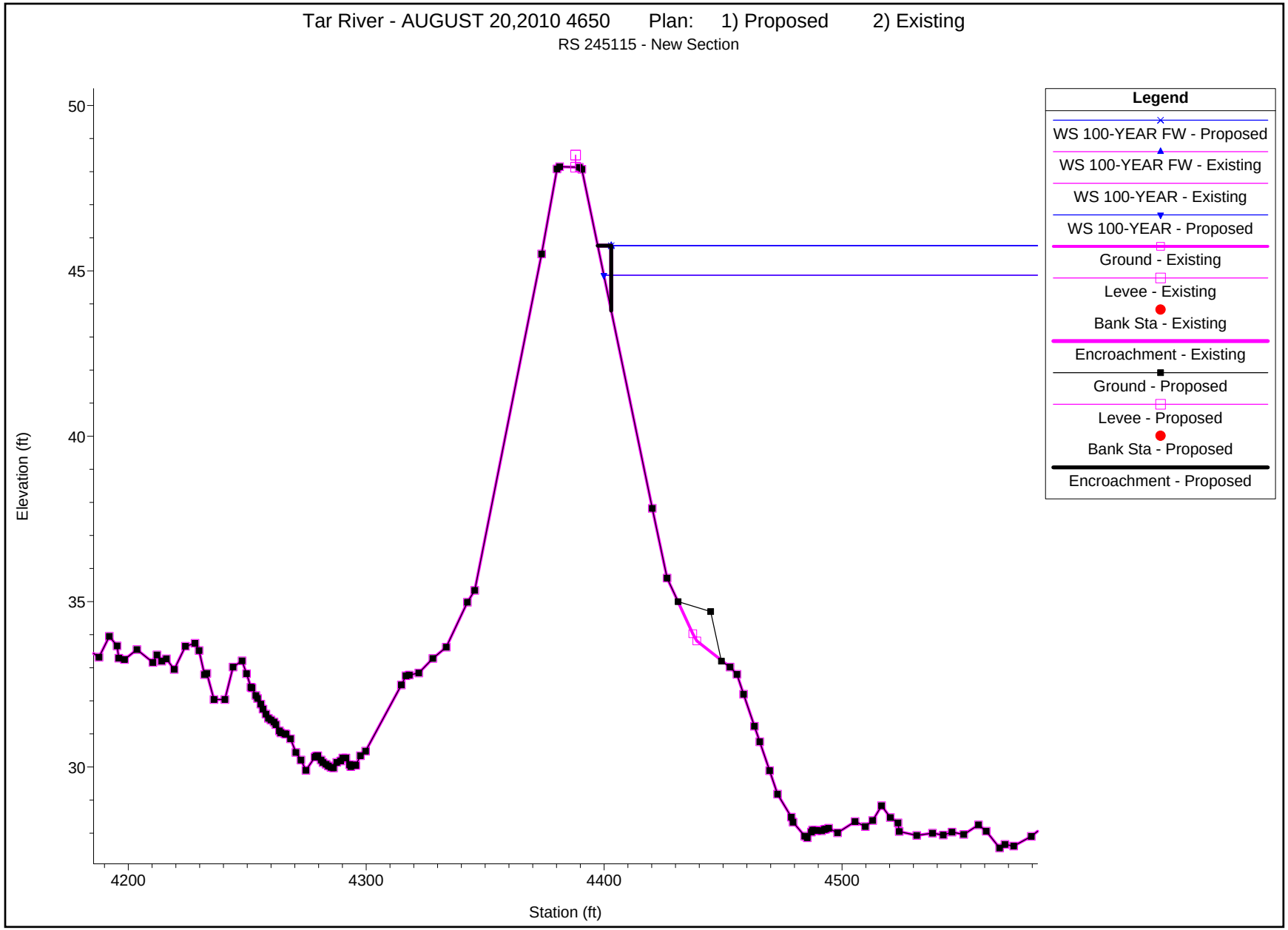

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
Upstream Section of Bridge/Culvert/Weir
Elevation (ft)
Station (ft)
60
50
40
30
20
10
0
-8000
-6000
-4000
-2000
0
2000
4000
6000
8000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

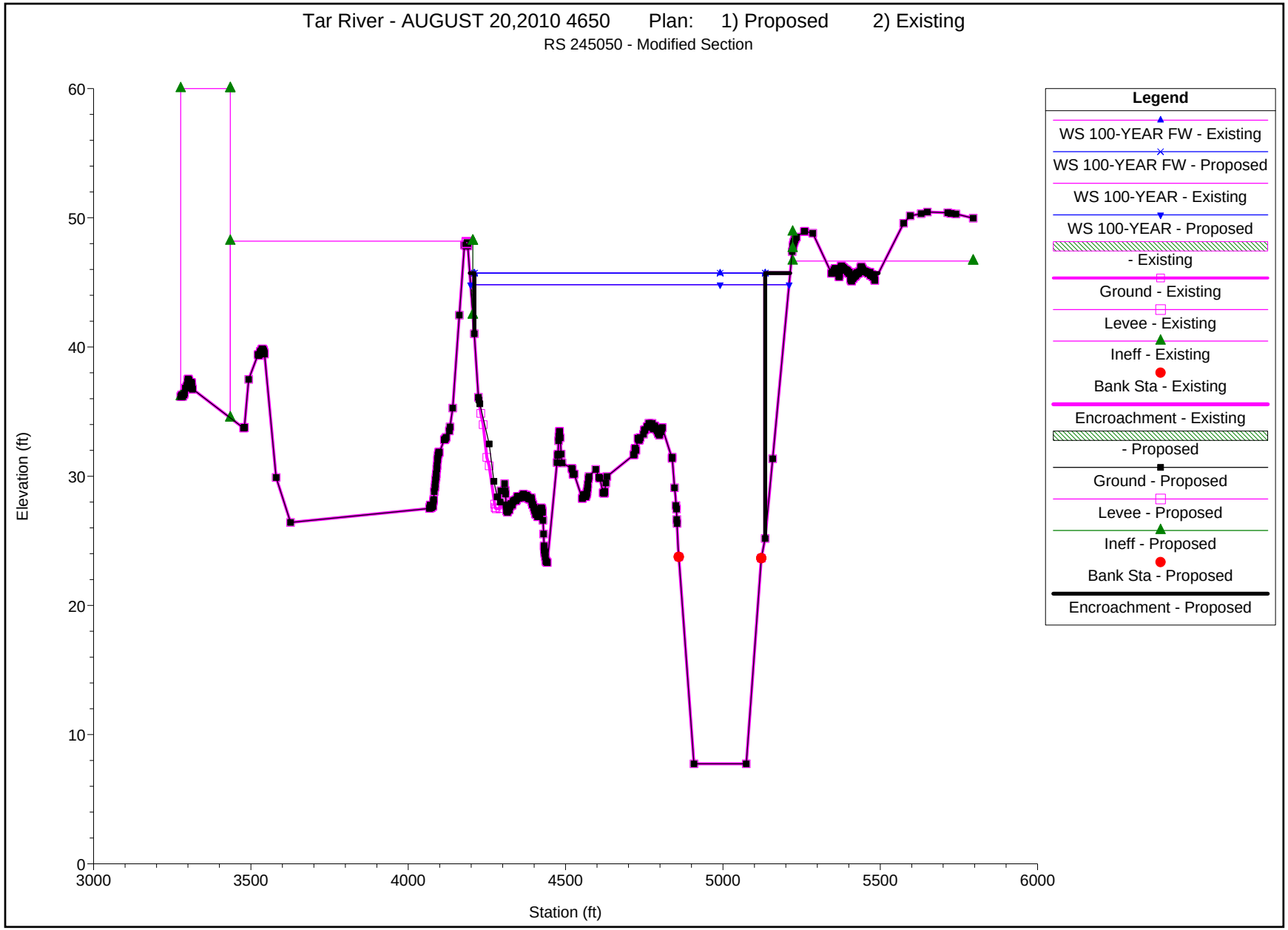

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
Downstream Section of Bridge/Culvert/Weir
Elevation (ft)
Station (ft)
60
50
40
30
20
10
0
-8000
-6000
-4000
-2000
0
2000
4000
6000
8000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

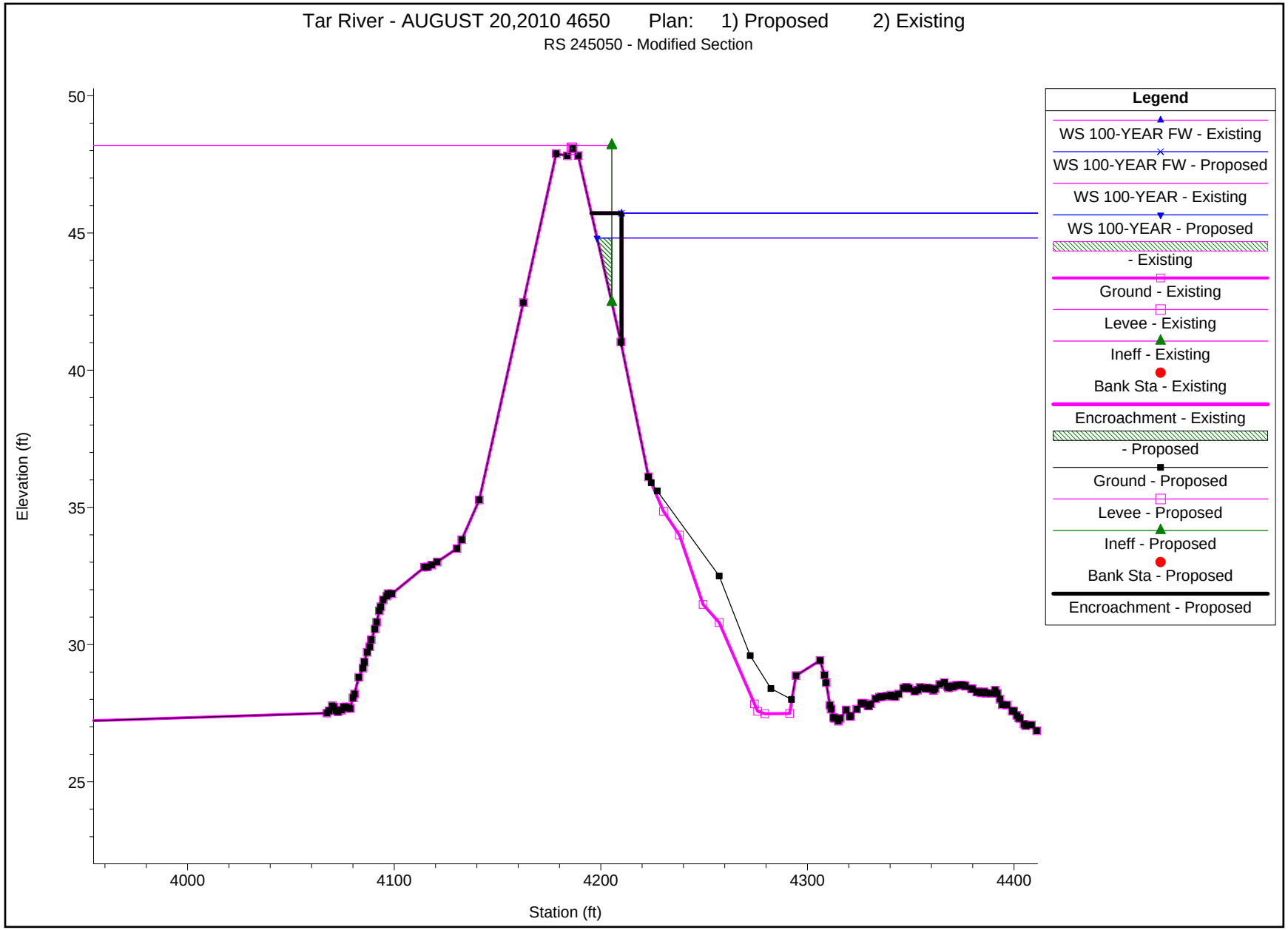

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 245278 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
3000
3500
4000
4500
5000
5500
6000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
Ground - Existing
Levee - Existing
Bank Sta - Existing
Encroachment - Existing
Ground - Proposed
Levee - Proposed
Bank Sta - Proposed
Encroachment - Proposed

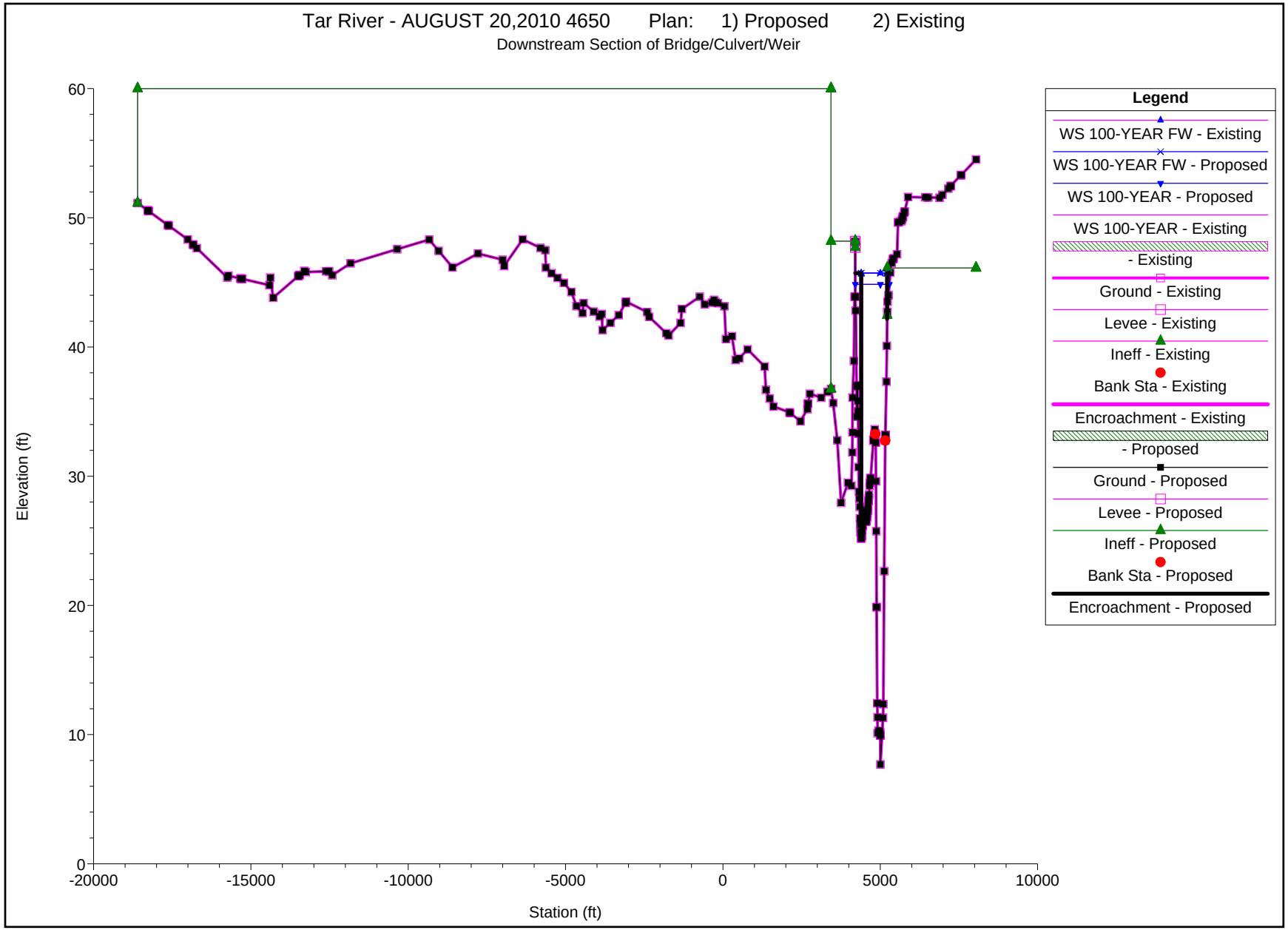

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 245278 - New Section
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
Ground - Existing
Levee - Existing
Bank Sta - Existing
Encroachment - Existing
Ground - Proposed
Levee - Proposed
Bank Sta - Proposed
Encroachment - Proposed
Elevation (ft)
45
40
35
30
4450
4500
4550
4600
4650
4700
4750
4800
Station (ft)

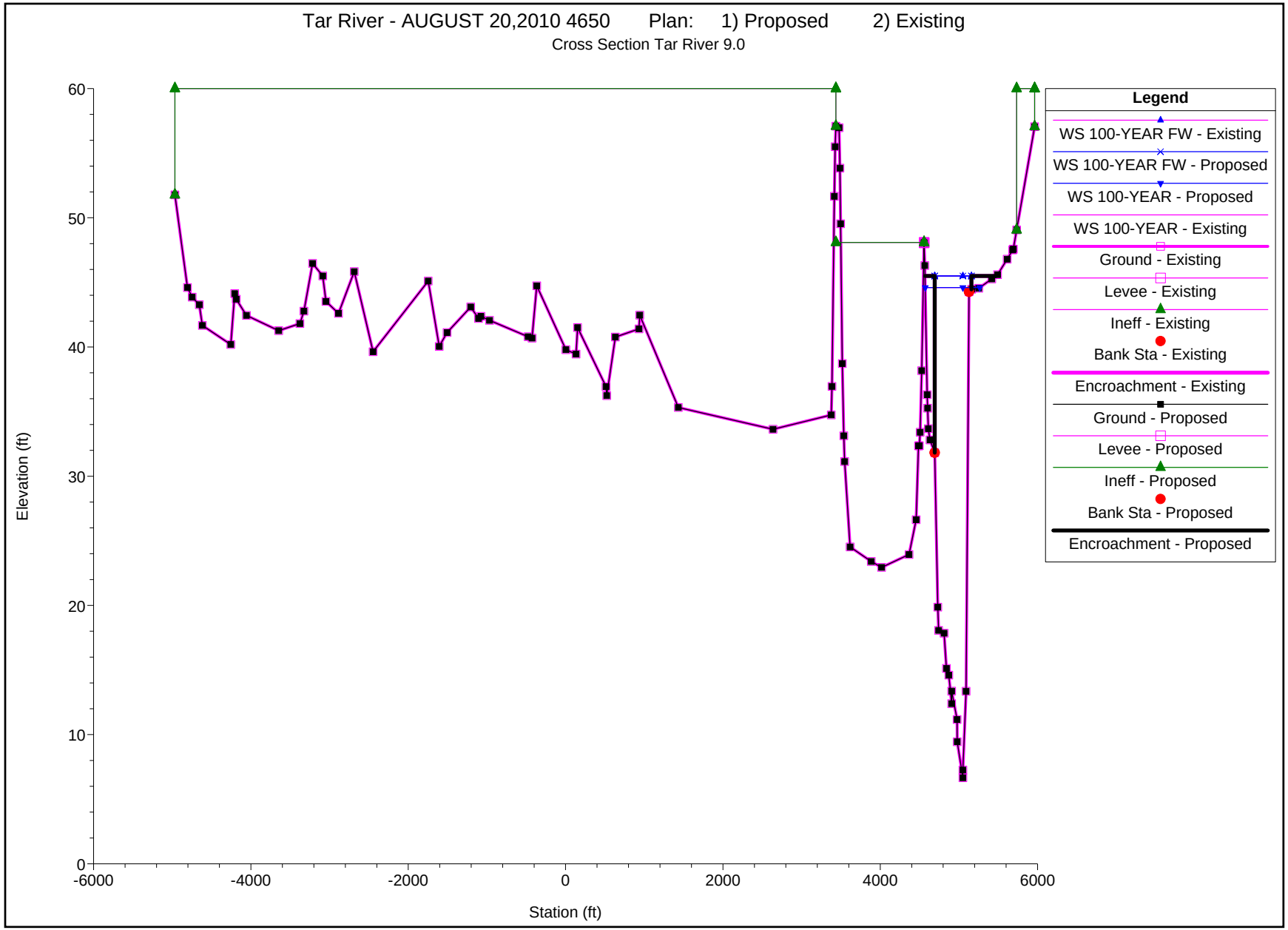

Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 245115 - New Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
3000
3500
4000
4500
5000
5500
6000
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
Ground - Existing
Levee - Existing
Bank Sta - Existing
Encroachment - Existing
Ground - Proposed
Levee - Proposed
Bank Sta - Proposed
Encroachment - Proposed


Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 245115 - New Section
Legend
WS 100-YEAR FW - Proposed
WS 100-YEAR FW - Existing
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
Ground - Existing
Levee - Existing
Bank Sta - Existing
Encroachment - Existing
Ground - Proposed
Levee - Proposed
Bank Sta - Proposed
Encroachment - Proposed
Elevation (ft)
50
45
40
35
30
4200
4300
4400
4500
Station (ft)


Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 245050 - Modified Section
Elevation (ft)
Station (ft)
0
10
20
30
40
50
60
3000
3500
4000
4500
5000
5500
6000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed


Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
RS 245050 - Modified Section
Elevation (ft)
50
45
40
35
30
25
4000
4100
4200
4300
4400
Station (ft)
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Existing
WS 100-YEAR - Proposed
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed


Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
Downstream Section of Bridge/Culvert/Weir
Elevation (ft)
60
50
40
30
20
10
0
-20000
-15000
-10000
-5000
0
5000
10000
Station (ft)
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Proposed
WS 100-YEAR - Existing
- Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
- Proposed
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed


Tar River - AUGUST 20,2010 4650 Plan: 1) Proposed 2) Existing
Cross Section Tar River 9.0
Elevation (ft)
Station (ft)
60
50
40
30
20
10
0
-6000
-4000
-2000
0
2000
4000
6000
Legend
WS 100-YEAR FW - Existing
WS 100-YEAR FW - Proposed
WS 100-YEAR - Proposed
WS 100-YEAR - Existing
Ground - Existing
Levee - Existing
Ineff - Existing
Bank Sta - Existing
Encroachment - Existing
Ground - Proposed
Levee - Proposed
Ineff - Proposed
Bank Sta - Proposed
Encroachment - Proposed

SECTION 7 - CONSTRUCTION PLANS

(See Attached)

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PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT DISASTER RECOVERY PROJECT: PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

DESIGN TEAM COORDINATOR: SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental
218 Snow Ave
Raleigh, NC 27603

The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

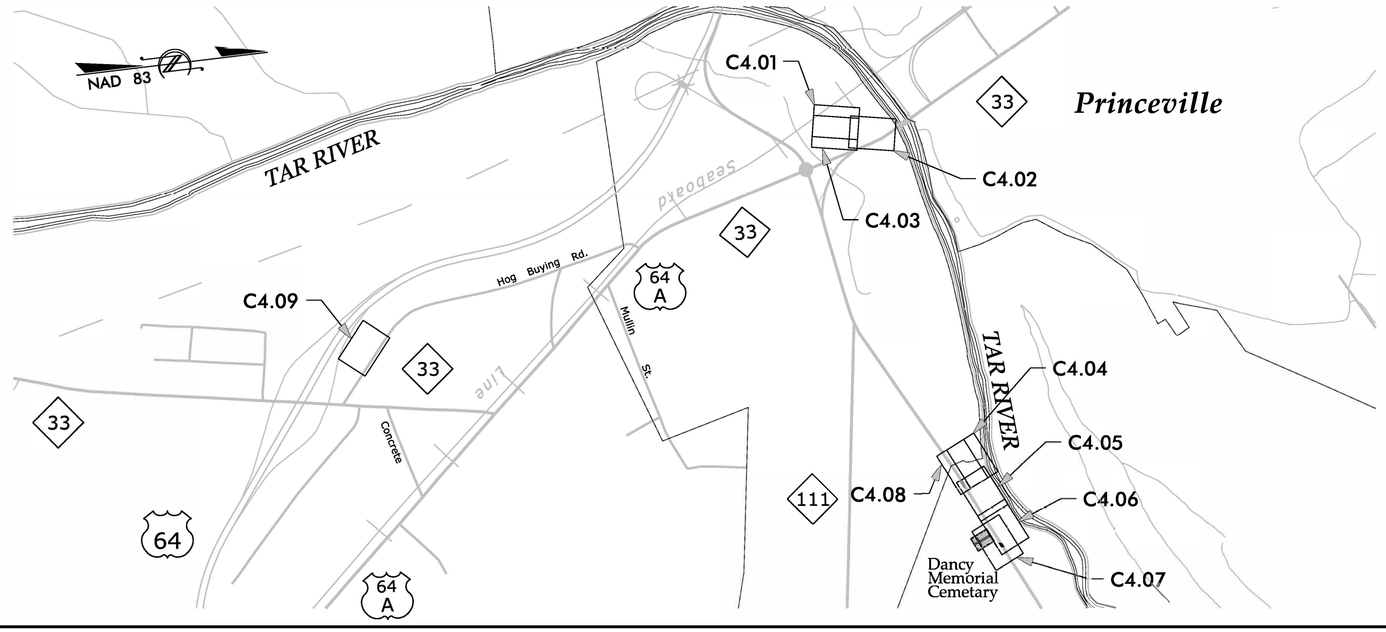
DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
6/17/2021

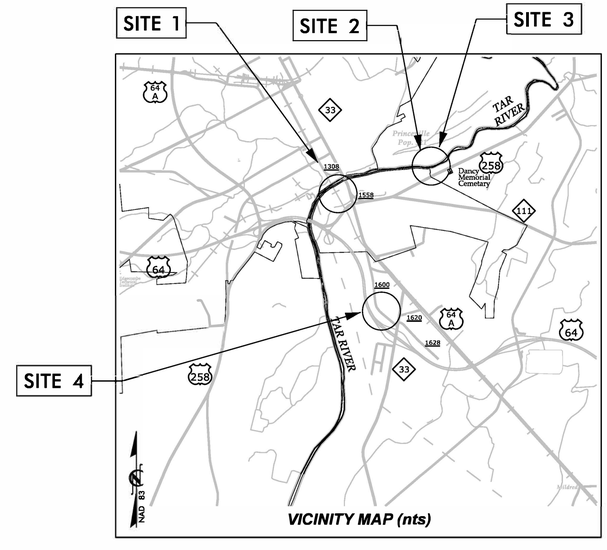
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

TOTAL DISTURBED AREA = 4.4 ACRES

TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

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CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) — W
- U/G Water Line LOS C (S.U.E.*) — W
- U/G Water Line LOS D (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON 1289A58C14994C3...
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

SYMBOLOGY

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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6/16/2021 Floodgate_Rdy_psh_C101.dgn

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General Notes

1. All construction shall be in accordance with the latest edition of "NCDOT 2018 Standards and Specifications for Roads and Structures" and "NCDOT 2018 Roadway Standard Drawings" and with the standards and specifications of the Town of Princeville.
2. Existing utilities noted at the time of the field survey are shown for size, material, type, and relative location only. This plan is not a comprehensive inventory or an as-built survey of existing site utilities. The Contractor is to determine the existence and location of all utilities within the work area.
3. The Contractor shall be responsible for the location and/or relocation of all utilities in coordination with the appropriate utility agency or company. The Contractor is required to call 'The NC One Call Center' (1-800-632-4949) before digging.
4. The Contractor shall be responsible for repairing or replacing any existing site features, facilities or improvements that are damaged during the demolition or construction operation that are not indicated to be removed or abandoned.
5. Install tree protection fence and clearing and grubbing erosion control measures prior to any demolition and/or construction activity on site.
6. All disturbed slopes must be stabilized within the time frame indicated on the Ground Stabilization Table (see Erosion Control Plan). All other disturbed areas must be stabilized with the time frame indicated on the Ground Stabilization Table.
7. Contractor is to field locate proposed site improvements that require demolition of existing structures for verification by the Engineer prior to demolition.
8. Construction debris to be removed from the site and properly disposed of by the Contractor. All project waste and demolition materials to be disposed of in accordance with applicable NCDEQ Standards. Contractor to provide written verification of proper disposal to owner.
9. Any buried waste, construction debris or trash which is found during the construction operation shall be thoroughly excavated and removed from the site to an approved facility prior to the placement of any permanent fill material or pavement construction.
10. Contractor to prevent surface and air movement of dust from disturbed soil surfaces through sprinkling until it is wet. Contractor is to maintain dust control measures through dry weather periods until all disturbed areas have been stabilized.
11. All stockpile areas and temporary spoil areas shall be protected by silt fence.
12. All site work shall produce surface grades adequate for storm water runoff to prevent standing water on all developed areas and to meet existing grades in smooth transition.
13. To minimize damage to existing trees, the Contractor shall cut, rather than tear roots.
14. The Contractor is responsible for furnishing and maintaining all work zone signage relative to the work to be performed for the location indicated on the project plan set. All barricading and signage shall conform to the latest edition of "NC-Manual on Uniform Traffic Control Devices for Work Zone."
15. An on-site pre-construction meeting must be held prior to any construction activity.
16. All existing site features shall remain unless noted to be removed or demolished.
17. Construction staging and access limits to be approved by the Owner prior to any construction activity on site.
18. The Contractor shall be responsible for all construction staking. Horizontal and vertical site control coordinates and elevations are shown on sheet C2.01. The contractor is responsible for all site layout, construction staking, and as-built surveys.
19. Topography, existing conditions, easement, and right-of-way survey conducted by Sungate Design Group, PA on 4/6/2021, 4/8/2021, 4/9/2021, and 5/19/2021. Coordinates shown on plan are referenced to NAD 83 (2011) horizontal datum and NAVD 88 vertical datum.
20. The contractor shall note that the drawings may not show every offset, transition, fitting, etc. that may be required. The contractor shall install such standard appurtenances as required to closely follow the grades and alignments depicted on the plans.
21. If departures from the specifications or drawings are deemed necessary by the contractor, details of such departures and reasons therefore shall be submitted to the Owner for review. No departures from contract documents shall be made without the written permission of the Owner.
22. **All dimensions and grades shown on the plans shall be field verified by the Contractor prior to the start of construction in the area. The Contractor shall notify the Owner if any errors or discrepancies exist between the project plans and the field conditions that require plan or grade modification prior to the start of construction of the improvements in the area. No extra compensation shall be paid to the Contractor for any work redone due to grades or dimensions shown incorrectly on these plans, if such notification is not provided to the Owner prior to the initiation of the subject construction and receipt of authorization to proceed with the plans construction as revised by the Engineer.**
23. Construction operations shall be limited to the hours during the day as specified by the Owner.
24. Site access and construction shall be limited to the areas shown on the construction drawings. Any damage or excavation of the existing levee is prohibited.

Riprap Gradation Requirements

Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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JOSH DALTON
PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GENERAL NOTES

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.02

6/16/2021
Floodgate_Rdy_psh_C102.dgn
Howard

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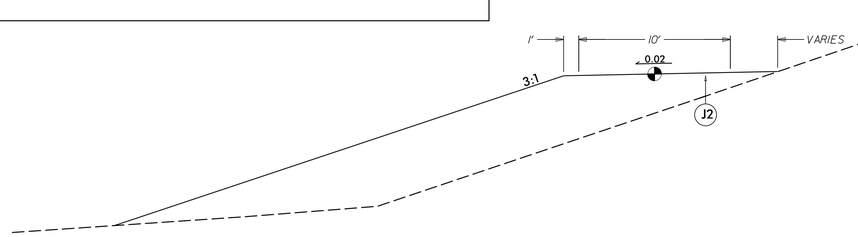
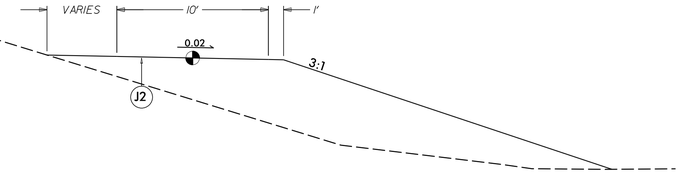
J2	PROP. 6" AGGREGATE BASE COURSE.



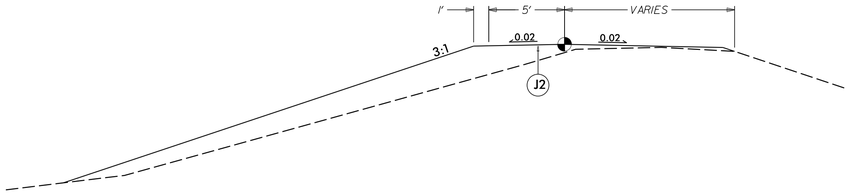
TYPICAL SECTION NO. 1

10+00 to 16+20 -AR1-
10+00 to 12+80 -AR3-
16+10 to 21+80 -AR3-
10+00 to 10+50 -AR5-



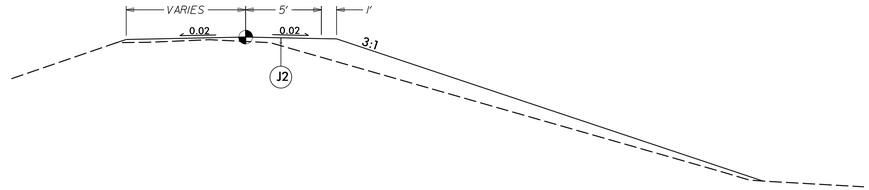
TYPICAL SECTION NO. 2

10+30 to 12+30 -AR2-
22+30 to 22+70 -AR3-
10+10 to 10+15 -AR3B-
10+20 to 10+25 -AR3B-
10+30 to 10+35 -AR3B-
10+60 to 10+70 -AR5-
10+80 to 13+20 -AR5-



TYPICAL SECTION NO. 3

16+20 to 16+70 -AR1-
12+80 to 13+20 -AR3-
15+60 to 16+10 -AR3-
21+80 to 22+20 -AR3-



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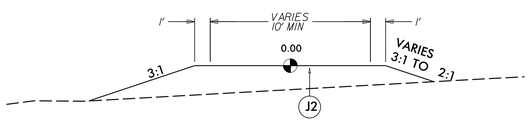
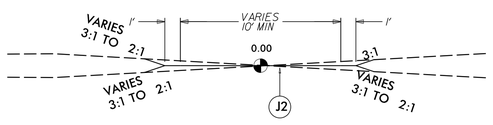
12+30 to 12+80 -AR2-
22+20 to 22+30 -AR3-
13+20 to 13+70 -AR5-



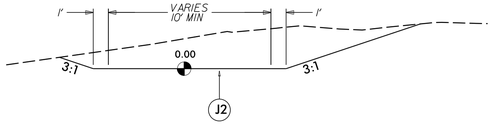
TYPICAL SECTION NO. 5

10+10 to 10+60 -AR1A-
10+10 to 10+40 -AR2A-
22+70 to 23+17 -AR3-
10+10 to 10+80 -AR3A-
10+15 to 10+20 -AR3B-
10+35 to 10+50 -AR3B-
10+15 to 10+30 -AR4-
10+10 to 10+40 -AR5A-



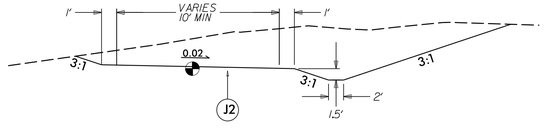
TYPICAL SECTION NO. 6

10+40 to 10+70 -AR2A-
10+25 to 10+30 -AR3B-
10+50 to 10+60 -AR3B-
10+30 to 10+50 -AR4-
10+50 to 10+60 -AR5-
10+70 to 10+80 -AR5-
10+40 to 10+50 -AR5A-



TYPICAL SECTION NO. 7

10+50 to 10+70 -AR4-
10+50 to 11+00 -AR4A-



TYPICAL SECTION NO. 8

10+05 to 10+50 -AR4A-

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Digitally signed by JOSH DALTON
DocuSigned by: 70B4A2BC7A994C3...
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

TYPICALS

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PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C103
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.03

6/16/2021
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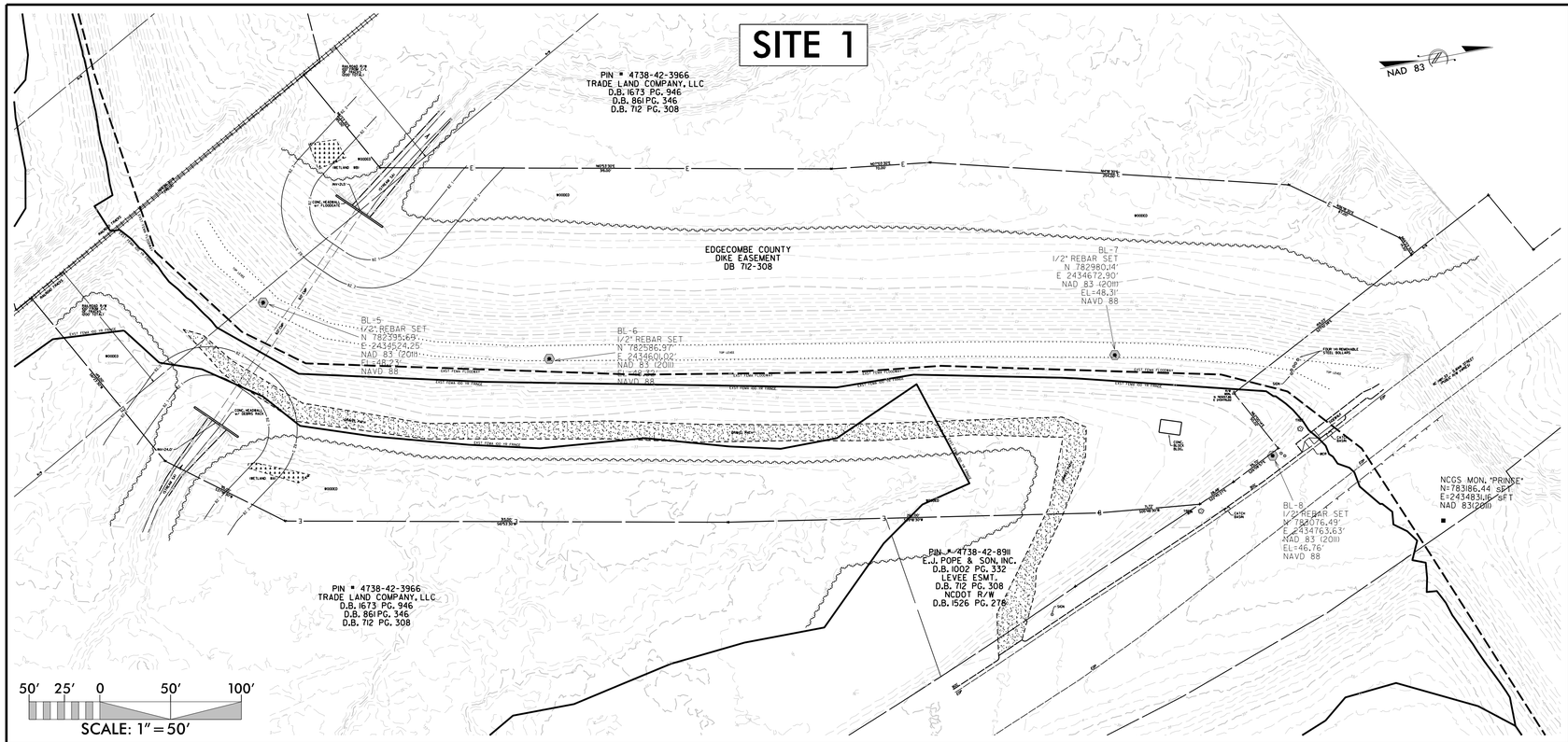
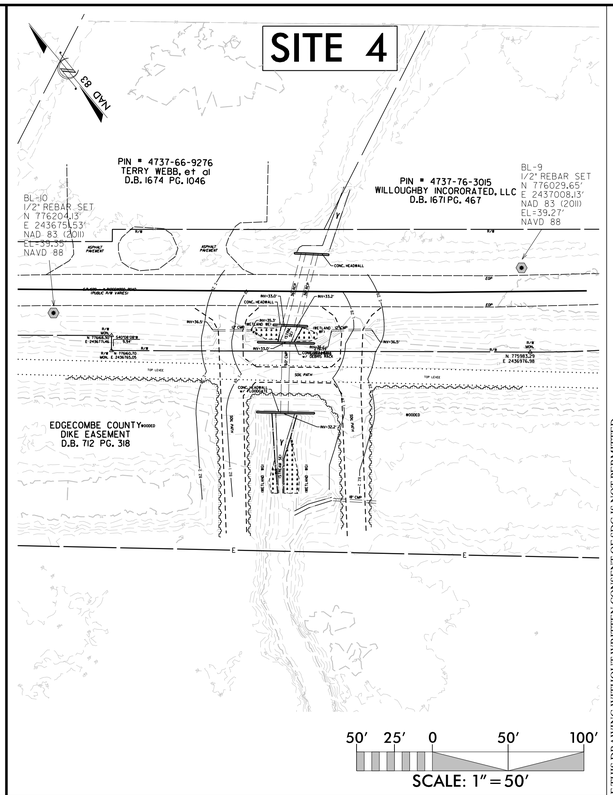
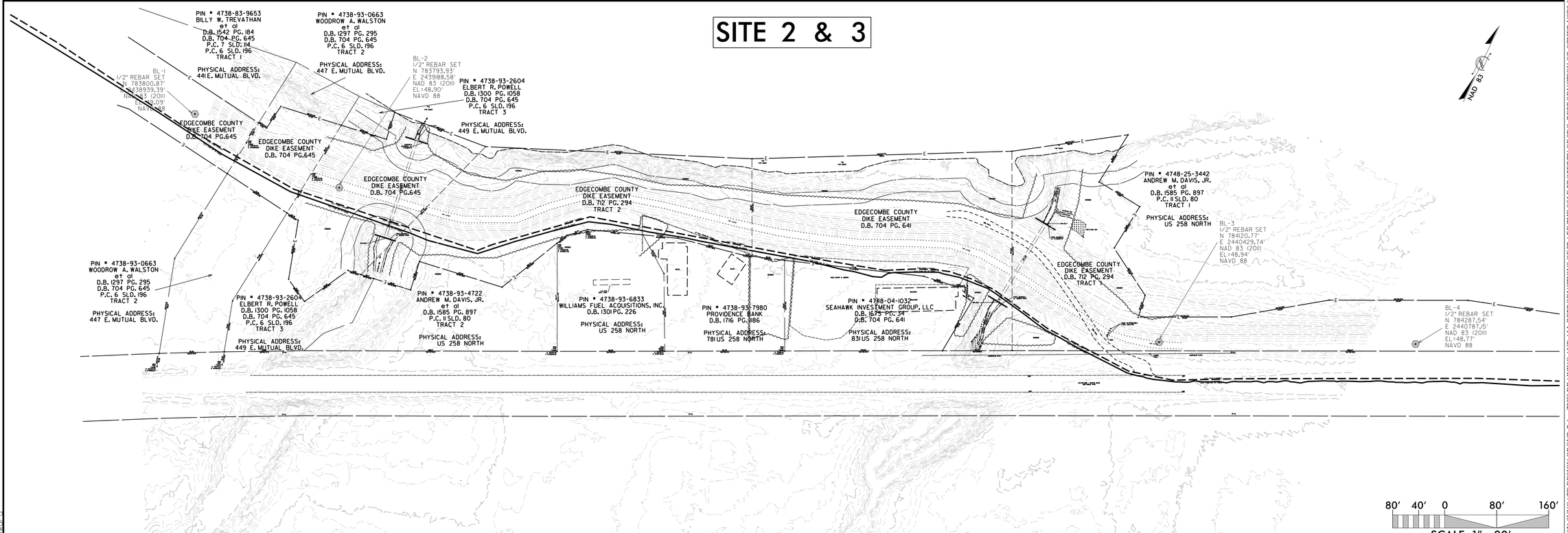
SITE 1



SITE 4



SITE 2 & 3



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Randal C. Howard
3752D3B0B8B7468...

NORTH CAROLINA
PROFESSIONAL
SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

6/16/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

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PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C201
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C2.01

6/16/2021
Floodgate_Rdy_psh_C201.dgn
Howard

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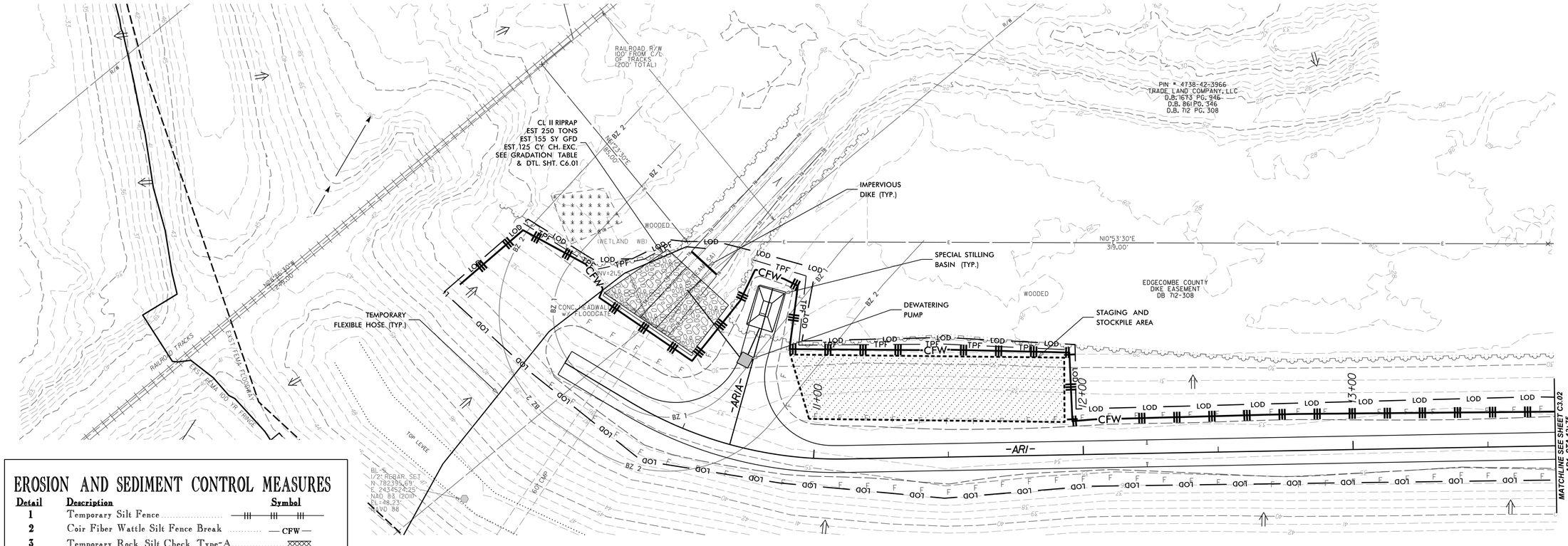
NAD 83

20' 10' 0 20' 40'

SCALE: 1" = 20'

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: JOSH DALTON
Stamp: PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C301
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.01

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6/16/2021
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rhoward

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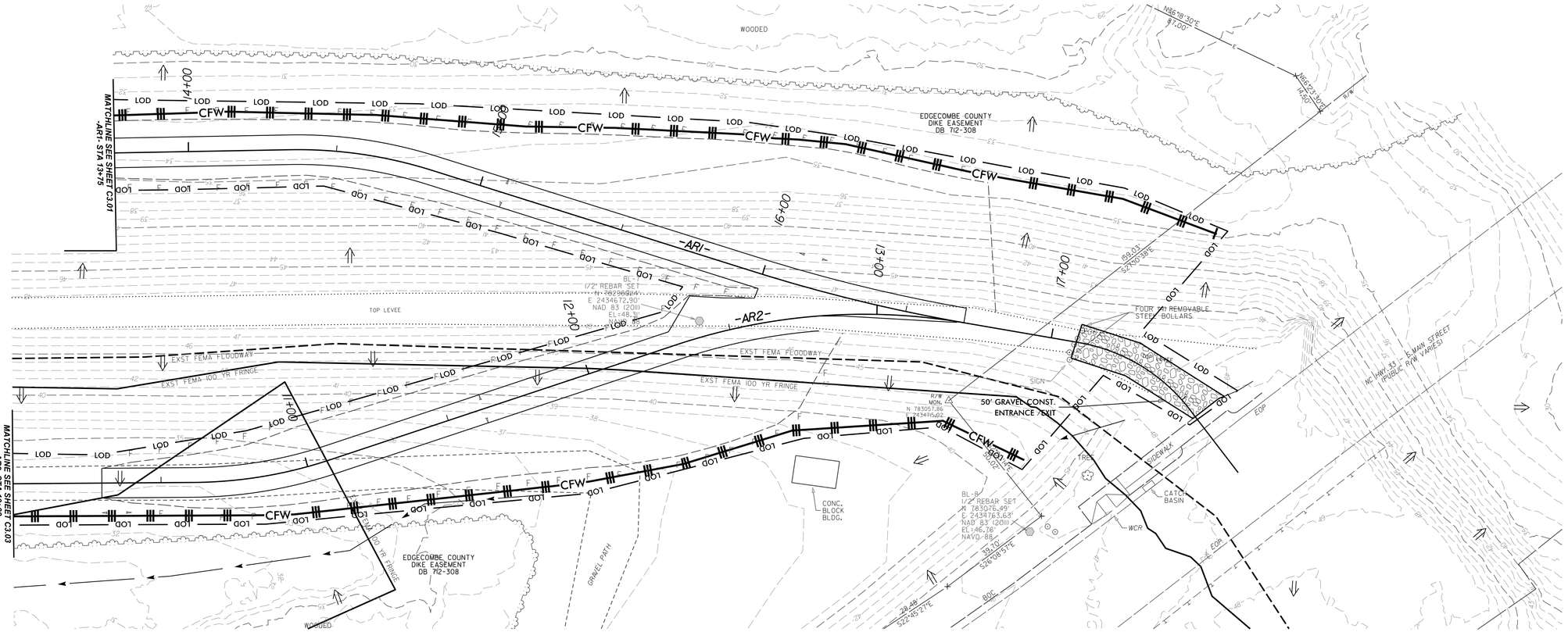

NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 15 + 30 to Sta. 16 + 70 –AR1– LT (570 SY)
Sta. 10 + 50 to Sta. 12 + 80 –AR2– RT (450 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
JOSH DALTON
1B0A0DBC4B9B4CA...

NORTH CAROLINA
PROFESSIONAL
SEAL
26971
ENGINEER
JOSHUA G. DALTON

6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C302
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.02**

6/16/2021
Floodgate_Rdy_psh_C302.dgn
Howard

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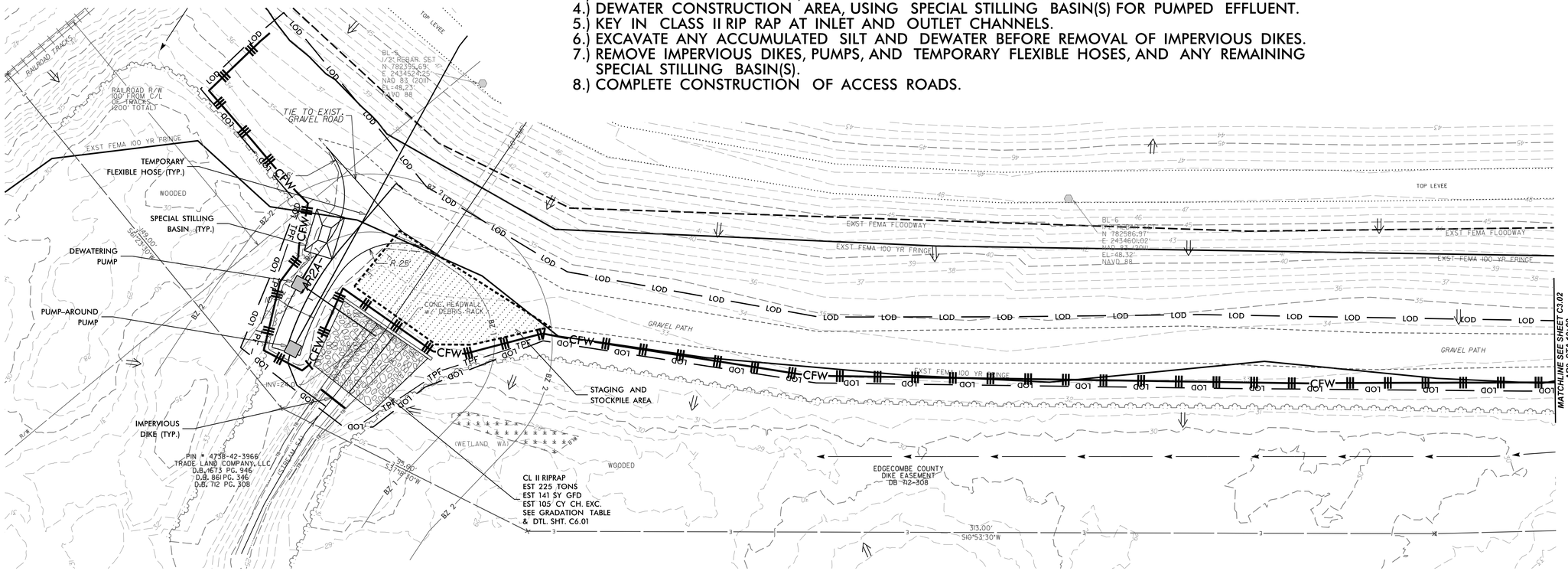
NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
JOSH DALTON
NORTH CAROLINA
PROFESSIONAL
SEAL
26971
ENGINEER
JOSHUA G. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C303
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.03**

6/16/2021
F:\Floodgate_Rdy_psh_C303.dgn
Howard

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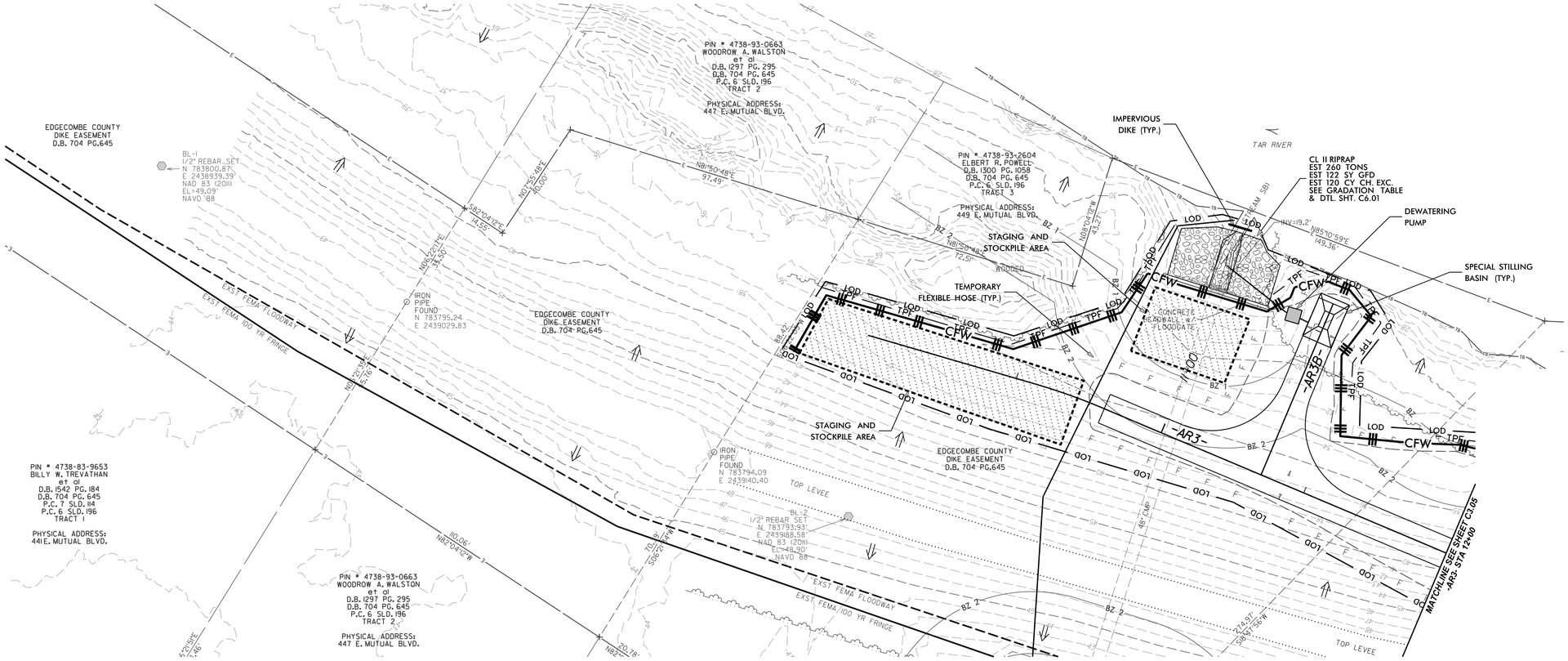
PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.

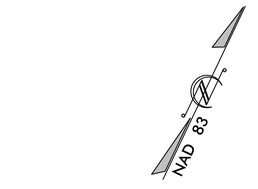


Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+80 to Sta. 12+00 –AR3– LT (55 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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Digitally signed by JOSH DALTON
Date: 2021.06.17 15:04:57 -04'00'
PE SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C304
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.04**

6/16/2021
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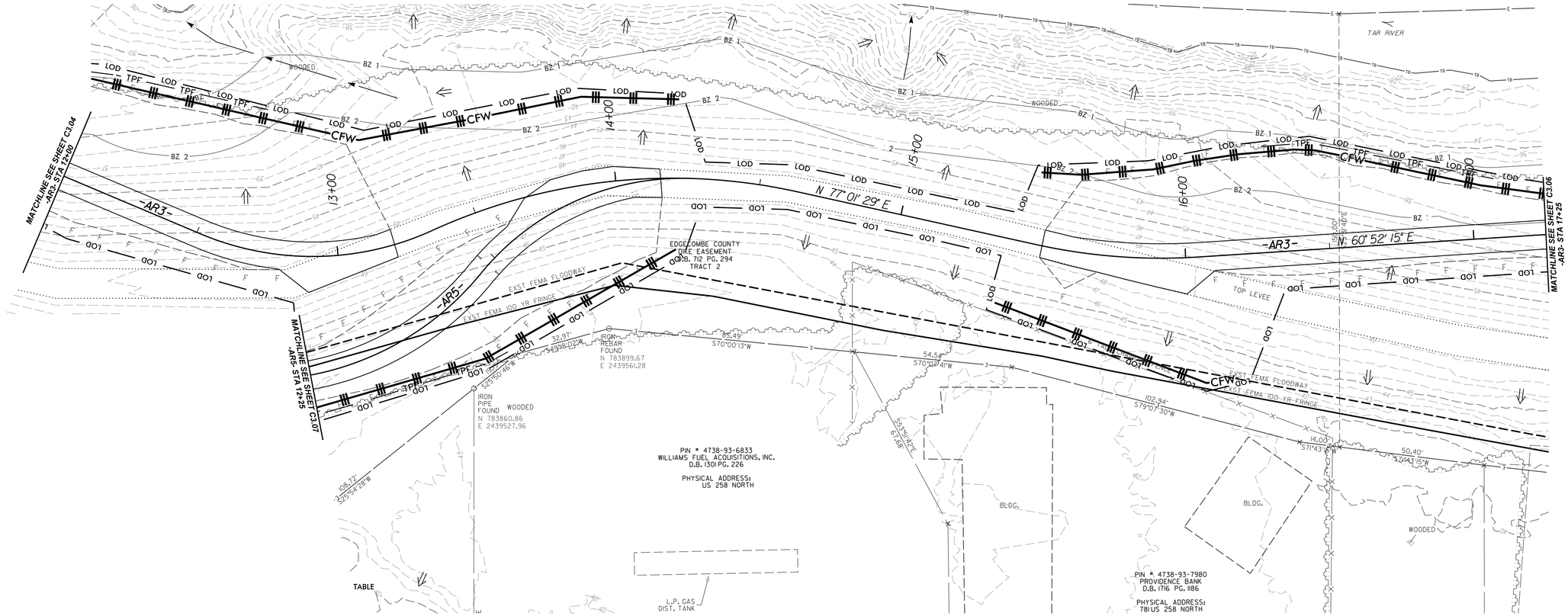
Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 12+00 to Sta. 13+10 –AR3– LT (355 SY)
Sta. 15+90 to Sta. 16+60 –AR3– LT (200 SY)



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

20′ 10′ 0 20′ 40′
SCALE: 1″ = 20′

NAD 83

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON
PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C305
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.05

6/16/2021
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Howard

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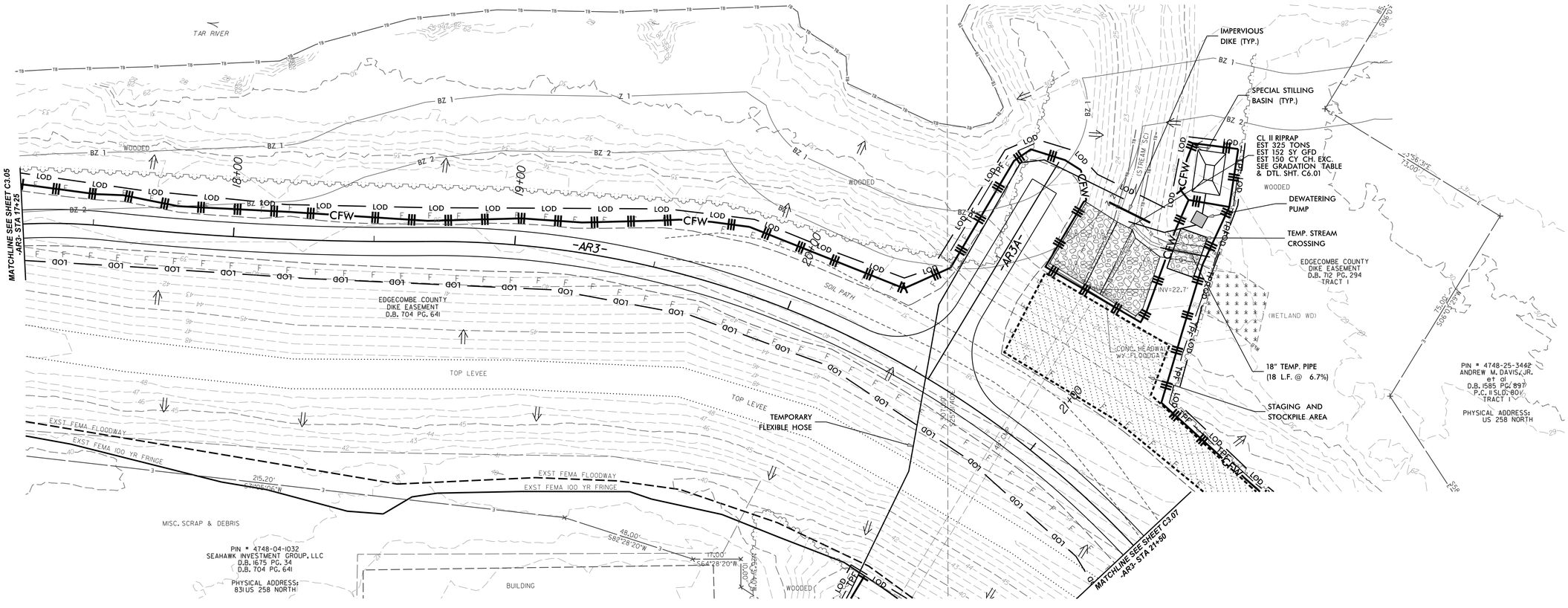
SCALE: 1"=20'

NAD 83

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C306
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.06

6/16/2021
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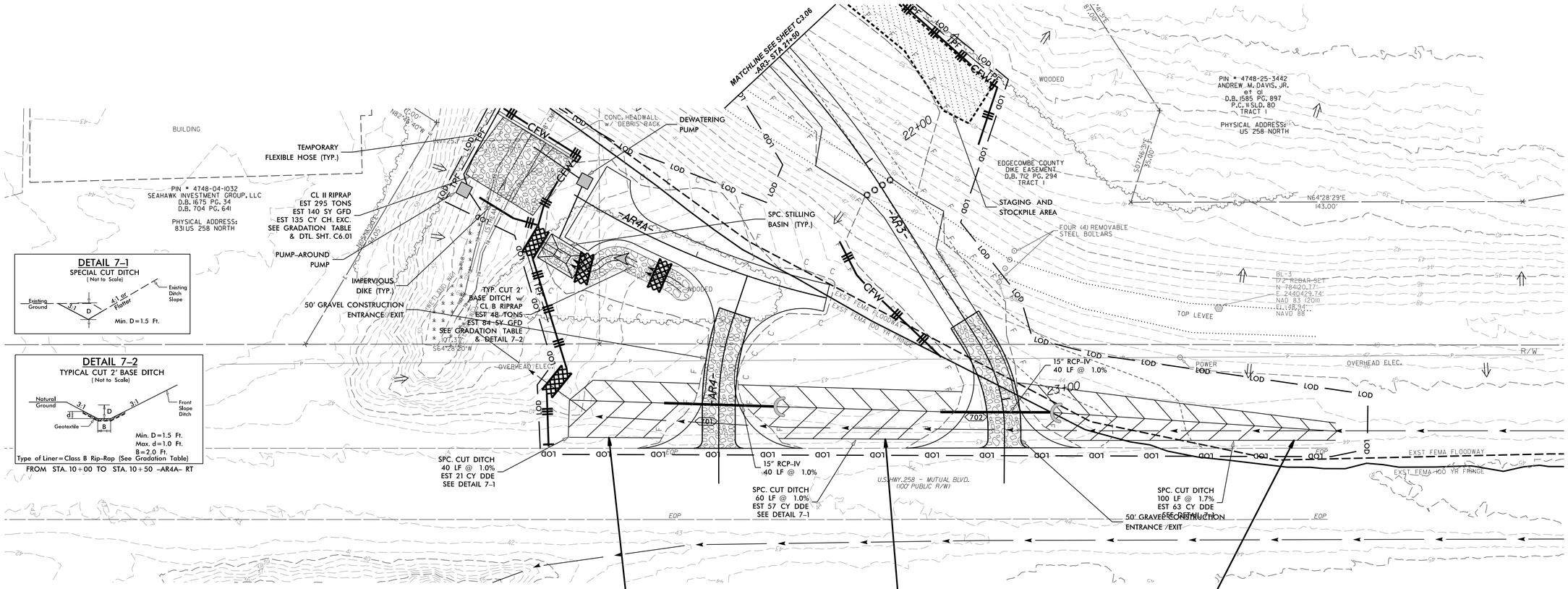
SCALE: 1" = 20'

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



DETAIL 7-1
SPECIAL CUT DITCH
(Not to Scale)

DETAIL 7-2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)

FROM STA. 10+00 TO STA. 10+50 -AR4A- RT

Place Matting for Erosion Control on Slope as Work Allows.
Sta. 21+50 to Sta. 22+10 -AR3- LT (185 SY)

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE. (50 SY)

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE. (75 SY)

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE. (125 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
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8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C307
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.07

6/16/2021
Floodgate_Rdy_psh_C307.dgn
jhoward

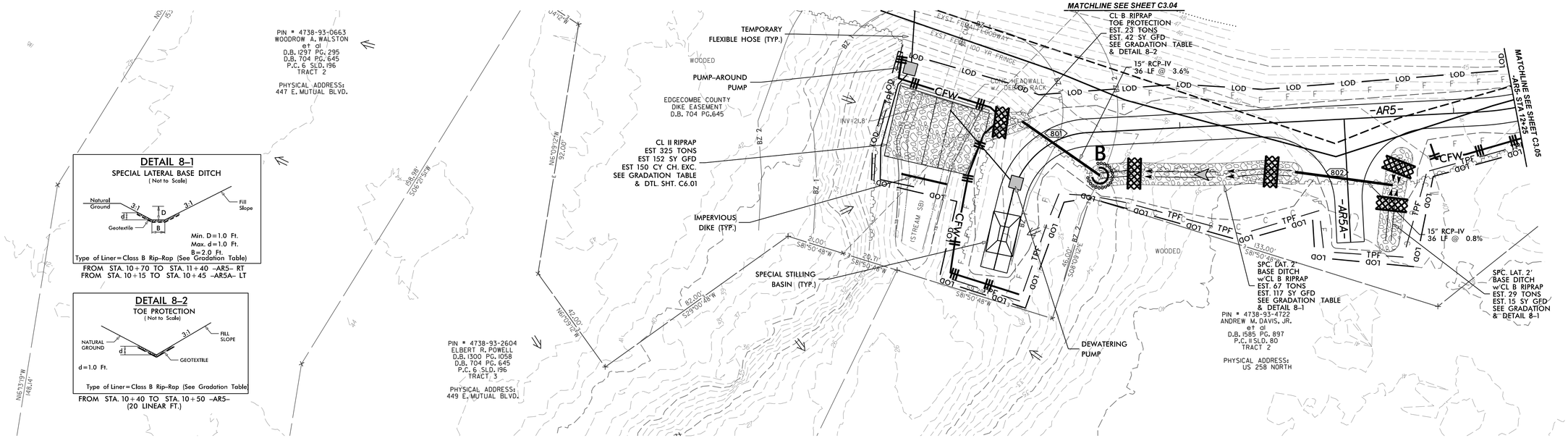
DocuSign Envelope ID: AE3702D3-79BE-44C6-A9EA-29D7AFF35315

20′ 10′ 0 20′ 40′
SCALE: 1″=20′

NAD 83

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



DETAIL 8-1
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+70 TO STA. 11+40 -AR5- RT
FROM STA. 10+15 TO STA. 10+45 -AR5A- LT

DETAIL 8-2
TOE PROTECTION
(Not to Scale)

d=1.0 Ft.
Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+40 TO STA. 10+50 -AR5-
(20 LINEAR FT.)

NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
9	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: JOSH DALTON
PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C308
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.08

6/16/2021
Floodgate_Rdy_psh_C308.dgn
Howard

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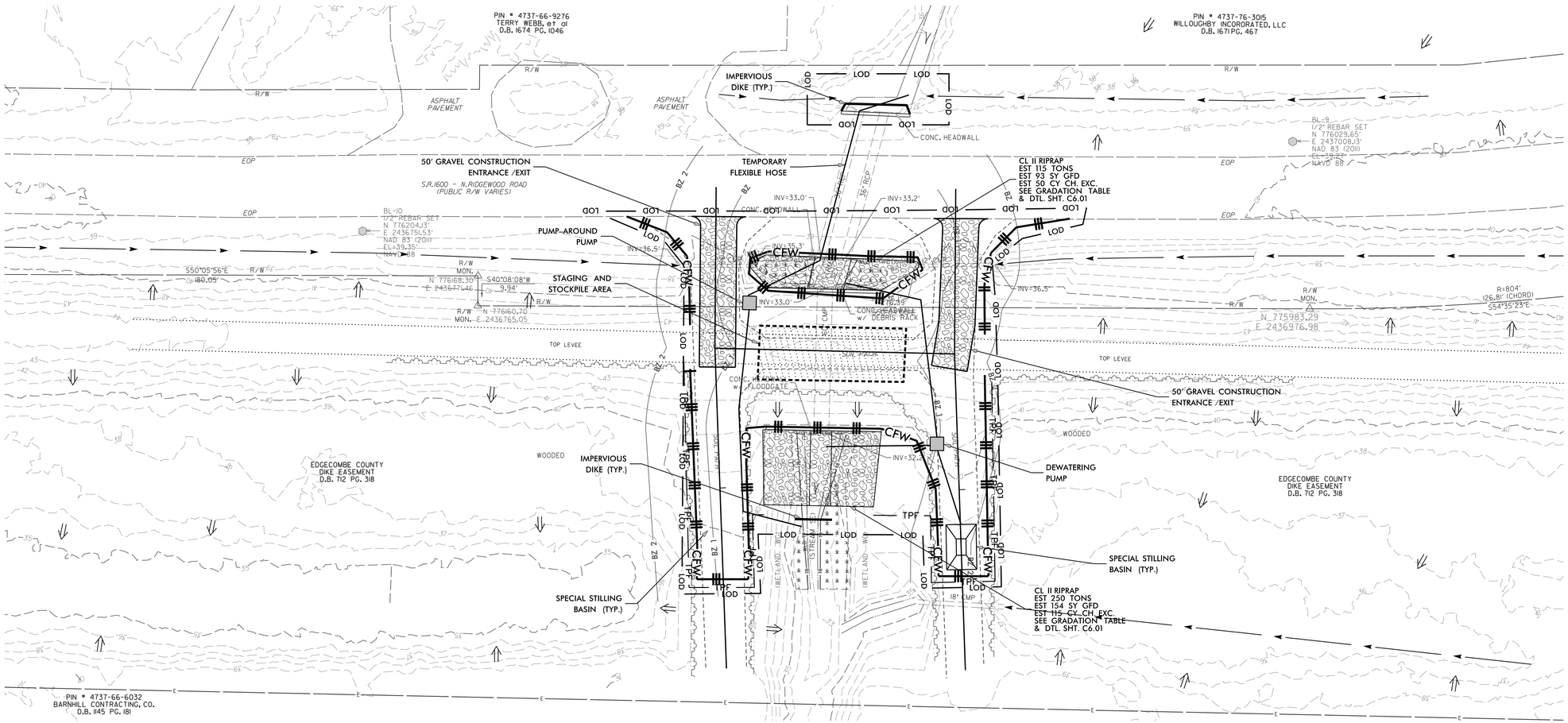
PHASING FOR SHEET C3.09:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.

20' 10' 0 20' 40'
SCALE: 1" = 20'

NAD 83



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Rock Pipe Inlet Sediment Trap Type-B	
7	Special Stilling Basin	
8	Temp. Tree Prot. Fence	TPF
9	Limits of Disturbance	LOD

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 4

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C309
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

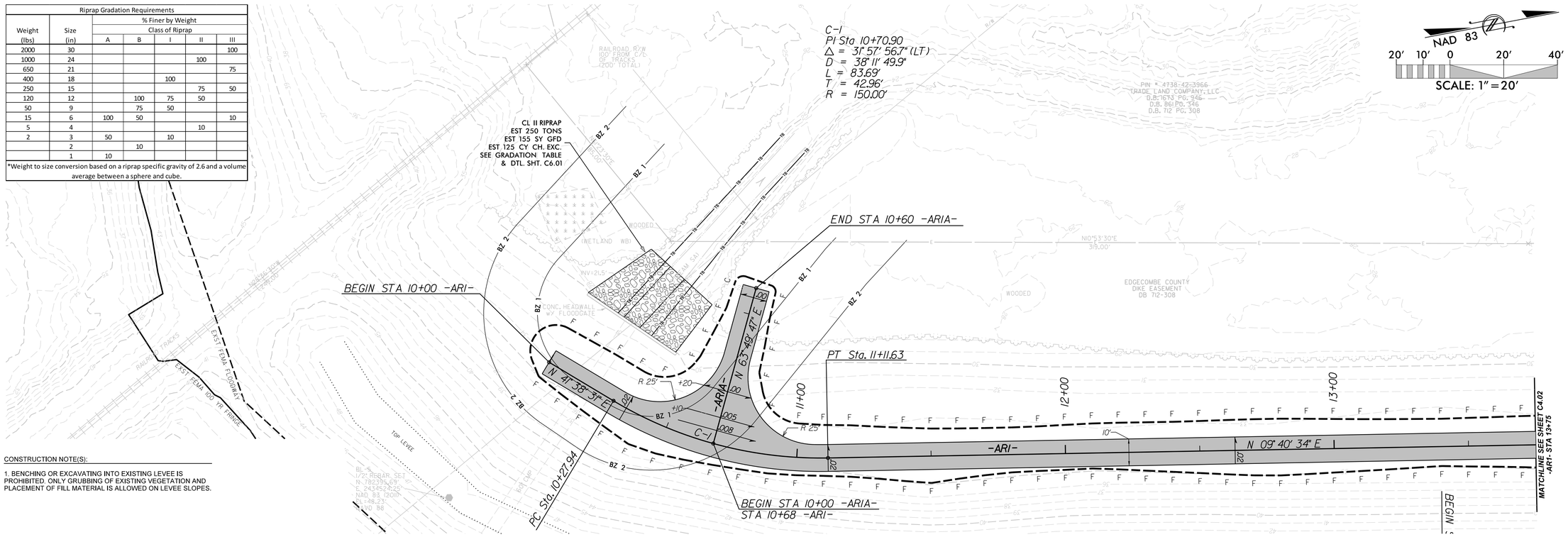
SHEET NO. **C3.09**

6/16/2021
I:\Floodgate_Rdy_psh_C309.dgn
Howard

DocuSign Envelope ID: AE3702D3-79BE-44C6-A9EA-29D7AFF35315

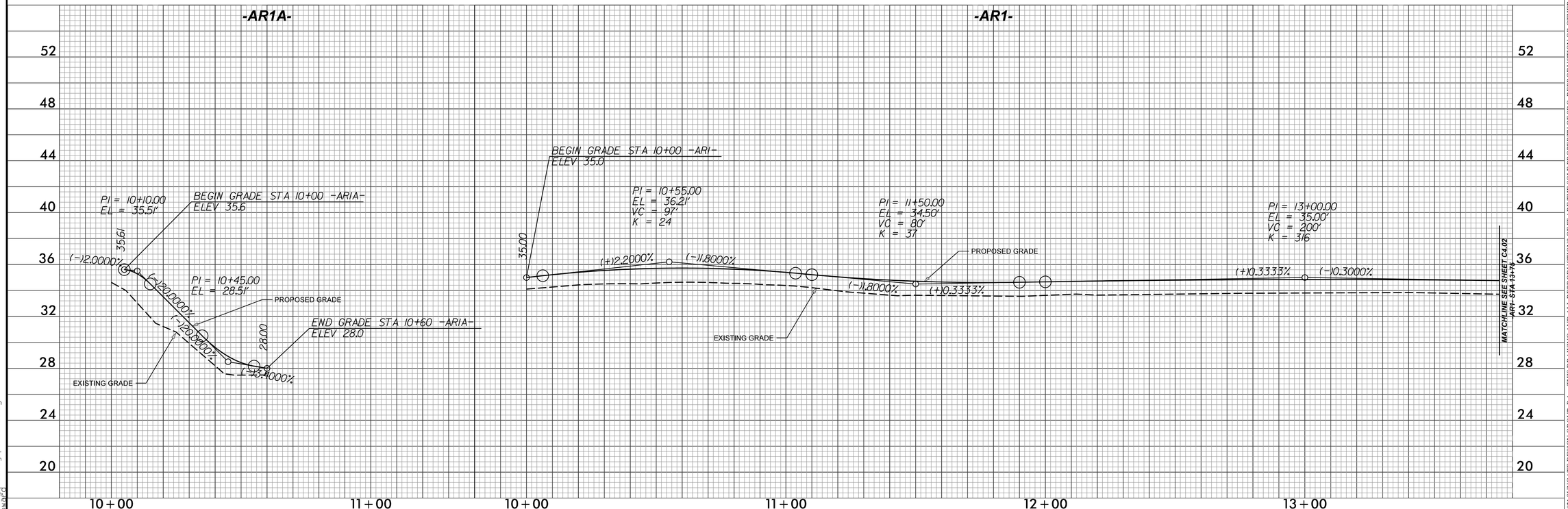
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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DocuSigned by: JOSH DALTON
PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C401
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

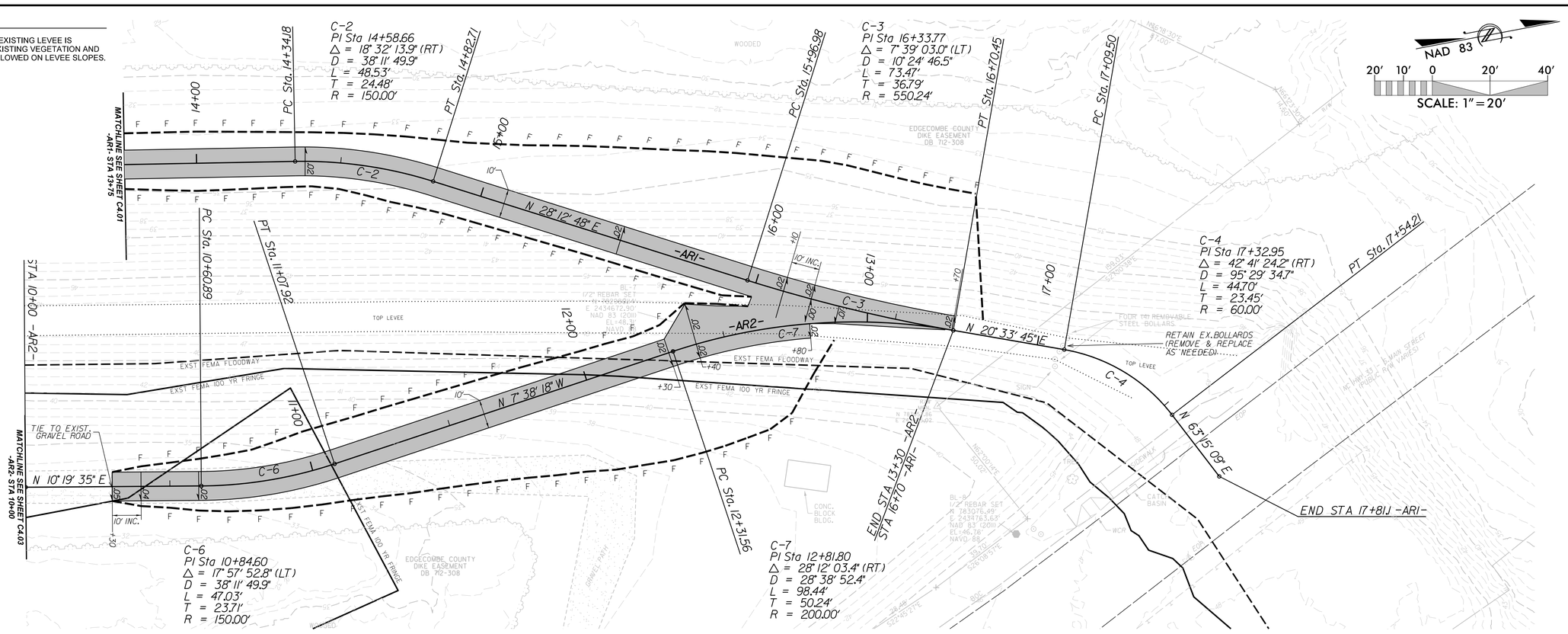
SHEET NO. C4.01

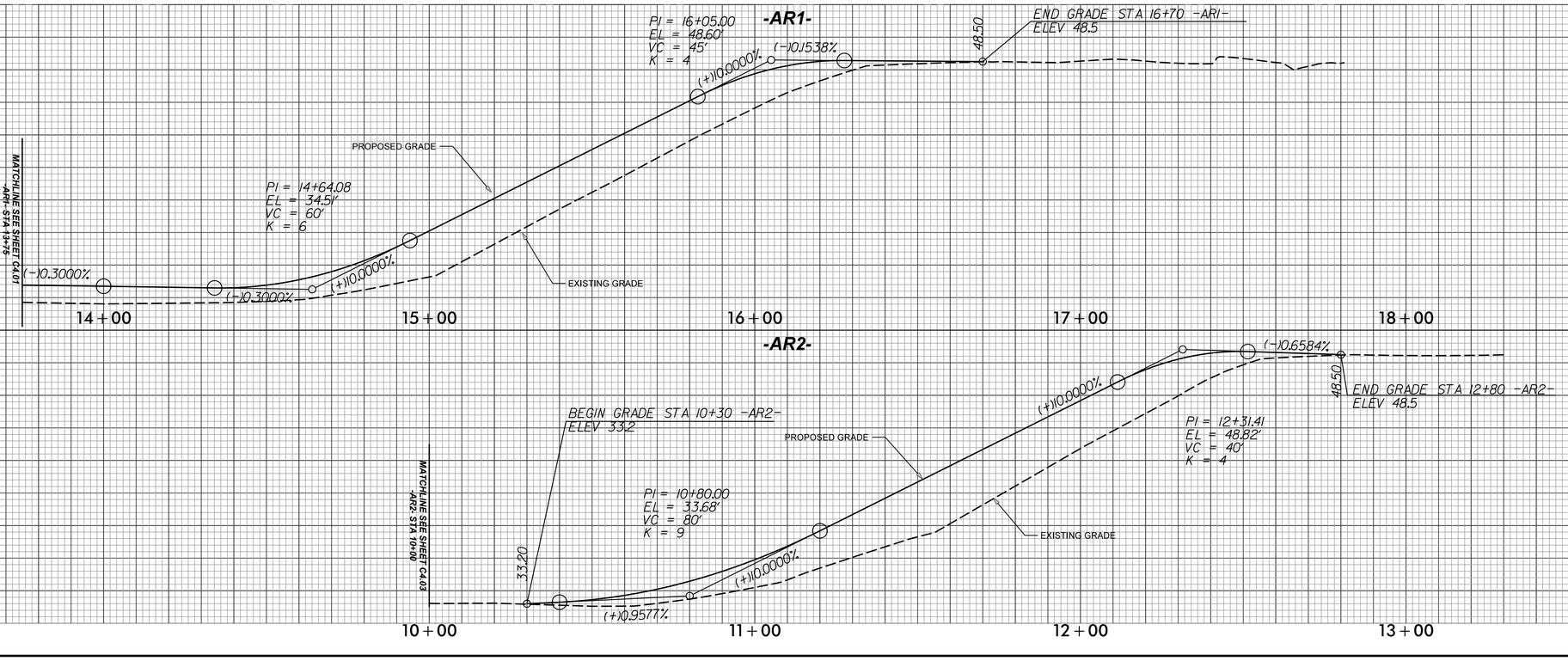
6/16/2021
Floodgate_Rdy_psh_C401.dgn
Howard

DocuSign Envelope ID: AE3702D3-79BE-44C6-A9EA-29D7AFF35315

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C402
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	

SHEET NO. **C4.02**

6/16/2021
Floodgate_Rdy_psh_C402.dgn
Layout

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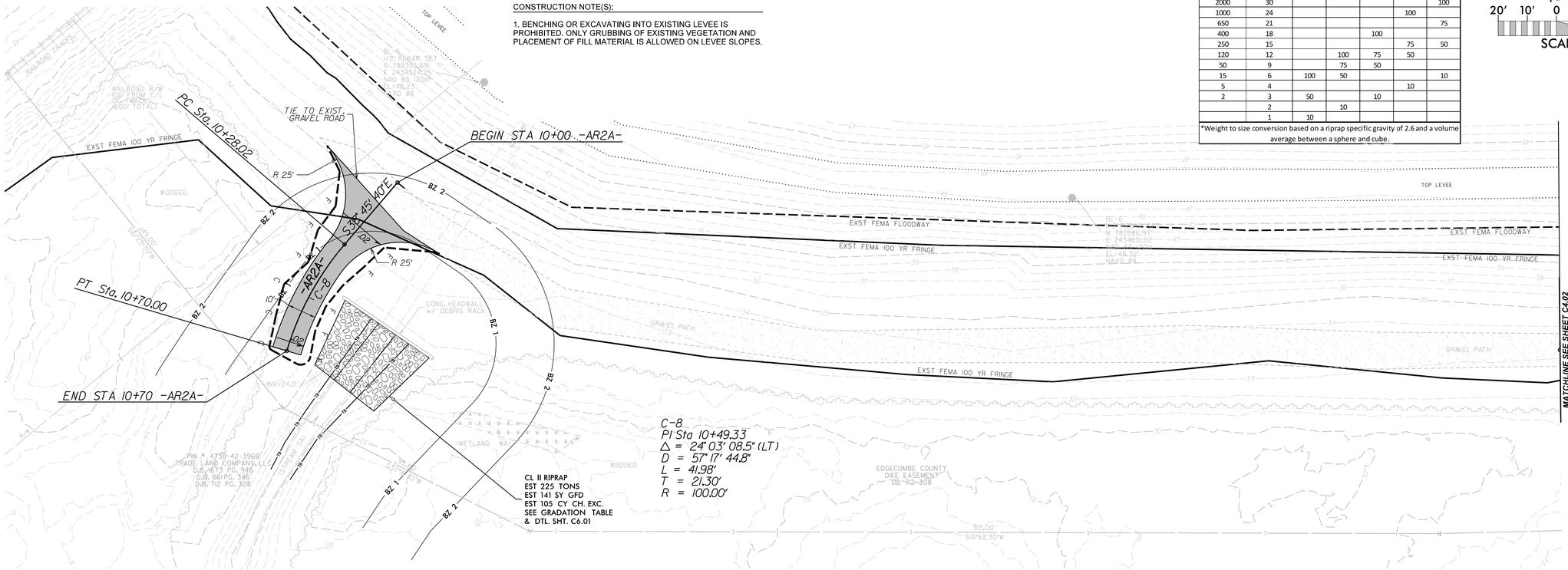
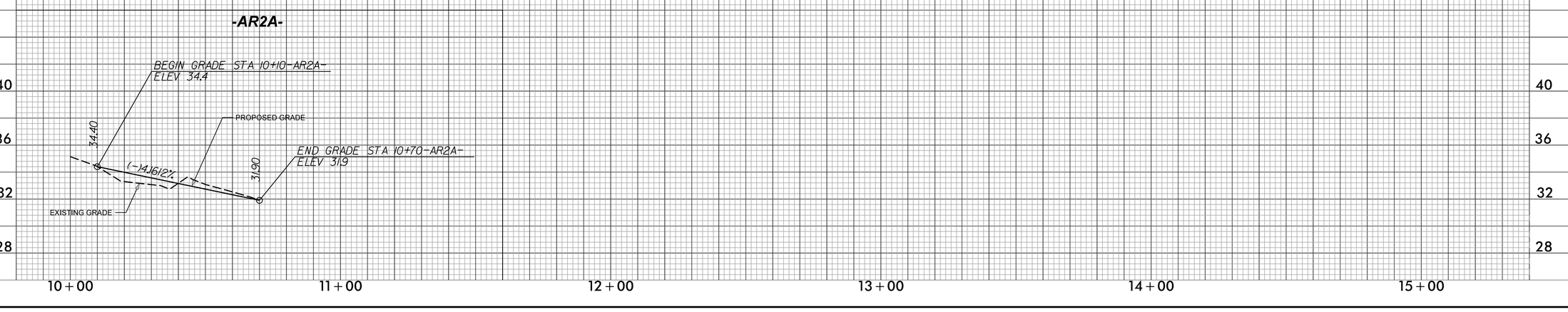
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C403
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.03

6/16/2021
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jhoward

DocuSign Envelope ID: AE3702D3-79BE-44C6-A9EA-29D7AFF35315

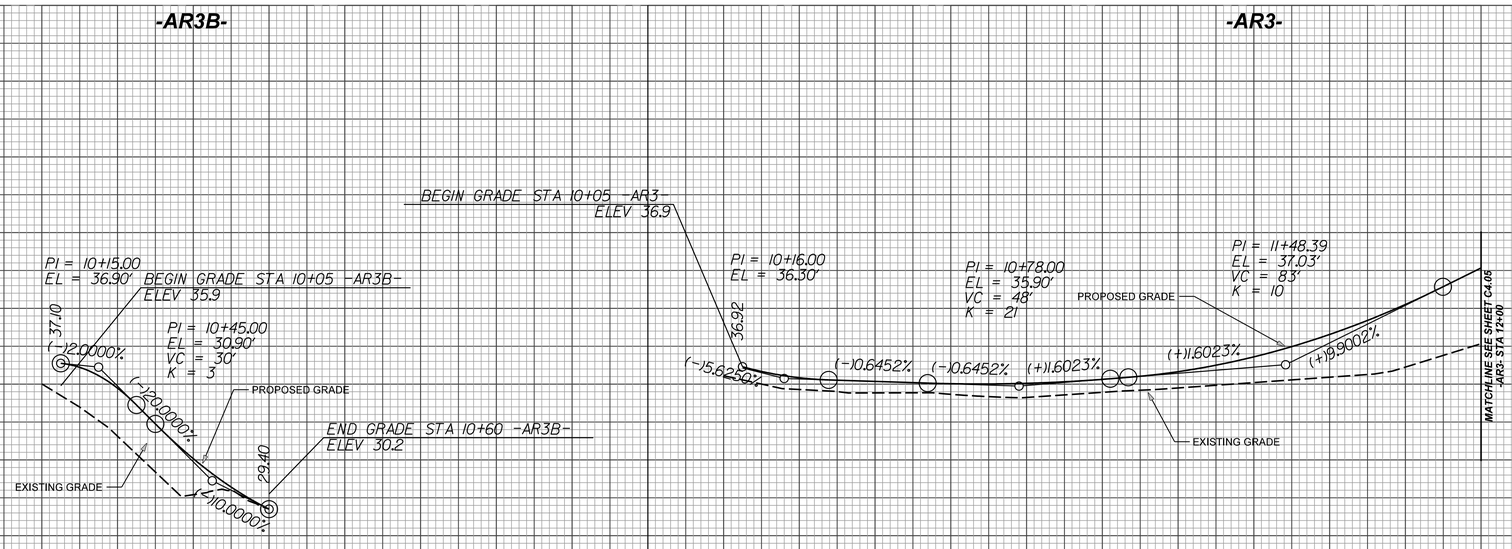


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight					
		Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C404
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.04

6/16/2021
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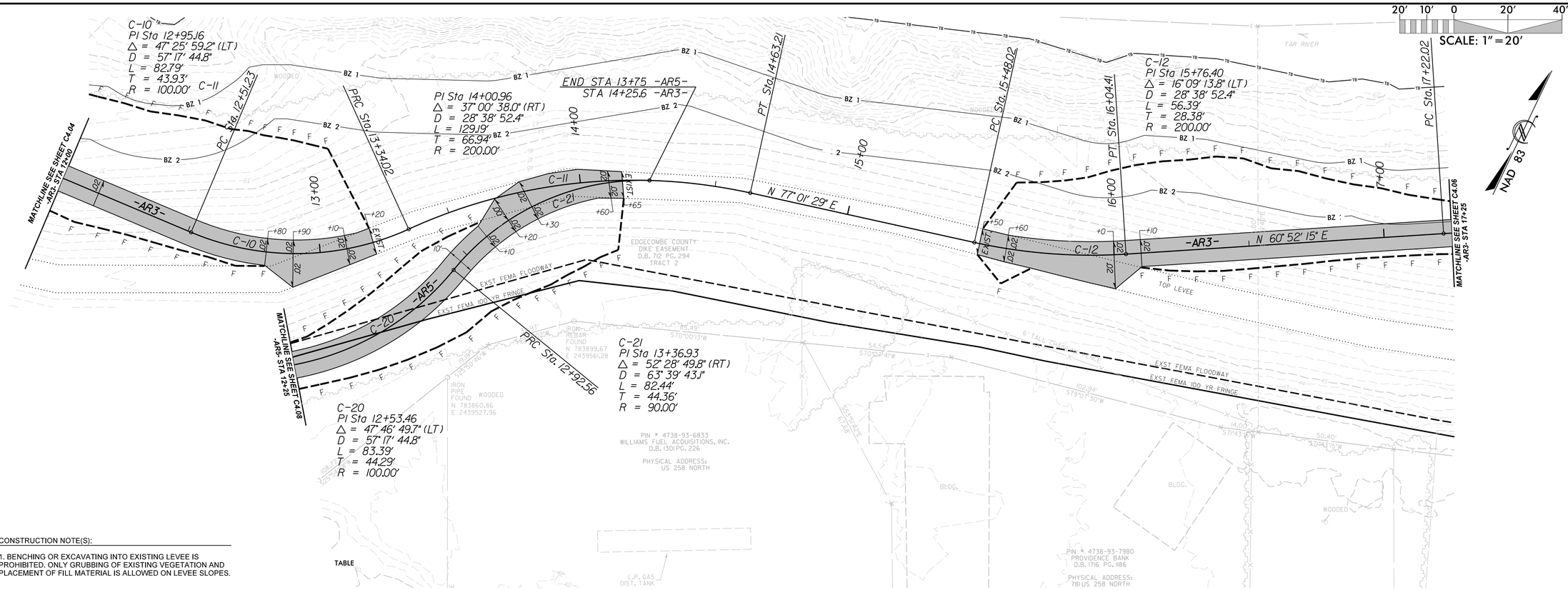
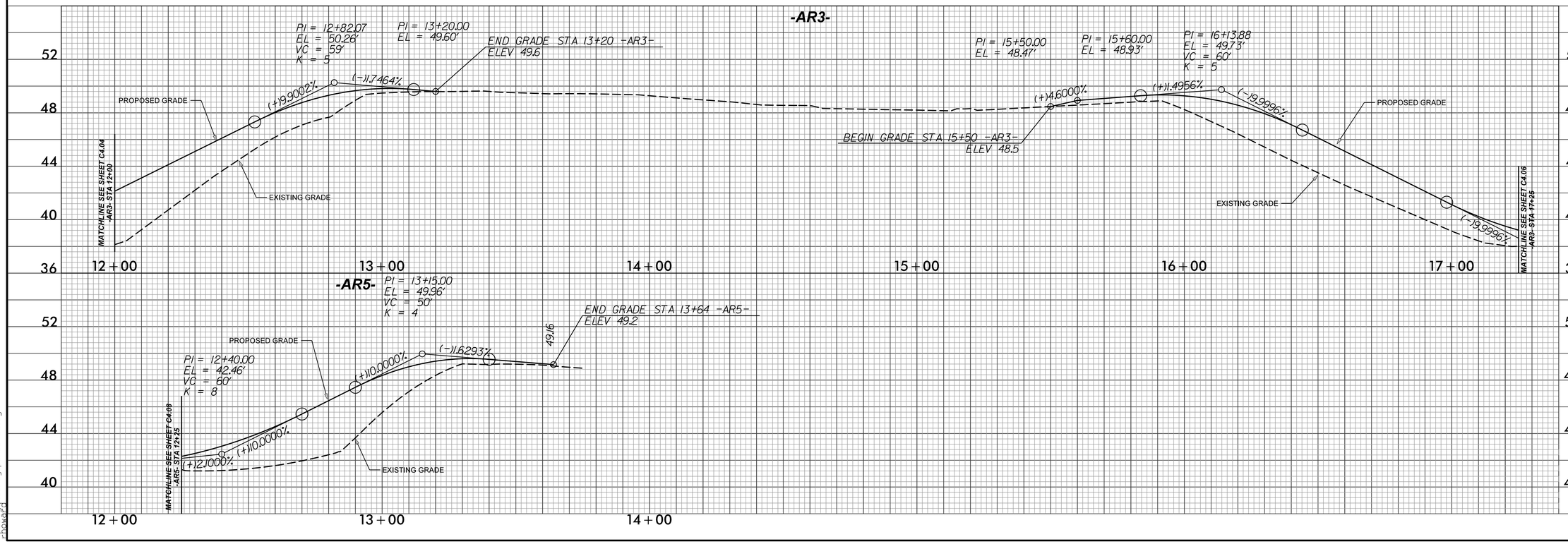


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

TABLE



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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

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Date: 2021.06.17 08:47:21 -04'00'

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C405
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.05

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Layout

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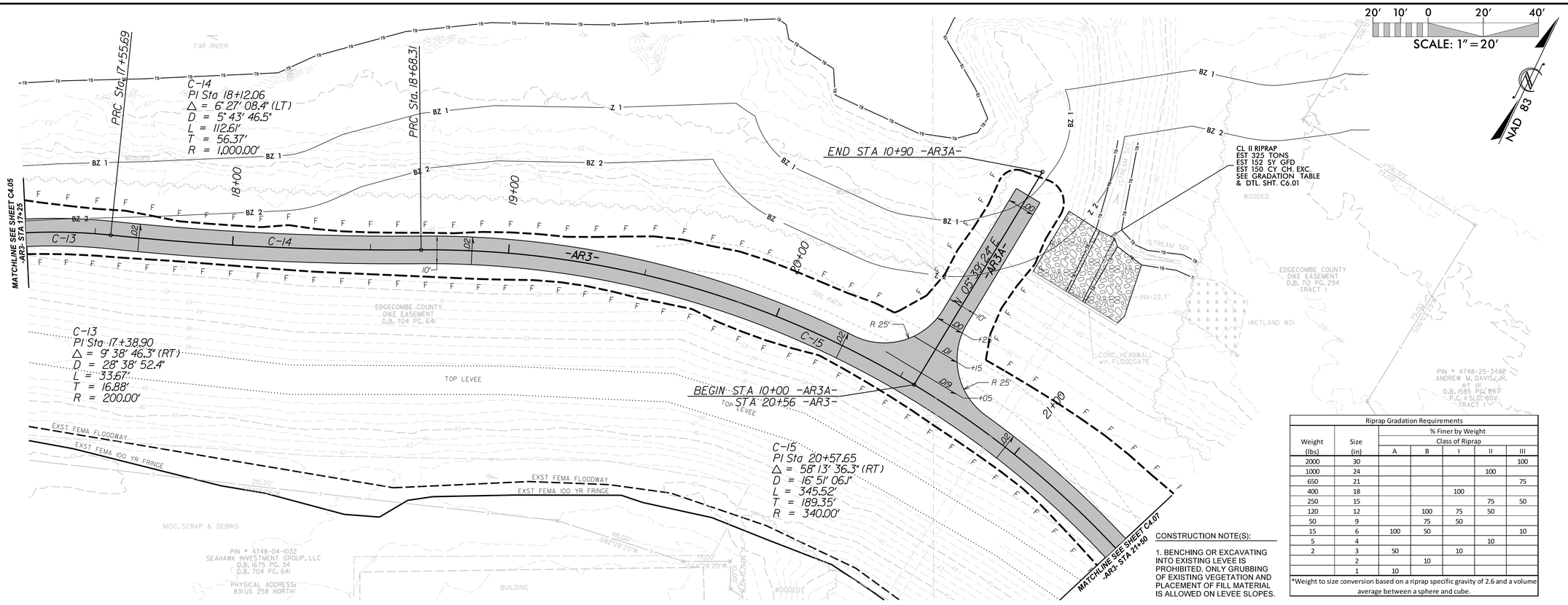
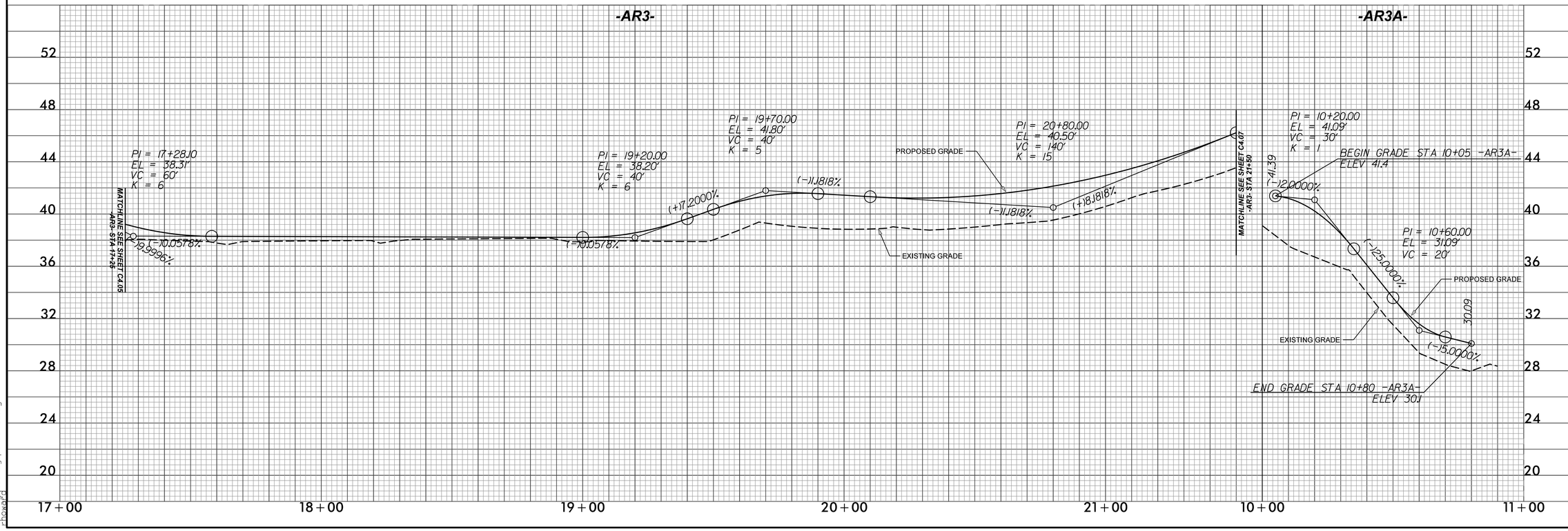


Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C406
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.06

6/16/2021 Floodgate_Rdy_psh_C406.dgn Howard

DocuSign Envelope ID: AE3702D3-79BE-44C6-A9EA-29D7AFF35315

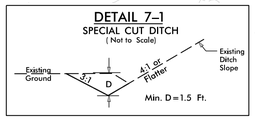
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

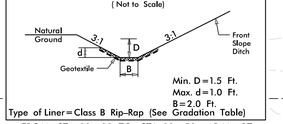
1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)



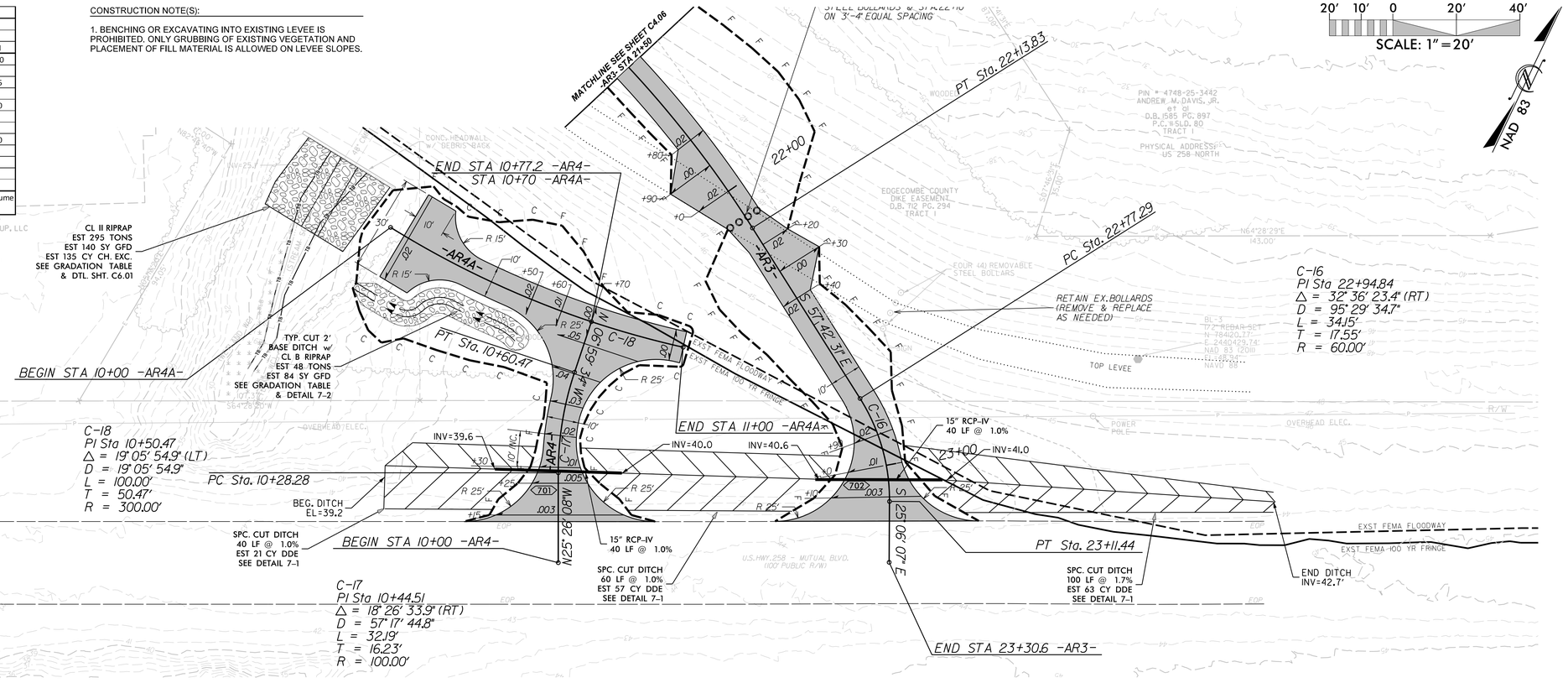
Min. D = 1.5 Ft.

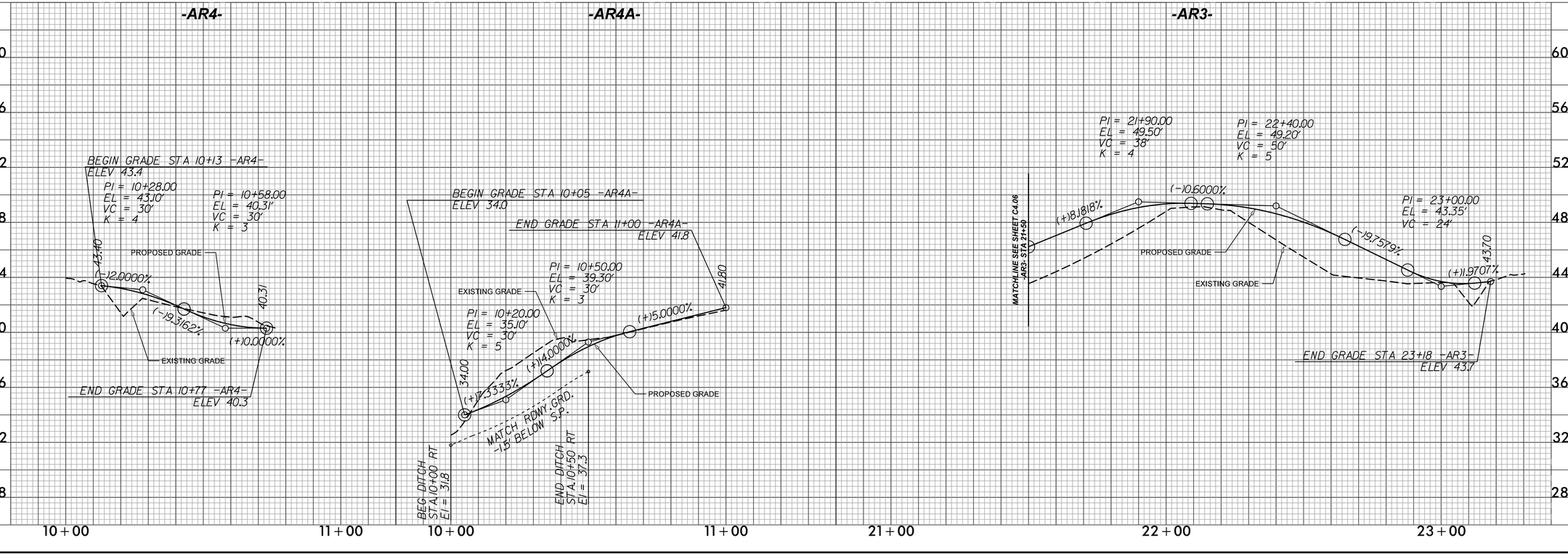
DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = Class B Rip-Rap (See Gradation Table)

FROM STA. 10+00 TO STA. 10+50 –AR4A– RT





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DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C407
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C4.07**

6/16/2021
Floodgate_Rdy_psh_C407.dgn
Layout

DocuSign Envelope ID: AE3702D3-79BE-44C6-A9EA-29D7AFF35315

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

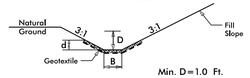
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

SCALE: 1" = 20'

NAD 83

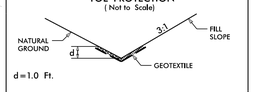
DETAIL 8–1
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

FROM STA. 10+70 TO STA. 11+40 –AR5– RT
FROM STA. 10+15 TO STA. 10+45 –AR5A– LT

DETAIL 8–2
TOE PROTECTION
(Not to Scale)



d = 1.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

FROM STA. 10+40 TO STA. 10+50 –AR5–
(20 LINEAR FT.)

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2
PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3
PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 1 SLD. 80
TRACT 2
PHYSICAL ADDRESS:
US 258 NORTH

MATCHLINE SEE SHEET C4.04

CL B RIPRAP
TOE PROTECTION
EST. 23 TONS
EST. 42 SY GFD
SEE GRADATION TABLE
& DETAIL 8–2

15" RCP–IV
36 LF @ 3.6%

BEGIN STA 10+00 –AR5A–
STA 11+62.3 –AR5–

EXST. FEMA FLOODWAY
EXST. FEMA 100 YR FRINGE

CONC. HEADWALL w/ TRASH RACK

CL II RIPRAP
EST 325 TONS
EST 152 SY GFD
EST 150 CY CH. EXC.
SEE GRADATION TABLE
& DTL. SHT. C6.01

INV=30.7
INV=32.0
INV=36.9
INV=37.2

N 6° 33' 03" E –AR5–
S 28° 26' 57" E –AR5A–
R 25'
N 11° 20' 50" W

PC Sta. 10+28.23
PT Sta. 10+66.40
C–19
PI Sta 10+50.39
Δ = 72° 53' 53.2" (RT)
D = 190° 59' 09.4"
L = 38.17'
T = 22.16'
R = 30.00'

PC Sta. 12+09.17

SPC. LAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 67 TONS
EST. 117 SY GFD
SEE GRADATION TABLE
& DETAIL 8–1

SPC. LAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 29 TONS
EST. 15 SY GFD
SEE GRADATION
& DETAIL 8–1

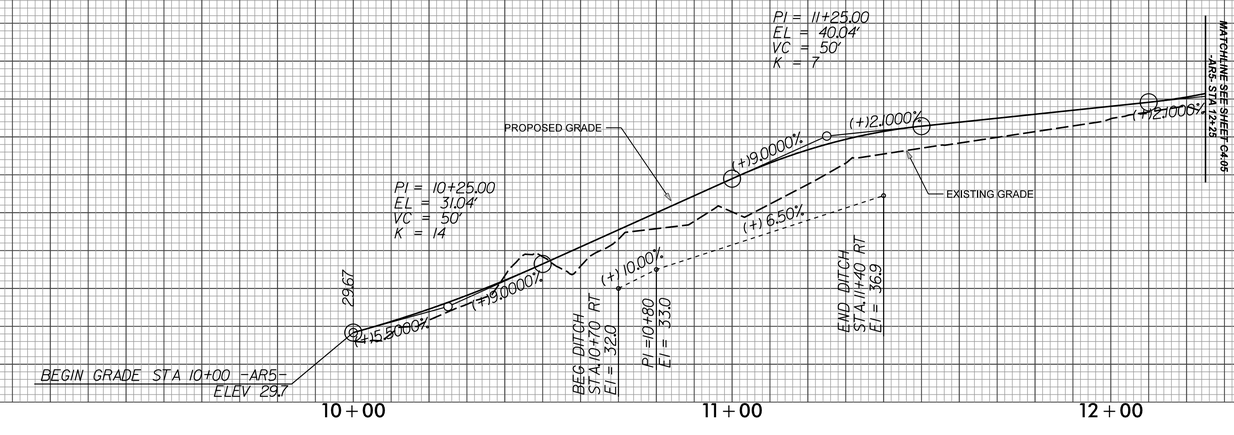
15" RCP–IV
36 LF @ 0.8%

MATCHLINE SEE SHEET C4.05
–AR5– STA 12+25

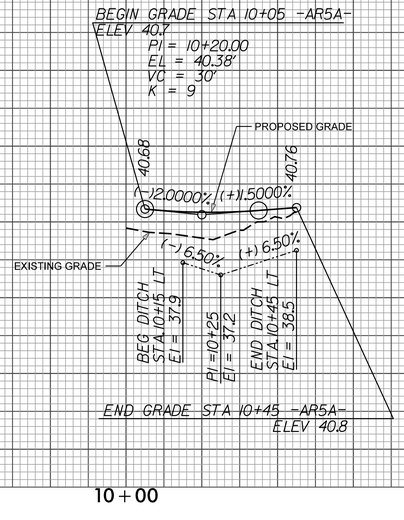
BEGIN STA 10+00 –AR5–

END STA 10+45 –AR5A–

-AR5-



-AR5A-



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Certificate Privacy
PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C408
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.08

6/16/2021
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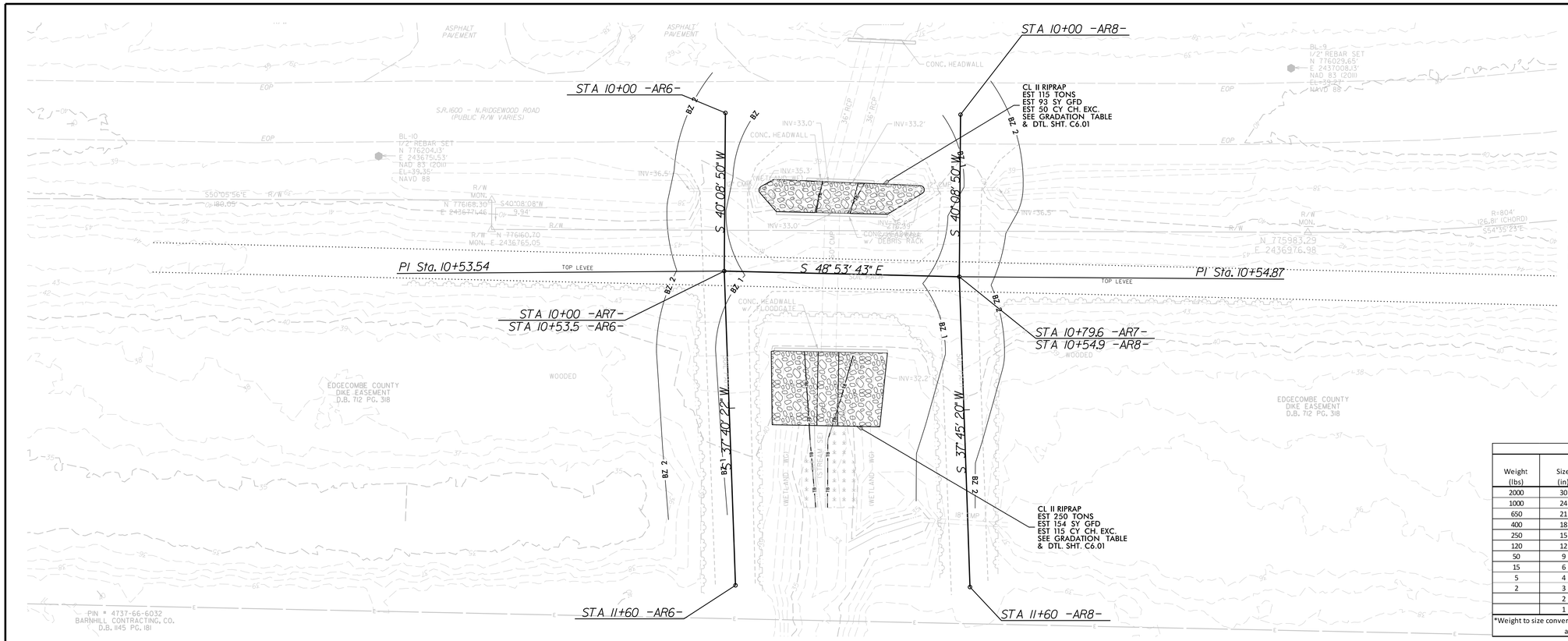
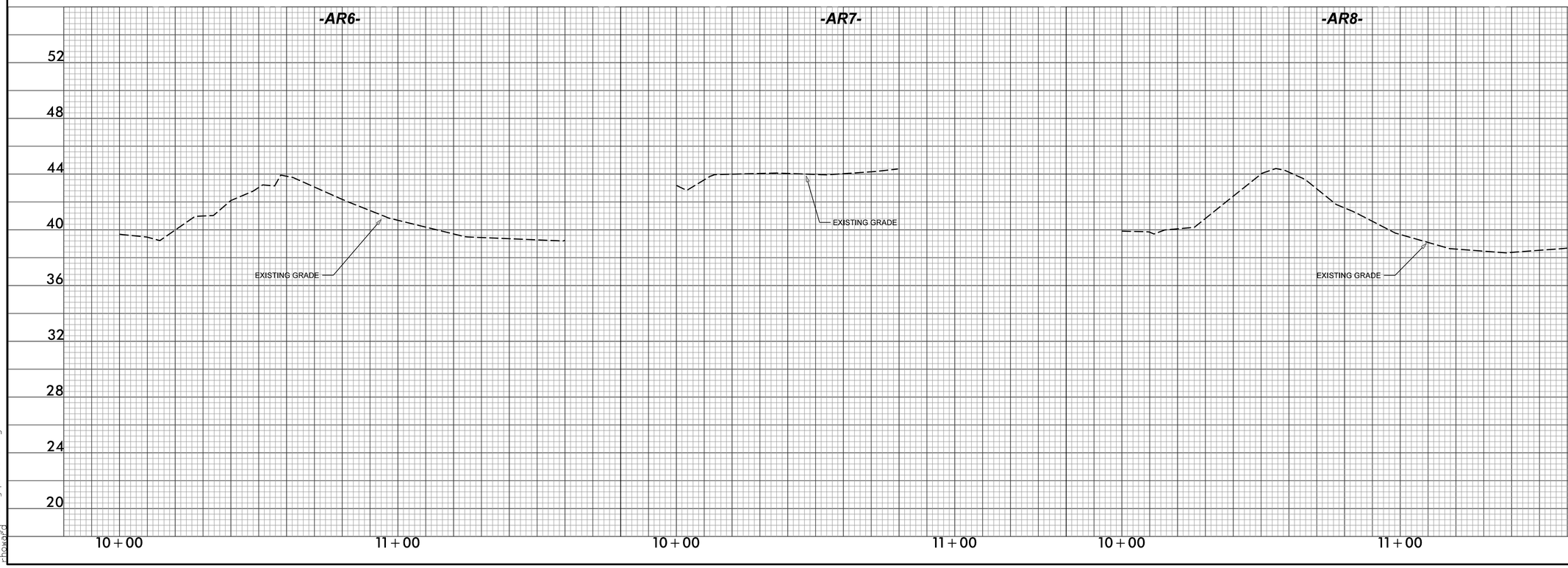


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 4

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C409
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.09

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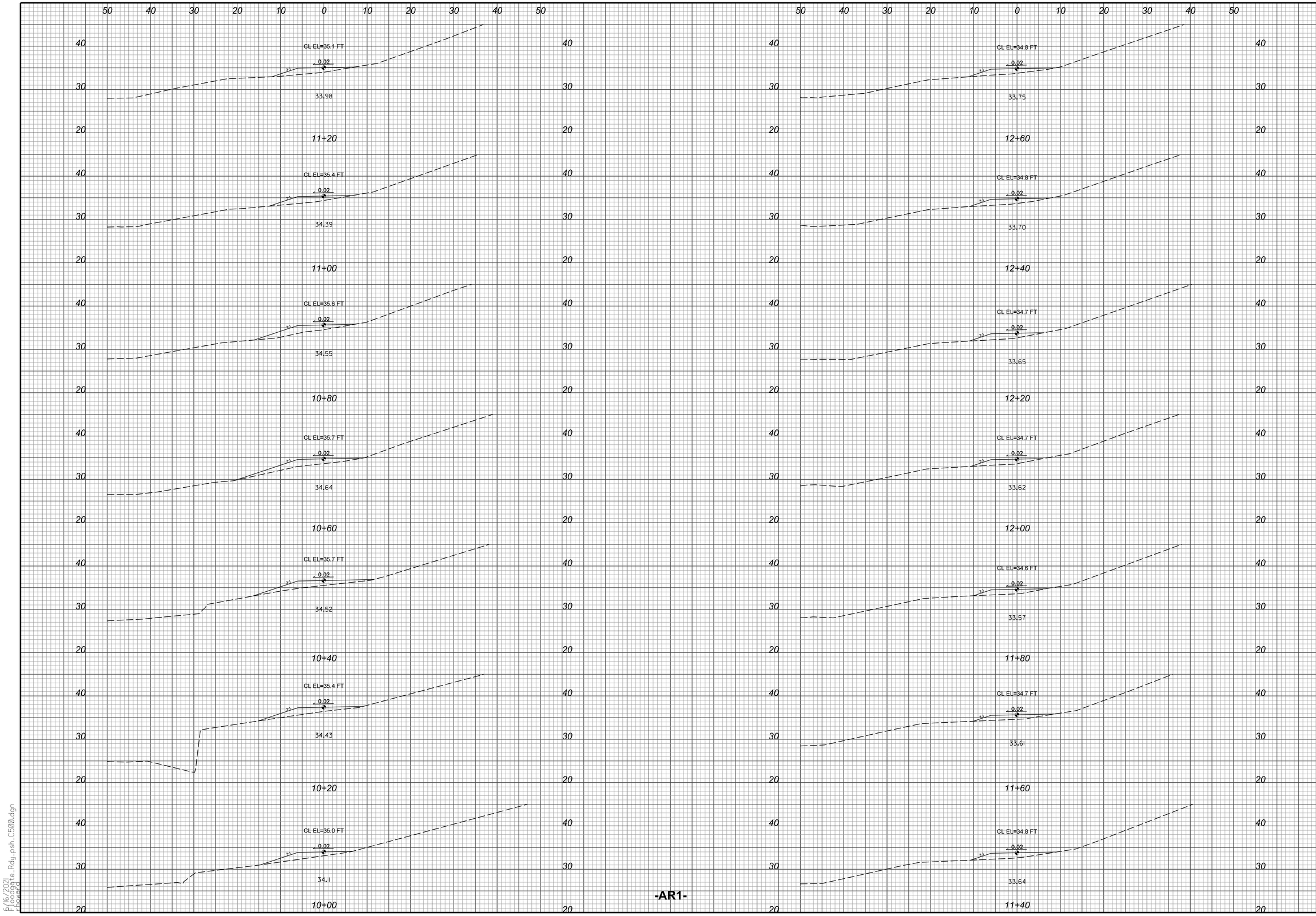

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7D3B1ADFC7E98C3...

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # :
1284-20041
DRAWING NAME:
FLOODGATE RDY PSH C501
DATE:
6-16-2021
DRAWN BY:
JRH
REVIEWED BY:
RCH
REVISIONS:

SHEET NO.
C5.01

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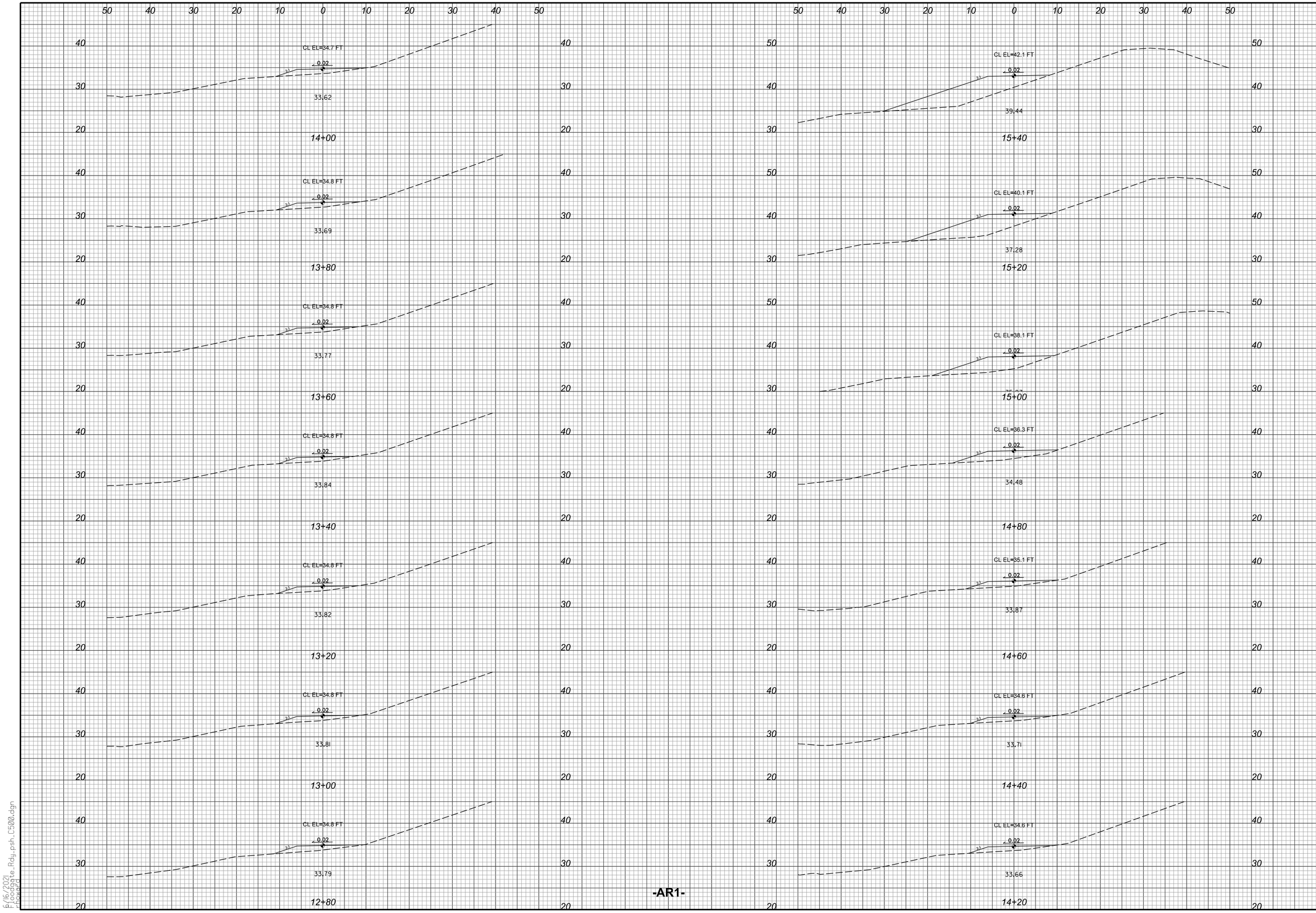

-AR1-

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C502
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

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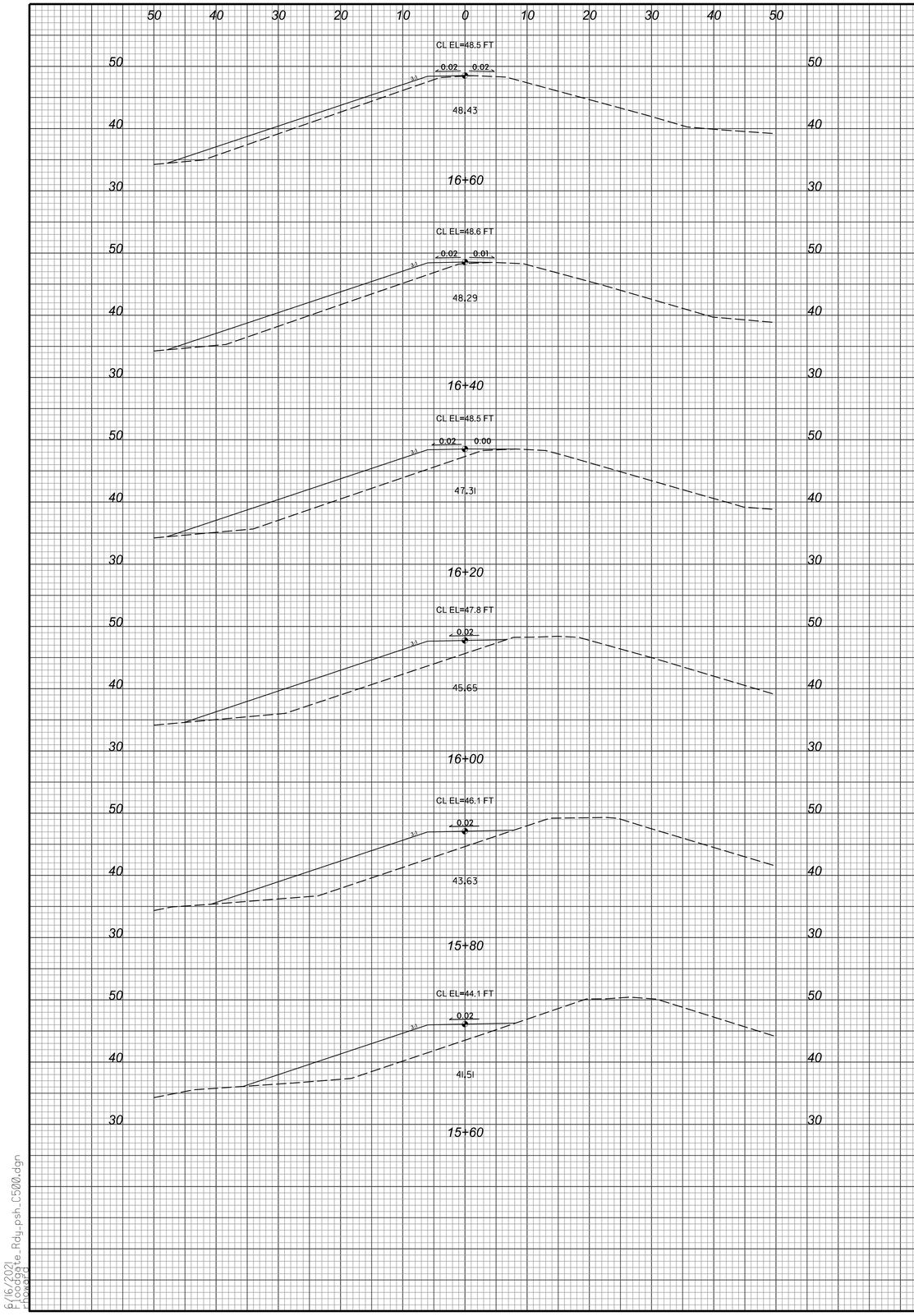

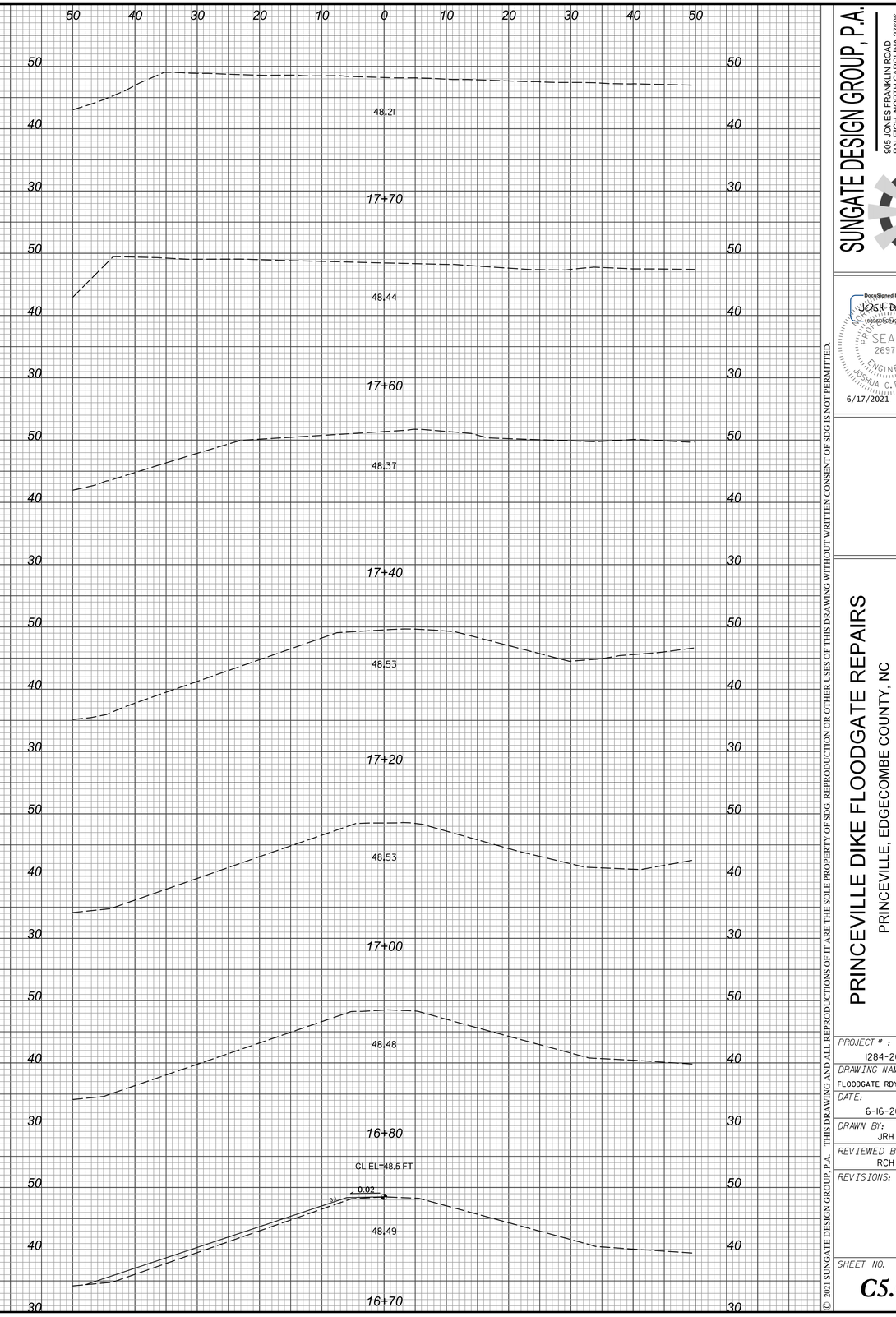

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C503
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
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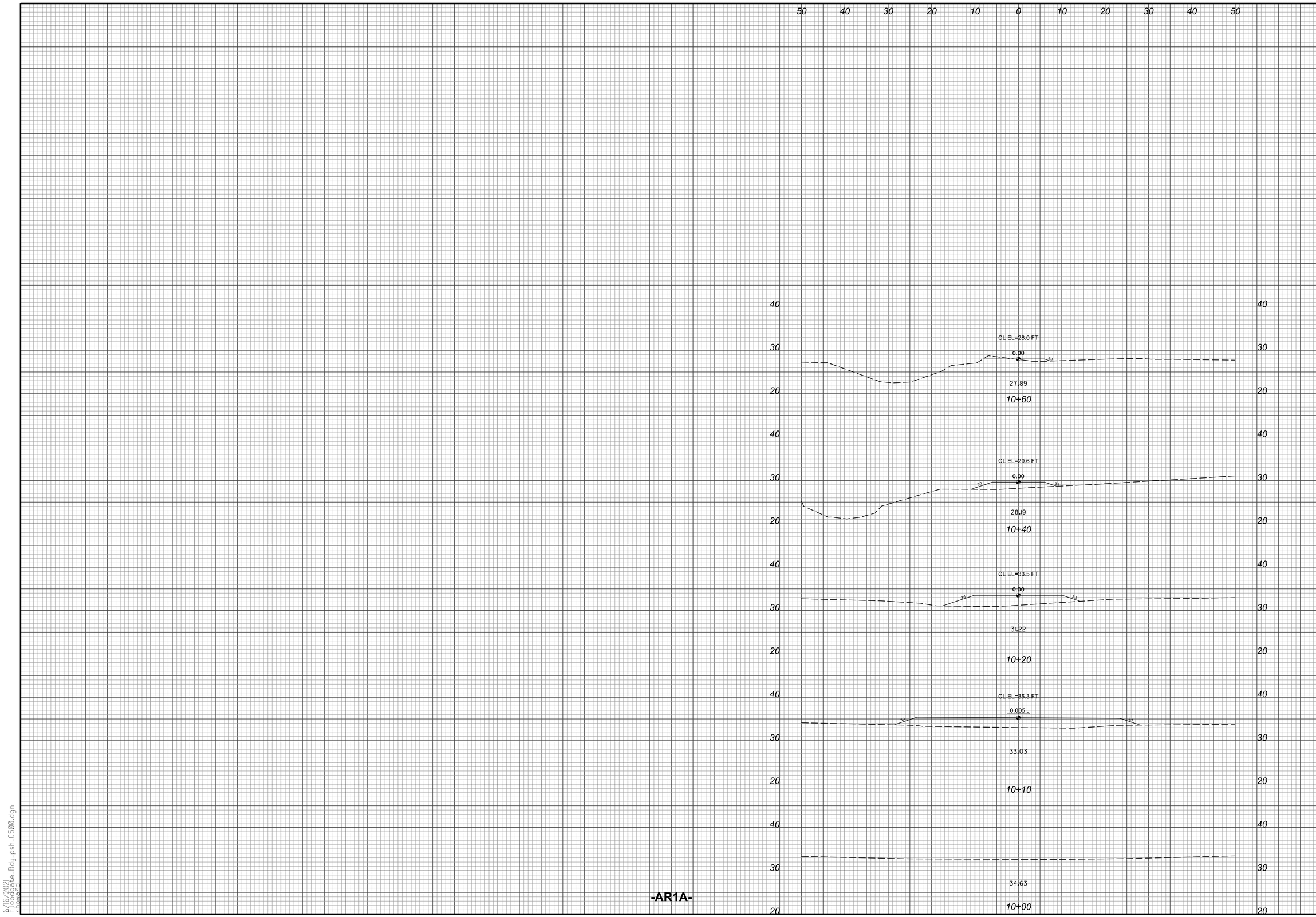

-AR1A-

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR1A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C504
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
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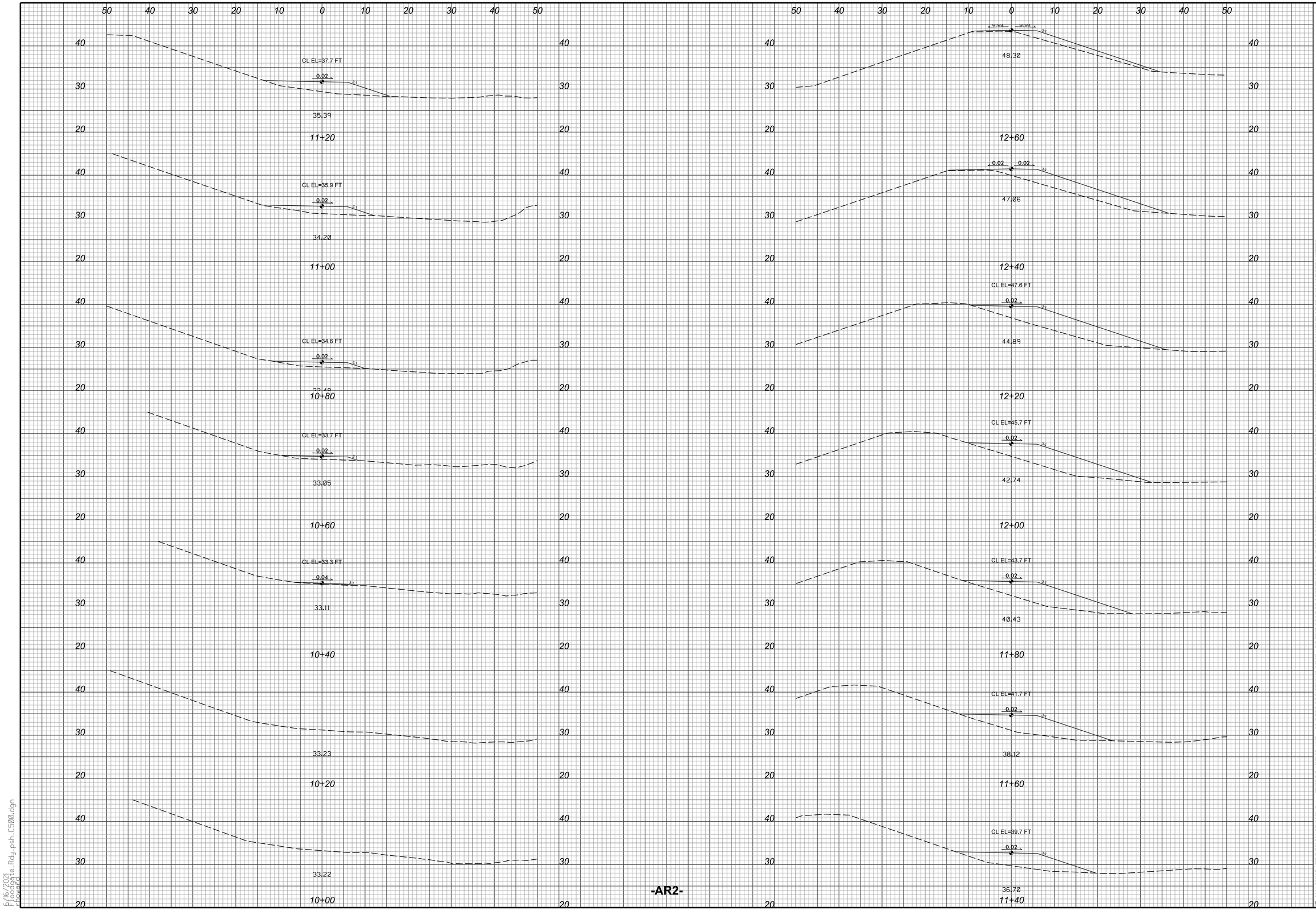

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C505
DATE: 6-16-2021
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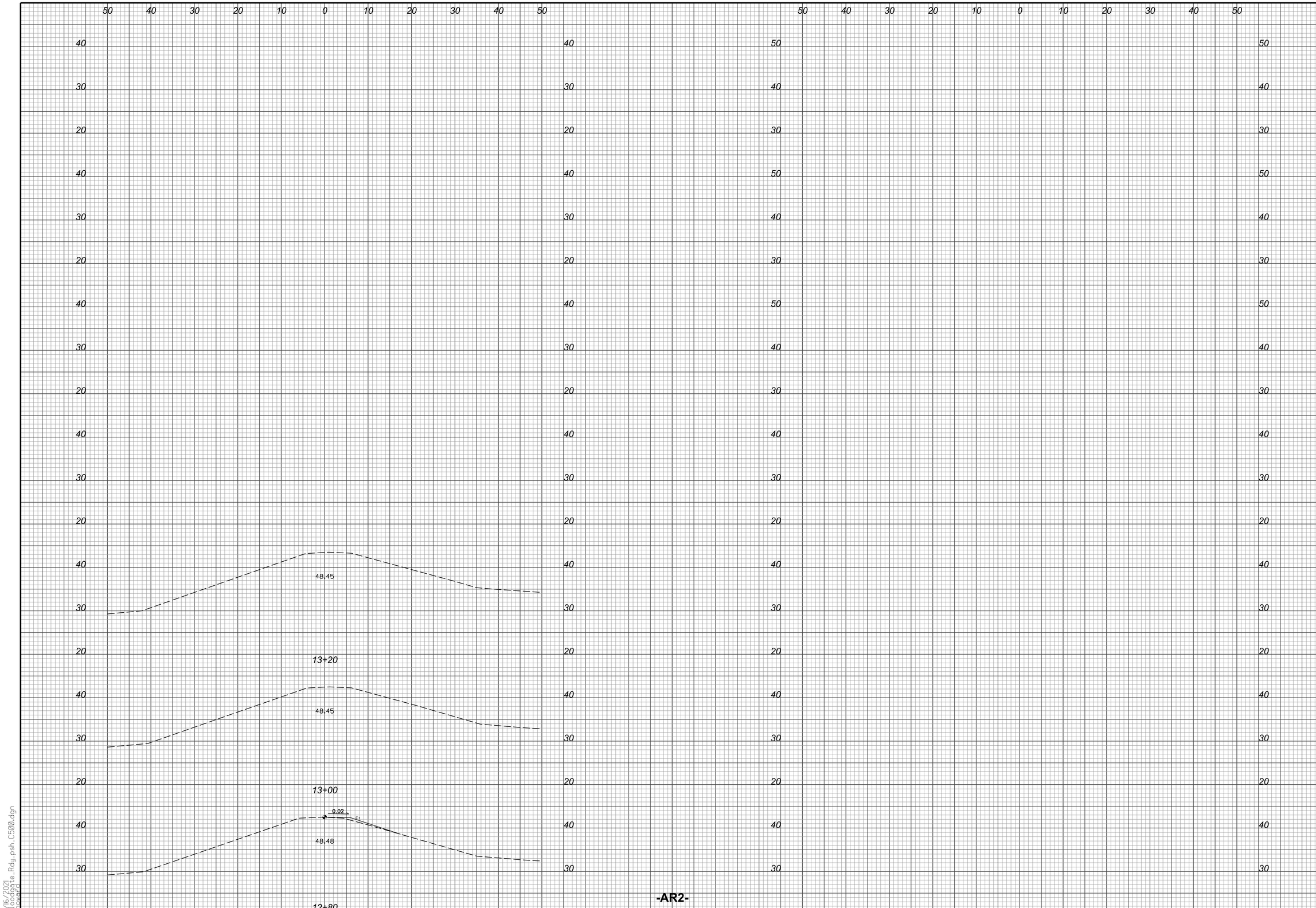

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C506
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

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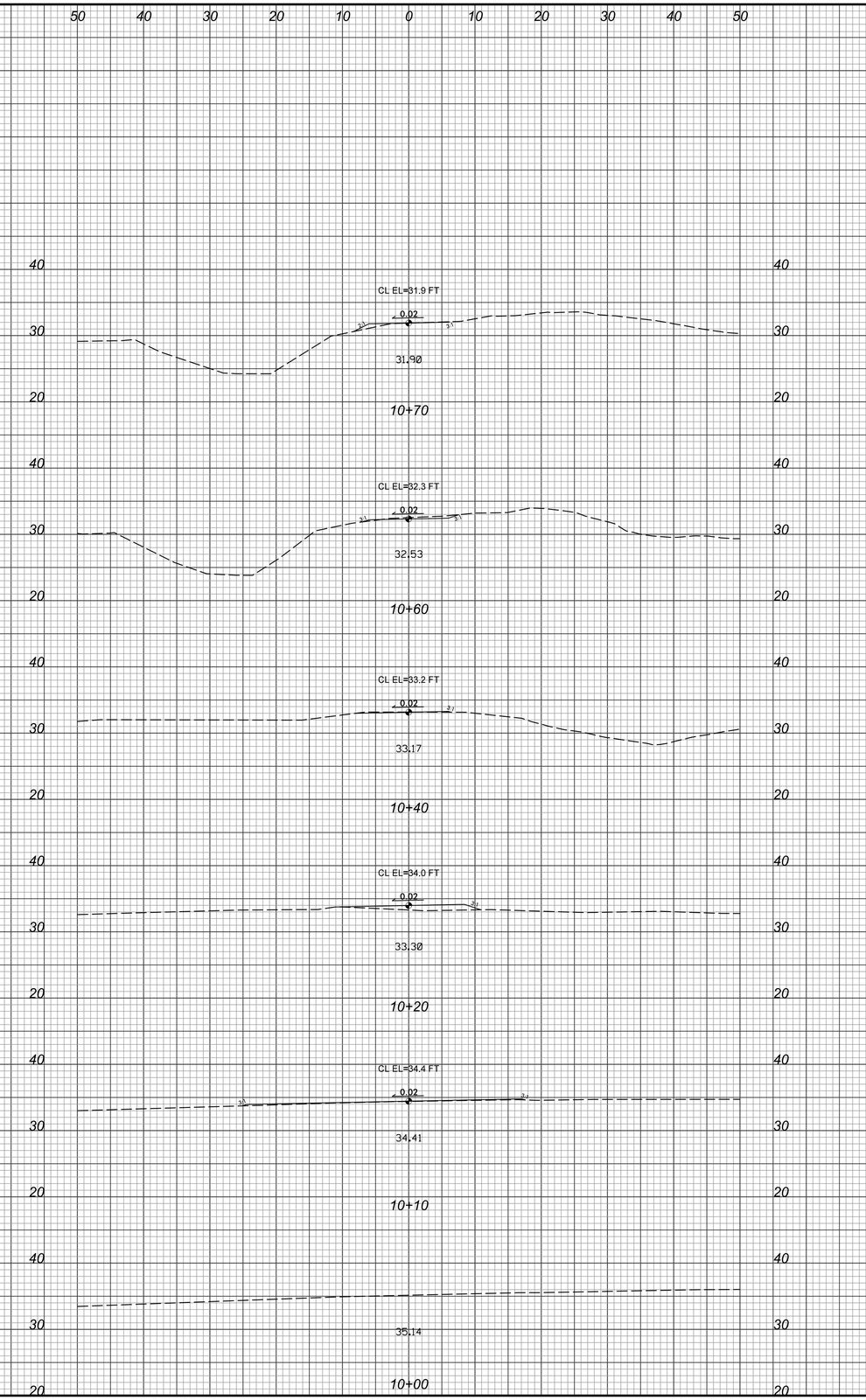

-AR2A-

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PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 1 -AR2A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C507
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
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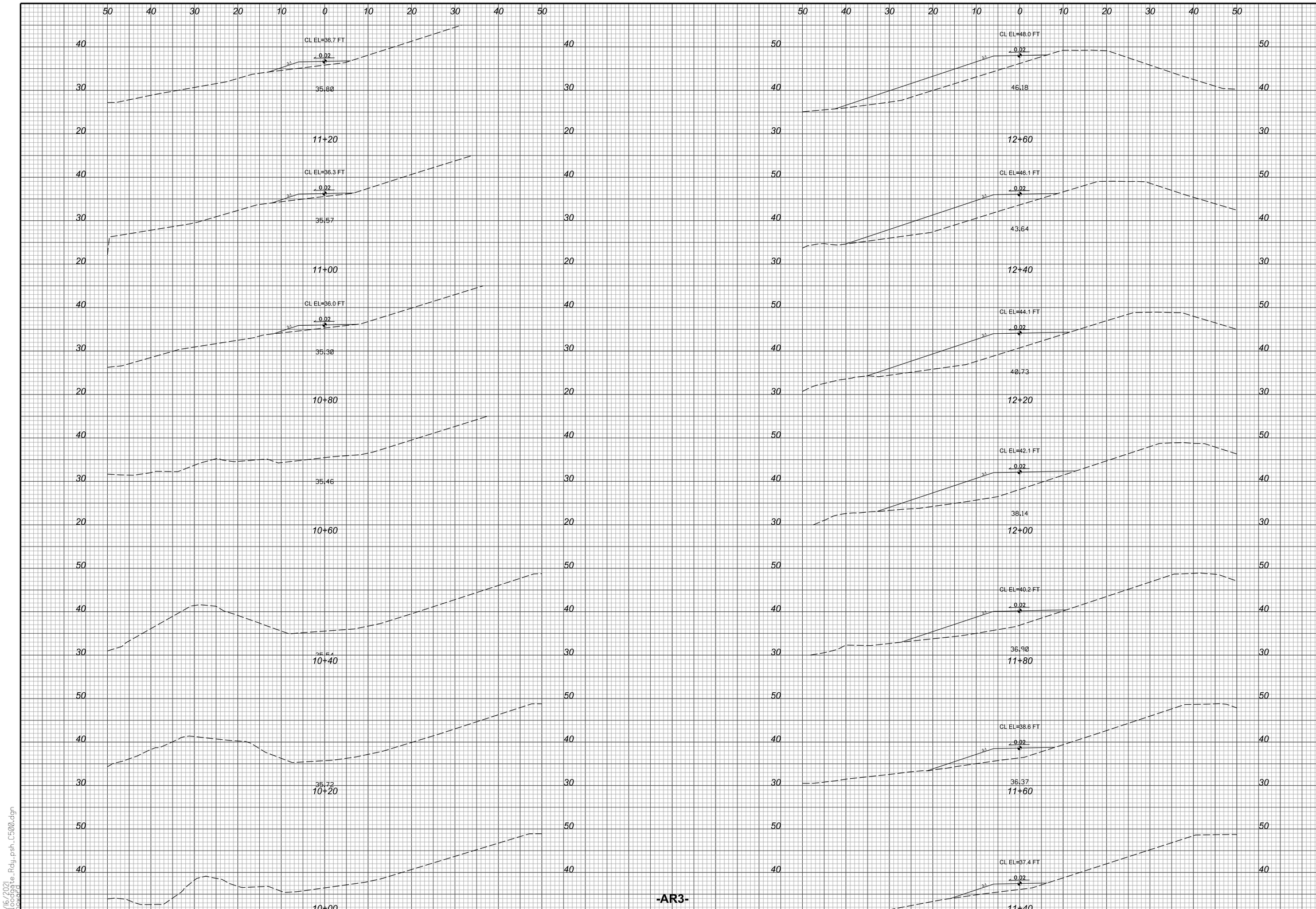

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C508
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

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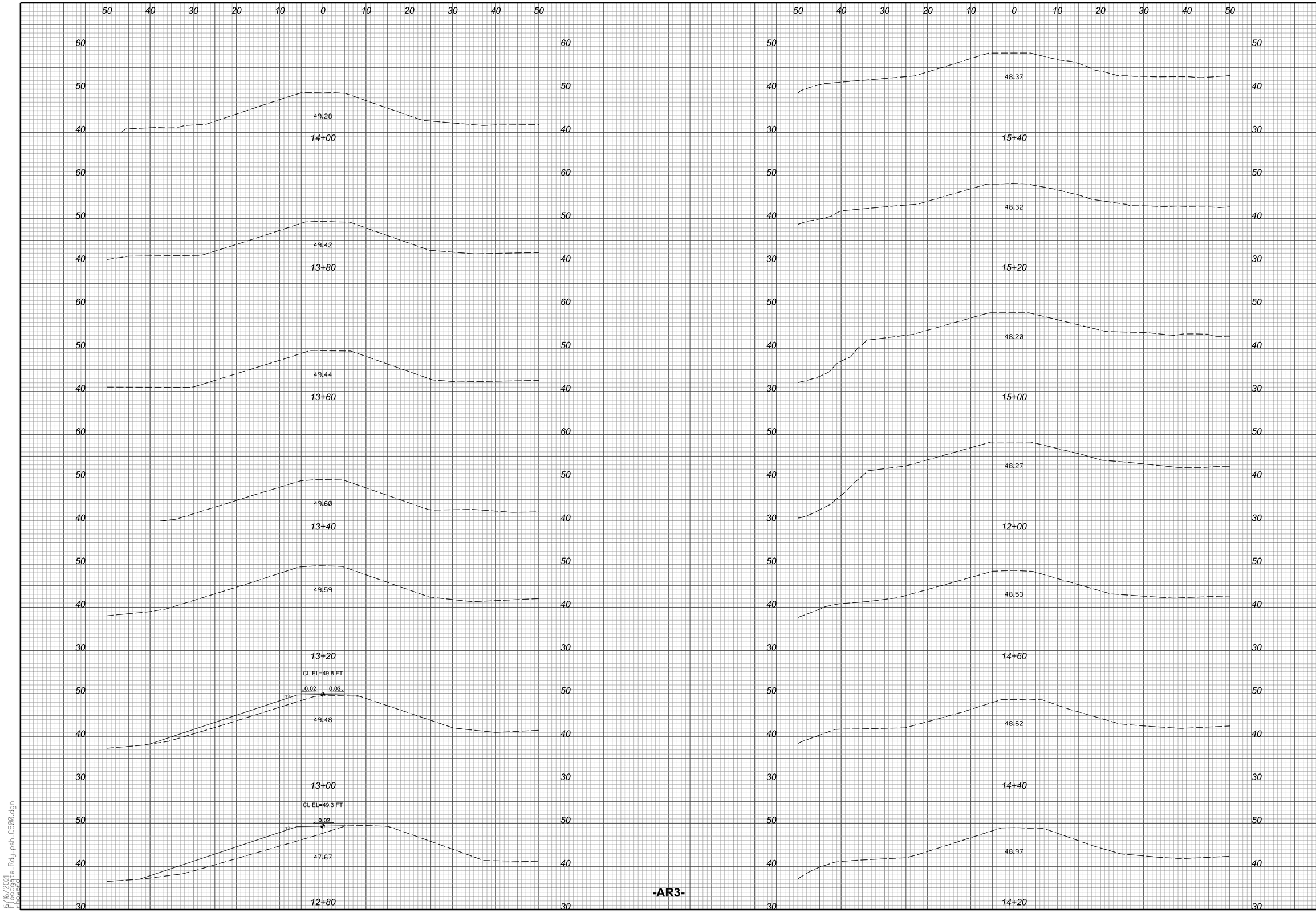

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C509
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C5.09

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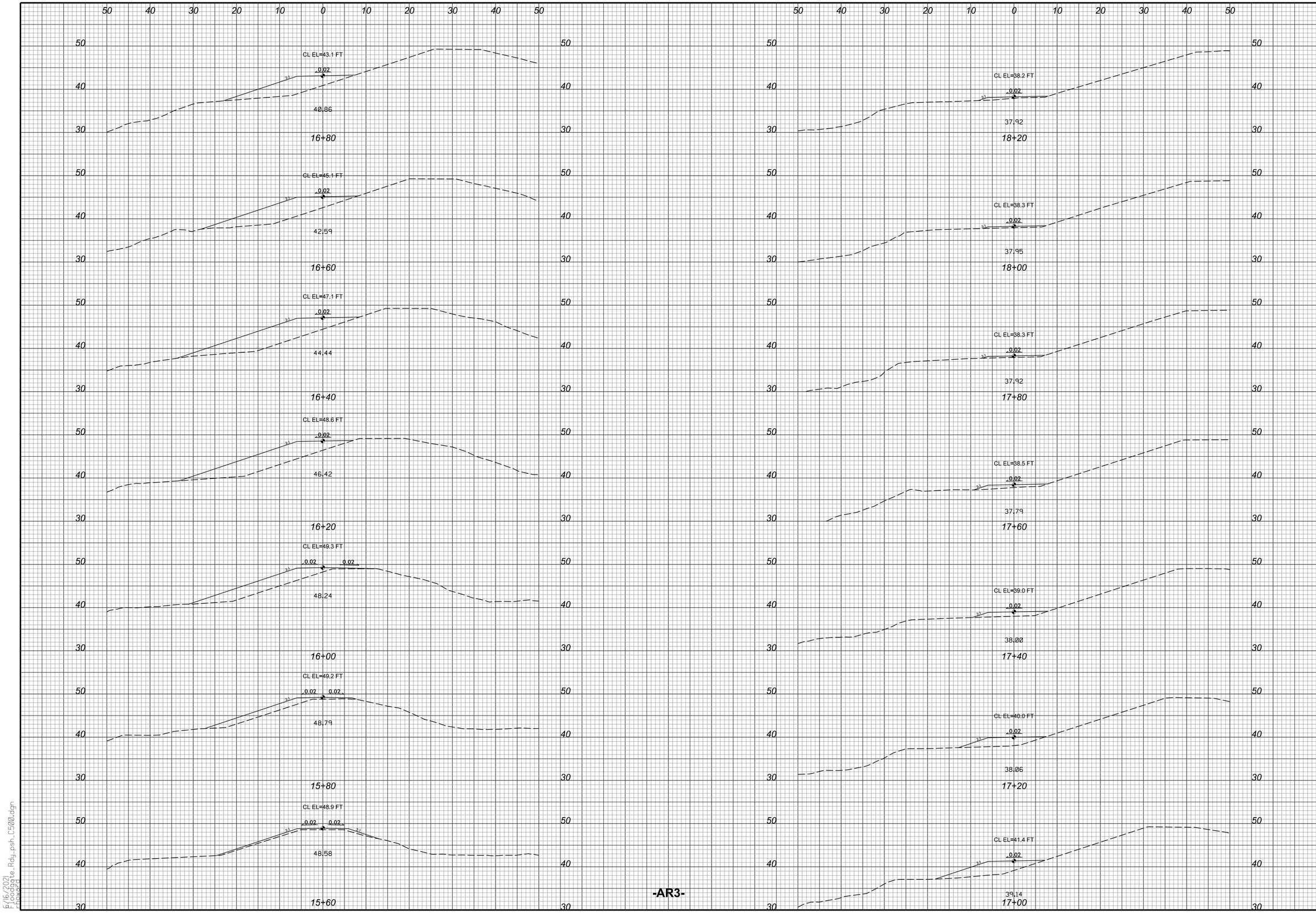

-AR3-

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C510
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C5.10

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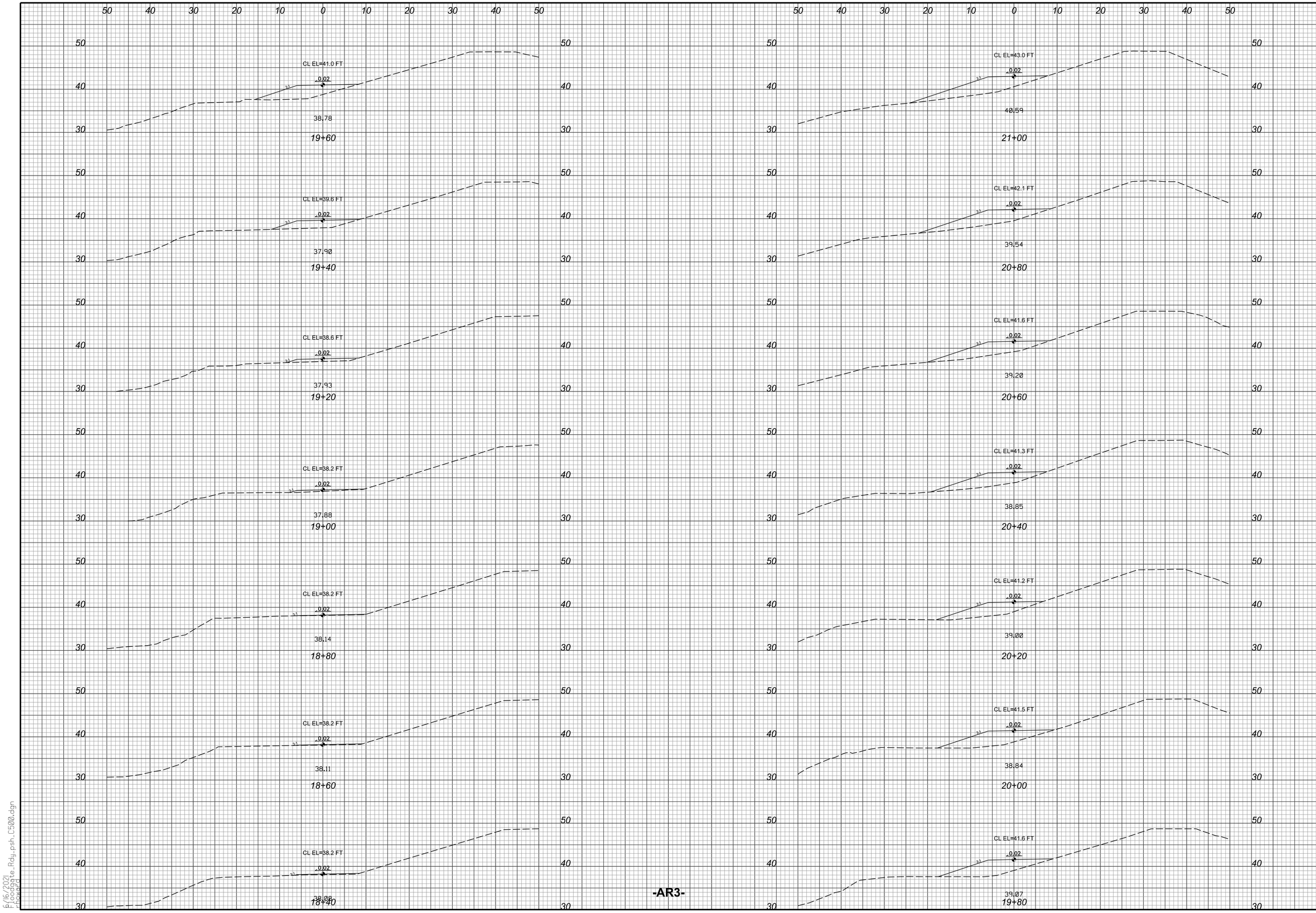

-AR3-

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C5II
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C5.11

6/16/2021
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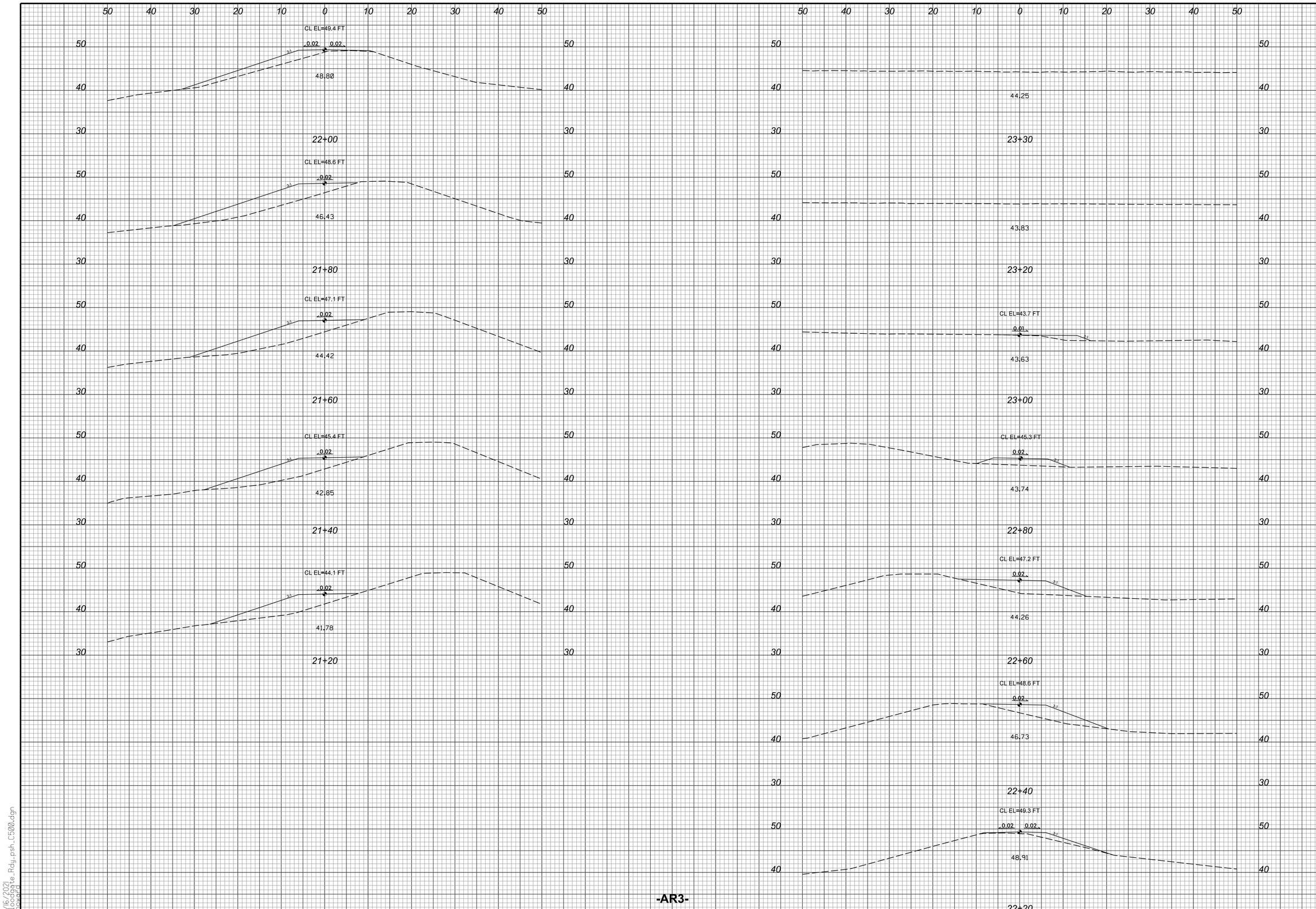

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C512
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C5.12

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0.00
3:1
2:1
27.99
11+20

CL EL=31.6 FT
0.00
3:1
2:1
29.38
10+60

CL EL=36.1 FT
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2:1
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CL EL=40.2 FT
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2:1
36.72
10+20

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3:1
2:1
37.59
10+10

CL EL=41.4 FT
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SHEAR LINE
SHEAR LINE
38.35
10+05

39.11
10+00

-AR3A-

CL EL=29.4 FT
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2:1
29.41
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CL EL=32.1 FT
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3:1
2:1
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10+40

CL EL=35.8 FT
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2:1
33.25
10+20

CL EL=36.9 FT
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3:1
2:1
34.79
10+10

CL EL=37.1 FT
0.041
SHEAR LINE
SHEAR LINE
35.40
10+05

36.01
10+00

-AR3B-

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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
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JOSH DALTON
Signature

NORTH CAROLINA
PROFESSIONAL
SEAL
26971
ENGINEER
JOSHUA G. DALTON

6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR3A-, -AR3B-

PROJECT # :
1284-20041
DRAWING NAME:
FLOODGATE RDY PSH C513
DATE:
6-16-2021
DRAWN BY:
JRH
REVIEWED BY:
RCH
REVISIONS:

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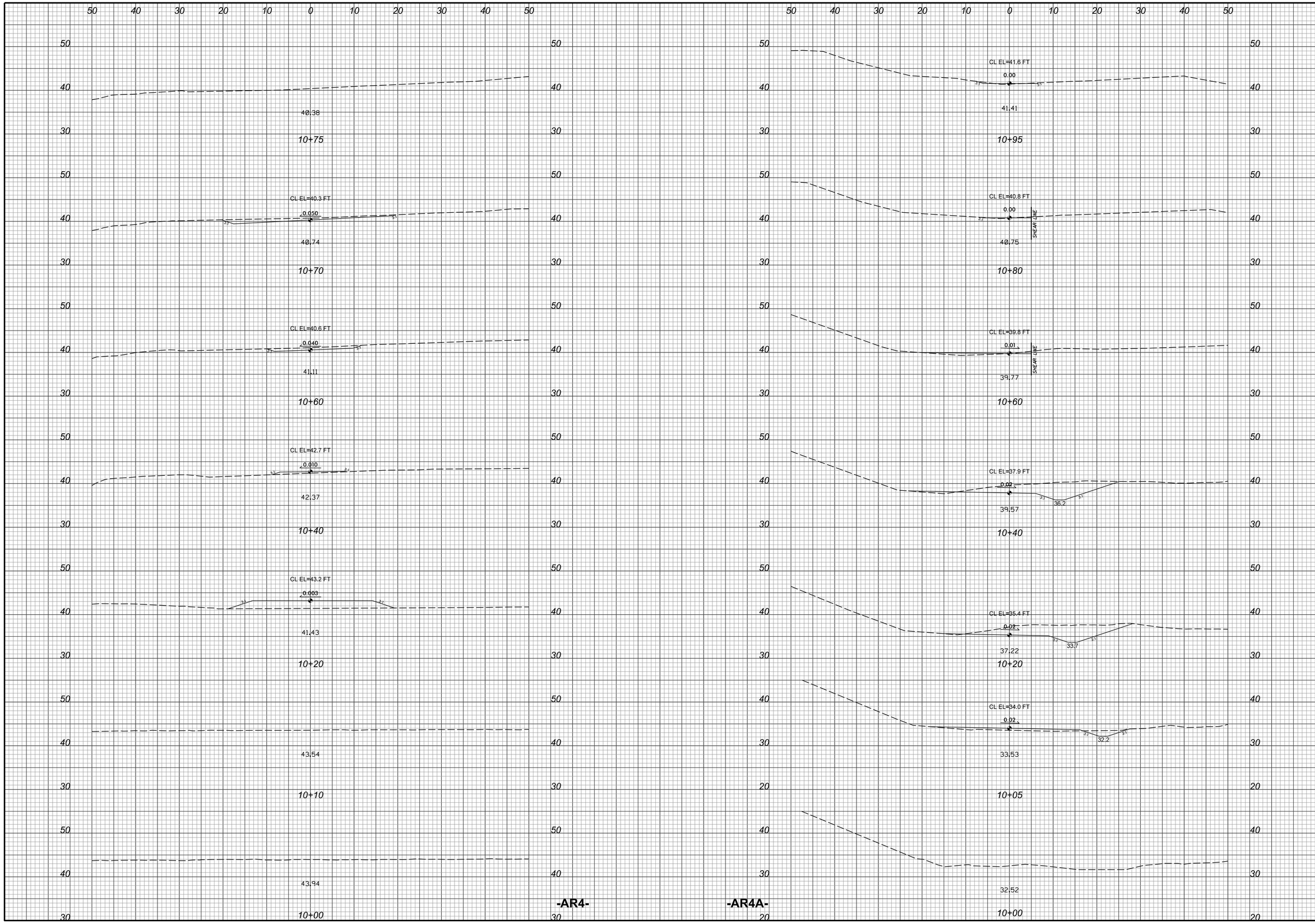

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
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Signature Date: 6/16/2021
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR4- -AR4A-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C514
DATE: 6-16-2021
DRAWN BY: JRH
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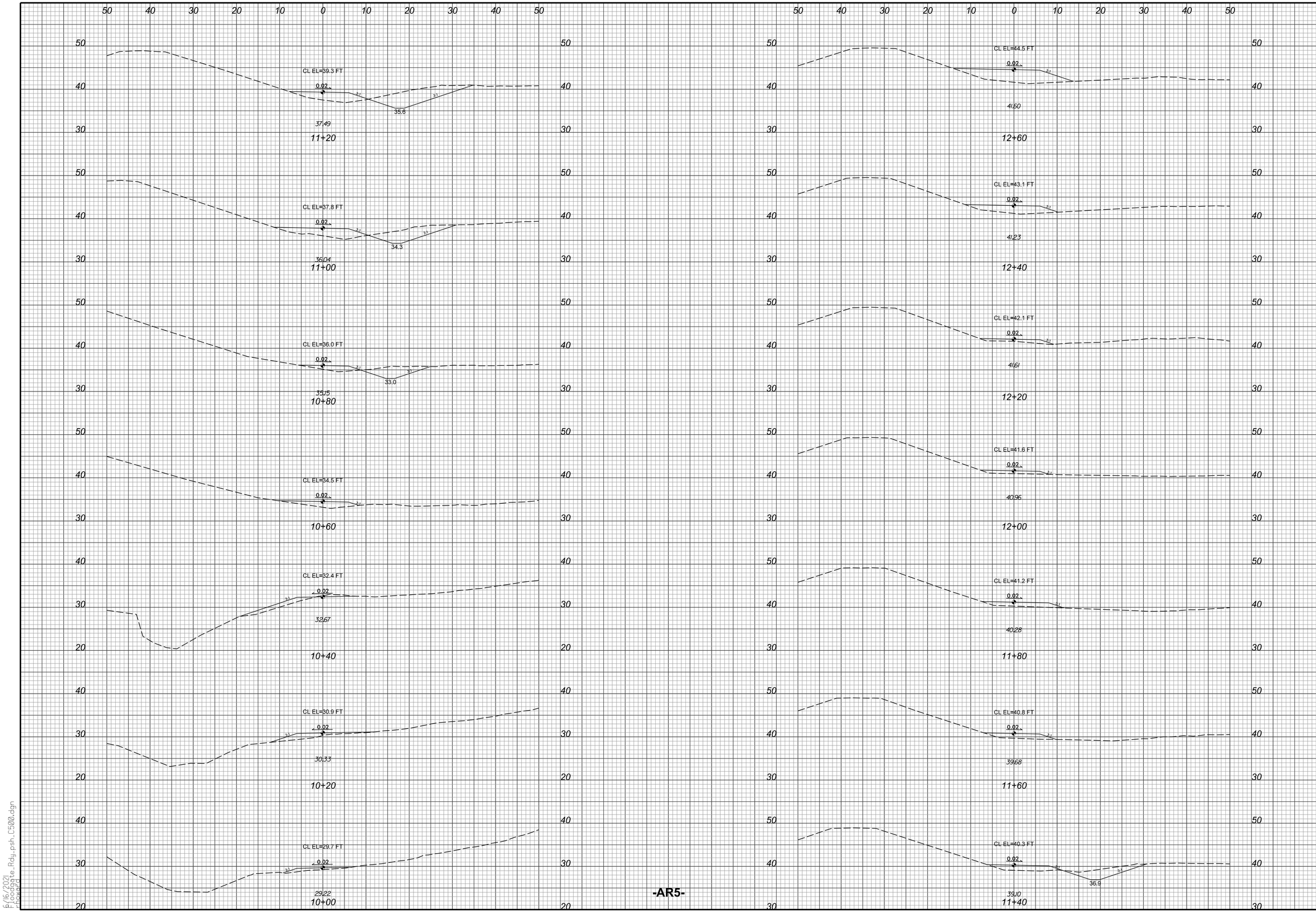

-AR5-

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JOSH DALTON
27D9A3DEC1E9043...

NORTH CAROLINA
PROFESSIONAL
SEAL
26971
ENGINEER
JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR5-

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C515
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

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Floodgate

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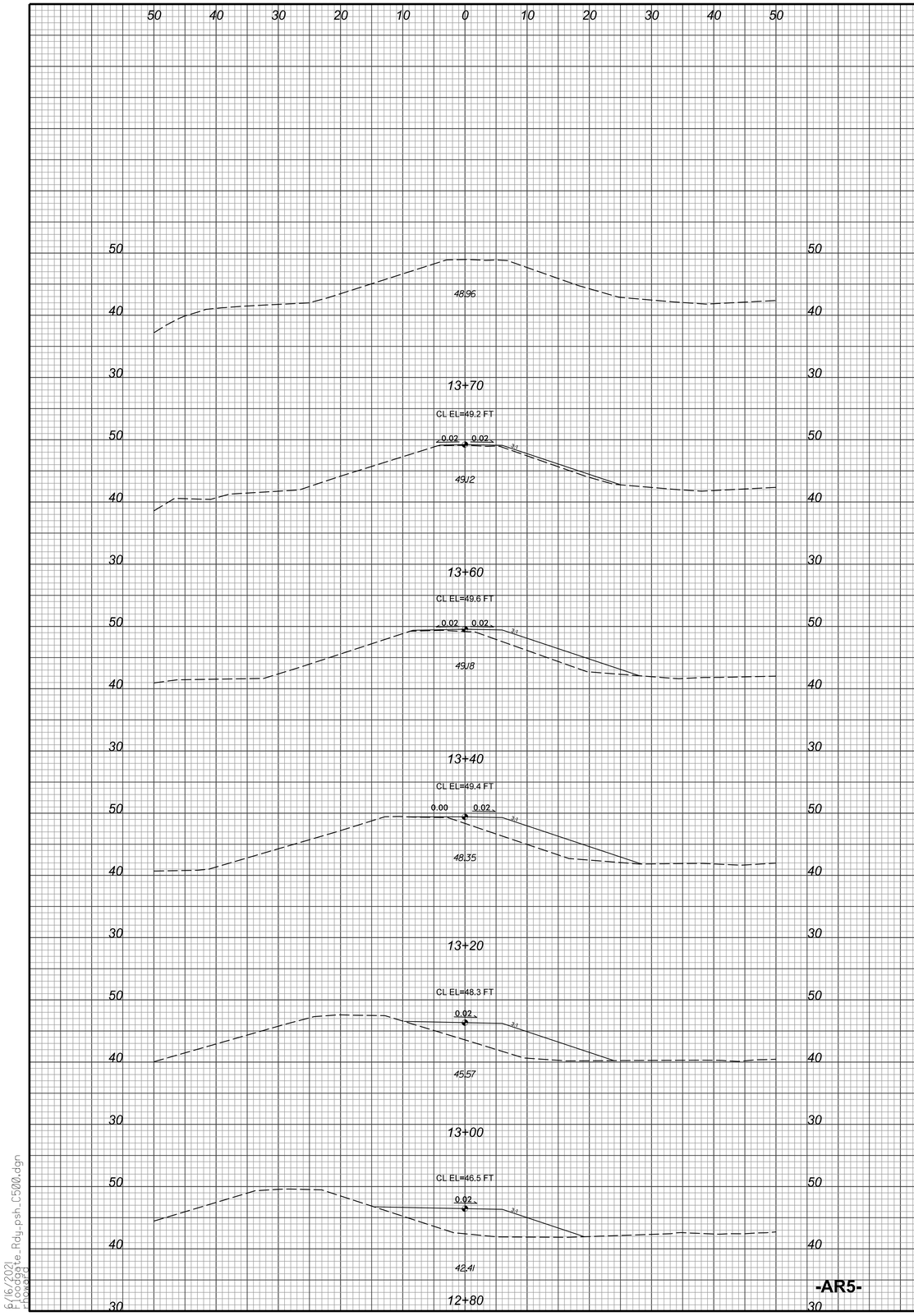

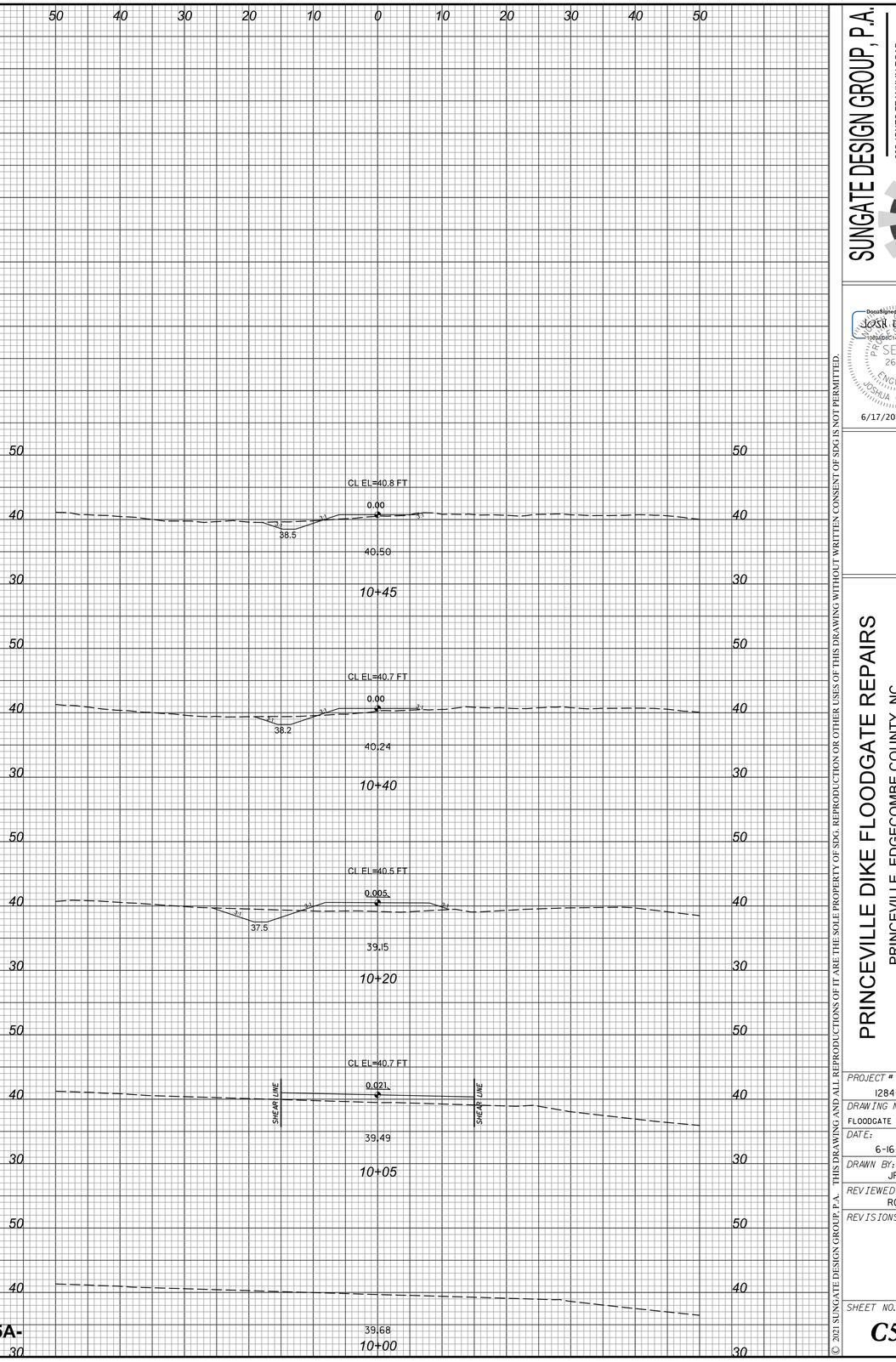

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 2-3 -AR5-, -AR5A-

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C516
DATE:	6-16-2021
DRAWN BY:	JRH
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C5.16

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Edward

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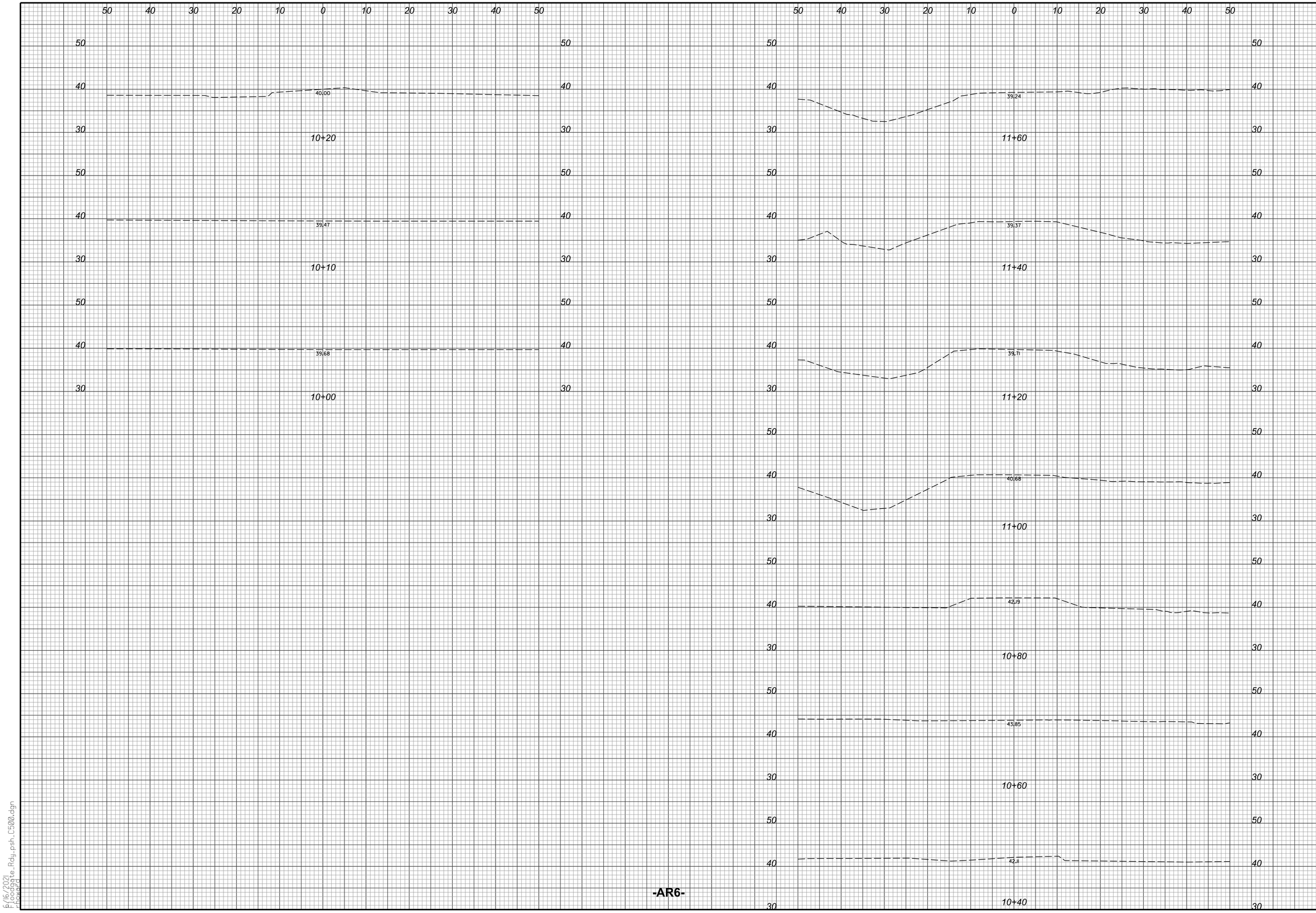

-AR6-

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR6-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C517
DATE: 6-16-2021
DRAWN BY: JRH
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR7-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C518
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
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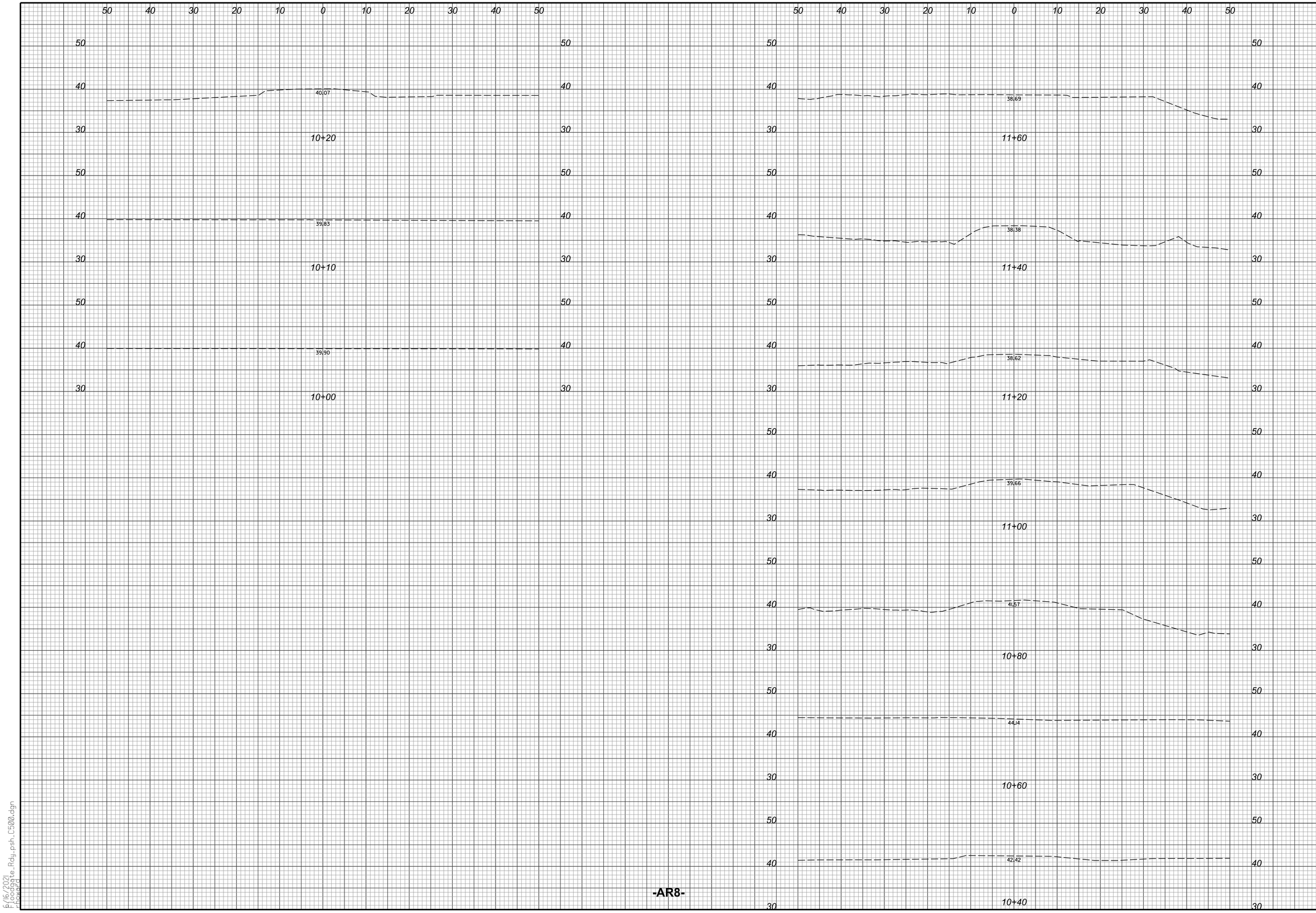

-AR8-

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CROSS SECTIONS - SITE 4 -AR8-

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C519
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

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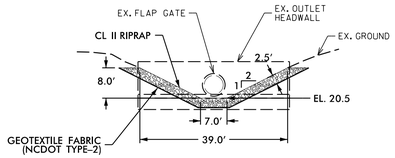
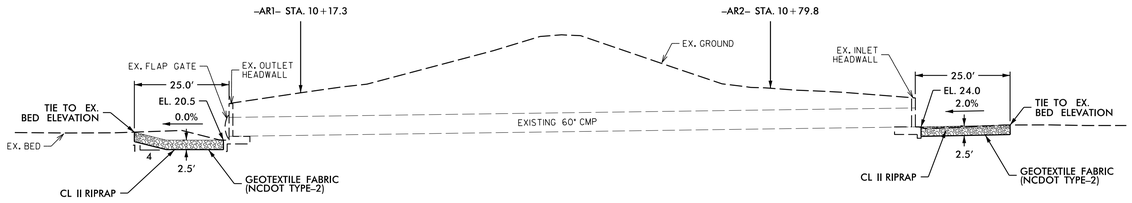
SITE 1

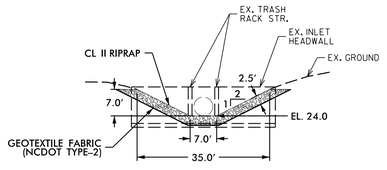
NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL



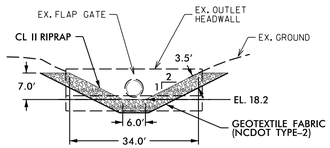
INLET & OUTLET CHANNEL PROFILE



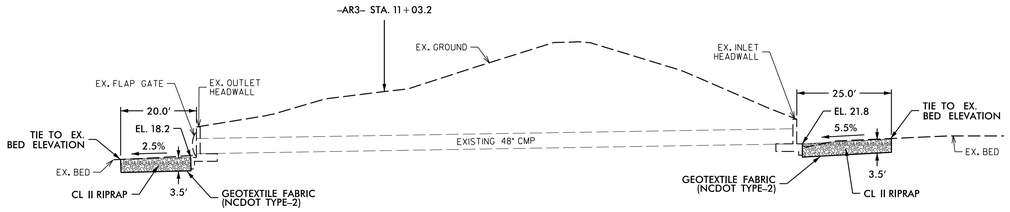
TYPICAL SECTION – INLET CHANNEL

SITE 2

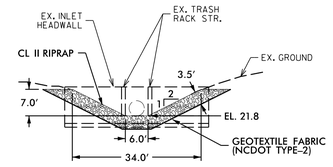
NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL



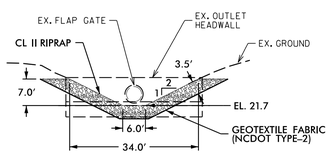
INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 3

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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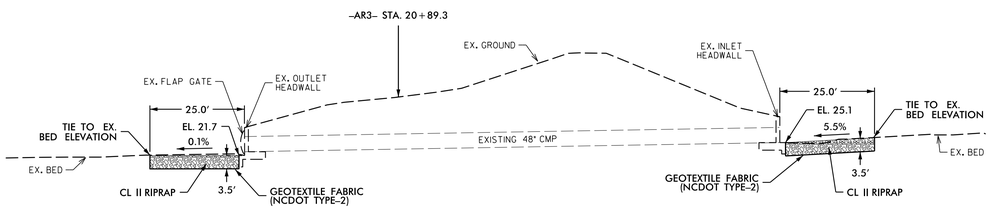
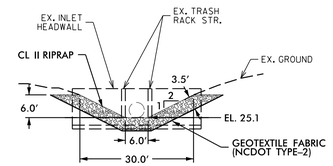
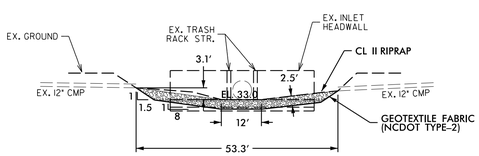


INLET & OUTLET CHANNEL PROFILE

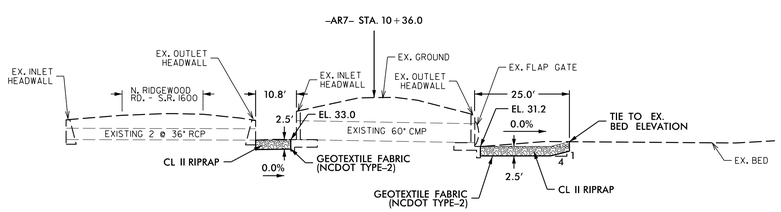


TYPICAL SECTION – INLET CHANNEL

SITE 4

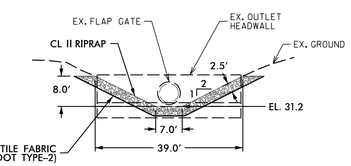


TYPICAL SECTION – INLET CHANNEL



INLET & OUTLET CHANNEL PROFILE

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
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6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CHANNEL PROFILES & TYPICAL SECTIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.01

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CONSTRUCTION SEQUENCE

1. Obtain a Land Disturbing Permit.
2. Submit documentation required under the site NPDES stormwater permit for construction activity (NCG010000) to Stormwater Inspections throughout the project.
3. Schedule a pre-construction conference with NCDEQ Erosion Control Officer and Erosion Control Design Engineer. Contact DEMLR Raleigh Regional Office at least 48 hours prior to commencing the land-disturbing activity at (919) 791-4200.
4. Erosion and Sediment Control (E&SC) permit and Certificate of Coverage (COC) must be obtained before any land disturbing activities occur.
5. Per NPDES requirements, a rain gauge, self-inspections records, permit, Certificate of Coverage, and E&SC Plan are required to be maintained on-site and accessible during inspection. It is recommended that these items be placed in a permits box at the beginning or entrance of project.
6. Construction activities that have an E&SC Plan approved on or after April 1, 2019 are required to fill out and submit an electronic Notice of Intent (e-NOI) form. All construction activities are required to follow the new NCG01 permit regardless of when plans were approved.
7. The contractor shall conduct self-inspections of the erosion and sediment control measures and complete the following combined self-inspection form found on the DEMLR website:
   https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/NPDES%20General%20Permits/DEMLR-CSW-Monitoring-Form-Rev-August-8-2019.pdf. Twelve months of complete inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in a permits box.
8. Self-inspections for erosion and sedimentation control measures are to be performed at least once every seven calendar days and within 24 hours of every rain event of greater than 1 inch. Any needed repairs shall be made immediately to maintain measures as details on this plan. A rain gauge shall be installed at the project site for monitoring.
9. Install all temporary erosion and sediment control measures including silt fence, tree protection, and inlet protection. Limit clearing and land disturbing activity to the area necessary to install the permitted measures.
10. Begin clearing and grubbing.
11. Stabilize any bare areas resulting from construction activity within times frames established by NCG-01 ground cover stabilization guidelines.
12. Increase maintenance frequency where approved measures fail to prevent accelerated erosion, off-site sedimentation, or repetitive non-compliance issues.
13. At sites 1 through 4:
    a. Install special stilling basin(s).
    b. Install pumps and temporary flexible hoses.
    c. Install impervious dikes, and begin pumping operations for stream diversion.
    d. Dewater construction area, using special stilling basin(s) for pumped effluent.
    e. Key in Class II rip rap at inlet and outlet channels.
    f. Excavate any accumulated silt and dewater before removal of impervious dikes.
    g. Remove impervious dikes, pumps, and temporary flexible hoses, and any remaining special stilling basin(s).
    h. Complete construction of access roads.
14. Maintain all erosion and sediment control measures in good working order. Silt fence, inlet protection and other similar measures must be cleaned out before they are half full. Clogged stone filters must be refreshed or replaced. Silt fence cannot have holes or tears.
15. Stabilize site as areas are brought up to finished grade with vegetation, paving, mulch, matting, etc. Seed and mulch denuded areas per Ground Stabilization.
16. Once the site is completely stabilized, remove temporary erosion control measures and seed out any resulting bare areas.
17. When vegetation has become established, call for a final site inspection by the Erosion Control Design Engineer.
18. When the project is complete, the permittee shall contact DEMLR to close out the E&SC Plan. After DEMLR informs the permittee of the project close out, via inspection report, the permittee shall visit deq.nc.gov/NCG01 to submit an electronic Notice of Termination (e-NOT). A $100 annual general permit fee will be charged until the e-NOT has been filled out.

General Maintenance Requirements:

-1. All erosion and sediment control practices will be checked for stability and operation following every runoff producing rainfall, but in no case less than once every week. Any needed repairs will be made immediately to maintain all practices as designed.

-2. All seeded areas will be fertilized, reseeded as necessary, and mulched according to specifications in the vegetative plan to maintain a vigorous, dense vegetative cover.

VEGETATIVE PLAN

Seedbed Preparation

1. Chisel compacted areas and spread topsoil 2 to 3 inches deep over adverse soil conditions, if available.
2. Rip the entire area to a depth of not less than 5 inches, unless directed otherwise.
3. Remove all loose rock, roots and other obstructions 3 inches or larger on median, leaving surface reasonably smooth and uniform.
4. Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mixture below).
5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 2 to 3 inches deep.
6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7. Mulch within 24 hours after seeding and anchor mulch.
8. Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be more than 60% damaged, re-establish following the original lime, fertilizer and seeding rates.

Mixture

Agricultural Limestone	2 tons/acre (3 tons/acre in clay soils)
Fertilizer	1,000 lbs/acre – 10-10-10
Superphosphate	500 lbs/acre – 20% analysis
Mulch	2 tons/acre – small grain straw
Anchor	Asphalt emulsion at 400 gals/acre

Seeding Schedule

For Shoulders, Side Ditches, Slopes (Max 3:1):

Date	Type	Planting Rate
Aug 15– Nov 1	Tall Fescue	300 lbs/acre
Nov 1– Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1– Apr 15	Tall Fescue	300 lbs/acre
Apr 15– Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1– Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	125 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)

For Shoulders, Side Ditches, Slopes (3:1 to 2:1):

Date	Type	Planting Rate
Mar 1– Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza);
Mar 1– Apr 15	Add Tall Fescue	120 lbs/acre
Mar 1– Jun 30	Or add Hulled Common Bermudagrass	25 lbs/acre
Jun 1– Sept 1	Tall Fescue AND Browntop Mullet or Sorghum-Sudan Hybrids***	120 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Mullet); 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1– Mar 1	Sericea Lespedeza (unhulled – unscarified) AND Tall Fescue	70 lbs/acre (Sericea Lespedeza); 120 lbs/acre (Tall Fescue)
Nov 1– Mar 1	AND Abruzzi Rye	25 lbs/acre

The Contractor shall select a nurse crop from the table below that is best suited to the specific site conditions and characteristics. The nurse crop shall be added to and applied along with the permanent vegetative mixture.

Consult Erosion Control Design Engineer for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those that do well under local conditions; other seeding rate combinations are possible.

*** TEMPORARY: Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12" in height before mowing; otherwise, fescue may be shaded out.

Riparian Seeding and Mulching

Riparian Seeding and Mulching shall be performed on the disturbed areas of riparian areas within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

August 1 - June 1		May 1 – September 1	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Mulch within 24 hours of seeding and anchor mulch.

Mulch 2 tons/acre – small grain straw
Anchor Asphalt emulsion at 400 gals/acre

HERBACEOUS PLANTS-Seeding recommendations for immediate stabilization/nurse crops
(2 to 5 weeks for development; effectiveness goal: 6 months to 1 year stabilization)

Table 6.11.a

NURSE CROP SPECIES

Common Name	Botanical Name	Native / Introduced	Seeding Rates lbs/acre	Fertilization/ limestone lbs/acre	Optimal Planting Dates: Mountains	Piedmont	Coastal Plains	Sun/Shade tolerant	Wetlands	Riparian Buffers	Invasive Yes or No	Installation / Maintenance Considerations	Other information, commentary
Rye Grain	*Secale cereale*	I	40 lbs	By soil test	11/1 - 4/30	8/15 - 4/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	
Wheat	*Triticum aestivum*	I	30 lbs	By soil test	11/1 - 4/30	8/15 - 5/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
German Millet	*Setaria italica*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Browntop Millet	*Urochloa ramosa*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Sudangrass (hybrids)	*Sorghum saccharatum*	I	15 lbs	By soil test	NR	NR	4/15 - 8/15	Sun	No	No	Yes	Crop should be cut / disc prior to planting primary or long term vegetation	Use only where plants and seed can be contained and controlled.
	S. bicolor ssp.Drummondi												
Kobe Lespedeza	*Kummerowia striata v. kobe*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Coastal Plain
Korean Lespedeza	*Kummerowia stipulacea*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Piedmont and Mountains. May become invasive

NOTES:
1. Seeding rates are for hulled seed unless otherwise noted.
2. Fertilizer & Limestone - rates to be applied in absense of soils tests. Recommended application rate assumes significantly disturbed site soils with little or no residual value.
3. NR means Species not recommended for this region or application area.
4. Invasive designation as determined by the N.C. Exotic Pest Plant Council and N.C. Native Plant Society .
5. Sprigging is not recommended for immediate stabilization unless terrain is flat heavy mulch is applied and no other immediate stabilization method is practical.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971
JOSHUA C. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.02

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GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
· Temporary grass seed covered with straw or other mulches and tackifiers. · Hydroseeding · Rolled erosion control products with or without temporary grass seed · Appropriately applied straw or other mulch · Plastic sheeting	· Permanent grass seed covered with straw or other mulches and tackifiers · Geotextile fabrics such as permanent soil reinforcement matting · Hydroseeding · Shrubs or other permanent plantings covered with mulch · Uniform and evenly distributed ground cover sufficient to restrain erosion · Structural methods such as concrete, asphalt or retaining walls · Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

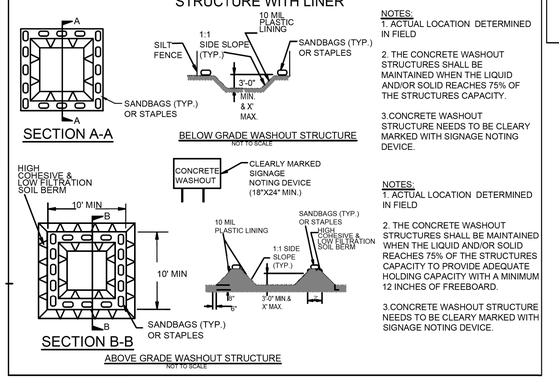
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE: 11/12/2020

NCG-01 GROUND COVER & MATERIALS HANDLING

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C.603

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PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "Zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the measures inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Indication of whether the measures were operating properly 5. Description of maintenance needs for the measure 6. Description, Evidence, and date of corrective actions taken
(3) Stormwater discharge outfalls(SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the discharge outfalls inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration 5. Indication of visible sediment leaving the site 6. Description, Evidence, and date corrective actions taken
(4) Perimeter of Site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If visible Sedimentation is found outside site limits, then record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 3) An explanation as to the actions taken to control future releases
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If the stream or wetland has increased visible sedimentation or has visible increased turbidity from the construction activity, then a record of the following shall be made: 1) Description, Evidence and date of corrective actions taken 2)Records of required reports to the appropriate Division Regional Office per Part III, Section C, Item(2)(a) of this permit
(6) Ground Stabilization Measures	After each phase of grading.	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Document Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframe (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• Within 24 hours, an oral or electronic notification. • Within 7 Calendar Days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related caused, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• Within 24 Hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible.* The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE:11/12/2020

NCG-01 SELF INSPECTION

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA C. DALTON
Date Signed by: JOSH DALTON
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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C.604**

6/16/2021
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Floodgate Rdy psh C600

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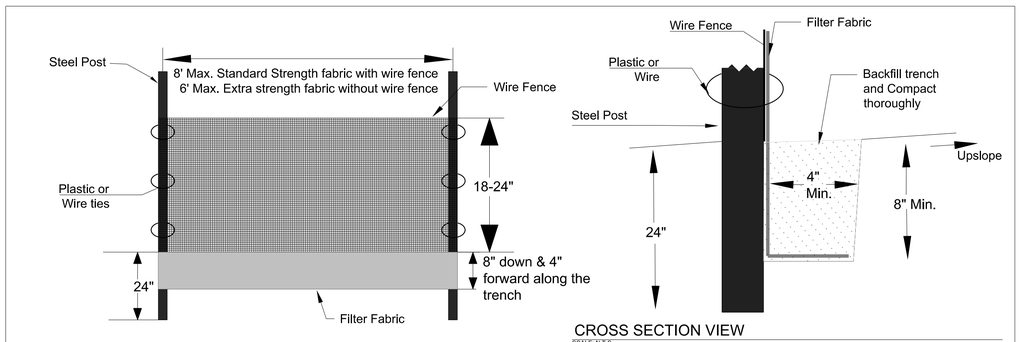
Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements					
	Test Material	Units	Supported[1] Silt Fence	Un-Supported[1] Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
Machine Direction			400	550	MARV
			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.60	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated poylmer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.



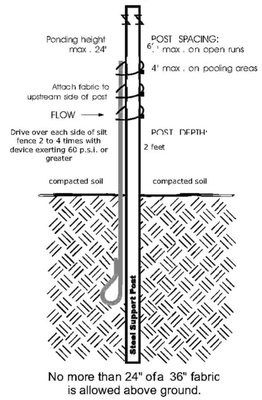
Construction:
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches.
6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
7. Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
8. Place 12 inches of fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

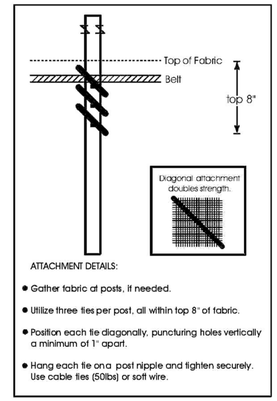
Maintenance:
1. Inspect sediment fences at least once a week and after each 1 inch or greater rainfall. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

DETAIL - SILT FENCE

SCALE: N.T.S

The Slicing Method





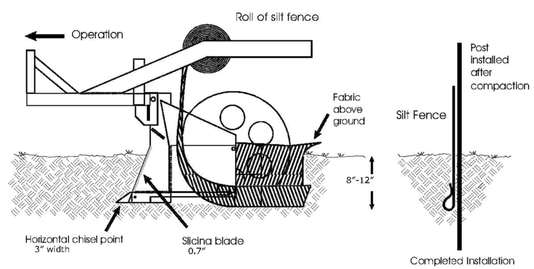


Figure 6.62b Schematics for using the slicing method to install a sediment fence. Adapted from *Silt Fence that Works*

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Designed by: JOSH DALTON
10B9A0BC14994C3...
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C.605

6/16/2021
Floodgate_Rdy_psh_C600.dgn
Floodgate

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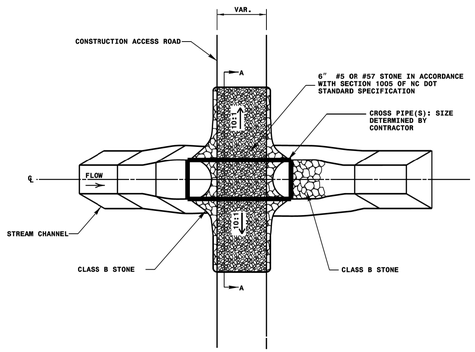
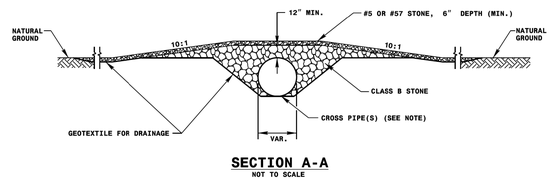


PLAN VIEW



SECTION A-A
NOT TO SCALE

NOTES

PIPE(S) FOR TEMPORARY STREAM CROSSING SHALL BE DESIGNED TO PASS THE PEAK OR BANKFULL FLOW, WHICHEVER IS LESS, FROM A 2-YEAR PEAK STORM, WITHOUT OVER TOPPING.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

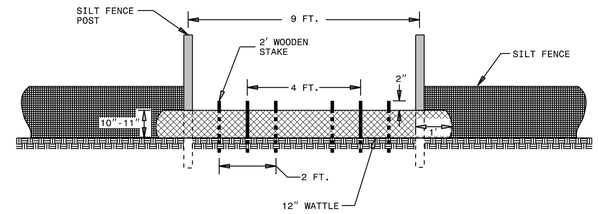
1-18

ROADWAY STANDARD DRAWING FOR

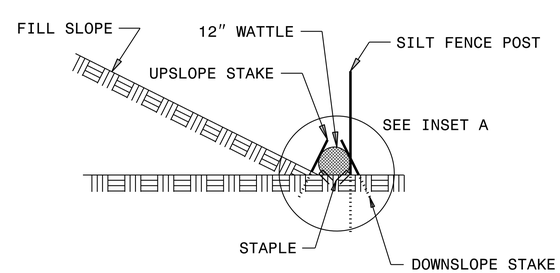
TEMPORARY STREAM CROSSING

SHEET 1 OF 1

1645.01

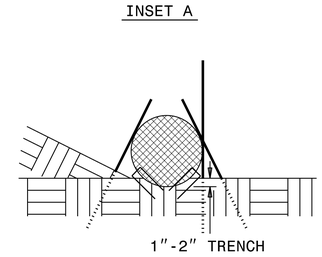


VIEW FROM SLOPE



SIDE VIEW

INSET A



DETAIL - SILT FENCE COIR FIBER WATTLE BREAK

SCALE: N.T.S

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON
02E9A5C1499AC54...
NORTH CAROLINA PE SEAL 26971 ENGINEER JOSHUA C. DALTON

6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C.606

6/16/2021
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Howard

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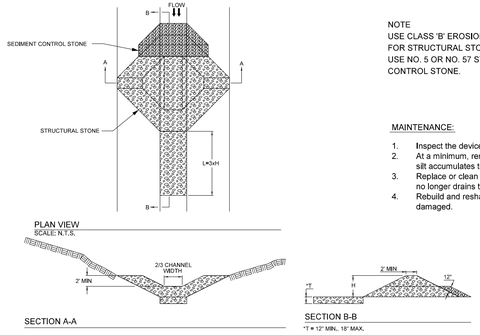


NOTE
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

MAINTENANCE:

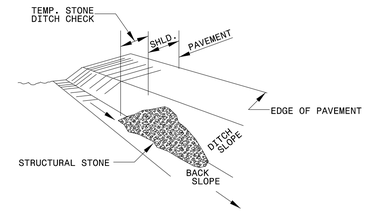
1. Inspect the device after each significant rainfall.
2. At a minimum, remove silt from the device when silt accumulates to one-half the height of the weir.
3. Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
4. Rebuild and reshape rock weir and check when the device is damaged.

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'A'

SCALE: N.T.S

Construction Specifications:

Structural Stone	- Use Class B structural stone. - Install stone at a minimum depth of 12 inches. - Install sediment control stone on the upgradient face of the structural stone.
Side Slopes	- 2:1 or flatter.
Weir	- Weir length should be $\frac{2}{3}$ of the channel width. - The weir height shall be a minimum of 1 foot. - The depth of the weir shall be a minimum of 1 foot.

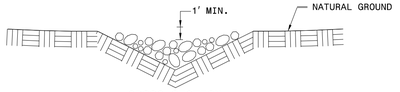


ISOMETRIC VIEW

NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

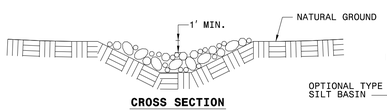
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



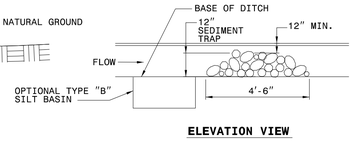
CROSS SECTION
VEE DITCH

MAINTENANCE:

1. Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
2. Remove silt from device when it accumulates.
3. Rebuild and reshape device and weir when the device is damaged or as necessary.
4. Cleanout when clogged by straw, limbs, or other debris.



CROSS SECTION
TRAPEZOIDAL DITCH



ELEVATION VIEW

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'B'

SCALE: N.T.S

Construction Specifications:

Installation	- The center of the rock silt check shall be at least 1-foot lower than the outer edges (top of the channel sides). - The maximum height at the center of the rock check should not exceed 2 feet. - The side slopes of the check shall be 2:1 or flatter.
Slope	- Maximum spacing between the checks should place the toe of the upstream check at the top of the downstream check.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA C. DALTON
6/17/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-I6-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C.607

6/16/2021
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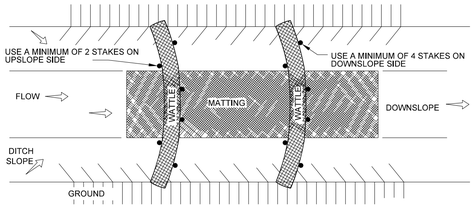
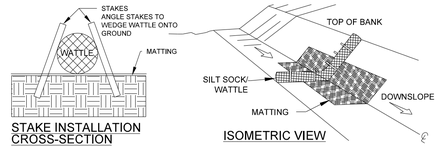


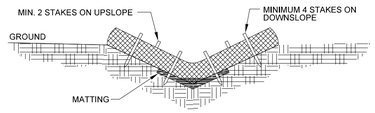
PLAN VIEW
SCALE: N.T.S.



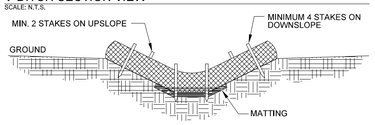
STAKE INSTALLATION CROSS-SECTION

ISOMETRIC VIEW

Ditch Spacing For 12 Inch Silt Sock/Wattle	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



V-DITCH SECTION VIEW
SCALE: N.T.S.



TRAPEZOIDAL DITCH SECTION VIEW
SCALE: N.T.S.

NOTES:
1. Other materials providing equivalent protection against erosive velocities may be substituted for use in silt socks or wattles.
2. Use a minimum 12 Inch diameter silt sock/wattle.
3. Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform.
4. Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.
5. Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and scour slopes, or as directed.
6. Install a minimum of two upslope stakes and four downslope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch.
7. The use of Polyacrylamide (PAM) is recommended. Apply 2-3 ounces of anionic PAM on top of sock/wattle. Apply 1-2 ounces to matting on either side of sock/wattle. Reapply after each 1,0 inch rainfall.

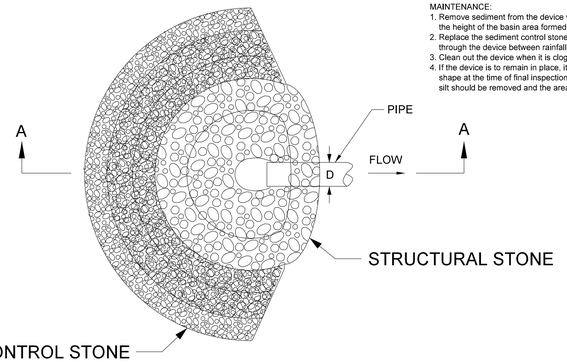
MAINTENANCE:
1. Inspect silt sock/wattle(s) weekly and after each rain of 1 inch or greater. Remove accumulated sediment and any debris.
2. Silt sock/Wattle(s) must be replaced if clogged or torn,
3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
4. Reinstall if damaged or dislodged.
5. Silt socks/Wattles shall be inspected untill land disturbance is compete and the area above the measure is permanently stabilized.

DETAIL - SILT SOCK / WATTLE FOR CHECK DAM
SCALE: N.T.S

Construction Specifications:

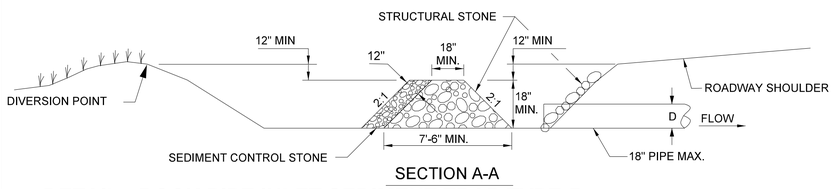
Matting	- Install matting in accordance with Section 1631 of the Standard Specifications.
Staples	- Provide staples made of 0.125-inch diameter steel wire formed into a U-shape no less than 12 inches in length. - Install staples approximately every 1 foot on both sides of the wattle and at each end to secure it to the soil.
Stakes	- Use 2-foot wooden stakes with a 2-inch by 2-inch nominal cross section. - Install a minimum of 2 upslope stakes and 4 downslope stakes at an angle to wedge the wattle to the bottom of the ditch. - Drive stakes into the ground a minimum of 10 inches with no more than 2 inches projecting from the top of the wattle.
Flocculant	- Flocculant shall be in powder form and anionic and neutrally charged. - Soil samples should be obtained from areas where wattles will be placed and from off-site material used to construct the roadway. Samples should be analyzed to determine the appropriate flocculant to be used in each wattle. - Flocculant used should be listed on the NCDENR DWR website as an approved product for use in North Carolina. - Flocculant should be applied over the lower center portion of the wattle where the water will flow at a rate of 2 ounces per wattle. - Apply 1 ounce of flocculant on each side of the wattle. - Flocculant should be evaluated and applied after every rainfall event that is equal to or exceeds 0.5 inches.
Overlap	- Overlap adjoining sections of wattles a minimum of 1 foot.

NOTE:
USE CLASS 'A' EROSION CONTROL STON FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.
CONSTRUCT TOP OF BERM A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR DIVERSION POINT.
PROVIDE A TOTAL SEDIMENT TRAP VOLUME OF 1800È CUBIC FEET PER ACRE OF DISTURBED AREA. SOME OF THE REQUIRED VOLUME MAY BE PROVIDED BY OTHER UP OR DOWNSTREAM CONTROLS.



PLAN VIEW
SCALE: N.T.S.

MAINTENANCE:
1. Remove sediment from the device when accumulations reach one-half the height of the basin area formed by the device.
2. Replace the sediment control stone as needed to allow water to drain through the device between rainfall events.
3. Clean out the device when it is clogged with debris.
4. If the device is to remain in place, it should be cleaned and in proper shape at the time of final inspection. If it is removed, all accumulated silt should be removed and the area seeded.



SECTION A-A

DETAIL - ROCK PIPE INLET SEDIMENT TRAP TYPE-B
SCALE: N.T.S

Construction Specifications:

Berm	- Top of berm should be a minimum of 12 inches below the shoulder or any diversion point. - Side slopes should be no steeper than 2:1. - Berm should have a minimum height of 18 inches.
Sediment Control Stone	- No. 5 or No. 57 stone to be installed on the outer face of the stone dam in a layer 1-foot thick.
Structural Stone	- Class A stone installed in a doughnut-shaped ring around the inlet. - Installed with a berm on the top that is 18 inches wide. - Stone should have a minimum base width of 7.5 feet.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-2004I
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-I6-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C.608

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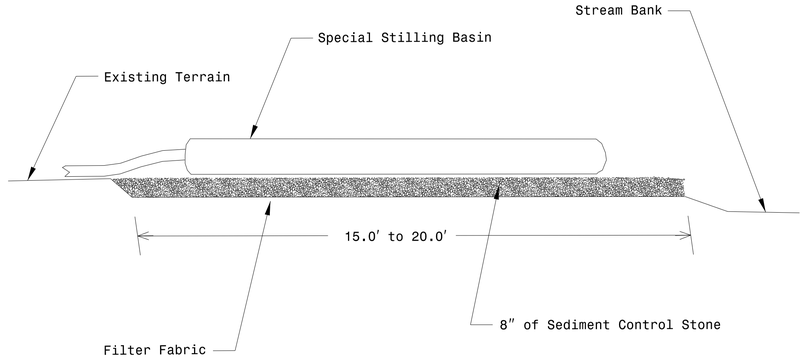

MAINTENANCE:
1. The special stilling basin shall be disposed of and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
2. The inlet of the bag should be inspected periodically for damage and/or blockage
3. Sediment control stone shall be replaced if damaged by high flows or bag failure.

Note: Provide Stabilized Outlet to Streambank
Not To Scale

DETAIL - SPECIAL STILLING BASIN

SCALE: N.T.S

Construction Specifications:

Special Stilling Basin	- The bag shall be placed on a rock pad constructed of at least 8 inches of sediment control stone. The bag may also be placed on wooden pallets to elevate it above natural ground. - The rock pad should extend at least 1 foot past the bag on all sides. - The special stilling basin should be placed on level ground. - The special stilling basin shall be placed so that incoming water flows into the bag without causing erosion. - Temporary slope drain pipe(s) or pump discharge hoses will be attached to the special stilling basin(s) so that water is routed directly into the special stilling basin(s). - The special stilling basin may be cut to allow slope drain pipe to be inserted if needed and tied of tightly. The remaining sleeve or spout of the bag, if present, may be used to connect more than one special stilling basin in series, as directed. If not used in this manner, the sleeve shall be tied off tightly to allow the bag to contain the effluent and force it to filter through the sides of the special stilling basin. - When being utilized in drilled pier construction, the special stilling basin should be constructed such that it is portable and can be used adjacent to each drilled pier.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
JOSH DALTON
1D6BADBC1A994D3
PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C.609

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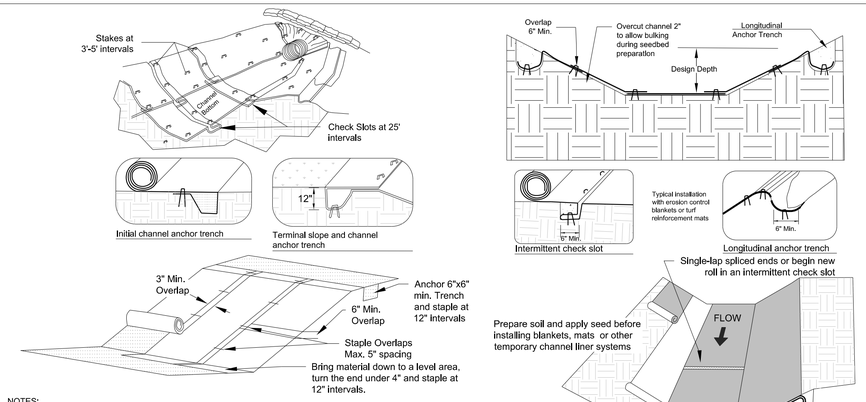
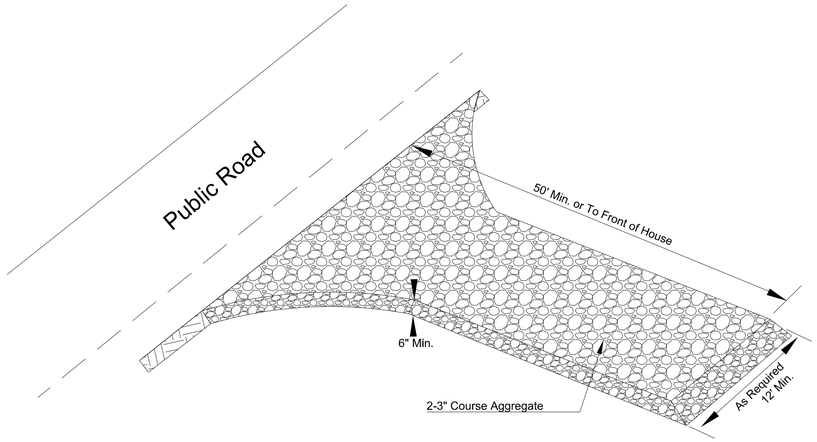


NOTES:
1. Lime, fertilize and seed before installation. Planting of shrubs, trees, etc. should occur after installation.
2. Slope surface shall be smooth before placement for proper soil contact.
3. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
4. Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals.
5. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
6. For installation on a slope, place RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP. Pin using staples or pins in a 3 feet center-to-center pattern.
7. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
8. Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats
9. Check slots to be constructed per manufacturers specifications.
10. Staking or stapling layout per manufacturers specification.
11. If there is a berm at the top of slope, anchor upslope of the berm.
12. Do not stretch blankets/matting tight, allow the rolls to conform to any irregularities.
13. For slopes less than 3H:1V, rolls may be placed in horizontal strips.

MAINTENANCE:
1. Inspect Rolled Erosion Control Products at least weekly and after each rain of 1 inch or greater; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

DETAIL - ROLLED EROSION CONTROL PRODUCTS (RECP)

SCALE: N.T.S



Construction:
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

Maintenance:
1. Per NCG-01 inspect at least once a week and after each 1 inch or greater rainfall; make any required repairs immediately.
2. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2 inch stone.
3. Immediately remove all objectionable materials spilled, washed or tracked onto public roadways.

DETAIL - CONSTRUCTION ENTRANCE / EXIT

SCALE: N.T.S

Construction Specifications

Construction

Even if properly designed, if not properly installed, RECP's will probably not function as desired. Proper installation is imperative. Even if properly installed, if not properly timed and nourished, vegetation will probably not grow as desired. Proper seed/vegetation selection is also imperative.

Grade the surface of installation areas so that the ground is smooth and loose. When seeding prior to installation, follow the steps for seed bed preparation, soil amendments, and seeding in *Surface Stabilization*, 6.1. All gullies, rills, and any other disturbed areas must be fine graded prior to installation. Spread seed before RECP installation. (**Important**: Remove all large rocks, dirt clods, stumps, roots, grass clumps, trash, and other obstructions from the soil surface to allow for direct contact between the soil surface and the RECP.)

Terminal anchor trenches are required at RECP ends and intermittent trenches must be constructed across channels at 25-foot intervals. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width, while intermittent trenches need be only 6 inches deep and 6 inches wide.

Installation for Slopes— Place the RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill, and compact. Unroll the RECP down (or along) the slope maintaining direct contact between the soil and the RECP. Overlap adjacent rolls a minimum of 3 inches. Pin the RECP to the ground using staples or pins in a 3 foot center-to-center pattern. Less frequent stapling/pinning is acceptable on moderate slopes.

Installation in Channels— Excavate terminal trenches (12 inches deep and 6 inches wide) across the channel at the upper and lower end of the lined channel sections. At 25-foot intervals along the channel, anchor the RECP across the channel either in 6 inch by 6 inch trenches or by installing two closely spaced rows of anchors. Excavate longitudinal trenches 6 inches deep and wide along channel edges (above water line) in which to bury the outside RECP edges. Place the first RECP at the downstream end of the channel. Place the end of the first RECP in the terminal trench and pin it at 1 foot intervals along the bottom of the trench.

Note: The RECP should be placed upside down in the trench with the roll on the downstream side of the bench.

Once pinned and backfilled, the RECP is deployed by wrapping over the top of the trench and unrolling upstream. If the channel is wider than the provided rolls, place ends of adjacent rolls in the terminal trench, overlapping the adjacent rolls a minimum of 3 inches. Pin at 1 foot intervals, backfill, and compact. Unroll the RECP in the upstream direction until reaching the first intermittent trench. Fold the RECP back over itself, positioning the roll on the downstream side of the trench, and allowing the mat to conform to the trench.

Then pin the RECP (two layers) to the bottom of the trench, backfill, and compact. Continue up the channel (wrapping over the top of the intermittent trench) repeating this step at other intermittent trenches, until reaching the upper terminal trench.

At the upper terminal trench, allow the RECP to conform to the trench, secure with pins or staples, backfill, compact and then bring the mat back over the top of the trench and onto the existing mat (2 to 3 feet overlap in the downstream direction), and pin at 1 foot intervals across the RECP. When starting installation of a new roll, begin in a trench or shingle-lap ends of rolls a minimum of 1 foot with upstream RECP on top to prevent uplifting. Place the outside edges of the RECP(s) in longitudinal trenches, pin, backfill, and compact.

Anchoring Devices—11 gauge, at least 6 inches length by 1 inch width staples or 12 inch minimum length wooden stakes are recommended for anchoring the RECP to the ground.

Drive staples or pins so that the top of the staple or pin is flush with the ground surface. Anchor each RECP every 3 feet along its center. Longitudinal overlaps must be sufficient to accommodate a row of anchors and uniform along the entire length of overlap and anchored every 3 feet along the overlap length. Roll ends may be spliced by overlapping 1 foot (in the direction of water flow), with the upstream/upslope mat placed on top of the downstream/downslope RECP. This overlap should be anchored at 1 foot spacing across the RECP. When installing multiple width mats heat seamed in the factory, all factory seams and field overlaps should be similarly anchored.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Designed by:
JOSH DALTON
10/8/2021 | 16944 | CI

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON

6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C.610

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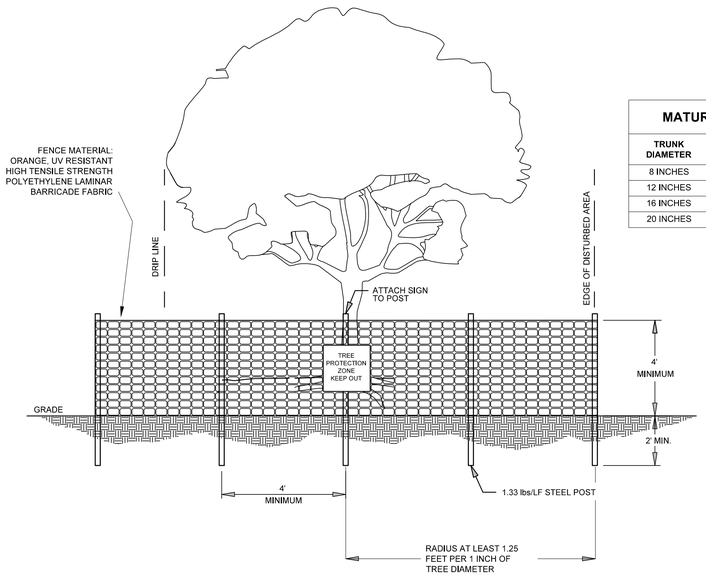


MATURE TREE PROTECTION ZONE RADIUS

TRUNK DIAMETER	GOOD PROTECTION	BETTER PROTECTION	BEST PROTECTION
8 INCHES	10 FEET	12 FEET	20 FEET
12 INCHES	15 FEET	18 FEET	30 FEET
16 INCHES	20 FEET	24 FEET	40 FEET
20 INCHES	25 FEET	30 FEET	50 FEET

NOTES:
1. Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
2. Select trees to be preserved before siting roads, buildings or other structures.
3. Minimize trenching in areas with trees. Place several utilities in the same trench.
4. Prohibit or restrict access to tree protection zones(TPZ). Post "Keep Out" signs on all sides of fencing and do not store construction equipment or materials in TPZ.
5. Monitor trees using a professional or train your staff to monitor tree health during and after construction on a regular, frequent basis.
6. Assign a crew member to weekly TPZ fence integrity checks. Repair and replace TPZ fencing as needed.

MAINTENANCE:
1. Prune any damaged trees. In spite of precautions, some damage to protected trees may occur. In such cases, repair any damage to the crown, trunk, or root system immediately.
2. Repair roots by cutting off the damaged areas and painting them them with tree paint. Spread peat moss or moist topsoil over exposed roots.
3. Repair damage to bark by trimming around the damaged area, taper the cut to provide drainage and paint with tree paint.
4. Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts to avoid peeling bark from healthy areas of the tree.

DETAIL - TREE PROTECTION ZONES

SCALE: N.T.S

Design Criteria

The following general criteria should be considered when developing sites in wooded areas:

- Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
- Locate roadways, storage areas, and parking pads away from valuable tree stands. Follow natural contours, where feasible, to minimize cutting and filling in the vicinity of trees.
- Select trees to be preserved before siting roads, buildings, or other structures.
- Minimize trenching in areas with trees. Place several utilities in the same trench.
- Designate groups of trees and individual trees to be saved on the erosion and sedimentation control plan.
- **Do not excavate, traverse, or fill closer than the drip line, or perimeter of the canopy, of trees to be saved**.

Construction Specifications

1. Erect TPZ fences. Restrict access to TPZs, with tall, bright, protective fencing. Most fencing is inexpensive and durable enough to last throughout most construction projects. Temporary tree protection fencing should be erected before clearing, deliveries and other construction activities begin on the site.

2. Prohibit or restrict access to TPZs. All on-site workers should be aware of the TPZs and the restrictions on activities within the zones. Use these TPZ guidelines for the best effect:

• Post "keep out" signs on all sides of fencing. Do not store construction equipment or materials in TPZs.

• Prohibit construction activities near the most valuable trees, and restrict activities around others.

• Assess crew and contractor penalties, if necessary, to keep the TPZs intact.

3. Monitor trees. Vigilance is required to protect trees on construction sites. Use a tree professional or train your staff to monitor tree health during and after construction on a regular, frequent basis. Watch for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.

4. Monitor TPZ fences. Assign a crewmember the weekly responsibility of checking the integrity of TPZ fences. Repair and replace TPZ fencing as needed.

5. Optimize tree health. Assign a trained crewmember or hire a professional to complete regular tree maintenance tasks, including watering, fertilization, and mulching to protect tree roots. Consult a tree professional for advice on these practices if needed. Survival of protected trees will increase if these practices continue during construction. Healthy trees require undisturbed healthy soils. Do not cause injuries to trees and roots. Do not change the soil, grade, drainage, or aeration without protecting priority trees

Figure 6.05c Tree protection zone guidelines.

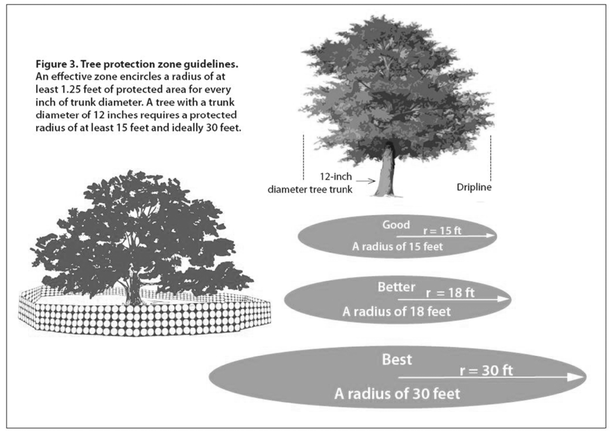
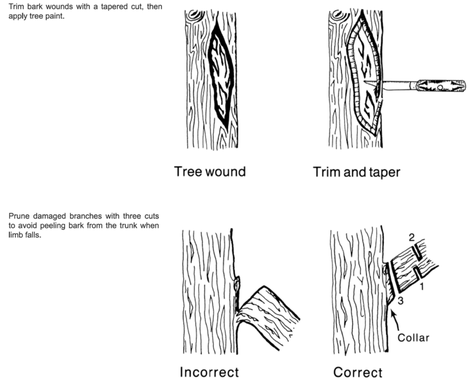
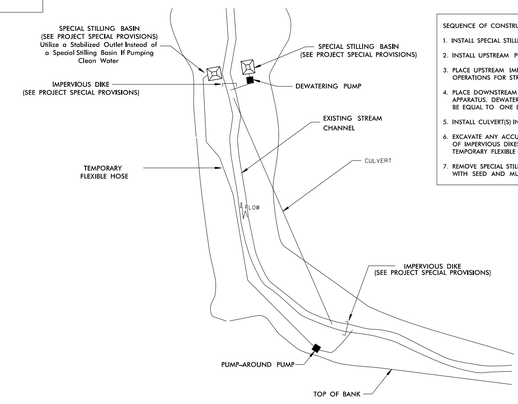


Figure 6.05d Wound repair and pruning of damaged trees.



References
Construction and Tree Protection, AG-685 (Revised) North Carolina Cooperative Extension Service

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

DETAIL - EXAMPLE OF PUMP-AROUND OPERATION

SCALE: N.T.S

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: JOSH DALTON 1089A58C14994C9...
NORTH CAROLINA PE SEAL 26971 ENGINEER JOSHUA C. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

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REVISIONS:

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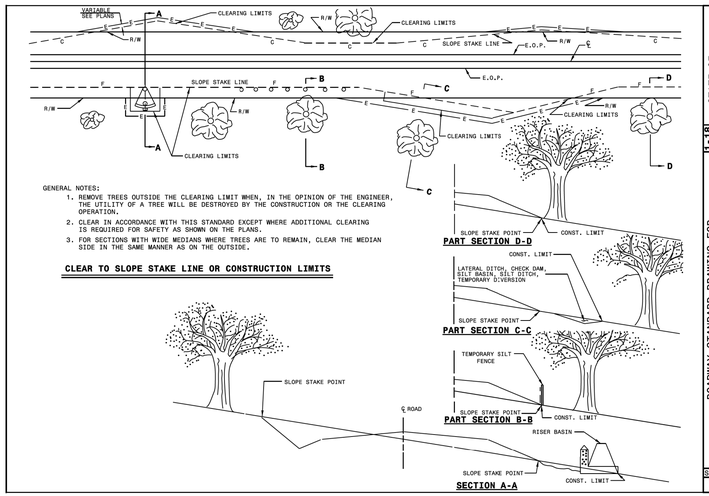


GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.
3. FOR SECTIONS WITH WIDE MEDIANS WHERE TREES ARE TO REMAIN, CLEAR THE MEDIAN SIDE IN THE SAME MANNER AS ON THE OUTSIDE.

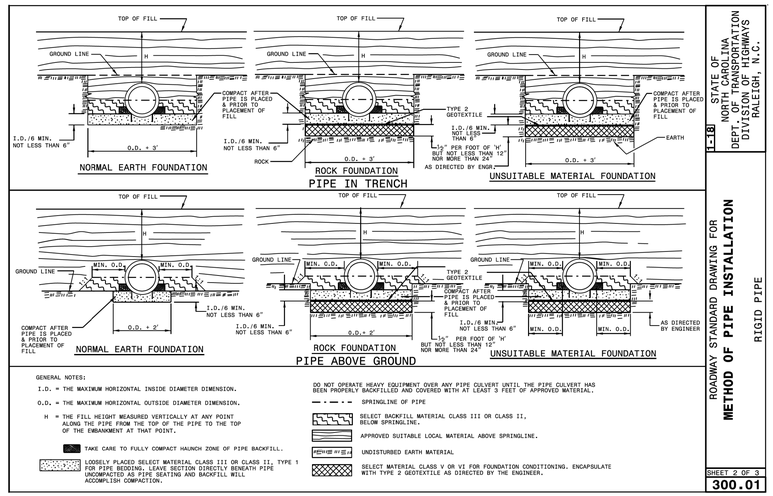
CLEAR TO SLOPE STAKE LINE OR CONSTRUCTION LIMITS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF CLEARING
METHOD - II

SHEET 1 OF 1
200.02



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II; TYPE 1 ENCAPSULATION. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED TO PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE 2 GEOTEXTILE AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga)	Maximum Height of Cover (feet) 16	14	12	10	8
12	12		204	256			
15	12		162	204			
18	12		136	169	239		
21	12		115	145	204		
24	12		100	126	178		
30	12		79	100	142		
36	12		65	83	117	152	
42	12		55	70	100	130	160
48	12		48	61	87	113	139
54	12			54	77	100	123
60	12				69	90	111
66	12					81	100
72	12					74	91
78	12						81
84	12						68

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga)	Maximum Height of Cover (feet) 16	14	12	10	8
12	12		123	155	218	281	344
15	12		98	123	174	224	275
18	12		81	102	144	187	228
21	12		69	87	123	160	195
24	12		60	76	108	139	171
27	12			67	95	123	151
30	12			60	85	111	136
36	12			50	71	92	113
42	12				60	78	96
48	12				52	68	84
54	12				46	50	74
60	12					50	62
66	12						51
72	12						41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 3' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
(Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
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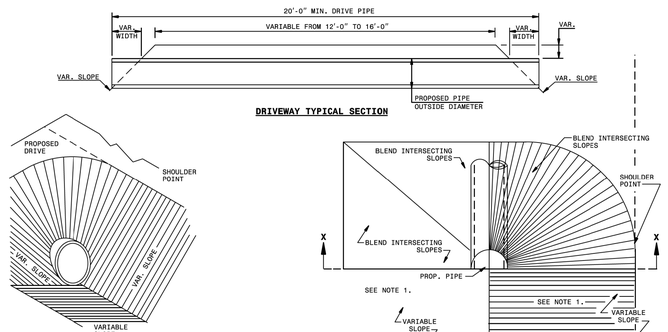

USE AT LOCATIONS AS DIRECTED BY THE ENGINEER

GENERAL NOTES:

ALL DIMENSIONS GIVEN ARE FOR MINIMUM CONDITIONS. PROPER ENGINEERING JUDGEMENT MUST BE USED IN DETERMINING DRIVEWAY LOCATIONS, WIDTHS, AND PIPE LENGTHS.

FACTORS SUCH AS VEHICLE TURNING RADIUS, TRAFFIC VOLUMES, DRIVEWAY SKEW, OFFSET DISTANCE OF PIPE FROM EDGE OF PAVEMENT, PIPE DEPTHS, AND DESIGN SPEED SHOULD BE CONSIDERED IN DETERMINING DRIVEWAY WIDTHS.

NOTE:
1. THESE AREAS ARE TO BE USED TO BLEND THE INTERSECTING SLOPES TO THE PROPOSED DITCH.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
DRIVEWAY PIPE CONSTRUCTION
USING NO SPECIAL END SECTIONS

SHEET 1 OF 1
310.10

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

Docusigned by: JOSH DALTON
Signature Certificate
PE SEAL 26971 ENGINEER JOSHUA G. DALTON
6/17/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

SITE DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C603
DATE: 6-16-2021
DRAWN BY: JRH
REVIEWED BY: RCH
REVISIONS:

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SECTION 8 - HYDRAULIC MODELS

Electronic files for the Effective Model and the Project Model are included with this report.

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal	CRS Entry Date	Curr Eff Date	Curr Class	% Disc SFHA	% Disc Non SFHA
370091K	PINETOPS, TOWN OF	EDGECOMBE COUNTY	01/09/74	03/28/80	06/02/15	03/28/80	No					
370160F	PINEVILLE, TOWN OF	MECKLENBURG COUNTY	06/21/74	03/18/87	09/02/15	03/18/87	No	10/01/91	10/01/20	5	25%	10%
370599#	PINK HILL, TOWN OF	LENOIR COUNTY		07/02/04	(NSFHA)	01/26/12	No					
370372L	PITT COUNTY *	PITT COUNTY	06/30/78	01/06/83	06/19/20	01/06/83	No	10/01/02	10/01/18	8	10%	05%
370420K	PITTSBORO, TOWN OF	CHATHAM COUNTY	10/20/78	02/02/07	11/17/17	02/02/07	No					
370618#	PLEASANT GARDEN, TOWN OF	GUILFORD COUNTY		06/18/07	03/16/09	03/17/09	No					
370249#	PLYMOUTH, TOWN OF	WASHINGTON COUNTY	05/20/77	08/19/85	02/04/09	08/19/85	No	10/01/94	10/01/99	8	10%	05%
370194#	POLK COUNTY*	POLK COUNTY	11/29/74	01/01/87	10/02/08	01/01/87	No					
370286#	POLKTON, TOWN OF	ANSON COUNTY	02/10/78	09/03/08	10/16/08	08/20/08	No					
370634#	POLKVILLE, TOWN OF	CLEVELAND COUNTY		02/20/08	02/20/08	03/22/12	No					
370142K	POLLOCKSVILLE, TOWN OF	JONES COUNTY	03/15/74	09/04/86	06/15/22	09/04/86	No					
370485J	PRINCETON, TOWN OF	JOHNSTON COUNTY		10/20/00	06/20/18	02/14/97	No					
370318K	PRINCEVILLE, TOWN OF	EDGECOMBE COUNTY	07/25/75	04/15/80	06/02/15	04/15/80	No					
370635#	PROCTORVILLE, TOWN OF	ROBESON COUNTY		01/19/05	01/05/07	10/24/12	No					
370132#	RAEFORD, CITY OF	HOKE COUNTY	12/20/74	06/03/86	12/18/07	06/03/86	No					
370243N	RALEIGH, CITY OF	WAKE COUNTY	06/28/74	08/15/78	07/19/22	08/15/78	No	10/01/91	10/01/14	10		0%
370198#	RAMSEUR, TOWN OF	RANDOLPH COUNTY	02/15/74	03/01/87	03/16/09	03/01/87	No					
370199#	RANDLEMAN, CITY OF	RANDOLPH COUNTY	11/22/74	07/01/87	03/16/09	07/01/87	No					
370195C	RANDOLPH COUNTY *	RANDOLPH COUNTY	01/03/75	07/16/81	11/17/17	07/16/81	No					
370324#	RANLO, TOWN OF	GASTON COUNTY	06/27/75	03/03/03	11/04/09	03/03/03	No					
370079#	RED CROSS, TOWN OF	STANLY COUNTY		09/03/08	06/16/09	07/29/10	No					
370516#	RED OAK, TOWN OF	NASH COUNTY		01/20/82	06/18/13	01/22/99	No					
370204#	RED SPRINGS, TOWN OF	ROBESON COUNTY	04/01/77	05/01/87	01/05/07	05/01/87	No					
370209#	REIDSVILLE, CITY OF	ROCKINGHAM COUNTY	08/01/75	09/29/78	09/28/07	09/29/78	No					
370643#	RENNERT, TOWN OF	ROBESON COUNTY		01/19/05	01/05/07	06/23/11	No					
370041#	RHODHISS, TOWN OF	BURKE COUNTY/CALDWELL COUNTY	06/21/74	07/03/86	07/07/09	07/03/86	No					
370176#	RICH SQUARE, TOWN OF	NORTHAMPTON COUNTY		02/04/09	(NSFHA)	04/25/19	No					
370511#	RICHFIELD, TOWN OF	STANLY COUNTY		09/21/00	06/16/09(M)	01/31/12	No					
370341K	RICHLANDS, TOWN OF	ONSLOW COUNTY	07/11/75	07/03/86	06/19/20	07/03/86	No					
370348#	RICHMOND COUNTY*	RICHMOND COUNTY	07/28/78	09/06/89	07/07/14	09/06/89	No					
370432K	RIVER BEND, TOWN OF	CRAVEN COUNTY	05/14/82	08/19/86	06/15/22	08/19/86	No	05/01/10	05/01/10	8	10%	05%
370117#	ROANOKE RAPIDS, CITY OF	HALIFAX COUNTY	03/08/74	04/17/78	02/04/09	04/17/78	No					
370166#	ROBBINS, TOWN OF	MOORE COUNTY	11/22/74	07/03/86	01/02/08	07/03/86	No					
370106#	ROBBINSVILLE, TOWN OF	GRAHAM COUNTY	06/14/74	12/01/89	04/19/10	12/01/89	No					
370156#	ROBERSONVILLE, TOWN OF	MARTIN COUNTY	06/07/74	07/01/87	02/04/09	07/01/87	No					
370202K	ROBESON COUNTY *	ROBESON COUNTY	07/28/78	02/17/89	12/06/19	02/17/89	No					
370350#	ROCKINGHAM COUNTY*	ROCKINGHAM COUNTY	06/16/78	05/15/91	01/02/09	05/15/91	No					
370201#	ROCKINGHAM, CITY OF	RICHMOND COUNTY	06/11/76	09/06/89	09/03/08	09/06/89	No					
370214#	ROCKWELL, TOWN OF	ROWAN COUNTY	03/08/74	05/15/78	06/16/09	05/15/78	No					
370092#	ROCKY MOUNT, CITY OF	EDGECOMBE COUNTY/NASH COUNTY	03/01/74	05/01/78	06/18/13	05/01/78	No	10/01/92	10/01/19	7	15%	05%
	THE TOWN OF BATTLEBORO (370088) , EDGECOMBE COUNTY, WAS MERGED INTO THE CITY OF ROCKY MOUNT EFFECTIVE 7-1-96.											
370468K	ROLESVILLE, TOWN OF	WAKE COUNTY		03/03/92	07/19/22	07/31/01	No					
370258#	RONDA, TOWN OF	WILKES COUNTY	09/06/74	07/03/86	12/03/09(M)	07/03/86	No					
370421#	ROPER, TOWN OF	WASHINGTON COUNTY	06/21/74	08/05/85	02/04/09	08/05/85	No	10/01/94	10/01/99	8	10%	05%
	FORMERLY UNDER WASHINGTON COUNTY											
370375#	ROSE HILL, TOWN OF	DUPLIN COUNTY		02/16/06	02/16/07	07/17/06	No					
375358#	ROSMAN, TOWN OF	TRANSYLVANIA COUNTY	06/03/72	06/02/72	04/19/10	06/02/72	No					
370351B	ROWAN COUNTY *	ROWAN COUNTY	07/28/78	11/01/79	11/16/18	11/01/79	No					
370347K	ROXBORO, CITY OF	PERSON COUNTY	01/13/78	09/14/90	12/06/19	03/25/91	No					
370605#	ROXOBEL, TOWN OF	BERTIE COUNTY		02/04/09	08/03/09	02/04/09	No					

US Army Corps of Engineers ®
Wilmington District

PM-D-2023-S408-0002

PUBLIC NOTICE
REQUEST FOR PERMISSION
TO MODIFY A
U.S. ARMY CORPS OF ENGINEERS PROJECT UNDER SECTION 408

TITLE: Princeville Levee Floodgate Repairs, Princeville, North Carolina

PUBLIC NOTICE COMMENT PERIOD:
Begins: February 13, 2023
Expires: February 27, 2023

Interested parties are hereby notified that an application has been received for Department of the Army Section 408 (Section 14 of the Rivers and Harbors Act of 1899; 33 U.S.C. 408; hereinafter Section 408) approval to conduct proposed work impacting the Tar River, Princeville, North Carolina (NC) Flood Damage Reduction Project (Figure 1), as described below. Written comments are being solicited from anyone having an interest in the requested alteration. Comments received will become part of the U.S. Army Corps of Engineers' (USACE) administrative record and will be considered in determining whether to approve the request. Comments supporting, opposing, or identifying concerns that should be considered by the USACE in its decision process are welcome. Comments providing substantive information and/or a rationale for the commenter's position are the most helpful. Comments regarding the proposed work should reference the USACE public notice number (PM-D-2023-S408-0002) and must reach the USACE via email no later than **February 27, 2023** to become part of the public record and be considered in the USACE's decision. Please send comments to the Wilmington District Section 408 Coordinator at: kent.tranter@usace.army.mil.

REQUESTER: In compliance with Section 408, the Town of Princeville, NC has requested permission to alter the existing Federal project. The town desires to complete levee floodgate repairs at four (4) sites on the existing levee along the Tar River and construct access roads along the levee to facilitate future inspection, maintenance, and flood fighting operations.

LOCATION: The portion of the existing project impacted by the proposed repairs are located at four (4) sites on the existing levee as shown below in Figure 1.

PROPOSED ACTION: The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wideshoulders and 3: 1 side-slopes. The access roads will traverse up, over, and/or down the levee, and connect to "stub-roads" that provide access to inlet and outlet channels at the sites.

REGULATORY AUTHORITY: This request will be reviewed according to the provisions of Section 408. A requester has the responsibility to acquire all other permissions or authorizations required by federal, state, and local laws or regulations. An approval under Section 408 does not grant any property rights or exclusive privileges, nor does it authorize any injury to the property or rights of others.

EVALUATION: The decision whether to grant the requested permission for federal project modification under Section 408 will be based on several factors and will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. Review of the request for modification will be reviewed by a USACE technical review team and will consider, but not necessarily be limited to, the following factors:

1. Impair the Usefulness of the Project Determination. The review team will determine if the proposed alteration would limit the ability of the projects to function as authorized, or would compromise or change any authorized project's conditions, purposes, or outputs. The decision whether to approve a request for modification would be based on a determination of no impairments.

2. Injurious to the Public Interest Determination. Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest.

SUMMARY: It should be noted that materials submitted as part of Section 408 requests become part of the public record and will be available to the general public under the provisions of the Freedom of Information Act (FOIA). Individuals may submit a written request to obtain materials under the FOIA or make an appointment to view the project file at the USACE Wilmington District's Office of Counsel.

Interested parties wishing to comment on the proposed action must do so in writing no later than **February 27, 2023**. It is presumed that all parties viewing this notice will wish to respond; therefore, a lack of response will be interpreted as meaning there is no objection to the proposed action as described.

Kent Tranter
Wilmington District
U.S. Army Corps of Engineers

Public Notice: Princeville Levee Floodgate Repairs, Princeville, North Carolina

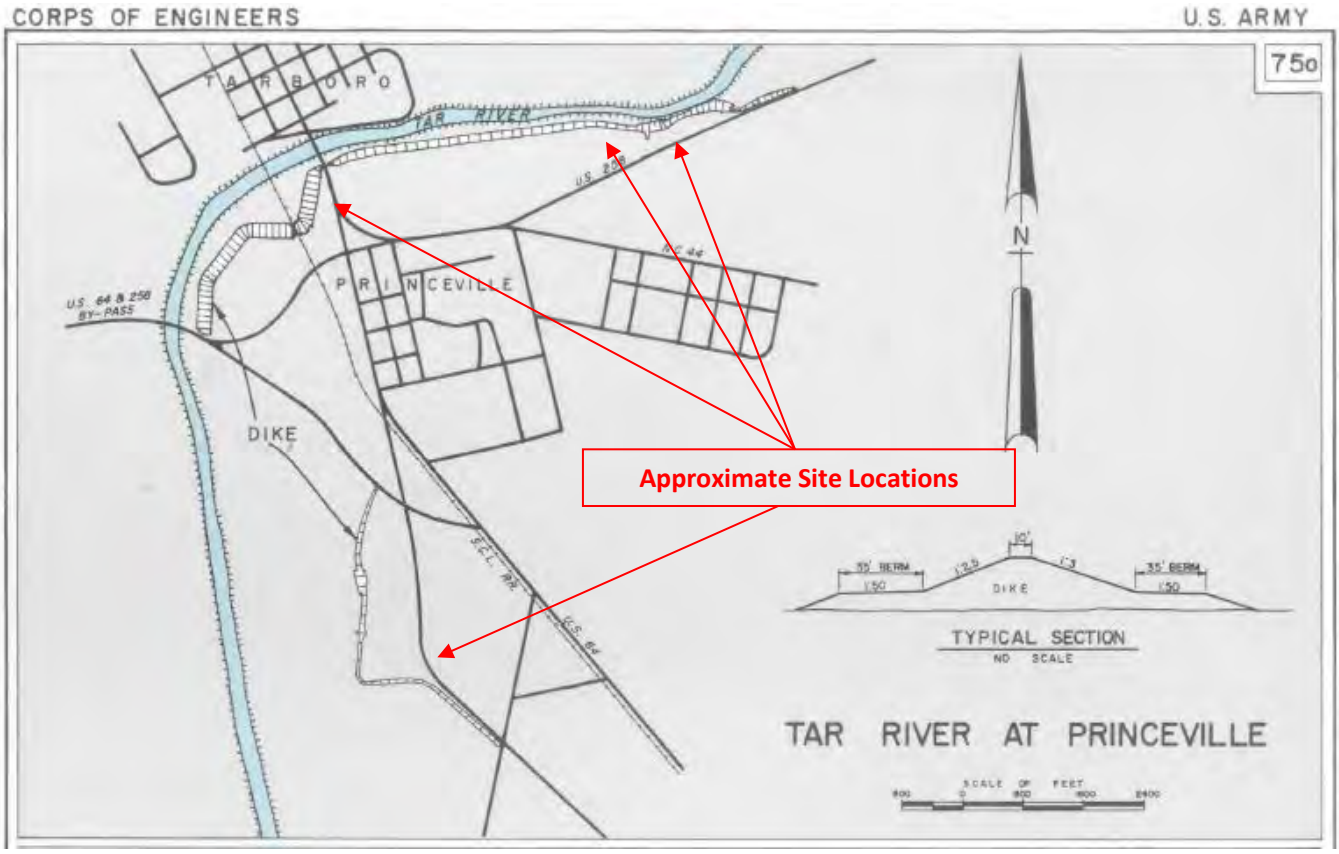


Figure 1. Tar River, Princeville, North Carolina Federal Project Map

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe** U.S.G.S. Quad: **NC-Tarboro**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, NC 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**

Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.8908**
Longitude: **-77.5326**

Location description: **The overall project area includes four project sites located along the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Description of projects area and activity: **This verification authorizes 261 linear feet of stream impacts (181 LF permanent, 80 LF temporary) and 0.007 acres of wetland impacts (0.005 acres permanent, 0.002 acres temporary) associated with floodgate repairs located within the above-described project area.**

Applicable Law(s): ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: **Nationwide Permit 3 for Maintenance**

SEE ATTACHED NWP GENERAL, REGIONAL, AND/OR SPECIAL CONDITIONS

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached Conditions, your application signed and dated 10/20/2021, and the enclosed plans Permit Drawings Sheets 1-9 dated 6/16/2021. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide and/or regional general permit authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide and/or regional general permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide and/or regional general permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide and/or regional general permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide and/or regional general permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 919-807-6300) to determine Section 401 requirements.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits. If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Billy W. Standridge at (910) 251-4595or Billy.w.standridge@usace.army.mil**.

Corps Regulatory Official: Billy W. Standridge Date: **04/12/2023**
Expiration Date of Verification: **3/14/2026**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Alexander P. Smith
Address:	**218 Snow Avenue**
	Raleigh, NC 27603
Telephone Number:	**(919) 270-9306**
E-mail:	**ssmith@axiomenvironmental.org**

Action ID Number: SAW-2021-00964 **County: Edgecombe**

Permittee: Town of Princeville, Dr. Glenda Knight

Project Name: Princeville Floodgate Repairs / Princeville Dike / Town of Princeville

Date Verification Issued: 04/12/2023

USACE Project Manager: Billy W. Standridge

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Billy W. Standridge
Washington Regulatory Office
U.S Army Corps of Engineers
2407 West Fifth Street
Washington, North Carolina 27889
or
Billy.w.standridge@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee **Date**

PERMIT DRAWING
SHEET 1 OF 9

PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT DISASTER RECOVERY PROJECT: PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

DESIGN TEAM COORDINATOR: SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Originally Sealed on 06-17-2021

WETLAND AND SURFACE WATER IMPACTS PERMIT

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

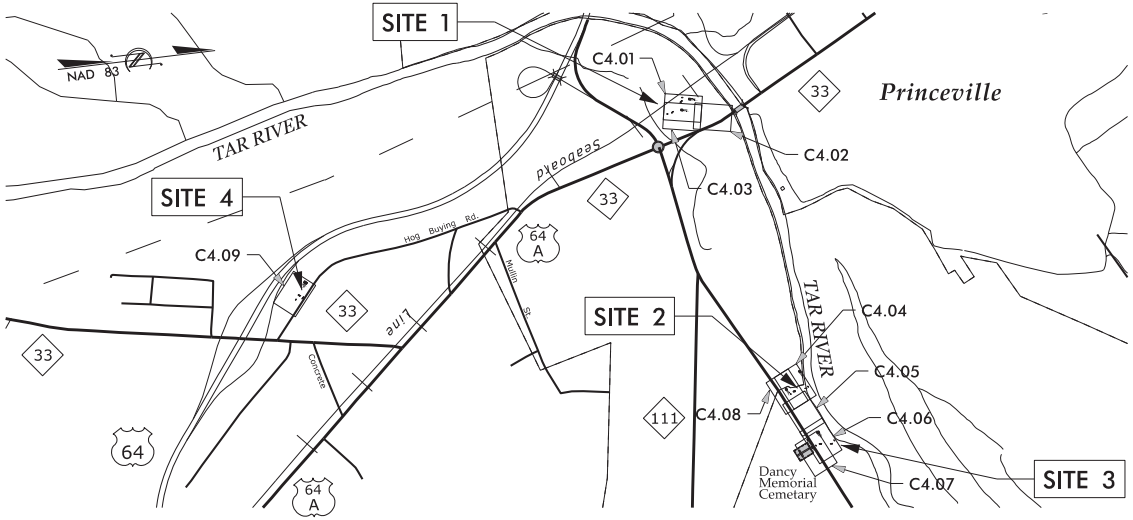
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

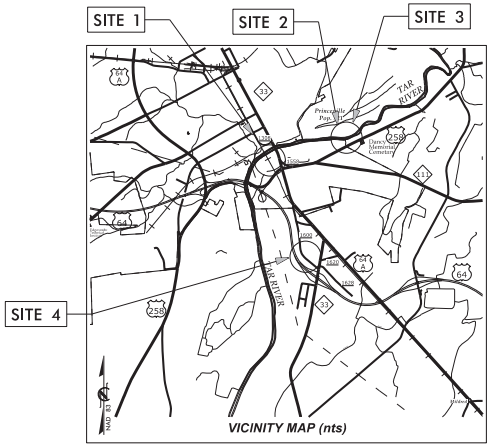
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-09-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN

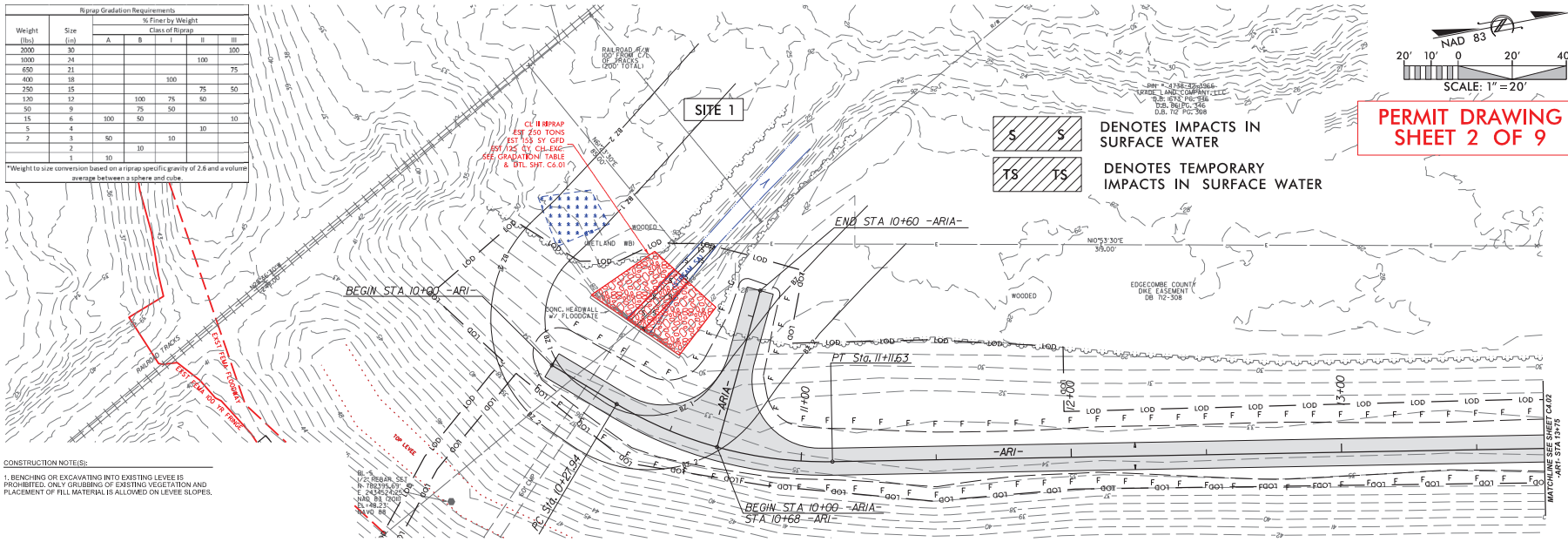




VICINITY MAP (nts)

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight				
		Class of Riprap				
		A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

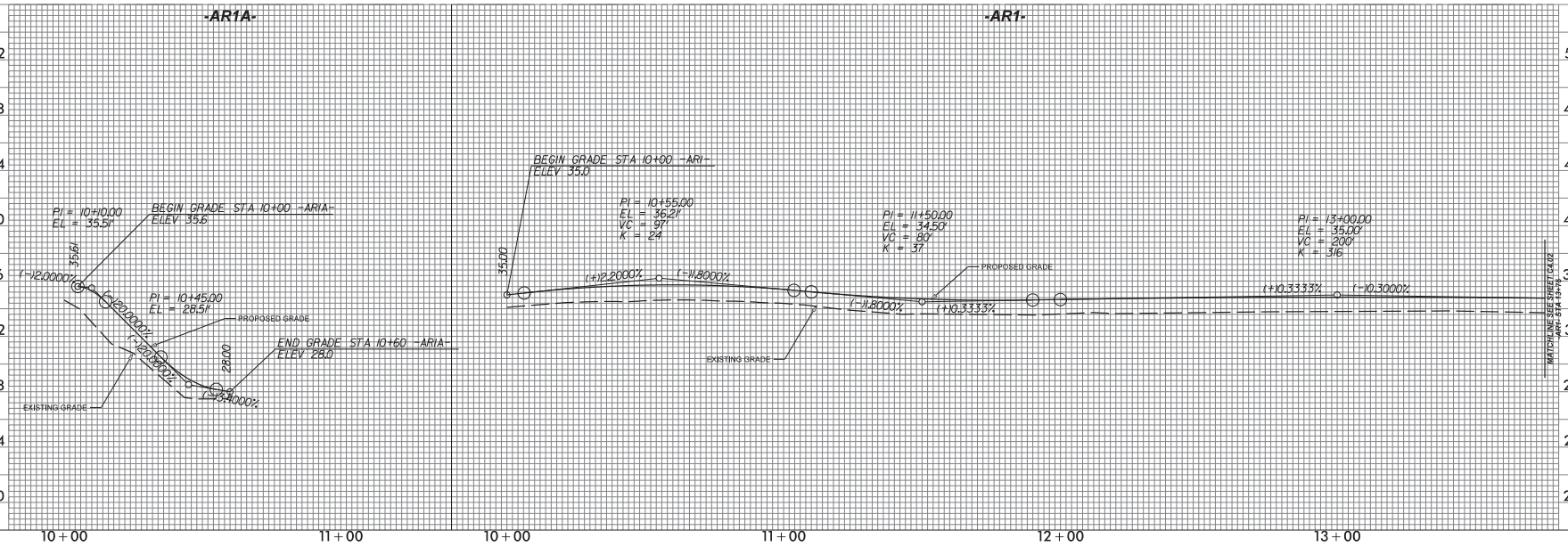
*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

PERMIT DRAWING
SHEET 2 OF 9



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C401
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.01

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Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap				
		A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

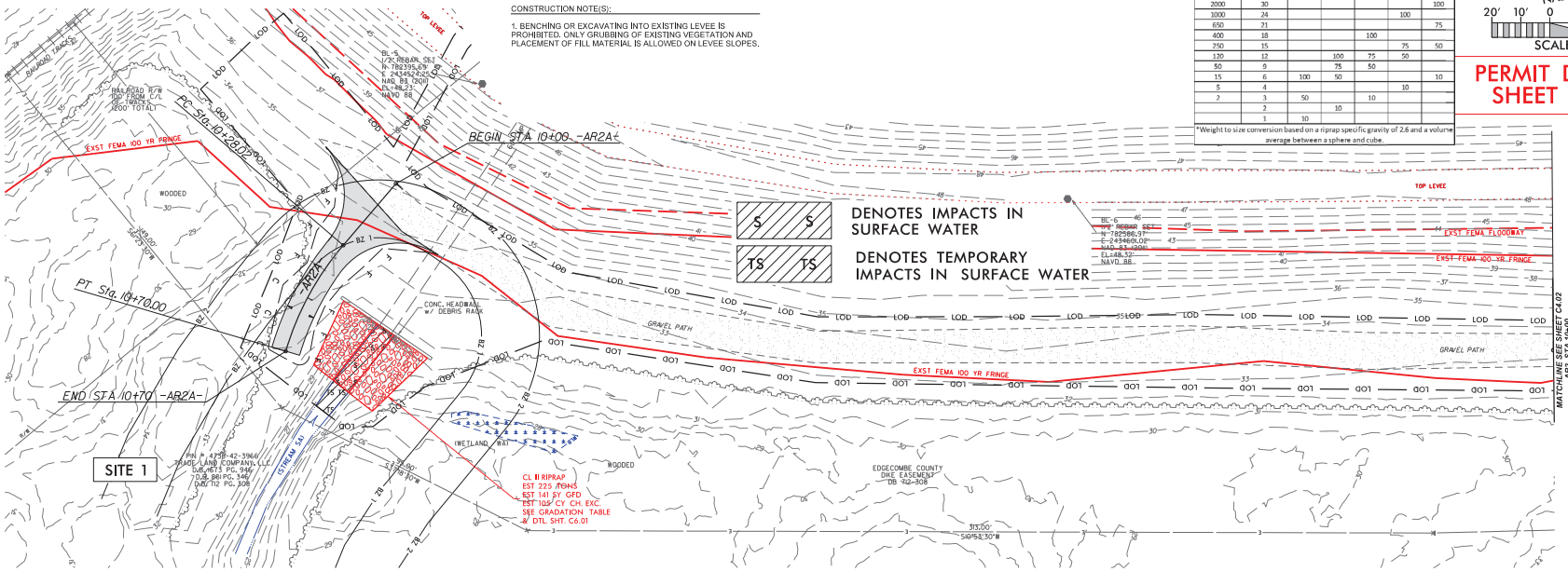
*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

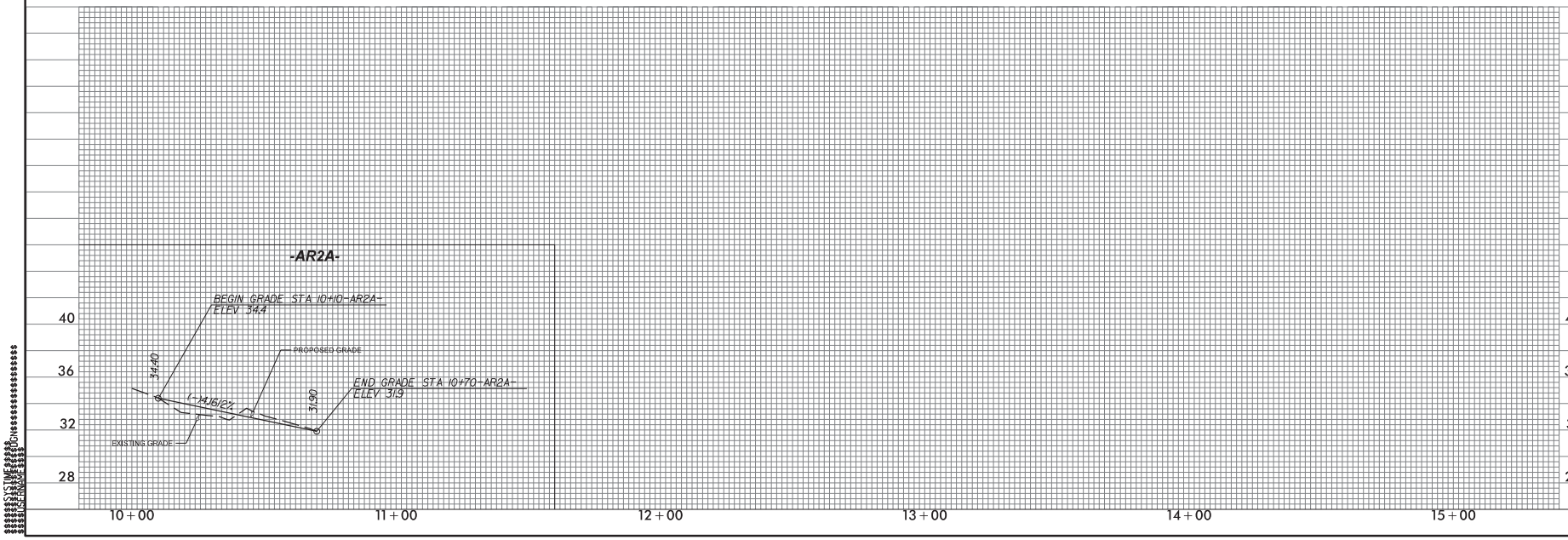
NAD 83

20' 10' 0 20' 40'

SCALE: 1"=20'

PERMIT DRAWING
SHEET 3 OF 9





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RALEIGH, NORTH CAROLINA 27606
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ENG FIRM LICENSE NO. C-890

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

PROJECT #: 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C403
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.03

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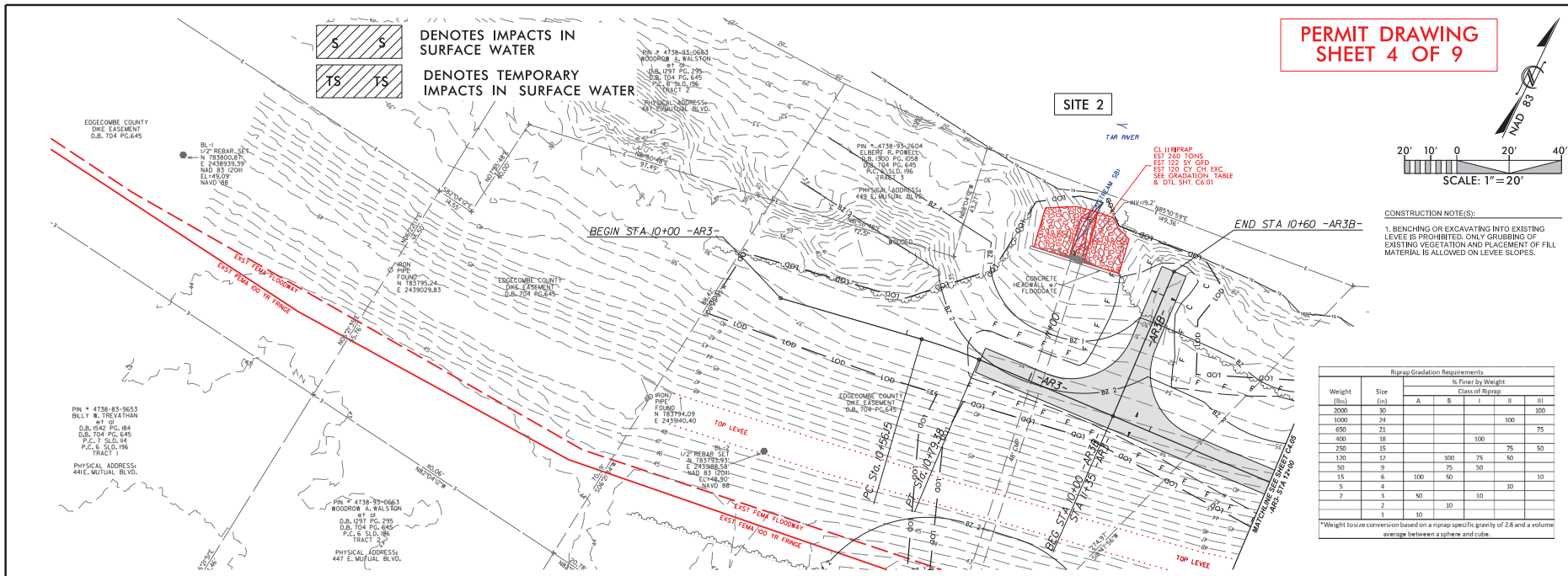

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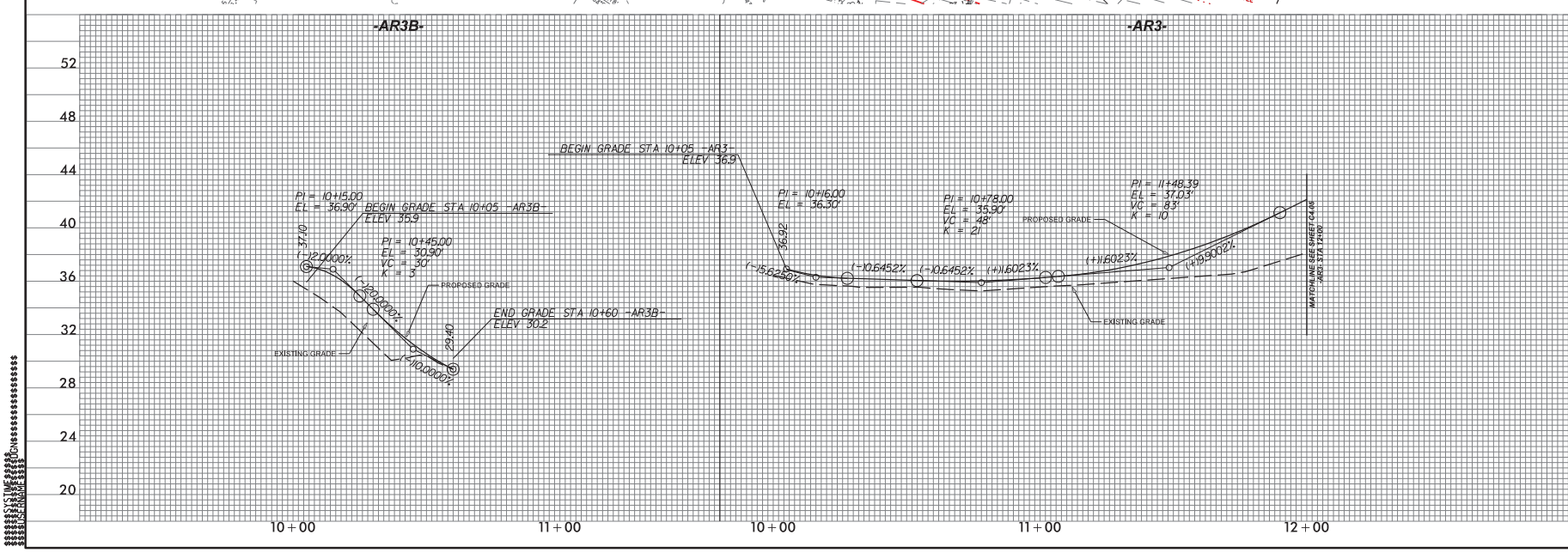
Riprap Gradation Requirements

Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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ENG FIRM LICENSE NO. C-890

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C404
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.04

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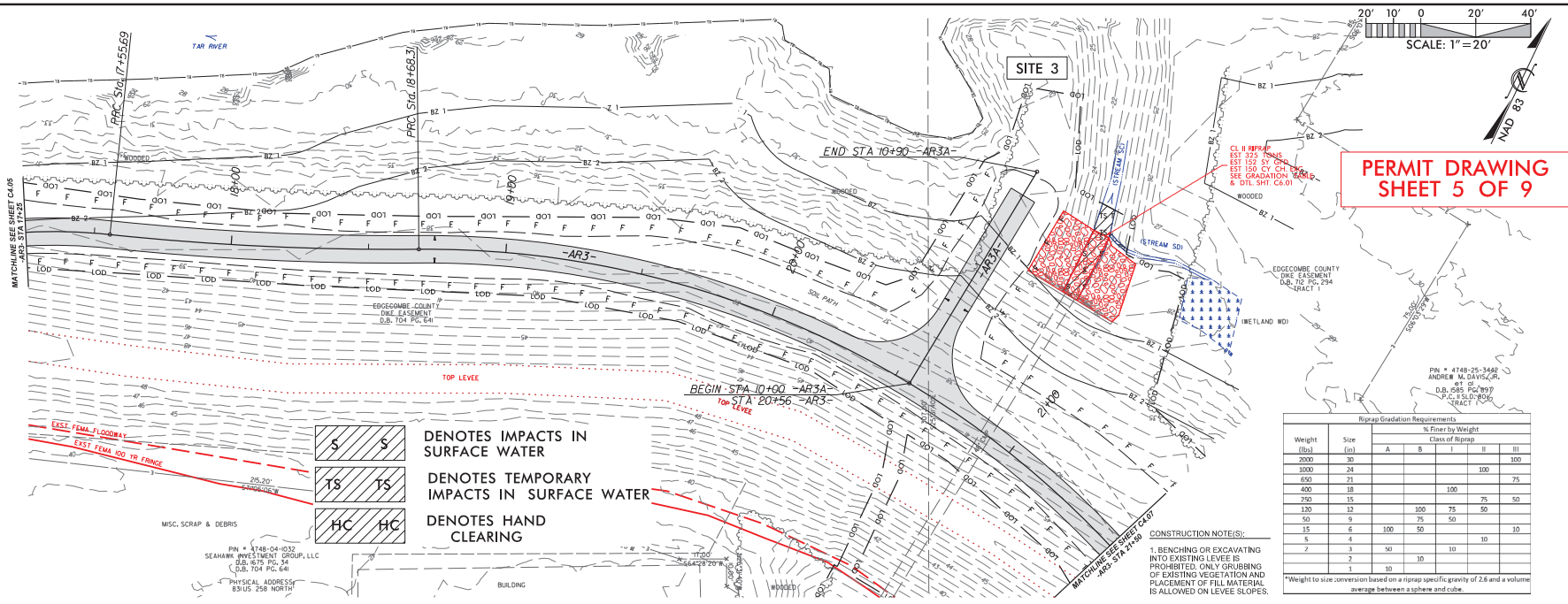


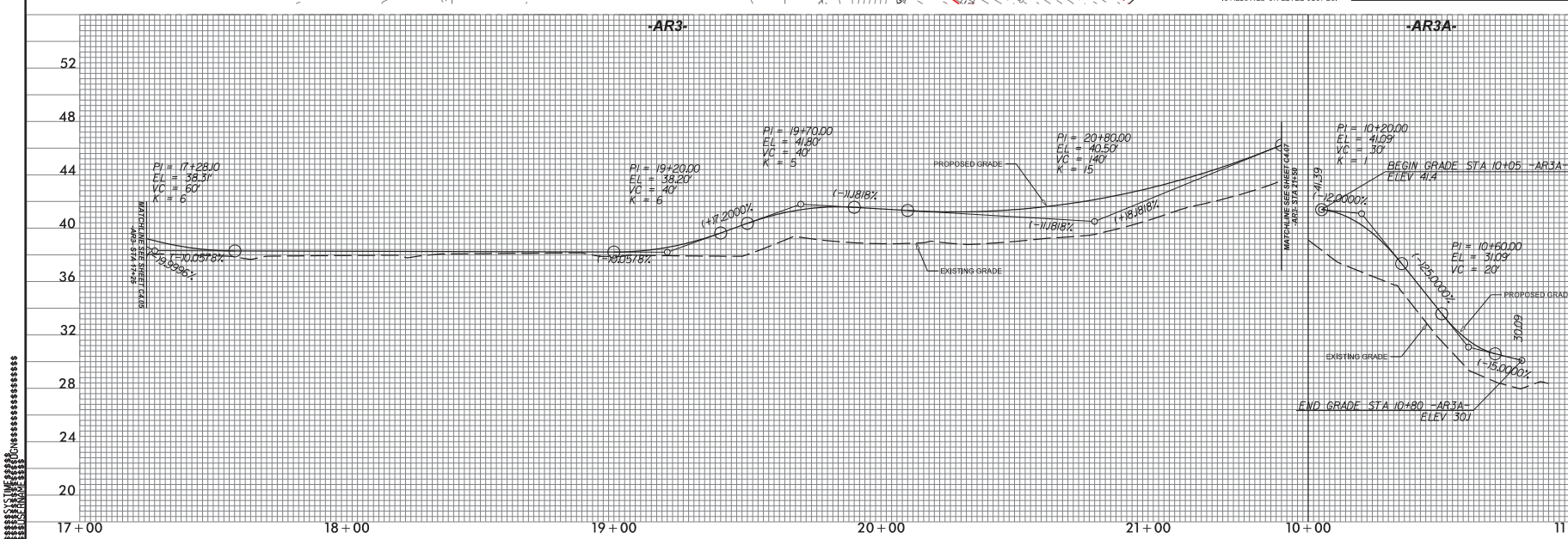
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements

Weight (lbs)	Size (in)	% Finer by Weight — Class of Riprap: A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C406
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.06

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Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight				
		Class of Riprap				
		A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

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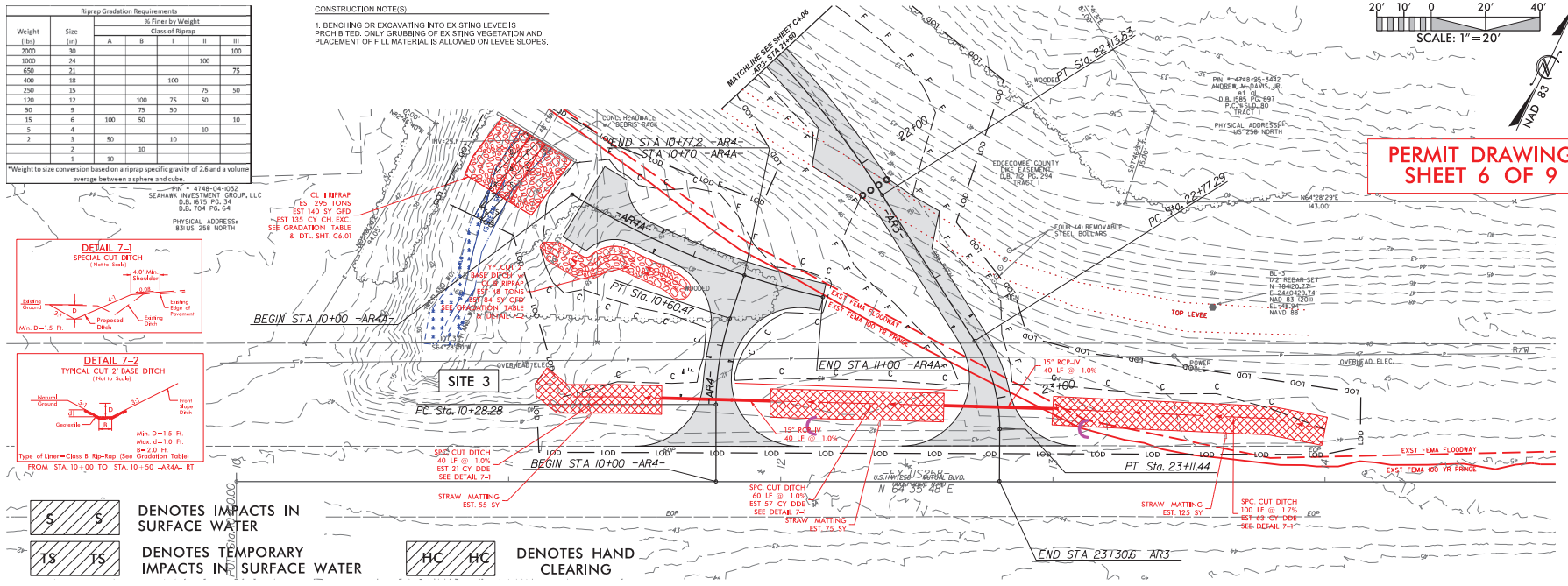
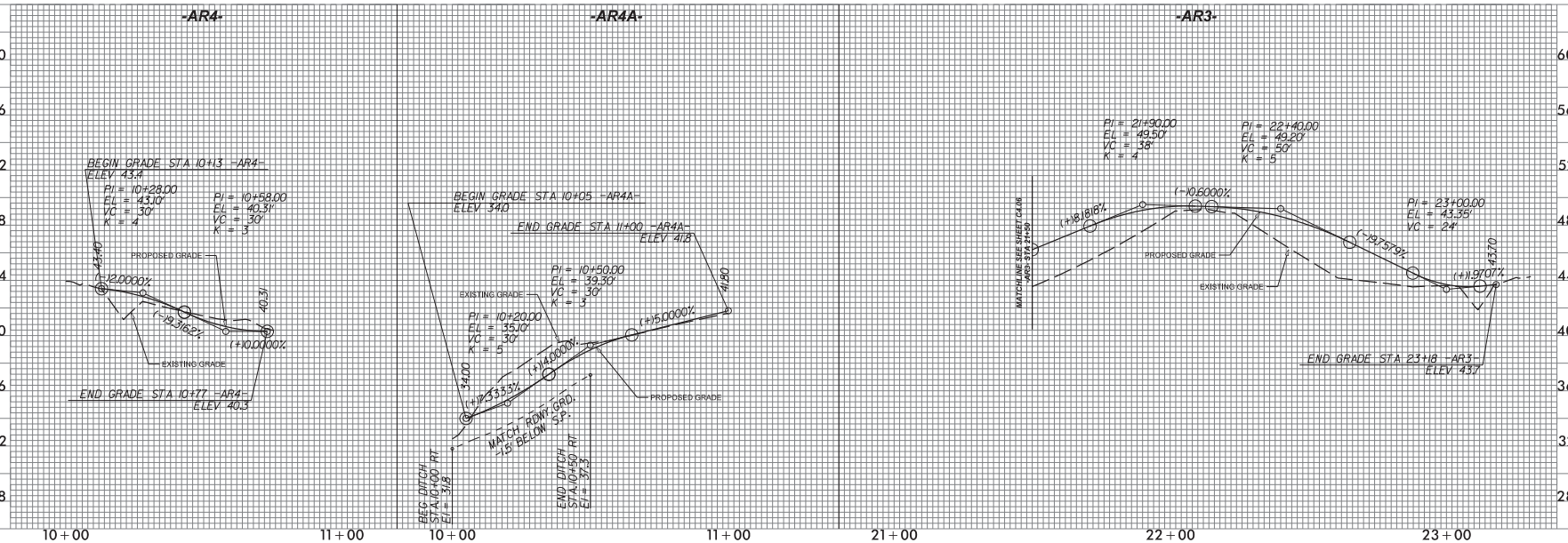


S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

HC HC DENOTES HAND CLEARING



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT #: 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C407
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.07

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Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
130	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

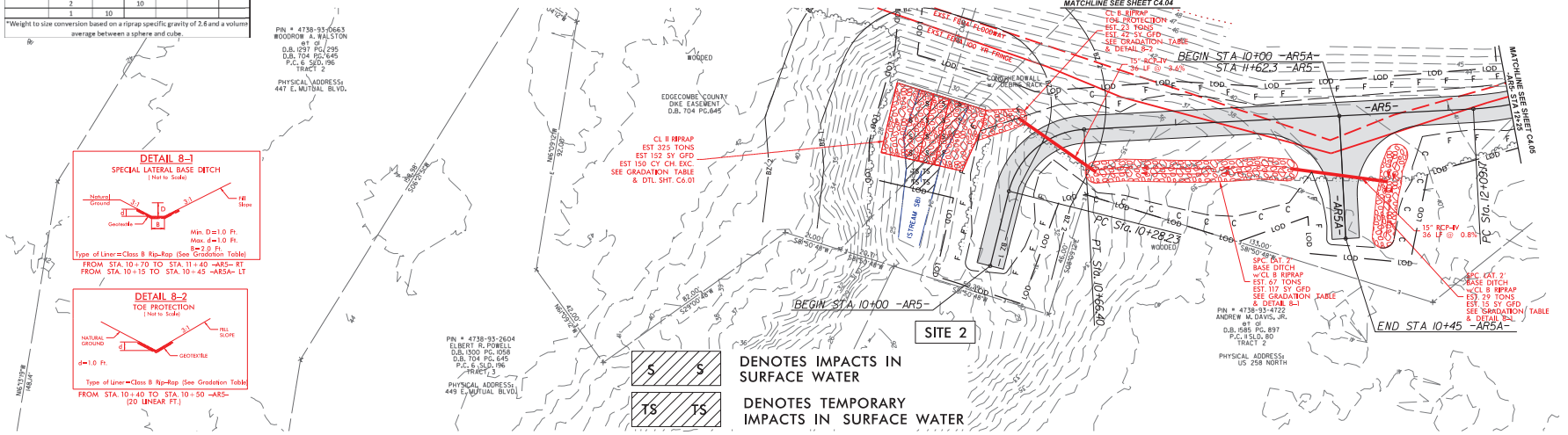
CONSTRUCTION NOTE(S):

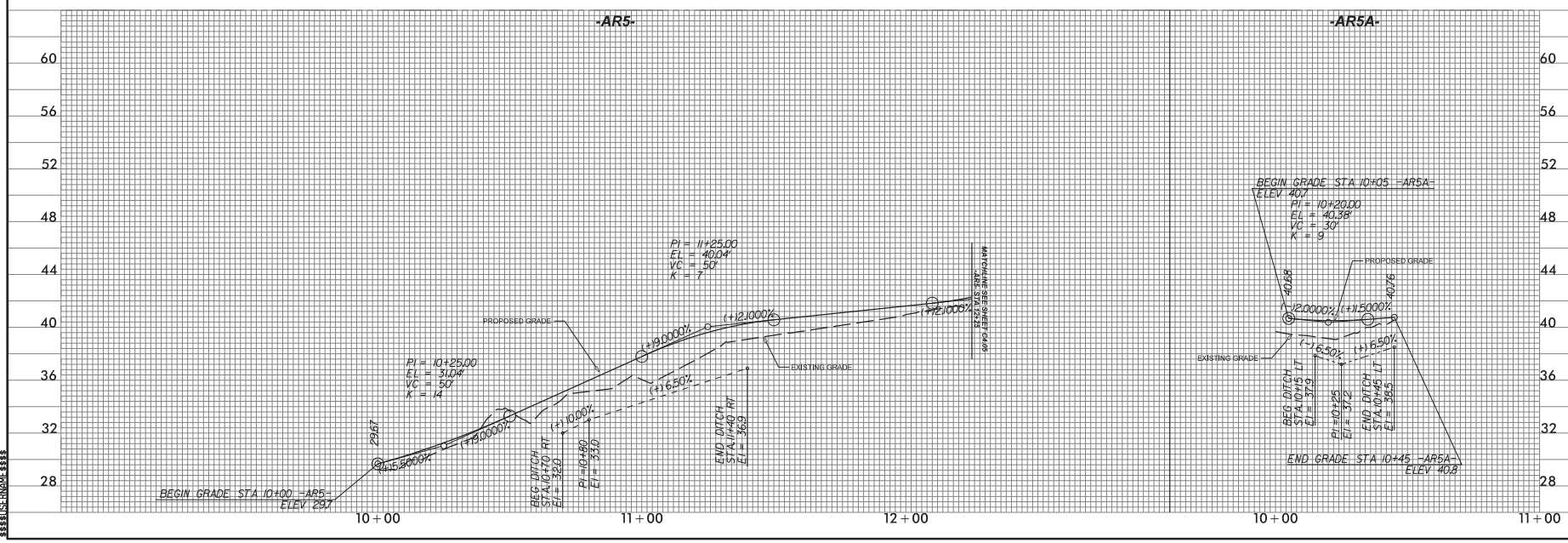
1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

20' 10' 0 20' 40'
SCALE: 1" = 20'

NAD 83

PERMIT DRAWING SHEET 7 OF 9





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL: (919) 851-2238
ENG FIRM LICENSE NO. C-3490

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C408
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C4.08**

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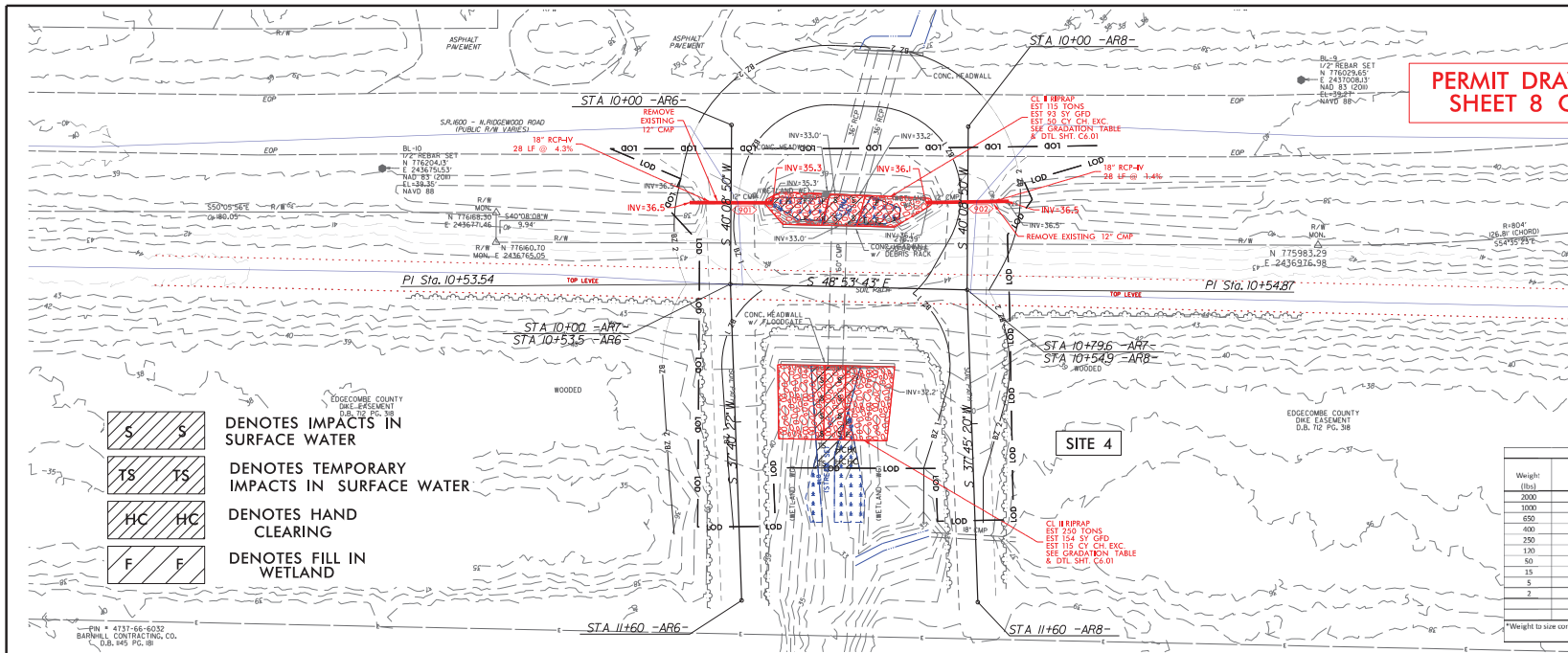

S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC HC	DENOTES HAND CLEARING
F F	DENOTES FILL IN WETLAND

SCALE: 1"=20'

PERMIT DRAWING SHEET 8 OF 9

NAD 83

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

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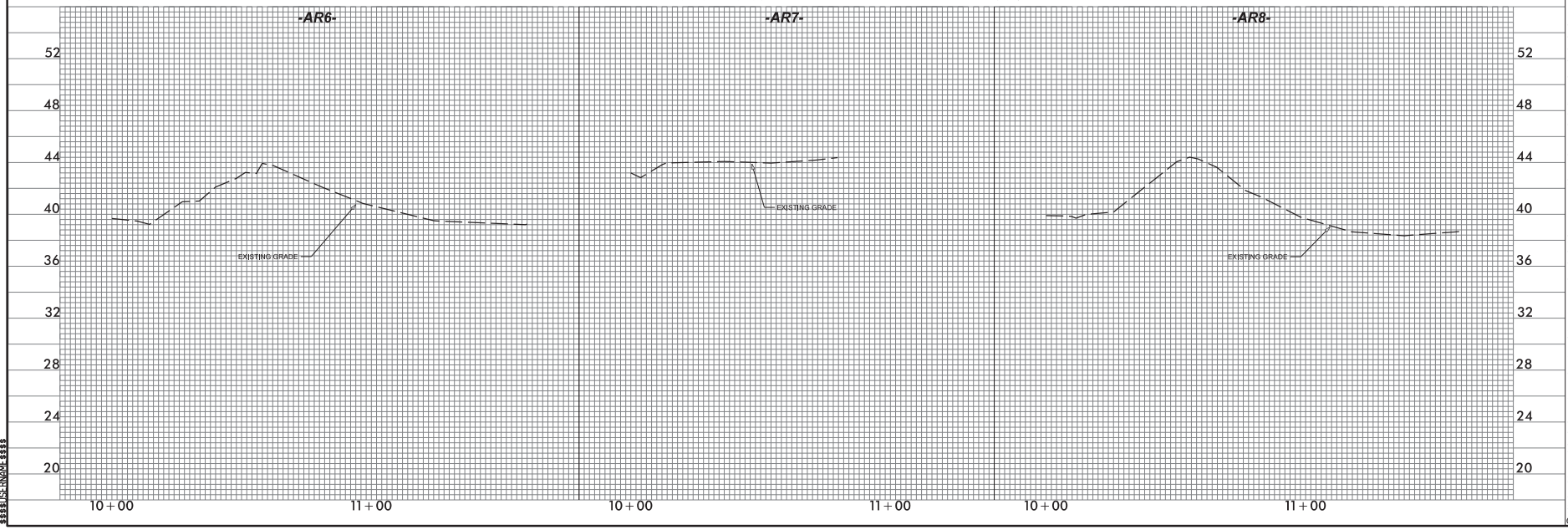
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 4

PROJECT # : 1284-20041

DRAWING NAME: FLOODGATE RDY PSH C409

DATE: 6-16-2021

DRAWN BY:

REVIEWED BY: RCH

REVISIONS:

SHEET NO. C4.09

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WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Location	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	Outlet Channel	Class II Riprap						< 0.01	< 0.01	25	15	
	Inlet Channel							< 0.01	< 0.01	25	11	
2	Outlet Channel	Class II Riprap						< 0.01	< 0.01	20	4	
	Inlet Channel							0.01	< 0.01	25	10	
3	Outlet Channel	Class II Riprap						< 0.01	< 0.01	25	19	
	Inlet Cannel						< 0.01	< 0.01	< 0.01	25	11	
4	Outlet Channel	Class II Riprap	< 0.01				< 0.01	< 0.01	< 0.01	25	10	
	Inlet Channel		< 0.01					< 0.01		11		
TOTALS*:			< 0.01				< 0.01	0.04	0.01	181	80	0

*Rounded totals are sum of actual impacts

NOTES:
1. Site 3 outlet channel llinear feet of temporary channel impacts includes 10 LF for Stream SC and 9 LF for Stream SD.

PRINCEVILLE LEVEE FLOODGATE REPAIRS
CDBG-DR PROJECT
9-28-2021
EDGECOMBE COUNTY

Nationwide Permit 3
Maintenance

Effective Date: February 25, 2022 / Expiration Date: March 14, 2026
Authority: Sections 10 and 404

(a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.). The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built but cannot extend farther than 200 feet in any direction from the structure. This 200-foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization.

(c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Authorities: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (Sections 10 and 404))

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

GENERAL CONDITIONS

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. **Navigation.**

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee’s expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. **Adverse Effects from Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. **Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. **Removal of Structures and Fills.** Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. **Wild and Scenic Rivers.**

(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. **Endangered Species.**

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be

necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non- Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre- construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their worldwide Web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. **Migratory Birds and Bald and Golden Eagles**. The permittee is responsible for ensuring that an action authorized by NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. **Historic Properties.**

(a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR

800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. **Discovery of Previously Unknown Remains and Artifacts.** Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. **Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 5258 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. **Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (*i.e.,* on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the

waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee- responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (*e.g.,* resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to an herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. **Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. **Water Quality.**

(a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFF 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. **Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. **Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. **Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

_____

(Date)

30. **Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. **Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a ‘‘USACE project’’), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. **Pre-Construction Notification.**

(a) *Timing.* Where required by the terms of the NWP, the permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is ''no effect'' on listed species or ''no potential to cause effects'' on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the pr set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4)

(i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse

environmental effects of the proposed linear project and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans).

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate.

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act.

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act.

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ‘‘study river’’ for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the ‘‘study river’’ (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a

written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:*

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for:

(i) All NWP activities that require pre-construction notification and result in the loss of greater than 1⁄2-acre of waters of the United States;

(ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and

(iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so, contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre- construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

DISTRICT ENGINEER'S DECISION

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with

the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either:

(a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit;

(b) that the activity is authorized under the NWP subject to the applicant’s submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or

(c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

FURTHER INFORMATION

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

DEFINITIONS

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term ‘‘discharge’’ means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National

Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non- tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ‘‘open waters’’ include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre- construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may

consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term ''single and complete project'' is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term ''single and complete project'' is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of ''independent utility''). Single and complete non-linear projects may not be ''piecemealed'' to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no

longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a ‘‘water of the United States.’’ If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a sing e aquatic unit (see 33 CFR 328.4(c)(2)).

REGIONAL CONDITIONS:

The following Regional Conditions have been approved by the Wilmington District for the Nationwide Permits (NWPs) published in the January 13, 2021, and December 27, 2021, *Federal Register* (86 FR 2744 and 86 FR 73522) announcing the reissuance of 52 existing (NWPs) and five new NWPs, as well as the reissuance of NWP general conditions and definitions with some modifications.

A. EXCLUDED WATER AND/OR AREAS

The Corps has identified waters that will be excluded from the use of all NWP's during certain timeframes. These waters are:

1. **Anadromous Fish Spawning Areas.** Work in waters of the U.S. designated by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are prohibited from February 15th through June 30th, without prior written approval from the Corps and the appropriate wildlife agencies (NCDMF, NCWRC and/or the National Marine Fisheries Service (NMFS)). Work in waters of the U.S. designated by NCWRC as primary nursery areas in inland waters are prohibited from February 15th through September 30th, without prior written approval from the Corps and the appropriate wildlife agencies. Work in waters of the U.S. designated by NCDMF as primary nursery areas shall be coordinated with NCDMF prior to being authorized by this NWP. Coordination with NCDMF may result in a required construction moratorium during periods of significant biological productivity or critical life stages.

2. **Trout Waters Moratorium.** Work in waters of the U.S. in the designated trout watersheds of North Carolina are prohibited from October 15th through April 15th without prior written approval from the NCWRC, or from the Eastern Band of Cherokee Indians (EBCI) Fisheries and Wildlife Management (FWM) office if the project is located on EBCI trust land. (See Section C.3. below for information on the designated trout watersheds).

3. **Sturgeon Spawning Areas.** No in-water work shall be conducted in waters of the U.S. designated by the National Marine Fisheries Service as Atlantic sturgeon critical habitat from February 1st through June 30th. No in-water work shall be conducted in waters of the U.S. in the Roanoke River designated as Atlantic sturgeon critical habitat from February 1st through June 30th, and August 1st through October 31st, without prior written approval from NMFS.

4. **Submerged Aquatic Vegetation.** Impacts to Submerged Aquatic Vegetation (SAV) are not authorized by any NWP, except NWP 48, NWP 55 and NWP 56, unless Essential Fish Habitat (EFH) consultation has been completed pursuant to the Magnuson-Stevens Fisheries Conservation and Management Act (Magnuson-Stevens Act). Permittees shall submit a PCN (See NWP General Condition 32) to the District Engineer prior to commencing the activity if the project would affect SAV. The permittee may not begin work until notified by the Corps that the requirements of the Magnuson-Stevens Act have been satisfied and that the activity is verified.

B. REGIONAL CONDITIONS APPLICABLE TO ALL NWP's

1. **Critical Habitat in Western NC.** For proposed activities within waters of the U.S. that require a Pre-Construction Notification (PCN) and are located in the thirteen counties listed below, permittees must provide a copy of the PCN to the U.S. Fish and Wildlife Service (USFWS), 160 Zillicoa Street, Asheville, North Carolina 28801 and the Corps Asheville Regulatory Field Office. Please see General Condition 18 for specific PCN requirements

related to the Endangered Species Act and the below website for information on the location of designated critical habitat.

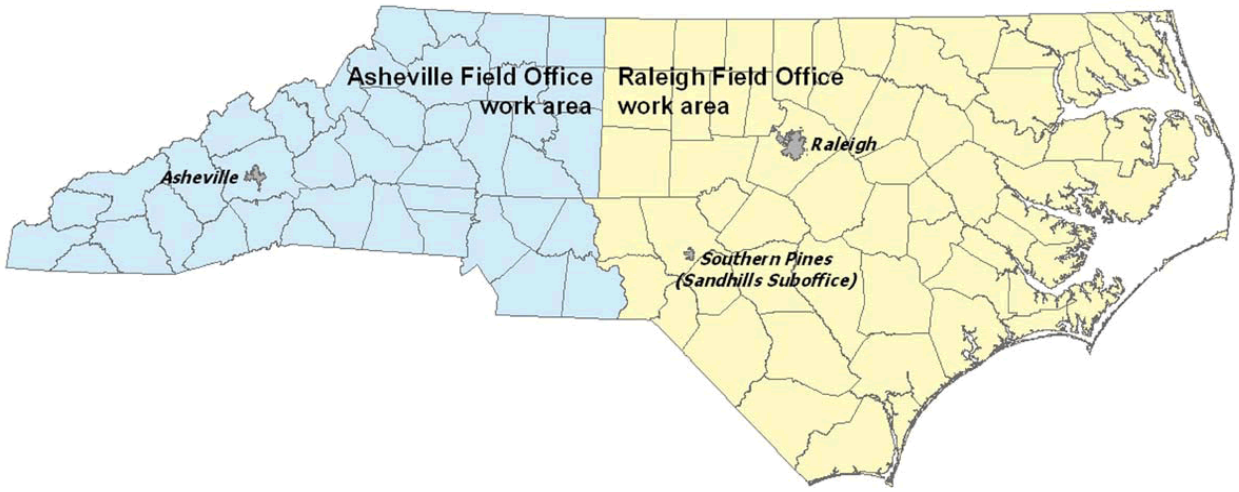
Counties with tributaries that drain to designated critical habitat that require notification to the Asheville U.S. Fish and Wildlife Service: Avery, Cherokee, Graham, Haywood, Henderson, Jackson, Macon, Mecklenburg, Mitchell, Swain, Transylvania, Union and Yancey.

Website and office addresses for Endangered Species Act Information:

The Wilmington District has developed the following website for permittees which provides guidelines on how to review linked websites and maps in order to fulfill NWP General Condition 18 (Endangered Species) requirements: http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/AgencyCoordination/ESA.aspx.

Permittees who do not have internet access may contact the appropriate U.S. Fish and Wildlife Service offices listed below or Corps at (910) 251-4850.

Below is a map of the USFWS Field Office Boundaries:



Asheville U.S. Fish and Wildlife Service Office counties: All counties west of and including Anson, Stanly, Davidson, Forsythe and Stokes Counties.

U.S. Fish and Wildlife Service
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801
Telephone: (828) 258-3939

Raleigh U.S. Fish and Wildlife Service Office counties: All counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Telephone: (919) 856-4520

2. **Special Designation Waters.** Prior to the use of any NWP that involves a discharge of dredged or fill material in any of the following identified waters and/or adjacent wetlands in North Carolina, permittees shall submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32). The North Carolina waters and wetlands that require additional PCN requirements are:

"Primary Nursery Areas" (PNA), including inland PNA, as designated by the North Carolina Marine Fisheries Commission and/or the North Carolina Wildlife Resources Commission. The definition of and designated PNA waters can be found in the North Carolina State Administrative Code at Title 15A, Subchapters 3R and 10C (15A NCAC 03R .0103; 15A NCAC 10C .0502; and 15A NCAC 10C .0503) and at the following web pages:

- http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2003%20-%20marine%20fisheries/subchapter%20r/15a%20ncac%2003r%20.0103.pdf

- http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2010%20-%20wildlife%20resources%20and%20water%20safety/subchapter%20c/15a%20ncac%2010c%20.0502.pdf

- http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2010%20-%20wildlife%20resources%20and%20water%20safety/subchapter%20c/15a%20ncac%2010c%20.0503.pdf

3. **Trout Waters.** Prior to any discharge of dredge or fill material into streams, waterbodies or wetlands within the 294 designated trout watersheds of North Carolina, the permittee shall submit a PCN (see General Condition 32) to the District Engineer prior to commencing the activity. The permittee shall also provide a copy of the PCN to the appropriate NCWRC office, or to the EBCI FWM Office (if the project is located on EBCI trust land), to facilitate the determination of any potential impacts to designated Trout Waters.

NCWRC and NC Trout Watersheds:

NCWRC Contact**	Counties that are entirely within Trout Watersheds*	Counties that are partially within Trout Watersheds*

Mountain Coordinator 645 Fish Hatchery Rd., Building B Marion, NC 28752 828-803-6054 For NCDOT Projects: NCDOT Coordinator 12275 Swift Rd. Oakboro, NC 28129 704-984-1070	Alleghany Ashe Avery Graham Haywood Jackson Macon Swain Transylvania Watauga	Burke Buncombe Caldwell Cherokee Clay Henderson Madison McDowell Mitchell Polk Rutherford Surry Wilkes Yancey
EBCI Contact**	**Counties that are within Trout Watersheds***	
Office of Natural Resources P.O. Box 1747, Cherokee, NC 28719 (828) 359-6113	Qualla Boundary and non-contiguous tracts of trust land located in portions of Swain, Jackson, Haywood, Graham and Cherokee Counties.	

*NOTE: To determine PCN requirements, contact the Corps Asheville Regulatory Field Office at (828) 271-7980 or view maps showing trout watersheds in each County at the following webpage: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout/.

**If a project is located on EBCI trust land, submit the PCN in accordance with Regional Condition C.16. Contact the Corps Asheville Regulatory Field Office at (828) 271-7980 with questions.

4. **Western NC Waters and Corridors.** The permittee shall submit a PCN (see General Condition 32) to the District Engineer prior to commencing the activity in waters of the U.S. if the activity will occur within any of the following identified waters in western North Carolina, within 0.5 mile on either side of these waters, or within 0.75 mile of the Little Tennessee River, as measured from the top of the bank of the respective water (i.e., river, stream, or creek):

Brasstown Creek
Burningtown Creek

Cane River
Caney Fork
Cartoogechaye Creek
Chattooga River
Cheoah River
Cowee Creek
Cullasaja River
Deep Creek
Ellijay Creek
French Broad River
Garden Creek
Hiwassee River
Hominy Creek
Iotla Creek
Little Tennessee River (within the river or within 0.75 mile on either side of this river)
Nantahala River
Nolichucky River
North Fork French Broad River
North Toe River
Nottley River
Oconaluftee River (portion not located on trust/EBCI land)
Peachtree Creek
Shooting Creek
Snowbird Creek
South Toe River
Stecoah Creek
Swannanoa River
Sweetwater Creek
Tuckasegee River (also spelled Tuckaseegee or Tuckaseigee)
Valley River
Watauga Creek
Watauga River
Wayah Creek
West Fork French Broad River

To determine PCN requirements, contact the Corps Asheville Regulatory Field Office at (828) 271-7980 or view maps for all corridors at the following webpage: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Designated-Special-Waters.aspx .

5. **Limitation of Loss of Stream Bed.** NWPs may not be used for activities that may result in the loss of more than 0.05 acres of stream bed, except for NWP 32.

6. **Pre-Construction Notification for Loss of Stream Bed Exceeding 0.02 acres.** The permittee shall submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32) prior to the use of any NWP for any activity that results in the loss of more than 0.02 acres of stream bed. This applies to NWPs that do not have PCN requirements as well as those NWPs that require a PCN.

7. **Mitigation for Loss of Stream Bed.** For any NWP that results in a loss of more than 0.02 acres of stream bed, the permittee shall provide a mitigation proposal to compensate for more than minimal individual and cumulative adverse impacts to the aquatic environment, unless the

District Engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal. For stream bed losses of 0.02 acres or less that require a PCN, the District Engineer may determine, on a case-by-case basis, that compensatory mitigation is required to ensure that the activity results in minimal adverse effect on the aquatic environment.

8. **Riprap.** For all NWPs that allow for the use of riprap material for bank stabilization, the following conditions shall be applied:

a. Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters. The placement of filter fabric is not required if the riprap will be pushed or “keyed” into the bank of the waterbody. A waiver from the specifications in this Regional Condition must be requested in writing.

b. Riprap shall be placed only on the stream banks, or, if it is necessary to be placed in the stream bed, the finished top elevation of the riprap should not exceed that of the original stream bed.

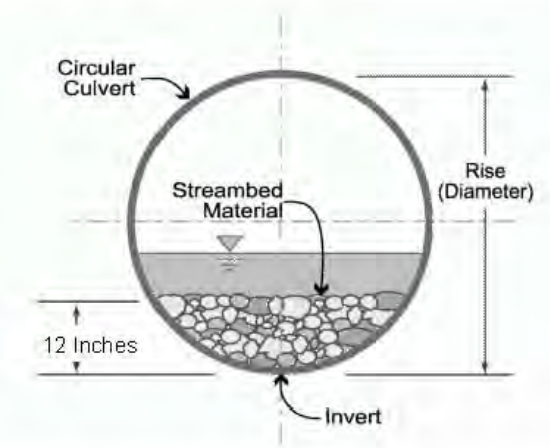
9. **Culvert Placement.** For all NWPs that allow for culvert placement, the following conditions shall be applied:

a. For all NWPs that involve the construction/installation of culverts, measures shall be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms

Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches. If the culvert outlet is submerged within a pool or scour hole and designed to provide for aquatic passage, then culvert burial into the streambed is not required.

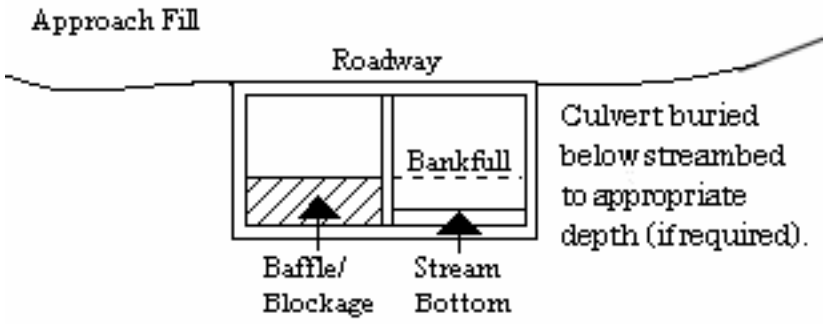
Culvert burial is not required for structures less than 72 inch diameter/width, where the slope of the culvert will be greater than 2.5%, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g., rock ladders, cross vanes, sills, baffles etc.). Culvert burial is not required when bedrock is present in culvert locations.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.



A waiver from the depth specifications in this condition may be requested, in writing, by the permittee and issued by the Corp. This waiver request must be specific as to the reasons(s) for the request. The waiver will be issued if it can be demonstrated that the proposed design would result in less impacts to the aquatic environment. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried, but the culverts must be of adequate size and/or number to ensure unrestricted transmission of water.

b**.** Bank-full flows (or less) shall be accommodated through maintenance of the existing bank-full channel cross sectional area. Additional culverts or culvert barrels at such crossings shall be allowed only to receive bank-full flows.



c. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. If the width of the culvert is wider than the stream channel, the culvert shall include multiple boxes/pipes, baffles, benches and/or sills to maintain the natural width of the stream channel. If multiple culverts/pipes/barrels are used, low flows shall be accommodated in one culvert/pipe and additional culverts/pipes shall be installed such that they receive only flows above bankfull.

10. **Utility Lines.** For all NWPs that allow for the construction and installation of utility lines, the following conditions shall be applied:

a. Utility lines consisting of aerial electric power transmission lines crossing navigable waters of the U.S. (which are defined at 33 CFR part 329) must comply with the applicable minimum clearances specified in 33 CFR 322.5(i).

b. The work area authorized by this permit, including temporary and/or permanent fills, will be minimized to the greatest extent practicable. Justification for work corridors exceeding forty (40) feet in width is required and will be based on pipeline diameter and length, size of equipment required to construct the utility line, and other construction information deemed necessary to support the request. The permittee is required to provide this information to the Corps with the initial PCN package.

c. A plan to restore and re-vegetate wetland areas cleared for construction must be submitted with the required PCN. Cleared wetland areas shall be re-vegetated, as appropriate, with species of canopy, shrub, and herbaceous species. The permittee shall not use fescue grass or any other species identified as invasive or exotic species by the NC Native Plant Society (NCNPS): https://ncwildflower.org/invasive-exotic-species-list/.

d. Any permanently maintained corridor along the utility right of way within forested wetlands shall be considered a loss of aquatic function. A compensatory mitigation plan will be required for all such impacts associated with the requested activity if the activity requires a PCN and the cumulative total of permanent conversion of forested wetlands exceeds 0.1 acres, unless the District Engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal.

Where permanently maintained corridor within forested wetlands is 0.1 acres or less, the District Engineer may determine, on a case-by-case basis, that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment.

e. When directional boring or horizontal directional drilling (HDD) under waters of the U.S., including wetlands, permittees shall closely monitor the project for hydraulic fracturing or “fracking.” Any discharge from hydraulic fracturing or “fracking” into waters of the U.S., including wetlands, shall be reported to the appropriate Corps Regulatory Field Office within 48 hours. Restoration and/or compensatory mitigation may be required as a result of any unintended discharges.

11. **Temporary Access Fills.** The permittee shall submit a PCN to the District Engineer prior to commencing the activity if the activity will involve the discharge of dredged or fill material into more than 0.1 acres of wetlands or 0.02 acres of stream channel for the construction of temporary access fills and/or temporary road crossings. The PCN must include a restoration plan that thoroughly describes how all temporary fills will be removed, how pre-project conditions will be restored, and include a timetable for all restoration activities.

12. **Federal Navigation Channel Setbacks.** Authorized structures and fills located in or adjacent to Federally authorized waterways must be constructed in accordance with the latest setback criteria established by the Wilmington District Engineer. You may review the setback policy at http://www.saw.usace.army.mil/Missions/Navigation/Setbacks.aspx. This general permit does not authorize the construction of hardened or permanently fixed structures within the Federally Authorized Channel Setback, unless the activity is approved by the Corps. The permittee shall submit a PCN (see General Condition 32) to the District Engineer to obtain a written verification prior to the construction of any structures or fills within the Federally Authorized Channel Setback.

13. **Northern Long-eared Bat – Endangered Species Act Compliance.** The Wilmington District, U.S. Army Corps of Engineers has consulted with the United States Fish and Wildlife

Service (USFWS) in regard to the threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) and Standard Local Operating Procedures for Endangered Species (SLOPES) have been approved by the Corps and the USFWS. This condition concerns effects to the NLEB only and does not address effects to other federally listed species and/or federally designated critical habitat.

a. Procedures when the Corps is the lead federal* agency for a project:

The permittee must comply with (1) and (2) below when:

• the project is located in the western 41 counties of North Carolina, to include non-federal aid North Carolina Department of Transportation (NCDOT) projects, OR;

• the project is located in the 59 eastern counties of North Carolina and is a non-NCDOT project.

*Generally, if a project is located on private property or on non-federal land, and the project is not being funded by a federal entity, the Corps will be the lead federal agency due to the requirement to obtain Department of the Army authorization to impact waters of the U.S. If the project is located on federal land, contact the Corps to determine the lead federal agency.

(1) A permittee using an NWP must check to see if their project is located in the range of the NLEB by using the following website: http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf. If the project is within the range of the NLEB, or if the project includes percussive activities (e.g., blasting, pile driving, etc.), the permittee is then required to check the appropriate website in the paragraph below to discover if their project:

• is located in a 12-digit Hydrologic Unit Code area (“red HUC” - shown as red areas on the map), AND/OR;

• involves percussive activities within 0.25 mile of a red HUC.

Red HUC maps - for the western 41 counties in NC (covered by the Asheville Ecological Services Field Office), check the project location against the electronic maps found at: http://www.fws.gov/asheville/htmls/project_review/NLEB_in_WNC.html. For the eastern 59 counties in NC (covered by the Raleigh Ecological Services Field Office), check the project location against the electronic maps found at: https://www.fws.gov/raleigh/NLEB_RFO.html.

(2) A permittee must submit a PCN to the District Engineer, and receive written verification from the District Engineer, prior to commencing the activity, if the activity will involve any of the following:

• tree clearing/removal and/or, construction/installation of wind turbines in a red HUC, AND/OR;

• bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, (applies anywhere in the range of the NLEB), AND/OR:

• percussive activities in a red HUC, or within 0.25 mile of a red HUC.

The permittee may proceed with the activity without submitting a PCN to either the Corps or the USFWS, provided the activity complies with all applicable NWP terms and general and regional conditions, if the permittee's review under A.(1) and A.(2) above shows that the project is:

- located outside of a red HUC (and there are no percussive activities), and the activity will NOT include bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, OR;
- located outside of a red HUC and there are percussive activities, but the percussive activities will not occur within 0.25-mile of a red HUC boundary, and the activity will NOT include bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, OR;
- located in a red HUC, but the activity will NOT include tree clearing/removal; construction/installation of wind turbines; bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, and/or; any percussive activities.

b. Procedures when the USACE is not the lead federal agency:

For projects where another federal agency is the lead federal agency - if that other federal agency has completed project-specific ESA Section 7(a)(2) consultation for the NLEB, and has (1) determined that the project would not cause prohibited incidental take of the NLEB, and (2) completed coordination/consultation that is required by the USFWS (per the directions on the respective USFWS office's website), that project may proceed without PCN to either the USACE or the USFWS, provided all General and Regional Permit Conditions are met.

The NLEB SLOPES can be viewed on the USACE website at: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/ESA/. Permittees who do not have internet access may contact the USACE at (910) 251- 4633.

14. **West Indian Manatee Protection.** In order to protect the endangered West Indian manatee (*Trichechus manatus*) the Permittee shall implement the USFWS' Manatee Guidelines, and strictly adhere to all requirements therein. The guidelines can be found at https://www.fws.gov/raleigh/pdfs/ManateeGuidelines2017.pdf.

15. **ESA Programmatic Biological Opinions.** The Wilmington District, USFWS, NCDOT, and the FHWA have conducted programmatic Section 7(a)(2) consultation for a number of federally listed species and designated critical habitat (DCH), and programmatic consultation concerning other federally listed species and/or DCH may occur in the future. The result of completed programmatic consultation is a Programmatic Biological Opinion (PBO) issued by the USFWS. These PBOs contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" of whichever species or critical habitat is covered by a specific PBO. Authorization under NWPs is conditional upon the permittee's compliance with all the mandatory terms and conditions associated with incidental take of the applicable PBO (or PBOs), which are incorporated by reference in the NWPs. Failure to comply with the terms and conditions associated with incidental take of an applicable PBO, where a take of the federally listed species occurs, would constitute an unauthorized take by the permittee, and would also constitute permittee non-compliance with the authorization under the NWPs. If the terms and conditions of a specific PBO (or PBOs) apply to a project, the Corps will include this/these requirements in any NWP verification that may be issued for a project. For an activity/project that does not require a PCN, the terms and conditions of the applicable PBO(s) also apply to that non-notifying

activity/project. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PBO and the ESA. All PBOs can be found on our website at: https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/ESA/.

16. **Work on Eastern Band of Cherokee Indian Land.**

Notifying NWPs - All PCNs submitted for activities in waters of the U.S. on Eastern Band of Cherokee Indians (EBCI) trust land (i.e., Qualla Boundary and non-contiguous tracts of trust land located in portions of Swain, Jackson, Haywood, Graham and Cherokee Counties), must comply with the requirements of the latest MOU between the Wilmington District and the EBCI.

Non-notifying NWPs - Prior to the use of any non-notifying NWP for activities in waters of the U.S. on EBCI trust land (i.e., Qualla Boundary and non-contiguous tracts of trust land located in portions of Swain, Jackson, Haywood, Graham and Cherokee Counties), all prospective permittees must comply with the requirements of the latest MOU between the Wilmington District and the EBCI; this includes coordinating the proposed project with the EBCI Natural Resources Program and obtaining a Tribal Approval Letter from the Tribe.

The EBCI MOU can be found at the following URL: http://saw-reg.usace.army.mil/FO/Final-MOU-EBCI-USACE.pdf

17. **Sedimentation and Erosion Control Structures and Measures.**

All PCNs will identify and describe sedimentation and erosion control structures and measures proposed for placement in waters of the U.S. The structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams.

C. REGIONAL CONDITIONS APPLICABLE TO NWP 3

1. In designated trout watersheds, a PCN is not required for impacts to a maximum of 0.02 acres for temporary dewatering) of streams and waterbodies when conducting maintenance activities. Minor deviations in an existing structure's configuration, temporary structures and temporary fills are authorized as part of the maintenance activity. In designated trout watersheds, the permittee shall submit a PCN (see Regional Condition C.3 above and General Condition 32) to the District Engineer prior to commencing the activity if; 1) impacts (other than temporary dewatering to work in dry conditions) to streams or waterbodies exceed 0.008 acres; 2) temporary impacts to streams or waterbodies associated with dewatering to work in dry conditions exceeds 0.02 acres; 3) the project will involve impacts to wetlands; 4) the project involves the replacement of a bridge or spanning structure with a culvert or non-spanning structure in waters of the United States; or 5) the activity will be constructed during the trout waters moratorium (October 15 through April 15).

D. SECTION 401 WATER QUALITY CERTIFICATION (WQC) AND/OR COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION SUMMARY AND APPLICABLE CONDITIONS

The CZMA Consistency Determination and all Water Quality Certifications for the NWPs can be found at: https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Permits/2017-Nationwide-Permits/

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ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

August 4, 2021

U.S. Army Corps of Engineers
Attn: Tim Jones
P.O. Box 1890
Wilmington, NC 28420-1890
(via email Timothy.c.jones@usace.army.mil)

Subject: Buffer Determination Letter
NBRRO #21-193
Edgecombe County

Determination Type:	
Buffer	Intermittent/Perennial
☐ Neuse (15A NCAC 2B .0714) ☒ Tar-Pamlico (15A NCAC 2B .0734) ☐ Jordan (15A NCAC 2B .0267) (governmental and/or interjurisdictional projects)	☐ Intermittent/Perennial Determination (where local buffer ordinances apply)

Project Name: Princeville Dike Floodgate Repairs

Address/Location: Princeville Dike, Princeville, NC

Stream(s): Tar River

Determination Date: August 4, 2021 **Staff: Stephanie Goss**

Feature	E/I/P (1)	Not Subject (2)	Subject	Start @	Stop @	Soil Survey	USGS Topo
Tar River	P		X	Throughout		X	X
SA	P		X	Throughout project boundary*		X	
SB	P		X	Throughout project boundary**		X	
SC	P	N/A		Throughout project boundary*		Not Mapped	
SD	P		X	Off Property	Flows into SC	X	
SE	P		X	Throughout project boundary*		X	

*Features SA, SC & SE start off property then flow into a culvert under the dike, then flow off property.
**Feature SB starts off property then flows into a culvert under the dike, then flows into the Tar River.
(1) E = Ephemeral, I = Intermittent, P = Perennial, NP = Not Present, N/A=Not Applicable
(2) Refers to State riparian buffer rules only. Stream, wetland, or pond impacts are still subject to applicable water quality standards and permitting requirements.

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Explanation: The stream(s) listed above been located on the most recent published NRCS Soil Survey of Edgecombe County, North Carolina and/or the most recent copy of the USGS Topographic map at a 1:24,000 scale. Each stream that is checked "Not Subject" has been determined to not be at least intermittent or is not present. Streams that are checked "Subject" have been located on the property and possess characteristics that qualify it to be at least an intermittent stream. There may be other streams located on the property that do not show up on the maps referenced above but may be considered jurisdictional according to the US Army Corps of Engineers.

This on-site determination shall expire five (5) years from the date of this letter. Landowners or affected parties that dispute a determination made by the DWR may request a determination by the Director. An appeal request must be made within sixty (60) days of date of this letter. A request for a determination by the Director shall be referred to the Director in writing. ***If sending via US Postal Service:*** **c/o** ***Paul Wojoski; DWR – 401 & Buffer Permitting Unit; 1617 Mail Service Center; Raleigh, NC 27699-1617. If sending via delivery service (UPS, FedEx, etc.): Paul Wojoski; DWR – 401 & Buffer Permitting Unit; 512 N. Salisbury Street; Raleigh, NC 27604.***

This determination is final and binding unless, as detailed above, unless an appeal is requested within sixty (60) days.

This project may require a Section 404/401 Permit for the proposed activity. Any inquiries should be directed to the US Army Corp of Engineers (Raleigh Regulatory Field Office) at (919)-554-4884.

If you have questions regarding this determination, please feel free to contact Stephanie Goss at (919) 791-4256.

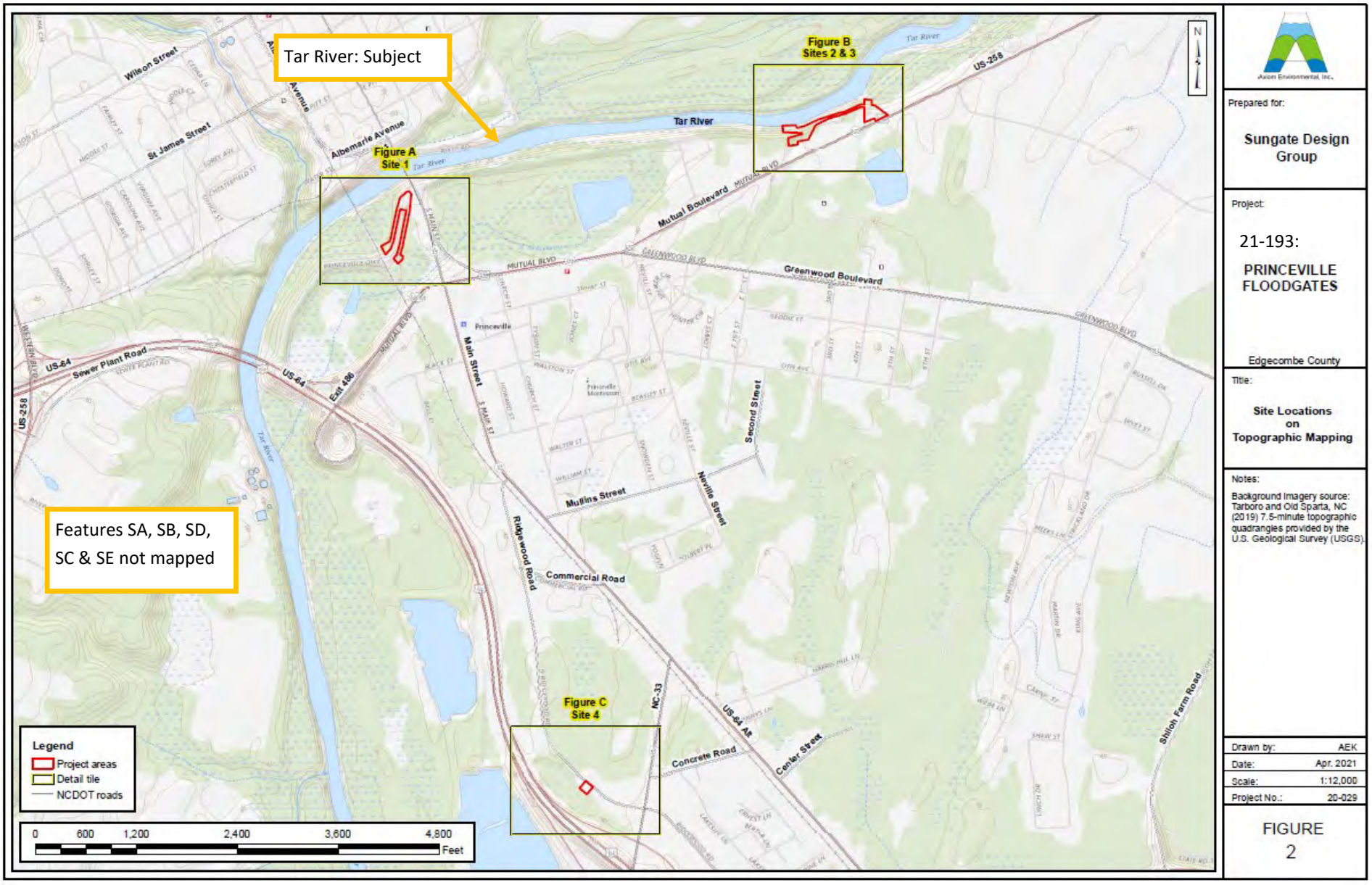
Sincerely,

DocuSigned by:
Scott Vinson
BCDA9D825D4A46D...

Scott Vinson, Regional Supervisor
Water Quality Regional Operations Section
Raleigh Regional Office
Division of Water Resources, NCDEQ

cc: RRO DWR File Copy/Laserfiche
Alexander Smith, Axiom Environmental, Inc. (via email)

DocuSign Envelope ID: 00989390-A641-437C-BDE1-D3DE58C458E5



Prepared for:

Sungate Design Group

Project:

21-193:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations on Topographic Mapping

Notes:

Background imagery source: Tarboro and Old Sparta, NC (2019) 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:12,000
Project No.:	20-029

FIGURE
2

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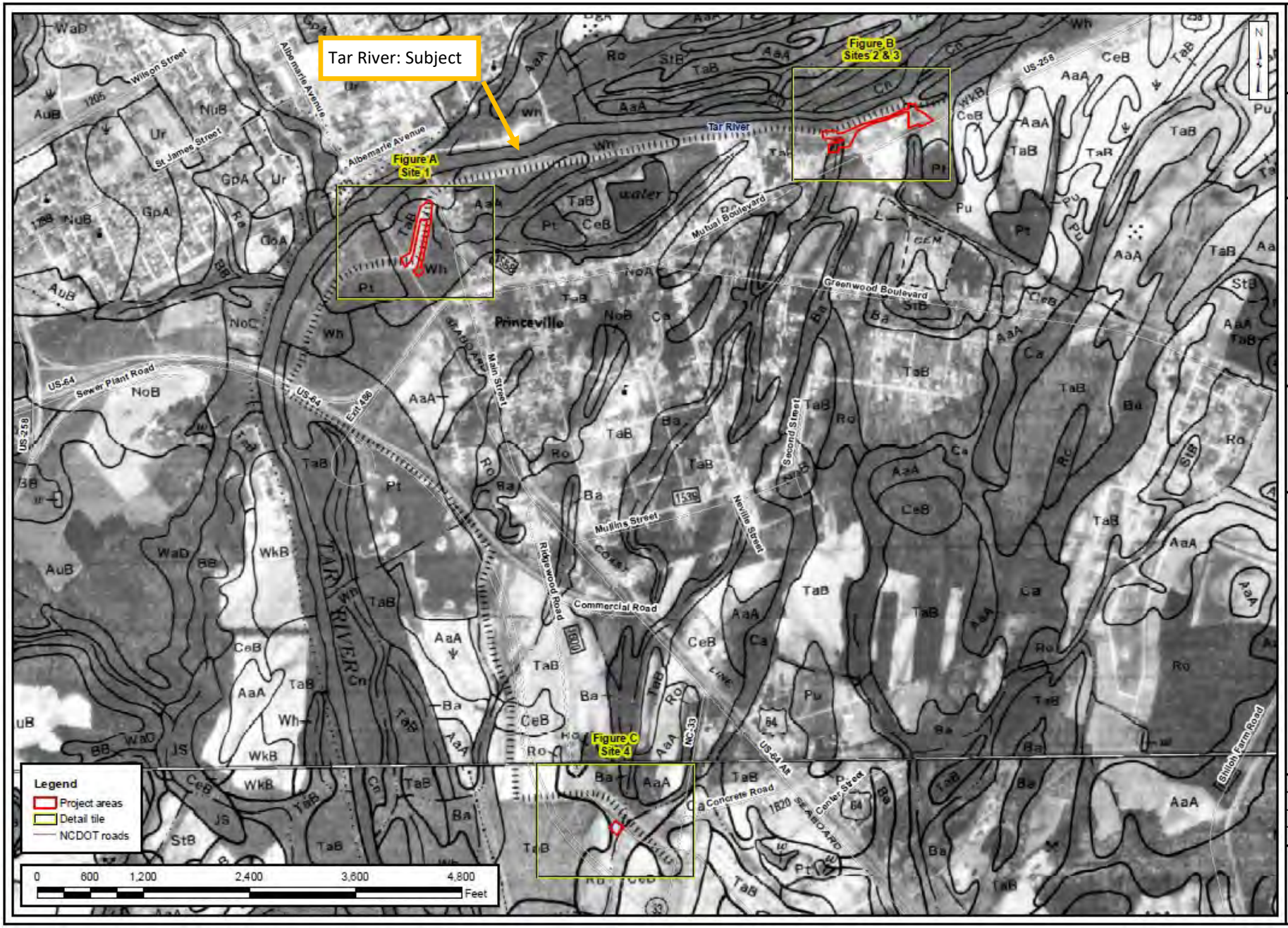


Prepared for:

Sungate Design Group

Project:

21-193:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

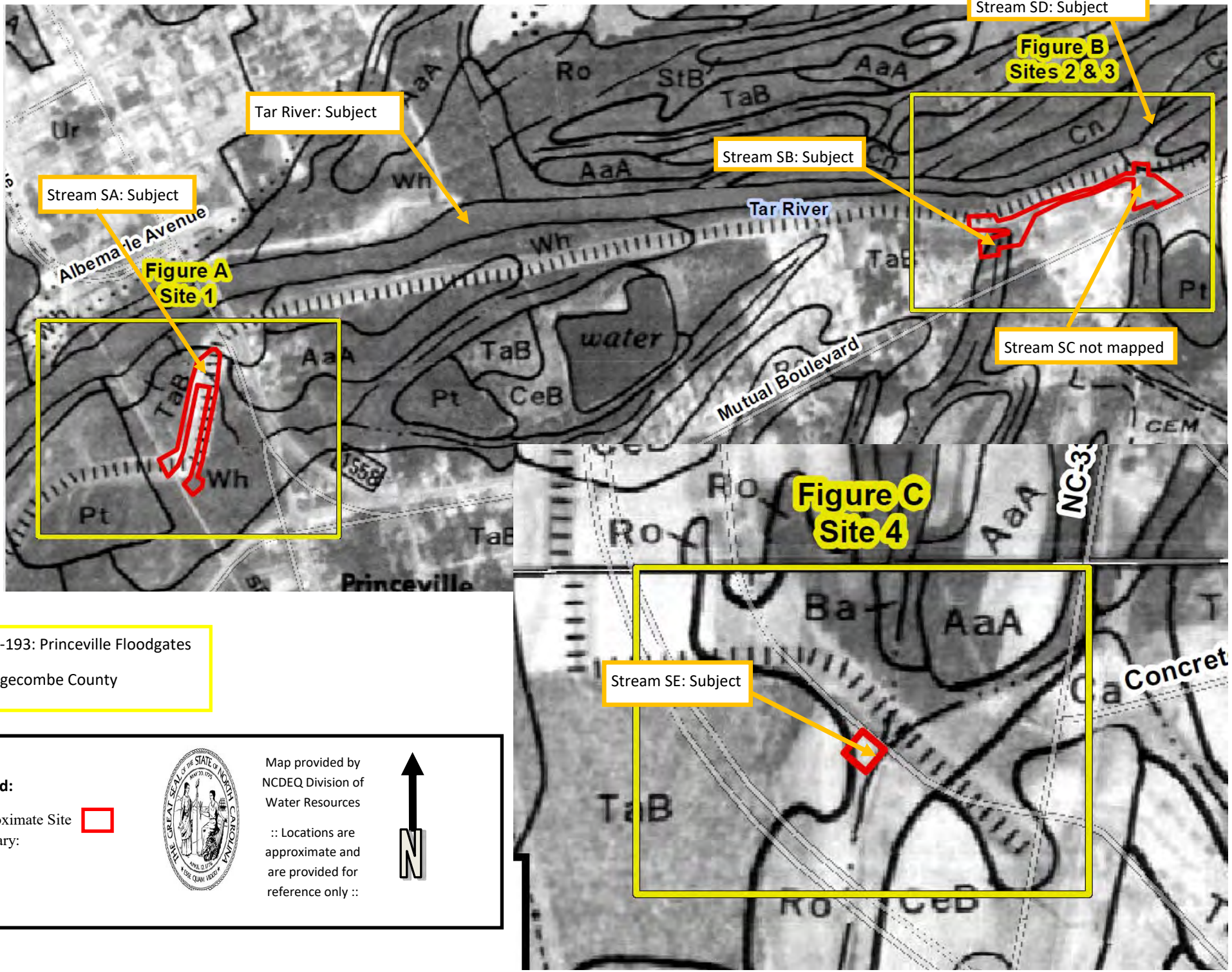
Site Locations on NRCS Soil Survey Mapping

Notes:

1. Background imagery source: Soil Survey of Edgecombe County (1979), maps 18 and 19, provided by the Natural Resources Conservation Service (NRCS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:12,000
Project No.:	20-029

FIGURE 3



21-193: Princeville Floodgates

Edgecombe County

Legend:

-Approximate Site boundary:

Map provided by NCDEQ Division of Water Resources

:: Locations are approximate and are provided for reference only ::

N

APPENDIX 2

- **Early Notice and Public Review of a Proposed Activity in a 100-Year Floodplain and Wetland**

- **Affidavit for Publication of Early Notice**

- **Distribution List to Interested Agencies, Groups and Individuals**

- **Early Notice Comments**

North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

EARLY NOTICE AND PUBLIC REVIEW OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN AND WETLAND

PRINCEVILLE LEVEE FLOODGATE REPAIRS
FOUR LEVEE FLOODGATE CULVERT LOCATIONS ALONG THE TAR RIVER, PRINCEVILLE, EDGECOMBE COUNTY, NC 27886

December 8, 2022

To: All interested Agencies, Groups and Individuals

This is to give notice that the North Carolina Office of Recovery and Resiliency (NCORR) has received an application from the Town of Princeville to use U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) funding under 24 CFR 58 from the Infrastructure Recovery Program to implement the Princeville Levee Floodgate Repairs Project ("Proposed Activity"). NCORR is conducting an evaluation as required by Executive Orders 11988 and 11990 in accordance with HUD regulations (24 CFR Part 55) including identifying and evaluating practicable alternatives to locating the Proposed Activity in floodplain and wetlands and the Proposed Activity's potential impacts on these special areas. There are three primary purposes for this notice. First, people who may be affected by activities in floodplains and wetlands, and those who have an interest in the protection of the natural environment, should be given an opportunity to express their concerns and provide information about these areas. Commenters are encouraged to offer alternative locations outside of the floodplain and wetlands, alternative methods to serve the same project purpose, and methods to minimize and mitigate impacts. Second, adequate public notice is an important public education tool. The dissemination of information and request for public comment about floodplain and wetlands facilitates and enhances governmental efforts to reduce the risks and impacts associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the government determines it will participate in actions taking place in floodplain and wetlands, it must inform those who may be put at greater or continued risk.

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the functional failure of the Princeville floodgates located along the U.S. Army Corps of Engineers (USACE) levee bordering the Tar River. Following the storm event, the Town of Princeville undertook to design construction upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Proposed Activity has been selected by the Town of Princeville

to assist its residents and community to be protected from future storm damage and flooding.

The Proposed Activity entails inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and constructing permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. The existing levee segments of the proposed project were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. The four floodgate culvert locations include Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), and Site 4 (35.873450, -77.525434). The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville Levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4.

The Proposed Activity will result in temporary impacts to 0.11 acres of 100-year floodplain, 0.027 acres of National Wetlands Inventory (NWI)-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub), 0.05 acres of stream, and 1.37 acres of floodway. The Proposed Activity will result in permanent impacts to 0.11 acres of 100-year floodplain, 0.007 acres of NWI-mapped and USACE verified delineated wetlands, 0.05 acres of stream, and 1.37 acres of floodway. These impacts will consist of excavation, fill and channel repair in the 100-year floodplain; hand clearing, fill and channel repair in wetlands; temporary dewatering and channel repair in stream; and excavation, fill and channel repair in FEMA-designated regulatory floodway. The Proposed Activity's levee floodgate repairs are allowed in floodway since it is classified as non-critical action, is a functionally dependent use that must necessarily be in close proximity to water (24 CFR §55.2(b)(6)), and is being processed under 24 CFR 55.20. Natural floodplains and wetlands provide flood risk reduction benefits by slowing runoff and storing flood water. In addition, floodplains and wetlands are beneficial by providing diverse wildlife habitat, flood and erosion control, surface water quality maintenance, groundwater recharge, and educational, scientific, cultural, and recreational opportunities. Wetlands have unique natural characteristics that play an integral role in the ecology of the watershed. The regulatory floodway refers to the channel of the Tar River and adjacent land areas that are reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in floodways to ensure that there are no increases in upstream flood elevations. A Floodplain Development Permit and no-rise certification for the Proposed Activity concluded that it will not increase base flood elevations within the FEMA floodplain According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. When levees fail, or are overtopped, the results can be catastrophic. Thus, the Proposed Activity is necessary to prevent future storm events from flooding the affected areas of the Town of Princeville.

Floodplain maps based on the FEMA Flood Insurance Rate Maps (FIRMs), NWI wetlands maps, USACE Jurisdictional Determination (with classification codes), and supporting documentation are available for review at https://www.rebuild.nc.gov/about/plans-policies-reports/environmental-reviews. A full description of the Proposed Activity may also be reviewed in person during business hours at the Princeville Town Hall, 201 South Main Street, Princeville, NC 27886. A full description of the Proposed Activity may also be viewed in person, by appointment only, at: NCORR, 200 Park Offices Drive, Durham, NC 27709. Call (984) 833-5350 to make an appointment.

Written comments must be received by NCORR at the following address on or before December 23, 2022: Laura Hogshead, Director, NCORR, ATTN: Princeville Levee Floodgate Repairs, P.O. Box 110465, Durham, NC 27709. Comments may also be submitted by email to publiccomments@rebuild.nc.gov with "ATTN: Princeville Levee Floodgate Repairs Comments" in the subject line.

APG
Media of Eastern North Carolina

The Daily Reflector - The Daily Advance - The Rocky Mount Telegram
Bertie Ledger - Chowan Herald - Duplin Times - Farmville Enterprise - Perquimans Weekly
Standard Laconic - Tarboro Weekly - Times Leader - Williamston Enterprise
PO Box 1967, Greenville NC 27835
(252) 329-9500

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☐ Check # PAID
Date Paid

NC ORR
PO BOX 110465
DURHAM NC 27709

Copy Line: EARLY NOTICE PUBLIC REVIEW
Lines: 220
Total Price: $438.60

Account: 146799 Ticket: 435191

PUBLISHER'S AFFIDAVIT

NORTH CAROLINA
Nash County

Gwen Davis affirms that he/she is clerk of Rocky Mount Telegram, a newspaper published daily at Rocky Mount, North Carolina, and that the advertisement, a true copy of which is hereto attached, entitled EARLY NOTICE PUBLIC REVIEW was published in said Rocky Mount Telegram on the following dates:

Thursday, December 8, 2022

and that the said newspaper in which such notice, paper, document or legal advertisement was published, was at the time of each and every publication, a newspaper meeting all of the requirements and qualifications of Chapter 1, Section 597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Chapter 1, Section 597 of the General Statutes of North Carolina.

Gwen Davis

Affirmed and subscribed before me this 8th day of March 2023

Kimberly Goff Bandy
(Notary Public Signature)

Kimberly Goff Bandy
(Notary Public Printed Name)

My commission expires 02-22-2026

KIMBERLY GOFF BANDY
Notary Public, North Carolina
Nash County
My Commission Expires
February 22, 2026

EARLY NOTICE AND PUBLIC REVIEW OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN AND WETLAND

PRINCEVILLE LEVEE FLOODGATE REPAIRS
FOUR LEVEE FLOODGATE CULVERT LOCATIONS ALONG THE TAR RIVER, PRINCEVILLE, EDGECOMBE COUNTY, NC 27886
December 8, 2022

To: All interested Agencies, Groups and Individuals

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The Proposed Activity entails inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and constructing permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. The existing levee segments of the proposed project were constructed in 1965 to 1967 by the USACE but are maintained by Edgecombe County. The four floodgate culvert locations include Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), and Site 4 (35.873450, -77.525434). The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville Levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stubroads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4.

The Proposed Activity will result in temporary impacts to 0.11 acres of 100-year floodplain, 0.027 acres of National Wetlands Inventory (NWI)-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub), 0.05 acres of stream, and 1.37 acres of floodway. The Proposed Activity will result in permanent impacts to 0.11 acres of 100-year floodplain, 0.007 acres of NWI-mapped and USACE verified delineated wetlands, 0.05 acres of stream, and 1.37 acres of floodway. These impacts will consist of excavation, fill and channel repair in the 100-year floodplain; hand clearing, fill and channel repair in wetlands; temporary dewatering and channel repair in stream; and excavation, fill and channel repair in FEMA-designated regulatory floodway. The Proposed Activity's levee floodgate repairs are al-

lowed in floodway since it is classified as non-critical action, is a functionally dependent use that must necessarily be in close proximity to water (24 CFR §55.2(b)(6)), and is being processed under 24 CFR 55.20. Natural floodplains and wetlands provide flood risk reduction benefits by slowing runoff and storing flood water. In addition, floodplains and wetlands are beneficial by providing diverse wildlife habitat, flood and erosion control, surface water quality maintenance, groundwater recharge, and educational, scientific, cultural, and recreational opportunities. Wetlands have unique natural characteristics that play an integral role in the ecology of the watershed. The regulatory floodway refers to the channel of the Tar River and adjacent land areas that are reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in floodways to ensure that there are no increases in upstream flood elevations. A Floodplain Development Permit and no-rise certification for the Proposed Activity concluded that it will not increase base flood elevations within the FEMA floodplain According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. When levees fail, or are overtopped, the results can be catastrophic. Thus, the Proposed Activity is necessary to prevent future storm events from flooding the affected areas of the Town of Princeville.

Floodplain maps based on the FEMA Flood Insurance Rate Maps (FIRMs), NWI wetlands maps, USACE Jurisdictional Determination (with classification codes), and supporting documentation are available for review at https://www.rebuild.nc.gov/about/plans-policies-reports/environmental-reviews. A full description of the Proposed Activity may also be reviewed in person during business hours at the Princeville Town Hall, 201 South Main Street, Princeville, NC 27886. A full description of the Proposed Activity may also be viewed in person, by appointment only, at: NCORR, 200 Park Offices Drive, Durham, NC 27709. Call (984) 833-5350 to make an appointment. Written comments must be received by NCORR at the following address on or before December 23, 2022: Laura Hogshead, Director, NCORR, ATTN: Princeville Levee Floodgate Repairs, P.O. Box 110465, Durham, NC 27709. Comments may also be submitted by email to publiccomments@rebuild.nc.gov with "ATTN: Princeville Levee Floodgate Repairs Comments" in the subject line.

12/8/2022

EARLY NOTICE DISTRIBUTION LIST

PRINCEVILLE LEVEE FLOODGATE REPAIRS
FOUR LEVEE FLOODGATE CULVERT LOCATIONS ALONG THE TAR RIVER, PRINCEVILLE, EDGECOMBE COUNTY, NC 27886

Published in Rocky Mount Telegram on 12/8/22, comments end 12/23/22

FEDERAL AGENCIES

Agency	Name & Address	Method
HUD NC	Mr. Lenwood E. Smith, II Environmental Protection Specialist Greensboro Field Office U.S. Dept. of Housing and Urban Development 1500 Pinecroft Road, Suite 401 Greensboro, NC 27407-3838	Lenwood.E.Smith@hud.gov
FEMA, Region IV	Ms. Gracia B. Szczech, Regional Administrator U.S. Dept. of Homeland Security FEMA, Region IV 3003 Chamblee Tucker Road Atlanta, GA 30341	FedEx
FEMA ATTN: 11988	*Hard copies may also be mailed to* Attn: 11988/NEPA Reviewer (EHP) DHS/FEMA RIV 3003 Chamblee Tucker Road Atlanta, GA 30341	FEMA-R4EHP@fema.dhs.gov *with the subject line* **REVIEW REQUEST: 11988/NEPA**
US EPA, Region 4	Mr. John Blevins, Acting Regional Administrator U.S. EPA, Region 4 Laboratory Services & Applied Science Div. 980 College Station Road Athens, GA 30605-2720	FedEx
US EPA, Region 4	Ms. Ntale Kajumba, NEPA Coordinator U.S. EPA, Region 4 Laboratory Services & Applied Science Div. 980 College Station Road Athens, GA 30605-2720	Kajumba.ntale@epa.gov cc: blevins.john@epa.gov
USFWS – Raleigh Field Office	USFWS – Raleigh Field Office ATTN: John Ellis P.O. Box 33726 Raleigh, NC 27636 ph.: 919-856-4520, ext. 26	john_ellis@fws.gov cc: leigh_mann@fws.gov

NOAA Fisheries	Mr. Pace Wilber Branch Chief, Southeast Regional Office Habitat Conservation Division/Atlantic & Caribbean Branch PO Box 12559 Charleston, SC 29422-2559	pace.wilber@noaa.gov
USACE – Wilmington District	Billy Standridge – Edgecombe County USACE – Wilmington District 69 Darlington Avenue Wilmington, NC 28403 910-251-4595	billy.w.standridge@usace.army.mil
TRIBES, NATIONS AND COMMUNITIES (who asked to be notified)		
Catawba Indian Nation	Dr. Wenonah George Haire, THPO ATTN: THPO Archaeology Dept. Catawba Indian Nation 1536 Tom Steven Road Rock Hill, SC 29730	Does not want Notice
Catawba Indian Nation	Chief Bill Harris Catawba Indian Nation 996 Avenue of the Nations Rock Hill, SC 29730	Does not want Notice
Tuscarora Nation	Chief Tom Jonathan Tuscarora Nation 5226 Walmore Road Lewiston, NY 14092 Ph: (716) 601-4737	Does not want Notice
Tuscarora Nation	Mr. Bryan Printup, THPO Tuscarora Nation 5226 Walmore Road Lewiston, NY 14092 Ph: (716) 264-6011	BPrintup@hetf.org Does not want future Notices
NC STATE AGENCIES		
STATE CLEARING-HOUSE	Ms. Crystal Best North Carolina Department of Administration State Environmental Review Clearinghouse 1301 Mail Service Center Raleigh, North Carolina 27699-1301	State.Clearinghouse@doa.nc.gov crystal.best@doa.nc.gov
NC Wildlife Resource Commission	Ms. Maria T. Dunn, Coastal Coordinator NC Wildlife Resources Commission 943 Washington Sq. Mall Washington, NC 27889 office: 252-948-3916	maria.dunn@ncwildlife.org

LOCAL AGENCIES		
COUNTY	Eric Evans, County Manager Edgecombe County P.O. Box 10 Tarboro, NC 27886 (252) 641-7835	EricEvans@edgecombeco.com
COUNTY	Katina Braswell, Planning Director Edgecombe County Planning Department P.O. Box 10 Tarboro, NC 27886 (252) 641-7835	KatinaBraswell@edgecombeco.com
COUNTY	Fran Mungo Clerk to the Board Edgecombe County 201 St. Andrew St. Tarboro, NC 27886 (252) 641-7834	franmungo@edgecombeco.com
CITY	Dr. Glenda Knight Town Manager Princeville Town Hall 201 South Main Street Princeville, NC 27886 Phone: (252) 823-1057	gknight@townofprinceville.com
CITY	Ms. Jessica Rudd Town Clerk/ Administrative Assistant II Town of Princeville Princeville Town Hall 201 South Main Street Princeville, NC 27886 Phone: 252-823-1057	jrudd@townofprinceville.com

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 9:53 AM
To: Smith, Lenwood E
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 9:54 AM
To: FEMA-R4EHP@fema.dhs.gov
Subject: REVIEW REQUEST: 11988/NEPA - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 9:56 AM
To: Kajumba.ntale@epa.gov
Cc: blevins.john@epa.gov
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. A hard copy is also being sent to Mr. Blevin's office via Federal Express. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 9:58 AM
To: john_ellis@fws.gov
Cc: leigh_mann@fws.gov
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. *(There has been no project change, only educational information added to this notice.)* Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 9:59 AM
To: Pace Wilber - NOAA Federal
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. *(There has been no project change, only educational information added to this notice.)* Thank you for your time and assistance.

Sincerely,

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Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:00 AM
To: billy.w.standridge@usace.army.mil
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. *(There has been no project change, only educational information added to this notice.)* Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:01 AM
To: BPrintup@hetf.org
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:07 AM
To: Dunn, Maria T.
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

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Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:02 AM
To: State Clearinghouse
Cc: Best, Crystal
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. The last day of the comment period is December 23rd. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:03 AM
To: EricEvans@edgecombeco.com
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:03 AM
To: Katina Braswell
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:03 AM
To: franmungo@edgecombeco.com
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:04 AM
To: Glenda Knight
Cc: Blankenship, Bill
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Gievers, Andrea

From: Gievers, Andrea
Sent: Thursday, December 8, 2022 10:04 AM
To: jrudd@townofprinceville.com
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC
Attachments: NCORR Early Notice Princeville Levee FINAL 12.8.22.pdf

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

FedEx Express **NEW** Package US Airbill

FedEx Tracking Number 8050 4421 7405

Form ID No. 0200

1 From *Please print and press hard.*

Date 12/8/22 Sender's FedEx Account Number 8950-9899-0

Sender's Name Andrea Gievers Phone (845) 682-1700

Company NCORR

Address 123 Kings Hill Rd Dept/Floor/Suite/Room

City Walden State NY ZIP 12586

2 Your Internal Billing Reference First 24 characters will appear on invoice. Princeville EN

3 To

Recipient's Name Ms. Gracia Szczech Phone ( )

Company FEMA, Region 4

Address We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept/Floor/Suite/Room 3003 Chamblee Tucker Rd

Use this line for the HOLD location address or for continuation of your shipping address.

City Atlanta State GA ZIP 30341

HOLD Weekday FedEx location address REQUIRED. **NOT available for** FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. **Available ONLY for** FedEx Priority Overnight and FedEx 2Day to select locations.

Easy new Peel-and-Stick airbill. No pouch needed.
Apply airbill directly to your package. See directions on back.

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☒ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery **NOT available for** FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.
☐ Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods? One box must be checked.

☐ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

☐ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages Total Weight Total Declared Value†

____ ____ lbs. $ ____ .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

644

Rev. Date 1/12 • Part #167002 • ©2012 FedEx • PRINTED IN U.S.A. SRF

FedEx Express **NEW** Package US Airbill

FedEx Tracking Number 8050 4421 7390

Form ID No. 0200

1 From *Please print and press hard.*

Date 12/8/22 Sender's FedEx Account Number 8950-9899-0

Sender's Name Andrea Gievers Phone 845 682-1700

Company NCORR

Address 123 Kings Hill Rd Dept/Floor/Suite/Room

City Walden State NY ZIP 12586

2 Your Internal Billing Reference First 24 characters will appear on invoice. Princeville EN

3 To

Recipient's Name Mr. John Blevins Phone ( )

Company US EPA, Region 4

Address Lab Svcs & Applied Science Div We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept/Floor/Suite/Room

Address 980 College Station Rd

Use this line for the HOLD location address or for continuation of your shipping address.

City Athens State GA ZIP 30605-2720

HOLD Weekday FedEx location address REQUIRED. **NOT available for** FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. **Available ONLY for** FedEx Priority Overnight and FedEx 2Day to select locations.

Easy new Peel-and-Stick airbill. No pouch needed.
Apply airbill directly to your package. See directions on back.

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☒ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery **NOT available for** FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.
☐ Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods? One box must be checked.

☐ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

☐ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages Total Weight Total Declared Value†

____ ____ lbs. $ ____ .00

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644

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Gievers, Andrea

From: Dean, Kenneth <Dean.William-Kenneth@epa.gov>
Sent: Friday, December 23, 2022 2:45 PM
To: NCORR Public Comments
Cc: Gievers, Andrea
Subject: [External] ATTN: Princeville Levee Floodgate Repairs Comments

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Ms. Laura Hogshead, Director
North Carolina Office of Recovery and Resiliency
ATTN: Princeville Levee Floodgate Repairs
P.O. Box 110465,
Durham, NC 27709

RE: EPA Review of the Early Notice and Public Review of a Proposed Activity in a 100-Year Floodplain and Wetland – Princeville Levee Floodgate Repairs, Four Levee Floodgate Culvert Locations along the Tar River, Princeville, Edgecombe, County, North Carolina

Dear Ms. Hogshead:

The U.S. Environmental Protection Agency (EPA) has reviewed the Early Notice and Public Review of a Proposed Activity in a 100-Year Floodplain and Wetland (Notice), regarding the Princeville Levee Floodgate Repairs at four levee floodgate culvert locations along the Tar River. The North Carolina Office of Recovery and Resiliency (NCORR) has received an application from the Town of Princeville to use U.S. Department of Housing and Urban Development Community Development Block Grant – Disaster Recovery funding to implement the Princeville Levee Floodgate Repairs Project (i.e., the proposed activity).

During the Hurricane Matthew storm event (October 8, 2016), a large majority of the citizens residing in the Town of Princeville were displaced by floodwaters, due to the functional failure of the Princeville floodgates located along the U.S. Army Corps of Engineers levee bordering the Tar River. According to the Notice, the proposed activity is necessary to prevent future storm events from flooding the affected areas of the Town of Princeville. NCORR is conducting an evaluation of locating the proposed activity in a floodplain and wetlands and the potential impacts of the proposed activity on these special areas.

The proposed activity entails inlet and outlet channel repairs at four existing floodgate culverts along the levee and constructing permanent access roads to facilitate the repairs and provide access for future inspection, maintenance, and flood-fighting operations. The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to “stubroads” that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance, and flood-fighting operations.

According to the Early Notice, the proposed activity will result in temporary impacts to 0.11 acres of 100-year floodplain, 0.027 acres of wetlands, 0.05 acres of stream, and 1.37 acres of floodway. The proposed activity will result in permanent impacts to 0.11 acres of 100-year floodplain, 0.007 acres of wetlands, 0.05 acres of stream,

and 1.37 acres of floodway. These impacts will consist of excavation, fill and channel repair in the 100-year floodplain; hand clearing, fill and channel repair in wetlands; temporary dewatering and channel repair in stream; and excavation, fill and channel repair in the floodway.

Based on the EPA's review of the available information, the EPA has not identified any significant environmental impacts associated with the proposed activity and has no further comments. The EPA appreciates the opportunity to provide comments on the project. If you have any questions regarding our comments, please contact me by phone at (404) 562-9378, or by e-mail at dean.william-kenneth@epa.gov.

Wm. Kenneth Dean
Acting Chief, NEPA Section
Strategic Programs Office
Office of the Regional Administrator
U.S. Environmental Protection Agency, Region 4
61 Forsyth St., SW
Atlanta, GA 30303
Office: (404) 562-9378
Mobile: (678-628-2079

Gievers, Andrea

From: Dunn, Maria T.
Sent: Monday, December 19, 2022 7:21 AM
To: Gievers, Andrea
Subject: RE: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC

Good morning.

NCWRC has received the early notice and is familiar with the project. We have reviewed and commented as necessary on the project during the NC State Clearinghouse circulations as well as during appropriate state and federal regulatory permit application reviews. We have no further comment at this time.

Thank you for contacting our agency. Please do not hesitate if I can provide additional assistance.

Maria

Maria T. Dunn
Coastal Coordinator

NC Wildlife Resources Commission
943 Washington Sq. Mall
Washington, NC 27889
252-495-5554

www.ncwildlife.org

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From: Gievers, Andrea <andrea.l.gievers@rebuild.nc.gov>
Sent: Thursday, December 8, 2022 10:07 AM
To: Dunn, Maria T. <maria.dunn@ncwildlife.org>
Subject: Public Notice - Early Notice - Princeville Levee Floodgate Repairs, Princeville, NC

Hello:

Please find attached the Public Notice for HUD 24 CFR §55.20(b) - *Early Notice and Public Review of a Proposed Activity in a 100-year Floodplain and Wetland* publishing December 8, 2022 for the NCORR Infrastructure Recovery Program's Princeville Levee Floodgate Repairs proposed project in the Town of Princeville, Edgecombe County, NC. Please feel free to contact me if you have any questions. Thank you for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency

Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Email correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

Roy Cooper
Governor

Pamela B. Cashwell
Secretary

December 22, 2022

Andrea Gievers
Town of Princeville
c/o NC Department of Public Safety
Office of Recovery and Resiliency
Durham, NC 27709-

Re: SCH File # 23-E-4600-0103 Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.

Dear Andrea Gievers:

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act.

Attached to this letter are comments made by the agencies in the review of this document. If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

If you have any questions, please do not hesitate to contact me at (984) 236-0000.

Sincerely,

CRYSTAL BEST
State Environmental Review Clearinghouse

Attachments

Control No.: 23-E-4600-0103

County.: EDGECOMBE

Date Received: 12/8/2022

Agency Response: 12/21/2022

Review Closed: 12/21/2022

JINTAO WEN
CLEARINGHOUSE COORDINATOR
DPS - DIV OF EMERGENCY MANAGEMENT

Project Information

Type: National Environmental Policy Act ironmental Assessment

Applicant: Town of Princeville

Project Desc.: Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.

As a result of this review the following is submitted:

☑ No Comment ☐ Comments Below ☐ Documents Attached

Reviewed By: JINTAO WEN Date: 12/19/2022

Control No.: 23-E-4600-0103

County.: EDGECOMBE

Date Received: 12/8/2022

Agency Response: 12/21/2022

Review Closed: 12/21/2022

JEANNE STONE
CLEARINGHOUSE COORDINATOR
DEPT OF TRANSPORTATION

Project Information

Type: National Environmental Policy Act ironmental Assessment

Applicant: Town of Princeville

Project Desc.: Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.

As a result of this review the following is submitted:

☑ No Comment ☐ Comments Below ☐ Documents Attached

Reviewed By: JEANNE STONE Date: 12/16/2022

Control No.: 23-E-4600-0103

County.: EDGECOMBE

Date Received: 12/8/2022

Agency Response: 12/21/2022

Review Closed: 12/21/2022

LYN HARDISON

CLEARINGHOUSE COORDINATOR

DEPT OF ENVIRONMENTAL QUALITY

Project Information

Type: National Environmental Policy Act ironmental Assessment

Applicant: Town of Princeville

Project Desc.: Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.

As a result of this review the following is submitted:

☐ No Comment ☐ Comments Below ☑ Documents Attached

Reviewed By: LYN HARDISON Date: 12/22/2022

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary

NORTH CAROLINA
Environmental Quality

To: Crystal Best
State Clearinghouse
NC Department of Administration

From: Lyn Hardison
Division of Environmental Assistance and Customer Service
Washington Regional Office

Re: 23-0103
Environmental Assessment - Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.
Edgecombe County

Date: December 21, 2022

The Department of Environment Quality has reviewed the proposal for the referenced project. The comments are attached for the applicant's review.

The Department will continue to be available to assist the applicant with any questions or concerns.

Thank you for the opportunity to respond.

Attachments

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
MICHAEL SCOTT
Director

NORTH CAROLINA
Environmental Quality

MEMORANDUM

TO: Michael Scott, Division Director through Sharon Brinkley

FROM: Amanda Thompson, Environmental Senior Specialist - Solid Waste Section

DATE: December 14, 2022

SUBJECT: Review: SW 23-0103 – Edgecombe County (Environmental Assessment – Town of Princeville – Proposed project is for the inlet and outlet channel repairs at 4 existing floodgate culverts along the levee and construct permanent access roads.)

The Division of Waste Management, Solid Waste Section (Section) has reviewed the documents submitted for the subject project in Edgecombe County, NC. Based on the information provided in this document, the Section at this time does not see an adverse impact on the surrounding communities and likewise knows of no situations in the communities, which would affect this project.

For any planned or proposed projects, it is recommended that during any land clearing, demolition, and construction, the Town of Princeville and/or its contractors would make every feasible effort to minimize the generation of waste, to recycle materials for which viable markets exist, and to use recycled products and materials in the development of this project where suitable. **Any waste generated by and of the project that cannot be beneficially reused or recycled as described, may require disposal of at a solid waste management facility permitted by the Division. The Section strongly recommends that the Town of Princeville require all contractors to provide proof of proper disposal for all generated waste to permitted facilities.**

Permitted solid waste management facilities are listed on the Division of Waste Management, Solid Waste Section portal site at: https://deq.nc.gov/about/divisions/waste-management/waste-management-rules-data/solid-waste-management-annual-reports/solid-waste-permitted-facility-list
And the site locator tool at:
https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=7dd59be2750b40bebebfa49fc383f688

Questions regarding solid waste management for this project should be directed to Mr. John College, Environmental Senior Specialist, Solid Waste Section, at (919) 268-1524.

cc: John College, Environmental Senior Specialist

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: Raleigh
Project Number: 23-0103 Due Date: 12/20/2022
County: Edgecombe

After review of this project, it has been determined that the DEQ permit(s) and/or approvals indicated may need to be obtained for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (Statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, non-standard sewer system extensions & sewer systems that do not discharge into state surface waters.	Application 90 days before begins construction or award of construction contracts. On-site inspection may be required. Post-application technical conference usual.	30 days (90 days)
☐	Permit to construct & operate, sewer extensions involving gravity sewers, pump stations and force mains discharging into a sewer collection system	Fast-Track Permitting program consists of the submittal of an application and an engineer's certification that the project meets all applicable State rules and Division Minimum Design Criteria.	30 days (N/A)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begins activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary.	30 days (N/A)
☐	Well Construction Permit	Complete application must be received, and permit issued prior to the installation of a groundwater monitoring well located on property not owned by the applicant, and for a large capacity (>100,000 gallons per day) water supply well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.O100 thru 2Q.0300)	Application must be submitted, and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☒	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☒	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950	Please Note - The Health Hazards Control Unit (HHCU) of the N.C. Department of Health and Human Services, must be notified of plans to demolish a building, including residences for commercial or industrial expansion, even if no asbestos is present in the building.	60 days (90 days)
☒	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres are to be disturbed. Plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater permit (NCG010000) is also usually issued should design features meet minimum requirements. A fee of $100 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☐	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable Stormwater conveyances and outlets.		(30 days)
☐	Sedimentation and erosion control must be addressed in accordance with _____ Local Government's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable Stormwater conveyances and outlets.		Based on Local Program
☐	Compliance with 15A NCAC 04B .0125 – Buffers Zones for Trout Waters shall have an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity, whichever is greater.		
☐	Compliance with 15A NCAC 2H .0126 - NPDES Stormwater Program which regulates three types of activities: Industrial, Municipal Separate Storm Sewer System & Construction activities that disturb ≥1 acre.		30-60 days (90 days)
☐	Compliance with 15A NCAC 2H 1000 -State Stormwater Permitting Programs regulate site development and post-construction stormwater runoff control. Areas subject to these permit programs include all 20 coastal counties, and various other counties and watersheds throughout the state.		45 days (90 days)

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: Raleigh
Project Number: 23-0103 Due Date: 12/20/2022
County: Edgecombe

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (Statutory time limit)
☐	Mining Permit	On-site inspection usual. Surety bond filed with DEQ Bond amount varies with type mine and number of acres of affected land. Affected area greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to prepare plans, inspect construction, and certify construction is according to DEQ approved plans. May also require a permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage, or the total project cost will be required upon completion.	30 days (60 days)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with DEQ running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to DEQ rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with DEQ at least 10 days prior to issue of permit. Application by letter. No standard application forms.	10 days N/A
☐	State Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property	15-20 days N/A
☒	401 Water Quality Certification	Compliance with the T15A 02H .0500 Certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323.	60 days (130 days)
☒	Compliance with Catawba, Goose Creek, Jordan Lake, Randleman, Tar Pamlico or Neuse Riparian Buffer Rules is required. Buffer requirements: http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/401-wetlands-buffer-permits/401-riparian-buffer-protection-program		
☐	Nutrient Offset: Loading requirements for nitrogen and phosphorus in the Neuse and Tar-Pamlico River basins, and in the Jordan and Falls Lake watersheds, as part of the nutrient-management strategies in these areas. DWR nutrient offset information: http://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-offset-information		
☐	CAMA Permit for MAJOR development	$250.00 - $475.00 fee must accompany application	75 days (150 days)
☐	CAMA Permit for MINOR development	$100.00 fee must accompany application	22 days (25 days)
☐	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☒	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☒	Plans and specifications for the construction, expansion, or alteration of a public water system must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction as per 15A NCAC 18C .0300 et. seq., Plans and specifications should be submitted to 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. All public water supply systems must comply with state and federal drinking water monitoring requirements. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☒	If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources/Public Water Supply Section at 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☐	Plans and specifications for the construction, expansion, or alteration of the _____ water system must be approved through the _____ delegated plan approval authority. Please contact them at _____ for further information.		

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: Raleigh
Project Number: 23-0103 Due Date: 12/20/2022
County: Edgecombe

Other Comments (attach additional pages as necessary, being certain to comment authority)

Division	Initials	No comment	Comments	Date Review
DAQ	SH	☐	See checked boxes above.	12/9/2022
DWR-WQROS (Aquifer & Surface)	&	☐	It is recommended to schedule a site visit with 401 Water quality staff to discuss the proposal and to ensure compliance will be maintained per 401 surface Water requirements, surface water standards and buffer rules. If wetland, riparian buffers or stream impacts are proposed, this project will need to comply with/secure a 404 permit from the USACE, obtain a 401 Water Quality Certification authorization and a riparian buffer authorization. &	/ /
DWR-PWS	SG	☐	See Checked boxes above	/ /
DEMLR (LQ & SW)	ISB	☐	See Checked Box	12/14/2022
DWM – UST		☐		/ /
Other Comments		☐		/ /

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 U.S. 70 Highway
Swannanoa, NC 28778-8211
Phone: 828-296-4500
Fax: 828-299-7043

☐ **Fayetteville Regional Office**
225 Green Street, Suite 714,
Fayetteville, NC 28301-5043
Phone: 910-433-3300
Fax: 910-486-0707

☐ **Mooresville Regional Office**
610 East Center Avenue, Suite 301,
Mooresville, NC 28115
Phone: 704-663-1699
Fax: 704-663-6040

☐ **Raleigh Regional Office**
3800 Barrett Drive,
Raleigh, NC 27609
Phone: 919-791-4200
Fax: 919-571-4718

☐ **Washington Regional Office**
943 Washington Square Mall,
Washington, NC 27889
Phone: 252-946-6481
Fax: 252-975-3716

☐ **Wilmington Regional Office**
127 Cardinal Drive Ext.,
Wilmington, NC 28405
Phone: 910-796-7215
Fax: 910-350-2004

☐ **Winston-Salem Regional Office**
450 Hanes Mill Road, Suite 300,
Winston-Salem, NC 27105
Phone: 336-776-9800
Fax: 336-776-9797

APPENDIX 3

- **FONSI/ NOI-RROF/ Final Notice**
- **Affidavit for Publication of Final Notice (To be added later)**
- **Distribution List to Interested Agencies, Groups and Individuals**
- **Final Notice Comments and Response, if applicable (To be added later)**

PUBLIC NOTICE

COMBINED NOTICE OF FINDING OF NO SIGNIFICANT IMPACT (*FONSI*), NOTICE OF INTENT TO REQUEST RELEASE OF FUNDS (*NOI-RROF*), AND FINAL NOTICE AND PUBLIC EXPLANATION OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN AND WETLAND

PRINCEVILLE LEVEE FLOODGATE REPAIRS
FOUR LEVEE FLOODGATE CULVERT LOCATIONS ALONG THE TAR RIVER, PRINCEVILLE, EDGECOMBE COUNTY, NC 27886

April 20, 2023

To: All interested Agencies, Groups and Individuals

Name of Responsible Entity and Recipient: North Carolina Office of Recovery and Resiliency (NCORR), P.O. Box 110465, Durham, NC 27709. Contact: Director Laura Hogshead (984) 833-5350.

Pursuant to 24 CFR Section 58.43, this combined Notice of Finding of No Significant Impact (FONSI), Notice of Intent to Request Release of Funds (NOI-RROF), and Final Notice and Public Explanation of a Proposed Activity in a Floodplain and Wetland satisfies three separate procedural requirements for project activities proposed to be undertaken by NCORR.

Project Description: NCORR is responsible for the direct administration of the United States Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program in North Carolina. NCORR proposes to provide CDBG-DR funding of $850,658.00 for the Princeville Levee Floodgate Repairs Project ("Proposed Activity") on approximately 7.7 acres at four floodgate culvert locations: Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), and Site 4 (35.873450, -77.525434). The Proposed Activity is anticipated to have a total cost of $850,658.00. The Proposed Activity entails inlet and outlet channel repairs at four existing floodgate culverts along the levee and constructing permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. These existing levee segments were constructed in 1965 to 1967 by the U.S. Army Corps of Engineers (USACE) but are maintained by Edgecombe County. The proposed floodgate inlet and outlet channel repairs

include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville Levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4.

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters in part due to the functional failure of the Princeville floodgates located along the USACE levee bordering the Tar River. During the Hurricane Matthew storm event, the floodgate structures were submerged underwater for at least five days resulting in weakness and more erosion around already worn structures, and damaged floodgate hinges. County staff temporarily repaired two broken hinges by welding. The proposed repairs are intended to restore the existing structures to their former as-built condition. The Town of Princeville undertook to design construction upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Town of Princeville has selected the Proposed Activity to assist its residents and community to be protected from future storm damage and flooding.

PUBLIC EXPLANATION OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN AND WETLAND

NCORR has conducted an evaluation as required by Executive Orders (EO) 11988 and 11990, in accordance with HUD regulations at 24 CFR 55 Subpart C Procedures for Making Determinations on Floodplain Management and Wetlands Protection. The Proposed Activity will result in temporary impacts to 0.11 acres of 100-year floodplain, 0.027 acres of National Wetlands Inventory (NWI)-mapped and USACE verified delineated wetlands (freshwater palustrine forested and scrub-shrub), 0.05 acres of stream, and 1.37 acres of floodway. The Proposed Activity will result in permanent impacts to 0.11 acres of 100-year floodplain, 0.007 acres of NWI-mapped and USACE verified delineated wetlands, 0.05 acres of stream, and 1.37 acres of floodway. These impacts will consist of excavation, fill and channel repair in the 100-year floodplain; hand clearing, fill and channel repair in wetlands; temporary dewatering and channel repair in stream; and excavation, fill and channel repair in FEMA-designated regulatory floodway. The Proposed Activity's levee floodgate repairs are allowed in floodway since it is classified as non-critical action, is a functionally dependent use that must necessarily be in close proximity to water (24 CFR §55.2(b)(6)), and is being processed under 24 CFR 55.20. The regulatory floodway refers to the channel of the Tar River and adjacent land areas that are reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in floodways to ensure that there are no increases in upstream flood elevations. A Floodplain Development Permit and no-rise certification for the Proposed Activity were obtained and concluded that it will not increase base flood elevations within the FEMA floodplain. According to FEMA, the purpose of a levee is to keep the course of rivers from changing and to protect against flooding of the area adjoining the river. Levees are

designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. Levees can and do deteriorate over time and must be maintained to retain their effectiveness. When levees fail, or are overtopped, the results can be catastrophic. Thus, the Proposed Activity is necessary to prevent future storm events from flooding the affected areas of the Town of Princeville.

NCORR has considered the alternatives and mitigation measures to be taken to minimize adverse impacts and to restore and preserve natural and beneficial values. This Proposed Activity involves repairing floodgates at an existing levee and constructing access roads. The Proposed Activity must be performed at the existing floodgates, and project designs have been completed in accordance with agency input to minimize impacts to the floodplain, wetlands, environment and community. The main alternative is the "No Action" Alternative which is not considered feasible since Princeville has been historically subjected to devastating flooding and storm damage, and action is critically necessary to protect the residents and community from future storm events. One concern with the "No Action" Alternative is the potential decertification of the levee by FEMA which would result in virtually the whole town being mapped as 100-year floodplain and subsequent requirement for the costly elevation of structures and flood insurance for homeowners according to the Princeville Recovery Plan. These natural floodplains and wetlands provide flood risk reduction benefits by slowing runoff and storing flood water. In addition, the floodplains and wetlands are beneficial by providing diverse wildlife habitat, flood and erosion control, surface water quality maintenance, groundwater recharge, and educational, scientific, cultural, and recreational opportunities. Wetlands have unique natural characteristics that play an integral role in the ecology of the watershed. Overall, the functions and values associated with the impacted wetland are limited due to small acreage, low diversity, and man-made influences, however, some wildlife habitat, flood flow protection, and water quality functions exist.

The Proposed Activity will be completed in accordance with all applicable federal, State, and local laws, regulations, and permit requirements and conditions. The following permits will be obtained, if applicable, prior to commencing work: USACE Clean Water Act (CWA) Section 404 Nationwide Permit #3 (Maintenance), USACE CWA Section 408 Permit, NC DWR CWA Section 401 Water Quality Certification, NC DWR Tar-Neuse River Riparian Buffer Authorization, NC DEMLR Erosion and Sediment Control Permit, NPDES Construction Stormwater Permit (NCG010000), Floodplain Development Permit and no-rise certification. BMPs for erosion and sedimentation control such as silt fencing will be utilized during construction. Thus, the Proposed Activity and site locations are the most suitable, feasible options selected by the Town of Princeville after a lengthy process to assist its residents and community to be protected from future storm events; the "No Action" alternative would not effectively address Princeville's flooding; and mitigation measures include erosion and sedimentation controls, permit conditions, a project design that minimizes impacts, and native plants used in site restoration.

Since the action will include modification of floodplain and new construction in wetland, EOs 11988 and 11990 require that the Proposed Activity not be supported if there are practicable alternatives to floodplain and wetland impacts. NCORR has reevaluated the alternatives to modification of floodplain and new construction in wetland, and has determined that it has no practicable alternative. The 8-step process has been further documented in the EO 11988

Floodplain Management and EO 11990 Protection of Wetlands Determination which is available for viewing and copying as described below in Public Review.

There are three primary purposes for this notice. First, people who may be affected by activities in floodplains and wetlands and those who have an interest in the protection of the natural environment are given an opportunity to express their concerns and provide information about these areas. Second, adequate public notice is an important public education tool. The dissemination of information and request for public comment about floodplains and wetlands can facilitate and enhance federal efforts to reduce the risks associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the federal government determines it will participate in actions taking place in floodplains and wetlands, it must inform those who may be put at greater or continued risk.

FINDING OF NO SIGNIFICANT IMPACT

An Environmental Assessment (EA) for the Proposed Project has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and HUD environmental review regulations at 24 CFR Part 58. The EA is incorporated by reference into this FONSI. Subject to public comments, no further review of the Proposed Activity is anticipated. NCORR has determined that the EA for the project identified herein complies with the requirements of HUD environmental review regulations at 24 CFR Part 58. NCORR has determined that the Proposed Activity will have no significant impact on the human environment and, therefore, does not require the preparation of an environmental impact statement under NEPA.

Public Review: Public viewing of the EA and EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination is available online at https://www.rebuild.nc.gov/about/plans-policies-reports/environmental-reviews. Documents may also be viewed in person by appointment only at: NCORR, 200 Park Offices Drive, Durham, NC 27709. Call (984) 833-5350 to make an appointment.

Further information may be requested by writing to the above address, emailing publiccomments@rebuild.nc.gov or calling (984) 833-5350. This combined notice is being sent to individuals and groups known to be interested in these activities, local news media, appropriate local, state and federal agencies, the regional office of the U.S. Environmental Protection Agency having jurisdiction, and the HUD Field Office, and is being published in a newspaper of general circulation in the affected community.

Public Comments on the Proposed Activity within Floodplain and Wetland, FONSI and/or NOIRROF: Any individual, group or agency may submit written comments on the Proposed Activity. The public is hereby advised to specify in their comments which "notice" their comments address. Comments should be submitted via email, in the proper format, on or before May 5, 2023 at publiccomments@rebuild.nc.gov. Written comments may also be submitted by mail, in the proper format, to be received on or before May 5, 2023, and addressed to: Laura Hogshead, Director, NCORR, ATTN: Princeville Levee Floodgate Repairs, P.O. Box 110465, Durham, NC 27709. All comments must be received on or before May 5, 2023 or they will not be considered. If modifications result from public comment, these will be made prior to proceeding with the submission of a request for release of funds.

REQUEST FOR RELEASE OF FUNDS AND CERTIFICATION

On or after May 8, 2023, the NCORR certifying officer will submit a request and certification to HUD for the release of CDBG-DR funds as authorized by related laws and policies for the purpose of implementing this part of the North Carolina CDBG-DR program.

NCORR certifies to HUD that Laura Hogshead, in her capacity as Certifying Officer, consents to accept the jurisdiction of the U.S. federal courts if an action is brought to enforce responsibilities in relation to the environmental review process and that these responsibilities have been satisfied. HUD's approval of the certification satisfies its responsibilities under NEPA and related laws and authorities, and allows NCORR to use CDBG-DR program funds.

Objection to Release of Funds: HUD will accept objections to its release of funds and NCORR's certification for a period of fifteen days following the anticipated submission date or its actual receipt of the request (whichever is later). Potential objectors may contact HUD or the NCORR Certifying Officer to verify the actual last day of the objection period.

The only permissible grounds for objections claiming a responsible entity's non-compliance with 24 CFR Part 58 are: (a) Certification was not executed by NCORR's Certifying Officer; (b) the responsible entity has omitted a step or failed to make a decision or finding required by HUD regulations at 24 CFR Part 58; (c) the responsible entity has committed funds or incurred costs not authorized by 24 CFR Part 58 before release of funds and approval of environmental certification; or (d) another federal agency acting pursuant to 40 CFR Part 1504 has submitted a written finding that the project is unsatisfactory from the standpoint of environmental quality.

Objections must be prepared and submitted in accordance with the required procedures (24 CFR 58.76) and shall be addressed to Tennille Smith Parker, Director, Disaster Recovery and Special Issues Division, Office of Block Grant Assistance, U.S. Department of Housing & Urban Development, 451 7th Street SW, Washington, DC 20410, Phone: (202) 402-4649, or emailed to disaster_recovery@hud.gov.

Laura Hogshead
Certifying Officer
April 20, 2023

Media of East Carolina
Key West Citizen - Florida Free Press - Paradise
The Daily Reflector - The Daily Advance - The Rocky Mount Telegram
Bertie Ledger - Chowan Herald - Duplin Times - Farmville Enterprise - Perquimans Weekly
Standard Laconic - Tarboro Weekly - Times Leader - Williamston Enterprise
PO Box 1967 Greenville NC 27835 - (252) 329-9500

Proof to be replaced with Affidavit after publication

Date: April 18, 2023

- CLASSIFIED AD PROOF -

Thank you for advertising with us! This is the proof of your ad scheduled to run on the dates indicated below. If changes are needed, please contact Kim Bandy by phone at (252) 329-9522 or email at kbandy@apgenc.com.

CUSTOMER INFORMATION

Account #:	146799
Name:	NC ORR
Address:	PO BOX 110465 DURHAM NC 27709
Telephone:	(984) 297-6244
Email:	sarah.crump@ncdps.gov

AD INFORMATION

Ad ID:	444082
Run Dates:	04/20/23 to 04/20/23
Total Cost:	$880.40
# of Inserts:	2
# of Lines:	455
Ad Class:	42
Account Rep:	Kim Bandy
Phone #:	(252) 329-9505
Email:	customercare@apgenc.com

Publications	Start Date	End Date	# of Insertions
Rocky Mount Telegram	04/20/23	04/20/23	1
RockyMountTelegram.com	04/20/23	04/20/23	1

Your ad

Ad shown is not actual print size



FONSI/NOI-RROF/FINAL NOTICE DISTRIBUTION LIST

PRINCEVILLE LEVEE FLOODGATE REPAIRS
FOUR LEVEE FLOODGATE CULVERT LOCATIONS ALONG THE TAR RIVER, PRINCEVILLE, EDGECOMBE COUNTY, NC 27886

Published in Rocky Mount Telegram on 4/20/23, comments end 5/5/23

FEDERAL AGENCIES

Agency	Name & Address	Method
HUD NC	Mr. Lenwood E. Smith, II Environmental Protection Specialist Greensboro Field Office U.S. Dept. of Housing and Urban Development 1500 Pinecroft Road, Suite 401 Greensboro, NC 27407-3838	Lenwood.E.Smith@hud.gov
FEMA, Region IV	Ms. Gracia B. Szczech, Regional Administrator U.S. Dept. of Homeland Security FEMA, Region IV 3003 Chamblee Tucker Road Atlanta, GA 30341	FedEx
FEMA ATTN: 11988	*Hard copies may also be mailed to* Attn: 11988/NEPA Reviewer (EHP) DHS/FEMA RIV 3003 Chamblee Tucker Road Atlanta, GA 30341	FEMA-R4EHP@fema.dhs.gov *with the subject line* **REVIEW REQUEST: 11988/NEPA**
US EPA, Region 4	Mr. John Blevins, Acting Regional Administrator U.S. EPA, Region 4 Laboratory Services & Applied Science Div. 980 College Station Road Athens, GA 30605-2720	FedEx
US EPA, Region 4	Ms. Ntale Kajumba, NEPA Coordinator U.S. EPA, Region 4 Laboratory Services & Applied Science Div. 980 College Station Road Athens, GA 30605-2720	Kajumba.ntale@epa.gov cc: blevins.john@epa.gov
USFWS – Raleigh Field Office	USFWS – Raleigh Field Office ATTN: John Ellis P.O. Box 33726 Raleigh, NC 27636 ph.: 919-856-4520, ext. 26	john_ellis@fws.gov cc: leigh_mann@fws.gov

NOAA Fisheries	Mr. Pace Wilber Branch Chief, Southeast Regional Office Habitat Conservation Division/Atlantic & Caribbean Branch PO Box 12559 Charleston, SC 29422-2559	pace.wilber@noaa.gov
USACE – Wilmington District	Billy Standridge – Edgecombe County USACE – Wilmington District 69 Darlington Avenue Wilmington, NC 28403 910-251-4595	billy.w.standridge@usace.army.mil
TRIBES, NATIONS AND COMMUNITIES (who asked to be notified)		
Catawba Indian Nation	Dr. Wenonah George Haire, THPO ATTN: THPO Archaeology Dept. Catawba Indian Nation 1536 Tom Steven Road Rock Hill, SC 29730	Does not want Notice
Catawba Indian Nation	Chief Bill Harris Catawba Indian Nation 996 Avenue of the Nations Rock Hill, SC 29730	Does not want Notice
Tuscarora Nation	Chief Tom Jonathan Tuscarora Nation 5226 Walmore Road Lewiston, NY 14092 Ph: (716) 601-4737	Does not want Notice
Tuscarora Nation	Mr. Bryan Printup, THPO Tuscarora Nation 5226 Walmore Road Lewiston, NY 14092 Ph: (716) 264-6011	Does not want Notice
NC STATE AGENCIES		
STATE CLEARING-HOUSE	Ms. Crystal Best North Carolina Department of Administration State Environmental Review Clearinghouse 1301 Mail Service Center Raleigh, North Carolina 27699-1301	State.Clearinghouse@doa.nc.gov crystal.best@doa.nc.gov
NC Wildlife Resource Commission	Ms. Maria T. Dunn, Coastal Coordinator NC Wildlife Resources Commission 943 Washington Sq. Mall Washington, NC 27889 office: 252-948-3916	maria.dunn@ncwildlife.org

LOCAL AGENCIES		
COUNTY	Eric Evans, County Manager Edgecombe County P.O. Box 10 Tarboro, NC 27886 (252) 641-7835	EricEvans@edgecombeco.com
COUNTY	Katina Braswell, Planning Director Edgecombe County Planning Department P.O. Box 10 Tarboro, NC 27886 (252) 641-7835	KatinaBraswell@edgecombeco.com
COUNTY	Fran Mungo Clerk to the Board Edgecombe County 201 St. Andrew St. Tarboro, NC 27886 (252) 641-7834	franmungo@edgecombeco.com
CITY	Dr. Glenda Knight Town Manager Princeville Town Hall 201 South Main Street Princeville, NC 27886 Phone: (252) 823-1057	gknight@townofprinceville.com
CITY	Ms. Jessica Rudd Town Clerk/ Administrative Assistant II Town of Princeville Princeville Town Hall 201 South Main Street Princeville, NC 27886 Phone: 252-823-1057	jrudd@townofprinceville.com

ATTACHMENT 11:

Historic Preservation

SHPO Response, NCORR SHPO Submission Package, HUD TDAT Results, Catawba Indian Nation THPO Response, Catawba Indian Nation Chief and THPO Section 106 Review Packages; and Tuscarora Nation Chief and THPO Section 106 Review Packages

North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary D. Reid Wilson

Office of Archives and History
Deputy Secretary, Darin J. Waters, Ph.D.

December 30, 2022

MEMORANDUM

TO: Andrea Gievers
N.C. Office of Recovery & Resiliency
Department of Public Safety
andrea.l.gievers@rebuild.nc.gov

FROM: Ramona M. Bartos, Deputy
State Historic Preservation Officer
RMB for Ramona M. Bartos

SUBJECT: Repair floodgates at four locations, Princeville, Edgecombe County,
SCH #s 23-E-4600-0029; 23-E-4600-0040; 23-E-4600-0103, ER 21-1714

Thank you for your submissions of August 18, September 9, and December 8, 2022, concerning the above project.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Gievers, Andrea

From: Gledhill-earley, Renee
Sent: Thursday, December 29, 2022 4:20 PM
To: Gievers, Andrea
Subject: Repair Flood Gates at 4 Locations, Princeville, Edgecombe County, ER 21-1714
Attachments: ER 21 1714_5.pdf

Dear Ms. Gievers:

Please accept a copy of our most recent comments on the proposed repair of the Princeville Dike floodgates and construction of permanent access to them. We have reviewed this project on multiple occasions for several federal agencies or for federal funding and found that no historic properties will be affected. Thus, we offer the same comments to Rebuild NC and its use of CDBG-DR funding for the undertaking.

Renee Gledhill-Earley
Environmental Review Coordinator
NC State Historic Preservation Office

North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary D. Reid Wilson

Office of Archives and History
Deputy Secretary, Darin J. Waters, Ph.D.

August 29, 2022

Billy W. Standridge
U.S. Army Corps of Engineers
Washington Regulatory Field Office
2407 West 5th Street
Washington, NC 27889

billy.w.standridge@usace.army.mil

Re: Repair floodgates at four locations, Princeville, Edgecombe County, ER 21-1714

Dear Mr. Standridge:

Thank you for your email of August 3, 2022, concerning the above-referenced undertaking. We have reviewed the submittal and offer the following comments.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Ramona Bartos, Deputy
State Historic Preservation Officer

Control No.: 23-E-4600-0040

County.: EDGECOMBE

Date Received: 9/9/2022

Agency Response: 9/23/2022

Review Closed: 9/23/2022

DEVON BORGARDT

CLEARINGHOUSE COORDINATOR

DEPT OF NATURAL & CULTURAL RESOURCE

Project Information

Type: National Environmental Policy Act ironmental Review

Applicant: Town of Princeville

Project Desc.: Proposed project is for the inlet and outlet channel repairs at four (4) existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations.

As a result of this review the following is submitted:

☑ No Comment ☐ Comments Below ☐ Documents Attached

Reviewed By: DEVON BORGARDT Date: 9/14/2022

North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

August 17, 2022

Ms. Renee Gledhill-Earley
Environmental Review Coordinator
NC State Historic Preservation Office
4617 Mail Service Center
Raleigh, NC 27699-4617

Via email: State.Clearinghouse@doa.nc.gov

RE: State Historic Preservation Office Request for Concurrence
Section 106 Review - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Ms. Gledhill-Earley:

In accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR Part 800, we are providing information for your review and concurrence regarding the above-referenced project. The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is serving as the responsible entity for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. NCORR is acting on behalf of HUD in providing the enclosed project information and request for consultation.

Area of Potential Effects (APE) under §800.16(d): We have defined the APE as the boundary of the Subject Property consisting of four levee floodgate culvert locations along the Tar River Princeville, Edgecombe County, NC 27886. The proposed project locations are included in the Design Plans and USACE Notice of Preliminary Jurisdictional Determination in **Attachment 1** and coordinates are below for your review.

Mailing Address:
Post Office Box 110465
Durham, NC 27709

NCORR
NORTH CAROLINA OFFICE OF RECOVERY AND RESILIENCY

Phone: (984) 833-5350
www.ncdps.gov
www.rebuild.nc.gov

An Equal Opportunity Employer

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided in part by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

Proposed Project Description: The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with most of the work occurring in areas of previous disturbance. Project implementation would be conditioned upon issuance of applicable Federal, State and local permits and would be constructed in accordance with all permit conditions.

We have made a Finding of *"No Historic Properties Affected"* pursuant to 36 CFR 800.4(d)(1) based on the following:

> A review of the Subject Property in the National Register of Historic Places, North Carolina State Historic Preservation Office's HPOWEB, and site review, identified no publicly recorded historic properties which are locally designated or listed in or eligible for inclusion in the State or National Register of Historic Places are located on or immediately adjacent to the Subject Property (**Attachment 2**). According to HPOWEB, from Structure 4, the Abraham Wooten House (ED1129) is located approximately 1,077 feet to the southeast and Tarboro Historic District Boundary Expansion (Bridge No. 24 - ED1167) and Princeville Baptismal Site (ED1065) are located approximately 700 feet to the northeast. According to the National Register, there are two sites located within 0.25 mile from Structure 1 (Quigless Clinic 0.10 mile and Eastern Star Baptist Church 0.12 mile).

The Subject Property consists of existing levee segments which were constructed in 1967 by the USACE but are maintained by Edgecombe County. The importance of the proposed project to ensure the continued existence of historic structures within the Town of Princeville cannot be understated. Princeville's Town Hall, originally built as a schoolhouse in the 1920s, was badly damaged during past floods along with many other older structures destroyed. The Town of Princeville is undertaking the proposed project involving construction of upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Subject Property photographs are included in **Attachment 3**.

Attached for your review are copies of relevant documents supporting our finding, along with photographs and a map showing the location of the Subject Property. This documentation satisfies requirements set forth at §800.11(d).

NCORR processes environmental reviews for proposed projects funded with HUD CDBG-DR on a case-by-case basis. A consultation request for the proposed project described herein will also be sent to the Catawba Indian Nation and Tuscarora Nation. In accordance with Section 101(d)(6)(B) of the NHPA of 1966, as amended (16 U.S.C. 470f), and its implementing regulations, 36 CFR Part 800, this letter serves as notification of the proposed action.

NCORR respectfully requests your review of the proposed project described herein. In accordance with §800.4(d)(1)(i), your office has *thirty days* to object to this finding. Please respond within this timeframe, otherwise we will assume that you concur with our finding. If you concur, please sign on the line below and return a copy of this letter by email to Andrea Gievers at Andrea.L.Gievers@Rebuild.NC.gov.

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Proposed Princeville Levee Floodgate Repairs Enclosures:
Attachment 1: Proposed Project Design Plans and USACE Notice of Preliminary Jurisdictional Determination
Attachment 2: NRHP and NC HPOWEB Maps
Attachment 3: Subject Property Photographs

Concurrence:

State Historic Preservation Officer Date

Attachment 1

Design Plans and

USACE Notice of Jurisdictional Determination

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

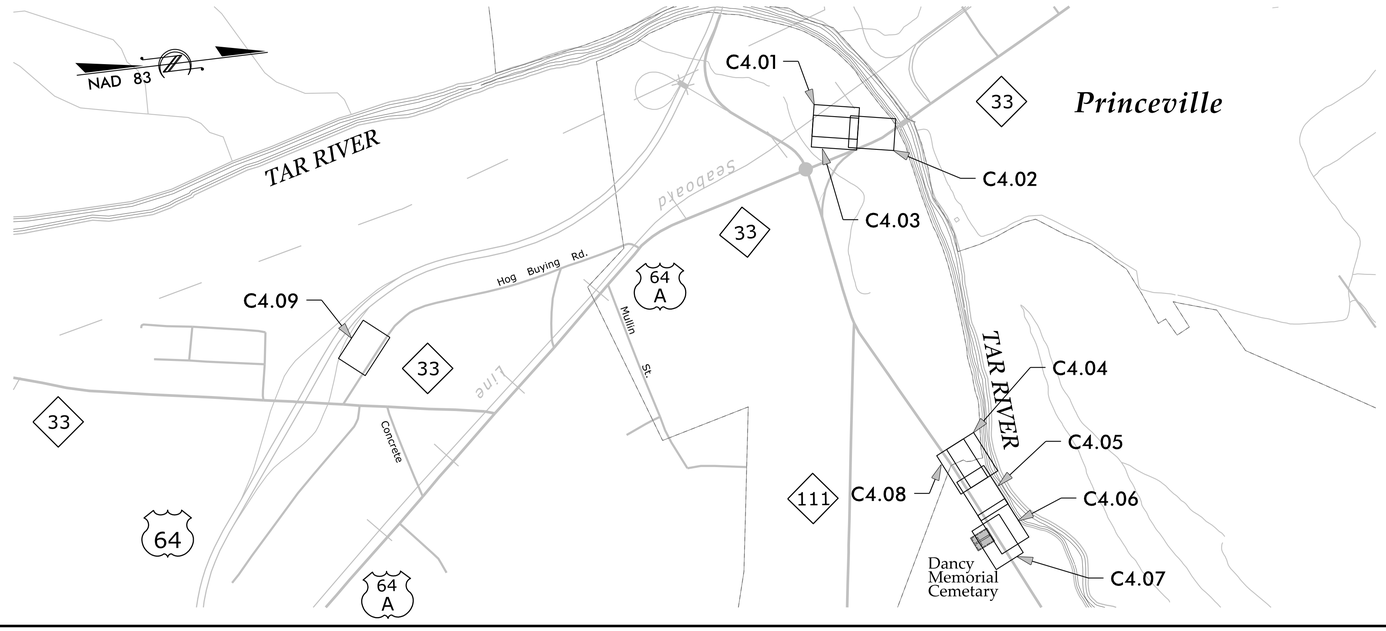
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

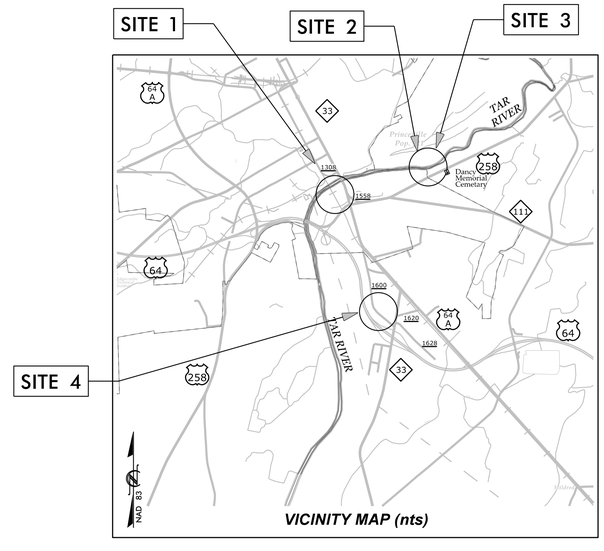
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

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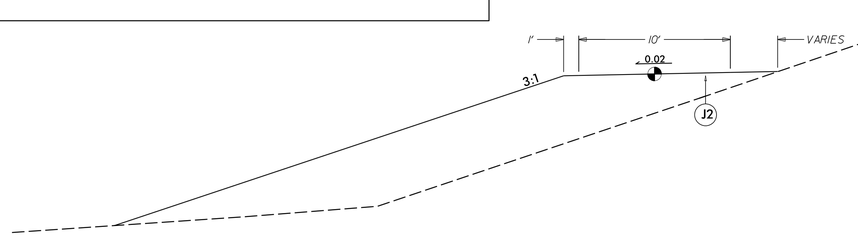
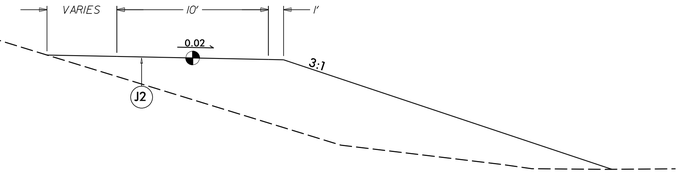
J2	PROP. 6" AGGREGATE BASE COURSE.



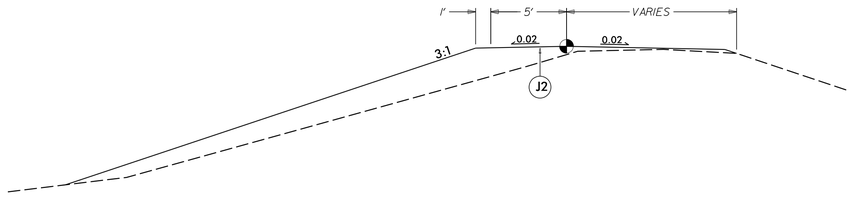
TYPICAL SECTION NO. 1

10+00 to 16+20 -AR1-
10+00 to 12+80 -AR3-
16+10 to 21+80 -AR3-
10+00 to 10+50 -AR5-



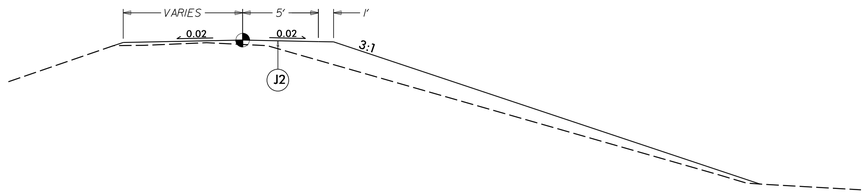
TYPICAL SECTION NO. 2

10+30 to 12+30 -AR2-
22+30 to 22+70 -AR3-
10+10 to 10+15 -AR3B-
10+20 to 10+25 -AR3B-
10+30 to 10+35 -AR3B-
10+60 to 10+70 -AR5-
10+80 to 13+20 -AR5-



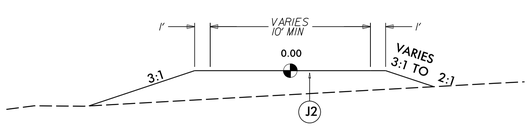
TYPICAL SECTION NO. 3

16+20 to 16+70 -AR1-
12+80 to 13+20 -AR3-
15+60 to 16+10 -AR3-
21+80 to 22+20 -AR3-



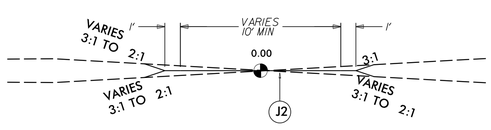
TYPICAL SECTION NO. 4

12+30 to 12+80 -AR2-
22+20 to 22+30 -AR3-
13+20 to 13+70 -AR5-



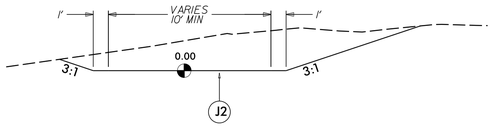
TYPICAL SECTION NO. 5

10+10 to 10+60 -AR1A-
10+10 to 10+40 -AR2A-
22+70 to 23+17 -AR3-
10+10 to 10+80 -AR3A-
10+15 to 10+20 -AR3B-
10+35 to 10+50 -AR3B-
10+15 to 10+30 -AR4-
10+10 to 10+40 -AR5A-



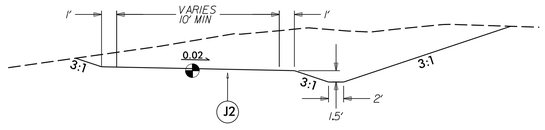
TYPICAL SECTION NO. 6

10+40 to 10+70 -AR2A-
10+25 to 10+30 -AR3B-
10+50 to 10+60 -AR3B-
10+30 to 10+50 -AR4-
10+50 to 10+60 -AR5-
10+70 to 10+80 -AR5-
10+40 to 10+50 -AR5A-



TYPICAL SECTION NO. 7

10+50 to 10+70 -AR4-
10+50 to 11+00 -AR4A-



TYPICAL SECTION NO. 8

10+05 to 10+50 -AR4A-

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by:
Joshua G. Dalton
1B9ADC1C1490409...

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

TYPICALS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C103
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C1.03**

9/9/2021
Floodgate_Rdy_psh_C103.dgn
Layout

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

83 GVD

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776204.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

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9/9/2021
Floodgate_Rdy_psh_C201.dgn
Plan view

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

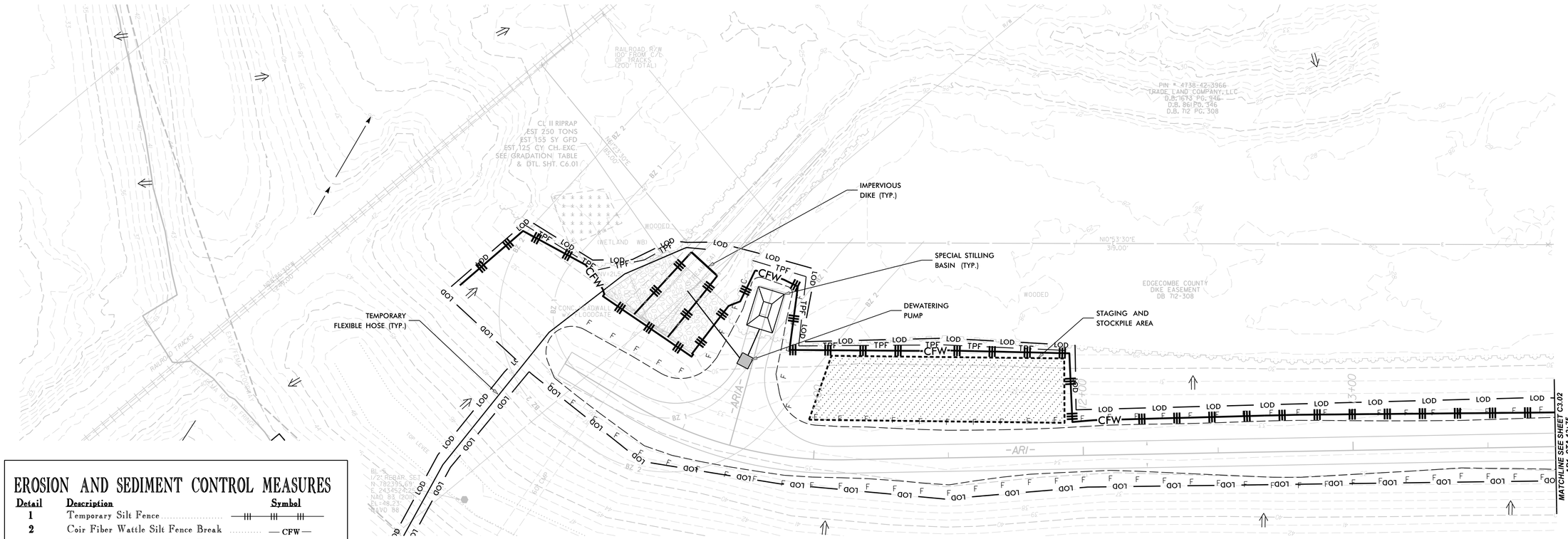
NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″=20′

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton 1B09A0BC1E9A40A...

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON NORTH CAROLINA

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C301
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.01**

9/9/2021
Floodgate_Rdy_psh_C301.dgn
Ben Kay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872



Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 15+30 to Sta. 16+70 –AR1– LT (570 SY)
Sta. 10+50 to Sta. 12+80 –AR2– RT (450 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C302
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.02**

9/9/2021
Floodgate_Rdy_psh_C302.dgn
User:rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

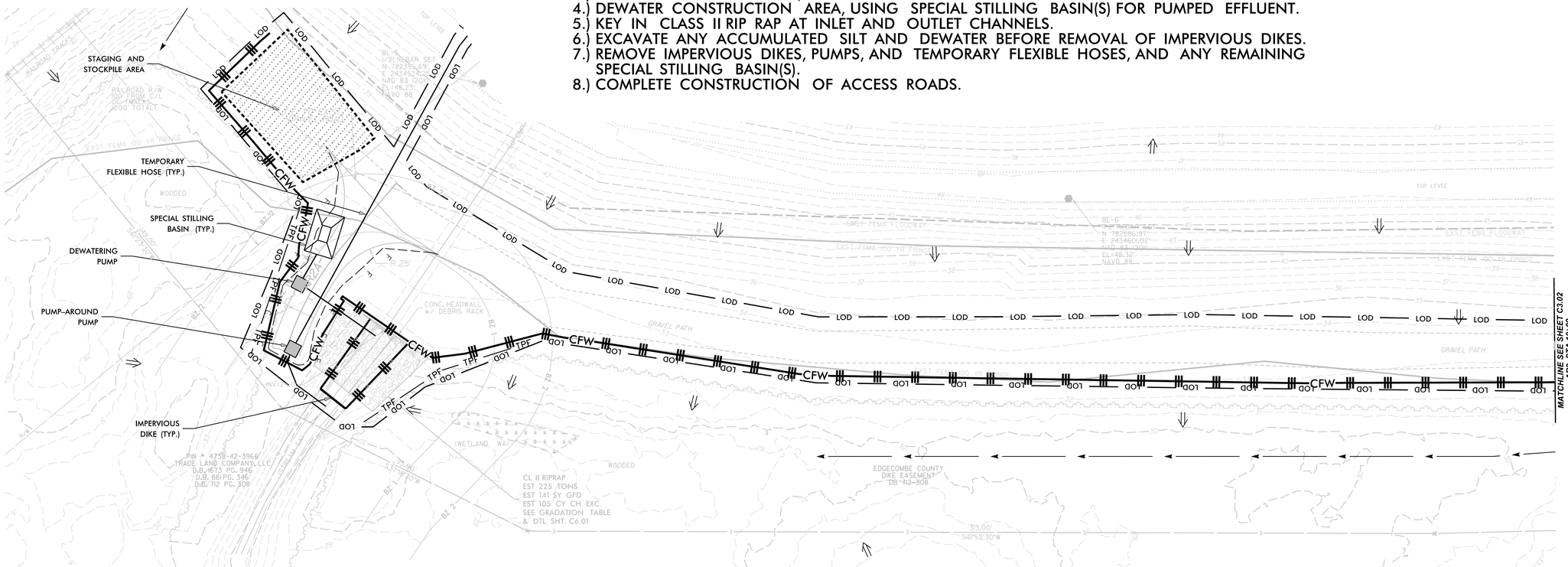
NAD 83

20' 10' 0 20' 40'

SCALE: 1" = 20'

PHASING FOR SHEETS C3.01 AND C3.03:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL 26971
JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 1

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C303
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

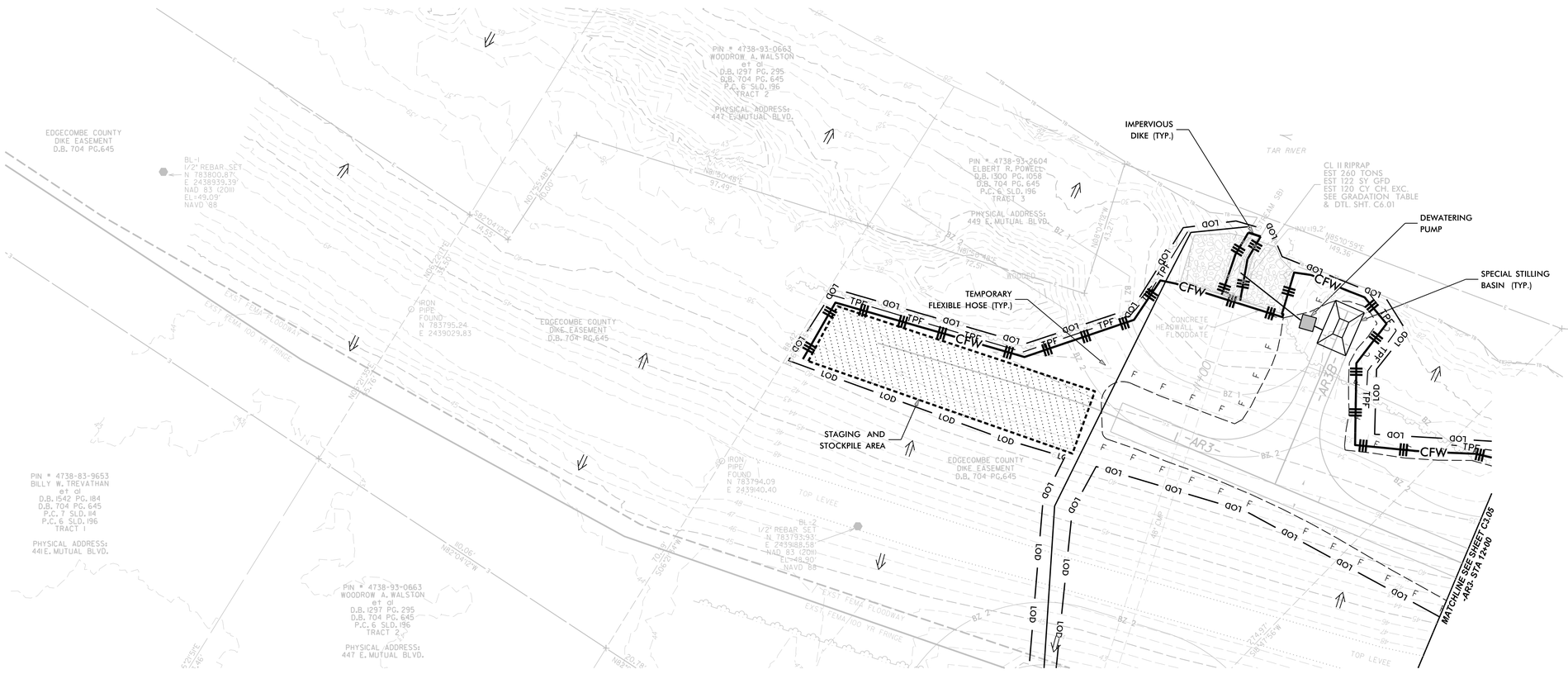
SHEET NO. C3.03

9/9/2021
Floodgate_Rdy_psh_C303.dgn
jharvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+80 to Sta. 12+00 –AR3– LT (55 SY)

NOTE:
EROSION AND SEDIMENT CONTROL MEASURES SYMBOLOGY ARE GRAPHICALLY SHOWN OUTSIDE OF THE LIMITS OF DISTURBANCE ONLY FOR THE PURPOSE OF VISUAL CLARITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WITHIN LIMITS OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C304
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C3.04**

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9/9/2021
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Harvey

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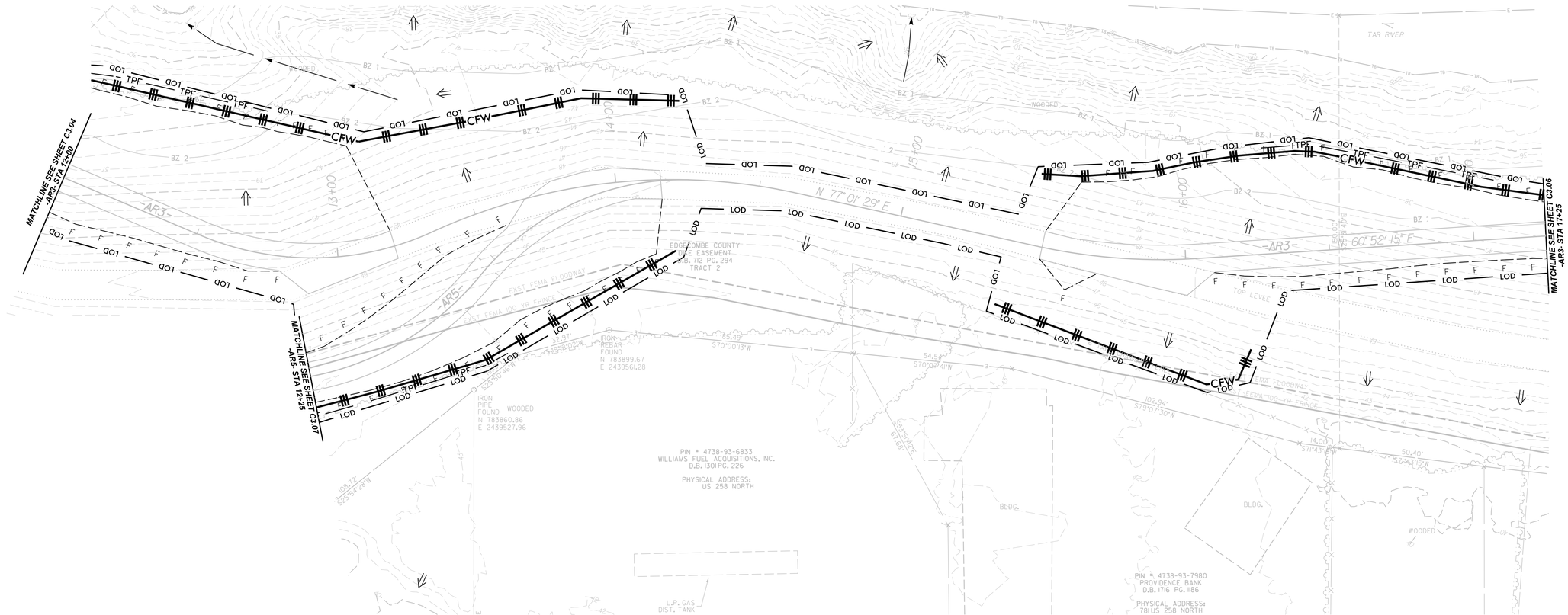
20' 10' 0 20' 40'
SCALE: 1" = 20'

NAD 83

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 12+00 to Sta. 13+10 –AR3– LT (355 SY)
Sta. 15+90 to Sta. 16+60 –AR3– LT (200 SY)



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
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5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL 26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C305
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.05

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jharvey

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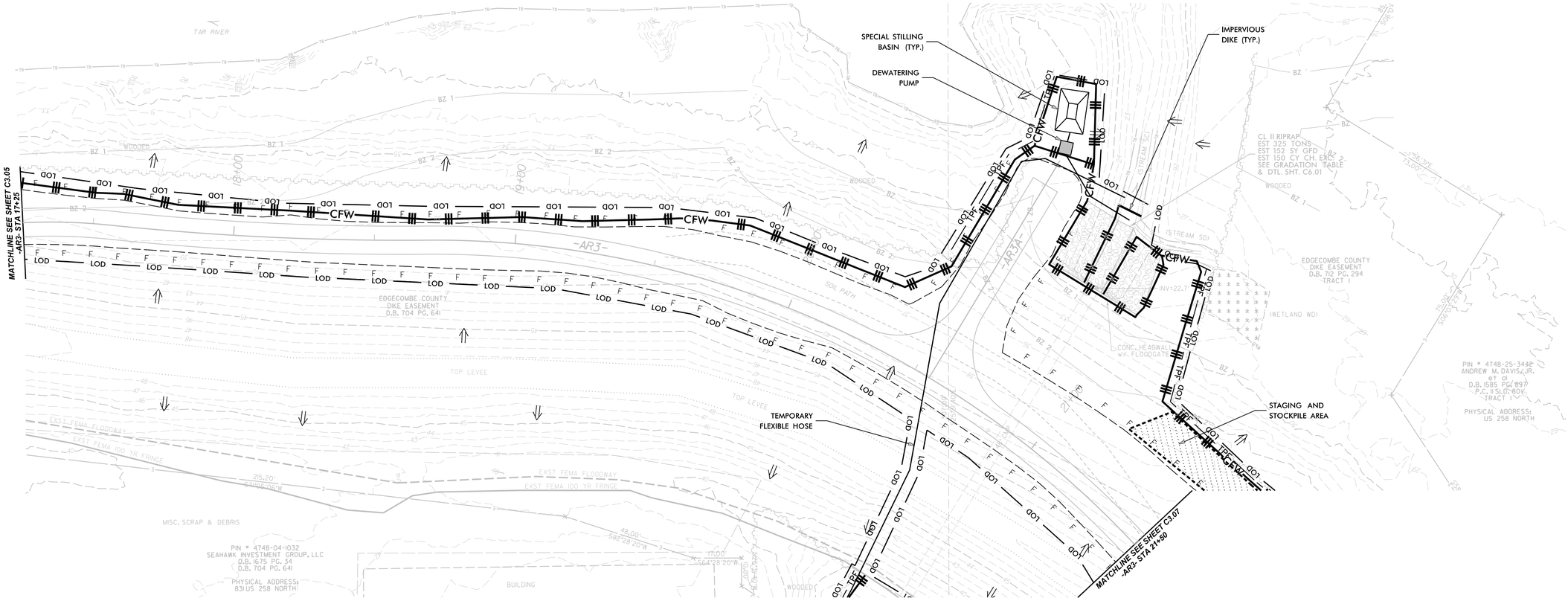
PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF TPF TPF
8	Limits of Disturbance	LOD LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C306
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C3.06

9/9/2021
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Harvey

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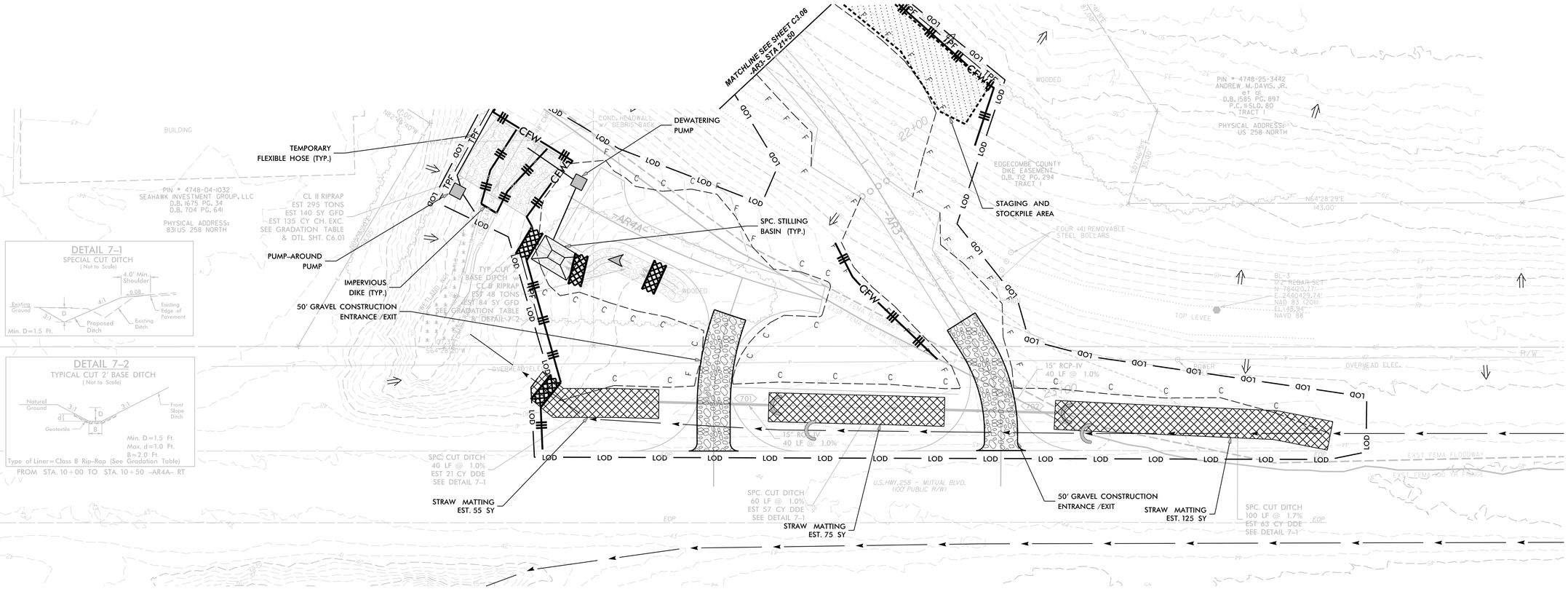
20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′

NAD 83

PHASING FOR SHEETS C3.06 AND C3.07:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)

Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT

Place Straw Matting for Erosion Control on Slope as Work Allows.
Sta. 21+50 to Sta. 22+10 –AR3– LT (185 SY)

NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	TPF
2	Coir Fiber Wattle Silt Fence Break	CFW
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	TPF
8	Limits of Disturbance	LOD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G Dalton
10B9ADBC1489455...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C307
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

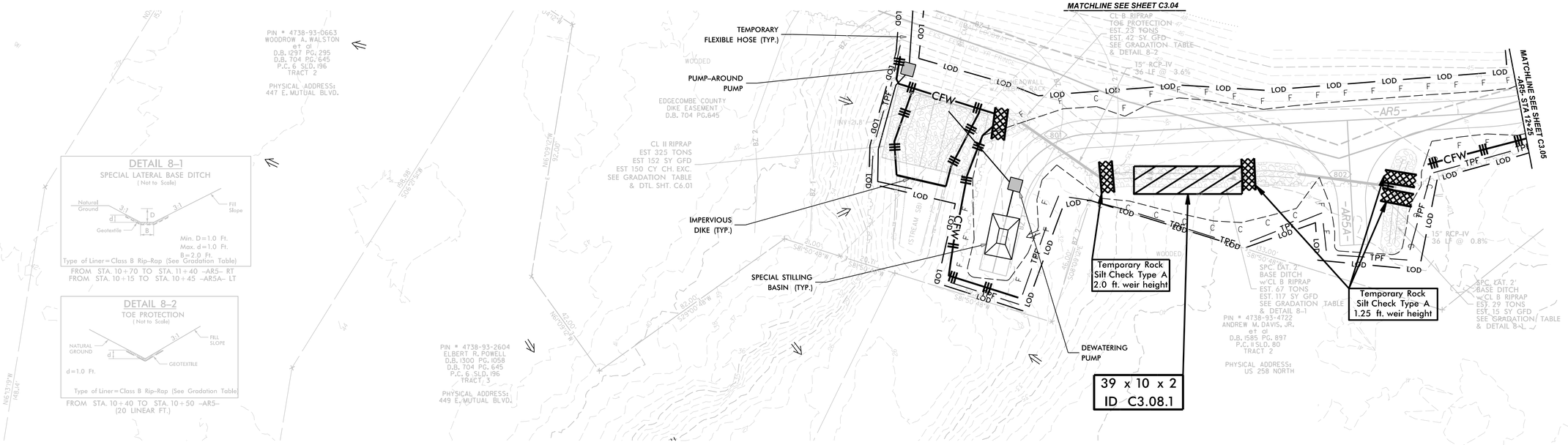
SHEET NO. **C3.07**

9/9/2021
Floodgate_Rdy_psh_C307.dgn
barclay

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PHASING FOR SHEETS C3.04 AND C3.08:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.


SCALE: 1"=20'
20' 10' 0 20' 40'
NAD 83
MATCHLINE SEE SHEET C3.04
MATCHLINE SEE SHEET C3.05
TEMPORARY FLEXIBLE HOSE (TYP.)
PUMP-AROUND PUMP
IMPERVIOUS DIKE (TYP.)
SPECIAL STILLING BASIN (TYP.)
DEWATERING PUMP
Temporary Rock Silt Check Type A 2.0 ft. weir height
Temporary Rock Silt Check Type A 1.25 ft. weir height
39 x 10 x 2
ID C3.08.1
CL II RIPRAP
EST 325 TONS
EST 152 SY GFD
EST 150 CY CH. EXC.
SEE GRADATION TABLE
& DTL. SHT. C6.01
CL B RIPRAP
TOE PROTECTION
EST. 73 TONS
EST. 42 SY GFD
SEE GRADATION TABLE
& DETAIL 8-2
15" RCP-IV
36 LF @ 3.6%
15" RCP-IV
36 LF @ 0.8%
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 67 TONS
EST. 117 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
SPC. CAT. 2'
BASE DITCH
w/CL B RIPRAP
EST. 29 TONS
EST. 15 SY GFD
SEE GRADATION TABLE
& DETAIL 8-1
EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645
PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG.645
P.C. 6 SLD. 196
TRACT 2
PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.
PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3
PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.
PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 6 SLD. 80
TRACT 2
PHYSICAL ADDRESS:
US 258 NORTH
-AR5-
-AR5A-
WETLAND
(STREAM SB1)
WETLAND
WETLAND
WETLAND

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

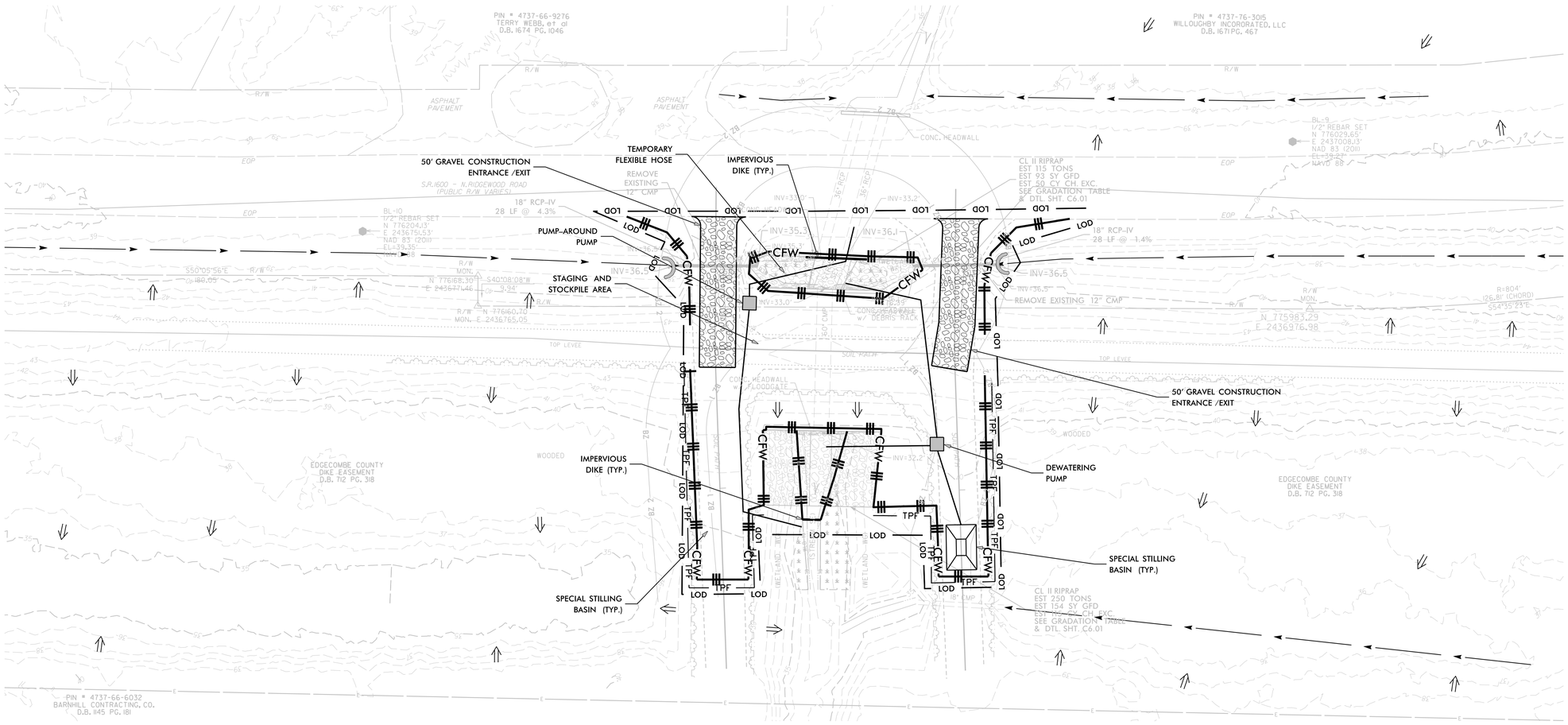
20' 10' 0 20' 40'

SCALE: 1" = 20'

NAD 83

PHASING FOR SHEET C3.09:

1.) INSTALL SPECIAL STILLING BASIN(S).
2.) INSTALL PUMPS AND TEMPORARY FLEXIBLE HOSES.
3.) INSTALL IMPERVIOUS DIKES, AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4.) DEWATER CONSTRUCTION AREA, USING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
5.) KEY IN CLASS II RIP RAP AT INLET AND OUTLET CHANNELS.
6.) EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.
7.) REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
8.) COMPLETE CONSTRUCTION OF ACCESS ROADS.



NOTE:
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EROSION AND SEDIMENT CONTROL MEASURES

Detail	Description	Symbol
1	Temporary Silt Fence	
2	Coir Fiber Wattle Silt Fence Break	— CFW —
3	Temporary Rock Silt Check Type-A	
4	Temporary Rock Silt Check Type-B	
5	Wattle / Coir Fiber Wattle	
6	Special Stilling Basin	
7	Temp. Tree Prot. Fence	— TPF — TPF — TPF —
8	Limits of Disturbance	— LOD — LOD —

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENT CONTROL - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C309
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

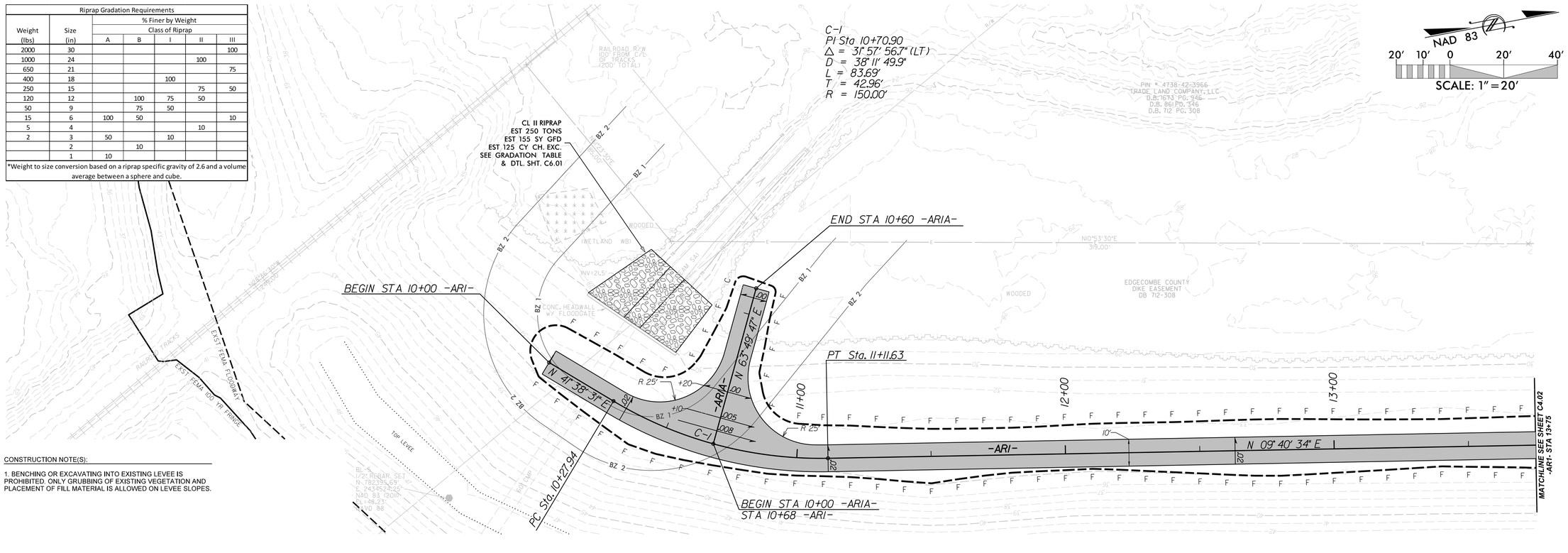
SHEET NO. **C3.09**

9/9/2021
Floodgate_Rdy_psh_C309.dgn
Harvey

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

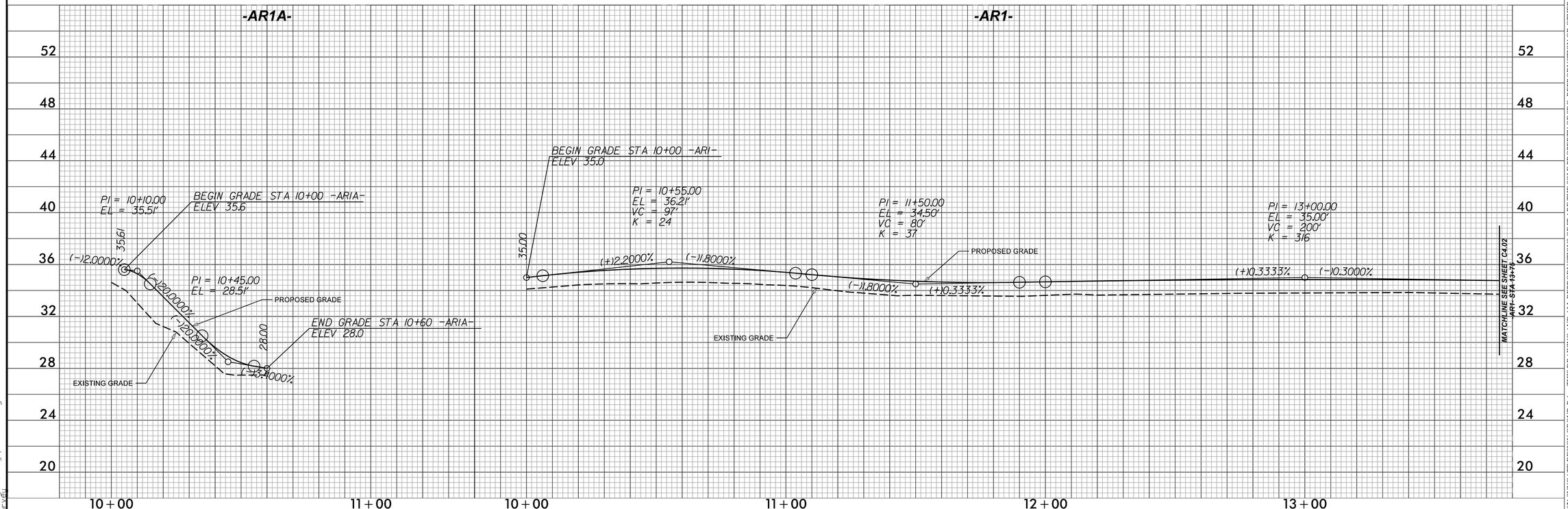
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
1284200516F8C3...

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C401
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

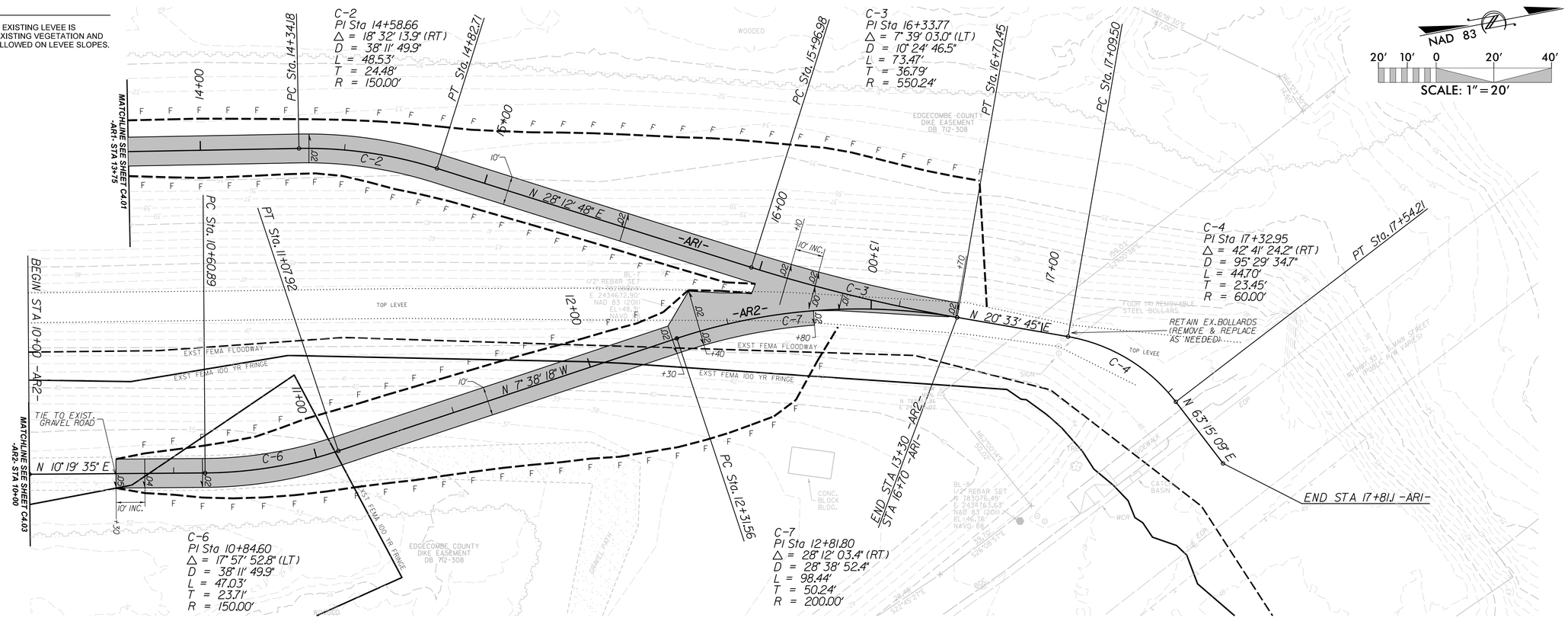
SHEET NO. C4.01

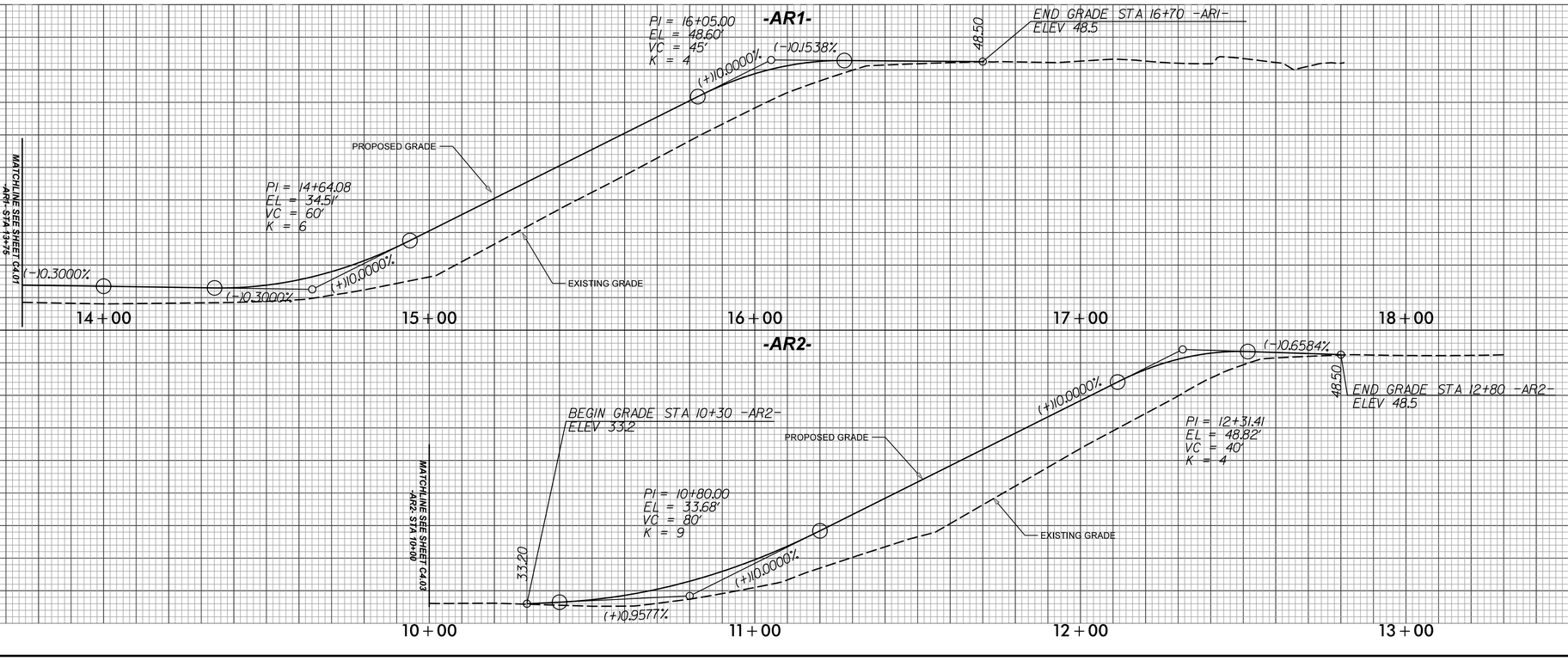
9/9/2021
Floodgate_Rdy_psh_C401.dgn
User:rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C402
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.02

9/9/2021
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CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

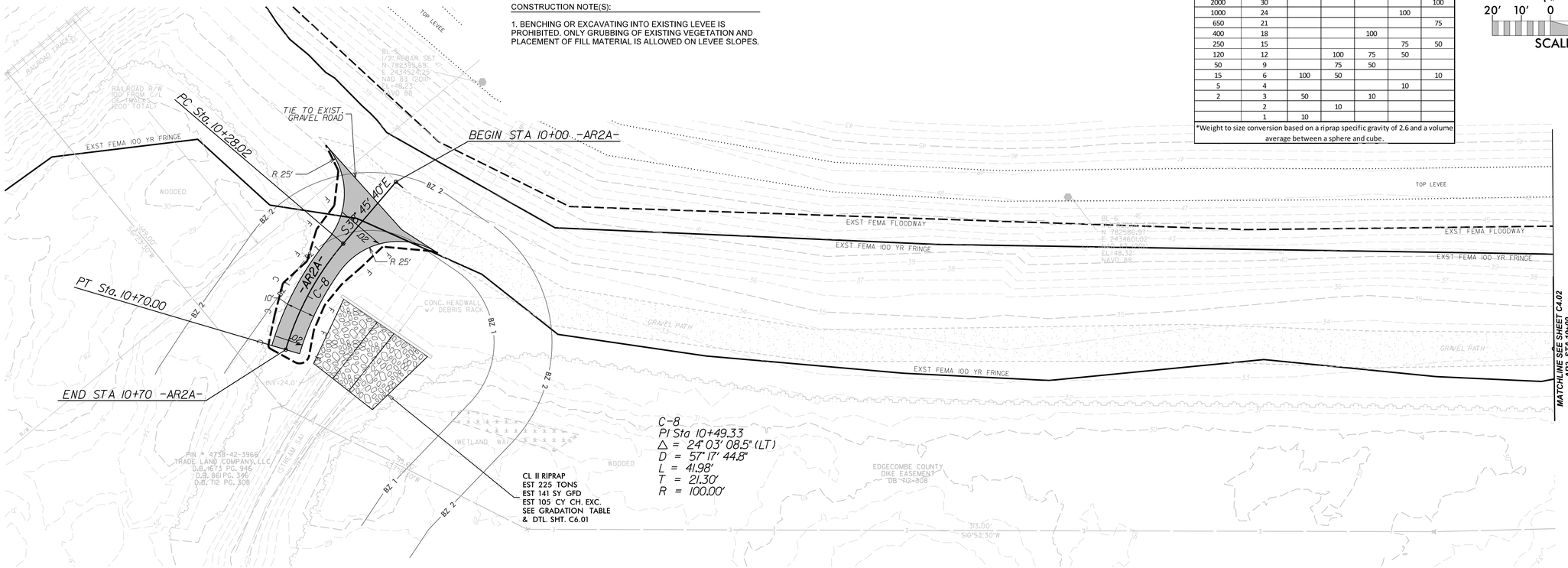
Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

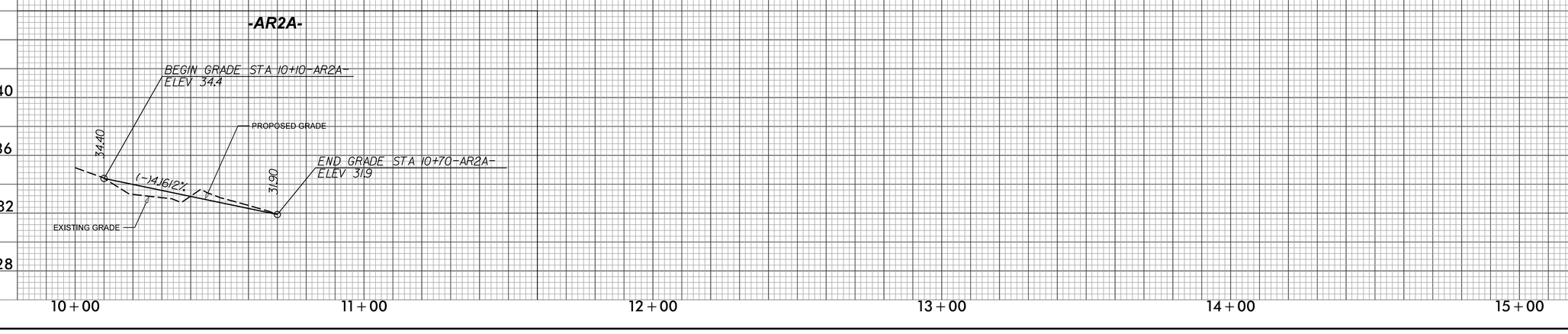
*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

NAD 83

20′ 10′ 0 20′ 40′

SCALE: 1″ = 20′





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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 1

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C403
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.03

9/9/2021
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User: rch

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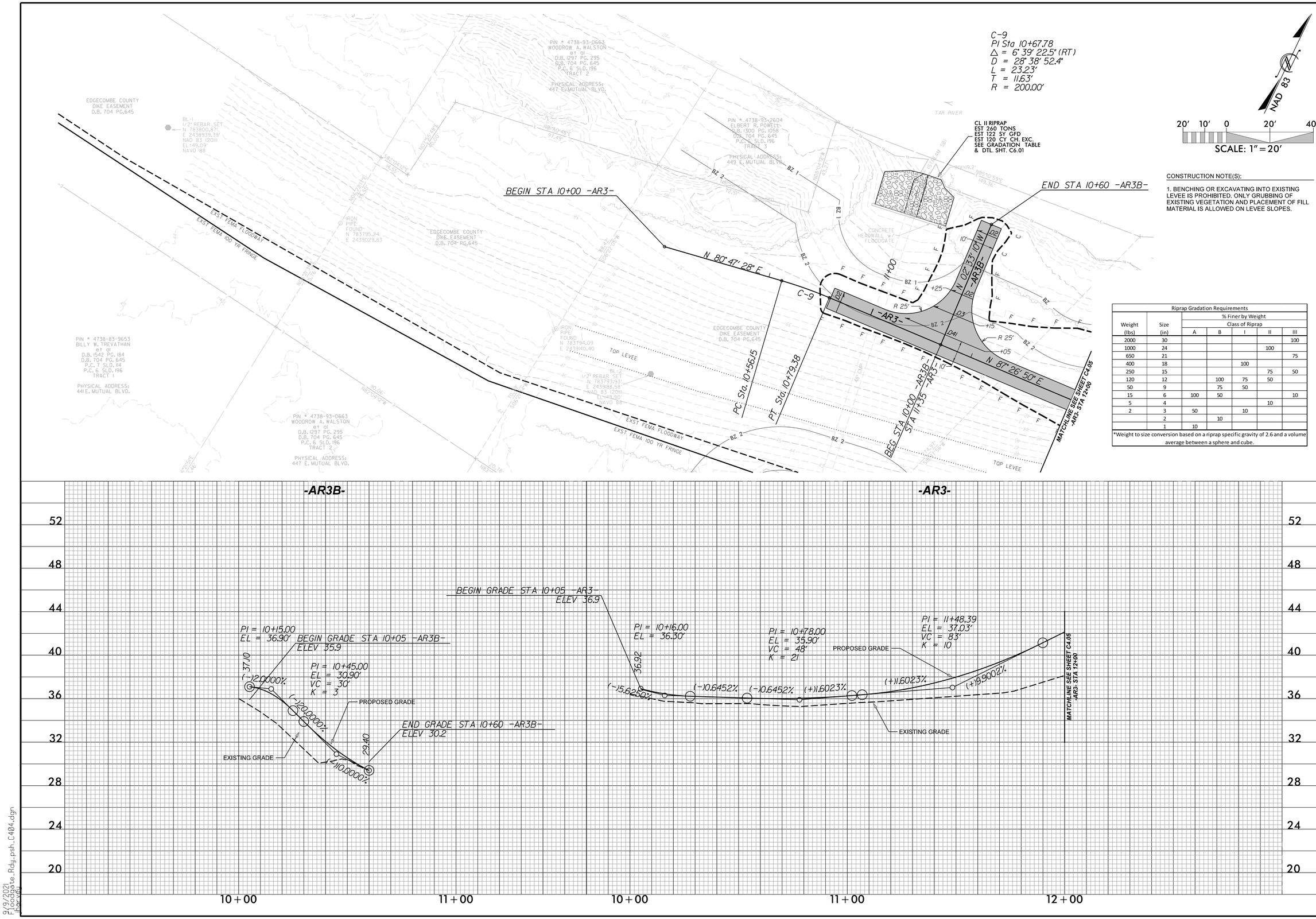

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
		% Finer by Weight				
		Class of Riprap				
Weight (lbs)	Size (in)	A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
PROFESSIONAL ENGINEER
SEAL
26971
JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C404
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.04

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jharvey

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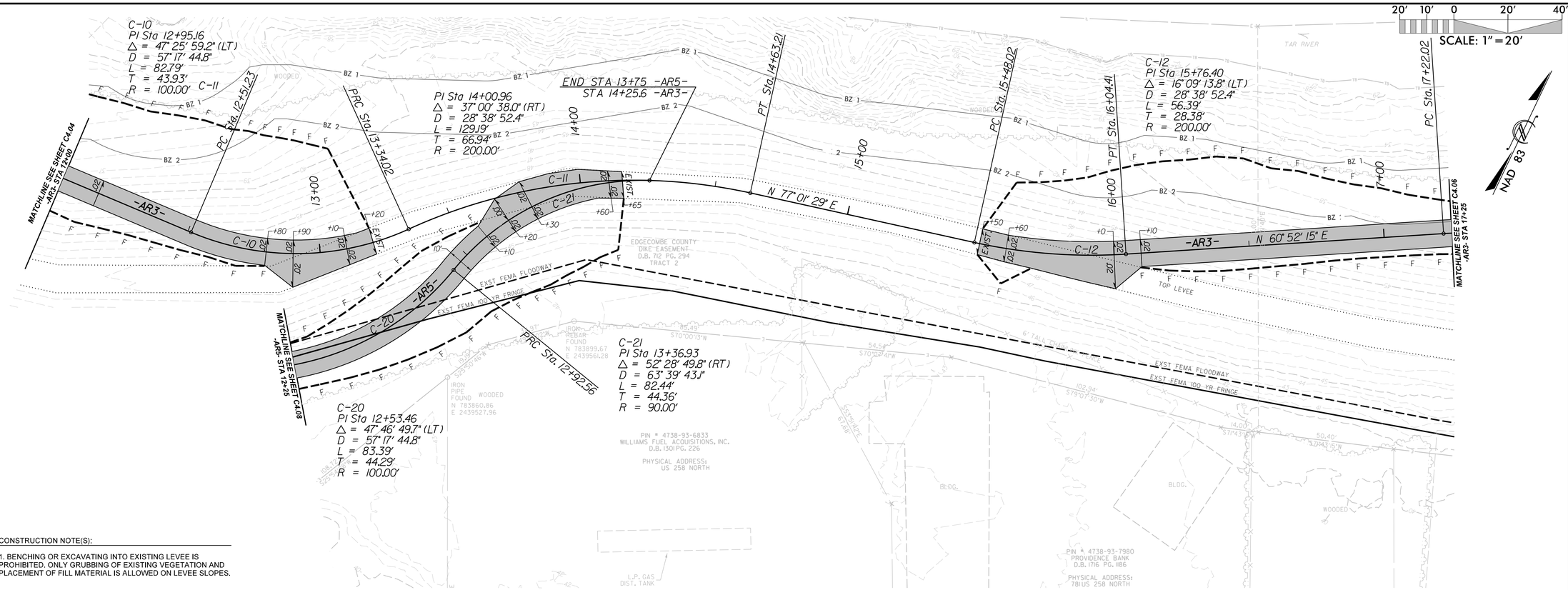
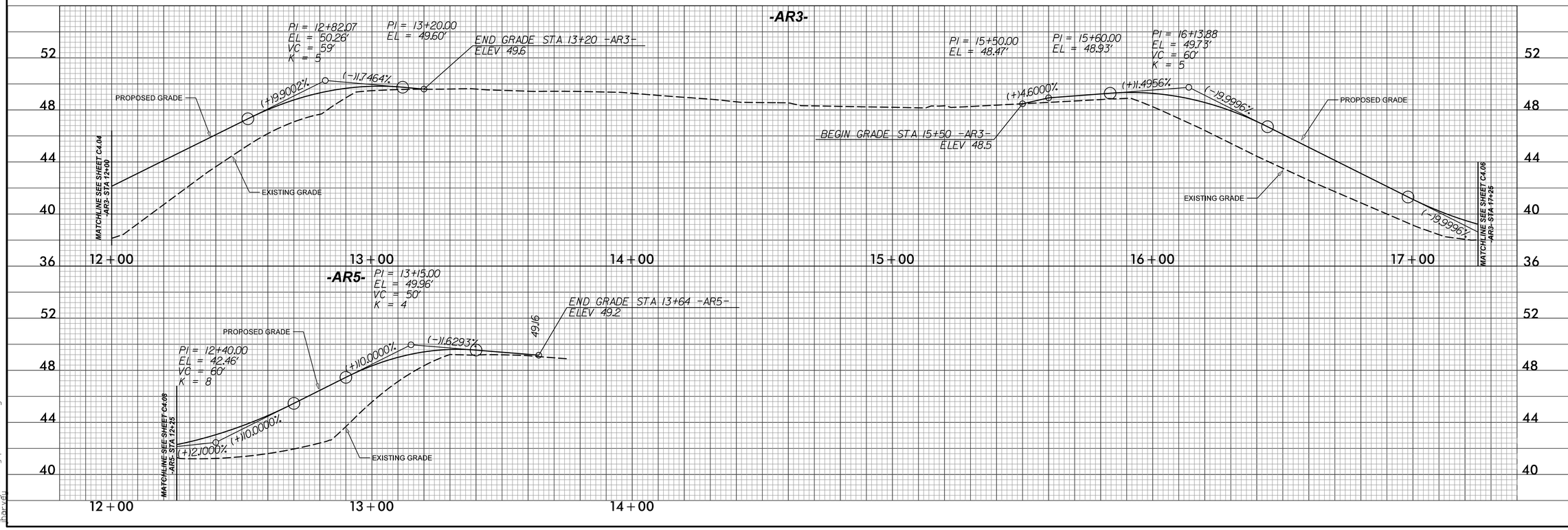


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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User:rch

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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

PROJECT # :	1284-20041
DRAWING NAME:	FLOODGATE RDY PSH C405
DATE:	6-16-2021
DRAWN BY:	
REVIEWED BY:	RCH
REVISIONS:	
SHEET NO.	C4.05

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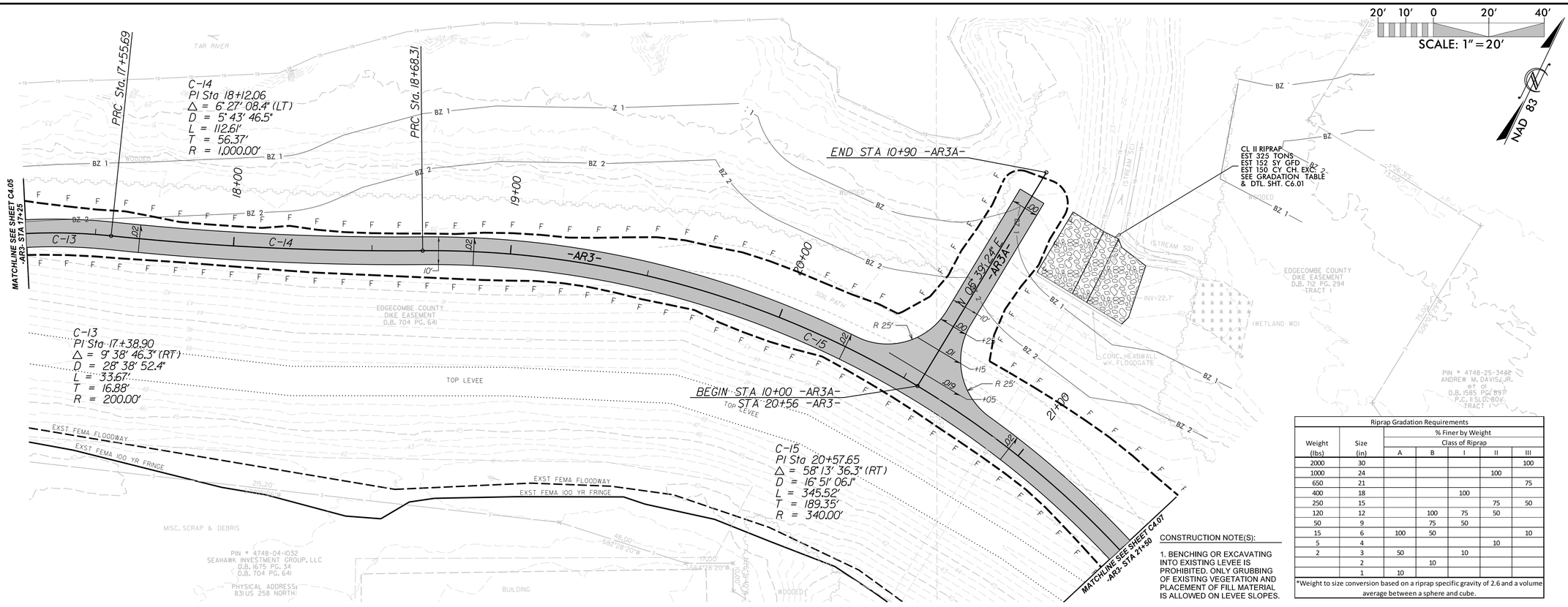
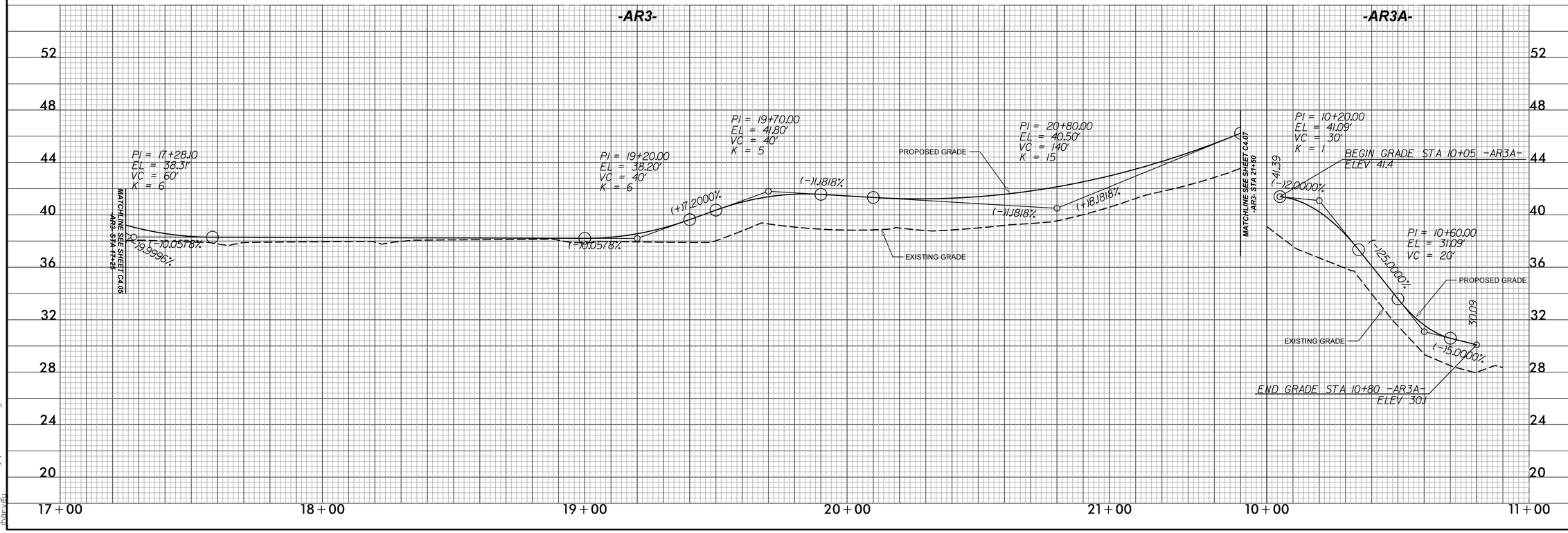


Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight, Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C406
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.06

9/9/2021
Floodgate_Rdy_psh_C406.dgn
Harvell

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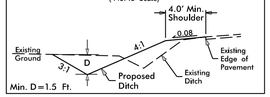
Riprap Gradation Requirements							
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap					
		A	B	I	II	III	
2000	30					100	
1000	24				100		
650	21					75	
400	18			100			
250	15				75	50	
120	12		100	75	50		
50	9		75	50			
15	6	100	50			10	
5	4				10		
2	3	50		10			
	2		10				
	1	10					

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

CONSTRUCTION NOTE(S):

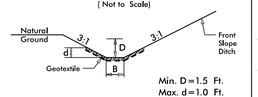
1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

DETAIL 7–1
SPECIAL CUT DITCH
(Not to Scale)

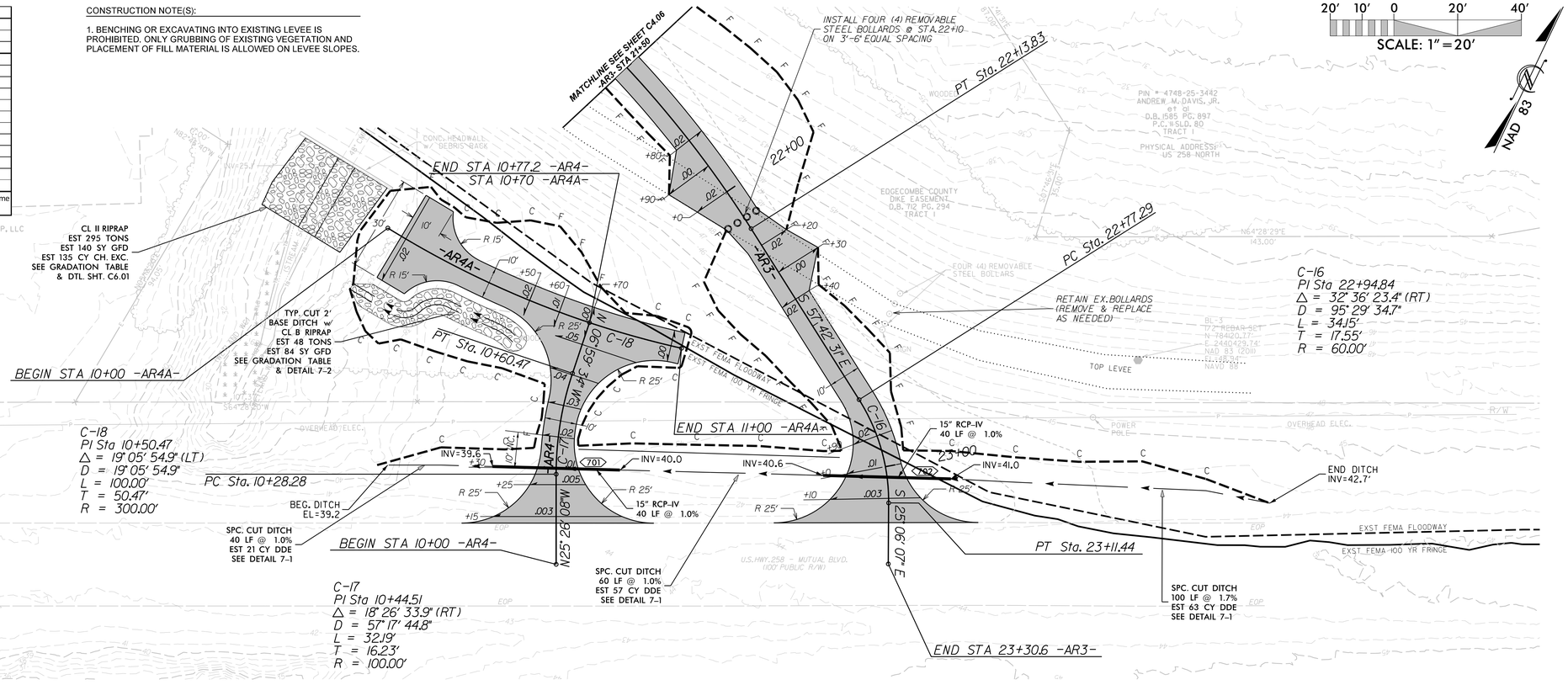


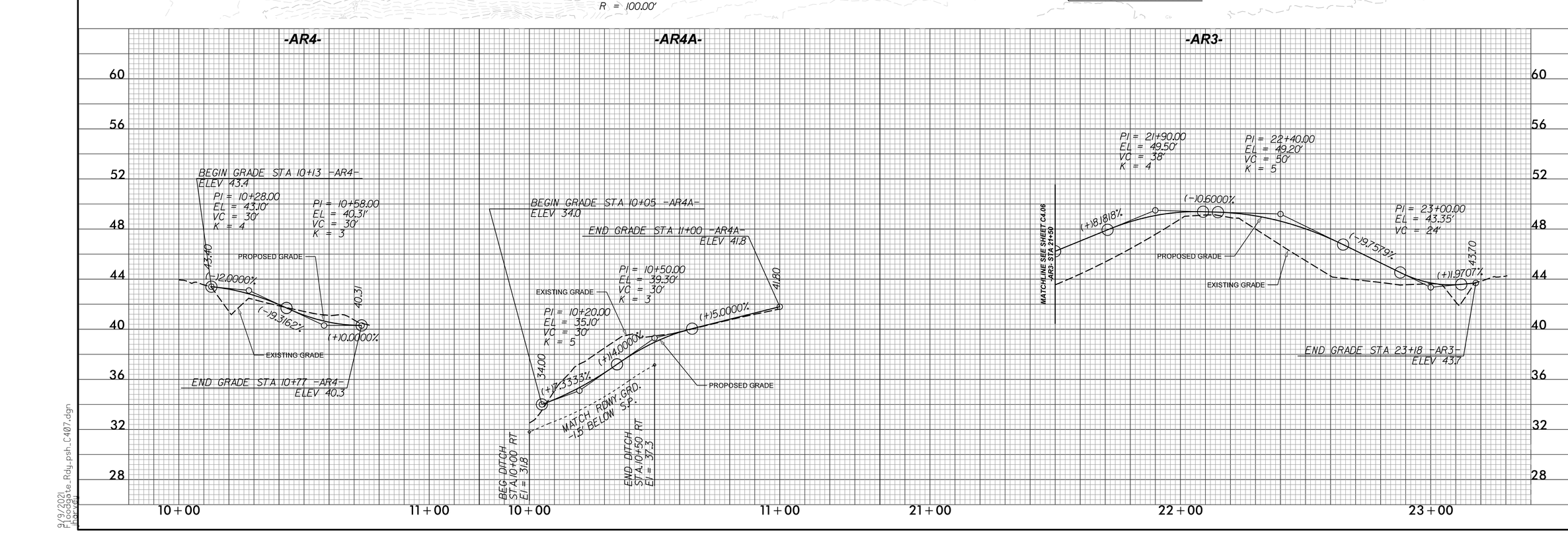
Min. D=1.5 Ft.

DETAIL 7–2
TYPICAL CUT 2' BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner=Class B Rip-Rap (See Gradation Table)
FROM STA. 10+00 TO STA. 10+50 –AR4A– RT





SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
Joshua G. Dalton, PE
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C407
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C4.07**

9/9/2021
Floodgate_Rdy_psh_C407.dgn
Harrell

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Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight Class of Riprap A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.

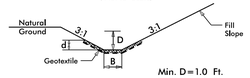
CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

SCALE: 1" = 20'

NAD 83

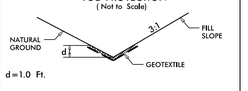
DETAIL 8–1
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

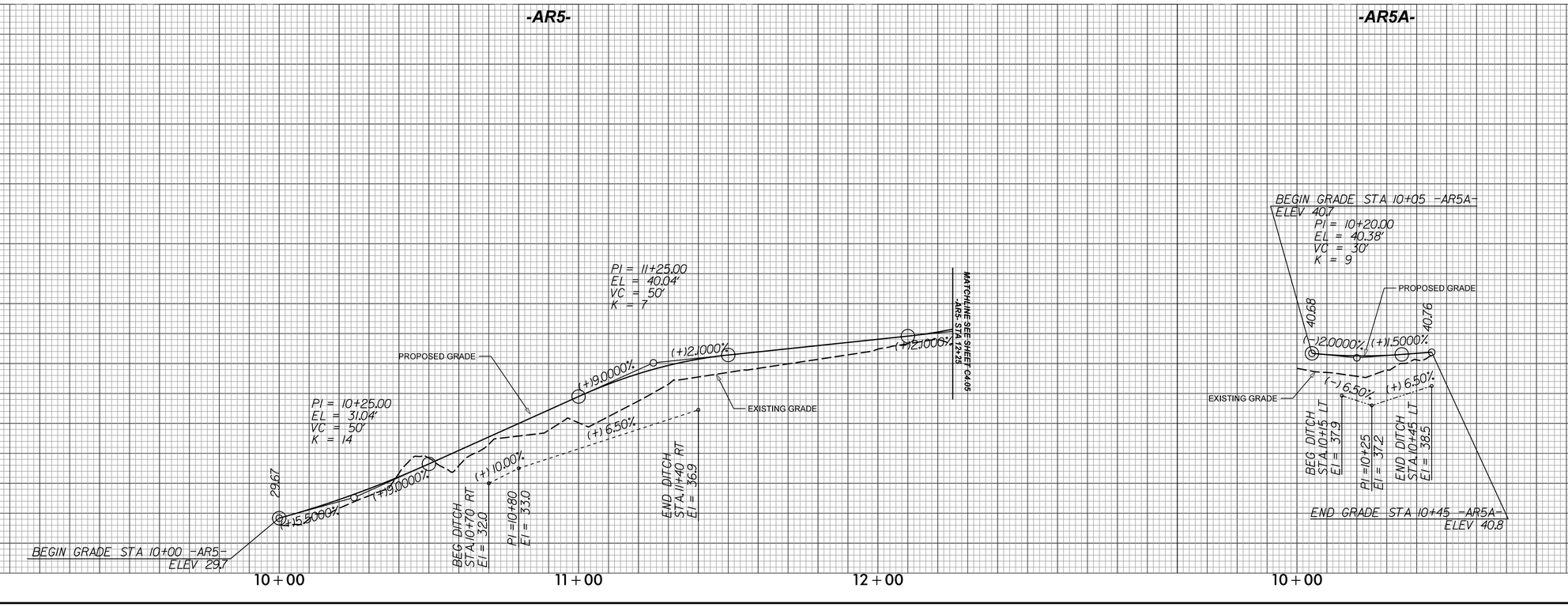
FROM STA. 10+70 TO STA. 11+40 –AR5– RT
FROM STA. 10+15 TO STA. 10+45 –AR5A– LT

DETAIL 8–2
TOE PROTECTION
(Not to Scale)



d = 1.0 Ft.
Type of Liner = Class B Rip–Rap (See Gradation Table)

FROM STA. 10+40 TO STA. 10+50 –AR5–
(20 LINEAR FT.)



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RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 2 & 3

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C408
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.08

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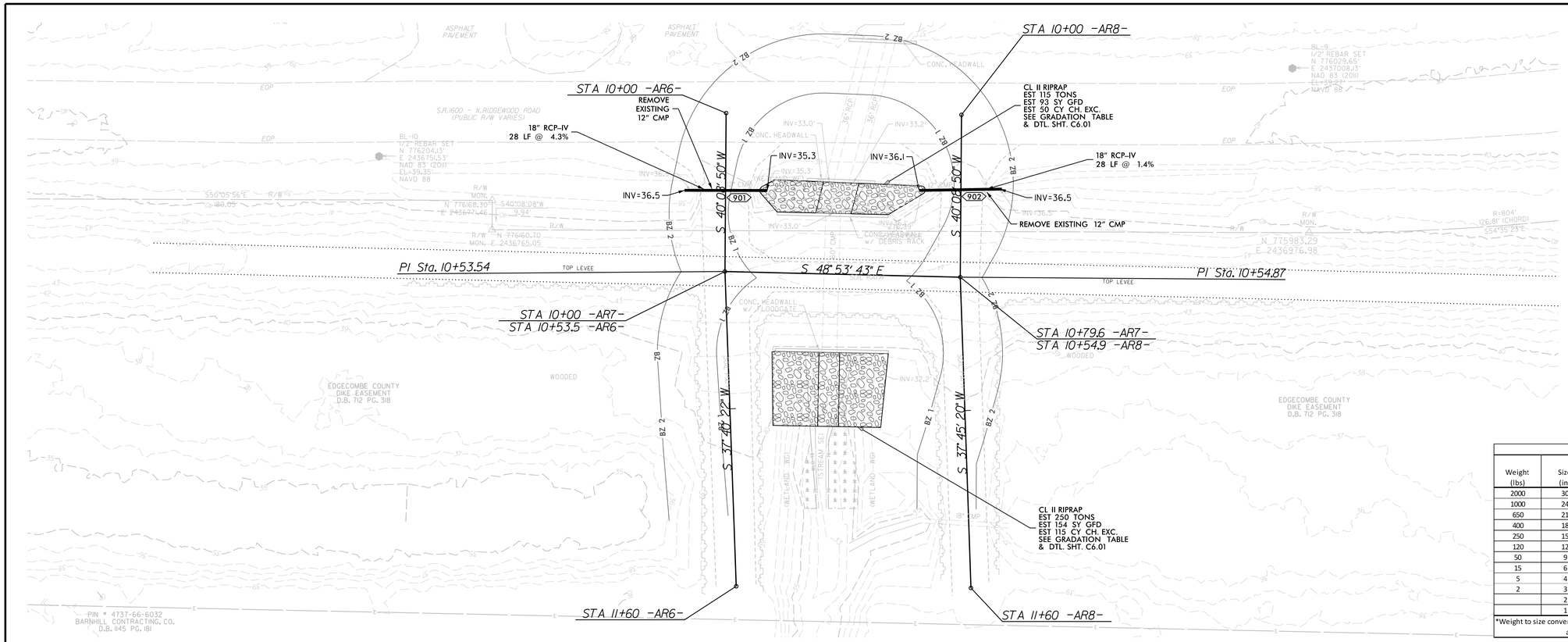
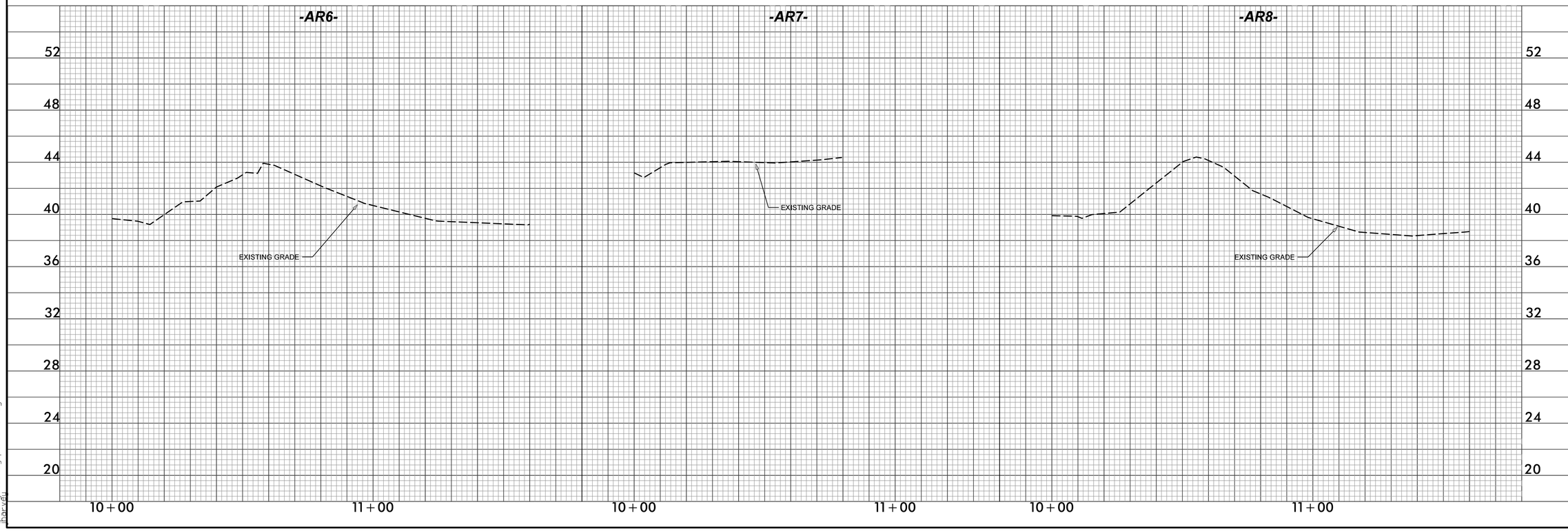


CONSTRUCTION NOTE(S):

1. BENCHING OR EXCAVATING INTO EXISTING LEVEE IS PROHIBITED. ONLY GRUBBING OF EXISTING VEGETATION AND PLACEMENT OF FILL MATERIAL IS ALLOWED ON LEVEE SLOPES.

Riprap Gradation Requirements						
Weight (lbs)	Size (in)	% Finer by Weight				
		Class of Riprap				
		A	B	I	II	III
2000	30					100
1000	24				100	
650	21					75
400	18			100		
250	15				75	50
120	12		100	75	50	
50	9		75	50		
15	6	100	50			10
5	4				10	
2	3	50		10		
	2		10			
	1	10				

*Weight to size conversion based on a riprap specific gravity of 2.6 and a volume average between a sphere and cube.



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905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
9/9/2021

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

GRADING & DRAINAGE - SITE 4

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C409
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C4.09

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Harrell

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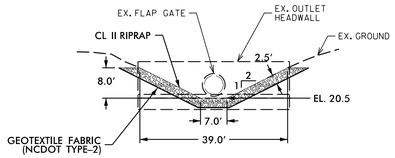
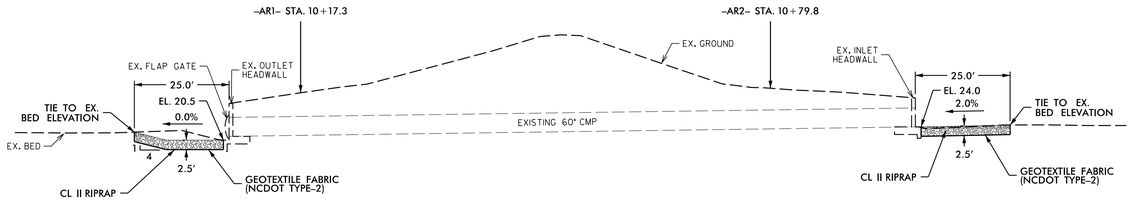
SITE 1

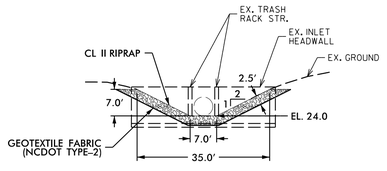
NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL



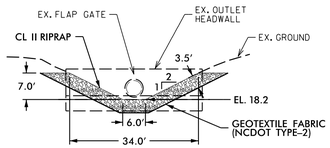
INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 2

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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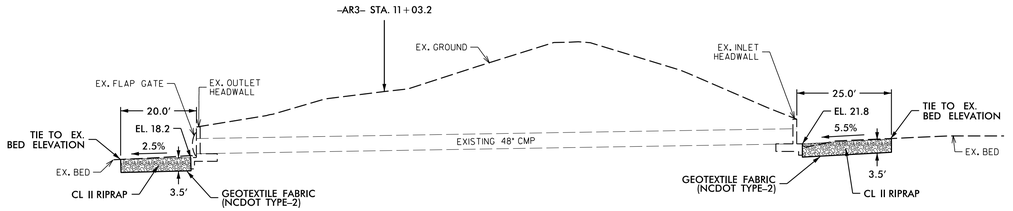
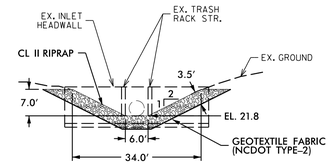


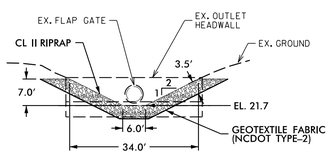
INLET & OUTLET CHANNEL PROFILE



TYPICAL SECTION – INLET CHANNEL

SITE 3

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



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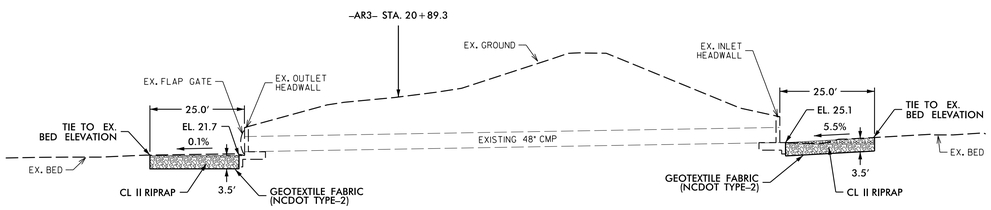
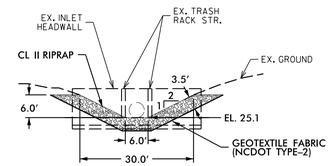
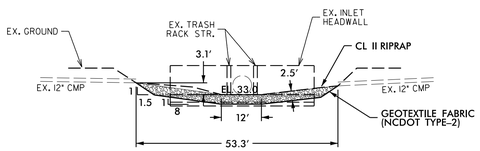


INLET & OUTLET CHANNEL PROFILE

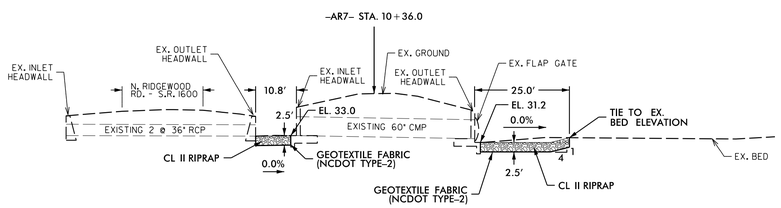


TYPICAL SECTION – INLET CHANNEL

SITE 4

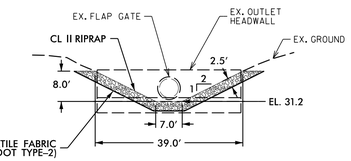


TYPICAL SECTION – INLET CHANNEL



INLET & OUTLET CHANNEL PROFILE

NOTE: RIP-RAP PLACEMENT SHALL NOT INTERFERE OR HINDER FLAP GATE OPERATION.



TYPICAL SECTION – OUTLET CHANNEL

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
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NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

CHANNEL PROFILES & TYPICAL SECTIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.01

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9/9/2021 Floodgate_Rdy_psh_C600.dgn Harvey

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CONSTRUCTION SEQUENCE

1. Obtain a Land Disturbing Permit.
2. Submit documentation required under the site NPDES stormwater permit for construction activity (NCG010000) to Stormwater Inspections throughout the project.
3. Schedule a pre-construction conference with NCDEQ Erosion Control Officer and Erosion Control Design Engineer. Contact DEMLR Raleigh Regional Office at least 48 hours prior to commencing the land-disturbing activity at (919) 791-4200.
4. Erosion and Sediment Control (E&SC) permit and Certificate of Coverage (COC) must be obtained before any land disturbing activities occur.
5. Per NPDES requirements, a rain gauge, self-inspections records, permit, Certificate of Coverage, and E&SC Plan are required to be maintained on-site and accessible during inspection. It is recommended that these items be placed in a permits box at the beginning or entrance of project.
6. Construction activities that have an E&SC Plan approved on or after April 1, 2019 are required to fill out and submit an electronic Notice of Intent (e-NOI) form. All construction activities are required to follow the new NCG01 permit regardless of when plans were approved.
7. The contractor shall conduct self-inspections of the erosion and sediment control measures and complete the following combined self-inspection form found on the DEMLR website:
   https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/NPDES%20General%20Permits/DEMLR-CSW-Monitoring-Form-Rev-August-8-2019.pdf. Twelve months of complete inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in a permits box.
8. Self-inspections for erosion and sedimentation control measures are to be performed at least once every seven calendar days and within 24 hours of every rain event of greater than 1 inch. Any needed repairs shall be made immediately to maintain measures as details on this plan. A rain gauge shall be installed at the project site for monitoring.
9. Install all temporary erosion and sediment control measures including silt fence, tree protection, and inlet protection. Limit clearing and land disturbing activity to the area necessary to install the permitted measures.
10. Begin clearing and grubbing.
11. Stabilize any bare areas resulting from construction activity within times frames established by NCG-01 ground cover stabilization guidelines.
12. Increase maintenance frequency where approved measures fail to prevent accelerated erosion, off-site sedimentation, or repetitive non-compliance issues.
13. At sites 1 through 4:
    a. Install special stilling basin(s).
    b. Install pumps and temporary flexible hoses.
    c. Install impervious dikes, and begin pumping operations for stream diversion.
    d. Dewater construction area, using special stilling basin(s) for pumped effluent.
    e. Key in Class II rip rap at inlet and outlet channels.
    f. Excavate any accumulated silt and dewater before removal of impervious dikes.
    g. Remove impervious dikes, pumps, and temporary flexible hoses, and any remaining special stilling basin(s).
    h. Complete construction of access roads.
14. Maintain all erosion and sediment control measures in good working order. Silt fence, inlet protection and other similar measures must be cleaned out before they are half full. Clogged stone filters must be refreshed or replaced. Silt fence cannot have holes or tears.
15. Stabilize site as areas are brought up to finished grade with vegetation, paving, mulch, matting, etc. Seed and mulch denuded areas per Ground Stabilization.
16. Perimeter silt fence will be maintained throughout the project until permanent ground cover is established.
17. Once the site is completely stabilized, remove temporary erosion control measures and seed out any resulting bare areas.
18. When vegetation has become established, call for a final site inspection by the Erosion Control Design Engineer.
19. When the project is complete, the permittee shall contact DEMLR to close out the E&SC Plan. After DEMLR informs the permittee of the project close out, via inspection report, the permittee shall visit deq.nc.gov/NCG01 to submit an electronic Notice of Termination (e-NOT). A $100 annual general permit fee will be charged until the e-NOT has been filled out.

General Maintenance Requirements:

-1. All erosion and sediment control practices will be checked for stability and operation following every runoff producing rainfall, but in no case less than once every week. Any needed repairs will be made immediately to maintain all practices as designed.

-2. All seeded areas will be fertilized, reseeded as necessary, and mulched according to specifications in the vegetative plan to maintain a vigorous, dense vegetative cover.

VEGETATIVE PLAN

Seedbed Preparation

1. Chisel compacted areas and spread topsoil 2 to 3 inches deep over adverse soil conditions, if available.
2. Rip the entire area to a depth of not less than 5 inches, unless directed otherwise.
3. Remove all loose rock, roots and other obstructions 3 inches or larger on median, leaving surface reasonably smooth and uniform.
4. Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mixture below).
5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 2 to 3 inches deep.
6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7. Mulch within 24 hours after seeding and anchor mulch.
8. Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be more than 60% damaged, re-establish following the original lime, fertilizer and seeding rates.

Mixture

Agricultural Limestone	2 tons/acre in sandy soils (3 tons/acre in clay soils or per soil tests)
Fertilizer	1,000 lbs/acre – 10-10-10
Superphosphate	500 lbs/acre – 20% analysis
Mulch	2 tons/acre – small grain straw
Anchor	Asphalt emulsion at 400 gals/acre

Seeding Schedule

For Shoulders, Side Ditches, Slopes (Max 3:1):

Date	Type	Planting Rate
Aug 15– Nov 1	Tall Fescue	300 lbs/acre
Nov 1– Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1– Apr 15	Tall Fescue	300 lbs/acre
Apr 15– Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1– Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	125 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)

For Shoulders, Side Ditches, Slopes (3:1 to 2:1):

Date	Type	Planting Rate
Mar 1– Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza);
Mar 1– Apr 15	Add Tall Fescue	120 lbs/acre
Mar 1– Jun 30	Or add Hulled Common Bermudagrass	25 lbs/acre
Jun 1– Sept 1	Tall Fescue AND Browntop Mullet or Sorghum-Sudan Hybrids***	120 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Mullet); 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1– Mar 1	Sericea Lespedeza (unhulled – unscarified) AND Tall Fescue	70 lbs/acre (Sericea Lespedeza); 120 lbs/acre (Tall Fescue)
Nov 1– Mar 1	AND Abruzzi Rye	25 lbs/acre

The Contractor shall select a nurse crop from the table below that is best suited to the specific site conditions and characteristics. The nurse crop shall be added to and applied along with the permanent vegetative mixture.

Consult Erosion Control Design Engineer for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those that do well under local conditions; other seeding rate combinations are possible.

*** TEMPORARY: Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12" in height before mowing; otherwise, fescue may be shaded out.

Riparian Seeding and Mulching

Riparian Seeding and Mulching shall be performed on the disturbed areas of riparian areas within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

August 1 - June 1		May 1 – September 1	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Mulch within 24 hours of seeding and anchor mulch.

Mulch 2 tons/acre – small grain straw
Anchor Asphalt emulsion at 400 gals/acre

HERBACEOUS PLANTS-Seeding recommendations for immediate stabilization/nurse crops
(2 to 5 weeks for development; effectiveness goal: 6 months to 1 year stabilization) **Table 6.11.a**

NURSE CROP SPECIES

Common Name	Botanical Name	Native / Introduced	Seeding Rates lbs/acre	Fertilization/ limestone lbs/acre	Optimal Planting Dates: Mountains	Piedmont	Coastal Plains	Sun/Shade tolerant	Wetlands	Riparian Buffers	Invasive Yes or No	Installation / Maintenance Considerations	Other information, commentary
Rye Grain	*Secale cereale*	I	40 lbs	By soil test	11/1 - 4/30	8/15 - 4/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	
Wheat	*Triticum aestivum*	I	30 lbs	By soil test	11/1 - 4/30	8/15 - 5/15	8/15 - 4/15	Sun	Yes	Yes	No	Must be mown to reduce competitiveness with permanent or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
German Millet	*Setaria italica*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Browntop Millet	*Urochloa ramosa*	I	10 lbs	By soil test	5/11 - 9/30	5/15 - 8/15	4/15 - 8/15	Sun	Yes	Yes	No	Crop should be cut / disc prior to planting primary or long term vegetation	Not water tolerant. May be used in wetlands that are not continuously saturated.
Sudangrass (hybrids)	*Sorghum saccharatum* *S. bicolor ssp.Drummondi*	I	15 lbs	By soil test	NR	NR	4/15 - 8/15	Sun	No	No	Yes	Crop should be cut / disc prior to planting primary or long term vegetation	Use only where plants and seed can be contained and controlled.
Kobe Lespedeza	*Kummerowia striata v. kobe*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Coastal Plain
Korean Lespedeza	*Kummerowia stipulacea*	I	10 lbs	By soil test	5/1 - 9/1	5/1 - 9/1	5/1 - 9/1	Sun	No	No	No	Consult qualified horticulturalist or extension agent for over-seeding with primary cover	Use in Piedmont and Mountains. May become invasive

NOTES:
1. Seeding rates are for hulled seed unless otherwise noted.
2. Fertilizer & Limestone - rates to be applied in absense of soils tests. Recommended application rate assumes significantly disturbed site soils with little or no residual value.
3. NR means Species not recommended for this region or application area.
4. Invasive designation as determined by the N.C. Exotic Pest Plant Council and N.C. Native Plant Society .
5. Sprigging is not recommended for immediate stabilization unless terrain is flat heavy mulch is applied and no other immediate stabilization method is practical.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C6.02**

9/9/2021
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Harvey

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Date:

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GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
· Temporary grass seed covered with straw or other mulches and tackifiers. · Hydroseeding · Rolled erosion control products with or without temporary grass seed · Appropriately applied straw or other mulch · Plastic sheeting	· Permanent grass seed covered with straw or other mulches and tackifiers · Geotextile fabrics such as permanent soil reinforcement matting · Hydroseeding · Shrubs or other permanent plantings covered with mulch · Uniform and evenly distributed ground cover sufficient to restrain erosion · Structural methods such as concrete, asphalt or retaining walls · Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

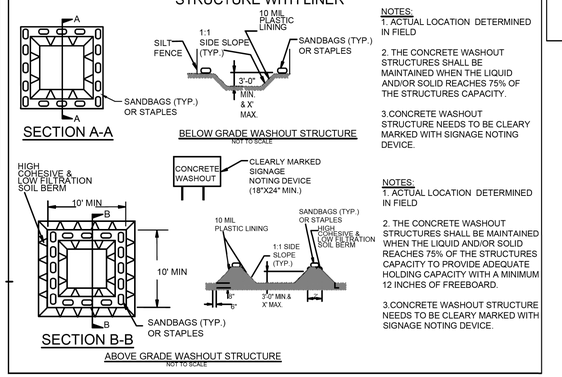
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE: 11/12/2020

NCG-01 GROUND COVER & MATERIALS HANDLING

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:
SHEET NO. C6.03

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Page:

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "Zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the measures inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Indication of whether the measures were operating properly 5. Description of maintenance needs for the measure 6. Description, Evidence, and date of corrective actions taken
(3) Stormwater discharge outfalls(SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the discharge outfalls inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration 5. Indication of visible sediment leaving the site 6. Description, Evidence, and date corrective actions taken
(4) Perimeter of Site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If visible Sedimentation is found outside site limits, then record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 3) An explanation as to the actions taken to control future releases
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If the stream or wetland has increased visible sedimentation or has visible increased turbidity from the construction activity, then a record of the following shall be made: 1) Description, Evidence and date of corrective actions taken 2)Records of required reports to the appropriate Division Regional Office per Part III, Section C, Item(2)(a) of this permit
(6) Ground Stabilization Measures	After each phase of grading.	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Document Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframe (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• Within 24 hours, an oral or electronic notification. • Within 7 Calendar Days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related caused, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• Within 24 Hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible.* The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE:11/12/2020

NCG-01 SELF INSPECTION

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.04

9/9/2021
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Harvey

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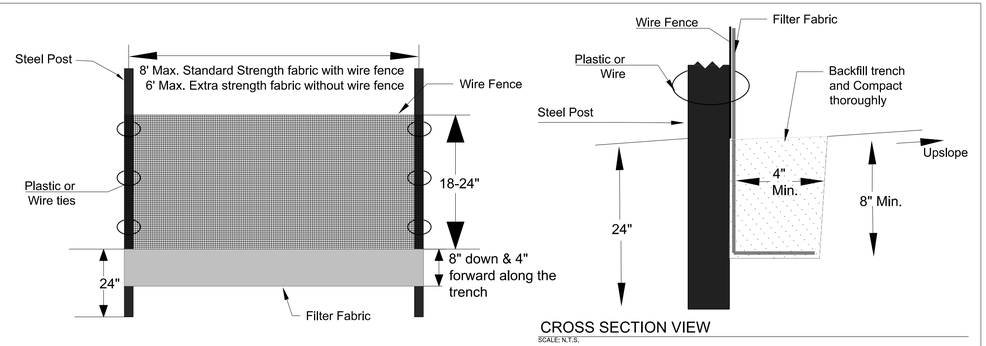
Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements					
	Test Material	Units	Supported[1] Silt Fence	Un-Supported[1] Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
Machine Direction			400	550	MARV
			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.60	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated poylmer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.



CROSS SECTION VIEW
SCALE: N.T.S.

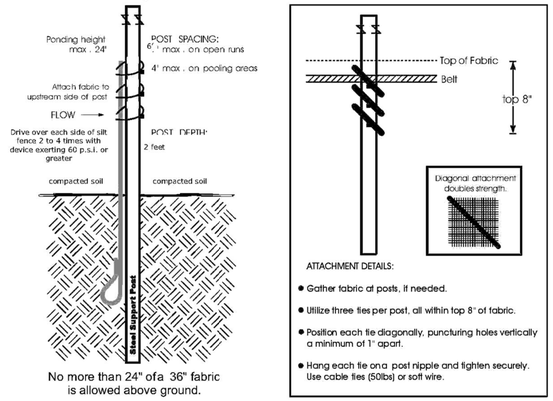
Construction:
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches.
6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
7. Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
8. Place 12 inches of fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

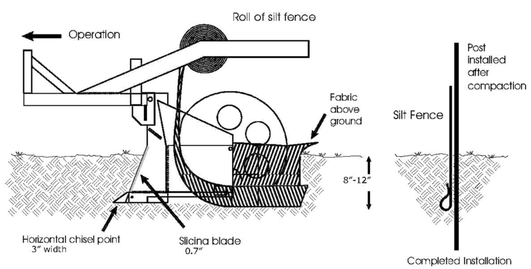
Maintenance:
1. Inspect sediment fences at least once a week and after each 1 inch or greater rainfall. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

DETAIL - SILT FENCE

SCALE: N.T.S

The Slicing Method





Vibratory plow is not acceptable because of horizontal compaction

Figure 6.62b Schematics for using the slicing method to install a sediment fence. Adapted from *Silt Fence that Works*

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.05

9/9/2021
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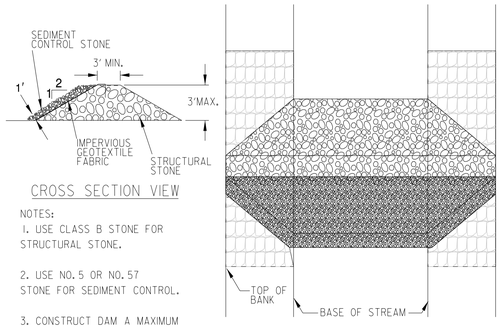


CROSS SECTION VIEW

TOP VIEW

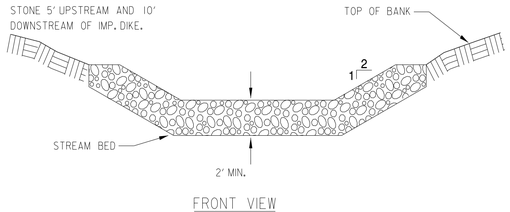
NOTES:
1. USE CLASS B STONE FOR STRUCTURAL STONE.

2. USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.

3. CONSTRUCT DAM A MAXIMUM OF 1 FT. ABOVE NORMAL FLOW DEPTH.

4. TOE IN IMPERVIOUS MATERIAL

5. LINE BANKS WITH CLASS B STONE 5' UPSTREAM AND 10' DOWNSTREAM OF IMP. DIKE.



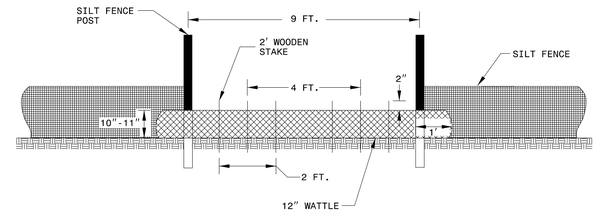
FRONT VIEW

DETAIL - IMPERVIOUS DIKE - STONE LINED WITH POLYPROPYLENE

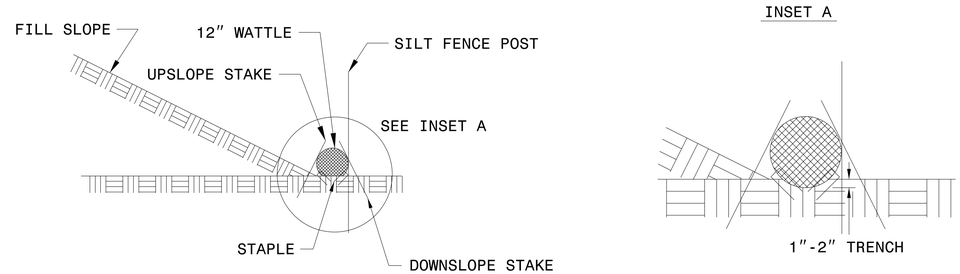
SCALE: N.T.S

CONSTRUCTION SEQUENCE:
- PREPARE THE CHANNEL AND OVERBANKS FOR INSTALLATION.
- REMOVE ALL BRANCHES AND DEBRIS FROM THE AREA WHERE THE STONE DIKE WILL BE PLACED.
- MAKE SURE THAT THERE ARE NO SHARP ROCKS OR ROOTS THAT CAN PUNCTURE THE GEOTEXTILE.
- DO NOT EXCAVATE THE EXISTING CHANNEL OR BANKS.
- PLACE THE HIGH TENSILE IMPERVIOUS GEOTEXTILE WITH THE CENTER OVER THE PROPOSED DIKE UTILIZE A SMALL AMOUNT OF STONE TO HOLD DOWN THE GEOTEXTILE WHILE ADJUSTMENTS ARE BEING MADE.
- THERE SHOULD BE ENOUGH EXTRA GEOTEXTILE ON EACH SIDE OF THE DIKE TO WRAP UP AND OVER THE STONE DIKE TO MAKE IT IMPERVIOUS.
- PILE STONE ON TOP OF THE GEOTEXTILE TO CREATE THE DIKE STRUCTURE.
- ROLL GEOTEXTILE UP OVER THE STONE TO FORM AN IMPERVIOUS DIKE.
- ROLL THE TOP LAYER FROM THE UPSTREAM TO DOWNSTREAM DIRECTION. SECURE GEOTEXTILE WITH METAL FENCE STAKES OR OTHER SUITABLE MATERIAL.

MAINTENANCE:
- PERIODICALLY INSPECT DIKE FOR DAMAGE AND LEAKS AND REPAIR AS NEEDED.
- REMOVE IMPOUNDED TRASH AND SEDIMENT.



VIEW FROM SLOPE



SIDE VIEW

DETAIL - SILT FENCE COIR FIBER WATTLE BREAK

SCALE: N.T.S

MAINTENANCE:
- IF THE NATURAL FIBERS OF THE WATTLE BECOME TOO SATURATED WITH DEBRIS AND SEDIMENT AND REMOVAL OF THE ITEMS IS NOT POSSIBLE, WATTLE BREAKS SHOULD BE REPLACED.
- STAKES SHOULD BE USED TO ANCHOR THE WATTLE BREAKS ADEQUATELY TO THE GROUND TO PREVENT SCOURING AND WASHOUT DURING STORM EVENTS.

CONSTRUCTION SPECIFICATIONS:

INNER MATERIAL	- COCONUT FIBERS
DIMENSIONS	- MINIMUM DIAMETER OF 12 INCHES AND A MAXIMUM OF 20 INCHES - LENGTH OF 10 FEET - DENSITY OF 3.5 LB/FT^3

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.06

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Joshua

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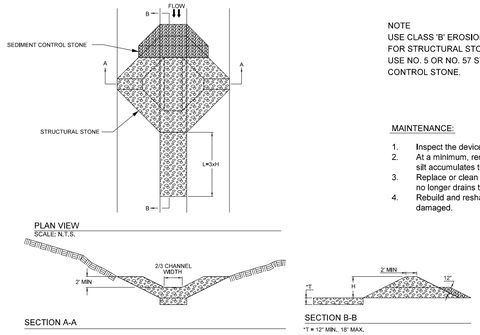
Ditch Spacing For Temporary Rock Silt Check Type 'A'	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



NOTE
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

MAINTENANCE:

1. Inspect the device after each significant rainfall.
2. At a minimum, remove silt from the device when silt accumulates to one-half the height of the weir.
3. Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
4. Rebuild and reshape rock weir and check when the device is damaged.

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'A'

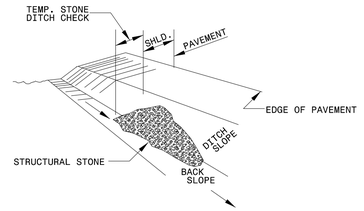
SCALE: N.T.S

Construction Specifications:

Structural Stone	- Use Class B structural stone. - Install stone at a minimum depth of 12 inches. - Install sediment control stone on the upgradient face of the structural stone.
Side Slopes	- 2:1 or flatter.
Weir	- Weir length should be $\frac{2}{3}$ of the channel width. - The weir height shall be a minimum of 1 foot. - The depth of the weir shall be a minimum of 1 foot.

Maintenance:

- Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
- Remove sediment when accumulation reaches one-half the height of the weir.
- Replace or clean sediment control stone when water no longer drains through the device between rainfall events.
- Rebuild and reshape rock weir and check when the device is damaged.



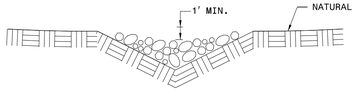
ISOMETRIC VIEW

NOTES:

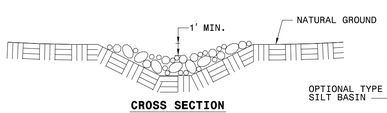
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

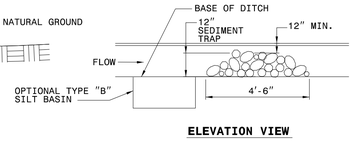
Ditch Spacing For Temporary Rock Silt Check Type 'B'	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH



ELEVATION VIEW

DETAIL - TEMPORARY ROCK SILT CHECK TYPE 'B'

SCALE: N.T.S

Construction Specifications:

Installation	- The center of the rock silt check shall be at least 1-foot lower than the outer edges (top of the channel sides). - The maximum height at the center of the rock check should not exceed 2 feet. - The side slopes of the check shall be 2:1 or flatter.
Slope	- Maximum spacing between the checks should place the toe of the upstream check at the top of the downstream check.

Maintenance:

- Inspect the device periodically and after each significant rainfall event for damage and sediment accumulation.
- Remove silt from device when it accumulates.
- Rebuild and reshape device and weir when the device is damaged or as necessary.
- Cleanout when clogged by straw, limbs, or other debris.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

Docusigned by: Joshua C. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.07

9/9/2021
Floodgate_Rdy_psh_C600.dgn
Layout

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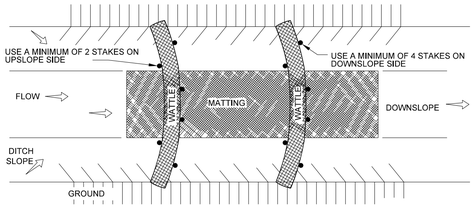
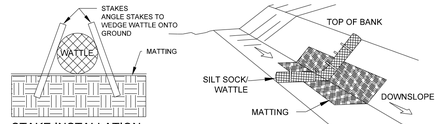


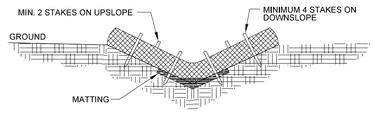
PLAN VIEW
SCALE: N.T.S.



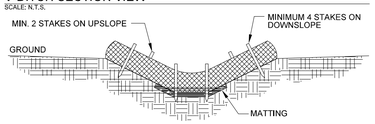
STAKE INSTALLATION
CROSS-SECTION

ISOMETRIC VIEW

Ditch Spacing For 12 Inch Silt Sock/Wattle	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



V-DITCH SECTION VIEW
SCALE: N.T.S.



TRAPEZOIDAL DITCH SECTION VIEW
SCALE: N.T.S.

NOTES:
1. Other materials providing equivalent protection against erosive velocities may be substituted for use in silt socks or wattles.
2. Use a minimum 12 inch diameter silt sock/wattle.
3. Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform.
4. Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.
5. Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and scour slopes, or as directed.
6. Install a minimum of two upslope stakes and four downslope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch.
7. The use of Polyacrylamide (PAM) is recommended. Apply 2-3 ounces of anionic PAM on top of sock/wattle. Apply 1-2 ounces to matting on either side of sock/wattle. Reapply after each 1,0 inch rainfall.

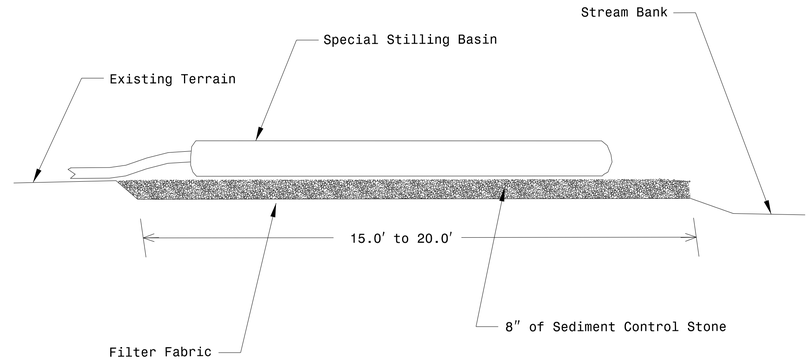
MAINTENANCE:
1. Inspect silt sock/wattle(s) weekly and after each rain of 1 inch or greater. Remove accumulated sediment and any debris.
2. Silt sock/Wattle(s) must be replaced if clogged or torn,
3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
4. Reinstall if damaged or dislodged.
5. Silt socks/Wattles shall be inspected untill land disturbance is compete and the area above the measure is permanently stabilized.

DETAIL - SILT SOCK / WATTLE FOR CHECK DAM
SCALE: N.T.S

Construction Specifications:

Matting	- Install matting in accordance with Section 1631 of the Standard Specifications.
Staples	- Provide staples made of 0.125-inch diameter steel wire formed into a U-shape no less than 12 inches in length. - Install staples approximately every 1 foot on both sides of the wattle and at each end to secure it to the soil.
Stakes	- Use 2-foot wooden stakes with a 2-inch by 2-inch nominal cross section. - Install a minimum of 2 upslope stakes and 4 downslope stakes at an angle to wedge the wattle to the bottom of the ditch. - Drive stakes into the ground a minimum of 10 inches with no more than 2 inches projecting from the top of the wattle.
Flocculant	- Flocculant shall be in powder form and anionic and neutrally charged. - Soil samples should be obtained from areas where wattles will be placed and from off-site material used to construct the roadway. Samples should be analyzed to determine the appropriate flocculant to be used in each wattle. - Flocculant used should be listed on the NCDENR DWR website as an approved product for use in North Carolina. - Flocculant should be applied over the lower center portion of the wattle where the water will flow at a rate of 2 ounces per wattle. - Apply 1 ounce of flocculant on each side of the wattle. - Flocculant should be evaluated and applied after every rainfall event that is equal to or exceeds 0.5 inches.
Overlap	- Overlap adjoining sections of wattles a minimum of 1 foot.

Maintenance:
- The upstream side of the wattle should be maintained to allow the water to flow through, reduce velocity, distribute flocculant and allow sedimentation to occur.
- If the natural fibers of the wattle become too saturated with debris, sediment, etc., and removal of these items is not possible, the wattle should be replaced.
- Stakes should be used to anchor the wattle adequately to the ground to prevent scouring and washout during storm events.
- Maintain excelsior pad beneath the wattle.



MAINTENANCE:
1. The special stilling basin shall be disposed of and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
2. The inlet of the bag should be inspected periodically for damage and/or blockage
3. Sediment control stone shall be replaced if damaged by high flows or bag failure.

Note: Provide Stabilized Outlet to Streambank
Not To Scale

DETAIL - SPECIAL STILLING BASIN
SCALE: N.T.S

Construction Specifications:

Special Stilling Basin	- The bag shall be placed on a rock pad constructed of at least 8 inches of sediment control stone. The bag may also be placed on wooden pallets to elevate it above natural ground. - The rock pad should extend at least 1 foot past the bag on all sides. - The special stilling basin should be placed on level ground. - The special stilling basin shall be placed so that incoming water flows into the bag without causing erosion. - Temporary slope drain pipe(s) or pump discharge hoses will be attached to the special stilling basin(s) so that water is routed directly into the special stilling basin(s). - The special stilling basin may be cut to allow slope drain pipe to be inserted if needed and tied of tightly. The remaining sleeve or spout of the bag, if present, may be used to connect more than one special stilling basin in series, as directed. If not used in this manner, the sleeve shall be tied off tightly to allow the bag to contain the effluent and force it to filter through the sides of the special stilling basin. - When being utilized in drilled pier construction, the special stilling basin should be constructed such that it is portable and can be used adjacent to each drilled pier.

Maintenance:
- The special stilling basin shall be disposed and replaced when it is ¾ full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate.
- The inlet of the bag should be inspected periodically for damage and/or blockage.
- Sediment contorl stone shall be replaced if damaged by high flows or bag failure.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G Dalton
ENGINEERING SERVICES
PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C6.08

9/9/2021
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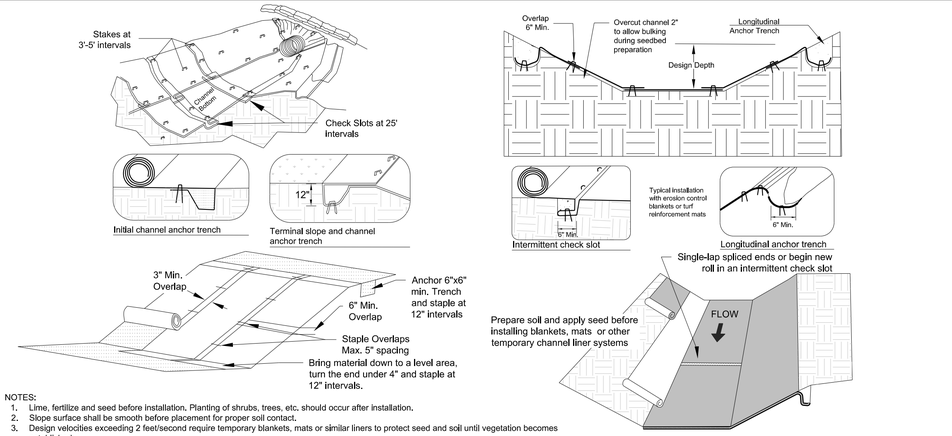
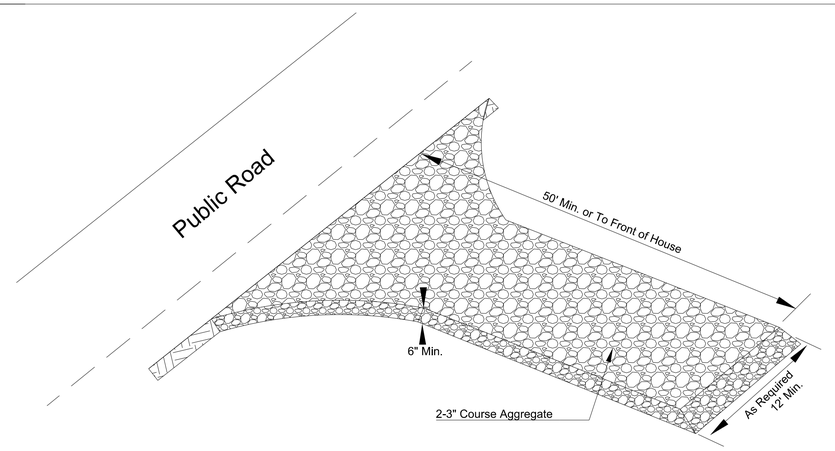


NOTES:
1. Lime, fertilize and seed before installation. Planting of shrubs, trees, etc. should occur after installation.
2. Slope surface shall be smooth before placement for proper soil contact.
3. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
4. Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals.
5. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
6. For installation on a slope, place RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP. Pin using staples or pins in a 3 feet center-to-center pattern.
7. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
8. Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats
9. Check slots to be constructed per manufacturers specifications.
10. Staking or stapling layout per manufacturers specification.
11. If there is a berm at the top of slope, anchor upslope of the berm.
12. Do not stretch blankets/matting tight, allow the rolls to conform to any irregularities.
13. For slopes less than 3H:1V, rolls may be placed in horizontal strips.

MAINTENANCE:
1. Inspect Rolled Erosion Control Products at least weekly and after each rain of 1 inch or greater; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

DETAIL - ROLLED EROSION CONTROL PRODUCTS (RECP)

SCALE: N.T.S



Construction:
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

Maintenance:
1. Per NCG-01 inspect at least once a week and after each 1 inch or greater rainfall; make any required repairs immediately.
2. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2 inch stone.
3. Immediately remove all objectionable materials spilled, washed or tracked onto public roadways.

DETAIL - CONSTRUCTION ENTRANCE / EXIT

SCALE: N.T.S

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by:
Joshua G. Dalton
10809DBC34594C1
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C6.09

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jharvey

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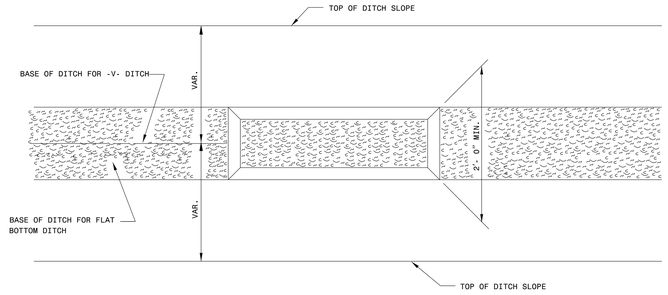
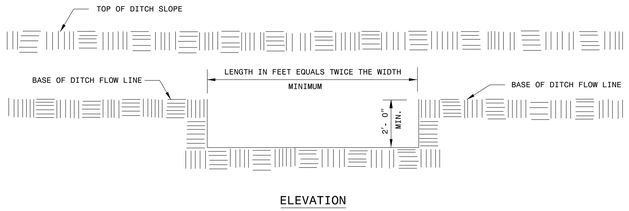


PLAN



ELEVATION

DETAIL - SILT BASIN - TYPE B

SCALE: N.T.S

Construction Specifications:

Silt Basin - Type B	- Construct basins with an excavated depth of at least 2 feet from the base of the ditch flow line. - Construct basins with non-vertical side slopes and not greater than 1.5:1 slope. - For silt basins at drainage outlets, install a minimum of 3 coir fiber baffles in the basin, with a spacing of ¼ the basin length and in accordance with Section 1640 of the Standard Specifications. - Install a minimum of 2 coir fiber baffles in basins with less than 20 feet of length at a spacing of ⅓ the basin length.

Maintenance:

- Inspect the basin on a regular basis and after every significant rainfall event (½ inch or greater).
- At a minimum, clean out the basins when they are approximately one-half full.
- Check for damage to coir fiber baffles and repair and/or replace the baffles.

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EROSION AND SEDIMENTATION CONTROL DETAILS

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DATE: 6-16-2021

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REVIEWED BY: RCH

REVISIONS:

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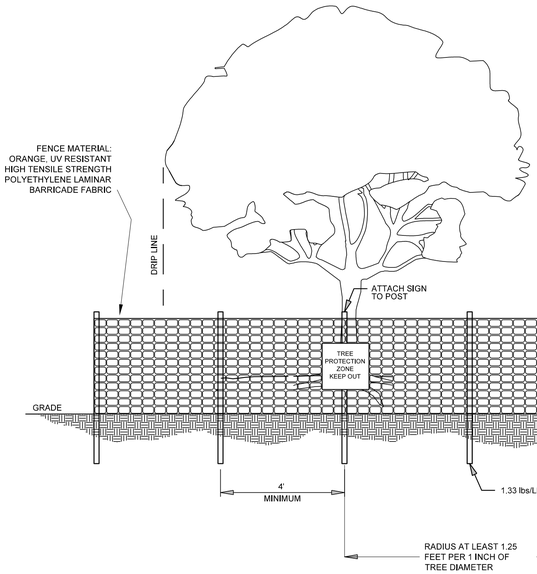


MATURE TREE PROTECTION ZONE RADIUS

TRUNK DIAMETER	GOOD PROTECTION	BETTER PROTECTION	BEST PROTECTION
8 INCHES	10 FEET	12 FEET	20 FEET
12 INCHES	15 FEET	18 FEET	30 FEET
16 INCHES	20 FEET	24 FEET	40 FEET
20 INCHES	25 FEET	30 FEET	50 FEET

NOTES:
1. Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
2. Select trees to be preserved before siting roads, buildings or other structures.
3. Minimize trenching in areas with trees. Place several utilities in the same trench.
4. Prohibit or restrict access to tree protection zones(TPZ). Post "Keep Out" signs on all sides of fencing and do not store construction equipment or materials in TPZ.
5. Monitor trees using a professional or train your staff to monitor tree health during and after construction on a regular, frequent basis.
6. Assign a crew member to weekly TPZ fence integrity checks. Repair and replace TPZ fencing as needed.

MAINTENANCE:
1. Prune any damaged trees. In spite of precautions, some damage to protected trees may occur. In such cases, repair any damage to the crown, trunk, or root system immediately.
2. Repair roots by cutting off the damaged areas and painting them them with tree paint. Spread peat moss or moist topsoil over exposed roots.
3. Repair damage to bark by trimming around the damaged area, taper the cut to provide drainage and paint with tree paint.
4. Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts to avoid peeling bark from healthy areas of the tree.

DETAIL - TREE PROTECTION ZONES

SCALE: N.T.S

Figure 6.05c Tree protection zone guidelines.

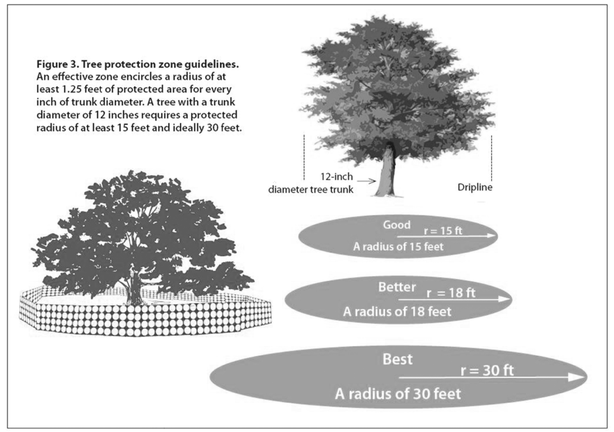
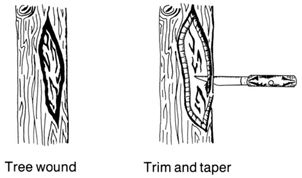
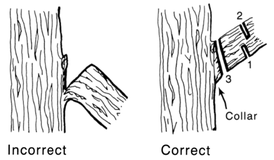


Figure 6.05d Wound repair and pruning of damaged trees.

Trim bark wounds with a tapered cut, then apply tree paint.



Prune damaged branches with three cuts to avoid peeling bark from the trunk when limb falls.



References

Construction and Tree Protection, AG-685 (Revised) North Carolina Cooperative Extension Service

Design Criteria

The following general criteria should be considered when developing sites in wooded areas:

- Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
- Locate roadways, storage areas, and parking pads away from valuable tree stands. Follow natural contours, where feasible, to minimize cutting and filling in the vicinity of trees.
- Select trees to be preserved before siting roads, buildings, or other structures.
- Minimize trenching in areas with trees. Place several utilities in the same trench.
- Designate groups of trees and individual trees to be saved on the erosion and sedimentation control plan.
- **Do not excavate, traverse, or fill closer than the drip line, or perimeter of the canopy, of trees to be saved**.

Construction Specifications

1. Erect TPZ fences. Restrict access to TPZs, with tall, bright, protective fencing. Most fencing is inexpensive and durable enough to last throughout most construction projects. Temporary tree protection fencing should be erected before clearing, deliveries and other construction activities begin on the site.

2. Prohibit or restrict access to TPZs. All on-site workers should be aware of the TPZs and the restrictions on activities within the zones. Use these TPZ guidelines for the best effect:

• Post "keep out" signs on all sides of fencing. Do not store construction equipment or materials in TPZs.

• Prohibit construction activities near the most valuable trees, and restrict activities around others.

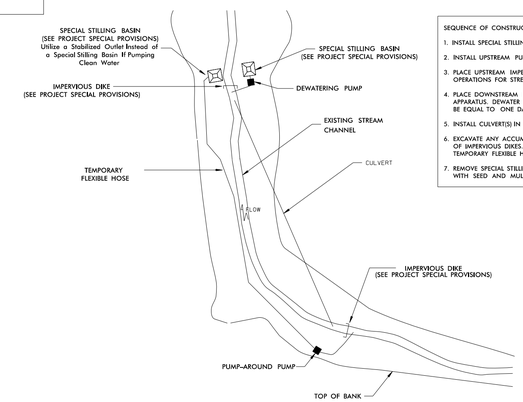
• Assess crew and contractor penalties, if necessary, to keep the TPZs intact.

3. Monitor trees. Vigilance is required to protect trees on construction sites. Use a tree professional or train your staff to monitor tree health during and after construction on a regular, frequent basis. Watch for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.

4. Monitor TPZ fences. Assign a crewmember the weekly responsibility of checking the integrity of TPZ fences. Repair and replace TPZ fencing as needed.

5. Optimize tree health. Assign a trained crewmember or hire a professional to complete regular tree maintenance tasks, including watering, fertilization, and mulching to protect tree roots. Consult a tree professional for advice on these practices if needed. Survival of protected trees will increase if these practices continue during construction. Healthy trees require undisturbed healthy soils. Do not cause injuries to trees and roots. Do not change the soil, grade, drainage, or aeration without protecting priority trees

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

DETAIL - EXAMPLE OF PUMP-AROUND OPERATION

SCALE: N.T.S

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua C. Dalton
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
9/9/2021

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PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

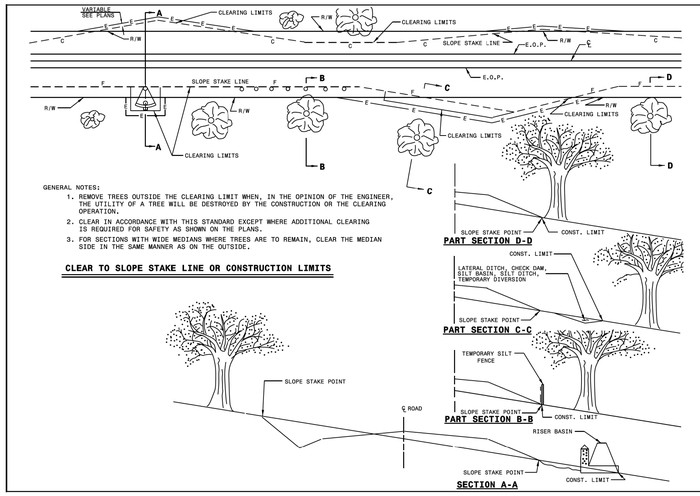
EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C600
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. **C6.11**

9/9/2021
Floodgate_Rdy_psh_C600.dgn
Harrell

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

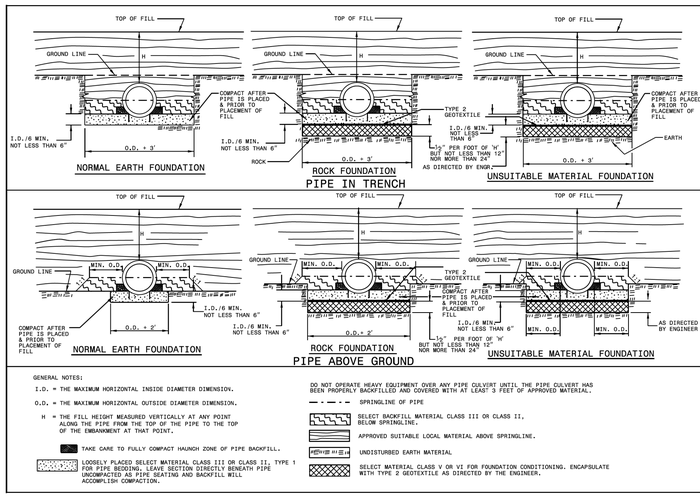


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF CLEARING
METHOD - II

SHEET 1 OF 1
200.02



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	136	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					68

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	324
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≥ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

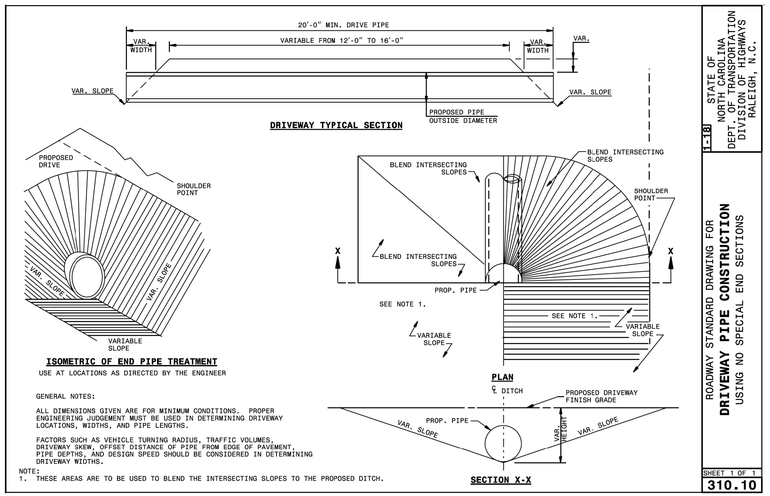
1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300.01

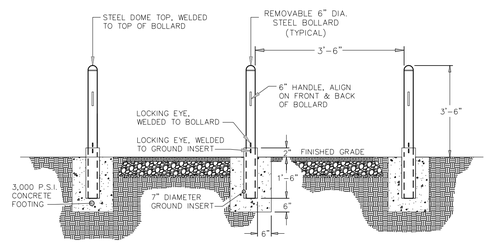


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS' RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
DRIVEWAY PIPE CONSTRUCTION
USING NO SPECIAL END SECTIONS

SHEET 1 OF 1
310.10



REMOVABLE STEEL BOLLARD

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-890

DocuSigned by: Joshua G. Dalton
CERTIFICATE OF COMPLETION 4B4A2A
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

SITE DETAILS

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C603
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO.
C6.12

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9/9/2021 Floodgate_Rdy_psh_C600.dgn Shawn

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

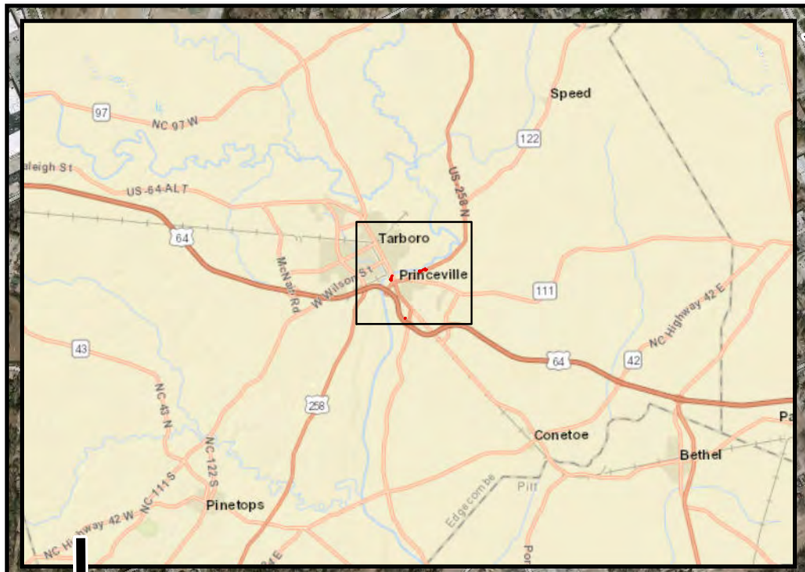
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

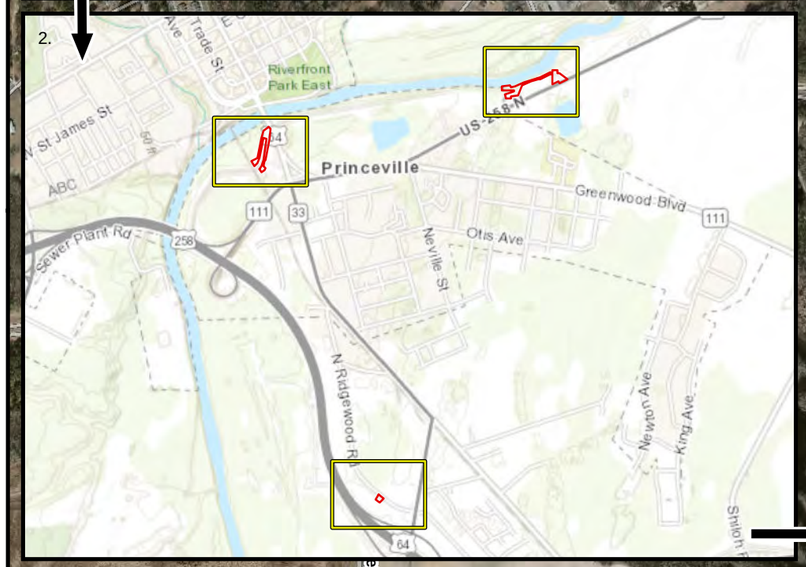
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

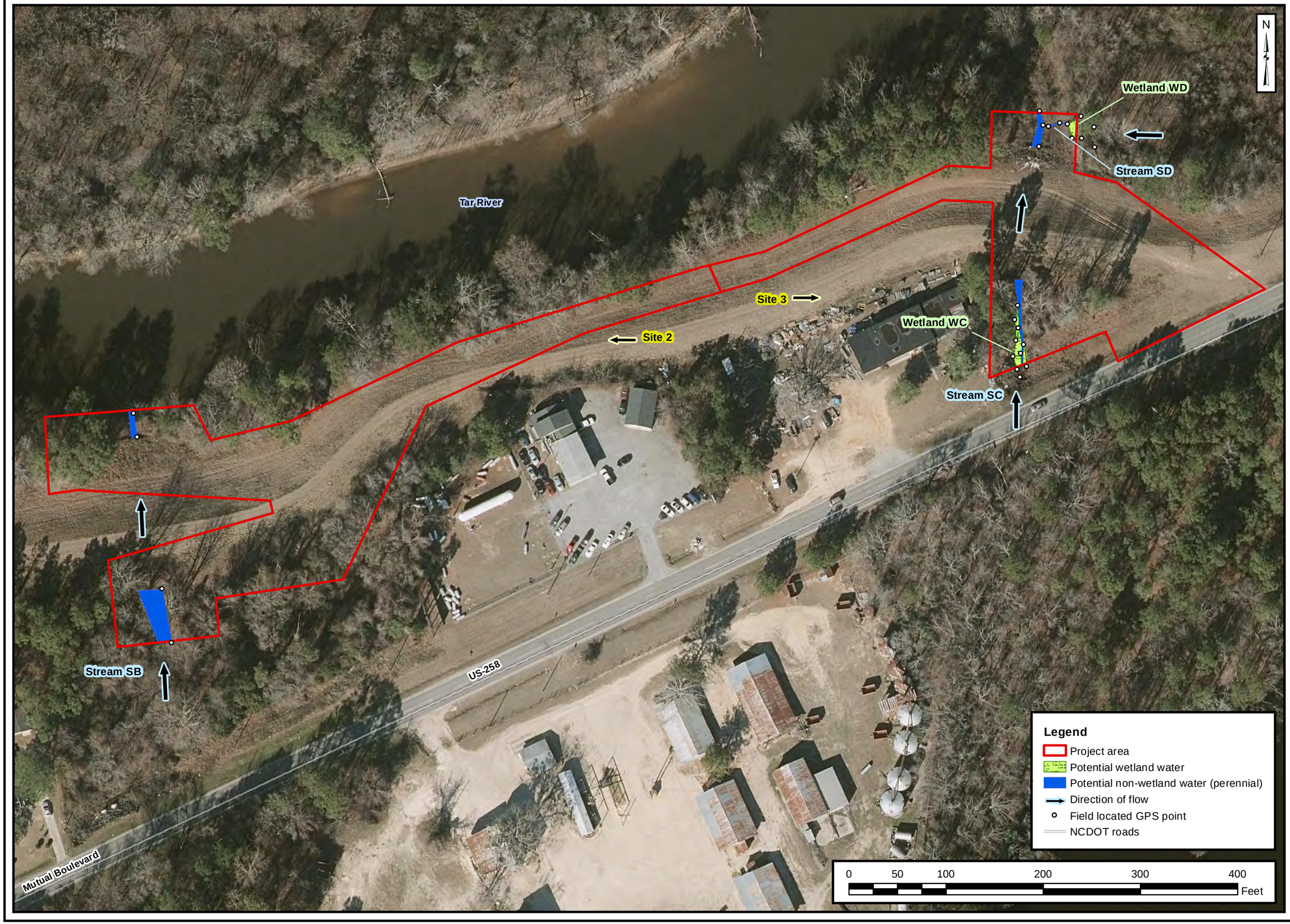
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

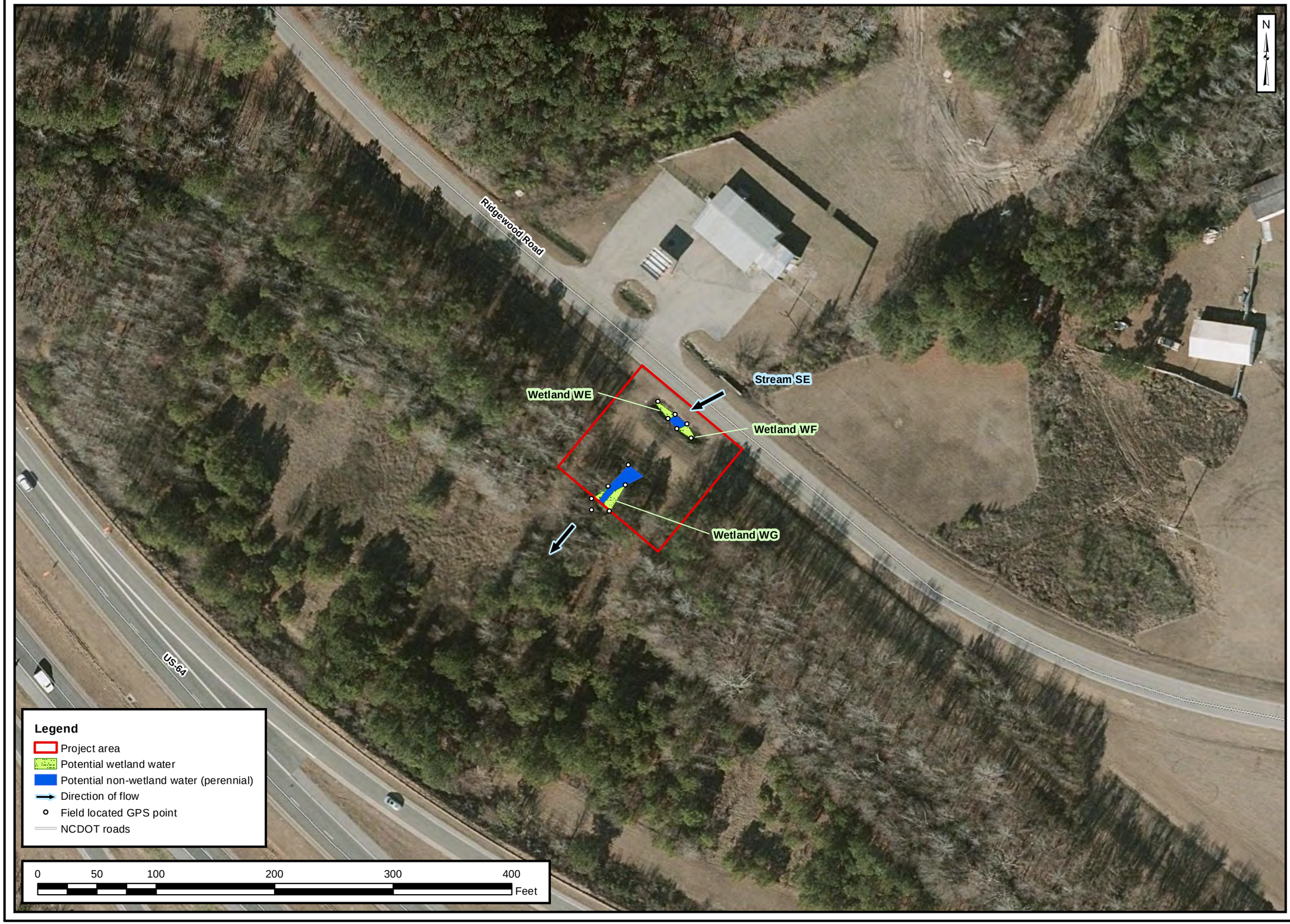
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

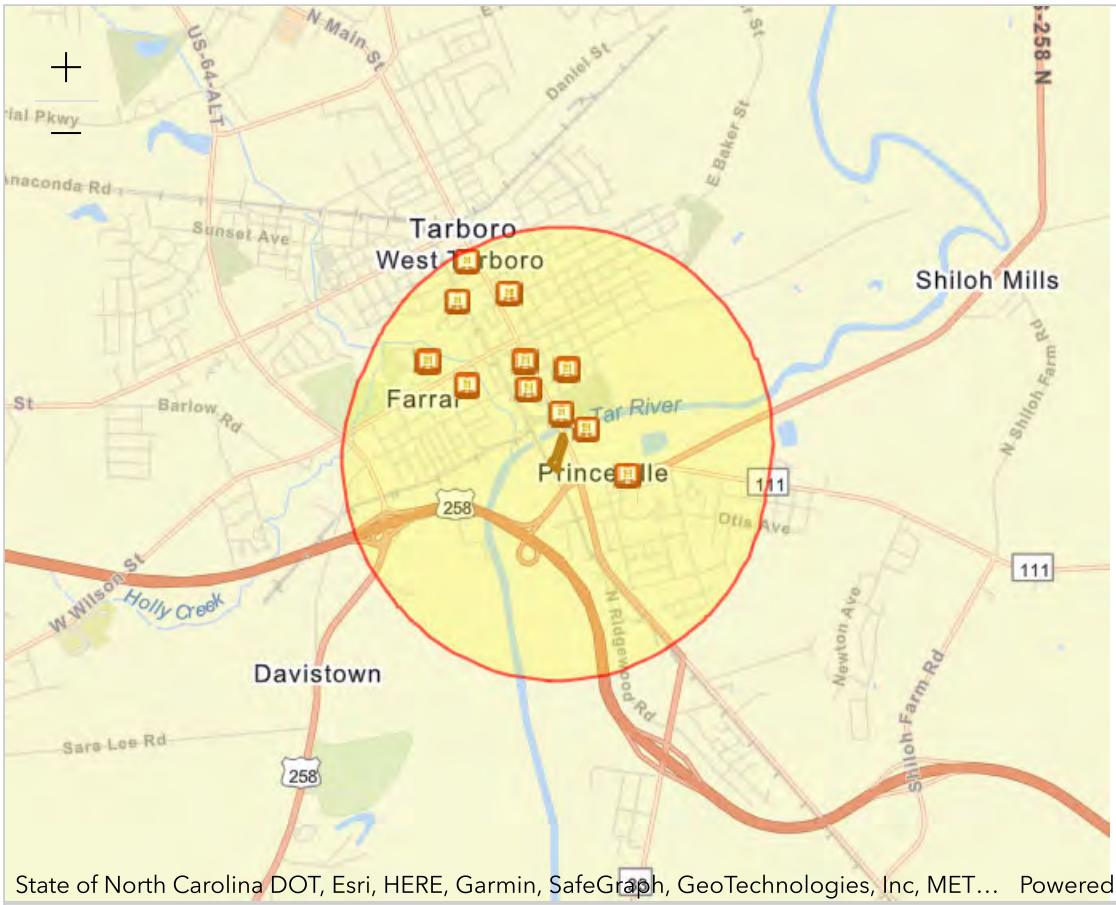
Attachment 2

NRHP and NC HPOWEB Maps

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET… Powered by Esri (http://www.esri.com/)

Report question: ***Within 1 mile of a historic property on the National Register of Historic Places?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

1 miles Submit

Features within Study Area

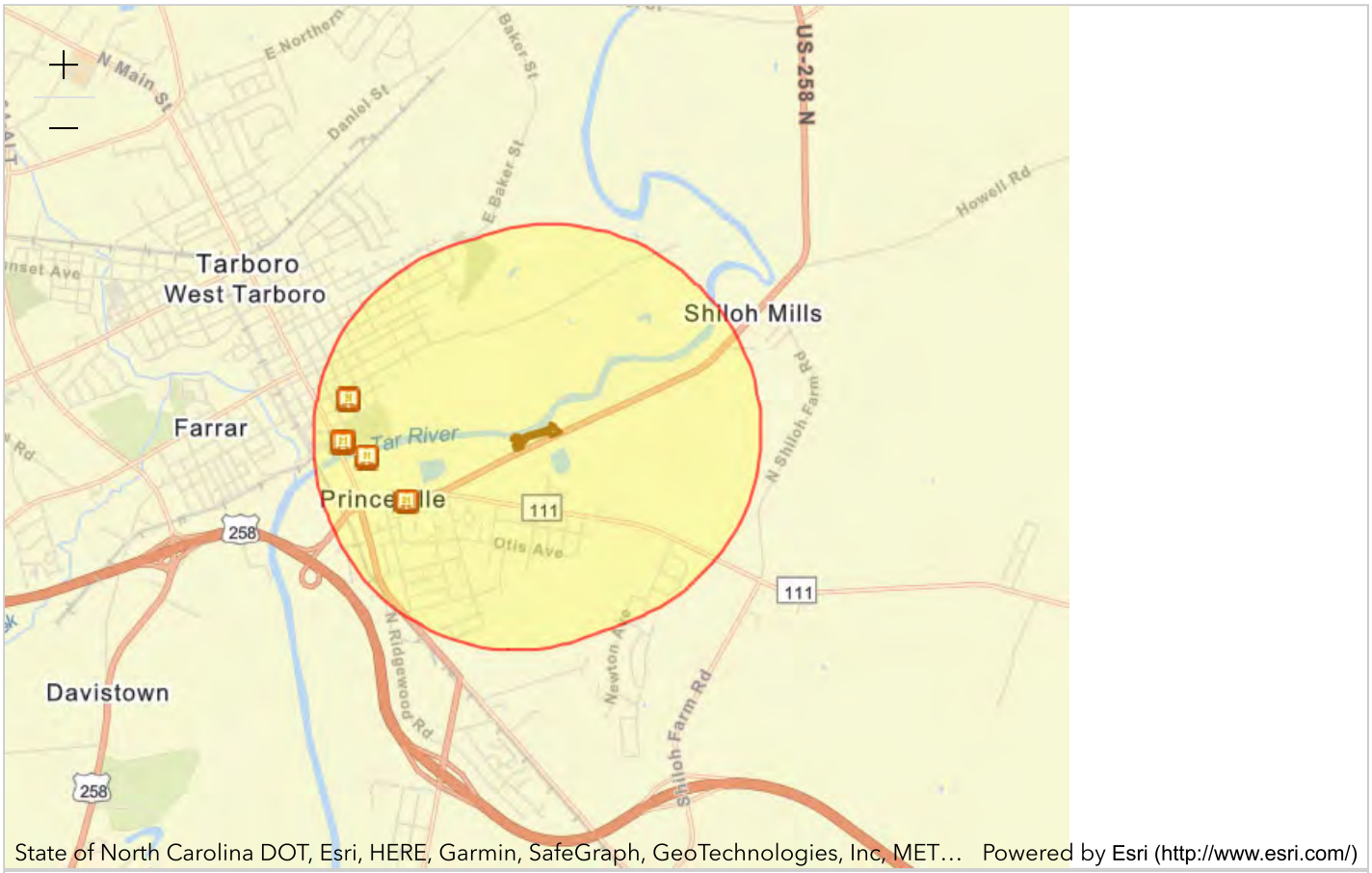
Features found: 12

Name	Distance
Grove, The	0.73 mile
Calvary Episcopal Church and Churchyard	0.32 mile
Redmond-Shackelford House	0.27 mile
Walston-Bulluck House	0.73 mile
Barracks, The	0.82 mile
Oakland Plantation	0.52 mile
Edgecombe Agricultural Works	0.95 mile
Eastern Star Baptist Church	0.12 mile
Quigless Clinic	0.10 mile
Princeville School	0.33 mile
Tarboro Town Common	0.40 mile
Cotton Press	0.74 mile

NEPAssist

Home (https://www.epa.gov/nepa/nepassist) | Help (help/NEPAssistHelp.pdf)

US Environmental Protection Agency (//www.epa.gov)



Report question: ***Within 1 mile of a historic property on the National Register of Historic Places?*** **yes**

Modify question by entering a new buffer distance and unit for the selected study area:

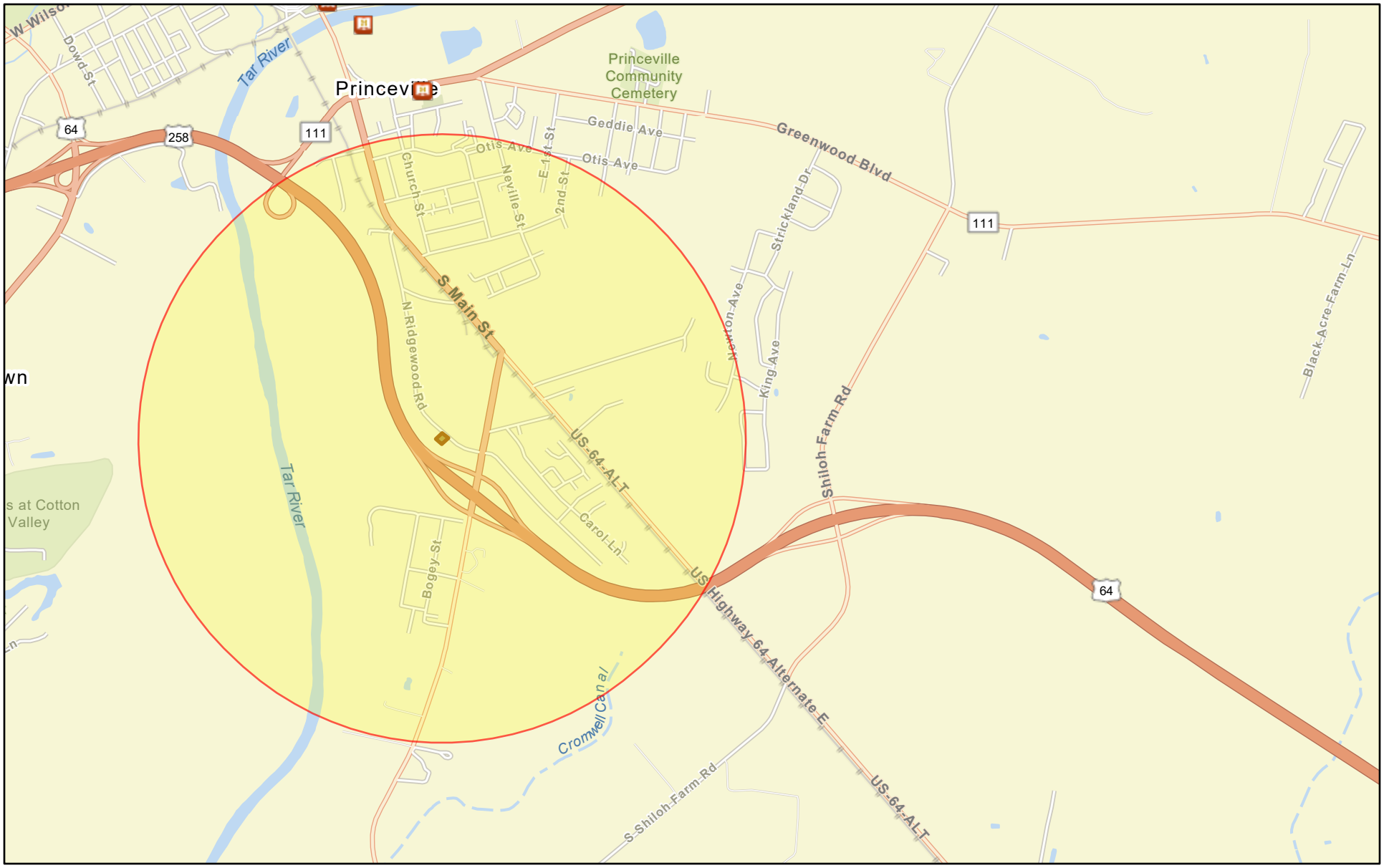
1 | miles | Submit

Features within Study Area

Features found: 4

Name	Distance
Calvary Episcopal Church and Churchyard	0.85 mile
Eastern Star Baptist Church	0.74 mile
Quigless Clinic	0.85 mile
Princeville School	0.61 mile

Princeville Levee Floodgate Repairs - Structure 4



August 15, 2022

Project Buffer

Princeville Levee Floodgate Repairs - Structure 4

structure 4 - princeville levee floodgate repairs

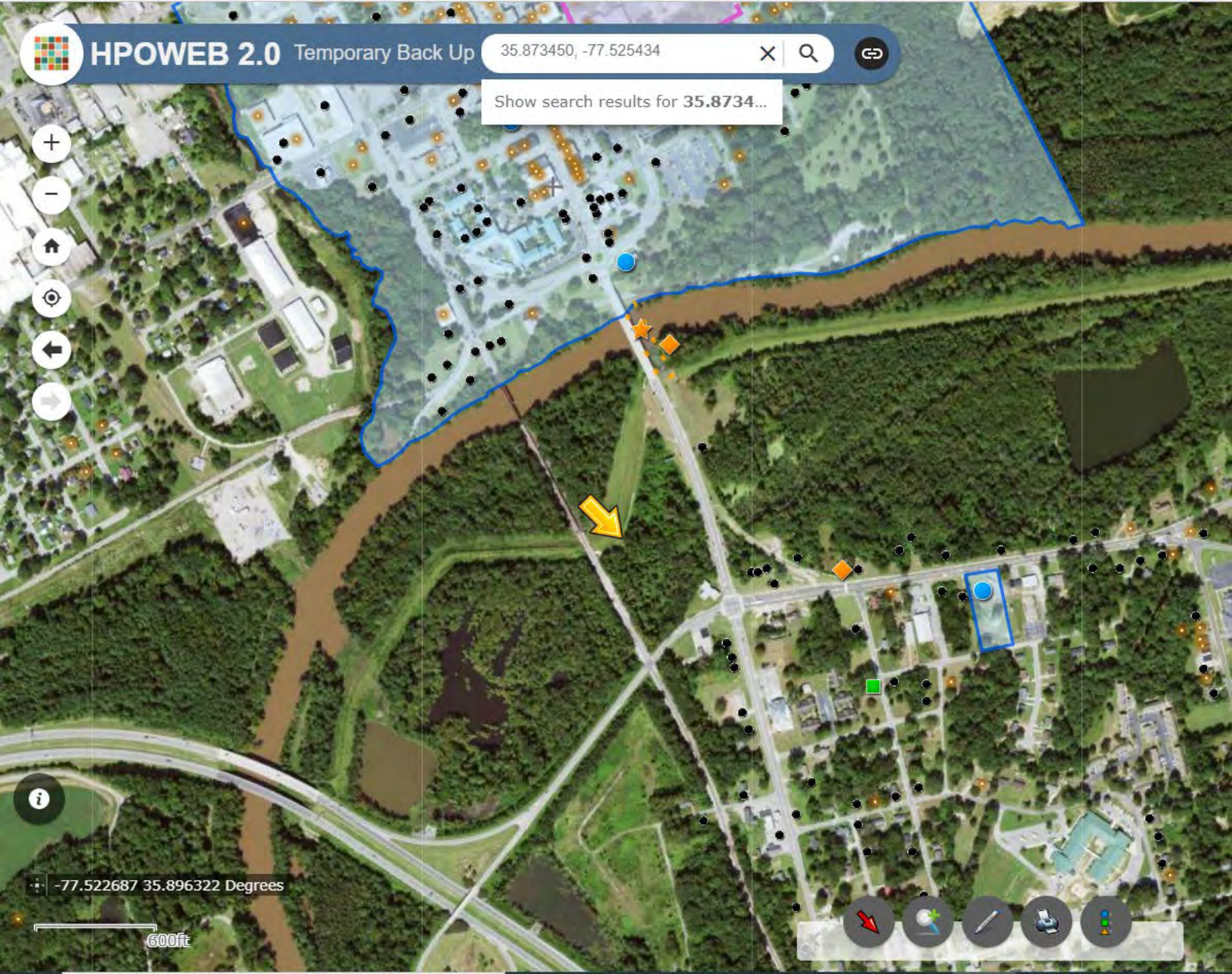
National Register of Historic Places

1:36,112

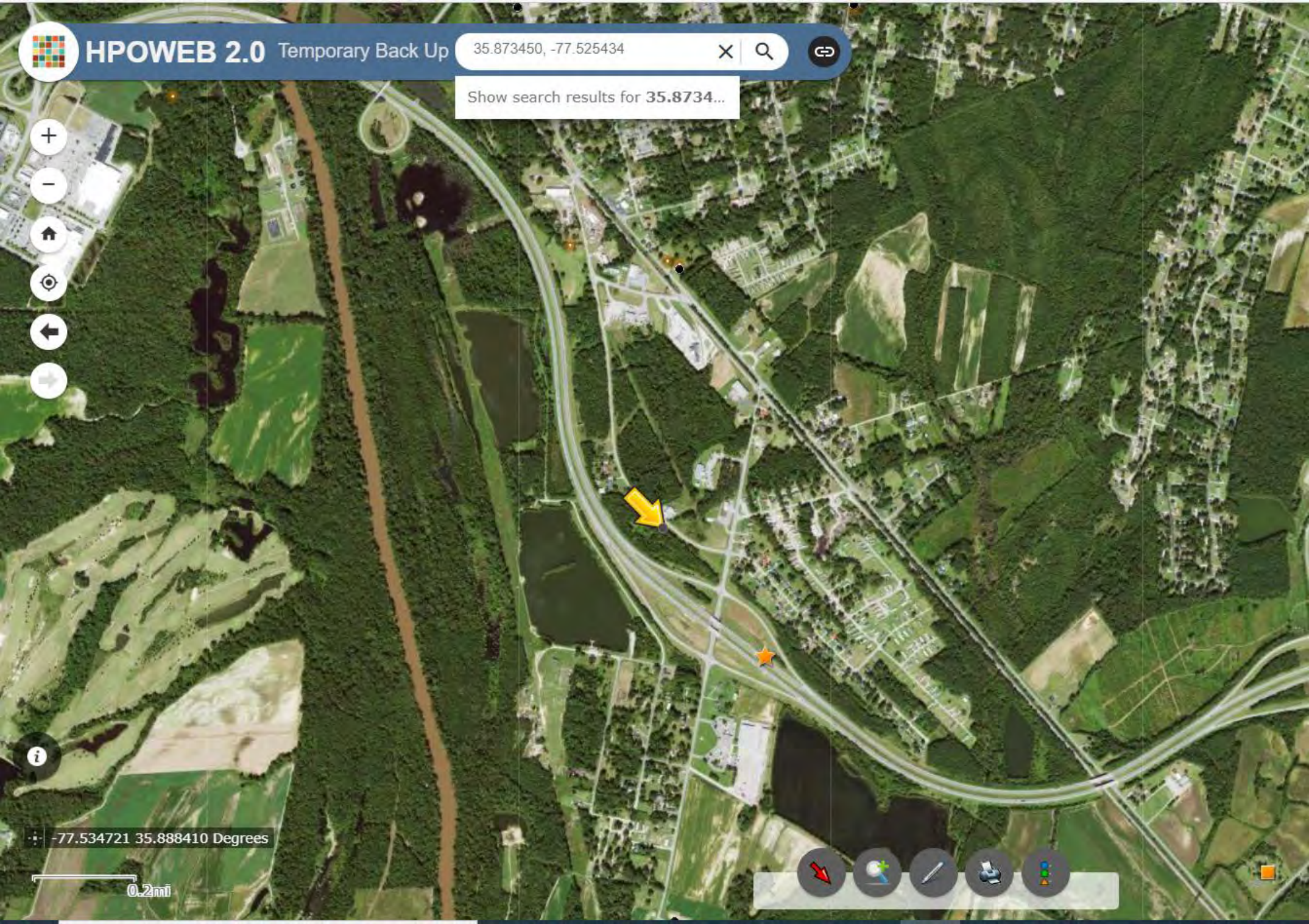
0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau,


HPOWEB 2.0
Temporary Back Up
35.873450, -77.525434
Show search results for 35.8734...
-77.522687 35.896322 Degrees
600ft


HPOWEB 2.0
Temporary Back Up
35.873450, -77.525434
Show search results for 35.8734...
-77.525915 35.901714 Degrees
600ft


HPOWEB 2.0
Temporary Back Up
35.873450, -77.525434
Show search results for 35.8734...
-77.534721 35.888410 Degrees
0.2mi

Attachment 3

Subject Property Photographs









Tribal Directory Assessment Information

Contact Information for Tribes with Interests in Edgecombe County, North Carolina

	Tribal Name	County Name
−	Catawba Indian Nation	Edgecombe

Contact Name	Title	Mailing Address	Work Phone	Fax Number	Cell Phone	Email Address	URL
Dr. Wenonah G. Haire	THPO and Catawba Cultural Center Executive Director	1536 Tom Steven Road Rock Hill, SC 29730	(803) 328-2427 ext. 224	(803) 328-5791		wenonah.haire@catawba.com	http://www.catawbaindian.net/
Bill Harris	Chief	996 Avenue of the Nations Rock Hill, SC 29730	(803) 366-4792	(803) 327-4853		bill.harris@catawbaindian.net	http://www.catawbaindian.net/

	Tribal Name	County Name
−	Tuscarora Nation	Edgecombe

Contact Name	Title	Mailing Address	Work Phone	Fax Number	Cell Phone	Email Address	URL
Bryan Printup	Representative	5226 Walmore Rd Lewiston, NY 14092	(716) 264-6011			bprintup@hetf.org	
Leo Henry	Chief	2006 Mt Hope Rd Lewiston, NY 14092	(716) 601-4737	(716) 297-7355			

1 - 2 of 2 results « ‹ 1 › » 10

Chief Leo Henry passed away and his successor is Chief Tom Jonathan

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427

September 19, 2022

Attention: Andrea Gievers
NC Department of Public Safety
P.O. Box 110465
Durham, NC 27709

Re. THPO #	TCNS #	Project Description
2022-1119-17		Princeville Levee Floodgate Repairs, Four levee floodgate culvert locations along the Tar River, Princeville, Edgecombe Co., NC

Dear Ms. Gievers,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Caitlin Rogers for

Wenonah G. Haire
Tribal Historic Preservation Officer

North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

August 17, 2022

Chief Bill Harris
Catawba Indian Nation
996 Avenue of the Nations
Rock Hill, SC 29730

RE: Section 106 Review - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Chief Bill Harris:

The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is serving as the responsible entity for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. NCORR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation.

NCORR processes environmental reviews for proposed projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470f), and its implementing regulations, 36 CFR Part 800, this letter serves as notification of the proposed action. This letter also serves as an invitation to discussion as a consulting party in this review to help identify historic properties in the proposed project area that may have religious and cultural significance to your Nation, and if such properties exist, to help assess how the proposed project might affect them. If the proposed project might have an adverse effect, we would like to discuss possible ways to avoid, minimize or mitigate potential adverse effects.

Mailing Address:
Post Office Box 110465
Durham, NC 27709

NCORR
NORTH CAROLINA OFFICE OF RECOVERY AND RESILIENCY

Phone: (984) 833-5350
www.ncdps.gov
www.rebuild.nc.gov

An Equal Opportunity Employer

Area of Potential Effects (APE) under §800.16(d): We have defined the APE as the boundary of the Subject Property consisting of four levee floodgate culvert locations along the Tar River Princeville, Edgecombe County, NC 27886. The proposed project locations are included in the Design Plans and USACE Notice of Preliminary Jurisdictional Determination in **Attachment 1** and coordinates are below for your review.

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided in part by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

Proposed Project Description: The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with *most of the work occurring in areas of previous disturbance*. Project implementation would be conditioned upon issuance of applicable Federal, State and local permits and would be constructed in accordance with all permit conditions.

The proposed project information has been sent to the NC State Historic Preservation Office and the Tuscarora Nation in accordance with Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800. For the NC SHPO Section 106 review, we have made a Finding of *"No Historic Properties Affected"* pursuant to 36 CFR 800.4(d)(1) based on the following:

> A review of the Subject Property in the National Register of Historic Places, North Carolina State Historic Preservation Office's HPOWEB, and site review, identified no publicly recorded historic properties which are locally designated or listed in or eligible for inclusion in the State or National Register of Historic Places are located on or immediately adjacent to the Subject Property. According to HPOWEB, from Structure 4, the Abraham

Wooten House (ED1129) is located approximately 1,077 feet to the southeast and Tarboro Historic District Boundary Expansion (Bridge No. 24 - ED1167) and Princeville Baptismal Site (ED1065) are located approximately 700 feet to the northeast. According to the National Register, there are two sites located within 0.25 mile from Structure 1 (Quigless Clinic 0.10 mile and Eastern Star Baptist Church 0.12 mile).

The Subject Property consists of existing levee segments which were constructed in 1967 by the USACE but are maintained by Edgecombe County. The importance of the proposed project to ensure the continued existence of historic structures within the Town of Princeville cannot be understated. Princeville's Town Hall, originally built as a schoolhouse in the 1920s, was badly damaged during past floods along with many other older structures destroyed. The Town of Princeville is undertaking the proposed project involving construction of upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Subject Property photographs are included in **Attachment 2**.

With this letter, NCORR respectfully submits for your review the attached documentation for the proposed project described herein. If the APE encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days of receipt of this letter indicating a desire to consult. If you have any concerns with potential impacts of the proposed project on historic properties, please note them in your response along with your preferred principal representative's point of contact. Please respond within this timeframe, otherwise we will assume that the proposed project will have no effect to historic properties of religious or cultural significance. Please respond via email at Andrea.L.Gievers@Rebuild.NC.gov or in writing to the address listed below.

Ms. Andrea Gievers
NCORR - Environmental
ATTN: THPO Comments
P.O. Box 110465
Durham, NC 27709

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Proposed Princeville Levee Floodgate Repairs Enclosures:

Attachment 1: Proposed Project Design Plans and USACE Notice of Preliminary Jurisdictional Determination

Attachment 2: Subject Property Photographs

cc: Dr. Wenonah George Haire, THPO, Catawba Indian Nation, 1536 Tom Steven Road, Rock Hill, SC 29730

Attachment 1

Design Plans and

USACE Notice of Jurisdictional Determination

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

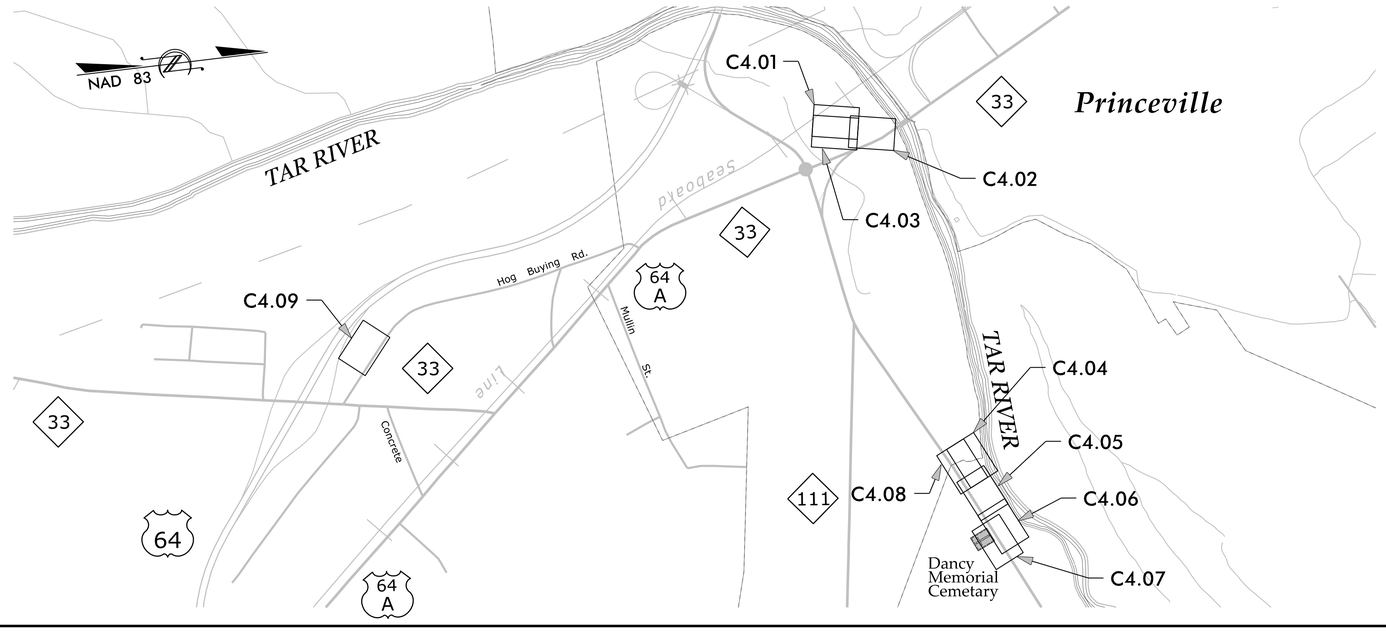
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

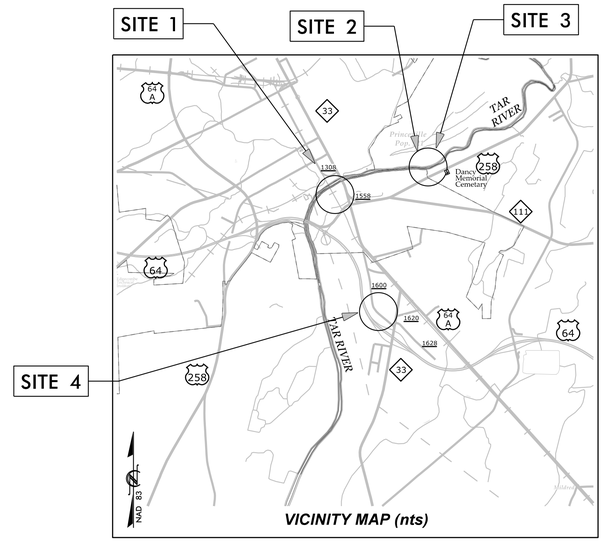
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

83 GVD

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776204.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

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9/9/2021
Floodgate_Rdy_psh_C201.dgn
Plan view

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

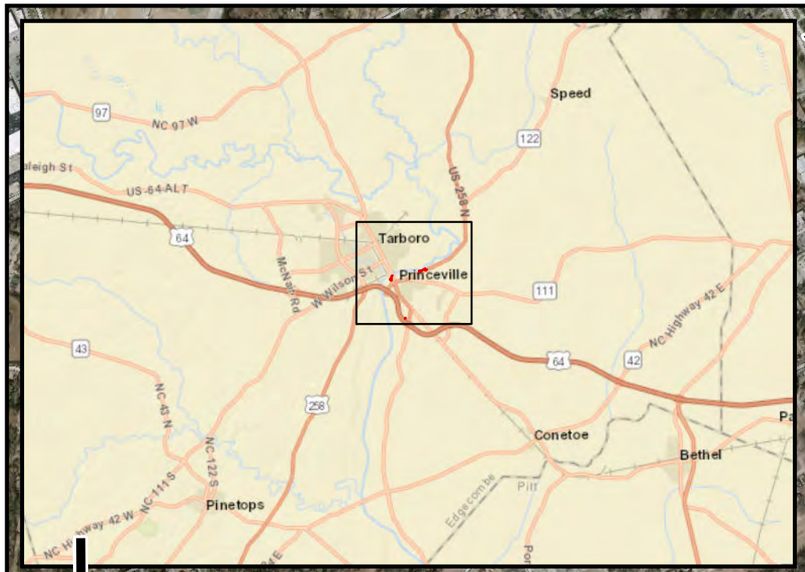
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

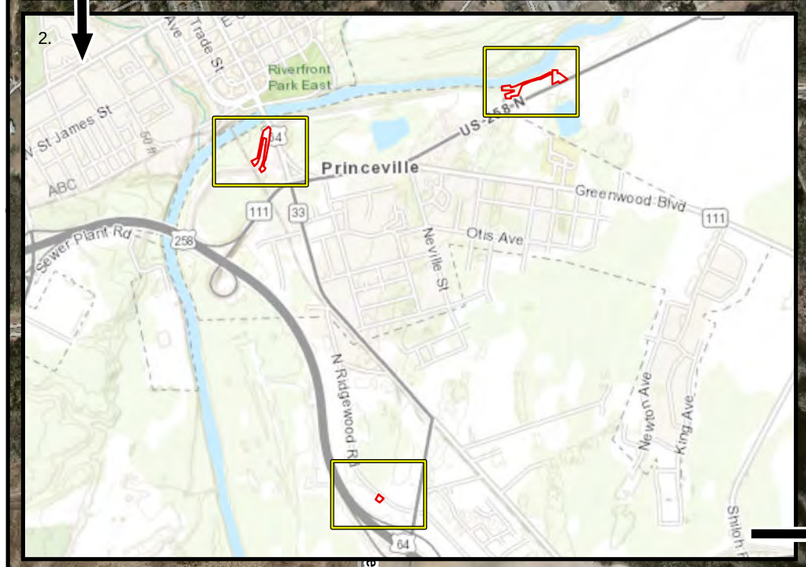
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

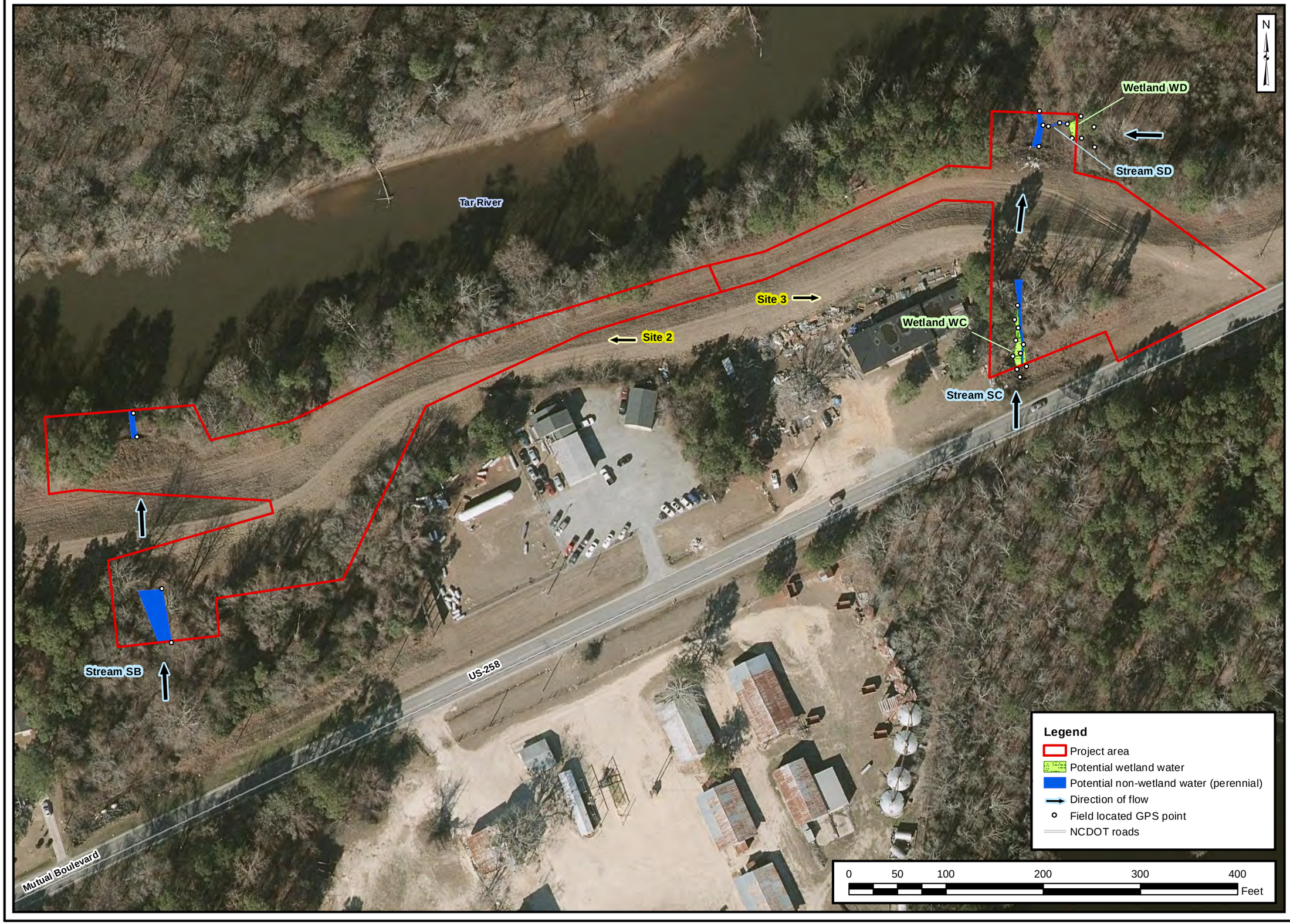
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

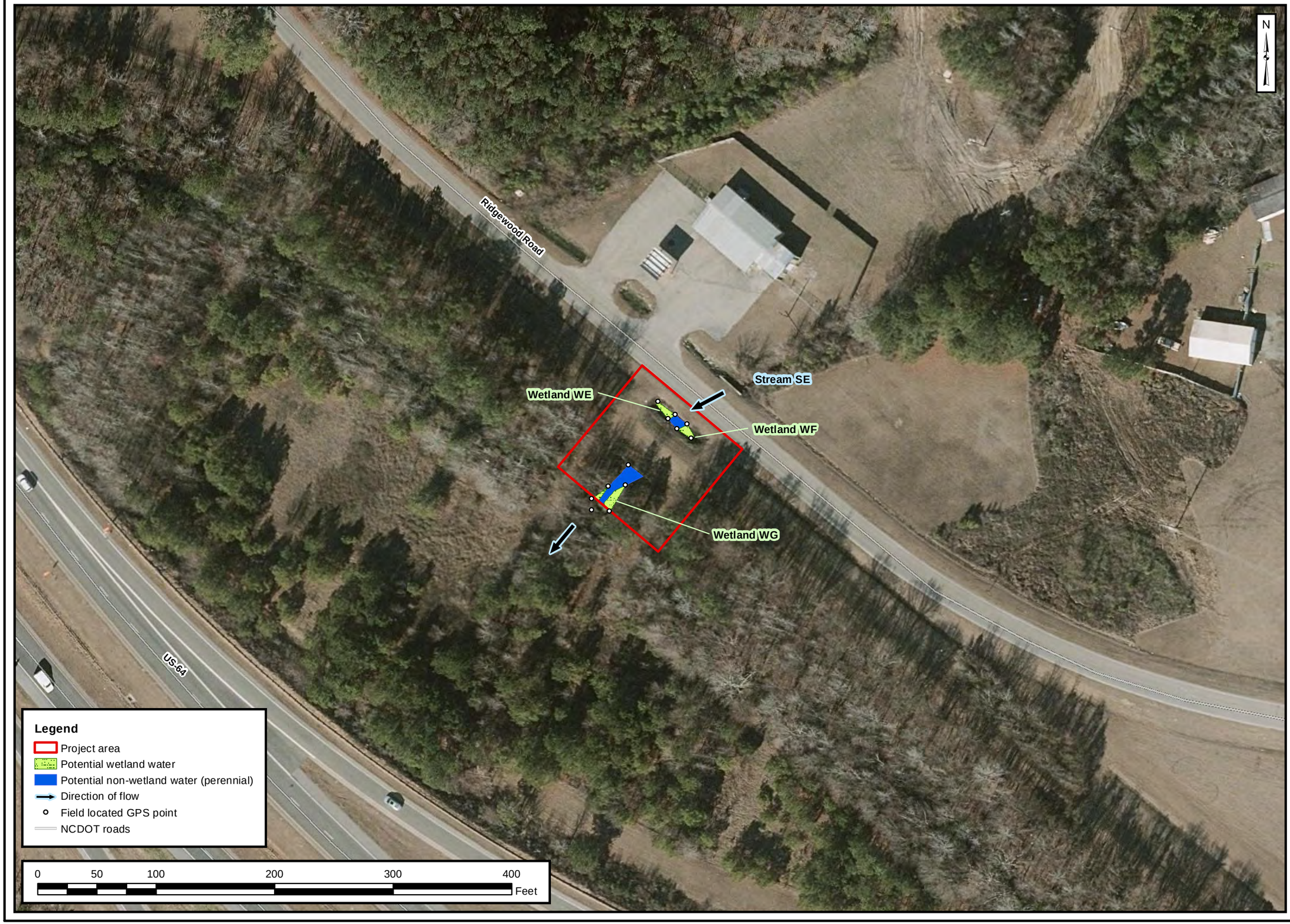
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Attachment 2

Subject Property Photographs









North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

August 17, 2022

Dr. Wenonah George Haire
ATTN: THPO
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, SC 29730

RE: Section 106 Review - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Dr. Wenonah George Haire:

The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is serving as the responsible entity for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. NCORR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation.

NCORR processes environmental reviews for proposed projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470f), and its implementing regulations, 36 CFR Part 800, this letter serves as notification of the proposed action. This letter also serves as an invitation to discussion as a consulting party in this review to help identify historic properties in the proposed project area that may have religious and cultural significance to your Nation, and if such properties exist, to help assess how the proposed project might affect them. If the proposed project might have an adverse effect, we would like to discuss possible ways to avoid, minimize or mitigate potential adverse effects.

Mailing Address:
Post Office Box 110465
Durham, NC 27709

NCORR
NORTH CAROLINA OFFICE OF RECOVERY AND RESILIENCY

Phone: (984) 833-5350
www.ncdps.gov
www.rebuild.nc.gov

An Equal Opportunity Employer

Area of Potential Effects (APE) under §800.16(d): We have defined the APE as the boundary of the Subject Property consisting of four levee floodgate culvert locations along the Tar River Princeville, Edgecombe County, NC 27886. The proposed project locations are included in the Design Plans and USACE Notice of Preliminary Jurisdictional Determination in **Attachment 1** and coordinates are below for your review.

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided in part by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

Proposed Project Description: The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with *most of the work occurring in areas of previous disturbance*. Project implementation would be conditioned upon issuance of applicable Federal, State and local permits and would be constructed in accordance with all permit conditions.

The proposed project information has been sent to the NC State Historic Preservation Office and the Tuscarora Nation in accordance with Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800. For the NC SHPO Section 106 review, we have made a Finding of *"No Historic Properties Affected"* pursuant to 36 CFR 800.4(d)(1) based on the following:

> A review of the Subject Property in the National Register of Historic Places, North Carolina State Historic Preservation Office's HPOWEB, and site review, identified no publicly recorded historic properties which are locally designated or listed in or eligible for inclusion in the State or National Register of Historic Places are located on or immediately adjacent to the Subject Property. According to HPOWEB, from Structure 4, the Abraham

Wooten House (ED1129) is located approximately 1,077 feet to the southeast and Tarboro Historic District Boundary Expansion (Bridge No. 24 - ED1167) and Princeville Baptismal Site (ED1065) are located approximately 700 feet to the northeast. According to the National Register, there are two sites located within 0.25 mile from Structure 1 (Quigless Clinic 0.10 mile and Eastern Star Baptist Church 0.12 mile).

The Subject Property consists of existing levee segments which were constructed in 1967 by the USACE but are maintained by Edgecombe County. The importance of the proposed project to ensure the continued existence of historic structures within the Town of Princeville cannot be understated. Princeville's Town Hall, originally built as a schoolhouse in the 1920s, was badly damaged during past floods along with many other older structures destroyed. The Town of Princeville is undertaking the proposed project involving construction of upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Subject Property photographs are included in **Attachment 2**.

With this letter, NCORR respectfully submits for your review the attached documentation for the proposed project described herein. If the APE encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days of receipt of this letter indicating a desire to consult. If you have any concerns with potential impacts of the proposed project on historic properties, please note them in your response along with your preferred principal representative's point of contact. Please respond within this timeframe, otherwise we will assume that the proposed project will have no effect to historic properties of religious or cultural significance. Please respond via email at Andrea.L.Gievers@Rebuild.NC.gov or in writing to the address listed below.

Ms. Andrea Gievers
NCORR - Environmental
ATTN: THPO Comments
P.O. Box 110465
Durham, NC 27709

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Proposed Princeville Levee Floodgate Repairs Enclosures:
Attachment 1: Proposed Project Design Plans and USACE Notice of Preliminary Jurisdictional Determination
Attachment 2: Subject Property Photographs

cc: Chief Bill Harris, Catawba Indian Nation, 996 Avenue of the Nations, Rock Hill, SC 29730

Attachment 1

Design Plans and

USACE Notice of Jurisdictional Determination

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PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

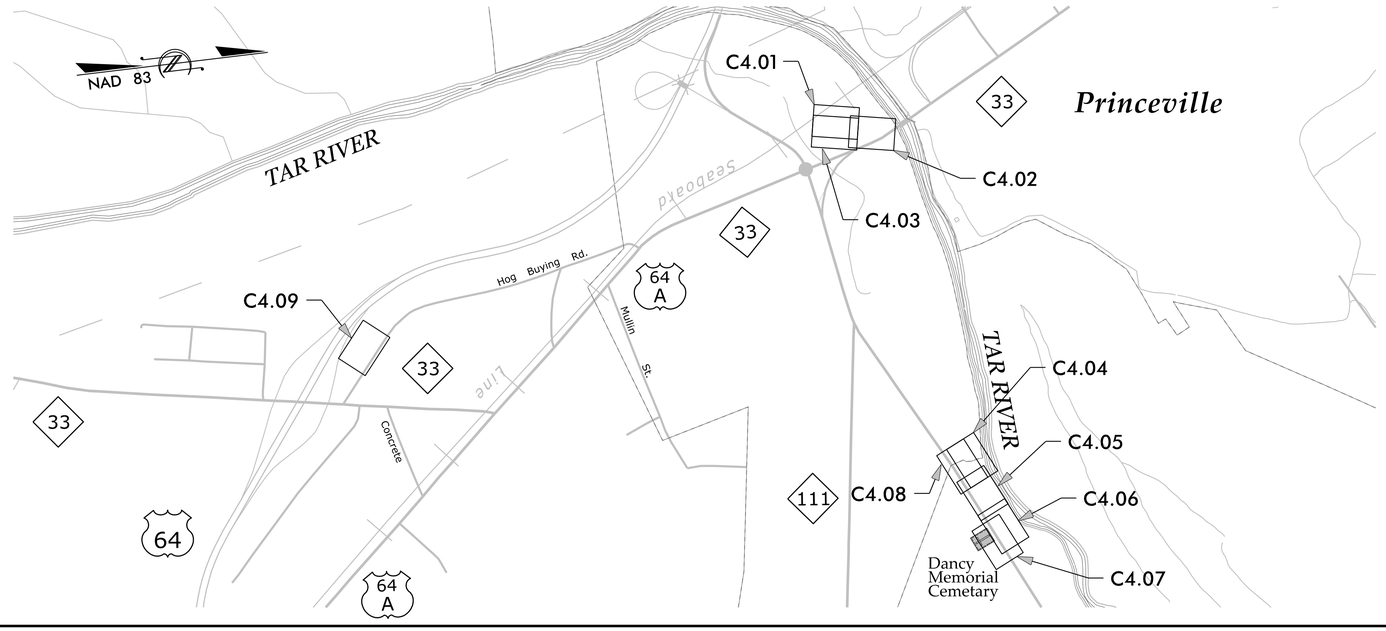
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

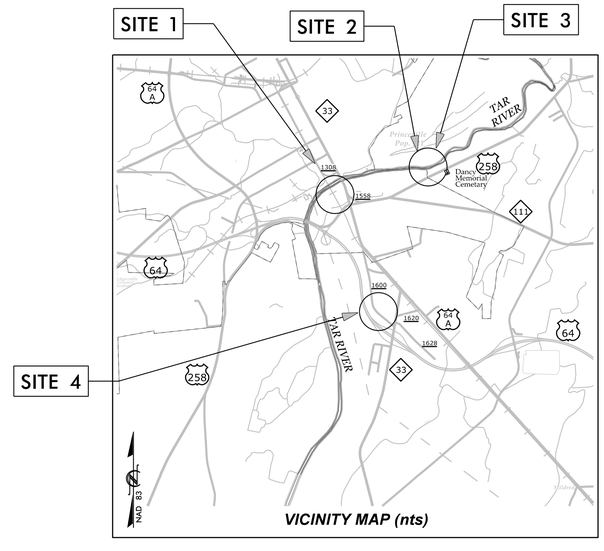
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

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CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

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SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

NAD 83

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776209.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

NORTH CAROLINA
PROFESSIONAL
SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

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PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

9/9/2021
Floodgate_Rdy_psh_C201.dgn
Rhino 7.0

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

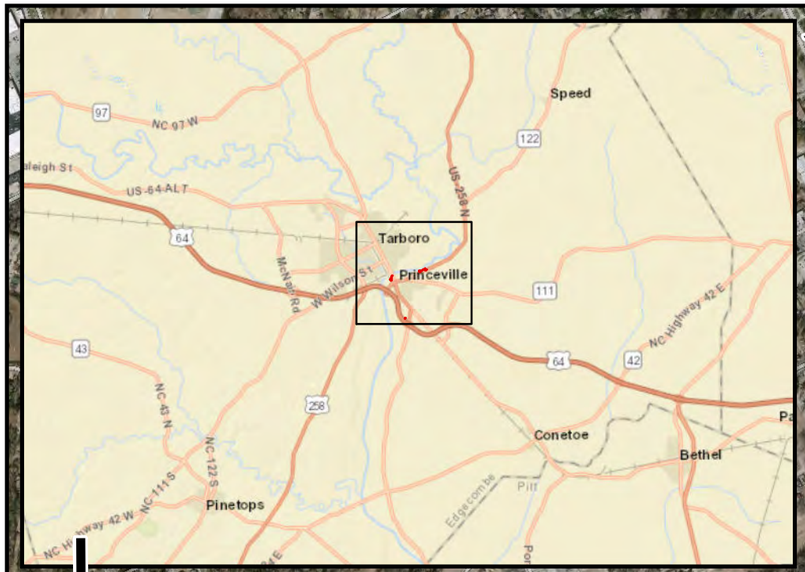
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

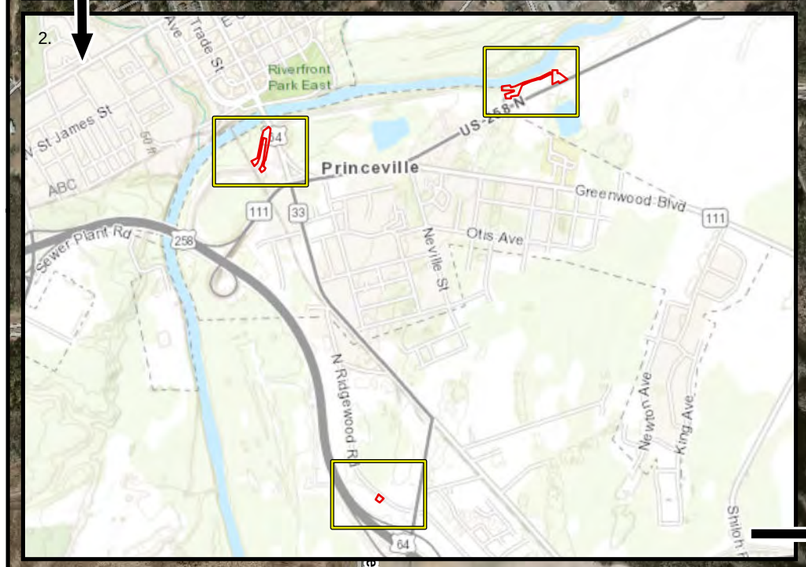
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

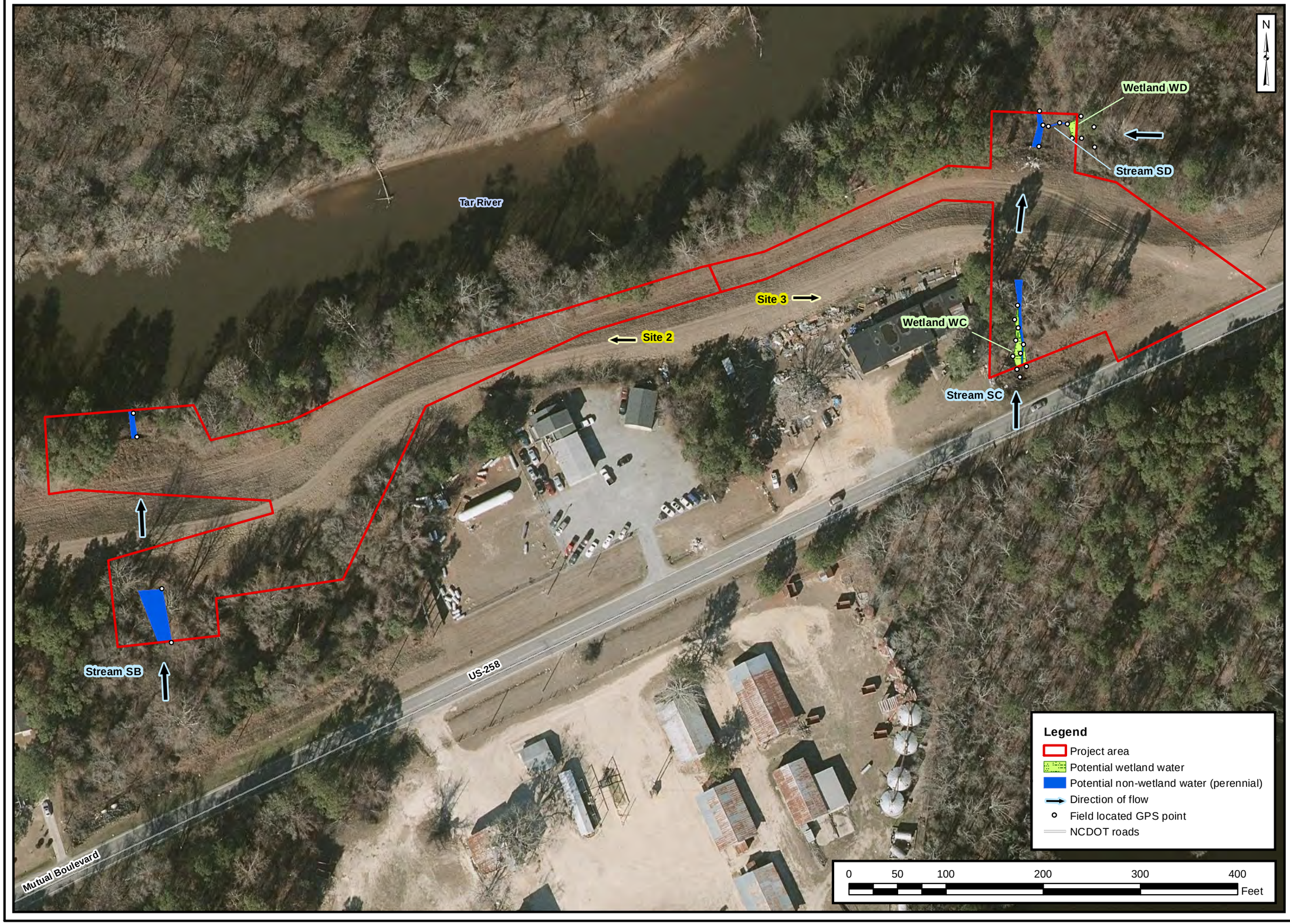
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

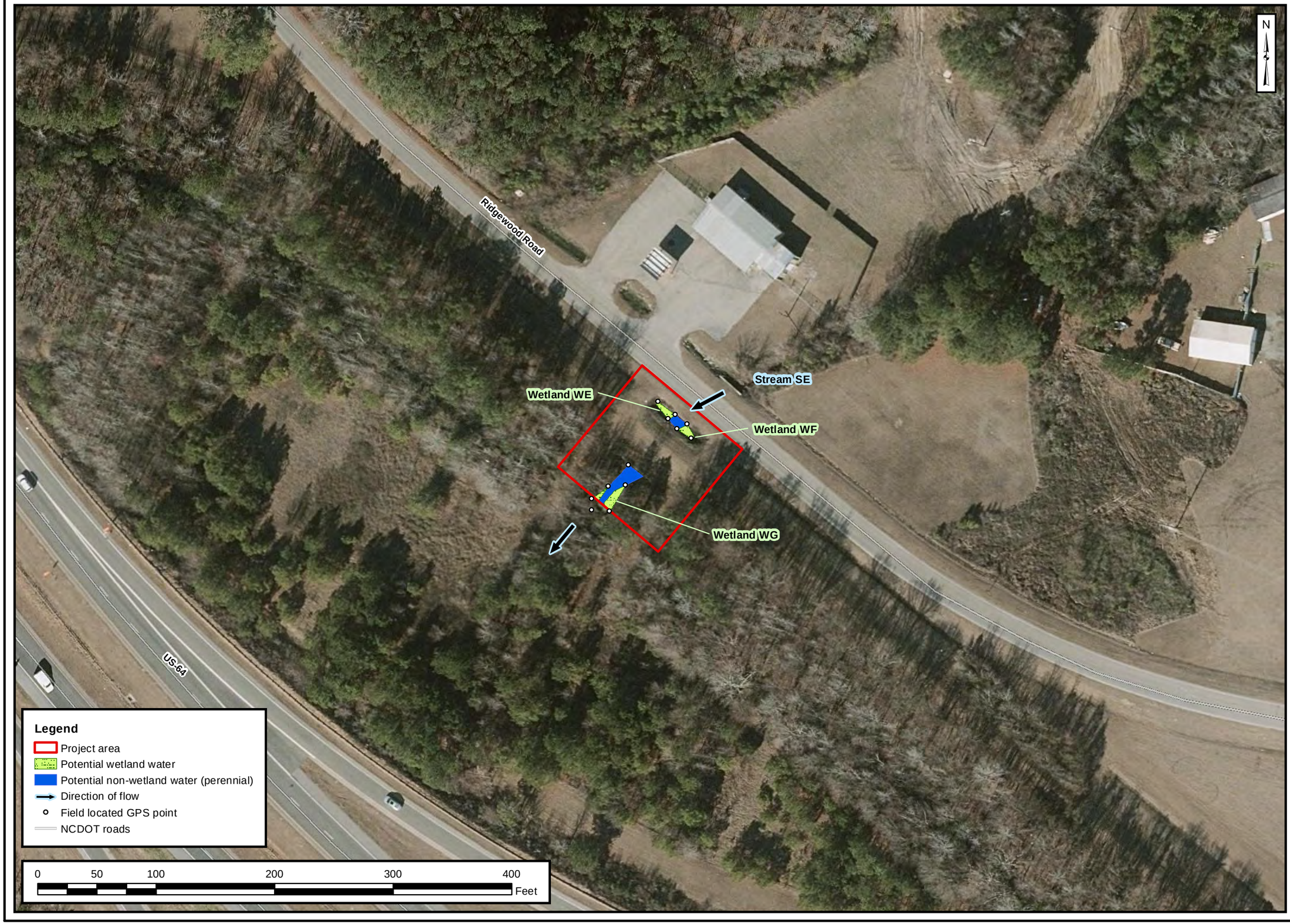
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Attachment 2

Subject Property Photographs









North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

August 17, 2022

Chief Tom Jonathan
Tuscarora Nation
5226 Walmore Road
Lewiston, NY 14092

Sent via email: BPrintup@hetf.org

RE: Section 106 Review - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Chief Jonathan:

The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is serving as the responsible entity for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. NCORR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation.

NCORR processes environmental reviews for proposed projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470f), and its implementing regulations, 36 CFR Part 800, this letter serves as notification of the proposed action. This letter also serves as an invitation to discussion as a consulting party in this review to help identify historic properties in the proposed project area that may have religious and cultural significance to your Nation, and if such properties exist, to help assess how the proposed project might affect them. If the proposed project might have an adverse effect, we would like to discuss possible ways to avoid, minimize or mitigate potential adverse effects.

Mailing Address:
Post Office Box 110465
Durham, NC 27709

NCORR
NORTH CAROLINA OFFICE OF RECOVERY AND RESILIENCY

Phone: (984) 833-5350
www.ncdps.gov
www.rebuild.nc.gov

An Equal Opportunity Employer

Area of Potential Effects (APE) under §800.16(d): We have defined the APE as the boundary of the Subject Property consisting of four levee floodgate culvert locations along the Tar River Princeville, Edgecombe County, NC 27886. The proposed project locations are included in the Design Plans and USACE Notice of Preliminary Jurisdictional Determination in **Attachment 1** and coordinates are below for your review.

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided in part by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

Proposed Project Description: The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with *most of the work occurring in areas of previous disturbance*. Project implementation would be conditioned upon issuance of applicable Federal, State and local permits and would be constructed in accordance with all permit conditions.

The proposed project information has been sent to the NC State Historic Preservation Office and the Catawba Indian Nation in accordance with Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800. For the NC SHPO Section 106 review, we have made a Finding of *"No Historic Properties Affected"* pursuant to 36 CFR 800.4(d)(1) based on the following:

> A review of the Subject Property in the National Register of Historic Places, North Carolina State Historic Preservation Office's HPOWEB, and site review, identified no publicly recorded historic properties which are locally designated or listed in or eligible for inclusion in the State or National Register of Historic Places are located on or immediately adjacent to the Subject Property. According to HPOWEB, from Structure 4, the Abraham

Wooten House (ED1129) is located approximately 1,077 feet to the southeast and Tarboro Historic District Boundary Expansion (Bridge No. 24 - ED1167) and Princeville Baptismal Site (ED1065) are located approximately 700 feet to the northeast. According to the National Register, there are two sites located within 0.25 mile from Structure 1 (Quigless Clinic 0.10 mile and Eastern Star Baptist Church 0.12 mile).

The Subject Property consists of existing levee segments which were constructed in 1967 by the USACE but are maintained by Edgecombe County. The importance of the proposed project to ensure the continued existence of historic structures within the Town of Princeville cannot be understated. Princeville's Town Hall, originally built as a schoolhouse in the 1920s, was badly damaged during past floods along with many other older structures destroyed. The Town of Princeville is undertaking the proposed project involving construction of upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Subject Property photographs are included in **Attachment 2**.

With this letter, NCORR respectfully submits for your review the attached documentation for the proposed project described herein. If the APE encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days of receipt of this letter indicating a desire to consult. If you have any concerns with potential impacts of the proposed project on historic properties, please note them in your response along with your preferred principal representative's point of contact. Please respond within this timeframe, otherwise we will assume that the proposed project will have no effect to historic properties of religious or cultural significance. Please respond via email at Andrea.L.Gievers@Rebuild.NC.gov or in writing to the address listed below.

Ms. Andrea Gievers
NCORR - Environmental
ATTN: THPO Comments
P.O. Box 110465
Durham, NC 27709

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Proposed Princeville Levee Floodgate Repairs Enclosures:
Attachment 1: Proposed Project Design Plans and USACE Notice of Preliminary Jurisdictional Determination
Attachment 2: Subject Property Photographs

cc: Mr. Bryan Printup, THPO, 5226 Walmore Road, Lewiston, NY 14092; BPrintup@hetf.org

Attachment 1

Design Plans and

USACE Notice of Jurisdictional Determination

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PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

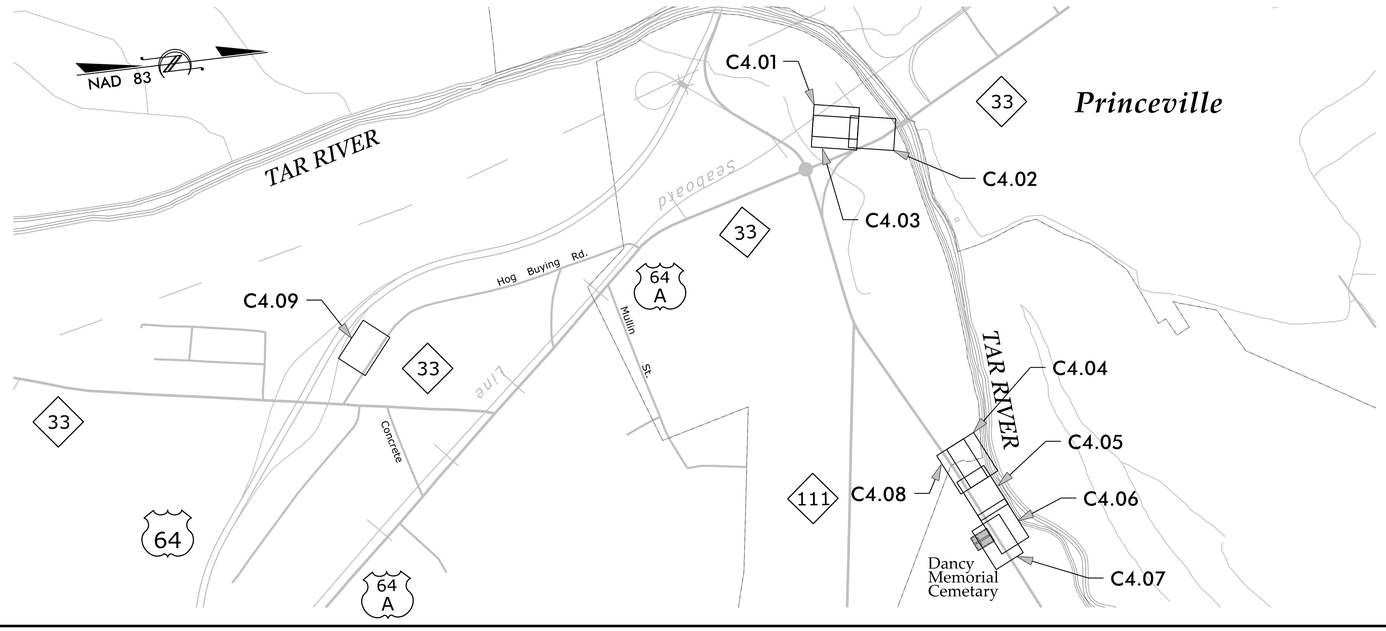
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

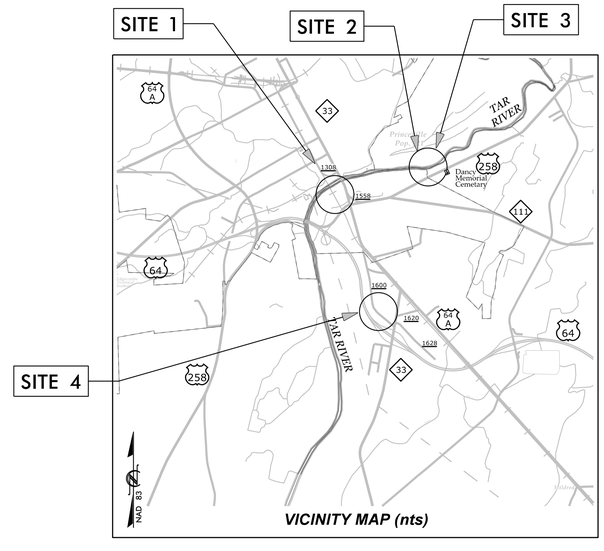
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

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CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

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SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

NAD 83

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776209.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

NORTH CAROLINA
PROFESSIONAL
SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

© 2021 SUNGATE DESIGN GROUP, P.A. THIS DRAWING AND ALL REPRODUCTIONS OF IT ARE THE SOLE PROPERTY OF SDG. REPRODUCTION OR OTHER USES OF THIS DRAWING WITHOUT WRITTEN CONSENT OF SDG IS NOT PERMITTED.

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

9/9/2021
Floodgate_Rdy_psh_C201.dgn
Rhino 7.0

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

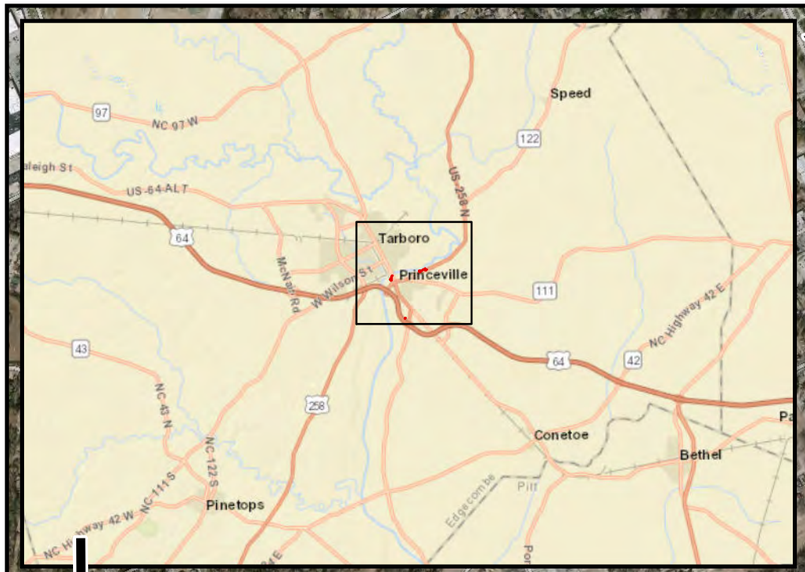
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

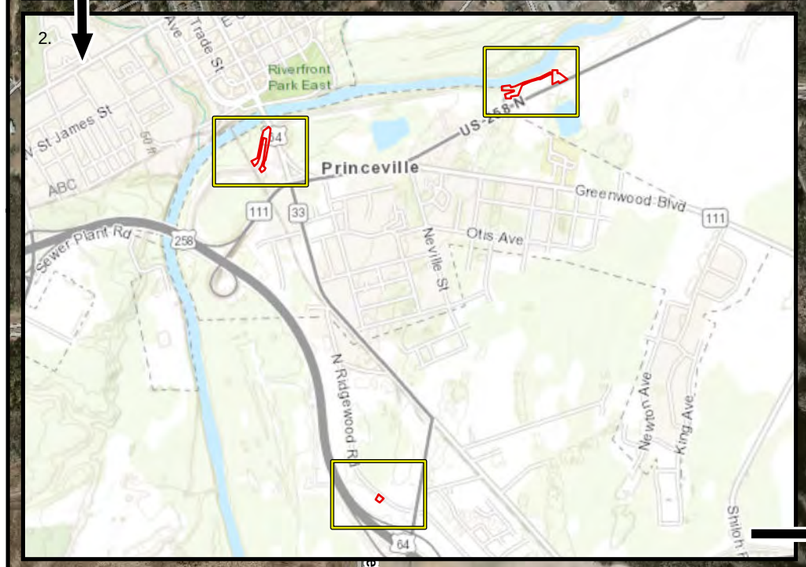
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

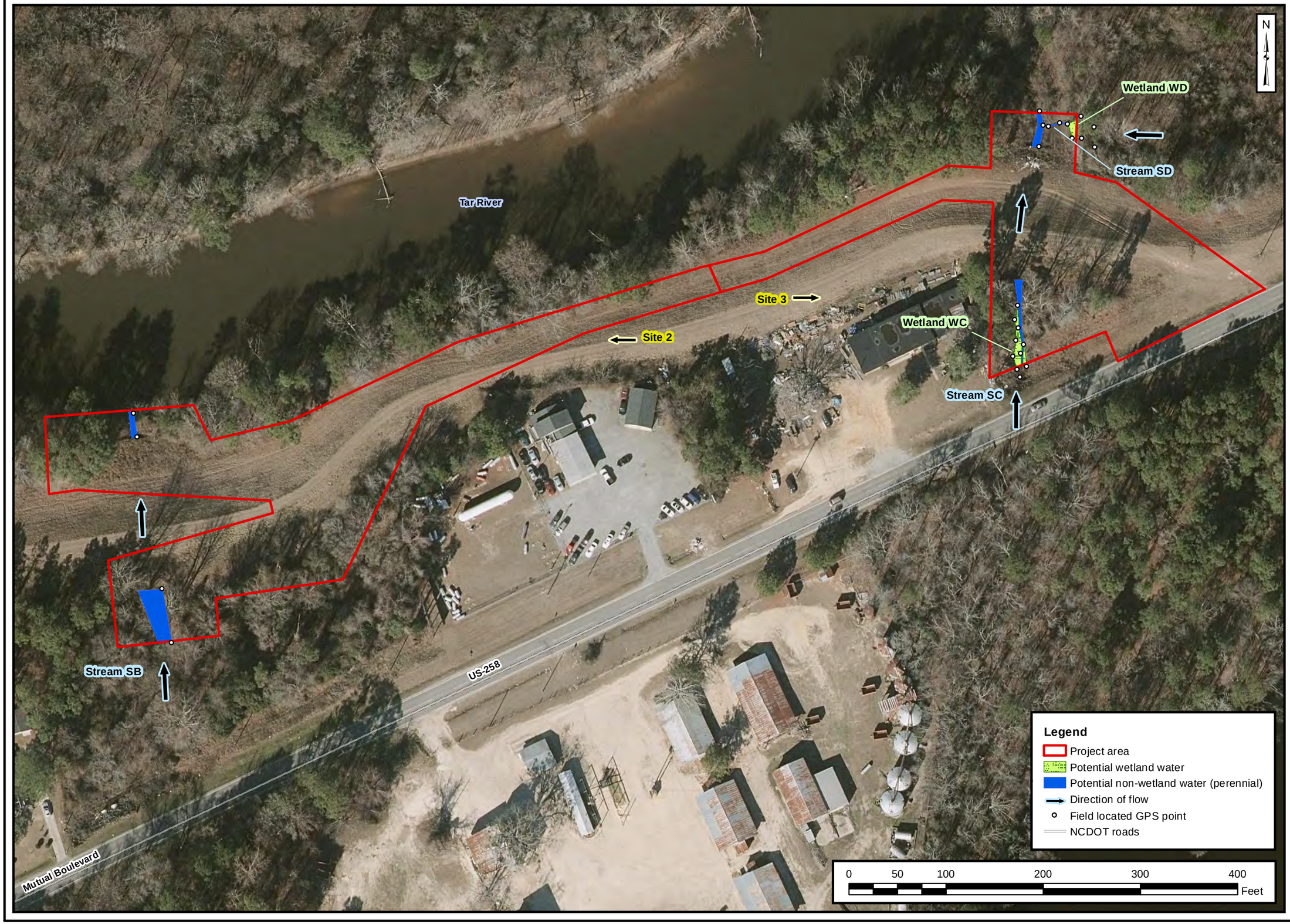
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

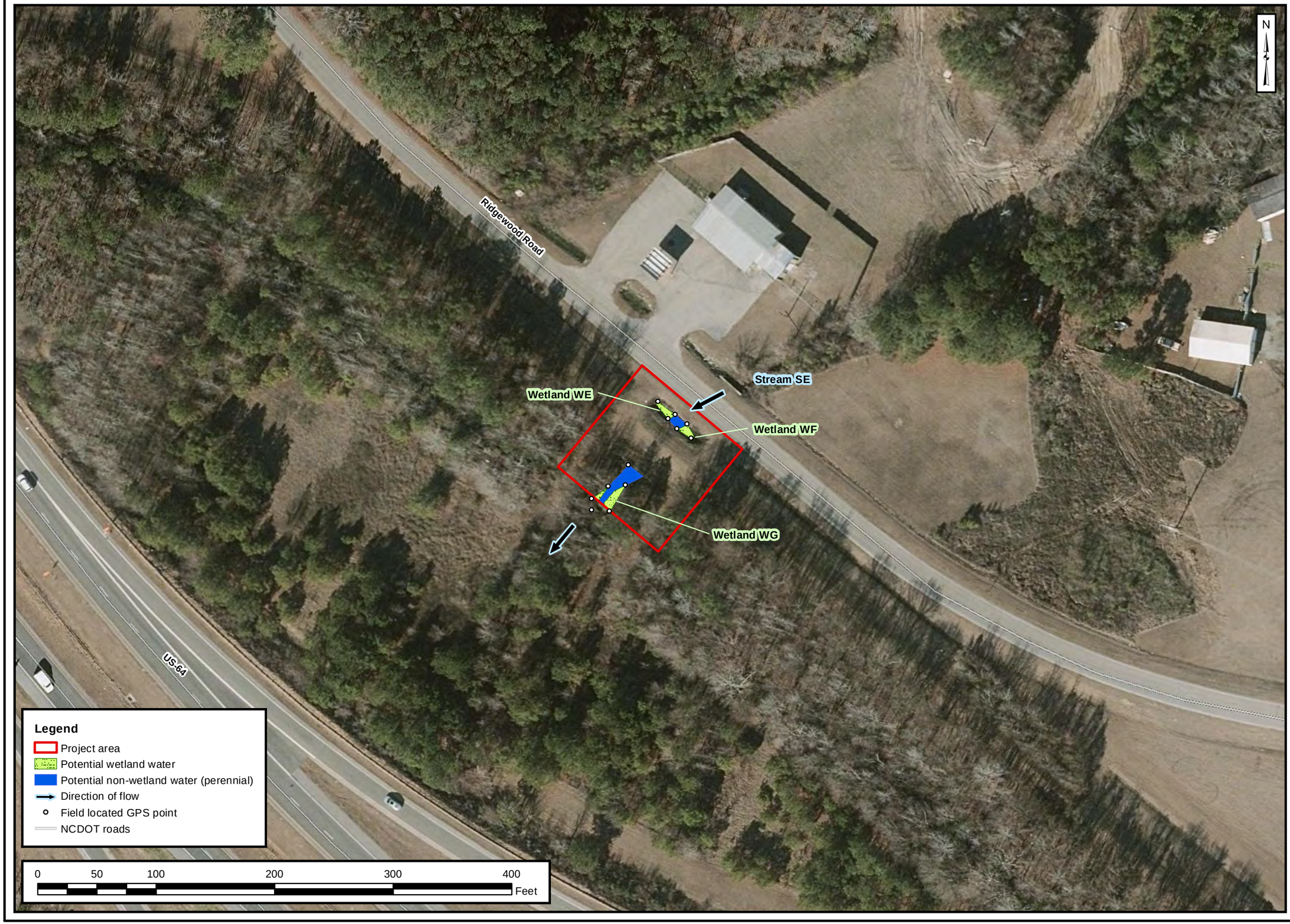
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Attachment 2

Subject Property Photographs









Gievers, Andrea

From: Gievers, Andrea
Sent: Wednesday, August 17, 2022 2:30 PM
To: BPrintup@hetf.org
Subject: Section 106 Review - Princeville Levee Floodgate Repair, Princeville, NC
Attachments: NCORR THPO Tuscarora Princeville Levee pkg 8.17.22.pdf

Dear Mr. Printup:

Please find attached the Section 106 review request for the proposed **Princeville Levee Floodgate Repair Project** at **four levee floodgate culvert locations along the Tar River** in **Princeville, Edgecombe County, NC 27886**. NCORR respectfully submits for your review the attached documentation for the proposed project described herein. If the APE encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days of receipt of this email indicating a desire to consult. If you have any concerns with potential impacts of the proposed project on historic properties, please note them in your response along with your preferred principal representative's point of contact. Please respond within this timeframe, otherwise we will assume that the proposed project will have no effect to historic properties of religious or cultural significance. A hard copy of the attached Section 106 package has been sent to Chief Tom Jonathan. If you have any questions or require additional information regarding this request, please feel free to contact me at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you so much for your time and assistance.

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

North Carolina Department of Public Safety
Office of Recovery and Resiliency

Roy Cooper, Governor
Eddie M. Buffaloe, Jr., Secretary

Laura H. Hogshead, Director

August 17, 2022

Mr. Bryan Printup
Tribal Historic Preservation Office
5226 Walmore Road
Lewiston, NY 14092

Sent via email: BPrintup@hetf.org

RE: Section 106 Review - HUD CDBG-DR Program
Princeville Levee Floodgate Repairs
Four levee floodgate culvert locations along the Tar River
Princeville, Edgecombe County, NC 27886

Dear Mr. Printup:

The North Carolina Office of Recovery and Resiliency (NCORR), as a recipient of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds from the United States Department of Housing and Urban Development (HUD), is serving as the responsible entity for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. NCORR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation.

NCORR processes environmental reviews for proposed projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470f), and its implementing regulations, 36 CFR Part 800, this letter serves as notification of the proposed action. This letter also serves as an invitation to discussion as a consulting party in this review to help identify historic properties in the proposed project area that may have religious and cultural significance to your Nation, and if such properties exist, to help assess how the proposed project might affect them. If the proposed project might have an adverse effect, we would like to discuss possible ways to avoid, minimize or mitigate potential adverse effects.

Area of Potential Effects (APE) under §800.16(d): We have defined the APE as the boundary of the Subject Property consisting of four levee floodgate culvert locations along the Tar River Princeville, Edgecombe County, NC 27886. The proposed project locations are included in the Design Plans and USACE Notice of Preliminary Jurisdictional Determination in **Attachment 1** and coordinates are below for your review.

Structure Location	Reference Station	Approximate Location
Structure 1 – Princeville Dike	Section A Sta. 10+75	35.890816, -77.532662
Structure 2 – Princeville Dike	Section A Sta. 20+64	35.894597, -77.516820
Structure 3 – Princeville Dike	Section A Sta. 75+16	35.895364, -77.513700
Structure 4 – Princeville Dike	Section B Sta. 40+34	35.873450, -77.525434

The State of North Carolina was adversely impacted by the landfall of Hurricanes Matthew (October 8, 2016) and Florence (September 14, 2018). During the Hurricane Matthew storm event, a large majority of the 2,357 citizens residing in the Town of Princeville were displaced by floodwaters due to the failure of function of the Princeville floodgate, located along the USACE levee bordering the Tar River. Therefore, funding for the proposed project will be provided in part by the HUD CDBG-DR North Carolina Infrastructure Recovery Program for Hurricane Matthew storm recovery activities in North Carolina.

Proposed Project Description: The proposed floodgate inlet and outlet channel repairs include excavating and installing rip-rap channel linings consistent with the dimensions and extents shown in the original Princeville levee construction plans, with some modifications to the rip-rap thickness and size to prevent rip rap loss during high flow events. The access roads consist of constructing 10-foot-wide gravel roads with 1-foot-wide shoulders and 3:1 side-slopes. The access roads constructed of fill material with a gravel, travel way will traverse up, over, and/or down the levee and connect to "stub-roads" that provide access to inlet and outlet channels at Sites 1, 2, and 3. Site 4 already has adequate access for proposed channel repairs and future inspection, maintenance and flood-fighting operations, therefore, no new access roads are proposed at Site 4. This project is anticipated to consist of construction activities that include earthwork, access road construction, replacement of existing culvert infrastructure, placement of base and incidental aggregates, erosion controls, and restoration of the site following construction, with a total of 7.7 acres of ground disturbance potential, with *most of the work occurring in areas of previous disturbance*. Project implementation would be conditioned upon issuance of applicable Federal, State and local permits and would be constructed in accordance with all permit conditions.

The proposed project information has been sent to the NC State Historic Preservation Office and the Catawba Indian Nation in accordance with Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800. For the NC SHPO Section 106 review, we have made a Finding of *"No Historic Properties Affected"* pursuant to 36 CFR 800.4(d)(1) based on the following:

> A review of the Subject Property in the National Register of Historic Places, North Carolina State Historic Preservation Office's HPOWEB, and site review, identified no publicly recorded historic properties which are locally designated or listed in or eligible for inclusion in the State or National Register of Historic Places are located on or immediately adjacent to the Subject Property. According to HPOWEB, from Structure 4, the Abraham

Wooten House (ED1129) is located approximately 1,077 feet to the southeast and Tarboro Historic District Boundary Expansion (Bridge No. 24 - ED1167) and Princeville Baptismal Site (ED1065) are located approximately 700 feet to the northeast. According to the National Register, there are two sites located within 0.25 mile from Structure 1 (Quigless Clinic 0.10 mile and Eastern Star Baptist Church 0.12 mile).

The Subject Property consists of existing levee segments which were constructed in 1967 by the USACE but are maintained by Edgecombe County. The importance of the proposed project to ensure the continued existence of historic structures within the Town of Princeville cannot be understated. Princeville's Town Hall, originally built as a schoolhouse in the 1920s, was badly damaged during past floods along with many other older structures destroyed. The Town of Princeville is undertaking the proposed project involving construction of upgrades and necessary repairs to critical flood control infrastructure so as to prevent flooding of the Town during future storm events. The Subject Property photographs are included in **Attachment 2**.

With this letter, NCORR respectfully submits for your review the attached documentation for the proposed project described herein. If the APE encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days of receipt of this letter indicating a desire to consult. If you have any concerns with potential impacts of the proposed project on historic properties, please note them in your response along with your preferred principal representative's point of contact. Please respond within this timeframe, otherwise we will assume that the proposed project will have no effect to historic properties of religious or cultural significance. Please respond via email at Andrea.L.Gievers@Rebuild.NC.gov or in writing to the address listed below.

Ms. Andrea Gievers
NCORR - Environmental
ATTN: THPO Comments
P.O. Box 110465
Durham, NC 27709

If you have any questions or require additional information regarding this request, please feel free to contact Andrea Gievers at (845) 682-1700 or via email at Andrea.L.Gievers@Rebuild.NC.gov. Thank you for your time and assistance.

Sincerely,

Andrea Gievers

Andrea Gievers, JD, MSEL, ERM
NCORR Environmental Subject Matter Expert

Proposed Princeville Levee Floodgate Repairs Enclosures:
Attachment 1: Proposed Project Design Plans and USACE Notice of Preliminary Jurisdictional Determination
Attachment 2: Subject Property Photographs

cc: Chief Tom Jonathan, Tuscarora Nation, 5226 Walmore Road, Lewiston, NY 14092

Attachment 1

Design Plans and

USACE Notice of Jurisdictional Determination

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

PROJECT:

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROJECT:
PRINCEVILLE LEVEE FLOODGATE REPAIRS

CONSTRUCTION DOCUMENTATION

CLIENT: TOWN OF PRINCEVILLE
DR. GLENDA KNIGHT
201 SOUTH MAIN STREET
PRINCEVILLE, NC 27886

OLDEST TOWN CHARTERED BY BLACKS IN AMERICA
1885
TOWN OF PRINCEVILLE
NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Joshua G. Dalton
Professional Engineer

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
9/9/2021

Originally Sealed on 06-17-2021

DESIGN TEAM COORDINATOR:
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NC 27606
919-859-2243

DESIGN TEAM:

Axiom Environmental, Inc.
218 Snow Ave
Raleigh, NC 27603

Wooten
The Wooten Company
120 N. Boylan Ave
Raleigh, NC 27603
919-828-0531

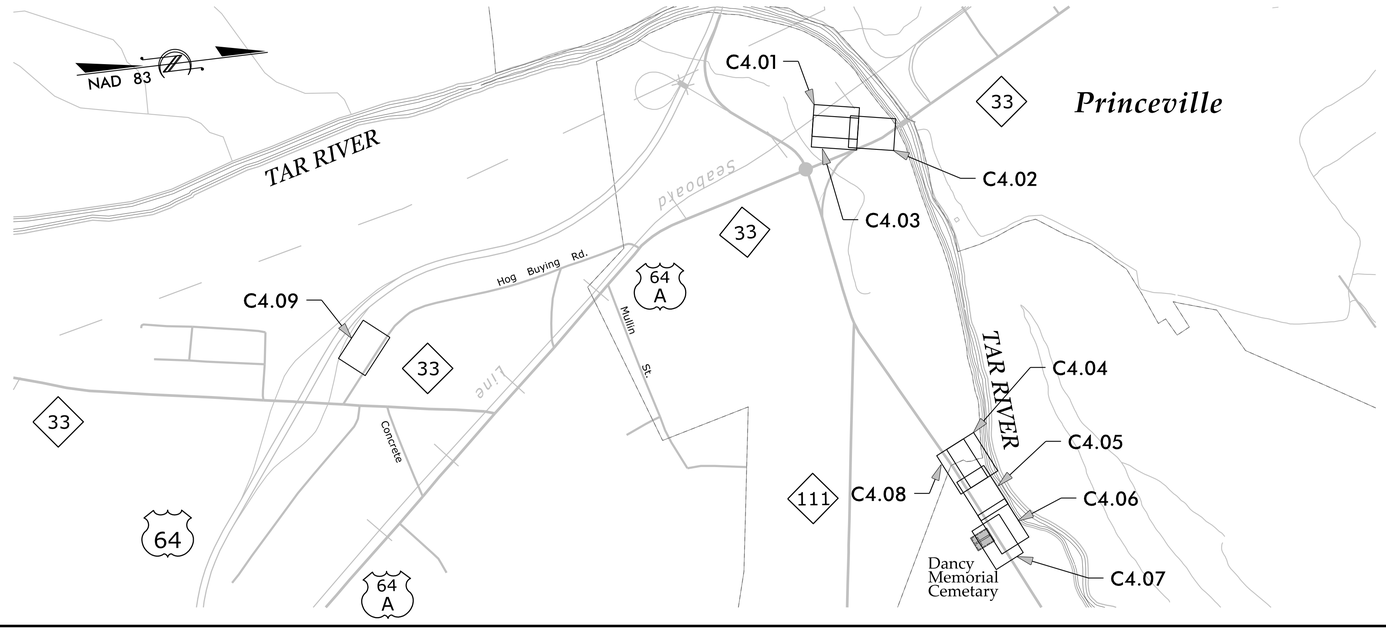
NV5
NV5 Engineers and Consultants, Inc.
4905 Professional Court
Raleigh, NC 27609
919-876-9799

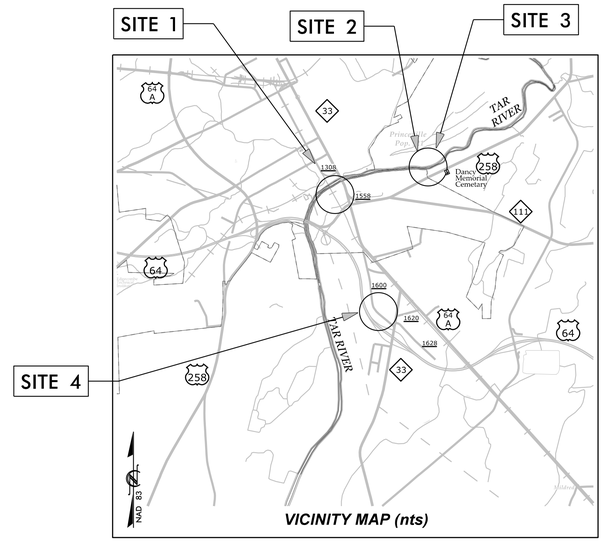
INDEX OF SHEETS

SHEET NUMBER	SHEET
C1.00	Title Sheet
C1.01	Symbology
C1.02 THRU C1.03	General Notes, Typicals
C2.01	Overall Existing Conditions
C2.02	Existing Drainage Flow – Site 1
C2.03	Existing Drainage Flow – Site 2, 3
C2.04	Existing Drainage Flow – Site 4
C3.01 THRU C3.03	Erosion and Sediment Control Plan – Site 1
C3.04 THRU C3.08	Erosion and Sediment Control Plan – Site 2, 3
C3.09	Erosion and Sediment Control Plan – Site 4
C4.01 THRU C4.03	Grading and Storm Drainage/ Profile - Site 1
C4.04 THRU C4.08	Grading and Storm Drainage/ Profile - Site 2, 3
C4.09	Grading and Storm Drainage/ Profile - Site 4
C5.01 THRU C5.07	Cross Sections - Site 1
C5.08 THRU C5.16	Cross Sections – Site 2, 3
C5.17 THRU C5.19	Cross Sections – Site 4
C6.01 THRU C6.12	Details

Revisions:
1. 06-24-2021 – USACE Comment:
– Relocated Spec. Stilling Basin on PSH C3.06 from East to West Side of Stream to Eliminate Temp. Stream Crossing.
2. 07-01-2021 – Added Removable Steel Bollard and Detail at Site 2 / 3 Entrance.
3. 07-26-2021 – NCDOT Comments:
– Revised Detail 7.1 to Include 4' Shoulder.
– Revised Site 4 to Replace Two Existing 12" CMP with Two 18" RCP-IV.

TOTAL DISTURBED AREA = 4.4 ACRES
TAR-PAMLICO RIVER BASIN





VICINITY MAP (nts)

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (C/A)
- Existing Control of Access (C/A)
- New Control of Access (C/A)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub

- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by: Joshua G. Dalton — Signature | Date

PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS
PRINCEVILLE, EDGECOMBE COUNTY, NC
SYMBOLOGY

PROJECT # : I284-20041
DRAWING NAME: FLOODGATE RDY PSH C101
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C1.01

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9/9/2021 Floodgate_Rdy_psh_C101.dgn User: rch

DocuSign Envelope ID: 8258B09F-0A56-4750-965C-AD822D53A872

SITE 1

NAD 83

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

EDGECOMBE COUNTY
DIKE EASEMENT
DB 712-308

BL-5
1/2" REBAR SET
N 782395.69'
E 2434524.25'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-6
1/2" REBAR SET
N 782596.97'
E 2434601.02'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-7
1/2" REBAR SET
N 782980.14'
E 2434672.90'
NAD 83 (2011)
EL=48.3'
NAVD 88

BL-8
1/2" REBAR SET
N 783076.49'
E 2434763.63'
NAD 83 (2011)
EL=46.76'
NAVD 88

NCGS MON. "PRINKE"
N=783186.44 SFT
E=2434831.16 SFT
NAD 83(2011)

PIN # 4738-42-8911
E.J. POPE & SON, INC.
D.B. 1002 PG. 332
LEVEE ESMT.
D.B. 712 PG. 308
NCDOT R/W
D.B. 1526 PG. 276

PIN # 4738-42-3966
TRADE LAND COMPANY, LLC
D.B. 1673 PG. 946
D.B. 861PG. 346
D.B. 712 PG. 308

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 4

83 GVD

PIN # 4737-66-9276
TERRY WEBB, et al
D.B. 1674 PG. 1046

PIN # 4737-76-3015
WILLOUGHBY INCORPORATED, LLC
D.B. 1671PG. 467

BL-10
1/2" REBAR SET
N 776204.13'
E 2436751.53'
NAD 83 (2011)
NAVD 88

BL-9
1/2" REBAR SET
N 776029.65'
E 2437008.13'
NAD 83 (2011)
EL=39.27'
NAVD 88

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 318

50' 25' 0 50' 100'
SCALE: 1" = 50'

SITE 2 & 3

NAD 83

PIN # 4738-83-9653
BILLY W. TREVATHAN
et al
D.B. 1542 PG. 184
D.B. 704 PG. 645
P.C. 7 SLD. 114
P.C. 6 SLD. 196
TRACT 1

PHYSICAL ADDRESS:
441 E. MUTUAL BLVD.

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

BL-1
1/2" REBAR SET
N 783800.87'
E 2438939.39'
NAD 83 (2011)
EL=48.09'
NAVD 88

BL-2
1/2" REBAR SET
N 783793.93'
E 2439188.58'
NAD 83 (2011)
EL=48.90'
NAVD 88

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG.645

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 2

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 704 PG. 641

EDGECOMBE COUNTY
DIKE EASEMENT
D.B. 712 PG. 294
TRACT 1

PIN # 4748-25-3442
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 1

PHYSICAL ADDRESS:
US 258 NORTH

BL-3
1/2" REBAR SET
N 784120.77'
E 2440429.74'
NAD 83 (2011)
EL=48.94'
NAVD 88

BL-4
1/2" REBAR SET
N 784287.54'
E 2440787.15'
NAD 83 (2011)
EL=48.77'
NAVD 88

PIN # 4738-93-0663
WOODROW A. WALSTON
et al
D.B. 1297 PG. 295
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 2

PHYSICAL ADDRESS:
447 E. MUTUAL BLVD.

PIN # 4738-93-2604
ELBERT R. POWELL
D.B. 1300 PG. 1058
D.B. 704 PG. 645
P.C. 6 SLD. 196
TRACT 3

PHYSICAL ADDRESS:
449 E. MUTUAL BLVD.

PIN # 4738-93-4722
ANDREW M. DAVIS, JR.
et al
D.B. 1585 PG. 897
P.C. 11 SLD. 80
TRACT 2

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-6833
WILLIAMS FUEL ACQUISITIONS, INC.
D.B. 1301 PG. 226

PHYSICAL ADDRESS:
US 258 NORTH

PIN # 4738-93-7980
PROVIDENCE BANK
D.B. 1716 PG. 986

PHYSICAL ADDRESS:
781 US 258 NORTH

PIN # 4748-04-1032
SEAHAWK INVESTMENT GROUP, LLC
D.B. 1674 PG. 341
D.B. 704 PG. 641

PHYSICAL ADDRESS:
831 US 258 NORTH

80' 40' 0 80' 160'
SCALE: 1" = 80'

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 839-2243
ENG FIRM LICENSE NO. C-690

DocuSigned by:
Randal C. Howard, PLS
E7DB2290538E4DF...

SEAL
L-5015
LAND SURVEYOR
RANDAL C. HOWARD

9/9/2021

PRINCEVILLE DIKE FLOODGATE REPAIRS

PRINCEVILLE, EDGECOMBE COUNTY, NC

EXISTING CONDITIONS

PROJECT # : 1284-20041
DRAWING NAME: FLOODGATE RDY PSH C201
DATE: 6-16-2021
DRAWN BY:
REVIEWED BY: RCH
REVISIONS:

SHEET NO. C2.01

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9/9/2021
Floodgate_Rdy_psh_C201.dgn
Plan view

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2021-00964** County: **Edgecombe**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Town of Princeville**
Dr. Glenda Knight
Address: **201 South Main Street**
Princeville, North Carolina 27886
Telephone Number: **(252) 783-1057**
E-mail: **gknight@townofprinceville.com**

Size (acres) **7.7**
Nearest Waterway **Tar River**
USGS HUC **03020103**
Nearest Town **Princeville**
River Basin **Pamlico**
Coordinates Latitude: **35.89087**
Longitude: **-77.53317**

Location description: **The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).**

Indicate Which of the Following Apply:

A. Preliminary Determination

☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the enclosed delineation map dated **April 2021**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated . We strongly suggest

you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy W. Standridge at (252) 251-4595 or Billy.w.standridge@usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 06/28/2021.

D. Remarks: All aquatic resources within the review area are depicted on the attached *Potential Jurisdictional Features (sites 1-4)* exhibits dated April 2021.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Billy W. Standridge

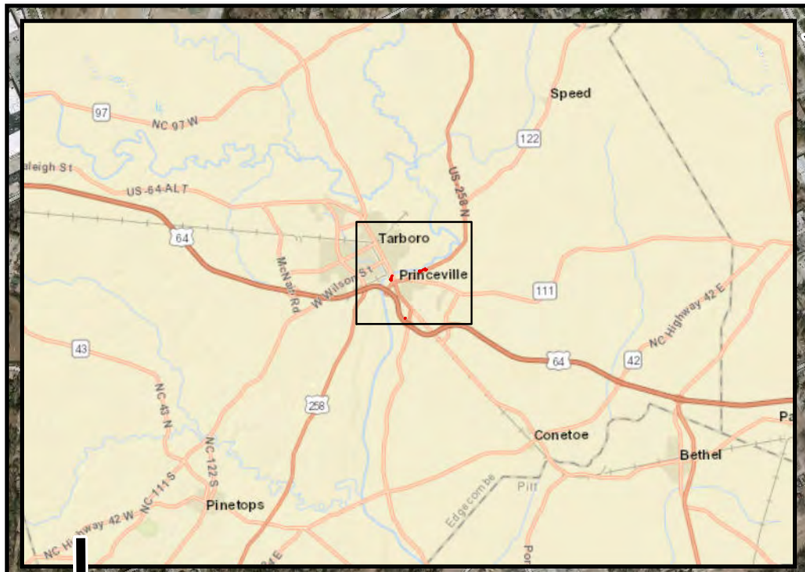
Date of JD: **06/28/2021** Expiration Date of JD: **Not applicable**

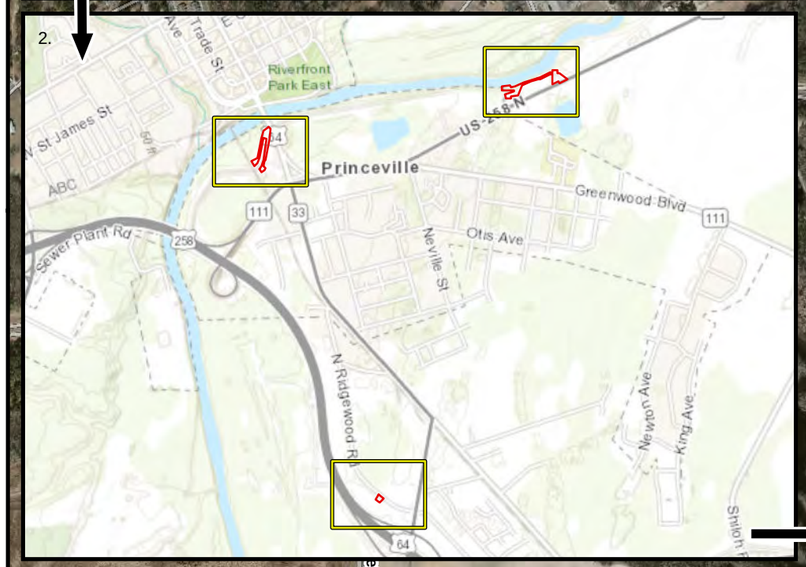
SAW-2021-00964

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

Agent:	**Axiom Environmental, Inc.**
	Sandy Smith
Address:	**218 Snow Avenue**
	Raleigh, North Carolina 27603
Telephone Number:	**(919) 215-1693**
E-mail:	**ssmith@axiomenvironmental.org**







Legend

- Project areas
- Detail tile
- NCDOT roads

0 600 1,200 2,400 3,600 4,800 Feet

Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site Locations

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

2. Background imagery source: Tarboro and Old Sparta, NC 7.5-minute topographic quadrangles provided by the U.S. Geological Survey (USGS).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:15,000
Project No.:	20-029

FIGURE
1



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

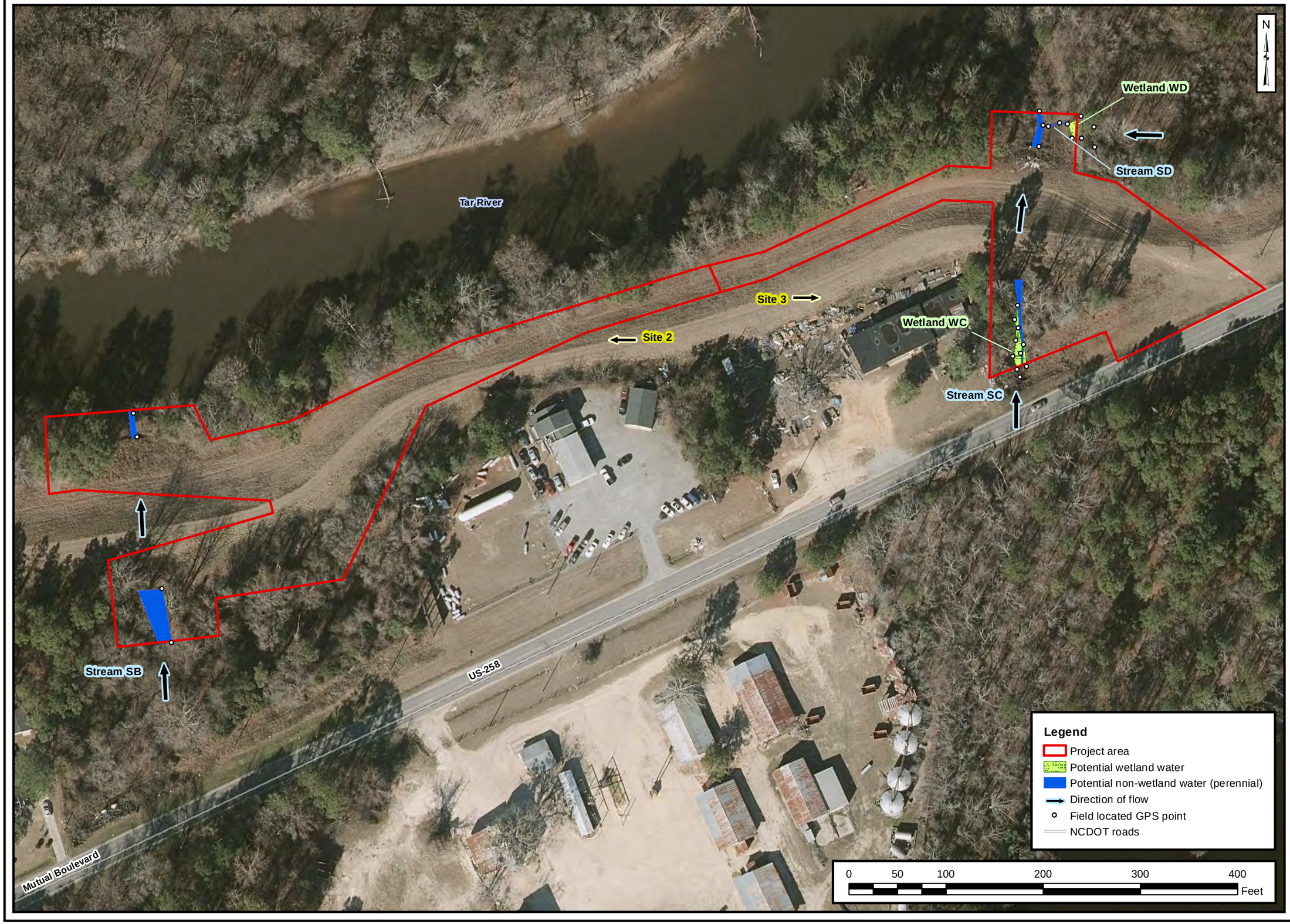
Site 1 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:1200
Project No.:	20-029

FIGURE
A



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

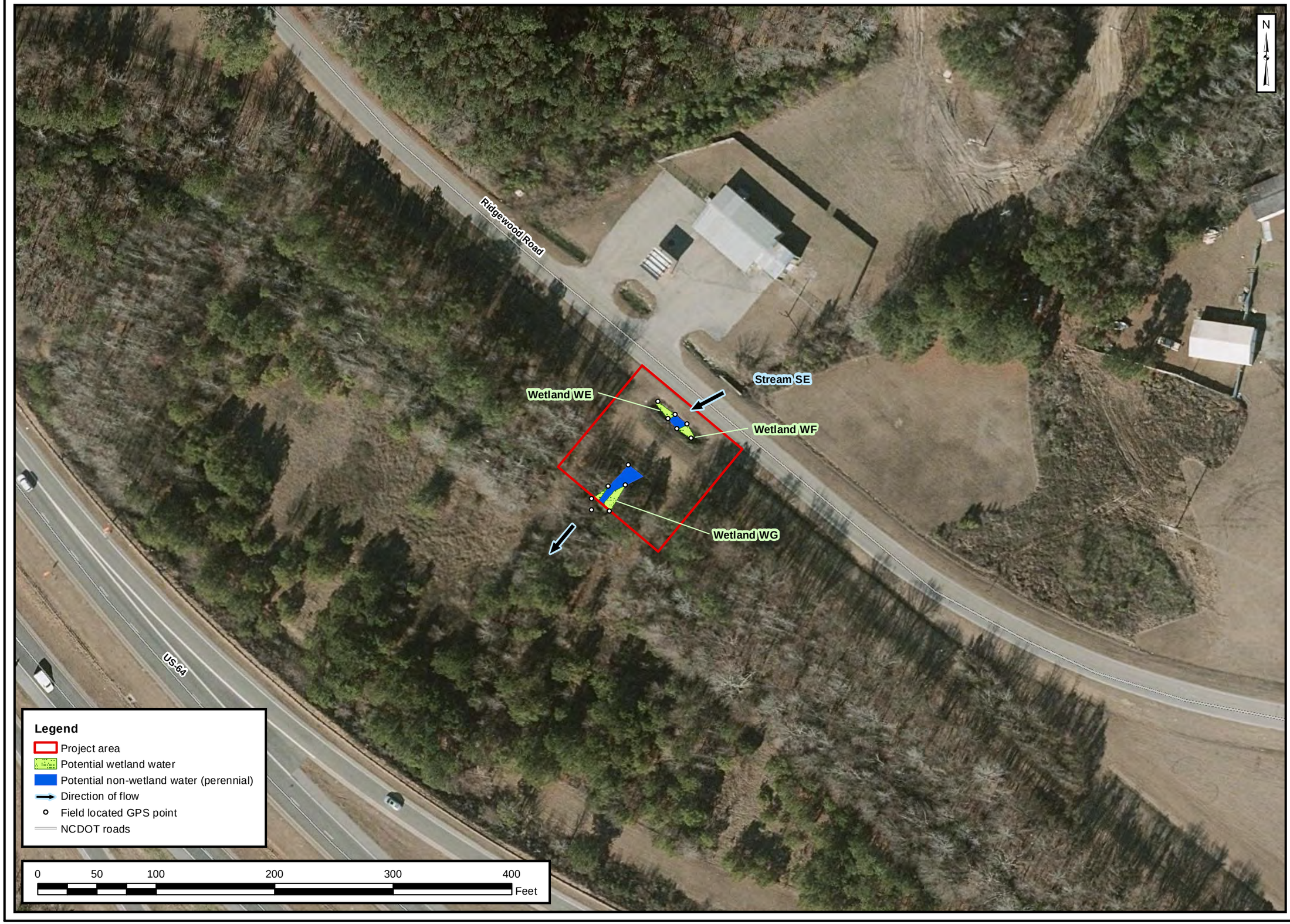
Sites 2 & 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr. 2021
Scale:	1:1000
Project No.:	20-029

FIGURE
B



Axiom Environmental, Inc.

Prepared for:

Sungate Design Group

Project:

PRINCEVILLE FLOODGATES

Edgecombe County

Title:

Site 3 Potential Jurisdictional Features

Notes:

1. Background imagery source: 2017 aerial photography provided by the NC OneMap Program (online, supported by the NC Geographic Information Coordination Council).

Drawn by:	AEK
Date:	Apr 2021
Scale:	1:900
Project No.:	20-029

FIGURE
C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Town of Princeville, Dr. Glenda Knight**	File Number: **SAW-2021-00964**	Date: **06/28/2021**

Attached is:		See Section below
☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **Attn: Billy W. Standridge** **Washington Regulatory Office** **U.S Army Corps of Engineers** **2407 West Fifth Street** **Washington, North Carolina 27889**	If you only have questions regarding the appeal process you may also contact: MR. PHILIP A. SHANNIN ADMINISTRATIVE APPEAL REVIEW OFFICER CESAD-PDS-O 60 FORSYTH STREET SOUTHWEST, FLOOR M9 ATLANTA, GEORGIA 30303-8803 PHONE: (404) 562-5136; FAX (404) 562-5138 EMAIL: PHILIP.A.SHANNIN@USACE.ARMY.MIL

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, **Attn: Billy W. Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Philip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR PJD:** 06/28/2021

B. **NAME AND ADDRESS OF PERSON REQUESTING PJD:** Town of Princeville, Dr. Glenda Knight, 201 South Main Street, Princeville, North Carolina 27886

C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Wilmington District, Princeville Dike Floodgate Repairs, SAW-2021-00964

D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** The review area for this Jurisdictional Determination includes four project sites of the Princeville Dike in the Town of Princeville, Edgecombe County, North Carolina. Site 1 (35.890816, -77.532662), Site 2 (35.894597, -77.516820), Site 3 (35.895364, -77.513700), Site 4 (35.873450, -77.525434).

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Edgecombe City: Princeville
Center coordinates of site (lat/long in degree decimal format): Latitude: 35.89087 Longitude: -77.53317

Universal Transverse Mercator:

Name of nearest waterbody: Tar River

E. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐Office (Desk) Determination. Date:

☒Field Determination. Date(s): 06/24/2021

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1. Stream SA	35.890763	-77.53268	R3UB1/2	96 feet length, 6-20 feet avg width	non-section 10 – non-wetland
2. Stream SB	35.894311	-77.516767	R3UB1/2	83 feet length, 4-25 feet avg width	non-section 10 – non-wetland
3. Stream SC	35.895243	-77.313787	R3UB1/2	144 feet length, 2-15 feet avg width	non-section 10 – non-wetland
4. Stream SD	35.895719	-77.513607	R3UB1/2	26 feet length, 2-3 feet avg width	non-section 10 – non-wetland
5. Stream SE	35.873382	-77.525495	R3UB1/2	49 feet length, 6-15 feet avg width	non-section 10 – non-wetland
6. Wetland WA	35.890842	-77.532557	PFO	0.003 acre	non-section 10 wetland
7. Wetland WB	35.891083	-77.533262	PSS	0.006 acre	non-section 10 wetland
8. Wetland WC	35.895081	-77.513791	PFO	0.007 acre	non-section 10 wetland
9. Wetland WD	35.895713	-77.513588	PFO	0.003 acre	non-section 10 wetland
10. Wetland WE	35.873529	-77.525413	PSS	0.002 acre	non-section 10 wetland
11. Wetland WF	35.873471	-77.525339	PSS	0.002 acre	non-section 10 wetland
12. Wetland WG	35.873316	-77.525563	PFO	0.004 acre	non-section 10 wetland

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Tarboro and Old Sparta (2019) 7.5-minute topographic quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey (online at http://websoilsurvey.nrcs.usda.gov), and the most recent published Soil Survey of Edgecombe County (1979) Maps 18 and 19.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NC OneMap 2017 Orthoimagery. or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Billy W. Stanbridge 06/28/2021
_____
Signature and date of
Regulatory Project Manager
(REQUIRED)

Alexander P. Smith 5/03/2021
_____
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Attachment 2

Subject Property Photographs









FedEx Express **Package US Airbill**

FedEx Tracking Number **8171 2093 9280**

Form ID No. **0200**

Sender's Copy

1 From *Please print and press hard.*

Date 8/17/22 Sender's FedEx Account Number 8950-9899-0

Sender's Name Andrea Gievers Phone (845, 682-1700

Company NCORR

Address 123 Kings Hill Road Dept./Floor/Suite/Room

City Walden State NY ZIP 12586

2 Your Internal Billing Reference First 24 characters will appear on invoice. Princeville Levee

3 To

Recipient's Name Dr. Wenonah G. Haine Phone ( )

Company Catawba Indian Nation - THPO

Address 1536 Tom Steven Rd

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Rock Hill State SC ZIP 29730

Hold Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

Hold Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4 Express Package Service * To most locations.

Packages up to 150 lbs. *For packages over 150 lbs., use the FedEx Express Freight US Airbill.*

Next Business Day

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☒ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods? One box must be checked.

☐ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide. ☐ Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. below.

☐ Sender Acct. No. in Section 1 will be billed ☐ Recipient ☐ Third Party

This airbill can be used only when billing to a FedEx account number. For cash, check, or credit card transactions, please go to a staffed shipping location.

FedEx Acct. No.

Total Packages Total Weight Total Declared Value†

____ lbs. $ ____ .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this airbill you agree to the service conditions on the back of this airbill and in the current FedEx Service Guide, including terms that limit our liability.

644

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Ship it. Track it. Pay for it. All online. Go to **fedex.com**.

FOLD AND DETACH THIS COPY BEFORE ATTACHING TO THE PACKAGE. NO POUCH NEEDED.

FedEx Express **Package US Airbill**

FedEx Tracking Number **8171 2093 9305**

Form ID No. **0200**

Sender's Copy

1 From *Please print and press hard.*

Date 8/17/22 Sender's FedEx Account Number 8950-9899-0

Sender's Name Andrea Gievers Phone (845682-1700

Company NCORR

Address 123 Kings Hill Road Dept./Floor/Suite/Room

City Walden State NY ZIP 12586

2 Your Internal Billing Reference First 24 characters will appear on invoice. Princeville Levee

3 To

Recipient's Name Chief Bill Harris Phone ( )

Company Catawba Indian Nation

Address 996 Avenue of the Nations

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Rock Hill State SC ZIP 29730

Hold Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

Hold Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4 Express Package Service * To most locations.

Packages up to 150 lbs. *For packages over 150 lbs., use the FedEx Express Freight US Airbill.*

Next Business Day

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☒ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods? One box must be checked.

☐ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide. ☐ Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. below.

☐ Sender Acct. No. in Section 1 will be billed ☐ Recipient ☐ Third Party

This airbill can be used only when billing to a FedEx account number. For cash, check, or credit card transactions, please go to a staffed shipping location.

FedEx Acct. No.

Total Packages Total Weight Total Declared Value†

____ lbs. $ ____ .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this airbill you agree to the service conditions on the back of this airbill and in the current FedEx Service Guide, including terms that limit our liability.

644

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Ship it. Track it. Pay for it. All online. Go to **fedex.com**.

FOLD AND DETACH THIS COPY BEFORE ATTACHING TO THE PACKAGE. NO POUCH NEEDED.

FedEx Express Package US Airbill

FedEx Tracking Number 8171 2093 9290

Form ID No. 0200

Sender's Copy

1 From *Please print and press hard.*

Date 8/17/22 Sender's FedEx Account Number 8950-9899-0

Sender's Name Andrea Gievers Phone (845) 682-1700

Company NCORR

Address 123 Kings Hill Road

Dept./Floor/Suite/Room

City Walden State NY ZIP 12586

2 Your Internal Billing Reference First 24 characters will appear on invoice. Princeville Levee

3 To

Recipient's Name Chief Tom Jonathan Phone ( )

Company Tuscarora Nation

Address 5226 Walmore Road

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Lewiston State NY ZIP 14092

☐ Hold Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

☐ Hold Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Ship it. Track it. Pay for it. All online.
Go to fedex.com.

4 Express Package Service * To most locations.

Packages up to 150 lbs. For packages over 150 lbs., use the FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

☒ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☐ No ☐ Yes — As per attached Shipper's Declaration. ☐ Yes — Shipper's Declaration not required. ☐ Dry Ice — Dry Ice, 9, UN 1845 _____ x _____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

☐ Cargo Aircraft Only

7 Payment *Bill to:*

This airbill can be used only when billing to a FedEx account number. For cash, check, or credit card transactions, please go to a staffed shipping location.

☐ Sender — Acct. No. in Section 1 will be billed.

Enter FedEx Acct. No. below.

☐ Recipient ☐ Third Party

FedEx Acct. No.

Total Packages _____ Total Weight _____ lbs. Total Declared Value† $ _____ .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this airbill you agree to the service conditions on the back of this airbill and in the current FedEx Service Guide, including terms that limit our liability.

644

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FOLD AND RETAIN THIS COPY BEFORE APPLYING TO THE PACKAGE. NO POUCH NEEDED.

ATTACHMENT 12:

Sole Source Aquifers

EPA Sole Source Aquifer Map

U.S. EPA Sole Source Aquifer Map



4/17/2023, 4:12:52 PM

1:9,244,649

Sole_Source_Aquifers

0 65 130 260 mi

0 105 210 420 km

Esri, HERE, Garmin, NGA, USGS, NPS

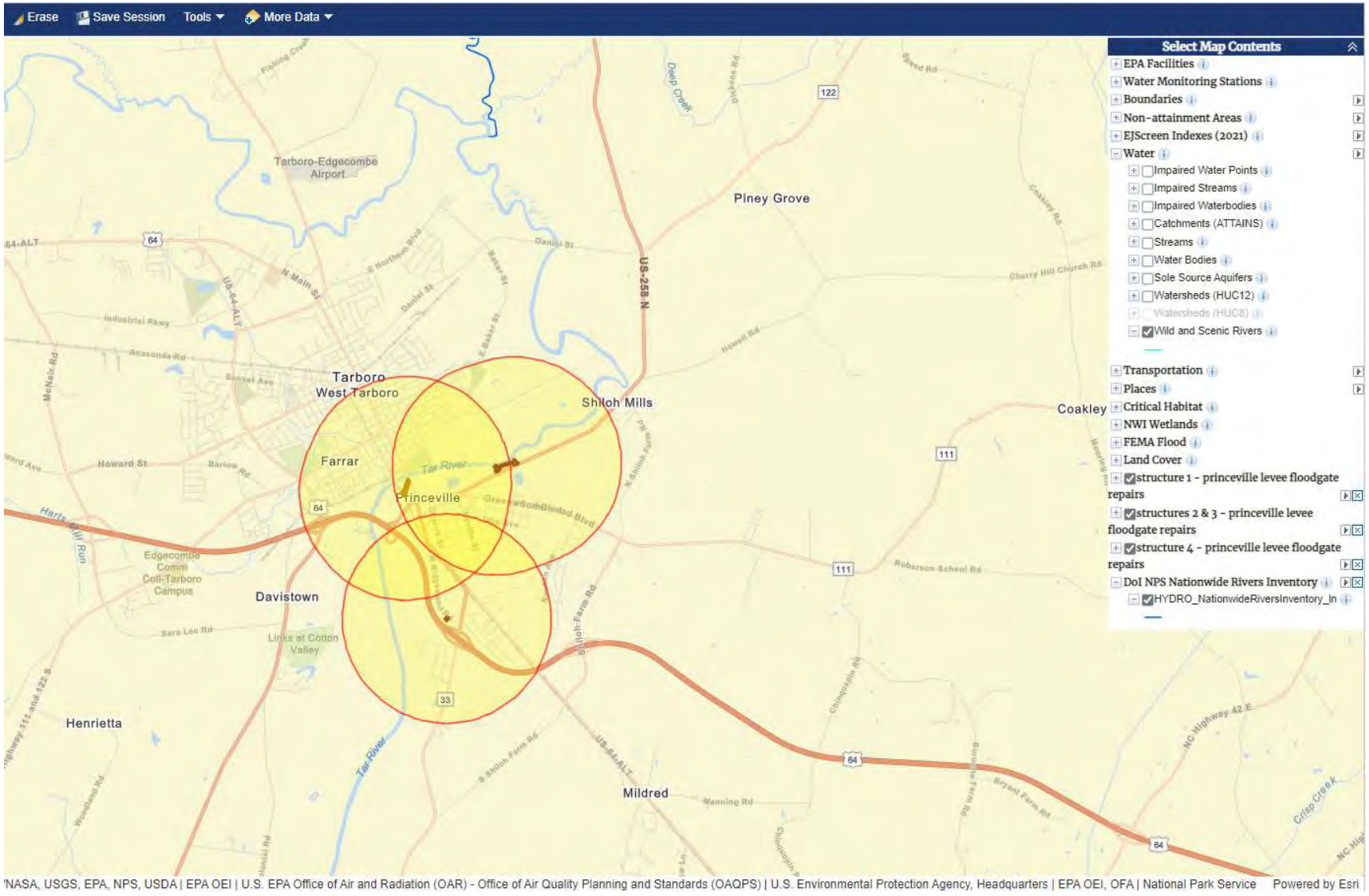
U.S. Environmental Protection Agency

ATTACHMENT 13:

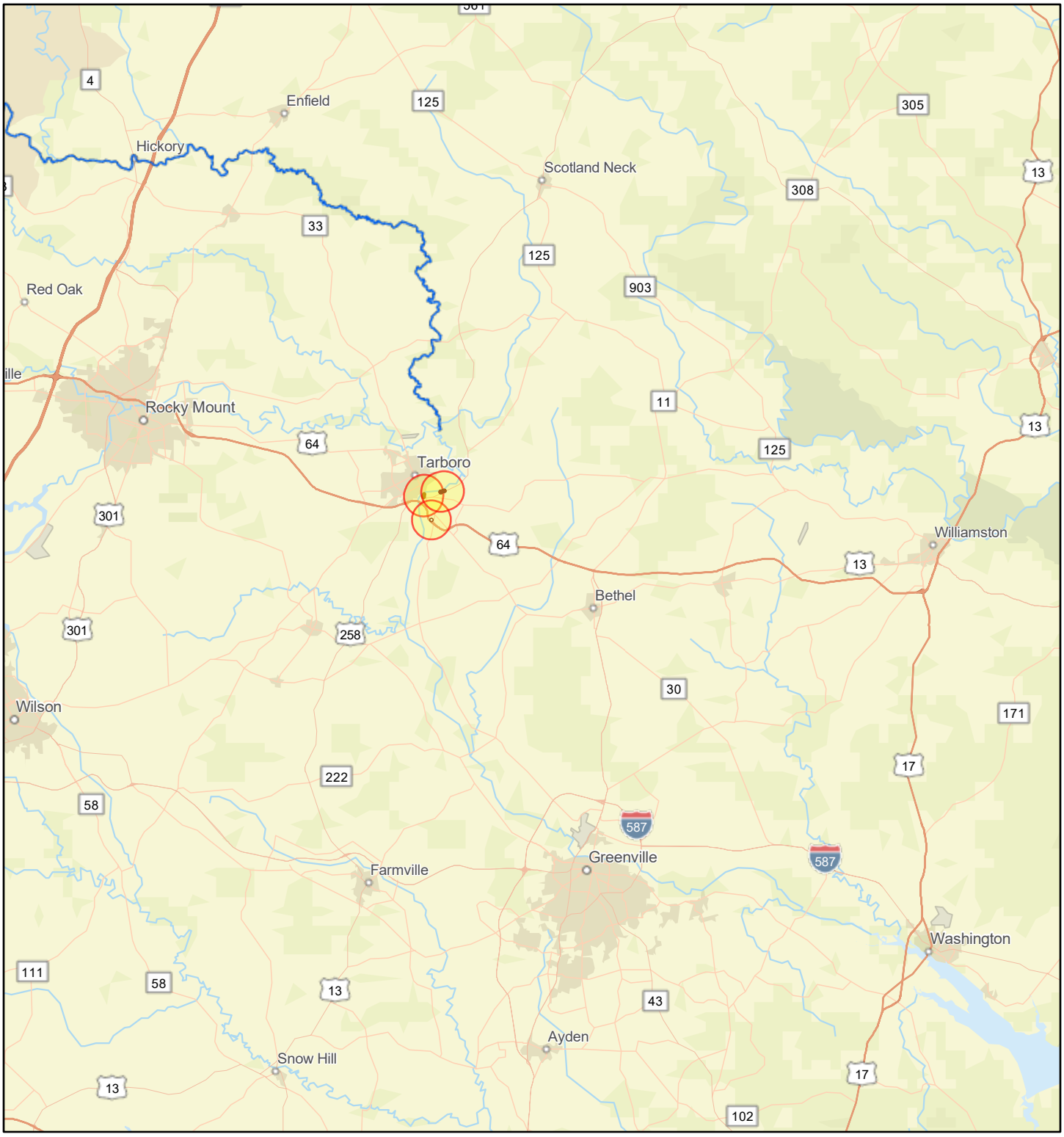
Wild and Scenic Rivers

NEPAssist Maps of DOI NPS Nationwide Rivers Inventory and National Wild and Scenic Rivers System and Showing 3-mile Distance from Closest WSR to Proposed Project Site, and NPS Correspondence

Princeville Levee Floodgate Repairs – WSR Map with One-mile Buffer



Princeville Levee Floodgate Repairs - Wild and Scenic Rivers Map



January 11, 2023

1:577,791

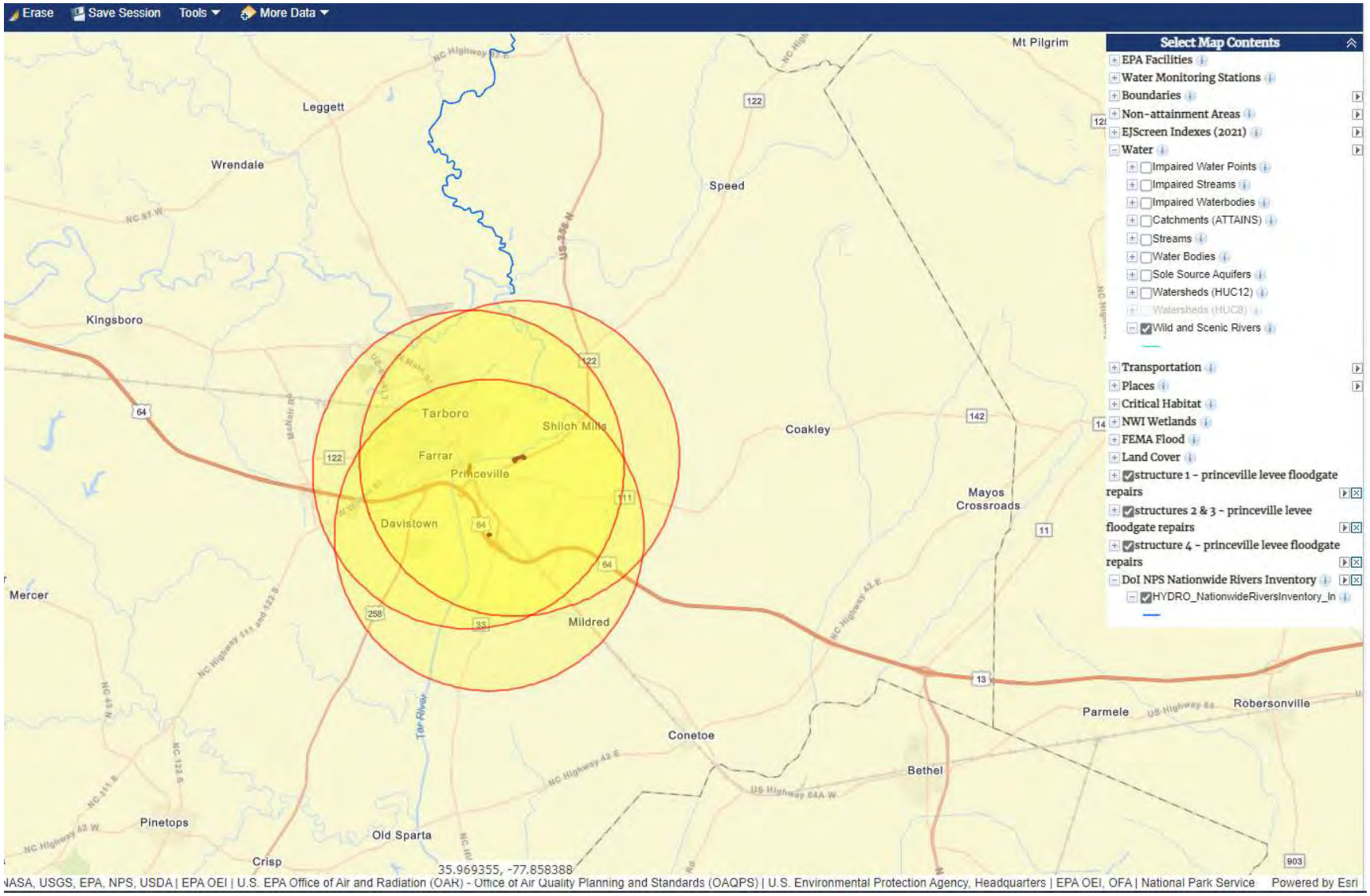
0 4 8 16 mi

0 5 10 20 km

- Princeville Levee Floodgate Repairs - Structures 2 & 3
- Princeville Levee Floodgate Repairs - Structure 4
- Project Buffer
- Princeville Levee Floodgate Repairs - Structure 1
- HYDRO_NationwideRiversInventory_ln

National Park Service, peter_bonsall@nps.gov, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

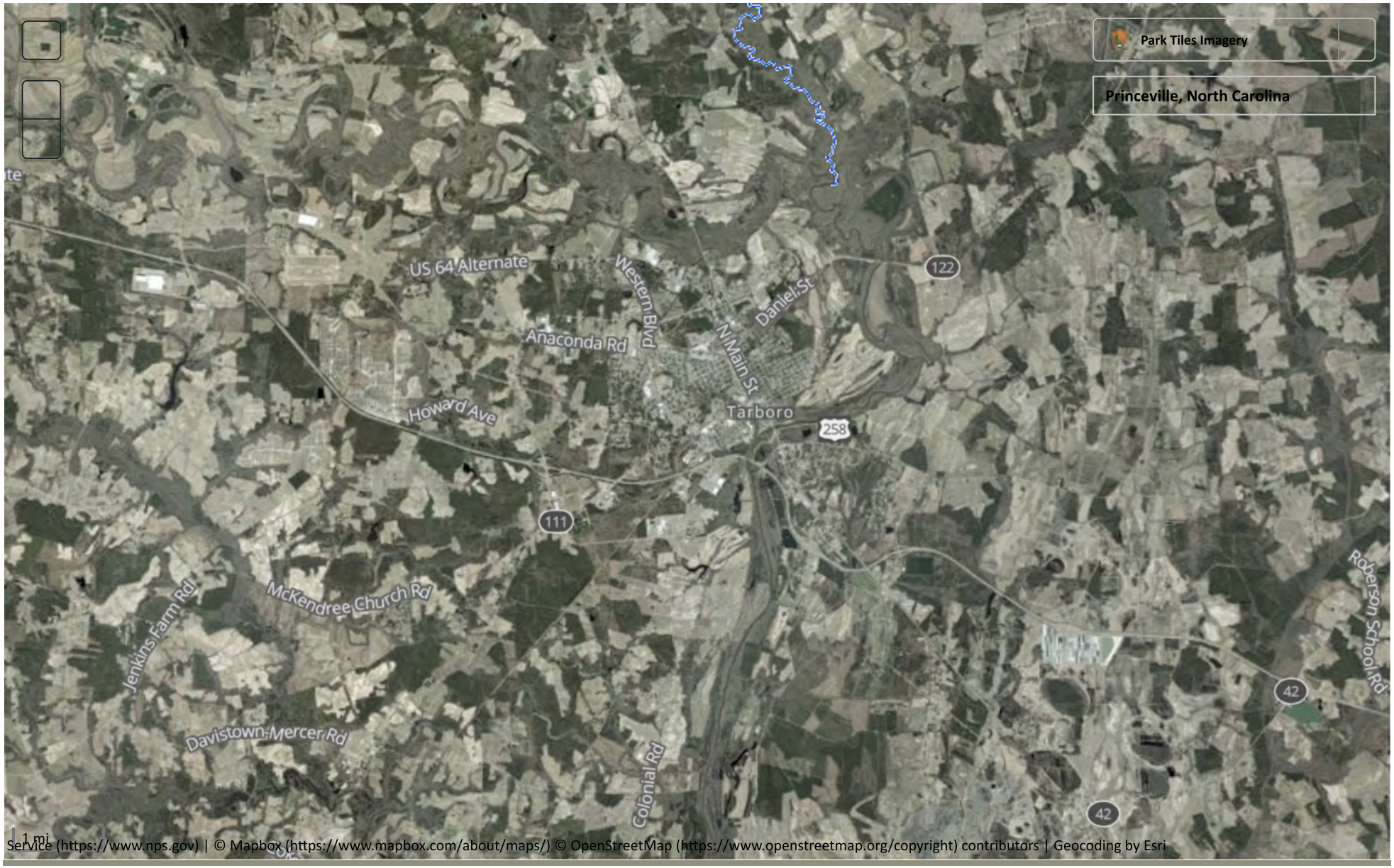
Princeville Levee Floodgate Repairs – WSR Map with Three-mile Buffer

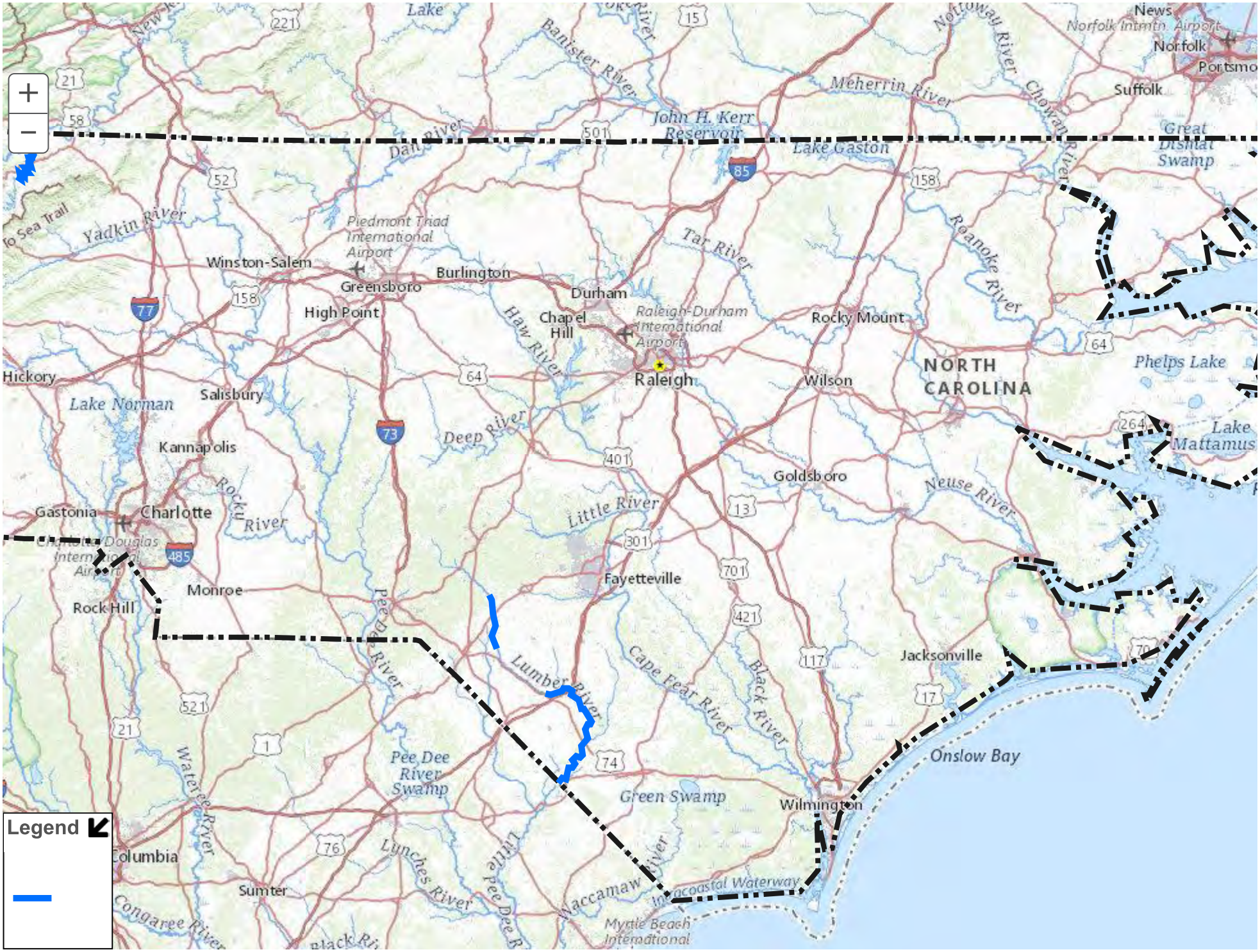


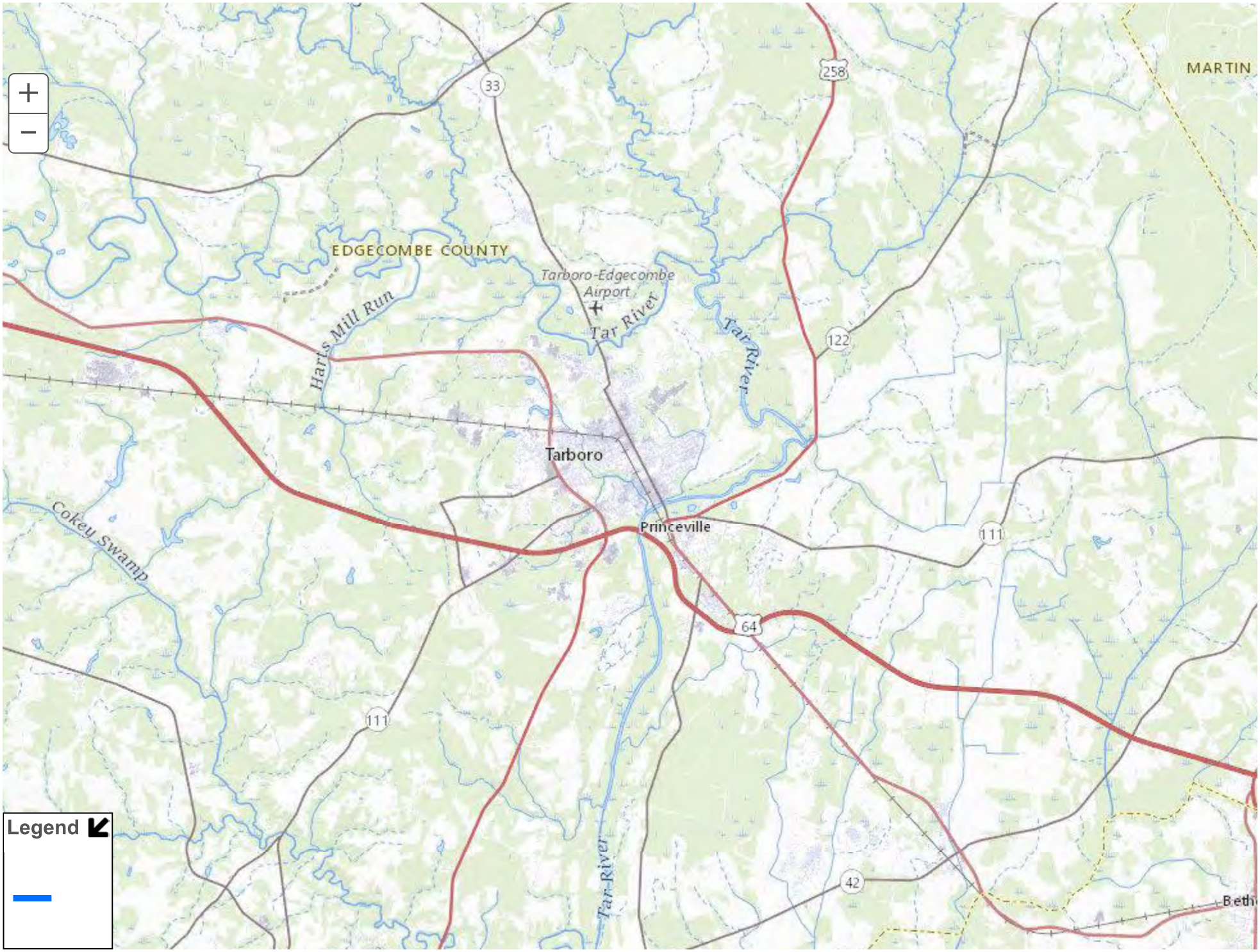
Nationwide Rivers Inventory

National Park Service
U.S. Department of the Interior

This is a listing of more than 3,200 free-flowing river segments in the U.S. that are believed to possess one or more …




Legend
NORTH CAROLINA
Raleigh
Durham
Chapel Hill
Greensboro
Winston-Salem
High Point
Burlington
Rocky Mount
Wilson
Goldsboro
Fayetteville
Jacksonville
Wilmington
Charlotte
Salisbury
Kannapolis
Monroe
Rock Hill
Gastonia
Hickory
Columbia
Sumter
Norfolk
Suffolk
Lake Norman
Lake Gaston
Lake Mattamus
Phelps Lake
Great Dismal Swamp
Onslow Bay
Green Swamp
Pee Dee River Swamp
Piedmont Triad International Airport
Raleigh-Durham International Airport
Myrtle Beach International
Tar River
Neuse River
Cape Fear River
Lumber River
Little River
Deep River
Haw River
Yadkin River
Dan River
Meherrin River
Chowan River
Roanoke River
Nottoway River
Banister River
Rocky River
Pee Dee River
Waterree River
Lynches River
Little Pee Dee R
Naccamaw River
Congaree River
Black River
Intracoastal Waterway
John H. Kerr Reservoir
Norfolk Intmtn. Airport
Charlotte/Douglas International Airport
To Sea Trail


MARTIN
258
33
EDGECOMBE COUNTY
Tarboro-Edgecombe Airport
Tar River
Tar River
122
Harts Mill Run
Tarboro
Coker Swamp
Princeville
111
64
111
42
Tar River
Legend

Gievers, Andrea

From: Duncan, Jeffrey R <Jeff_Duncan@nps.gov>
Sent: Tuesday, January 17, 2023 8:36 AM
To: Gievers, Andrea
Subject: Re: [EXTERNAL] NCORR HUD CBDG-DR NEPA - Wild and Scenic Rivers

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Hi Andrea-

Thanks for reaching out. If a project is not a water resources project and/or not within 0.25 miles of a Wild and Scenic River or the NRI-listed stream, there is no need to consult. The Lumber River is the only designated Wild and Scenic River in eastern NC. Anything within 0.25 miles of that, we should probably at least chat. That said, if it's not a water resource project, it likely won't require anything formal. The Maxton Sewer Lift #11 is about the only project I see on your list that fits this criteria. So long as the project is well outside the bed and banks of the river, I don't think formal consultation under Section 7(a) is needed.

Hope this helps. Please let me know if you have further questions. Jeff

Jeffrey R. Duncan, PhD.
Southeast Regional Aquatic Ecologist
Wild and Scenic Rivers Coordinator
Science and Natural Resources Management
Ph: (423) 987-6127

I'm a proud graduate of the NPS GOAL Leadership Academy. Ask me about the program!

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From: Gievers, Andrea <andrea.l.gievers@rebuild.nc.gov>
Sent: Thursday, January 12, 2023 12:19 PM
To: Duncan, Jeffrey R <Jeff_Duncan@nps.gov>
Subject: [EXTERNAL] NCORR HUD CBDG-DR NEPA - Wild and Scenic Rivers

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hello Jeff:

I know you are very busy from our last discussion, so I figured I would reach out to you to *streamline* consultations for Wild and Scenic Rivers. In general, the NPS has jurisdiction over the interim WSRA boundary consisting of one-quarter (0.25) mile on each side of the river as measured from the ordinary high water mark. The North Carolina Office of Recovery and Resiliency (NCORR) has a few storm recovery projects using HUD CDBG-DR funding that are located within a *one-mile* proximity to Wild and Scenic Rivers. Please let me know if you would like a formal consultation on any of the following projects, and I will promptly send you the full project information.

Also, please let me know if ***non-water resource projects*** located ***more than 0.25-mile*** from a Wild and Scenic River do not require consultation. For the *Affordable Housing Development Fund and Public Housing Restoration Programs*, these projects are typically new construction of affordable, multifamily housing and rehabilitation and repairs of existing community buildings and multifamily housing. The *Infrastructure Recovery Program's* non-water resource projects typically include rehabilitation or conversion of existing buildings for community use, generator replacement, WWTP repairs, etc. NCORR will consult with you on a case-by-case basis for water resource projects or projects with the ability to affect a NRI segment's ORV located within *one-mile* **or your suggested distance** or if determined to potentially affect from a greater distance. Please feel free to reach out to me via email or phone. Thank you so much!

1. **Parkton Sewer Plant Generator** located at Parkton Sewer Plant, Sewer Plant Drive, Parkton, NC 28371. This project will remove the present 1957 generator, external diesel tank, and concrete pad and replace with a new generator, belly-mounted diesel tank, and concrete pad with upgraded Automatic Transfer Switch and electrical connections. The new 8' x 4' concrete pad will be located approximately 8 to 10 feet from the original 10' x 4' pad. The existing generator lost power as a result of Hurricane Matthew, allowing waste water to be released from the facility. The closest NRI wild and scenic river is the **Little Marsh Swamp** situated approximately **0.35-mile** from the proposed project site. Currently, storm events cause the generator to fail and waste water to be released from the facility. The Little Marsh Swamp will benefit from the proposed project with the mitigated risk of inundation of raw sewage and treated effluent released towards the river during future storm events.

2. **Town of Maxton Sewer Lift Station Generators** located at Maxton Sewer Lift Station **No. 5**, 303 N. Hooper Street, Maxton, NC 28364 (Coordinates 34.736315,-79.342539); Maxton Sewer Lift Station **No. 7**, 904 US 74 Business, Maxton, NC 28364 (Coordinates 34.739609,-79.358906); Maxton Sewer Lift Station **No. 10**, 627 NC Highway 71N, Maxton, NC 28364 (Coordinates 34.757965,-79.340526); and Maxton Sewer Lift Station **No. 11**, 2074 NC Highway 71N, Maxton, NC 28364 (Coordinates 34.773260,-79.328969). The proposed project will involve the removal of four existing generators and installation of four replacement generator packages, to include integrated diesel fuel tanks, automatic transfer switching, wiring connections, electrical panels, mounting pads, and the generators. The generators will provide auxiliary power at four existing sewage lift stations during power outages such as that experienced during Hurricane Matthew. During the Hurricane Matthew storm event, the Town of Maxton lost primary power for an extended time, which adversely impacted the Town's ability to maintain its sewage treatment facility and peripheral sewage lift stations. Maxton Sewer Lift Station **No. 10**, 627 NC Highway 71N, Maxton, NC 28364 is located approximately **0.66-mile** from the **Lumber River**. Maxton Sewer Lift Station **No. 11**, 2074 NC Highway 71N, Maxton, NC 28364 is located approximately **450 feet** of the **Lumber River** which has segments near the site listed on the DOI NPS Nationwide Rivers Inventory and National Wild and Scenic Rivers System. The Lumber River will benefit from the proposed project with the mitigated risk of raw sewage backups and overflows into the environment during future storm events.

3. **Princeville Levee Floodgate Repairs** located at four existing Princeville Levee Floodgate locations along the Tar River, Princeville, Edgecombe County, NC 27886. The Town of Princeville proposes to perform inlet and outlet channel repairs at four existing floodgate culverts along the levee and construct permanent access roads to facilitate said repairs and provide access for future inspection, maintenance, and flood-fighting operations. According to the NRI and WSR Maps, there are *no listed river segments located within one-mile* of the Subject Property. The closest listed river segment is **Fishing Creek** which is located **over three miles** north of the Subject Property (one mile above NC 561 bridge to confluence with Tar River).

4. New Affordable, Multifamily Housing Construction projects located over 0.25-mile from a Wild and Scenic River?

5. Conversion of existing buildings to community/public/government use (i.e., restaurant/commercial/office space/warehouse to Community Resource Center, administrative, warehouse, etc.) projects located over 0.25-mile from a Wild and Scenic River?

6. Rehabilitation and repairs of existing buildings (i.e., public housing, community centers, etc.) projects located over 0.25-mile from a Wild and Scenic River?

Sincerely,

Andrea

Andrea Gievers, JD, MSEL, ERM
Environmental SME
Community Development
NC Office of Recovery and Resiliency
Andrea.L.Gievers@Rebuild.NC.Gov
(845) 682-1700

Email correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

ATTACHMENT 14:

Environmental Justice

EJSCREEN Standard Report (Princeville and Four Structure Sites), EJSCREEN ACS Summary Reports, EJSCREEN Census 2010 Summary Reports, NC DEQ Community Mapping System Map, Executive Order 13146 - Princeville, and CDC Report for Edgecombe County

EJScreen Report (Version 2.0)

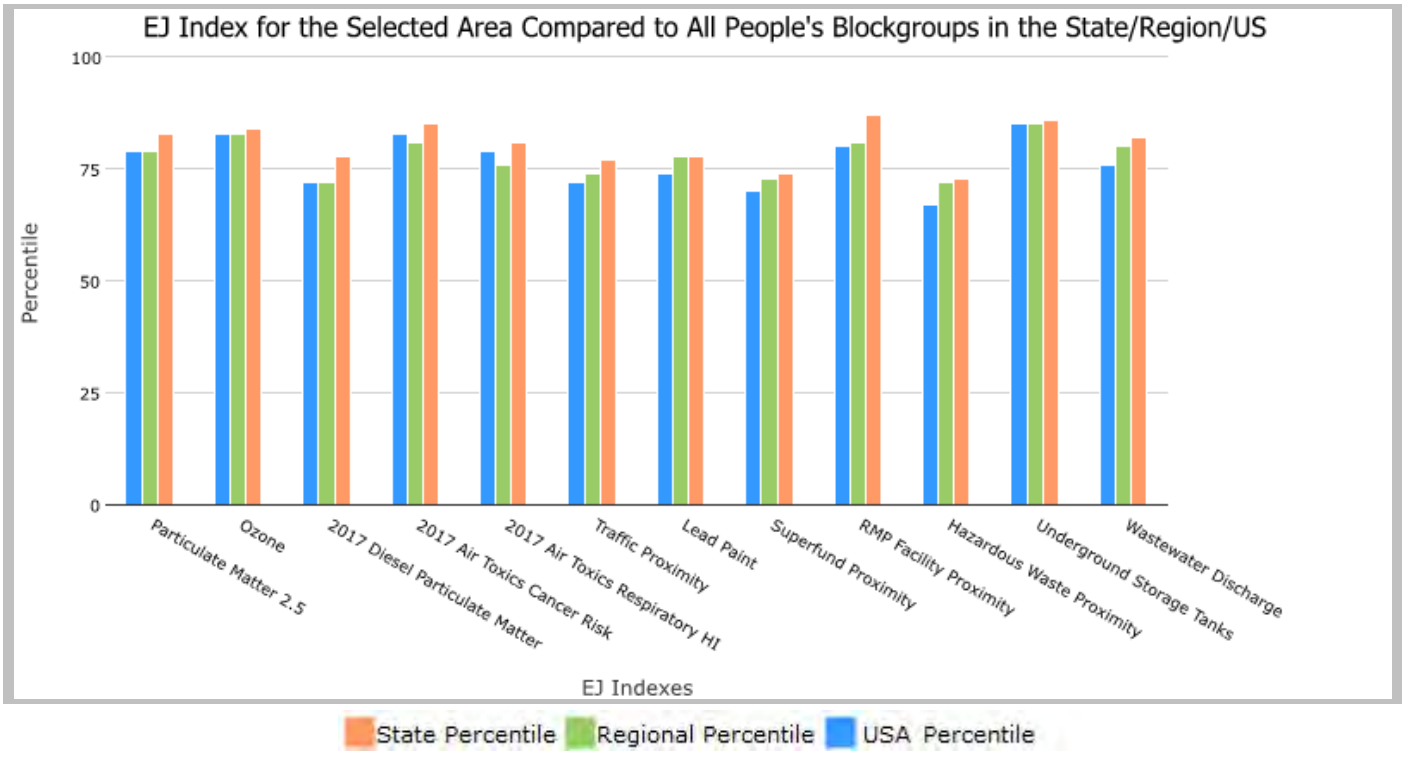
City: Princeville town, NORTH CAROLINA, EPA Region 4

Approximate Population: 1,943

Input Area (sq. miles): 1.52

EPA EJScreen - Princeville, NC

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	83	79	79
EJ Index for Ozone	84	83	83
EJ Index for 2017 Diesel Particulate Matter*	78	72	72
EJ Index for 2017 Air Toxics Cancer Risk*	85	81	83
EJ Index for 2017 Air Toxics Respiratory HI*	81	76	79
EJ Index for Traffic Proximity	77	74	72
EJ Index for Lead Paint	78	78	74
EJ Index for Superfund Proximity	74	73	70
EJ Index for RMP Facility Proximity	87	81	80
EJ Index for Hazardous Waste Proximity	73	72	67
EJ Index for Underground Storage Tanks	86	85	85
EJ Index for Wastewater Discharge	82	80	76



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

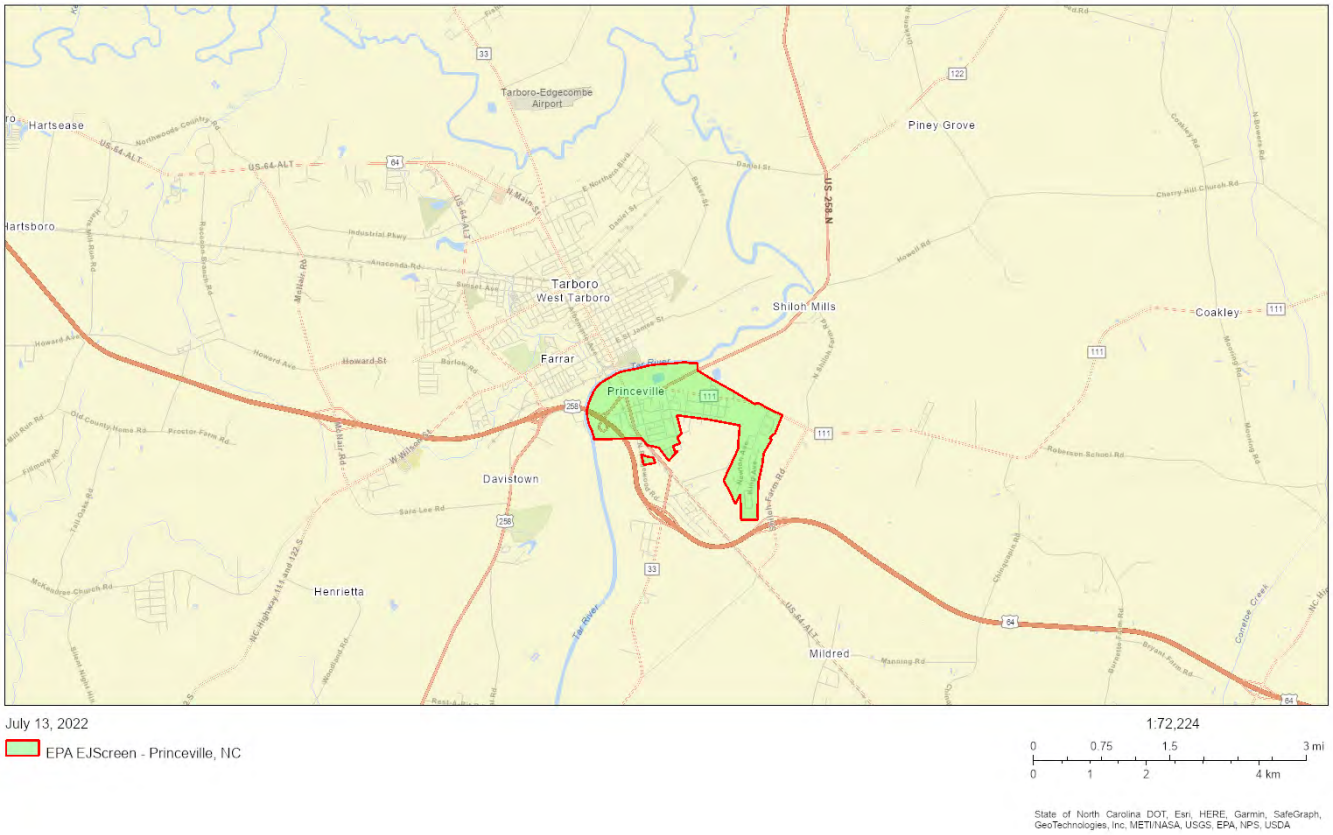
EJScreen Report (Version 2.0)

City: Princeville town, NORTH CAROLINA, EPA Region 4

Approximate Population: 1,943

Input Area (sq. miles): 1.52

EPA EJScreen - Princeville, NC



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.0)

City: Princeville town, NORTH CAROLINA, EPA Region 4

Approximate Population: 1,943

Input Area (sq. miles): 1.52

EPA EJScreen - Princeville, NC

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	6.96	7.74	24	8.18	6	8.74	12
Ozone (ppb)	39.5	41.7	16	37.9	56	42.6	29
2017 Diesel Particulate Matter* (µg/m^3)	0.12	0.182	27	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	29	95	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.3	0.37	36	0.4	<50th	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	120	350	49	430	47	710	36
Lead Paint (% Pre-1960 Housing)	0.062	0.16	38	0.15	46	0.28	31
Superfund Proximity (site count/km distance)	0.019	0.082	16	0.083	29	0.13	16
RMP Facility Proximity (facility count/km distance)	0.44	0.39	76	0.6	63	0.75	56
Hazardous Waste Proximity (facility count/km distance)	0.14	0.83	26	0.62	37	2.2	23
Underground Storage Tanks (count/km^2)	4	3.4	76	3.5	76	3.9	73
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.00034	0.25	54	0.45	52	12	40
Socioeconomic Indicators							
Demographic Index	76%	36%	96	37%	94	36%	93
People of Color	95%	37%	98	39%	95	40%	93
Low Income	58%	34%	86	35%	85	31%	87
Unemployment Rate	8%	6%	73	6%	73	5%	75
Linguistically Isolated	0%	2%	53	3%	51	5%	45
Less Than High School Education	28%	12%	92	13%	91	12%	89
Under Age 5	2%	6%	15	6%	16	6%	15
Over Age 64	16%	16%	55	17%	54	16%	57

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

For additional information, see: www.epa.gov/environmentaljustice

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

EJScreen Report (Version 2.0)

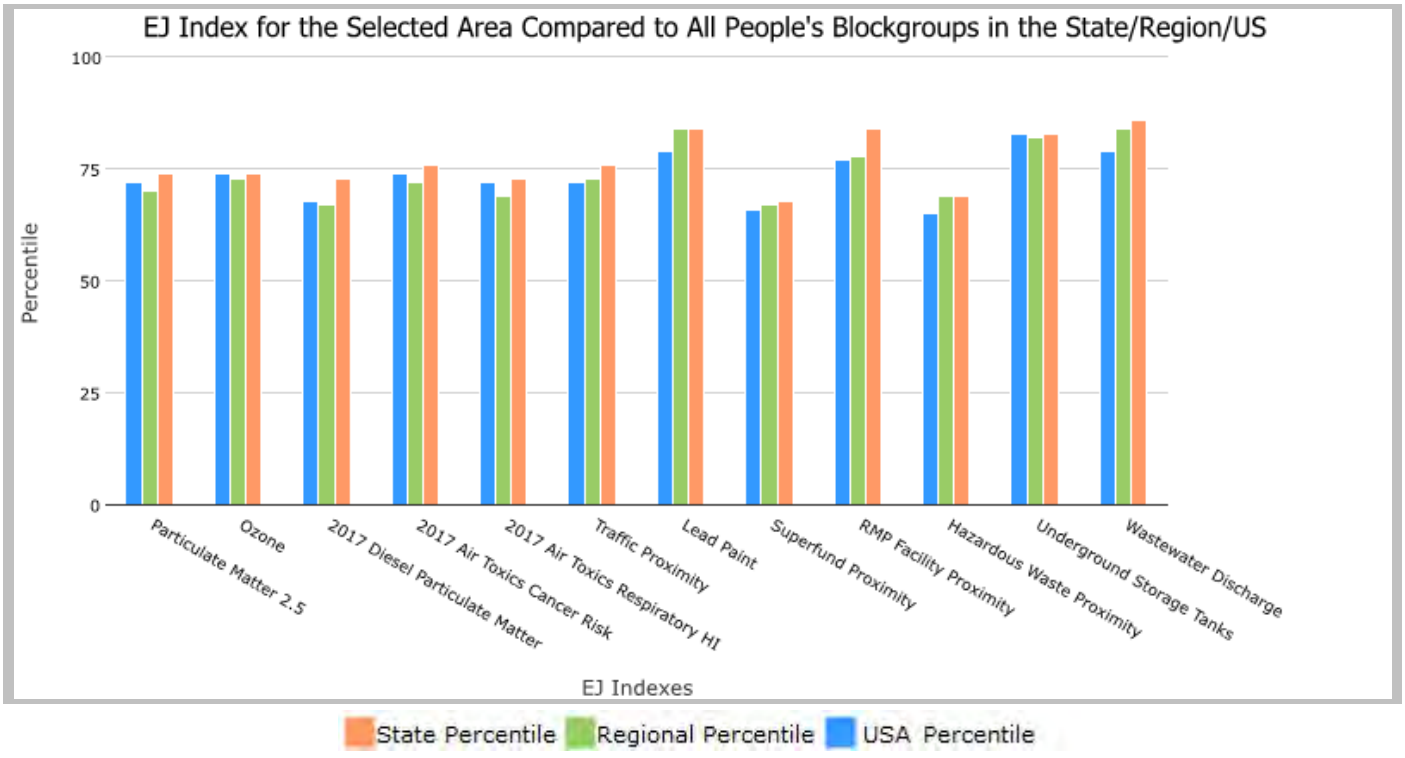
1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 3,857

Input Area (sq. miles): 3.54

Princeville Levee Floodgate Repairs - Structure 1

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	74	70	72
EJ Index for Ozone	74	73	74
EJ Index for 2017 Diesel Particulate Matter*	73	67	68
EJ Index for 2017 Air Toxics Cancer Risk*	76	72	74
EJ Index for 2017 Air Toxics Respiratory HI*	73	69	72
EJ Index for Traffic Proximity	76	73	72
EJ Index for Lead Paint	84	84	79
EJ Index for Superfund Proximity	68	67	66
EJ Index for RMP Facility Proximity	84	78	77
EJ Index for Hazardous Waste Proximity	69	69	65
EJ Index for Underground Storage Tanks	83	82	83
EJ Index for Wastewater Discharge	86	84	79



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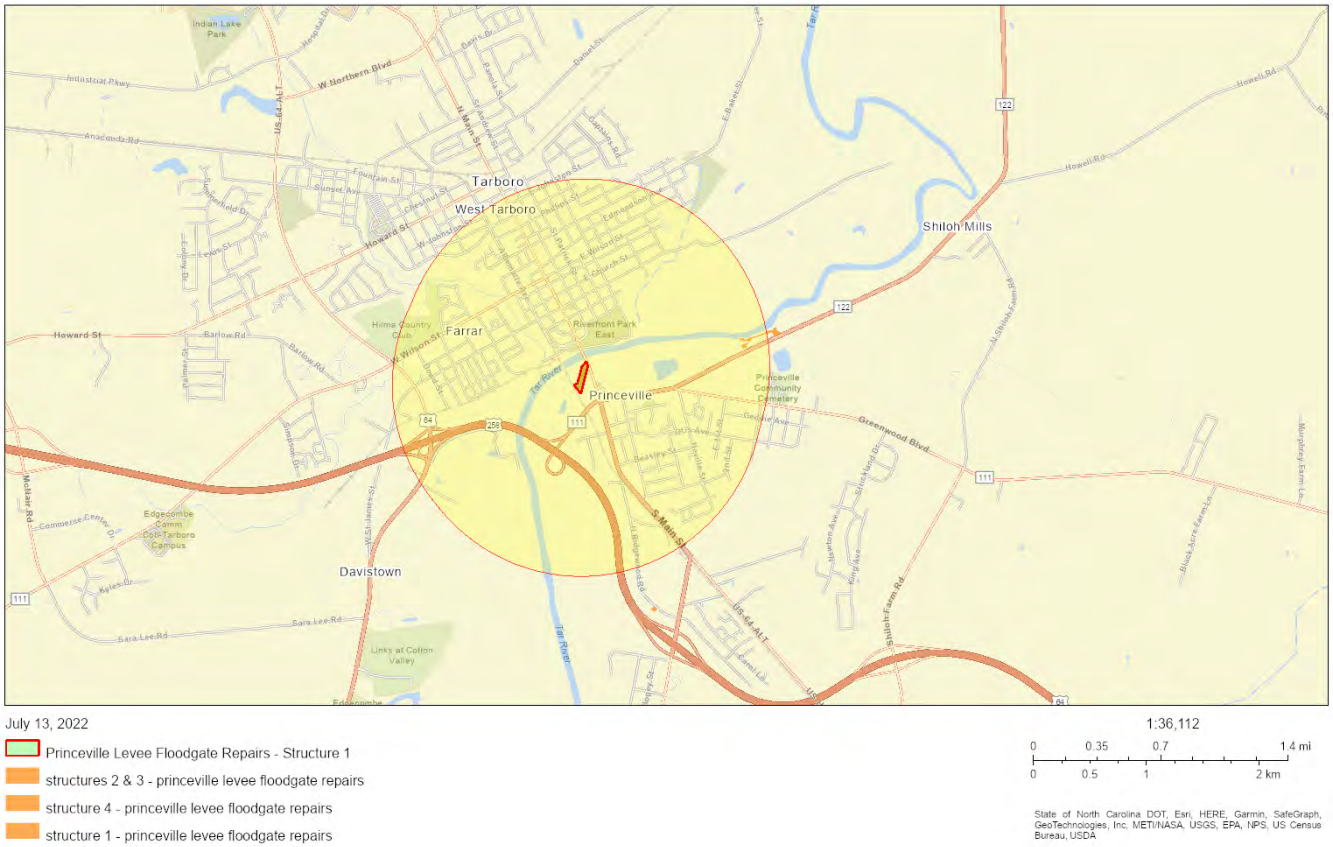
EJScreen Report (Version 2.0)

1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 3,857

Input Area (sq. miles): 3.54

Princeville Levee Floodgate Repairs - Structure 1



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.0)

1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 3,857

Input Area (sq. miles): 3.54

Princeville Levee Floodgate Repairs - Structure 1

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	6.96	7.74	24	8.18	6	8.74	12
Ozone (ppb)	39.5	41.7	16	37.9	55	42.6	29
2017 Diesel Particulate Matter* (µg/m^3)	0.137	0.182	36	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	29	95	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.3	0.37	36	0.4	<50th	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	230	350	63	430	61	710	50
Lead Paint (% Pre-1960 Housing)	0.4	0.16	90	0.15	89	0.28	71
Superfund Proximity (site count/km distance)	0.018	0.082	15	0.083	28	0.13	15
RMP Facility Proximity (facility count/km distance)	0.73	0.39	85	0.6	74	0.75	68
Hazardous Waste Proximity (facility count/km distance)	0.2	0.83	36	0.62	48	2.2	30
Underground Storage Tanks (count/km^2)	8.2	3.4	88	3.5	88	3.9	86
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.0035	0.25	75	0.45	73	12	60
Socioeconomic Indicators							
Demographic Index	62%	36%	87	37%	84	36%	84
People of Color	71%	37%	86	39%	81	40%	78
Low Income	53%	34%	82	35%	80	31%	83
Unemployment Rate	10%	6%	81	6%	81	5%	83
Linguistically Isolated	0%	2%	53	3%	51	5%	45
Less Than High School Education	26%	12%	90	13%	89	12%	87
Under Age 5	6%	6%	52	6%	53	6%	51
Over Age 64	21%	16%	76	17%	75	16%	77

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

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EJScreen Report (Version 2.0)

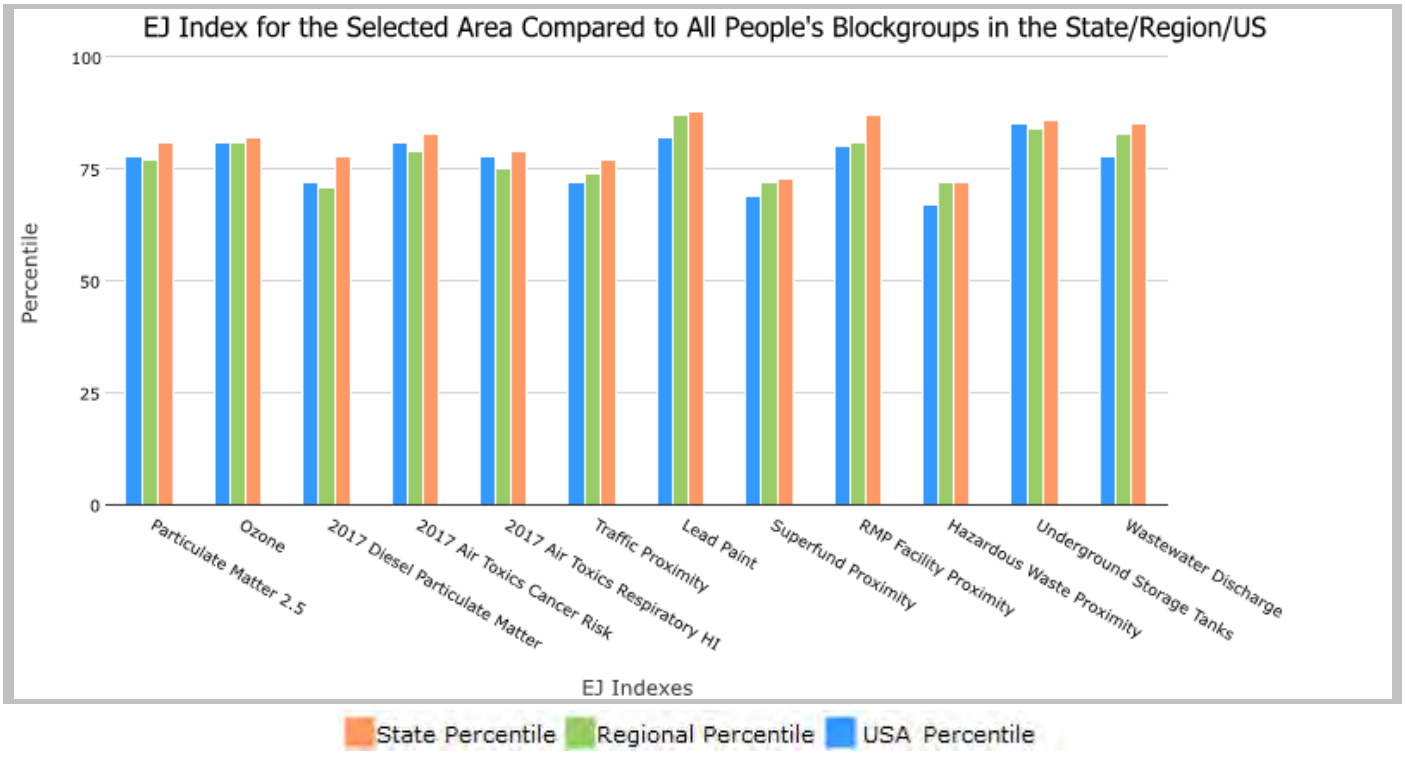
1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 2,649

Input Area (sq. miles): 3.72

Princeville Levee Floodgate Repairs - Structures 2 & 3

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	81	77	78
EJ Index for Ozone	82	81	81
EJ Index for 2017 Diesel Particulate Matter*	78	71	72
EJ Index for 2017 Air Toxics Cancer Risk*	83	79	81
EJ Index for 2017 Air Toxics Respiratory HI*	79	75	78
EJ Index for Traffic Proximity	77	74	72
EJ Index for Lead Paint	88	87	82
EJ Index for Superfund Proximity	73	72	69
EJ Index for RMP Facility Proximity	87	81	80
EJ Index for Hazardous Waste Proximity	72	72	67
EJ Index for Underground Storage Tanks	86	84	85
EJ Index for Wastewater Discharge	85	83	78



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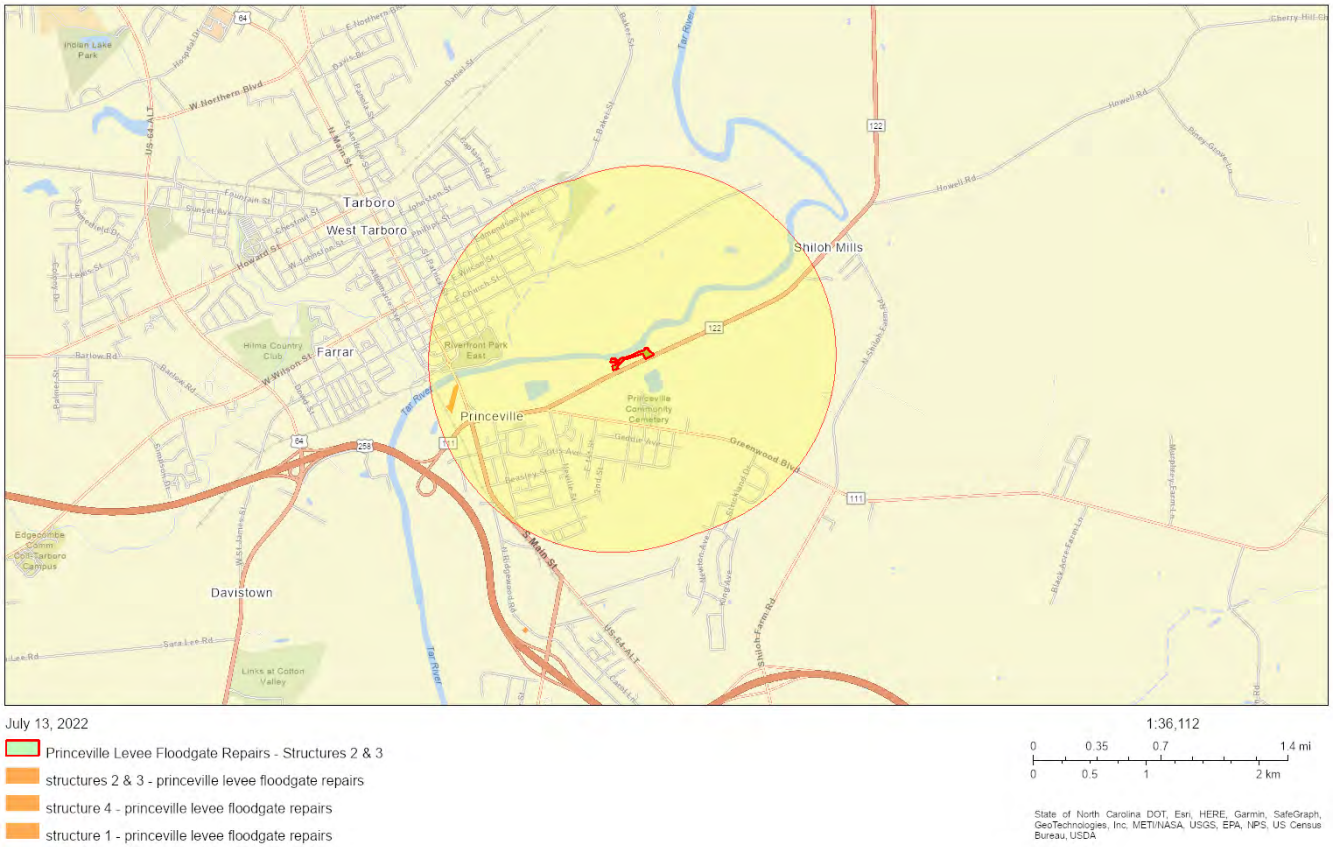
EJScreen Report (Version 2.0)

1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 2,649

Input Area (sq. miles): 3.72

Princeville Levee Floodgate Repairs - Structures 2 & 3



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.0)

1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 2,649

Input Area (sq. miles): 3.72

Princeville Levee Floodgate Repairs - Structures 2 & 3

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	6.96	7.74	24	8.18	6	8.74	12
Ozone (ppb)	39.5	41.7	16	37.9	55	42.6	29
2017 Diesel Particulate Matter* (µg/m^3)	0.129	0.182	32	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	29	95	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.3	0.37	36	0.4	<50th	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	140	350	52	430	50	710	39
Lead Paint (% Pre-1960 Housing)	0.22	0.16	76	0.15	78	0.28	56
Superfund Proximity (site count/km distance)	0.018	0.082	16	0.083	28	0.13	15
RMP Facility Proximity (facility count/km distance)	0.51	0.39	78	0.6	66	0.75	60
Hazardous Waste Proximity (facility count/km distance)	0.16	0.83	30	0.62	42	2.2	26
Underground Storage Tanks (count/km^2)	4.3	3.4	77	3.5	77	3.9	75
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.00099	0.25	64	0.45	62	12	49
Socioeconomic Indicators							
Demographic Index	76%	36%	95	37%	94	36%	93
People of Color	91%	37%	96	39%	92	40%	90
Low Income	61%	34%	89	35%	88	31%	89
Unemployment Rate	12%	6%	88	6%	87	5%	88
Linguistically Isolated	0%	2%	53	3%	51	5%	45
Less Than High School Education	30%	12%	94	13%	93	12%	91
Under Age 5	4%	6%	36	6%	37	6%	35
Over Age 64	18%	16%	63	17%	62	16%	65

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

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EJScreen Report (Version 2.0)

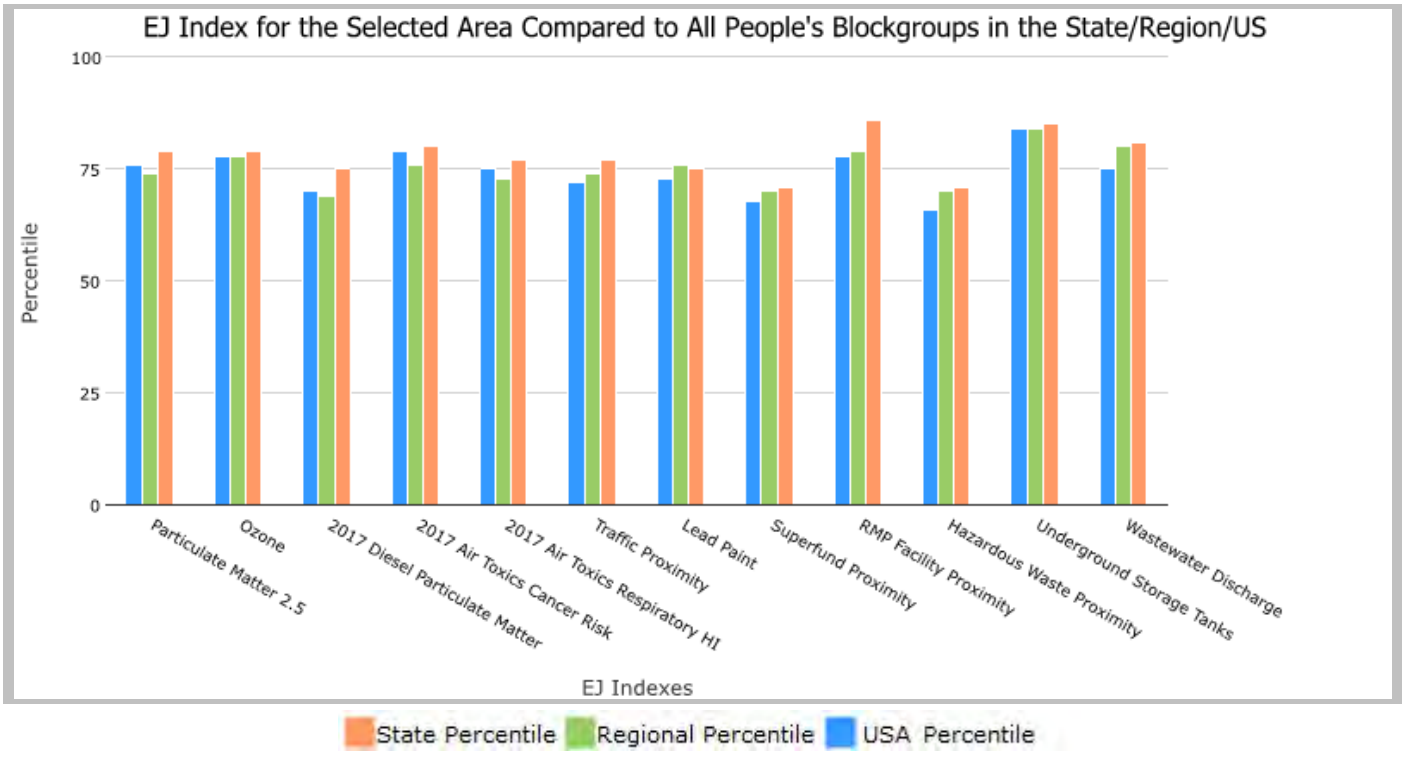
1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 1,104

Input Area (sq. miles): 3.26

Princeville Levee Floodgate Repairs - Structure 4

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	79	74	76
EJ Index for Ozone	79	78	78
EJ Index for 2017 Diesel Particulate Matter*	75	69	70
EJ Index for 2017 Air Toxics Cancer Risk*	80	76	79
EJ Index for 2017 Air Toxics Respiratory HI*	77	73	75
EJ Index for Traffic Proximity	77	74	72
EJ Index for Lead Paint	75	76	73
EJ Index for Superfund Proximity	71	70	68
EJ Index for RMP Facility Proximity	86	79	78
EJ Index for Hazardous Waste Proximity	71	70	66
EJ Index for Underground Storage Tanks	85	84	84
EJ Index for Wastewater Discharge	81	80	75



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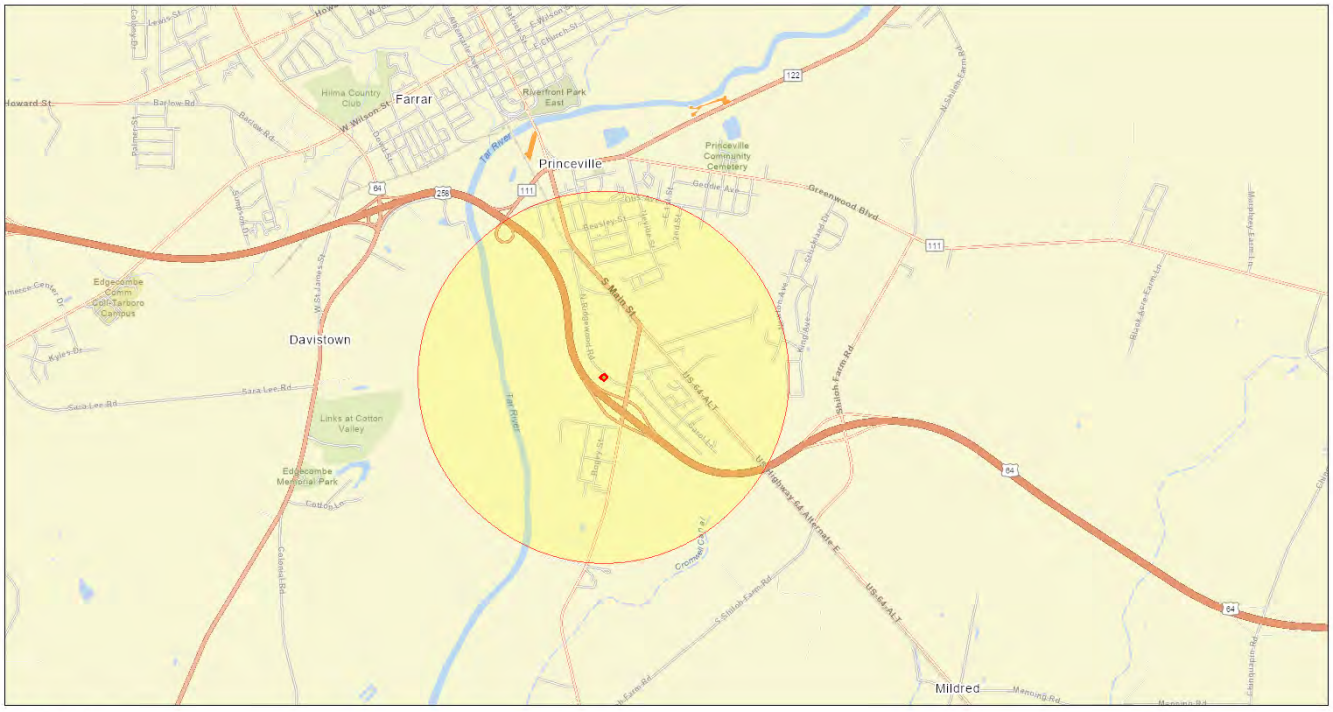
EJScreen Report (Version 2.0)

1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 1,104

Input Area (sq. miles): 3.26

Princeville Levee Floodgate Repairs - Structure 4



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.0)

1 mile Ring around the Area, NORTH CAROLINA, EPA Region 4

Approximate Population: 1,104

Input Area (sq. miles): 3.26

Princeville Levee Floodgate Repairs - Structure 4

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	6.96	7.74	24	8.18	6	8.74	12
Ozone (ppb)	39.5	41.7	16	37.9	56	42.6	29
2017 Diesel Particulate Matter* (µg/m^3)	0.12	0.182	27	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	29	95	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.3	0.37	36	0.4	<50th	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	210	350	60	430	59	710	48
Lead Paint (% Pre-1960 Housing)	0.061	0.16	38	0.15	46	0.28	31
Superfund Proximity (site count/km distance)	0.019	0.082	17	0.083	29	0.13	16
RMP Facility Proximity (facility count/km distance)	0.49	0.39	77	0.6	66	0.75	59
Hazardous Waste Proximity (facility count/km distance)	0.14	0.83	26	0.62	37	2.2	23
Underground Storage Tanks (count/km^2)	4	3.4	76	3.5	76	3.9	73
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.00034	0.25	54	0.45	52	12	40
Socioeconomic Indicators							
Demographic Index	73%	36%	94	37%	92	36%	91
People of Color	76%	37%	88	39%	83	40%	80
Low Income	70%	34%	95	35%	94	31%	94
Unemployment Rate	6%	6%	63	6%	62	5%	64
Linguistically Isolated	0%	2%	53	3%	51	5%	45
Less Than High School Education	33%	12%	96	13%	95	12%	92
Under Age 5	2%	6%	12	6%	14	6%	12
Over Age 64	17%	16%	61	17%	60	16%	63

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

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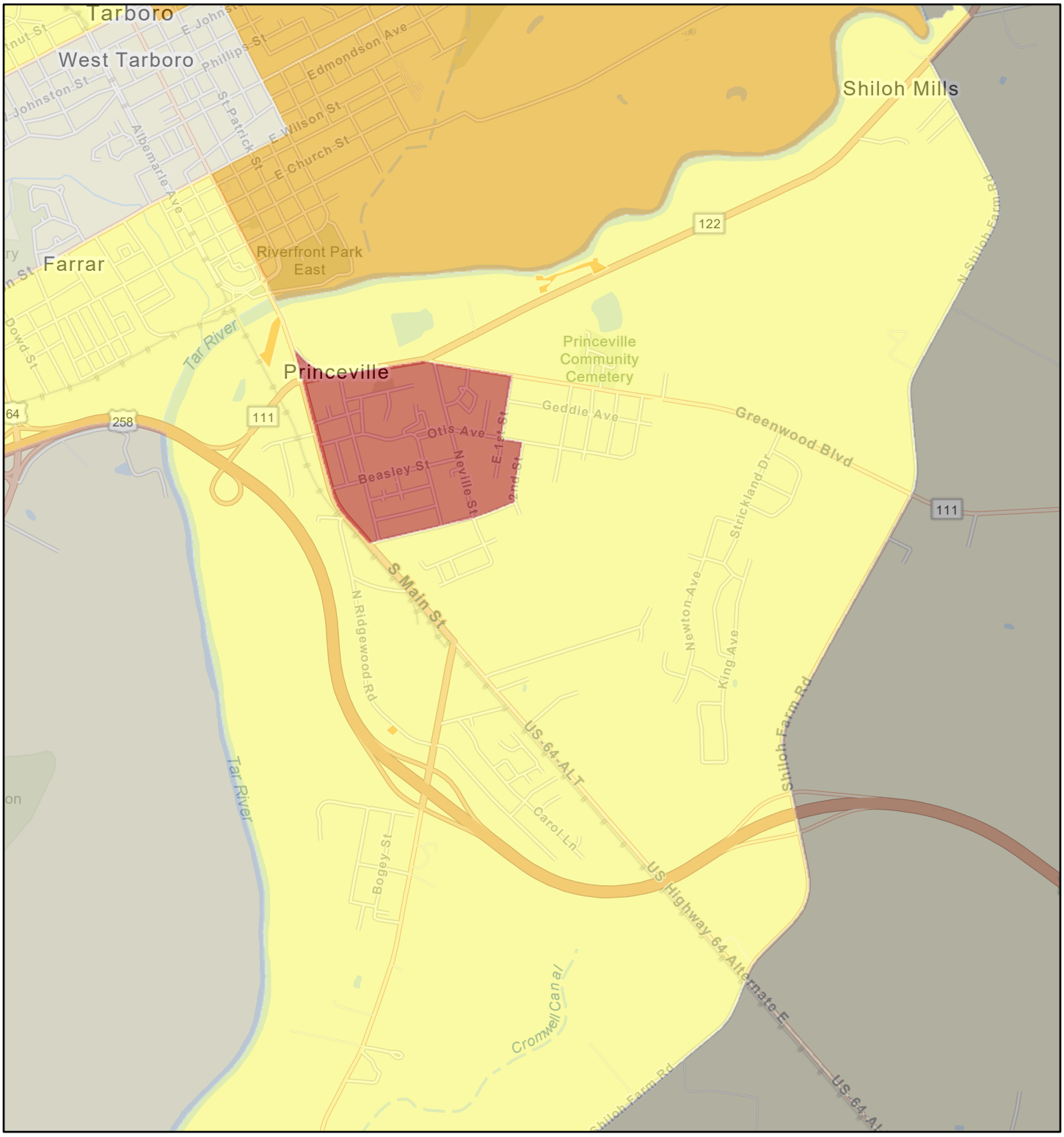
EPA EJScreen Demographic Index - Princeville, NC



7/13/2022

1:36,112

0 0.25 0.5 1 mi

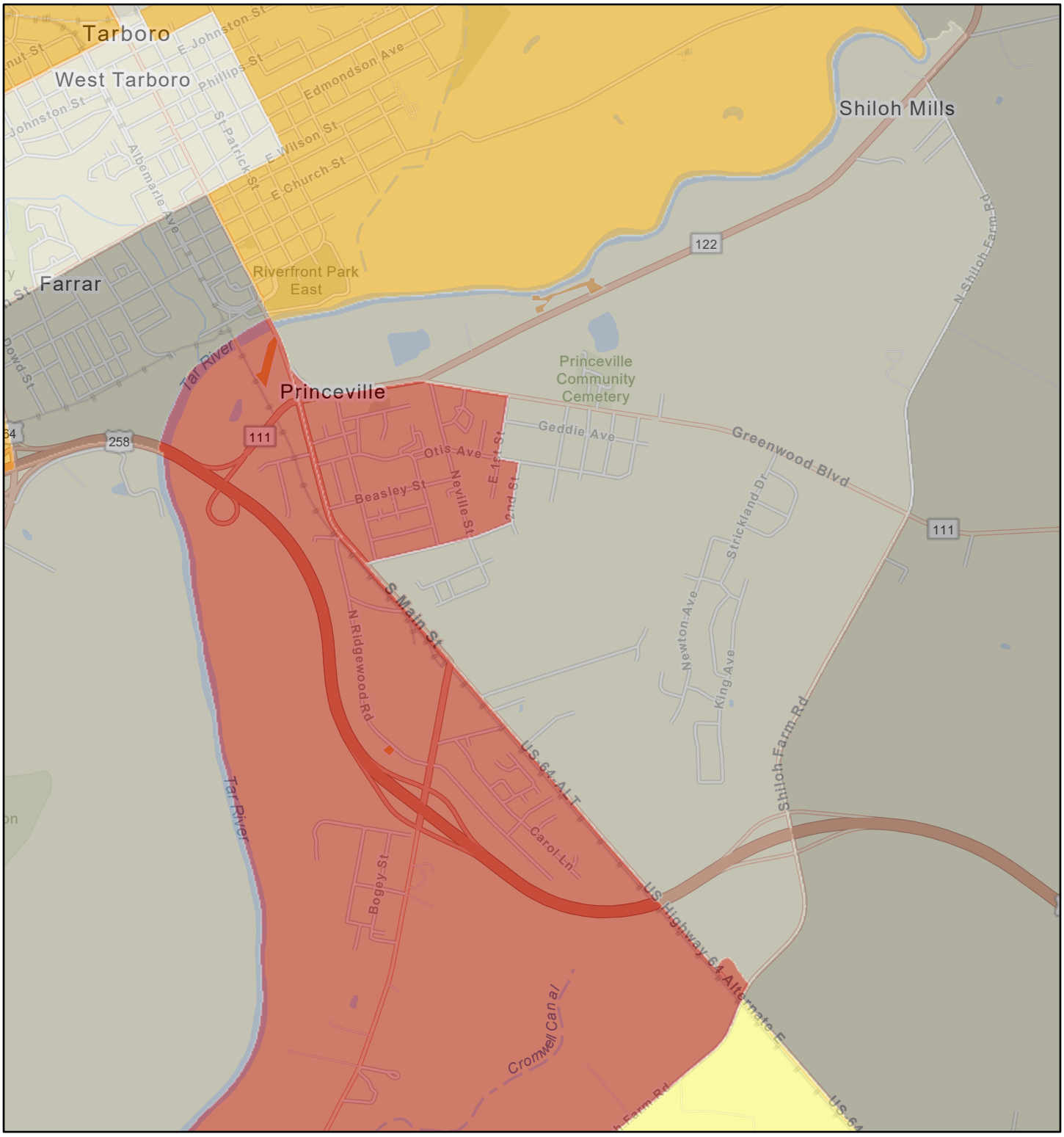
0 0.4 0.8 1.6 km

EJSCREEN_Indexes

- Data not available
- Less than 50 percentile
- 50 -60 percentile
- 60 -70 percentile
- 70 -80 percentile
- 80 - 90 percentile
- 90 - 95 percentile
- 95 - 100 percentile
- structures 2 & 3 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structure 1 - princeville levee floodgate repairs

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

EPA EJScreen Low Income - Princeville, NC



7/13/2022

1:36,112

0 0.25 0.5 1 mi

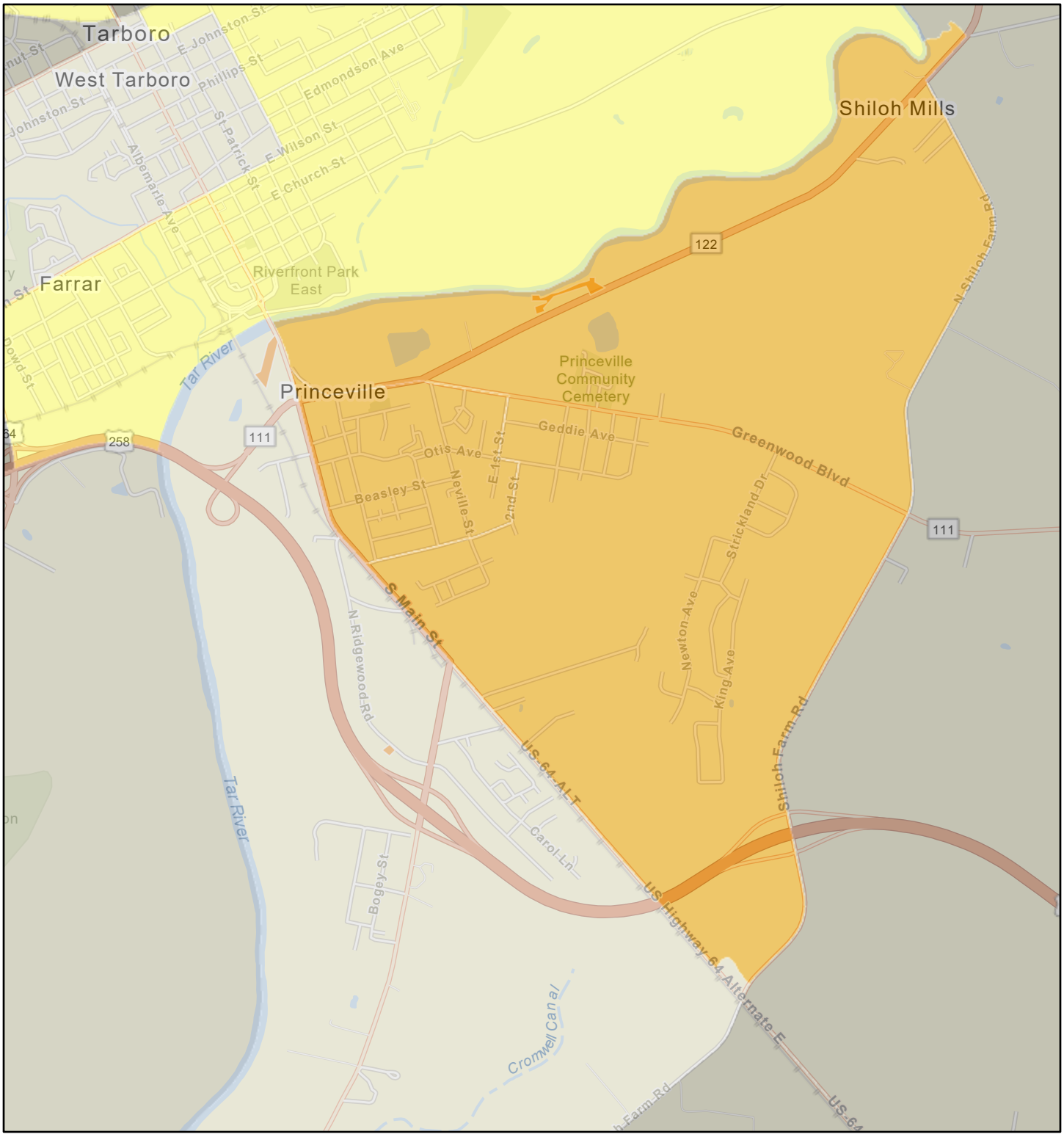
0 0.4 0.8 1.6 km

EJSCREEN_Indexes

- Data not available
- Less than 50 percentile
- 50 -60 percentile
- 60 -70 percentile
- 70 -80 percentile
- 80 - 90 percentile
- 90 - 95 percentile
- 95 - 100 percentile
- structures 2 & 3 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structure 1 - princeville levee floodgate repairs

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

EPA EJScreen Minority Populations - Princeville, NC



7/13/2022

1:36,112

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

EJSCREEN_Indexes

- Data not available
- Less than 50 percentile
- 50 -60 percentile
- 60 -70 percentile
- 70 -80 percentile
- 80 - 90 percentile
- 90 - 95 percentile
- 95 - 100 percentile
- structures 2 & 3 - princeville levee floodgate repairs
- structure 4 - princeville levee floodgate repairs
- structure 1 - princeville levee floodgate repairs

State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 1

Summary of ACS Estimates	2015 - 2019
Population	3,857
Population Density (per sq. mile)	1,342
People of Color Population	2,755
% People of Color Population	71%
Households	1,677
Housing Units	2,069
Housing Units Built Before 1950	584
Per Capita Income	19,302
Land Area (sq. miles) (Source: SF1)	2.87
% Land Area	99%
Water Area (sq. miles) (Source: SF1)	0.04
% Water Area	1%

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	3,857	100%	533
Population Reporting One Race	3,765	98%	898
White	1,266	33%	326
Black	2,405	62%	412
American Indian	17	0%	27
Asian	15	0%	32
Pacific Islander	0	0%	12
Some Other Race	62	2%	89
Population Reporting Two or More Races	93	2%	102
Total Hispanic Population	291	8%	259
Total Non-Hispanic Population	3,566		
White Alone	1,103	29%	344
Black Alone	2,405	62%	412
American Indian Alone	17	0%	27
Non-Hispanic Asian Alone	15	0%	32
Pacific Islander Alone	0	0%	12
Other Race Alone	0	0%	12
Two or More Races Alone	27	1%	40
Population by Sex			
Male	1,713	44%	289
Female	2,144	56%	370
Population by Age			
Age 0-4	222	6%	181
Age 0-17	882	23%	241
Age 18+	2,975	77%	397
Age 65+	804	21%	190

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019 .

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 1

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	2,647	100%	377
Less than 9th Grade	285	11%	88
9th - 12th Grade, No Diploma	399	15%	87
High School Graduate	754	28%	239
Some College, No Degree	474	18%	217
Associate Degree	175	7%	136
Bachelor's Degree or more	562	21%	177
Population Age 5+ Years by Ability to Speak English			
Total	3,636	100%	456
Speak only English	3,352	92%	419
Non-English at Home[1+2+3+4]	284	8%	188
[1]Speak English "very well"	185	5%	145
[2]Speak English "well"	48	1%	36
[3]Speak English "not well"	17	0%	33
[4]Speak English "not at all"	34	1%	54
[3+4]Speak English "less than well"	51	1%	60
[2+3+4]Speak English "less than very well"	99	3%	69
Linguistically Isolated Households*			
Total	0	0%	12
Speak Spanish	0	0%	12
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	0	0%	12
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	1,677	100%	233
< $15,000	328	20%	200
$15,000 - $25,000	318	19%	82
$25,000 - $50,000	533	32%	178
$50,000 - $75,000	244	15%	74
$75,000 +	253	15%	119
Occupied Housing Units by Tenure			
Total	1,677	100%	233
Owner Occupied	850	51%	122
Renter Occupied	827	49%	182
Employed Population Age 16+ Years			
Total	3,078	100%	406
In Labor Force	1,691	55%	318
Civilian Unemployed in Labor Force	162	5%	86
Not In Labor Force	1,387	45%	235

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 1

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	2,024	100%	429
English	1,902	94%	438
Spanish	101	5%	259
French	0	0%	12
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	12
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	0	0%	12
Chinese	0	0%	12
Japanese	N/A	N/A	N/A
Korean	0	0%	12
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	12
Other Asian	7	0%	34
Tagalog	0	0%	12
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	12
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	0	0%	12
Total Non-English	122	6%	613

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structures 2 & 3

Summary of ACS Estimates	2015 - 2019
Population	2,678
Population Density (per sq. mile)	632
People of Color Population	2,438
% People of Color Population	91%
Households	1,154
Housing Units	1,430
Housing Units Built Before 1950	218
Per Capita Income	14,866
Land Area (sq. miles) (Source: SF1)	4.24
% Land Area	98%
Water Area (sq. miles) (Source: SF1)	0.11
% Water Area	2%

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	2,678	100%	341
Population Reporting One Race	2,575	96%	731
White	273	10%	266
Black	2,262	84%	305
American Indian	3	0%	27
Asian	17	1%	32
Pacific Islander	0	0%	12
Some Other Race	21	1%	89
Population Reporting Two or More Races	103	4%	102
Total Hispanic Population	120	4%	259
Total Non-Hispanic Population	2,557		
White Alone	239	9%	224
Black Alone	2,262	84%	305
American Indian Alone	3	0%	27
Non-Hispanic Asian Alone	17	1%	32
Pacific Islander Alone	0	0%	12
Other Race Alone	0	0%	12
Two or More Races Alone	37	1%	40
Population by Sex			
Male	1,220	46%	239
Female	1,457	54%	201
Population by Age			
Age 0-4	117	4%	65
Age 0-17	634	24%	133
Age 18+	2,043	76%	200
Age 65+	470	18%	99

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019 .

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structures 2 & 3

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	1,785	100%	195
Less than 9th Grade	242	14%	88
9th - 12th Grade, No Diploma	298	17%	83
High School Graduate	639	36%	119
Some College, No Degree	294	16%	106
Associate Degree	104	6%	73
Bachelor's Degree or more	209	12%	89
Population Age 5+ Years by Ability to Speak English			
Total	2,560	100%	324
Speak only English	2,441	95%	277
Non-English at Home[1+2+3+4]	119	5%	188
[1]Speak English "very well"	74	3%	145
[2]Speak English "well"	35	1%	36
[3]Speak English "not well"	3	0%	28
[4]Speak English "not at all"	7	0%	54
[3+4]Speak English "less than well"	10	0%	60
[2+3+4]Speak English "less than very well"	45	2%	69
Linguistically Isolated Households*			
Total	0	0%	12
Speak Spanish	0	0%	12
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	0	0%	12
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	1,154	100%	114
< $15,000	213	18%	80
$15,000 - $25,000	257	22%	82
$25,000 - $50,000	416	36%	121
$50,000 - $75,000	163	14%	74
$75,000 +	105	9%	47
Occupied Housing Units by Tenure			
Total	1,154	100%	114
Owner Occupied	608	53%	96
Renter Occupied	546	47%	92
Employed Population Age 16+ Years			
Total	2,120	100%	250
In Labor Force	1,104	52%	195
Civilian Unemployed in Labor Force	129	6%	76
Not In Labor Force	1,015	48%	192

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structures 2 & 3

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	2,912	100%	429
English	2,773	95%	438
Spanish	86	3%	259
French	0	0%	12
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	12
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	0	0%	12
Chinese	0	0%	12
Japanese	N/A	N/A	N/A
Korean	0	0%	12
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	12
Other Asian	19	1%	34
Tagalog	0	0%	12
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	12
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	0	0%	12
Total Non-English	139	5%	613

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 4

Summary of ACS Estimates	2015 - 2019
Population	1,104
Population Density (per sq. mile)	395
People of Color Population	836
% People of Color Population	76%
Households	423
Housing Units	562
Housing Units Built Before 1950	16
Per Capita Income	15,084
Land Area (sq. miles) (Source: SF1)	2.79
% Land Area	98%
Water Area (sq. miles) (Source: SF1)	0.06
% Water Area	2%

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	1,104	100%	370
Population Reporting One Race	1,065	96%	688
White	269	24%	326
Black	793	72%	305
American Indian	0	0%	12
Asian	0	0%	12
Pacific Islander	0	0%	12
Some Other Race	4	0%	21
Population Reporting Two or More Races	39	4%	102
Total Hispanic Population	37	3%	102
Total Non-Hispanic Population	1,067		
White Alone	269	24%	344
Black Alone	793	72%	305
American Indian Alone	0	0%	12
Non-Hispanic Asian Alone	0	0%	12
Pacific Islander Alone	0	0%	12
Other Race Alone	0	0%	12
Two or More Races Alone	6	1%	34
Population by Sex			
Male	567	51%	193
Female	537	49%	234
Population by Age			
Age 0-4	22	2%	59
Age 0-17	298	27%	133
Age 18+	807	73%	200
Age 65+	190	17%	99

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019 .

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 4

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	714	100%	195
Less than 9th Grade	93	13%	65
9th - 12th Grade, No Diploma	141	20%	84
High School Graduate	314	44%	119
Some College, No Degree	120	17%	116
Associate Degree	12	2%	67
Bachelor's Degree or more	34	5%	53
Population Age 5+ Years by Ability to Speak English			
Total	1,083	100%	328
Speak only English	1,047	97%	278
Non-English at Home[1+2+3+4]	35	3%	68
[1]Speak English "very well"	21	2%	38
[2]Speak English "well"	14	1%	34
[3]Speak English "not well"	0	0%	33
[4]Speak English "not at all"	0	0%	25
[3+4]Speak English "less than well"	0	0%	40
[2+3+4]Speak English "less than very well"	14	1%	40
Linguistically Isolated Households*			
Total	0	0%	12
Speak Spanish	0	0%	12
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	0	0%	12
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	423	100%	107
< $15,000	122	29%	80
$15,000 - $25,000	68	16%	82
$25,000 - $50,000	127	30%	92
$50,000 - $75,000	76	18%	74
$75,000 +	28	7%	62
Occupied Housing Units by Tenure			
Total	423	100%	107
Owner Occupied	297	70%	96
Renter Occupied	125	30%	92
Employed Population Age 16+ Years			
Total	883	100%	264
In Labor Force	415	47%	179
Civilian Unemployed in Labor Force	25	3%	38
Not In Labor Force	467	53%	192

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 4

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	1,308	100%	429
English	1,262	96%	438
Spanish	12	1%	25
French	0	0%	12
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	12
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	0	0%	12
Chinese	0	0%	12
Japanese	N/A	N/A	N/A
Korean	0	0%	12
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	12
Other Asian	12	1%	34
Tagalog	0	0%	12
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	12
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	0	0%	12
Total Non-English	46	4%	613

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 1

Summary	Census 2010
Population	4,240
Population Density (per sq. mile)	1,476
People of Color Population	2,954
% People of Color Population	70%
Households	1,777
Housing Units	2,010
Land Area (sq. miles)	2.87
% Land Area	99%
Water Area (sq. miles)	0.04
% Water Area	1%

Population by Race	Number	Percent
Total	4,240	-------
Population Reporting One Race	4,210	99%
White	1,306	31%
Black	2,854	67%
American Indian	3	0%
Asian	5	0%
Pacific Islander	1	0%
Some Other Race	41	1%
Population Reporting Two or More Races	30	1%
Total Hispanic Population	74	2%
Total Non-Hispanic Population	4,166	98%
White Alone	1,286	30%
Black Alone	2,846	67%
American Indian Alone	1	0%
Non-Hispanic Asian Alone	5	0%
Pacific Islander Alone	0	0%
Other Race Alone	4	0%
Two or More Races Alone	23	1%

Population by Sex	Number	Percent
Male	1,886	44%
Female	2,354	56%

Population by Age	Number	Percent
Age 0-4	288	7%
Age 0-17	1,058	25%
Age 18+	3,182	75%
Age 65+	751	18%

Households by Tenure	Number	Percent
Total	1,777	
Owner Occupied	910	51%
Renter Occupied	868	49%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structures 2 & 3

Summary	Census 2010
Population	2,973
Population Density (per sq. mile)	702
People of Color Population	2,714
% People of Color Population	91%
Households	1,183
Housing Units	1,312
Land Area (sq. miles)	4.24
% Land Area	98%
Water Area (sq. miles)	0.11
% Water Area	2%

Population by Race	Number	Percent
Total	2,973	-------
Population Reporting One Race	2,964	100%
White	267	9%
Black	2,670	90%
American Indian	1	0%
Asian	1	0%
Pacific Islander	0	0%
Some Other Race	25	1%
Population Reporting Two or More Races	9	0%
Total Hispanic Population	36	1%
Total Non-Hispanic Population	2,937	99%
White Alone	259	9%
Black Alone	2,665	90%
American Indian Alone	0	0%
Non-Hispanic Asian Alone	1	0%
Pacific Islander Alone	0	0%
Other Race Alone	4	0%
Two or More Races Alone	7	0%

Population by Sex	Number	Percent
Male	1,313	44%
Female	1,660	56%

Population by Age	Number	Percent
Age 0-4	226	8%
Age 0-17	833	28%
Age 18+	2,140	72%
Age 65+	393	13%

Households by Tenure	Number	Percent
Total	1,183	
Owner Occupied	608	51%
Renter Occupied	575	49%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 1-miles radius
Description: Princeville Levee Floodgate Repairs - Structure 4

Summary	Census 2010
Population	1,370
Population Density (per sq. mile)	490
People of Color Population	1,252
% People of Color Population	91%
Households	509
Housing Units	557
Land Area (sq. miles)	2.79
% Land Area	98%
Water Area (sq. miles)	0.06
% Water Area	2%

Population by Race	Number	Percent
Total	1,370	-------
Population Reporting One Race	1,363	99%
White	134	10%
Black	1,206	88%
American Indian	5	0%
Asian	1	0%
Pacific Islander	0	0%
Some Other Race	17	1%
Population Reporting Two or More Races	7	1%
Total Hispanic Population	43	3%
Total Non-Hispanic Population	1,327	97%
White Alone	118	9%
Black Alone	1,199	87%
American Indian Alone	5	0%
Non-Hispanic Asian Alone	1	0%
Pacific Islander Alone	0	0%
Other Race Alone	0	0%
Two or More Races Alone	4	0%

Population by Sex	Number	Percent
Male	606	44%
Female	764	56%

Population by Age	Number	Percent
Age 0-4	93	7%
Age 0-17	371	27%
Age 18+	999	73%
Age 65+	161	12%

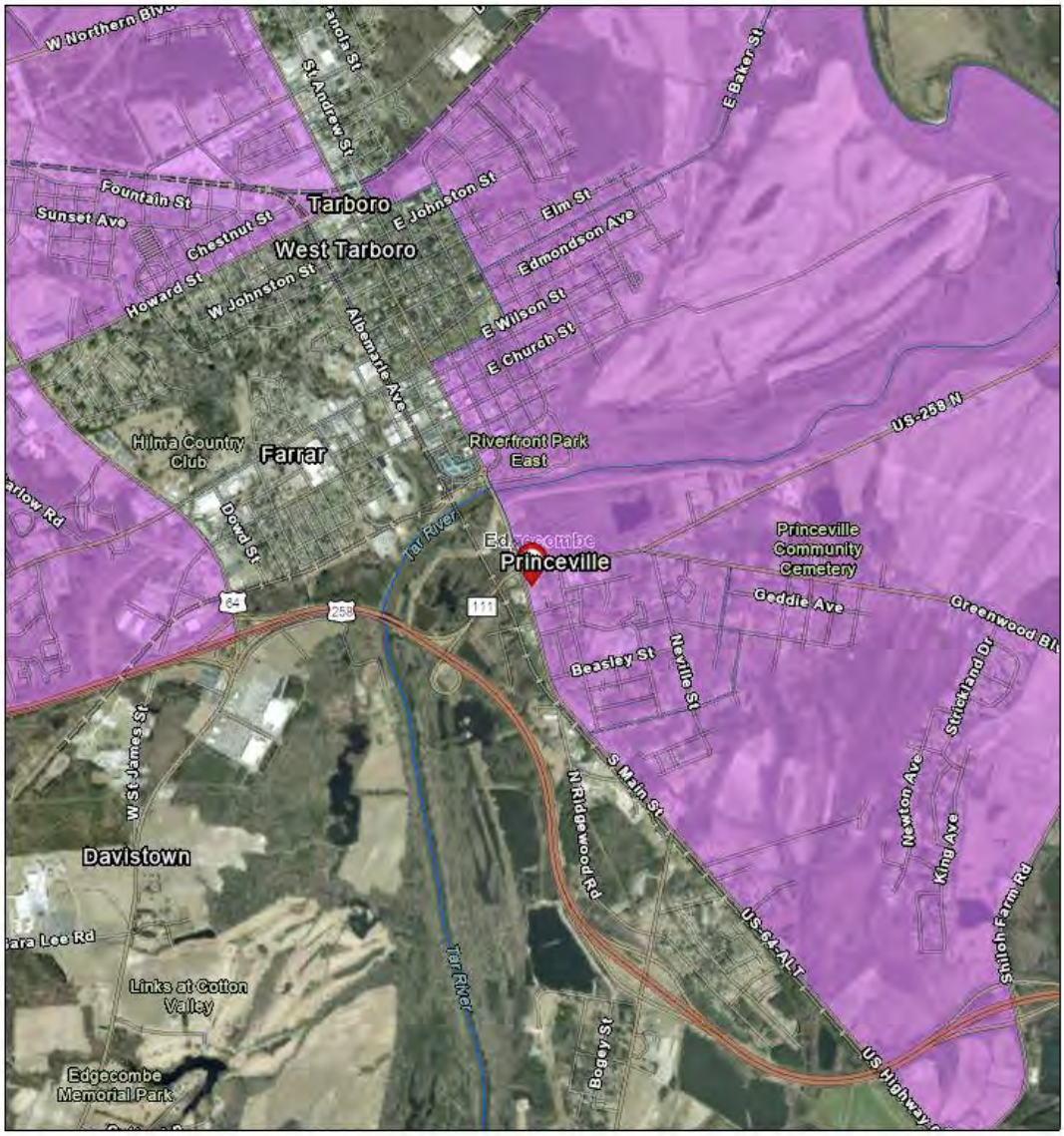
Households by Tenure	Number	Percent
Total	509	
Owner Occupied	318	63%
Renter Occupied	191	37%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

NCDEQ Facility Screening Report - Potentially Underserved 2019

Area of Interest (AOI) Information

Jul 13 2022 11:56:53 Eastern Daylight Time



NC DEQ's Potentially Underserved Block Groups 2019

- County and State
- State Only
- census2017acs - by Block Group
- County Boundary

1:36,112

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

NCDOT GIS Unit, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS

The American Presidency Project

(https://www.presidency.ucsb.edu/)



WILLIAM J. CLINTON (/PEOPLE/PRESIDENT/WILLIAM-J-CLINTON)

Executive Order 13146—Presidents Council on the Future of Princeville, North Carolina

February 29, 2000

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in order to develop recommendations for Federal agency actions to address the future of Princeville, North Carolina, it is hereby ordered as follows:

Section 1. Policy. Princeville, North Carolina (Princeville) has a unique place in American history. This small city in eastern North Carolina was the first city in the United States founded by ex-slaves. In its history, Princeville has been damaged by floods many times. Recently, it was devastated by floods caused by Hurricane Floyd. In response to the damage, appropriate Federal agencies have already begun repair and recovery efforts to assist Princeville. However, it is the policy of this Administration to do more to help this city that occupies such a significant place in our history. Therefore, this order will create an interagency council to develop recommendations for further actions to address the future of Princeville.

Sec. 2. Establishment. (a) There is established the "President's Council on the Future of Princeville, North Carolina" (Council). The Council shall comprise the Secretaries of Defense, Agriculture, Commerce, Labor, Health and Human Services, Housing and Urban Development, Transportation, the Director of the Office of Management and Budget (OMB), the Administrator of the Environmental Protection Agency, the Commander of the Army Corps of Engineers, the Administrator of the Small Business Administration, the Director of the Federal Emergency Management Agency, the Assistant to the President for Domestic Policy, the Assistant to the President for Economic Policy, and the Assistant to the President for Intergovernmental Affairs, or their designees, and such other executive department and agency (agencies) representatives as the President may deem appropriate. The Council shall consult with other agencies and State and local governments, as appropriate.

(b) The Director of the Office of Management and Budget, or his designee, shall serve as Chair of the Council.

Sec. 3. Functions. The Council shall develop recommendations for the President on further agency and legislative actions that can be undertaken to address the future of Princeville. In developing the recommendations, the Council shall consider, among other things: (a) the unique historic and cultural importance of Princeville in American history; (b) the views and recommendations of the relevant State and local governments, the private sector, citizens, community groups, and non-profit organizations, on actions that they all could take to enhance the future of Princeville and its citizens; and (c) agency assessments andrecommendations to repair and rebuild Princeville, and, to the extent practicable, protect Princeville from future floods. The Council, through its Chair, shall submit its recommendations to the President. Where appropriate, the Council's recommendations shall include draft legislation requesting additional funding or other authorities to aid in the reconstruction and protection of Princeville.

Sec. 4. Coordination. At the request of the Chair, agencies shall cooperate with and provide information to the Council.

Sec. 5. Judicial Review. This order is not intended to, nor does it create, any right or benefit, substantive or procedural, enforceable at law by a party against the United States, it agencies, its officers or employees, or any other

person.

William J. Clinton

THE WHITE HOUSE,

February 29, 2000.

William J. Clinton, Executive Order 13146—Presidents Council on the Future of Princeville, North Carolina Online by Gerhard Peters and John T. Woolley, The American Presidency Project
https://www.presidency.ucsb.edu/node/227837

The places where you live, work, and play may affect your health.

You can use this **Info by Location** tool to get a snapshot of some of the environmental health issues for your area.

Enter a county name.

Edgecombe, NC

Don't know the county name? Type in a zip code instead.

SUBMIT

Select Topics (optional) »

Edgecombe County, North Carolina†



POPULATION: 55,554

INCOME

Average Household Income

Edgecombe County: $40,784

North Carolina: $57,388

Residents who live below the poverty line



24.1%

Edgecombe County

12.9%

North Carolina

QUICK FACTS:

Out of 10 people living in this county

SEX



5 are male & 5 are female

AGE



About 3 are between the ages of 0 and 19 years

About 2 are between the ages of 20 and 34 years

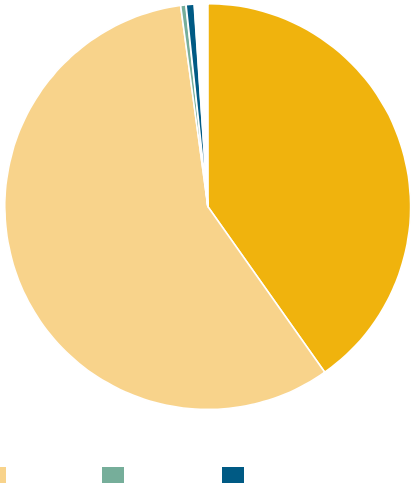
About 2 are between the ages of 35 and 49 years

About 4 are 50 years and older

ETHNICITY

Less than 1 are Hispanic and 10 are non-Hispanic

RACE



(https://twitter.com/share?

url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

rned%20some%20quick%20facts%20about%20the%20people%20in%20my%20county.%20Visit%20https://ephtracking.cdc.gov/InfoByLocation%2F%20to%20find%20out%20facts%20for%20your%20county.)

Discover the data (../../DataExplorer?query=C7380B65-728D-4621-A122-47283CF8B444&G5=9999) | Learn more about this topic (/showPcMain.action)

† 2020 data from the National Environmental Public Health Tracking Network (/showHome.action)

Asthma†

Percent of **adults** who currently have asthma

North Carolina	National
7.8%	7.0%

Asthma is a chronic disease that affects the airways that carry oxygen in and out of the lungs. Asthma can cause

- shortness of breath,
- wheezing,
- coughing, and

- tightness in the chest.

Asthma attacks have been linked to many factors, including exposure to environmental hazards like

- allergens,
- tobacco smoke, and
- indoor and outdoor air pollution.

Asthma can be controlled by taking medication and avoiding triggers that can cause an attack.

(https://twitter.com/share?

url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

rned%20some%20quick%20facts%20about%20the%20people%20in%20my%20county.%20Visit%20https://ephtracking.cdc.gov/InfoByLocation%2F%20to%20find%20out%20facts%20for%20your%20county.)

Discover the data (/../DataExplorer/?query=1F12A3B5-E744-4857-9110-401524CC8D8E&fips=37&G5=9999) | Learn more about this topic (/showAsthma.action)

† 2020 data from the National Environmental Public Health Tracking Network (/showHome.action)

Air Quality: Ground-Level Ozone†



Edgecombe County residents were exposed to unhealthy levels of ozone for **0 Days** in 2019.

Ozone occurs naturally in the sky and helps protect us from the sun's harmful rays. But ground-level ozone can be bad for your health and the environment. Ground-level ozone is one of the biggest parts of smog.

When ozone levels are above the national standard, everyone should try to limit their contact with it by reducing the amount of time spent outside.

Edgecombe County residents were exposed to unhealthy levels of ozone for **0 Days** in 2019.

Check the EPA's Air Quality Index (AQI) at AirNow.gov (http://www.AirNow.gov) to see the current air quality conditions for your location. You can use the AQI to plan your daily activities to reduce exposure to ozone.

(https://twitter.com/share?

url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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Discover the data (/../DataExplorer/?query=1C537D70-420B-4B25-ABBE-F1B6FAD2C30B&fips=37065&G5=9999) | Learn more about this topic (/showAirHealth.action)

† 2019 data from the National Environmental Public Health Tracking Network (/showHome.action)

Air Quality: Particulate Matter†

ANNUAL AMBIENT CONCENTRATION OF $PM_{2.5}$

7.7 $\mu g/m^3$*

Edgecombe County, North Carolina

12.0 $\mu g/m^3$*

Annual National Standard

*Micrograms Per Cubic Meter ($\mu g/m^3$)

Air pollution is a leading environmental threat to human health.
Particles in the air like dust, dirt, soot, and smoke are one kind of air pollution called particulate matter. Fine particulate matter, or $PM_{2.5}$, is so small that it cannot be seen in the air. Breathing in $PM_{2.5}$ may

- lead to breathing problems,
- make asthma symptoms or some heart conditions worse, and
- lead to low birth weight.

The national standard for annual $PM_{2.5}$ levels is **12.0µg/m³.** When $PM_{2.5}$ levels are above 12, this means that air quality is more likely to affect your health.

In 2019, the annual level of $PM_{2.5}$ in **Edgecombe County** was **7.7µg/m³.** *

* Micrograms per cubic meter (./images/content/PM2-5_5.jpg) ($\mu g/m^3$)

(https://twitter.com/share?

url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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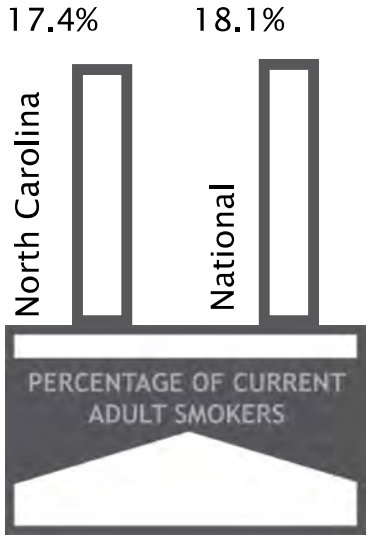
Discover the data (/../DataExplorer/?query=4E04F504-A4A2-405C-85AB-9BC6B3F7325D&fips=37065&G5=9999) | Learn more about this topic (/showAirLanding.action)

† 2019 data from the National Environmental Public Health Tracking Network (/showHome.action)

Smoking†





Tobacco use is the single most preventable cause of death and disease in the United States. Smoking harms nearly every organ of the body. It causes many diseases and reduces the health of smokers in general. The negative health effects from cigarette smoking account for an estimated 500,000 deaths, or nearly 1 of every 5 deaths, each year in the United States.

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url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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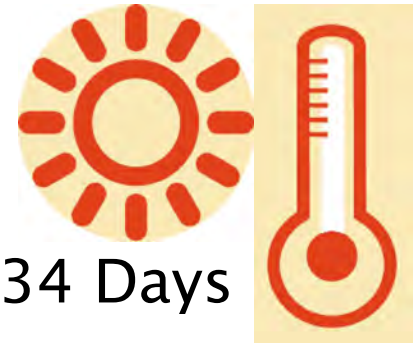
Discover the data (/../DataExplorer/?query=2B83BA8E-9849-47BF-92C2-2CA0D51CC90C&fips=37&G5=9999) | Learn more about this topic (/showHBSmokingPrevalence.action)

† 2018 data from the National Environmental Public Health Tracking Network (/showHome.action)

Extreme Heat†



34 Days

with temperatures above 90°F

Extreme summer heat is increasing in the United States, and climate projections indicate that extreme heat events will be more frequent and intense in coming decades. Extremely hot weather can cause illness or even death. Knowing how hot it gets in your area can help you prepare for extremely hot temperatures and prevent heat related illness (http://emergency.cdc.gov/disasters/extremeheat/heattips.asp).

Edgecombe County had **34 Days** with maximum temperatures above 90°F during May-September 2021.

Heat-related death or illnesses are preventable if you follow a few simple steps.

- Stay cool.
- Stay hydrated.
- Stay informed.

(https://twitter.com/share?

url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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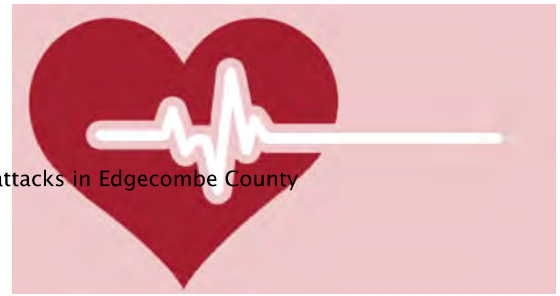
Discover the data (/../DataExplorer/?query=51ED8370-BE00-4813-A4F8-AE641EF61672&fips=37065&G5=9999) | Learn more about this topic (/showClimateChangeExtremeHeat.action)

† 2021 data from the National Environmental Public Health Tracking Network (/showHome.action)

Heart Attacks†

22

deaths from heart attacks in Edgecombe County



The environment is one of several factors (/showHeartExpRisk.action) that can lead to an increased risk for heart disease. High levels of air pollution and extreme hot and cold temperatures have been linked to increases in heart disease and deaths from heart attacks. A heart attack happens when a part of the heart muscle dies or gets damaged because of reduced blood supply.

In 2020, there were

- **22 deaths** from heart attacks in Edgecombe County.
- **3,231 deaths** from heart attacks in North Carolina.

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url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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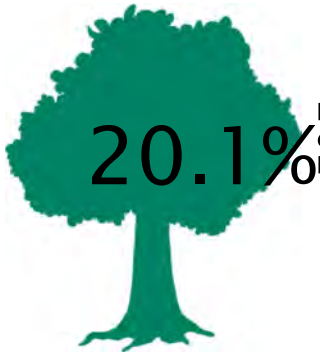
Discover the data (/../DataExplorer/?query=19D1C8B6-45AB-4216-A2CC-2DCC250FD1FE&fips=37065&G5=9999) | Learn more about this topic (/showHeartAttack.action)

† 2020 data from the National Environmental Public Health Tracking Network (/showHome.action)

Access To Parks†



20.1% Live within half a mile of a park in Edgecombe County



Having access to places for physical activity, like parks, encourages people to get active and do so more often. The closer you live to a park, the more likely you are to walk or bike there. Walking and biking to parks can decrease air pollution and car crashes, which in turn, can reduce chronic disease rates and traffic-related injuries.

In 2020,

20.1% of people living in **Edgecombe County** lived within half a mile of a park.

58.7% of people living in **North Carolina** lived within half a mile of a park.

(https://twitter.com/share?

url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20#environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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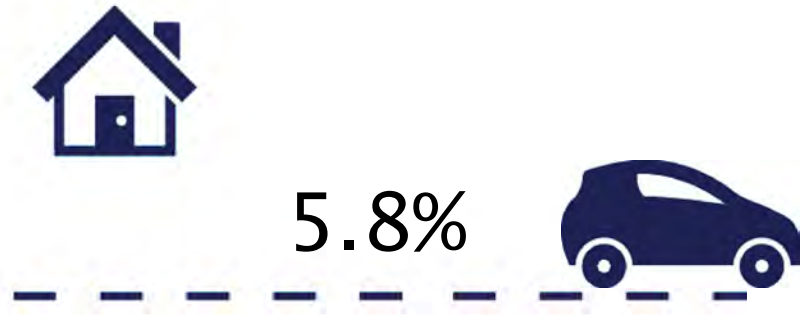
Discover the data (/../DataExplorer/?query=16F809E7-BD81-4A24-8588-F6A3A62B866E&fips=37065&G5=9999) | Learn more about this topic (/showProximityToHighways.action)

† 2020 data from the National Environmental Public Health Tracking Network (/showHome.action)

Proximity To Highways†



of Edgecombe County population that live within 150m of a highway

Traffic-related air pollution is a major cause of unhealthy air quality, especially in urban areas. Many health problems have been linked to exposure to traffic-related air pollution. The closer your home or school is to a major highway, the more likely you and your family are to be exposed to traffic-related air

pollution.

In 2020, **5.8%** of the population of Edgecombe County lived within 150 meters* of a major highway.

In 2020, **0.0%** of Edgecombe County public schools were sited within 150 meters* of a major highway.

* 150 meters is about 2 blocks.

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url=https%3A%2F%2Fephtracking.cdc.gov%2FInfoByLocation%2F&text=Check%20out%20environmental%20health%20in%20your%20county&hashtags=PublicHealth,Tracking)

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Discover the data (/../DataExplorer/?query=75C3D4C4-D2CC-4E1B-A26C-FA01EE02076C&fips=37065&G5=9999) | Learn more about this topic (/showProximityToHighways.action)

† 2020 data from the National Environmental Public Health Tracking Network (/showHome.action)

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subject=Please%20add%20me%20to%20CDC's%20Environmental%20Public%2
serv.&body=Please%20fill%20in%20the%20information%20below:%0AName:%



ATTACHMENT 15:

Zoning

Recovery Efforts page in Town of Princeville's Final Comprehensive Plan and Edgecombe County Parcel Maps

RECOVERY EFFORTS

In addition to the recent planning efforts, thirteen on-going recovery projects have been in process since 2017. Due to the active nature of these projects, additional updates will have occurred by the time this plan is adopted.



01 Stormwater Project – The Wooten Company and Barnhill Contracting is constructing repairs to the stormwater system on a number of streets. Repairs to infrastructure along Snowden Street, Walston Street, Church Street, and Dancy Street are planned.



04 Town Hall – Rescue Construction Solutions contractor is working on a design-build rehab and wet flood-proofing of the Town Hall. Project is behind schedule due to virus. Projected completion is expected in 2021.

02 Flood Gates – The Town is currently reviewing qualifications for engineering firms to design floodgate repair project. This project will repair 4 flood gates in the community. These gates help protect the Town from flooding and release stormwater to the Tar River during normal events. CDBG-DR funds have been identified for this project.



05 Senior Center – The Senior Center reconstruction was designed by Oakley-Collier Architects and Burney is leading the reconstruction. Scheduled for completion early summer of 2021.



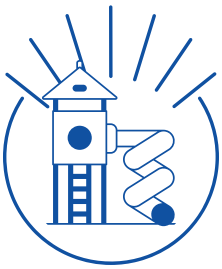


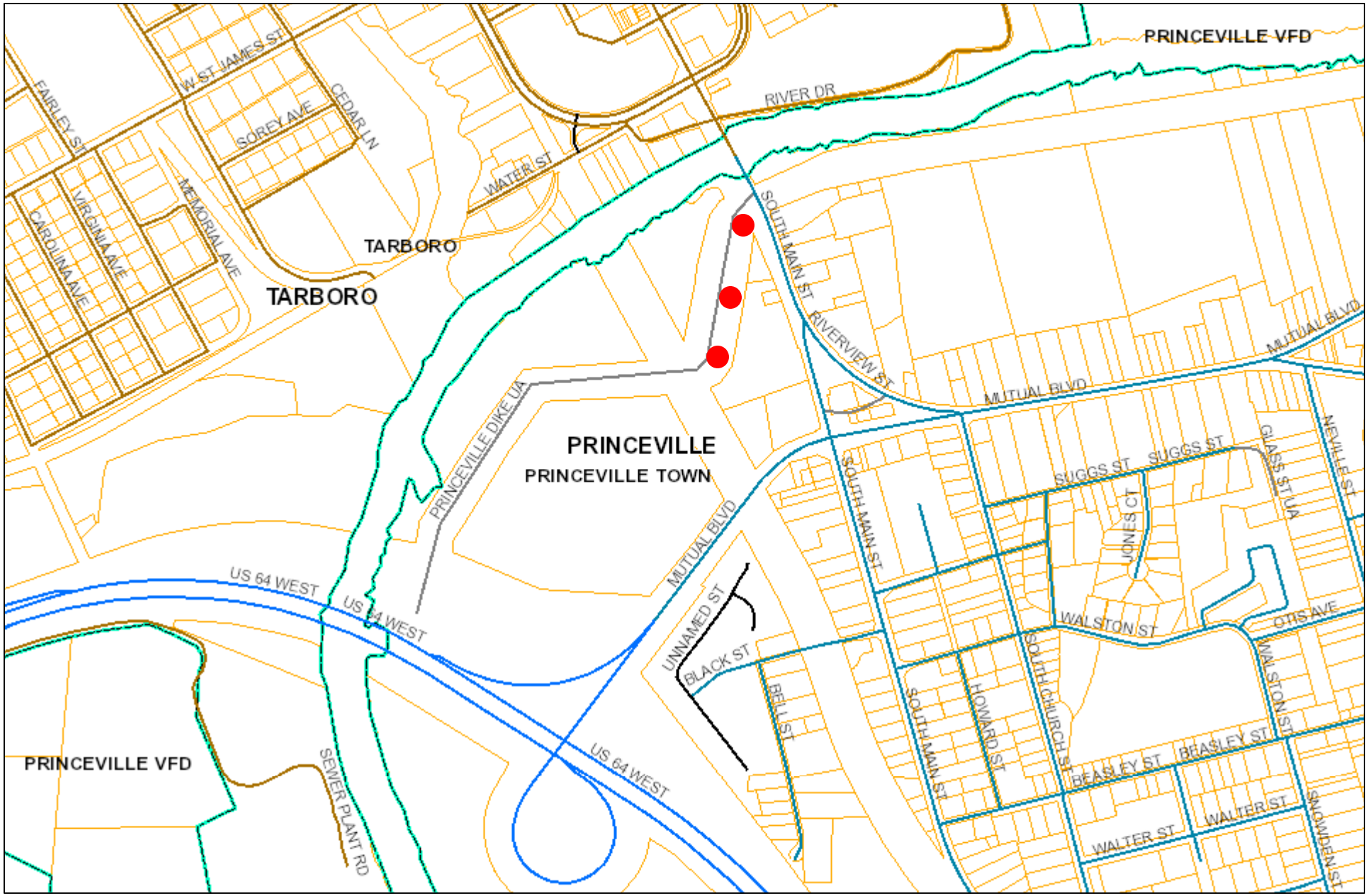
06 Museum – Oakley-Collier Architects designed a modern, interactive space that preserves the historic exterior. Currently held up at the State Historic Preservation Office (SHPO). A vinyl print of the Heritage Park Mural is expected to be included in the upgrades to the Museum facilities.



03 Levee Project – The US Army Corps of Engineers (USACE) designing expansion and extension of Princeville Levee. The Army Corps of Engineers is currently surveying and design work is underway. The USACE Levee Report in 2014 recommended $21 million in improvements to the levee system. The original levee was constructed in 1967 and modified with the construction of US 65 in 1995. Recommended improvements include construction of flood gates on seven non-gated culverts, increasing elevations of NC 33 and NC 64, installation of a "shoulder levee" parallel to I-64, extension of existing levee at the at the point of its current northern-most terminus along Highway 258, to the east, and then south and non-structural measures. $39.6 million in funding has been approved for levee improvements. The Army Corps of Engineers is beginning work on the project.

07 Heritage Park – The Town has rehabbed the pavilion and restrooms, purchased new playground equipment, and relocated the playground site. The mural on site has been digitized and put into storage awaiting the design and construction of the Farmers' Market. A walking trail is planned in the next phase.





March 24, 2023

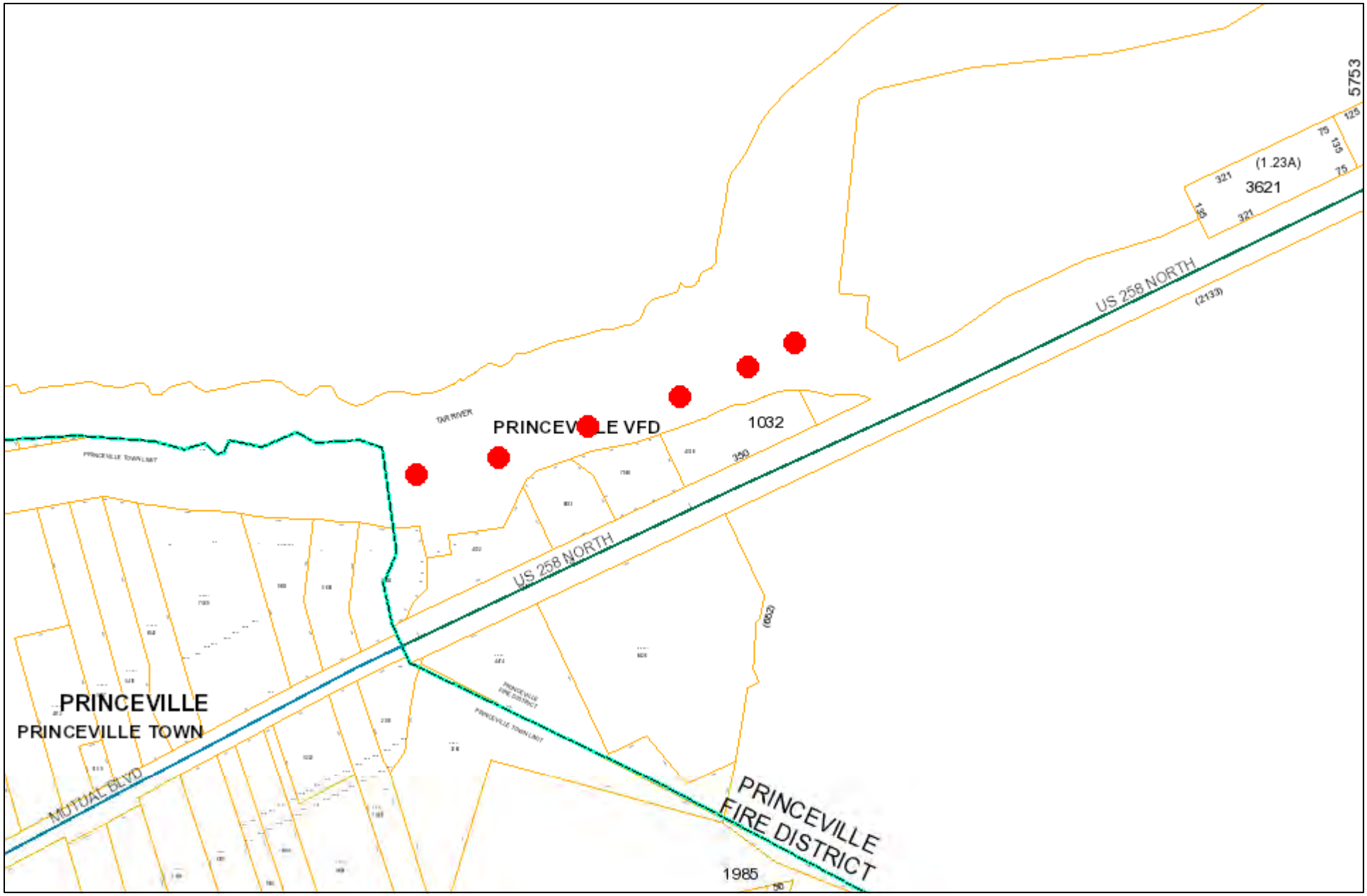
1:7,825

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

N

Princeville - Structure 1 - Zoning Map AR-30



March 24, 2023

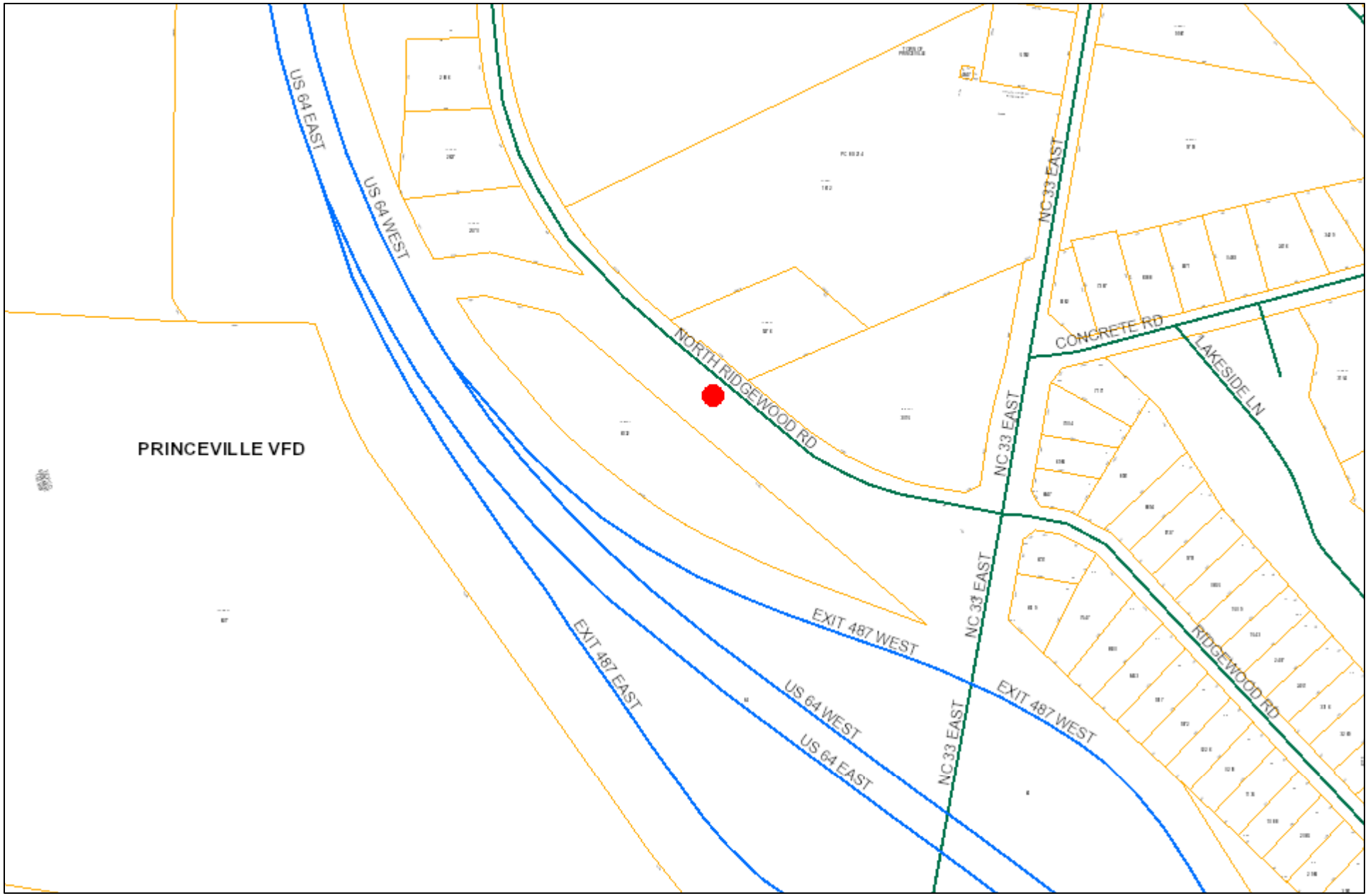
1:3,913

0 0.0325 0.065 0.13 mi

0 0.05 0.1 0.2 km

N

Princeville - Structures 2 & 3 - Zoning Map AR-30



March 24, 2023

1:3,913

0 0.0325 0.065 0.13 mi

0 0.05 0.1 0.2 km

N

Princeville - Structure 4 - Zoning Map AR-30

ATTACHMENT 16:

Soil Suitability/ Slope/ Erosion/ Drainage/ Stormwater Runoff

Slope Analysis Report and Geotechnical Subsurface Investigation

Slope Stability Analysis Report

October 19, 2022

Mr. Randal Howard, PE, PLS
Sungate Design Group
rhoward@sungatedesign.com

Revised Report of Engineering Evaluation
Princeville Levee Roads
Princeville, North Carolina
Our Project Number 121-21-106310

Gentlemen:

As requested, NV5 Engineers & Consultants, Inc. has performed a slope stability analysis related to the proposed new access roads on the existing levee along the Tar River in Princeville, North Carolina. Specifically, we understand that an evaluation is desired in order to determine the potential effects on levee slope stability resulting from the new roadway construction. We have reviewed the following documents, provided by you, to evaluate existing conditions and expected post-construction slope stability conditions at fifteen (15) critical cross-sections related to stability along the riverside face along the landside face. The specific locations of the above referenced cross-sections were provided by you.

- Subsurface Investigation prepared by Catlin Engineers and Scientists dated October 2020 (Catlin Report)

- Princeville Dike Floodgate Repairs Site 1, Site 2, and Site 3, prepared by Sungate Design Group, P.A., dated November 18, 2021 (Sungate Design)

Based on our review of the geotechnical data provided in the Catlin Report and our review of our previous hand auger borings, we have identified four (4) primary soil strata comprising the levee at the requested critical cross-sections. Specifically, at the critical cross-sections, the levee typically consists (or will consist) of (ordered from higher to lower elevations) (i) New and Existing Fill Soils; (ii) Soft Transitional Clay Layer; (iii) Undivided Coastal Plains Soils; and (iv) Cape Fear Formation Soils. A color-coded legend is provided to you on each of the attached figures.

Based on our review of the provided geotechnical data, we have assigned soil properties to each of the four primary soil strata at each of the nine critical cross-sections. Our evaluation was dependent upon, among other properties, the estimated unit weight (γ), internal angle of friction ($\emptyset$), and cohesion (c) of the soils within and below the levee. Although these parameters exhibited some variation among the critical cross-section locations, the typical values for these parameters, for each of the four primary soil strata, are provided, below:

- New and Existing Fill Soils (γ=118 pcf, $\emptyset$=26°, c=0)

- Soft Transitional Clays (γ=110 pcf, $\emptyset$=12°, c=50)

- Undivided Coastal Plains Soils (γ=120 pcf, $\emptyset$=30°, c=0)

- Cape Fear Formation Soils (γ=125 pcf, $\emptyset$=32°, c=0)

With the exception of the Soft Transitional Clay Layer, the soils encountered within and directly below the levee generally consisted of coarse-grained soils (sands). Additionally, the groundwater table was generally encountered within the Undivided Coastal Plains soils and below the toe elevations of the levee. The depths to groundwater ranged from approximately 2 to 9 feet below toe elevations. Due to the generally coarse-grained nature of a majority of the encountered soils and the absence of detected groundwater within the fine-grained soil layer, it is our opinion that the soil mass within and directly below the levee will behave as a drained system.

The slope geometry at each location, including the planned geometries after access road construction, was derived from the survey data and cross-sectional geometries provided in the Catlin Report and the Sungate Design. A live load of 250 pounds per square foot (psf) was considered across the width of the planned access roads.

Based on the above-described geometries, estimated soil conditions, and construction data, we have performed slope stability analyses using the ReSSA 3.0. Specifically, for each levee cross-section and construction sequence, we have analyzed potential circular and non-circular slip surfaces utilizing Bishop and Spencer limit equilibrium methods, respectively. Circular slip surfaces were analyzed using the entry, exit, and radius search method. The search method was targeted to explore shallow, toe, and deep slip surfaces. Where tiered slopes were present, multiple search efforts were utilized in an attempt to analyze slip surfaces extending within and/or among individual slope tiers. Composite, non-circular slip surfaces were also analyzed at each cross-section and construction sequence. For composite, non-circular slip surfaces, we utilized the grid/mesh-and-angle search method. Our search method reviewed shallow, toe, and deep slip surfaces, starting with wide, low resolution meshes, and ending with narrow, high resolution meshes. We also specifically analyzed non-linear slip surfaces which leveraged the low consistency transitional clays to decrease shear resistance along the slip plane. In general, composite, non-linear slip surfaces leveraging the low consistency, transitional clay layer tended to represent the critical slip surface, at locations where modest quantities of low consistency clays were present. As is characteristic of most slope stability analyses, some degree of engineering judgement was employed by our geotechnical engineer in evaluating the most suitable search methods for particular slope configurations and in analyzing, for instance, the line-of-thrust utilized for computation of non-circular slip surface safety factors.

The existing conditions and post-construction Factors of Safety against slope instability were greater than 1.4 at all critical slip planes for all cross-sections. The attached figures are intended to provide a general, representative illustration of our modeling geometries and the later-stage results of our slip surface search methods.

If you have any questions concerning this information, please contact us.

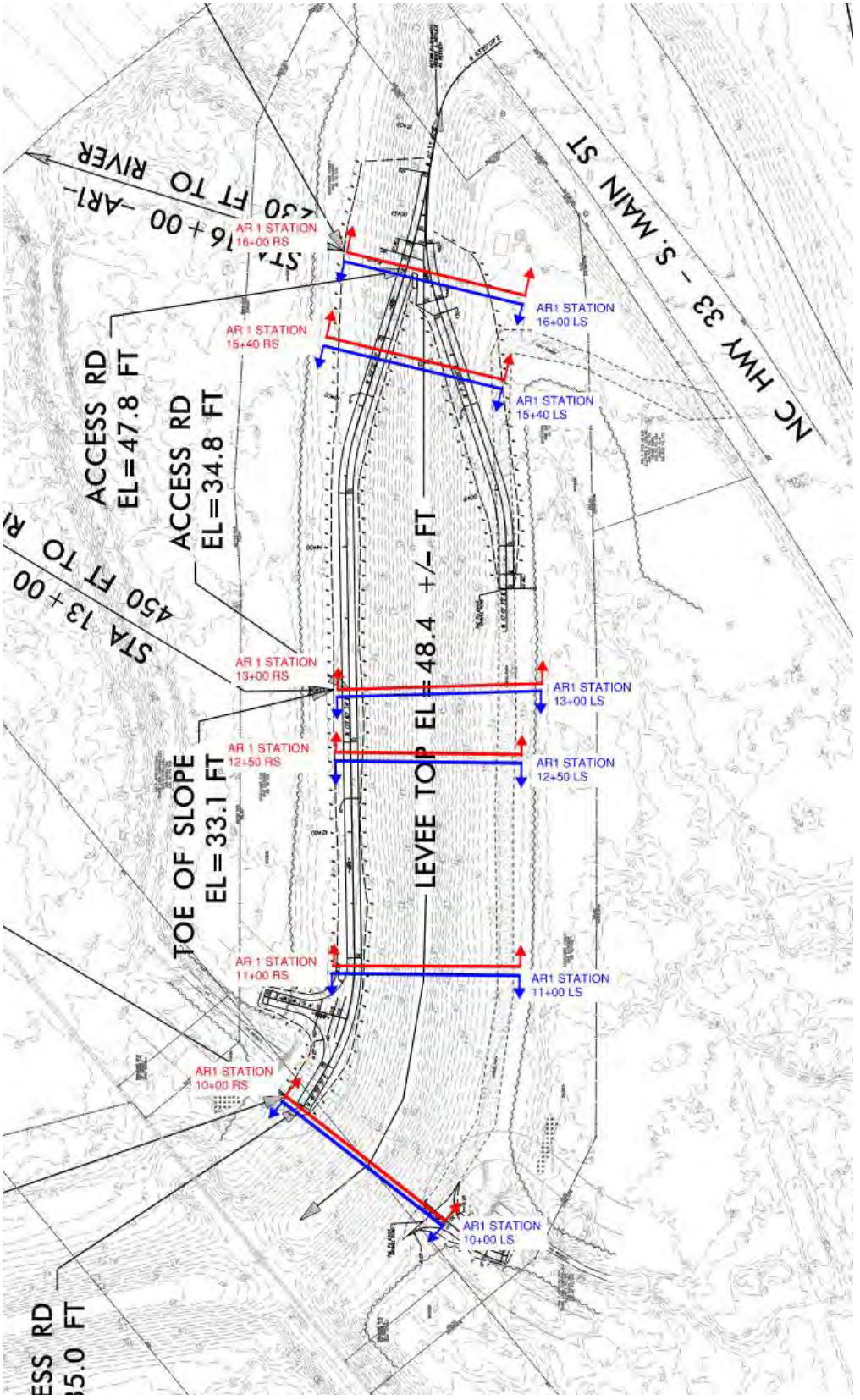
Sincerely,
NV5 Engineers and Consultants, Inc. (F-1333)

William M. Cruikshank

William M. Cruikshank, E.I.
Project Manager

Justin R. Pescosolido, P.E.
Principal Geotechnical Engineer



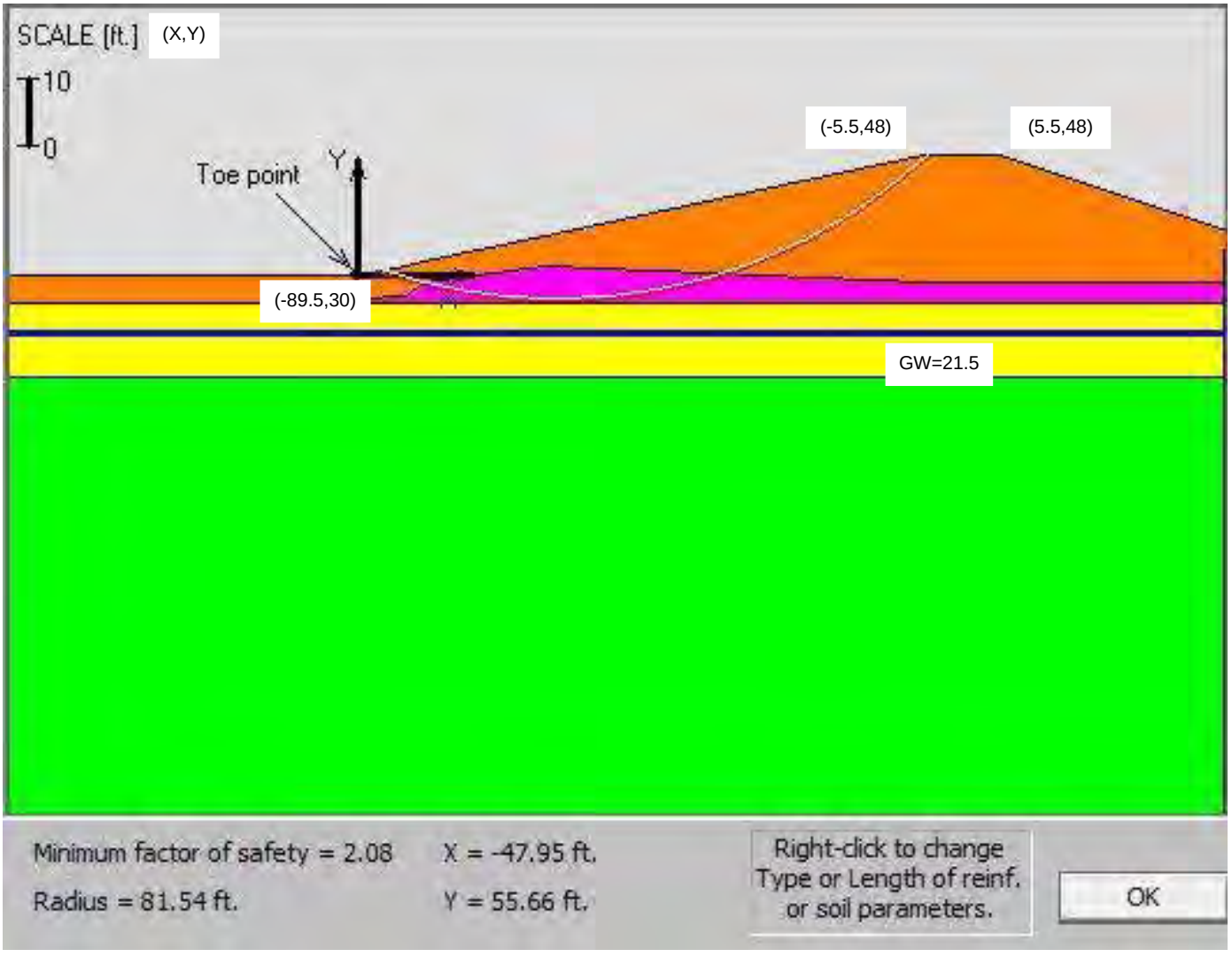


Not to Scale

Figure 1a

NV5 Engineers and Consultants, Inc. (F-1333)
4905 Professional Court
Raleigh, NC 27609
919-876-9799

Project **Princeville Levee Roads**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1b - AR1 STA. 10+00
Existing Riverside

Not to Scale

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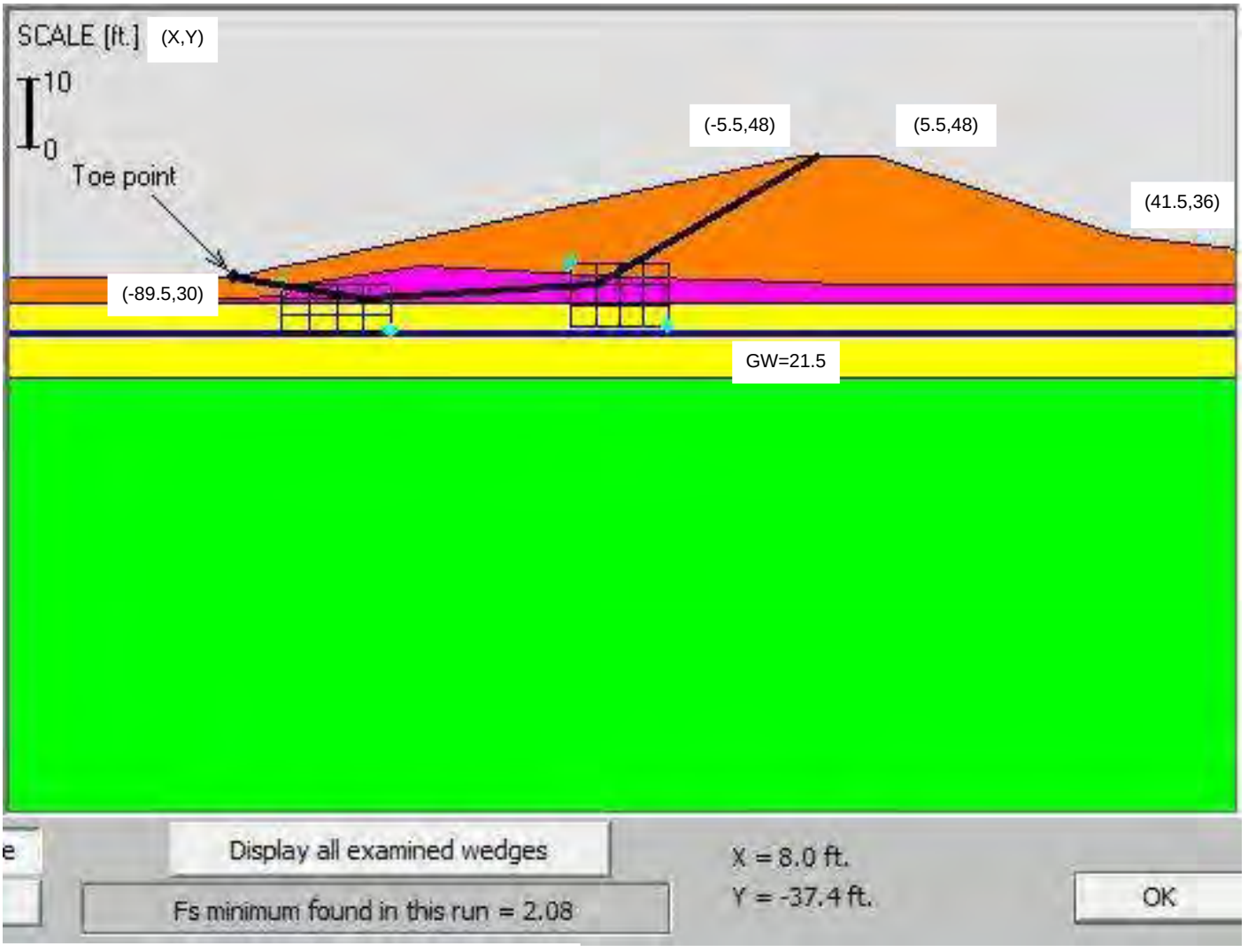
4905 Professional Court
Raleigh, NC 27609
919-876-9799

Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1c - AR1 STA. 10+00
Existing Riverside

Not to Scale

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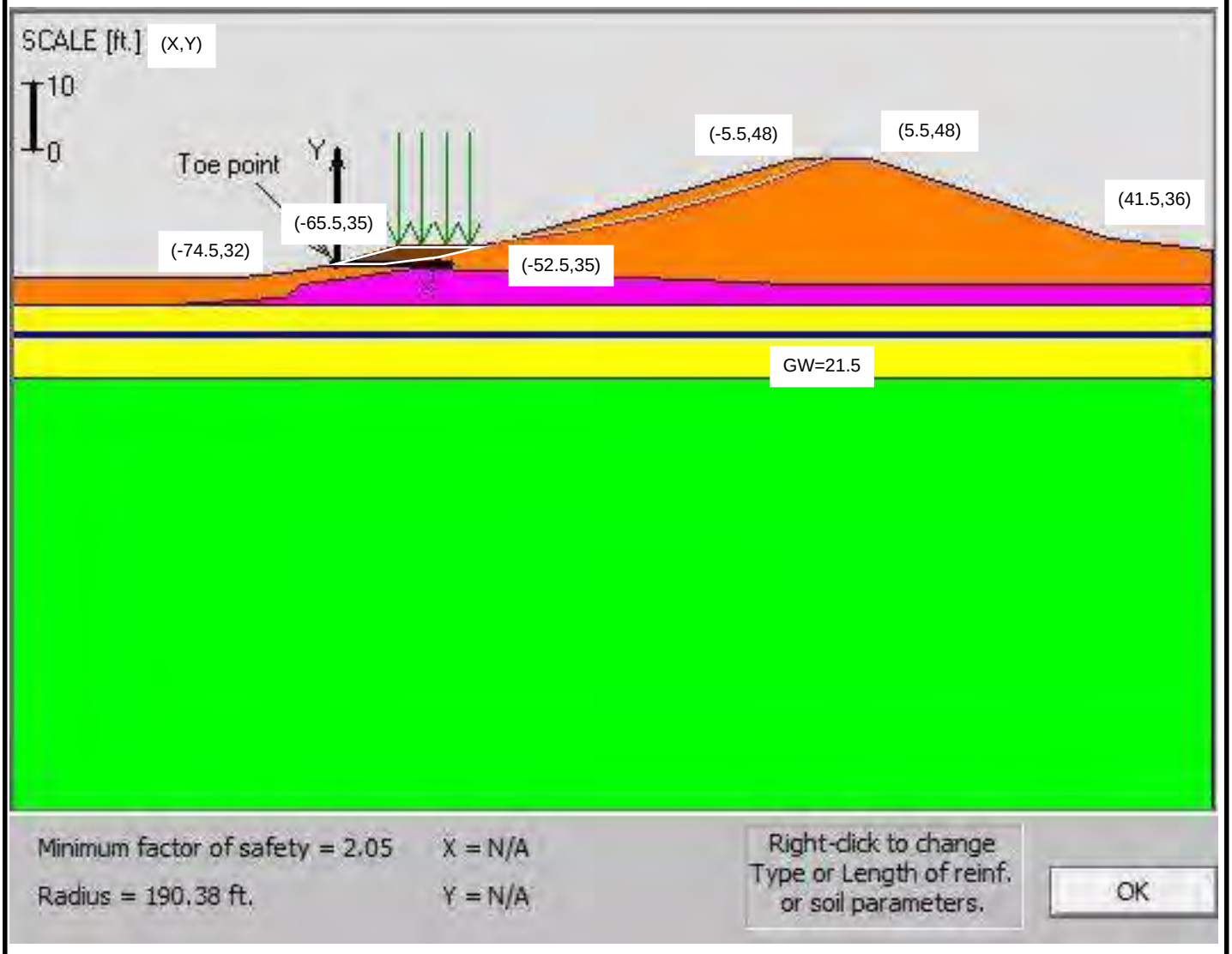
919-876-9799

Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

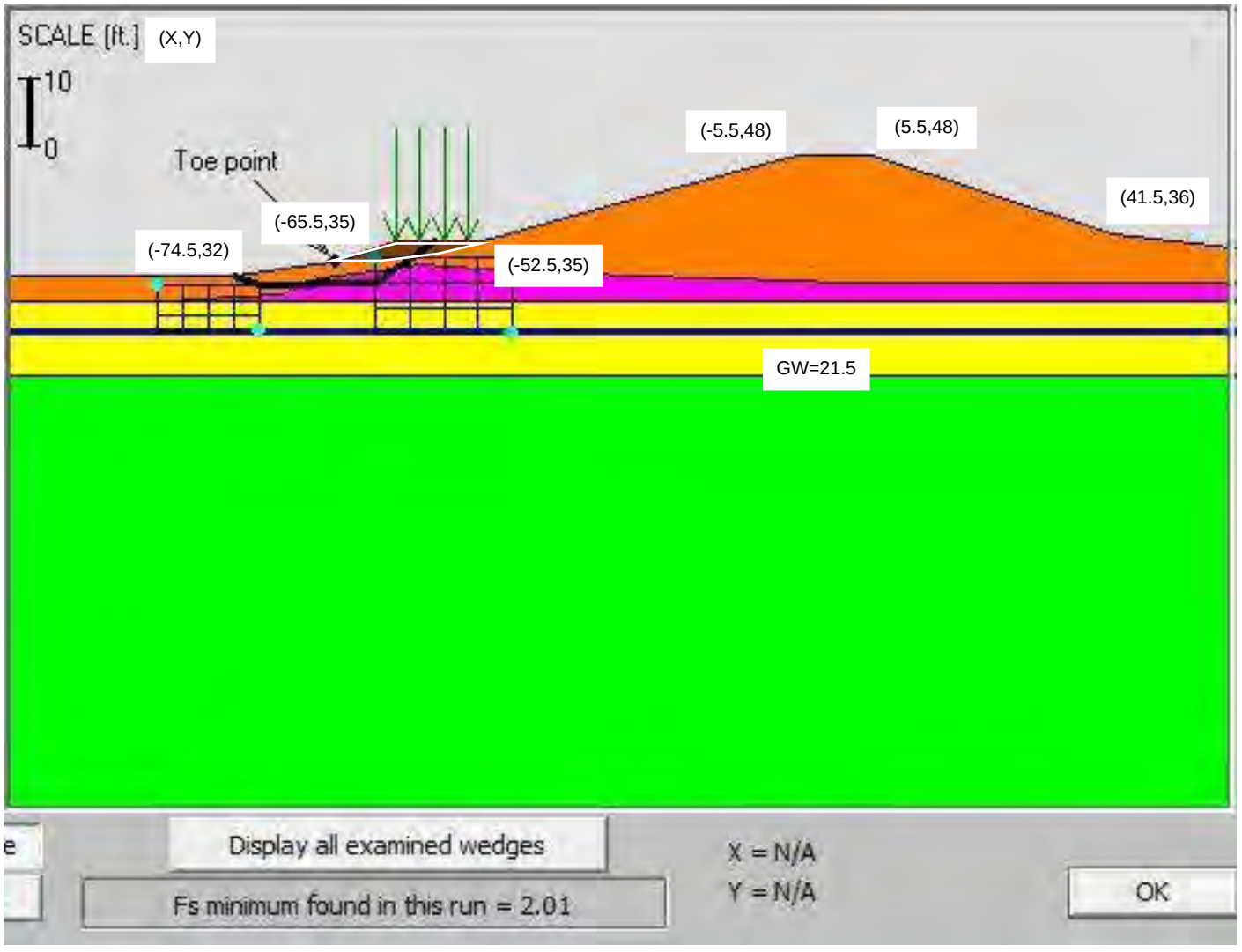
Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1d - AR1 STA. 10+00
Post Construction Riverside

Not to Scale

NV5 Engineers and Consultants, Inc. (F-1333)
4905 Professional Court
Raleigh, NC 27609
919-876-9799

Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

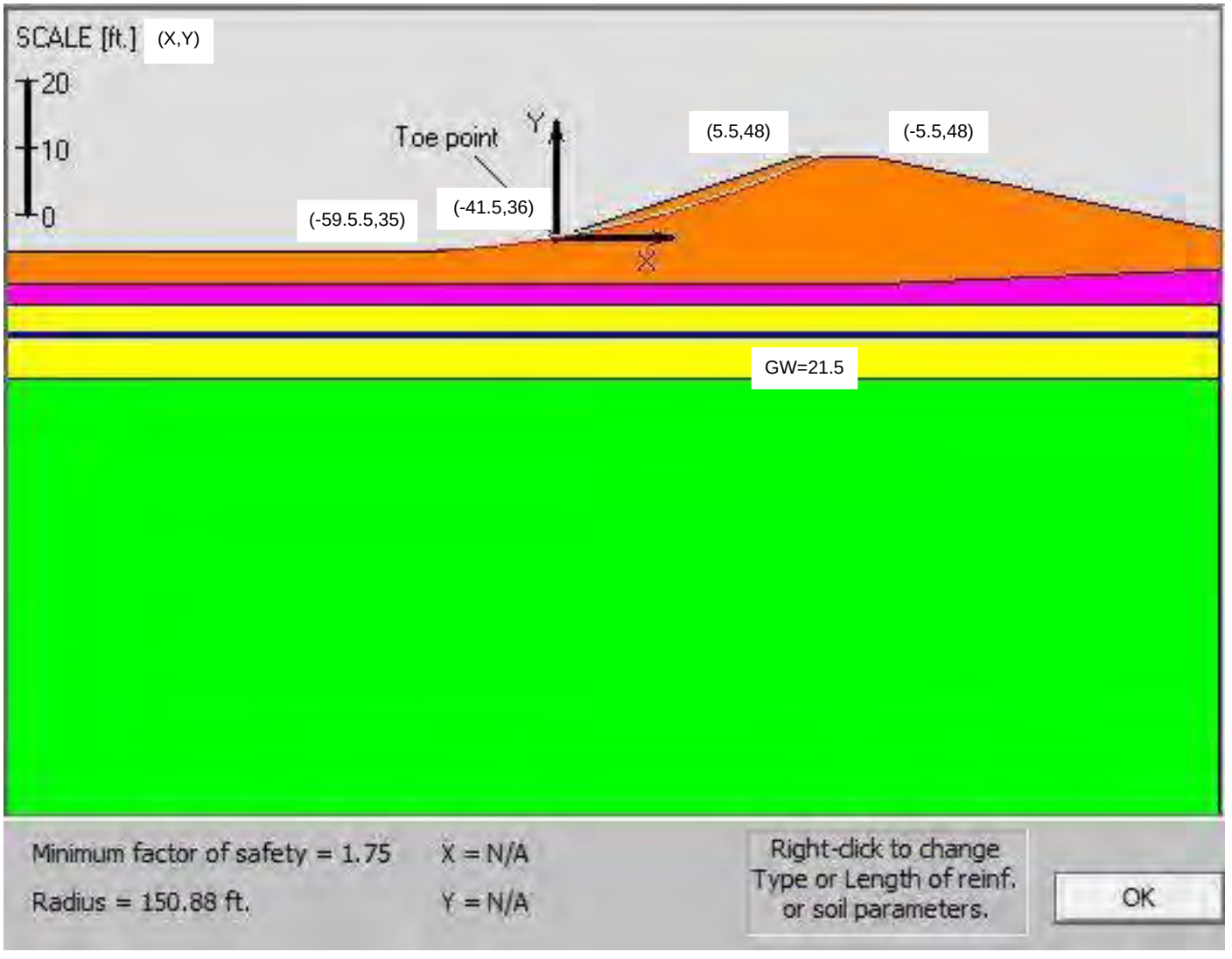
Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1e - AR1 STA. 10+00
Post Construction Riverside

Not to Scale

NV5 Engineers and Consultants, Inc. (F-1333)
4905 Professional Court
Raleigh, NC 27609
919-876-9799

Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1f - AR1 STA. 10+00
Existing Landside

Not to Scale

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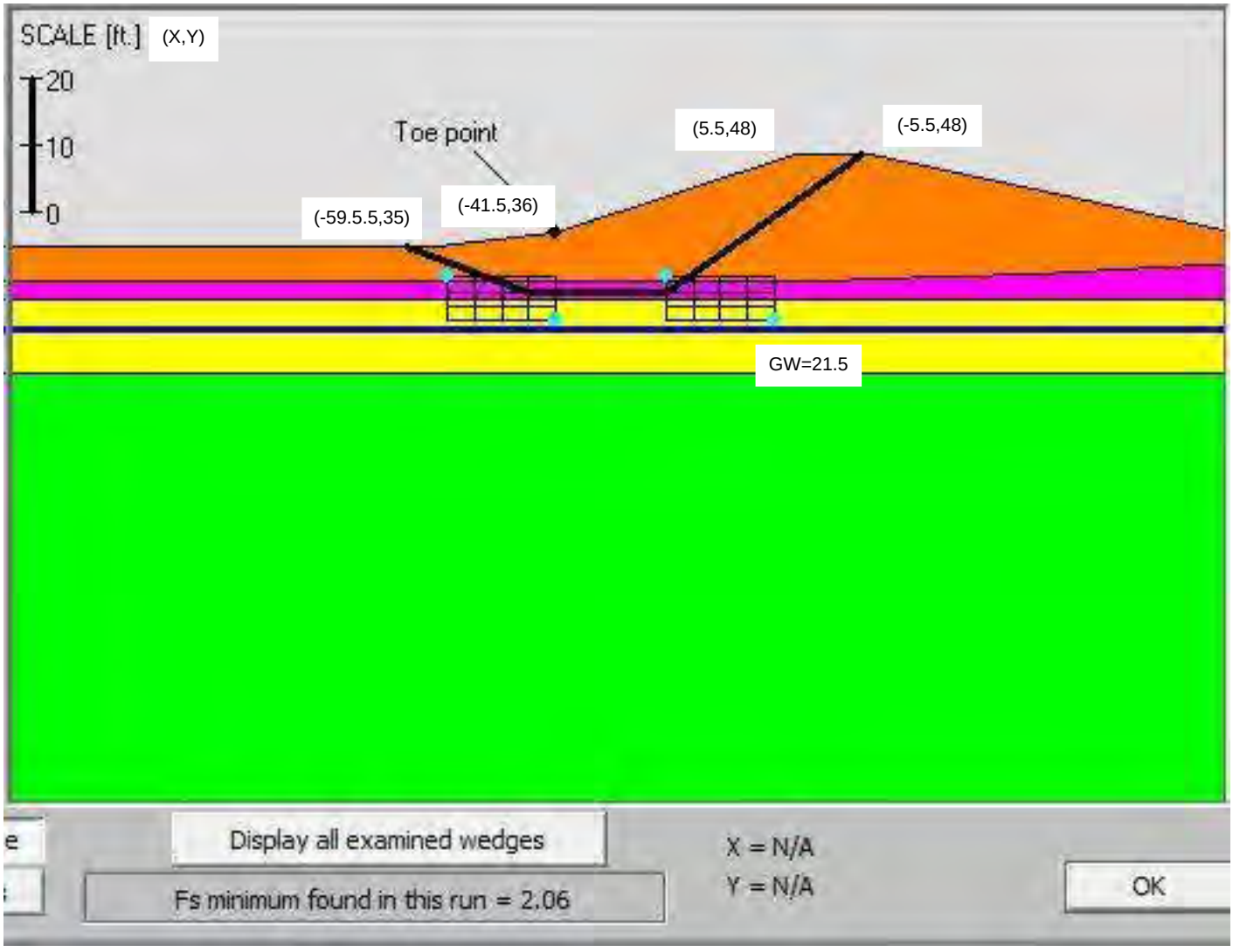

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1g - AR1 STA. 10+00
Existing Landside

Not to Scale

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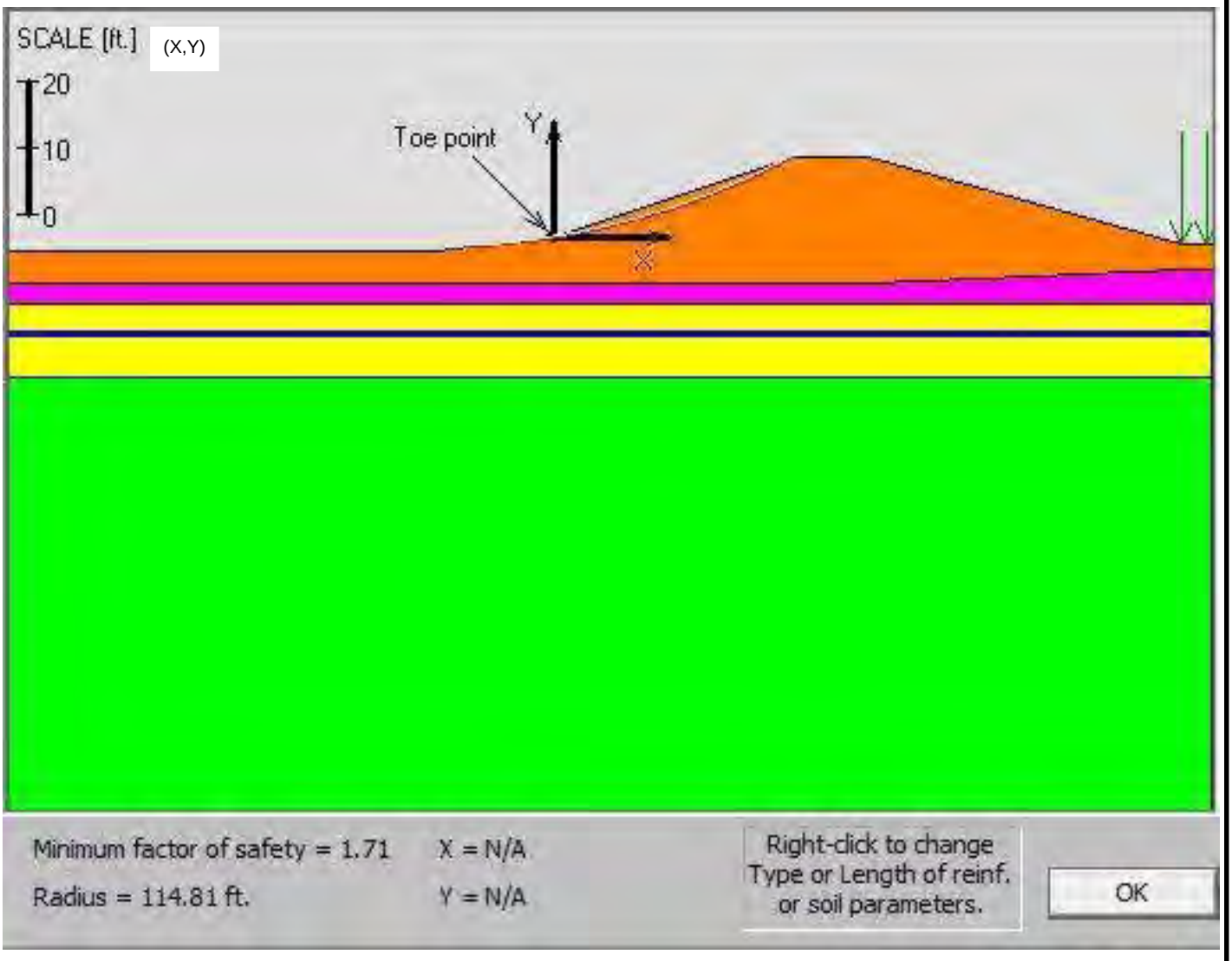
(50,35)



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1h - AR1 STA. 10+00
Post Construction Landside

Not to Scale

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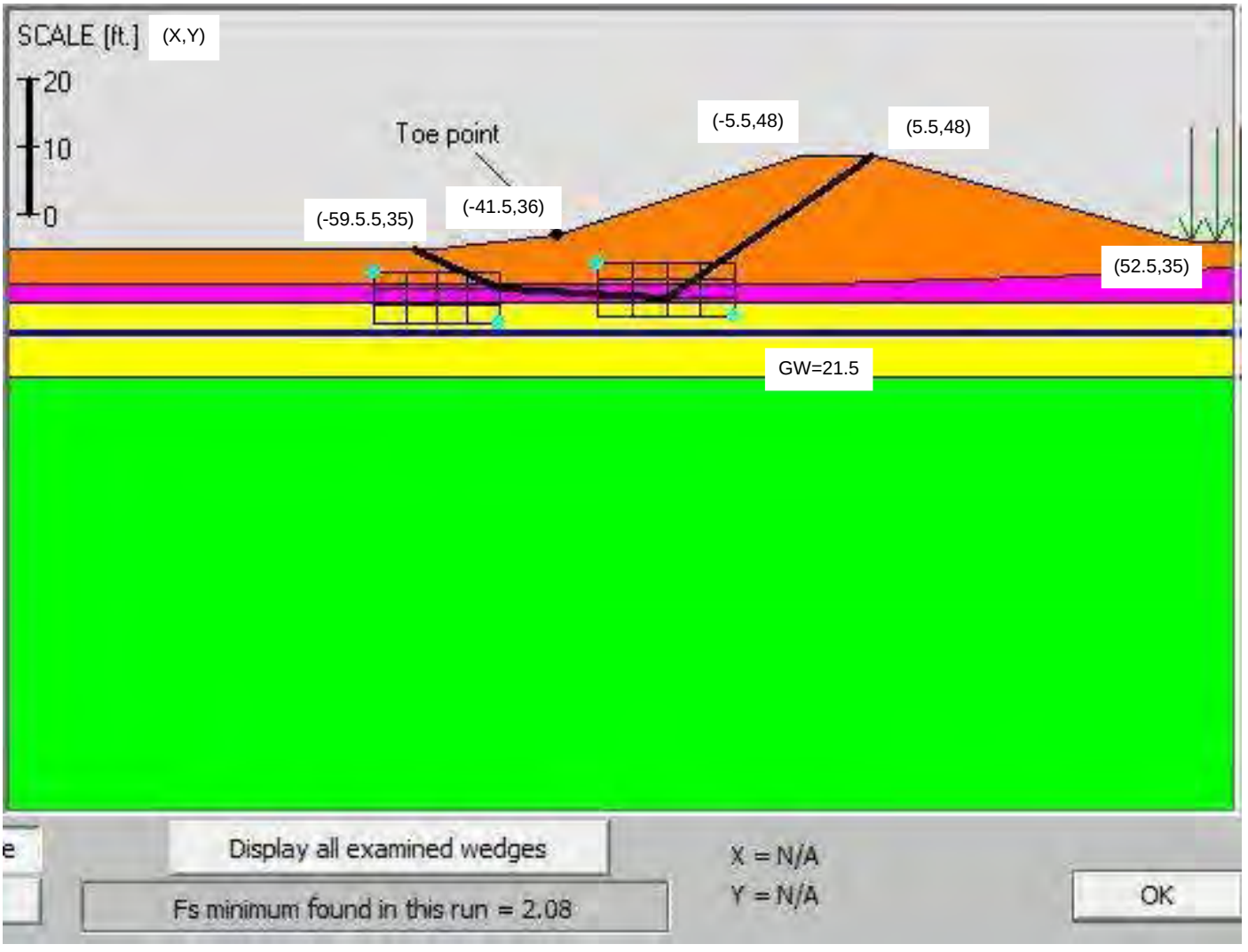

X value zeroed on middle of flat top of levee

Figure 1i - AR1 STA. 10+00
Post Construction Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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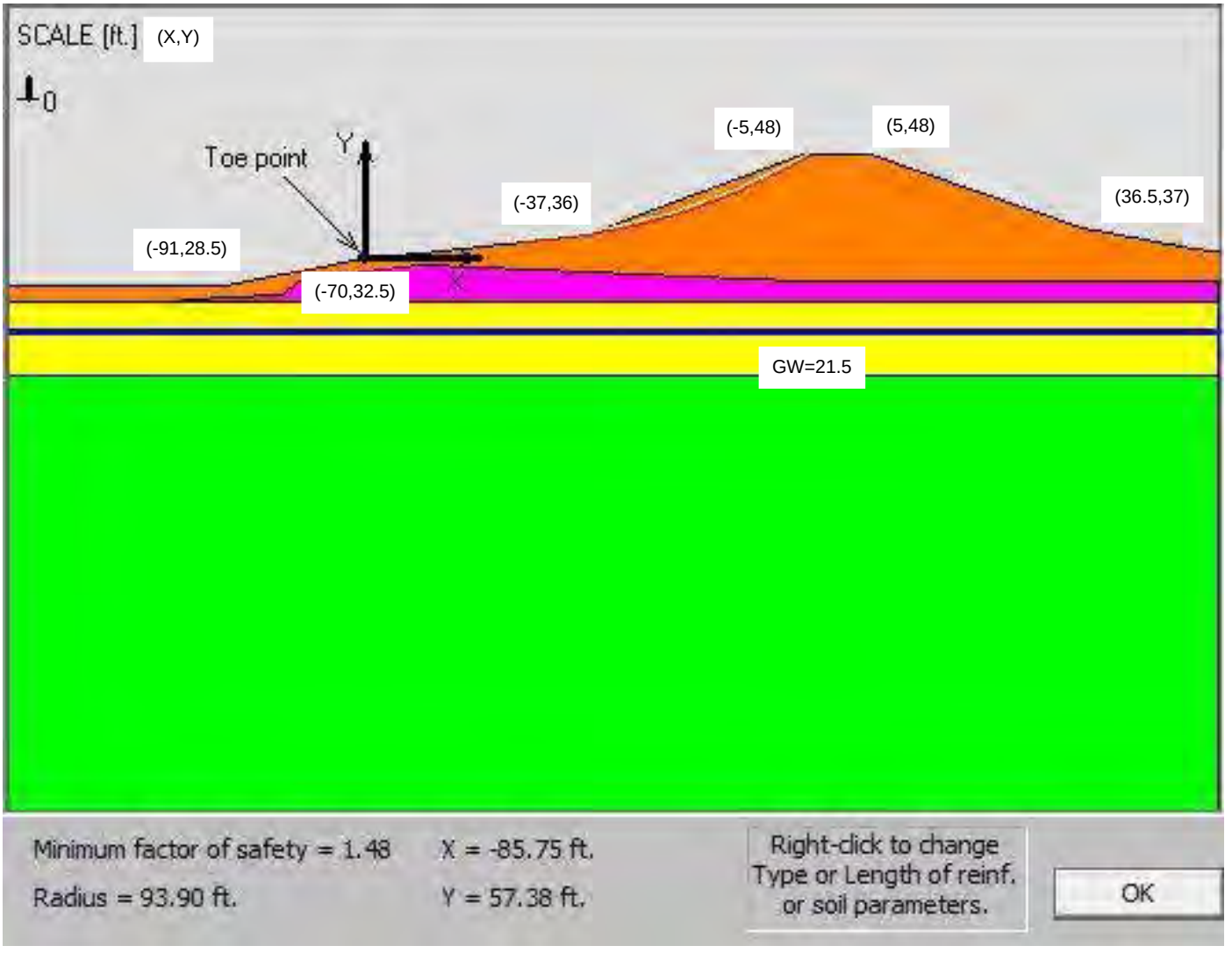

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1j - AR1 STA. 11+00
Existing Riverside

Not to Scale

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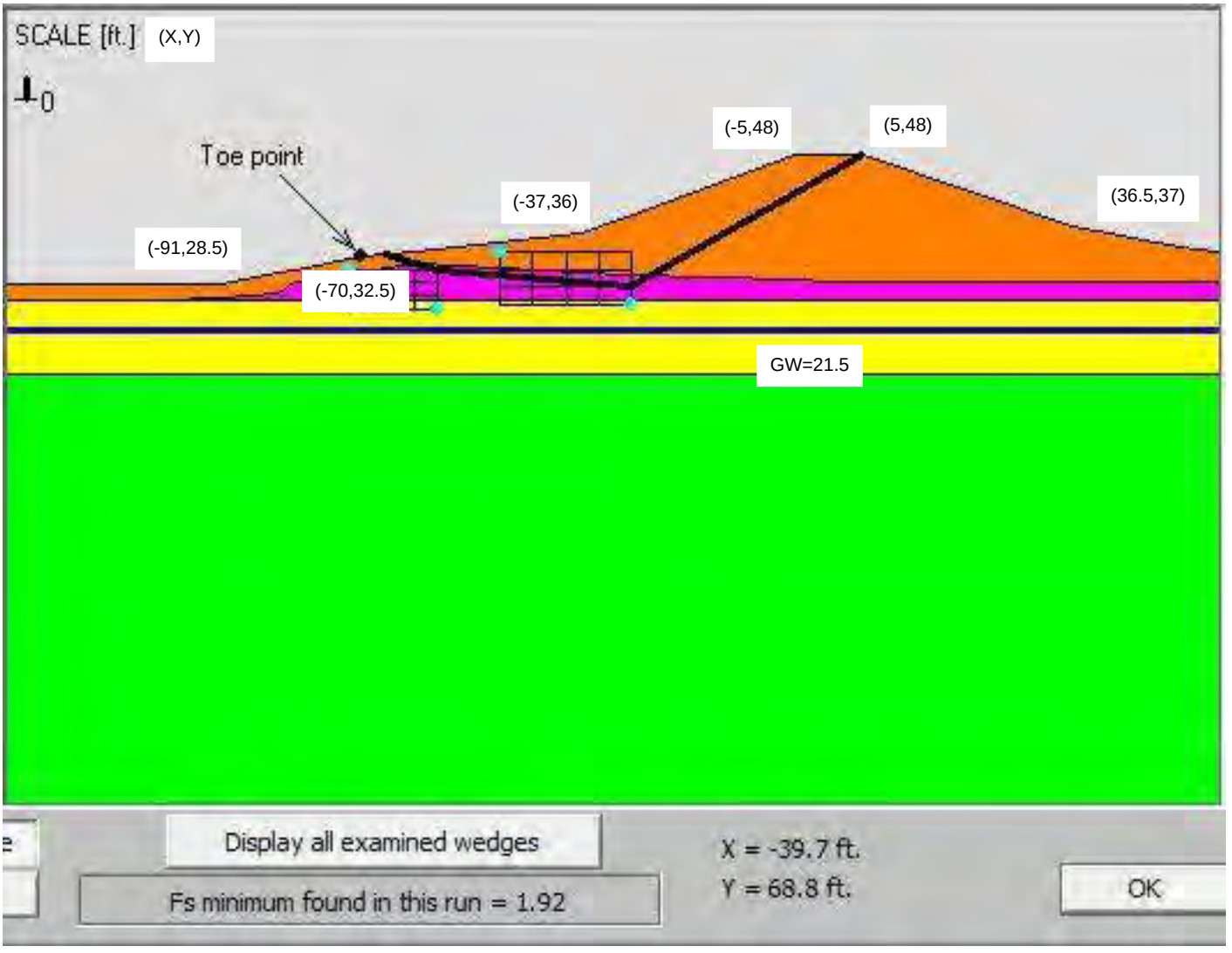

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1k - AR1 STA. 11+00
Existing Riverside

Not to Scale

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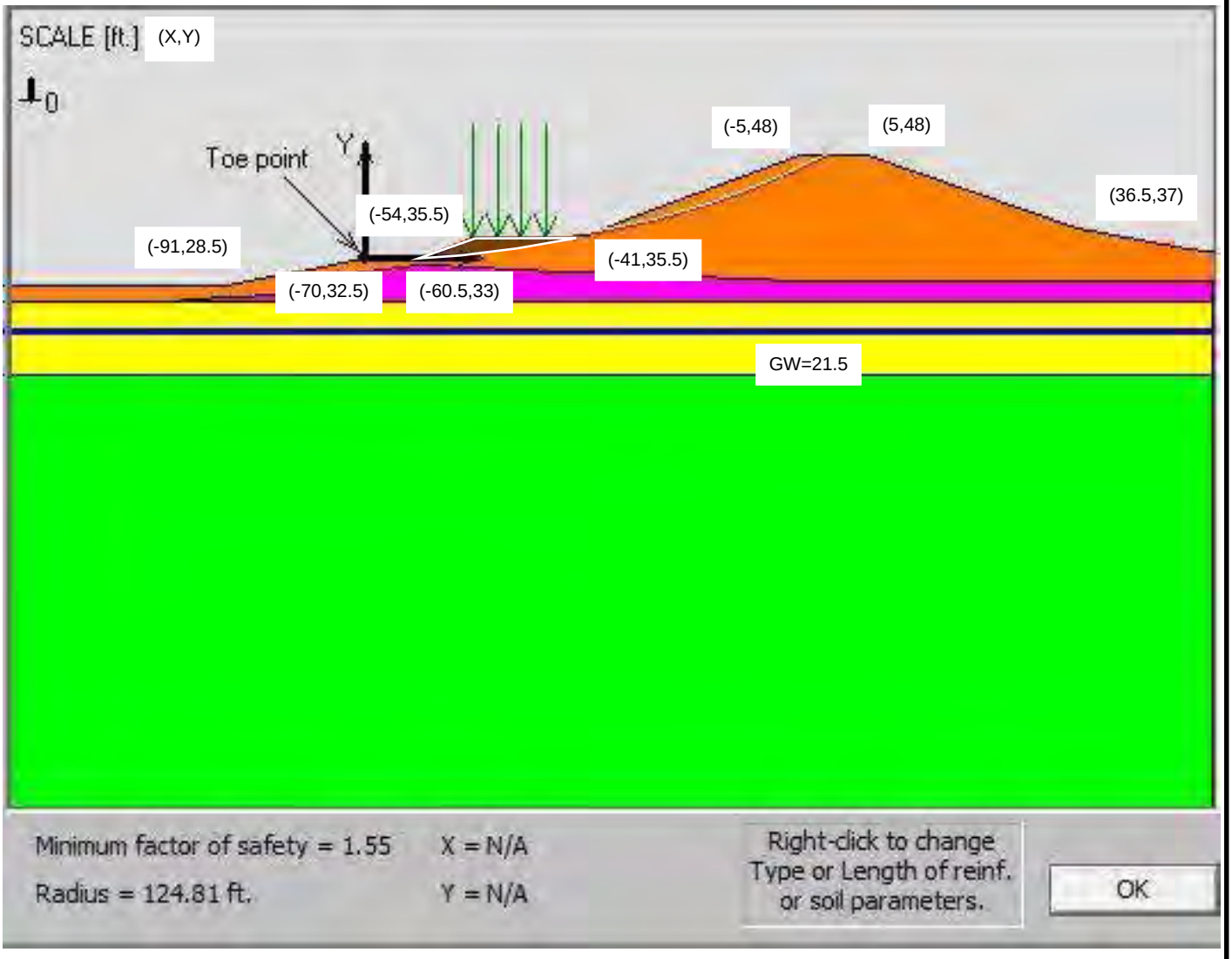

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1l - AR1 STA. 11+00
Post Construction Riverside

Not to Scale

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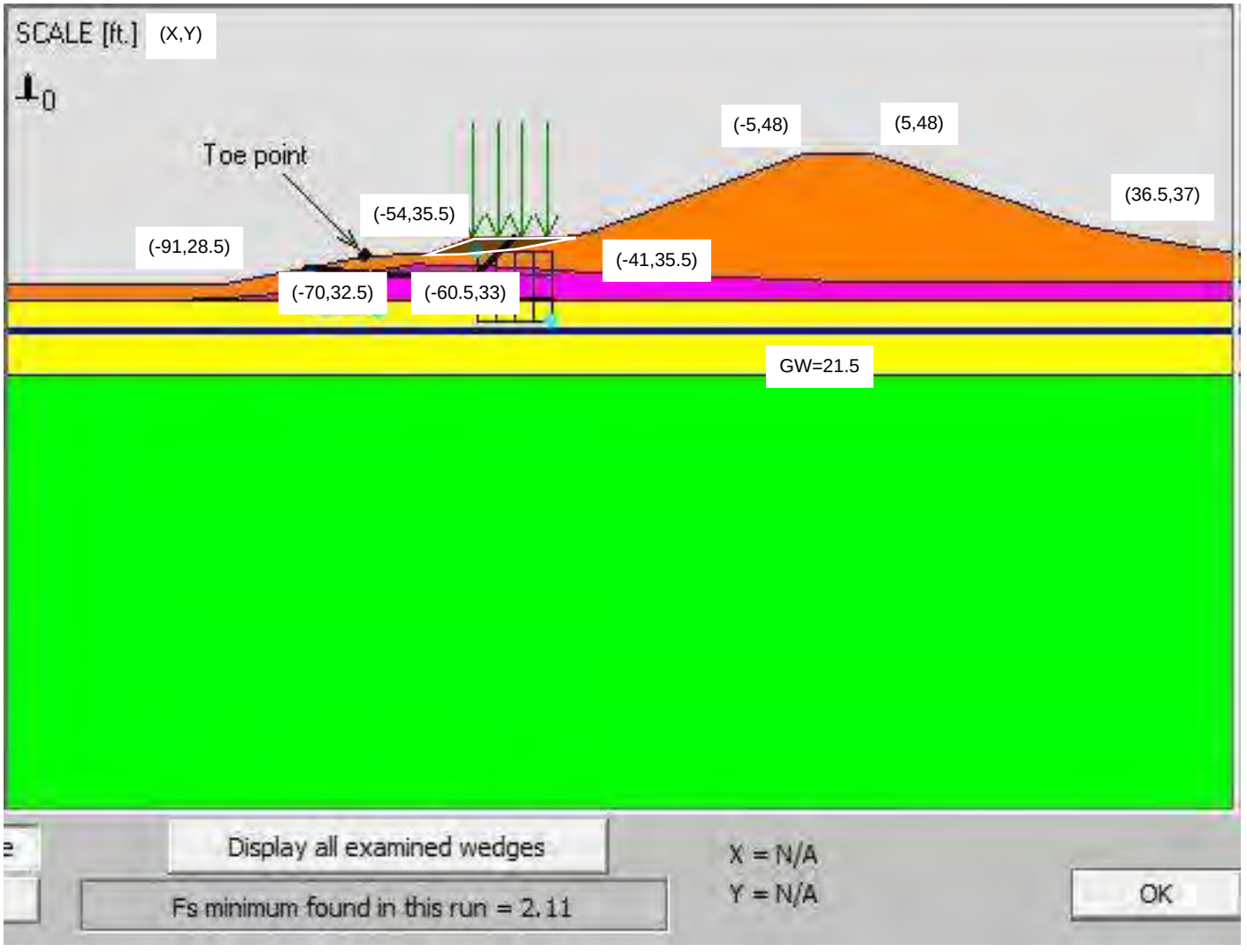

X value zeroed on middle of flat top of levee

Figure 1m - AR1 STA. 11+00
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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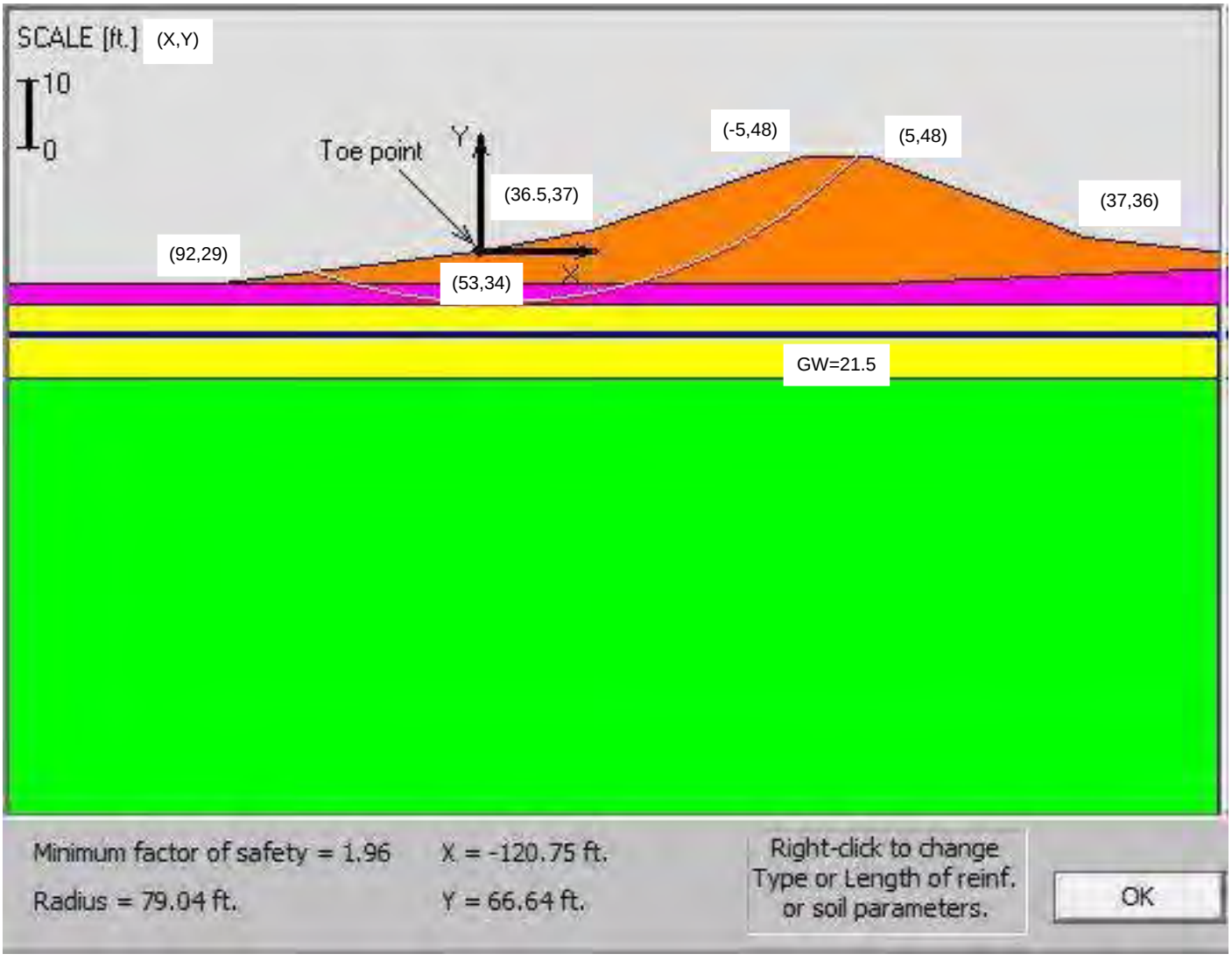

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1n - AR1 STA. 11+00
Existing Landside

Not to Scale

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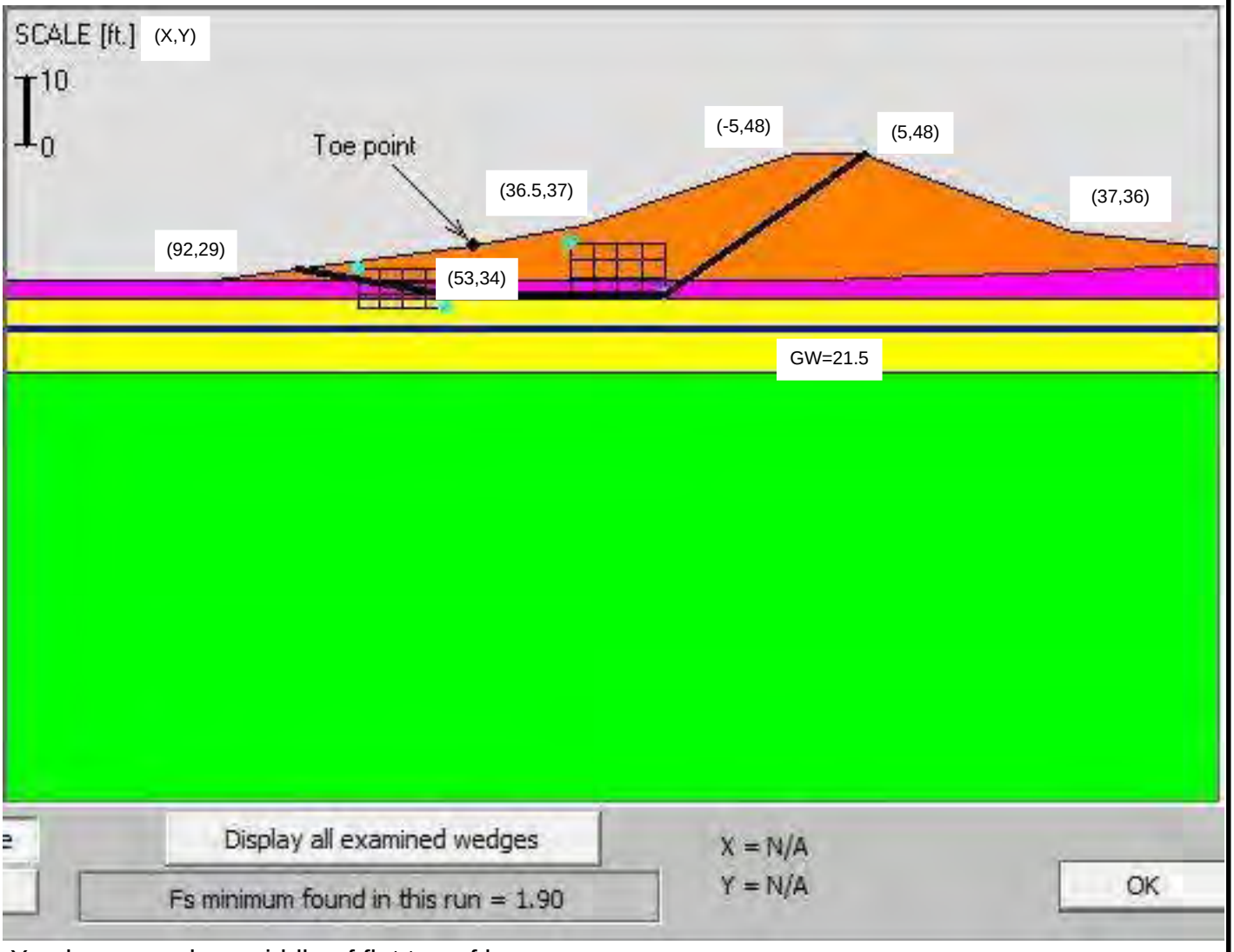

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1o - AR1 STA. 11+00
Existing Landside

Not to Scale

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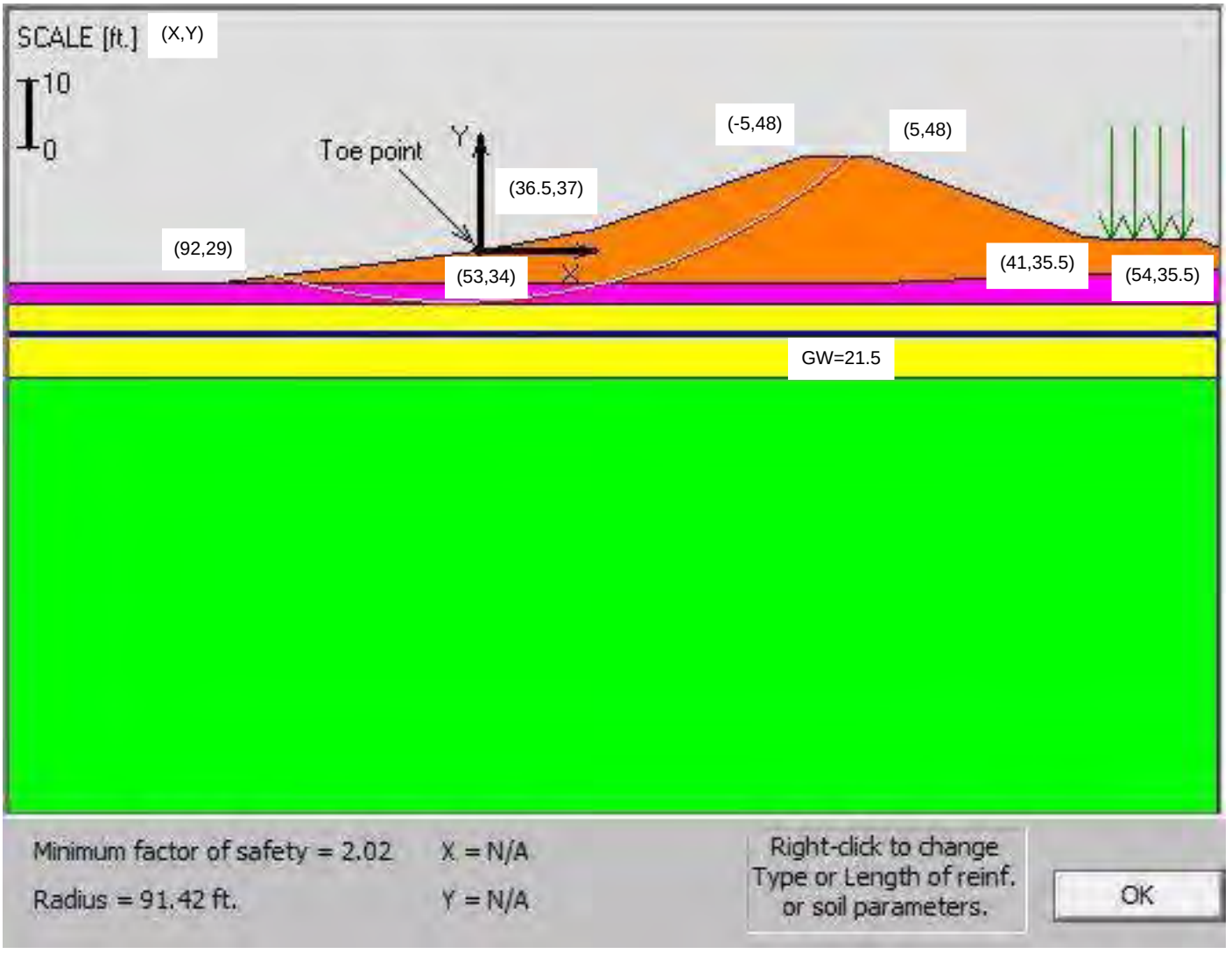

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1p - AR1 STA. 11+00
Post Construction Landside

Not to Scale

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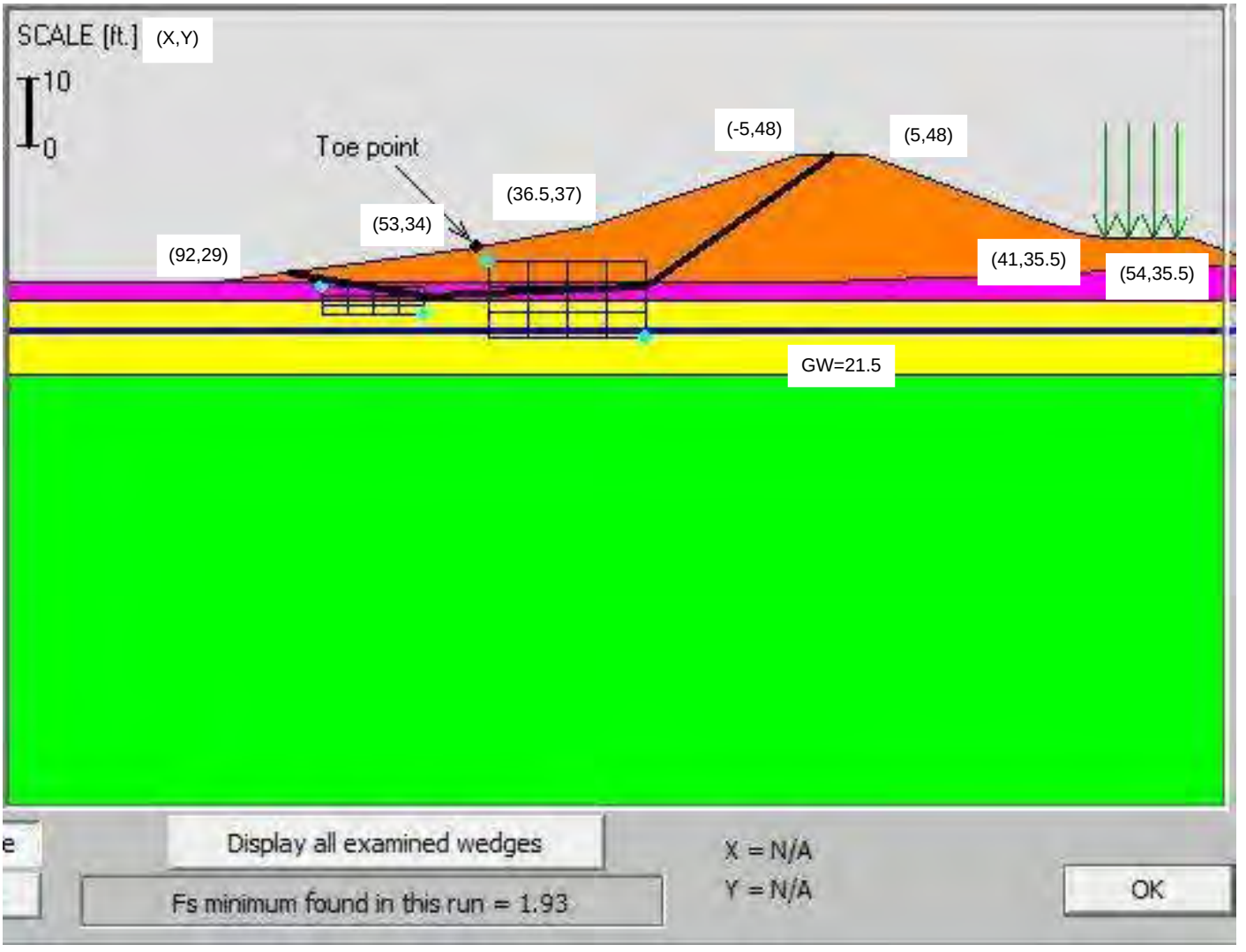

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1q - AR1 STA. 11+00
Post Construction Landside

Not to Scale

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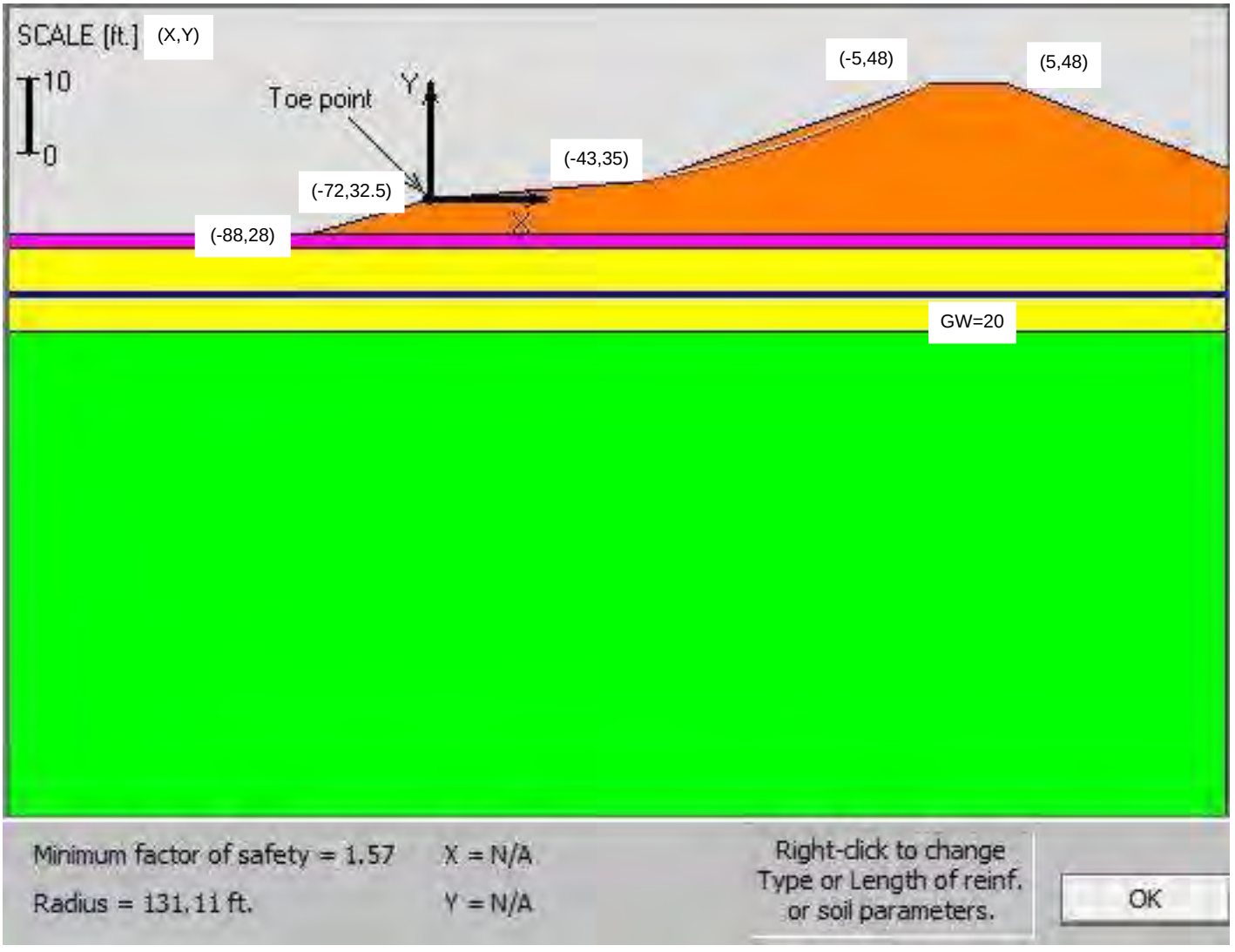

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1r - AR1 STA. 12+50
Existing Riverside

Not to Scale

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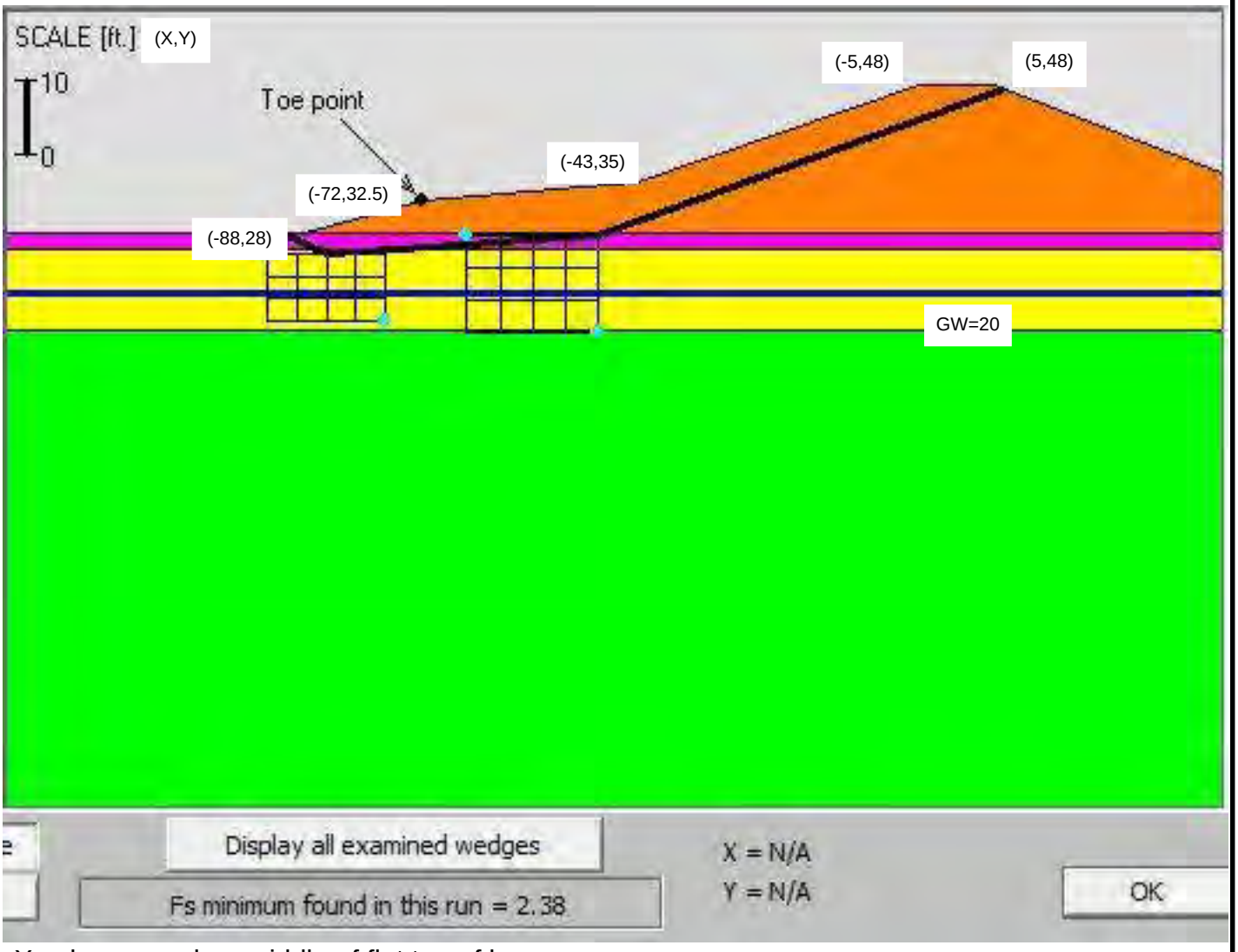

X value zeroed on middle of flat top of levee

Figure 1s - AR1 STA. 12+50
Existing Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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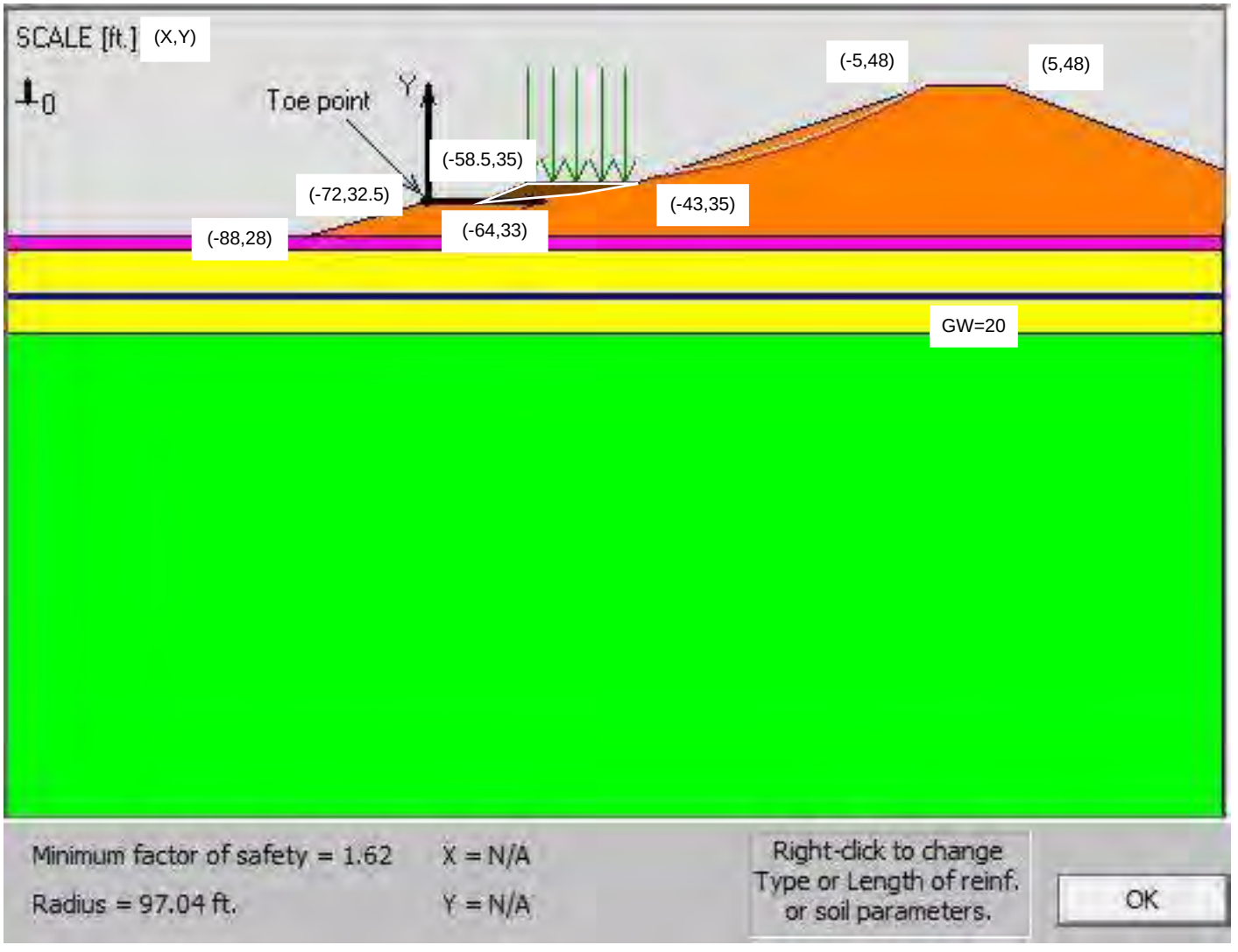

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1t - AR1 STA. 12+50
Post Construction Riverside

Not to Scale

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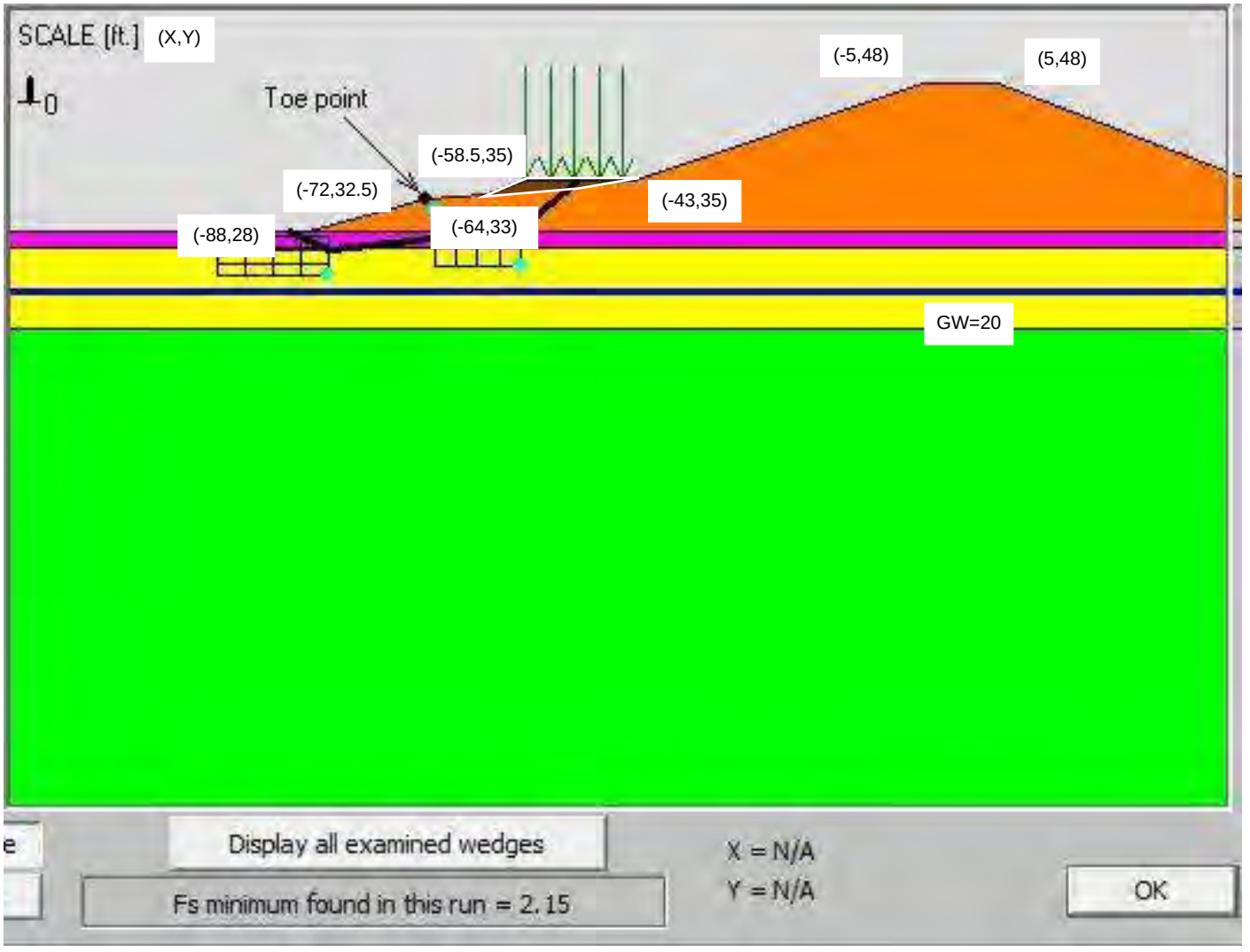

X value zeroed on middle of flat top of levee

Figure 1u - AR1 STA. 12+50
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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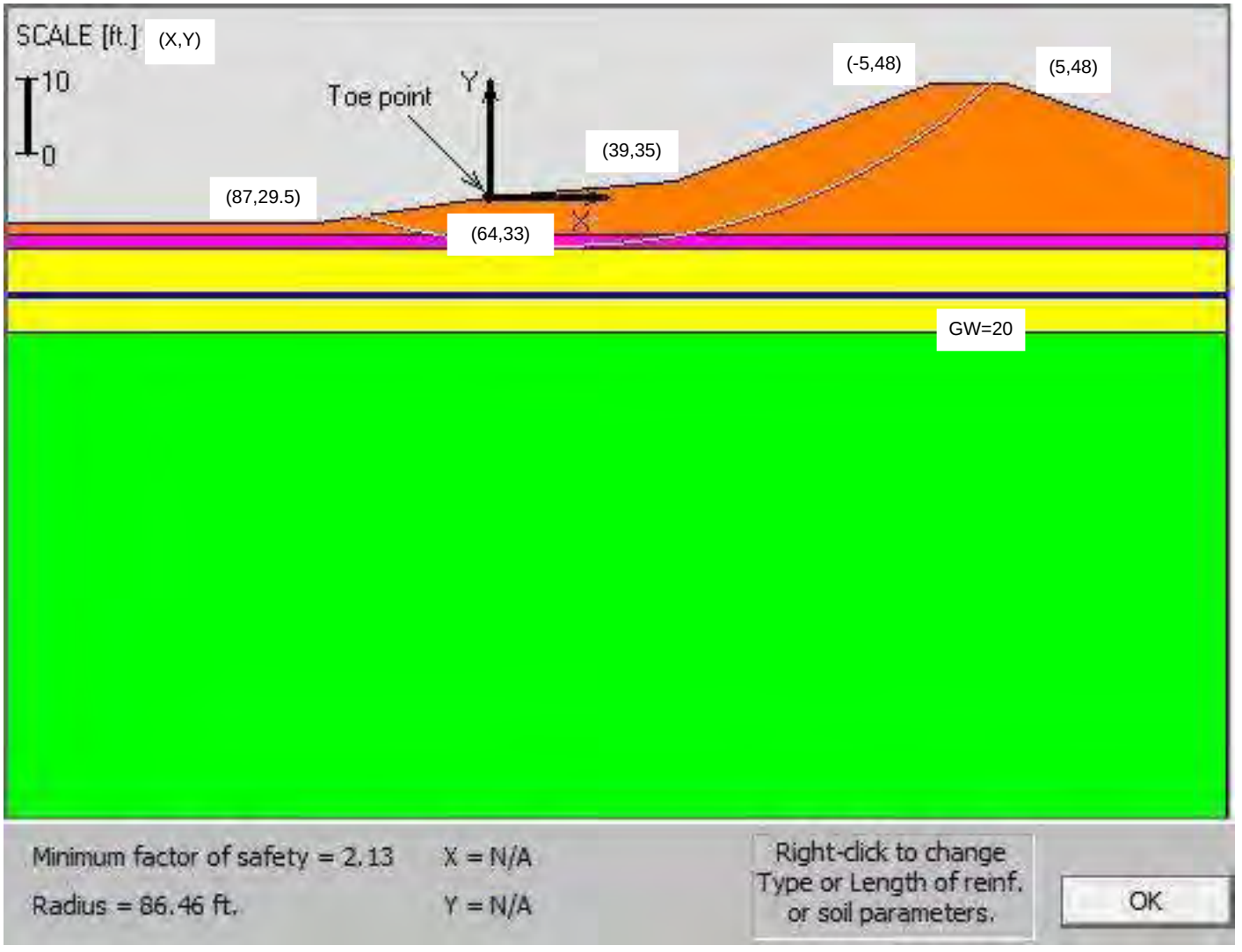

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1v - AR1 STA. 12+50
Existing Landside

Not to Scale

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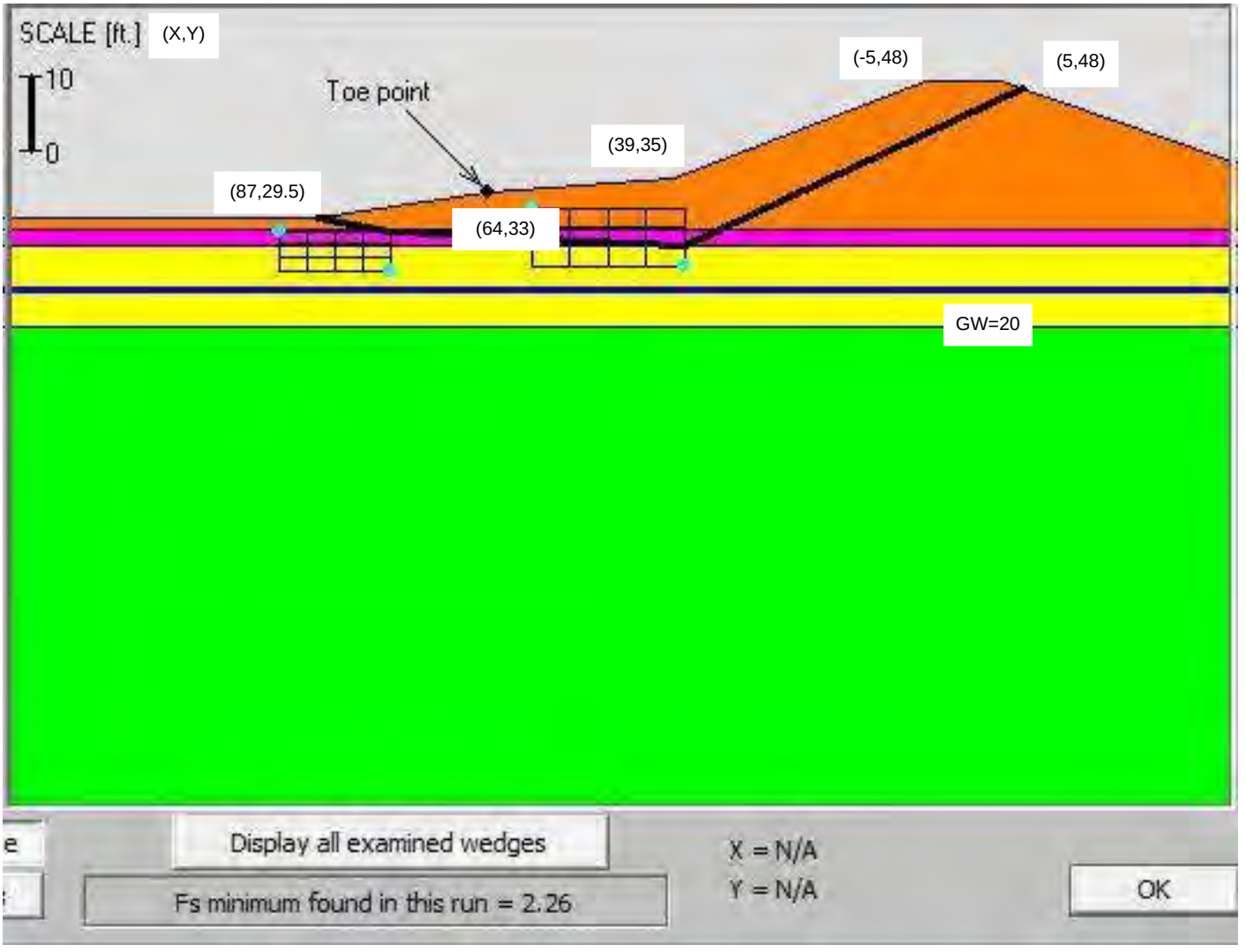

X value zeroed on middle of flat top of levee

Figure 1w - AR1 STA. 12+50
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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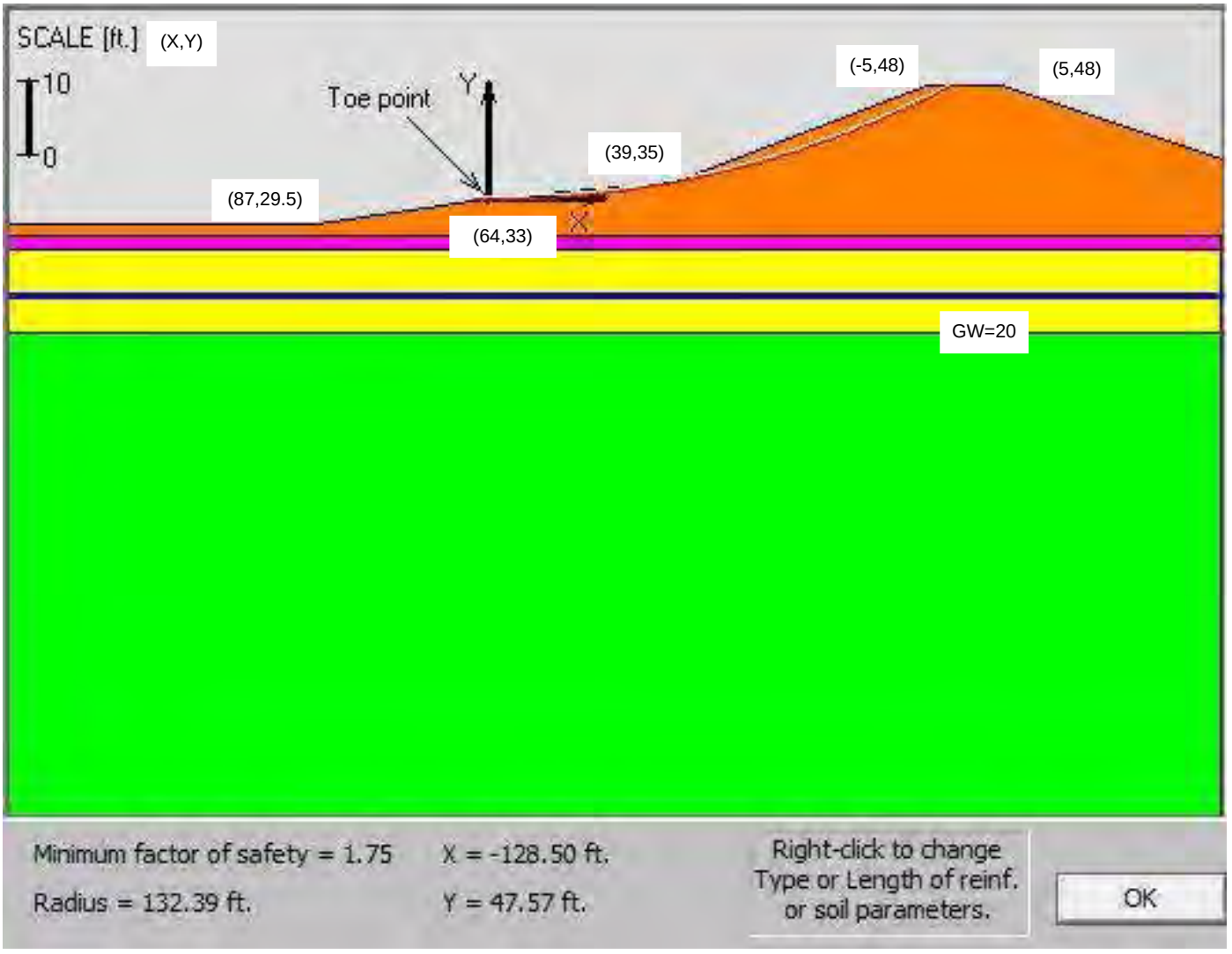

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1x - AR1 STA. 12+50
Post Construction Landside

Not to Scale

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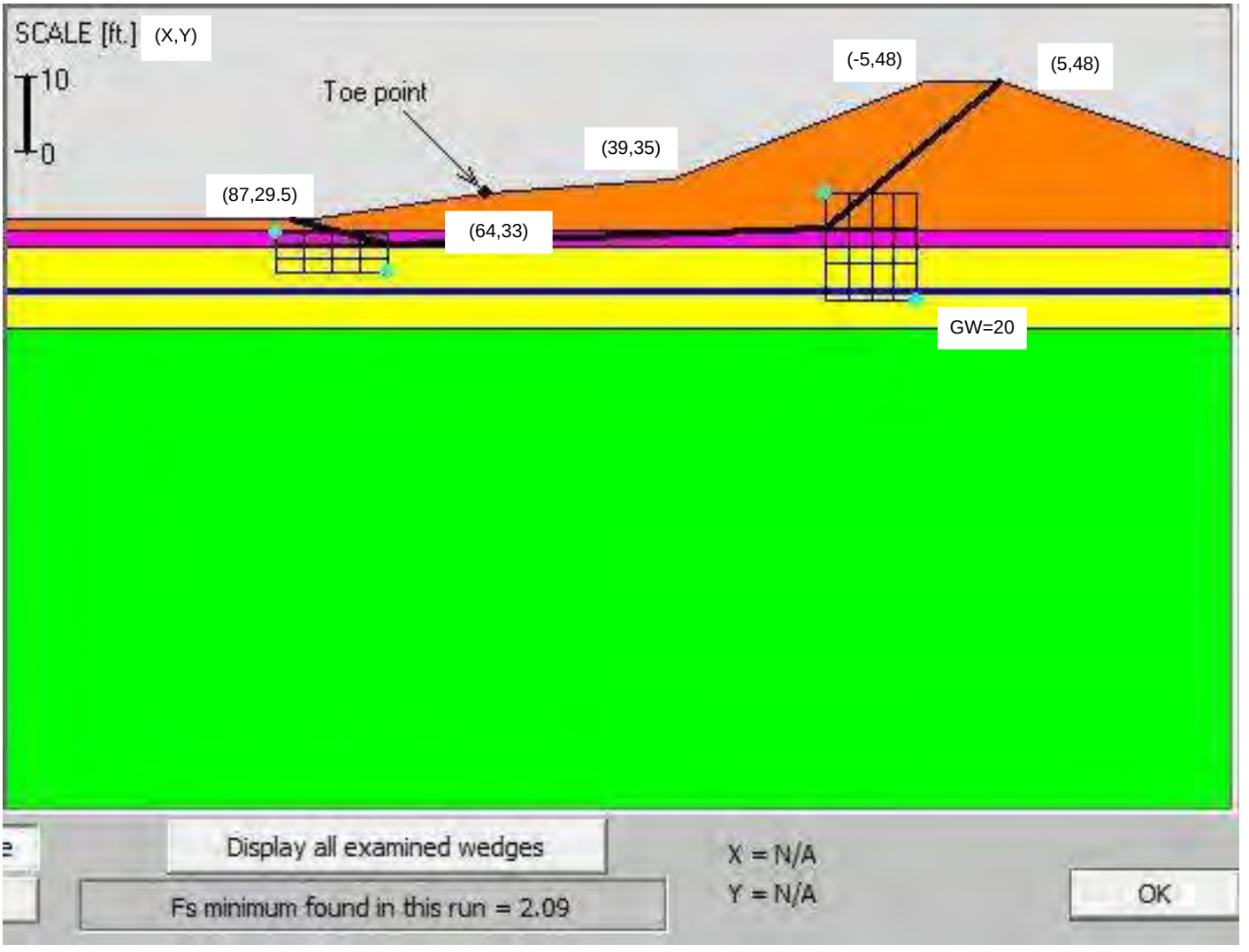

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1y - AR1 STA. 12+50
Post Construction Landside

Not to Scale

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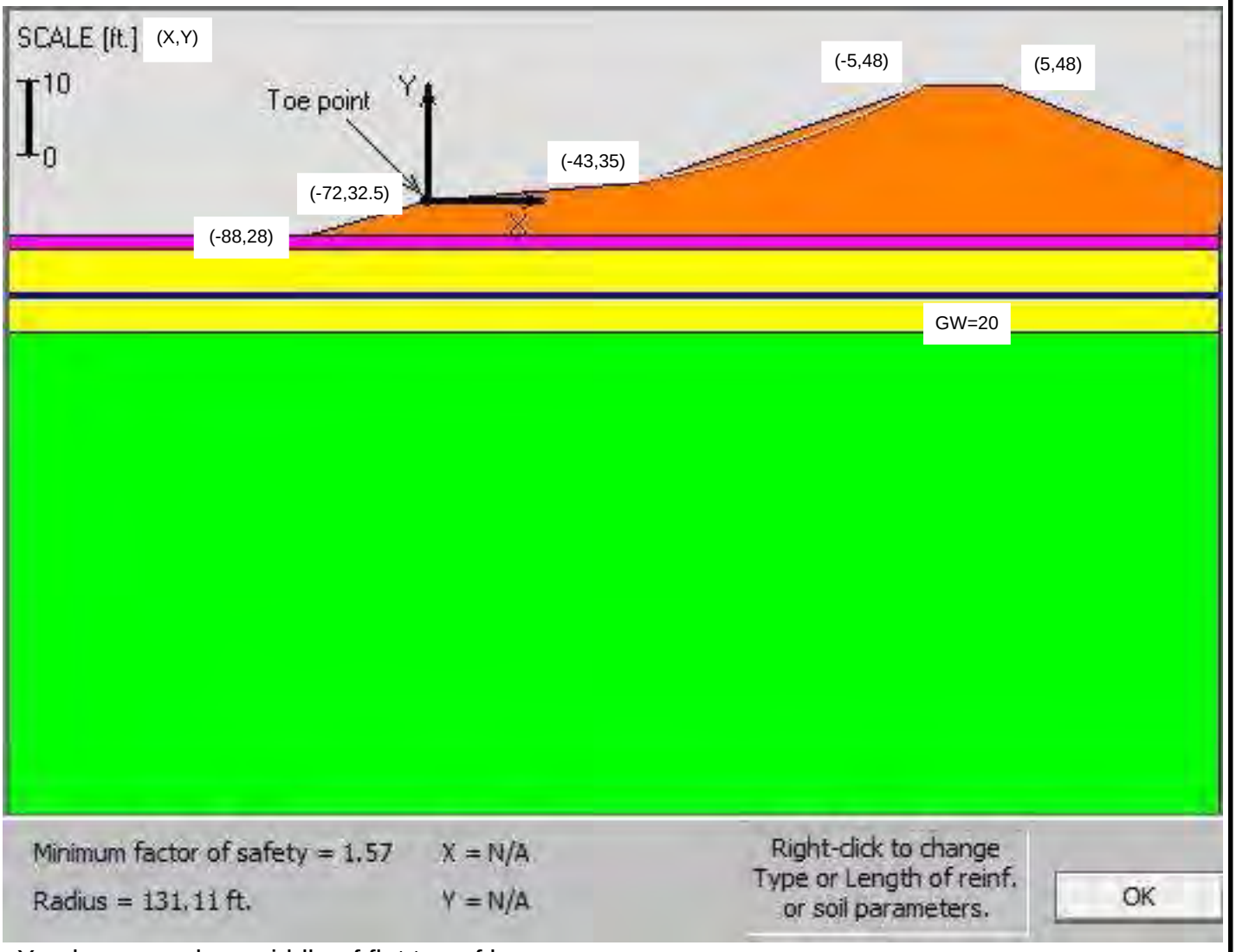

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1z - AR1 STA. 13+00
Existing Riverside

Not to Scale

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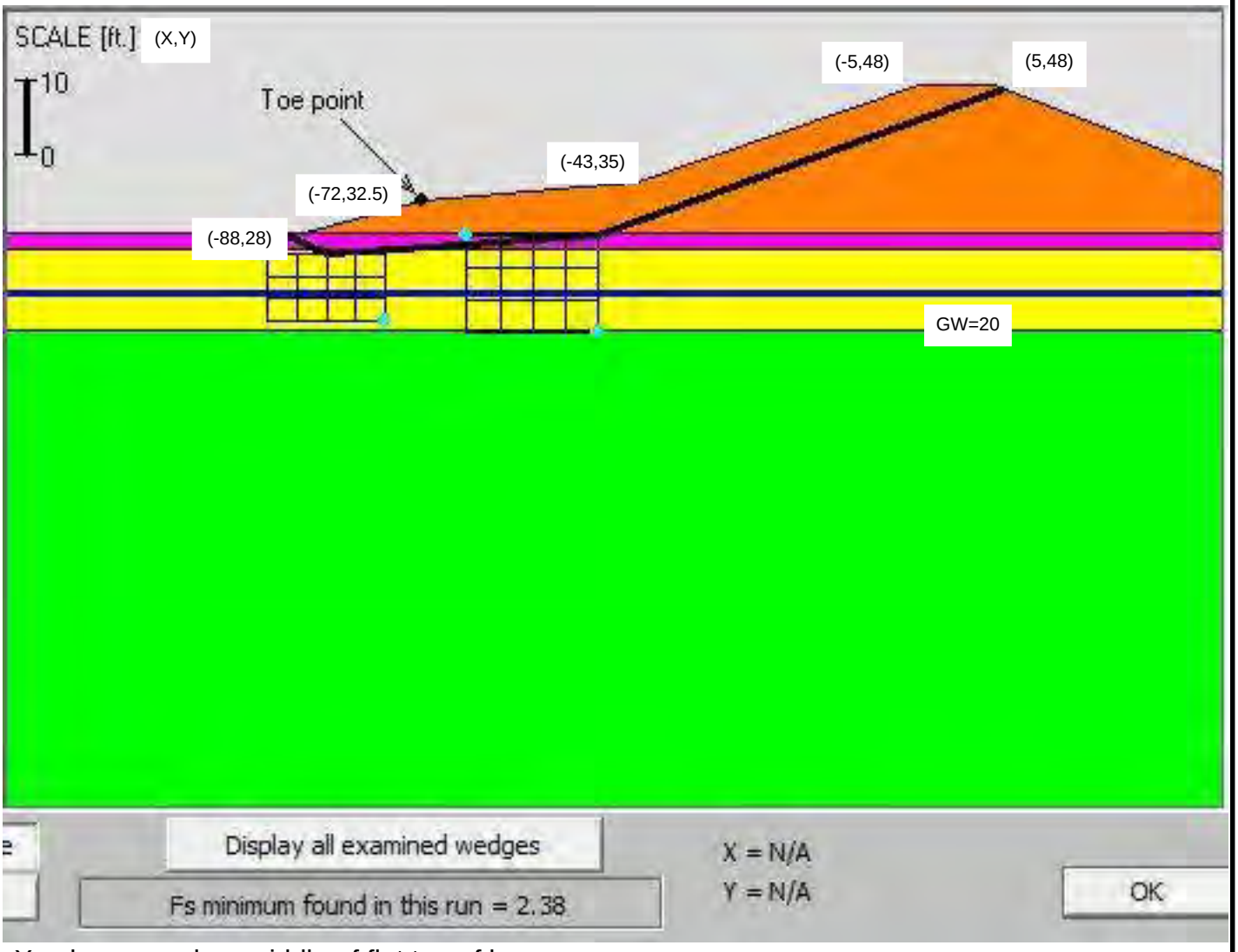

X value zeroed on middle of flat top of levee

Figure 1aa - AR1 STA. 13+00
Existing Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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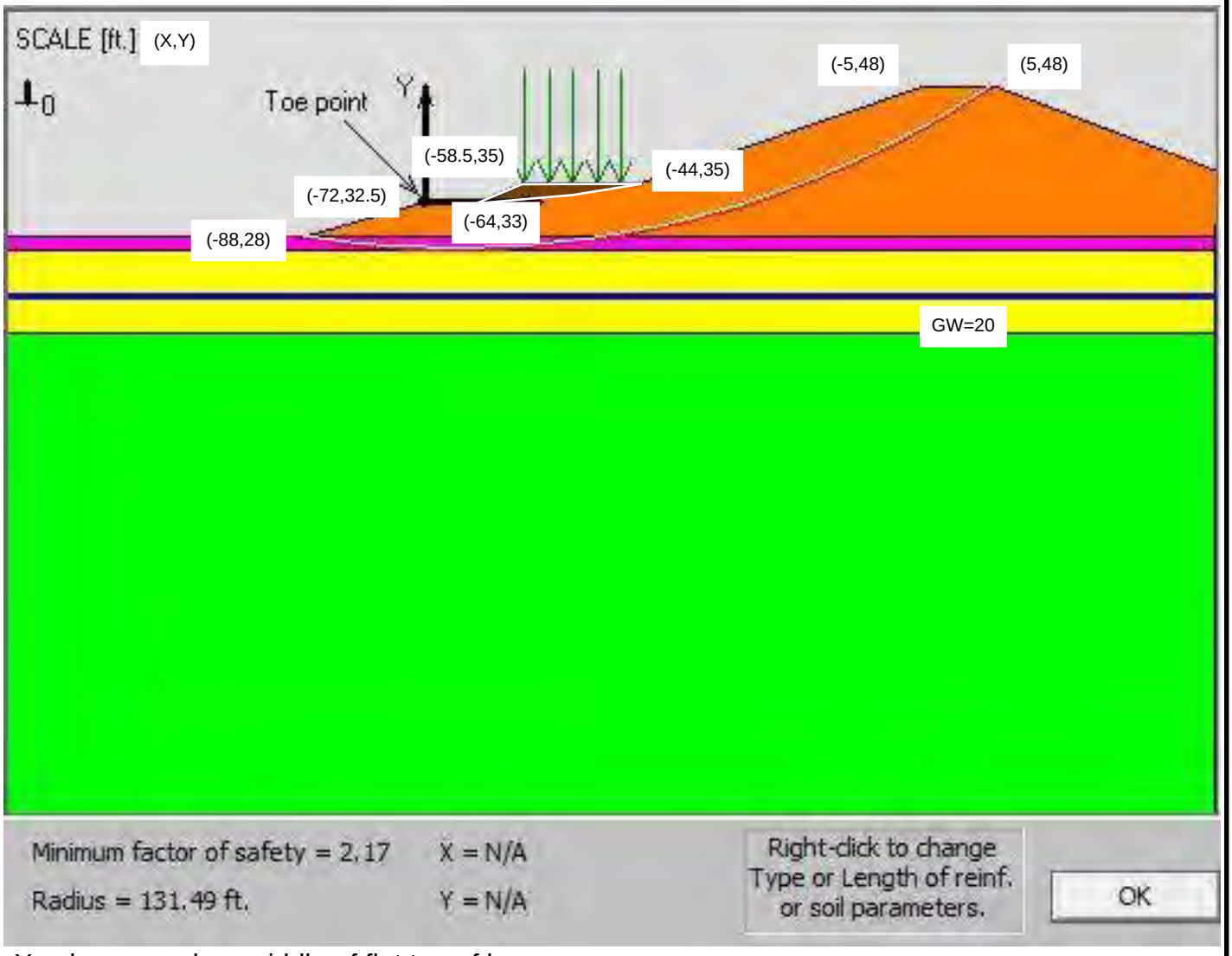

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1ab - AR1 STA. 13+00
Post Construction Riverside

Not to Scale

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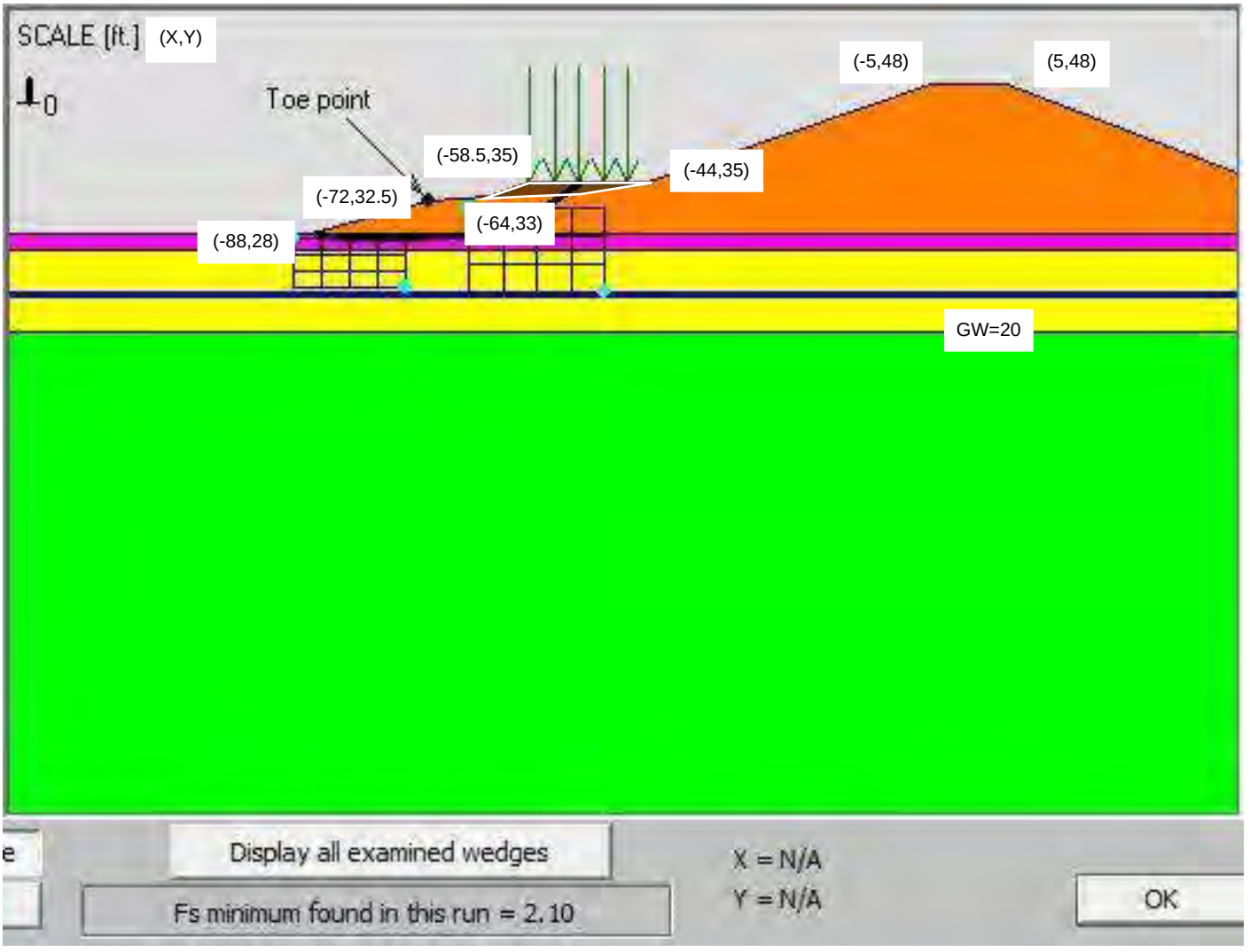

X value zeroed on middle of flat top of levee

Figure 1ac - AR1 STA. 13+00
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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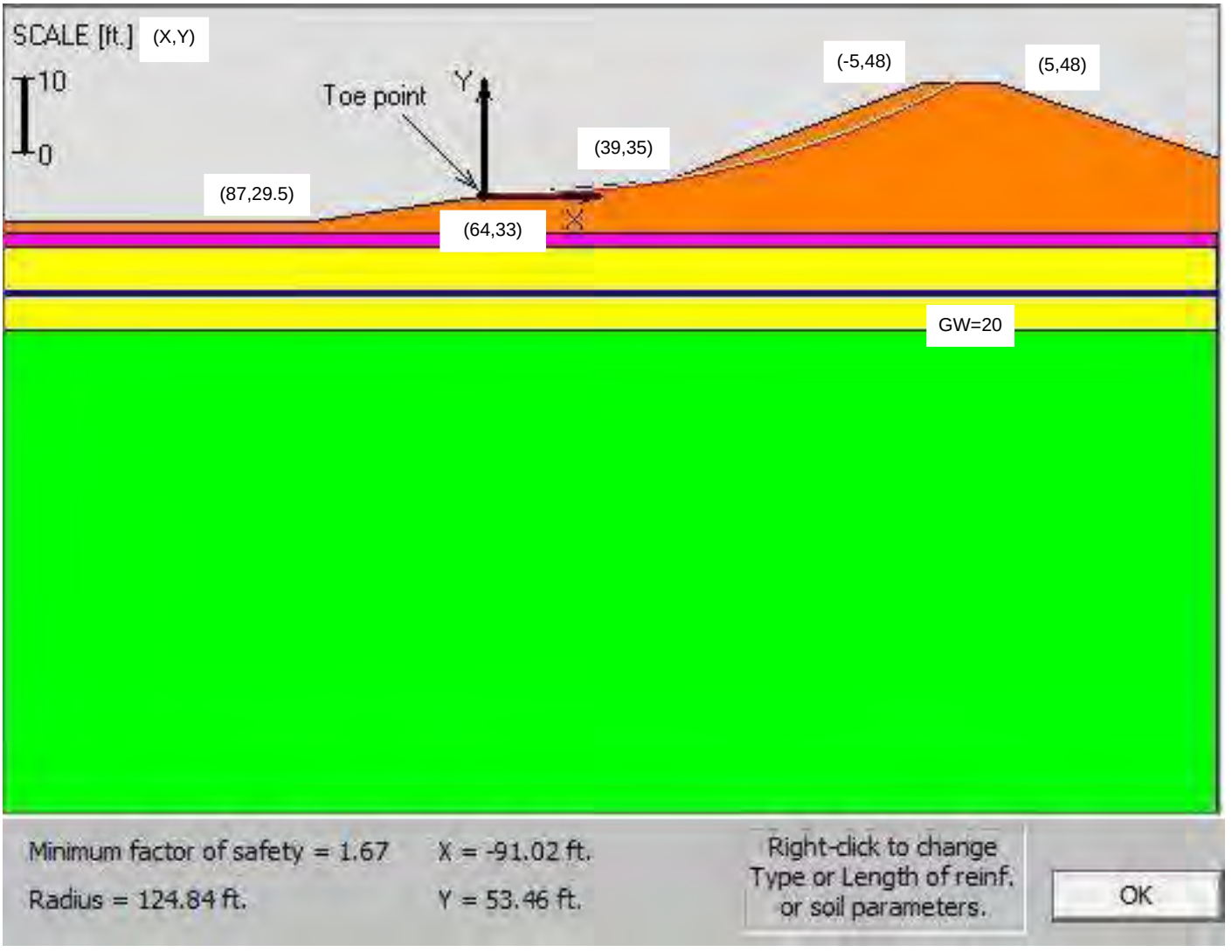

X value zeroed on middle of flat top of levee

Figure 1ad - AR1 STA. 13+00
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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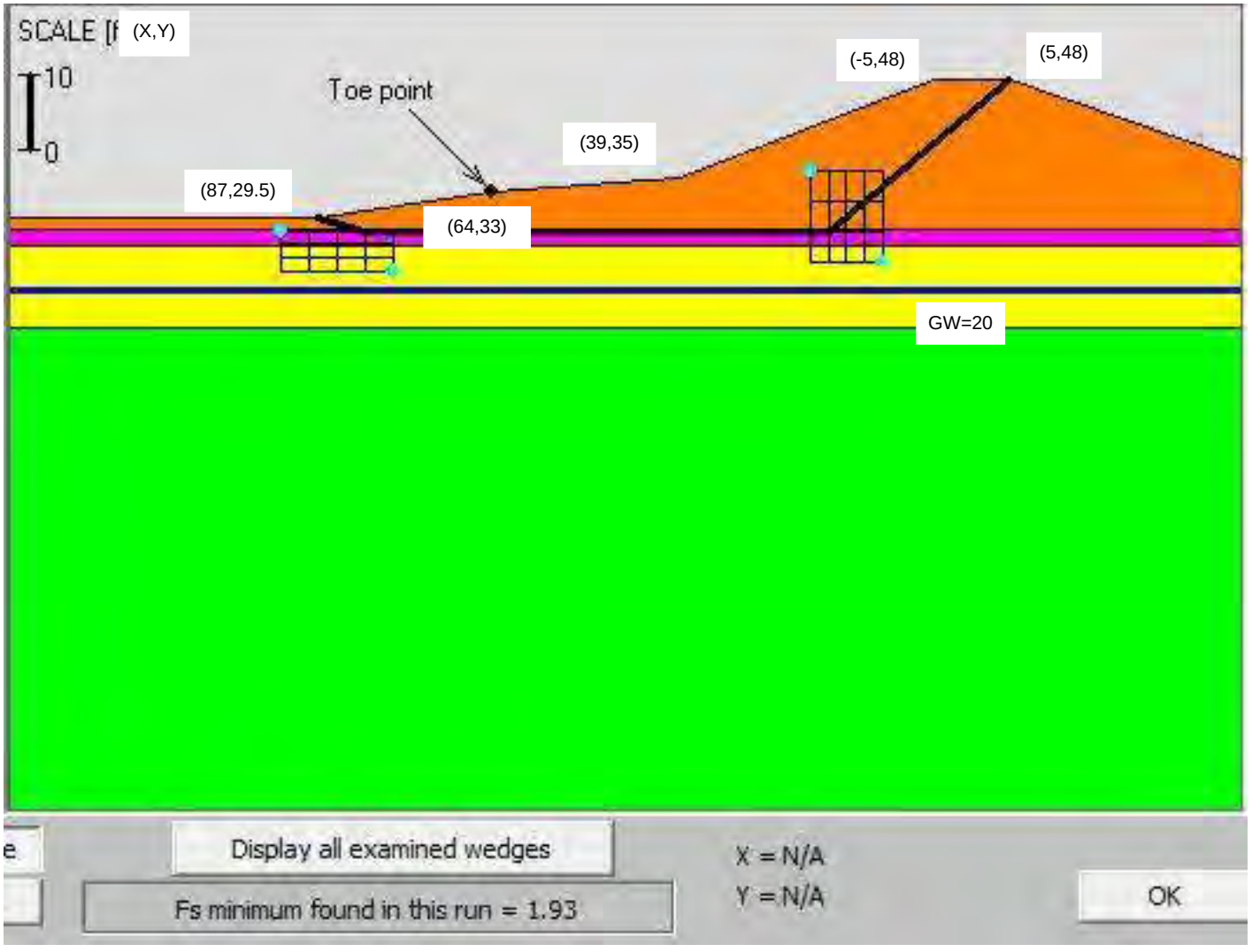

X value zeroed on middle of flat top of levee

Figure 1ae - AR1 STA. 13+00
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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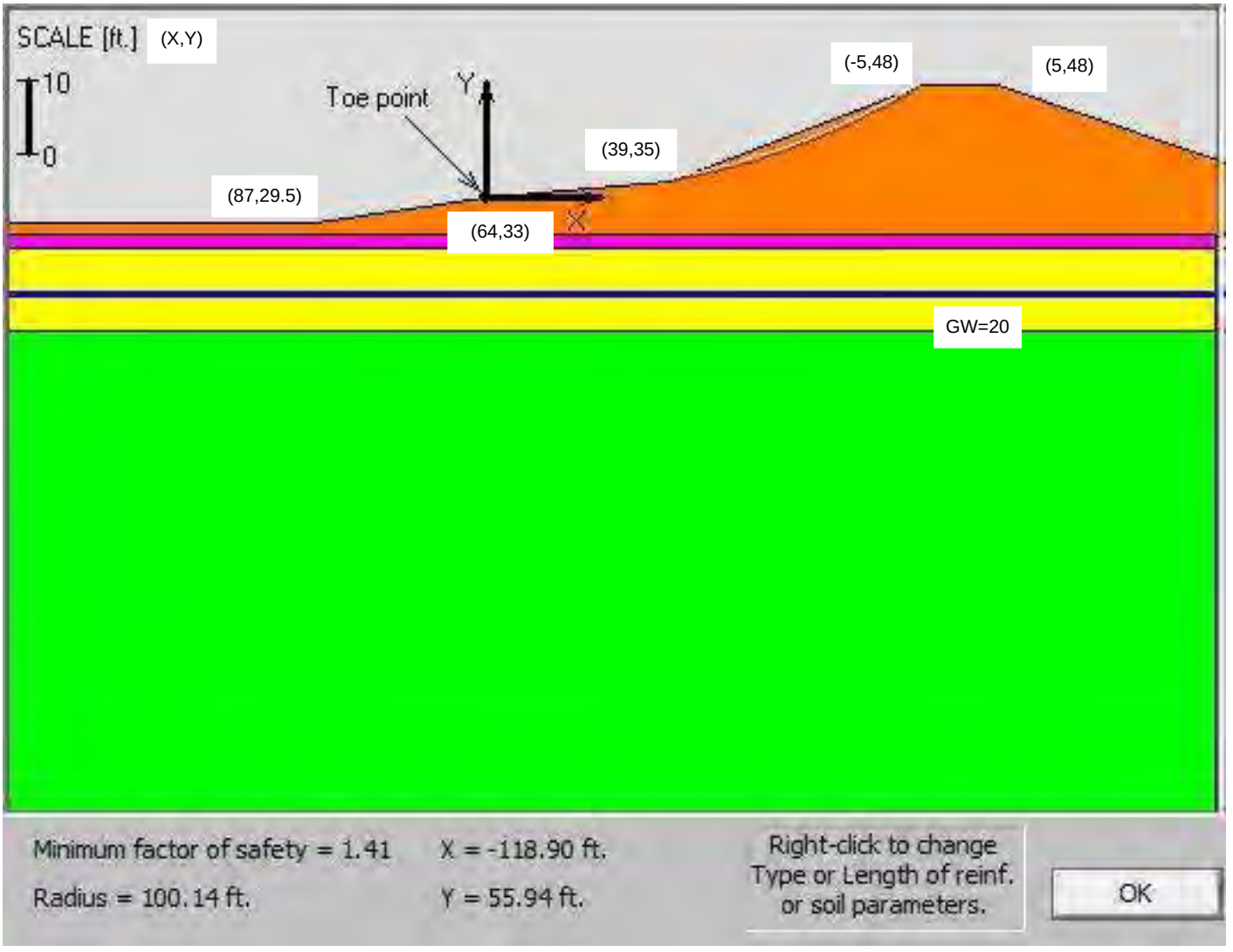

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1af - AR1 STA. 13+00
Post Construction Landside

Not to Scale

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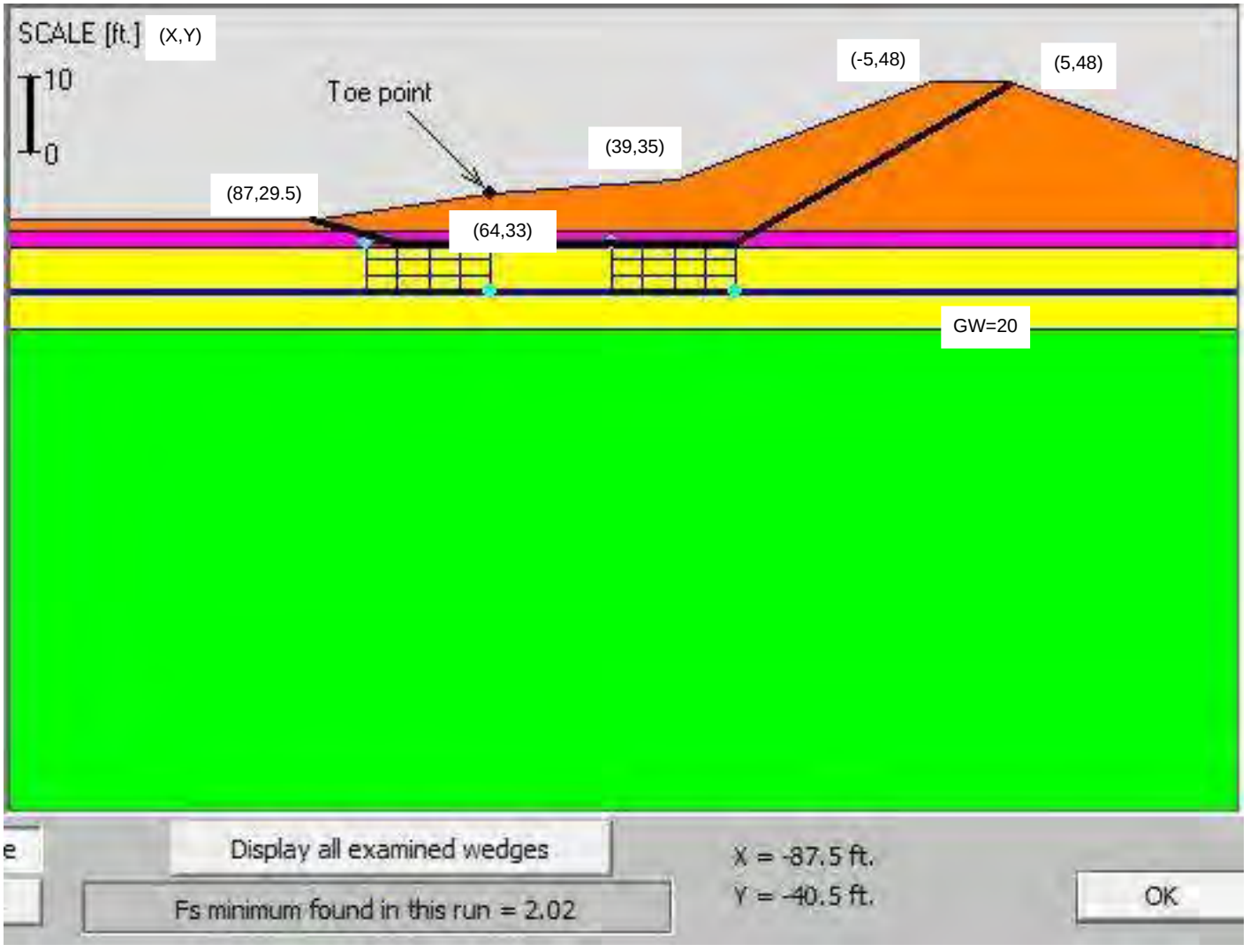

X value zeroed on middle of flat top of levee

Figure 1ag - AR1 STA. 13+00
Post Construction Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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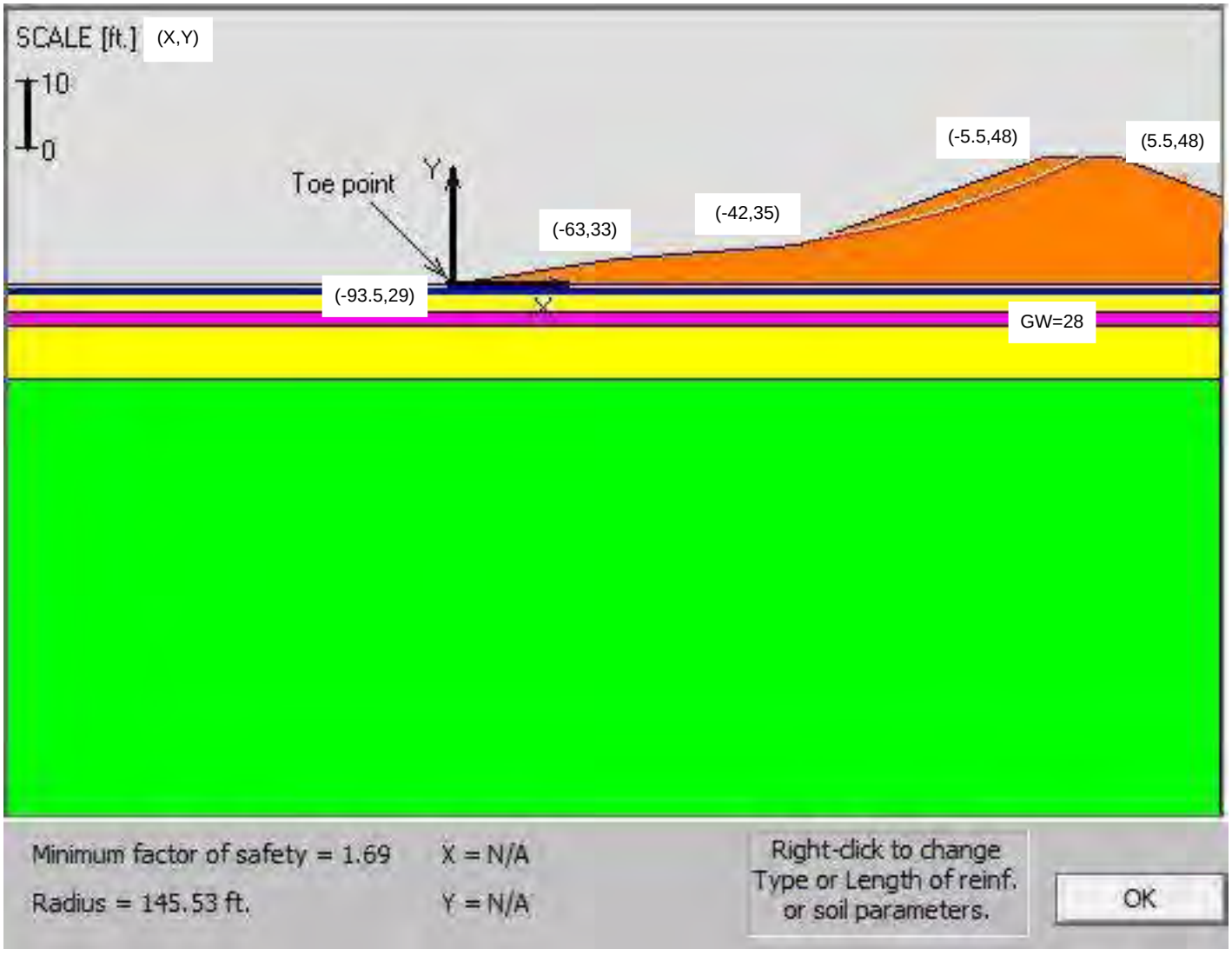

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1ah - AR1 STA. 15+40
Existing Riverside

Not to Scale

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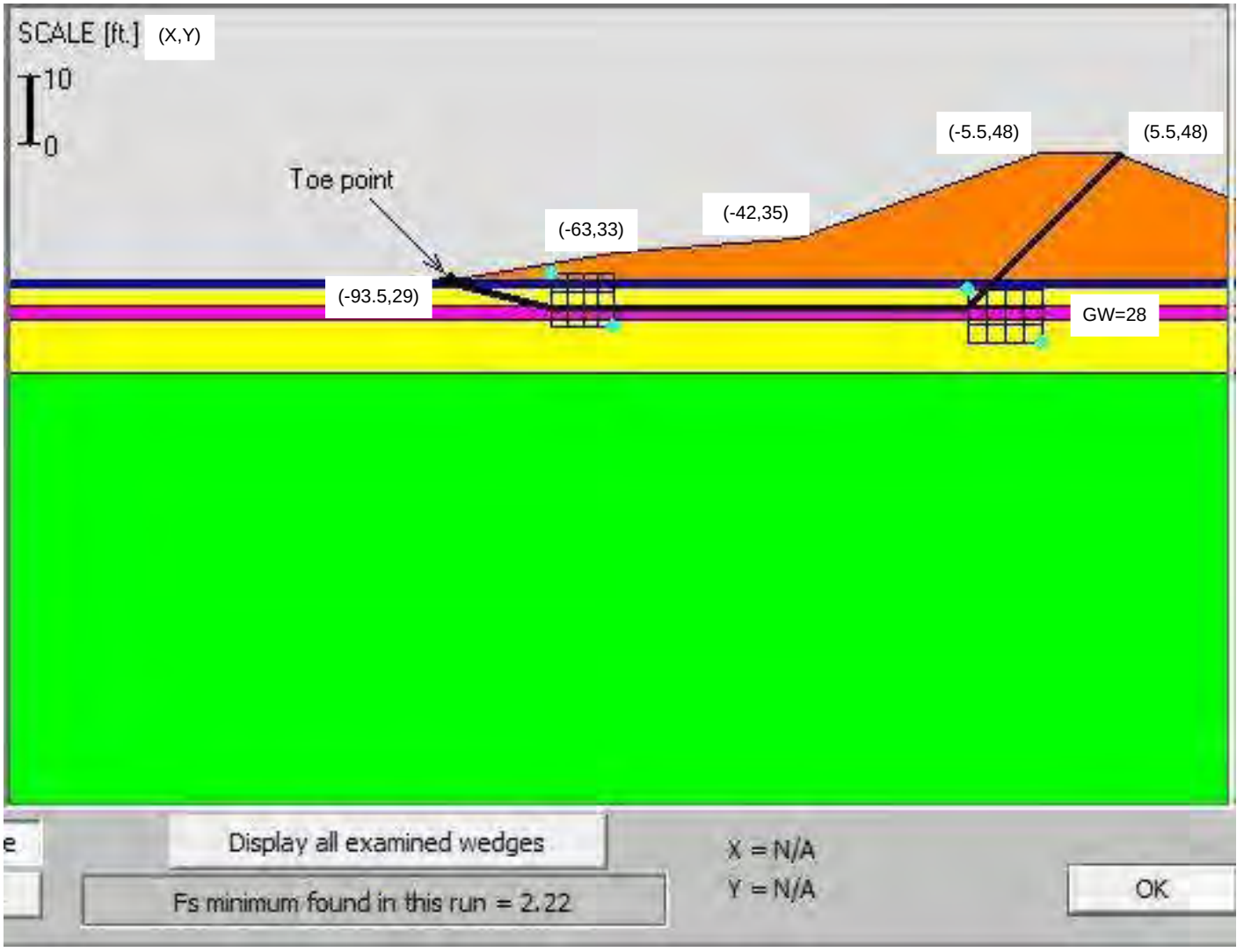
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Figure 1ai - AR1 STA. 15+40
Existing Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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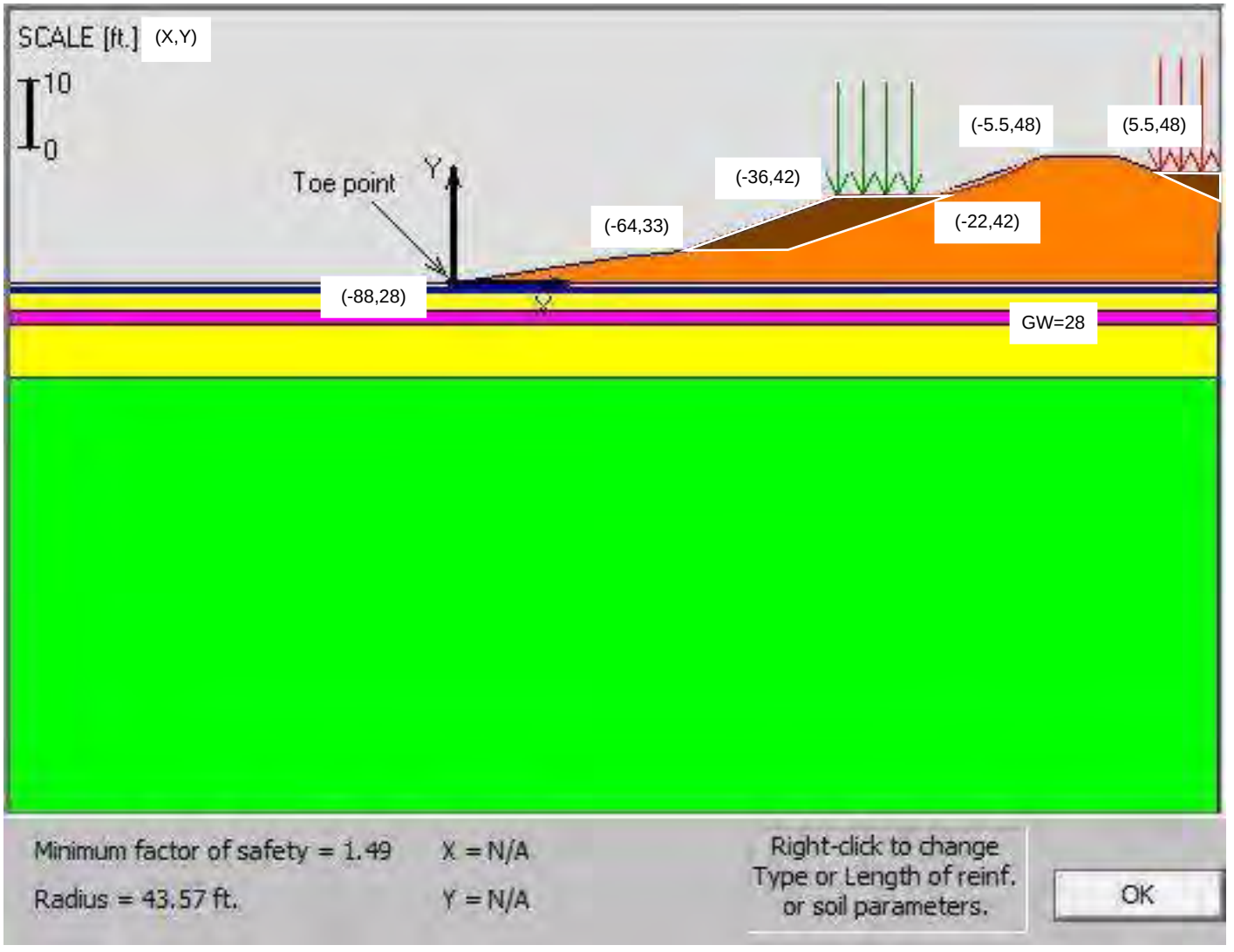

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1aj - AR1 STA. 15+40
Post Construction Riverside

Not to Scale

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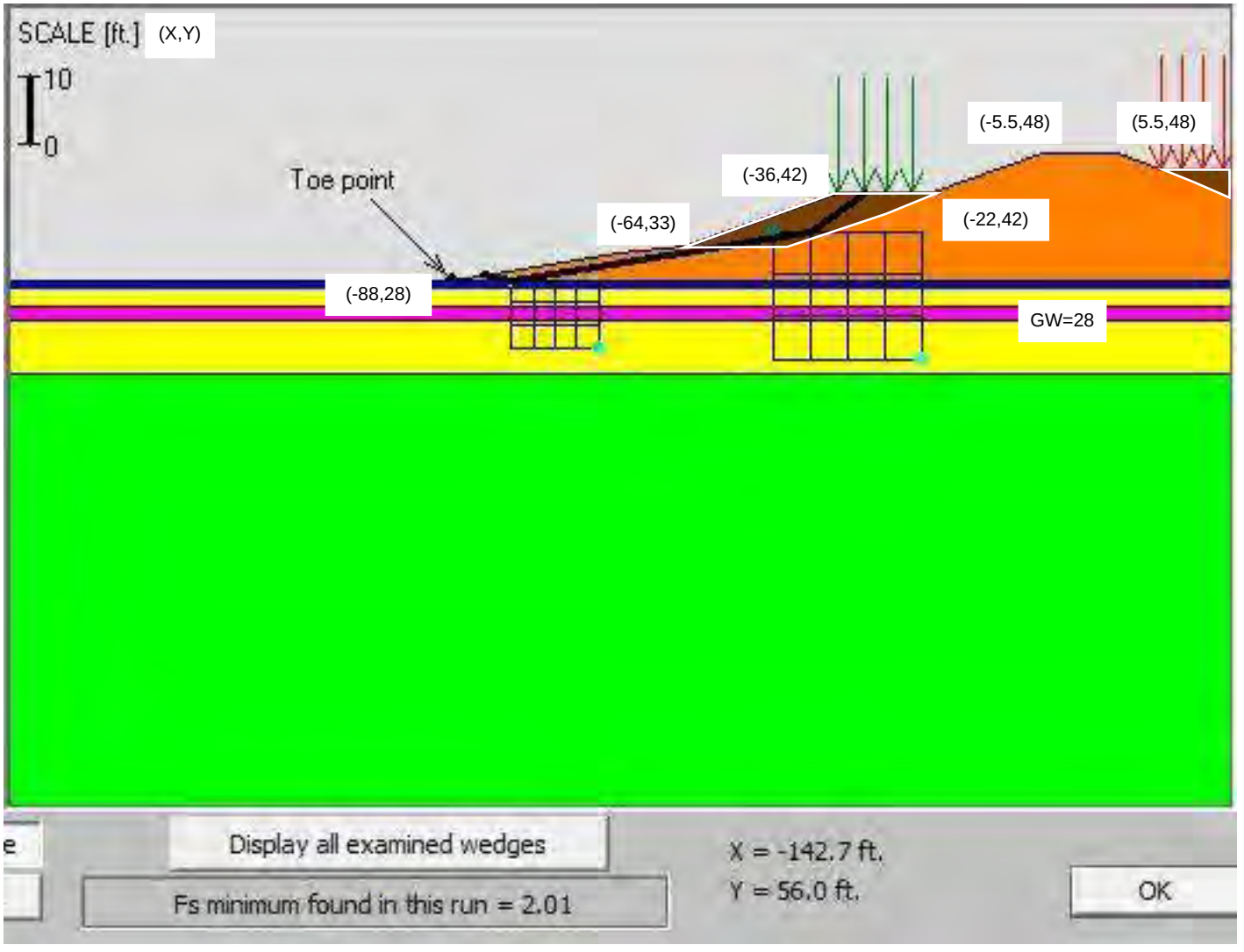

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1ak - AR1 STA. 15+40
Post Construction Riverside

Not to Scale

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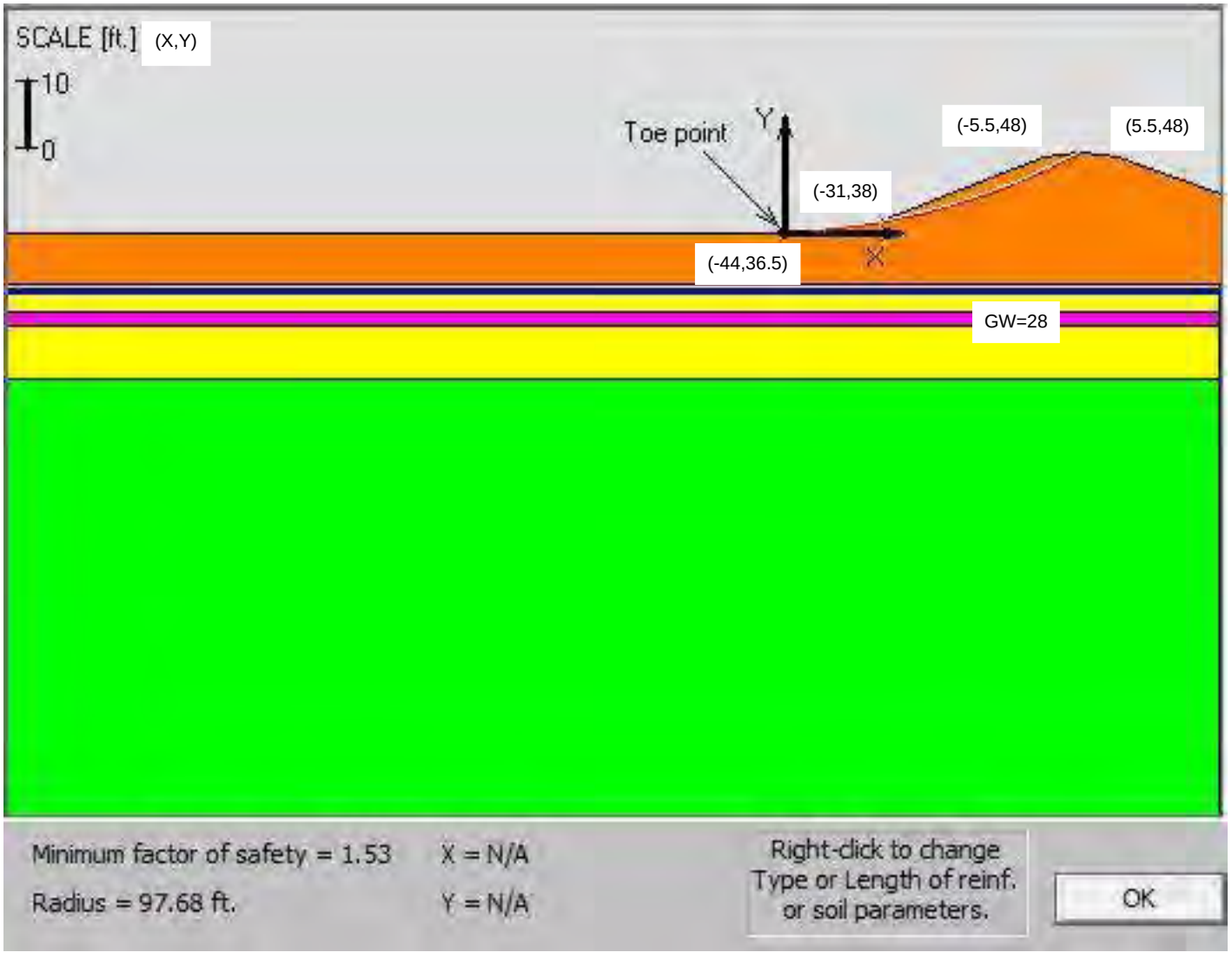

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1al - AR1 STA. 15+40
Existing Landside

Not to Scale

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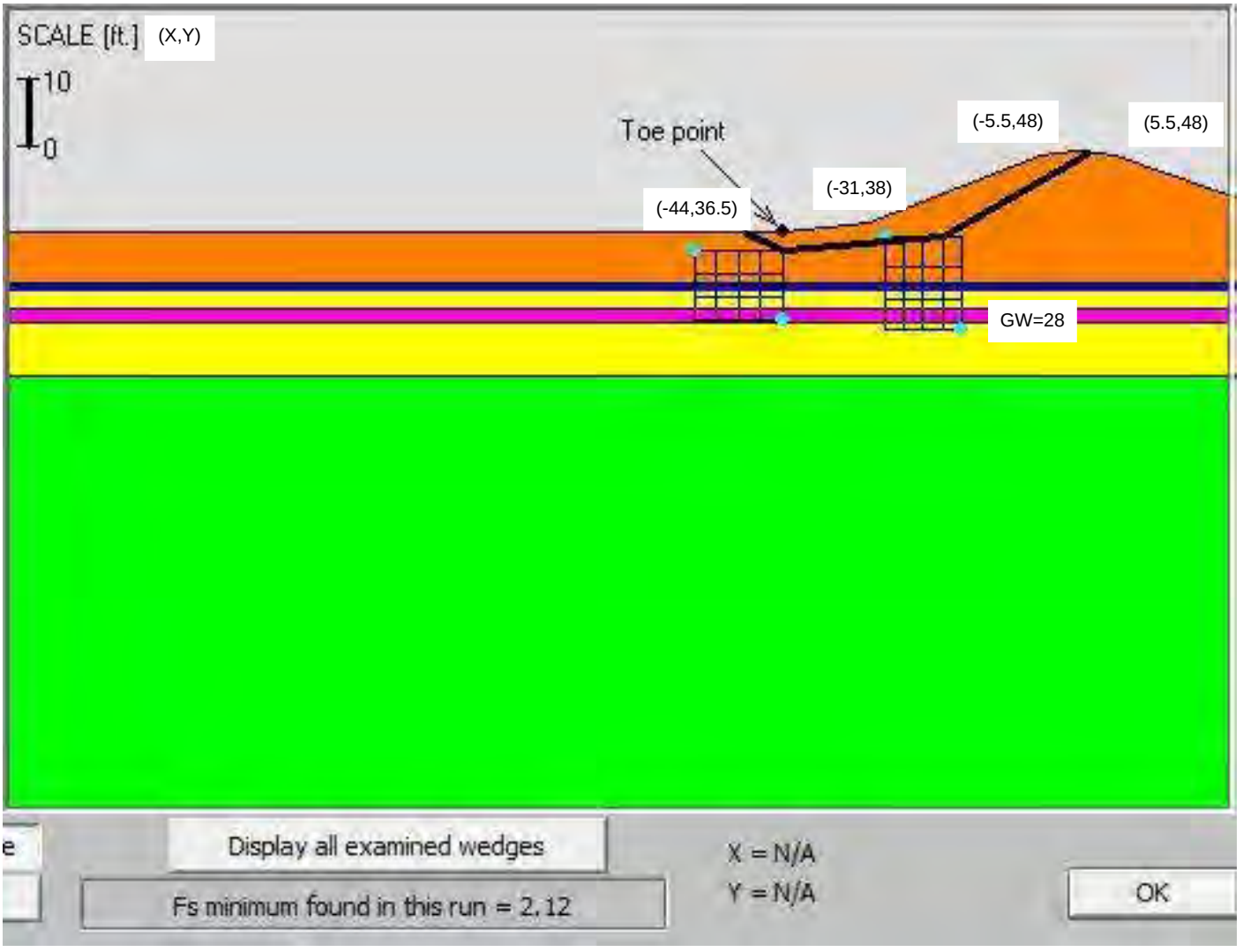

X value zeroed on middle of flat top of levee

Figure 1am - AR1 STA. 15+40
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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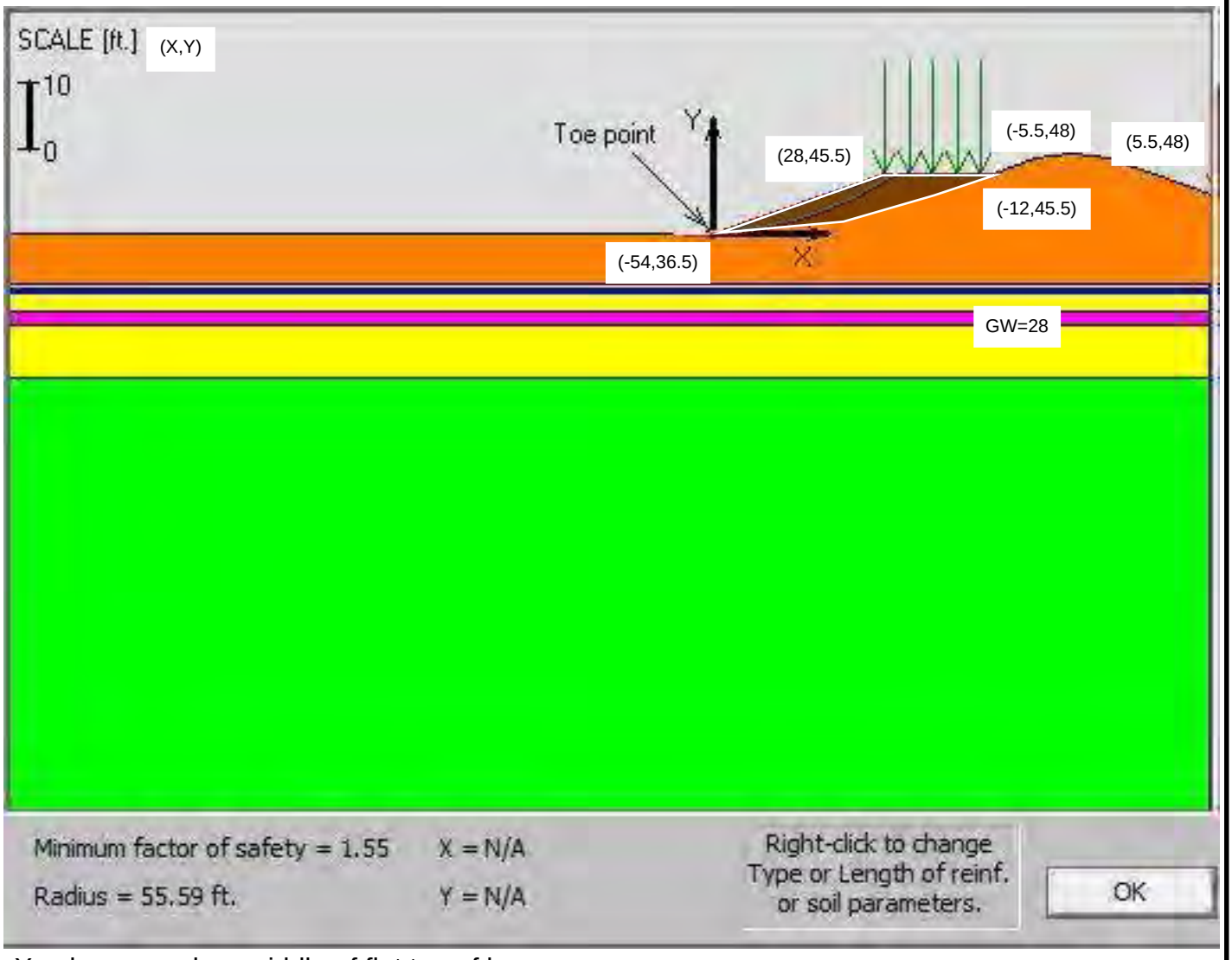

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1an - AR1 STA. 15+40
Post Construction Landside

Not to Scale

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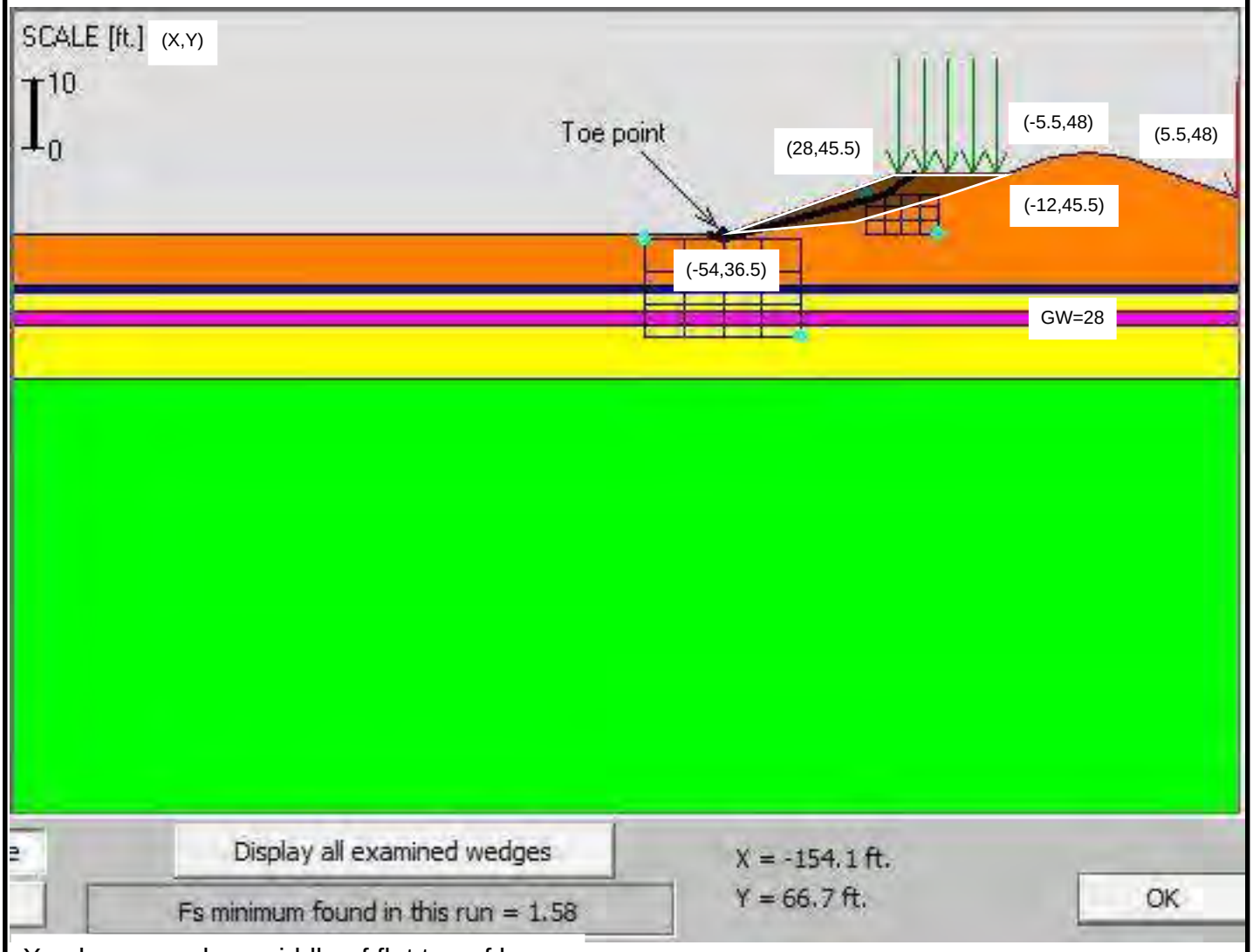

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1ao - AR1 STA. 15+40
Post Construction Landside

Not to Scale

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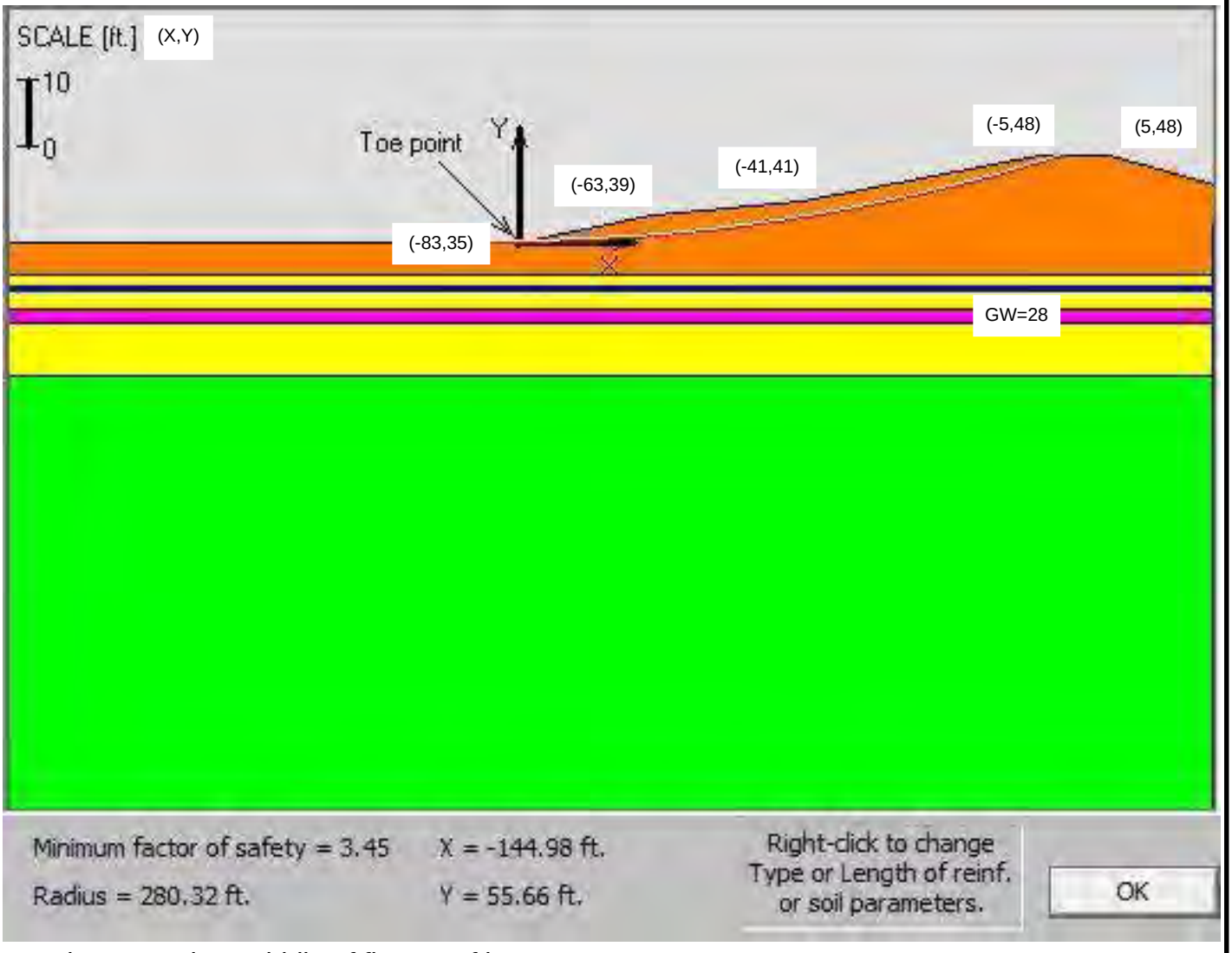
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1ap - AR1 STA. 16+00
Existing Riverside

Not to Scale

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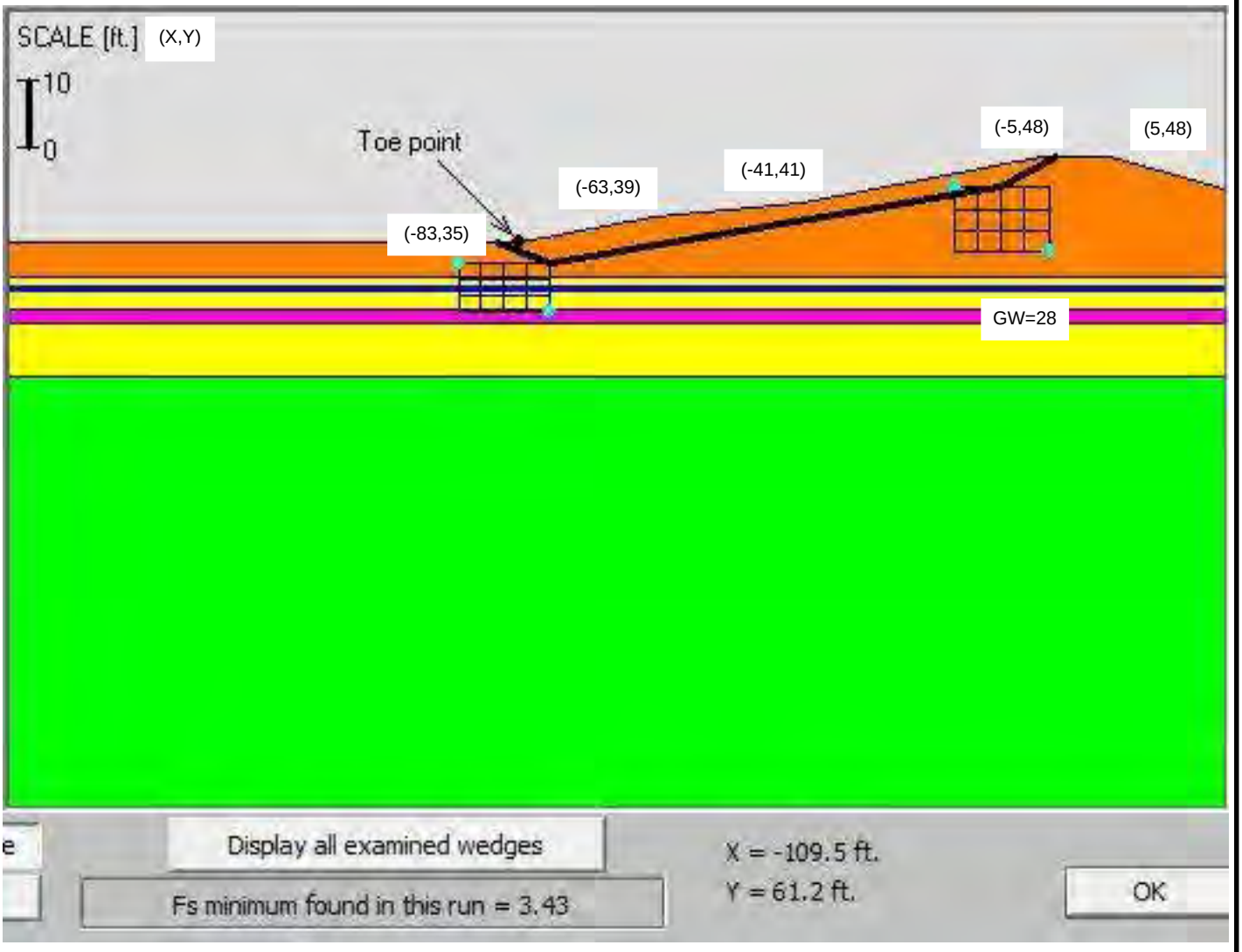

X value zeroed on middle of flat top of levee

Figure 1aq - AR1 STA. 16+00
Existing Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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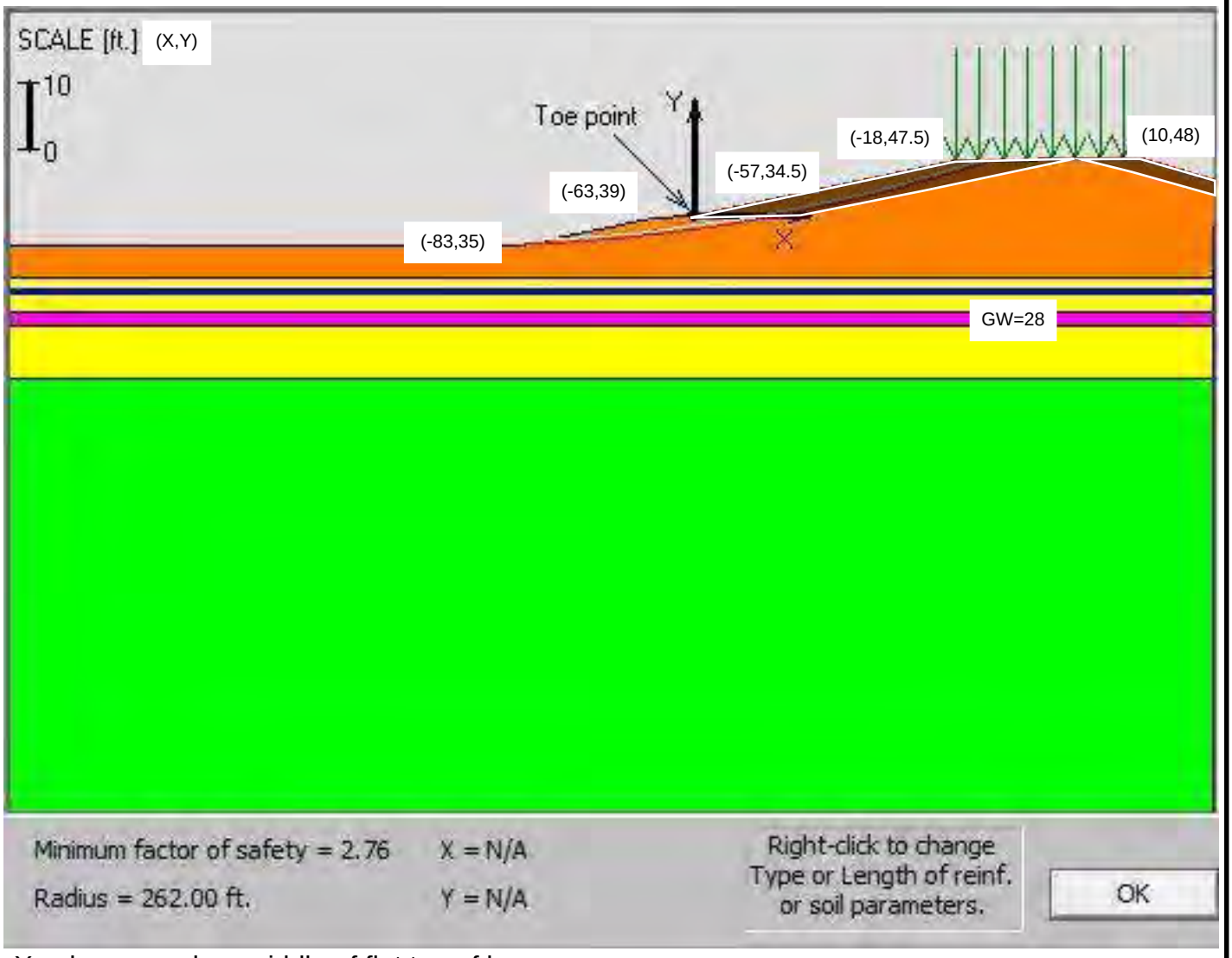

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1ar - AR1 STA. 16+00
Post Construction Riverside

Not to Scale

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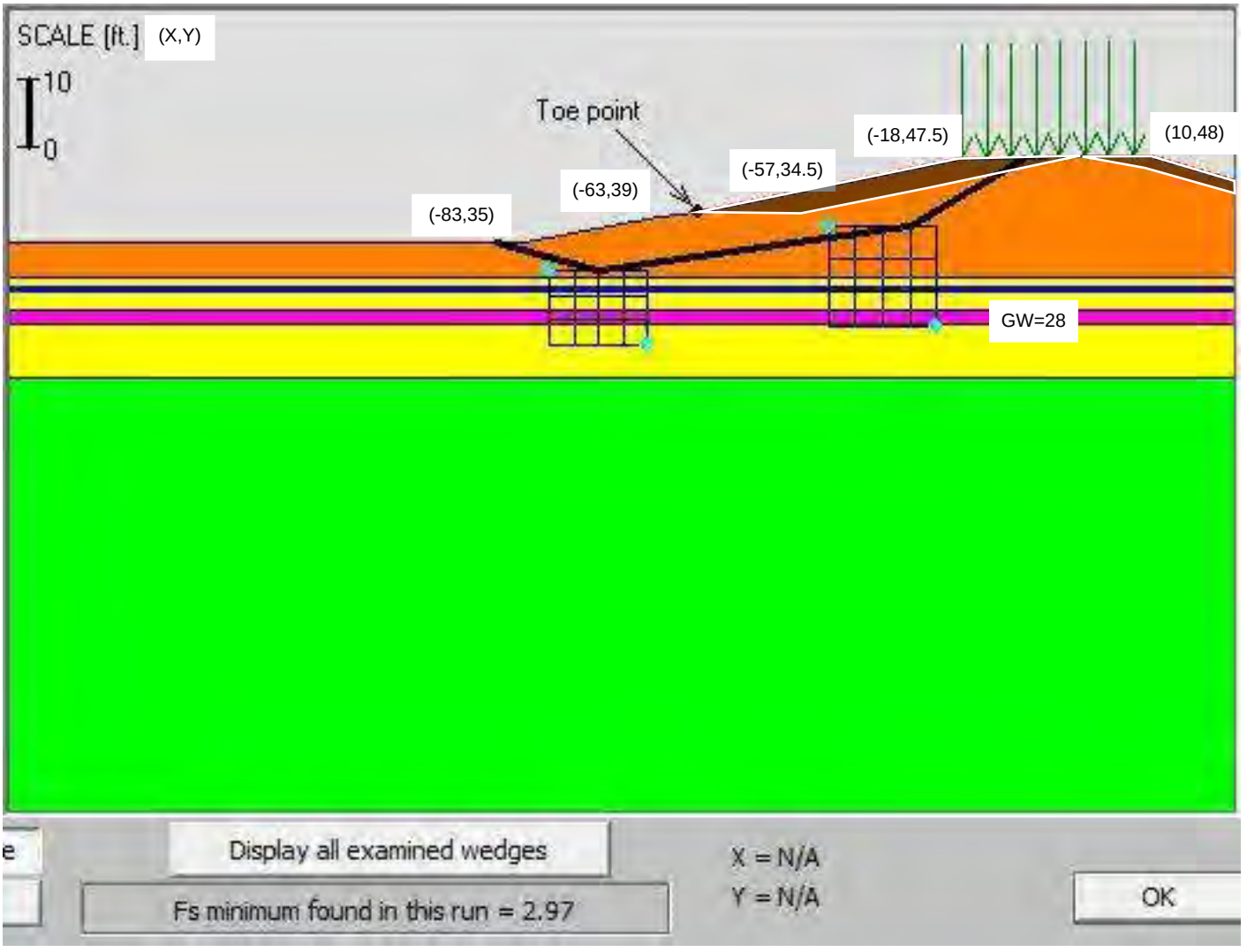

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1as - AR1 STA. 16+00
Post Construction Riverside

Not to Scale

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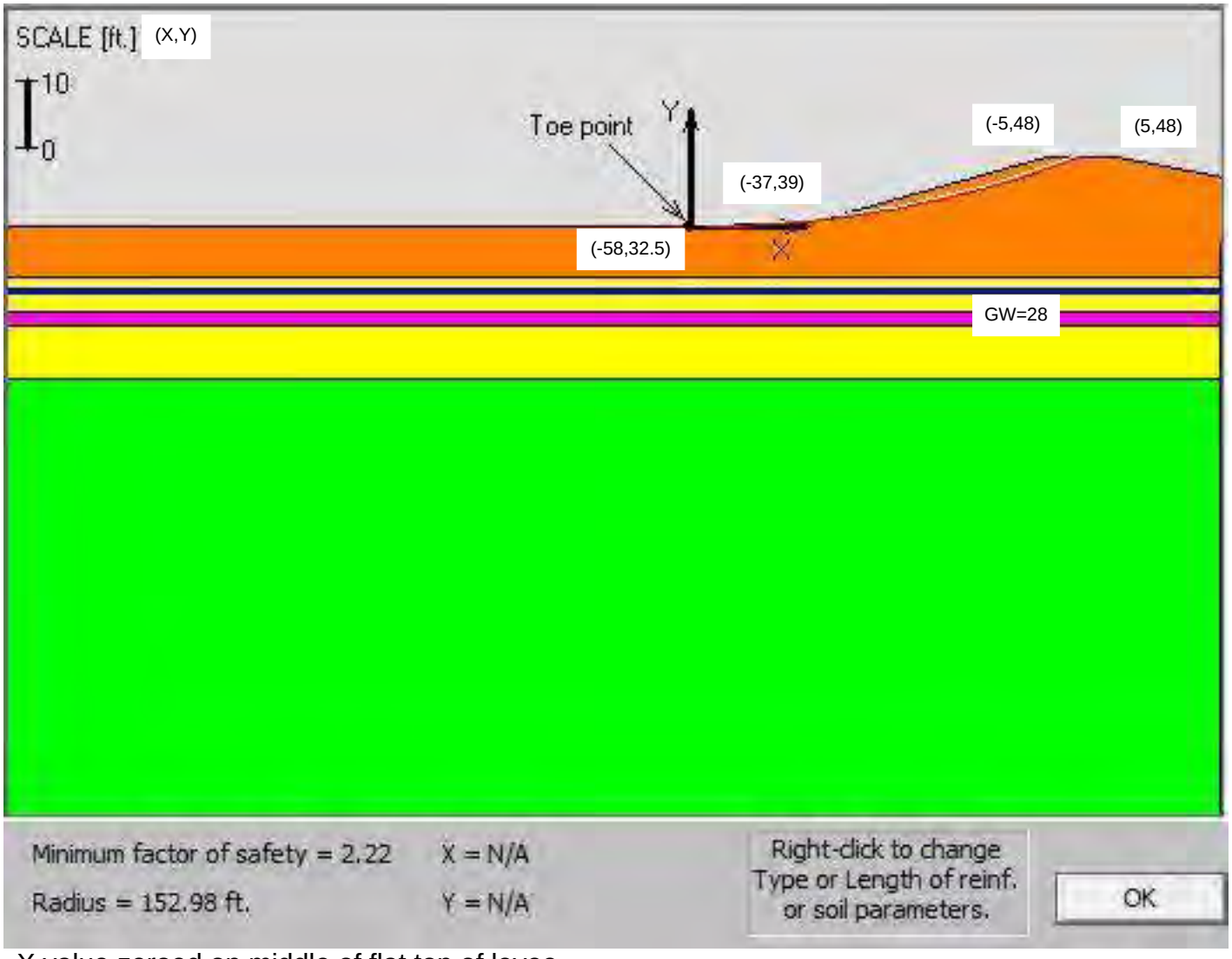

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1at - AR1 STA. 16+00
Existing Landside

Not to Scale

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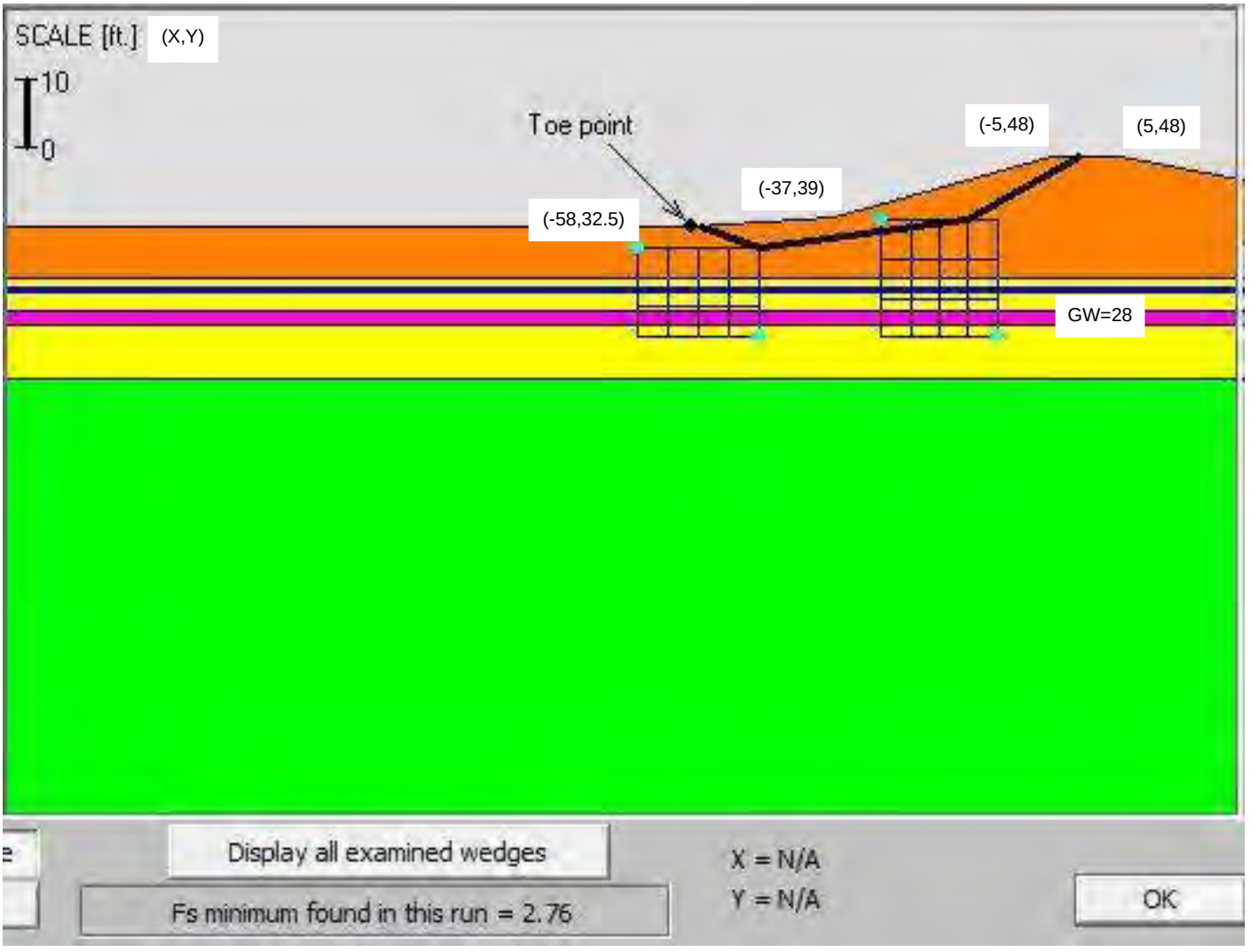
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Figure 1au - AR1 STA. 16+00
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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Raleigh, NC 27609
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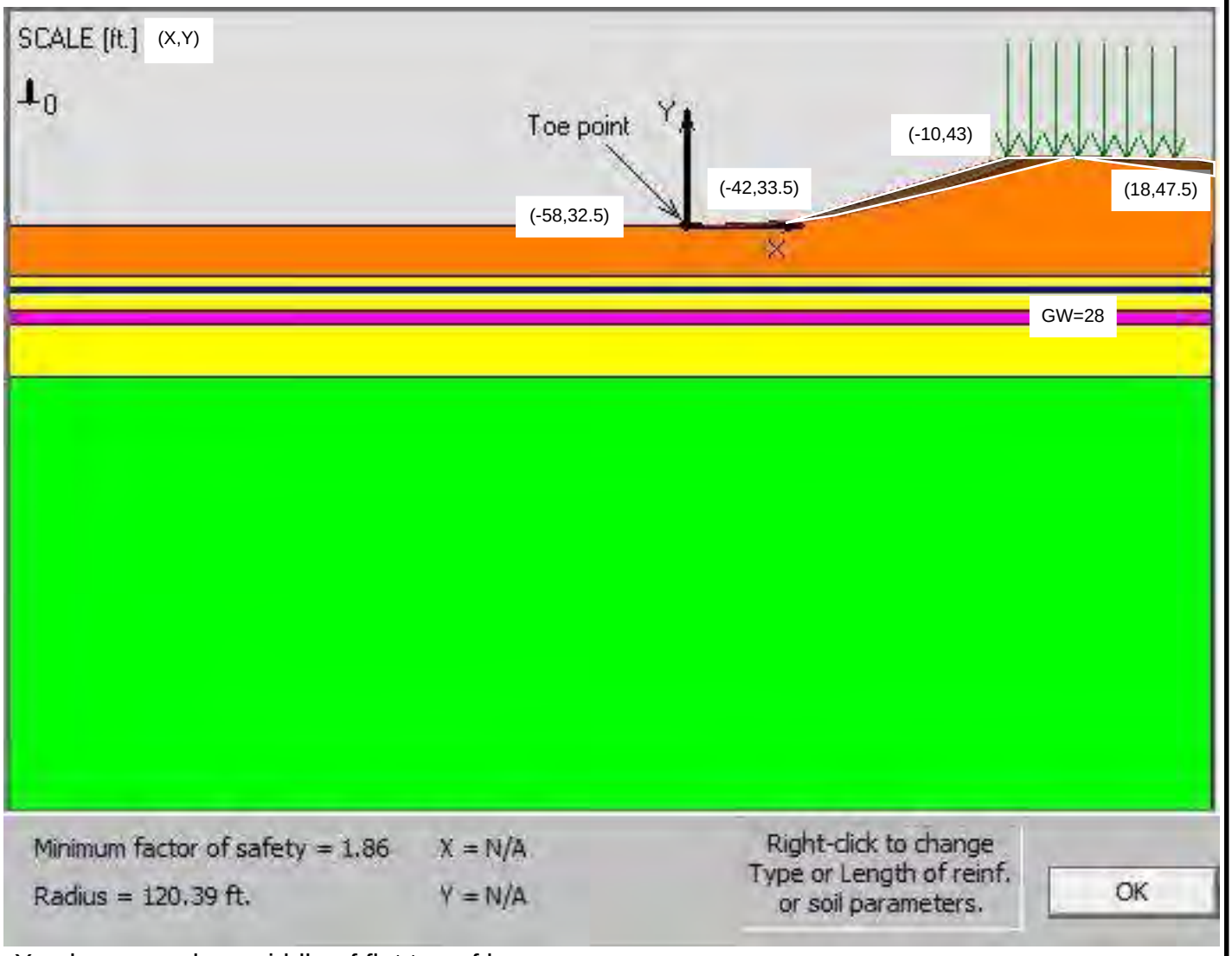
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 1av - AR1 STA. 16+00
Post Construction Landside

Not to Scale

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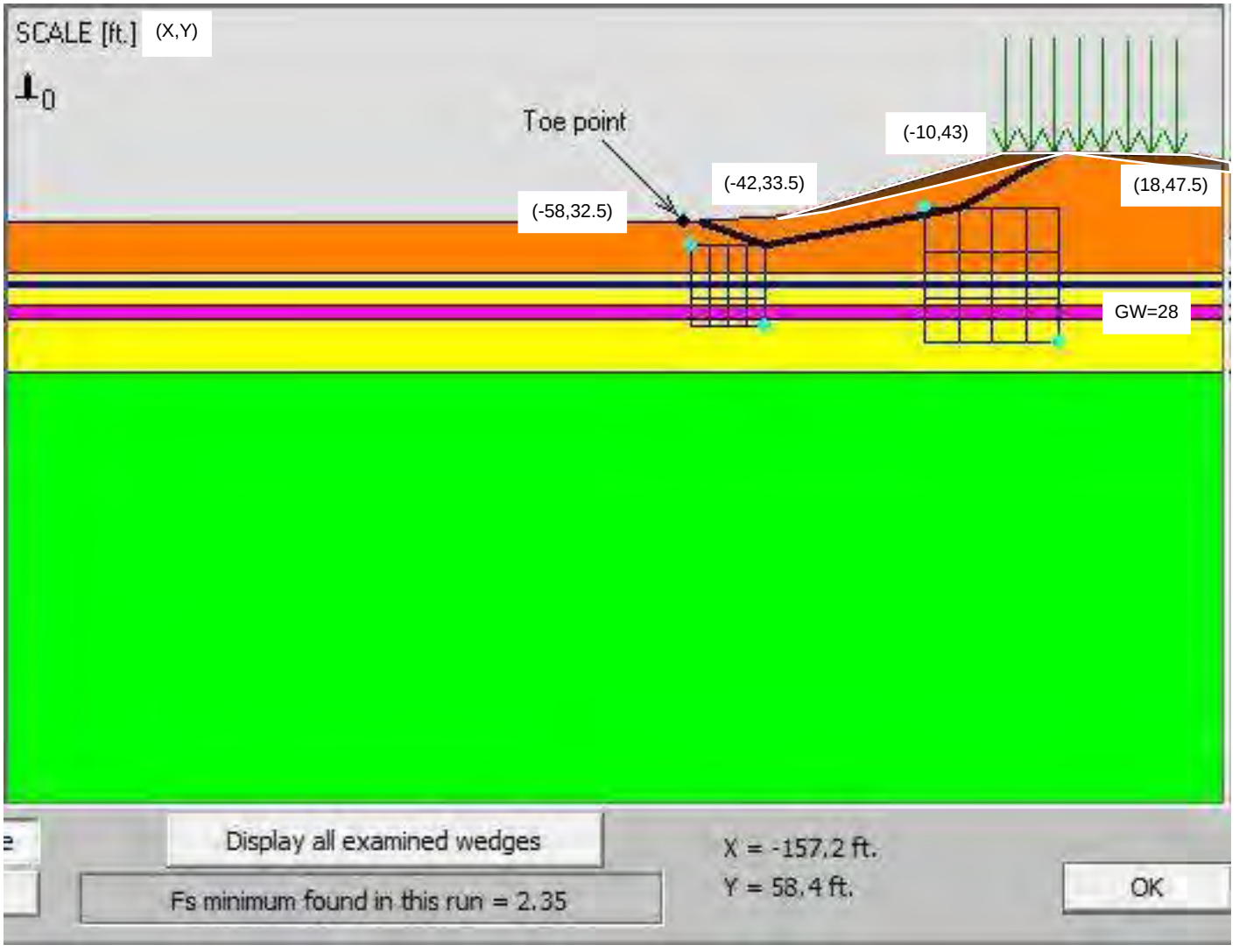

X value zeroed on middle of flat top of levee

Figure 1aw - AR1 STA. 16+00
Post Construction Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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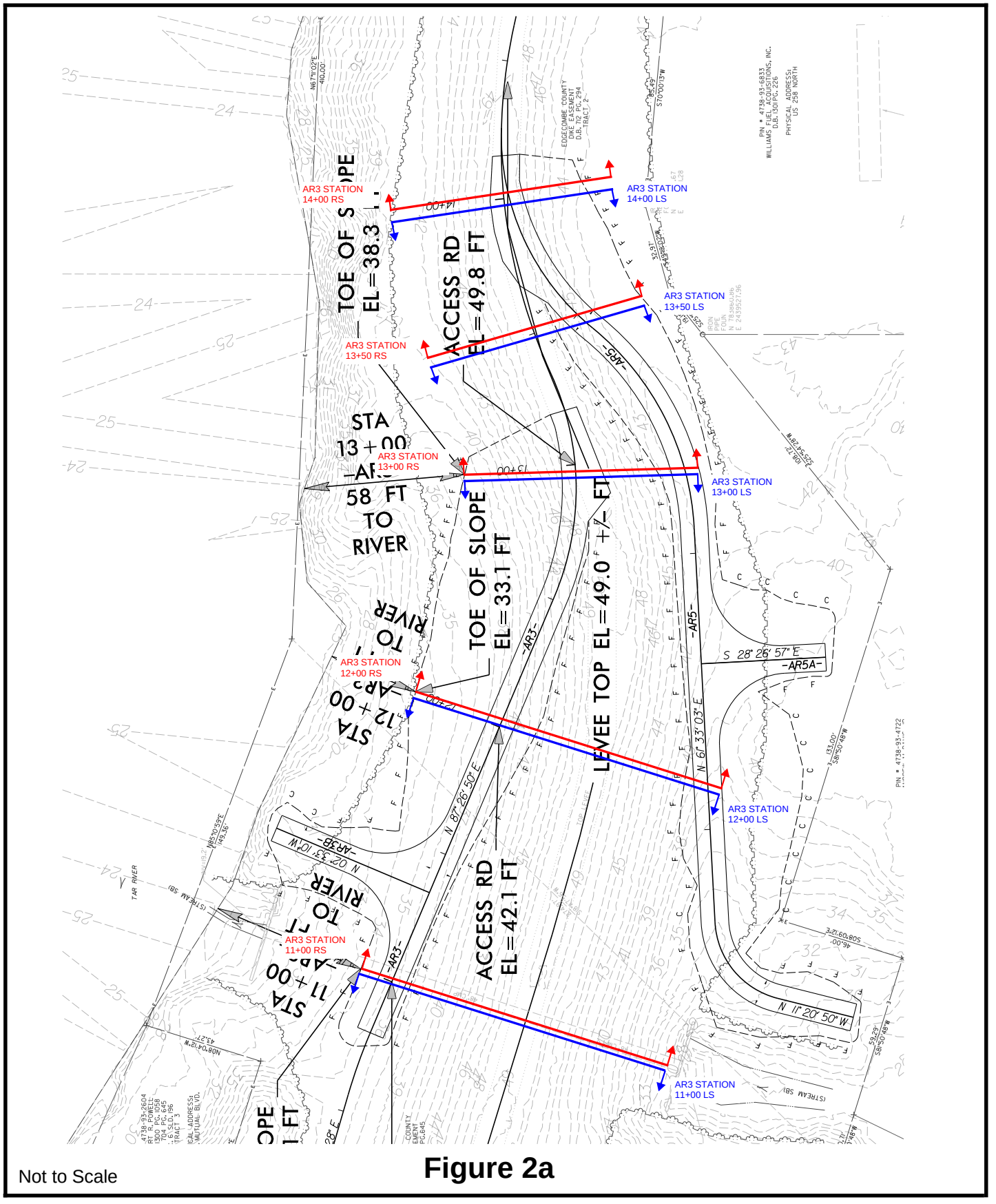
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



Not to Scale

Figure 2a

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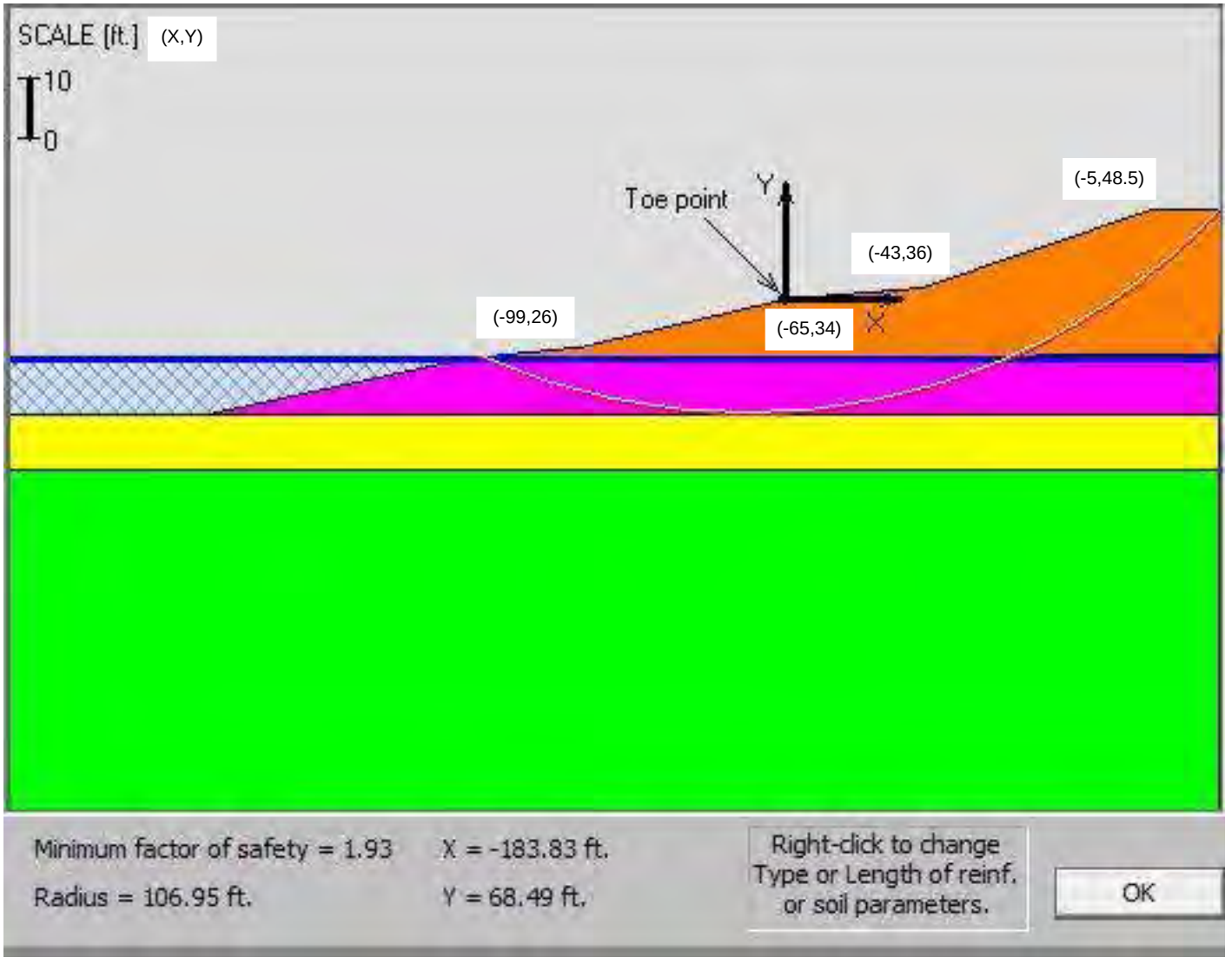
Project **Princeville Levee Roads**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2b - AR3 STA. 11+00
Existing Riverside

Not to Scale

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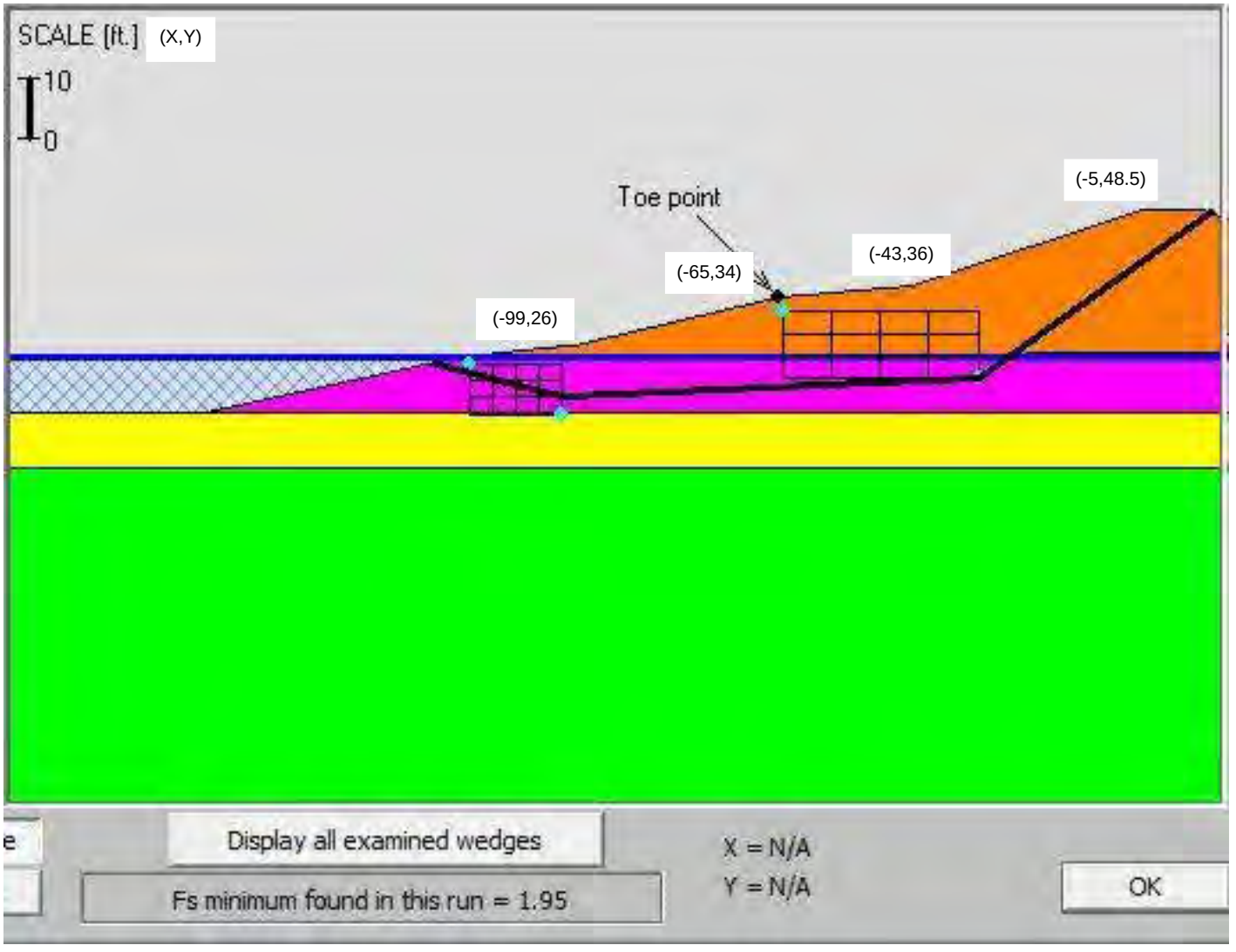
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2c - AR3 STA. 11+00
Existing Riverside

Not to Scale

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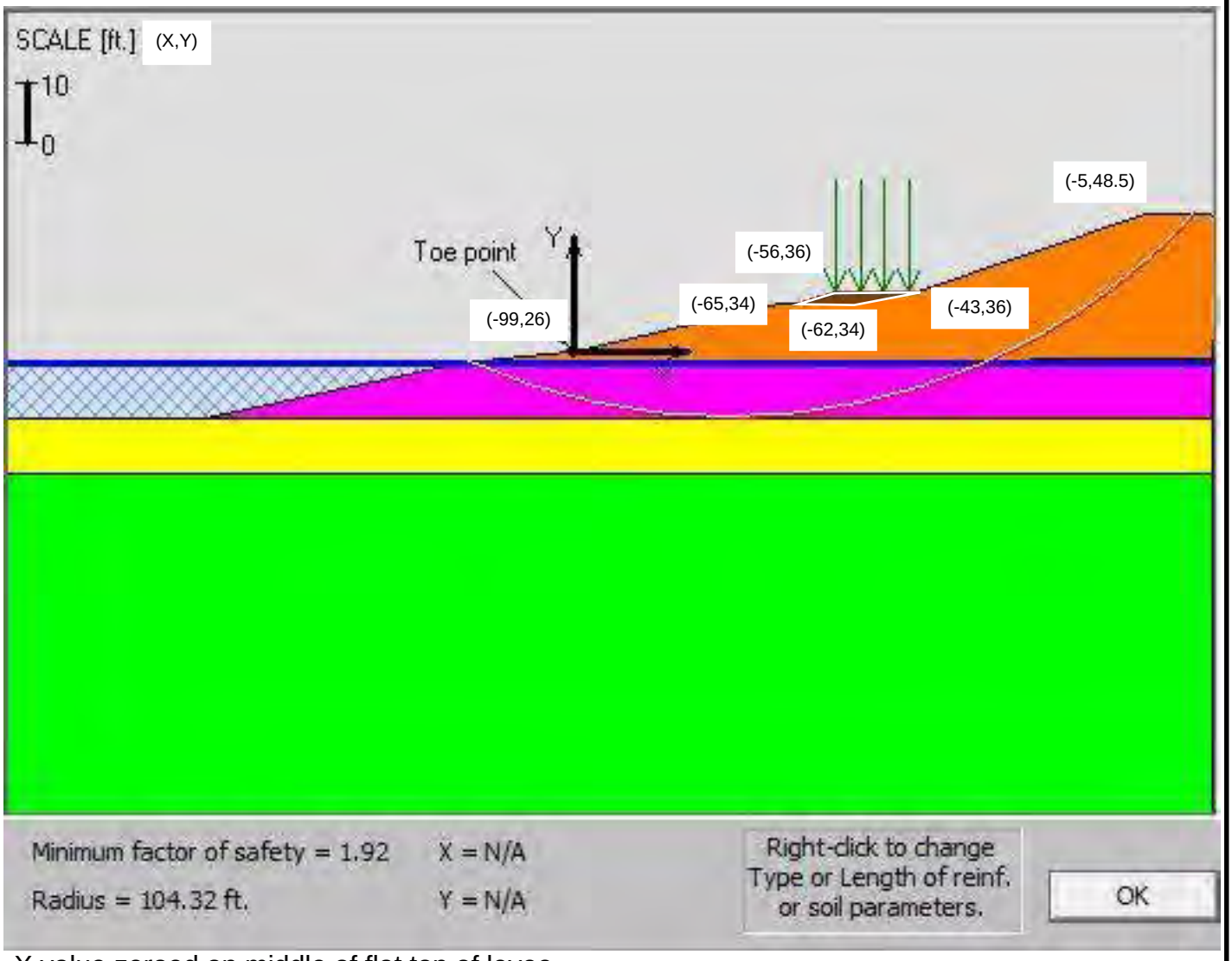
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2d - AR3 STA. 11+00
Post Construction Riverside

Not to Scale

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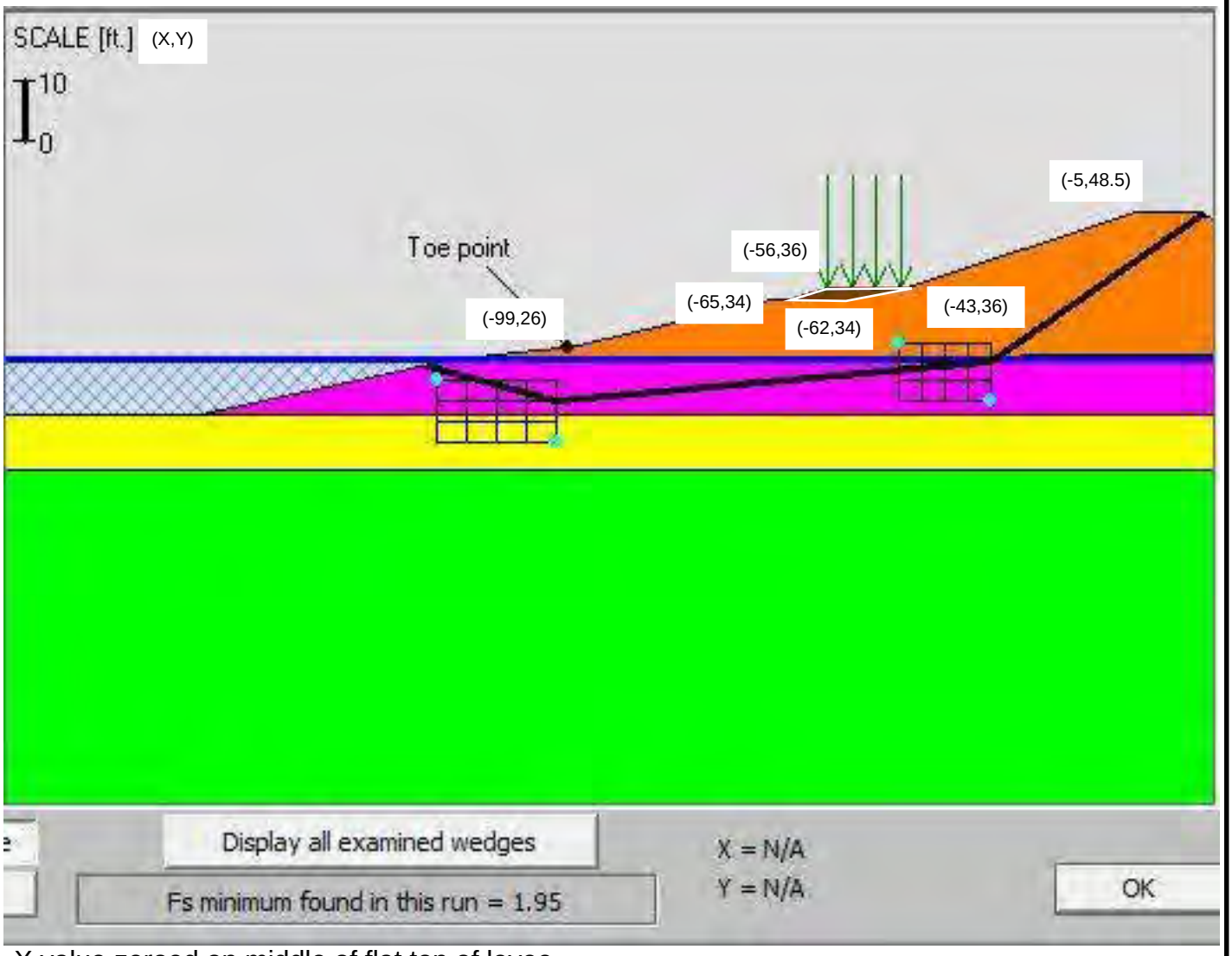
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2e - AR3 STA. 11+00
Post Construction Riverside

Not to Scale

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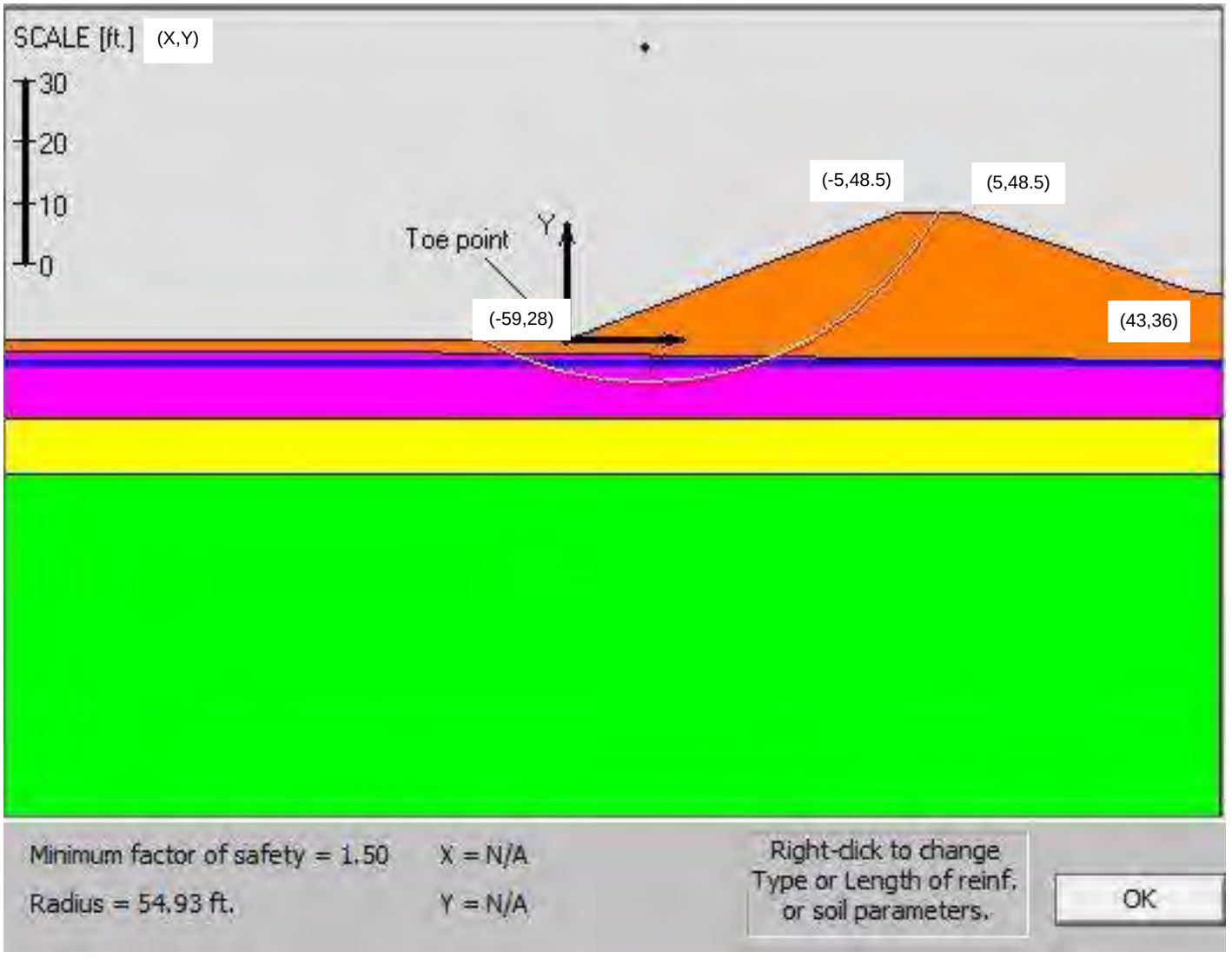
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2f - AR3 STA. 11+00
Existing Landside

Not to Scale

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Princeville, North Carolina
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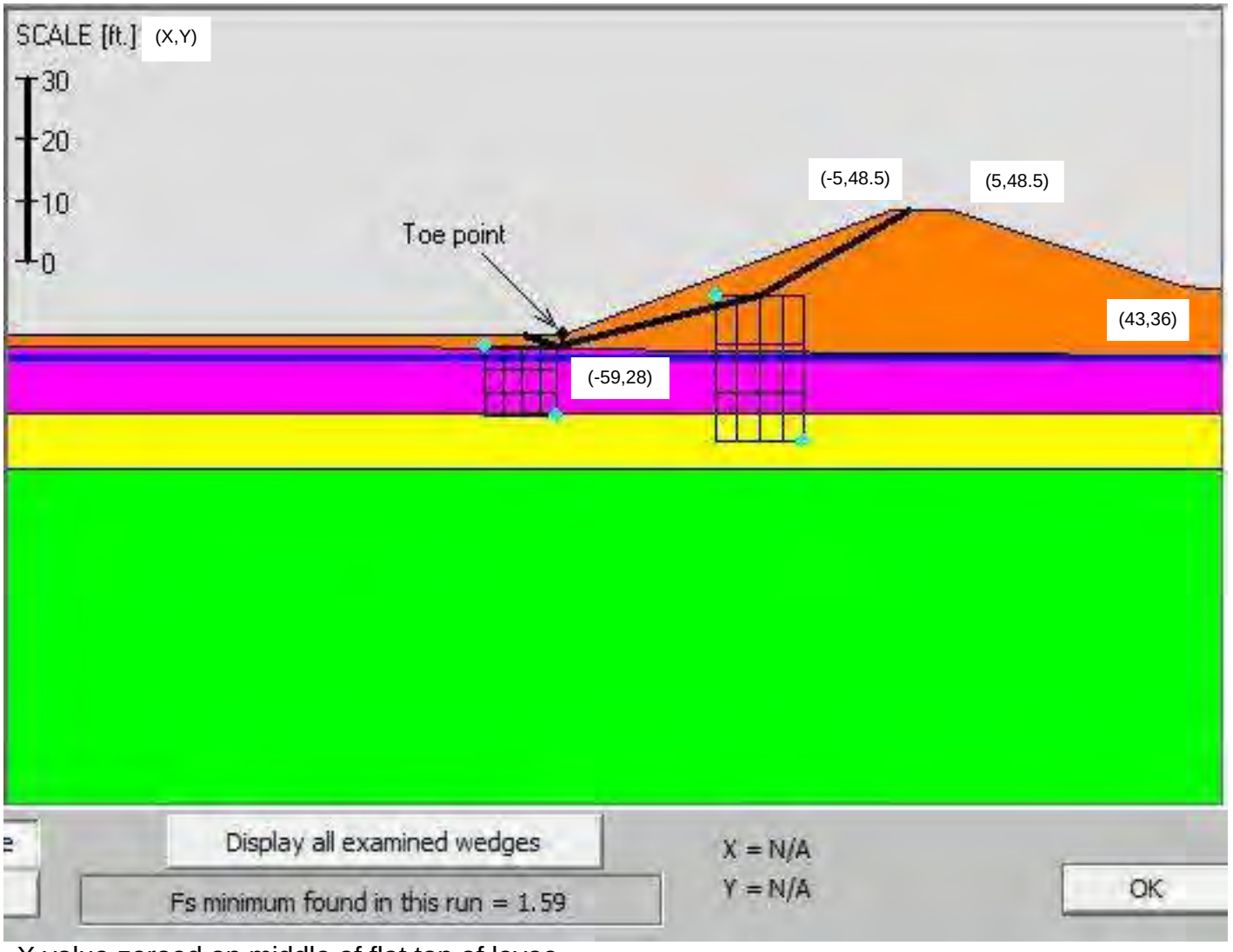

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2g - AR3 STA. 11+00
Existing Landside

Not to Scale

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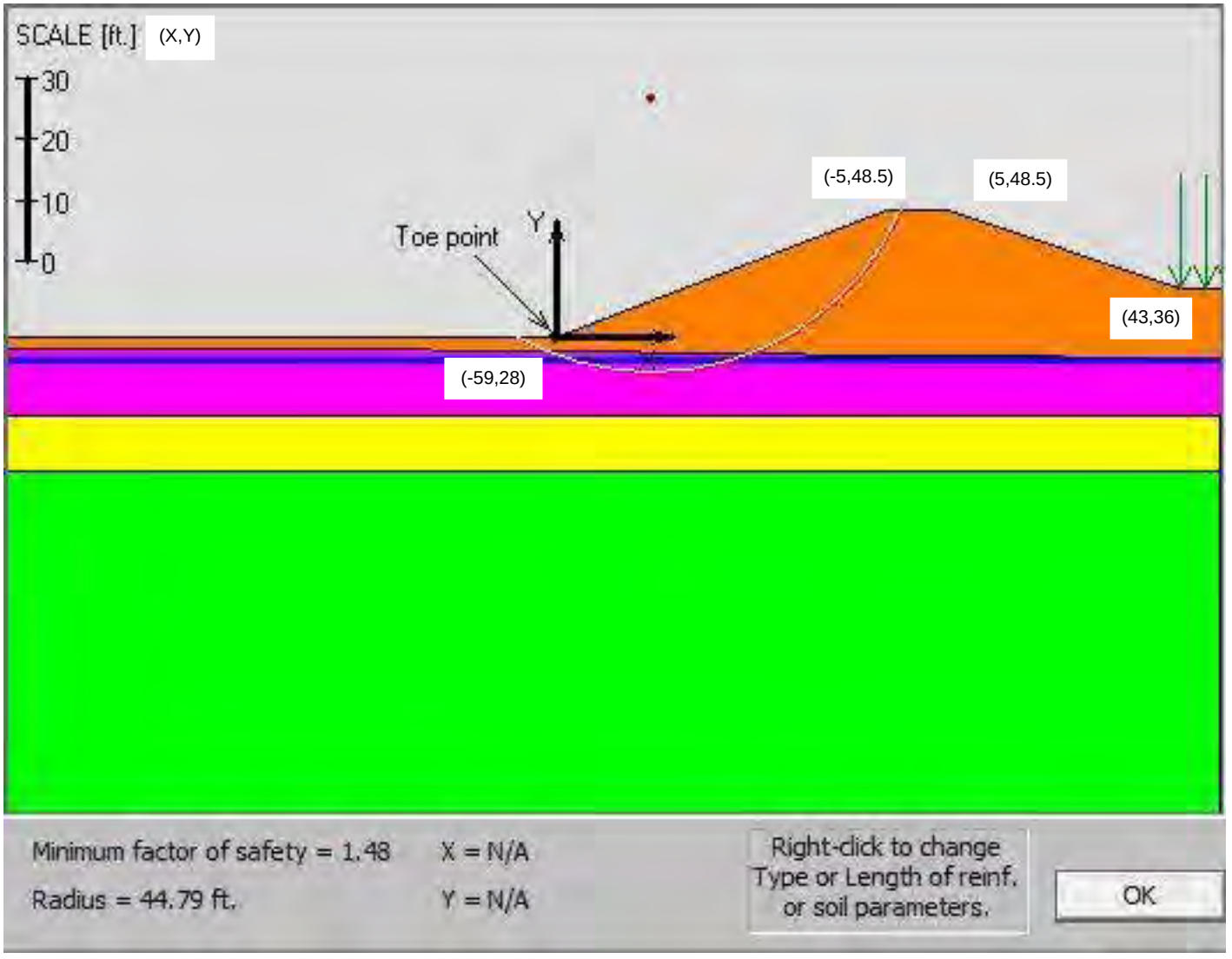
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2h - AR3 STA. 11+00
Post Construction Landside

Not to Scale

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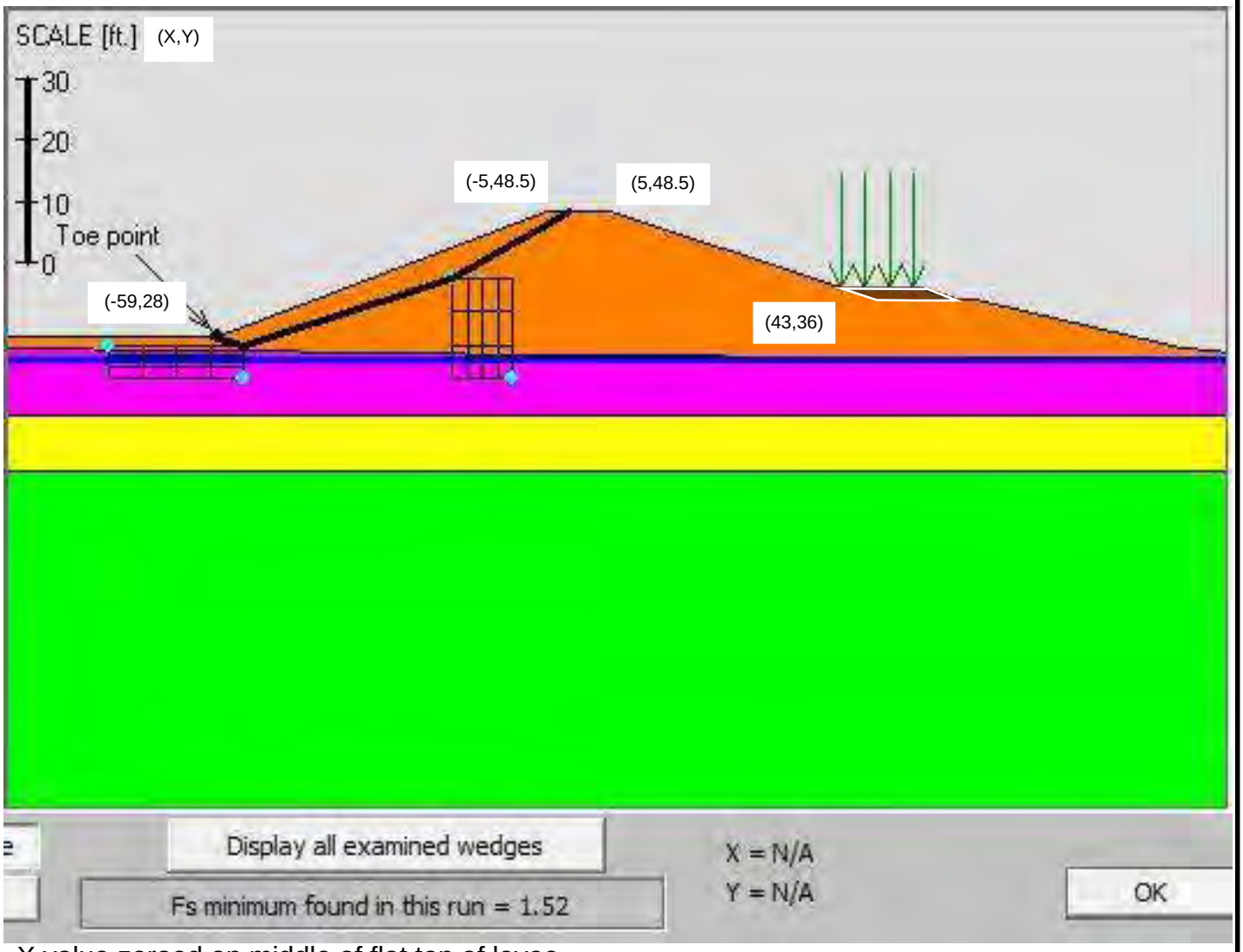
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Figure 2i - AR3 STA. 11+00
Post Construction Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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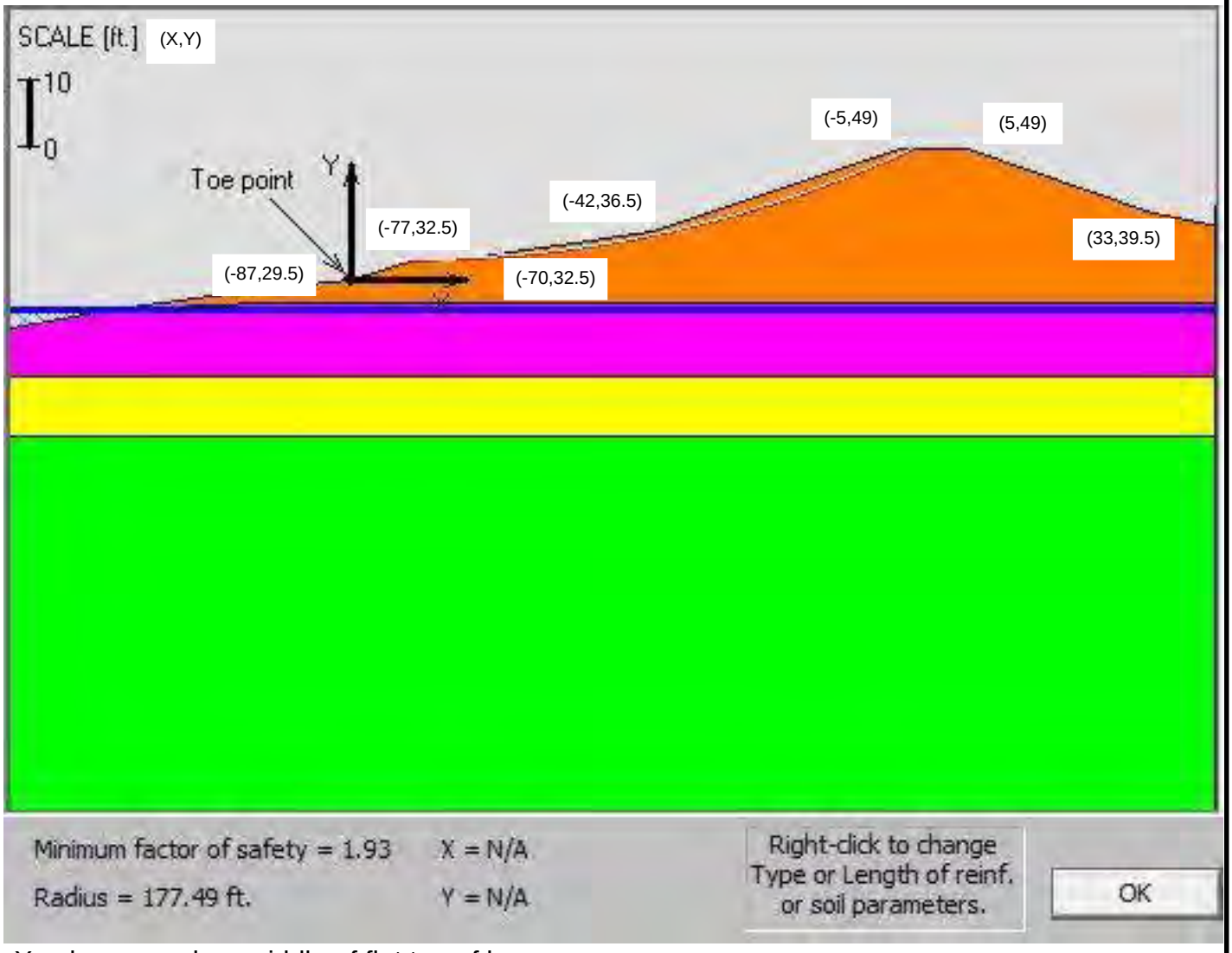

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2j - AR3 STA. 12+00 Existing Riverside

Not to Scale

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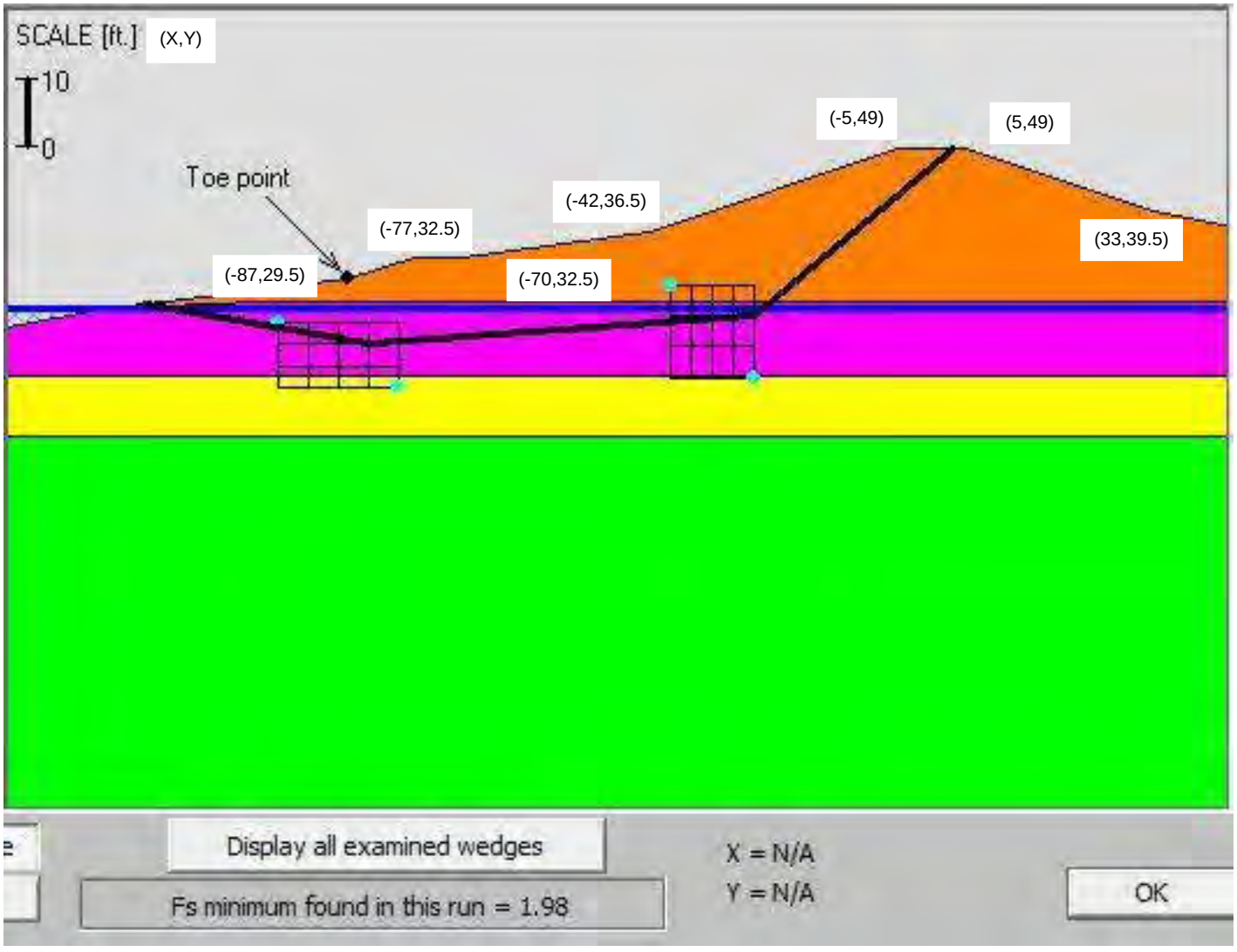
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2k - AR3 STA. 12+00
Existing Riverside

Not to Scale

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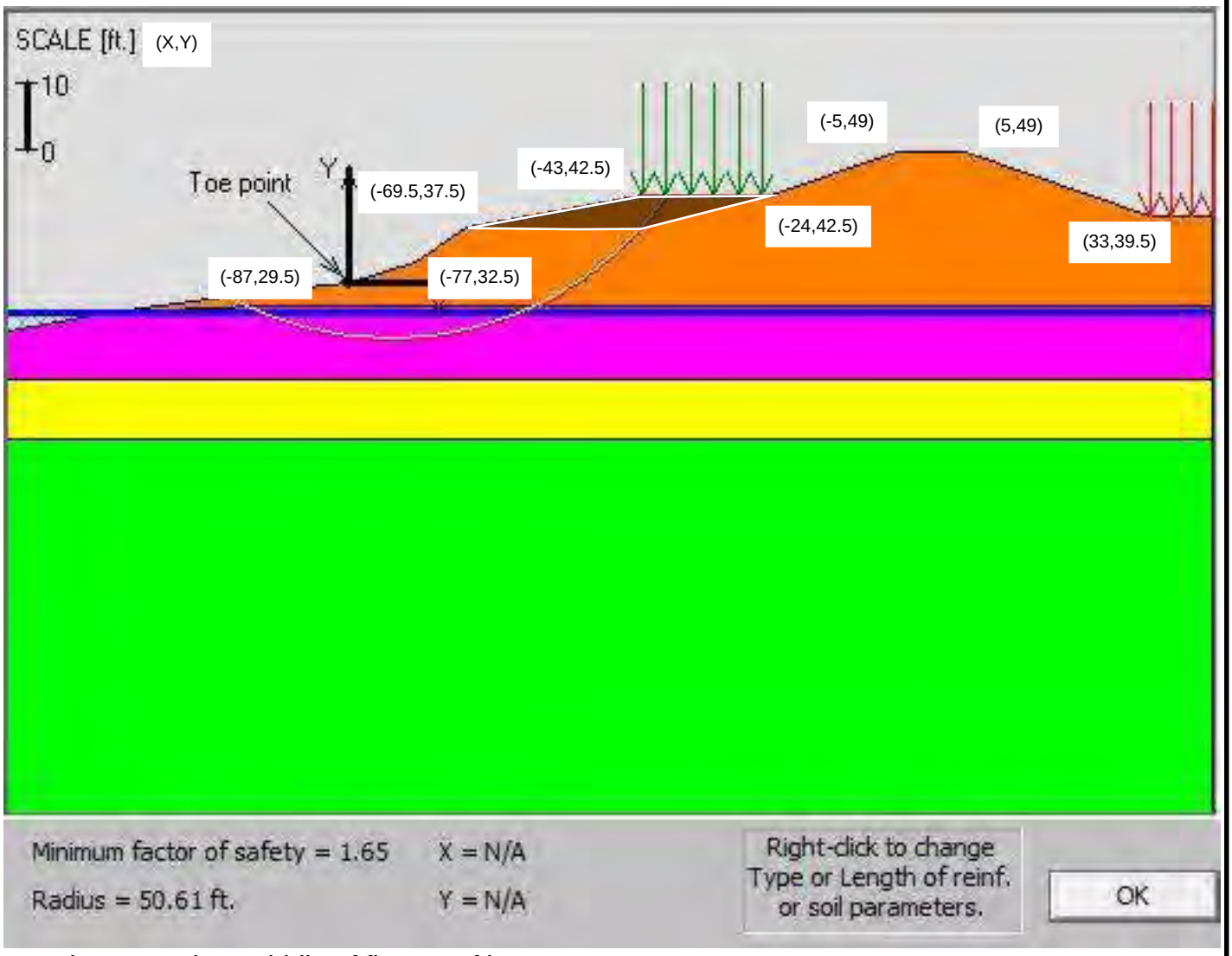
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2l - AR3 STA. 12+00
Post Construction Riverside

Not to Scale

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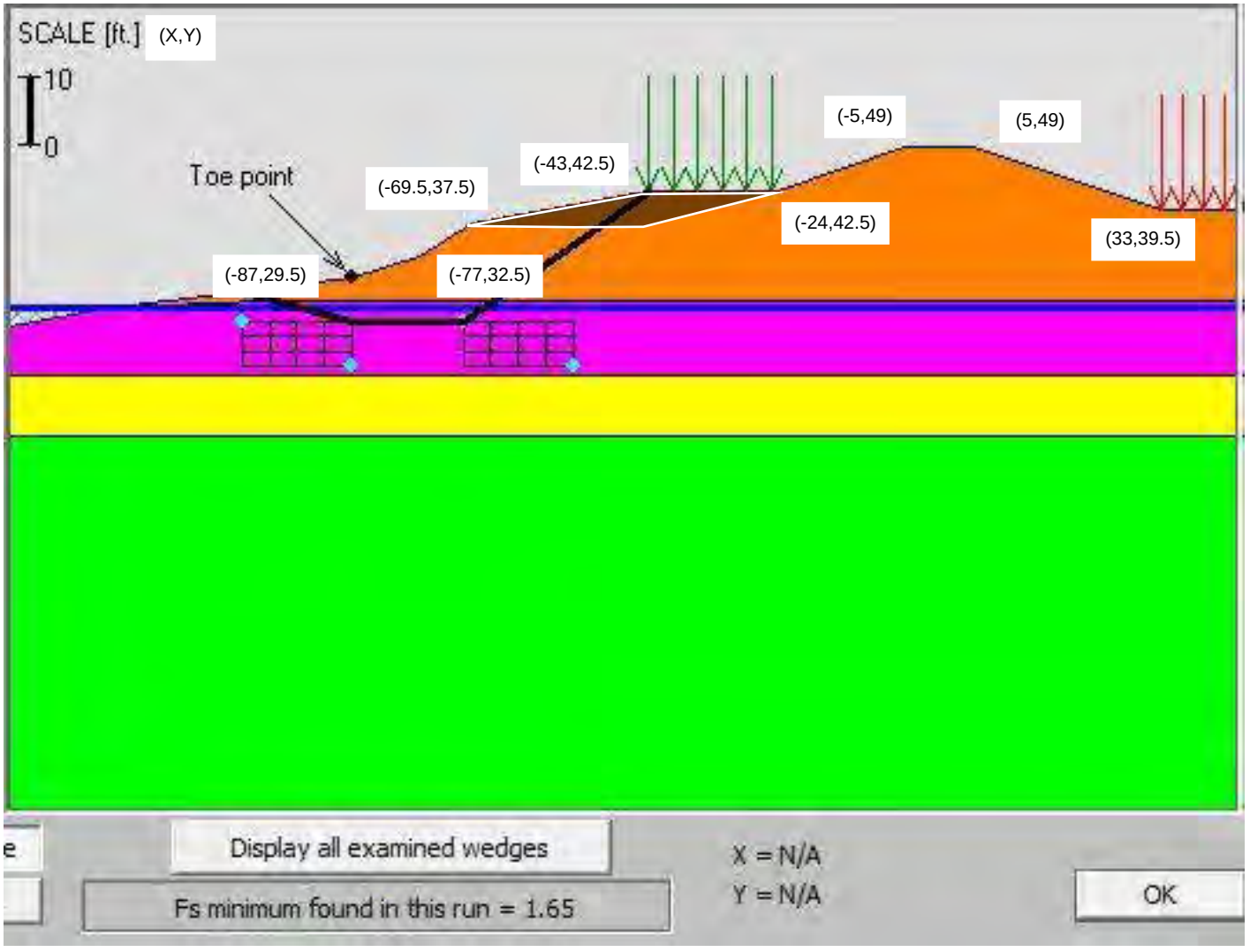

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2l - AR3 STA. 12+00
Post Construction Riverside

Not to Scale

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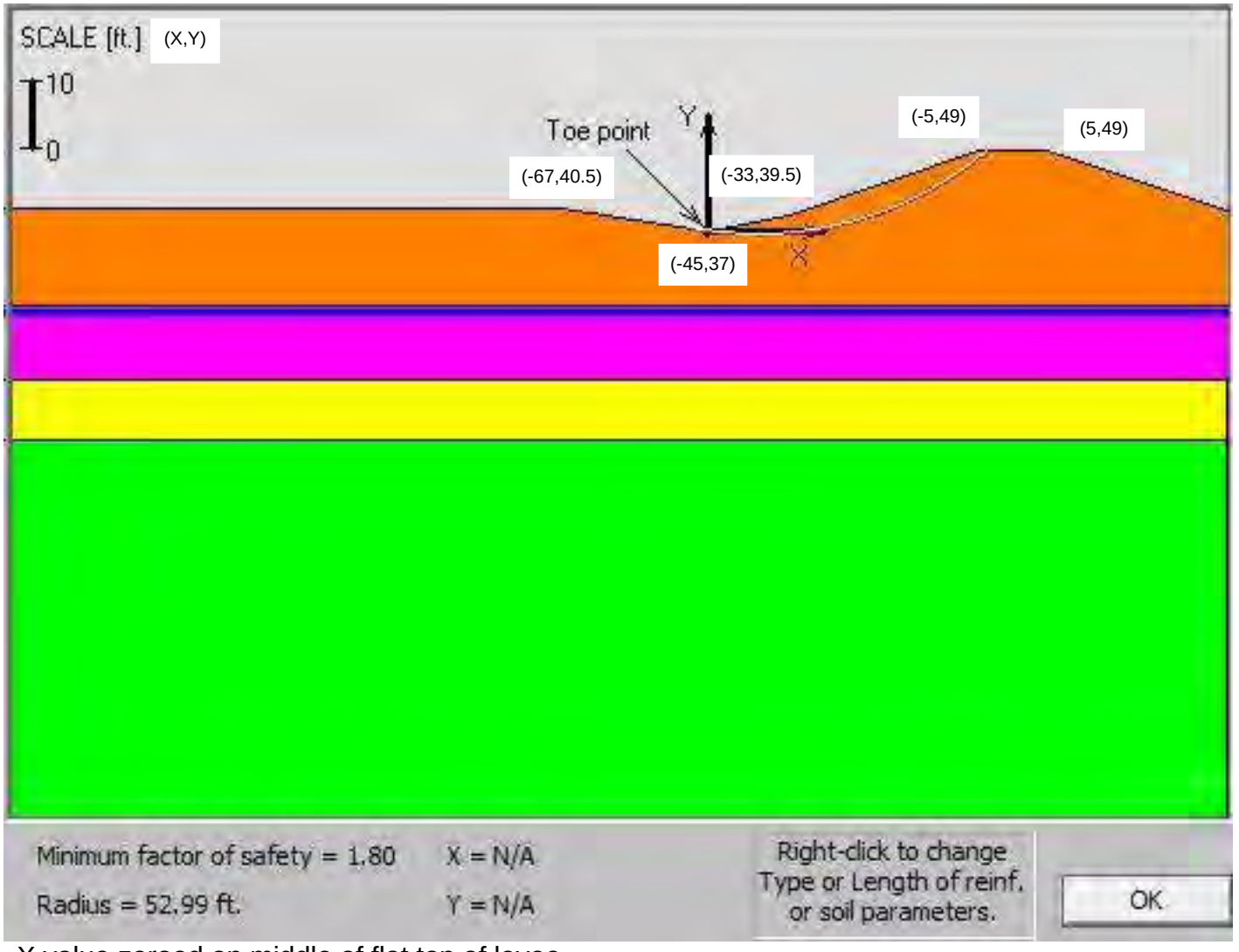
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2m - AR3 STA. 12+00
Existing Landside

Not to Scale

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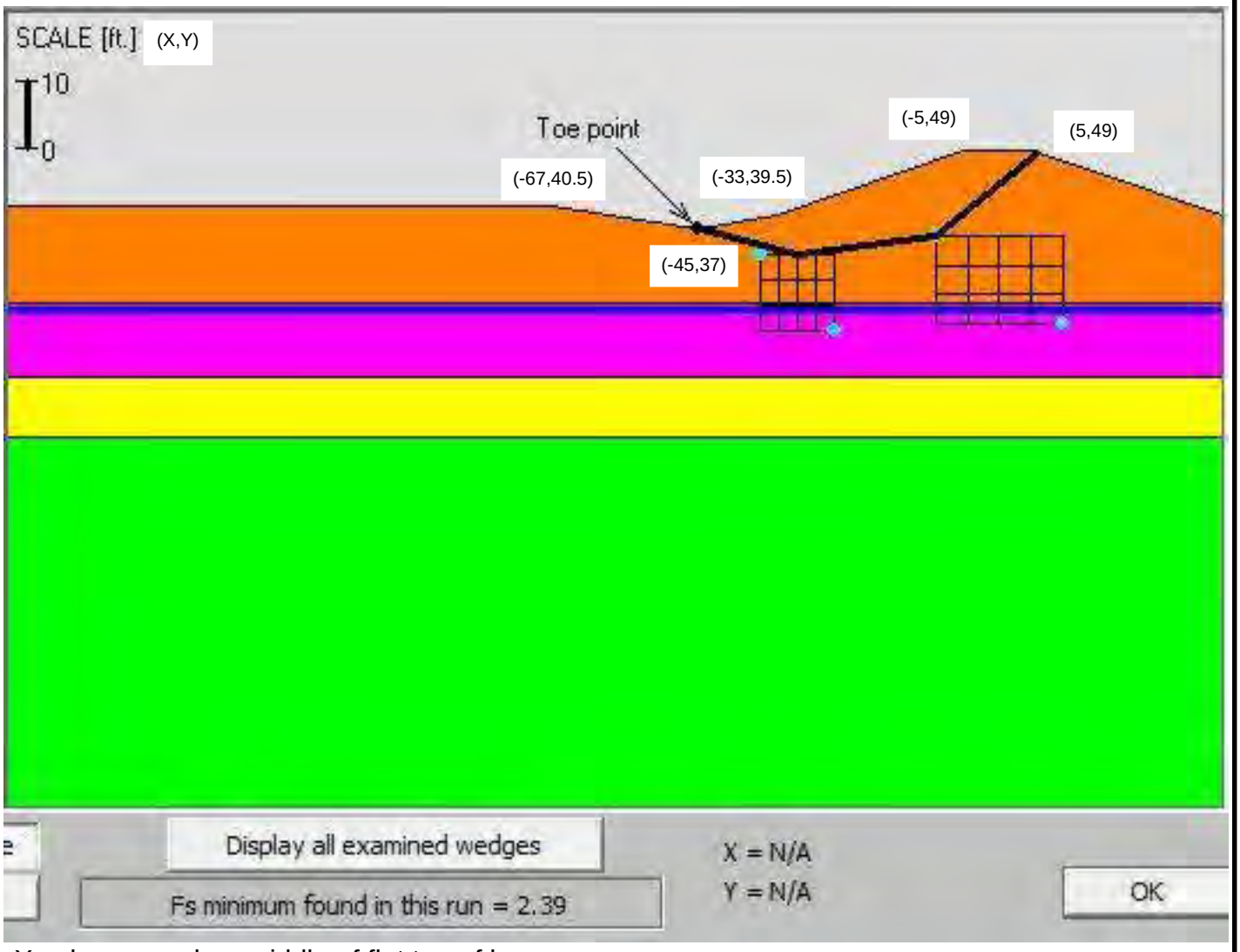

X value zeroed on middle of flat top of levee

Figure 2n - AR3 STA. 12+00
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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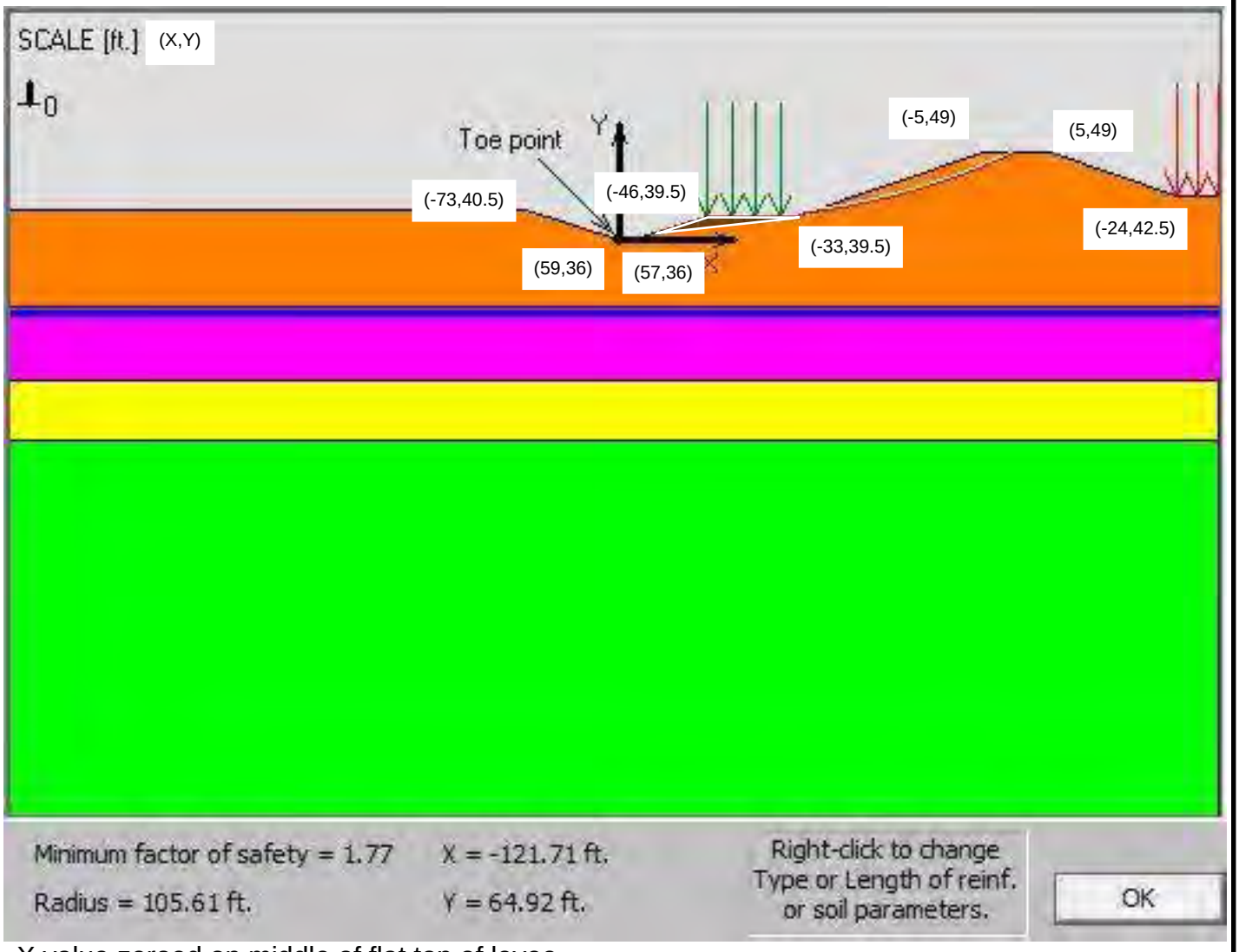

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2o - AR3 STA. 12+00
Post Construction Landside

Not to Scale

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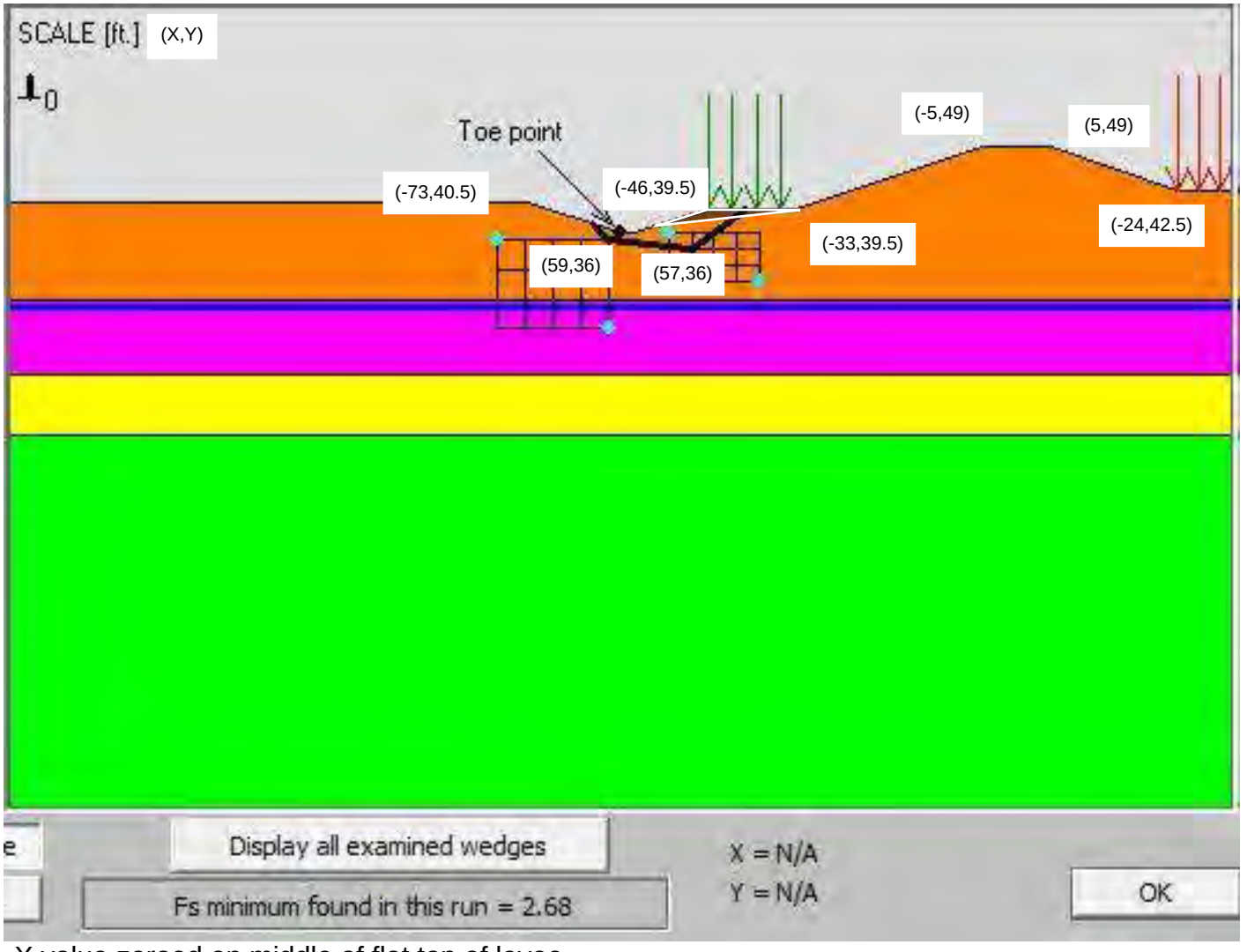

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2p - AR3 STA. 12+00
Post Construction Landside

Not to Scale

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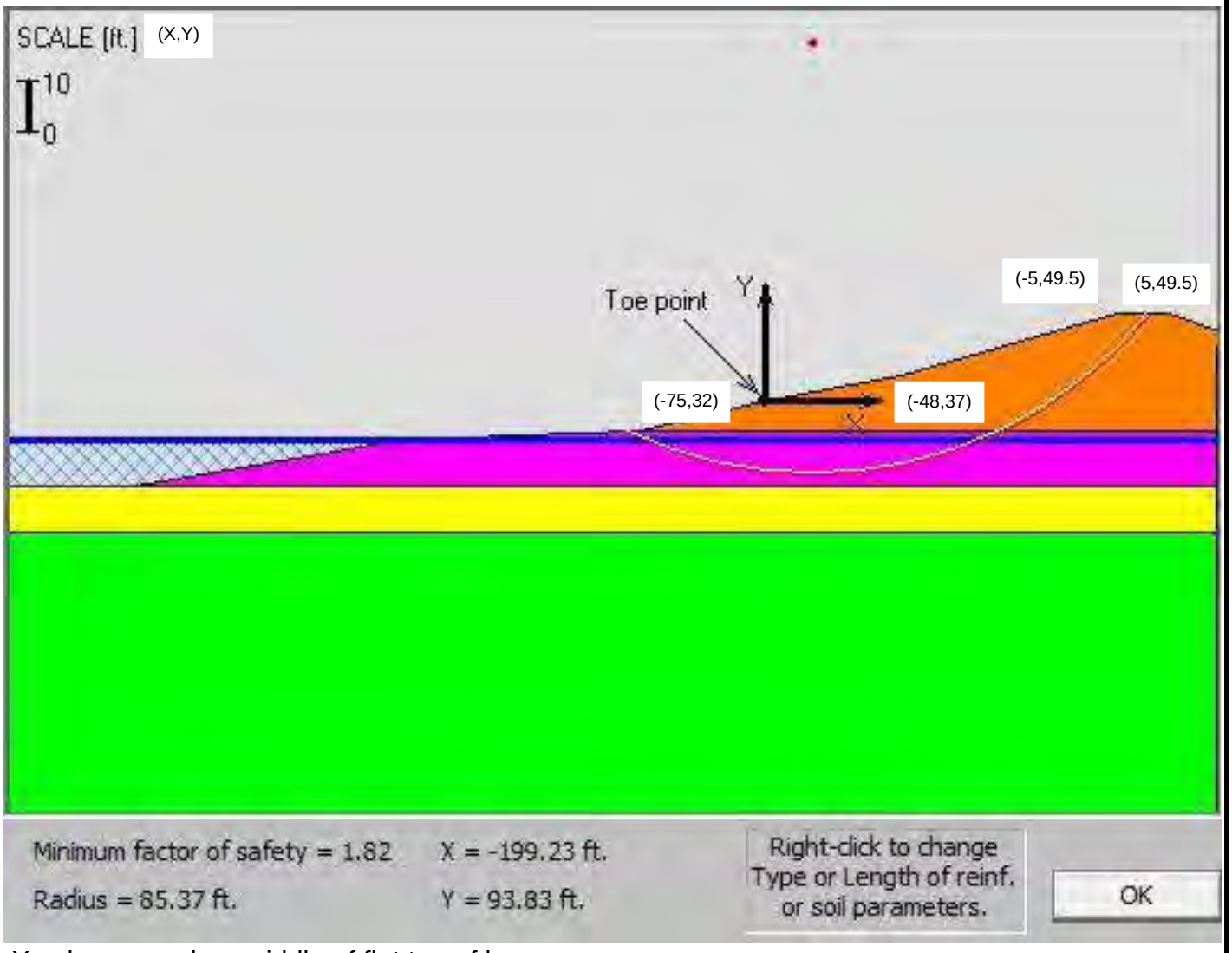

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2q - AR3 STA. 13+00
Existing Riverside

Not to Scale

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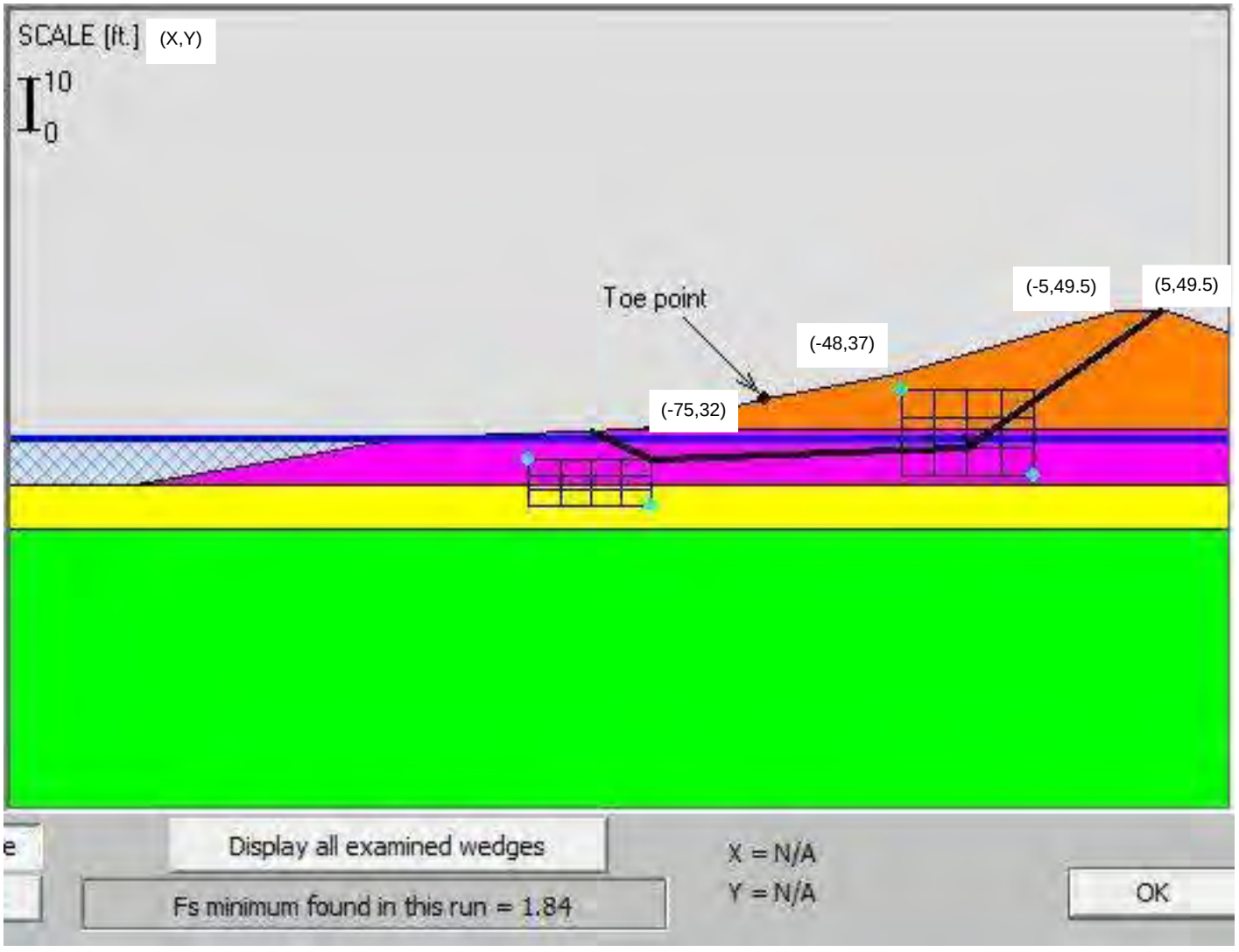

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2r - AR3 STA. 13+00
Existing Riverside

Not to Scale

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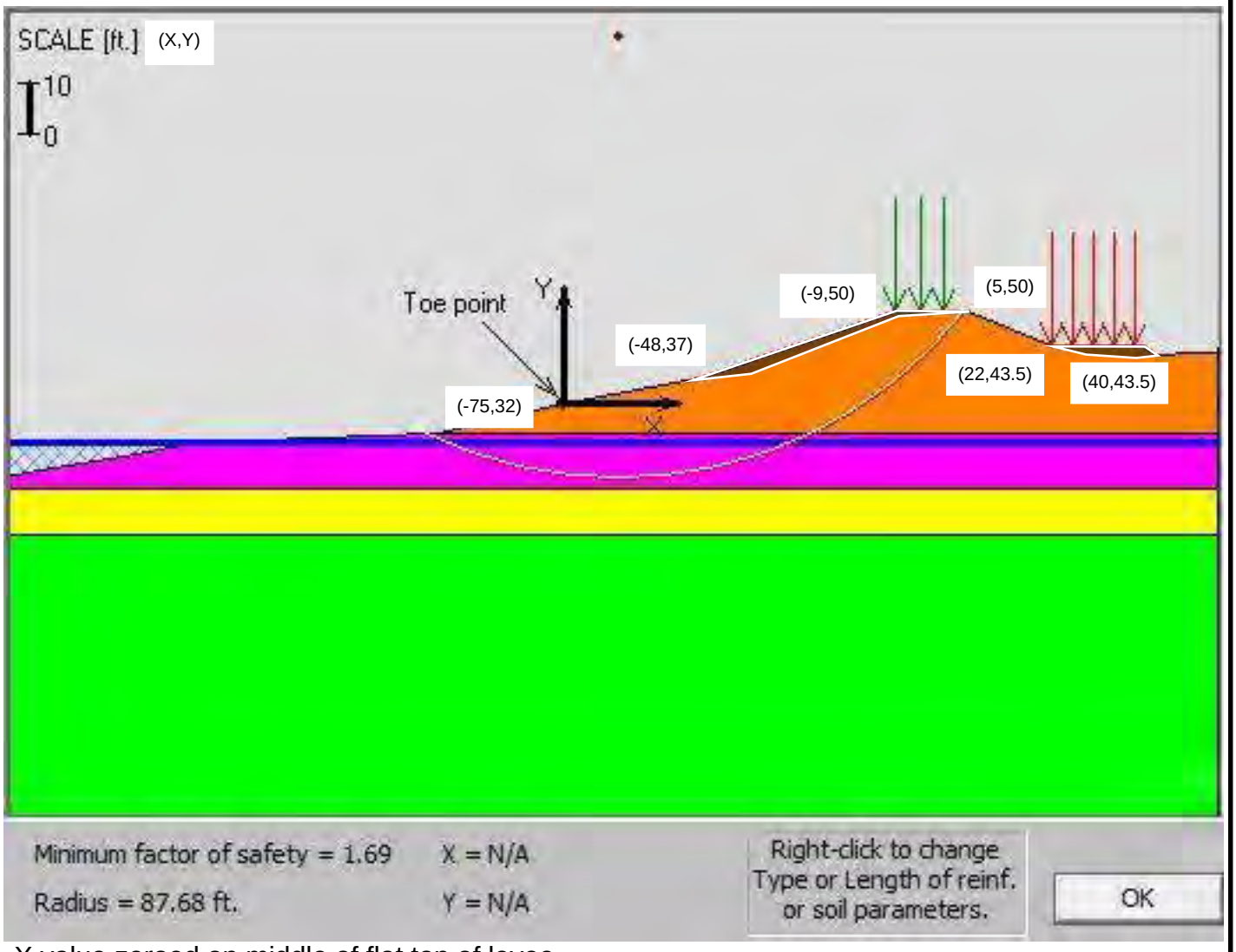

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2s - AR3 STA. 13+00
Post Construction Riverside

Not to Scale

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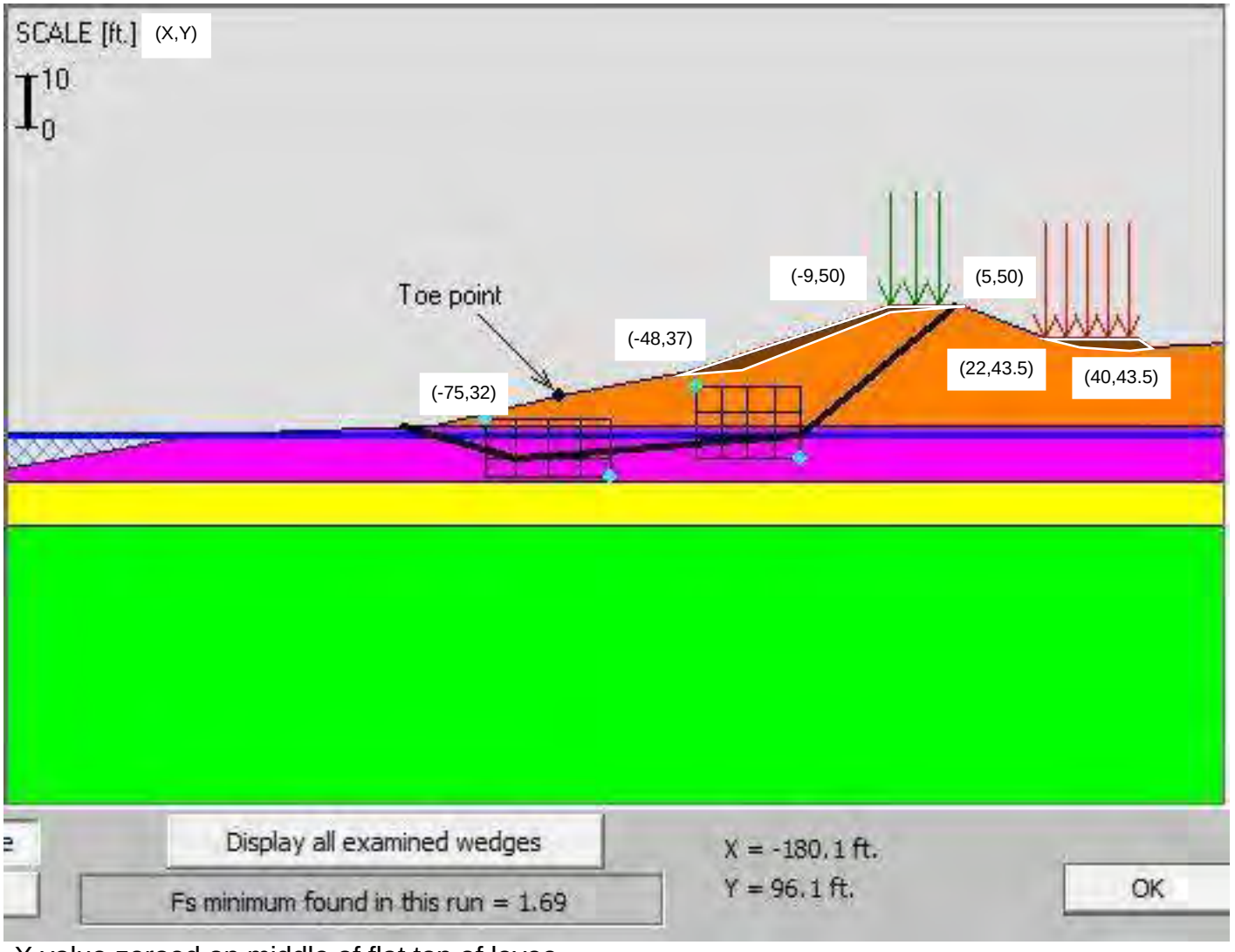

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2t - AR3 STA. 13+00
Post Construction Riverside

Not to Scale

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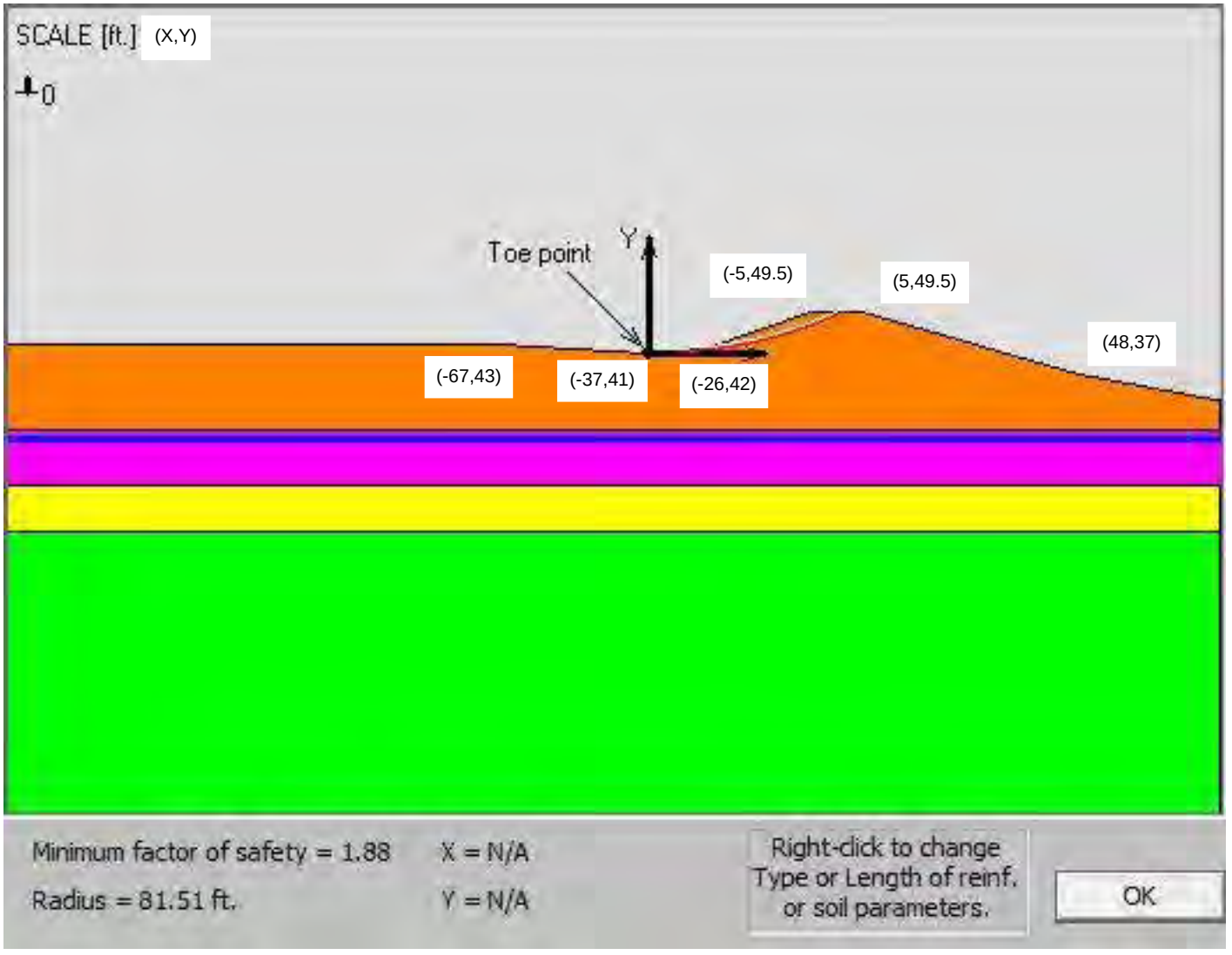

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2u - AR3 STA. 13+00
Existing Landside

Not to Scale

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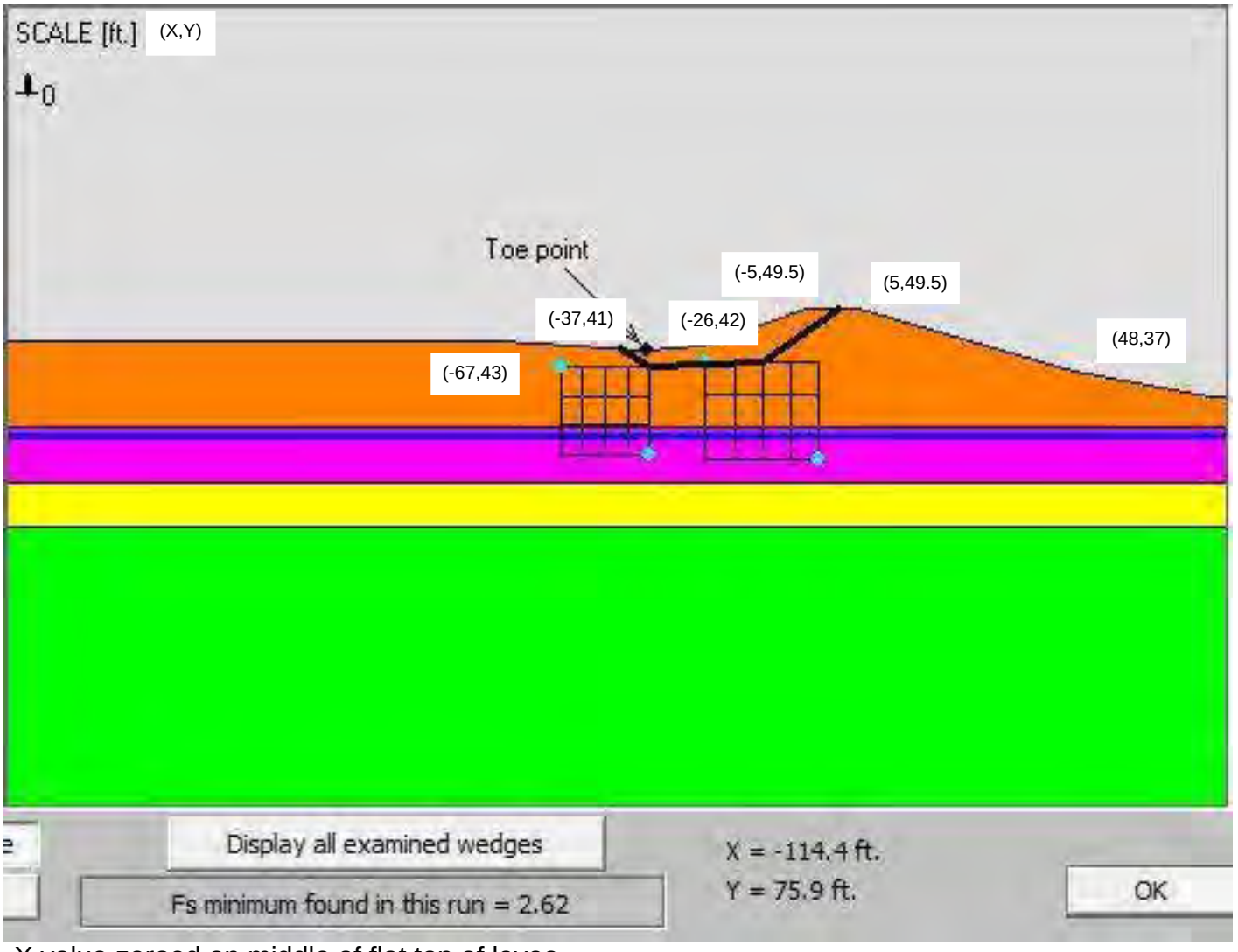

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2v - AR3 STA. 13+00
Existing Landside

Not to Scale

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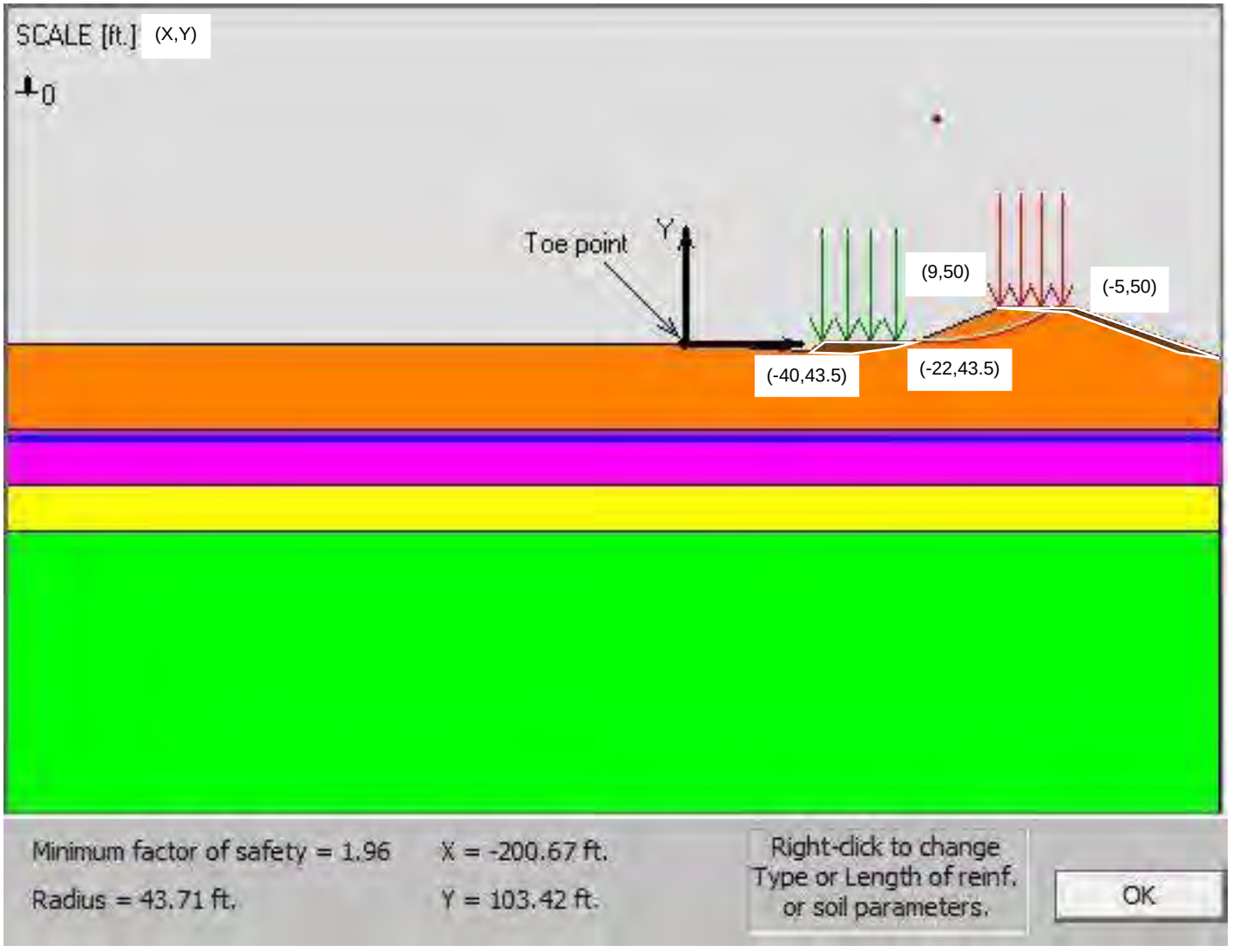

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2w - AR3 STA. 13+00
Post Construction Landside

Not to Scale

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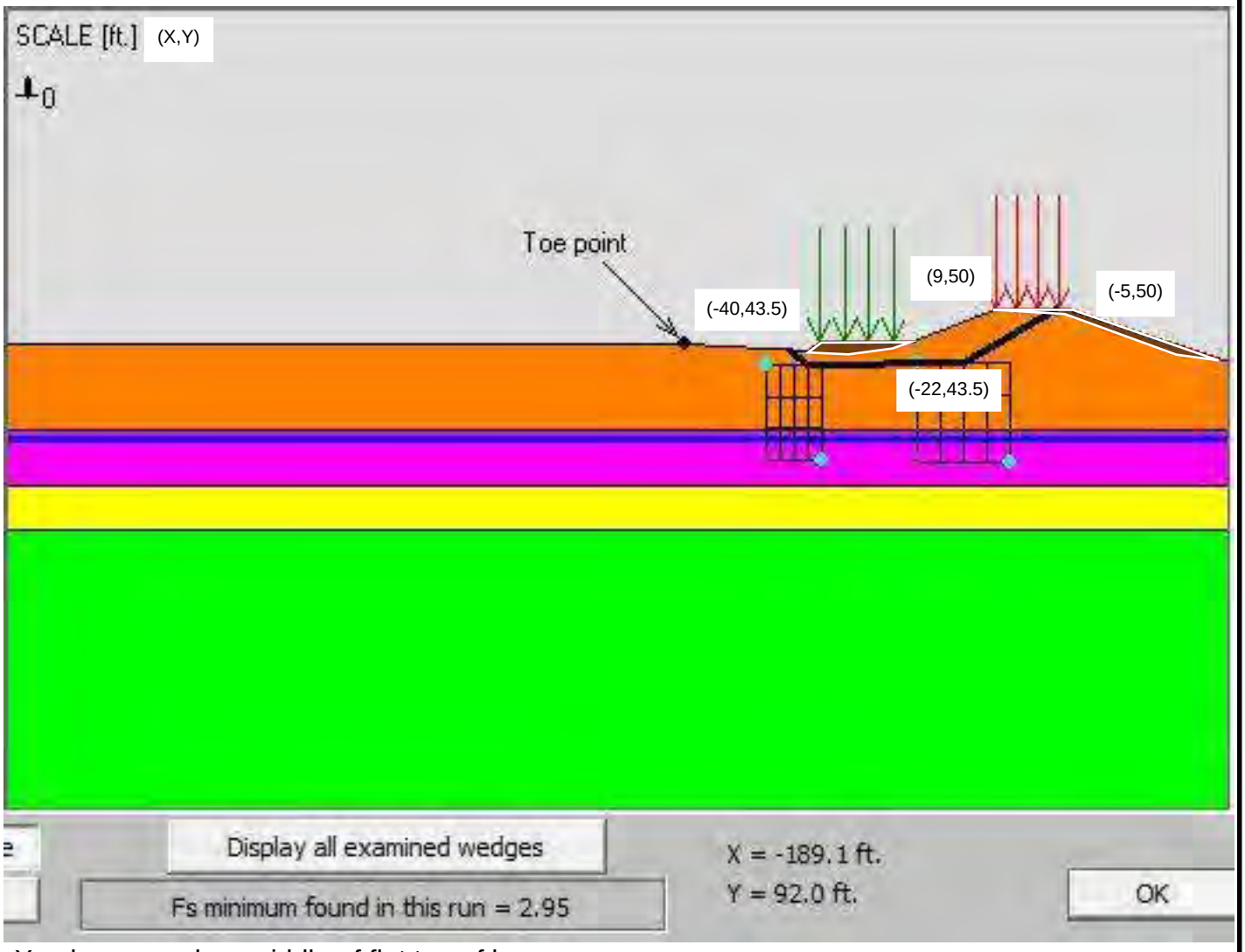

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2x - AR3 STA. 13+00
Post Construction Landside

Not to Scale

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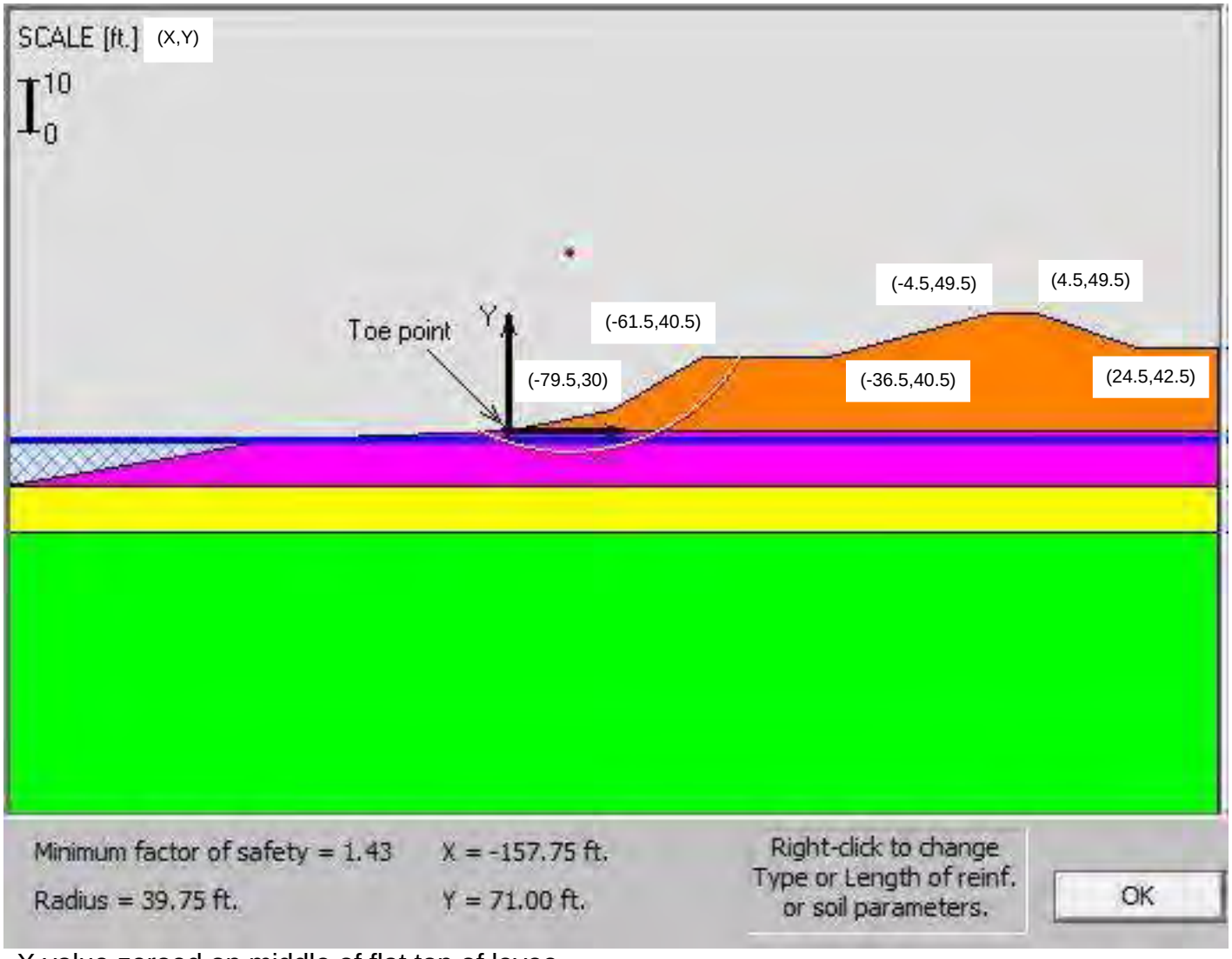

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2y - AR3 STA. 13+50
Existing Riverside

Not to Scale

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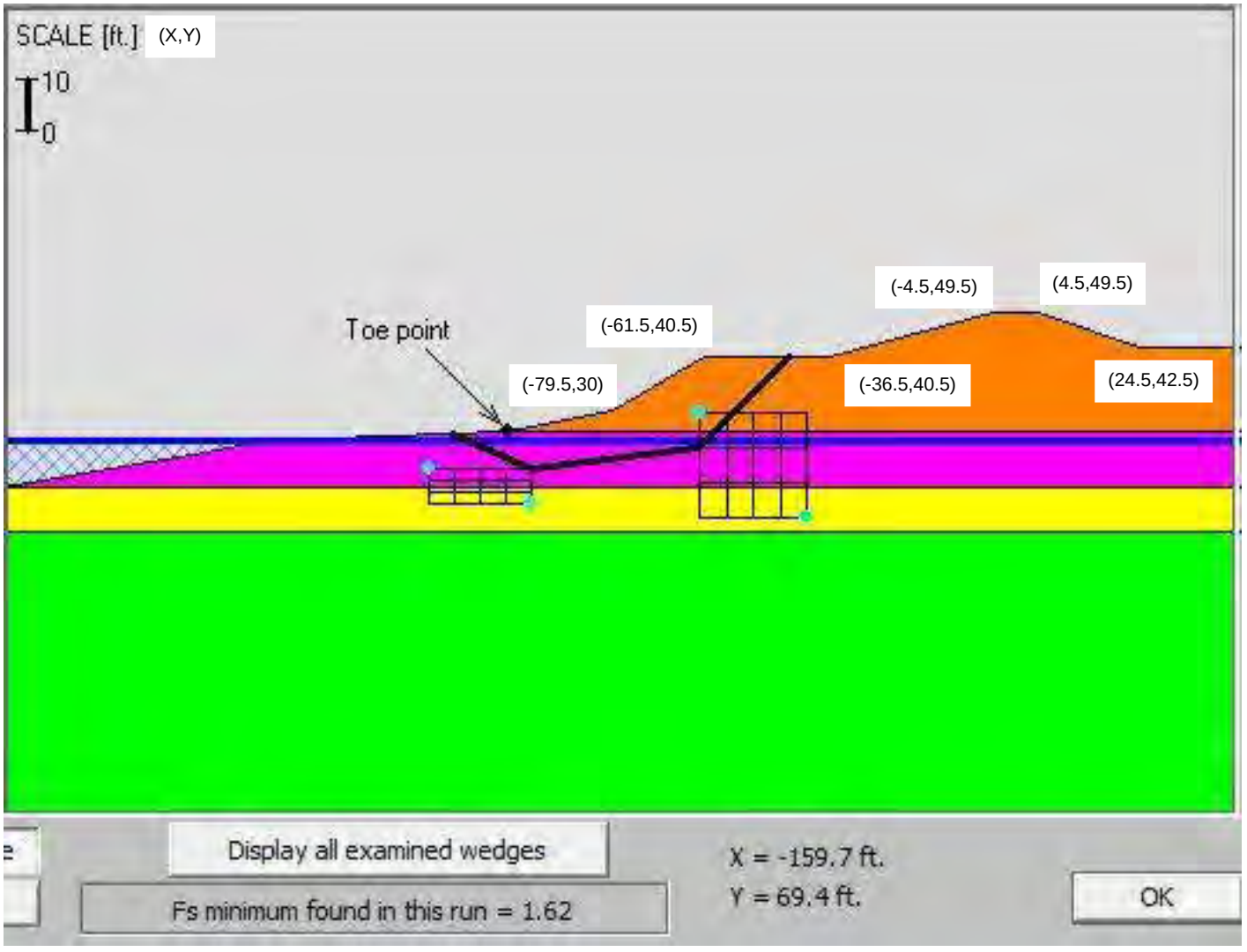

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2z - AR3 STA. 13+50
Existing Riverside

Not to Scale

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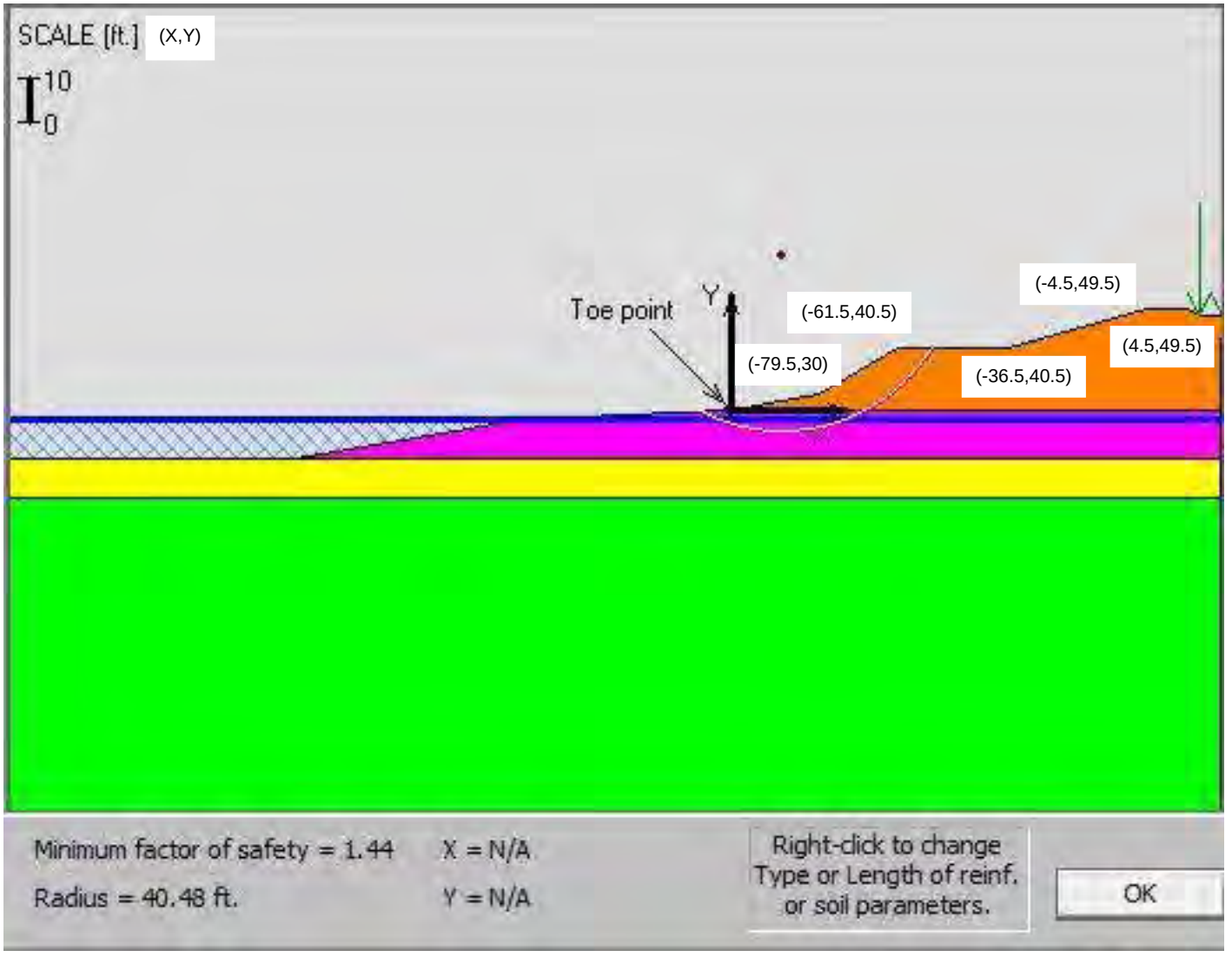

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2aa - AR3 STA. 13+50
Post Construction Riverside

Not to Scale

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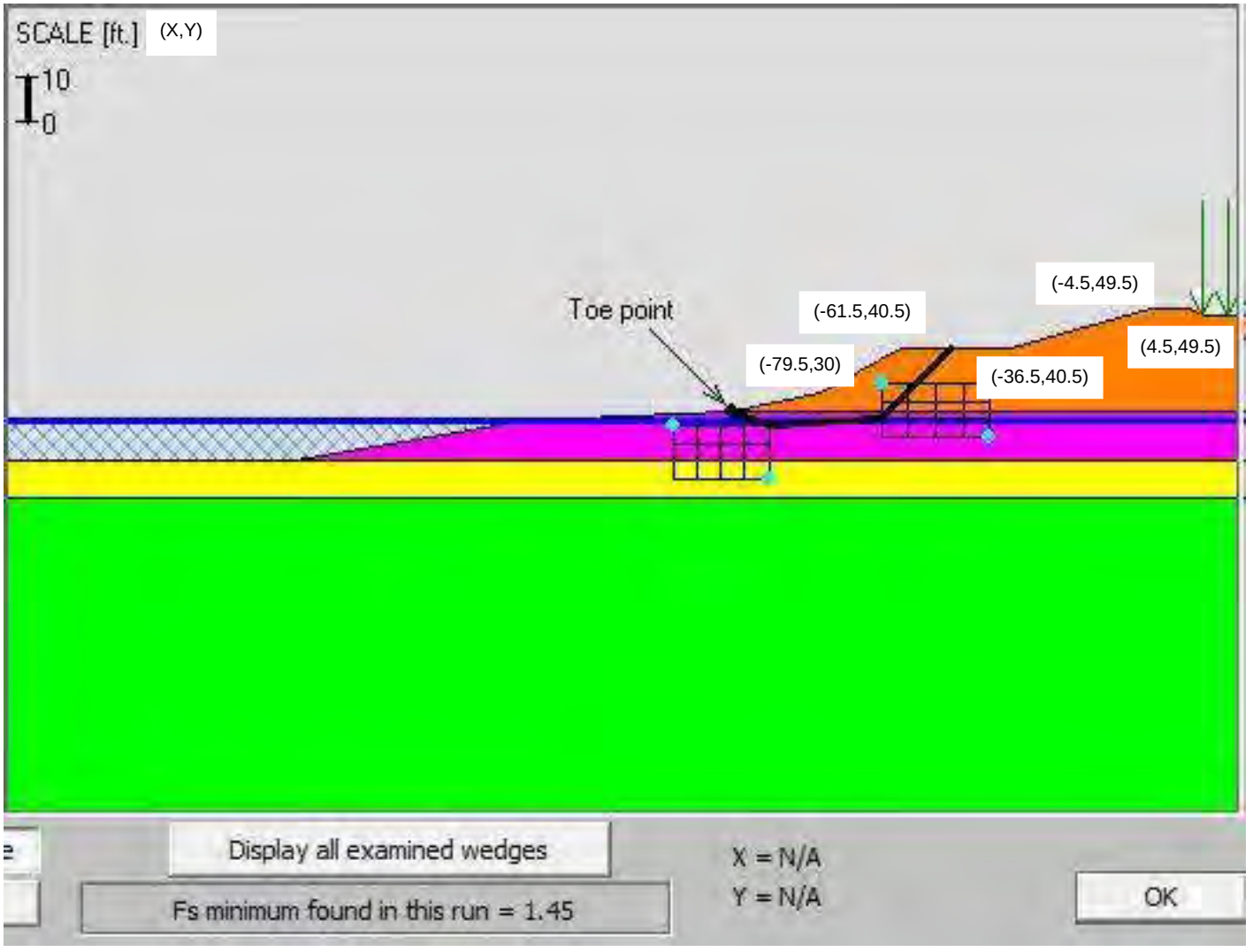

X value zeroed on middle of flat top of levee

Figure 2ab - AR3 STA. 13+50
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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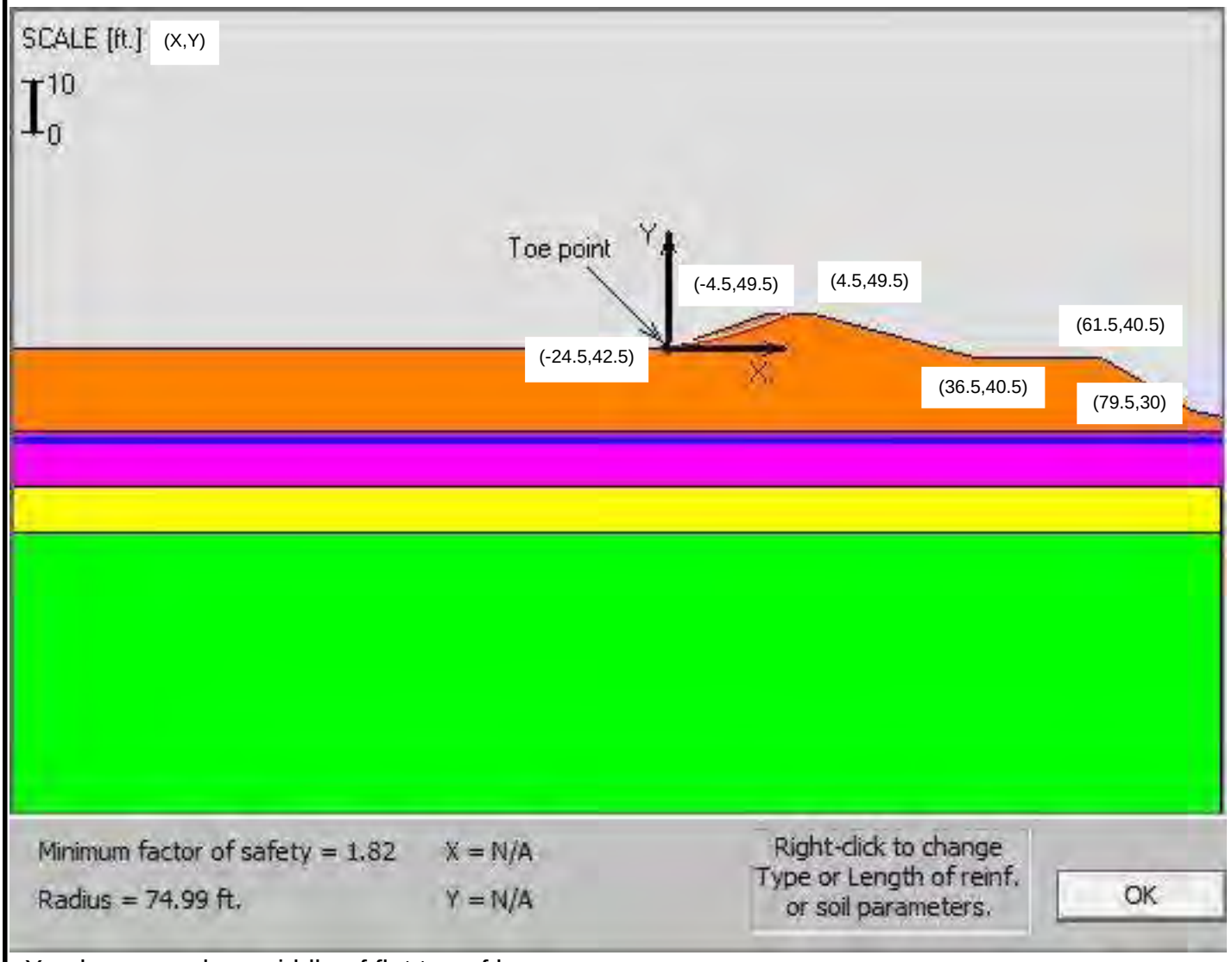

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2ac - AR3 STA. 13+50 Existing Landside

Not to Scale

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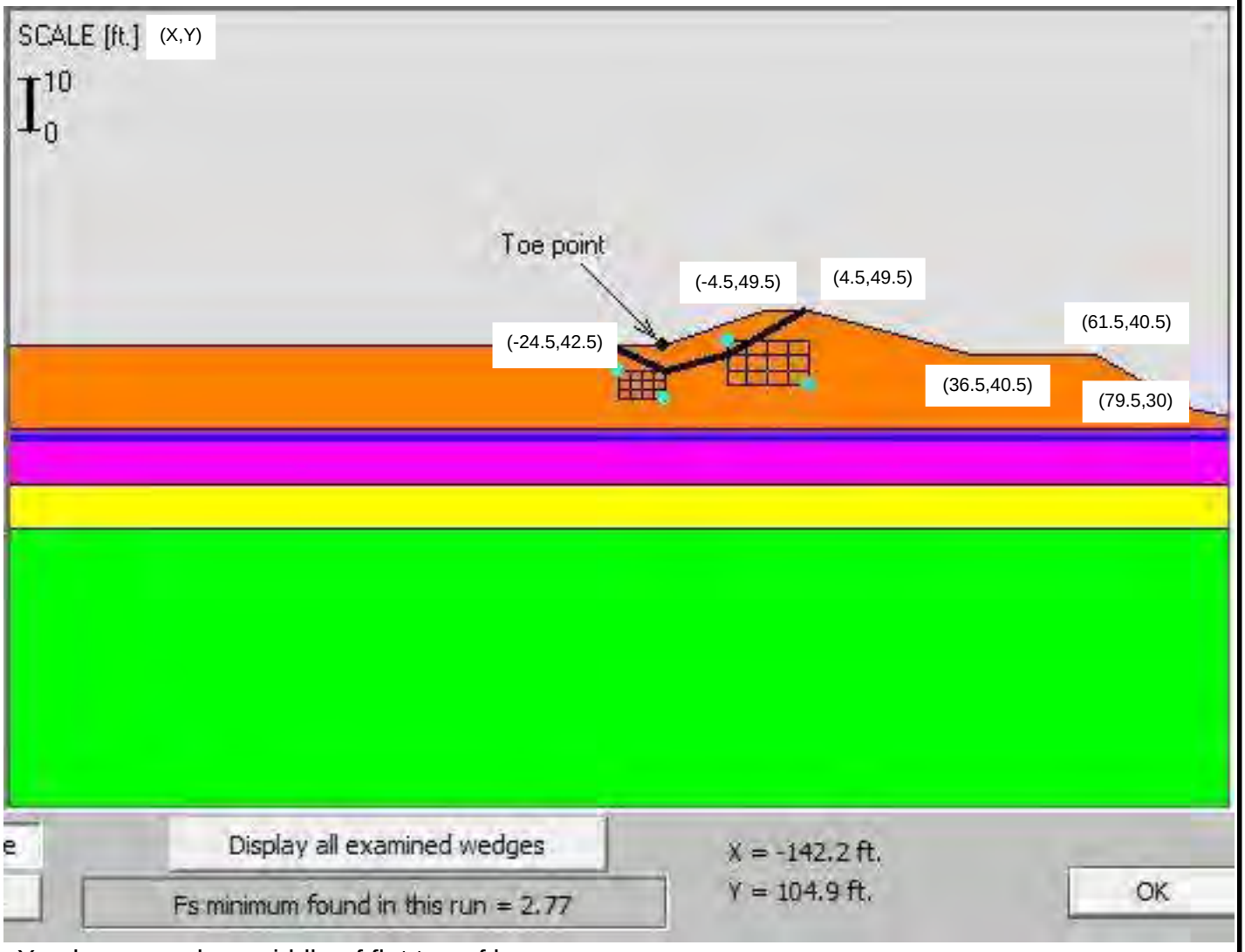

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2ad - AR3 STA. 13+50
Existing Landside

Not to Scale

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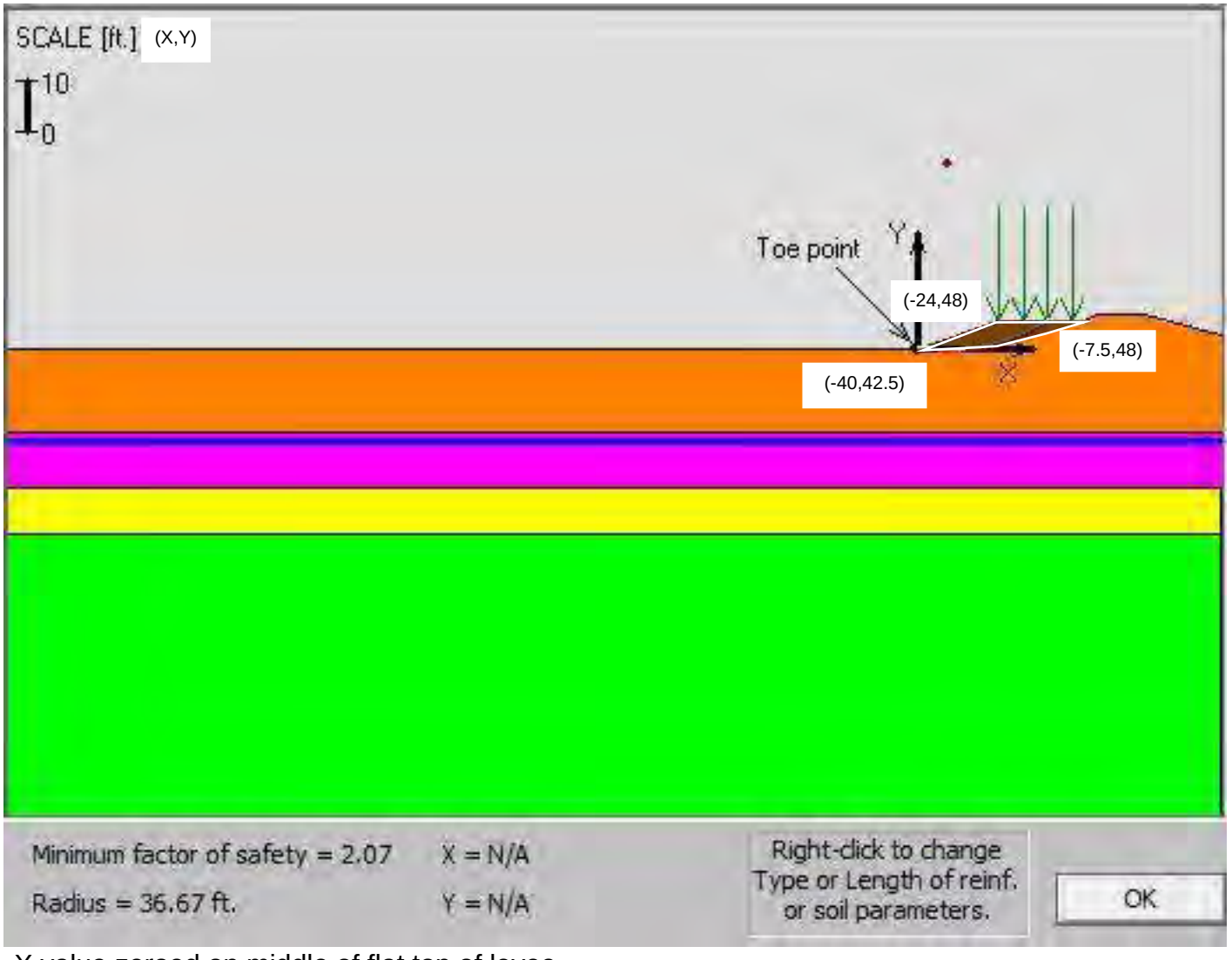

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2ae - AR3 STA. 13+50
Post Construction Landside

Not to Scale

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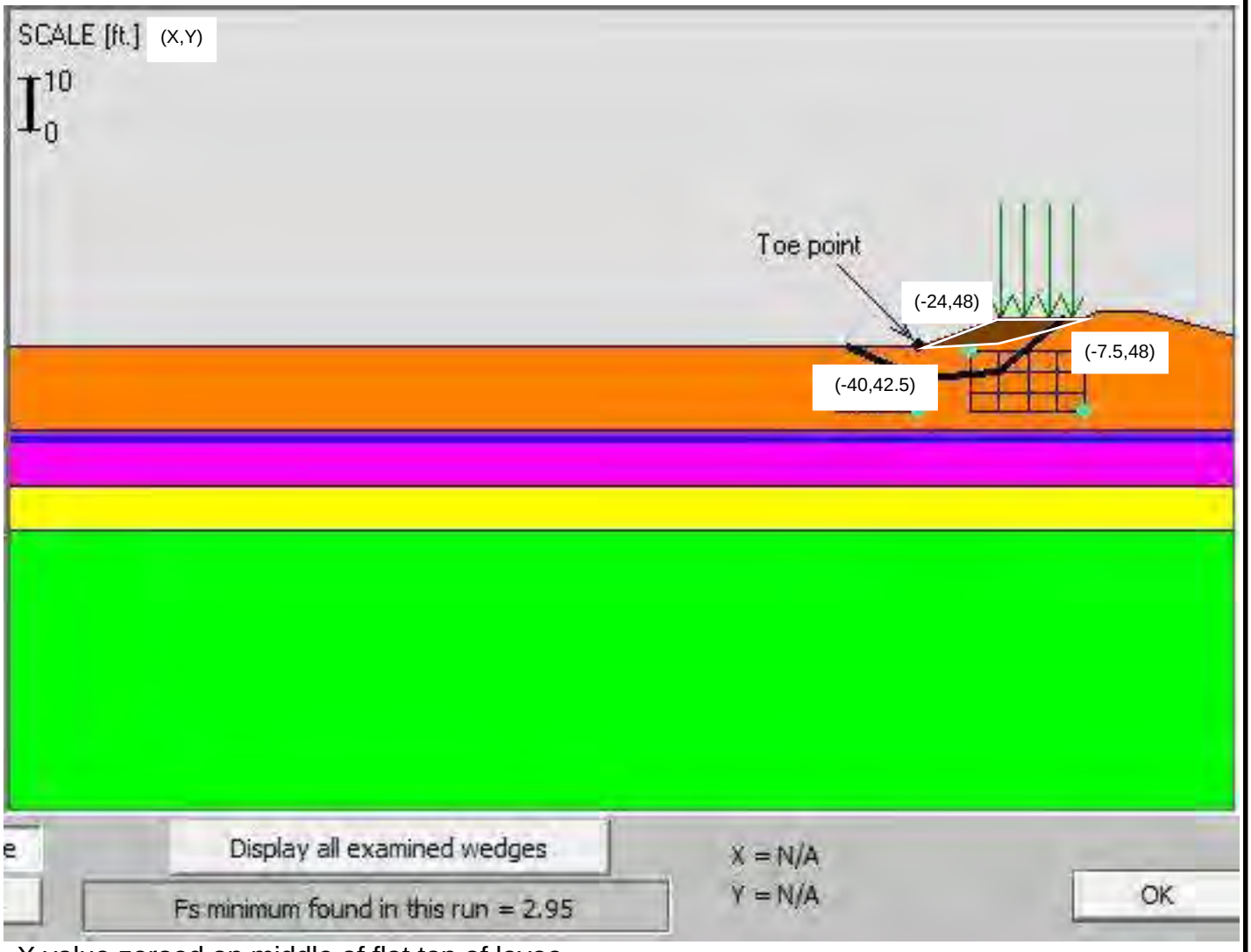

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2af - AR3 STA. 13+50
Post Construction Landside

Not to Scale

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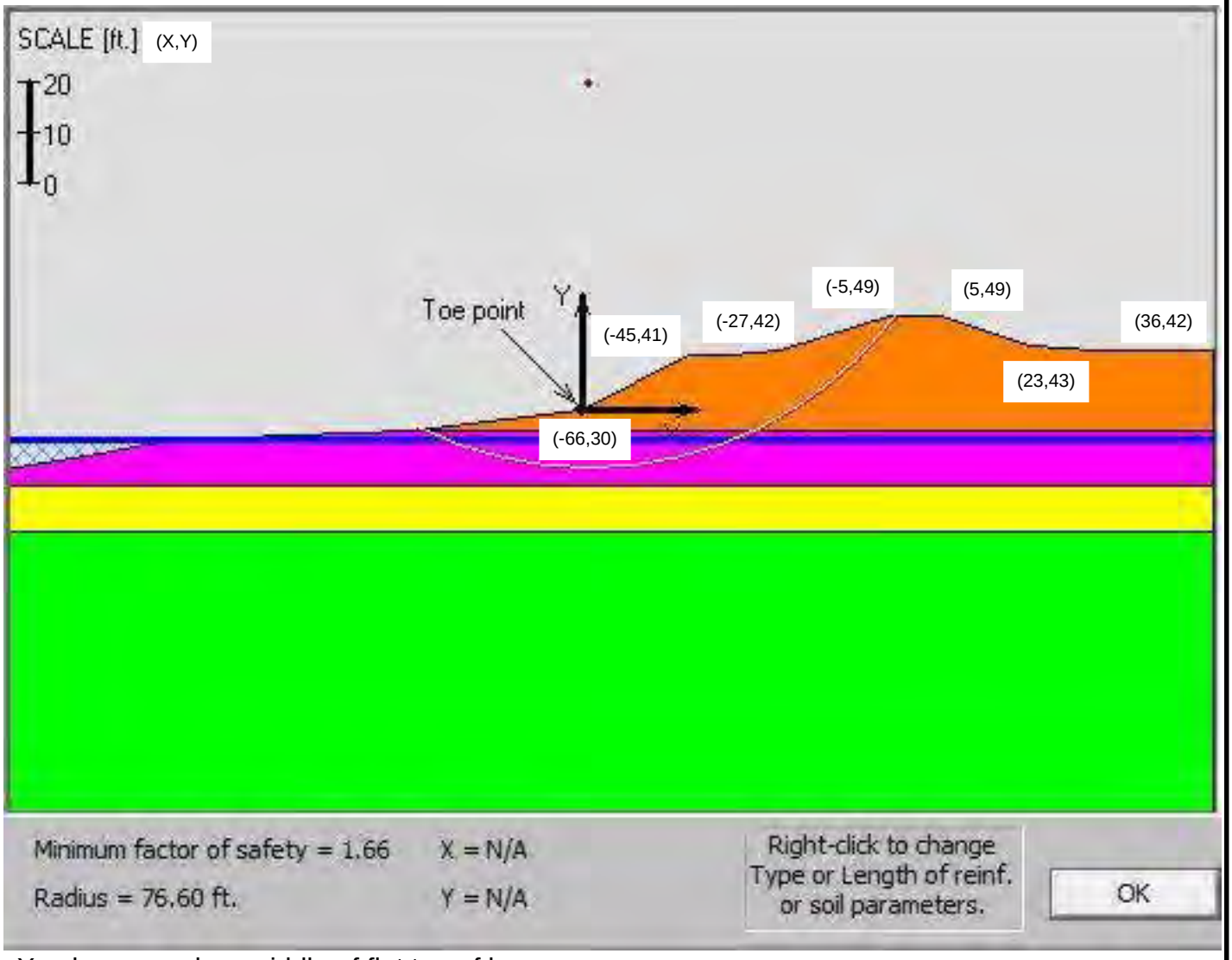

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2ag - AR3 STA. 14+00
Existing Riverside

Not to Scale

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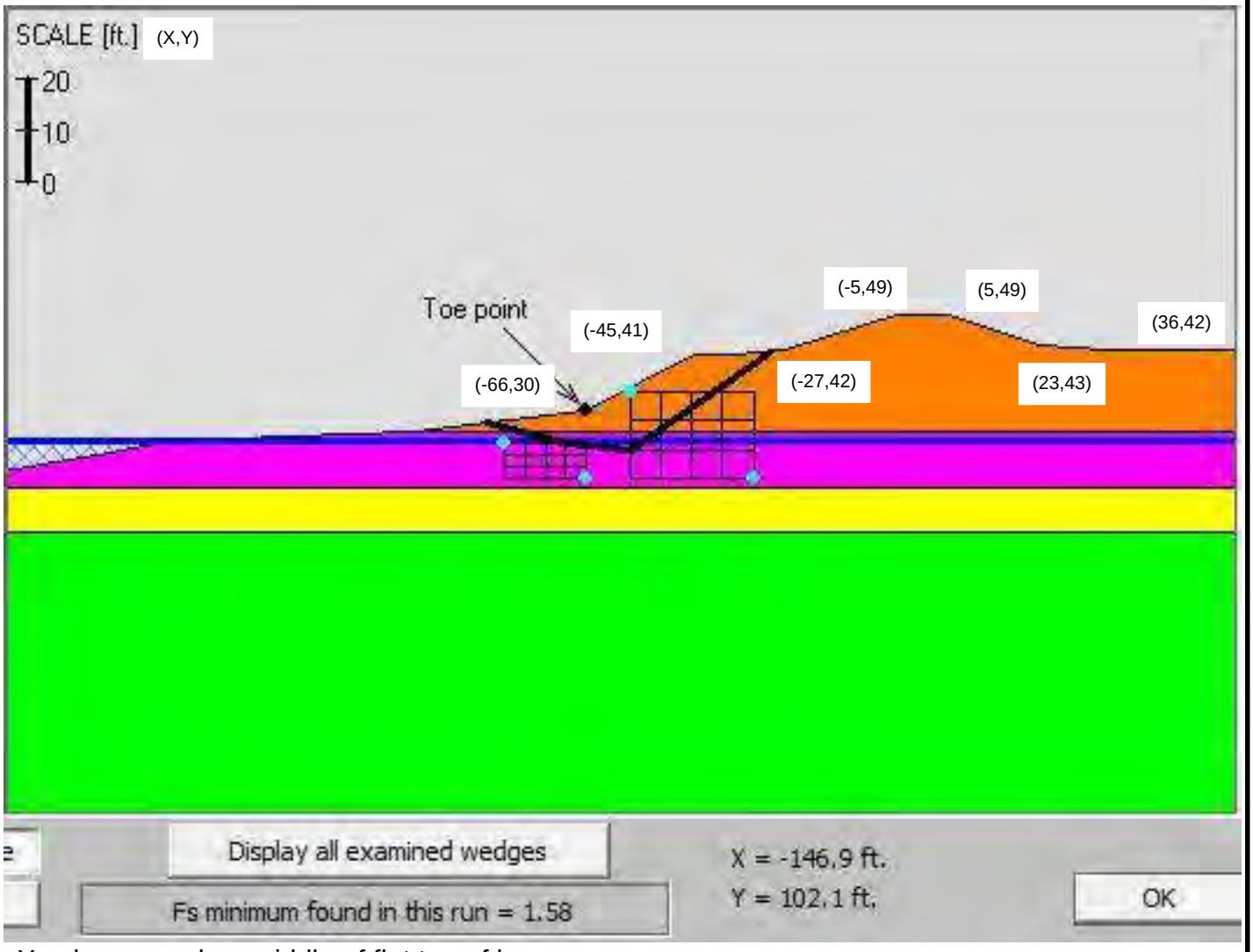

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2ah - AR3 STA. 14+00
Existing Riverside

Not to Scale

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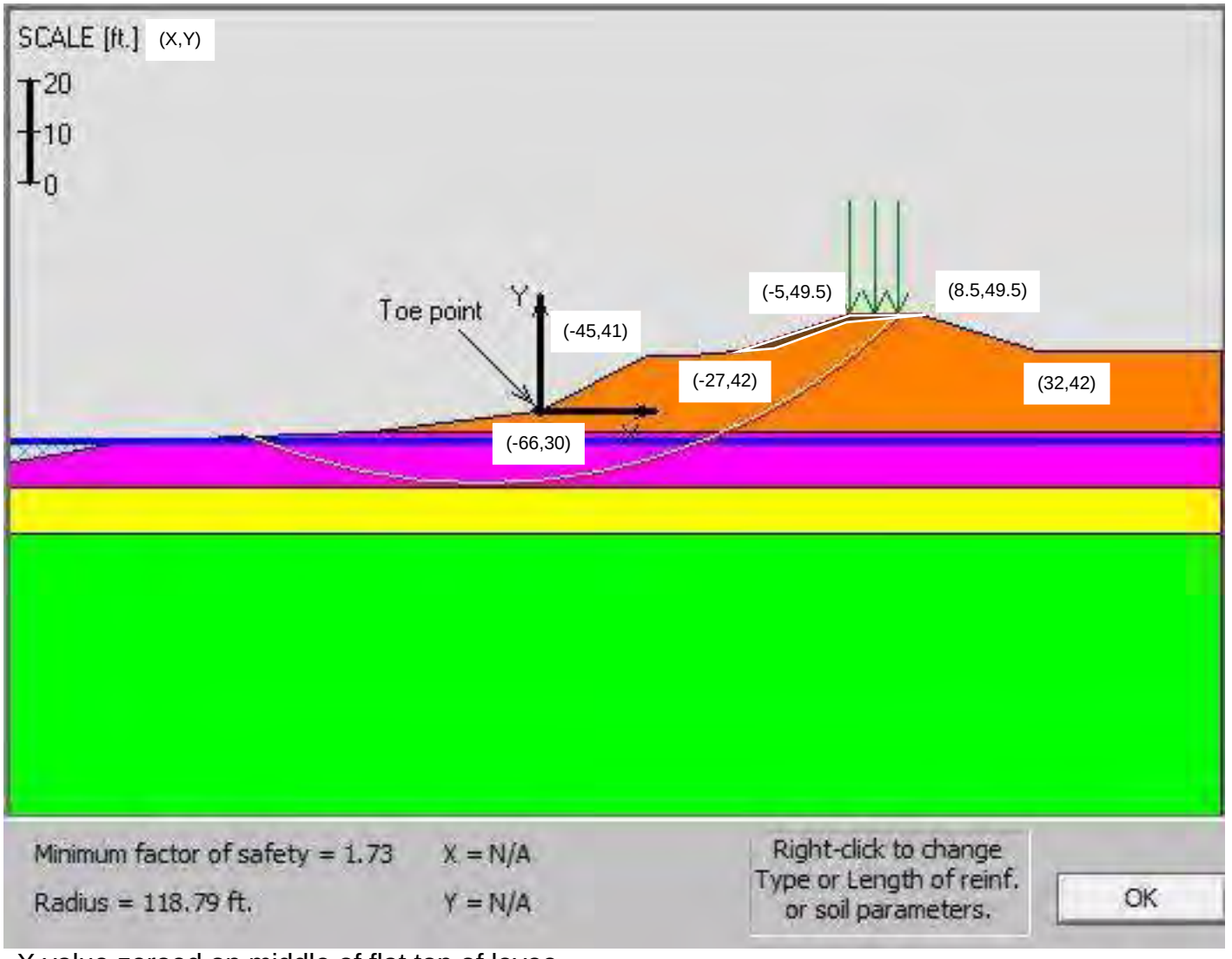

X value zeroed on middle of flat top of levee

Figure 2ai - AR3 STA. 14+00
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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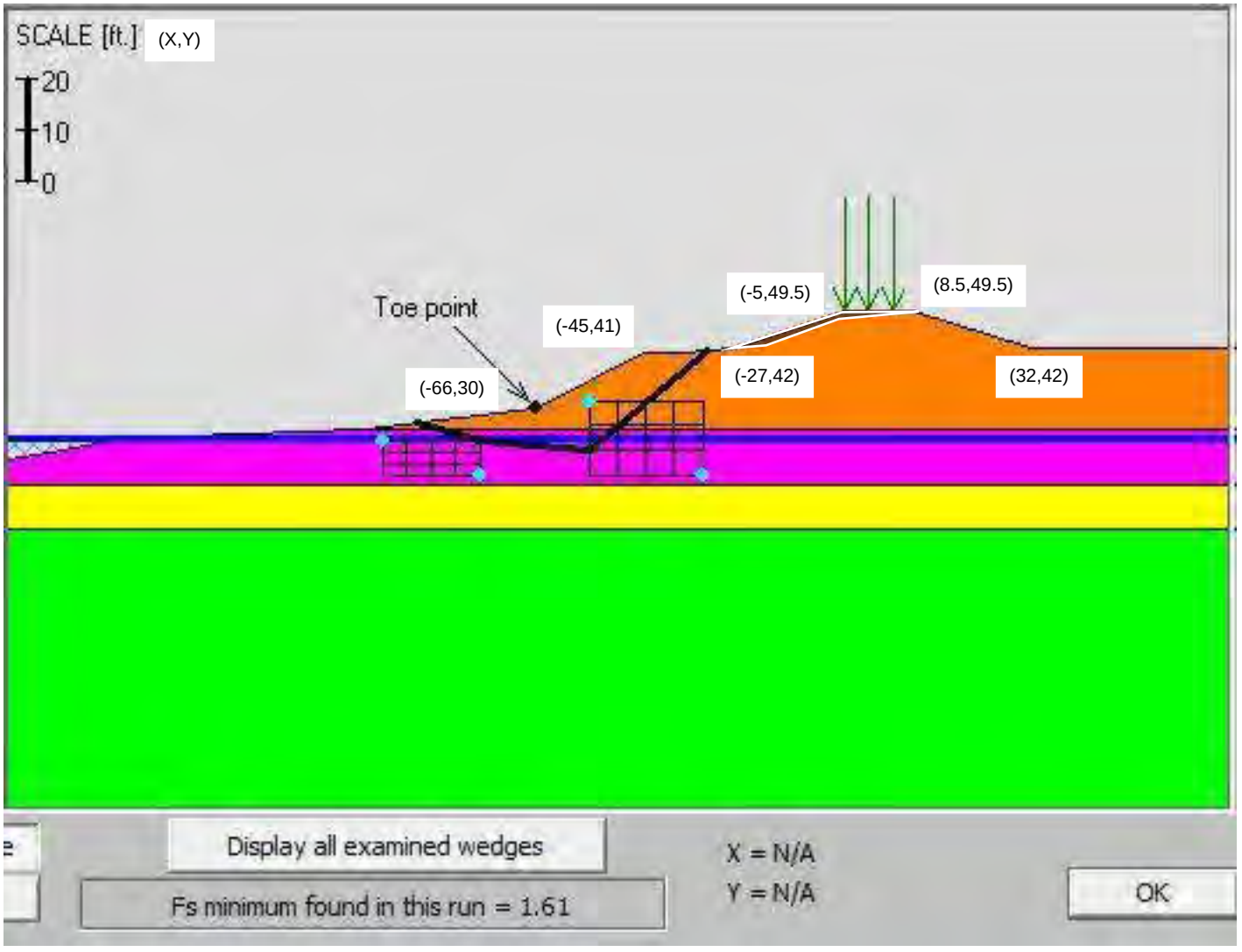

X value zeroed on middle of flat top of levee

Figure 2aj - AR3 STA. 14+00
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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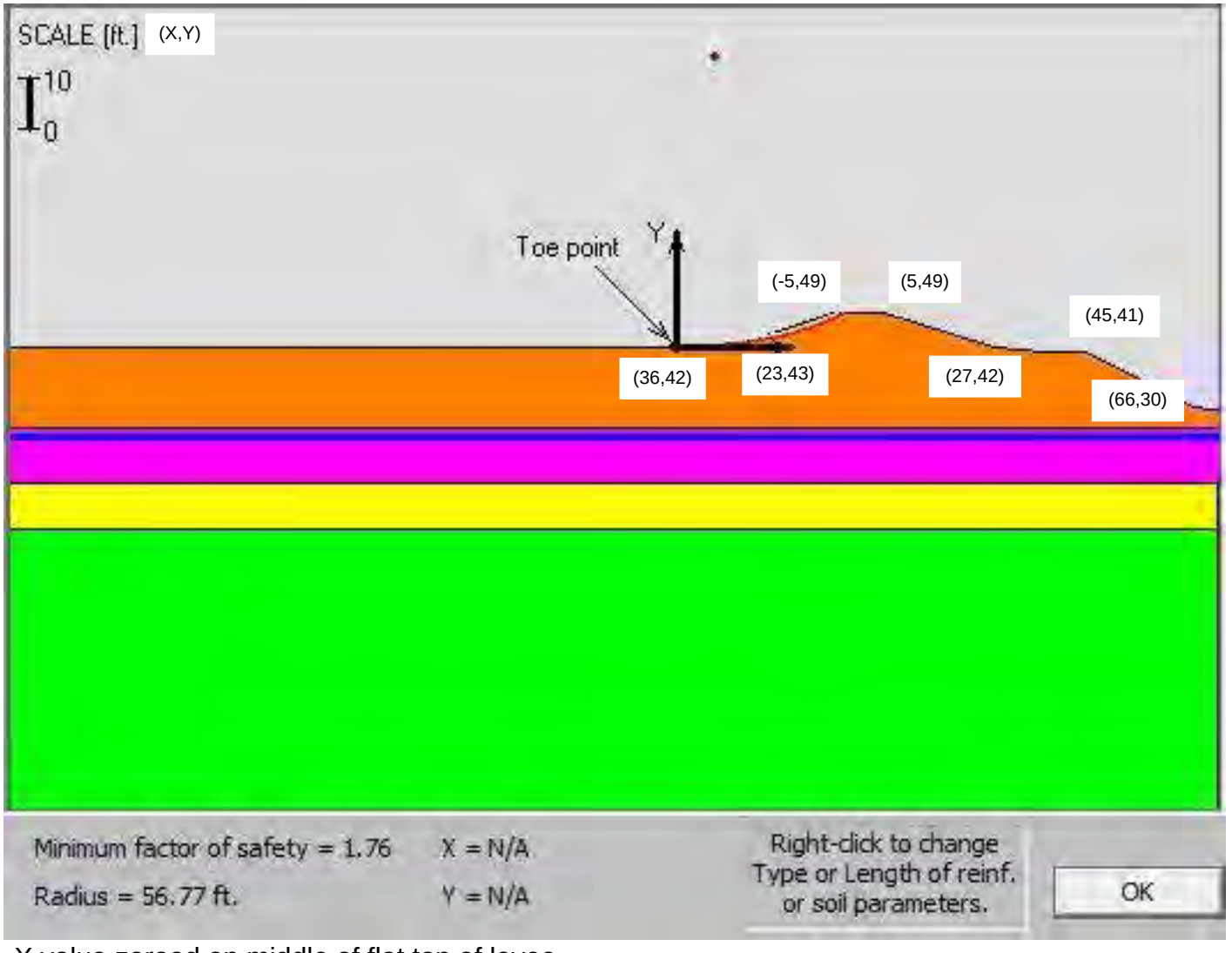

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2ak - AR3 STA. 14+00
Existing Landside

Not to Scale

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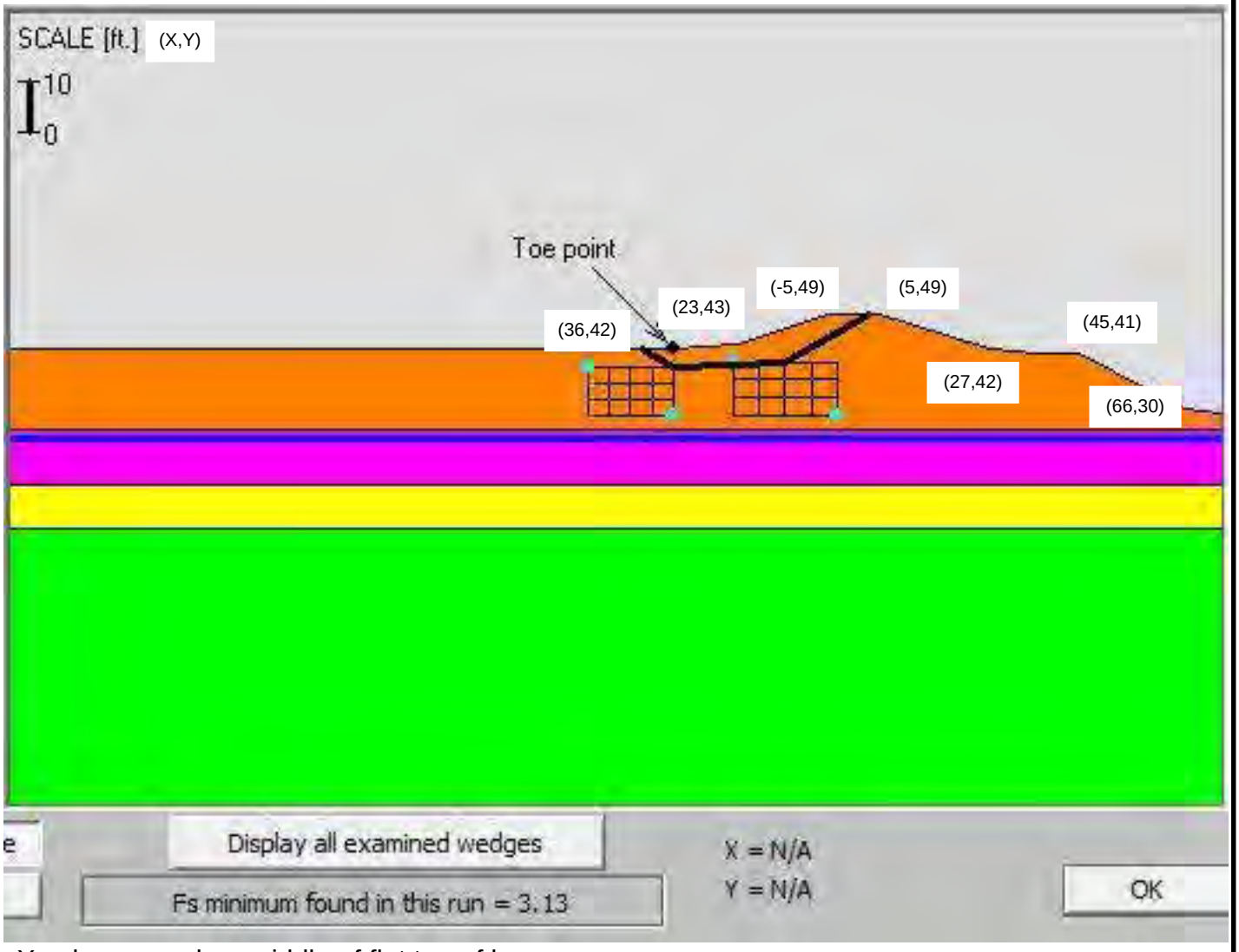

X value zeroed on middle of flat top of levee

Figure 2al - AR3 STA. 14+00
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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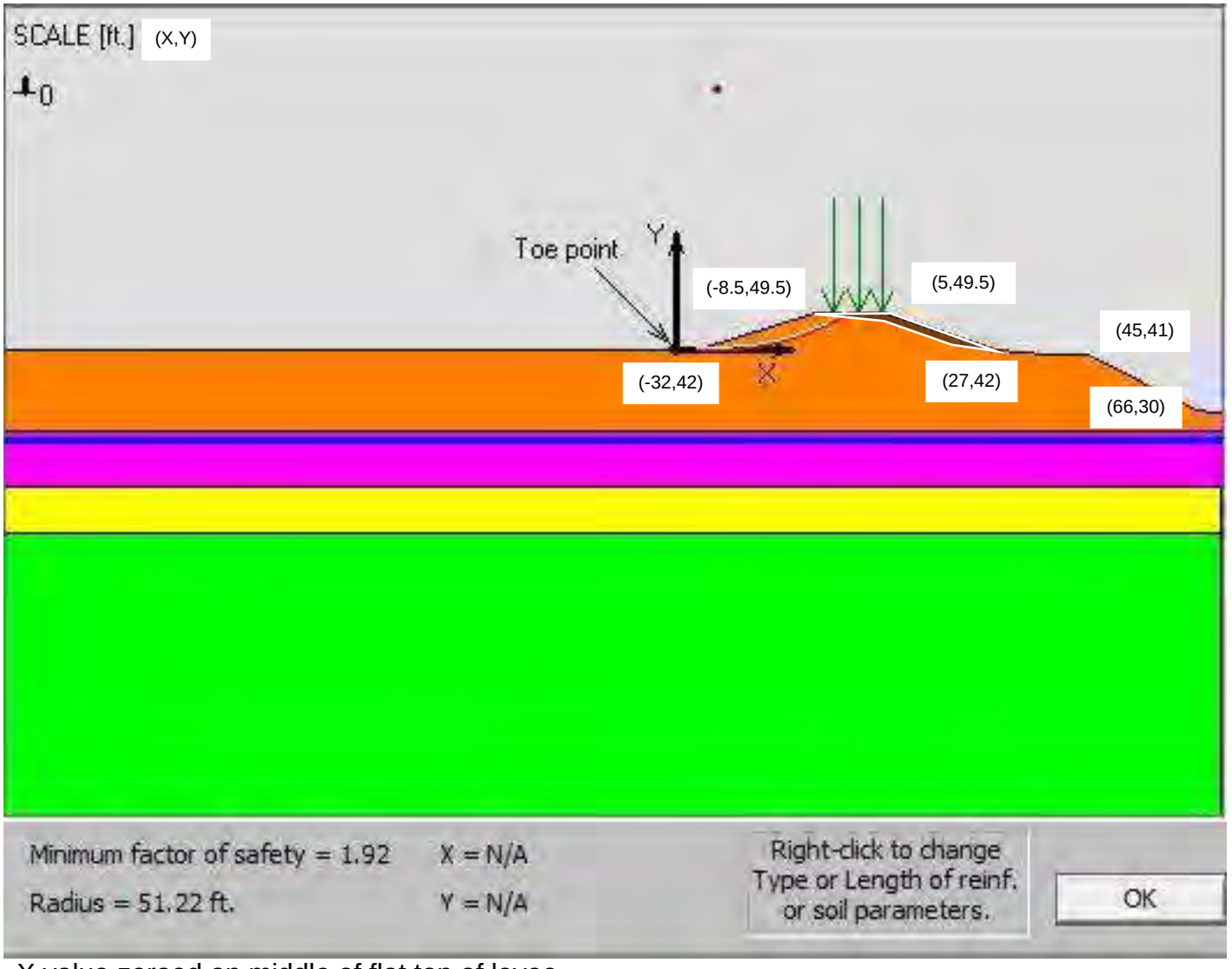

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2am - AR3 STA. 14+00
Post Construction Landside

Not to Scale

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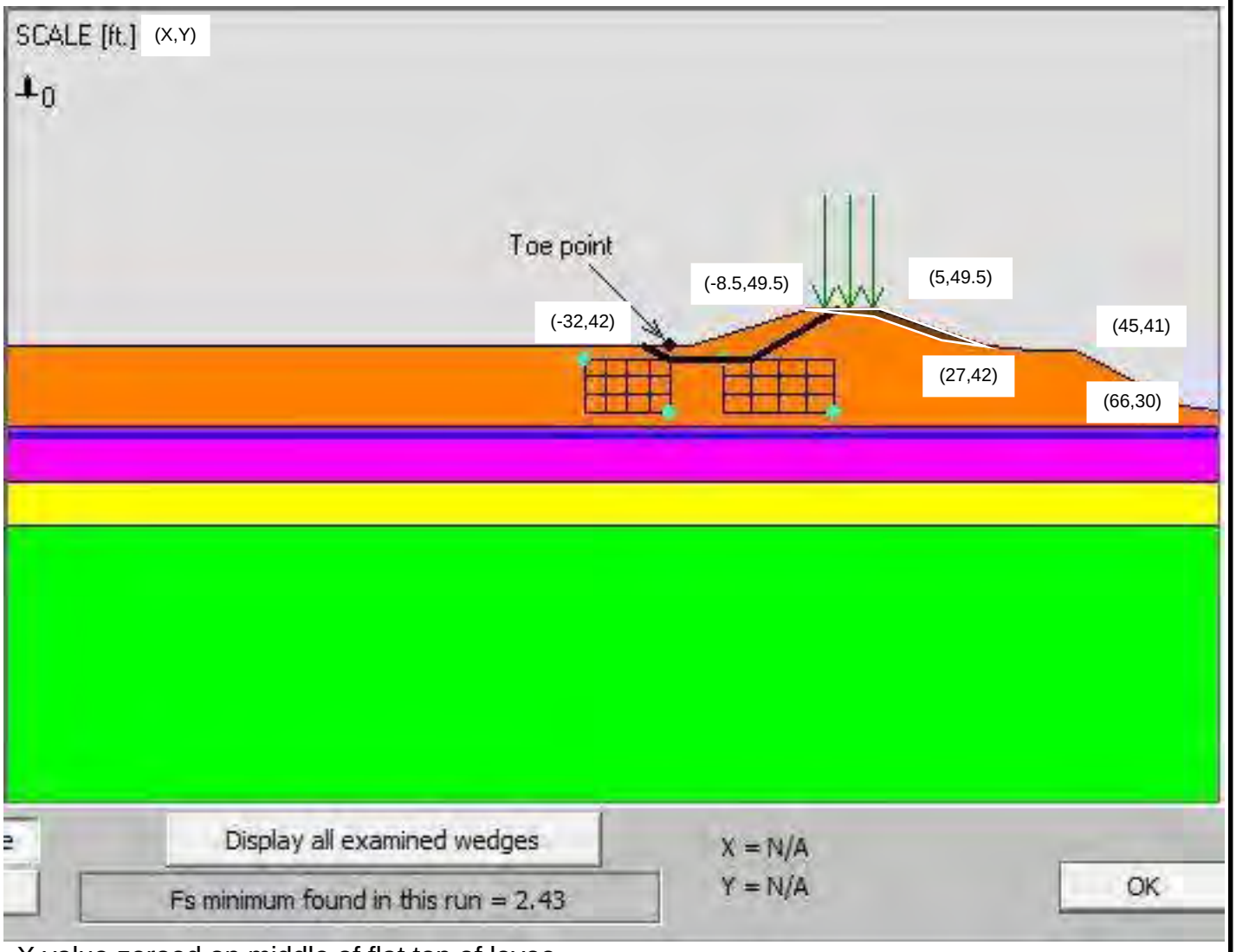

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 2an - AR3 STA. 14+00
Post Construction Landside

Not to Scale

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Project **Princeville Levees**
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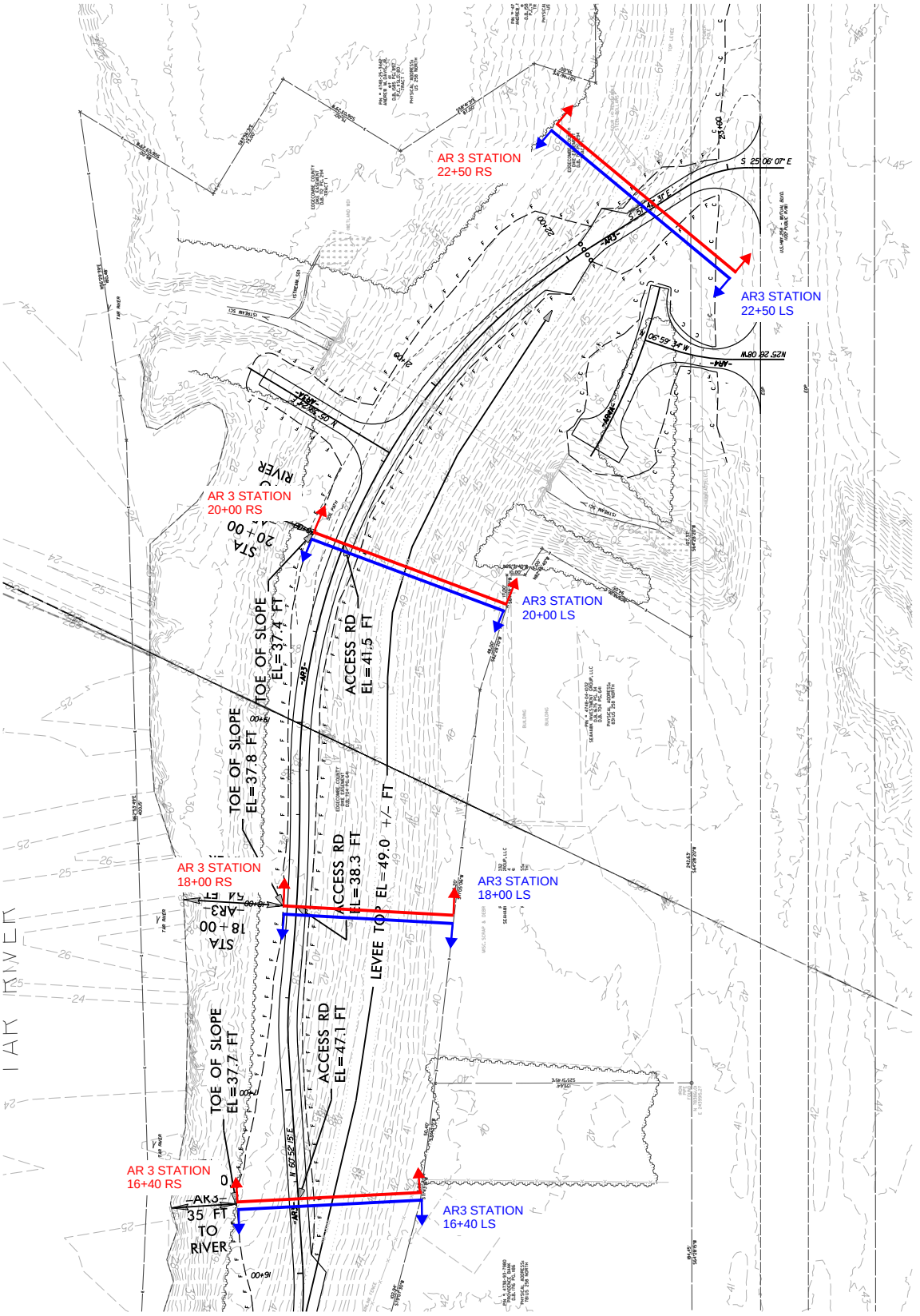
Our Project Number 121-21-106310



Not to Scale

Figure 3a

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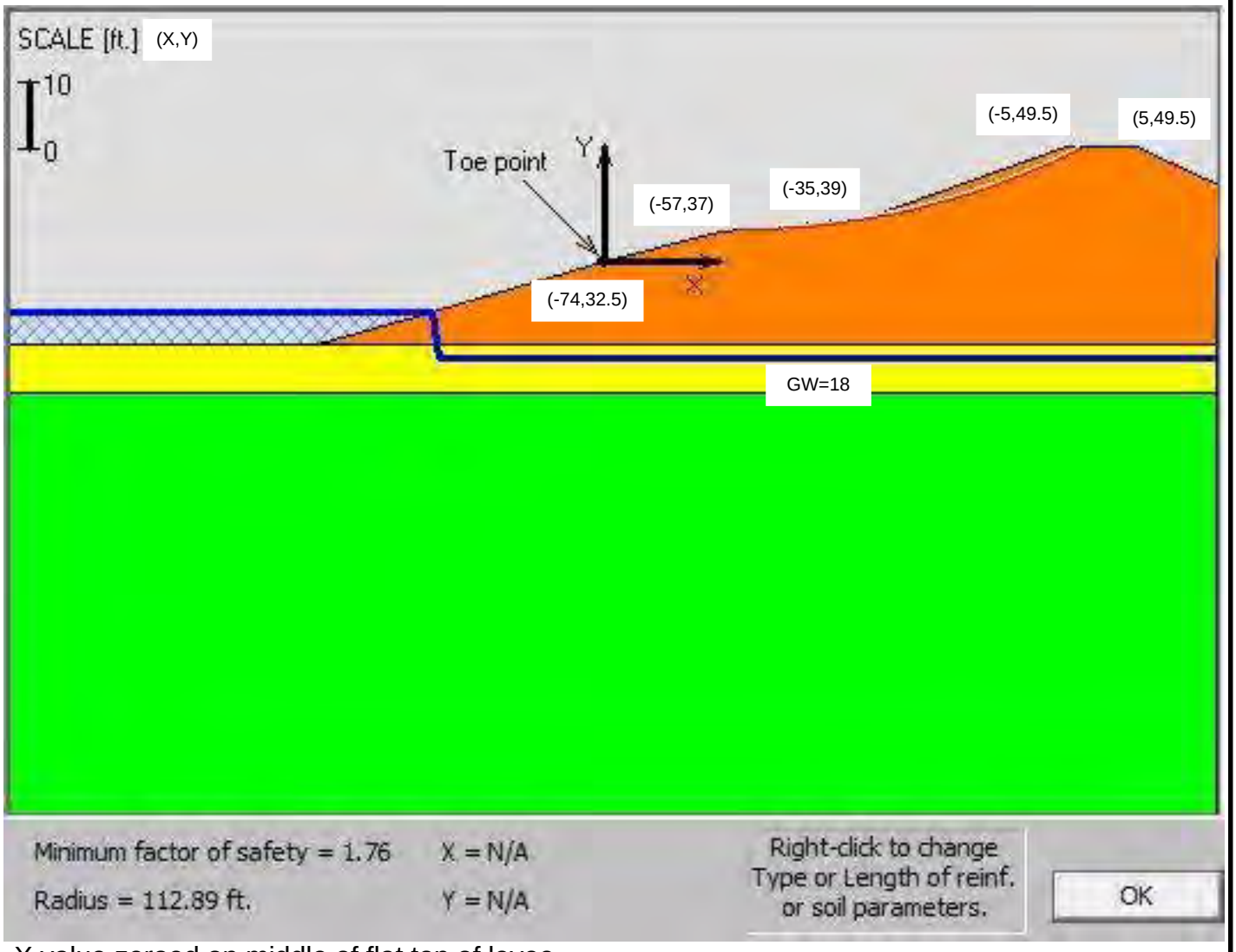
Project **Princeville Levee Roads**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3b - AR3 STA. 16+40
Existing Riverside

Not to Scale

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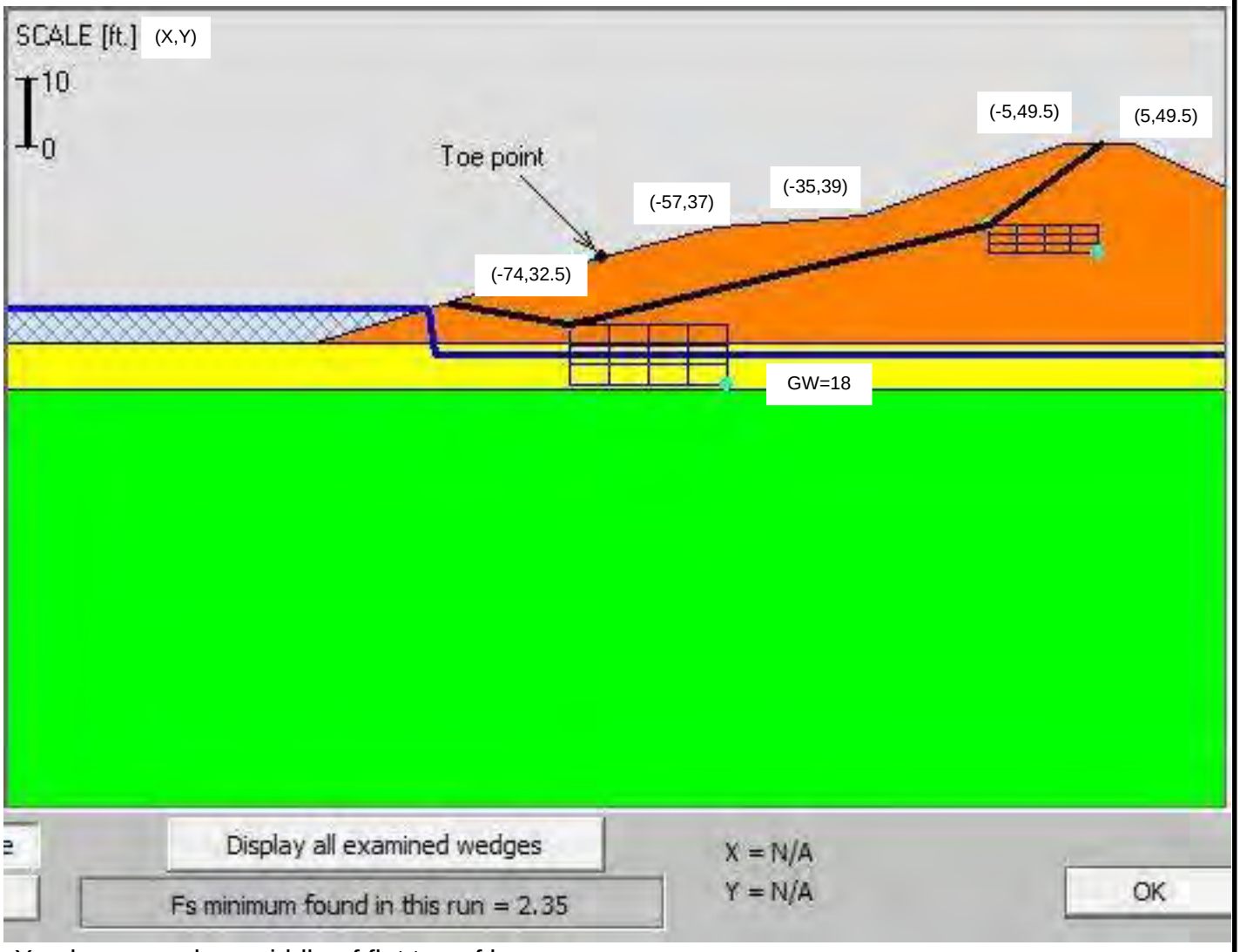
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3c - AR3 STA. 16+40
Existing Riverside

Not to Scale

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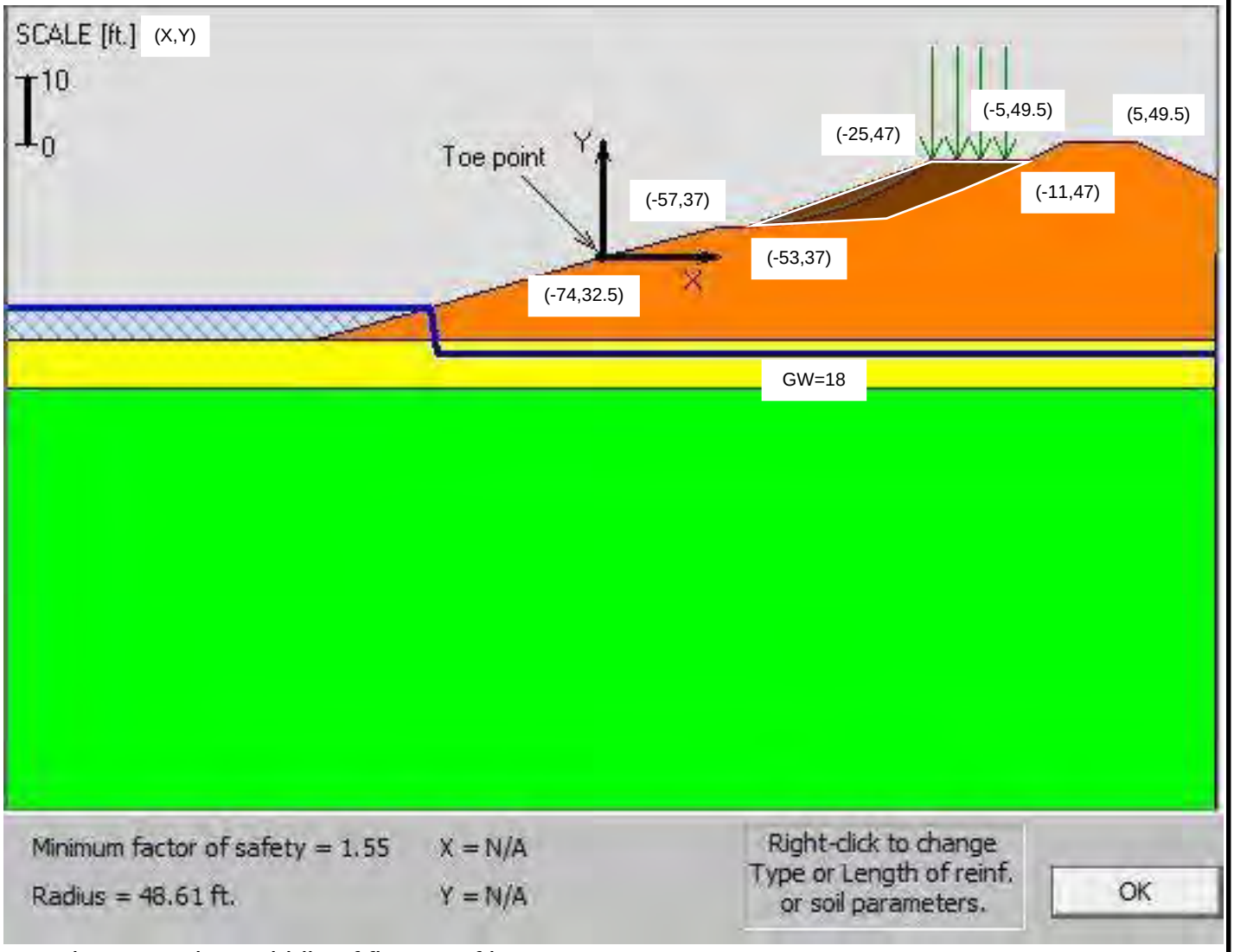
Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3d - AR3 STA. 16+40
Post Construction Riverside

Not to Scale

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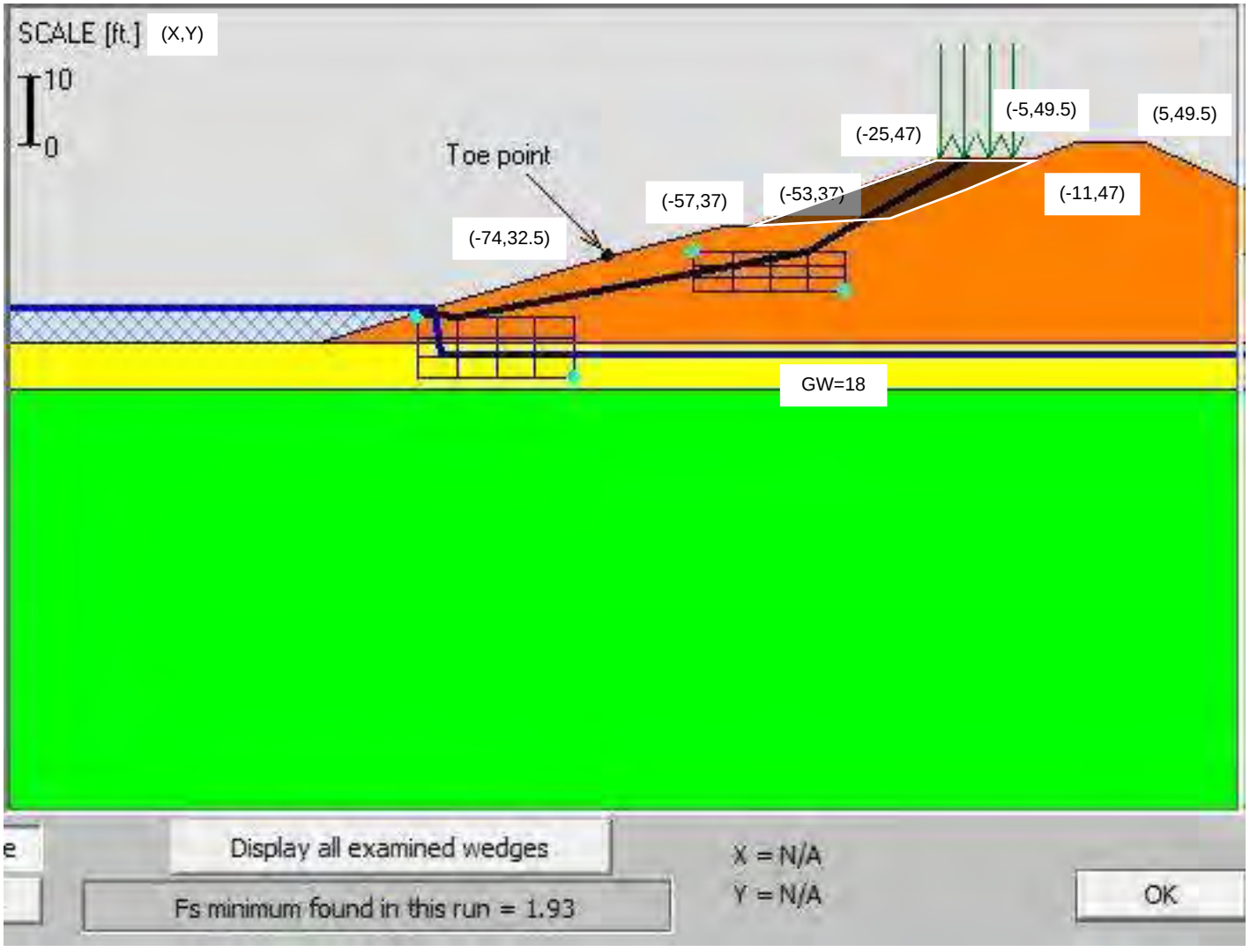
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Figure 3e - AR3 STA. 16+40
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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Princeville, North Carolina
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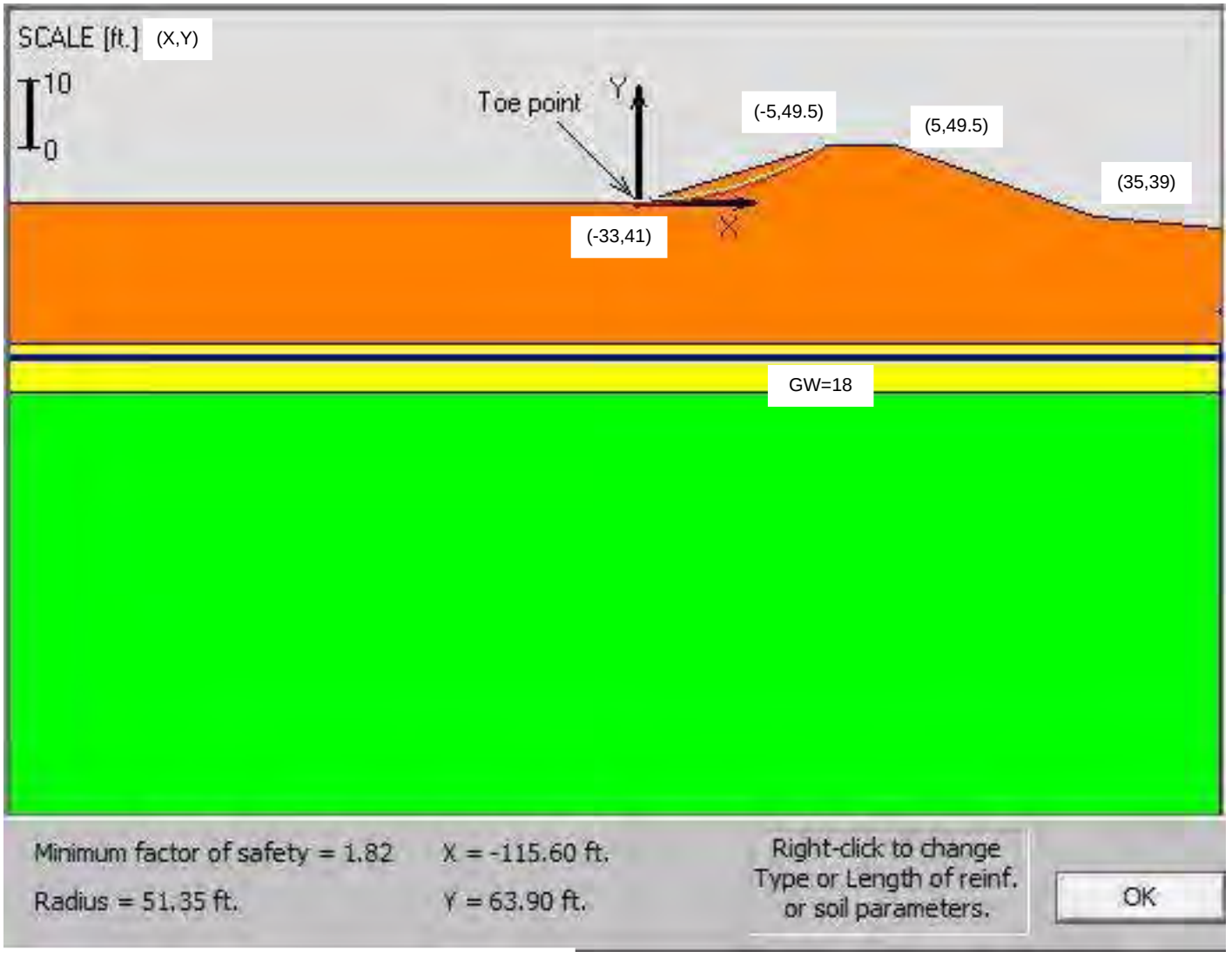

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3f - AR3 STA. 16+40
Existing Landside

Not to Scale

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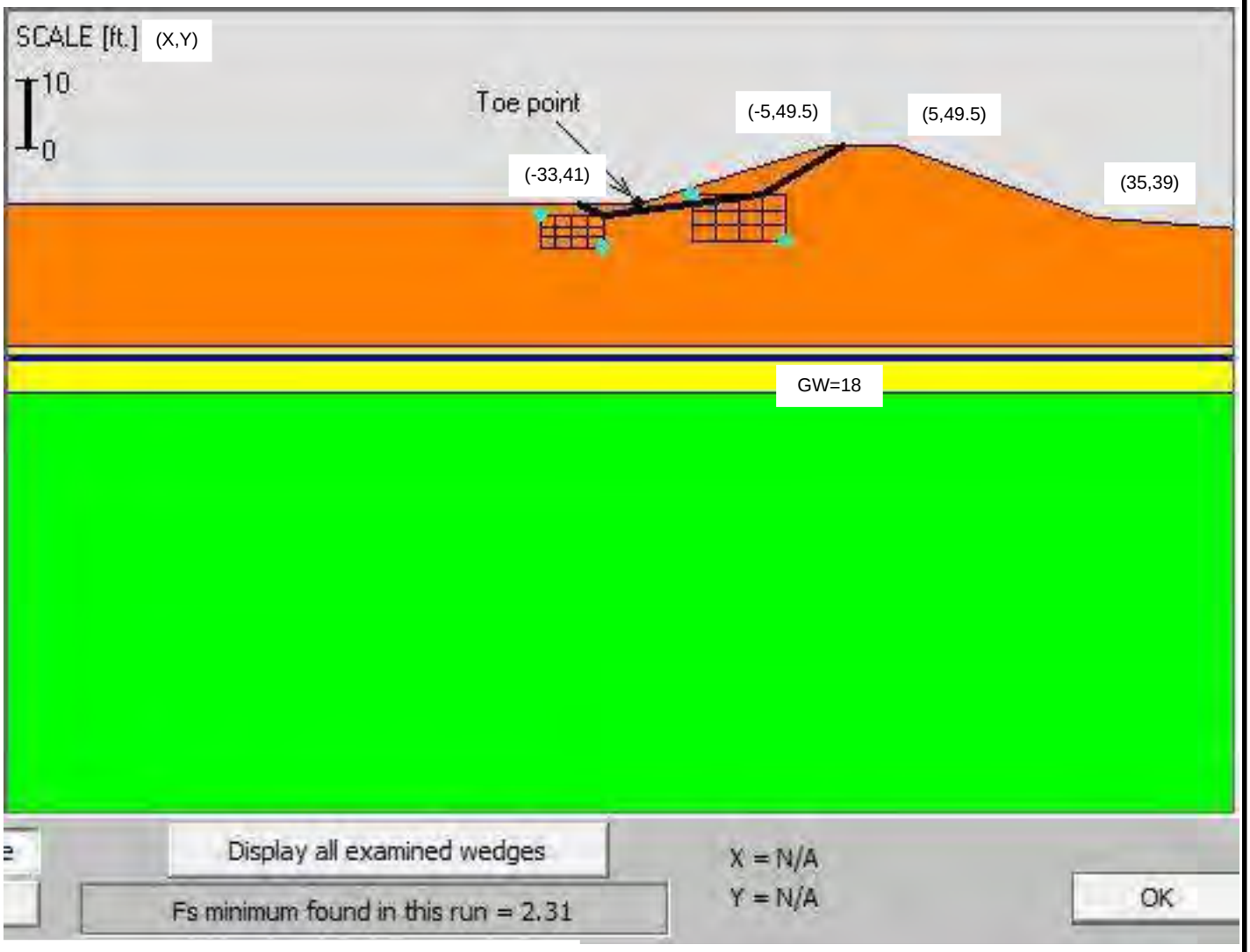

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3g - AR3 STA. 16+40
Existing Landside

Not to Scale

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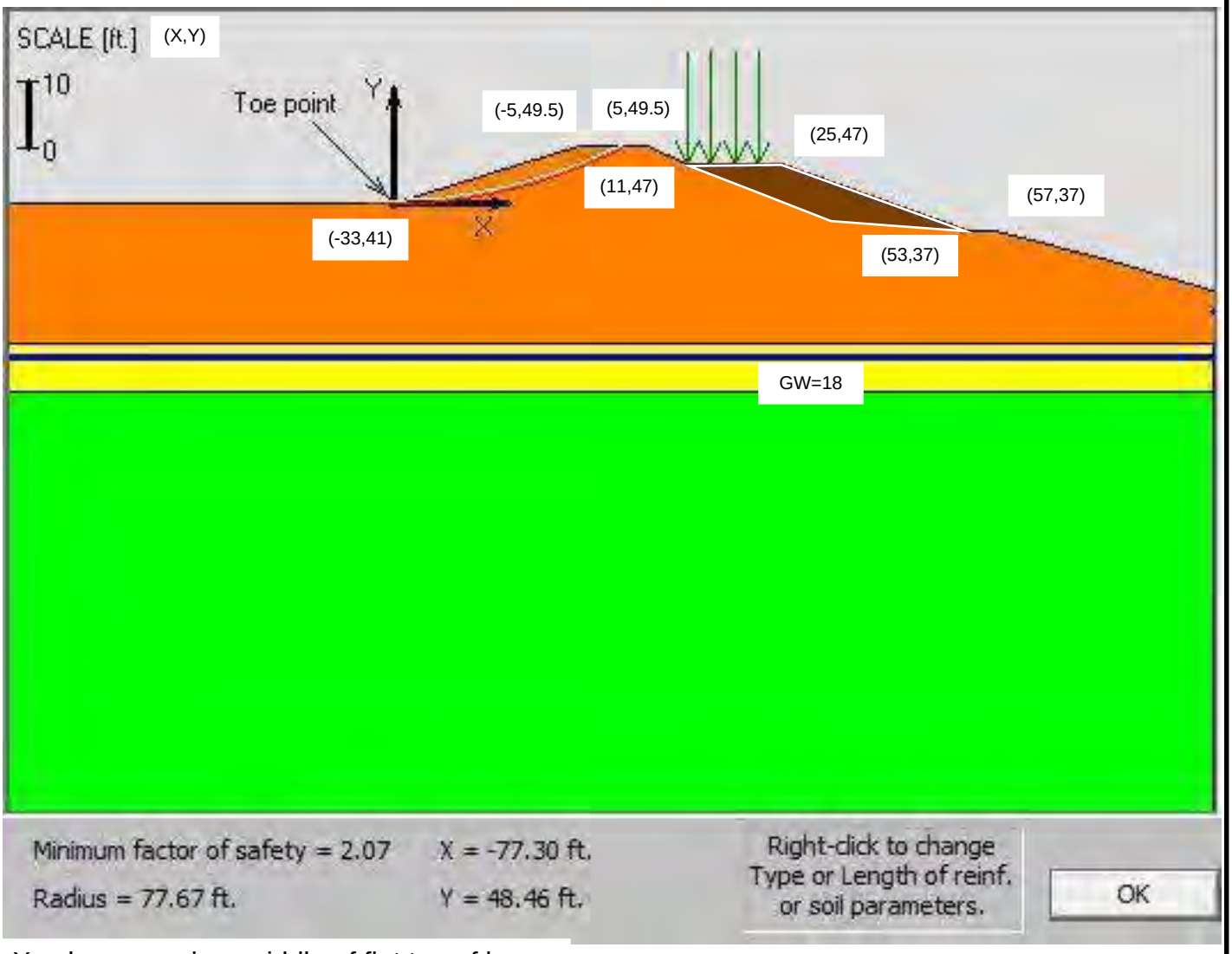

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3h - AR3 STA. 16+40
Post Construction Landside

Not to Scale

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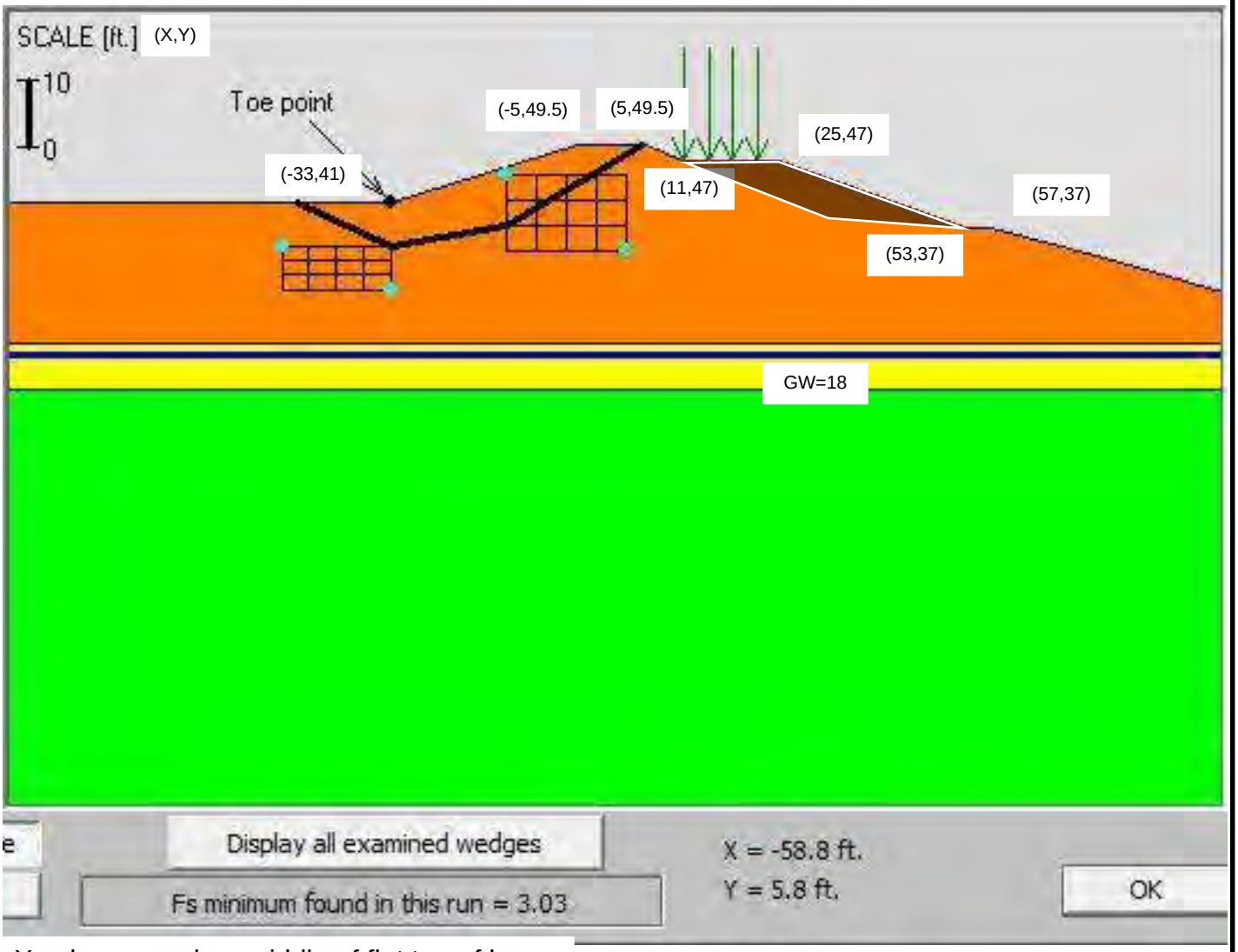

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3i - AR3 STA. 16+40
Post Construction Landside

Not to Scale

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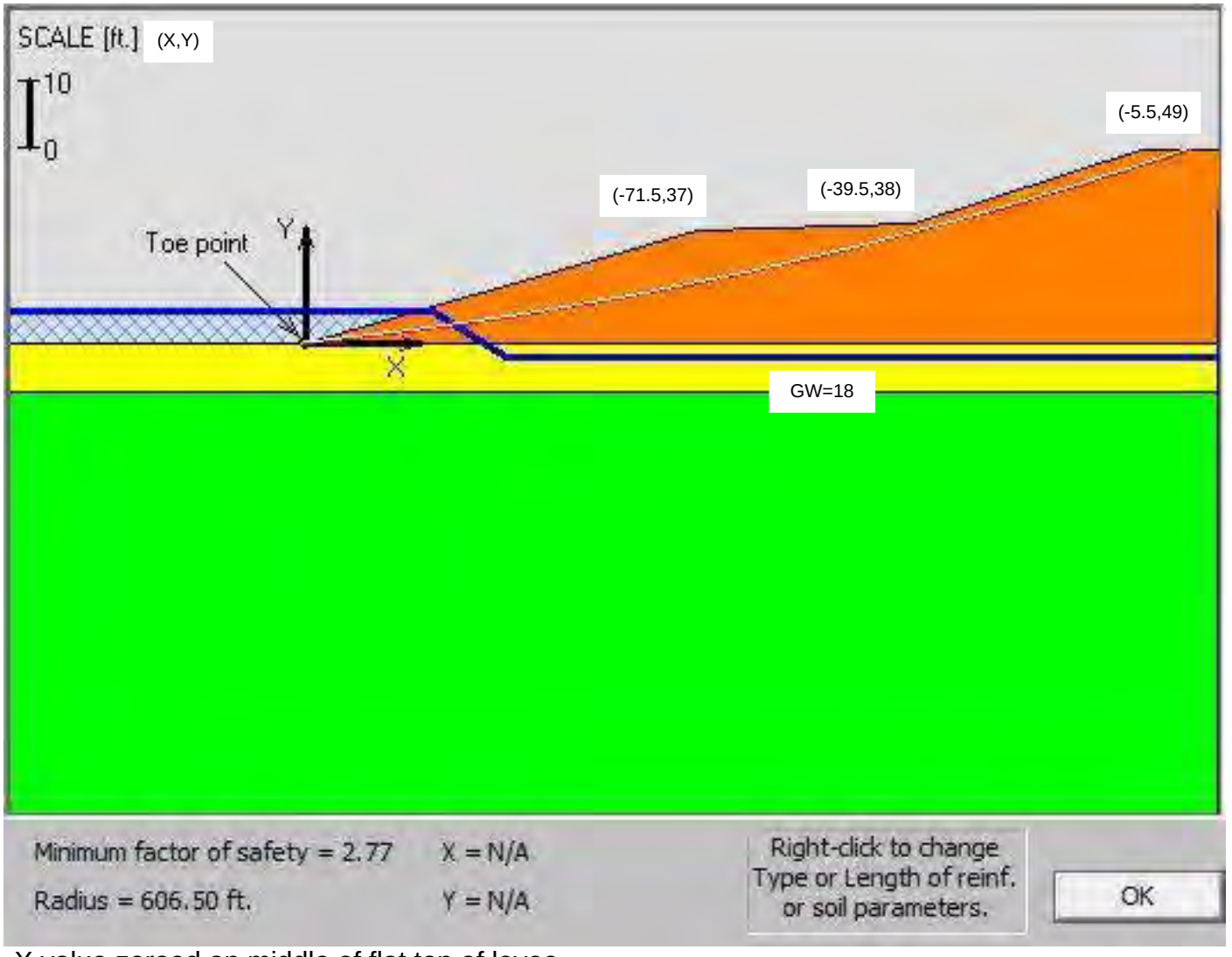
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Figure 3j - AR3 STA. 18+00
Existing Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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Princeville, North Carolina
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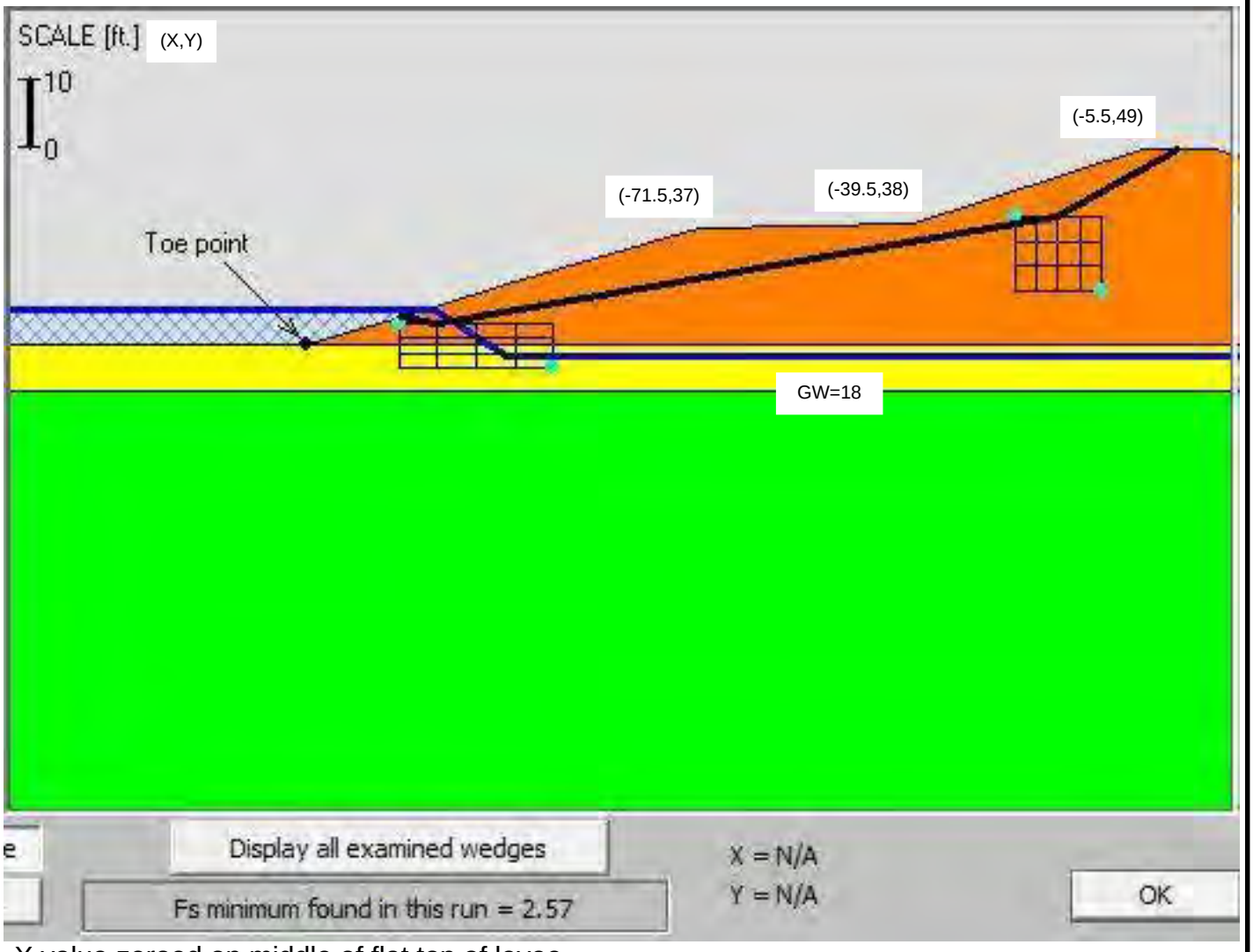

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3k - AR3 STA. 18+00
Existing Riverside

Not to Scale

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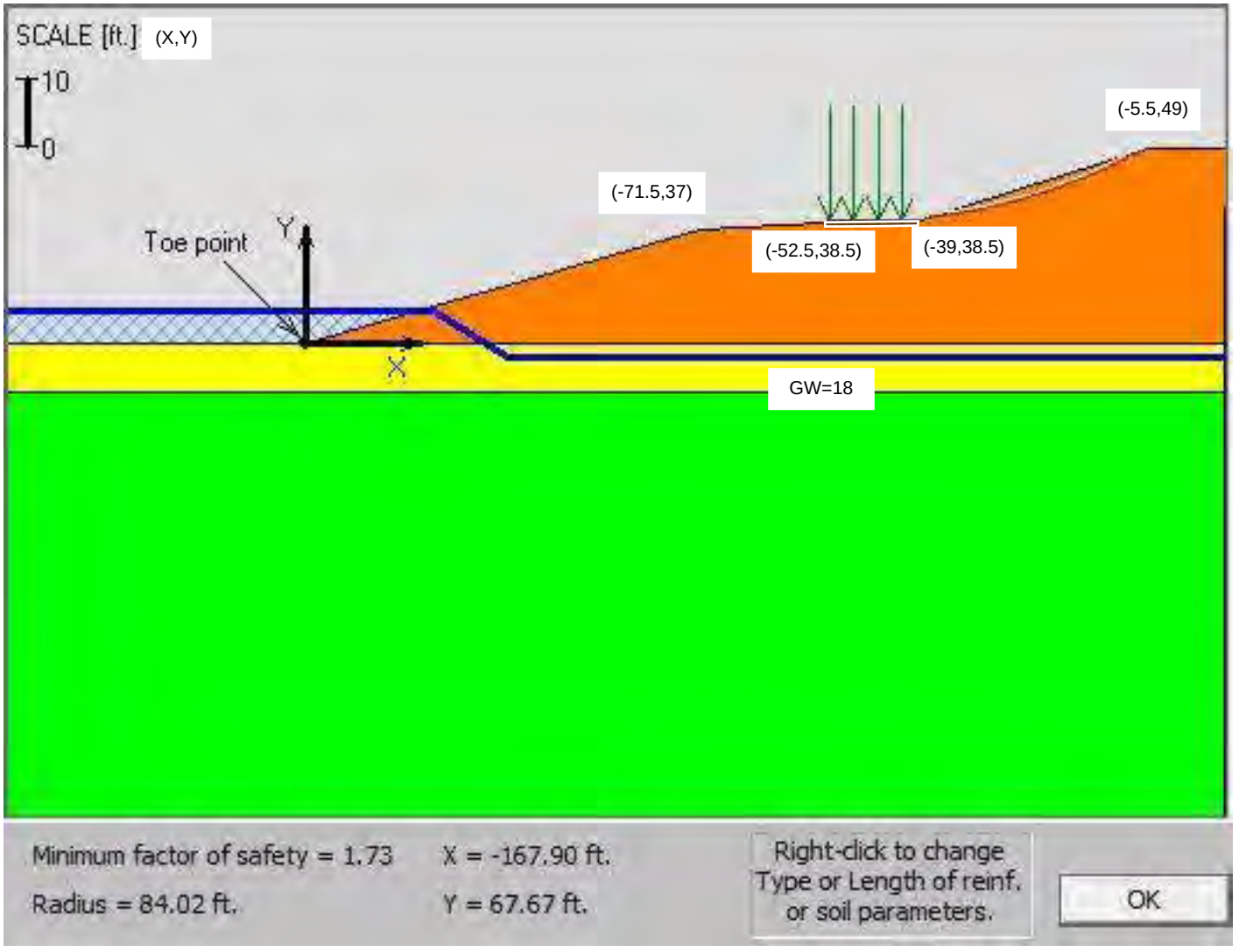

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3l - AR3 STA. 18+00
Post Construction Riverside

Not to Scale

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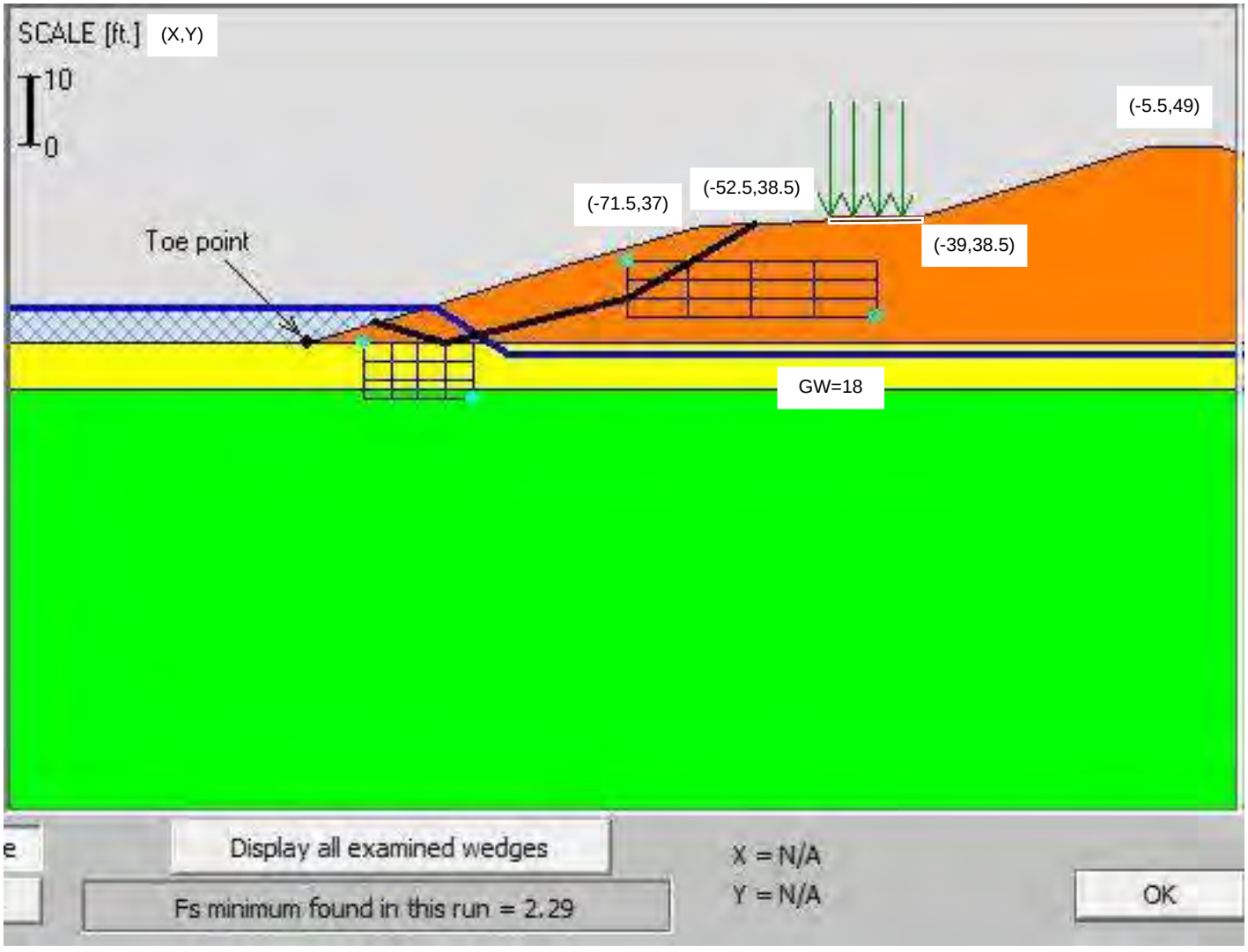

X value zeroed on middle of flat top of levee

Figure 3m - AR3 STA. 18+00
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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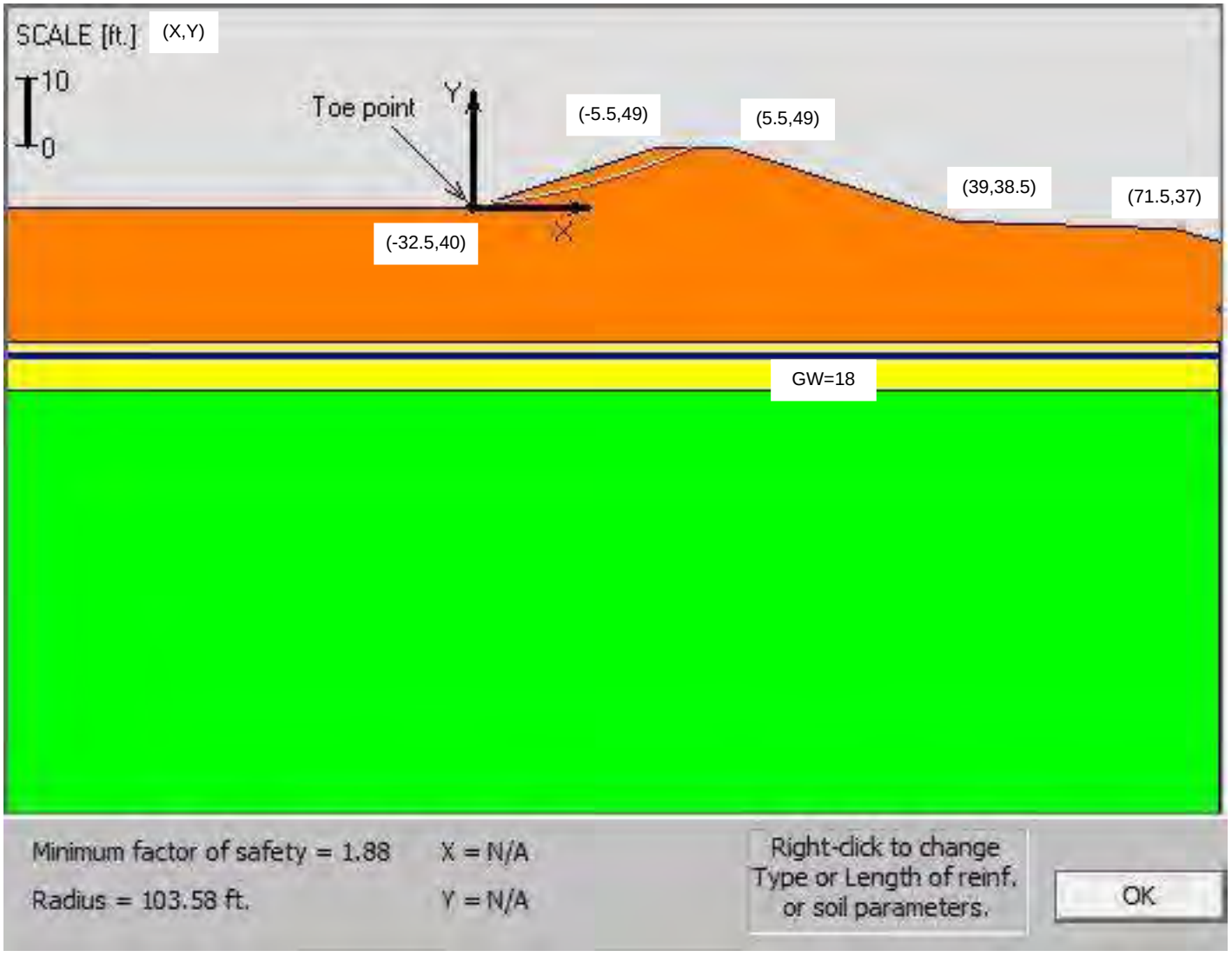

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3n - AR3 STA. 18+00
Existing Landside

Not to Scale

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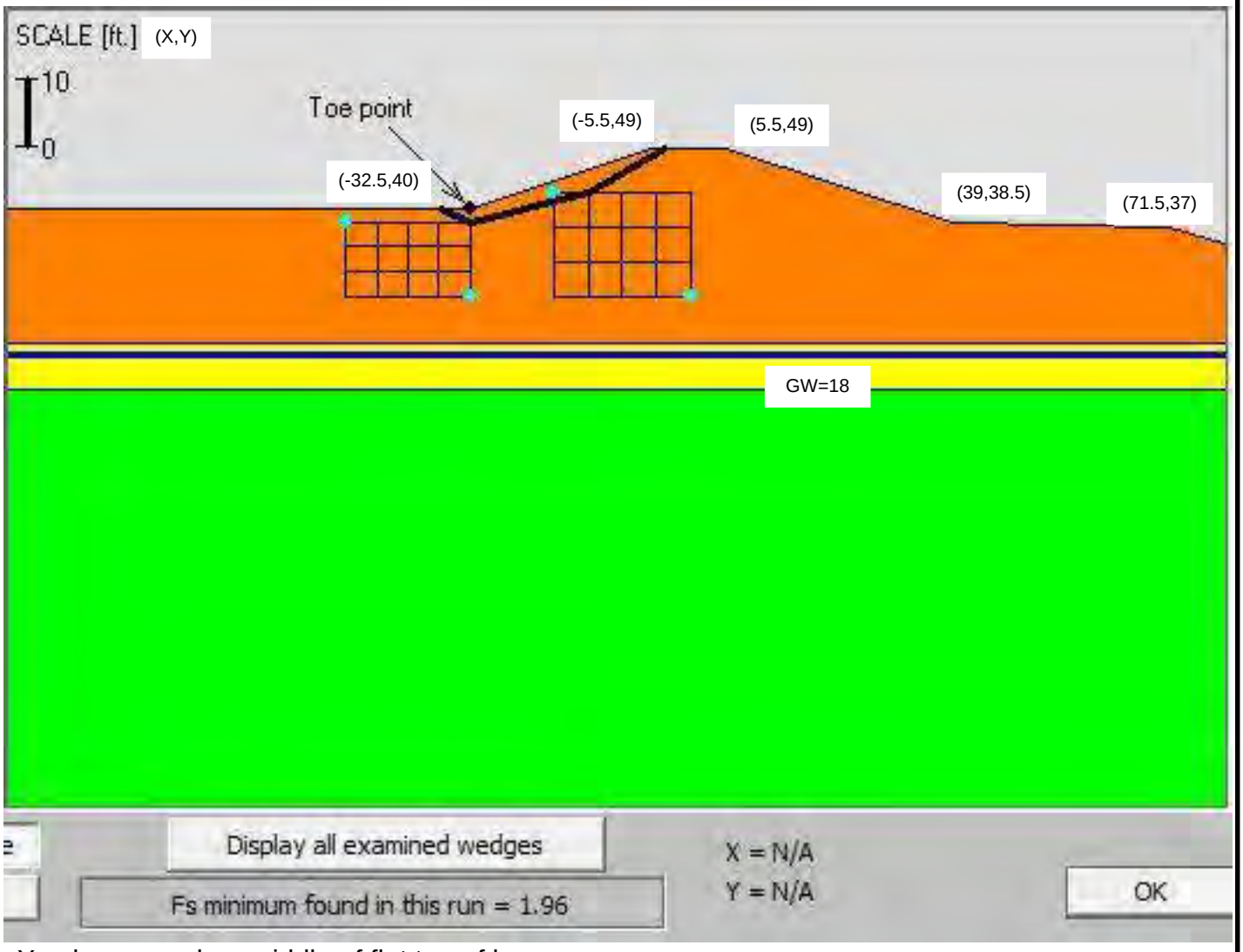

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3o - AR3 STA. 18+00
Existing Landside

Not to Scale

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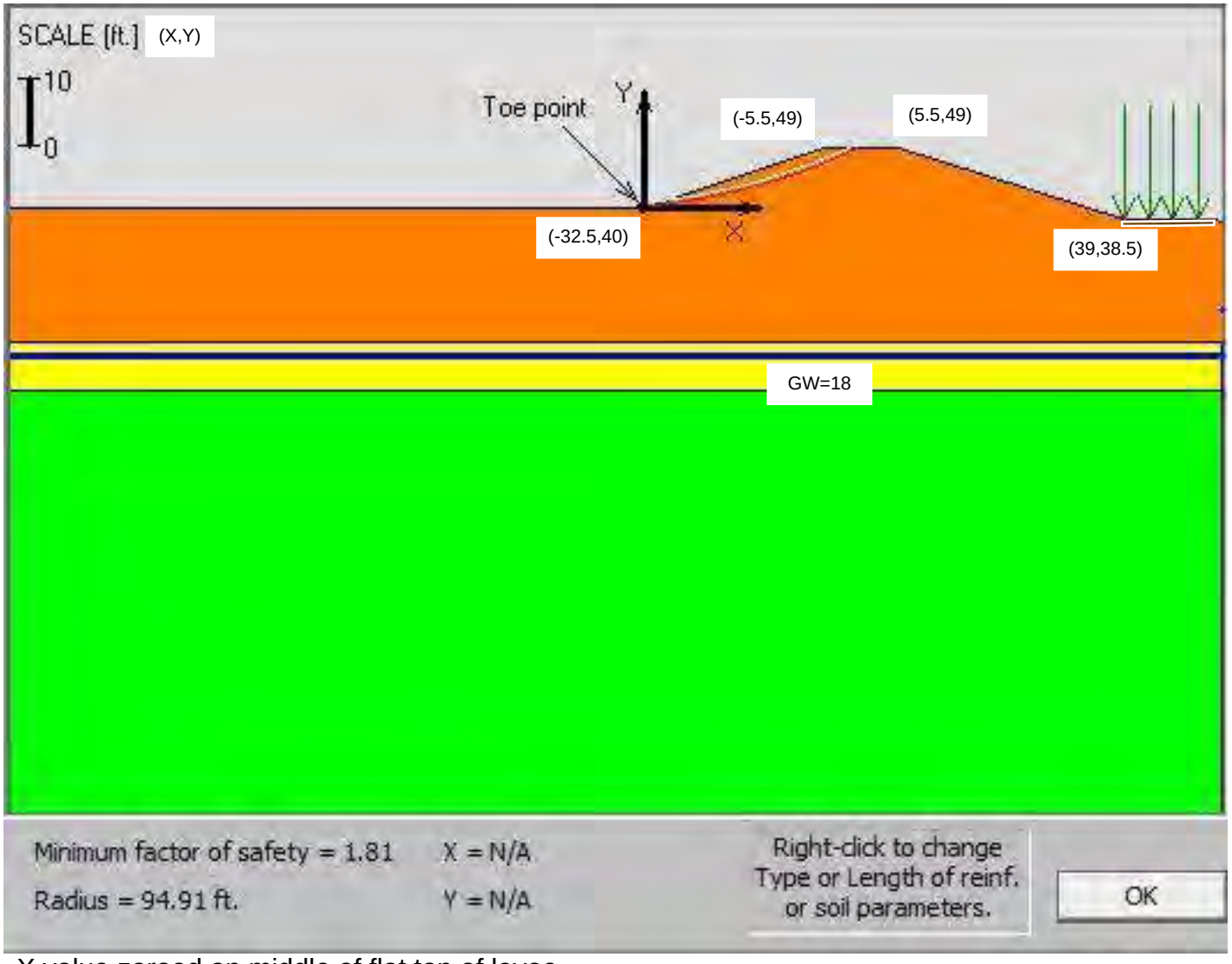

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3p - AR3 STA. 18+00
Post Construction Landside

Not to Scale

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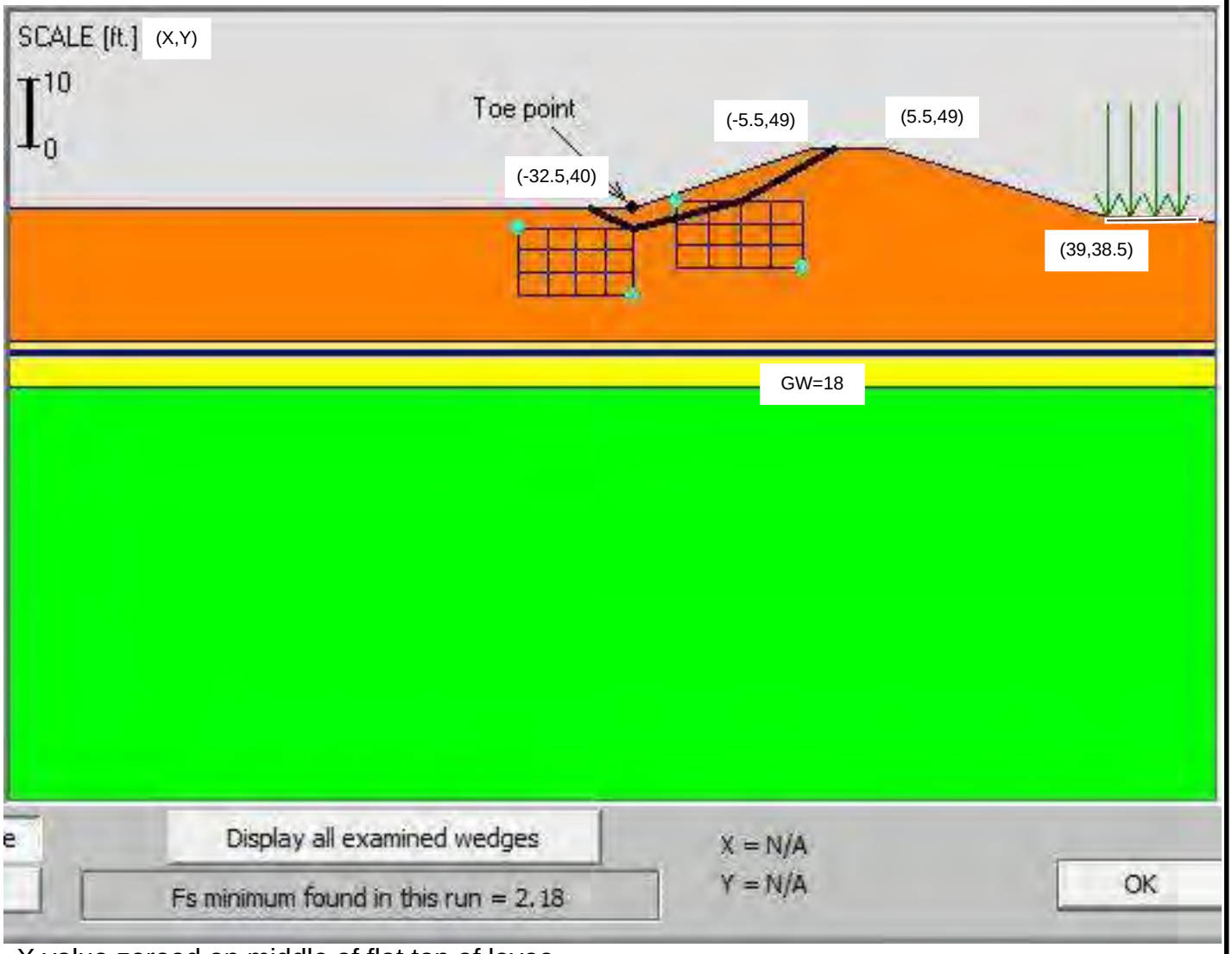

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3q - AR3 STA. 18+00
Post Construction Landside

Not to Scale

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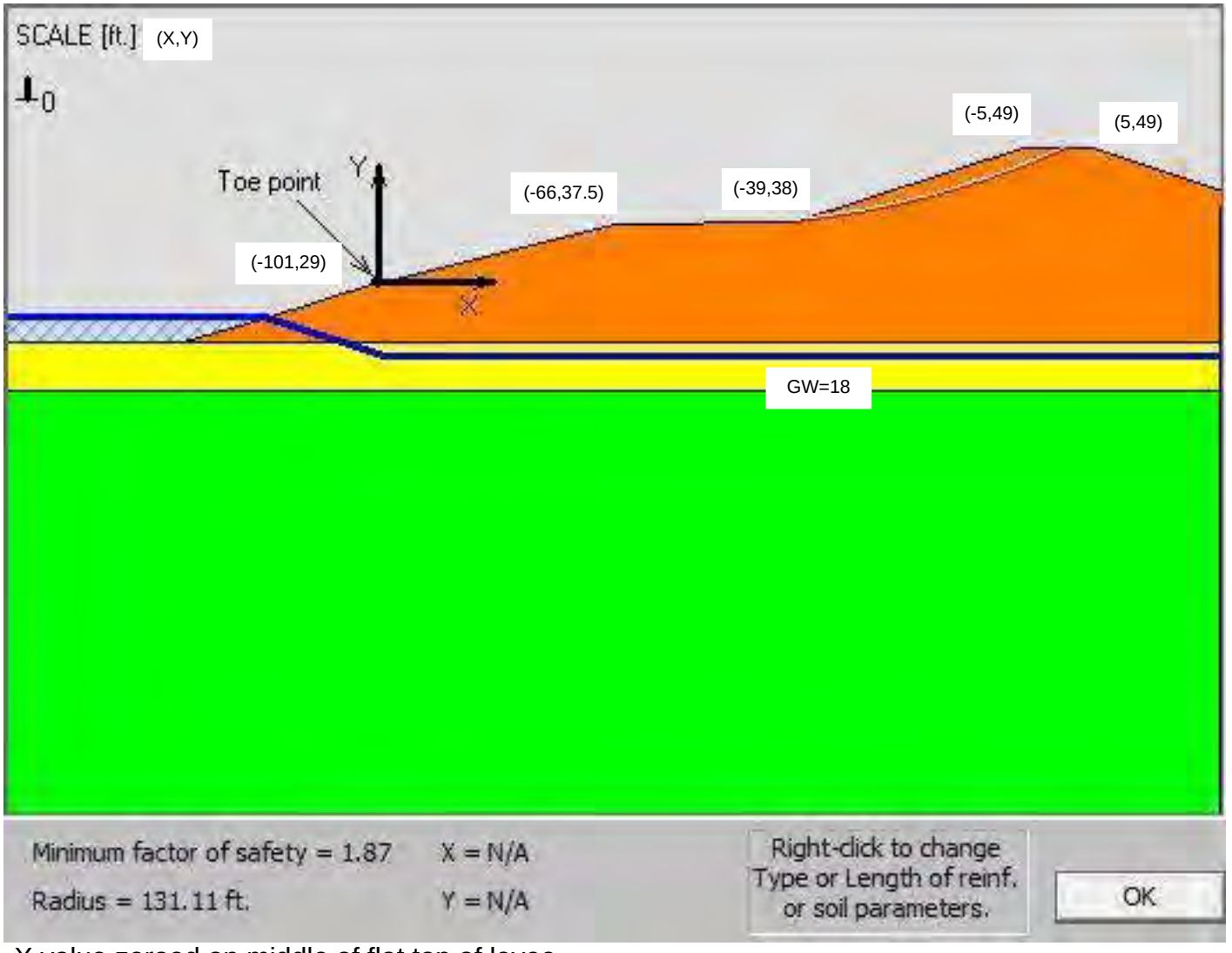

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3r - AR3 STA. 20+00
Existing Riverside

Not to Scale

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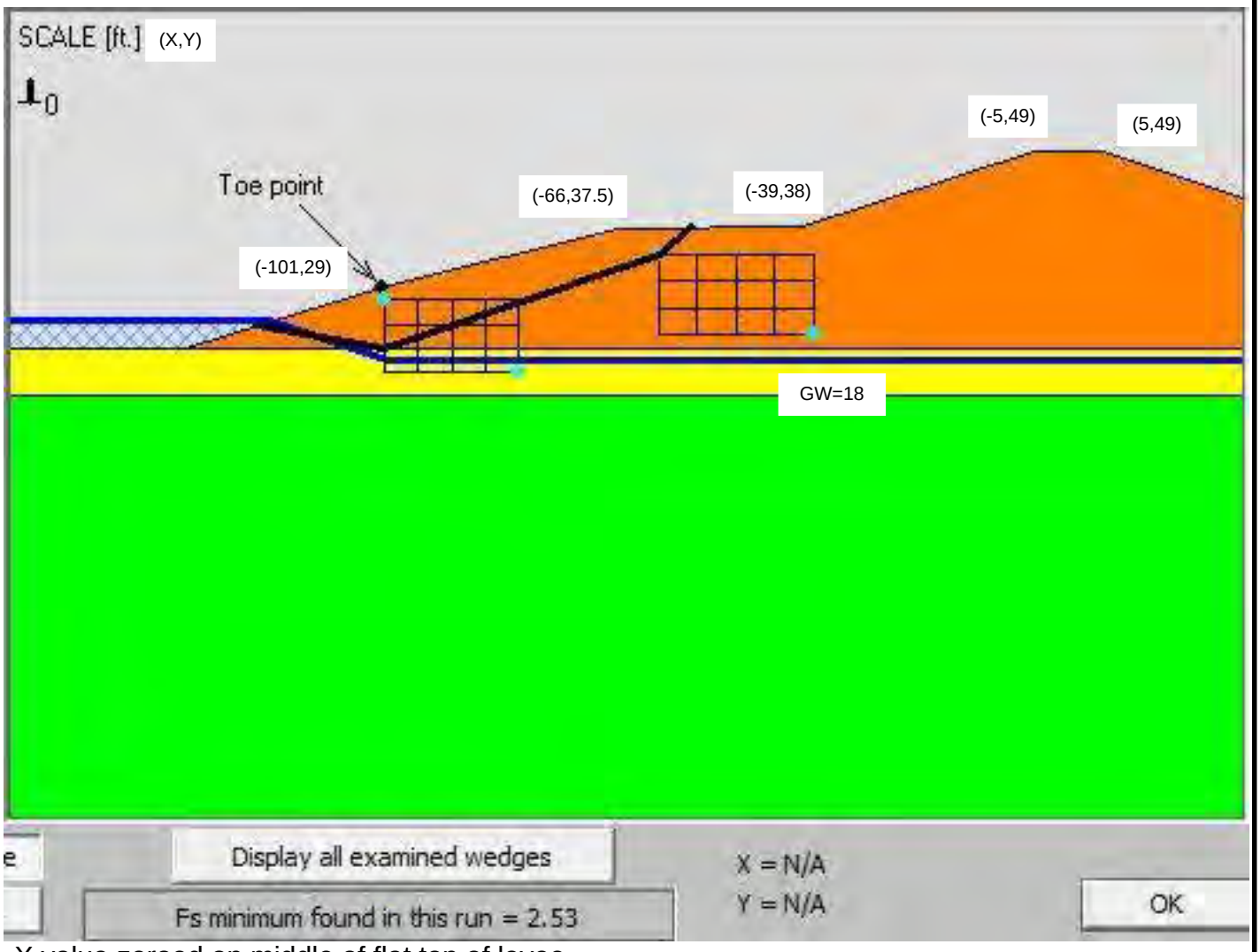
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3s - AR3 STA. 20+00
Existing Riverside

Not to Scale

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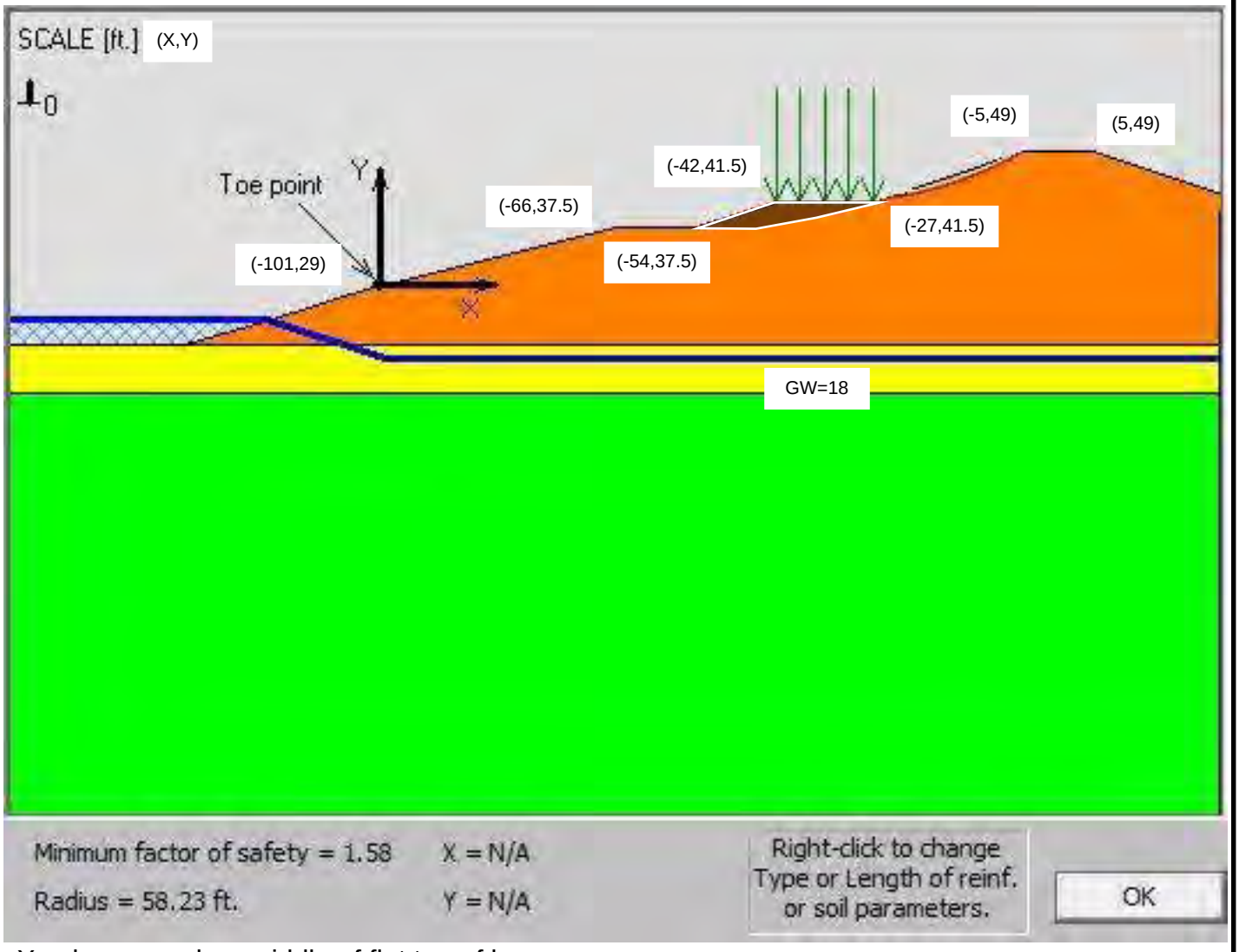

X value zeroed on middle of flat top of levee

Figure 3t - AR3 STA. 20+00
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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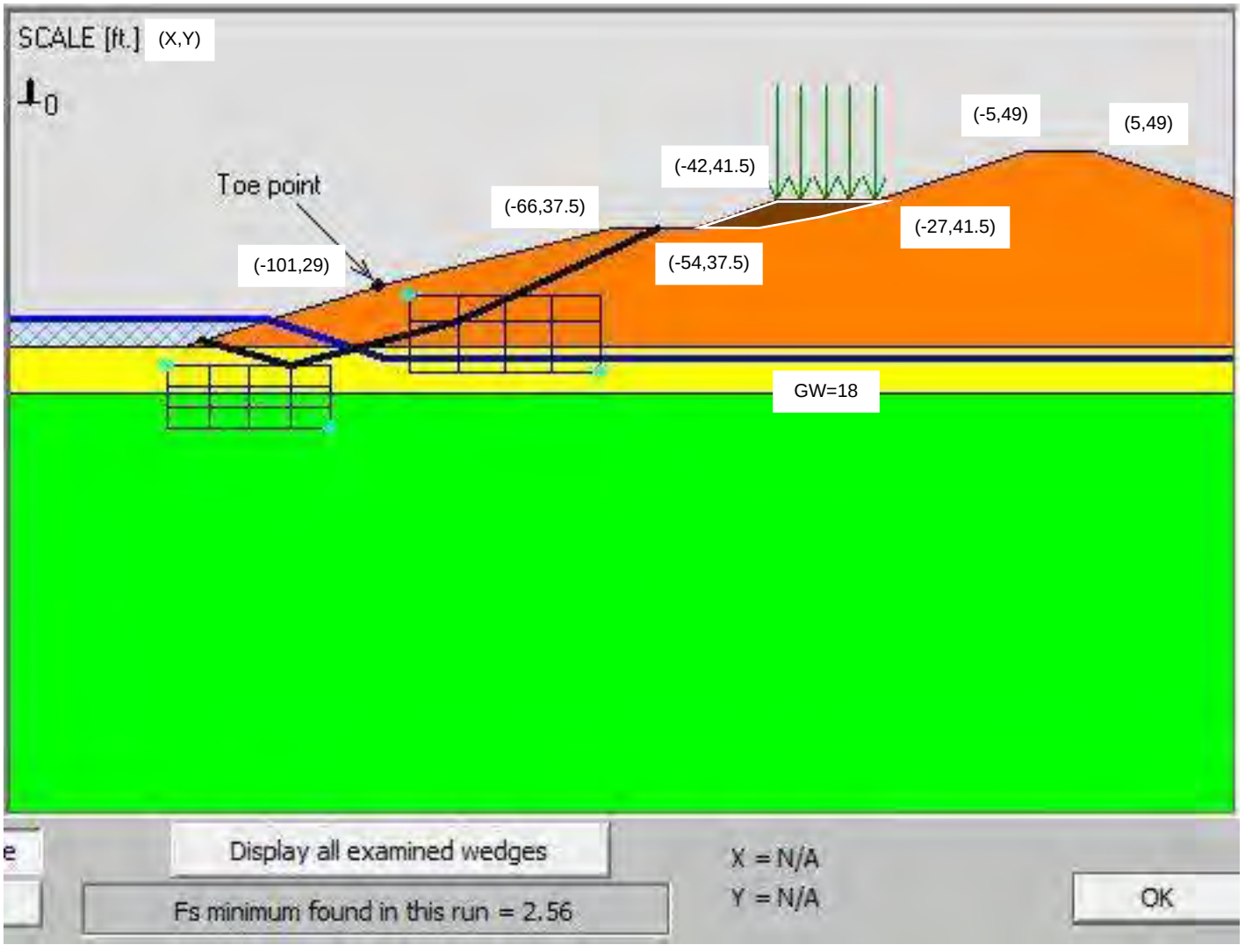

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3u - AR3 STA. 20+00
Post Construction Riverside

Not to Scale

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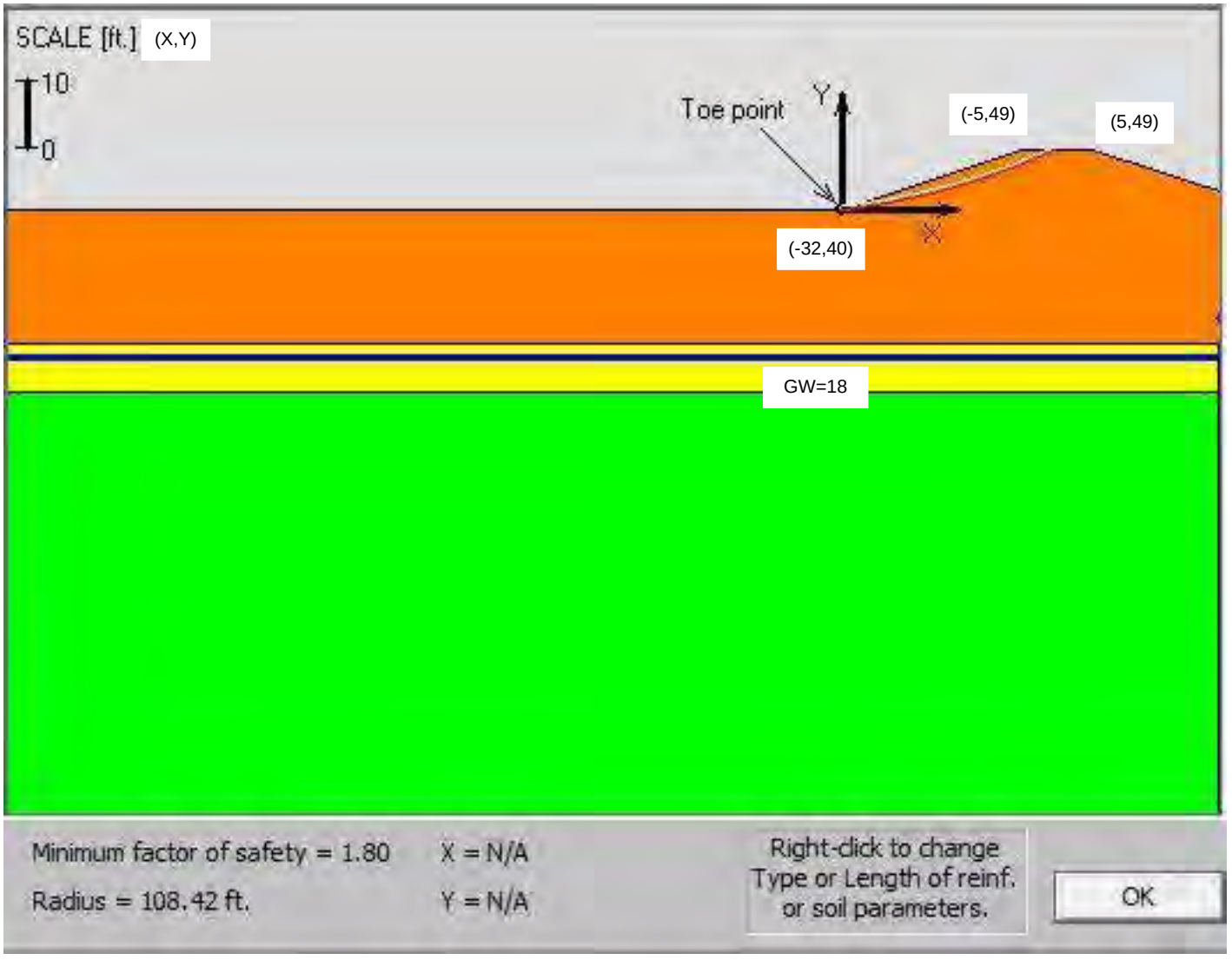
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3v - AR3 STA. 20+00
Existing Landside

Not to Scale

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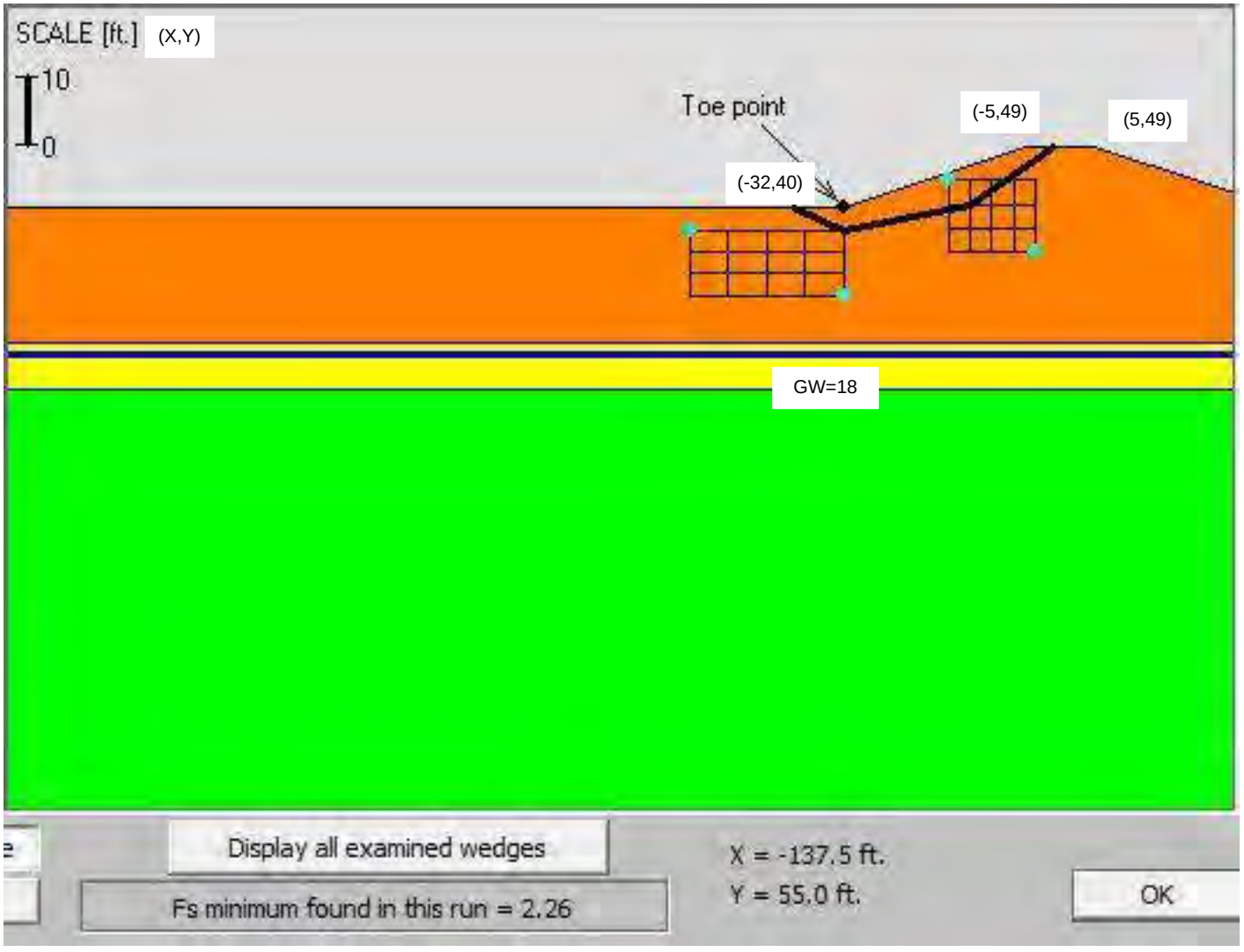

X value zeroed on middle of flat top of levee

Figure 3w - AR3 STA. 20+00
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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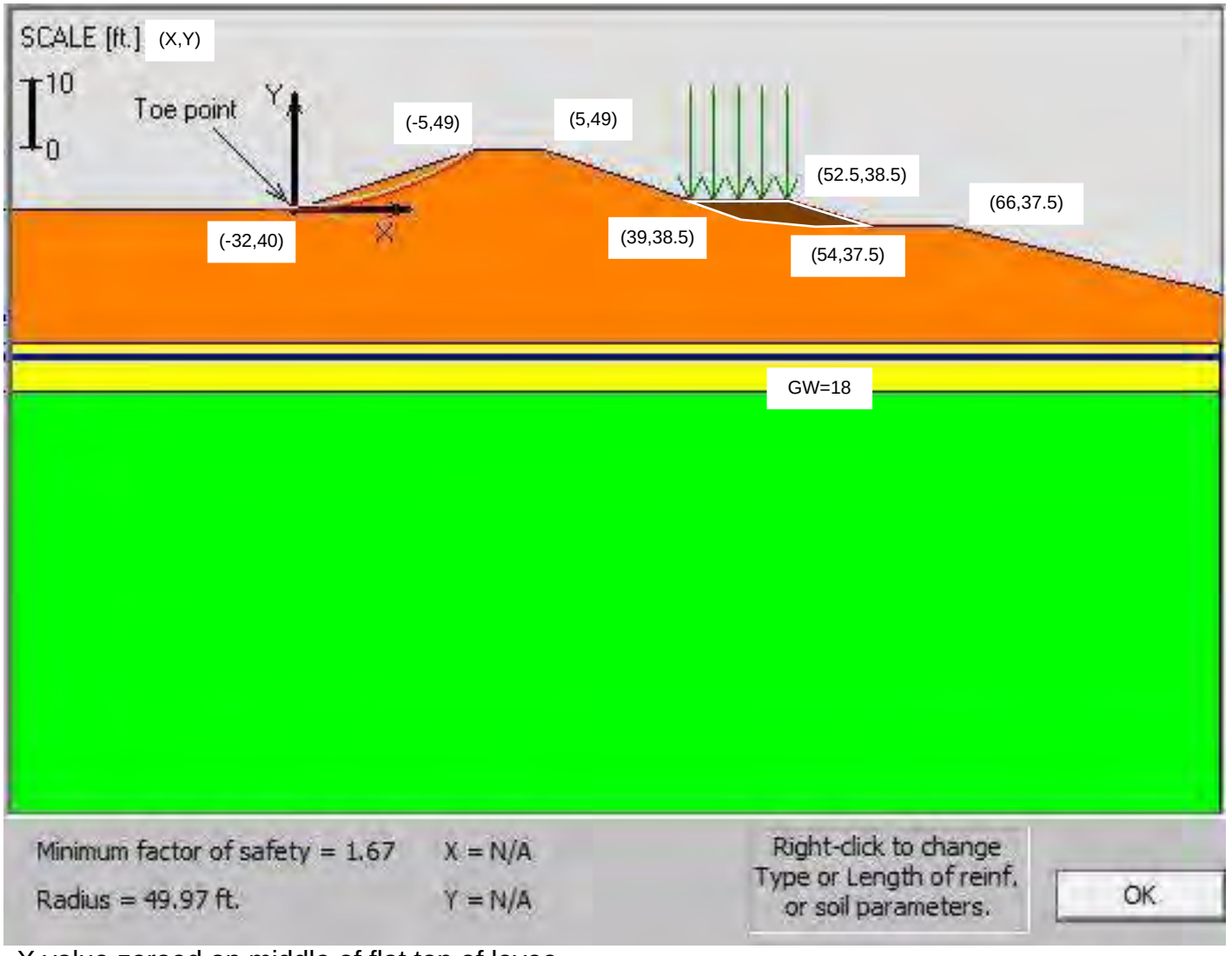

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3x - AR3 STA. 20+00
Post Construction Landside

Not to Scale

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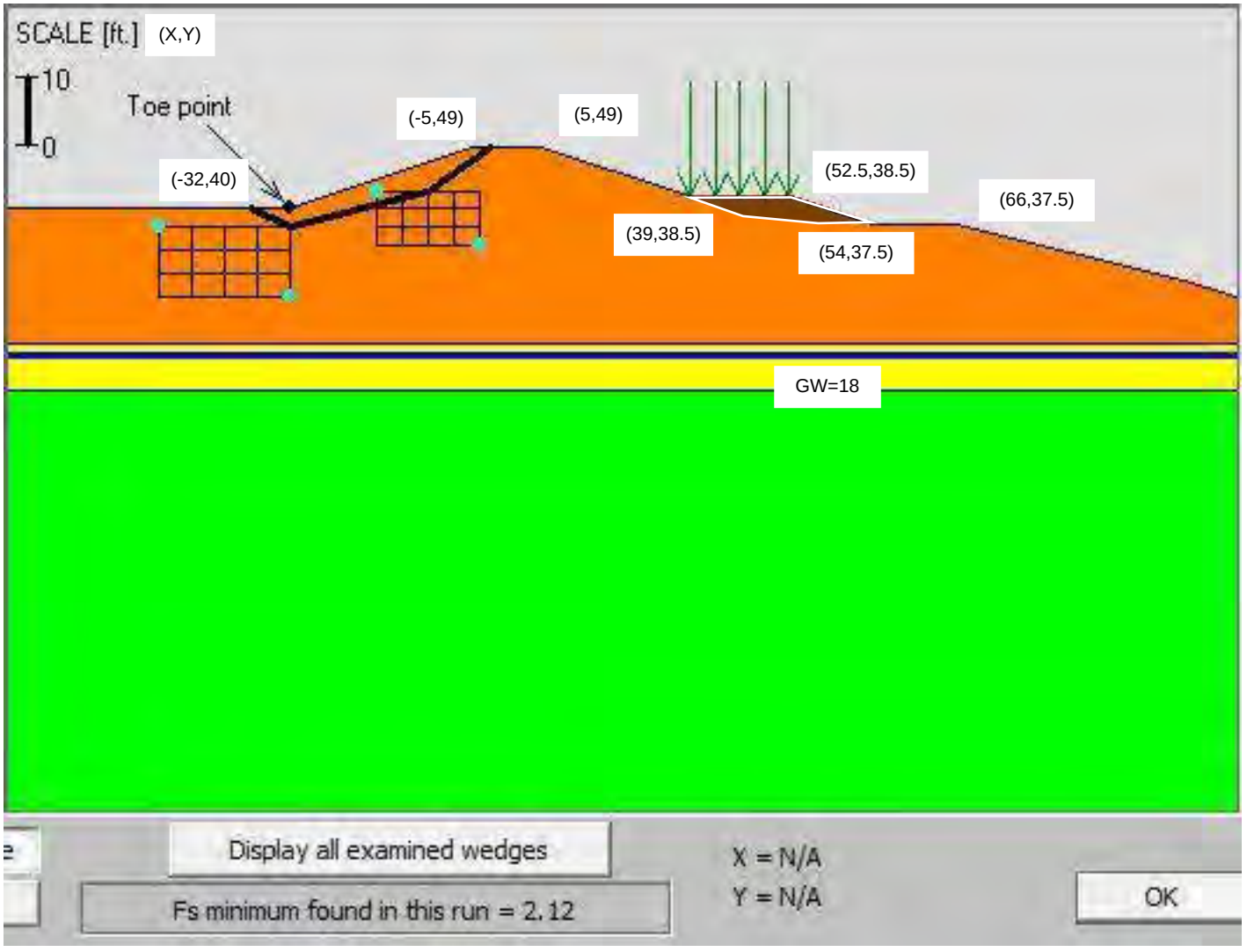
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3y - AR3 STA. 20+00
Post Construction Landside

Not to Scale

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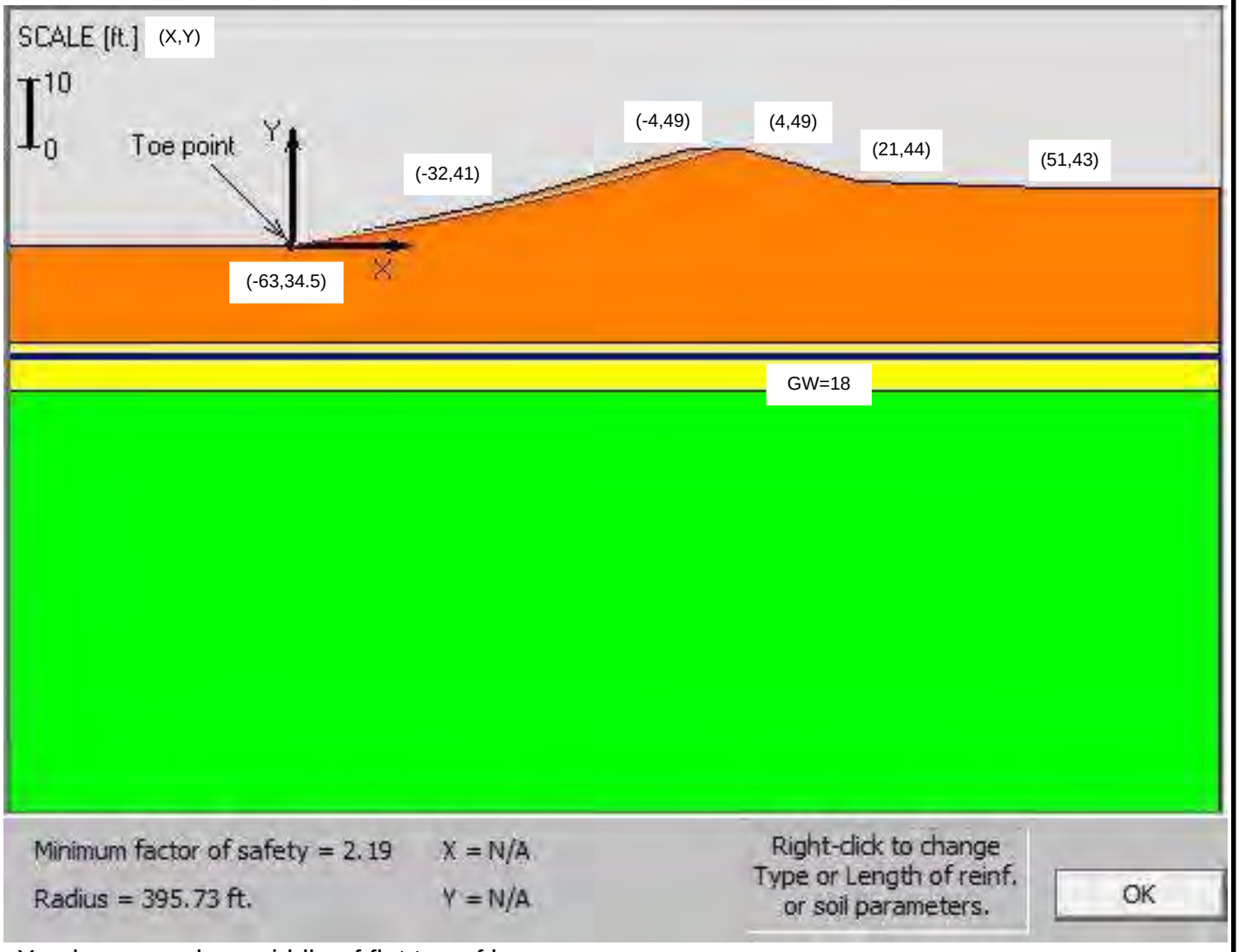

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3z - AR3 STA. 22+50
Existing Riverside

Not to Scale

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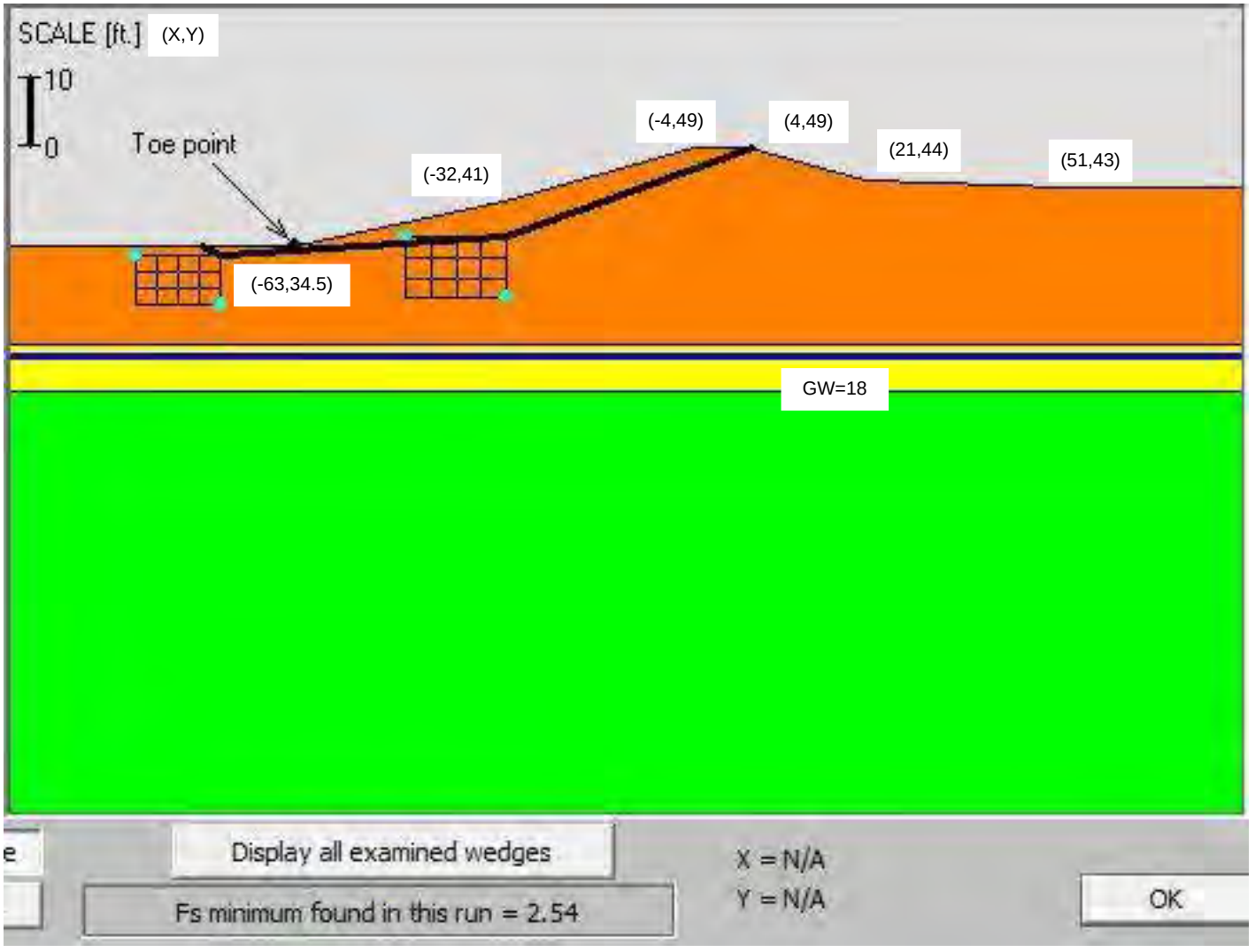

X value zeroed on middle of flat top of levee

Figure 3aa - AR3 STA. 22+50
Existing Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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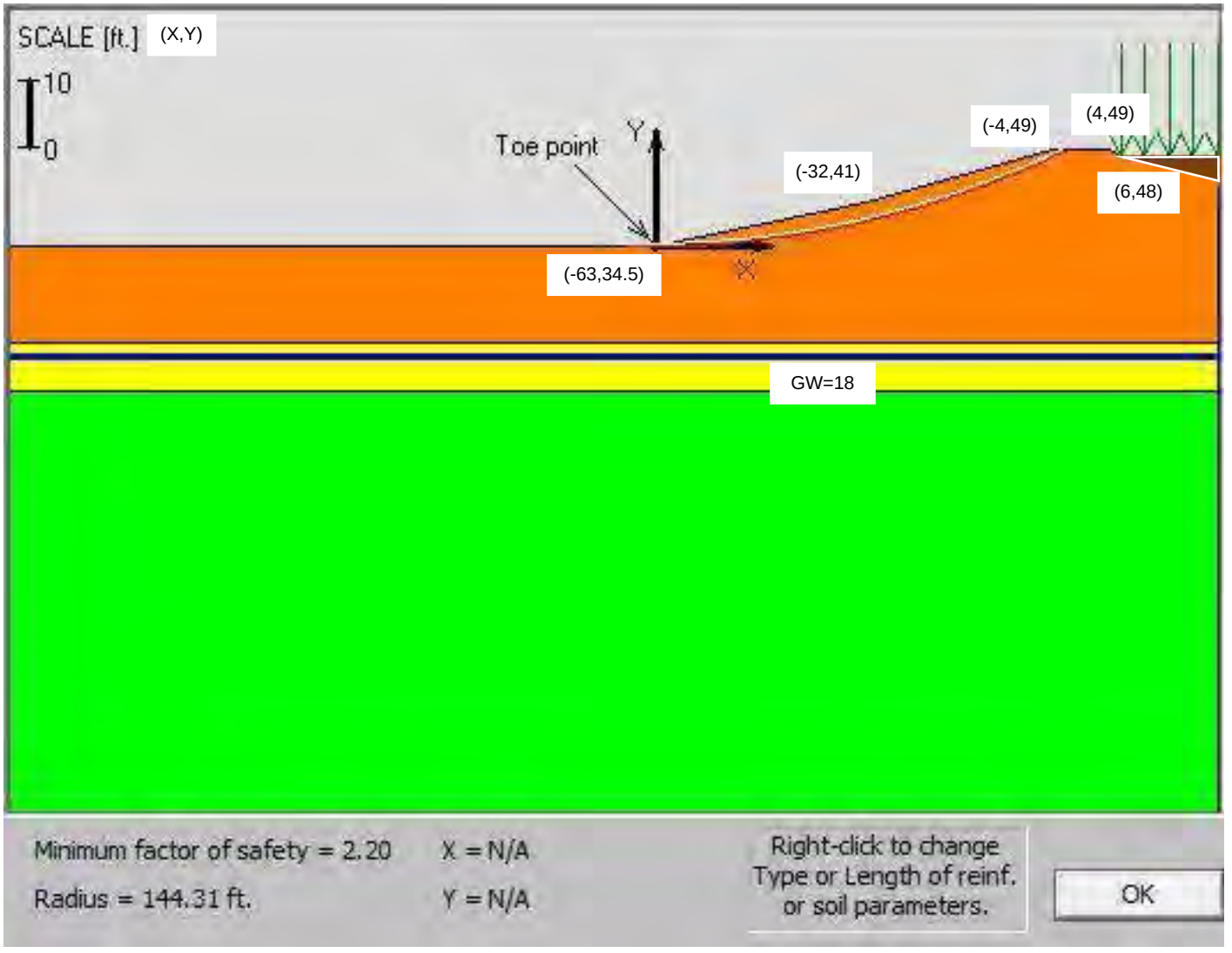

X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3ab - AR3 STA. 22+50
Post Construction Riverside

Not to Scale

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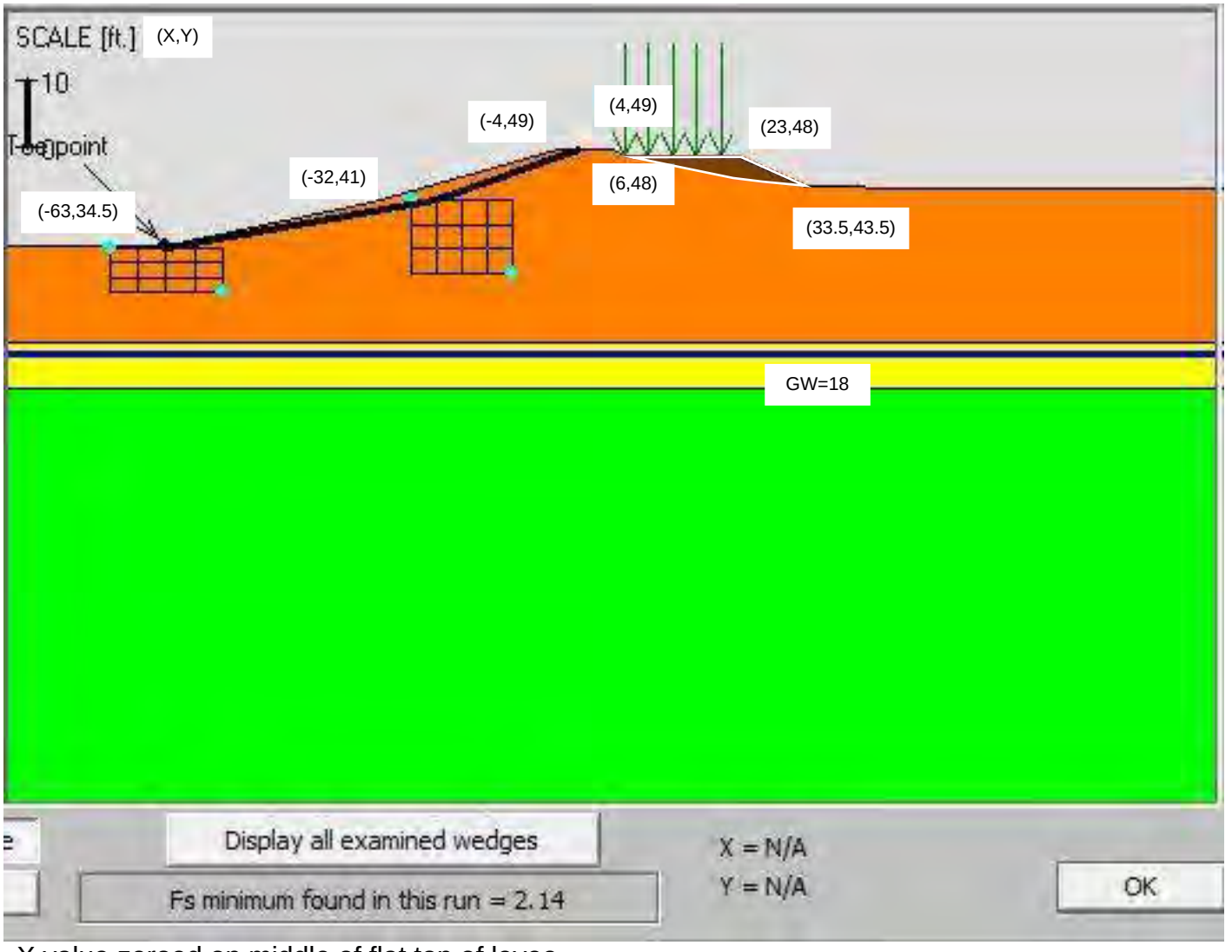

X value zeroed on middle of flat top of levee

Figure 3ac - AR3 STA. 22+50
Post Construction Riverside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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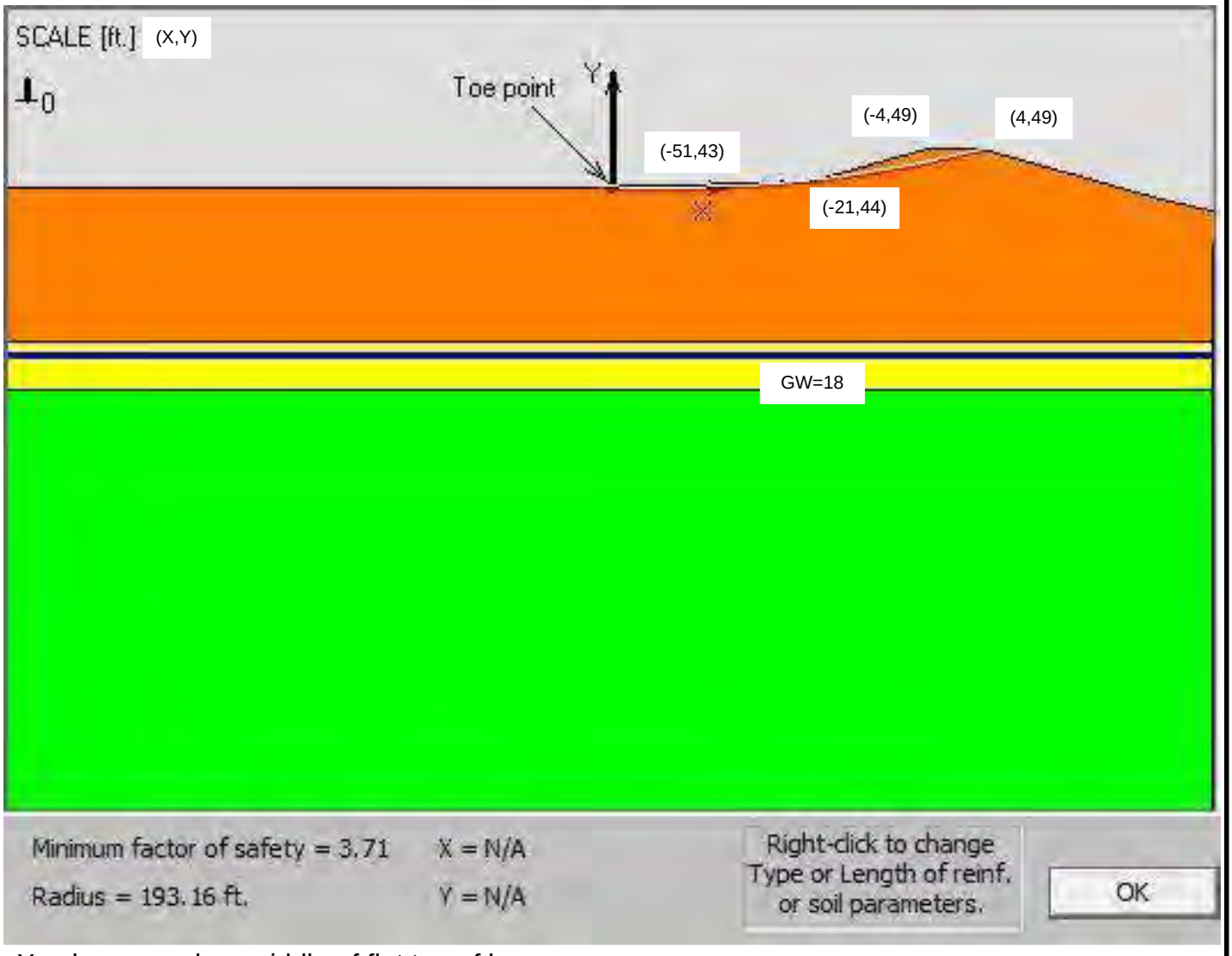
Princeville, North Carolina
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3ad - AR3 STA. 22+50
Existing Landside

Not to Scale

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Princeville, North Carolina
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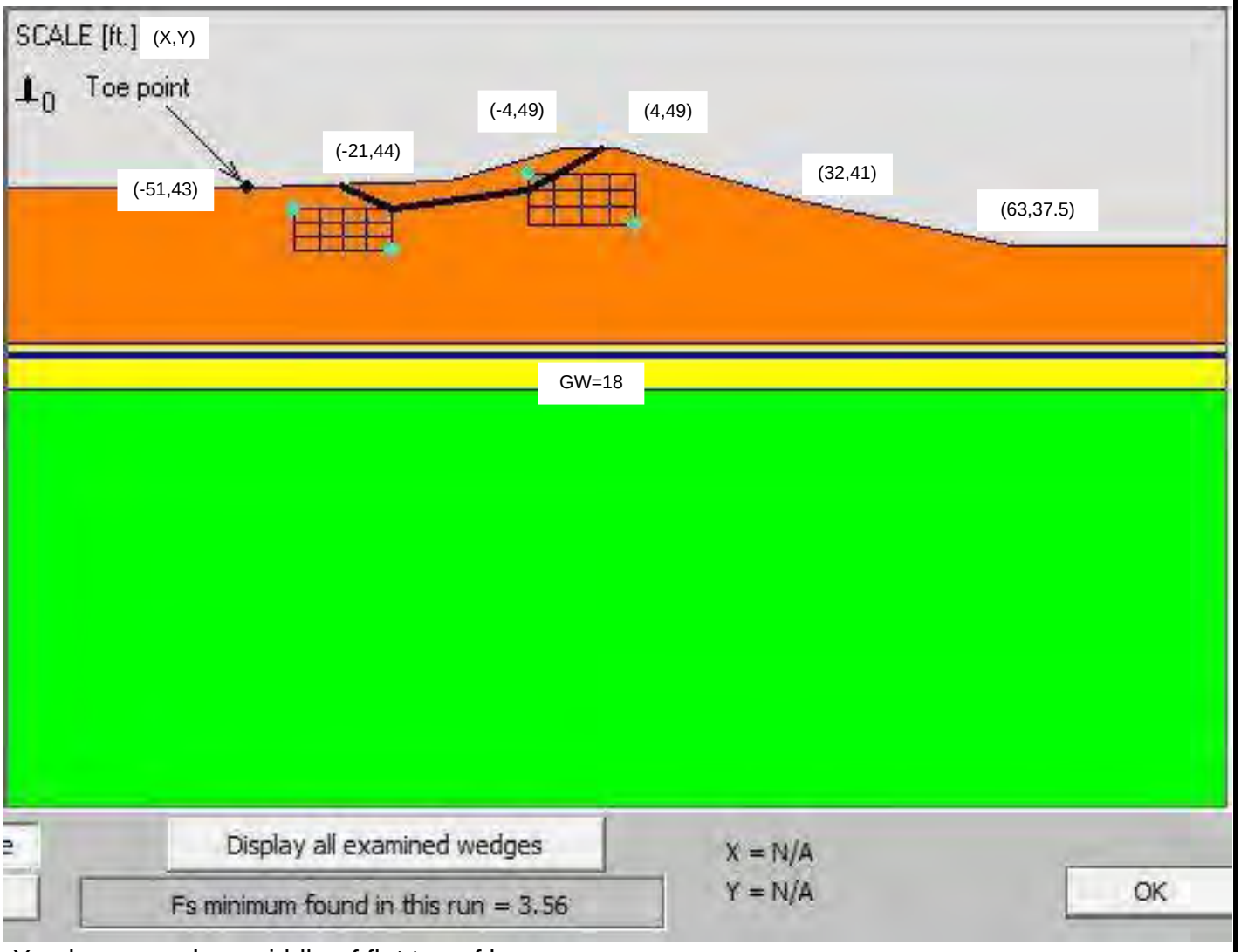

X value zeroed on middle of flat top of levee

Figure 3ae - AR3 STA. 22+50
Existing Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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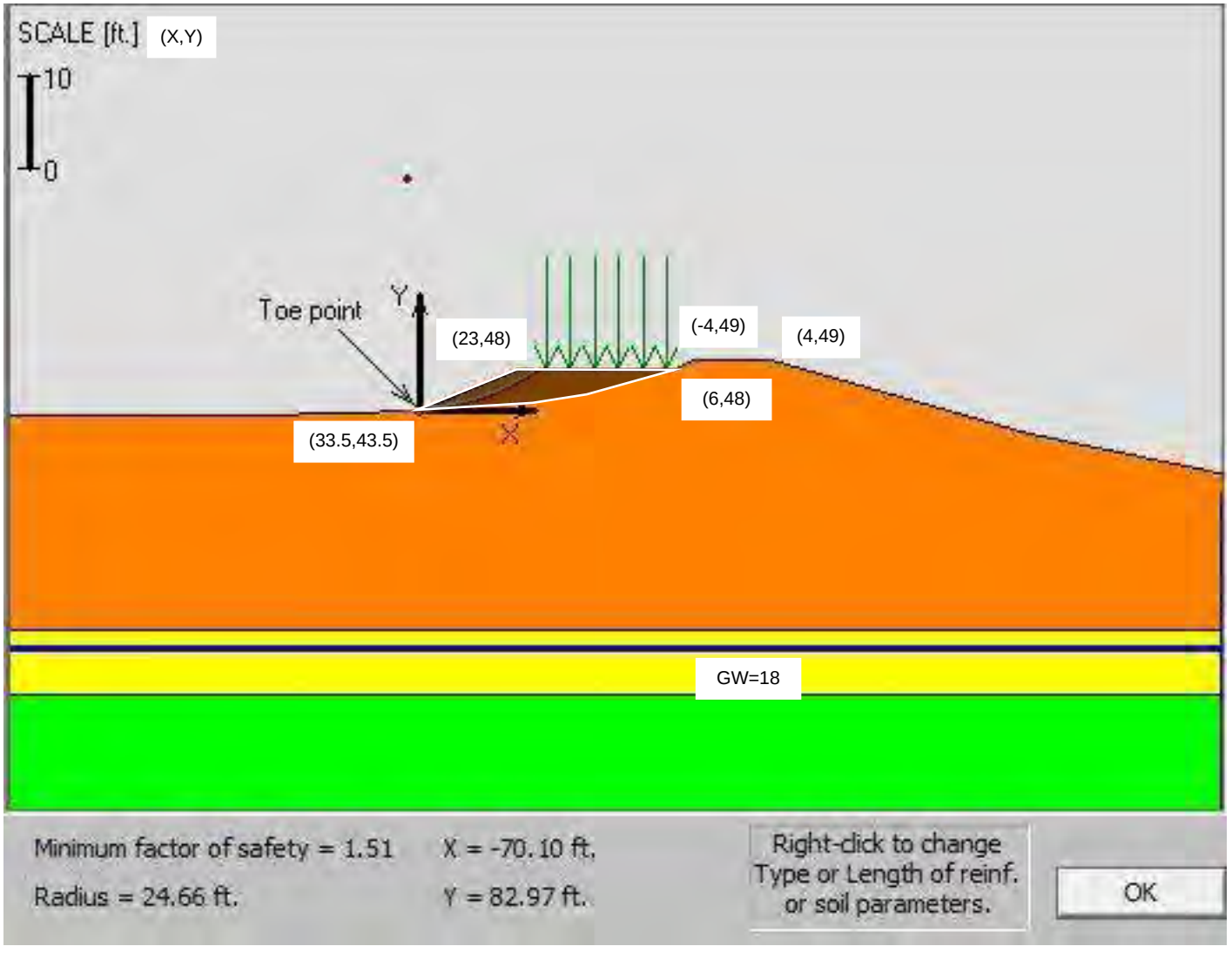

X value zeroed on middle of flat top of levee

Figure 3af - AR3 STA. 22+50
Post Construction Landside

Not to Scale

- Estimated Region of Fill
- New & Existing Fill Soils
- Soft Transitional Clays
- Undivided Coastal Plain Soils
- Cape Fear Formation Soils

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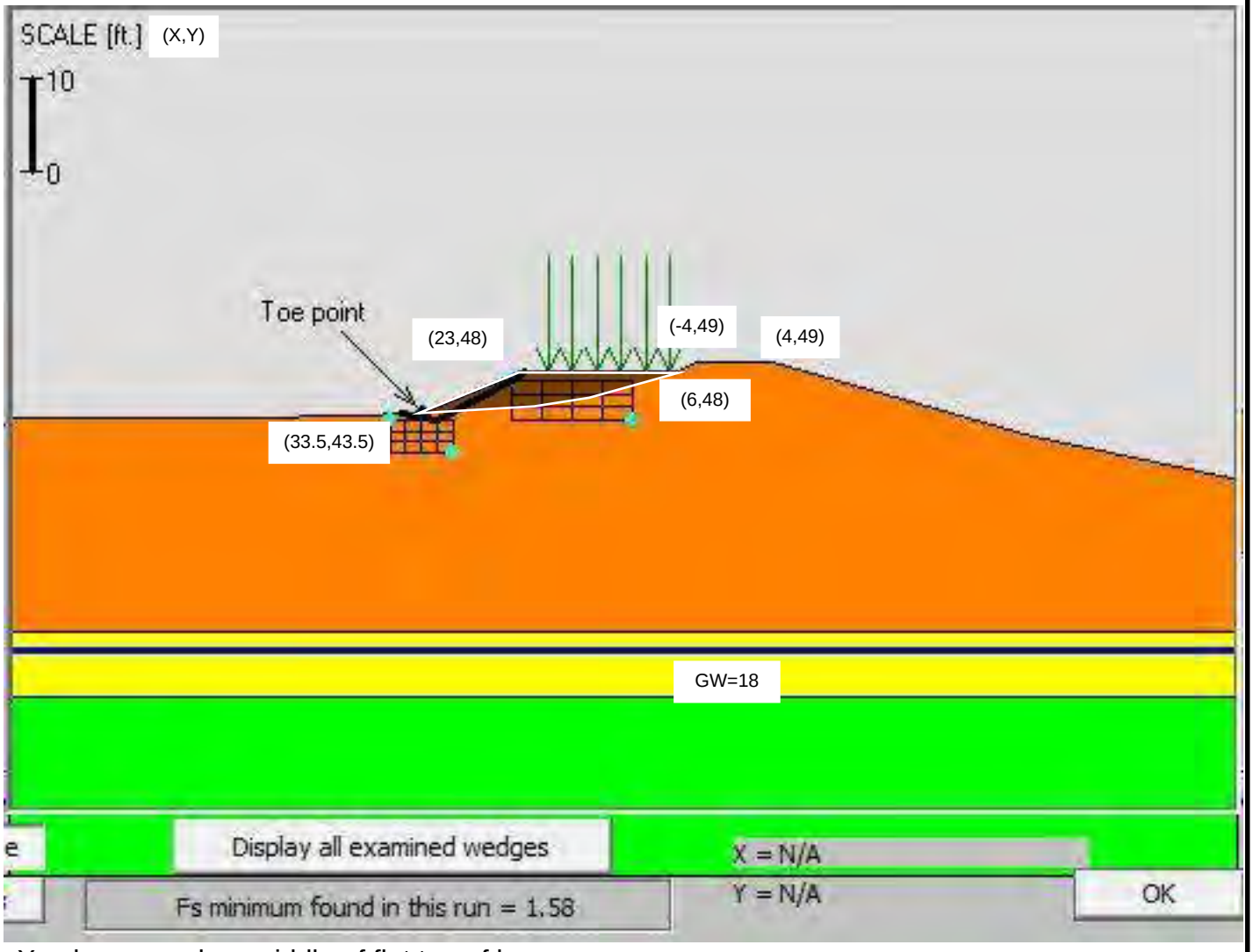
Our Project Number 121-21-106310



X value zeroed on middle of flat top of levee

Estimated Region of Fill
New & Existing Fill Soils
Soft Transitional Clays
Undivided Coastal Plain Soils
Cape Fear Formation Soils

Figure 3ag - AR3 STA. 22+50
Post Construction Landside

Not to Scale

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Project **Princeville Levees**
Princeville, North Carolina
Our Project Number 121-21-106310

Geotechnical Subsurface Investigation

CONTRACT NO: W912PM-16-D-0003

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

SUBSURFACE INVESTIGATION

STATE	CATLIN PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	220035	1	79

COUNTY *EDGECOMBE*

PROJECT DESCRIPTION *PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT*

CONTENTS

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SUBSURFACE INVENTORY

CROSS SECTIONS

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-L-	51+50	46
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-L-	73+50	50
-L-	75+50	51
-L-	77+00	52
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CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN WILMINGTON, NC BY CONTACTING CATLIN ENGINEERS AND SCIENTISTS, AT (910) 452-5861.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOLOGICAL INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY. CATLIN ENGINEERS AND SCIENTISTS DO NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF CATLIN AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED.

PERSONNEL

CATLIN PERSONNEL

INVESTIGATED BY *L. STONE P.G.*

DRAWN BY *L. STONE P.G.*

CHECKED BY *S. HUDSON, P.G.*

SUBMITTED BY *L. STONE P.G.*

DATE *OCTOBER, 2020*

CATLIN
Engineers and Scientists
Wilmington, North Carolina

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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET
220035	2

SUBSURFACE INVESTIGATION
UNIFIED SOILS CLASSIFICATION SYSTEM
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

TERMS DESCRIBING RELATIVE DENSITY AND CONSISTENCY

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing the No. 200 sieve): includes (1) inorganic and is organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Unconfined Compressive

Descriptive Terms	Strength kPa	SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

GENERAL NOTES

1. Classifications are based on the Unified Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.

2. Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

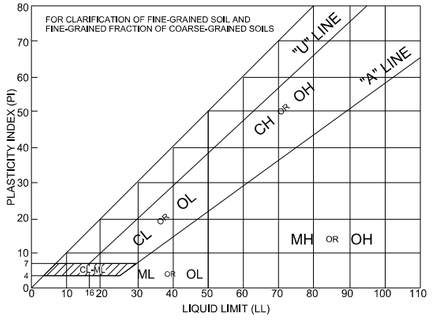
3. WOR or WR means the weight of the rods penetrated the 1.5 foot drive without blows from the hammer. WOH or WH means the weight of the rods and the hammer penetrated the 1.5 foot drive without blows from the hammer

4. Surface elevations, where provided, are based on elevation data provided by The Client or boring locations referenced to LIDAR surfaces unless noted otherwise.

Major Divisions		Group Symbols	Typical Names	Laboratory Classification Criteria
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size) — Clean gravel (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW
	Gravel with fines (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures	* d / u — Atterberg limits below "A" line or P.I. less than 4; Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
		GC	Clayey gravels, gravel-sand-silt mixtures	Atterberg limits above "A" line or P.I. greater than 7
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size) — Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
		SP	Poorly-graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW
	Sands with fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures	* d / u — Atterberg limits below "A" line or P.I. less than 4; Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
		SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7
Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)	Silts and Clays (Liquid limit less than 60)	ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity	
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
		OL	Organic silts and organic silty clays of low plasticity	
	Silts and Clays (Liquid limit greater than 60)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, organic silts	
		CH	Inorganic clays of high plasticity, fat clays	
		OH	Organic clays of medium to high plasticity, organic silts	
	Highly Organic Soils	Pt	Peat and other highly organic soils	

Determine percentages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows:
Less than 5 percent..... GW, GP, SW, SP
More than 12 percent..... GM, GC, SM, SC
6 to 12 percent..... Borderline cases requiring dual symbols**

Particle Size	mm	Sieve sizes
Material		
SILT or CLAY	< 0.074	< #200
SAND	0.074 to 0.42	#200 to #40
Fine	0.42 to 2.00	#40 to #10
Medium	2.00 to 4.76	#10 to #4
Coarse	4.76 to 19.1	#4 to 3/4 in.
GRAVEL	19.1 to 76.2	3/4 in. to 3 in.
Fine	76.2 to 304.8	3 in. to 12 in.
Coarse	304.8 to 914.4	12 in. to 36 in.
COBBLE		
BOULDERS		



Plasticity Chart

* Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg Limits: suffix d used when L.L. is 23 or less and the P.I. is 6 or less; the suffix u is used when L.L. is greater than 26.

** Borderline classifications used for soils possessing characteristics of two groups are designated by combinations of group symbols. For example; GW-GC, well-graded gravel-sand mixture with clay binder.

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE USCS. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: COLOR, TEXTURE, MOISTURE, USCS CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, CONSISTENCY, ETC. FOR EXAMPLE,

GRAY, SILTY CLAY, MOIST WITH INTER BEDDED FINE SAND LAYERS, HIGHLY PLASTIC. (CH)

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (PI): LL — LIQUID LIMIT		
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE; SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

DESCRIPTION MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY) MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
POORLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	> 10%	> 20%	HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER ≥ 24 HOURS
- PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL CONTACT (MAJOR)
- INFERRED SOIL CONTACT (MINOR)
- INFERRED ROCK LINE
- WOOD
- SPT N-VALUE
- SAMPLE
- NON SAMPLED ZONE
- CORE LOSS ZONE
- AUGER BORING OR GEOPROBE
- SPT BORING
- CORE BORING***
- CPT SOUNDING***
- DPT BORING
- PIEZOMETER***
- ROD SOUNDING
- TP — TEST PIT

*** Boring symbol may be used in combination with additional symbols to depict Companion Boring (boring installed with five horizontal feet of boring) or borings with core etc. Examples Include: CPT/DPT; SPT W/CORE; SPT W/PIEZOMETER

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN WEATHERED ROCK (WLS)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

INDURATION

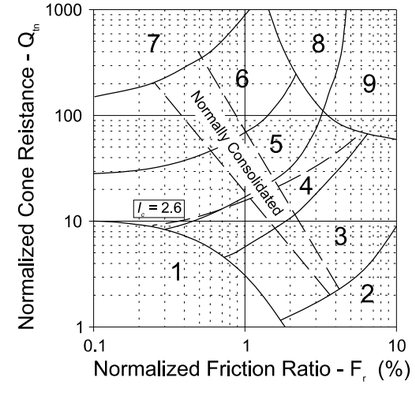
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

ABBREVIATIONS

ALLUV. - ALLUVIAL / ALLUVIUM
APPROX. - APPROXIMATELY
BLS - BELOW LAND SURFACE
BPF - BLOWS PER FOOT
BT - BORING TERMINATED
CALC. - CALCAREOUS
CPT - CONE PENETRATION TEST
CSE. - COARSE
D - DRY
DPT - DIRECT PUSH TECHNOLOGY
DTW - DEPTH TO WATER
DRK. - DARK
ELEV. - ELEVATION
F. - FINE
FIAD - FILLED IMMEDIATELY AFTER DRILLING
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED
FRAGS. - FRAGMENTS
HWY - HIGHWAY
LS. - LIMESTONE
LT. - LIGHT
MED. - MEDIUM
MOD. - MODERATELY
M or MOI - MOIST
MOT. - MOTTLED / MOTTLING
N/A - NOT APPLICABLE
OOR - OUT OF RANGE
ORG. - ORGANIC
PLAST. - PLASTICITY
REC. - RECOVERY
RES. - RESIDUAL
RTK - REAL TIME KINEMATIC
SAA - SAME AS ABOVE
SAP. - SAPROLITE
SAT. - SATURATED
SEDS. - SEDIMENTS
SPT - STANDARD PENETRATION TEST
SR - STATE ROAD
TR. - TRACE
UCP - UNDIVIDED COASTAL PLAIN
USCS - UNIFIED CLASSIFICATION SYSTEM
V- VERY
W - WET
W/ - WITH
WOH - WEIGHT OF HAMMER
WOR - WEIGHT OF ROD

ROBERTSON 1990 SOIL BEHAVIOR TYPE



Zone	Soil Behaviour Type (SBT)
1	Sensitive Fine-Grained
2	Organic Soils: Peats
3	Clay: Clay to Silty Clay
4	Silt-Mixtures: Clayey Silt to Silty Clay
5	Sand-Mixtures: Silty Sand to Sandy Silt
6	Sands: Clean Sands to Silty Sands
7	Gravelly Sand to Sand
8	Very Stiff Sand to Clayey Sand*
9	Very Stiff Fine-Grained*

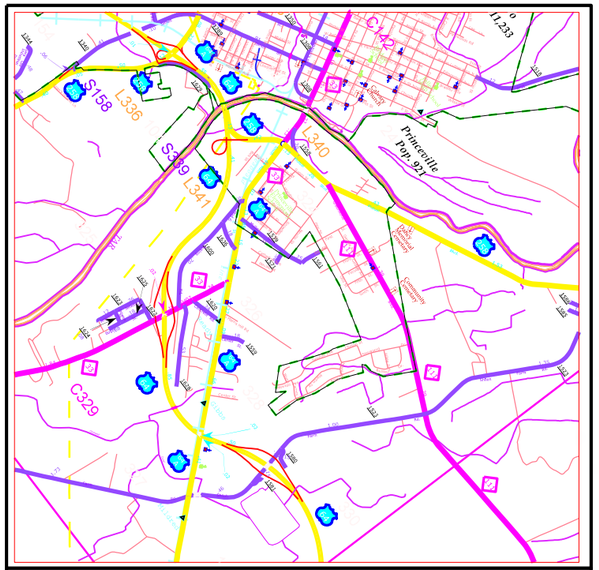
(* Overconsolidated or Cemented)

STATE	CATLIN PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	220035	3	79

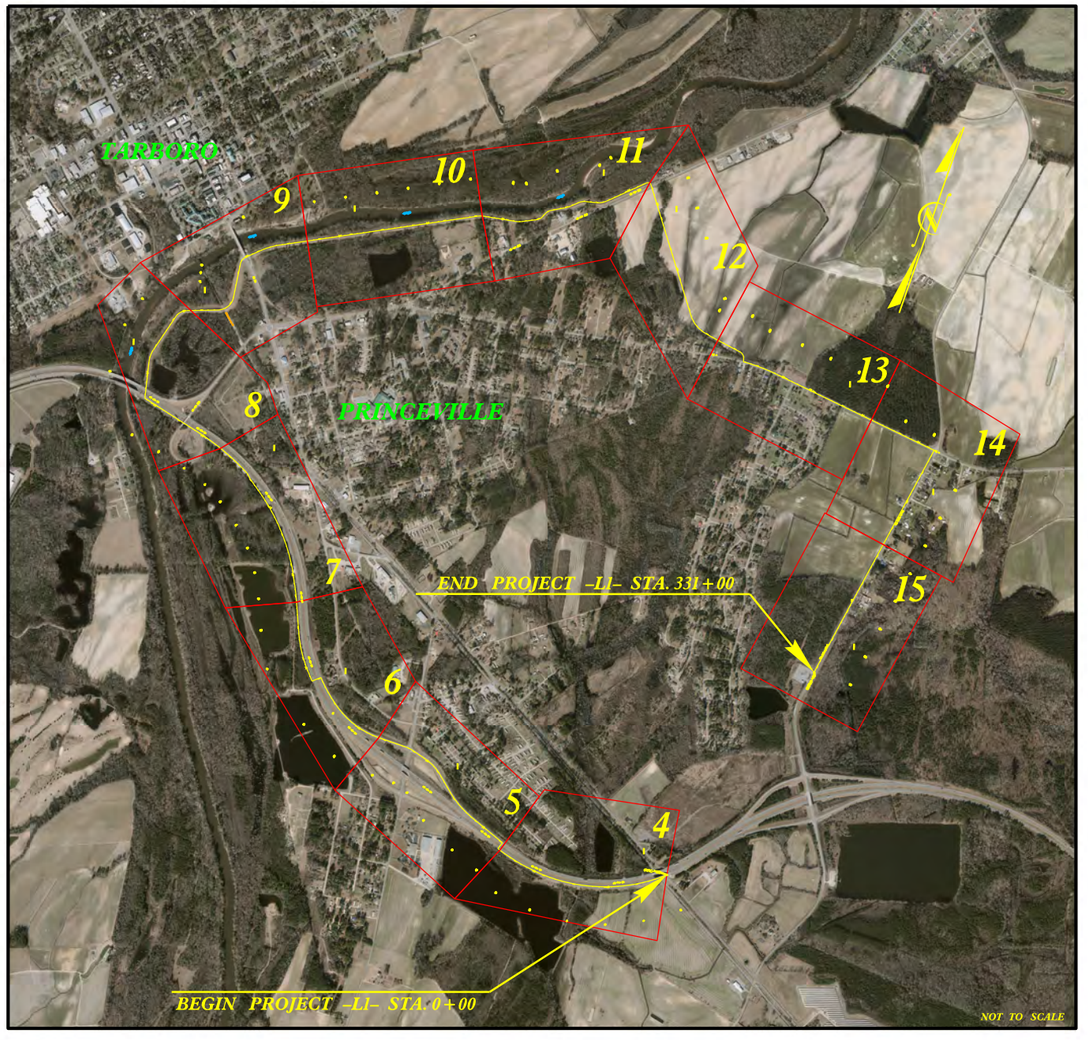
EDGECOMBE COUNTY

LOCATION: PRINCEVILLE FLOOD RISK MANAGMENT PROJECT
PRINCEVILLE, NC

TYPE OF WORK: GEOTECHNICAL SUBSURFACE INVESTIGATION



VICINITY MAP — NOT TO SCALE



CONTRACT NO: W912PM-16-D-0003

CATLIN Engineers and Scientists

PREPARED IN THE OFFICE OF:
CATLIN ENGINEERS AND SCIENTISTS
155 N. Market St.|Suite 221| Washington, NC 27889
Tel. (252)623-2083 | www.catlinusa.com

FOR THE US. ARMY CORPS OF ENGINEERS

Lee Stone, PG
CATLIN PROJECT MANAGER

Ben Lackey, PE
CATLIN GEOTECHNICAL ENGINEER

Mitchell H. Hall, PG
CHIEF, USACE GEOTECHNICAL DAM AND SAFETY SECTION

Kurt A. Heckendorf, PE
USACE GEOTECHNICAL DAM AND SAFETY SECTION

Mike Ellis, PE
USACE GEOTECHNICAL DAM AND SAFETY SECTION

US Army Corps of Engineers

PROJECT LENGTH = 6.3 miles

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

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Lee Stone AT LSTONE-CAD-PC

EXECUTIVE SUMMARY

The following summarizes the findings of the investigation, particularly those that may influence the design and construction of the planned Princeville Flood Risk Management Project (FRMP) in Princeville, NC. Information provided in the executive summary should not be utilized in lieu of reading the entire subsurface inventory report.

This project begins along the US 64 bypass at the dual NCDOT bridge(s) 327 and 328 over SR 1559 (-L1- Sta. 0+00). It extends west along the US 64 bypass corridor to just east of the Tar River bridge (-L1- Sta. 127+00) where it turns north and then east paralleling the Tar River. At -L1- Sta. 224+00 the project turns south and then east south east crossing an area of agricultural land (-L1- Sta. 224+50± to 257+50±). The project then parallels NC 111 to the NC 111 / SR 1523 intersection where it turns south south west down SR 1523 to -L1- Station 331+00. The total project corridor is approximately 6.3 miles long.

Field work was conducted from July 2020 to August 2020. Standard Penetration Test (SPT) borings, Cone Penetration Test (CPT) soundings, and undisturbed borings were completed along and at various offsets from the existing project alignment. Representative soil samples were collected for visual classification in the field and submitted for laboratory analysis.

Where possible, groundwater was measured in open boreholes 24 hours subsequent to completion All elevations are presented to the nearest one-tenth of a foot and referenced to the North American Vertical Datum of 1988 (NAVD88). These measurements were recorded in U.S. Survey Feet.

Three major geologic units were encountered across the project site: Undivided Coastal Plain, Yorktown Formation and Cape Fear Formation. These units comprise significant parts of the North Carolina Coastal Plain region and primarily consist of upland, surficial soils derived through weathering of the underlying formational soils, late Tertiary marine sediments, and Cretaceous delta, delta front, and alluvial deposits. A subsurface profile and selected cross sections from throughout the project area can be reviewed on sheets 16 through 79.

1.0 PURPOSE

This Princeville Flood Risk Management Project (FRMP), Subsurface Inventory Report provides an overview of the subsurface conditions present along and adjacent to the Princeville levee corridor. New subsurface geotechnical data is used in conjunction with historical data to assist with selecting an appropriate Course of Action (CoA). This report provides details of the subsurface conditions throughout the project site along with data sets needed to complete a preliminary design.

2.0 BACKGROUND INFORMATION

Princeville FRMP is a federally authorized and non-federally operated and maintained project; National Levee Database ID: 6105006001. The project is in Edgecombe County, North Carolina, on the Tar River at Princeville. The Princeville FRMP currently consists of two earthen levee sections (Section A and Section B), connected by U.S. Highway 64 Bypass to encompass three sides of Princeville, N.C. and associated drainage structures, equipped with flap gates at various points in the levee to provide interior drainage. Section A of the earthen levee begins at Tar River Bridge (-L1- Sta. 127+00) where it turns north, and then east paralleling the Tar River to -L1- Sta. 224+00. Section B of the earthen levee begins at -L1- Sta. 51+00 and generally parallels US 64 bypass corridor heading west, where it then ties into Section A of the levee at the Tar River bridge (-L1- Sta. 127+00). The existing levee earthen embankment is constructed of generally sandy soils with side slopes of 3H to 1V on the riverside and 2.5H to 1V on the landside. The Princeville FRMP was originally authorized by the Chief of Engineers under the ENGCW-PD 2nd endorsement dated 6 February 1964 to Wilmington District letter dated 12 December 1963 (subject “Princeville Dike, Tar River, Edgecombe County, North Carolina, Detailed Project Report”) under Section 205 of the Flood Control Act of 1948 as amended. Edgecombe County is responsible for operating and maintaining the Princeville FRMP.

2.1 HISTORIC AND RECENT SUBSURFACE INVESTIGATIONS

Several previous investigations have been conducted by USACE for the Princeville Levee and include: (1) subsurface investigation performed by USACE Savannah District in 1964; (2) a preliminary Geotechnical Investigation by Froehling and Robertson, Inc. in 1965; (3) an adjunct geotechnical report prepared by Titan Atlantic Group, Inc. in 2000; (4) an additional investigation along the entire existing Princeville levee and a proposed extension of the levee in the northeast by USACE Wilmington District in 2006; (5) subsurface investigation collected adjacent in a newly proposed borrow area performed by USACE Wilmington District in 2009; and (6) additional subsurface information collected to address repairs to the railroad closure structure damaged by the hydraulic loading caused by flooding during Hurricane Matthew performed by USACE Wilmington District in 2017. All investigative reports, boring logs and lab data are provided in the Appendix C and Appendix D of the Princeville Drilling Program Plan submitted to USACE, Wilmington District, by CATLIN on July 10, 2020.

In 1964, thirty-eight Standard Penetration Test (SPT) borings were advanced along the proposed levee alignment by the USACE Savannah District. The borings were advanced between 20 to 30 feet Below Land Surface (BLS). See sheets 4 to 15 for boring locations. The soils encountered along the existing alignment (Section A, parallel to the Tar River) consist primarily of clean sand and silty sands. A layer of silty clay was encountered between 10 to 20 feet BLS. The SPT blow count in the clay layer, indicated that the clay was very stiff to hard (N=25-60). No evidence of instability or settlement has been noted along the existing levee during routine or periodic inspections.

Repairs were made to eroded areas of the levee in 2000 by USACE. Four samples were collected in the borrow area and submitted to Froehling and Robertson, Inc. for laboratory testing. As a portion of the repair project, Titan Atlantic Group performed Field Density Tests (ASTM D 1556) to confirm compaction of approved structural fill that was used for the repair.

In 2006, USACE Wilmington district performed a subsurface investigation along the existing levee and the proposed extension of the levee to the northeast. A drill rig was mobilized from the Savannah District to assist in the investigation. The rig was unable to access the proposed borrow area and adjustments were made to the tentatively selected plan once drilling operations were completed. As a result, a complete subsurface investigation along the entire levee alignment was not accomplished and the resulting data does not include the entire tentatively selected plan. Eleven SPT borings were advanced along Section B and the proposed northeast extension. The boring locations were terminated at a depth between 15 to 31 feet BLS. The soils encountered show interbedded sands, consisting of silty sand, clayey sand, and poorly graded sand. Fat clay was encountered between 11 to 15 feet BLS at three locations (PFR-06-SS-13, PFR-06-SS-14, & PFR-06-SS-21). At location PFR-06-SS-19, fat clay was encountered at 2 feet BLS.

Seven Direct Push borings were advanced along Section B and the proposed northeast extension, four of which were in the roadways, with depths ranging from 15.5 to 30 feet BLS. These locations indicate a significant presence of poorly graded sands, clayey sands and silty sands. Lean silts and sandy lean clays were encountered, along with fat clay in two of the boring locations. Four pavement cores were taken on Highway 258 and Shiloh Farm Rd. A few inches of the asphalt/concrete were cored, and the underlying silty and clayey sands were sampled approximately 3 to 4 feet BLS. Seven Cone Penetration Test (CPT) were performed in correlation with SPT and Direct Push results

USACE Wilmington District conducted a field exploration program in April 2009. Nineteen SPT boring locations were advanced to depths ranging from 15 to 30 feet BLS. Eleven of the nineteen borings were drilled in the existing levee, three (3) of the nineteen boring locations were drilled in the vicinity of Highway 64, and five (5) of the nineteen borings were drilled in the newly proposed borrow area. Two hundred fifty samples were collected from the nineteen SPT locations and submitted to Ardaman and Associates, Inc. in Orlando, Florida for laboratory testing. Three (3) boxes of bulk soil samples obtained from the proposed borrow area were also submitted for testing. Based on the subsurface information generated during the investigation, clean sands with interbedded layers of silty sand and clayey sand were found in the boring locations, especially locations closest to the river. A moderately stiff layer of fat clay was encountered in some of the boring locations. Correlation of the lithology between boring locations is not apparent due to the interbedded nature of the river sediments. For seepage and stability analyses, assumed subsurface conditions were based on closest boring locations.

In 2017, USACE Wilmington District performed a subsurface investigation to obtain data on embankment and foundation soil conditions to properly evaluate repair options for the damage sustained to the levee during the flooding caused by Hurricane Matthew. Several sinkholes and areas of subsidence were observed on the levee side slopes near the railroad closure structure. The sinkholes were approximately 3 to 6.5 feet in diameter, one to two feet deep, and located 10 to 15 feet south of the west terminal wall. Approximately two feet of subsidence of the railroad embankment material was observed at the base of closure structure on the riverside. Two boring locations were completed from 29 to 51 feet BLS, and the data were used to provide information for the installation of the sheet pile curtain or grout curtain that was proposed to extend from the base of the closure structure into the foundation of the levee. The two boring locations indicate clean sands with interbedded layers of silty sand and clayey sand. Sandy lean clay with an interbedded clayey sand layer was encountered in one of the borings (PRC-17-SPT-2) from the existing land surface to a depth of approximately 5.5 feet.

The North Carolina Department of Transportation (NCDOT) has conducted several subsurface investigations for the design and construction of several transportation projects in this area. In 1992, a comprehensive geotechnical investigation was performed for the design and construction of the US HWY 64 bypass (NCDOT TIP R-2111AA and R-2111AB). In 1993, NCDOT performed subsurface investigations for the construction of Bridges 327 and 328 on US 64 Bypass over SR 1559, and for Bridge No. 324, built for the interchange loop from US HWY 64 bypass onto Mutual Boulevard. In 2007 NCDOT completed a geotechnical investigation for TIP project B-2965, which made improvements along US 64A / NC 33 in Princeville and Tarboro, along with the construction of a replacement for Bridge No. 24 over the Tar River. In 2017, NCDOT contracted Kleinfelder to provide a subsurface investigation report for the Princeville Dike Project. Investigations were performed along US HWY 64 after NCDOT had repaired portions of the highway damaged by the flooding associated with Hurricane Matthew in 2016. Copies of these reports are attached to this Inventory Report in Appendix C.

3.0 OBJECTIVE

The purpose of this preliminary subsurface investigation was to generate geologic and geotechnical data to be used in conjunction with existing data to assist with the design analysis for new levee construction and grade modification of existing roadways. These subsurface investigation locations were determined by CATLIN, in consultation with USACE Wilmington District. The subsurface investigation locations can be reviewed on sheets 4 to 15.

In the areas of proposed new levee construction, subsurface investigations were done at minimum intervals of ±750 feet. The start of this section ties into the existing levee, located approximately at station -L1- 224+00, ranging to the end of the project alignment at station -L1- 331+00. Subsurface investigations were advanced along and at various offsets of the proposed new levee centerline.

In areas along existing roadways, subsurface investigations were done at minimum intervals of ±1000 feet. The start of this section is at the beginning of the project alignment at station -L1- 0+00, and ties into the existing levee located approximately at station –L1- 128+25. Subsurface investigations were advanced at various offsets along these sections. The following was completed per project section:

- CPT strength values and SPT N-values from the roadway embankment and correlate to soil strength parameters and friction angle values in accordance with Terzaghi and Peck (1967)
- Undisturbed soil samples for triaxial shear (consolidated undrained and unconsolidated undrained) to formally evaluate embankment slope stability under current load conditions

4.0 FIELD EXPLORATION

The objective of the planned field exploration was to characterize the project site in geotechnical and geological terms and evaluate subsequent field and laboratory data to summarize the preliminary investigation.

4.1 FIELD METHODOLOGY

CPTs were used to advance 32 of the total 49 subsurface investigations. The soundings were conducted with a Vertek CPT mounted on a tracked carrier. Data were collected almost continuously during the advancement of the CPT soundings, including (Tip) Resistance, Local (Sleeve) Friction, Pore Pressure (U2) and Depth. The data collected presents Tip Resistance, Sleeve Friction, Friction Ratio, Pore Pressure, Soil Behavior Type (based on Robertson 1990) with interpreted Unified Soil Classification System (USCS) soil equivalent, and 60% Equivalent Standard Penetration Testing (SPT) N-Values. These results have been presented on the CPT logs shown in Appendix A.

SPTs were used to advance 17 of the total 49 subsurface investigations. Boreholes using SPT methods were advanced utilizing a Central Mine Equipment (CME) 55 and 45C drilling rig using hollow stem auger or mud rotary methods. Hollow Stem Augers (HSAs) were used to advance subsurface investigations that were completed within any existing roadway embankment. Mud rotary methods were used only along the proposed new levee alignment, in areas were no existing embankment was

present. Heaving sands were encountered along the US HWY 64 alignment and was mitigated by suppressing these sands with water introduced through the hollow stem augers. Water used in the auger did not exceed the static groundwater level observed during the investigation. SPT soil sampling was conducted in accordance with ASTM D1586 (Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils). Borings began at the ground surface and advanced in continuous drive increments of 1.5 feet. A 2-foot long split spoon sampler was used in order to obtain the physical continuous sampling. The sample was driven utilizing a 140-pound hammer falling 30 inches.

Due to disturbance effects, the number of blows required to drive the sampler the first six inches is not considered in the SPT N-value. The SPT N-value is based on the second and third 6-inch increments and this resistance is designated the "penetration resistance." The boring logs from this investigation, as well as investigations completed prior, can be found in Appendix A.

The potential risk of hyrdo-fracture of the embankment, internal erosion, contamination of drainage features, or other indirect damages to the levee or embankment was minimized since the use of drilling fluids in existing embankments was not used.

Utility clearances and a field-check of each borehole location occurred prior to commencement of drilling operations. CPT and SPT boring locations were laid out by CATLIN geologists and then adjusted as needed. The ground surface elevation and location of each boring was collected using real time kinematic (RTK) global positioning system (GPS). All units are recorded and submitted to the nearest foot horizontally using North Carolina State Plane (NCSP) North American Datum 1983 (NAD83) coordinate system and one tenth of a foot vertically on the North American Vertical Datum 1988 (NAVD88).

Eight (8) of the SPT locations were advanced for the collection of 12 Undisturbed samples, which were conducted in accordance with ASTM D1587 (Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes). The samples were stored upright, and undisturbed, upon delivery to the Geotechnics Laboratory in Raleigh, NC. The results for these samples will be submitted to USACE, Wilmington District once the tests are completed.

Soil samples were classified using the Unified Soils Classification System (USCS) and described on field boring logs in relation to color, texture, material type, and moisture condition and recorded on USACE 1836-A drilling logs. A qualified geologist supervised the borings and soil classifications in the field. A portion of each sample was collected and placed in a sealed container and transported to the Geotechnics laboratory in Raleigh, NC for further analysis to verify field condition. The boring logs and subsequent lab data can be found in Appendix A and Appendix B, respectively.

SPTs, CPTs, and Undisturbed sample boring locations not in the levee embankment were backfilled using bentonite pellets/chips. All boring locations completed in existing roadway embankment were grouted closed using a tremie pipe. Bentonite-Cement Grout was made in accordance with EM 1110-2-1804 "Geotechnical Investigations; Chapter F-14: 14-2. Grouting". Prior to backfilling, the site inspector collected 24-hour depth to water readings that are presented on the logs in Appendix A.

4.2 REGIONAL SITE GEOLOGY

The site project lies within the southeastern portion of the Outer Coastal Plain Physiographic Province in North Carolina. The Outer Coastal Plain, as described by David R. Soller and Hugh H. Mills in the Geology of the Carolinas (1991), is the eastern portion of the Coastal Plain where constructional topography is evident of dominant. The Inner Coastal Plain begins at the Fall Line and narrows northerly and is an area of erosional topography. According to Horton and Zullo in the Geology of the Carolinas (1991), the Coastal Plain is comprised of seawards thickening wedge of post-Triassic, primarily unconsolidated, siliciclastic sediments and carbonate rocks that extend from the Fall Line to the continental shelf break. Coastal Plain sediments were deposited in several different environments including but not limited to, off-shore marine, near-shore marine, lagoonal, and deltaic. The eustatic rise and fall of sea level has resulted in numerous sedimentary packages of transgressive and regressive sequences deposited throughout the Coastal Plain.

During the subsurface investigation, three geologic units were encountered: Undivided Coastal Plain, Yorktown Formation and Cape Fear Formation. Existing Roadway Embankment was encountered along the US 64 highway corridor. The Undivided Coastal Plain is defined as a lithologic unit that exhibit physical or chemically weathered characteristics of the underlying coastal plain formations in the North Carolina Coastal Plain Region. The Undivided Coastal Plain is typically encountered in the upland soils of the Coastal Plain, separated from Alluvial and North Carolina Coastal Plain Formations. The Yorktown Formation is Late Miocene, Early Pliocene in age and is composed largely of over consolidated sand and soft clay and is fossiliferous with an abundance of calcareous shells, mainly consisting of bivalves. The Cape Fear Formation is an Upper Cretaceous deltaic and alluvial deposit that consists of interbedded clays and sands exposed along deeply entrenched rivers such as the Cape Fear (Sohl and Owens 1991). The formation is overlain by the Middendorf Formation, the Black Creek Group, and the Pee Dee Formation. These formations appear to be absent from the subsurface investigations at the Princeville FRMP.

On US HWY 64, roadway embankment thicknesses ranged from ground level to ±30 feet BLS. The roadway embankment generally consisted of Poorly Graded Sand, Well Graded Sand, and Silty Sand. The soil layers below the existing roadway embankment generally consisted of Undivided Coastal Plain, Yorktown Formation and Cape Fear Formation lithologies. The Undivided Coastal Plain along the Hwy US 64 corridor primarily consisted of Poorly Graded Sand, Silty Sand, and Clayey Sand, with a Sandy Silt and Sandy Silty Clay layer encountered at the start of the alignment at station -L1- 0+00 to -L1- 6+60. The Yorktown Formation along the US HWY 64 corridor was primarily Silty Sand and Clayey Sand, with varying amount of shell fragments throughout. The Cape Fear Formation along the US HWY 64 corridor primarily consisted of Sandy Lean Clay and Sandy Clayey Silt, with interbedded layers of Silty Sand, Clayey Sand and Poorly Graded Sand. Profiles showing these lithologic changes along the alignment on US HWY 64 can be reviewed on sheets 16 to 25.

Along the proposed new levee construction and additional grade modifications to existing NC 111 and Shiloh Farm roadways starting at station -L1- 224+00, the soil layers were primarily Undivided Coastal Plain, Yorktown Formation and Cape Fear Formation. The Undivided Coastal Plain on this section of the alignment primarily consisted of Poorly Graded Sand, Silty Sand and Clayey Sand. Thinly interbedded layers of Sandy Clay were encountered in subsurface investigation locations starting at -L1- 255+50 all the way to the end of the project alignment at -L1- 331+00. The Yorktown Formation, starting at station -L1- 224+00 and ending at -L1- 331+00, primarily consisted of Clayey Silt and Silty Clay, overlying a layer of Silty Sand and Clayey Sand starting at -L1- 266+00. The Cape Fear Formation along the proposed new levee construction, primarily consisted of Poorly Graded Sand, Silty

Sand and Clayey Sand; which overlies a layer of Silty Sandy Clay encountered from -L1- 224+00 to -L1- 262+75, and -L1- 291+00 to -L1- 331+00. Profiles showing these lithologic changes along the alignment on US HWY 64 can be reviewed on sheets 32 to 39.

4.3 AREAS OF SPECIAL GEOLOGICAL INTEREST

4.3.1 HIGH GROUND WATER

Groundwater data were collected during July and August 2020. The following sections of the project exhibited groundwater within 6.0' feet of the ground surface.

Line	Station (±)
-L1-	0+00 to 1+00
-L1-	227+00 to 230+00
-L1-	240+00 to 331+00

4.3.2 COHESIVE SOILS

The following sections of the project exhibited cohesive soils which have the potential to cause embankment and/or slope stability problems.

Line	Station (±)
-L1-	0+00 to 7+90
-L1-	15+60 to 22+90
-L1-	30+35 to 45+93
-L1-	49+71 to 122+80
-L1-	143+70 to 148+15
-L1-	154+32 to 331+00

4.3.3 UNDISTURBED SAMPLES

Undisturbed thin wall Shelby tube samples were collected at the following locations and submitted to a laboratory for testing.

Sample No.	Station (±)	Depth (ft)	Recovery (ft)	Test
PRN_20_UD_SPT06-1	-L1- 221+89 94' RT	18.3 - 0.1	1.8	Consolidation, UU Triaxial
PRN_20_UD_SPT06-2	-L1- 221+89 94' RT	20.1 -22.1	2.0	Consolidation, CU Triaxial
PRN_20_UD_SPT07-1	-L1- 237+27 169'RT	10.5 - 2.7	2.1	Consolidation, CU Triaxial
PRN_20_UD_SPT07-2	-L1- 237+27 169' RT	16.5 - 18.5	1.0	Consolidation, UU Triaxial
PRN_20_UD_SPT08	-L1- 250+26 29' LT	21.0 - 23.0	1.1	Consolidation, UU Triaxial
PRN_20_UD_SPT09-1	-L1- 323+00 20' LT	13.0 - 15.0	2.0	Consolidation, UU Triaxial
PRN_20_UD_SPT09-2	-L1- 323+00 20' LT	15.0 - 17.0	1.8	Consolidation, CU Triaxial
PRN_20_UD_CPT01	-L1- 0+93 54' RT	5.0 - 7.0	1.2	Consolidation, UU Triaxial
PRN_20_UD_CPT18	-L1- 229+17 37' LT	10.0 - 12.0	2.0	Consolidation, CU Triaxial
PRN_20_UD_CPT21-1	-L1- 244+45 111' RT	16.5 - 18.5	1.7	Consolidation, UU Triaxial
PRN_20_UD_CPT21-2	-L1- 244+45 111' RT	18.5 - 20.5	1.1	Consolidation, UU Triaxial
PRN_20_UD_CPT31	-L1- 313+97 52' RT	22.0 - 24.0	1.9	Consolidation, CU Triaxial

5.0 LABORATORY TESTING

A full range of ASTM classification and strength tests were performed for this project (see table below for details). Triaxial shear is required in order to assess proposed embankment slope stability, seepage, and settlement analysis. In accordance with ER 1110-1-8100 "Engineering and Design: Laboratory Investigations and Testing" and ER 1110-1-261 "Engineering and Design: Quality Assurance of Laboratory Testing Procedures", only USACE approved soil laboratories were used for testing. Laboratory testing results provided to CATLIN by Geotechnics can be found in Appendix B of this inventory report.

Test	ASTM Standard	Quantity
Particle-Size Distribution	ASTM D6913	41
Particle Size Analysis (Sieve and Hydrometer)	ASTM D422	12
Atterberg Limits	ASTM D4318	12
Visual Classification	ASTM D2487	53
Consolidation	ASTM D2435	12
Consolidated-Undrained (CU) Triaxial Test	ASTM D4767	5
Unconsolidated-Undrained (UU) Triaxial Test	ASTM D2850	7

6.0 CLOSING

CATLIN has prepared this Princeville Flood Risk Management Investigation and Design Analysis Report to provide guidance for the collection of additional information to assist in the design of the Authorized Project and the selected CoA. The information submitted in this report is based upon the data obtained from field and laboratory tests performed at the locations indicated on the site plan and other information referenced in this report. This report is intended to provide general site characteristics. Additional testing and analysis may be needed for full design. Furthermore, this report does not reflect any variations that may occur between subsurface investigation locations. In the performance of the subsurface investigations, specific information is obtained at specific locations at specific times. However, variations in soil and rock conditions exist on most sites between subsurface investigation locations and situations such as groundwater levels vary from time to time. The nature and extent of these variations may not become evident until the course of additional investigation and/or construction activities have begun. If variations appear evident, it will become necessary for a reevaluation of the information presented in this report.

The reproduction of this report is authorized for the general use in developing construction plan and specifications for the project and general distribution for biding purposes. Reproduction and/or distribution of this report for other engineering documents supplied to persons other than the client should bear the language indicating that the information contained therein if for general information only and that the client and CATLIN Engineers and Scientists are not liable for such other person for and representation made therein. Third parties that rely on this report recognize that environmental and geologic conditions can vary from those encountered at the times and locations where data are obtained, and that the limitation on available data may result in some level of uncertainty with respect to the interpretation of those conditions, despite due professional care.

PROJECT REFERENCE NO.	SHEET NO.
220035	4



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US HWY 64

-L1- STA 56+00

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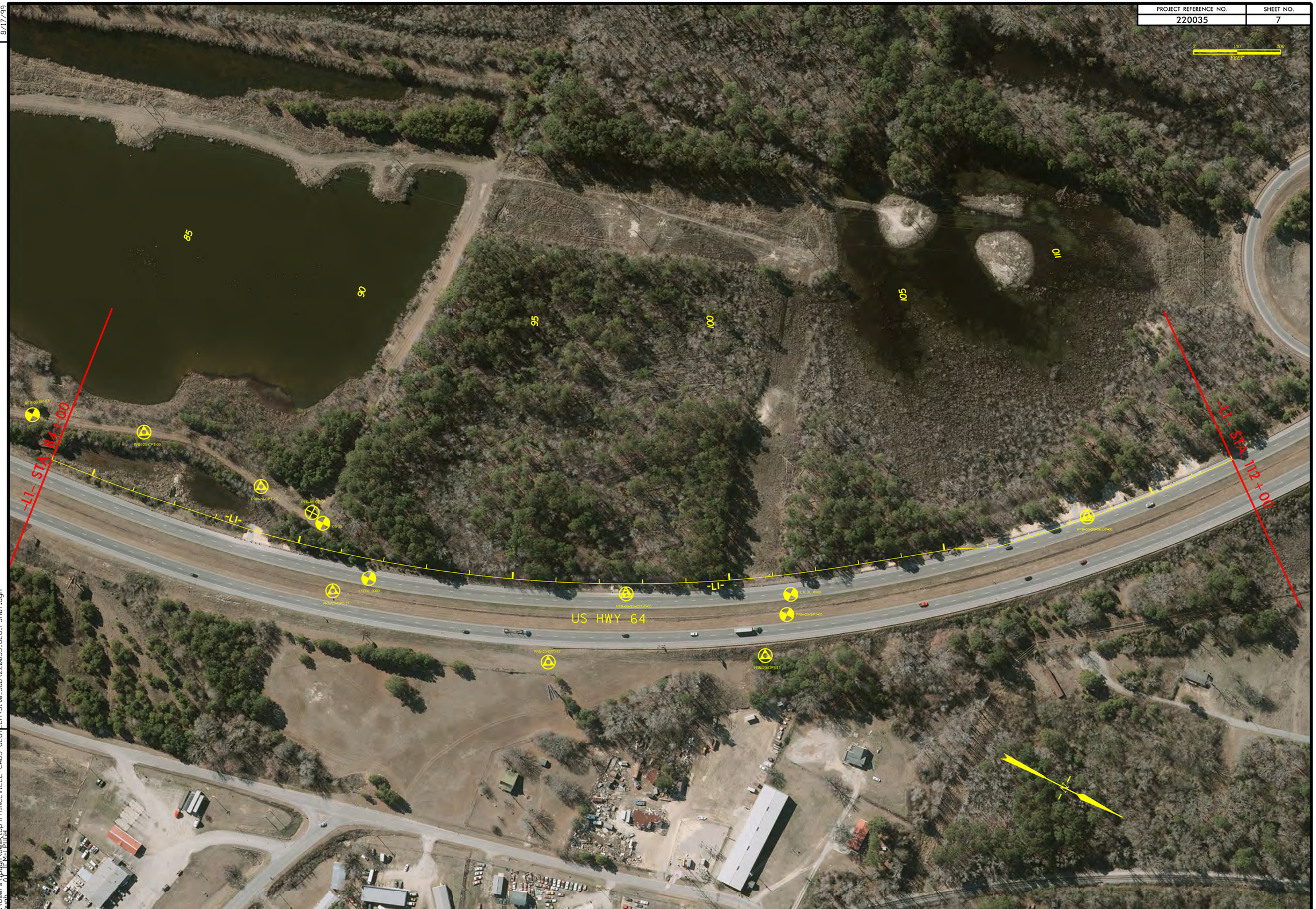

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US HWY 64

US HWY 64

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TAR RIVER

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TAR RIVER

NC 33

-L1- STA 140+00

-L1- STA 168+00

155

150

145

160

165

CS-19

CS-18

CS-17

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CS-08

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CS-06

CS-05

CS-04

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CS-02

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PD-BP-SS-02

PD-BP-SS-01

PHS-17-SPT-01

PHS-17-SPT-02

Boundary of Site Model

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TAR RIVER

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US HWY 258

US HWY 258

CS-05
CS-04
CS-03
CS-02
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CS-01
PSH-01-CS-01
PSH-01-CS-02

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PRN-20-CPT-18
PRN-20-CPT-19
PRN-20-CPT-20
PRN-20-CPT-21
PRN-20-SPT-08
PRN-20-CPT-22

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PRN-20-CPT-20

PRN-20-CPT-02

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PRN-20-CPT-23

PRN-20-CPT-24

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NC 111

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PRN-20-CPT-30

PP-R-09-SS-16

PRN-20-CPT-31

PRN-20-CPT-32

285

290

295

300

305

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
220035	15

0 100 200
FEET

310

315

320

325

330

-L1- STA. 308+00

-L1-

END -L1- STA. 331+00

SHILOH FARM RD.

PRINCEVILLE

REVISIONS

8/17/99

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5/14/99

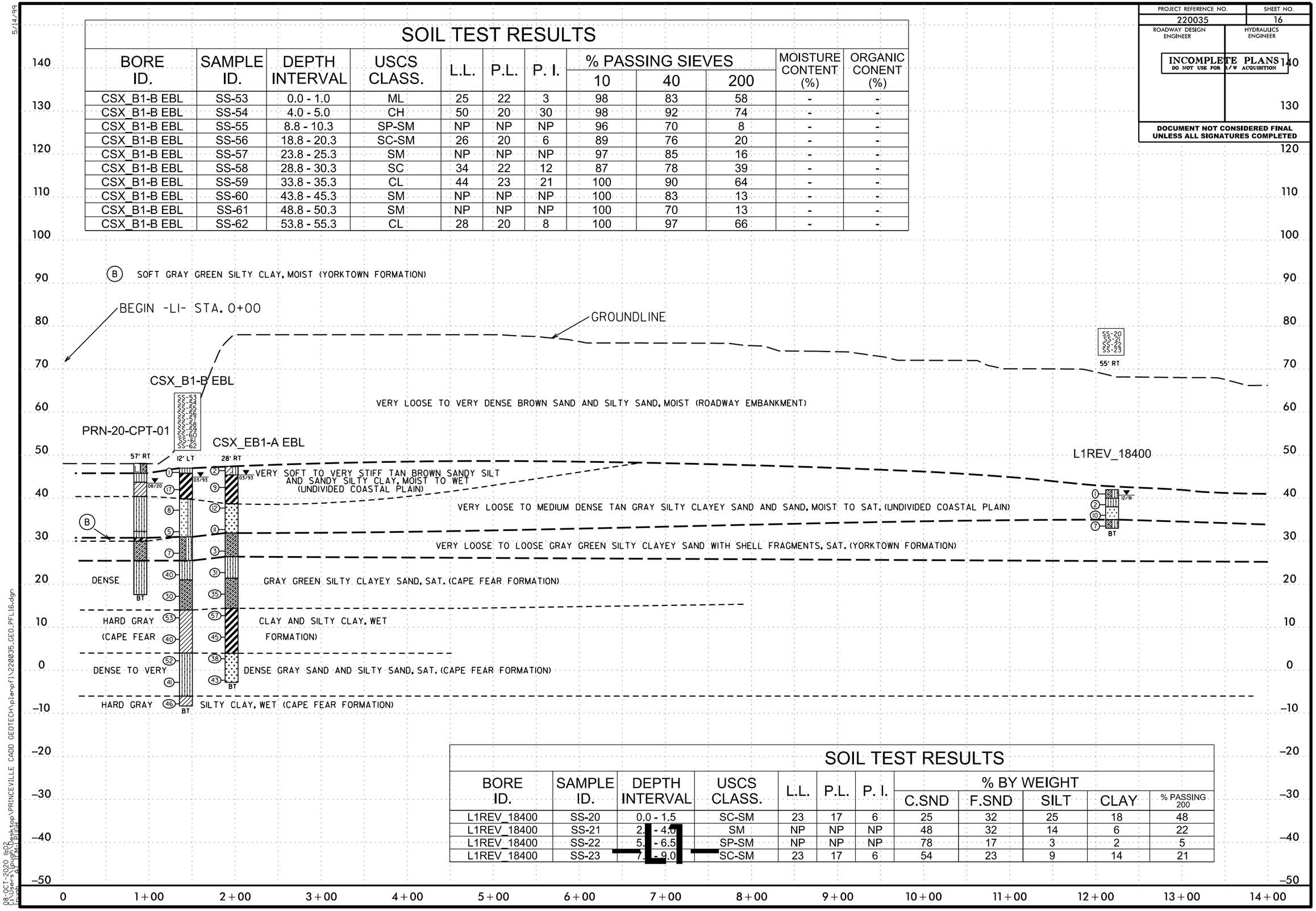
PROJECT REFERENCE NO.	SHEET NO.
220035	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
CSX_B1-B EBL	SS-53	0.0 - 1.0	ML	25	22	3	98	83	58	-	-
CSX_B1-B EBL	SS-54	4.0 - 5.0	CH	50	20	30	98	92	74	-	-
CSX_B1-B EBL	SS-55	8.8 - 10.3	SP-SM	NP	NP	NP	96	70	8	-	-
CSX_B1-B EBL	SS-56	18.8 - 20.3	SC-SM	26	20	6	89	76	20	-	-
CSX_B1-B EBL	SS-57	23.8 - 25.3	SM	NP	NP	NP	97	85	16	-	-
CSX_B1-B EBL	SS-58	28.8 - 30.3	SC	34	22	12	87	78	39	-	-
CSX_B1-B EBL	SS-59	33.8 - 35.3	CL	44	23	21	100	90	64	-	-
CSX_B1-B EBL	SS-60	43.8 - 45.3	SM	NP	NP	NP	100	83	13	-	-
CSX_B1-B EBL	SS-61	48.8 - 50.3	SM	NP	NP	NP	100	70	13	-	-
CSX_B1-B EBL	SS-62	53.8 - 55.3	CL	28	20	8	100	97	66	-	-



SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT C.SND	F.SND	SILT	CLAY	% PASSING 200
L1REV_18400	SS-20	0.0 - 1.5	SC-SM	23	17	6	25	32	25	18	48
L1REV_18400	SS-21	2.[illegible] - 4.0	SM	NP	NP	NP	48	32	14	6	22
L1REV_18400	SS-22	5.[illegible] - 6.5	SP-SM	NP	NP	NP	78	17	3	2	5
L1REV_18400	SS-23	7.[illegible] - 9.0	SC-SM	23	17	6	54	23	9	14	21

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at 1"=1 Plan

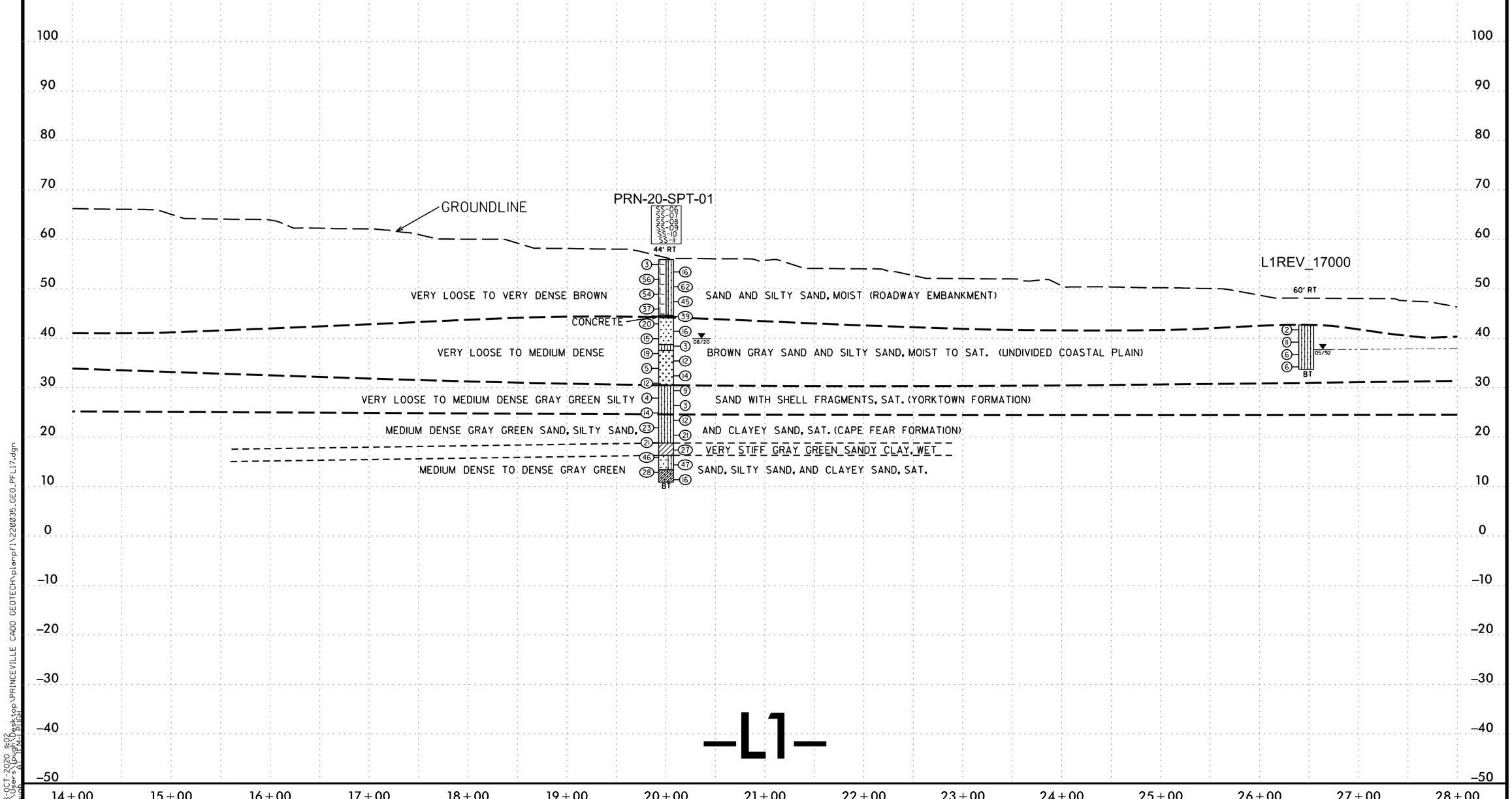
PROJECT REFERENCE NO.	SHEET NO.
220035	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-01	SS-06	17.2 - 18.0	SM	NP	NP	NP	100	90	45	22	-
PRN-20-SPT-01	SS-07	25.5 - 27.0	SM	NP	NP	NP	100	76	22	23	-
PRN-20-SPT-01	SS-08	33.0 - 34.5	SM	NP	NP	NP	82	65	19	19	-
PRN-20-SPT-01	SS-09	37.5 - 39.0	CL	37	17	20	100	98	79	21	-
PRN-20-SPT-01	SS-10	39.6 - 40.5	SP-SM	NP	NP	NP	100	99	8	29	-
PRN-20-SPT-01	SS-11	42.5 - 43.5	SC	37	21	16	100	98	34	25	-



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jpugh AT TEMPLPUGH

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
220035	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT				% PASSING 200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							C.SND	F.SND	SILT	CLAY			
L1REV_16000	SS-15	0.0 - 1.5	SM	NP	NP	NP	43	49	4	4	12	-	-
L1REV_16000	SS-16	2.5 - 4.0	SP-SM	NP	NP	NP	51	42	3	4	9	-	-

(B) SOFT GRAY GREEN SILTY CLAY, MOIST (YORKTOWN FORMATION)

PRN-20-CPT-03

L1REV_16000

135' LT
SS-15
SS-16

PRN-20-

36'

61' LT

GROUNDLINE

LOOSE TO MEDIUM DENSE TAN BROWN SAND AND SILTY SAND, MOIST

(ROADWAY EMBANKMENT)

VERY LOOSE TO LOOSE TAN BROWN (UNDIVIDED C.P.)

SAND AND SILTY SAND, MOIST TO SAT.

08/20

2
4
8
12

12/9

BT

VERY LOOSE TO MEDIUM DENSE GRAY GREEN SAND AND SILTY SAND, WITH SHELL FRAGMENTS, MOIST TO SAT. (YORKTOWN FORMATION)

(B)

VERY LOOSE TO MEDIUM DENSE GRAY GREEN SAND AND SILTY SAND WITH SHELL FRAGMENTS, SAT.

MEDIUM DENSE BLUE GRAY SILTY SAND AND SANDY SILT, SAT. (CAPE FEAR FORMATION)

BT

B

-L1-

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 –10 –20 –30 –40 –50

28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00

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21 IFL Bd Eight

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PROJECT REFERENCE NO.	SHEET NO.
220035	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

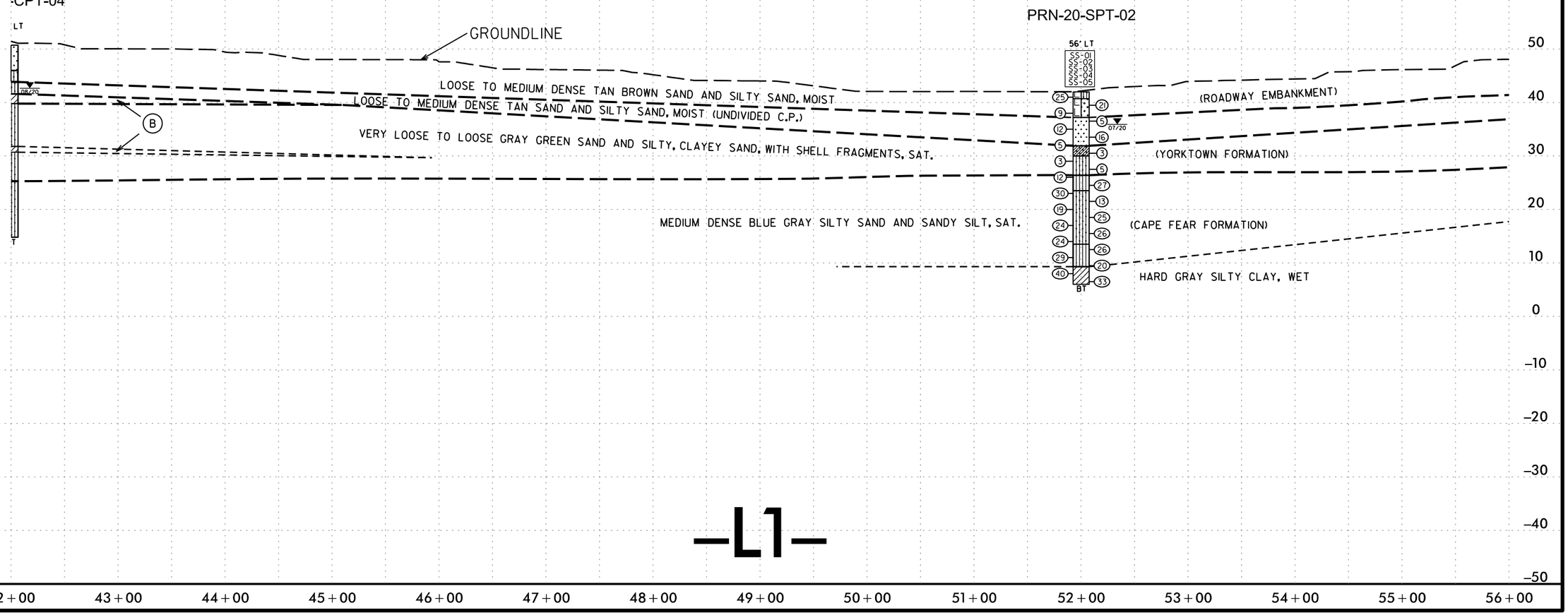
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES			MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							10	40	200		
PRN-20-SPT-02	SS-01	0.0 - 1.3	SM	NP	NP	NP	88	64	20	3	-
PRN-20-SPT-02	SS-02	4.8 - 6.0	SP	NP	NP	NP	96	33	4	9	-
PRN-20-SPT-02	SS-03	12.0 - 13.5	SM	NP	NP	NP	100	86	20	25	-
PRN-20-SPT-02	SS-04	22.5 - 24.0	SM	NP	NP	NP	100	77	12	23	-
PRN-20-SPT-02	SS-05	33.0 - 34.1	CL	-		-	100	90	52	31	-

(B) SOFT GRAY GREEN SILTY CLAY, MOIST (YORKTOWN FORMATION)



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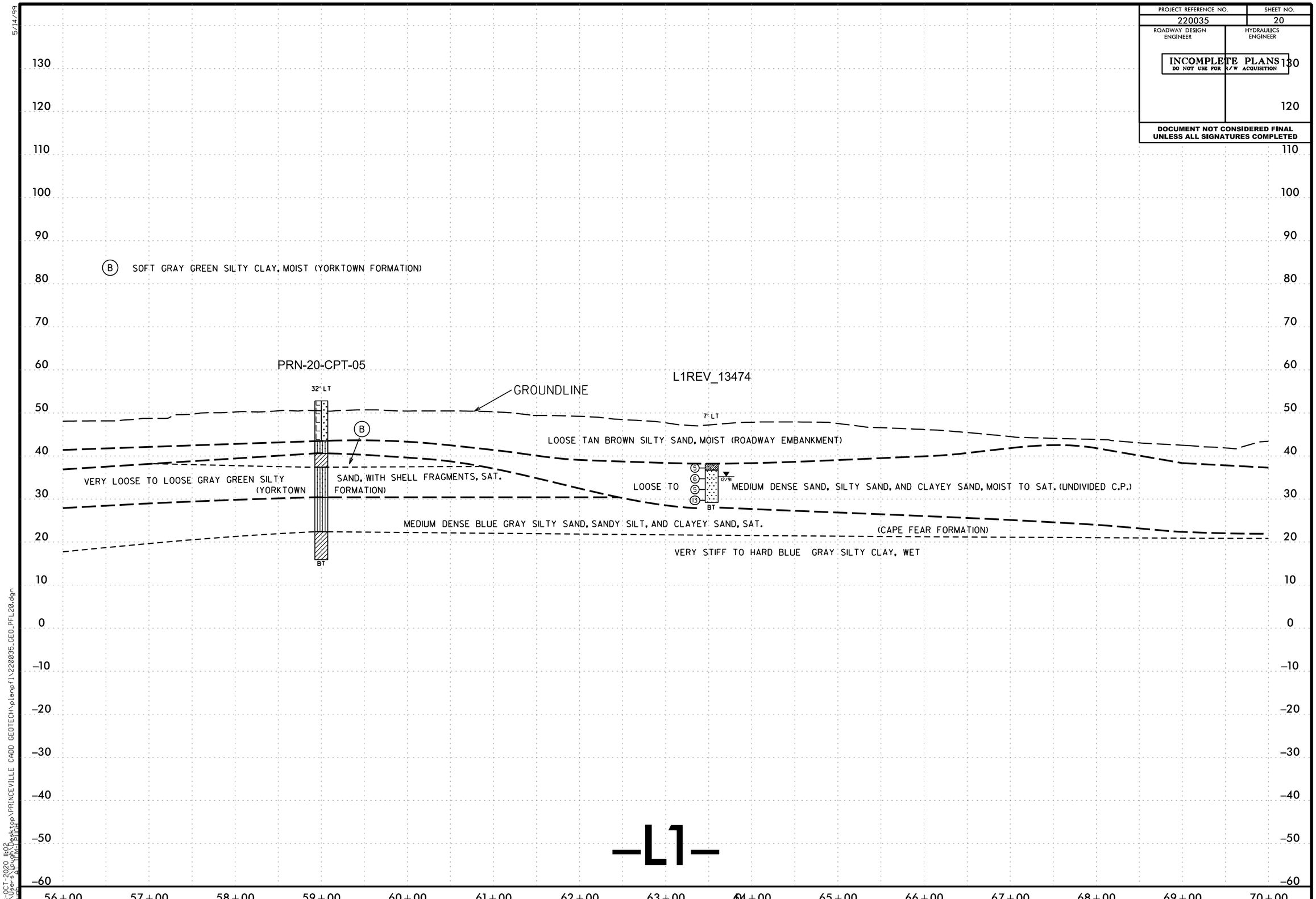

PROJECT REFERENCE NO.
220035
SHEET NO.
20
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
5/14/99
B SOFT GRAY GREEN SILTY CLAY, MOIST (YORKTOWN FORMATION)
PRN-20-CPT-05
32' LT
GROUNDLINE
L1REV_13474
7' LT
B
LOOSE TAN BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)
VERY LOOSE TO LOOSE GRAY GREEN SILTY SAND, WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION)
LOOSE TO MEDIUM DENSE SAND, SILTY SAND, AND CLAYEY SAND, MOIST TO SAT. (UNDIVIDED C.P.)
5
6
5
13
12/91
BT
MEDIUM DENSE BLUE GRAY SILTY SAND, SANDY SILT, AND CLAYEY SAND, SAT.
(CAPE FEAR FORMATION)
VERY STIFF TO HARD BLUE GRAY SILTY CLAY, WET
BT
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
56+00
57+00
58+00
59+00
60+00
61+00
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
70+00
-L1-
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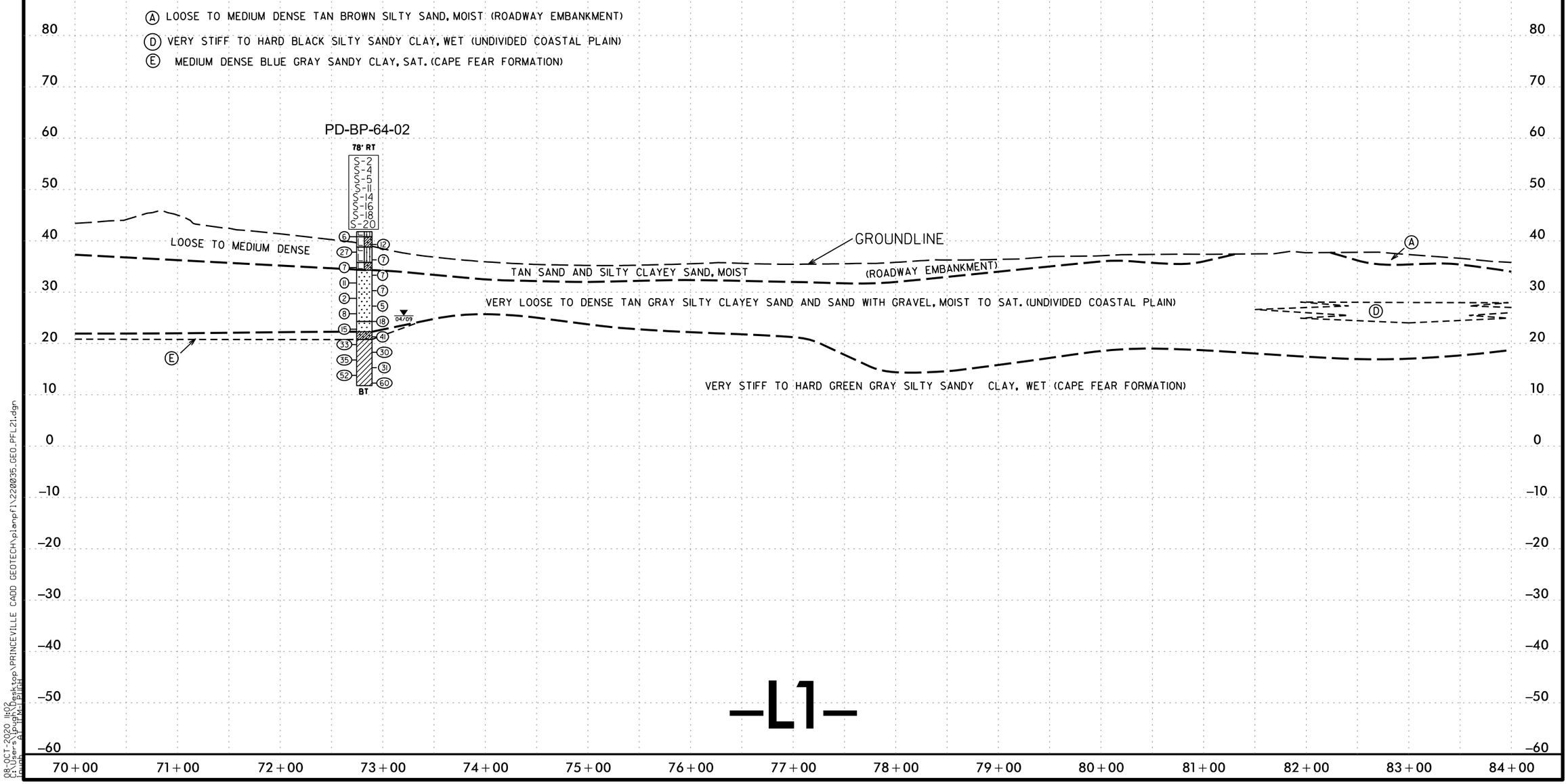
PROJECT REFERENCE NO.	SHEET NO.
220035	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PD-BP-64-02	S-2	1.5 - 3.0	SC	-	-	-	95	68	28	10	-
PD-BP-64-02	S-4	4.5 - 6.0	SM	-	-	-	99	80	38	10	-
PD-BP-64-02	S-5	6.0 - 7.5	SC	-	-	-	-	-	42	15	-
PD-BP-64-02	S-11	15.0 - 16.5	SP	-	-	-	91	20	3	16	-
PD-BP-64-02	S-14	19.5 - 21.0	SC	-	-	-	-	-	19	18	-
PD-BP-64-02	S-16	22.5 - 24.0	CL	-	-	-	-	-	88	19	-
PD-BP-64-02	S-18	25.5 - 27.0	-	-	-	-	-	-	-	22	-
PD-BP-64-02	S-20	28.5 - 30.0	-	-	-	-	-	-	-	17	-



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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
220035	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

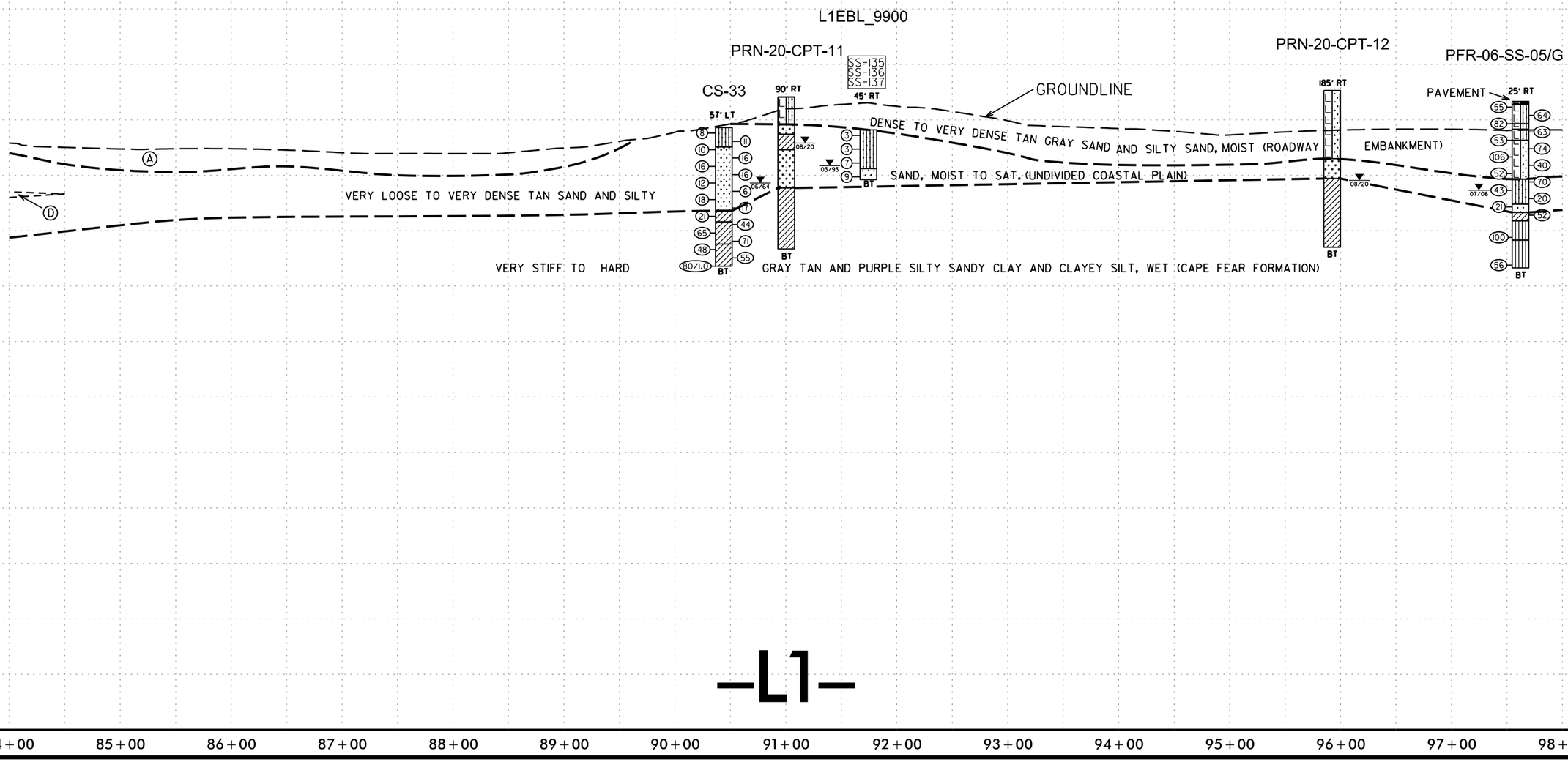
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT				% PASSING 200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							C. SND	F. SND	SILT	CLAY			
L1EBL_9900	SS-135	0.0 - 1.5	SM	NP	NP	NP	31	58	7	4	14	-	-
L1EBL_9900	SS-136	5.0 - 6.5	SM	18	15	3	23	43	16	18	40	-	-
L1EBL_9900	SS-137	7.5 - 9.0	SP	NP	NP	NP	86	10	1	3	4	-	-

Ⓐ LOOSE TO MEDIUM DENSE TAN BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

Ⓓ VERY STIFF TO HARD BLACK SILTY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)



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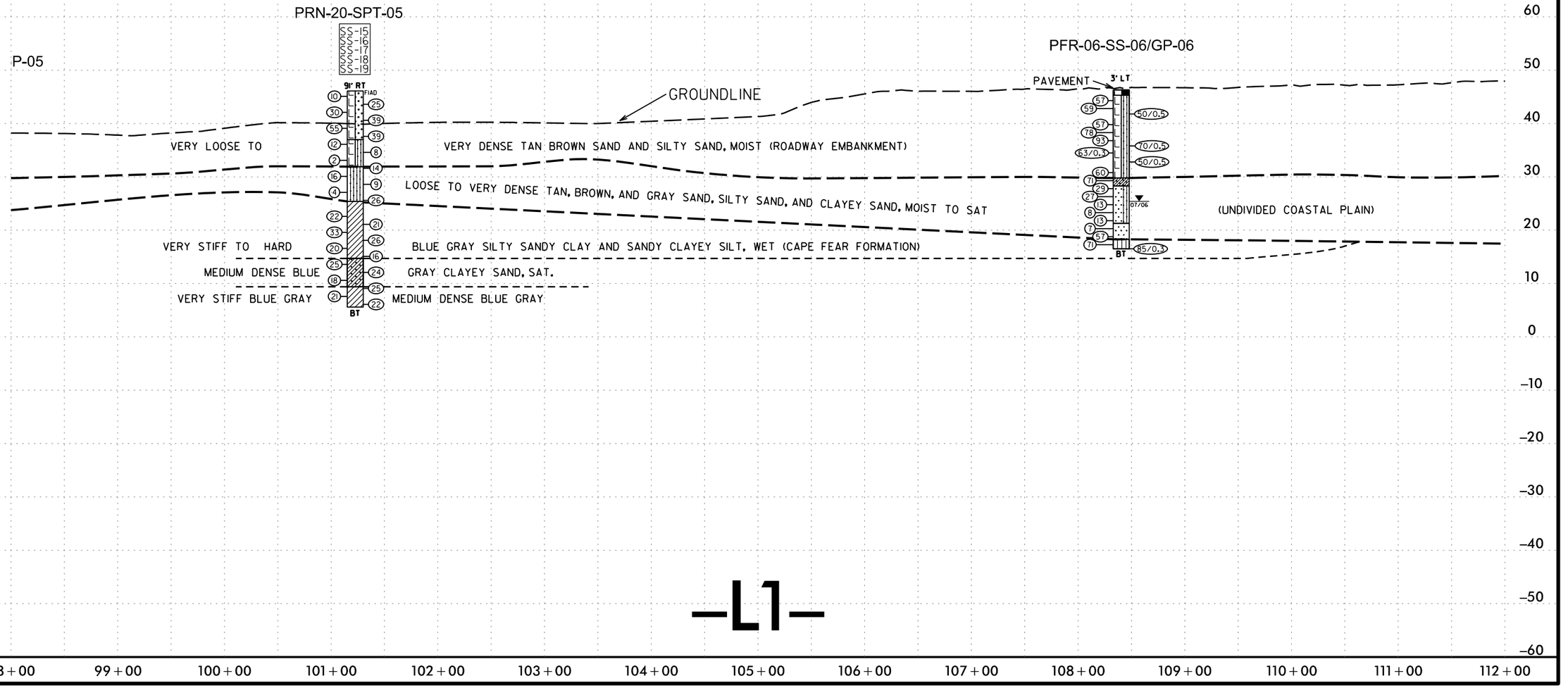
PROJECT REFERENCE NO.	SHEET NO.
220035	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-05	SS-15	12.4 - 13.5	SM	39	27	12	96	71	35	36	-
PRN-20-SPT-05	SS-16	22.5 - 23.5	CL	38	20	18	100	90	57	24	-
PRN-20-SPT-05	SS-17	27.0 - 28.5	CL	42	20	22	100	93	69	22	-
PRN-20-SPT-05	SS-18	31.5 - 33.0	SC	30	19	11	100	79	21	22	-
PRN-20-SPT-05	SS-19	36.7 - 37.5	CL	46	17	29	100	98	80	20	-



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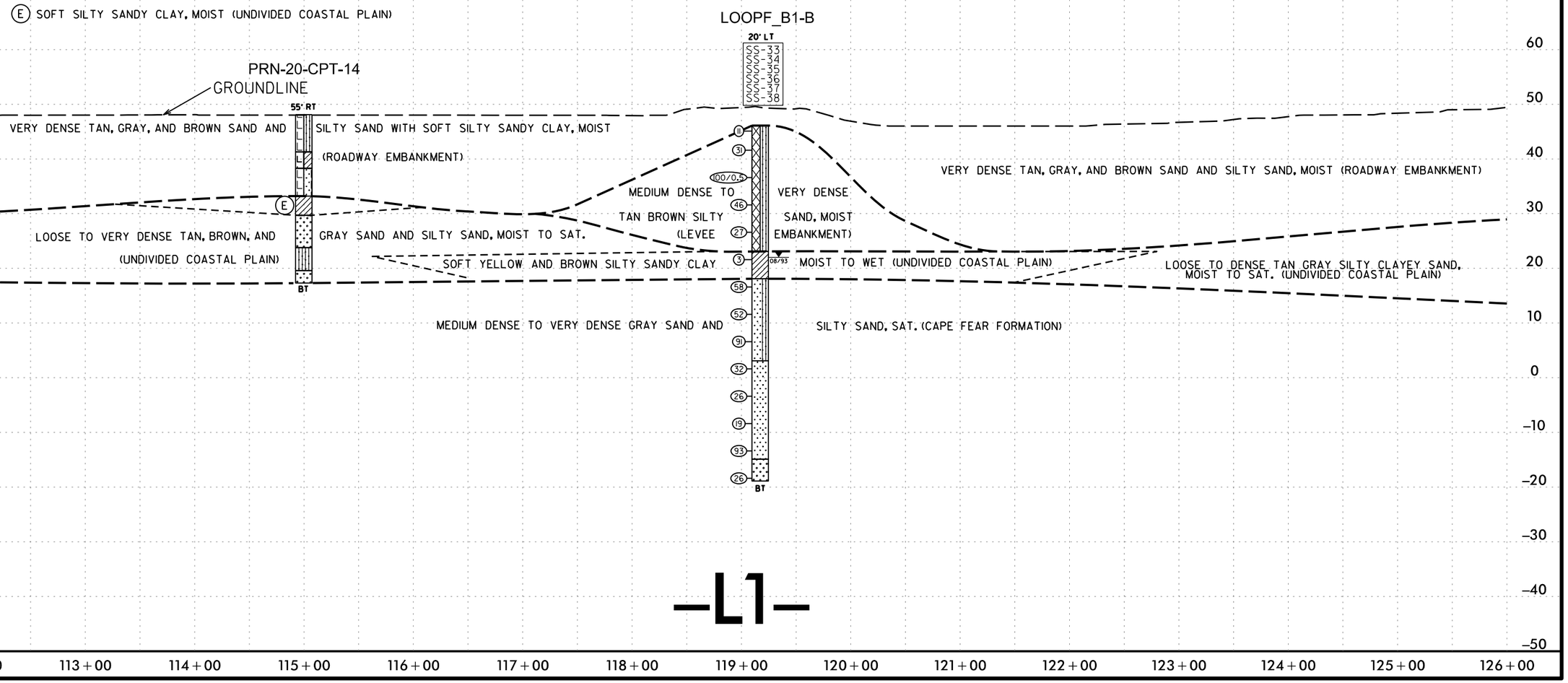
PROJECT REFERENCE NO.	SHEET NO.
220035	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
LOOPF_B1-B	SS-33	3.5 - 5.0	SM	NP	NP	NP	98	67	15	-	-
LOOPF_B1-B	SS-34	18.5 - 20.0	SC-SM	20	15	5	93	60	25	-	-
LOOPF_B1-B	SS-35	23.5 - 25.0	CL	39	20	29	97	88	56	-	-
LOOPF_B1-B	SS-36	28.5 - 30.0	SP-SM	NP	NP	NP	95	67	7	-	-
LOOPF_B1-B	SS-37	48.5 - 50.0	SP	NP	NP	NP	100	90	4	-	-
LOOPF_B1-B	SS-38	63.5 - 65.0	SW	23	17	6	92	17	4	-	-



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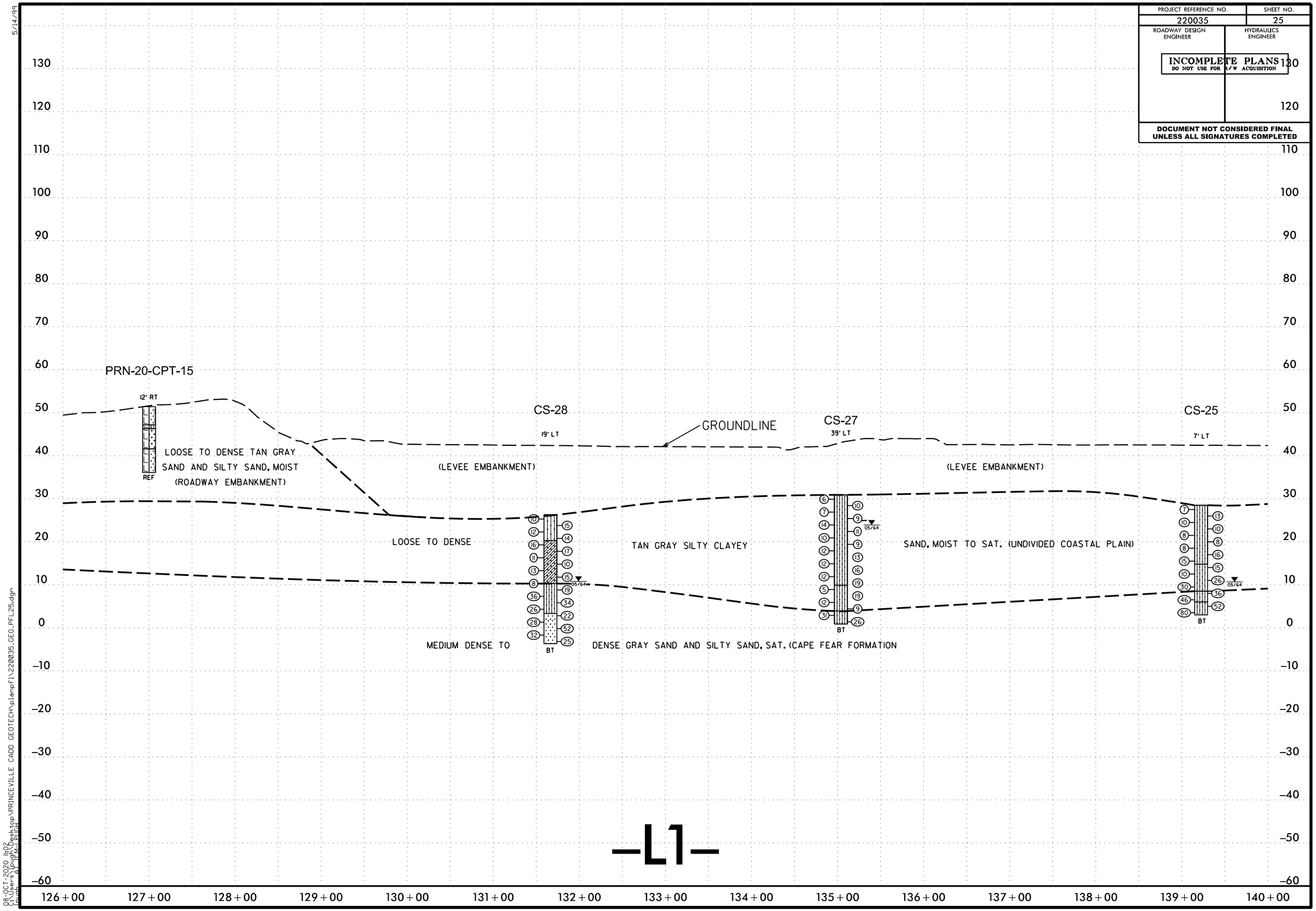


PROJECT REFERENCE NO.
220035
SHEET NO.
25
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PRN-20-CPT-15
12' RT
REF
LOOSE TO DENSE TAN GRAY SAND AND SILTY SAND, MOIST (ROADWAY EMBANKMENT)
CS-28
19' LT
GROUNDLINE
CS-27
39' LT
CS-25
7' LT
(LEVEE EMBANKMENT)
(LEVEE EMBANKMENT)
LOOSE TO DENSE
TAN GRAY SILTY CLAYEY
SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
MEDIUM DENSE TO
DENSE GRAY SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION
BT
05/64
-L1-
126+00
127+00
128+00
129+00
130+00
131+00
132+00
133+00
134+00
135+00
136+00
137+00
138+00
139+00
140+00

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
220035	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

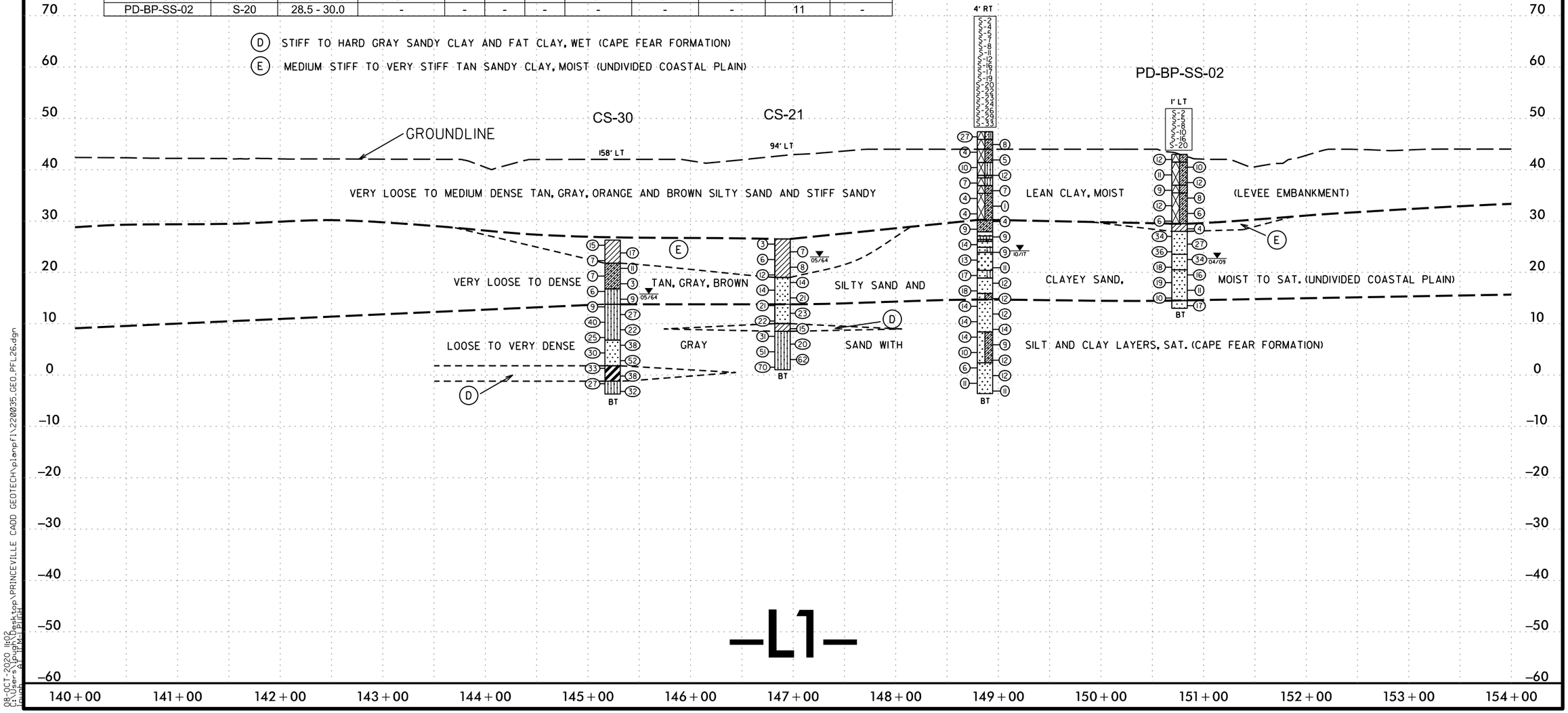
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRC-17-SPT-01	S-2	1.7 - 3.0	SC	38	16	22	-	-	-	12	-
PRC-17-SPT-01	S-4	4.5 - 5.2	SC	34	16	18	-	-	-	13	-
PRC-17-SPT-01	S-5	5.2 - 5.8	SC	29	15	14	-	-	-	15	-
PRC-17-SPT-01	S-7	8.5 - 9.0	SC	33	16	17	-	-	-	13	-
PRC-17-SPT-01	S-8	10.8 - 12.0	CL	41	17	24	-	-	-	16	-
PRC-17-SPT-01	S-11	15.5 - 16.5	SC	44	19	25	-	-	-	19	-
PRC-17-SPT-01	S-12	16.8 - 17.7	SC	46	18	28	-	-	-	19	-
PRC-17-SPT-01	S-16	22.5 - 23.5	SP-SM	-	-	-	-	-	-	17	-
PRC-17-SPT-01	S-17	24.0 - 25.5	SP	-	-	-	-	-	-	17	-
PRC-17-SPT-01	S-19	27.5 - 28.5	SP-SM	-	-	-	-	-	-	22	-
PRC-17-SPT-01	S-20	28.5 - 30.0	SP	-	-	-	-	-	-	31	-
PRC-17-SPT-01	S-22	31.5 - 32.7	SP-SC	34	23	11	-	-	-	21	-
PRC-17-SPT-01	S-23	33.0 - 34.5	SP	34	19	15	-	-	-	27	-
PRC-17-SPT-01	S-24	34.5 - 36.0	SP	37	21	16	-	-	-	28	-
PRC-17-SPT-01	S-26	37.5 - 39.0	SP	43	19	24	-	-	-	32	-
PRC-17-SPT-01	S-29	42.0 - 43.5	SP-SC	45	15	30	-	-	-	29	-
PRC-17-SPT-01	S-33	48.0 - 49.5	SP	45	19	26	-	-	-	34	-
PD-BP-SS-02	S-2	1.5 - 3.0	SC	-	-	-	99	86	41	11	-
PD-BP-SS-02	S-5	6.0 - 7.5	CL	27	15	12	-	-	-	-	-
PD-BP-SS-02	S-8	10.5 - 12.0	SC	-	-	-	99	84	39	13	-
PD-BP-SS-02	S-10	13.5 - 15.0	CL	38	17	21	-	-	-	-	-
PD-BP-SS-02	S-16	22.5 - 24.0	SP	-	-	-	87	37	2	15	-
PD-BP-SS-02	S-20	28.5 - 30.0	-	-	-	-	-	-	-	11	-

(D) STIFF TO HARD GRAY SANDY CLAY AND FAT CLAY, WET (CAPE FEAR FORMATION)

(E) MEDIUM STIFF TO VERY STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)



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5/14/99

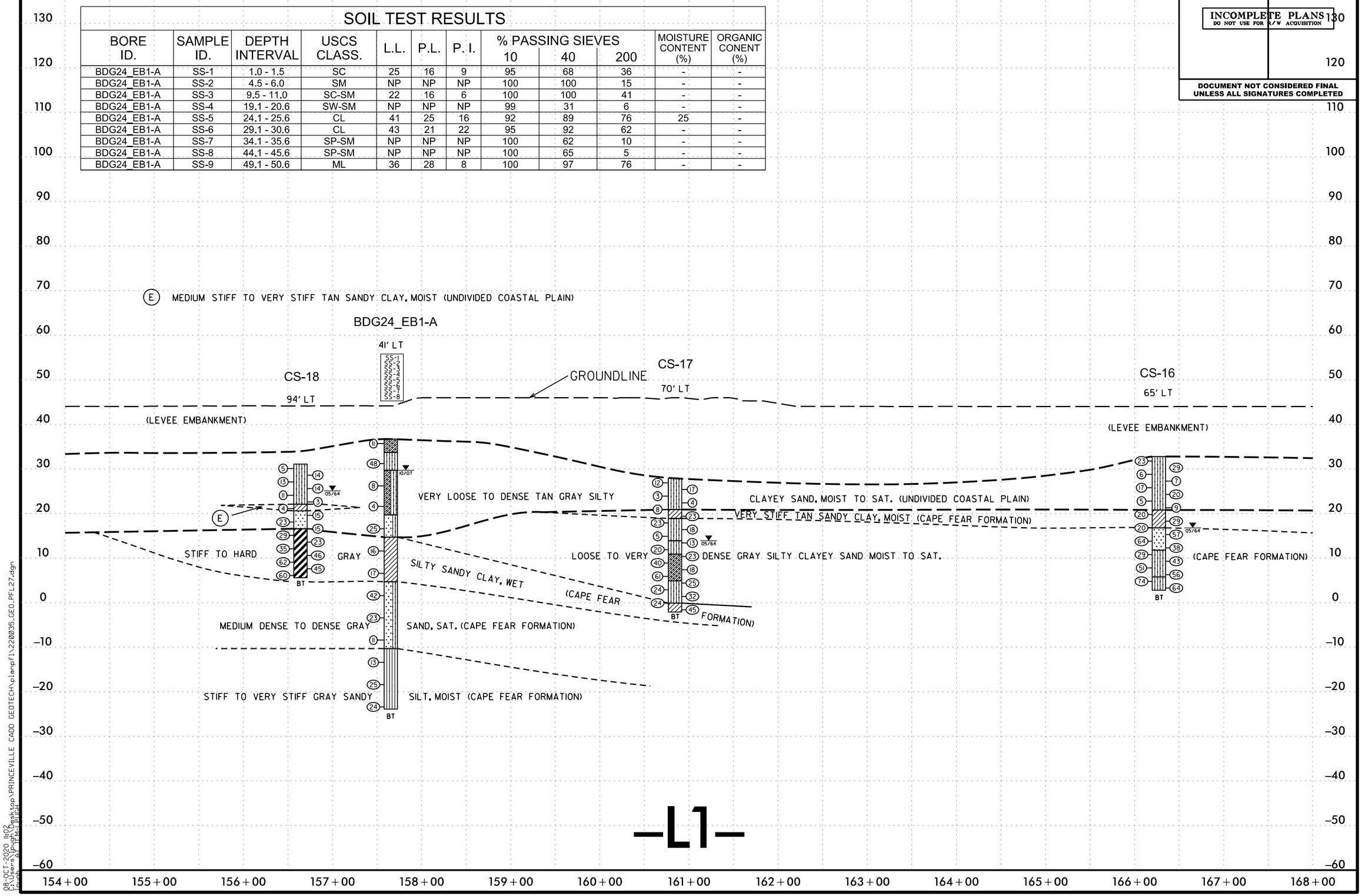
PROJECT REFERENCE NO.	SHEET NO.
220035	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
BDG24_EB1-A	SS-1	1.0 - 1.5	SC	25	16	9	95	68	36	-	-
BDG24_EB1-A	SS-2	4.5 - 6.0	SM	NP	NP	NP	100	100	15	-	-
BDG24_EB1-A	SS-3	9.5 - 11.0	SC-SM	22	16	6	100	100	41	-	-
BDG24_EB1-A	SS-4	19.1 - 20.6	SW-SM	NP	NP	NP	99	31	6	-	-
BDG24_EB1-A	SS-5	24.1 - 25.6	CL	41	25	16	92	89	76	25	-
BDG24_EB1-A	SS-6	29.1 - 30.6	CL	43	21	22	95	92	62	-	-
BDG24_EB1-A	SS-7	34.1 - 35.6	SP-SM	NP	NP	NP	100	62	10	-	-
BDG24_EB1-A	SS-8	44.1 - 45.6	SP-SM	NP	NP	NP	100	65	5	-	-
BDG24_EB1-A	SS-9	49.1 - 50.6	ML	36	28	8	100	97	76	-	-



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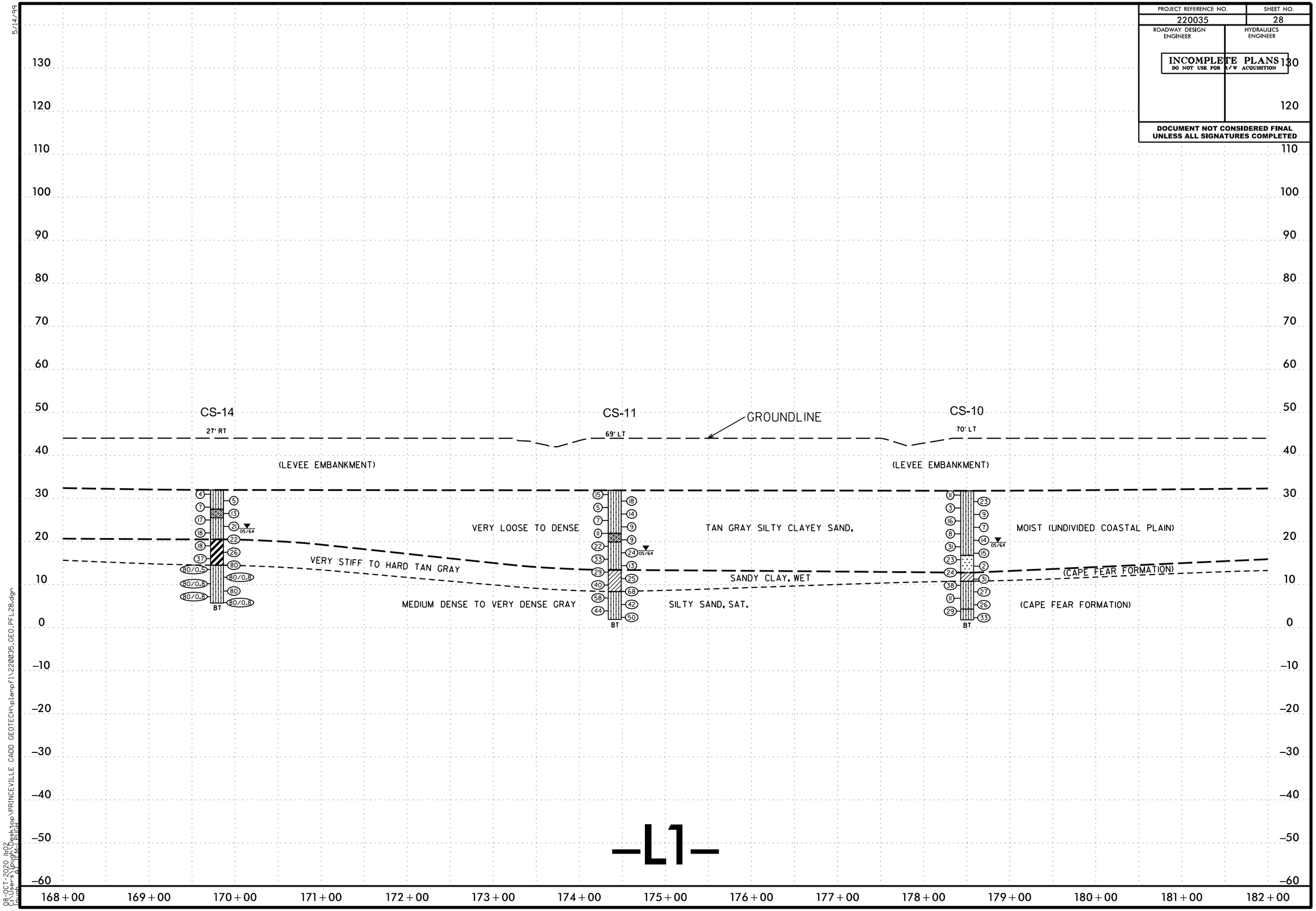
$$$$ MicroStation



PROJECT REFERENCE NO.
220035
SHEET NO.
28
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
CS-14
27' RT
CS-11
69' LT
GROUNDLINE
CS-10
70' LT
(LEVEE EMBANKMENT)
(LEVEE EMBANKMENT)
VERY LOOSE TO DENSE
TAN GRAY SILTY CLAYEY SAND,
MOIST (UNDIVIDED COASTAL PLAIN)
VERY STIFF TO HARD TAN GRAY
SANDY CLAY, WET
(CAPE FEAR FORMATION)
MEDIUM DENSE TO VERY DENSE GRAY
SILTY SAND, SAT.
(CAPE FEAR FORMATION)
BT
05/64
-L1-
168+00
169+00
170+00
171+00
172+00
173+00
174+00
175+00
176+00
177+00
178+00
179+00
180+00
181+00
182+00

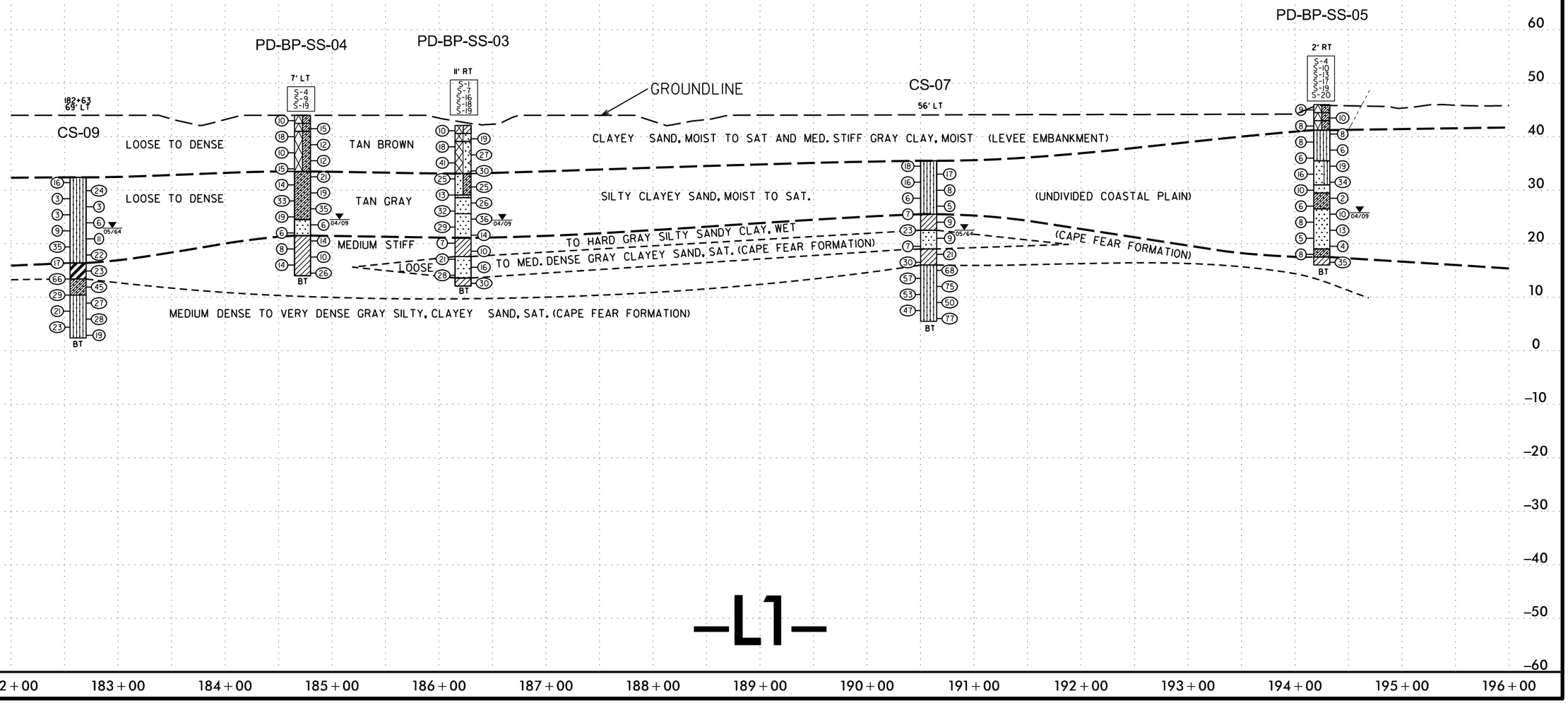
PROJECT REFERENCE NO.	SHEET NO.
220035	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PD-BP-SS-04	S-4	4.5 - 6.0	SC	-	-	-	100	89	41	10	-
PD-BP-SS-04	S-9	12.0 - 13.5	SC	-	-	-	99	85	18	8	-
PD-BP-SS-04	S-19	27.0 - 28.5	CH	61	26	35	-	-	-	-	-
PD-BP-SS-03	S-1	0.0 - 1.5	CL	35	16	19	-	-	-	-	-
PD-BP-SS-03	S-7	9.0 - 10.5	SP-SC	-	-	-	86	40	8	5	-
PD-BP-SS-03	S-16	22.5 - 24.0	CL	40	18	22	-	-	-	-	-
PD-BP-SS-03	S-18	25.5 - 27.0	-	-	-	-	-	-	-	21	-
PD-BP-SS-03	S-19	27.0 - 28.5	SC	-	-	-	-	-	25	13	-
PD-BP-SS-05	S-4	4.5 - 6.0	SC	-	-	-	99	84	43	15	-
PD-BP-SS-05	S-10	13.5 - 15.0	SP-SM	-	-	-	98	85	11	11	-
PD-BP-SS-05	S-13	18.0 - 19.5	SC	-	-	-	-	-	42	16	-
PD-BP-SS-05	S-17	24.0 - 25.5	SP	-	-	-	97	34	4	21	-
PD-BP-SS-05	S-19	27.0 - 28.5	-	-	-	-	-	-	-	16	-
PD-BP-SS-05	S-20	28.5 - 30.0	CL	48	21	27	-	-	-	-	-



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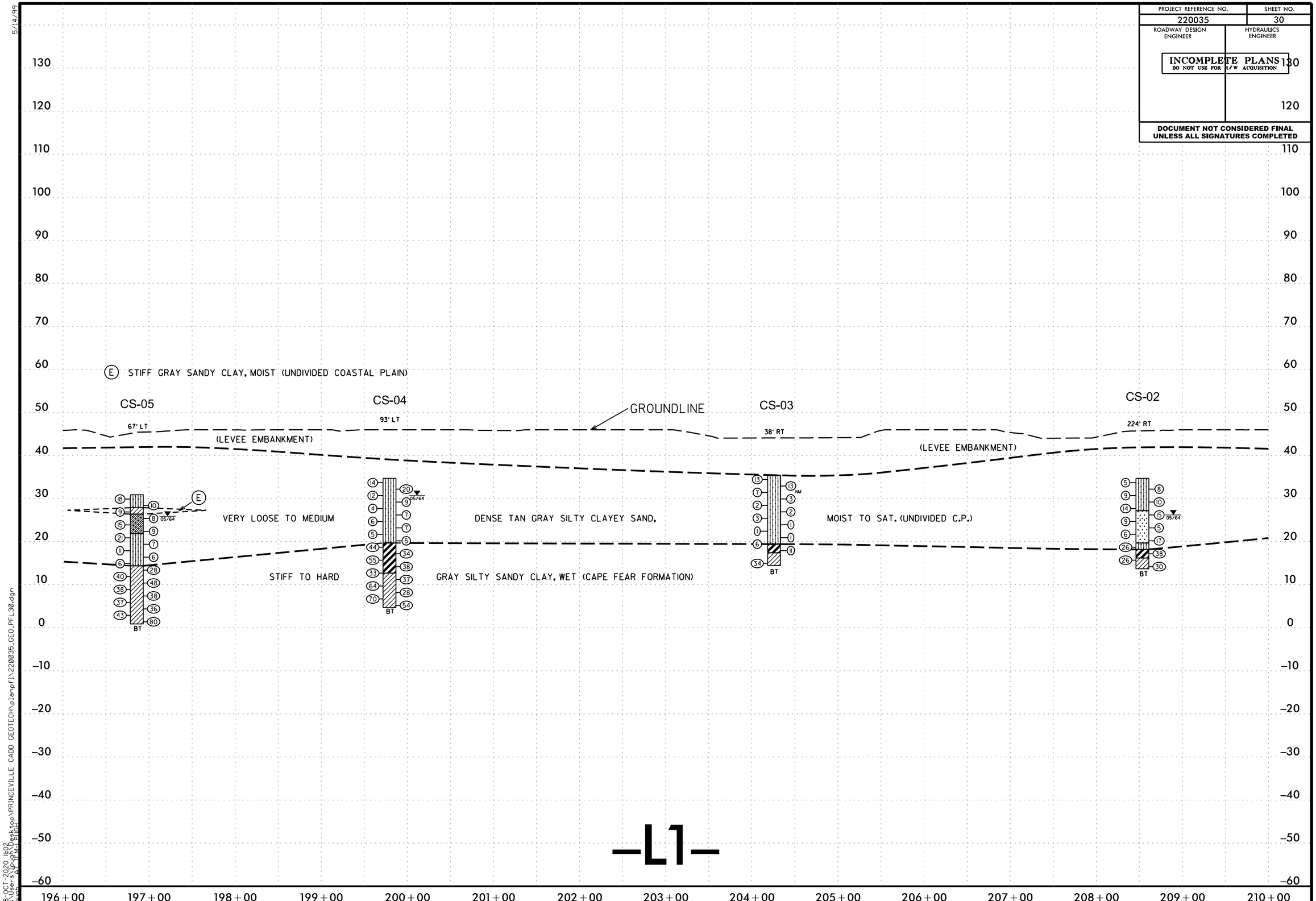

PROJECT REFERENCE NO.
220035
SHEET NO.
30
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
5/14/99
E STIFF GRAY SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
CS-05
67' LT
CS-04
93' LT
GROUNDLINE
CS-03
38' RT
CS-02
224' RT
(LEVEE EMBANKMENT)
(LEVEE EMBANKMENT)
VERY LOOSE TO MEDIUM
DENSE TAN GRAY SILTY CLAYEY SAND,
MOIST TO SAT. (UNDIVIDED C.P.)
STIFF TO HARD
GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
BT
-L1-
196+00
197+00
198+00
199+00
200+00
201+00
202+00
203+00
204+00
205+00
206+00
207+00
208+00
209+00
210+00
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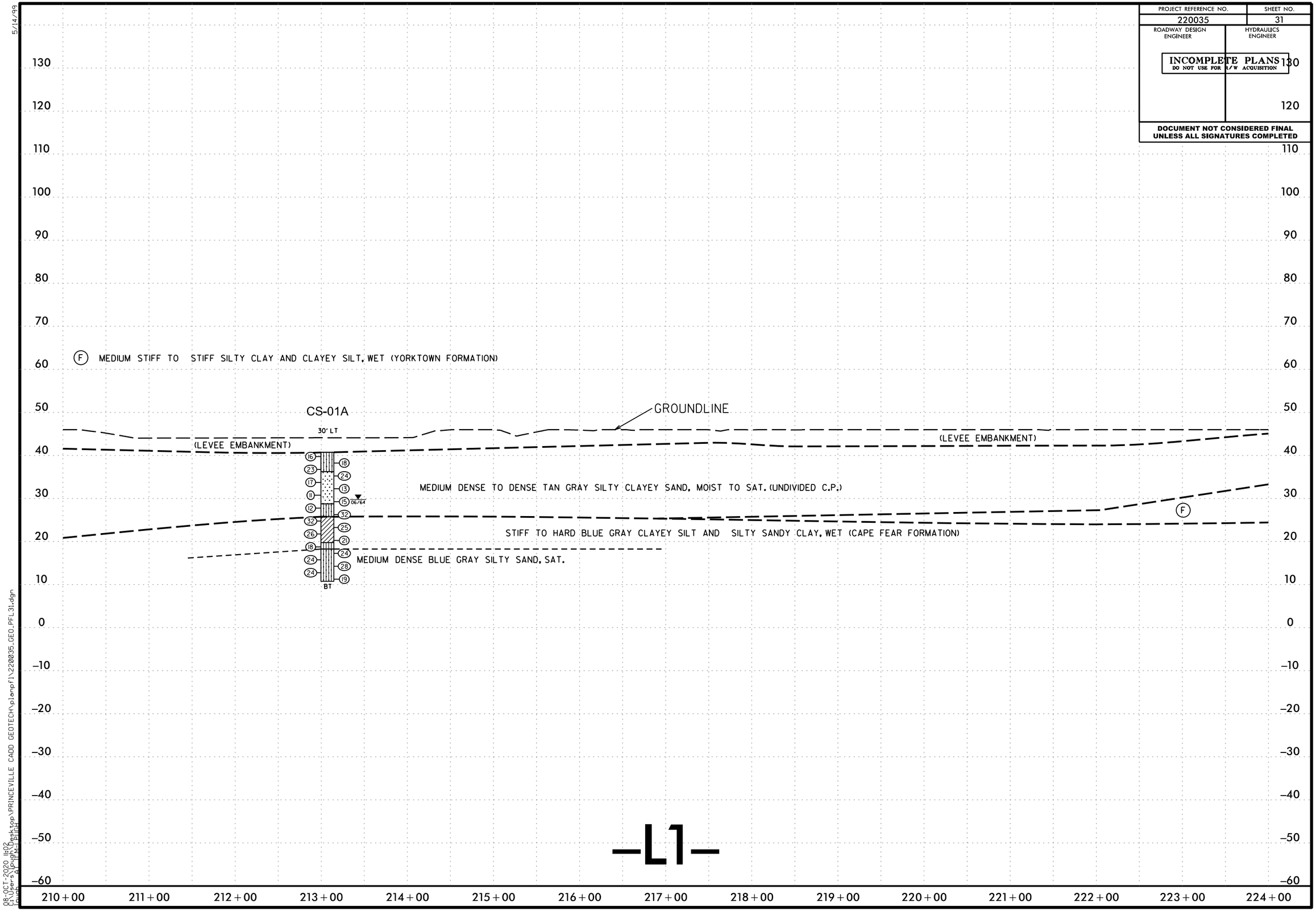

PROJECT REFERENCE NO.
220035
SHEET NO.
31
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
5/14/99
F MEDIUM STIFF TO STIFF SILTY CLAY AND CLAYEY SILT, WET (YORKTOWN FORMATION)
CS-01A
30' LT
GROUNDLINE
(LEVEE EMBANKMENT)
(LEVEE EMBANKMENT)
MEDIUM DENSE TO DENSE TAN GRAY SILTY CLAYEY SAND, MOIST TO SAT. (UNDIVIDED C.P.)
06/64
STIFF TO HARD BLUE GRAY CLAYEY SILT AND SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
MEDIUM DENSE BLUE GRAY SILTY SAND, SAT.
BT
-L1-
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
210+00
211+00
212+00
213+00
214+00
215+00
216+00
217+00
218+00
219+00
220+00
221+00
222+00
223+00
224+00
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5/14/99

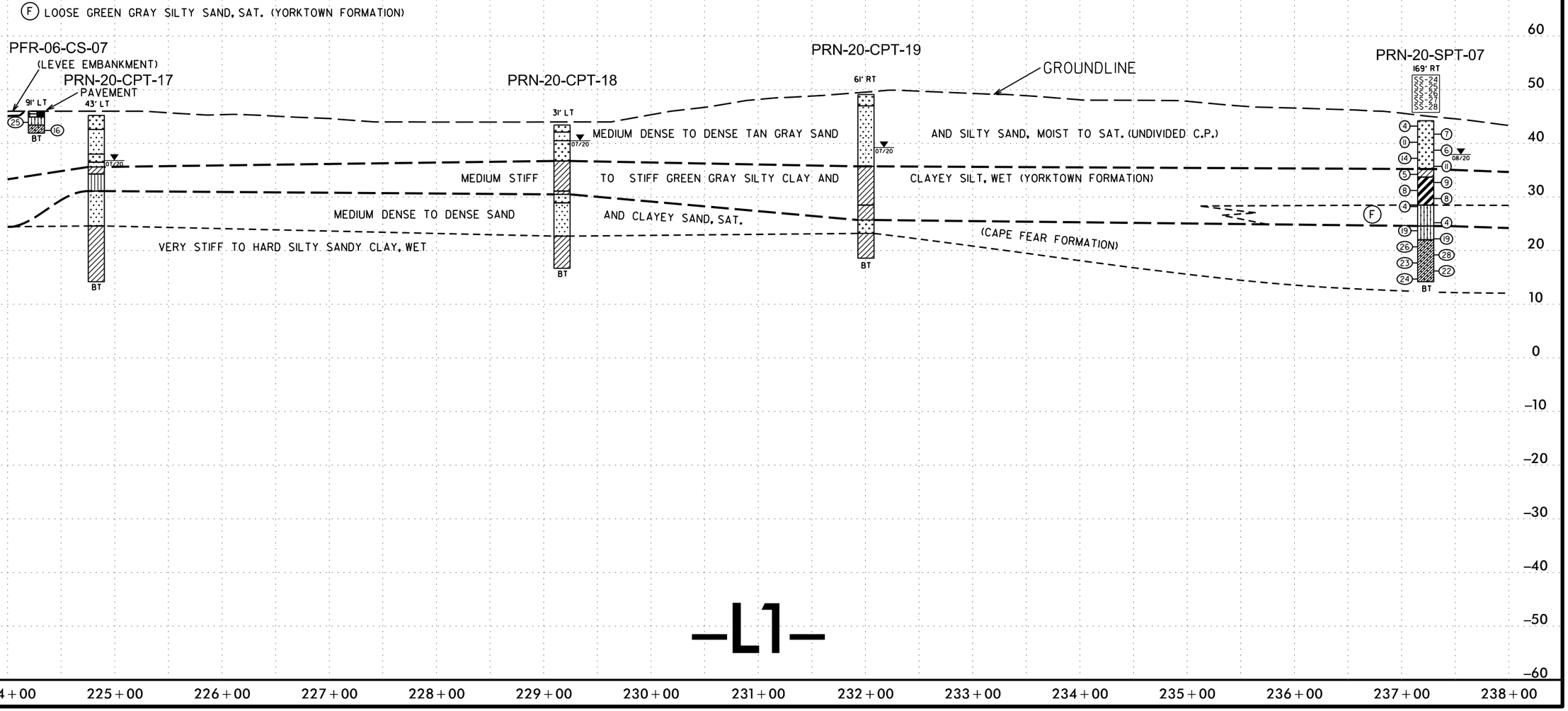
PROJECT REFERENCE NO.	SHEET NO.
220035	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-07	SS-24	9.0 - 10.5	CL	44	18	26	100	97	82	31	-
PRN-20-SPT-07	SS-25	10.5 - 12.0	CH	51	19	32	100	99	83	26	-
PRN-20-SPT-07	SS-26	13.5 - 15.0	CH	54	19	35	100	99	73	-	-
PRN-20-SPT-07	SS-27	16.5 - 18.0	SM	NP	NP	NP	100	99	36	-	-
PRN-20-SPT-07	SS-28	25.5 - 27.0	SC	32	18	14	100	93	29	-	-



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ai 11.1 (LMS Tech)

5/14/99

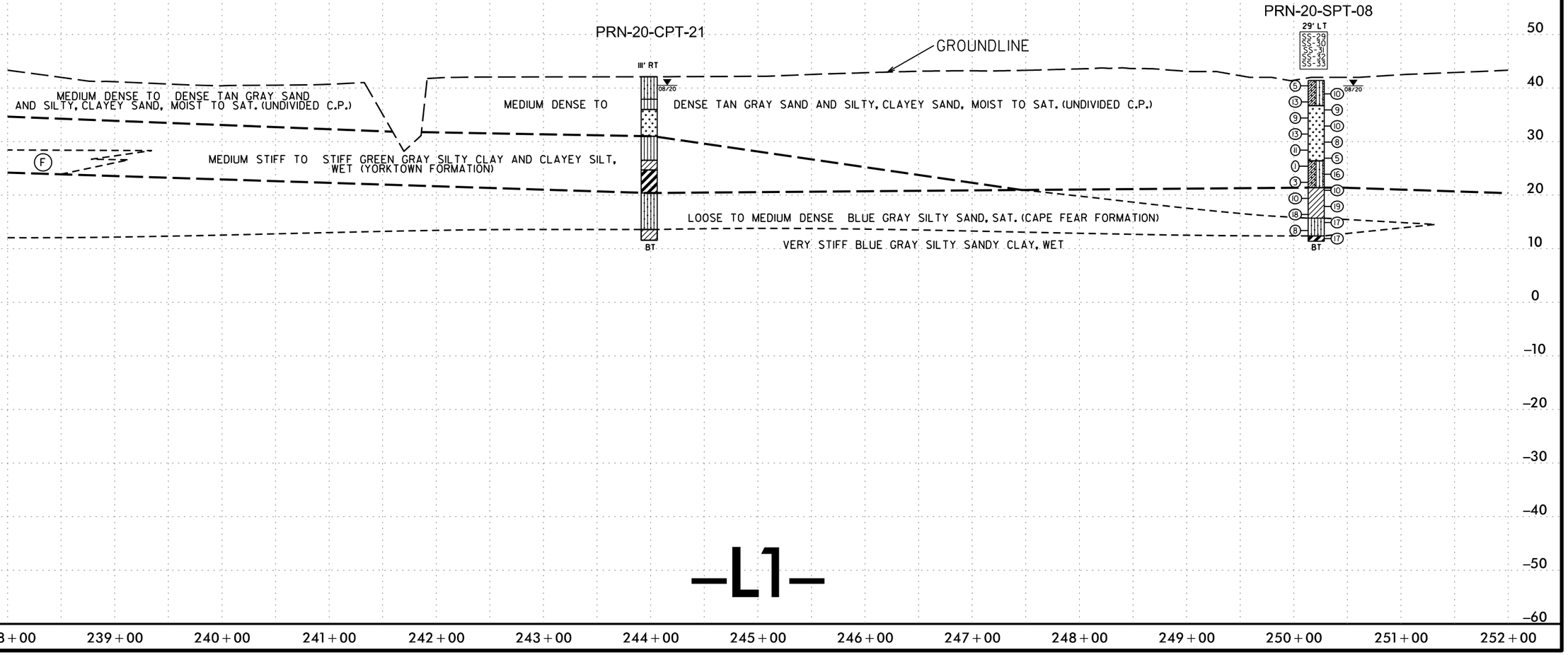
PROJECT REFERENCE NO.	SHEET NO.
220035	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-08	SS-29	0.0 - 1.5	SC-SM	24	17	7	99	80	33	-	-
PRN-20-SPT-08	SS-30	15.0 - 16.5	SC-SM	21	16	5	100	99	40	33	-
PRN-20-SPT-08	SS-31	20.0 - 21.0	CL	32	19	13	100	91	58	24	-
PRN-20-SPT-08	SS-32	25.7 - 27.0	SM	NP	NP	NP	98	80	14	22	-
PRN-20-SPT-08	SS-33	29.0 - 30.0	CH	51	23	28	100	96	75	-	-



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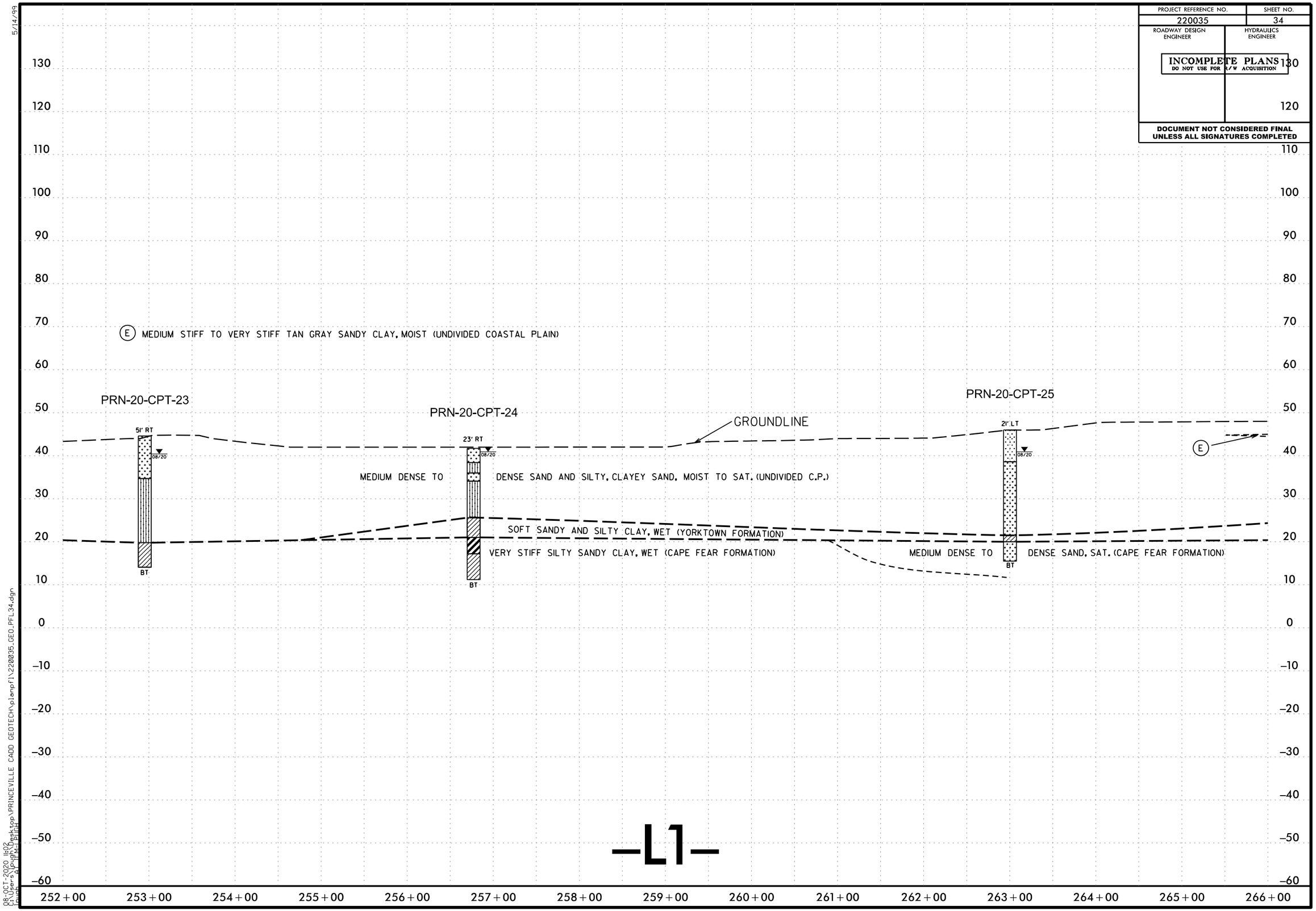
Default
ATLANTIC PLOT



PROJECT REFERENCE NO.
220035
SHEET NO.
34
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
5/14/99
E MEDIUM STIFF TO VERY STIFF TAN GRAY SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
PRN-20-CPT-23
PRN-20-CPT-24
PRN-20-CPT-25
GROUNDLINE
51' RT
23' RT
21' LT
08/20
BT
MEDIUM DENSE TO DENSE SAND AND SILTY, CLAYEY SAND, MOIST TO SAT. (UNDIVIDED C.P.)
SOFT SANDY AND SILTY CLAY, WET (YORKTOWN FORMATION)
VERY STIFF SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
MEDIUM DENSE TO DENSE SAND, SAT. (CAPE FEAR FORMATION)
E
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
252+00
253+00
254+00
255+00
256+00
257+00
258+00
259+00
260+00
261+00
262+00
263+00
264+00
265+00
266+00
-L1-
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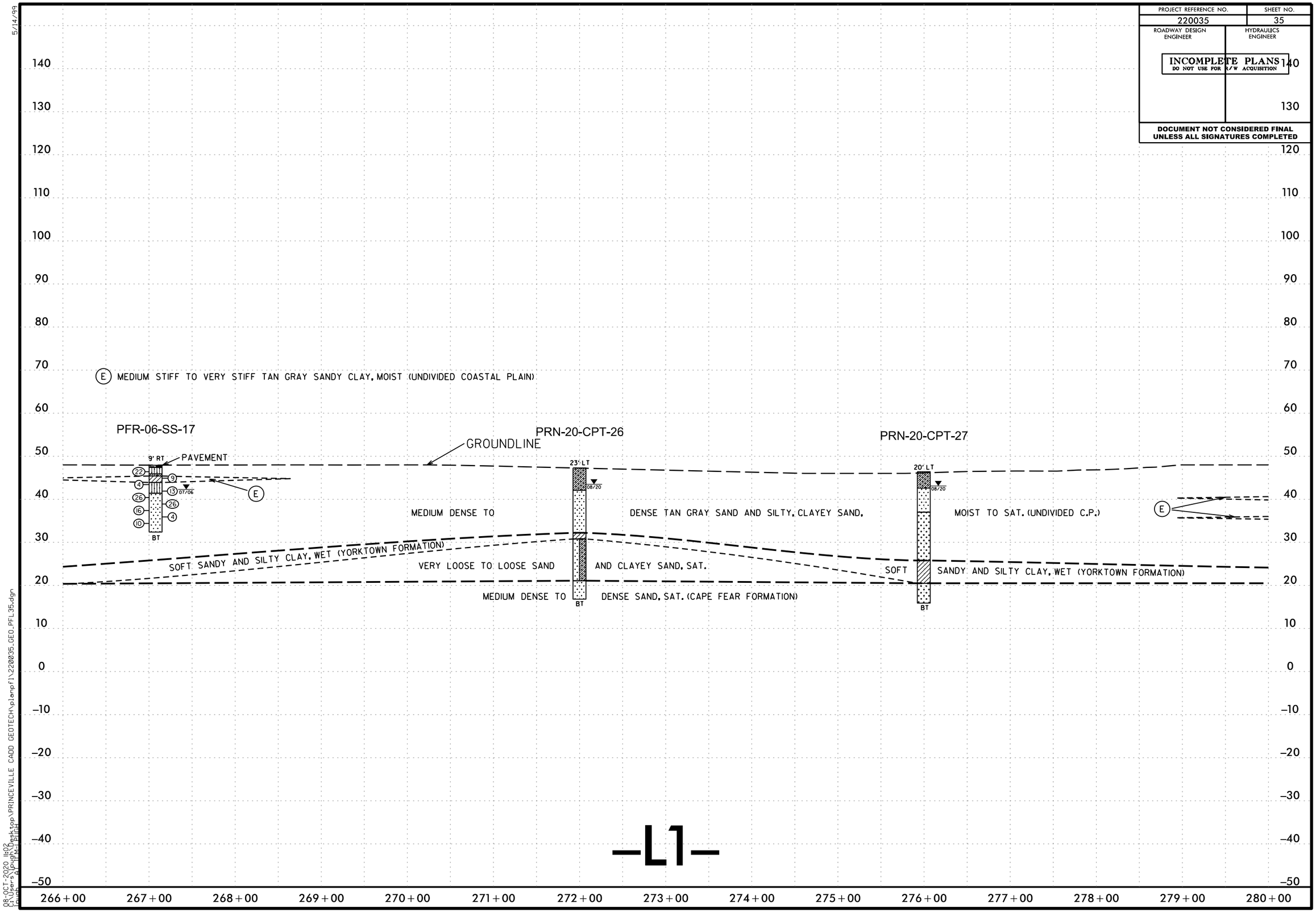

PROJECT REFERENCE NO.
220035
SHEET NO.
35
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
5/14/99
E MEDIUM STIFF TO VERY STIFF TAN GRAY SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
PFR-06-SS-17
PRN-20-CPT-26
PRN-20-CPT-27
GROUNDLINE
9' RT
PAVEMENT
23' LT
20' LT
07/06
08/20
BT
MEDIUM DENSE TO DENSE TAN GRAY SAND AND SILTY, CLAYEY SAND, MOIST TO SAT. (UNDIVIDED C.P.)
SOFT SANDY AND SILTY CLAY, WET (YORKTOWN FORMATION)
VERY LOOSE TO LOOSE SAND AND CLAYEY SAND, SAT.
SOFT SANDY AND SILTY CLAY, WET (YORKTOWN FORMATION)
MEDIUM DENSE TO DENSE SAND, SAT. (CAPE FEAR FORMATION)
-L1-
266+00
267+00
268+00
269+00
270+00
271+00
272+00
273+00
274+00
275+00
276+00
277+00
278+00
279+00
280+00
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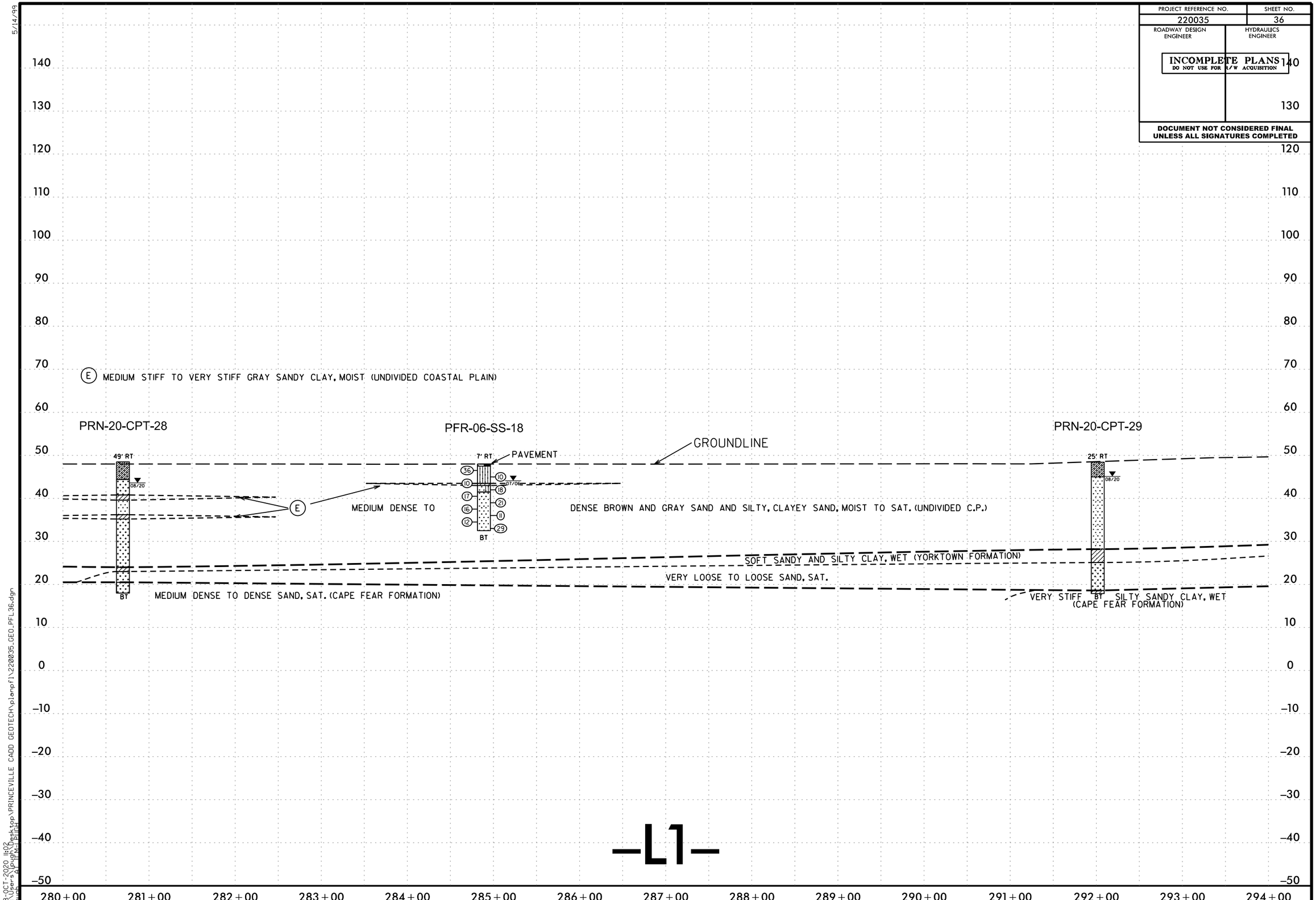

PROJECT REFERENCE NO.
220035
SHEET NO.
36
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
5/14/99
E MEDIUM STIFF TO VERY STIFF GRAY SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
PRN-20-CPT-28
PFR-06-SS-18
PRN-20-CPT-29
GROUNDLINE
PAVEMENT
49' RT
7' RT
25' RT
08/20
07/06
BT
E
MEDIUM DENSE TO
DENSE BROWN AND GRAY SAND AND SILTY, CLAYEY SAND, MOIST TO SAT. (UNDIVIDED C.P.)
SOFT SANDY AND SILTY CLAY, WET (YORKTOWN FORMATION)
VERY LOOSE TO LOOSE SAND, SAT.
MEDIUM DENSE TO DENSE SAND, SAT. (CAPE FEAR FORMATION)
VERY STIFF SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
-L1-
280+00
281+00
282+00
283+00
284+00
285+00
286+00
287+00
288+00
289+00
290+00
291+00
292+00
293+00
294+00
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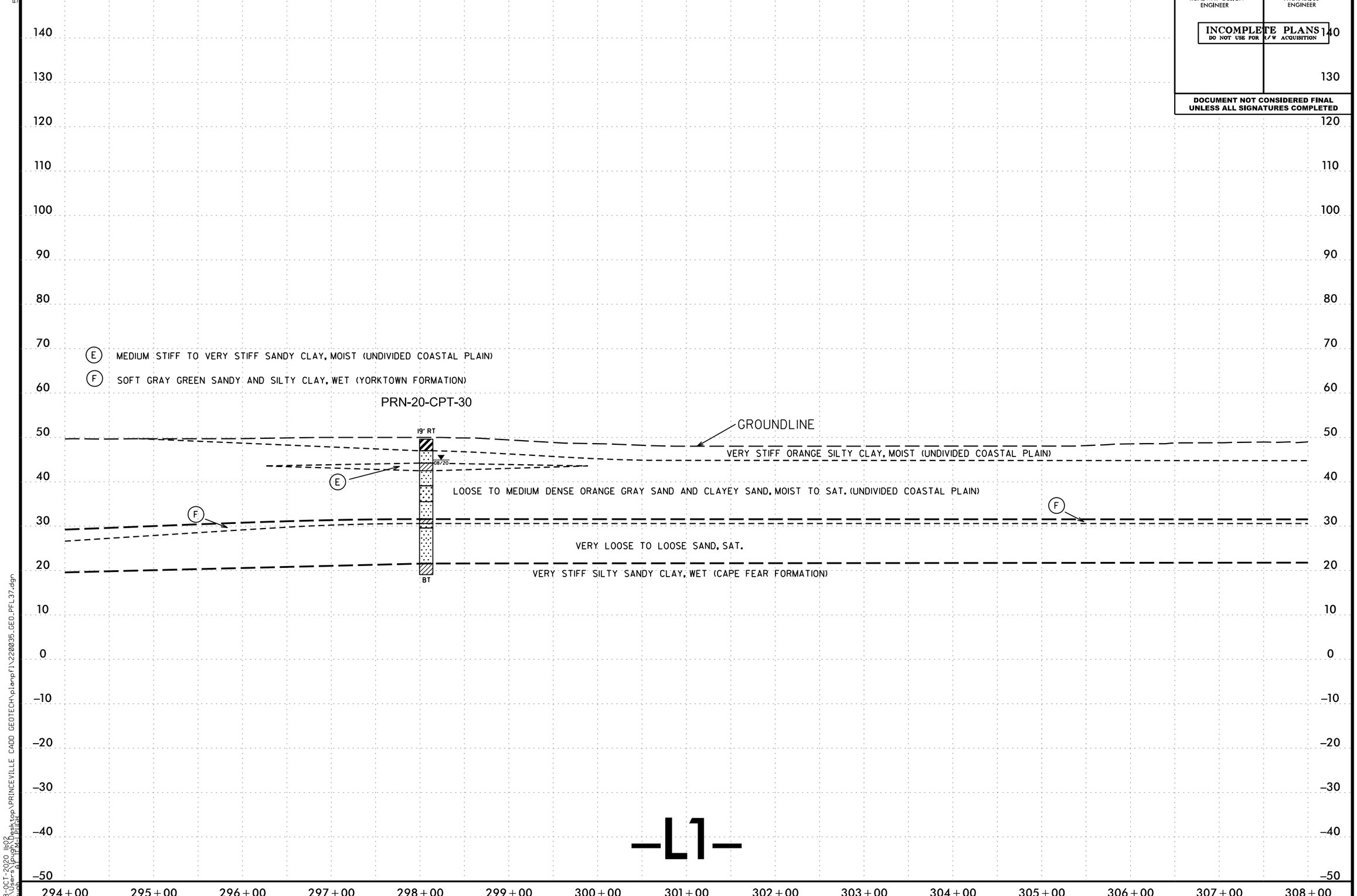
PROJECT REFERENCE NO.	SHEET NO.
220035	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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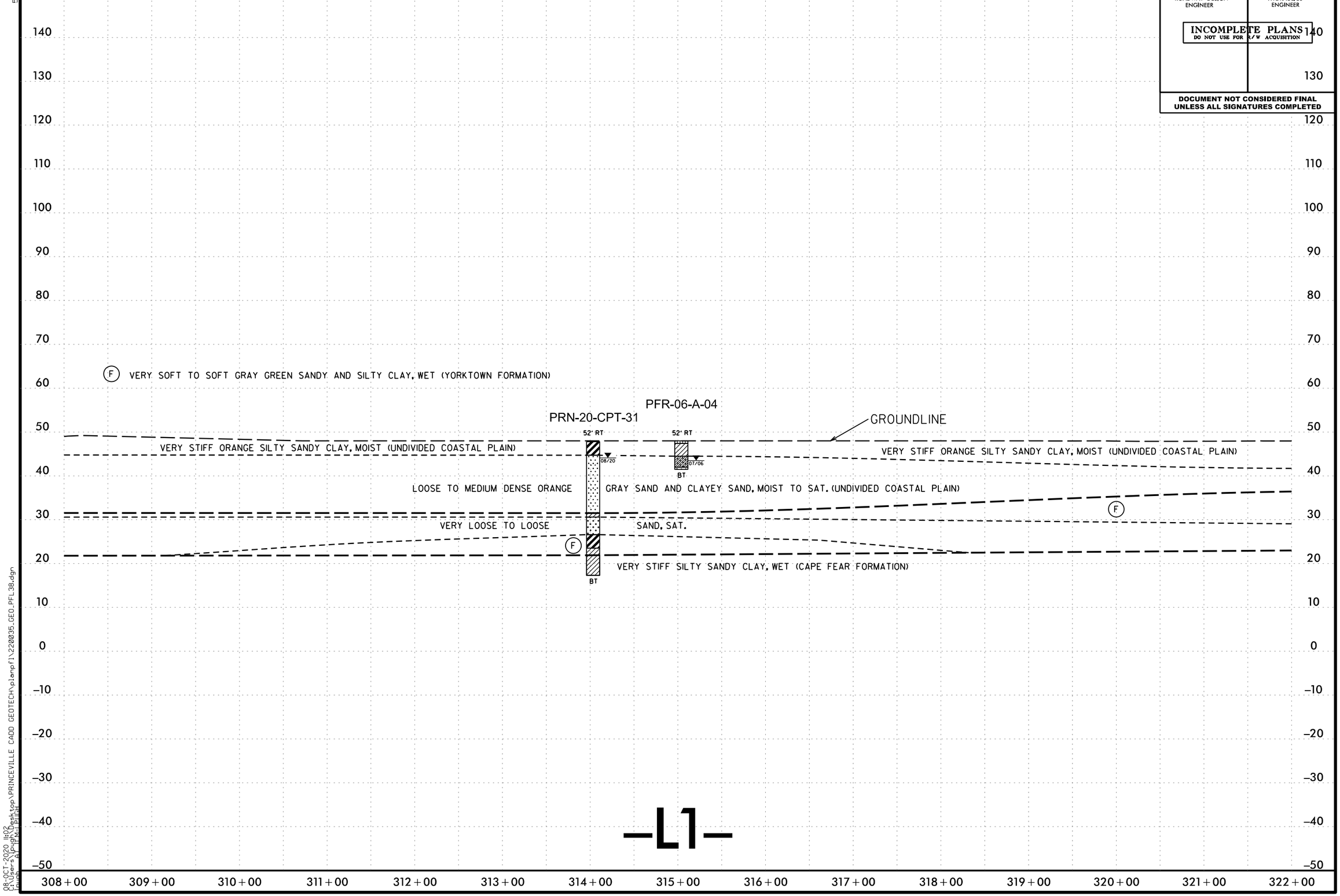
jpugh AT TEM-LPUGH

PROJECT REFERENCE NO.	SHEET NO.
220035	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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jpugh AT TEM-LPUGH

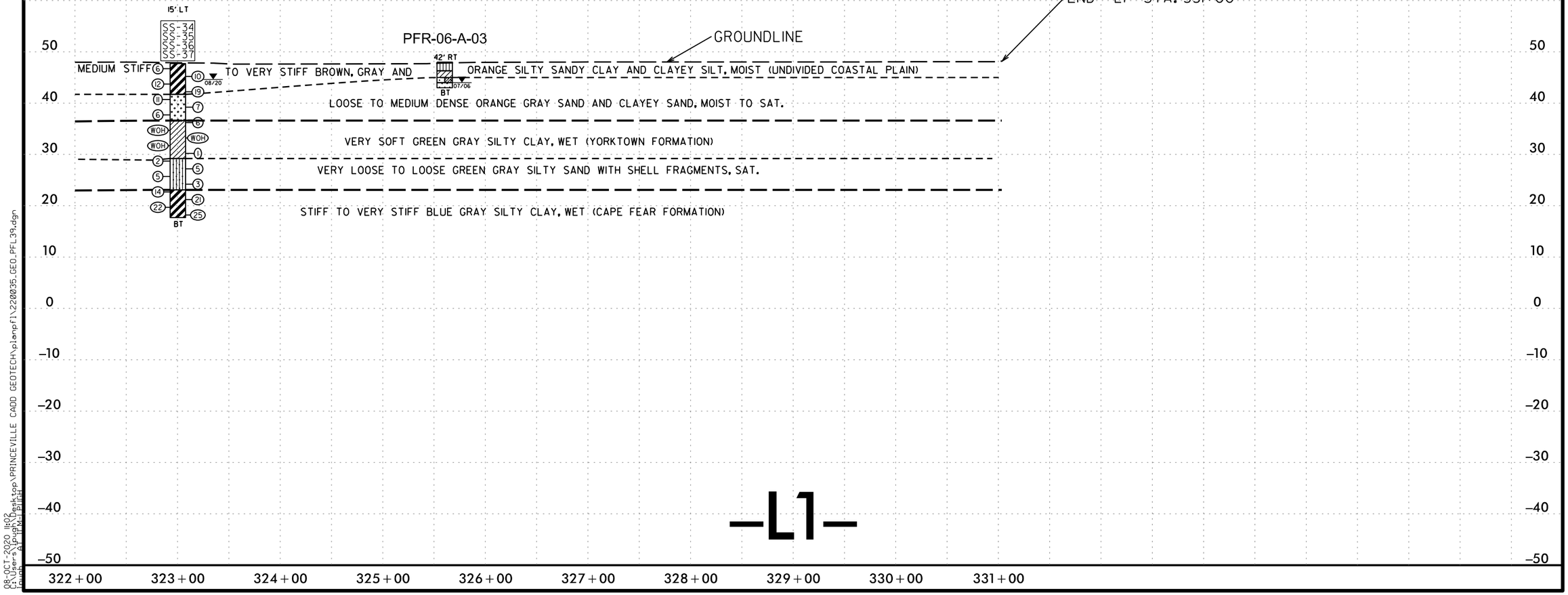
PROJECT REFERENCE NO.	SHEET NO.
220035	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-09	SS-34	1.5 - 3.0	CH	56	21	35	100	97	80	24	-
PRN-20-SPT-09	SS-35	12.0 - 13.5	CL	40	17	23	100	98	76	52	-
PRN-20-SPT-09	SS-36	19.5 - 21.0	SM	NP	NP	NP	100	76	20	30	-
PRN-20-SPT-09	SS-37	25.5 - 27.0	CH	55	24	31	100	95	79	24	-



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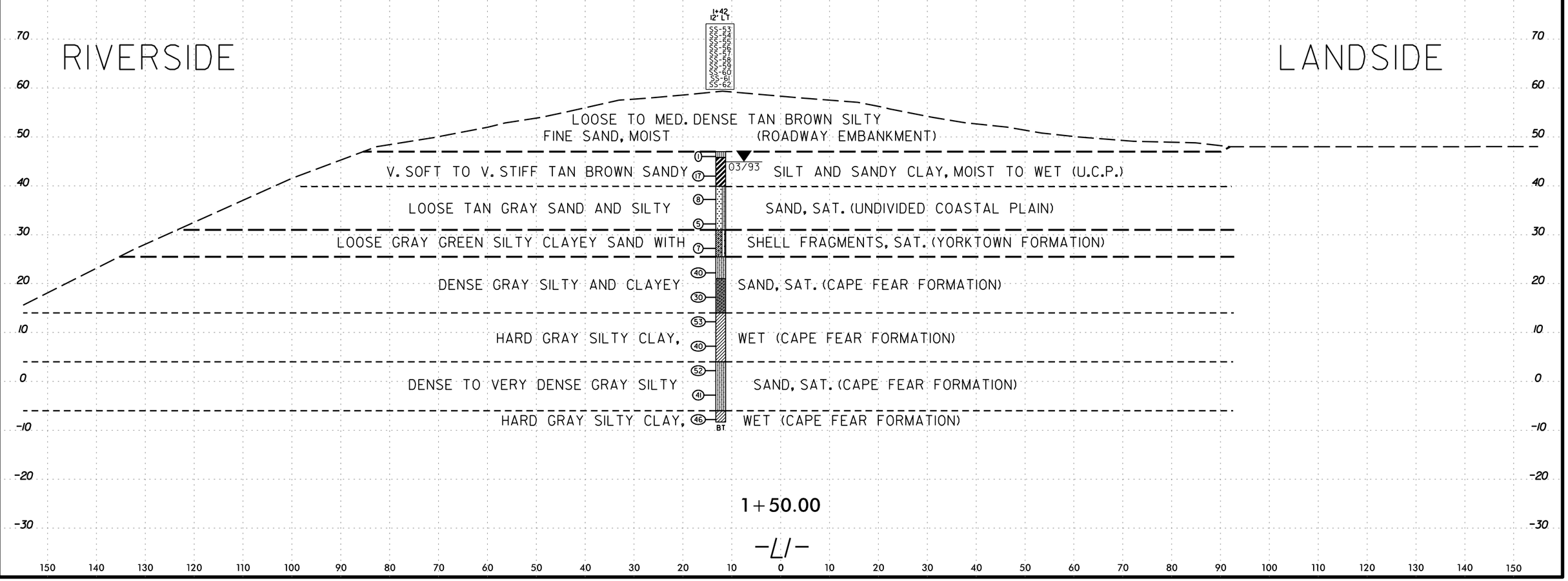
SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES			MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							10	40	200		
CSX_B1-B EBL	SS-53	0.0 - 1.0	ML	25	22	3	98	83	58	-	-
CSX_B1-B EBL	SS-54	4.0 - 5.0	CH	50	20	30	98	92	74	-	-
CSX_B1-B EBL	SS-55	8.8 - 10.3	SP-SM	NP	NP	NP	96	70	8	-	-
CSX_B1-B EBL	SS-56	18.8 - 20.3	SC-SM	26	20	6	89	76	20	-	-
CSX_B1-B EBL	SS-57	23.8 - 25.3	SM	NP	NP	NP	97	85	16	-	-
CSX_B1-B EBL	SS-58	28.8 - 30.3	SC	34	22	12	87	78	39	-	-
CSX_B1-B EBL	SS-59	33.8 - 35.3	CL	44	23	21	100	90	64	-	-
CSX_B1-B EBL	SS-60	43.8 - 45.3	SM	NP	NP	NP	100	83	13	-	-
CSX_B1-B EBL	SS-61	48.8 - 50.3	SM	NP	NP	NP	100	70	13	-	-
CSX_B1-B EBL	SS-62	53.8 - 55.3	CL	28	20	8	100	97	66	-	-



6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	41

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

RIVERSIDE

LANDSIDE

70 60 50 40 30 20 10 0

LOOSE TO MED. DENSE TAN BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

CSX_EBI-A EBL

I+96
28' RT

03/93

SOFT TO STIFF TAN BROWN SANDY SILT AND SANDY CLAY, MOIST TO WET (U.C.P.)

MEDIUM DENSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY GREEN SILTY CLAYEY SAND WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION)

DENSE GRAY SILTY AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)

HARD GRAY CLAY, WET (CAPE FEAR FORMATION)

DENSE GRAY SAND, SAT. (CAPE FEAR FORMATION)

2	
9	
12	
11	
3	
31	
35	
57	
45	
38	
43	

BT

2+00.00

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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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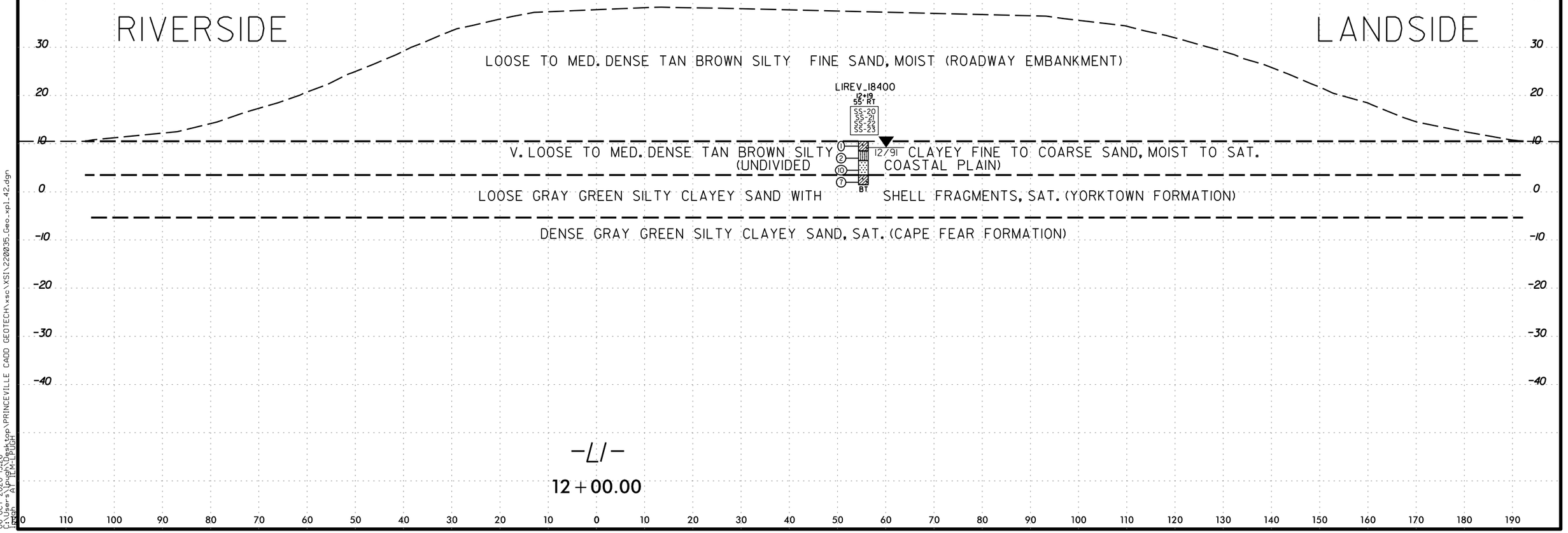
lpugh AT IE-M-LPUGH

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	42

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT					MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							C.SND	F.SND	SILT	CLAY	% PASSING 200		
L1REV_18400	SS-20	0.0 - 1.5	SC-SM	23	17	6	25	32	25	18	48	-	-
L1REV_18400	SS-21	2.5 - 4.0	SM	NP	NP	NP	48	32	14	6	22	-	-
L1REV_18400	SS-22	5.0 - 6.5	SP-SM	NP	NP	NP	78	17	3	2	5	-	-
L1REV_18400	SS-23	7.5 - 9.0	SC-SM	23	17	6	54	23	9	14	21	-	-



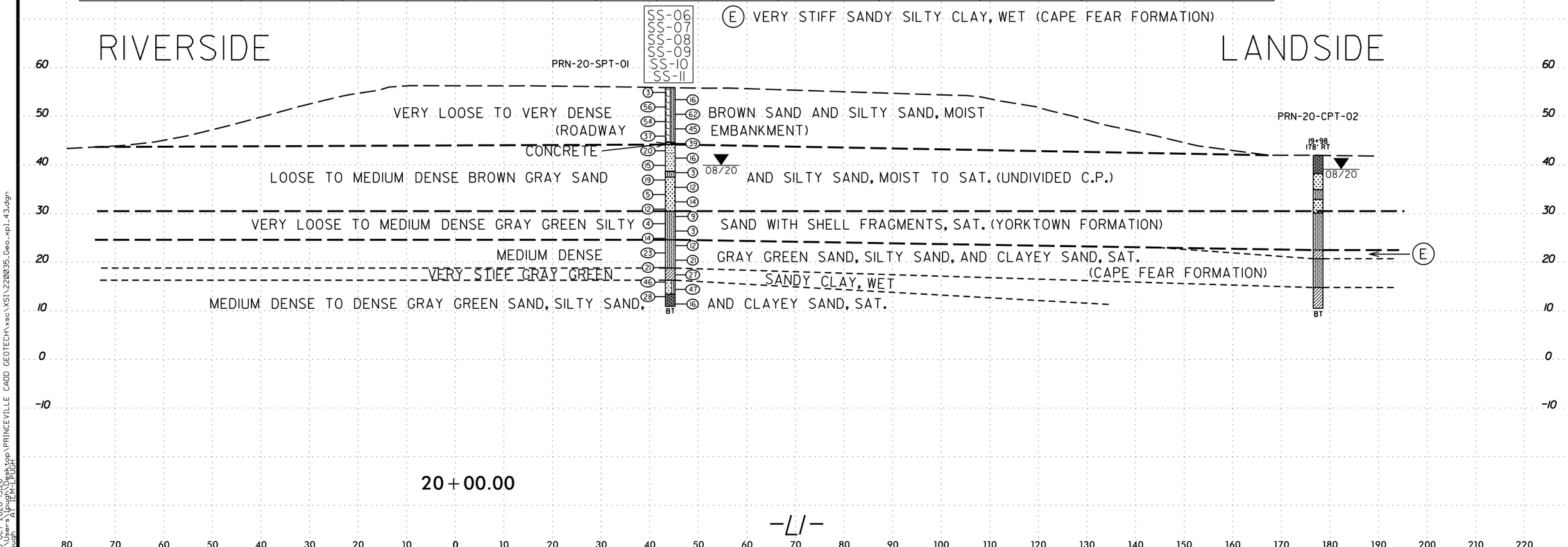
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	43

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-01	SS-06	17.2 - 18.0	SM	NP	NP	NP	100	90	45	22	-
PRN-20-SPT-01	SS-07	25.5 - 27.0	SM	NP	NP	NP	100	76	22	23	-
PRN-20-SPT-01	SS-08	33.0 - 34.5	SM	NP	NP	NP	82	65	19	19	-
PRN-20-SPT-01	SS-09	37.5 - 39.0	CL	37	17	20	100	98	79	21	-
PRN-20-SPT-01	SS-10	39.6 - 40.5	SP-SM	NP	NP	NP	100	99	8	29	-
PRN-20-SPT-01	SS-11	42.5 - 43.5	SC	37	21	16	100	98	34	25	-



20+00.00

-L/-

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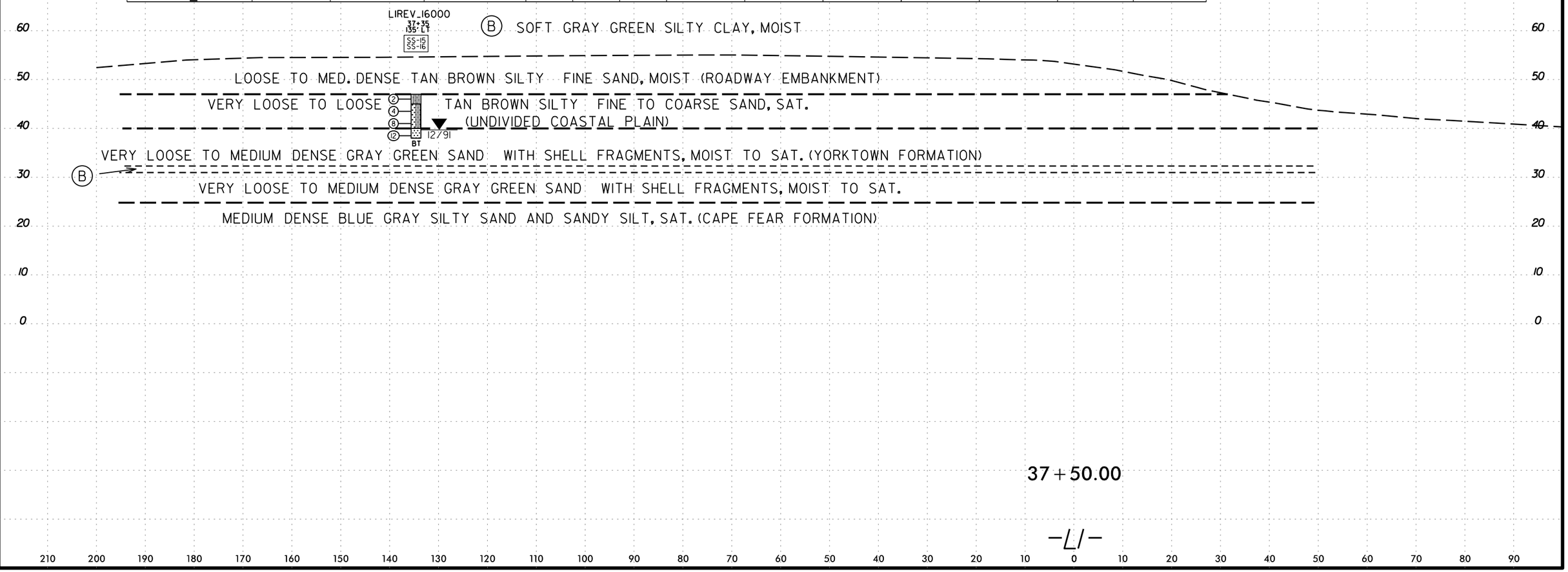
lpugh AT TIE-M-LPUGH

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT				% PASSING 200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							C.SND	F.SND	SILT	CLAY			
L1REV_16000	SS-15	0.0 - 1.5	SM	NP	NP	NP	43	49	4	4	12	-	-
L1REV_16000	SS-16	2.5 - 4.0	SP-SM	NP	NP	NP	51	42	3	4	9	-	-



37+50.00

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	45

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	MOISTURE CONTENT (%)
DIKE3B_B-7	SS-22	0.0 - 2.0	12
DIKE3B_B-7	SS-23	2.0 - 4.0	11
DIKE3B_B-7	SS-24	4.0 - 6.0	18
DIKE3B_B-7	SS-25	6.0 - 8.0	21
DIKE3B_B-7	SS-26	8.0 - 10.0	20
DIKE3B_B-7	SS-27	13.7 - 15.2	27
DIKE3B_B-7	SS-28	18.7 - 20.2	30
DIKE3B_B-7	SS-29	23.7 - 25.2	28

DIKE3B_B-7
51+03
126' RT

SS-22
SS-23
SS-24
SS-25
SS-26
SS-27
SS-28
SS-29

11 14 7 4 5 4 6 16 NM BT

50 40 30 20 10 0 -10 -20

LOOSE TO MEDIUM DENSE TAN SAND AND SILTY SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

LOOSE TO MEDIUM DENSE GRAY GREEN SILTY FINE SAND WITH TRACE SHELL FRAGMENTS, MOIST TO SAT. (YORKTOWN FORMATION)

LOOSE TO MEDIUM DENSE BLUE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

HARD GRAY SILTY CLAY, WET

51+00.00

-L/-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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tpugh
AT TEM-L PUGH

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	46

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

RIVERSIDE

LANDSIDE

60 50 40 30 20 10 0

LOOSE TO DENSE TAN SAND AND SILTY SAND, MOIST (ROADWAY EMBNAKMENT)

LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

LOOSE TO MEDIUM DENSE GRAY GREEN SAND AND SILTY SAND WITH TRACE SHELL FRAGMENTS, MOIST TO SAT. (YORKTOWN FORMATION)

MEDIUM DENSE BLUE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

HARD GRAY SILTY CLAY, WET

CS-40

51+44
135' RT

19 23 7 5 16 9 16 — 36 19 6 9 12 22 29

06/64

BT

51+50.00

—L/—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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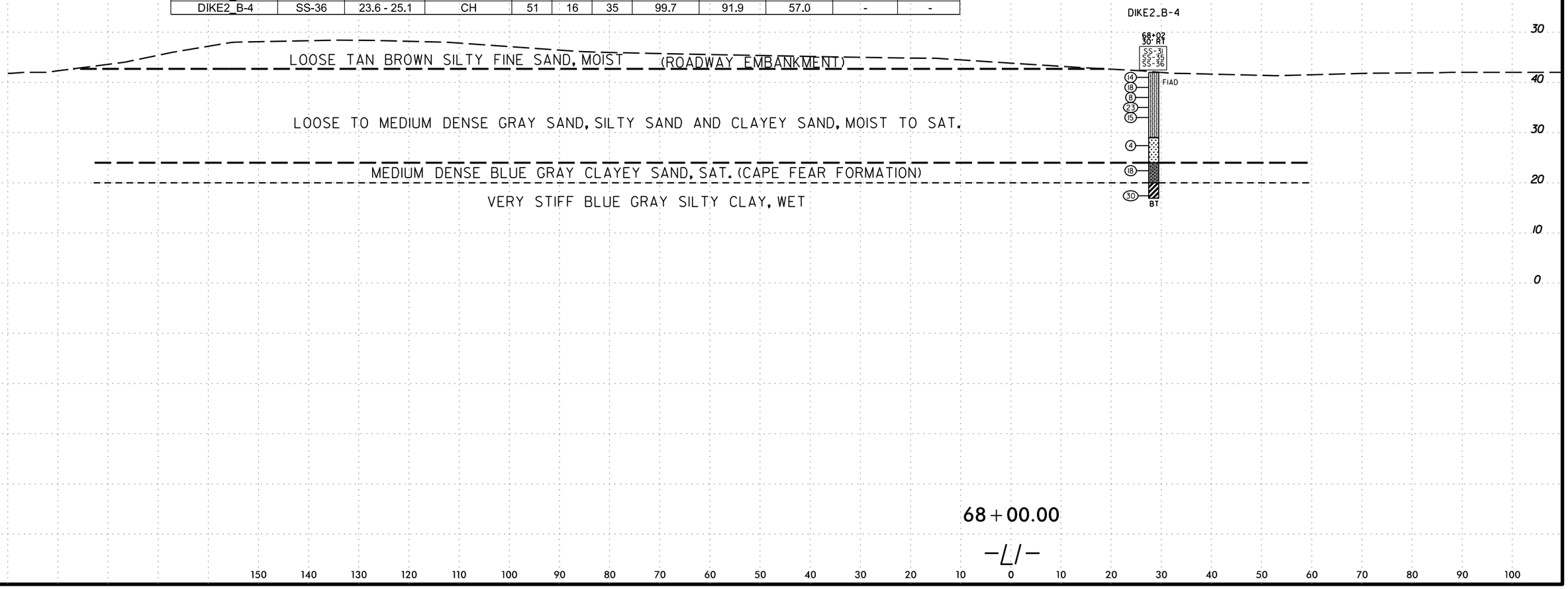
lpugh ALWAYS PUGH

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
DIKE2_B-4	SS-31	4.0 - 6.0	SM	NP	NP	NP	95.9	91.7	20.8	-	-
DIKE2_B-4	SS-35	18.6 - 20.1	SC	34	16	18	98.9	93.9	19.6	-	-
DIKE2_B-4	SS-36	23.6 - 25.1	CH	51	16	35	99.7	91.9	57.0	-	-



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0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	48

230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

RIVERSIDE

LANDSIDE

90 80 70 60 50 40 30 20 10 0

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	MOISTURE CONTENT (%)
DIKE1_B-2	SS-7	0.0 - 1.5	7
DIKE1_B-2	SS-8	3.4 - 4.9	15
DIKE1_B-2	SS-9	8.4 - 9.9	23
DIKE1_B-2	SS-10	13.5 - 15.0	20
DIKE1_B-2	SS-11	18.4 - 19.9	22
DIKE1_B-2	SS-12	23.6 - 25.1	28



LOOSE TAN BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE TO MEDIUM DENSE GRAY SAND AND SILTY SAND, MOIST TO SAT.

MEDIUM DENSE BLUE GRAY CLAYEY SAND, SAT. (CAPE FEAR FORMATION)

VERY STIFF BLUE GRAY SILTY CLAY, WET

68+50.00

-L/-

230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

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jpugh AT TEM-JPUGH

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	49

260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40

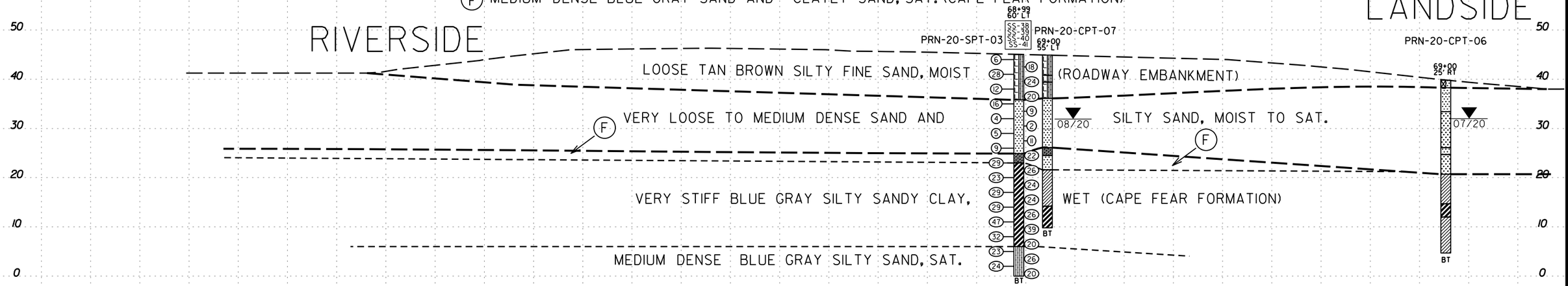
SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-03	SS-38	20.1 - 21.0	SC	38	16	22	97	68	28	20	-
PRN-20-SPT-03	SS-39	25.5 - 27.0	CH	60	22	38	100	99	90	22	-
PRN-20-SPT-03	SS-40	36.0 - 37.5	CH	51	18	33	100	98	86	18	-
PRN-20-SPT-03	SS-41	39.0 - 40.5	SM	NP	NP	NP	100	97	25	21	-

(F) MEDIUM DENSE BLUE GRAY SAND AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)

RIVERSIDE

LANDSIDE



69+00.00

—L/—

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pugh AT IE-LPUGH

6/23/16

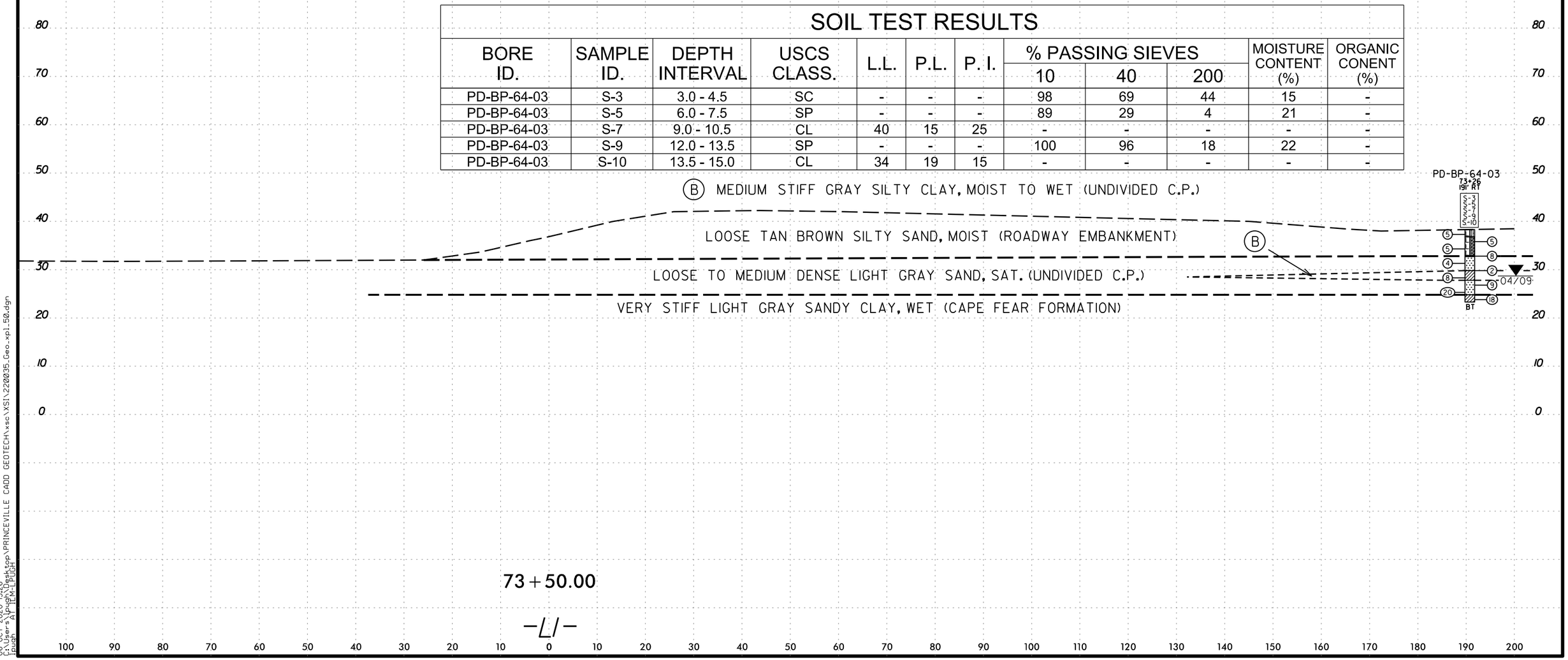
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	50

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES			MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							10	40	200		
PD-BP-64-03	S-3	3.0 - 4.5	SC	-	-	-	98	69	44	15	-
PD-BP-64-03	S-5	6.0 - 7.5	SP	-	-	-	89	29	4	21	-
PD-BP-64-03	S-7	9.0 - 10.5	CL	40	15	25	-	-	-	-	-
PD-BP-64-03	S-9	12.0 - 13.5	SP	-	-	-	100	96	18	22	-
PD-BP-64-03	S-10	13.5 - 15.0	CL	34	19	15	-	-	-	-	-



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AT TEM-L PUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	51

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT				% PASSING 200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
							C. SND	F. SND	SILT	CLAY			
L1REV_12400	SS-10	0.0 - 1.5	SM	18	NP	NP	33	40	19	8	32	-	-
L1REV_12400	SS-11	2.5 - 4.0	SM	14	NP	NP	64	25	6	5	13	-	-
L1REV_12400	SS-12	7.5 - 9.0	SP	14	NP	NP	86	11	3	0	3	-	-

60 50 40 30 20 10 0

LIREV_12400
75+73
89' RT
SS-10
SS-11
SS-12

LOOSE TAN BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

2 2 11 10 BT

DRY
12/91

VERY LOOSE TO MEDIUM DENSE TAN BROWN SAND AND SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

VERY STIFF GRAY SANDY CLAY, WET (CAPE FEAR FORMATION)

75+50.00

-L/-

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

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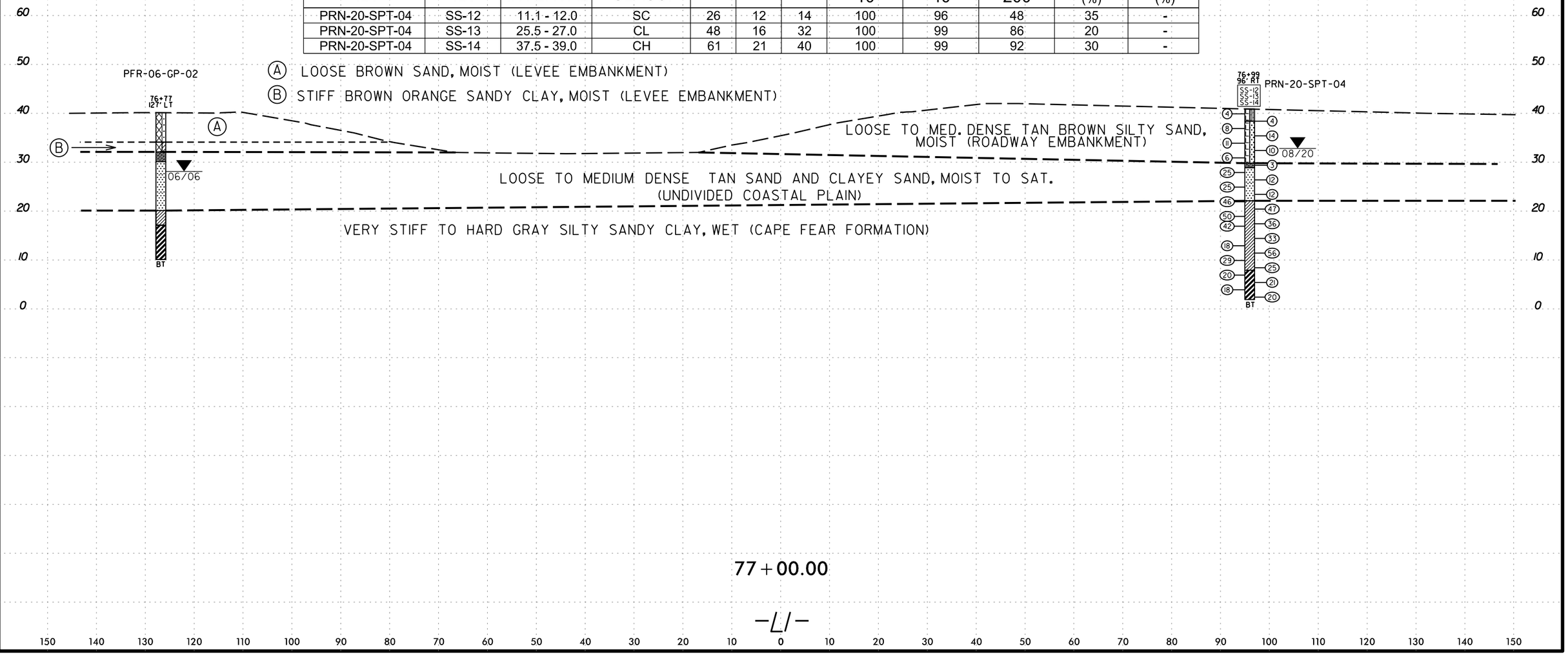
lpugh AT TEM-LPUGH

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-04	SS-12	11.1 - 12.0	SC	26	12	14	100	96	48	35	-
PRN-20-SPT-04	SS-13	25.5 - 27.0	CL	48	16	32	100	99	86	20	-
PRN-20-SPT-04	SS-14	37.5 - 39.0	CH	61	21	40	100	99	92	30	-



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jpugh AT TEM-LPUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	53

RIVERSIDE

LANDSIDE

PRN-20-CPT-08

80+70
70' LT

Ⓐ LOOSE GRAY SAND AND SILTY SAND, MOIST (LEVEE EMBANKMENT)

Ⓑ STIFF TAN SANDY CLAY, MOIST (LEVEE EMBANKMENT)

LOOSE TO MED. DENSE TAN BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

08/20

LOOSE TO MEDIUM DENSE SAND AND GRAVEL, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

STIFF TO HARD SANDY SILTY CLAY, WET (CAPE FEAR FORMATION)

BT

80+50.00

-L/-

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lpugh AT TLM-LPUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	53

RIVERSIDE

LANDSIDE

PRN-20-CPT-08

80+70
70' LT

Ⓐ LOOSE GRAY SAND AND SILTY SAND, MOIST (LEVEE EMBANKMENT)

Ⓑ STIFF TAN SANDY CLAY, MOIST (LEVEE EMBANKMENT)

LOOSE TO MED. DENSE TAN BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

08/20

LOOSE TO MEDIUM DENSE SAND AND GRAVEL, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

STIFF TO HARD SANDY SILTY CLAY, WET (CAPE FEAR FORMATION)

BT

80+50.00

-L/-

06-OCT-2020 13:26
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lpugh AT TLM-LPUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	54

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

RIVERSIDE

LANDSIDE

60 50 40 30 20 10

PFR-06-GP-03

Ⓐ LOOSE TO MEDIUM DENSE GRAY SAND AND SILTY SAND, MOIST (LEVEE EMBANKMENT)

83+20
80' LT

Ⓐ

LOOSE TO MED. DENSE TAN BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM DENSE GRAY SAND AND SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

BLACK SILTY CLAY, WET (UNDIVIDED C.P.)

06/06

VERY STIFF TO HARD GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)

BT

83+00.00

—L/—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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lpugh AT TEM-LPUGH

6/23/16

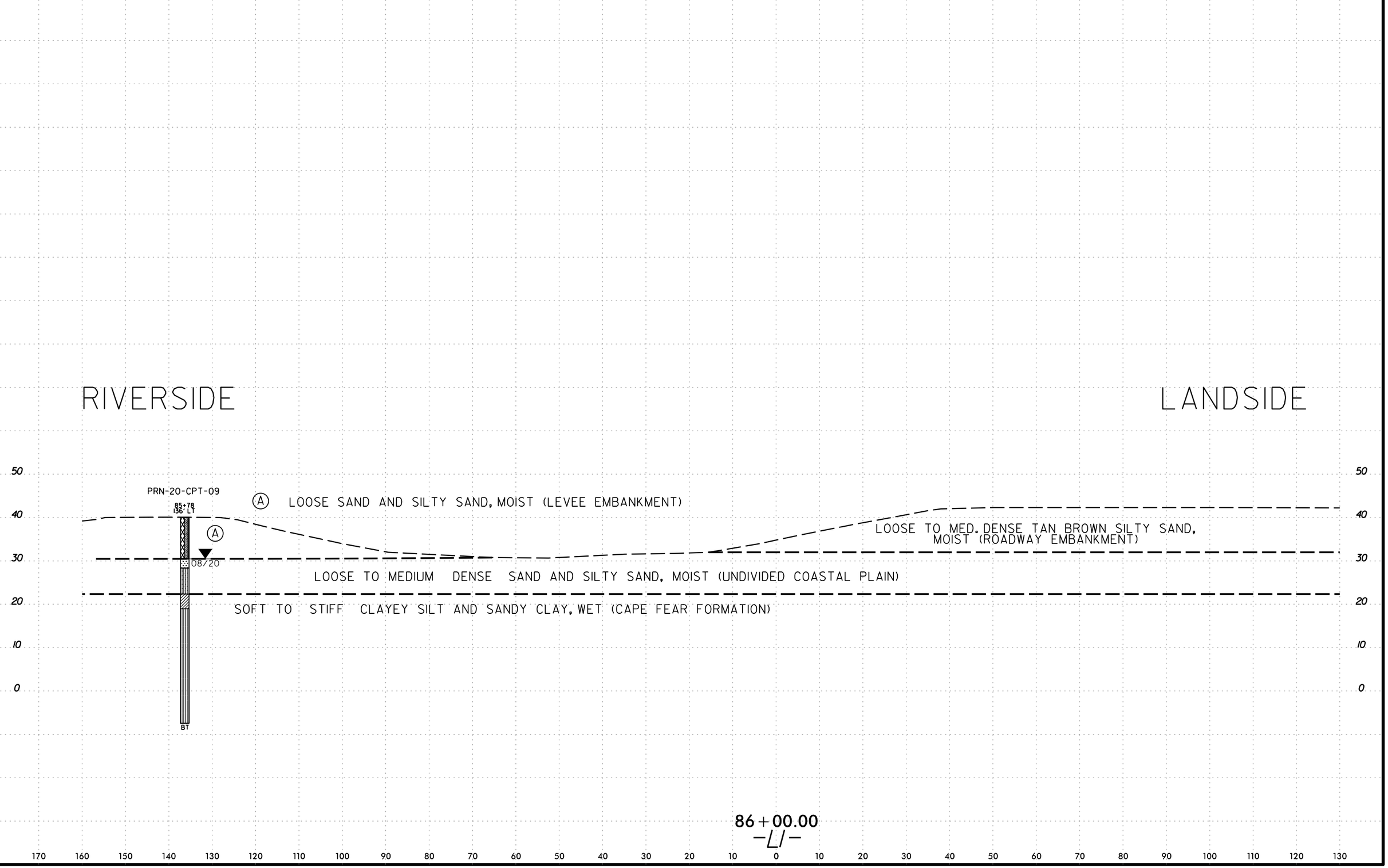
0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	55

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

RIVERSIDE

LANDSIDE



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tpugh
AT TEM-L PUGH

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

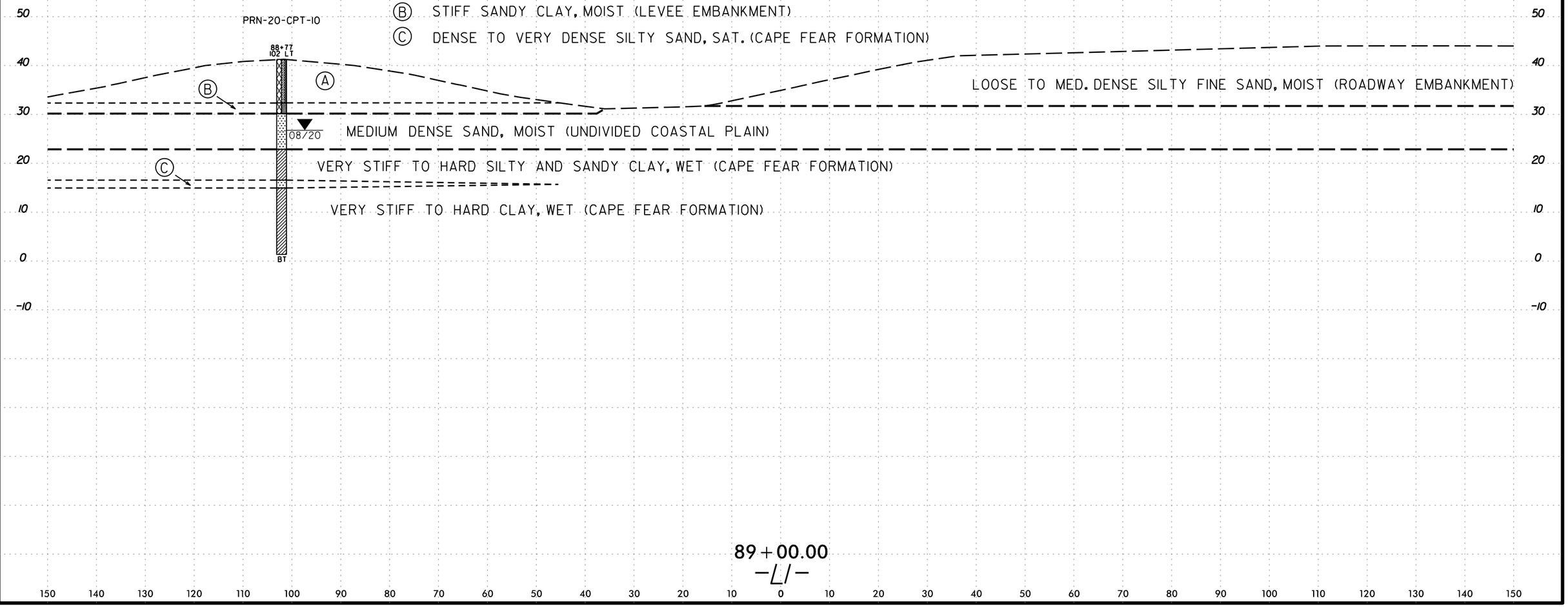
RIVERSIDE

LANDSIDE

Ⓐ LOOSE TO MEDIUM DENSE SAND AND SILTY SAND, MOIST (LEVEE EMBANKMENT)

Ⓑ STIFF SANDY CLAY, MOIST (LEVEE EMBANKMENT)

Ⓒ DENSE TO VERY DENSE SILTY SAND, SAT. (CAPE FEAR FORMATION)



89+00.00

—℄—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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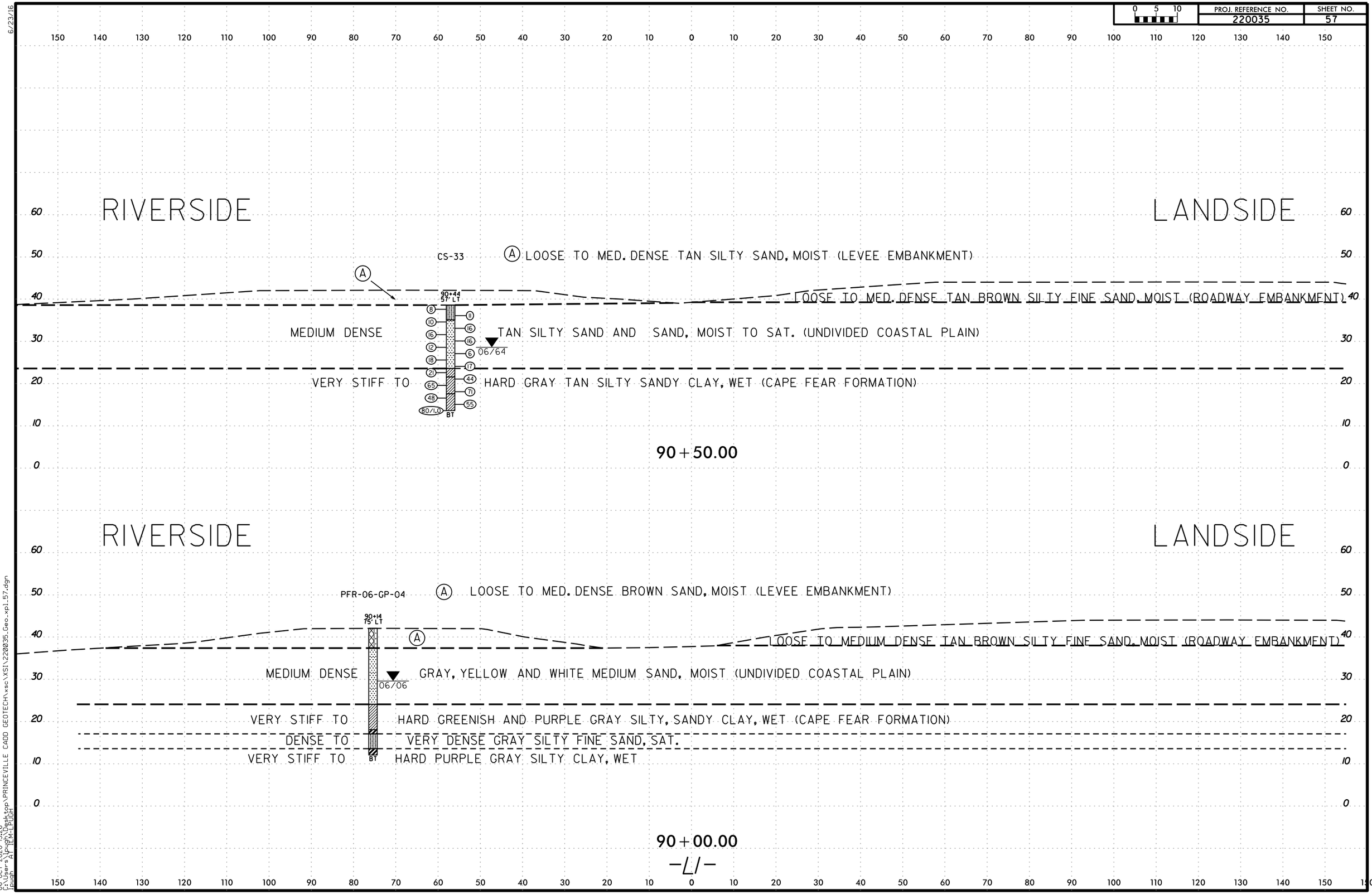
pugh AT ICM-LPUGH

PROJ. REFERENCE NO. 220035 | SHEET NO. 57



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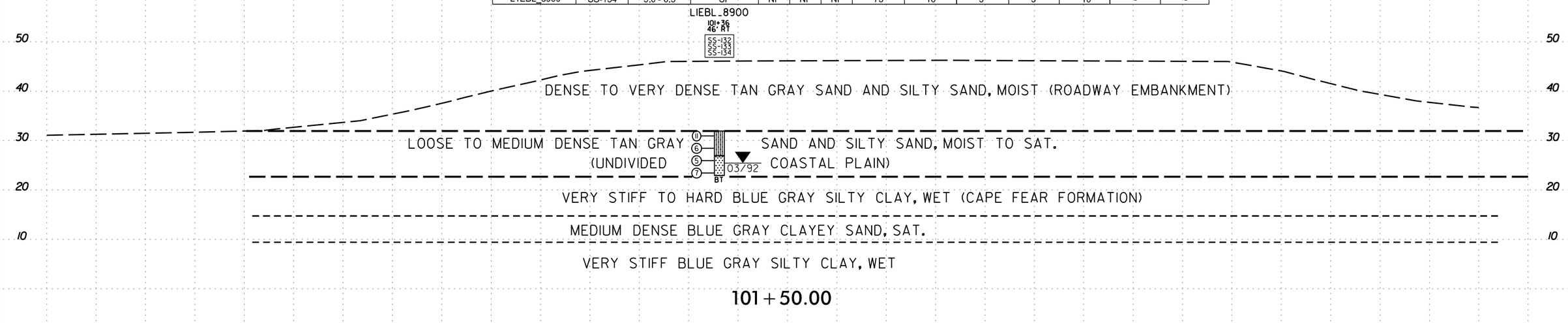
lpugh AT ILM-LPUGH

6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

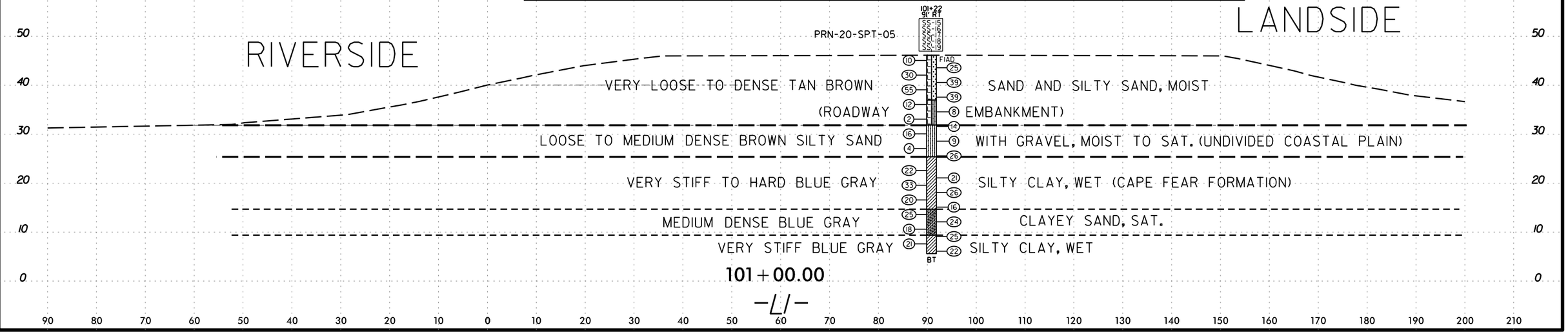
SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% BY WEIGHT C. SND	F. SND	SILT	CLAY	% PASSING 200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
L1EBL_8900	SS-132	0.0 - 1.5	SM	NP	NP	NP	56	31	5	4	14	-	-
L1EBL_8900	SS-133	3.0 - 4.0	SM	39	31	8	31	21	24	18	49	29.0	-
L1EBL_8900	SS-134	5.0 - 6.5	SP	NP	NP	NP	73	16	5	3	10	-	-



SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-05	SS-15	12.4 - 13.5	SM	39	27	12	96	71	35	36	-
PRN-20-SPT-05	SS-16	22.5 - 23.5	CL	38	20	18	100	90	57	24	-
PRN-20-SPT-05	SS-17	27.0 - 28.5	CL	42	20	22	100	93	69	22	-
PRN-20-SPT-05	SS-18	31.5 - 33.0	SC	30	19	11	100	79	21	22	-
PRN-20-SPT-05	SS-19	36.7 - 37.5	CL	46	17	29	100	98	80	20	-



90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210

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jpugh AT ICM-LPUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	59

RIVERSIDE

LANDSIDE

PFR-06-SS-06/GP-06

108+40
3' LT

PAVEMENT

VERY DENSE TAN GRAY AND BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE TO VERY DENSE TAN GRAY SILTY CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

07/06

HARD BLUE GRAY SANDY CLAYEY SILT, WET. (CAPE FEAR FORMATION)

BT

108+50.00

-11-

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lpugh AT TEM-LPUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	60

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P.I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
LOOPF_B1-B	SS-33	3.5 - 5.0	SM	NP	NP	NP	98	67	15	-	-
LOOPF_B1-B	SS-34	18.5 - 20.0	SC-SM	20	15	5	93	60	25	-	-
LOOPF_B1-B	SS-35	23.5 - 25.0	CL	39	20	29	97	88	56	-	-
LOOPF_B1-B	SS-36	28.5 - 30.0	SP-SM	NP	NP	NP	95	67	7	-	-
LOOPF_B1-B	SS-37	48.5 - 50.0	SP	NP	NP	NP	100	90	4	-	-
LOOPF_B1-B	SS-38	63.5 - 65.0	SW	23	17	6	92	17	4	-	-
LOOPF_B2-A	SS-9	0.0 - 1.5	SP-SM	NP	NP	NP	97	68	11	-	-
LOOPF_B2-A	SS-10	9.0 - 10.5	SM	NP	NP	NP	92	61	17	-	-
LOOPF_B2-A	SS-11	14.0 - 15.5	CL	33	21	12	100	94	56	-	-
LOOPF_B2-A	SS-12	19.0 - 20.5	SM	NP	NP	NP	99	68	17	-	-
LOOPF_B2-A	SS-13	24.0 - 25.5	SM	NP	NP	NP	96	56	5	-	-
LOOPF_B2-A	SS-14	39.0 - 40.5	SP	NP	NP	NP	100	92	4	-	-
LOOPF_B2-A	SS-15	54.0 - 55.5	SW	NP	NP	NP	100	33	3	-	-
LOOPF_B2-A	SS-16	64.0 - 65.5	SP-SM	NP	NP	NP	96	49	11	-	-
LOOPF_EB2-A	SS-26	4.0 - 5.5	SM	NP	NP	NP	100	97	18	-	-
LOOPF_EB2-A	SS-27	9.0 - 10.5	SP-SM	NP	NP	NP	96	60	8	-	-
LOOPF_EB2-A	SS-28	14.0 - 15.5	SP-SM	NP	NP	NP	100	87	9	-	-
LOOPF_EB2-A	SS-29	29.0 - 30.5	CL	36	20	16	100	98	80	-	-
LOOPF_EB2-A	SS-30	34.0 - 35.5	SP-SM	NP	NP	NP	100	82	5	-	-
LOOPF_EB2-A	SS-31	39.0 - 40.2	SP-SM	NP	NP	NP	100	88	8	-	-
LOOPF_EB2-A	SS-32	59.0 - 60.5	CL	36	18	18	100	98	55	-	-

RIVERSIDE

LANDSIDE

(E) VERY STIFF GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)

LOOPF_BI-B
II9+17
20' LT
SS-33
SS-34
SS-35
SS-36
SS-37
SS-38

LOOPF_B2-A
II9+29
56' RT
SS-09
SS-10
SS-11
SS-12
SS-13
SS-14
SS-15
SS-16

LOOPF_EBI-A
II9+39
52' LT

LOOPF_EB2-A
II9+20
152' RT
SS-26
SS-27
SS-28
SS-29
SS-30
SS-31
SS-32

VERY DENSE TAN GRAY AND BROWN SILTY FINE SAND, MOIST (ROADWAY EMBANKMENT)

VERY DENSE TAN GRAY AND BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

VERY LOOSE TO VERY DENSE TAN BROWN SILTY SAND, MOIST

(LEVEE EMBANKMENT)

SOFT TO MEDIUM STIFF YELLOW BROWN AND GRAY SILTY SANDY CLAY, (U.C.P.)

07/93

08/93

07/93

MEDIUM DENSE GRAY SILTY SAND, MOIST TO SAT. (U.C.P.)

08/93

MEDIUM DENSE TO VERY DENSE GRAY SAND AND SILTY SAND, SAT.

(CAPE FEAR FORMATION)

(E)

HARD GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)

119+00.00

-L/-

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	61

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

RIVERSIDE

LANDSIDE

50 40 30 20 10 0 -10 -20

CS-26

139+28
24' RT

(LEVEE EMBANKMENT)

LOOSE TO DENSE TAN GRAY SILTY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

05/64

DENSE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

BT

139+50.00

RIVERSIDE

LANDSIDE

CS-25

139+22
7' LT

CS-24

139+13
43' LT

(LEEVEE EMBANKMENT)

LOOSE TO VERY DENSE TAN GRAY SILTY CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

05/64

05/64

MEDIUM DENSE TO VERY DENSE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

BT

139+00.00

-L/-

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jpugh AT ICM-1\PUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	62

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

50 40 30 20 10 0 -10 -20

RIVERSIDE

LANDSIDE

CS-30

145+24
158' LT

(15) (7) (7) (6) (9) (40) (25) (30) (33) (27)

(17) (11) (3) (9) 05/64 (27) (22) (38) (52) (38) (32)

BT

(LEEVEE EMBANKMENT)

STIFF TO VERY STIFF TAN SANDY CLAY, MOIST. (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO MED. DENSE TAN GRAY SILTY FINE TO MEDIUM SAND AND CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

LOOSE TO VERY DENSE GRAY MEDIUM SAND, SAT. (CAPE FEAR FORMATION)

HARD GRAY FAT CLAY, WET (CAPE FEAR FORMATION)

MEDIUM DENSE TO DENSE TAN GRAY SILTY FINE SAND, SAT. (CAPE FEAR FORMATION)

145+00.00
-L/-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

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tpugh
AT TEM-L PUGH

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	MOISTURE CONTENT (%)
PRC-17-SPT-01	2	1.7 - 3.0	SC	38	16	22	12
PRC-17-SPT-01	4	4.5 - 5.2	SC	34	16	18	13
PRC-17-SPT-01	5	5.2 - 5.8	SC	29	15	14	15
PRC-17-SPT-01	7	8.5 - 9.0	SC	33	16	17	13
PRC-17-SPT-01	8	10.8 - 12.0	CL	41	17	24	16
PRC-17-SPT-01	11	15.5 - 16.5	SC	44	19	25	19
PRC-17-SPT-01	12	16.8 - 17.7	SC	46	18	28	19
PRC-17-SPT-01	16	22.5 - 23.5	SP-SM	-	-	-	17
PRC-17-SPT-01	17	24.0 - 25.5	SP	-	-	-	17
PRC-17-SPT-01	19	27.5 - 28.5	SP-SM	-	-	-	22
PRC-17-SPT-01	20	28.5 - 30.0	SP	-	-	-	31
PRC-17-SPT-01	22	31.5 - 32.7	SP-SC	34	23	11	21
PRC-17-SPT-01	23	33.0 - 34.5	SP	34	19	15	27
PRC-17-SPT-01	24	34.5 - 36.0	SP	37	21	16	28
PRC-17-SPT-01	26	37.5 - 39.0	SP	43	19	24	32
PRC-17-SPT-01	29	42.0 - 43.5	SP-SC	45	15	30	29
PRC-17-SPT-01	33	48.0 - 49.5	SP	45	19	26	34

RIVERSIDE

LANDSIDE

PRC-17-SPT-01
148+87
4' RT

PRC-17-SPT-02
149+17
55' RT

E MEDIUM STIFF GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO MED. DENSE GRAY ORANGE AND BROWN SILTY AND CLAYEY FINE TO MED. SAND WITH STIFF BROWN SANDY LEAN CLAY, MOIST (LEVEE EMBANKMENT)

LOOSE TO MEDIUM DENSE BROWN GRAY FINE TO MED. SAND AND SILTY CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

10/17

LOOSE TO MEDIUM DENSE GRAY FINE TO MED. SAND AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)

BT

60 50 40 30 20 10 0 -10 -20

149+00.00
—L/—

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	64

RIVERSIDE

LANDSIDE

(LEVEE EMBANKMENT)

CS-20

149+77
147' LT

11 16 24 14 32 22 24 32 37
22 26 16 28 18 20 22 34
05/64
BT

MEDIUM DENSE TO DENSE TAN GRAY SILTY CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

150+00.00

-L/-

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

30 20 10 0 -10 -20 -30

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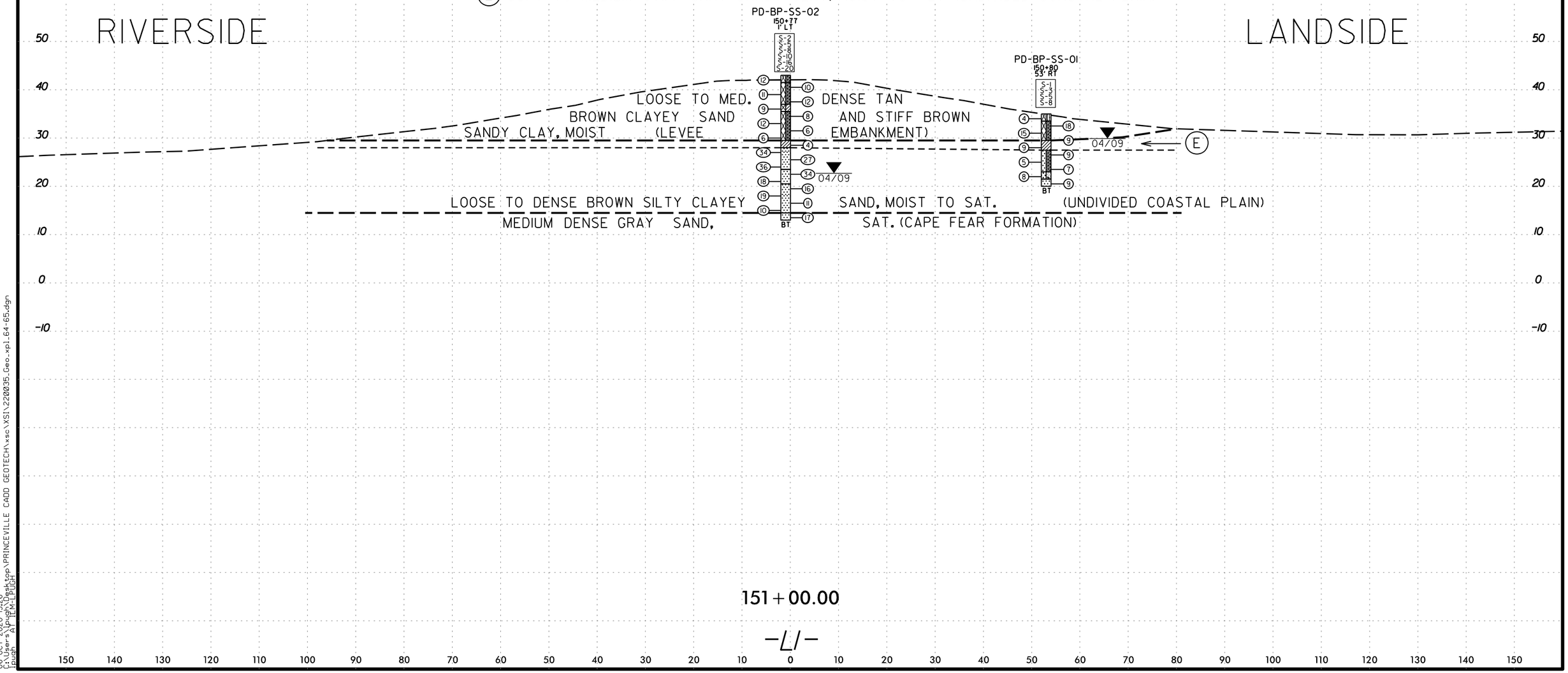
AT TEM-L PUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	65

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)
PD-BP-SS-01	1	0.0 - 1.5	SM	-	-	-	-	-	13	5
PD-BP-SS-01	3	3.0 - 4.5	SC	-	-	-	96	45	14	9
PD-BP-SS-01	5	6.0 - 7.5	CL	32	17	15	-	-	-	-
PD-BP-SS-01	8	10.5 - 12.0	SP-SC	-	-	-	92	42	9	15
PD-BP-SS-02	2	1.5 - 3.0	SC	-	-	-	99	86	41	11
PD-BP-SS-02	5	6.0 - 7.5	CL	27	15	12	-	-	-	-
PD-BP-SS-02	8	10.5 - 12.0	SC	-	-	-	99	84	39	13
PD-BP-SS-02	10	13.5 - 15.0	CL	38	17	21	-	-	-	-
PD-BP-SS-02	16	22.5 - 24.0	SP	-	-	-	87	37	2	15
PD-BP-SS-02	20	28.5 - 30.0	-	-	-	-	-	-	-	11



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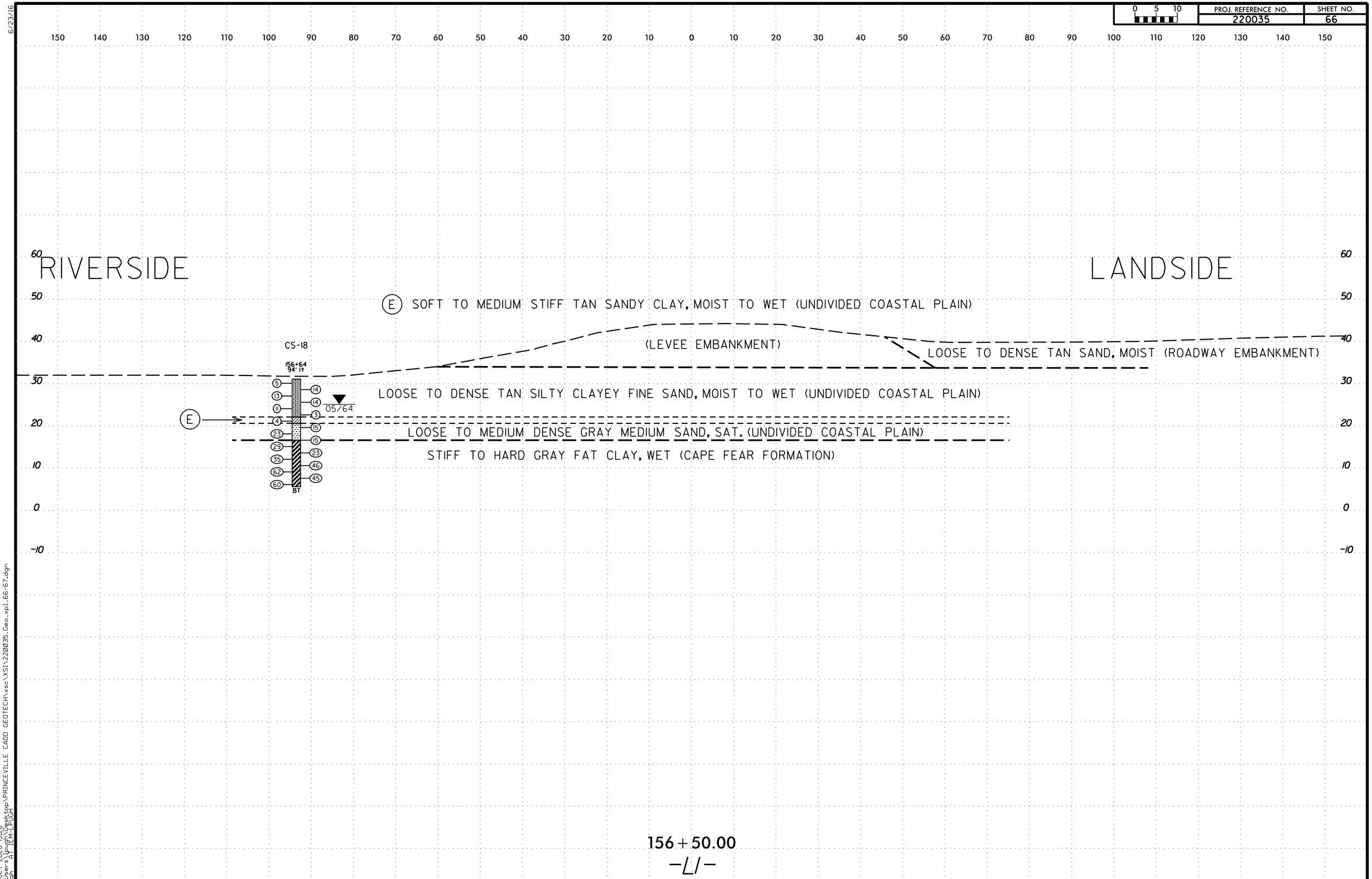
lpugh AT TEM-LPUGH

PROJ. REFERENCE NO. 220035 | SHEET NO. 66



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lpugh AT ILM-LPUGH

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
220035	67

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)
BDG24_EB1-A	SS-1	1.0 - 1.5	SC	25	16	9	95	68	36	-
BDG24_EB1-A	SS-2	4.5 - 6.0	SM	NP	NP	NP	100	100	15	-
BDG24_EB1-A	SS-3	9.5 - 11.0	SC-SM	22	16	6	100	100	41	-
BDG24_EB1-A	SS-4	19.1 - 20.6	SW-SM	NP	NP	NP	99	31	6	-
BDG24_EB1-A	SS-5	24.1 - 25.6	CL	41	25	16	92	89	76	25
BDG24_EB1-A	SS-6	29.1 - 30.6	CL	43	21	22	95	92	62	-
BDG24_EB1-A	SS-7	34.1 - 35.6	SP-SM	NP	NP	NP	100	62	10	-
BDG24_EB1-A	SS-8	44.1 - 45.6	SP-SM	NP	NP	NP	100	65	5	-
BDG24_EB1-A	SS-9	49.1 - 50.6	ML	36	28	8	100	97	76	-

70 60 50 40 30 20 10 0 -10 -20

RIVERSIDE

LANDSIDE

BDG24_EBI-A
157+65
41' LT

SS-1
SS-2
SS-3
SS-4
SS-5
SS-6
SS-7
SS-8
SS-9

11 48 8 4 25 16 17 42 23 11 13 25 24

BT

10/07

(LEVEE EMBANKMENT)

(ROADWAY EMBANKMENT)

LOOSE TO DENSE TAN SILTY CLAYEY FINE TO COARSE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

VERY STIFF GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)

MEDIUM DENSE TO DENSE GRAY SAND, SAT. (CAPE FEAR FORMATION))

STIFF TO VERY STIFF GRAY SANDY SILT, WET (CAPE FEAR FORMATION)

157+50.00

-L1-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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tpugh
AT TEM-L PUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	68

RIVERSIDE

LANDSIDE

CS-12
169+78
62' LT

CS-13
169+77
27' LT

CS-14
169+79
27' RT

CS-15
169+79
81' RT

(LEVEE EMBANKMENT)

VERY LOOSE TO MED. DENSE TAN SILTY CLAYEY SAND, MOIST TO SAT.
05/64 05/64 05/64 (U.C.P.)

VERY STIFF TO HARD TAN SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

VERY DENSE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

BT BT BT BT

170+00.00

-L/-

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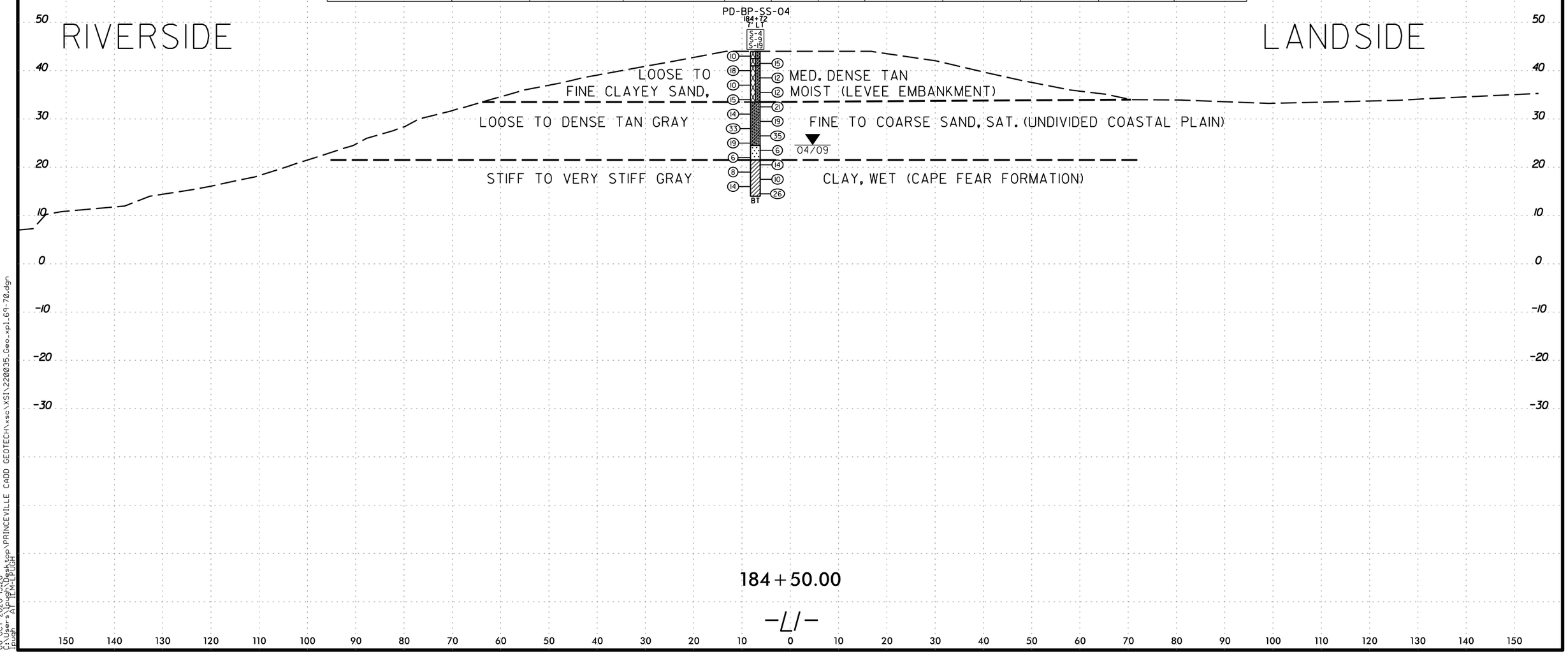
SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PD-BP-SS-04	S-4	4.5 - 6.0	SC	-	-	-	100	89	41	10	-
PD-BP-SS-04	S-9	12.0 - 13.5	SC	-	-	-	99	85	18	8	-
PD-BP-SS-04	S-19	27.0 - 28.5	CH	61	26	35	-	-	-	-	-



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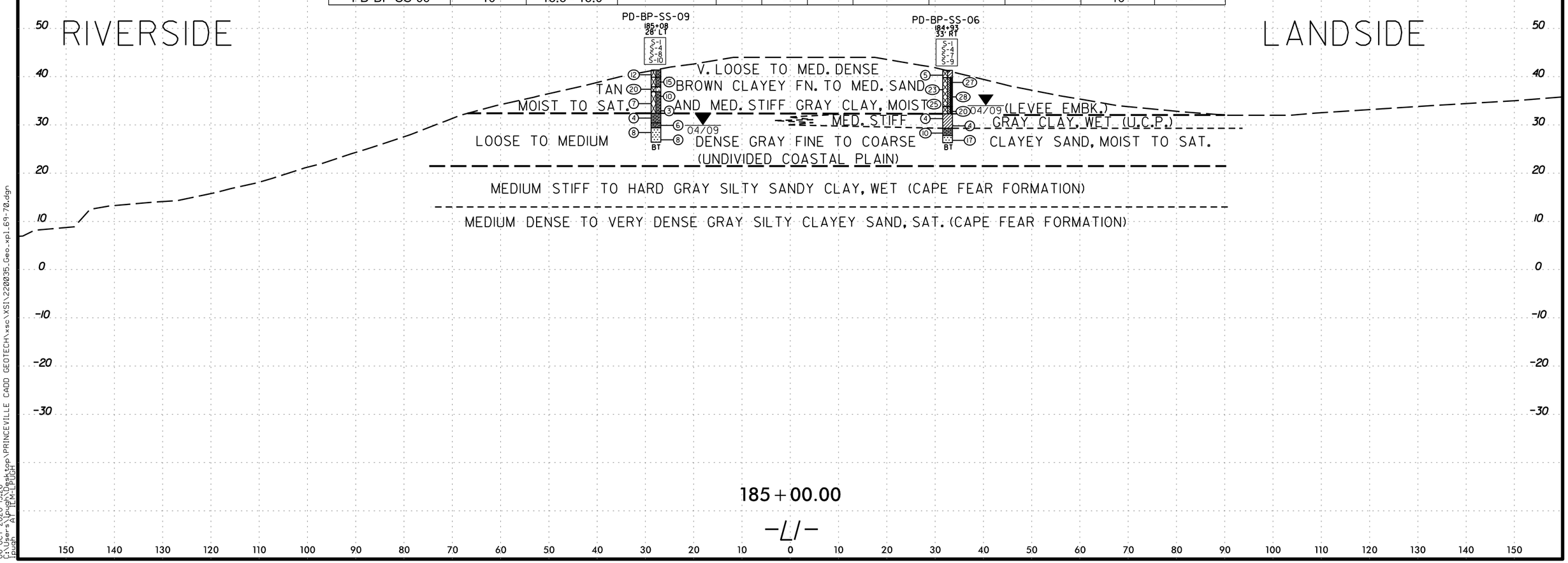
lpugh AT IEM-LPUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	70

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PD-BP-SS-06	1	0.0 - 1.5	CL	-	-	-	-	-	52	15	-
PD-BP-SS-06	4	4.5 - 6.0	SP-SC	-	-	-	95	56	9	6	-
PD-BP-SS-06	7	9.0 - 10.5	CL	29	18	11	-	-	-	-	-
PD-BP-SS-06	9	12.0 - 13.5	SC	-	-	-	-	-	40	15	-
PD-BP-SS-09	1	0.0 - 1.5	SC	-	-	-	-	-	19	7	-
PD-BP-SS-09	4	4.5 - 6.0	SC	-	-	-	100	95	27	11	-
PD-BP-SS-09	8	10.5 - 12.0	SC	-	-	-	-	-	39	15	-
PD-BP-SS-09	10	13.5 - 15.0	-	-	-	-	-	-	-	19	-



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AT TEM-L PUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	71

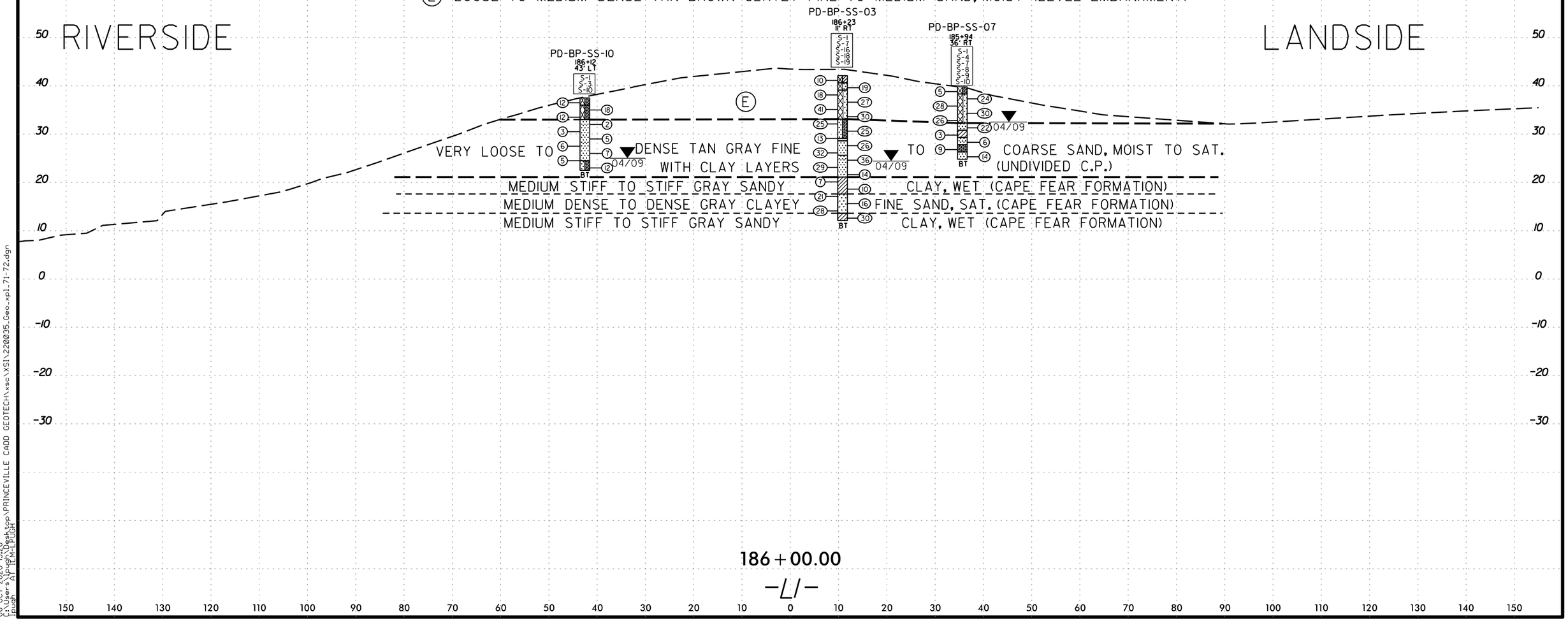
SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PD-BP-SS-03	S-1	0.0 - 1.5	CL	35	16	19	-	-	-	-	-
PD-BP-SS-03	S-7	9.0 - 10.5	SP-SC	-	-	-	86	40	8	5	-
PD-BP-SS-03	S-16	22.5 - 24.0	CL	40	18	22	-	-	-	-	-
PD-BP-SS-03	S-18	25.5 - 27.0	-	-	-	-	-	-	-	21	-
PD-BP-SS-03	S-19	27.0 - 28.5	SC	-	-	-	-	-	25	13	-
PD-BP-SS-07	S-1	0.0 - 1.5	SC	-	-	-	-	-	20	8	-
PD-BP-SS-07	S-4	4.5 - 6.0	SP-SC	-	-	-	95	56	8	7	-
PD-BP-SS-07	S-7	9.0 - 10.5	CL	29	16	13	-	-	-	-	-
PD-BP-SS-07	S-8	10.5 - 12.0	-	-	-	-	-	-	-	20	-
PD-BP-SS-07	S-9	12.0 - 13.5	SC	-	-	-	-	-	39	12	-
PD-BP-SS-07	S-10	13.5 - 15.0	-	-	-	-	-	-	-	12	-
PD-BP-SS-10	S-1	0.0 - 1.5	SC	-	-	-	-	-	24	6	-
PD-BP-SS-10	S-3	3.0 - 4.5	SC	-	-	-	100	98	30	11	-
PD-BP-SS-10	S-10	13.5 - 15.0	-	-	-	-	-	-	-	17	-

(E) LOOSE TO MEDIUM DENSE TAN BROWN CLAYEY FINE TO MEDIUM SAND, MOIST (LEVEE EMBANKMENT)

RIVERSIDE

LANDSIDE



186+00.00

-L/-

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tpugh
AT TEM-L PUGH

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	72

RIVERSIDE

LANDSIDE

(E) LOOSE TO MEDIUM DENSE TAN BROWN CLAYEY FINE TO MEDIUM SAND, MOIST (LEVEE EMBANKMENT)

CS-08

186+53
66 LT

15	30
5	4
20	15
11	16
34	15
19	19
27	20
25	33
27	36
33	40

BT

05/64

LOOSE TO DENSE TAN SILTY FINE TO MEDIUM SAND, SAT. (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF GRAY SANDY CLAY, WET (CAPE FEAR FORMATION)

MEDIUM DENSE TO DENSE GRAY SILTY FINE TO MEDIUM SAND, SAT. (CAPE FEAR FORMATION)

MEDIUM STIFF TO STIFF GRAY SANDY CLAY, WET (CAPE FEAR FORMATION)

DENSE GRAY SILTY FINE SAND, SAT. (CAPE FEAR FORMATION)

60 50 40 30 20 10 0 -10 -20 -30

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

186+50.00

-L/-

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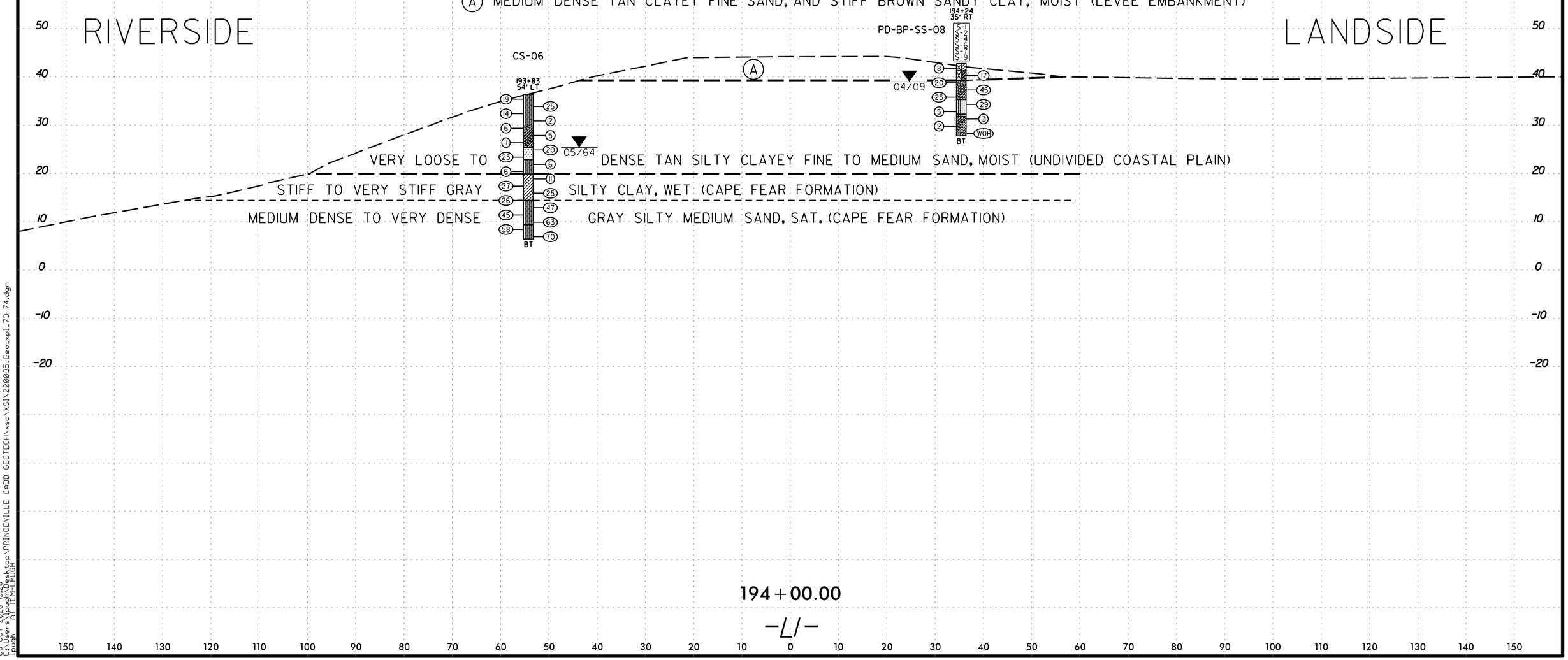
lpugh
AT IE M_LPUGH

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)
PD-BP-SS-08	S-1	0.0 - 1.5	CL	34	16	18	-	-	-	13
PD-BP-SS-08	S-2	1.5 - 3.0	-	-	-	-	-	-	-	14
PD-BP-SS-08	S-4	4.5 - 6.0	SC	-	-	-	94	71	21	8
PD-BP-SS-08	S-6	7.5 - 9.0	SM	-	-	-	-	-	27	16
PD-BP-SS-08	S-7	9.0 - 10.5	SM	-	-	-	-	-	19	22
PD-BP-SS-08	S-9	12.0 - 13.5	SC	-	-	-	100	88	13	25



194+00.00

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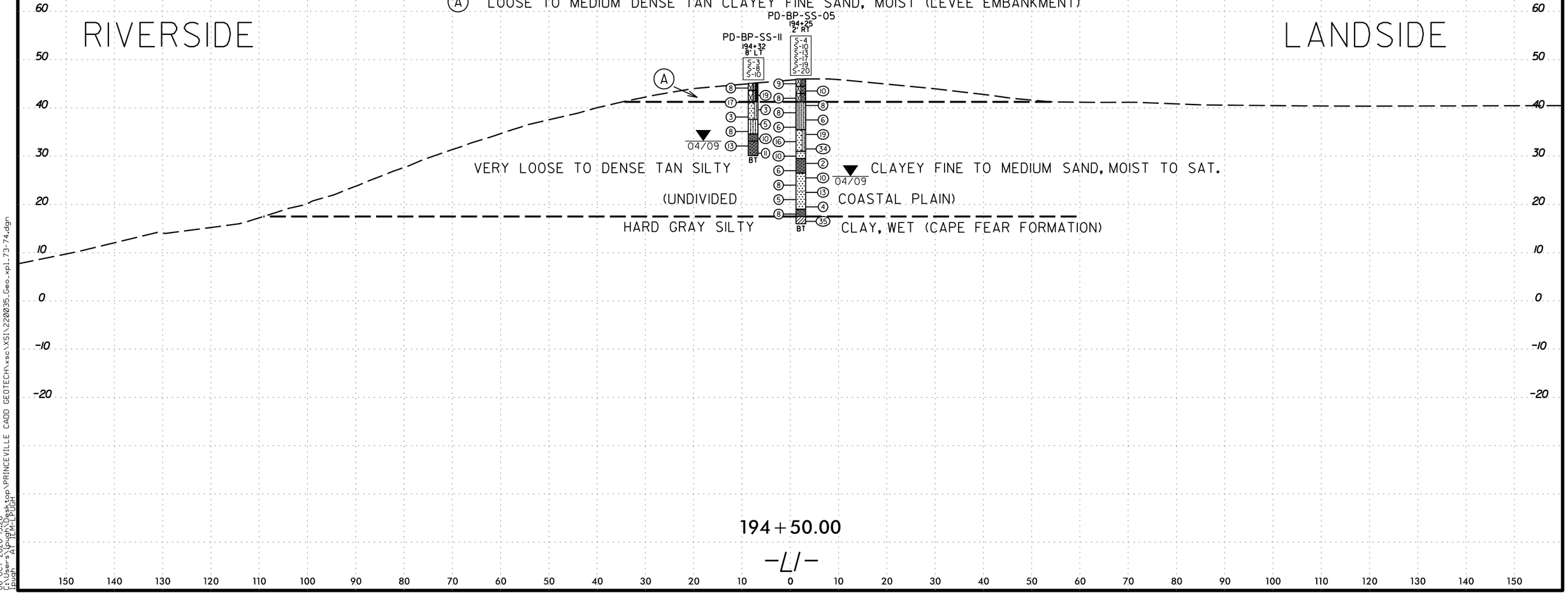
SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PD-BP-SS-05	4	4.5 - 6.0	SC	-	-	-	99	84	43	15	-
PD-BP-SS-05	10	13.5 - 15.0	SP-SM	-	-	-	98	85	11	11	-
PD-BP-SS-05	13	18.0 - 19.5	SC	-	-	-	-	-	42	16	-
PD-BP-SS-05	17	24.0 - 25.5	SP	-	-	-	97	34	4	21	-
PD-BP-SS-05	19	27.0 - 28.5	-	-	-	-	-	-	-	16	-
PD-BP-SS-05	20	28.5 - 30.0	CL	48	21	27	-	-	-	-	-
PD-BP-SS-11	3	3.0 - 4.5	SP-SC	-	-	-	98	74	12	10	-
PD-BP-SS-11	8	10.5 - 12.0	SC	-	-	-	98	46	16	12	-
PD-BP-SS-11	10	13.5 - 15.0	-	-	-	-	-	-	-	20	-



6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	75

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

50 40 30 20 10 0

RIVERSIDE

LANDSIDE

(LEVEE EMBANKMENT)

LOOSE TO MEDIUM DENSE TAN GRAY SAND AND SILTY SAND, MOIST

(UNDIVIDED COASTAL PLAIN)

LOOSE TO DENSE GRAY SAND AND SILTY SAND, MOIST TO SAT. (CAPE FEAR FORMATION)

CS-01
213+90
37' RT

5 9 11 16 15 27 10 23 34 — 6 9 20 15 19 13 24 37 31 — BT

05/64

214+00.00

RIVERSIDE

LANDSIDE

CS-01A
213+07
30' LT

16 23 17 11 12 32 26 18 24 24 — 18 24 13 15 32 25 21 24 28 19 — BT

06/64

(LEVEE EMBANKMENT)

MEDIUM DENSE TO DENSE TAN SILTY SAND, MOIST TO SAT.

(UNDIVIDED COASTAL PLAIN)

VERY STIFF TO HARD GRAY SANDY CLAY AND SANDY SILT, WET

(CAPE FEAR FORMATION)

MEDIUM DENSE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)

213+00.00

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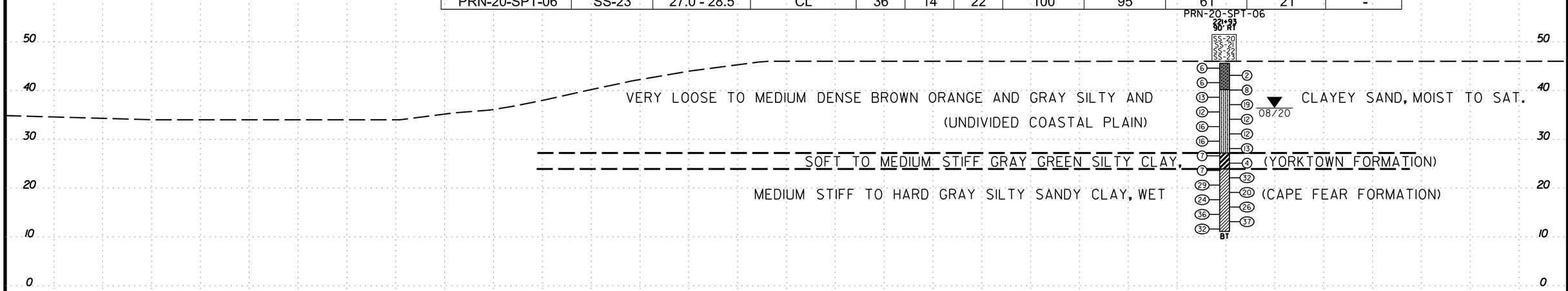
RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-06	SS-20	3.0 - 4.5	SC	41	16	25	100	71	38	20	-
PRN-20-SPT-06	SS-21	10.5 - 12.0	SM	NP	NP	NP	100	98	29	23	-
PRN-20-SPT-06	SS-22	18.4 - 19.5	CH	77	21	56	100	99	94	34	-
PRN-20-SPT-06	SS-23	27.0 - 28.5	CL	36	14	22	100	95	61	21	-



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PROJ. REFERENCE NO.	SHEET NO.
220035	77

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-07	SS-24	9.0 - 10.5	CL	44	18	26	100	97	82	31	-
PRN-20-SPT-07	SS-25	10.5 - 12.0	CH	51	19	32	100	99	83	26	-
PRN-20-SPT-07	SS-26	13.5 - 15.0	CH	54	19	35	100	99	73	-	-
PRN-20-SPT-07	SS-27	16.5 - 18.0	SM	NP	NP	NP	100	99	36	-	-
PRN-20-SPT-07	SS-28	25.5 - 27.0	SC	32	18	14	100	93	29	-	-

60 50 40 30 20 10

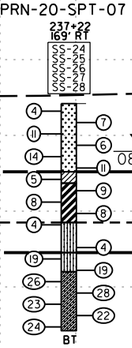
LOOSE TO MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GREEN GRAY SILTY CLAY, WET (YORKTOWN FORMATION)

LOOSE GREEN GRAY SILTY SAND, SAT.

MEDIUM DENSE BLUE GRAY SILTY AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)

PRN-20-SPT-07
237+22
169' RT



237+00.00

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	220035	78

RIVERSIDE

LANDSIDE

SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-08	SS-29	0.0 - 1.5	SC-SM	24	17	7	99	80	33	-	-
PRN-20-SPT-08	SS-30	15.0 - 16.5	SC-SM	21	16	5	100	99	40	33	-
PRN-20-SPT-08	SS-31	20.0 - 21.0	CL	32	19	13	100	91	58	24	-
PRN-20-SPT-08	SS-32	25.7 - 27.0	SM	NP	NP	NP	98	80	14	22	-
PRN-20-SPT-08	SS-33	29.0 - 30.0	CH	51	23	28	100	96	75	-	-

250+21
29' LT
SS-29
SS-30
SS-31
SS-32
SS-33

PRN-20-SPT-08

08/20

VERY LOOSE TO MEDIUM DENSE TAN BROWN AND GRAY SAND AND SILTY CLAYEY SAND, MOIST TO SAT.
(UNDIVIDED COASTAL PLAIN

STIFF TO VERY STIFF BLUE GRAY SANDY SILTY CLAY, WET (CAPE FEAR FORMATION)

MEDIUM DENSE BLUE GRAY SILTY SAND, SAT.

VERY STIFF BLUE GRAY SILTY CLAY, WET

BT

250+00.00

-L/-

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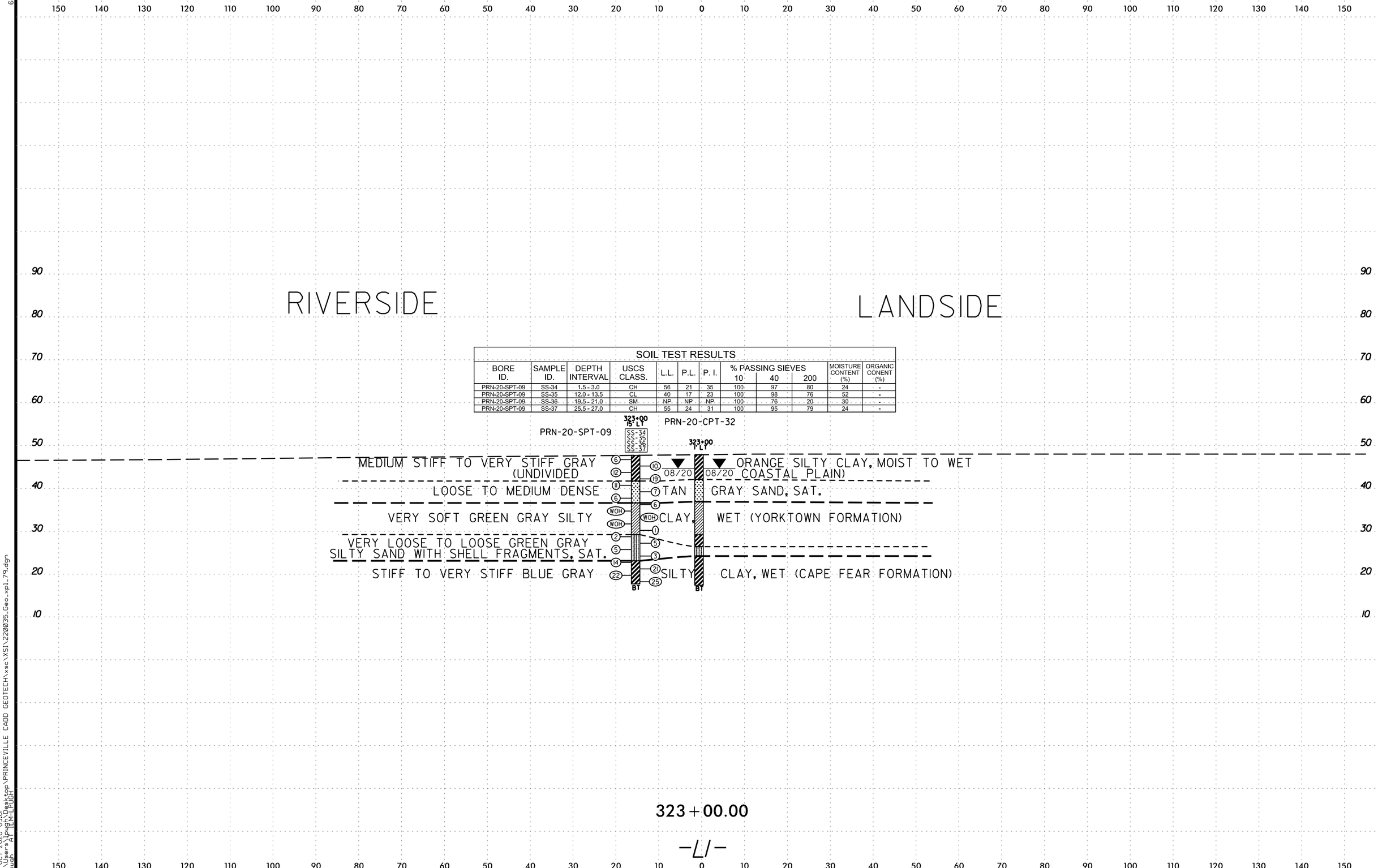
PROJ. REFERENCE NO. 220035 | SHEET NO. 79



SOIL TEST RESULTS

BORE ID.	SAMPLE ID.	DEPTH INTERVAL	USCS CLASS.	L.L.	P.L.	P. I.	% PASSING SIEVES 10	40	200	MOISTURE CONTENT (%)	ORGANIC CONENT (%)
PRN-20-SPT-09	SS-34	1.5 - 3.0	CH	56	21	35	100	97	80	24	-
PRN-20-SPT-09	SS-35	12.0 - 13.5	CL	40	17	23	100	98	76	52	-
PRN-20-SPT-09	SS-36	19.5 - 21.0	SM	NP	NP	NP	100	76	20	30	-
PRN-20-SPT-09	SS-37	25.5 - 27.0	CH	55	24	31	100	95	79	24	-

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CATLIN PROJECT REFERENCE NO.

220035

APPENDIX A

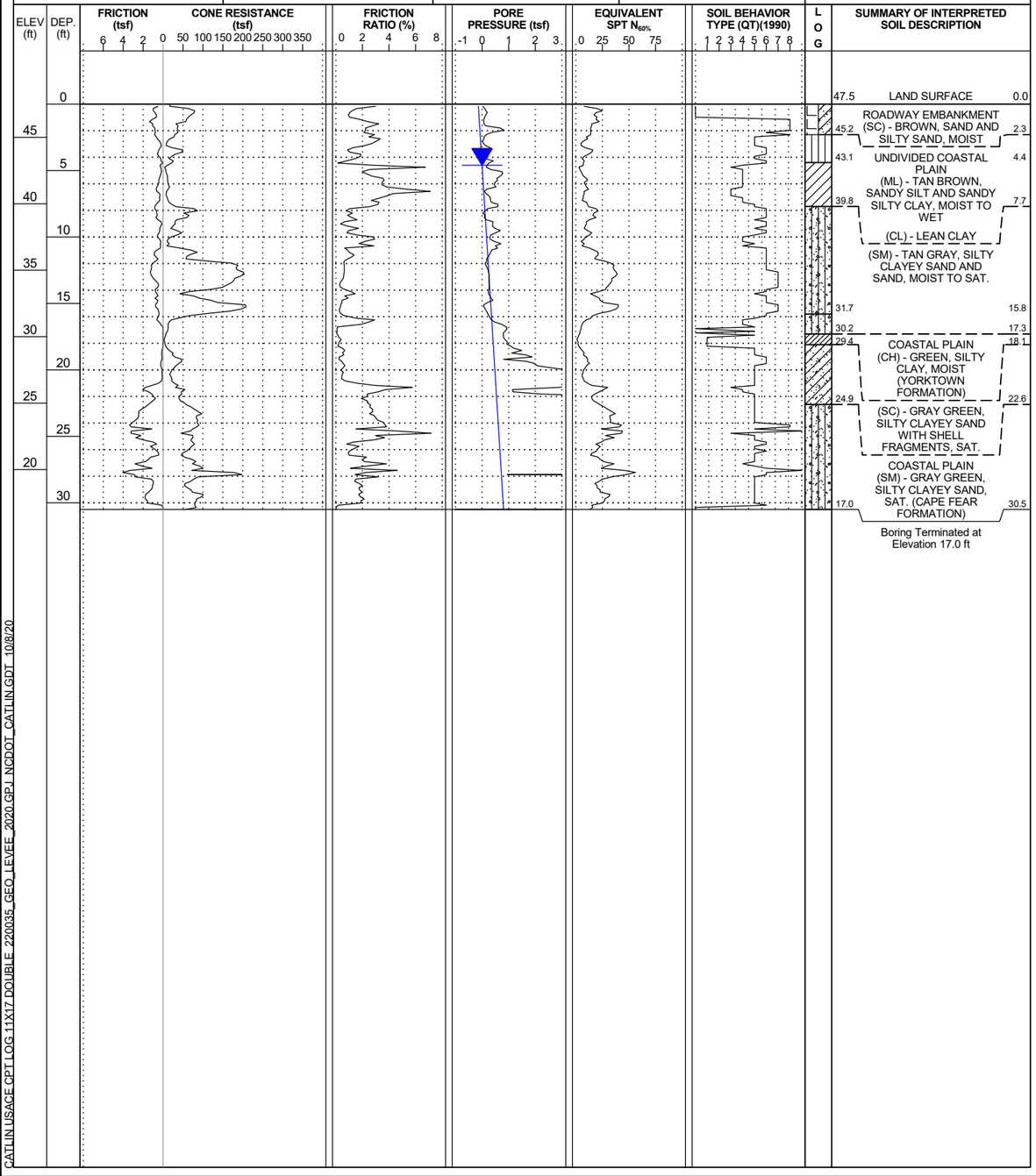
BORELOGS

CONE PENETROMETER TEST SOUNDING REPORT

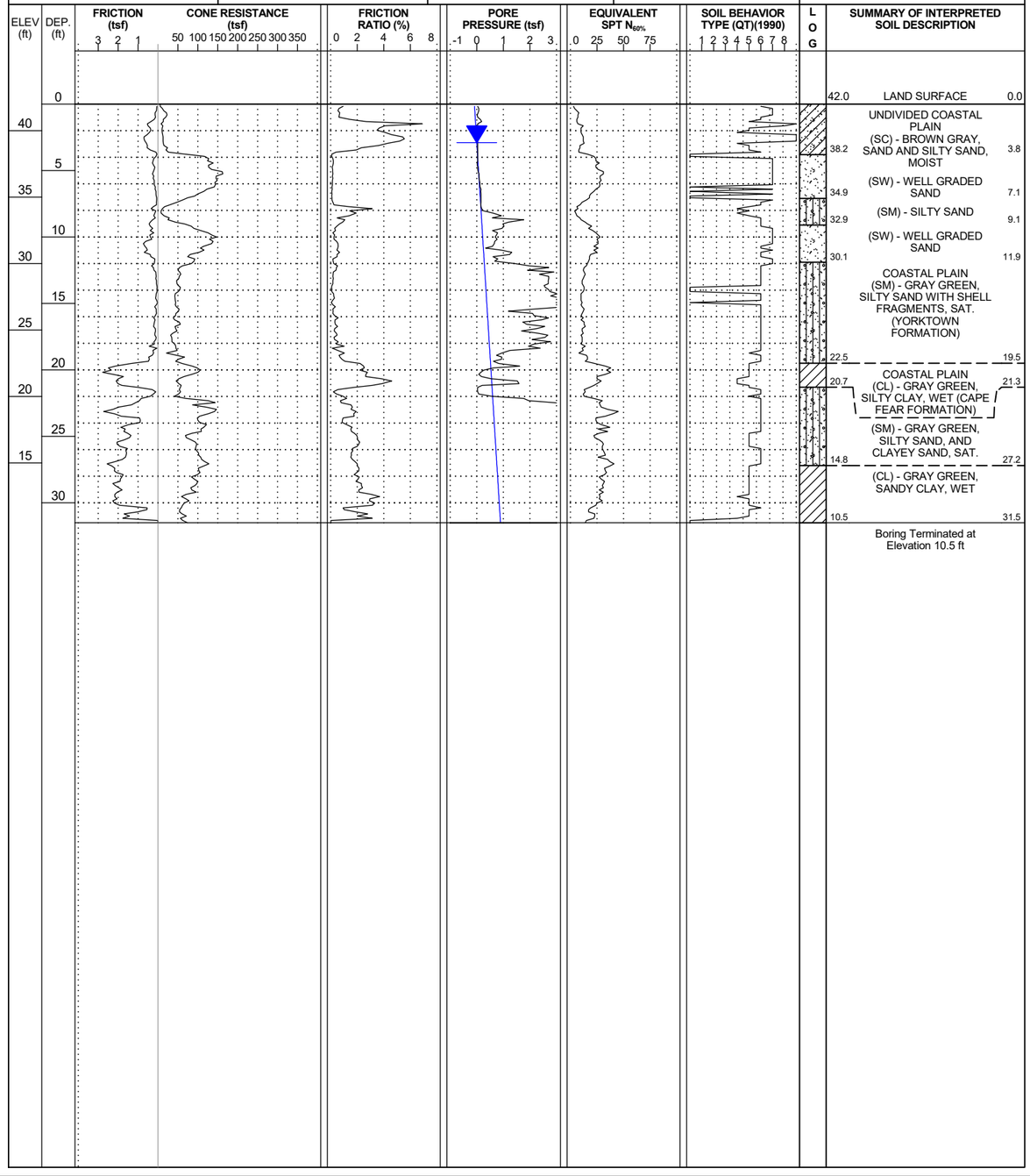
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	1

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-01	**STATION:** 93	**OFFSET:** 59 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 47.5 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 773,496	**EASTING:** 2,441,474	**24 HR.** 4.6
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/19/20	**COMP. DATE:** 08/19/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-02	**STATION:** 19+99	**OFFSET:** 178 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 31.5 ft	**NORTHING:** 773,613	**EASTING:** 2,439,694	**24 HR.** 2.9
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/13/20	**COMP. DATE:** 08/13/20	**SURF. WATER DEPTH:** N/A



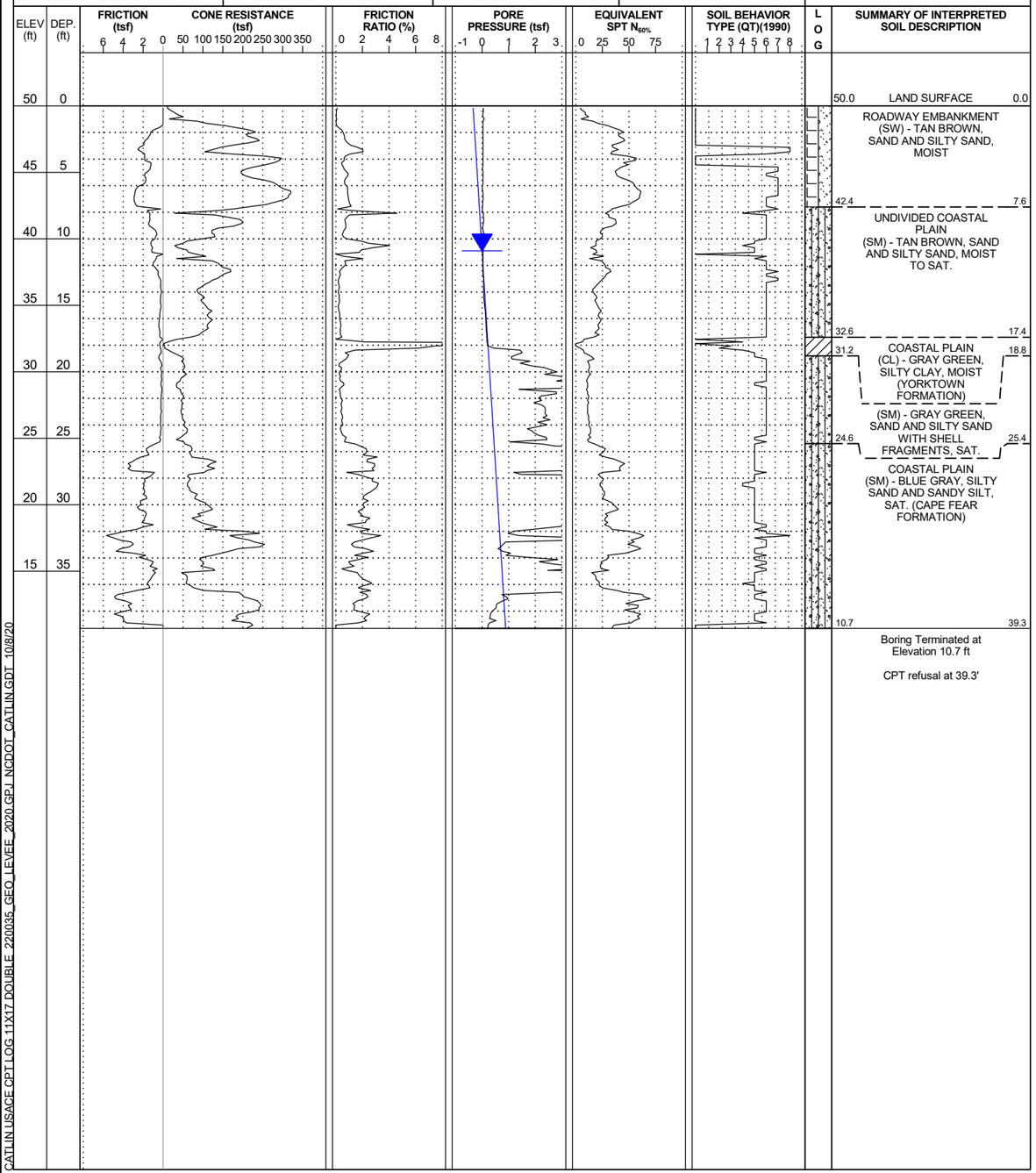
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

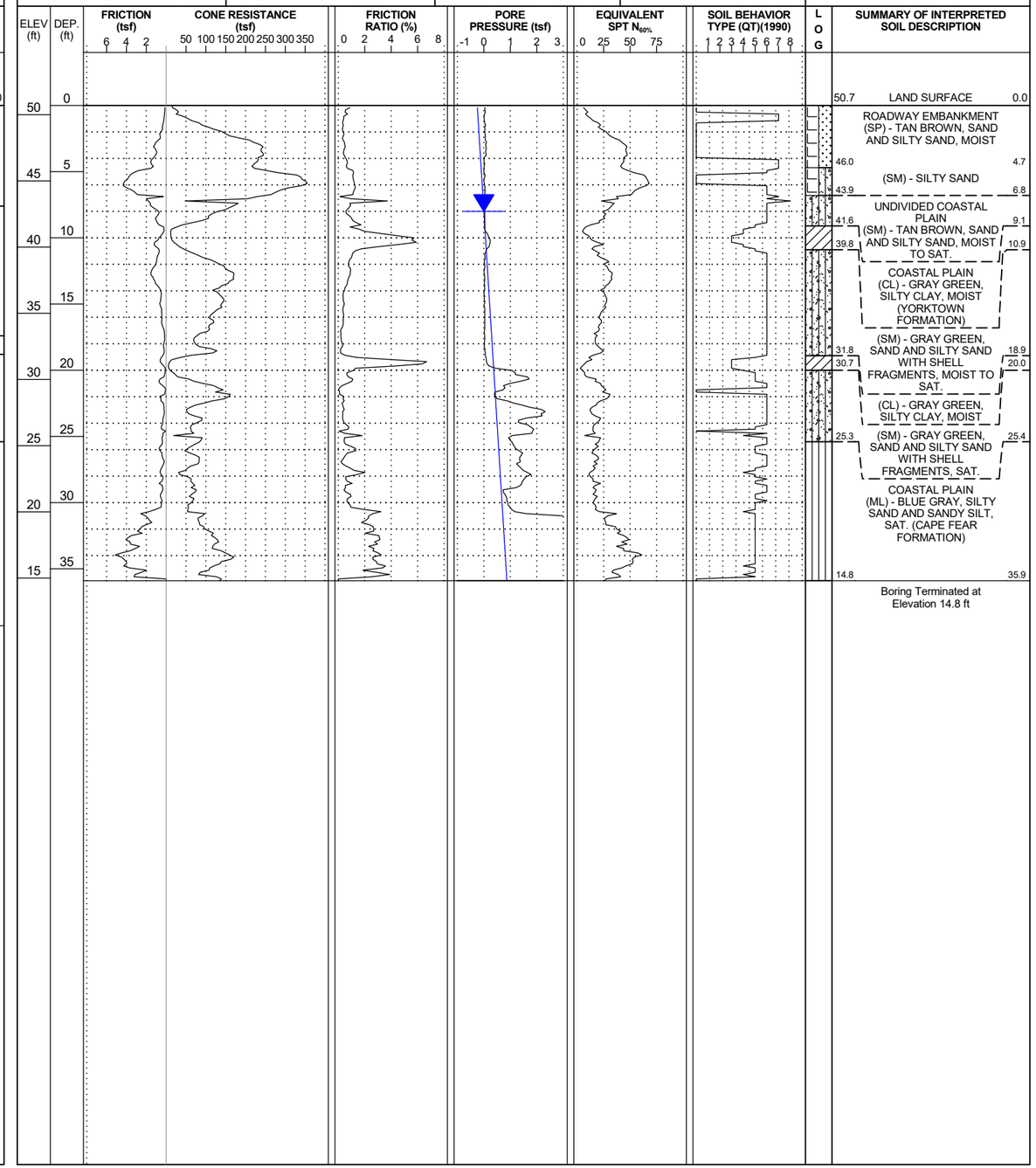
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	2

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-03	**STATION:** 34+00	**OFFSET:** 61 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 50.0 ft	**TOTAL DEPTH:** 39.3 ft	**NORTHING:** 774,178	**EASTING:** 2,438,588	**24 HR.** 10.9
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/13/20	**COMP. DATE:** 08/13/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-04	**STATION:** 42+00	**OFFSET:** 36 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 50.7 ft	**TOTAL DEPTH:** 35.9 ft	**NORTHING:** 774,789	**EASTING:** 2,438,057	**24 HR.** 8.0
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/29/20	**COMP. DATE:** 07/29/20	**SURF. WATER DEPTH:** N/A



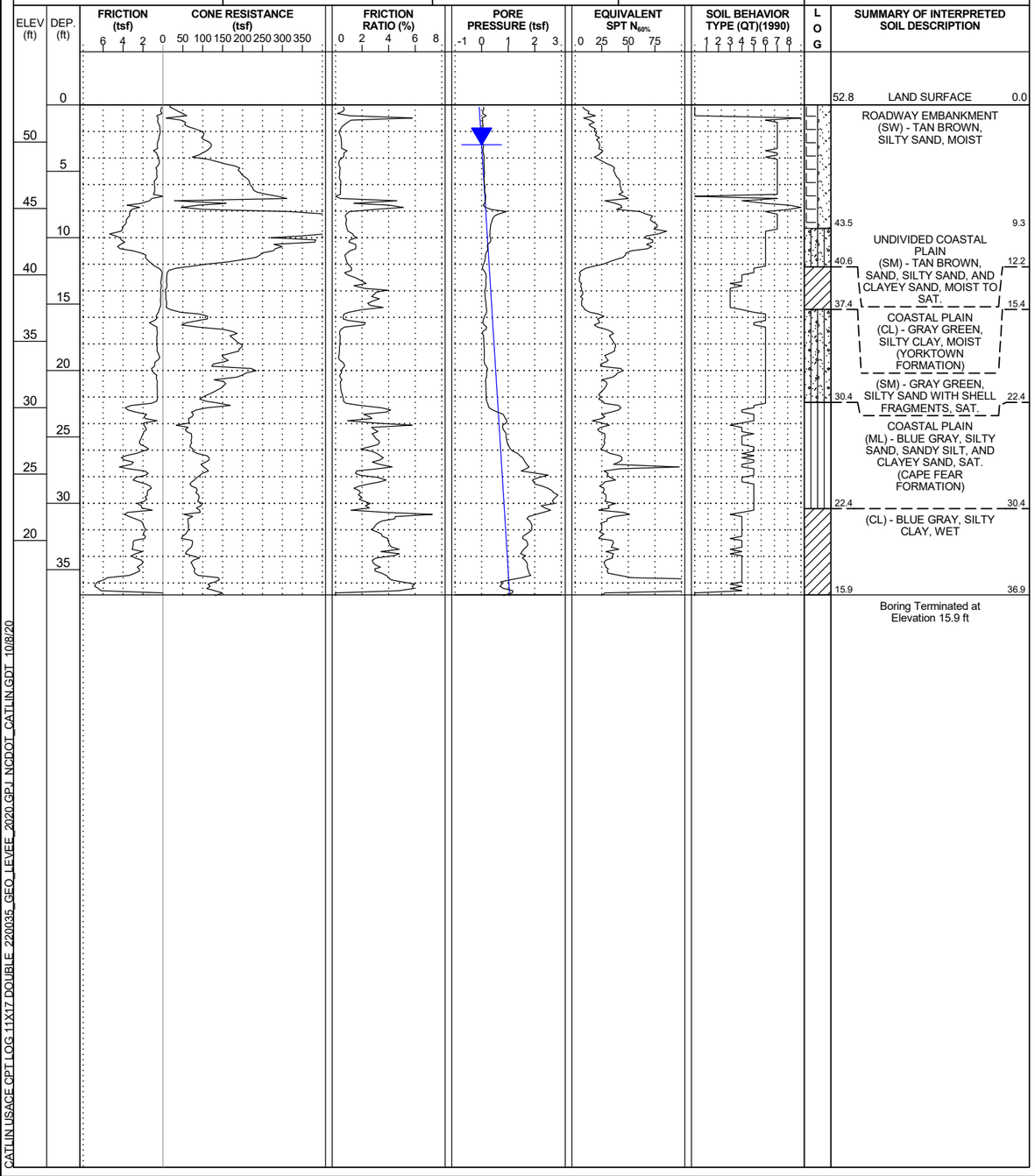
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

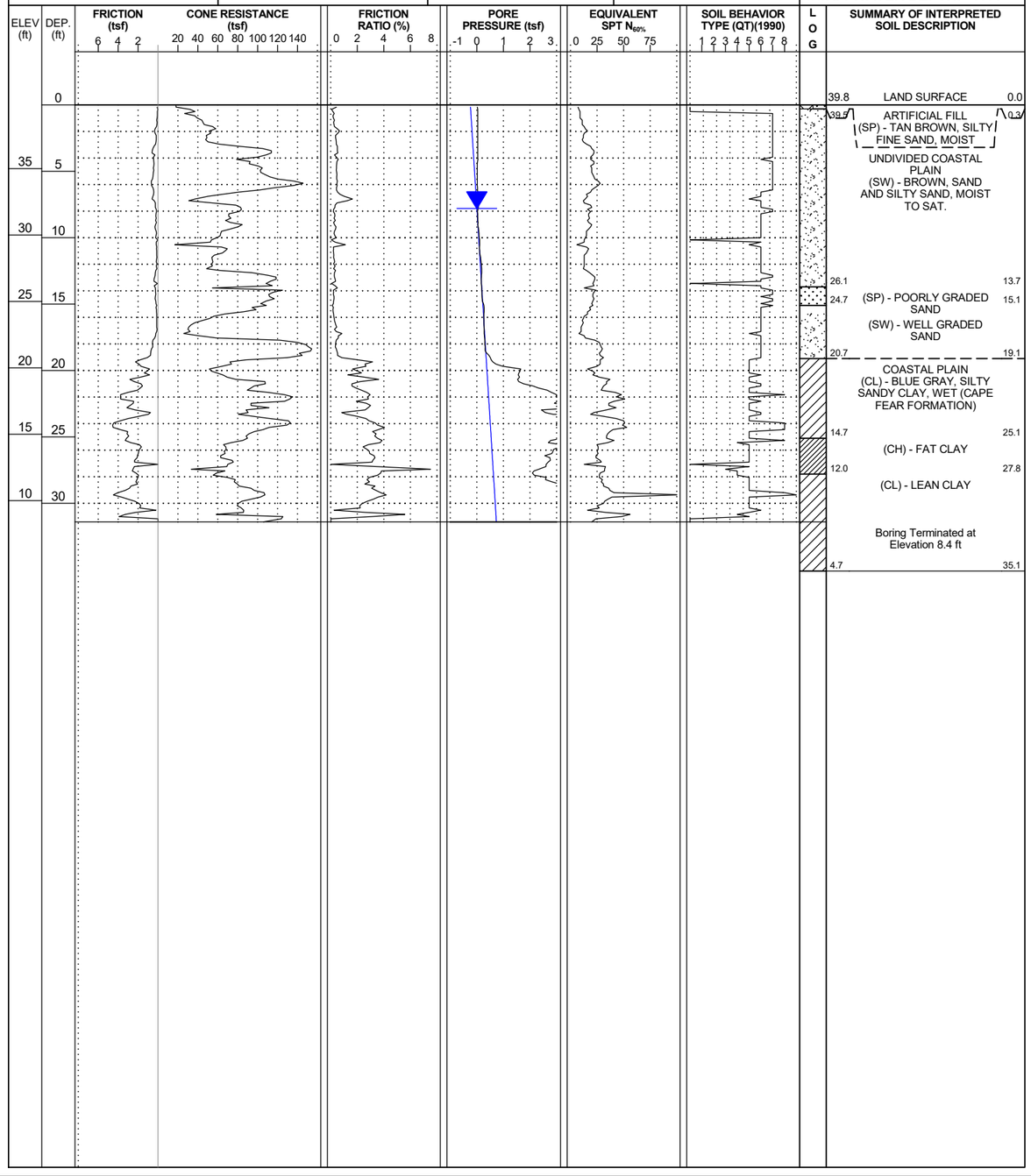
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	3

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-05	**STATION:** 59+00	**OFFSET:** 32 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 52.8 ft	**TOTAL DEPTH:** 36.9 ft	**NORTHING:** 775,684	**EASTING:** 2,436,697	**24 HR.** 3.0
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/28/20	**COMP. DATE:** 07/28/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-06	**STATION:** 69+00	**OFFSET:** 25 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 39.8 ft	**TOTAL DEPTH:** 31.4 ft	**NORTHING:** 776,478	**EASTING:** 2,436,104	**24 HR.** 7.8
CPT RIG/MAX. DOWN PRESSURE: CAT4425 CME-55 94.7% 03/11/2020 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/23/20	**COMP. DATE:** 07/29/20	**SURF. WATER DEPTH:** N/A



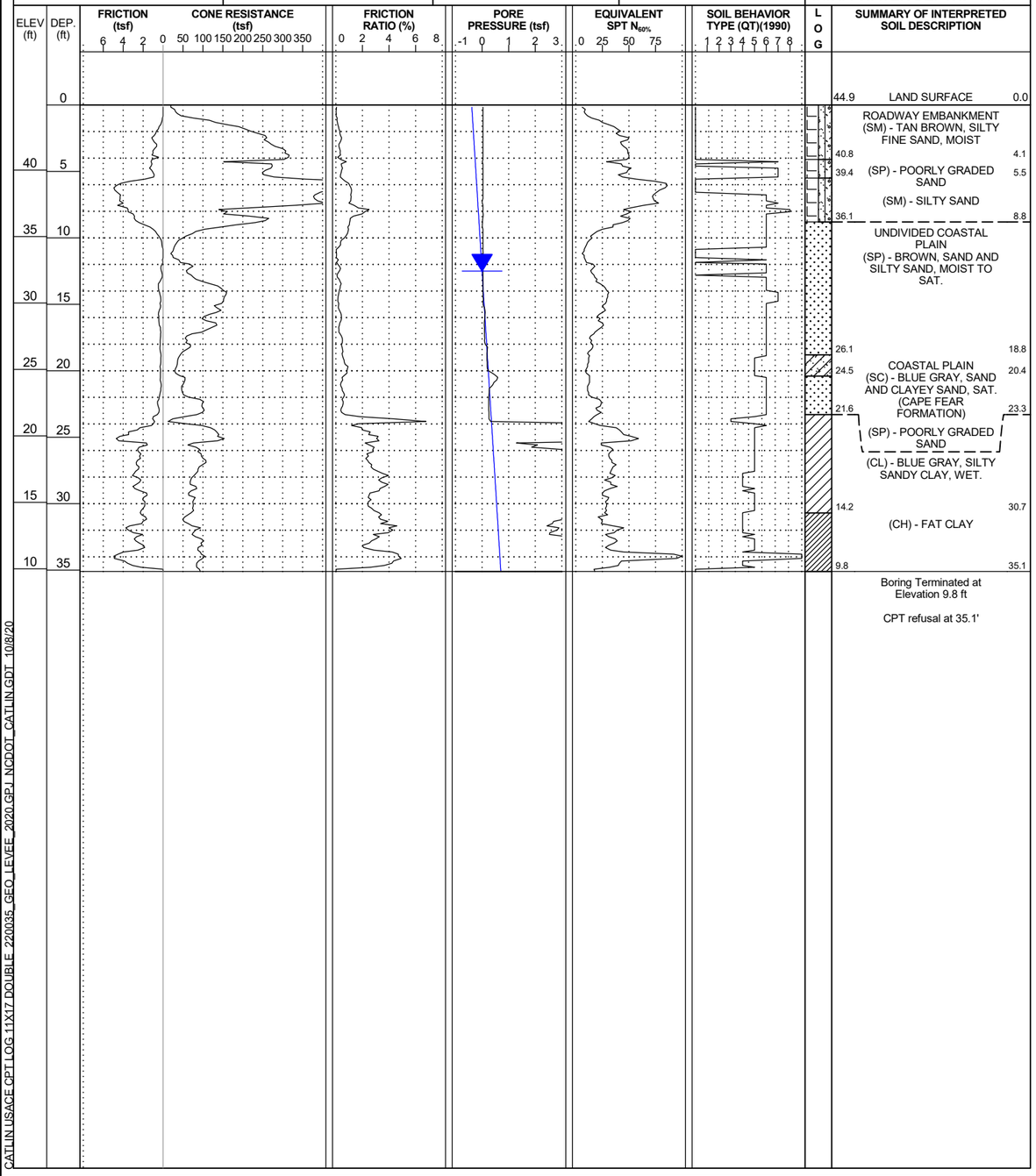
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	4

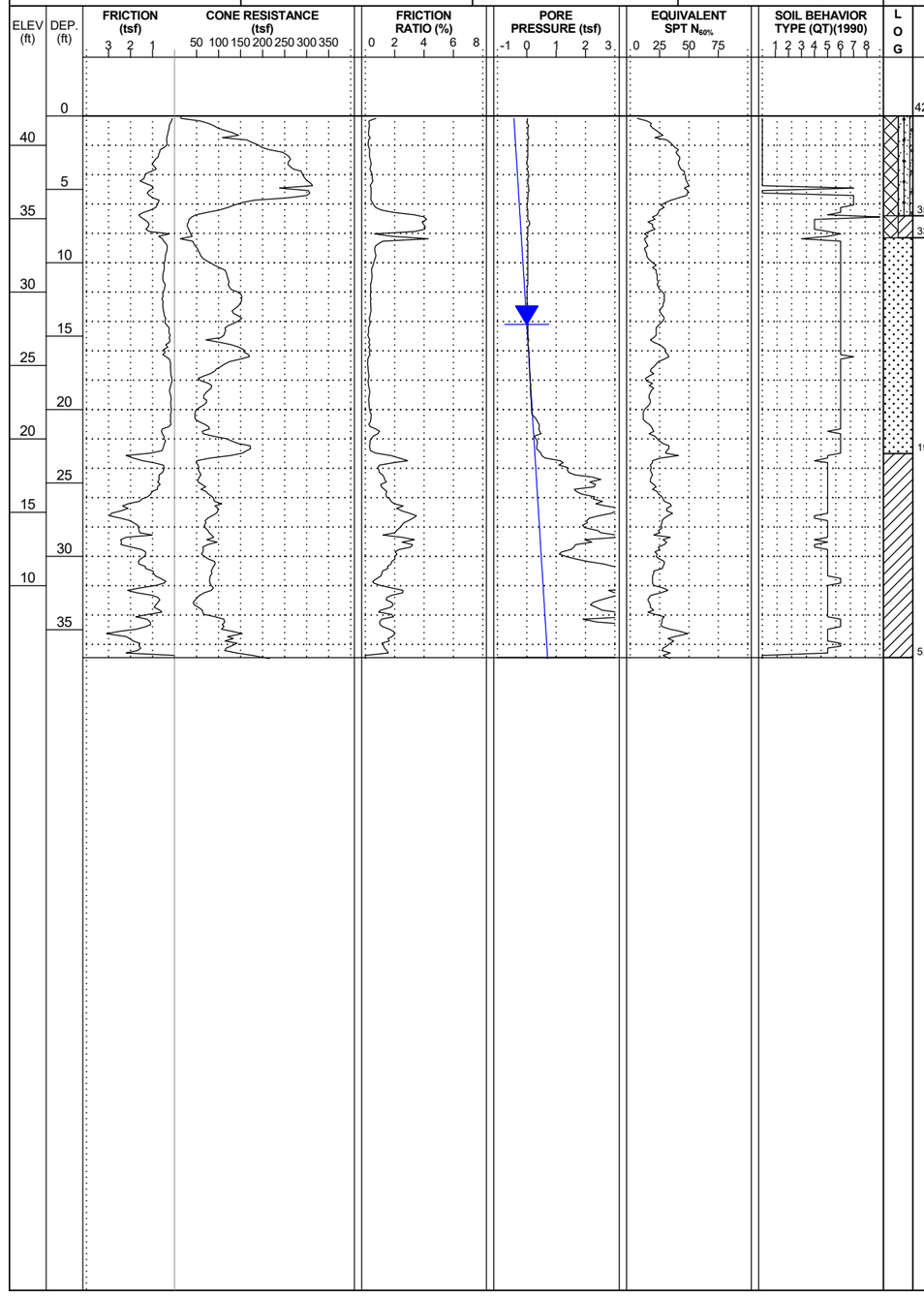
CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-07	**STATION:** 69+00	**OFFSET:** 55 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 44.9 ft	**TOTAL DEPTH:** 35.1 ft	**NORTHING:** 776,443	**EASTING:** 2,436,031	**24 HR.** 12.5
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURF. WATER DEPTH:** N/A



SUMMARY OF INTERPRETED SOIL DESCRIPTION

- 44.9 / 0.0 — LAND SURFACE
- ROADWAY EMBANKMENT (SM) - TAN BROWN, SILTY FINE SAND, MOIST
- 40.8 / 4.1
- 39.4 / 5.5 — (SP) - POORLY GRADED SAND
- (SM) - SILTY SAND
- 36.1 / 8.8
- UNDIVIDED COASTAL PLAIN (SP) - BROWN, SAND AND SILTY SAND, MOIST TO SAT.
- 26.1 / 18.8
- 24.5 / 20.4 — COASTAL PLAIN (SC) - BLUE GRAY, SAND AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)
- 21.6 / 23.3
- (SP) - POORLY GRADED SAND
- (CL) - BLUE GRAY, SILTY SANDY CLAY, WET.
- 14.2 / 30.7
- (CH) - FAT CLAY
- 9.8 / 35.1
- Boring Terminated at Elevation 9.8 ft
- CPT refusal at 35.1'

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-08	**STATION:** 80+70	**OFFSET:** 70 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 36.9 ft	**NORTHING:** 777,378	**EASTING:** 2,435,613	**24 HR.** 14.2
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURF. WATER DEPTH:** N/A



SUMMARY OF INTERPRETED SOIL DESCRIPTION

- 42.0 / 0.0 — LAND SURFACE
- ARTIFICIAL FILL (SP-SM) - GRAY, SAND AND SILTY SAND, MOIST (LEVEE EMBANKMENT)
- 35.2 / 6.8
- 33.7 / 8.3 — ARTIFICIAL FILL (CL) - TAN, SANDY CLAY, MOIST
- UNDIVIDED COASTAL PLAIN (SP) - SAND AND GRAVEL, MOIST TO SAT.
- 19.0 / 23.0 — COASTAL PLAIN (CL) - SANDY SILTY CLAY, WET (CAPE FEAR FORMATION)
- 5.1 / 36.9
- Boring Terminated at Elevation 5.1 ft
- CPT refusal at 36.9'

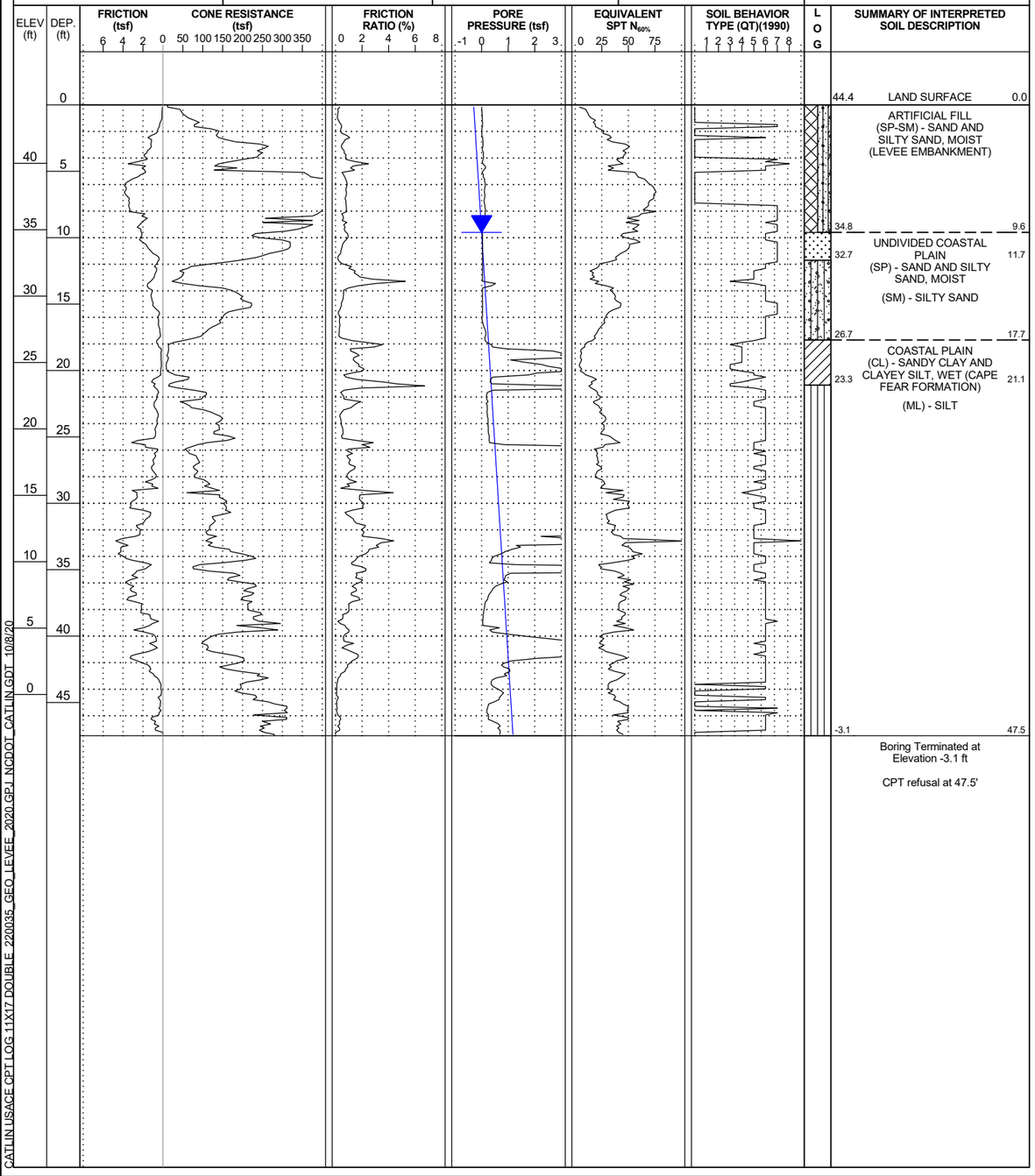
CATLIN USACE CPT LOG 11X17 DOUBLE 220035 GEO_LEVEE 2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

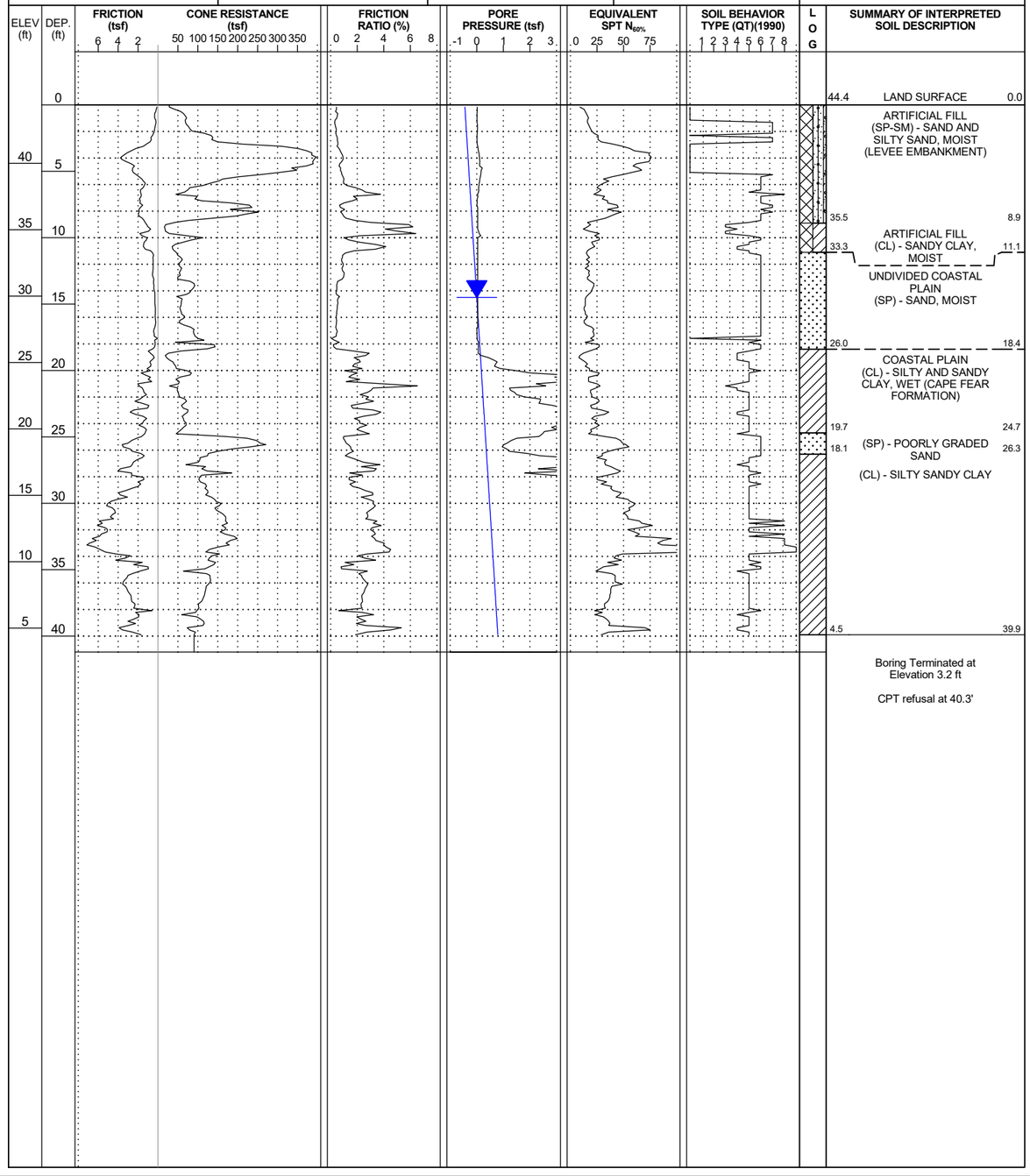
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	5

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-09	**STATION:** 85+78	**OFFSET:** 136 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 44.4 ft	**TOTAL DEPTH:** 47.5 ft	**NORTHING:** 777,873	**EASTING:** 2,435,499	**24 HR.** 9.6
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/12/20	**COMP. DATE:** 08/12/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-10	**STATION:** 88+77	**OFFSET:** 102 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 44.4 ft	**TOTAL DEPTH:** 41.2 ft	**NORTHING:** 778,170	**EASTING:** 2,435,488	**24 HR.** 14.5
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/12/20	**COMP. DATE:** 08/12/20	**SURF. WATER DEPTH:** N/A



CATLIN USACE CPT LOG 11X17 DOUBLE 220035 GEO_LEVEE 2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
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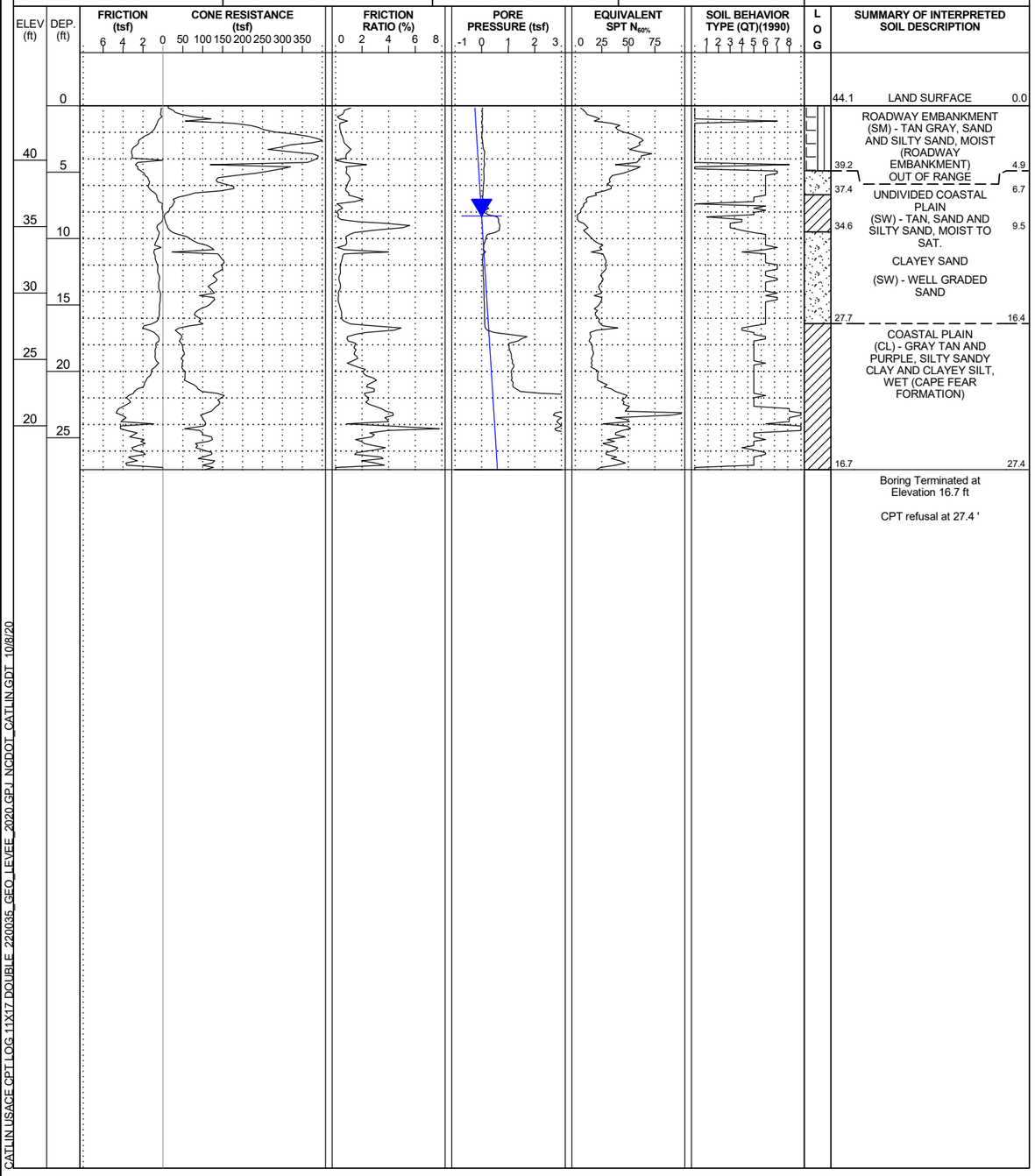
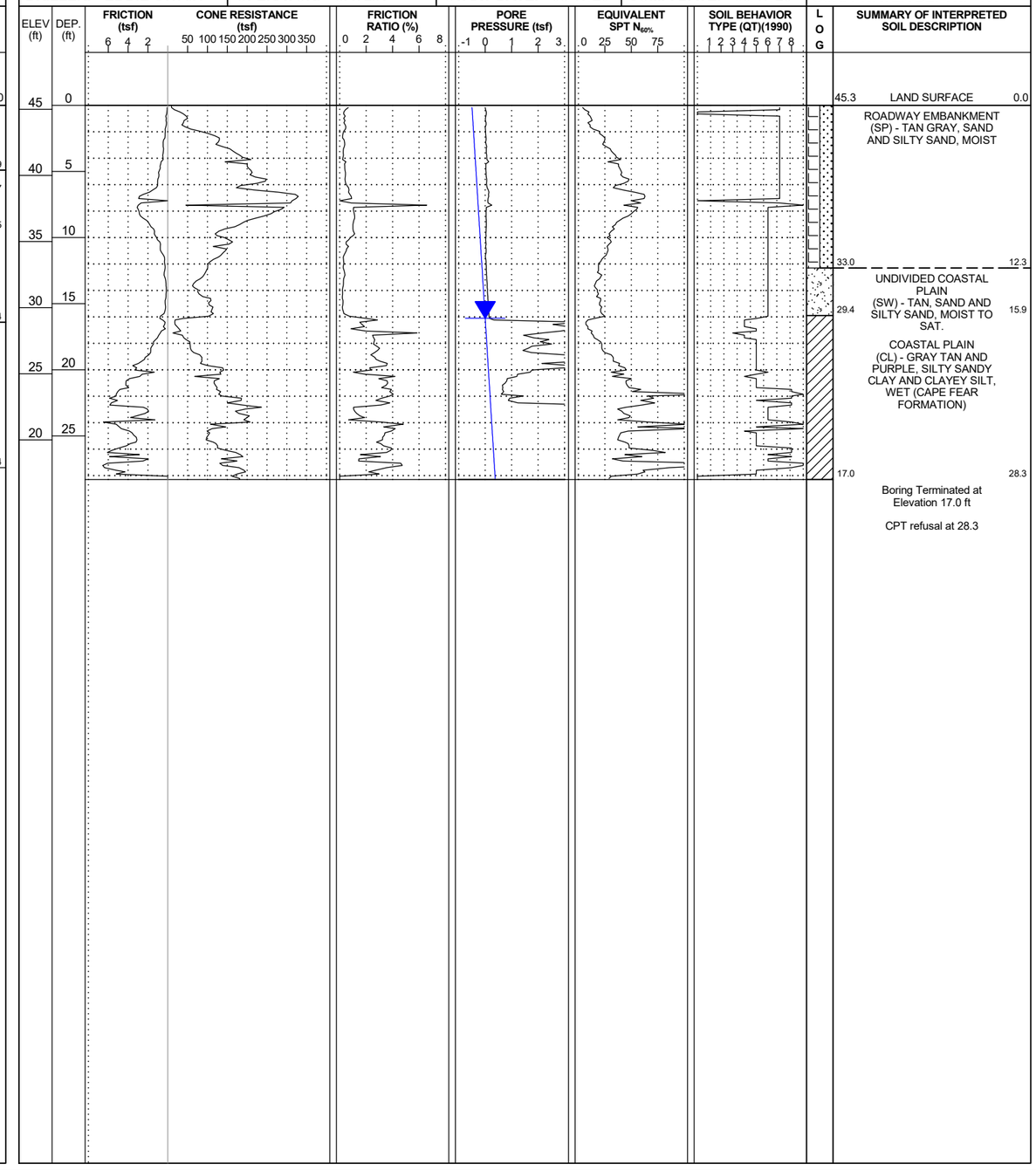
CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-11	**STATION:** 91+00	**OFFSET:** 90 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 44.1 ft	**TOTAL DEPTH:** 27.4 ft	**NORTHING:** 778,426	**EASTING:** 2,435,627	**24 HR.** 8.3
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/13/20	**COMP. DATE:** 08/13/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-12	**STATION:** 95+93	**OFFSET:** 185 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 45.3 ft	**TOTAL DEPTH:** 28.3 ft	**NORTHING:** 778,942	**EASTING:** 2,435,548	**24 HR.** 16.1
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/17/20	**COMP. DATE:** 08/17/20	**SURF. WATER DEPTH:** N/A



CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
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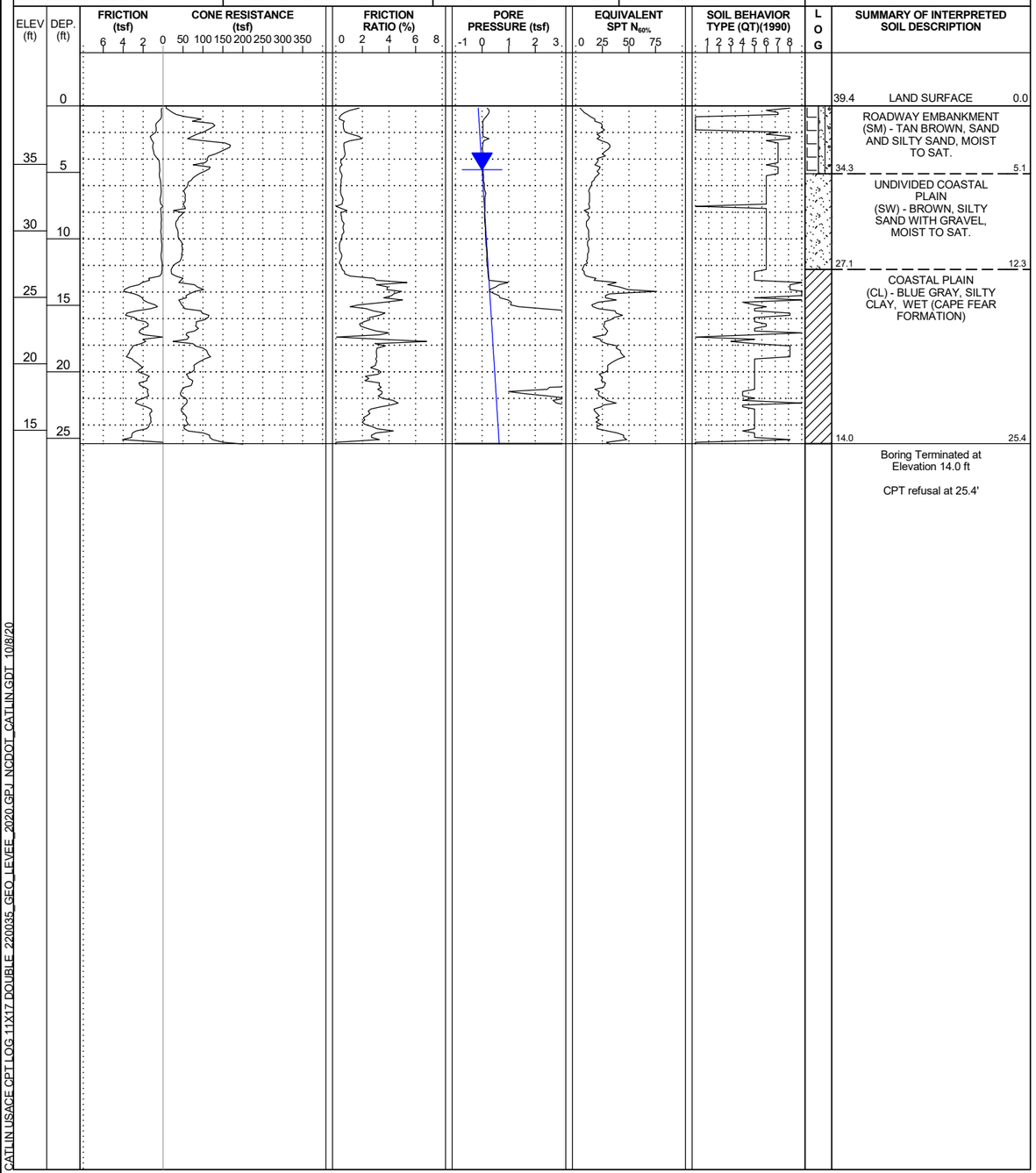
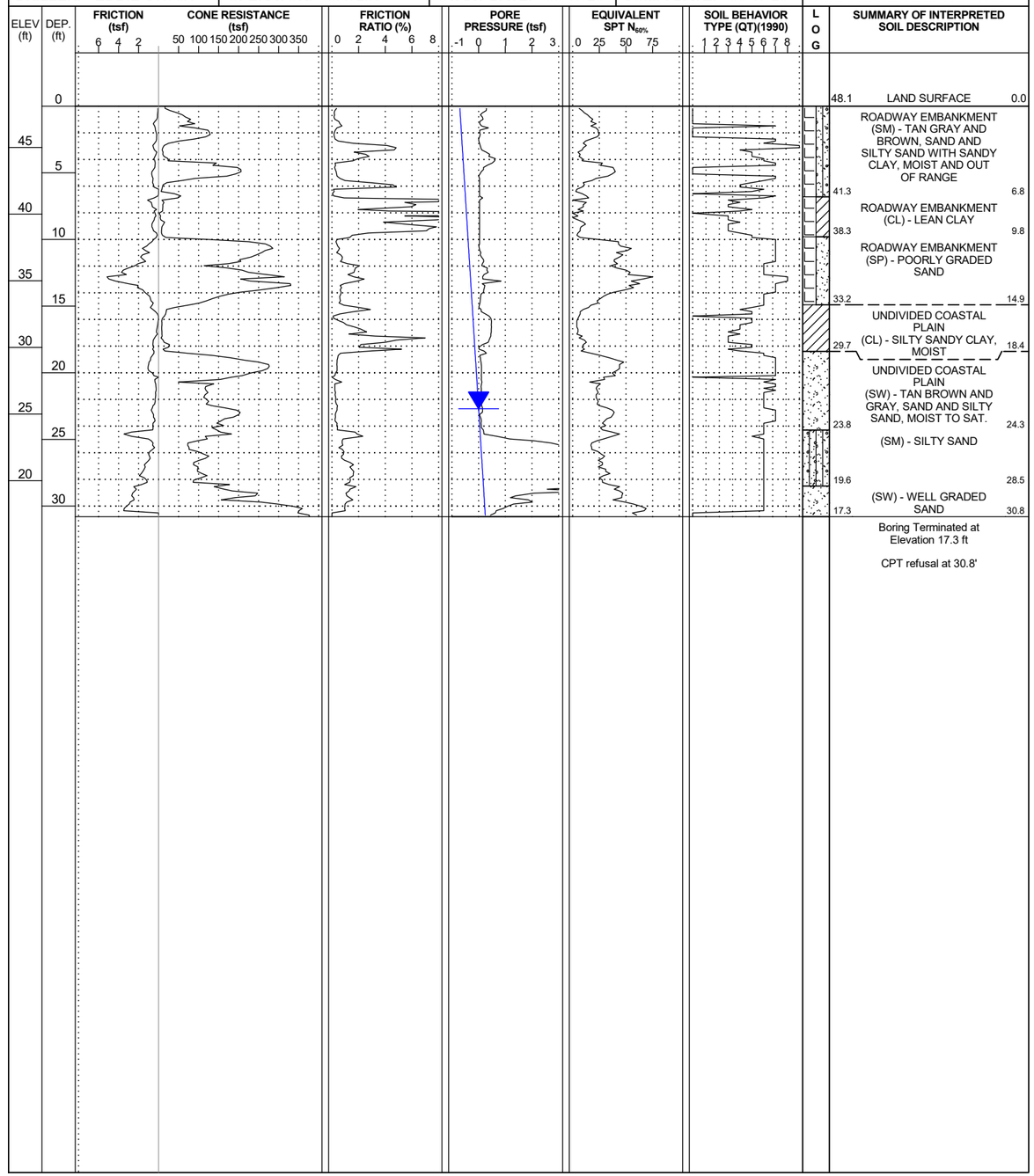
CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-13	**STATION:** 100+66	**OFFSET:** 180 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 39.4 ft	**TOTAL DEPTH:** 25.4 ft	**NORTHING:** 779,381	**EASTING:** 2,435,307	**24 HR.** 4.8
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/17/20	**COMP. DATE:** 08/17/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-14	**STATION:** 115+00	**OFFSET:** 55 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 48.1 ft	**TOTAL DEPTH:** 30.8 ft	**NORTHING:** 780,355	**EASTING:** 2,434,204	**24 HR.** 22.7
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/17/20	**COMP. DATE:** 08/17/20	**SURF. WATER DEPTH:** N/A



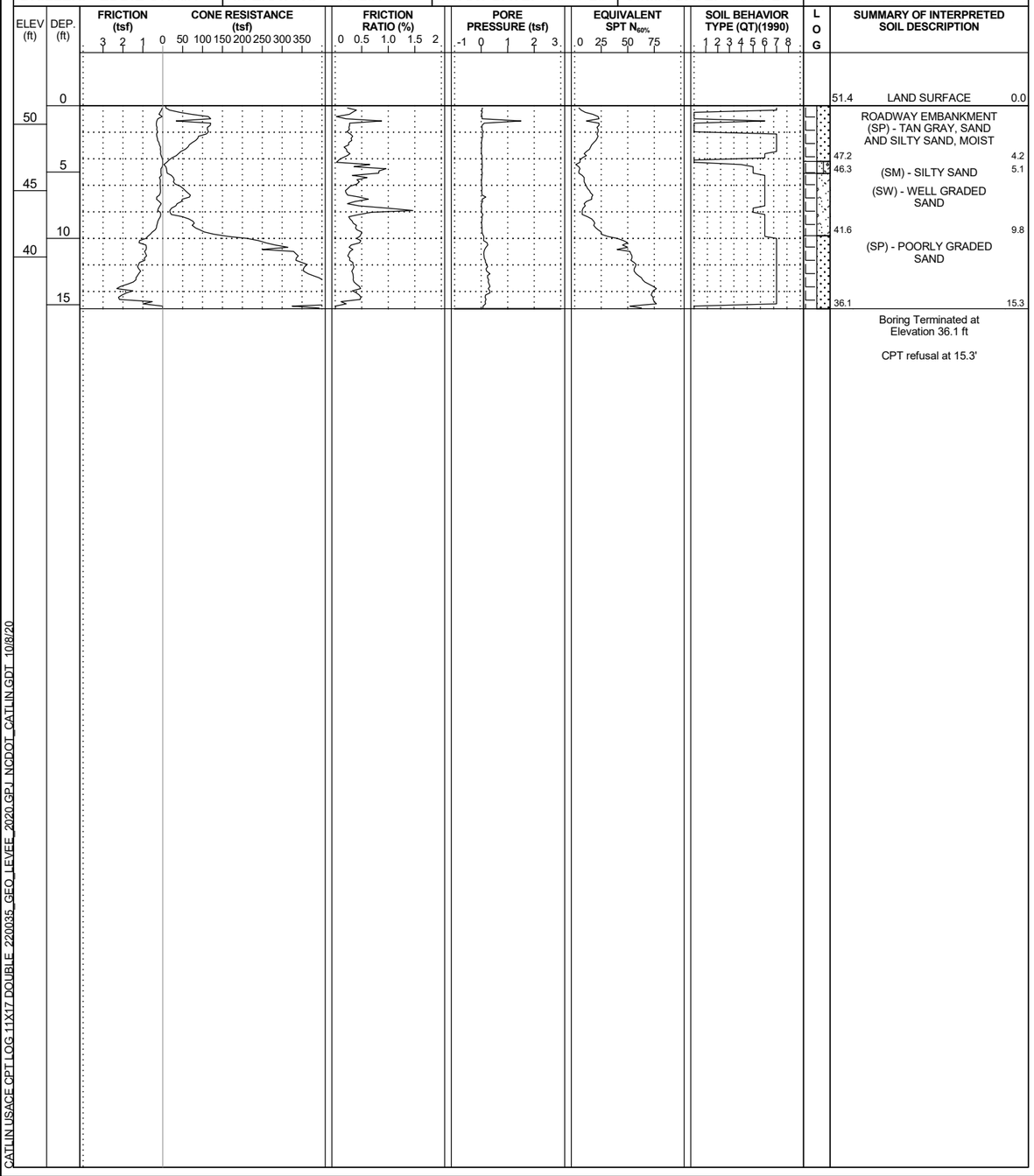
CATLIN USACE CPT LOG 11X17 DOUBLE 220035 GEO_LEVEE 2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

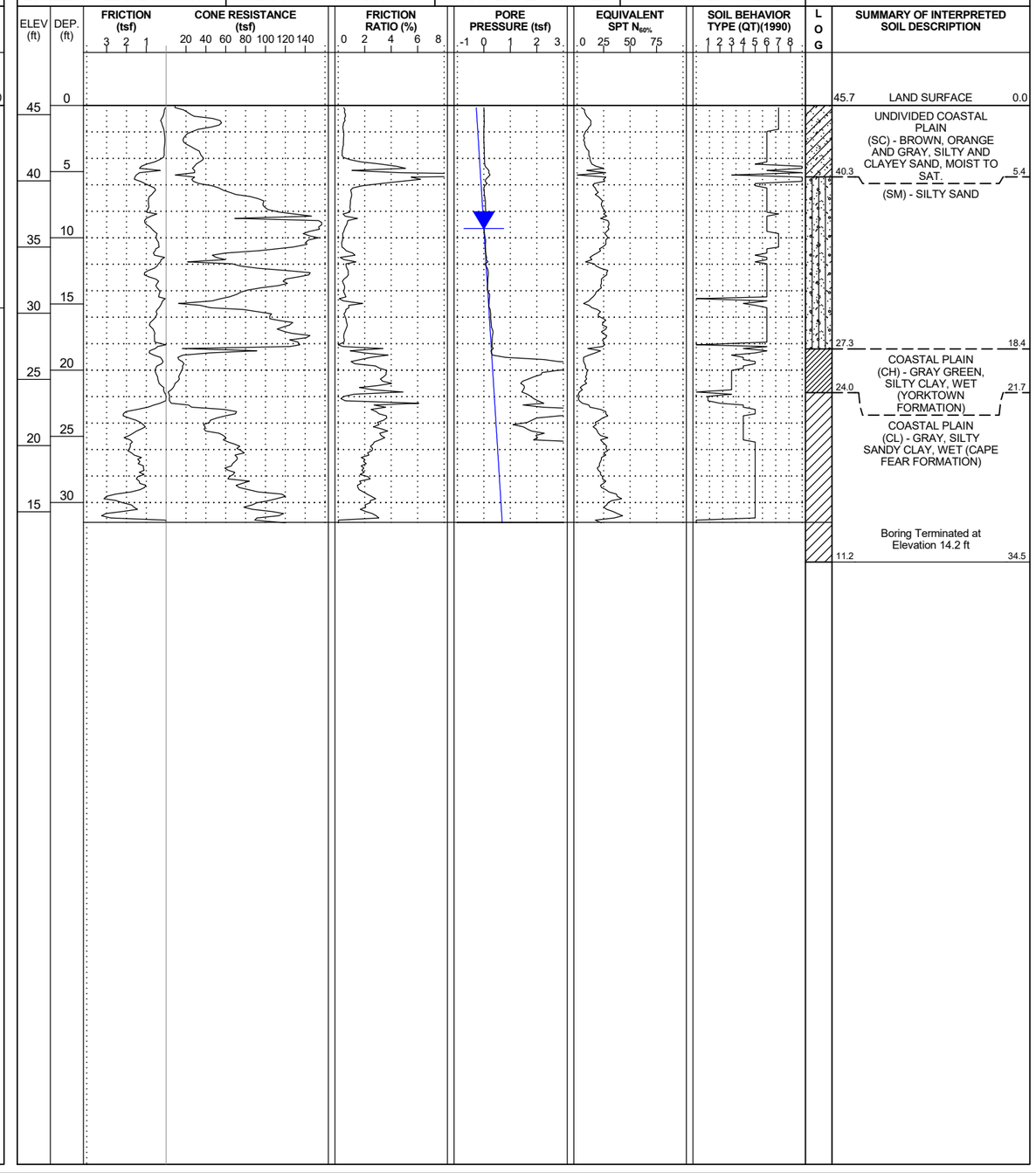
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	8

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-15	**STATION:** 127+00	**OFFSET:** 12 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 51.4 ft	**TOTAL DEPTH:** 15.3 ft	**NORTHING:** 780,968	**EASTING:** 2,433,222	**24 HR.** Dry
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/17/20	**COMP. DATE:** 08/17/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-16	**STATION:** 221+97	**OFFSET:** 88 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 45.7 ft	**TOTAL DEPTH:** 31.5 ft	**NORTHING:** 784,287	**EASTING:** 2,441,002	**24 HR.** 9.3
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/29/20	**COMP. DATE:** 07/29/20	**SURF. WATER DEPTH:** N/A



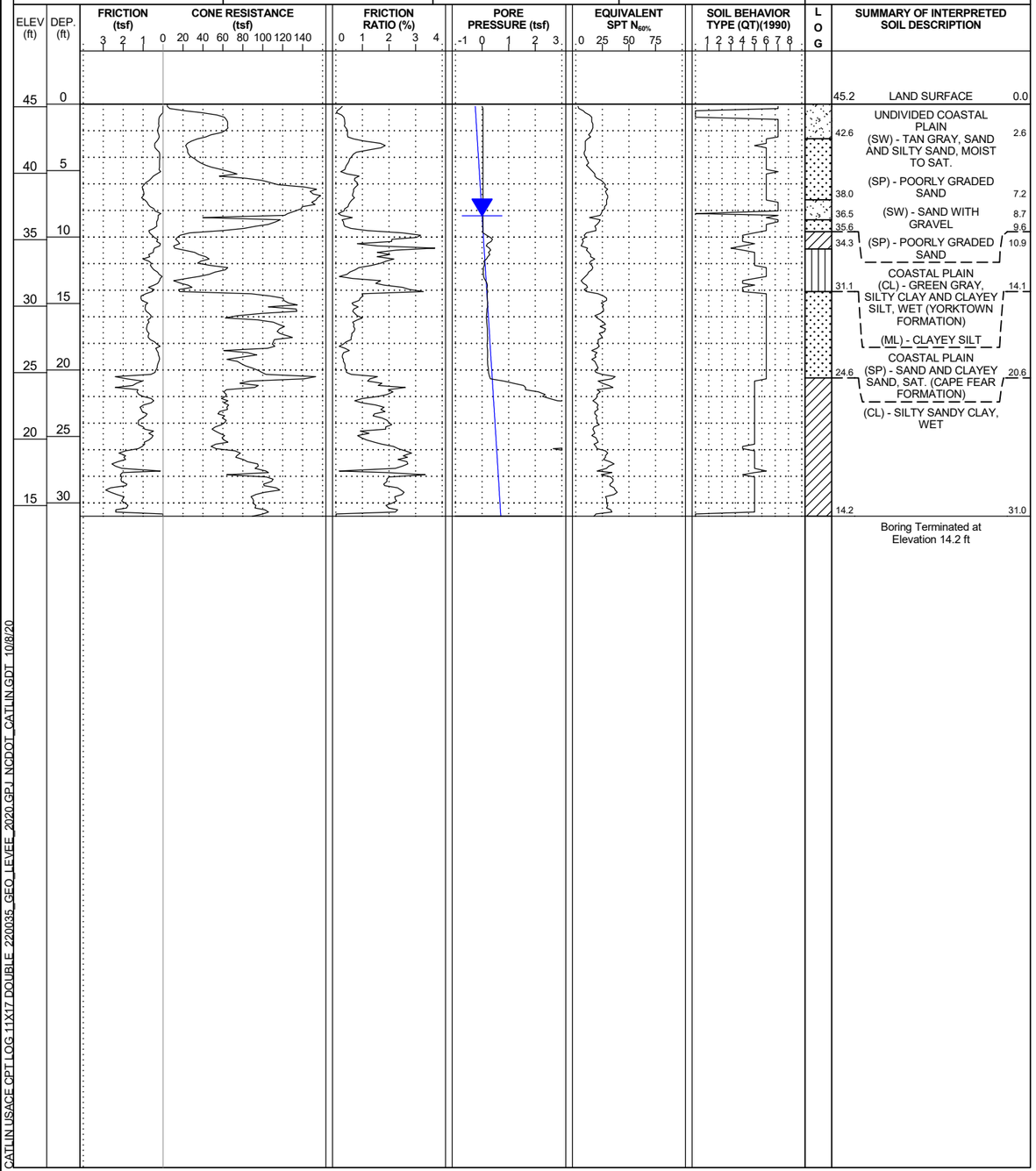
CATLIN USACE CPT LOG 11X17 DOUBLE 220035 GEO LEVEL 2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

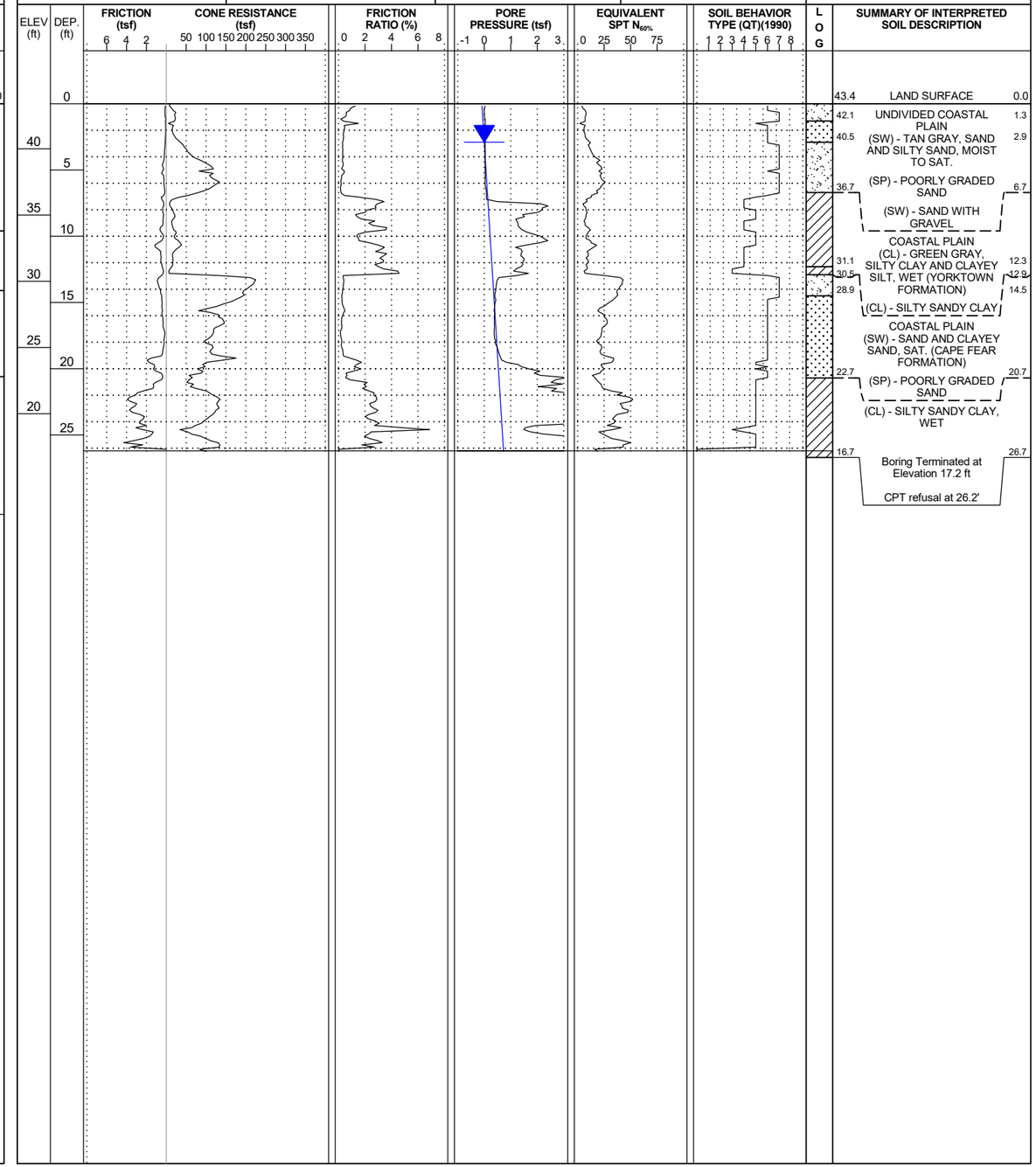
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	9

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-17	**STATION:** 224+83	**OFFSET:** 43 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 45.2 ft	**TOTAL DEPTH:** 31.0 ft	**NORTHING:** 784,370	**EASTING:** 2,441,228	**24 HR.** 8.4
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/29/20	**COMP. DATE:** 07/29/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-18	**STATION:** 229+17	**OFFSET:** 31 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 43.4 ft	**TOTAL DEPTH:** 26.2 ft	**NORTHING:** 783,953	**EASTING:** 2,441,350	**24 HR.** 2.9
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/30/20	**COMP. DATE:** 07/30/20	**SURF. WATER DEPTH:** N/A



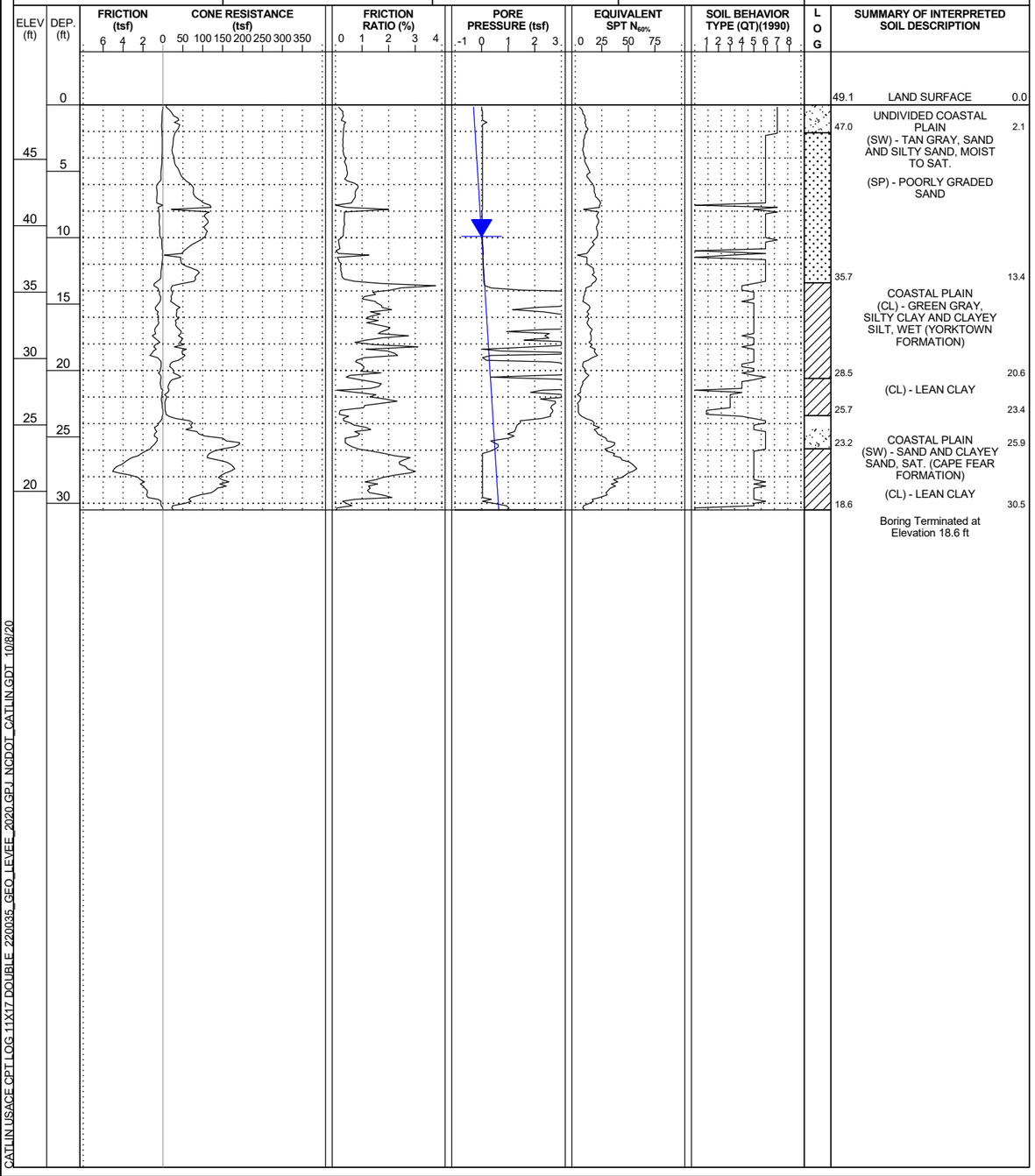
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

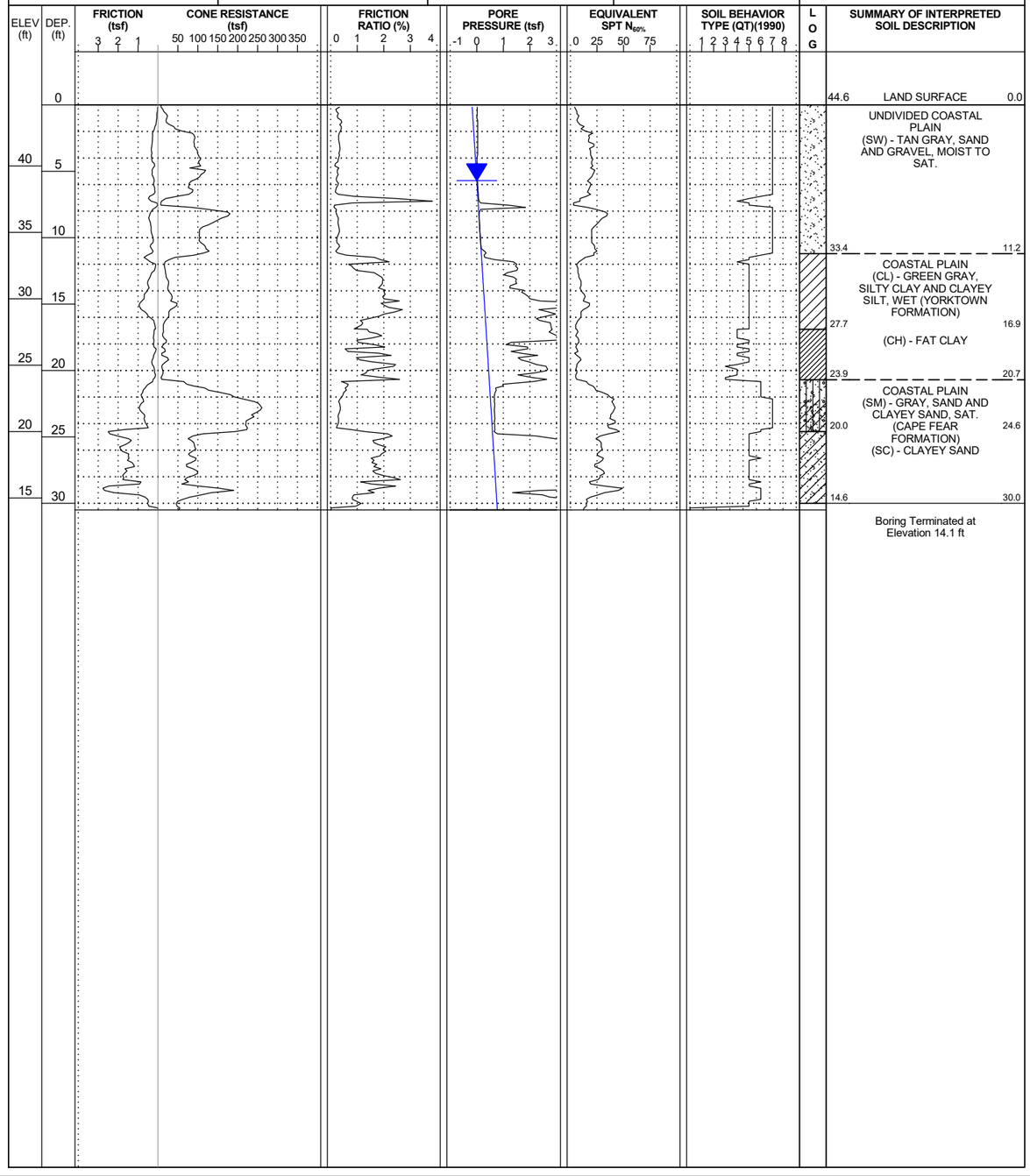
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	10

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-19	**STATION:** 232+00	**OFFSET:** 61 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 49.1 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 783,655	**EASTING:** 2,441,349	**24 HR.** 9.9
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 07/30/20	**COMP. DATE:** 07/30/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-20	**STATION:** 237+18	**OFFSET:** 168 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 44.6 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 783,130	**EASTING:** 2,441,406	**24 HR.** 5.7
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/05/20	**COMP. DATE:** 08/05/20	**SURF. WATER DEPTH:** N/A



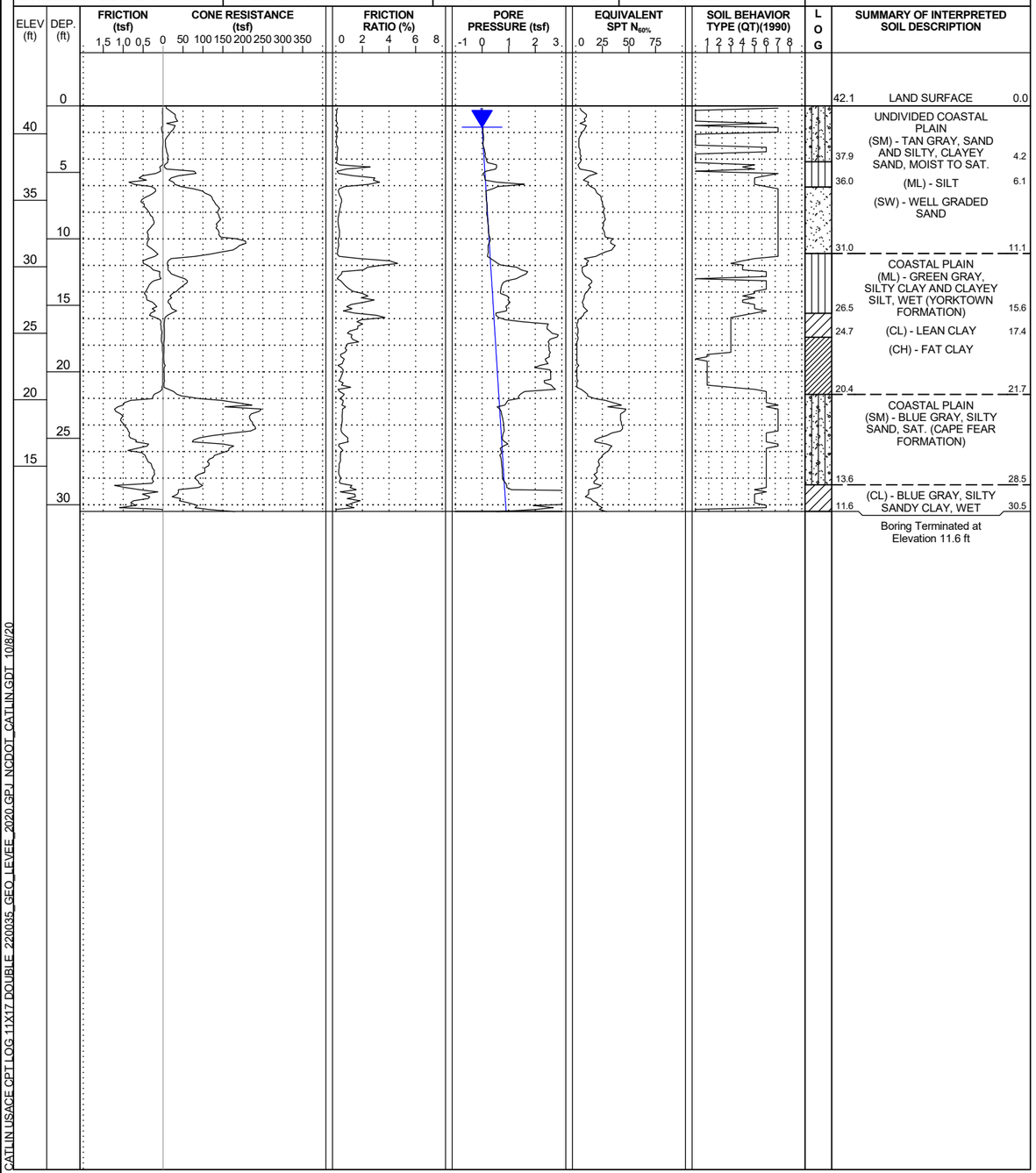
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	11

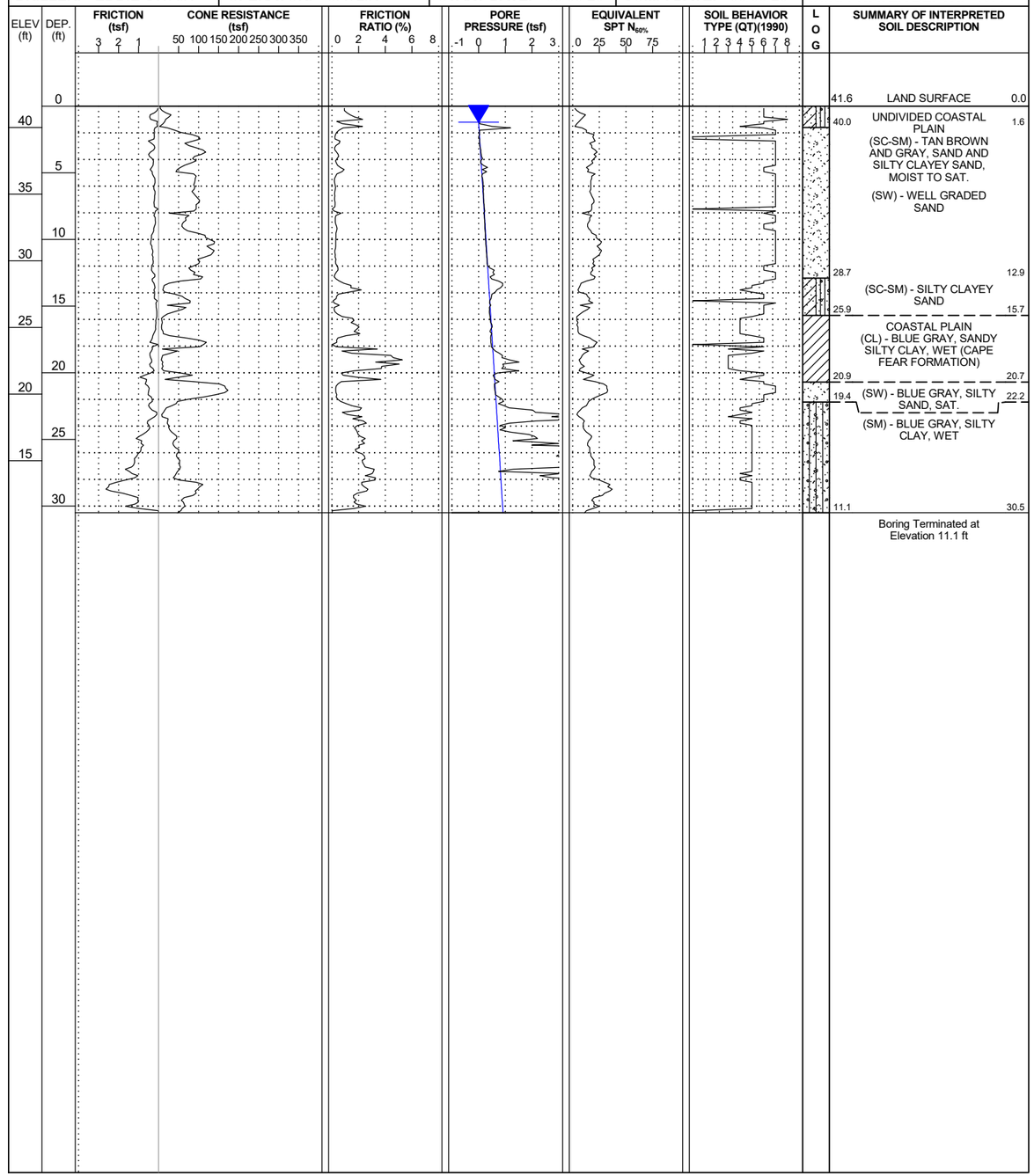
CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-21	**STATION:** 243+99	**OFFSET:** 111 ft RT	**ALIGNMENT:** -L1- — **EST. 0 HR.** N/A
COLLAR ELEV.: 42.1 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 782,499	**EASTING:** 2,441,668 — **24 HR.** 1.6
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO	**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/05/20 — **COMP. DATE:** 08/05/20	**SURF. WATER DEPTH:** N/A



SUMMARY OF INTERPRETED SOIL DESCRIPTION

42.1	LAND SURFACE	0.0
	UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SAND AND SILTY, CLAYEY SAND, MOIST TO SAT.	
37.9		4.2
36.0	(ML) - SILT	6.1
	(SW) - WELL GRADED SAND	
31.0		11.1
	COASTAL PLAIN (ML) - GREEN GRAY, SILTY CLAY AND CLAYEY SILT, WET (YORKTOWN FORMATION)	
26.5		15.6
24.7	(CL) - LEAN CLAY	17.4
	(CH) - FAT CLAY	
20.4		21.7
	COASTAL PLAIN (SM) - BLUE GRAY, SILTY SAND, SAT. (CAPE FEAR FORMATION)	
13.6		28.5
11.6	(CL) - BLUE GRAY, SILTY SANDY CLAY, WET	30.5
	Boring Terminated at Elevation 11.6 ft	

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-22	**STATION:** 250+21	**OFFSET:** 26 ft LT	**ALIGNMENT:** -L1- — **EST. 0 HR.** N/A
COLLAR ELEV.: 41.6 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 782,063	**EASTING:** 2,442,125 — **24 HR.** 1.2
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO	**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/05/20 — **COMP. DATE:** 08/05/20	**SURF. WATER DEPTH:** N/A



SUMMARY OF INTERPRETED SOIL DESCRIPTION

41.6	LAND SURFACE	0.0
40.0	UNDIVIDED COASTAL PLAIN (SC-SM) - TAN BROWN AND GRAY, SAND AND SILTY CLAYEY SAND, MOIST TO SAT.	1.6
	(SW) - WELL GRADED SAND	
28.7		12.9
25.9	(SC-SM) - SILTY CLAYEY SAND	15.7
	COASTAL PLAIN (CL) - BLUE GRAY, SANDY SILTY CLAY, WET (CAPE FEAR FORMATION)	
20.9		20.7
19.4	(SW) - BLUE GRAY, SILTY SAND, SAT.	22.2
	(SM) - BLUE GRAY, SILTY CLAY, WET	
11.1		30.5
	Boring Terminated at Elevation 11.1 ft	

CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
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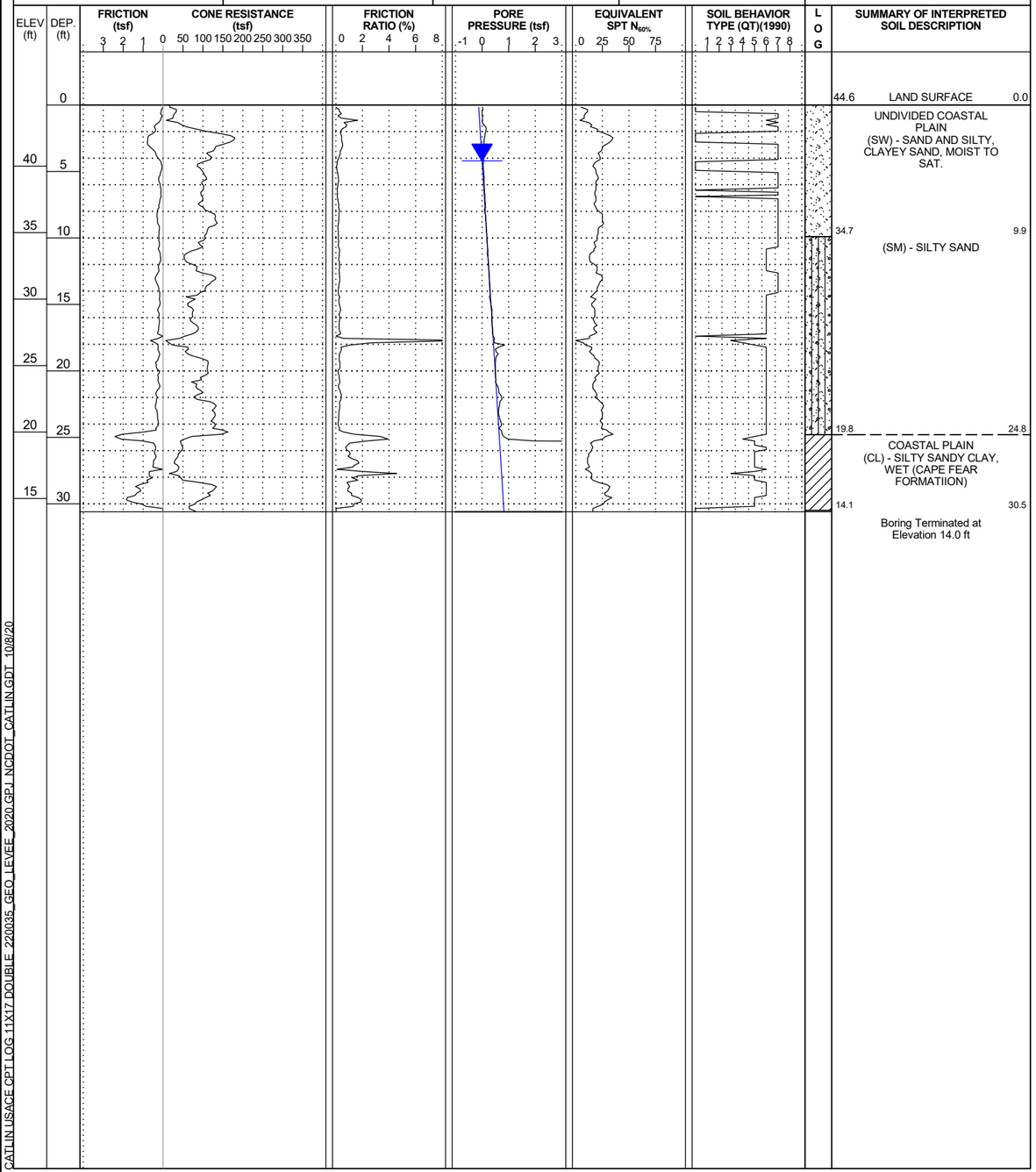
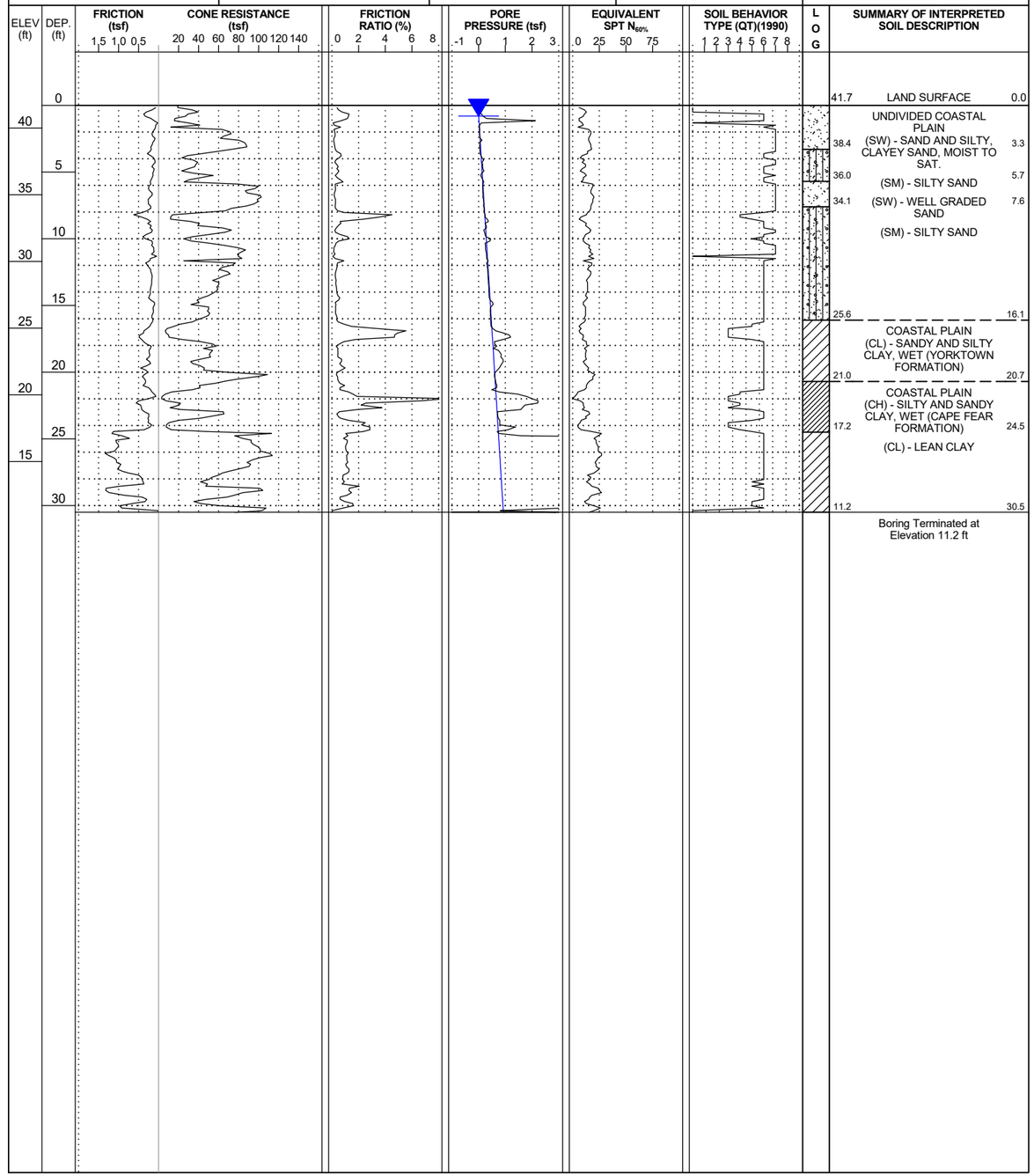
CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-23	**STATION:** 252+95	**OFFSET:** 51 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 44.6 ft	**TOTAL DEPTH:** 30.6 ft	**NORTHING:** 781,868	**EASTING:** 2,442,332	**24 HR.** 4.2
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO	**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/06/20	**COMP. DATE:** 08/06/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-24	**STATION:** 256+77	**OFFSET:** 23 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 41.7 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 781,708	**EASTING:** 2,442,653	**24 HR.** 0.8
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO	**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/06/20	**COMP. DATE:** 08/06/20	**SURF. WATER DEPTH:** N/A



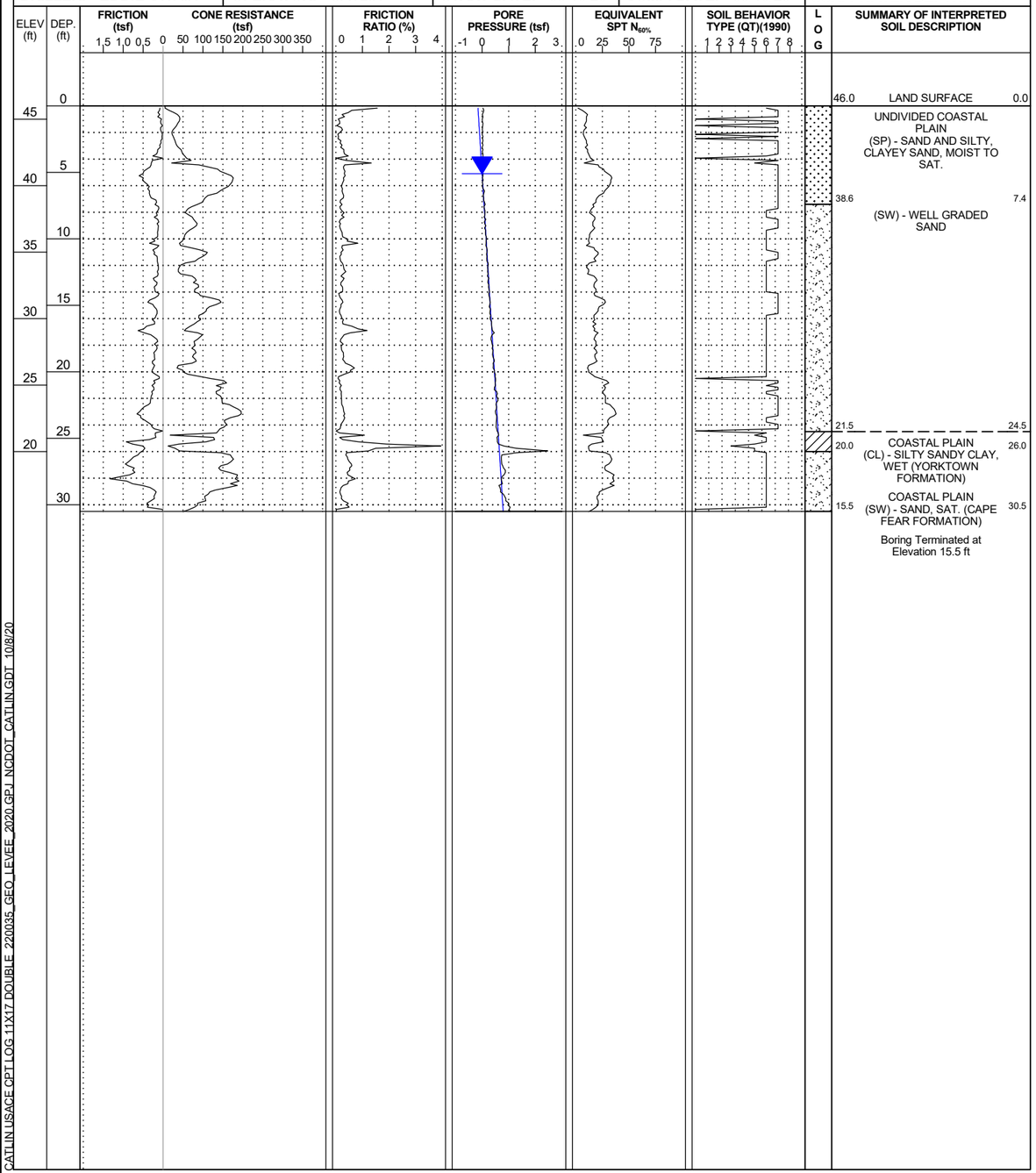
CATLIN USACE CPT LOG 11X17 DOUBLE 220035 GEO LEVEE 2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

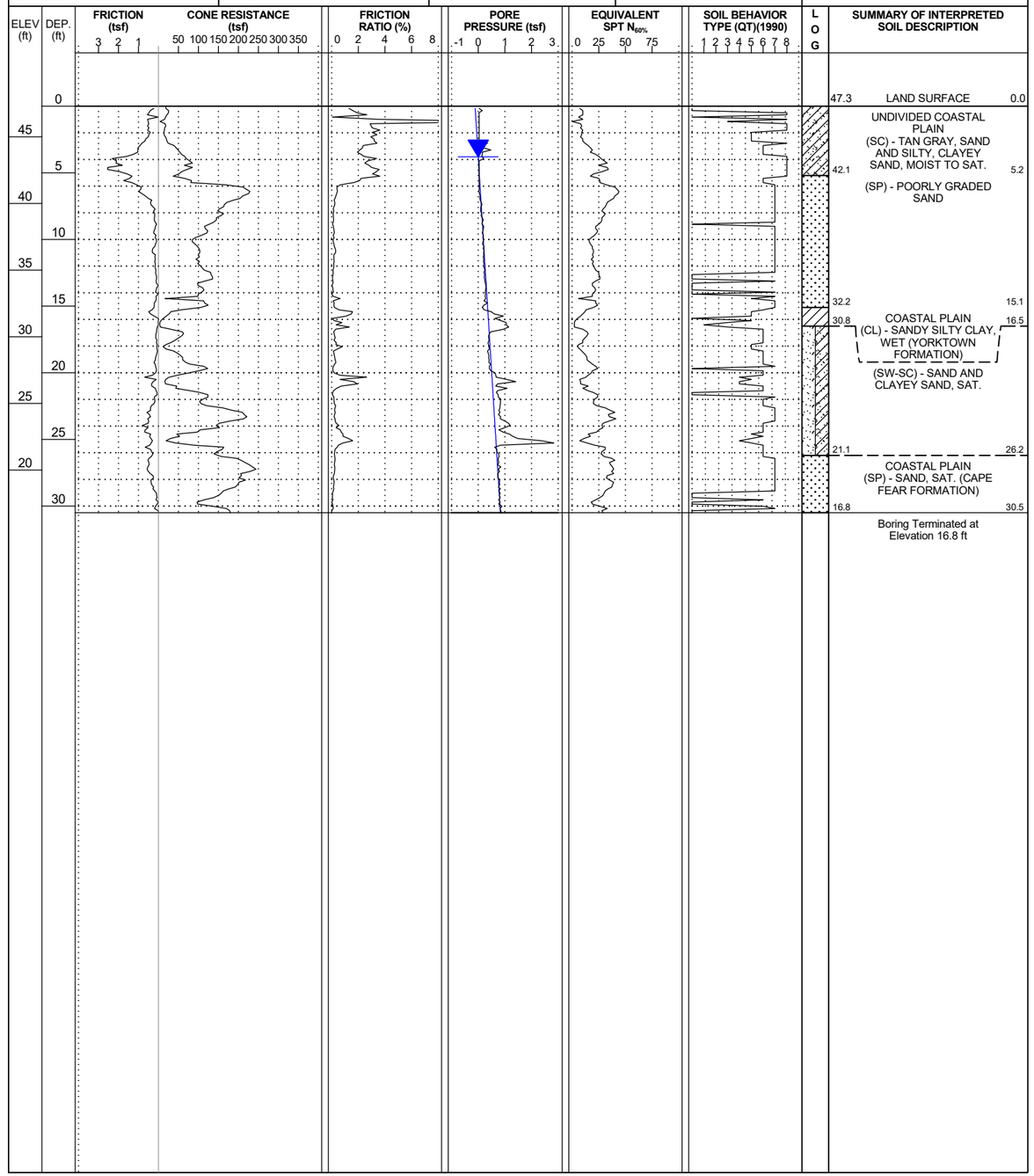
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	13

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-25	**STATION:** 263+00	**OFFSET:** 21 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 46.0 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 781,463	**EASTING:** 2,443,185	**24 HR.** 5.1
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/10/20	**COMP. DATE:** 08/10/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-26	**STATION:** 272+00	**OFFSET:** 23 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 47.3 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 781,086	**EASTING:** 2,444,002	**24 HR.** 3.8
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURF. WATER DEPTH:** N/A



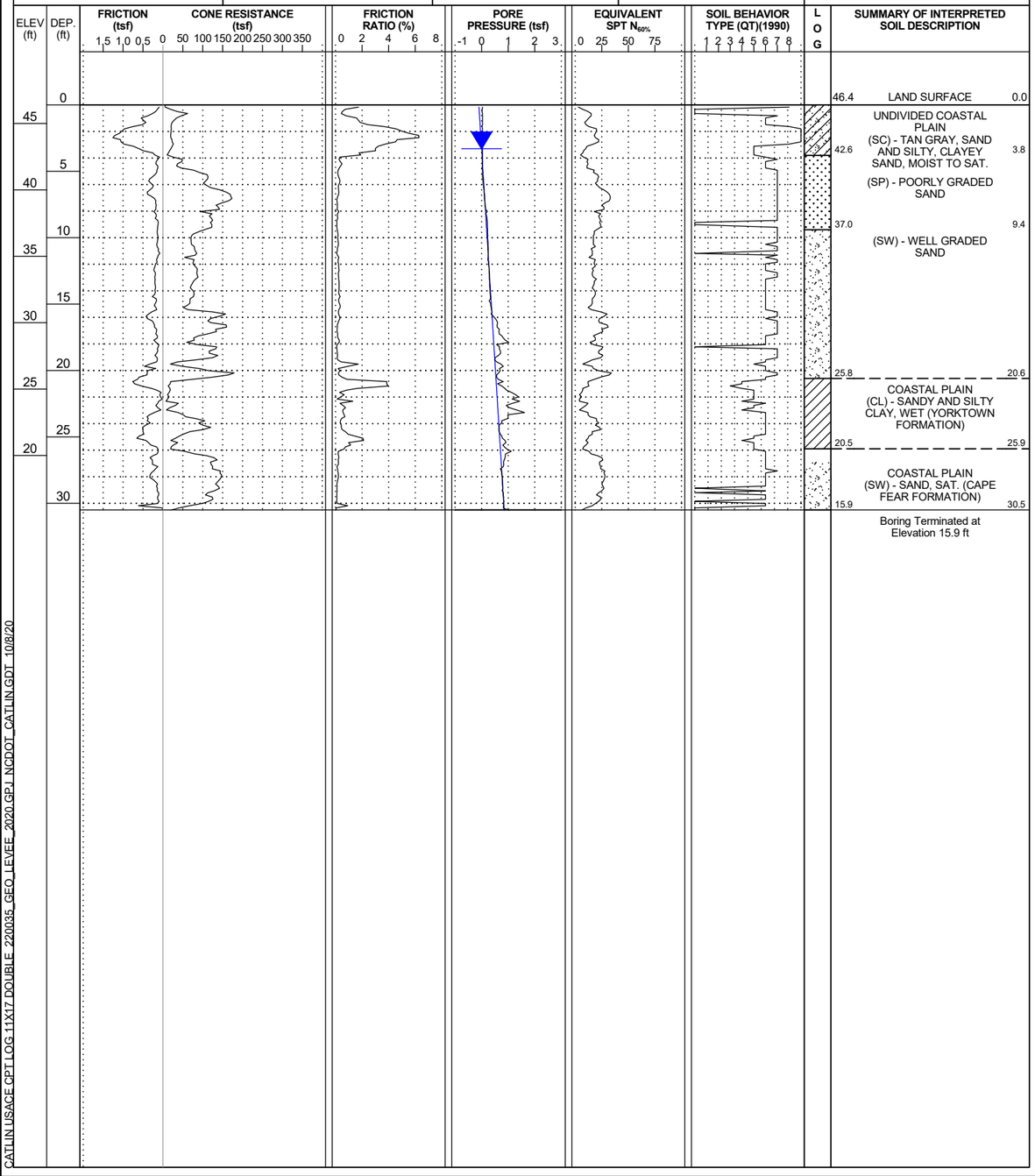
CATLIN USACE CPT LOG 11X17 DOUBLE 220035 GEO LEVEE 2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

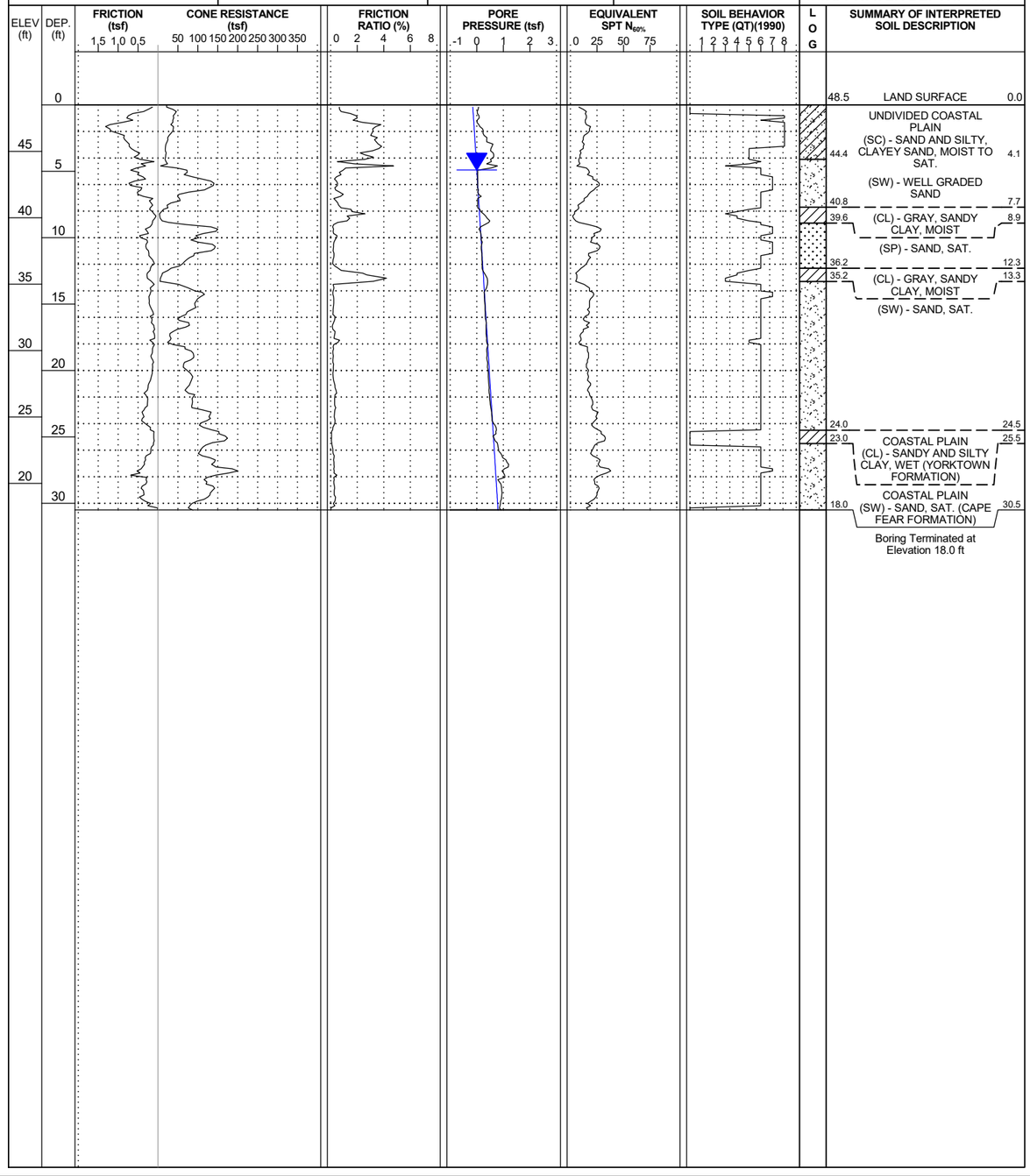
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	14

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-27	**STATION:** 276+00	**OFFSET:** 20 ft LT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 46.4 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 780,914	**EASTING:** 2,444,363	**24 HR.** 3.3
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-28	**STATION:** 280+70	**OFFSET:** 50 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 48.5 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 780,653	**EASTING:** 2,444,760	**24 HR.** 4.9
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURF. WATER DEPTH:** N/A



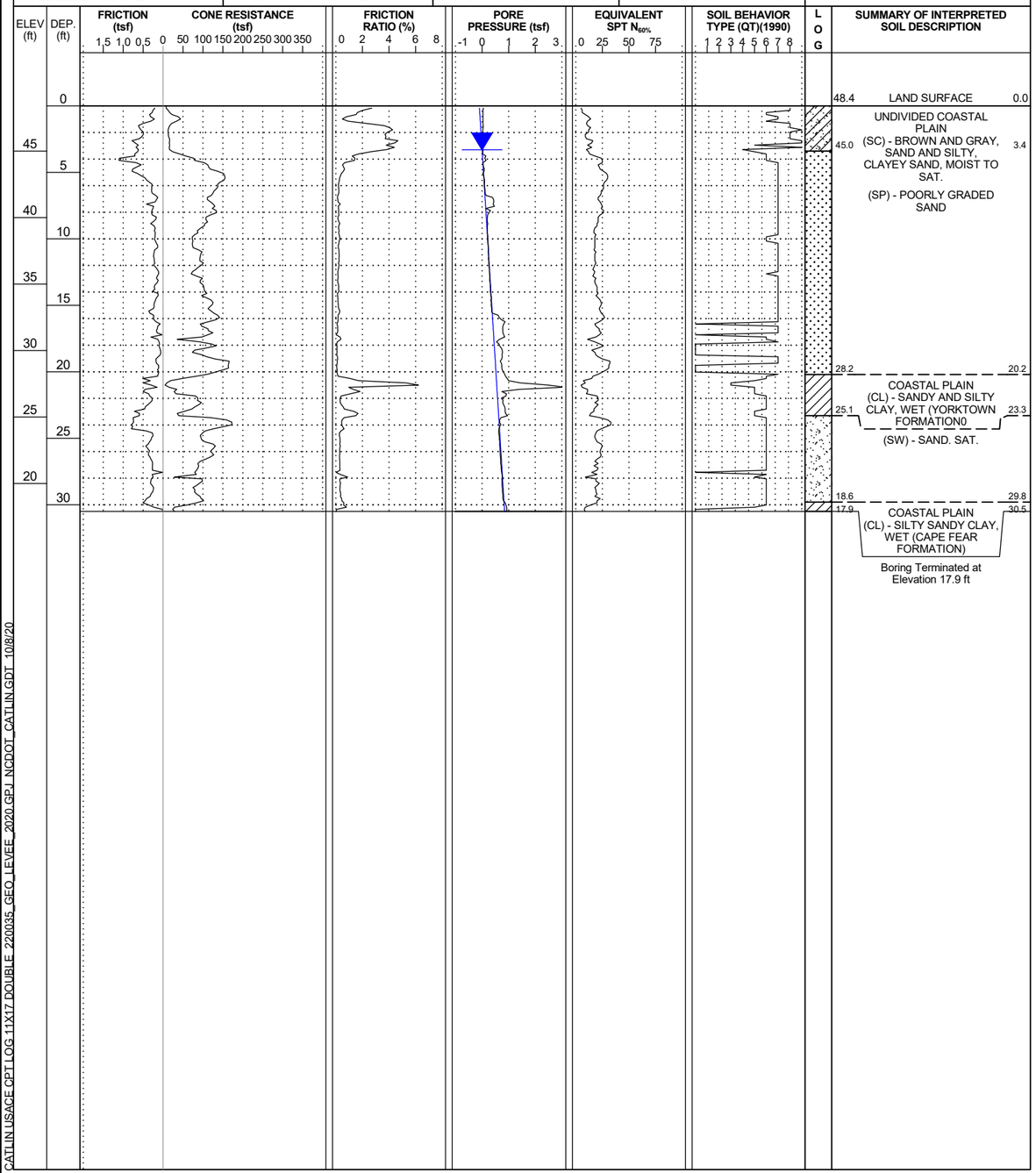
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

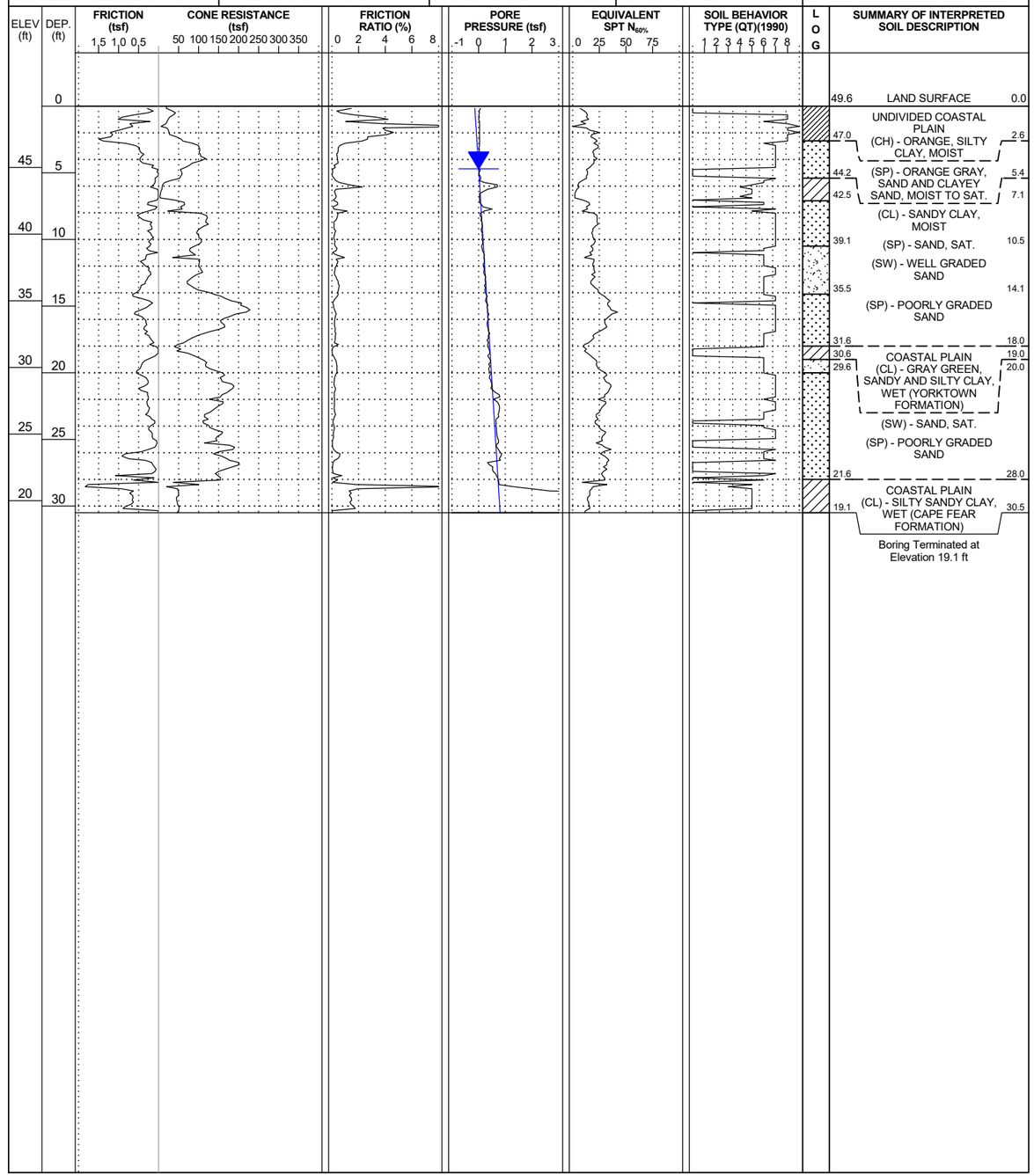
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	15

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-29	**STATION:** 292+02	**OFFSET:** 25 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 48.4 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 780,186	**EASTING:** 2,445,651	**24 HR.** 3.3
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO	**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/18/20	**COMP. DATE:** 08/18/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-30	**STATION:** 298+07	**OFFSET:** 19 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 49.6 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 779,647	**EASTING:** 2,445,376	**24 HR.** 4.7
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO	**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/18/20	**COMP. DATE:** 08/18/20	**SURF. WATER DEPTH:** N/A



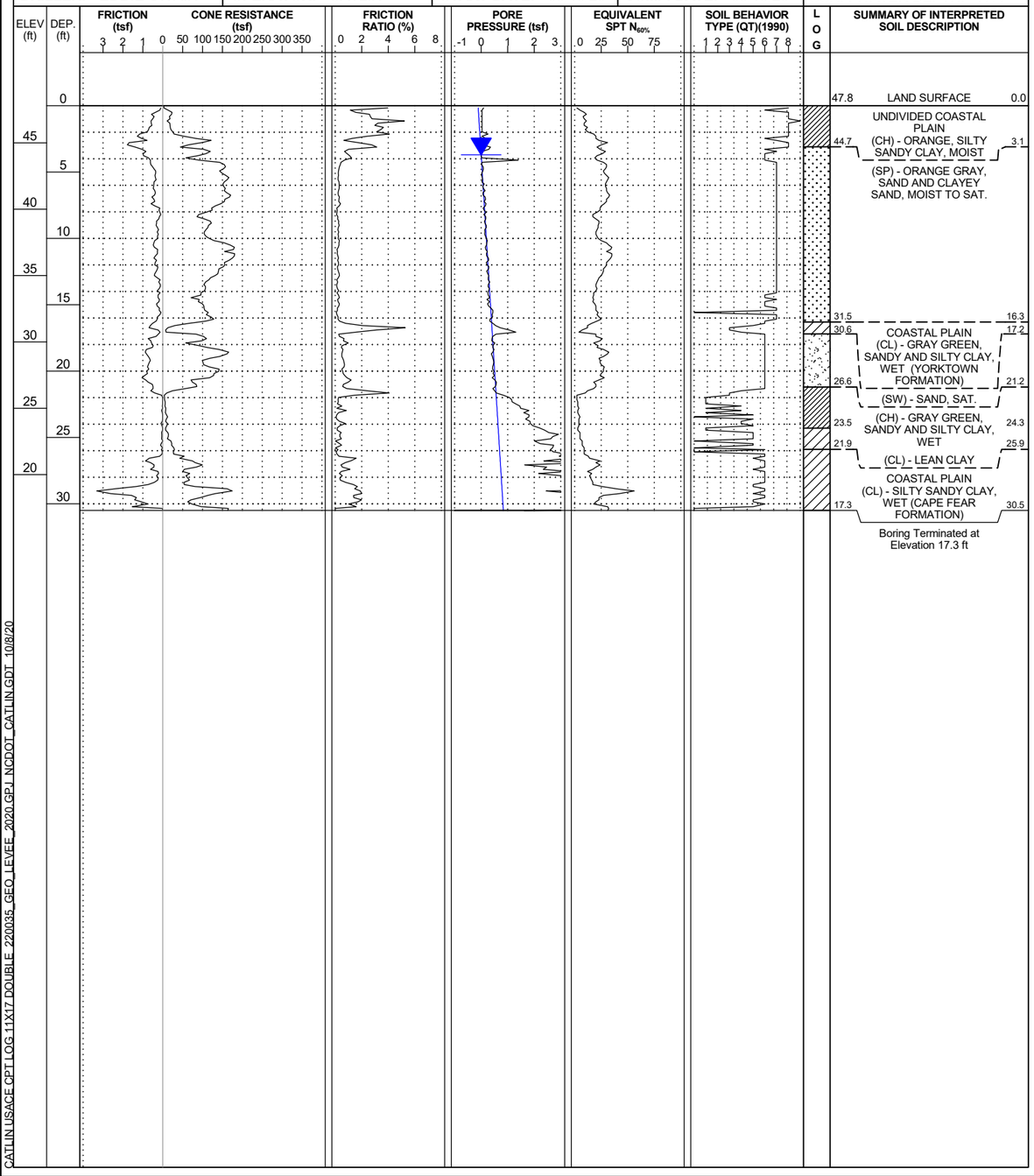
CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

CONE PENETROMETER TEST SOUNDING REPORT

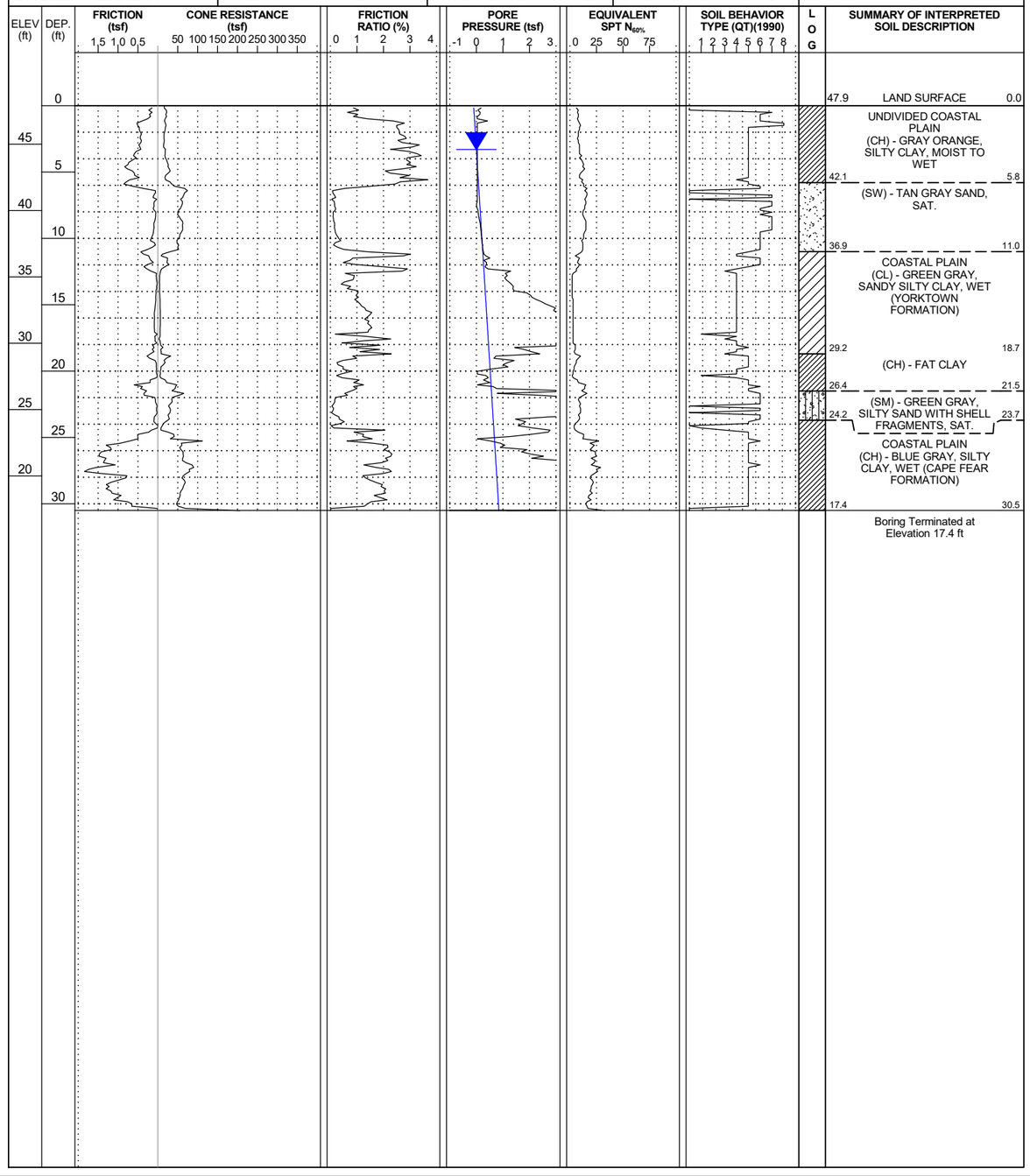
220035 — CATLIN Engineers and Scientists, 220 Old Dairy Road, Wilmington, NC 28405, Corporate Licensure No. for Engineering Services C-0586

PROJECT REFERENCE	SHEET
	16

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-31	**STATION:** 314+03	**OFFSET:** 52 ft RT	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 47.8 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 778,247	**EASTING:** 2,444,608	**24 HR.** 3.7
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/18/20	**COMP. DATE:** 08/18/20	**SURF. WATER DEPTH:** N/A



CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. STONE	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT				**GROUND WTR (ft)**
BORING NO.: PRN-20-CPT-32	**STATION:** 323+00	**OFFSET:** CL	**ALIGNMENT:** -L1-	**EST. 0 HR.** N/A
COLLAR ELEV.: 47.9 ft	**TOTAL DEPTH:** 30.5 ft	**NORTHING:** 777,428	**EASTING:** 2,444,239	**24 HR.** 3.3
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~18,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: EDDIE SWAIN	**OPERATOR:** CATLIN	**START DATE:** 08/18/20	**COMP. DATE:** 08/18/20	**SURF. WATER DEPTH:** N/A



CATLIN USACE CPT LOG 11X17 DOUBLE 220035_GEO_LEVEE_2020.GPJ NCDOT_CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. PUGH
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-01	**STATION:** 20+00	**OFFSET:** 44 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 16.3
COLLAR ELEV.: 55.9 ft	**TOTAL DEPTH:** 45.0 ft	**NORTHING:** 773,489	**EASTING:** 2,439,645	**24 HR.** 16.0
DRILL MACHINE: CAT4425 CME-55 94.7% 03/11/2020		**DRILL METHOD:** HSA	**HAMMER TYPE:** AUTOMATIC	
DRILLER: JORDAN EDMONDSON	**START DATE:** 08/13/20	**COMP. DATE:** 08/13/20	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
									55.9	0.0
									LAND SURFACE	
	55.9	0.0								
	54.4	1.5	1	2	1	3				
	52.9	3.0	3	6	10	16				
	51.4	4.5	10	22	34	56				
	49.9	6.0	8	26	36	62				
	48.4	7.5	14	27	27	54				
	46.9	9.0	10	19	26	45				
	45.4	10.5	6	16	21	37				
	43.9	12.0	10	22	17	39				
	42.4	13.5	7	10	10	20				
	40.9	15.0	7	7	9	16				
	39.4	16.5	3	6	9	15				
	37.9	18.0	1	2	1	3				
	36.4	19.5	2	7	12	19				
	34.9	21.0	4	6	6	12				
	33.4	22.5	3	3	2	5				
	31.9	24.0	3	5	9	14				
	30.4	25.5	6	6	6	12				
	28.9	27.0	3	4	5	9				
	27.4	28.5	1	2	2	4				
	25.9	30.0	2	2	1	3				
	24.4	31.5	4	5	9	14				
	22.9	33.0	WOH	4	8	12				
	21.4	34.5	2	8	15	23				
	19.9	36.0	4	10	11	21				
	18.4	37.5	6	11	10	21				
	16.9	39.0	9	10	17	27				
	15.4	40.5	13	24	22	46				
	13.9	42.0	12	22	25	47				
	12.4	43.5	10	15	13	28				
			4	7	9	16				
									ROADWAY EMBANKMENT (SM) - DARK BROWN, SILTY, F.SAND	2.4
									53.5	
									ROADWAY EMBANKMENT (SM) - BROWN SAND AND SILTY SAND, MOIST	
									(SW) - DARK GRAY, F. AND CSE., WELL GRADED SAND	8.0
									47.9	
									(SW-SM) - BROWN, F. AND CSE., WELL GRADED SAND, TO SILTY, F. AND CSE., SAND	11.3
									44.6	
									CONCRETE	11.7
									44.2	
									UNDIVIDED COASTAL PLAIN (SP) - BROWN GRAY SAND AND SILTY SAND, MOIST TO SAT.	11.8
									44.1	
										17.2
									38.7	
							SS-06 MC=21.5 LL=NP/PI=NP Pass 200=45%		(SM) - SILTY SAND (SW) - WELL GRADED SAND	18.4
									37.5	
							SS-07 MC=23.1 LL=NP/PI=NP Pass 200=22%		COASTAL PLAIN (SM) - GRAY GREEN SILTY SAND WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION)	25.4
									30.5	
							SS-08 MC=18.7 LL=NP/PI=NP Pass 200=19%		COASTAL PLAIN (SM) - GRAY GREEN SILTY CLAYEY SAND, SAT. (CAPE FEAR FORMATION)	31.3
									24.6	
							SS-09 MC=20.6 LL=37/PI=20 Pass 200=79%		(CL) - GRAY GREEN SANDY CLAY, WET	37.1
									18.8	
							SS-10 MC=29.4 LL=NP/PI=NP Pass 200=8%		(SP-SM) - GRAY GREEN, SAND TO SILTY SAND, SAT.	39.6
									16.3	
									(SC) - CLAYEY SAND	42.5
									13.4	
							SS-11 MC=24.7 LL=37/PI=16 Pass 200=34%		Boring Terminated at Elevation 10.9 ft IN MEDIUM DENSE SILTY SAND	45.0
									10.9	

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** K. SWAIN
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-02	**STATION:** 52+00	**OFFSET:** 56 ft LT	**ALIGNMENT:** -L1-	**0 HR.** 5.8
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 36.0 ft	**NORTHING:** 775,407	**EASTING:** 2,437,348	**24 HR.** 6.1
DRILL MACHINE: CAT4425 CME-55 94.7% 03/11/2020		**DRILL METHOD:** HSA	**HAMMER TYPE:** AUTOMATIC	
DRILLER: JORDAN EDMONDSON	**START DATE:** 07/23/20	**COMP. DATE:** 07/29/20	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	42.0	0.0							42.0 LAND SURFACE 0.0
	40.5	1.5	8	15	10	25			40.7 ROADWAY EMBANKMENT (SM) - TAN BROWN SAND AND SILTY SAND, MOIST 1.3
	39.0	3.0	10	12	9	21			
	37.5	4.5	4	4	5	9			(SW) - WELL GRADED SAND
	36.0	6.0	2	2	3	5			37.2 (SM) - BROWN, SILTY, F. SAND 4.8
	34.5	7.5	4	5	7	12			UNDIVIDED COASTAL PLAIN (SP) - GRAY SAND, MOIST TO SAT.
	33.0	9.0	5	7	9	16			
	31.5	10.5	5	3	2	5			31.9 10.1
	30.0	12.0	3	2	1	3			30.0 COASTAL PLAIN (SC) - GRAY GREEN SILTY SAND WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION) 12.0
	28.5	13.5	1	2	1	3			
	27.0	15.0	2	2	3	5			
	25.5	16.5	2	4	8	12			26.4 (SM) - SILTY SAND 15.6
	24.0	18.0	7	14	13	27			COASTAL PLAIN (SM) - BLUE GRAY SILTY CLAYEY SAND, SAT. (CAPE FEAR FORMATION)
	22.5	19.5	11	18	12	30			
	21.0	21.0	5	6	7	13			(SM) - BLUE-GRAY, SILTY, F. SAND, WITH TRACE CLAY
	19.5	22.5	6	8	11	19			
	18.0	24.0	7	10	15	25			
	16.5	25.5	8	11	13	24			
	15.0	27.0	12	12	14	26			
	13.5	28.5	9	10	14	24			13.5 28.5
	12.0	30.0	8	10	16	26			(ML) - BLUE-GRAY, SILT, WITH TRACE F. SAND
	10.5	31.5	7	10	19	29			
	9.0	33.0	2	5	15	20			9.3 32.7
	7.5	34.5	7	15	25	40			(CL) - BLUE GREEN SANDY CLAY, WET
			10	15	18	33			(SM) - GRAY, SILTY, F. SAND
									6.0 36.0
									Boring Terminated at Elevation 6.0 ft IN HARD SILTY CLAY

CAT IN USACE SPT LOG 11X17 W/ LAB 220035 GEO LEVEE 2020.GPJ CAT IN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** K. SWAIN
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-03	**STATION:** 69+00	**OFFSET:** 61 ft LT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 45.0 ft	**TOTAL DEPTH:** 45.0 ft	**NORTHING:** 776,440	**EASTING:** 2,436,026	**24 HR.** 13.1
DRILL MACHINE: CAT1314 CME-45B 95.4% 11/13/2019		**DRILL METHOD:** HSA	**HAMMER TYPE:** AUTOMATIC	
DRILLER: TOMMY CHALMERS	**START DATE:** 08/20/20	**COMP. DATE:** 08/20/20	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
45	45.0	0.0	1	2	4	6 18 28			45.0 LAND SURFACE	0.0
	43.5	1.5							ROADWAY EMBANKMENT (SM) - TAN BROWN AND GRAY SAND AND SILTY SAND, MOIST TO SAT. (SP) - BROWN, F., POORLY GRADED SAND	
	42.0	3.0	5	9	9					
40	40.5	4.5	3	9	19					
	39.0	6.0	10	11	13	24			39.2	5.8
	37.5	7.5	5	6	6	12 20			(SM) - BROWN, SILTY, F. SAND	
	36.0	9.0	4	8	12				35.8	9.2
35	34.5	10.5	5	7	9	16			(SP) - POORLY GRADED SAND	
	33.0	12.0	3	5	4	9				
	31.5	13.5	3	2	2	4				
30	30.0	15.0	2	1	1	2				
	28.5	16.5	3	3	2	5				
	27.0	18.0	1	6	5	11			27.6 (CH) - GRAY, FAT CLAY	17.4
25	25.5	19.5	2	2	7	9			24.9 (SP) - TAN, F., POORLY GRADED SAND, WITH TRACE WOOD	20.1
	24.0	21.0	5	11	11	22	SS-38 MC=20.1 LL=38/PI=22 Pass 200=28%		23.0 COASTAL PLAIN (SC) - BLUE GRAY CLAYEY SAND, SAT. (CAPE FEAR FORMATION)	22.0
	22.5	22.5	6	9	20	29			(CH) - BLUE GRAY SANDY CLAY, WET	
	21.0	24.0	3	9	17	26				
20	19.5	25.5	5	10	13	23				
	18.0	27.0	6	10	14	24	SS-39 MC=23.4 LL=60/PI=38 Pass 200=90%			
	16.5	28.5	8	10	19	29				
	15.0	30.0	8	10	14	24				
15	13.5	31.5	9	13	16	29				
	12.0	33.0	4	11	15	26				
	10.5	34.5	8	16	31	47				
10	9.0	36.0	8	16	23	39				
	7.5	37.5	10	12	20	32	SS-40 MC=19.8 LL=51/PI=33 Pass 200=86%			
	6.0	39.0	9	8	12	20			6.0 (SM) - GRAY SILTY SAND, SAT.	39.0
5	4.5	40.5	11	12	11	23	SS-41 MC=20.3 LL=NP/PI=NP Pass 200=25%			
	3.0	42.0	6	11	15	26				
	1.5	43.5	10	11	13	24				
0			6	8	12	20			0.0 Boring Terminated at Elevation 0.0 ft	45.0
									IN MEDIUM DENSE SILTY SAND	
-5										
-10										
-15										
-20										
-25										
-30										
-35										

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. PUGH
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-04	**STATION:** 77+00	**OFFSET:** 96 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 7.4
COLLAR ELEV.: 40.9 ft	**TOTAL DEPTH:** 39.0 ft	**NORTHING:** 777,035	**EASTING:** 2,435,820	**24 HR.** 8.1
DRILL MACHINE: CAT4425 CME-55 94.7% 03/11/2020		**DRILL METHOD:** HSA	**HAMMER TYPE:** AUTOMATIC	
DRILLER: JORDAN EDMONDSON	**START DATE:** 08/14/20	**COMP. DATE:** 08/14/20	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45									
	40.9	0.0							40.9 LAND SURFACE 0.0
	39.4	1.5	1	1	3	4			ROADWAY EMBANKMENT (SM) - TAN ORANGE BROWN SAND AND SILTY SAND, MOIST
	37.9	3.0	2	1	3	4			38.4 2.5
	36.4	4.5	3	3	5	8			(SW) - WELL GRADED SAND
35	34.9	6.0	4	7	7	14			(SW) - ORANGE-BROWN TO LIGHT BROWN, F. AND CSE., WELL GRADED SAND
	33.4	7.5	4	5	6	11			34.9 6.0
	31.9	9.0	4	5	5	10			ALLUVIAL (SW) - LIGHT BROWN, F. AND CSE., WELL GRADED SAND
30	30.4	10.5	2	3	3	6			
	28.9	12.0	1	2	1	3			29.8 11.1
	27.4	13.5	3	11	14	25	SS-12 MC=35.3 LL=26/PI=14 Pass 200=48%		28.9 UNDIVIDED COASTAL PLAIN 12.0
	25.9	15.0	1	3	9	12			(SC) - GRAY SAND, MOIST TO SAT.
25	24.4	16.5	7	11	14	25			(SP) - POORLY GRADED SAND
	22.9	18.0	1	3	9	12			
	21.4	19.5	6	18	28	46			COASTAL PLAIN (SM) - GREEN-GRAY, SILTY, F. SAND (CAPE FEAR FORMATION)
20	19.9	21.0	10	20	27	47			22.1 18.8
	18.4	22.5	10	30	20	50			COASTAL PLAIN (CL) - GRAY SILTY AND SANDY CLAY, WET (CAPE FEAR FORMATION)
	17.9	23.0	10	16	20	36			
			12	20	22	42			
15	15.4	25.5	11	13	20	33	SS-13 MC=19.6 LL=48/PI=32 Pass 200=86%		
	13.9	27.0	5	5	13	18			
	12.4	28.5	9	24	32	56			
	10.9	30.0	11	13	16	29			
10	9.4	31.5	6	11	14	25			
	7.9	33.0	6	8	12	20			
	6.4	34.5	8	10	11	21			
	4.9	36.0	7	7	11	18			
5	3.4	37.5	6	8	12	20	SS-14 MC=29.9 LL=61/PI=40 Pass 200=92%		
									7.9 (CH) - FAT CLAY 33.0
0									1.9 Boring Terminated at Elevation 1.9 ft 39.0
									IN VERY STIFF SILTY CLAY
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CATLIN USACE SPT LOG 11X17 W/LAB 220035_GEO_LEVEE_2020.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** K. SWAIN
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-05	**STATION:** 101+23	**OFFSET:** 91 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 10.9
COLLAR ELEV.: 46.1 ft	**TOTAL DEPTH:** 40.5 ft	**NORTHING:** 779,382	**EASTING:** 2,435,200	**24 HR.** FIAD
DRILL MACHINE: CAT1314 CME-45B 95.4% 11/13/2019		**DRILL METHOD:** HSA	**HAMMER TYPE:** AUTOMATIC	
DRILLER: TOMMY CHALMERS	**START DATE:** 08/14/20	**COMP. DATE:** 08/14/20	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED)	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
						0 25 50 75 100			ELEV. (ft) DEPTH (ft)
50									
	46.1	0.0							46.1 0.0 LAND SURFACE
45	44.6	1.5	1	4	6	10			ROADWAY EMBANKMENT (SW) - TAN BROWN SAND, MOIST
	43.1	3.0	6	11	14	25			
	41.6	4.5	7	12	18	30			
40	40.1	6.0	8	17	22	39			
	38.6	7.5	7	23	32	55			39.1 7.0 (SW) - TAN, F. AND CSE., WELL GRADED SAND
	37.1	9.0	9	19	20	39			37.0 9.1 (SP) - TAN, F., POORLY GRADED SAND (SM) -
35	35.6	10.5	5	5	7	12			
	34.1	12.0	3	4	4	8			
	32.6	13.5	1	1	1	2			ALLUVIAL
	31.1	15.0	1	4	10	14			31.9 14.2 (SM) - DARK BROWN, SILTY SAND
30	29.6	16.5	6	9	7	16			31.0 15.1 UNDIVIDED COASTAL PLAIN (SM) - BROWN SAND AND SILTY SAND WITH TRACE GRAVEL, MOIST TO SAT.
	28.1	18.0	2	4	5	9			
	26.6	19.5	1	2	2	4			(SW) - BROWN, F. AND CSE., WELL GRADED SAND, WITH TRACE SILT AND GRAVEL
25			7	9	17	26			25.4 20.7 COASTAL PLAIN (CL) - BLUE GRAY SILTY CLAY, WET (CAPE FEAR FORMATION)
	23.6	22.5							
	22.1	24.0	4	7	15	22			
20	20.6	25.5	8	10	11	21			
	19.1	27.0	8	14	19	33			
	17.6	28.5	7	12	14	26			
	16.1	30.0	6	9	11	20			
15	14.6	31.5	4	6	10	16			14.7 31.4 (SC) - BLUE GRAY CLAYEY SAND, WET
	13.1	33.0	5	11	14	25			
	11.6	34.5	9	11	13	24			
10	10.1	36.0	7	8	10	18			
	8.6	37.5	7	10	15	25			9.4 36.7 (CL) - GRAY SILTY CLAY, WET
	7.1	39.0	6	9	12	21			
5			5	11	11	22			5.6 40.5 Boring Terminated at Elevation 5.6 ft IN VERY STIFF SILTY CLAY
0									
-5									
-10									
-15									
-20									
-25									
-30									

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. PUGH
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-06	**STATION:** 221+94	**OFFSET:** 90 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 4.5
COLLAR ELEV.: 45.6 ft	**TOTAL DEPTH:** 35.0 ft	**NORTHING:** 784,284	**EASTING:** 2,441,000	**24 HR.** 9.2
DRILL MACHINE: CAT4425 CME-55 94.7% 03/11/2020		**DRILL METHOD:** HSA	**HAMMER TYPE:** AUTOMATIC	
DRILLER: JORDAN EDMONDSON	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED)	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
						0 25 50 75 100			
50									
	45.6	0.0							45.6 0.0 LAND SURFACE
45	44.1	1.5	2	3	3	6			UNDIVIDED COASTAL PLAIN (SC) - BROWN ORANGE GRAY SILTY AND CLAYEY SAND, MOIST TO SAT. (SC) - ORANGE-BROWN, CLAYEY SAND
	42.6	3.0	2	1	1	2			
	41.1	4.5	1	2	4	6	SS-20 MC=19.6 LL=41/PI=25 Pass 200=38%		
40	39.6	6.0	3	4	4	8			
	38.1	7.5	4	6	7	13			40.2 5.4 (SM) - SILTY SAND
	36.6	9.0	5	7	12	19			
35	35.1	10.5	7	6	6	12			
	33.6	12.0	4	5	7	12	SS-21 MC=23.4 LL=NP/PI=NP Pass 200=29%		(SM) - LIGHT BROWN, SILTY SAND
	32.1	13.5	6	8	8	16			
	30.6	15.0	3	4	8	12			30.6 15.0 (SP) - GRAY-BROWN, F., POORLY GRADED SAND
30	29.1	16.5	5	8	8	16			
	27.6	18.0	3	7	6	13			27.2 18.4 COASTAL PLAIN (CH) - GRAY GREEN SILTY CLAY, WET (YORKTOWN FORMATION)
	26.1	19.5	2	3	4	7			
25	24.6	21.0	2	2	2	4	SS-22 MC=33.9 LL=77/PI=56 Pass 200=94%		23.9 21.7 COASTAL PLAIN (CL) - GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
	23.1	22.5	WOR	1	6	7			
	21.6	24.0	7	15	17	32			
20	20.1	25.5	9	13	16	29			
	18.6	27.0	7	9	11	20			
	17.1	28.5	9	11	13	24			
	15.6	30.0	8	13	13	26	SS-23 MC=20.7 LL=36/PI=22 Pass 200=61%		
15	14.1	31.5	13	14	22	36			
	12.6	33.0	9	16	21	37			
			10	15	17	32			11.1 34.5 Boring Terminated at Elevation 10.6 ft IN HARD SILTY SANDY CLAY
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									

CATLIN USACE SPT LOG 11X17 W/ LAB 220035 GEO_LEVEE 2020.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** K. SWAIN
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-07	**STATION:** 237+23	**OFFSET:** 169 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 7.0
COLLAR ELEV.: 44.2 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,125	**EASTING:** 2,441,406	**24 HR.** 6.3
DRILL MACHINE: CAT1314 CME-45B 95.4% 11/13/2019		**DRILL METHOD:** MUD/ROTARY	**HAMMER TYPE:** AUTOMATIC
DRILLER: TOMMY SPENCER	**START DATE:** 08/11/20	**COMP. DATE:** 08/11/20	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	44.2	0.0							LAND SURFACE	0.0
	42.7	1.5	1	2	2	4, 7			UNDIVIDED COASTAL PLAIN (SW) - TAN BROWN SAND, MOIST TO SAT.	
	41.2	3.0	3	4	3	11				
40	39.7	4.5	4	5	6	6, 14				
	38.2	6.0	2	3	3	11				
	36.7	7.5	2	8	6					
35	35.2	9.0	3	5	6					
	33.7	10.5	WOH	2	3	5				
	32.2	12.0	2	4	5	9, 8				
	30.7	13.5	1	3	5					
30	29.2	15.0	2	4	4	8				
			2	2	2	4				
	26.2	18.0								
25	24.7	19.5	WOH	WOH	4	4				
	23.2	21.0	5	9	10	19				
	21.7	22.5	5	9	10	19				
20	20.2	24.0	6	11	15	26				
	18.7	25.5	10	11	17	28				
	17.2	27.0	6	11	12	23				
15	15.7	28.5	8	8	14	22				
			9	11	13	24				
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

37.8	6.4		
35.2	9.0		(CL) - (SP) - TAN, F., POORLY GRADED SAND, WITH TRACE GRAVEL
33.7	10.5		COASTAL PLAIN (CL) - GREEN GRAY SILTY CLAY AND CLAY, WET (YORKTOWN FORMATION) (CH) - FAT CLAY
28.5	15.7		(SM) - GREEN GRAY SILTY SAND, SAT.
25.1	19.1		(SM) - GRAY, SILTY SAND
24.6	19.6		(SP) - GRAY, F., POORLY GRADED SAND
23.2	21.0		COASTAL PLAIN
22.0	22.2		(SM) - GRAY SILTY AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)
			(SW) - GRAY, F. AND CSE., WELL GRADED SAND
			(SC) - CLAYEY SAND
14.2	30.0		(SM) - GRAY, SILTY, F. SAND
			Boring Terminated at Elevation 14.2 ft
			IN MEDIUM DENSE CLAYEY SAND
			HAMMER MALFUNCTION WHILE COLLECTING SAMPLE FROM 16.5'-18.0'

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** K. SWAIN
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-08	**STATION:** 250+21	**OFFSET:** 29 ft LT	**ALIGNMENT:** -L1-	**0 HR.** 7.6
COLLAR ELEV.: 41.4 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 782,066	**EASTING:** 2,442,126	**24 HR.** 1.0
DRILL MACHINE: CAT1314 CME-45B 95.4% 11/13/2019		**DRILL METHOD:** MUD/ROTARY	**HAMMER TYPE:** AUTOMATIC
DRILLER: TOMMY CHALMERS	**START DATE:** 08/12/20	**COMP. DATE:** 08/12/20	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	41.4	0.0							LAND SURFACE
	39.9	1.5	1	3	2	5	SS-29 LL=24/PI=7 Pass 200=33%		UNDIVIDED COASTAL PLAIN (ML) - BROWN SANDY SILT, MOIST TO WET
	38.4	3.0	4	6	4	10, 13			(SC-SM) - TAN BROWN AND GRAY SAND, AND SILTY CLAYEY SAND, MOIST TO SAT.
	36.9	4.5	5	7	6	9			(SW) - WELL GRADED SAND
35	35.4	6.0	4	4	5	9			
	33.9	7.5	3	4	5	10, 13			(SW) - GRAY, F. AND CSE., WELL GRADED SAND, WITH TRACE SILT
	32.4	9.0	2	3	7	8			
	30.9	10.5	3	6	7	11			
30	29.4	12.0	3	3	5	5			
	27.9	13.5	3	5	6	1	SS-30 MC=32.7 LL=21/PI=5 Pass 200=40%		COASTAL PLAIN (SC-SM) - GRAY GREEN SILTY CLAYEY SAND, SAT. (YORKTOWN FORMATION)
	26.4	15.0	2	3	2	3, 16			(SP) - GRAY, F., POORLY GRADED SAND, WITH TRACE SILT
	24.9	16.5	WOH	WOH	1	10			WOOD FRAGMENTS
	23.4	18.0	3	7	9	10	SS-31 MC=24.4 LL=32/PI=13 Pass 200=58%		COASTAL PLAIN
	21.9	19.5	3	2	1	19			(CL) - BLUE GRAY SANDY SILTY CLAY, WET (CAPE FEAR FORMATION)
20	20.4	21.0	2	4	6	18			(CH) - GRAY, FAT CLAY
	18.9	22.5	4	4	6	17			(SM) - BLUE GRAY SILTY SAND, SAT.
	17.4	24.0	4	8	11	8, 17	SS-32 MC=21.8 LL=NP/PI=NP Pass 200=14%		
	15.9	25.5	6	8	10				
15	14.4	27.0	6	9	8				
	12.9	28.5	6	4	4				
			5	7	10		SS-33 LL=51/PI=28 Pass 200=75%		
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

38.9	2.5
36.7	4.7
26.4	15.0
21.9	19.5
21.4	20.0
15.7	25.7
12.4	29.0
11.4	30.0

Boring Terminated at Elevation 11.4 ft

IN VERY STIFF SILTY CLAY

CATLIN USACE SPT LOG 11X17 W\ AB 220035 GEO LEVEE 2020.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** L. PUGH
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PROJECT			**GROUND WTR (ft)**
BORING NO.: PRN-20-SPT-09	**STATION:** 323+00	**OFFSET:** 15 ft LT	**ALIGNMENT:** -L1-	**0 HR.** 3.6
COLLAR ELEV.: 47.7 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 777,421	**EASTING:** 2,444,252	**24 HR.** 3.1
DRILL MACHINE: CAT4425 CME-55 94.7% 03/11/2020		**DRILL METHOD:** MUD/ROTARY	**HAMMER TYPE:** AUTOMATIC
DRILLER: JORDAN EDMONDSON	**START DATE:** 08/12/20	**COMP. DATE:** 08/12/20	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	47.7	0.0							47.7 LAND SURFACE	0.0
	46.2	1.5	2	3	3	6			UNDIVIDED COASTAL PLAIN (CH) - GRAY ORANGE SILTY CLAY, MOIST TO WET	
45	44.7	3.0	3	4	6	10	SS-34 MC=23.7 LL=56/PI=35 Pass 200=80%		(CH) - GRAY WITH ORANGE MOTTLING, FAT CLAY WITH SAND	
	43.2	4.5	3	6	6	12			42.4	5.3
	41.7	6.0	6	9	10	19			41.7 (SM) - LIGHT GRAY, SILTY, F. SAND	6.0
40	40.2	7.5	3	5	6	11			(SW) - TAN GRAY SAND, SAT.	
	38.7	9.0	1	3	4	7				
	37.2	10.5	2	2	4	6				
35	35.7	12.0	1	4	2	6			36.6	11.1
	34.2	13.5	WOH	WOH	WOH	0	SS-35 MC=52.1 LL=40/PI=23 Pass 200=76%		COASTAL PLAIN (CL) - GREEN GRAY SILTY CLAY, WET (YORKTOWN FORMATION)	
	32.7	15.0	WOH	WOH	WOH	0				
	31.2	16.5	WOH	WOH	WOH	0				
30	29.7	18.0	WOH	WOH	1	1				
	28.2	19.5	1	1	1	2			29.2	18.5
	26.7	21.0	1	2	3	5	SS-36 MC=29.8 LL=NP/PI=NP Pass 200=20%		(SM) - GREEN GRAY SILTY SAND WITH SHELL FRAGMENTS, SAT.	
25	25.2	22.5	1	3	2	5				
	23.7	24.0	2	2	1	3				
	22.2	25.5	3	6	8	14			23.1	24.6
	20.7	27.0	4	10	11	21	SS-37 MC=23.8 LL=55/PI=31 Pass 200=79%		(CH) - BLUE GRAY SILTY CLAY, WET (CAPE FEAR FORMATION)	
20	19.2	28.5	7	9	13	22				
			7	9	16	25			17.7	30.0
15									Boring Terminated at Elevation 17.7 ft	
10									IN VERY STIFF SILTY CLAY	
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										

CATLIN USACE SPT LOG 11X17 W/LAB 220035 GEO LEVEE 2020.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** J.R.SWARTLEY
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: BDG24_EB1-A	**STATION:** 157+65	**OFFSET:** 41 ft LT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 36.7 ft	**TOTAL DEPTH:** 60.6 ft	**NORTHING:** 783,191	**EASTING:** 2,434,732	**24 HR.** 7.0
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** AUTOMATIC	
DRILLER: NCDOT	**START DATE:** 10/02/07	**COMP. DATE:** 10/02/07	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
									36.7	0.0
									LAND SURFACE	
	36.7	0.0	5	6	5	11	SS-1 LL=25/PI=9 Pass 200=36%		UNDIVIDED COASTAL PLAIN (SC) - TAN SILTY CLAYEY SAND, MOIST TO SAT.	
	32.2	4.5	27	23	25	48	SS-2 Pass 200=15%		(SM) - SILTY SAND	
	27.2	9.5	3	3	5	8	SS-3 LL=22/PI=6 Pass 200=41%			
	22.6	14.1	2	1	3	4			33.7	3.0
	17.6	19.1	6	10	15	25	SS-4 Pass 200=6%		(SP-SM) - SAND AND SILTY SAND	
	12.6	24.1	4	6	10	16	SS-5 MC=24.8 LL=41/PI=16 Pass 200=76%		19.7	17.0
	7.6	29.1	5	7	10	17	SS-6 LL=43/PI=22 Pass 200=62%		COASTAL PLAIN (CL) - GRAY SILTY CLAY, WET (CAPE FEAR FORMATION)	
	2.6	34.1	18	22	20	42	SS-7 Pass 200=10%		14.7	22.0
	-2.4	39.1	10	13	10	23			(SP-SM) - GRAY SAND, SAT.	
	-7.4	44.1	8	5	6	11	SS-8 Pass 200=5%		4.7	32.0
	-12.4	49.1	3	6	7	13	SS-9 LL=36/PI=8 Pass 200=76%		(ML) - GRAY SANDY SILTY, WET	
	-17.4	54.1	7	7	18	25			-10.3	47.0
	-22.4	59.1	6	10	14	24			-23.9	60.6
									Boring Terminated at Elevation -23.9 ft	
									IN VERY STIFF SANDY SILT	

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CSX_B1-B EBL	**STATION:** 1+43	**OFFSET:** 12 ft LT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 47.0 ft	**TOTAL DEPTH:** 55.3 ft	**NORTHING:** 773,412	**EASTING:** 2,441,452	**24 HR.** 2.1
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 03/30/93	**COMP. DATE:** 03/30/93	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	47.0	0.0							LAND SURFACE 47.0 0.0
	43.0	4.0	0	0	1	1	SS-53 LL=25/PI=3 Pass 200=58%		UNDIVIDED COASTAL PLAIN TAN BROWN SANDY SILT AND SANDY CLAY, MOIST TO WET (CH) - FAT CLAY 45.8 1.2
	38.2	8.8	3	7	10	17	SS-54 LL=50/PI=30 Pass 200=74%		
	33.2	13.8	3	4	4	8	SS-55 Pass 200=8%		(SP-SM) - GRAY SAND AND SILTY SAND, SAT. 39.9 7.1
	28.2	18.8	4	3	2	5			
	23.2	23.8	2	3	4	7	SS-56 LL=26/PI=6 Pass 200=20%		COASTAL PLAIN (SC-SM) - GRAY GREEN SILTY CLAYEY SAND WITH SHELL FRAGMENTS, SAT. (YOIRKTOWN FORMATION) 31.0 16.0
	18.2	28.8	9	15	25	40	SS-57 Pass 200=16%		
	13.2	33.8	8	13	17	30	SS-58 LL=34/PI=12 Pass 200=39%		COASTAL PLAIN (SM) - GRAY SILTY CLAYEY SAND, SAT. (CAPE FEAR FORMATION) 25.5 21.5
	8.2	38.8	13	25	28	53	SS-59 LL=44/PI=21 Pass 200=64%		
	3.2	43.8	8	17	23	40			(SC) - CLAYEY SAND 21.0 26.0
	-1.8	48.8	13	24	28	52	SS-60 Pass 200=13%		
	-6.8	53.8	12	21	20	41	SS-61 Pass 200=13%		(CL) - GRAY SILTY CLAY, WET 14.0 33.0
			13	22	24	46	SS-62 LL=28/PI=8 Pass 200=66%		(SM) - GRAY SILTY SAND, SAT. 4.0 43.0
									(CL) - GRAY SILTY CLAY, WET -6.0 53.0
									-8.3 55.3
									Boring Terminated at Elevation -8.3 ft
									IN HARD SILTY CLAY

CATLIN USACE SPT LOG 11X17 W LAB 220035 GEO LEVEE NCDOT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CSX_EB1-A EBL	**STATION:** 1+95	**OFFSET:** 28 ft RT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 47.4 ft	**TOTAL DEPTH:** 50.2 ft	**NORTHING:** 773,433	**EASTING:** 2,441,389	**24 HR.** 2.0
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 03/23/93	**COMP. DATE:** 03/23/93	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	47.4	0.0	0	1	1	2			47.4 LAND SURFACE	0.0
									UNDIVIDED COASTAL PLAIN	
									(CL-ML) - TAN BROWN SANDY SILT AND SILTY CLAY, MOIST	
	43.5	3.9	2	4	5	9			45.4 (CH) - FAT CLAY	2.0
	38.7	8.7	2	5	7	12			38.7 (SW) - TAN SAND, SAT.	8.7
	33.7	13.7	5	8	3	11			31.9 COASTAL PLAIN	15.5
									(SC) - GREEN GRAY CLAYEY SAND WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION)	
	28.7	18.7	1	2	1	3			26.4 (SM) - GRAY SILTY AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)	21.0
	23.7	23.7	9	15	16	31			21.4 (SC) - CLAYEY SAND	26.0
	18.7	28.7	8	13	22	35				
	13.7	33.7	11	25	32	57			14.4 (CH) - GRAY CLAY, WET	33.0
	8.7	38.7	10	22	23	45				
	3.7	43.7	10	16	22	38			4.0 (SW) - GRAY SAND, SAT	43.4
	-1.3	48.7	11	20	23	43			-2.8 Boring Terminated at Elevation -2.8 ft	50.2
									IN DENSE SAND	

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** F.C.DRISCOLL
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: DIKE1_B-2	**STATION:** 71+15	**OFFSET:** 140 ft LT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 40.0 ft	**TOTAL DEPTH:** 25.1 ft	**NORTHING:** 776,325	**EASTING:** 2,435,921	**24 HR.** FIAD
DRILL MACHINE: BRI2296 CME-45D 84% 05/04/2016		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** AUTOMATIC	
DRILLER: KLEINFELDER	**START DATE:** 07/06/17	**COMP. DATE:** 07/06/17	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	40.0	0.0	2	3	7	10	SS-7		40.0 LAND SURFACE 0.0
									UNDIVIDED COASTAL PLAIN
	36.6	3.4	5	4	5	9	SS-8		(SM) - GRAY SAND AND SILTY SAND, MOIST TO SAT.
	31.6	8.4	5	6	6	12	SS-9		
	26.5	13.5	4	3	4	7	SS-10		27.0 (SW) - WELL GRADED SAND 13.0
	21.6	18.4	8	7	9	16	SS-11		21.5 COASTAL PLAIN 18.5
	16.4	23.6	8	11	10	21	SS-12		(SC) - BLUE GRAY CLAYEY SAND, SAT. (CAPE FEAR FORMATION)
									17.0 (CL) - BLUE GRAY SILTY CLAY, WET 23.0
									14.9 Boring Terminated at Elevation 14.9 ft 25.1
									IN MEDIUM DENSE SILTY SAND

CAT IN USACE SPT LOG 11X17 W/LAB 220035 GEO_LEVEE NCDOT GPJ CAT IN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** F.C.DRISCOLL
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: DIKE2_B-4	**STATION:** 68+02	**OFFSET:** 30 ft RT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 25.1 ft	**NORTHING:** 776,394	**EASTING:** 2,436,150	**24 HR.** FIAD
DRILL MACHINE: BRI2296 CME-45D 84% 05/04/2016		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** AUTOMATIC	
DRILLER: KLEINFELDER	**START DATE:** 07/07/17	**COMP. DATE:** 07/07/17	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	42.0	0.0							42.0	LAND SURFACE 0.0
	40.0	2.0	4	6	8	14				UNDIVIDED COASTAL PLAIN (SM) - GRAY SAND AND SILTY SAND, MOIST TO SAT.
	38.0	4.0	10	8	10	18				
	36.0	6.0	2	1	7	8	SS-31 LL=NP/PI=NP Pass 200=20.8%			
	34.0	8.0	8	11	12	23				
			1	7	8	15				
	28.4	13.6							29.0	13.0
			3	2	2	4				(SW) - WELL GRADED SAND
	23.4	18.6							24.0	18.0
			5	9	9	18	SS-35 LL=34/PI=18 Pass 200=19.6%		20.0	COASTAL PLAIN (SC) - BLUE GRAY CLAYEY SAND, SAT. (CAPE FEAR FORMATION) 22.0
	18.4	23.6								(CH) - BLUE GRAY SILTY CLAY, WET
			7	11	19	30	SS-36 LL=51/PI=35 Pass 200=57.0%		16.9	25.1
										Boring Terminated at Elevation 16.9 ft
										IN HARD SILTY CLAY

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** F.C.DRISCOLL
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: DIKE3_B-7	**STATION:** 51+03	**OFFSET:** 126 ft RT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 25.2 ft	**NORTHING:** 775,543	**EASTING:** 2,437,506	**24 HR.** FIAD
DRILL MACHINE: BRI2296 CME-45D 84% 05/04/2016		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** AUTOMATIC	
DRILLER: KLEINFELDER	**START DATE:** 07/07/17	**COMP. DATE:** 07/07/17	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	42.0	0.0							42.0 LAND SURFACE 0.0
	40.0	2.0	1	6	5	11	SS-21		ROADWAY EMBANKMENT (SM) - TAN SILTY SAND, MOIST
	38.0	4.0	8	7	7	14	SS-22		
	36.0	6.0	1	2	5	7	SS-23		36.3 5.7
	34.0	8.0	3	2	2	4	SS-24		UNDIVIDED COASTAL PLAIN (SP) - TAN SAND, MOIST TO SAT.
			1	2	3	5	SS-25		32.7 9.3
	28.3	13.7							COASTAL PLAIN (SM) - GRAY GREEN SILTY SAND WITH SHELL FRAGMENT, SAT. (YORKTOWN FORMATION)
			3	2	2	4	SS-26		
	23.3	18.7							23.6 18.4
			2	2	4	6	SS-27		COASTAL PLAIN (SM) - BLUE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)
	18.3	23.7							
			9	9	7	16	SS-28		16.8 25.2
									Boring Terminated at Elevation 16.8 ft
									IN MEDIUM DENSE SAND

CATLIN USACE SPT LOG 11X17 W/LAB 220035_GEO_LEVEE_NCDOT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** WRC
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1EBL_8900	**STATION:** 101+23	**OFFSET:** 91 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 6.7
COLLAR ELEV.: 37.0 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 779,369	**EASTING:** 2,435,155	**24 HR.** 6.5
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 03/03/93	**COMP. DATE:** 03/03/92	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									ELEV. (ft) DEPTH (ft)
40									
	37.0	0.0							37.0 LAND SURFACE 0.0
35	34.5	2.5	1	4	7	11	SS-132 Pass 200=14%		UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY SAND AND SILTY SAND, MOIST TO SAT.
	32.0	5.0	5	3	3	6	SS-133 MC=29.0 LL=39/PI=8 Pass 200=49%		32.0 5.0
30	29.5	7.5	1	1	4	5	SS-134 Pass 200=10%		(SP) - POORLY GRADED SAND
			3	3	4	7			28.0 9.0
25									Boring Terminated at Elevation 28.0 ft
									IN LOOSE SAND
20									
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** WRC
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1EBL_9900	**STATION:** 91+74	**OFFSET:** 45 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 7.5 N/A
COLLAR ELEV.: 38.2 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 778,487	**EASTING:** 2,435,564	**24 HR.** 6.5
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 03/03/93	**COMP. DATE:** 03/03/93	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
40									
	38.2	0.0							38.2 LAND SURFACE 0.0
35	35.7	2.5	1	1	2	3	SS-135 Pass 200=14%		UNDIVIDED COASTAL PLAIN (SM) - TAN ORANGE SAND AND SILTY SAND, MOIST TO SAT.
	33.2	5.0	2	1	2	3			
30	30.7	7.5	2	3	4	7	SS-136 LL=18/PI=3 Pass 200=40%		31.2 7.0
			4	5	4	9	SS-137 Pass 200=4%		(SP) - POORLY GRADED SAND
25									29.2 9.0
									Boring Terminated at Elevation 29.2 ft
20									IN LOOSE SAND
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									

CATLIN USACE SPT LOG 11X17 W\ AB 220035 GEO LEVEE NCDOT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1REV_12400	**STATION:** 75+73	**OFFSET:** 89 ft RT	**ALIGNMENT:** -L1-	**0 HR.** Dry
COLLAR ELEV.: 39.8 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 776,916	**EASTING:** 2,435,840	**24 HR.** Dry
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 12/10/91	**COMP. DATE:** 12/10/91	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	39.8	0.0	0	1	1	2	SS-10		39.8 LAND SURFACE	0.0
	37.3	2.5	1	1	1	2	Pass 200=32% SS-11		UNDIVIDED COASTAL PLAIN (SM) - TAN BROWN SAND AND SILTY SAND, MOIST	
	34.8	5.0	3	5	6	11	Pass 200=13%			
	32.3	7.5	3	5	5	10	SS-12		32.8 (SP) - POORLY GRADED SAND	7.0
							Pass 200=3%		30.8 Boring Terminated at Elevation 30.8 ft	9.0
									IN LOOSE SAND	

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1REV_13474	**STATION:** 63+54	**OFFSET:** 7 ft LT	**ALIGNMENT:** -L1-	**0 HR.** 3.6
COLLAR ELEV.: 38.2 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 776,002	**EASTING:** 2,436,368	**24 HR.** 3.0
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 12/10/91	**COMP. DATE:** 12/10/91	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	38.2	0.0	1	2	3	5	SS-13 LL=24/PI=9 Pass 200=29%		38.2 LAND SURFACE 0.0
	35.7	2.5	2	2	4	6	SS-14		36.7 UNDIVIDED COASTAL PLAIN (SC) - TAN BROWN SAND AND CLAYEY SAND, MOIST TO SAT. 1.5
	33.2	5.0	2	2	3	5	Pass 200=3%		(SP) - POORLY GRADED SAND
	30.7	7.5	3	7	6	13			29.2 Boring Terminated at Elevation 29.2 ft 9.0
									IN MEDIUM DENSE SAND

CATLIN USACE SPT LOG 11X17 W/ LAB 220035 GEO LEVEE NCDOT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1REV_16000	**STATION:** 37+35	**OFFSET:** 135 ft LT	**ALIGNMENT:** -L1-	**0 HR.** 7.3
COLLAR ELEV.: 47.0 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 774,343	**EASTING:** 2,438,275	**24 HR.** 7.3
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 12/12/91	**COMP. DATE:** 12/12/91	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
50										
	47.0	0.0							47.0	LAND SURFACE 0.0
45	44.5	2.5	0	1	1	2	SS-15		45.0	UNDIVIDED COASTAL PLAIN (SM) - TAN BROWN SILTY SAND, MOIST 2.0
	42.0	5.0	1	2	2	4	Pass 200=12% SS-16			(SW-SM) - SAND TO SILTY SAND
40	39.5	7.5	2	4	4	8	Pass 200=9%		40.0	▼ 7.0
			2	5	7	12			38.0	COASTAL PLAIN (SP) - GRAY GREEN SAND WITH SHELL FRAGMENTS, MOIST TO SAT. (YORKTOWN FORMATION) 9.0
35										Boring Terminated at Elevation 38.0 ft
										IN MEDIUM DENSE SAND
30										
25										
20										
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** E. WHITTORT
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1REV_17000	**STATION:** 26+47	**OFFSET:** 60 ft RT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 42.7 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 773,794	**EASTING:** 2,439,088	**24 HR.** 5.0 Dry
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 05/13/92	**COMP. DATE:** 05/13/92	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45									
	42.7	0.0							42.7 LAND SURFACE 0.0
40	40.2	2.5	0	1	1	2			UNDIVIDED COASTAL PLAIN (SM) - TAN SILTY CLAYEY SAND, MOIST TO SAT.
	37.7	5.0	3	5	6	11			▼
35	35.2	7.5	2	3	3	6			
			2	2	4	6			33.7 9.0
30									Boring Terminated at Elevation 33.7 ft
									IN LOOSE SILTY SAND
25									
20									
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CATLIN USACE SPT LOG 11X17 W\ AB 220035 GEO LEVEE NCDOT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: L1REV_18400	**STATION:** 12+19	**OFFSET:** 55 ft RT	**ALIGNMENT:** -L1-	**0 HR.** 1.5
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 9.0 ft	**NORTHING:** 773,335	**EASTING:** 2,440,393	**24 HR.** 1.3
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 12/12/91	**COMP. DATE:** 12/12/91	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	42.0	0.0							42.0	LAND SURFACE 0.0
	39.5	2.5	0	0	1	1	SS-20 LL=23/PI=6 Pass 200=48%		40.0	UNDIVIDED COASTAL PLAIN (SC-SM) - TAN BROWN SILTY CLAYEY SAND, MOIST TO SAT. 2.0
	37.0	5.0	1	1	1	2	SS-21 LL=NP/PI=NP Pass 200=22%		38.0	(SM) - SILTY SAND 4.0
	34.5	7.5	6	6	4	10	SS-22 LL=NP/PI=NP Pass 200=5%		35.0	(SP) - POORLY GRADED SAND 7.0
			1	2	5	7	SS-23 LL=23/PI=6 Pass 200=21%		33.0	COASTAL PLAIN (SC-SM) - GRAY GREEN SILTY CLAYEY SAND WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION) 9.0
										Boring Terminated at Elevation 33.0 ft
										IN LOOSE SILTY CLAYEY SAND

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** E. WHITTORT
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: LOOPF_B1-B	**STATION:** 119+17	**OFFSET:** 20 ft LT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 46.1 ft	**TOTAL DEPTH:** 65.0 ft	**NORTHING:** 780,513	**EASTING:** 2,433,809	**24 HR.** 24.1
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 08/03/93	**COMP. DATE:** 08/03/93	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	46.1	0.0							46.1 LAND SURFACE 0.0
	42.6	3.5	1	4	7	11	SS-33 LL=17/PI=17 Pass 200=15%		ARTIFICIAL FILL (SM) - TAN BROWN SILTY SAND, MOIST
	37.6	8.5	11	14	17	31			
	32.6	13.5	26	100/0.5		100/0.5			
	27.6	18.5	16	13	33	46	SS-34 LL=20/PI=5 Pass 200=25%		29.1 17.0 (SC-SM) - CLAYEY SAND TO SILTY SAND
	22.6	23.5	6	10	17	27	SS-35 LL=39/PI=19 Pass 200=56%		23.1 23.0 COASTAL PLAIN (CL) - YELLOW BROWN GRAY SILTY SANDY CLAY, WET
	17.6	28.5	1	1	2	3	SS-36 LL=16/PI=16 Pass 200=7%		18.1 28.0 (SP-SM) - GRAY SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION)
	12.6	33.5	10	28	30	58			
	7.6	38.5	13	24	28	52			
	2.6	43.5	24	38	53	91			3.1 43.0 (SP) - POORLY GRADED SAND
	-2.4	48.5	9	10	22	32	SS-37 LL=16/PI=1 Pass 200=4%		
	-7.4	53.5	10	13	13	26			
	-12.4	58.5	8	9	10	19			-14.9 61.0 (SW) - WELL GRADED SAND
	-17.4	63.5	24	41	52	93			
			10	11	15	26	SS-38 LL=23/PI=6 Pass 200=4%		-18.9 65.0 Boring Terminated at Elevation -18.9 ft
									IN MEDIUM DENSE SAND

CATLIN USACE SPT LOG 11X17 W/ LAB 220035 GEO_LEVEE_NCDOT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: LOOPF_B2-A	**STATION:** 119+29	**OFFSET:** 56 ft RT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 39.0 ft	**TOTAL DEPTH:** 65.5 ft	**NORTHING:** 780,584	**EASTING:** 2,433,839	**24 HR.** 15.0
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 07/22/93	**COMP. DATE:** 07/22/93	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
40	39.0	0.0							39.0 LAND SURFACE	0.0
35	35.0	4.0	1	3	6	9	SS-9 Pass 200=11%		ARTIFICIAL FILL (SW-SM) - TAN BROWN SILTY SAND, MOIST	
30	30.0	9.0	16	27	31	58				
25	25.0	14.0	10	17	23	40	SS-10 Pass 200=17%		25.5 UNDIVIDED COASTAL PLAIN (CL) - YELLOW BROWN GRAY SILTY SANDY CLAY, WET	13.5
20	20.0	19.0	2	3	3	6	SS-11 LL=33/PI=12 Pass 200=56%		21.5 (SM) - GRAY SILTY SAND, SAT.	17.5
15	15.0	24.0	2	8	15	23	SS-12 Pass 200=17%		16.5 COASTAL PLAIN (SW) - GRAY SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION)	22.5
10	10.0	29.0	9	16	17	33	SS-13 Pass 200=5%			
5	5.0	34.0	13	14	13	27			5.5 (SP) - POORLY GRADED SAND	33.5
0	0.0	39.0	6	9	10	19				
-5	-5.0	44.0	6	8	17	25	SS-14 Pass 200=4%			
-10	-10.0	49.0	15	20	26	46				
-15	-15.0	54.0	10	16	26	42			-14.5 (SW) - WELL GRADED SAND	53.5
-20	-20.0	59.0	10	11	13	24	SS-15 Pass 200=3%			
-25	-25.0	64.0	9	10	13	23			-24.5 (SW-SM) - SAND TO SILTY SAND	63.5
-30			13	28	30	58	SS-16 Pass 200=11%		-26.5 Boring Terminated at Elevation -26.5 ft IN VERY DENSE SAND	65.5
-35										
-40										

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: LOOPF_EB1-A	**STATION:** 119+40	**OFFSET:** 52 ft LT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 36.0 ft	**TOTAL DEPTH:** 60.4 ft	**NORTHING:** 780,498	**EASTING:** 2,433,773	**24 HR.** 14.0
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL	
DRILLER: NCDOT	**START DATE:** 07/21/93	**COMP. DATE:** 07/21/93	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
40	36.0	0.0							36.0 LAND SURFACE 0.0
35	32.1	3.9	1	4	7	11	SS-1 LL=17/PI=17 Pass 200=12%		ARTIFICIAL FILL (SM) - TAN BROWN SILTY SAND, MOIST
30	27.1	8.9	9	10	13	23			
25	22.1	13.9	13	19	20	39	SS-2 LL=16/PI=16 Pass 200=13%		22.5 UNDIVIDED COASTAL PLAIN (CL) - YELLOW BROWN GRAY SILTY SANDY CLAY, WET 17.5
20	17.1	18.9	1	2	3	5	SS-3 MC=37.5 LL=41/PI=20 Pass 200=68%		
15	12.1	23.9	15	20	21	41	SS-4 LL=20/PI=20 Pass 200=6%		12.0 COASTAL PLAIN (SP-SM) - GRAY SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION) 18.5
10	7.1	28.9	11	18	19	37	SS-5 LL=17/PI=17 Pass 200=9%		24.0 (SW-SM) - SAND TO SILTY SAND
5	2.1	33.9	12	18	22	40	SS-6 LL=17/PI=17 Pass 200=5%		7.0 (SP-SM) - SAND TO SILTY SAND 29.0
0	-2.9	38.9	9	10	12	22			
-5	-7.9	43.9	8	16	12	28	SS-7 LL=18/PI=18 Pass 200=8%		
-10	-12.9	48.9	9	15	12	27			
-15	-17.9	53.9	9	28	20	48			
-20	-22.9	58.9	10	14	20	34	SS-8 LL=25/PI=7 Pass 200=8%		-19.0 (SW-SC) - SAND TO CLAYEY SAND 55.0
-25			7	11	16	27			-24.4 Boring Terminated at Elevation -24.4 ft IN MEDIUM DENSE SAND 60.4
-30									
-35									
-40									

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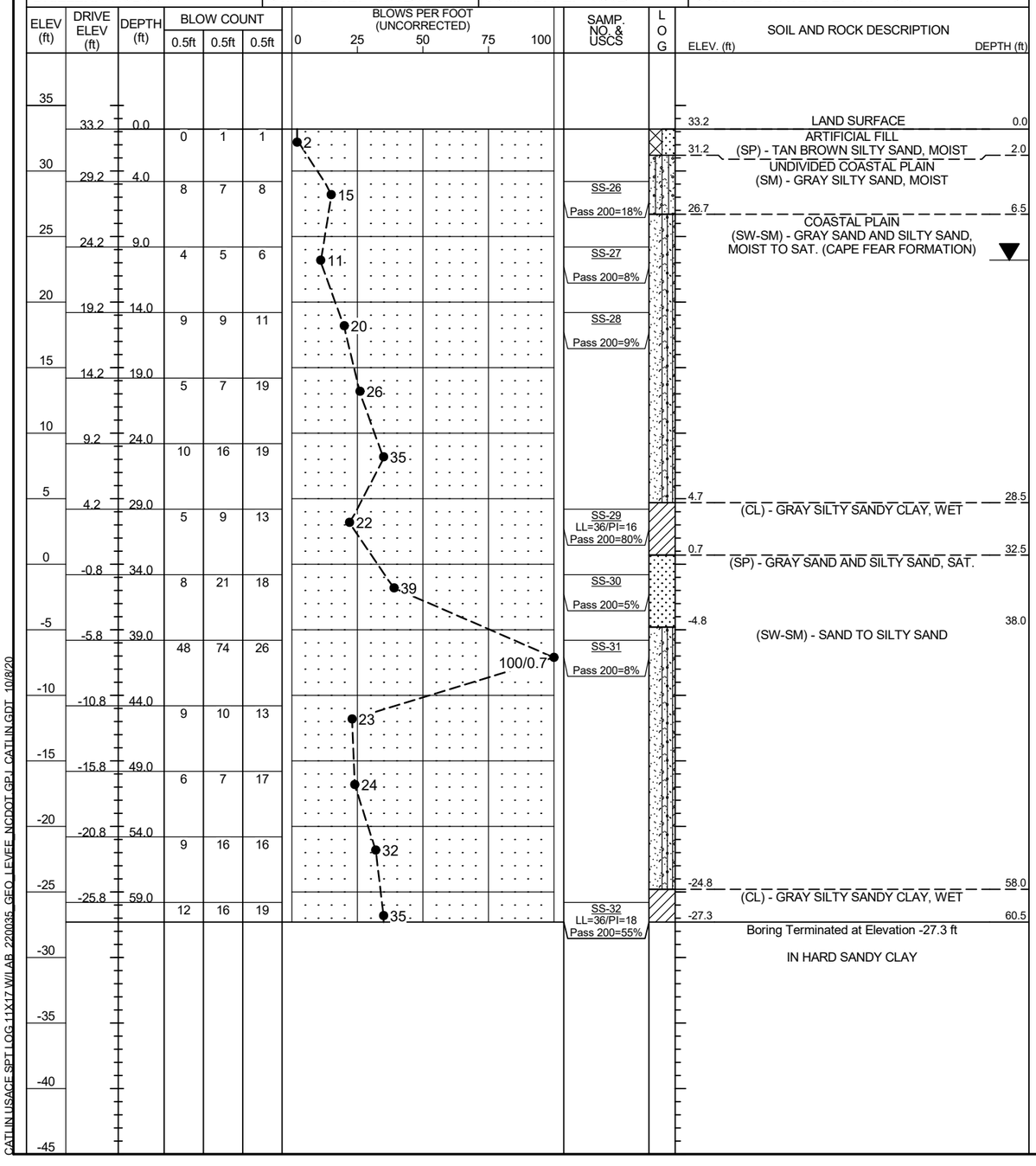
GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** Princeville, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** R.L.EDWARDS
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: LOOPF_EB2-A	**STATION:** 119+20	**OFFSET:** 152 ft RT	**ALIGNMENT:** -L1-	**0 HR.** N/A
COLLAR ELEV.: 33.2 ft	**TOTAL DEPTH:** 60.5 ft	**NORTHING:** 780,661	**EASTING:** 2,433,897	**24 HR.** 10.0
DRILL MACHINE: NCDOT CME-45B		**DRILL METHOD:** MUD ROTARY	**HAMMER TYPE:** MANUAL
DRILLER: NCDOT	**START DATE:** 08/02/93	**COMP. DATE:** 08/02/93	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	BLOW COUNT 0.5ft	BLOW COUNT 0.5ft	BLOWS PER FOOT (UNCORRECTED)	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
35										
	33.2	0.0							33.2 LAND SURFACE	0.0
			0	1	1	2			ARTIFICIAL FILL	
30									31.2 (SP) - TAN BROWN SILTY SAND, MOIST	2.0
	29.2	4.0							UNDIVIDED COASTAL PLAIN	
			8	7	8	15	SS-26 Pass 200=18%		(SM) - GRAY SILTY SAND, MOIST	
25									26.7	6.5
	24.2	9.0							COASTAL PLAIN	
			4	5	6	11	SS-27 Pass 200=8%		(SW-SM) - GRAY SAND AND SILTY SAND, MOIST TO SAT. (CAPE FEAR FORMATION)	
20										
	19.2	14.0								
			9	9	11	20	SS-28 Pass 200=9%			
15										
	14.2	19.0								
			5	7	19	26				
10										
	9.2	24.0								
			10	16	19	35				
5									4.7	28.5
	4.2	29.0							(CL) - GRAY SILTY SANDY CLAY, WET	
			5	9	13	22	SS-29 LL=36/PI=16 Pass 200=80%			
0									0.7	32.5
	-0.8	34.0							(SP) - GRAY SAND AND SILTY SAND, SAT.	
			8	21	18	39	SS-30 Pass 200=5%			
-5									-4.8	38.0
	-5.8	39.0							(SW-SM) - SAND TO SILTY SAND	
			48	74	26	100/0.7	SS-31 Pass 200=8%			
-10										
	-10.8	44.0								
			9	10	13	23				
-15										
	-15.8	49.0								
			6	7	17	24				
-20										
	-20.8	54.0								
			9	16	16	32				
-25									-24.8	58.0
	-25.8	59.0							(CL) - GRAY SILTY SANDY CLAY, WET	
			12	16	19	35	SS-32 LL=36/PI=18 Pass 200=55%		-27.3	60.5
-30									Boring Terminated at Elevation -27.3 ft	
									IN HARD SANDY CLAY	
-35										
-40										
-45										



CATLIN USACE SPT LOG 11X17 W/LAB 220035 GEO LEVEE NCDOT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-01	**STATION:** 213+90	**OFFSET:** 97 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 34.7 ft	**TOTAL DEPTH:** 27.0 ft	**NORTHING:** 784,021	**EASTING:** 2,440,204	**24 HR.** 13.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/04/64	**COMP. DATE:** 05/05/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									ELEV. (ft) DEPTH (ft)
34.7	34.7	0.0	0	0	5	5			34.7 0.0
	33.2	1.5	0	0	6	6			UNDIVIDED COASTAL PLAIN
	31.7	3.0	0	0	9	9			(SM) - TAN GRAY SAND AND SILTY SAND, MOIST TO SAT. 31.7 3.0
30	30.2	4.5	0	0	9	9			POORLY GRADED SAND
	28.7	6.0	0	0	11	11			
	27.2	7.5	0	0	20	20			26.9 7.8
25	25.7	9.0	0	0	16	16			COASTAL PLAIN
	24.2	10.5	0	0	15	15			(SP) - GRAY SAND AND SILTY SAND, SAT.
	22.7	12.0	0	0	15	15			(CAPE FEAR FORMATION)
	21.2	13.5	0	0	19	19			
20	19.7	15.0	0	0	27	27			
	18.2	16.5	0	0	13	13			
	16.7	18.0	0	0	10	10			
15	15.2	19.5	0	0	24	24			
	13.7	21.0	0	0	23	23			
	12.2	22.5	0	0	37	37			10.7 24.0
10	10.7	24.0	0	0	34	34			(SM) - SILTY SAND
	9.2	25.5	0	0	31	31			7.7 27.0
									Boring Terminated at Elevation 7.7 ft
5									IN DENSE SILTY SAND
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									
-45									

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-01A	**STATION:** 213+07	**OFFSET:** 30 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.9 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 784,155	**EASTING:** 2,440,132	**24 HR.** 11.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/12/64	**COMP. DATE:** 06/12/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45									
	41.9	0.0							41.9 0.0
40	40.4	1.5	0	0	16	16			UNDIVIDED COASTAL PLAIN
	38.9	3.0	0	0	18	18			(SM) - TAN SAND AND SILTY SAND, MOIST TO SAT.
	37.4	4.5	0	0	23	23			37.4 4.5
	35.9	6.0	0	0	24	24			(SP) - POORLY GRADED SAND
35	34.4	7.5	0	0	17	17			
	32.9	9.0	0	0	13	13			
	31.4	10.5	0	0	11	11			
30	29.9	12.0	0	0	15	15			29.9 12.0
	28.4	13.5	0	0	12	12			(SM) - SILTY SAND
	26.9	15.0	0	0	32	32			26.9 15.0
25	25.4	16.5	0	0	32	32			COASTAL PLAIN
	23.9	18.0	0	0	25	25			(CL) - GRAY SANDY CLAY AND SANDY SILT, WET (CAPE FEAR FORMATION)
	22.4	19.5	0	0	26	26			
	20.9	21.0	0	0	21	21			20.9 21.0
20	19.4	22.5	0	0	18	18			(ML) - SILT 19.4 22.5
	17.9	24.0	0	0	24	24			(SM) - GRAY SILTY SAND, SAT.
	16.4	25.5	0	0	24	24			
15	14.9	27.0	0	0	28	28			
	13.4	28.5	0	0	24	24			
			0	0	19	19			11.9 30.0
10									Boring Terminated at Elevation 11.9 ft
5									IN MEDIUM DENSE SILTY SAND
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CAT IN USACE SPT LOG 11X17 W/LAB 220035_GEO_LEVEE_USACE_RPT.GPJ CAT IN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-02	**STATION:** 208+54	**OFFSET:** 224 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 34.7 ft	**TOTAL DEPTH:** 21.0 ft	**NORTHING:** 783,777	**EASTING:** 2,439,744	**24 HR.** 8.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/05/64	**COMP. DATE:** 05/05/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
35										
	34.7	0.0							34.7	0.0
	33.2	1.5	0	0	5	5			UNDIVIDED COASTAL PLAIN (SM) - TAN-GRAY, SILTY, CLAYEY SAND, MOIST TO SAT.	
	31.7	3.0	0	0	8	8				
30	30.2	4.5	0	0	9	9				
	28.7	6.0	0	0	10	10				
	27.2	7.5	0	0	14	14			27.2	7.5
25	25.7	9.0	0	0	15	15			(SP) - POORLY GRADED SAND	
	24.2	10.5	0	0	9	9				
	22.7	12.0	0	0	5	5				
	21.2	13.5	0	0	6	6				
20	19.7	15.0	0	0	17	17			19.7	15.0
	18.2	16.5	0	0	26	26			(SM) - SILTY SAND	
	16.7	18.0	0	0	38	38			COASTAL PLAIN	
15	15.2	19.5	0	0	26	26			16.2 (CH) - GRAY, SILTY SANDY CLAY, WET. (CAPE FEAR FORMATION)	18.5
			0	0	30	30			13.7 (CL) - LEAN CLAY	21.0
									Boring Terminated at Elevation 13.7 ft	
10									IN VERY STIFF, SILTY SANDY CLAY	
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										
-40										
-45										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-03	**STATION:** 204+26	**OFFSET:** 38 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 38.0 ft	**TOTAL DEPTH:** 21.0 ft	**NORTHING:** 783,782	**EASTING:** 2,439,331	**24 HR.** Dry
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/05/64	**COMP. DATE:** 05/05/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
40									
	38.0	0.0							38.0 0.0
	36.5	1.5	0	0	13	13			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
35	35.0	3.0	0	0	13	13			
	33.5	4.5	0	0	7	7			34.0 4.0
	32.0	6.0	0	0	3	3			(SM) - SILTY SAND
30	30.5	7.5	0	0	2	2			
	29.0	9.0	0	0	2	2			
	27.5	10.5	0	0	3	3			
	26.0	12.0	0	0	1	1			
25	24.5	13.5	0	0	1	1			
	23.0	15.0	0	0	1	1			
	21.5	16.5	0	0	6	6			
	20.0	18.0	0	0	11	11			
20	18.5	19.5	WOH	WOH	WOH	0			
			0	0	34	34			22.0 16.0
									20.0 (CH) - GRAY, SILTY SANDY CLAY 18.0
									COASTAL PLAIN (CAPE FEAR FORMATION)
15									18.5 CAVITY - NO SAMPLE 19.5
									17.0 (CL) - GRAY, SILTY SANDY CLAY 21.0
									Boring Terminated at Elevation 17.0 ft
10									IN HARD SILTY SANDY CLAY
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									

CATLIN USACE SPT LOG 11X17 W\ AB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-04	**STATION:** 199+79	**OFFSET:** 93 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 34.7 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,908	**EASTING:** 2,438,897	**24 HR.** 4.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/05/64	**COMP. DATE:** 05/06/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	34.7	0.0	0	0	14	14 20			34.7	0.0
	33.2	1.5	0	0	20				UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
	31.7	3.0	0	0	12	12				
	30.2	4.5	0	0	9	9				
	28.7	6.0	0	0	4	4				
	27.2	7.5	0	0	7	7				
	25.7	9.0	0	0	6	6				
	24.2	10.5	0	0	7	7				
	22.7	12.0	0	0	5	5				
	21.2	13.5	0	0	5	5				
	19.7	15.0	0	0	44	44			19.7	15.0
	18.2	16.5	0	0	34	34			COASTAL PLAIN (CH) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)	
	16.7	18.0	0	0	55	55				
	15.2	19.5	0	0	38	38				
	13.7	21.0	0	0	33	33				
	12.2	22.5	0	0	37	37			12.7	22.0
	10.7	24.0	0	0	64	64			(CL) - LEAN CLAY	
	9.2	25.5	0	0	28	28				
	7.7	27.0	0	0	70	70				
	6.2	28.5	0	0	54	54			4.7	30.0
									Boring Terminated at Elevation 4.7 ft IN HARD SILTY SANDY CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-05	**STATION:** 196+86	**OFFSET:** 67 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 30.9 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,926	**EASTING:** 2,438,603	**24 HR.** 5.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/06/64	**COMP. DATE:** 05/06/64	**SURFACE WATER DEPTH:** N/A	

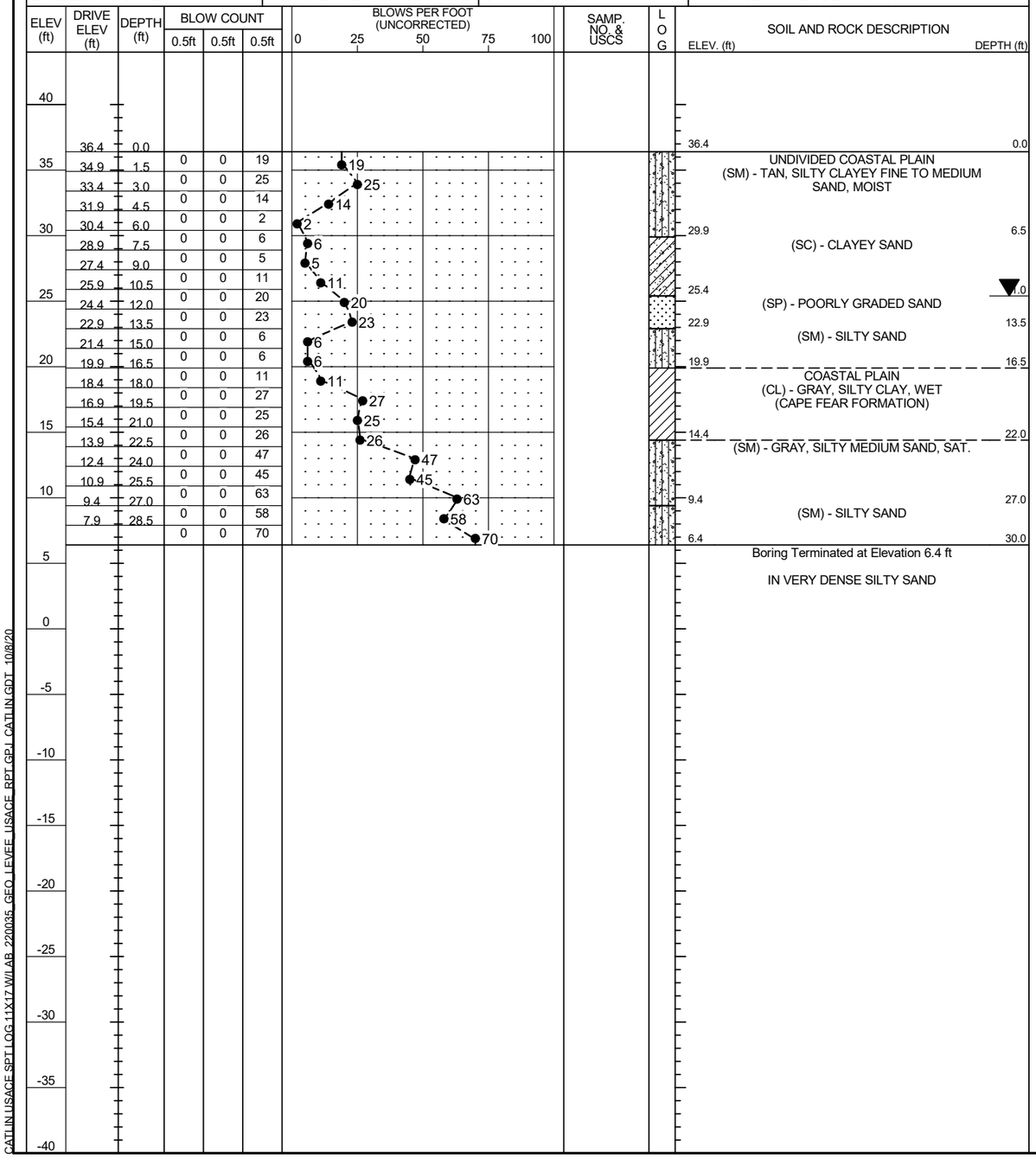
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	30.9	0.0	0	0	18	18			30.9 0.0
	29.4	1.5	0	0	10	10			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY SAND, MOIST
	27.9	3.0	0	0	9	9			27.9 3.0
	26.4	4.5	0	0	8	8			(CL) - GRAY, SANDY CLAY, MOIST
	24.9	6.0	0	0	15	15			26.4 4.5
	23.4	7.5	0	0	9	9			(SC) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
	21.9	9.0	0	0	21	21			21.9 9.0
	20.4	10.5	0	0	7	7			(SM) - SILTY SAND
	18.9	12.0	0	0	11	11			
	17.4	13.5	0	0	6	6			
	15.9	15.0	0	0	6	6			
	14.4	16.5	0	0	28	28			14.4 16.5
	12.9	18.0	0	0	40	40			COASTAL PLAIN (CL) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
	11.4	19.5	0	0	48	48			
	9.9	21.0	0	0	38	38			
	8.4	22.5	0	0	38	38			
	6.9	24.0	0	0	37	37			
	5.4	25.5	0	0	36	36			
	3.9	27.0	0	0	43	43			
	2.4	28.5	0	0	80	80			0.9 30.0
									Boring Terminated at Elevation 0.9 ft IN HARD SILTY SANDY CLAY

CAT IN USACE SPT LOG 11X17 W/I AB 220035 GEO LEVEE USACE RPT.GPJ CAT IN.GDT 10/8/20

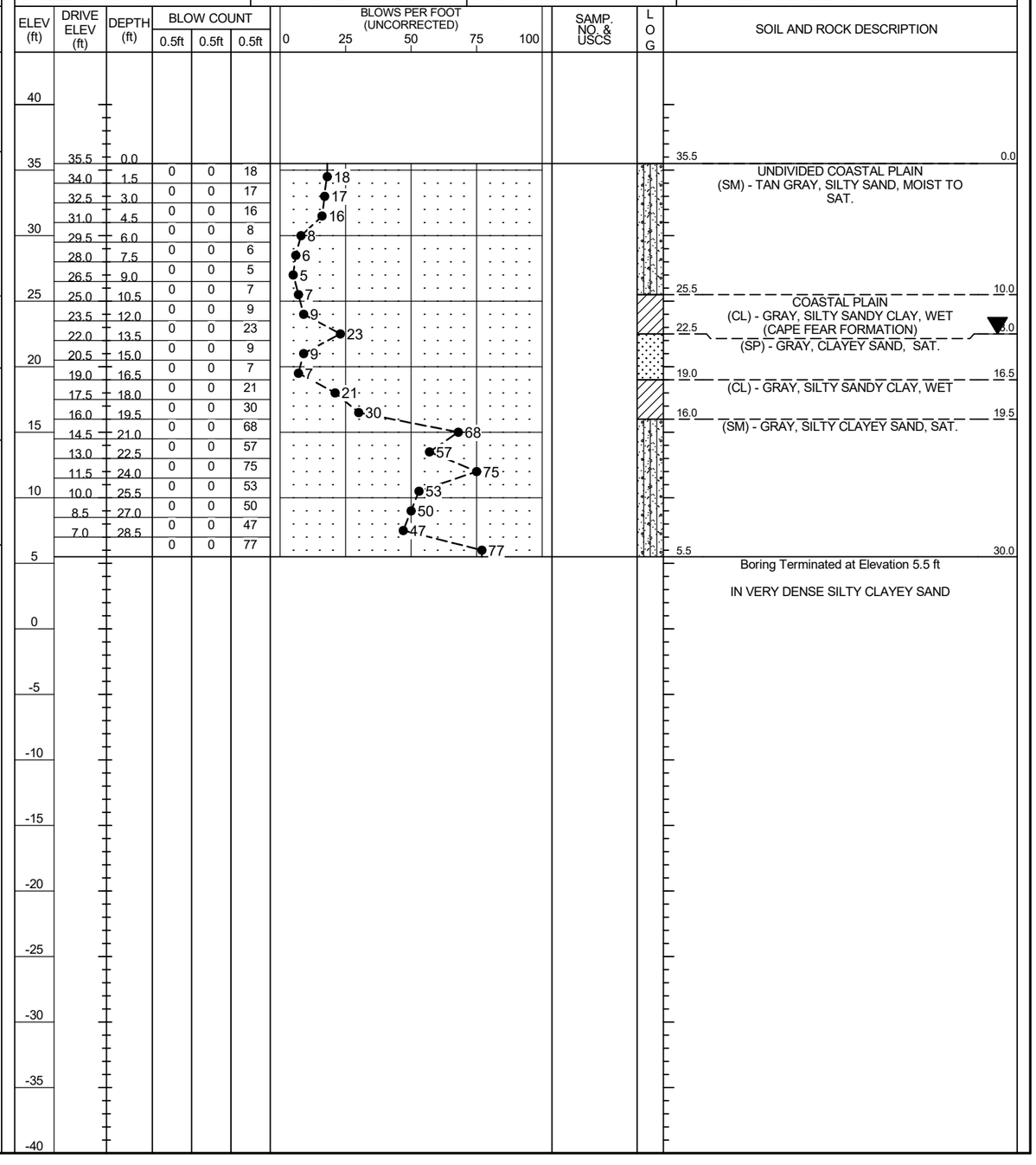
GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-06	**STATION:** 193+83	**OFFSET:** 54 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 36.4 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,899	**EASTING:** 2,438,284	**24 HR.** 11.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/06/64	**COMP. DATE:** 05/07/64	**SURFACE WATER DEPTH:** N/A	



CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-07	**STATION:** 190+58	**OFFSET:** 56 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 35.5 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,849	**EASTING:** 2,437,963	**24 HR.** 13.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/07/64	**COMP. DATE:** 05/07/64	**SURFACE WATER DEPTH:** N/A	



CAT IN USACE SPT LOG 11X17 W/LAB 220035 GEO_LEVEE_USACE_RPT.GPJ CAT IN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-08	**STATION:** 186+53	**OFFSET:** 66 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 30.4 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,795	**EASTING:** 2,437,562	**24 HR.** 12.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/07/64	**COMP. DATE:** 05/07/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
30.4	30.4	0.0							30.4	0.0
	28.9	1.5	0	0	15	15 30			UNDIVIDED COASTAL PLAIN (SM) - TAN, SILTY FINE TO MEDIUM SAND, SAT.	
	27.4	3.0	0	0	30					
	25.9	4.5	0	0	5	5				
	24.4	6.0	0	0	4	4				
	22.9	7.5	0	0	20	20				
	21.4	9.0	0	0	15	15				
	19.9	10.5	0	0	11	11				
	18.4	12.0	0	0	16	16			20.4	10.0
	16.9	13.5	0	0	34	34			COASTAL PLAIN (CL) - GRAY, SANDY CLAY, WET (CAPE FEAR FORMATION)	
	15.4	15.0	0	0	15	15			18.4 (SM) - GRAY, SILTY FINE TO MEDIUM SAND, SAT.	12.0
	13.9	16.5	0	0	19	19				
	12.4	18.0	0	0	19	19				
	10.9	19.5	0	0	27	27				
	9.4	21.0	0	0	20	20				
	7.9	22.5	0	0	25	25				
	6.4	24.0	0	0	33	33				
	4.9	25.5	0	0	27	27				
	3.4	27.0	0	0	36	36				
	1.9	28.5	0	0	33	33				
			0	0	40	40				
									9.4 (CL) - GRAY, SANDY CLAY, WET	21.0
									3.9 (SM) - GRAY, SILTY FINE SAND, SAT.	26.5
									0.4 Boring Terminated at Elevation 0.4 ft	30.0
									IN DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-09	**STATION:** 182+63	**OFFSET:** 69 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 32.4 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,736	**EASTING:** 2,437,176	**24 HR.** 9.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/07/64	**COMP. DATE:** 05/08/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
32.4	32.4	0.0							32.4 0.0
	30.9	1.5	0	0	16	16			UNDIVIDED COASTAL PLAIN (SM) - TAN, SILTY CLAYEY SAND, MOIST TO SAT.
	29.4	3.0	0	0	24	24			
	27.9	4.5	0	0	3	3			
	26.4	6.0	0	0	3	3			
	24.9	7.5	0	0	3	3			
	23.4	9.0	0	0	6	6			
	21.9	10.5	0	0	9	9			
	20.4	12.0	0	0	11	11			20.4 12.0
	18.9	13.5	0	0	35	35			(SM) - SILTY SAND
	17.4	15.0	0	0	22	22			
	15.9	16.5	0	0	17	17			16.4 16.0
	14.4	18.0	0	0	23	23			COASTAL PLAIN (CH) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
	12.9	19.5	0	0	66	66			13.4 (SC) - GRAY, SILTY CLAYEY SAND, SAT. 19.0
	11.4	21.0	0	0	45	45			
	9.9	22.5	0	0	29	29			10.4 22.0
	8.4	24.0	0	0	27	27			(SM) - SILTY SAND
	6.9	25.5	0	0	21	21			
	5.4	27.0	0	0	28	28			
	3.9	28.5	0	0	23	23			
			0	0	19	19			2.4 30.0
									Boring Terminated at Elevation 2.4 ft
									IN MEDIUM DENSE SILTY SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035_GEO_LEVEE_USACE_RPT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-10	**STATION:** 178+51	**OFFSET:** 70 ft LT	**ALIGNMENT:** -L- — **0 HR.** N/A
COLLAR ELEV.: 31.8 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,671	**EASTING:** 2,436,769 — **24 HR.** 12.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 05/11/64	**COMP. DATE:** 05/11/64	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
35										
30	31.8	0.0							31.8	0.0
	30.3	1.5	0	0	11	11			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST	
	28.8	3.0	0	0	23	23				
	27.3	4.5	0	0	3	3				
25	25.8	6.0	0	0	9	9				
	24.3	7.5	0	0	16	16				
	22.8	9.0	0	0	7	7				
	21.3	10.5	0	0	8	8				
20	19.8	12.0	0	0	14	14				
	18.3	13.5	0	0	31	31				
	16.8	15.0	0	0	15	15			16.8	15.0
15	15.3	16.5	0	0	23	23			(SP) - POORLY GRADED SAND	
	13.8	18.0	0	0	2	2				
	12.3	19.5	0	0	24	24				
	10.8	21.0	0	0	31	31			12.8	19.0
10	9.3	22.5	0	0	38	38			COASTAL PLAIN (CL) - TAN GRAY, SANDY CLAY, WET (CAPE FEAR FORMATION)	
	7.8	24.0	0	0	27	27			10.8	21.0
	6.3	25.5	0	0	11	11			(SM) - GRAY, SILTY SAND, SAT.	
5	4.8	27.0	0	0	26	26				
	3.3	28.5	0	0	29	29				
			0	0	33	33			4.3	27.5
0									SILTY SAND	
-5									1.8	30.0
-10									Boring Terminated at Elevation 1.8 ft	
-15									IN DENSE SILTY SAND	
-20										
-25										
-30										
-35										
-40										
-45										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-11	**STATION:** 174+41	**OFFSET:** 69 ft LT	**ALIGNMENT:** -L- — **0 HR.** N/A
COLLAR ELEV.: 33.2 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,605	**EASTING:** 2,436,365 — **24 HR.** 14.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 05/11/64	**COMP. DATE:** 05/11/64	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
35									
30	33.2	0.0							33.2 0.0
	31.7	1.5	0	0	15	15			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST
	30.2	3.0	0	0	18	18			
	28.7	4.5	0	0	5	5			
25	27.2	6.0	0	0	14	14			
	25.7	7.5	0	0	7	7			
	24.2	9.0	0	0	9	9			
	22.7	10.5	0	0	11	11			23.2 10.0
20	21.2	12.0	0	0	9	9			(SC) - CLAYEY SAND
	19.7	13.5	0	0	22	22			21.2 12.0
	18.2	15.0	0	0	24	24			(SM) - SILTY SAND
	16.7	16.5	0	0	33	33			
15	15.2	18.0	0	0	13	13			
	13.7	19.5	0	0	29	29			
	12.2	21.0	0	0	25	25			
	10.7	22.5	0	0	40	40			
10	9.2	24.0	0	0	68	68			
	7.7	25.5	0	0	58	58			
	6.2	27.0	0	0	42	42			
5	4.7	28.5	0	0	44	44			
			0	0	50	50			14.7 18.5
0									COASTAL PLAIN (CL) - TAN GRAY, SANDY CLAY, WET (CAPE FEAR FORMATION)
-5									9.7 23.5
-10									(SM) - GRAY, SILTY SAND, SAT.
-15									3.2 30.0
-20									Boring Terminated at Elevation 3.2 ft
-25									IN VERY DENSE SILTY SAND
-30									
-35									
-40									
-45									

CATLIN USACE SPT LOG 11X17 W LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-12	**STATION:** 169+78	**OFFSET:** 62 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 34.7 ft	**TOTAL DEPTH:** 29.2 ft	**NORTHING:** 783,525	**EASTING:** 2,435,909	**24 HR.** 14.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/12/64	**COMP. DATE:** 05/12/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									ELEV. (ft) DEPTH (ft)
35	34.7	0.0	0	0	21	21			34.7 0.0 UNDIVIDED COASTAL PLAIN (SM) - TAN, SILTY CLAYEY SAND, MOIST TO SAT.
	33.2	1.5	0	0	26	26			
30	31.7	3.0	0	0	8	8			
	30.2	4.5	0	0	3	3			
	28.7	6.0	0	0	5	5			
25	27.2	7.5	0	0	10	10			
	25.7	9.0	0	0	11	11			
	24.2	10.5	0	0	16	16			
20	22.7	12.0	0	0	21	21			21.7 13.0 SILTY SAND
	21.2	13.5	0	0	26	26			
	19.7	15.0	0	0	19	19			
	18.2	16.5	0	0	34	34			
15	16.7	18.0	0	0	27	27			
	15.2	19.5	0	0	33	33			15.7 19.0 (CH) - TAN, SANDY CLAY
	13.7	21.0	0	0	58	58			
	12.2	22.5	80/0.5			80/0.5			12.2 22.5 COASTAL PLAIN (SP) - GRAY, SILTY SAND, SAT. (CAPE FEAR FORMATION)
10	10.7	24.0	80/0.8			80/0.8			
	9.2	25.5	80/0.5			80/0.5			
	7.7	27.0	80/0.7			80/0.7			
5	6.2	28.5	80/0.7			80/0.7			5.5 29.2 Boring Terminated at Elevation 5.5 ft IN VERY DENSE SAND
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									
-45									

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-13	**STATION:** 169+77	**OFFSET:** 27 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.4 ft	**TOTAL DEPTH:** 29.3 ft	**NORTHING:** 783,490	**EASTING:** 2,435,914	**24 HR.** 11.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/12/64	**COMP. DATE:** 05/12/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45	42.4	0.0							42.4 0.0
	40.9	1.5	0	0	3	3			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST
40	39.4	3.0	0	0	5	5			
	37.9	4.5	0	0	6	6			
	36.4	6.0	0	0	11	11			36.4 6.0
35	34.9	7.5	0	0	19	19			(SC) - CLAYEY SAND
	33.4	9.0	0	0	20	20			34.4 8.0
	31.9	10.5	0	0	18	18			(SM) - SILTY SAND
30	30.4	12.0	0	0	27	27			13.0
	28.9	13.5	0	0	18	18			
	27.4	15.0	0	0	19	19			
	25.9	16.5	0	0	23	23			29.4 COASTAL PLAIN (CH) - TAN GRAY, SANDY CLAY, WET (CAPE FEAR FORMATION)
25	24.4	18.0	0	0	30	30			
	22.9	19.5	80/0.7			80/0.7			
	21.4	21.0	80/0.8			80/0.8			23.4 19.0 (SM) - GRAY, SILTY SAND, SAT.
20	19.9	22.5	80/0.7			80/0.7			
	18.4	24.0	80/0.8			80/0.8			
	16.9	25.5	0	0	80	80			
15	15.4	27.0	0	0	77	77			
	13.9	28.5	80/0.9			80/0.9			13.1 29.3 Boring Terminated at Elevation 13.1 ft IN VERY DENSE SILTY SAND
			80/0.8			80/0.8			
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CATLIN USACE SPT LOG 11X17 W/ LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-14	**STATION:** 169+79	**OFFSET:** 27 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.7 ft	**TOTAL DEPTH:** 26.3 ft	**NORTHING:** 783,437	**EASTING:** 2,435,924	**24 HR.** 9.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/12/64	**COMP. DATE:** 05/12/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									ELEV. (ft) DEPTH (ft)
45									
	41.7	0.0							41.7 0.0
40	40.2	1.5	0	0	4	4			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST
	38.7	3.0	0	0	5	5			
	37.2	4.5	0	0	7	7			37.2 4.5 (SC) - CLAYEY SAND
35	35.7	6.0	0	0	13	13			35.2 6.5 (SM) - SILTY SAND
	34.2	7.5	0	0	17	17			
	32.7	9.0	0	0	21	21			
30	31.2	10.5	0	0	18	18			
	29.7	12.0	0	0	22	22			
	28.2	13.5	0	0	18	18			
	26.7	15.0	0	0	26	26			
25	25.2	16.5	0	0	37	37			30.2 11.5 COASTAL PLAIN (CH) - TAN GRAY, SANDY CLAY, WET (CAPE FEAR FORMATION)
	23.7	18.0	0	0	80	80			
	22.2	19.5	80/0.5			80/0.5			
	20.7	21.0	80/0.8			80/0.8			24.2 17.5 (SM) - GRAY, SILTY SAND, SAT.
20	19.2	22.5	80/0.8			80/0.8			
	17.7	24.0	0	0	80	80			
	16.2	25.5	80/0.8			80/0.8			
15			80/0.8			80/0.8			15.4 26.3 Boring Terminated at Elevation 15.4 ft
									IN VERY DENSE SILTY SAND
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-15	**STATION:** 169+79	**OFFSET:** 81 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 32.9 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,384	**EASTING:** 2,435,932	**24 HR.** 6.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/13/64	**COMP. DATE:** 05/13/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
35									
	32.9	0.0							32.9 0.0
	31.4	1.5	0	0	2	2			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST
30	29.9	3.0	0	0	10	10			29.9 3.0 (SC) - CLAYEY SAND
	28.4	4.5	0	0	6	6			28.4 4.5 (SM) - SILTY SAND
	26.9	6.0	0	0	25	25			
25	25.4	7.5	0	0	17	17			
	23.9	9.0	0	0	19	19			
	22.4	10.5	0	0	15	15			
20	20.9	12.0	0	0	21	21			
	19.4	13.5	0	0	25	25			
	17.9	15.0	0	0	38	38			21.4 11.5 COASTAL PLAIN (CH) - TAN GRAY, SANDY CLAY, WET (CAPE FEAR FORMATION)
	16.4	16.5	0	0	52	52			
15	14.9	18.0	0	0	47	47			17.9 15.0 (SC) - GRAY, SILTY SAND, SAT.
	13.4	19.5	0	0	38	38			
	11.9	21.0	0	0	52	52			14.9 18.0 (SM) -
10	10.4	22.5	0	0	37	37			
	8.9	24.0	0	0	45	45			
	7.4	25.5	0	0	80	80			
5	5.9	27.0	0	0	65	65			
	4.4	28.5	0	0	80	80			
			0	0	35	35			2.9 30.0 Boring Terminated at Elevation 2.9 ft
0									IN DENSE SILTY SAND
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									
-45									

CAT IN USACE SPT LOG 11X17 WILAB 220035 GEO LEVEE USACE RPT GPJ CAT IN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-16	**STATION:** 166+27	**OFFSET:** 65 ft LT	**ALIGNMENT:** -L- — **0 HR.** N/A
COLLAR ELEV.: 32.8 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,472	**EASTING:** 2,435,562 — **24 HR.** 16.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 05/13/64	**COMP. DATE:** 05/13/64	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
									32.8	0.0
	32.8	0.0							UNDIVIDED COASTAL PLAIN (SM) - GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
	31.3	1.5	0	0	23	23				
	29.8	3.0	0	0	29	29				
	28.3	4.5	0	0	6	6				
	26.8	6.0	0	0	7	7				
	25.3	7.5	0	0	17	17				
	23.8	9.0	0	0	20	20				
	22.3	10.5	0	0	5	5				
	20.8	12.0	0	0	9	9			20.8	12.0
	19.3	13.5	0	0	20	20			COASTAL PLAIN (CL) - TAN, SANDY CLAY, MOIST (CAPE FEAR FORMATION)	
	17.8	15.0	0	0	29	29				
	16.3	16.5	0	0	20	20			16.8	16.0
	14.8	18.0	0	0	57	57			(SP) - GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
	13.3	19.5	0	0	64	64				
	11.8	21.0	0	0	38	38			11.8	21.0
	10.3	22.5	0	0	29	29			(SM) - SILTY SAND	
	8.8	24.0	0	0	43	43				
	7.3	25.5	0	0	51	51				
	5.8	27.0	0	0	56	56			5.8	27.0
	4.3	28.5	0	0	74	74			(SM) - SILTY SAND	
			0	0	64	64				
									2.8	30.0
									Boring Terminated at Elevation 2.8 ft	
									IN VERY DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-17	**STATION:** 160+84	**OFFSET:** 70 ft LT	**ALIGNMENT:** -L- — **0 HR.** N/A
COLLAR ELEV.: 34.9 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,353	**EASTING:** 2,435,016 — **24 HR.** 14.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 05/14/64	**COMP. DATE:** 05/14/64	**SURFACE WATER DEPTH:** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	34.9	0.0							34.9 0.0
	33.4	1.5	0	0	12	12			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
	31.9	3.0	0	0	17	17			
	30.4	4.5	0	0	3	3			
	28.9	6.0	0	0	4	4			
	27.4	7.5	0	0	8	8			
	25.9	9.0	0	0	23	23			
	24.4	10.5	0	0	23	23			
	22.9	12.0	0	0	18	18			
	21.4	13.5	0	0	5	5			
	19.9	15.0	0	0	13	13			
	18.4	16.5	0	0	20	20			
	16.9	18.0	0	0	23	23			
	15.4	19.5	0	0	40	40			
	13.9	21.0	0	0	18	18			
	12.4	22.5	0	0	61	61			
	10.9	24.0	0	0	25	25			
	9.4	25.5	0	0	24	24			
	7.9	27.0	0	0	32	32			
	6.4	28.5	0	0	24	24			
			0	0	45	45			
									27.9 7.0
									COASTAL PLAIN (CL) - TAN, SANDY CLAY, MOIST (CAPE FEAR FORMATION)
									25.9 9.0
									(SM) - GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
									20.9 14.0
									(SM) - SILTY SAND
									17.9 17.0
									(SC) - CLAYEY SAND
									11.9 23.0
									(SM) - SILTY SAND
									6.9 28.0
									(CL) - GRAY, FAT CLAY AND SILTY SANDY CLAY, WET
									4.9 30.0
									Boring Terminated at Elevation 4.9 ft
									IN HARD SILTY SAND CLAY

C:\CATLIN\USACE SPT LOG 11X17 W\LAB_220035_GEO_LEVEE_USACE_RPT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-18	**STATION:** 156+64	**OFFSET:** 94 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 31.1 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 783,107	**EASTING:** 2,434,605	**24 HR.** 6.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/14/64	**COMP. DATE:** 05/14/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
31.1		0.0								
									31.1	0.0
	29.6	1.5	0	0	5	5			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
	28.1	3.0	0	0	14	14				
	26.6	4.5	0	0	13	13				
	25.1	6.0	0	0	14	14				
	23.6	7.5	0	0	11	11				
	22.1	9.0	0	0	3	3				
	20.6	10.5	0	0	4	4				
	19.1	12.0	0	0	15	15				
	17.6	13.5	0	0	23	23				
	16.1	15.0	0	0	15	15				
	14.6	16.5	0	0	29	29				
	13.1	18.0	0	0	23	23				
	11.6	19.5	0	0	35	35				
	10.1	21.0	0	0	46	46				
	8.6	22.5	0	0	62	62				
	7.1	24.0	0	0	45	45				
			0	0	60	60				
									22.1	9.0
									(CL) - TAN, SANDY CLAY, MOIST	
									20.6	10.5
									(SP) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
									16.6	14.5
									COASTAL PLAIN (CH) - GRAY, FAT CLAY AND SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)	
									5.6	25.5
									Boring Terminated at Elevation 5.6 ft IN HARD FAT CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-20	**STATION:** 149+77	**OFFSET:** 147 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 26.0 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 782,508	**EASTING:** 2,434,420	**24 HR.** 7.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/18/64	**COMP. DATE:** 05/18/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
26.0		0.0							
	24.5	1.5	0	0	11	11			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT. (SC) - CLAYEY SAND
	23.0	3.0	0	0	22	22			
	21.5	4.5	0	0	16	16			
	20.0	6.0	0	0	26	26			
	18.5	7.5	0	0	24	24			
	17.0	9.0	0	0	16	16			
	15.5	10.5	0	0	14	14			
	14.0	12.0	0	0	28	28			
	12.5	13.5	0	0	32	32			
	11.0	15.0	0	0	18	18			
	9.5	16.5	0	0	22	22			
	8.0	18.0	0	0	20	20			
	6.5	19.5	0	0	24	24			
	5.0	21.0	0	0	22	22			
	3.5	22.5	0	0	32	32			
	2.0	24.0	0	0	34	34			
			0	0	37	37			
									23.0 3.0
									(SC) - CLAYEY SAND
									19.5 6.5
									(SP-SM) - SAND TO SILTY SAND
									15.5 10.5
									COASTAL PLAIN (SP) - GRAY, SILTY SAND, SAT. (CAPE FEAR FORMATION)
									11.0 15.0
									(SP) - POORLY GRADED SAND
									8.5 17.5
									(SM) - SILTY SAND
									0.5 25.5
									Boring Terminated at Elevation 0.5 ft IN DENSE SILTY SAND

CATLIN USACE SPT LOG 11X17 W/ LAB 220035_GEO_LEVEE_USACE_RPT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-21	**STATION:** 146+90	**OFFSET:** 94 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 30.5 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 782,415	**EASTING:** 2,434,270	**24 HR.** 7.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/19/64	**COMP. DATE:** 05/19/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
30.5	30.5	0.0								0.0
	29.0	1.5	0	0	3	3			UNDIVIDED COASTAL PLAIN (CL) - TAN, SANDY CLAY, MOIST	
	27.5	3.0	0	0	7	7				
	26.0	4.5	0	0	6	6				
	24.5	6.0	0	0	8	8				
	23.0	7.5	0	0	12	12				
	21.5	9.0	0	0	14	14				
	20.0	10.5	0	0	14	14				
	18.5	12.0	0	0	21	21				
	17.0	13.5	0	0	21	21				
	15.5	15.0	0	0	23	23				
	14.0	16.5	0	0	22	22				
	12.5	18.0	0	0	15	15				
	11.0	19.5	0	0	31	31				
	9.5	21.0	0	0	20	20				
	8.0	22.5	0	0	51	51				
	6.5	24.0	0	0	62	62				
			0	0	70	70				
23.0		7.5							(SP) - TAN, GRAY, BROWN, SILTY SAND AND CLAYEY SAND, MOIST TO SAT.	
18.0		12.5							COASTAL PLAIN (SP) - GRAY, SAND, WITH SILT AND CLAY LAYERS, SAT. (CAPE FEAR FORMATION)	
14.0		16.5								
12.5		18.0							(CL) - GRAY, SANDY CLAY AND FAT CLAY, WET	
									(SM) - GRAY, SAND, WITH SILT AND CLAY LAYERS, SAT. (CAPE FEAR FORMATION)	
5.0		25.5							Boring Terminated at Elevation 5.0 ft IN VERY DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-24	**STATION:** 139+13	**OFFSET:** 43 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 36.4 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 782,110	**EASTING:** 2,433,561	**24 HR.** 12.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/20/64	**COMP. DATE:** 05/21/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
36.4	36.4	0.0							
	34.9	1.5	0	0	2	2			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
	33.4	3.0	0	0	6	6			
	31.9	4.5	0	0	8	8			
	30.4	6.0	0	0	10	10			
	28.9	7.5	0	0	9	9			
	27.4	9.0	0	0	12	12			
	25.9	10.5	0	0	14	14			
	24.4	12.0	0	0	14	14			
	22.9	13.5	0	0	11	11			
	21.4	15.0	0	0	10	10			
	19.9	16.5	0	0	13	13			
	18.4	18.0	0	0	16	16			
	16.9	19.5	0	0	19	19			
	15.4	21.0	0	0	9	9			
	13.9	22.5	0	0	29	29			
	12.4	24.0	0	0	30	30			
	10.9	25.5	0	0	37	37			
	9.4	27.0	0	0	25	25			
	7.9	28.5	0	0	30	30			
			0	0	39	39			
27.9		8.5							(SC) - CLAYEY SAND
26.4		10.0							(SM) - SILTY SAND
12.4		24.0							COASTAL PLAIN (SM) - GRAY, SILTY SAND, SAT. (CAPE FEAR FORMATION)
6.4		30.0							Boring Terminated at Elevation 6.4 ft IN DENSE SILTY SAND

C:\CATLIN\USACE SPT LOG 11X17 WILAB 220035 GEO LEVEE USACE RPT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-25	**STATION:** 139+22	**OFFSET:** 7 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.2 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 782,098	**EASTING:** 2,433,596	**24 HR.** 9.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/21/64	**COMP. DATE:** 05/21/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	42.2	0.0							42.2	0.0
	40.7	1.5	0	0	7	7			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
	39.2	3.0	0	0	13	13				
	37.7	4.5	0	0	10	10				
	36.2	6.0	0	0	10	10				
	34.7	7.5	0	0	8	8				
	33.2	9.0	0	0	8	8				
	31.7	10.5	0	0	8	8				
	30.2	12.0	0	0	16	16				
	28.7	13.5	0	0	15	15				
	27.2	15.0	0	0	15	15				
	25.7	16.5	0	0	10	10				
	24.2	18.0	0	0	26	26				
	22.7	19.5	0	0	30	30				
	21.2	21.0	0	0	36	36				
	19.7	22.5	0	0	46	46				
	18.2	24.0	0	0	52	52				
			0	0	80	80			28.5	13.7
									(SM) - SILTY SAND	
									22.2	20.0
									COASTAL PLAIN SEDIMENTARY ROCK (SM) - GRAY, SILTY SAND, SAT. (CAPE FEAR FORMATION)	
									19.7	22.5
									(SM) - SILTY SAND	
									16.7	25.5
									Boring Terminated at Elevation 16.7 ft	
									IN VERY DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-26	**STATION:** 139+28	**OFFSET:** 24 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 27.6 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 782,086	**EASTING:** 2,433,626	**24 HR.** 9.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/21/64	**COMP. DATE:** 05/21/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	27.6	0.0							27.6 0.0
	26.1	1.5	0	0	7	7			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY SAND, MOIST TO SAT.
	24.6	3.0	0	0	10	10			
	23.1	4.5	0	0	16	16			
	21.6	6.0	0	0	13	13			
	20.1	7.5	0	0	12	12			
	18.6	9.0	0	0	7	7			
	17.1	10.5	0	0	6	6			
	15.6	12.0	0	0	8	8			
	14.1	13.5	0	0	8	8			
	12.6	15.0	0	0	10	10			
	11.1	16.5	0	0	6	6			
	9.6	18.0	0	0	14	14			
	8.1	19.5	0	0	20	20			
	6.6	21.0	0	0	29	29			
	5.1	22.5	0	0	31	31			
	3.6	24.0	0	0	31	31			14.9 12.7
			0	0	43	43			(SM) - SILTY SAND
									12.6 15.0
									(SM) - SILTY SAND 11.6 16.0
									(SM) - SILTY SAND
									6.6 21.0
									COASTAL PLAIN (SM) - GRAY, SILTY SAND, SAT. (CAPE FEAR FORMATION) 3.6 24.0
									(SM) - SILTY SAND 2.1 25.5
									Boring Terminated at Elevation 2.1 ft
									IN DENSE SILTY SAND

CAT IN USACE SPT LOG 11X17 W/LAB 220035 GEO LEVEE USACE RPT.GPJ CAT IN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-27	**STATION:** 135+04	**OFFSET:** 39 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 36.9 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 781,765	**EASTING:** 2,433,341	**24 HR.** 7.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/22/64	**COMP. DATE:** 05/22/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
									36.9	0.0
	36.9	0.0							UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	
	35.4	1.5	0	0	6	6				
	33.9	3.0	0	0	10	10				
	32.4	4.5	0	0	7	7				
	30.9	6.0	0	0	9	9			30.9	6.0
	29.4	7.5	0	0	14	14			(SM) - SILTY SAND	
	27.9	9.0	0	0	11	11				
	26.4	10.5	0	0	10	10				
	24.9	12.0	0	0	9	9				
	23.4	13.5	0	0	12	12				
	21.9	15.0	0	0	13	13				
	20.4	16.5	0	0	12	12				
	18.9	18.0	0	0	16	16				
	17.4	19.5	0	0	12	12				
	15.9	21.0	0	0	19	19				
	14.4	22.5	0	0	5	5				
	12.9	24.0	0	0	19	19				
	11.4	25.5	0	0	12	12				
	9.9	27.0	0	0	9	9			9.9	27.0
	8.4	28.5	0	0	31	31			COASTAL PLAIN (SM) - GRAY, SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION)	
			0	0	26	26			6.9	30.0
									Boring Terminated at Elevation 6.9 ft	
									IN MEDIUM DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-28	**STATION:** 131+66	**OFFSET:** 19 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.3 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 781,435	**EASTING:** 2,433,239	**24 HR.** 15.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/22/64	**COMP. DATE:** 05/22/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	42.3	0.0							42.3 0.0
	40.8	1.5	0	0	10	10			UNDIVIDED COASTAL PLAIN (SM) - TAN GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
	39.3	3.0	0	0	15	15			
	37.8	4.5	0	0	12	12			
	36.3	6.0	0	0	14	14			36.3 6.0
	34.8	7.5	0	0	16	16			(SC) - CLAYEY SAND
	33.3	9.0	0	0	17	17			
	31.8	10.5	0	0	11	11			
	30.3	12.0	0	0	10	10			
	28.8	13.5	0	0	13	13			
	27.3	15.0	0	0	15	15			
	25.8	16.5	0	0	8	8			26.3 16.0
	24.3	18.0	0	0	19	19			COASTAL PLAIN (SM) - GRAY, SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION)
	22.8	19.5	0	0	36	36			
	21.3	21.0	0	0	34	34			
	19.8	22.5	0	0	26	26			19.3 23.0
	18.3	24.0	0	0	22	22			(SP) - POORLY GRADED SAND
	16.8	25.5	0	0	28	28			
	15.3	27.0	0	0	52	52			
	13.8	28.5	0	0	32	32			
			0	0	25	25			12.3 30.0
									Boring Terminated at Elevation 12.3 ft
									IN MEDIUM DENSE SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-30	**STATION:** 145+24	**OFFSET:** 158 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 26.3 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 782,472	**EASTING:** 2,434,102	**24 HR.** 10.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/26/64	**COMP. DATE:** 05/26/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	26.3	0.0							26.3	0.0
	24.8	1.5	0	0	15	15			UNDIVIDED COASTAL PLAIN (CL) - TAN, SANDY CLAY, MOIST	
	23.3	3.0	0	0	17	17				
	21.8	4.5	0	0	7	7			21.8	4.5
	20.3	6.0	0	0	11	11			(SC) - TAN, GRAY, BROWN, SILTY SAND AND CLAYEY SAND, MOIST TO SAT.	
	18.8	7.5	0	0	7	7				
	17.3	9.0	0	0	3	3				
	15.8	10.5	0	0	6	6			16.8	9.5
	14.3	12.0	0	0	9	9			(SM) - SILTY SAND	
	12.8	13.5	0	0	9	9				
	11.3	15.0	0	0	27	27			13.8	12.5
	9.8	16.5	0	0	40	40			COASTAL PLAIN (SM) - GRAY, SAND WITH SILT AND CLAY LAYERS, SAT. (CAPE FEAR FORMATION)	
	8.3	18.0	0	0	22	22				
	6.8	19.5	0	0	25	25				
	5.3	21.0	0	0	38	38			6.8	19.5
	3.8	22.5	0	0	30	30			(SP) - POORLY GRADED SAND	
	2.3	24.0	0	0	52	52				
	0.8	25.5	0	0	33	33				
	-0.7	27.0	0	0	38	38			1.8	24.5
	-2.2	28.5	0	0	27	27			(CH) - GRAY, SANDY CLAY AND FAT CLAY, WET.	
			0	0	32	32				
									-1.2	27.5
									(SM) - GRAY, SAND WITH SILT AND CLAY LAYERS, SAT.	
									-3.7	30.0
									Boring Terminated at Elevation -3.7 ft	
									IN DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-33	**STATION:** 90+44	**OFFSET:** 57 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.1 ft	**TOTAL DEPTH:** 25.0 ft	**NORTHING:** 778,335	**EASTING:** 2,435,499	**24 HR.** 10.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/15/64	**COMP. DATE:** 06/15/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	42.1	0.0							42.1 0.0
	40.6	1.5	0	0	8	8			UNDIVIDED COASTAL PLAIN (SM) - TAN SAND AND SILTY SAND, MOIST TO SAT. (SP) - POORLY GRADED SAND
	39.1	3.0	0	0	11	11			
	37.6	4.5	0	0	10	10			
	36.1	6.0	0	0	16	16			
	34.6	7.5	0	0	16	16			
	33.1	9.0	0	0	16	16			
	31.6	10.5	0	0	12	12			38.6 3.5
	30.1	12.0	0	0	6	6			
	28.6	13.5	0	0	18	18			
	27.1	15.0	0	0	17	17			27.1 15.0
	25.6	16.5	0	0	21	21			COASTAL PLAIN (CL) - GRAY SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
	24.1	18.0	0	0	44	44			
	22.6	19.5	0	0	65	65			
	21.1	21.0	0	0	71	71			
	19.6	22.5	0	0	48	48			
	18.1	24.0	0	0	55	55			
			0	80/1.0		80/1.0			17.1 25.0
									Boring Terminated at Elevation 17.1 ft
									IN HARD SILTY CLAY

CATLIN USACE SPT LOG 11X17 W/ LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-40	**STATION:** 51+44	**OFFSET:** 135 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.5 ft	**TOTAL DEPTH:** 21.0 ft	**NORTHING:** 775,570	**EASTING:** 2,437,462	**24 HR.** 6.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/18/64	**COMP. DATE:** 06/18/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	41.5	0.0							41.5	0.0
			0	0	19	19 36			ROADWAY EMBANKMENT (SM) - TAN, SAND AND SILTY SAND, MOIST	
40	40.0	1.5	0	0	36					
	38.5	3.0	0	0	23	23				
	37.0	4.5	0	0	19	19				
	35.5	6.0	0	0	7	7			35.5	6.0
35	34.0	7.5	0	0	6	6			UNDIVIDED COASTAL PLAIN (SP) - TAN SAND, MOIST TO SAT.	
	32.5	9.0	0	0	5	5			32.5	9.0
	31.0	10.5	0	0	9	9			COASTAL PLAIN (SM) - GRAY GREEN SAND AND SILTY SAND WITH SHELL FRAGMENTS, SAT. (YORKTOWN FORMATION)	
30	29.5	12.0	0	0	16	16				
	28.0	13.5	0	0	12	12				
	26.5	15.0	0	0	9	9				
	25.0	16.5	0	0	22	22			24.5	17.0
25	23.5	18.0	0	0	16	16			(SM) - BLUE GRAY SILTY SAND, SAT. (CAPE FEAR FORMATION)	
	22.0	19.5	0	0	29	29			20.5	21.0
20									Boring Terminated at Elevation 20.5 ft	
									IN MEDIUM DENSE SILTY SAND	
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-64-02	**STATION:** 72+82	**OFFSET:** 78 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.8 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 776,649	**EASTING:** 2,435,921	**24 HR.** 16.4
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/18/09	**COMP. DATE:** 04/18/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	41.8	0.0							41.8 0.0
			1	2	4	6 12 27	SPT-2 MC=9.6 LL=NP/PI=NP Pass 200=28%		ROADWAY EMBANKMENT (SM) - TAN, SAND AND SILTY CLAYEY SAND, MOIST 40.8 1.0
40	40.3	1.5	4	4	8				
	38.8	3.0	13	13	14				(SC) - CLAYEY SAND 38.8 3.0
	37.3	4.5	8	4	3	7	SPT-4 MC=9.8 LL=NP/PI=NP Pass 200=38%		(SM) - SILTY SAND 35.8 6.0
	35.8	6.0	2	3	4	7			(SC) - CLAYEY SAND 34.3 7.5
35	34.3	7.5	2	3	4	7			UNDIVIDED COASTAL PLAIN (SP) - TAN GRAY, SILTY CLAYEY SAND AND SAND WITH GRAVEL, MOIST TO SAT.
	32.8	9.0	4	5	6	11	SPT-5 MC=14.7 LL=NP/PI=NP Pass 200=42%		
	31.3	10.5	2	3	4	7			
30	29.8	12.0	1	1	1	2			
	28.3	13.5	1	2	3	5			
	26.8	15.0	1	3	5	8			
	25.3	16.5	2	6	12	18	SPT-11 MC=16.3 LL=NP/PI=NP Pass 200=3%		24.3 17.5
25	23.8	18.0	1	5	10	15			(SP) - POORLY GRADED SAND
	22.3	19.5	11	20	21	41			22.3 19.5
	20.8	21.0	9	15	18		SPT-14 MC=18.1 LL=NP/PI=NP Pass 200=19%		COASTAL PLAIN (SC) - GRAY, SAND AND SILTY SAND, SAT. (CAPE FEAR FORMATION) 20.8 21.0
20	19.3	22.5	9	13	17	33			(CL) - GREEN GRAY, SILTY SANDY CLAY, WET.
	17.8	24.0	8	15	20	30 35	SPT-16 MC=19.3		
	16.3	25.5	7	13	18	31	Pass 200=88%		
15	14.8	27.0	20	24	28	52	SPT-18 MC=22.0		
	13.3	28.5	29	29	31	60	SPT-20 MC=17.0		11.8 30.0
10									Boring Terminated at Elevation 11.8 ft
									IN HARD SILTY SANDY CLAY
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CATLIN USACE SPT LOG 11X17 W/ LAB 220035_GEO_LEVEE_USACE_RPT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PD-BP-64-03	**STATION:** 73+26	**OFFSET:** 191 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 38.3 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 776,731	**EASTING:** 2,436,009	**24 HR.** 9.6
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/18/09	**COMP. DATE:** 04/18/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
40										
	38.3	0.0							38.3	0.0
	36.8	1.5	1	2	3	5 5			ROADWAY EMBANKMENT (SM) - TAN BROWN SILTY SAND, MOIST (SC) - CLAYEY SAND	1.5
35	35.3	3.0	3	3	2	5				
	33.8	4.5	1	2	3	5	SPT-3 MC=14.5 LL=NP/PI=NP Pass 200=54%			
	32.3	6.0	2	3	5	8			32.8	5.5
	30.8	7.5	1	2	2	4			UNDIVIDED COASTAL PLAIN (SP) - GRAY SAND, MOIST	
30	29.3	9.0	1	1	1	2	SPT-5 MC=21.0 LL=NP/PI=NP Pass 200=4%		29.8	8.5
	27.8	10.5	2	3	5	8			(CL) - GRAY SILTY CLAY, MOIST TO WET	
	26.3	12.0	3	4	5	9			27.8	10.5
25	24.8	13.5	4	8	12	20	SPT-9 MC=22.0 LL=NP/PI=NP Pass 200=18%		(SP) - GRAY SAND, SAT.	
			6	7	11	18			24.8	13.5
									23.3 COASTAL PLAIN (CL) - LIGHT GRAY SANDY CLAY, WET (CAPE FEAR FORMATION)	15.0
20									Boring Terminated at Elevation 23.3 ft	
									IN VERY STIFF SANDY CLAY	
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										
-40										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-01	**STATION:** 150+80	**OFFSET:** 53 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 35.0 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 782,491	**EASTING:** 2,434,632	**24 HR.** 5.1
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/15/09	**COMP. DATE:** 04/15/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
35									35.0 0.0
	35.0	0.0	1	1	3	4 18	SPT-1 MC=5.3 LL=NP/PI=NP Pass 200=13%		33.5 ARTIFICIAL FILL 1.5
	33.5	1.5	7	8	10				(SM) - TAN BROWN, CLAYEY SAND, MOIST (LEVEE EMBANKMENT)
	32.0	3.0	10	6	9	15			(SC) - CLAYEY SAND
30	30.5	4.5	7	4	5	9	SPT-3 MC=9.0 LL=NP/PI=NP Pass 200=14%		29.5 6.5
	29.0	6.0	2	3	6	9			UNDIVIDED COASTAL PLAIN
	27.5	7.5	4	4	5	9			27.5 (CL) - GRAY, SANDY CLAY, MOIST TO WET 7.5
	26.0	9.0	2	2	3	5			(SP-SC) - BROWN, SILTY CLAYEY SAND, MOIST TO SAT.
25	24.5	10.5	3	3	4	7			
	23.0	12.0	3	4	4	8	SPT-8 MC=14.6 LL=NP/PI=NP Pass 200=9%		23.0 12.0
	21.5	13.5	4	4	5	9			21.5 (SP-SW) - POORLY GRADED SAND TO WELL GRADED SAND 13.5
20									20.0 (SP) - POORLY GRADED SAND 15.0
									Boring Terminated at Elevation 20.0 ft
15									IN LOOSE SAND
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									
-40									
-45									

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GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-02	**STATION:** 150+77	**OFFSET:** 1 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 43.1 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 782,502	**EASTING:** 2,434,579	**24 HR.** 20.3
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/15/09	**COMP. DATE:** 04/15/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
45										
	43.1	0.0							43.1	0.0
	41.6	1.5	2	6	6	12	SPT-2 MC=11.3 LL=NP/PI=NP Pass 200=41%		41.6	1.5
40	40.1	3.0	5	5	5	10			ARTIFICIAL FILL (SC) - TAN BROWN, CLAYEY SAND AND STIFF BROWN, SANDY CLAY, MOIST (LEVEE EMBANKMENT)	
	38.6	4.5	6	5	6	11				
	37.1	6.0	6	6	6	12			(SC) - CLAYEY SAND	
	35.6	7.5	2	3	6	9	SPT-5 LL=27/PI=12		37.1	6.0
35	34.1	9.0	4	4	4	8			(CL) - LEAN CLAY	
	32.6	10.5	5	6	6	12			35.6	7.5
	31.1	12.0	2	3	3	6			(SC) - CLAYEY SAND	
30	29.6	13.5	2	3	3	6	SPT-8 MC=13.3 LL=NP/PI=NP Pass 200=39%			
	28.1	15.0	1	2	2	4			29.6	13.5
	26.6	16.5	4	17	17	34			UNDIVIDED COASTAL PLAIN (CL) - GRAY, SANDY CLAY, MOIST TO WET (SP) - BROWN, SILTY CLAYEY SAND, MOIST TO SAT.	
25	25.1	18.0	9	11	16	27			28.1	15.0
	23.6	19.5	13	16	20	36				
	22.1	21.0	13	16	18	34			POORLY GRADED SAND	
	20.6	22.5	6	8	10	18			23.6	19.5
20	19.1	24.0	3	6	10	16	SPT-16 MC=14.7 LL=NP/PI=NP Pass 200=2%			
	17.6	25.5	7	9	10	19			POORLY GRADED SAND	22.5
	16.1	27.0	2	4	7	11			20.6	
15	14.6	28.5	2	4	6	10				
			3	5	12	17			14.6	28.5
									COASTAL PLAIN (SP) - GRAY, SAND, SAT. (CAPE FEAR FORMATION)	
									13.1	30.0
									Boring Terminated at Elevation 13.1 ft	
10									IN MEDIUM DENSE SAND	
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-03	**STATION:** 186+23	**OFFSET:** 11 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.1 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,714	**EASTING:** 2,437,544	**24 HR.** 17.7
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/15/09	**COMP. DATE:** 04/16/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45									
	42.1	0.0							42.1 0.0
	40.6	1.5	3	5	5	10	SPT-1 LL=35/PI=19		ARTIFICIAL FILL (CL) - TAN BROWN, CLAYEY SAND, MOIST 40.6 1.5
40	39.1	3.0	8	11	8	19			TO SAT, 39.1 3.0
	37.6	4.5	10	9	9	18			AND GRAY, CLAY, MOIST (LEVEE EMBANKMENT)
	36.1	6.0	15	13	14	27			(SP) - POORLY GRADED SAND
35	34.6	7.5	17	19	22	41			(SP) - POORLY GRADED SAND 33.1 9.0
	33.1	9.0	20	13	17	30			
	31.6	10.5	13	15	10	25	SPT-7 MC=4.8 LL=NP/PI=NP Pass 200=8%		UNDIVIDED COASTAL PLAIN (SP-SC) - GRAY, SILTY CLAYEY SAND, MOIST TO SAT.
30	30.1	12.0	12	12	13	25			29.1 13.0 POORLY GRADED SAND
	28.6	13.5	5	6	7	13			28.6 13.5 POORLY GRADED SAND
	27.1	15.0	4	10	16	26			
	25.6	16.5	8	13	19	32			25.6 16.5 POORLY GRADED SAND
25	24.1	18.0	9	16	20	36			
	22.6	19.5	9	11	18	29			21.1 21.0
	21.1	21.0	11	8	6	14			COASTAL PLAIN (CL) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)
20	19.6	22.5	2	3	4	7			17.6 24.5
	18.1	24.0	1	2	8	10	SPT-16 LL=40/PI=22		16.6 25.5 (SP) - GRAY, CLAYEY SAND, SAT.
	16.6	25.5	11	12	9	21			(CL) - GRAY, SILTY SANDY CLAY, WET
15	15.1	27.0	4	6	10	16			Gray, CLAYEY, fine SAND
	13.6	28.5	7	14	14	28	SPT-19 MC=13.3 LL=NP/PI=NP Pass 200=25%		13.6 28.5
			10	15	15	30			Light gray, fine SAND 12.1 30.0
									Boring Terminated at Elevation 12.1 ft
10									IN HARD SILTY SANDY CLAY
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

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GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-04	**STATION:** 184+72	**OFFSET:** 7 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 44.0 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,708	**EASTING:** 2,437,393	**24 HR.** 19.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/16/09	**COMP. DATE:** 04/16/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	44.0	0.0							44.0	0.0
	42.5	1.5	2	5	5	10			ARTIFICIAL FILL (SC) - TAN BROWN, CLAYEY SAND, MOIST TO SAT, (LEVEE EMBANKMENT)	1.5
	41.0	3.0	7	7	8	15			CLAYEY SAND	3.0
40	39.5	4.5	5	8	10	18	SPT-4 MC=9.9 LL=NP/PI=NP Pass 200=41%		CLAYEY SAND	
	38.0	6.0	6	6	6	12				
	36.5	7.5	4	4	6	10				
35	35.0	9.0	3	5	7	12				
	33.5	10.5	5	7	8	15				
	32.0	12.0	8	10	11	21			UNDIVIDED COASTAL PLAIN (SC) - GRAY, SILTY CLAYEY SAND, MOIST TO SAT.	10.5
30	30.5	13.5	7	7	7	14	SPT-9 MC=8.0 LL=NP/PI=NP Pass 200=18%			
	29.0	15.0	7	8	11	19				
	27.5	16.5	10	16	17	33				
	26.0	18.0	12	17	18	35				
25	24.5	19.5	6	9	10	19				19.5
	23.0	21.0	3	3	3	6			(SP) - POORLY GRADED SAND	21.0
	21.5	22.5	2	2	4	6			COASTAL PLAIN (CL) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)	
20	20.0	24.0	3	6	8	14				
	18.5	25.5	2	4	4	8			Bluish gray to light brown, fine to coarse SAND with little to trace clay	25.5
	17.0	27.0	2	4	6	10				
15	15.5	28.5	3	5	9	14	SPT-19 LL=61/PI=35		Gray, CLAY with little fine sand and roots	
			8	12	14	26				
									14.0	30.0
									Boring Terminated at Elevation 14.0 ft	
									IN VERY STIFF SILTY SANDY CLAY	
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-05	**STATION:** 194+25	**OFFSET:** 2 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 46.0 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 783,850	**EASTING:** 2,438,335	**24 HR.** 20.2
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/16/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	46.0	0.0							46.0 0.0
	44.5	1.5	3	4	5	9			ARTIFICIAL FILL (SC) - TAN BROWN, CLAYEY SAND, MOIST TO SAT, (LEVEE EMBANKMENT) 44.5 1.5
	43.0	3.0	4	5	5	10			(SC) - CLAYEY SAND 41.0 5.0
40	41.5	4.5	4	3	5	8			Brown, CLAYEY, fine SAND
	40.0	6.0	3	4	4	8			UNDIVIDED COASTAL PLAIN
	38.5	7.5	3	4	4	8	SPT-4 MC=15.2 LL=NP/PI=NP Pass 200=43%		(SM) - GRAY, SILTY CLAYEY SAND, MOIST TO SAT. 37.0 9.0
	37.0	9.0	3	3	3	6			Reddish brown, CLAYEY, fine SAND 35.5 10.5
35	35.5	10.5	1	2	4	6			(SP-SM) - SAND TO SILTY SAND
	34.0	12.0	4	9	10	19			
	32.5	13.5	8	8	8	16			
	31.0	15.0	12	16	18	34	SPT-10 MC=10.5 LL=NP/PI=NP Pass 200=11%		31.0 15.0
30	29.5	16.5	4	6	4	10			(SP) - POORLY GRADED SAND 29.5 16.5
	28.0	18.0	1	1	1	2			(SC) - CLAYEY SAND
	26.5	19.5	1	2	4	6	SPT-13 MC=16.1 LL=NP/PI=NP Pass 200=42%		26.5 19.5
	25.0	21.0	3	4	6	10			(SP) - POORLY GRADED SAND
25	23.5	22.5	1	4	4	8			
	22.0	24.0	4	5	8	13			
	20.5	25.5	2	3	2	5	SPT-17 MC=20.7 LL=NP/PI=NP Pass 200=4%		
20	19.0	27.0	1	2	2	4			19.0 27.0
	17.5	28.5	2	2	6	8	SPT-19 MC=16.0		(SC) - CLAYEY SAND 17.5 28.5
			6	15	20	35	SPT-20 LL=48/PI=27		COASTAL PLAIN
									(CL) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION) 16.0 30.0
15									Boring Terminated at Elevation 16.0 ft
									IN HARD SILTY SANDY CLAY
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									

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GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-06	**STATION:** 184+93	**OFFSET:** 33 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.3 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 783,672	**EASTING:** 2,437,420	**24 HR.** 7.3
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/17/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	41.3	0.0							41.3	0.0
	39.8	1.5	2	2	3	5	SPT-1 MC=14.8 Pass 200=52%		ARTIFICIAL FILL (CL) - TAN BROWN, CLAYEY FINE TO MED. SAND, MOIST TO SAT, AND GRAY, CLAY, MOIST (LEVEE EMBANKMENT)	1.5
	38.3	3.0	6	12	15	27			(SP-SC) - SAND TO CLAYEY SAND	
	36.8	4.5	10	10	13	23				
	35.3	6.0	14	14	14	28				
	33.8	7.5	13	11	14	25	SPT-4 MC=5.9 LL=NP/PI=NP Pass 200=9%		(SP-SC) - SAND TO CLAYEY SAND	7.5
	32.3	9.0	6	9	11	20			UNDIVIDED COASTAL PLAIN (CL) - GRAY, CLAY, WET	9.0
	30.8	10.5	2	2	2	4	SPT-7 LL=29/PI=15			
	29.3	12.0	1	2	2	4				
	27.8	13.5	1	2	8	10	SPT-9 MC=15.0 LL=NP/PI=NP Pass 200=40%		(SC) - GRAY, CLAYEY FINE TO CSE. SAND	12.0
			5	8	9	17			(SP) - POORLY GRADED SAND	13.5
									Boring Terminated at Elevation 26.3 ft	15.0
									IN MEDIUM DENSE SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-07	**STATION:** 185+94	**OFFSET:** 36 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 39.8 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 783,685	**EASTING:** 2,437,520	**24 HR.** 7.3
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/17/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION	
	39.8	0.0								39.8 0.0
	38.3	1.5	1	1	4	5	SPT-1 MC=8.0 LL=NP/PI=NP Pass 200=20%		ARTIFICIAL FILL (SC) - TAN BROWN, CLAYEY FINE TO MEDIUM SAND, MOIST (LEVEE EMBANKMENT)	38.3 1.5
	36.8	3.0	7	12	12	24			(SP) - POORLY GRADED SAND	
	35.3	4.5	12	14	14	28				
	33.8	6.0	15	15	15	30	SPT-4 MC=6.8 LL=NP/PI=NP Pass 200=8%			32.3 7.5
	32.3	7.5	12	12	14	26			UNDIVIDED COASTAL PLAIN (SP) - TAN GRAY, FINE TO CSE. SAND, MOIST TO SAT. WITH CLAY LAYERS	30.8 9.0
	30.8	9.0	6	11	11	22				
	29.3	10.5	2	1	2	3	SPT-7 LL=29/PI=13			29.3 10.5
	27.8	12.0	2	2	4	6			(CL) - LEAN CLAY	27.8 12.0
	26.3	13.5	2	3	6	9	SPT-9 MC=12.1 LL=NP/PI=NP Pass 200=29%		(SP) - POORLY GRADED SAND	26.3 13.5
			5	5	9	14			(SC) - CLAYEY SAND	24.8 15.0
							SPT-10 MC=12.0		(SP) - POORLY GRADED SAND	
									Boring Terminated at Elevation 24.8 ft	
									IN MEDIUM DENSE SAND	

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GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-08	**STATION:** 194+24	**OFFSET:** 35 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.8 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 783,817	**EASTING:** 2,438,339	**24 HR.** 3.8
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/17/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
45										
	42.8	0.0	2	3	5	8 17 20 45	SPT-1 MC=13.0 LL=34/PI=18		42.8	0.0
	41.3	1.5							41.3	1.5
40	39.8	3.0	5	7	10		SPT-2 MC=14.0		39.3	3.5
	38.3	4.5	6	6	14		SPT-4 MC=8.1 LL=NP/PI=NP Pass 200=21%		38.3	4.5
	36.8	6.0	20	21	24					
35	35.3	7.5	25	15	10	25			35.3	7.5
	33.8	9.0	15	17	12	29				
	32.3	10.5	2	2	3	5	SPT-6 MC=15.6 LL=NP/PI=NP Pass 200=27%		32.3	10.5
30	30.8	12.0	1	1	2	3			31.8	11.0
	29.3	13.5	1	1	1	2	SPT-7 MC=22.2 LL=NP/PI=NP Pass 200=19%			
			WOH	WOH	WOH	0			27.8	15.0
25							SPT-9 MC=24.7 LL=NP/PI=NP Pass 200=13%			
20										
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

ARTIFICIAL FILL
(CL) - TAN, CLAYEY FINE SAND, AND SANDY CLAY, MOIST
(LEVEE EMBANKMENT)
(SC) - CLAYEY SAND

UNDIVIDED COASTAL PLAIN
(SC) - TAN, SILTY CLAYEY FINE TO MEDIUM SAND, MOIST
(SM) - SILTY SAND

(SC) - CLAYEY SAND

Boring Terminated at Elevation 27.8 ft

IN VERY LOOSE SAND

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-09	**STATION:** 185+08	**OFFSET:** 28 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.5 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 783,734	**EASTING:** 2,437,425	**24 HR.** 11.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/17/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45									
	41.5	0.0							41.5 0.0
	40.0	1.5	1	5	7	12	SPT-1 MC=7.0 LL=NP/PI=NP Pass 200=19%		40.0 1.5 ARTIFICIAL FILL (SC) - TAN BROWN, CLAYEY FINE TO MED. SAND, MOIST TO SAT, AND GRAY, CLAY, MOIST (LEVEE EMBANKMENT)
40	38.5	3.0	6	7	8				38.0 3.5
	37.0	4.5	8	9	11		SPT-4 MC=11.3 LL=NP/PI=NP Pass 200=27%		37.0 4.5 (SC) - CLAYEY SAND
	35.5	6.0	6	5	5				(SP) - POORLY GRADED SAND
35	34.0	7.5	6	4	3	10			(SC) - CLAYEY SAND 32.5 9.0
	32.5	9.0	2	1	2	7			UNDIVIDED COASTAL PLAIN
	31.0	10.5	2	2	2	3 4			(SC) - GRAY, CLAYEY FINE TO CSE. SAND 30.5 11.0
30	29.5	12.0	2	2	4	6	SPT-8 MC=14.6 LL=NP/PI=NP Pass 200=39%		29.5 12.0
	28.0	13.5	3	3	5	8			(SP) - POORLY GRADED SAND
			1	4	4	8			26.5 15.0
25									
20									
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

Boring Terminated at Elevation 26.5 ft

IN LOOSE SAND

CATLIN USACE SPT LOG 11X17 W LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-10	**STATION:** 186+12	**OFFSET:** 43 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 37.5 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 783,765	**EASTING:** 2,437,525	**24 HR.** 12.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/17/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
40										
	37.5	0.0							37.5	0.0
	36.0	1.5	3	4	8	12 18	SPT-1 MC=6.0 LL=NP/PI=NP Pass 200=24%		36.0	1.5
35	34.5	3.0	9	7	11	12				
	33.0	4.5	9	7	5	2	SPT-3 MC=11.0 LL=NP/PI=NP Pass 200=30%		33.0	4.5
	31.5	6.0	2	1	1	3				
30	30.0	7.5	1	1	2	5				
	28.5	9.0	2	2	3	6				
	27.0	10.5	3	3	3	7				
25	25.5	12.0	2	3	4	5			24.5	13.0
	24.0	13.5	2	3	2	12	SPT-10 MC=17.0		22.5	15.0
			4	5	7					
20										
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										
-40										

ARTIFICIAL FILL
(SC) - TAN BROWN, CLAYEY FINE TO MEDIUM SAND, MOIST
(LEVEE EMBANKMENT)
(SC) - CLAYEY SAND
UNDIVIDED COASTAL PLAIN
(SP) - TAN GRAY, FINE TO CSE. SAND, MOIST TO SAT.
(SP-SC) - SAND TO CLAYEY SAND
Boring Terminated at Elevation 22.5 ft
IN MEDIUM DENSE SAND

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-SS-11	**STATION:** 194+32	**OFFSET:** 8 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 45.1 ft	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 783,861	**EASTING:** 2,438,341	**24 HR.** 12.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/17/09	**COMP. DATE:** 04/17/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
50									
	45.1	0.0							45.1 0.0
	43.6	1.5	1	3	5	8 19			(SP-SC) - TAN, CLAYEY FINE SAND, MOIST (LEVEE EMBANKMENT)
	42.1	3.0	5	8	11	17			Reddish brown, fine SAND with little CLAY
40	40.6	4.5	8	8	9		SPT-3 MC=10.0 LL=NP/PI=NP Pass 200=12%		41.1 4.0
	39.1	6.0	4	2	1	3			UNDIVIDED COASTAL PLAIN
	37.6	7.5	1	1	2	3			(SP-SM) - TAN, SILTY CLAYEY FINE TO MEDIUM SAND, MOIST TO SAT.
35	36.1	9.0	2	1	4	5			37.6 7.5
	34.6	10.5	2	3	5	8			(SM) - SILTY SAND
	33.1	12.0	3	4	6	10	SPT-8 MC=12.0 LL=NP/PI=NP Pass 200=16%		34.6 10.5
	31.6	13.5	2	6	7	13			(SC) - CLAYEY SAND
30			4	5	6	11			Light gray, CLAYEY, medium SAND
									30.1 15.0
25									Boring Terminated at Elevation 30.1 ft
									IN MEDIUM DENSE CLAYEY SAND
20									
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									

CATLIN USACE SPT LOG 11X17 W LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-A-03	**STATION:** 325+60	**OFFSET:** 42 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 48.0 ft	**TOTAL DEPTH:** 5.0 ft	**NORTHING:** 777,217	**EASTING:** 2,444,081	**24 HR.** 4.0
DRILL MACHINE: HAND AUGER		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/21/06	**COMP. DATE:** 07/21/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
50									48.0	0.0
45									46.3	1.7
									UNDIVIDED COASTAL PLAIN (ML) - GRAY AND ORANGE, SILTY SANDY CLAY AND CLAYEY SILT, MOIST	
									45.0	3.0
									(CL) - LEAN CLAY	
40									44.0	4.0
									(SP-SC) - ORANGE GRAY, SAND AND CLAYEY SAND, MOIST TO SAT.	
									43.0	5.0
									(SP) - POORLY GRADED SAND	
35									Boring Terminated at Elevation 43.0 ft	
									IN SAND	
30										
25										
20										
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-A-04	**STATION:** 315+04	**OFFSET:** 52 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 48.0 ft	**TOTAL DEPTH:** 6.5 ft	**NORTHING:** 778,158	**EASTING:** 2,444,561	**24 HR.** 4.5
DRILL MACHINE: HAND AUGER		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/21/06	**COMP. DATE:** 07/21/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
50									48.0 0.0
									47.4 0.6
45									UNDIVIDED COASTAL PLAIN (ML) - ORANGE, SILTY SANDY CLAY, MOIST
									44.5 3.5
									(CL) - LEAN CLAY
40									(SC) - ORANGE GRAY, SAND AND CLAYEY SAND, MOIST TO SAT. 42.0 6.0
									41.5 6.5
									(SP) - POORLY GRADED SAND
35									Boring Terminated at Elevation 41.5 ft
									IN SAND
30									
25									
20									
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									

CATLIN USACE SPT LOG 11X17 W LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tracey Tappley
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-CS-07	**STATION:** 224+27	**OFFSET:** 91 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 46.0 ft	**TOTAL DEPTH:** 4.1 ft	**NORTHING:** 784,438	**EASTING:** 2,441,257	**24 HR.** N/A
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/22/06	**COMP. DATE:** 06/22/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
									46.0	0.0
	44.9	1.1							44.9	1.1
									PAVEMENT	
									CONCRETE	
	43.4	2.6	0	0	25	25			43.4	2.6
			0	0	16	16			UNDIVIDED COASTAL PLAIN	
									TAN GRAY, SAND AND SILTY SAND, MOIST TO SAT.	
									41.9	4.1
									CLAYEY SAND	
									Boring Terminated at Elevation 41.9 ft	
									IN MEDIUM DENSE CLAYEY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-02	**STATION:** 76+77	**OFFSET:** 127 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 40.1 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 776,969	**EASTING:** 2,435,606	**24 HR.** 12.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/29/06	**COMP. DATE:** 06/29/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									40.1 0.0
									ARTIFICIAL FILL (SP) - BROWN SAND, MOIST (LEVEE EMBANKMENT)
									34.1 6.0
									ARTIFICIAL FILL (CL) - BROWN ORANGE SANDY CLAY, MOIST 32.1 8.0
									UNDIVIDED COASTAL PLAIN (SC) - TAN SAND AND CLAYEY SAND, MOIST TO SAT. 30.1 10.0
									(SP) - POORLY GRADED SAND
									20.1 20.0
									COASTAL PLAIN (CL) - SILTY AND SANDY CLAY, WET (CAPE FEAR FORMATION) 17.1 23.0
									(CH) - FAT CLAY
									10.1 30.0
									Boring Terminated at Elevation 10.1 ft
									IN SILTY SANDY CLAY

CATLIN USACE SPT LOG 11X17 W/ LAB 220035 GEO_LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-03	**STATION:** 83+20	**OFFSET:** 80 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 777,626	**EASTING:** 2,435,580	**24 HR.** 17.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/29/06	**COMP. DATE:** 06/29/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
									42.0	0.0
									ARTIFICIAL FILL (SP) - GRAY, SAND AND SILTY SAND, MOIST (LEVEE EMBANKMENT)	
									37.5	4.5
									ARTIFICIAL FILL (SC) -	
									35.0	7.0
									UNDIVIDED COASTAL PLAIN (SP) - GRAY, SAND AND SILTY SAND, MOIST	
									31.0	11.0
									(SM) - SILTY SAND	
									28.0	14.0
									(CL) - BLACK, SILTY CLAY, WET	
									24.0	18.0
									(SP) - GRAY, SAND AND SILTY SAND, MOIST	
									19.0	23.0
									(SC) - CLAYEY SAND	
									17.0	25.0
									COASTAL PLAIN (CL) - GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)	
									12.0	30.0
									Boring Terminated at Elevation 12.0 ft	
									IN SILTY SANDY CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-04	**STATION:** 90+14	**OFFSET:** 75 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.1 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 778,302	**EASTING:** 2,435,488	**24 HR.** 12.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/29/06	**COMP. DATE:** 06/29/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION	
									42.1	0.0
									ARTIFICIAL FILL (SP) - TAN BROWN SAND, MOIST (LEVEE EMBANKMENT)	
									37.4	4.7
									UNDIVIDED COASTAL PLAIN (SP) - GRAY, YELLOW, AND WHITE, MEDIUM SAND, MOIST TO SAT.	
									24.1	18.0
									COASTAL PLAIN (CL) - GREENISH AND PURPLE GRAY, SILTY SANDY CLAY, WET (CAPE FEAR FORMATION)	
									18.1	24.0
									(CH) - FAT CLAY	
									17.1	25.0
									(SM) - GRAY SILTY FINE SAND, SAT.	
									13.6	28.5
									(CH) - PURPLE GRAY, SILTY CLAY, WET	
									12.1	30.0
									Boring Terminated at Elevation 12.1 ft	
									IN SILTY CLAY	

CATLIN USACE SPT LOG 11X17 W/ LAB 220035_GEO_LEVEE_USACE_RPT.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-05/GP-05	**STATION:** 97+62	**OFFSET:** 25 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 43.3 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 779,031	**EASTING:** 2,435,326	**24 HR.** 16.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/20/06	**COMP. DATE:** 07/20/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
43.3		0.0							43.3	0.0
42.8		0.5							PAVEMENT	0.5
									ROADWAY EMBANKMENT	
									(SM) - TAN GRAY, SAND AND SILTY SAND, MOIST	
38.8		4.5							(ML) - SILT	5.0
38.3		5.0							(SM) - SILTY SAND	7.0
36.3		7.0							(SP) - POORLY GRADED SAND	
29.3		14.0							UNDIVIDED COASTAL PLAIN	
									(SM) - TAN, SAND AND SILTY SAND, MOIST TO SAT.	
24.8		18.5							(SP) - POORLY GRADED SAND	20.0
23.3		20.0							COASTAL PLAIN	
21.8		21.5					SPT-14		(CL) - GRAY TAN AND PURPLE, SILTY SANDY CLAY AND CLAYEY SILT, WET. (CAPE FEAR FORMATION)	
									(ML) - SILT	
14.8		28.5					SPT-15			
13.3		30.0					SPT-16		Boring Terminated at Elevation 13.3 ft	
									IN HARD CLAYEY SILT	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-06/GP-06	**STATION:** 108+40	**OFFSET:** 3 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 46.3 ft	**TOTAL DEPTH:** 29.8 ft	**NORTHING:** 779,896	**EASTING:** 2,434,686	**24 HR.** 20.9
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/20/06	**COMP. DATE:** 07/20/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
46.3		0.0							
45.3		1.0							PAVEMENT 1.0
									ROADWAY EMBANKMENT
									(SM) - TAN GRAY SILTY SAND, MOIST
29.8		16.5							UNDIVIDED COASTAL PLAIN
28.3		18.0							(SC) - TAN GRAY SAND AND SILTY CLAYEY SAND, MOIST TO SAT.
									(SP-SM) - SAND TO SILTY SAND
21.3		25.0							(SP) - POORLY GRADED SAND
19.6		26.7							COASTAL PLAIN
									(ML) - BLUE GRAY SANDY CLAYEY SILT, WET (CAPE FEAR FORMATION)
16.5		29.8							Boring Terminated at Elevation 16.5 ft
									IN HARD SANDY CLAYEY SILT

CAT IN USACE SPT LOG 11X17 W/LAB 220035 GEO LEVEE USACE RPT GP.I CAT IN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-17	**STATION:** 267+08	**OFFSET:** 9 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 47.9 ft	**TOTAL DEPTH:** 15.5 ft	**NORTHING:** 781,264	**EASTING:** 2,443,542	**24 HR.** 5.6
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/19/06	**COMP. DATE:** 07/19/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
50										
	47.4	0.5							47.9	0.0
									47.4	0.5
	45.9	2.0	0	0	22	22			PAVEMENT	
45	44.4	3.5	0	0	9	9			UNDIVIDED COASTAL PLAIN	
	42.9	5.0	0	0	4	4			TAN, SILTY CLAYEY SAND, MOIST TO SAT.	2.0
	41.4	6.5	0	0	13	13			45.9	
40	39.9	8.0	0	0	26	26			CLAYEY SAND	2.5
	38.4	9.5	0	0	26	26			45.4	
	36.9	11.0	0	0	16	16			BROWN, SANDY CLAY, MOIST	4.0
35	35.4	12.5	0	0	4	4			43.9	
			0	0	10	10			TAN, SAND AND SILTY CLAYEY SAND, MOIST TO SAT.	
									Fine to medium grain size	
									POORLY GRADED SAND	
									With some clay	
									No clay	
									41.4	6.5
30									32.4	15.5
									Boring Terminated at Elevation 32.4 ft	
									IN LOOSE SAND	
25										
20										
15										
10										
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-18	**STATION:** 284+89	**OFFSET:** 7 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 48.0 ft	**TOTAL DEPTH:** 15.5 ft	**NORTHING:** 780,515	**EASTING:** 2,445,158	**24 HR.** 3.9
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/19/06	**COMP. DATE:** 07/19/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
50									
	47.5	0.5							48.0 0.0
									47.5 0.5
	46.0	2.0	0	0	36	36			ROADWAY EMBANKMENT
45	44.5	3.5	0	0	10	10			PAVEMENT
	43.0	5.0	0	0	10	10			UNDIVIDED COASTAL PLAIN
	41.5	6.5	0	0	18	18			(SM) - BROWN SILTY SAND, MOIST TO SAT. 4.5
40	40.0	8.0	0	0	17	17			43.5
	38.5	9.5	0	0	21	21			Gray 5.0
	37.0	11.0	0	0	16	16			43.0
35	35.5	12.5	0	0	11	11			(CL) - GRAY SANDY CLAY, WET 6.5
	34.0	14.0	0	0	12	12			41.5
			0	0	29	29			UNDIVIDED COASTAL PLAIN
									(SP-SM) - GRAY AND WHITE SAND AND SILTY SAND, SAT.
									(SP) - POORLY GRADED SAND
									Coarse grained
30									32.5 15.5
									Boring Terminated at Elevation 32.5 ft
									IN MEDIUM DENSE SAND
25									
20									
15									
10									
5									
0									
-5									
-10									
-15									
-20									
-25									
-30									

CATLIN USACE SPT LOG 11X17 W LAB 220035 GEO LEVEE USACE RPT GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tom Child
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PRC-17-SPT-01	**STATION:** 148+87	**OFFSET:** 4 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 47.4 ft	**TOTAL DEPTH:** 51.0 ft	**NORTHING:** 782,353	**EASTING:** 2,434,467	**24 HR.** 23.2
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 10/25/07	**COMP. DATE:** 10/26/17	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
									47.4	0.0
	47.4	0.0							ARTIFICIAL FILL	
	45.9	1.5	5	15	12	27			(SW-SM) - TAN, GRAY, ORANGE, AND BROWN, SILTY CLAYEY SAND, MOIST (LEVEE EMBANKMENT)	45.9 1.5
	44.4	3.0	5	5	3	8	SPT-2 MC=12.0 LL=38/PI=22		(SC) - CLAYEY SAND	
	42.9	4.5	2	2	2	4				
	41.4	6.0	2	3	2	5	SPT-4		(SM) - SILTY SAND	41.4 6.0
	39.9	7.5	4	4	6	10				
	38.4	9.0	5	5	7	12			Gray to brown, CLAYEY, fine SAND	38.4 9.0
	36.9	10.5	5	4	3	7	SPT-7 MC=13.0 LL=33/PI=17		Orange, SILTY, fine to medium SAND with Clay	36.9 10.5
	35.4	12.0	1	3	4	7	SPT-8		(SC) - CLAYEY SAND	35.4 12.0
	33.9	13.5	2	2	2	4			(SC) - CLAYEY SAND	
	32.4	15.0	1	1	0	1			Orange grading to brown, CLAYEY, fine to medium SAND. Trace gravel at bottom of stratum	
	30.9	16.5	2	2	2	4	SPT-11			
	29.4	18.0	0	1	3	4	SPT-12			30.2 17.2
	27.9	19.5	3	4	5	9			UNDIVIDED COASTAL PLAIN (SC) - TAN, GRAY, BROWN, SAND, SILTY SAND AND CLAYEY SAND, MOIST TO SAT.	27.9 19.5
	26.4	21.0	3	4	5	9				27.1 20.3
	24.9	22.5	5	7	7	14	SPT-15		(SP) - POORLY GRADED SAND	26.4 21.0
	23.4	24.0	3	4	5	9	SPT-16 MC=17.0		(SM) - SILTY SAND	26.0 21.4
	21.9	25.5	4	6	7	13			(SC) - CLAYEY SAND	24.9 23.5
	20.4	27.0	1	4	7	11			(SP) - POORLY GRADED SAND	23.9
	18.9	28.5	7	7	10	17	SPT-19 MC=22.0		(SP-SM) - SAND TO SILTY SAND	20.4 27.0
	17.4	30.0	8	6	6	12	SPT-20 MC=31.0		(SW) - WELL GRADED SAND	18.9 28.5
	15.9	31.5	5	10	8	18			(SP-SM) - SAND TO SILTY SAND	
	14.4	33.0	5	6	6	12	SPT-22 MC=21.0 LL=34/PI=11		(SP) - POORLY GRADED SAND	
	12.9	34.5	9	7	7	14	SPT-23 MC=27.0 LL=37/PI=18		(SP-SC) - SAND TO CLAYEY SAND	15.9 31.5
	11.4	36.0	4	6	6	12	SPT-24 MC=28.0 LL=37/PI=16		Gray, LEAN CLAY	14.7 32.7
	9.9	37.5	8	5	9	14	SPT-26 MC=32.0 LL=43/PI=24		COASTAL PLAIN (SP) - GRAY, SAND WITH SILT AND CLAY LAYERS, SAT. (CAPE FEAR FORMATION)	14.4 33.0
	8.4	39.0	8	6	8	14				
	6.9	40.5	7	8	6	14				8.4 39.0
	5.4	42.0	3	4	5	9			(SP-SC) - SAND TO CLAYEY SAND	
	3.9	43.5	5	5	5	10	SPT-29 MC=29.0 LL=45/PI=30			
	2.4	45.0	3	7	5	12				2.4 45.0
	0.9	46.5	2	1	5	6			(SP) - POORLY GRADED SAND	
	-0.6	48.0	4	5	7	12				
	-2.1	49.5	4	5	6	11	SPT-33 MC=34.0 LL=45/PI=26			
			3	4	7	11				-3.6 51.0
									Boring Terminated at Elevation -3.6 ft	
									IN MEDIUM DENSE SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tom Child
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PRC-17-SPT-02	**STATION:** 149+17	**OFFSET:** 55 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 35.0 ft	**TOTAL DEPTH:** 29.0 ft	**NORTHING:** 782,329	**EASTING:** 2,434,523	**24 HR.** N/A
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 10/26/07	**COMP. DATE:** 10/27/07	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
	35.0	0.0	5	6	8	14			35.0 0.0
	33.5	1.5	4	6	6	12			ARTIFICIAL FILL (CL) - GRAY, ORANGE AND BROWN, SILTY AND CLAYEY FINE TO MEDIUM SAND, WITH BROWN SANDY LEAN CLAY, MOIST (LEVEE EMBANKMENT)
	32.0	3.0	3	3	4	7			33.5 1.5
	30.5	4.5	3	4	4	8			32.0 3.0
	29.0	6.0	1	1	3	4			29.6 5.4
	27.5	7.5	5	4	4	8			(SC) - CLAYEY SAND
	26.0	9.0	2	4	3	7			29.0 6.0
	24.5	10.5	5	7	6	13			UNDIVIDED COASTAL PLAIN
	23.0	12.0	4	5	6	11			27.5 7.5
	21.5	13.5	5	7	9	16			(CL) - GRAY, SANDY CLAY, WET
	20.0	15.0	5	8	7	15			26.2 8.8
	18.5	16.5	4	4	5	9			(SP) - BROWN GRAY, FINE TO MEDIUM SAND AND SILTY CLAYEY SAND, MOIST TO SAT.
	17.0	18.0	5	7	8	15			26.0 9.0
	15.5	19.5	4	8	4	12			24.8 10.2
	12.0	23.0	7	5	5	10			24.5 10.5
	10.5	24.5	2	4	5	9			(SW) - WELL GRADED SAND
	9.0	26.0	2	2	5	7			21.5 13.5
	7.5	27.5	2	4	5	9			(SP) - POORLY GRADED SAND
									20.0 15.0
									(SC) - CLAYEY SAND
									18.5 16.5
									(SP) - POORLY GRADED SAND
									(SC) - CLAYEY SAND
									(SP-SM) - SAND TO SILTY SAND
									(SM) - SILTY SAND
									(SP) - POORLY GRADED SAND
									COASTAL PLAIN (SP-SC) - GRAY, FINE TO MEDIUM, SAND AND CLAYEY SAND, SAT. (CAPE FEAR FORMATION)
									6.0 29.0
									Boring Terminated at Elevation 6.0 ft
									IN LOOSE SAND AND CLAYEY SAND

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035 **PAGE 1 of 1**

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-02A	**STATION:** 213+65	**OFFSET:** 230 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 784,349	**EASTING:** 2,440,212	**24 HR.** 8.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/12/64	**COMP. DATE:** 06/12/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.0	0	0	10	10			(SM) - TAN, SILTY, FINE SAND	
		1.5	0	0	12	12				
		3.0	0	0	14	14				3.0
		4.5	0	0	19	19			(SP) - TAN, MEDIUM SAND	4.5
		6.0	0	0	17	17			(SC) - TAN, CLAYEY SAND	
		7.5	0	0	6	6				7.5
		9.0	0	0	5	5			(SP) - TAN, MEDIUM TO COARSE SAND WITH OCCASIONAL GRAVEL	
		10.5	0	0	5	5				
		12.0	0	0	47	47				12.0
		13.5	0	0	66	66			(SC) - GRAY, CLAYEY SAND	
		15.0	0	0	80	80				
		16.5	0	0	48	48				
		18.0	0	0	34	34				
		19.5	0	0	18	18				
		21.0	0	0	29	29				21.0
		22.5	0	0	27	27			(SM) - GRAY, SILTY, FINE TO MEDIUM SAND	
		24.0	0	0	28	28				
		25.5	0	0	26	26				
		27.0	0	0	23	23				27.0
		28.5	0	0	22	22			(SC) - GRAY, CLAYEY SAND	
										30.0
									Boring Terminated at Depth 30.0 ft	
									IN MEDIUM DENSE CLAYEY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-19	**STATION:** 155+29	**OFFSET:** 320 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 783,006	**EASTING:** 2,434,353	**24 HR.** 14.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/18/64	**COMP. DATE:** 05/18/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.0	0	0	4	4			(SM) - TAN, SILTY, FINE SAND
		1.5	0	0	5	5			
		3.0	0	0	18	18			
		4.5	0	0	12	12			
		6.0	0	0	12	12			
		7.5	0	0	11	11			
		9.0	0	0	5	5			10.5
		10.5	0	0	4	4			(CL) - TAN, SANDY TO SILTY CLAY
		12.0	0	0	5	5			13.0
		13.5	0	0	27	27			(SM) - TAN AND GRAY, SILTY, FINE TO MEDIUM SAND 15.0
		15.0	0	0	15	15			(CH) - TAN AND GRAY, FAT CLAY
		16.5	0	0	27	27			
		18.0	0	0	30	30			
		19.5	0	0	34	34			
		21.0	0	0	28	28			
		22.5	0	0	53	53			
		24.0	0	0	46	46			25.5
									Boring Terminated at Depth 25.5 ft
									IN HARD FAT CLAY

CATLIN USACE SPT LOG 11X17 W/ AB 220035 GEO LEVEE USACE APPENDIX.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN #: 220035 **PAGE 2 of 1**

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-23	**STATION:** 143+25	**OFFSET:** 311 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 782,618	**EASTING:** 2,433,897	**24 HR.** 11.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 05/20/64	**COMP. DATE:** 05/20/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.0	0	0	4	4			(SM) - TAN, SILTY, FINE SAND	
		1.5	0	0	6	6				
		3.0	0	0	8	8				
		4.5	0	0	9	9				
		6.0	0	0	12	12				
		7.5	0	0	13	13				7.5
		9.0	0	0	10	10			(SM) - (SLIGHT TRACE OF CLAY)	
		10.5	0	0	11	11				
		12.0	0	0	10	10			(SM) - SILTY SAND	10.0
		13.5	0	0	12	12				
		15.0	0	0	11	11				
		16.5	0	0	2	2				16.5
		18.0	0	0	5	5			(CL) - TAN, SANDY CLAY	
		19.5	0	0	9	9				20.5
		21.0	0	0	22	22			(SM) - TAN AND GRAY, SILTY, FINE SAND WITH OCCASIONAL THIN SC LAYER	
		22.5	0	0	16	16				
		24.0	0	0	18	18				25.5
		25.5	0	0	36	36			(SM) - GRAY, SILTY, MEDIUM SAND	
		27.0	0	0	25	25				28.5
		28.5	0	0	18	18			(CL) - GRAY, SANDY CLAY	30.0
									Boring Terminated at Depth 30.0 ft	
									IN VERY STIFF SANDY CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-34	**STATION:** 83+31	**OFFSET:** 83 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 42.0 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 777,636	**EASTING:** 2,435,576	**24 HR.** 3.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/15/64	**COMP. DATE:** 06/16/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
45									
	42.0	0.0							42.0 0.0
40	40.5	1.5	0	0	4	4			UNDIVIDED COASTAL PLAIN
	39.0	3.0	0	0	10	10			40.0 (OL) - BLACK ORGANIC SILT, MOIST 2.0
	37.5	4.5	0	0	15	15			(SP) - GRAY SAND, MOIST TO SAT.
	36.0	6.0	0	0	12	12			
35	34.5	7.5	0	0	13	13			35.6 6.4
	33.0	9.0	0	0	22	22			(SP) - POORLY GRADED SAND
	31.5	10.5	0	0	20	20			31.5 10.5
30	30.0	12.0	0	0	22	22			COASTAL PLAIN
	28.5	13.5	0	0	24	24			(CH) - BLACK GRAY SILTY SANDY CLAY,
	27.0	15.0	0	0	35	35			WET (CAPE FEAR FORMATION)
25	25.5	16.5	0	0	42	42			
	24.0	18.0	0	0	80	80			25.5 16.5
	22.5	19.5	0	0	78	78			24.0 (CL) - LEAN CLAY 18.0
	21.0	21.0	0	0	70	70			(CL) - LEAN CLAY
20	19.5	22.5	0	0	78	78			
	18.0	24.0	80/0.9			80/0.9			
	16.5	25.5	0	0	52	52			16.5 25.5
15	15.0	27.0	0	0	56	56			(CL) - LEAN CLAY
	13.5	28.5	0	0	56	56			
			0	0	67	67			12.0 30.0
10									Boring Terminated at Elevation 12.0 ft
5									IN HARD SILTY SANDY CLAY
0									
-5									
-10									
-15									
-20									
-25									
-30									
-35									

CATLIN USACE SPT LOG 11X17 WI AB 220035 GEO LEVEE USACE APPENDIX.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-35	**STATION:** 77+91	**OFFSET:** 104 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.8 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 777,092	**EASTING:** 2,435,608	**24 HR.** 9.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/16/64	**COMP. DATE:** 06/16/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
45										
	41.8	0.0							41.8	0.0
40	40.3	1.5	0	0	9	9			UNDIVIDED COASTAL PLAIN (SM) - TAN SILTY CLAYEY SAND AND SAND WITH GRAVEL, MOIST TO SAT.	
	38.8	3.0	0	0	8	8				
	37.3	4.5	0	0	9	9				
	35.8	6.0	0	0	11	11			(SC) - CLAYEY SAND	3.0
35	34.3	7.5	0	0	19	19				
	32.8	9.0	0	0	21	21			(SM) - SILTY SAND	6.0
	31.3	10.5	0	0	13	13			(SC) - CLAYEY SAND	7.5
30	29.8	12.0	0	0	9	9			(SP) - POORLY GRADED SAND	10
	28.3	13.5	0	0	18	18				
	26.8	15.0	0	0	14	14				
25	25.3	16.5	0	0	10	10				
	23.8	18.0	0	0	24	24				
	22.3	19.5	0	0	26	26				
20	20.8	21.0	0	0	48	48				
	19.3	22.5	0	0	69	69				
	17.8	24.0	0	0	55	55				
			0	0	46	46			23.3	18.5
15									COASTAL PLAIN (CL) - GRAY SILTY CLAY, WET (CAPE FEAR FORMATION)	
									16.3	25.5
10									Boring Terminated at Elevation 16.3 ft	
									IN HARD SILTY CLAY	
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: CS-36	**STATION:** 95+82	**OFFSET:** 295 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 21.0 ft	**NORTHING:** 778,976	**EASTING:** 2,435,653	**24 HR.** 8.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/19/64	**COMP. DATE:** 06/19/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.0	0	0	7	7			(SM) - TAN, SILTY, FINE SAND
		1.5	0	0	12	12			
		3.0	0	0	10	10			
		4.5	0	0	11	11			
		6.0	0	0	10	10			6.0
		7.5	0	0	12	12			(SC) - TAN, CLAYEY SAND 5
		9.0	0	0	8	8			(SP) - TAN, MEDIUM SAND
		10.5	0	0	19	19			
		12.0	0	0	31	31			12.0
		13.5	0	0	42	42			(SC) - GRAY, CLAYEY SAND
		15.0	0	0	42	42			15.0
		16.5	0	0	48	48			(SM) - GRAY, SILTY, FINE SAND
		18.0	0	0	38	38			
		19.5	0	0	46	46			21.0
									Boring Terminated at Depth 21.0 ft
									IN DENSE SILTY SAND

CATLIN USACE SPT LOG 11X17 W/ LAB 220035_GEO_LEVEE_USACE_APPENDIX.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-37	**STATION:** 68+09	**OFFSET:** 33 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 41.4 ft	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 776,401	**EASTING:** 2,436,151	**24 HR.** 4.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/16/64	**COMP. DATE:** 06/16/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
45										
	41.4	0.0							41.4	0.0
40	39.9	1.5	0	0	6	6			UNDIVIDED COASTAL PLAIN (SM) - GRAY SILTY CLAYEY SAND, MOIST TO SAT.	
	38.4	3.0	0	0	9	9			38.4	3.0
	36.9	4.5	0	0	12	12			(SP) - POORLY GRADED SAND	
35	35.4	6.0	0	0	9	9				
	33.9	7.5	0	0	6	6				
	32.4	9.0	0	0	4	4				
30	30.9	10.5	0	0	5	5				
	29.4	12.0	0	0	5	5				
	27.9	13.5	0	0	27	27			(SC) - CLAYEY SAND	
25	26.4	15.0	0	0	40	40			28.9	12.5
	24.9	16.5	0	0	51	51			COASTAL PLAIN (CL) - GRAY BROWN SILTY CLAY, WET (CAPE FEAR FORMATION)	
	23.4	18.0	0	0	59	59			25.9	15.5
20	21.9	19.5	0	0	80	80			(CH) - FAT CLAY	
	20.4	21.0	0	0	48	48			21.9	19.5
	18.9	22.5	0	0	70	70				
	17.4	24.0	0	0	72	72				
15			0	0	76	76				
									15.9	25.5
10									Boring Terminated at Elevation 15.9 ft	
									IN HARD SILTY CLAY	
5										
0										
-5										
-10										
-15										
-20										
-25										
-30										
-35										

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-38	**STATION:** 60+57	**OFFSET:** 379 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 776,098	**EASTING:** 2,436,818	**24 HR.** 6.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/17/64	**COMP. DATE:** 06/17/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.0	0	0	11	11			(SM) - GRAY AND TAN, SILTY, FINE SAND
		1.5	0	0	16	16			
		3.0	0	0	41	41			
		4.5	0	0	24	24			5.0
		6.0	0	0	7	7			(SP) - GRAY, MEDIUM TO COARSE SAND
		7.5	0	0	5	5			8.0
		9.0	0	0	3	3			(SC) - GRAY, CLAYEY, FINE SAND
		10.5	0	0	10	10			
		12.0	0	0	74	74			12.0
		13.5	0	0	66	66			(CL) - GRAY, SANDY CLAY
		15.0	0	80/0.7		80/0.7			15.0
		16.5	0	80/0.9		80/0.9			(ML) - GRAY AND BROWN, CLAYEY SILT WITH FINE SAND
		18.0	0	80/0.6		80/0.6			
		19.5	0	0	48	48			21.0
		21.0	0	80/0.9		80/0.9			(CH) - GRAY, FAT CLAY
		22.5	0	0	50	50			
		24.0	0	0	80	80			25.5
									Boring Terminated at Depth 25.5 ft
									IN HARD FAT CLAY

CAT IN USACE SPT LOG 11X17 W/LAB 220035 GEO LEVEE USACE APPENDIX.GPJ CAT IN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035 **PAGE 5 of 1**

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Allen H. Merritt
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: CS-39	**STATION:** 56+75	**OFFSET:** 328 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 21.0 ft	**NORTHING:** 775,917	**EASTING:** 2,437,035	**24 HR.** 7.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/18/64	**COMP. DATE:** 06/18/64	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.0	0	0	7	7			(SM) - BLACK, SILTY, FINE SAND	
		1.5	0	0	11	11				1.5
		3.0	0	0	8	8			(OL) - TAN, ORGANIC SILT	
		4.5	0	0	14	14				
		6.0	0	0	14	14				6.0
		7.5	0	0	5	5			(SM) - GRAY, SILTY SAND	
		9.0	0	0	10	10				
		10.5	0	0	5	5				
		12.0	0	0	12	12				
		13.5	0	0	32	32				
		15.0	0	0	21	21				
		16.5	0	0	31	31				
		18.0	0	0	20	20				
		19.5	0	0	27	27				
										21.0
									Boring Terminated at Depth 21.0 ft	
									IN MEDIUM DENSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-64-01	**STATION:** 68+16	**OFFSET:** 157 ft LT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 47.2 ft	**TOTAL DEPTH:** 30.0 ft	**NORTHING:** 776,319	**EASTING:** 2,435,980	**24 HR.** 19.3
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/18/09	**COMP. DATE:** 04/18/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
50									
	47.2	0.0							47.2 0.0
45	45.7	1.5	1	2	3	5			ROADWAY EMBANKMENT 45.7 1.5
	44.2	3.0	4	2	2	4			(SM) - TAN BROWN SILTY SAND, MOIST
	42.7	4.5	2	4	4	8			(SM) - SILTY SAND
	41.2	6.0	7	6	6	12			42.7 4.5
40	39.7	7.5	3	4	4	8			UNDIVIDED COASTAL PLAIN
	38.2	9.0	6	6	6	12			(SP) - GRAY SILTY CLAYEY SAND, MOIST
	36.7	10.5	5	6	6	12			TO SAT.
35	35.2	12.0	5	7	11	18			35.2 12.0
	33.7	13.5	7	9	9	18			POORLY GRADED SAND
	32.2	15.0	5	5	8	13			
	30.7	16.5	10	11	13	24			30.7 16.5
30	29.2	18.0	10	10	10	20			POORLY GRADED SAND 29.2 18.0
	27.7	19.5	3	5	7	12			POORLY GRADED SAND
	26.2	21.0	2	4	5	9			26.2 21.0
25	24.7	22.5	1	1	1	2			POORLY GRADED SAND
	23.2	24.0	2	3	4	7			
	21.7	25.5	2	3	3	6			
20	20.2	27.0	2	2	1	3			
	18.7	28.5	2	18	12	30			
			5	7	10	17			17.2 30.0
15									Boring Terminated at Elevation 17.2 ft
10									IN MEDIUM DENSE SILTY CLAYEY SAND
5									Other Samples:
0									SPT-2 (1.5 - 3.0)
-5									SPT-9 (12.0 - 13.5)
-10									SPT-15 (21.0 - 22.5)
-15									SPT-19 (27.0 - 28.5)
-20									
-25									
-30									

CATLIN USACE SPT LOG 11X17 W/LAB 220035 GEO LEVEE USACE APPENDIX.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-BA-01	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 770,503	**EASTING:** 2,455,035
DRILL MACHINE: USACE DRILL RIG	**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/14/09	**COMP. DATE:** 04/14/09	**SURFACE WATER DEPTH:** N/A

GROUND WTR (ft)	
0 HR.	N/A
24 HR.	6.1

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) / DEPTH (ft)
									0.0
		0.0 – 1.5	1	1	1	2			(SM) - BROWN, SILTY, FINE SAND WITH TRACE CLAY AND ORGANICS — 1.5
		3.0	1	1	1	2			(SP) - LIGHT REDDISH BROWN, FINE SAND WITH TRACE SILT AND CLAY
		4.5	1	2	2	4			▼ 6.0
		6.0	2	4	3	7			(SP) - LIGHT REDDISH BROWN, FINE AND MEDIUM SAND
		7.5	2	3	3	6			
		9.0	1	2	2	4			10.5
		10.5	1	2	3	5			(SP) - LIGHT BROWN, FINE AND MEDIUM SAND WITH TRACE CLAY
		12.0	1	2	5	7			13.5
		13.5	1	1	1	2			(SW) - LIGHT BROWN, FINE TO COARSE SAND — 15.0
			2	3	4	7			Boring Terminated at Depth 15.0 ft

IN LOOSE SAND

Other Samples:
SPT-1 (0.0 - 1.5)
SPT-7 (9.0 - 10.5)
SPT-10 (13.5 - 15.0)

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-BA-02	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 770,144	**EASTING:** 2,455,406
DRILL MACHINE: USACE DRILL RIG	**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/14/09	**COMP. DATE:** 04/14/09	**SURFACE WATER DEPTH:** N/A

GROUND WTR (ft)	
0 HR.	N/A
24 HR.	5.3

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.0 – 1.5	1	1	2	3			(SM) - BROWN, SILTY, FINE SAND WITH TRACE ORGANICS — 1.5
		3.0	1	1	2	3			(SP) - LIGHT REDDISH BROWN, FINE SAND
		4.5	1	2	1	3			▼ 6.0
		6.0	2	4	3	7			(SP) - LIGHT GRAY, FINE SAND
		7.5	3	3	2	5			9.0
		9.0	2	2	1	3			(SP) - LIGHT GRAY TO BROWN GRAY, FINE TO MEDIUM SAND
		10.5	3	3	4	7			13.5
		12.0	1	1	1	2			(SW) - LIGHT BROWN, FINE TO COARSE SAND — 15.0
		13.5	2	3	5	8			Boring Terminated at Depth 15.0 ft
			1	1	2	3			

IN VERY LOOSE SAND

Other Samples:
SPT-3 (3.0 - 4.5)
SPT-7 (9.0 - 10.5)
SPT-9 (12.0 - 13.5)

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-BA-03	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 770,316	**EASTING:** 2,455,889	**24 HR.** 5.4
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/14/09	**COMP. DATE:** 04/14/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.0 1.5	2	3	4	7			(SM) - BROWN, SILTY, FINE SAND WITH TRACE ORGANICS	1.5
		3.0	3	3	3	6			(SP-SC) - LIGHT REDDISH BROWN, FINE SAND WITH LITTLE CLAY	4.5
		4.5	2	2	2	4			(SP) - LIGHT BROWN, FINE SAND WITH TRACE CLAY	
		6.0	2	2	3	5				
		7.5	2	3	4	7				
		9.0	2	2	3	5				
		10.5	1	1	1	2				10.5
		12.0	2	2	2	4			(SP-SC) - LIGHT GRAY BROWN, FINE TO MEDIUM SAND WITH LITTLE CLAY	
		13.5	1	2	3	5				13.5
			1	1	1	2			(SP) - LIGHT BROWN, FINE AND MEDIUM SAND	15.0

Boring Terminated at Depth 15.0 ft

IN VERY LOOSE SAND

Other Samples:
SPT-1 (0.0 - 1.5)
SPT-3 (3.0 - 4.5)
SPT-9 (12.0 - 13.5)

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-BA-04	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 770,720	**EASTING:** 2,456,152	**24 HR.** 5.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 04/15/09	**COMP. DATE:** 04/15/09	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.0 1.5	0	1	1	2			(SM) - BROWN, FINE SAND WITH SOME SILT AND LITTLE CLAY. TRACE ROOTS AND ORGANICS 1.5
		3.0	2	2	4	6			(SM) - LIGHT BROWN, SILTY, FINE SAND 4.5
		4.5	3	2	2	4			(SP) - LIGHT GRAY, FINE SAND
		6.0	2	2	2	4			
		7.5	2	2	2	3			
		9.0	2	1	2	5			
		10.5	2	2	3	7			10.5
		12.0	3	3	4	8			(SC) - LIGHT GRAY TO LIGHT BROWN, CLAYEY, FINE TO COARSE SAND
		13.5	3	4	4	9			
			4	4	5				15.0

Boring Terminated at Depth 15.0 ft

IN LOOSE SAND

Other Samples:
SPT-1 (0.0 - 1.5)
SPT-3 (3.0 - 4.5)
SPT-8 (10.5 - 12.0)

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Stacey Smith/M. Gates
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PD-BP-BA-05	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.0 ft	**NORTHING:** 770,788	**EASTING:** 2,455,600
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 04/15/09	**COMP. DATE:** 04/15/09	**SURFACE WATER DEPTH:** N/A

GROUND WTR (ft)
0 HR. N/A
24 HR. 6.0

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.0 1.5	2	3	5	8			(SM) - BROWN, SILTY, FINE SAND. TRACE ORGANICS	1.5
		3.0	2	2	3	5			(SC) - LIGHT BROWN, CLAYEY, FINE SAND	4.5
		4.5	3	3	3	6			(SP) - LIGHT BROWN TO LIGHT GRAY, FINE SAND WITH LITTLE TO TRACE CLAY. (LIKELY SC BASED ON SAMPLE #3)	9.0
		6.0	4	2	2	4			(SP) - LIGHT BROWN, FINE AND MEDIUM SAND	12.0
		7.5	2	4	4	8			(SW) - LIGHT BROWN, FINE TO COARSE SAND	15.0
		9.0	3	2	3	5			Boring Terminated at Depth 15.0 ft	
		10.5	2	2	3	5			IN LOOSE SAND	
		12.0	1	1	1	2				
		13.5	2	3	5	8				
			2	3	5	8				

Other Samples:
SPT-1 (0.0 - 1.5)
SPT-3 (3.0 - 4.5)
SPT-8 (10.5 - 12.0)

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-A-01	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 5.0 ft	**NORTHING:** 776,249	**EASTING:** 2,443,464
DRILL MACHINE: HAND AUGER		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 07/21/06	**COMP. DATE:** 07/21/06	**SURFACE WATER DEPTH:** N/A

GROUND WTR (ft)
0 HR. N/A
24 HR. 2.0

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
									(ML) - BROWN AND TAN, SILT, TRACE FINE TO COARSE SAND 6
									(SP-SM) - TAN AND LIGHT GRAY, FINE TO MEDIUM SAND WITH TRACE SILT 4.0
									(SP) - TAN AND LIGHT GRAY, POORLY GRADED, FINE TO COARSE SAND 5.0
									Boring Terminated at Depth 5.0 ft
									IN SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-A-02	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 7.5 ft	**NORTHING:** 776,428	**EASTING:** 2,443,654	**24 HR.** 5.0
DRILL MACHINE: HAND AUGER		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/21/06	**COMP. DATE:** 07/21/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
									(ML) - BROWN, SILT WITH FINE TO COARSE SAND AND PLAN MATERIAL	1.0
									(CL) - BROWN AND GRAY, SANDY CLAY WITH TRACE FINE TO COARSE SAND	
									(CL) - (SOME SILTY, FINE TO MEDIUM SAND)	5.5 / 6.0
									(SC) - LIGHT GRAY, SLIGHTLY CLAYEY SAND	7.0 / 7.5
									(SP-SM) - LIGHT BROWN, SLIGHTLY SILTY, FINE TO MEDIUM SAND	
									(SP) - LIGHT GRAY, FINE SAND	
									Boring Terminated at Depth 7.5 ft	
									IN SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tracey Tappley	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-CS-08	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 4.4 ft	**NORTHING:** 785,725	**EASTING:** 2,443,958	**24 HR.** N/A
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/22/06	**COMP. DATE:** 06/22/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		1.4							ASPHALT 0.8
		2.9	0	0	33	33 / 25			CONCRETE 1.4
			0	0	25				(SM) - ORANGISH BROWN, SILTY, FINE SAND 4.4
									Boring Terminated at Depth 4.4 ft
									IN MEDIUM DENSE SILTY SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tracey Tappley	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-CS-09	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 4.1 ft	**NORTHING:** 787,652	**EASTING:** 2,445,863	**24 HR.** N/A
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/22/06	**COMP. DATE:** 06/22/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		1.1							ASPHALT	0.6
		2.6	0	0	47	8 47			CONCRETE	1.1
			0	0	8				BROWN, SILTY, FINE SAND	2.6
									YELLOWISH BROWN, SILTY, FINE SAND	4.1
									Boring Terminated at Depth 4.1 ft	
									IN LOOSE SILTY SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tracey Tappley	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-CS-10	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 4.1 ft	**NORTHING:** 786,342	**EASTING:** 2,446,693	**24 HR.** N/A
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/22/06	**COMP. DATE:** 06/22/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.3							ASPHALT 0.3
		1.8	0	0	25	25			(SC) - ORANGE BROWN, CLAYEY, FINE SAND 2.8
			0	0	34	34			BROWN MOTTLING
									(SM) - ORANGISH BROWN AND LIGHT GRAY, SILTY, FINE SAND 3.3
									Boring Terminated at Depth 4.1 ft
									IN DENSE SILTY SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-05	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 30.8 ft	**NORTHING:** 785,736	**EASTING:** 2,447,023
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 06/28/06	**COMP. DATE:** 06/28/06	**SURFACE WATER DEPTH:** N/A

GROUND WTR (ft)
0 HR. N/A
24 HR. 15.8

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
									(SP) - TAN, POORLY GRADED COARSE SAND	
									OLIVE GREEN WITH TRACE CLAY	
									YELLOWISH BROWN	
									GRAY	
									WHITISH GRAY	20.8
									(ML) - GRAY, SANDY SILT	25.8
									NO RECOVERY	30.3
									(ML) - REDDISH BROWN, SANDY SILT	30.8
									Boring Terminated at Depth 30.8 ft	
									IN SANDY SILT	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-06	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 30.6 ft	**NORTHING:** 776,368	**EASTING:** 2,435,605
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL
DRILLER: USACE	**START DATE:** 06/28/06	**COMP. DATE:** 06/28/06	**SURFACE WATER DEPTH:** N/A

GROUND WTR (ft)
0 HR. N/A
24 HR. 22.0

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
									ASPHALT 0.6
									(SC) - BROWN, CLAYEY, FINE SAND 3.5
									(SP) - WHITE AND TAN, POORLY GRADED COARSE SAND 7.6
									(SM) - GRAYISH TAN, SILTY, FINE SAND 15.6
									(SC) - ORANGISH BROWN, CLAYEY, FINE SAND 19.0
									(SP) - BROWNISH ORANGE, POORLY GRADED COARSE SAND
									WHITISH TAN 27.5
									(SM) - GRAY, SILTY, FINE SAND 30.6
									Boring Terminated at Depth 30.6 ft
									IN SILTY SAND

CATLIN USACE SPT LOG 11X17 W/ LAB 220035_GEO_LEVEE_USACE_APPENDIX.GPJ CATLIN.GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-15	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.5 ft	**NORTHING:** 787,154	**EASTING:** 2,446,244	**24 HR.** 7.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/29/06	**COMP. DATE:** 06/29/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
									ASPHALT	0.5
									(SC) - BROWN, CLAYEY, FINE SAND	4.0
									(SP) - TAN, POORLY GRADED COARSE SAND	13.0
									(CL) - DARK GRAY, LEAN CLAY	15.5
									Boring Terminated at Depth 15.5 ft	
									IN LEAN CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-GP-16	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.4 ft	**NORTHING:** 785,737	**EASTING:** 2,447,024	**24 HR.** 7.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 06/29/06	**COMP. DATE:** 06/29/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
									ASPHALT 0.4
									(SC) - BROWNISH ORANGE, CLAYEY, FINE SAND 2.0
									(SM) - GRAY, SILTY, FINE SAND 4.4
									(CH) - BROWN, FAT CLAY 7.5
									(SC) - TAN, CLAYEY, FINE SAND 8.5
									(SM) - GRAY, SILTY, FINE SAND 9.4
									(SP) - WHITISH GRAY, POORLY GRADED COARSE SAND 15.4
									Boring Terminated at Depth 15.4 ft
									IN SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN #: 220035

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-01	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 25.5 ft	**NORTHING:** 776,368	**EASTING:** 2,435,605	**24 HR.** 12.7
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/19/16	**COMP. DATE:** 07/19/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.0	0	0	14	14			(SM) - BROWN, SILTY, FINE SAND WITH TRACE GRAVEL YELLOWISH BROWN FINE TO MEDIUM	5.0
		1.5	0	0	38	38				
		3.0	0	0	32	32				
		4.5	0	0	15	15				
		6.0	0	0	18	18				
		7.5	0	0	16	16				
		9.0	0	0	18	18				
		10.5	0	0	26	26			(SP) - BROWN, POORLY GRADED FINE SAND WITH TRACE SILT YELLOWISH TAN	10.5
		12.0	0	0	19	19				
		13.5	0	0	11	11			(SP-SM) - TAN, POORLY GRADED SILTY, FINE SAND ▼	15.0
		15.0	0	0	9	9				
		16.5	0	0	18	18			(SP) - TAN, POORLY GRADED COARSE SAND WITH TRACE GRAVEL SOME PEA GRAVEL	19.5
		18.0	0	0	17	17				
		19.5	0	0	13	13			(SM) - GRAY, SILTY, FINE SAND WITH TRACE PEA GRAVEL	21.0
		21.0	0	0	35	35			(SP) - GRAY, POORLY GRADED COARSE SAND WITH TRACE SILT	22.5
		22.5	0	0	37	37			(SC) - BROWN AND GRAY, CLAYEY, FINE SAND	24.0
		24.0	0	0	29	29			(ML) - BROWN, SANDY SILT	25.5
									Boring Terminated at Depth 25.5 ft	
									IN VERY STIFF SANDY SILT	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-11	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.5 ft	**NORTHING:** 784,839	**EASTING:** 2,442,112	**24 HR.** 9.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/18/06	**COMP. DATE:** 07/18/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.5							ASPHALT 0.5
		2.0	0	0	22	22			(SM) - BROWN, SILTY, FINE SAND TRACE CLAY 5.0
		3.5	0	0	9	9			
		5.0	0	0	4	4			(CL) - BROWN, LEAN CLAY WITH SOME SAND 6.5
		6.5	0	0	13	13			(SP-SM) - GRAY AND TAN, POORLY GRADED SILTY, FINE SAND 7.5 ▼
		8.0	0	0	26	26			
		9.5	0	0	26	26			(SC) - BROWN, CLAYEY, FINE TO MEDIUM SAND 11.0
		11.0	0	0	16	16			
		12.5	0	0	4	4			(SP) - BROWN, POORLY GRADED FINE TO MEDIUM SAND TRACE PEA GRAVEL 15.5
			0	0	10	10			Boring Terminated at Depth 15.5 ft
									IN LOOSE SAND

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GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-12	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.6 ft	**NORTHING:** 785,318	**EASTING:** 2,443,115	**24 HR.** 8.1
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/18/06	**COMP. DATE:** 07/18/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.6							ASPHALT	0.6
		2.1	0	0	61	61			(SM) - BROWN, SILTY, FINE SAND LIGHT BROWN	
		3.6	0	0	22	22			BROWN AND ORANGE	5.1
		5.1	0	0	15	15			(SP-SM) - BROWN, POORLY GRADED SILTY, FINE SAND	7.1
		6.6	0	0	18	18			(SM) - BROWN, SILTY, FINE SAND	8.1
		8.1	0	0	18	18			(SP) - BEIGE, POORLY GRADED COARSE SAND	9.6
		9.6	0	0	16	16			(SP-SM) - BROWN AND TAN, POORLY GRADED SILTY, FINE SAND	
		11.1	0	0	11	11			(SP) - LIGHT GRAY, POORLY GRADED COARSE SAND TRACE CHERT GRAVEL NO GRAVEL	15.6
		12.6	0	0	13	13			Boring Terminated at Depth 15.6 ft	
			0	0	12	12			IN MEDIUM DENSE SAND	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach	
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN				**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-13	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.5 ft	**NORTHING:** 786,338	**EASTING:** 2,444,685	**24 HR.** 11.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/18/06	**COMP. DATE:** 07/18/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.5							ASPHALT 0.5
		2.0	0	0	30	30			(SC) - BROWN, CLAYEY, FINE SAND 3.5
		3.5	0	0	18	18			(SM) - GRAY, SILTY, FINE SAND 4.0
		5.0	0	0	14	14			(SP-SM) - GRAY, POORLY GRADED SILTY, FINE SAND
		6.5	0	0	12	12			12.5
		8.0	0	0	16	16			(SP) - TAN, POORLY GRADED COARSE SAND WITH TRACE PEA GRAVEL 14.5
		9.5	0	0	27	27			(CH) - GRAY FAT CLAY WITH SAND 15.5
		11.0	0	0	27	27			Boring Terminated at Depth 15.5 ft
		12.5	0	0	27	27			IN STIFF FAT CLAY
		14.0	0	0	13	13			
			0	0	8	8			

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-14	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.6 ft	**NORTHING:** 787,418	**EASTING:** 2,445,659	**24 HR.** 7.5
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/18/06	**COMP. DATE:** 07/18/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										0.0
		0.6							ASPHALT	0.6
		2.1	0	0	18	18			(SM) - DARK GRAY, SILTY, FINE SAND	
		3.6	0	0	12	12				
		5.1	0	0	16	16				
		6.6	0	0	13	13				6.0
		8.1	0	0	32	32			(SP-SM) - BEIGE, POORLY GRADED SILTY, FINE SAND	7.5
		9.6	0	0	16	16			(SP) - YELLOWISH TAN, POORLY GRADED FINE TO MEDIUM SAND	
		11.1	0	0	10	10				
		12.6	0	0	17	17				13.0
		14.1	0	0	9	9			(CH) - DARK GRAY, FAT CLAY WITH TRACE CLAYEY SAND	
			0	0	4	4				15.6
									Boring Terminated at Depth 15.6 ft	
									IN SOFT FAT CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Kelley Kaltenbach
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-19	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.6 ft	**NORTHING:** 779,979	**EASTING:** 2,447,467	**24 HR.** 3.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/19/06	**COMP. DATE:** 07/19/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
									0.0
		0.6							ASPHALT 0.6
		2.1	0	0	25	25			(SM) - GRAY, SILTY, FINE SAND 2.0
		3.6	0	0	11	11			(CH) - BROWN, FAT CLAY
		5.1	0	0	15	15			5.0
		6.6	0	0	26	26			(CL) - GRAY, LEAN CLAY 5.5
		8.1	0	0	18	18			(SP) - GRAY, POORLY GRADED FINE SAND COARSE GRAINED
		9.6	0	0	13	13			
		11.1	0	0	15	15			
		12.6	0	0	9	9			
		14.1	0	0	14	14			15.6
									Boring Terminated at Depth 15.6 ft
									IN MEDIUM DENSE SAND

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX GPJ CATLIN GDT 10/8/20

GEOTECHNICAL BORING REPORT

CATLIN Engineers and Scientists

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tom Child
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PFR-06-SS-20	**STATION:** N/A	**OFFSET:** N/A	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: N/A	**TOTAL DEPTH:** 15.5 ft	**NORTHING:** 780,140	**EASTING:** 2,449,866	**24 HR.** 9.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 07/18/06	**COMP. DATE:** 07/18/06	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
		0.5							ASPHALT	0.0 / 0.5
		2.0	0	0	22	22			(SM) - BROWN, SILTY, FINE SAND WITH TRACE ASPHALT	2.0
		3.5	0	0	9	9			(CL) - GRAY AND BROWN, SANDY LEAN CLAY	4.3
		5.0	0	0	4	4			WHITISH GRAY	5.0
		6.5	0	0	13	13			(SM) - LIGHT GRAY, SILTY, FINE SAND	
		8.0	0	0	26	26			(SP-SM) - GRAYISH TAN, POORLY GRADED SILTY, FINE SAND	9.8
		9.5	0	0	26	26			(SP) - LIGHT GRAY, POORLY GRADED COARSE SAND	11.8
		11.0	0	0	16	16			(CH) - BROWN, FAT CLAY	12.5
		12.5	0	0	4	4			(CL) - BROWN, LEAN CLAY	15.5
			0	0	10	10			Boring Terminated at Depth 15.5 ft	
									IN STIFF LEAN CLAY	

CATLIN NO.: 220035	**CITY, STATE:** PRINCEVILLE, NC	**COUNTY:** EDGECOMBE	**LOGGED BY:** Tom Child
SITE DESCRIPTION: PRINCEVILLE FLOOD RISK MANAGEMENT PLAN			**GROUND WTR (ft)**
BORING NO.: PRC-17-CUD-01	**STATION:** 148+91	**OFFSET:** 2 ft RT	**ALIGNMENT:** -L-	**0 HR.** N/A
COLLAR ELEV.: 47.8 ft	**TOTAL DEPTH:** 42.0 ft	**NORTHING:** 782,357	**EASTING:** 2,434,470	**24 HR.** 24.0
DRILL MACHINE: USACE DRILL RIG		**DRILL METHOD:** NA	**HAMMER TYPE:** MANUAL	
DRILLER: USACE	**START DATE:** 10/25/07	**COMP. DATE:** 10/26/17	**SURFACE WATER DEPTH:** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT (UNCORRECTED) 0 25 50 75 100	SAMP. NO. & USCS	LOG	SOIL AND ROCK DESCRIPTION
50									47.8 / 0.0
45							UD-1		(SC) - ORANGE, CLAYEY, FINE SAND 42.8 / 5.0
40									
35							UD-2		(SC) - ORANGE, CLAYEY, FINE SAND 33.8 / 14.0
30									
25									
20									
15									
10									
5									
0							UD-3		(SC) - CLAYEY, FINE SAND (BOTTOM OF SAMPLE IS SP) 5.8 / 42.0
-5									Boring Terminated at Elevation 5.8 ft
-10									IN SAND
-15									
-20									
-25									
-30									

Other Samples:
ST-1 (3.0 - 5.0)
ST-2 (12.0 - 14.0)
ST-3 (40.0 - 42.0)

CATLIN USACE SPT LOG 11X17 WLAB 220035 GEO LEVEE USACE APPENDIX.GPJ CATLIN.GDT 10/8/20

CATLIN PROJECT REFERENCE NO.

220035

APPENDIX B

LAB REPORTS

September 18, 2020

Project No. R-2020-164-002

Mr. Lee Stone
Catlin Engineers & Scientists
P.O. Box 10279
Wilmington, NC 28404

lee.stone@catlinusa.com

Transmittal
Laboratory Test Results
USACE Princeville

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was transmitted to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens which were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,
Geotechnics, Inc.

Michael P. Smith
VP Regional Manager

We understand that you have a choice in your laboratory services and we thank you for choosing Geotechnics.

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MOISTURE CONTENT

ASTM D 2216-10

Client: Catlin Engineers & Scientists
Client Reference: USACE Princeville
Project No.: R-2020-164-002

Lab ID:	001	002	003	004	005
Boring No.:	PRN-20-SPT-01	PRN-20-SPT-01	PRN-20-SPT-01	PRN-20-SPT-01	PRN-20-SPT-01
Depth (ft):	17.2-18.0	25.5-27.0	33.0-34.5	37.5-39.0	39.6-40.5
Sample No.:	SS-06	SS-07	SS-08	SS-09	SS-10
Tare Number	300	307	738	724	732
Wt. of Tare & Wet Sample (g)	366.18	669.56	504.32	493.61	410.39
Wt. of Tare & Dry Sample (g)	320.85	564.40	446.80	433.41	349.14
Weight of Tare (g)	110.43	109.53	139.71	140.84	140.77
Weight of Water (g)	45.33	105.16	57.52	60.20	61.25
Weight of Dry Sample (g)	210.42	454.87	307.09	292.57	208.37
Water Content (%)	**21.5**	**23.1**	**18.7**	**20.6**	**29.4**

Lab ID	006	007	008	009	010
Boring No.	PRN-20-SPT-01	PRN-20-SPT-04	PRN-20-SPT-04	PRN-20-SPT-04	PRN-20-SPT-05
Depth (ft)	42.5-43.5	11.1-12.0	25.0-27.0	37.5-39.0	12.4-13.5
Sample No.	SS-11	SS-12	SS-13	SS-14	SS-15
Tare Number	730	866	737	399	304
Wt. of Tare & Wet Sample (g)	574.99	415.78	489.86	478.08	661.93
Wt. of Tare & Dry Sample (g)	488.70	329.80	432.55	387.97	516.53
Weight of Tare (g)	139.84	86.50	140.01	86.33	110.44
Weight of Water (g)	86.29	85.98	57.31	90.11	145.40
Weight of Dry Sample (g)	348.86	243.30	292.54	301.64	406.09
Water Content (%)	**24.7**	**35.3**	**19.6**	**29.9**	**35.8**

Notes :

Tested By *RFF* *Date* *8/21/20* *Checked By* *GEM* *Date* *9/1/20*

DCN: CT-S1 DATE: 3/18/13 REVISION: 4

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MOISTURE CONTENT

ASTM D 2216-10

Client: Catlin Engineers & Scientists
Client Reference: USACE Princeville
Project No.: R-2020-164-002

Lab ID:	011	012	013	014	015
Boring No.:	PRN-20-SPT-05	PRN-20-SPT-05	PRN-20-SPT-05	PRN-20-SPT-05	PRN-20-SPT-06
Depth (ft):	22.5-23.5	27.0-28.5	31.5-33.0	36.7-37.5	3.0-4.5
Sample No.:	SS-16	SS-17	SS-18	SS-19	SS-20
Tare Number	727	728	743	318	314
Wt. of Tare & Wet Sample (g)	526.83	652.51	681.70	446.24	425.55
Wt. of Tare & Dry Sample (g)	451.81	560.55	583.16	386.90	369.56
Weight of Tare (g)	142.58	143.22	138.57	86.40	84.26
Weight of Water (g)	75.02	91.96	98.54	59.34	55.99
Weight of Dry Sample (g)	309.23	417.33	444.59	300.50	285.30
Water Content (%)	**24.3**	**22.0**	**22.2**	**19.7**	**19.6**

Lab ID	016	017	018	019	020
Boring No.	PRN-20-SPT-06	PRN-20-SPT-06	PRN-20-SPT-06	PRN-20-SPT-07	PRN-20-SPT-07
Depth (ft)	10.5-12.0	18.4-19.5	27.0-28.5	9.0-10.5	10.5-12.0
Sample No.	SS-21	SS-22	SS-23	SS-24	SS-25
Tare Number	740	742	744	736	729
Wt. of Tare & Wet Sample (g)	522.56	474.92	676.54	663.75	607.37
Wt. of Tare & Dry Sample (g)	450.59	391.32	584.74	538.57	511.85
Weight of Tare (g)	143.65	144.92	142.14	140.10	139.81
Weight of Water (g)	71.97	83.60	91.80	125.18	95.52
Weight of Dry Sample (g)	306.94	246.40	442.60	398.47	372.04
Water Content (%)	**23.4**	**33.9**	**20.7**	**31.4**	**25.7**

Notes :

Tested By *RFF* *Date* *8/21* *Checked By* *GEM* *Date* *9/1/20*

DCN: CT-S1 DATE: 3/18/13 REVISION: 4

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MOISTURE CONTENT

ASTM D 2216-10

Client: Catlin Engineers & Scientists
Client Reference: USACE Princeville
Project No.: R-2020-164-002

Lab ID:	021	022	023	024	025
Boring No.:	PRN-20-SPT-07	PRN-20-SPT-07	PRN-20-SPT-08	PRN-20-SPT-08	PRN-20-SPT-08
Depth (ft):	13.5-15.0	16.5-18.0	25.5-27.0	0.0-1.5	15.0-16.5
Sample No.:	SS-26	SS-27	SS-28	SS-29	SS-30
Tare Number	739	741	312	368	731
Wt. of Tare & Wet Sample (g)	486.57	628.40	611.04	511.64	633.76
Wt. of Tare & Dry Sample (g)	414.36	476.64	516.09	447.13	511.72
Weight of Tare (g)	142.67	139.64	80.03	110.86	138.86
Weight of Water (g)	72.21	151.76	94.95	64.51	122.04
Weight of Dry Sample (g)	271.69	337.00	436.06	336.27	372.86
Water Content (%)	**26.6**	**45.0**	**21.8**	**19.2**	**32.7**

Lab ID	026	027	028	029	030
Boring No.	PRN-20-SPT-08	PRN-20-SPT-08	PRN-20-SPT-08	PRN-20-SPT-09	PRN-20-SPT-09
Depth (ft)	20.0-21.0	25.7-27.0	29.0-30.0	1.5-3.0	12.0-13.5
Sample No.	SS-31	SS-32	SS-33	SS-34	SS-35
Tare Number	746	733	745	747	735
Wt. of Tare & Wet Sample (g)	531.64	703.43	454.46	403.13	447.64
Wt. of Tare & Dry Sample (g)	454.93	585.24	389.38	352.27	342.79
Weight of Tare (g)	140.83	142.81	142.05	137.93	141.45
Weight of Water (g)	76.71	118.19	65.08	50.86	104.85
Weight of Dry Sample (g)	314.10	442.43	247.33	214.34	201.34
Water Content (%)	**24.4**	**26.7**	**26.3**	**23.7**	**52.1**

Notes :

Tested By *RFF* *Date* *8/21* *Checked By* *GEM* *Date* *8/27/20*

DCN: CT-S1 DATE: 3/18/13 REVISION: 4

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MOISTURE CONTENT

ASTM D 2216-10

Client: Catlin Engineers & Scientists
Client Reference: USACE Princeville
Project No.: R-2020-164-002

Lab ID:	031	032	033	034	035
Boring No.:	PRN-20-SPT-09	PRN-20-SPT-09	PRN_20_UD	PRN_20_UD	PRN_20_UD
Depth (ft):	19.5-21.0	25.5-27.0	18.3-20.1	20.1-22.1	10.5-12.7
Sample No.:	SS-36	SS-37	SPT06-1	SPT06-2	SPT07-1
Tare Number	725	726	745	TB-08	716
Wt. of Tare & Wet Sample (g)	505.15	507.38	705.11	544.13	442.07
Wt. of Tare & Dry Sample (g)	421.87	437.37	572.07	468.79	364.55
Weight of Tare (g)	142.14	143.11	142.13	135.60	91.05
Weight of Water (g)	83.28	70.01	133.04	75.34	77.52
Weight of Dry Sample (g)	279.73	294.26	429.94	333.19	273.50
Water Content (%)	**29.8**	**23.8**	**30.9**	**22.6**	**28.3**

Lab ID	036	037	038	039
Boring No.	PRN_20_UD	PRN_20_UD	PRN_20_UD	PRN_20_UD
Depth (ft)	16.5-18.5	21.0-23.0	13.0-15.0	15.0-17.0
Sample No.	SPT07-2	SPT08-1	SPT09-1	SPT09-2
Tare Number	859	738	730	740
Wt. of Tare & Wet Sample (g)	370.08	512.24	475.89	518.32
Wt. of Tare & Dry Sample (g)	322.07	442.23	353.65	374.04
Weight of Tare (g)	134.35	139.67	139.81	143.58
Weight of Water (g)	48.01	70.01	122.24	144.28
Weight of Dry Sample (g)	187.72	302.56	213.84	230.46
Water Content (%)	**25.6**	**23.1**	**57.2**	**62.6**

Notes :

Tested By *RFF* *Date* *9/15/20* *Checked By* *GEM* *Date* *9/16/20*

DCN: CT-S1 DATE: 3/18/13 REVISION: 4

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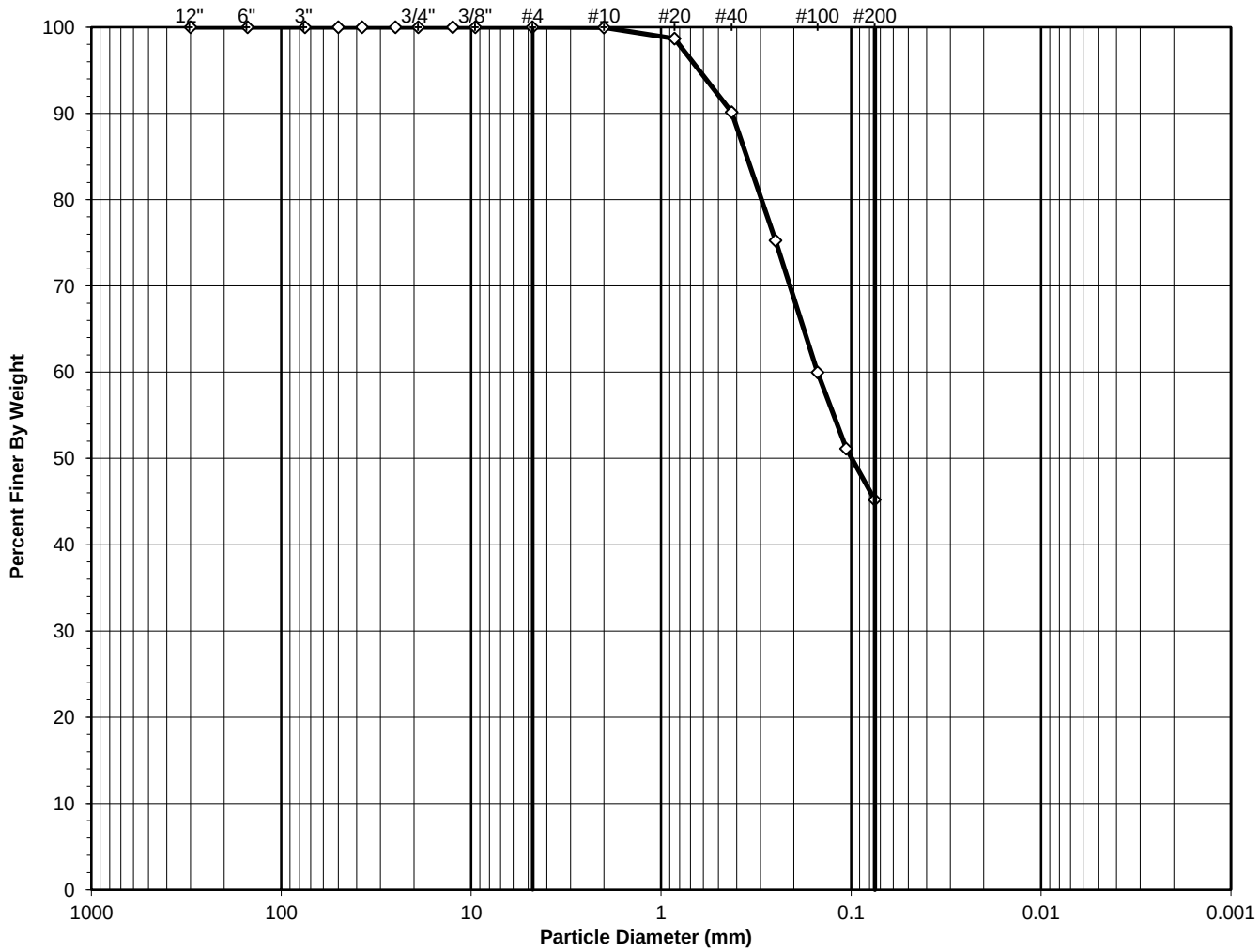
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	17.2-18.0
Project No.:	R-2020-164-002	Sample No.:	SS-06
Lab ID:	R-2020-164-002-001	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.10

USCS Classification:
SILTY SAND
(Non-Plastic)

Tested By TB Date 8/21/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	17.2-18.0
Project No.:	R-2020-164-002	Sample No.:	SS-06
Lab ID:	R-2020-164-002-001	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	300	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	366.18	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	320.85	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	110.43	Weight of Tare (g):	NA
Weight of Water (g):	45.33	Weight of Water (g):	NA
Weight of Dry Soil (g):	210.42	Weight of Dry Soil (g):	NA
Moisture Content (%):	**21.5**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	210.42
Tare No. (Sub-Specimen)	300	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	366.18	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	110.43	Dry Weight of - 3/4" Sample (g):	210.42
Sub-Specimen Wet Weight (g):	255.75	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	210.42
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.12		0.06	0.06	99.94	**99.9**
#20	0.85	2.68	(**)	1.27	1.33	98.67	**98.7**
#40	0.425	17.95		8.53	9.86	90.14	**90.1**
#60	0.25	31.31		14.88	24.74	75.26	**75.3**
#100	0.15	32.18		15.29	40.03	59.97	**60.0**
#140	0.106	18.63		8.85	48.89	51.11	**51.1**
#200	0.075	12.46		5.92	54.81	45.19	**45.2**
Pan	-	0.00		0.00	54.81	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	17.2-18.0
Project No.:	R-2020-164-002	Sample No.:	SS-06
Lab ID:	R-2020-164-002-001	Color:	Gray Sand
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	300
Wt. of Tare & Wet Sample (g)	366.18
Wt. of Tare & Dry Sample (g)	320.85
Weight of Tare (g)	110.43
Weight of Water (g)	45.33
Weight of Dry Sample (g)	210.42
Water Content (%)	**21.5**

NON - PLASTIC MATERIAL

Tested By SS *Date* 8/28/20 *Checked By* GEM *Date* 9/1/20

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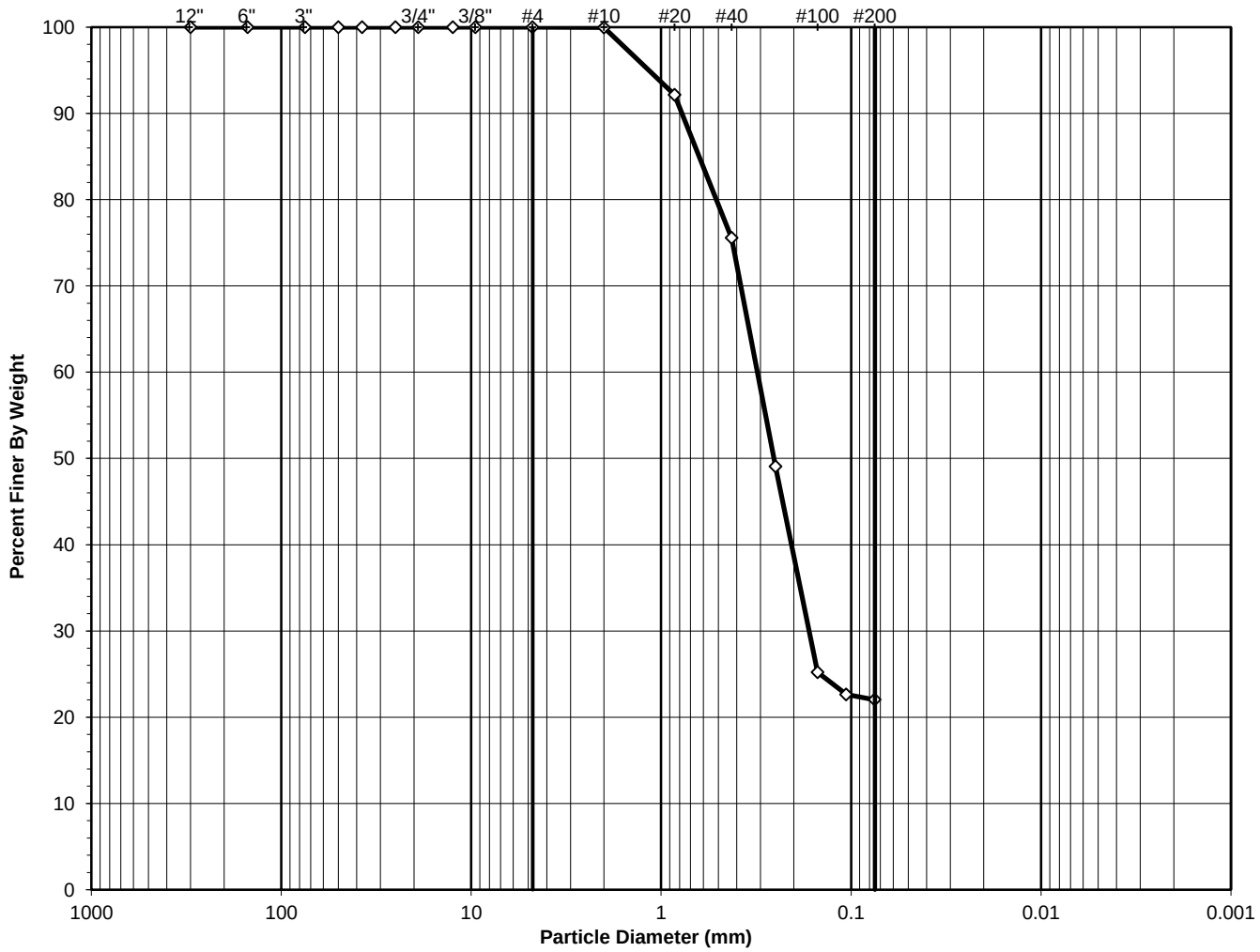
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-07
Lab ID:	R-2020-164-002-002	Soil Color:	Dark Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.25

USCS Classification:
SILTY SAND

Tested By TB Date 8/21/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-07
Lab ID:	R-2020-164-002-002	Soil Color:	Dark Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	307	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	669.56	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	564.40	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	109.53	Weight of Tare (g):	NA
Weight of Water (g):	105.16	Weight of Water (g):	NA
Weight of Dry Soil (g):	454.87	Weight of Dry Soil (g):	NA
Moisture Content (%):	**23.1**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	454.87
Tare No. (Sub-Specimen)	307	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	669.56	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	109.53	Dry Weight of - 3/4" Sample (g):	454.87
Sub-Specimen Wet Weight (g):	560.03	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	454.87
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.18		0.04	0.04	99.96	**100.0**
#20	0.85	35.46	(**)	7.80	7.84	92.16	**92.2**
#40	0.425	75.54		16.61	24.44	75.56	**75.6**
#60	0.25	120.50		26.49	50.93	49.07	**49.1**
#100	0.15	108.49		23.85	74.78	25.22	**25.2**
#140	0.106	11.74		2.58	77.36	22.64	**22.6**
#200	0.075	2.76		0.61	77.97	22.03	**22.0**
Pan	-	0.00		0.00	77.97	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 9/1/20

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-07
Lab ID:	R-2020-164-002-002	Color:	Dark Gray
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	307
Wt. of Tare & Wet Sample (g)	669.56
Wt. of Tare & Dry Sample (g)	564.40
Weight of Tare (g)	109.53
Weight of Water (g)	105.16
Weight of Dry Sample (g)	454.87
Water Content (%)	**23.1**

NON - PLASTIC MATERIAL

Tested By *SS* *Date* *8/28/20* *Checked By* *GEM* *Date* *9/1/20*

/DCN: CT-S4C, DATE: 4/27/17, REVISION : 4e

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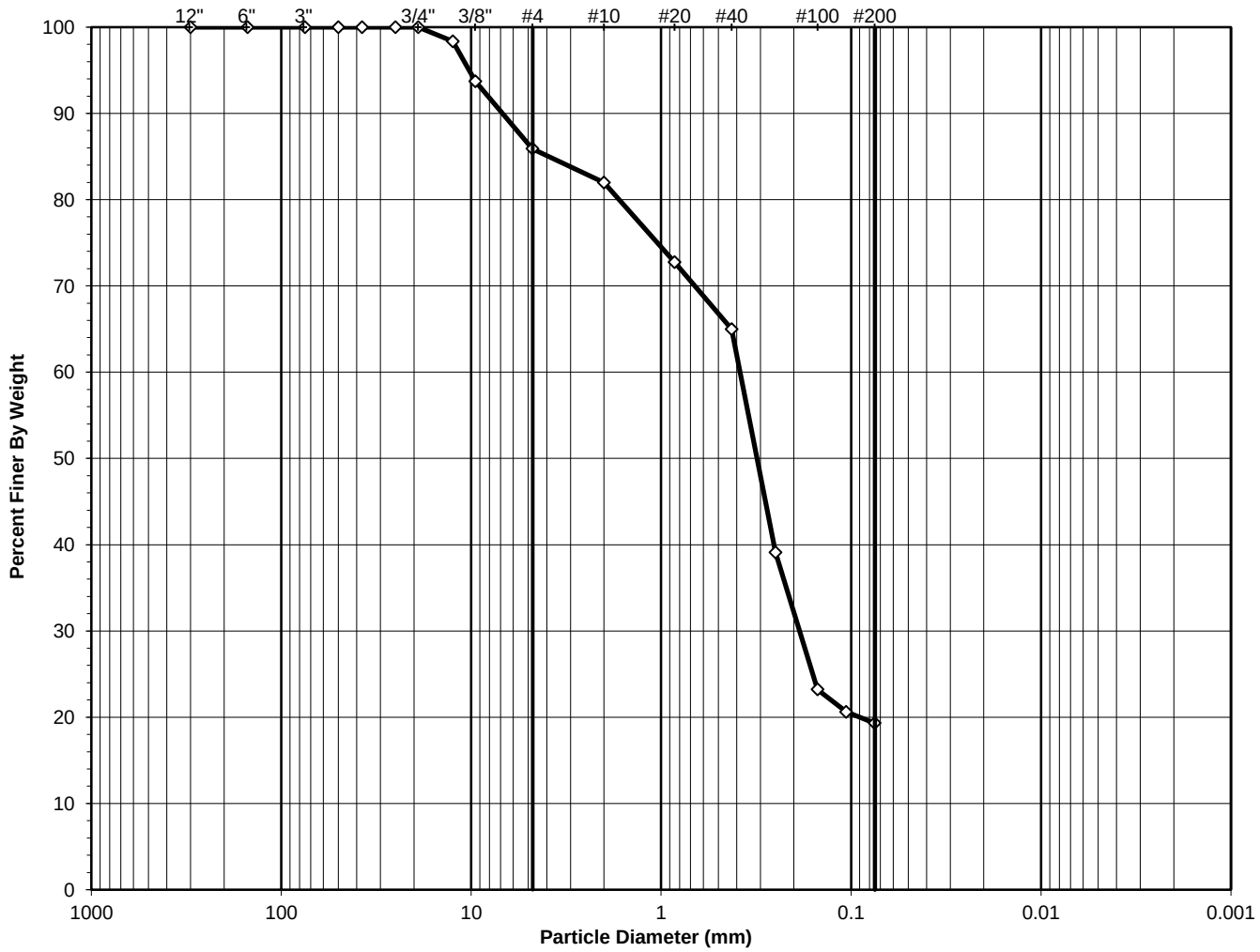
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	33.0-34.5
Project No.:	R-2020-164-002	Sample No.:	SS-08
Lab ID:	R-2020-164-002-003	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.31

USCS Classification:
SILTY SAND
(Non-Plastic)

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	33.0-34.5
Project No.:	R-2020-164-002	Sample No.:	SS-08
Lab ID:	R-2020-164-002-003	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	738	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	504.32	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	446.80	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	139.71	Weight of Tare (g):	NA
Weight of Water (g):	57.52	Weight of Water (g):	NA
Weight of Dry Soil (g):	307.09	Weight of Dry Soil (g):	NA
Moisture Content (%):	**18.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	307.09
Tare No. (Sub-Specimen)	738	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	504.32	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	139.71	Dry Weight of - 3/4" Sample (g):	307.09
Sub-Specimen Wet Weight (g):	364.61	Dry Weight -3/4" +3/8" Sample (g):	19.32
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	287.77
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100**
6"	150	0.00		0.00	0.00	100.00	**100**
3"	75	0.00		0.00	0.00	100.00	**100**
2"	50	0.00	(*)	0.00	0.00	100.00	**100**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100**
1"	25	0.00		0.00	0.00	100.00	**100**
3/4"	19	0.00		0.00	0.00	100.00	**100**
1/2"	12.5	5.06	(**)	1.65	1.65	98.35	**98**
3/8"	9.5	14.26		4.64	6.29	93.71	**94**
#4	4.75	23.97		7.81	14.10	85.90	**86**
#10	2	12.02		3.91	18.01	81.99	**82**
#20	0.85	28.36	(**)	9.24	27.25	72.75	**73**
#40	0.425	23.86		7.77	35.02	64.98	**65**
#60	0.25	79.44		25.87	60.88	39.12	**39**
#100	0.15	48.84		15.90	76.79	23.21	**23**
#140	0.106	8.00		2.61	79.39	20.61	**21**
#200	0.075	3.97		1.29	80.69	19.31	**19**
Pan	-	0.00		0.00	80.69	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	33.0-34.5
Project No.:	R-2020-164-002	Sample No.:	SS-08
Lab ID:	R-2020-164-002-003	Color:	Gray Sand
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	738
Wt. of Tare & Wet Sample (g)	504.32
Wt. of Tare & Dry Sample (g)	446.80
Weight of Tare (g)	139.71
Weight of Water (g)	57.52
Weight of Dry Sample (g)	307.09
Water Content (%)	**18.7**

NON - PLASTIC MATERIAL

Tested By *SS* *Date* *8/21/20* *Checked By* *GEM* *Date* *8/25/20*

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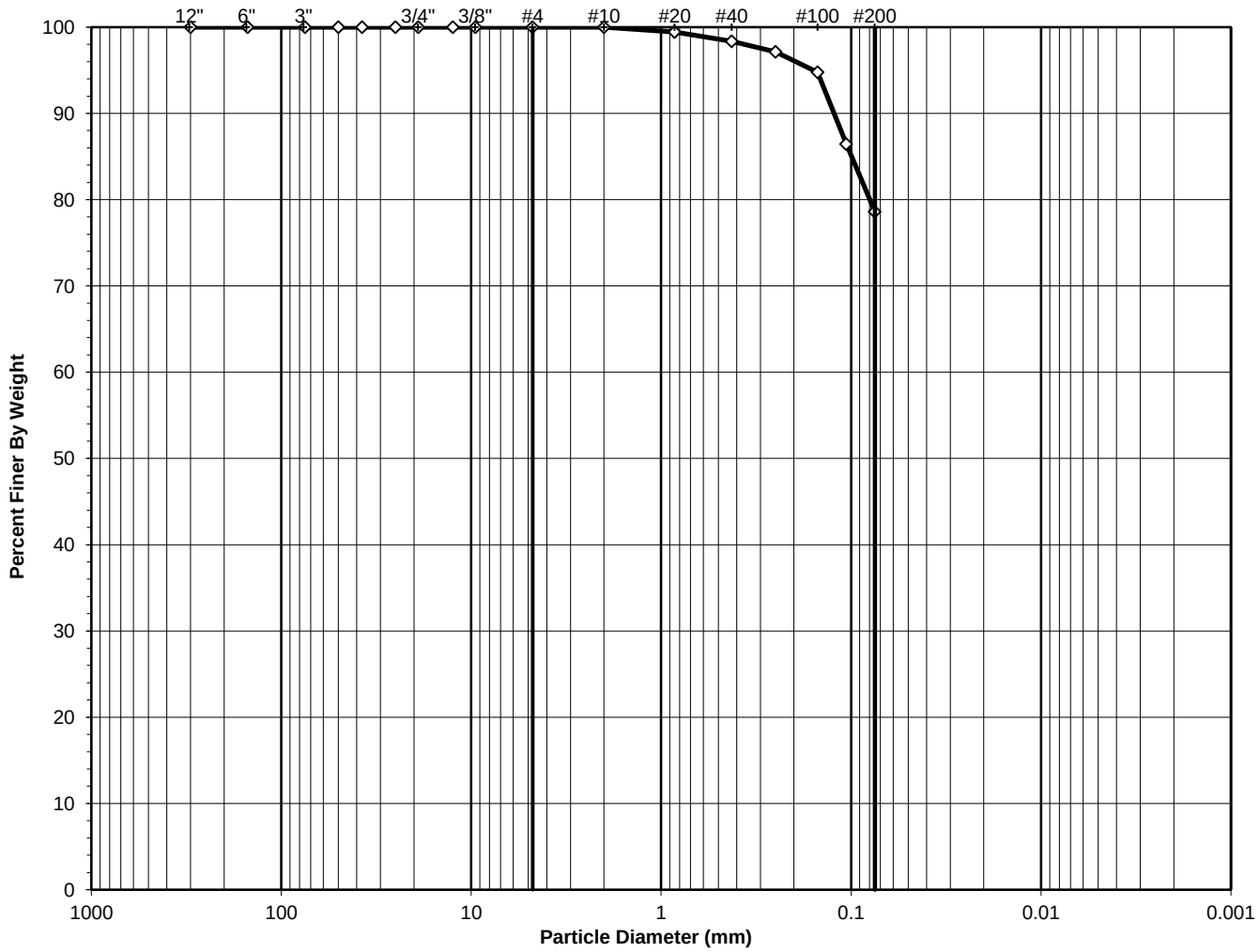
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	37.5-39.0
Project No.:	R-2020-164-002	Sample No.:	SS-09
Lab ID:	R-2020-164-002-004	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.02

USCS Classification:
LEAN CLAY WITH SAND

Tested By TB Date 8/21/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	37.5-39.0
Project No.:	R-2020-164-002	Sample No.:	SS-09
Lab ID:	R-2020-164-002-004	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	724	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	493.61	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	433.41	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	140.84	Weight of Tare (g):	NA
Weight of Water (g):	60.20	Weight of Water (g):	NA
Weight of Dry Soil (g):	292.57	Weight of Dry Soil (g):	NA
Moisture Content (%):	**20.6**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	292.57
Tare No. (Sub-Specimen)	724	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	493.61	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	140.84	Dry Weight of - 3/4" Sample (g):	292.57
Sub-Specimen Wet Weight (g):	352.77	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	292.57
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	1.68	(**)	0.57	0.57	99.43	**99.4**
#40	0.425	3.13		1.07	1.64	98.36	**98.4**
#60	0.25	3.61		1.23	2.88	97.12	**97.1**
#100	0.15	6.90		2.36	5.24	94.76	**94.8**
#140	0.106	24.37		8.33	13.57	86.43	**86.4**
#200	0.075	22.88		7.82	21.39	78.61	**78.6**
Pan	-	0.00		0.00	21.39	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By	TB	Date	8/21/20	Checked By	GEM	Date	8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	37.5-39.0
Project No.:	R-2020-164-002	Sample No.:	SS-09
Lab ID:	R-2020-164-002-004	Soil Description:	GRAY LEAN CLAY

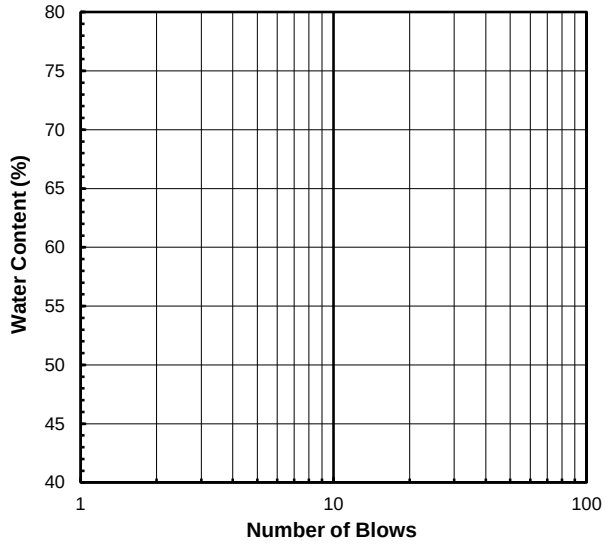
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	724	O	B-4	W	U
Wt. of Tare & Wet Sample (g):	493.61	27.13	27.09	26.09	L
Wt. of Tare & Dry Sample (g):	433.41	23.99	23.94	22.98	T
Weight of Tare (g):	140.84	15.16	15.42	15.07	I
Weight of Water (g):	60.2	3.1	3.2	3.1	P
Weight of Dry Sample (g):	292.6	8.8	8.5	7.9	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**20.6**	**35.6**	**37.0**	**39.3**	N
Number of Blows:		**35**	**24**	**15**	T

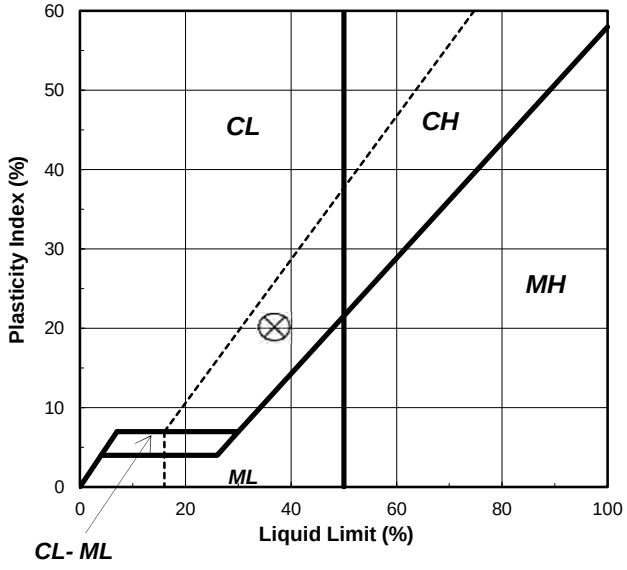
Plastic Limit Test	1	2	Range	
Tare Number:	13	9		
Wt. of Tare & Wet Sample (g):	15.71	15.28		
Wt. of Tare & Dry Sample (g):	14.44	14.08		
Weight of Tare (g):	7.02	6.99		
Weight of Water (g):	1.3	1.2		
Weight of Dry Sample (g):	7.4	7.1		
Moisture Content (%):	**17.1**	**16.9**	**0.2**	
Note: The acceptable range of the two Moisture Contents is ±				1.12

Test Results	
Liquid Limit (%):	**37**
Plastic Limit (%):	**17**
Plasticity Index (%):	**20**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/24/20 *Checked By* GEM *Date* 8/25/20

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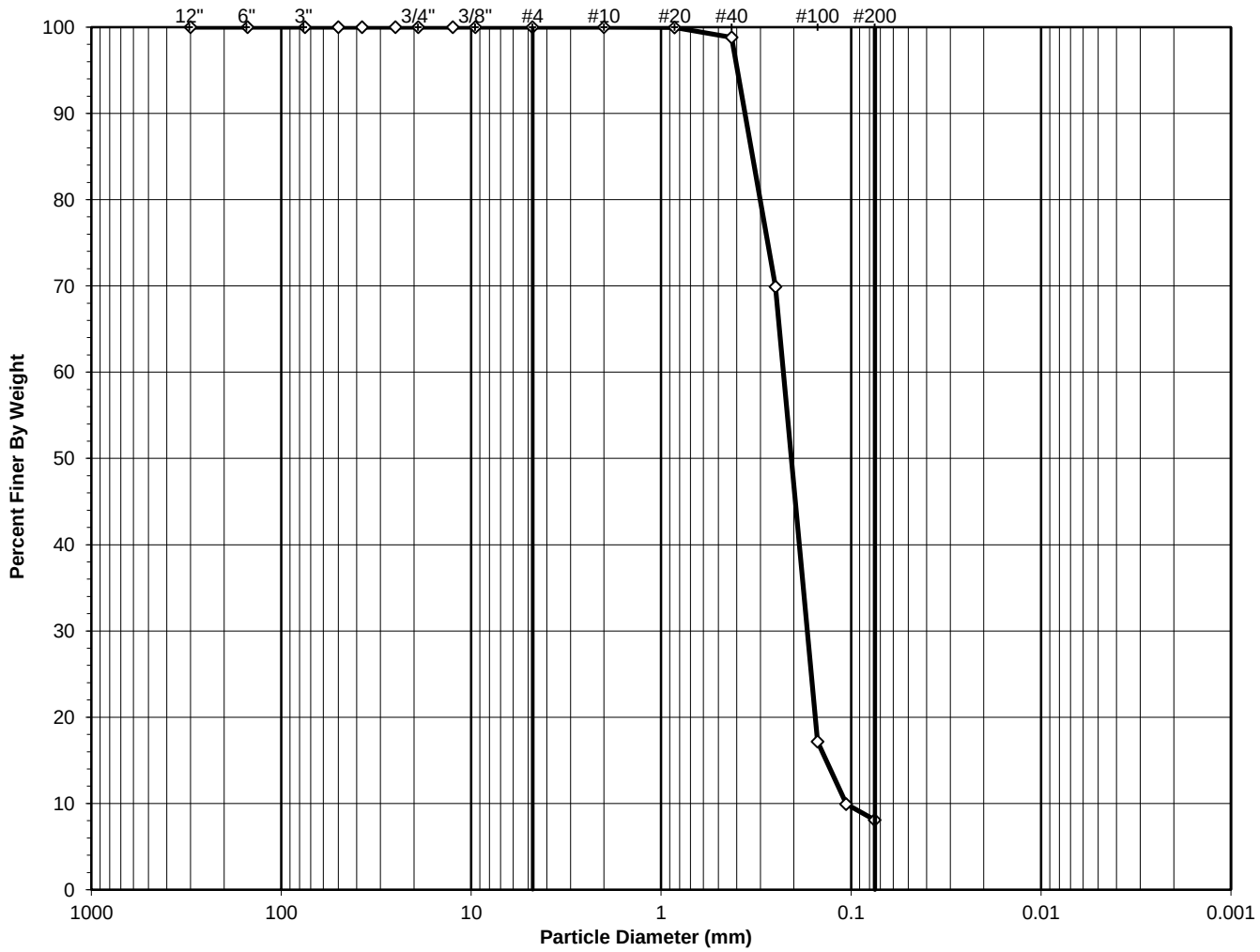
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	39.6-40.5
Project No.:	R-2020-164-002	Sample No.:	SS-10
Lab ID:	R-2020-164-002-005	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SP-SM, TESTED

D60 = 0.23 D50 = 0.21

D30 = 0.17 CU = 2.13

USCS Classification:
POORLY GRADED SAND WITH SILT (Non-Plastic)

D10 = 0.106

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	39.6-40.5
Project No.:	R-2020-164-002	Sample No.:	SS-10
Lab ID:	R-2020-164-002-005	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	732	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	410.39	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	349.14	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	140.77	Weight of Tare (g):	NA
Weight of Water (g):	61.25	Weight of Water (g):	NA
Weight of Dry Soil (g):	208.37	Weight of Dry Soil (g):	NA
Moisture Content (%):	**29.4**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	208.37
Tare No. (Sub-Specimen)	732	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	410.39	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	140.77	Dry Weight of - 3/4" Sample (g):	208.37
Sub-Specimen Wet Weight (g):	269.62	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	208.37
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	0.07	(**)	0.03	0.03	99.97	**100.0**
#40	0.425	2.42		1.16	1.19	98.81	**98.8**
#60	0.25	60.21		28.90	30.09	69.91	**69.9**
#100	0.15	109.89		52.74	82.83	17.17	**17.2**
#140	0.106	15.11		7.25	90.08	9.92	**9.9**
#200	0.075	3.85		1.85	91.93	8.07	**8.1**
Pan	-	0.00		0.00	91.93	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	39.6-40.5
Project No.:	R-2020-164-002	Sample No.:	SS-10
Lab ID:	R-2020-164-002-005	Color:	Gray Sand
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	732
Wt. of Tare & Wet Sample (g)	410.39
Wt. of Tare & Dry Sample (g)	349.14
Weight of Tare (g)	140.77
Weight of Water (g)	61.25
Weight of Dry Sample (g)	208.37
Water Content (%)	**29.4**

NON - PLASTIC MATERIAL

Tested By *SS* *Date* *8/21/20* *Checked By* *GEM* *Date* *8/25/20*

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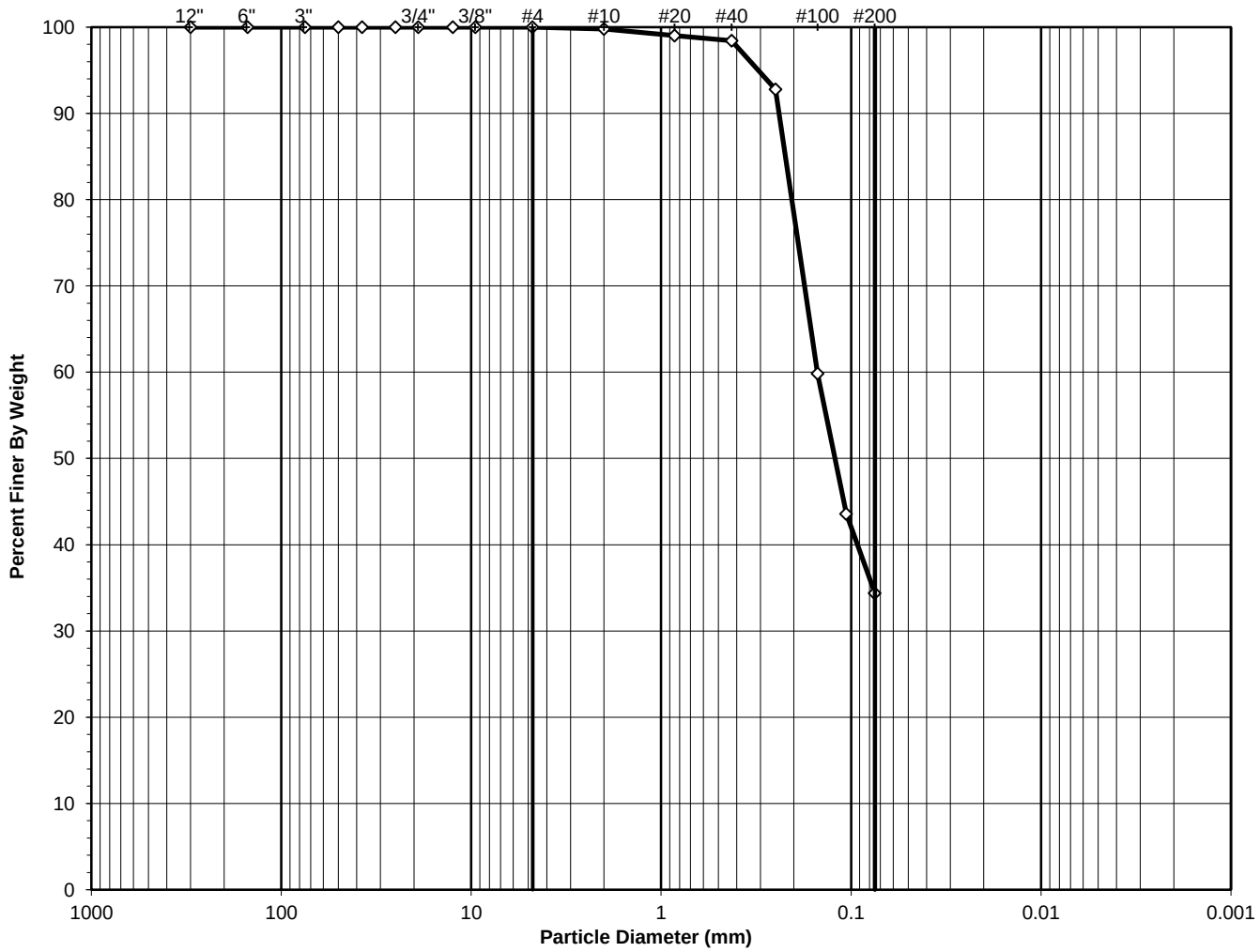
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	42.5-43.5
Project No.:	R-2020-164-002	Sample No.:	SS-11
Lab ID:	R-2020-164-002-006	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC, TESTED

D50 = 0.12

USCS Classification:
CLAYEY SAND

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	42.5-43.5
Project No.:	R-2020-164-002	Sample No.:	SS-11
Lab ID:	R-2020-164-002-006	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	730	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	574.99	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	488.70	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	139.84	Weight of Tare (g):	NA
Weight of Water (g):	86.29	Weight of Water (g):	NA
Weight of Dry Soil (g):	348.86	Weight of Dry Soil (g):	NA
Moisture Content (%):	**24.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	348.86
Tare No. (Sub-Specimen)	730	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	574.99	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	139.84	Dry Weight of - 3/4" Sample (g):	348.86
Sub-Specimen Wet Weight (g):	435.15	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	348.86
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.76		0.22	0.22	99.78	**99.8**
#20	0.85	2.65	(**)	0.76	0.98	99.02	**99.0**
#40	0.425	2.11		0.60	1.58	98.42	**98.4**
#60	0.25	19.65		5.63	7.21	92.79	**92.8**
#100	0.15	114.96		32.95	40.17	59.83	**59.8**
#140	0.106	56.73		16.26	56.43	43.57	**43.6**
#200	0.075	32.06		9.19	65.62	34.38	**34.4**
Pan	-	0.00		0.00	65.62	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-01
Client Reference:	USACE Princeville	Depth (ft):	42.5-43.5
Project No.:	R-2020-164-002	Sample No.:	SS-11
Lab ID:	R-2020-164-002-006	Soil Description:	GRAY LEAN CLAY

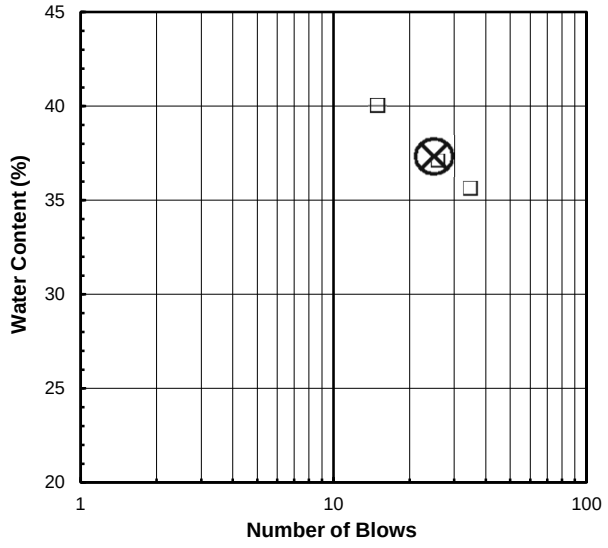
***Note: The* USCS symbol used with this test refers only to the minus No. 40** (Minus No. 40 sieve material, Air dried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	730	D-1	W-5	A-B	U
Wt. of Tare & Wet Sample (g):	574.99	27.67	27.86	27.45	L
Wt. of Tare & Dry Sample (g):	488.70	24.39	24.53	24.04	T
Weight of Tare (g):	139.84	15.17	15.55	15.51	I
Weight of Water (g):	86.3	3.3	3.3	3.4	P
Weight of Dry Sample (g):	348.9	9.2	9.0	8.5	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**24.7**	**35.6**	**37.1**	**40.0**	N
Number of Blows:		**35**	**26**	**15**	T

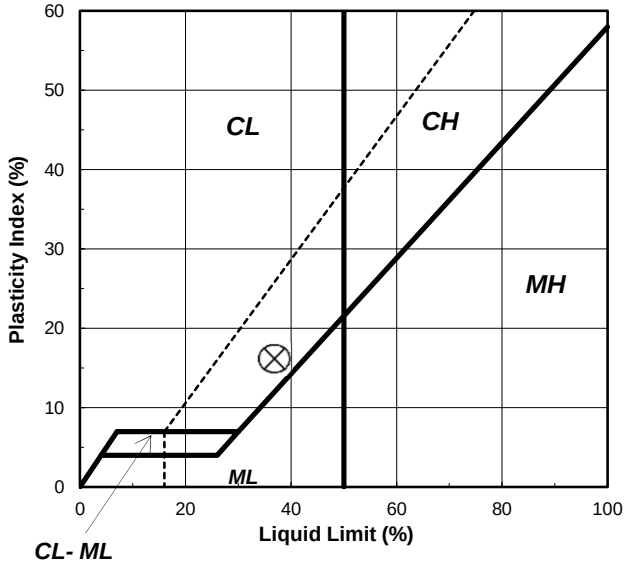
Plastic Limit Test	1	2	Range
Tare Number:	18	17	
Wt. of Tare & Wet Sample (g):	15.85	16.03	
Wt. of Tare & Dry Sample (g):	14.33	14.48	
Weight of Tare (g):	6.99	6.99	
Weight of Water (g):	1.5	1.6	
Weight of Dry Sample (g):	7.3	7.5	
Moisture Content (%):	**20.7**	**20.7**	**0.0**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**37**
Plastic Limit (%):	**21**
Plasticity Index (%):	**16**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



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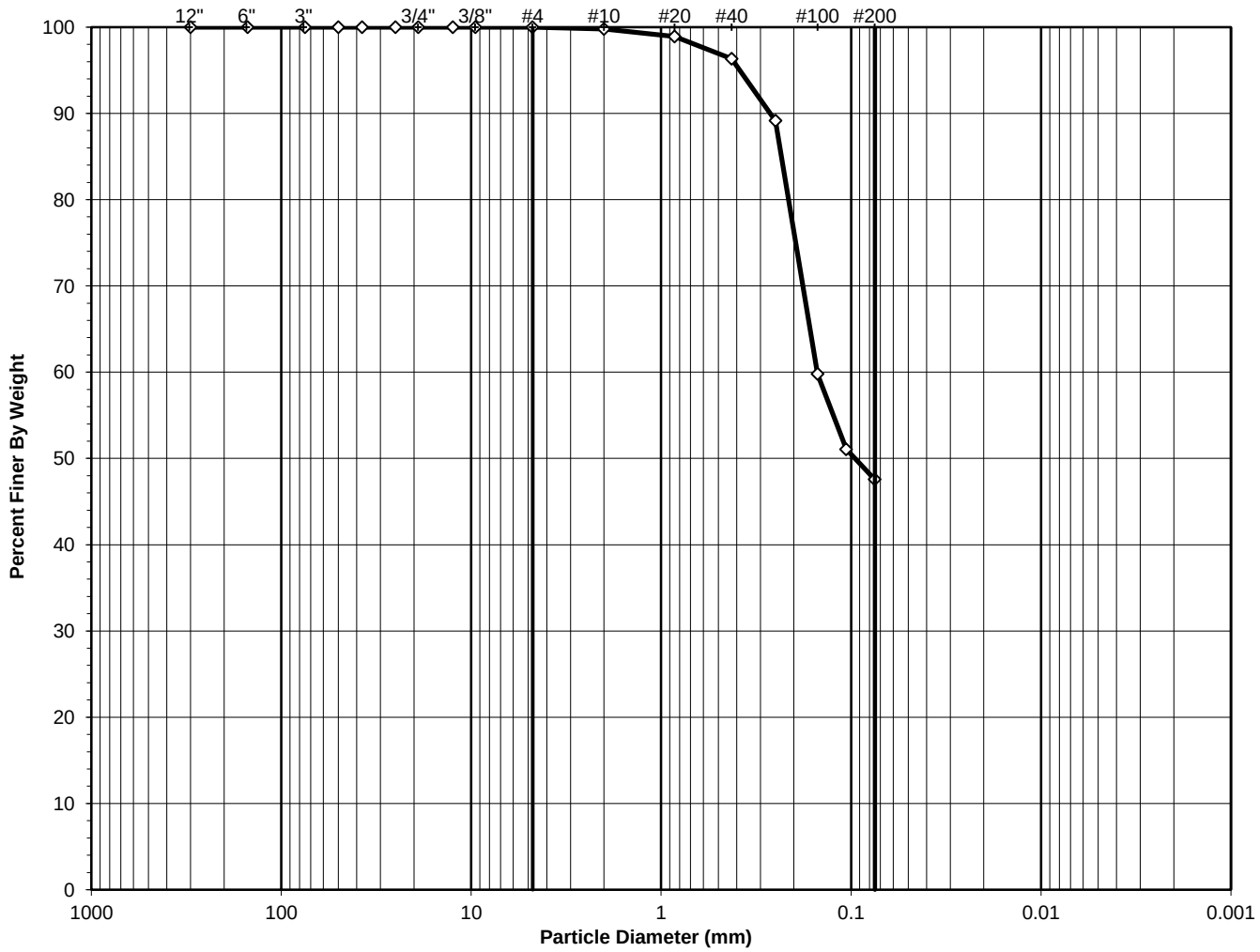
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	11.1-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-12
Lab ID:	R-2020-164-002-007	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC, TESTED

D50 = 0.10

USCS Classification:
CLAYEY SAND

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	11.1-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-12
Lab ID:	R-2020-164-002-007	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	866	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	415.78	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	329.80	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	86.50	Weight of Tare (g):	NA
Weight of Water (g):	85.98	Weight of Water (g):	NA
Weight of Dry Soil (g):	243.30	Weight of Dry Soil (g):	NA
Moisture Content (%):	**35.3**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	243.30
Tare No. (Sub-Specimen)	866	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	415.78	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	86.50	Dry Weight of - 3/4" Sample (g):	243.30
Sub-Specimen Wet Weight (g):	329.28	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	243.30
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.50		0.21	0.21	99.79	**99.8**
#20	0.85	2.11	(**)	0.87	1.07	98.93	**98.9**
#40	0.425	6.34		2.61	3.68	96.32	**96.3**
#60	0.25	17.46		7.18	10.85	89.15	**89.1**
#100	0.15	71.44		29.36	40.22	59.78	**59.8**
#140	0.106	21.21		8.72	48.94	51.06	**51.1**
#200	0.075	8.52		3.50	52.44	47.56	**47.6**
Pan	-	0.00		0.00	52.44	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	11.1-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-12
Lab ID:	R-2020-164-002-007	Soil Description:	GRAY LEAN CLAY

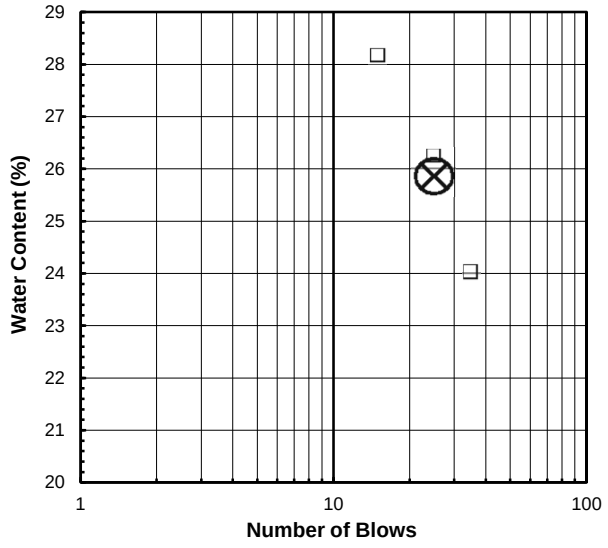
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		**Liquid Limit Test**			
ASTM D2216-19		**1**	**2**	**3**	**M**
Tare Number:	866	I	O	AK	**U**
Wt. of Tare & Wet Sample (g):	415.78	27.39	28.70	28.83	**L**
Wt. of Tare & Dry Sample (g):	329.80	25.02	25.88	25.89	**T**
Weight of Tare (g):	86.50	15.15	15.13	15.45	**I**
Weight of Water (g):	86.0	2.4	2.8	2.9	**P**
Weight of Dry Sample (g):	243.3	9.9	10.8	10.4	**O**
Was As Received MC Preserved:	**Yes**				**I**
Moisture Content (%):	**35.3**	**24.0**	**26.2**	**28.2**	**N**
Number of Blows:		**35**	**25**	**15**	**T**

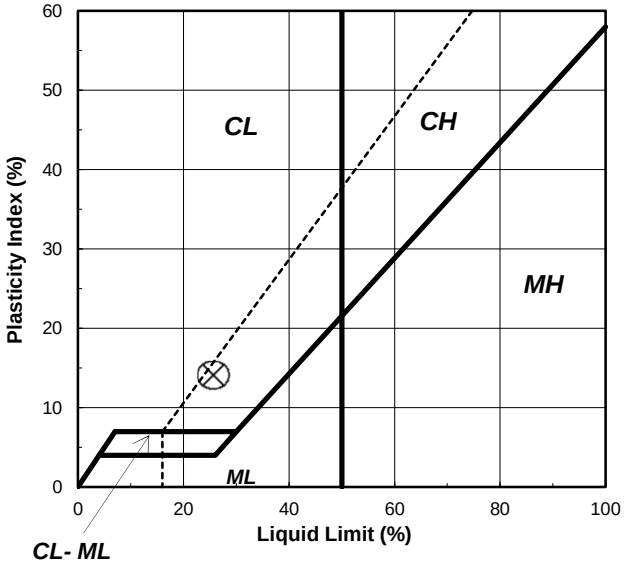
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	25	8	
Wt. of Tare & Wet Sample (g):	13.52	13.25	
Wt. of Tare & Dry Sample (g):	12.78	12.59	
Weight of Tare (g):	7.00	7.02	
Weight of Water (g):	0.7	0.7	
Weight of Dry Sample (g):	5.8	5.6	
Moisture Content (%):	**12.8**	**11.8**	**1.0**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**26**
Plastic Limit (%):	**12**
Plasticity Index (%):	**14**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By TB *Date* 8/28/20 *Checked By* GEM *Date* 9/1/20

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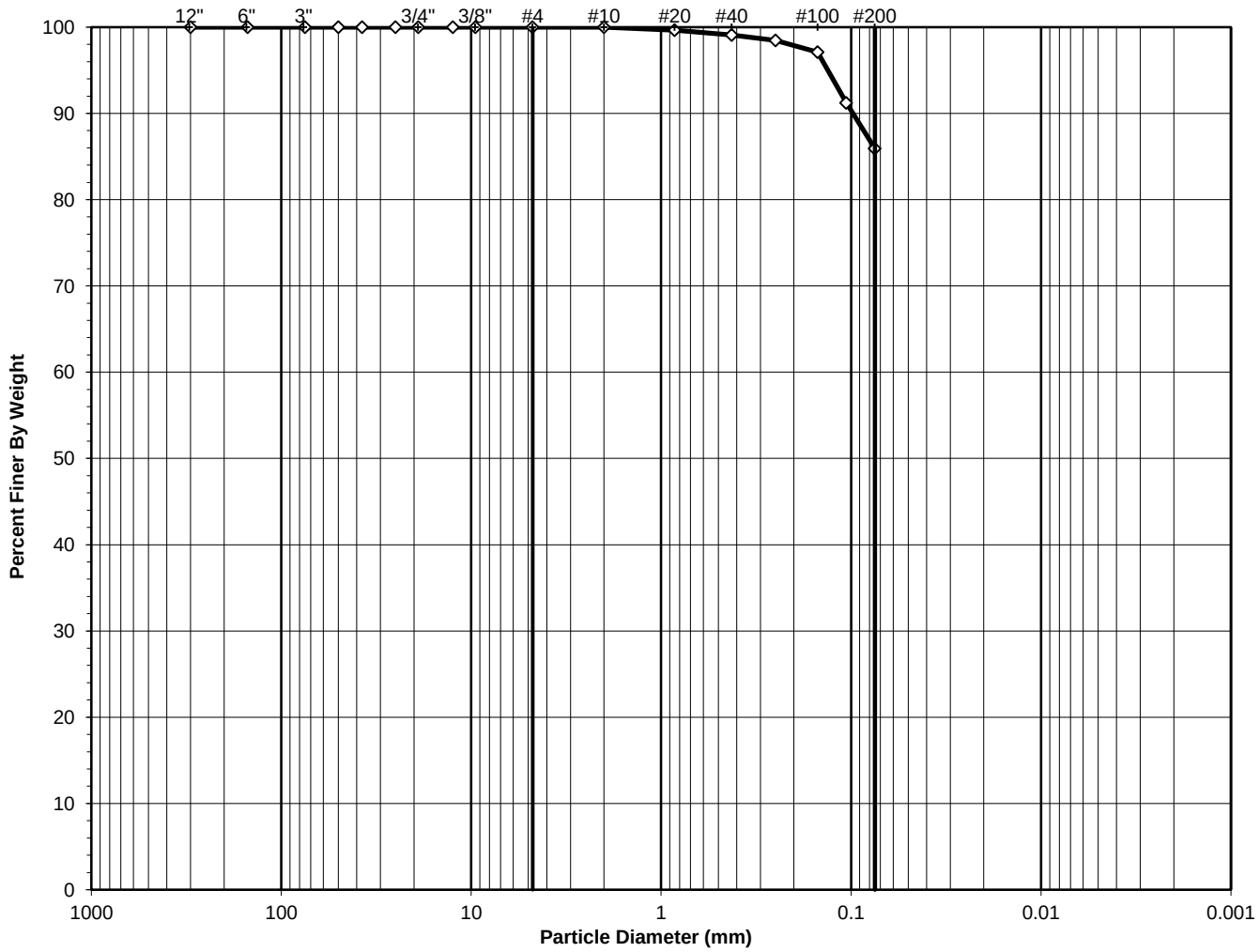
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	25..0-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-13
Lab ID:	R-2020-164-002-008	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.02

USCS Classification:
LEAN CLAY

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	25..0-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-13
Lab ID:	R-2020-164-002-008	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	737	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	489.86	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	432.55	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	140.01	Weight of Tare (g):	NA
Weight of Water (g):	57.31	Weight of Water (g):	NA
Weight of Dry Soil (g):	292.54	Weight of Dry Soil (g):	NA
Moisture Content (%):	**19.6**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	292.54
Tare No. (Sub-Specimen)	737	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	489.86	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	140.01	Dry Weight of - 3/4" Sample (g):	292.54
Sub-Specimen Wet Weight (g):	349.85	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	292.54
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	1.02	(**)	0.35	0.35	99.65	**99.7**
#40	0.425	1.62		0.55	0.90	99.10	**99.1**
#60	0.25	1.85		0.63	1.53	98.47	**98.5**
#100	0.15	3.99		1.36	2.90	97.10	**97.1**
#140	0.106	17.18		5.87	8.77	91.23	**91.2**
#200	0.075	15.51		5.30	14.07	85.93	**85.9**
Pan	-	0.00		0.00	14.07	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	25.0-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-13
Lab ID:	R-2020-164-002-008	Soil Description:	BROWN LEAN CLAY

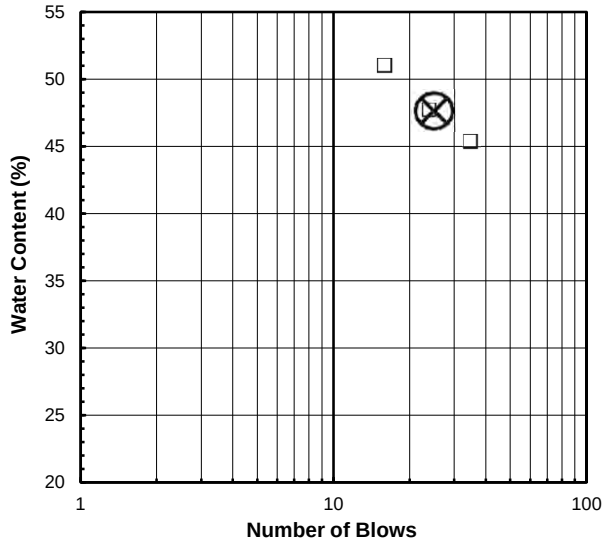
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	737	H	A-H	ZM	U
Wt. of Tare & Wet Sample (g):	489.86	27.30	28.13	28.78	L
Wt. of Tare & Dry Sample (g):	432.55	23.48	24.05	24.31	T
Weight of Tare (g):	140.01	15.05	15.49	15.54	I
Weight of Water (g):	57.3	3.8	4.1	4.5	P
Weight of Dry Sample (g):	292.5	8.4	8.6	8.8	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**19.6**	**45.3**	**47.7**	**51.0**	N
Number of Blows:		**35**	**24**	**16**	T

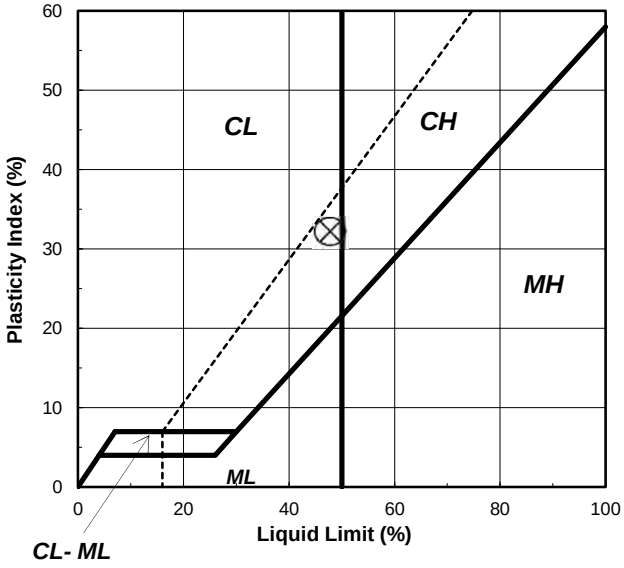
Plastic Limit Test	1	2	Range
Tare Number:	27	14	
Wt. of Tare & Wet Sample (g):	16.47	16.01	
Wt. of Tare & Dry Sample (g):	15.13	14.75	
Weight of Tare (g):	6.96	7.03	
Weight of Water (g):	1.3	1.3	
Weight of Dry Sample (g):	8.2	7.7	
Moisture Content (%):	**16.4**	**16.3**	**0.1**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**48**
Plastic Limit (%):	**16**
Plasticity Index (%):	**32**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/24/20 *Checked By* GEM *Date* 8/25/20

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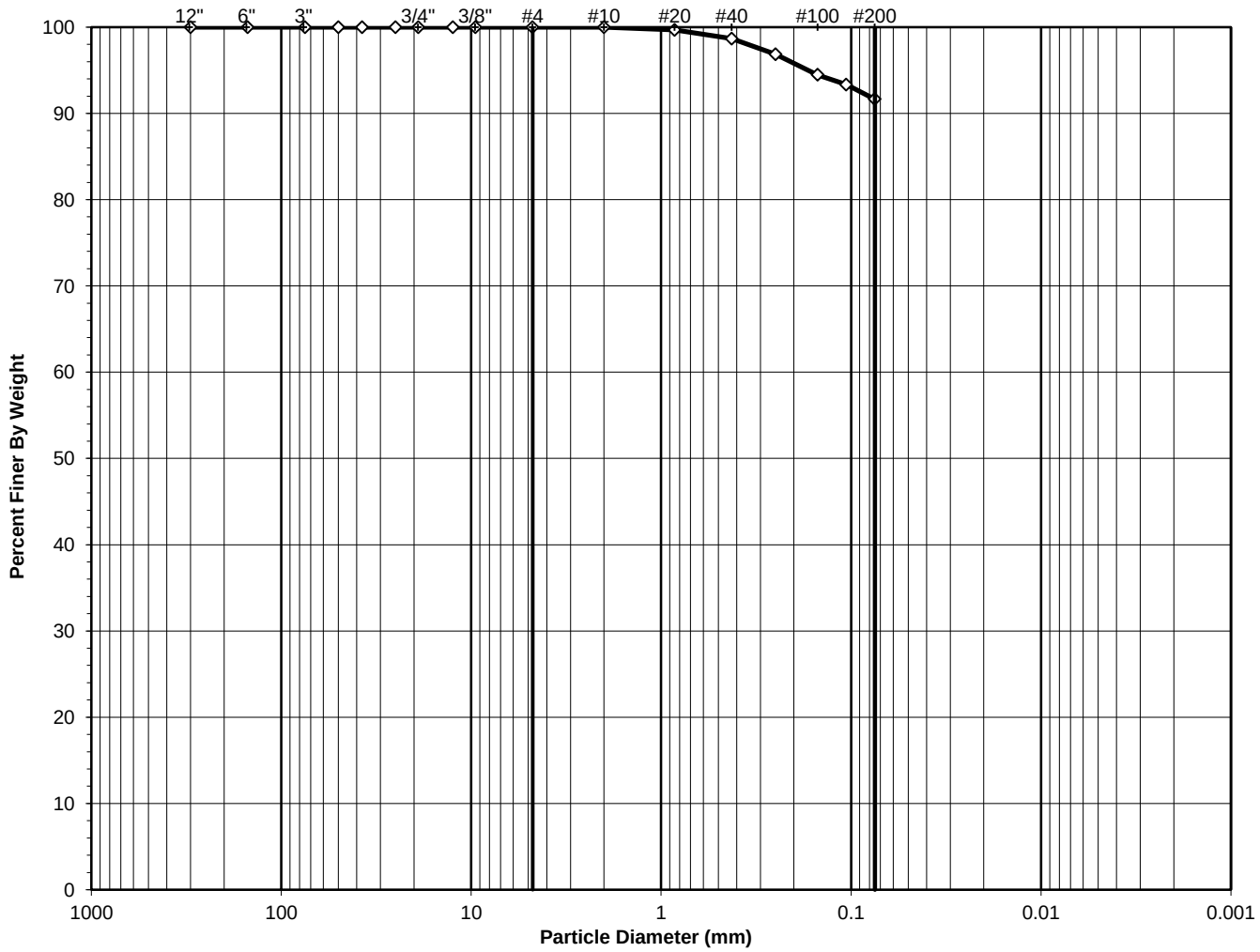
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	37.5-39.0
Project No.:	R-2020-164-002	Sample No.:	SS-14
Lab ID:	R-2020-164-002-009	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.02

USCS Classification:
FAT CLAY

Tested By TB Date 8/21/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	37.5-39.0
Project No.:	R-2020-164-002	Sample No.:	SS-14
Lab ID:	R-2020-164-002-009	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	399	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	478.08	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	387.97	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	86.33	Weight of Tare (g):	NA
Weight of Water (g):	90.11	Weight of Water (g):	NA
Weight of Dry Soil (g):	301.64	Weight of Dry Soil (g):	NA
Moisture Content (%):	**29.9**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	301.64
Tare No. (Sub-Specimen)	399	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	478.08	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	86.33	Dry Weight of - 3/4" Sample (g):	301.64
Sub-Specimen Wet Weight (g):	391.75	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	301.64
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	0.99	(**)	0.33	0.33	99.67	**99.7**
#40	0.425	3.07		1.02	1.35	98.65	**98.7**
#60	0.25	5.40		1.79	3.14	96.86	**96.9**
#100	0.15	7.22		2.39	5.53	94.47	**94.5**
#140	0.106	3.41		1.13	6.66	93.34	**93.3**
#200	0.075	5.10		1.69	8.35	91.65	**91.6**
Pan	-	0.00		0.00	8.35	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-04
Client Reference:	USACE Princeville	Depth (ft):	37.5-39.0
Project No.:	R-2020-164-002	Sample No.:	SS-14
Lab ID:	R-2020-164-002-009	Soil Description:	GRAY FAT CLAY

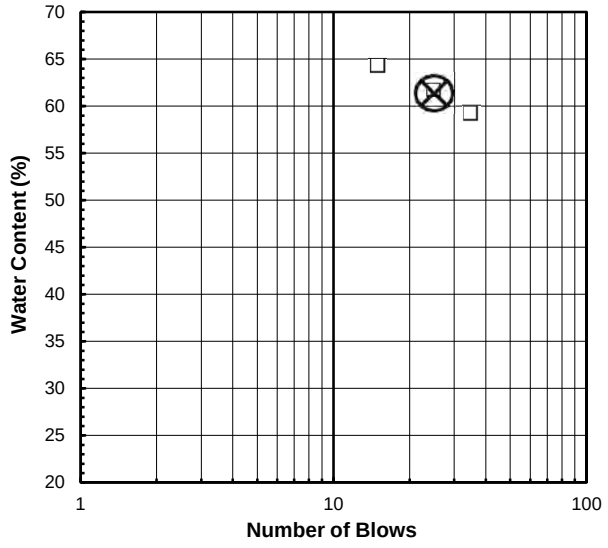
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	399	A-B	A-H	G	U
Wt. of Tare & Wet Sample (g):	478.08	28.20	28.14	27.12	L
Wt. of Tare & Dry Sample (g):	387.97	23.48	23.32	22.36	T
Weight of Tare (g):	86.33	15.50	15.50	14.95	I
Weight of Water (g):	90.1	4.7	4.8	4.8	P
Weight of Dry Sample (g):	301.6	8.0	7.8	7.4	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**29.9**	**59.1**	**61.6**	**64.2**	N
Number of Blows:		**35**	**25**	**15**	T

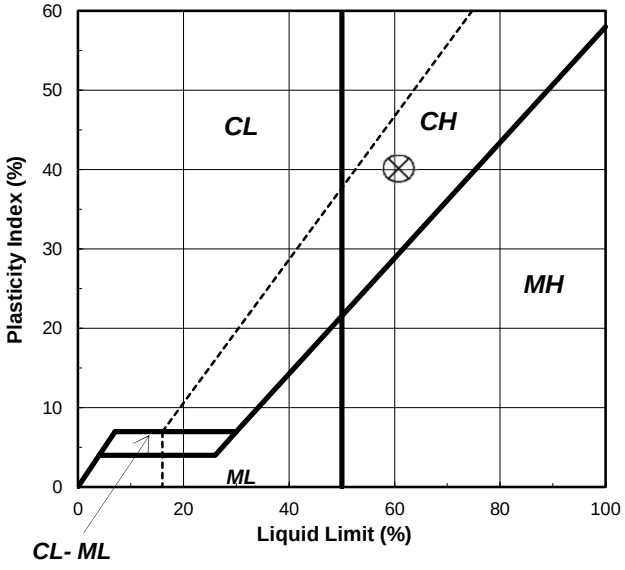
Plastic Limit Test	1	2	Range
Tare Number:	14	118	
Wt. of Tare & Wet Sample (g):	16.03	16.23	
Wt. of Tare & Dry Sample (g):	14.53	14.62	
Weight of Tare (g):	7.03	6.98	
Weight of Water (g):	1.5	1.6	
Weight of Dry Sample (g):	7.5	7.6	
Moisture Content (%):	**20.0**	**21.1**	**-1.1**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**61**
Plastic Limit (%):	**21**
Plasticity Index (%):	**40**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/27/20 *Checked By* GEM *Date* 8/28/20

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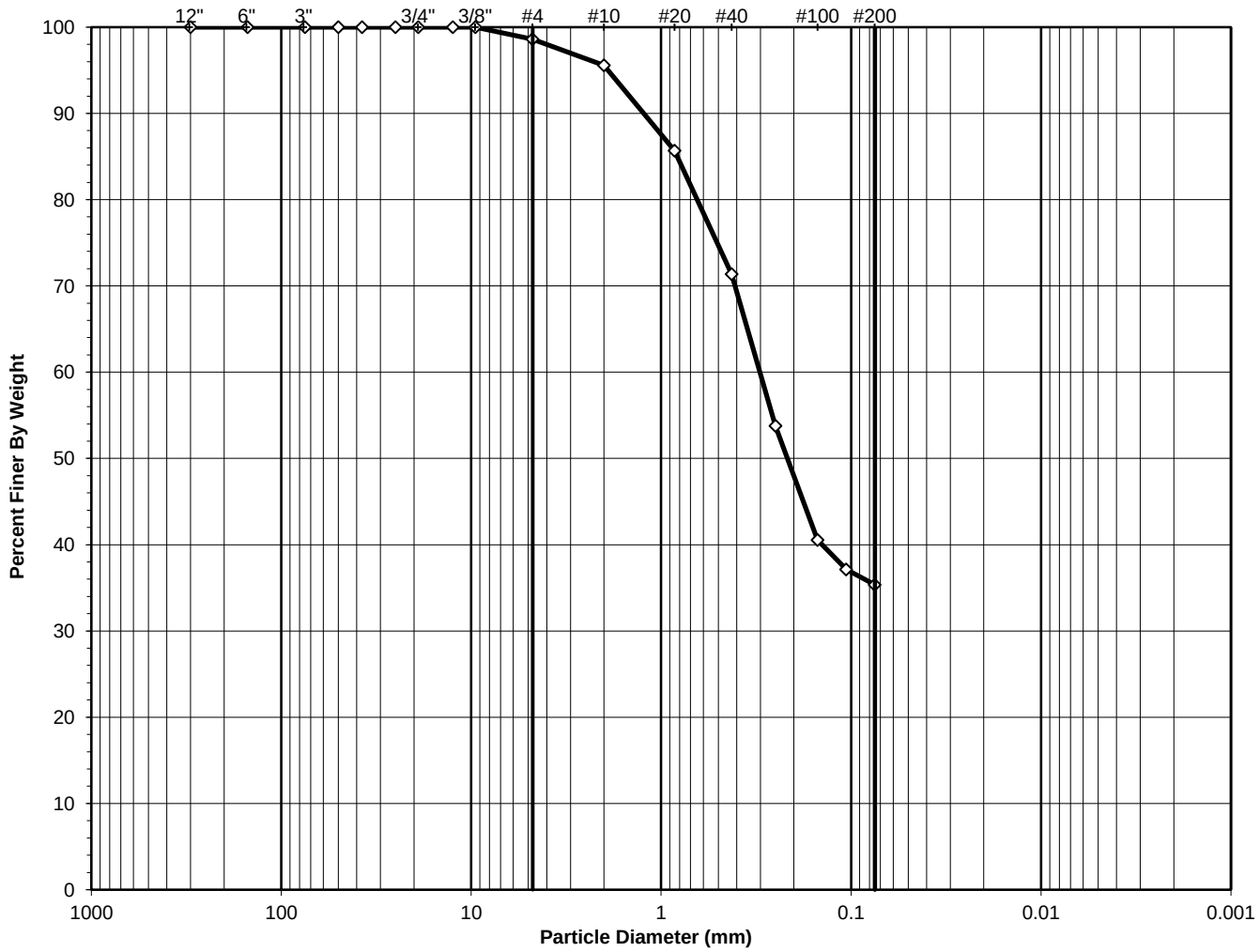
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	12.4-13.5
Project No.:	R-2020-164-002	Sample No.:	SS-15
Lab ID:	R-2020-164-002-010	Soil Color:	Black

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.22

USCS Classification:
SILTY SAND

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	12.4-13.5
Project No.:	R-2020-164-002	Sample No.:	SS-15
Lab ID:	R-2020-164-002-010	Soil Color:	Black

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	304	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	661.93	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	516.53	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	110.44	Weight of Tare (g):	NA
Weight of Water (g):	145.40	Weight of Water (g):	NA
Weight of Dry Soil (g):	406.09	Weight of Dry Soil (g):	NA
Moisture Content (%):	**35.8**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	406.09
Tare No. (Sub-Specimen)	304	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	661.93	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	110.44	Dry Weight of - 3/4" Sample (g):	406.09
Sub-Specimen Wet Weight (g):	551.49	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	406.09
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100**
6"	150	0.00		0.00	0.00	100.00	**100**
3"	75	0.00		0.00	0.00	100.00	**100**
2"	50	0.00	(*)	0.00	0.00	100.00	**100**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100**
1"	25	0.00		0.00	0.00	100.00	**100**
3/4"	19	0.00		0.00	0.00	100.00	**100**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100**
3/8"	9.5	0.00		0.00	0.00	100.00	**100**
#4	4.75	5.66		1.39	1.39	98.61	**99**
#10	2	12.29		3.03	4.42	95.58	**96**
#20	0.85	40.18	(**)	9.89	14.31	85.69	**86**
#40	0.425	58.17		14.32	28.64	71.36	**71**
#60	0.25	71.51		17.61	46.25	53.75	**54**
#100	0.15	53.70		13.22	59.47	40.53	**41**
#140	0.106	13.82		3.40	62.88	37.12	**37**
#200	0.075	7.23		1.78	64.66	35.34	**35**
Pan	-	0.00		0.00	64.66	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	12.4-13.5
Project No.:	R-2020-164-002	Sample No.:	SS-15
Lab ID:	R-2020-164-002-010	Soil Description:	BLACK SILT

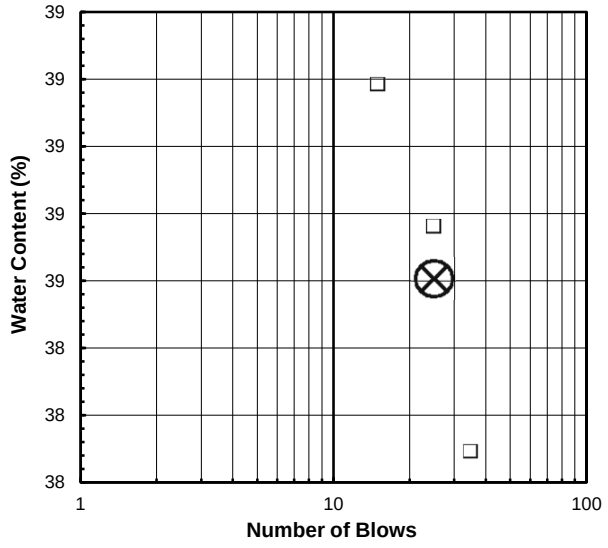
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	304	G	A-F	F	U
Wt. of Tare & Wet Sample (g):	661.93	28.11	29.24	32.08	L
Wt. of Tare & Dry Sample (g):	516.53	24.48	25.36	27.28	T
Weight of Tare (g):	110.44	14.95	15.35	15.03	I
Weight of Water (g):	145.4	3.6	3.9	4.8	P
Weight of Dry Sample (g):	406.1	9.5	10.0	12.3	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**35.8**	**38.1**	**38.8**	**39.2**	N
Number of Blows:		**35**	**25**	**15**	T

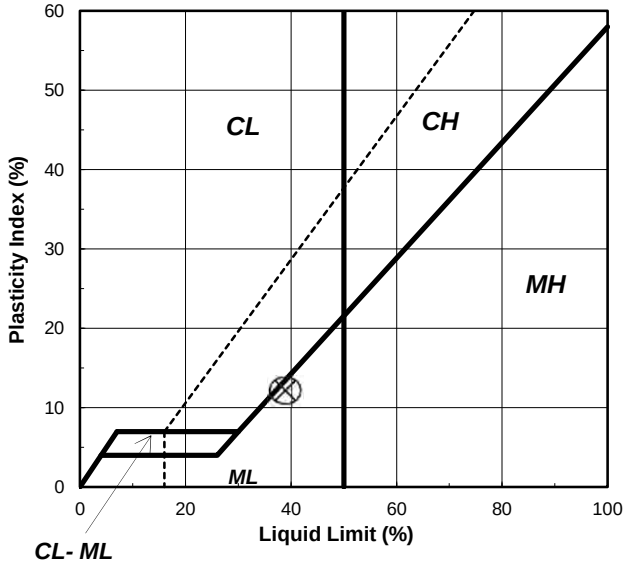
Plastic Limit Test	1	2	Range
Tare Number:	14	18	
Wt. of Tare & Wet Sample (g):	17.27	16.88	
Wt. of Tare & Dry Sample (g):	15.09	14.79	
Weight of Tare (g):	7.02	6.98	
Weight of Water (g):	2.2	2.1	
Weight of Dry Sample (g):	8.1	7.8	
Moisture Content (%):	**27.0**	**26.8**	**0.3**
Note: The acceptable range of the two Moisture Contents is ±			0.84

Test Results	
Liquid Limit (%):	**39**
Plastic Limit (%):	**27**
Plasticity Index (%):	**12**
USCS Symbol:	**ML**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/28/20 *Checked By* GEM *Date* 9/1/20

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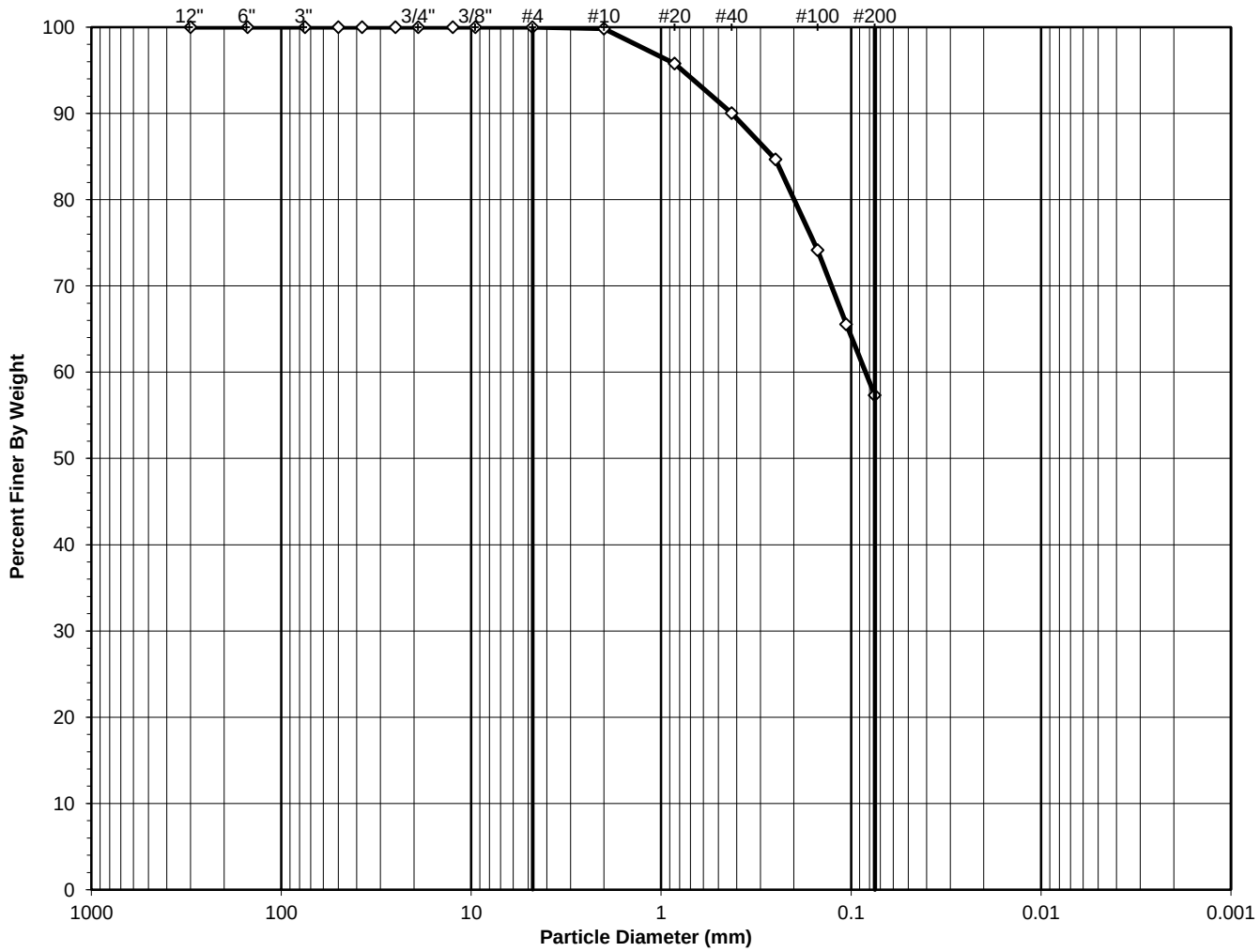
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	22.5-23.5
Project No.:	R-2020-164-002	Sample No.:	SS-16
Lab ID:	R-2020-164-002-011	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.05

USCS Classification:
SANDY LEAN CLAY

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	22.5-23.5
Project No.:	R-2020-164-002	Sample No.:	SS-16
Lab ID:	R-2020-164-002-011	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	727	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	526.83	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	451.81	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.58	Weight of Tare (g):	NA
Weight of Water (g):	75.02	Weight of Water (g):	NA
Weight of Dry Soil (g):	309.23	Weight of Dry Soil (g):	NA
Moisture Content (%):	**24.3**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	309.23
Tare No. (Sub-Specimen)	727	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	526.83	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.58	Dry Weight of - 3/4" Sample (g):	309.23
Sub-Specimen Wet Weight (g):	384.25	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	309.23
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.52		0.17	0.17	99.83	**99.8**
#20	0.85	12.51	(**)	4.05	4.21	95.79	**95.8**
#40	0.425	17.83		5.77	9.98	90.02	**90.0**
#60	0.25	16.55		5.35	15.33	84.67	**84.7**
#100	0.15	32.51		10.51	25.84	74.16	**74.2**
#140	0.106	26.66		8.62	34.47	65.53	**65.5**
#200	0.075	25.45		8.23	42.70	57.30	**57.3**
Pan	-	0.00		0.00	42.70	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	22.5-23.5
Project No.:	R-2020-164-002	Sample No.:	SS-16
Lab ID:	R-2020-164-002-011	Soil Description:	BROWN LEAN CLAY

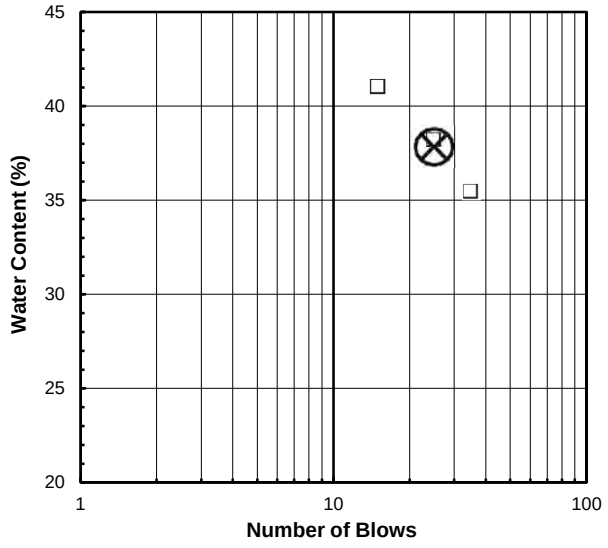
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	727	AK	I	O	U
Wt. of Tare & Wet Sample (g):	526.83	28.12	27.25	29.40	L
Wt. of Tare & Dry Sample (g):	451.81	24.81	23.91	25.25	T
Weight of Tare (g):	142.58	15.47	15.16	15.13	I
Weight of Water (g):	75.0	3.3	3.3	4.2	P
Weight of Dry Sample (g):	309.2	9.3	8.8	10.1	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**24.3**	**35.4**	**38.2**	**41.0**	N
Number of Blows:		**35**	**25**	**15**	T

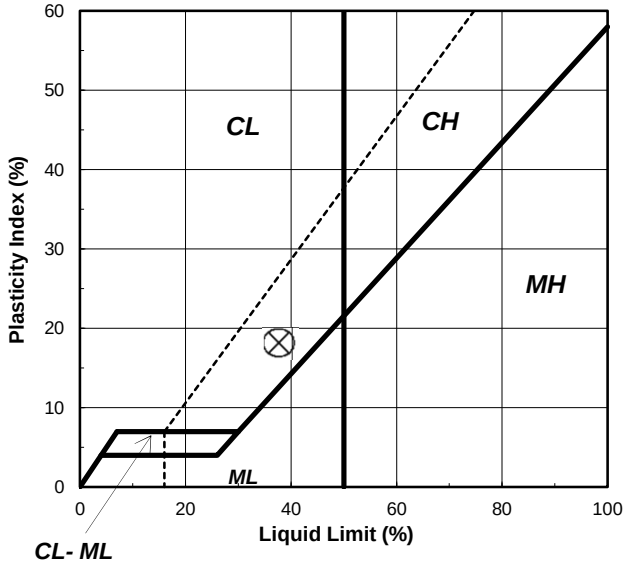
Plastic Limit Test	1	2	Range
Tare Number:	8	25	
Wt. of Tare & Wet Sample (g):	13.62	13.74	
Wt. of Tare & Dry Sample (g):	12.49	12.61	
Weight of Tare (g):	7.03	7.00	
Weight of Water (g):	1.1	1.1	
Weight of Dry Sample (g):	5.5	5.6	
Moisture Content (%):	**20.7**	**20.1**	**0.6**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**38**
Plastic Limit (%):	**20**
Plasticity Index (%):	**18**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By TB *Date* 8/27/20 *Checked By* GEM *Date* 8/28/20

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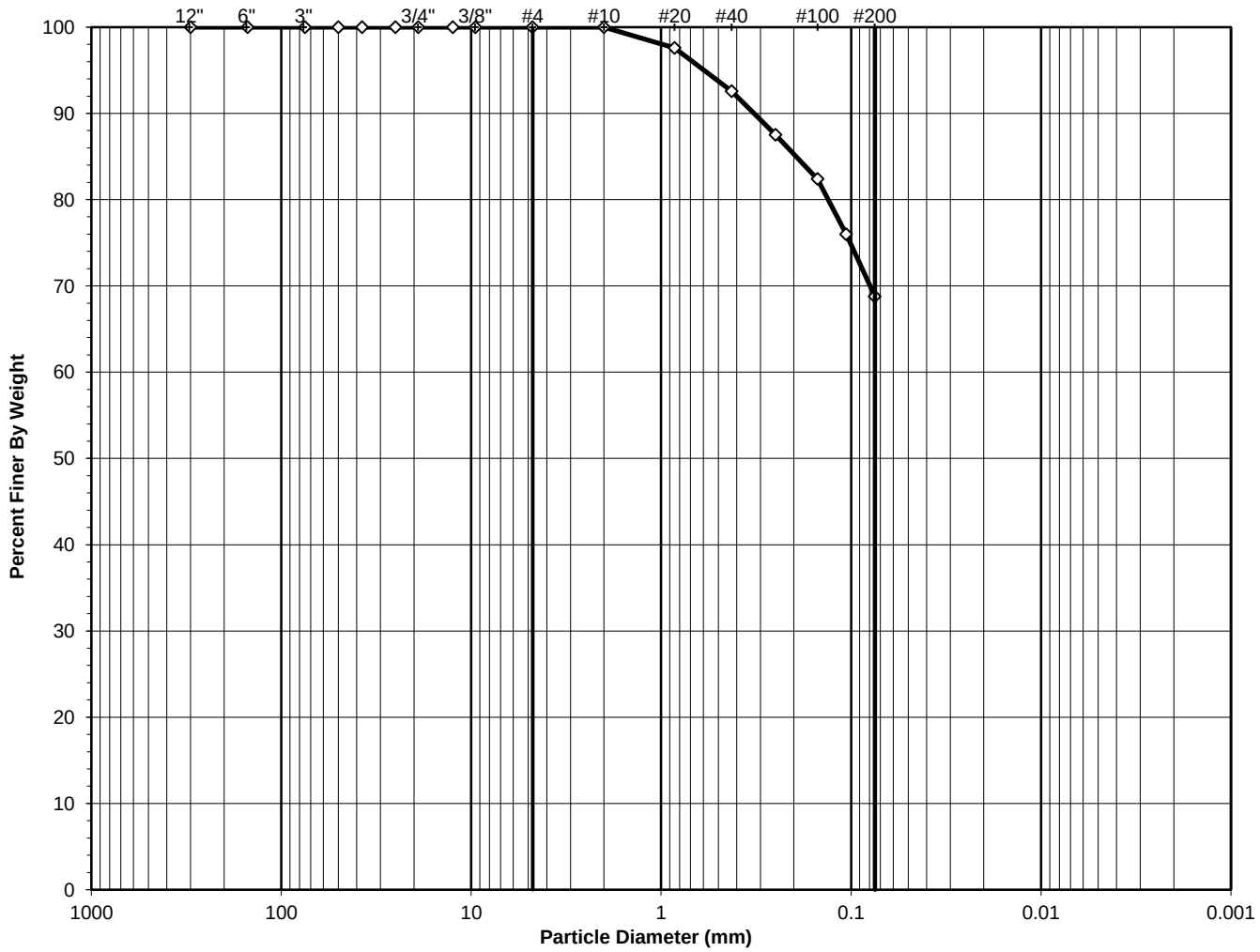
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	27.0-28.5
Project No.:	R-2020-164-002	Sample No.:	SS-17
Lab ID:	R-2020-164-002-012	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.03

USCS Classification:
SANDY LEAN CLAY

Tested By ECL Date 8/24/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	27.0-28.5
Project No.:	R-2020-164-002	Sample No.:	SS-17
Lab ID:	R-2020-164-002-012	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	728	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	652.51	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	560.55	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	143.22	Weight of Tare (g):	NA
Weight of Water (g):	91.96	Weight of Water (g):	NA
Weight of Dry Soil (g):	417.33	Weight of Dry Soil (g):	NA
Moisture Content (%):	**22.0**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	417.33
Tare No. (Sub-Specimen)	728	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	652.51	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	143.22	Dry Weight of - 3/4" Sample (g):	417.33
Sub-Specimen Wet Weight (g):	509.29	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	417.33
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	10.07	(**)	2.41	2.41	97.59	**97.6**
#40	0.425	20.93		5.02	7.43	92.57	**92.6**
#60	0.25	21.12		5.06	12.49	87.51	**87.5**
#100	0.15	21.38		5.12	17.61	82.39	**82.4**
#140	0.106	26.76		6.41	24.02	75.98	**76.0**
#200	0.075	30.02		7.19	31.22	68.78	**68.8**
Pan	-	0.00		0.00	31.22	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	27.0-28.5
Project No.:	R-2020-164-002	Sample No.:	SS-17
Lab ID:	R-2020-164-002-012	Soil Description:	GRAY LEAN CLAY

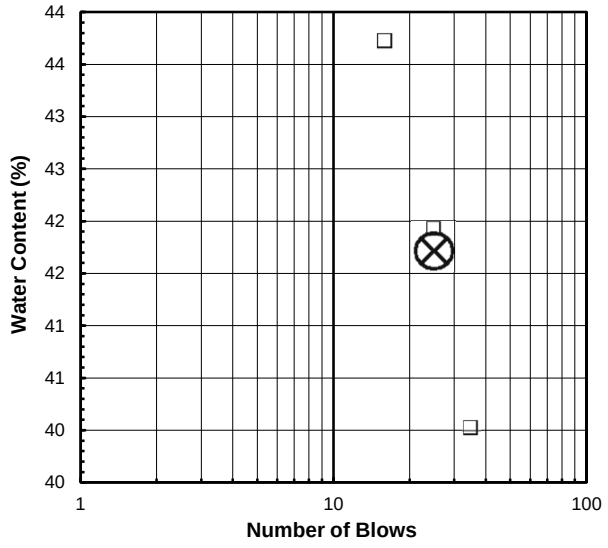
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	728	17	A-I	V-2	U
Wt. of Tare & Wet Sample (g):	652.51	22.16	30.21	30.55	L
Wt. of Tare & Dry Sample (g):	560.55	17.81	25.83	25.99	T
Weight of Tare (g):	143.22	6.94	15.38	15.56	I
Weight of Water (g):	92.0	4.4	4.4	4.6	P
Weight of Dry Sample (g):	417.3	10.9	10.5	10.4	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**22.0**	**40.0**	**41.9**	**43.7**	N
Number of Blows:		**35**	**25**	**16**	T

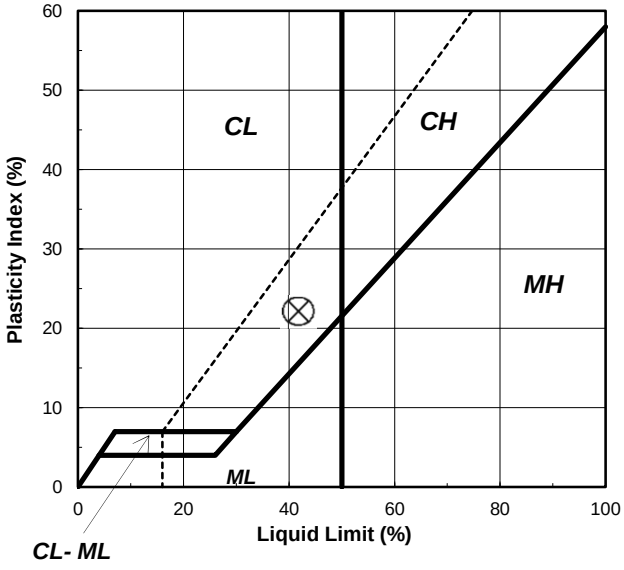
Plastic Limit Test	1	2	Range
Tare Number:	28	20	
Wt. of Tare & Wet Sample (g):	17.27	17.84	
Wt. of Tare & Dry Sample (g):	15.53	16.04	
Weight of Tare (g):	7.00	7.02	
Weight of Water (g):	1.7	1.8	
Weight of Dry Sample (g):	8.5	9.0	
Moisture Content (%):	**20.4**	**20.0**	**0.4**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**42**
Plastic Limit (%):	**20**
Plasticity Index (%):	**22**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



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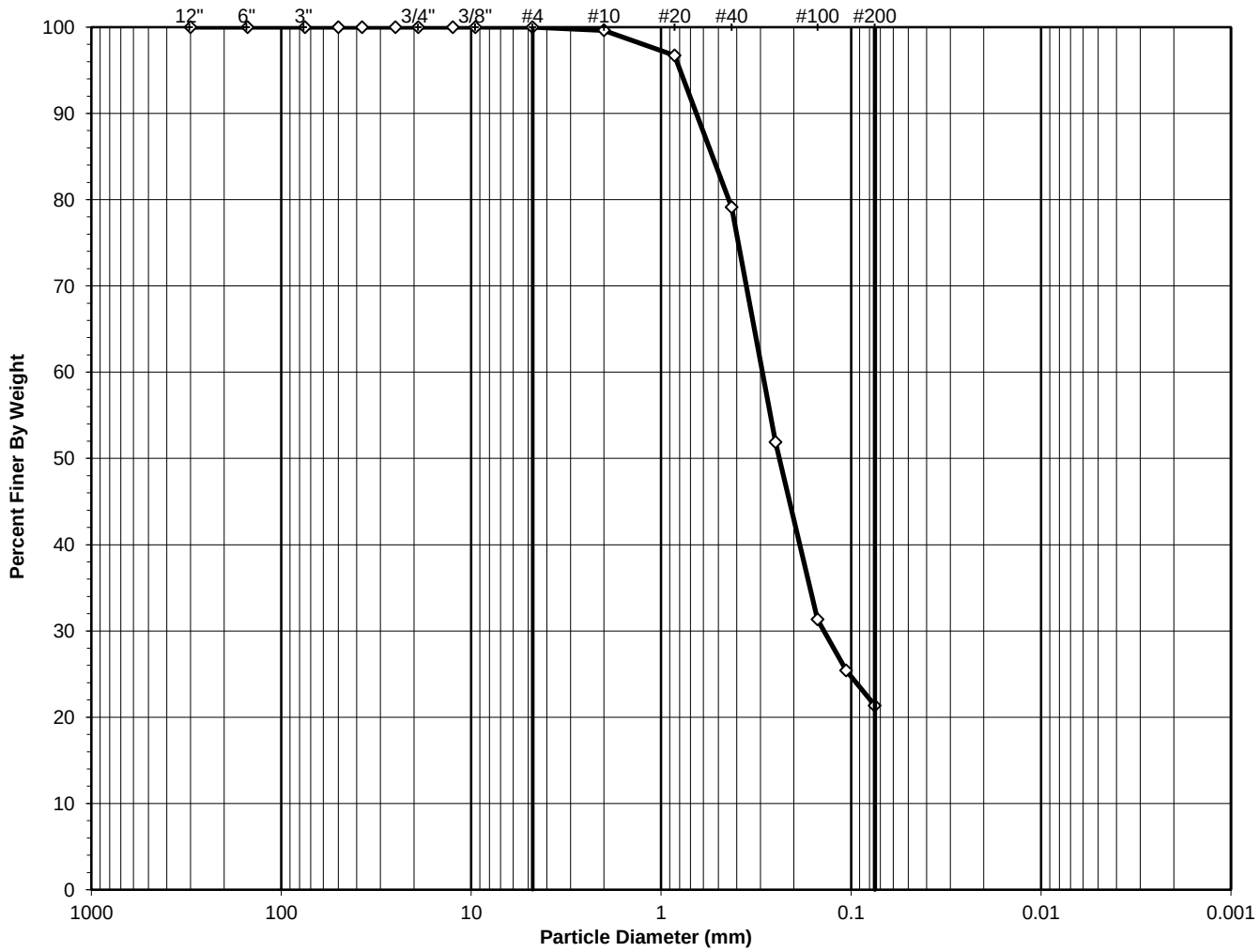
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	31.5-33.0
Project No.:	R-2020-164-002	Sample No.:	SS-18
Lab ID:	R-2020-164-002-013	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC, TESTED

D50 = 0.24

USCS Classification:
CLAYEY SAND

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	31.5-33.0
Project No.:	R-2020-164-002	Sample No.:	SS-18
Lab ID:	R-2020-164-002-013	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	743	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	681.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	583.16	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	138.57	Weight of Tare (g):	NA
Weight of Water (g):	98.54	Weight of Water (g):	NA
Weight of Dry Soil (g):	444.59	Weight of Dry Soil (g):	NA
Moisture Content (%):	**22.2**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	444.59
Tare No. (Sub-Specimen)	743	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	681.70	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	138.57	Dry Weight of - 3/4" Sample (g):	444.59
Sub-Specimen Wet Weight (g):	543.13	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	444.59
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	1.66		0.37	0.37	99.63	**99.6**
#20	0.85	12.87	(**)	2.89	3.27	96.73	**96.7**
#40	0.425	78.32		17.62	20.88	79.12	**79.1**
#60	0.25	121.02		27.22	48.10	51.90	**51.9**
#100	0.15	91.45		20.57	68.67	31.33	**31.3**
#140	0.106	26.35		5.93	74.60	25.40	**25.4**
#200	0.075	17.98		4.04	78.65	21.35	**21.4**
Pan	-	0.00		0.00	78.65	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	31.5-33.0
Project No.:	R-2020-164-002	Sample No.:	SS-18
Lab ID:	R-2020-164-002-013	Soil Description:	BROWN LEAN CLAY

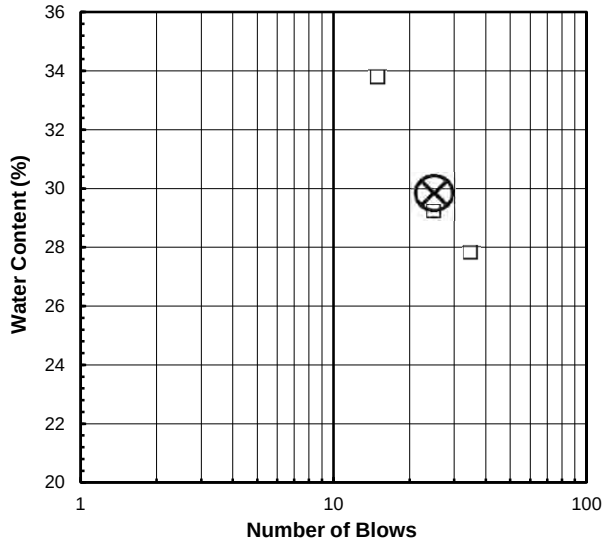
***Note: The* USCS symbol used with this test refers only to the minus No. 40** (Minus No. 40 sieve material, Air dried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	743	A-F	W-5	F	U
Wt. of Tare & Wet Sample (g):	681.70	30.54	31.57	29.90	L
Wt. of Tare & Dry Sample (g):	583.16	27.24	27.95	26.15	T
Weight of Tare (g):	138.57	15.37	15.56	15.04	I
Weight of Water (g):	98.5	3.3	3.6	3.8	P
Weight of Dry Sample (g):	444.6	11.9	12.4	11.1	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**22.2**	**27.8**	**29.2**	**33.8**	N
Number of Blows:		**35**	**25**	**15**	T

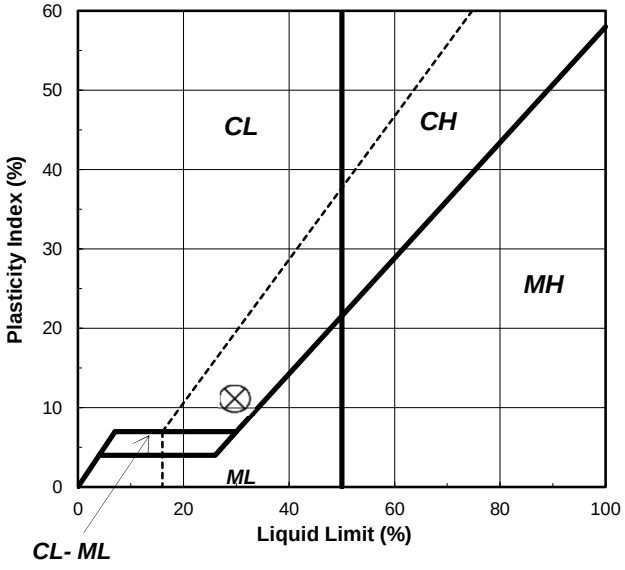
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	3	27	
Wt. of Tare & Wet Sample (g):	16.65	17.70	
Wt. of Tare & Dry Sample (g):	15.10	15.97	
Weight of Tare (g):	7.02	6.97	
Weight of Water (g):	1.6	1.7	
Weight of Dry Sample (g):	8.1	9.0	
Moisture Content (%):	**19.2**	**19.2**	**0.0**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**30**
Plastic Limit (%):	**19**
Plasticity Index (%):	**11**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/27/20 *Checked By* GEM *Date* 8/28/20

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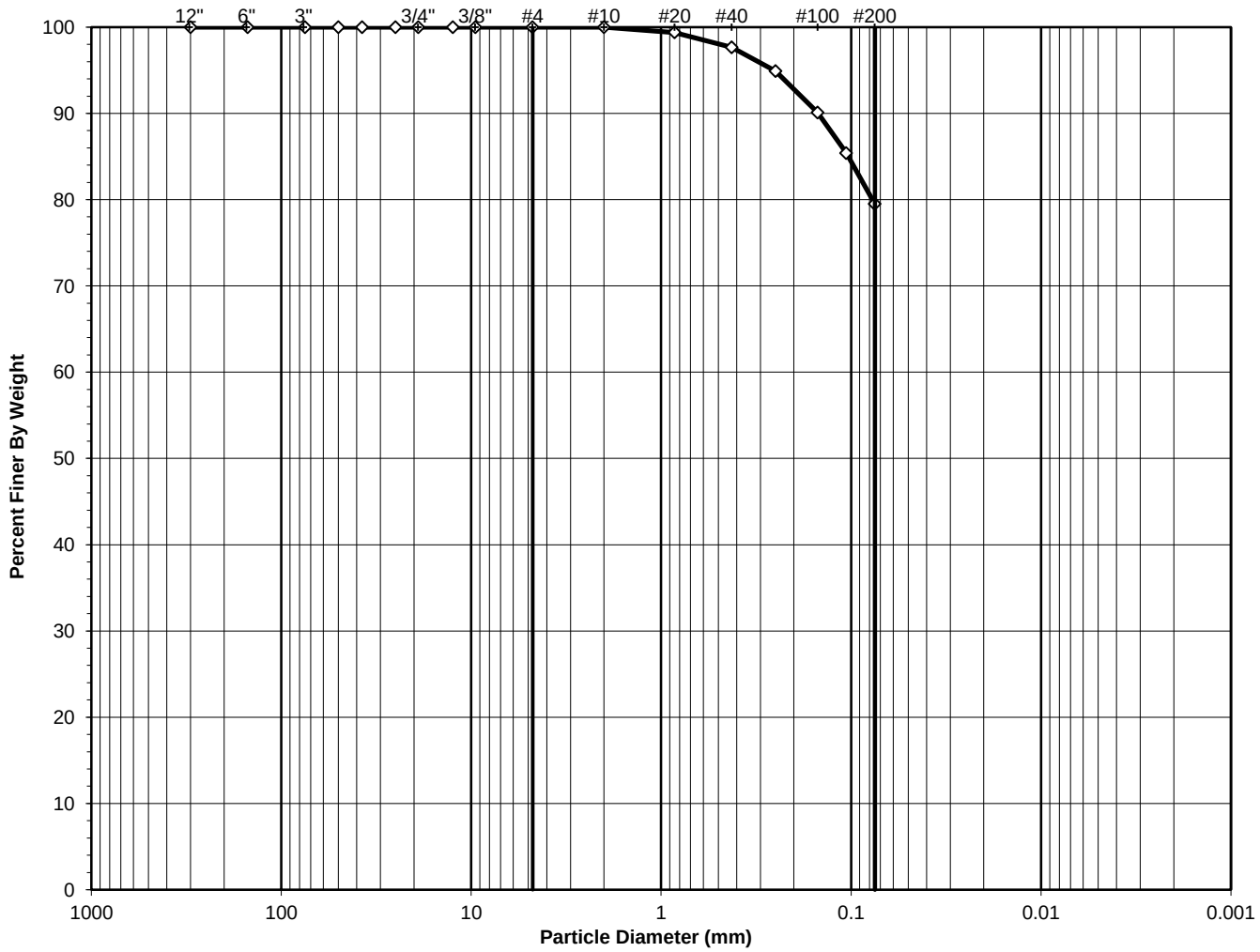
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	36.7-37.5
Project No.:	R-2020-164-002	Sample No.:	SS-19
Lab ID:	R-2020-164-002-014	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.02

USCS Classification:
LEAN CLAY WITH SAND

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	36.7-37.5
Project No.:	R-2020-164-002	Sample No.:	SS-19
Lab ID:	R-2020-164-002-014	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	318	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	446.24	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	386.90	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	86.40	Weight of Tare (g):	NA
Weight of Water (g):	59.34	Weight of Water (g):	NA
Weight of Dry Soil (g):	300.50	Weight of Dry Soil (g):	NA
Moisture Content (%):	**19.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	300.50
Tare No. (Sub-Specimen)	318	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	446.24	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	86.40	Dry Weight of - 3/4" Sample (g):	300.50
Sub-Specimen Wet Weight (g):	359.84	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	300.50
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.03		0.01	0.01	99.99	**100.0**
#20	0.85	1.83	(**)	0.61	0.62	99.38	**99.4**
#40	0.425	5.18		1.72	2.34	97.66	**97.7**
#60	0.25	8.24		2.74	5.08	94.92	**94.9**
#100	0.15	14.44		4.81	9.89	90.11	**90.1**
#140	0.106	14.18		4.72	14.61	85.39	**85.4**
#200	0.075	17.69		5.89	20.50	79.50	**79.5**
Pan	-	0.00		0.00	20.50	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-05
Client Reference:	USACE Princeville	Depth (ft):	36.7-37.5
Project No.:	R-2020-164-002	Sample No.:	SS-19
Lab ID:	R-2020-164-002-014	Soil Description:	BROWN LEAN CLAY

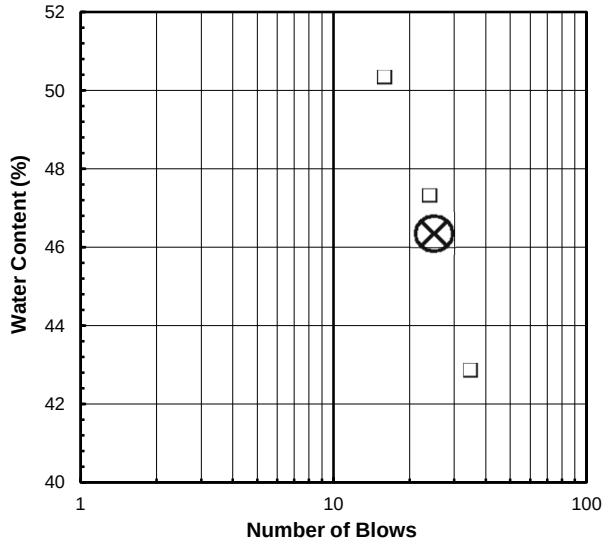
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	318	A-O	E	Y	U
Wt. of Tare & Wet Sample (g):	446.24	27.92	28.61	29.73	L
Wt. of Tare & Dry Sample (g):	386.90	24.15	24.31	24.99	T
Weight of Tare (g):	86.40	15.35	15.22	15.57	I
Weight of Water (g):	59.3	3.8	4.3	4.7	P
Weight of Dry Sample (g):	300.5	8.8	9.1	9.4	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**19.7**	**42.8**	**47.3**	**50.3**	N
Number of Blows:		**35**	**24**	**16**	T

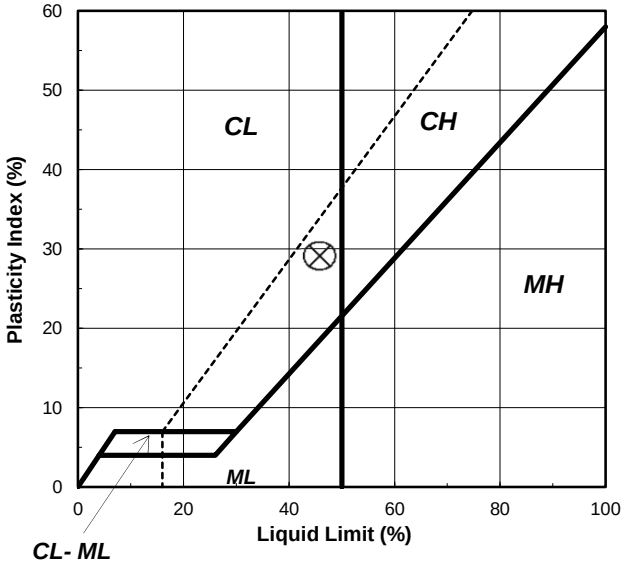
Plastic Limit Test	1	2	Range
Tare Number:	2	1	
Wt. of Tare & Wet Sample (g):	15.44	15.26	
Wt. of Tare & Dry Sample (g):	14.22	14.05	
Weight of Tare (g):	7.06	7.00	
Weight of Water (g):	1.2	1.2	
Weight of Dry Sample (g):	7.2	7.1	
Moisture Content (%):	**17.0**	**17.2**	**-0.1**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**46**
Plastic Limit (%):	**17**
Plasticity Index (%):	**29**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



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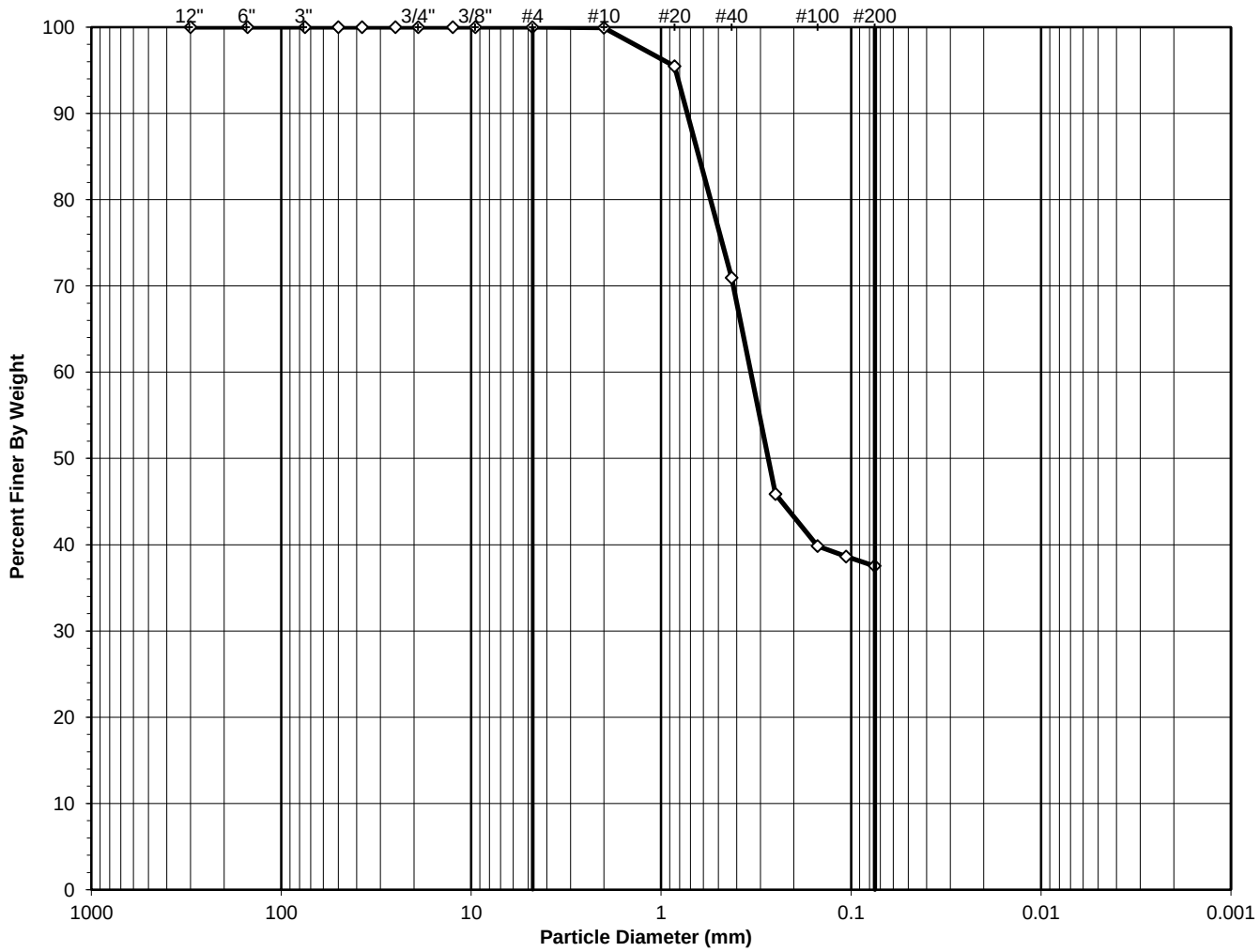
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	3.0-4.5
Project No.:	R-2020-164-002	Sample No.:	SS-20
Lab ID:	R-2020-164-002-015	Soil Color:	Orange

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC, TESTED

D50 = 0.27

USCS Classification:
CLAYEY SAND

Tested By SS Date 8/20/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	3.0-4.5
Project No.:	R-2020-164-002	Sample No.:	SS-20
Lab ID:	R-2020-164-002-015	Soil Color:	Orange

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	314	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	425.55	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	369.56	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	84.26	Weight of Tare (g):	NA
Weight of Water (g):	55.99	Weight of Water (g):	NA
Weight of Dry Soil (g):	285.30	Weight of Dry Soil (g):	NA
Moisture Content (%):	**19.6**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	285.30
Tare No. (Sub-Specimen)	314	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	425.55	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	84.26	Dry Weight of - 3/4" Sample (g):	285.30
Sub-Specimen Wet Weight (g):	341.29	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	285.30
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.23		0.08	0.08	99.92	**99.9**
#20	0.85	12.74	(**)	4.47	4.55	95.45	**95.5**
#40	0.425	69.96		24.52	29.07	70.93	**70.9**
#60	0.25	71.50		25.06	54.13	45.87	**45.9**
#100	0.15	17.24		6.04	60.17	39.83	**39.8**
#140	0.106	3.42		1.20	61.37	38.63	**38.6**
#200	0.075	3.13		1.10	62.47	37.53	**37.5**
Pan	-	107.08		37.53	100.00	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	3.0-4.5
Project No.:	R-2020-164-002	Sample No.:	SS-20
Lab ID:	R-2020-164-002-015	Soil Description:	ORANGE LEAN CLAY

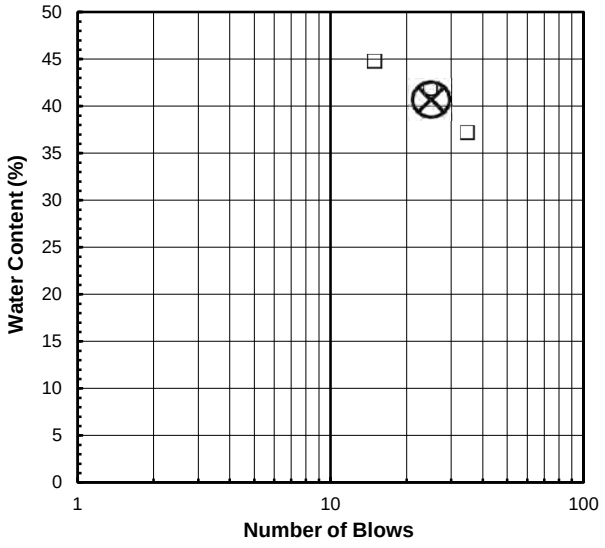
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	314	4M	B2	T	U
Wt. of Tare & Wet Sample (g):	425.55	28.37	30.83	31.20	L
Wt. of Tare & Dry Sample (g):	369.56	24.90	26.28	26.23	T
Weight of Tare (g):	84.26	15.54	15.37	15.12	I
Weight of Water (g):	56.0	3.5	4.6	5.0	P
Weight of Dry Sample (g):	285.3	9.4	10.9	11.1	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**19.6**	**37.1**	**41.7**	**44.7**	N
Number of Blows:		**35**	**25**	**15**	T

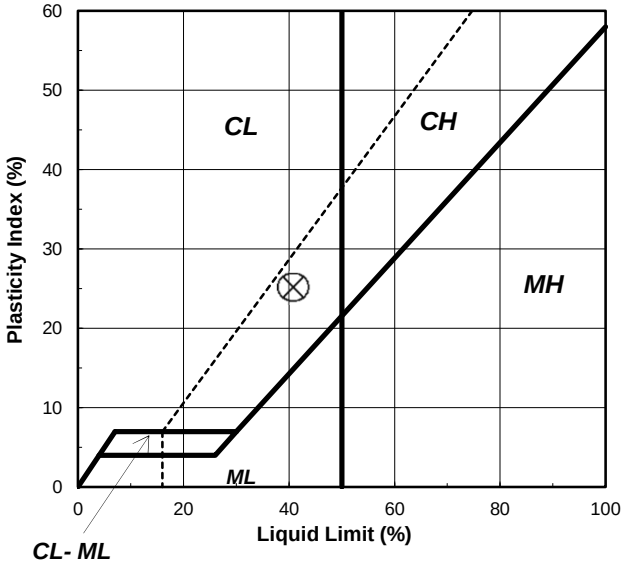
Plastic Limit Test	1	2	Range
Tare Number:	7	26	
Wt. of Tare & Wet Sample (g):	13.24	14.01	
Wt. of Tare & Dry Sample (g):	12.38	13.08	
Weight of Tare (g):	6.92	7.00	
Weight of Water (g):	0.9	0.9	
Weight of Dry Sample (g):	5.5	6.1	
Moisture Content (%):	**15.8**	**15.3**	**0.5**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**41**
Plastic Limit (%):	**16**
Plasticity Index (%):	**25**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



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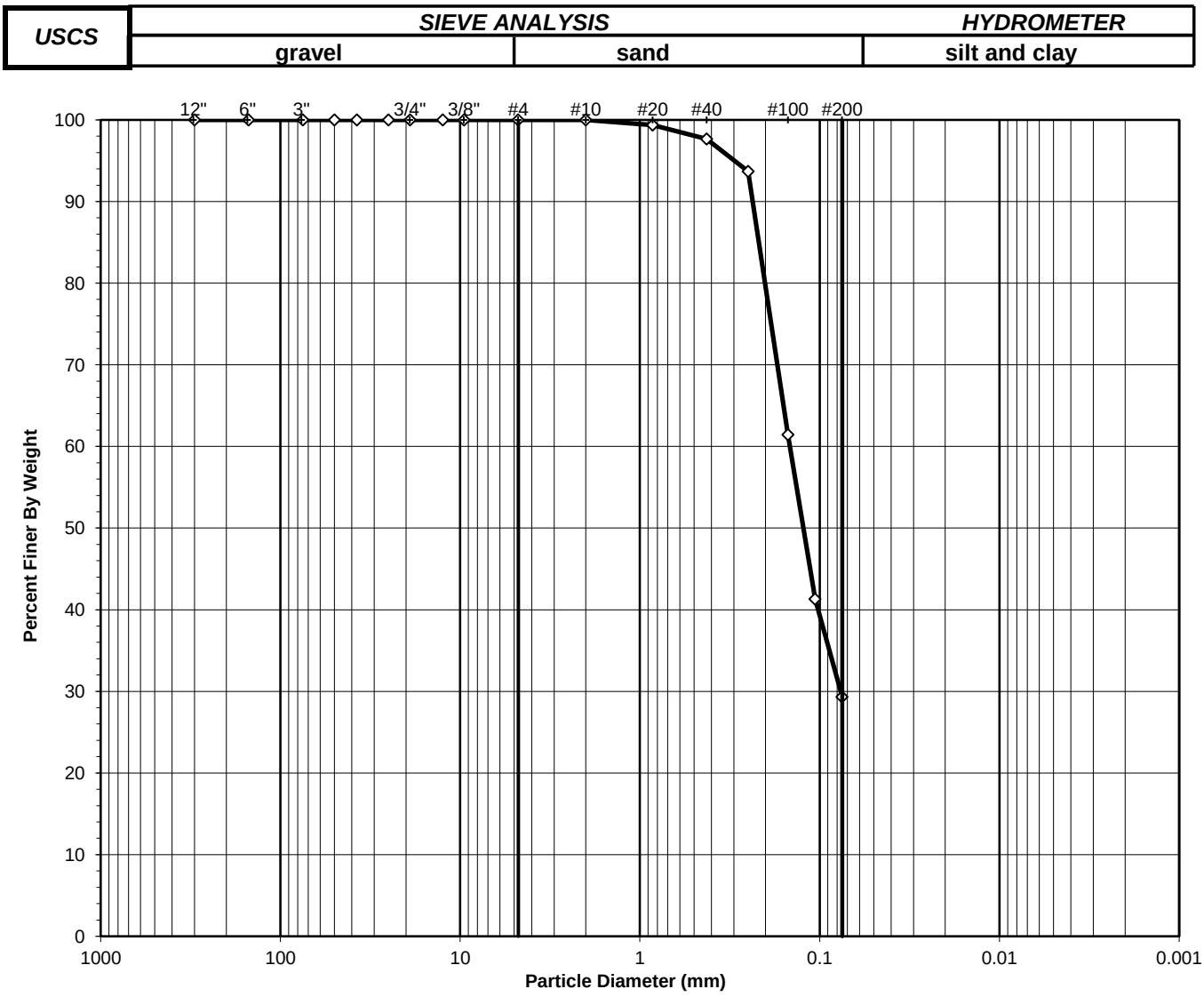
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-21
Lab ID:	R-2020-164-002-016	Soil Color:	Light Brown



USCS Symbol:
SM, TESTED

D50 = 0.12

USCS Classification:
SILTY SAND
(Non-Plastic)

Tested By SS Date 8/20/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-21
Lab ID:	R-2020-164-002-016	Soil Color:	Light Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	740	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	522.56	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	450.59	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	143.65	Weight of Tare (g):	NA
Weight of Water (g):	71.97	Weight of Water (g):	NA
Weight of Dry Soil (g):	306.94	Weight of Dry Soil (g):	NA
Moisture Content (%):	**23.4**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	306.94
Tare No. (Sub-Specimen)	740	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	522.56	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	143.65	Dry Weight of - 3/4" Sample (g):	306.94
Sub-Specimen Wet Weight (g):	378.91	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	306.94
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.05		0.02	0.02	99.98	**100.0**
#20	0.85	1.91	(**)	0.62	0.64	99.36	**99.4**
#40	0.425	5.21		1.70	2.34	97.66	**97.7**
#60	0.25	12.20		3.97	6.31	93.69	**93.7**
#100	0.15	99.02		32.26	38.57	61.43	**61.4**
#140	0.106	61.82		20.14	58.71	41.29	**41.3**
#200	0.075	36.75		11.97	70.68	29.32	**29.3**
Pan	-	0.00		0.00	70.68	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-21
Lab ID:	R-2020-164-002-016	Color:	Light Brown
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	740
Wt. of Tare & Wet Sample (g)	522.56
Wt. of Tare & Dry Sample (g)	450.59
Weight of Tare (g)	143.65
Weight of Water (g)	71.97
Weight of Dry Sample (g)	306.94
Water Content (%)	**23.4**

NON - PLASTIC MATERIAL

Tested By SS *Date* 8/27/20 *Checked By* GEM *Date* 8/28/20

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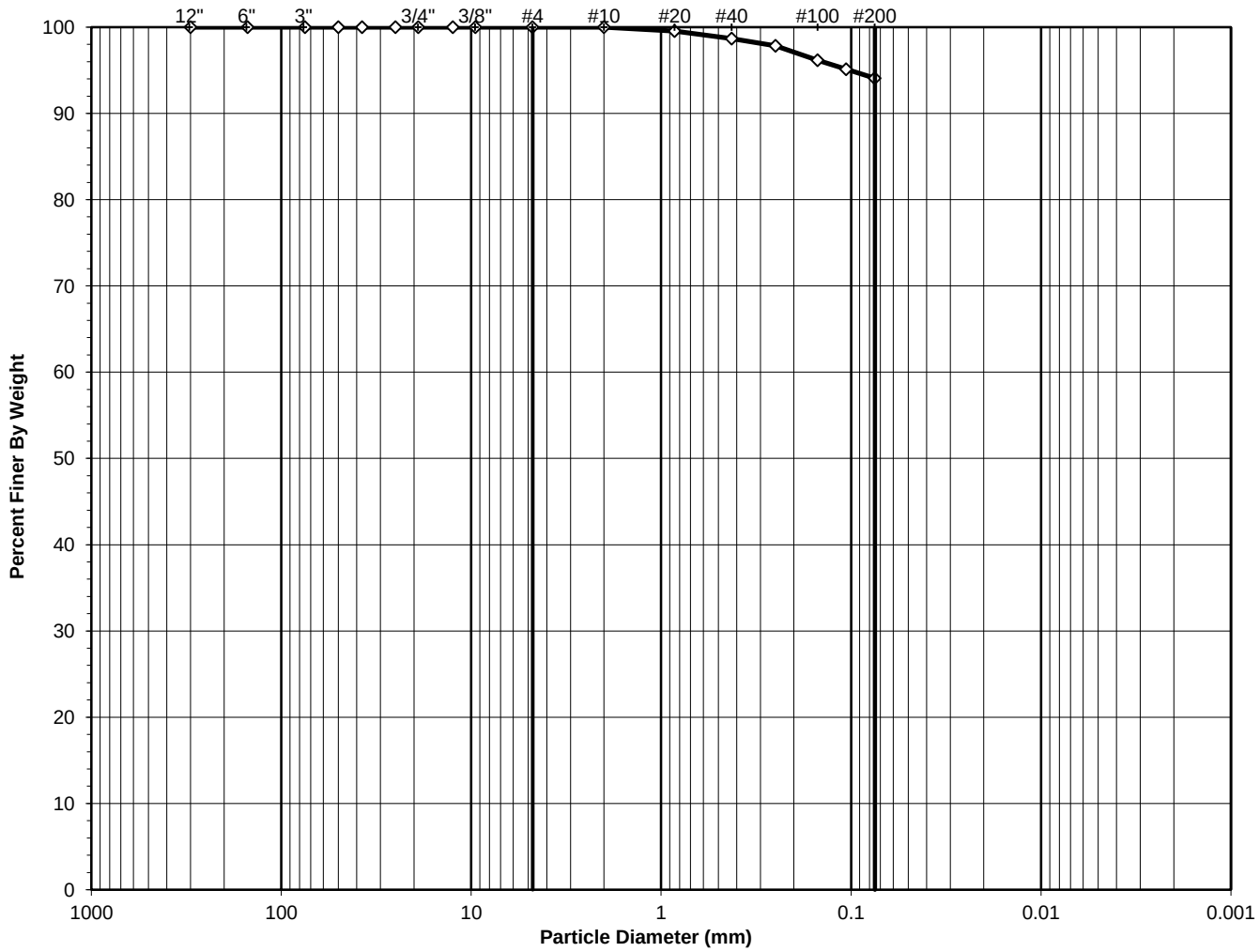
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	18.4-19.5
Project No.:	R-2020-164-002	Sample No.:	SS-22
Lab ID:	R-2020-164-002-017	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.02

USCS Classification:
FAT CLAY

Tested By TB Date 8/21/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	18.4-19.5
Project No.:	R-2020-164-002	Sample No.:	SS-22
Lab ID:	R-2020-164-002-017	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	742	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	474.92	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	391.32	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.92	Weight of Tare (g):	NA
Weight of Water (g):	83.60	Weight of Water (g):	NA
Weight of Dry Soil (g):	246.40	Weight of Dry Soil (g):	NA
Moisture Content (%):	**33.9**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	246.40
Tare No. (Sub-Specimen)	742	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	474.92	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	144.92	Dry Weight of - 3/4" Sample (g):	246.40
Sub-Specimen Wet Weight (g):	330.00	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	246.40
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	1.15	(**)	0.47	0.47	99.53	**99.5**
#40	0.425	2.15		0.87	1.34	98.66	**98.7**
#60	0.25	2.05		0.83	2.17	97.83	**97.8**
#100	0.15	4.11		1.67	3.84	96.16	**96.2**
#140	0.106	2.58		1.05	4.89	95.11	**95.1**
#200	0.075	2.54		1.03	5.92	94.08	**94.1**
Pan	-	0.00		0.00	5.92	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	18.4-19.5
Project No.:	R-2020-164-002	Sample No.:	SS-22
Lab ID:	R-2020-164-002-017	Soil Description:	GRAY FAT CLAY

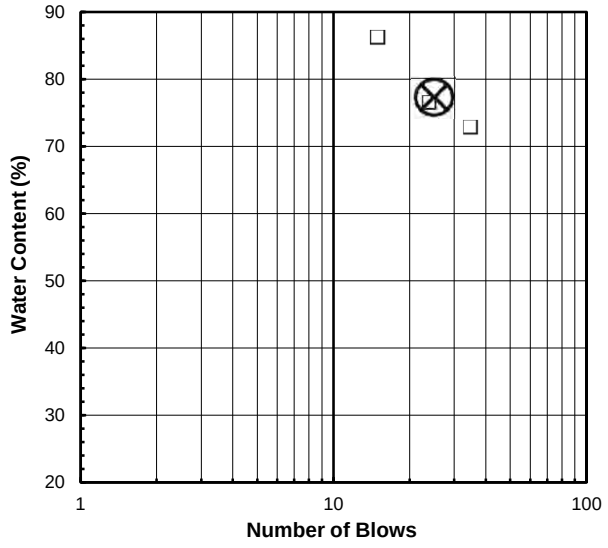
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	742	1M	Q	A-L	U
Wt. of Tare & Wet Sample (g):	474.92	28.76	26.79	28.07	L
Wt. of Tare & Dry Sample (g):	391.32	23.29	21.72	22.23	T
Weight of Tare (g):	144.92	15.77	15.09	15.45	I
Weight of Water (g):	83.6	5.5	5.1	5.8	P
Weight of Dry Sample (g):	246.4	7.5	6.6	6.8	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**33.9**	**72.7**	**76.5**	**86.1**	N
Number of Blows:		**35**	**24**	**15**	T

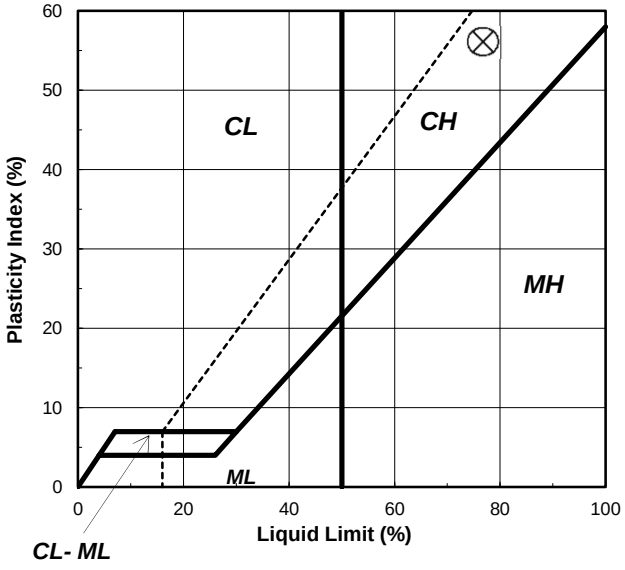
Plastic Limit Test	1	2	Range
Tare Number:	33	2	
Wt. of Tare & Wet Sample (g):	14.83	14.90	
Wt. of Tare & Dry Sample (g):	13.45	13.51	
Weight of Tare (g):	7.00	7.06	
Weight of Water (g):	1.4	1.4	
Weight of Dry Sample (g):	6.5	6.5	
Moisture Content (%):	**21.4**	**21.6**	**-0.2**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**77**
Plastic Limit (%):	**21**
Plasticity Index (%):	**56**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/21/20 *Checked By* GEM *Date* 8/25/20

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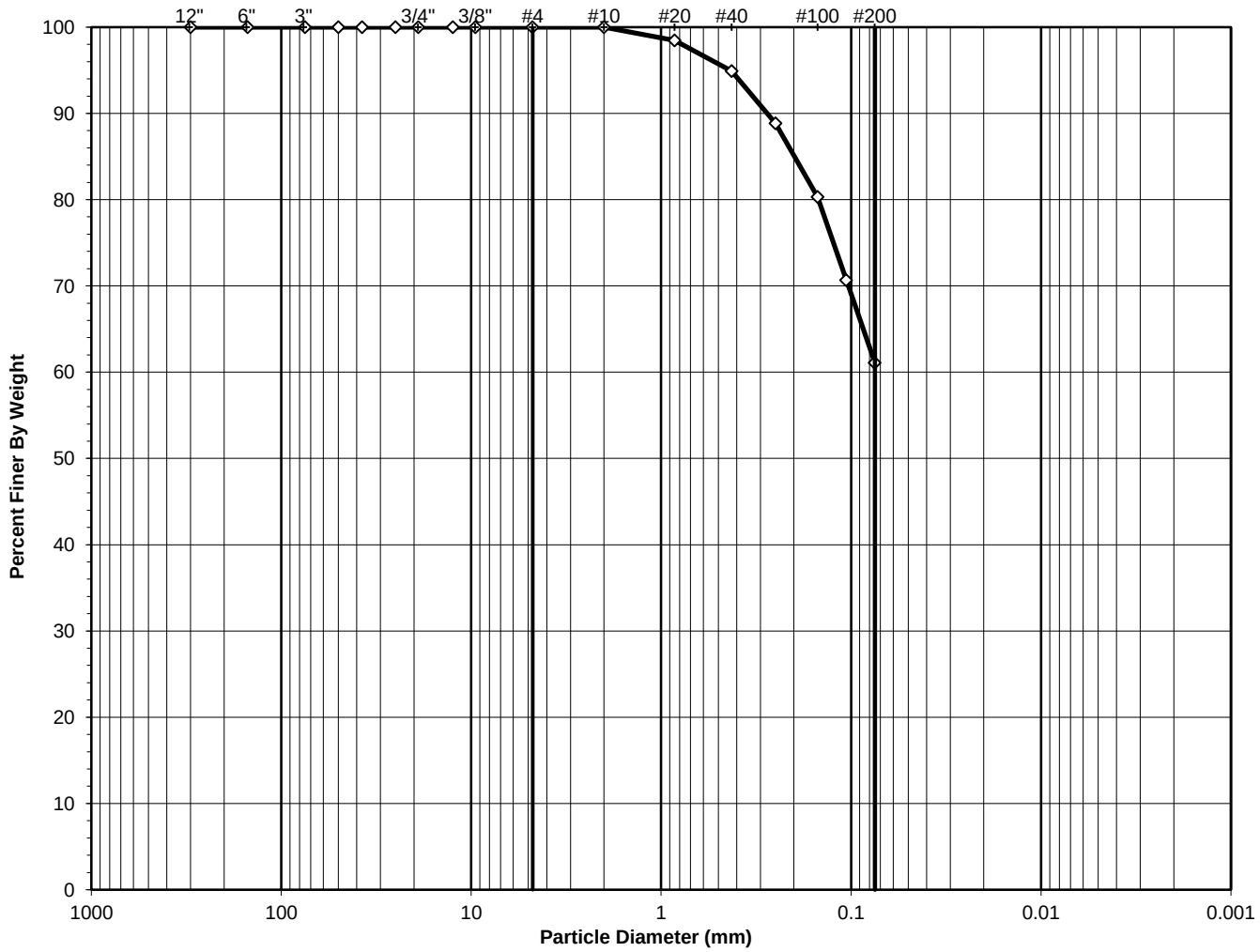
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	27.0-28.5
Project No.:	R-2020-164-002	Sample No.:	SS-23
Lab ID:	R-2020-164-002-018	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.04

USCS Classification:
SANDY LEAN CLAY

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	27.0-28.5
Project No.:	R-2020-164-002	Sample No.:	SS-23
Lab ID:	R-2020-164-002-018	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	744	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	676.54	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	584.74	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.14	Weight of Tare (g):	NA
Weight of Water (g):	91.80	Weight of Water (g):	NA
Weight of Dry Soil (g):	442.60	Weight of Dry Soil (g):	NA
Moisture Content (%):	**20.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	442.60
Tare No. (Sub-Specimen)	744	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	676.54	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.14	Dry Weight of - 3/4" Sample (g):	442.60
Sub-Specimen Wet Weight (g):	534.40	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	442.60
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	6.80	(**)	1.54	1.54	98.46	**98.5**
#40	0.425	15.79		3.57	5.10	94.90	**94.9**
#60	0.25	26.81		6.06	11.16	88.84	**88.8**
#100	0.15	37.74		8.53	19.69	80.31	**80.3**
#140	0.106	42.74		9.66	29.34	70.66	**70.7**
#200	0.075	42.33		9.56	38.91	61.09	**61.1**
Pan	-	0.00		0.00	38.91	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-06
Client Reference:	USACE Princeville	Depth (ft):	27.0-28.5
Project No.:	R-2020-164-002	Sample No.:	SS-23
Lab ID:	R-2020-164-002-018	Soil Description:	BROWN LEAN CLAY

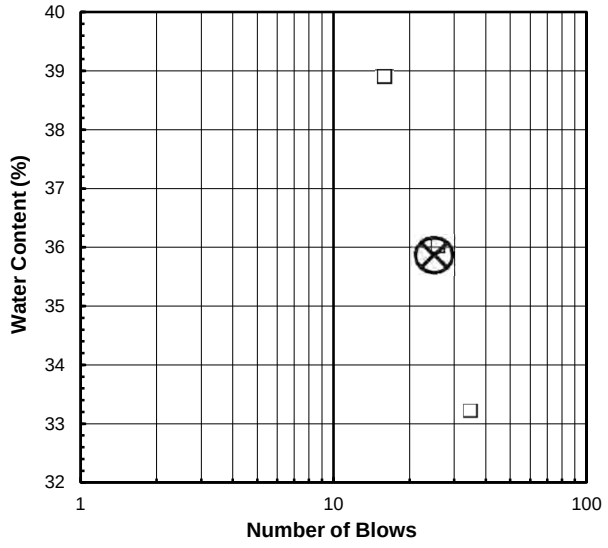
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	744	2M	A-T	W	U
Wt. of Tare & Wet Sample (g):	676.54	29.63	29.93	30.02	L
Wt. of Tare & Dry Sample (g):	584.74	26.12	26.11	25.84	T
Weight of Tare (g):	142.14	15.55	15.50	15.09	I
Weight of Water (g):	91.8	3.5	3.8	4.2	P
Weight of Dry Sample (g):	442.6	10.6	10.6	10.8	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**20.7**	**33.2**	**36.0**	**38.9**	N
Number of Blows:		**35**	**26**	**16**	T

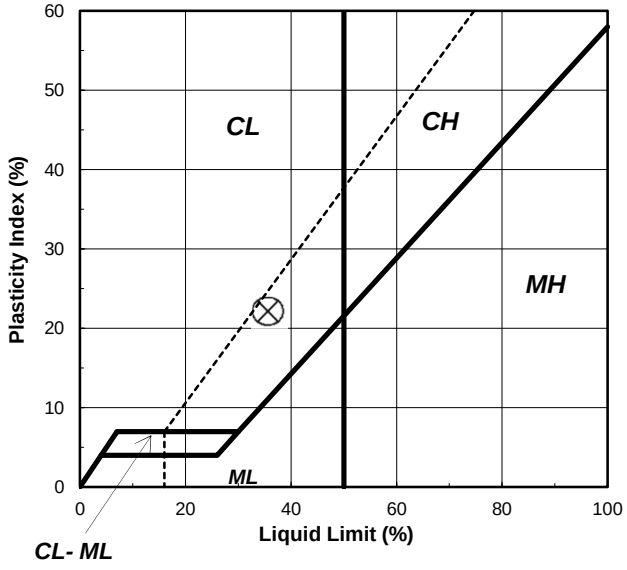
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	13	34	
Wt. of Tare & Wet Sample (g):	16.34	17.56	
Wt. of Tare & Dry Sample (g):	15.22	16.25	
Weight of Tare (g):	7.01	6.96	
Weight of Water (g):	1.1	1.3	
Weight of Dry Sample (g):	8.2	9.3	
Moisture Content (%):	**13.6**	**14.1**	**-0.5**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**36**
Plastic Limit (%):	**14**
Plasticity Index (%):	**22**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/25/20 *Checked By* GEM *Date* 8/26/20

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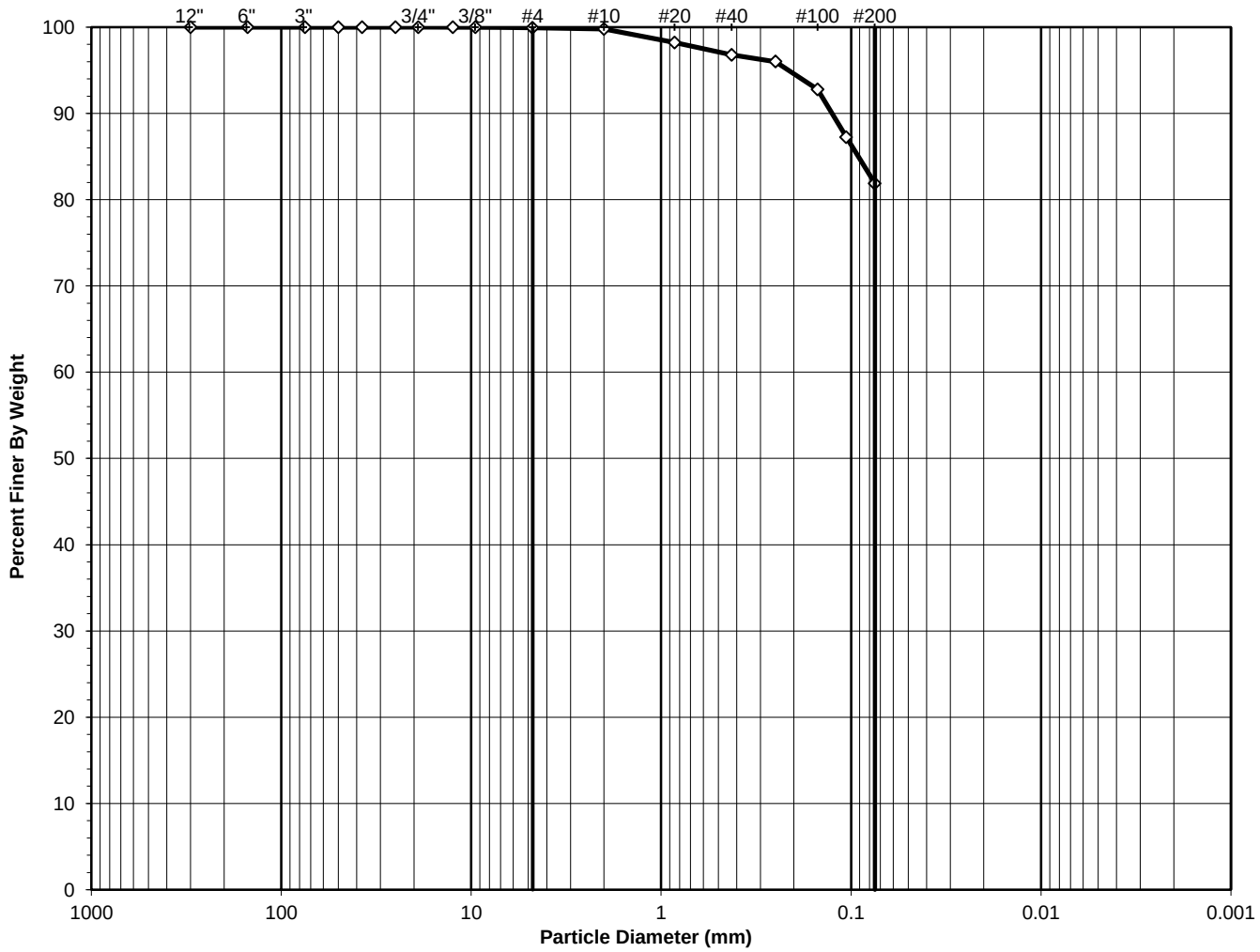
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	9.0-10.5
Project No.:	R-2020-164-002	Sample No.:	SS-24
Lab ID:	R-2020-164-002-019	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.02

USCS Classification:
LEAN CLAY WITH SAND

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	9.0-10.5
Project No.:	R-2020-164-002	Sample No.:	SS-24
Lab ID:	R-2020-164-002-019	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	736	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	663.75	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	538.57	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	140.12	Weight of Tare (g):	NA
Weight of Water (g):	125.18	Weight of Water (g):	NA
Weight of Dry Soil (g):	398.45	Weight of Dry Soil (g):	NA
Moisture Content (%):	**31.4**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	398.45
Tare No. (Sub-Specimen)	736	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	663.75	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	140.12	Dry Weight of - 3/4" Sample (g):	398.45
Sub-Specimen Wet Weight (g):	523.63	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	398.45
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.36		0.09	0.09	99.91	**99.9**
#10	2	0.54		0.14	0.23	99.77	**99.8**
#20	0.85	6.15	(**)	1.54	1.77	98.23	**98.2**
#40	0.425	5.70		1.43	3.20	96.80	**96.8**
#60	0.25	3.17		0.80	4.00	96.00	**96.0**
#100	0.15	12.83		3.22	7.22	92.78	**92.8**
#140	0.106	22.09		5.54	12.76	87.24	**87.2**
#200	0.075	21.37		5.36	18.12	81.88	**81.9**
Pan	-	0.00		0.00	18.12	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	9.0-10.5
Project No.:	R-2020-164-002	Sample No.:	SS-24
Lab ID:	R-2020-164-002-019	Soil Description:	BROWN LEAN CLAY

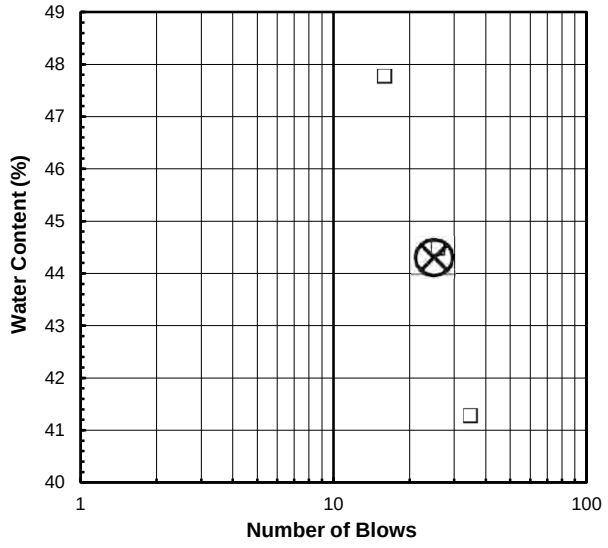
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		**Liquid Limit Test**			
ASTM D2216-19		**1**	**2**	**3**	**M**
Tare Number:	736	O	3	B-4	**U**
Wt. of Tare & Wet Sample (g):	663.75	29.01	31.56	30.23	**L**
Wt. of Tare & Dry Sample (g):	538.57	24.97	26.59	25.45	**T**
Weight of Tare (g):	140.12	15.18	15.41	15.44	**I**
Weight of Water (g):	125.2	4.0	5.0	4.8	**P**
Weight of Dry Sample (g):	398.5	9.8	11.2	10.0	**O**
Was As Received MC Preserved:	**Yes**				**I**
Moisture Content (%):	**31.4**	**41.3**	**44.5**	**47.8**	**N**
Number of Blows:		**35**	**26**	**16**	**T**

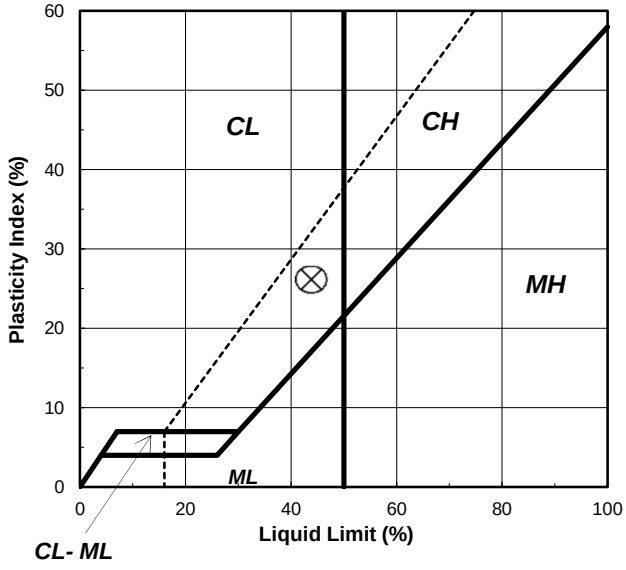
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	33	9	
Wt. of Tare & Wet Sample (g):	15.71	15.59	
Wt. of Tare & Dry Sample (g):	14.36	14.25	
Weight of Tare (g):	7.01	6.99	
Weight of Water (g):	1.4	1.3	
Weight of Dry Sample (g):	7.4	7.3	
Moisture Content (%):	**18.4**	**18.5**	**-0.1**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**44**
Plastic Limit (%):	**18**
Plasticity Index (%):	**26**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/25/20 *Checked By* GEM *Date* 8/26/20

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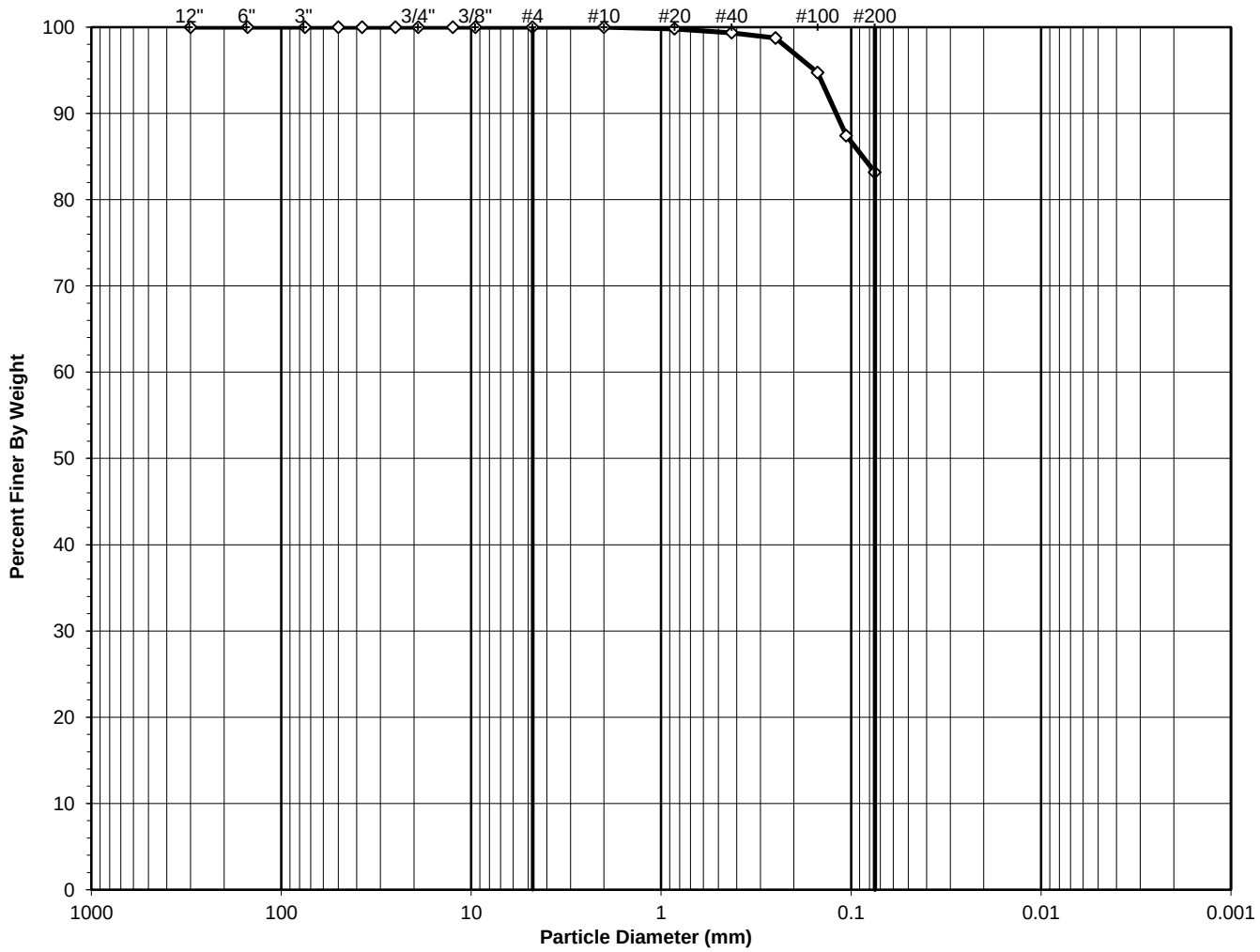
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-25
Lab ID:	R-2020-164-002-020	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.02

USCS Classification:
FAT CLAY WITH SAND

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-25
Lab ID:	R-2020-164-002-020	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	729	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	607.37	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	511.85	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	139.81	Weight of Tare (g):	NA
Weight of Water (g):	95.52	Weight of Water (g):	NA
Weight of Dry Soil (g):	372.04	Weight of Dry Soil (g):	NA
Moisture Content (%):	**25.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	372.04
Tare No. (Sub-Specimen)	729	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	607.37	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	139.81	Dry Weight of - 3/4" Sample (g):	372.04
Sub-Specimen Wet Weight (g):	467.56	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	372.04
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	0.74	(**)	0.20	0.20	99.80	**99.8**
#40	0.425	1.68		0.45	0.65	99.35	**99.3**
#60	0.25	2.32		0.62	1.27	98.73	**98.7**
#100	0.15	14.82		3.98	5.26	94.74	**94.7**
#140	0.106	27.27		7.33	12.59	87.41	**87.4**
#200	0.075	15.78		4.24	16.83	83.17	**83.2**
Pan	-	0.00		0.00	16.83	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.0
Project No.:	R-2020-164-002	Sample No.:	SS-25
Lab ID:	R-2020-164-002-020	Soil Description:	GRAY FAT CLAY

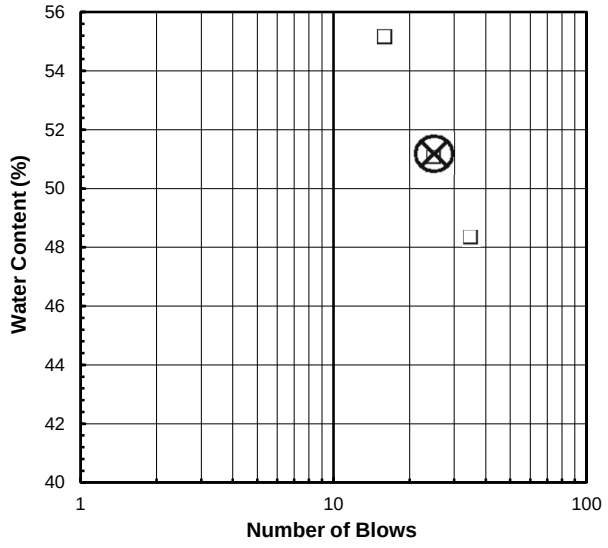
***Note: The* USCS symbol used with this test refers only to the minus No. 40** (Minus No. 40 sieve material, Air dried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	729	G	A-N	A-I	U
Wt. of Tare & Wet Sample (g):	607.37	29.50	28.76	30.36	L
Wt. of Tare & Dry Sample (g):	511.85	24.76	24.23	25.04	T
Weight of Tare (g):	139.81	14.95	15.36	15.39	I
Weight of Water (g):	95.5	4.7	4.5	5.3	P
Weight of Dry Sample (g):	372.0	9.8	8.9	9.7	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**25.7**	**48.3**	**51.1**	**55.1**	N
Number of Blows:		**35**	**25**	**16**	T

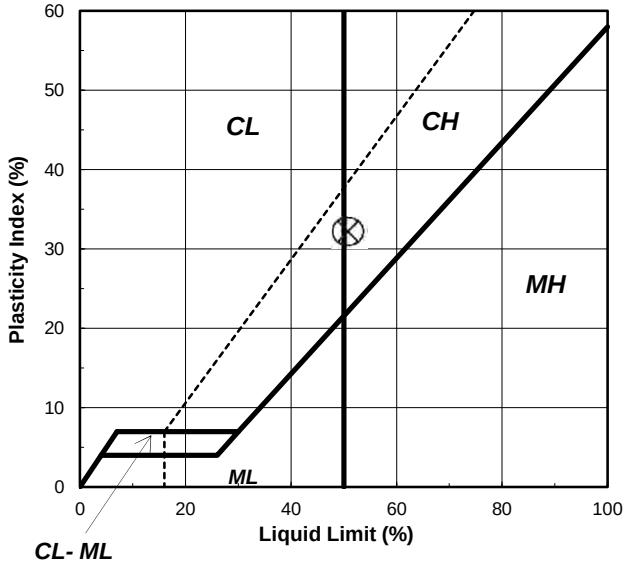
Plastic Limit Test	**1**	**2**	**Range**	
Tare Number:	5	30		
Wt. of Tare & Wet Sample (g):	16.38	15.13		
Wt. of Tare & Dry Sample (g):	14.87	13.84		
Weight of Tare (g):	6.97	6.95		
Weight of Water (g):	1.5	1.3		
Weight of Dry Sample (g):	7.9	6.9		
Moisture Content (%):	**19.1**	**18.7**	**0.4**	
Note: The acceptable range of the two Moisture Contents is ±				1.4

Test Results	
Liquid Limit (%):	**51**
Plastic Limit (%):	**19**
Plasticity Index (%):	**32**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/25/20 *Checked By* GEM *Date* 8/26/20

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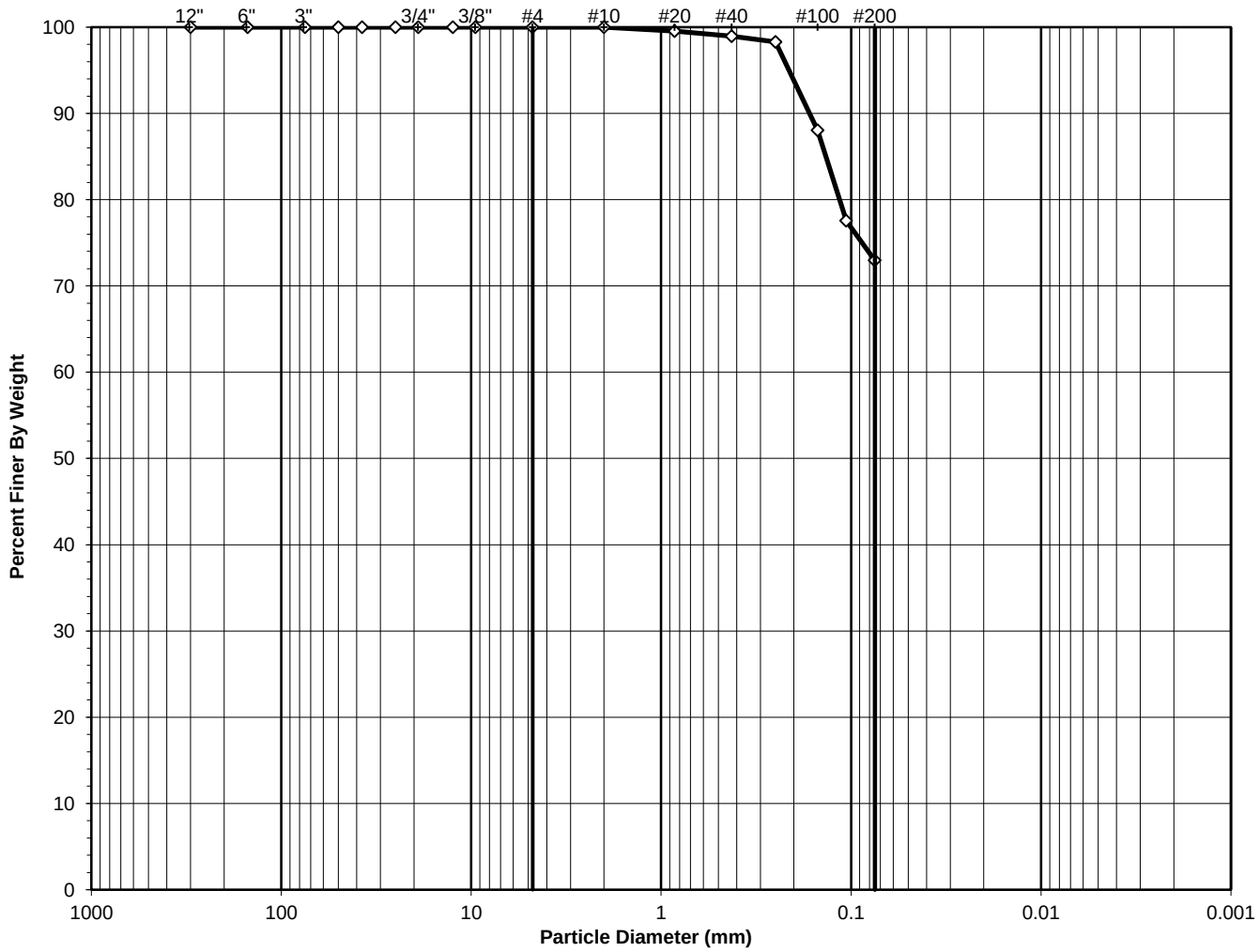
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	13.5-15.0
Project No.:	R-2020-164-002	Sample No.:	SS-26
Lab ID:	R-2020-164-002-021	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.03

USCS Classification:
FAT CLAY WITH SAND

Tested By TB Date 8/21/20 Checked By GEM Date 8/26/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	13.5-15.0
Project No.:	R-2020-164-002	Sample No.:	SS-26
Lab ID:	R-2020-164-002-021	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	739	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	486.57	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	414.36	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.67	Weight of Tare (g):	NA
Weight of Water (g):	72.21	Weight of Water (g):	NA
Weight of Dry Soil (g):	271.69	Weight of Dry Soil (g):	NA
Moisture Content (%):	**26.6**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	271.69
Tare No. (Sub-Specimen)	739	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	486.57	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.67	Dry Weight of - 3/4" Sample (g):	271.69
Sub-Specimen Wet Weight (g):	343.90	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	271.69
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	1.25	(**)	0.46	0.46	99.54	**99.5**
#40	0.425	1.63		0.60	1.06	98.94	**98.9**
#60	0.25	1.81		0.67	1.73	98.27	**98.3**
#100	0.15	27.81		10.24	11.96	88.04	**88.0**
#140	0.106	28.51		10.49	22.46	77.54	**77.5**
#200	0.075	12.47		4.59	27.05	72.95	**73.0**
Pan	-	0.00		0.00	27.05	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 8/26/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	13.5-15.0
Project No.:	R-2020-164-002	Sample No.:	SS-26
Lab ID:	R-2020-164-002-021	Soil Description:	GRAY FAT CLAY

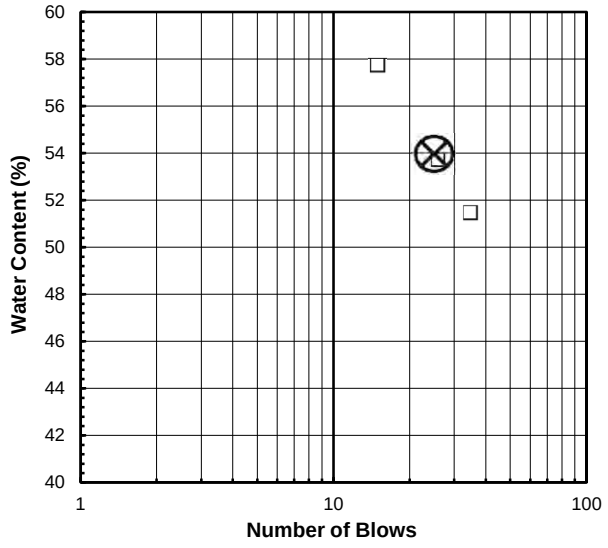
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	739	H	A-B	W-5	U
Wt. of Tare & Wet Sample (g):	486.57	28.69	28.68	30.18	L
Wt. of Tare & Dry Sample (g):	414.36	24.06	24.08	24.83	T
Weight of Tare (g):	142.67	15.06	15.51	15.56	I
Weight of Water (g):	72.2	4.6	4.6	5.4	P
Weight of Dry Sample (g):	271.7	9.0	8.6	9.3	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**26.6**	**51.4**	**53.7**	**57.7**	N
Number of Blows:		**35**	**26**	**15**	T

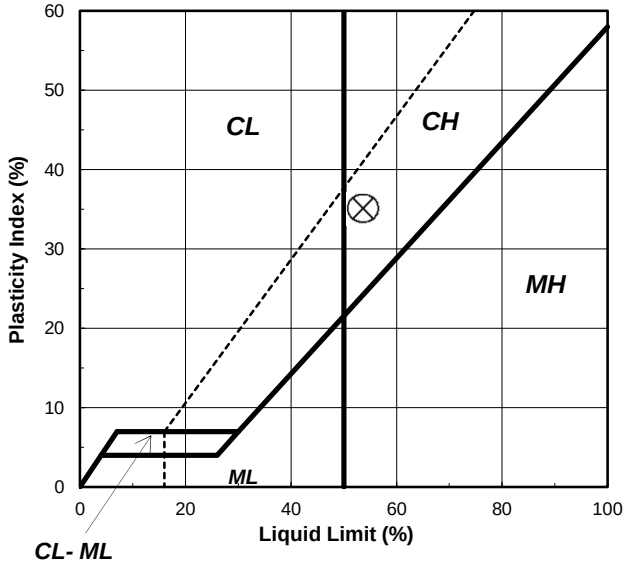
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	18	10	
Wt. of Tare & Wet Sample (g):	15.52	17.04	
Wt. of Tare & Dry Sample (g):	14.13	15.43	
Weight of Tare (g):	6.99	7.02	
Weight of Water (g):	1.4	1.6	
Weight of Dry Sample (g):	7.1	8.4	
Moisture Content (%):	**19.5**	**19.1**	**0.3**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**54**
Plastic Limit (%):	**19**
Plasticity Index (%):	**35**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



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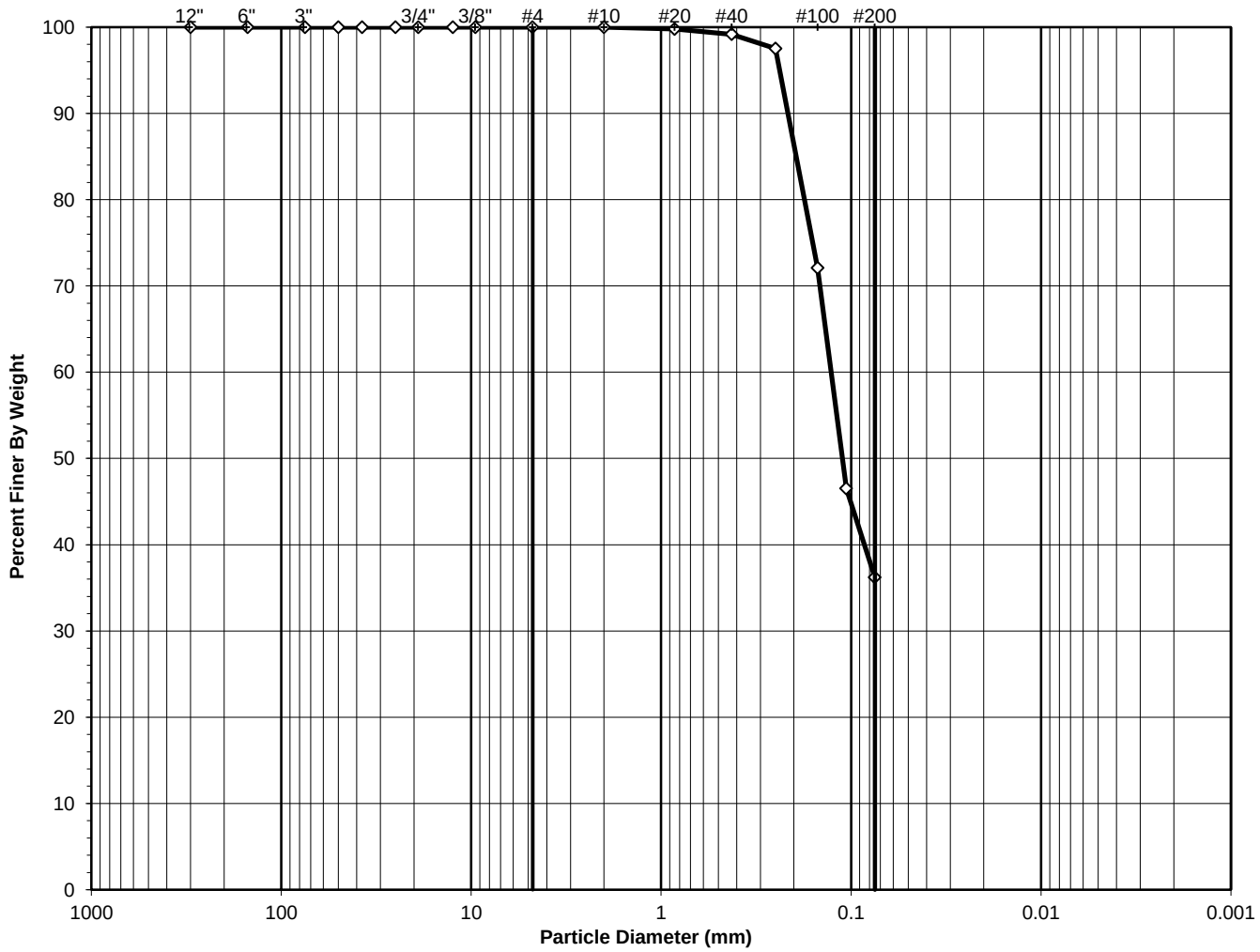
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	16.5-18.0
Project No.:	R-2020-164-002	Sample No.:	SS-27
Lab ID:	R-2020-164-002-022	Soil Color:	Dark Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.11

USCS Classification:
SILTY SAND
(Non-Plastic)

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	16.5-18.0
Project No.:	R-2020-164-002	Sample No.:	SS-27
Lab ID:	R-2020-164-002-022	Soil Color:	Dark Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	741	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	628.40	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	476.64	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	139.64	Weight of Tare (g):	NA
Weight of Water (g):	151.76	Weight of Water (g):	NA
Weight of Dry Soil (g):	337.00	Weight of Dry Soil (g):	NA
Moisture Content (%):	**45.0**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	337.00
Tare No. (Sub-Specimen)	741	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	628.40	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	139.64	Dry Weight of - 3/4" Sample (g):	337.00
Sub-Specimen Wet Weight (g):	488.76	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	337.00
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	0.76	(**)	0.23	0.23	99.77	**99.8**
#40	0.425	2.02		0.60	0.82	99.18	**99.2**
#60	0.25	5.60		1.66	2.49	97.51	**97.5**
#100	0.15	85.65		25.42	27.90	72.10	**72.1**
#140	0.106	86.24		25.59	53.49	46.51	**46.5**
#200	0.075	34.73		10.31	63.80	36.20	**36.2**
Pan	-	0.00		0.00	63.80	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/28/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-07
Client Reference:	USACE Princeville	Depth (ft):	16.5-18.0
Project No.:	R-2020-164-002	Sample No.:	SS-27
Lab ID:	R-2020-164-002-022	Color:	Dark Gray
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	741
Wt. of Tare & Wet Sample (g)	628.40
Wt. of Tare & Dry Sample (g)	476.64
Weight of Tare (g)	139.64
Weight of Water (g)	151.76
Weight of Dry Sample (g)	337.00
Water Content (%)	**45.0**

NON - PLASTIC MATERIAL

Tested By *TB* *Date* *8/27/20* *Checked By* *GEM* *Date* *9/1/20*

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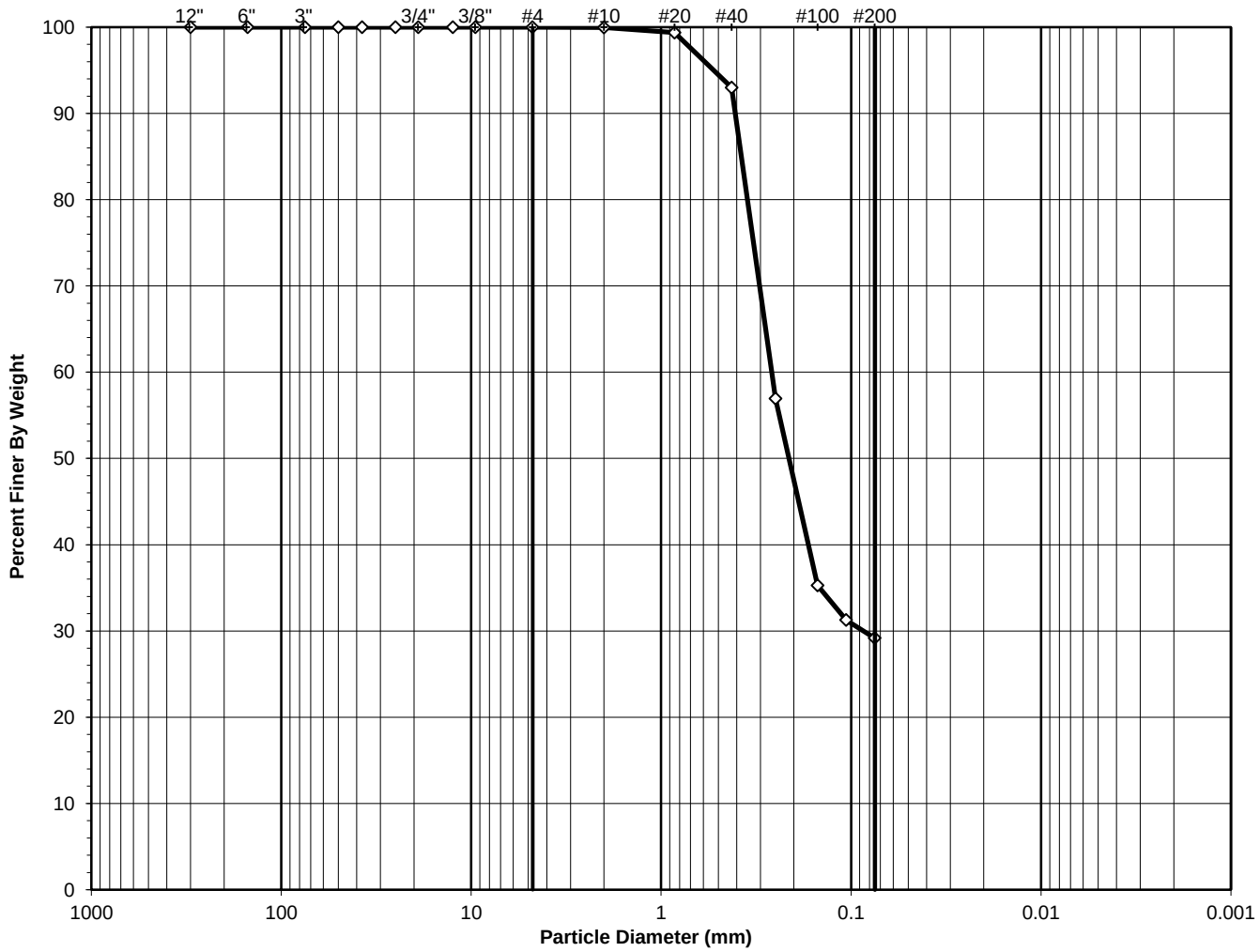
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-28
Lab ID:	R-2020-164-002-023	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC, TESTED

D50 = 0.21

USCS Classification:
CLAYEY SAND

Tested By TB Date 8/21/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-28
Lab ID:	R-2020-164-002-023	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	312	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	611.04	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	516.09	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	80.03	Weight of Tare (g):	NA
Weight of Water (g):	94.95	Weight of Water (g):	NA
Weight of Dry Soil (g):	436.06	Weight of Dry Soil (g):	NA
Moisture Content (%):	**21.8**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	436.06
Tare No. (Sub-Specimen)	312	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	611.04	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	80.03	Dry Weight of - 3/4" Sample (g):	436.06
Sub-Specimen Wet Weight (g):	531.01	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	436.06
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.14		0.03	0.03	99.97	**100.0**
#20	0.85	2.61	(**)	0.60	0.63	99.37	**99.4**
#40	0.425	27.82		6.38	7.01	92.99	**93.0**
#60	0.25	157.21		36.05	43.06	56.94	**56.9**
#100	0.15	94.47		21.66	64.73	35.27	**35.3**
#140	0.106	17.53		4.02	68.75	31.25	**31.3**
#200	0.075	9.07		2.08	70.83	29.17	**29.2**
Pan	-	0.00		0.00	70.83	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-28
Lab ID:	R-2020-164-002-023	Soil Description:	GRAY LEAN CLAY

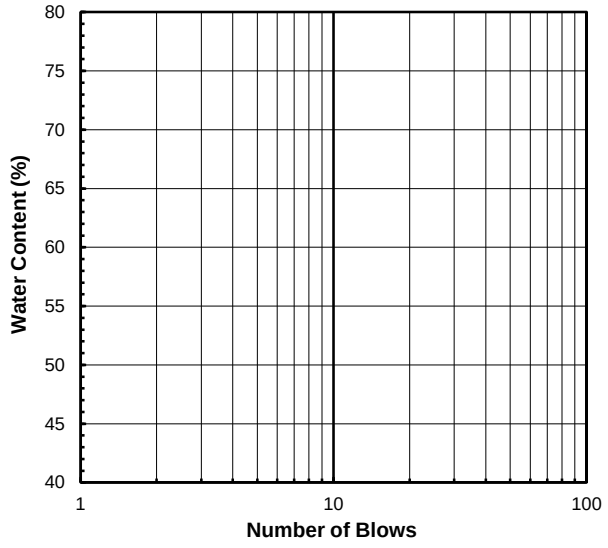
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		**Liquid Limit Test**			
ASTM D2216-19		**1**	**2**	**3**	**M**
Tare Number:	312	D-1	A-C	1M	**U**
Wt. of Tare & Wet Sample (g):	611.04	30.32	31.67	31.58	**L**
Wt. of Tare & Dry Sample (g):	516.09	26.75	27.68	27.52	**T**
Weight of Tare (g):	80.03	15.19	15.52	15.80	**I**
Weight of Water (g):	94.9	3.6	4.0	4.1	**P**
Weight of Dry Sample (g):	436.1	11.6	12.2	11.7	**O**
Was As Received MC Preserved:	**Yes**				**I**
Moisture Content (%):	**21.8**	**30.9**	**32.8**	**34.6**	**N**
Number of Blows:		**35**	**24**	**15**	**T**

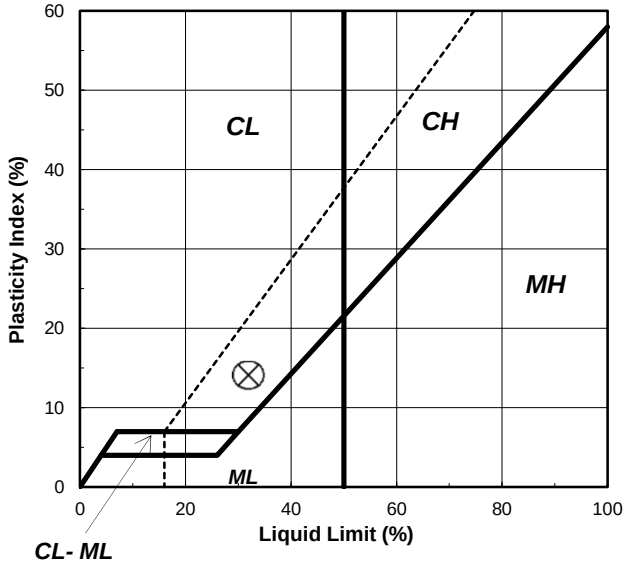
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	15	16	
Wt. of Tare & Wet Sample (g):	15.42	15.31	
Wt. of Tare & Dry Sample (g):	14.10	14.03	
Weight of Tare (g):	6.99	6.99	
Weight of Water (g):	1.3	1.3	
Weight of Dry Sample (g):	7.1	7.0	
Moisture Content (%):	**18.6**	**18.2**	**0.4**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**32**
Plastic Limit (%):	**18**
Plasticity Index (%):	**14**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/25/20 *Checked By* GEM *Date* 8/26/20

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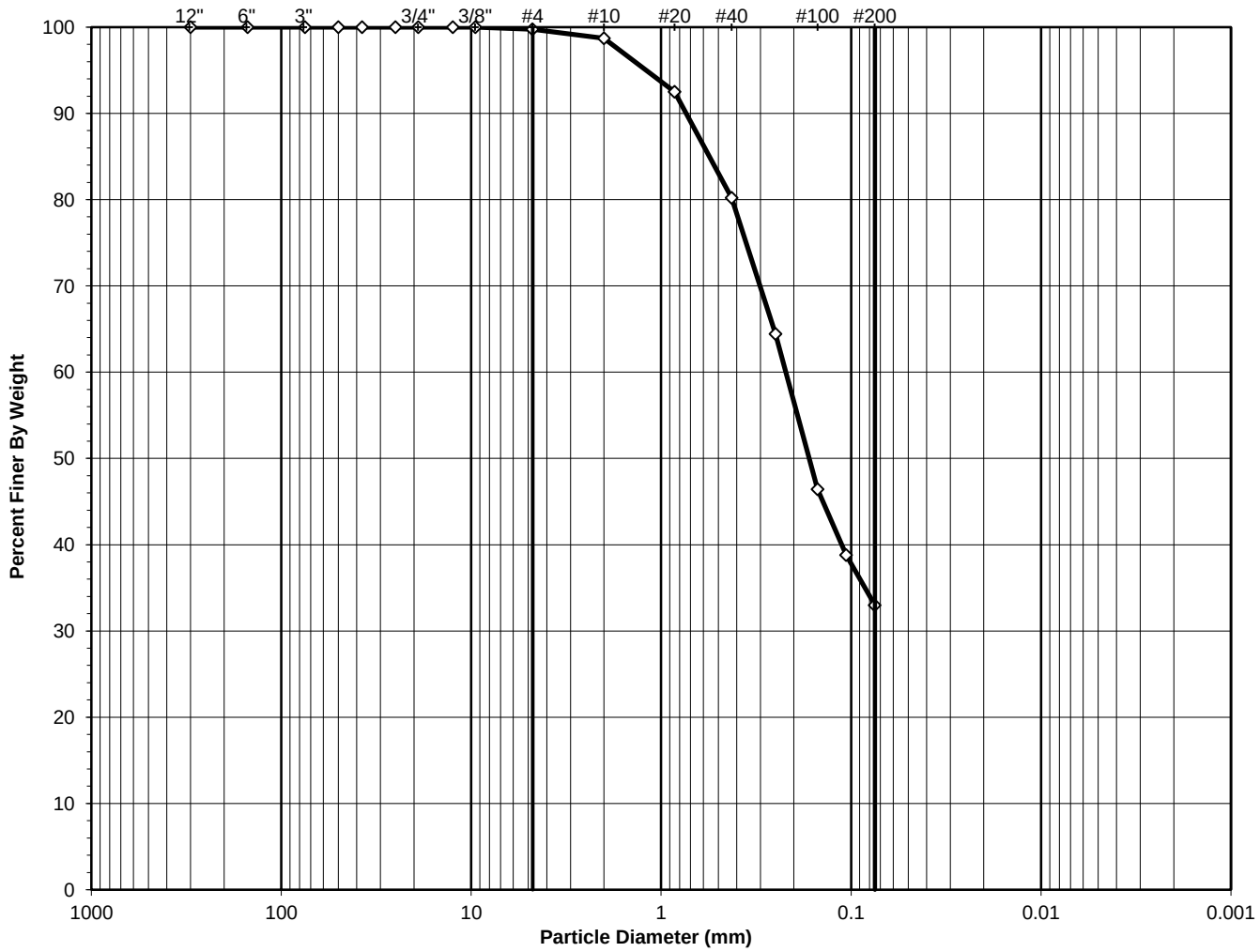
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	0.0-1.5
Project No.:	R-2020-164-002	Sample No.:	SS-29
Lab ID:	R-2020-164-002-024	Soil Color:	Dark Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC-SM, TESTED

D50 = 0.17

USCS Classification:
SILTY, CLAYEY SAND

Tested By SS Date 8/20/20 Checked By GEM Date 9/1/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	0.0-1.5
Project No.:	R-2020-164-002	Sample No.:	SS-29
Lab ID:	R-2020-164-002-024	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	368	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	511.64	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	447.13	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	110.86	Weight of Tare (g):	NA
Weight of Water (g):	64.51	Weight of Water (g):	NA
Weight of Dry Soil (g):	336.27	Weight of Dry Soil (g):	NA
Moisture Content (%):	**19.2**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	336.27
Tare No. (Sub-Specimen)	368	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	511.64	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	110.86	Dry Weight of - 3/4" Sample (g):	336.27
Sub-Specimen Wet Weight (g):	400.78	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	336.27
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.80		0.24	0.24	99.76	**99.8**
#10	2	3.54		1.05	1.29	98.71	**98.7**
#20	0.85	20.87	(**)	6.21	7.50	92.50	**92.5**
#40	0.425	41.37		12.30	19.80	80.20	**80.2**
#60	0.25	53.03		15.77	35.57	64.43	**64.4**
#100	0.15	60.55		18.01	53.58	46.42	**46.4**
#140	0.106	25.72		7.65	61.22	38.78	**38.8**
#200	0.075	19.47		5.79	67.01	32.99	**33.0**
Pan	-	110.92		32.99	100.00	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 9/1/20

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	0.0-1.5
Project No.:	R-2020-164-002	Sample No.:	SS-29
Lab ID:	R-2020-164-002-024	Soil Description:	DARK BROWN SILTY CLAY

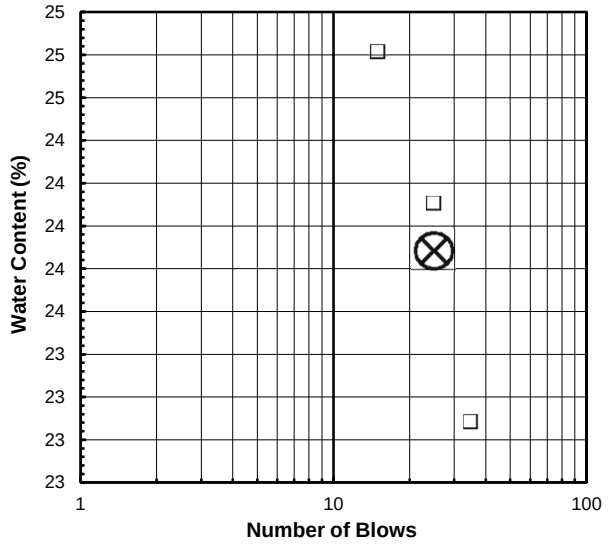
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		**1**	**2**	**3**	**M**
Tare Number:	368	19	23	21	**U**
Wt. of Tare & Wet Sample (g):	511.64	26.72	27.07	20.27	**L**
Wt. of Tare & Dry Sample (g):	447.13	23.02	23.18	17.64	**T**
Weight of Tare (g):	110.86	6.99	7.04	7.04	**I**
Weight of Water (g):	64.5	3.7	3.9	2.6	**P**
Weight of Dry Sample (g):	336.3	16.0	16.1	10.6	**O**
Was As Received MC Preserved:	**Yes**				**I**
Moisture Content (%):	**19.2**	**23.1**	**24.1**	**24.8**	**N**
Number of Blows:		**35**	**25**	**15**	**T**

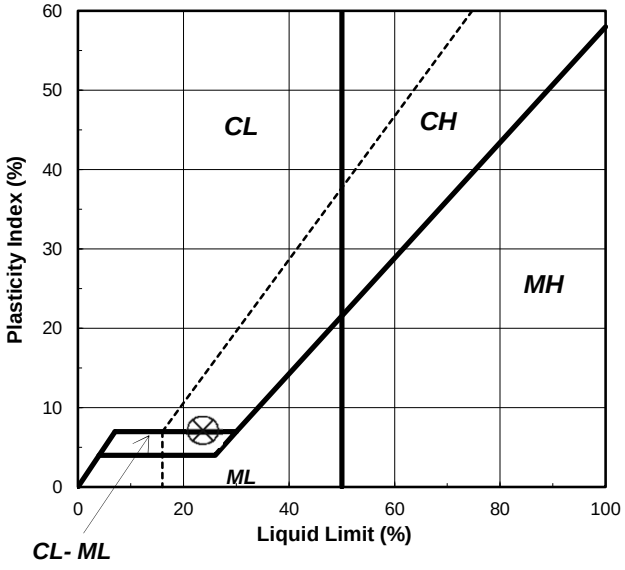
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	34	3	
Wt. of Tare & Wet Sample (g):	14.79	14.22	
Wt. of Tare & Dry Sample (g):	13.65	13.17	
Weight of Tare (g):	6.97	7.02	
Weight of Water (g):	1.1	1.1	
Weight of Dry Sample (g):	6.7	6.2	
Moisture Content (%):	**17.1**	**17.1**	**0.0**
Note: The acceptable range of the two Moisture Contents is ±			0.84

Test Results	
Liquid Limit (%):	**24**
Plastic Limit (%):	**17**
Plasticity Index (%):	**7**
USCS Symbol:	**CL-ML**

Flow Curve



Plasticity Chart



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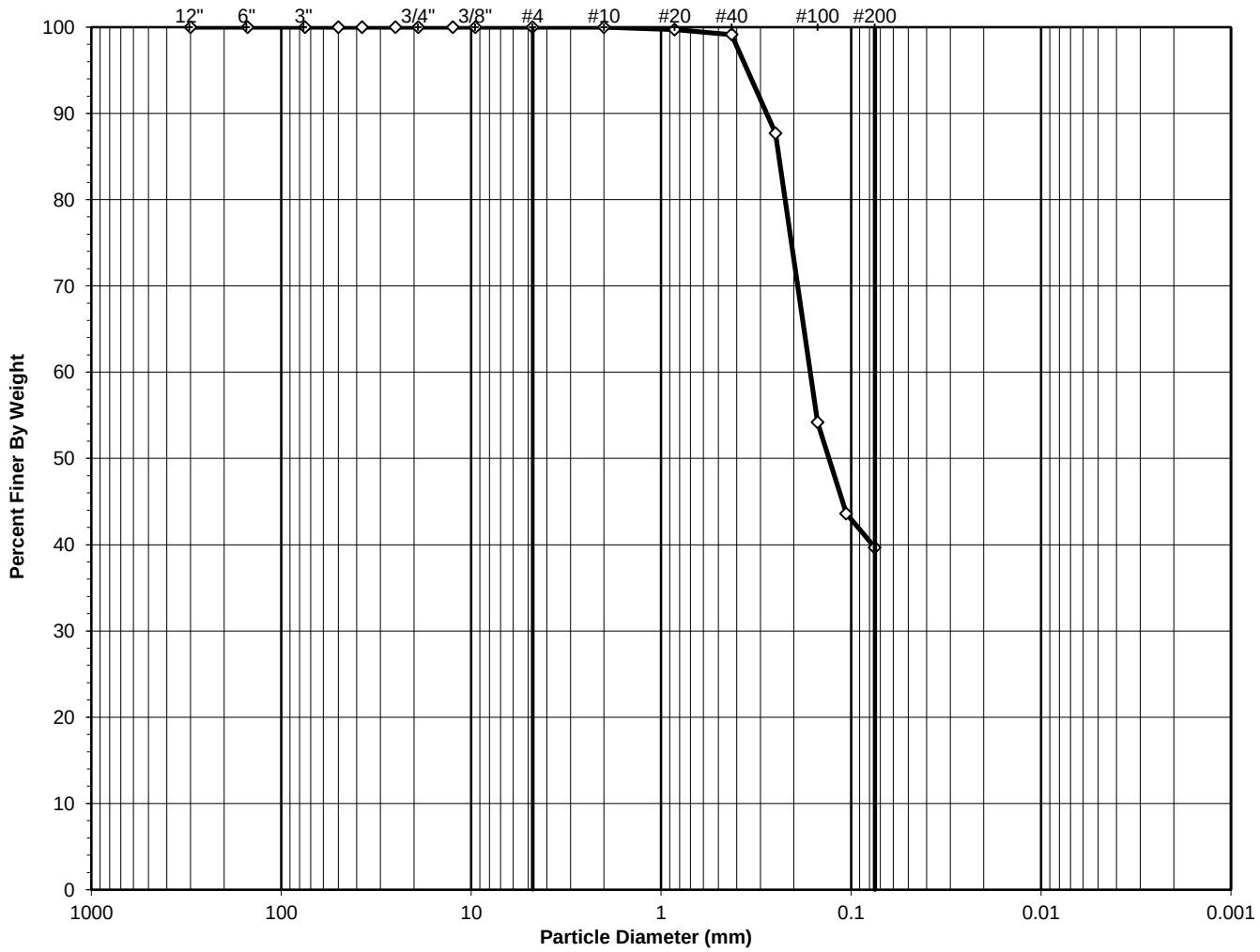
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	15.0-16.5
Project No.:	R-2020-164-002	Sample No.:	SS-30
Lab ID:	R-2020-164-002-025	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC-SM, TESTED

D50 = 0.13

USCS Classification:
SILTY, CLAYEY SAND

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	15.0-16.5
Project No.:	R-2020-164-002	Sample No.:	SS-30
Lab ID:	R-2020-164-002-025	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	731	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	633.76	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	511.72	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	138.86	Weight of Tare (g):	NA
Weight of Water (g):	122.04	Weight of Water (g):	NA
Weight of Dry Soil (g):	372.86	Weight of Dry Soil (g):	NA
Moisture Content (%):	**32.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	372.86
Tare No. (Sub-Specimen)	731	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	633.76	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	138.86	Dry Weight of - 3/4" Sample (g):	372.86
Sub-Specimen Wet Weight (g):	494.90	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	372.86
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.03		0.01	0.01	99.99	**100.0**
#20	0.85	0.99	(**)	0.27	0.27	99.73	**99.7**
#40	0.425	2.19		0.59	0.86	99.14	**99.1**
#60	0.25	42.64		11.44	12.30	87.70	**87.7**
#100	0.15	124.97		33.52	45.81	54.19	**54.2**
#140	0.106	39.49		10.59	56.40	43.60	**43.6**
#200	0.075	14.62		3.92	60.33	39.67	**39.7**
Pan	-	0.00		0.00	60.33	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	15.0-16.5
Project No.:	R-2020-164-002	Sample No.:	SS-30
Lab ID:	R-2020-164-002-025	Soil Description:	GRAY SILTY CLAY

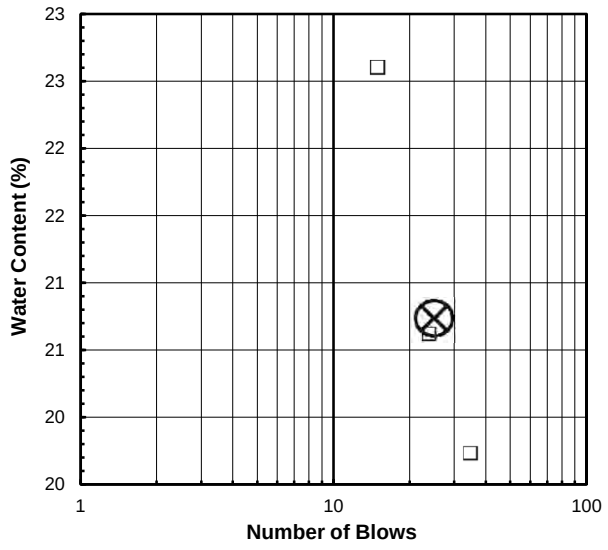
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	731	1M	Y	E	U
Wt. of Tare & Wet Sample (g):	633.76	33.26	31.93	30.11	L
Wt. of Tare & Dry Sample (g):	511.72	30.38	29.13	27.36	T
Weight of Tare (g):	138.86	15.78	15.55	15.19	I
Weight of Water (g):	122.0	2.9	2.8	2.8	P
Weight of Dry Sample (g):	372.9	14.6	13.6	12.2	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**32.7**	**19.7**	**20.6**	**22.6**	N
Number of Blows:		**35**	**24**	**15**	T

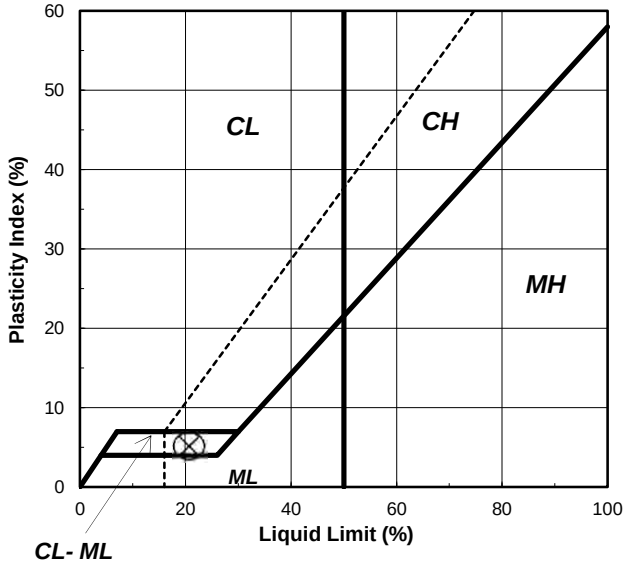
Plastic Limit Test	1	2	Range
Tare Number:	2	1	
Wt. of Tare & Wet Sample (g):	15.50	16.42	
Wt. of Tare & Dry Sample (g):	14.35	15.15	
Weight of Tare (g):	7.06	7.01	
Weight of Water (g):	1.2	1.3	
Weight of Dry Sample (g):	7.3	8.1	
Moisture Content (%):	**15.8**	**15.6**	**0.2**
Note: The acceptable range of the two Moisture Contents is ±			0.84

Test Results	
Liquid Limit (%):	**21**
Plastic Limit (%):	**16**
Plasticity Index (%):	**5**
USCS Symbol:	**CL-ML**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/26/20 *Checked By* GEM *Date* 8/27/20

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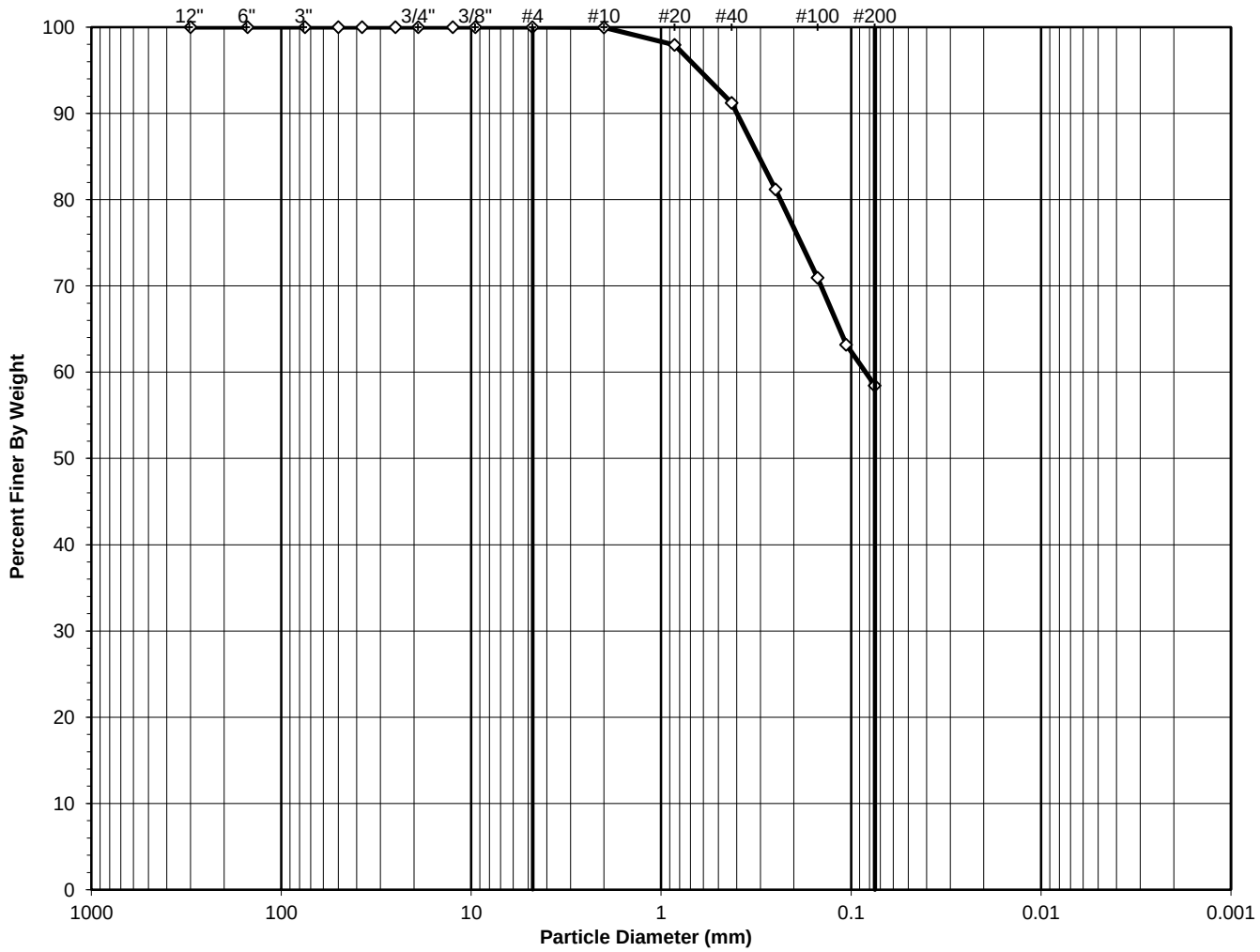
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	20.0-21.0
Project No.:	R-2020-164-002	Sample No.:	SS-31
Lab ID:	R-2020-164-002-026	Soil Color:	Light Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.05

USCS Classification:
SANDY LEAN CLAY

Tested By TB Date 8/21/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	20.0-21.0
Project No.:	R-2020-164-002	Sample No.:	SS-31
Lab ID:	R-2020-164-002-026	Soil Color:	Light Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	746	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	531.64	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	454.93	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	140.83	Weight of Tare (g):	NA
Weight of Water (g):	76.71	Weight of Water (g):	NA
Weight of Dry Soil (g):	314.10	Weight of Dry Soil (g):	NA
Moisture Content (%):	**24.4**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	314.10
Tare No. (Sub-Specimen)	746	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	531.64	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	140.83	Dry Weight of - 3/4" Sample (g):	314.10
Sub-Specimen Wet Weight (g):	390.81	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	314.10
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.18		0.06	0.06	99.94	**99.9**
#20	0.85	6.30	(**)	2.01	2.06	97.94	**97.9**
#40	0.425	21.12		6.72	8.79	91.21	**91.2**
#60	0.25	31.49		10.03	18.81	81.19	**81.2**
#100	0.15	32.15		10.24	29.05	70.95	**71.0**
#140	0.106	24.40		7.77	36.82	63.18	**63.2**
#200	0.075	14.87		4.73	41.55	58.45	**58.4**
Pan	-	0.00		0.00	41.55	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	20.0-21.0
Project No.:	R-2020-164-002	Sample No.:	SS-31
Lab ID:	R-2020-164-002-026	Soil Description:	LIGHT GRAY LEAN CLAY

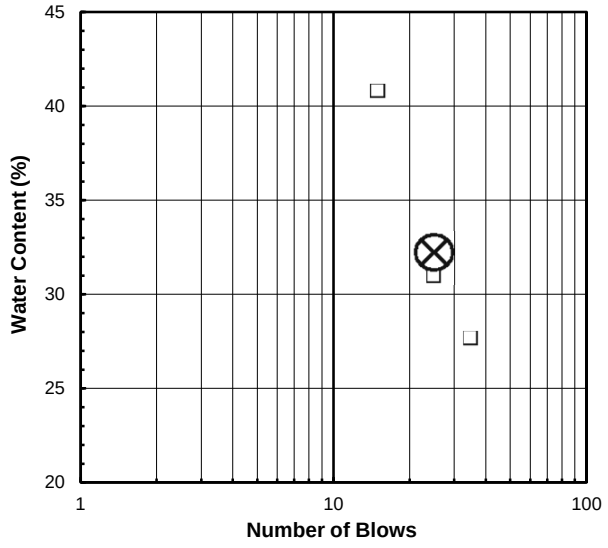
***Note: The* USCS symbol used with this test refers only to the minus No. 40** (Minus No. 40 sieve material, Air dried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	746	A-I	D-1	V-2	U
Wt. of Tare & Wet Sample (g):	531.64	29.55	30.10	30.46	L
Wt. of Tare & Dry Sample (g):	454.93	26.48	26.57	26.15	T
Weight of Tare (g):	140.83	15.38	15.17	15.58	I
Weight of Water (g):	76.7	3.1	3.5	4.3	P
Weight of Dry Sample (g):	314.1	11.1	11.4	10.6	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**24.4**	**27.7**	**31.0**	**40.8**	N
Number of Blows:		**35**	**25**	**15**	T

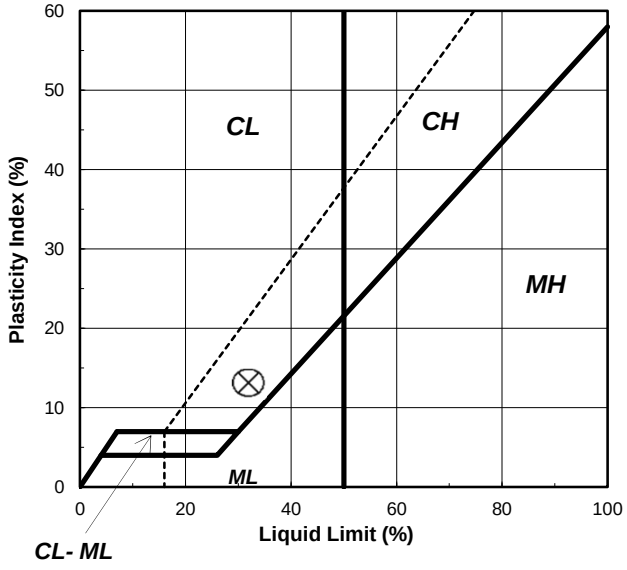
Plastic Limit Test	**1**	**2**	**Range**	
Tare Number:	28	24		
Wt. of Tare & Wet Sample (g):	16.28	15.94		
Wt. of Tare & Dry Sample (g):	14.78	14.53		
Weight of Tare (g):	7.00	7.05		
Weight of Water (g):	1.5	1.4		
Weight of Dry Sample (g):	7.8	7.5		
Moisture Content (%):	**19.3**	**18.9**	**0.4**	
Note: The acceptable range of the two Moisture Contents is ±				1.12

Test Results	
Liquid Limit (%):	**32**
Plastic Limit (%):	**19**
Plasticity Index (%):	**13**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



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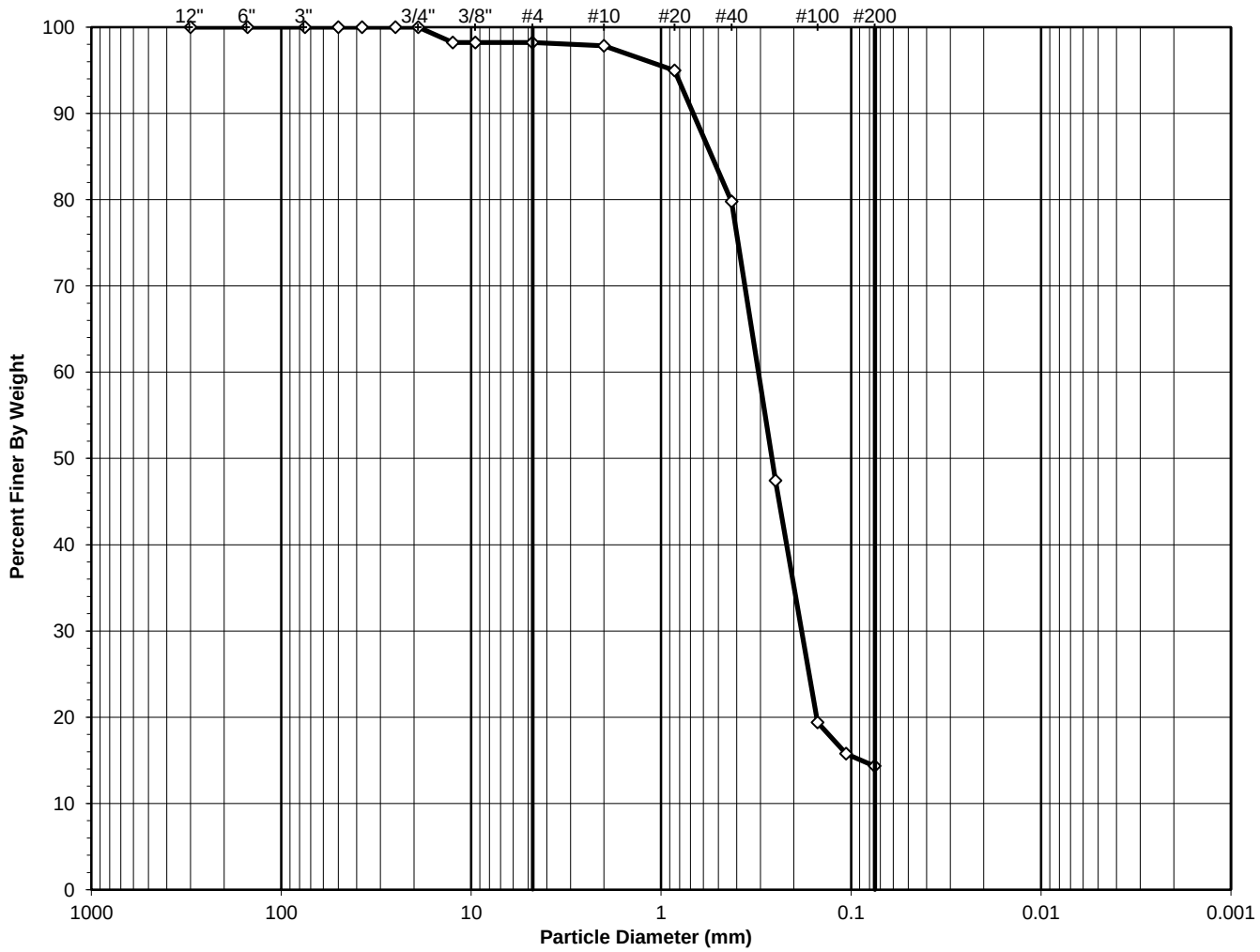
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	25.7-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-32
Lab ID:	R-2020-164-002-027	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.26

USCS Classification:
SILTY SAND
(Non-Plastic)

Tested By SS Date 8/20/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	25.7-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-32
Lab ID:	R-2020-164-002-027	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	733	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	703.43	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	585.24	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.81	Weight of Tare (g):	NA
Weight of Water (g):	118.19	Weight of Water (g):	NA
Weight of Dry Soil (g):	442.43	Weight of Dry Soil (g):	NA
Moisture Content (%):	**26.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	442.43
Tare No. (Sub-Specimen)	733	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	703.43	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.81	Dry Weight of - 3/4" Sample (g):	442.43
Sub-Specimen Wet Weight (g):	560.62	Dry Weight -3/4" +3/8" Sample (g):	7.95
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	434.48
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100**
6"	150	0.00		0.00	0.00	100.00	**100**
3"	75	0.00		0.00	0.00	100.00	**100**
2"	50	0.00	(*)	0.00	0.00	100.00	**100**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100**
1"	25	0.00		0.00	0.00	100.00	**100**
3/4"	19	0.00		0.00	0.00	100.00	**100**
1/2"	12.5	7.95	(**)	1.80	1.80	98.20	**98**
3/8"	9.5	0.00		0.00	1.80	98.20	**98**
#4	4.75	0.00		0.00	1.80	98.20	**98**
#10	2	1.70		0.38	2.18	97.82	**98**
#20	0.85	12.63	(**)	2.85	5.04	94.96	**95**
#40	0.425	67.20		15.19	20.22	79.78	**80**
#60	0.25	143.13		32.35	52.58	47.42	**47**
#100	0.15	124.01		28.03	80.60	19.40	**19**
#140	0.106	16.11		3.64	84.25	15.75	**16**
#200	0.075	6.33		1.43	85.68	14.32	**14**
Pan	-	0.00		0.00	85.68	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/28/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	25.7-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-32
Lab ID:	R-2020-164-002-027	Color:	Brown
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	733
Wt. of Tare & Wet Sample (g)	703.43
Wt. of Tare & Dry Sample (g)	585.24
Weight of Tare (g)	142.81
Weight of Water (g)	118.19
Weight of Dry Sample (g)	442.43
Water Content (%)	**26.7**

NON - PLASTIC MATERIAL

Tested By SS *Date* 8/27/20 *Checked By* GEM *Date* 8/28/20

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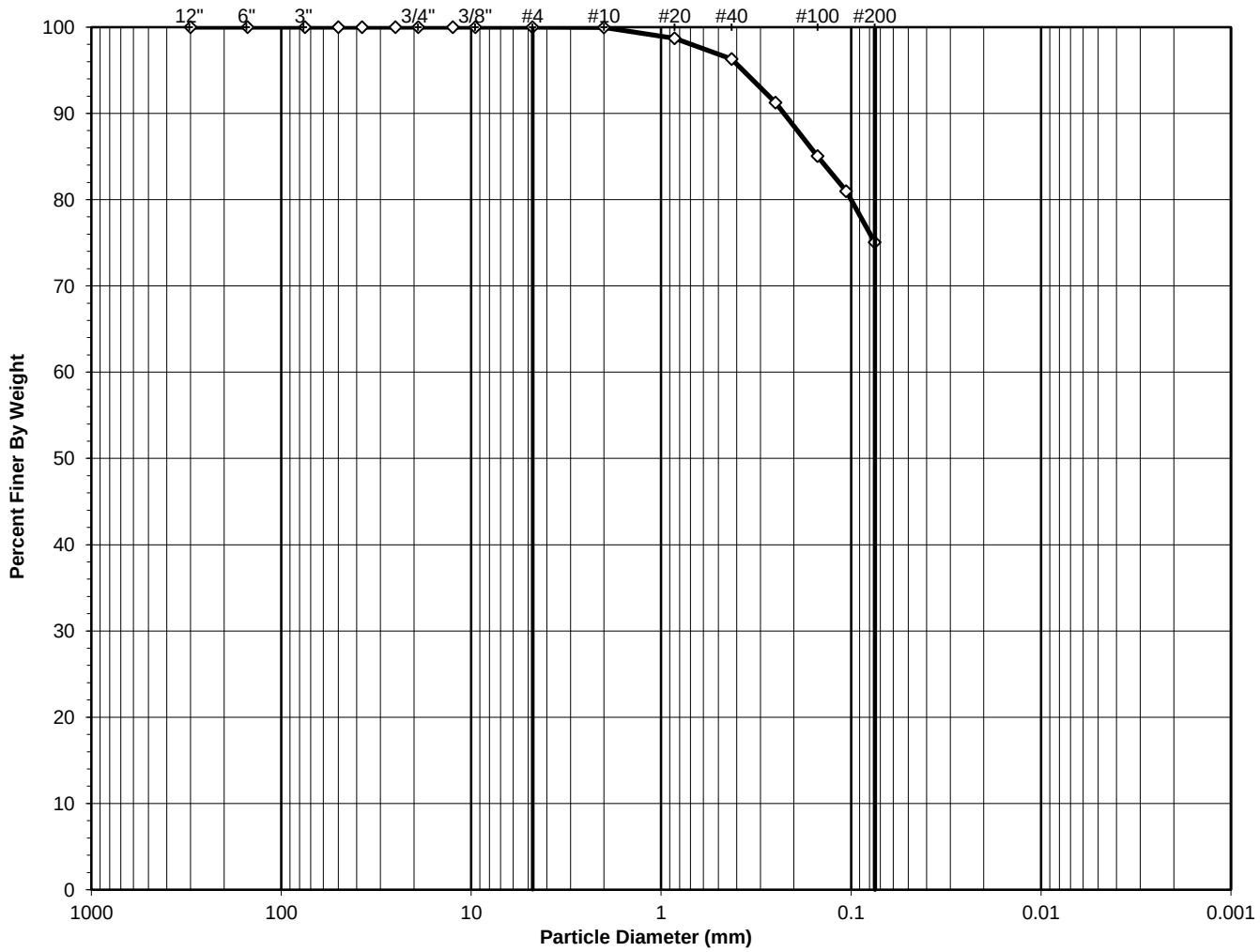
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	29.0-30.0
Project No.:	R-2020-164-002	Sample No.:	SS-33
Lab ID:	R-2020-164-002-028	Soil Color:	Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.03

USCS Classification:
FAT CLAY WITH SAND

Tested By SS Date 8/20/20 Checked By GEM Date 9/2/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	29.0-30.0
Project No.:	R-2020-164-002	Sample No.:	SS-33
Lab ID:	R-2020-164-002-028	Soil Color:	Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	745	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	454.46	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	389.38	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.05	Weight of Tare (g):	NA
Weight of Water (g):	65.08	Weight of Water (g):	NA
Weight of Dry Soil (g):	247.33	Weight of Dry Soil (g):	NA
Moisture Content (%):	**26.3**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	247.33
Tare No. (Sub-Specimen)	745	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	454.46	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.05	Dry Weight of - 3/4" Sample (g):	247.33
Sub-Specimen Wet Weight (g):	312.41	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	247.33
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.07		0.03	0.03	99.97	**100.0**
#20	0.85	3.14	(**)	1.27	1.30	98.70	**98.7**
#40	0.425	5.91		2.39	3.69	96.31	**96.3**
#60	0.25	12.49		5.05	8.74	91.26	**91.3**
#100	0.15	15.41		6.23	14.97	85.03	**85.0**
#140	0.106	10.05		4.06	19.03	80.97	**81.0**
#200	0.075	14.66		5.93	24.96	75.04	**75.0**
Pan	-	0.00		0.00	24.96	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 9/2/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-08
Client Reference:	USACE Princeville	Depth (ft):	29.0-30.0
Project No.:	R-2020-164-002	Sample No.:	SS-33
Lab ID:	R-2020-164-002-028	Soil Description:	BROWN FAT CLAY

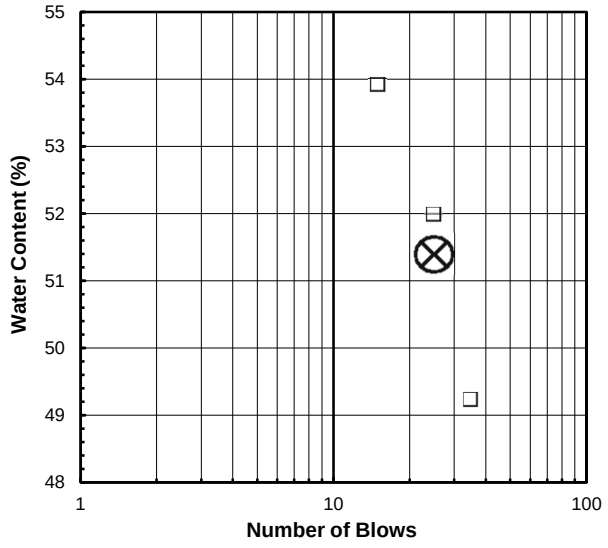
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	745	A-H	W-5	A-B	U
Wt. of Tare & Wet Sample (g):	454.46	29.89	30.49	30.28	L
Wt. of Tare & Dry Sample (g):	389.38	25.14	25.38	25.11	T
Weight of Tare (g):	142.05	15.49	15.55	15.52	I
Weight of Water (g):	65.1	4.8	5.1	5.2	P
Weight of Dry Sample (g):	247.3	9.7	9.8	9.6	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**26.3**	**49.2**	**52.0**	**53.9**	N
Number of Blows:		**35**	**25**	**15**	T

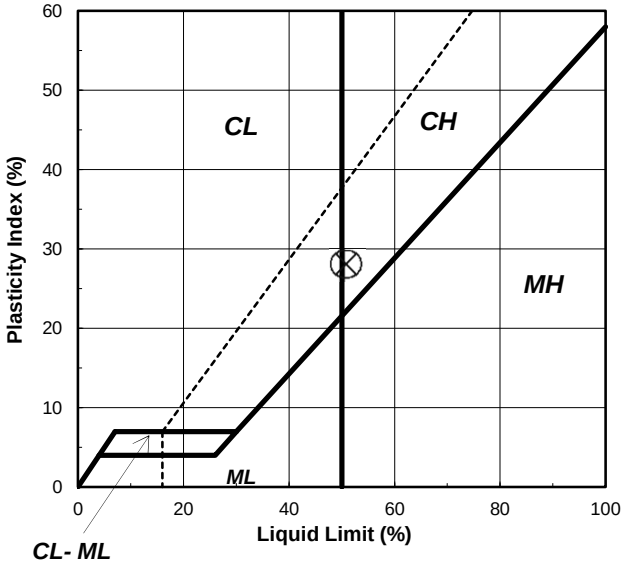
Plastic Limit Test	1	2	Range
Tare Number:	6	25	
Wt. of Tare & Wet Sample (g):	16.26	16.40	
Wt. of Tare & Dry Sample (g):	14.49	14.63	
Weight of Tare (g):	6.98	7.01	
Weight of Water (g):	1.8	1.8	
Weight of Dry Sample (g):	7.5	7.6	
Moisture Content (%):	**23.6**	**23.2**	**0.3**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**51**
Plastic Limit (%):	**23**
Plasticity Index (%):	**28**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/28/20 *Checked By* GEM *Date* 9/1/20

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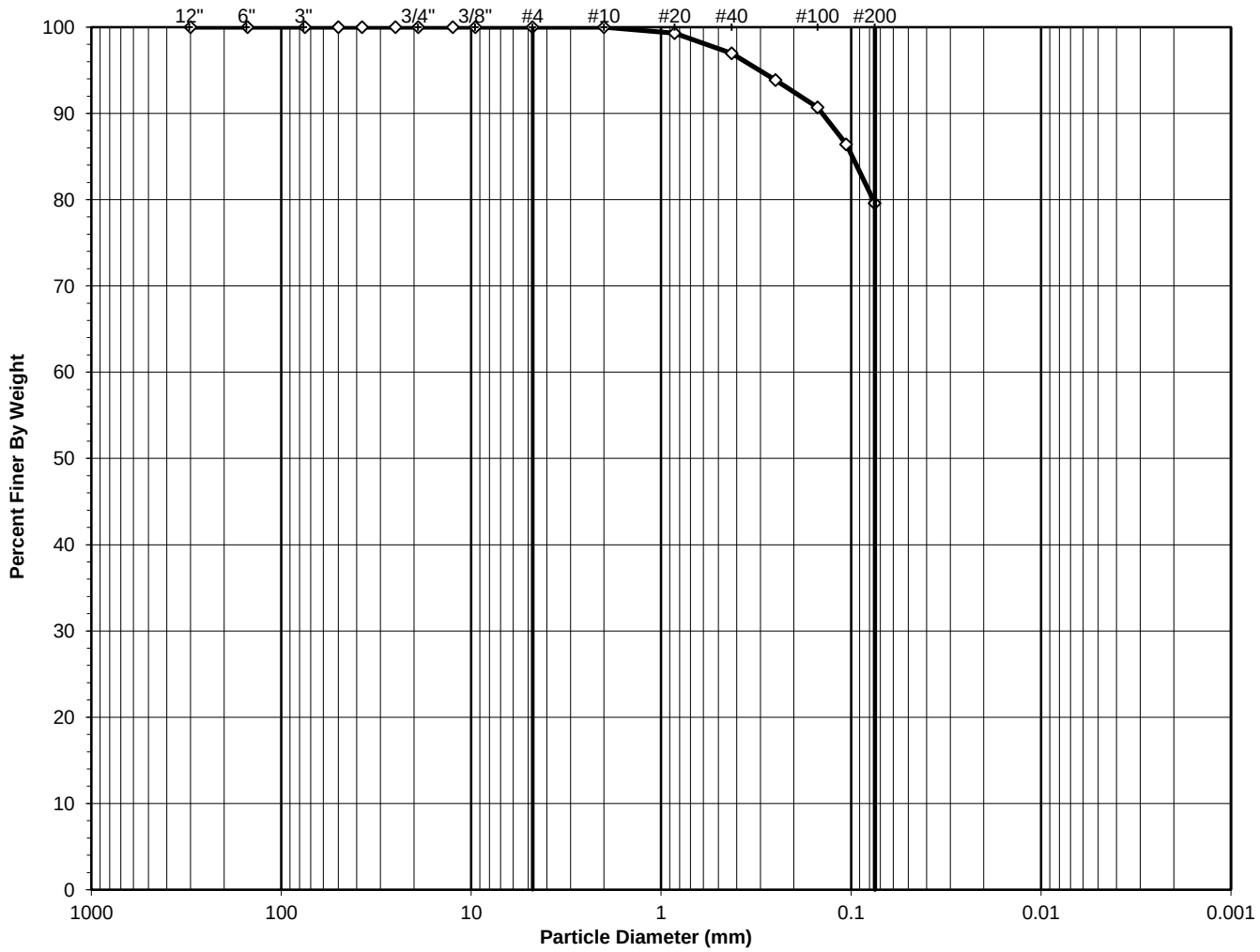
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	1.5-3.0
Project No.:	R-2020-164-002	Sample No.:	SS-34
Lab ID:	R-2020-164-002-029	Soil Color:	Light Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.02

USCS Classification:
FAT CLAY WITH SAND

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	1.5-3.0
Project No.:	R-2020-164-002	Sample No.:	SS-34
Lab ID:	R-2020-164-002-029	Soil Color:	Light Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	747	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	403.13	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	352.27	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	137.93	Weight of Tare (g):	NA
Weight of Water (g):	50.86	Weight of Water (g):	NA
Weight of Dry Soil (g):	214.34	Weight of Dry Soil (g):	NA
Moisture Content (%):	**23.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	214.34
Tare No. (Sub-Specimen)	747	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	403.13	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	137.93	Dry Weight of - 3/4" Sample (g):	214.34
Sub-Specimen Wet Weight (g):	265.20	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	214.34
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.04		0.02	0.02	99.98	**100.0**
#20	0.85	1.50	(**)	0.70	0.72	99.28	**99.3**
#40	0.425	4.96		2.31	3.03	96.97	**97.0**
#60	0.25	6.66		3.11	6.14	93.86	**93.9**
#100	0.15	6.79		3.17	9.31	90.69	**90.7**
#140	0.106	9.17		4.28	13.59	86.41	**86.4**
#200	0.075	14.64		6.83	20.42	79.58	**79.6**
Pan	-	0.00		0.00	20.42	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/25/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	1.5-3.0
Project No.:	R-2020-164-002	Sample No.:	SS-34
Lab ID:	R-2020-164-002-029	Soil Description:	LIGHT BROWN FAT CLAY

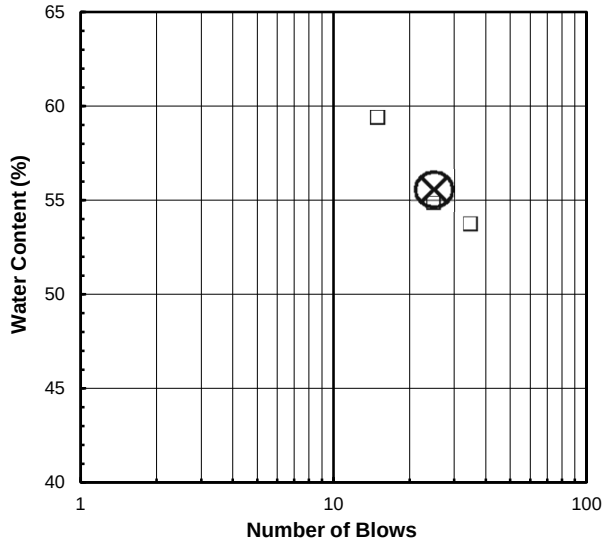
***Note: The* USCS symbol used with this test refers only to the minus No. 40** (Minus No. 40 sieve material, Air dried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	747	A-C	1M	A-L	U
Wt. of Tare & Wet Sample (g):	403.13	27.60	27.51	26.90	L
Wt. of Tare & Dry Sample (g):	352.27	23.38	23.36	22.64	T
Weight of Tare (g):	137.93	15.52	15.79	15.46	I
Weight of Water (g):	50.9	4.2	4.2	4.3	P
Weight of Dry Sample (g):	214.3	7.9	7.6	7.2	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**23.7**	**53.7**	**54.8**	**59.3**	N
Number of Blows:		**35**	**25**	**15**	T

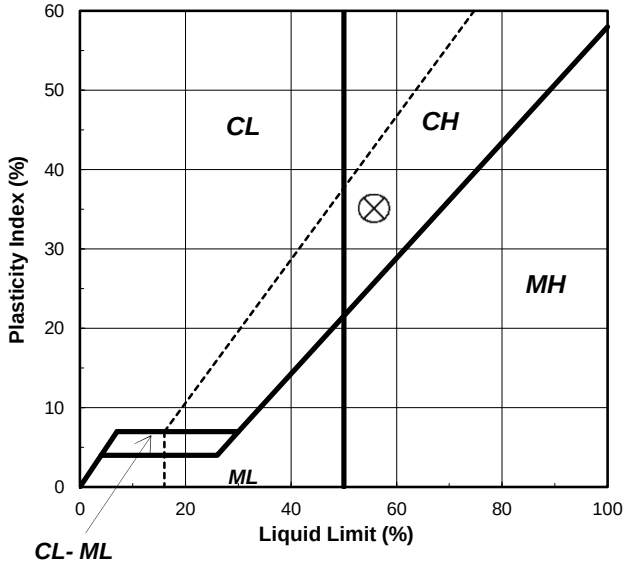
Plastic Limit Test	1	2	Range
Tare Number:	1	15	
Wt. of Tare & Wet Sample (g):	16.43	15.07	
Wt. of Tare & Dry Sample (g):	14.81	13.67	
Weight of Tare (g):	7.02	6.99	
Weight of Water (g):	1.6	1.4	
Weight of Dry Sample (g):	7.8	6.7	
Moisture Content (%):	**20.8**	**21.0**	**-0.2**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**56**
Plastic Limit (%):	**21**
Plasticity Index (%):	**35**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



Tested By SS *Date* 8/21/20 *Checked By* GEM *Date* 8/25/20

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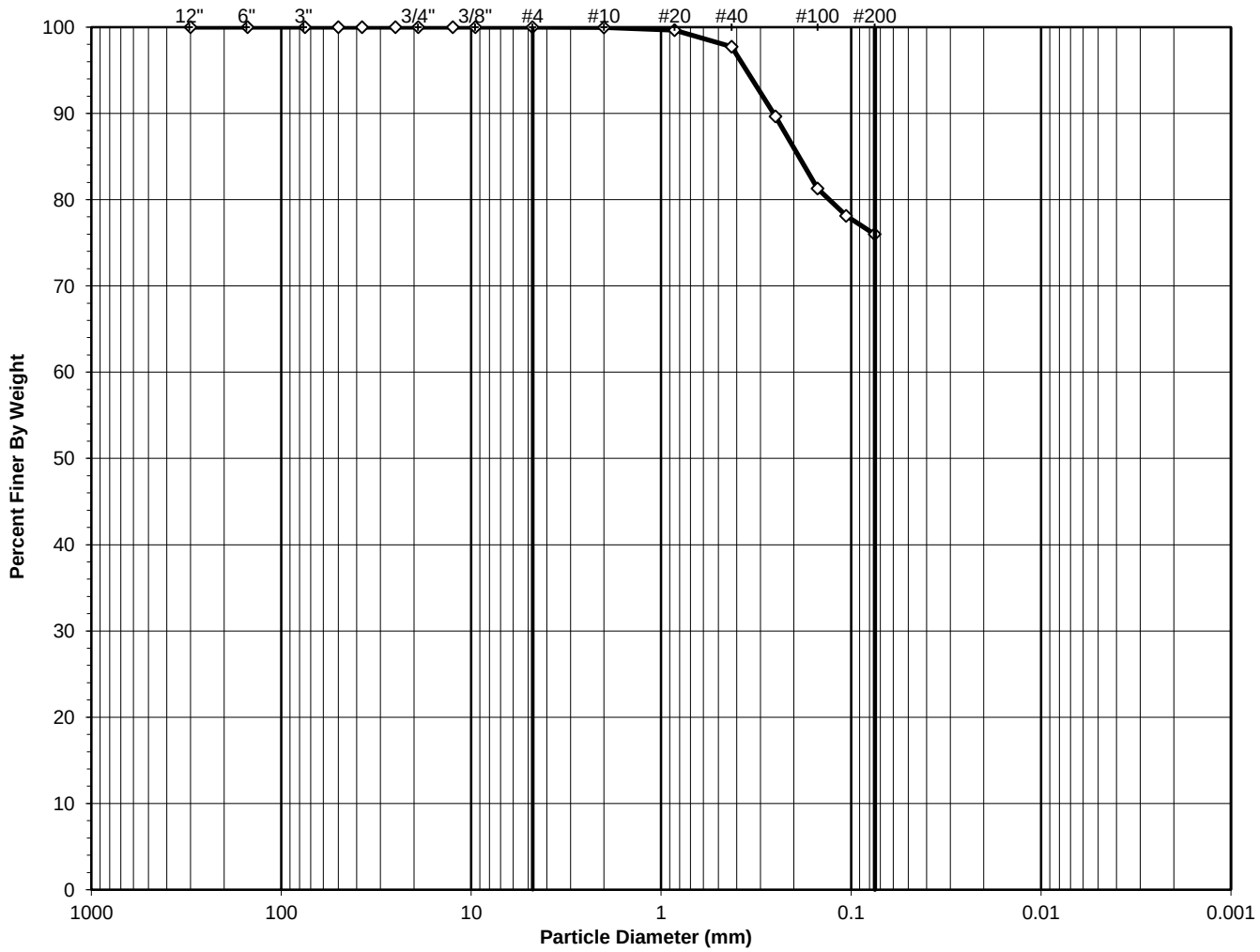
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	12.0-13.5
Project No.:	R-2020-164-002	Sample No.:	SS-35
Lab ID:	R-2020-164-002-030	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.03

USCS Classification:
LEAN CLAY WITH SAND

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	12.0-13.5
Project No.:	R-2020-164-002	Sample No.:	SS-35
Lab ID:	R-2020-164-002-030	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	735	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	447.64	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	342.79	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	141.43	Weight of Tare (g):	NA
Weight of Water (g):	104.85	Weight of Water (g):	NA
Weight of Dry Soil (g):	201.36	Weight of Dry Soil (g):	NA
Moisture Content (%):	**52.1**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	201.36
Tare No. (Sub-Specimen)	735	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	447.64	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	141.43	Dry Weight of - 3/4" Sample (g):	201.36
Sub-Specimen Wet Weight (g):	306.21	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	201.36
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.07		0.03	0.03	99.97	**100.0**
#20	0.85	0.64	(**)	0.32	0.35	99.65	**99.6**
#40	0.425	3.88		1.93	2.28	97.72	**97.7**
#60	0.25	16.25		8.07	10.35	89.65	**89.7**
#100	0.15	16.83		8.36	18.71	81.29	**81.3**
#140	0.106	6.41		3.18	21.89	78.11	**78.1**
#200	0.075	4.28		2.13	24.02	75.98	**76.0**
Pan	-	0.00		0.00	24.02	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By ECL Date 8/24/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	12.0-13.5
Project No.:	R-2020-164-002	Sample No.:	SS-35
Lab ID:	R-2020-164-002-030	Soil Description:	GRAY LEAN CLAY

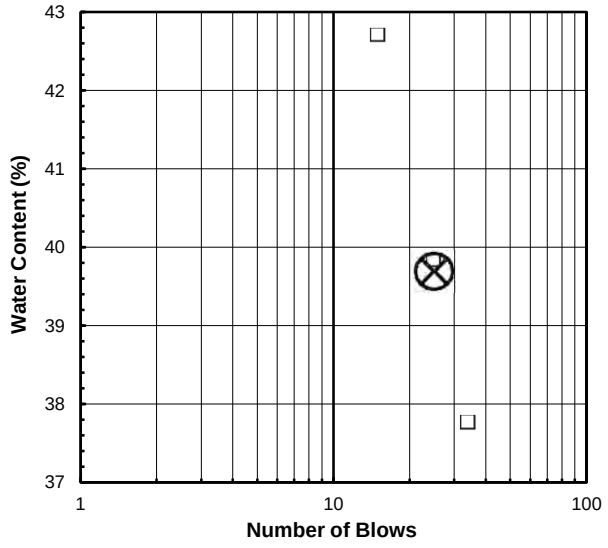
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	735	J	AT	AC	U
Wt. of Tare & Wet Sample (g):	447.64	26.14	29.86	32.40	L
Wt. of Tare & Dry Sample (g):	342.79	23.10	25.77	27.34	T
Weight of Tare (g):	141.45	15.05	15.50	15.49	I
Weight of Water (g):	104.9	3.0	4.1	5.1	P
Weight of Dry Sample (g):	201.3	8.1	10.3	11.9	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**52.1**	**37.8**	**39.8**	**42.7**	N
Number of Blows:		**34**	**25**	**15**	T

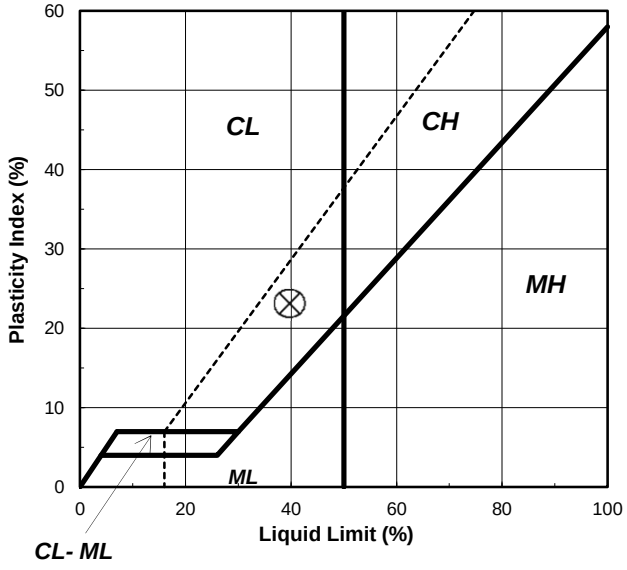
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	A-O	A-L	
Wt. of Tare & Wet Sample (g):	21.35	21.52	
Wt. of Tare & Dry Sample (g):	20.46	20.65	
Weight of Tare (g):	15.34	15.44	
Weight of Water (g):	0.9	0.9	
Weight of Dry Sample (g):	5.1	5.2	
Moisture Content (%):	**17.4**	**16.7**	**0.7**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**40**
Plastic Limit (%):	**17**
Plasticity Index (%):	**23**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



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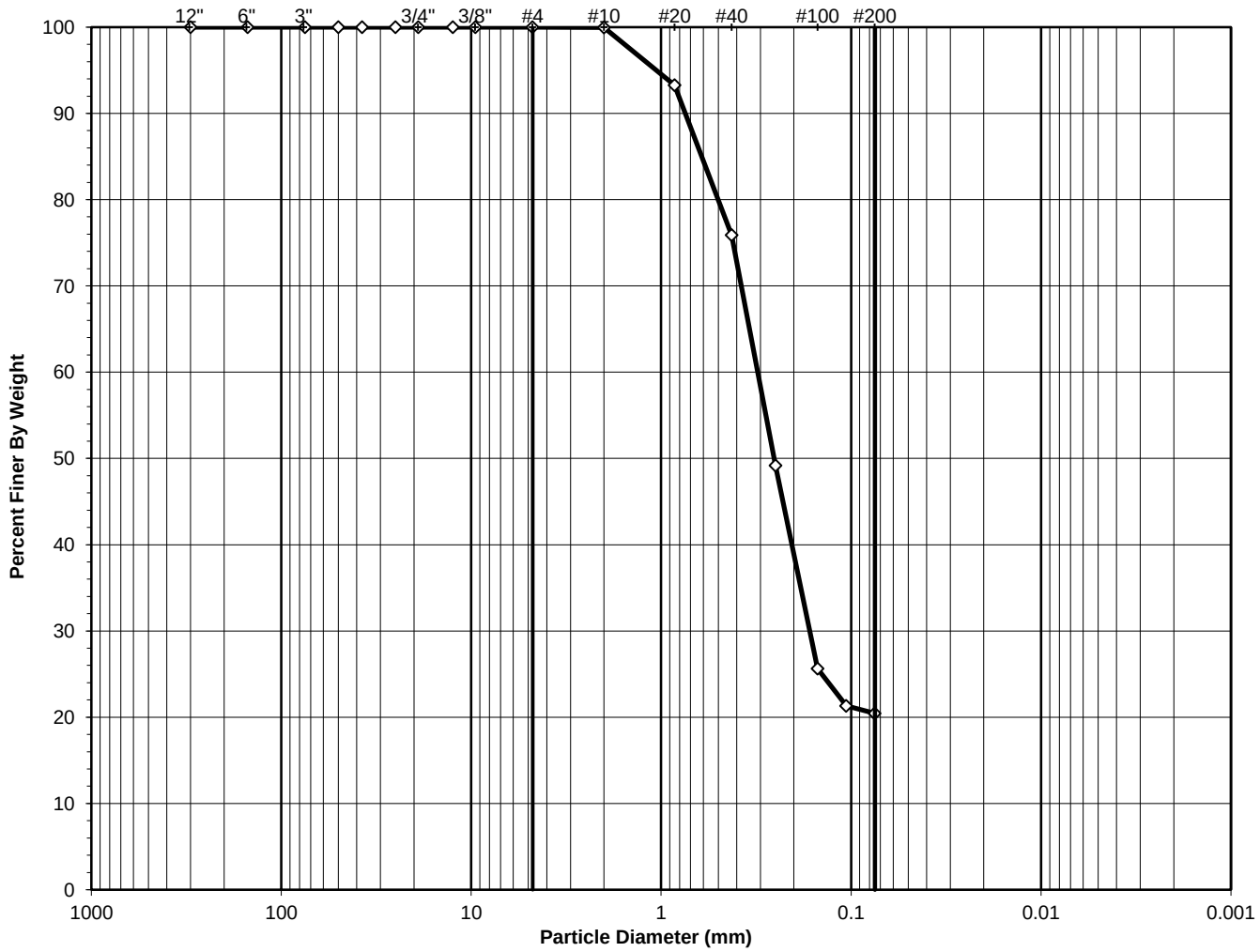
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	19.5-21.0
Project No.:	R-2020-164-002	Sample No.:	SS-36
Lab ID:	R-2020-164-002-031	Soil Color:	Dark Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SM, TESTED

D50 = 0.25

USCS Classification:
SILTY SAND
(Non-Plasstic)

Tested By TB Date 8/21/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	19.5-21.0
Project No.:	R-2020-164-002	Sample No.:	SS-36
Lab ID:	R-2020-164-002-031	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	725	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	505.15	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	421.87	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.14	Weight of Tare (g):	NA
Weight of Water (g):	83.28	Weight of Water (g):	NA
Weight of Dry Soil (g):	279.73	Weight of Dry Soil (g):	NA
Moisture Content (%):	**29.8**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	279.73
Tare No. (Sub-Specimen)	725	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	505.15	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.14	Dry Weight of - 3/4" Sample (g):	279.73
Sub-Specimen Wet Weight (g):	363.01	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	279.73
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.12		0.04	0.04	99.96	**100.0**
#20	0.85	18.70	(**)	6.69	6.73	93.27	**93.3**
#40	0.425	48.63		17.38	24.11	75.89	**75.9**
#60	0.25	74.74		26.72	50.83	49.17	**49.2**
#100	0.15	65.88		23.55	74.38	25.62	**25.6**
#140	0.106	12.08		4.32	78.70	21.30	**21.3**
#200	0.075	2.39		0.85	79.56	20.44	**20.4**
Pan	-	0.00		0.00	79.56	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 8/21/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	19.5-21.0
Project No.:	R-2020-164-002	Sample No.:	SS-36
Lab ID:	R-2020-164-002-031	Color:	Dark Gray
			(MInus No. 40 sieve material)

As Received
Water Content

Tare Number	725
Wt. of Tare & Wet Sample (g)	505.15
Wt. of Tare & Dry Sample (g)	421.87
Weight of Tare (g)	142.14
Weight of Water (g)	83.28
Weight of Dry Sample (g)	279.73
Water Content (%)	**29.8**

NON - PLASTIC MATERIAL

Tested By *TB* *Date* *8/26/20* *Checked By* *GEM* *Date* *8/27/20*

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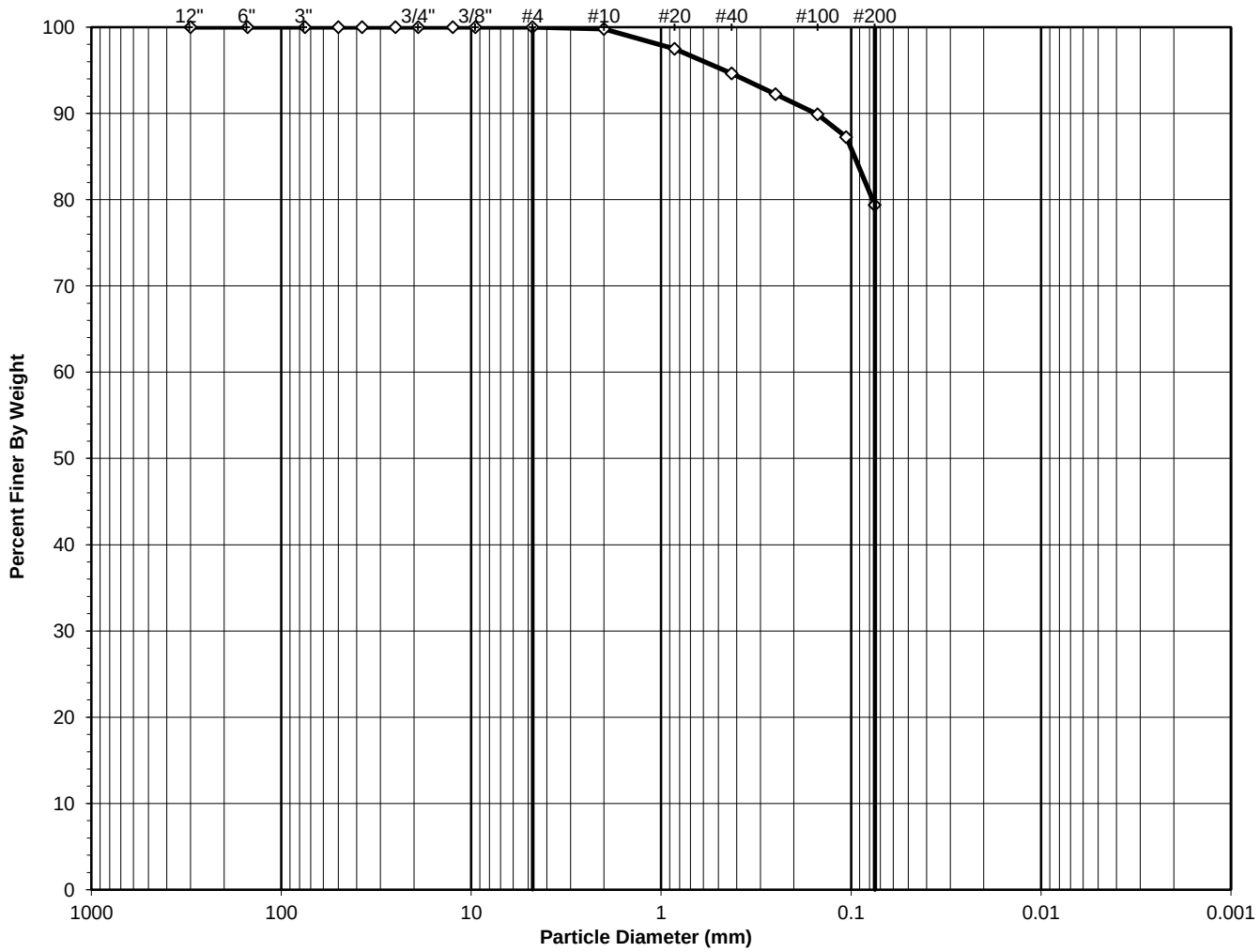
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-37
Lab ID:	R-2020-164-002-032	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.02

USCS Classification:
FAT CLAY WITH SAND

Tested By SS Date 8/20/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-37
Lab ID:	R-2020-164-002-032	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	726	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	507.38	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	437.37	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	143.11	Weight of Tare (g):	NA
Weight of Water (g):	70.01	Weight of Water (g):	NA
Weight of Dry Soil (g):	294.26	Weight of Dry Soil (g):	NA
Moisture Content (%):	**23.8**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	294.26
Tare No. (Sub-Specimen)	726	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	507.38	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	143.11	Dry Weight of - 3/4" Sample (g):	294.26
Sub-Specimen Wet Weight (g):	364.27	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	294.26
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.64		0.22	0.22	99.78	**99.8**
#20	0.85	6.74	(**)	2.29	2.51	97.49	**97.5**
#40	0.425	8.39		2.85	5.36	94.64	**94.6**
#60	0.25	7.15		2.43	7.79	92.21	**92.2**
#100	0.15	6.82		2.32	10.11	89.89	**89.9**
#140	0.106	7.80		2.65	12.76	87.24	**87.2**
#200	0.075	23.13		7.86	20.62	79.38	**79.4**
Pan	-	0.00		0.00	20.62	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 8/20/20 Checked By GEM Date 8/27/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN-20-SPT-09
Client Reference:	USACE Princeville	Depth (ft):	25.5-27.0
Project No.:	R-2020-164-002	Sample No.:	SS-37
Lab ID:	R-2020-164-002-032	Soil Description:	GRAY FAT CLAY

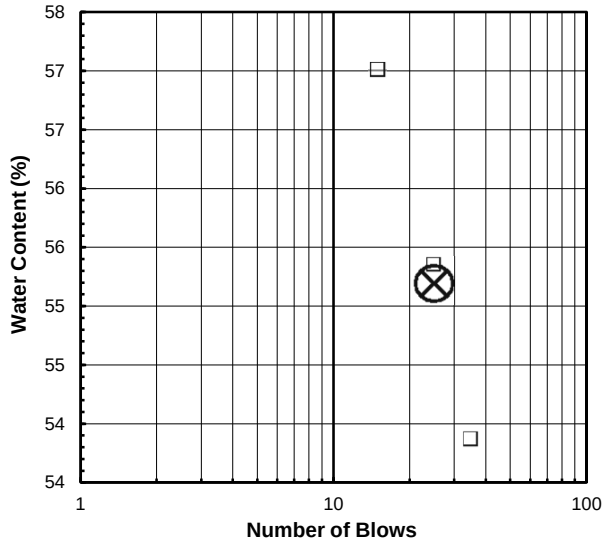
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	726	B4	W	H	U
Wt. of Tare & Wet Sample (g):	507.38	29.77	28.00	24.69	L
Wt. of Tare & Dry Sample (g):	437.37	24.75	23.39	21.19	T
Weight of Tare (g):	143.11	15.43	15.06	15.05	I
Weight of Water (g):	70.0	5.0	4.6	3.5	P
Weight of Dry Sample (g):	294.3	9.3	8.3	6.1	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**23.8**	**53.9**	**55.3**	**57.0**	N
Number of Blows:		**35**	**25**	**15**	T

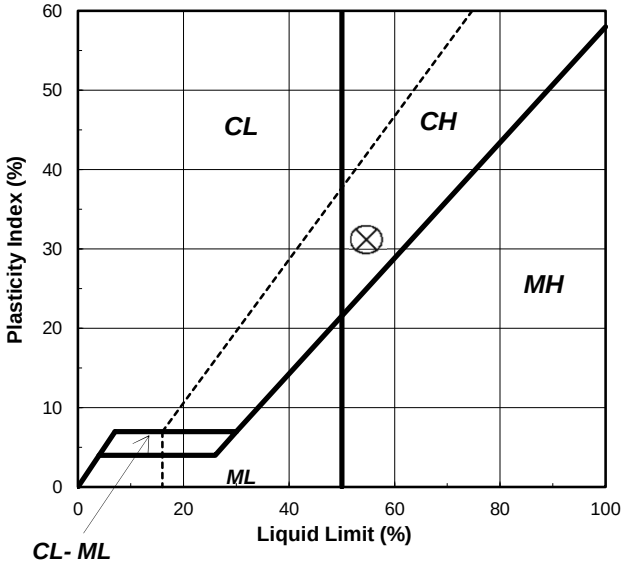
Plastic Limit Test	1	2	Range
Tare Number:	13	33	
Wt. of Tare & Wet Sample (g):	13.11	13.20	
Wt. of Tare & Dry Sample (g):	11.92	12.01	
Weight of Tare (g):	7.02	7.07	
Weight of Water (g):	1.2	1.2	
Weight of Dry Sample (g):	4.9	4.9	
Moisture Content (%):	**24.3**	**24.1**	**0.2**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**55**
Plastic Limit (%):	**24**
Plasticity Index (%):	**31**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



Tested By TB *Date* 8/26/20 *Checked By* GEM *Date* 8/27/20

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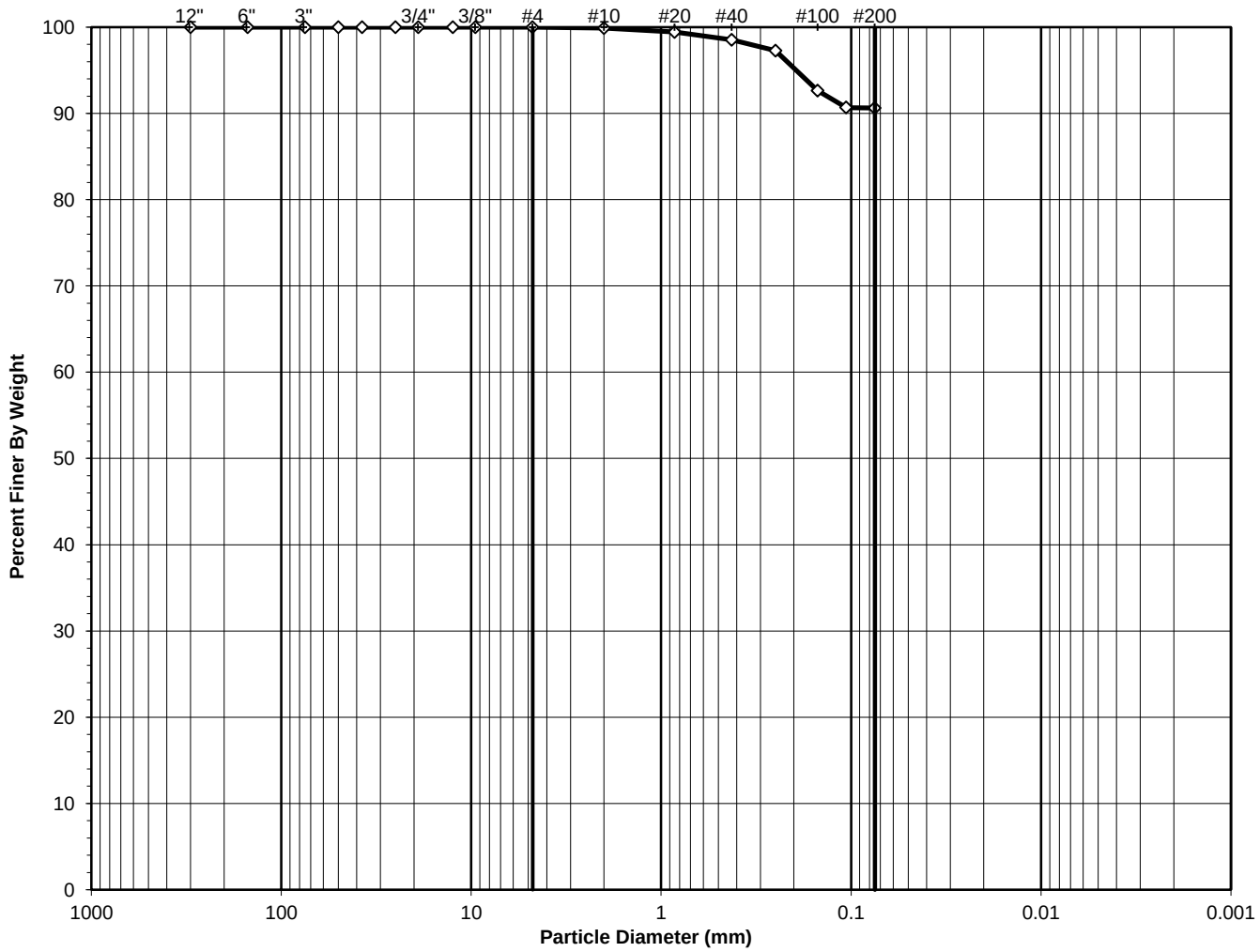
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	18.3-20.1
Project No.:	R-2020-164-002	Sample No.:	SPT06-1
Lab ID:	R-2020-164-002-033	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CH, TESTED

D50 = 0.02

USCS Classification:
FAT CLAY

Tested By RFF Date 9/14/20 Checked By GEM Date 9/14/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	18.3-20.1
Project No.:	R-2020-164-002	Sample No.:	SPT06-1
Lab ID:	R-2020-164-002-033	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	745	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	705.11	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	572.07	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.13	Weight of Tare (g):	NA
Weight of Water (g):	133.04	Weight of Water (g):	NA
Weight of Dry Soil (g):	429.94	Weight of Dry Soil (g):	NA
Moisture Content (%):	**30.9**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	429.94
Tare No. (Sub-Specimen)	745	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	705.11	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.13	Dry Weight of - 3/4" Sample (g):	429.94
Sub-Specimen Wet Weight (g):	562.98	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	429.94
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.48		0.11	0.11	99.89	**99.9**
#20	0.85	1.93	(**)	0.45	0.56	99.44	**99.4**
#40	0.425	3.87		0.90	1.46	98.54	**98.5**
#60	0.25	5.41		1.26	2.72	97.28	**97.3**
#100	0.15	19.95		4.64	7.36	92.64	**92.6**
#140	0.106	8.46		1.97	9.33	90.67	**90.7**
#200	0.075	0.17		0.04	9.37	90.63	**90.6**
Pan	-	0.00		0.00	9.37	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By RFF Date 9/14/20 Checked By GEM Date 9/14/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	18.3-20.1
Project No.:	R-2020-164-002	Sample No.:	STP06-1
Lab ID:	R-2020-164-002-033	Soil Description:	GRAY FAT CLAY

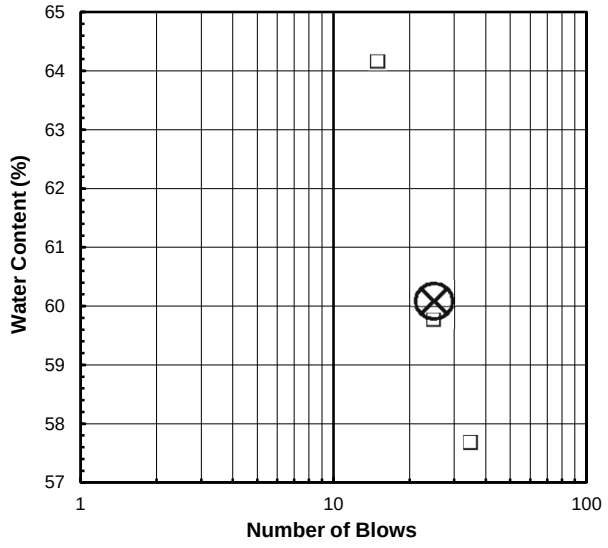
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	MU
Tare Number:	704	AT	T	V-2	
Wt. of Tare & Wet Sample (g):	446.51	26.61	27.56	29.03	L
Wt. of Tare & Dry Sample (g):	353.54	22.55	22.91	23.77	T
Weight of Tare (g):	89.63	15.51	15.13	15.57	I
Weight of Water (g):	93.0	4.1	4.7	5.3	P
Weight of Dry Sample (g):	263.9	7.0	7.8	8.2	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**35.2**	**57.7**	**59.8**	**64.1**	N
Number of Blows:		**35**	**25**	**15**	T

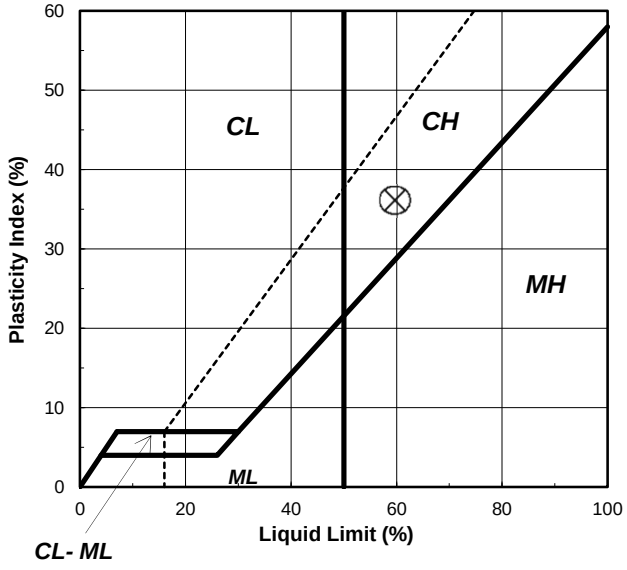
Plastic Limit Test	1	2	Range
Tare Number:	A-F	A-I	
Wt. of Tare & Wet Sample (g):	21.41	21.45	
Wt. of Tare & Dry Sample (g):	20.24	20.28	
Weight of Tare (g):	15.36	15.38	
Weight of Water (g):	1.2	1.2	
Weight of Dry Sample (g):	4.9	4.9	
Moisture Content (%):	**24.0**	**23.9**	**0.1**
Note: The acceptable range of the two Moisture Contents is ±			1.4

Test Results	
Liquid Limit (%):	**60**
Plastic Limit (%):	**24**
Plasticity Index (%):	**36**
USCS Symbol:	**CH**

Flow Curve



Plasticity Chart



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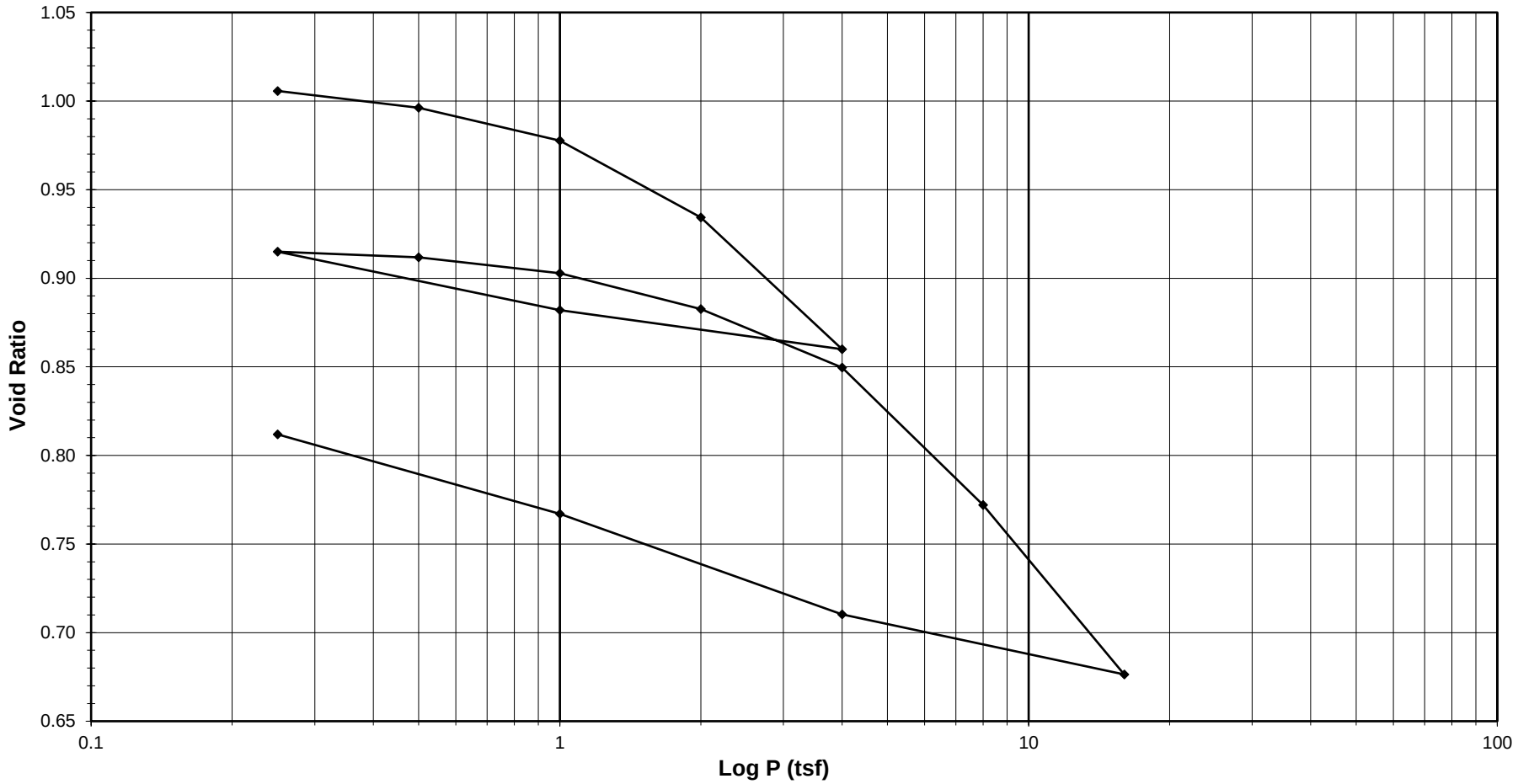
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By MY *Date* 8/28/2020 *Approved By* MPS *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	704	TB-02
Wt. Tare & WS (g)	446.51	274.42
Wt. Tare & DS (g)	353.54	242.59
Wt. Water (g)	92.97	31.83
Wt. Tare (g)	89.63	134.30
Wt. DS (g)	263.91	108.29
Water Content (%)	35.23	29.39
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.8985
Sample Volume (cc)	80.44	72.27
Wt. Wet Sample + Ring (g)	359.80	353.52
Wt. of Ring (g)	214.16	214.16
Wt. of Wet Sample (g)	145.64	139.36
Wet Density (pcf)	112.98	120.32
Wet Density (g/cc)	1.81	1.93
Water Content (%)	35.23	29.39
Wt. of Dry Sample (g)	107.70	107.70
Dry Density (pcf)	83.55	92.99
Dry Density (g/cc)	1.34	1.49
Void Ratio	1.0166	0.8118
Saturation (%)	93.56	97.76
Specific Gravity	2.70	*Assumed*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume (cc)**	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.33888	**1.01660**
0.25	76.9	22.8	54.1	25.263	80.005	1.34616	**1.00570**
0.5	145.6	44.2	101.4	25.142	79.624	1.35260	**0.99615**
1	253.4	60.5	192.9	24.910	78.888	1.36522	**0.97771**
2	501.6	93.6	407.9	24.364	77.159	1.39582	**0.93434**
4	907.7	130.5	777.2	23.426	74.188	1.45171	**0.85987**
1	750.5	83.0	667.5	23.704	75.070	1.43465	**0.88199**
0.25	556.9	52.7	504.2	24.119	76.384	1.40998	**0.91492**
0.5	578.1	58.3	519.8	24.080	76.258	1.41230	**0.91178**
1	639.0	74.9	564.1	23.967	75.902	1.41893	**0.90284**
2	764.7	100.0	664.6	23.712	75.093	1.43421	**0.88257**
4	961.4	133.4	828.0	23.297	73.779	1.45975	**0.84963**
8	1382.4	169.9	1212.5	22.320	70.686	1.52363	**0.77209**
16	1913.0	226.1	1686.9	21.115	66.870	1.61058	**0.67642**
4	1680.6	161.7	1518.9	21.542	68.222	1.57867	**0.71030**
1	1349.3	111.7	1237.5	22.257	70.485	1.52798	**0.76704**
0.25	1088.4	73.0	1015.4	22.821	72.272	1.49020	**0.81184**

Tested By *MY* *Date* *8/28/2020* *Input Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

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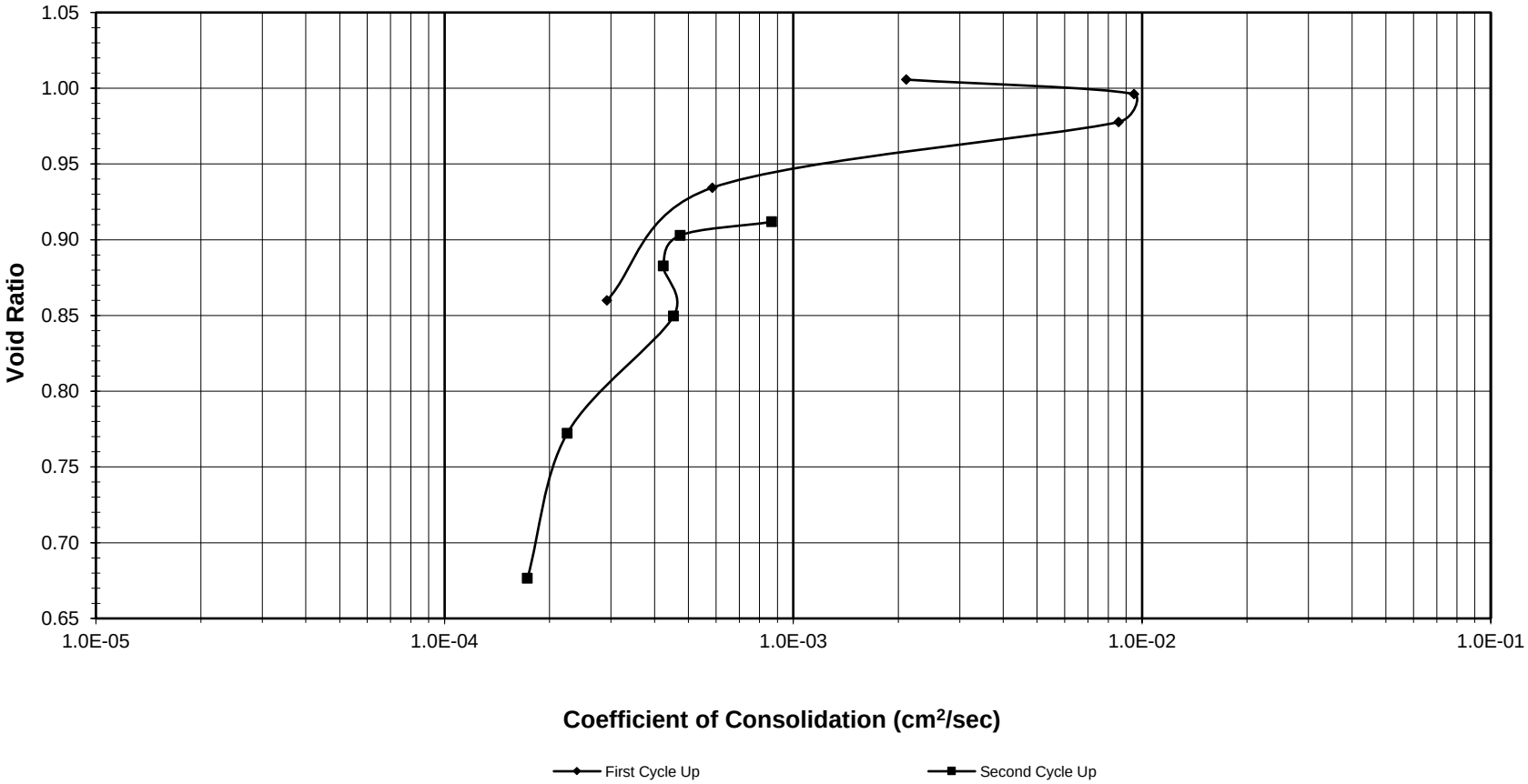
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



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DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	704	TB-02
Wt. Tare & WS (g)	446.51	274.42
Wt. Tare & DS (g)	353.54	242.59
Wt. Water (g)	92.97	31.83
Wt. Tare (g)	89.63	134.30
Wt. DS (g)	263.91	108.29
Water Content (%)	35.23	29.39
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.898
Sample Volume (cc)	80.44	72.27
Wt. Wet Sample + Ring (g)	359.80	353.52
Wt. of Ring (g)	214.16	214.16
Wt. of Wet Sample (g)	145.64	139.36
Wet Density (pcf)	112.98	120.32
Wet Density (g/cc)	1.81	1.93
Water Content (%)	35.23	29.39
Wt. of Dry Sample (g)	107.70	107.70
Dry Density (pcf)	83.55	92.99
Dry Density (g/cc)	1.34	1.49
Void Ratio	1.0166	0.8118
Saturation (%)	93.56	97.76
Specific Gravity	*2.7*	*Assumed*
		Tested By MY

C_v Test Data Summary

Load Increment (tsf)	**Dial Reading @ t_{50}** (div)	**Machine Deflection** (div)	**Corrected Dial Reading @ t_{50}** (div)	**Sample Height @ t_{50}** (cm)	**Time t_{50}** (min.)	**C_v** **(cm^2/sec)**
0 - 0.25	52.6	22.8	29.8	2.532	**2.50**	**0.00211**
0.25 - 0.5	117.2	44.2	73.0	2.521	**0.55**	**0.00949**
0.5 - 1.0	206.8	60.5	146.3	2.503	**0.60**	**0.00857**
1.0 - 2.0	400.4	93.6	306.7	2.462	**8.50**	**0.00059**
2.0 - 4.0	739.2	130.5	608.7	2.385	**16.00**	**0.00029**
4.0 - 1.0	NA	83.0	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	52.7	NA	NA	**NA**	**NA**
0.25 - 0.5	571.0	58.3	512.7	2.410	**5.50**	**0.00087**
0.5 - 1.0	616.4	74.9	541.5	2.402	**10.00**	**0.00047**
1.0 - 2.0	715.7	100.0	615.7	2.384	**11.00**	**0.00042**
2.0 - 4.0	878.7	133.4	745.3	2.351	**10.00**	**0.00045**
4.0 - 8.0	1194.0	169.9	1024.1	2.280	**19.00**	**0.00022**
8.0 - 16.0	1658.2	226.1	1432.1	2.176	**22.50**	**0.00017**
16.0 - 4.0	NA	161.7	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	111.7	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	73.0	NA	NA	**NA**	**NA**

Tested By MY *Date* 8/28/2020 *Input Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

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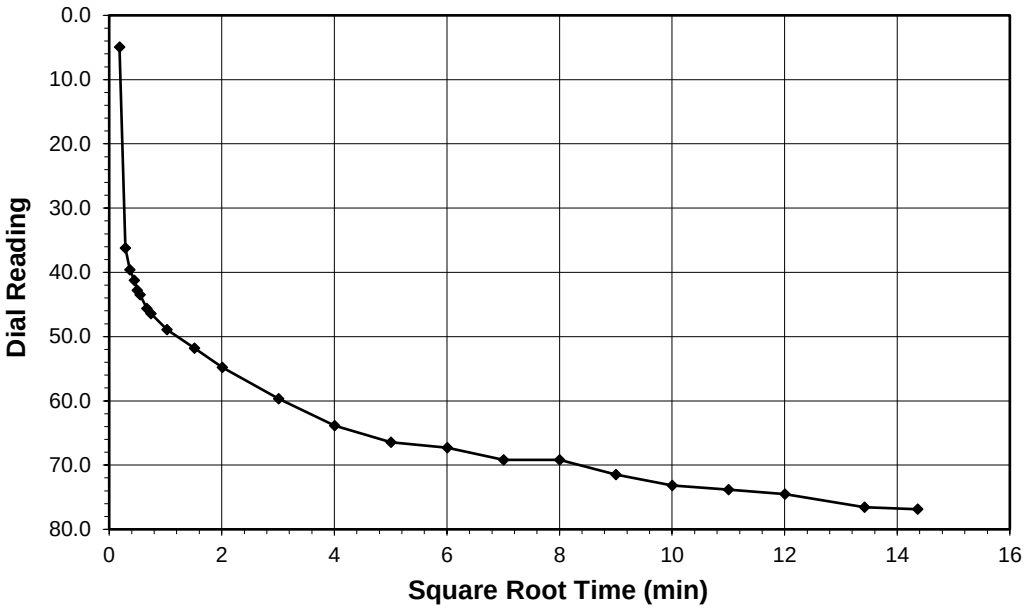
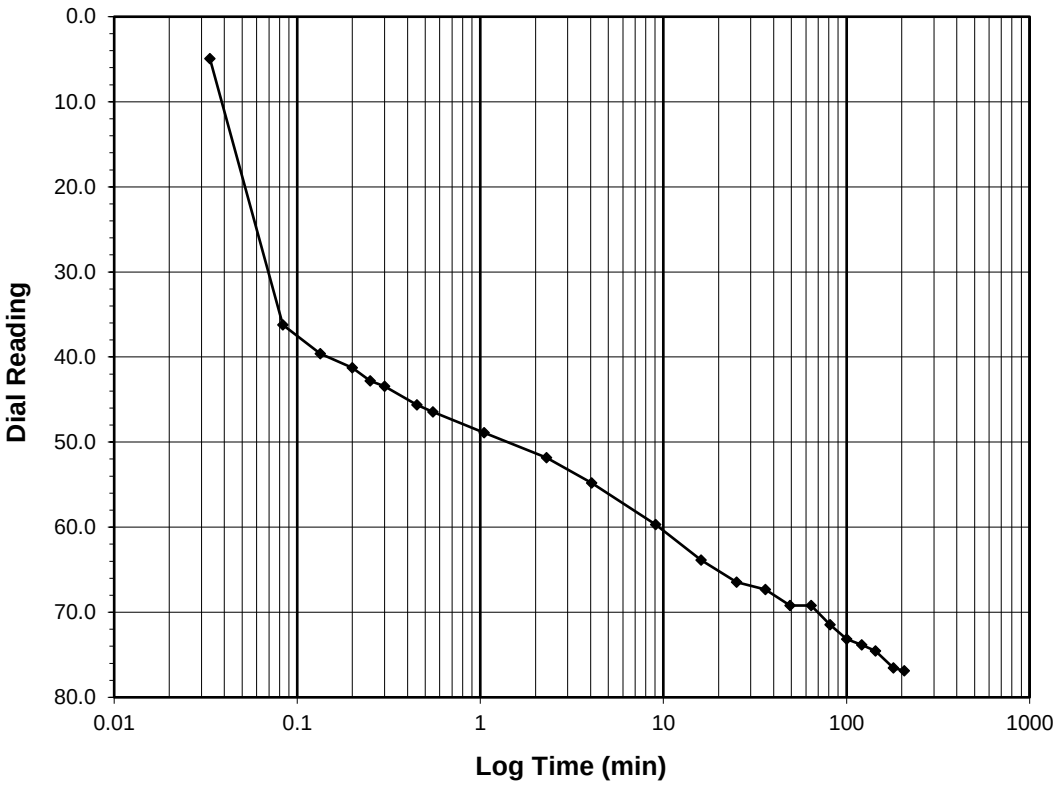
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**76.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/28/2020
Start Time		12:59:37

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.03	4.9
0.08	36.2
0.13	39.6
0.20	41.3
0.25	42.8
0.30	43.5
0.45	45.6
0.55	46.4
1.05	48.9
2.30	51.8
4.05	54.8
9.05	59.7
16.05	63.8
25.05	66.5
36.07	67.3
49.07	69.2
64.07	69.2
81.07	71.5
100.07	73.2
121.07	73.8
144.07	74.5
180.07	76.6
206.33	76.9

Tested By MY *Date* 8/28/2020 *Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2020 PROJECTS\Catlin\2020-164 Catlin - USACE Princeville\2020-164-002\[2020-164-002-033 GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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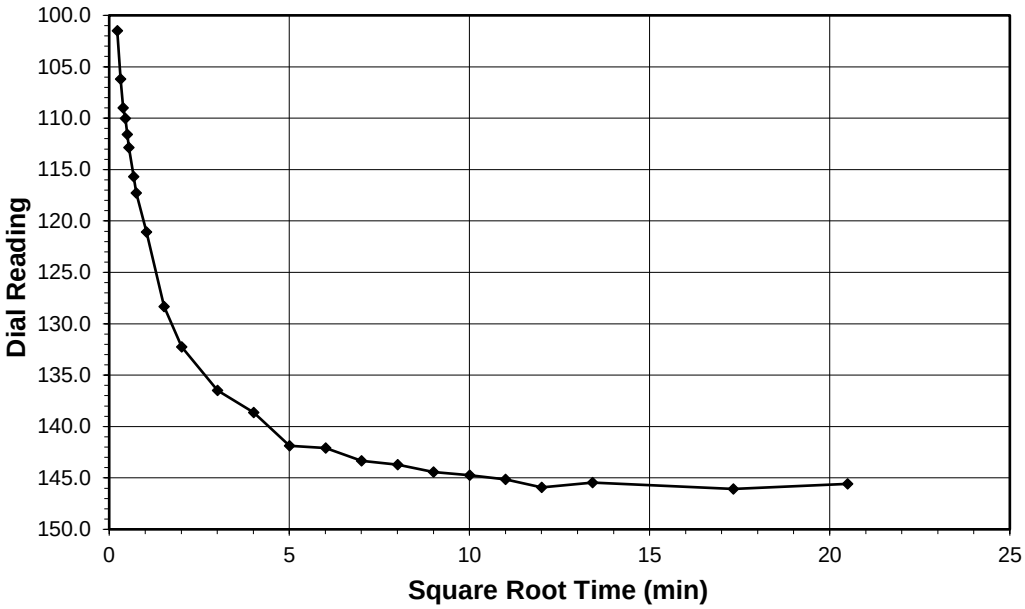
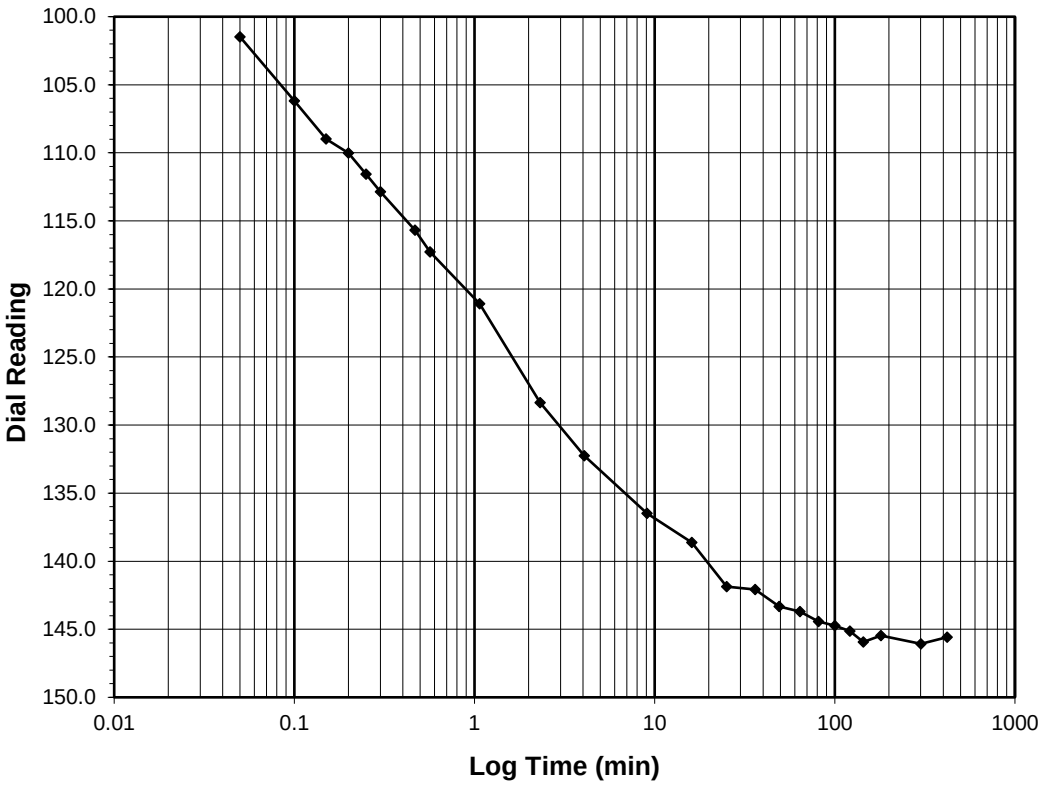
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**145.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/28/2020
Start Time		16:25:58

Elapsed Time (min)	Dial Reading (div)
Initial	**76.9**
0.05	101.5
0.10	106.2
0.15	109.0
0.20	110.0
0.25	111.6
0.30	112.9
0.47	115.7
0.57	117.3
1.07	121.1
2.32	128.3
4.07	132.2
9.07	136.5
16.07	138.6
25.07	141.9
36.07	142.1
49.07	143.3
64.07	143.7
81.07	144.4
100.07	144.7
121.07	145.1
144.07	145.9
180.07	145.5
300.07	146.1
420.03	145.6

Tested By *MY* *Date* *8/28/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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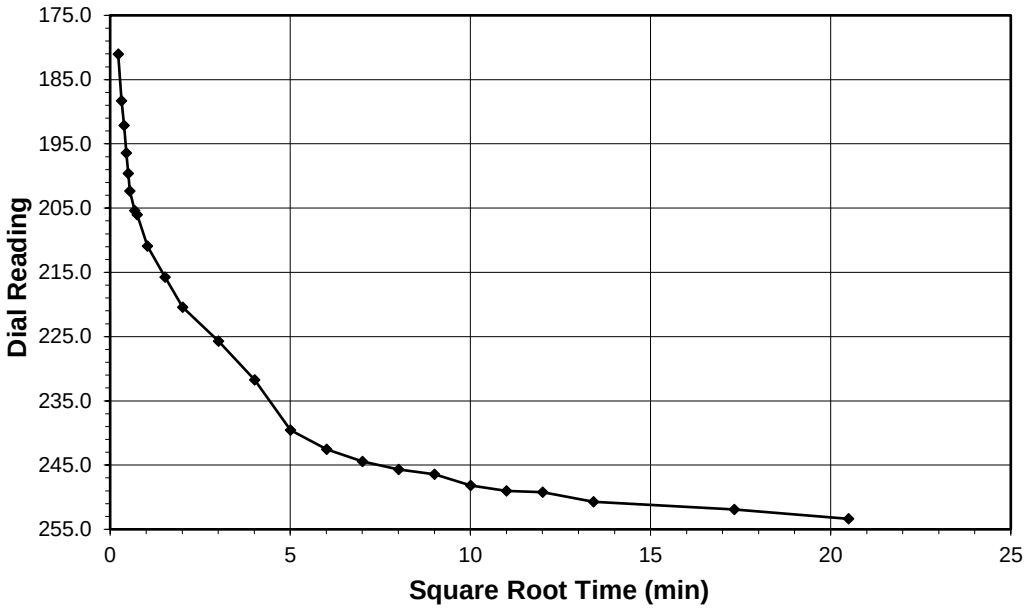
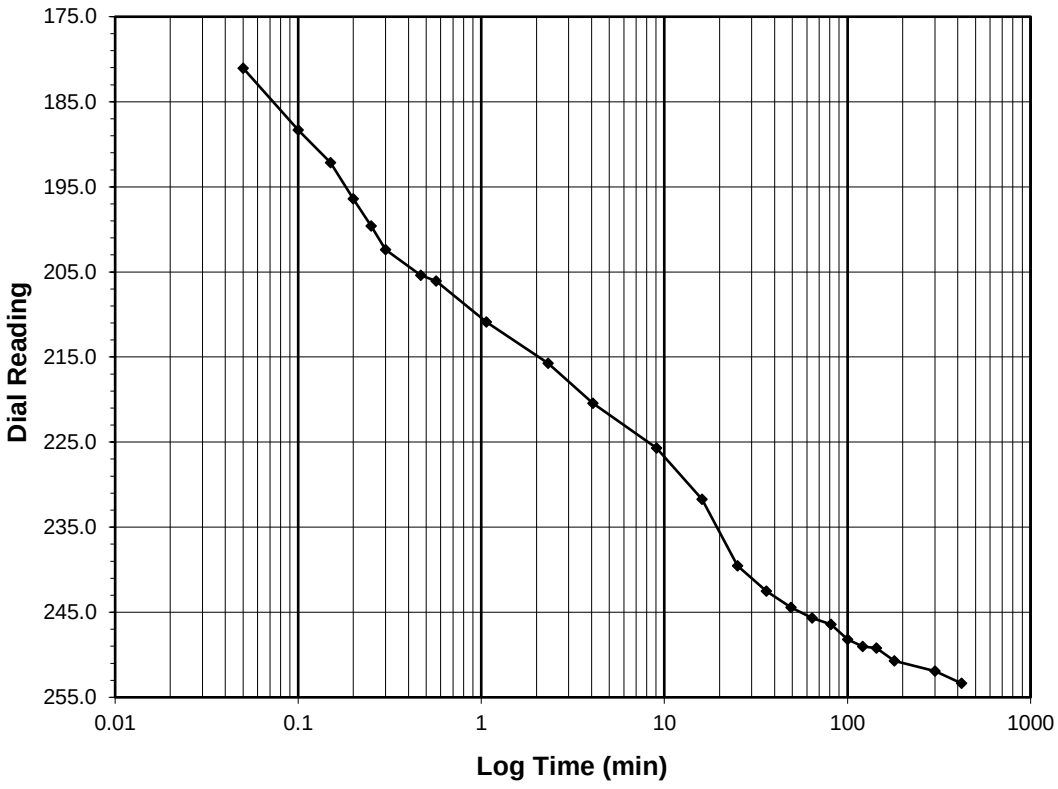
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**253.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/28/2020
Start Time		23:26:00

Elapsed Time (min)	Dial Reading (div)
Initial	**145.6**
0.05	181.0
0.10	188.3
0.15	192.2
0.20	196.4
0.25	199.6
0.30	202.4
0.47	205.4
0.57	206.1
1.07	210.9
2.32	215.7
4.07	220.5
9.07	225.7
16.07	231.7
25.07	239.5
36.07	242.5
49.07	244.4
64.07	245.7
81.07	246.4
100.08	248.2
121.08	249.0
144.08	249.2
180.08	250.7
300.08	251.9
420.00	253.4

Tested By *MY* *Date* *8/28/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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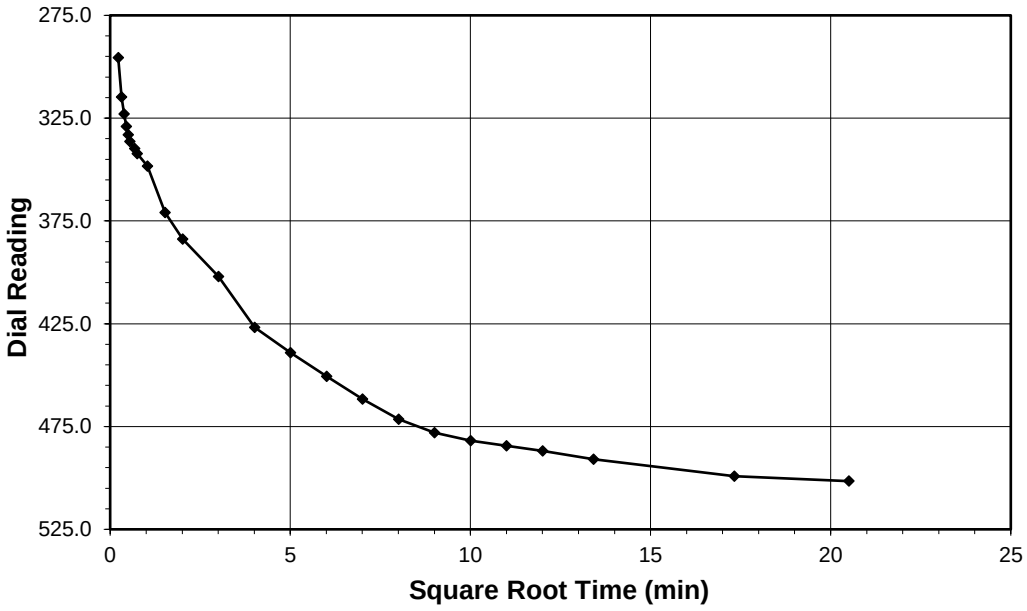
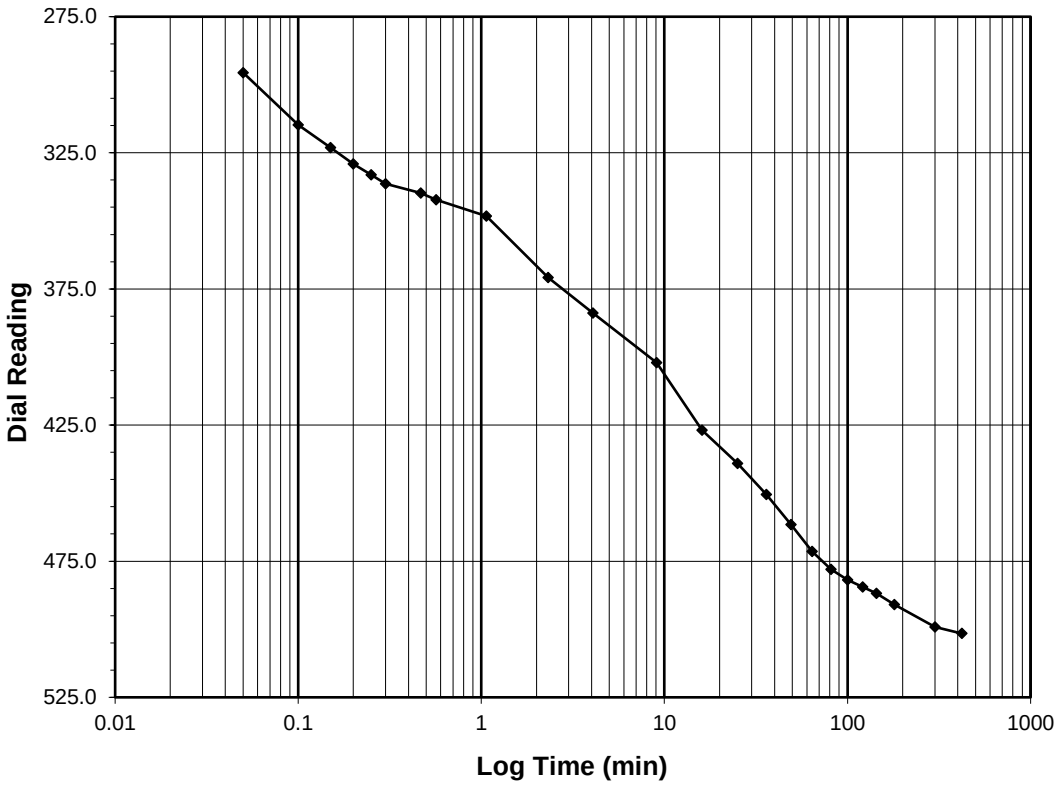
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**501.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/29/2020
Start Time		6:26:00

Elapsed Time (min)	Dial Reading (div)
Initial	**253.4**
0.05	295.6
0.10	314.7
0.15	323.0
0.20	329.0
0.25	333.0
0.30	336.3
0.47	339.8
0.57	342.3
1.07	348.3
2.32	370.9
4.07	383.8
9.07	402.0
16.07	426.8
25.07	439.1
36.07	450.5
49.07	461.6
64.07	471.4
81.07	478.0
100.07	481.9
121.08	484.4
144.08	486.8
180.08	490.9
300.08	499.1
420.47	501.6

Tested By MY *Date* 8/29/2020 *Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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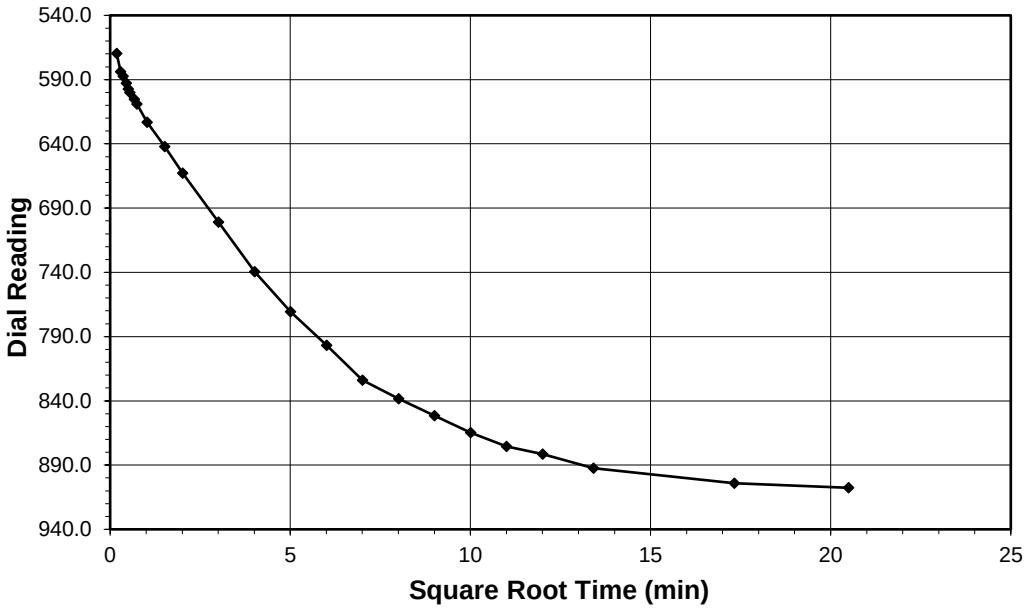
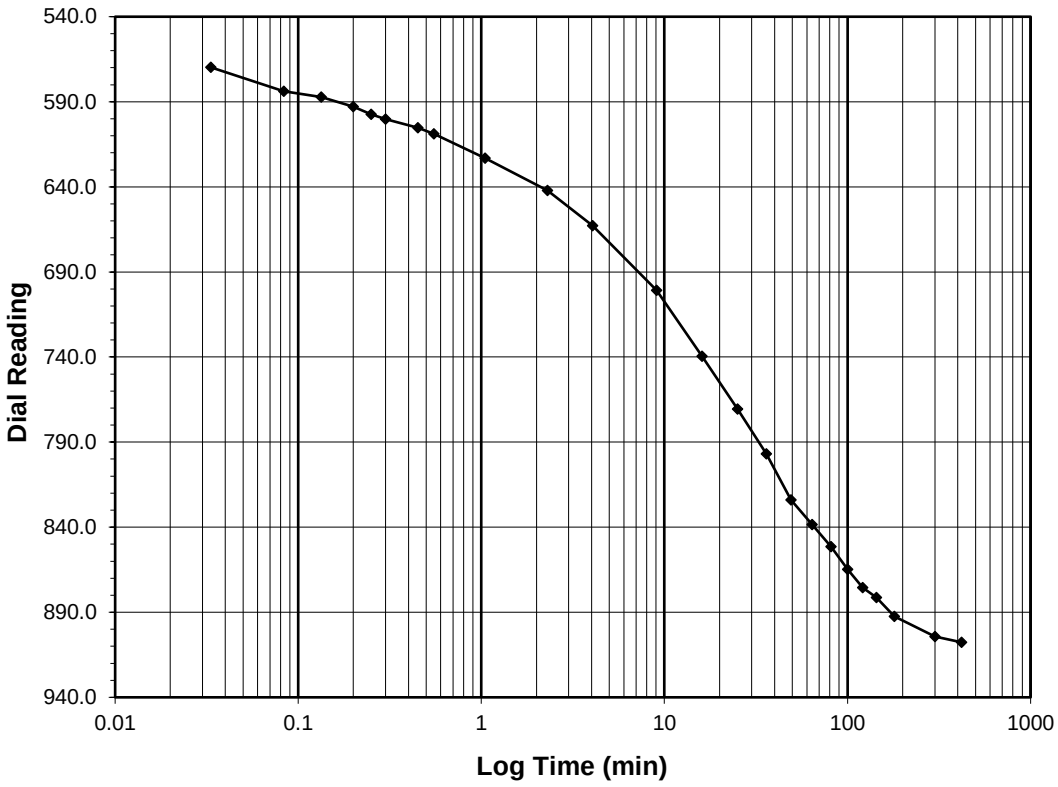
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**907.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/29/2020
Start Time		13:26:28

Elapsed Time (min)	Dial Reading (div)
Initial	**501.6**
0.03	569.8
0.08	583.8
0.13	587.2
0.20	592.8
0.25	597.4
0.30	600.1
0.45	605.2
0.55	608.9
1.05	623.2
2.30	642.1
4.05	662.9
9.05	700.8
16.07	739.6
25.07	770.5
36.07	796.8
49.07	823.9
64.07	838.4
81.07	851.5
100.07	864.7
121.07	875.5
144.07	881.4
180.07	892.4
300.07	904.2
420.03	907.7

Tested By MY *Date* 8/29/2020 *Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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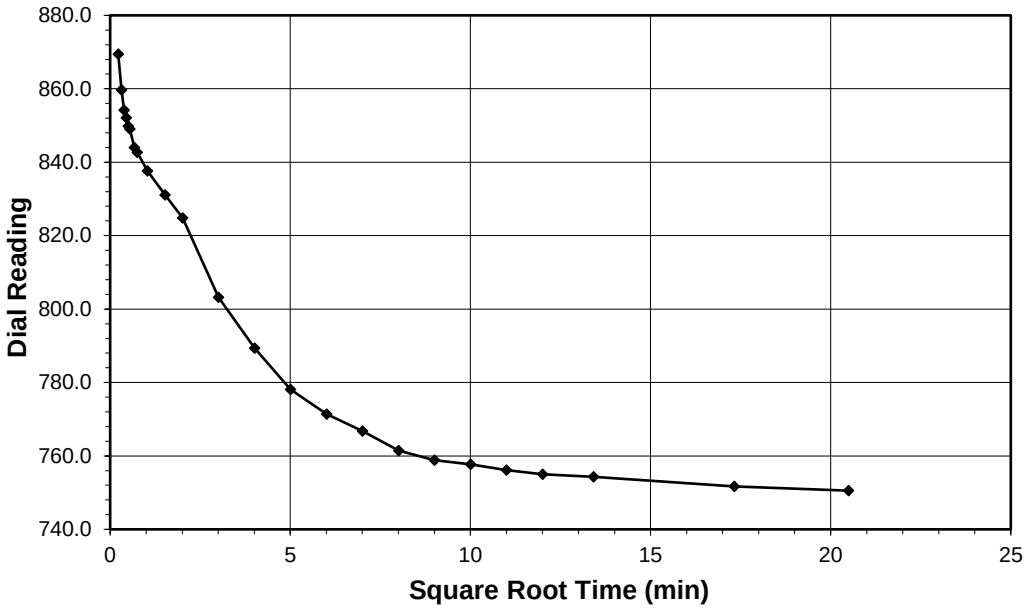
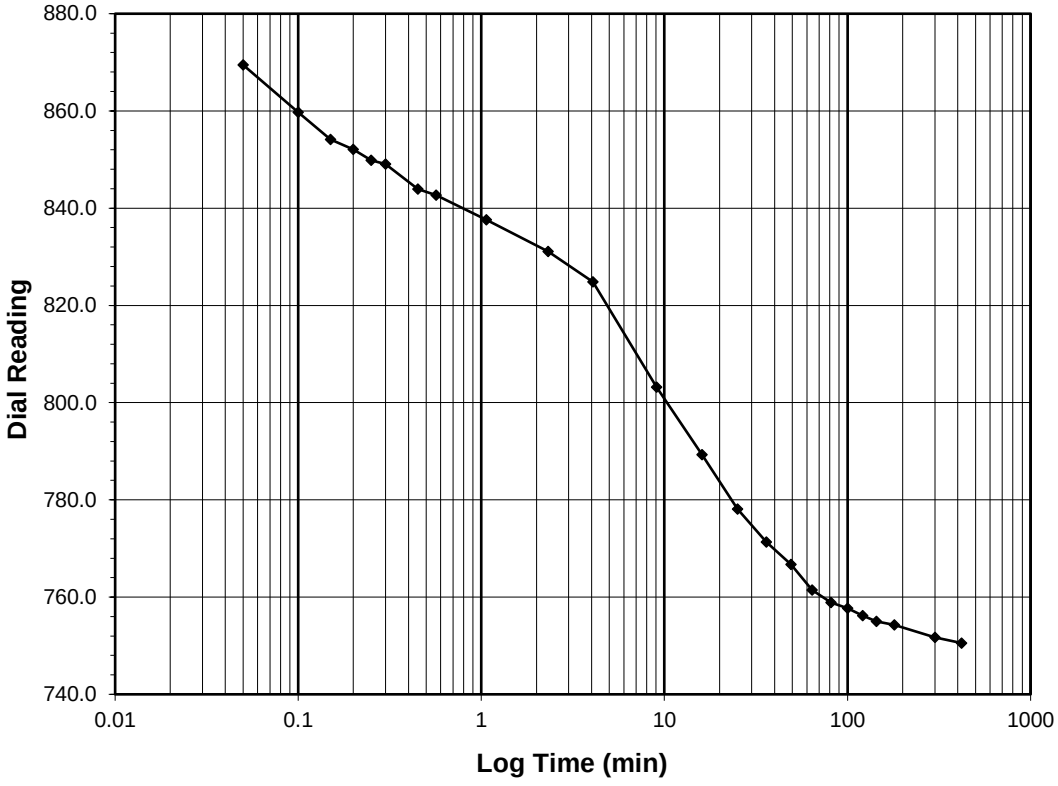
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**750.5**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/29/2020
Start Time		20:26:31

Elapsed Time (min)	Dial Reading (div)
Initial	**907.7**
0.05	869.5
0.10	859.7
0.15	854.2
0.20	852.1
0.25	849.9
0.30	849.0
0.45	844.0
0.57	842.7
1.07	837.6
2.32	831.1
4.07	824.9
9.07	803.2
16.07	789.3
25.07	778.1
36.07	771.3
49.07	766.7
64.07	761.4
81.07	758.9
100.07	757.7
121.07	756.2
144.07	755.0
180.07	754.3
300.07	751.7
420.02	750.5

Tested By *MY* *Date* *8/29/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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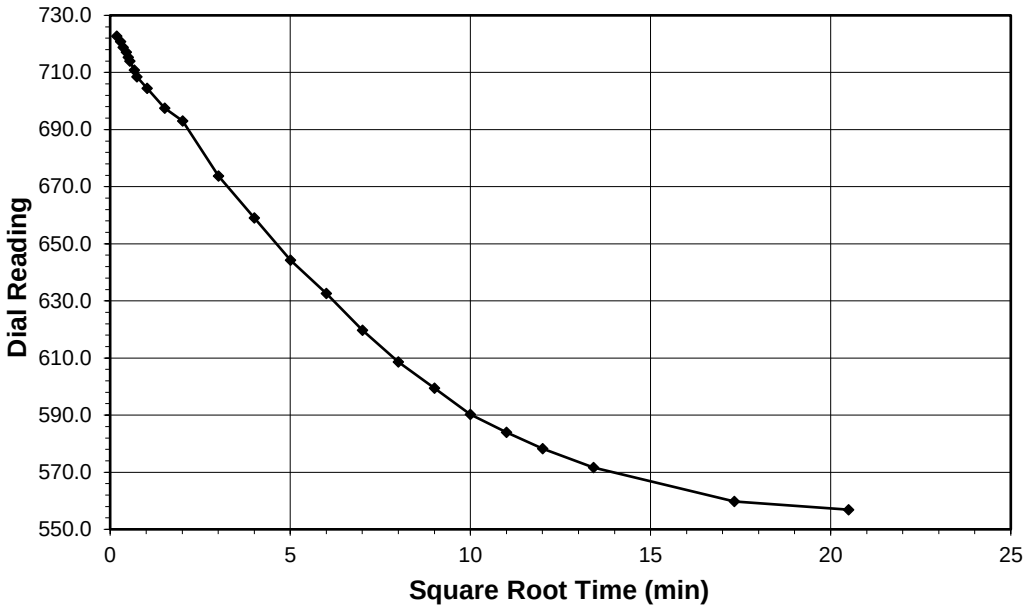
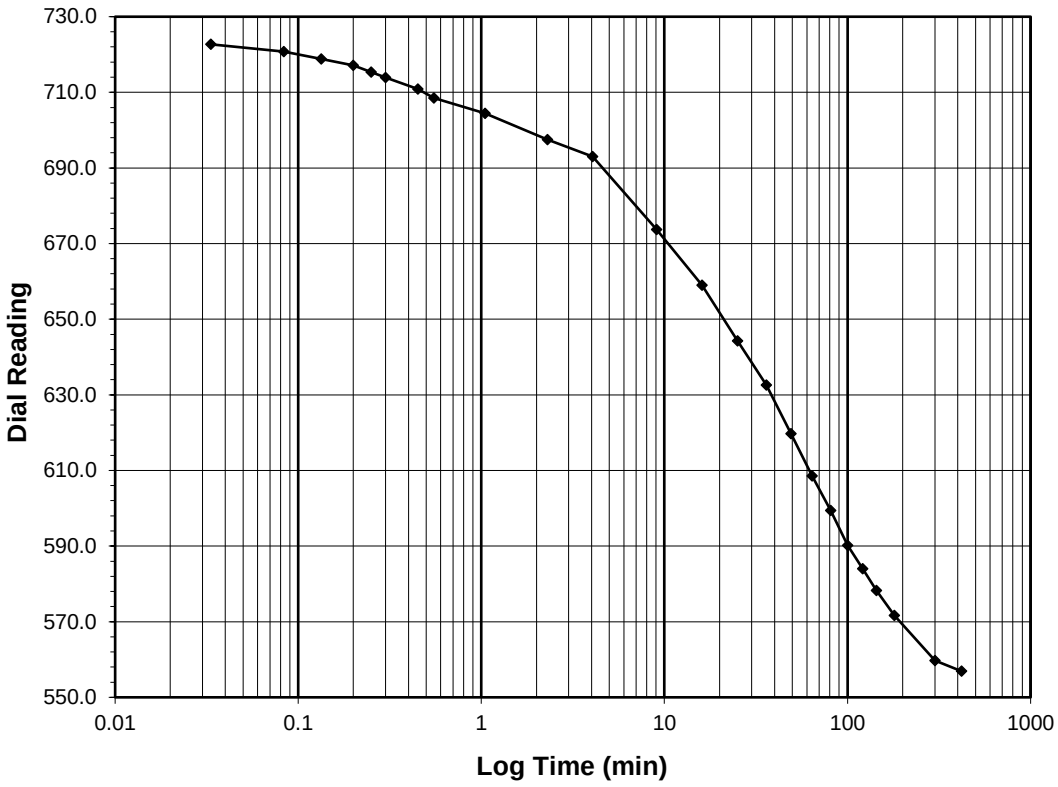
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**556.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/30/2020
Start Time		3:26:32

Elapsed Time (min)	Dial Reading (div)
Initial	**750.5**
0.03	722.7
0.08	720.7
0.13	718.8
0.20	717.1
0.25	715.3
0.30	713.9
0.45	710.9
0.55	708.5
1.05	704.5
2.30	697.5
4.05	693.0
9.05	673.7
16.05	659.0
25.05	644.2
36.05	632.6
49.05	619.8
64.05	608.6
81.05	599.4
100.05	590.2
121.07	584.0
144.07	578.3
180.07	571.6
300.07	559.8
420.00	556.9

Tested By *MY* *Date* *8/30/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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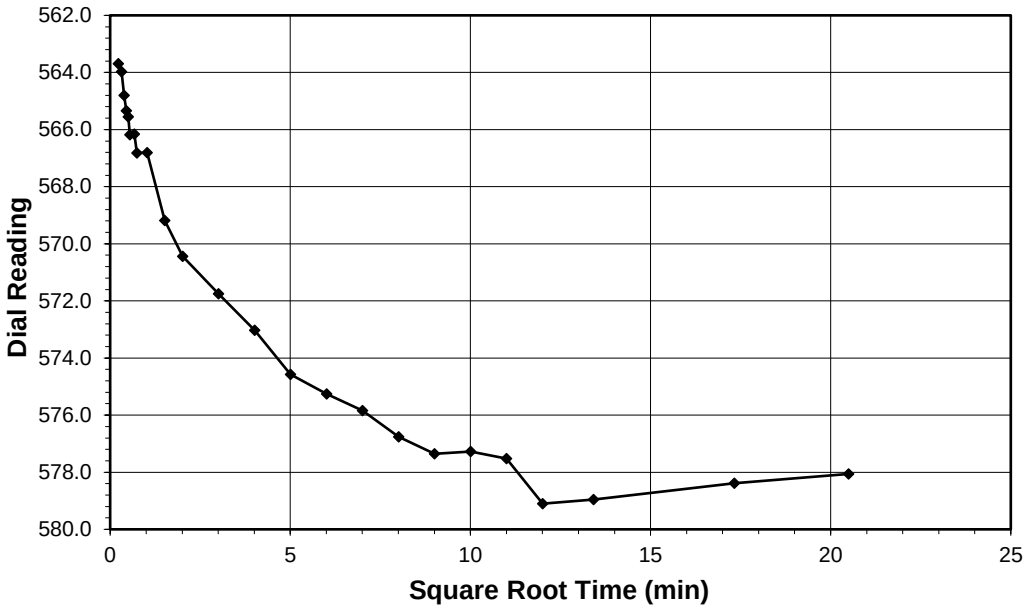
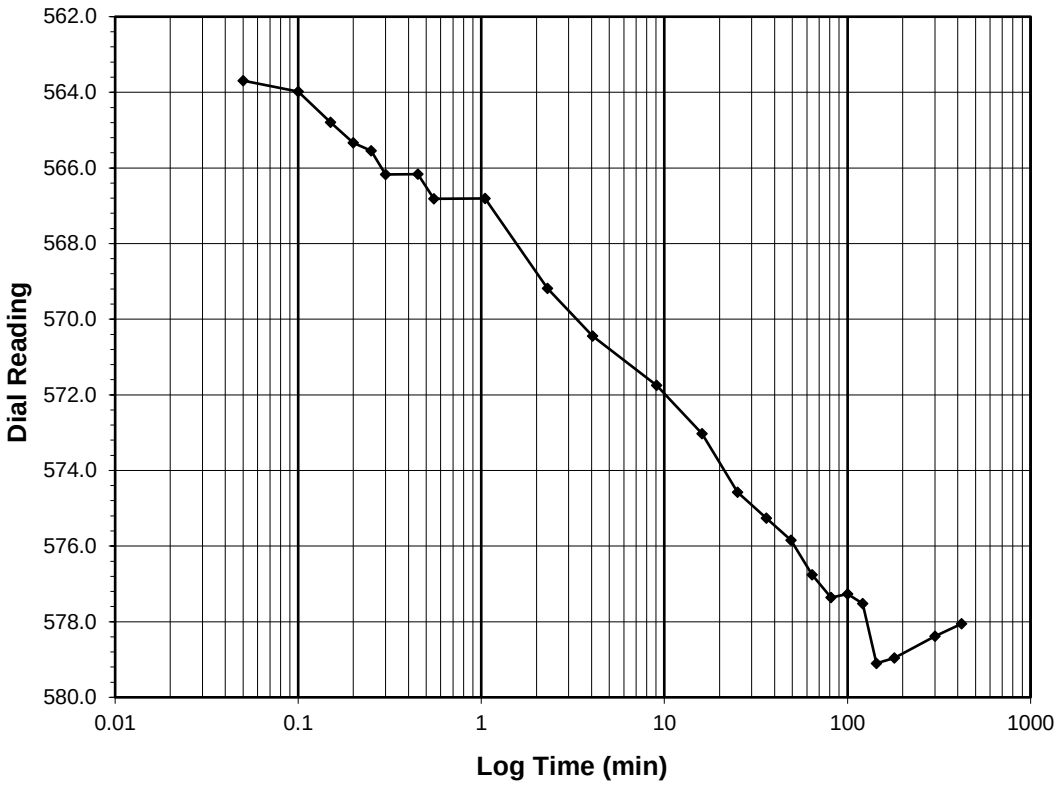
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**578.1**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/30/2020
Start Time		10:26:33

Elapsed Time (min)	Dial Reading (div)
Initial	**556.9**
0.05	563.7
0.10	564.0
0.15	564.8
0.20	565.3
0.25	565.6
0.30	566.2
0.45	566.2
0.55	566.8
1.05	566.8
2.30	569.2
4.05	570.4
9.07	571.8
16.07	573.0
25.07	574.6
36.07	575.3
49.07	575.8
64.07	576.8
81.07	577.4
100.07	577.3
121.07	577.5
144.07	579.1
180.07	579.0
300.07	578.4
420.00	578.1

Tested By *MY* *Date* *8/30/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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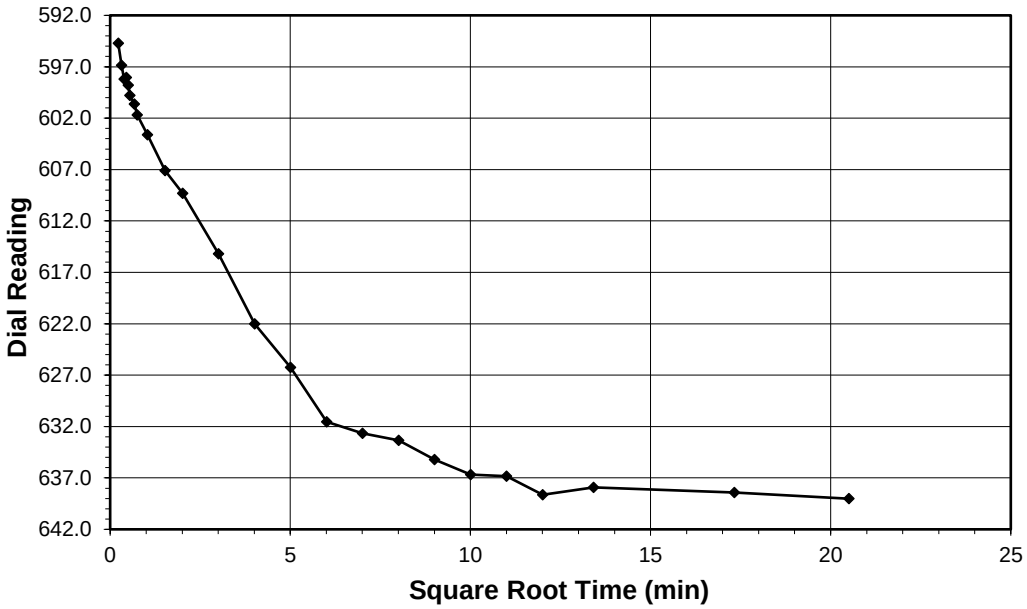
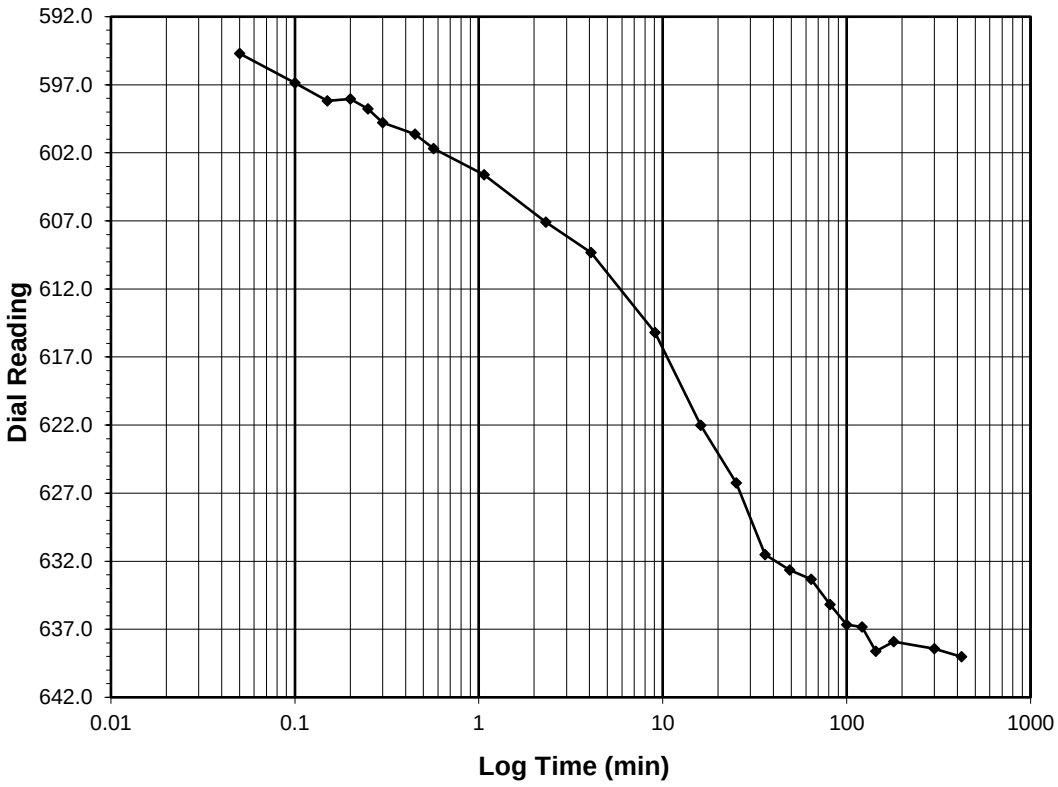
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**639.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/30/2020
Start Time		17:26:33

Elapsed Time (min)	Dial Reading (div)
Initial	**578.1**
0.05	594.7
0.10	596.9
0.15	598.2
0.20	598.1
0.25	598.8
0.30	599.8
0.45	600.6
0.57	601.7
1.07	603.6
2.32	607.1
4.07	609.3
9.07	615.2
16.07	622.0
25.07	626.2
36.07	631.5
49.07	632.6
64.07	633.3
81.07	635.2
100.07	636.7
121.07	636.8
144.07	638.6
180.07	637.9
300.07	638.4
420.48	639.0

Tested By *MY* *Date* *8/30/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2020 PROJECTS\Catlin\2020-164 Catlin - USACE Princeville\2020-164-002\[2020-164-002-033 GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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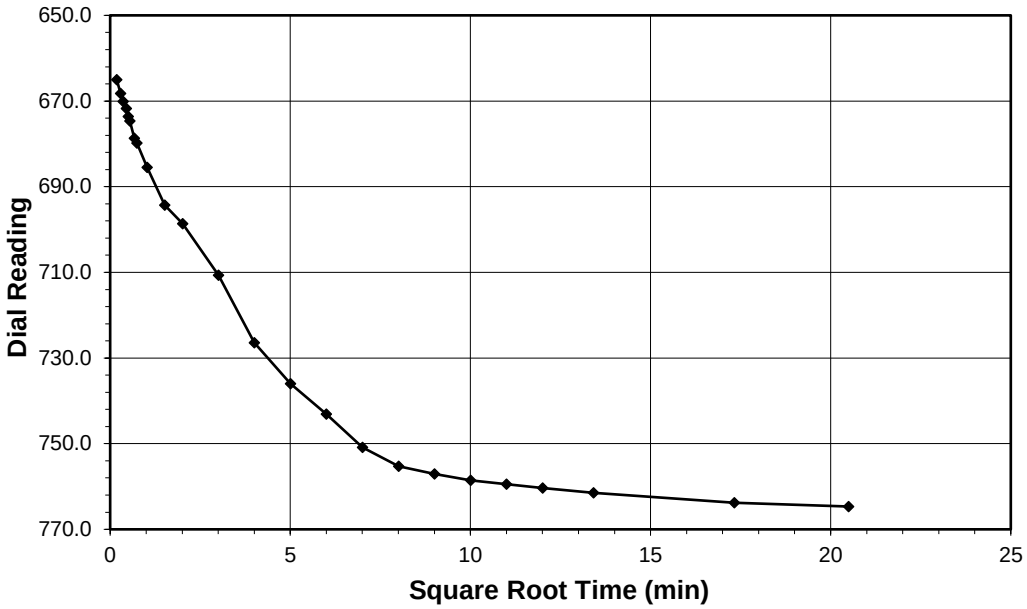
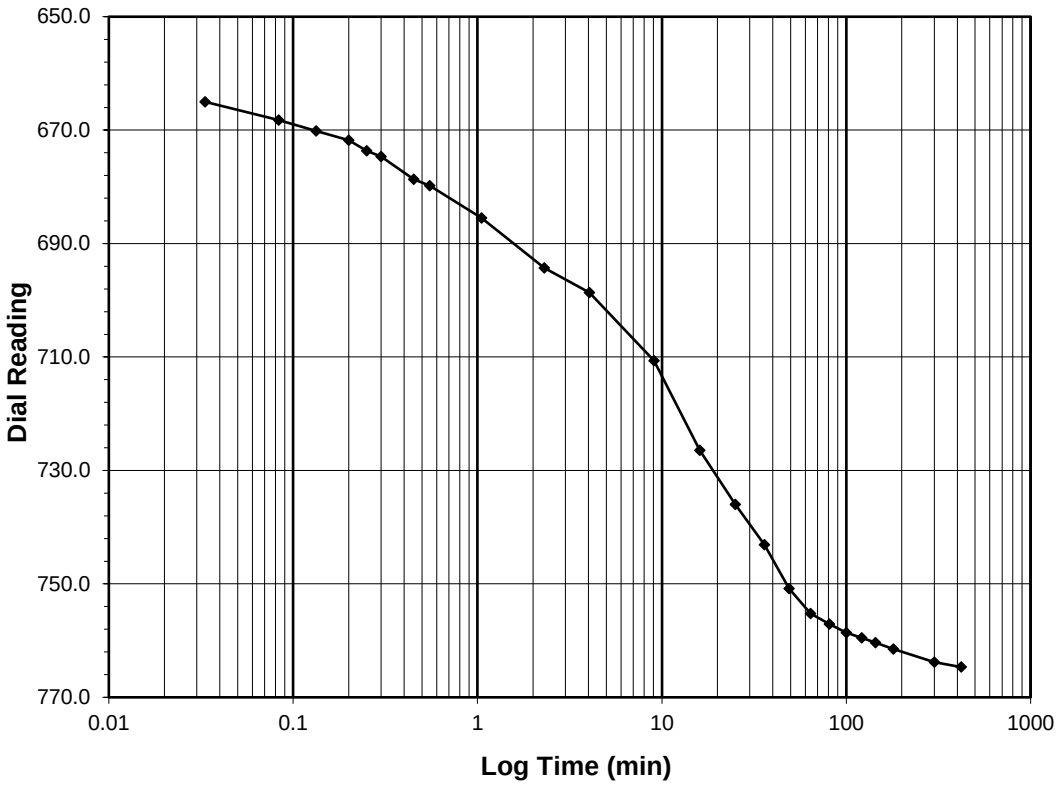
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**764.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		0:27:02

Elapsed Time (min)	Dial Reading (div)
Initial	**639.0**
0.03	665.0
0.08	668.2
0.13	670.1
0.20	671.8
0.25	673.6
0.30	674.7
0.45	678.7
0.55	679.8
1.05	685.5
2.30	694.3
4.05	698.6
9.05	710.7
16.05	726.5
25.05	736.0
36.05	743.1
49.05	750.8
64.07	755.2
81.07	757.1
100.07	758.6
121.07	759.5
144.07	760.3
180.07	761.5
300.07	763.8
420.02	764.7

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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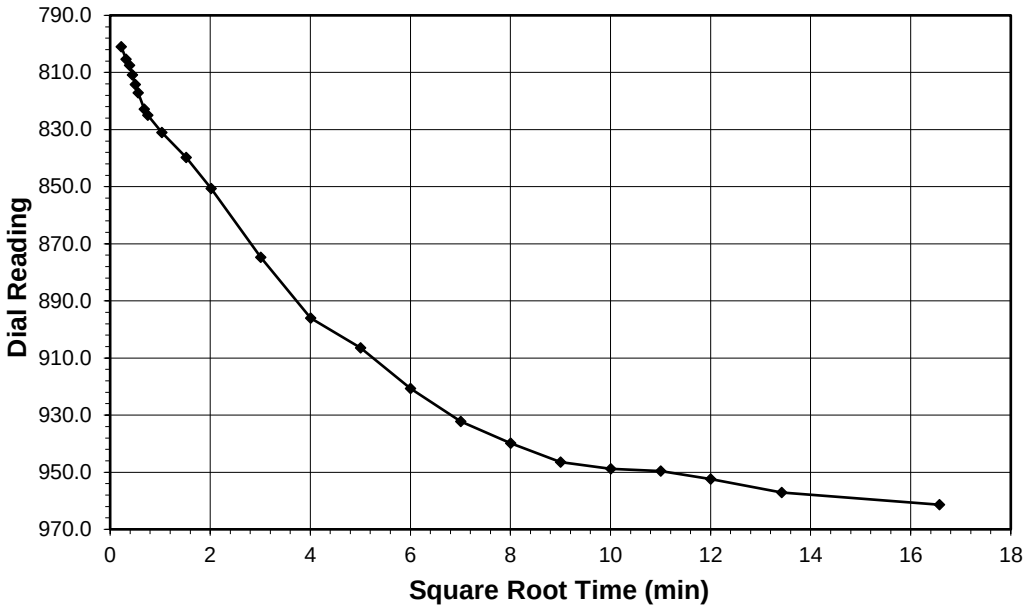
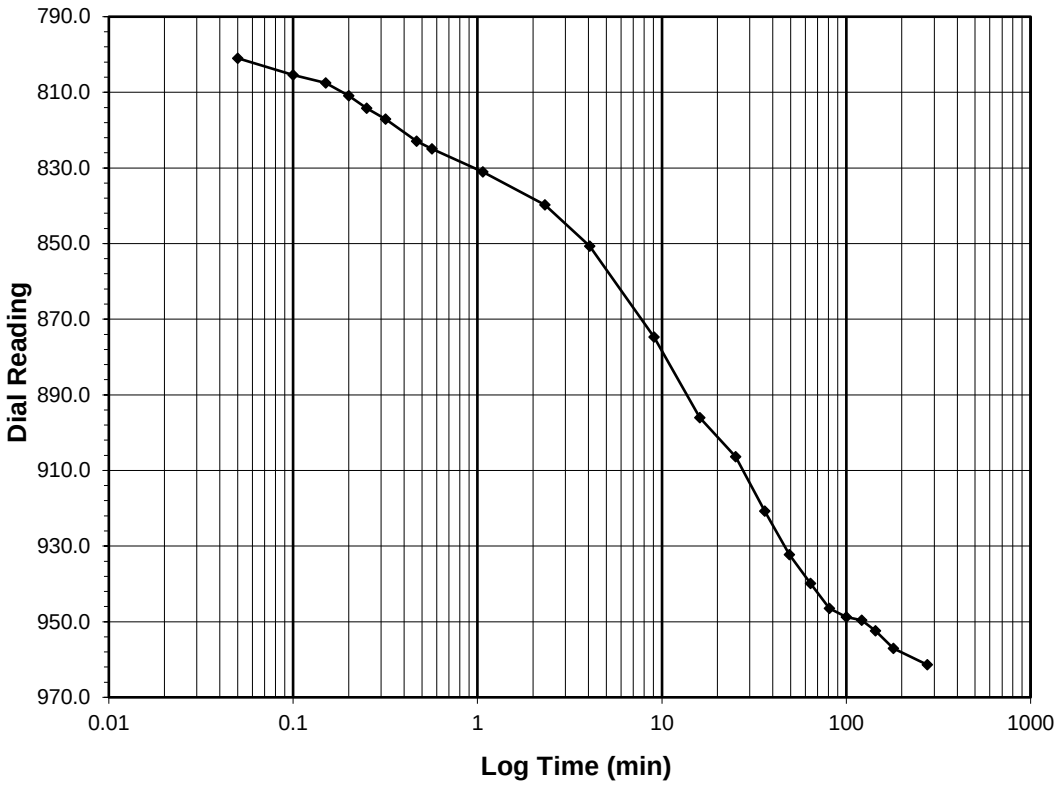
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**961.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		7:27:04

Elapsed Time (min)	Dial Reading (div)
Initial	**764.7**
0.05	801.0
0.10	805.4
0.15	807.5
0.20	810.9
0.25	814.2
0.32	817.1
0.47	822.9
0.57	825.0
1.07	831.0
2.32	839.7
4.07	850.7
9.07	874.7
16.07	896.0
25.07	906.4
36.07	920.7
49.07	932.3
64.07	939.8
81.08	946.5
100.08	948.8
121.08	949.6
144.08	952.4
180.08	957.1
274.80	961.4

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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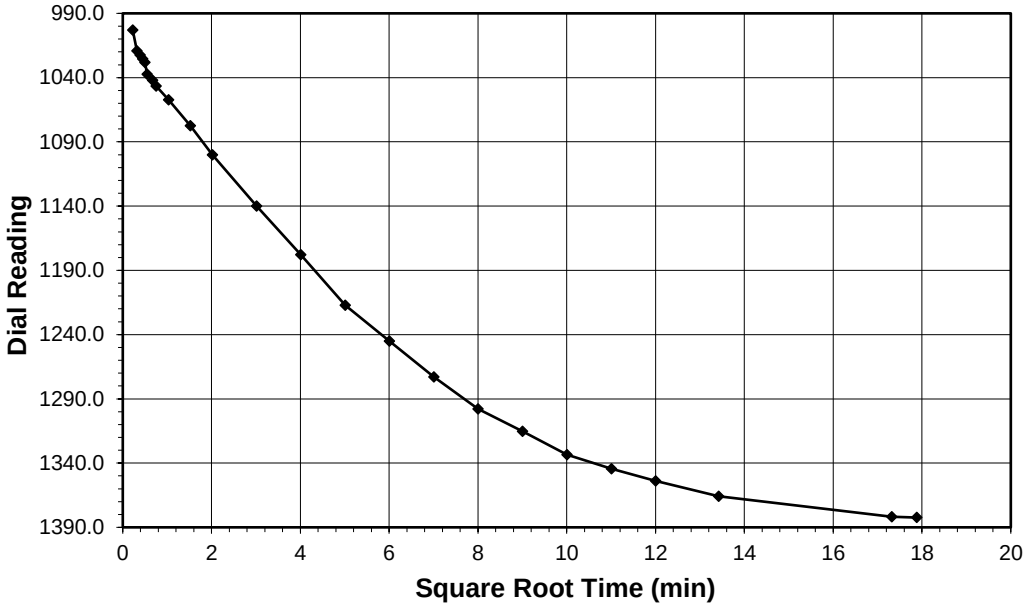
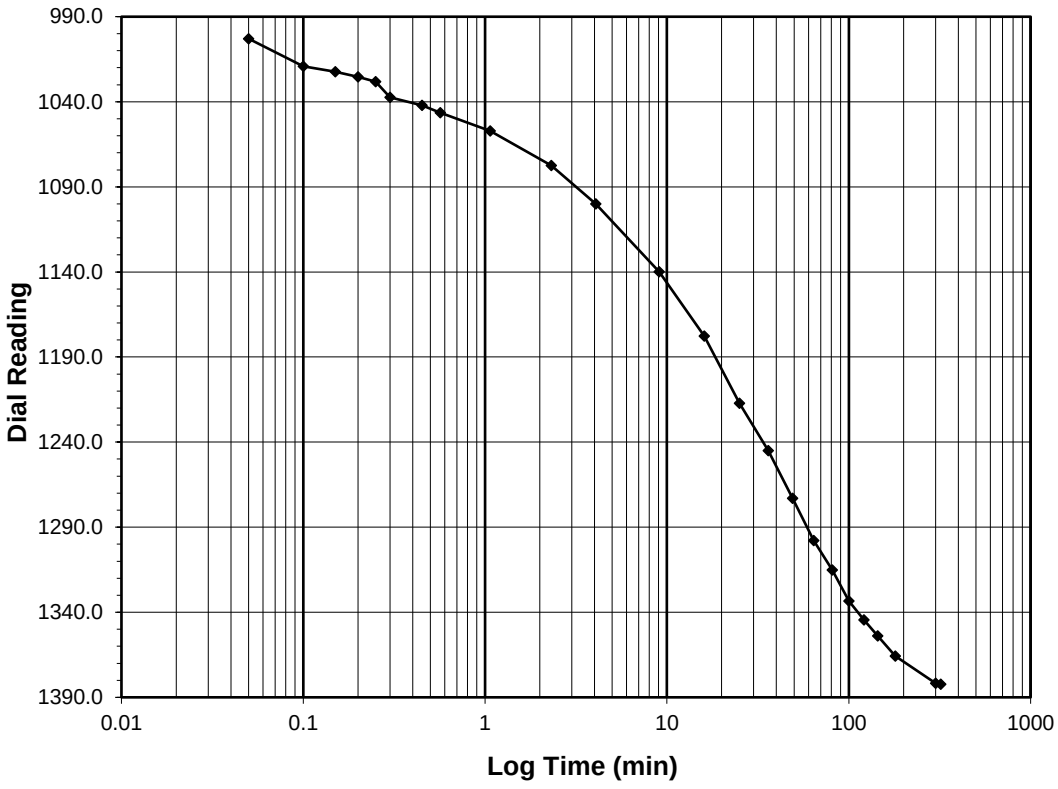
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**1382.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		12:01:52

Elapsed Time (min)	Dial Reading (div)
Initial	**961.4**
0.05	1002.9
0.10	1019.2
0.15	1022.3
0.20	1025.3
0.25	1028.2
0.30	1037.3
0.45	1042.1
0.57	1046.5
1.07	1057.2
2.32	1077.4
4.07	1100.0
9.07	1140.0
16.07	1177.7
25.07	1217.1
36.07	1245.0
49.07	1273.0
64.07	1297.9
81.07	1315.2
100.07	1333.5
121.07	1344.5
144.07	1353.9
180.07	1365.7
300.07	1381.7
319.82	1382.4

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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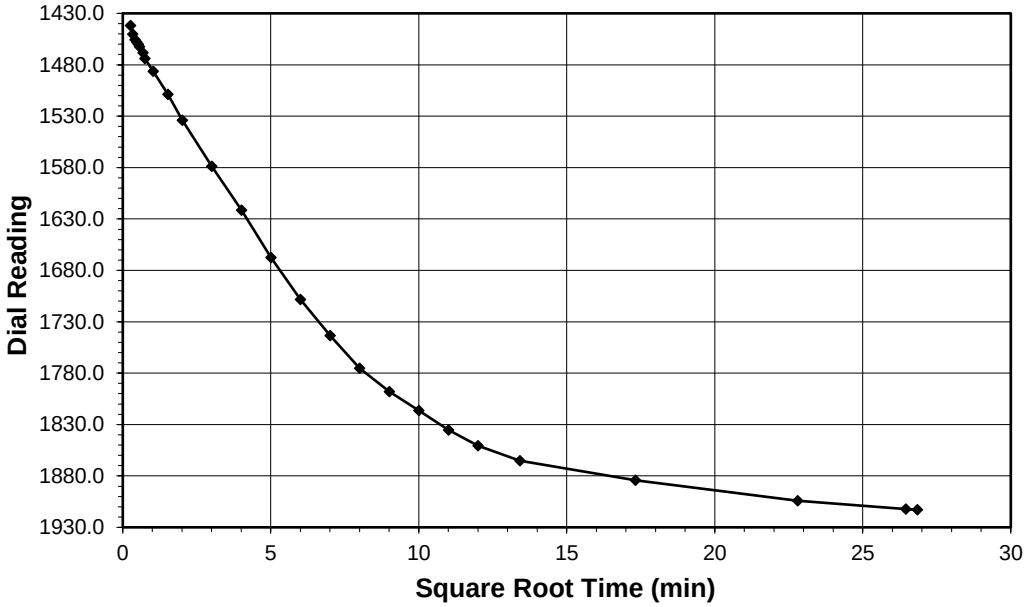
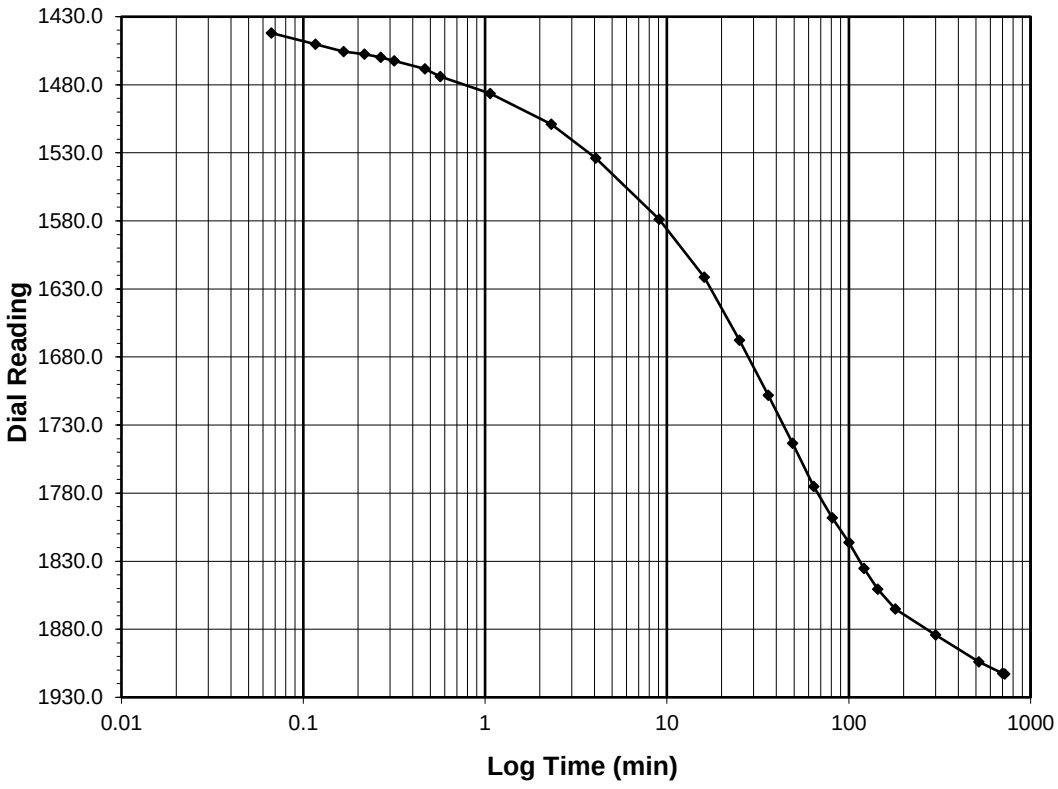
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**1913.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		17:21:42

Elapsed Time (min)	Dial Reading (div)
Initial	**1382.4**
0.07	1442.0
0.12	1450.3
0.17	1455.7
0.22	1457.6
0.27	1459.8
0.32	1462.4
0.47	1468.3
0.57	1474.0
1.07	1486.3
2.32	1508.9
4.07	1533.9
9.07	1578.8
16.07	1621.4
25.07	1667.7
36.07	1708.2
49.07	1743.4
64.07	1775.1
81.07	1798.1
100.07	1816.2
121.07	1835.3
144.08	1850.5
180.08	1865.1
300.08	1884.1
520.08	1904.0
700.08	1912.3
720.37	1913.0

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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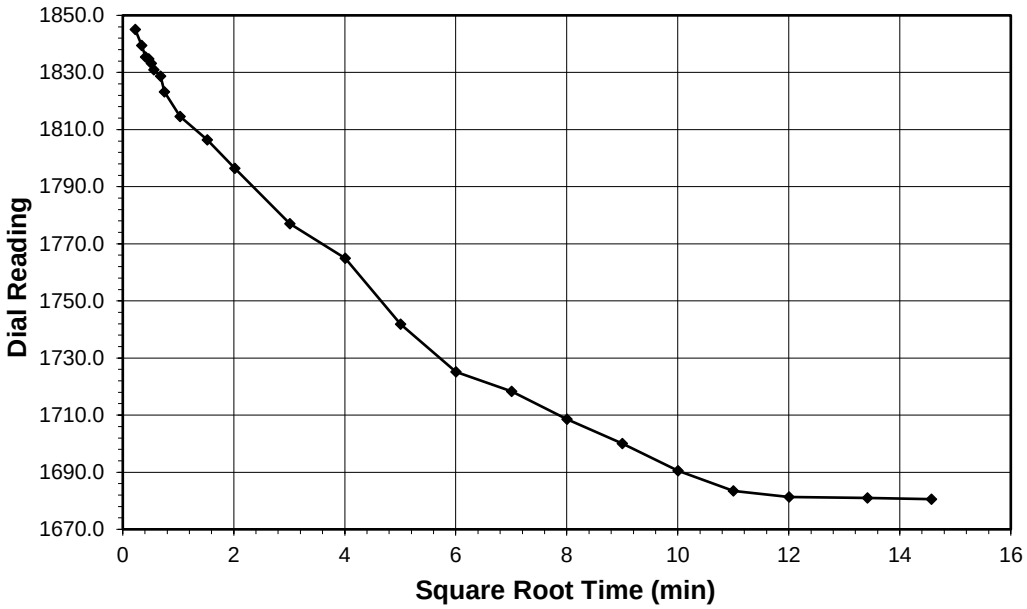
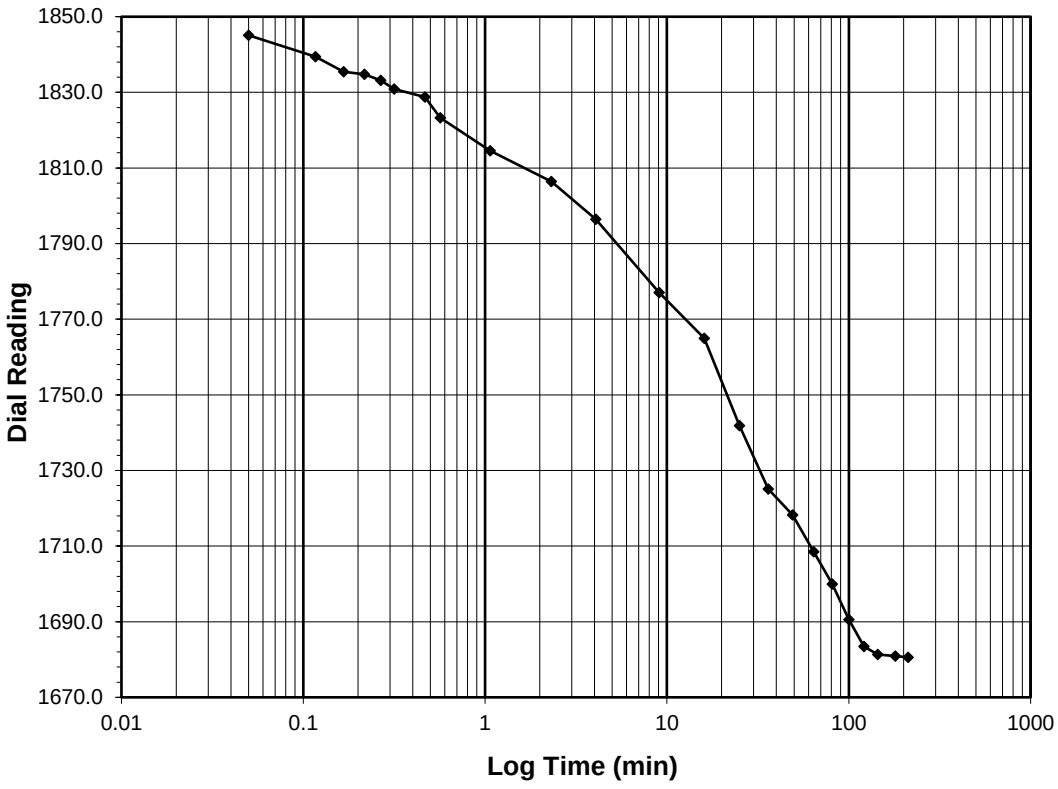
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**1680.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/1/2020
Start Time		5:22:03

Elapsed Time (min)	Dial Reading (div)
Initial	**1913.0**
0.05	1845.1
0.12	1839.4
0.17	1835.4
0.22	1834.7
0.27	1833.2
0.32	1830.9
0.47	1828.7
0.57	1823.2
1.07	1814.6
2.32	1806.4
4.07	1796.4
9.07	1777.0
16.07	1765.0
25.07	1741.8
36.07	1725.1
49.07	1718.3
64.07	1708.5
81.07	1700.0
100.07	1690.6
121.07	1683.5
144.08	1681.4
180.08	1680.9
212.28	1680.6

Tested By *MY* *Date* *9/1/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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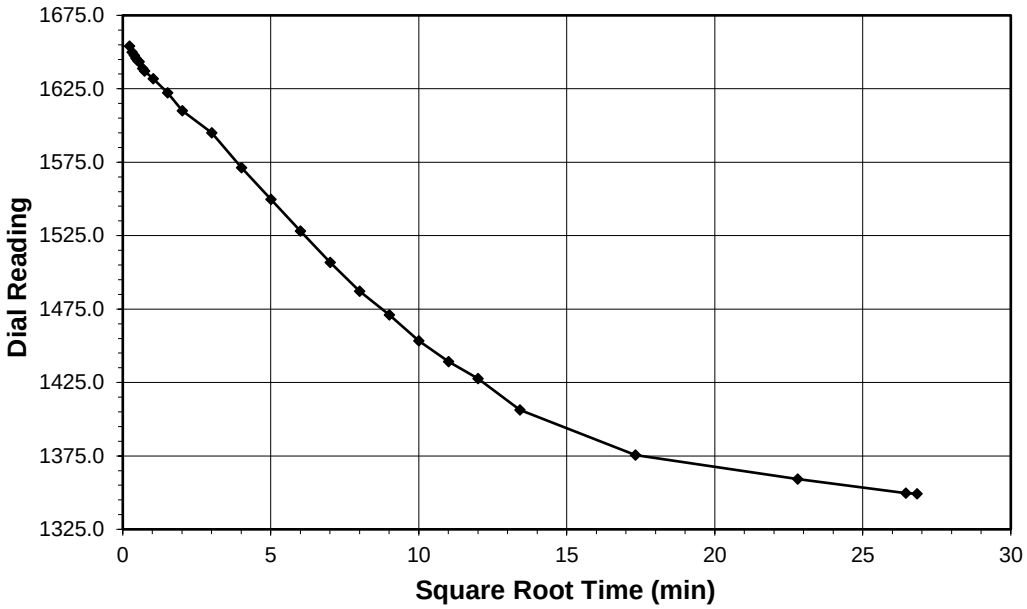
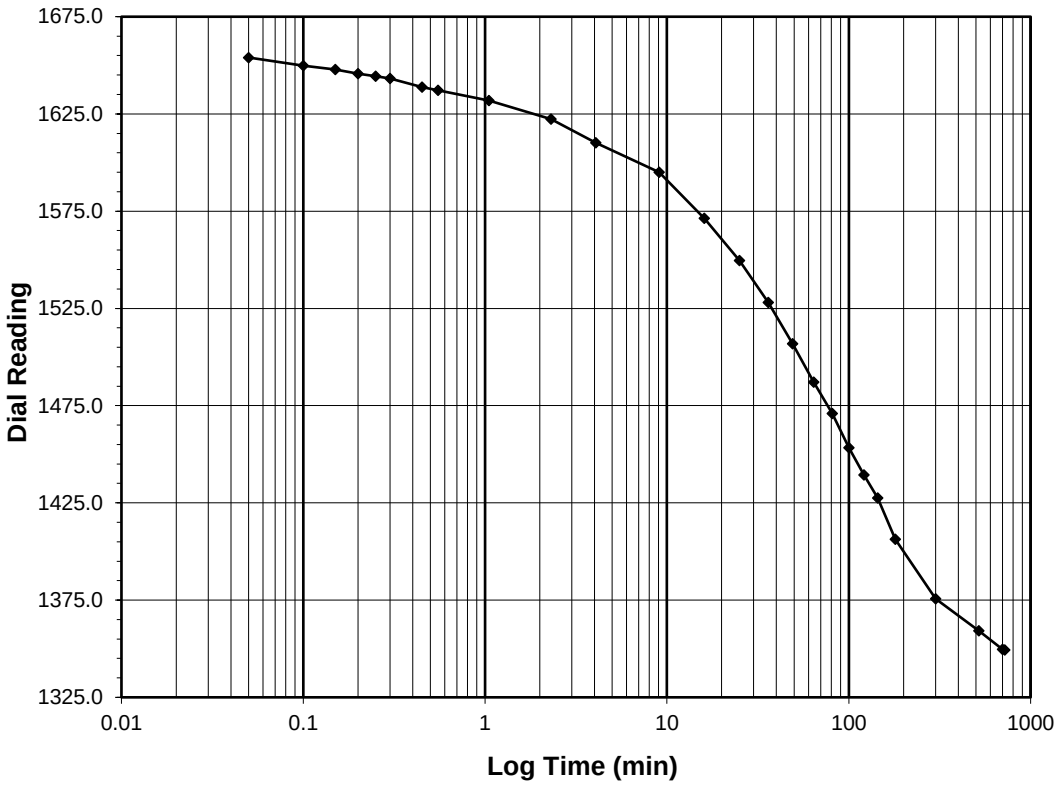
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**1349.3**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/1/2020
Start Time		8:54:20

Elapsed Time (min)	Dial Reading (div)
Initial	**1680.6**
0.05	1654.0
0.10	1649.9
0.15	1647.8
0.20	1645.7
0.25	1644.3
0.30	1643.3
0.45	1638.8
0.55	1637.2
1.05	1631.9
2.30	1622.3
4.07	1610.1
9.07	1595.0
16.07	1571.3
25.07	1549.6
36.07	1528.1
49.07	1506.8
64.07	1487.1
81.07	1470.9
100.07	1453.3
121.07	1439.3
144.07	1427.6
180.07	1406.3
300.08	1375.6
520.08	1359.2
700.08	1349.7
720.17	1349.3

Tested By *MY* *Date* *9/1/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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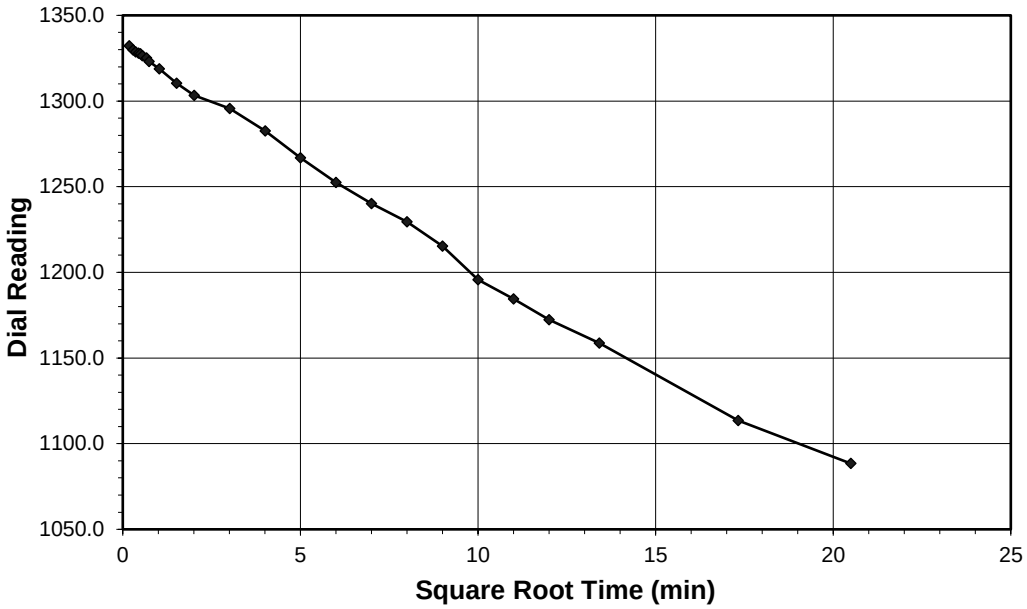
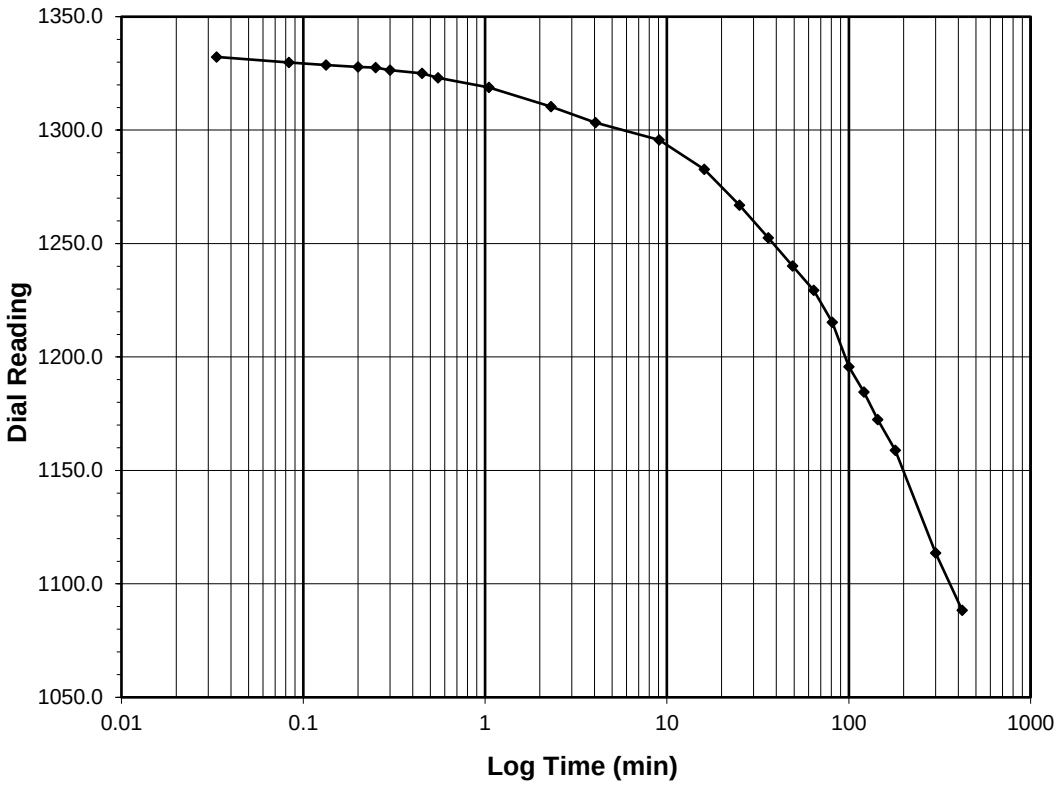
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	18.3'-20.1'
Project No.	R-2020-164-002	Sample No.	SPT06-1
Lab ID	R-2020-164-002-033	Visual Description	Gray Blue Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**1088.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/1/2020
Start Time		20:54:30

Elapsed Time (min)	Dial Reading (div)
Initial	**1349.3**
0.03	1332.3
0.08	1329.8
0.13	1328.6
0.20	1327.9
0.25	1327.5
0.30	1326.4
0.45	1325.1
0.55	1323.1
1.05	1318.8
2.30	1310.3
4.05	1303.3
9.05	1295.7
16.05	1282.6
25.05	1266.9
36.05	1252.5
49.05	1240.1
64.05	1229.4
81.05	1215.2
100.07	1195.7
121.07	1184.6
144.07	1172.4
180.07	1158.8
300.07	1113.5
420.12	1088.4

Tested By *MY* *Date* *9/1/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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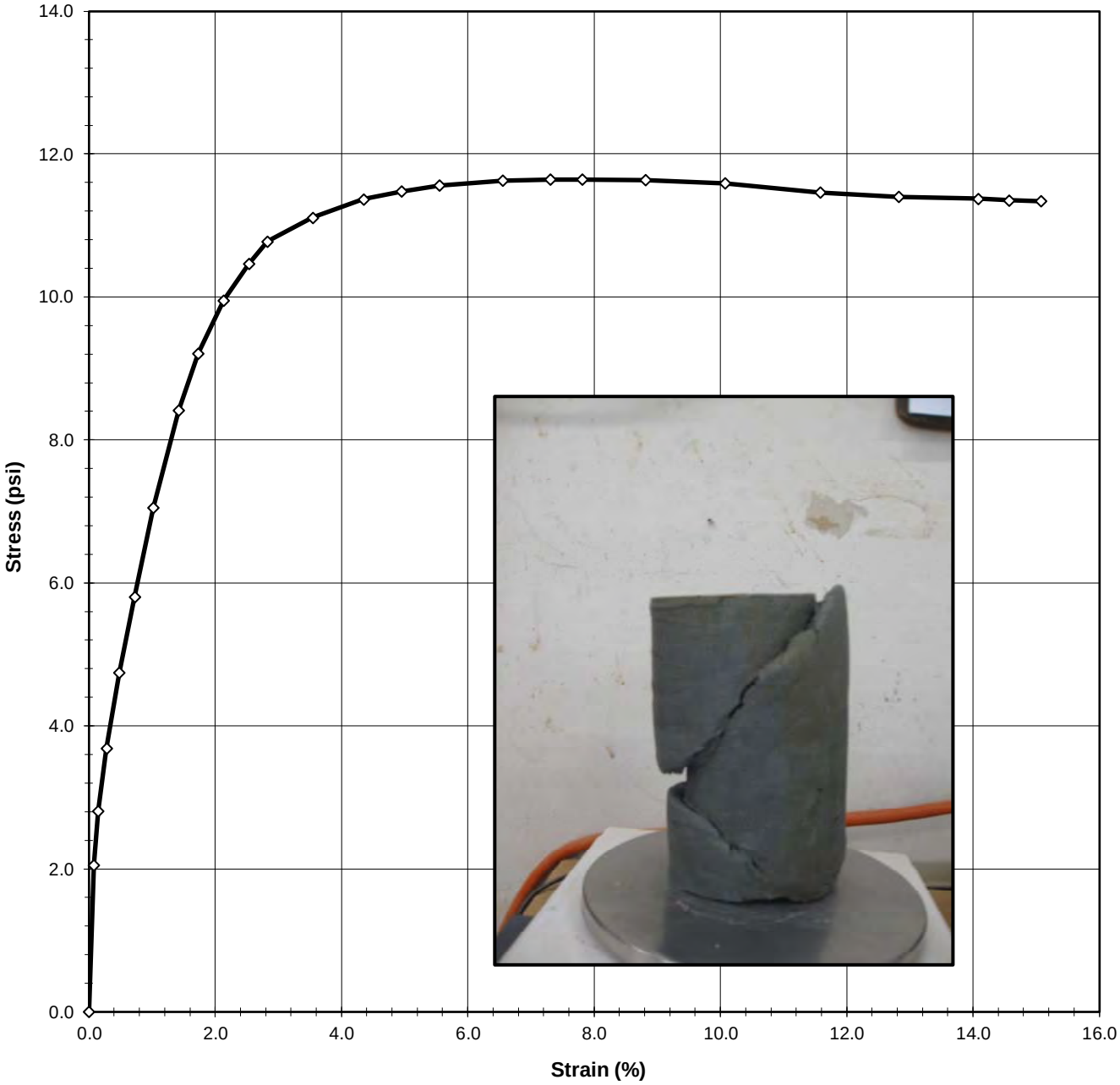
UNCONSOLIDATED UNDRAINED TRIAXIAL

ASTM D2850-15

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	18.3'-20.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-1
Lab ID:	R-2020-164-002-033	Visual:	Gray Clay

INITIAL CONFINING STRESS (psi) 10.1



Tested By MY Date 9/14/20 Input Checked By MPS Date 9/16/20

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UNCONSOLIDATED UNDRAINED TRIAXIAL

ASTM D2850-15

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	18.3'-20.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-1
Lab ID:	R-2020-164-002-033	Visual:	Gray Clay

INITIAL SAMPLE DIMENSIONS

Length 1 (in):	6.109	Top Dia. (in):	2.823
Length 2 (in):	6.146	Mid. Dia. (in)	2.855
Length 3 (in):	6.112	Bot. Dia. (in):	2.836
Avg.Length (in)	**6.122**	**Area (in^2):**	**6.326**

WATER CONTENT (AFTER TEST)

Total Weight of Sample (g):	1210.47
Tare No.:	TB-01
Weight of Tare & Wet Sample (g):	750.31
Weight of Tare & Dry Sample (g):	594.12
Weight of Tare (g):	136.15
% Moisture:	34.1

UNIT WEIGHT

Undisturbed Sample

Weight of Tube & Wet Sample (g):	1211.73	Sample Volume (cm^3):	634.6
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm^3):	1.91
Weight of Wet Sample (g):	1211.73	Unit Wet Weight (pcf):	119.14
Diameter (in):	2.84	Moisture Content (%):	34.1
Length (in):	6.12	Unit Dry Weight (pcf):	88.8
Length (cm):	15.55		

INITIAL CONFINING STRESS (psi)	**10.1**	Initial Dial Reading (mil)	244
ENDING CONFINING STRESS (psi)	**10.1**	Dial Reading Before Shearing (mil)	251

DEFORMATION (in)	*LOAD (lb)*	*ELAPSED TIME (min)*	*STRAIN (%)*	*STRESS (psi)*
0.000	13.7	0.0	0.0	0.000
0.005	26.7	0.08	0.1	2.055
0.009	31.5	0.15	0.1	2.810
0.017	37.0	0.28	0.3	3.685
0.029	43.8	0.48	0.5	4.746
0.044	50.6	0.73	0.7	5.802
0.062	58.7	1.03	1.0	7.055
0.087	67.7	1.43	1.4	8.418
0.106	73.0	1.73	1.7	9.210
0.130	78.0	2.13	2.1	9.953
0.155	81.6	2.53	2.5	10.465
0.173	83.8	2.85	2.8	10.778
0.217	86.5	3.55	3.5	11.109
0.266	88.8	4.35	4.3	11.368
0.303	90.0	4.97	5.0	11.476
0.339	91.1	5.57	5.6	11.561
0.401	92.4	6.57	6.6	11.629
0.447	93.1	7.33	7.3	11.645
0.478	93.6	7.83	7.8	11.644
0.539	94.4	8.85	8.8	11.635
0.616	95.2	10.10	10.1	11.589
0.708	95.7	11.60	11.6	11.461
0.784	96.4	12.85	12.8	11.401
0.861	97.4	14.12	14.1	11.373
0.891	97.7	14.62	14.6	11.352
0.922	98.1	15.12	15.1	11.340

Tested By MY Date 9/14/20 Input Checked By MPS Date 9/16/20

DCN: CT-S29 DATE: 7/28/16 REVISION: 3

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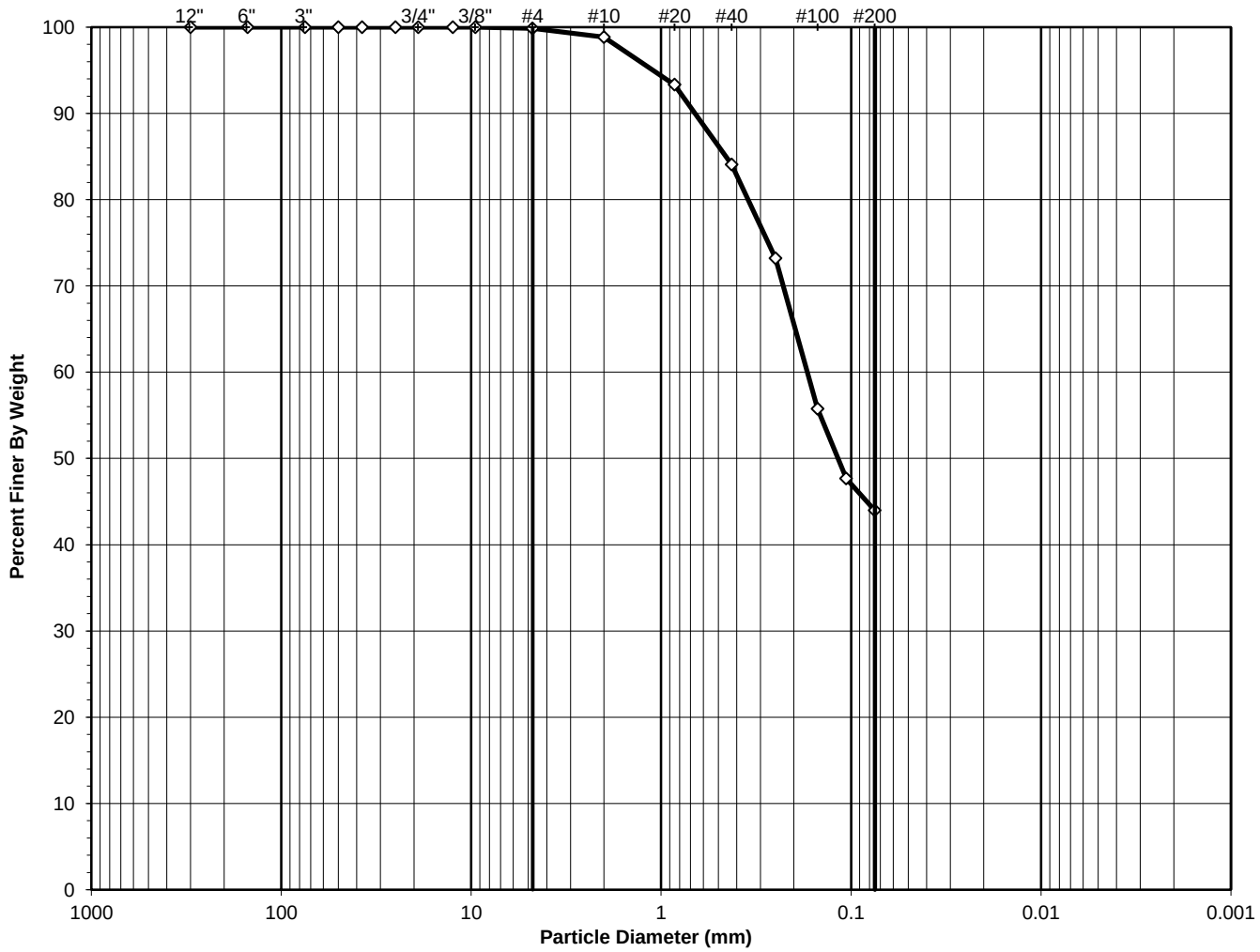
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1-22.1
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
SC, TESTED

D50 = 0.12

USCS Classification:
CLAYEY SAND

Tested By TB Date 9/16/20 Checked By GEM Date 9/17/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1-22.1
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	727	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	625.78	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	529.94	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	142.46	Weight of Tare (g):	NA
Weight of Water (g):	95.84	Weight of Water (g):	NA
Weight of Dry Soil (g):	387.48	Weight of Dry Soil (g):	NA
Moisture Content (%):	**24.7**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	387.48
Tare No. (Sub-Specimen)	727	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	625.78	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	142.46	Dry Weight of - 3/4" Sample (g):	387.48
Sub-Specimen Wet Weight (g):	483.32	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	387.48
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.62		0.16	0.16	99.84	**99.8**
#10	2	3.91		1.01	1.17	98.83	**98.8**
#20	0.85	21.35	(**)	5.51	6.68	93.32	**93.3**
#40	0.425	35.81		9.24	15.92	84.08	**84.1**
#60	0.25	42.12		10.87	26.79	73.21	**73.2**
#100	0.15	67.60		17.45	44.24	55.76	**55.8**
#140	0.106	31.39		8.10	52.34	47.66	**47.7**
#200	0.075	14.33		3.70	56.04	43.96	**44.0**
Pan	-	0.00		0.00	56.04	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By TB Date 9/16/20 Checked By GEM Date 9/17/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1-22.1
Project No.:	R-2020-164-002	Sample No.:	STP06-2
Lab ID:	R-2020-164-002-034	Soil Description:	GRAY LEAN CLAY

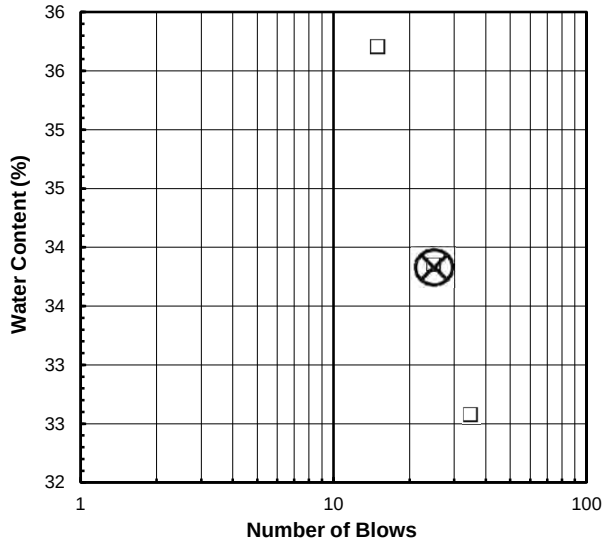
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		**1**	**2**	**3**	**M**
Tare Number:	TB-08	1	12	14	**U**
Wt. of Tare & Wet Sample (g):	544.13	22.07	21.80	21.54	**L**
Wt. of Tare & Dry Sample (g):	468.79	18.37	18.06	17.72	**T**
Weight of Tare (g):	135.60	7.01	7.01	7.02	**I**
Weight of Water (g):	75.3	3.7	3.7	3.8	**P**
Weight of Dry Sample (g):	333.2	11.4	11.1	10.7	**O**
Was As Received MC Preserved:	**Yes**				**I**
Moisture Content (%):	**22.6**	**32.6**	**33.8**	**35.7**	**N**
Number of Blows:		**35**	**25**	**15**	**T**

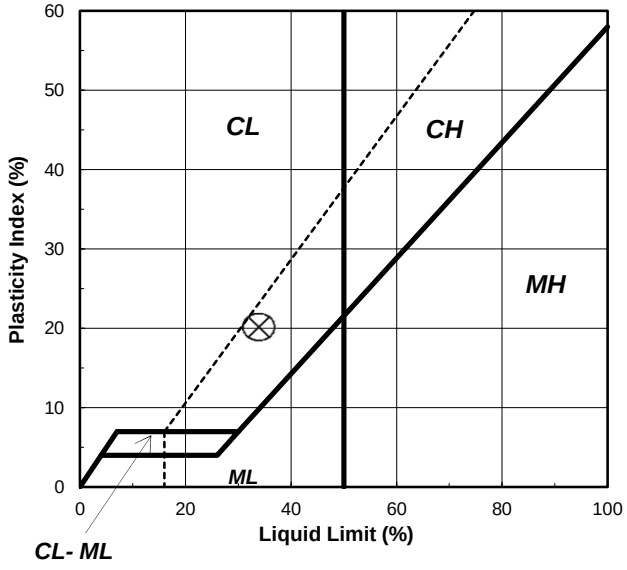
Plastic Limit Test	**1**	**2**	**Range**
Tare Number:	28	9	
Wt. of Tare & Wet Sample (g):	13.20	13.09	
Wt. of Tare & Dry Sample (g):	12.42	12.35	
Weight of Tare (g):	7.00	6.99	
Weight of Water (g):	0.8	0.7	
Weight of Dry Sample (g):	5.4	5.4	
Moisture Content (%):	**14.4**	**13.8**	**0.6**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**34**
Plastic Limit (%):	**14**
Plasticity Index (%):	**20**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By SS *Date* 9/16/20 *Checked By* GEM *Date* 9/17/20

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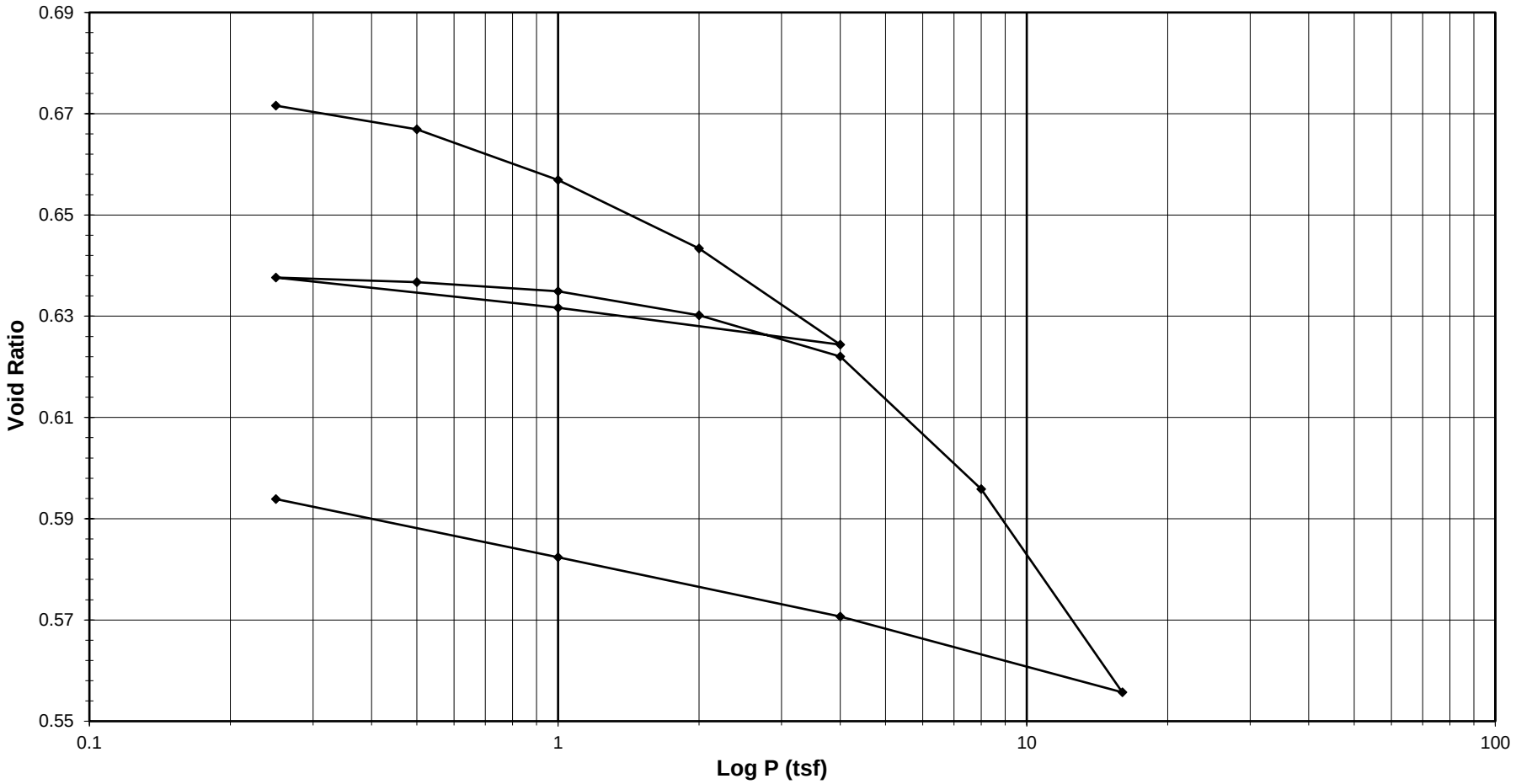
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By MY *Date* 8/28/2020 *Approved By* MPS *Date* 9/3/2020

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R409
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-08	TB-07
Wt. Tare & WS (g)	544.13	291.75
Wt. Tare & DS (g)	468.79	263.65
Wt. Water (g)	75.34	28.10
Wt. Tare (g)	135.60	133.92
Wt. DS (g)	333.19	129.73
Water Content (%)	22.61	21.66
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.9501
Sample Volume (cc)	80.44	76.42
Wt. Wet Sample + Ring (g)	373.43	372.20
Wt. of Ring (g)	214.70	214.70
Wt. of Wet Sample (g)	158.73	157.50
Wet Density (pcf)	123.13	128.60
Wet Density (g/cc)	1.97	2.06
Water Content (%)	22.61	21.66
Wt. of Dry Sample (g)	129.46	129.46
Dry Density (pcf)	100.42	105.70
Dry Density (g/cc)	1.61	1.69
Void Ratio	0.6777	0.5939
Saturation (%)	90.09	98.47
Specific Gravity	2.70	*Assumed*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume (cc)**	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.60937	**0.67767**
0.25	47.0	10.7	36.3	25.308	80.148	1.61523	**0.67159**
0.5	94.2	30.0	64.2	25.237	79.924	1.61976	**0.66691**
1	170.9	47.1	123.8	25.085	79.444	1.62955	**0.65690**
2	278.8	74.4	204.3	24.881	78.796	1.64294	**0.64339**
4	418.8	101.3	317.6	24.593	77.885	1.66215	**0.62440**
1	343.9	69.8	274.1	24.704	78.235	1.65473	**0.63169**
0.25	273.3	34.5	238.8	24.794	78.519	1.64874	**0.63762**
0.5	284.8	40.8	244.0	24.780	78.477	1.64962	**0.63674**
1	310.1	55.4	254.7	24.753	78.391	1.65143	**0.63494**
2	360.2	77.3	283.0	24.681	78.164	1.65624	**0.63020**
4	433.7	102.2	331.5	24.558	77.773	1.66455	**0.62206**
8	634.1	146.5	487.6	24.162	76.518	1.69186	**0.59587**
16	926.8	199.9	727.0	23.554	74.592	1.73554	**0.55571**
4	776.2	138.4	637.8	23.780	75.309	1.71901	**0.57067**
1	654.8	86.8	568.0	23.957	75.871	1.70629	**0.58238**
0.25	545.0	45.6	499.4	24.132	76.423	1.69396	**0.59390**

Tested By *MY* *Date* *8/28/2020* *Input Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

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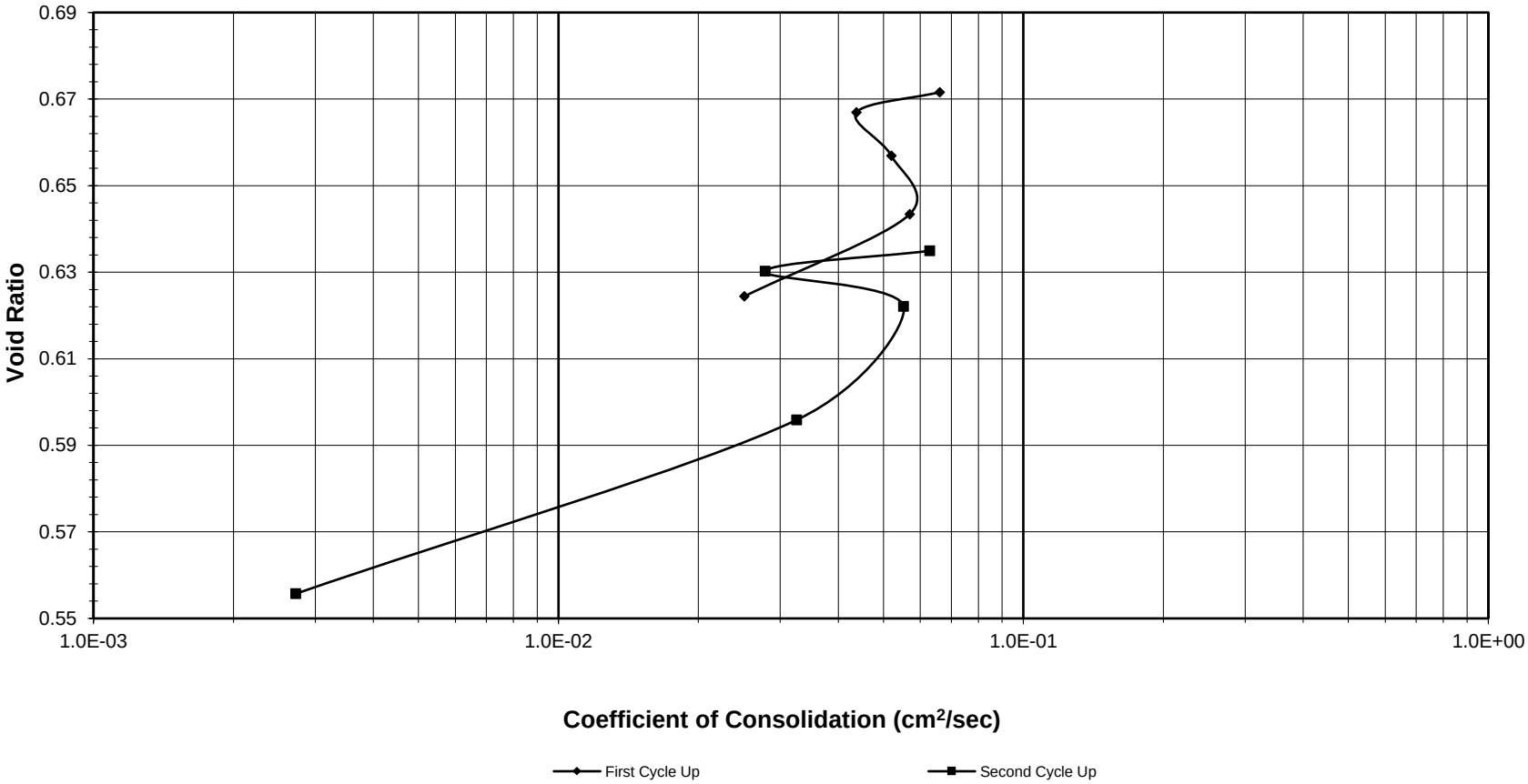
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By *MY* *Date* *8/28/2020* *Input Checked By* *GEM* *Date* *9/3/2020*

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2020 PROJECTS\Catlin\2020-164 Catlin - USACE Princeville\2020-164-002\[2020-164-002-034 GEOJAC-16TSF1 Cv.xlsm]STEP 1

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R409
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-08	TB-07
Wt. Tare & WS (g)	544.13	291.75
Wt. Tare & DS (g)	468.79	263.65
Wt. Water (g)	75.34	28.10
Wt. Tare (g)	135.60	133.92
Wt. DS (g)	333.19	129.73
Water Content (%)	22.61	21.66
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.950
Sample Volume (cc)	80.44	76.42
Wt. Wet Sample + Ring (g)	373.43	372.20
Wt. of Ring (g)	214.70	214.70
Wt. of Wet Sample (g)	158.73	157.50
Wet Density (pcf)	123.13	128.60
Wet Density (g/cc)	1.97	2.06
Water Content (%)	22.61	21.66
Wt. of Dry Sample (g)	129.46	129.46
Dry Density (pcf)	100.42	105.70
Dry Density (g/cc)	1.61	1.69
Void Ratio	0.6777	0.5939
Saturation (%)	90.09	98.47
Specific Gravity	*2.7*	*Assumed*
		Tested By MY

C_v Test Data Summary

Load Increment	**Dial Reading @ t_{50}**	**Machine Deflection**	**Corrected Dial Reading @ t_{50}**	**Sample Height @ t_{50}**	**Time t_{50}**	**C_v**
(tsf)	(div)	(div)	(div)	(cm)	(min.)	**(cm^2/sec)**
0 - 0.25	22.3	10.7	11.6	2.537	**0.08**	**0.06604**
0.25 - 0.5	73.5	30.0	43.4	2.529	**0.12**	**0.04375**
0.5 - 1.0	139.1	47.1	92.0	2.517	**0.10**	**0.05199**
1.0 - 2.0	237.5	74.4	163.1	2.499	**0.09**	**0.05694**
2.0 - 4.0	366.7	101.3	265.4	2.473	**0.20**	**0.02509**
4.0 - 1.0	NA	69.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	34.5	NA	NA	**NA**	**NA**
0.25 - 0.5	NA	40.8	NA	NA	**NA**	**NA**
0.5 - 1.0	303.9	55.4	248.4	2.477	**0.08**	**0.06295**
1.0 - 2.0	346.8	77.3	269.5	2.472	**0.18**	**0.02786**
2.0 - 4.0	408.5	102.2	306.2	2.462	**0.09**	**0.05529**
4.0 - 8.0	544.8	146.5	398.3	2.439	**0.15**	**0.03255**
8.0 - 16.0	848.2	199.9	648.4	2.375	**1.70**	**0.00272**
16.0 - 4.0	NA	138.4	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	86.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	45.6	NA	NA	**NA**	**NA**

Tested By MY *Date* 8/28/2020 *Input Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

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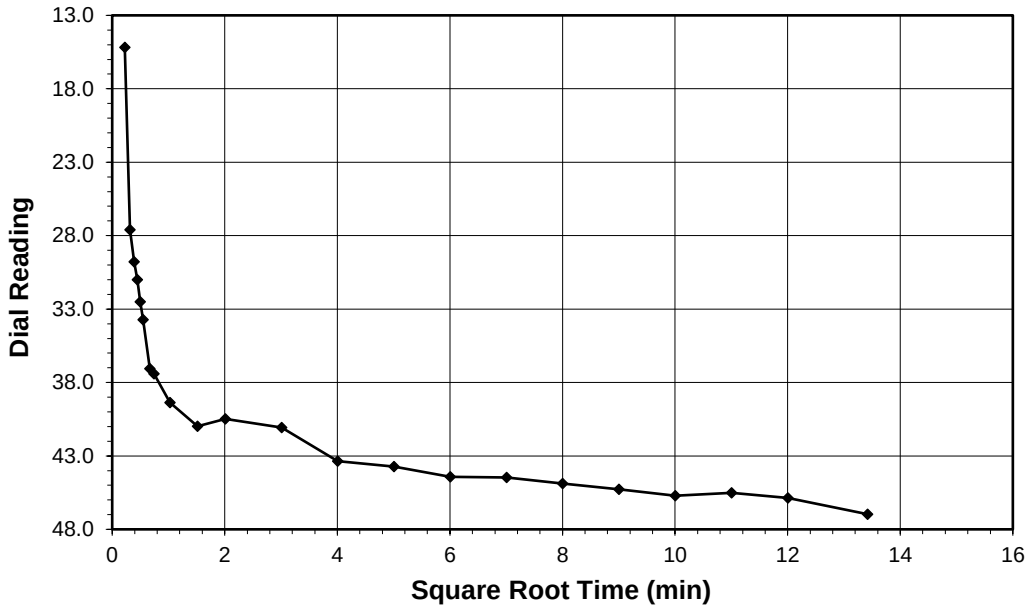
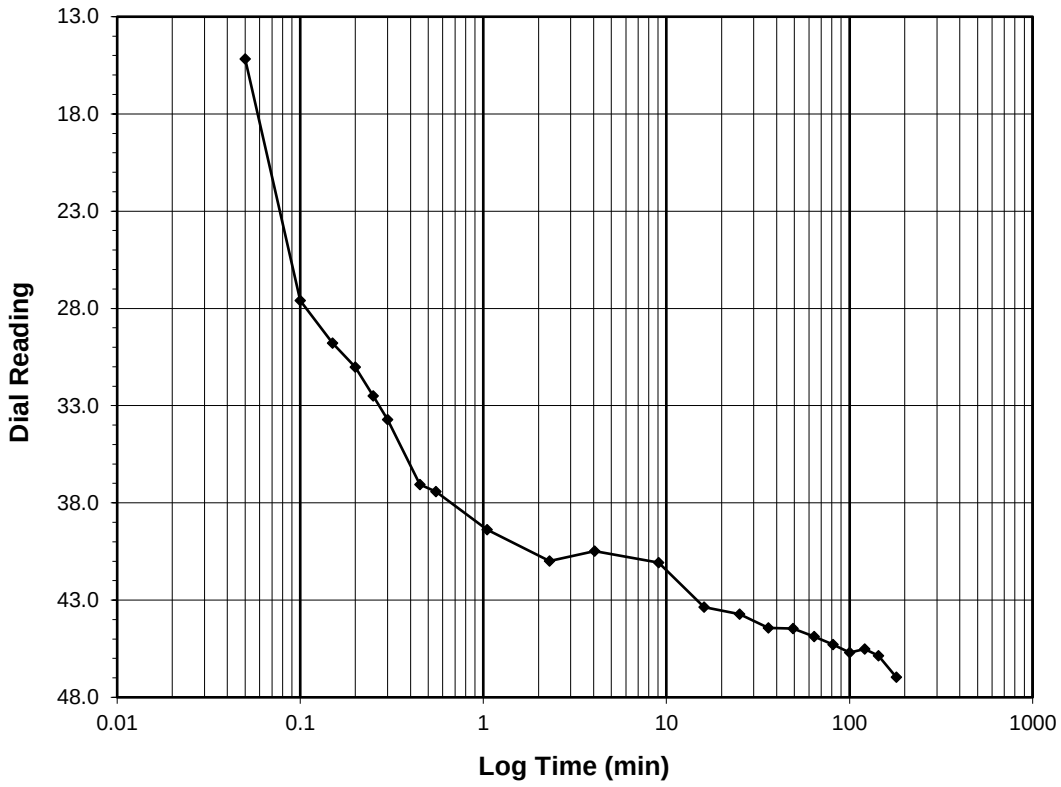
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**47.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/28/2020
Start Time		13:24:40

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	15.2
0.10	27.6
0.15	29.8
0.20	31.0
0.25	32.5
0.30	33.7
0.45	37.1
0.55	37.4
1.05	39.4
2.30	41.0
4.05	40.5
9.07	41.1
16.07	43.4
25.07	43.7
36.07	44.4
49.07	44.5
64.07	44.9
81.07	45.3
100.07	45.7
121.07	45.5
144.07	45.9
180.07	47.0

Tested By MY *Date* 8/28/2020 *Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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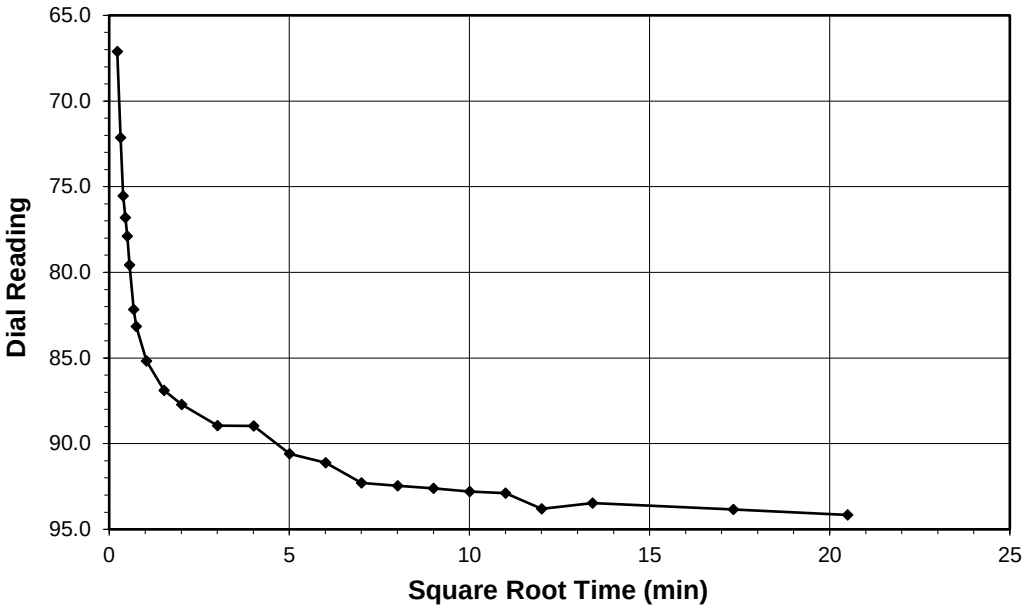
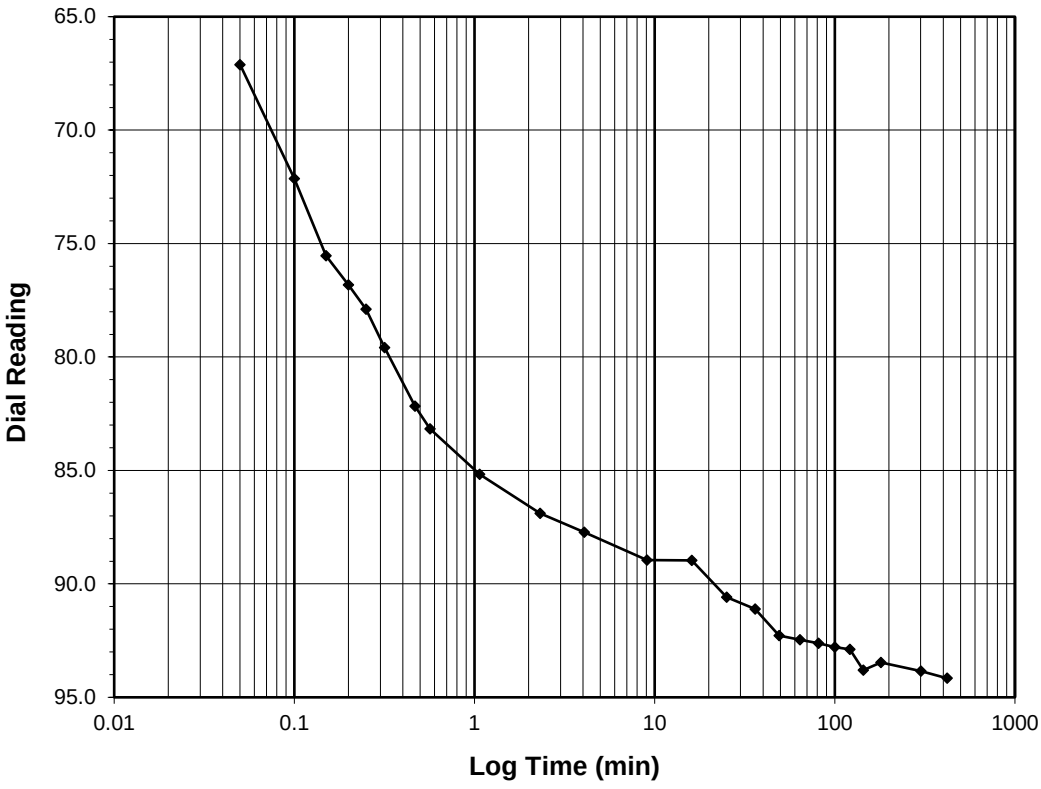
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**94.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/28/2020
Start Time		16:26:24

Elapsed Time (min)	Dial Reading (div)
Initial	**47.0**
0.05	67.1
0.10	72.1
0.15	75.5
0.20	76.8
0.25	77.9
0.32	79.6
0.47	82.2
0.57	83.2
1.07	85.2
2.32	86.9
4.07	87.7
9.07	88.9
16.07	89.0
25.07	90.6
36.07	91.1
49.07	92.3
64.07	92.5
81.08	92.6
100.08	92.8
121.08	92.9
144.08	93.8
180.08	93.5
300.08	93.8
420.10	94.2

Tested By MY *Date* 8/28/2020 *Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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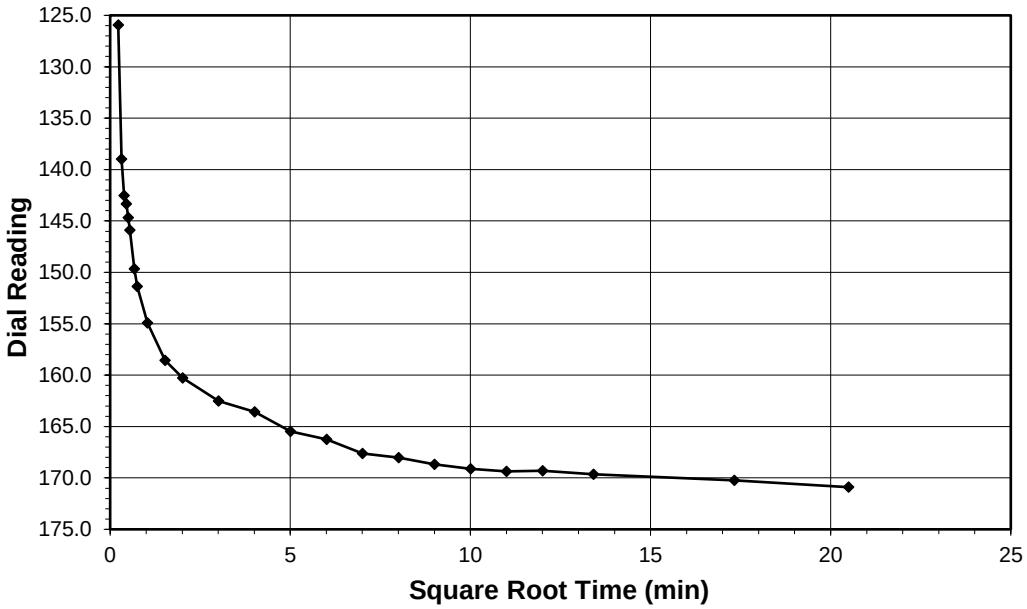
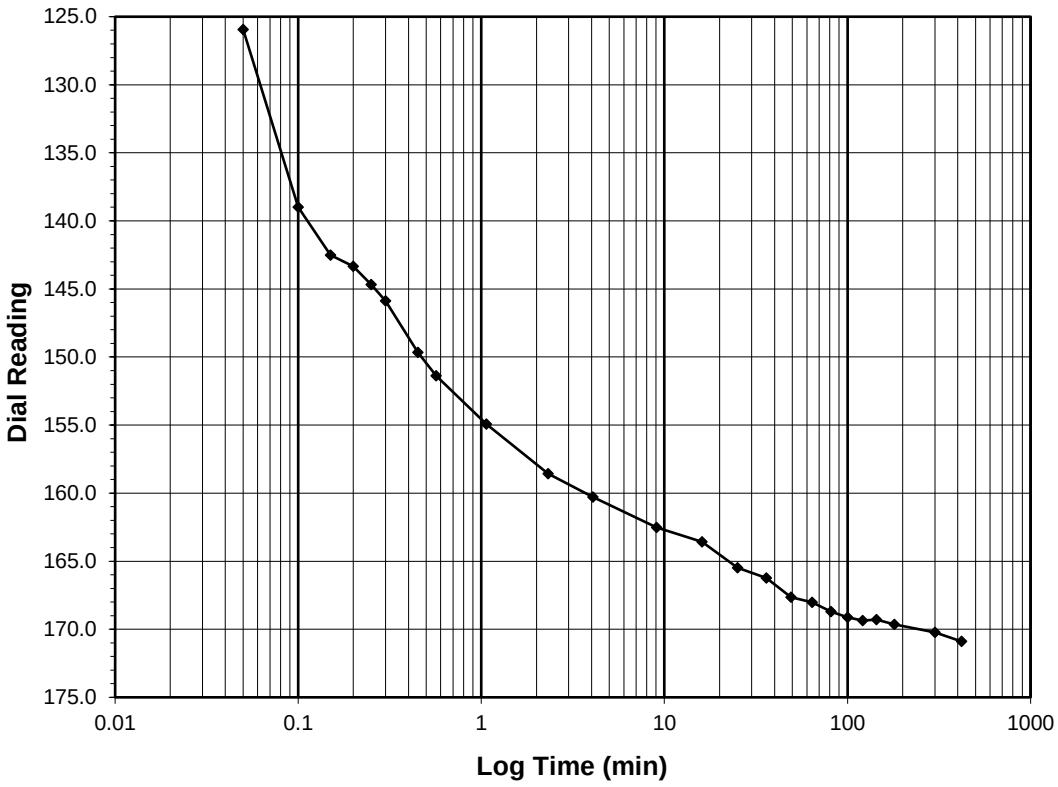
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)	**0.5-1.0**
Final Reading (div)	**170.9**
Consolidometer No.	**R409**
1 Division (in)	0.0001
Start Date	8/28/2020
Start Time	23:26:30

Elapsed Time (min)	Dial Reading (div)
Initial	**94.2**
0.05	125.9
0.10	139.0
0.15	142.5
0.20	143.3
0.25	144.7
0.30	145.9
0.45	149.7
0.57	151.4
1.07	154.9
2.32	158.6
4.07	160.3
9.07	162.5
16.07	163.6
25.07	165.5
36.07	166.2
49.07	167.6
64.07	168.0
81.07	168.7
100.07	169.1
121.07	169.4
144.07	169.3
180.07	169.6
300.07	170.2
420.08	170.9

Tested By *MY* *Date* *8/28/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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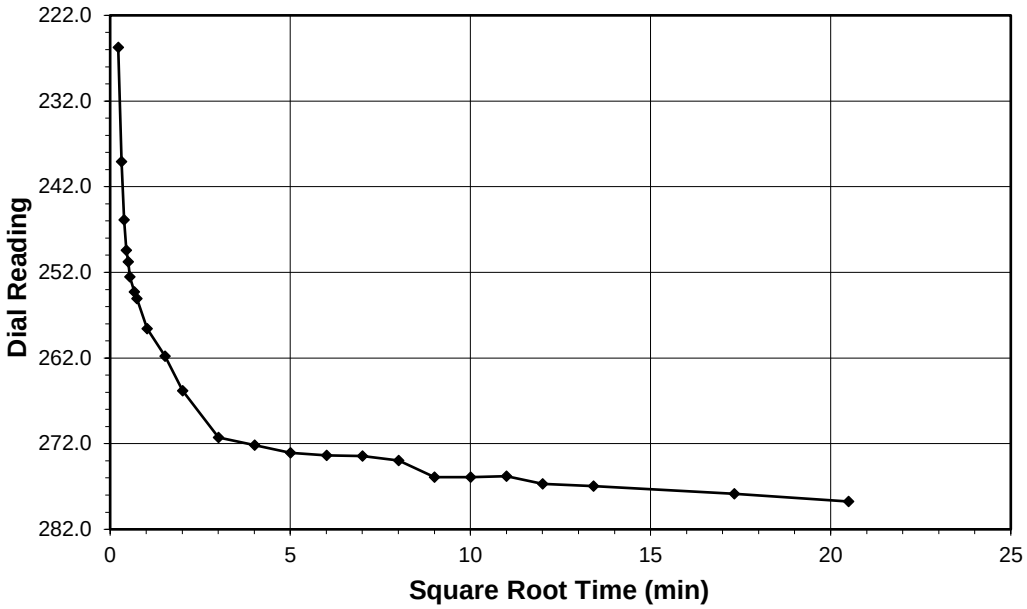
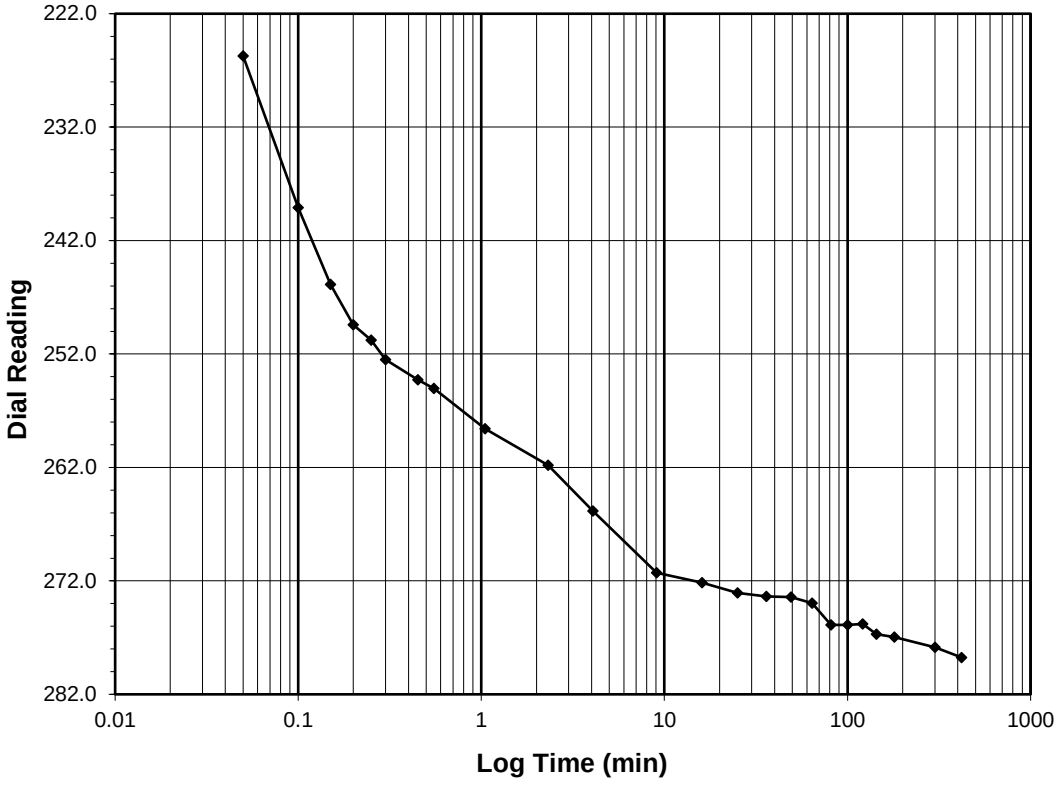
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**278.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/29/2020
Start Time		6:26:35

Elapsed Time (min)	Dial Reading (div)
Initial	**170.9**
0.05	225.7
0.10	239.1
0.15	245.9
0.20	249.4
0.25	250.8
0.30	252.5
0.45	254.3
0.55	255.0
1.05	258.6
2.32	261.8
4.07	265.8
9.07	271.3
16.07	272.2
25.07	273.1
36.07	273.4
49.07	273.4
64.07	274.0
81.07	275.9
100.07	275.9
121.07	275.8
144.07	276.7
180.07	277.0
300.07	277.9
420.07	278.8

Tested By *MY* *Date* *8/29/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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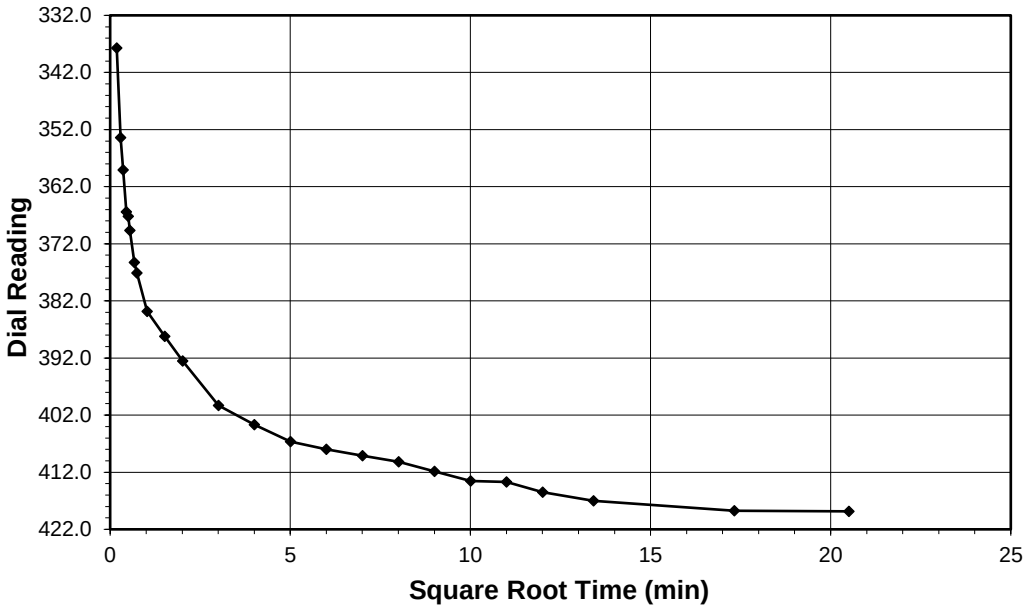
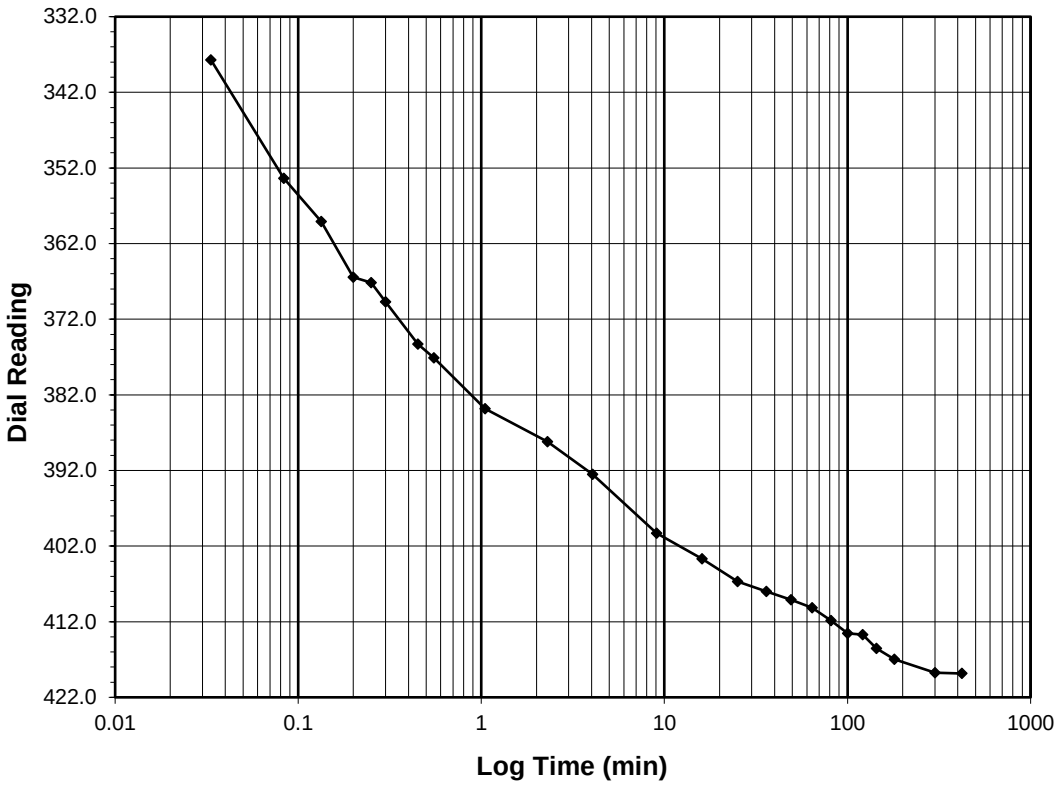
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)	**2.0-4.0**
Final Reading (div)	**418.8**
Consolidometer No.	**R409**
1 Division (in)	0.0001
Start Date	8/29/2020
Start Time	13:26:39

Elapsed Time (min)	Dial Reading (div)
Initial	**278.8**
0.03	337.7
0.08	353.4
0.13	359.1
0.20	366.4
0.25	367.2
0.30	369.7
0.45	375.3
0.55	377.1
1.05	383.8
2.30	388.2
4.05	392.5
9.05	400.3
16.05	403.7
25.05	406.7
36.05	408.0
49.05	409.1
64.07	410.1
81.07	411.9
100.07	413.5
121.07	413.7
144.07	415.5
180.07	417.0
300.07	418.8
420.48	418.8

Tested By *MY* *Date* *8/29/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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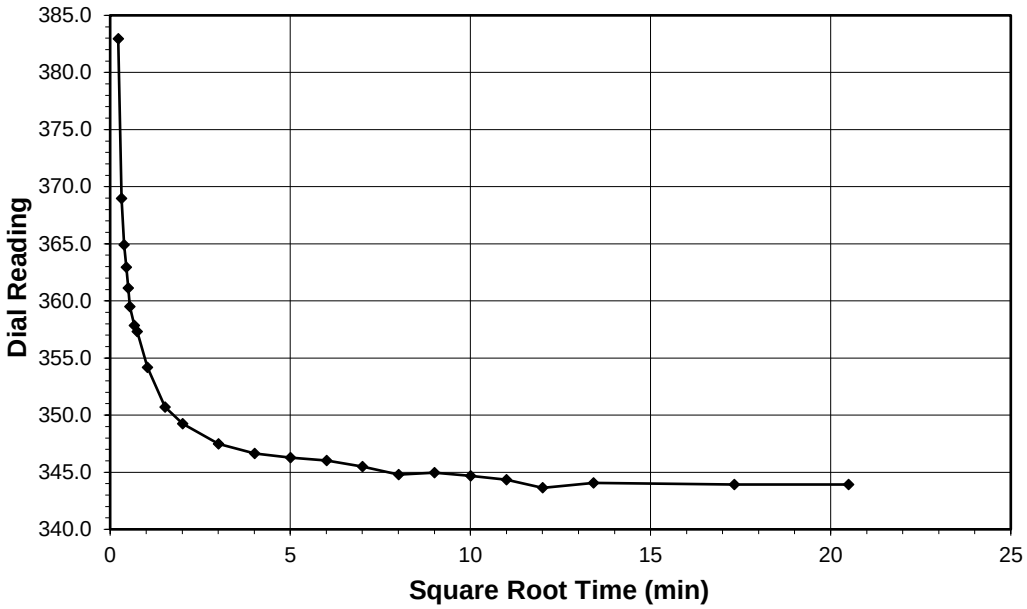
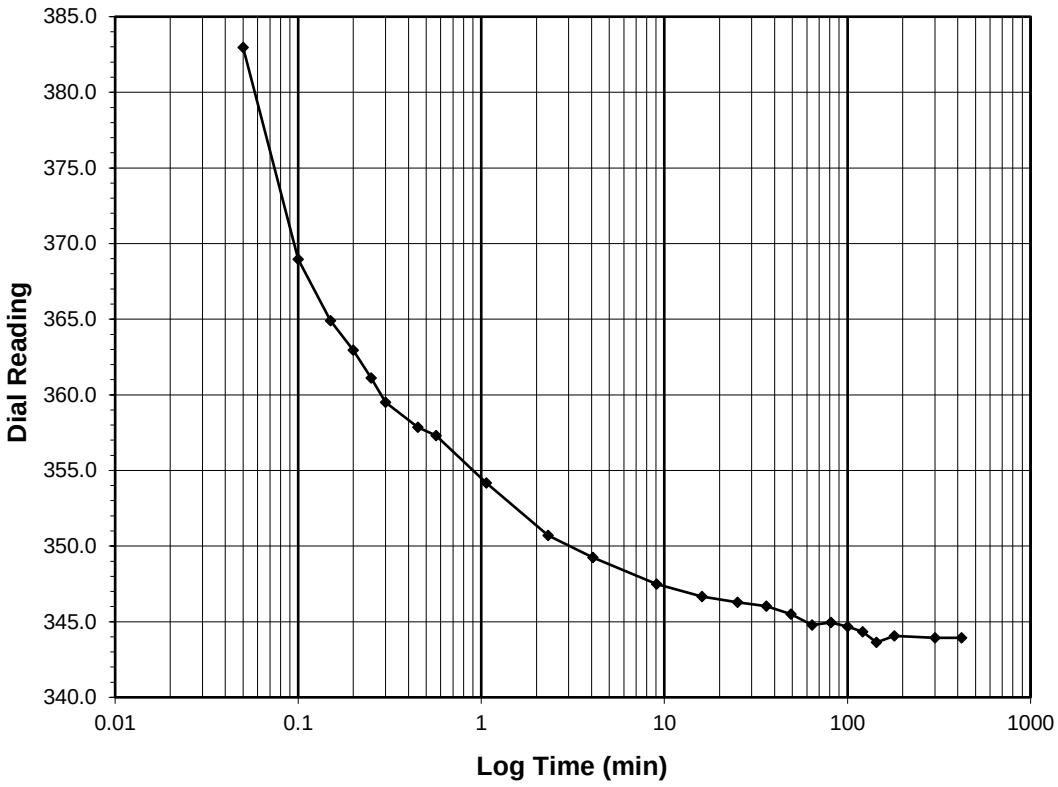
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**343.9**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/29/2020
Start Time		20:27:09

Elapsed Time (min)	Dial Reading (div)
Initial	**418.8**
0.05	383.0
0.10	369.0
0.15	364.9
0.20	363.0
0.25	361.1
0.30	359.5
0.45	357.8
0.57	357.3
1.07	354.2
2.32	350.7
4.07	349.2
9.07	347.5
16.07	346.7
25.07	346.3
36.07	346.0
49.07	345.5
64.07	344.8
81.07	345.0
100.07	344.7
121.07	344.3
144.07	343.6
180.07	344.1
300.07	343.9
420.00	343.9

Tested By *MY* *Date* *8/29/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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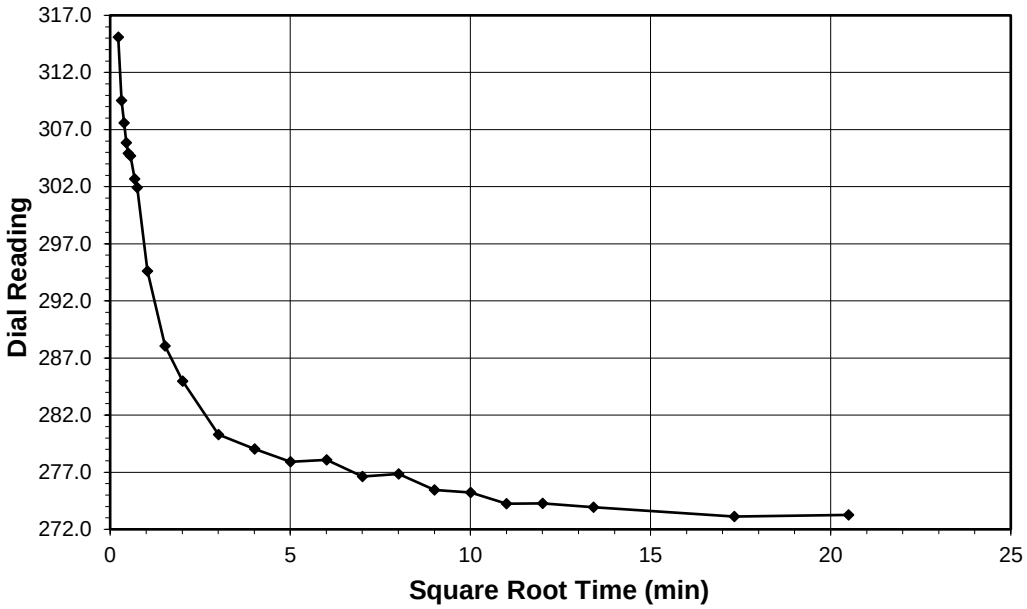
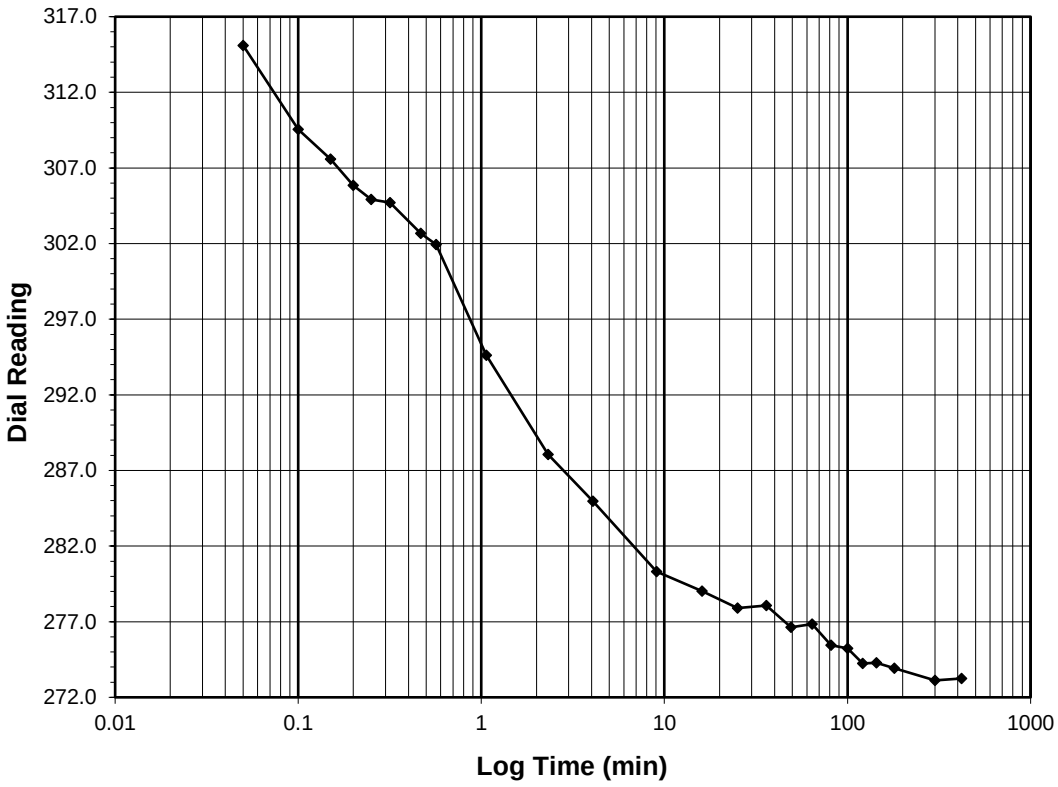
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**273.3**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/30/2020
Start Time		3:27:09

Elapsed Time (min)	Dial Reading (div)
Initial	**343.9**
0.05	315.1
0.10	309.6
0.15	307.6
0.20	305.9
0.25	304.9
0.32	304.7
0.47	302.7
0.57	301.9
1.07	294.6
2.32	288.1
4.07	285.0
9.07	280.3
16.07	279.0
25.07	277.9
36.07	278.1
49.07	276.6
64.07	276.9
81.07	275.4
100.07	275.2
121.07	274.2
144.07	274.3
180.07	273.9
300.08	273.1
420.05	273.3

Tested By *MY* *Date* *8/30/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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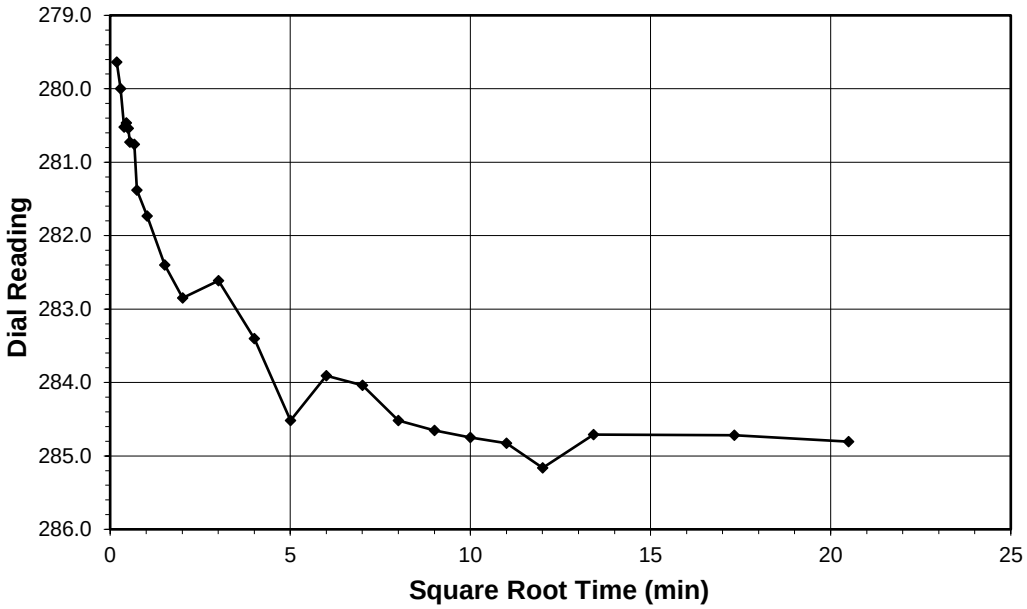
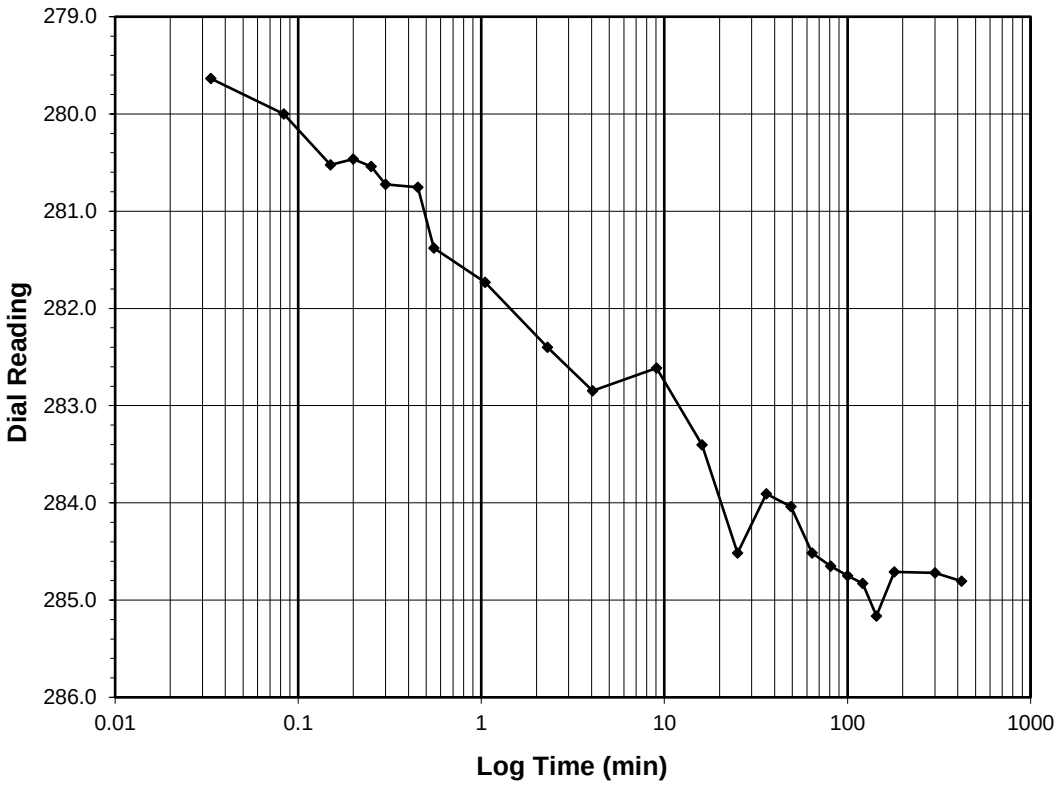
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**284.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/30/2020
Start Time		10:27:12

Elapsed Time (min)	Dial Reading (div)
Initial	**273.3**
0.03	279.6
0.08	280.0
0.15	280.5
0.20	280.5
0.25	280.5
0.30	280.7
0.45	280.8
0.55	281.4
1.05	281.7
2.30	282.4
4.05	282.8
9.05	282.6
16.05	283.4
25.05	284.5
36.05	283.9
49.05	284.0
64.05	284.5
81.05	284.7
100.05	284.7
121.05	284.8
144.05	285.2
180.05	284.7
300.05	284.7
420.02	284.8

Tested By *MY* *Date* *8/30/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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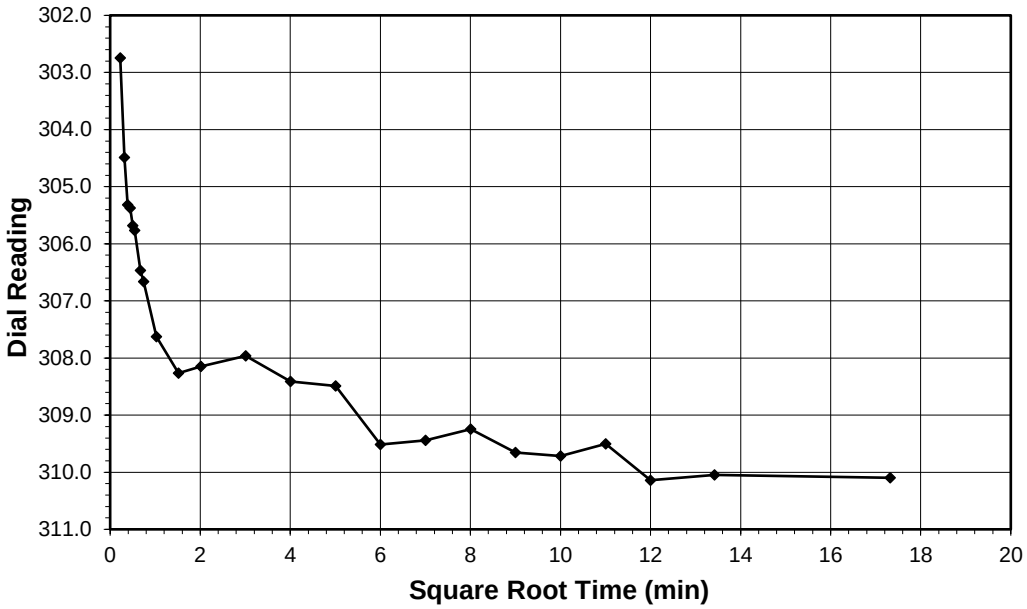
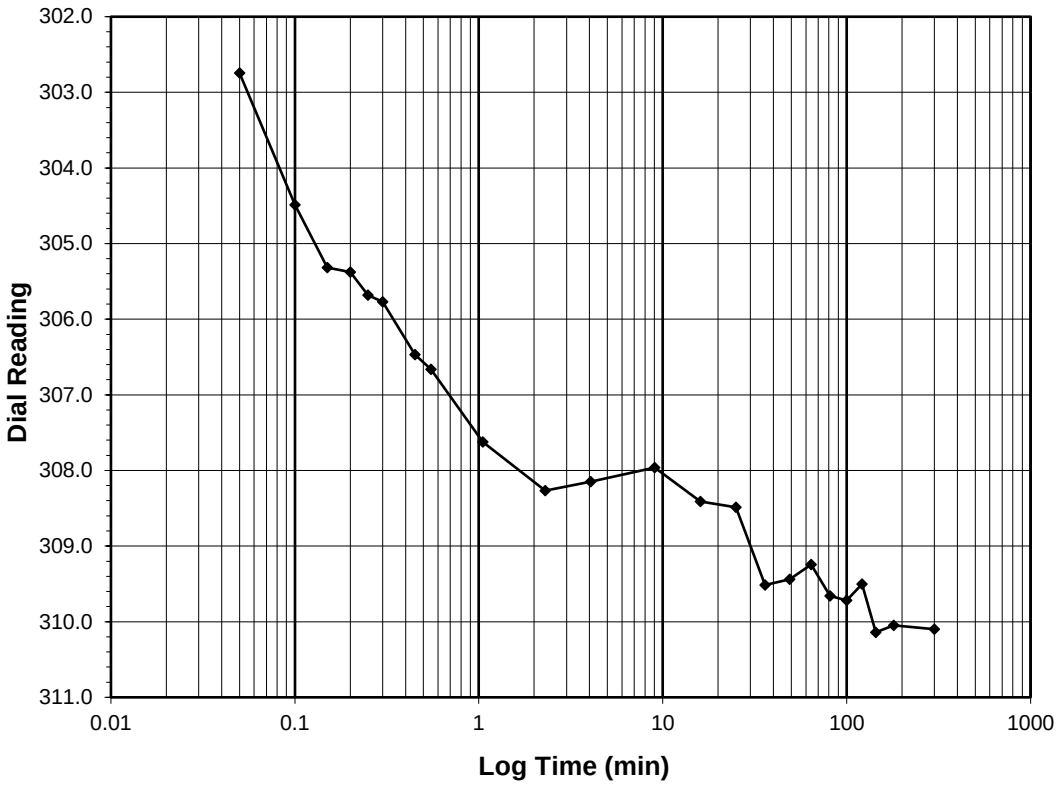
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**310.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/30/2020
Start Time		17:27:14

Elapsed Time (min)	Dial Reading (div)
Initial	**284.8**
0.05	302.7
0.10	304.5
0.15	305.3
0.20	305.4
0.25	305.7
0.30	305.8
0.45	306.5
0.55	306.7
1.05	307.6
2.30	308.3
4.05	308.1
9.05	308.0
16.05	308.4
25.05	308.5
36.05	309.5
49.05	309.4
64.05	309.2
81.05	309.7
100.05	309.7
121.05	309.5
144.07	310.1
180.07	310.0
300.07	310.1

Tested By MY *Date* 8/30/2020 *Checked By* GEM *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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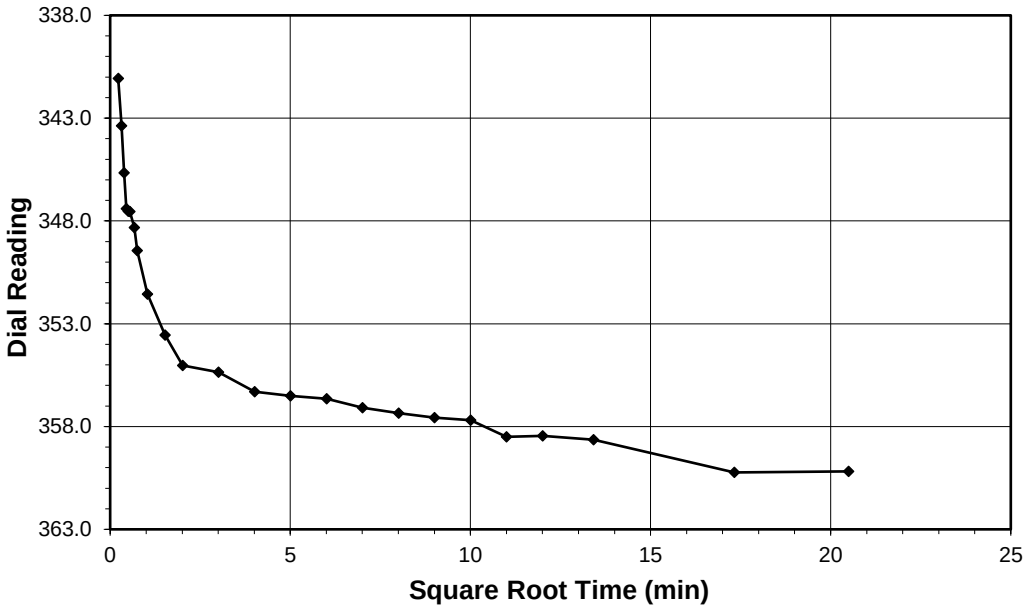
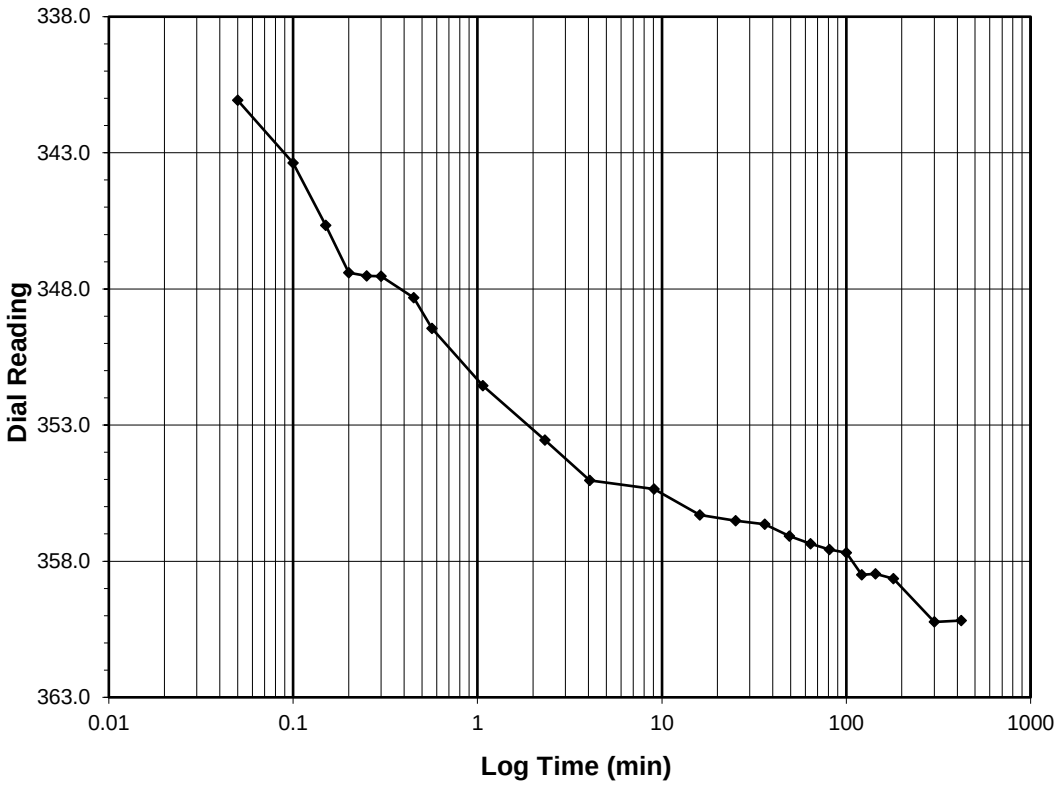
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**360.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		0:27:20

Elapsed Time (min)	Dial Reading (div)
Initial	**310.1**
0.05	341.1
0.10	343.4
0.15	345.7
0.20	347.4
0.25	347.5
0.30	347.5
0.45	348.3
0.57	349.4
1.07	351.6
2.32	353.6
4.07	355.0
9.07	355.4
16.07	356.3
25.07	356.5
36.07	356.6
49.07	357.1
64.07	357.4
81.07	357.6
100.07	357.7
121.07	358.5
144.07	358.5
180.07	358.6
300.07	360.2
420.03	360.2

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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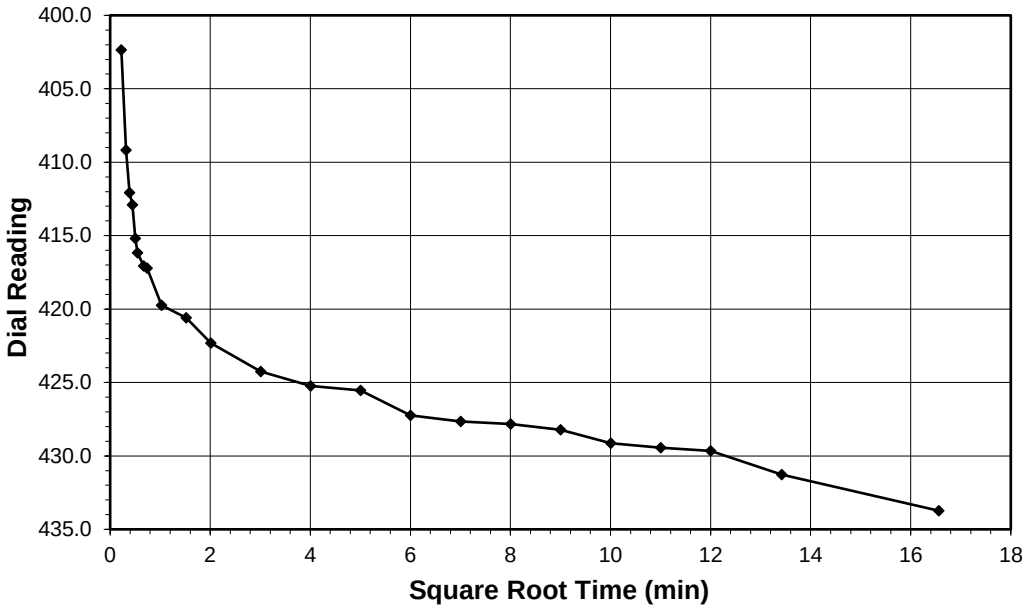
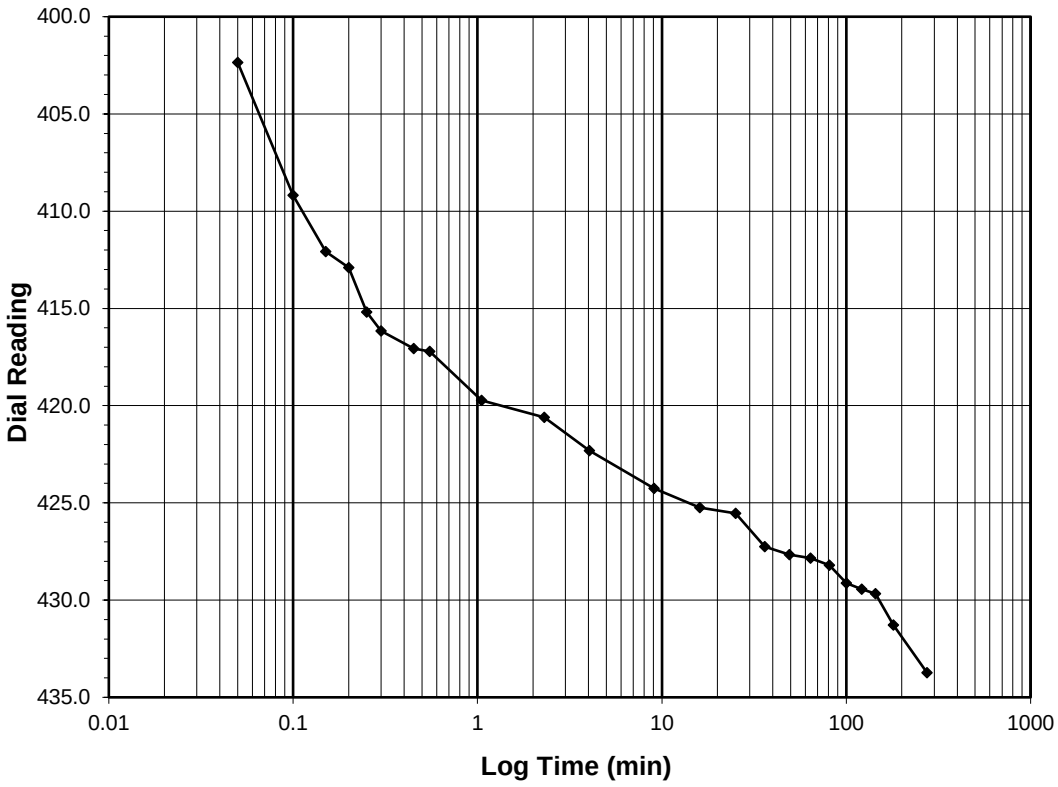
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**433.7**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		7:27:22

Elapsed Time (min)	Dial Reading (div)
Initial	**360.2**
0.05	402.4
0.10	409.2
0.15	412.1
0.20	412.9
0.25	415.2
0.30	416.2
0.45	417.1
0.55	417.2
1.05	419.7
2.30	420.6
4.05	422.3
9.07	424.2
16.05	425.2
25.07	425.5
36.07	427.2
49.07	427.7
64.07	427.8
81.07	428.2
100.07	429.1
121.07	429.4
144.07	429.7
180.07	431.3
274.38	433.7

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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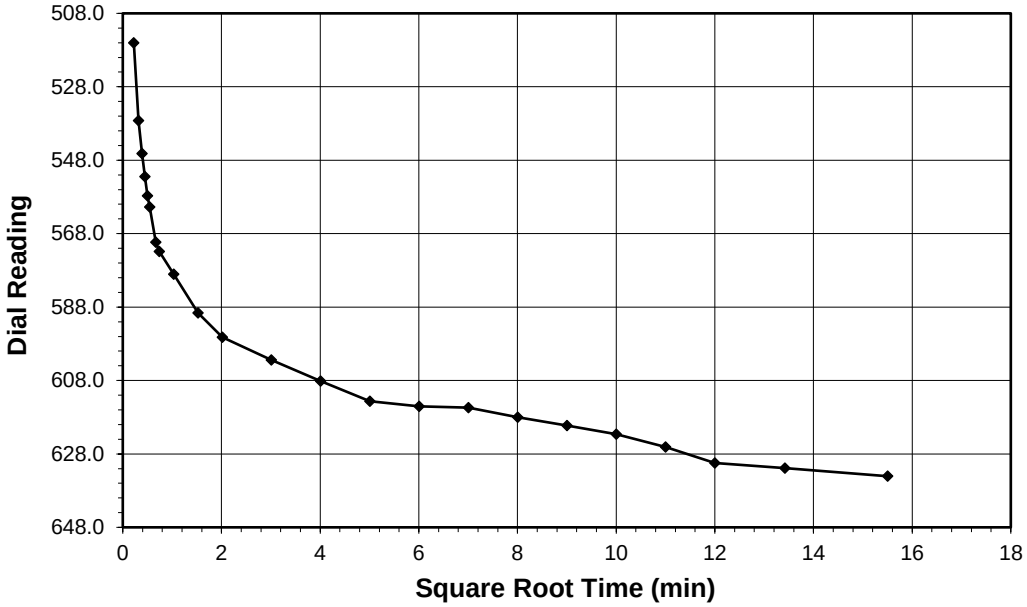
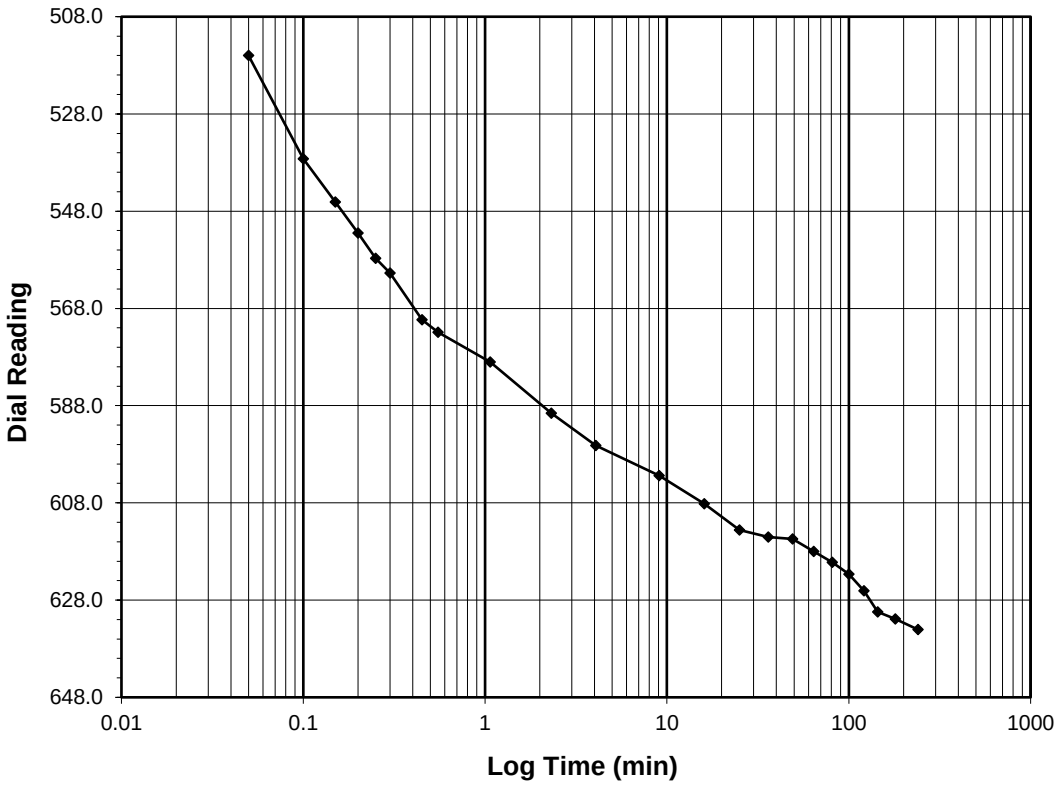
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**634.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		12:01:45

Elapsed Time (min)	Dial Reading (div)
Initial	**433.7**
0.05	516.0
0.10	537.2
0.15	546.1
0.20	552.5
0.25	557.7
0.30	560.7
0.45	570.3
0.55	572.9
1.07	579.0
2.32	589.6
4.07	596.2
9.07	602.4
16.07	608.2
25.07	613.6
36.07	615.1
49.07	615.4
64.07	618.0
81.07	620.2
100.07	622.7
121.07	626.1
144.07	630.4
180.07	631.9
240.43	634.1

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2020 PROJECTS\Catlin\2020-164 Catlin - USACE Princeville\2020-164-002\[2020-164-002-034 GEOJAC-16TSF1 Cv.xlsm]STEP 1

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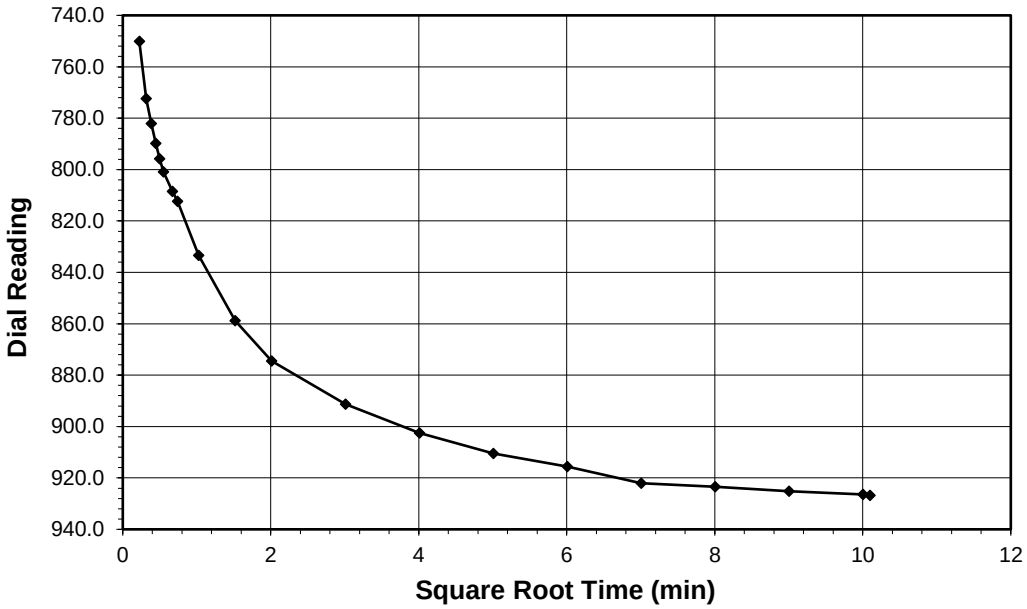
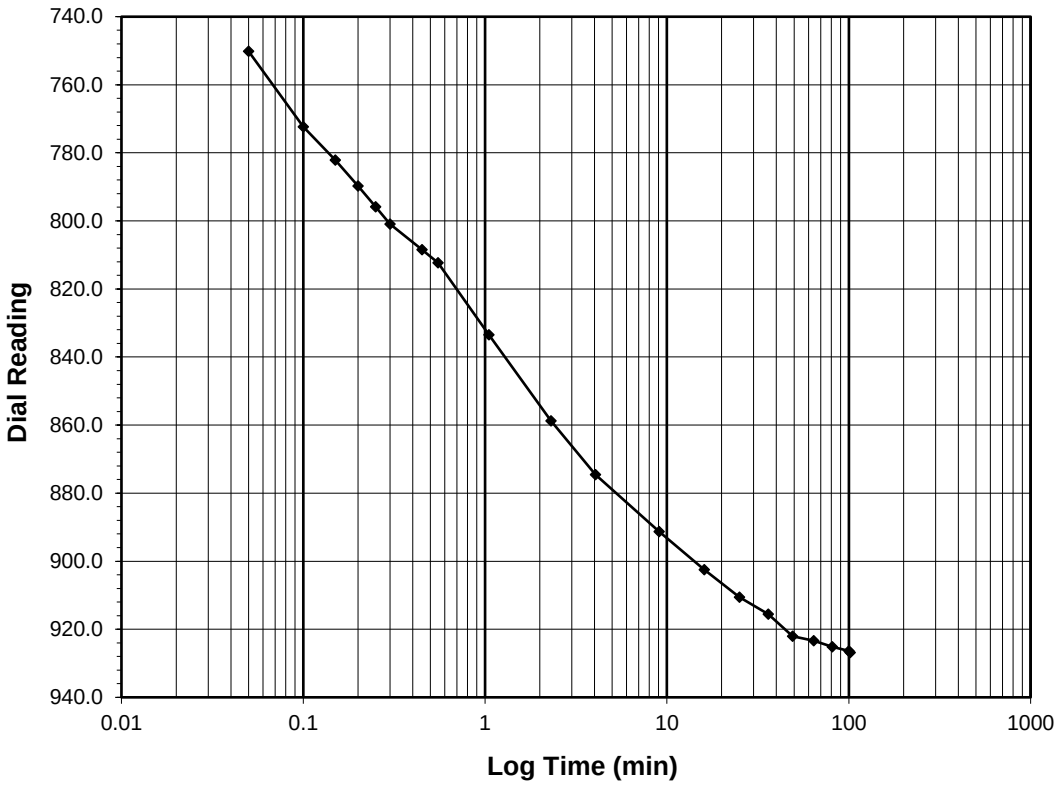
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**926.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		16:02:12

Elapsed Time (min)	Dial Reading (div)
Initial	**634.1**
0.05	750.2
0.10	772.4
0.15	782.2
0.20	789.8
0.25	795.8
0.30	800.9
0.45	808.4
0.55	812.3
1.05	833.5
2.30	858.8
4.05	874.5
9.07	891.3
16.07	902.5
25.07	910.5
36.07	915.6
49.07	922.1
64.07	923.4
81.07	925.2
100.07	926.4
101.98	926.8

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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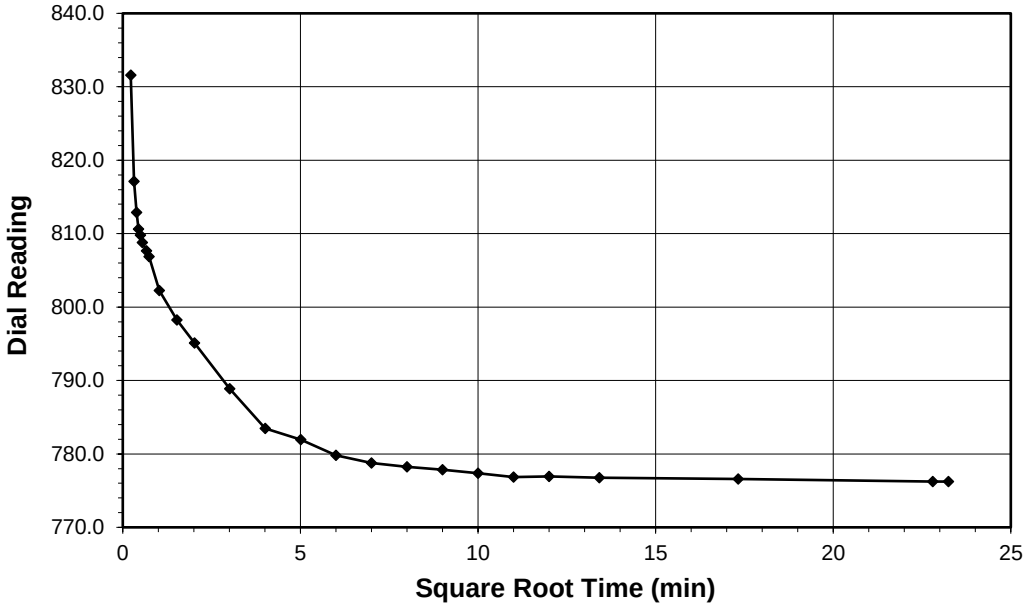
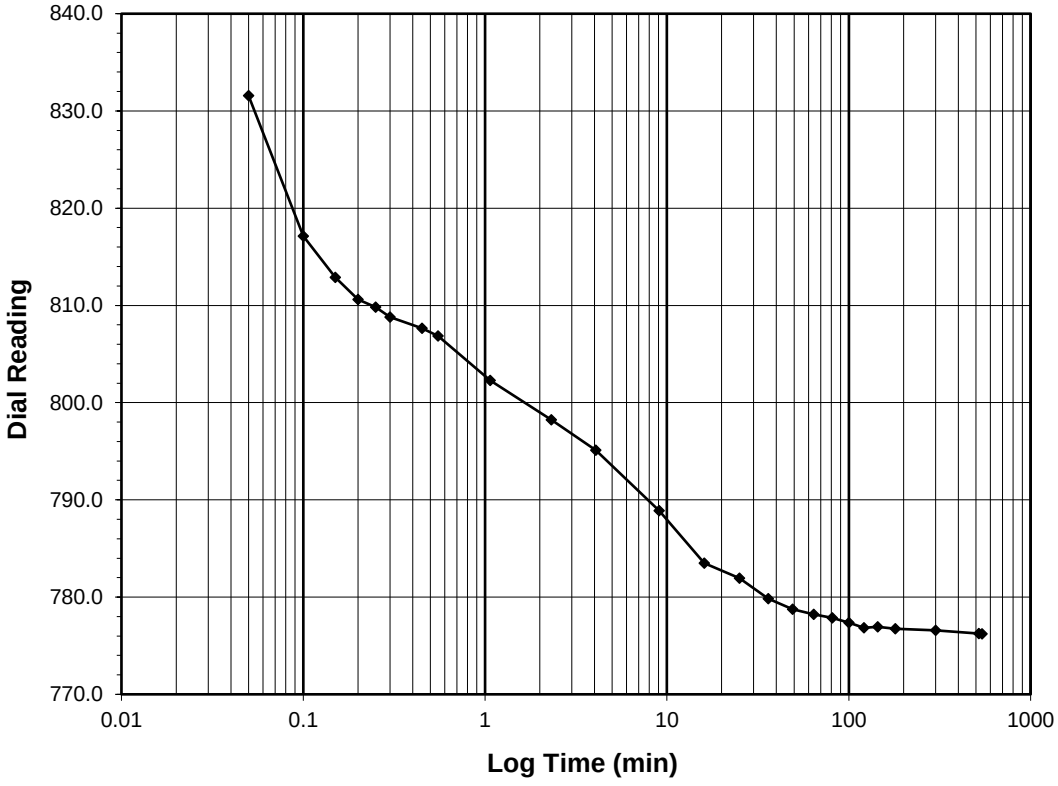
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**776.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		8/31/2020
Start Time		17:44:11

Elapsed Time (min)	Dial Reading (div)
Initial	**926.8**
0.05	831.6
0.10	817.1
0.15	812.9
0.20	810.6
0.25	809.8
0.30	808.8
0.45	807.7
0.55	806.9
1.07	802.3
2.32	798.2
4.07	795.1
9.07	788.9
16.07	783.5
25.07	781.9
36.07	779.8
49.07	778.7
64.07	778.2
81.07	777.9
100.07	777.4
121.07	776.9
144.07	776.9
180.07	776.7
300.07	776.6
520.07	776.3
540.33	776.2

Tested By *MY* *Date* *8/31/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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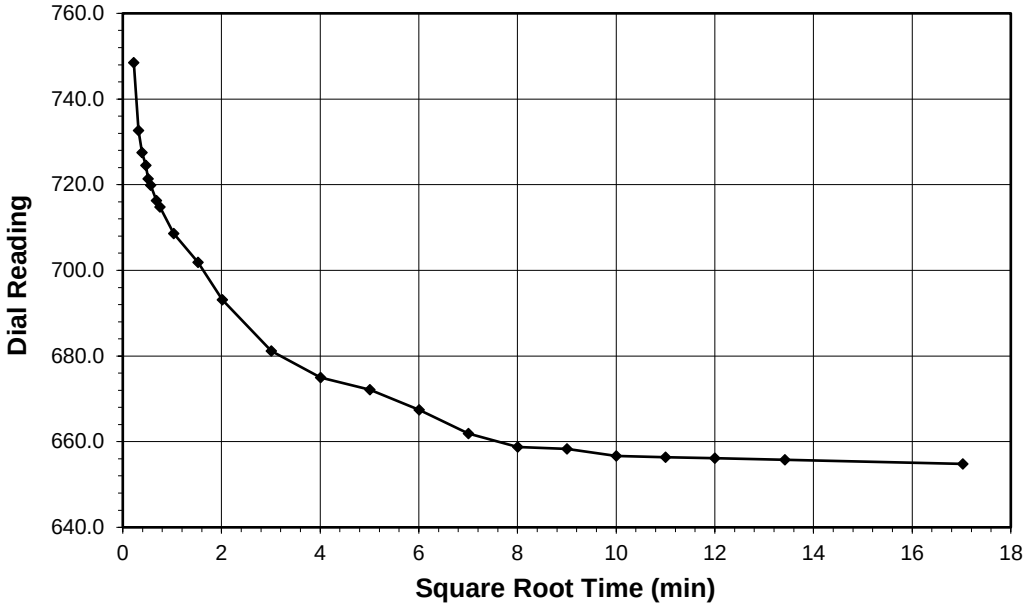
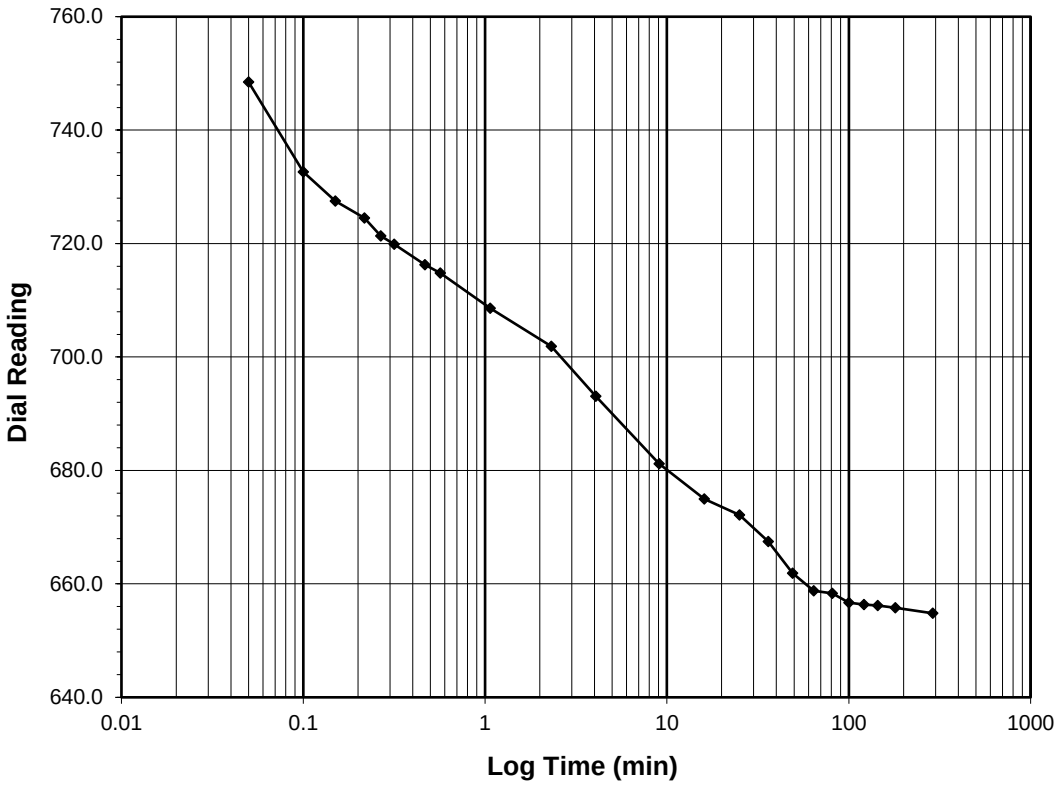
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**654.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/1/2020
Start Time		2:44:31

Elapsed Time (min)	Dial Reading (div)
Initial	**776.2**
0.05	748.5
0.10	732.6
0.15	727.5
0.22	724.5
0.27	721.4
0.32	719.9
0.47	716.3
0.57	714.8
1.07	708.6
2.32	701.9
4.07	693.1
9.07	681.2
16.07	675.0
25.07	672.1
36.07	667.5
49.07	661.9
64.07	658.8
81.07	658.3
100.07	656.7
121.08	656.4
144.08	656.2
180.08	655.8
289.93	654.8

Tested By *MY* *Date* *9/1/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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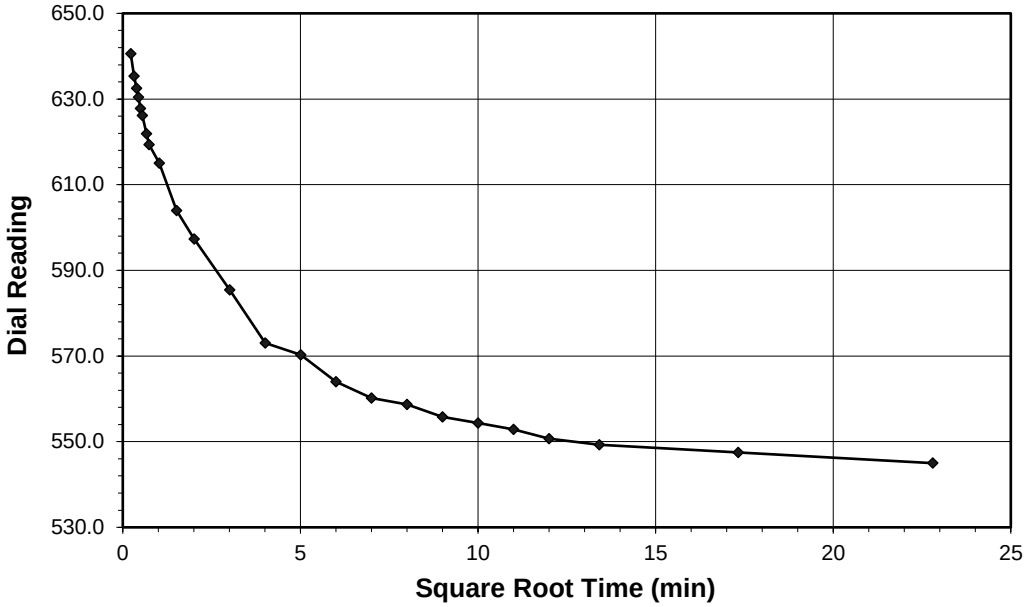
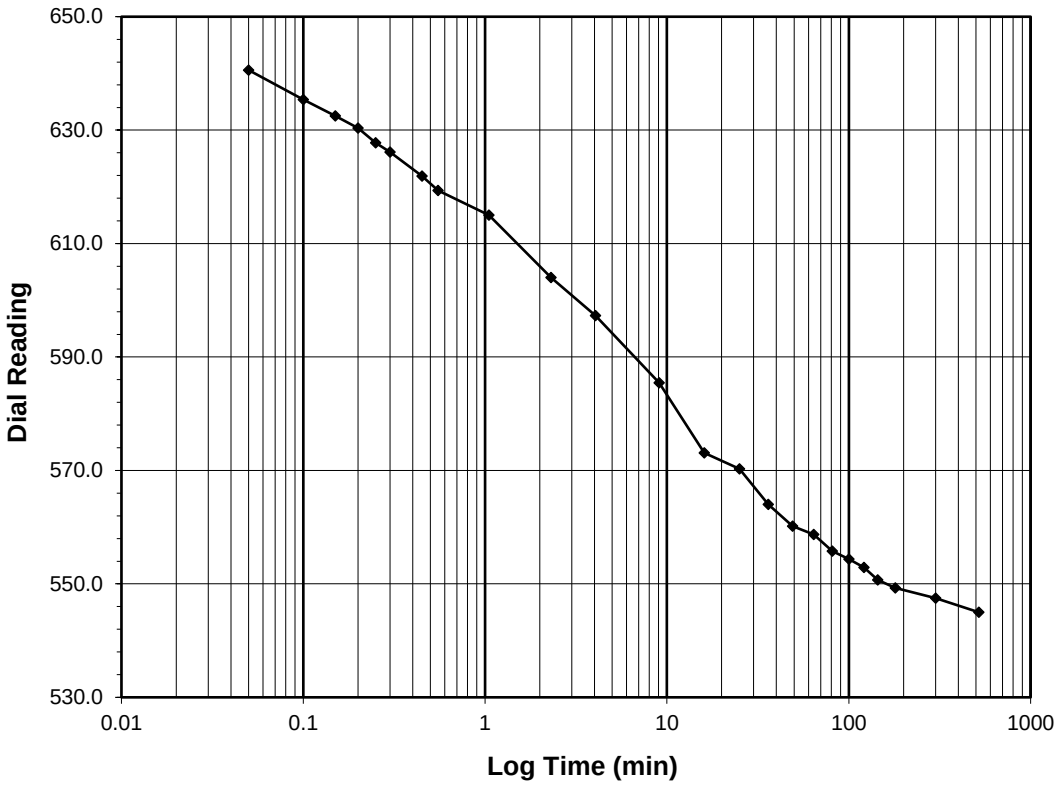
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	20.1'-22.1'
Project No.	R-2020-164-002	Sample No.	SPT06-2
Lab ID	R-2020-164-002-034	Visual Description	Gray Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**545.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/1/2020
Start Time		7:34:27

Elapsed Time (min)	Dial Reading (div)
Initial	**654.8**
0.05	640.6
0.10	635.4
0.15	632.5
0.20	630.4
0.25	627.8
0.30	626.2
0.45	621.9
0.55	619.4
1.05	615.0
2.30	604.0
4.05	597.3
9.07	585.4
16.07	573.1
25.07	570.3
36.07	564.0
49.07	560.2
64.07	558.7
81.07	555.8
100.07	554.4
121.07	552.9
144.07	550.7
180.07	549.3
300.07	547.5
520.07	545.0

Tested By *MY* *Date* *9/1/2020* *Checked By* *GEM* *Date* 9/3/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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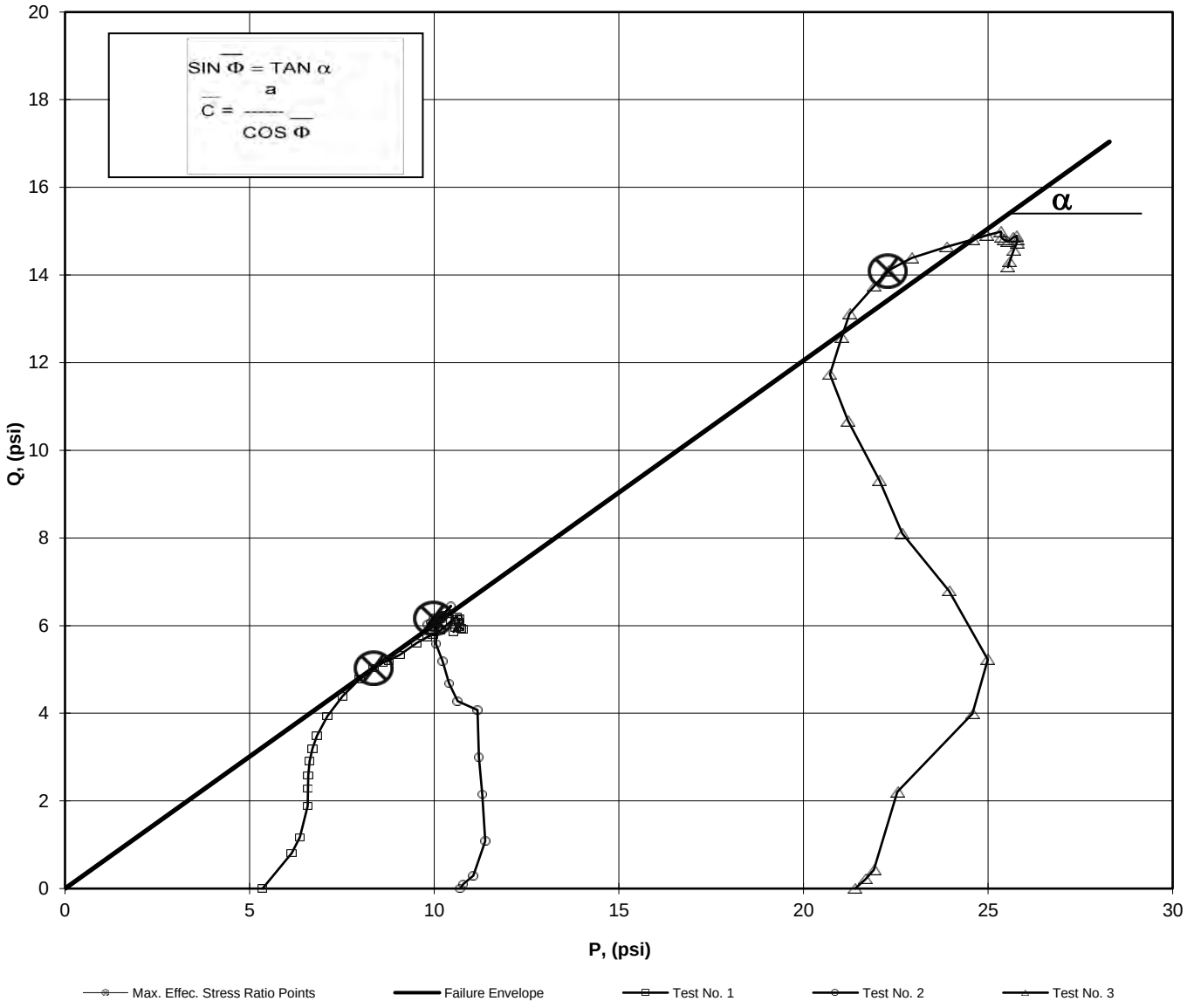
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	**0.00**	$\overline{C}$	=	**0.00**
α	=	**31.1**	$\overline{\Phi}$	=	**37.04**

Tested By: MY Date: 9/10/20 Approved By: MPS Date: 9/17/20

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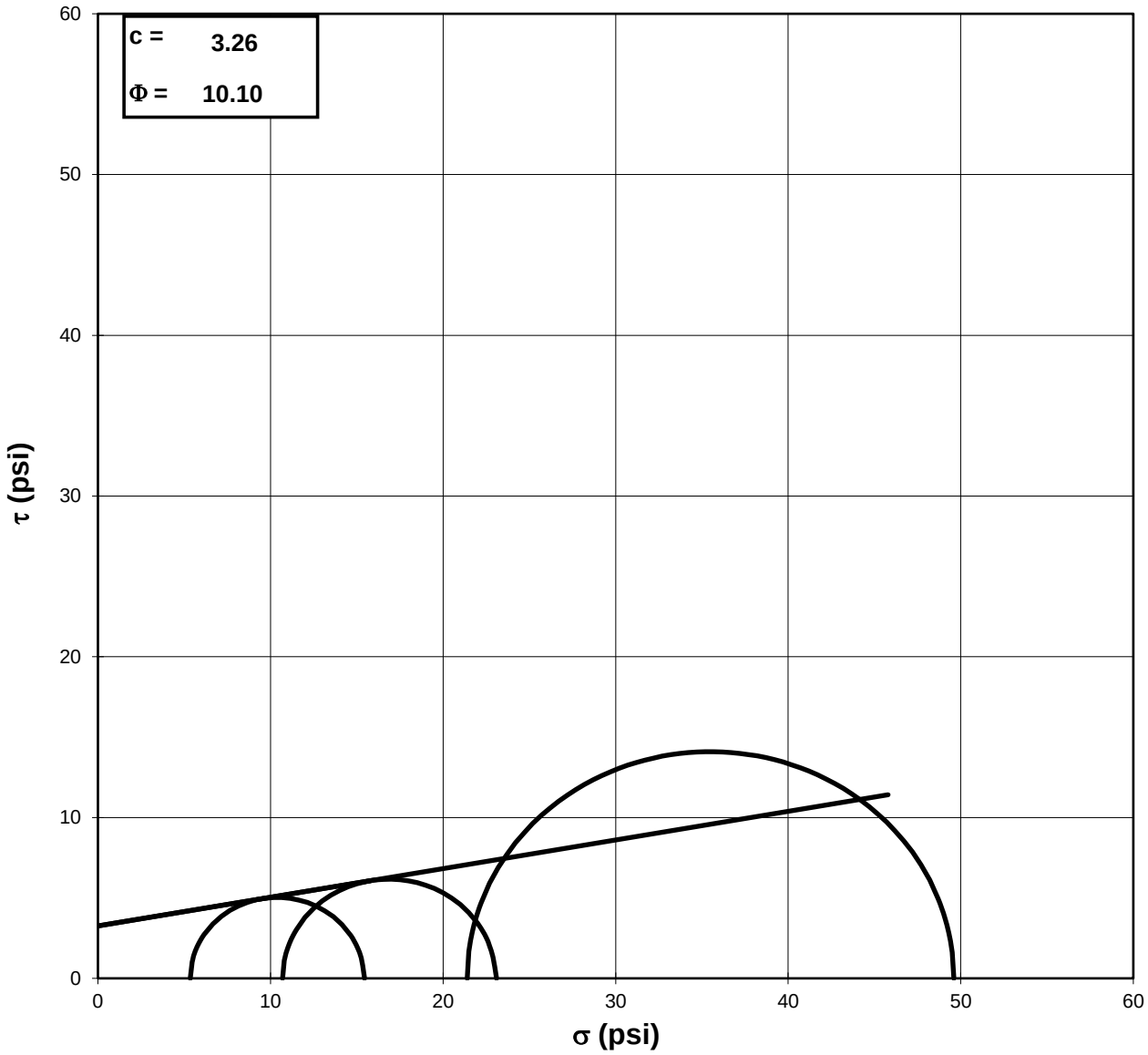
MOHR TOTAL STRENGTH ENVELOPE

ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		
Visual Description:	Gray Clay (UNDISTURBED)		



Failure Based on Maximum Effective Principal Stress Ratio

NOTE: GRAPH NOT TO SCALE

Tested By: MY *Date:* 9/10/20 *Approved By:* MPS *Date:* 9/17/20

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Visual Description: Gray Clay (UNDISTURBED)

Stage No.	0
Test No.	1

PRESSURES (psi)

Cell Pressure (psi)	55.35
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	5.4
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	8.35
Q	=	5.03

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	5.908	Diameter 1:	2.853
Length 2:	5.916	Diameter 2:	2.862
Length 3:	5.913	Diameter 3:	2.884
Avg. Length:	5.912	*Avg. Diam.:*	2.866

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	10.3
Final Change (ml)	13.7
Initial Dial Reading (mil)	260
Dial Reading After Saturation (mil)	255
Dial Reading After Consolidation (mil)	270

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
15.5	0.000	50.0
25.8	0.002	50.0
30.3	0.003	50.2
39.4	0.009	50.7
44.6	0.015	51.1
48.3	0.020	51.3
52.6	0.028	51.6
56.2	0.038	51.8
60.1	0.050	52.0
66.0	0.070	52.2
72.1	0.100	52.2
77.5	0.137	52.1
81.2	0.171	52.0
83.3	0.213	51.9
84.4	0.242	51.8
86.5	0.282	51.6
90.8	0.338	51.4
93.6	0.397	51.3
95.0	0.441	51.2
97.1	0.501	51.1
100.7	0.545	51.0
102.8	0.590	50.9
102.7	0.635	50.9
103.4	0.664	50.8
102.9	0.693	50.8
101.5	0.723	50.7
100.6	0.751	50.7
103.0	0.795	50.6
103.4	0.839	50.6
103.5	0.869	50.5
104.5	0.898	50.4

Tested By: MY Date: 9/10/20 Input Checked By: MPS Date: 9/17/20

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Visual Description: Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	5.4	*Stage No.*	0
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in)	5.91
Initial Sample Diameter (in)	2.87
Initial Sample Area (in^2)	6.45
Initial Sample Volume (in^3)	38.15

VOLUME CHANGE

Volume After Consolidation (in^3)	37.41
Length After Consolidation (in)	5.90
Area After Consolidation (in^2)	6.338

Strain (%)	Deviator Stress PSI	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principal Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	1.62	0.02	6.95	5.3	1.305	0.01	6.14	0.81
0.05	2.34	0.16	7.53	5.2	1.451	0.07	6.36	1.17
0.15	3.77	0.66	8.46	4.7	1.805	0.18	6.58	1.89
0.25	4.57	1.05	8.87	4.3	2.065	0.23	6.58	2.29
0.34	5.16	1.34	9.17	4.0	2.287	0.26	6.59	2.58
0.48	5.83	1.64	9.54	3.7	2.570	0.28	6.63	2.92
0.64	6.38	1.84	9.89	3.5	2.820	0.29	6.70	3.19
0.84	6.98	2.01	10.31	3.3	3.092	0.29	6.82	3.49
1.18	7.88	2.18	11.05	3.2	3.481	0.28	7.11	3.94
1.70	8.78	2.22	11.91	3.1	3.805	0.25	7.52	4.39
2.32	9.55	2.15	12.76	3.2	3.984	0.22	7.98	4.78
2.90	10.07	2.03	13.39	3.3	4.030	0.20	8.35	5.03
3.61	10.31	1.90	13.76	3.5	3.987	0.18	8.61	5.16
4.11	10.42	1.78	13.99	3.6	3.921	0.17	8.78	5.21
4.78	10.66	1.62	14.40	3.7	3.855	0.15	9.07	5.33
5.72	11.20	1.43	15.13	3.9	3.855	0.13	9.52	5.60
6.73	11.49	1.28	15.56	4.1	3.821	0.11	9.81	5.74
7.48	11.60	1.18	15.77	4.2	3.786	0.10	9.97	5.80
8.48	11.78	1.07	16.06	4.3	3.756	0.09	10.17	5.89
9.24	12.20	0.99	16.55	4.4	3.799	0.08	10.45	6.10
10.00	12.39	0.93	16.81	4.4	3.804	0.08	10.62	6.20
10.75	12.28	0.86	16.77	4.5	3.734	0.07	10.63	6.14
11.24	12.31	0.81	16.85	4.5	3.715	0.07	10.69	6.16
11.74	12.17	0.77	16.75	4.6	3.659	0.06	10.66	6.09
12.24	11.91	0.72	16.54	4.6	3.575	0.06	10.58	5.96
12.73	11.71	0.69	16.38	4.7	3.513	0.06	10.52	5.86
13.48	11.95	0.64	16.66	4.7	3.534	0.05	10.69	5.97
14.22	11.89	0.57	16.67	4.8	3.489	0.05	10.73	5.95
14.73	11.84	0.48	16.70	4.9	3.433	0.04	10.79	5.92
15.21	11.91	0.43	16.82	4.9	3.421	0.04	10.87	5.95

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Visual Description: Gray Clay (UNDISTURBED)

Stage No.	0
Test No.	2

PRESSURES (psi)

Cell Pressure (psi)	60.7
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	10.7
Pore Pressure Response (%)	99

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	9.98
Q	=	6.17

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.073	Diameter 1:	2.792
Length 2:	6.095	Diameter 2:	2.803
Length 3:	6.115	Diameter 3:	2.844
Avg. Length	6.094	*Avg. Diam.:*	2.813

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	4.0
Final Change (ml)	20.0

Initial Dial Reading (mil)	240
Dial Reading After Saturation (mil)	260
Dial Reading After Consolidation (mil)	275

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
9.1	0.000	50.0
10.4	0.001	50.0
12.6	0.003	49.9
22.1	0.009	50.4
35.0	0.014	51.6
45.1	0.021	52.5
58.1	0.030	53.6
60.7	0.038	54.3
65.7	0.050	55.0
72.0	0.072	55.7
77.2	0.102	56.2
81.6	0.139	56.5
85.2	0.174	56.7
84.5	0.215	56.9
84.4	0.245	56.9
86.7	0.287	56.9
87.8	0.345	56.8
90.3	0.406	56.7
89.6	0.451	56.7
90.3	0.511	56.7
91.2	0.556	56.7
94.9	0.602	56.7
92.8	0.647	56.7
91.7	0.677	56.7
93.3	0.707	56.7
92.0	0.737	56.7
93.6	0.767	56.7
94.2	0.812	56.6
92.4	0.858	56.6
92.1	0.887	56.6
93.9	0.918	56.5

Tested By: MY Date: 9/10/20 Input Checked By: MPS Date: 9/17/20

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Visual Description: Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	10.7	*Stage No.*	0
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in)	6.09
Initial Sample Diameter (in)	2.81
Initial Sample Area (in^2)	6.21
Initial Sample Volume (in^3)	37.88

VOLUME CHANGE

Volume After Consolidation (in^3)	36.28
Length After Consolidation (in)	6.06
Area After Consolidation (in^2)	5.988

Strain (%)	Deviator Stress PSI	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principal Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.21	0.02	10.89	10.7	1.020	0.08	10.79	0.11
0.05	0.59	-0.06	11.35	10.8	1.055	-0.11	11.06	0.29
0.15	2.16	0.40	12.46	10.3	1.210	0.19	11.38	1.08
0.23	4.31	1.56	13.46	9.1	1.472	0.36	11.30	2.16
0.34	5.99	2.48	14.21	8.2	1.728	0.42	11.21	2.99
0.49	8.15	3.60	15.25	7.1	2.147	0.45	11.18	4.07
0.63	8.56	4.34	14.91	6.4	2.347	0.51	10.63	4.28
0.83	9.37	4.98	15.09	5.7	2.640	0.54	10.40	4.69
1.19	10.38	5.66	15.42	5.0	3.058	0.55	10.23	5.19
1.69	11.17	6.24	15.63	4.5	3.504	0.56	10.05	5.59
2.29	11.83	6.54	15.99	4.2	3.846	0.56	10.07	5.91
2.87	12.34	6.72	16.32	4.0	4.104	0.55	10.15	6.17
3.55	12.15	6.85	15.99	3.8	4.159	0.57	9.92	6.07
4.05	12.06	6.90	15.86	3.8	4.171	0.58	9.83	6.03
4.74	12.34	6.90	16.15	3.8	4.244	0.56	9.98	6.17
5.70	12.39	6.75	16.34	3.9	4.140	0.55	10.15	6.20
6.69	12.64	6.72	16.63	4.0	4.173	0.54	10.31	6.32
7.44	12.44	6.69	16.45	4.0	4.106	0.54	10.23	6.22
8.43	12.42	6.74	16.38	4.0	4.140	0.55	10.17	6.21
9.18	12.45	6.71	16.44	4.0	4.121	0.54	10.22	6.23
9.94	12.90	6.70	16.90	4.0	4.222	0.52	10.45	6.45
10.68	12.48	6.71	16.47	4.0	4.124	0.54	10.23	6.24
11.18	12.26	6.71	16.25	4.0	4.071	0.55	10.12	6.13
11.67	12.41	6.68	16.44	4.0	4.086	0.54	10.23	6.21
12.17	12.15	6.69	16.17	4.0	4.029	0.56	10.09	6.08
12.66	12.32	6.68	16.34	4.0	4.062	0.55	10.18	6.16
13.40	12.31	6.64	16.37	4.1	4.032	0.54	10.21	6.15
14.15	11.94	6.64	16.00	4.1	3.942	0.56	10.03	5.97
14.64	11.83	6.61	15.92	4.1	3.894	0.56	10.00	5.91
15.14	12.02	6.51	16.20	4.2	3.871	0.55	10.20	6.01

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Visual Description: Gray Clay (UNDISTURBED)

Stage No.	0
Test No.	3

PRESSURES (psi)

Cell Pressure (psi)	71.4
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	21.4
Pore Pressure Response (%)	97

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	22.29
Q	=	14.10

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	5.860	Diameter 1:	2.820
Length 2:	5.801	Diameter 2:	2.850
Length 3:	5.823	Diameter 3:	2.853
Avg. Length:	5.828	*Avg. Diam.:*	2.841

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	11.2
Final Change (ml)	12.8

Initial Dial Reading (mil)	291
Dial Reading After Saturation (mil)	319
Dial Reading After Consolidation (mil)	382

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
12.3	0.000	50.0
14.9	0.001	49.9
17.6	0.002	49.9
39.7	0.008	51.1
61.9	0.013	50.8
77.4	0.019	51.6
97.1	0.027	54.3
113.6	0.037	56.8
129.0	0.047	58.7
146.4	0.068	60.9
160.5	0.097	62.4
172.0	0.132	62.9
180.1	0.167	63.3
189.4	0.207	63.2
194.9	0.236	63.2
200.1	0.277	62.8
205.3	0.332	62.2
209.7	0.390	61.6
212.5	0.433	61.3
216.0	0.492	61.0
215.9	0.536	60.9
216.9	0.579	60.8
217.9	0.622	60.6
220.5	0.651	60.6
222.2	0.681	60.5
222.1	0.710	60.4
222.4	0.740	60.4
221.7	0.783	60.3
219.8	0.827	60.1
219.3	0.855	60.0
218.4	0.885	59.8

Tested By: MY Date: 9/10/20 Input Checked By: MPS Date: 9/17/20

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		

Visual Description: Gray Clay (UNDISTURBED)

Effective Confining Pressure (psi)	21.4	*Stage No.*	0
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in)	5.83
Initial Sample Diameter (in)	2.84
Initial Sample Area (in^2)	6.34
Initial Sample Volume (in^3)	36.94

VOLUME CHANGE

Volume After Consolidation (in^3)	35.63
Length After Consolidation (in)	5.74
Area After Consolidation (in^2)	6.211

Strain (%)	Deviator Stress PSI	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principal Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.43	-0.08	21.90	21.5	1.020	-0.18	21.69	0.21
0.04	0.85	-0.08	22.33	21.5	1.040	-0.10	21.90	0.43
0.13	4.41	1.07	24.75	20.3	1.217	0.25	22.54	2.21
0.23	7.97	0.81	28.56	20.6	1.387	0.11	24.57	3.99
0.33	10.45	1.63	30.22	19.8	1.529	0.16	24.99	5.23
0.48	13.59	4.25	30.73	17.1	1.792	0.32	23.94	6.79
0.64	16.20	6.83	30.78	14.6	2.112	0.43	22.68	8.10
0.83	18.63	8.66	31.37	12.7	2.462	0.48	22.05	9.32
1.18	21.33	10.85	31.88	10.5	3.022	0.52	21.21	10.67
1.68	23.47	12.42	32.45	9.0	3.613	0.55	20.72	11.74
2.30	25.13	12.94	33.59	8.5	3.969	0.53	21.03	12.57
2.91	26.23	13.27	34.37	8.1	4.225	0.52	21.25	13.12
3.60	27.49	13.23	35.66	8.2	4.366	0.50	21.91	13.75
4.12	28.19	13.21	36.38	8.2	4.442	0.48	22.29	14.10
4.82	28.78	12.85	37.33	8.6	4.366	0.46	22.94	14.39
5.79	29.28	12.16	38.52	9.2	4.171	0.43	23.88	14.64
6.79	29.63	11.63	39.40	9.8	4.032	0.40	24.58	14.81
7.55	29.81	11.33	39.88	10.1	3.961	0.39	24.97	14.90
8.58	29.98	11.04	40.34	10.4	3.894	0.38	25.35	14.99
9.34	29.72	10.91	40.22	10.5	3.832	0.38	25.36	14.86
10.10	29.62	10.79	40.24	10.6	3.790	0.38	25.43	14.81
10.84	29.52	10.63	40.30	10.8	3.740	0.37	25.54	14.76
11.36	29.72	10.58	40.54	10.8	3.746	0.37	25.68	14.86
11.87	29.79	10.52	40.67	10.9	3.738	0.36	25.77	14.89
12.38	29.61	10.42	40.59	11.0	3.696	0.36	25.79	14.80
12.89	29.47	10.36	40.52	11.0	3.669	0.36	25.78	14.74
13.65	29.11	10.27	40.25	11.1	3.615	0.36	25.69	14.56
14.41	28.60	10.12	39.88	11.3	3.535	0.36	25.58	14.30
14.91	28.36	10.04	39.72	11.4	3.497	0.36	25.54	14.18
15.42	28.07	9.83	39.64	11.6	3.427	0.36	25.61	14.04

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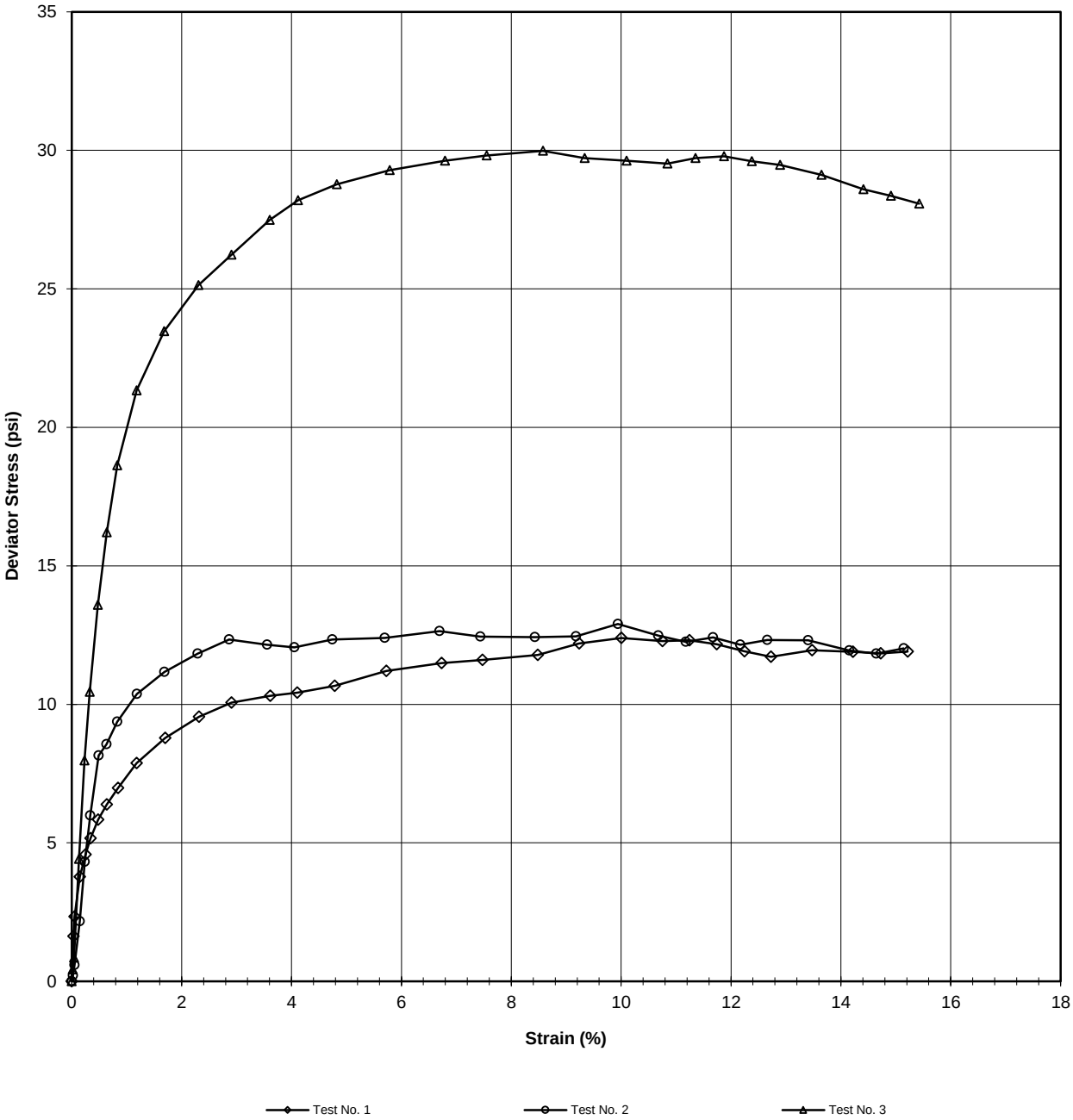
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	20.1'-22.1'
Project No.:	R-2020-164-002	Sample No.:	SPT06-2
Lab ID:	R-2020-164-002-034		
Visual Description:	Gray Clay (UNDISTURBED)		



Tested By: MY Date: 9/10/20 Approved By: MPS Date: 9/17/20

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists		
Client Reference:	USACE Princeville		
Project No.:	R-2020-164-002		
Lab ID:	R-2020-164-002-034	Specific Gravity (assumed)	2.7
Visual Description:	Gray Clay (UNDISTURBED)		

SAMPLE CONDITION SUMMARY

Boring No.:	PRN_20_UD	PRN_20_UD	PRN_20_UD
Depth (ft):	20.1'-22.1'	20.1'-22.1'	20.1'-22.1'
Sample No.:	SPT06-2	SPT06-2	SPT06-2
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.002	0.002	0.002
Back Pressure (psi)	50.0	50.0	50.0
Consolidation Time (days)	1	1	1
Moisture Content (%) (INITIAL)	22.6	22.6	22.6
Total Unit Weight (pcf)	120.3	122.4	122.6
Dry Unit Weight (pcf)	98.1	99.8	100.0
Moisture Content (%) (FINAL)	28.2	26.3	24.5
Initial State Void Ratio,e	0.718	0.688	0.686
Void Ratio at Shear, e	0.685	0.617	0.626





Tested By: MY Date: 9/10/20 Input Checked By: MPS Date: 9/17/20

DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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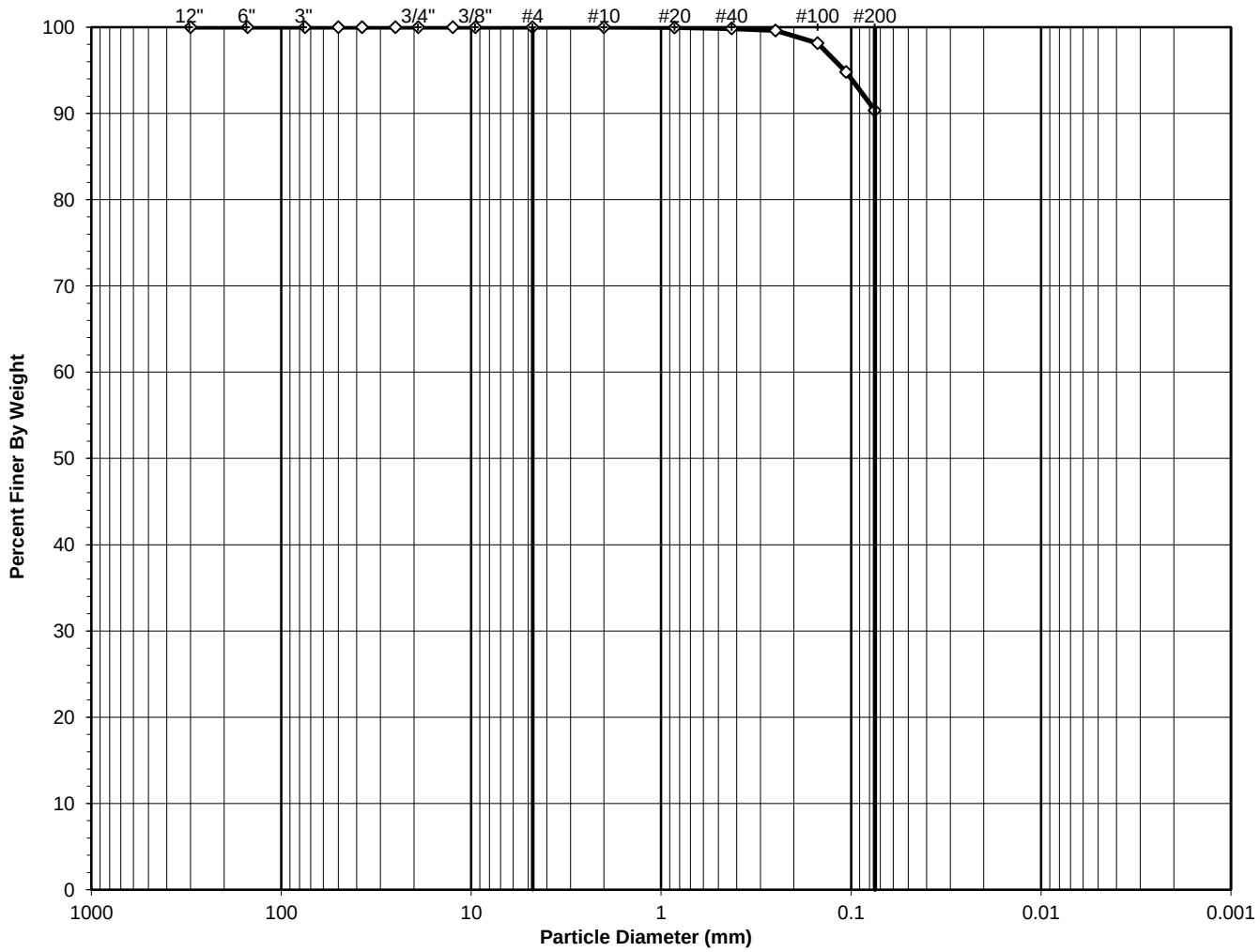
SIEVE AND HYDROMETER ANALYSIS

ASTM D6913 / D7928

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.7
Project No.:	R-2020-164-002	Sample No.:	SPT07-1
Lab ID:	R-2020-164-002-035	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
CL, TESTED

D50 = 0.02

USCS Classification:
LEAN CLAY

Tested By SS Date 9/4/20 Checked By GEM Date 9/14/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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WASH SIEVE ANALYSIS

ASTM D6913-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.7
Project No.:	R-2020-164-002	Sample No.:	SPT07-1
Lab ID:	R-2020-164-002-035	Soil Color:	Gray

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	716	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	442.07	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	364.55	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	91.05	Weight of Tare (g):	NA
Weight of Water (g):	77.52	Weight of Water (g):	NA
Weight of Dry Soil (g):	273.50	Weight of Dry Soil (g):	NA
Moisture Content (%):	**28.3**	**Moisture Content (%):**	**0.0**

Dry Weight of Sample (g):	NA	Total Dry Weight of Sample (g):	273.50
Tare No. (Sub-Specimen)	716	Wet Weight of +3/4" Sample (g):	0.00
Wt. of Tare & Wet Sub-Specimen (g):	442.07	Dry Weight of + 3/4" Sample (g):	0.00
Weight of Tare (g):	91.05	Dry Weight of - 3/4" Sample (g):	273.50
Sub-Specimen Wet Weight (g):	351.02	Dry Weight -3/4" +3/8" Sample (g):	0.00
Tare No. (-3/8" Sub-Specimen):	NA	Dry Weight of -3/8" Sample (g):	273.50
Wt. of Tare & Wet -3/8" Sub-Specimen (g):	NA	J - Factor (% Finer than 3/4"):	NA
Weight of Tare (g):	NA	J - Factor (% Finer than 3/8"):	NA
Sub-Specimen -3/8" Wet Weight (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.0**
6"	150	0.00		0.00	0.00	100.00	**100.0**
3"	75	0.00		0.00	0.00	100.00	**100.0**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.0**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.0**
1"	25	0.00		0.00	0.00	100.00	**100.0**
3/4"	19	0.00		0.00	0.00	100.00	**100.0**
1/2"	12.5	0.00	(**)	0.00	0.00	100.00	**100.0**
3/8"	9.5	0.00		0.00	0.00	100.00	**100.0**
#4	4.75	0.00		0.00	0.00	100.00	**100.0**
#10	2	0.00		0.00	0.00	100.00	**100.0**
#20	0.85	0.09	(**)	0.03	0.03	99.97	**100.0**
#40	0.425	0.36		0.13	0.16	99.84	**99.8**
#60	0.25	0.66		0.24	0.41	99.59	**99.6**
#100	0.15	3.92		1.43	1.84	98.16	**98.2**
#140	0.106	9.24		3.38	5.22	94.78	**94.8**
#200	0.075	12.10		4.42	9.64	90.36	**90.4**
Pan	-	0.00		0.00	9.64	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" and - 3/8" sieve analysis is based on the Weight of the Dry Specimen*

Tested By SS Date 9/4/20 Checked By GEM Date 9/14/20

DCN: CT-S73J, DATE 5/22/17, REV. 1e

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ATTERBERG LIMITS

ASTM D 4318-17

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	10.5-12.7
Project No.:	R-2020-164-002	Sample No.:	STP07-1
Lab ID:	R-2020-164-002-035	Soil Description:	GRAY LEAN CLAY

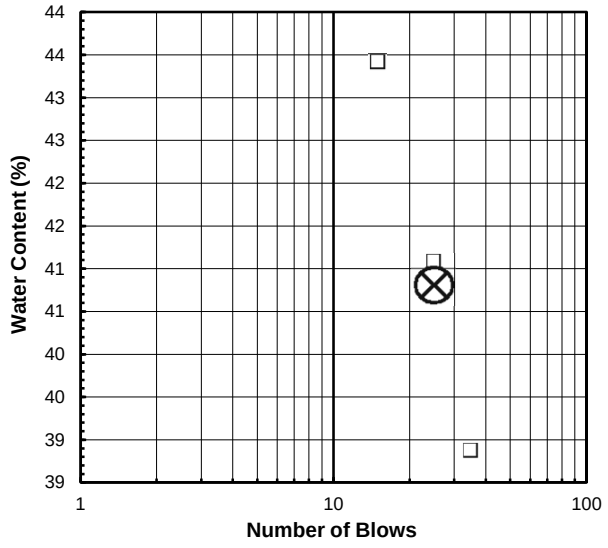
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Air dried)

As Received Moisture Content		Liquid Limit Test			
ASTM D2216-19		1	2	3	M
Tare Number:	716	2	9	5	U
Wt. of Tare & Wet Sample (g):	442.07	18.60	19.45	22.64	L
Wt. of Tare & Dry Sample (g):	364.55	15.37	15.82	17.90	T
Weight of Tare (g):	91.05	7.06	6.99	6.98	I
Weight of Water (g):	77.5	3.2	3.6	4.7	P
Weight of Dry Sample (g):	273.5	8.3	8.8	10.9	O
Was As Received MC Preserved:	**Yes**				I
Moisture Content (%):	**28.3**	**38.9**	**41.1**	**43.4**	N
Number of Blows:		**35**	**25**	**15**	T

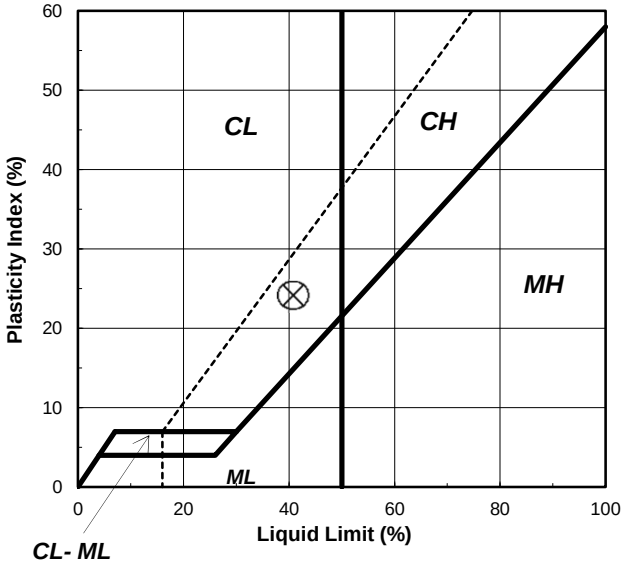
Plastic Limit Test	1	2	Range
Tare Number:	16	6	
Wt. of Tare & Wet Sample (g):	13.98	13.01	
Wt. of Tare & Dry Sample (g):	12.95	12.17	
Weight of Tare (g):	6.97	6.98	
Weight of Water (g):	1.0	0.8	
Weight of Dry Sample (g):	6.0	5.2	
Moisture Content (%):	**17.2**	**16.2**	**1.0**
Note: The acceptable range of the two Moisture Contents is ±			1.12

Test Results	
Liquid Limit (%):	**41**
Plastic Limit (%):	**17**
Plasticity Index (%):	**24**
USCS Symbol:	**CL**

Flow Curve



Plasticity Chart



Tested By TB *Date* 9/2/20 *Checked By* GEM *Date* 9/8/20

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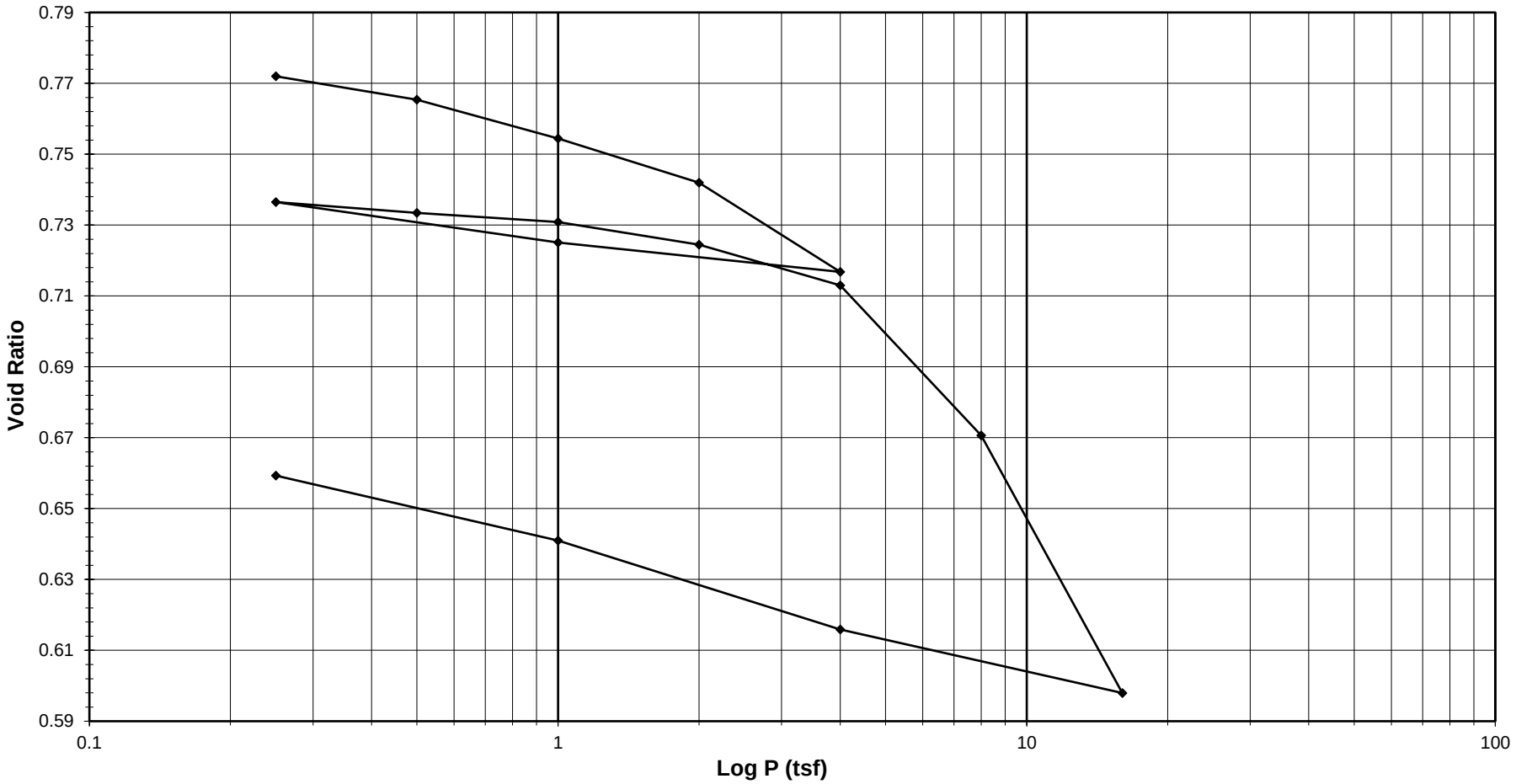
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By NL *Date* 9/2/2020 *Approved By* MPS *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2020 PROJECTS\Catlin\2020-164 Catlin - USACE Princeville\2020-164-002\[2020-164-002-035 GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-11	715
Wt. Tare & WS (g)	455.53	241.61
Wt. Tare & DS (g)	387.87	211.99
Wt. Water (g)	67.66	29.62
Wt. Tare (g)	134.88	90.31
Wt. DS (g)	252.99	121.68
Water Content (%)	26.74	24.34
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.9309
Sample Volume (cc)	80.44	74.88
Wt. Wet Sample + Ring (g)	368.62	365.69
Wt. of Ring (g)	214.18	214.18
Wt. of Wet Sample (g)	154.44	151.51
Wet Density (pcf)	119.80	126.26
Wet Density (g/cc)	1.92	2.02
Water Content (%)	26.74	24.34
Wt. of Dry Sample (g)	121.85	121.85
Dry Density (pcf)	94.52	101.54
Dry Density (g/cc)	1.51	1.63
Void Ratio	0.7824	0.6593
Saturation (%)	92.29	99.69
Specific Gravity	2.70	*Assumed*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume (cc)**	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.51482	**0.78239**
0.25	81.2	22.8	58.4	25.252	79.970	1.52371	**0.77199**
0.5	139.4	44.2	95.2	25.158	79.674	1.52938	**0.76542**
1	217.3	60.5	156.8	25.002	79.179	1.53895	**0.75445**
2	320.6	93.6	226.9	24.824	78.614	1.54999	**0.74194**
4	498.6	130.5	368.1	24.465	77.479	1.57271	**0.71678**
1	404.4	83.0	321.3	24.584	77.855	1.56511	**0.72511**
0.25	310.0	52.7	257.3	24.746	78.370	1.55483	**0.73652**
0.5	333.0	58.3	274.7	24.702	78.230	1.55761	**0.73342**
1	364.0	74.9	289.1	24.666	78.114	1.55992	**0.73086**
2	424.9	100.0	324.9	24.575	77.827	1.56568	**0.72449**
4	522.7	133.4	389.3	24.411	77.308	1.57618	**0.71300**
8	796.9	169.9	627.0	23.807	75.396	1.61616	**0.67063**
16	1260.7	226.1	1034.7	22.772	72.117	1.68964	**0.59797**
4	1096.0	161.7	934.3	23.027	72.924	1.67094	**0.61586**
1	905.2	111.7	793.5	23.385	74.057	1.64538	**0.64096**
0.25	763.7	73.0	690.7	23.646	74.884	1.62721	**0.65928**

Tested By NL *Date* 9/2/2020 *Input Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

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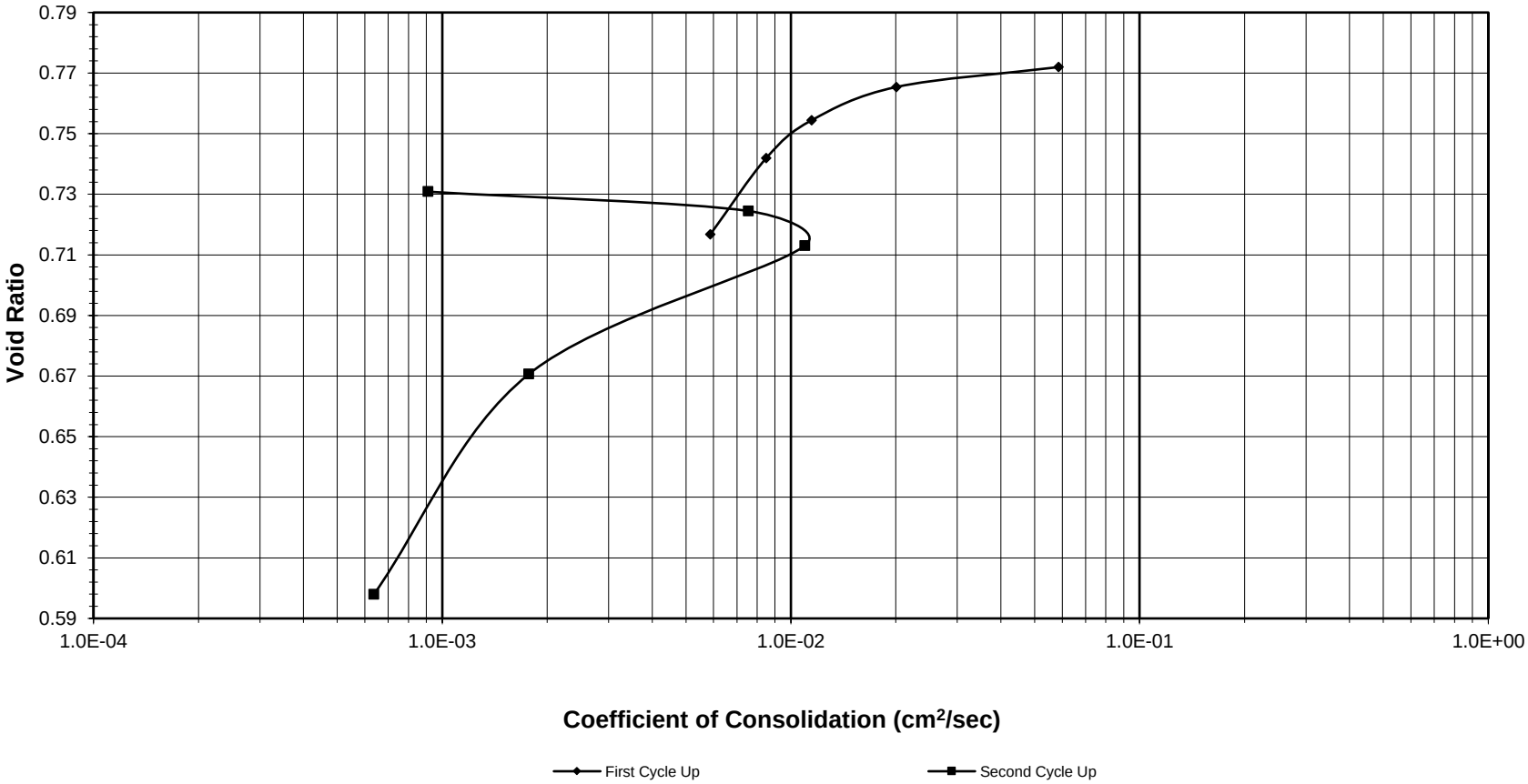
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By NL *Date* 9/2/2020 *Input Checked By* GEM *Date* 9/10/2020

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Reference	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-11	715
Wt. Tare & WS (g)	455.53	241.61
Wt. Tare & DS (g)	387.87	211.99
Wt. Water (g)	67.66	29.62
Wt. Tare (g)	134.88	90.31
Wt. DS (g)	252.99	121.68
Water Content (%)	26.74	24.34
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.931
Sample Volume (cc)	80.44	74.88
Wt. Wet Sample + Ring (g)	368.62	365.69
Wt. of Ring (g)	214.18	214.18
Wt. of Wet Sample (g)	154.44	151.51
Wet Density (pcf)	119.80	126.26
Wet Density (g/cc)	1.92	2.02
Water Content (%)	26.74	24.34
Wt. of Dry Sample (g)	121.85	121.85
Dry Density (pcf)	94.52	101.54
Dry Density (g/cc)	1.51	1.63
Void Ratio	0.7824	0.6593
Saturation (%)	92.29	99.69
Specific Gravity	*2.7*	*Assumed*
		Tested By NL

C_v Test Data Summary

Load Increment (tsf)	**Dial Reading @ t_{50}** (div)	**Machine Deflection** (div)	**Corrected Dial Reading @ t_{50}** (div)	**Sample Height @ t_{50}** (cm)	**Time t_{50}** (min.)	**C_v** **(cm^2/sec)**
0 - 0.25	47.9	22.8	25.1	2.534	**0.09**	**0.05855**
0.25 - 0.5	118.2	44.2	74.0	2.521	**0.26**	**0.02007**
0.5 - 1.0	186.8	60.5	126.3	2.508	**0.45**	**0.01147**
1.0 - 2.0	282.6	93.6	188.9	2.492	**0.60**	**0.00850**
2.0 - 4.0	420.2	130.5	289.7	2.466	**0.85**	**0.00587**
4.0 - 1.0	NA	83.0	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	52.7	NA	NA	**NA**	**NA**
0.25 - 0.5	NA	58.3	NA	NA	**NA**	**NA**
0.5 - 1.0	352.2	74.9	277.3	2.470	**5.50**	**0.00091**
1.0 - 2.0	400.7	100.0	300.7	2.464	**0.66**	**0.00755**
2.0 - 4.0	481.8	133.4	348.4	2.452	**0.45**	**0.01096**
4.0 - 8.0	667.5	169.9	497.6	2.414	**2.70**	**0.00177**
8.0 - 16.0	1049.0	226.1	822.9	2.331	**7.00**	**0.00064**
16.0 - 4.0	NA	161.7	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	111.7	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	73.0	NA	NA	**NA**	**NA**

Date 9/2/2020 *Input Checked By* *GEM* *Date 9/10/2020*

DCN: CT-24E Date: 5/3/12 Revision: 6

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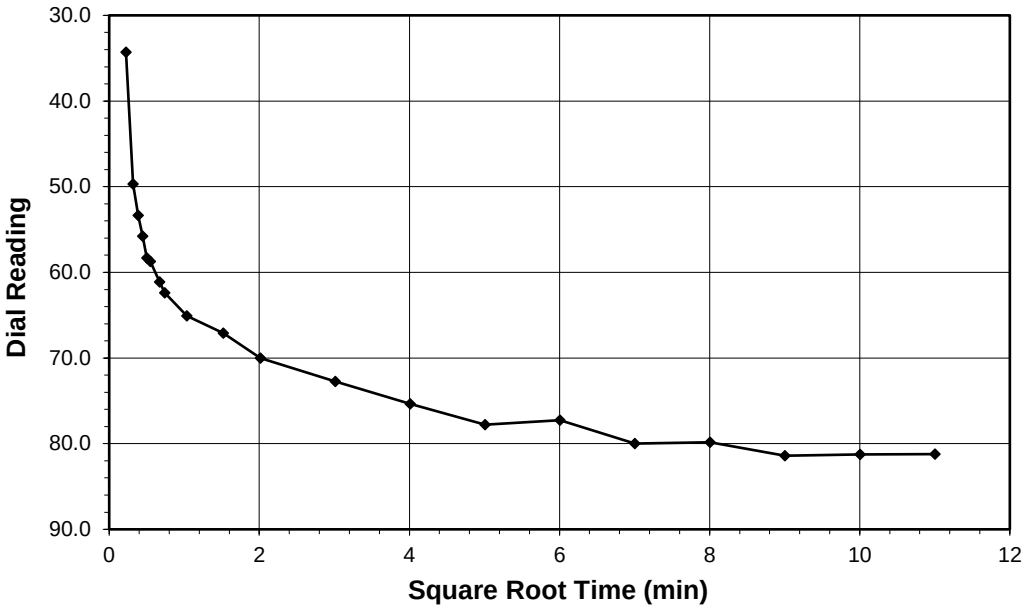
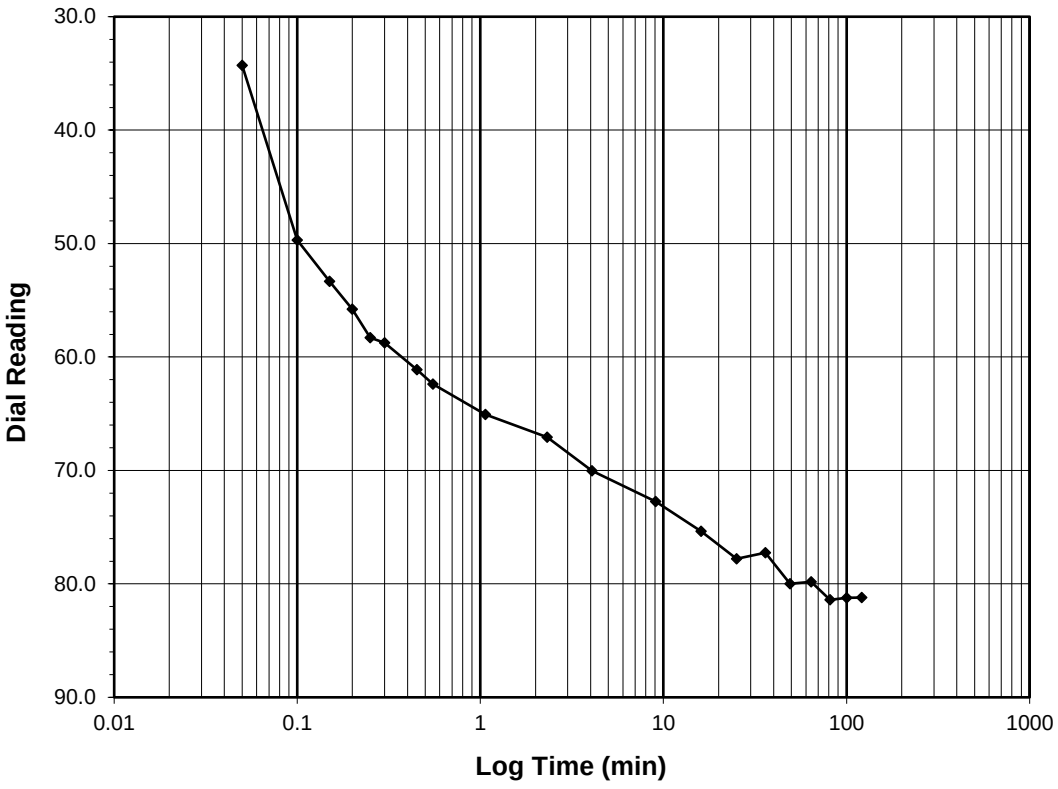
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**81.2**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		14:42:18

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	34.3
0.10	49.7
0.15	53.3
0.20	55.8
0.25	58.3
0.30	58.7
0.45	61.1
0.55	62.4
1.07	65.1
2.32	67.1
4.07	70.0
9.07	72.7
16.07	75.4
25.07	77.8
36.07	77.3
49.07	80.0
64.07	79.8
81.07	81.4
100.07	81.2
121.07	81.2

Tested By NL *Date* 9/2/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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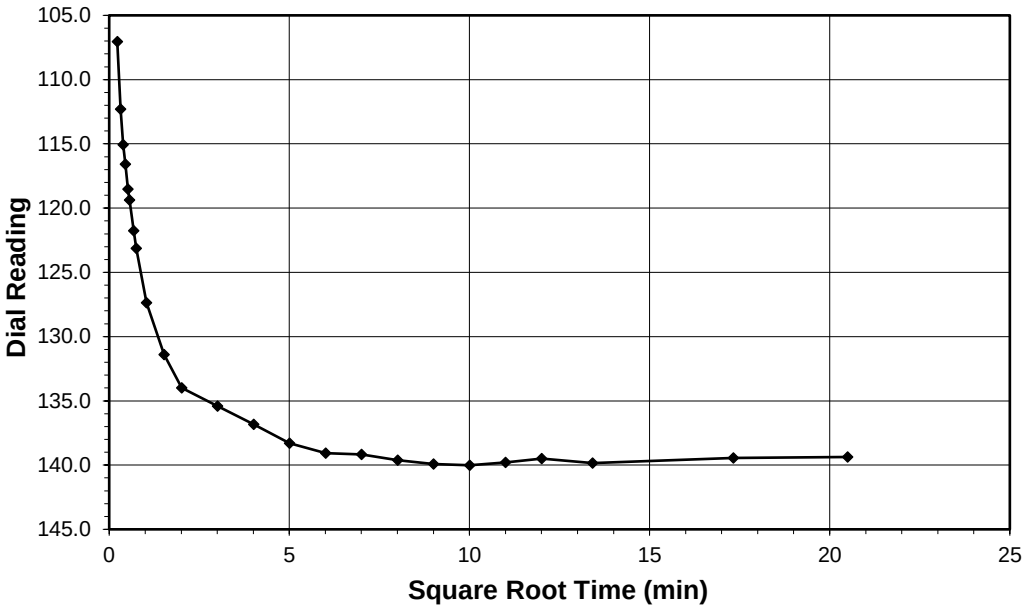
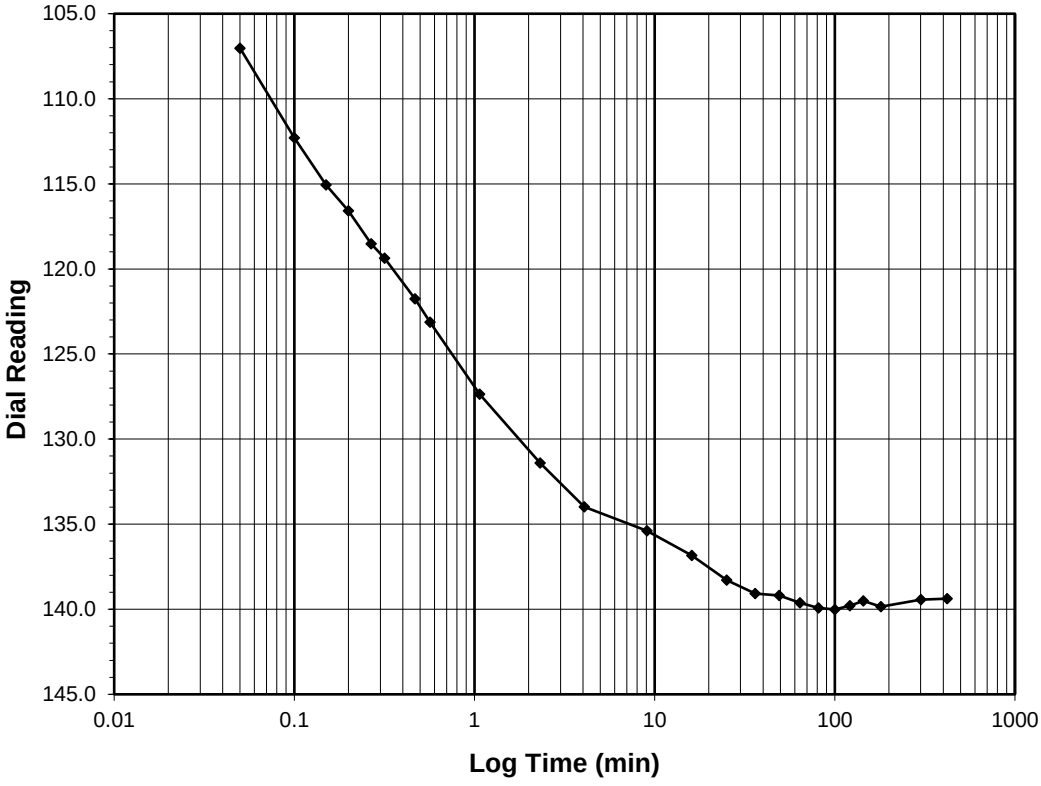
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**139.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		16:45:49

Elapsed Time (min)	Dial Reading (div)
Initial	**81.2**
0.05	107.0
0.10	112.3
0.15	115.1
0.20	116.6
0.27	118.5
0.32	119.4
0.47	121.8
0.57	123.1
1.07	127.4
2.32	131.4
4.07	134.0
9.07	135.4
16.07	136.8
25.07	138.3
36.07	139.1
49.07	139.2
64.07	139.6
81.08	139.9
100.08	140.0
121.08	139.8
144.08	139.5
180.08	139.9
300.08	139.4
420.10	139.4

Tested By NL *Date* 9/2/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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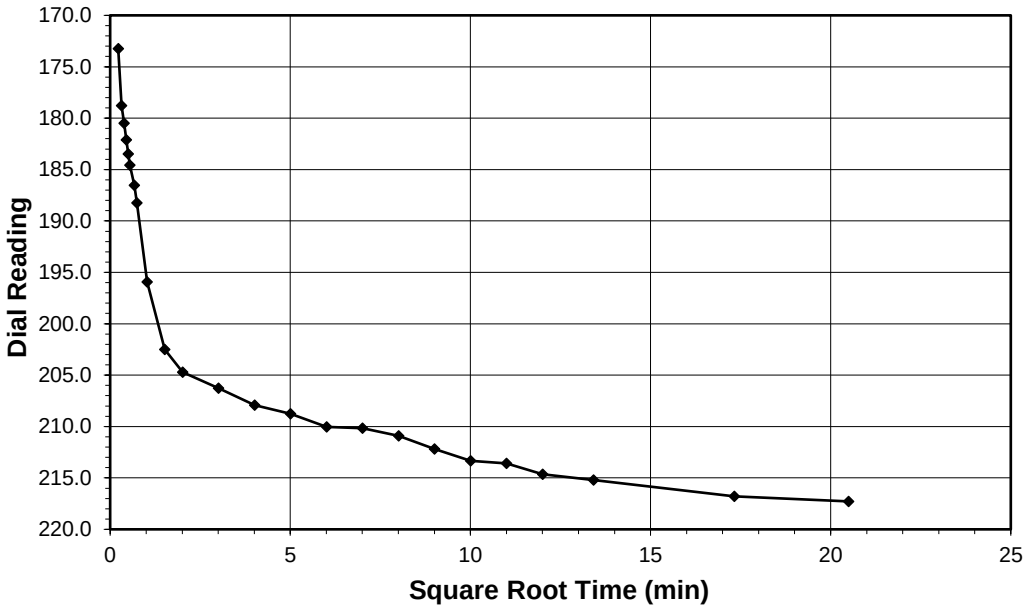
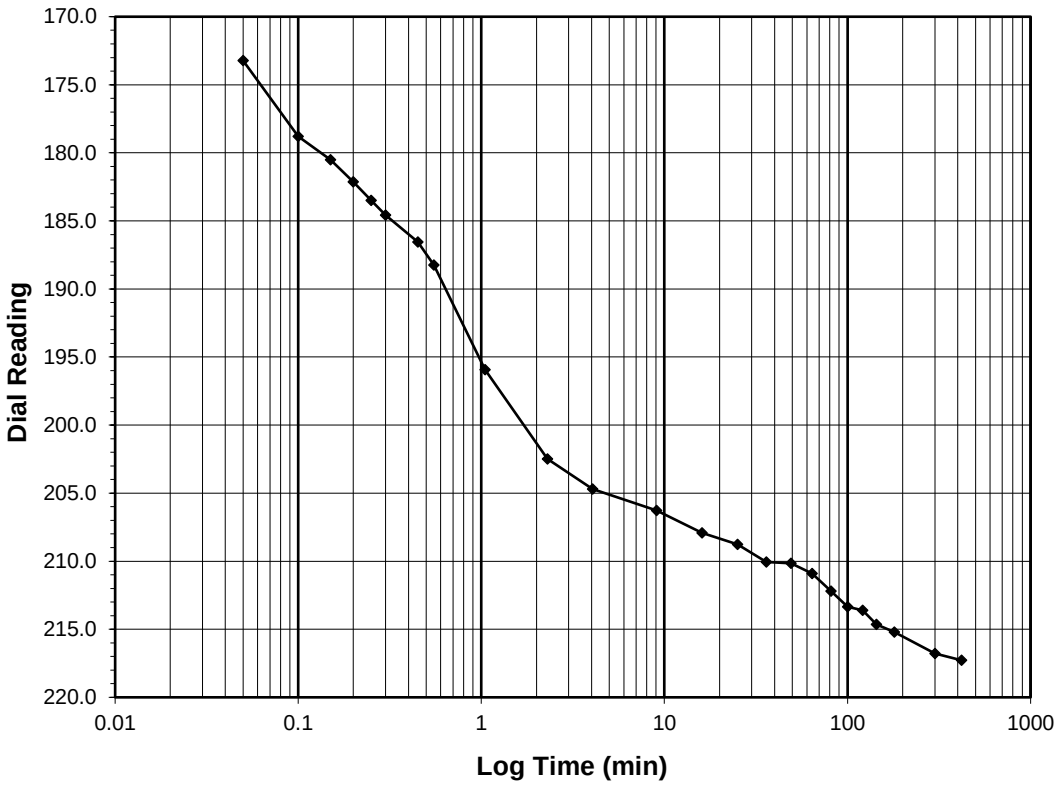
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**		**0.5-1.0**
Final Reading	**(div)**		**217.3**
Consolidometer No.			**R470**
1 Division	(in)		0.0001
Start Date			9/2/2020
Start Time			23:45:55

Elapsed Time (min)	Dial Reading (div)
Initial	**139.4**
0.05	173.2
0.10	178.8
0.15	180.5
0.20	182.1
0.25	183.5
0.30	184.6
0.45	186.5
0.55	188.2
1.05	195.9
2.30	202.5
4.05	204.7
9.05	206.3
16.07	207.9
25.07	208.8
36.07	210.1
49.07	210.1
64.07	210.9
81.07	212.2
100.07	213.3
121.07	213.6
144.07	214.6
180.07	215.2
300.07	216.8
420.13	217.3

Tested By *NL* *Date* *9/2/2020* *Checked By* *GEM* *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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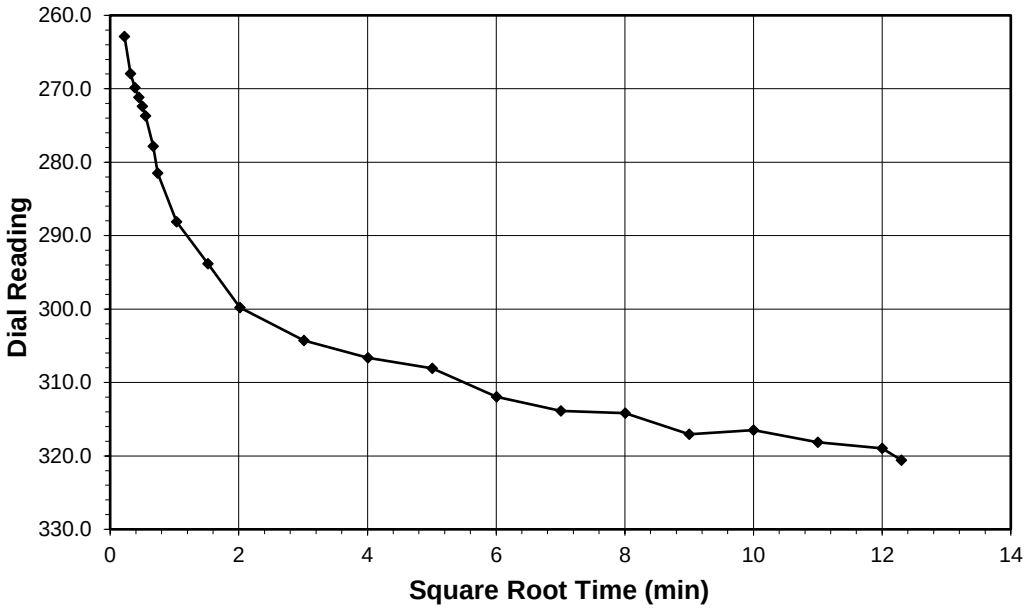
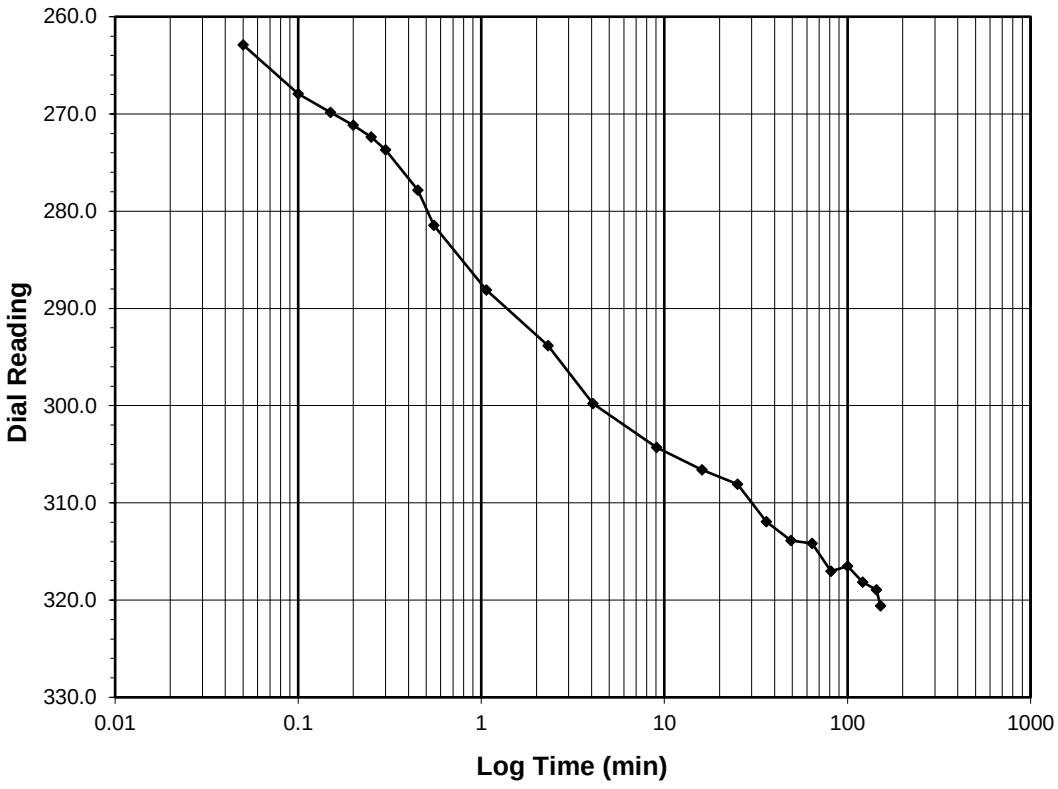
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**320.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		6:46:03

Elapsed Time (min)	Dial Reading (div)
Initial	**217.3**
0.05	262.9
0.10	267.9
0.15	269.9
0.20	271.2
0.25	272.4
0.30	273.7
0.45	277.8
0.55	281.5
1.07	288.1
2.32	293.8
4.07	299.8
9.07	304.3
16.07	306.6
25.07	308.1
36.07	311.9
49.07	313.9
64.07	314.2
81.07	317.1
100.07	316.5
121.07	318.2
144.07	319.0
151.28	320.6

Tested By NL *Date* 9/3/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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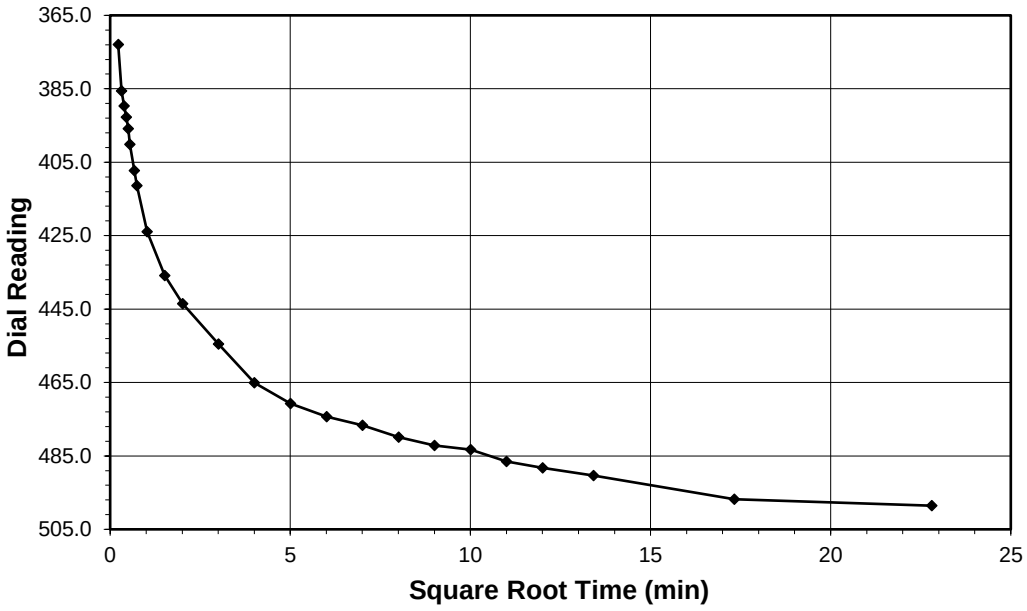
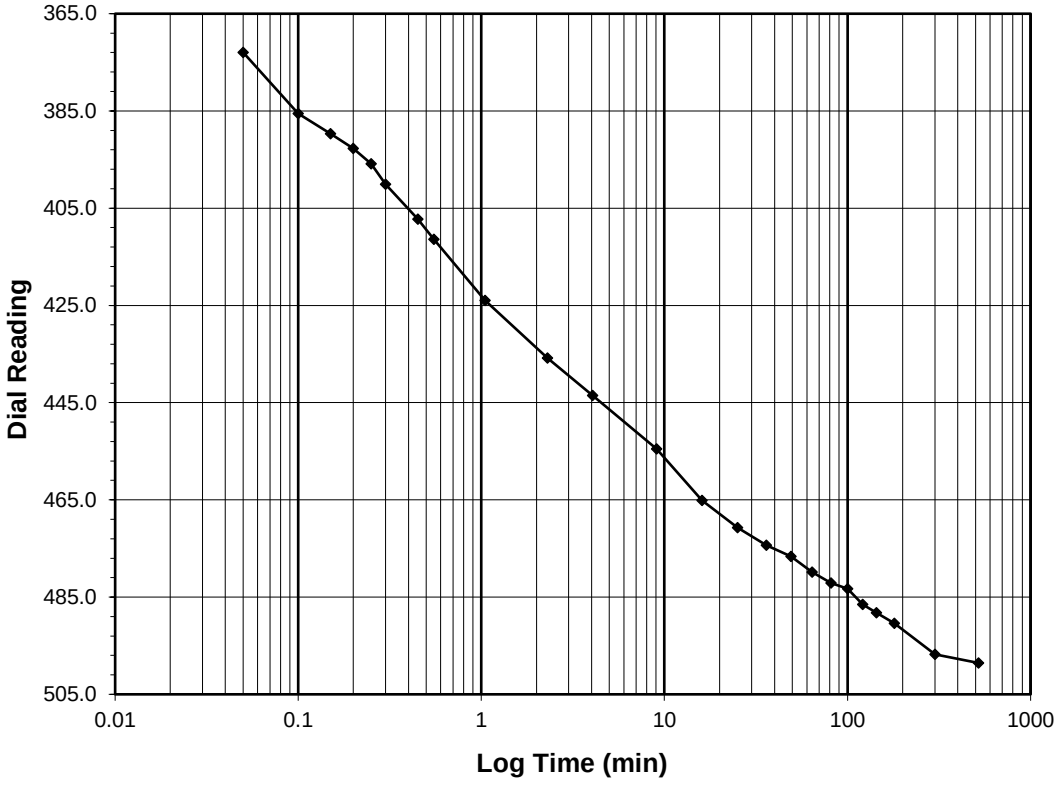
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**498.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		9:17:21

Elapsed Time (min)	Dial Reading (div)
Initial	**320.6**
0.05	373.0
0.10	385.6
0.15	389.7
0.20	392.7
0.25	395.9
0.30	400.1
0.45	407.3
0.55	411.4
1.05	424.0
2.30	435.9
4.05	443.5
9.05	454.5
16.05	465.1
25.07	470.7
36.07	474.3
49.07	476.6
64.07	479.9
81.07	482.1
100.07	483.3
121.07	486.5
144.07	488.3
180.07	490.4
300.07	496.8
520.07	498.6

Tested By NL *Date* 9/3/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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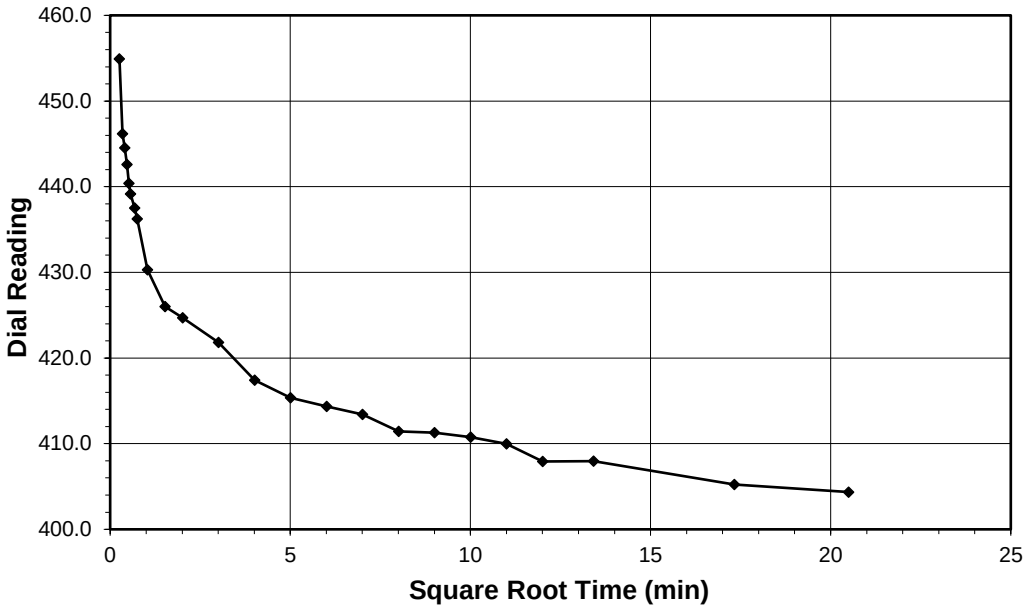
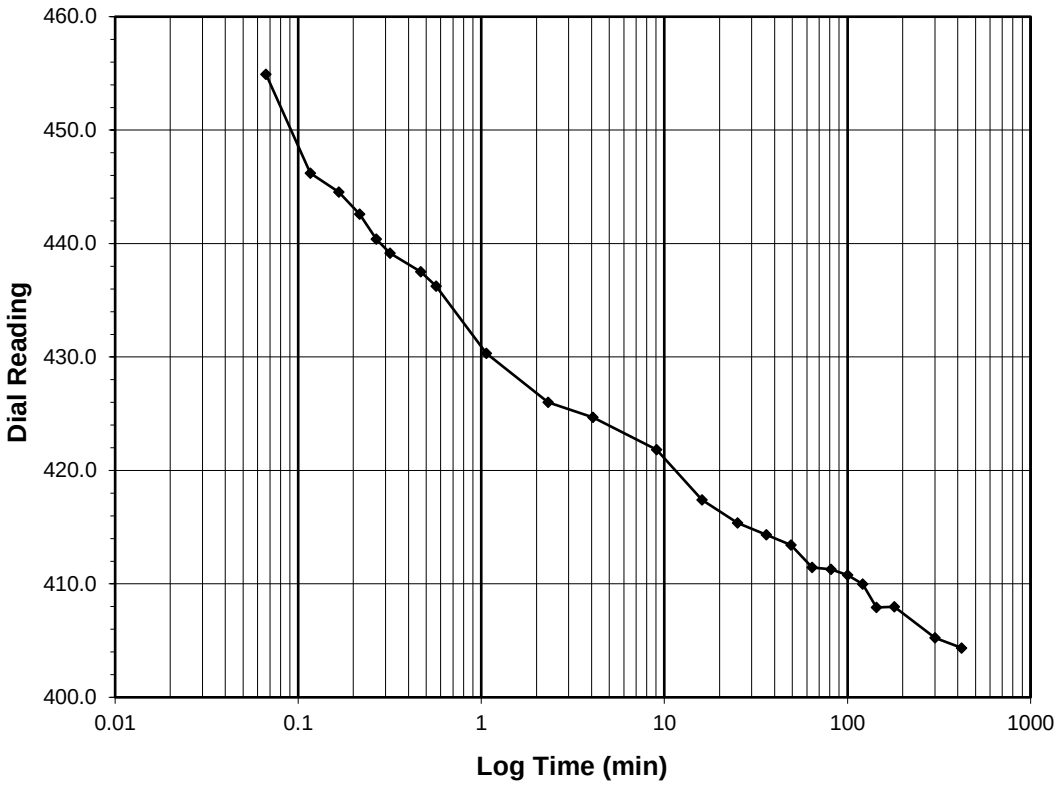
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**404.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		17:57:50

Elapsed Time (min)	Dial Reading (div)
Initial	**498.6**
0.07	454.9
0.12	446.2
0.17	444.5
0.22	442.6
0.27	440.4
0.32	439.1
0.47	437.5
0.57	436.3
1.07	430.3
2.32	426.0
4.07	424.7
9.07	421.8
16.07	417.4
25.07	415.4
36.07	414.3
49.07	413.4
64.07	411.4
81.07	411.3
100.07	410.8
121.07	410.0
144.08	407.9
180.08	408.0
300.08	405.2
420.13	404.4

Tested By NL *Date* 9/3/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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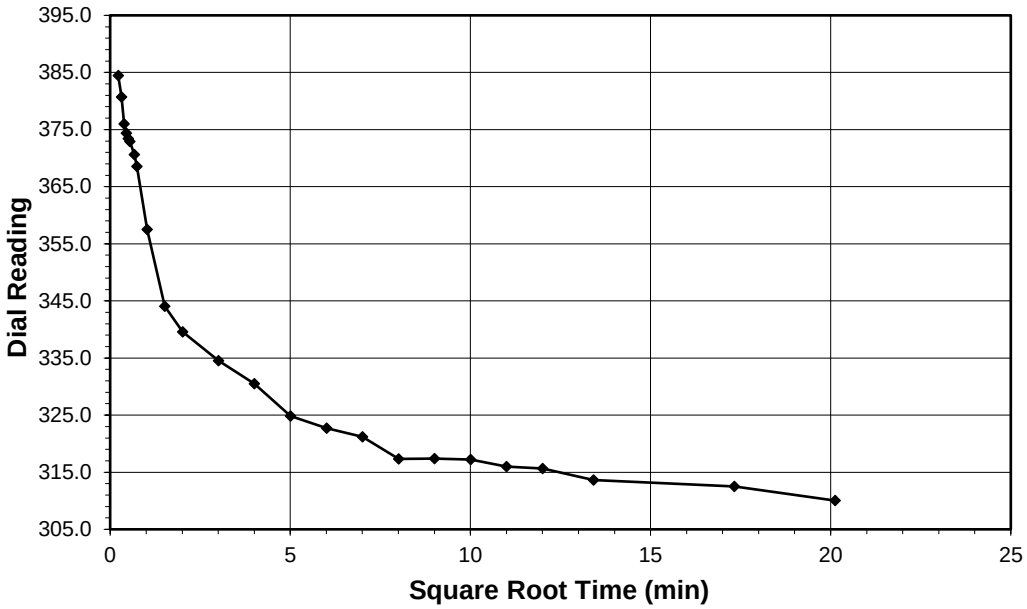
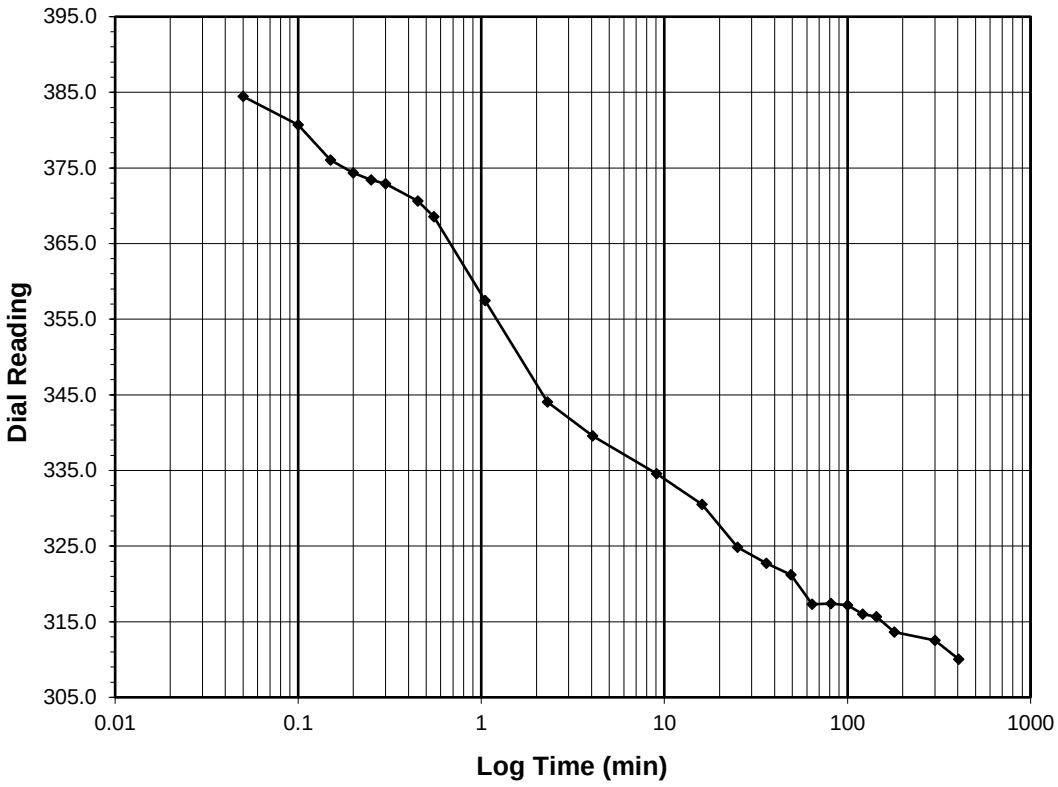
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**310.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		0:57:58

Elapsed Time (min)	Dial Reading (div)
Initial	**404.4**
0.05	384.5
0.10	380.7
0.15	376.0
0.20	374.4
0.25	373.4
0.30	372.9
0.45	370.6
0.55	368.6
1.05	357.5
2.30	344.1
4.05	339.6
9.05	334.6
16.05	330.5
25.07	324.8
36.07	322.7
49.07	321.2
64.07	317.3
81.07	317.4
100.07	317.2
121.07	316.0
144.07	315.7
180.07	313.6
300.07	312.5
405.02	310.0

Tested By NL *Date* 9/4/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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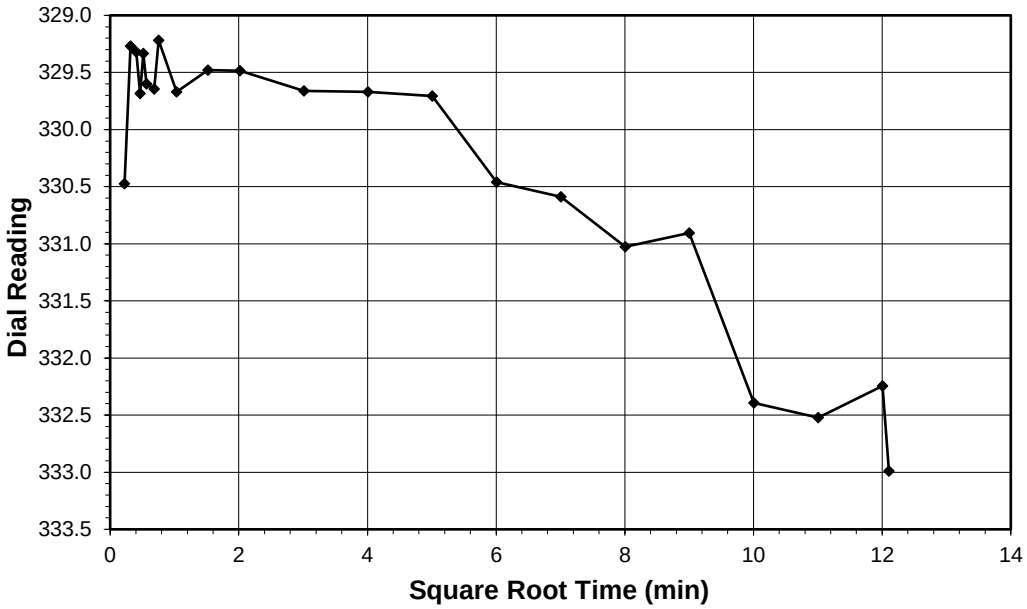
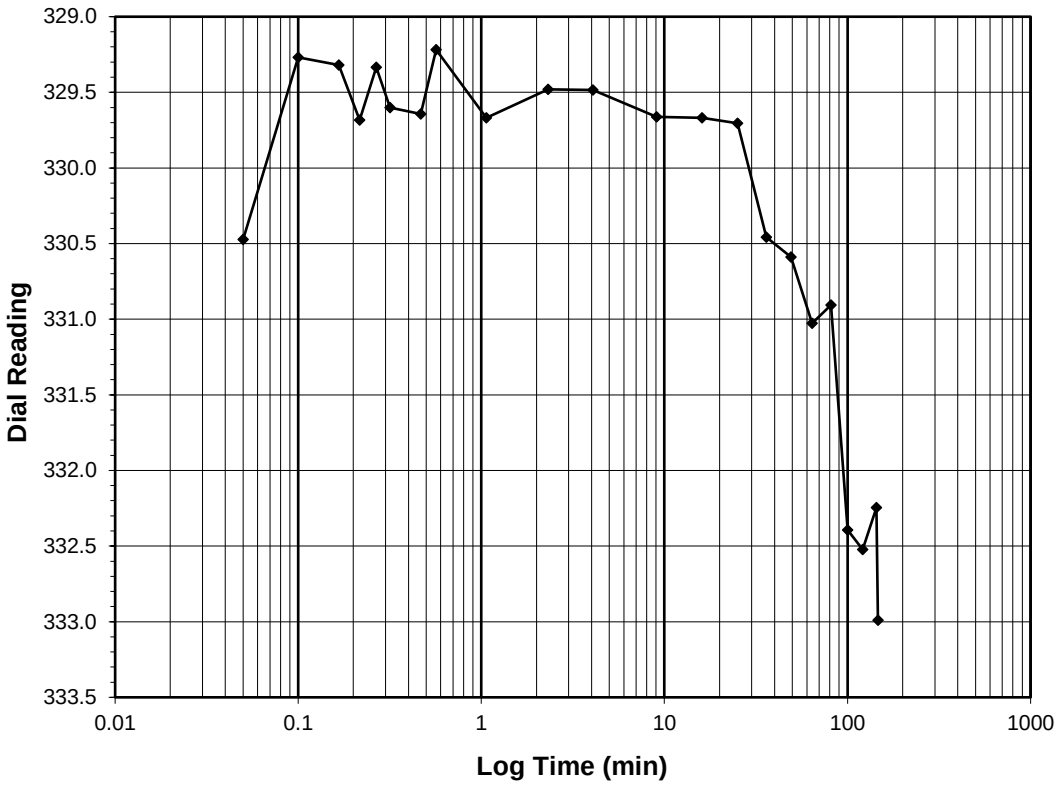
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**333.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		7:42:59

Elapsed Time (min)	Dial Reading (div)
Initial	**310.0**
0.05	330.5
0.10	329.3
0.17	329.3
0.22	329.7
0.27	329.3
0.32	329.6
0.47	329.6
0.57	329.2
1.07	329.7
2.32	329.5
4.07	329.5
9.07	329.7
16.07	329.7
25.07	329.7
36.07	330.5
49.07	330.6
64.07	331.0
81.07	330.9
100.08	332.4
121.08	332.5
144.08	332.2
146.55	333.0

Tested By *NL* *Date* *9/4/2020* *Checked By* *GEM* *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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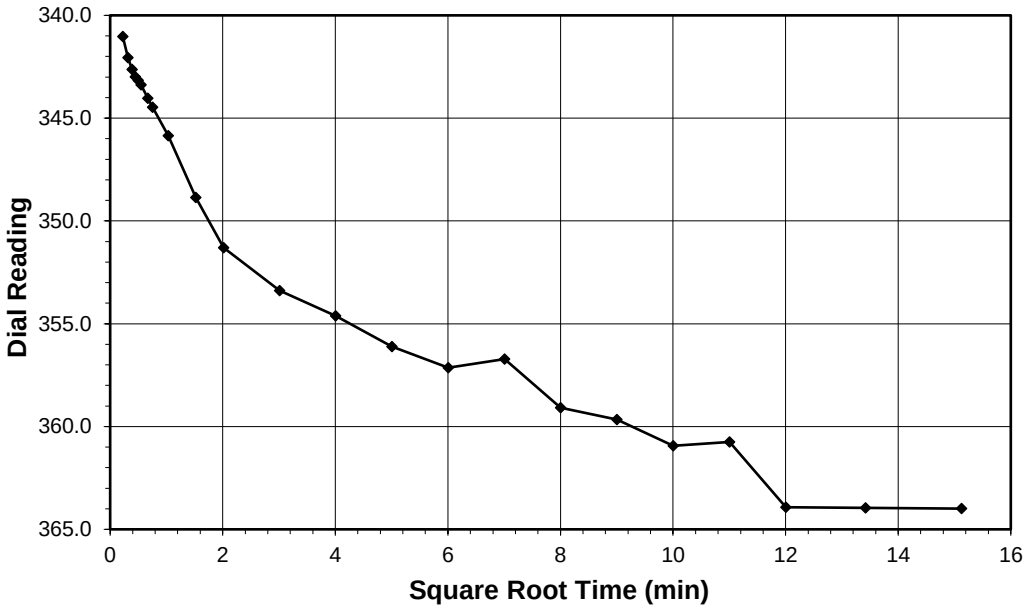
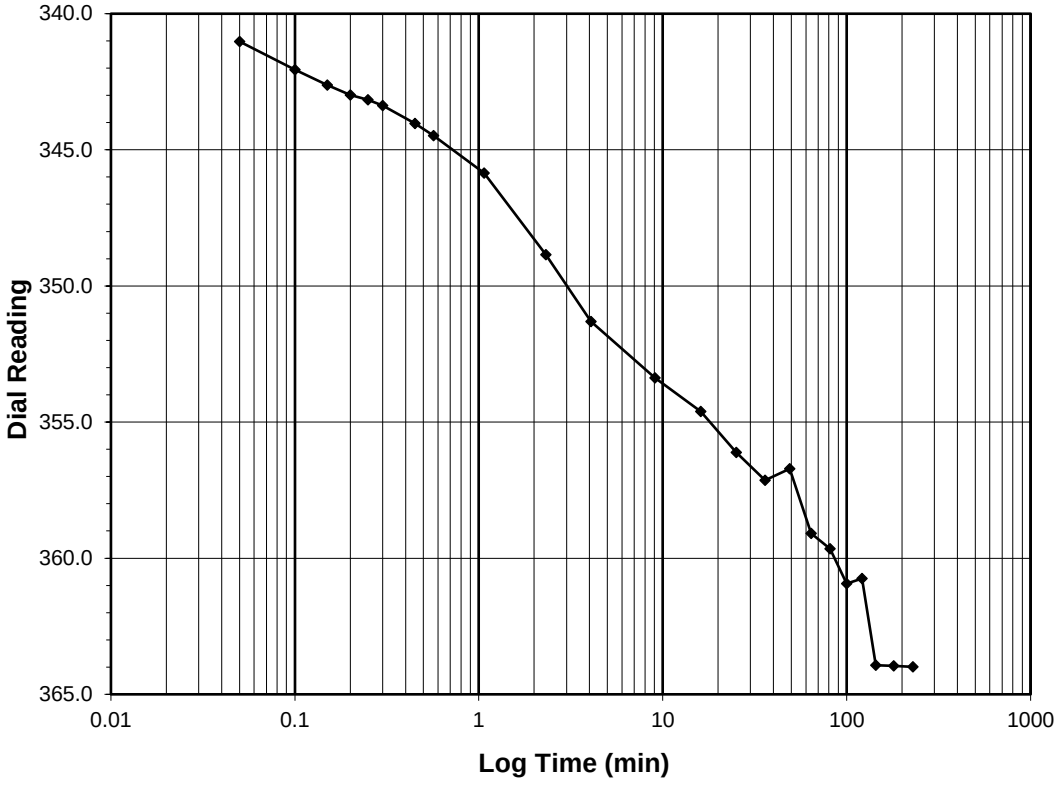
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**364.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		10:09:32

Elapsed Time (min)	Dial Reading (div)
Initial	**333.0**
0.05	341.0
0.10	342.1
0.15	342.6
0.20	343.0
0.25	343.2
0.30	343.4
0.45	344.0
0.57	344.5
1.07	345.9
2.32	348.9
4.07	351.3
9.07	353.4
16.07	354.6
25.07	356.1
36.07	357.1
49.07	356.7
64.07	359.1
81.07	359.7
100.07	360.9
121.07	360.7
144.07	363.9
180.07	364.0
228.75	364.0

Tested By NL *Date* 9/4/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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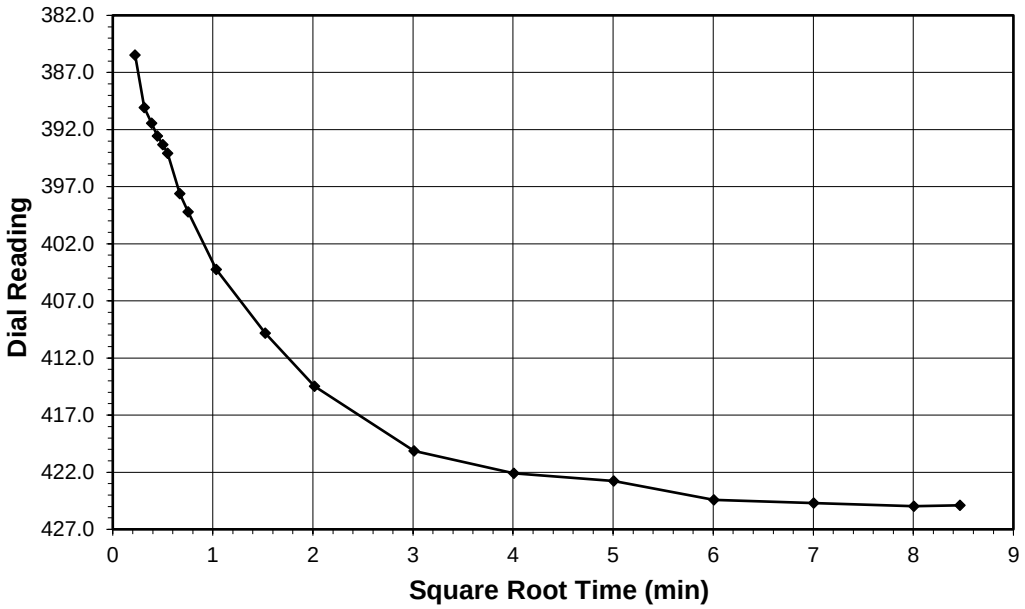
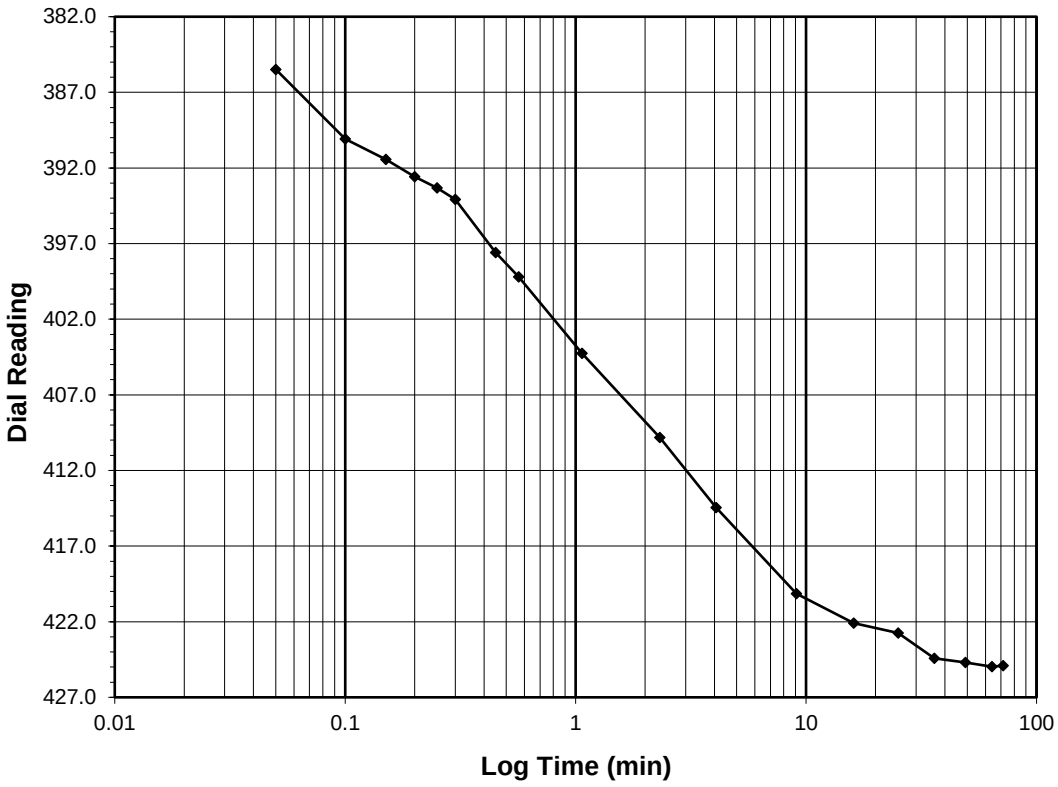
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**424.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		13:58:17

Elapsed Time (min)	Dial Reading (div)
Initial	**364.0**
0.05	385.5
0.10	390.1
0.15	391.4
0.20	392.6
0.25	393.3
0.30	394.1
0.45	397.6
0.57	399.2
1.07	404.3
2.32	409.8
4.07	414.5
9.07	420.1
16.07	422.1
25.07	422.8
36.07	424.4
49.07	424.7
64.07	425.0
71.68	424.9

Tested By *NL* *Date* *9/4/2020* *Checked By* *GEM* *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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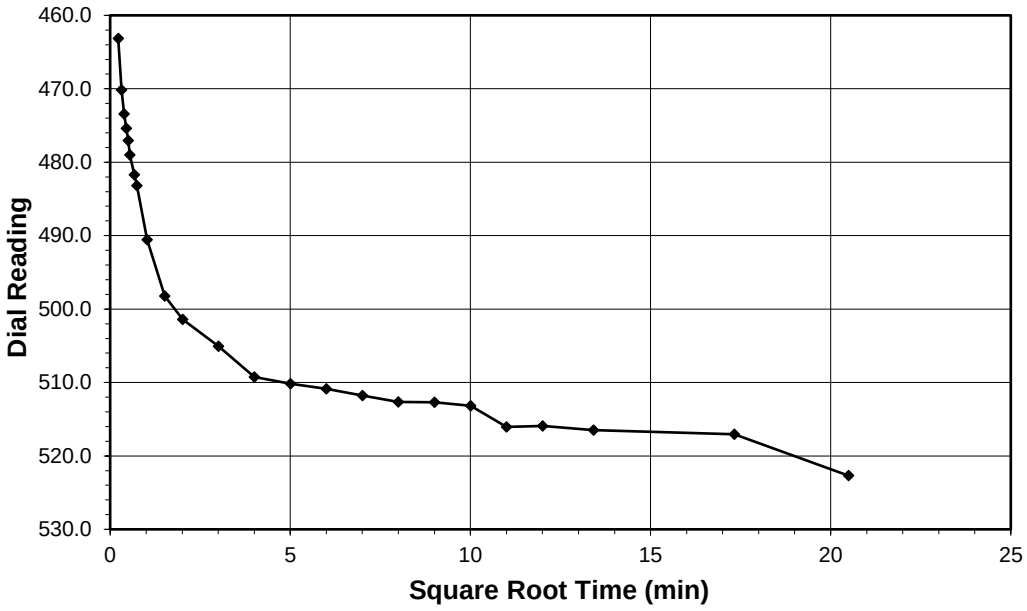
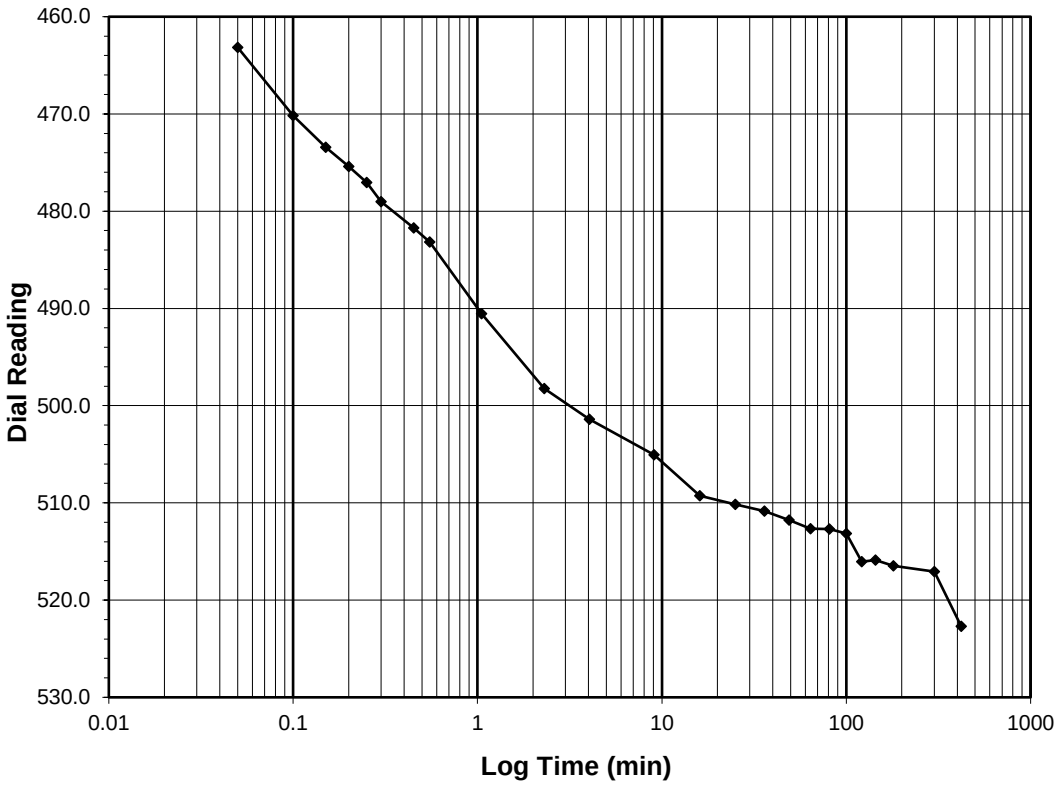
ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**522.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		15:09:59

Elapsed Time (min)	Dial Reading (div)
Initial	**424.9**
0.05	463.2
0.10	470.2
0.15	473.4
0.20	475.4
0.25	477.1
0.30	479.0
0.45	481.7
0.55	483.2
1.05	490.6
2.30	498.2
4.05	501.4
9.05	505.1
16.05	509.3
25.05	510.1
36.05	510.8
49.05	511.8
64.05	512.7
81.07	512.7
100.07	513.2
121.07	516.0
144.07	515.9
180.07	516.5
300.07	517.1
420.02	522.7

Tested By NL *Date* 9/4/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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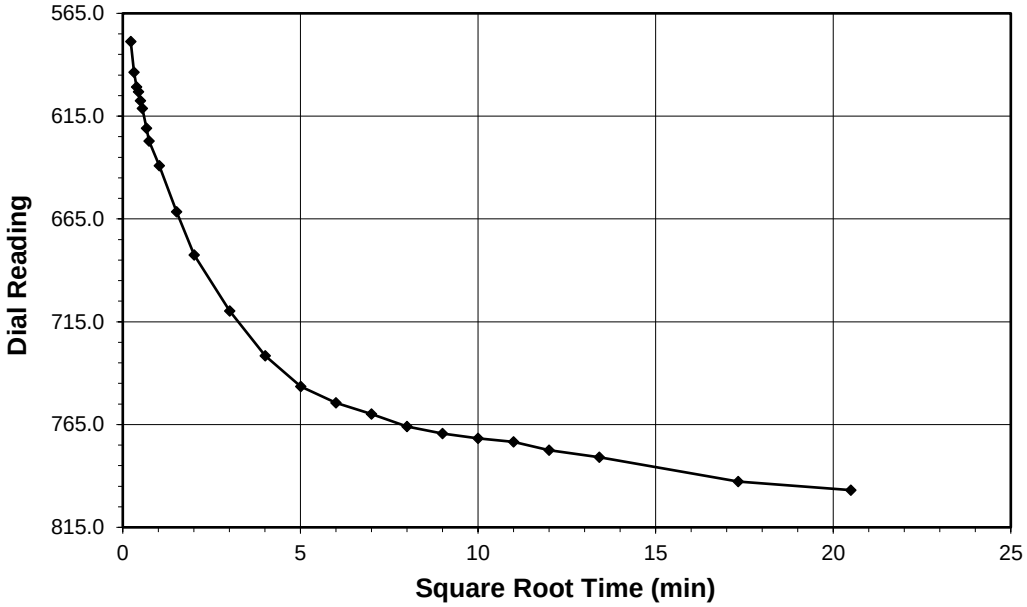
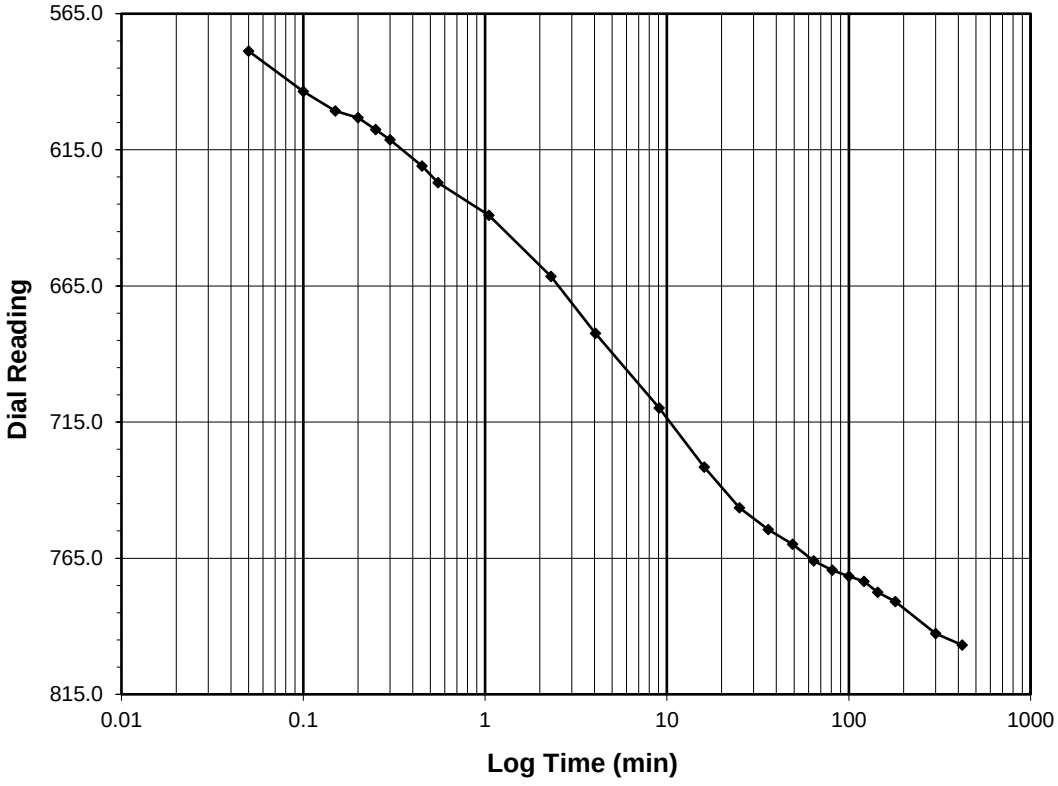
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**796.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		22:10:00

Elapsed Time (min)	Dial Reading (div)
Initial	**522.7**
0.05	578.7
0.10	593.6
0.15	600.7
0.20	603.2
0.25	607.5
0.30	611.3
0.45	620.9
0.55	627.0
1.05	639.1
2.30	661.6
4.05	682.5
9.05	709.8
16.05	731.6
25.07	746.4
36.07	754.5
49.07	759.9
64.07	766.0
81.07	769.4
100.07	771.7
121.07	773.5
144.07	777.5
180.07	780.9
300.07	792.7
420.02	796.9

Tested By NL *Date* 9/4/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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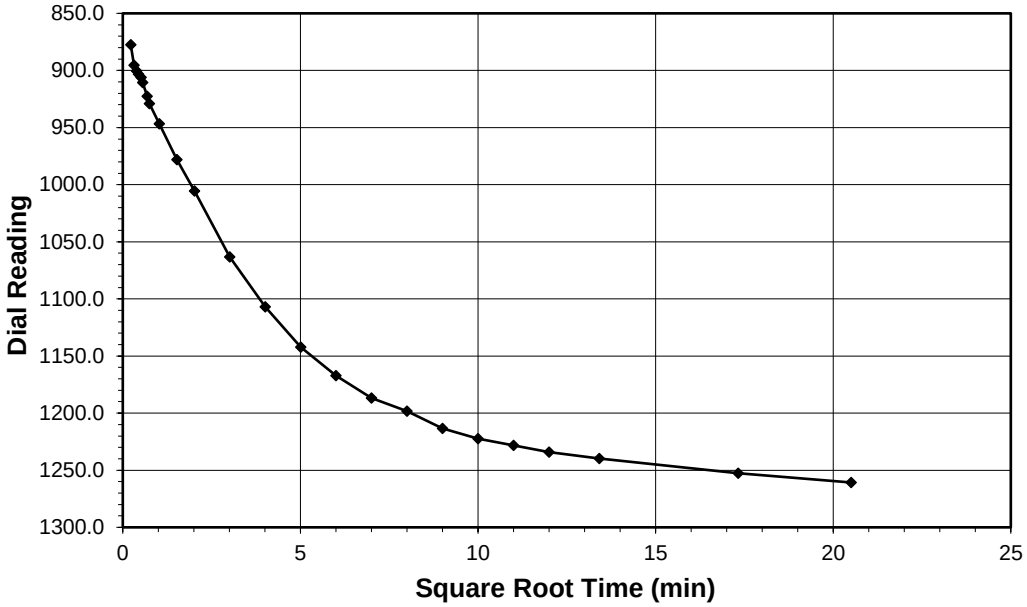
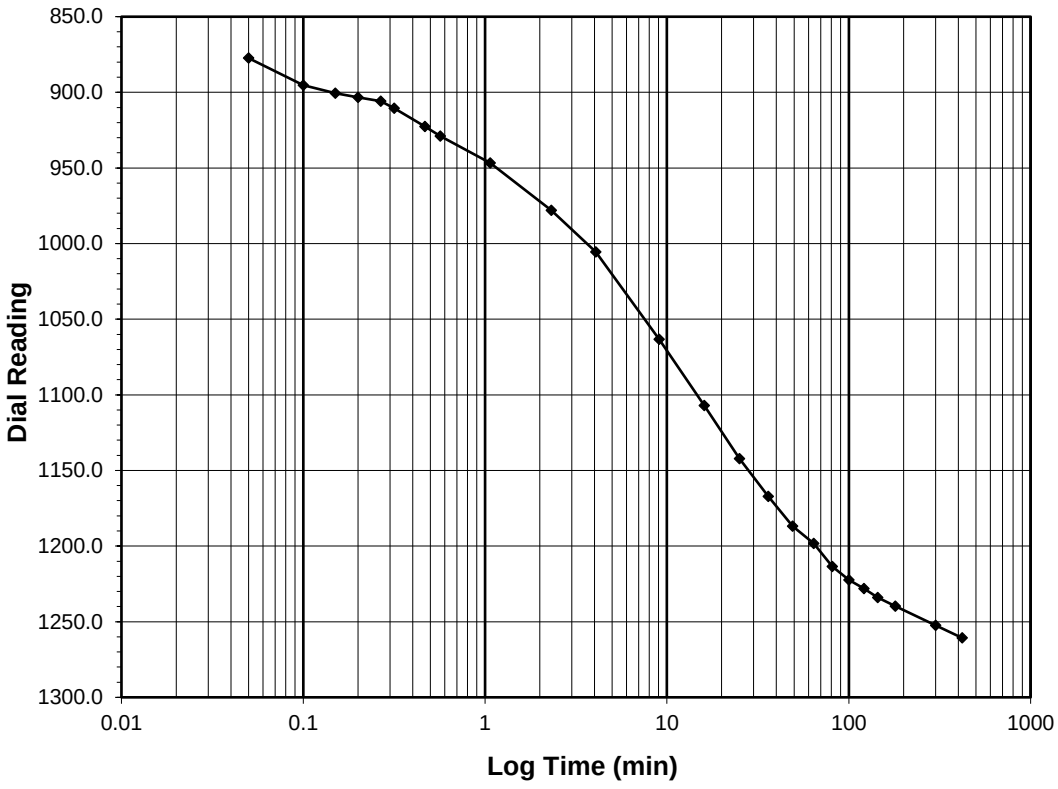
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**1260.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/5/2020
Start Time		5:10:01

Elapsed Time (min)	Dial Reading (div)
Initial	**796.9**
0.05	877.4
0.10	895.4
0.15	900.6
0.20	903.4
0.27	905.9
0.32	910.5
0.47	922.5
0.57	928.9
1.07	946.7
2.32	978.0
4.07	1005.5
9.07	1063.2
16.07	1107.0
25.07	1142.2
36.07	1167.3
49.07	1186.8
64.07	1198.4
81.07	1213.5
100.07	1222.4
121.07	1228.2
144.07	1234.0
180.07	1239.7
300.07	1252.5
420.47	1260.7

Tested By *NL* *Date* *9/5/2020* *Checked By* *GEM* *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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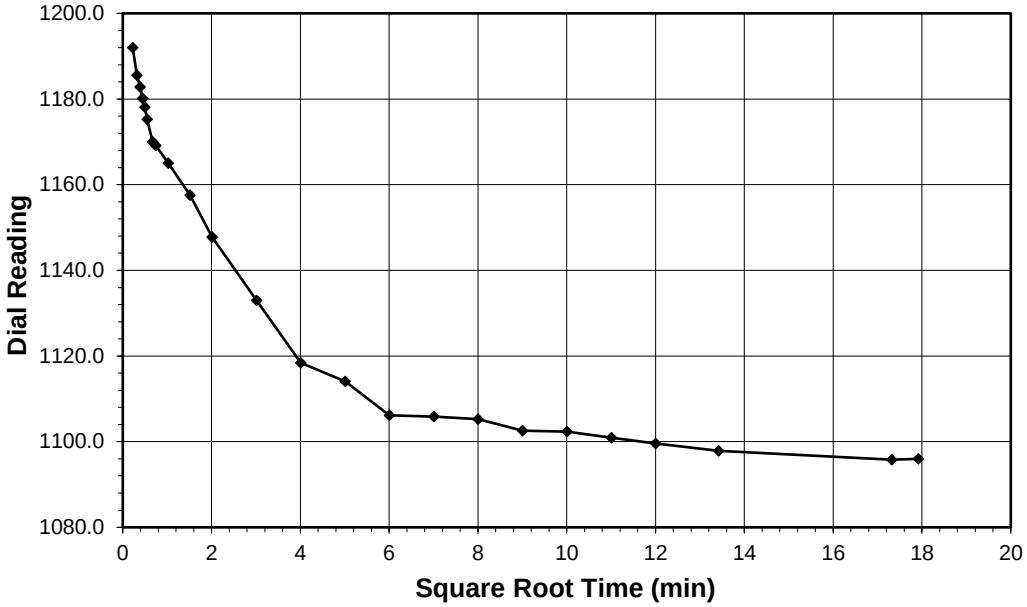
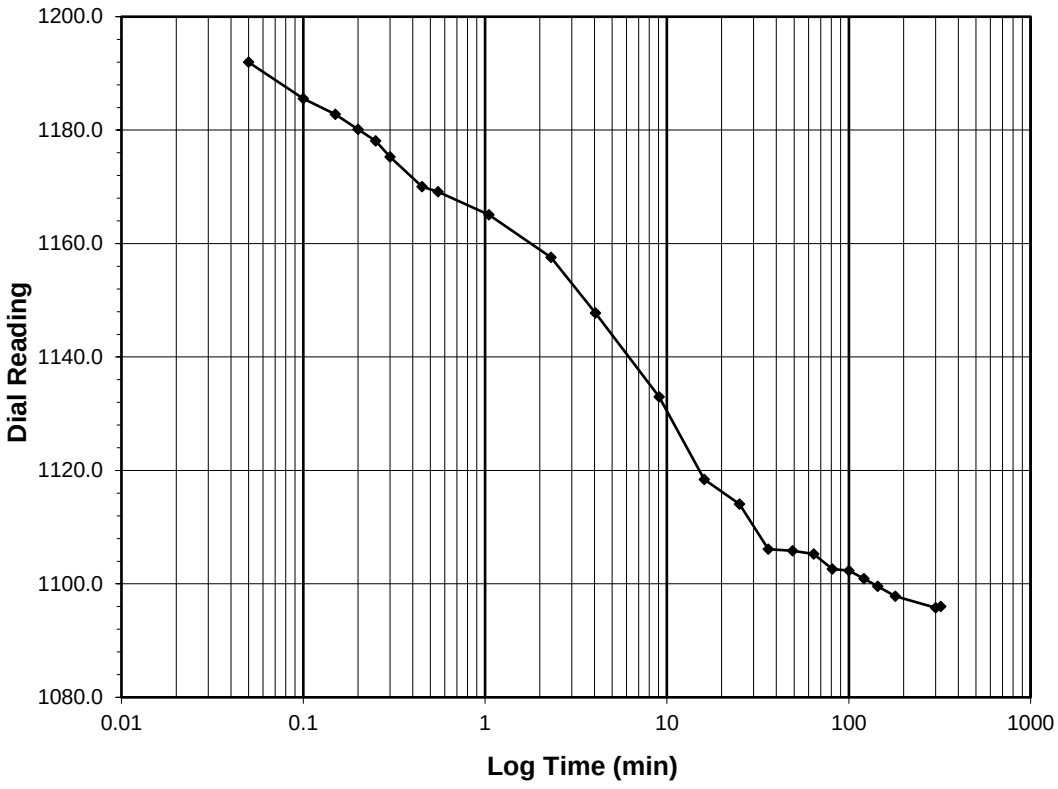
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**1096.0**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/5/2020
Start Time		12:10:29

Elapsed Time (min)	Dial Reading (div)
Initial	**1260.7**
0.05	1192.0
0.10	1185.6
0.15	1182.8
0.20	1180.1
0.25	1178.1
0.30	1175.3
0.45	1170.1
0.55	1169.2
1.05	1165.1
2.30	1157.6
4.05	1147.8
9.07	1133.0
16.07	1118.4
25.07	1114.1
36.07	1106.1
49.07	1105.8
64.07	1105.3
81.07	1102.6
100.07	1102.3
121.07	1100.9
144.07	1099.6
180.07	1097.8
300.07	1095.8
320.98	1096.0

Tested By NL *Date* 9/5/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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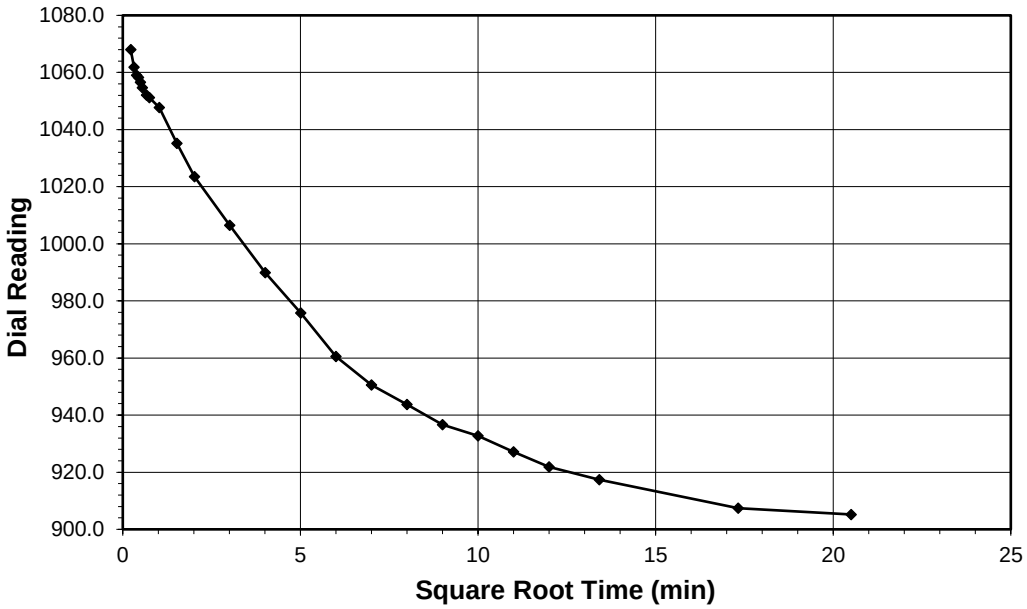
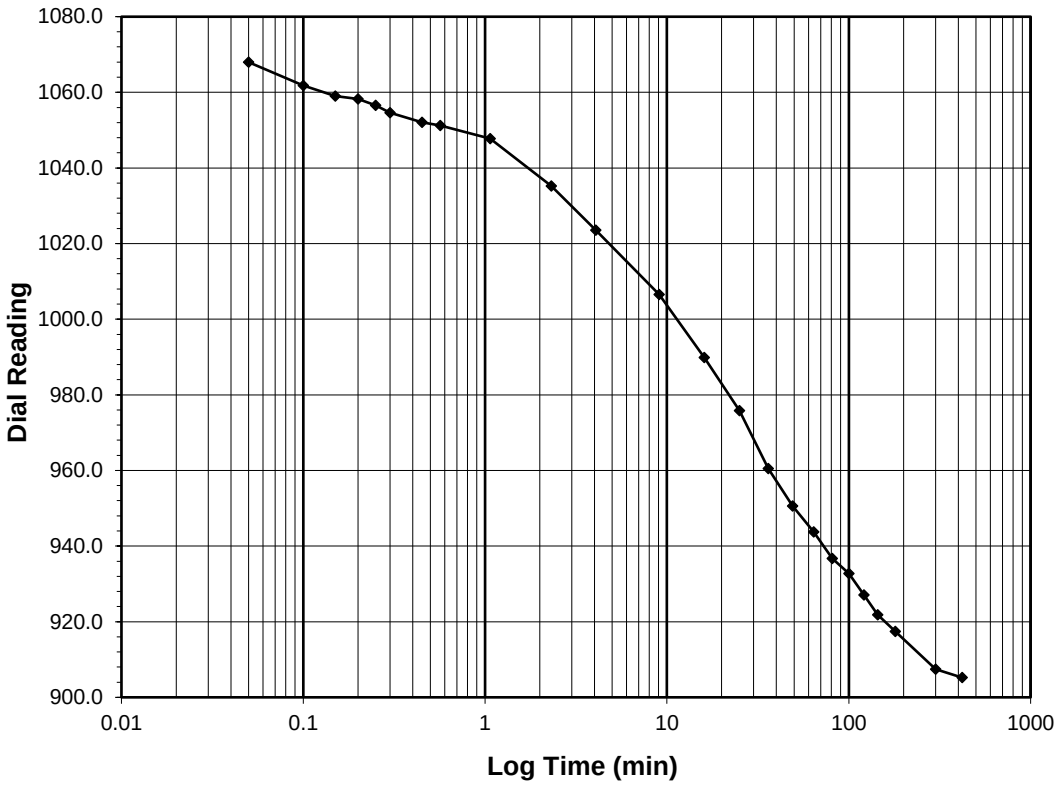
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**905.2**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/5/2020
Start Time		17:31:28

Elapsed Time (min)	Dial Reading (div)
Initial	**1096.0**
0.05	1068.0
0.10	1061.8
0.15	1059.0
0.20	1058.2
0.25	1056.5
0.30	1054.6
0.45	1052.1
0.57	1051.2
1.07	1047.7
2.32	1035.2
4.07	1023.6
9.07	1006.5
16.07	989.9
25.07	975.8
36.07	960.5
49.07	950.6
64.07	943.8
81.07	936.7
100.07	932.8
121.07	927.1
144.07	921.9
180.07	917.4
300.07	907.4
420.45	905.2

Tested By *NL* *Date* *9/5/2020* *Checked By* *GEM* *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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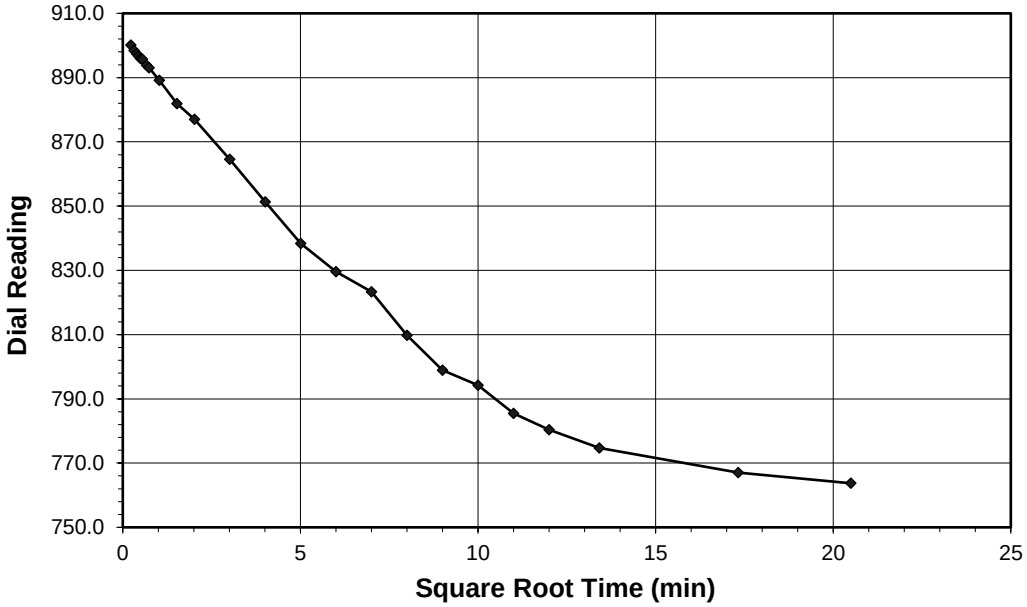
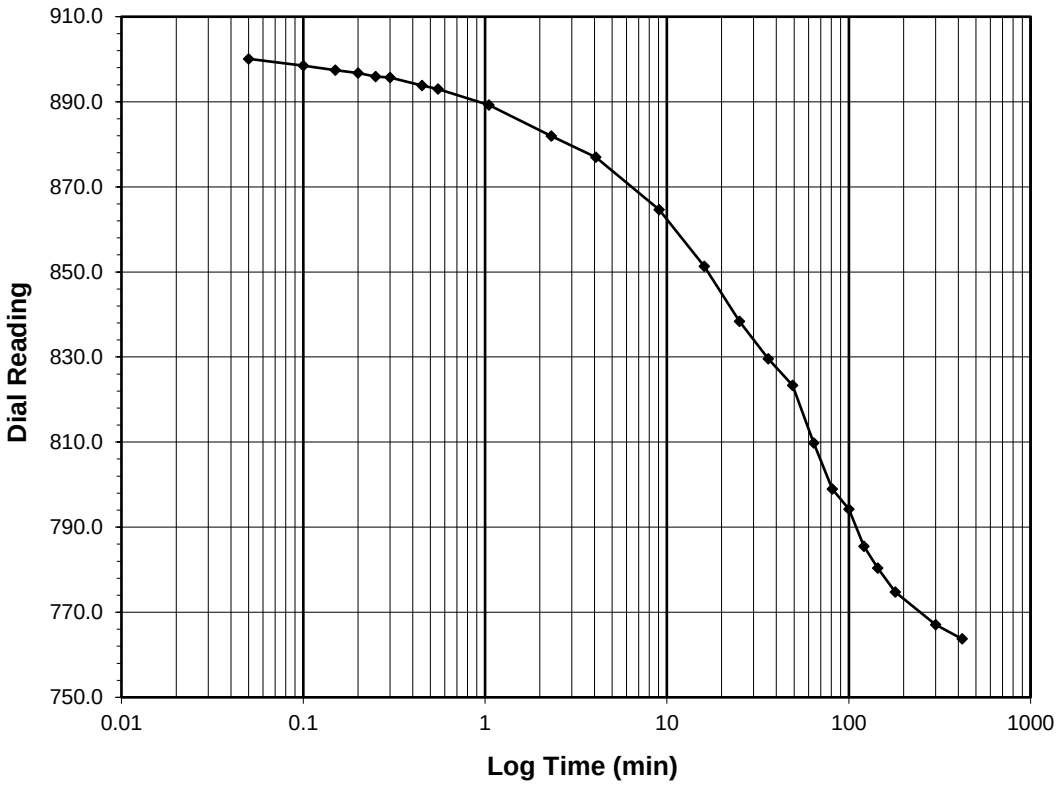
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-11

Client	Catlin Engineers & Scientists	Boring No.	PRN_20_UD
Client Project	USACE Princeville	Depth (ft)	10.5'-12.7'
Project No.	R-2020-164-002	Sample No.	SPT07-1
Lab ID	R-2020-164-002-035	Visual Description	Blue-Gray Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**763.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		9/6/2020
Start Time		0:31:55

Elapsed Time (min)	Dial Reading (div)
Initial	**905.2**
0.05	900.1
0.10	898.5
0.15	897.4
0.20	896.7
0.25	895.9
0.30	895.7
0.45	893.8
0.55	893.0
1.05	889.2
2.32	881.9
4.07	877.0
9.07	864.6
16.07	851.3
25.07	838.4
36.07	829.6
49.07	823.4
64.07	809.8
81.07	798.9
100.07	794.2
121.07	785.5
144.07	780.4
180.07	774.7
300.07	767.1
420.00	763.7

Tested By NL *Date* 9/6/2020 *Checked By* GEM *Date* 9/10/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2020 PROJECTS\Catlin\2020-164 Catlin - USACE Princeville\2020-164-002\[2020-164-002-035 GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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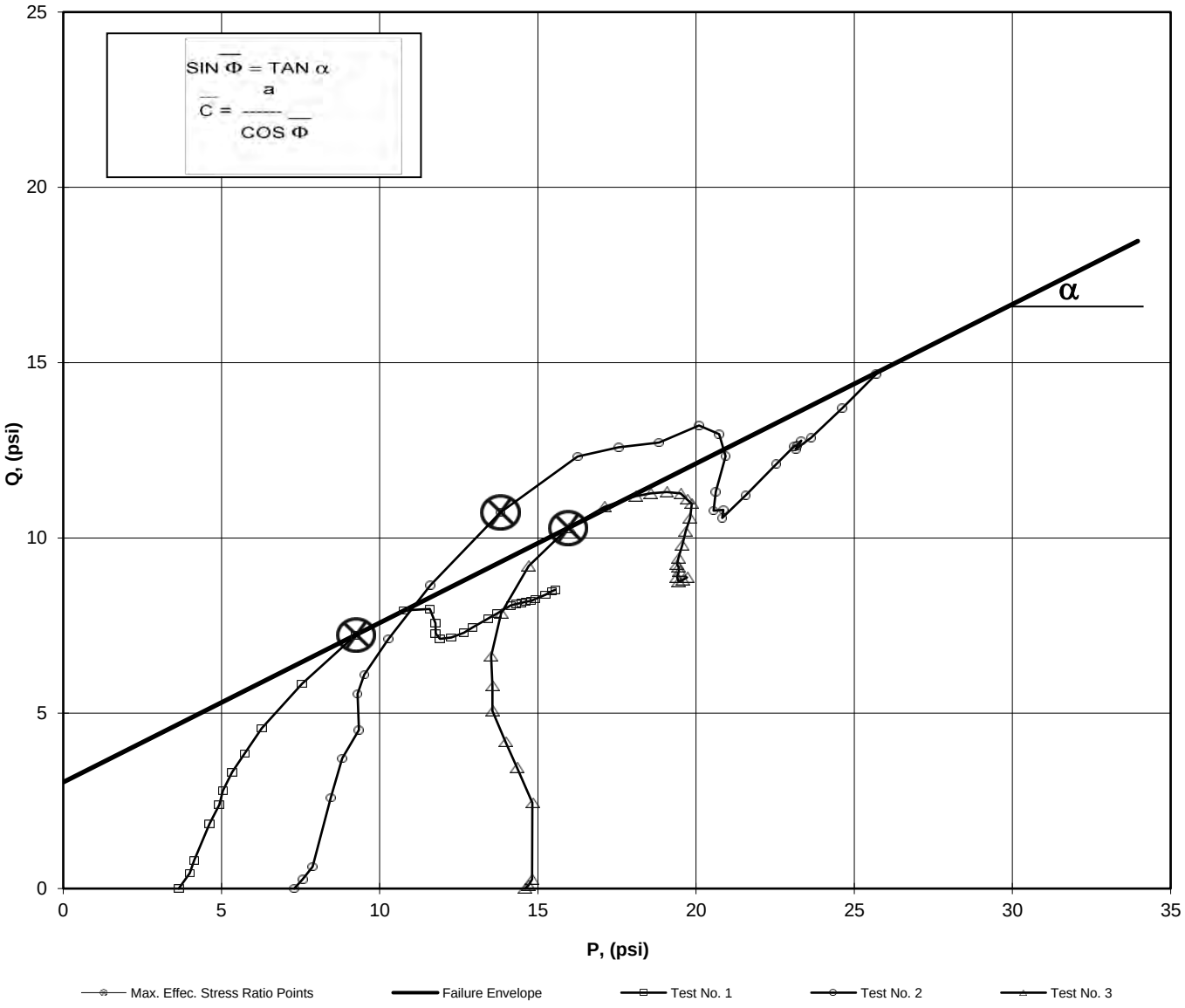
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	10.5'-12.7'
Project No.:	R-2020-164-002	Sample No.:	SPT07-1
Lab ID:	R-2020-164-002-035		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	**3.03**	$\overline{C}$	=	**3.41**
α	=	**24.4**	$\overline{\Phi}$	=	**27.03**

Tested By: MY Date: 9/13/20 Approved By: MPS Date: 9/17/20

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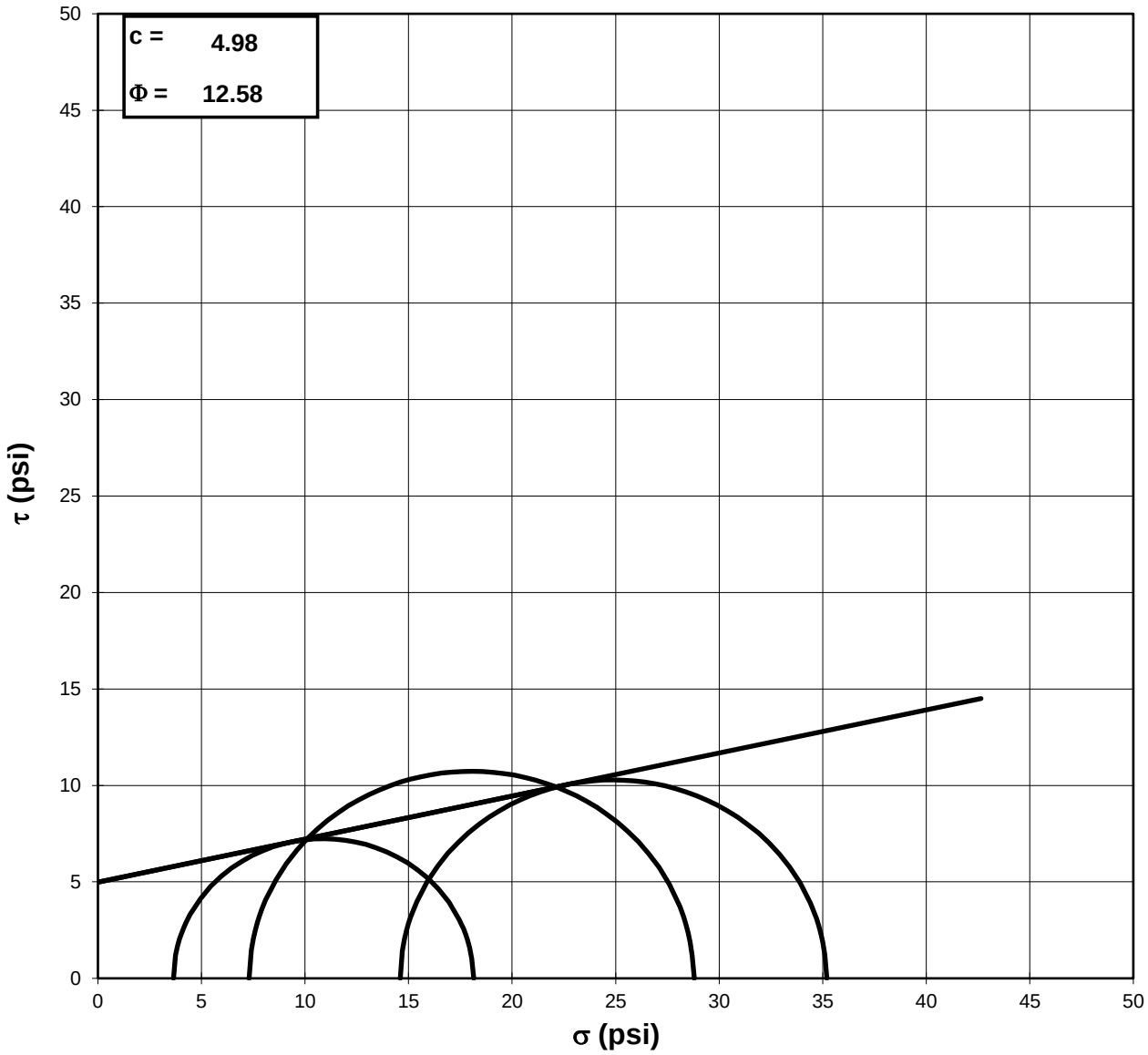
MOHR TOTAL STRENGTH ENVELOPE

ASTM D4767-11

Client:	Catlin Engineers & Scientists	Boring No.:	PRN_20_UD
Client Reference:	USACE Princeville	Depth (ft):	10.5'-12.7'
Project No.:	R-2020-164-002	Sample No.:	SPT07-1
Lab ID:	R-2020-164-002-035		
Visual Description:	Gray Clay (UNDISTURBED)		



Failure Based on Maximum Effective Principal Stress Ratio

NOTE: GRAPH NOT TO SCALE

Tested By: MY *Date:* 9/13/20 *Approved By:* MPS *Date:* 9/17/20

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