



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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SECRETARY

June 27, 2023

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ATTN: Mr. Kyle Barnes,
NCDOT Coordinator

Mr. Garcy Ward
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Mr. Greg Daisey
NCDOT Coordinator

SUBJECT: Application for Section 404/Section 10 Individual Permit, Section 401 Individual Water Quality Certification, and CAMA Major Development Permit for the Proposed Replacement of the Lindsay C. Warren Bridge (Tyrrell County Bridge No. 7) on U.S. 64 over the Alligator River/Atlantic Intracoastal Waterway in Tyrrell and Dare Counties, North Carolina. STIP Project No. HB-0001; Federal Aid Project No. NHPB-0001; USACE Action ID No. SAW-2021-01091.

Dear Sirs:

The North Carolina Department of Transportation (NCDOT) proposes to replace the Lindsay C. Warren Bridge (Tyrrell County Bridge No. 7) on U.S. 64 over the Alligator River portion of the Atlantic Intracoastal Waterway in Tyrrell and Dare Counties, North Carolina (at Atlantic Intracoastal Waterway Mile 84.2). The project will replace the existing 2.83-mile-long swing-span drawbridge with a modern 3.32-mile, two-lane, fixed-span, high-rise bridge north of the existing alignment. The new structure will be comprised of either driven piles or drilled piers, Florida I-beam concrete girders, concrete deck panels, and a drivable wearing surface will provide a vertical navigable channel clearance of 65 feet and a navigational channel horizontal clearance of 140 feet.

The purpose of this letter is to request approval for a Section 404 Individual Permit and Section 401 Individual Water Quality Certification. Additionally, a Coastal Area Management Act (CAMA) Major Development Permit is being pursued from the North Carolina Division of Coastal Management (DCM). In addition to this cover letter, this application package includes the following:

Mailing Address:
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RALEIGH, NC 27699-1598

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ENG Form 4345, stormwater management plan, permit drawings, roadway plans, erosion control plans, Division of Mitigation Services (DMS) Acceptance Letter, United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) survey/concurrence documentation, Concurrence Point 4B/4C meeting minutes, and CAMA application forms.

Purpose and Need

The project purpose and need are as follows:

The **NEED** for the proposed project:

The current bridge is experiencing substantial deterioration due to its age and structural deficiencies resulting in ongoing maintenance problems, jeopardizing its ability to provide a reliable connection between Columbia and Manns Harbor, Manteo, and the Outer Banks. The NEED for the project is demonstrated by the following summary of existing and projected conditions:

- Replacement is critical due to the age and structural deficiency of the bridge. The existing bridge is a 2.83-mile long, 2-lane bridge consisting of 343 spans with a moveable steel swing span. The bridge was constructed in 1960 and is classified as structurally deficient with a 31.71 rating of a possible 100.
- The existing bridge requires costly, heavy maintenance on a regular basis and requires constant smaller maintenance activities to keep the swing mechanism operational.
- Approximately 3.5 years ago (November 2019), a \$17 million major rehabilitation project was completed, consisting of several hundred pile jackets, concrete repair, deck surfacing, and a major mechanical overhaul of the swing mechanism and controls. Similar rehabilitation efforts will be needed within 5-6 years.
- Even with the major rehabilitation, the Department is required to perform regular work to maintain the swing mechanism, which has a history of malfunction resulting in closure of the bridge to vehicular travel. The mechanical parts, gears, and controls are not readily available and require custom fabrication with long lead times to acquire and replace.
- The existing Lindsay C. Warren bridge traffic will need to be maintained during construction of the new bridge. Depending on duration of construction, regular maintenance of the existing bridge may also need to occur. Vertical and horizontal navigational clearance has been approved by the United States Coast Guard (USCG). Marine passage along the Atlantic Intracoastal Waterway will need to be maintained during construction.

The **PURPOSE** of the proposed project is to:

- Replace the existing 2.83-mile-long Lindsay C. Warren Bridge (Tyrrell County Bridge Number 7) carrying U.S. 64 across the Alligator River, with a two-lane, high-level, fixed-span bridge.

Project Description

The NCDOT proposes to replace the Lindsay C. Warren Bridge (Tyrrell County Bridge No. 7) on U.S. 64 over the Alligator River portion of the Atlantic Intracoastal Waterway in Tyrrell and Dare Counties, North Carolina (at Atlantic Intracoastal Waterway Mile 84.2). The existing bridge is a two-lane swing bridge and would be removed as part of the project. The proposed replacement structure would be a modern two-lane, high-level, fixed span bridge providing a vertical navigable clearance of 65 feet and horizontal navigational clearance of 140 feet. The HB-0001 project proposes a 2-lane (12 feet each) roadway and bridge, with 10-foot shoulders (5-foot paved on the approaches) and 8-foot paved shoulders on the bridge. Total project length is approximately 4.25 miles.

The project starts in Tyrrell County on U.S. 64, just west of Fort Landing Road (Sta. 662+50). The new bridge alignment diverges from the existing U.S. 64 alignment and passes north of the existing marina/convenience store and crosses the Alligator River to the north of the existing Lindsay C. Warren Bridge. The project ends in Dare County and ties back into existing U.S. 64 past Old Ferry Landing Road (Sta. 907+60).

The existing Lindsay C. Warren bridge traffic will need to be maintained during construction of the new bridge. Depending on duration of construction, regular maintenance of the existing bridge may need to occur. Marine traffic will also continue using the existing navigational channel and the swing span bridge would continue to function.

Project Schedule

Mobilization is proposed to begin in June 2024 when the project is Let, with in-water construction scheduled to begin around November 2024. Proposed bridge completion is in 2028 and demolition of the existing bridge is scheduled for 2029.

Summary of Impacts

The Categorical Exclusion (CE) and subsequent Right-of-Way (ROW) Consultation anticipated that the Preferred Alternative would result in the following permanent jurisdictional impacts:

Table 1: Potential Permanent Jurisdictional Impacts from CE and ROW Consultation, Preferred Alternative

Resources	Impacts from CE	Impacts from ROW Consultation	Notes
CAMA Resources (acres)			
Estuarine Public Trust Waters	0.10	0.02	
Coastal Wetlands	0.12	0.076	
Non-CAMA Resources (acres)			
Wetlands	15.3	10.57	Excludes Coastal Wetlands (listed above)
Surface Waters	0.35	0.21	Included Ponds and Tributaries

The current design prepared by NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable. Through avoidance and minimization efforts the proposed design has reduced jurisdictional impacts to the following:

Table 2: Permanent and Temporary Jurisdictional Impacts, Permit Drawings

Resources		Area (acres)	Notes
CAMA Resources (acres)			
Estuarine Public Trust Waters		0.0	
Coastal Wetlands		0.054	Includes Permanent Fill and Mechanized Clearing
Resources	Impact Type	Area (acres)	Notes
Non-CAMA Resources (acres)			
Wetlands(excludes Coastal Wetlands)	Permanent Impact	9.048	Includes Fill and Excavation
	Mechanized Clearing	1.748	
	Temporary Fill	0.60	
	Hand Clearing	3.27	
Surface Waters	Permanent Impact	0.178	Included Ponds, Tributaries, open water impacts to Alligator River, and other open waters
	Temporary Impact	10.84	

Permanent impacts to Public Trust Waters were eliminated. Permanent impacts to Section 404/CAMA wetlands were reduced by 0.066 acres from the CE and 0.022 acres from the ROW Consultation. Permanent impacts to Section 404 wetlands (includes fill and mechanized clearing) were reduced by 4.504 acres from the CE and increased 0.226 acres from the ROW Consultation (the increase was a result of requests made by agencies during the Concurrence Point 4C meeting to increase mechanized clearing impacts at certain sites). Permanent impacts to surface waters were reduced by 0.172 acres from the CE and 0.032 acres from the ROW Consultation.

Summary of Mitigation

Compensatory mitigation for unavoidable impacts to Section 404 and Section 404/CAMA wetlands will be provided through a combination of mitigation credits provided by the North Carolina Department of Environmental Quality (NCDEQ) – DMS and on-site mitigation designed by NCDOT. The DMS Mitigation Acceptance Letter and on-site mitigation plan are attached to this application.

NEPA Document Status

The bridge replacement was previously addressed as part of a previous State of North Carolina (non-federal) Environmental Impact Statement (EIS) Study for the improvement and widening of approximately 27 miles of U.S. 64 in Tyrrell and Dare Counties (TIP R-2544/R-2545). The State environmental review process completed a draft Final Environmental Impact Statement (FEIS) for the project, but the FEIS was not signed, and a Record of Decision was not completed.

Under the current STIP No., the Type III CE was approved on August 31, 2021. An update to the CE was provided through a NEPA/SEPA Environmental Consultation (i.e., ROW Consultation) on March 20, 2023. The CE can be found at:

[xfer.services.ncdot.gov - /pdea/EnvironmentalDocs/Documents/](https://xfer.services.ncdot.gov/-/pdea/EnvironmentalDocs/Documents/).

The Consultation can be found at:

[xfer.services.ncdot.gov - /pdea/EnvironmentalDocs/Consultations/](https://xfer.services.ncdot.gov/-/pdea/EnvironmentalDocs/Consultations/)

Merger History

Under R-2544/2545, the project had progressed through a portion of the NEPA/404 Merger process. The selection of a Least Environmentally Damaging Practicable Alternative (LEDPA), Concurrence Point (CP) 3, was achieved on February 14, 2013 and CP 4A (Avoidance and Minimization) was signed on December 17, 2014. The R-2544/R-2544 project did not progress any further in Merger.

A Merger Screening Meeting for HB-0001 was held on January 28, 2021, where it was determined that replacement of the Alligator River bridge, project HB-0001, would proceed through the Merger process as a standalone project. A CP 1 meeting was held on March 10, 2021, where the Merger team agreed on the project Purpose and Need and Project Study Area. A CP 2/2A meeting was held on April 21, 2021, where the Alternatives to Carry Forward were determined, and Hydraulic Considerations reviewed. The HB-0001 Alternative, carrying U.S. 64 over the Alligator River on a new bridge north of the existing bridge, was the only proposed alignment that the Merger team agreed to carry forward. CP 3 (LEDPA) and 4A (Avoidance and Minimization) were reached on June 23, 2021. CP 4B (Hydraulic Design) was held on April 20, 2022. CP 4C (Permit Drawing Review) was held on April 20, 2023.

Resource Status

Water resources associated with the project are part of the Pasquotank River Basin (United States Geological Survey [USGS] Hydrologic Unit Code [HUC] 03010205).

One potential jurisdictional river, the Alligator River (which is also part of the Atlantic Intracoastal Waterway), is located in the HB-0001 footprint. The Alligator River just downstream (north) of the existing bridge (North Carolina Division of Water Resources [NCDWR] Index No. 30-16-[21.5]) is classified as a SC; Swamp (Sw) water. The Alligator River just upstream (south) of the existing bridge (30-16-[7]) is classified as a SC; Sw, Outstanding Resource Water (ORW) from the mouth of Northwest Fork to the existing Lindsay C. Warren Bridge. There are no designated High-Quality Waters (HQW) or Water Supply I or II watersheds (WS-I or WS-II) within the study area or within 1.0 mile downstream of the study area. The North Carolina 2022 Final 303(d) List of Impaired Waters identify the Alligator River (30-16-[7]) as an impaired water for Copper.

Anadromous Fish Habitat has also been identified within the project footprint. The Alligator River north of the existing U.S. 64 bridge (NCDWR Index No. 30-16-[21.5]) is classified as a coastal Anadromous Fish Spawning Area (AFSA) under Marine Fisheries Commission (MFC) jurisdiction. The Alligator River south of the existing U.S. 64 bridge (NCDWR Index No. 30-16-[7]) is classified as joint AFSA waters under the jurisdiction of MFC and the North Carolina Wildlife Resources Commission (NCWRC). No Primary Nursery Areas have been identified within the project area.

Wetland and stream delineations were performed for STIP No. HB-0001 on February 25-26, 2021. A Preliminary Jurisdictional Determination (SAW-2021-01091) was issued by the United States Army Corps of Engineers (USACE) on September 20, 2021. Additional delineations were completed

by NCDOT in March 2023 and approved by USACE without requiring an additional site visit.

Impacts to Jurisdictional Resources

Final proposed impacts to jurisdictional wetlands and surface waters associated with road and bridge construction for HB-0001 are summarized in Tables 1 and 2, respectively. None of the surface water impacts within Table 1 are within CAMA features.

Table 1. Surface Water Impacts

Permit Drawing Site Number	NRTR Label	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required³
1	TF	Tributary	---	0.018	No
3	PA	Pond	0.009	0.010	No
12	TC	Tributary	0.139	0.012	No
14	TD	Tributary	0.011	0.010	No
17	TB	Tributary	0.008	0.017	No
18	TD	Tributary	0.010	0.006	No
19	Alligator River	Perennial	0.198	---	No
Total			0.376	0.072	

Table 2. Wetland Impacts¹

Permit Drawing Site Number	NRTR Label	NCWAM Type	Riparian or Non-riparian	Section 404 or Section 404/CAMA	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Excavation (ac.)	Mechanized Clearing (ac.)	Hand Clearing (ac.)	Mitigation Required (ac.)
1	WD	Riverine Swamp Forest/Tidal Freshwater Marsh	Riparian	Section 404	0.010	---	---	0.020	---	0.03
1	WC	Tidal Freshwater Marsh	Riparian	Section 404/CAMA	0.026	---	---	0.028	---	0.054
2	WB	Riverine Swamp Forest	Riparian	Section 404	0.061	---	---	0.057	0.282	0.118
3	WB	Riverine Swamp Forest	Riparian	Section 404	0.142	---	---	---	0.052	0.142
4	WA	Riverine Swamp Forest	Riparian	Section 404	0.512	---	---	0.095	0.145	0.607
5	WA	Riverine Swamp Forest	Riparian	Section 404	2.77	---	---	0.533	0.840	3.303
6	WA	Riverine Swamp Forest	Riparian	Section 404	0.257	---	---	0.076	---	0.333
7	WD	Riverine Swamp Forest/Tidal Freshwater Marsh	Riparian	Section 404	0.002	---	---	0.021	---	0.023
8	WA	Riverine Swamp Forest	Riparian	Section 404	1.498	---	---	0.291	0.210	1.789
9	WA	Riverine Swamp Forest	Riparian	Section 404	---	---	---	---	0.345	---
10	WH	Riverine Swamp Forest	Riparian	Section 404	---	---	---	---	0.621	---
11	WH	Riverine Swamp Forest	Riparian	Section 404	1.361	---	---	0.283	0.452	1.644
12	WH	Riverine Swamp Forest	Riparian	Section 404	2.082	---	---	0.293	0.235	2.375
13	WH	Riverine Swamp Forest	Riparian	Section 404	0.324	---	---	0.073	0.086	0.397
15	WH	Riverine Swamp Forest	Riparian	Section 404	---	---	0.023	---	---	0.023
16	WH	Riverine Swamp Forest	Riparian	Section 404	---	---	0.002	---	---	0.002
17	WJ	Tidal Freshwater Marsh	Riparian	Section 404	0.004	---	---	0.004	---	0.008
19	WH	Riverine Swamp Forest	Riparian	Section 404	0.008	---	---	---	---	0.008
Total					9.057	0.00	0.02	1.776	3.27	10.856

¹ Rounded totals are the sum of the actual impacts.

Utility Impacts

Project construction will entail the relocation of various utilities. However, any impacts from these relocations are accounted for in the impacts listed in Tables 1 and 2 and on the Wetland and Stream Permit Drawings. Underground utilities that cross features and are not accounted for at an impact site will be installed through trenchless installation methods in order to not impact these features.

Federally Protected Species

As of the date of this application, the USFWS Information for Planning and Consultation (IPaC) website and/or the National Oceanic and Atmospheric Administration (NOAA) – National Marine Fisheries Service (NMFS) list 17 species for the project (Table 3). Species with the federal classification of Endangered (E), Proposed Endangered (PE), or Threatened (T) are protected under Section 7 of the Endangered Species Act (ESA) of 1973, as amended. Species listed as Threatened due to Similarity of Appearance [T(S/A)], such as the American alligator, are not subject to Section 7 consultation. The bald eagle is protected by the Bald and Golden Eagle Protection Act and is also not subject to Section 7 consultation.

Table 3. Federally protected species listed for the project¹

Scientific Name	Common Name	Federal Status ²	Habitat Present	Biological Conclusion ³
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	E	Yes	MANLAA
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic sturgeon	E	Yes	MANLAA
<i>Myotis septentrionalis</i>	Northern long-eared bat	E	Yes	MALAA
<i>Perimyotis subflavus</i>	Tricolored bat	PE	Yes	TBD
<i>Canis rufus</i>	Red wolf	E	Yes	MANLAA
<i>Trichechus manatus</i>	West Indian manatee	T	Yes	MANLAA
<i>Laterallus jamaicensis</i> ssp. <i>jamaicensis</i>	Eastern black rail	T	Yes	MANLAA ⁴
<i>Charadrius melodus</i>	Piping plover	T	No	No Effect
<i>Calidris canus rufa</i>	Red knot	T	No	No Effect
<i>Dryobates</i> (syn. <i>Picoides</i>) <i>borealis</i>	Red-cockaded woodpecker	E	Yes	MALAA
<i>Alligator mississippiensis</i>	American alligator	SAT	Yes	Not Required
<i>Chelonia mydas</i>	Green sea turtle	T	No	No Effect
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	E	No	No Effect
<i>Lepidochelys kempii</i>	Kemp's Ridley sea turtle	E	No	No Effect
<i>Dermochelys coriacea</i>	Leatherback sea turtle	E	No	No Effect
<i>Caretta caretta</i>	Leatherback sea turtle	T	No	No Effect

¹ USFWS IPaC website checked on May 22, 2023.

² E – Endangered; PE – Proposed Endangered; SAT – Similarity of Appearance to a Threatened Taxon; T – Threatened.

³ MALAA – May Affect, Likely to Adversely Affect; MANLAA – May Affect, Not Likely to Adversely Affect; TBD – To Be Determined.

⁴ This Biological Conclusion is based on the presence of habitat and presumption that no black rails are present. Surveys are currently ongoing, and this conclusion may change depending on survey results.

A review of the Spring (April) 2023 North Carolina Natural Heritage Program (NCNHP) dataset identified the following occurrences within 1.0 of the project:

- Atlantic sturgeon – Element Occurrence (EO) No. 5; this is an occurrence that encompasses the entire Atlantic Coast in North Carolina.
- American alligator – EO No. 7; within the Alligator River National Wildlife Refuge
- Red wolf – EO No. 4; comprised of the entire Albemarle Peninsula
- Red-cockaded woodpecker – EO No. 25; within the Palmetto Peartree Preserve

Biological Conclusions for ESA Listed Species

The CE addressed the analysis of potential effects on federally protected species at the time of the document. On September 14, 2022, the USFWS announced a proposal to list the tricolored bat (*Perimyotis subflavus* - PESU) as Endangered under the Endangered Species Act (including in Dare and Tyrrell Counties). Given the proposal to list PESU as Federally Endangered, NCDOT and its federal partners, the Federal Highways Administration (FHWA) and USACE, are initiating a conference programmatic consultation to address impacts to this species. USFWS has not provided an official effective listing date, but it is anticipated to occur in the second half of 2023. Upon listing, USFWS is expected to provide habitat descriptions and an area of influence/distribution range for PESU. When this information is provided, it will help to inform NCDOT's determinations on habitat that could be impacted by NCDOT actions.

The USFWS has issued a Programmatic Biological Opinion (PBO) in conjunction with the FHWA, USACE, and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. Although this programmatic covers Divisions 1-8, the USFWS only considers NLEBs to be known or potentially found in 30 counties within Divisions 1-8. NCDOT, FHWA, and USACE have agreed to two conservation measures which will avoid/minimize mortality of NLEBs. These conservation measures only apply to the 30 current known/potential counties shown on Figure 2 of the PBO at this time. The programmatic determination for NLEB for the NCDOT program is May Affect, Likely to Adversely Affect. The PBO will ensure compliance with Section 7 of the Endangered Species Act for ten years (effective through December 31, 2030) for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Dare and Tyrrell Counties, where HB-0001 is located.

For the remaining species where a Biological Conclusion other than No Effect has been rendered, the following actions have been taken:

- Atlantic and shortnose sturgeon (MANLAA) – In an email dated January 7, 2021, the NMFS concurred with the Biological Conclusions for these species.
- Red wolf (MANLAA) – In an email dated July 12, 2021, the USFWS stated:

“Since, through avoidance and minimization efforts, we have now avoided all impacts to the Alligator River National Wildlife Refuge, the red wolf does not come into play for Section 7. The species in North Carolina is considered Experimental, Non-Essential. This means it is treated as federally threatened on National Wildlife Refuge and National Park Service lands only. Off of these federal lands it is considered "proposed", which does not require consultation. We often recommend doing Section 7 conference for proposed species, but that is probably not necessary for the red wolf since it appears the "proposed" status will not change anytime soon. If the status was to change in the future, it would only need informal consultation at that time.”

- West Indian Manatee (MANLAA) – The Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters (USFWS, 2003) will be implemented for this project to ensure no adverse effects occur to this species.
- Eastern black rail (MANLAA) – An initial Biological Conclusion of “May Affect, Not Likely to Adversely Affect” was rendered for this species based on just the presence of suitable habitat. Since that time, the USFWS has established a survey protocol for the species. Surveys are currently in progress and will be completed in early June 2023. It is anticipated that, if no black rails are identified during surveys, that the Biological Conclusion will remain unchanged. However, if the species is identified, additional coordination with USFWS will be required to determine what is required for the species to satisfy Section 7 consultation.
- Red-cockaded woodpecker (MALAA) – A Biological Opinion was issued by the USFWS for the species on November 5, 2021. Per conditions outlined in the Biological Opinion, additional surveys will be completed in the Fall/Winter 2023 to update the cluster analysis as it relates to this project, which will determine the final level of take on the species.

Bald and Golden Eagle Protection Act (BGPA)

Bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Golden eagles do not occur in North Carolina.

Suitable foraging habitat is present within and within 660 feet of the project footprint. Additionally, bald eagle nests are known within the project vicinity. Since habitat is present, the project and the area within 660 feet of the project was surveyed for bald eagle nests via helicopter. No eagles or nests were identified within the survey area. One active eagle nest was observed within 0.5 miles of the study area. A review of the Spring (April) 2023 NCNHP dataset identified bald eagle EO Nos. 24 and 30 within 1.0 of the project. However, due to the lack of nests within the survey area, it has been determined that this project will not impact this species.

Moratoria

Anadromous fish habitat has been identified within the study area. The Alligator River north of the existing U.S. 64 bridge (NCDWR Index No. 30-16-[21.5]) is classified as coastal AFSA under MFC jurisdiction. The Alligator River south of the existing U.S. 64 bridge (NCDWR Index No. 30-16-[7]) is classified as joint AFSA waters under the jurisdiction of MFC and the NCWRC. No Primary Nursery Areas have been identified within the study area. An in-water construction moratorium from July 15 – September 30 for the entire river, and February 15 – June 30 for the deepwater channel will apply to this project.

Essential Fish Habitat

The NOAA – NMFS (per the Essential Fish Habitat Mapper website) has identified the Alligator River at the project location as Essential Fish Habitat. Table 4 lists the fish species that may occur in the study area that are managed under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA).

Table 4. Commercial fish species reported to occur in the project area

Species	Life Stage¹
Atlantic butterfish	A
Bluefish	J, A
Summer flounder	L, J, A
Snapper Grouper	L, J, A

¹ A – Adult, J – Juvenile, L – Larvae

Submerged Aquatic Vegetation

The proposed project will require that the existing structure over the Alligator River be removed, and a new structure built in proximity. The new bridge structure will require footings to be placed within the River; however, there will no direct or indirect permanent impacts to submerged aquatic vegetation (SAV) since none were identified within the existing or proposed project footprints. In addition, bridge footings of existing Tyrrell Bridge No. 7 will be removed.

Therefore, the proposed project will likely result in a negligible net effect on available Essential Fish Habitat. Additional surveys will be completed prior to Let to confirm that no SAV are present that may be affected by the project.

Cultural Resources

Construction of the Lindsay C. Warren Bridge was completed in 1962. The bridge was determined eligible for listing in the National Register of Historic Places (NRHP) during the 2005 NCDOT Historic Bridge Inventory. The bridge is eligible for the NRHP under Criterion C as an early example of the use of welding as a method of construction for long-span application of welder girders in the state of North Carolina.

The Alligator River Bridge replacement project proposes to replace the Lindsay C. Warren Bridge, thereby resulting in an “Adverse Effect on Historic Properties” finding by FHWA. The State Historic Preservation Office (SHPO) concurred with FHWA’s finding on June 24, 2021 and a Memorandum of Agreement (MOA) was signed for the project on August 31, 2021. In the MOA, NCDOT agreed to stipulations related to recordation of the existing bridge, design elements of the proposed bridge, and the placement of decorative panels within the new bridge approaches.

Borrow

Several potential borrow sites are under consideration, but a borrow site has not currently been selected. Any borrow site will be evaluated to ensure no impacts to streams or wetlands would occur directly or indirectly through drainage. Impacts to jurisdictional resources associated with obtaining borrow are not anticipated.

FEMA Compliance

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

Mitigation Options

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

Avoidance and Minimization: NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Avoidance and minimization measures for HB-0001 were further discussed during the CP 4B and 4C meetings and are being implemented to the maximum extent practicable. All stream and wetland areas not affected by the project will be protected from unnecessary encroachment. Additional Avoidance and Minimization measures are listed below.

- A Stormwater Management Plan (SMP) has been created for the project and is included in this package with the permit drawings.
- Best Management Practices for the Protection of Surface Waters will be implemented for this project.
- All major structures have been designed to minimize environmental and jurisdictional feature impacts as much as practicable.
- The Alligator River section south of the bridge has been designated as an ORW, but the river section north of the existing bridge has not been designated as an ORW. Since the proposed bridge will be located north of the existing bridge, the stormwater from the bridge and approaches will outlet into the non-ORW section of the Alligator River.
- Based on Stochastic Empirical Loading and Dilution Model (SELDL) analysis, it was determined that minimum measures can be used to treat stormwater runoff at the Alligator River.
- The stormwater management plan includes the use of deck drains where there is a minimum of 12 feet of clearance from the deck drain to the surface water. The roadway profile provides at least this minimum vertical clearance for as much of the bridge as possible. The deck drains will be located from Sta. 51+78 to Sta. 213+96 -L- LT/RT. For the sections between the bridge approach and the deck drains, the runoff will accumulate in the shoulder and be collected outside the approach slabs with traditional two-grate inlets (2GIs) and pipe outlets.
- The profile and drainage are designed so that spread is kept out of the travel lane and the bypass from the system is less than 0.1 cubic feet per second (cfs). With this approach, a closed drainage system attached to the bridge is not required. The pipes outlet at the toe of the roadway embankment. There are wetland areas on both sides of the road at both the beginning and end of the bridge. To minimize impacts to the wetland areas, rip-rap pads are utilized at the pipe outlets to dissipate energy. The wetland areas outlet to the Alligator River, so ditching to the Alligator River will not be used to avoid additional wetland impacts.
- Given the wetland areas at the bridge approaches, Stormwater Control Measures (SCMs) would result in large wetland impacts. To avoid these impacts, the use of SCMs was omitted.
- For the roadway sections, fill slopes will be steepened to minimize filling in wetland areas to the greatest extent practicable.
- Ditching through wetland areas will be avoided, and all closed system drainage outlets will be designed to have non-erosive velocities.
- All cross-pipes with jurisdictional waters will be buried.

- Utilities will be installed through trenchless installation methods where practicable.
- Where possible, utilities were placed within the proposed roadway fill limits to avoid additional impacts.

Compensation: The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable.

The proposed construction of HB-0001 will result in unavoidable impacts to 10.856 acres of wetlands (with 0.054 acres of that being within Section 404/CAMA wetlands) that will require mitigation. The wetland impacts are in the 8-digit HUC 03010205 of the Pasquotank River Basin.

Compensatory mitigation for the unavoidable impacts to wetlands will be provided by a combination of compensatory mitigation credits from NCDEQ – DMS and on-site mitigation. Please see the attached DMS Mitigation Acceptance Letter and On-Site Mitigation Plan.

Indirect and Cumulative Effects

Potential indirect and cumulative effects (ICE) attributable to the HB-0001 project were analyzed as part of the CE through a Direct and Indirect Screening Tool (DIST). Negative impacts to transit, local traffic, or communities are not anticipated as a result of this project. Additionally, the project will not encourage the development of activity centers or similar areas of concentrated, moderate to high intensity land development or redevelopment in the project vicinity.

The potential for the degradation of water quality does exist through erosion and stream sedimentation. The stormwater management plan details measures taken to avoid and minimize these potential project related impacts.

The notable natural environmental features found within the project area are provided multiple protections under state and federal laws and local permitting ordinances. The cumulative effect of this project when considered in the context of other past, present, and future actions, and the resulting impact on the notable human and natural features, will not notably contribute to cumulative impacts to environmental resources in the project area. Although unavoidable permanent impacts to wetlands will occur as part of this project, the direct natural environmental impacts by NCDOT have been minimized to the maximum extent practicable while still serving the purpose of the project. All future development will be required to follow local, state, and federal guidelines and permitting regulations. Additionally, wetland areas will be restored on-site, and existing impervious surface will be removed, which will help to counteract wetland impacts associated with the project.

Regulatory Approvals

Section 404/Section 10: Application is hereby made for a USACE Individual Section 404/Section 10 Permit as required for the above-described activities.

Section 401: We are requesting a Section 401 Individual Water Quality Certification from NCDWR. We are providing this application to NCDEQ, for their approval. Authorization to debit the \$570.00 Permit Application Fee from WBS Element 49475.1.1 is hereby given.

CAMA: NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Permit. Adjacent riparian landowner certified mail return receipts will be provided once they are received. Authorization to debit the \$475.00 Permit Application Fee from WBS Element 49475.1.1 is hereby given. A copy of this permit request and its distribution list will be posted on the NCDOT website at:

<https://connect.ncdot.gov/resources/Environmental>

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jason Dilday at jldilday1@ncdot.gov or (919) 707-6111.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Turchy", with a stylized flourish at the end.

Michael Turchy
Environmental Coordination and Permitting Group Leader
NCDOT Environmental Analysis Unit

U.S. Army Corps of Engineers (USACE) APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT 33 CFR 325. The proponent agency is CECW-CO-R.		Form Approved - OMB No. 0710-0003 Expires: 02-28-2022	
The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil . Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.			
PRIVACY ACT STATEMENT			
Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcl.d.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx			
(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)			
1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
(ITEMS BELOW TO BE FILLED BY APPLICANT)			
5. APPLICANT'S NAME First - Michael Middle - A Last - Turchy Company - NCDOT Environmental Analysis Unit E-mail Address - maturchy@ncdot.gov		8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -	
6. APPLICANT'S ADDRESS: Address- 1598 Mail Service Center City - Raleigh State - NC Zip - 27699 Country - USA		9. AGENT'S ADDRESS: Address- City - State - Zip - Country -	
7. APPLICANT'S PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax (919) 707-6157		10. AGENTS PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax	
STATEMENT OF AUTHORIZATION			
11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. _____ SIGNATURE OF APPLICANT DATE			
NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY			
12. PROJECT NAME OR TITLE (see instructions) Replacement of US 64 Tyrrell County Bridge Number 7 (Lindsay C. Warren Bridge) over the Alligator River, Dare/Tyrrell Cos. (HB-0001)			
13. NAME OF WATERBODY, IF KNOWN (if applicable) Alligator River/Atlantic Intracoastal Waterway		14. PROJECT STREET ADDRESS (if applicable) Address N/A	
15. LOCATION OF PROJECT Latitude: °N 35.900382 Longitude: °W -76.005901		City - State- Zip-	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Multiple PINs Municipality East Lake Section - --- Township - --- Range - ---			

17. DIRECTIONS TO THE SITE

From Washington, NC: Take US 17 North to US 64 East in Williamston (approximately 20 miles). Then, take US 64 East approximately 62 miles to the western terminus of the Lindsay C. Warren Bridge (Tyrrell County Bridge Number 7). Project begins at roughly this location and spans the Alligator River to near East Lake, North Carolina.

18. Nature of Activity (Description of project, include all features)

The North Carolina Department of Transportation (NCDOT) proposes the replacement of US 64 Tyrrell County Bridge Number 7 over the Alligator River/Atlantic Intracoastal Waterway in Dare and Tyrrell Counties (STIP No. HB-0001). The proposed two-lane, 3.32-mile long, high-level, fixed-span bridge would replace the existing 2.83-mile long, 2-lane bridge, 343-span (with a movable steel swing span) bridge. Based on the design, the project will result in impacts to the Alligator River and Section 404 and Section 404/ CAMA wetlands. All features are located in the Pasquotank River Basin (U.S. Geological Survey [USGS] Hydrologic Unit Code [HUC] 03010205).

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of the project is to replace the existing 2.83-mile-long Lindsay C. Warren Bridge (Tyrrell County Bridge Number 7), carrying US 64 across the Alligator River/Atlantic Intracoastal Waterway, with a two-lane, high-level, fixed-span bridge. The current bridge is experiencing substantial deterioration due to its age and structural deficiencies resulting in ongoing maintenance problems, jeopardizing its ability to provide a reliable connection between Columbia and Manns Harbor, Manteo, and the Outer Banks. A potential bridge malfunction or maintenance that requires the bridge to stay in the closed position for more than a short-term closure also affects reliable passage along the Atlantic Intracoastal Waterway. The existing bridge was constructed in 1960 and is classified as structurally deficient with a 31.71 rating of a possible 100.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

The proposed bridge replacement will require fill in jurisdictional waters. The proposed bridge will be constructed just to the north of the existing bridge (~2,000 ft.) since, due to the unreasonable detour if the road was closed, traffic will have to be maintained on the current bridge during construction. Temporary and/or Permanent fill in both Section 404 and CAMA wetlands and the River will result from the new location of the bridge, as well as roadway fill required to raise the elevation on both sides of the river to accommodate a high-level bridge.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards
See attached Roadway Plans		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See Attached Permit Drawings
or

Linear Feet See Attached Permit Drawings

23. Description of Avoidance, Minimization, and Compensation (see instructions)

BMPS for the Protection of Surface Waters will be employed for this project. Additionally, no impacts to the Alligator River National Wildlife Refuge or Alligator River Gameland will occur as part of the preferred alternative. See Attached Stormwater Management Plan for more details on Avoidance and Minimization.

Compensatory Mitigation will be achieved by a combination of aquisition of credits for the NC Division of Mitigation Services and On-site Mitigation. Please see the attached NCDMS mitigation acceptance letter and on-site mitigation plan.

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See Attached Property Owner List

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-


City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
USACE	NWP 6	SAW-2021-01091	2021-07-15	2021-08-23	
NCDWR	Indiv. WQC	20211126 v.2	2022-08-31	2022-10-06	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

 6/27/2023
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

MARC RECKTENWALD

Director



NORTH CAROLINA
Environmental Quality

April 27, 2023

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter:

HB-0001, Replace Bridge Number 7 on US 64 over the Alligator River, Dare and Tyrell Counties

The purpose of this letter is to notify you that the North Carolina Department of Environmental Quality – Division of Mitigation Services (NCDEQ-DMS) will provide the mitigation for the subject project. Based on the information received from you on April 27, 2023, the impacts are located in CU 03010205 of the Pasquotank River basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and are as follows:

Pasquotank 03010205	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	0	10.730	0	0.050	0	0

NCDEQ – DMS commits to implementing sufficient compensatory wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ-DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

Elizabeth Harmon

for James B. Stanfill
DMS Deputy Director

cc: Mr. Monte Matthews, USACE – Raleigh
Ms. Amy Chapman, NCDWR
File: HB-0001_Construction



North Carolina Department of Environmental Quality | Division of Mitigation Services
217 West Jones Street | 1652 Mail Service Center | Raleigh, North Carolina 27699-1652
919.707.8976

APPLICATION for Major Development Permit

(last revised 12/27/06)



North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information				
Business Name N.C.D.O.T. Environmental Analysis Unit		Project Name (if applicable) Replacement of US 64 Tyrrell County Bridge No 7 (Lindsay C. Warren Bridge) over the Alligator River (Atlantic Intracoastal Waterway), Dare/Tyrrell Cos. (HB-0001)		
Applicant 1: First Name Michael	MI A	Last Name Turchy		
Applicant 2: First Name	MI	Last Name		
<i>If additional applicants, please attach an additional page(s) with names listed.</i>				
Mailing Address 1598 Mail Service Center		PO Box	City Raleigh	State NC
ZIP 27699	Country USA	Phone No. 919 - 707 - 6157 ext.		FAX No. - -
Street Address (if different from above) 1000 Birch Ridge Drive		City Raleigh	State NC	ZIP 27610-
Email maturchy@ncdot.gov				

2. Agent/Contractor Information				
Business Name				
Agent/ Contractor 1: First Name	MI	Last Name		
Agent/ Contractor 2: First Name	MI	Last Name		
Mailing Address		PO Box	City	State
ZIP		Phone No. 1 - - ext.	Phone No. 2 - - ext.	
FAX No.		Contractor #		
Street Address (if different from above)		City	State	ZIP -
Email				

3. Project Location				
County (can be multiple) Dare Tyrrell		Street Address N/A		State Rd. # US 64
Subdivision Name		City East Lake	State NC	Zip 27953 -
Phone No. - - ext.			Lot No.(s) (if many, attach additional page with list) N/A, , , ,	
a. In which NC river basin is the project located? Pasquotank			b. Name of body of water nearest to proposed project Alligator River/Atlantic Intracoastal Waterway	
c. Is the water body identified in (b) above, natural or manmade? <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Manmade <input type="checkbox"/> Unknown			d. Name the closest major water body to the proposed project site. Albemarle Sound	
e. Is proposed work within city limits or planning jurisdiction? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. East Lake	

4. Site Description	
a. Total length of shoreline on the tract (ft.) 2,589 (1,198 western shore, 1,391 eastern shore; within Project Study Area)	b. Size of entire tract (sq.ft.) 1,301,040,321 (Project Study Area)
c. Size of individual lot(s) Multiple, PINs, (If many lot sizes, please attach additional page with a list)	d. Approximate elevation of tract above NHW (normal high water) or NWL (normal water level) 0-13 ft (highest at marina) <input type="checkbox"/> NHW or <input checked="" type="checkbox"/> NWL
e. Vegetation on tract Maintained/disturbed areas of mowed grass and pavement, coastal shrub habitat, swamp forest, tidal freshwater marsh vegetation	
f. Man-made features and uses now on tract Roads, driveways, residential/commercial buildings, roadside ditches, bridge and associated support structures.	
g. Identify and describe the existing land uses <u>adjacent</u> to the proposed project site. Conservation and protected lands, residential (minimal), commercial (including gas station, marina), WRC boat ramp site (not currently in use)	
h. How does local government zone the tract? N/A	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
j. Is the proposed activity part of an urban waterfront redevelopment proposal? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA If yes, by whom? NCDOT	
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

<Form continues on next page>

m. (i) Are there wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(ii) Are there coastal wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? (Attach documentation, if available)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
n. Describe existing wastewater treatment facilities. N/A	
o. Describe existing drinking water supply source. N/A	
p. Describe existing storm water management or treatment systems. N/A	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	<input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Public/Government <input type="checkbox"/> Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. The purpose of the project is to replace the existing 2.83-mile-long Lindsay C. Warren Bridge (Tyrrell County Bridge Number 7), carrying US 64 across the Alligator River/Atlantic Intracoastal Waterway, with a two-lane, high-level, fixed-span bridge. The current bridge is experiencing substantial deterioration due to its age and structural deficiencies resulting in ongoing maintenance problems, jeopardizing its ability to provide a reliable connection between Columbia and Manns Harbor, Manteo, and the Outer Banks. A potential bridge malfunction or maintenance that requires the bridge to stay in the closed position for more than a short-term closure also affects reliable passage along the Atlantic Intracoastal Waterway. The existing bridge was constructed in 1960 and is classified as structurally deficient with a 31.71 rating of a possible 100.	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. During construction, vehicular traffic will be maintained on the existing bridge; marine traffic will continue to use the existing navigation channel, and the swing span bridge will continue to function. Temporary work platforms, one on either shore in nearshore shallow waters, are proposed to access the new bridge alignment except for the central spans and navigation span, where barge access will be used. An in-water construction moratorium from July 15 – September 30 for the entire river, and February 15 – June 30 for the deepwater channel is required per the NC Division of Marine Fisheries. The existing bridge will be demolished via top-down techniques, along with the use of temporary work platforms in nearshore shallow waters and barges. Existing Tyrrell Bridge No. 7 will be removed completely, including piles, to the extent practicable. If a pile snaps off at a depth below scour and navigational clearance, and would require significant disturbance of substrate to remove, it will be cut at the mudline.	
d. List all development activities you propose. The North Carolina Department of Transportation (NCDOT) proposes the replacement of US 64 Tyrrell County Bridge Number 7 over the Alligator River/Atlantic Intracoastal Waterway in Dare and Tyrrell Counties (STIP No. HB-0001). The proposed two-lane, 3.32-mile long, high-level, fixed-span bridge would replace the existing 2.83-mile long, 2-lane bridge, 343-span (with a movable steel swing span) bridge. Based on the design, the project will result in potential impacts to the Alligator River and Section 404 and Section 404/CAMA wetlands. All features are located in the Pasquotank River Basin (U.S. Geological Survey [USGS] Hydrologic Unit Code [HUC] 03010205).	
e. Are the proposed activities maintenance of an existing project, new work, or both?	New work - replacement of existing bridge
f. What is the approximate total disturbed land area resulting from the proposed project?	2,894,562 <input checked="" type="checkbox"/> Sq.Ft or <input type="checkbox"/> Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

h. Describe location and type of existing and proposed discharges to waters of the state. Existing discharges are related to the existing roadway and bridge and are related to concentration and discharge of stormwater. Stormwater discharges occur within Section 404 and Section 404/CAMA waters. Proposed discharges are associated with the proposed bridge replacement, new location roadway approaches, and new stormwater infrastructure. Permanent discharges into wetlands are related to roadway fill, excavation, and mechanized clearing in either Section 404 or Section 404/CAMA wetlands. Temporary impacts in the form of hand clearing will also occur in wetlands. Temporary and permanent discharges to surface waters include roadway fill and the placement of bents in the Alligator River.	
i. Will wastewater or stormwater be discharged into a wetland?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
If yes, will this discharged water be of the same salinity as the receiving water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
j. Is there any mitigation proposed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
If yes, attach a mitigation proposal.	

<Form continues on back>

6. Additional Information <i>In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.</i>	
a. A project narrative.	
b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.	
c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.	
d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.	
e. The appropriate application fee. Check or money order made payable to DENR.	
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.	
Name See Attached	Phone No.
Address	
Name	Phone No.
Address	
Name	Phone No.
Address	
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.	
USACE, SAW-2021-01091, NWP 6 for geotechnical borings	8/23/2021
NCDWR, Individual Water Quality Certification for geotechnical borings	10/06/2022
h. Signed consultant or agent authorization form, if applicable.	
i. Wetland delineation, if necessary.	
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. <i>(Must be signed by property owner)</i>	
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.	

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 6/27/2023 Print Name Michael Turchy

Signature 

Please indicate application attachments pertaining to your proposed project.

☒ DCM MP-2 Excavation and Fill Information

☒ DCM MP-5 Bridges and Culverts

☐ DCM MP-3 Upland Development

☐ DCM MP-4 Structures Information

EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length							5,665
Width							150
Avg. Existing Depth					NA	NA	varies
Final Project Depth					NA	NA	varies

1. EXCAVATION☐ This section not applicable

- a. Amount of material to be excavated from below NHW or NWL in cubic yards.
17 CY (12 for clean water diversion at Site 15, 5 for tail ditch at Site 16)

- b. Type of material to be excavated.
wetland soil (muck, loamy/clayey soil)

- c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW ☐SAV ☐SB ☒WL 1,089 ☐None

- (ii) Describe the purpose of the excavation in these areas:

At Site 15, a clean water diversion channel is required; At Site 16, a tail ditch ties into the wetland.

- d. High-ground excavation in cubic yards.
No high ground excavation.

2. DISPOSAL OF EXCAVATED MATERIAL☐ This section not applicable

- a. Location of disposal area.
TBD, possibly off-site

- b. Dimensions of disposal area.
TBD

- c. (i) Do you claim title to disposal area?
☒Yes ☐No ☐NA

- (ii) If no, attach a letter granting permission from the owner.

- d. (i) Will a disposal area be available for future maintenance?
☐Yes ☐No ☒NA

- (ii) If yes, where?

- e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW ☐SAV ☐SB ☒WL ☐None

- (ii) Describe the purpose of disposal in these areas:

- f. (i) Does the disposal include any area in the water?
☐Yes ☒No ☐NA

- (ii) If yes, how much water area is affected?

3. SHORELINE STABILIZATION

(If development is a wood groin, use MP-4 – Structures)

☒ This section not applicable

- a. Type of shoreline stabilization:
☐ Bulkhead ☐ Riprap ☐ Breakwater/Sill ☐ Other: _____
- b. Length: _____
Width: _____
- c. Average distance waterward of NHW or NWL: _____
- d. Maximum distance waterward of NHW or NWL: _____
- e. Type of stabilization material: _____
- f. (i) Has there been shoreline erosion during preceding 12 months?
☐ Yes ☐ No ☐ NA
(ii) If yes, state amount of erosion and source of erosion amount information.

- g. Number of square feet of fill to be placed below water level.
Bulkhead backfill _____ Riprap _____
Breakwater/Sill _____ Other _____
- h. Type of fill material.

- i. Source of fill material.

4. OTHER FILL ACTIVITIES

(Excluding Shoreline Stabilization)

☐ This section not applicable

- a. (i) Will fill material be brought to the site? ☒ Yes ☐ No ☐ NA
If yes,
(ii) Amount of material to be placed in the water 0 CY
(iii) Dimensions of fill area N/A
(iv) Purpose of fill

- b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☒ CW 1,133 ☐ SAV _____ ☐ SB _____
☒ WL 393,042 ☐ None
(ii) Describe the purpose of the fill in these areas:
Fill is required for roadway/shoulder widening and new location roadway/bridge approaches

5. GENERAL

- a. How will excavated or fill material be kept on site and erosion controlled?
An erosion control plan has been developed that covers how fill and excavated material will be erosion controlled.

- b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
Typical roadway construction equipment such as backhoe, dozer, roller, etc.

- c. (i) Will navigational aids be required as a result of the project?
☐ Yes ☐ No ☒ NA
(ii) If yes, explain what type and how they will be implemented.
Existing navigational aids related to the Atlantic Intracoastal Waterway will be modified to account for the removal of the existing bridge and construction of the new bridge.

- d. (i) Will wetlands be crossed in transporting equipment to project site? ☒ Yes ☐ No ☐ NA
(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.
Equipment will use temporary work platforms and or/matting when crossing wetland areas to avoid or minimize compaction and permanent wetland impacts to the site related to equipment use. None of these areas are in CAMA wetlands.

6/27/2023

Date

NCDOT STIP No. HB-0001

Project Name

Form DCM MP-2 (Excavation and Fill, Page 3 of 3)

NCDOT / Michael Turchy

Applicant Name

Michael Turchy

Applicant Signature

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ This section not applicable

- a. Is the proposed bridge:
- ☐ Commercial ☒ Public/Government ☐ Private/Community

- b. Water body to be crossed by bridge:
- Alligator River/Atlantic Intracoastal Waterway

- c. Type of bridge (construction material):
- Either driven piles or drilled piers, Prestressed Florida I-Beam girders, precast concrete deck panels, and a driveable wearing surface.

- d. Water depth at the proposed crossing at NLW or NWL:
- 14'8" NWL at the navigational opening

- e. (i) Will proposed bridge replace an existing bridge? ☒ Yes ☐ No
- If yes,
- (ii) Length of existing bridge: 14,928 ft
- (iii) Width of existing bridge: 26 ft
- (iv) Navigation clearance underneath existing bridge: 14' closed, unlimited open
- (v) Will all, or a part of, the existing bridge be removed? (Explain) During construction, vehicular traffic will be maintained on the existing bridge; marine traffic will continue to use the existing navigation channel, and the swing span bridge will continue to function. Temporary work platforms, one on either shore in nearshore shallow waters, are proposed to access the new bridge alignment except for the central spans and navigation span, where barge access will be used. An in-water construction moratorium from July 15 – September 30 for the entire river, and February 15 – June 30 for the deepwater channel is required per the NC Division of Marine Fisheries. The existing bridge will be demolished via top-down techniques, along with the use of temporary work platforms in nearshore shallow waters and barges. Existing Tyrrell Bridge No. 7 will be removed completely, including piles, to the extent practicable. If a pile snaps off at a depth below scour and navigational clearance, and would require significant disturbance of substrate to remove, it will be cut at the mudline.

- f. (i) Will proposed bridge replace an existing culvert? ☐ Yes ☒ No
- If yes,
- (ii) Length of existing culvert: _____
- (iii) Width of existing culvert: _____
- (iv) Height of the top of the existing culvert above the NHW or NWL: _____
- (v) Will all, or a part of, the existing culvert be removed? (Explain)

- g. Length of proposed bridge: 17,540 ft

- h. Width of proposed bridge: 40 ft

- i. Will the proposed bridge affect existing water flow? ☐ Yes ☒ No
- If yes, explain:

- j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☒ Yes ☐ No
- If yes, explain: The current bridge has a navigational opening of 100 ft on either side of the central pier. The new bridge will increase the navigational opening to 140 ft.

k. Navigation clearance underneath proposed bridge: 65' within navigational channel

l. Have you contacted the U.S. Coast Guard concerning their approval? ☒ Yes ☐ No

If yes, explain: The US Coast Guard was contacted regarding the proposed vertical and horizontal clearance of the new bridge. In a letter dated July 22, 2022, the US Coast Guard stated that they did not see any issue with NCDOT obtaining a permit for the project. A US Coast Guard permit application was submitted in May 2023.

m. Will the proposed bridge cross wetlands containing no navigable waters? ☒ Yes ☐ No

If yes, explain: The proposed bridge/roadway will cross/impact both CAMA and CAMA/404 wetlands.

n. Height of proposed bridge above wetlands: Varies b/w 8-12 ft

2. CULVERTS

☐ This section not applicable

a. Number of culverts proposed: 8

b. Water body in which the culvert is to be placed:
Pipes are either underneath new road or driveways

< Form continues on back >

c. Type of culvert (construction material):

1) 2 corrugated aluminum pipe arches at wildlife crossings - 53"x41"

a) L STA. 24+25, Site 3 - 69'

b) L STA. 228+60, Site 19 - 111'

2) 4 reinforced concrete equalizer pipes

a) 3 @ 36"

i. Y1 STA 11+32, Site 6 - 76'.

ii. L STA. 33+00, Site 5 - 102'

iii. Y2 STA. 14+68, Site 13 - 116'

b) 1 @ 24" - Y1 STA. 13+50, Site 7 - 68'

3) 2 aluminum alloy driveway pipes - 60"

a) Y2 STA. 10+86, Site 14 - 44'

b) L STA. 240+59, Site 18 - 32'

d. (i) Will proposed culvert replace an existing bridge?

☐ Yes ☒ No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed?
(Explain)

e. (i) Will proposed culvert replace an existing culvert?

☒ Yes ☐ No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed?
(Explain) All culverts are new except for the driveway culverts, which replace existing driveway culverts.

- f. Length of proposed culvert: See list above
- g. Width of proposed culvert: see list above
- h. Height of the top of the proposed culvert above the NHW or NWL. varies; see culvert sizes above
- i. Depth of culvert to be buried below existing bottom contour. 1' for all with jurisdictional waters
- j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐ Yes ☒ No
If yes, explain:

- k. Will the proposed culvert affect existing water flow? ☐ Yes ☒ No
If yes, explain:

3. EXCAVATION and FILL

☐ This section not applicable

- a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐ Yes ☒ No
If yes,
(ii) Avg. length of area to be excavated: _____
(iii) Avg. width of area to be excavated: _____
(iv) Avg. depth of area to be excavated: _____
(v) Amount of material to be excavated in cubic yards: _____
- b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐ CW _____ ☐ SAV _____ ☐ SB _____
☒ WL 1,089 ☐ None
(ii) Describe the purpose of the excavation in these areas:

- c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☐ Yes ☒ No
If yes,
(ii) Avg. length of area to be excavated: _____
(iii) Avg. width of area to be excavated: _____
(iv) Avg. depth of area to be excavated: _____
(v) Amount of material to be excavated in cubic yards: _____
- d. If the placement of the bridge or culvert involves any excavation, please complete the following:
(i) Location of the spoil disposal area: TBD, possible off-site
(ii) Dimensions of the spoil disposal area: TBD
(iii) Do you claim title to the disposal area? ☒ Yes ☐ No (If no, attach a letter granting permission from the owner.)
(iv) Will the disposal area be available for future maintenance? ☐ Yes ☒ No
(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?
☐ CW ☐ SAV ☐ WL ☐ SB ☒ None
If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ☐ Yes ☒ No
If yes, give dimensions if different from (ii) above.

Form DCM MP-5 (Bridges and Culverts, Page 4 of 5)

- e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☒ Yes ☐ No
If yes,
(ii) Avg. length of area to be filled: 26-88.5'
(iii) Avg. width of area to be filled: 5-28.5'
(iv) Purpose of fill: Placement of bents in Alligator River (8,625 sq. ft total).

- g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☐ Yes ☒ No
If yes,
(ii) Avg. length of area to be filled: _____
(iii) Avg. width of area to be filled: _____
(iv) Purpose of fill:

- f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐ CW _____ ☐ SAV _____ ☐ SB _____
☒ WL 349 ☐ None

- (ii) Describe the purpose of the excavation in these areas:

Fill associated with placement of land-based interior bents. Mechanized and hand clearing will also occur as part of this effort (not calculated above since not considered fill).

4. GENERAL

- a. Will the proposed project require the relocation of any existing utility lines? ☒ Yes ☐ No

If yes, explain: Power and telephone will be relocated as part of this project. The relocation of a fiber optic line is also being discussed. All utility relocations will occur within areas of roadway/bridge impact; therefore, no separate jurisdictional utility impacts that are not already covered by roadway/bridge impacts will occur and no utility drawings are part of this application.

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

- b. Will the proposed project require the construction of any temporary detour structures? ☐ Yes ☒ No

If yes, explain:

< Form continues on back >

- c. Will the proposed project require any work channels? ☐ Yes ☒ No

If yes, complete Form DCM-MP-2.

- d. How will excavated or fill material be kept on site and erosion controlled?

An erosion control plan has been developed that covers how fill and excavated material will be erosion controlled. Best Management Practices for the Protection of Surface Waters and Design Standards in Sensitive Watersheds will be employed.

- e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?
- Typical roadway construction equipment such as backhoes, dozers, rollers, dump trucks, etc. will be used for roadway/approach construction. Additional equipment such as cranes, pile drivers, and barges will be used for bridge construction. Temporary work platforms will also be installed in the river off of both shorelines to allow construction equipment to access nearshore construction areas.

- f. Will wetlands be crossed in transporting equipment to project site? ☒ Yes ☐ No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

Equipment will use temporary work platforms and or/matting when crossing wetland areas to avoid or minimize compaction and permanent wetland impacts to the site related to equipment use. None of these areas are in CAMA wetlands.

- g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐ Yes ☒ No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

6/27/2023

Date

NCDOT STIP No. HB-0001

Project Name

NCDOT / Michael Turchy

Applicant Name

Michael Turchy

Applicant Signature



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 3.00; Released August 2021)

WBS Element: 49475.1.1 TIP/Proj No: HB-0001 County(ies): Dare Tyrrell Page 1 of 2

General Project Information

WBS Element:		49475.1.1		TIP Number:		HB-0001		Project Type:		Bridge Replacement		Date:		3/2/2023	
NCDOT Contact:		John Conforti, REM						Contractor / Designer:		Patrick Hartnett, PE					
	Address:	Project Management Unit							Address:	Summit Design and Engineering Services					
		1582 Birch Ridge Drive								3301 Benson Dr					
	Raleigh, NC 27610						Raleigh, NC 27609								
	Phone:	(919) 707-6015							Phone:	(919) 322-0115					
	Email:	jconforti@ncdot.gov						Email:	patrick.hartnett@summitde.com						
City/Town:		Columbia						County(ies):		Dare		Tyrrell			
River Basin(s):		Pasquotank						CAMA County?		Yes		Yes			
Wetlands within Project Limits?		Yes													

Project Description

Project Length (lin. miles or feet):	4.246 miles	Surrounding Land Use:	Rural Area with Commercial Land Uses				
	Proposed Project			Existing Site			
Project Built-Upon Area (ac.)	21.0	ac.		15.0	ac.		
Typical Cross Section Description:	2 lane road with 12' travel lanes and 5' paved shoulders. The total bridge length is 3.3 miles and clear roadway of 40' with 8' shoulders.			2 lane road with 12' travel lanes with grass shoulder. The bridge length is 2.8 miles and width of 30'.			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	13200	Year:	2043	Existing:	9645	Year: 2023

General Project Narrative:
(Description of Minimization of Water
Quality Impacts)

The NCDOT project includes the replacement of NCDOT Bridge 7 on US 64 in Tyrrell and Dare Counties over the Alligator River. The existing structure is approximately 2.8 miles long with a width of 30'. The existing structure has deck drains. The proposed structure will be approximately 3.3 miles long with a clear roadway width of 40'. The Alligator River is the only stream identified in the study area, but it has two separate NCDWR Index Numbers north and south of the existing US 64 bridge. The river section south of the bridge has been designated as an ORW, but the river section north of the existing bridge has not been designated as an ORW. Since the proposed bridge will be located north of the existing bridge, the stormwater from the bridge and approaches will outlet into the non-ORW section of the Alligator River.

Within the project area, the existing impervious area is 15.0 acres, and the proposed impervious area is 21 acres. Please note the project will remove the existing pavement where it is no longer needed. The wider and longer bridge accounts for the majority of the increased area. The existing bridge is 10.6 acres. The proposed bridge will be 15.9 acres. As previously stated, runoff from the proposed bridge will be discharged into the non-ORW segment of the Alligator River. The additional 0.7 acres of impervious area is due to the proposed roadway. The proposed roadway will have shoulder sections. For the SELDM analysis, the location of the analysis was the proposed bridge, and the entire section of US 64 that drains to the Alligator River though the roadside channels was included to be conservative. Even with this conservative approach, the analysis determined that minimum measures can be used to treat stormwater runoff at this stream crossing. Please note that there were several jurisdictional surface waters identified within the study area. These waters all connect to the Alligator River, so the Alligator River was used as the only SELDM analysis point.

The stormwater management plan includes the use of deck drains where there is a minimum of 12 feet of clearance from the deck drain to the surface water. The roadway profile provides at least this minimum vertical clearance for as much of the bridge as possible. The deck drains will be located from Sta. 51+78 to Sta. 213+96 -L- LT/RT. For the sections between the bridge approach and the deck drains, the runoff will accumulate in the shoulder and be collected outside the approach slabs with traditional 2GIs and pipe outlets. The profile and drainage are designed so that spread is kept out of the travel lane and the bypass from the system is less than 0.1 cfs. With this approach, a closed drainage system attached to the bridge is not required. The pipes outlet at the toe of the roadway embankment. There are wetland areas on both sides of the road at both the begin and end bridge. To minimize impacts to the wetland areas, rip-rap pads are utilized at the pipe outlets to dissipate energy. The wetland areas outlet to the Alligator River, so ditching to the Alligator River will not be used to avoid additional wetland impacts. Given the wetland areas at the bridge approaches, Stormwater Control Measures (SCMs) would result in large wetland impacts. To avoid these impacts, the use of SCMs was omitted.

All utility relocations will take place within the footprint of the proposed alignments and therefore do not have any associated impacts. The power and telecommunication lines will be attached to the proposed bridge. Staging areas for equipment on this project will be placed in existing NCDOT ROW and will also utilize abandoned sections of existing alignments as needed.

For the roadway sections, fill slopes will be steepened to minimize filling in wetland areas to the greatest extent practicable. Ditching through wetland areas will be avoided, and all closed system drainage outlets will be designed to have non-erosive velocities. Lastly, all cross-pipes with jurisdictional waters will be buried.



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 49475.1.1 TIP/Proj No.: HB-0001 County(ies): Dare Tyrrell Page 2 of 2

General Project Information

Waterbody Information

Surface Water Body (1):	Alligator River	NCDWR Stream Index No.:	30-16-(7)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class SC	
	Supplemental Classification:	Swamp Waters (Sw)	Waters (ORW)
Other Stream Classification:	Areas of Environmental Concern		
Impairments:	None		
Aquatic T&E Species?	Yes	Comments:	See NRTR
NRTR Stream ID:	30-16-(7)	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	Yes	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)			
Surface Water Body (2):	Alligator River	NCDWR Stream Index No.:	30-16-(21.5)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class SC	
	Supplemental Classification:	Swamp Waters (Sw)	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	Yes	Comments:	See NRTR
NRTR Stream ID:	30-16-(21.5)	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	Yes	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)			

09/08/19

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TYRRELL & DARE COUNTY

LOCATION: REPLACE BRIDGE #7 ON US 64 IN TYRRELL AND
DARE COUNTIES OVER THE ALLIGATOR RIVER

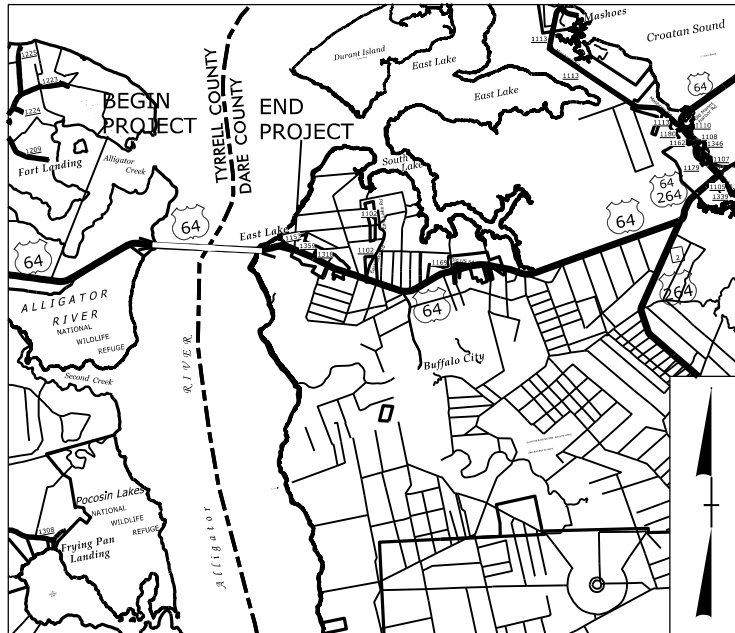
TYPE OF WORK: STRUCTURE, GRADING, PAVING, DRAINAGE

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 1 OF 79

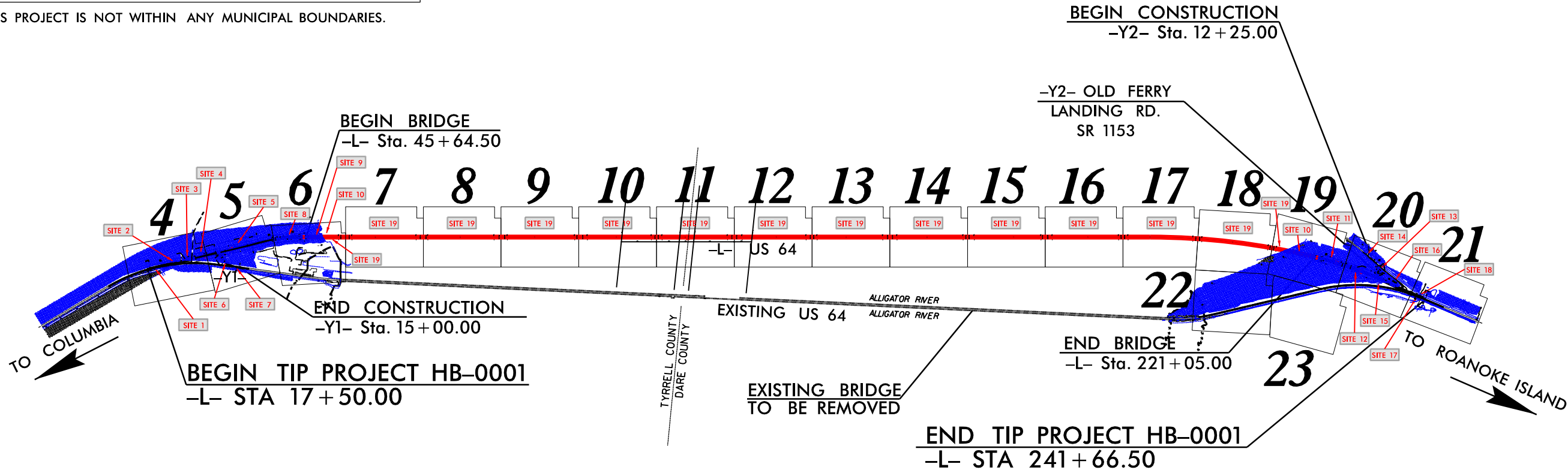
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0001	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49475.1.1	NHPB-0001(156)	PE	
49475.2.1	NHPB-0001(156)	ROW	

ROW PLAN SET



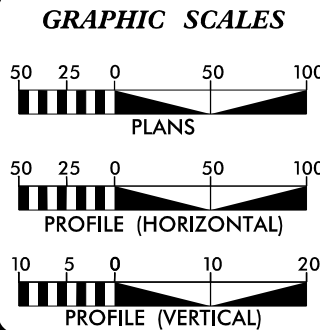
VICINITY MAP

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

CONTRACT:

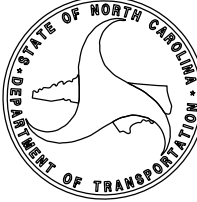


DESIGN DATA
ADT 2023 = 5734/9645**
ADT 2043 = 10400/13200**
K = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST = 4% DUAL 3%
FUNC CLASS =
PRINCIPAL ARTERIAL
REGIONAL TIER
**WEEKDAY/WEEKEND

PROJECT LENGTH
TIP PROJECT HB-0001 ROADWAY LENGTH = 0.924 MILES
TIP PROJECT HB-0001 STRUCTURES LENGTH = 3.322 MILES
TIP PROJECT HB-0001 TOTAL PROJECT LENGTH = 4.246 MILES
NCDOT CONTACT: JOHN CONFORTI, REM
PROJECT MANAGER

Prepared In the Office of:
SUMMIT
DESIGN AND ENGINEERING SERVICES
2018 STANDARD SPECIFICATIONS
RIGHT OF WAY DATE: DECEMBER 16, 2022
LETTING DATE: OCTOBER 2024
NEIL J. DEAN, PE
PROJECT ENGINEER
FAITH E. JAHNKE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.



05-JUN-2023 13:05
HB-0001-hyd_prm_tsh.dgn
patrik.hartnett

8/17/99

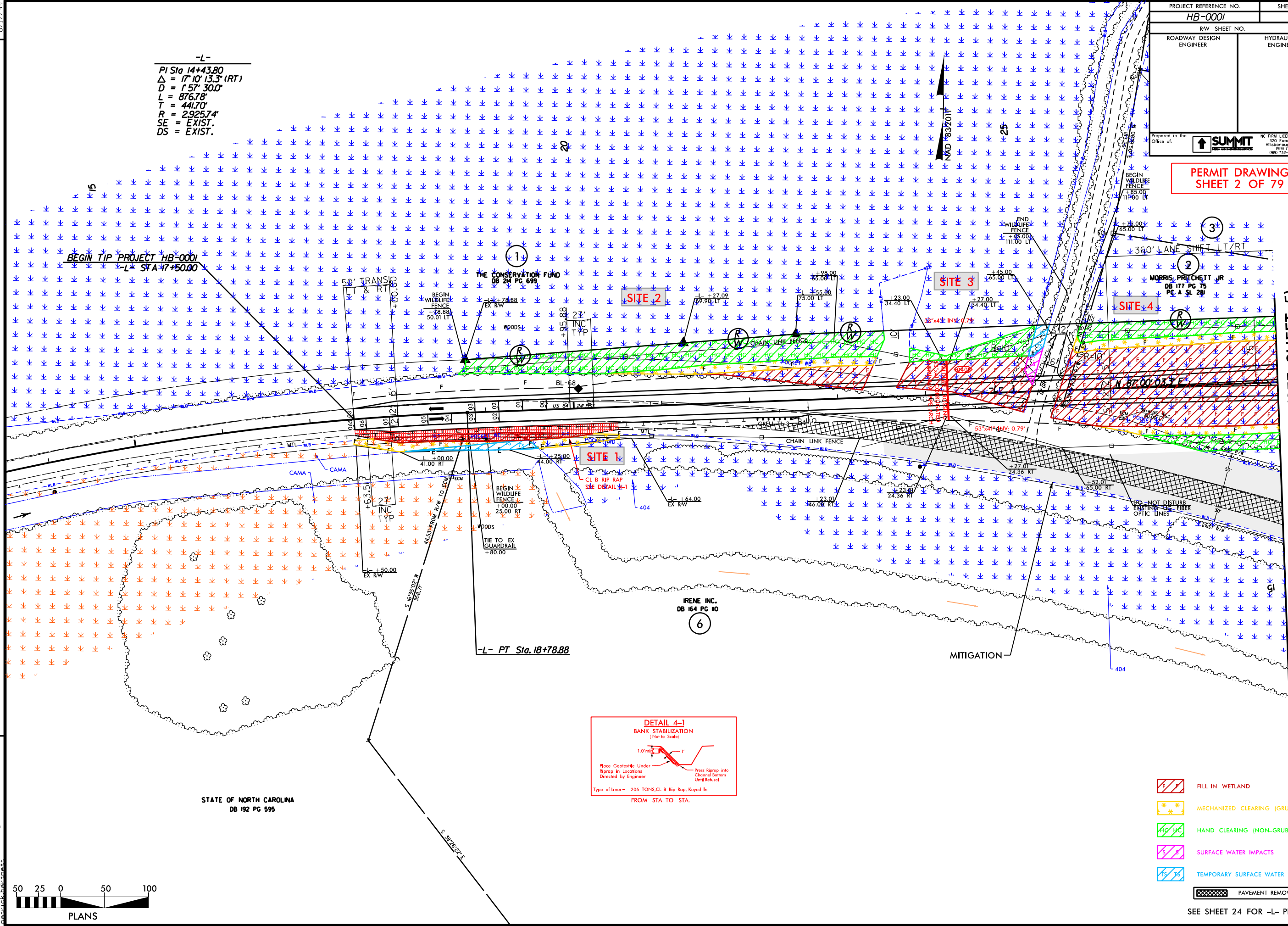
05-JUN-2023 13:05
HB-0001-Plan-2.dgn
Network Administrator

REVISIONS

-L-
PI Sta 14+43.80
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D = 157' 30.0"
L = 876.78'
T = 441.70'
SE = EXIST.
DS = EXIST.

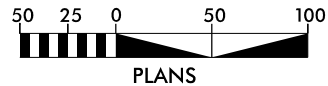
PROJECT REFERENCE NO. HB-0001		SHEET NO. 4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Prepared in the Office of: SUMMIT SUMMIT AND ASSOCIATES, INC. NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX)		

PERMIT DRAWING
SHEET 2 OF 79



MATCHLINE -L- STATION 28+00.00 (SEE SHEET 5)

STATE OF NORTH CAROLINA
DB 192 PG 595



DETAIL 4-1
BANK STABILIZATION
(Not to Scale)

Place Geotextile Under Riprap in Locations Directed by Engineer

Press Riprap into Channel Bottom Until Refusal

Type of Liner = 205 TONS, CL B Rip-Rap, Keyed-In

FROM STA. TO STA.

- FILL IN WETLAND
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- PAYMENT REMOVAL

SEE SHEET 24 FOR -L- PROFILE

PROJECT REFERENCE NO. HB-0001		SHEET NO. 4
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

Prepared in the Office of:
SUMMIT
SUMMIT ENGINEERING & CONSTRUCTION, INC.
320 Executive Ct.
Hillsborough, NC 27278
(919) 752-3883
(919) 752-6676 (FAX)

NC FIRM LICENSE No. P-0339
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**PERMIT DRAWING
SHEET 3 OF 79**

MATCHLINE -L- STATION 28+00.00 (SEE SHEET 5)

-L-
PI Sta 14+43.80
 $\Delta = 17' 10" 13.3' (RT)$
 $D = 1' 57' 30.0"$
 $L = 876.78'$
 $T = 441.70'$
 $R = 2925.74'$
SE = EXIST.
DS = EXIST.

**BEGIN TIP PROJECT HB-0001
-L- STA 17+50.00**

**THE CONSERVATION FUND
DB 214 PG 699**

SITE 2

SITE 3

SITE 4

**MORRIS, PRITCHETT JR
DB 177 PG 75
PL A SL 20**

-L- PT. Sta. 18+78.88

**IRENE INC.
DB 164 PG 100**

**STATE OF NORTH CAROLINA
DB 192 PG 595**

**DETAIL 4-1
BANK STABILIZATION
(Profile Scale)**

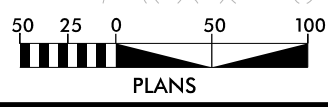
Place Geotextile Under Riprap in Locations Directed by Engineer

Type of Liner - 205 TONS, CL B Rip-Rap, Keyed-In

FROM STA. TO STA.

- FILL IN WETLAND
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- PAVEMENT REMOVAL

SEE SHEET 24 FOR -L- PROFILE



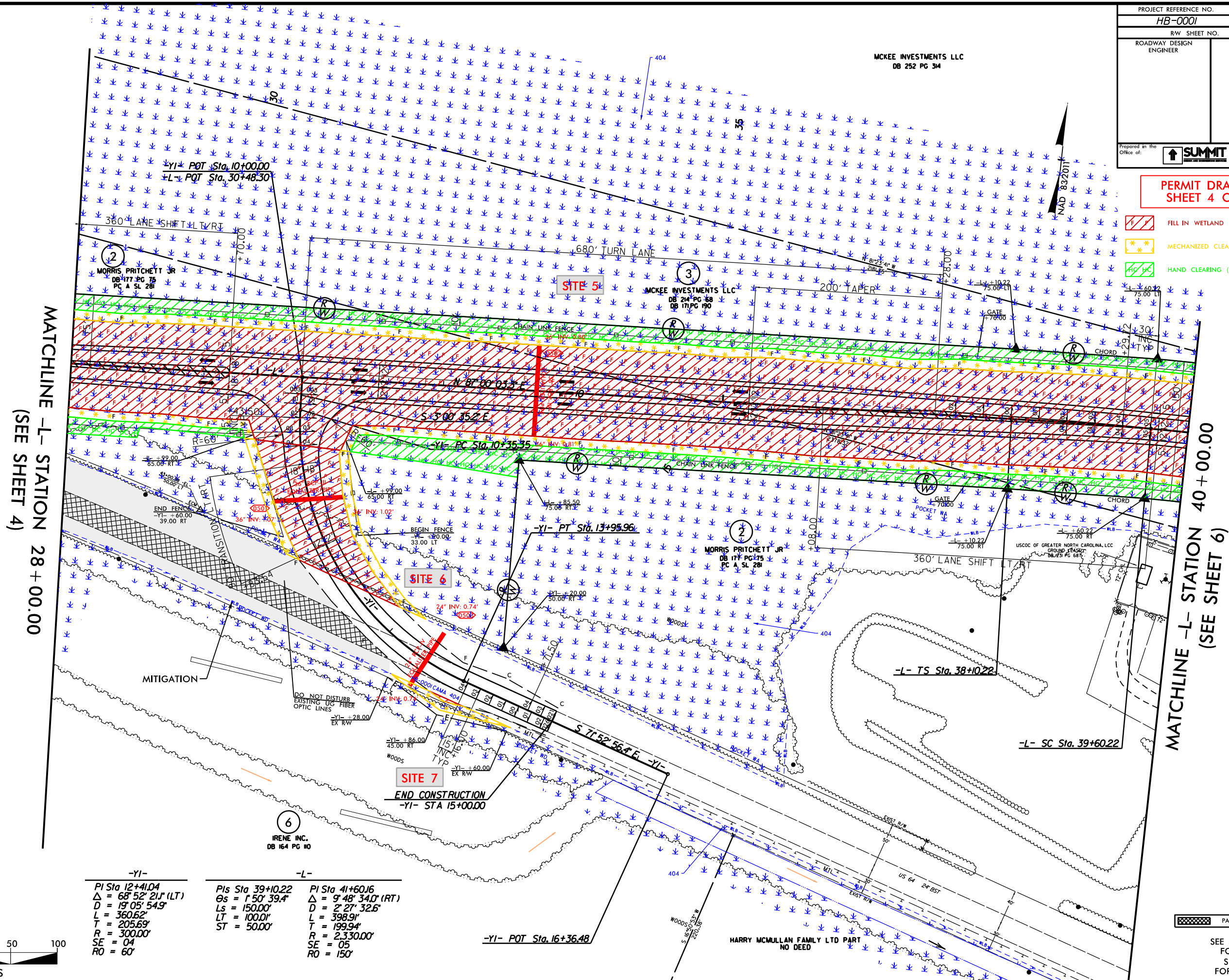
PLANS

REVISIONS

8/17/99
05-JUN-2023 13:05
HB-0001-Path-3.dgn
Network Administrator

 PAVEMENT REMOVAL

SEE SHEET 24 & 25
FOR -L- PROFILE
SEE SHEET 33
FOR -Y1- PROFILE



8/17/99

Prepared in the Office of: **SUMMIT**
NC FIRM LICENSE No. P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6816 (Fax)

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	6

RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 6 OF 78

MATCHLINE -L- STATION 40+00.00
(SEE SHEET 5)

MATCHLINE -L- STATION 52+50.00
(SEE SHEET 7)



PLANS

PIs Sta 41+60.16
 $\Delta = 94.8^\circ 34.0'$ RT
 $D = 2' 27.326"$
 $L = 398.91'$
 $T = 199.94'$
 $R = 2,330.00'$
 $SE = 05^\circ$
 $RO = 150'$

PIs Sta 44+09.13
 $\Delta = 150^\circ 39.4'$
 $Ls = 150.00'$
 $LT = 100.01'$
 $ST = 50.00'$

CAMA AEC (575')

HARRY McMULLAN FAMILY LTD PART
NO DEED

- TEMPORARY WORK TRESTLE
- FILL IN WETLAND
- SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- PAVEMENT REMOVAL

SEE SHEET 25
FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:06
05-0001-sh-6.dgn
D:\PROJECTS\HB-0001\05-0001-sh-6.dgn

8/17/99

Prepared in the Office of: **SUMMIT**

NC FIRM LICENSE No. P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6616 (FAX)

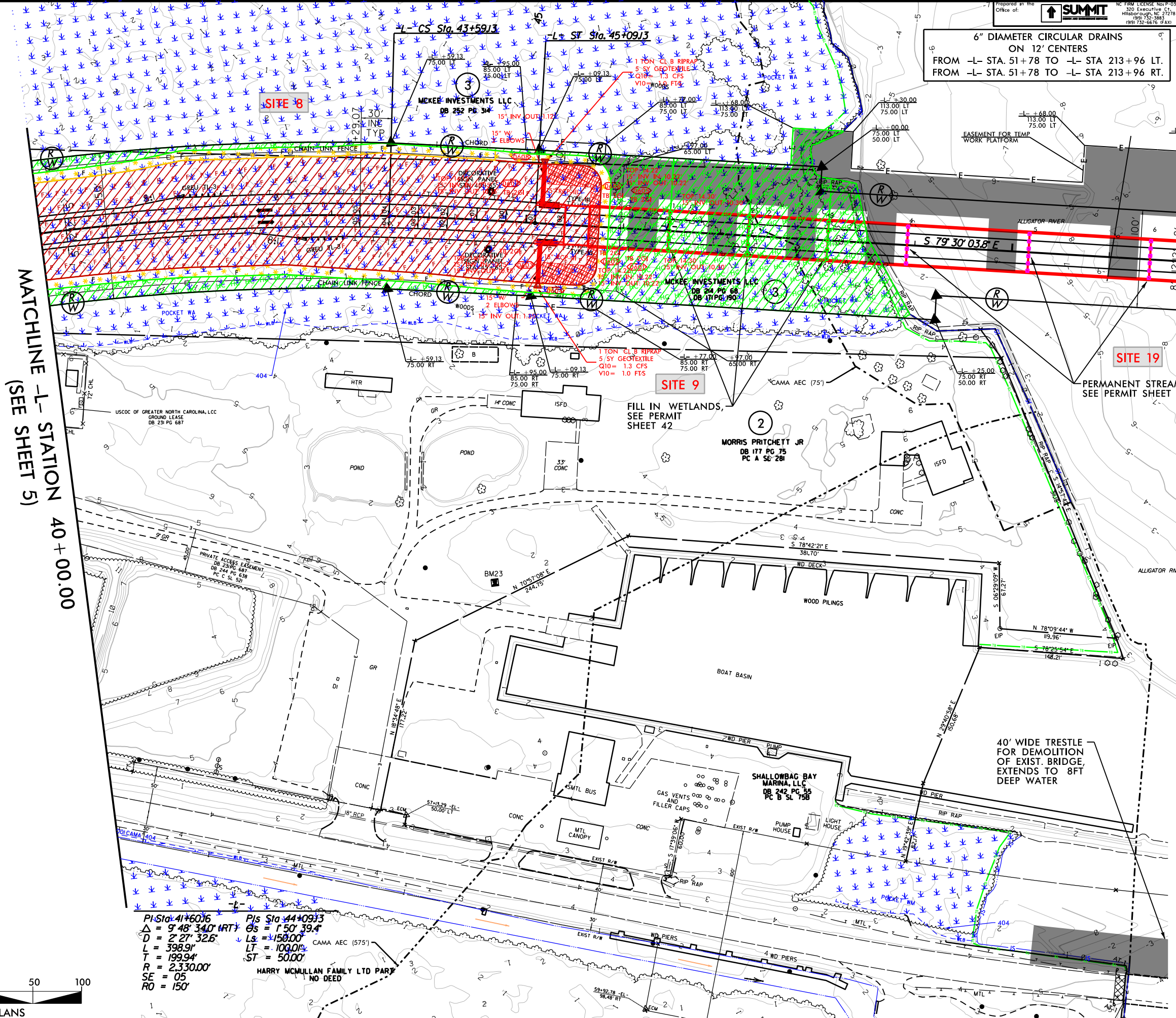
PROJECT REFERENCE NO. HB-0001		SHEET NO. 6
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 7 OF 79

MATCHLINE -L- STATION 40+00.00
(SEE SHEET 5)

MATCHLINE -L- STATION 52+50.00
(SEE SHEET 7)



SITE 19
PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 9
FILL IN WETLANDS,
SEE PERMIT
SHEET 42

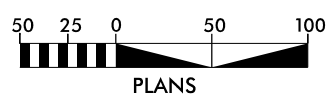
40' WIDE TRESTLE
FOR DEMOLITION
OF EXIST. BRIDGE,
EXTENDS TO 8FT
DEEP WATER

- TEMPORARY WORK TRESTLE
- FILL IN WETLAND
- SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- PAVEMENT REMOVAL

P/S Sta 41+60.16
 $\Delta = 9' 48'' 34.0''$ RT
 $D = 2' 27'' 32.6''$
 $L = 398.91'$
 $T = 199.94'$
 $R = 2,330.00'$
 $SE = 05'$
 $RO = 150'$

P/S Sta 44+09.13
 $\Delta = 1' 50'' 39.4''$
 $Ls = 150.00'$
 $LT = 100.01'$
 $ST = 50.00'$

CAMA AEC (575')
HARRY McMULLAN FAMILY LTD PART
NO DEED



SEE SHEET 25
FOR -L- PROFILE

REVISIONS

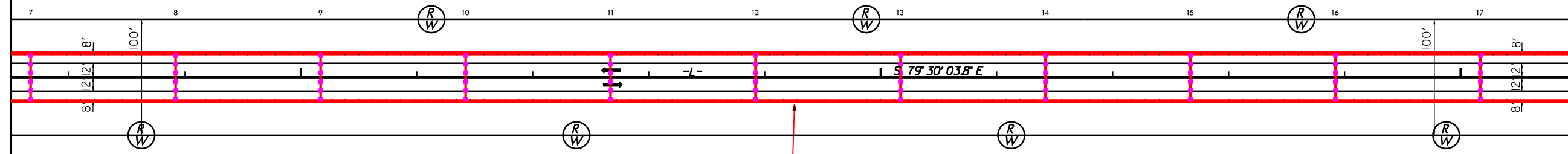
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05-0001-HB-0001-7.dgn
C:\WORK\05-0001-HB-0001-7.dgn

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



MATCHLINE -L- STATION 52+50.00 (SEE SHEET 6)

MATCHLINE -L- STATION 66 + 00.00
(SEE SHEET 8)

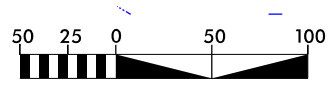


PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

ALLIGATOR RIVER



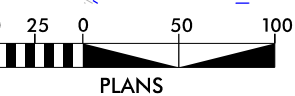
PLANS

SEE SHEET 25 FOR -L- PROFILE

8/17/99

05-JUN-2023 13:06
HB-0001-Hyd-prm-psh-8.dgn
patrick.hartnett

NAD 83/2011



**MATCHLINE -L- STATION 66 + 00.00
(SEE SHEET 8)**

SEE SHEET 25 FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:06
HB-20201-Hyd-prm-psh_9.dgn
patrick.bartlett 8/17/99

PERMIT DRAWING
SHEET 10 OF 79

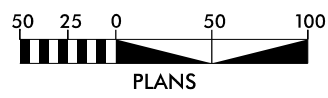
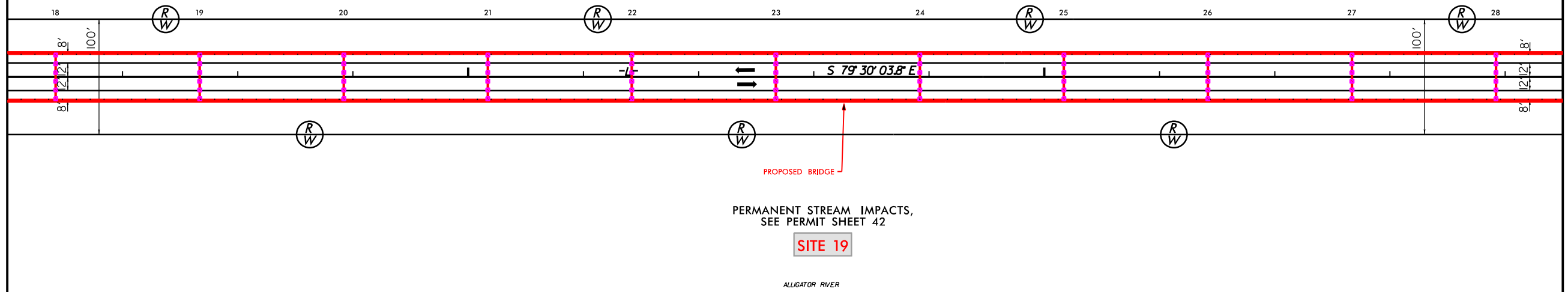
58 SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011

MATCHLINE -L- STATION 66 + 00.00 (SEE SHEET 7)

**MATCHLINE -L- STATION 79 + 50.00
(SEE SHEET 9)**



SEE SHEET 26 FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:06
HB-0001_Hyd-prm_psh-10.dgn
patrick.bartnett

8/17/99

NAD 83/2011



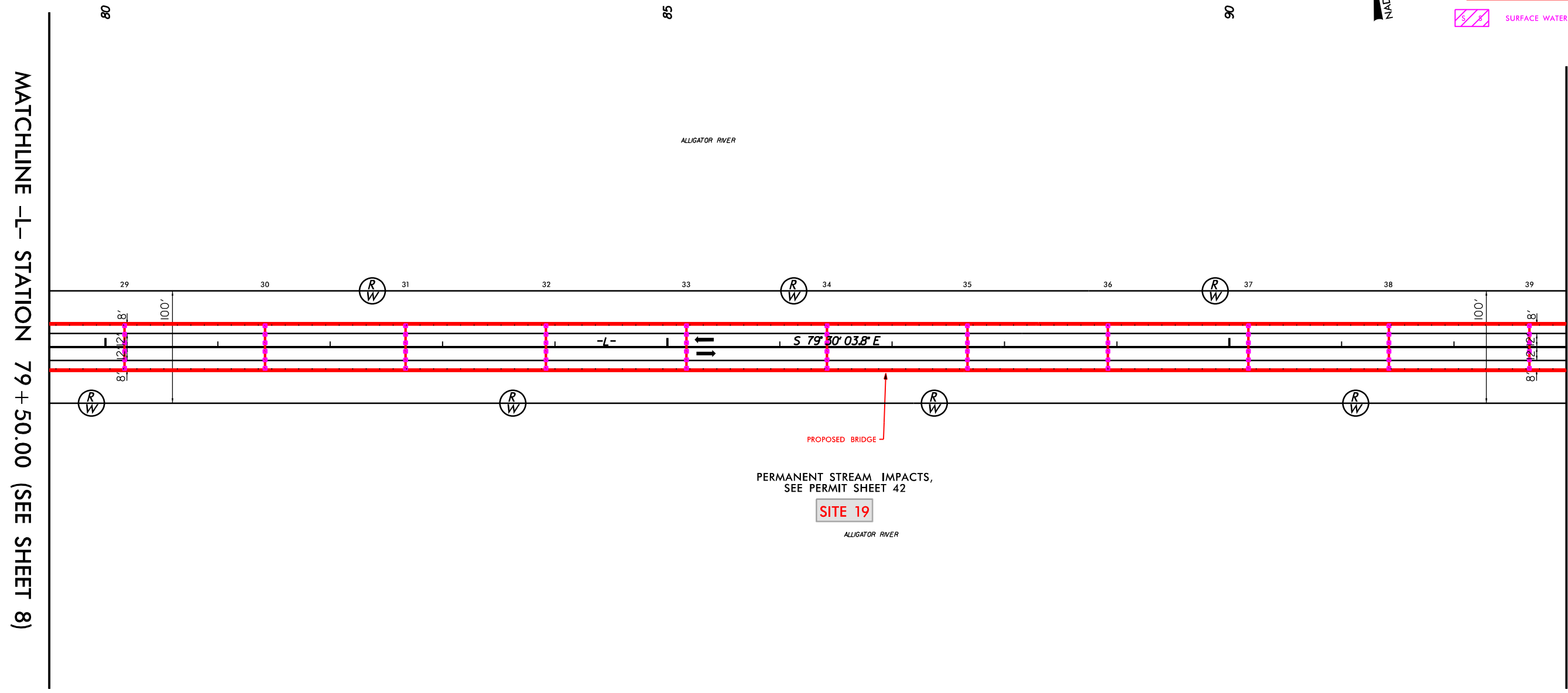
SITE 19



PERMIT DRAWING
SHEET 12 OF 79

 SURFACE WATER IMPACTS

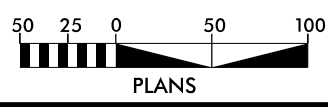
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

ALLIGATOR RIVER

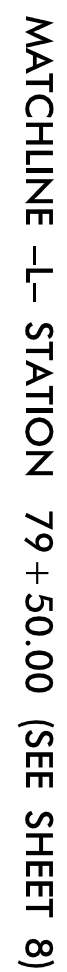


SEE SHEET 26 FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:06
HB-2001-Hjd-prm-psh-12.dgm
patrick.bartlett

NAD 83 2011



**MATCHLINE -L- STATION 93+00.00
(SEE SHEET 10)**

SITE 19

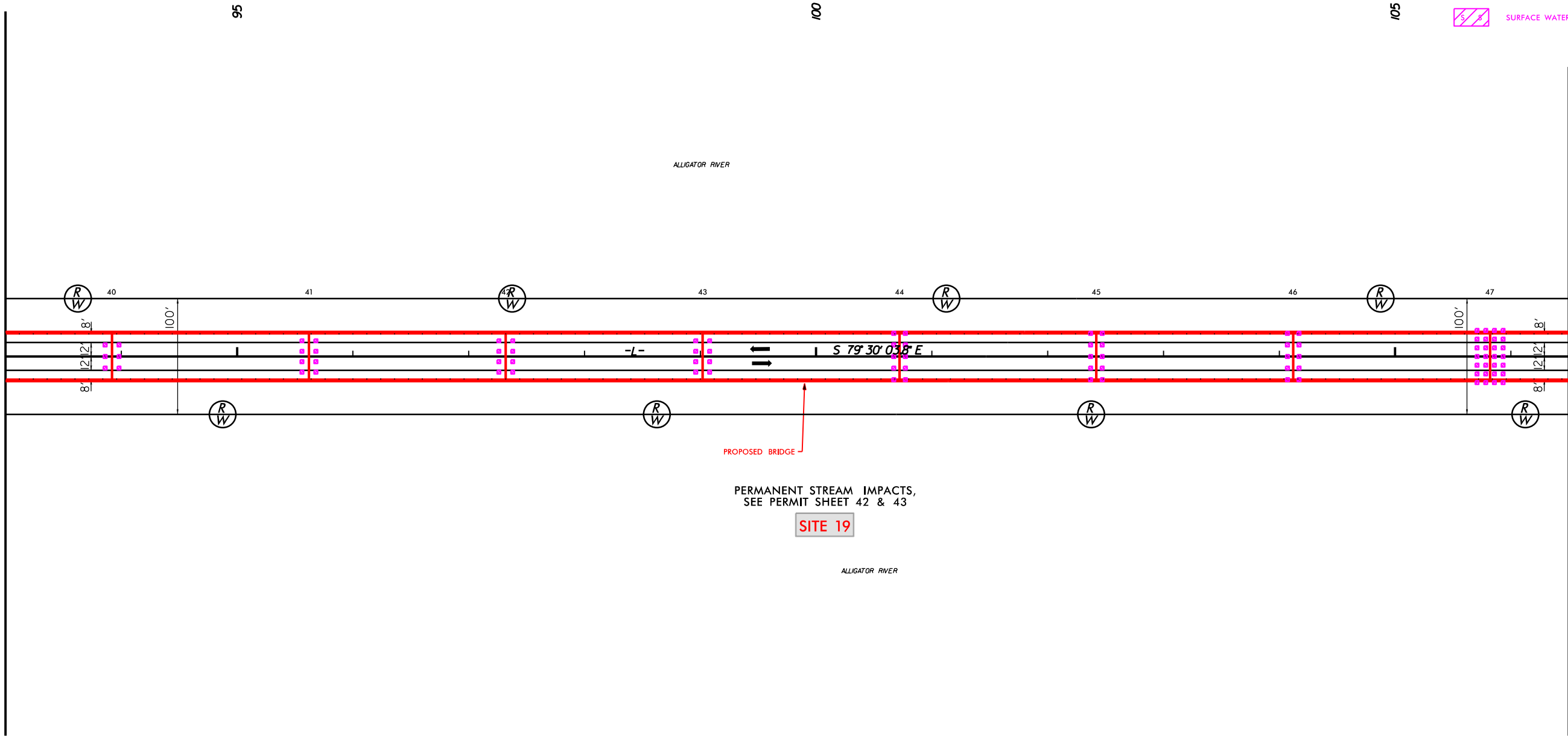
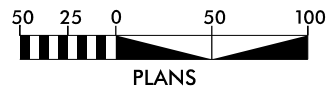


8/17/99

05-JUN-2023 13:06
H:\0001\14-sh-14.dgn
D:\Track\14-sh-14.dgn

REVISIONS

MATCHLINE -L- STATION 93+00.00 (SEE SHEET 9)



6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



PROJECT REFERENCE NO. <i>HB-0001</i>		SHEET NO. <i>10</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE Nos P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)	

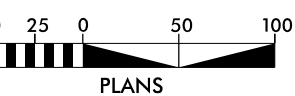
PERMIT DRAWING
SHEET 14 OF 79

 SURFACE WATER IMPACTS

MATCHLINE -L- STATION 106+50.00
(SEE SHEET 11)

SEE SHEET 26 & 27 FOR -L- PROFILE

NAD 83/2011



MATCHLINE -L-	STATION	106 + 50.00
(SEE SHEET 11)		

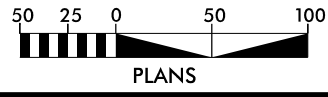
SEE SHEET 26 & 27 FOR -L- PROFILE

05-JUN-2023 13:06 HB-2001-Hjd-prm-psh-15.dgm patrick.bartlett	8/17/99
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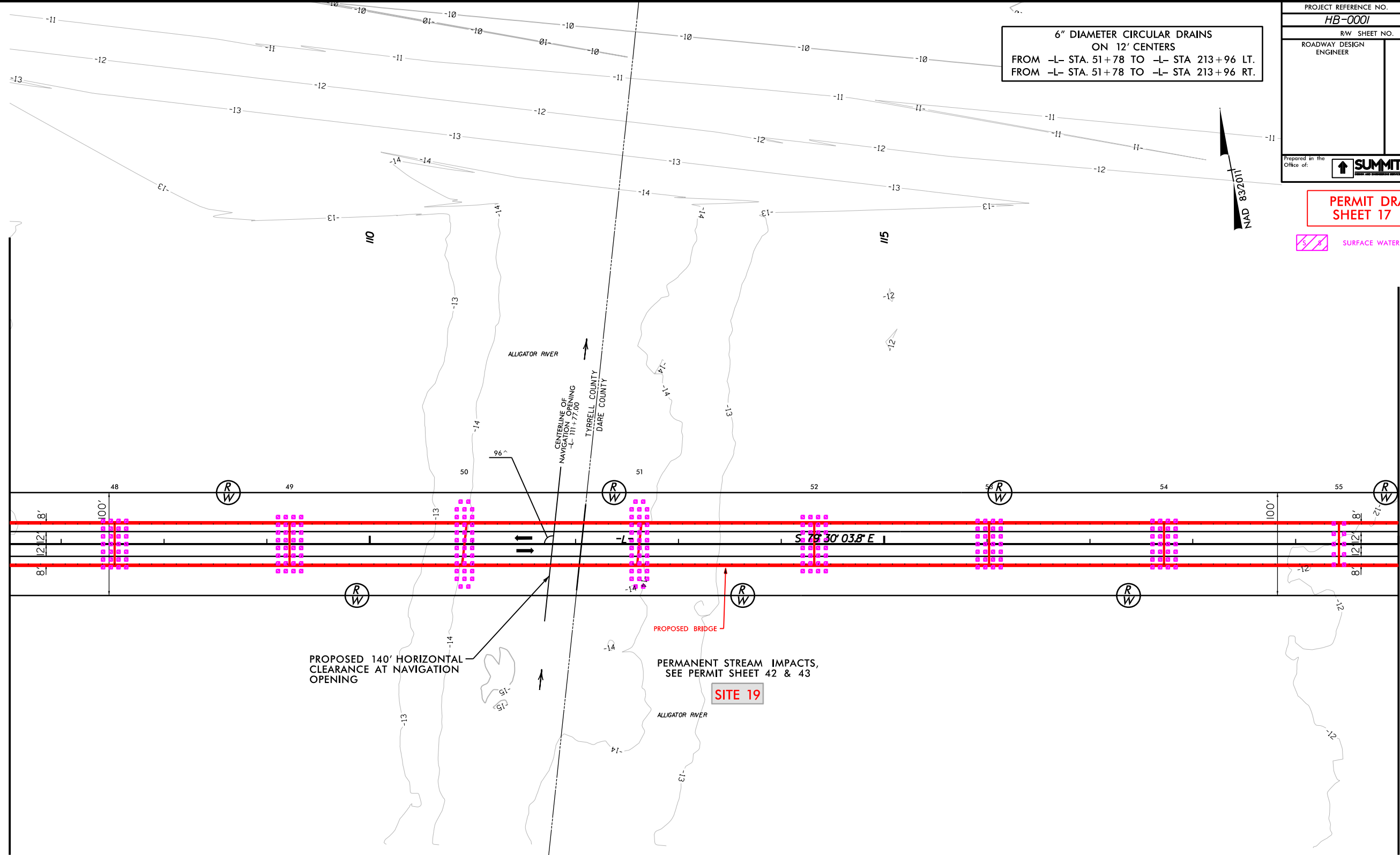
8/17/99

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HB-0001-17.dgn
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REVISIONS



MATCHLINE -L- STATION 106+50.00 (SEE SHEET 10)



MATCHLINE -L- STATION 120+00.00
(SEE SHEET 12)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PROJECT REFERENCE NO. HB-0001		SHEET NO. 11
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Prepared in the Office of: SUMMIT ENGINEERING & CONSTRUCTION, INC.		NC FIRM LICENSE No P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6876 (FAX)

PERMIT DRAWING
SHEET 17 OF 79

SURFACE WATER IMPACTS

SEE SHEET 27 & 28 FOR -L- PROFILE

1. *Journal of the American Medical Association*, 2000; 284: 2689-2694.

SITE 10

PLANS

[illegible]

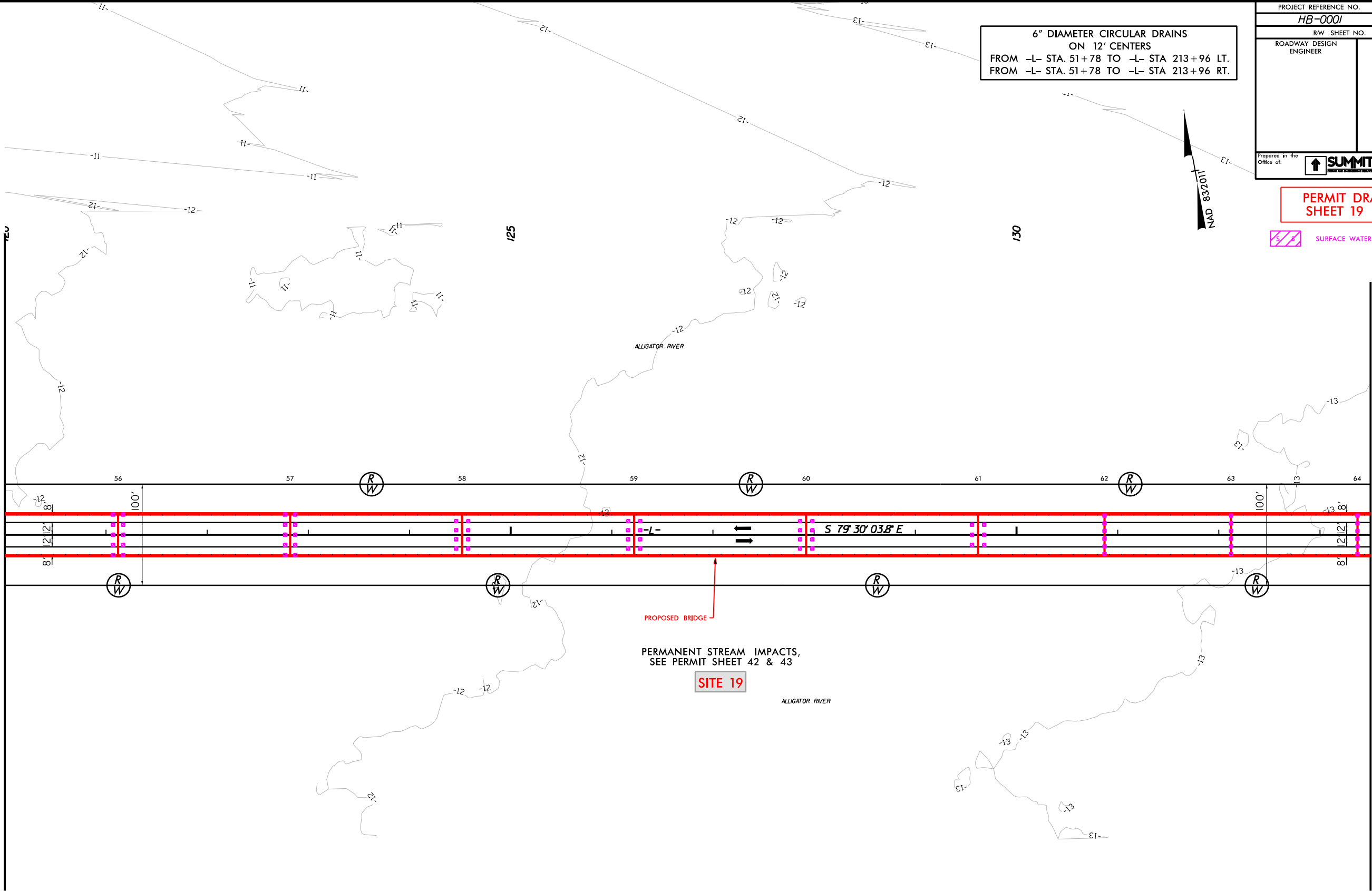
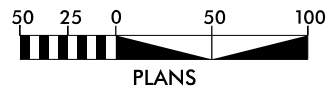
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8/17/99

05-JUN-2023 13:07
118-0001-19.dgn
psh-19.dgn
psh-19.dgn

REVISIONS

MATCHLINE -L- STATION 120+00.00 (SEE SHEET 11)



6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



PROJECT REFERENCE NO. <i>HB-0001</i>		SHEET NO. <i>12</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
Prepared in the Office of:		NC FIRM LICENSE Nos P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6876 (FAX)

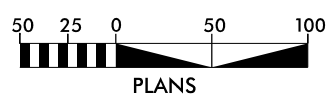
PERMIT DRAWING
SHEET 19 OF 79

 SURFACE WATER IMPACTS

MATCHLINE -L- STATION 133+50.00
(SEE SHEET 13)

SEE SHEET 28 & 29 FOR -L- PROFILE

NAD 83/2011

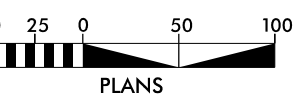


**MATCHLINE -L- STATION 147 + 00.00
(SEE SHEET 14)**

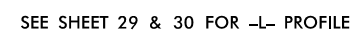
SEE SHEET 29 FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:07 HB-0001-Hyd-prm-psh.20.dgn patrick.bartlett	8/17/99
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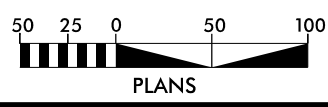


NAD 83/2011



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pctruck.bartnett

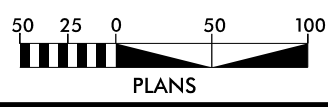
 **S8** SURFACE WATER IMPACTS



**MATCHLINE -L- STATION 160 + 50.00
(SEE SHEET 15)**

SEE SHEET 29 & 30 FOR -L- PROFILE

NAD 83/2011



**MATCHLINE -L- STATION 174 + 00.00
(SEE SHEET 16)**

SEE SHEET 30 FOR -L- PROFILE

PROJECT REFERENCE NO. HB-0001		SHEET NO. 15	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27578 (919) 732-3888 (919) 732-6616 (FAX)	

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

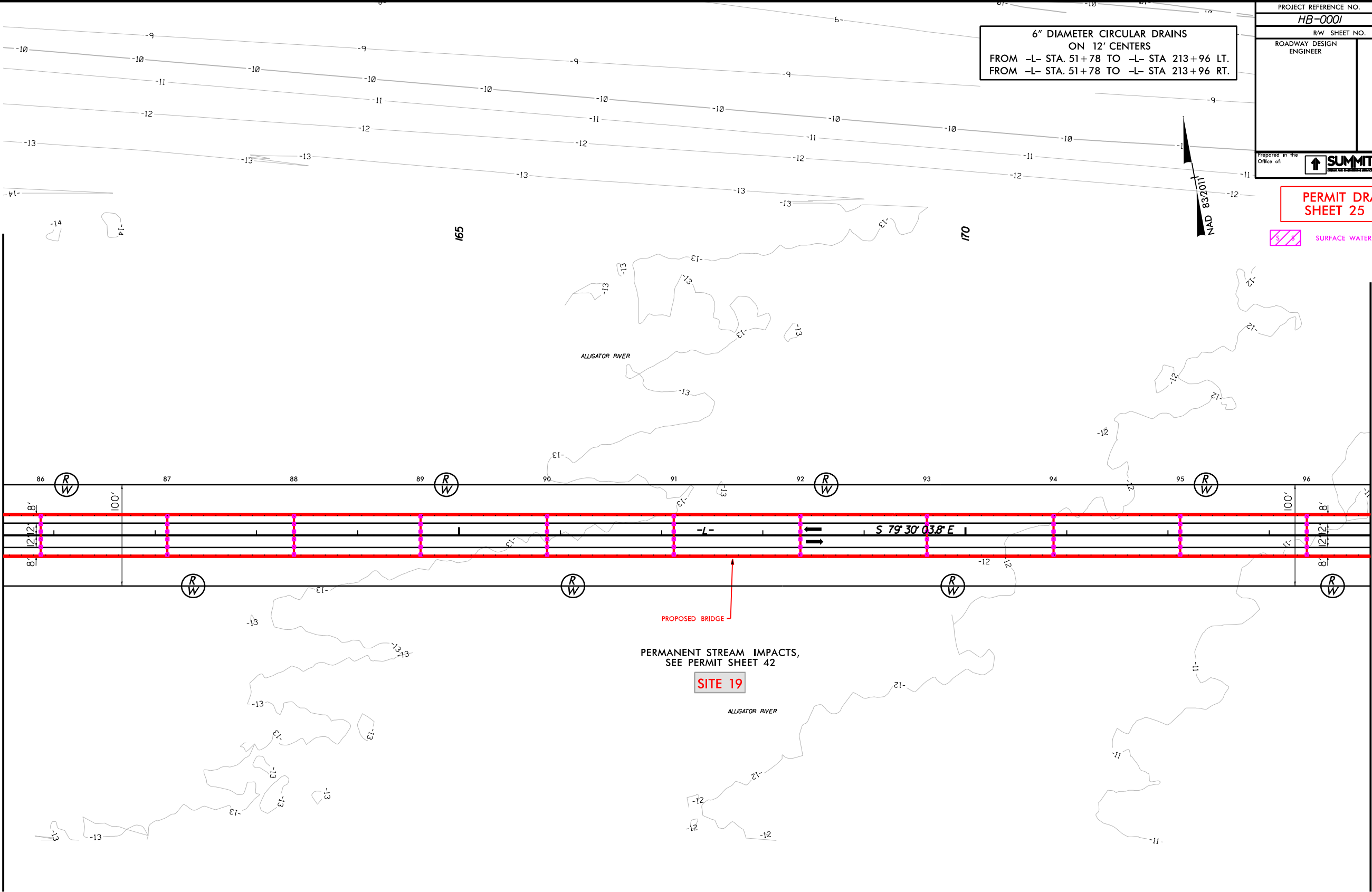


PERMIT DRAWING
SHEET 25 OF 79

SURFACE WATER IMPACTS

MATCHLINE -L- STATION 160+50.00 (SEE SHEET 14)

MATCHLINE -L- STATION 174+00.00
(SEE SHEET 16)

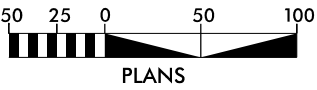


PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

ALLIGATOR RIVER



SEE SHEET 30 FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:07
115-0001-15-sh-25.dgn
pattack:pat:115-0001-15-sh-25.dgn

PROJECT REFERENCE NO.		SHEET NO.	
HB-0001		16	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE Nos P-0339	
SUMMIT		320 Executive Ct. Hillsborough, NC 27578 (919) 732-3883 (919) 732-6876 (FAX)	

PERMIT DRAWING
SHEET 26 OF 79

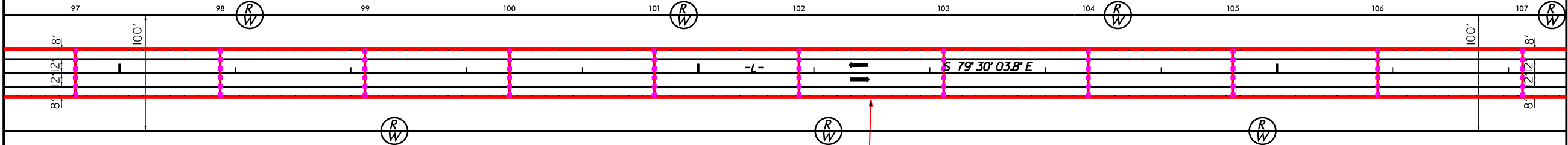
 SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



MATCHLINE -L- STATION 174+00.00 (SEE SHEET 15)

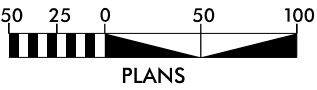
MATCHLINE -L- STATION 187+50.00
(SEE SHEET 17)



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

ALLIGATOR RIVER



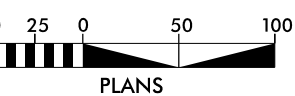
SEE SHEET 30 & 31 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
HB-0001-16-sh-26.dgn
D:\Track\16\16-16.dgn

 SURFACE WATER IMPACTS



MATCHLINE -L- STATION 187 + 50.00
(SEE SHEET 17)

SEE SHEET 30 & 31 FOR -L- PROFILE

05-JUN-2023 13:07 HB-0001-Hjd-prm-psh.27.dgn patrick.bartlett	8/17/99
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PROJECT REFERENCE NO.
HB-0001

SHEET NO.
17

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

Prepared in the Office of:


NC FIRM LICENSE No. P-0339
320 Executive Ct.
Hillsborough, NC 27578
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 28 OF 79

 SURFACE WATER IMPACTS

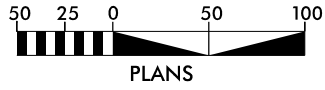
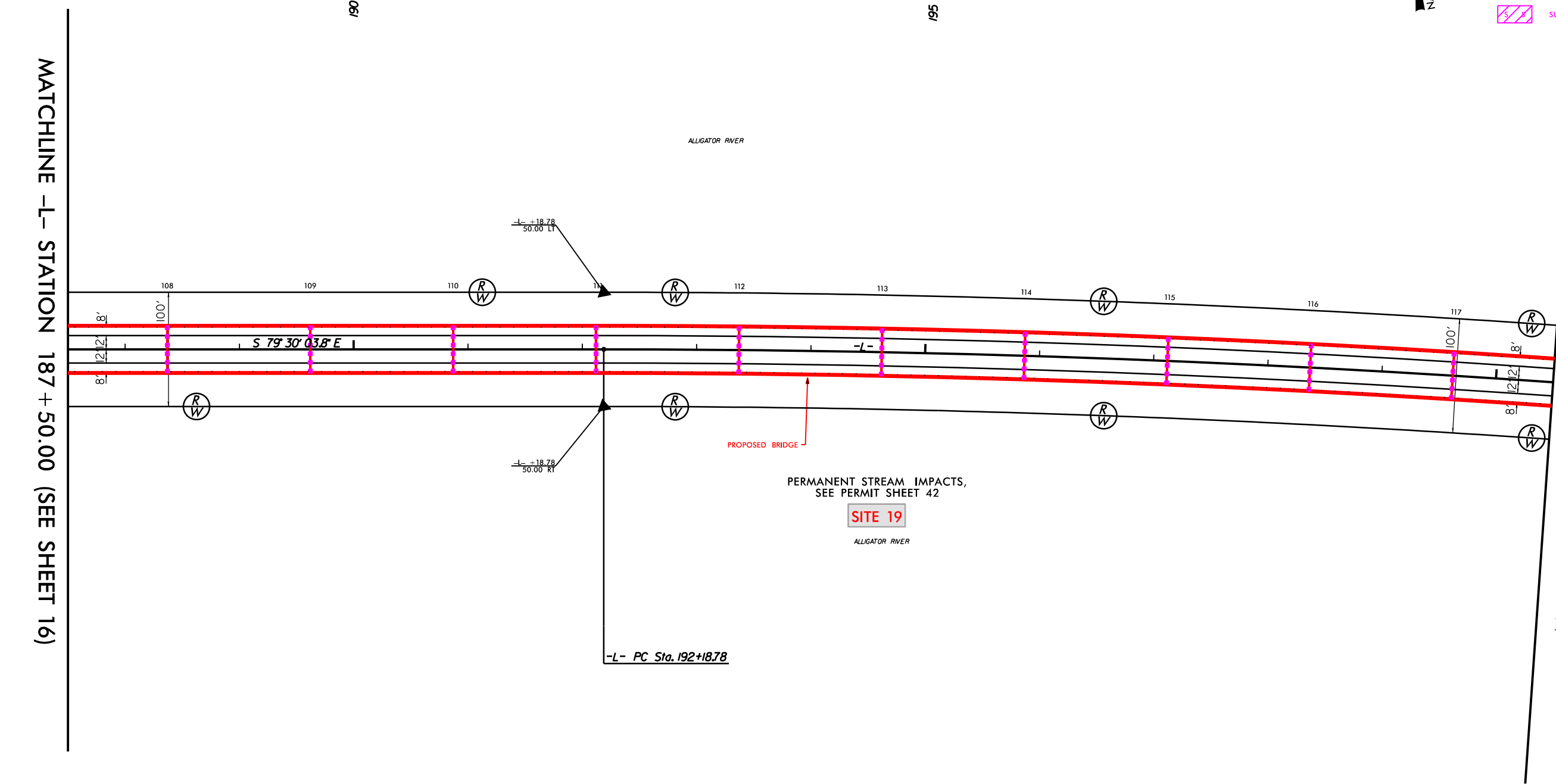
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-
PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 38.9"
L = 3,063.63'
T = 1,540.19'
R = 12,000.00'
SE = NC



MATCHLINE -L- STATION 187+50.00 (SEE SHEET 16)

MATCHLINE -L- STATION 200+50.00
(SEE SHEET 18)



SEE SHEET 31 FOR -L- PROFILE

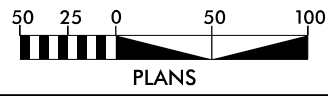
REVISIONS

8/17/99

05-JUN-2023 13:07
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-L-

PI Sta 207+58.97
 $\Delta = 14^\circ 37' 40.0''$ (RT)
 $D = 0^\circ 28' 38.9''$
 $L = 3,063.63'$
 $T = 1,540.19'$
 $R = 12,000.00'$
 $SE = NC$



SEE SHEET 31 FOR -L- PROFILE

PROJECT REFERENCE NO. HB-0001		SHEET NO. 18	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE Nos P-0339 320 Executive Ct Hillsborough, NC 27278 (919) 732-3883 (919) 732-6876 (FAX)	

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-
PI Sta 207+58.97
 $\Delta = 14^{\circ} 37' 40.0''$ (RT)
 $D = 0^{\circ} 28' 38.9''$
 $L = 3,063.63'$
 $T = 1,540.19'$
 $R = 12,000.00'$
SE = NC

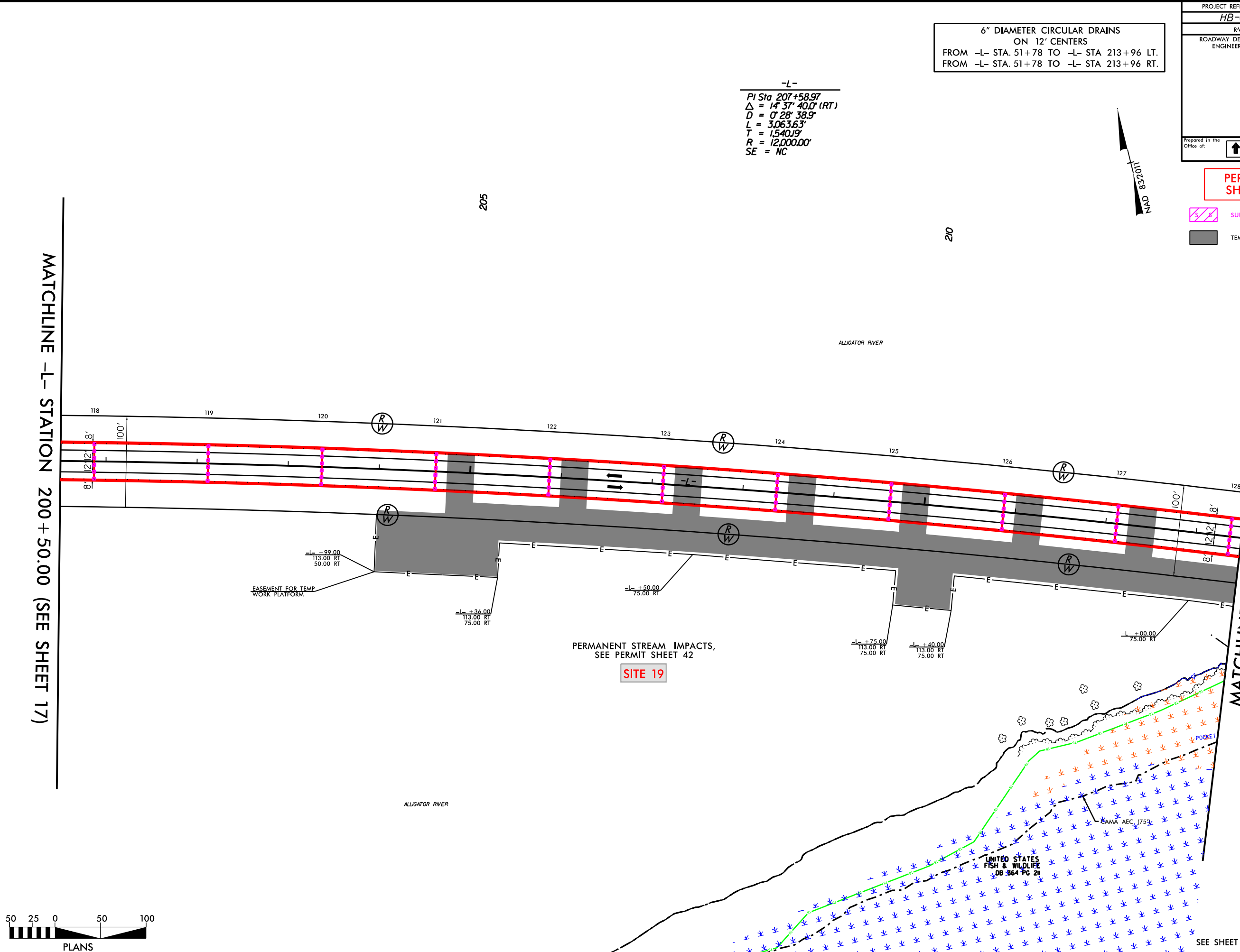


PERMIT DRAWING
SHEET 30 OF 79

- SURFACE WATER IMPACTS
- TEMPORARY WORK TRESTLE

MATCHLINE -L- STATION 200 + 50.00 (SEE SHEET 17)

MATCHLINE -L- STATION 213 + 50.00
(SEE SHEET 19)



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

UNITED STATES
FISH & WILDLIFE
DB 364 PG 24

24MA AEC 175

SEE SHEET 31 & 32 FOR -L- PROFILE



PLANS

REVISIONS

8/17/99

05-JUN-2023 13:07
HB-0001-sh-30.dgn
pattack:hb-0001-sh-30.dgn

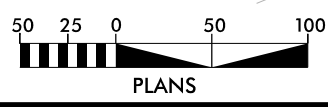
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-

PI Sta 207+58.97
 $\Delta = 14^\circ 37' 40.0''$ (RT)
 $D = 0^\circ 28' 38.9''$
 $L = 3,063.63'$
 $T = 1,540.19'$
 $R = 12,000.00'$
SE = NC

MATCHLINE -L- STATION 200+50.00 (SEE SHEET 17)

**MATCHLINE -L- STATION 213 + 50.00
(SEE SHEET 19)**



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

UNITED STATES
FISH & WILDLIFE
DB 364 PG 211

SEE SHEET 31 & 32 FOR -L- PROFILE

REVISIONS

05-JUN-2023 13:07 HB-0001-Hyd-prm-psn-31.dgm patrick.bartlett	8/17/99
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6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PI Sta 207+58.97
 $\Delta = 14^\circ 37' 40.0"$ (RT)
 $D = 0' 28' 39.9"$
 $L = 3,063.63'$
 $T = 1,540.19'$
 $R = 12,000.00'$
SE = NC

PI Sta 228+76.69
 $\Delta = 11^\circ 18' 46.7"$ (RT)
 $D = 0' 57' 17.7"$
 $L = 1,184.69'$
 $T = 594.28'$
 $R = 6,000.00'$
SE = 03
RO = 8'

PERMIT DRAWING
SHEET 32 OF 79

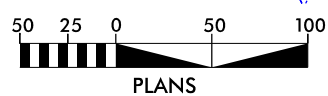
- FILL IN WETLAND
- SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- TEMPORARY WORK TRESTLE

MATCHLINE -L- STATION 213+50.00
(SEE SHEET 18)

MATCHLINE -L- STATION 226+50.00
(SEE SHEET 20)

MATCHLINE EX US 64 (SEE SHEET 23)

SEE SHEET 32 FOR -L- PROFILE



PLANS

8/17/99

05-JUN-2023 13:07
HB-0001-sh-32.dgn
D:\projects\HB-0001\HB-0001-sh-32.dgn

PROJECT REFERENCE NO.
HB-0001

SHEET NO.
19

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NC FIRM LICENSE Nos P-0339
320 Executive C1
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6876 (FAX)

PERMIT DRAWING
SHEET 33 OF 79

- FILL IN WETLAND
- SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- TEMPORARY WORK TRESTLE

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PI Sta 207+58.97
 $\Delta = 14^{\circ}37'40.0"$ (RT)
 $D_s = 0^{\circ}28'39.9"$
 $L = 3,063.63'$
 $T = 1,540.19'$
 $R = 12,000.00'$
SE = NC

PI Sta 228+76.69
 $\Delta = 11^{\circ}18'46.7"$ (RT)
 $D_s = 0^{\circ}57'17.7"$
 $L = 1,184.69'$
 $T = 594.28'$
 $R = 6,000.00'$
SE = 03
RO = 8"



MATCHLINE -L- STATION 213+50.00
(SEE SHEET 18)

MATCHLINE -L- STATION 226+50.00
(SEE SHEET 20)

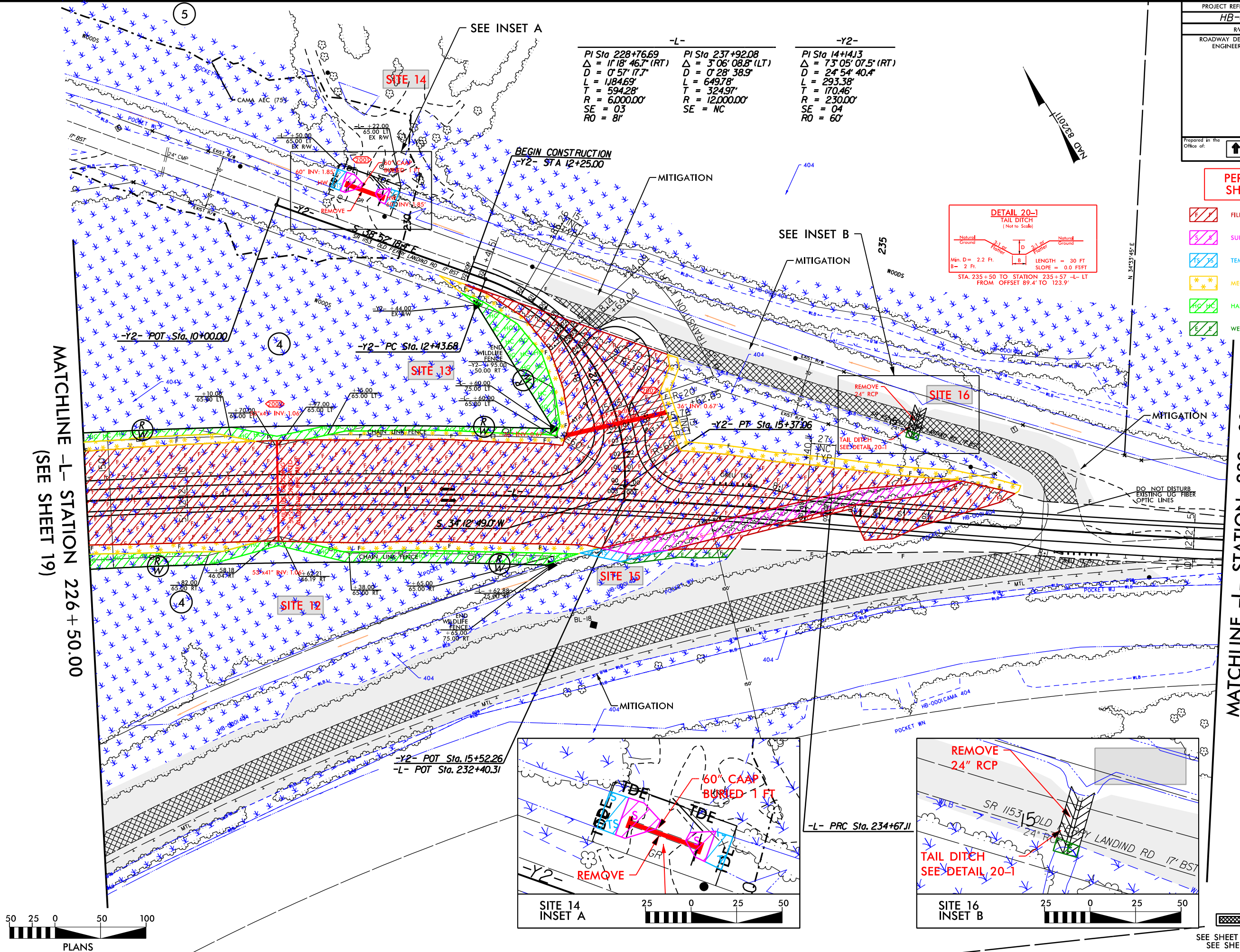
MATCHLINE EX US 64 (SEE SHEET 23)

SEE SHEET 32 FOR -L- PROFILE

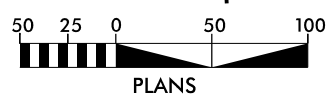
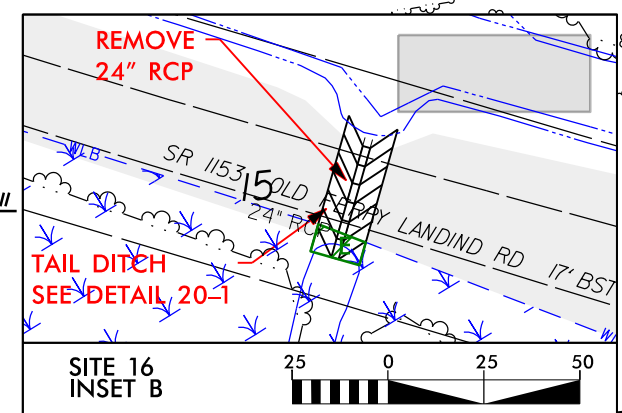
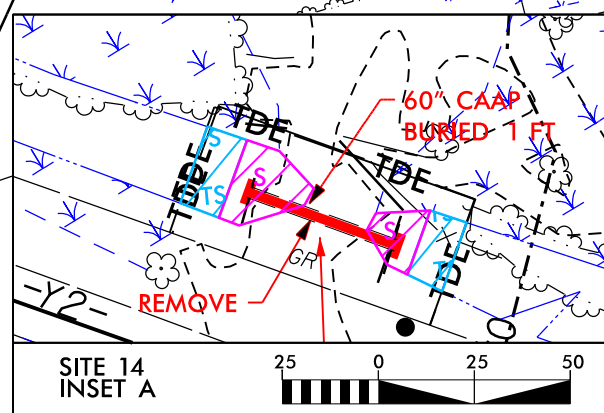
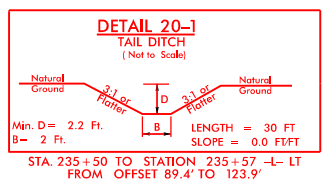
8/17/99
05-JUN-2023 13:08
HB-0001-19-sh-33.dgn
D:\projects\HB-0001\19-sh-33.dgn

PERMIT DRAWING
SHEET 34 OF 79

- FILL IN WETLAND
- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- WETLAND EXCAVATION



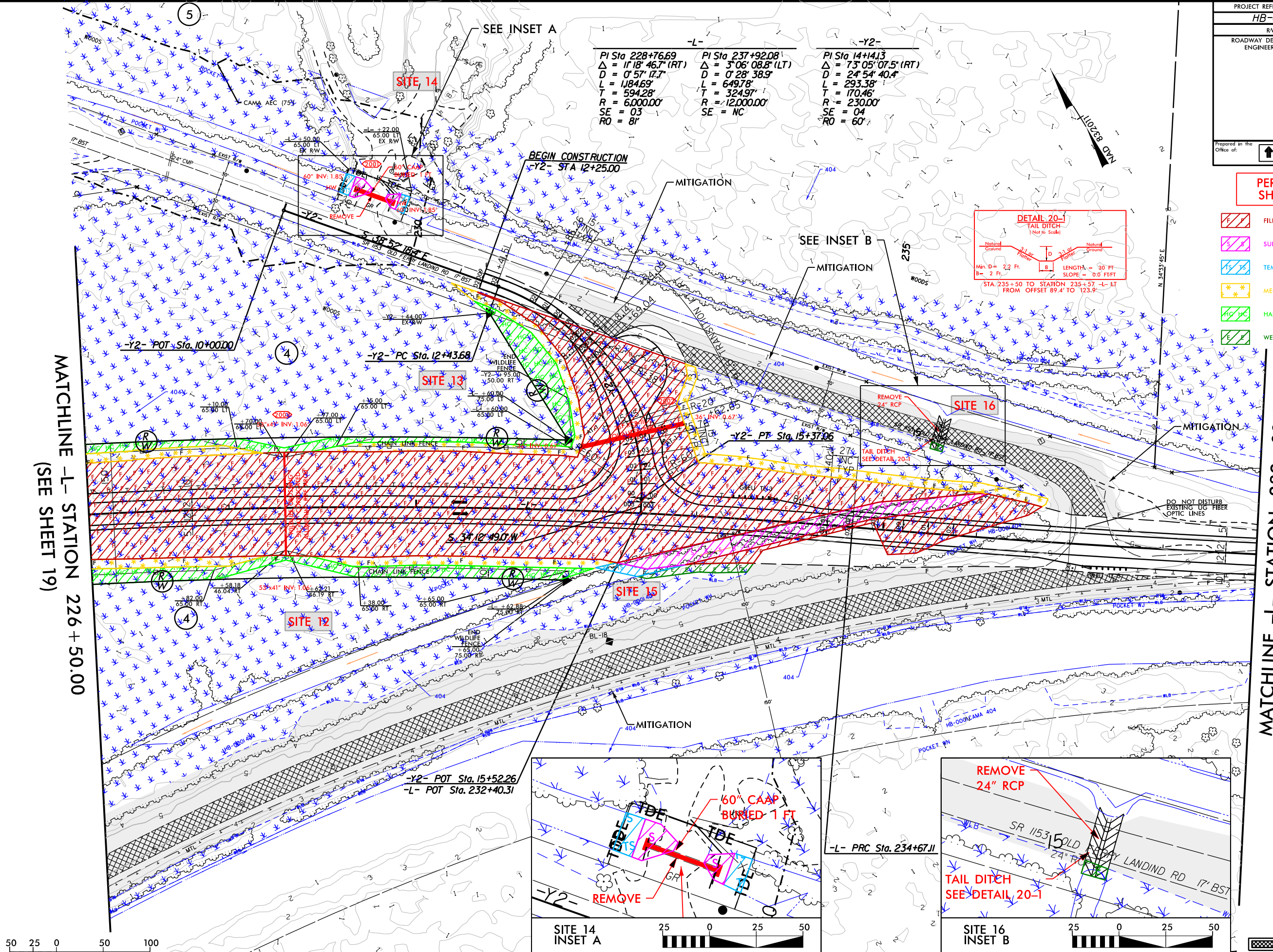
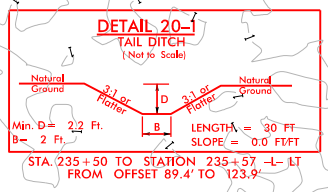
-L-			-Y2-		
PI Sta 228+76.69	$\Delta = 17' 18'' 46.7''$ (RT)	D = 0' 57' 17.7"	PI Sta 237+92.08	$\Delta = 3' 06'' 08.8''$ (LT)	D = 0' 28' 38.9"
L = 184.69'	T = 594.28'	R = 6,000.00'	L = 649.78'	T = 324.97'	R = 12,000.00'
SE = 03	RO = 81'		SE = NC		
			PI Sta 14+14.13	$\Delta = 13' 05'' 07.5''$ (RT)	D = 24' 54' 40.4"
			L = 293.38'	T = 170.46'	R = 230.00'
			SE = 04	RO = 60'	



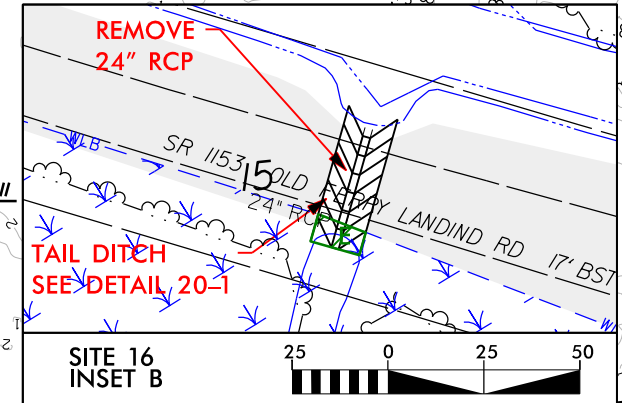
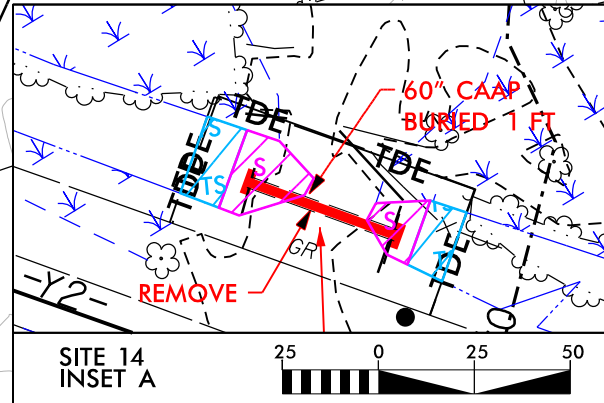
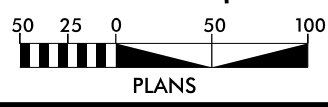
SEE SHEET 32 & 33 FOR -L- PROFILE
SEE SHEET 34 FOR -Y2- PROFILE

PERMIT DRAWING
SHEET 35 OF 79

- FILL IN WETLAND
- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- WETLAND EXCAVATION



-L-	-Y2-	-Y2-
PI Sta. 228+76.69 Δ = 11° 18' 46.7" (RT) D = 0° 57' 17.7" L = 1184.69' T = 594.28' R = 6000.00' SE = 03 RO = 81'	PI Sta. 237+92.08 Δ = 3° 06' 08.8" (LT) D = 0° 28' 38.9" L = 649.78' T = 324.97' R = 12000.00' SE = NC	PI Sta. 14+14.13 Δ = 13° 05' 07.5" (RT) D = 24° 54' 40.4" L = 293.38' T = 170.46' R = 230.00' SE = 04 RO = 60'



SEE SHEET 32 & 33 FOR -L- PROFILE
SEE SHEET 34 FOR -Y2- PROFILE

PROJECT REFERENCE NO.
HB-0001


SHEET NO.
21

RW SHEET NO.

ROADWAY DESIGN ENGINEER




HYDRAULICS ENGINEER

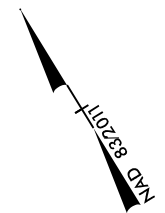
Prepared in the Office of:

**SUMMIT**
Engineering & Construction

NC FIRM LICENSE Nos P-0339
320 Executive Ct
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6876 (FAX)

**PERMIT DRAWING
SHEET 36 OF 79**

-  FILL IN WETLAND
-  TEMPORARY SURFACE WATER IMPACTS
-  MECHANIZED CLEARING (GRUBBING)
-  SURFACE WATER IMPACTS



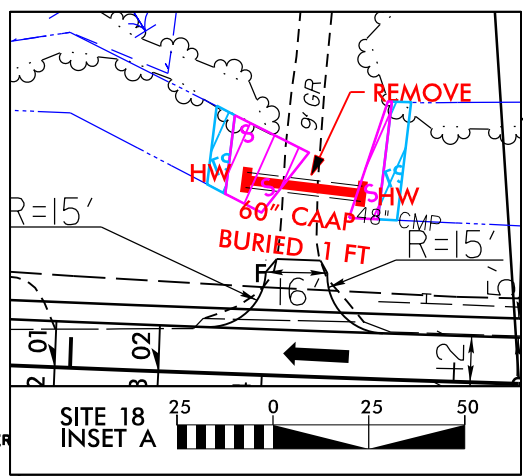
-L-
PI Sta 237+92.08
 $\Delta = 3^{\circ}06'08.8''$ (LT)
 $D = 0^{\circ}28'38.9''$
 $L = 649.78'$
 $T = 324.97'$
 $R = 12,000.00'$
SE = NC

BARRY S., ROSE MARIE DOSHER, &
STEPHANE DOSHER
DB 693 PG 1
PC C SLIDE 1988
(PARCEL 'C')

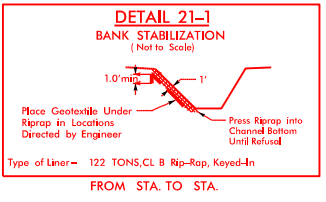
BARRY S., ROSE MARIE DOSHER, &
EARNEST A. DOSHER
DB 1692 PG 500
PC C SLIDE 1988
(PARCEL 'B')

MARY J. CARLENO, JAMES J. CARLENO,
& EUNICE C. SMITH
DB 1607 PG 461

CAROLYN R. BECK
DB 2347 PG 399



**MATCHLINE -L- STATION 239+00.00
(SEE SHEET 20)**



 PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE

8/17/99

REVISIONS

05-JUN-2023 13:08
HB-0001-21-36.dgn
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 PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE



DETAIL 21-1
BANK STABILIZATION
 (Not to Scale)

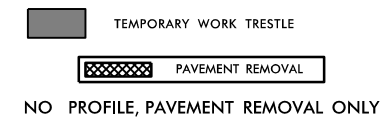
1.0' min. 1'

Place Geotextile Under Riprap in Locations Directed by Engineer

Press Riprap into Channel Bottom Until Refusal

Type of Liner = 122 TONS/CL B Rip-Rap, Keyed-In

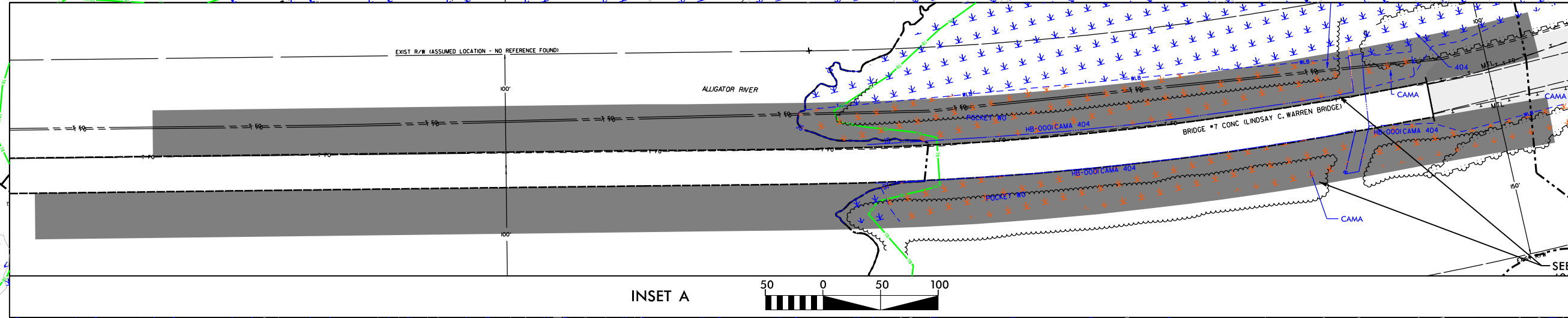
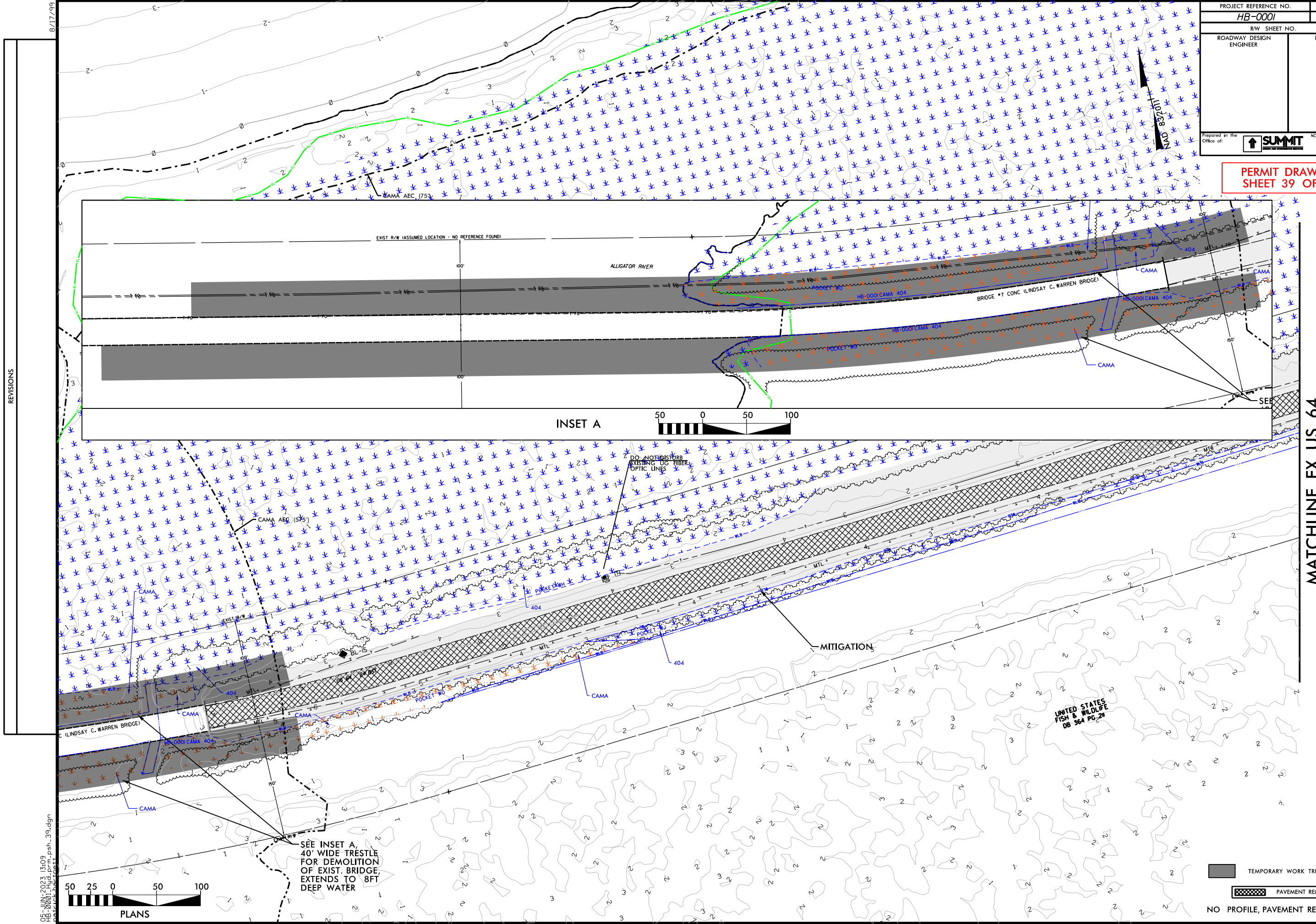
FROM STA. TO STA.



PROJECT REFERENCE NO. HB-0001		SHEET NO. 22	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

Prepared in the Office of: NC FIRM LICENSE Nos P-0339, 220 Executive, C1 Highway, NC 27218 (919) 732-3883 (919) 732-6876 (FAX)


PERMIT DRAWING
SHEET 39 OF 79



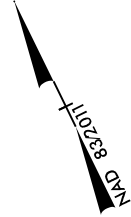
MATCHLINE EX US 64
(SEE SHEET 23)

TEMPORARY WORK TRESTLE
PAVEMENT REMOVAL
NO PROFILE, PAVEMENT REMOVAL ONLY

05-JUN-2023 13:09
HB-0001-39.dgn
psh-39.dgn

PROJECT REFERENCE NO.		SHEET NO.	
HB-0001		23	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE No P-0339	
		320 Executive Ct Hillsborough, NC 27278 (919) 732-3883 (919) 732-6876 (FAX)	

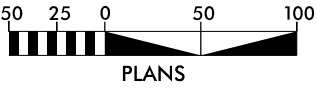
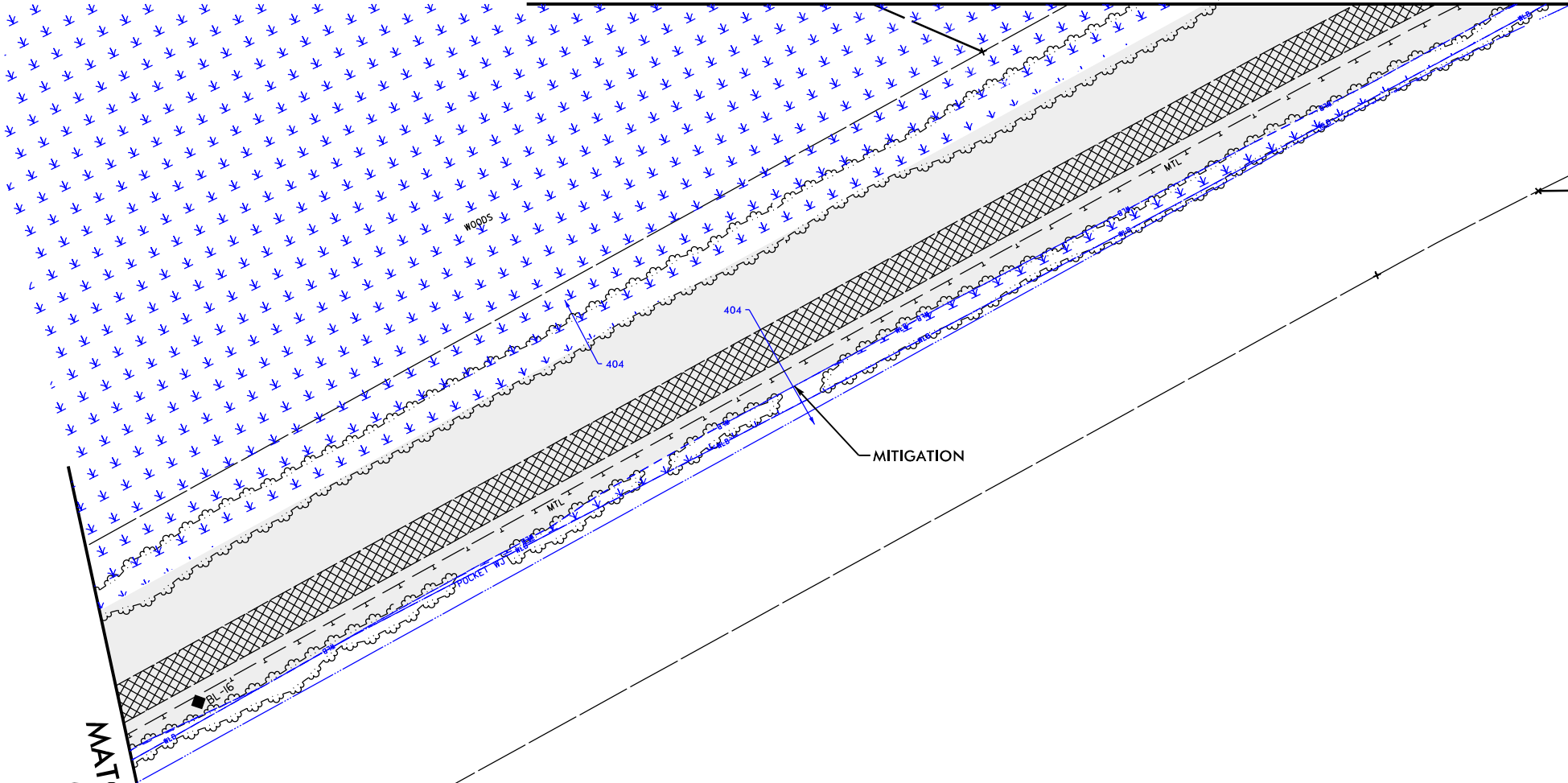
PERMIT DRAWING
SHEET 40 OF 79



MARY J. CARLENO, JAMES J. CARLENO,
& EUNICE C. SMITH
DB 1607 PG 461

MATCHLINE EX US 64 (SEE SHEET 19)

MATCHLINE EX US 64
(SEE SHEET 22)



 PAVEMENT REMOVAL

NO PROFILE, PAVEMENT REMOVAL ONLY

REVISIONS

05-JUN-2023 13:09
HB-0001-23-sh-40.dgn
psh-40.dgn

8/17/99

PROJECT REFERENCE NO. HB-0001		SHEET NO. 23	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
MARY J. CARLENO, JAMES J. CARLENO, & EUNICE C. SMITH DB 1607 PG 461			
Prepared in the Office of:		NC FIRM LICENSE Nos P-0339 320 Executive Five, CT Hillsborough, NC 27278 (919) 732-3883 (919) 732-6876 (FAX)	

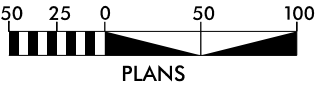
PERMIT DRAWING
SHEET 41 OF 79



MATCHLINE EX US 64 (SEE SHEET 19)

MATCHLINE EX US 64
(SEE SHEET 22)

MITIGATION



PAVEMENT REMOVAL

NO. PROFILE, PAVEMENT REMOVAL ONLY

REVISIONS

05-JUN-2023 13:09
HB-0001-sh-41.dgn
Network

8/17/99

8/17/99

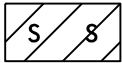
REVISIONS

05-JUN-2023 13:09
HB-0001-TYP-psb-42.dgn
pattack hatching


BENT TYPICAL IMPACTS



FILL IN WETLAND



SURFACE WATER IMPACTS

PROJECT REFERENCE NO. <i>HB-0001</i>		SHEET NO.
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Prepared in the Office of:  SUMMIT NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)		

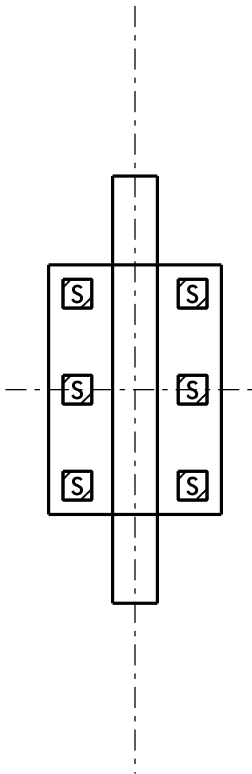
PERMIT DRAWING
SHEET 42 OF 79



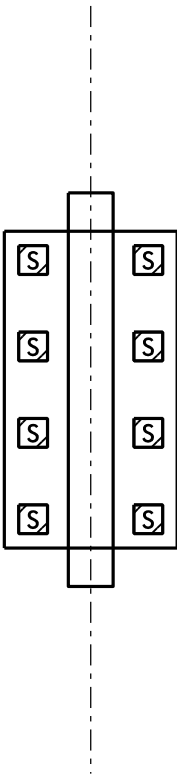
BENTS 1-3, 133-134
44'-6" x 5'-0"
36" PRESTRESSED CONCRETE PILE



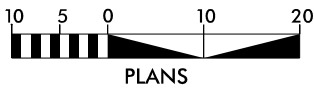
BENTS 4-39, 62-132
44'-6" x 5'-0"
36" PRESTRESSED CONCRETE PILE



BENTS 40 & 61
26'-0" x 18'-0"
36" PRESTRESSED CONCRETE PILE



BENTS 41-43, 58-60
33'-0" x 18'-0"
36" PRESTRESSED CONCRETE PILE




PROJECT REFERENCE NO.
HB-0001

SHEET NO.

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

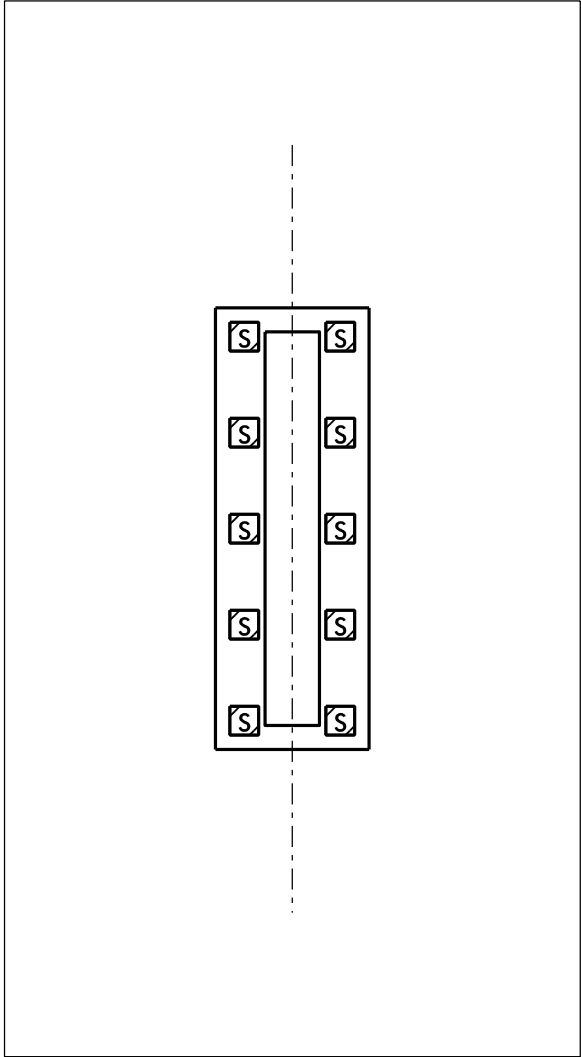
HYDRAULICS ENGINEER

Prepared in the Office of:
**SUMMIT**
ROADWAY DESIGN ENGINEERS

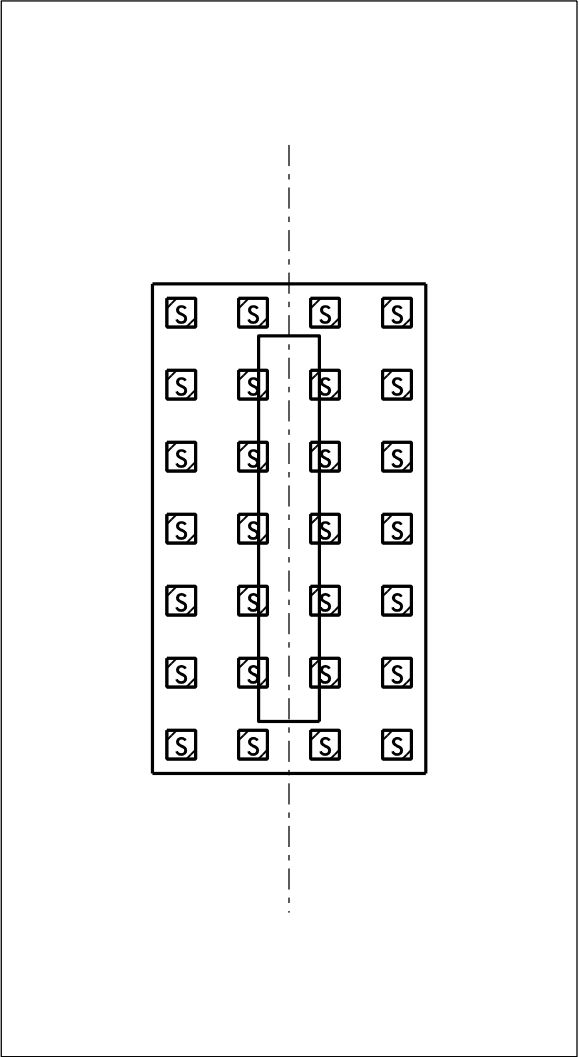
NC FIRM LICENSE Nos P-0339
320 Executive Ct
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6876 (FAX)

PERMIT DRAWING
SHEET 43 OF 79

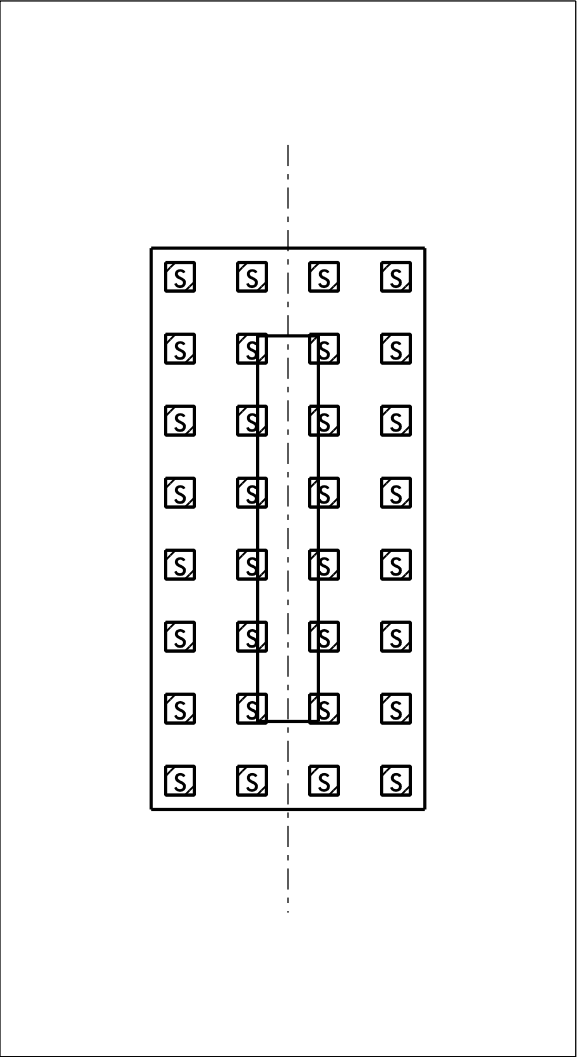
BENT TYPICAL IMPACTS



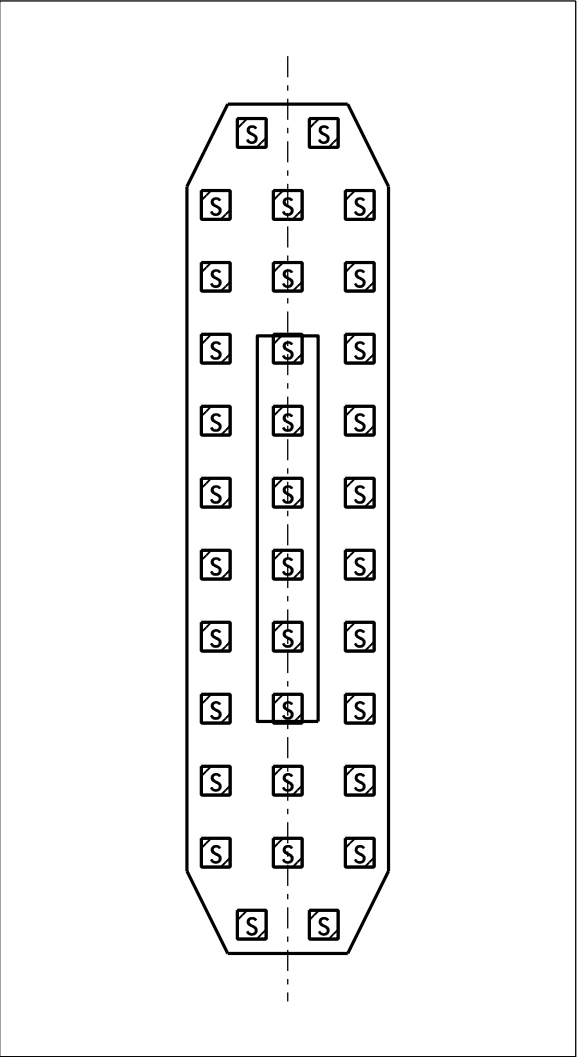
BENTS 44-46, 55-57
46'-0" x 16'-0"
36" PRESTRESSED CONCRETE PILE



BENTS 47-48, 53-54
51'-0" x 28'-6"
36" PRESTRESSED CONCRETE PILE



BENTS 49 & 52
58'-6" x 28'-6"
36" PRESTRESSED CONCRETE PILE



BENTS 50 & 51
88'-6" x 21'-0"
36" PRESTRESSED CONCRETE PILE

REVISIONS

05-JUN-2023 13:40
HB-0001_TYP_psh_43.dgn
pattack hatching



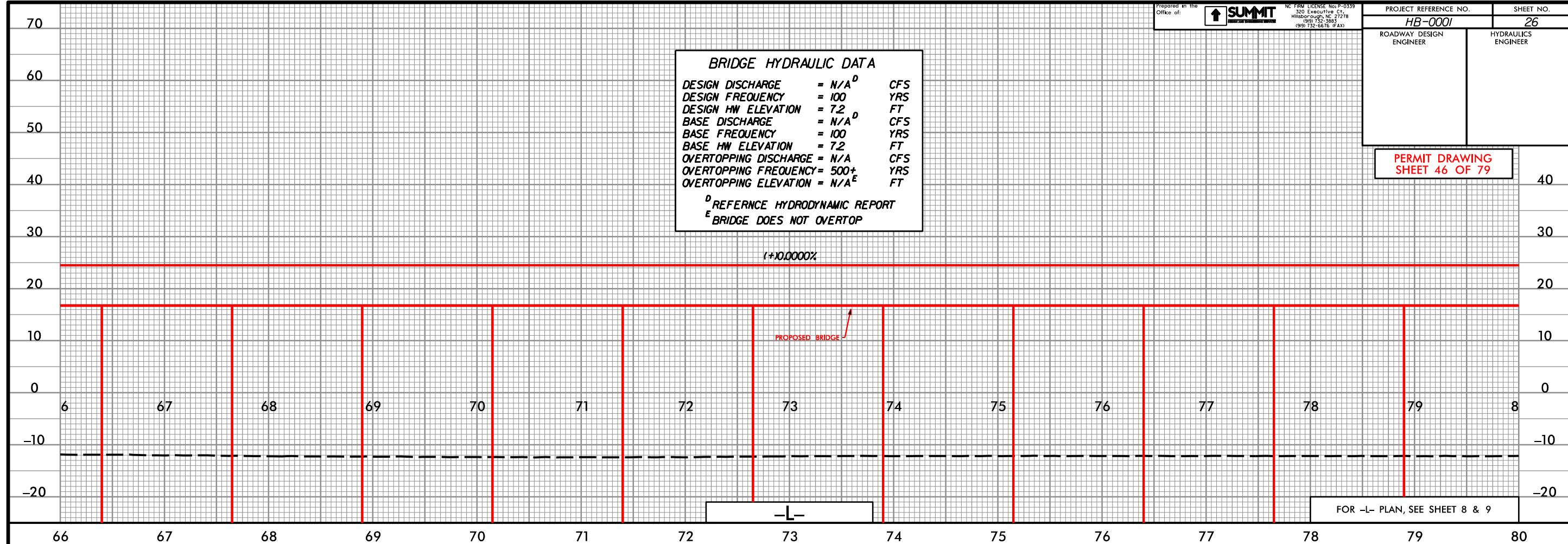


BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	N/A^D	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	7.2	FT
BASE DISCHARGE	=	N/A^D	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	7.2	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	N/A^E	FT

^D REFERENCE HYDRODYNAMIC REPORT

^E BRIDGE DOES NOT OVERTOP



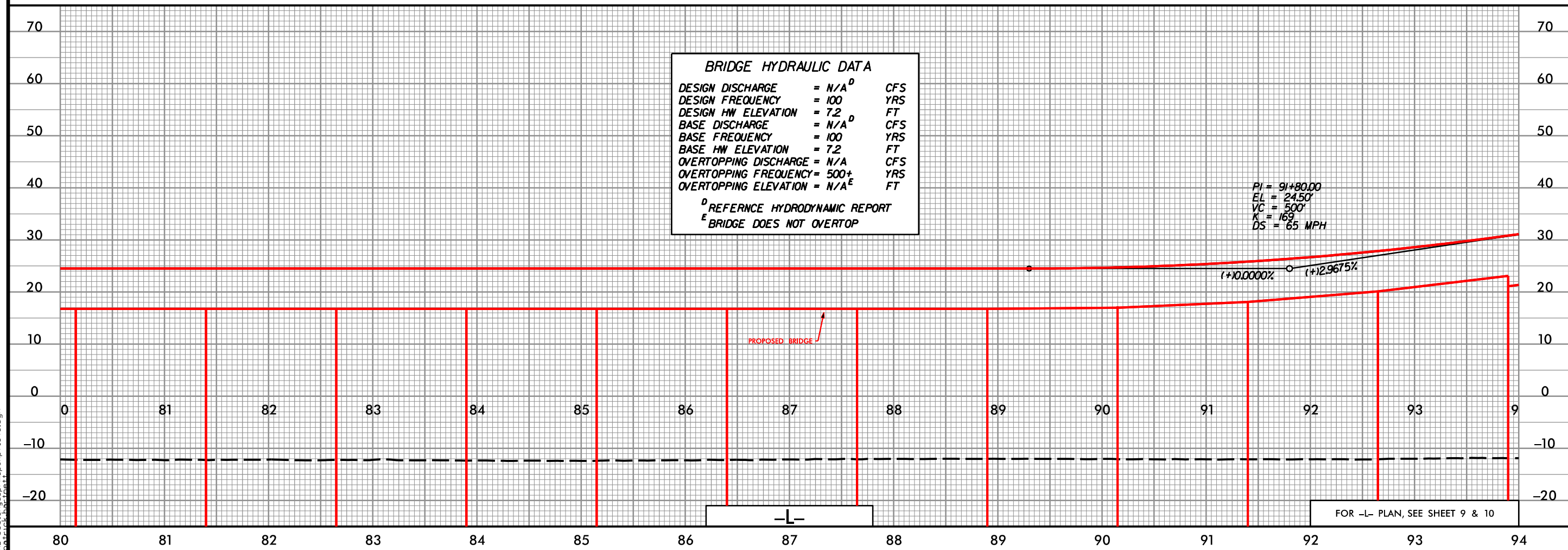
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	N/A^D	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	7.2	FT
BASE DISCHARGE	=	N/A^D	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	7.2	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	N/A^E	FT

^D REFERENCE HYDRODYNAMIC REPORT

^E BRIDGE DOES NOT OVERTOP

$PI = 91 + 80.00$
 $EL = 24.50'$
 $VC = 500'$
 $K = 169$
 $DS = 65 \text{ MPH}$



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= N/A ^D	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= N/A ^D	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.2	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= N/A ^E	FT
^D REFERENCE HYDRODYNAMIC REPORT		
^E BRIDGE DOES NOT OVERTOP		


$PI = III + 82.00$
 $EL = 83.91'$
 $VC = 1,200'$
 $K = 203$
 $DS = 65 \text{ MPH}$

$PI = 91+80.00$
 $EL = 24.50'$
 $VC = 500'$
 $K = 169$
 $DS = 65 \text{ MPH}$

PROPOSED BRIDGE

FOR -L- PLAN, SEE SHEETS 10 & 11

5/14/99

Prepared in the
Office of:
**SUMMIT**
ENGINEERING

NC P&E LICENSE No. P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3383
(919) 732-6676 (FAX)

PROJECT REFERENCE NO.
HB-0001

ROADWAY DESIGN
ENGINEER

SHEET NO.
28

HYDRAULICS
ENGINEER

PERMIT DRAWING
SHEET 48 OF 79

BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = N/A^D CFS
DESIGN FREQUENCY = 100 YRS
DESIGN HW ELEVATION = 7.2 FT
BASE DISCHARGE = N/A^D CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 7.2 FT
OVERTOPPING DISCHARGE = N/A CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = N/A^E FT
^D REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

PI = 111+82.00
EL = 83.91'
VC = 1200'
K = 203
DS = 65 MPH

(+12.9675% (-12.9440%)

PROPOSED BRIDGE

-L-

FOR -L- PLAN, SEE SHEETS 11 & 12

05-JUN-2023 13:10
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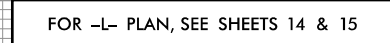
HB-0001

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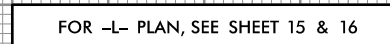
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ENGINEER

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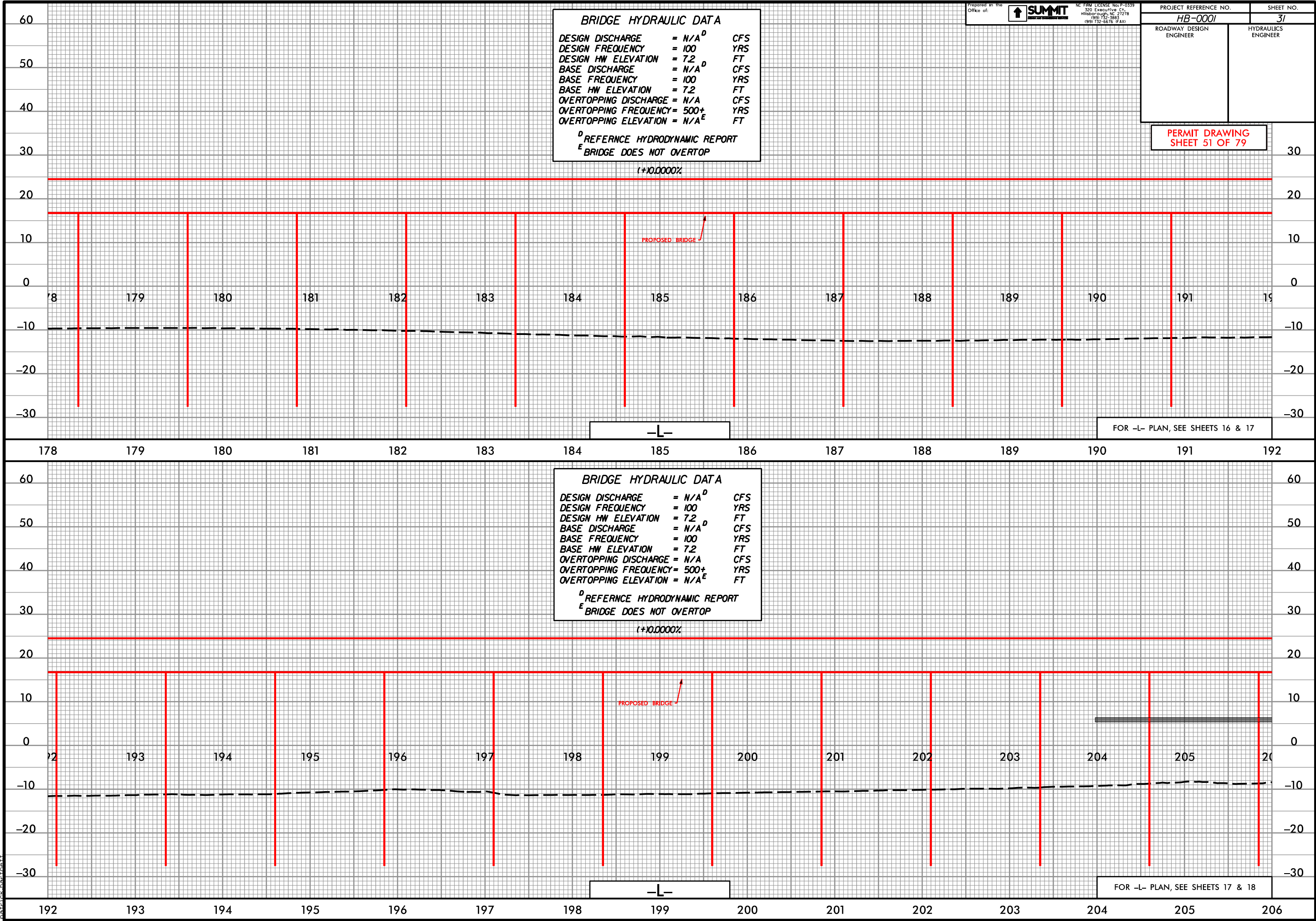
^D REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP



^D REFERENCE HYDRODYNAMIC REPORT
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05-JUN-2023 13:10
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34

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PERMIT DRAWING
SHEET 54 OF 79

END GRADE
-Y2- STA 15+40.26 =
-L- STA 232+40.30 (12' LT)
EL = 11.30'

PI = 15+00.26
EL = 11.70'
VC = 80'
K = 17
DS = 25 MPH

PI = 12+75.00
EL = 3.15'
VC = 100'
K = 33
DS = 25 MPH

BEGIN GRADE
-Y2- STA 12+25.00
EL = 2.78'

PROP. 36" RCP-III
EQUALIZER PIPE

-Y2-

FOR -Y2- PLAN, SEE SHEET 21

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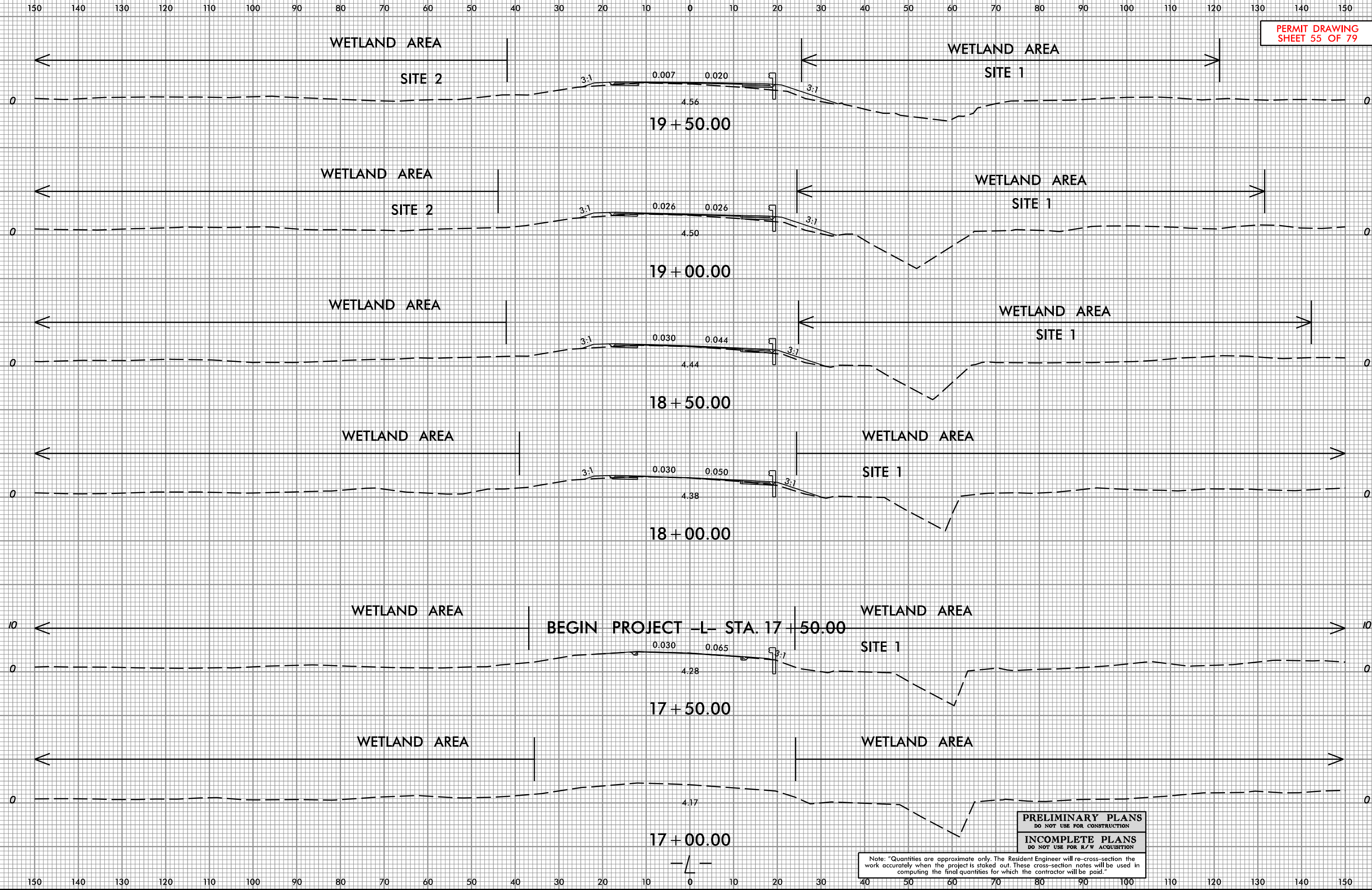
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HB-0001

SHEET NO.

X-1

PERMIT DRAWING
SHEET 55 OF 79



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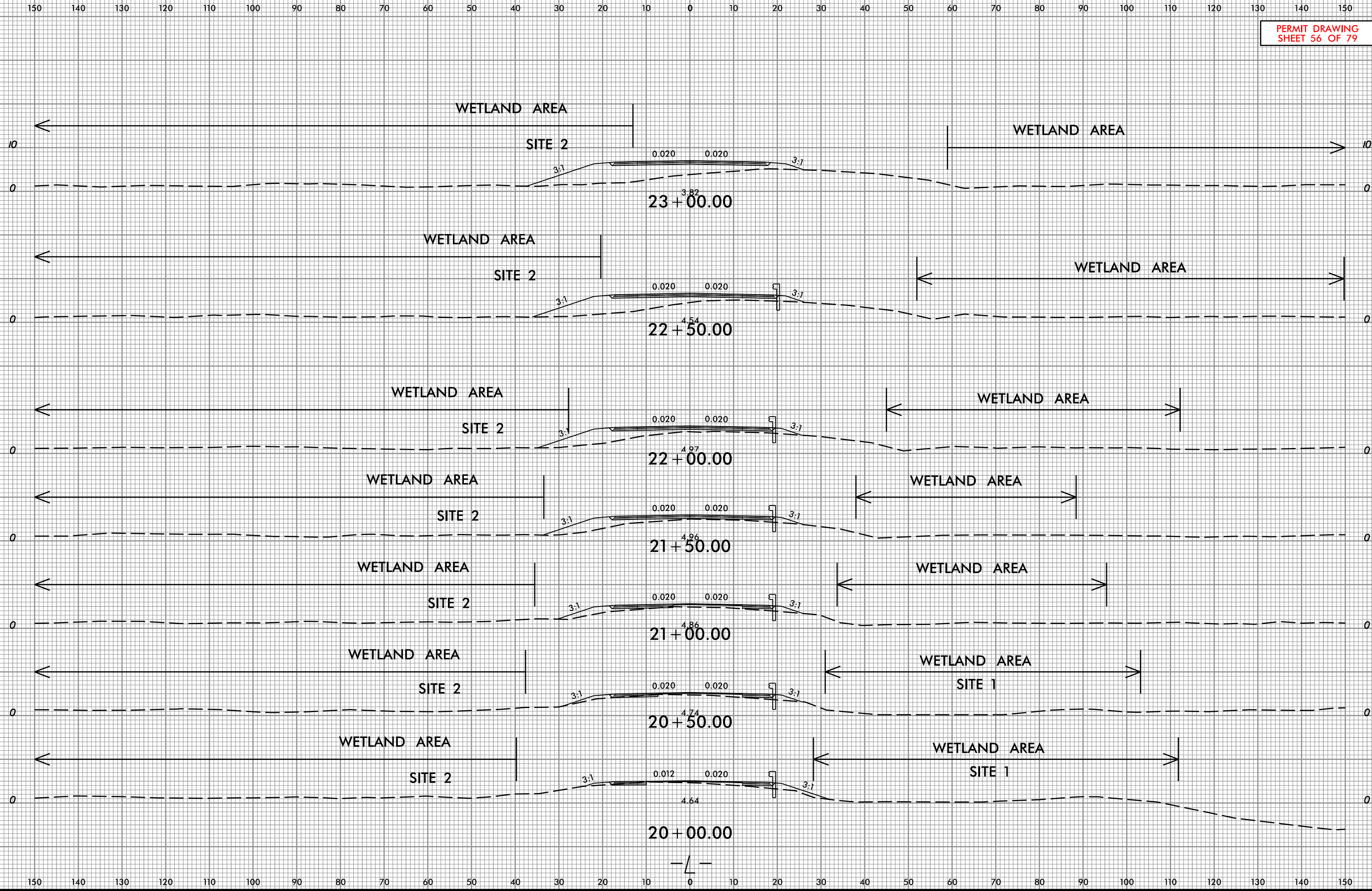
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HB-0001

SHEET NO.

X-2

PERMIT DRAWING
SHEET 56 OF 79



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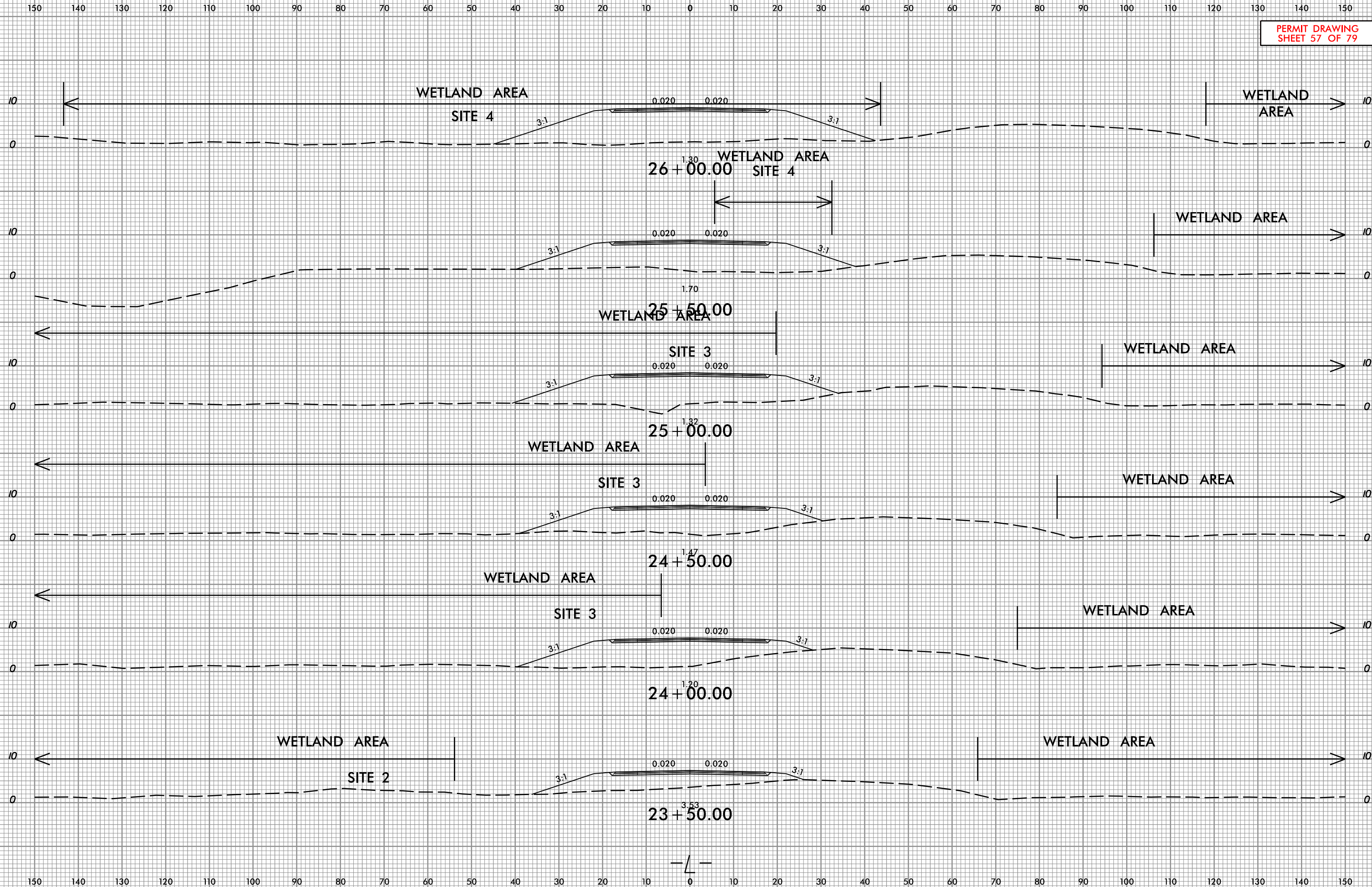
PROJ. REFERENCE NO.

HB-0001

SHEET NO.

X-3

PERMIT DRAWING
SHEET 57 OF 79



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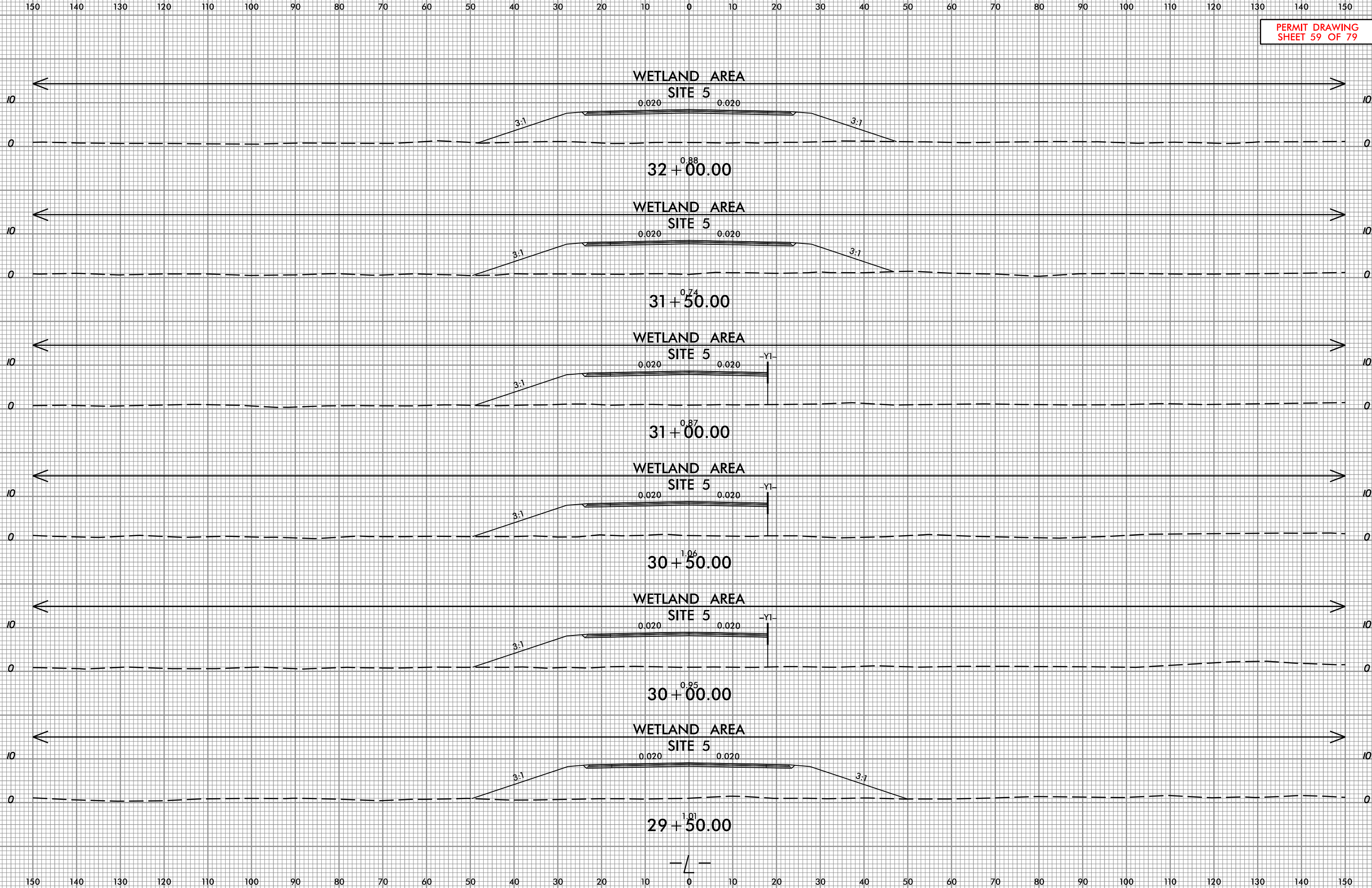
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HB-0001

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SHEET 59 OF 79



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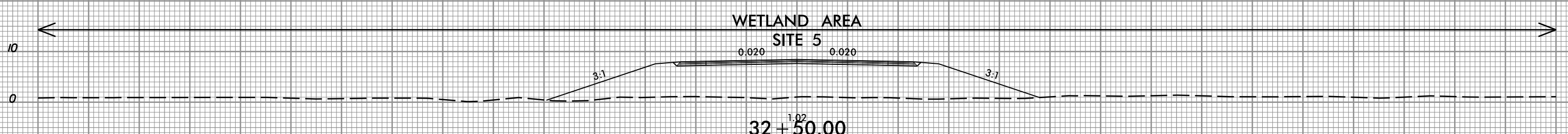
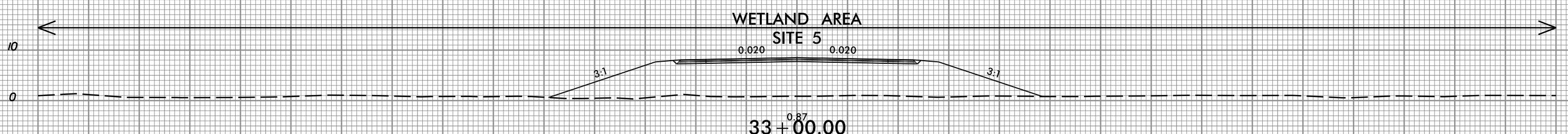
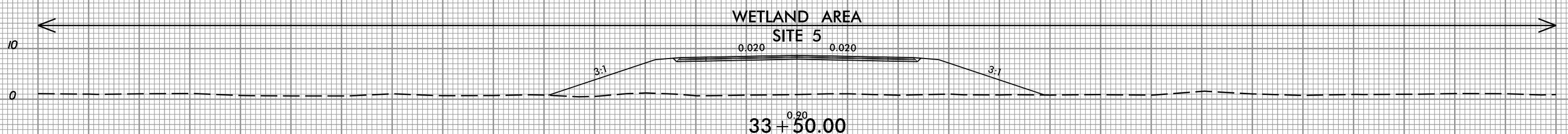
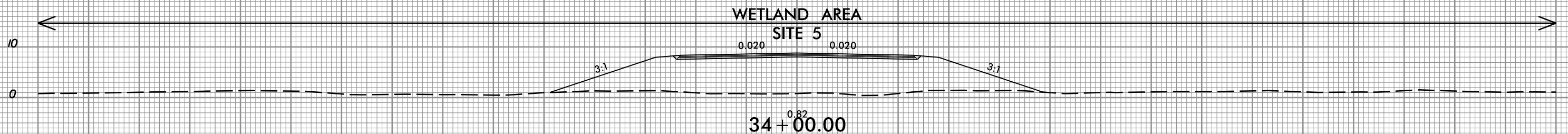
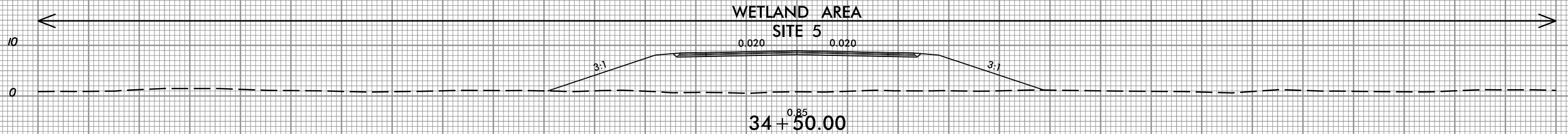
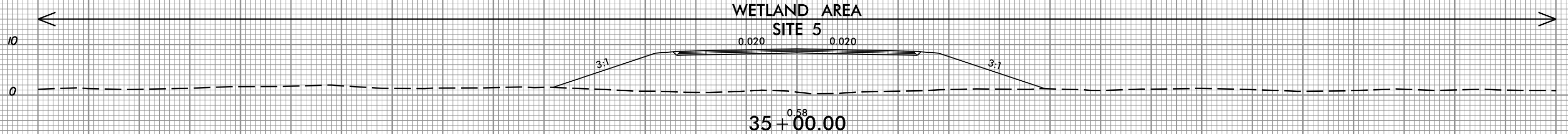
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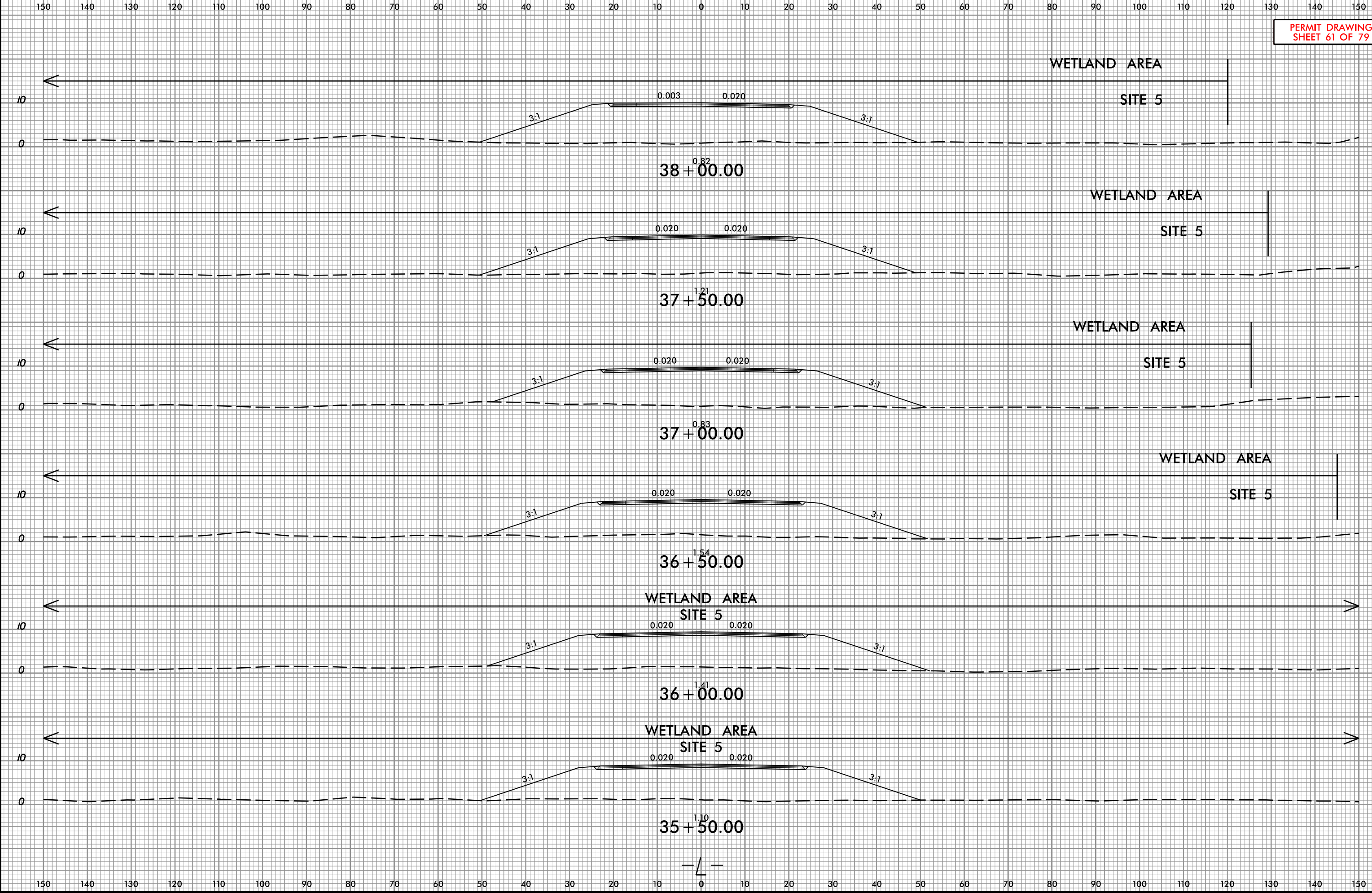
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SHEET 61 OF 79



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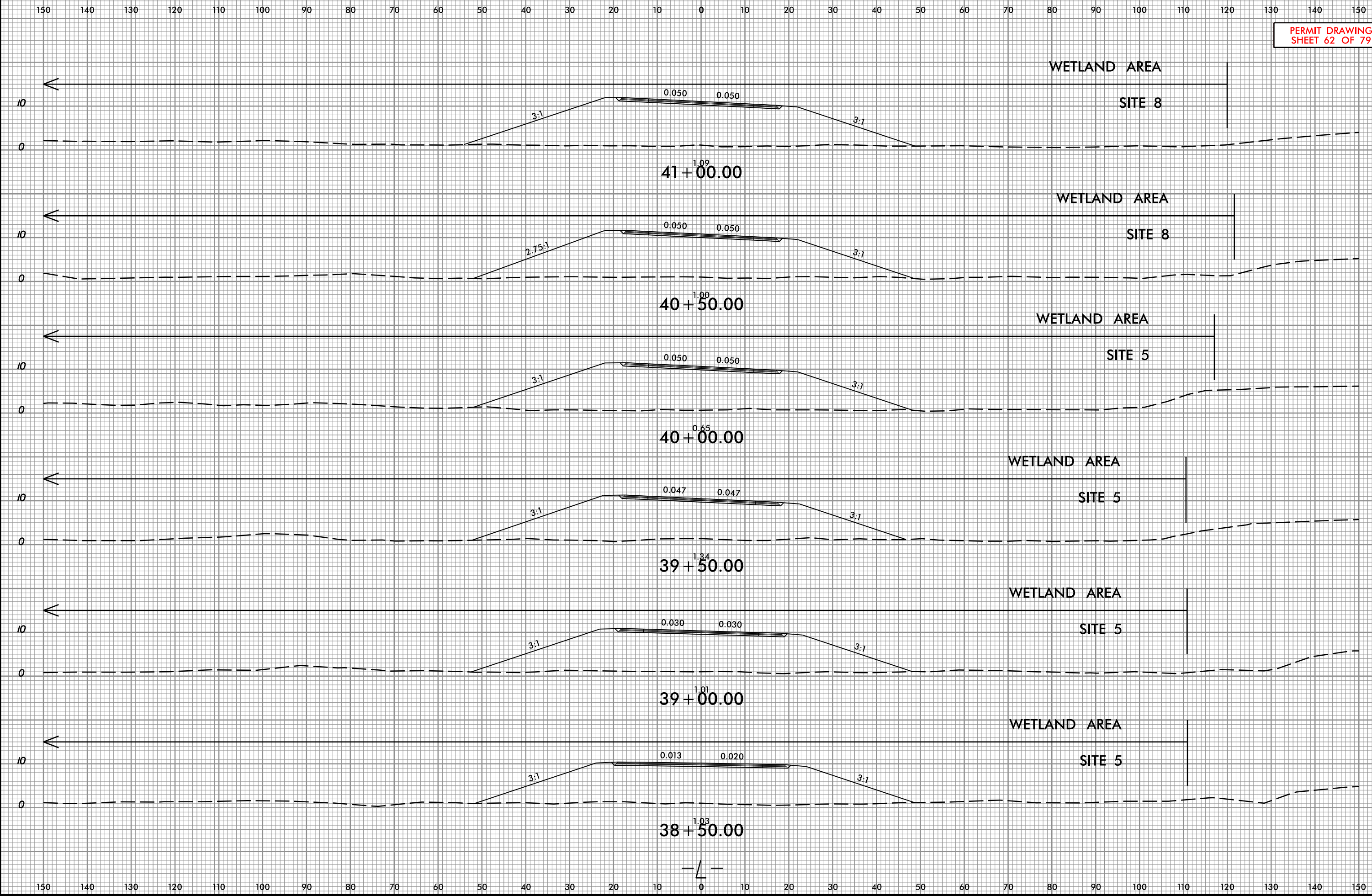
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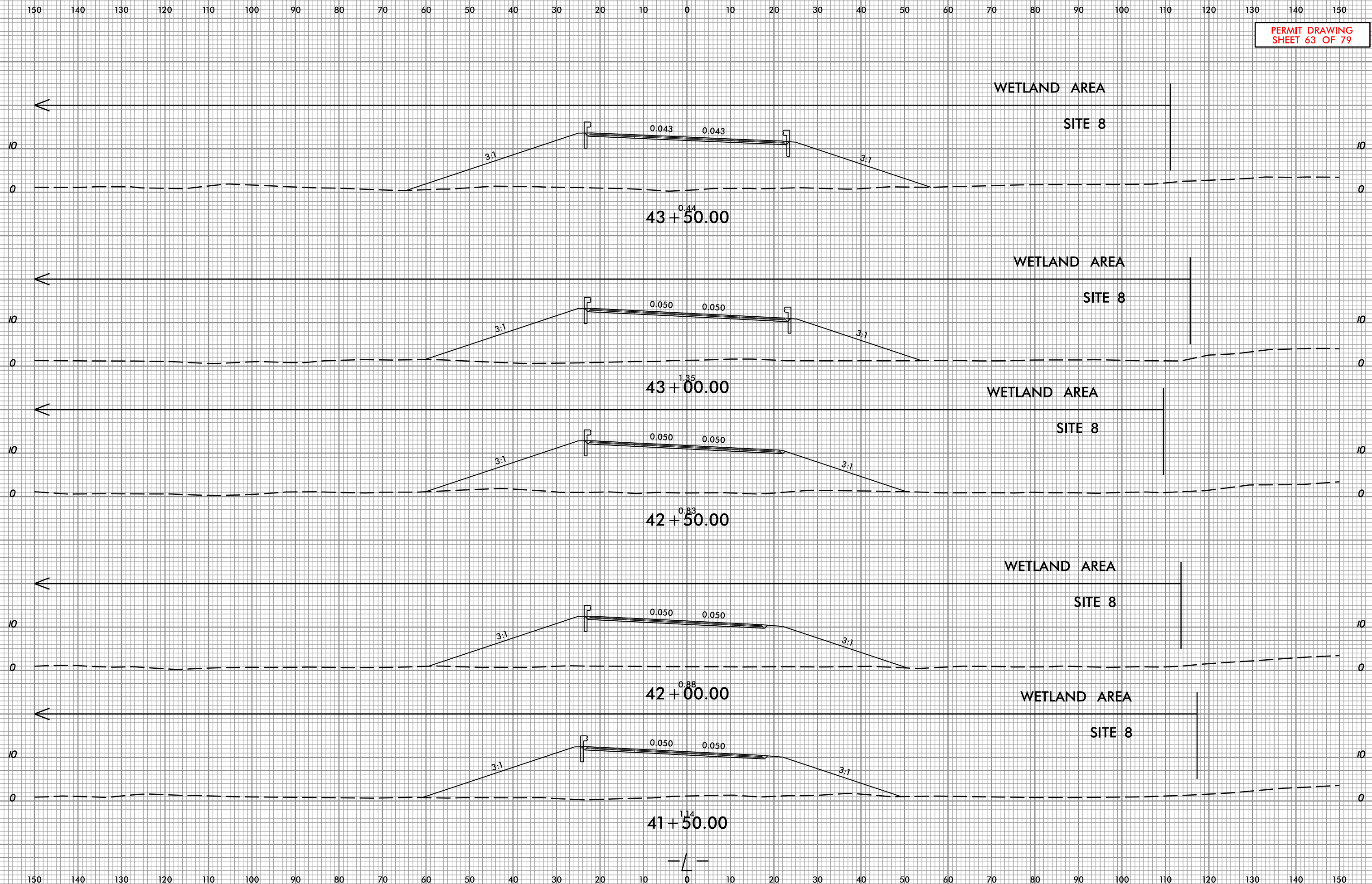
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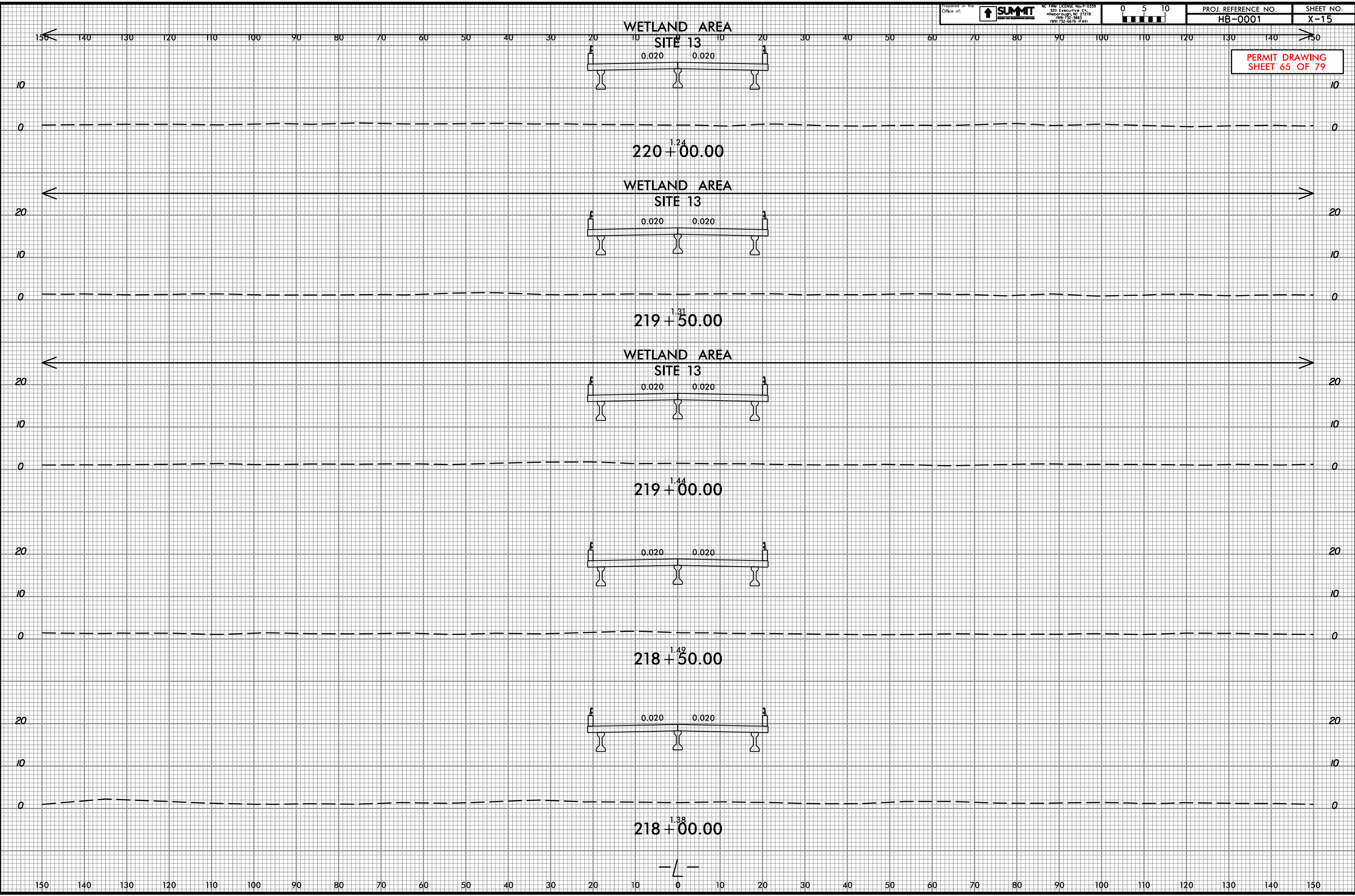
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SHEET 63 OF 79



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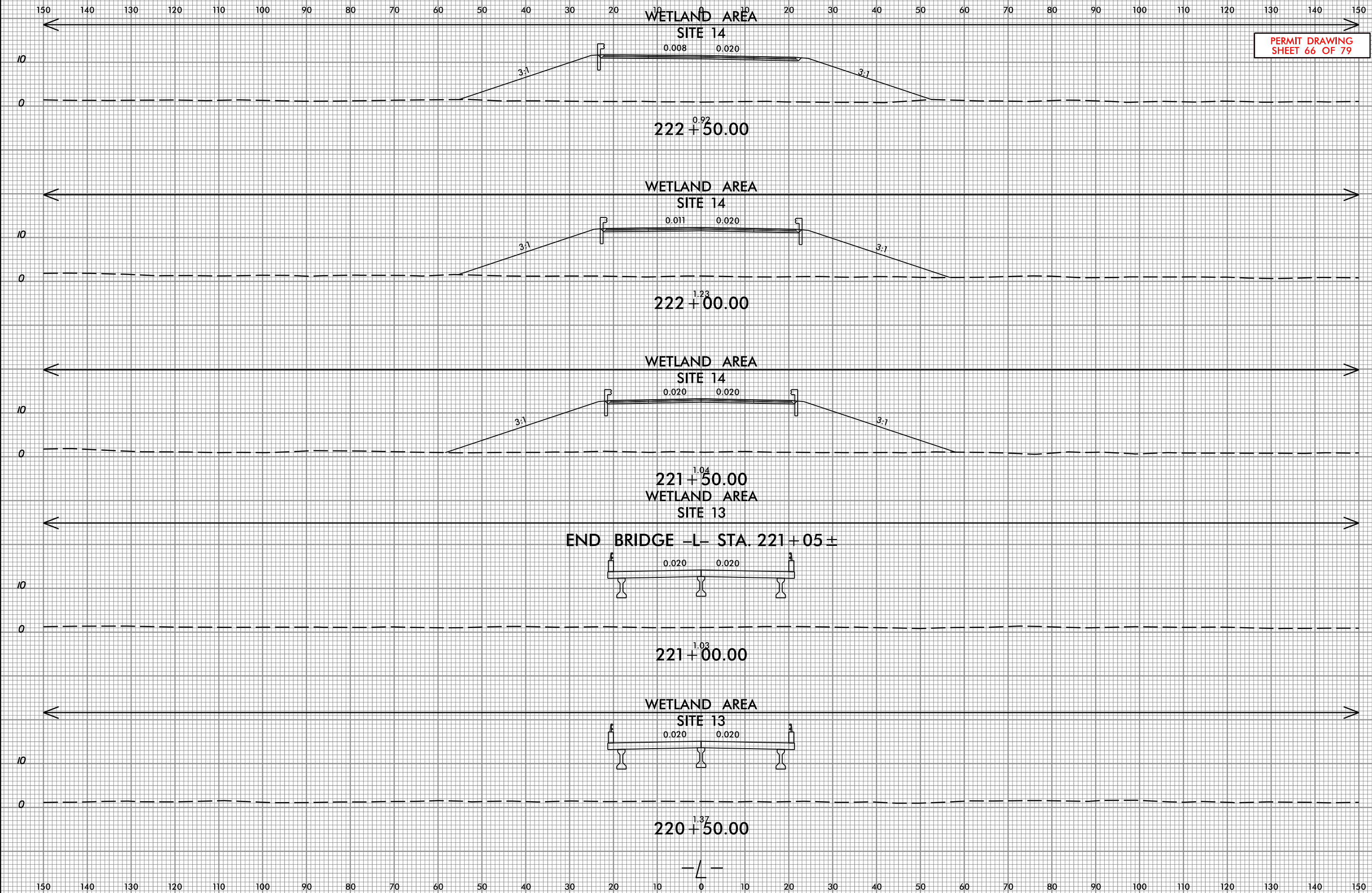
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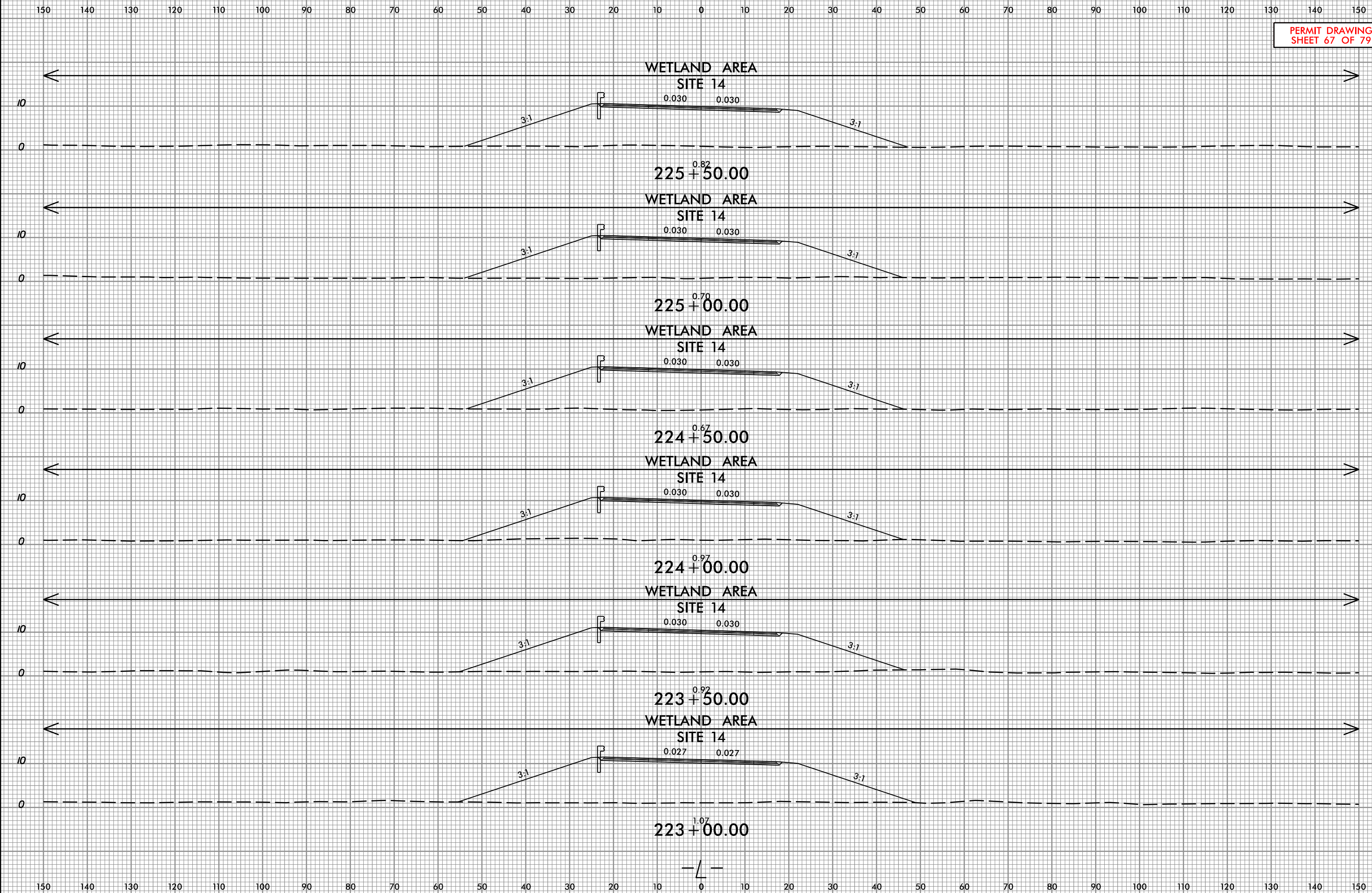
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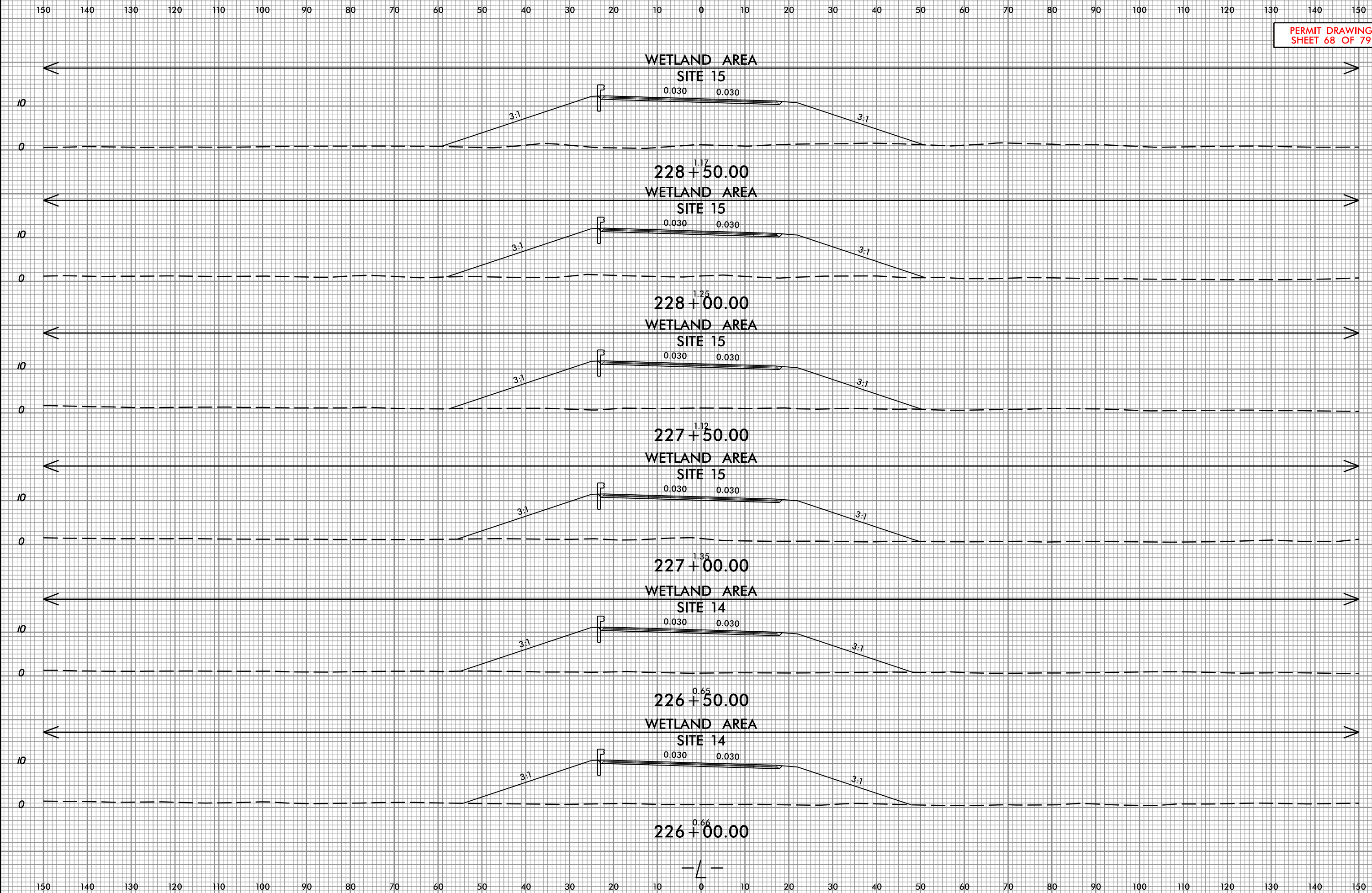
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patric.karim@sumit.com

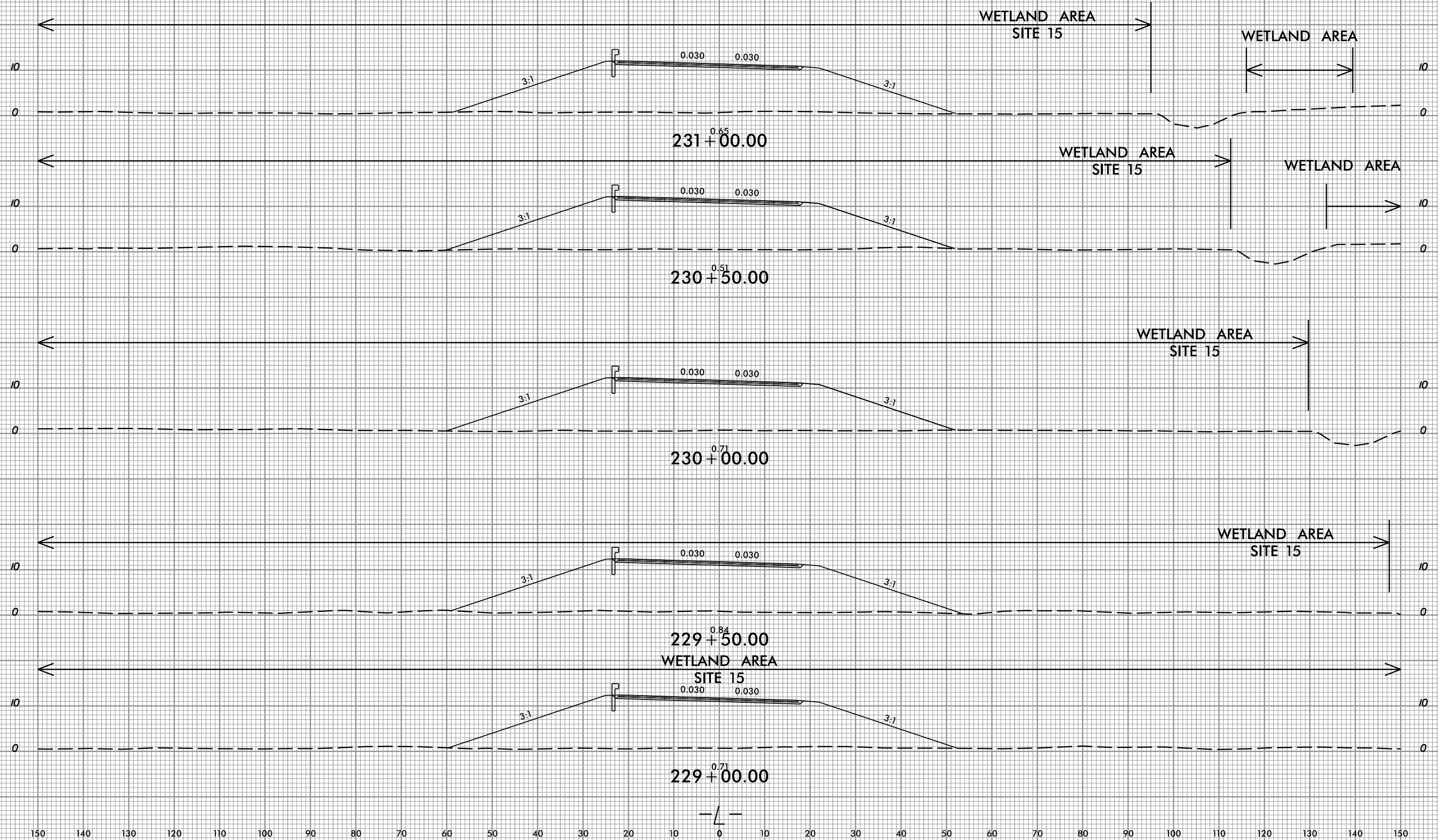


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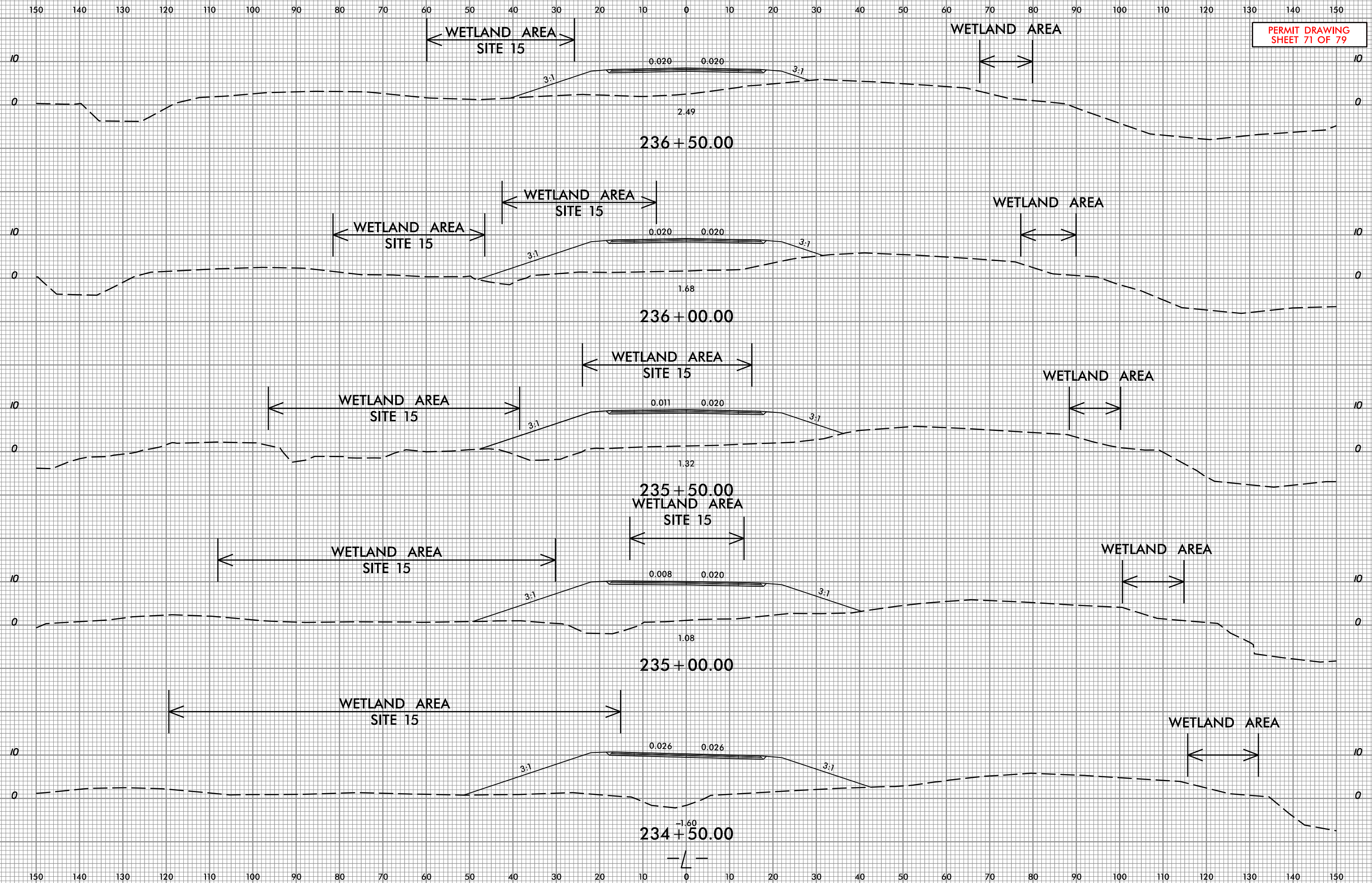
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SHEET 69 OF 79



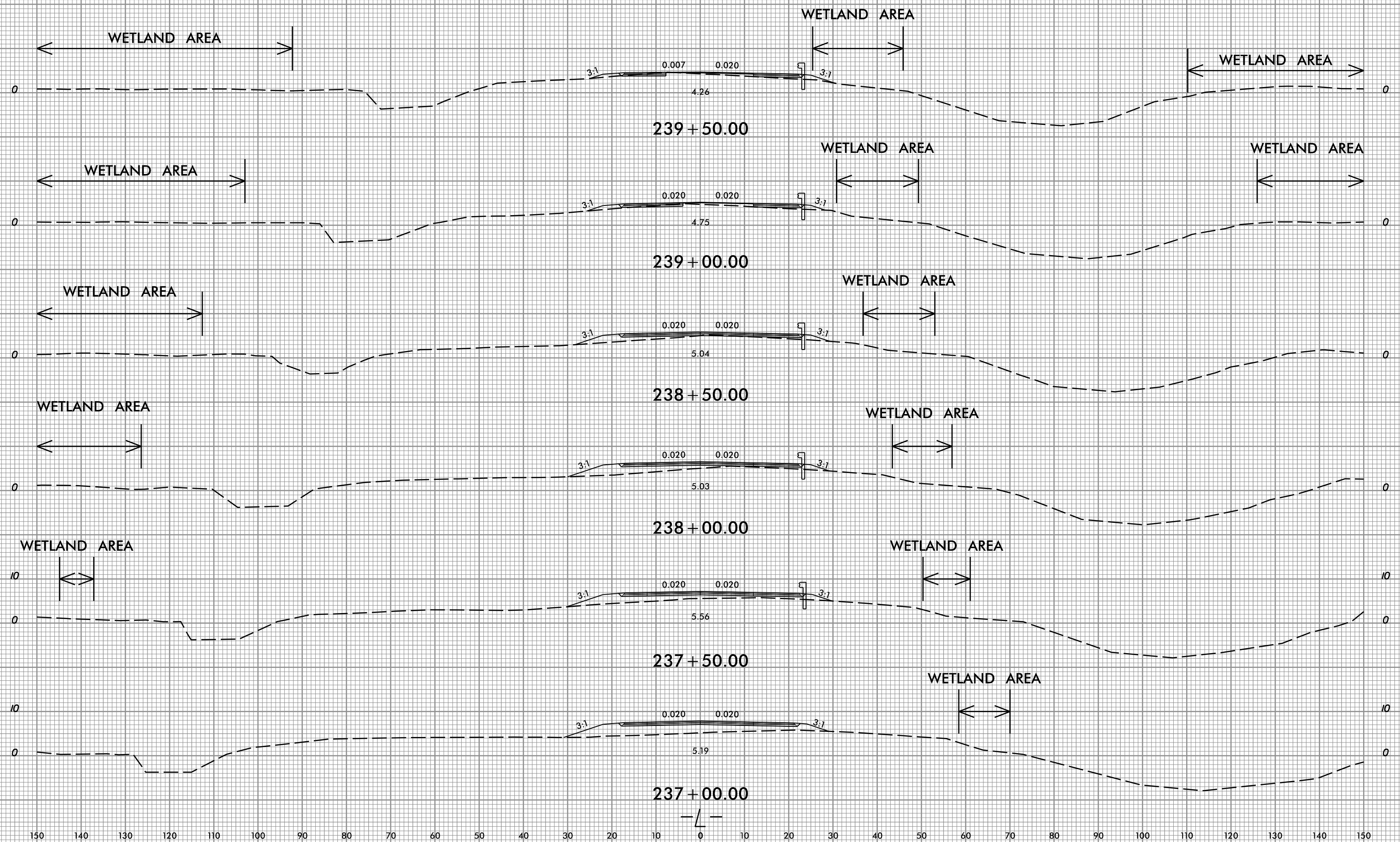


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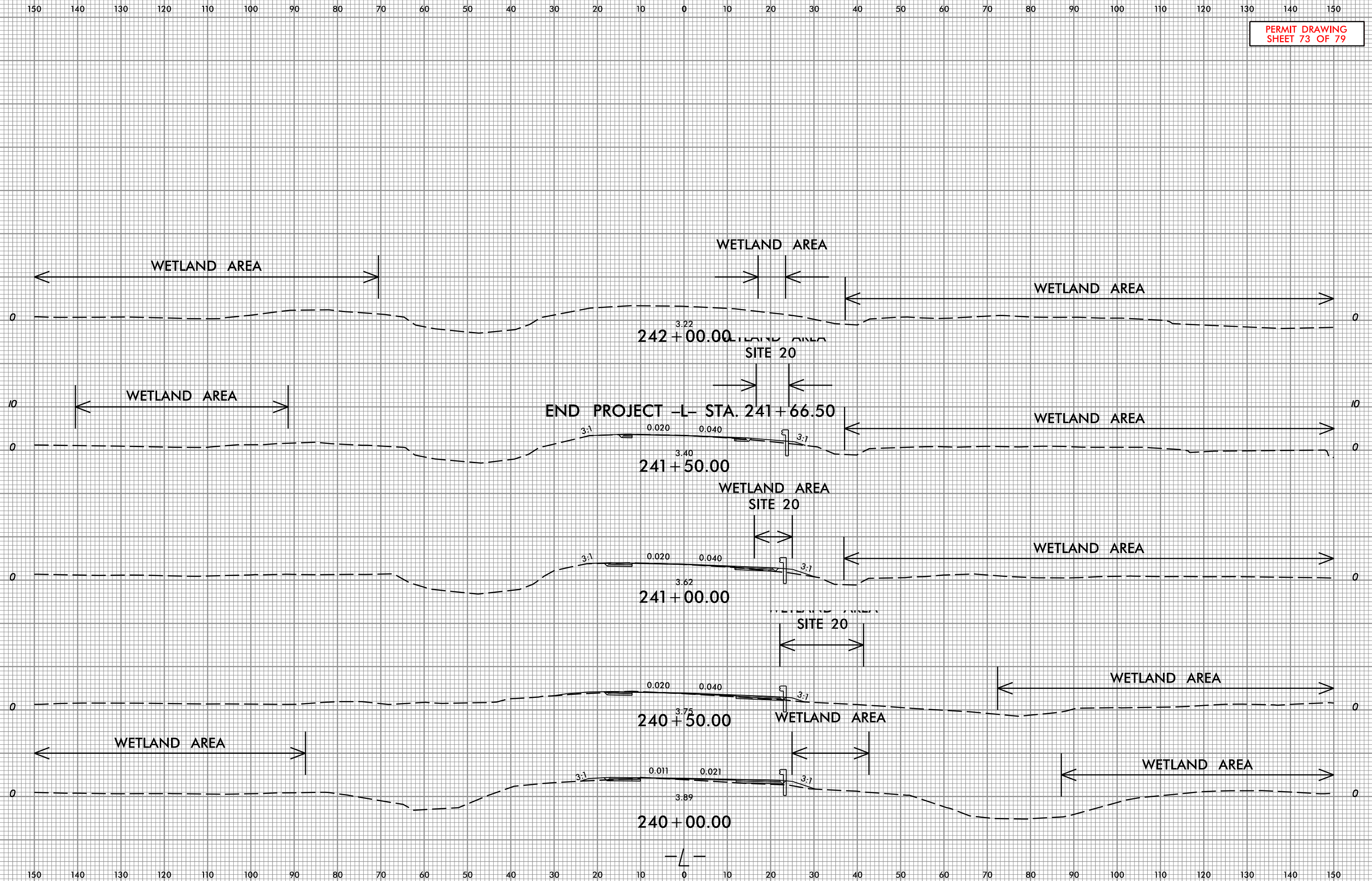


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PERMIT DRAWING
SHEET 72 OF 79



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SHEET 73 OF 79



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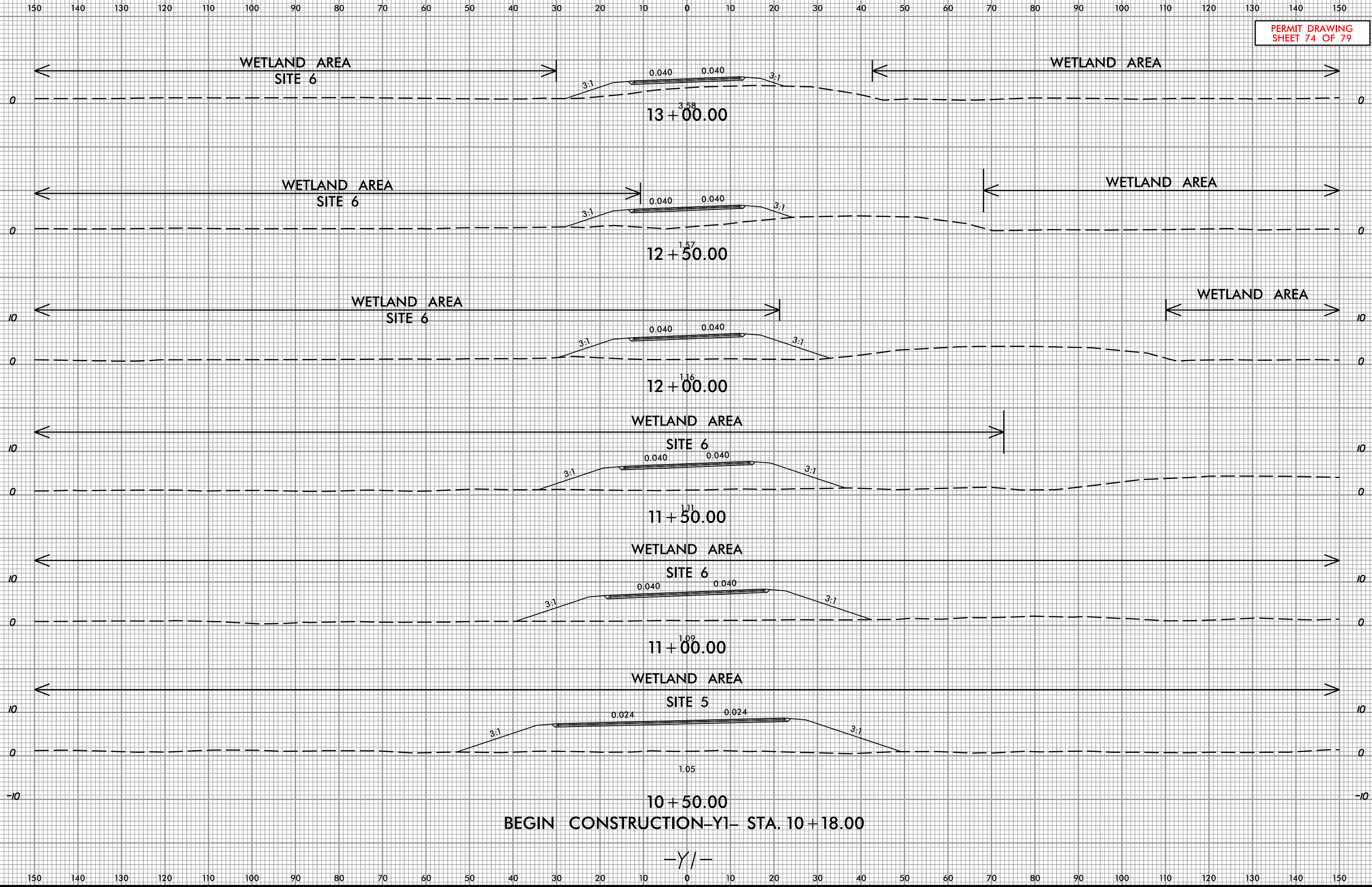
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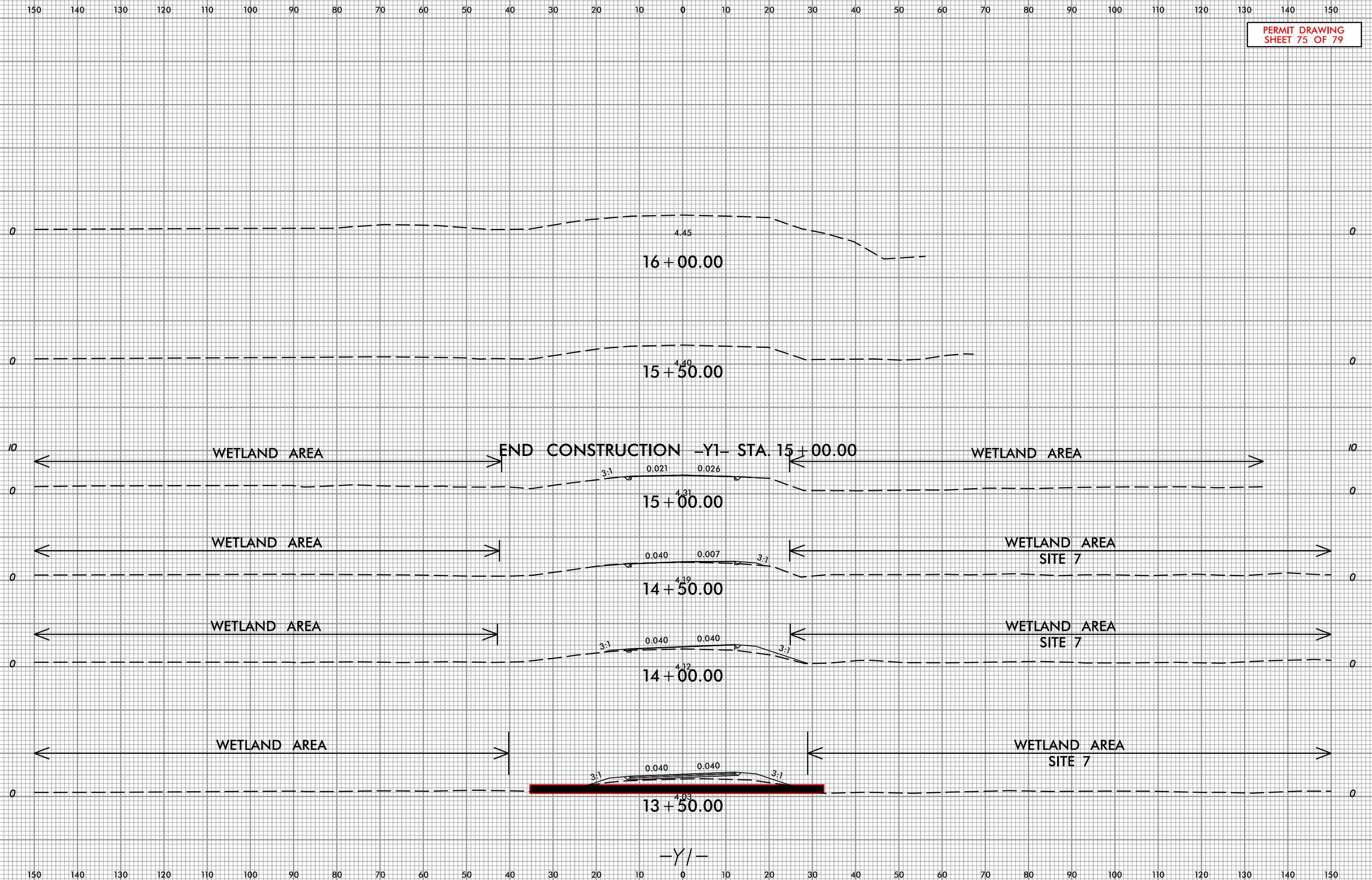
HB-0001

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SHEET 74 OF 79



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SHEET 75 OF 79

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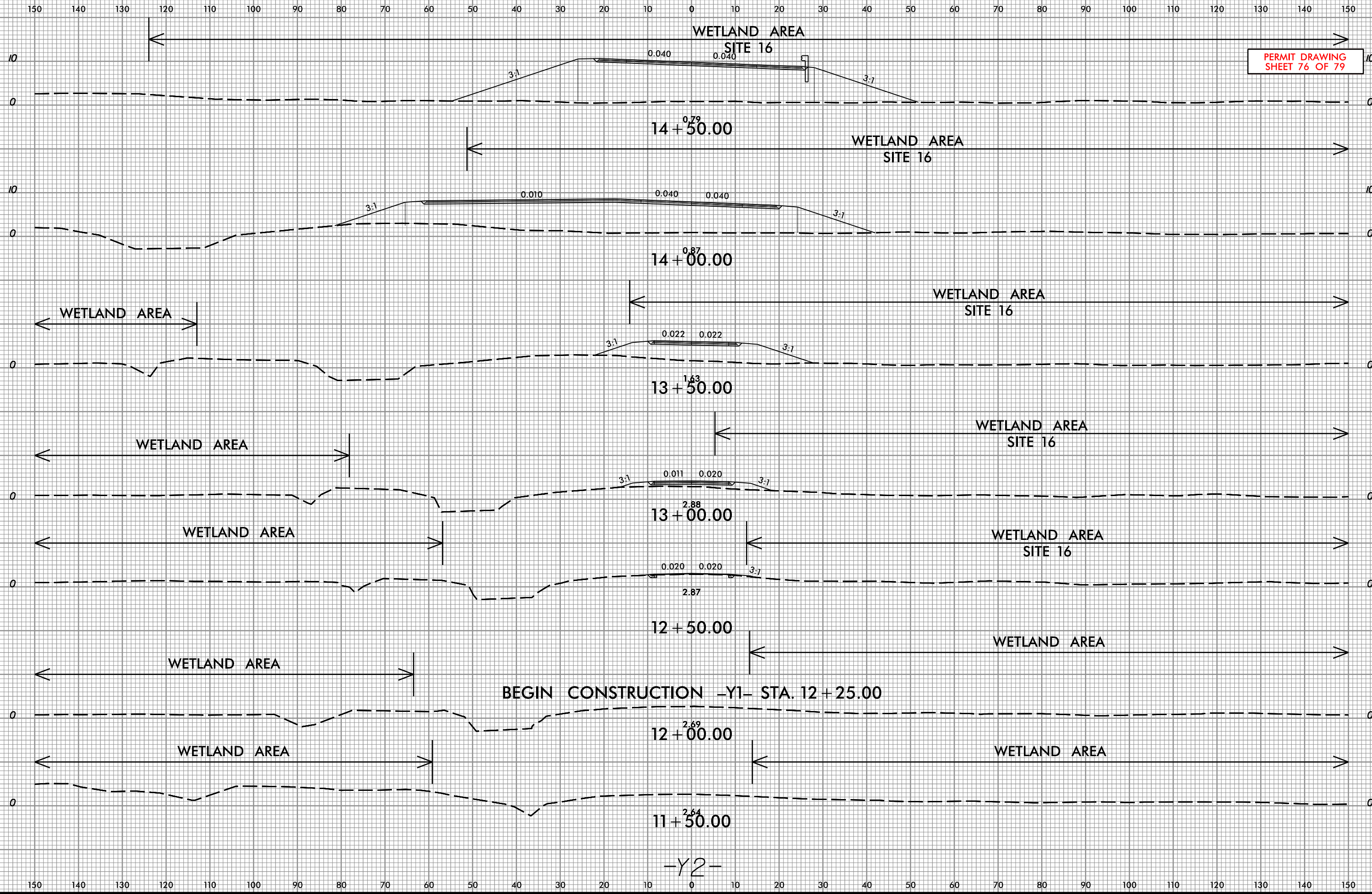


PROJ. REFERENCE NO.

HB-0001

SHEET NO.

X-26



PERMIT DRAWING
SHEET 77 OF 79

WETLAND AREA
SITE 16

END CONSTRUCTION -Y1- STA. 15 + 40.26

15 + 00.00

-Y2-

TOTALS*:	9.057	0.00	0.02	1.776	3.27	0.376	0.072	0	0	0
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NOTES:

The following CAMA impacts are included in the impact quantities shown in the table. Permanent fill in CAMA wetlands total 0.026 acres. Mechanized Clearing impacts in CAMA wetlands total 0.028 acres. These impacts occur at Site 1.

Please note, for sites 1, 3, 12, 14 and 18 the "Surface Water" impacts are considered "Open Water" impacts and do not have an associated impact length.

SHEET 78 OF 79

8/17/99

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PROJECT REFERENCE NO.		SHEET NO.
HB-0001		---
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

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SHEET 79 OF 79

TEMPORARY WORK TRESTLE

NAD 83/2011

40' WIDE TRESTLE
FOR DEMOLITION
OF EXIST. BRIDGE,
EXTENDS TO 8FT
DEEP WATER

PLEASE NOTE: WAMI SITE WILL
NOT BE IMPACTED BY THIS PROJECT.

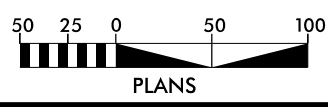
PI Sta 41+60.16
 $\Delta = 9' 48' 34.0''$ (RT)
 $D = 2' 27' 32.6''$
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 $T = 199.94'$
 $R = 2330.00'$
 $SE = 05$
 $RO = 150'$

PIs Sta 44+09.13
 $\Delta s = 1' 50' 39.4''$
 $Ls = 150.00'$
 $LT = 100.01'$
 $ST = 50.00'$

CAMA AEC (575')

HARRY McMULLAN FAMILY LTD PARY
NO DEED

IRENE INC.
DB 164 PG 10



PAVEMENT REMOVAL

SEE SHEET 25
FOR -L- PROFILE

REVISIONS

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Meeting from the Interagency 4B Hydraulic Design Review Meeting
State Project 49475.1.1 (HB-0001) in Dare/Tyrrell County
F.A. Project: NHPB-0001(156)
Meeting Date: April 20, 2022
Minutes Date: June 10, 2022

Team Members:

Seth Wilcher, FHWA
Kyle Barnes, Corps of Engineers
Fritz Rohde, NOAA – NMF
Travis Wilson, Wildlife Resource Commission
Cathy Brittingham, Division of Coastal Management
Johnathan Howell, Division of Coastal Management
James Harrison, DEQ - Marine Fisheries
Greg Daisey, NCDEQ – DCM
Robert Patterson, NCDEQ-DWR

Support Staff/Other Attendees:

Chris Rivenbark, NCDOT ECAP
Gordon Cashin, NCDOT ECAP
Paul Williams, NCDOT Division 1
Barry Hobbs, NCDOT Division 1
John Conforti, NCDOT PMU
Paul Atkinson, NCDOT Hydraulics
Brian Lipscomb, NCDOT Hydraulics
David Hering, NCDOT Geotech
Jennifer Evans, NCDOT PMU
Marissa Cox, NCDOT Biological Surveys
Larry James, NCDOT Utilities
John Jamison, NCDOT EPU
Douglass Kretchman, NCDOT Roadway
Mark Staley, NCDOT Roadside Environmental
James Harrison, NCDOT Roadside Environmental
Tanga Sampson, NCDOT Eastern Regional Utility
Craig Young, Three Oaks Engineering
James Mason, Three Oaks Engineering
Joanna Salvucci, Three Oaks Engineering
Jason Patskoski, Three Oaks Engineering
Bryan Loflin, Modjeski & Masters
Jason Doughty, Modjeski & Masters
Bon-Hsiang Lien, Wood
Michael Lear, Wood
Chien-Ting Tang, Wood
Faith Jahnke, Summit Design & Engineering
Brandon Johnson, Summit Design & Engineering
Patrick Hartnett, Summit Design & Engineering
Jerry Lindsey, Wetherill Engineering
Kathy Herring, RK&K
Jeff Sheldon, Moffat & Nichol

Project Description:

HB-0001 is located across Tyrrell and Dare Counties and consists of replacing bridge #7 on US 64 over Alligator River. The project is approximately 4.2 miles long with approximately 0.9 miles of roadway on new location and approximately 3.3 miles of new structures.

Minutes:

The "4B" Meeting for HB-0001 was held on April 20, 2022 from 10:00 AM to 10:45 AM via a Microsoft Teams meeting. Patrick Hartnett provided a brief project description and proceeded through the 4B Hydraulic Redline Plans dated March 2022.

General:

- It was noted that the current Wetland Boundaries needed further identification between CAMA and 404 wetlands.
- The begin and end stations for the bridge deck drains are to be added to the Stormwater Management Plan.
- There may be Public Trust AEC labels missing from the current redline drainage plans.
- A USCG permit will be required.
- The proposed drainage design currently shown on the 4B plans is preliminary and subject to change as the design progresses.
- It was noted that the minimum 36" equalizer pipe size was not utilized throughout the project. This will be revised in the final design.

Sheet 4:

- Impacts include project fill in wetlands and potential excavation in wetlands.
- Fill in wetlands will be due to new alignment as well as proposed wildlife fence along proposed ROW.
- Potential excavation in wetlands may occur as a result of excavating through the existing alignment in order to provide access to the proposed wildlife crossing at -L- Sta. 24+25 +/-.

Sheet 5:

- Impacts include project fill in wetlands.
- 36" RCP equalizer pipe to be installed at -L- Sta. 33+00 +/- within the footprint of proposed fill slopes to provide wetland connectivity.
- 24" RCP equalizer pipe to be installed at -Y1- Sta. 11+50 +/- within the footprint of proposed fill slopes to provide wetland connectivity. This will be upsized to a 36" RCP in the final design.
- The necessity of an RCP equalizer pipe was questioned. It was assumed the wetland area located south of the proposed -L- alignment, east of the proposed -Y1- alignment and north of the existing alignment will expand to fill in the remaining non-wetland area enclosed by the proposed and existing alignments.

Sheet 6:

- Impacts include project fill in wetlands and permanent stream impacts in a jurisdictional stream.

- The drainage networks at the begin bridge approach slab will both require riprap outlet pads in the wetland areas at the fill slope toe.
- It was noted that the shoreline stabilization shown beneath the proposed bridge may not be required as there is existing riprap along the shoreline at this location.
- It was noted the closed drainage system at the gas station along the existing alignment will most likely require a tail ditch that outlets to the wetland area near the coastline. The redline drainage plans showed a riprap outlet pad in the wetlands at this outlet point but will be revised to move the outlet pad outside of the wetland area to minimize impacts.

Sheet 7-18:

- Project impacts include permanent stream impacts in a jurisdictional stream.

Sheet 19:

- Impacts include project fill in wetlands and permanent stream impacts in a jurisdictional stream.
- The drainage networks at the end bridge approach slab will both require riprap outlet pads in the wetland areas at the fill slope toe.
- It was noted that the redline drainage plans did not show the updated abutment location as the end bridge location had moved. The abutment will be revised to extend to the new end bridge location.
- It was noted that the shoreline stabilization shown beneath the proposed bridge may not be required as the end bent setback is large enough to avoid shoreline stabilization issues.

Sheet 20:

- Impacts include project fill in wetlands and permanent stream impacts in a jurisdictional stream.
- Fill in wetlands will be due to new alignment as well as proposed wildlife fence along proposed ROW.
- Proposed wildlife crossing at -L- Sta. 228+60 +/- will also serve as an equalizer pipe to provide wetland connectivity.
- 24" RCP equalizer pipe to be installed at -Y2- Sta. 14+60 +/- within the footprint of proposed fill slopes to provide wetland connectivity. This will be upsized to a 36" RCP in the final design.
- The location of the RCP equalizer pipe was questioned as the current location is closer to the intersection with -L- than desirable. Placement is limited by proposed turn-around on -Y2- that provides school bus access to residents on Old Ferry Landing Road.
- Endwalls were recommended for the 48" RCP equalizer pipe located in the channel along -Y2- for additional stabilization.
- Proposed tail ditch along existing alignment will replace an existing 24" RCP that was observed to be completely submerged during the field investigation. The proposed tail ditch will connect the existing channels.
- ECAP inquired whether the bus turnaround could be retained at its existing location on US 64. The proposed location was selected to provide access to residents on Old Ferry Landing Road while minimizing foot traffic along US 64.

Sheet 21:

- Impacts include project fill in wetlands and permanent stream impacts in a jurisdictional stream.
- Endwalls were recommended for the 48" RCP equalizer pipe located in the channel along the existing alignment for additional stabilization.

Profile Sheets:

- It was determined that the horizontal and vertical clearances for the proposed bridge will be labeled.

No further comments.

Meeting adjourned.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

Meeting Minutes

Merger Team Meeting – Concurrence Point 4C Permit Drawing Review

STIP Project#: HB-0001 – U.S. 64; Replace Tyrrell County Bridge No. 7 over the Alligator River, Tyrrell and Dare Counties, NC

Meeting Date/Time/Place:	April 20 th , 2023 - 1:00 PM-3:00 PM Microsoft Teams Meeting
Meeting Purpose:	Merger Team Meeting – Concurrence Point 4C
Prepared By:	Patrick Hartnett, PE – Summit Design and Engineering Services

Meeting Attendees (highlighted in attendance):

Merger Team Members		
FHWA	Seth Wilcher	Seth.Wilcher@dot.gov
FHWA	Clarence Coleman	Clarence.Coleman@dot.gov
USEPA	Amanetta Somerville	Somerville.Amanetta@epa.gov
USFWS	Gary Jordan	gary_jordan@fws.gov
USACE	Kyle Barnes	kyle.w.barnes@usace.army.mil
USACE	Monte Matthews	monte.k.matthews@usace.army.mil
NCWRC	Travis Wilson	Travis.Wilson@ncwildlife.org
NCDCM	Greg Daisey	Greg.Daisey@ncdenr.gov
NCDCM	Cathy Brittingham	cathy.brittingham@ncdenr.gov
NCDCM	Jonathan Howell	jonathan.howell@ncdenr.gov
NMFS	Fritz Rhode	Fritz.Rohde@noaa.gov
NCDWR	Garcy Ward	Garcy.Ward@ncdenr.gov
NCDWR	Robert Patterson	robert.patterson@ncdenr.gov
NCDEQ	James Harrison	James.Harrison@ncdenr.gov

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Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

NCDNCR		
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Alligator River National Wildlife Refuge	Scott Lanier	scott_lanier@fws.gov
Albemarle RPO	Angela Welsh	awelsh@accog.org
NCDMF	Jordan Byrum	Jordan.Byrum@ncdenr.gov
NCDOT Staff		
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Project Management	John Conforti	jgconforti@ncdot.gov
Project Management	Olivia Pilkington	olpilkington@ncdot.gov
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Minutes:

The 4C Merger Meeting for HB-0001 was held on April 20, 2023 from 1:00 PM to 3:00 PM via a Microsoft Teams meeting. Patrick Hartnett provided a project description and took roll call before proceeding through the 4C Permit Drawing package dated April 2023.

General:

- Potential for on-site mitigation impacts for abandoned existing roadway sections to be added to the plans. Discussion on-going but will need to be added to the SMP and Impact Summary table.
- Impacts for the jurisdictional roadside channels to be classified as “Open Water” impacts rather than “Surface Water” impacts.
- It was noted that the Fill slope labels caused confusion with impact hatching. They should be turned off.

SMP:

- No comments.

TSH:

- No comments.

PSH 2/3:

- Remove easement at upstream end of 4-2 Tail Ditch

PSH 4/5:

- Verify equalizer pipe size is adequate.
 - Concerns about potential input due to settling pond/dredging events per USACE
 - Update invert callouts to reflect pipe size
- Revise easement at Site 7 to encompass MC impacts.

PSH 6/7:

- Mechanized Clearing impacts along north side of the road need to connect to MC under bridge.
- Riprap outlet pads need to be Permanent Fill impacts.
- Concerns about Temporary Fill impacts for temporary work platform/bent installation areas
 - Schedule follow-up meeting with Division, DCM, DWR, USACE and PMU to discuss impact breakdown
- Depict landing site near Site 22 in Inset A
 - Potentially add new PSH to permit drawings

PSH 30/31

- Revise temporary work platform callout at Site 11.

PSH 32/33:

- Mechanized Clearing impacts along north side of the road need to connect to MC under bridge.
- Riprap outlet pads need to be Permanent Fill impacts.

PSH 34/35:

- Revise wetland callout overlapping Inset B
- Add Permanent Open Water impacts for areas between 60" CAAP headwalls at Site 17

PSH 36/37:

- Revise Site numbering for Inset A
- Potentially extend MC impacts along bank stabilization at Site 20

PSH 38/39:

- No comments.

PSH 40/41:

- No comments.

PSH 42:

- Add legends for Temporary/Permanent Fill impacts.

PSH 43:

- No comments.

Profile Sheets:

- No comments.

XSC Sheets:

- Revise Site callouts

Impact Summary Table:

- Add Temporary Fill quantity to CAMA impacts note.
- Add Site # for bent installation.

No Further Comments.

Meeting Adjourned.

Biological Opinion

US 64 Alligator River Bridge Replacement, Tyrrell and Dare Counties, NC (STIP #HB-0001)

FWS Log #: 04EN2000-2021-F-0473



Prepared by:

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November 5, 2021

Pete Benjamin, Field Supervisor

Date

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CONSULTATION HISTORY

This section lists key events and correspondence during the course of this consultation. A complete administrative record of this consultation is on file in the Service's Raleigh Field Office.

2021-01-07 – The North Carolina Department of Transportation (NCDOT) and U.S. Fish and Wildlife Service (Service) begin telephone and email discussions on the need for Section 7 consultation.

2021-05-20 – The Service received a draft Biological Assessment (BA) from NCDOT.

2021-05-24 – The Service provided comments on the draft BA to NCDOT.

2021-08-06 – The Service received the final BA (dated 2021-07-12) and a letter (dated 2021-08-05) from the Federal Highway Administration (FHWA) requesting formal Section 7 consultation for the red-cockaded woodpecker.

2021-08-26 – The Service provided a letter to FHWA stating that all information required for initiation of formal consultation was either included with their 2021-08-05 letter or was otherwise available.

2021-09-07 – The Service provided the FHWA and NCDOT with a draft Biological Opinion.

BIOLOGICAL OPINION

1. INTRODUCTION

A Biological Opinion (BO) is the document that states the findings of the U.S. Fish and Wildlife Service (Service) required under section 7 of the Endangered Species Act of 1973, as amended (ESA), as to whether a Federal action is likely to:

- jeopardize the continued existence of species listed as endangered or threatened; or
- result in the destruction or adverse modification of designated critical habitat.

The Federal action addressed in this BO is the Federal Highway Administration's (FHWA) and North Carolina Department of Transportation's (NCDOT) proposed US 64 Alligator River Bridge Replacement in Tyrrell and Dare Counties, NC, STIP #HB-0001 (the Action). This BO considers the effects of the Action on the red-cockaded woodpecker (RCW). The Action does not affect designated critical habitat; therefore, this BO does not address critical habitat.

BO Analytical Framework

A BO that concludes a proposed Federal action is *not* likely to *jeopardize the continued existence* of listed species and is *not* likely to result in the *destruction or adverse modification* of critical habitat fulfills the Federal agency's responsibilities under §7(a)(2) of the ESA.

"Jeopardize the continued existence" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR §402.02).

"Destruction or adverse modification" means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR §402.02).

The Service determines in a BO whether we expect an action to satisfy these definitions using the best available relevant data in the following analytical framework (see 50 CFR §402.02 for the regulatory definitions of *action*, *action area*, *environmental baseline*, *effects of the action*, and *cumulative effects*).

- a. *Proposed Action*. Review the proposed Federal action and describe the environmental changes its implementation would cause, which defines the action area.
- b. *Status*. Review and describe the current range-wide status of the species or critical habitat.
- c. *Environmental Baseline*. Describe the condition of the species or critical habitat in the action area, without the consequences to the listed species caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early consultation, and the impacts of State or private actions which are contemporaneous with the consultation.
- d. *Effects of the Action*. Predict all consequences to species or critical habitat caused by the proposed action, including the consequences of other activities caused by the proposed action, which are reasonably certain to occur. Activities caused by the proposed action

would not occur but for the proposed action. Effects of the action may occur later in time and may include consequences that occur outside the action area.

- e. *Cumulative Effects*. Predict all consequences to listed species or critical habitat caused by future non-Federal activities that are reasonably certain to occur within the action area.
- f. *Conclusion*. Add the effects of the action and cumulative effects to the environmental baseline, and in light of the status of the species, formulate the Service's opinion as to whether the action is likely to jeopardize species or adversely modify critical habitat.

2. PROPOSED ACTION

2.1. Bridge Replacement

The FHWA and NCDOT propose to construct a new fixed-span, high-rise bridge to replace the existing 2.83 mile long US 64 bridge over the Alligator River in Tyrrell and Dare Counties. The new bridge will have two lanes 12 feet wide with 8-foot paved shoulders, and the bridge approaches will have two lanes 12 feet wide with 10-foot shoulders (5 feet of the shoulders will be paved). The centerline of the new bridge will be approximately 1,380 feet north of the current centerline at its farthest point. Total project length is 4.64 miles. The old bridge will be removed. The tentative let date for construction is July 2023.

2.2. Conservation Measures

In April 1999, the Service, NCDOT, and The Conservation Fund entered into a Memorandum of Understanding (MOU) for the protection and recruitment of RCWs through the establishment of a wildlife management area in Tyrrell County, North Carolina known as the Palmetto-Pear-tree Preserve (P3). P3 consists of approximately 10,000 acres and was created with the primary purpose of protecting the existing RCW population, improving habitat to increase the population, and to provide NCDOT with credits to offset unavoidable impacts to RCWs from transportation projects in the Coastal Plain.

A subsequent MOU between the NCDOT and the Service concerning the status and future of RCW monitoring and conservation credits on P3 (Appendix A) was signed in December 2017. Agreements in the MOU include:

- 23 conservation credits could be used by NCDOT to offset unavoidable impacts to RCWs from future NCDOT projects.
- The 23 credits could be used at a 1:1 ratio whether the impacts were direct, indirect or cumulative.
- The 23 credits would remain available regardless of the status of the RCW population.
- The credits would not expire and would remain available to the NCDOT until debited.

In order to compensate for the potential loss of one RCW group at TYR Cluster 63, the NCDOT will debit one credit from its conservation credits at P3. Post-project, NCDOT will have 22 conservation credits remaining at P3.

2.3. Other Activities Caused by the Action

A BO evaluates all consequences to species or critical habitat caused by the proposed Federal action, including the consequences of other activities caused by the proposed action, that are reasonably certain to occur (see definition of “effects of the action” at 50 CFR §402.02). Additional regulations at 50 CFR §402.17(a) identify factors to consider when determining whether activities caused by the proposed action (but not part of the proposed action) are reasonably certain to occur. These factors include, but are not limited to:

- (1) past experiences with activities that have resulted from actions that are similar in scope, nature, and magnitude to the proposed action;
- (2) existing plans for the activity; and
- (3) any remaining economic, administrative, and legal requirements necessary for the activity to go forward.

In its request for consultation, the FHWA did not describe, and the Service is not aware of, any additional activities caused by the Action that are not included in the previous description of the proposed Action. Therefore, this BO does not address further the topic of “other activities” caused by the Action.

2.4. Action Area

The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR §402.02). Delineating the action area is necessary for the Federal action agency to obtain a list of species and critical habitats that may occur in that area, which necessarily precedes any subsequent analyses of the effects of the action to particular species or critical habitats.

It is practical to treat the action area for a proposed Federal action as the spatial extent of its direct and indirect “modifications to the land, water, or air” (a key phrase from the definition of “action” at 50 CFR §402.02). Indirect modifications include those caused by other activities that would not occur but for the action under consultation. The action area determines any overlap with critical habitat and the physical and biological features therein that we defined as essential to the species’ conservation in the designation final rule. For species, the action area establishes the bounds for an analysis of individuals’ exposure to action-caused changes, but the subsequent consequences of such exposure to those individuals are not necessarily limited to the action area.

Figure 2.4 shows the locations of all activities that the proposed Action would cause and the spatial extent of reasonably certain changes to land, water, or air caused by these activities, based on the descriptions and analyses of these activities in Section 2.1. The action area for this BO includes the existing US 64 bridge over the Alligator River, the footprint of the new proposed bridge (located up to 1,380 feet north of the existing bridge), and a 2.55 mile radius around the existing and new bridges. The 2.55 mile radius is based upon the average dispersal distance of RCWs studied at the adjacent P3 from 1999-2014 (NCDOT 2014). This average dispersal distance is utilized in the “neighborhood” analysis (USFWS 2005) of RCW groups which may be indirectly affected.



Figure 2.4. Action Area for the proposed replacement of the US 64 bridge over the Alligator River (HB-0001). Tyrrell and Dare Counties, North Carolina. The Action Area includes the red-corkaded woodpecker (RCW) "neighborhood," defined as the population's average dispersal distance (2.55 miles). RCW partitions with red labels were active when last updated and those with yellow labels were inactive or abandoned.

3. SOURCES OF CUMULATIVE EFFECTS

A BO must predict the consequences to species caused by future non-Federal activities within the action area, *i.e.*, cumulative effects. “Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation” (50 CFR §402.02). Additional regulations at 50 CFR §402.17(a) identify factors to consider when determining whether activities are reasonably certain to occur. These factors include, but are not limited to: existing plans for the activity; and any remaining economic, administrative, and legal requirements necessary for the activity to go forward.

In its request for consultation, the FHWA did not describe, and the Service is not aware of, any future non-Federal activities that are reasonably certain to occur within the action area. Therefore, we anticipate no cumulative effects that we must consider in formulating our opinion for the Action.

4. STATUS OF SPECIES

This section summarizes best available data about the biology and condition of the red-cockaded woodpecker [*Dryobates (=Picoides) borealis*, RCW] throughout its range that are relevant to formulating an opinion about the Action. The Service published its decision to list the RCW as endangered on October 13, 1970 (35 FR 16047–16048). No critical habitat has been designated for the RCW. The most recent recovery plan was published in 2003 (USFWS 2003).

4.1. Species Description

The RCW is a small bird measuring about eight inches in length, identifiable by its white cheek patch and black and white barred back. The males have a few red feathers, called a cockade. These red feathers usually remain hidden underneath black feathers between the black crown and white cheek patch unless the male is disturbed or excited. Females lack the red cockade. Juvenile males have a red patch in the center of their black crown. This patch disappears during the fall of their first year at which time their cockades appear (USFWS 2020a).

4.2. Life History

A detailed life history of the RCW can be found in Chapter 2 (pages 16-72) of the Species Status Assessment Report (USFWS 2020b).

4.3. Numbers, Reproduction, and Distribution

Detailed information on the numbers, reproduction, and distribution of the RCW can be found in Chapters 3 and 4 (pages 72-118) of the Species Status Assessment Report (USFWS 2020b).

4.4. Conservation Needs and Threats

Detailed information on the conservation needs of and the threats to the RCW can be found in Chapter 3 (pages 72-103) and Chapter 5 (pages 119-129) of the Species Status Assessment Report (USFWS 2020b).

5. ENVIRONMENTAL BASELINE

This section describes the best available data about the condition of the RCW in the action area without the consequences caused by the proposed Action.

5.1. Action Area Numbers, Reproduction, and Distribution

There are currently 13 active RCW clusters and 4 inactive RCW clusters that occur within the action area defined in Section 2.4. However, from the analysis of the potential effects of the Action, it was determined that only 6 active RCW clusters had the potential to be directly or indirectly affected. No data was obtained for the other clusters, and the remainder of this BO will only address these 6 clusters.

Table 5.1. Potentially affected active RCW clusters within action area.

Cluster ID	Cluster/Partition Location	Partition Protected Status
TYR 47	Reeves-Jackson Tract	All on protected land
TYR 48	Reeves-Jackson Tract	All on protected land
TYR 53	Reeves-Jackson Tract / private land	Partially protected
TYR 63	Reeves-Jackson Tract / Alligator River Game Land / private land	Mostly on protected land
TYR 64	Reeves-Jackson Tract / private land	Partially protected
TYR 68	Reeves-Jackson Tract	All on protected land

5.2. Action Area Conservation Needs and Threats

Although the RCW clusters located on the Reeves-Jackson Tract (owned by The Conservation Fund) and the Alligator River Game Land (owned by North Carolina Wildlife Resources Commission) are mostly protected, none of the clusters in Table 5.1 are part of an RCW Recovery Unit. However, RCW clusters located within the adjacent P3 (owned by North Carolina Wildlife Resources Commission) are designated as part of the Northeast North Carolina/Southeast Virginia Essential Support Population, which is within the Mid-Atlantic Coastal Plain Recovery Unit. The RCWs within the action area are demographically connected to this Essential Support Population.

Suitable habitat, as described by the Recovery Plan (USFWS 2003), is essentially nonexistent in the action area, yet several RCW groups are surviving within it. RCWs nest and forage in a much wider range of habitat conditions in northeastern North Carolina than elsewhere in the species range (Carter and Brust 2004). Carter (2014) describes eight natural or man-altered vegetative communities in northeastern North Carolina that RCWs utilize for nesting and foraging. Some of these communities are dominated by non-pine species, and pines may compose less than 20% of

the canopy. Due to the use of atypical habitat, the Recovery Plan's Standard for Managed Stability (SMS) guidelines and Recovery Standard Guidelines (RSG) for foraging habitat does not apply to northeastern North Carolina (Carter and Campbell 2012, Carter 2014). Pre-project, none of the six active RCW clusters analyzed would meet the SMS guidelines or RSG outlined in the Recovery Plan. Therefore, regional SMS foraging habitat guidelines were developed for northeastern North Carolina (Carter 2014). These regional guidelines are an attempt to approximate as closely as possible the actual habitat conditions observed in northeastern North Carolina where RCWs naturally occur.

There is limited opportunity to actively manage the RCW habitat within the action area. Due to extreme wetness, lack of access, and the presence of peat soils (which can be consumed by fire), traditional RCW management activities such as prescribed burning and mechanical midstory control are severely limited (Carter and Campbell 2012, Carter 2014). Even with management, the habitat would never resemble suitable habitat as defined by the Recovery Plan. However, RCWs appear to be surviving with little to no management in most of the action area.

The action area is subject to frequent tropical storm activity, and RCWs are vulnerable to storm damage, flooding, and sea level rise. Tropical storms can kill RCWs and destroy their cavity trees. The action area is only 0-2 feet above sea level, with much of the area subject to saltwater intrusion and land subsidence due to deterioration of peat soils (USACE and NCDOT 2012). Even a modest amount of sea level rise (6 cm) would inundate most of the forest habitat within the action area (U.S. Department of Transportation 2008) thus converting it to marsh habitat. Given these conditions, RCW habitat within the action area appears transitory.

Southern pine beetle infestations of various sizes have historically affected this area over the years. The infestations can degrade foraging habitat and kill cavity trees. Combined with other stochastic events (e.g. tropical storms) and ever-present stressors such as saltwater intrusion and land subsidence, RCW clusters are at risk of being eliminated from the landscape.

6. EFFECTS OF THE ACTION

In a BO for a listed species, the effects of the proposed action are all reasonably certain consequences to the species caused by the action, including the consequences of other activities caused by the action. Activities caused by the action would not occur but for the action. Consequences to species may occur later in time and may occur outside the action area. Our analyses of the consequences caused by these activities follows.

6.1. Cavity Tree Analysis

No RCW cavity trees will be removed, and no portion of the Action is located within 200 feet of any cavity tree.

6.2. Foraging Habitat Analysis (Cluster Level Analysis)

One active RCW cluster, TYR 63, will have habitat removed from its half-mile foraging partition. The pre-project foraging habitat totals for TYR 63 are 701.7 ft² of pine basal area (BA)

on 54.7 acres of suitable habitat and 266.0 ft² pine BA on 13.2 acres of potentially suitable (i.e. deficient) habitat. Pre-project, this partition is deficient in pine BA and acreage and does not meet the Regional SMS Guidelines for Northeast North Carolina (Carter 2014). Therefore the removal of any suitable or potentially suitable habitat constitutes a take of the cluster. The Action will remove 14.4 ft² of pine BA on 0.9 acre of suitable habitat. Although this habitat removal constitutes a take of the cluster as per the Regional SMS Guidelines, it is not possible to know if the RCWs will abandon the cluster or not. RCWs in other clusters in the area are persisting on less suitable and potentially suitable habitat than occurs in TYR 63.

6.3. Group-Level Analysis

The group-level analysis evaluates the effects of changes in group density on RCW groups which have habitat removed from their partition, but which are not “taken” at the cluster level (USFWS 2005). No other active clusters will have foraging habitat removed from their foraging partition, so no group-level analysis is necessary.

6.4. Neighborhood-Level Analysis

The neighborhood-level analysis addresses potential effects on the RCW groups within the action area but which are not directly affected by habitat loss within their partitions. These neighborhood effects result from demographic isolation and habitat fragmentation and are related to group density, similar to the group-level analysis. For purposes of this BO, the “neighborhood” is the same as the action area, both being based on the 2.55 mile average dispersal distance of RCWs within the adjacent P3 (NCDOT 2014). If the post-project analysis demonstrated that < 2.5 RCW groups remained within a 1.25 mile radius of the subject cluster, it is considered to be an incidental take.

The cluster-level take of active TYR 63 will reduce the RCW group density within a 1.25 mile radius of 5 active clusters (TYR 47, 48, 53, 64, and 68), but all would retain a moderate density (2.6 – 4.6 clusters within 1.25 miles) post-project based on the most current data. Therefore, no take will occur at the neighborhood level. However, it must be noted that if any active clusters around TYR 48 or 64 become inactive in the future, take would occur at the neighborhood level.

6.5. Population-Level and Recovery Unit-Level Analysis

No RCW clusters within the action area are part of a defined population or recovery unit, and thus their numbers are not counted towards the RCW recovery goals. Therefore, no population-level or recovery unit-level analysis is necessary.

7. CUMULATIVE EFFECTS

In Section 3, we did not identify any activities that satisfy the regulatory criteria for sources of cumulative effects. Therefore, cumulative effects to the RCW are not relevant to formulating our opinion for the Action.

8. CONCLUSION

In this section, we summarize and interpret the findings of the previous sections (status, baseline, effects, and cumulative effects) relative to the purpose of the BO for the RCW, which is to determine whether the Action is likely to jeopardize its continued existence.

Thirteen active RCW clusters occur within the defined action area. Only one cluster, TYR 63, will be taken as the result of removing habitat from its foraging partition. Cluster TYR 63 does not meet the Regional SMS Guidelines for Northeast North Carolina either pre-project or post-project, therefore even the removal of a relatively small amount of foraging habitat constitutes a take of the cluster. Since other RCW clusters in the area persist on less suitable/potentially suitable habitat than TYR 63, the Action may or may not result in abandonment of the cluster. However, given the cluster's vulnerability to salt water intrusion, subsidence, and tropical storm damage, the cluster's persistence appears transitory. Cluster TYR 63 is not part of a defined population or recovery unit and thus it is not counted towards the recovery goals of the species. As compensation for take of TYR 63, one credit will be debited from NCDOT's conservation credits at P3, thus leaving 22 credits available for future debit.

After reviewing the status of the species, the environmental baseline for the action area, the effects of the Action and the cumulative effects, it is the Service's Biological Opinion that the Action is not likely to jeopardize the continued existence of the RCW.

9. INCIDENTAL TAKE STATEMENT

ESA §9(a)(1) and regulations issued under §4(d) prohibit the take of endangered and threatened fish and wildlife species without special exemption. The term "take" in the ESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (ESA §3(19)). In regulations, the Service further defines:

- "harm" as "an act which actually kills or injures wildlife. Such 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;" (50 CFR §17.3) and
- "incidental take" as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant" (50 CFR §402.02).

Under the terms of ESA §7(b)(4) and §7(o)(2), taking that is incidental to a Federal agency action that would not violate ESA §7(a)(2) is not considered prohibited, provided that such taking is in compliance with the terms and conditions of an incidental take statement (ITS).

For the exemption in ESA §7(o)(2) to apply to the Action considered in this BO, the FHWA must undertake the non-discretionary measures described in this ITS, and these measures must become binding conditions of any permit, contract, or grant issued for implementing the Action. The FHWA has a continuing duty to regulate the activity covered by this ITS. The protective coverage of §7(o)(2) may lapse if the FHWA fails to:

- assume and implement the terms and conditions; or

- require a permittee, contractor, or grantee to adhere to the terms and conditions of the ITS through enforceable terms that are added to the permit, contract, or grant document.

In order to monitor the impact of incidental take, the FHWA must report the progress of the Action and its impact on the species to the Service as specified in this ITS.

9.1. Amount or Extent of Take

This section specifies the amount or extent of take of listed wildlife species that the Action is reasonably certain to cause, which we estimated in the “Effects of the Action” section of this BO. The Service anticipates that the Action is reasonably certain to cause incidental take of one active cluster of RCW (TYR 63). This incidental take will be non-lethal and indirect in nature.

9.2. Reasonable and Prudent Measures

The Service believes that no reasonable and prudent measures (RPMs) are necessary or appropriate to minimize the impact (*i.e.*, amount or extent) of incidental take of the RCW caused by the Action. Avoidance and minimization of RCW foraging habitat removal previously occurred during the routine project development and design process. No additional changes in design, location, scope, duration, or timing of the Action would reduce incidental take below the amount or extent anticipated for the Action as proposed. Therefore, this ITS does not provide RPMs for this species.

9.3. Terms and Conditions

No RPMs to minimize the impacts of incidental take caused by the Action are provided in this ITS; therefore, no terms and conditions for carrying out such measures are necessary.

9.4. Monitoring and Reporting Requirements

In order to monitor the impacts of incidental take, the FHWA must report the progress of the Action and its impact on the species to the Service as specified in the ITS (50 CFR §402.14(i)(3)). This section provides the specific instructions for such monitoring and reporting (M&R). These M&R requirements are mandatory. As necessary and appropriate to fulfill this responsibility, the FHWA must require any permittee, contractor, or grantee to accomplish the M&R through enforceable terms that the FHWA includes in the permit, contract, or grant document. Such enforceable terms must include a requirement to immediately notify the FHWA and the Service if the amount or extent of incidental take specified in this ITS is exceeded during Action implementation.

M&R 1. Cavity Tree Update and Neighborhood-Level Analysis Reevaluation. If the project construction has not been let by the end 2023, an updated cavity tree survey within 0.5 mile of the project footprint must be conducted, and the status of all clusters evaluated for the neighborhood-level analysis must be reevaluated (*i.e.*, inactive vs. active). The acquired data must be submitted to the Service to confirm if the level of incidental take authorized is still appropriate.

10. CONSERVATION RECOMMENDATIONS

§7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by conducting conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary activities that an action agency may undertake to avoid or minimize the adverse effects of a proposed action, implement recovery plans, or develop information that is useful for the conservation of listed species. The Service offers the following recommendations that are relevant to the RCW addressed in this BO and that we believe are consistent with the authorities of the FHWA.

1. NCDOT and/or FHWA could contribute funding to conduct additional RCW surveys within the previously unsurveyed portions of the Northeast North Carolina/Southeast Virginia Essential Support Population and adjacent state and private properties which may support additional RCW clusters. Data obtained from more comprehensive surveys would assist in the future status review and revision of the Essential Support Population.
2. NCDOT and/or FHWA could conduct or provide funding for a study of the hydrology of the adjacent P3 with the intent to reduce saltwater intrusion to help maintain RCW habitat. The feasibility of water control structure use to prevent saltwater intrusion could be assessed.

11. REINITIATION NOTICE

Formal consultation for the Action considered in this BO is concluded. Reinitiating consultation is required if the FHWA retains discretionary involvement or control over the Action (or is authorized by law) when:

- a. the amount or extent of incidental take is exceeded;
- b. new information reveals that the Action may affect listed species or designated critical habitat in a manner or to an extent not considered in this BO;
- c. the Action is modified in a manner that causes effects to listed species or designated critical habitat not considered in this BO; or
- d. a new species is listed or critical habitat designated that the Action may affect.

In instances where the amount or extent of incidental take is exceeded, the FHWA is required to immediately request a reinitiation of formal consultation.

12. LITERATURE CITED

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- Carter, J.H. III and V. Campbell. 2012. Red-cockaded Woodpecker Distribution in Northeast North Carolina. PowerPoint presentation at information meeting on RCWs in northeastern North Carolina on November 6-7, 2012. Eastern 4-H Environmental Education Conference Center, Columbia, NC.
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- USFWS. 2020b. Species Status Assessment Report for the Red-cockaded Woodpecker (*Picoides borealis*), Version 1.3. U.S. Fish and Wildlife Service. Atlanta, GA. Available online at <https://ecos.fws.gov/ServCat/DownloadFile/188805>. Accessed on August 26, 2021.

Memorandum of Understanding
between
North Carolina Department of Transportation
and U.S. Fish and Wildlife Service

THIS AGREEMENT (the "MOU") is made and entered into on the date herein below last written, by and between the **STATE OF NORTH CAROLINA, acting through the DEPARTMENT OF TRANSPORTATION** (NCDOT) and the **UNITED STATES OF AMERICA, ACTING THROUGH THE U.S. FISH AND WILDLIFE SERVICE** (USFWS) (hereinafter "the Parties").

WITNESSETH:

WHEREAS, the USFWS is authorized to enter into agreements with NCDOT in accordance with the Endangered Species Act (18 U.S.C. 1531, et seq.; as amended) (ESA), and

WHEREAS, NCDOT is authorized to enter into agreements with USFWS, and

WHEREAS, NCDOT implements transportation improvements across the state of North Carolina (the "Projects") which may impact the red-cockaded woodpecker (RCW) which is listed as a federally endangered species, and

WHEREAS, NCDOT desires to minimize the impacts of the Projects on RCW populations, and

WHEREAS, NCDOT and USFWS (along with The Conservation Fund, a non-profit corporation) previously entered into a Memorandum of Understanding in April, 1999 (1999 MOU) (FWS Agreement No. 1448-40181-99-K-005) with Addendum 1 entered in October 2001 and Addendum 2 in June 2003 (collectively herein referred to as the "1999 MOU"). The 1999 MOU established the Palmetto Peartree Wildlife Management Area ("WMA") in Tyrrell County, NC, which consisted of approximately 9,732 +/- acres and cost approximately \$16,300,000.00. The primary purpose of the WMA is to protect, enhance and/or preserve RCW populations to offset the loss of RCWs or their habitat associated with NCDOT Projects in the Coastal Plain.

WHEREAS, in addition to the 1999 MOU, a conservation easement dated April 28, 1999 was imposed on the WMA to further protect, enhance and/or preserve RCW populations and habitat and to preserve the natural environmental characteristics of the WMA.

WHEREAS, since its inception, the WMA has generated twenty-three (23) RCW conservation credits and ten (10) RCW creation credits which are available to NCDOT to offset RCW impacts from NCDOT Projects.

WHEREAS, since the establishment of the twenty-three (23) RCW conservation credits, NCDOT has avoided and minimized all potential effects and had no takes to RCW populations for all

projects constructed over the last 18 years within the WMA service area.

WHEREAS, pursuant to the 1999 MOU, annual monitoring of RCW populations has been performed. However, the 1999 MOU and Conservation Easement were terminated on July 7, 2015 at the agreement of the Parties (including The Conservation Fund). The WMA is currently owned by NCDOT and NCDOT is seeking a qualified entity to take over ownership and management of the WMA that is consistent with the goal of preserving the natural environmental characteristics of the WMA.

WHEREAS, the Parties agree that due to sea level rise, land subsidence, and other causes of cavity tree loss such as pine beetle infestations, the RCW population within the WMA is likely not sustainable over the long term.

WHEREAS, the Parties agree that preserving the genetic diversity of the RCW population and expanding the range is beneficial for the species. WHEREAS, the Parties agree that translocations of RCW donor birds for the augmentation of eligible populations and recipient clusters is beneficial for the species.

WHEREAS, the Parties agree to the translocation of RCW from within the WMA to locations approved by USFWS and agreed upon by both parties.

WHEREAS, the Parties agree that the clusters located within the current corridor for NCDOT's Alligator River Bridge and US Highway 64 widening are first priorities for translocation if they meet the criteria per the RCW Recovery Plan.

NOW THEREFORE, the parties hereto agree as follows:

- (1) The RCW credits can be used to offset unavoidable impacts to RCWs from NCDOT Projects.
- (2) The RCW credits will be utilized only to offset unavoidable impacts of the RCW when the NCDOT can demonstrate to the satisfaction of the USFWS that there are no available or practical avoidance and minimization alternatives.
- (3) It is understood that NCDOT will consult with the USFWS concerning any Project which would affect RCWs. RCW credits from the WMA will be considered for application against those Projects which would impact RCWs and determined by USFWS not to jeopardize the continued existence of the species.
- (4) The WMA has generated twenty-three (23) RCW conservation credits for the benefit of NCDOT to offset possible future RCW impacts from NCDOT Projects. These RCW credits cannot expire, or be revoked, and will be available to NCDOT until debited. The success of the translocations will in no way affect these RCW credits.

FURTHERMORE, the specific obligations of the respective parties to the Memorandum of Understanding are set forth below:

(A) The USFWS will:

- (1) Grant NCDOT 23 RCW conservation credits from the establishment of the WMA.

These credits cannot expire, or be revoked, and will remain available to NCDOT until debited regardless of the status of the WMA RCW population.

- (2) Agree that NCDOT may use the 23 RCW conservation credits at a 1:1 ratio regardless of whether the RCW impacts are direct, indirect, or cumulative for any future RCW consultations for NCDOT projects.
- (3) Agree that if future NCDOT Projects, requiring compensation, occur within the boundaries of the WMA, then the WMA may be utilized to off-set those losses, with the available credits reduced by the number of incidental takes by the project.
- (4) Agree to coordinate and assist with any translocation of RCWs from within the WMA.

(B) NCDOT will:

- (1) Continue to provide RCW ground monitoring for 2017 and 2018 as provided in previous years.
- (2) Fund the translocation of RCWs by an approved third party under the direction and guidance of the USFWS.
- (3) Provide annual data collection reports of RCW activity in the WMA to the USFWS for two years.
- (4) In any event, NCDOT will provide funding of no more than a total of One Million Dollars (\$1,000,000.00) for ground monitoring and translocation efforts.

Amendment or modification of this Memorandum of Agreement may be proposed at any time but will not be adopted unless agreed to by all parties in writing.

IN WITNESS WHEREOF, the parties hereto have caused this Memorandum of Understanding to be executed as of the date below last written.

STATE OF NORTH CAROLINA,
acting through the DEPARTMENT OF TRANSPORTATION

By:  _____

Date: 12-12-17

Its: _____, Duly Authorized.

**UNITED STATES OF AMERICA,
acting through the U. S FISH AND WILDLIFE SERVICE**

By:  _____

Date: 12.4.17

Its: _____, Duly Authorized.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.
2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

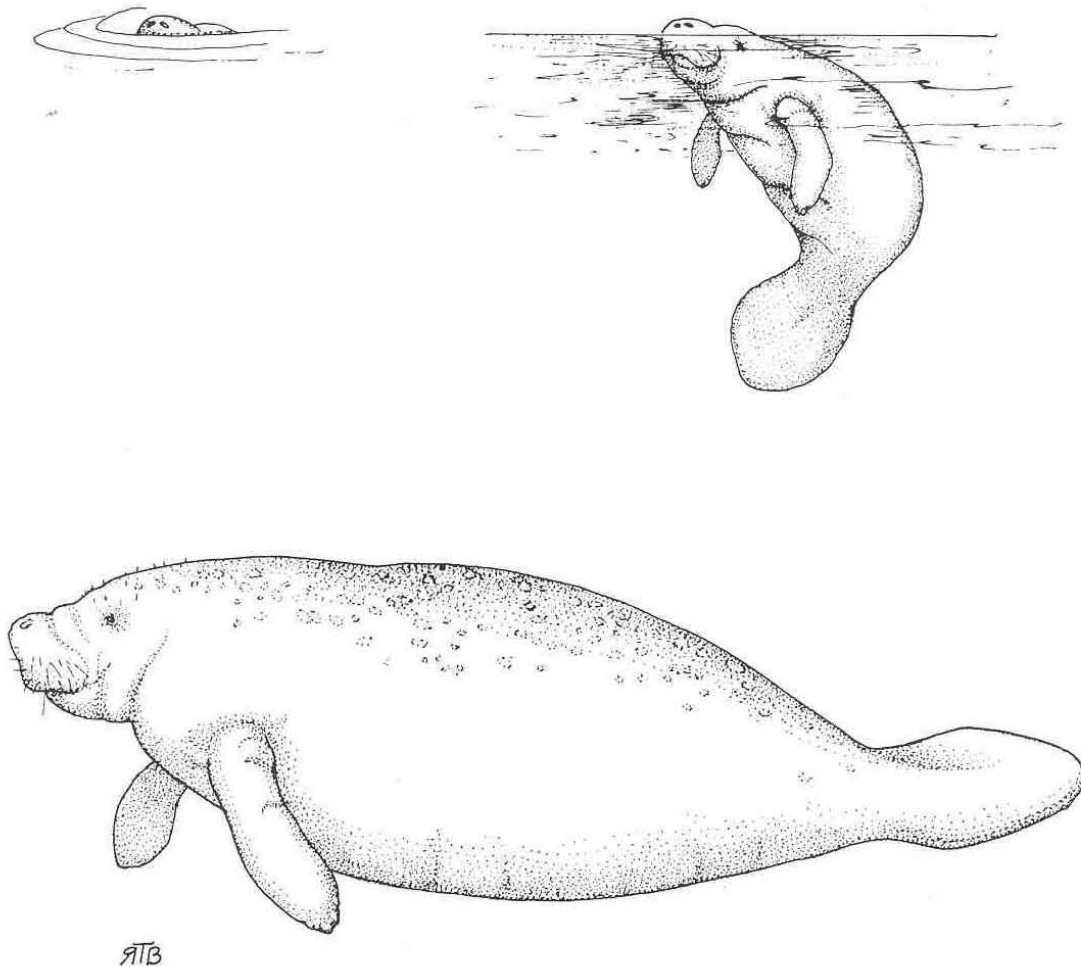


Illustration used with the permission of the North Carolina State Museum of Natural Sciences.
Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

From: Fritz Rohde - NOAA Federal <fritz.rohde@noaa.gov>
Sent: Thursday, January 7, 2021 3:30 PM
To: Cashin, Gordon E <gcashin@ncdot.gov>
Subject: [External] Re: US 64 bridge over Alligator River, Dare and Tyrell Counties

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [Report Spam](#).

Hi Gordon:

I sure am getting tired of working out of my tiny apartment in Morehead City! 😊

Nothing has changed regarding the sturgeon occurrence or rather lack of in that river.. Still MANLAA

Take care
Fritz

On Thu, Jan 7, 2021 at 3:26 PM Cashin, Gordon E <gcashin@ncdot.gov> wrote:

Fritz,

As you know, this bridge was part of a large widening project on US 64 from Columbia to Mann's Harbor, TIP R-2544 & R-2545. NCDOT has revised plans to replace just the bridge. We are getting ready to start updating the natural resource information within a much smaller study area around the LEDPA from the project EIS. The goal is to complete a CE for just the bridge replacement.

Coordination took place with yourself and St. Petersburg regarding both sturgeon species in the 2012-2014 timeframe. I believe things were left at MANLAA, due to Alligator River not being critical habitat, and there not being any known occurrences of either species near the project. Is there any updated information about sturgeon in the area? Can you think of anything else we need to be thinking about as we get this ball rolling again?

I don't have ready access to all our documents working from home, but can dig them up if you need anything.

I hope you are keeping well in these crazy times,

Gordon Cashin



June 7, 2021

Mr. Tyler Stanton
North Carolina Department of Transportation
1020 Birch Ridge Drive Raleigh, NC 27610

Re: **HB-0001 – US 64 Replacement of Bridge Number 7 over Alligator River - Submerged Aquatic Vegetation Survey Findings Report May 2021**

Dear Mr. Stanton,

RK&K is pleased to provide you with this findings-report from the submerged aquatic vegetation (SAV) survey for the HB-0001 bridge project for May 2021. Biologists assessed the study area on May 26, 2021.

Project Area Description

The proposed bridge project is located over the Alligator River at the Tyrrell (west) and Dare (east) county boundary. The proposed bridge project study area spans 4.83 miles. The SAV study area spans the open water and is approx. 3.17 miles long and 500 feet wide (Figure 1). Throughout the project study area, water depths range from the shoreline (0 foot) to approximately -10 feet mean lower low water (MLLW). The substrate within the project area consists of sand and hard bottom. The west side area immediately adjacent to the shoreline had 90%+ coverage of root mass, stumps, logs, and debris. This area was assessed; however, habitat was very limited. The east side had large open areas of sandy/hard bottom substrate with scattered root mass, stumps, logs, and debris.

Project Methodology

A survey to determine presents or absence of sub-aquatic vegetation (SAV) was performed within the SAV study area beginning at the shoreline and extending out to -6 feet mean lower low water (MLLW) levels. This survey was performed utilizing marine sonar imaging and side-scan technology along with snorkeling and tactile methods. The in-water survey time consisted of 6 man hours.

Pre-fieldwork assessment of the North Carolina Department of Environmental Quality SAV data layer (1981-2015) and the National Oceanic and Atmospheric Administration Estuarine Benthic Cover GIS data layer was used to determine potential locations of SAV beds. No historical data recorded within the SAV study area (Figure 3).

Project Results

No live and/or rooted SAV was located within the project study area. Dead SAV was observed floating on the water surface and washed ashore. In consideration of local SAV presence, potentially within 1-mile of the project area, it is recommended that future surveys be conducted.

Please let us know if you have any questions concerning our findings. We appreciate the opportunity to provide you with these services.

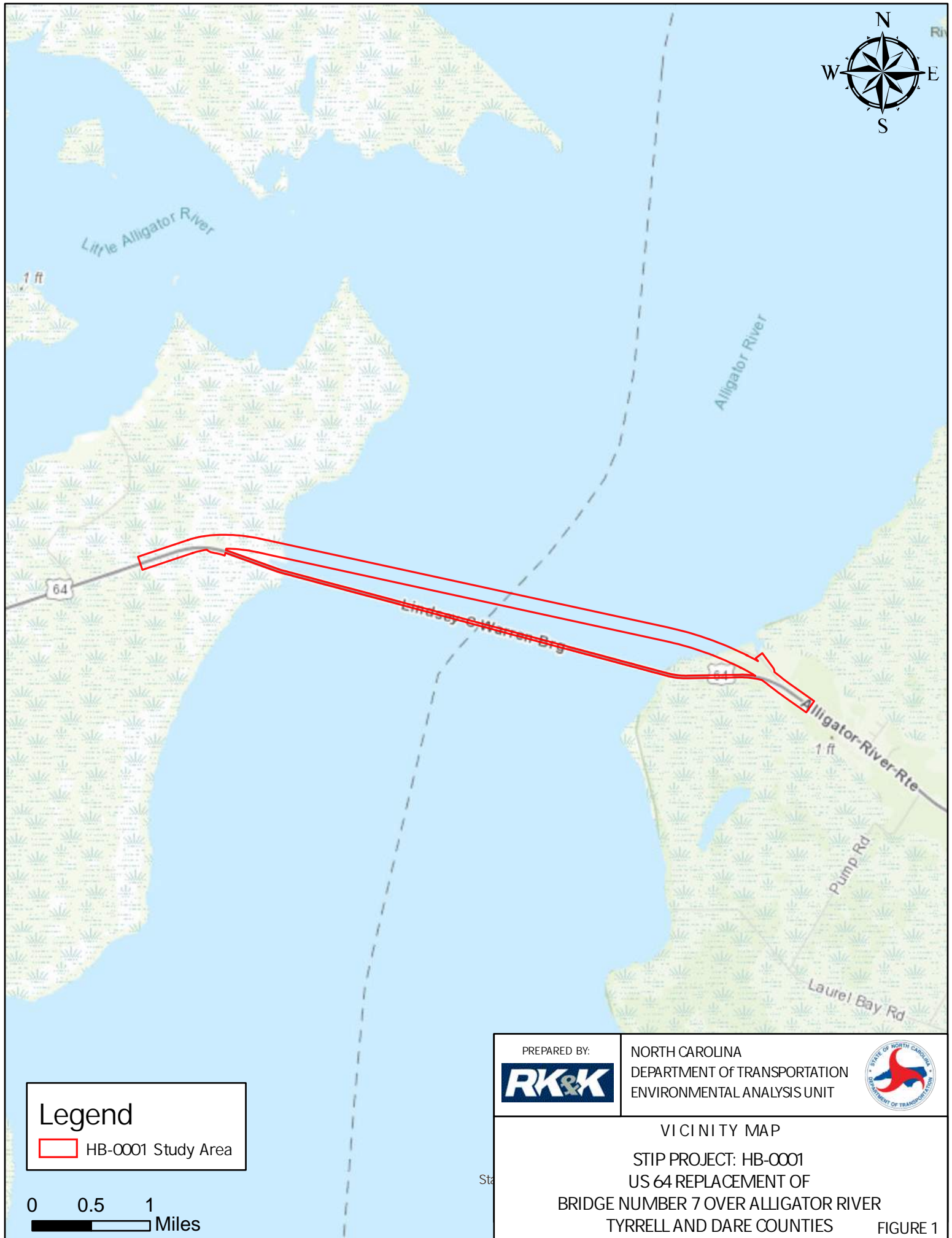
Sincerely,



Pete Stafford, PWS

¹National Oceanic and Atmospheric Administration. *Estuarine Benthic Cover GIS Data Layer, NC90*.

Estuarine Aquatic Bed, Submersed Rooted Vasculars (SRV), Beaufort Marine Lab. 2012-2014

²North Carolina Department of Environmental Quality. *Submerged Aquatic Vegetation, GIS Data Layer*. Albemarle-Pamlico National Estuary Partnership (APNEP), Raleigh, NC. 2015



<p>PREPARED BY:</p> 	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL ANALYSIS UNIT</p>	
<p>VICINITY MAP</p> <p>STIP PROJECT: HB-0001</p> <p>US 64 REPLACEMENT OF</p> <p>BRIDGE NUMBER 7 OVER ALLIGATOR RIVER</p> <p>TYRRELL AND DARE COUNTIES</p> <p>FIGURE 1</p>		

1 inch equals 1 miles

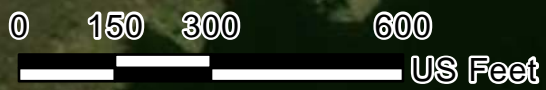


SAV Not Observed May 2021 Survey



Lindsey C Warren Bridge

Legend
HB-0001 Study Area



1 inch equals 300 feet



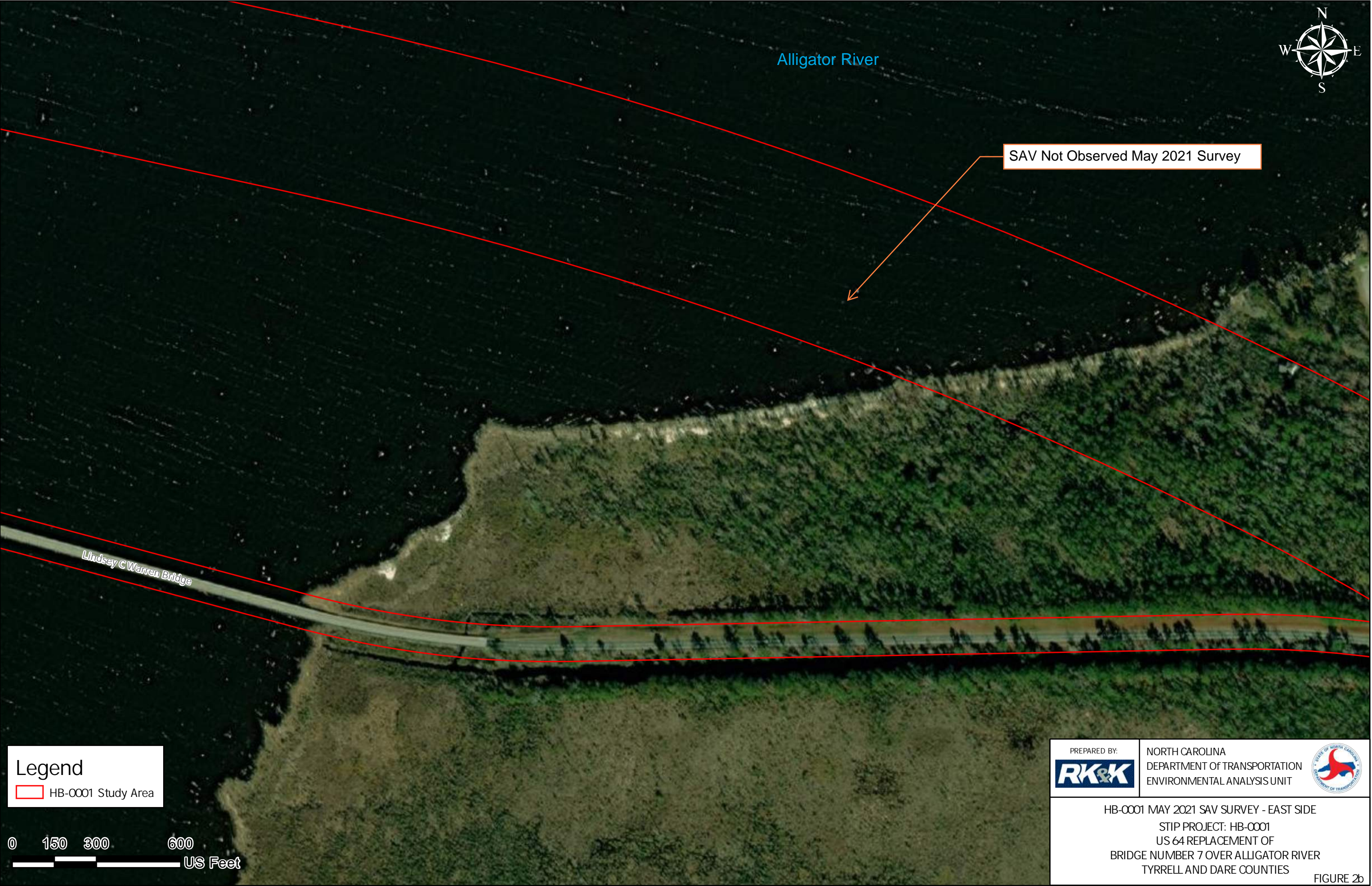
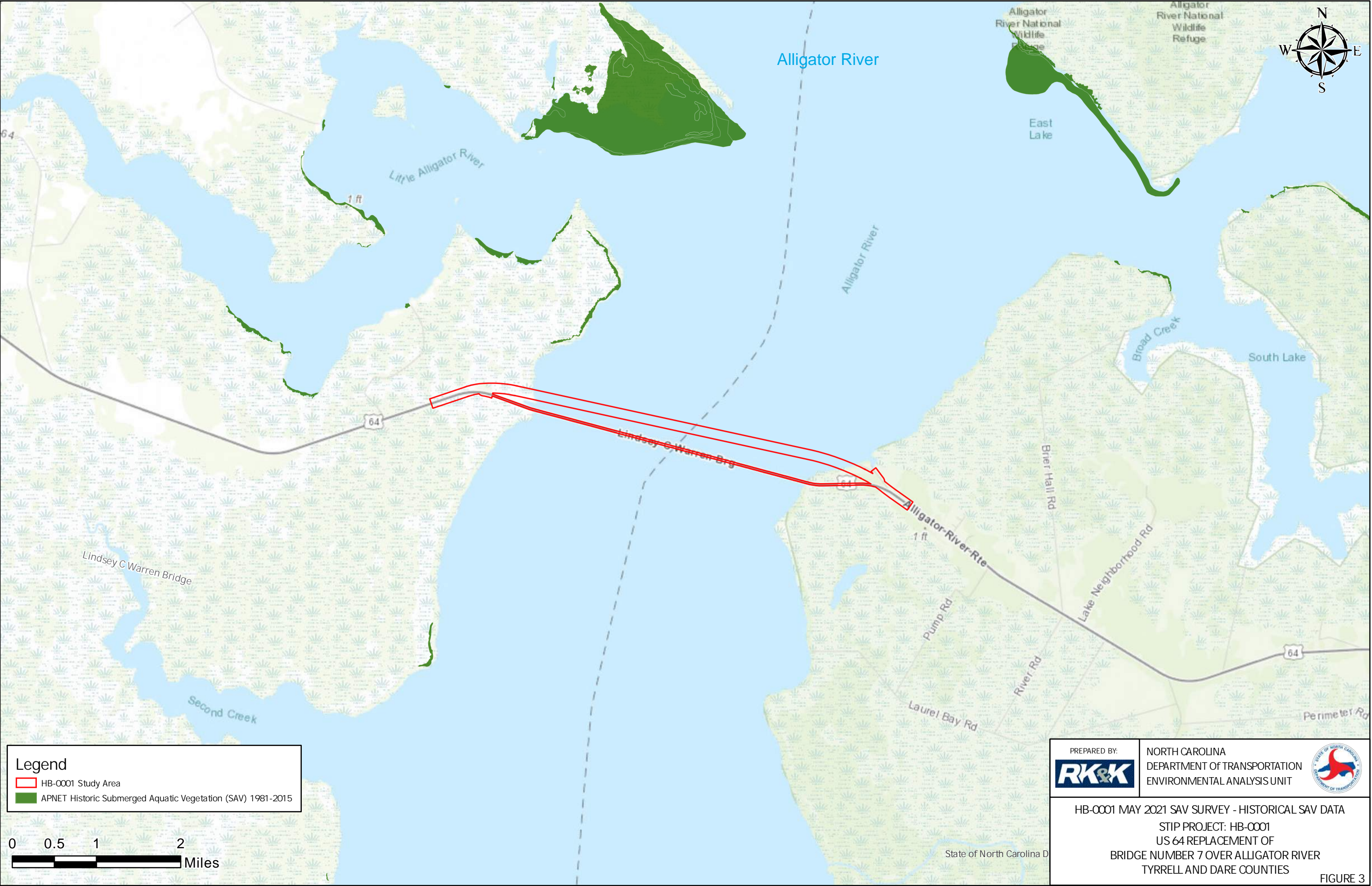
 PREPARED BY:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL ANALYSIS UNIT 
	HB-0001 MAY 2021 SAV SURVEY - WEST SIDE STIP PROJECT: HB-0001 US 64 REPLACEMENT OF BRIDGE NUMBER 7 OVER ALLIGATOR RIVER TYRRELL AND DARE COUNTIES

FIGURE 2A





Legend

HB-0001 Study Area

APNET Historic Submerged Aquatic Vegetation (SAV) 1981-2015



1 inch equals 5,280 feet

PREPARED BY:

RK&K

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT

HB-0001 MAY 2021 SAV SURVEY - HISTORICAL SAV DATA

STIP PROJECT: HB-0001

US 64 REPLACEMENT OF

BRIDGE NUMBER 7 OVER ALLIGATOR RIVER

TYRRELL AND DARE COUNTIES

FIGURE 3

**MEMORANDUM OF AGREEMENT
AMONG THE FEDERAL HIGHWAY ADMINISTRATION,
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
AND
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR
REPLACEMENT OF TYRRELL COUNTY BRIDGE NO. 7 ON US 64
OVER THE ALLIGATOR RIVER IN TYRRELL AND DARE COUNTIES
NORTH CAROLINA
NCDOT TIP HB-0001
FEDERAL AID PROJECT No. NHPB-0001(156)**

WHEREAS, the Federal Highway Administration (FHWA) has determined that Transportation Improvement Project HB-0001 - the replacement of the structurally deficient, two-lane Tyrrell County Bridge No. 7/Lindsey C. Warren Bridge on US 64 over the Alligator River in Tyrrell and Dare Counties (the Undertaking) will have an adverse effect upon Bridge No. 7, a swing-span bridge determined eligible for listing in the National Register of Historic Places (NRHP) (historic property); and

WHEREAS, the FHWA has consulted with the North Carolina State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the U.S. Army Corps of Engineers (USACE) entered into a Memorandum of Agreement (MOA) with the SHPO and North Carolina Department of Transportation (NCDOT) on June 2, 2016, for the Proposed Widening of US 64 from 0.9 Miles East of Columbia to US 64 near Manns Harbor (R-2544/R-2545) and Replacement of Bridge No. 7 (HB-0001) in Tyrrell and Dare Counties; and

WHEREAS, since the signing of the 2016 MOA, NCDOT has decided to only proceed with HB-0001; and

WHEREAS, the funding for the Undertaking has changed from state to federal, making FHWA the lead federal agency; and

WHEREAS, NCDOT has participated in the consultation and been invited by FHWA and the SHPO to be a signatory to this MOA; and

WHEREAS, FHWA has notified the Advisory Council on Historic Preservation (Council) of the adverse effect and the Council has declined to comment or participate in the consultation,

NOW, THEREFORE, FHWA, NCDOT, and the North Carolina SHPO, agree that the Undertaking shall be implemented in accordance with the following stipulations to take into account the effects of the Undertaking on the historic property.

STIPULATIONS

The FHWA and NCDOT will ensure that the following measures are carried out:

I. Photographic Recordation

Prior to the initiation of construction, NCDOT will record the existing conditions of the Tyrrell County Bridge No. 7/Lindsey C. Warren Bridge in accordance with the attached Historic Structures and Landscape Recordation Plan (Appendix A). The SHPO will have ten (10) days in which to comment on the adequacy of the recordation. If the SHPO does not respond within the ten (10) days, the documentation will be considered acceptable. Copies of the documentation will be deposited in the files of the North Carolina Historic Preservation Office (NCHPO) and NCDOT's Historic Architecture Group.

II. Design of Replacement Structure and Decorative Panels

NCDOT will ensure the following elements are incorporated into the design and construction of the new bridge:

1. Two-bar metal rail.
2. Four stand-alone, decorative panels and their support structures, placed within the bridge approaches at the four corners of the bridge and behind the guardrail, the specifications for these are as follows:
 - a. Each panel shall be no smaller than the four feet by five feet.
 - b. The panels shall be made of stainless steel or other material that is easily maintained and durable.
 - c. The panels shall be traffic-facing.
 - d. Each panel shall feature a unique artistic rendering of the animals found in the Alligator River Wildlife Refuge or surrounding area for which NCDOT has taken or will take extra measures to protect them and/or their habitat.
 - e. The design, materials, and installation of the panels and support structures will be in keeping with NCDOT's current public art policy.
 - f. The NCDOT Project Manager will coordinate with HPO and the USFWS's Alligator River National Wildlife Refuge on the artwork for the panels.
 - g. Draft artwork, renderings, and plans shall be reviewed and agreed upon by the signatories prior to approval of the final panel artwork, manufacture, and installation of the panels.

III. Unanticipated Discoveries

- A. In accordance with 36 CFR 800.11(a), if NCDOT identifies additional cultural resource(s) during construction and determines them to be eligible for the NRHP, all work shall halt within the limits of the NRHP-eligible resource(s) and the FHWA and North Carolina SHPO contacted. If after consultation with the Signatories additional mitigation is determined necessary, the NCDOT, in consultation with the Signatories, will develop and implement appropriate protection/mitigation measures for the resource(s).

- B. Inadvertent or accidental discovery of human remains will be handled in accordance with North Carolina General Statutes 65 and 70.

IV. Dispute Resolution

Should any of the Parties to this Agreement object within (30) days to any plans or documentation provided for review pursuant to this MOA, the FHWA shall consult with the objecting party(ies) to resolve the objection. If the FHWA or the objecting party(ies) determines that the objection cannot be resolved, the FHWA will forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

1. Provide the FHWA with recommendations, which the FHWA will take into account in reaching a final decision regarding the dispute, or
2. Notify the FHWA that it will comment pursuant to 36 CFR Section 800.7(c) and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the FHWA in accordance with 36 CFR Section 800.7(c)(4) with reference to the subject of the dispute.

Any recommendations or comments provided by the Council will be understood to pertain only to the subject of the dispute; the FHWA's responsibility to carry out all the actions under this agreement that are not the subject of the dispute will remain unchanged.

V. Amendments

Should any of the Signatories to this MOA believe that its terms cannot be carried out or that an amendment to the terms must be made, that party(ies) shall immediately consult with the other party(ies) to develop amendments in accordance with 36 CFR 800.6(c)(7). If an amendment cannot be agreed upon, the dispute resolution process set forth in Stipulation IV will be followed.

VI. Termination

Any of the Signatories may terminate the MOA by providing notice to the other parties, provided that the parties consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

Termination of this MOA will require compliance with 36 CFR 800. This MOA may be terminated by the execution of a subsequent MOA that explicitly terminates or supersedes its terms.

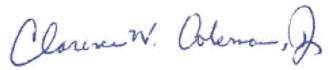
VII. Duration

Unless terminated pursuant to Stipulation VI above, this MOA will be in effect until FHWA, in consultation with the other Signatories, determines that all its terms have satisfactorily been fulfilled or if NCDOT is unable or decides not to construct the Undertaking.

Execution of this MOA by FHWA, NCDOT, and the North Carolina SHPO, its subsequent filing with the Council and implementation of its terms is evidence that FHWA has afforded the Council an opportunity to comment on the Undertaking, and that FHWA has taken into account the effects of the Undertaking on the historic property.

AGREE:


Federal Highway Administration

By: 
for John F. Sullivan III, P.E.
Division Administrator

Date: 8/31/2021

AGREE:

North Carolina State Historic Preservation Officer

By: 

Ramona Bartos
Deputy State Historic Preservation Officer

Date: 8/30/2021

AGREE:

North Carolina Department of Transportation

DocuSigned by:
By: Philip S. Harris III
314FEEDB31996479...
Phillip S. Harris, P.E.
Environment Analysis Unit Head
North Carolina Department of Transportation

Date: 8/31/2021

FILED:

By: _____
Advisory Council on Historic Preservation

Date: _____

APPENDIX A

Historic Structures and Landscape Recordation Plan For The Replacement of Tyrrell County Bridge No. 7 Tyrrell County North Carolina NCDOT TIP HB-0001

Photographic Requirements

- Representative pictures of the Tyrrell County Bridge No. 7/ Lindsay Warren Bridge including elevation and oblique views of the swing span, mechanics of the wingspan, and the controller booth.
- Drone photographs showing the bridge within its setting and details of the swing span, its mechanics, and operator's booth seen from above the river, itself.

Photographic Format

- Color digital images (all views) shot with a SLR digital camera with a minimum resolution of 6 megabyte pixels, at a high quality (preferably RAW) setting, to be saved in TIF format as the archival masters and labeled according to the State Historic Preservation Office standards.
- Drone photographic standards if different from above
- File names for each image should follow the format:
SS#_ResourceName_DateofPhoto_InitialsofPhotog-FrameNo.tif.
- Printed inventory (photolog) of the images should be provided as a table with the file name and description for each image – including subject, location, date, and photographer information for each image.
- Contact sheets should be printed on premium quality, bright white paper (24lb) or photo paper with a maximum of nine images per sheet. The back of the contact sheet should have the following information written in archival black ink.

NCDOT TIP#

NCHPO ER#

NCDOT Photorecordation for MOA

Survey Site Number and Name of Property

Road Name

Vicinity or Town

County

Photographer's Name and Date of Photography

- A labeled map with a key to the shots and photographs should be included in the documentation.
- The individual images, photolog, and map should be saved electronically on compact disc labeled similar to the contact sheets.

Copies and Curation

- One (1) set of all above mentioned photographic documentation, including the compact disc of labeled images, will be deposited with the North Carolina Office of

Archives and History/Historic Preservation Office to be made a permanent part of the statewide survey and iconographic collection.

- One (1) set of contact sheets shall be deposited in the files of the NCDOT's Historic Architecture Group.

**Onsite Wetland Mitigation Plan
Replacement of Alligator River Bridge
Tyrell/Dare Counties
TIP HB-0001
WBS No. 49475.1.1
June 16, 2023**

1.0 BASELINE INFORMATION

The North Carolina Department of Transportation (NCDOT) proposes to replace the 2.83-mile-long Lindsay C. Warren bridge number 7 on U.S.64 over the Alligator River in Tyrrell and Dare Counties (TIP Project HB-0001). The bridge replacement will replace the existing swing-span bridge with a modern two-lane, fixed span, high-rise bridge on new location just north of the existing bridge (Figure 1). HB-0001 will span approximately 4.6 miles in length.

HB-0001 is located within the Pasquotank River basin, Hydrologic Unit 03010205, the coastal plain physiographic region of North Carolina. The topography within the project vicinity is flat to very gently sloping, with level floodplains along the Alligator River. Elevations within the study area range from 0ft to 10ft above sea level, and areas near the shoreline of Alligator River are subject to lunar and wind tides. Land use in the project vicinity consists primarily of vast wetlands associated with the Alligator River National Wildlife Refuge and other conservation properties, along with a few residential homes near US 64 and water access facilities for recreational and commercial uses.

Within the study area of HB-0001, only one drainage canal and two types of jurisdictional wetlands were identified. The chosen alternative for this project will permanently impact 0.050 acres of Coastal Marsh wetlands along with 10.73 acres of Riparian Wetlands.

2.0 SITE SELECTION

HB-0001 was reviewed for potential onsite wetland restoration along portions of the existing causeway of US 64 which will be abandoned. On the west side of the Alligator River, approximately 0.15 miles (0.75 acres) of existing causeway will be abandoned (Figure 2a). On the east side, approximately 0.70 miles (7.50 acres) will be abandoned (Figure 2b). Once closed to traffic, causeway fill material can be removed, and the corridor returned to the natural elevations of the adjacent wetlands.

Extensive wetlands occur throughout the existing US 64 corridor outside of NCDOT Right-of-Way. Natural wetland communities tend to occur as gradual gradients between Tidal Freshwater Marsh near the shoreline of Alligator River and Riverine Swamp Forest farther from the shoreline. Tidal Freshwater Marsh communities are more frequently subjected to tidal flooding and are vegetated with tall grasses and herbs such as black needlerush (*Juncus roemerianus*), sawgrass (*Cladium mariscoides*), smooth rush (*Juncus effusus*), cattail (*Typha latifolia*), and phragmites (*Phragmites australis*), with a few scattered woody stems. These communities

transition gradually to Riverine Swamp Forest with increasing woody stem height and density, as flooding frequency diminishes. Riverine Swamp Forest communities are dominated by trees and shrubs, such as pond pine (*Pinus serotina*), loblolly pine (*Pinus taeda*), red maple (*Acer rubrum*), willow oak (*Quercus phellos*), sweetbay magnolia (*Magnolia virginiana*), and wax myrtle (*Morella cerifera*).

NCDOT is proposing to restore this natural wetland community gradient by removing the existing causeway on abandoned portions of US 64 to match the elevations of the adjacent wetlands. The existing natural wetlands adjacent to the fill slopes ranged in elevation from approximately 0-1 feet above mean sea level, with the Tidal Freshwater Marshes tending to occur at the lower end of this gradient (up to approximately 0.75 feet msl) and the Riverine Swamp Forests occurring at the upper end of the wetland elevation gradient. The existing causeway elevation of US 64 ranges from approximately 2-3 feet above mean sea level, which will necessitate the removal of approximately 35,000 cubic yards of material. Determination of the final target elevations of the wetland communities and the quantities of fill material to be removed will be calculated during the design phase, once detailed elevation surveys are completed.

3.0 SITE PROTECTION INSTRUMENT

The proposed mitigation site is located within the current NCDOT Right-of-Way for US 64. After US 64 is realigned for HB-0001, abandoned portions of the US 64 corridor will be blocked from continued transportation use. While under NCDOT ownership, NCDOT will manage the site to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan. Several permit agencies (NCDOT, USACE, NCDWR) have recommended that the eastern portion of the proposed mitigation site be transferred to the adjacent Alligator River National Wildlife Refuge after close-out. NCDOT will pursue this option following site close-out, assuming that USFWS is amenable and that there are no legal impediments to transfer. Proposed causeway removal on the western side of HB-0001 is adjacent to private property. NCDOT will be required to protect the mitigation site in perpetuity by virtue of the HB-0001 permit authorizing impacts to jurisdictional wetlands. Therefore, should NCDOT transfer the mitigation site to a third-party recipient, protection measures will be enacted to guarantee that the site's wetland functions and values are maintained.

The site is designated on the plan sheets as a mitigation area and will be placed on the Environmental Analysis Unit Mitigation GeoDatabase. This database is provided to all NCDOT personnel as a record of mitigation sites and their attributes, including location and prohibited activities.

4.0 OBJECTIVES

The goal of this mitigation project is to remove approximately 35,000 cubic yards of fill material from portions of the existing US 64 corridor to restore Tidal Freshwater Marsh and Riverine

Swamp Forest wetlands. Preliminary estimates indicate that approximately 0.50 acres of Tidal Freshwater Marsh wetland and 7.75 acres of Riverine Swamp Forest wetlands can be restored, though precise natural community boundaries may be difficult to define given the gradual hydrologic transition which characterizes the area. Final quantities and determination of restored area will be refined during project design, monitoring, and close-out. Overall, removing fill material from the existing causeways will allow NCDOT to offset approximately 8.25 acres of the wetland impacts associated with HB-0001 at the actual impact site. Once construction for the new bridge has been completed, traffic will be removed from the existing highway, the fill material will be graded down to the target wetland elevation, and the site will be planted with native species representative of the natural wetland community. Restored wetland community gradients will be reflective of the impact areas of HB-0001 and the adjacent wetlands outside of the ROW.

5.0 MITIGATION WORK PLAN

The restoration site will be constructed in conjunction with TIP HB-0001, once the bridge is completed and traffic diverted to the new facility. The designated restoration areas along the abandoned US 64 corridor will be graded to match target elevations of the adjacent wetland communities. As such, target elevations for the restoration area will exhibit a gradual elevation gradient from lower sections near Alligator River to higher sections farther away. Final target elevations for excavation will be determined during the design phase. In addition, the NCDOT Geotechnical Unit will perform borings to determine the characteristics of the substrate material at the proposed target elevations. If it is determined that the subsurface material at this elevation is inappropriate for planting, additional grading may be necessary to undercut the restoration area and backfill with suitable topsoil to the target elevation of the adjacent wetland communities. If needed, NCDOT will coordinate any proposed undercutting with the permit agencies during the design phase of the proposed mitigation project.

Areas targeted for Tidal Freshwater Marsh wetlands based on adjacent natural community vegetation will be planted on 3 ft. centers with marsh grass plugs at a density of 4,840 plants per acre. Species planted will be black needle rush (*Juncus roemerianus*), smooth cord grass (*Spartina alterniflora*), and salt meadow cordgrass (*Spartina patens*), depending upon availability.

Areas targeted for Riverine Swamp Forest wetlands will be planted 6 feet to 10 feet with random spacing averaging 8 feet on center. Approximately 680 trees per acre will be planted. Species planted will include (based on availability) pond pine (*Pinus serotina*), bald cypress (*Taxodium distichum*), pond cypress (*Taxodium ascendens*), overcup oak (*Quercus lyrata*), swamp black gum (*Nyssa biflora*), and water tupelo (*Nyssa aquatica*).

Invasive phragmites is present in wetland communities outside of NCDOT Right-of-Way and may encroach on the mitigation site following construction. NCDOT will attempt to control phragmites during the monitoring period to limit its prevalence on the site and to enhance the survival of planted target species. However, complete control of phragmites is likely to be unrealistic during the monitoring period and especially after close-out.

6.0 PERFORMANCE STANDARDS

The vegetation component of the Tidal Freshwater Marsh wetlands will be deemed successful if the following criteria are met:

- 1) At year five, the average of all vegetative monitoring plots should have a scale value of 5 (>75% vegetative cover) consisting of wetland herbaceous species, not including any invasive species.
- 2) A minimum of 70% of the plots shall contain the target (planted) species.

The vegetation component of the Riverine Swamp Forest wetlands will be deemed successful based on the survival rate of planted seedlings. A 320 stems per acre survival criterion for planted seedlings will be used to determine success for the first three years. The required survival criterion will decrease by 10% each year after the third year of vegetation monitoring (i.e. for an expected 290 stems per acre for year 4 and 260 stems per acre for year 5).

7.0 MONITORING REQUIREMENTS

7.1 Tidal Freshwater Marsh Monitoring

The monitoring requirements for the Tidal Freshwater Marsh portions of the restoration site will follow the National Marine Fisheries Service guidance, which is as follows:

Target elevations will be verified during construction to ensure the restoration area achieves the same hydrologic regime as the adjacent Tidal Freshwater Marsh wetlands. The quantitative marsh vegetation monitoring will be accomplished in accordance with the draft guidelines for “Site Monitoring Surveys for Emergent Marsh Mitigation”, established by the National Marine Fisheries Service, through the evaluation of randomly distributed 1 square meter plots located by GPS within the site.

NCDOT will perform the monitoring described above for five years or until the site is deemed successful.

7.2 Riverine Swamp Forest Monitoring

The monitoring requirements of the Riverine Swamp Forest portions of the restoration site will be as follows:

Target elevations will be verified during construction to ensure that the restoration area achieves the same hydrologic regime as the adjacent Riverine Swamp Forest. The quantitative forest

vegetation monitoring will be accomplished utilizing fifty feet by fifty feet (50' x 50') monitoring plots that will be established upon completion of the site grading and planting.

NCDOT will monitor the site for a minimum of five years or until the site is deemed successful.

8.0 OTHER INFORMATION

N/A

9.0 DETERMINATION OF CREDITS

NCDOT is proposing to offset approximately 8.25 acres of wetland impacts with coastal marsh/riparian wetland restoration as mitigation for some of the permanent wetland impacts associated with HB-0001. Final credit quantities will be refined through the design, monitoring, and close-out phases of the project. An as-built report will be submitted within 60 days of completion of the project. The final determination of amount of mitigation will be based upon successful completion of the monitoring requirements and meeting of the performance standards.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed wetland restoration credits as on-site mitigation for some wetland impacts associated with HB-0001. Final credit quantities will be approved at project close-out.

10.0 GEOGRAPHIC SERVICE AREA

NCDOT proposes to use the restoration credits exclusively as onsite wetland mitigation for HB-0001.

11.0 MAINTENANCE PLAN

Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

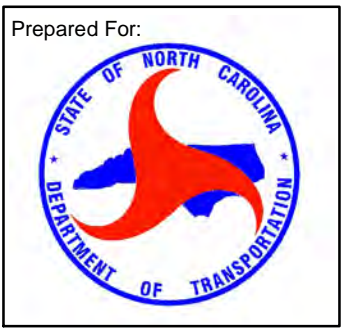
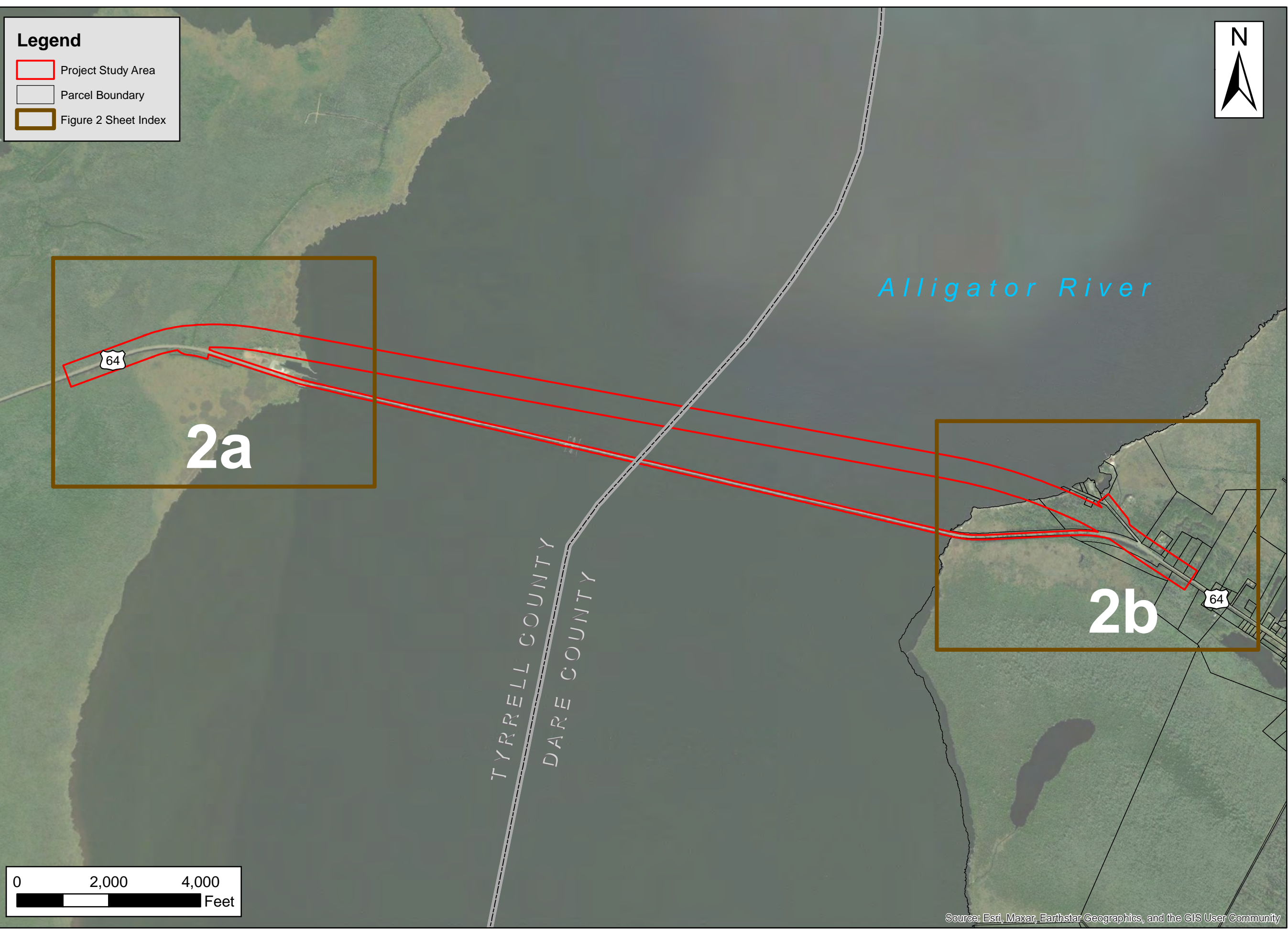
If an appropriate third-party recipient (i.e. Alligator River National Wildlife Refuge) is identified in the future, then transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The restoration area will be managed by the NCDOT and protected from impacts according to the mitigation plan. Encroachments into the area will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management or mitigation value, a remediation plan will be developed by NCDOT in coordination with the permit review agencies.

13.0 FINANCIAL ASSURANCES

NCDOT is held by permit conditions associated with HB-0001 to preserve the coastal marsh/riparian wetland restoration area. NCDOT has established funds for each project and within each Division to monitor the mitigation site and to protect it in perpetuity.



**Replace U.S. 64
Tyrrell County Bridge
No. 7 over the
Alligator River.**

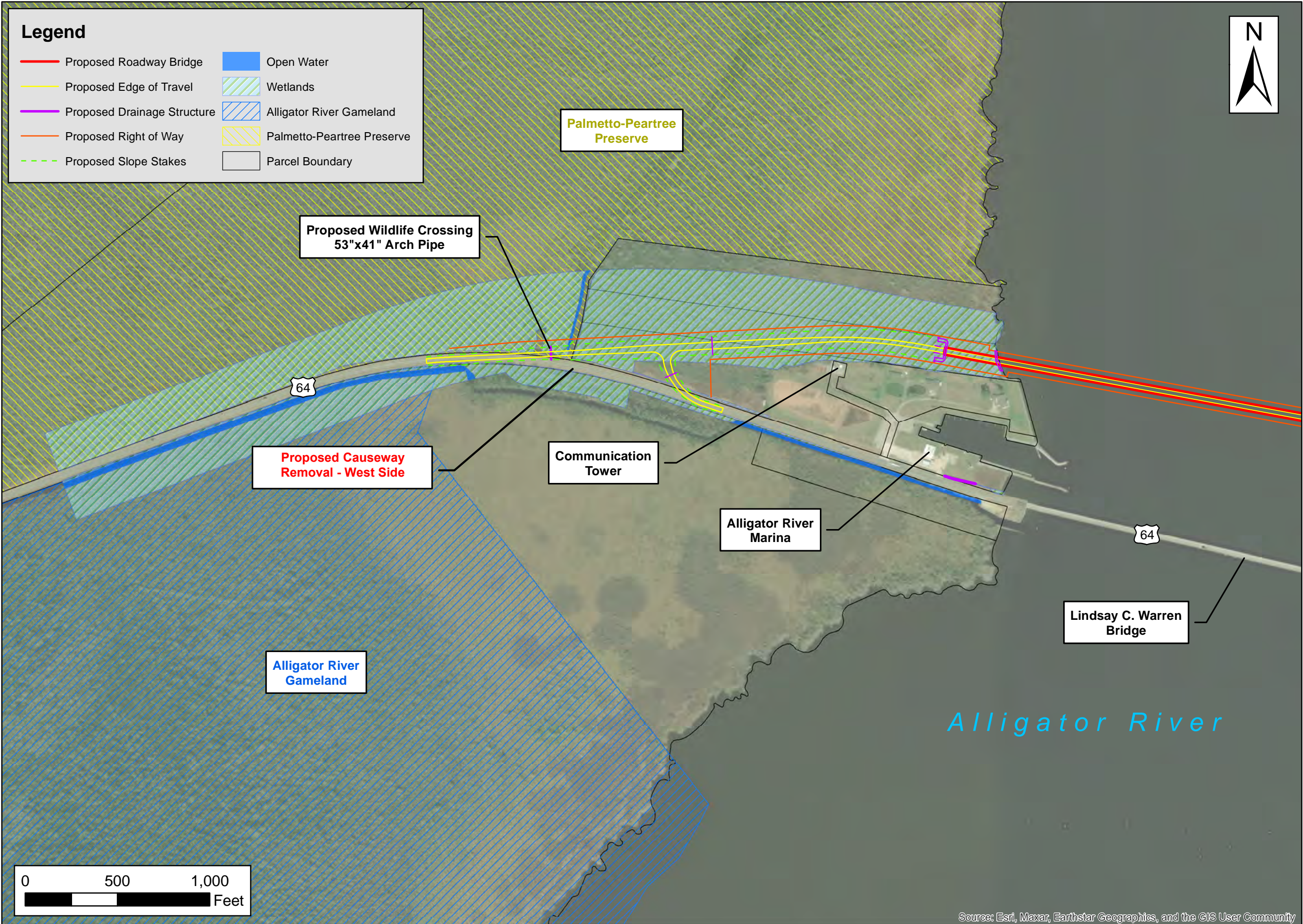
**HB-0001
Project
Design Map**

**Federal Aid No.
NHPB-0001(156)
WBS # 49475.1.1**

**Tyrrell & Dare
Counties**

Date:	February 2023
Scale:	As Shown
Job No.:	HB-0001
Drawn By:	Checked By:
CMR	JSM

**Figure
1**



Prepared For:



Replace U.S. 64
Tyrrell County Bridge
No. 7 over the
Alligator River.

HB-0001
Project
Design Map

Federal Aid No.
NHPB-0001(156)
WBS # 49475.1.1

Tyrrell County

Date: May 2023

Scale: As Shown

Job No.: HB-0001

Drawn By: CMR	Checked By: JSM
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Figure

2a



Alligator River

Legend

- | | |
|-----------------------------|--|
| Proposed Roadway Bridge | Open Water |
| Proposed Edge of Travel | Wetlands |
| Proposed Drainage Structure | Alligator River National Wildlife Refuge |
| Proposed Right of Way | Parcel Boundary |
| Proposed Slope Stakes | |

NCWRC Public Boat Access

Carleno Dr

Old Ferry Landing Rd

Alligator River National Wildlife Refuge

Lindsay C. Warren Bridge

64

Proposed Wildlife Crossing
53"x41" Arch Pipe

Proposed Causeway
Removal - East Side

Alligator River National Wildlife Refuge

64

Communication Tower

0 500 1,000 Feet

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Prepared For:



Replace U.S. 64
Tyrrell County Bridge
No. 7 over the
Alligator River.

HB-0001
Project
Design Map

Federal Aid No.
NHPB-0001(156)
WBS # 49475.1.1

Dare County

Date: May 2023

Scale: As Shown

Job No.: HB-0001

Drawn By: CMR	Checked By: JSM
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Figure

2b