



US Army Corps
Of Engineers
Wilmington District

PUBLIC NOTICE

Issue Date: March 12, 2018

Comment Deadline: April 12, 2018

Corps Action ID Number: SAW-2012-01153

The Wilmington District, Corps of Engineers (Corps) received an application from the North Carolina Department of Transportation (NCDOT), seeking Department of the Army (DA) authorization to permanently impact 0.42 acres of jurisdictional wetlands, temporarily impact 1.49 acres of jurisdictional wetlands, hand clear 0.46 acres of wetlands, permanently impact 0.11 acres of surface waters and temporarily impact 10.07 acres of surface waters. Additionally 2.57 acres of submerged aquatic vegetation (SAV) will be permanently impacted and 3.07 acres of SAV will be temporarily impacted associated with construction of TIP Project B-2500B Phase IIb the NC 12 Rodanthe Bridge Project north of Rodanthe, in Dare County, North Carolina. (NCDOT TIP No. B-2500B)

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at:

<http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx>

Applicant: North Carolina Department of Transportation (NCDOT)
Attn: Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head
NCDOT – Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina
27699-1548

Authority

The Corps evaluates this application and decides whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of the following Statutory Authorities:

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344)

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)

- ☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

Location

Directions to Site: The site location is a 2.8 mile long corridor on a new alignment starting within the Pea Island National Wildlife Refuge (Refuge) along NC 12 approximately 1.8 miles north of the town of Rodanthe. The new alignment will run south as a bridge over the Pamlico Sound for 2.46 miles before reconnecting with NC 12 at America Drive in the town of Rodanthe in Dare County, North Carolina.

Project Area (miles): 2.8

Nearest Town: Rodanthe

Nearest Waterway: Pamlico Sound

River Basin: Pasquotank

Latitude and Longitude: Approximate center at 35.618793 N, -75.648456 W



Figure 1

Existing Site Conditions

The project is located in the Pasquotank River Basin and lies within Hydrologic Unit 03010205 (Subbasin Pamlico Sound). This is within the Carolinian Barrier Islands and Coastal Marshes eco-region. The project crosses multiple wetlands and a portion of the Pamlico Sound. Land use in the project vicinity consists of National Wildlife Refuge, commercial property and residential property.

The Pamlico Sound is classified as SA waters (Market Shellfishing tidal salt waters) with a supplemental classification of HQW (High Quality Waters). Neither Water Supply (WS-I or WS-II) nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the Phase IIb study area. None of the waters within the Phase IIb corridor are designated as a North Carolina Natural or Scenic Rivers, National Wild and Scenic Rivers, or are listed as 303(d) for sedimentation or turbidity. Per the above HQW designation, NCDOT's Design Standards in Sensitive Watersheds will be implemented.

The wetland delineations within the study area were delineated based on the 1987 Corps Wetland Delineation Manual and the final JD also incorporated methodology from the Corps 2010 Atlantic and Gulf Coastal Plain Regional Supplement. The wetlands within the Rodanthe Bridge project corridor were re-verified by the Corps in November 2017. There are eight wetland community types mapped within the Rodanthe Bridge Project footprint ranging from brackish marsh to maritime shrub thicket. Wetlands closer to the Pamlico Sound are generally coastal marsh subject to CAMA, while most of the wetlands in the interior portion of the island are only subject to Section 404 regulations.

Due to the location and nature of the Rodanthe Bridge Project, open water is the predominant jurisdictional feature. Open water consists of either aquatic bottom (unconsolidated bottom, non- SAV) or SAV areas (aquatic bed). SAV habitat was mapped in detail in the June 2011 B-2500 (Phase I) SAV Survey. The attached permit drawings delineate those areas mapped in August 2017 within the Phase IIb corridor, which were updated from plans presented at a July 2017 meeting, and modified to account for impacts associated with pile jetting.

Applicant's Stated Purpose

B-2500 Phase IIb is a portion of Transportation Improvement Project (TIP) B-2500 to provide a new means of access from Bodie Island to Hatteras Island on NC 12 for residents, businesses, services and tourist. This phase provides a replacement crossing that takes into account the natural channel migration and shoreline movement on the barrier island that is expected through 2050.

Project Description

Phase IIb of the Project involves the construction of the Rodanthe Bridge in the Pamlico Sound and related approaches west of NC 12. The bridge will extend approximately

1,400 feet into Pamlico Sound at its farthest point. NC 12 will leave the existing NC 12 easement within the Pea Island National Wildlife Refuge (Refuge) boundary at a point approximately 1.8 mile north of the town of Rodanthe and enter Pamlico Sound. The bridge will be in the Pamlico Sound until a point north of the emergency ferry terminal, where it will turn east and enter Rodanthe. The road will then re-join existing NC 12 just north of the Liberty Service Station/Island Convenience Store at a newly constructed round-about. The bridge will have 107 spans and a low chord at 17' above mean high water.

This proposal has been evaluated by the Merger Process. This process merges the National Environmental Policy Act (NEPA) with the requirements of the Clean Water Act for large, complex transportation projects. The Merger Team is routinely comprised of various local, state, and federal agencies where topics such as Purpose and Need, Alternatives, and Avoidance/Minimization are discussed early in the development of the project. The Federal Highway Administration (FHWA) is the lead federal agency for this proposal.

Avoidance and Minimization

Final designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into documents that have been reviewed and approved by the resource agencies, and which will be followed throughout construction. All wetland areas and environmentally sensitive areas not affected by construction will be protected from unnecessary encroachment using tree protection fencing or an equivalent measure, and Design Standards for Sensitive Waters will be implemented for this project. Individual avoidance and minimization measures include the following:

Design Measures

- The final bridge substructure was redesigned such that a water-line footing was no longer required, thus reducing surface water impacts and potential SAV shading by 0.17 acre.
- Stormwater will be collected on both bridge approaches (107' southern end left, 239' southern end right, and 121' northern end right) and discharged away from jurisdictional features.
- Deck drains will be installed at variable distances throughout the entire length of the bridge, and will be located such that outlets will be 10 feet or more off the surface water.

Protected Species Measures

- A pre-construction lighting design coordination meeting to establish the parameters of the lighting set-up will be conducted with representatives of USFWS and NOAA prior to construction
- An educational night lighting meeting will be scheduled with USFWS and all contractors in order to minimize disturbance to sea turtles and other protected

species. Night lighting will meet the requirements specified in the attached USFWS Biological and Conference Opinions, unless otherwise specified by USFWS.

- On-site personnel will implement the “Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for North Carolina Waters.”
- On-site personnel will follow the NOAA Fisheries document “Sea Turtle and Smalltooth Sawfish Construction Conditions.”

Advancing Rail System

A specially designed advancing rail system that runs along both sides of the new bridge will be used for construction. The system will have an open grate to allow for sunlight to minimize shading impacts to SAV. Cranes will run along the rail system and be used for construction.

The rail system will be approximately 1,300 feet in length at each end. Each span of the rail system will be in place for approximately 4 months prior to being moved forward, which is what allows the rail system to be limited to the 1300’ length on each end. Impacts due to the pipe piles for the rail system will be limited as much as possible.

Construction Staging Measures

- On the southern end, staging of construction equipment or storage of construction supplies will occur within the lay-down yard as designated on the plans. This area was chosen due to its proximity to the roadway and minimizes impacts to the driving public.
- On the northern end, staging will occur in a parking area adjacent to NC 12 to minimize disturbance within the PINWR.
- The contractor will minimize traffic impacts to Seashore visitors, while also minimizing the footprint of personnel access (parking vehicles, etc.) by utilizing the staging areas, unopened bridge deck, and off-site parking lots.
- Lighting required at the staging areas will be coordinated along with other construction lighting to ensure no adverse effects to nesting sea turtles.
- Fueling stations will be contained to avoid inadvertent spills reaching surface waters. Any spills will be controlled and reported as applicable.

Jetting Measures

In order to minimize the effects of the jetting process for pile installation, the contractor will utilize primary and secondary containment systems to capture the jetting effluent. The primary and secondary containment systems will be used at bents 6 through 91 in the open water. A similar system will be used in wetlands and upland to capture the sediment prior to leaving the containment area. The setup may vary due to other constraints such as wetlands and shorelines. Further details of the jetting and containment area are provided in the attached Alternative Analysis of Pile Installation Methods.

- Jetting spoils will be contained within the primary containment area until access is available to remove via the bridge deck (approximately 8 months). Spoils will be transported from the containment area to a temporary stockpile at the bridge approaches for drying. The spoils will then be incorporated into the project or disposed of in accordance with standard NCDOT waste agreement protocol.

General Construction Measures

- NCDOT will carry out the stipulations in the Section 106 Programmatic Agreement that outlines mitigative measures pertaining to the Refuge.
- NCDOT has elected to use more hand clearing rather than mechanized clearing where feasible to minimize impacts to wetlands.
- To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the construction of Phase II will be available to the Corps on request.
- Sediment and erosion control measures shall adhere to the Design Standards in Sensitive Watersheds during construction.
- Special Sediment Control Fence and Environmentally-Sensitive Area fencing will be used where applicable.
- Once the new bridge is constructed and traffic can be directed over the bridge, the existing NC 12 within the Refuge will be removed. Road demolition material will be shipped to a designated third-party contractor for re-use in construction material.
- The Contractor will develop an Environmental Commitment Monitoring Plan that will provide an easily referenced guide of the project commitments that are particularly pertinent for construction personnel.

Compensatory Mitigation

The proposed construction of B-2500B (Phase IIb) will permanently impact 0.42 acre of 404 jurisdictional wetlands and <0.01 acre of CAMA wetlands requiring mitigation. Permanent impacts to SAV from installation of the bridge piers and primary containment areas total 2.57 acres. Temporary fill of SAV will total 3.07 acres and bridge shading will potentially affect 3.22 acres. The final extent and permanency of the temporary fill and shading to the SAV is unknown. As such, NCDOT has developed a Monitoring Plan for Determination of SAV Impact for Mitigation. A final decision on mitigation will be coordinated with the regulatory agencies as detailed in this plan.

Essential Fish Habitat

The project will impact Essential Fish Habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 et seq.). Those impacts will be addressed within the Monitoring Plan for Determination of SAV Impacts for Mitigation.

Cultural Resources

The potential effect of the proposed project on historic architectural resources was evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. As of June 10, 2009, Phase IIb was determined to have an Adverse Effect on the Pea Island National Wildlife Refuge (PINWR) as historic resources. NCDOT, along with FHWA, State Historic Preservation Office (SHPO), Advisory Council on Historic Preservation (ACHP), and other consulting parties, developed a Programmatic Agreement (PA) stipulating measures that FHWA will carry out during the design and construction phase. The final PA was signed by FHWA, SHPO, ACHP and NCDOT on November 15, 2010, and was included as Appendix D in the Record of Decision (ROD).

The remains of a large iron vessel (Pappy Lane Wreck) that is eligible for the National Register of Historic Places are in Pamlico Sound immediately west of Rodanthe. This site was documented in the 2008 FEIS on page 3-33 and its National Register-eligibility was affirmed by the Office of State Archaeology in an October 27, 2016 memorandum. The project crosses the southern limits of this site. The wreck does not warrant preservation in place. Therefore, FHWA and NCDOT developed a data recovery program, which was approved by SHPO, and has been completed.

Endangered Species

Pursuant to the Endangered Species Act of 1973, the Corps reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information:

- ☐ The Corps determines that the proposed project would not affect federally listed endangered or threatened species or their formally designated critical habitat for the following species in Martin County: Bald eagle and Atlantic sturgeon.
- ☒ The Corps determines that the proposed project may affect federally listed endangered or threatened species or their formally designated critical habitat for:

The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NOAA Fisheries) lists 14 federally protected species for Dare County as of the March 15, 2016 listing. The Atlantic sturgeon was listed by NOAA Fisheries effective April 6, 2012 (Table 5).

Table 5. Federally Protected Species in Dare County

Scientific Name	Common Name	Federal Status	Habitat Present	USFWS Biological Conclusion	NOAA Biological Conclusion
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	E	Yes	n/a	MANLAA
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic sturgeon (Carolina distinct population segment)	E	Yes	n/a	MANLAA
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	No	n/a	n/a
<i>Amaranthus pumilus</i>	Seabeach amaranth	T	Yes	MANLAA	n/a
<i>Calidris canutus rufa</i>	Red knot	T	Yes	MALAA	
<i>Canis rufus</i>	Red wolf	E (EXP)	No	No Effect	n/a
<i>Caretta caretta</i>	Loggerhead sea turtle	T	Yes	MALAA	MANLAA
<i>Charadrius melodus</i>	Piping plover	T	Yes	MALAA	n/a
<i>Chelonia mydas</i>	Green sea turtle	T	Yes	MALAA	MANLAA
<i>Dermochelys coriacea</i>	Leatherback sea turtle	E	Yes	MALAA	MANLAA
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	E	Yes	n/a	MANLAA
<i>Lepidochelys kempii</i>	Kemp's ridley sea turtle	E	Yes	n/a	MANLAA
<i>Myotis septentrionalis</i>	Northern long-eared bat	T	No	MALAA	n/a
<i>Picoides borealis</i>	Red-cockaded woodpecker	E	No	No Effect	n/a
<i>Sterna dougallii dougallii</i>	Roseate tern	T	Yes	MANLAA	n/a
<i>Trichechus manatus</i>	West Indian manatee	E	No	MANLAA	n/a

E= Endangered; T = Threatened; T(S/A) = Threatened (Similarity of Appearance); EXP = (Experimental Population); MANLAA= May Affect, Not Likely to Adversely Affect; MALAA = May Affect, Likely to Adversely Affect; n/a = Not Applicable.

In March 2008, a Biological Assessment with addendum was finalized. A Biological and Conference Opinion was issued July 10, 2008 by the USFWS for effects on piping plover, loggerhead sea turtle, green sea turtle, and leatherback sea turtle. Section 7 consultation was reinitiated with USFWS in December 2014 to account for the listing of the rufa red knot as a federally threatened species. USFWS issued an addendum to their July 2008 Biological Opinion in a letter dated February 9, 2015. It included a non-jeopardy opinion. NCDOT agreed to avoid disturbing foraging and roosting rufa red knots and avoid or minimize opportunities for avian predator perches, as previously agreed to for the piping plover.

Section 7 Consultation was tentatively resolved, pending the final design. FHWA is providing a Section 7 update memo to USFWS to close design Consultation. FHWA coordinated with NOAA Fisheries as documented in the FEIS, EA, and ROD with conservation measures adopted (see “Avoidance and Minimization” section) to mitigate any potential negative effects on aquatic species. Copies of the USFWS Biological and Conference Opinion and NOAA Fisheries concurrence letter are included with this application.

A review of the North Carolina Natural Heritage Program (NCNHP) database indicated 79 nesting occurrences of protected species within one mile of the Phase IIb study area: one nest of Leatherback sea turtle in 2012 (no location given) and 78 nests of Loggerhead sea turtles in 2014 on Hatteras Island from

south of Pea Island NWR to Hatteras Inlet. No other protected species have been recorded in the NCNHP database.

Protected species moratoria and protection measures required for Phase IIb are detailed below under “Protection Measures” and “Avoidance and Minimization”.

Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle (*Haliaeetus leucocephalus*) was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered Species. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Foraging habitat is present within the Phase IIb corridor. However, recent surveys found no nests within 660 feet of the Phase IIb corridor. Therefore, the project will have no effect on the bald eagle.

Protection Measures

Protection measures for several species have been recommended for B-2500 (Phase IIb) through the NEPA/Section 404 Merger process. These species include loggerhead sea turtle, green sea turtle, leatherback sea turtle, hawksbill sea turtle, smalltooth sawfish (*Pristis pectinata*), West Indian manatee, and piping plover.

NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the July 10, 2008 USFWS Biological and Conference Opinions. These terms and conditions are specific to the noted species with a MANLAA Biological Conclusion for this Project:

Piping Plover

- All construction equipment and personnel must avoid bird closure areas within the Cape Hatteras National Seashore.
- Signage used on the Project will utilize alternative designs that are less conducive for perching on by avian predators. The Project's signing will minimize and avoid the use of cantilever signs in favor of smaller and shorter designs.

Sea Turtles & Smalltooth Sawfish

- All construction equipment and personnel must avoid sea turtle nests and construction material and equipment staging areas must not be located seaward of the artificial dune.
- During the nesting season, use of the minimum number and lowest wattage lights that are necessary for construction. These lights must be the low-pressure sodium-vapor type or as otherwise required by USFWS.
- The USFWS will conduct a meeting to educate the contractor's managers, supervisors, foremen and other key personnel and resident NCDOT personnel

with oversight duties to the adverse effects of artificial lighting on nesting turtles and hatchlings and the importance of minimizing those effects. *(This meeting will be scheduled close to the commencement of construction.)*

- All conditions outlined in NOAA Fisheries' "Sea Turtle and Smalltooth Sawfish Construction Conditions" will be followed. In-water construction will cease if a protected species is sighted in the proximity of construction. This moratorium prohibits pile installation and removal and any activity associated with bridge construction and demolition when listed species are observed to be present. However, this moratorium does not restrict terrestrial activity. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported to NOAA Fisheries' Protected Resources Division (727-824-5312) and the Network for Endangered Sea Turtles (NEST) (252-441-8622).

West Indian Manatee

- All conditions outlined in the USFWS Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters will be adhered to. Equipment shut down will occur if a manatee is seen within 50 feet of the operational area of the equipment. Collision and/or injuries to a manatee will be reported immediately to USFWS (919-856-4520 ext. 16), NOAA Fisheries (252-728- 8762) and N.C. Wildlife Resources Commission (252-448-1546).
- If a manatee is seen during construction, the contractor will complete an entry into the Manatee Observer Log

- ☐ The Corps is not aware of the presence of species listed as threatened or endangered or their critical habitat formally designated pursuant to the Endangered Species Act of 1973 (ESA) within the project area. The Corps will make a final determination on the effects of the proposed project upon additional review of the project and completion of any necessary biological assessment and/or consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service.

Other Required Authorizations

The Corps forwards this notice and all applicable application materials to the appropriate State agencies for review.

North Carolina Division of Water Resources (NCDWR): The Corps will generally not make a final permit decision until the NCDWR issues, denies, or waives the state Certification as required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice, combined with the appropriate application fee, at the NCDWR Central Office in Raleigh constitutes initial receipt of an application for a 401 Certification. A waiver will be deemed to occur if the NCDWR fails to act on this request for certification within sixty days of receipt of a complete application. Additional information regarding the 401 Certification may be reviewed at the NCDWR Central Office, Transportation Permitting Unit, 512 North Salisbury Street, Raleigh, North

Carolina 27604-2260. All persons desiring to make comments regarding the application for a 401 Certification should do so, in writing, by March 29, 2018 to:

NCDWR Central Office
Attention: Ms. Amy Chapman, Transportation Permitting Unit
(USPS mailing address): 1617 Mail Service Center, Raleigh, NC 27699-1617

Or,

(physical address): 512 North Salisbury Street, 12th Floor, Raleigh, North Carolina 27604

North Carolina Division of Coastal Management (NCDCM):

- ☒ The application did not include a certification that the proposed work complies with and would be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2 (b)(2) the Corps cannot issue a Department of Army (DA) permit for the proposed work until the applicant submits such a certification to the Corps and the NCDCM, and the NCDCM notifies the Corps that it concurs with the applicant's consistency certification. As the application did not include the consistency certification, the Corps will request, upon receipt, concurrence or objection from the NCDCM.
- ☐ Based upon all available information, the Corps determines that this application for a Department of Army (DA) permit does not involve an activity which would affect the coastal zone, which is defined by the Coastal Zone Management (CZM) Act (16 U.S.C. § 1453).

Evaluation

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

Commenting Information

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidated State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

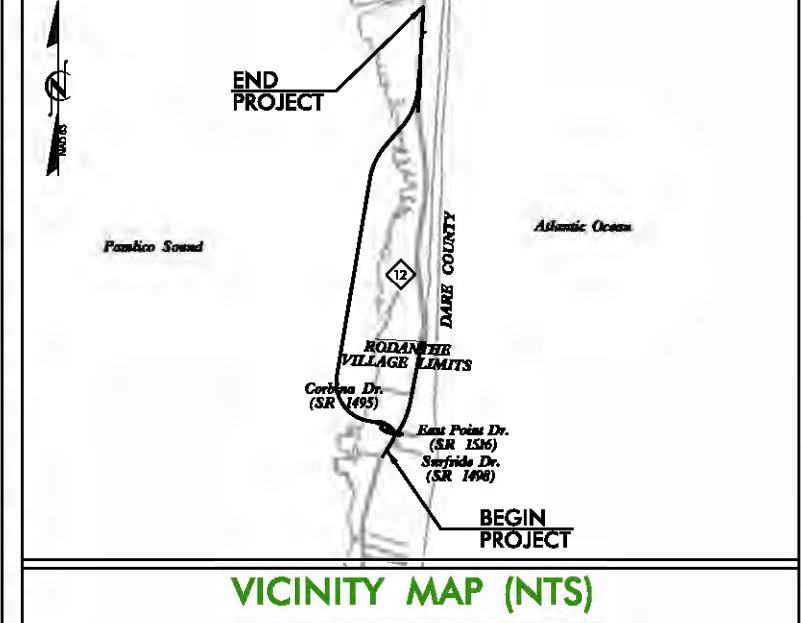
The Corps of Engineers, Wilmington District will receive written comments pertinent to the proposed work, as outlined above, until 5pm, April 9, 2018. Comments should be submitted to Mr. Kyle Barnes, U.S. Army Corps of Engineers, Washington Regulatory Field Office, 2407 West Fifth Street, Washington, North Carolina 27889, or by phone at (910) 251-4584.

09/08/2018

TIP PROJECT: B-2500B

CONTRACT: C203474

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



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DARE COUNTY

LOCATION: NC 12 - RODANTHE BREACH LONG TERM IMPROVEMENTS (PHASE IIB)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING & STRUCTURES

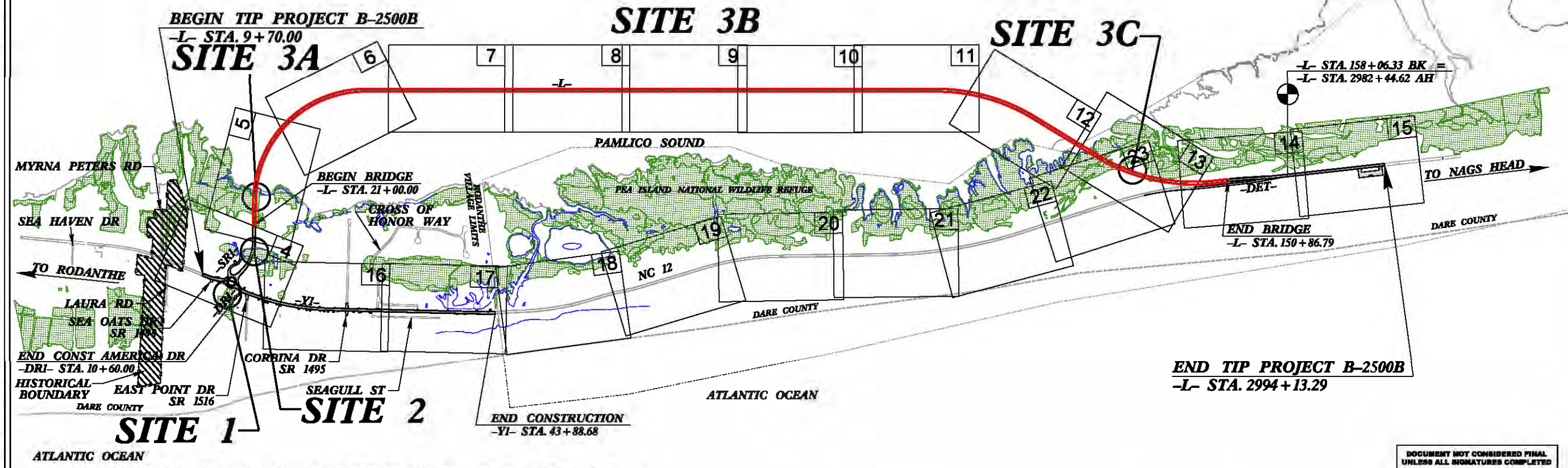
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2500B	1	
STATE FUNDING	F.A. FUNDING	DESCRIPTION	
32635.3.FR7	BRNH-0012(56)		

REVISED 2/1/2018
REVISED 2/15/2018

PERMIT DRAWING
SHEET 1 OF 44

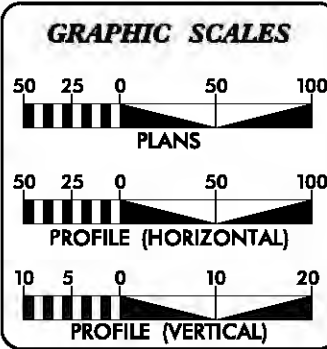


WETLAND AND STREAM IMPACTS



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA
ADT 2017 = 9,800
ADT 2037 = 14,200
V = 40 / 60 MPH
FUNC. CLASSIFICATION = RURAL COLLECTOR

PROJECT LENGTH
LENGTH ROADWAY TIP PROJECT B-2500B.....0.572 mi
LENGTH STRUCTURE TIP PROJECT B-2500B.....2.460 mi
TOTAL LENGTH TIP PROJECT B-2500B.....3.032 mi
NCDOT CONTACT
K Zak Hamidi, P.E. PROJECT ENGINEER - DESIGN-BUILD GROUP

PLANS PREPARED BY:
RK&K RUMBLE, KEEPER & KAVIL, LLP 900 RIDGEFIELD DRIVE, SUITE 350 RALEIGH, NORTH CAROLINA 27609 NC LICENSE NO. 1-0112
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS
LETTING DATE:
JANUARY 25, 2017

FLATIRON
B. Keith Skinner, P.E. PROJECT ENGINEER
Brandon J. McInnis, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
This document originally issued and sealed by Matthew L. Cook 27434 on 12-21-17. This medium shall not be considered a certified document.
SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER
This document originally issued and sealed by Brandon J. McInnis 29470 on 12-21-17. This medium shall not be considered a certified document.
SIGNATURE: _____ P.E.

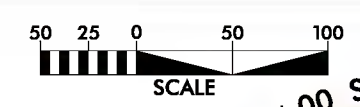


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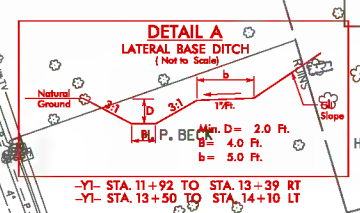
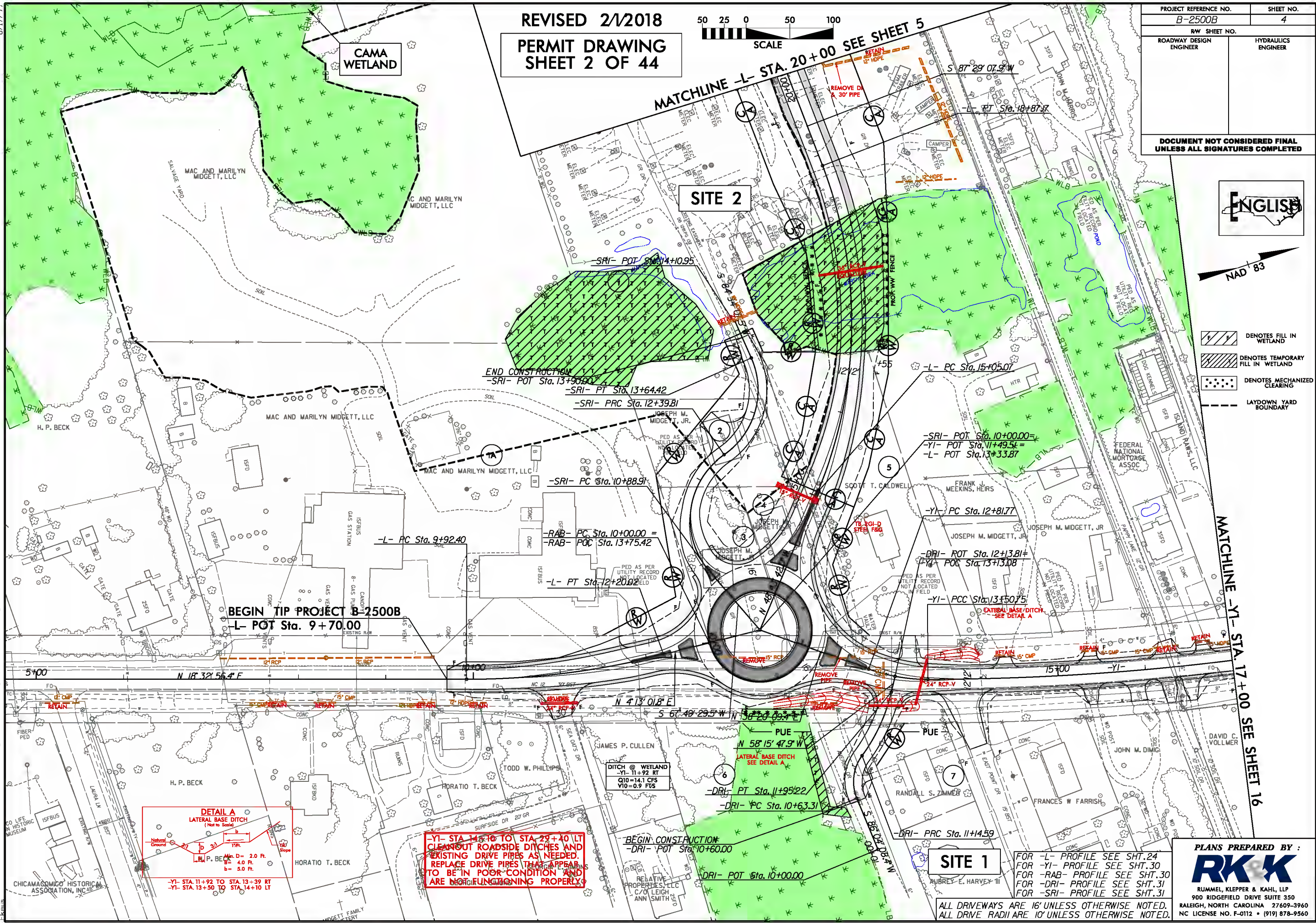
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SHEET 2 OF 44



PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



- Denotes Fill in Wetland
- Denotes Temporary Fill in Wetland
- Denotes Mechanized Clearing
- Laydown Yard Boundary



-YI- STA. 14+16 TO STA. 29+40 LT
CLEANOUT ROADSIDE DITCHES AND
REPLACE DRIVE PIPES THAT APPEAR
TO BE IN POOR CONDITION AND
ARE NOT FUNCTIONING PROPERLY.

SITE 1

FOR -L- PROFILE SEE SHT. 24
FOR -YI- PROFILE SEE SHT. 30
FOR -RAB- PROFILE SEE SHT. 30
FOR -DRI- PROFILE SEE SHT. 31
FOR -SRI- PROFILE SEE SHT. 31

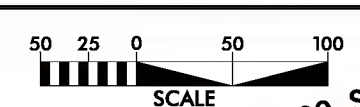
ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED.
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

PLANS PREPARED BY :

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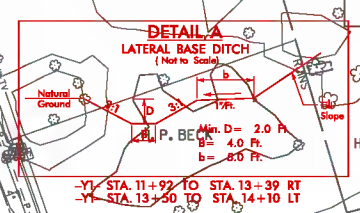
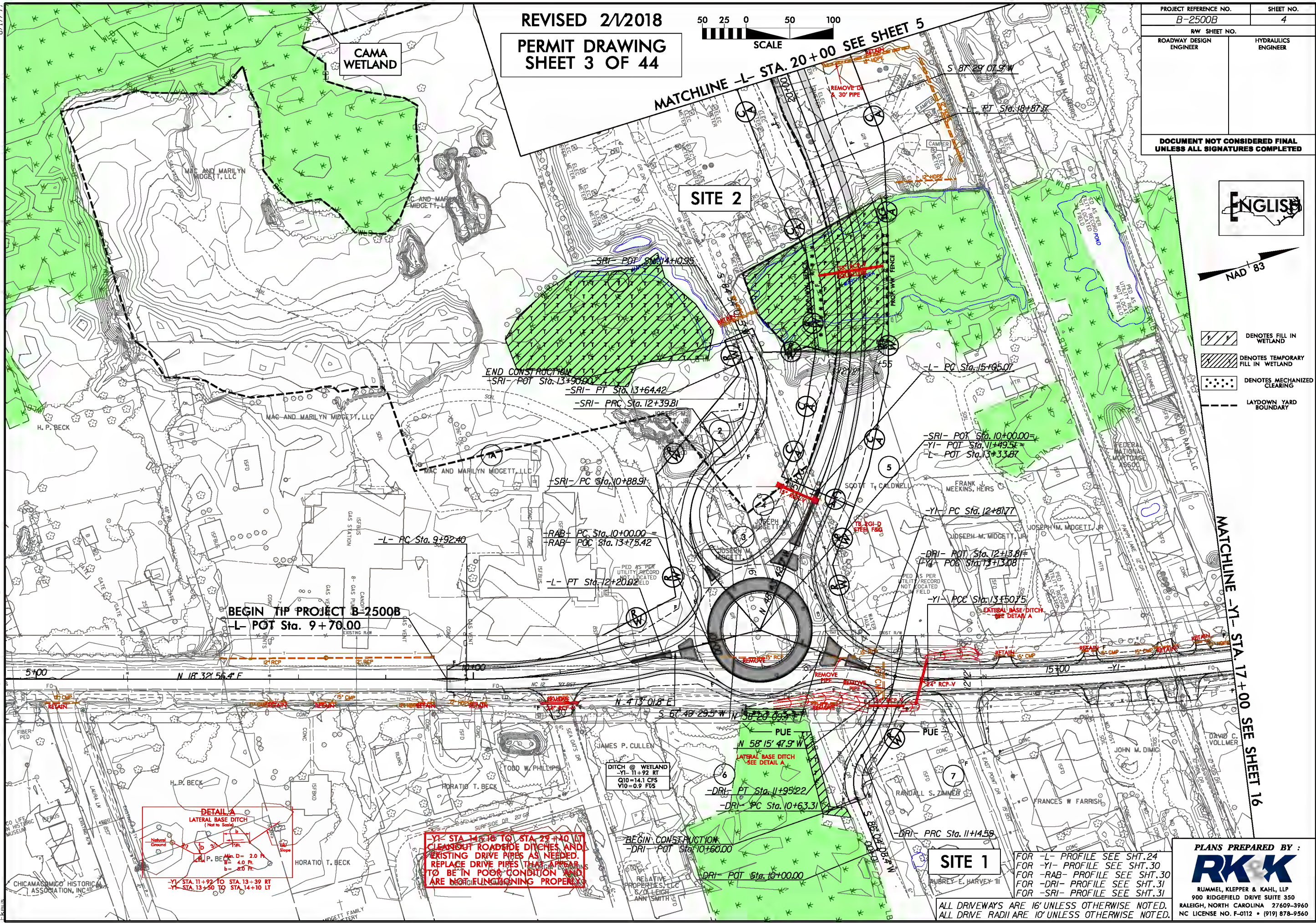
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PERMIT DRAWING
SHEET 3 OF 44



PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



- Denotes Fill in Wetland
- Denotes Temporary Fill in Wetland
- Denotes Mechanized Clearing
- Laydown Yard Boundary



-YI- STA 14+18 TO STA 29+10 LT
CLEANOUT ROADSIDE DITCHES AND
EXISTING DRIVE PIPES AS NEEDED.
REPLACE DRIVE PIPES THAT APPEAR
TO BE IN POOR CONDITION AND
ARE NOT FUNCTIONING PROPERLY.

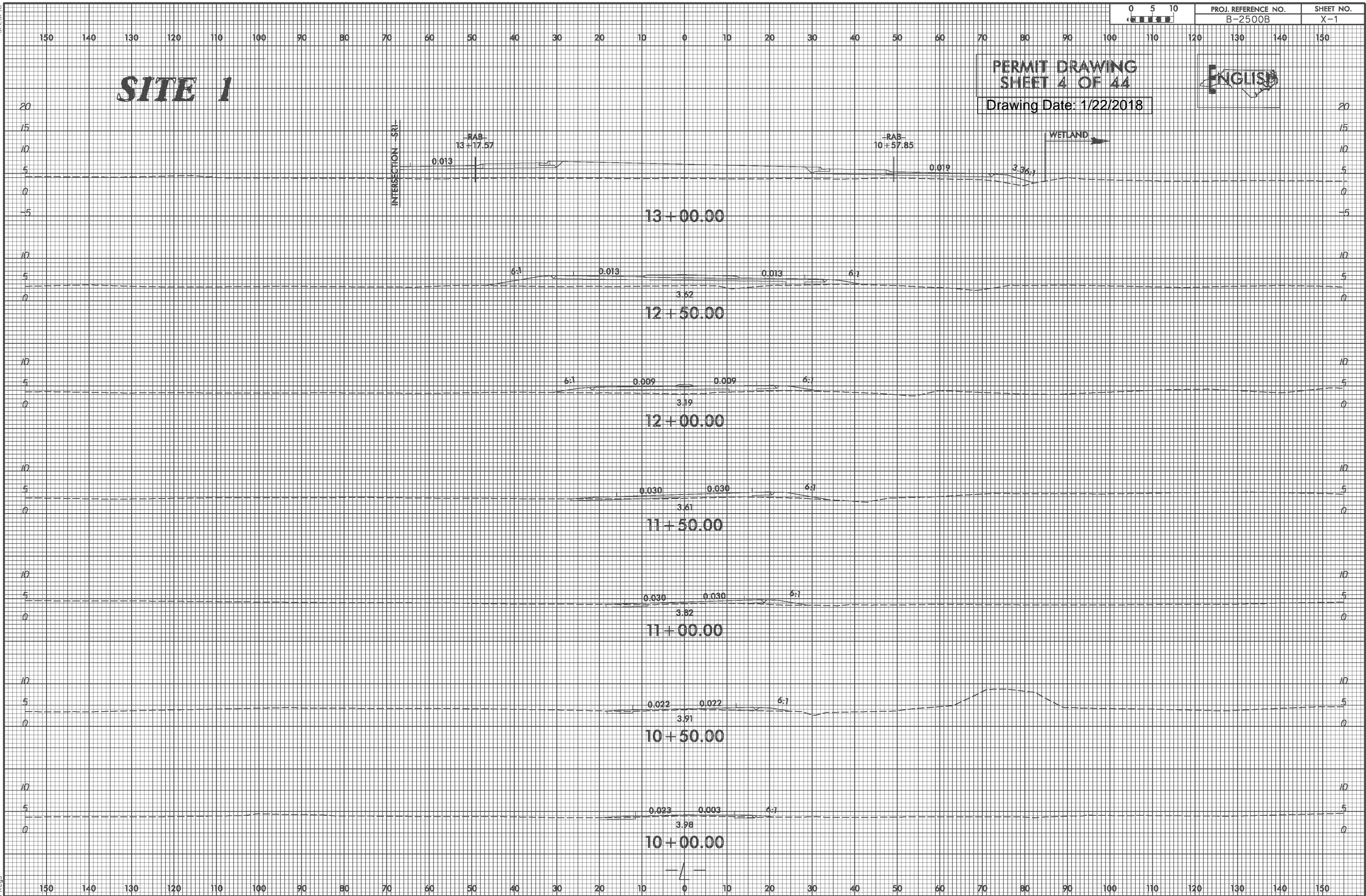
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FOR -L- PROFILE SEE SHT. 24
FOR -YI- PROFILE SEE SHT. 30
FOR -RAB- PROFILE SEE SHT. 30
FOR -DRI- PROFILE SEE SHT. 31
FOR -SRI- PROFILE SEE SHT. 31

ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED.
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

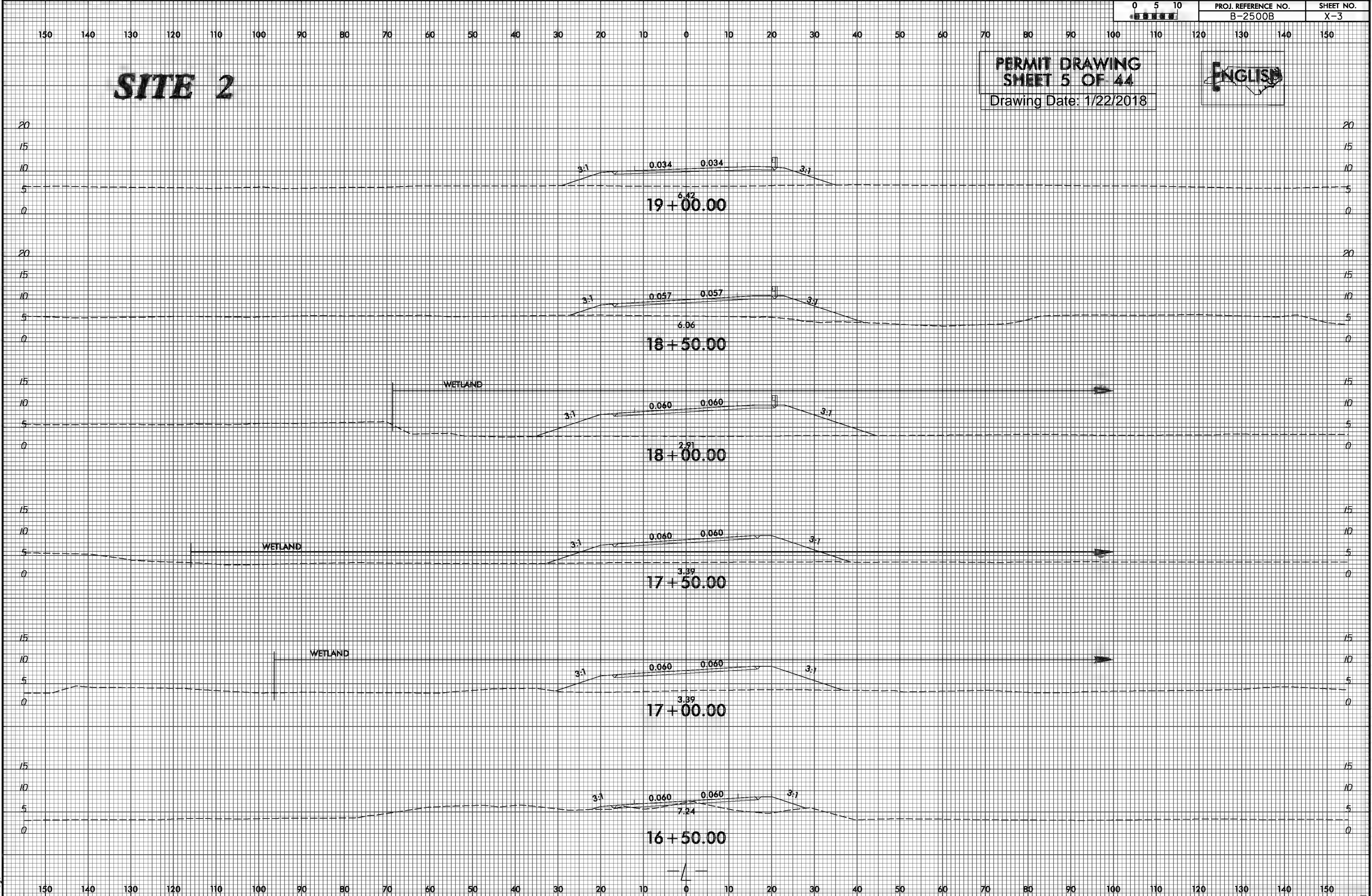
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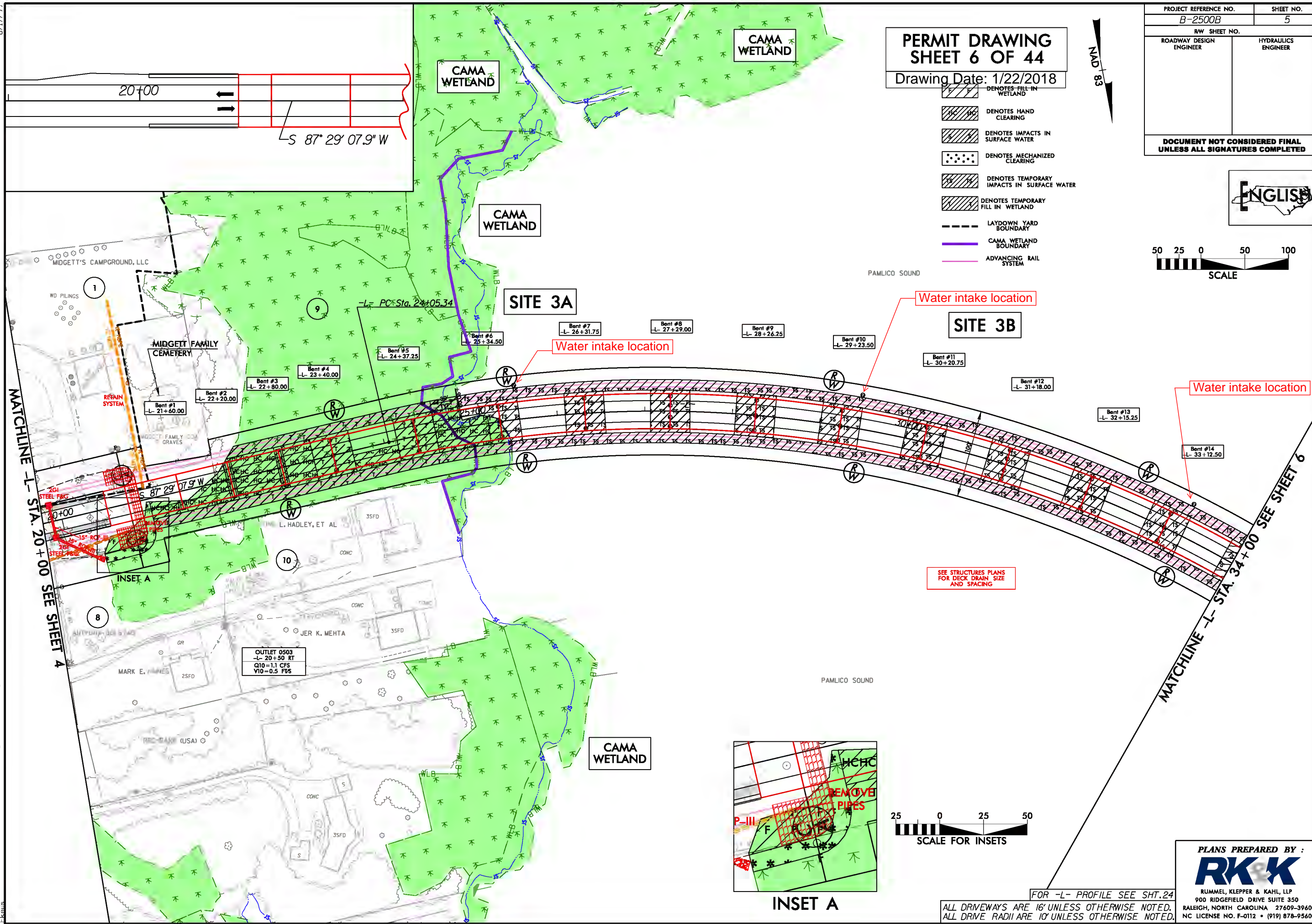
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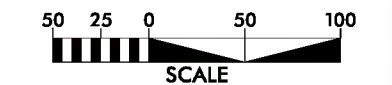
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PROJECT REFERENCE NO.	SHEET NO.
B-2500B	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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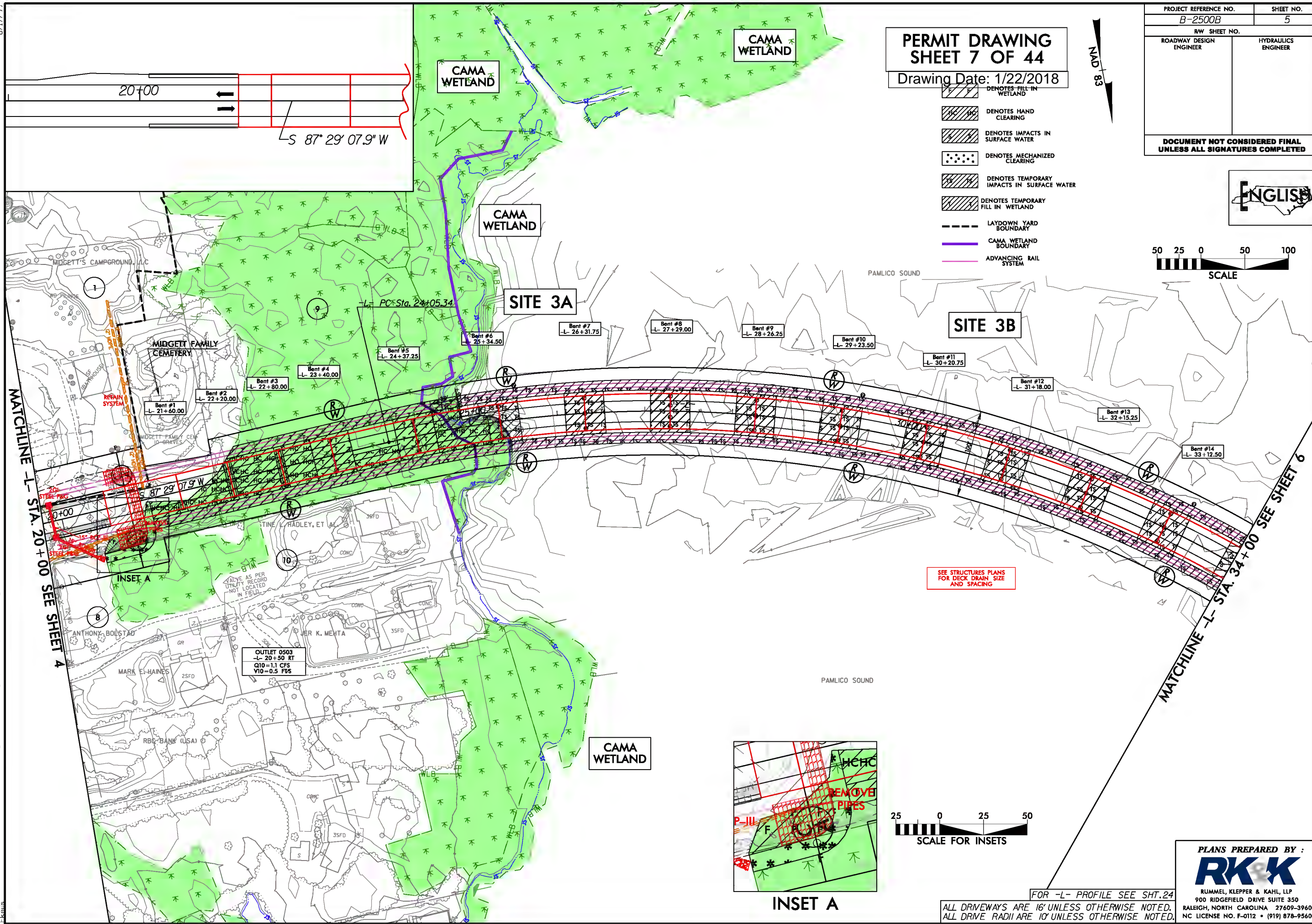


MATCHLINE -L- STA. 20+00 SEE SHEET 4

MATCHLINE -L- STA. 34+00 SEE SHEET 6

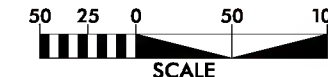
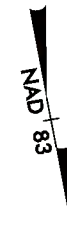
B-17/99

1/2/2017
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**PERMIT DRAWING
SHEET 7 OF 44**
Drawing Date: 1/22/2018

- DENOTES FILL-IN WETLAND
- DENOTES HAND CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND
- LAYDOWN YARD BOUNDARY
- CAMA WETLAND BOUNDARY
- ADVANCING RAIL SYSTEM

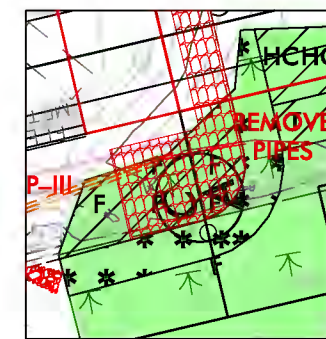


PROJECT REFERENCE NO.	SHEET NO.
B-2500B	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING



INSET A

FOR -L- PROFILE SEE SHT. 24






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NAD 83

 PERMANENT IMPACTS TO SAV
 TEMPORARY IMPACTS TO SAV
 CAMA WETLAND BOUNDARY
 ADVANCING RAIL SYSTEM
 SUBMERGED AQUATIC VEGETATION



PAMLICO SOUND

SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

FOR -L- PROFILE SEE SHT.24

ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED.
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3/17/99

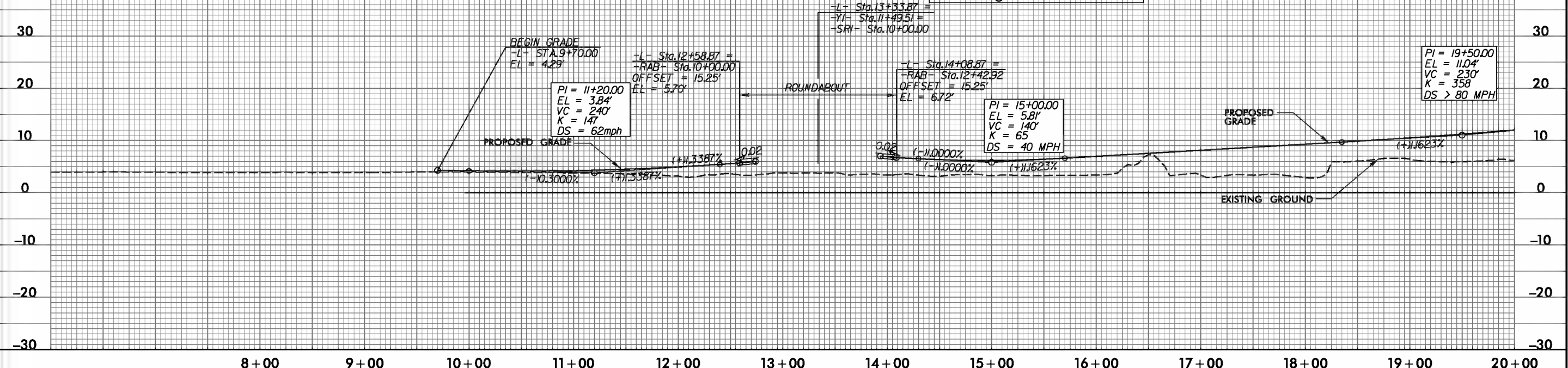
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5/28/99

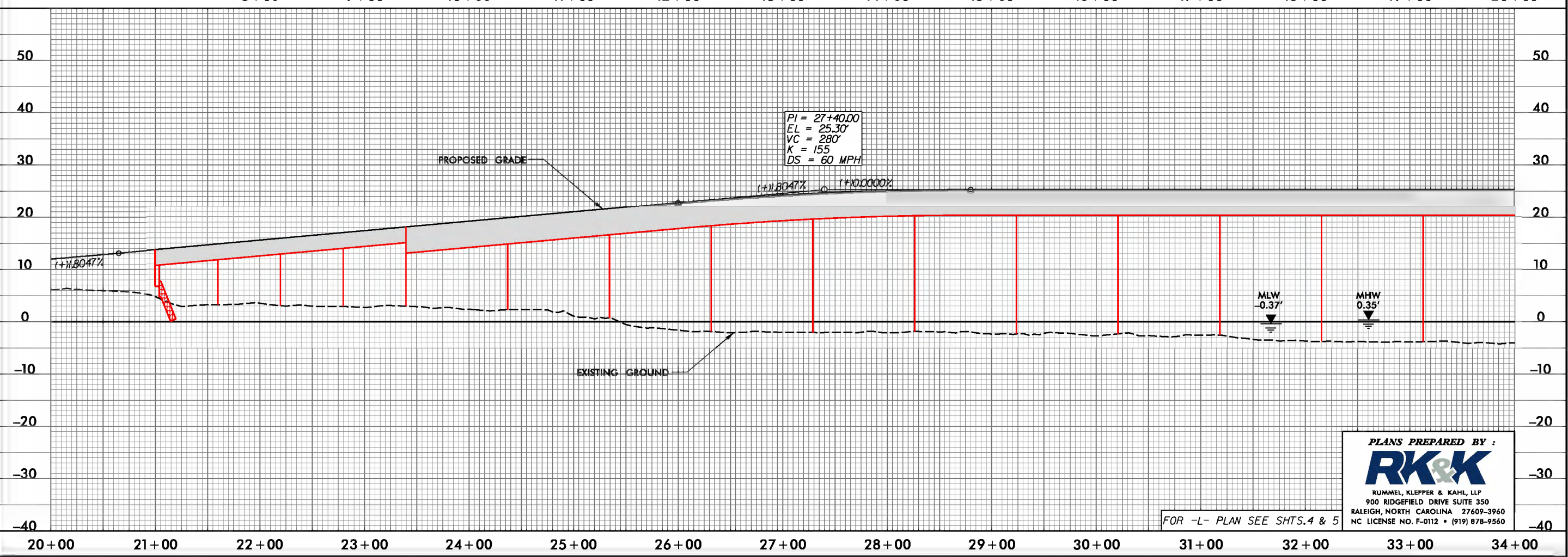
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PROJECT REFERENCE NO.		SHEET NO.
B-2500B		24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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PERMIT DRAWING
SHEET 9 OF 44
Drawing Date: 1/22/2018



1/2/2017
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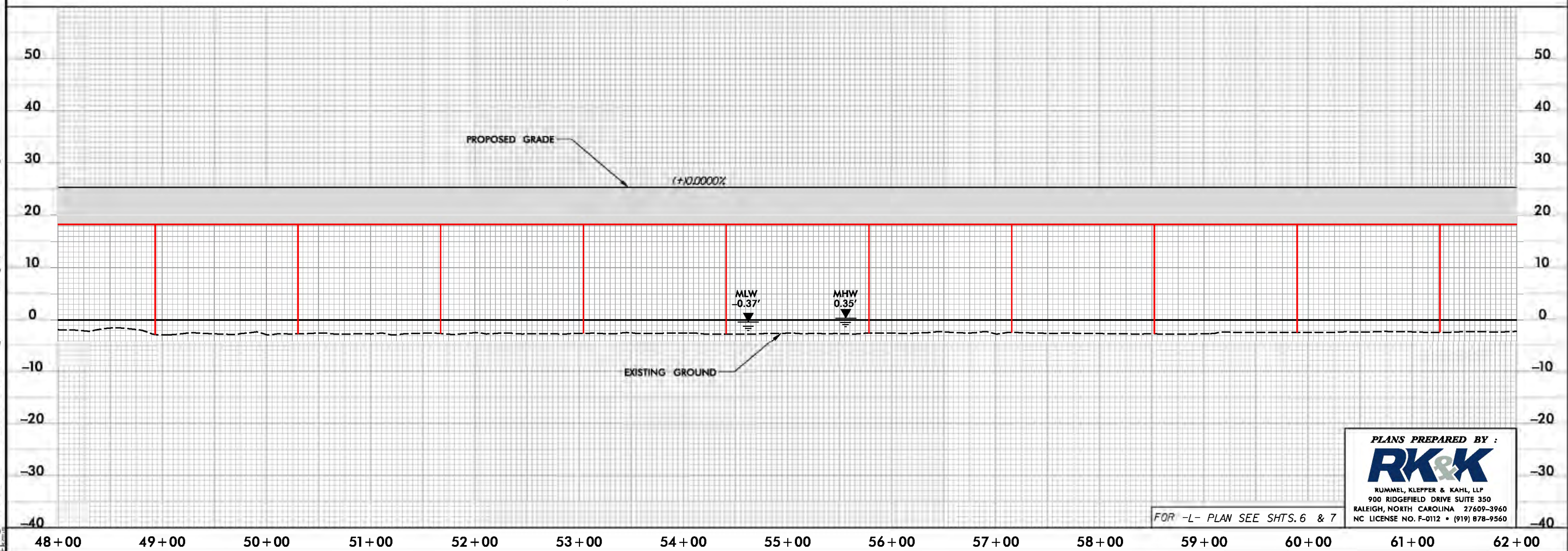
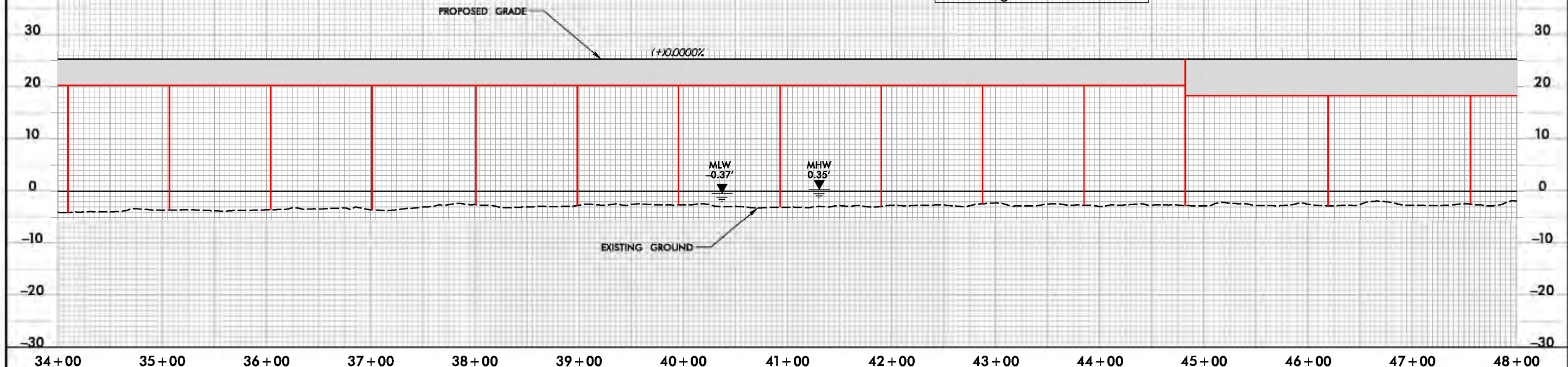
FOR -L- PLAN SEE SHTS. 4 & 5

5/26/99

-L-

PROJECT REFERENCE NO.		SHEET NO.
B-2500B		25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

PERMIT DRAWING
SHEET 10 OF 44
Drawing Date: 1/22/2018



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FOR -L- PLAN SEE SHTS. 6 & 7

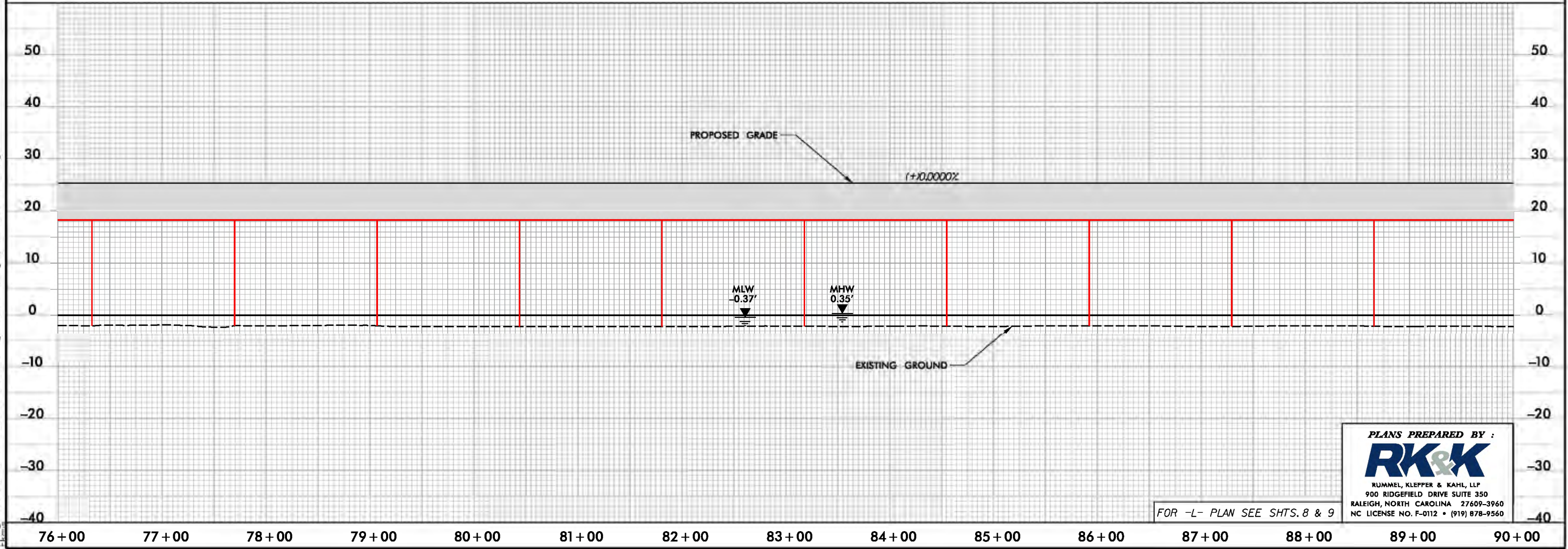
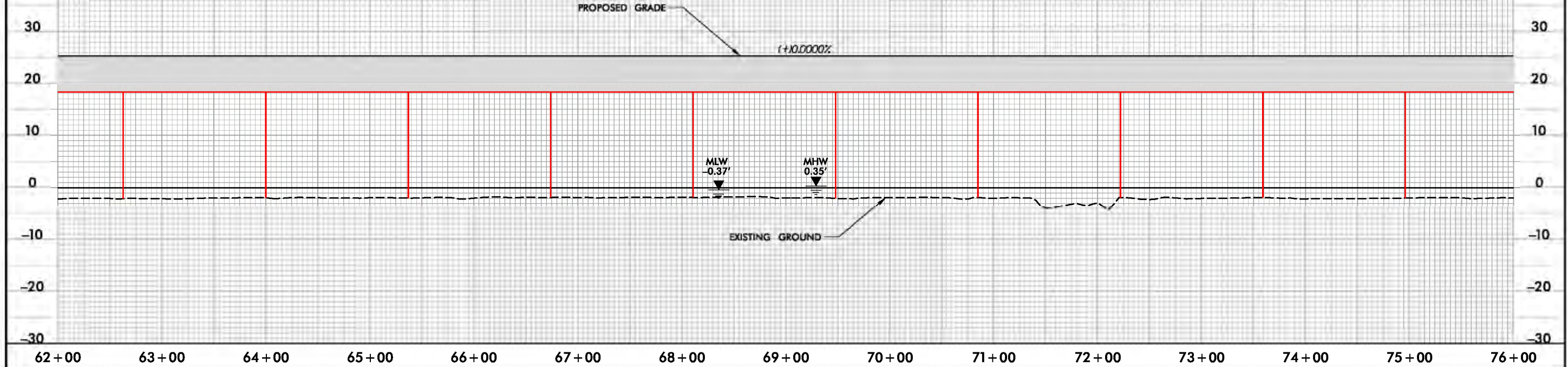
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-L-

PROJECT REFERENCE NO.		SHEET NO.
B-2500B		26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

PERMIT DRAWING
SHEET 11 OF 44
Drawing Date: 1/22/2018



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FOR -L- PLAN SEE SHTS. 8 & 9

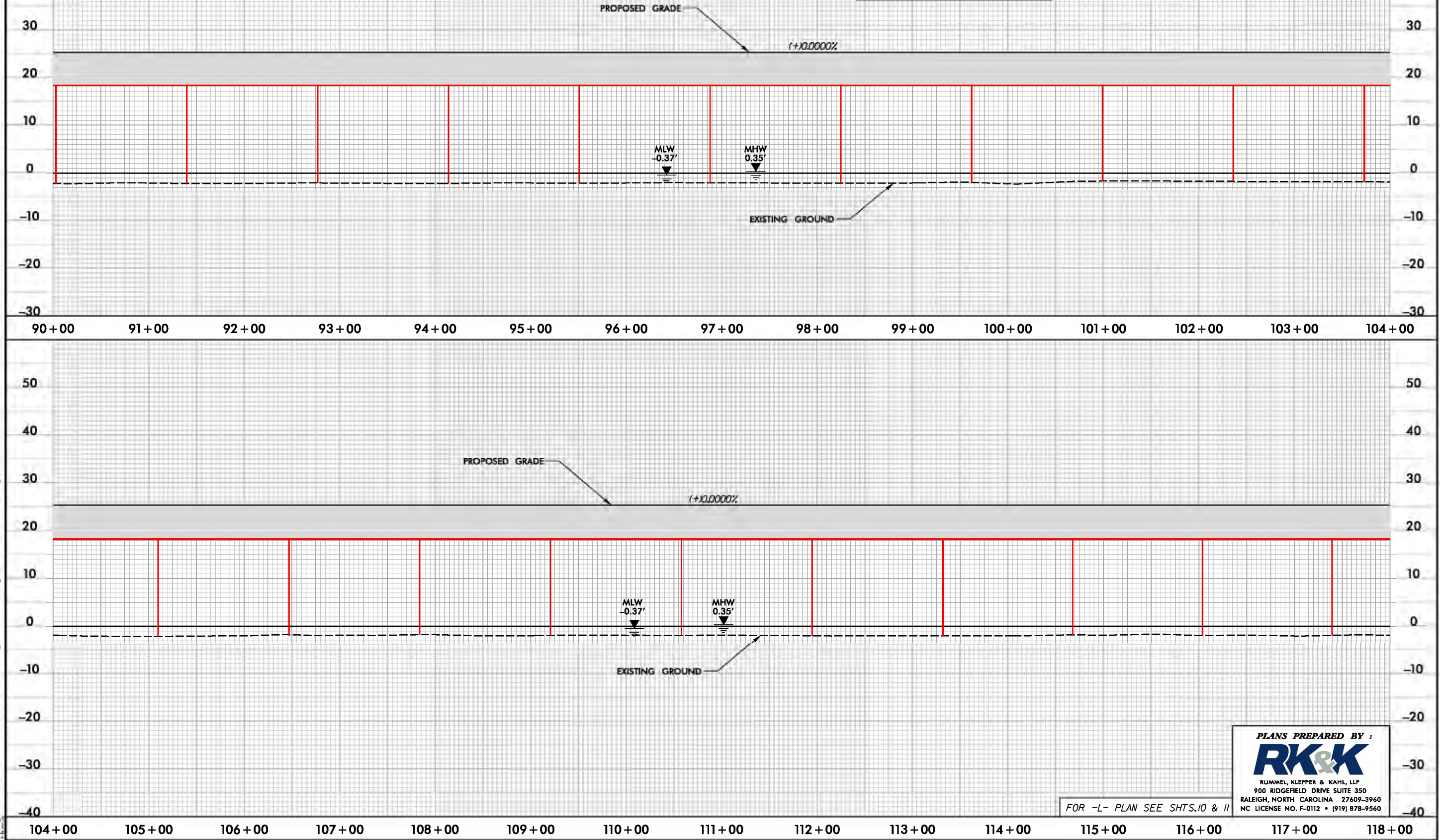
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PROJECT REFERENCE NO.		SHEET NO.
B-2500B		27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

PERMIT DRAWING
SHEET 12 OF 44
Drawing Date: 1/22/2018



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FOR -L- PLAN SEE SHTS.10 & 11

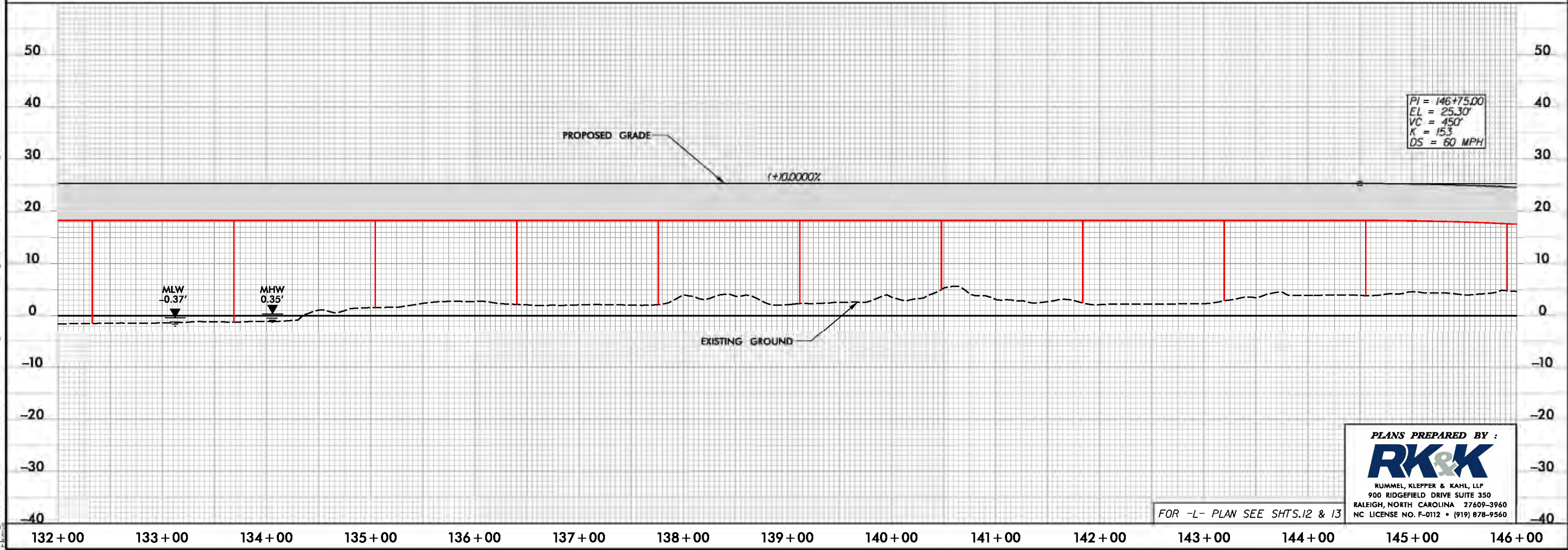
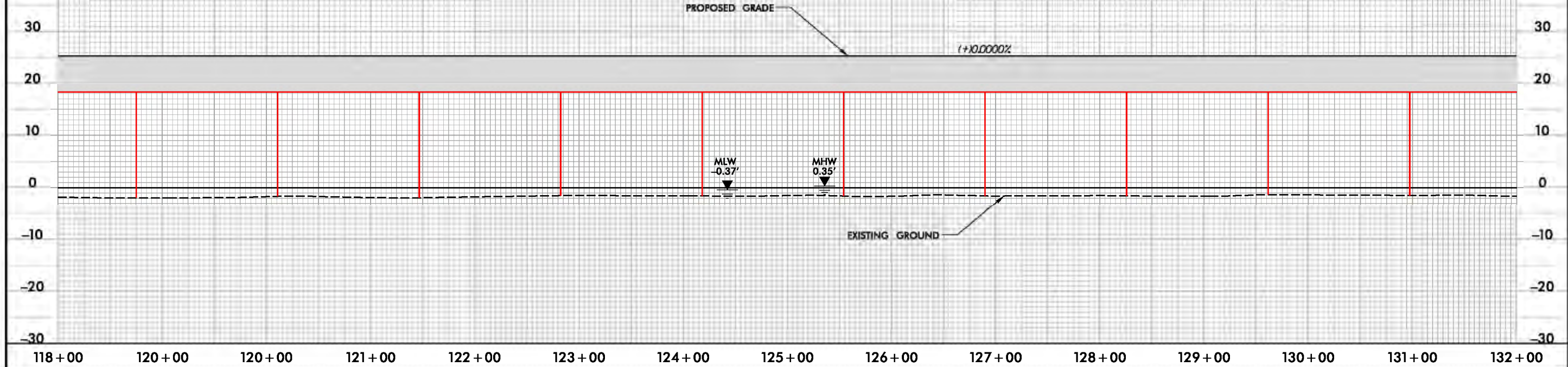
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PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		28	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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PERMIT DRAWING
SHEET 13 OF 44
Drawing Date: 1/22/2018



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FOR -L- PLAN SEE SHTS. 12 & 13

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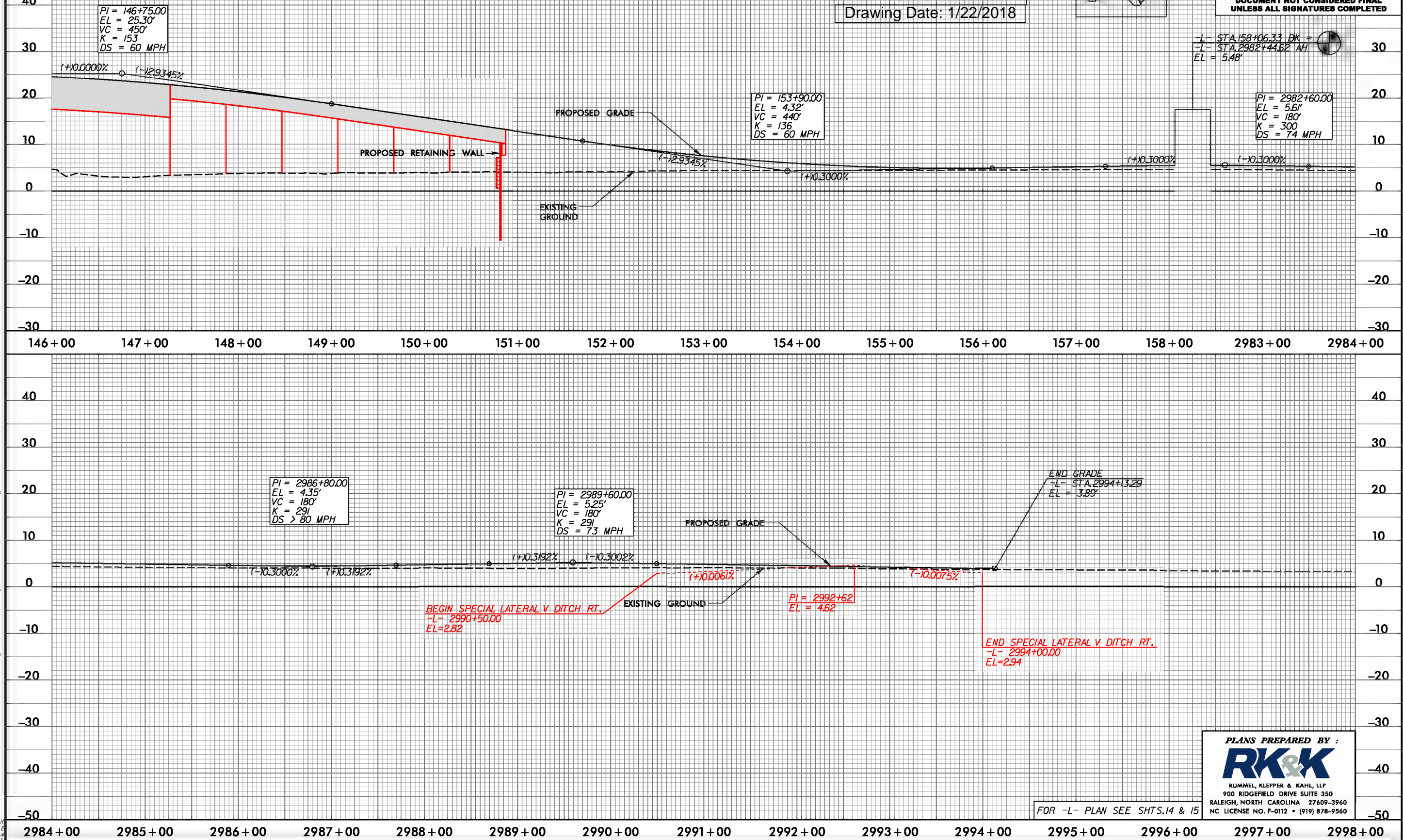
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PERMIT DRAWING
SHEET 14 OF 44
Drawing Date: 1/22/2018

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FOR -L- PLAN SEE SHTS. 14 & 15

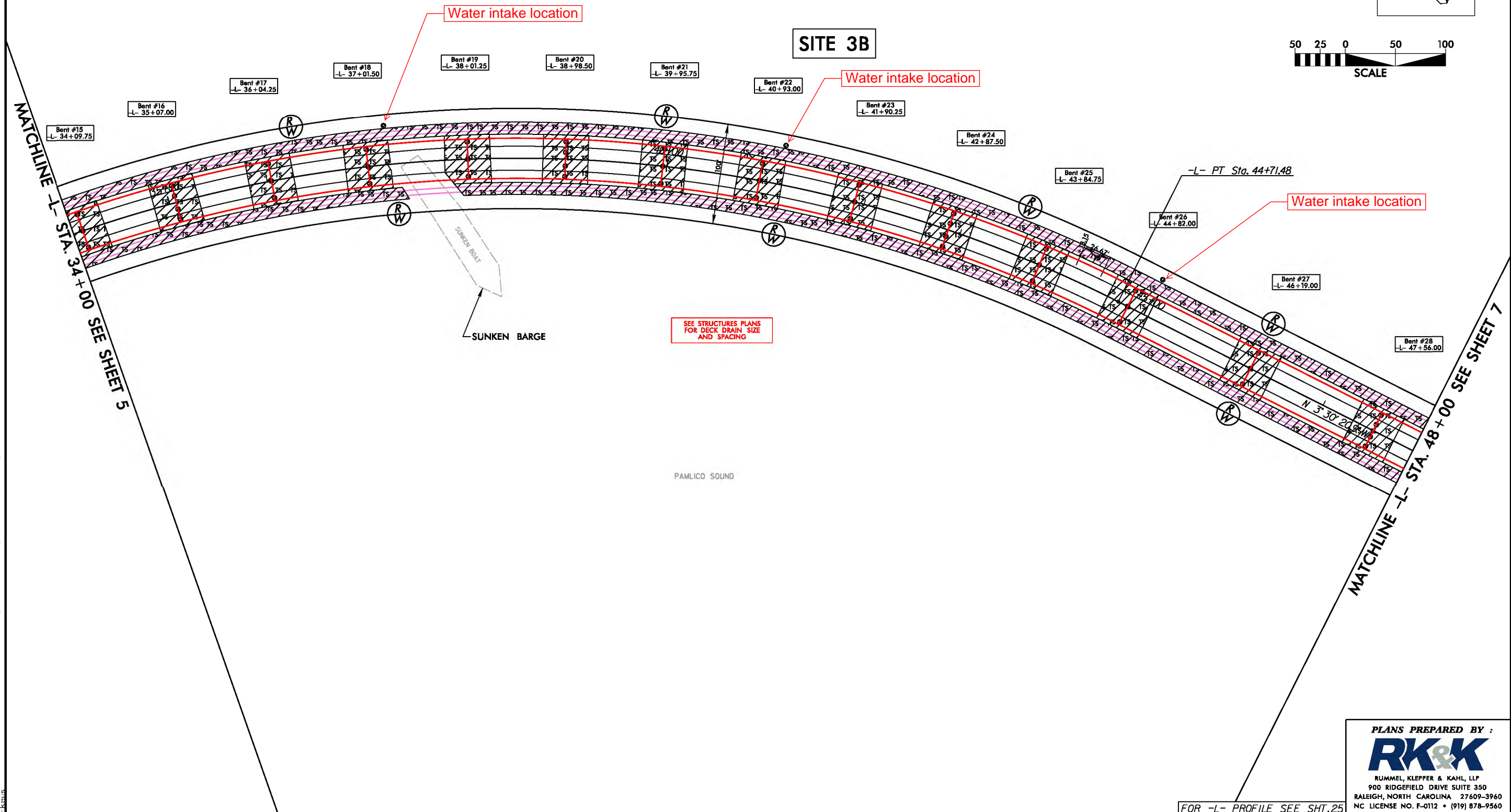
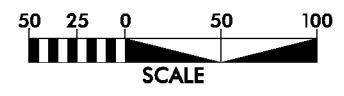
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**PERMIT DRAWING
SHEET 16 OF 44**
Drawing Date: 1/22/2018



PROJECT REFERENCE NO. <i>B-2500B</i>		SHEET NO. <i>6</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



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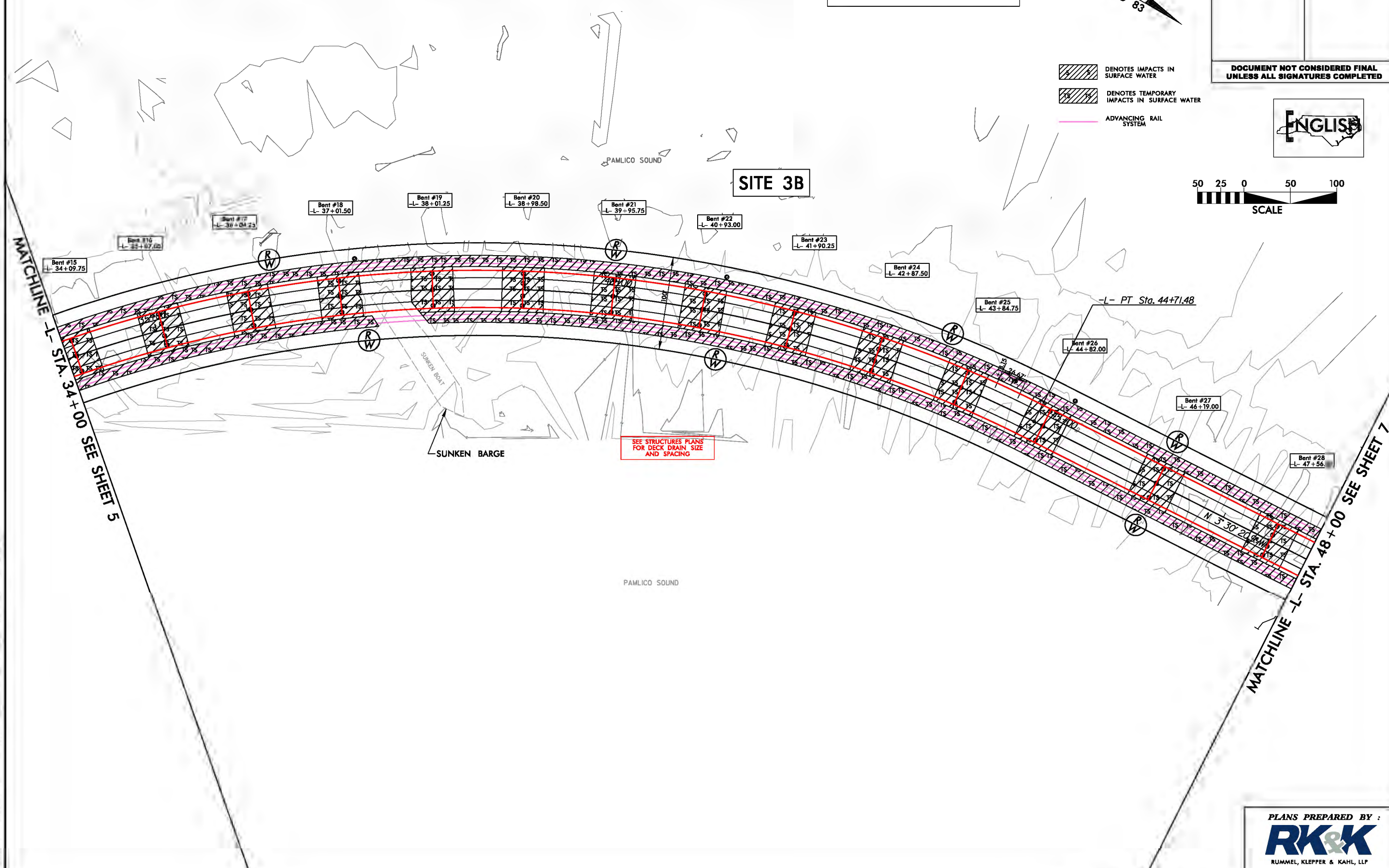
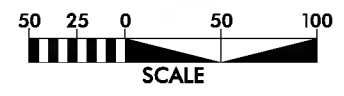
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SHEET 17 OF 44



PROJECT REFERENCE NO.	SHEET NO.
B-25008	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 18 OF 44

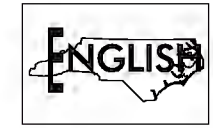
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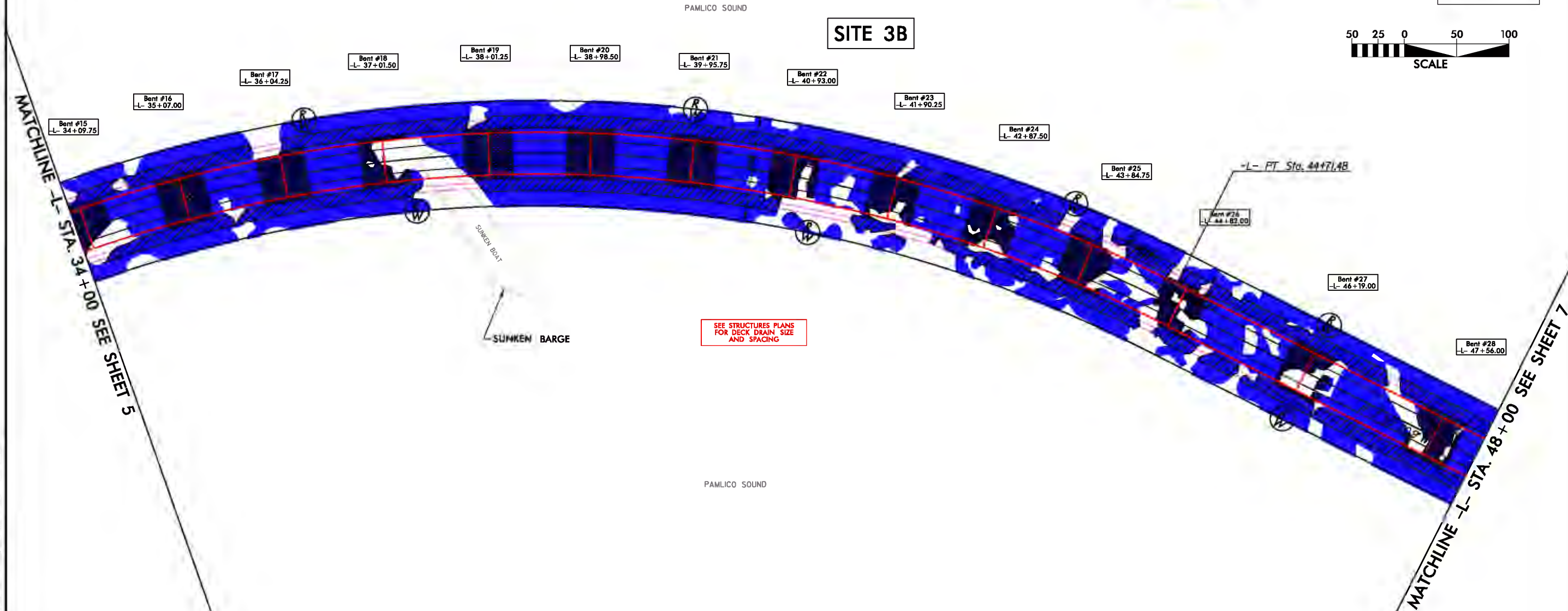
- PERMANENT IMPACTS TO SAV
- TEMPORARY IMPACTS TO SAV
- ADVANCING RAIL SYSTEM
- SUBMERGED AQUATIC VEGETATION

PROJECT REFERENCE NO.	SHEET NO.
B-2500B	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SITE 3B



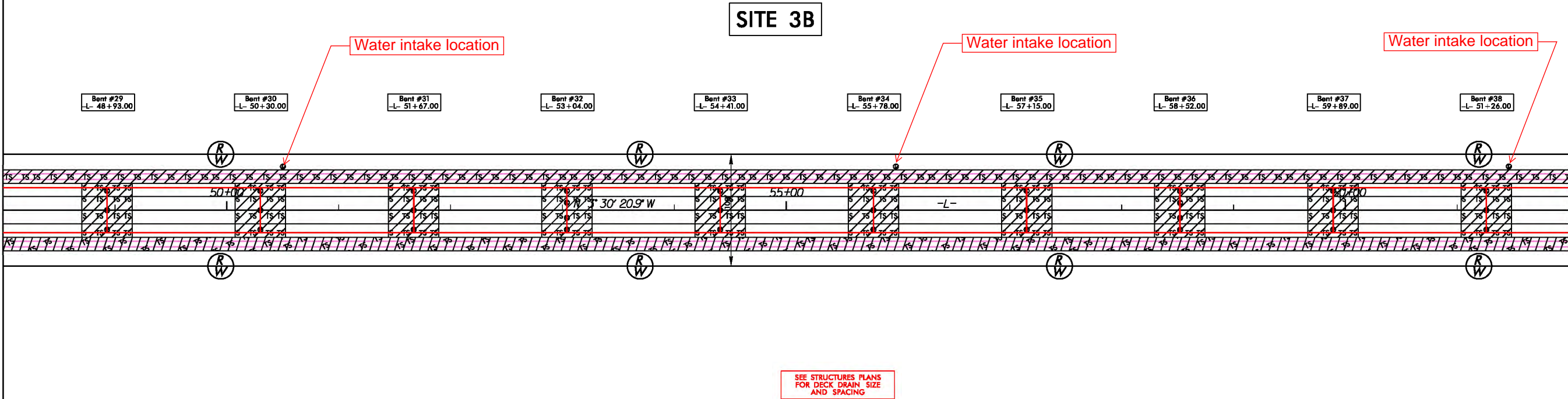
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FOR -L- PROFILE SEE SHT. 25

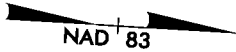
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MATCHLINE -L- STA. 48 + 00 SEE SHEET 6



**PERMIT DRAWING
SHEET 19 OF 44**
Drawing Date: 1/22/2018



- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM

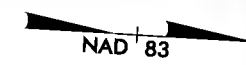


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B-2500B		7
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

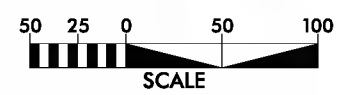
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FOR -L- PROFILE SEE SHT.25

PERMIT DRAWING
SHEET 20 OF 44
Drawing Date: 1/22/2018



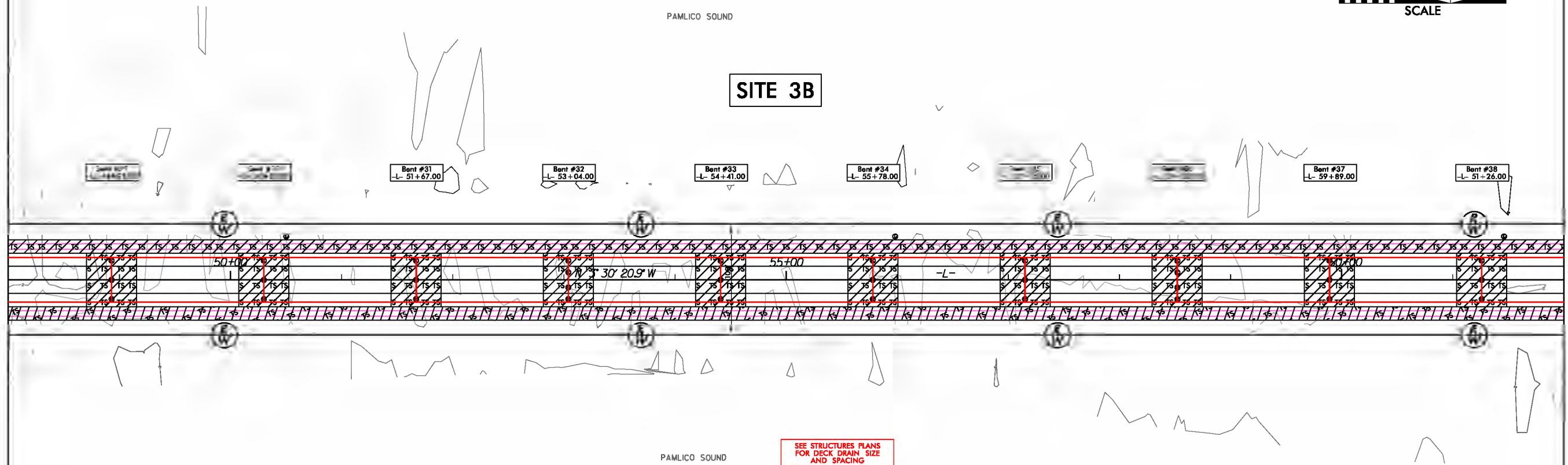
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



PROJECT REFERENCE NO.	SHEET NO.
10-25-06	
RW SHEET NO.	
10-25-06	10-25-06
DESIGNED BY	ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 48 + 00 SEE SHEET 6

MATCHLINE -L- STA. 62 + 00 SEE SHEET 8

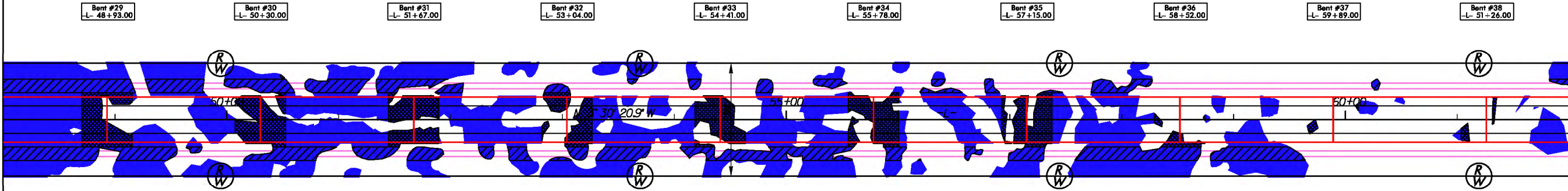


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FOR DECK DRAIN SIZE
AND SPACING

B/17/99

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MATCHLINE -L- STA. 48 + 00 SEE SHEET 6



MATCHLINE -L- STA. 62 + 00 SEE SHEET 8

PERMIT DRAWING
SHEET 21 OF 44
Drawing Date: 1/22/2018

NAD 83

- PERMANENT IMPACTS TO SAV
- TEMPORARY IMPACTS TO SAV
- ADVANCING RAIL SYSTEM
- SUBMERGED AQUATIC VEGETATION



PROJECT REFERENCE NO.	SHEET NO.
B-2500B	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

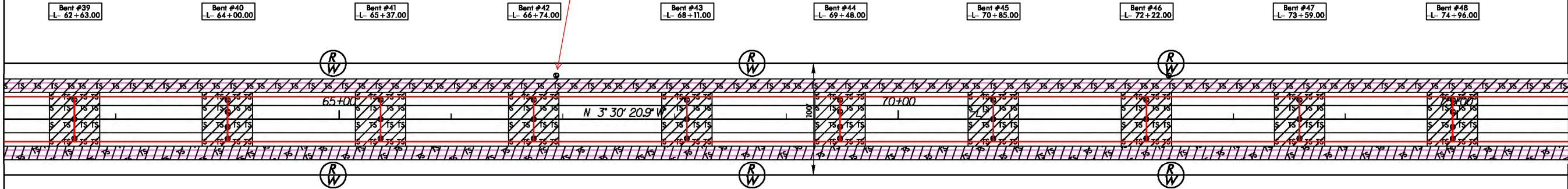
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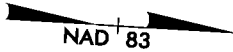
MATCHLINE -L- STA. 62 + 00 SEE SHEET 7



SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

**PERMIT DRAWING
SHEET 22 OF 44**
Drawing Date: 1/22/2018

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



PROJECT REFERENCE NO.		SHEET NO.
B-2500B		8
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

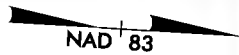
MATCHLINE -L- STA. 76 + 00 SEE SHEET 9

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FOR -L- PROFILE SEE SHT. 26

PROJECT REFERENCE NO.	SHEET NO.
17-2506	8
RW SHEET NO.	
ROADWAY DESIGN	HYDRAULIC ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**PERMIT DRAWING
SHEET 23 OF 44**
Drawing Date: 1/22/2018



- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



MATCHLINE -L- STA. 62 + 00 SEE SHEET 7

- Bent #39
L- 62 + 63.00
- Bent #40
L- 64 + 00.00
- Bent #41
L- 65 + 37.00
- Bent #42
L- 66 + 74.00
- Bent #43
L- 68 + 11.00
- Bent #44
L- 69 + 48.00
- Bent #45
L- 70 + 85.00
- Bent #46
L- 72 + 22.00
- Bent #47
L- 73 + 59.00
- Bent #48
L- 74 + 96.00

SITE 3B

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PAMLICO SOUND

SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

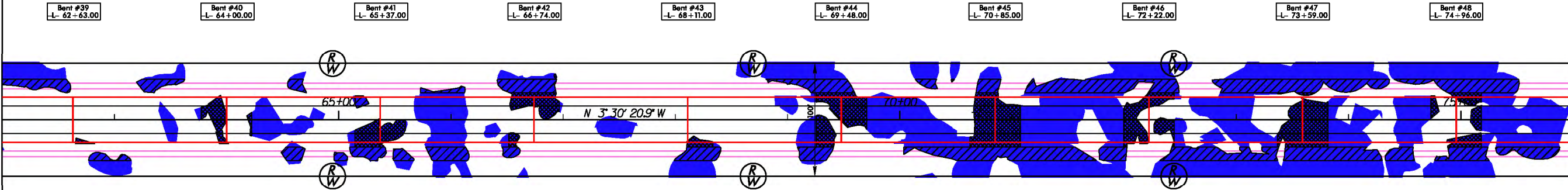
MATCHLINE -L- STA. 76 + 00 SEE SHEET 9

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1/2/2017
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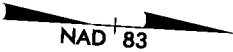
MATCHLINE -L- STA. 62 + 00 SEE SHEET 7



SITE 3B

PERMIT DRAWING
SHEET 24 OF 44

Drawing Date: 1/22/2018



- PERMANENT IMPACTS TO SAV
- TEMPORARY IMPACTS TO SAV
- ADVANCING RAIL SYSTEM
- SUBMERGED AQUATIC VEGETATION



PROJECT REFERENCE NO.		SHEET NO.
B-2500B		8
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

MATCHLINE -L- STA. 76 + 00 SEE SHEET 9

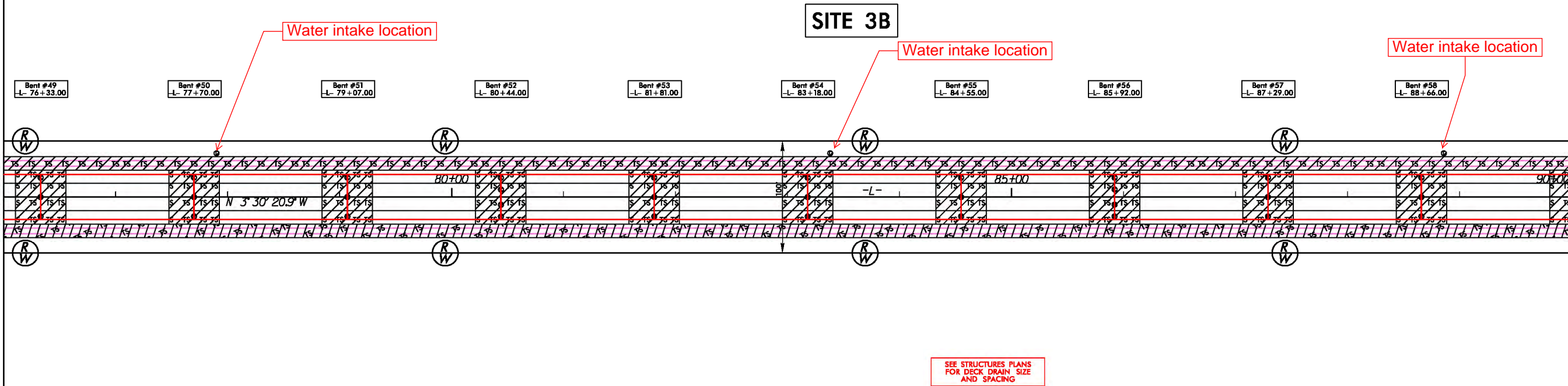
PLANS PREPARED BY :
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FOR -L- PROFILE SEE SHT. 26

B/17/99

1/2/2017
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MATCHLINE -L- STA. 76 + 00 SEE SHEET 8

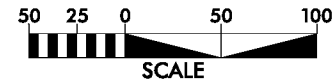


NAD 83

PERMIT DRAWING SHEET 25 OF 44

Drawing Date: 1/22/2018

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



Water intake location

SITE 3B

Water intake location

MATCHLINE -L- STA. 90 + 00 SEE SHEET 10

Bent #49
L- 76 + 33.00

Bent #50
L- 77 + 70.00

Bent #51
L- 79 + 07.00

Bent #52
L- 80 + 44.00

Bent #53
L- 81 + 81.00

Bent #54
L- 83 + 18.00

Bent #55
L- 84 + 55.00

Bent #56
L- 85 + 92.00

Bent #57
L- 87 + 29.00

Bent #58
L- 88 + 66.00

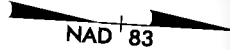
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FOR -L- PROFILE SEE SHT. 26

PROJECT REFERENCE NO.		SHEET NO.	
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RW SHEET NO.		ENGINEER	
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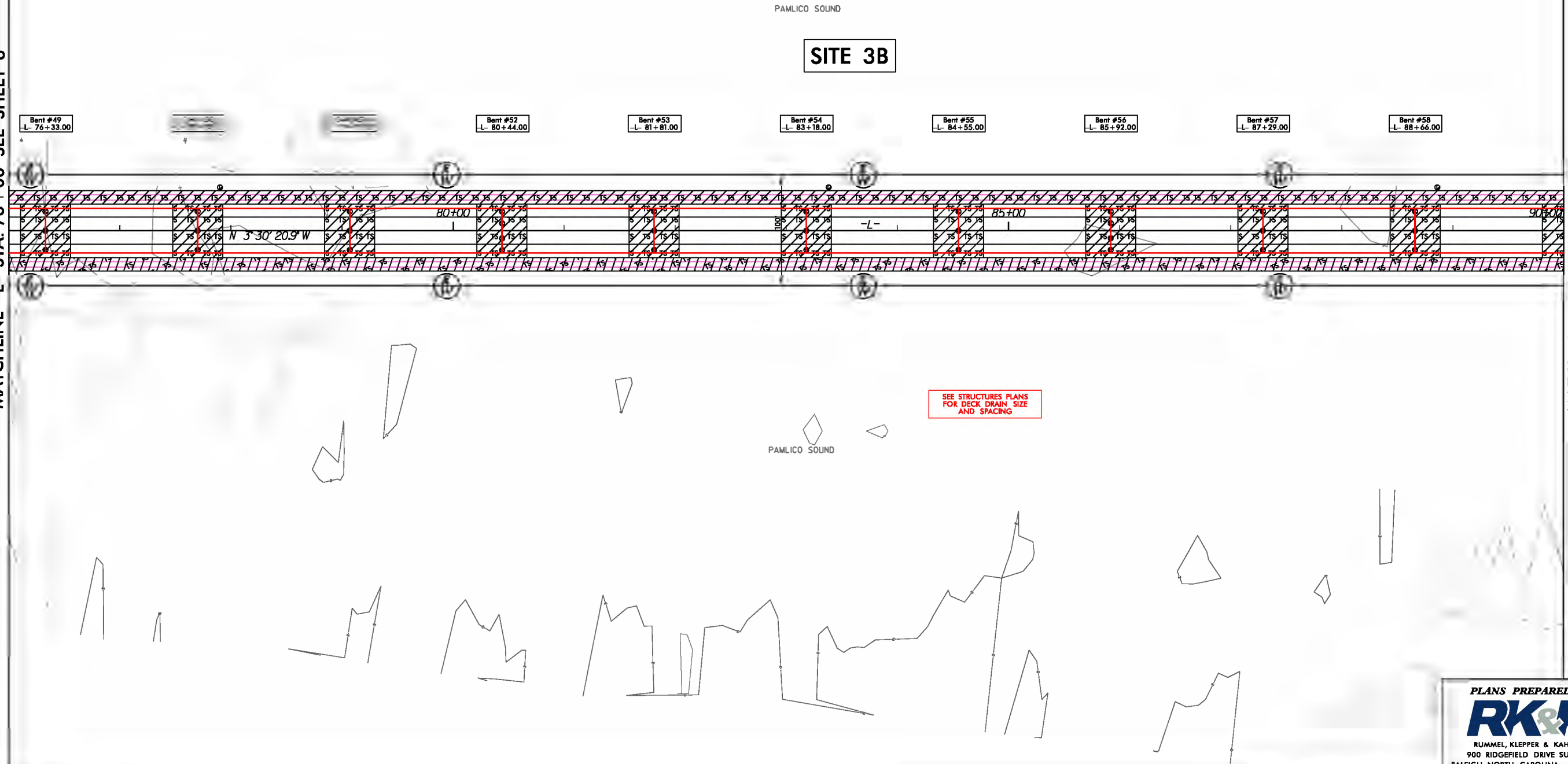
PERMIT DRAWING
SHEET 26 OF 44
Drawing Date: 1/22/2018

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



MATCHLINE -L- STA. 76 + 00 SEE SHEET 8

MATCHLINE -L- STA. 90 + 00 SEE SHEET 10



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MATCHLINE -L- STA. 76+00 SEE SHEET 8

Bent #49
-L- 76+33.00

Bent #50
-L- 77+70.00

Bent #51
-L- 79+07.00

Bent #52
-L- 80+44.00

Bent #53
-L- 81+81.00

Bent #54
-L- 83+18.00

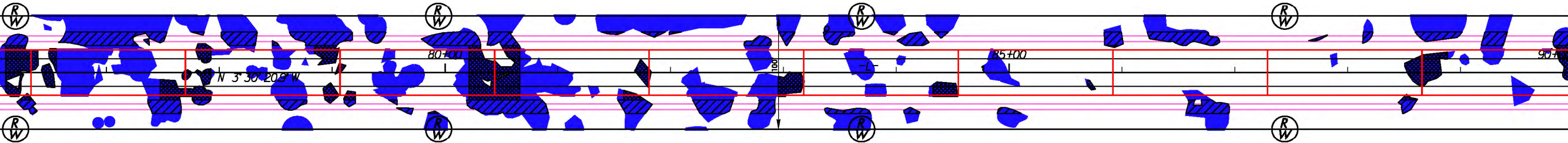
Bent #55
-L- 84+55.00

Bent #56
-L- 85+92.00

Bent #57
-L- 87+29.00

Bent #58
-L- 88+66.00

SITE 3B



SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

NAD 83

PERMIT DRAWING
SHEET 27 OF 44

Drawing Date: 1/22/2018

- PERMANENT IMPACTS TO SAV
- TEMPORARY IMPACTS TO SAV
- ADVANCING RAIL SYSTEM
- SUBMERGED AQUATIC VEGETATION

50 25 0 50 100
SCALE



PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

MATCHLINE -L- STA. 90+00 SEE SHEET 10

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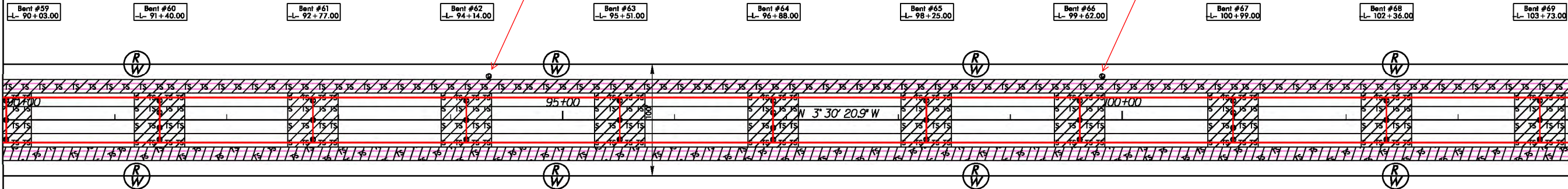
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FOR -L- PROFILE SEE SHT. 26

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MATCHLINE -L- STA. 90 + 00 SEE SHEET 9



SITE 3B

SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

NAD 83

PERMIT DRAWING
SHEET 28 OF 44

Drawing Date: 1/22/2018

DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

ADVANCING RAIL
SYSTEM

50 25 0 50 100
SCALE



PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		10	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 104 + 00 SEE SHEET 11

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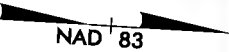
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FOR -L- PROFILE SEE SHT. 27

PROJECT REFERENCE NO.	SHEET NO.
02-2506	3
RW SHEET NO.	1
ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER

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**PERMIT DRAWING
SHEET 29 OF 44**

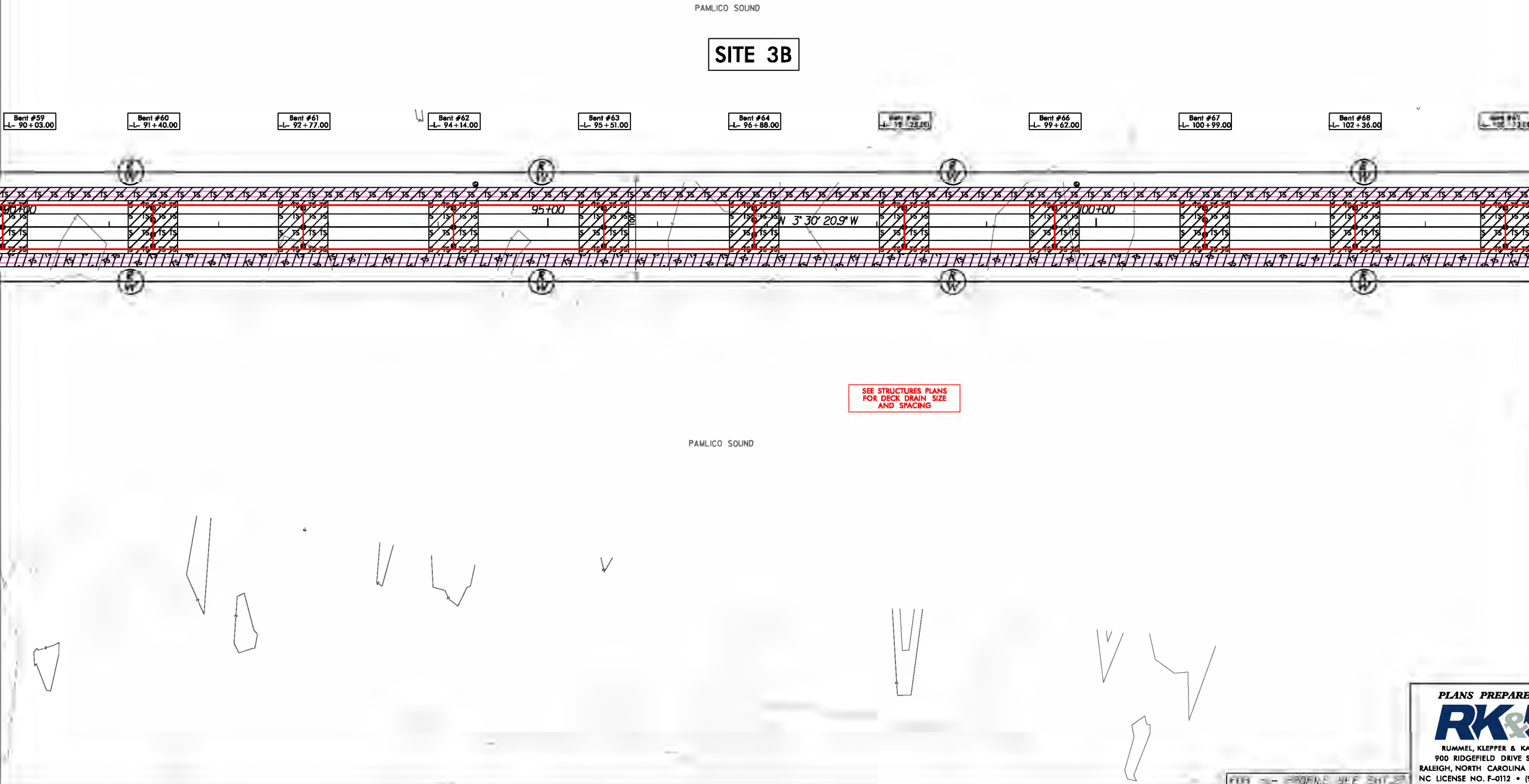
Drawing Date: 1/22/2018

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



MATCHLINE -L- STA. 90 + 00 SEE SHEET 9

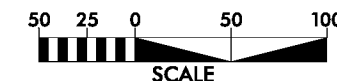
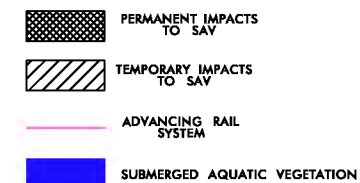
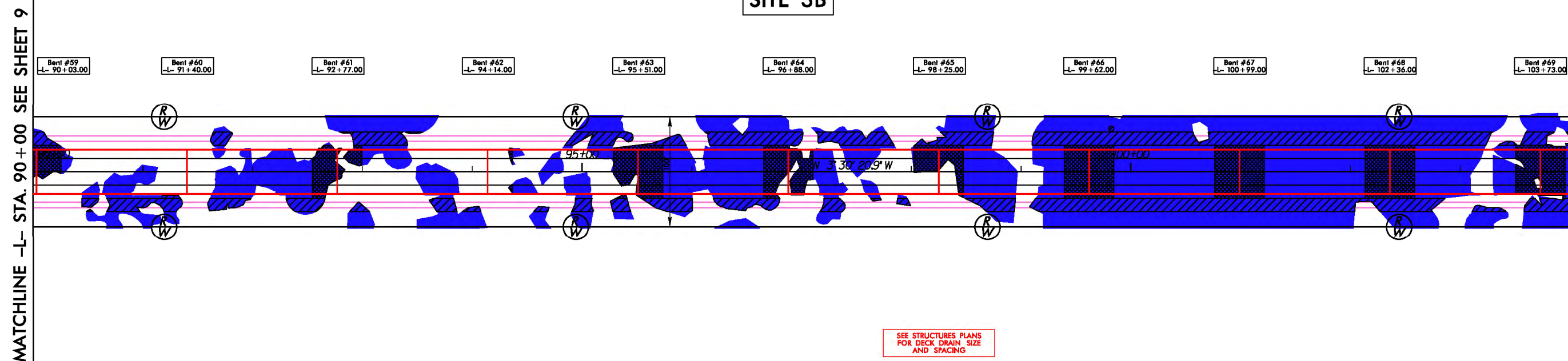
MATCHLINE -L- STA. 104 + 00 SEE SHEET 11



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**PERMIT DRAWING
SHEET 30 OF 44**

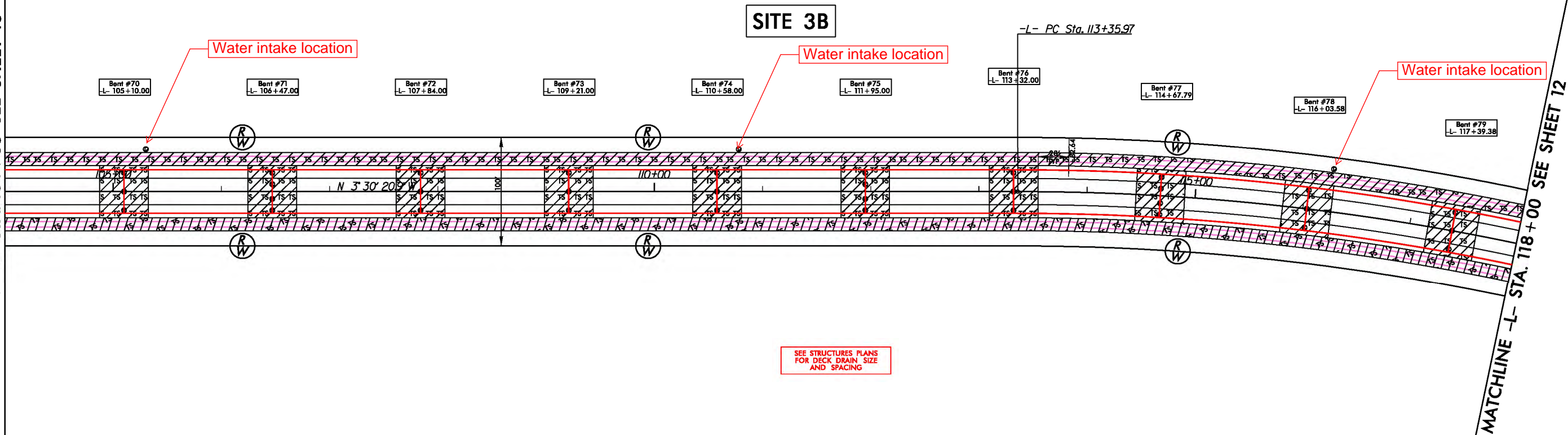
Drawing Date: 1/22/2018

**SITE 3B**

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MATCHLINE -L- STA. 104 + 00 SEE SHEET 10

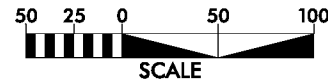


NAD 83

PERMIT DRAWING SHEET 31 OF 44

Drawing Date: 1/22/2018

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



PROJECT REFERENCE NO.		SHEET NO.
B-2500B		11
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
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RW SHEET NO.	ENGINEER
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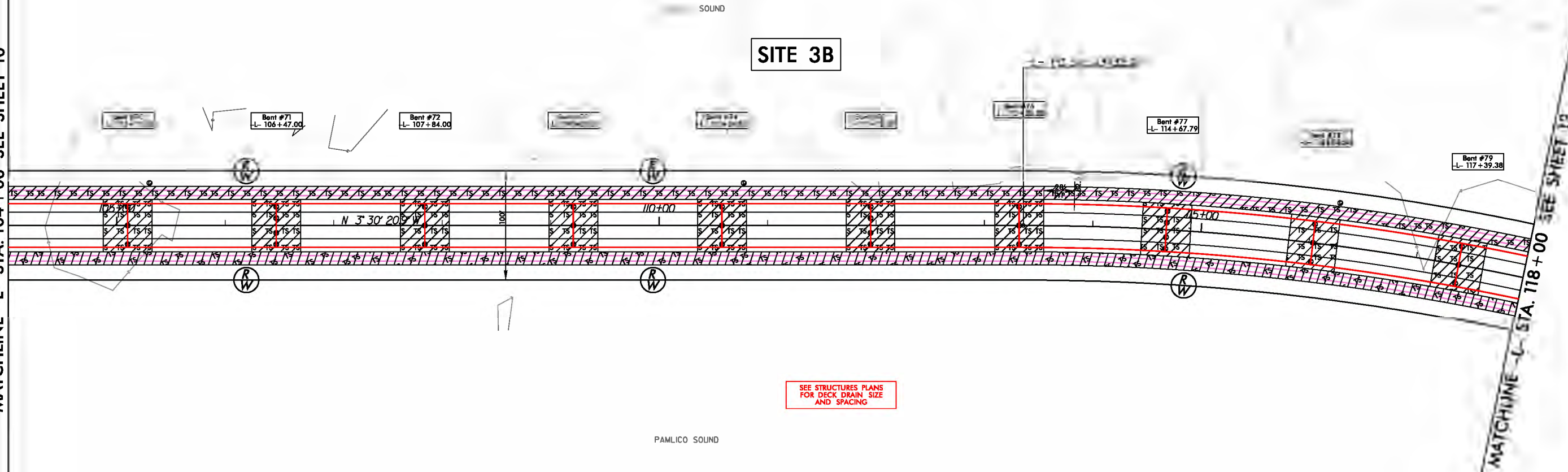
PERMIT DRAWING
SHEET 32 OF 44

Drawing Date: 1/22/2018

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



MATCHLINE -L- STA. 104 + 00 SEE SHEET 10



SITE 3B

SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

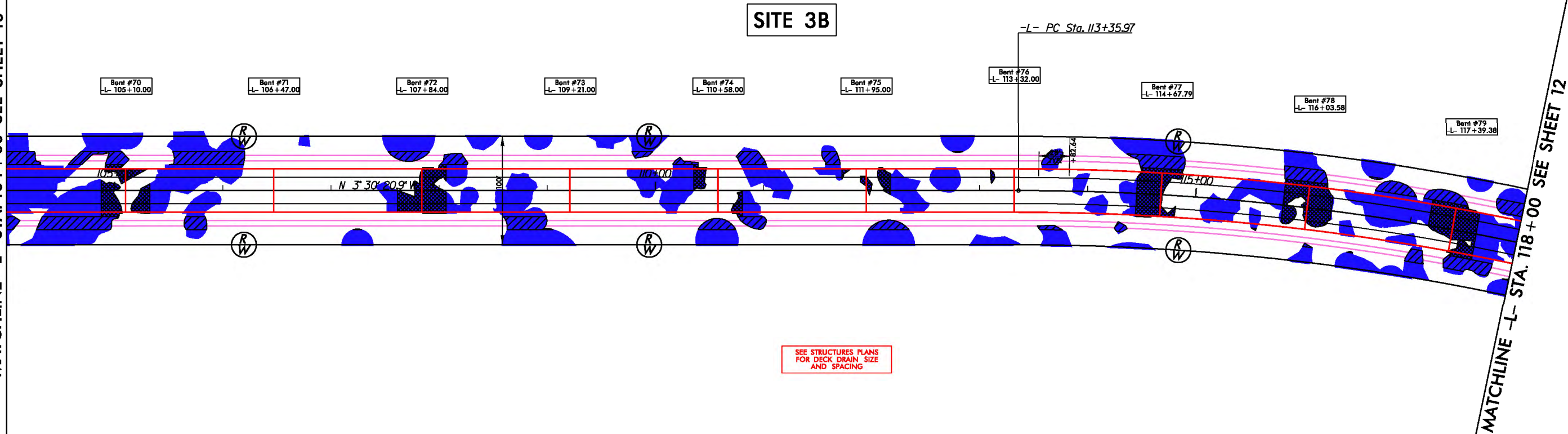
MATCHLINE -L- STA. 118 + 00 SEE SHEET 12

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1/2/2017
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MATCHLINE -L- STA. 104 + 00 SEE SHEET 10



SITE 3B

PERMIT DRAWING
SHEET 33 OF 44

Drawing Date: 1/22/2018

PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		11	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

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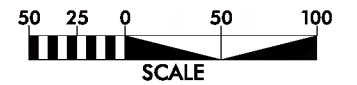
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PROJECT REFERENCE NO.		SHEET NO.
B-2500B		12
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PERMIT DRAWING
SHEET 34 OF 44

Drawing Date: 1/22/2018

- 5/5 DENOTES IMPACTS IN SURFACE WATER
- 15/15 DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- ADVANCING RAIL SYSTEM



SITE 3B

PAMLICO SOUND

-L- PT Sta. 125+65.42

Water intake location

MATCHLINE -L- STA. 118+00 SEE SHEET 11

MATCHLINE -L- STA. 132+00 SEE SHEET 13



SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

PAMLICO SOUND

CAMA
WETLAND

CAMA
WETLAND

CAMA
WETLAND

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FOR -L- PROFILE SEE SHT. 28

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PROJECT REFERENCE NO.		SHEET NO.	
B-2500B		12	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

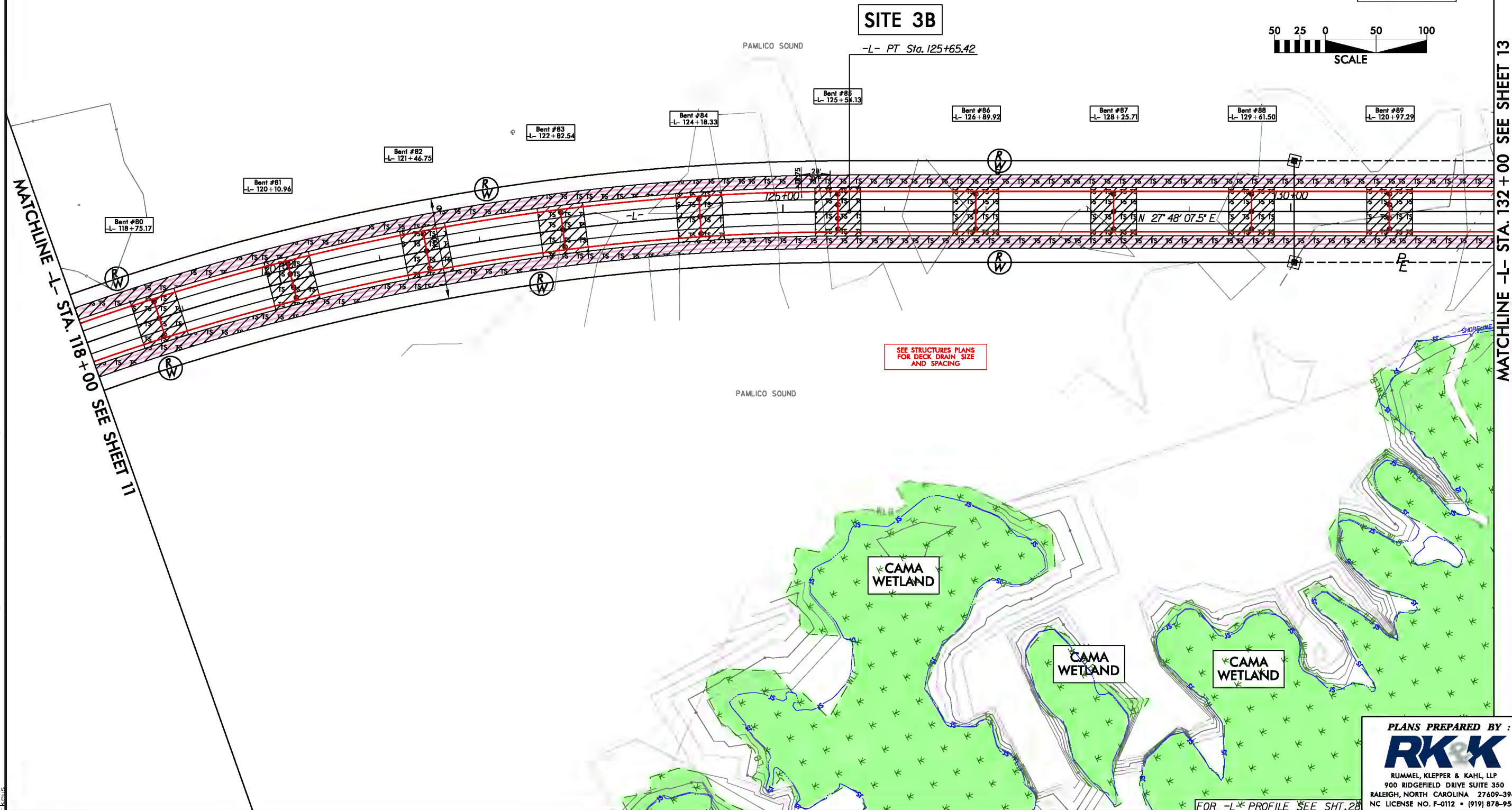
PERMIT DRAWING
SHEET 35 OF 44

Drawing Date: 1/22/2018

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  ADVANCING RAIL SYSTEM



SITE 3B

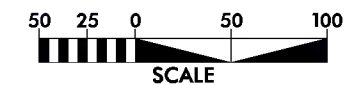
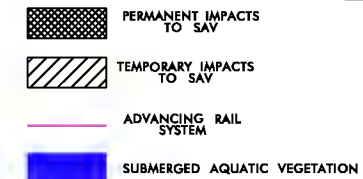


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FOR -L- PROFILE SEE SHT. 28

PERMIT DRAWING
SHEET 36 OF 44

Drawing Date: 1/22/2018



SITE 3B

-L- PT Sta. 125+65.42

PAMLICO SOUND

PAMLICO SOUND

**SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING**

← MATCHLINE -L- STA. 132 + 00 SEE SHEET 13

**CAMA
WETLAND**



**CAMA
WETLAND**

FOR -L- PROFILE SEE SHT.28

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1/2/2017
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- PERMIT DRAWING
SHEET 37 OF 44**
Drawing Date: 1/22/2018
- DENOTES FILL IN WETLAND
 - DENOTES HAND CLEARING
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY FILL IN WETLAND
 - CAMA WETLAND BOUNDARY
 - ADVANCING RAIL SYSTEM

PAMLICO SOUND

SITE 3C

SITE 3B

Water intake location

MATCHLINE -L- STA. 132+00 SEE SHEET 12

CAMA WETLAND

CAMA WETLAND

CAMA WETLAND

NAD 83

MATCHLINE -L- STA. 146+00 SEE SHEET 14



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PROJECT REFERENCE NO. B-2500B	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Bent #90
L- 132+33.08

Bent #91
L- 133+68.88

Bent #92
L- 135+04.67

Bent #93
L- 136+40.46

Bent #94
L- 137+76.25

Bent #95
L- 139+12.04

Bent #96
L- 140+47.83

Bent #97
L- 141+83.63

Bent #98
L- 143+19.42

Bent #99
L- 144+55.21

Bent #100
L- 145+91.00

SITE 3C

SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING

MATCHLINE SEE SHEET 23

ATLANTIC OCEAN

-L-
PI Sta 142+11.31
 $\Delta = 37^{\circ} 38' 12.9" (LT)$
 $D = 2^{\circ} 32' 06.8"$
 $L = 1,484.57'$
 $T = 770.18'$
 $R = 2,260.00'$
 $V = 60 \text{ mph}$
 $SE = .05$

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FOR -L- PROFILE SEE SHT.28
FOR -DET- PLAN SEE SHT.28-1

8/17/99
1/21/2017
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**PERMIT DRAWING
SHEET 38 OF 44**
Drawing Date: 1/22/2018

- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND
- CAMA WETLAND BOUNDARY
- ADVANCING RAIL SYSTEM

PAMLICO SOUND

CAMA WETLAND

CAMA WETLAND

SITE 3C

SITE 3B

SITE 3C

MATCHLINE -L- STA. 132+00 SEE SHEET 12

MATCHLINE SEE SHEET 23

PROJECT REFERENCE NO. B-2500B	SHEET NO. 13
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

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ATLANTIC OCEAN

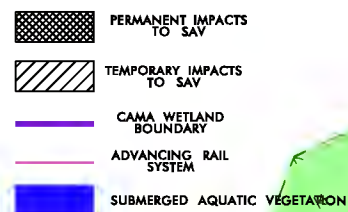
-L-
PI Sta 142+11.31
 $\Delta = 37^{\circ} 38' 12.9''$ (LT)
D = 2' 32" 06.8"
L = 1,484.57'
T = 770.18'
R = 2,260.00'
V = 60 mph
SE = .05

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FOR -L- PROFILE SEE SHT.28
FOR -DET- PLAN SEE SHT.28-1

PERMIT DRAWING
SHEET 39 OF 44

Drawing Date: 1/22/2018



PAMLICO SOUND

SITE 3C

SITE 3B

**CAMA
WETLAND**

**CAMA
WETLAND**



**CAMA
WETLAND**

SITE 3C



English



MATCHLINE -L- STA. 132+00 SEE SHEET 12

MATCHLINE SEE SHEET 23

ATLANTIC OCEAN

UNITED STATES OF AMERICA

**SEE STRUCTURES PLANS
FOR DECK DRAIN SIZE
AND SPACING**

-L-
PI Sta 142+11.31
$\Delta = 37^\circ 38' 12''$ (LT)
$D = 2^\circ 32' 06.8''$
$L = 1,484.57'$
$T = 770.18'$
$R = 2,260.00'$
$V = 60$ mph
$SE = .05$

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FOR -DET- PLAN SEE SHT.2B-1

8/23/16

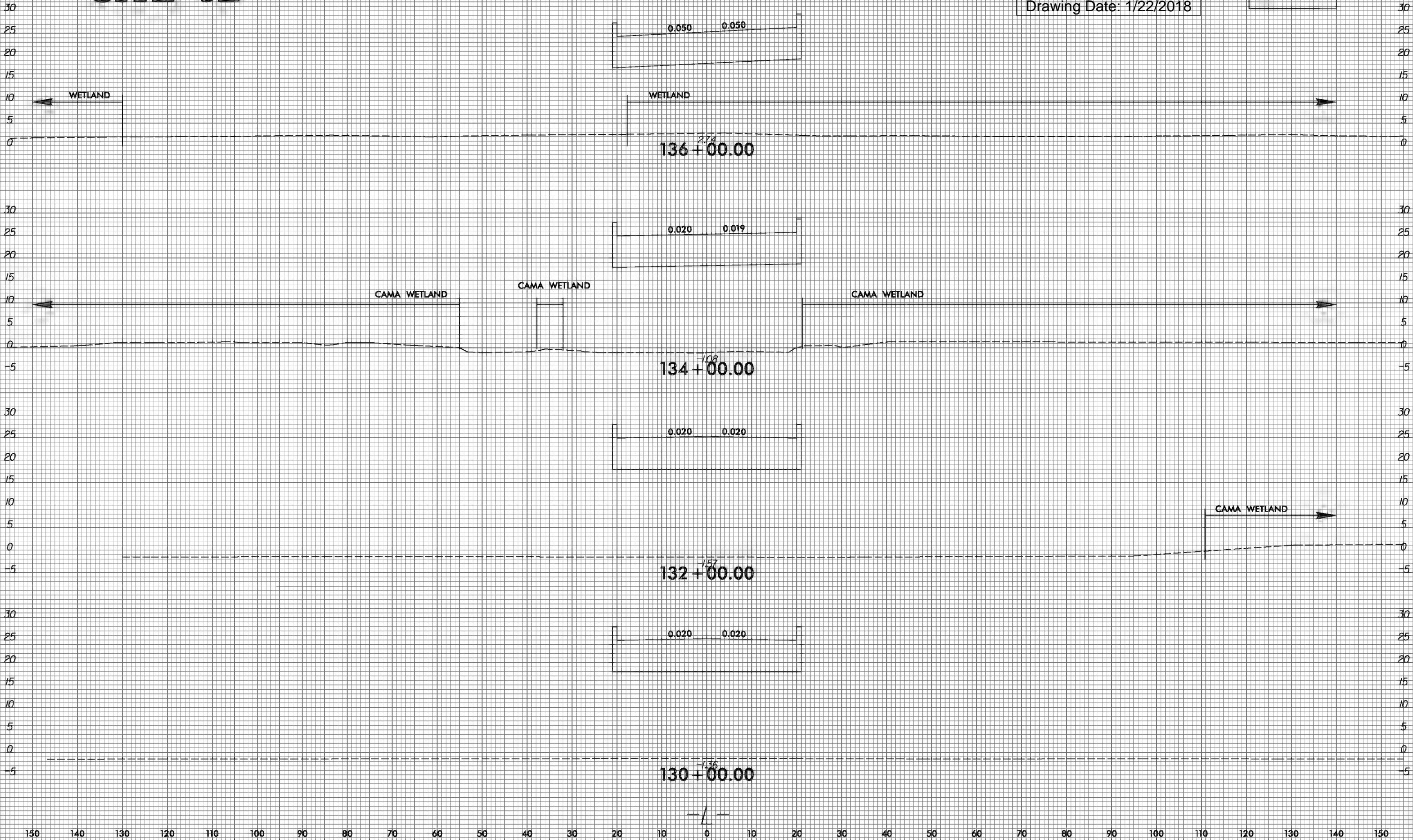


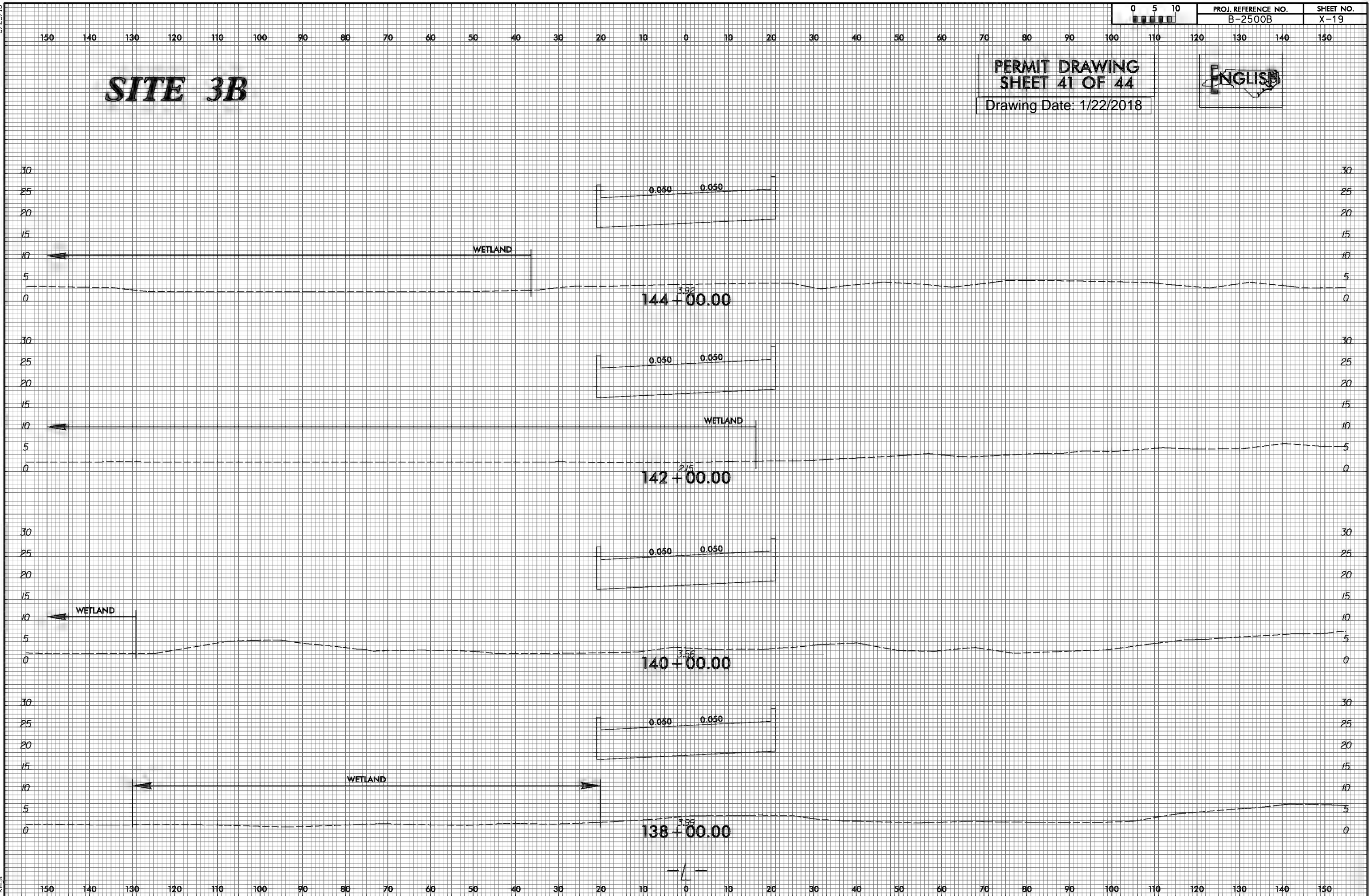
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B-2500B	X-18

SITE 3B

PERMIT DRAWING
SHEET 40 OF 44
Drawing Date: 1/22/2018

ENGLISH





B/17/99

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RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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SHEET 42 OF 44
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2/1/2018
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PROJECT REFERENCE NO.	SHEET NO.
B-2500B	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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REVISED 2/2018

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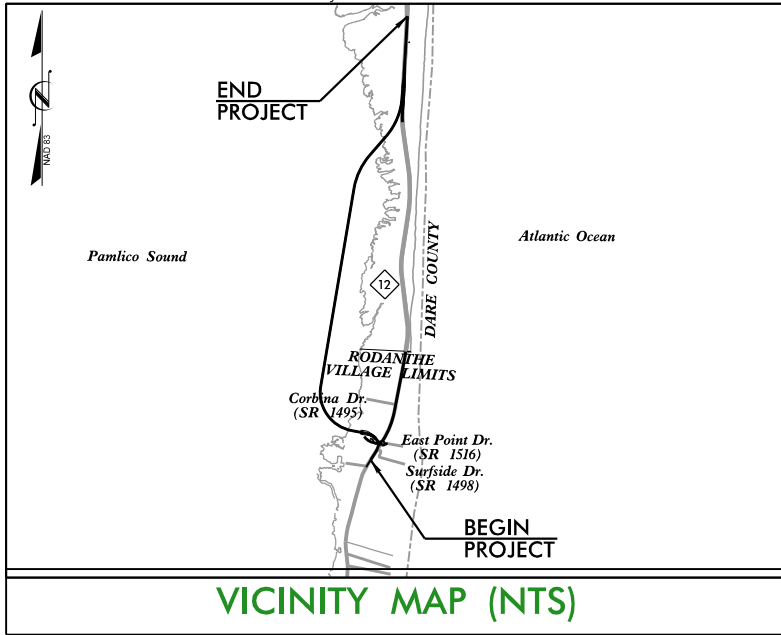
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TIP PROJECT: B-2500B

CONTRACT: C203474

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DARE COUNTY

LOCATION: NC 12 - RODANTHE BREACH LONG TERM IMPROVEMENTS (PHASE IIB)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING & STRUCTURES

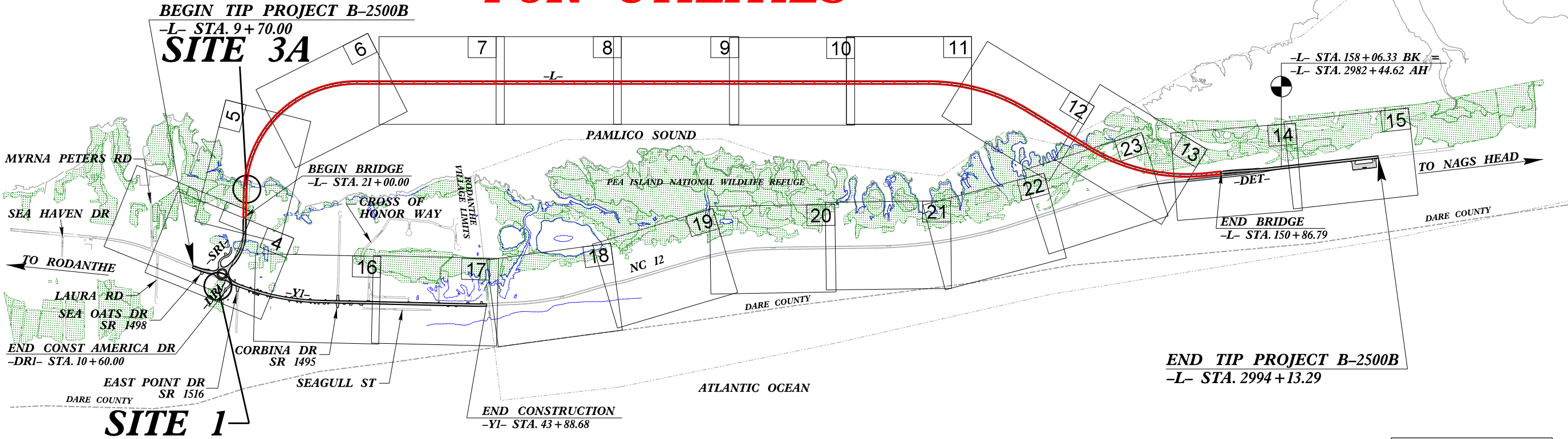
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2500B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32635.3.FR7	BRNH-0012(56)		



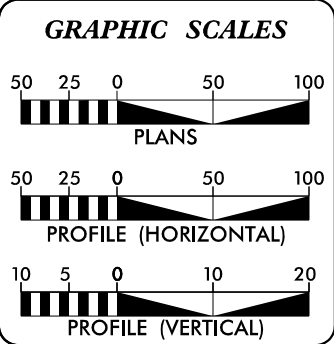
UTILITY
PERMIT DRAWING
SHEET 1 OF 9
Drawing Date: 1/22/2018



**JURISDICTIONAL IMPACTS
FOR UTILITIES**



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.



DESIGN DATA
ADT 2017 = 9,800
ADT 2037 = 14,200
V = 40 /60 MPH
FUNC. CLASSIFICATION =
RURAL COLLECTOR

PROJECT LENGTH
LENGTH ROADWAY TIP PROJECT B-2500B.....0.572 mi
LENGTH STRUCTURE TIP PROJECT B-2500B.....2.460 mi
TOTAL LENGTH TIP PROJECT B-2500B.....3.032 mi

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER - DESIGN-BUILD GROUP

PLANS PREPARED BY:
RK&K RUMMEL, KLEPPER & KAHN, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
FOR NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

LETTING DATE:
JANUARY 25, 2017

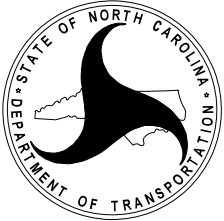
B. Keith Skinner, P.E.
PROJECT ENGINEER

Brandon J. McInnis, P.E.
PROJECT DESIGN ENGINEER

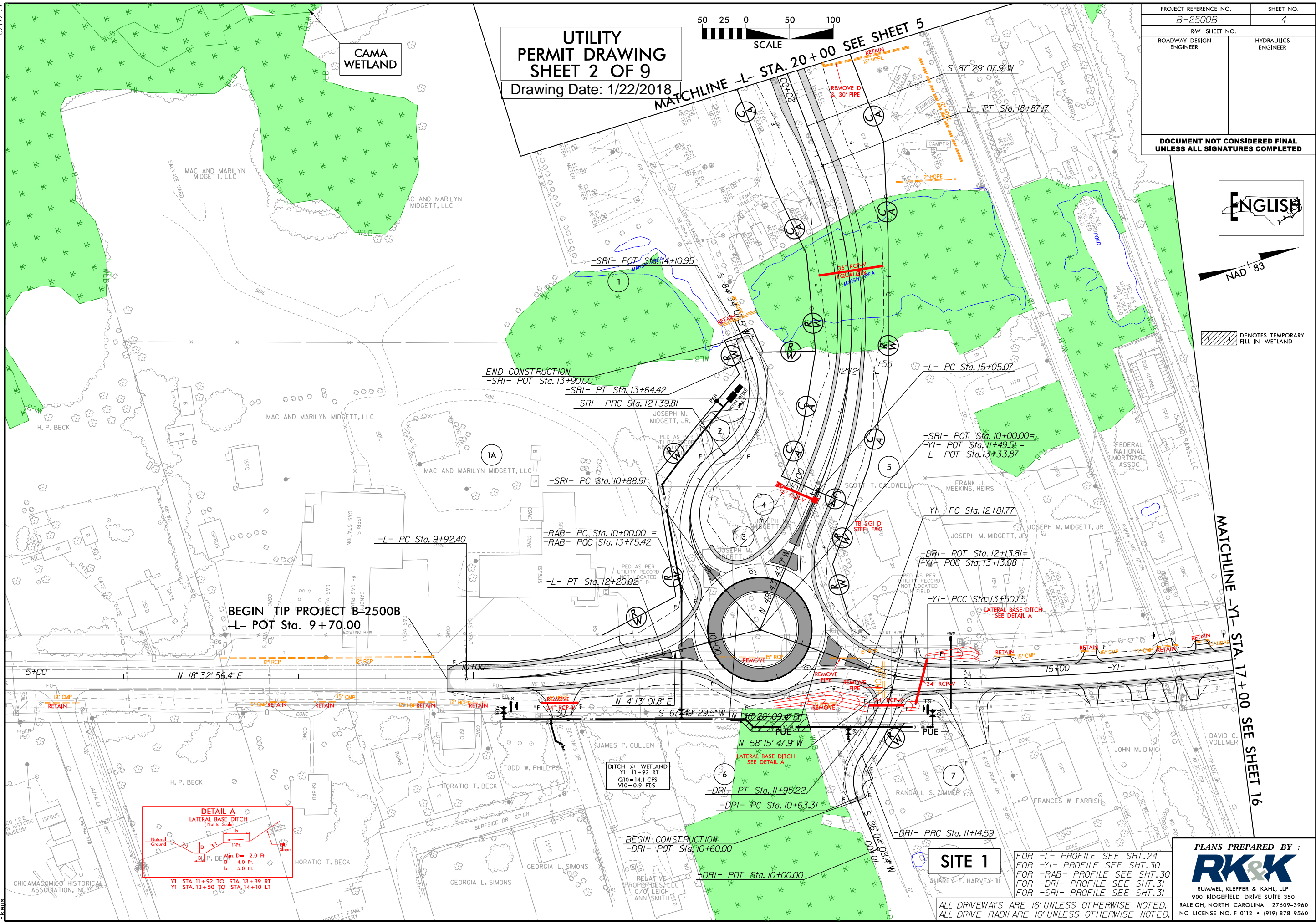
HYDRAULICS
ENGINEER

SIGNATURE: _____ P.E.
ROADWAY
DESIGN
ENGINEER

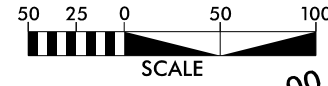
SIGNATURE: _____ P.E.



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<p align="center">UTILITY PERMIT DRAWING SHEET 3 OF 9</p> <p>Drawing Date: 1/22/2018</p>



**CAMA
WETLAND**

BEGIN TIP PROJECT B-2500B
-L- POT Sta. 9+70.00

DETAIL A
LATERAL DITCH
 (Not to Scale)

Diagram showing a lateral ditch with dimensions:

- Top width: b
- Bottom width: B
- Side slope: 3:1
- Bottom width: $1\frac{1}{2}$ Ft.
- Minimum depth: Min. D = 2.0 Ft.
- Bottom width: $B = 4.0$ Ft.
- Bottom width: $b = 5.0$ Ft.

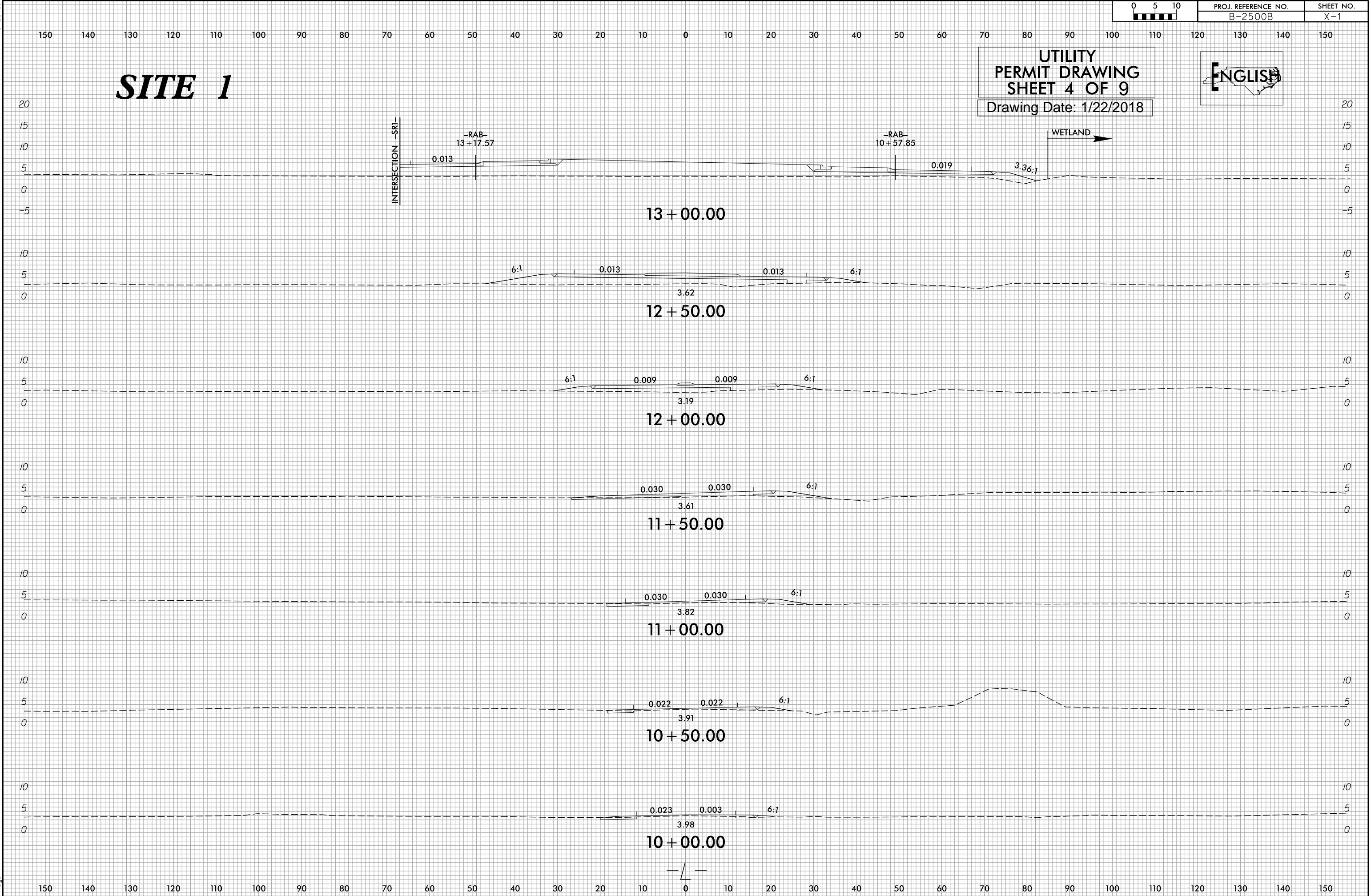
Stationing information:

- STA. 11+92 TO STA. 13+39 RT
- STA. 13+50 TO STA. 14+10 LT

SITE 1

FOR -L- PROFILE SEE SHT.24
FOR -YI- PROFILE SEE SHT.30
FOR -RAB- PROFILE SEE SHT.30
FOR -DRI- PROFILE SEE SHT.31
FOR -SRI- PROFILE SEE SHT.31

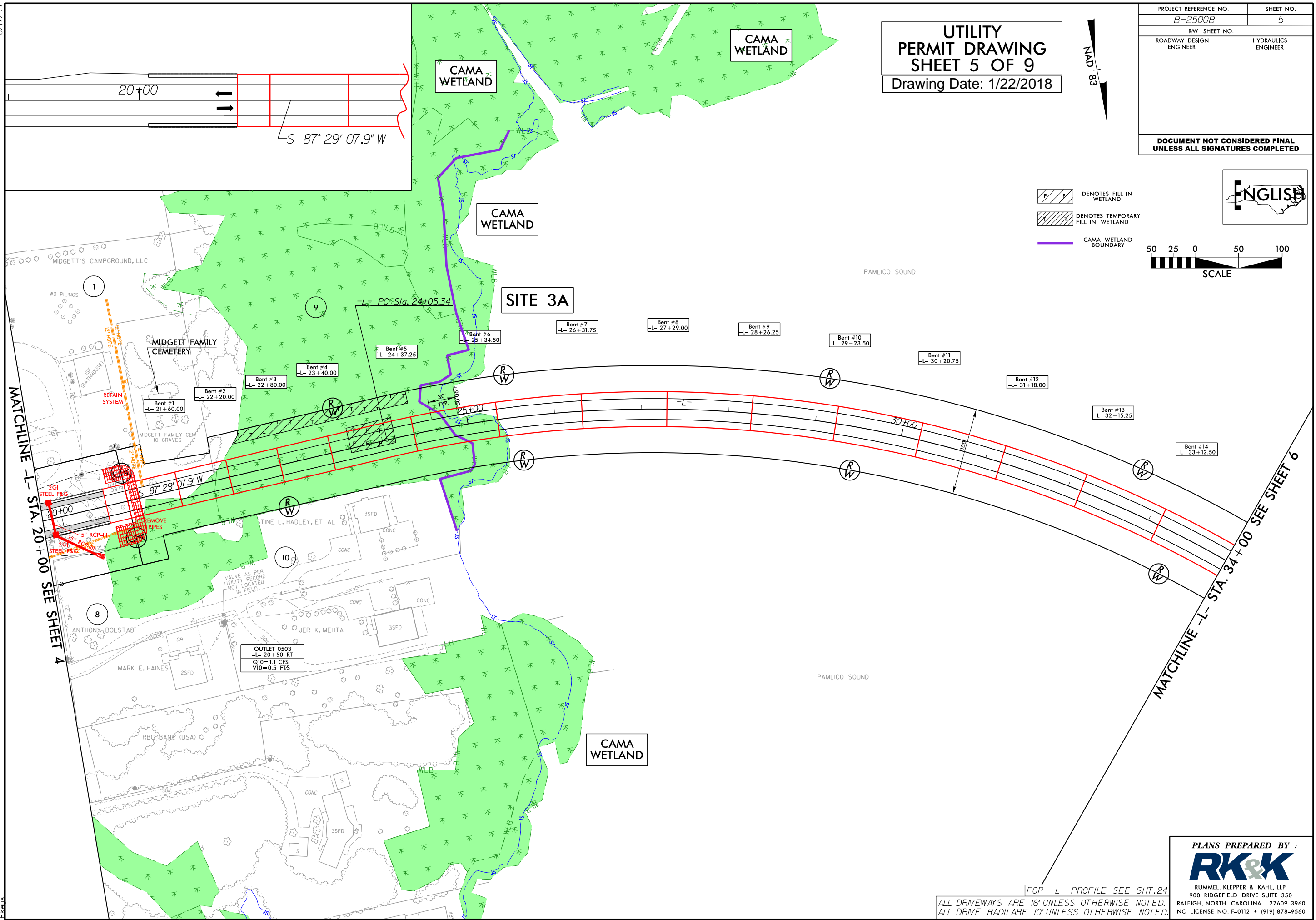
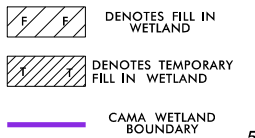
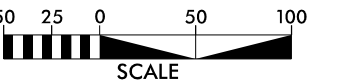
ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED.
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.



**UTILITY
PERMIT DRAWING
SHEET 5 OF 9**

Drawing Date: 1/22/2018

NAD+83



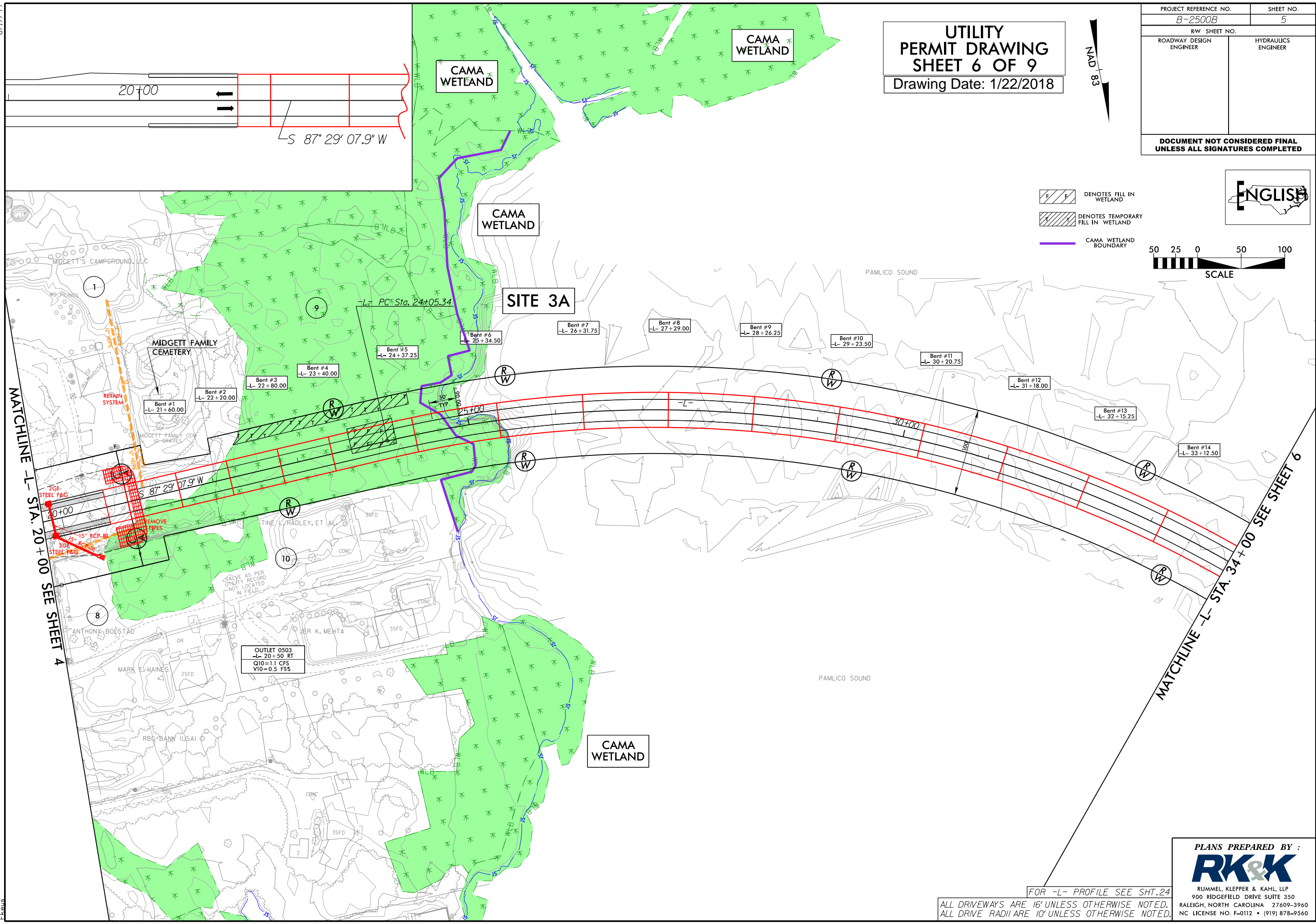
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 9/17/09

FOR -L- PROFILE SEE SHT.24

ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED.
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

PLANS PREPARED BY :
RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 00 RIDGEFIELD DRIVE SUITE 350
 GH, NORTH CAROLINA 27609-3960
 LICENSE NO. F-0112 • (919) 878-9560

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8/21/2017



FOR -L- PROFILE SEE SHT. 24
ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED.
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

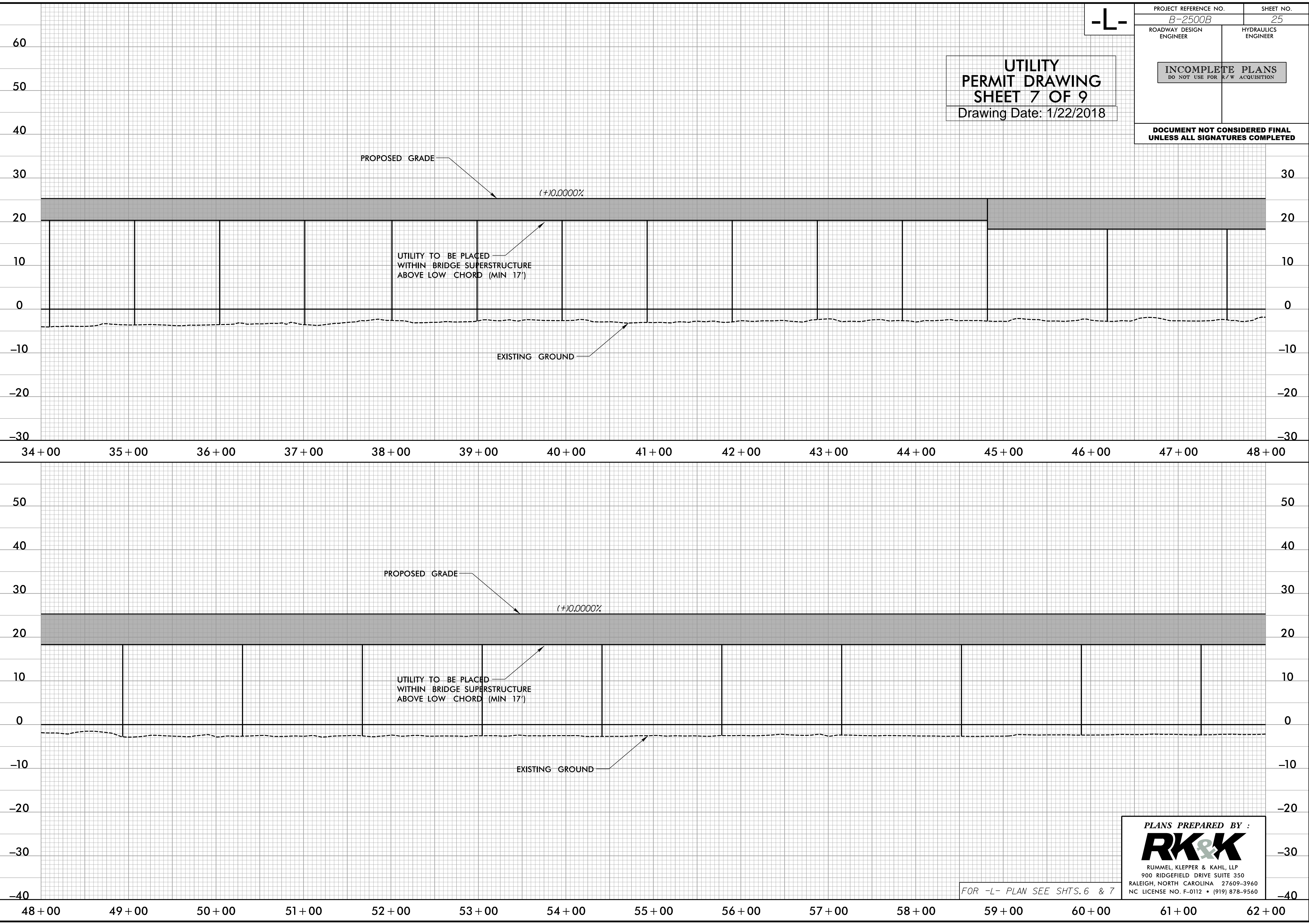
PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

5/28/99
1/15/2018
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-L-

UTILITY
PERMIT DRAWING
SHEET 7 OF 9
Drawing Date: 1/22/2018

PROJECT REFERENCE NO. B-2500B		SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



FOR -L- PLAN SEE SHTS. 6 & 7

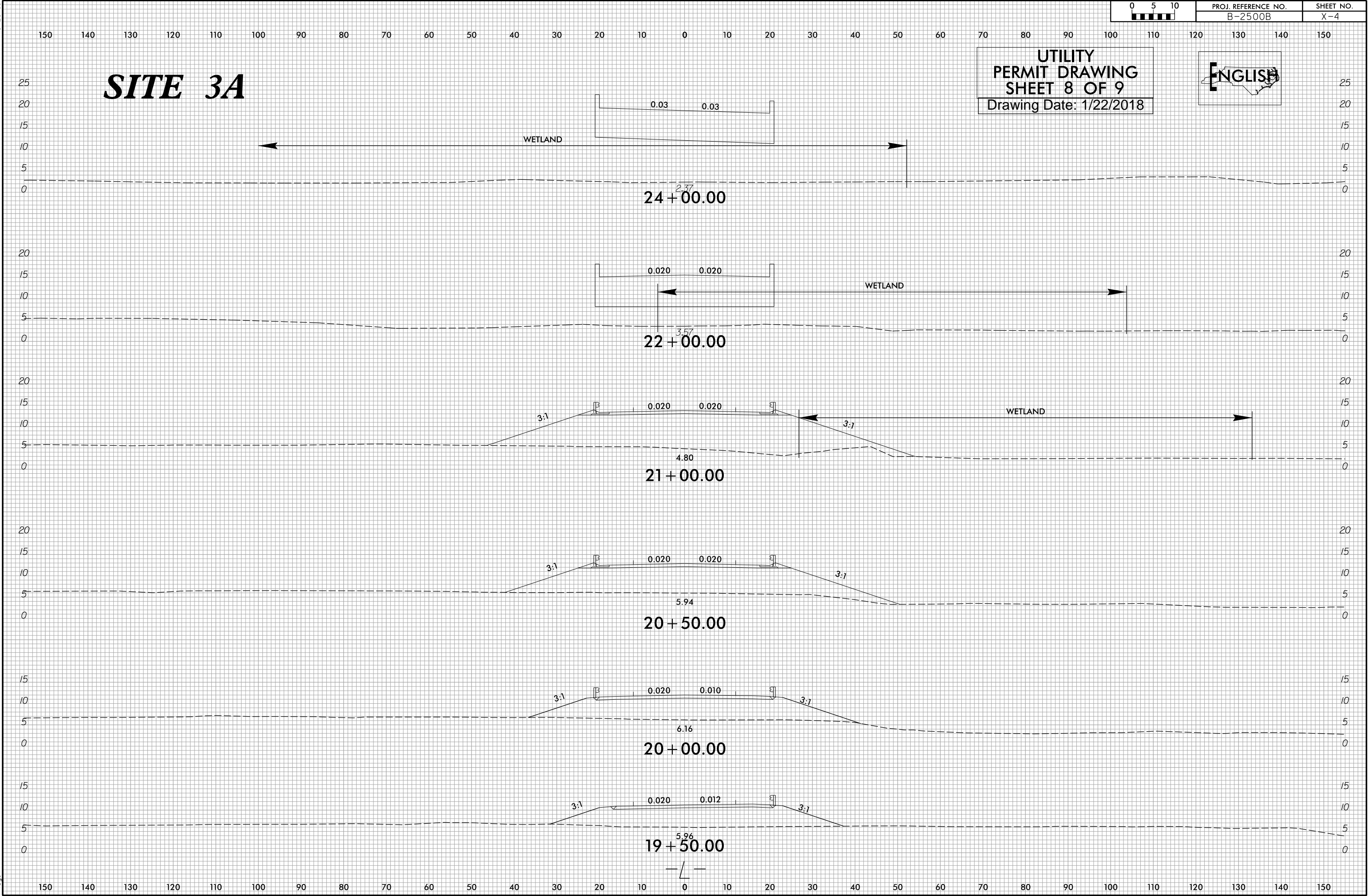
PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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6/23/16

11/2/2017
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WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 13+00 RT	8" WATER LINE		0.03								
3A	-L- 24 +27	UTILITIES ON BRIDGE	0.04	0.06								
TOTALS*:			0.04	0.10								

NOTES:

SHEET 9 OF 9