



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 17, 2019

MEMORANDUM TO: Mr. Scott Cole, P.E.
Division 10 Engineer

FROM: Philip S. Harris, III, P.E., Manager
Environmental Analysis Unit

SUBJECT: **Environmental Permits (404 and 401) for the Improvements to NC 24/27 from NC 740 in Albemarle to the Proposed Troy Bypass in Stanly and Montgomery Counties, TIPs R-2530 B, B-4974, and R-2527 Division 10; Federal Aid Project No. STBG-0024(083), WBS Nos. 34446.1.7, 39922.1.1 & 35572.1.1**

The US Army Corps of Engineers Permit and N.C. Division of Water Resources (NCDWR) Water Quality Certification for this project have been received. All environmental permits have been received for the construction of R-2530 B and B-4974. Permit modifications for R-2537 (currently in preliminary design) will be required in the future.

A copy of this permit package will be posted on the NCDOT website at:
<https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>
Quick Links>Permit Documents> Issued Permits.

cc:

Mr. Ron Davenport, P.E., Contracts Management
Mr. Larry Thompson, Division 10 Environmental Officer
Mr. Carl Barclay, P.E., Utilities Unit
Mr. Stephen Morgan, P.E., Hydraulics
Mr. Brian Hanks, P.E., Structure Design
Mr. Mark Staley, EI, CPESC, CPSWQ, Roadside Environmental
Ms. Brenda Moore, P.E., State Roadway Engineer
Ms. Virginia Mabry, Project Management Unit
Mr. M. Lamar Sylvester, P.E., State Construction Engineer

PROJECT COMMITMENTS

NC 24-27

From NC 740 in Albemarle

To the Proposed Troy Bypass (R-623), west of Troy

Stanly and Montgomery Counties

Federal Aid Project STBG-0024(083) – R-2530B

WBS Elements 34446.1.7, 39922.1.1, & 35572.1.1

TIP Projects R-2530B, B-4974, and R-2527

COMMITMENTS FROM DESIGN

Current status, changes, or additions to the project commitments as shown in the environmental document for the project are printed in *italics*.

Project Development & Environmental Analysis Unit/ Natural Environmental Unit

NCDOT will coordinate with ~~Progress~~ Duke Energy regarding any requirements of the Federal Energy Regulatory Commission (FERC) ~~regarding~~ approvals. Requirements from the FERC regarding approvals will be met prior to right of way acquisition.

The Final FERC Conveyance Application was submitted on May 16, 2019.

Project Development & Environmental Analysis Unit, Roadway Design Unit, Rail Division

In the R-2527 project limits, the Norfolk Southern Railroad bridge crosses NC 24-27 within the Uwharrie National Forest which is under the US Forest Service's jurisdiction. NCDOT will ensure that the US Forest Service is part of the project's railroad design coordination process.

Project R-2527 was recently funded in the Draft STIP. However, while this FONSI was being developed, TIP Project R-2527 was unfunded and final design plans were postponed. NCDOT will coordinate with the US Forest Service regarding the railroad design and will begin to develop right of way plans for Project R-2527. Results of this coordination will be captured in a consultation document.

Geotechnical Unit

Preliminary site assessments will be conducted for twenty-three potentially contaminated sites within the proposed right of way prior to right of way acquisition.

Site assessments will be determined and completed once final ROW plans become available and prior to ROW acquisition.

Divisions 8 and 10 Construction Units

This project involves construction activities on or adjacent to the Federal Emergency Management Agency (FEMA) regulated stream. Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

This is a standard project commitment.

Division 8 and 10 Construction and Wildlife Resources Commission

NCDOT commits to resurface and pave the Swift Island Boat access facility parking lot with the conditions that a de minimus determination will be rendered for the impacts to the property. WRC commits to allow NCDOT access to the property to complete these construction activities.

Hydraulics Unit

The Hydraulics Unit will coordinate with the Floodplain Mapping Program (FMP), the delegated state agency for administering FEMA's National Flood Insurance Program, to determine the status of the project with regard to applicability of NCDOT'S Memorandum of Agreement with FMP, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This commitment will be addressed during final design.

Division of Bicycle and Pedestrian Transportation, Project Development & Environmental Analysis Unit, Roadway Design Unit

Fourteen foot outside travel lanes will be utilized for bicycle accommodations from NC 740 in Albemarle to SR 1731, Sweet Home Church Road. Four foot paved shoulders will be utilized for bicycle accommodations from SR 1731, Sweet Home Church Road to the proposed Troy Bypass, west of Troy.

The current design illustrates this commitment.

Bicycle and pedestrian accommodations will be further coordinated with the City of Albemarle prior to final project design. In accordance with the NCDOT Pedestrian Policy, NCDOT will bear the full cost to replace any existing sidewalks to be relocated by the project along existing streets. The City of Albemarle will participate in the cost of new sidewalks in areas where sidewalks do not currently exist. A municipal agreement will be prepared prior to project construction.

The City of Albemarle has committed to participate in sidewalk accommodations. The municipal agreement will be prepared prior to construction. Five-foot sidewalks are proposed on both the north and south sides of NC 24-27-73, within the Albemarle city limits and the southwest quadrant of NC 24-27-73 (Spaulding Street) and SR 1625 (Raleigh Highway) for approximately 325 feet.

Project Development & Environmental Analysis Unit – Natural Environment Section

Due to the presence of Schweinitz's sunflower within the project area as well as within 1-mile of the project area, a biological conclusion of "May affect, likely to adversely affect" has been given. Additional surveys will be required prior to project construction, and this biological conclusion will necessitate further coordination and consultation with the US Fish and Wildlife Service. A Biological Assessment and a Biological Opinion will be completed prior to the completion of the final environmental document.

A Biological Opinion was issued by USFWS on December 12, 2019 1 for R-2530B & B-4974. Informal concurrence was issued for R-2527 by USFWS on April 19, 2019.

Additional bald eagle surveys may be required within Montgomery County and Stanly County prior to project construction as specified by the Bald and Golden Eagle Protection Act. However, these surveys will be restricted to 660 feet from the edge of the project boundaries.

This commitment will be addressed prior to construction.

This project may impact individuals of the three S and LR species (smooth coneflower, large witch alder and glade wild quinine), but will not affect the viability of any of the three species across the forest. Discussions will occur with the USFS to determine avoidance and minimization options.

A BE was approved on March 19, 2019 by USFS.

Project R-2527 was recently funded in the Draft STIP. However, while this FONSI was being developed, TIP Project R-2527 was unfunded and final design plans were postponed. Updated Forest Services survey will occur in 2017 and 2018 for TIP Project

R-2527. NCDOT will coordinate with the Forest Service and will begin to develop right of way plans for Project R-2527. Results of this coordination and the new surveys will be captured in a consultation document prior to R/W acquisition for project R-2527.

The Northern Long-Eared Bat has been added to the species list since the completion of the EA. NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for Northern Long-Eared Bat.

Project Development & Environmental Analysis Unit, Roadway Design Unit

~~The proposed project will have “no adverse effect” on Bridge No. 51 if a responsible party agrees to take ownership of Bridge No. 51 and preserves it in place. A Section 4(f) evaluation and a Memorandum of Agreement (MOA) will be required for B-4974, Alternative 1 if a responsible party does not agree to take ownership of Bridge No. 51 and for B-4974, Alternative 4 since Bridge No. 51 will be removed.~~

Bridge No. 51 is proposed to be rehabilitated. Coordination with the SHPO and NCDOT Historic Architecture Section, rendered a no adverse effect determination for this improvement.

Project Development & Environmental Analysis Unit–Human Environment Section

Multilingual public outreach measures will be taken on an “as needed” basis.

This commitment was satisfied during out public involvement process.

Divisions 8 and 10 Construction Units, Utilities Unit – Relocation of Utilities

All relocation of utilities including but not limited to power lines, water and sewer lines, and communication lines located on NFS lands must be coordinated with the USFS. Utility companies cannot use the easement granted to the North Carolina Department of Transportation for construction and operation of the highway for their uses. All utility companies must work directly with the USFS to modify their existing special use permits on relocations within the project area.

Divisions 8 and 10 Construction Units, Roadside Environmental – Landscaping and Erosion Control

Landscaping and erosion control plants and seed mixes to be used on NFS lands must be discussed with the FS and disclosed in this document.

Project R-2527 was recently funded in the Draft STIP. However, while this FONSI was being developed, TIP Project R-2527 was unfunded and final design plans were postponed. Coordination is needed with the US Forest Service and NCDOT Roadside Environmental Unit regarding erosion control plants and seed mixes to be used on NFS lands.

Roadside Environmental Unit, Division Resident Engineer – High Quality Waters

Given the potential for impacts to the resources during the project implementation, NCDWQ requests that NCDOT strictly adhere to North Carolina regulations entitles Design Standards in Sensitive Watersheds (15A NCAC 04B .0124) throughout design and construction of the project. This would apply for any area that drains to streams having WS CA (Water Supply Critical Area) classifications.

Standard Procedure. This commitment will be implemented during construction.

Project Development & Environmental Analysis Unit – Archaeological Section

*Six National Register of Historic Places (NRHP) eligible archaeological sites (31Mg1806, 31Mg1629, 31Mg321, 31St195, 31St196 and 31St204/204**) will be adversely effected by the undertaking per the 2014 Notification of Adverse Effect Finding. A Memorandum of Agreement (MOA) will be prepared by NCDOT in consultation with the Historic Preservation Office, the United States Forest Service (USFS) and other consulting parties that may be identified and invited by FHWA to participate. The MOA will detail the measures NCDOT plans to carry out to mitigate adverse effects to these sites. USFS is requiring actual Right-of-Way (ROW) widths to identify the actual impacts to archaeological resources present in the project area(s) and to prescribe mitigation for projection of historic resources. All required data recovery mitigation efforts will be initiated after ROW acquisition is completed relative to each site. No construction related activities are permitted within an individual site's limits until the field investigation/ mitigation requirements relative to that site have been completed. Each site will require six months after their respective ROW acquisition is complete in order to complete their respective field investigation/ mitigation requirements*

Project Development & Environmental Analysis Unit – Human Environment Section – Traffic Noise & Air Quality Group

A Design Noise Report (DNR) will be completed during final design.

COMMITMENTS FROM PERMITTING

SPECIAL CONDITIONS FROM 404 PERMIT

- a. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.
- b. NCDOT shall abide by all stipulations identified in the Memorandum of Agreement between the Permittee, the North Carolina State Historic Preservation Officer, the Federal Highway Administration, the United States Forest Service, and the Catawba Indian Nation, signed by the North Carolina State Historic Preservation Officer on 12/19/2018, copy attached and identified as Attachment 1.
- c. This Department of the Army permit does not authorize you to take an endangered species, in particular the Schweinitz's sunflower, *Helianthus schweinitzii*. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed U.S. Fish and Wildlife Service Biological Opinion (BO) (Attachment 2) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your permit. The U.S. Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.
- d. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (BO) titled "Northern Long-eared Bat (NLEB) Programmatic Biological Opinion for North Carolina Department of Transportation (NCDOT) Activities in Eastern North Carolina (Divisions 1-8)," dated March 25, 2015, and adopted on April 10, 2015, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the BO. Your authorization under this Department of the Army permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Department of the Army permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.
- e. This permit only authorizes work on Sections TIP R-2530B and B-4974. Construction on Sections of TIP R-2527 shall not commence until: (a) final design has been completed for those sections and submitted to the U.S. Army Corps of Engineers (Corps); (b) the Permittee has minimized impacts to waters and wetlands to the maximum extent practicable and the Corps concurs with this assessment through standard Merger 4B and 4C meetings; (c) any modification to the plans have been approved by the Corps in writing; and (d) a final compensatory mitigation plan has been submitted by the Permittee and approved by the Corps.

Work Limits: All work authorized by this permit shall be performed in strict compliance with the attached permit plans, which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the US Army Corps of Engineers prior to any active construction in waters or wetlands.

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action Id. SAW-2008-02315 County: Montgomery U.S.G.S. Quad: NC-Morrow Mountain

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: North Carolina Department of Transportation (NCDOT)

Address: Carla Dagnino
1020 Birch Ridge Drive
Raleigh, NC 27610

Telephone Number: 919-707-6126

E-mail: jhemphill@ncdot.gov

Size (Corridor Length) ~14.6 miles

Nearest Waterway Pee Dee River

USGS HUC 03040104

Nearest Town Mount Gilead

River Basin Upper Pee Dee

Coordinates Latitude: 35.30960

Longitude: -80.07704

Location description: The project area consists of an approximately 14.6 mile corridor that spans along NC 24-27 from NC 740 in the City of Albemarle in Stanly County, NC to the proposed Troy Bypass (NCDOT Transportation Improvement Program (TIP) project R-623) which is located west of the Town of Troy in Montgomery, NC.

Description of projects area and activity: The project is a combination of three separate NCDOT projects: TIP projects R-2530B, B-4974 and R-2527. TIP projects R-2530B and B-4974 have final impact totals that are based off of final design plans; whereas, TIP project R-2527 is only in the preliminary design phase with 25 percent review plans.

TIP project R-2530B will widen the existing NC 24-27, from west of NC 740 to the Pee Dee River in Stanly County, from a two to three-lane facility to a four-lane divided facility. TIP project R-2530B will also involve a superstreet design in the areas where curb and gutter is proposed. TIP project B-4974 will rehabilitate the existing Bridge No. 51 over the Pee Dee River on the Stanly / Montgomery County line. In general, this verification would authorize the following:

- the permanent discharge of fill material into 1.01 acre wetlands;
- the permanent discharge of fill material into 0.75 acre of open waters;
- the permanent discharge of fill material into 4,980 linear feet of stream;
- the permanent discharge of fill material into 695 linear feet of streams for bank stabilization causing a permanent impact to the streams but not a permanent loss of waters; and
- the temporary discharge of fill material into 611 linear feet of streams.

TIP project R-2527 will widen the existing NC 24-27 from a two-lane facility to a four-lane divided facility from east of the Pee Dee River to the Troy Bypass. Note that TIP project R-2527 is only in preliminary design with 25 percent review plans. The preliminary impact totals to streams, wetlands and open waters are estimated by using the project's slope stakes plus an additional 25 feet. According to the 25 percent review plans for TIP project R-2527, the preliminary impacts are as follows:

- impacts to 1.04 acre of wetlands,
- impacts to 8068 linear feet of streams, and
- impacts to 0.45 acre of open water.

This verification authorizes the impacts to streams, wetlands and open waters that would result from TIP projects R-2530B, B-4974 and R-2527. However, please refer to the attached Special Condition e. with regards to construction timing.

Applicable Law(s): Section 404 (Clean Water Act, 33 USC 1344)
 Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: **RGP198200031 NC DOT Bridges Widening Projects, Interchange Improvements**

SEE ATTACHED NWP GENERAL, REGIONAL, AND/OR SPECIAL CONDITIONS

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the enclosed

Conditions, your application signed and dated 10/16/2018, and the plans attached to this verification (1. Wetland and Surface Water Impacts Permit drawings TIP Project: R-2530B (Impact Tables include impacts associated with B-4974) dated 10/15/2018; 2. NEU Permit Plans for TIP Project: R-2530B/B-4974B Sheets Nos. UE-6 and UE-7 dated 9/28/2018; and 3. Preliminary Wetland and Surface Water Impacts Permit drawings 25% Review Plans for TIP project: R-2527). Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 919-807-6300) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management **Morehead City, NC, at (252) 808-2808**.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Roscoe L. Sullivan, III** at **919-554-4884 ext. 25** or **roscoe.l.sullivan@usace.army.mil**.



Corps Regulatory Official: _____ Date: **5/2/2019**
Expiration Date of Verification: **4/30/2020**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

SPECIAL CONDITIONS

a. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

b. NCDOT shall abide by all stipulations identified in the Memorandum of Agreement between the Permittee, the North Carolina State Historic Preservation Officer, the Federal Highway Administration, the United States Forest Service, and the Catawba Indian Nation, signed by the North Carolina State Historic Preservation Officer on 12/19/2018, copy attached and identified as Attachment 1.

c. This Department of the Army permit does not authorize you to take an endangered species, in particular the Schweinitz's sunflower, *Helianthus schweinitzii*. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed U.S. Fish and Wildlife Service Biological Opinion (BO) (Attachment 2) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your permit. The U.S. Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

d. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (BO) titled "Northern Long-eared Bat (NLEB) Programmatic Biological Opinion for North Carolina Department of Transportation (NCDOT) Activities in Eastern North Carolina (Divisions 1-8)," dated March 25, 2015, and adopted on April 10, 2015, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the BO. Your authorization under this Department of the Army permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Department of the Army permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

e. This permit only authorizes work on Sections TIP R-2530B and B-4974. Construction on Sections of TIP R-2527 shall not commence until: (a) final design has been completed for those sections and submitted to the U.S. Army Corps of Engineers (Corps); (b) the Permittee has minimized impacts to waters and wetlands to the maximum extent practicable and the Corps concurs with this assessment through standard Merger 4B and 4C meetings; (c) any modification to the plans have been approved by the Corps in writing; and (d) a final compensatory mitigation plan has been submitted by the Permittee and approved by the Corps.

f. **Work Limits:** All work authorized by this permit shall be performed in strict compliance with the attached permit plans, which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the US Army Corps of Engineers prior to any active construction in waters or wetlands.

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g. Permit Distribution: The Permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, drawings and attachments shall be available at the project site during the construction and maintenance of this project.

h. Pre-Construction Meeting: The Permittee shall schedule and attend a preconstruction meeting between its Construction representatives, the contractors representatives, and the U.S. Army Corps of Engineers, Raleigh Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all the terms and conditions contained with this Department of Army Permit. The Permittee shall provide the Corps, Raleigh Regulatory Field Office, NCDOT Project Manager, with a copy of the final permit plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The Permittee shall schedule the preconstruction meeting for a time frame when the Corps, NCDCM, and NCDWR Project Managers can attend. The Permittee shall invite the Corps, NCDCM, and NCDWR Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting. The thirty (30) day requirement can be waived with the concurrence of the Corps.

i. Notification of Construction Commencement and Completion: The Permittee shall notify the U.S. Army Corps of Engineers in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

j. Reporting Address: All reports, documentation, and correspondence required by the conditions of this permit shall be submitted to the following: U.S. Army Corps of Engineers, Wilmington District Raleigh Regulatory Field Office, Attn: Ross Sullivan, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587, or roscoe.l.sullivan@usace.army.mil. The Permittee shall reference the following permit number, SAW-2008-02315, on all submittals.

k. Reporting Violations: Violation of these permit conditions or violation of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act shall be reported to the Corps in writing and by telephone at: 919-554-4884 within 24 hours of the Permittee's discovery of the violation.

l. Clean Fill: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, construction debris, metal and plastic products, and concrete block with exposed reinforcement bars. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source.

m. Culverts:

1) Unless otherwise requested in the application and depicted on the approved permit plans, culverts greater than 48 inches in diameter shall be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter and less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain existing channel slope. The bottom of the culvert shall be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Culverts shall be designed and constructed in a manner that minimizes destabilization and head cutting.

2) Measures shall be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or

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culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

3) The Permittee shall implement all reasonable and practicable measures to ensure that equipment, structures, fill pads, work, and operations associated with this project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, flooding, and/or stream bank erosion. The Permittee shall routinely monitor for these effects, cease all work when detected, take initial corrective measures to correct actively eroding areas, and notify this office immediately. Permanent corrective measures may require additional authorization by the U.S. Army Corps of Engineers.

4) Culverts placed within wetlands must be installed in a manner that does not restrict the flows and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water shall not be buried, but the culverts must be of adequate size and/or number to ensure unrestricted transmission of water.

n. Sediment and Erosion Control:

1) During the clearing phase of the project, heavy equipment shall not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

2) No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit. This includes, but is not limited to, sediment control fences and other barriers intended to catch sediment losses.

3) The Permittee shall remove all sediment and erosion control measures placed in waters and/or wetlands, and shall restore natural grades on those areas, prior to project completion.

4) The Permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to ensure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to ensure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project shall remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A, Article 4). Adequate sedimentation and erosion control measures shall be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures shall be inspected and maintained regularly, especially following rainfall events. All fill material shall be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

o. Borrow and Waste: To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent waters and wetlands, except as authorized by this permit, the Permittee shall require

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its contractors and/or agents to identify all areas to be used as borrow and/or waste sites associated with this project. The Permittee shall provide the U.S. Army Corps of Engineers with appropriate maps indicating the locations of proposed borrow and/or waste sites as soon as such information is available. The Permittee shall submit to the Corps site-specific information needed to ensure that borrow and/or waste sites comply with all applicable Federal requirements, to include compliance with the Endangered Species Act and the National Historic Preservation Act, such as surveys or correspondence with agencies (e.g., the USFWS, the NC-HPO, etc.). The required information shall also include the location of all aquatic features, if any, out to a distance of 400 feet beyond the nearest boundary of the site. The Permittee shall not approve any borrow and/or waste sites before receiving written confirmation from the Corps that the proposed site meets all Federal requirements, whether or not waters of the U.S., including wetlands, are located in the proposed borrow and/or waste site. All delineations of aquatic sites on borrow and/or waste sites shall be verified by the U.S. Army Corps of Engineers and shown on the approved reclamation plans. The Permittee shall ensure that all borrow and/or waste sites comply with Special Condition p. of this permit. Additionally, the Permittee shall produce and maintain documentation of all borrow and waste sites associated with this project. This documentation will include data regarding soils, vegetation, hydrology, any delineation(s) of aquatic sites, and any jurisdictional determinations made by the Corps to clearly demonstrate compliance with Special Condition p. All information will be available to the U.S. Army Corps of Engineers upon request. The Permittee shall require its contractors to complete and execute reclamation plans for each borrow and/or waste site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the U.S. Army Corps of Engineers within 30 days of the completion of the reclamation work.

p. Except as authorized by this permit or any U.S. Army Corps of Engineers approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and waste activities connected with this project. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

Action ID Number: SAW-2008-02315 County: Montgomery

Permittee: North Carolina Department of Transportation, Carla Dagnino

Project Name: R-2530B, B-4974, R-2527: NC 24/27 Widening from Albemarle to the Troy Bypass

Date Verification Issued: 5/2/2019

Project Manager: Roscoe L. Sullivan, III

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Roscoe L. Sullivan, III
Raleigh Regulatory Office
U.S Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587
or
roscoe.l.sullivan@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation, Carla Dagnino
02315

Action ID: SAW-2008-

Project Name: R-2530B, B-4974, R-2527: NC 24/27 Widening from Albemarle to the Troy Bypass **County:** Montgomery

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor must verify that the mitigation requirements (credits) shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated bank ledger to the Permittee, the USACE Project Manager, and the Wilmington District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:

Permitted Impacts Requiring Mitigation*			8-digit HUC and Basin: 03040104, Yadkin River Basin			
Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
4,980			1.01			

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements:			8-digit HUC and Basin: 03040104, Yadkin River Basin			
Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
9,960			2.02			

Mitigation Site Debited: NCDMS
(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

Signature of Sponsor's Authorized Representative

Date of Signature

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions: A letter from NCDMS, confirming their willing and able to accept the applicants compensatory mitigation responsibility, dated 10/16/2018 was included with the preconstruction notification. This mitigation is from impacts associated with TIP Nos. R-2530B and B-4974. Mitigation associated with TIP No. R-2527 will be assessed once NCDOT submits final plans.

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. **Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 11405 Falls of Neuse Road, Wake Forest, NC 27587 (email: todd.tugwell@usace.army.mil).** Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

USACE Project Manager: Roscoe L. Sullivan, III
USACE Field Office: Raleigh Regulatory Office
US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587
Email: roscoe.l.sullivan@usace.army.mil



USACE Project Manager Signature

5/2/2019

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>

DEPARTMENT OF THE ARMY
Wilmington District, Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343
April 30, 2015

Regional General Permit No. 198200031

Name of Permittee: North Carolina Department of Transportation

Effective Date: April 30, 2015

Expiration Date: April 30, 2020

**DEPARTMENT OF THE ARMY
REGIONAL GENERAL PERMIT**

A regional general permit (RGP) to perform work in or affecting navigable waters of the United States and waters of the United States, upon recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403), and Section 404 of the Clean Water Act (33 U.S.C. 1344), is hereby modified and re-issued by authority of the Secretary of the Army by the

District Commander
U.S. Army Engineer District, Wilmington
Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

TO AUTHORIZE THE DISCHARGE OF DREDGED OR FILL MATERIAL IN WATERS OF THE UNITED STATES (U.S.), INCLUDING WETLANDS, ASSOCIATED WITH MAINTENANCE, REPAIR, AND CONSTRUCTION PROJECTS CONDUCTED BY THE VARIOUS DIVISIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) INCLUDING THE NCDOT DIVISION OF HIGHWAYS, RAIL, BICYCLE/PEDESTRIAN, ECT.

Activities authorized are:

a. Construction, maintenance, and repair of bridges, to include work on the approaches, where permanent impacts resulting in a loss of waters of the U.S. will be less than or equal to 500 linear feet (lf) of stream and/or one (1) acre of wetland/non-tidal open water for each single and complete linear project*.

b. Best-fit widening projects that have undergone interagency review and completed the current interagency Merger Process, which merges the requirements of the National Environmental Policy Act (NEPA) with those found within Section 404 of the Clean Water Act (CWA).

While there is no impact threshold for these widening projects, the Corps has the discretion to require an individual permit if it determines that the proposed impacts will have more than a minimal impact on the aquatic environment or on other environmental factors, or if the project would normally require an Environmental Impact Statement (EIS) under current Federal Highway Administration (FHWA) guidelines. Best-fit projects may include a small amount of new location roadway for components such as interchanges or intersections, provided the new location portion has been concurred upon by the merger team.

c. Minor widening projects, such as paving and/or widening secondary roads, or interchange improvements, when permanent impacts which result in a loss of waters of the U.S. from installation and/or extension of culverts and/or pipes will be less than or equal to 500 lf of stream and/or one (1) acre of wetland/non-tidal open water for each single and complete linear project*.

d. Stream relocation(s) associated with projects identified in a-c above. Stream relocation lengths are to be evaluated independently and are not included within each respective maximum limit threshold for the authorized actions stated above.

***Single and complete linear project:** A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of this RGP. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Generally, off-site detours are preferred to avoid and minimize impacts to the human and natural environment. However, if an off-site detour is considered impracticable, then an on-site detour may be considered as a necessary component of the actions described above. Impacts from the detour may be considered temporary and may not require compensatory mitigation if the impacted area is restored to its pre-project condition after construction is complete. If the construction of a detour (on-site or off-site) includes standard undercutting methods, removal of all material and backfilling with suitable material is required.

1. Special Conditions.

a. The applicant must submit a pre-construction notification (PCN) with specified attachments to the District Engineer and receive written verification from the Corps that the proposed work complies with this RGP prior to commencing any activity authorized by this RGP.

b. If the project will not impact a designated “Area of Environmental Concern” (AEC) in the twenty (20) counties of North Carolina covered by the North Carolina Coastal Area Management Act (CAMA), then a consistency submission is not required. If the project will impact a designated AEC and meets the definition of “development”, then the applicant must

obtain the required CAMA permit. Development activities may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889).

The twenty (20) CAMA counties in North Carolina include Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.

c. Discharges into Waters of the U.S. designated by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are prohibited during the period between February 1 and June 30, without prior written approval from NCDMF, NCWRC, National Marine Fisheries Service (NMFS), and the Corps. Discharges into waters of the U.S. designated by NCDMF as primary nursery areas and discharges into waters of the U.S. designated by NCWRC as primary nursery areas in inland waters shall be coordinated with NCDCM (per existing agreement with NCDMF) and NCWRC prior to being authorized by this RGP. Coordination with NCDCM and NCWRC may result in a required construction moratorium during periods of significant biological productivity or critical life stages.

The applicant should contact:

NC Division of Marine Fisheries
3441 Arendell Street
Morehead City, NC 28557
Telephone 252-726-7021
or 800-682-2632

North Carolina Wildlife Resources Commission
Habitat Conservation Program Manager
1721 Mail Service Center
Raleigh, NC 27699-1721
Telephone (919) 733-7638

d. This permit does not authorize the use of culverts in areas designated as anadromous fish spawning areas by the NCDMF or the NCWRC.

e. Waters of the U.S. designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from NMFS.

f. If the project is located within the twenty (20) counties of North Carolina designated as coastal counties by CAMA, then all pipe and culvert inverts will be buried at least one foot below normal bed elevation when they are placed within the Public Trust AEC and/or the Estuarine Waters AEC as designated by CAMA. If the project is not located within the twenty (20) counties of North Carolina designated as coastal counties by CAMA, then culvert inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The potential for destabilization of the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this condition would result in more adverse impacts to the aquatic environment. Culverts placed in wetlands do not have to be buried.

g. No work shall be authorized by this RGP within the twenty coastal counties, as defined by the NCDRCM, without prior consultation with NOAA Fisheries. For each activity reviewed by the Corps where it is determined that the activity may affect Essential Fish Habitat (EFH) for federally managed species, an EFH Assessment shall be prepared by the applicant and forwarded to the Corps and NOAA Fisheries for review and comment prior to authorization of work.

h. Discharges of dredged or fill material into waters of the U.S., including wetlands, must be minimized or avoided to the maximum extent practicable.

i. No activity may result in substantial permanent disruption of the movement of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. It is acceptable to use rock vanes at culvert outlets to ensure, enhance, or maintain aquatic passage. Pre-formed scour holes are acceptable when designed for velocity reduction. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level. Where adjacent floodplain is available, flows exceeding bank-full should be accommodated by installing culverts at the floodplain elevation, if practicable. If multiple culverts are used, the construction of floodplain benches and/or sills to maintain base flow is required, if practicable.

j. Upon completion of any work authorized by this RGP, all temporary fills (to include culverts, etc.) will be completely removed from waters of the U.S. and the areas will be restored to preconstruction conditions, to include pre-project elevations and contours, restoring natural hydrology and stream corridors, and reestablishing native vegetation/riparian corridors. This work will be completed within 60 days of completion of project construction. If this timeframe occurs while a required moratorium of this permit is in effect, the temporary fill shall be removed in its entirety within 60 days of the moratorium end date. If vegetation cannot be planted due to the time of the year, all disturbed areas will be seeded with a native mix appropriate for the impacted area, and vegetation will be planted in the fall. A native seed mix may contain non-invasive small grain annuals (e.g. millet and rye grain) to ensure adequate cover while native vegetation becomes established. The PCN must include a restoration plan showing how all temporary fills and structures will be removed and how the area will be restored to pre-project conditions.

k. All activities authorized by this RGP shall, to the extent practicable, be conducted "in the dry", with barriers installed between work areas and aquatic habitat to protect that habitat from sediment, concrete, and other pollutants. Where concrete is utilized, measures will be taken to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with waters of the U.S. until the concrete has cured/hardened. All water in the work area that has been in contact with concrete shall only be returned to waters of the U.S. when it no longer poses a threat to aquatic organisms (concrete is set and cured).

l. In cases where new alignment approaches are to be constructed and the existing approach fill in waters of the U.S. is to be abandoned and no longer maintained as a roadway, the

abandoned fill shall be removed and the area will be restored to preexisting wetland/stream conditions and elevations, to include restoring natural hydrology and stream corridors, and reestablishing native vegetation/riparian corridors, to the extent practicable. This activity may qualify as compensatory mitigation credit for the project and will be assessed on a case-by-case basis in accordance with Special Conditions “q” and “r” below. A restoration plan detailing this activity will be required with the submittal of the PCN.

m. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

n. The project must be implemented and/or conducted so that all reasonable and practicable measures to ensure that equipment, structures, fill pads, and work associated with the project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, flooding, and/or shoreline/streambank erosion. During construction, the permittee shall routinely monitor for these effects, cease all work if/when detected, take initial corrective measures to correct actively eroding areas, and notify the Corps immediately. Permanent corrective measures may require additional authorization from the Corps.

o. All PCNs will describe sedimentation and erosion control structures and measures proposed for placement in waters of the U.S. To the extent practicable, structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams. In addition, appropriate soil and erosion control measures must be established and maintained during construction. All fills, temporary and permanent, must be adequately stabilized at the earliest practicable date to prevent erosion of fill material into adjacent waters or wetlands.

p. Before discharging dredged or fill material into waters of the U.S. in the twenty-five (25) mountain counties of North Carolina, the applicant will submit a PCN to the NCWRC and the Corps concurrently. The PCN shall summarize alternatives to conducting work in mountain trout waters considered during the planning process, detail why alternatives were or were not selected, and contain a compensatory mitigation plan for all unavoidable adverse impacts to mountain trout waters. For proposals where a bridge is replaced with a culvert, the PCN must also include details of any on-site evaluations that were conducted to determine that installation of a culvert will not adversely affect passage of fish or other aquatic biota at the project site. This information must include factors such as the proposed slope of the culvert and determinations of how the slope will be expected to allow or impede passage, the necessity of baffles and/or sills to ensure passage, design considerations to ensure that expected baseflow will be maintained for passage and that post-construction velocities will not prevent passage, site conditions that will or will not allow proper burial of the culvert, existing structures (e.g., perched culverts, waterfalls, etc.) and/or stream patterns up and downstream of the culvert site that could affect passage and bank stability, and any other considerations regarding passage. The level of detail for this information should be based on site conditions (i.e., culverts on a slope over 3% will most likely

require more information than culverts on a slope that is less than 1%, etc.). Also, in order to evaluate potential impacts, describe bedforms that will be impacted by the proposed culvert – e.g., pools, glides, riffles, etc. The NCWRC will respond both to the proponent and directly to the Corps.

The twenty-five (25) designated trout counties of North Carolina include Alleghany, Caldwell, Watauga, Ashe, Mitchell, Wilkes, Avery, Burke, Stokes, Surry, Buncombe, Henderson, Polk, Cherokee, Jackson, Rutherford, Clay, Macon, Swain, Graham, Madison, Transylvania, Haywood, McDowell, and Yancey.

The applicant may contact NCWRC at:

North Carolina Wildlife Resources
Commission
Ms. Marla Chambers
Western NCDOT Permit Coordinator
206 Charter Street
Albemarle, NC 28001
Office: 704-982-9181

q. Compensatory mitigation will be required for permanent impacts resulting in a loss of waters of the U.S., including wetlands, from culverts/pipes and associated fill. Mitigation will also be required for stream relocation projects. The applicant will attach a proposed mitigation plan to the PCN. Mitigation proposals will be in accordance with currently approved Wilmington District and/or Corps-wide mitigation regulations and guidance. The Corps Project Manager will make the final determination concerning the appropriate amount and type of mitigation.

r. Stream relocation(s) associated with projects may be authorized under this RGP. As stated above, mitigation will be required for all relocation projects. If the stream relocation is conducted in accordance with the requirements stated below in 1-5, the relocated segment of stream may* be considered toward reducing the amount of compensatory mitigation required. A relocation plan must be submitted with the PCN that addresses all factors required within the current Wilmington District, Corps of Engineers Stream Mitigation Guidelines, which can include, but may not be limited to:

(1) The relocated stream has pattern, profile, and dimension based on natural channel design. If natural channel design construction is not possible due to site constraints, the relocated stream must have pattern, profile, and dimension similar to, or better than, the existing stream. Note that site constraints do not include those situations where NCDOT chooses not to acquire additional adjacent property that is available for purchase.

(2) The new stream meets the current buffer requirements as stated in current District stream mitigation guidance. If the required buffer widths cannot be obtained, a project-by-project decision will be completed to determine if additional compensatory mitigation is required.

(3) The new location allows the relocated stream to remain stable (e.g., in a

valley vs. on a slope, no bends that will impact stability, etc.).

(4) There is no loss of channel for any reason (e.g., old channel is 200' and new channel is 150' = 50' channel loss; part of the new channel is put in a culvert; the new channel (sides and bottom) is hardened with concrete, rip rap, etc.).

(5) The Corps will determine if monitoring and reporting will be required for a specific project and the parameters of any required monitoring and reporting. If monitoring is required, a monitoring plan must be included with the PCN and meet current requirements.

All relocation plans must clearly depict both the existing channel and the proposed (relocated) channel.

* Conducting stream relocation(s) in accordance with 1-5 above may not fully compensate for the impact and may require additional compensatory mitigation. The Corps Project Manager will determine if the proposed amount of mitigation is adequate on a project-by-project basis.

If stream relocation cannot be conducted in accordance with 1-5 above, mitigation at a 2:1 ratio will typically be required unless: (1) the applicant provides a Stream Quality Assessment Worksheet or NCSAM documentation (when available) that supports a different mitigation ratio; (2) the Corps Project Manager determines that the relocated stream, while not in full compliance with 1-5 above, warrants partial mitigation, or; (3) the Corps determines that the existing stream is an excellent quality stream, in which case a 3:1 mitigation ratio may be required. The Corps Project Manager will make the final determination concerning the appropriate amount and type of mitigation.

If the Corps determines that the proposed stream relocation is of such a magnitude that it cannot be authorized by this RGP, an Individual Permit will be required.

s. The applicant shall sign and return the compliance certificate that is attached to the RGP verification letter.

t. In the event that any Federal agency maintains an objection or any required State authorization is outstanding, no notice to proceed will be given until objections are resolved and State authorizations are issued.

u. The Corps may place additional special conditions, limitations, or restrictions on any verification of the use of RGP 31 on a project-by-project basis.

2. General Conditions.

a. Except as authorized by this RGP or any Corps approved modification to this RGP, no excavation, fill or mechanized land-clearing activities shall take place within waters or wetlands, at any time in the construction or maintenance of this project. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

b. Authorization under this RGP does not obviate the need to obtain other federal, state, or local authorizations.

c. All work authorized by this RGP must comply with the terms and conditions of the applicable CWA Section 401 Water Quality Certification for this RGP issued by the NCDWR.

d. The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

e. The activities authorized by this RGP must not interfere with the public's right to free navigation on all navigable waters of the U.S. No attempt will be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the authorized work for a reason other than safety.

f. The permittee understands and agrees that, if future operations by the U.S. require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

g. The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the U.S. and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the affected water of the U.S. to its former conditions.

h. The permittee will allow the Wilmington District Engineer or his representative to inspect the authorized activity at any time deemed necessary to assure that the activity is being performed or maintained in strict accordance with the Special and General Conditions of this permit.

i. This RGP does not grant any property rights or exclusive privileges.

j. This permit does not authorize any injury to the property or rights of others.

k. This RGP does not authorize the interference with any existing or proposed federal project.

l. In issuing this permit, the Federal Government does not assume any liability for the following:

(1) Damages to the permitted project or uses thereof as a result of other permitted

or unpermitted activities or from natural causes.

(2) Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest.

(3) Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

(4) Design or construction deficiencies associated with the permitted work.

(5) Damage claims associated with any future modification, suspension, or revocation of this permit.

m. Authorization provided by this RGP may be modified, suspended or revoked in whole or in part if the Wilmington District Engineer, acting for the Secretary of the Army, determines that such action is in the best public interest. The term of this RGP shall be five (5) years unless subject to modification, suspension or revocation. Any modification, suspension or revocation of this authorization will not be the basis for any claim for damages against the U.S. Government.

n. This RGP does not authorize any activity, which the District Engineer determines, after any necessary investigations, will adversely affect:

(1) Rivers named in Section 3 of the Wild and Scenic Rivers Act (15 U.S.C. 1273), those proposed for inclusion as provided by Sections 4 and 5 of the Act, and wild, scenic and recreational rivers established by state and local entities.

(2) Sites included in or determined eligible for listing in the National Registry of Natural Landmarks.

(3) NOAA designated marine sanctuaries, National Estuarine Research Reserves, and coral reefs.

(4) Submerged Aquatic Vegetation (SAV) as defined by the N.C. Division of Marine Fisheries at 15A NCAC 03I .0101(4)(i)).

o. Endangered Species.

(1) No activity is authorized under this RGP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under this RGP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(2) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees (and when FHWA is the lead federal agency) must provide the district engineer with the appropriate documentation to demonstrate compliance with

those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the RGP activity, or whether additional ESA consultation is necessary.

(3) Non-federal permittees must submit a PCN to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-federal applicant of the Corps’ determination within 45 days of receipt of a complete PCN notification. In cases where the non-federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(4) As a result of formal or informal consultation with the U.S. Fish and Wildlife Service (USFWS) or NMFS, the district engineer may add species-specific endangered species conditions to the RGP.

(5) Authorization of an activity by a RGP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the USFWS or the NMFS, the ESA prohibits any person subject to the jurisdiction of the U.S. to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(6) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

p. The permittee is responsible for obtaining any “take” permits required under the USFWS’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such “take” permits are required for a particular activity.

q. For proposed activities the sixteen counties listed below, applicants must provide a

copy of the PCN to the USFWS, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the USFWS and the Corps Project Manager for that specific county.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville USFWS: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Applicants may contact the appropriate USFWS office listed below or the US Army Corps of Engineers:

US Fish and Wildlife Service
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801
Telephone: (828) 258-3939

Asheville USFWS Office counties: All counties west of and including Anson, Stanly, Davidson, Forsyth and Stokes Counties.

US Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Telephone: (919) 856-4520

Raleigh USFWS Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

r. Permittees are advised that development activities in or near a floodway may be subject to the National Flood Insurance Program that prohibits any development, including fill, within a floodway that results in any increase in base flood elevations. This RGP does not authorize any activity prohibited by the National Flood Insurance Program.

s. The permittee must make every reasonable effort to perform the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife and natural environmental values.

t. All activities authorized by this RGP that involve the use of riprap material for bank stabilization, the following measures shall be applied:

(1) Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

(2) The placement of riprap shall be limited to the areas depicted on submitted work plan drawings and not be placed in a manner that prevents or impedes fish passage.

(3) The riprap material shall be clean and free from loose dirt or any pollutant

except in trace quantities that will not have an adverse environmental effect.

(4) It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

(5) The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

(6) A waiver from the specifications in this general condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this condition will result in greater adverse impacts to the aquatic environment.

u. The permittee must install and maintain, at his expense, any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities. For further information, the permittee should contact the U.S. Coast Guard Marine Safety Office at (910) 772-2191.

v. The permittee must maintain any structure or work authorized by this permit in good condition and in conformance with the terms and conditions of this permit. The Permittee is not relieved of this requirement if the Permittee abandons the structure or work. Transfer in fee simple of the work authorized by this permit will automatically transfer this permit to the property's new owner, with all of the rights and responsibilities enumerated herein. The permittee must inform any subsequent owner of all activities undertaken under the authority of this permit and provide the subsequent owner with a copy of the terms and conditions of this permit.

w. At his sole discretion, any time during the processing cycle, the Wilmington District Engineer may determine that this RGP will not be applicable to a specific proposal. In such case, the procedures for processing an individual permit in accordance with 33 CFR 325 will be available.

x. The activity must comply with applicable FEMA approved state or local floodplain management requirements.

y. All fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

z. All excavated material will be disposed of in approved upland disposal areas.

aa. Historic Properties.

(1) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places (NRHP), the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(2) Federal permittees (or when FHWA is the lead federal agency) should follow their own procedures for complying with the requirements of Section 106 of the NHPA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address Section 106 compliance for this RGP activity, or whether additional Section 106 consultation is necessary.

(3) Non-federal permittees must submit a PCN to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the NRHP, including previously unidentified properties. For such activities, the PCN must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), as appropriate, and the NRHP (see 33 CFR 330.4(g)). When reviewing PCNs, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the NHPA. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(4) The district engineer will notify the prospective permittee within 45 days of receipt of a complete PCN whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA Section 106 consultation is required and will occur, the district engineer will notify the non-federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(5) Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit will relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the

undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

bb. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the NRHP.

cc. There will be no unreasonable interference with navigation or the right of the public to riparian access by the existence or use of activities authorized by this RGP.

dd. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

ee. This RGP will not be applicable to proposed construction when the Wilmington District Engineer determines that the proposed activity will significantly affect the quality of the human environment and determines that an EIS must be prepared.

ff. Activities which have commenced (i.e. are under construction) or are under contract to commence in reliance upon this general permit will remain authorized provided the activity is completed within twelve months of the date of the general permit's expiration, modification, or revocation. Activities completed under the authorization of this general permit which were in effect at the time the activity was completed continue to be authorized by the general permit.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

A handwritten signature in black ink, appearing to read "K.P. Landers Sr.", written over a faint, illegible typed name.

Kevin P. Landers Sr.
Colonel, U. S. Army
District Commander

Attachment 1

**MOA among the FHWA, USFS, NCDOT, the Catawba Indian Nation, and NCSHPO
for the Improvements to NC 24/NC 27 from NC 740 in Albemarle to the Stanly &
Montgomery Counties, NC**

**MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL HIGHWAY ADMINISTRATION,
THE UNITED STATES FOREST SERVICE,
THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
THE CATAWBA INDIAN NATION,
AND
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR THE
IMPROVEMENTS TO NC 24/NC 27 FROM NC 740 IN ALBEMARLE TO THE
PROPOSED TROY BYPASS,
STANLY & MONTGOMERY COUNTIES, NORTH CAROLINA,
TIP NOS. R-2530B, B-4974, & R-2527,
FEDERAL AID NO. STBG-0024(083) R-2530B**

WHEREAS, the Federal Highway Administration (FHWA) has determined that the proposed improvements to NC 24/27 from NC 740 in Albemarle to the proposed Troy Bypass (the Undertaking) will have an adverse effect upon archaeological sites 31MG1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31ST195, 31ST196, and 31ST204/204** which have been determined eligible for the National Register of Historic Places (NRHP) under Criterion D; and

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

WHEREAS, the FHWA has notified the Advisory Council on Historic Preservation (Council) of the adverse effect to archaeological sites 31MG1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31ST195, 31ST196, and 31ST204/204** and it has declined to comment or participate in the consultation; and

WHEREAS, the North Carolina Department of Transportation (NCDOT) has participated in the consultation and has been invited by the FHWA to be a signatory to this Memorandum of Agreement (MOA); and

Whereas the Catawba Indian Nation and the United States Forest Service (USFS) have been notified of the adverse effects and invited to participate in the consultation and concur in this MOA; and

WHEREAS, the consulting parties agree that the recovery of significant information from archaeological sites 31MG1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31ST195, 31ST196, and 31ST204/204** may be done in accordance with the published guidance; and

WHEREAS, the consulting parties agree that it is in the public interest to expend funds for the recovery of significant information from archaeological sites 31MG1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31ST195, 31ST196, and 31ST204/204** to mitigate the adverse effects of the project; and

WHEREAS, to the best of our knowledge and belief, no human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001), are expected to be encountered in the archaeological work;

NOW, THEREFORE, the FHWA, NCDOT, and the SHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in compliance with the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470).

I. Stipulations

1. The NCDOT, in consultation with the SHPO, USFS, and the Catawba Indian Nation, will develop Data Recovery Plans (DRPs) for archaeological sites 31MG1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31ST195, 31ST196, and 31ST204/204** which will be affected by the subject project.
2. The NCDOT will ensure that the DRPs will be implemented after Right-of-Way is acquired and prior to construction activities within the site location as shown in the DRPs.
3. Upon completion of the Data Recovery efforts, the NCDOT will prepare and forward a Management Summary to the SHPO, USFS, and the Catawba Indian Nation detailing the results of the Data Recovery field investigations. The Management Summary will contain sufficient information to demonstrate that the field investigation portion of the DRP has been implemented.
4. Upon receipt of the Management Summary, the SHPO, USFS, and the Catawba Indian Nation will respond within ten (10) days to the recommendations contained within the document.
5. Upon acceptance of the recommendations contained in the Management Summary, the SHPO, USFS, and the Catawba Indian Nation will issue the NCDOT documentation that the Data Recovery field investigations have been completed.
6. The analysis and report preparation, detailing archaeological work conducted at sites 31MG1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31ST195, 31ST196, and 31ST204/204**, will be completed by the NCDOT, or their consultants, within eighteen (18) months after completion of the fieldwork.

II. Unanticipated Discovery

In accordance with 36 CFR 800.11(a), if NCDOT identifies additional cultural resource(s) during construction and determine them to be eligible for the NRHP, all work will be halted within the limits of the NRHP-eligible resource(s) and the FHWA and SHPO contacted. If after consultation with the Signatory and Concurring Party additional mitigation is determined necessary, the NCDOT, in consultation with the Signatory and Concurring Party, will develop and implement appropriate protection/mitigation measures for the resource(s). Inadvertent or accidental discovery of human remains will be handled in accordance with North Carolina General Statutes 65 and 70.

III. Dispute Resolution

Should any Signatory object within (30) days to any plans or documentation provided for review pursuant to this Agreement, the FHWA shall consult with the objecting party(ies) to resolve the objection. If the FHWA or objecting party(ies) determines that the objection cannot be resolved,

the FHWA will forward all documentation relevant to the dispute to the Advisory Council on Historic Preservation (Council). Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

- A. Provide the FHWA with recommendations, which the FHWA will take into account in reaching a final decision regarding the dispute, or
- B. 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 recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the FHWA's responsibility to carry out all of the actions under this agreement that are not the subject of the dispute will remain unchanged.

IV. Amendments

If any Signatory to this MOA believes 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 Section III will be followed.

V. Termination

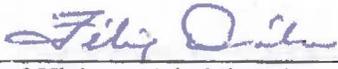
Any Signatory to this MOA may terminate the agreement by providing notice to the other party(ies), provided that the party(ies) will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Termination of this MOA will require compliance with 36 CFR 800. This MOA may be terminated by the execution of a subsequent MOA that explicitly terminates or supersedes its terms.

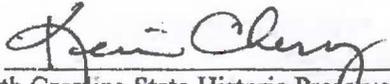
VI. Duration

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

Execution of this Memorandum of Agreement by the FHWA and the North Carolina SHPO, its subsequent filing with the Council and implementation of its terms evidence that FHWA, has afforded the Council an opportunity to comment on the Undertaking, and that the FHWA, has taken into account the effects of the Undertaking on the aforementioned archaeological sites.

AGREE:

By:  Date: 12/13/18
Federal Highway Administration

By:  Date: 12/19/18
North Carolina State Historic Preservation Officer

By:  Date: 12/13/2018
North Carolina Department of Transportation

CONCUR:

By:  Date: 1/30/19
United States Forest Service

By: _____ Date: _____
Catawba Indian Nation

**MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL HIGHWAY ADMINISTRATION,
THE UNITED STATES FOREST SERVICE,
THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
THE CATAWBA INDIAN NATION,
AND
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR THE
IMPROVEMENTS TO NC 24/NC 27 FROM NC 740 IN ALBEMARLE TO THE
PROPOSED TROY BYPASS,
STANLY & MONTGOMERY COUNTIES, NORTH CAROLINA,
TIP NOS. R-2530B, B-4974, & R-2527,
FEDERAL AID NO. STBG-0024(083) R-2530B**

Execution of this Memorandum of Agreement by the FHWA and the North Carolina SHPO, its subsequent filing with the Council and implementation of its terms evidence that FHWA, has afforded the Council an opportunity to comment on the Undertaking, and that the FHWA, has taken into account the effects of the Undertaking upon archaeological site 31WA1997/1997.

FILED:

By: _____ Date: _____
Advisory Council on Historic Preservation

Attachment 2

**USFWS Biological Opinion NC 24/27 Widening from NC 740 to East of Pee Dee
River in Stanly and Montgomery Counties, NC (STIP No. R-2530B)**

Biological Opinion

NC 24/27 Widening from NC 740 to East of Pee Dee River in Stanly and Montgomery Counties, North Carolina (STIP No. R-2530B)

FWS Log #: 42420-2008-F-0240



Prepared by:

U.S. Fish and Wildlife Service
Raleigh Field Office
P.O. Box 33726
Raleigh, NC 27636-3726

Tom Ayscough / Deputy Field Supervisor 12-12-2016
[NAME, TITLE] 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.

2012-06-12 – The Service met with NCDOT staff on-site to discuss the need for Section 7 consultation.

2018-03-06 – The Service received a draft biological assessment (BA) for review.

2018-03-07 – The Service provided comments on the draft BA to NCDOT.

2018-08-15 to 2018-10-04 – The Service provided technical assistance in development of conservation measures to minimize adverse effects.

2018-10-11 – The Service received the final BA (dated 2018-09-00) and a letter from the Federal Highway Administration (FHWA) requesting initiation of formal Section 7 consultation.

2018-10-31 – The Service sent a letter to the FHWA stating that all information required for initiation of consultation was either included with their 2018-10-31 letter or was otherwise available.

2018-11-26 – 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 opinion of the U.S. Fish and Wildlife Service (Service) under 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 (FHWA) proposed NC 24/27 widening from NC 740 to east of Pee Dee River in Stanly and Montgomery Counties, North Carolina (the Action). This BO considers the effects of the Action on Schweinitz's sunflower. The Action does not affect designated critical habitat; therefore, this BO does not further address critical habitat.

A BO evaluates the effects of a Federal action along with those resulting from interrelated and interdependent actions, and from non-Federal actions unrelated to the proposed Action (cumulative effects), relative to the status of listed species and the status of designated critical habitat. A Service opinion that concludes a proposed Federal action is *not* likely to jeopardize species and is *not* likely to destroy or adversely modify critical habitat fulfills the Federal agency's responsibilities under §7(a)(2) of the ESA. In this BO, only the jeopardy definition is relevant, because the Action does not affect designated critical habitat. "*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). The basis of our opinion for Schweinitz's sunflower is developed by considering the status of the species, its environmental baseline, the effects of the Action, and cumulative effects.

This BO uses hierarchical numeric section headings. Primary (level-1) sections are labeled sequentially with a single digit (e.g., 2. PROPOSED ACTION). Secondary (level-2) sections within each primary section are labeled with two digits (e.g., 2.1. Action Area), and so on for level-3 sections.

2. PROPOSED ACTION

The North Carolina Department of Transportation (NCDOT), in cooperation with the FHWA, proposes to widen the existing two-lane NC 24/27 from NC 740 in Stanly County to a point approximately 800 feet west of River Road (SR 1150) in Montgomery County (STIP No. R-2530B). The Action also includes the rehabilitation of the existing bridge over the Pee Dee River. The Action will be deconstructed into two components: 1) road widening and bridge rehabilitation and 2) conservation measures.

2.1. Action Area

For purposes of consultation under ESA §7, 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). The “Action Area” for this consultation includes the NC 24/27 corridor from NC 740 in the City of Albemarle, Stanly County, to a point approximately 800 feet west of River Road (SR 1150) in Montgomery County – a distance of approximately 7.1 miles (Figure 2.1).

2.2. Road Widening and Bridge Rehabilitation

The Stanly County portion of NC 24/27 will be widened to a four-lane divided facility with a 23-foot raised median from NC 740 in the City of Albemarle east to SR 1731 (Sweet Home Church Road). Between SR 1731 and the eastern terminus, NC 24/27 will be widened to a four-lane divided facility with a 46-foot depressed median. The existing Bridge No. 51 over the Pee Dee River will also be rehabilitated.

2.3. Conservation Measures

To minimize effects to the species, a plan is being developed, in coordination with the Service, to relocate all affected Schweinitz’s sunflowers to a more protected site with appropriate habitat within Stanly County (a tentative relocation site has been selected but not yet finalized). All affected Schweinitz’s sunflowers will be dug up and relocated prior to project let. Seeds from the plants will also be collected and transferred to a Service approved facility for storage and future restoration efforts. A NC Plant Conservation Program permit will be obtained prior to any transplant activities. A monitoring plan will be developed and reports detailing results and management activities will be supplied to the Service.

2.4. Interrelated and Interdependent Actions

A BO evaluates the effects of a proposed Federal action. For purposes of consultation under ESA §7, the effects of a Federal action on listed species or critical habitat include the direct and indirect effects of the action, plus the effects of interrelated or interdependent actions. “Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration” (50 CFR §402.02).

Utilities along NC 24/27 include telephone, power, gas, cable television, water, and sewer lines. Power, telephone, and cable television lines are suspended from utility poles, while other utility lines are buried along the road shoulder. Utilities within the construction footprint will likely be relocated prior to road construction.

3. STATUS OF SPECIES

This section summarizes best available data about the biology and current condition of Schweinitz’s sunflower (*Helianthus schweinitzii*) throughout its range that are relevant to formulating an opinion about the Action. The Service published its decision to list Schweinitz’s sunflower as endangered on May 7, 1991 (56 FR 21087-21091).

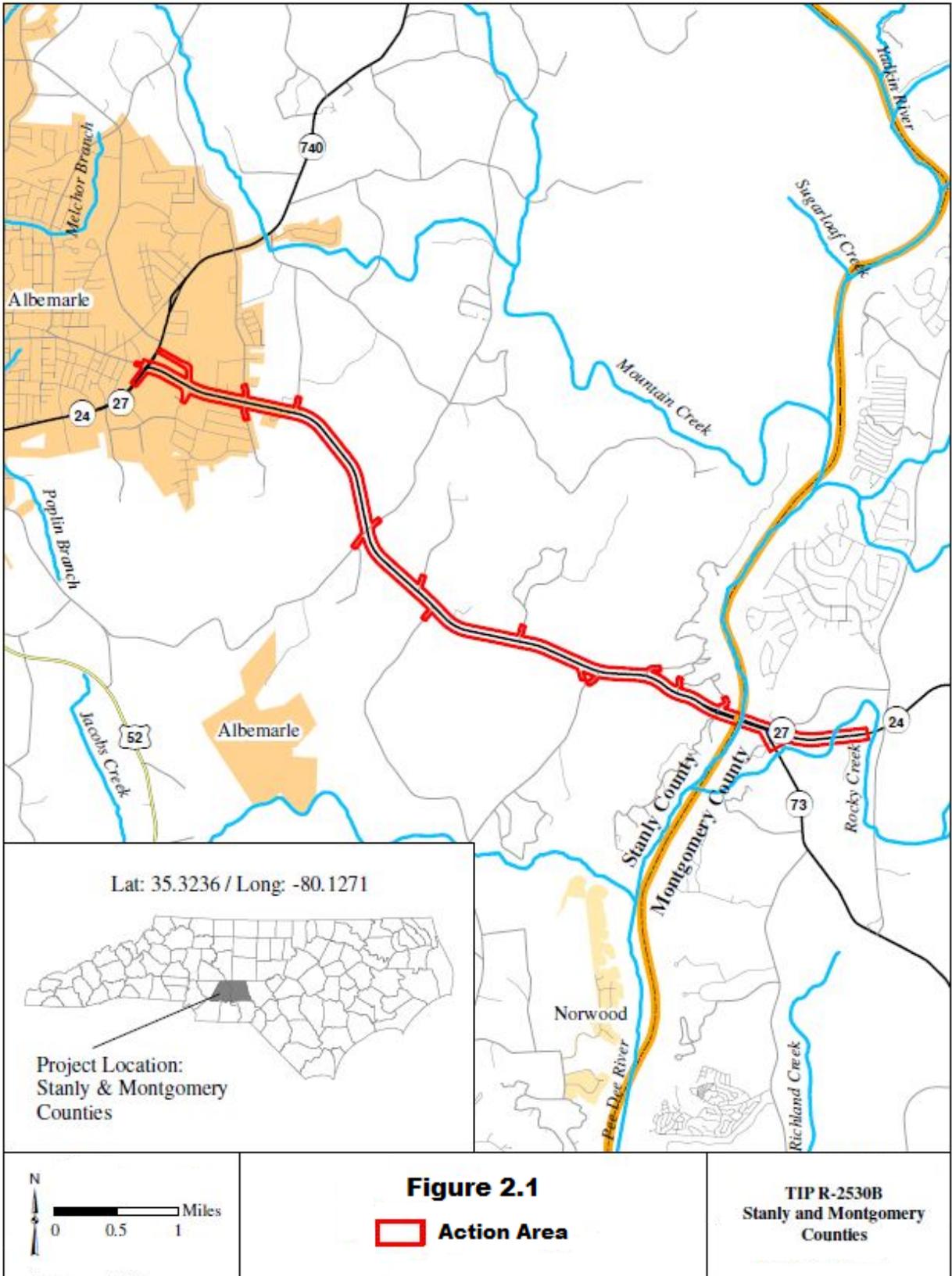


Figure 2.1
□ Action Area

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3.1. Species Description

Schweinitz's sunflower is a perennial plant that generally grows to approximately 6.5 feet tall. It has thickened roots that are used by the plant to store starch. The stem is purplish in color, and the upper third bears secondary branches at 45-degree angles. The leaves are arranged in pairs on the lower part of the stem but usually occur singly (or alternate) on the upper parts. Leaves are attached to the stem at right angles, and the tips of the leaves tend to droop. The leaves are thick and stiff with a rough upper surface. The upper leaf surfaces have broad spiny hairs that are directed toward the tip, and soft white hairs cover the underside. The plant produces small yellow flowers from late August until frost (USFWS 2017).

3.2. Life History

Schweinitz's sunflower is able to colonize through the dispersal of seeds that readily germinate without a dormant period. Presently, this species occurs in relatively open habitats such as roadsides, power line clearings, early successional fields, forest ecotone margins or forest clearings. It thrives in full sun but also grows in the light shade of open stands of oak-pine-hickory. The species is known from a variety of soil types but is generally found growing on shallow, poor, clayey and/or rocky soils, especially those derived from mafic rocks (USFWS 1994). The species also benefits from routine soil disturbance, most notably along roadsides which receive regular right-of-way (ROW) maintenance (Smith 2008).

3.3. Numbers, Reproduction, and Distribution

Schweinitz's sunflower is endemic to the Piedmont physiographic province of North Carolina and South Carolina. It is believed that the species historically occupied prairie areas and open woodlands. However, with fire suppression and increasing development, these habitats have either succeeded into oak-pine-hickory forests or have been severely degraded and fragmented (USFWS 1994).

When the species was listed in 1991, there were a total of 13 extant populations (eight in NC and five in SC) distributed across five NC counties (Cabarrus, Mecklenburg, Rowan, Stanly and Union) and one county (York) in SC (USFWS 1991). In recent years, several additional populations have been found in both NC and SC. As of 2010, there were approximately 78 geographically distinct populations of the species in NC distributed across 13 counties (the original five plus Anson, Davidson, Gaston, Montgomery, Randolph, Richmond, Stokes and Surry) (USFWS 2006, USFWS 2010). A new population in Guilford County, NC was discovered in 2018 (Dale Suiter, USFWS, personal communication). In SC, there are eight geographically distinct areas which appear to approximate populations in two counties (Lancaster and York) (Houk 2003). Therefore, the total known range consists of approximately 86 populations (USFWS 2010).

The 1991 listing rule did not state the number of plants contained within the 13 known populations extant at that time. However, supporting information from the Service's files on this species suggest that these sites were collectively and conservatively estimated to contain some 2,805 stems. Data suggests that, as of 2010, those sites with some potential to provide a role in

the species' recovery in NC contain over 40,000 stems (USFWS 2010). According to Houk (2003), all of the SC sites (regardless of their protection or recovery potential) contained some 27,740 stems in 2002. However, due to annual variability in stem counts, it is important to note that stem counts derived from single observations may provide limited value in assessing the actual abundance of the species in a given location or across its range.

3.4. Conservation Needs and Threats

Schweinitz's sunflower is endangered by the loss of historic levels of natural disturbance from fire and grazing by native herbivores, residential and industrial development, encroachment by exotic species, highway construction and improvement, and roadside and utility ROW maintenance (USFWS 1994).

While seemingly more secure due to the increase in known populations, most populations remain extremely vulnerable. A large majority of the known sites containing the species (over 90%) occur within road or utility ROW. Many of these ROW occurrences are along existing roads which are subject to widening and improvement projects which disturb the existing adjacent ROW. The NCDOT has a program designed to sign roadside rare plant populations and manage these areas with mowing and/or herbicides applied during the dormant season. Despite these efforts, some of the roadside populations have been impacted through herbicide applications or mowing during the wrong time of year. Current recovery efforts are focused upon relocating plants from vulnerable ROW habitats to more protected areas with the potential for adequate management (USFWS 2010).

Portions of 24 extant populations (distributed across eight NC counties and two SC counties) have been identified as having a potential to meet some of the recovery criteria for the species. Of the 24 extant populations with some protection potential, 22 (distributed across seven NC counties and one SC county) are in some form of ownership and management that could provide permanent protection to the species. Portions of ten of these 22 populations have written management plans with components explicit to Schweinitz's sunflower. However, implementation of these plans is a challenge at all locations due to lack of resources (i.e. funding and staff). Management plans are in draft for portions of the remaining 12 other populations whose current ownership may provide (or has indicated willingness to provide) permanent protective ownership (USFWS 2006, USFWS 2010).

As of the last 5-Year Review (USFWS 2010), the status of this species was listed as uncertain. The majority of sites are not monitored annually, or in a way that allows one to assess year-to-year fluctuations in status and trends.

4. ENVIRONMENTAL BASELINE

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the Schweinitz's sunflower, its habitat, and ecosystem within the Action Area. The environmental baseline is a "snapshot" of the species' health in the Action Area at the time of the consultation, and does not include the effects of the Action under review.

4.1. Action Area Numbers, Reproduction, and Distribution

The Action Area contains two NC Natural Heritage Program element occurrences (EO) for Schweinitz's sunflower – EO 14 and EO 243. No Schweinitz's sunflowers have been observed at EO 14 since 1991, with the most recent survey occurring on October 3, 2017. At EO 243, an October 3, 2017 survey revealed 212 stems with 51 being in flower. This is an increase in number from previous surveys in 2011 (55 stems) and 2012 (110 stems). The 212 Schweinitz's sunflower stems from the 2017 survey comprise 0.021 acre separated into four subpopulations stretching over approximately 0.11 mile of road right-of-way (Figure 4.1). Subpopulations A and B represent a recent increase in the boundaries of EO 243.

4.2. Action Area Conservation Needs and Threats

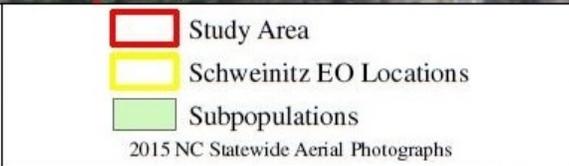
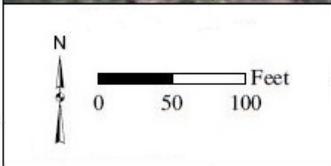
Like all roadside populations of Schweinitz's sunflowers, the population within the Action Area is vulnerable to future road improvements and maintenance activities. Although NCDOT has posted *Do Not Mow* signs and maintains a policy of only mowing such sites during the winter, the site is still vulnerable to mowing during the growing season by contractors who disregard the signs (as has happened at other roadside populations).

5. EFFECTS OF THE ACTION

This section analyzes the direct and indirect effects of the Action on the Schweinitz's sunflower, which includes the direct and indirect effects of interrelated and interdependent actions. Direct effects are caused by the Action and occur at the same time and place. Indirect effects are caused by the Action, but are later in time and reasonably certain to occur. Our analyses are organized according to the description of the Action in section 2 of this BO.

5.1. Effects of Road Widening and Bridge Rehabilitation

The entire Schweinitz's sunflower EO 243 lies within the construction footprint of the Action. The construction area will incur excavation, grading, and fill placement. Therefore, it is assumed that all of the current Schweinitz's sunflower habitat within this EO will either be lost or permanently modified. This will directly affect all 212 stems and their habitat, but the sunflowers will be salvaged (see Section 5.2 below). Although the current roadside habitat will be either lost or permanently modified, the clearing and soil disturbance associated with the Action will likely create new habitat within the Action Area adjacent to the affected area. Due to the persistence of seeds in the soil and the species' generally positive response to tree removal and soil disturbance, the species may recolonize the disturbed area after clearing occurs for newly established right-of-way boundaries.



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Figure 4.1: EO 243

5.2. Effects of Conservation Measures

All of the known Schweinitz's sunflowers within EO 243 (212 stems as of October 2017) will be relocated to a more protected location within Stanly County (a tentative relocation site has been selected but not yet finalized). Although past efforts of transplanting the species have had mixed success, there is good potential that many of the relocated sunflowers will survive to establish a new population that will have more protection and greater opportunities for management.

5.3. Effects of Interrelated and Interdependent Actions

The existing utilities located within the construction footprint of the Action will likely be relocated prior to road construction. Although the Schweinitz's sunflowers will have been previously moved, the utility relocations will disturb the species habitat within EO 243 through excavation and clearing. The soil disturbance associated with these activities may create conditions for recolonization of the species from seeds persisting in the soil. Furthermore, the newly cleared and maintained utility rights-of-way may provide new habitat.

6. CUMULATIVE EFFECTS

For purposes of consultation under ESA §7, cumulative effects are those caused by future state, tribal, local, or private actions that are reasonably certain to occur in the Action Area. Future Federal actions that are unrelated to the proposed action are not considered, because they require separate consultation under §7 of the ESA.

There are no known cumulative effects related to this Action.

7. 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 a BO under §7(a)(2) of the ESA, which is to determine whether a Federal action is likely to:

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

“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).

Schweinitz's sunflower is endemic to the Piedmont physiographic province of North Carolina and South Carolina. As of 2010, there were approximately 86 populations of the species in the two states – up from 13 populations known when the species was listed in 1991. The species is endangered by the loss of historic levels of natural disturbance from fire and grazing by native herbivores, residential and industrial development, encroachment by exotic species, highway construction and improvement, and roadside and utility ROW maintenance. At least 22 populations are in some form of ownership and management that could provide permanent protection to the species.

As of October 3, 2017, approximately 212 Schweinitz's sunflower stems occupying approximately 0.021 acre were located within the Action Area. It is assumed that road construction will directly affect all 212 stems and their habitat. However, these sunflowers will be relocated to a more protected area with greater management opportunities. Assuming a significant level of survival, the relocated sunflowers will establish a new population which will compensate for the loss of habitat through the Action. Although the current roadside habitat will be either lost or permanently modified, the clearing and soil disturbance associated with the Action will likely create new habitat within the Action Area adjacent to the affected area. After the completion of the Action, it is possible that seeds persisting in the soil may recolonize the disturbed area within the new right-of-way.

After reviewing the current 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 Schweinitz's sunflower.

8. 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). In regulations at 50 CFR §17.3, the Service further defines:

- "harass" as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering;"
- "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;" and
- "incidental take" as "any taking otherwise prohibited, if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

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

This BO evaluated effects of the Action on the endangered Schweinitz's sunflower. ESA §7(b)(4) and §7(o)(2), which provide the authority for issuing an ITS, do not apply to listed plant species. However, ESA §9(a)(2) prohibits certain acts with respect to endangered plant species, including:

- (a) remove and reduce to possession from areas under Federal jurisdiction;
- (b) maliciously damage or destroy on areas under Federal jurisdiction; and
- (c) remove, cut, dig up, or damage or destroy on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law.

Regulations issued under ESA §4(d) extend the prohibition under (a) above to threatened plant species (50 CFR §17.71). The damage or destruction of endangered and threatened plants that is incidental to (not the purpose of) an otherwise lawful activity is not prohibited.

9. 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 listed species addressed in this BO and that we believe are consistent with the authorities of the FHWA.

1. NCDOT should endeavor to keep protected roadside populations of Schweinitz's sunflower free of invasive species.
2. NCDOT should improve its roadside plant management program with more emphasis and attention to prevent roadside populations of Federally listed plant species from being treated with herbicides or mowed during the wrong time of the year.
3. NCDOT should provide the Service with a copy of any NCDOT databases used for tracking and monitoring roadside populations of Federally listed plant species. These data should be provided on an annual basis.
4. NCDOT should survey the construction site at EO 243 1-2 years after the site is stabilized to see if Schweinitz's sunflowers have recolonized the new right-of-way.

10. 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.

11. LITERATURE CITED

Houk, R. 2003. Status survey and prioritization protection of Schweinitz's sunflower (*Helianthus schweinitzii*) in York and Lancaster Counties, South Carolina. Unpublished report prepared for the U.S. Fish and Wildlife Service, Cooperative Agreement No. 1448-40181-02-J-032. 30 pp.

- Smith, T.C. 2008. Spatial analysis of *Helianthus schweinitzii* (Schweinitz's sunflower), an endangered species endemic to the Piedmont of North Carolina. Master of Arts Thesis, University of North Carolina at Greensboro, Greensboro, NC. 65 pp.
- U.S. Fish and Wildlife Service (USFWS). 1991. Endangered and threatened wildlife and plants; *Helianthus schweinitzii* (Schweinitz's sunflower) determined to be endangered. Federal Register 56:21087-21091.
- U.S. Fish and Wildlife Service (USFWS). 1994. Recovery plan for Schweinitz's sunflower. U.S. Fish and Wildlife Service. Atlanta, GA. 28 pp.
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ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

LINDA CULPEPPER
Director



April 3, 2019
Stanly & Montgomery Counties
NCDWR Project No. 20181416
R-2530B, B-4974, R-2527

**APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS-
MODIFICATION**

Mr. Phil Harris, III, P.E.
NCDOT Environmental Analysis Unit Manager
1598 Mail Service Center (MAIL)
Raleigh, NC 27699-1598

Dear Mr. Harris:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of constructing project R-2530B (widening Highway 24/27 in Stanly County), B-4974 (improving Highway 24/27 bridge over the Yadkin River) and R-2527 (widening Hwy 24/27 in Montgomery County). Project R-2527 is only in preliminary design phase and impacts are not included in this permit. This permit must be modified when R-2527 plans are finalized for that project to be constructed. Sites highlighted in yellow have received a waiver from the burial requirement due to steep slope and/or presence of bedrock. This approval replaces the approval issued on April 2, 2019.

Stream Impacts in the Yadkin-PeeDee River Basin

Site	Bank Stabilization (linear feet)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
50 (Y2 sta 25+00)				109	10	119	0
51 (Y2 sta 25+00)				8	12	20	0
1 (L sta 38 + 65.5)	19		9			28	0
2 (L sta 55 + 33.69) upstream				106	7	113	0



main channel							
2 (L sta 55+33.69) upstream, side channel				65	10	75	
3 (L sta 55+33.69) downstream side	61			38	39	138	
4 (L sta 67+00)		5	7			12	0
5 (Y6 sta 12+50)				16	10	26	0
7 (L sta 93+30) upstream	26			60	10	96	0
8 (L sta 93+30) downstream	16				10	26	
9 (L sta 101+00)				127	10	137	0
11 (L sta 113+50)				62		62	0
12 (L sta 115+00) downstream				147	10	157	0
13 (L sta 116+00) upstream				23	10	33	
16 (L sta 127+00 thru sta 132+00)		368	10			378	0
17 (L sta 134+40 thru sta 145+00)		1047	35			1082	
18 (L sta 148+10) downstream				151	34	185	0
19 (L sta 149+50) upstream				44	12	56	
20 (L sta 157+00)		131	12			143	0
22 (L sta 192+00)				70	10	80	0
23 (L sta 209+00)				371	10	381	371
24 (L sta 216+50) upstream				96	12	108	305
25 (L sta 219+30) downstream				209	10	219	
26 (L sta 232+00)	20				20	40	362
27 (L sta 234+00)	10				20	30	

28 (L sta 235+40-				362	20	382	
29 (L sta 237+00)				16	10	26	0
30 (L sta 238+70)	10				16	26	0
31 (L sta 259+50)				107	10	117	0
32 (L sta 276+50) upstream				164	10	174	307
33 (L sta 278+00) downstream				143	13	156	
34 (L sta 292+00 thru 295+00)				253	25	278	0
35 (L sta 298+20)				46	10	56	
36 (L sta 304+00)	17			23		40	0
37 (L sta 306+00)	27			136	10	173	
38 (L sta 336+00)	238				18	256	0
39 (L sta 347+00)	171				20	171	0
40 (L sta 359+40)		99	11			110	0
41 (L sta 363+00) downstream				24	12	36	0
42 (L sta 363+00) upstream	44			32	7	83	
44 (L sta 371+60)		7	10			17	0
45 (L sta 375+50) downstream				86	11	97	0
46 (L sta 375+50) upstream	26			75		101	
47A (L sta 380+00)	10				16	26	0
47 (L sta 380+00)				29	10	39	
48 (L sta 382+00)				125	33	158	
TOTAL	695	1657	94	3323	517	6286	1345

Total Stream Impact for Project: 6286 linear feet.
DWR required mitigation: 1345 linear feet
ACOE required mitigation: 4980 linear feet

Wetland Impacts in the Yadkin-PeeDee River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
6	0.19		0.36	0.12		0.67	0.67
10				<0.01		0.00	0.01
14	0.09			0.09		0.18	0.18
15	0.05					0.05	0.05
15	< 0.01		<0.01	<0.01		0.00	0.03
19				<0.01		0.00	0.01
21	0.02				<0.01	0.02	0.02
43	0.02		<0.01			0.02	0.03
49				0.03		0.03	0.03
Total	0.37	0.00	0.38	0.27	0.01	0.97	1.03

Total Wetland Impact for Project: 1.03 acres.

Open Water Impacts in the Yadkin-PeeDee River Basin

Site	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
11	0.20		0.20
16	0.23		0.23
34	0.22		0.22
			0.00
TOTAL	0.65	0.00	0.65

Total Open Water Impact for Project: 0.65 acres.

The project shall be constructed in accordance with your application dated received October 18, 2018, additional information requested December 17, 2018, and subsequent requested information received on February 13, 2019 as well as requirements sent on March 11, 2019. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 4135. This certification corresponds to the Regional General Permit 31 issued by the Corps of Engineers. In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification(s) and any additional conditions listed below.

Condition(s) of Certification:

Project Specific Conditions

1. Fill slopes installed in wetland areas that are not complete takes will not have any part of the toe of the slope constructed in such a way that the remaining wetland is impacted, including but not limited to hydraulic impacts (draining). [15A NCAC 02H.0506(b)(2)]
2. Riprap will be the size that allows for maximum stability in, around, and discharging to jurisdictional areas. [15A NCAC 02H.0506(b)(2)]

3. Hazardous spill basins constructed in rock will be lined with an impervious liner to prevent hazardous materials from discharging through the rock and cross-contaminating the groundwater. If clay accessed on site does not produce an impervious layer on the bottom of the basin, then, bentonite clay, a material already used and approved for such liners by NC DWR, will be used. [15A NCAC 02H.0506(b)(3)]
4. Any stream reconstructed in the bottom of drained ponds may require additional impacts to establish stability. These will be determined in the field during construction as the new stream bed establishment occurs. [15A NCAC 02H.0506(b)(2)]
5. Pond draining will occur with water levels being lowered approximately one foot a day and handled through adequate sediment and erosion control measures so turbidity is not discharged downstream. [15A NCAC 02H.0506(b)(3)]
6. Temporary impacts in the mainstem of the Yadkin-PeeDee for the construction of a causeway must be completely removed at the end of construction. This should be confirmed with bottom elevations shot before installation and after removal to ensure the area's return to its original depth and conditions. [15A NCAC 02H.0506(b)(2)]
7. Weirs on hazardous spill basins must be constructed with a structural fill material that will contain a spill. [15A NCAC 02H.0506(b)(3)]
8. In accordance with commitments made in your application, clearing of vegetation for purpose of relocating utilities within jurisdictional wetlands shall be performed without the use of mechanized equipment. [15A NCAC 02H.0506(b)(3)]
9. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)]
10. Channel relocations shall be completed and stabilized, and approved on site by NCDWR staff, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills. [15A NCAC 02H .0506(b)(3)]
11. At locations where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with NC Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The permittee shall observe any natural channel re-establishment, or use natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remains stable, and that no additional impacts occur within the natural stream channel as a result of draining the pond. [15A NCAC 2H.0506(b)(3)]
12. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water. [15A NCAC 02H .0506(b)(3)]
13. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species. [15A NCAC 02H .0506(b)(2)]

14. As a condition of this 401 Water Quality Certification, the bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
15. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS000250, please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures. A waiver is granted as requested for the historical bridge being rehabilitated as part of the project. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
16. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first. [15A NCAC 02H.0506(b)(2)]
17. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly. [15A NCAC 02H .0506(b)(3)]
18. A turbidity curtain will be installed in the stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank, or during the removal of bents from an old bridge. This condition can be waived with prior approval from the NCDWR. [15A NCAC 02H .0506(b)(3)]
19. Due to the perched pipe conditions at Permit Sites 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 ,12 ,13, 14, 15, 16, 18, 19, 20, 21, 23, 24, and 25, which would require the placement of the pipes on steep grade and/or bedrock, NCDWQ will not require the burial of the culverts in the streambed in these locations. However, design and placement of the culvert and other structures shall be installed in such a manner that the original stream profiles are not altered (i.e., the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions (including pattern and profile) are to be maintained above and below locations of each culvert. The structures shall be designed and installed to allow for fish and other wildlife movement as well as prevent headcutting of the stream. The applicant may be required to provide evidence that the equilibrium has been maintained if requested in writing by the NCDWR. [15A NCAC 02H.0506(b)(2)]
20. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams, shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
21. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage. [15A NCAC 02H.0506(b)(2)]
22. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]
23. For all linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]

24. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)]
25. The NCDOT shall design, construct, and operate and maintain hazardous spill catch basins (HSCBs) at lake and stream crossing within the WS CA watershed. The HSCBs shall be located at Station numbers L 277+75RT, 297+50RT, 307+00LT, Sta. 331+00LT, 334+00LT, 364+00LT, and 382+00RT. Two hazardous spill basins will be modified as infiltration basins but retain the ability to be isolated in case of a spill. These infiltration basins will be maintained as required with the hazardous spill basins. The locations of the infiltration basins are Station numbers 11+67 Y16 RT and 380 +07 L RT.
26. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds (15A NCAC 4B .0124). However, due to the size of the project, NC DOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
27. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.
28. Compensatory mitigation for 1345 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated October 16, 2019 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.
29. Compensatory mitigation for impacts to 1.03 acres riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated October 16, 2019 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.

General Conditions

1. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
2. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]
3. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]

4. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]
5. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]
6. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval, except where amended during the approval process. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
7. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]
8. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]
9. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]
10. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]
11. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
12. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]
13. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
14. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
15. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
16. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
17. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
18. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify

the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]

19. Native riparian vegetation (ex. *Salix nigra*, *Juncus* (spp), *Carex* (spp), et al.) must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0231(b)(6)]
20. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.[15A NCAC 02H.0506(b)(3) and (c)(3)]
21. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
22. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center

This letter completes the review of the Division of Water Resources under Section 401 of the Clean Water Act. If you have any questions, please contact Donna Hood at (704)235-2193 or donna.hood@ncdenr.gov.

Sincerely,



Linda Culpepper, Director
Division of Water Resources

Electronic copy only distribution:

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Chris Militscher, US Environmental Protection Agency
Claire Ellwanger, US Fish and Wildlife Service
Marla Chambers, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services
Donna Hood, NC Division of Water Resources Mooresville Regional Office
File Copy

**STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER RESOURCES**

WATER QUALITY GENERAL CERTIFICATION NO. 4135

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR US ARMY CORPS OF ENGINEERS

- **NATIONWIDE PERMIT NUMBER 14 (LINEAR TRANSPORTATION PROJECTS), AND**
- **REGIONAL GENERAL PERMIT 198200031 (NCDOT BRIDGES, WIDENING PROJECTS, INTERCHANGE IMPROVEMENTS)**

Water Quality Certification Number 4135 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to surface waters and wetland areas as described in 33 CFR 330 Appendix A (B) (14) of the US Army Corps of Engineers regulations and Regional General Permit 198200031.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Effective date: December 1, 2017

Signed this day: December 1, 2017

By

A handwritten signature in black ink, appearing to read 'Linda Culpepper', is written over a solid horizontal line.

for Linda Culpepper
Interim Director

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Activities meeting any one (1) of the following thresholds or circumstances require **written approval** for a 401 Water Quality Certification from the Division of Water Resources (DWR):

- a) If any of the conditions of this Certification (listed below) cannot be met; or
- b) Any temporary or permanent impacts to wetlands, open waters and/or streams, except for construction of a driveway to a single family residential lot that is determined to not be part of a larger common plan of development, as long as the driveway involves a travel lane of less than 25 feet and total stream impacts of less than 60 feet, including any topographic/slope stabilization or in-stream stabilization needed for the crossing; or
- c) Any stream relocation or stream restoration; or
- d) Any high-density project, as defined in 15A NCAC 02H .1003(2)(a) and by the density thresholds specified in 15A NCAC 02H .1017, which:
 - i. Disturbs one acre or more of land (including a project that disturbs less than one acre of land that is part of a larger common plan of development or sale); and
 - ii. Has permanent wetland, stream or open water impacts; and
 - iii. Is proposing new built-upon area; and
 - iv. Does not have a stormwater management plan reviewed and approved under a state stormwater program¹ or a state-approved local government stormwater program².

Projects that have vested rights, exemptions, or grandfathering from state or locally-implemented stormwater programs and projects that satisfy state or locally-implemented stormwater programs through use of community in-lieu programs **require written approval**; or

- e) Any permanent impacts to waters, or to wetlands adjacent to waters, designated as: ORW (including SAV), HQW (including PNA), SA, WS-I, WS-II, or North Carolina or National Wild and Scenic River.
- f) Any permanent impacts to waters, or to wetlands adjacent to waters, designated as Trout except for driveway projects that are below threshold (b) above provided that:
 - i. The impacts are not adjacent to any existing structures
 - ii. All conditions of this General Certification can be met, including adherence to any moratoriums as stated in Condition #10; and
 - iii. A *Notification of Work in Trout Watersheds Form* is submitted to the Division at least 60 days prior to commencement of work; or
- g) Any permanent impacts to coastal wetlands [15A NCAC 07H .0205], or Unique Wetlands (UWL); or
- h) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of NC Wetland Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), NC Surface Water or Wetland Standards (15A NCAC 02B .0200), or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200); or

¹ e.g. Coastal Counties, HQW, ORW, or state-implemented Phase II NPDES

² e.g. Delegated Phase II NPDES, Water Supply Watershed, Nutrient-Sensitive Waters, or Universal Stormwater Management Program

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- i) Any impacts to subject water bodies and/or state regulated riparian buffers along subject water bodies in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman Lake, Jordan Lake or Goose Creek Watersheds (or any other basin or watershed with State Regulated Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless*:
 - i. The activities are listed as “EXEMPT” from these rules; or
 - ii. A Buffer Authorization Certificate is issued by the NC Division of Coastal Management (DCM); or
 - iii. A Buffer Authorization Certificate or a Minor Variance is issued by a delegated or designated local government implementing a state riparian buffer program pursuant to 143-215.23

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval.

I. ACTIVITY SPECIFIC CONDITIONS:

1. If this Water Quality Certification is used to access residential, commercial or industrial building sites, then all parcels owned by the applicant that are part of the single and complete project authorized by this Certification must be buildable without additional impacts to streams or wetlands. If required in writing by DWR, the applicant shall provide evidence that the parcels are buildable without requiring additional impacts to wetlands, waters, or state regulated riparian buffers. [15A NCAC 02H .0506(b)(4) and (c)(4)]
2. For road and driveway construction purposes, this Certification shall only be utilized from natural high ground to natural high ground. [15A NCAC 02H .0506(b)(2) and (c)(2)]
3. Deed notifications or similar mechanisms shall be placed on all lots with retained jurisdictional wetlands, waters, and state regulated riparian buffers within the project boundaries in order to assure compliance with NC Wetland Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), and/or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200). These mechanisms shall be put in place at the time of recording of the property or individual parcels, whichever is appropriate. [15A NCAC 02H .0506(b)(4) and (c)(4)]
4. For the North Carolina Department of Transportation, compliance with the NCDOT’s individual NPDES permit NCS000250 shall serve to satisfy this condition. All other high-density projects that trigger threshold item (d) above shall comply with one of the following requirements: [15A NCAC 02H .0506(b)(5) and (c)(5)]

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- a. Provide a completed Stormwater Management Plan (SMP) for review and approval, including all appropriate stormwater control measure (SCM) supplemental forms and associated items, that complies with the high-density development requirements of 15A NCAC 02H .1003. Stormwater management shall be provided throughout the entire project area in accordance with 15A NCAC 02H .1003. For the purposes of 15A NCAC 02H .1003(2)(a), density thresholds shall be determined in accordance with 15A NCAC 02H .1017.
- b. Provide documentation (including calculations, photos, etc.) that the project will not cause degradation of downstream surface waters. Documentation shall include a detailed analysis of the hydrological impacts from stormwater runoff when considering the volume and velocity of stormwater runoff from the project built upon area and the size and existing condition of the receiving stream(s).

Exceptions to this condition require application to and written approval from DWR.

II. GENERAL CONDITIONS:

1. When written authorization is required, the plans and specifications for the project are incorporated into the authorization by reference and are an enforceable part of the Certification. Any modifications to the project require notification to DWR and may require an application submittal to DWR with the appropriate fee. [15A NCAC 02H .0501 and .0502]
2. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the impacts (including temporary impacts) as authorized in the written approval from DWR; or beyond the thresholds established for use of this Certification without written authorization. [15A NCAC 02H .0501 and .0502]

No removal of vegetation or other impacts of any kind shall occur to state regulated riparian buffers beyond the footprint of impacts approved in a Buffer Authorization or Variance or as listed as an exempt activity in the applicable riparian buffer rules. [15A NCAC 02B .0200]

3. In accordance with 15A NCAC 02H .0506(h) and Session Law 2017-10, compensatory mitigation may be required for losses of greater than 300 linear feet of perennial streams and/or greater than one (1) acre of wetlands. Impacts associated with the removal of a dam shall not require mitigation when the removal complies with the requirements of Part 3 of Article 21 in Chapter 143 of the North Carolina General Statutes. Impacts to isolated and other non-404 jurisdictional wetlands shall not be combined with 404 jurisdictional wetlands for the purpose of determining when impact thresholds trigger a mitigation requirement. For linear publicly owned and maintained transportation projects that are not determined to be part of a larger common plan of development by the US Army Corps of Engineers, compensatory mitigation may be required for losses of greater than 300 linear feet per perennial stream.

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Compensatory stream and/or wetland mitigation shall be proposed and completed in compliance with G.S. 143-214.11. For applicants proposing to conduct mitigation within a project site, a complete mitigation proposal developed in accordance with the most recent guidance issued by the US Army Corps of Engineers Wilmington District shall be submitted for review and approval with the application for impacts.

4. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2 of Title 15A.
5. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0200]

Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*, or for linear transportation projects, the *NCDOT Sediment and Erosion Control Manual*.

All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*. Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality Waters (HQW), or Outstanding Resource Waters (ORW), then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

6. Sediment and erosion control measures shall not be placed in wetlands or waters except within the footprint of temporary or permanent impacts authorized under this Certification. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0501 and .0502]
7. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02B .0201]

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8. An NPDES Construction Stormwater Permit (NCG010000) is required for construction projects that disturb one (1) or more acres of land. The NCG010000 Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If the project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. [15A NCAC 02H .0506(b)(5) and (c)(5)]

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit. [15A NCAC 02H .0506(b)(5) and (c)(5)]

9. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the *NC Sediment and Erosion Control Manual*, or the *NC DOT Construction and Maintenance Activities Manual*, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(3) and (c)(3)]
10. If activities must occur during periods of high biological activity (e.g. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities. [15A NCAC 02H .0506 (b)(2) and 15A NCAC 04B .0125]

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium. A copy of the approval from the resource agency shall be forwarded to DWR.

Work within a designated trout watershed of North Carolina (as identified by the Wilmington District of the US Army Corps of Engineers), or identified state or federal endangered or threatened species habitat, shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

11. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. [15A NCAC 02H .0506(b)(2) and (c)(2)]

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Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

If multiple pipes or barrels are required, they shall be designed to mimic the existing stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel shall be avoided.

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross vanes, etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 60 calendar days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as, a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 60 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application to and written approval from DWR.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

12. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(5)]

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13. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters. [15A NCAC 02B .0200 and 15A NCAC 02B .0231]
14. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. [15A NCAC 02B .0200]
15. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, planform pattern, and longitudinal bed profile. For projects that receive written approval, no temporary impacts are allowed beyond those included in the application and authorization. All temporarily impacted sites shall be restored and stabilized with native vegetation. [15A NCAC 02H .0506(b)(2) and (c)(2)]
16. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams shall be installed as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* or the *North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities* so as not to restrict stream flow or cause dis-equilibrium during use of this Certification. [15A NCAC 02H .0506(b)(2) and (c)(2)]
17. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or in a manner that precludes aquatic life passage. [15A NCAC 02H .0506(b)(2)]
18. Any rip-rap used for stream or shoreline stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures. [15A NCAC 02H .0506(b)(2)]
19. Applications for rip-rap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Rip-rap Groins in Estuarine and Public Trust Waters) shall meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.

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20. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication and general equipment maintenance shall be performed in a manner to prevent, to the maximum extent practicable, contamination of surface waters by fuels and oils. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0211 (12)]
21. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance. [15A NCAC 02H .0506(b)(3) and (c)(3)]
22. In accordance with 143-215.85(b), the applicant shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.
23. If an environmental document is required under the State Environmental Policy Act (SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse. If an environmental document is required under the National Environmental Policy Act (NEPA), then this General Certification is not valid until a Categorical Exclusion, the Final Environmental Assessment, or Final Environmental Impact Statement is published by the lead agency. [15A NCAC 01C .0107(a)]
24. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.
25. The applicant and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If DWR determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then DWR may revoke or modify a written authorization associated with this General Water Quality Certification. [15A NCAC 02H .0507(d)]
26. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this Certification. A copy of this Certification, including all conditions shall be available at the project site during the construction and maintenance of this project. [15A NCAC 02H .0507 (c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

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27. When written authorization is required for use of this Certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return a certificate of completion (available on the DWR website <https://edocs.deq.nc.gov/Forms/Certificate-of-Completion>). [15A NCAC 02H .0502(f)]
28. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards. [15A NCAC 02H .0507(c)]
29. If the property or project is sold or transferred, the new permittee shall be given a copy of this Certification (and written authorization if applicable) and is responsible for complying with all conditions. [15A NCAC 02H .0501 and .0502]

III. GENERAL CERTIFICATION ADMINISTRATION:

1. In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. An applicant for a CAMA permit under Article 7 of Chapter 113A of the General Statutes for which a Water Quality Certification is required shall only make one payment to satisfy both agencies; the fee shall be as established by the Secretary in accordance with 143-215.3D(e)(7).
2. This Certification neither grants nor affirms any property right, license, or privilege in any waters, or any right of use in any waters. This Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and this Certification does not create any prescriptive right or any right of priority regarding any usage of water. This Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded.
3. This Certification grants permission to the Director, an authorized representative of the Director, or DWR staff, upon the presentation of proper credentials, to enter the property during normal business hours. [15A NCAC 02H .0502(e)]
4. This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide Permit and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification. This General Certification is rescinded when the US Army Corps of Engineers reauthorizes any of the corresponding Nationwide Permits and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Resources.

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5. Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.
6. The Director of the North Carolina Division of Water Resources may require submission of a formal application for Individual Certification for any project in this category of activity if it is deemed in the public's best interest or determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the water or downstream waters are precluded.

History Note: Water Quality Certification (WQC) Number 4135 issued December 1, 2017 replaces WQC Number 4088 issued March 3, 2017; WQC 3886 issued March 12, 2012; WQC Number 3820 issued April 6, 2010; WQC Number 3627 issued March 2007; WQC Number 3404 issued March 2003; WQC Number 3375 issued March 18, 2002; WQC Number 3289 issued June 1, 2000; WQC Number 3103 issued February 11, 1997; WQC Number 2732 issued May 1, 1992; WQC Number 2666 issued January 21, 1992; WQC Number 2177 issued November 5, 1987.



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: 34446.1.6 TIP No.: R-2530B/B-4974 County(ies): Stanly Montgomery Page 1 of 5

General Project Information

WBS Element:	34446.1.6	TIP Number:	R-2530B/B-4974	Project Type:	Roadway Widening	Date:	5/6/2019
NCDOT Contact:	Stephen Morgan, P.E.		Contractor / Designer:	Kimley-Horn & Associates			
Address:	NCDOT Hydraulics Unit		Address:	200 South Tryon Street, Suite 200			
	1020 Birch Ridge Dr.			Charlotte, NC 28202			
	Raleigh, NC 27610						
Phone:	919-707-6739		Phone:	704-319-5683			
Email:	smorgan@ncdot.gov		Email:	jason.lawing@kimley-horn.com			
City/Town:	Albemarle		County(ies):	Stanly	Montgomery		
River Basin(s):	Yadkin-Pee Dee		CAMA County?	No	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	7.133 miles	Surrounding Land Use:	Urban (1.2 miles) and Rural (5.9 miles)					
	Proposed Project			Existing Site				
Project Built-Upon Area (ac.)	78.1	ac.	42.0	ac.				
Typical Cross Section Description:	Urban Typical Section (1.2 mi.) - 4 lane divided with 23' raised grassed median, curb and gutter, 14' outside lanes, 12' inside lanes, 10' shoulders with sidewalk, and 2:1 side slopes or flatter. Rural Typical Section (5.9 mi.) - 4 lane divided with 46' grassed median, 12' lanes, 4' paved shoulders, 2:1 fill slopes or flatter, 6:1 outside ditch front slopes with 4:1 back slopes and 6:1 median ditch slopes.			Urban Typical Section (from begin to -Y5) - 3 lane with center two way turn lane, curb and gutter, 11' lanes, grassed shoulders with 2:1 side slopes or flatter. Rural Typical Section (from -Y5- to end of project) - 2 lane shoulder section with 11' lanes and 2:1 side slopes or flatter.				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	21,500	Year:	2039	Existing:	16,400	Year:	2019
General Project Narrative: (Description of Minimization of Water Quality Impacts)	See attached narrative.							

Waterbody Information

Surface Water Body (1):	Mountain Creek		NCDWR Stream Index No.:	13-5-(0.7)			
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)		None			
	Supplemental Classification:						
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:				Buffer Rules in Effect:	N/A		
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(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)							



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
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Additional Waterbody Information

Surface Water Body (2):	Jacobs Creek		NCDWR Stream Index No.:	13-9-(0.5)	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Water Supply IV (WS-IV)		
	Supplemental Classification:				
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	Comments:				
NRTR Stream ID:			Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(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 (3):	Pee Dee River		NCDWR Stream Index No.:	13-(1)	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Water Supply IV (WS-IV)		Class B
	Supplemental Classification:				
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	Comments:				
NRTR Stream ID:			Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	Yes	(If yes, provide justification in the General Project Narrative)		(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 (4):	Rocky Creek		NCDWR Stream Index No.:	13-8-(2)	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Water Supply IV (WS-IV)		None
	Supplemental Classification:				
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	Comments:				
NRTR Stream ID:			Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(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)				

R-2530 Stormwater Management Plan
General Project Narrative and
Description of Minimization of Water Quality Impacts:

- This is a Division 10 managed project.
- Maintaining existing drainage patterns to best extent practical.
- Avoiding direct discharges where practicable.
- Use of low flow sills set at stream bed elevation in main barrel of multiple barrel and in single barrel box culverts. Low flow sills were used in both barrels of box culvert at Sta. 38+76 -L- due to lack of cover (only 4' height opening), need for opening area to meet hydraulic guidelines and inability to raise proposed grade significantly due to surrounding developed areas.
- Use of high flow sills set at floodplain bench elevation on high flow barrels of multiple barreled box culverts at Sta. 24+95 -Y2- and 381+64 -L-, to help maintain the natural stream width and depth through the main barrel.
- Culvert barrels with sills will be back filled with native material or class A rip rap to sill height. Native material will consist of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Native material is subject to approval by the engineer and may be subject to permit conditions. Class A rip rap may be used to supplement the native material. If rip rap is used, native material should be placed on top to fill voids and provide a flat surface for animal passage.
- Box culvert at Sta. 363+00 -L- not buried due to the culvert being in backwater from Lake Tillery (culvert oversized due to tailwater condition).
- Box culvert at Sta. 305+27 -L- not buried due to presence of rock. A bottomless culvert was considered, but not chosen because it would not greatly reduce stream impact length because the stream meanders outside the proposed culvert alignment in the areas of widening. The footings required for the bottomless culvert would also reduce the stream impact savings. Instead a combination of 4' long sills and baffles placed at 25' centers will be used through the culvert. Class B rip rap between sills and baffles in the culvert shall provide a continuous low flow channel. Existing channel consists of rock therefore excavated native material is not anticipated from the stream bed at the project site during construction. Culvert will be backfilled with Class B rip rap to sill/baffle height.
- For upstream and downstream floodplain bench channel improvements, the floodplain bench will be comprised of Class I rip rap with native material to top of sill elevation and coir fiber matting cover (per comment received at 4B meeting).
- Existing culverts replaced in many locations to meet current guidelines and requirements. This should help reduce velocities at culvert outlets.
- Bank stabilization used at culvert inlets and outlets to help minimize erosion.
- Burying box culverts and circular cross pipes at jurisdictional streams. Pipe burial allows for wildlife passage and helps minimize channel erosion at inlet and outlet of the pipes. Based on discussion at FDFI with Larry Thompson (Division 10 DEO) and follow up meeting with Rob Ridings (DWR) on May 19, 2017, the following pipe guidelines were used (an attached table has been created to document the crossing sites). Pipe have been labeled in the plans with either "Bury" or "Not Buried":
 - Not a JS, don't bury

- JS only on one end, don't bury
- JS on both ends and has pipe slope over 4%, don't bury over concern of head cut
- JS on both ends and has pipe slope less than 4%, bury
- Extensions of current pipes that don't involve replacement, don't bury
- Bedrock prevents burial, don't bury
- Construction phasing and traffic control considerations were considered when laying out new culverts to reduce construction time.
- Non-symmetric widening in areas to reduce impacts to wetlands and jurisdictional streams.
- Shifted bulb-outs where possible to avoid additional stream and wetland impacts.
- Use of 2:1 slopes to reduce structure length and fill slope offset to help reduce stream and wetland impacts.
- Use of grass swales where possible. All grass swale lengths exceed the minimum length guidance.
- Minimized directly connected impervious surfaces where possible. Runoff from road in shoulder section will drain through grassed ditches in median and outside (cut and lateral ditches) prior to outfall connection.
- Grassed shoulder typical section utilized as much as possible throughout the project to encourage sheet flow off of the roadway. Approximately 5.9 of 7.1 miles are grassed shoulder typical section.
- A grassed median (46' wide typical) utilized as much as possible throughout the project.
- Grassed conveyances used in lieu of closed system to the maximum extent practicable.
- Channel Changes were utilized at four (4) parallel stream impacts and matched existing stream typical section to the maximum extent practicable. This can be seen at 38+90 to 40+35 -L-, 52+72 to 53+25 -L-, 235+27 to 238+00 -L-, and 292+50 to 295+27 -L-.
- Use of splitter boxes in multiple locations to limit low flow toward wetlands and offsite swales. Also used in areas of directly connected impervious areas. Can be seen at stations 59+84 -L- (RT), 88+15 -L- (RT), 91+96 -L- (RT), 276+00 -L- (RT), and 295+95 -L- (RT). Splitter boxes at Sta. 276+00 -L- (RT) and Sta. 295+95 -L- divert the first flush (minimum of the 1" storm) to the linear basins (85 to 90% of storms)
- Use of hazardous spill basins in and around critical area of Lake Tillery. Critical area where hazardous spill basins are required begins around Sta. 258+00 -L- and runs to the end of the project.
 - Project is located through the Uwharrie Mountains and therefore the project encounters steep terrain and the presence of rock. This is especially true around the area of Lake Tillery where the basins are required. Project design includes steep fill slopes which causes difficulty accessing sites for maintenance.
 - Modified, linear, base ditch basins with check dams were provided at basin locations 1 (from Sta. 276+50 to 277+75 -L- (RT)), location 2 (from Sta. 290+50 to 293+00 -L- (RT)), and location 3 (from Sta. 307+00 to 308+50 -L- (LT)). These modified basins will limit the overall basin footprint, since they are in areas of very steep terrain where traditional basins were not practical. They will provide storage for low flow events or spills, within the ditch parameters, will slow down the spills with the use of check dams and will provide a headwall that can be blocked off in case of a spill.

- A standard hazardous spill basin is located at station 331+41 -L- (LT). There is also a base ditch immediately downstream of the basin from Sta. 332+00 to 334+00 -L- (LT) with an open throat catch basin that could additionally be blocked similar to the modified, linear basins.
- The basins at stations 364+00 -L- (LT) and 382+50 -L- (RT) are designed as rock lined, detention type basins with weir outfalls approximately 18" elevated above the bottom of the basin. These basins will help to detain any spills, while minimizing maintenance and safety concerns due to the steep terrain and difficulty accessing.
- Hazardous spill basins were modified to filtration basins at Sta. 352+75 -L- (RT) and Sta. 380+00 -L- (RT) to provide some long-term water quality benefits. The filtration basins are designed and sized to capture and treat the water quality volume that will consist of all the runoff from the new built-upon area for 80 to 90% of the average annual rainfall. This will result in a water quality design storm of 1.5 inch.
- The filtration basins were used in areas where vegetative conveyance was not possible due to the steep terrain requiring rip rap protection in the proposed swales to protect from high velocities.
- The filtration basins will provide water quality treatment for a broad spectrum of water quality parameters of concern. As stormwater is temporarily detained, suspended sediments and some phosphorus are captured through sedimentation. During infiltration and other chemical processes, metals and additional phosphorus are removed. Microbial activity that occurs in the media helps to reduce nitrogen and hydrocarbons. As the surface layer is exposed to sunlight and allowed to dry, pathogens are treated. Median filters with relatively deep media layers can help abate runoff temperatures.
- Media filters will additionally provide peak flow attenuation, reducing the peak flow for the protection of downstream conveyances, reducing the chance for degradation and sediment loss.
- Coordination of erosion control basins with hazardous spill basins to limit impacts if possible by converting basin EC basin over to permanent spill basin.
- Eastbound Bridge 50 will remain as is with no changes. Westbound Bridge 51 superstructure will be rehabilitated. The existing arch spandrel substructure will be retained. The bridge will be lengthened by approximately 50' on the begin bridge side and by approximately 25' on the end bridge side.
- 6" diameter deck drains will be used on Bridge 51. The drains will be placed to avoid bridge piers and spandrel bents. They will range from 12' to 21' spacing.
 - The existing bridge consists of deck drains that drain down behind the existing bridge bents and direct discharge into the water. It was determined that the proposed bridge is exempt from the rule not allowing deck drains to discharge over water because the bridge is already in place and already has deck drains that direct discharge into the water.
 - There was an Effects meeting on 1/19/17 between Human Environment Section (HES, Mary Pope Furr), SMU, Hydraulics, RDU, PDEA, and Renee Gledhill-Early of the State Historic Preservation Office regarding the proposed deck drain system on Bridge 51

- Renee expressed concern with the visual impacts of pipes on the side of the bridge and expected an adverse effect if a bridge deck drain system was used (would have a negative impact to the architectural aesthetics of the existing bridge). The collection system would have to be located on the outside of the bridge and would be hanging from the deck. Even with using a flat grade to a proposed deck drain system, there would be an exposed, hanging system up to 3' below the deck due to the overall length of the bridge and required slopes.
- In the meeting, it was agreed that NCDOT will proceed with a drainage design that does not include use of an enclosed deck drainage system
- The super-elevation of the bridge was increased to 0.025 ft/ft to reduce the number of deck drains
- The long length of the proposed bridge (1,125') over the large waterbody of the Pee Dee River with the use of deck drains will provide dispersed discharge. The dispersed discharge will include the multiple deck drains above the water body such that runoff is distributed over a large area allowing for rapid mixing and dilution with the receiving water.
- Use of fill slopes steeper than 2:1 with reinforced soil slopes from Sta. 298+00 -L- to 303+00 -L- (RT) to avoid impacts due to fill to the parallel jurisdictional stream.
- Use of fill slopes steeper than 2:1 with reinforced soil slopes from Sta. 355+62.93 -L- to 358+95.24 -L- (RT) to avoid impacts due to fill within the FERC boundary and to avoid encroachment on the boat ramp parking area.
- Environmental Assessment (EA) was completed for the R-2530B, B-4974 and R-2527 projects.
 - There was concern at the 4B meeting about the project logical termini and if the project would be meeting EA purpose and need if only the R-2530B and B-4974 projects are permitted.
 - At the time of the 4B, it was decided that the R-2527 project will be added to the permit drawing impact summary tables for the R-2530B / B-4974 project since it was unfunded at the time with no anticipated date of funding. The impacts listed in the FONSI will be used for R-2527.
 - Since the 4B meeting, the R-2527 was funded in March/April of 2017 with a ROW date in 2019. At the 4C meeting it was decided that preliminary drawings on R-2527 will be needed for the preliminary impacts. The preliminary impacts should include slopestakes plus 25 feet.
 - A Finding of No Significant Impact (FONSI) has been completed that includes all three projects.
- Due to the water supply reservoir within project limits, a Critical Area (CA) was identified in the FONSI. The CA is defined as the area within ½ mile from the water supply reservoir normal pool. Within the CA, a 25-year storm is used for erosion control design. Although only a portion of the project falls within the CA, the entire erosion control design was based on the 25-year storm event in an effort to further protect the surrounding watershed.

R-2530B Cross Pipe Table with Bury Determination and Bury Guidelines

#	Alignment	Station	JS?	Size	Upstream Channel Slope	Pipe Slope	Bury?	Plansheet	Why Buried or Not Buried
1	-Y2A-	14+03	No	18	0.38%	1.30%	No	33	Non JS (Not Buried)
2	-Y6-	12+32	No (at downstream end only)	30	1.10%	1.10%	No	7	JS downstream only (Not Buried)
3	-L-	74+67	No	18	4.00%	1.80%	No	8	Non JS (Not Buried)
4	-D/W-	89+50 -L-	No	48	1.33%	1.40%	No	9	Non JS (Not Buried)
5	-L-	101+73	No (at downstream end only)	36	0.50%	4.48%	No	9 & 10	JS downstream only (Not Buried)
6	-L-	115+82	Yes	60	1.10%	0.98%	Yes	11	Pipe slope <4% (Buried)
7	-L-	143+65	No (at downstream end only)	36	1.24%	5.80%	No	13	JS downstream only (Not Buried)
8	-L-	149+21	Yes	42	3.33%	5.00%	No	13	Pipe slope >4% (Not Buried)
9	-Y8-	16+96	No	18	1.40%	2.50%	No	13	Non JS (Not Buried)
10	-Y8-	23+82	No	18	4.90%	4.80%	No	33	Non JS (Not Buried)
11	-L-	157+26	No (at downstream end only)	36	1.60%	3.80%	No	14	JS downstream only (Not Buried)
12	-L-	180+51	No	24	10.00%	1.00%	No	15	Non JS (Not Buried)
13	-Y9-	18+10	No	18	8.68%	2.20%	No	16	Non JS (Not Buried)
14	-Y10-	10+92	No	24	2.37%	3.80%	No	17	Non JS (Not Buried)
15	-L-	199+00	No	30	4.90%	1.00%	No	17	Non JS (Not Buried)
16	-L-	217+96	Yes	48	4.50%	7.10%	No	18	Pipe slope >4% (Not Buried)
17	-L-	237+31	Yes	66	5.90%	2.60%	Yes	19 & 20	Pipe slope <4% (Buried)
18	-L-	243+31	No	30	3.50%	3.80%	No	20	Non JS (Not Buried)
19	-L-	259+57	No (at upstream end only)	48	1.10%	1.50%	No	21	JS upstream only (Not Buried)
20	-Y12-	12+50	No	18	3.40%	3.40%	No	22	Non JS (Not Buried)
21	-Y12-	14+86	No	24	2.90%	1.00%	No	22	Non JS (Not Buried)
22	-L-	277+42	Yes	36	10.90%	3.70%	Yes	22	Pipe slope <4% (Buried)
23	-Y16-	14+54	No	24	3.60%	4.80%	No	28	Non JS (Not Buried)
24	-L-	359+16	No (at downstream end only)	36	5.00%	4.50%	No	28	JS downstream only (Not Buried)
25	-L-	371+65	No (at downstream end only)	24	10.00%	3.80%	No	30	JS downstream only (Not Buried)
26	-L-	375+34	Yes	72	0.50%	1.70%	Yes	30	Pipe slope <4% (Buried)

Pipe Bury Guidelines:

- Not a JS - Don't Bury
- JS only on one end - Don't Bury
- JS on both ends and has pipe slope over 4% - Don't Bury
- JS on both ends and has pipe slope less than 4% - Bury
- Extensions of current pipes that don't involve replacement - Don't Bury
- Bedrock prevents burial - Don't Bury

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2530B	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
34446.1.6		P.E.	
34446.2.5	STBG-0024(083)	R/W	
34446.2.6	STBG-0024(083)	UTL	
34446.3.4		CONST.	

PERMIT DRAWING
SHEET 1 OF 84

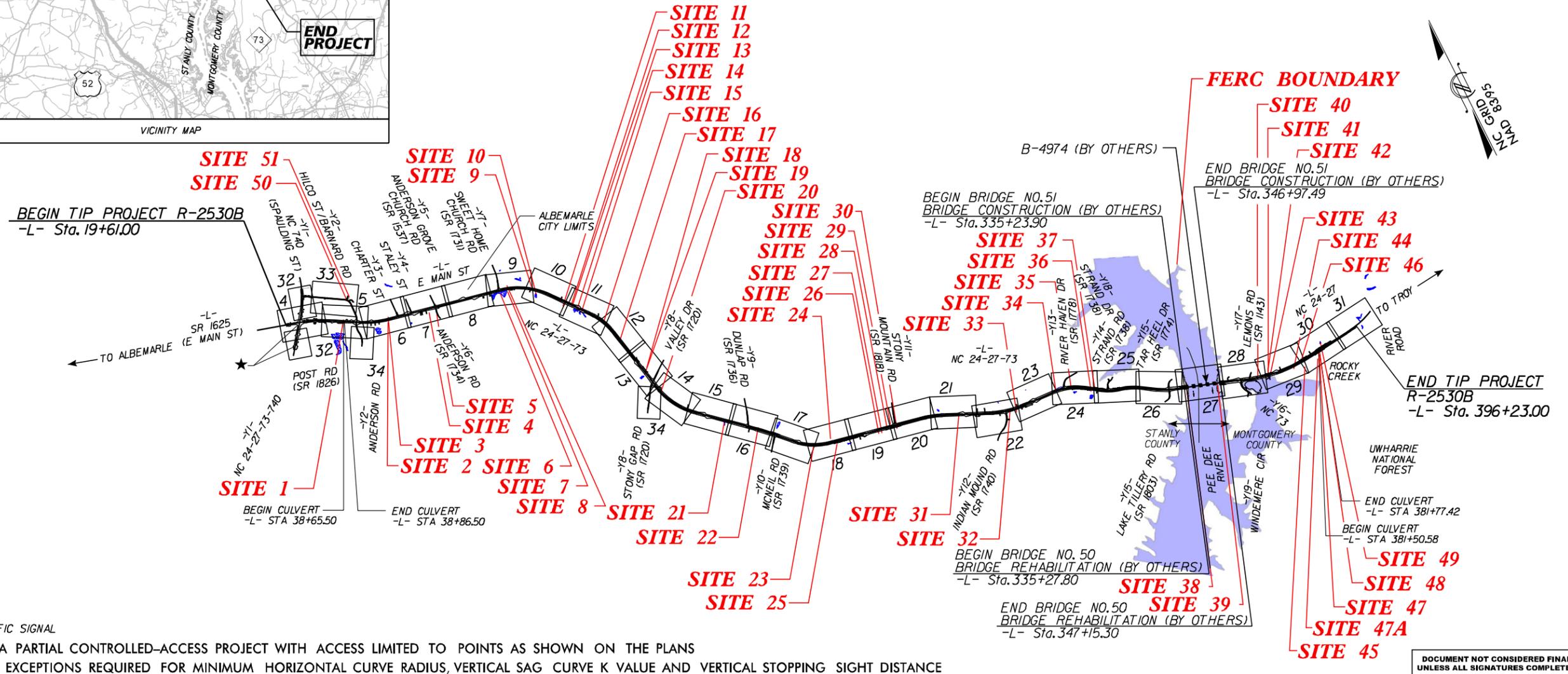
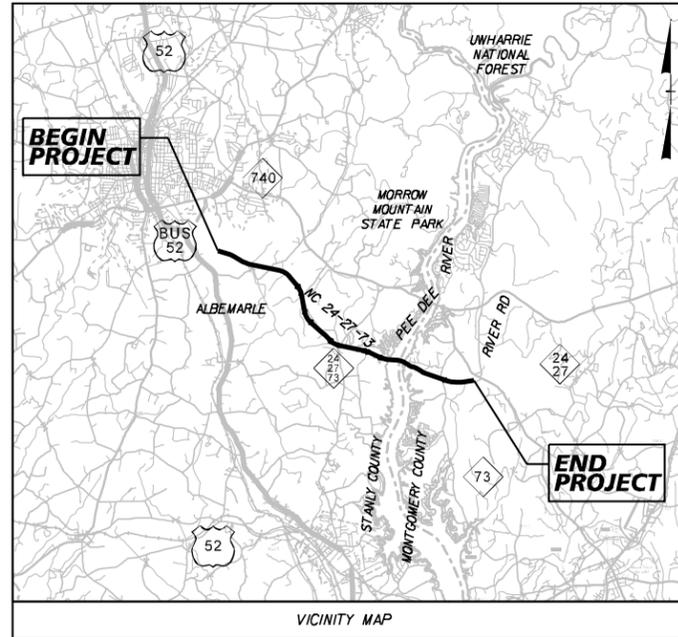
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANLY & MONTGOMERY COUNTIES

WETLAND AND SURFACE WATER IMPACTS PERMIT

LOCATION: NC 24-27 FROM NC 740 IN ALBEMARLE TO EAST OF THE PEE DEE RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, AND RETAINING WALL

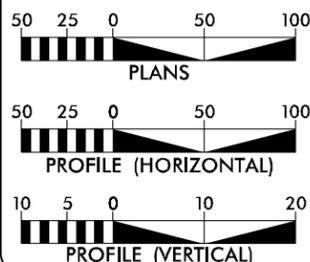


★ TRAFFIC SIGNAL

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS
DESIGN EXCEPTIONS REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS, VERTICAL SAG CURVE K VALUE AND VERTICAL STOPPING SIGHT DISTANCE

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UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

AADT 2019 = 16,400
AADT 2039 = 21,500
K = 9%
D = 55%
T = 10%*
V = 50/60 MPH
* (TTST 4% + DUAL 6%)
FUNCTIONAL CLASSIFICATION:
URBAN/RURAL ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2530B = 6.908 MILES
TOTAL LENGTH TIP PROJECT R-2530B = 6.908 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley Horn

2018 STANDARD SPECIFICATIONS
RIGHT OF WAY DATE: MAY 19, 2017
LETTING DATE: OCTOBER 15, 2019

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER
RHODES S. HUNT, P.E.
PROJECT DESIGN ENGINEER
LAURA SUTTON, P.E.
TEAM LEAD
NCDOT PROJECT MANAGEMENT UNIT

HYDRAULICS ENGINEER

SEAL 032615
JASON D. LAWING
P.E.
SIGNATURE:
ROADWAY DESIGN ENGINEER
SEAL 024436
JEFFREY W. MOORE
P.E.
SIGNATURE:



TIP PROJECT: R-2530B

CONTRACT: C204181

09/08/19

5/21/2019

- 13 LINDA AN L CRESS
- 20 STANLY SQUARE INC.
- 25 GUSTAVO G. VENEGAS
- 26 JAMES J NOLAN
- 28 CHARLES E. & NANCY T. BURRIS
- 33 V F W POST 2908

NOTES:
 1. END RETAINING WALL #1 - L- STA 32+35.00 (4950 RT)
 2. CONTRACTOR TO INSTALL PRECAST CONCRETE PARKING CURB 3" FROM FACE OF 2'-6" C&G FROM -L- STA 30+44 TO 32+16 (RT) SEE DETAIL SHEET 20-3
 3. TOE PROTECTION - EST 25 SY PSMR SEE DETAIL 5, SHEET 20-1
 4. SPECIAL LATERAL 'V' DITCH WITH 2' FRONT SLOPES TO LIMIT IMPACTS. SEE DETAIL 9, SHEET 2D-1
 5. REMOVE CB AND 18"
 6. GRADE AREA TO DRAIN OVER CURB FROM -L- STA 39+78 TO 40+94 (LT) & STA 41+46 TO 42+65 (LT) (SEE CROSS SECTIONS)
 7. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS EST 7 SY GFD
 8. TEMPORARY SHORING (TYP)
 9. SEE TRANSPORTATION MANAGEMENT PLANS)
 10. DO NOT DISTURB EXISTING AREA LIGHTS
 11. SEAL ABANDONED WELL

LEGEND

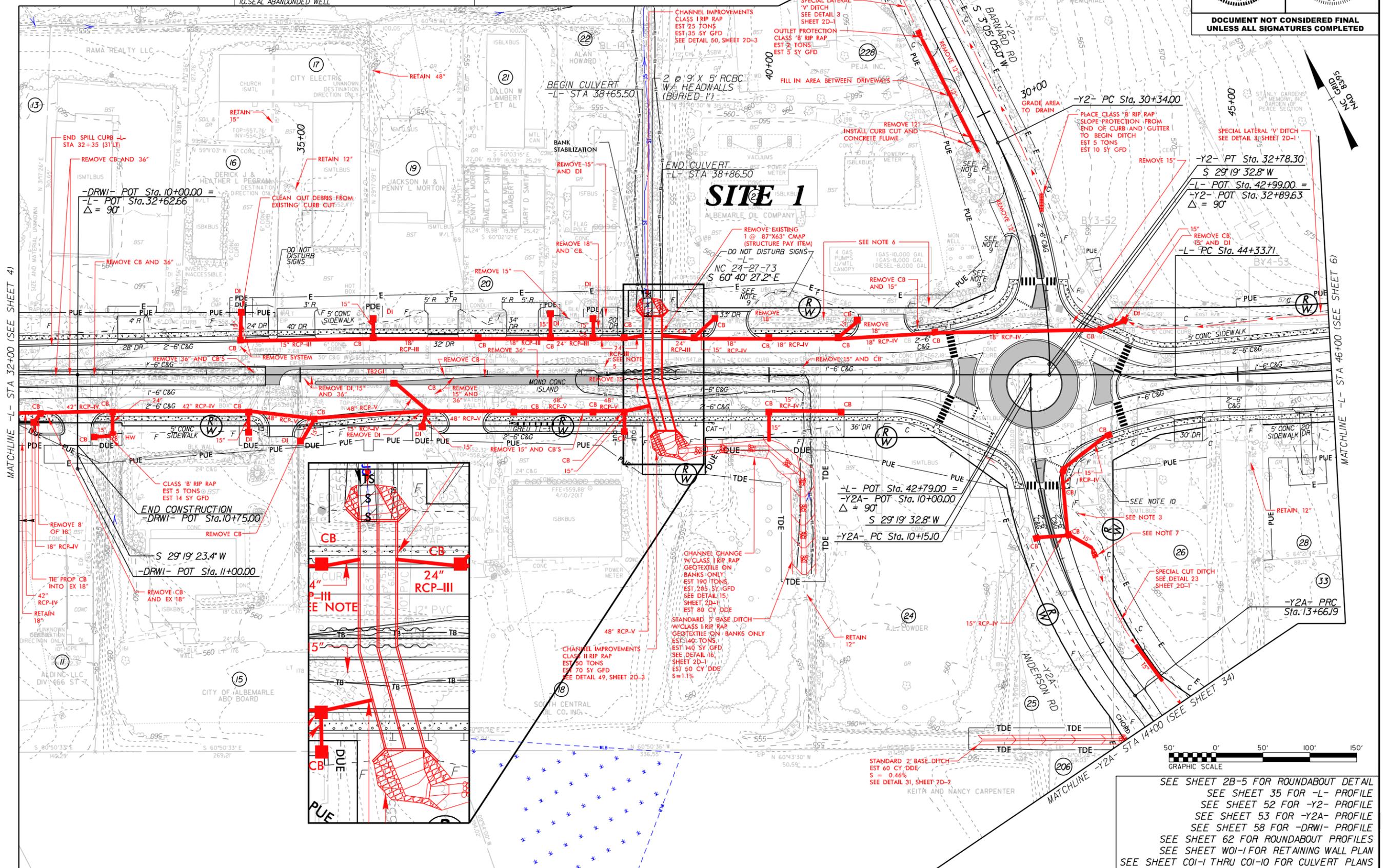
	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
 SHEET 3 OF 84

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

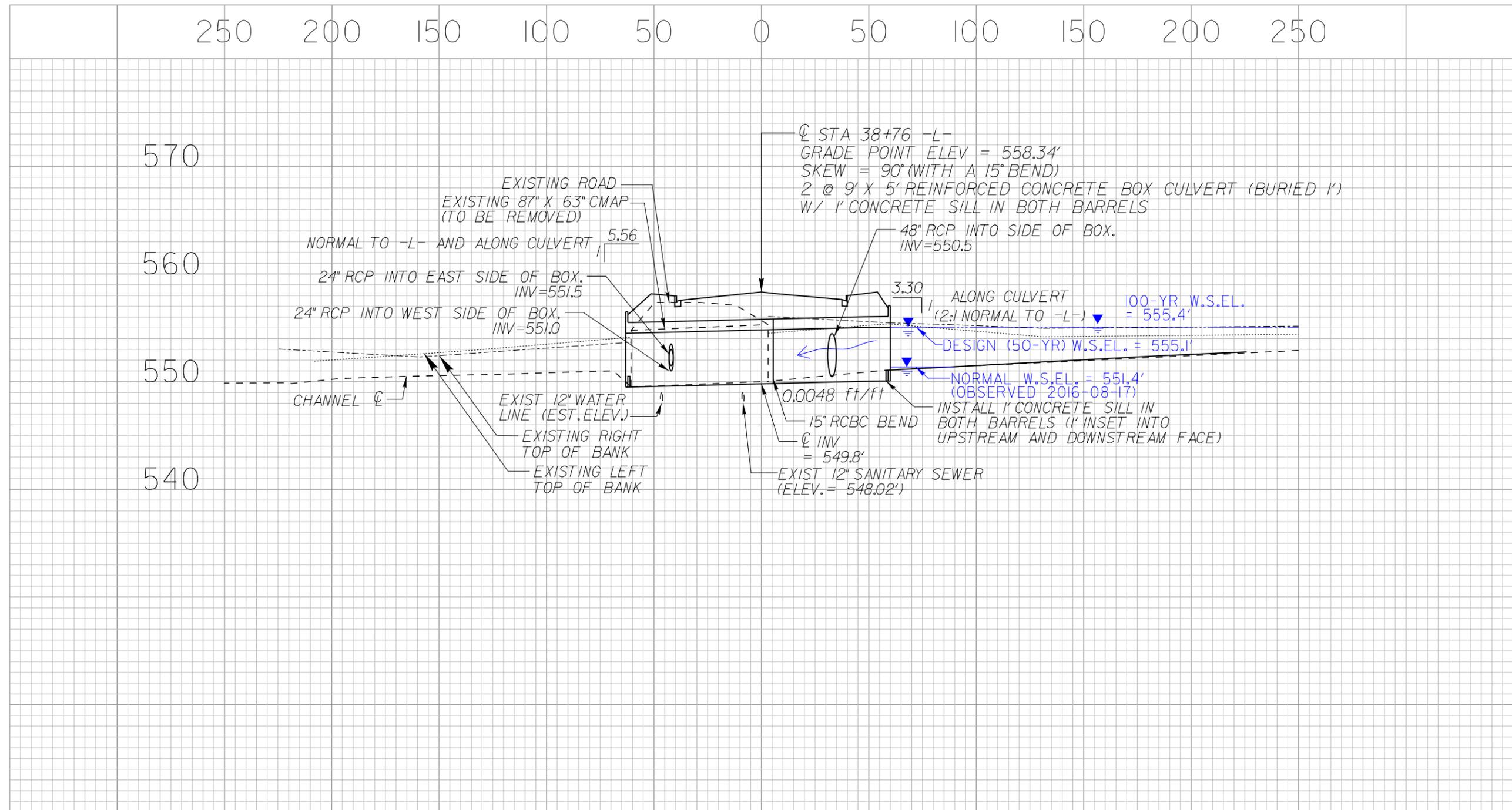
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5/21/2019

5/14/99

SITE 1

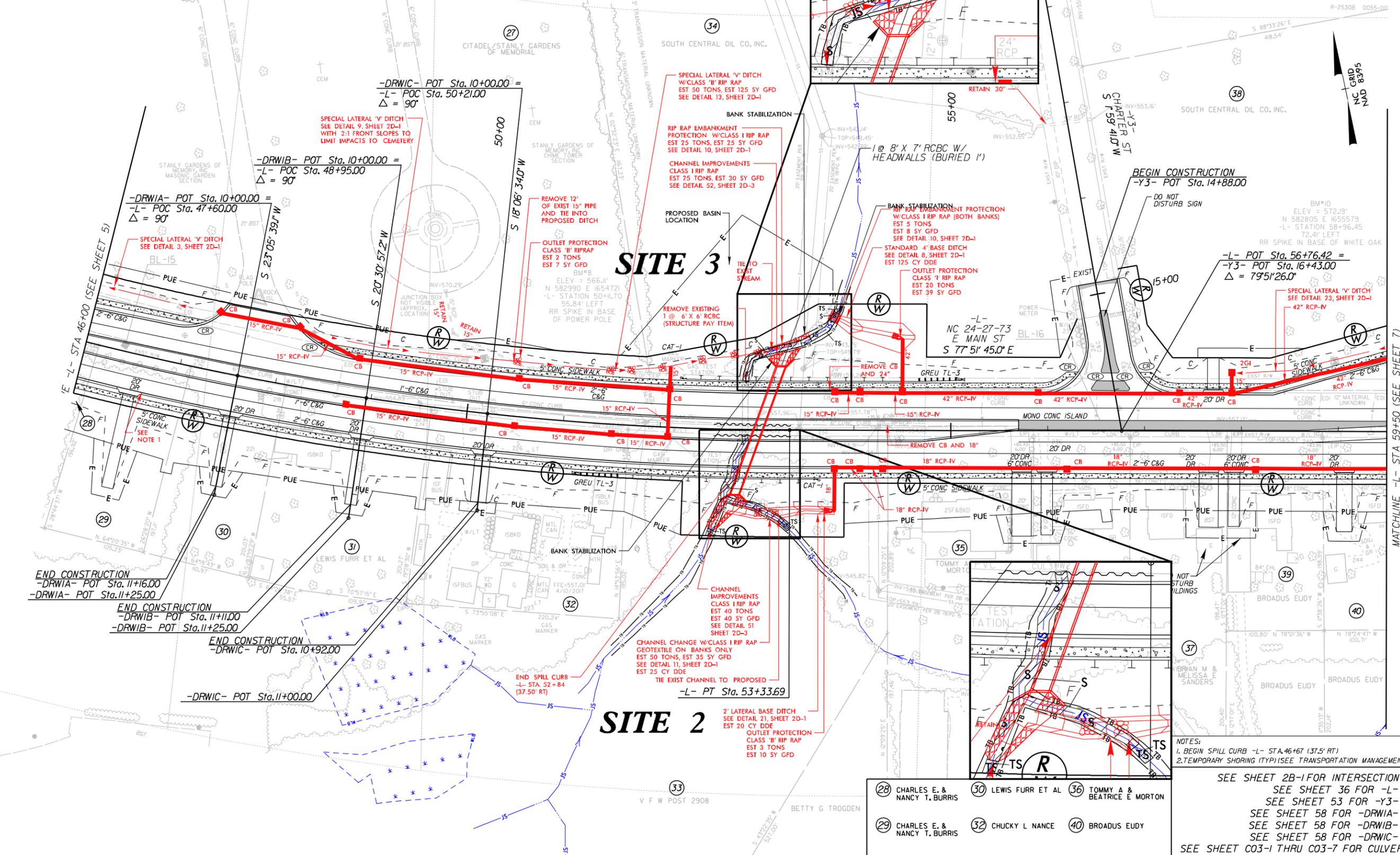
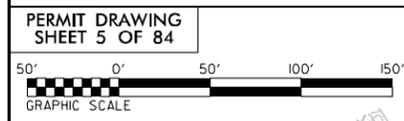


REVISIONS

5/21/2019

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		



- 28 CHARLES E. & NANCY T. BURRIS
- 29 CHARLES E. & NANCY T. BURRIS
- 30 LEWIS FURR ET AL
- 32 CHUCKY L. NANCE
- 36 TOMMY A. & BEATRICE E. MORTON
- 40 BROADUS EUDY

NOTES:
 1. BEGIN SPILL CURB -L- STA. 46+67 (37.5' RT)
 2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-1 FOR INTERSECTION DETAILS
 SEE SHEET 36 FOR -L- PROFILE
 SEE SHEET 53 FOR -Y3- PROFILE
 SEE SHEET 58 FOR -DRWIA- PROFILE
 SEE SHEET 58 FOR -DRWIB- PROFILE
 SEE SHEET 58 FOR -DRWIC- PROFILE
 SEE SHEET C03-1 THRU C03-7 FOR CULVERT PLANS

REVISIONS

5/21/2019

5/14/99

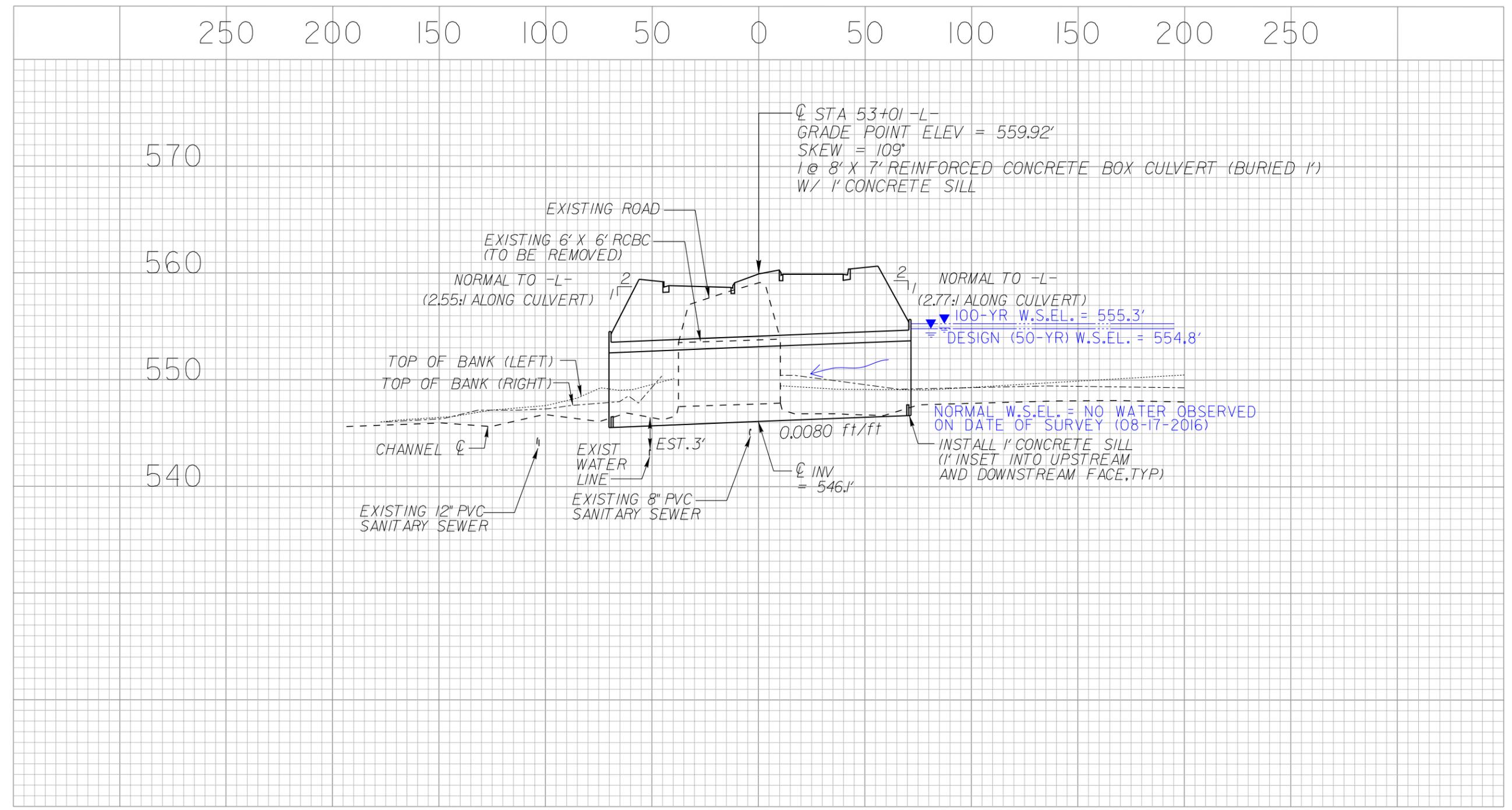
PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SITE 2 & 3

PERMIT DRAWING
SHEET 7 OF 84

REVISIONS



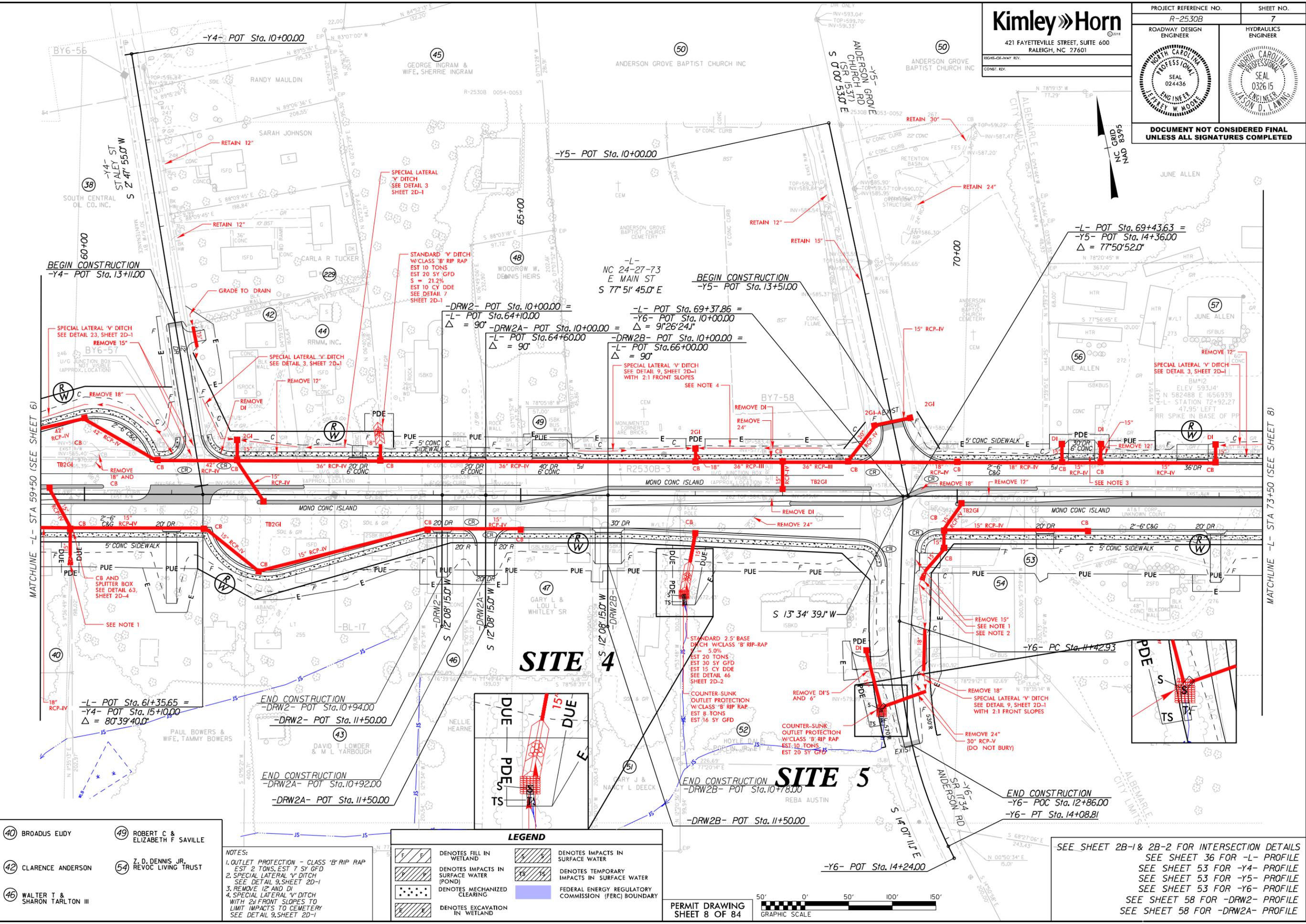
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5/14/99

REVISIONS

5/21/2019



- | | |
|------------------------------------|--|
| (40) BROADUS ELDY | (49) ROBERT C & ELIZABETH F SAVILLE |
| (42) CLARENCE ANDERSON | (54) Z. D. DENNIS JR. REVOC LIVING TRUST |
| (46) WALTER T & SHARON TARLTON III | |

NOTES:
 1. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 7 SY GFD
 2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1
 3. REMOVE 12" AND DI
 4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY SEE DETAIL 9, SHEET 2D-1

LEGEND

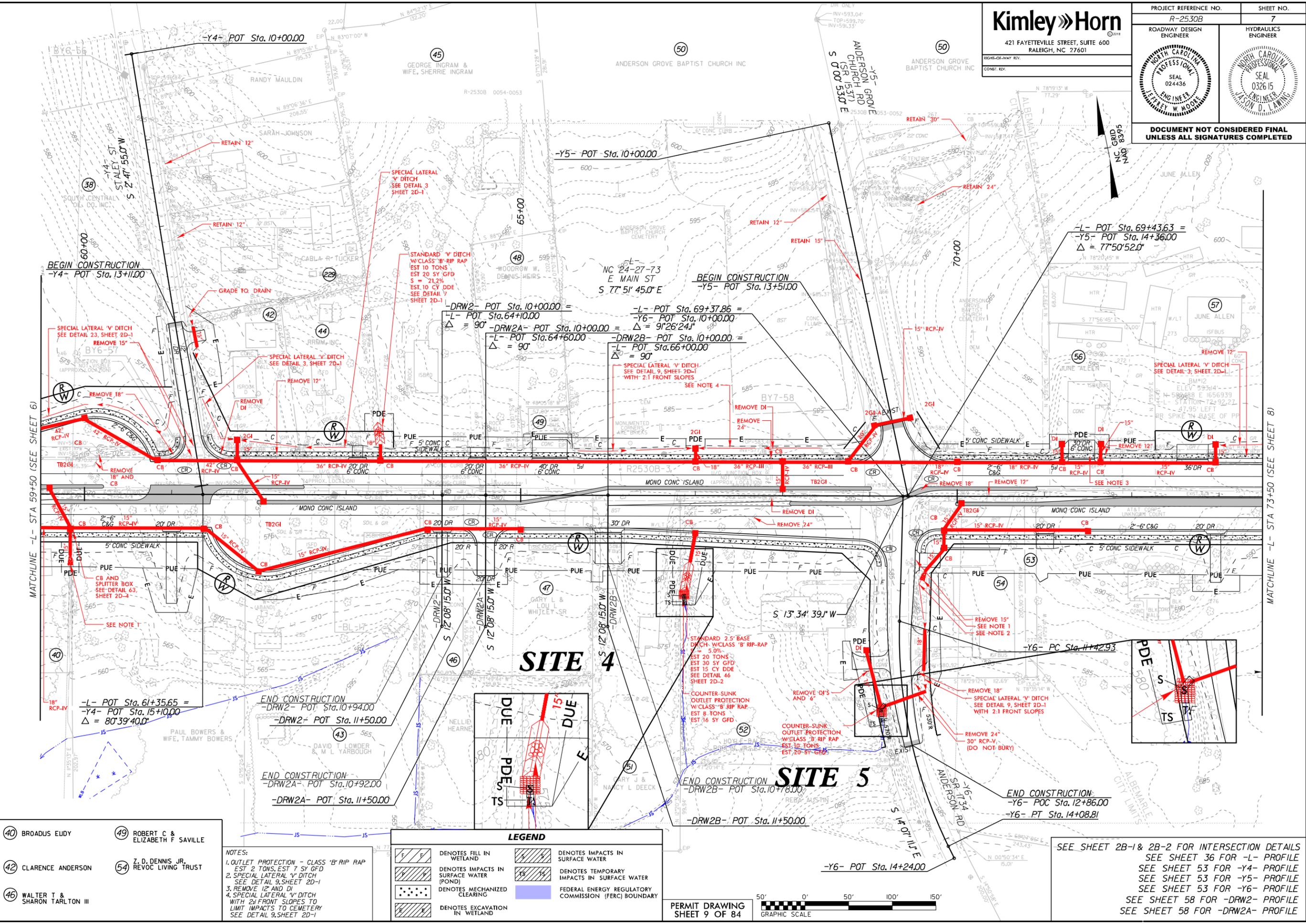
	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
SHEET 8 OF 84



SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 36 FOR -L- PROFILE
 SEE SHEET 53 FOR -Y4- PROFILE
 SEE SHEET 53 FOR -Y5- PROFILE
 SEE SHEET 53 FOR -Y6- PROFILE
 SEE SHEET 58 FOR -DRW2- PROFILE
 SEE SHEET 58 FOR -DRW2A- PROFILE

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REVISIONS

- 40 BROADUS ELDY
- 42 CLARENCE ANDERSON
- 46 WALTER T & SHARON TARLTON III
- 49 ROBERT C & ELIZABETH F SAVILLE
- 54 Z. D. DENNIS, JR., REVOC LIVING TRUST

NOTES:
 1. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 7 SY GFD
 2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1
 3. REMOVE 12" AND DI
 4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY SEE DETAIL 9, SHEET 2D-1

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
SHEET 9 OF 84



SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 36 FOR -L- PROFILE
 SEE SHEET 53 FOR -Y4- PROFILE
 SEE SHEET 53 FOR -Y5- PROFILE
 SEE SHEET 58 FOR -DRW2- PROFILE
 SEE SHEET 58 FOR -DRW2A- PROFILE

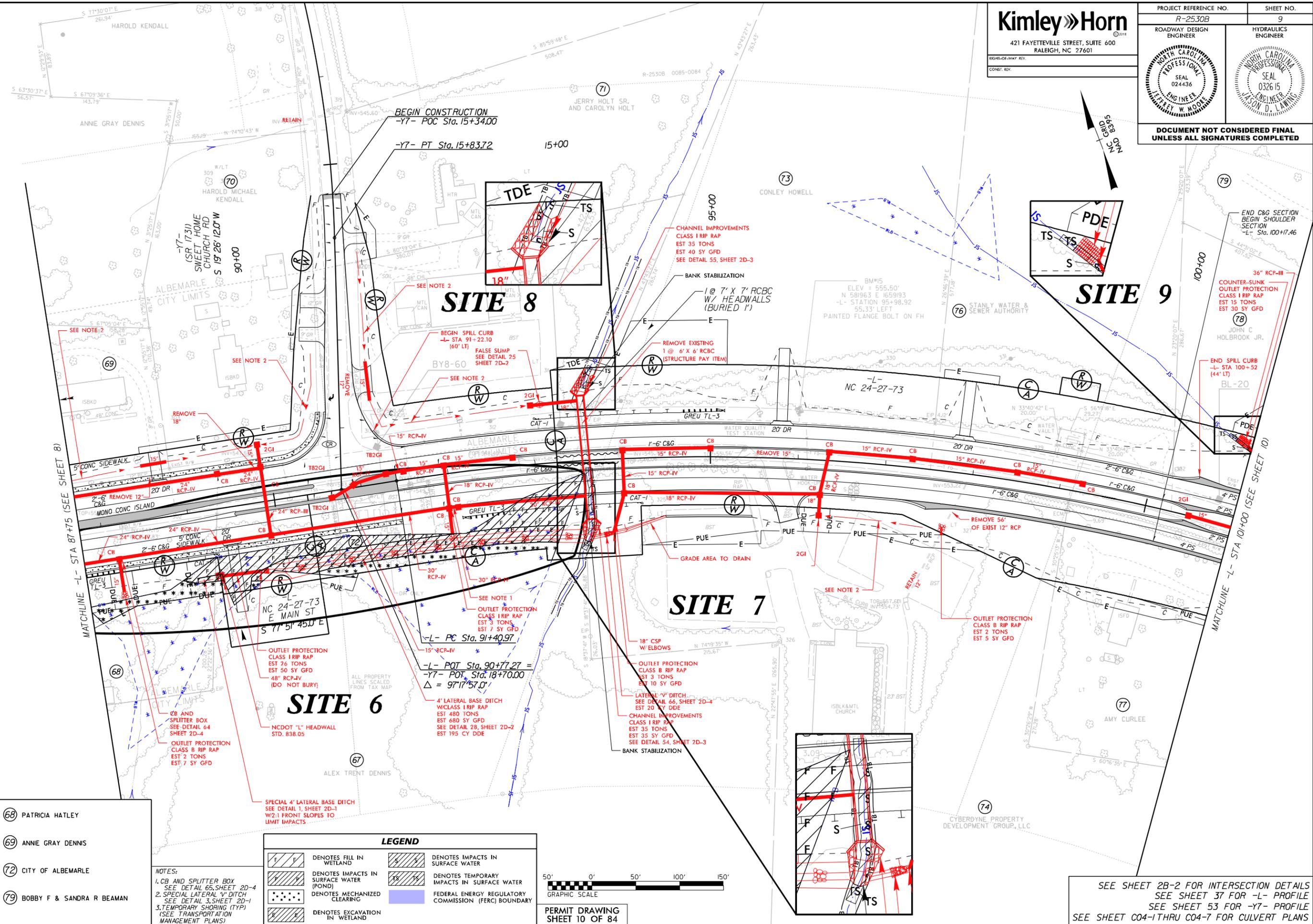
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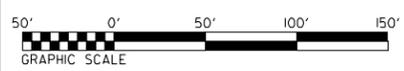
5/21/2019



- (68) PATRICIA HATLEY
- (69) ANNIE GRAY DENNIS
- (72) CITY OF ALBEMARLE
- (79) BOBBY F & SANDRA R BEAMAN

NOTES:
 1. CB AND SPLITTER BOX SEE DETAIL 65, SHEET 2D-4
 2. SPECIAL LATERAL V-DITCH SEE DETAIL 3, SHEET 2D-1
 3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

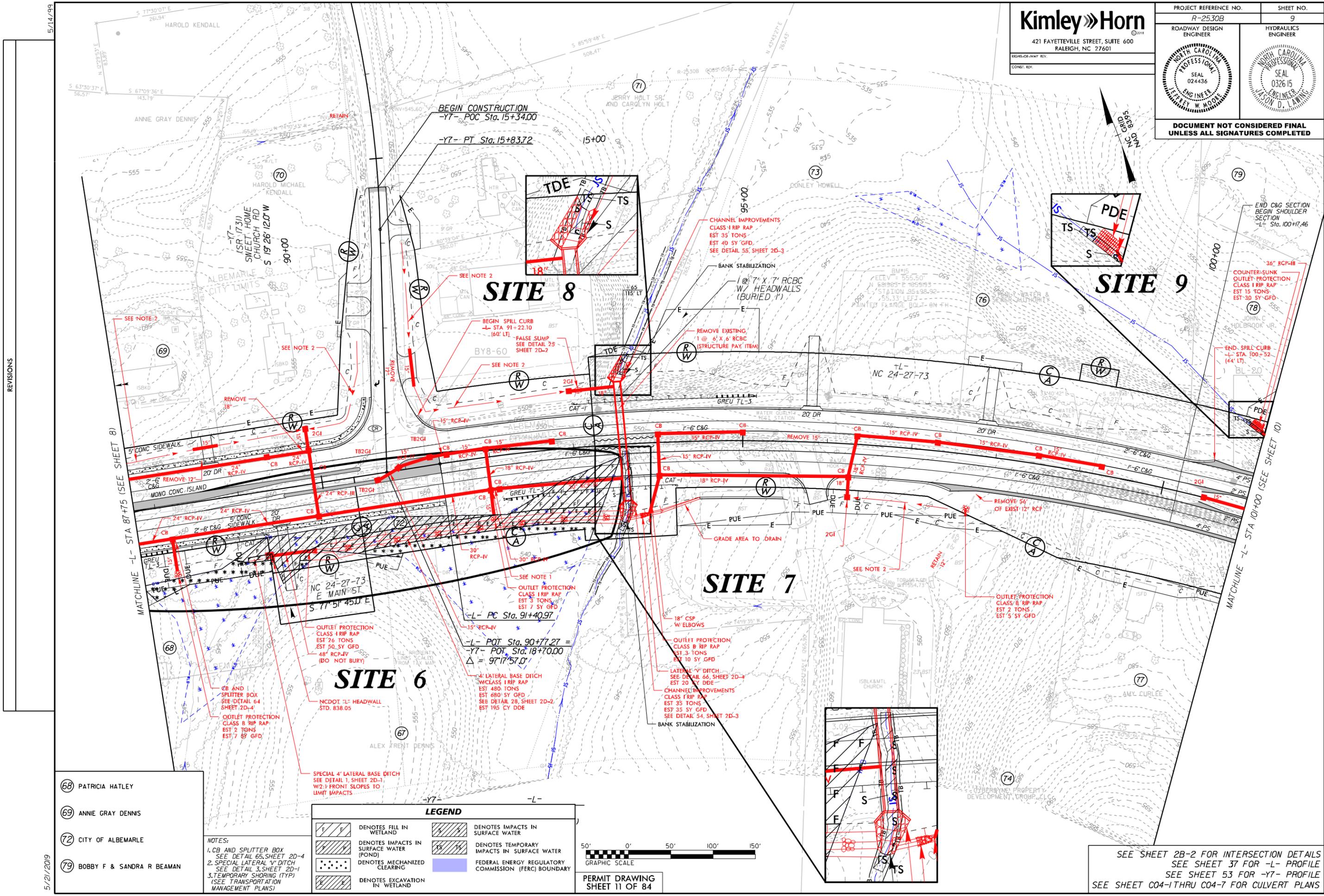
LEGEND	
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	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (FOND)
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY



PERMIT DRAWING
SHEET 10 OF 84

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 37 FOR -L- PROFILE
 SEE SHEET 53 FOR -Y7- PROFILE
 SEE SHEET C04-1 THRU C04-7 FOR CULVERT PLANS

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 UNLESS ALL SIGNATURES COMPLETED**



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- (68) PATRICIA HATLEY
- (69) ANNIE GRAY DENNIS
- (72) CITY OF ALBEMARLE
- (79) BOBBY F & SANDRA R BEAMAN

NOTES:
 1. CB AND SPLITTER BOX SEE DETAIL 64, SHEET 2D-4
 2. SPECIAL LATERAL V-DITCH SEE DETAIL 3, SHEET 2D-1
 3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

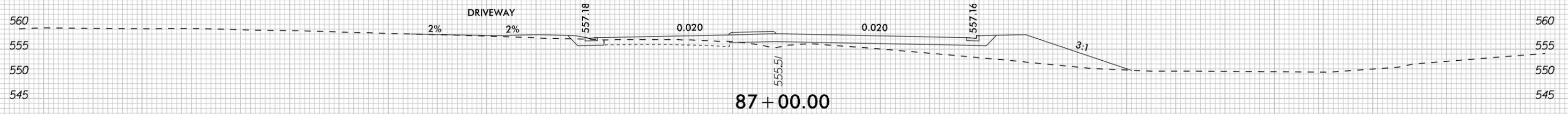
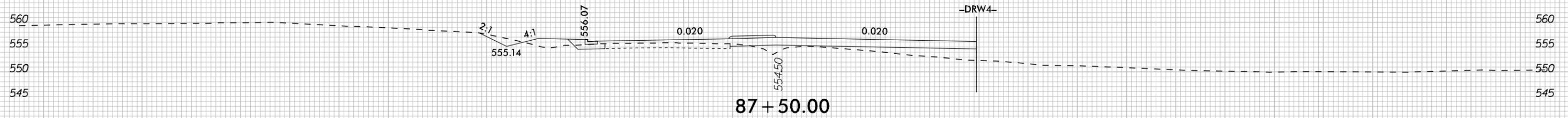
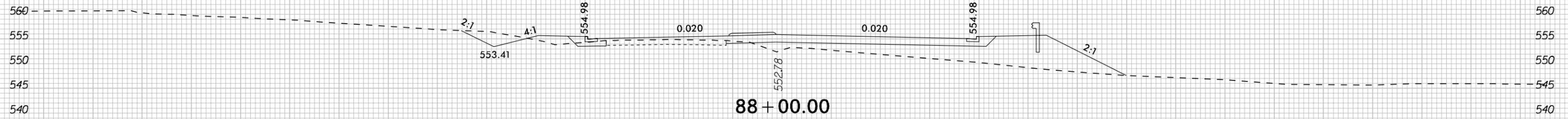
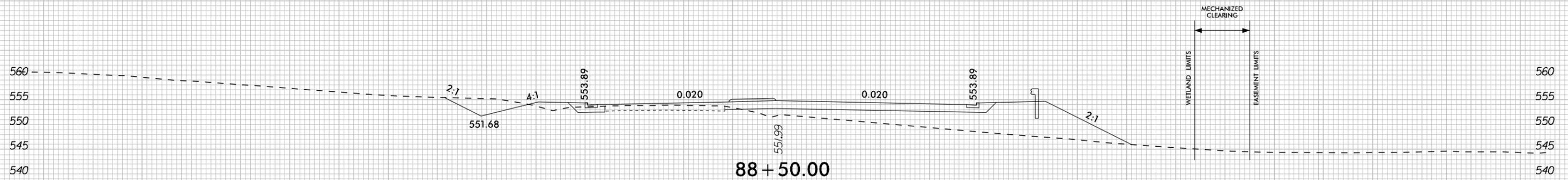
LEGEND	
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	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (FOND)
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY



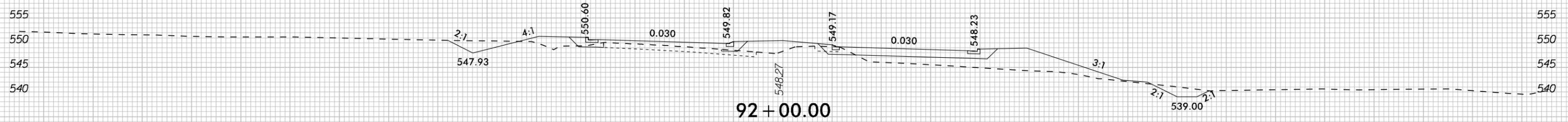
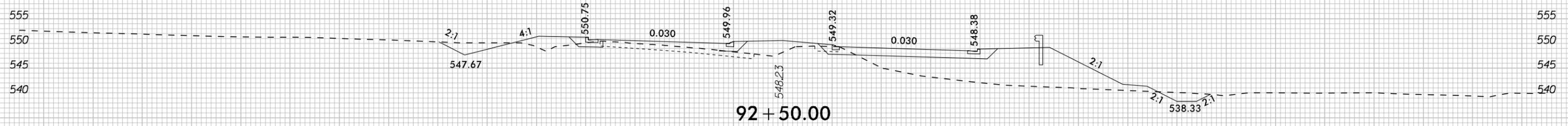
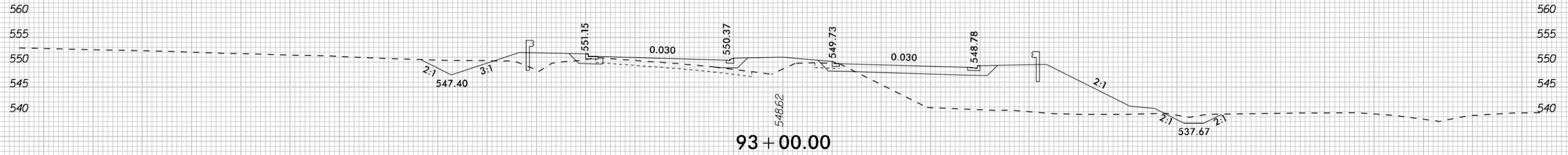
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 SHEET 11 OF 84

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 37 FOR -L- PROFILE
 SEE SHEET 53 FOR -Y7- PROFILE
 SEE SHEET C04-1 THRU C04-7 FOR CULVERT PLANS

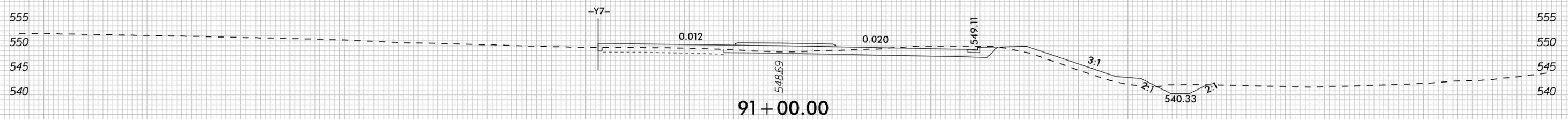
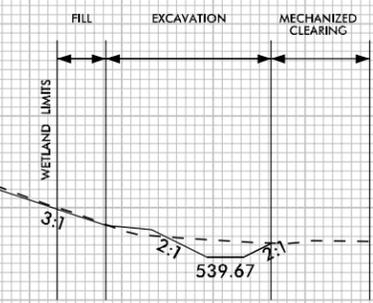
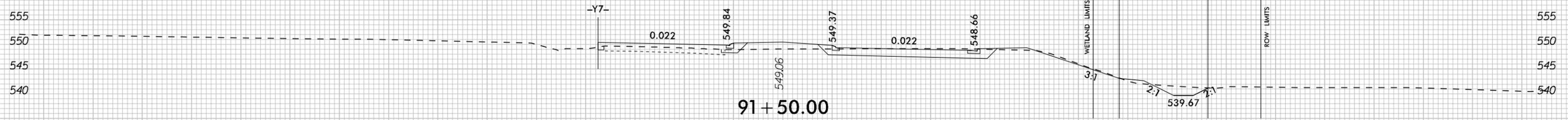
SITE 6



-L- NC 24-27-73



SITE 6



-L- NC 24-27-73

5/14/99

Kimley»Horn

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

ROADWAY DESIGN ENGINEER

PROJECT REFERENCE NO. SHEET NO.

R-2530B

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

RIGHT-OF-WAY REV. CONST. REV.

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SITE 7 & 8

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SHEET 14 OF 84

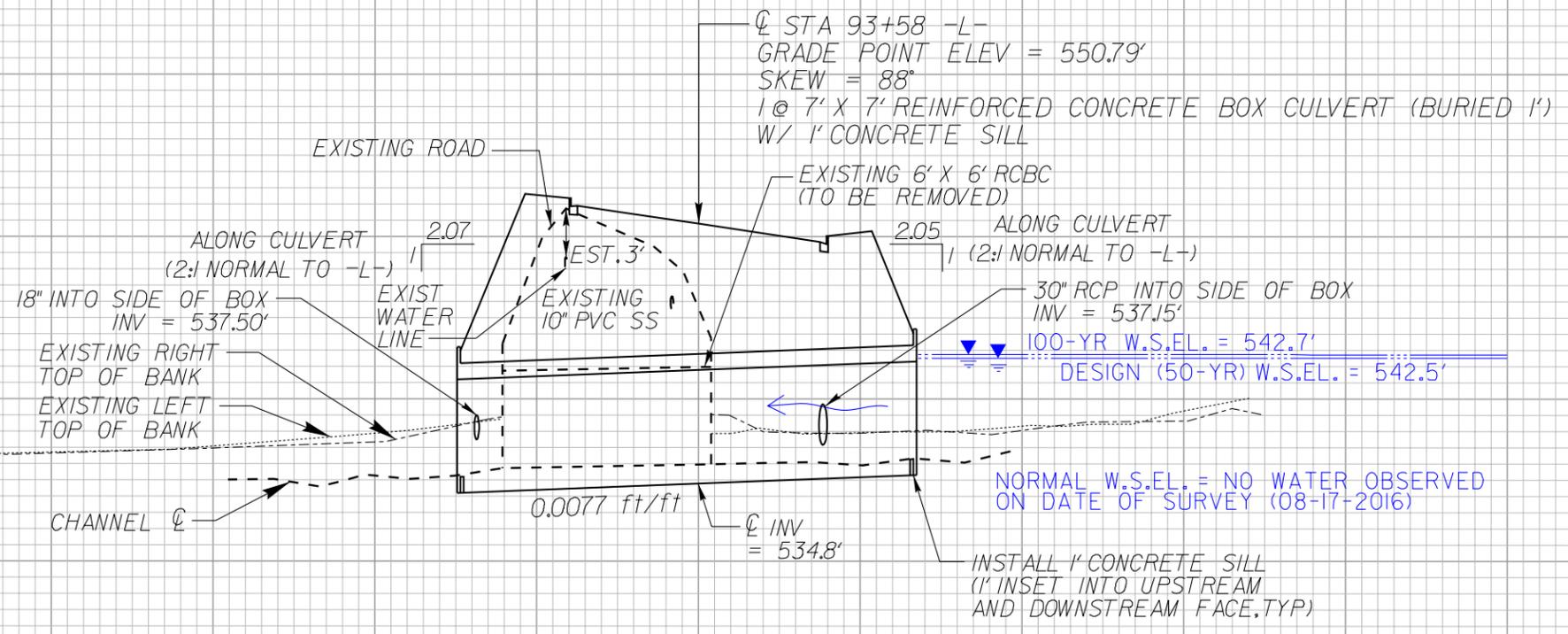
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REVISIONS

5/21/2019

5/14/99

ROBERT A & KRISTY L WILHOIT

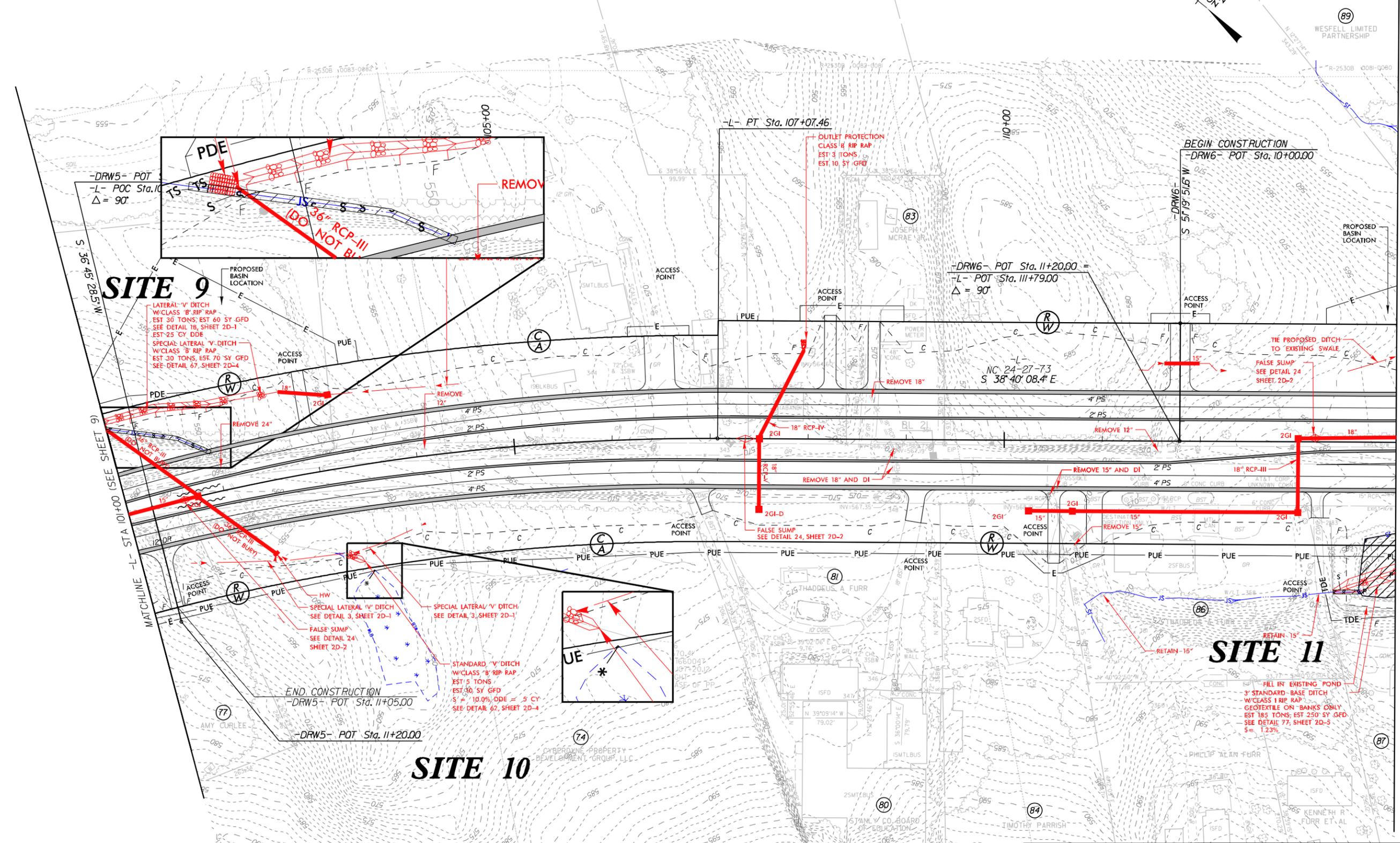
PERMIT DRAWING SHEET 16 OF 84



LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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REVISIONS

MATCHLINE -L- STA 14+00 (SEE SHEET 11)

5/21/2019

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)
SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW5- & -DRW6- PROFILES

5/14/99

LEGEND

-  DENOTES FILL IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES IMPACTS IN SURFACE WATER (POND)
-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
SHEET 17 OF 84

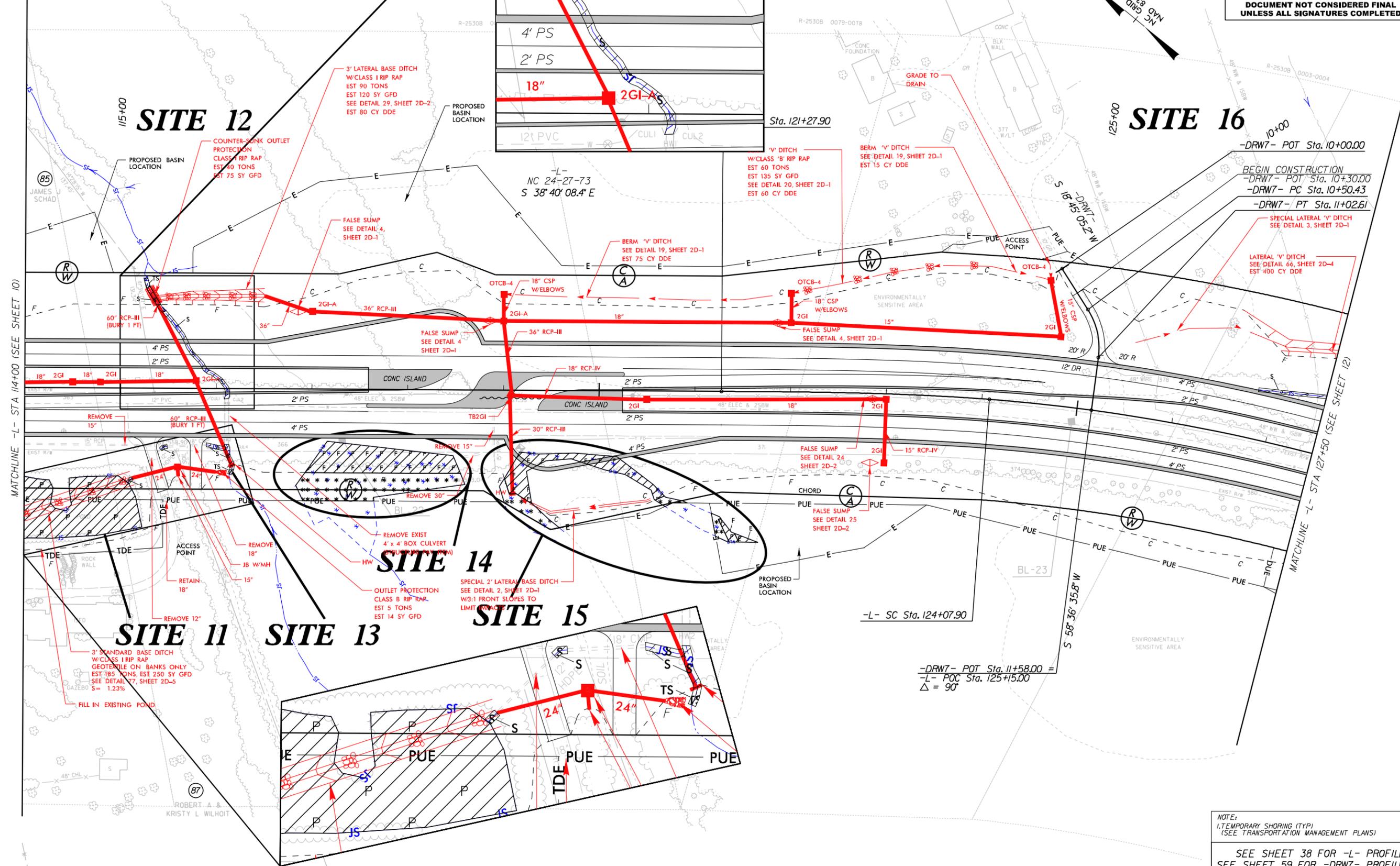
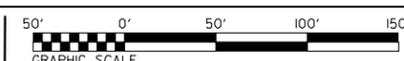
Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJ. REF. NO. R-2530B
SHEET NO. 11

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

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REVISIONS

5/21/2019

NOTE:
 1. TEMPORARY SHORING (TYP)
 (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
 SEE SHEET 59 FOR -DRW7- PROFILE

5/14/99

LEGEND

-  DENOTES FILL IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES IMPACTS IN SURFACE WATER (POND)
-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLAND
-  FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY



PERMIT DRAWING
SHEET 18 OF 84

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJ. NO. REV.
CONSTR. REV.

PROJECT REFERENCE NO.

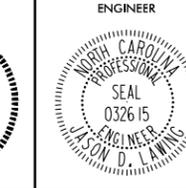
R-2530B

SHEET NO.

11

ROADWAY DESIGN
ENGINEER

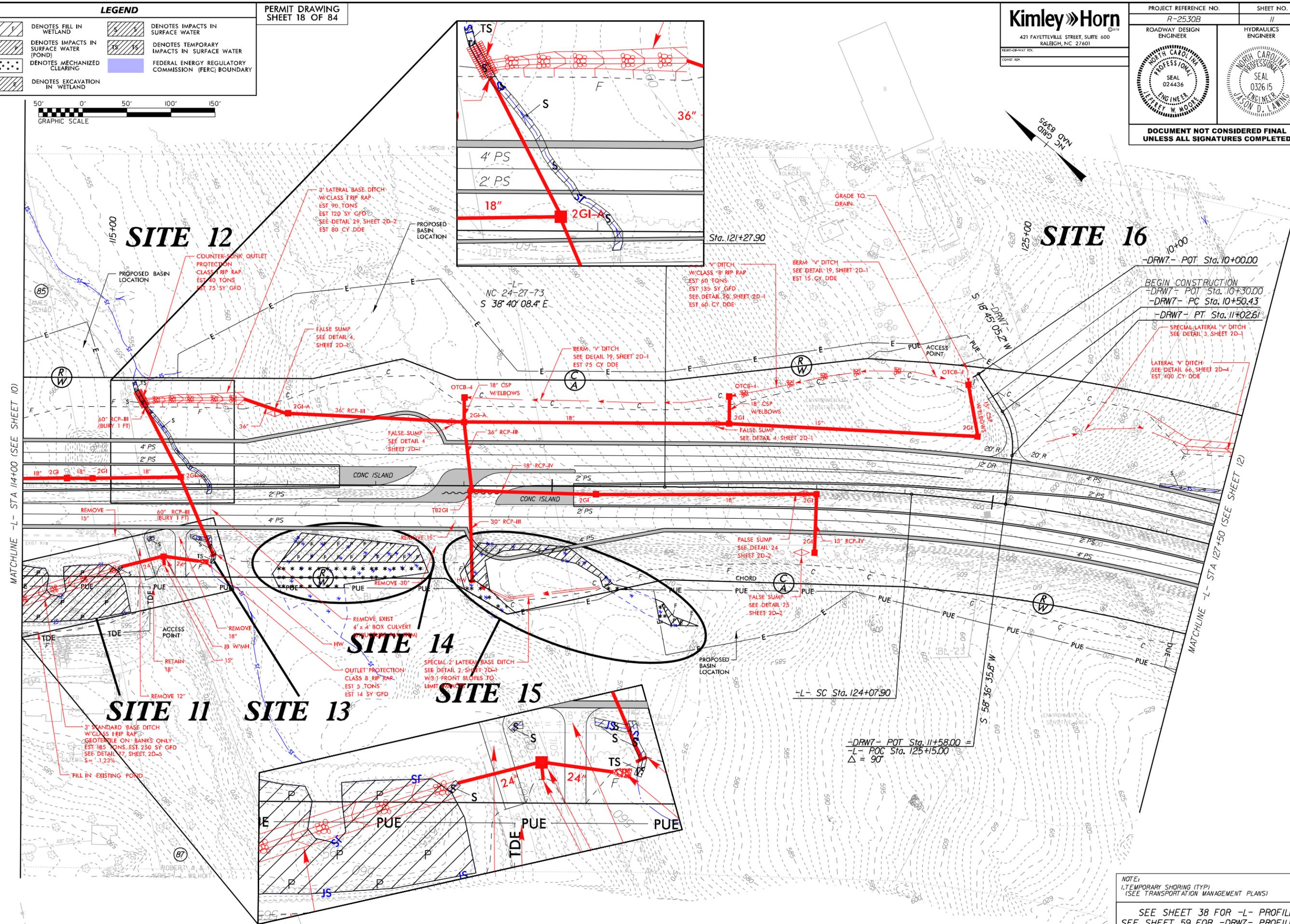
HYDRAULICS
ENGINEER



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UNLESS ALL SIGNATURES COMPLETED**

MATCHLINE -L- STA 114+00 (SEE SHEET 10)

MATCHLINE -L- STA 127+50 (SEE SHEET 12)



REVISIONS

5/21/2019

NOTE:
 1. TEMPORARY SHORING (TYP)
 (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
 SEE SHEET 59 FOR -DRW7- PROFILE

5/14/99

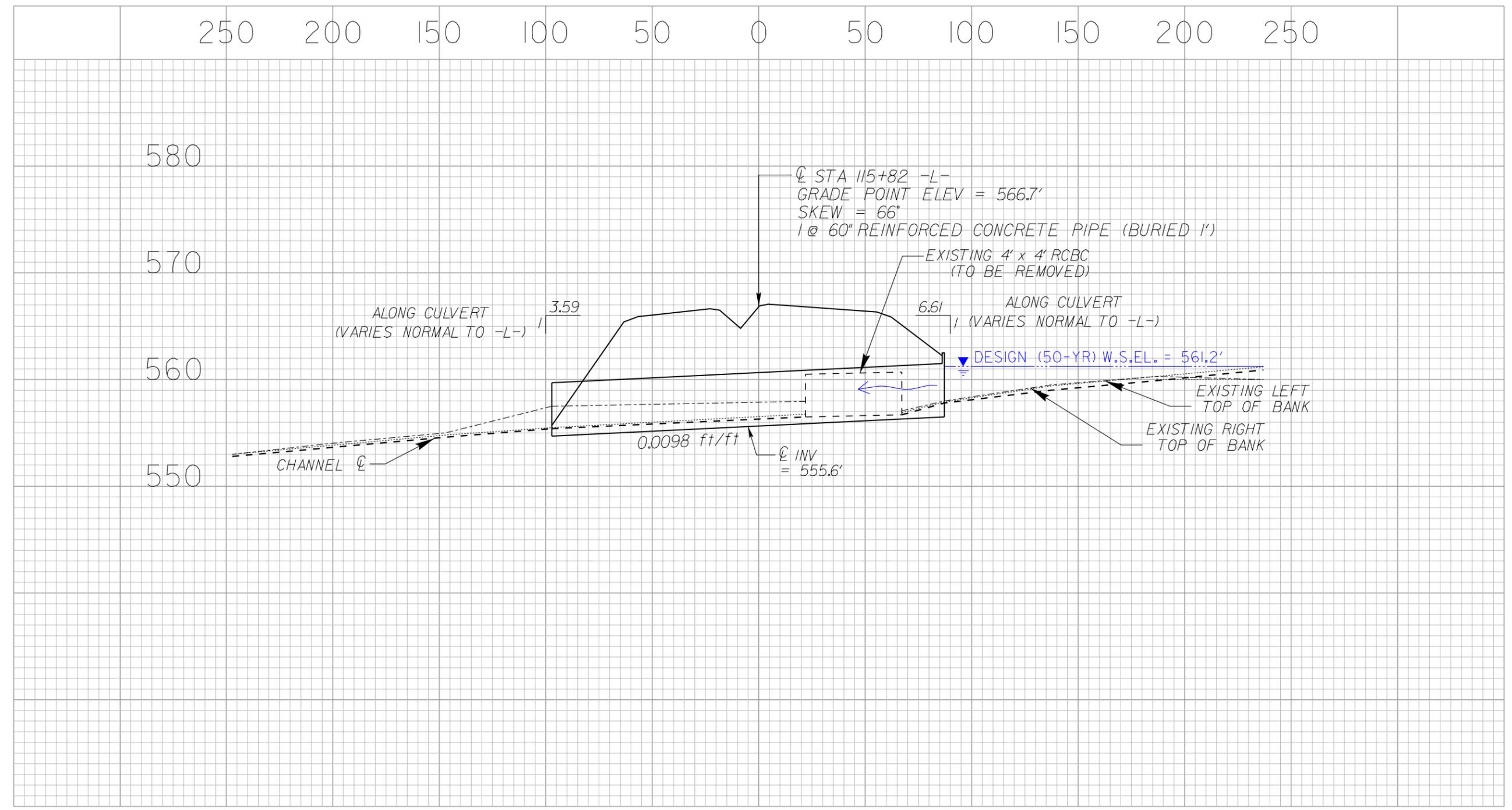
Kimley»Horn
 P.O. BOX 33068 • RALEIGH, N.C. 27636-3068
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
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PERMIT DRAWING
SHEET 19 OF 84

SITE 12 & 13



REVISIONS

5/21/2019

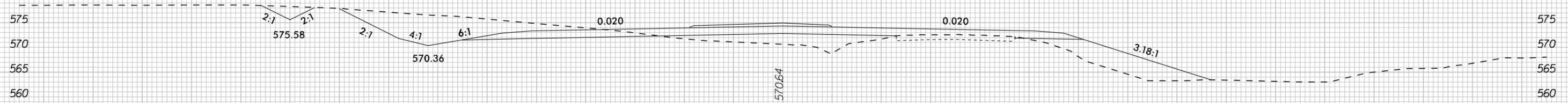
8/23/99

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SHEET 20 OF 84

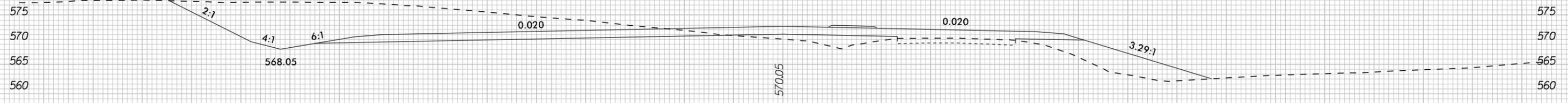


PROJ. REFERENCE NO.
R-2530B

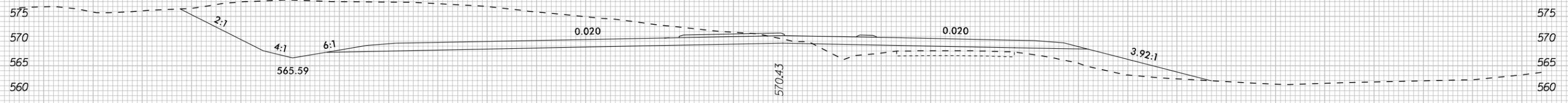
SHEET NO.



119 + 00.00

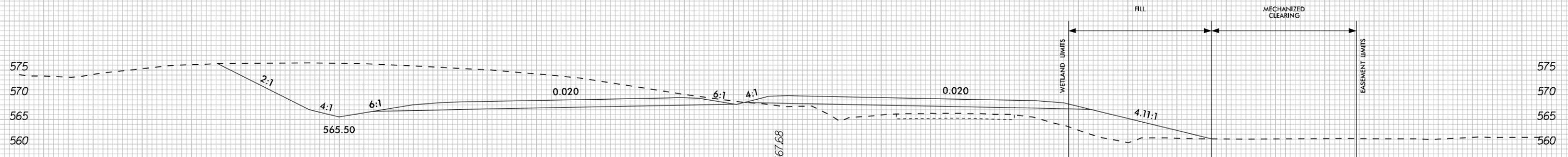


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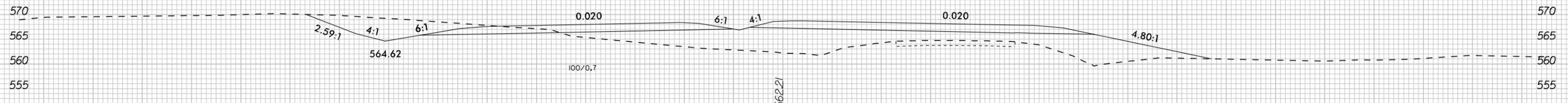


118 + 00.00

SITE 14



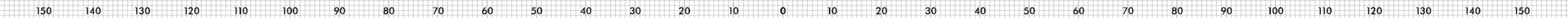
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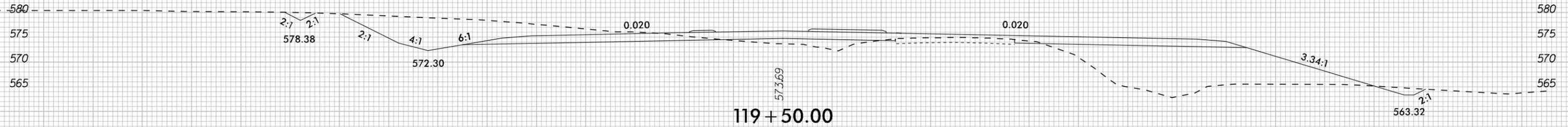
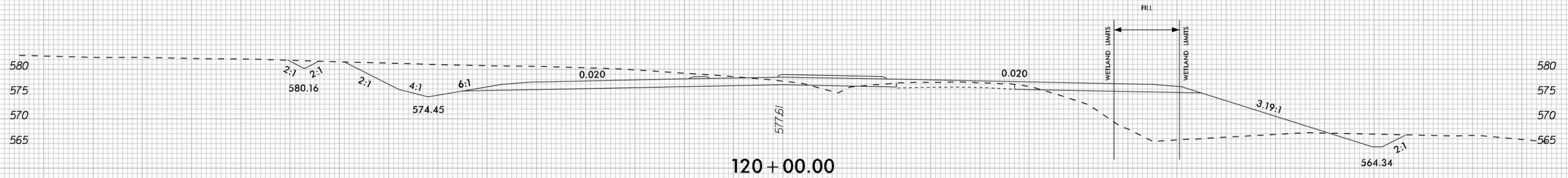
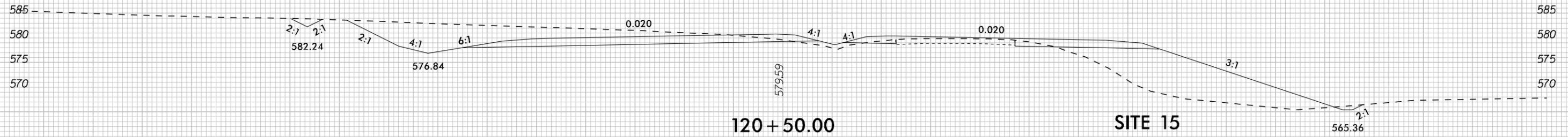
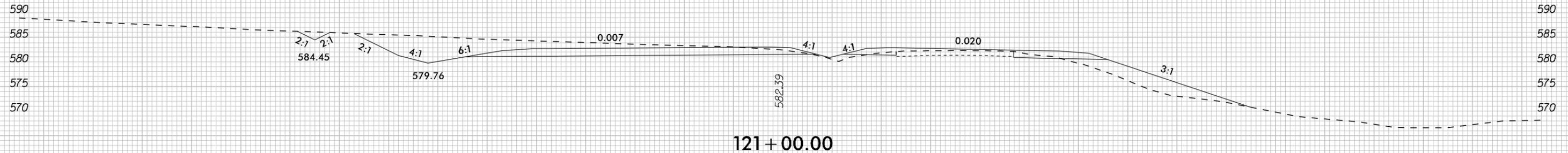


117 + 00.00

-L- NC 24-27-73

5/21/2019





-L- NC 24-27-73

5/14/99

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING SHEET 23 OF 84



Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.

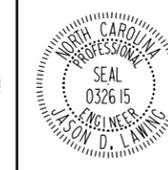
R-2530B

SHEET NO.

12

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

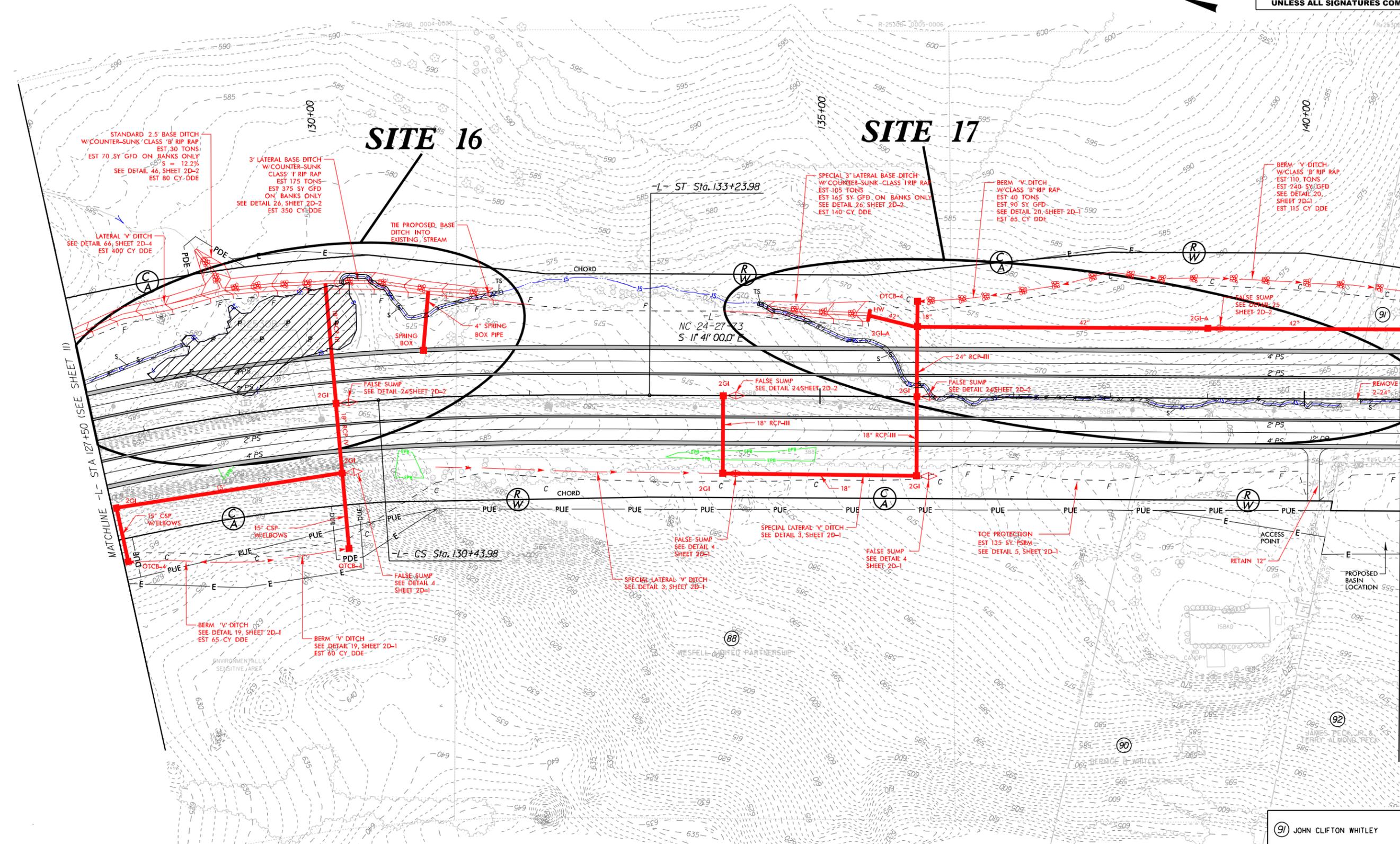


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

89 WESFELL LIMITED PARTNERSHIP



REVISIONS



5/21/2019

91 JOHN CLIFTON WHITLEY

SEE SHEET 39 FOR -L- PROFILE

NOTES:
 1. 2' LATERAL BASE DITCH
 SEE DETAIL 2, SHEET 2D-1
 EST 75 CY DDE
 2. OUTLET PROTECTION - CLASS B RIP RAP
 EST 2 TONS, EST 7 SY GFD
 3. OUTLET PROTECTION - CLASS B RIP RAP
 EST 2 TONS, EST 7 SY GFD
 4. SPECIAL LATERAL 'V' DITCH
 SEE DETAIL 3, SHEET 2D-1
 5. REINFORCED SOIL SLOPES FROM
 -L- STA 147+85 TO 147+65 (LT)
 6. TEMPORARY SHORING (TYP)
 (SEE TRANSPORTATION MANAGEMENT PLANS)
 7. SHOP CURVED GUARDRAIL (R=25')

(89) WESFELL LIMITED PARTNERSHIP (99) STONY GAP PROPERTIES LLC
 (97) D & G PROPERTIES

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
 SHEET 24 OF 84

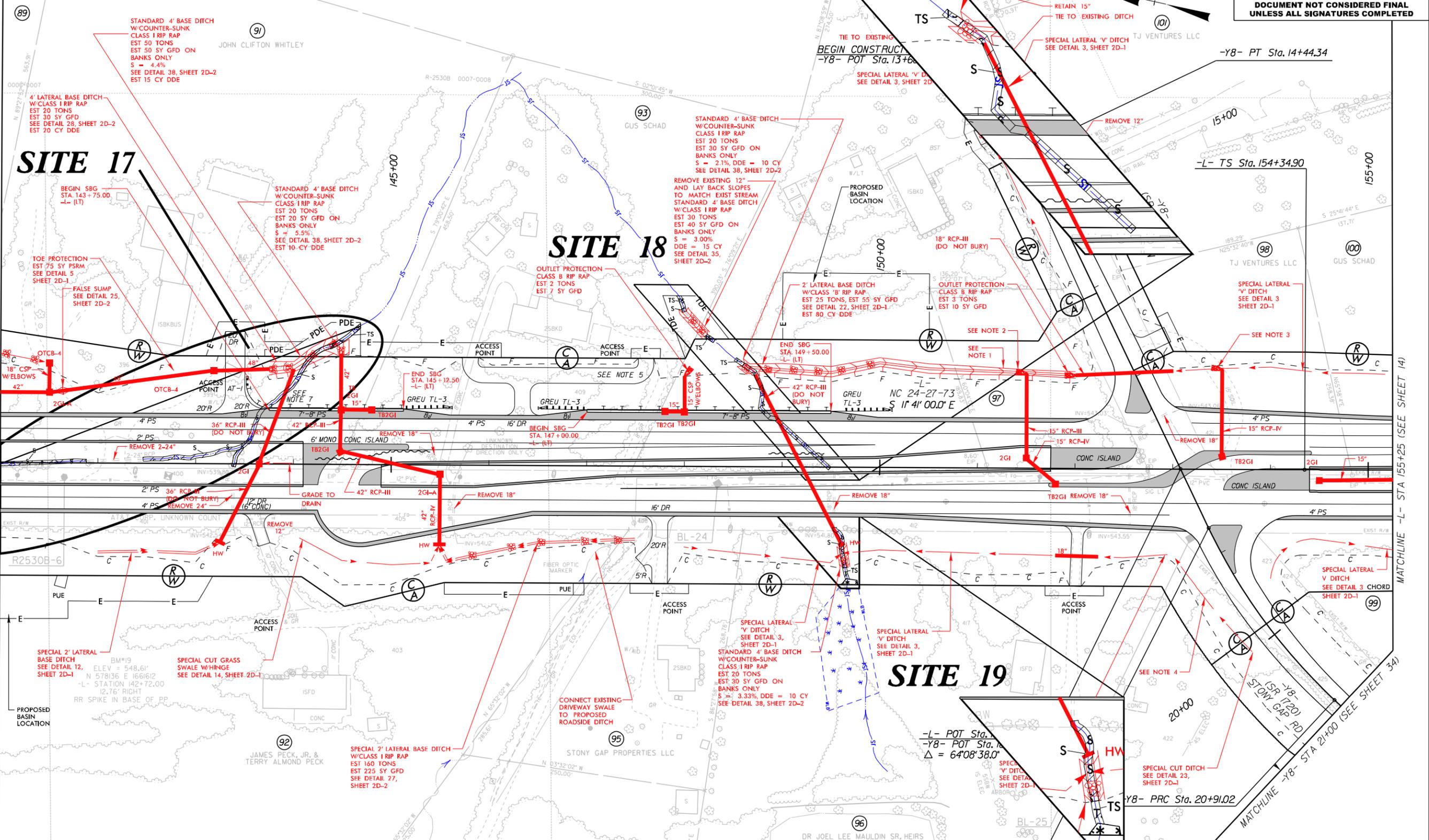
50' 0' 50' 100' 150'
 GRAPHIC SCALE

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



REVISIONS

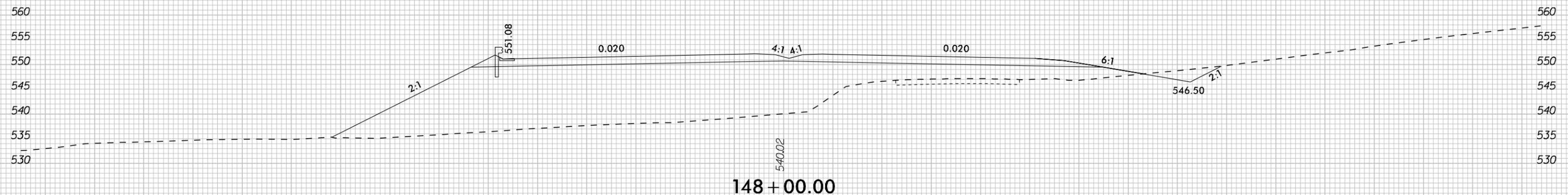
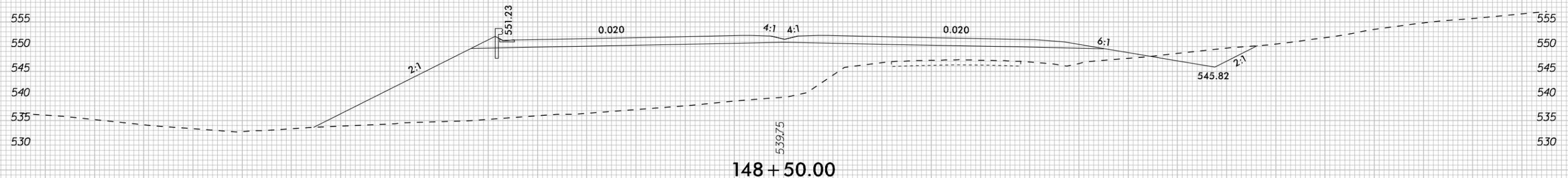
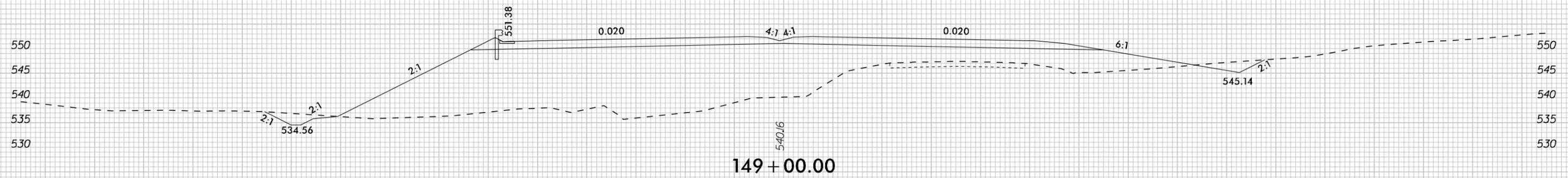
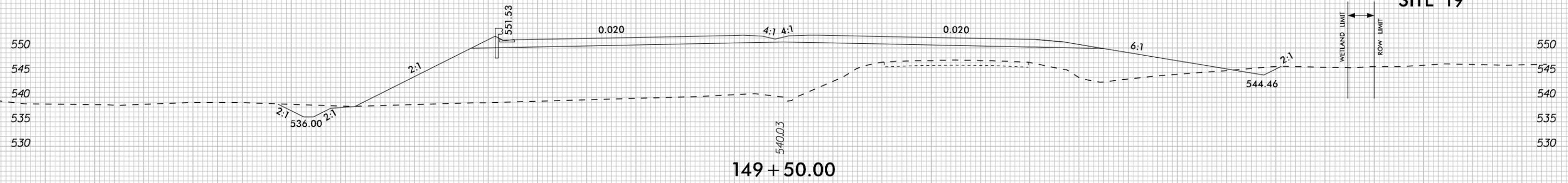
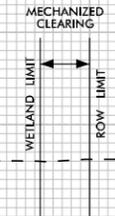
5/21/2019

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 39 FOR -L- PROFILE
 SEE SHEET 54 FOR -Y8- PROFILE

8/23/99



SITE 19



-L- NC 24-27-73

5/21/2019

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

5/14/99

REVISIONS
ROW REV. - 11/22/17 - RELOCATED DRIVEWAY TO -L- STA 166+50 RT ON PARCEL 104, AND ADDED TCE. - JMW
ROW REV. - 5/20/18 - ADJUSTED TCE ON PARCEL 102, AND ADDED DRIVEWAY ACCESS TCE AND ADJUSTED CA ON PARCEL 103. - JMW
ROW REV. - 7/26/18 - ADDED "DO NOT DISTURB TREE" NOTE AND ADJUSTED DRIVEWAY AND TCE ON PARCEL 102; REMOVED DRIVEWAY AND ADJUSTED TCE ON PARCEL 103. - JMW
ROW REV. - 3/21/19 - ADDED PARCEL 102Z AND UPDATED PROPERTY LINES FOR PARCEL 99. - JMW

5/21/2019



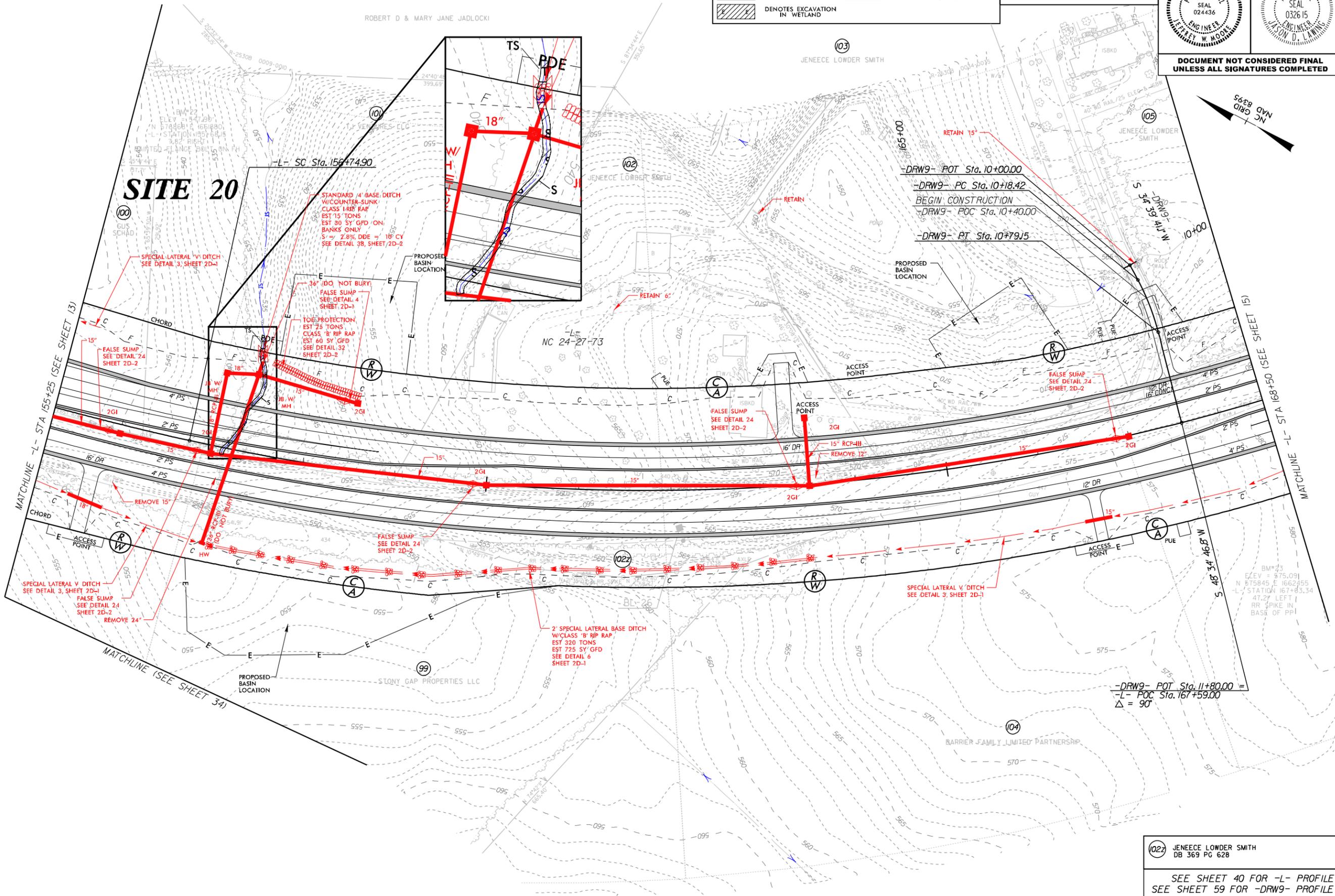
PERMIT DRAWING SHEET 28 OF 84

LEGEND			
	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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JENECE LOWDER SMITH
DB 369 PG 628

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW9- PROFILE

5/14/99

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

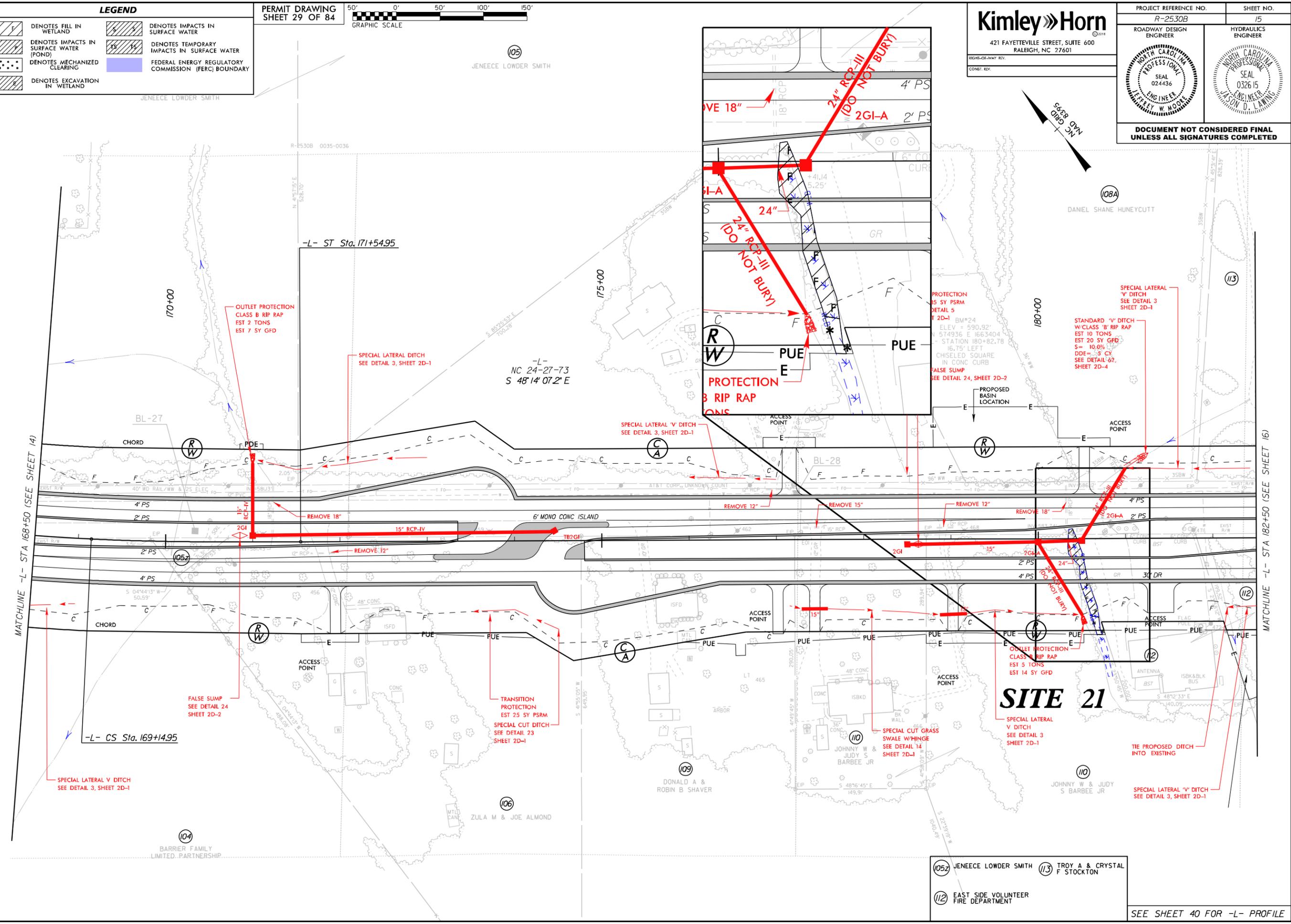
PERMIT DRAWING
SHEET 29 OF 84



Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS
 ROW REV. - 3/19/18 - UPDATED CA AND PUE ON PARCEL 109; COMBINED PARCELS 110 AND 111 INTO 110; COMBINED PARCELS 112 AND 114 INTO 112; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 110 AND 112. - JWM
 ROW REV. - 11/8/18 - REDUCED DRIVEWAY TO 30' AND ACCESS BREAK TO 60' ON PARCEL 112. - JWM
 ROW REV. - 3/21/19 - ADDED PARCEL 105Z AND UPDATED PROPERTY LINES FOR PARCEL 106. - JWM



5/21/2019

105Z JENECEE LOWDER SMITH
113 TROY A & CRYSTAL F STOCKTON
112 EAST SIDE VOLUNTEER FIRE DEPARTMENT

SEE SHEET 40 FOR -L- PROFILE

5/14/99

REVISIONS

ROW REV. - 3/19/18 - UPDATED CA AND PUE ON PARCEL 109; COMBINED PARCELS 110 AND 111 INTO 110; COMBINED PARCELS 112 AND 114 INTO 112; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 110 AND 112. - JWM

ROW REV. - 11/8/18 - REDUCED DRIVEWAY TO 30' AND ACCESS BREAK TO 60' ON PARCEL 112. - JWM

ROW REV. - 3/21/19 - ADDED PARCEL 105Z AND UPDATED PROPERTY LINES FOR PARCEL 106. - JWM

5/21/2019

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING SHEET 30 OF 84

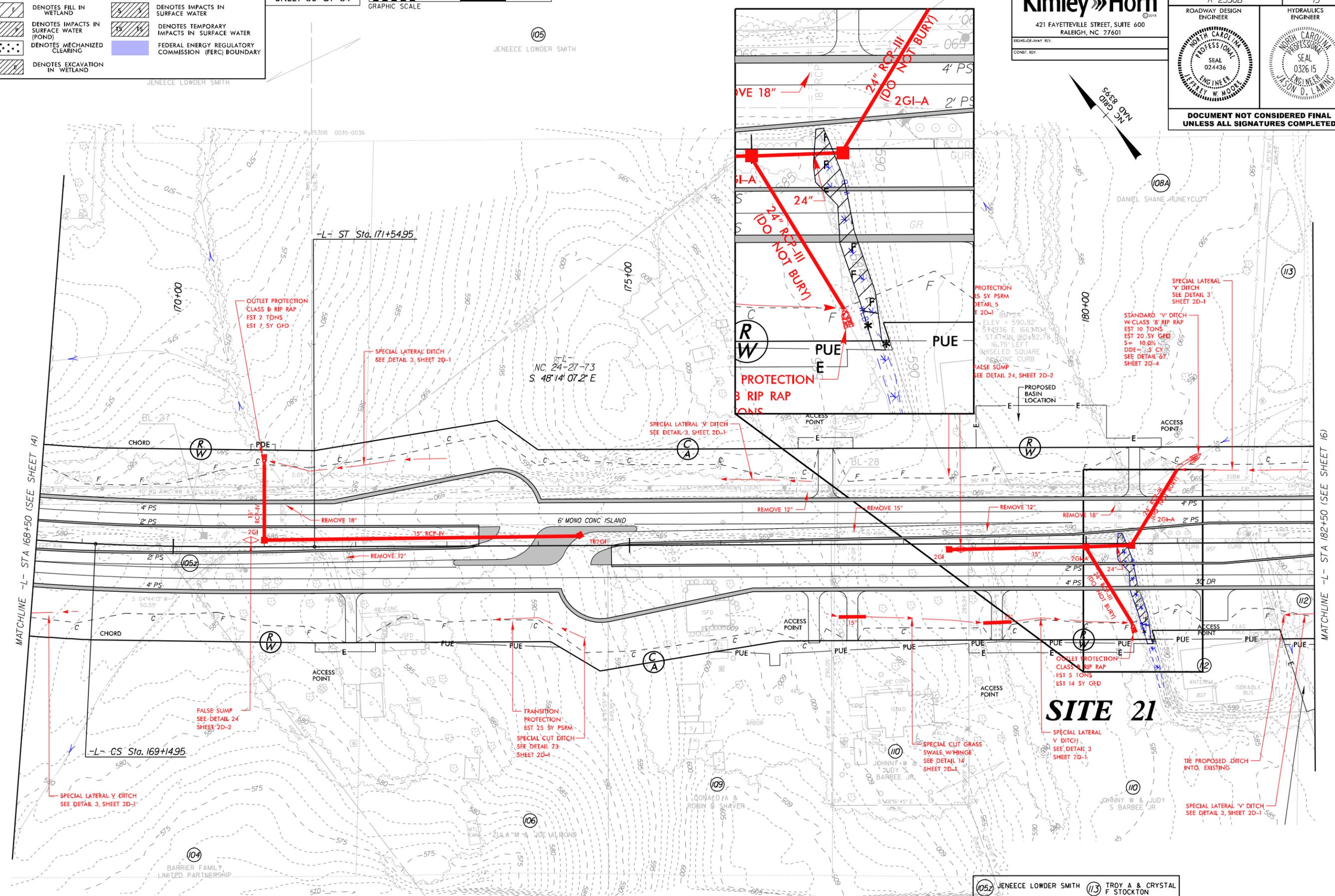


JENECE LOWDER SMITH

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



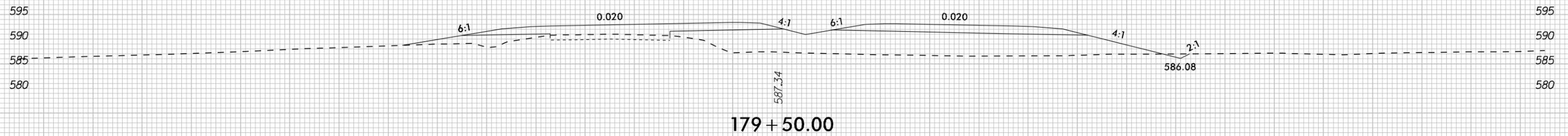
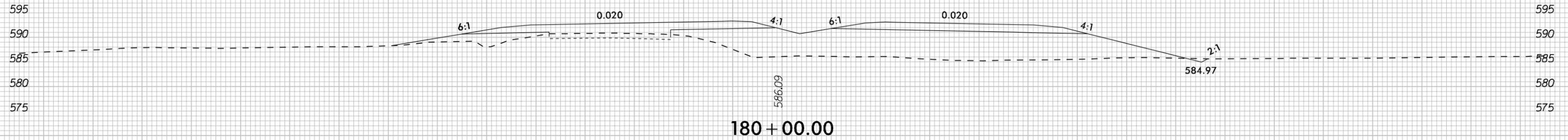
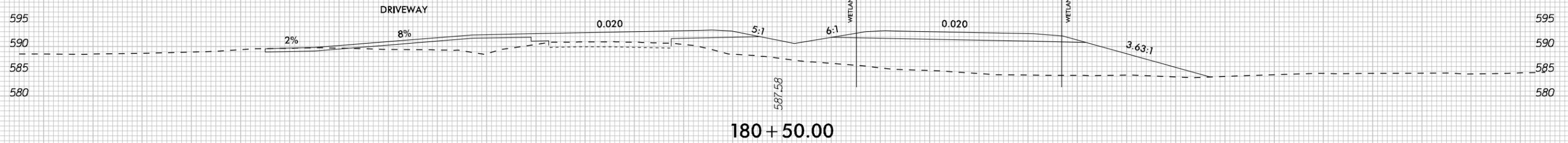
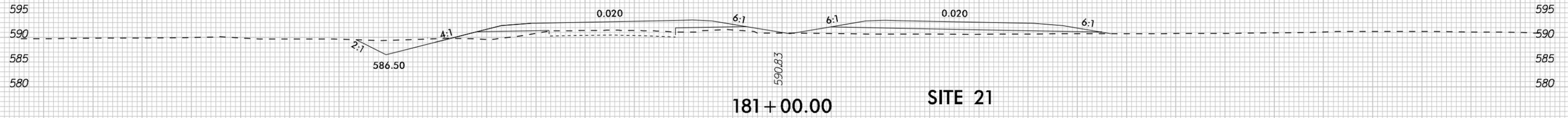
SITE 21

105Z JENECE LOWDER SMITH

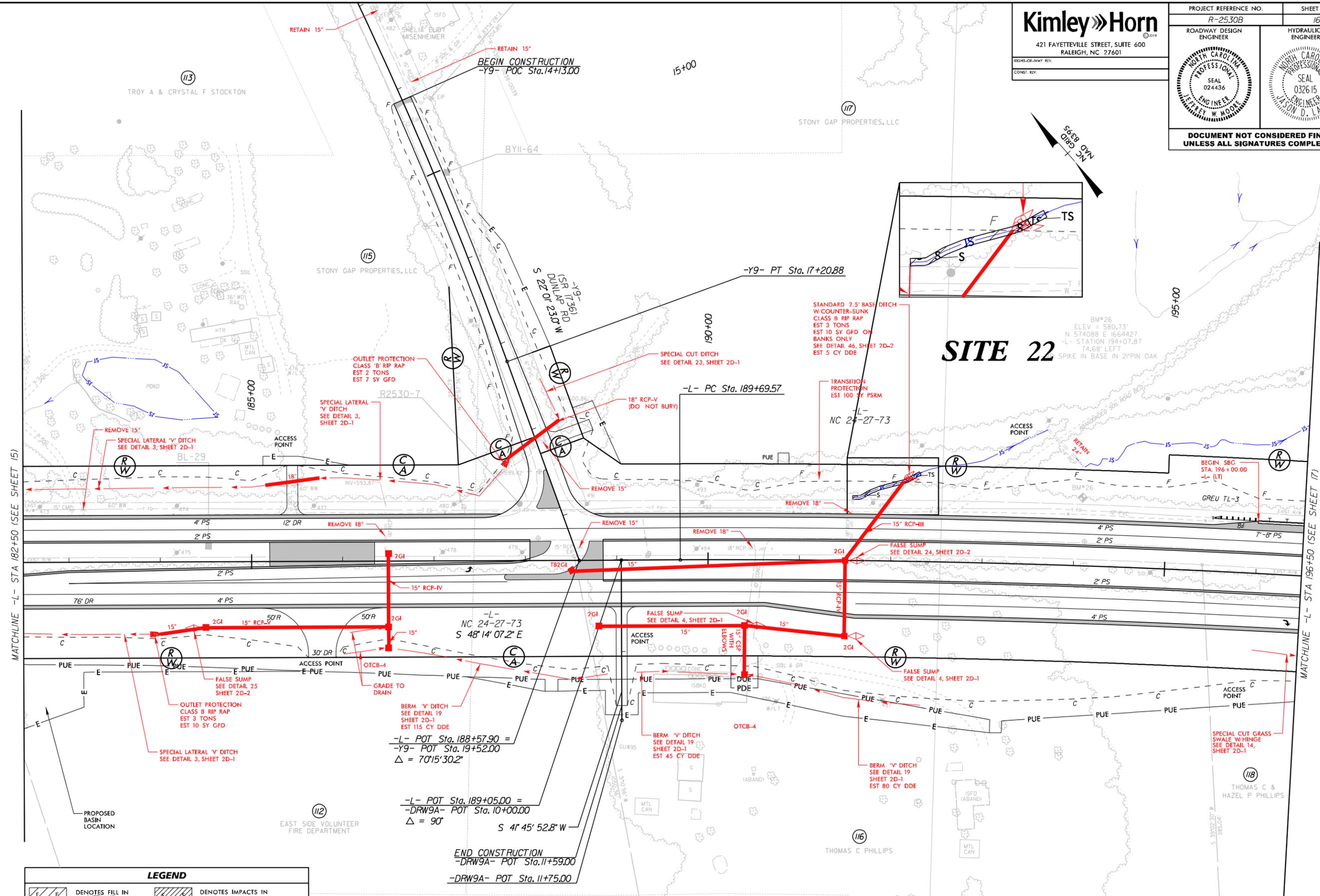
113 TROY A & CRYSTAL F STOCKTON

112 EAST SIDE VOLUNTEER FIRE DEPARTMENT

SEE SHEET 40 FOR -L- PROFILE



-L- NC 24-27-73



REVISIONS

MATCHLINE -L- STA 182+50 (SEE SHEET 15)

MATCHLINE -L- STA 196+50 (SEE SHEET 17)

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 32 OF 84



SEE SHEET 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 4I FOR -L- PROFILE
 SEE SHEET 55 FOR -Y9- PROFILE
 SEE SHEET 59 FOR -DRW9A- PROFILE

5/14/99

5/21/2019

5/14/99

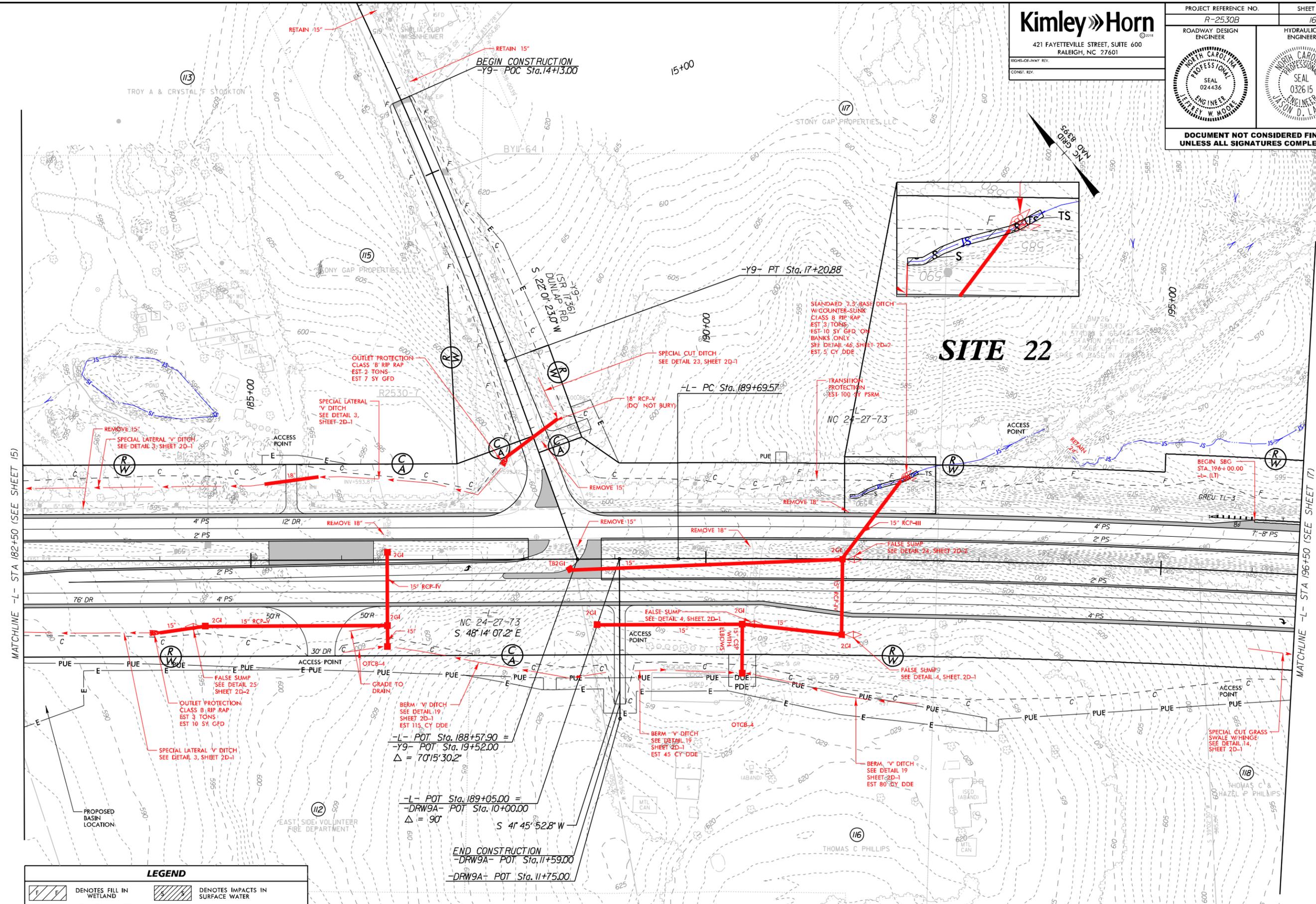
Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



REVISIONS

MATCHLINE -L- STA 182+50 (SEE SHEET 15)

MATCHLINE -L- STA 196+50 (SEE SHEET 17)

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

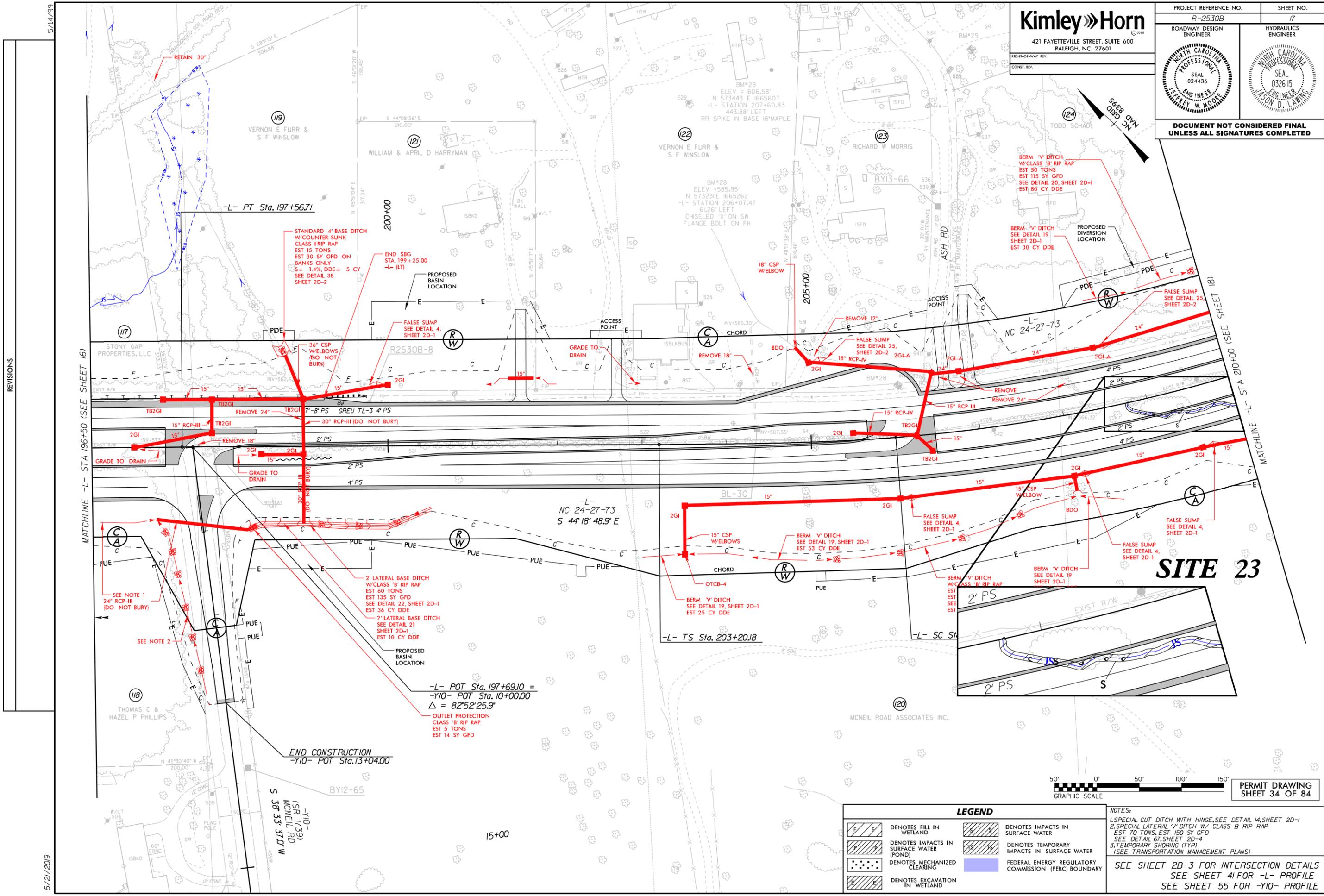
PERMIT DRAWING
SHEET 33 OF 84



SEE SHEET 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 4I FOR -L- PROFILE
 SEE SHEET 55 FOR -Y9- PROFILE
 SEE SHEET 59 FOR -DRW9A- PROFILE

5/21/2019

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REVISIONS

5/14/99

5/21/2019



PERMIT DRAWING SHEET 34 OF 84

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

NOTES:
 1. SPECIAL CUT DITCH WITH HINGE. SEE DETAIL 14, SHEET 2D-1
 2. SPECIAL LATERAL 1/2\"/>

SITE 23

MATCHLINE -L- STA 196+50 (SEE SHEET 16)

MATCHLINE -L- STA 210+00 (SEE SHEET 18)

END CONSTRUCTION
 -Y10- POT Sta. 13+04.00

-L- POT Sta. 197+69.10 =
 -Y10- POT Sta. 10+00.00
 $\Delta = 82'52'25.9''$

OUTLET PROTECTION
 CLASS 'B' RIP RAP
 EST 5 TONS
 EST 14 SY GFD

SEE NOTE 1
 24\"/>

SEE NOTE 2

STANDARD 4\"/>

END SBC
 STA. 199+25.00
 -L- (LT)

PROPOSED BASIN LOCATION

FALSE SUMP
 SEE DETAIL 4,
 SHEET 2D-1

30\"/>

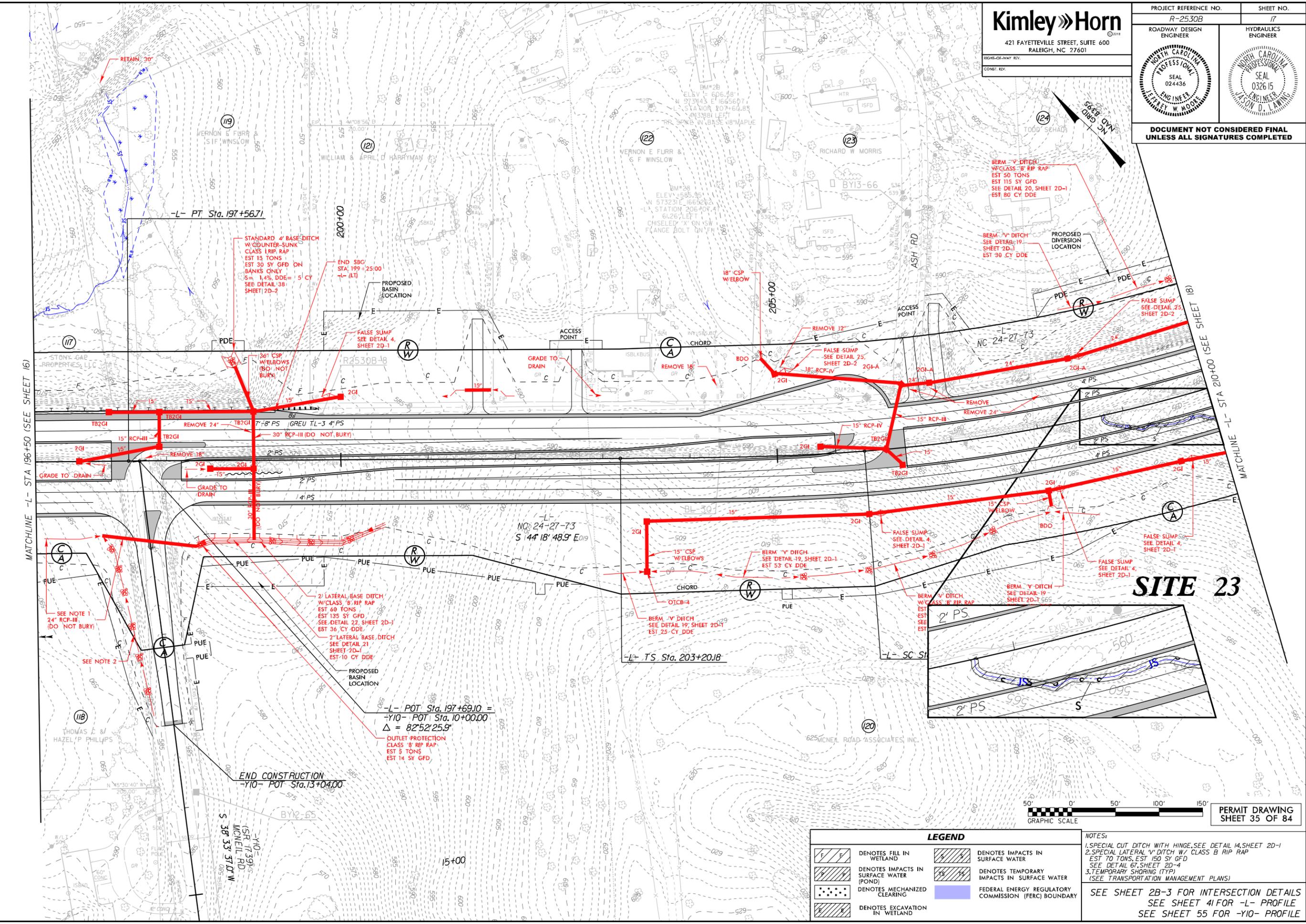
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REMOVE 18\"/>

REMOVE 15\"/>



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UNLESS ALL SIGNATURES COMPLETED**



REVISIONS

5/14/99

5/21/2019

SITE 23



PERMIT DRAWING SHEET 35 OF 84

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

NOTES:
 1. SPECIAL CUT DITCH WITH HINGE. SEE DETAIL 14, SHEET 2D-1
 2. SPECIAL LATERAL V DITCH W/ CLASS B RIP RAP EST. 70 TONS, EST. 150 SY GFD SEE DETAIL 67, SHEET 2D-4
 3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 SEE SHEET 2B-3 FOR INTERSECTION DETAILS
 SEE SHEET 41 FOR -L- PROFILE
 SEE SHEET 55 FOR -Y10- PROFILE

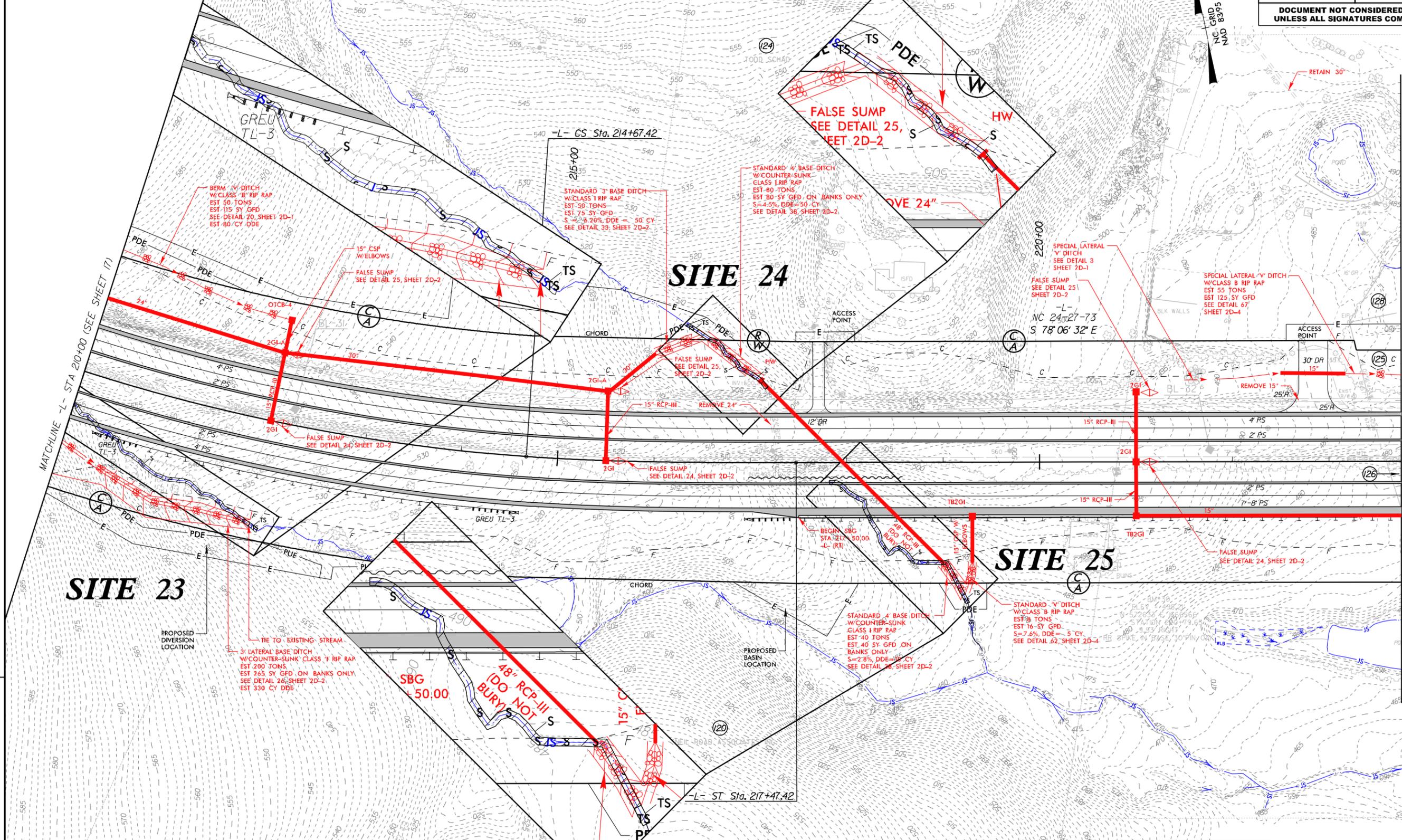
LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
SHEET 37 OF 84

Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

MATCHLINE -L- STA 223+75 (SEE SHEET 19)

MATCHLINE -L- STA 20+00 (SEE SHEET 17)

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

(125) FRANCES C UNDERWOOD (126) PATRICIA U WYNNE ET AL (128) G S DEVELOPMENT CORP.

SEE SHEET 42 FOR -L- PROFILE

5/21/2019

5/14/99
5/21/2019

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
SHEET 38 OF 84

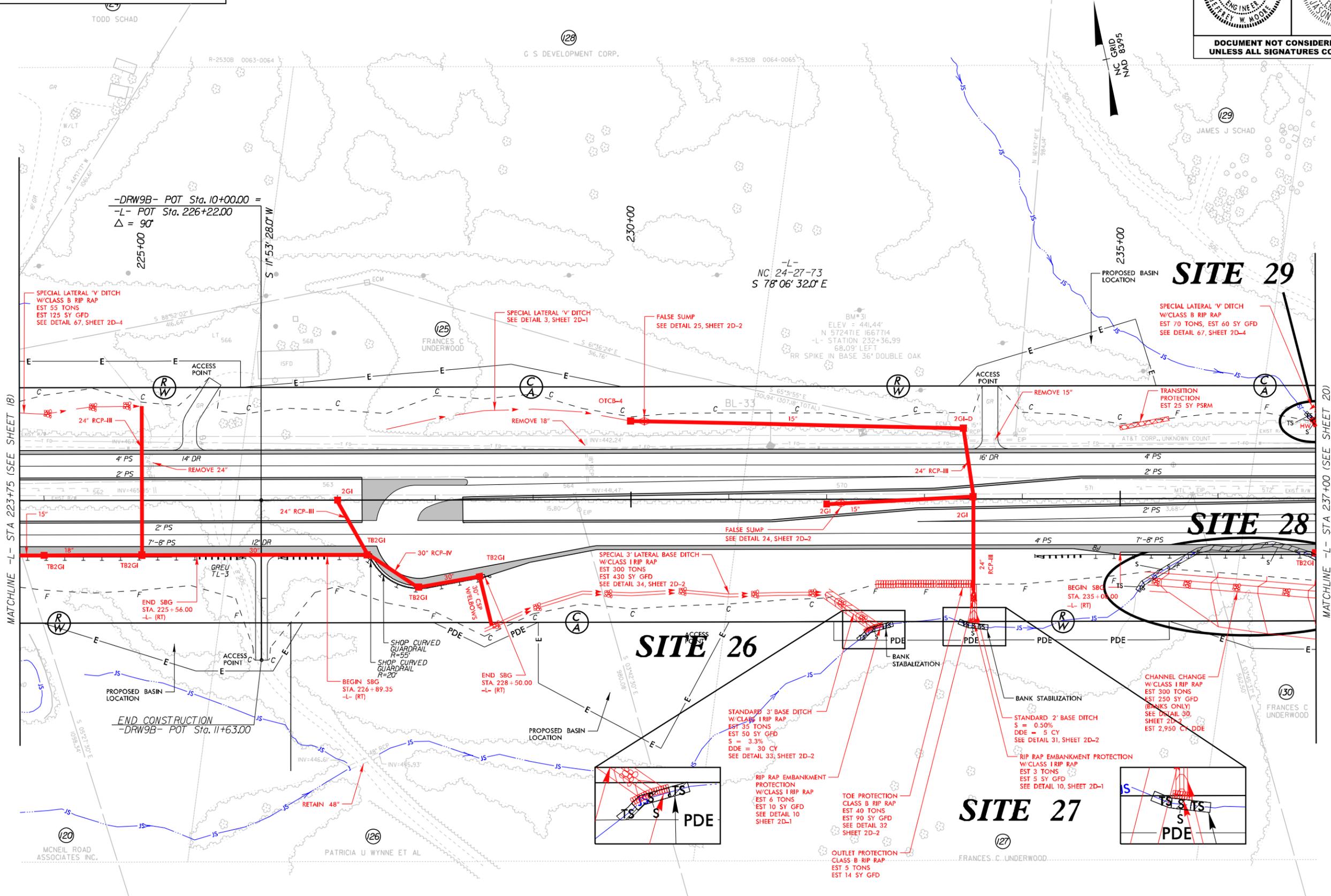


Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW9B- PROFILE



LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

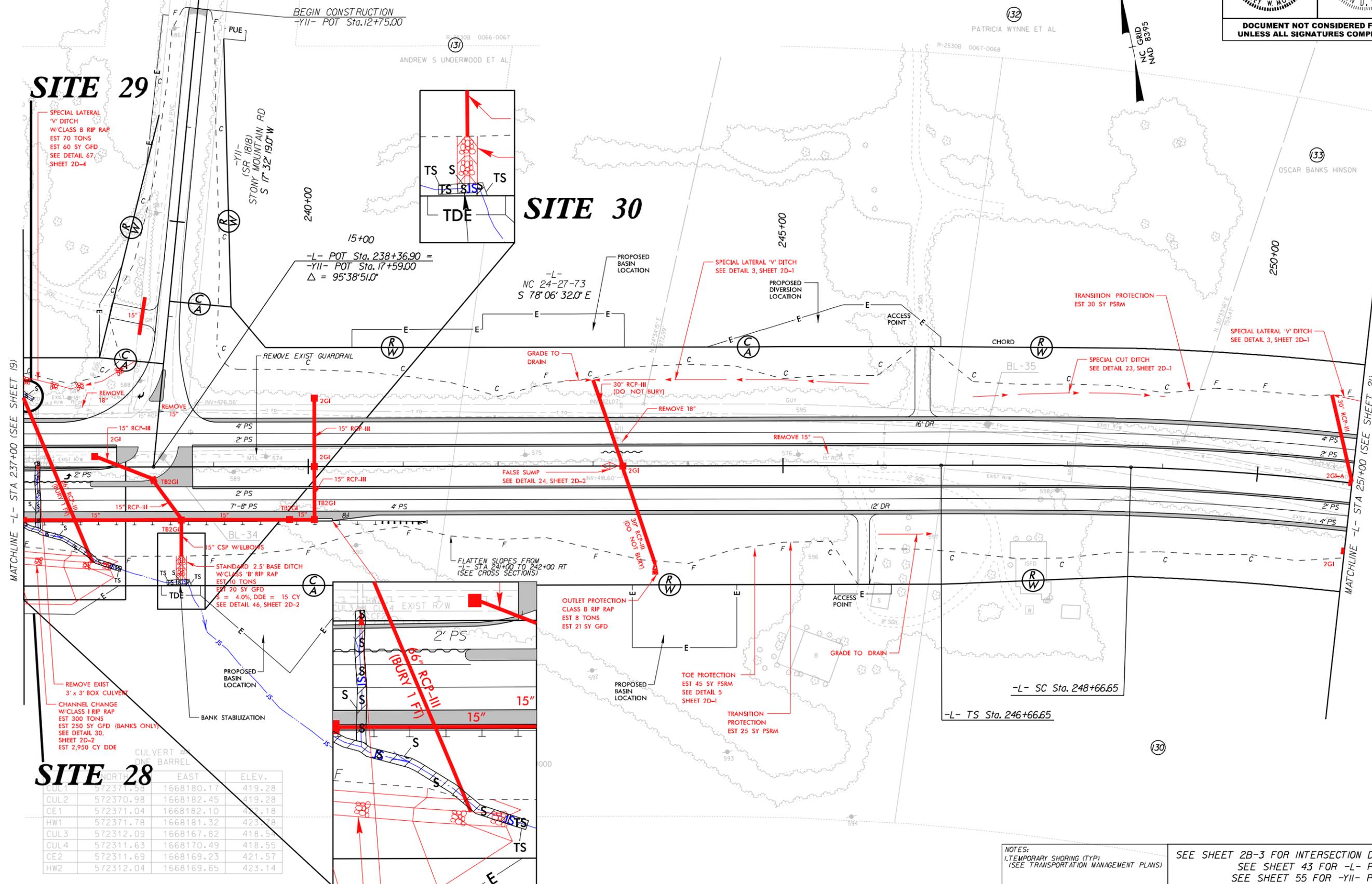
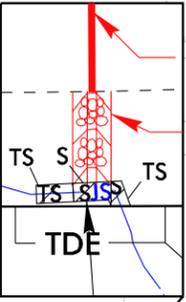
PROJECT REFERENCE NO. R-2530B	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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UNLESS ALL SIGNATURES COMPLETED**

SITE 29

SPECIAL LATERAL 'V' DITCH
W/CLASS B RIP RAP
EST 70 TONS
EST 60 SY GFD
SEE DETAIL 67,
SHEET 2D-4

SITE 30



SITE 28

	NORTH	EAST	ELEV.
CUL1	572371.58	1668180.17	419.28
CUL2	572370.98	1668182.45	419.28
CE1	572371.04	1668182.10	421.18
HW1	572371.78	1668181.32	423.78
CUL3	572312.09	1668167.82	418.55
CUL4	572311.63	1668170.49	418.55
CE2	572311.69	1668169.23	421.57
HW2	572312.04	1668169.65	423.14

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 55 FOR -YII- PROFILE

REVISIONS

5/14/99

5/21/2019

5/14/99

PERMIT DRAWING
SHEET 41 OF 84



LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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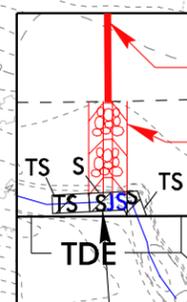
SITE 29

SPECIAL LATERAL 'V' DITCH
W/CLASS B RIP RAP
EST 70 TONS
EST 60 SY OFD
SEE DETAIL 67,
SHEET 2D-4

MATCHLINE -L- STA 237+00 (SEE SHEET 19)

SITE 28

NO.	EAST	ELEV.
CUL1	572311.56	1668189.49
CUL2	572311.98	1668182.49
CUL3	572312.09	1668167.82
CUL4	572311.63	1668170.49
CE2	572311.69	1668169.23
HW2	572312.04	1668169.65



SITE 30

BEGIN CONSTRUCTION
-YII- POT Sta. 12+75.00

-L- POT Sta. 238+36.90 =
-YII- POT Sta. 17+59.00
Δ = 95°38'51.0"

PROPOSED BASIN LOCATION

NC 24-27-73
S 78°06'32.0" E

MATCHLINE -L- STA 251+00 (SEE SHEET 21)

-L- SC Sta. 248+66.65

-L- TS Sta. 246+66.65

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 55 FOR -YII- PROFILE

REVISIONS

5/21/2019

5/14/99

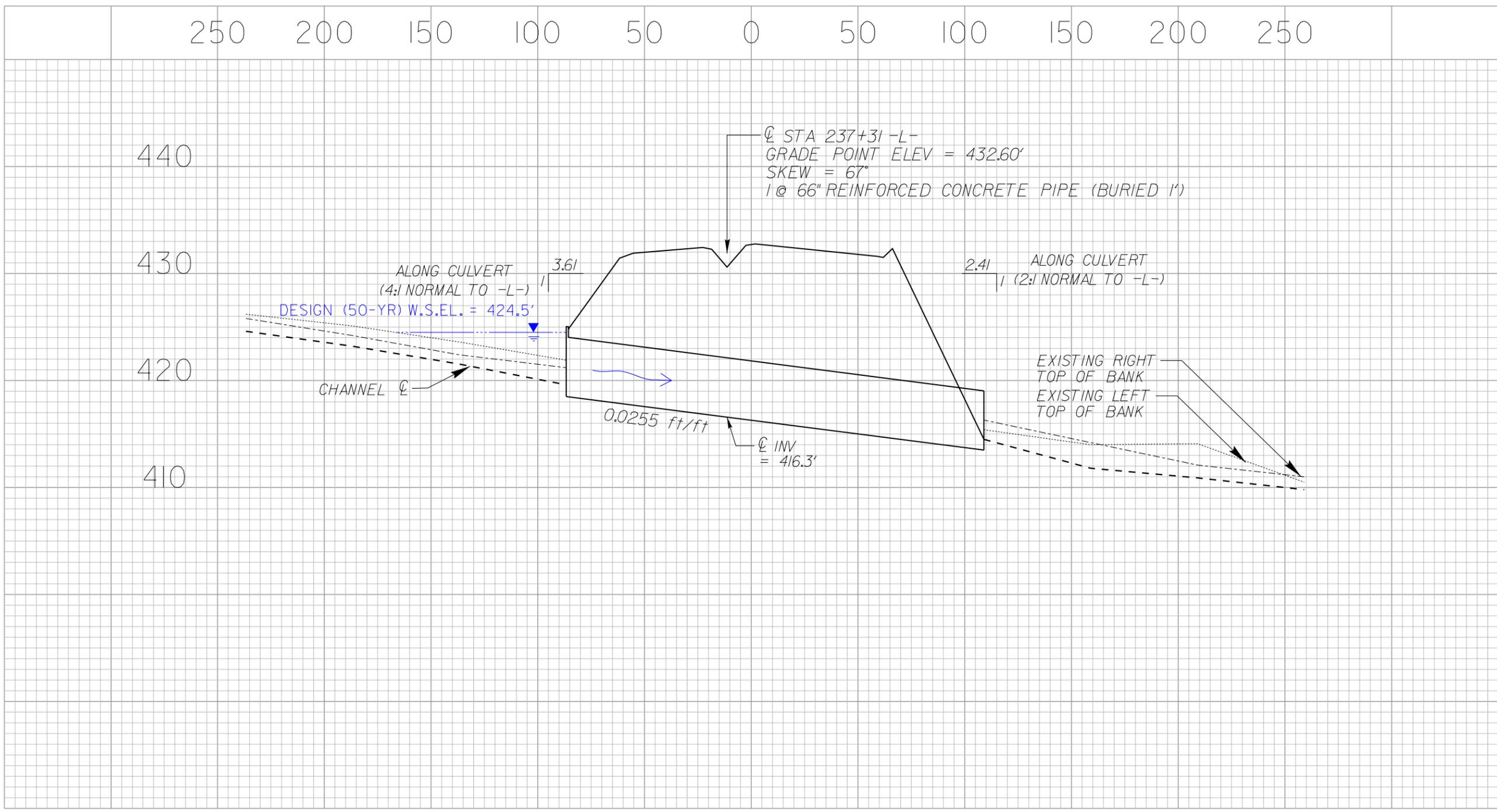
PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 28 & 29

PERMIT DRAWING SHEET 42 OF 84

REVISIONS



5/21/2019

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CULVERT #5
ONE BARREL

	NORTH	EAST	ELEV.
CUL 1	571662.17	1670303.76	404.83
CUL 2	571661.04	1670306.41	404.82
CE 1	571661.71	1670305.10	407.84
HW 1	571661.71	1670305.10	407.84
CUL 3	571603.81	1670277.48	404.40
CUL 4	571602.44	1670279.91	404.39
CE 2	571603.27	1670279.01	407.41
HW 2	571603.34	1670278.73	408.96

PERMIT DRAWING
SHEET 43 OF 84



LEGEND

- Denotes fill in wetland
- Denotes impacts in surface water (pond)
- Denotes mechanized clearing
- Denotes excavation in wetland
- Denotes impacts in surface water
- Denotes temporary impacts in surface water
- Federal Energy Regulatory Commission (FERC) boundary

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

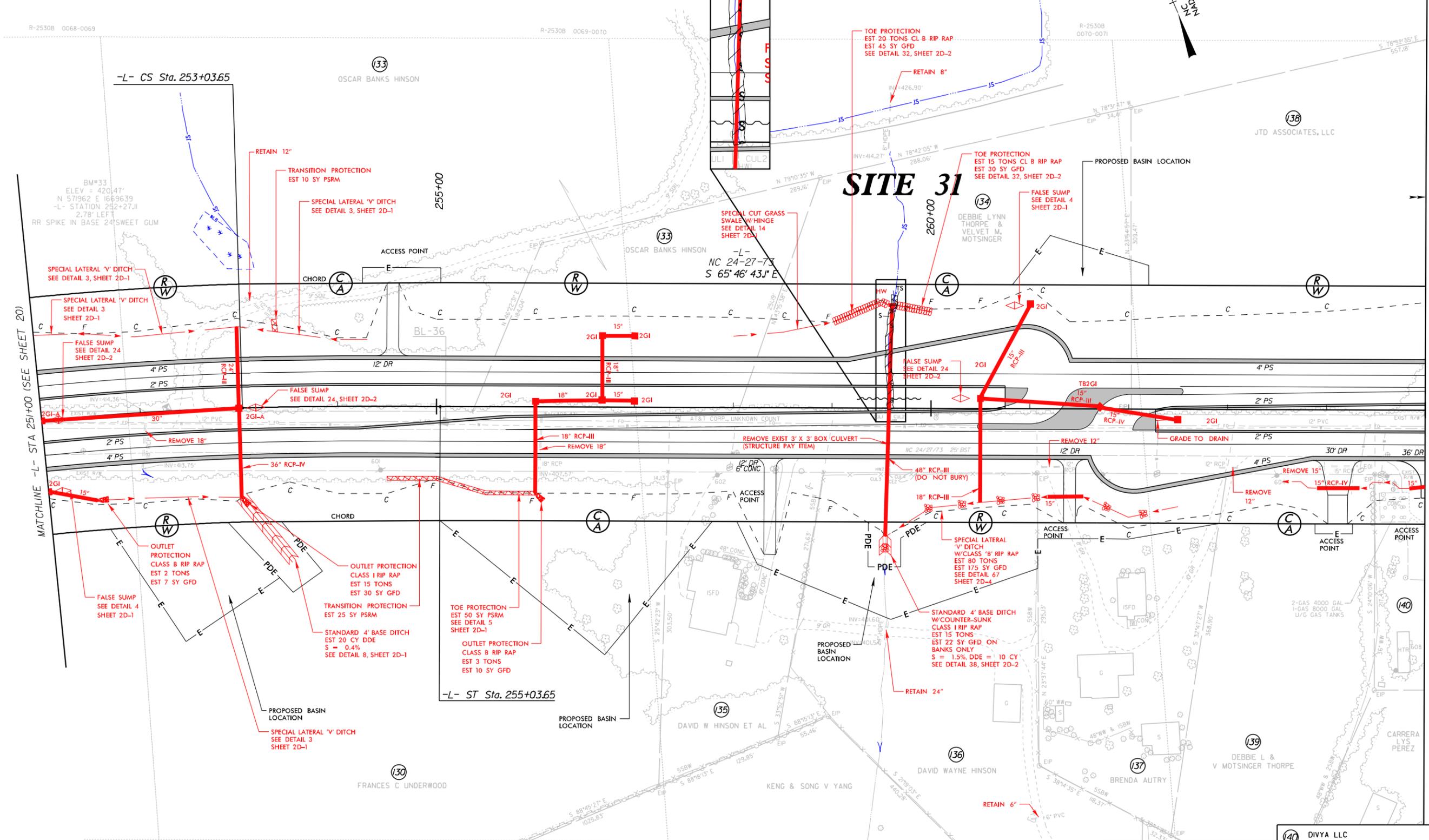
PROJECT REFERENCE NO. R-2530B
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

SEAL 024436
JEFFREY W. MOORE
ENGINEER

SEAL 032615
JASON D. LAWING
ENGINEER

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UNLESS ALL SIGNATURES COMPLETED

REVISIONS



MATCHLINE -L- STA 251+00 (SEE SHEET 20)

MATCHLINE -L- STA 265+00 (SEE SHEET 22)

-L- CS Sta. 253+03.65

-L- ST Sta. 255+03.65

SITE 31

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

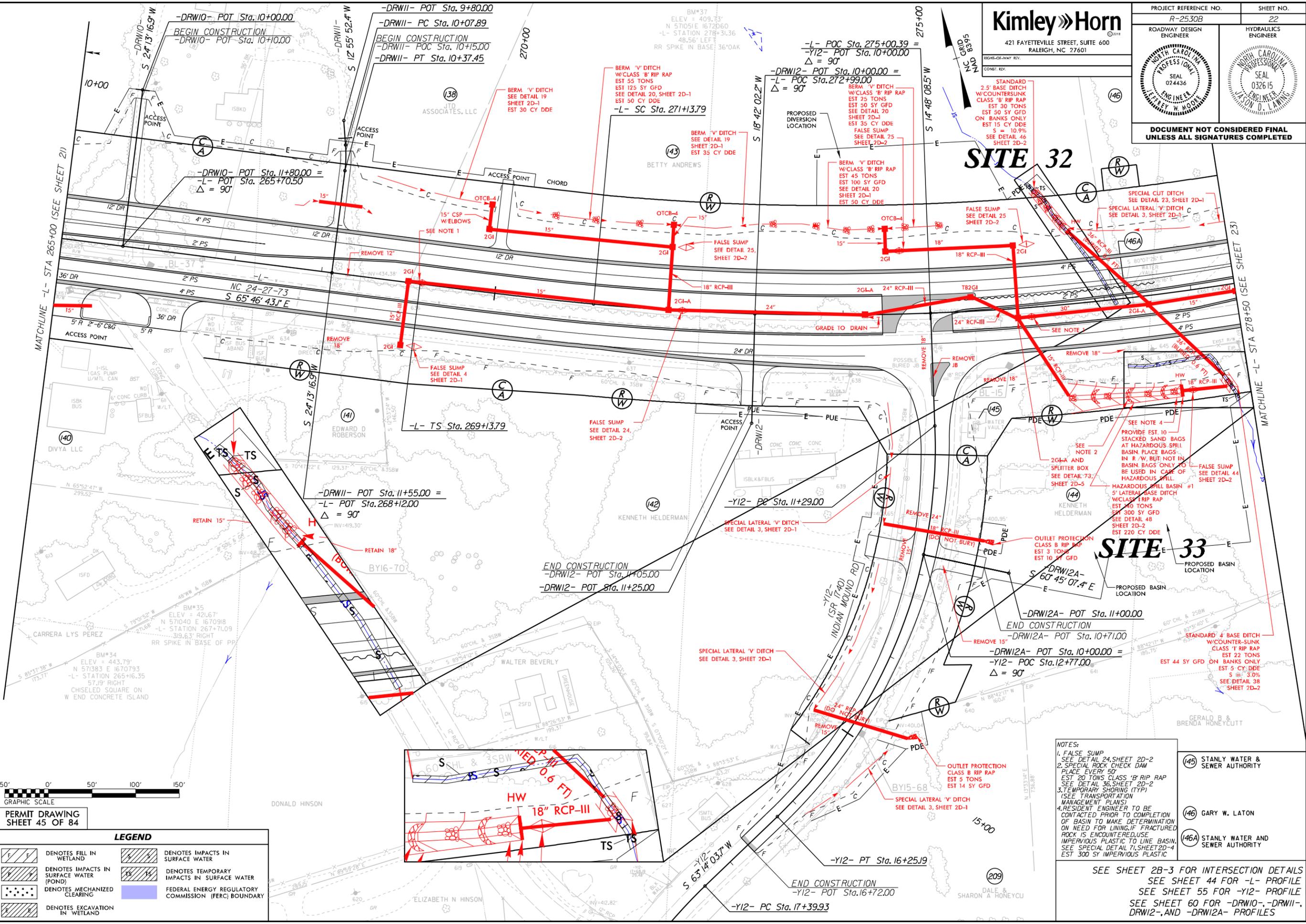
140 DIVYA LLC
SEE SHEET 43 FOR -L- PROFILE

5/21/2019

PROJECT REFERENCE NO. R-2530B	SHEET NO. 22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 JEFFREY W. WOOD ENGINEER 024436	 JASON D. LAMING ENGINEER 032615
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SITE 32

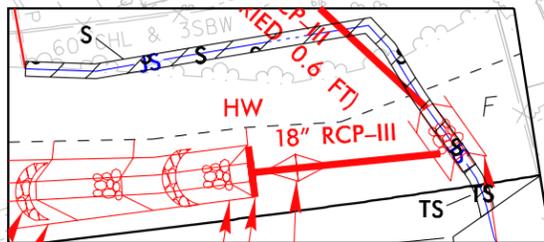
SITE 33



PERMIT DRAWING
SHEET 45 OF 84

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

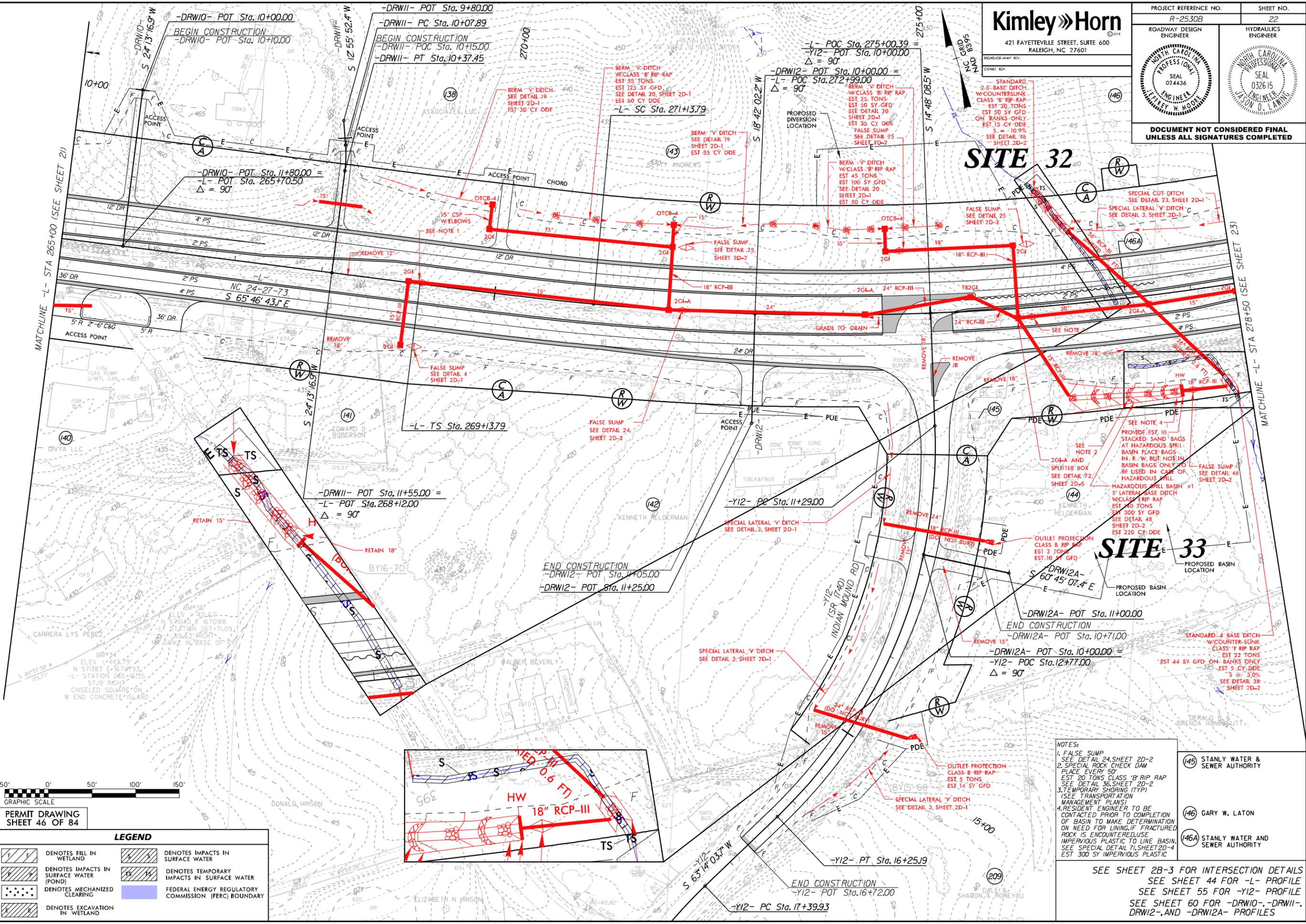


- NOTES:**
- FALSE SUMP SEE DETAIL 24, SHEET 2D-2
 - SPECIAL ROCK CHECK DAM PLACE EVERY 50' EST 20 TONS CLASS 'B' RIP RAP SEE DETAIL 36, SHEET 2D-2
 - TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 - RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING. IF FRACTURED ROCK IS ENCOUNTERED, USE IMPERVIOUS PLASTIC TO LINE BASIN. SEE SPECIAL DETAIL 71, SHEET 2D-4 EST 300 SY IMPERVIOUS PLASTIC

- (45) STANLY WATER & SEWER AUTHORITY
- (46) GARY W. LATON
- (46A) STANLY WATER AND SEWER AUTHORITY

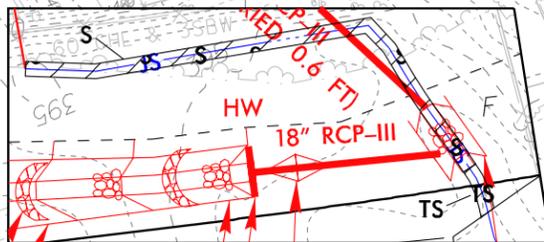
SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y12- PROFILE
SEE SHEET 60 FOR -DRW10-, -DRW11-,
DRW12-, AND -DRW12A- PROFILES

5/21/2019



PERMIT DRAWING
SHEET 46 OF 84

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY



- NOTES:
- FALSE SUMP SEE DETAIL 24, SHEET 2D-2
 - SPECIAL ROCK CHECK DAM PLACE EVERY 50' EST 20 TONS CLASS 'B' RIP RAP SEE DETAIL 36, SHEET 2D-2
 - TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 - RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING. IF FRACTURED ROCK IS ENCOUNTERED, USE IMPERVIOUS PLASTIC TO LINE BASIN. SEE SPECIAL DETAIL 71, SHEET 2D-4 EST 300 SY IMPERVIOUS PLASTIC

- (145) STANLY WATER & SEWER AUTHORITY
- (146) GARY W. LATON
- (146A) STANLY WATER AND SEWER AUTHORITY

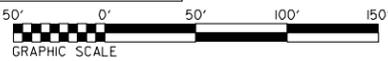
SEE SHEET 2B-3 FOR INTERSECTION DETAILS
 SEE SHEET 44 FOR -L- PROFILE
 SEE SHEET 55 FOR -Y12- PROFILE
 SEE SHEET 60 FOR -DRW10-, -DRW11-,
 -DRW12-, AND -DRW12A- PROFILES

5/14/99
 REVISIONS
 5/21/2019

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING SHEET 47 OF 84



421 FAYETTEVILLE STREET, SUITE 600 RALEIGH, NC 27601

ROADWAY DESIGN ENGINEER
JEFFREY W. MOORE
SEAL 024436

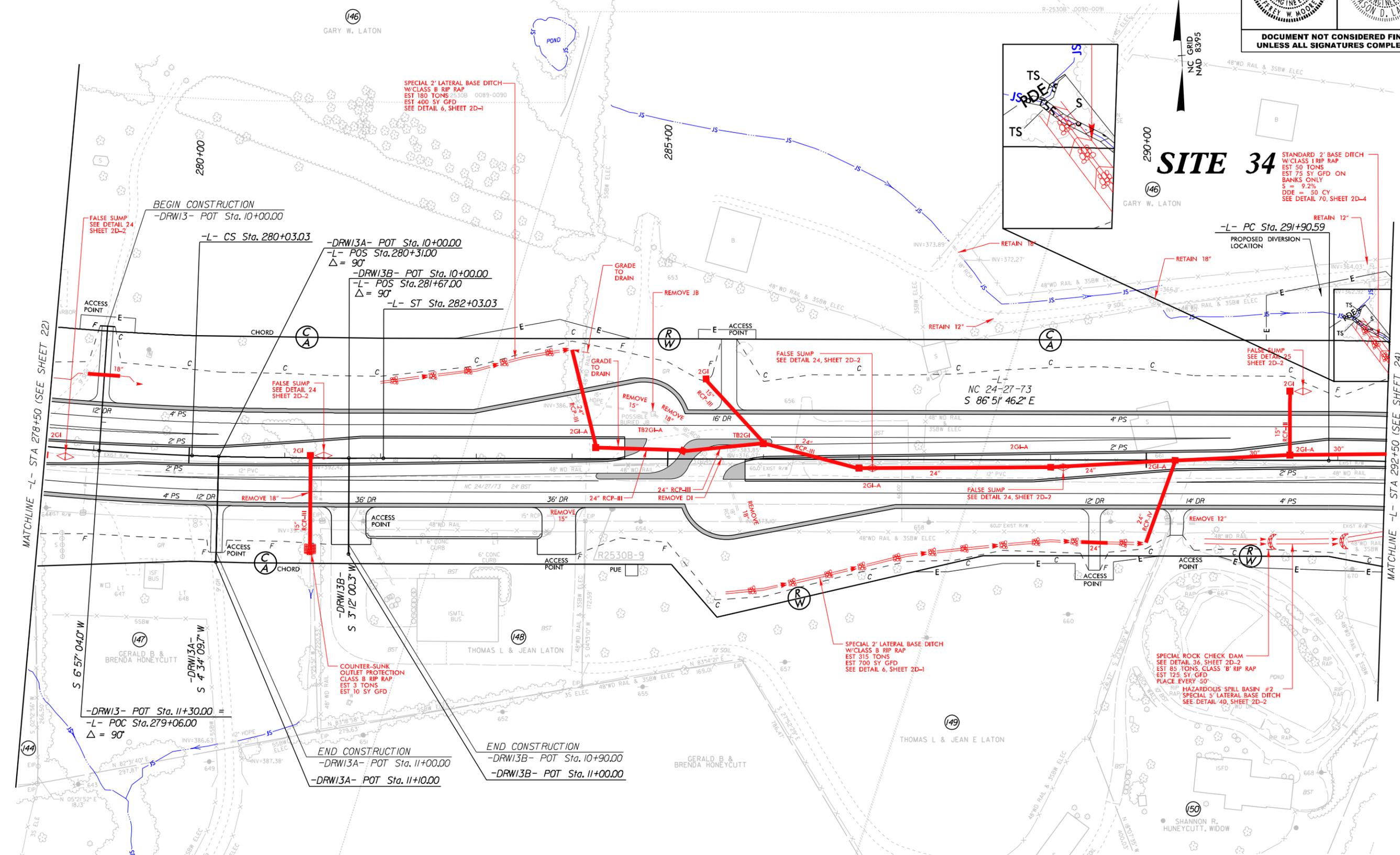
HYDRAULICS ENGINEER
JASON D. LAWING
SEAL 032615

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 34

GARY W. LATON

STANDARD 2' BASE DITCH
W/CLASS B RIP RAP
EST 50 TONS
EST 75 SY GFD ON
BANKS ONLY
S = 9.2%
DDE = 50 CY
SEE DETAIL 70, SHEET 2D-4



MATCHLINE -L- STA 278+50 (SEE SHEET 22)

MATCHLINE -L- STA 292+50 (SEE SHEET 24)

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 60 FOR -DRWI3- PROFILE
SEE SHEET 61 FOR -DRWI3A- & -DRWI3B- PROFILES

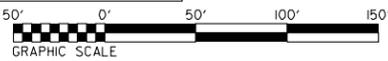
REVISIONS

5/21/2019

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

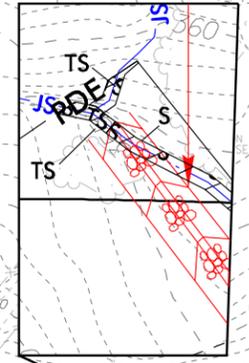
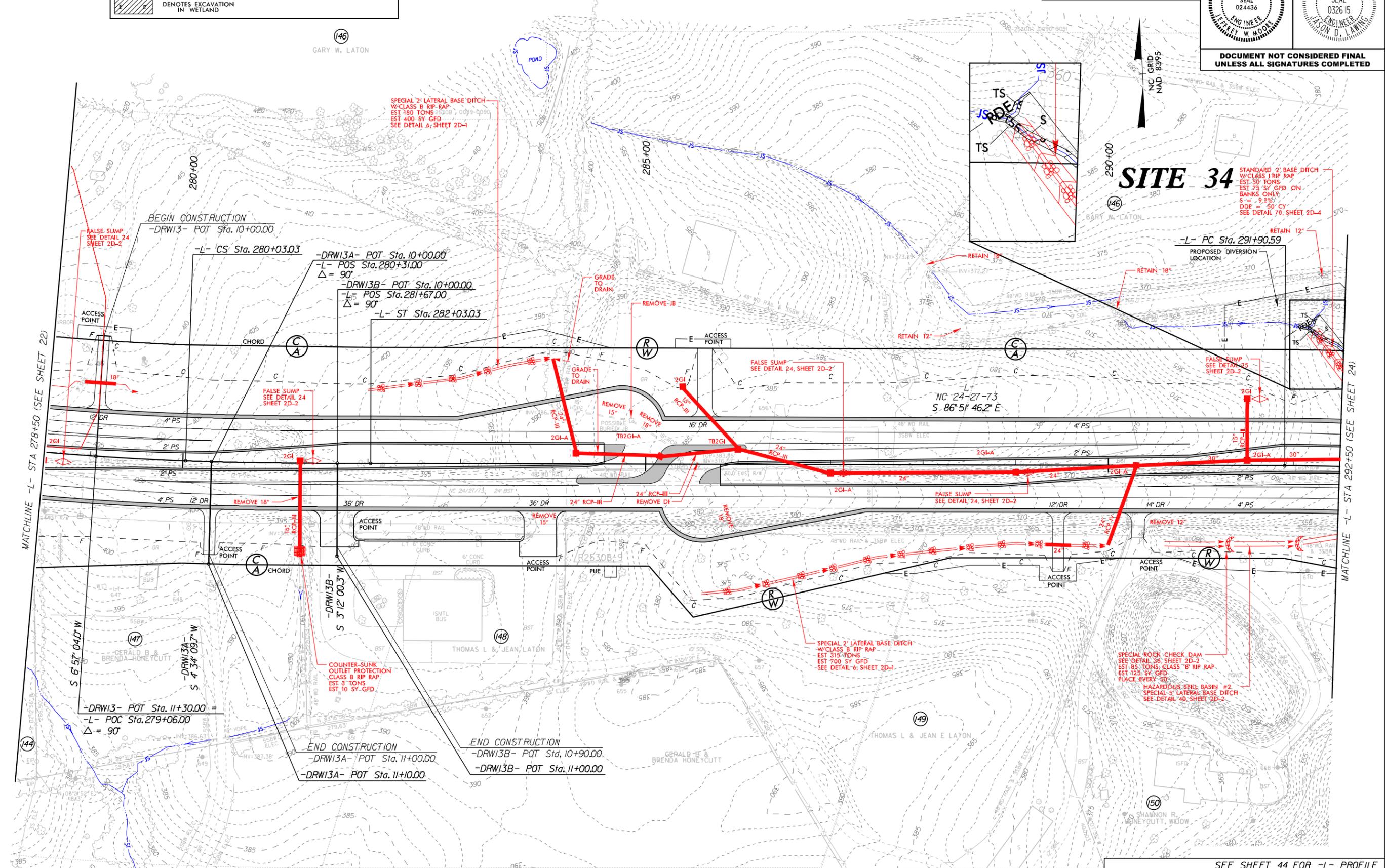
PERMIT DRAWING SHEET 48 OF 84



421 FAYETTEVILLE STREET, SUITE 600 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



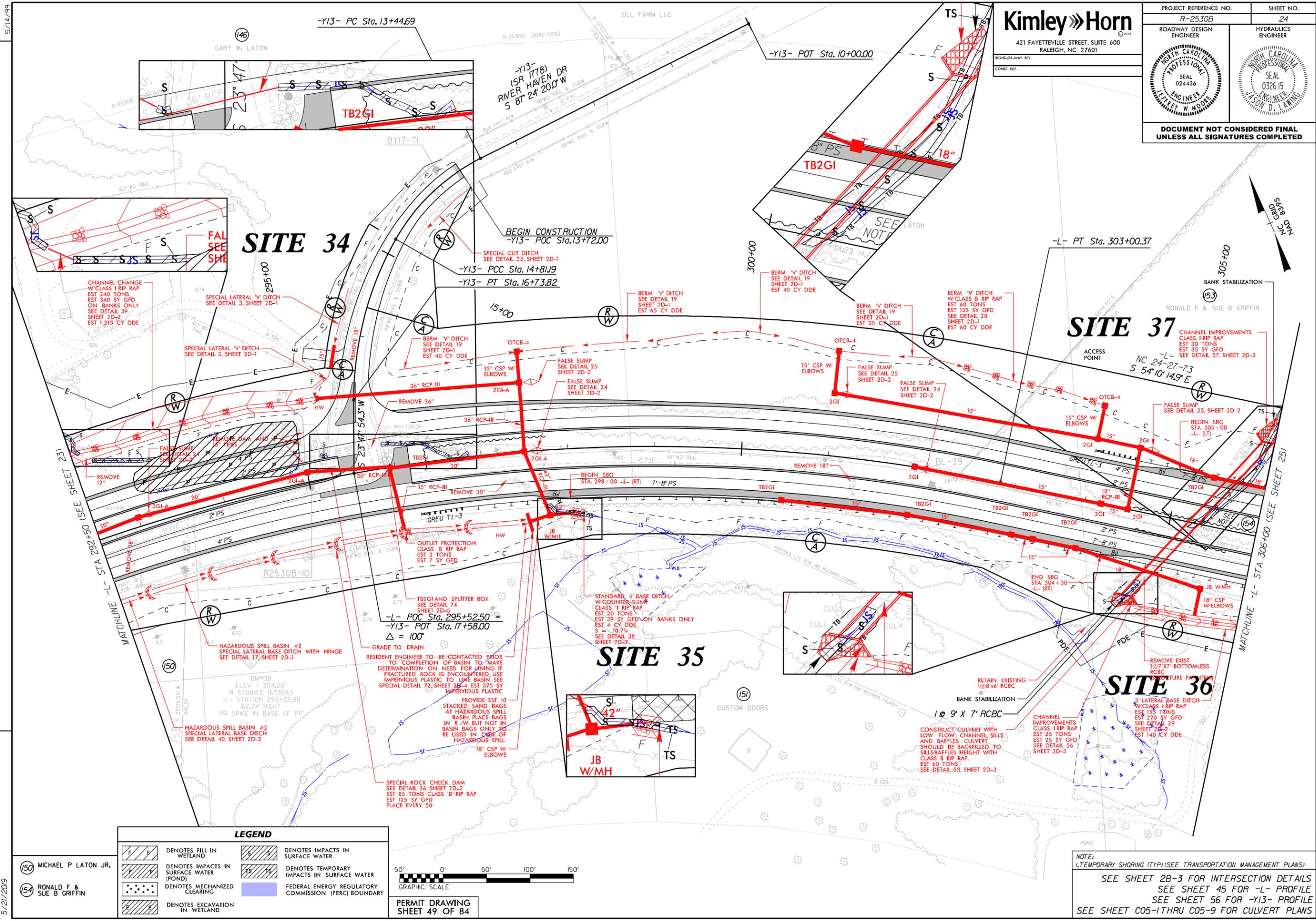
SITE 34

STANDARD 2' BASE DITCH
W/CLASS B RIP RAP
EST 30 TONS
EST 75 SY GFD ON BANKS ONLY
S = 9.2%
DDE = 50' CY
SEE DETAIL 70, SHEET 2D-4

MATCHLINE -L- STA 278+50 (SEE SHEET 22)

MATCHLINE -L- STA 292+50 (SEE SHEET 24)

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 60 FOR -DRWI3- PROFILE
SEE SHEET 61 FOR -DRWI3A- & -DRWI3B- PROFILES



REVISIONS

5/21/2019

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

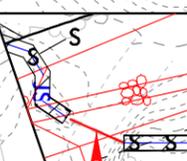
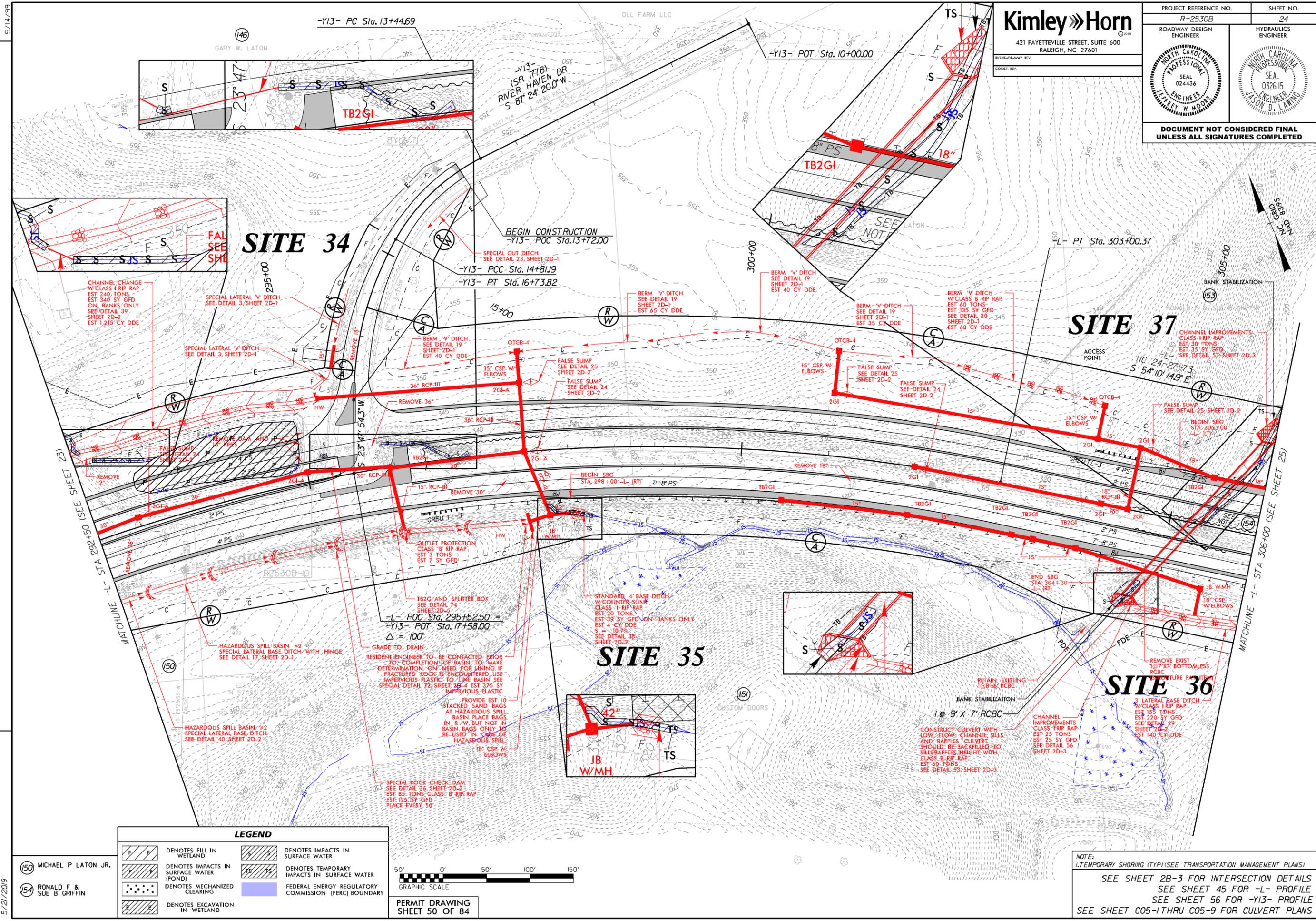


PERMIT DRAWING
SHEET 49 OF 84

NOTE:
 1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 SEE SHEET 2B-3 FOR INTERSECTION DETAILS
 SEE SHEET 45 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y13- PROFILE
 SEE SHEET C05-1 THRU C05-9 FOR CULVERT PLANS

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

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 UNLESS ALL SIGNATURES COMPLETED**



LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		



PERMIT DRAWING
 SHEET 50 OF 84

NOTE:
 1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 SEE SHEET 2B-3 FOR INTERSECTION DETAILS
 SEE SHEET 45 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y13- PROFILE
 SEE SHEET C05-1 THRU C05-9 FOR CULVERT PLANS

5/14/99
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REVISIONS

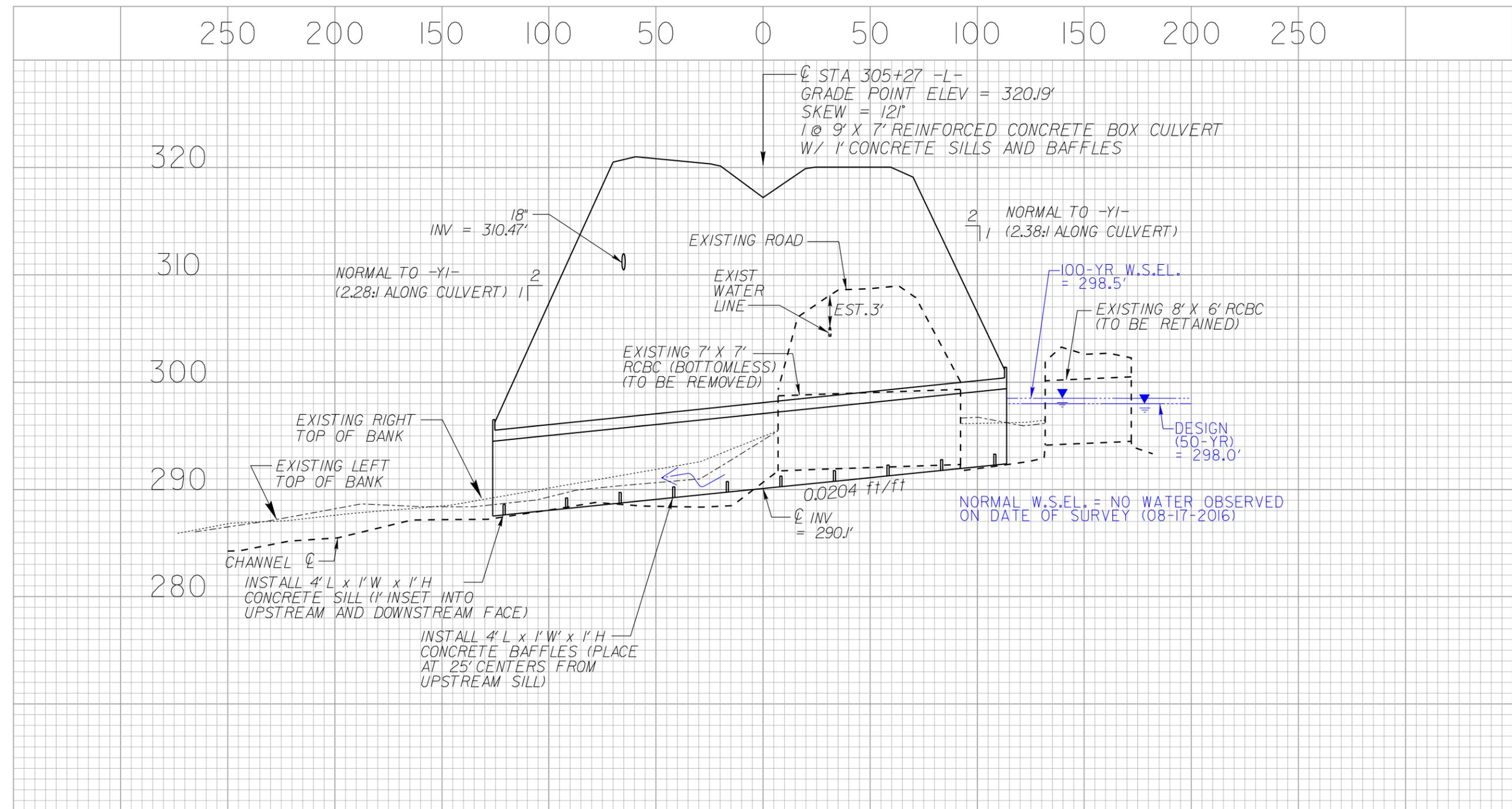
5/14/99

PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SITE 36 & 37

PERMIT DRAWING
SHEET 51 OF 84

REVISIONS



5/21/2019

5/14/99

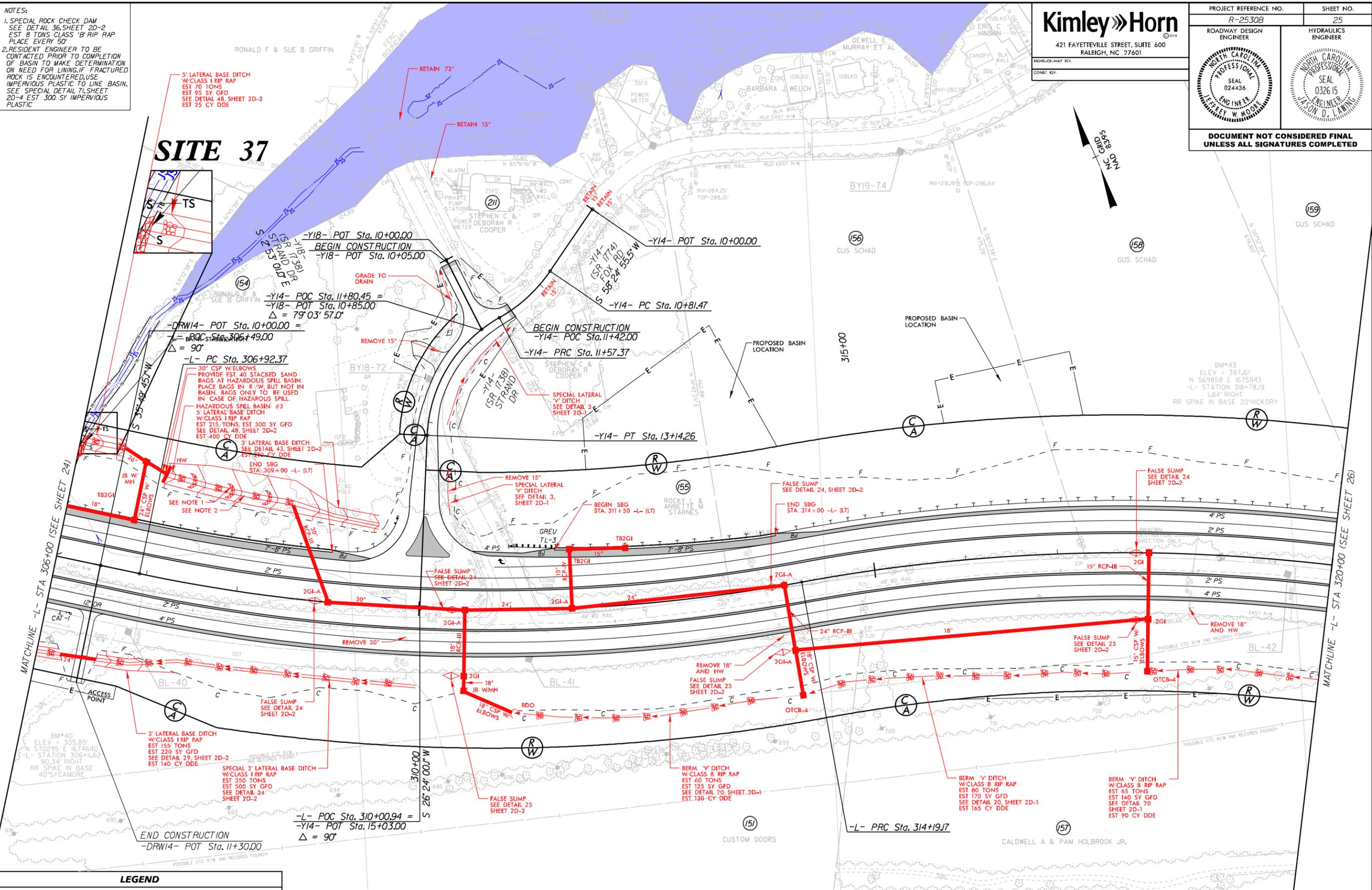
NOTES:
 1. SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST 8 TONS CLASS 'B' RIP RAP PLACE EVERY 50'
 2. RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING. IF FRACTURED ROCK IS ENCOUNTERED, USE IMPERVIOUS PLASTIC TO LINE BASIN. SEE SPECIAL DETAIL 71, SHEET 2D-4 EST 300 SY IMPERVIOUS PLASTIC

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

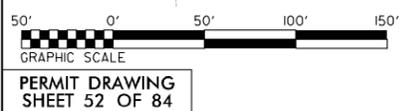
SITE 37



REVISIONS

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		



SEE SHEET 2B-4 FOR INTERSECTION DETAILS
 SEE SHEET 46 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y14- PROFILE
 SEE SHEET 57 FOR -Y18- PROFILE
 SEE SHEET 61 FOR -DRW14- PROFILE

5/21/2019

5/14/99

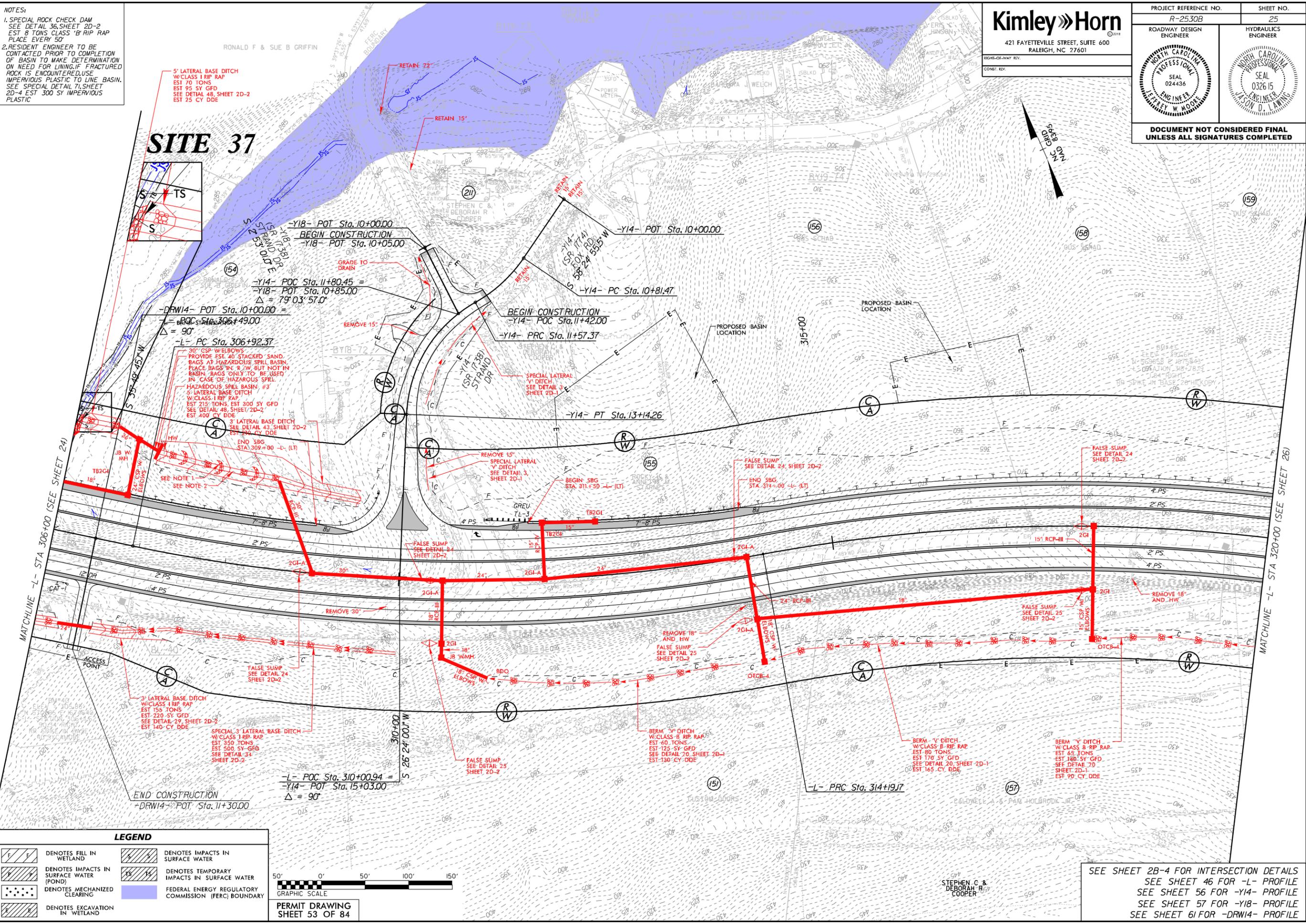
NOTES:
 1. SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST 8 TONS CLASS 'B' RIP RAP PLACE EVERY 50'
 2. RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING. IF FRACTURED ROCK IS ENCOUNTERED, USE IMPERVIOUS PLASTIC TO LINE BASIN. SEE SPECIAL DETAIL 71, SHEET 2D-4 EST 300 SY IMPERVIOUS PLASTIC

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

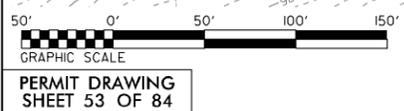
SITE 37



REVISIONS

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		



SEE SHEET 2B-4 FOR INTERSECTION DETAILS
 SEE SHEET 46 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y14- PROFILE
 SEE SHEET 57 FOR -Y18- PROFILE
 SEE SHEET 61 FOR -DRW14- PROFILE

5/21/2019

STEPHEN C. & DEBORAH R. COOPER

- (158) GUS SCHAID
DB 712 PG 262
PB 15 PG 24
- (162) JEAN ANN STOLLERY ESTATE
DB 373 PG 257
PB 5 PG 105
DB 758 PG 825
- (163) PROGRESS ENERGY
CAROLINAS, INC.
PB 15 PG 25

PERMIT DRAWING
SHEET 53B OF 84

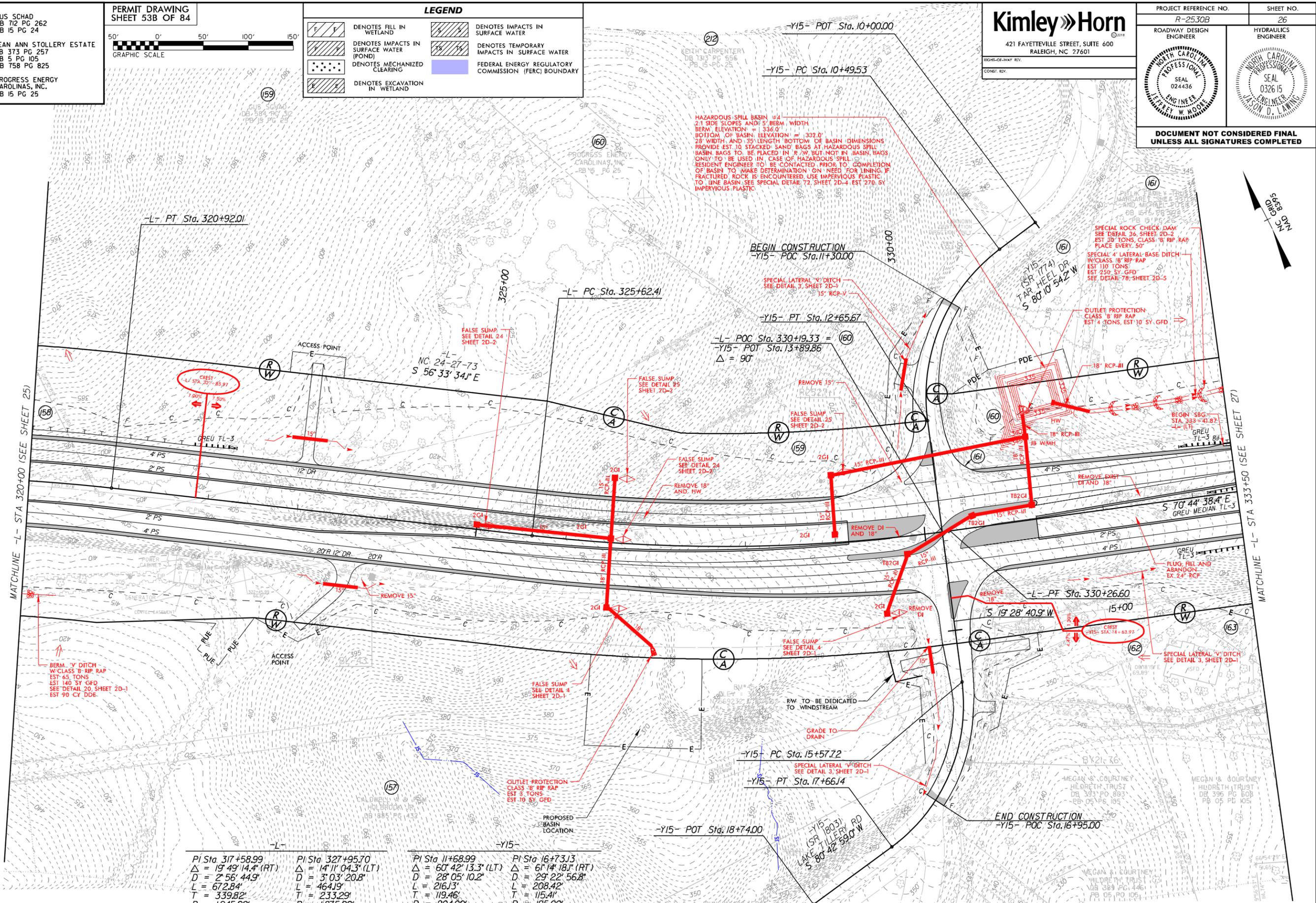
GRAPHIC SCALE

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PI Sta 317+58.99 $\Delta = 19' 49'' 14.4''$ (RT) $D = 2' 56'' 44.9''$ $L = 672.84'$ $T = 339.82'$ $R = 1.945.00'$ $SE = 0.07$ $RO = 294'$	PI Sta 327+95.70 $\Delta = 14' 11'' 04.3''$ (LT) $D = 3' 03'' 20.8''$ $L = 464.19'$ $T = 233.29'$ $R = 1.875.00'$ $SE = 0.07$ $RO = 294'$	PI Sta 11+68.99 $\Delta = 60' 42'' 13.3''$ (LT) $D = 28' 05'' 10.2''$ $L = 216.13'$ $T = 119.46'$ $R = 204.00'$ $SE = 0.04$ $RO = 72'$ $DS = 25$ MPH	PI Sta 16+73.13 $\Delta = 6' 14'' 18.1''$ (RT) $D = 29' 22'' 56.8''$ $L = 208.42'$ $T = 115.41'$ $R = 195.00'$ $SE = 0.04$ $RO = 72'$ $DS = 25$ MPH
--	--	--	---

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 56 FOR -Y15- PROFILE

5/14/99
5/21/2019

5/14/99

5/21/2019

REVISIONS

LEGEND			
	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
SHEET 55 OF 84

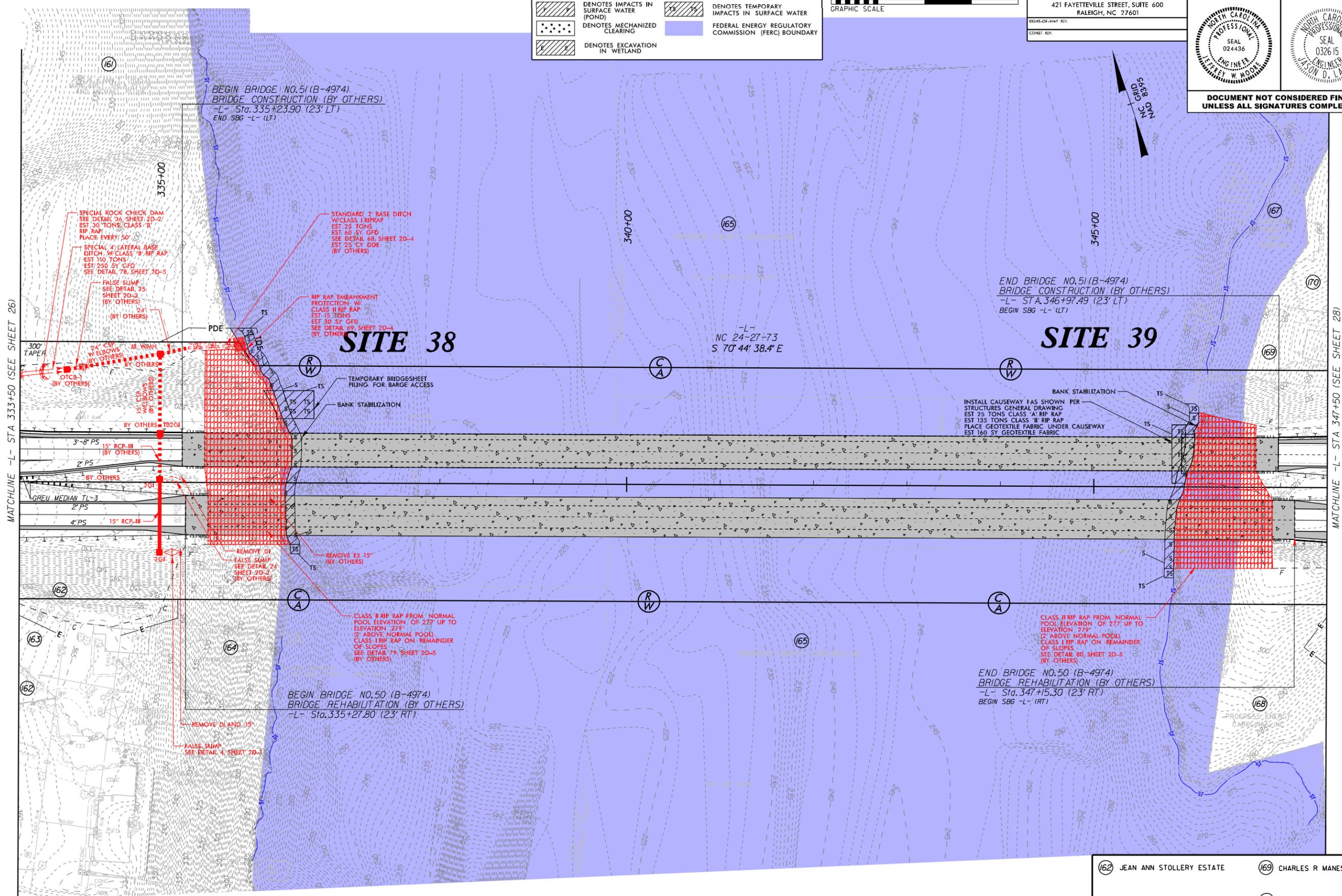
GRAPHIC SCALE

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA 333+50 (SEE SHEET 26)

MATCHLINE -L- STA 347+50 (SEE SHEET 28)

- (162) JEAN ANN STOLLERY ESTATE
- (163) PROGRESS ENERGY CAROLINAS, INC.
- (169) CHARLES R. MANESS
- (170) VICKIE LYNN SAUNDERS

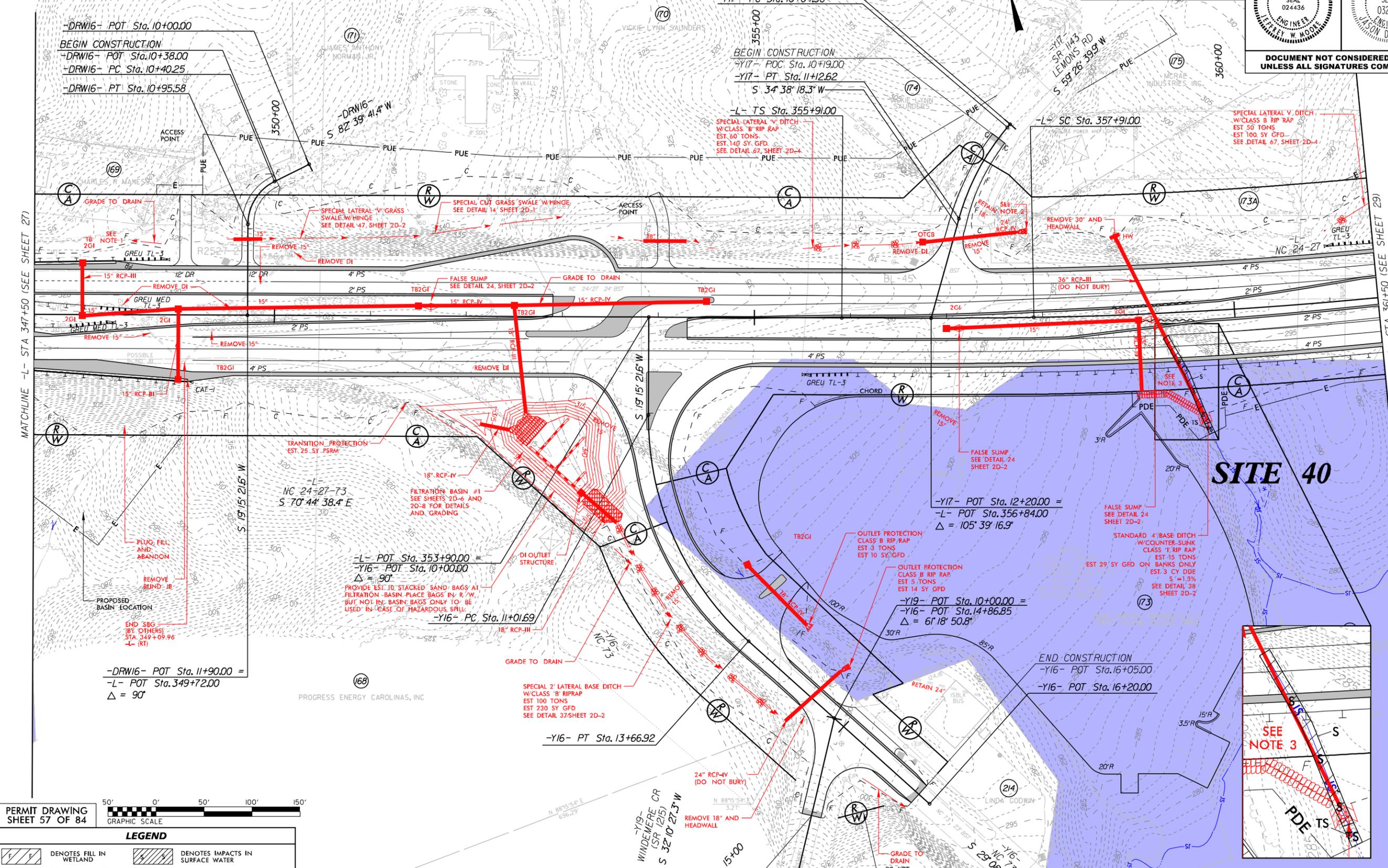
SEE SHEET 48 FOR -L- PROFILE

NOTES:
 1. END SBG STA. 348+35.00 -L- (LT)
 2. OUTLET PROTECTION - CLASS B RIP RAP EST. 5 TONS, EST. 14 SY GFD
 3. TOE PROTECTION EST. 20 TONS CLASS B RIP RAP EST. 40 SY GFD
 SEE DETAIL 32, SHEET 2D-2
 4. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

173A DUKE ENERGY PROGRESS, LLC

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PERMIT DRAWING SHEET 57 OF 84
 GRAPHIC SCALE: 0' to 150'

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
 SEE SHEET 49 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y16- PROFILE
 SEE SHEET 57 FOR -Y17- & -Y19- PROFILES

REVISIONS

5/21/2019

5/14/99

5/21/2019



MCRAE INDUSTRIES INC.

BM01 ELEVATION = 306.28
 N 568164 E 1680799
 BL STATION 370+88.00 69 LEFT
 RR SPIKE IN BASE OF 20 INCH MAPLE

LEGEND			
	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING SHEET 59 OF 84

THOMAS A. & AMANDA F. BRUTON

SITE 42

SITE 44

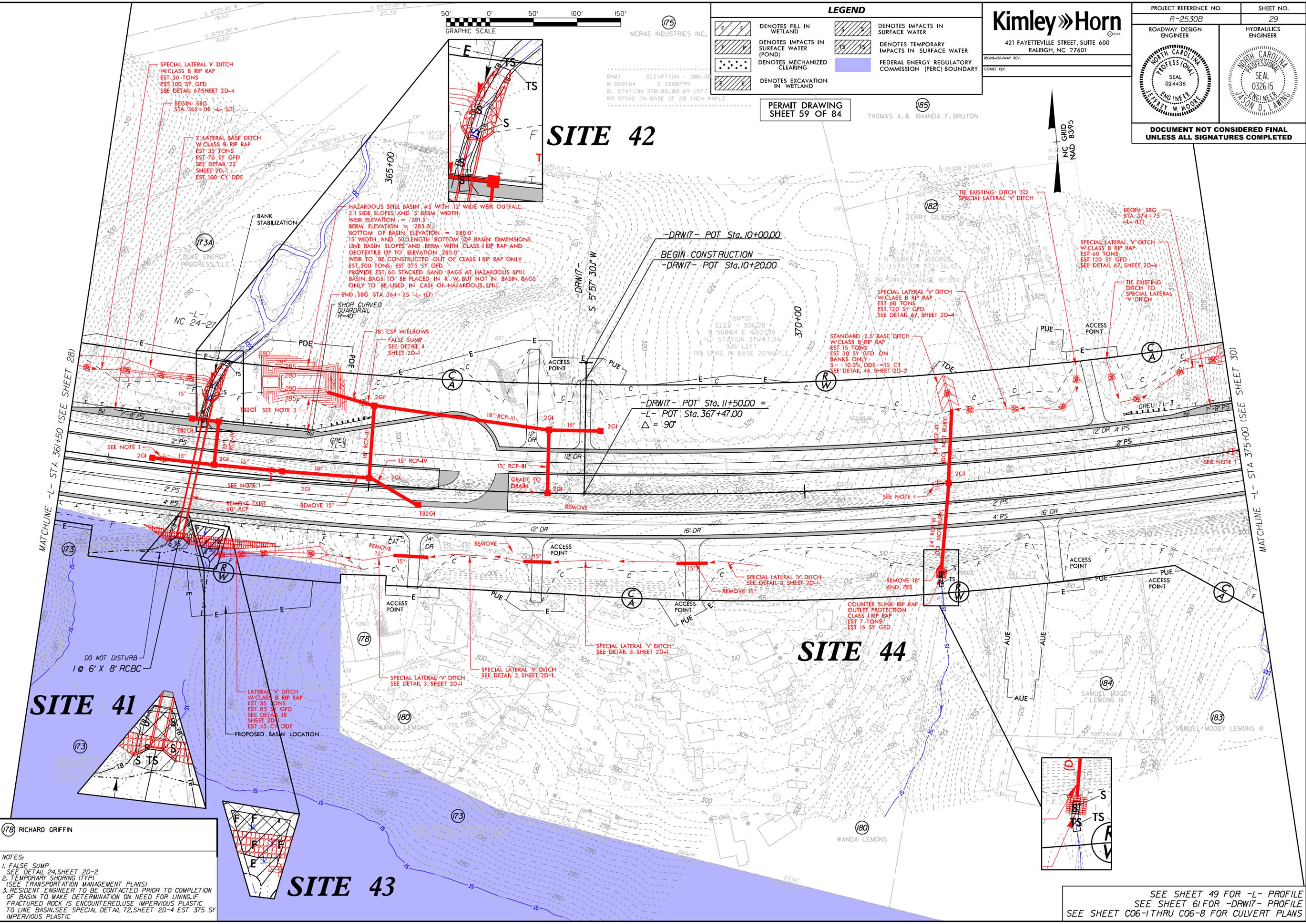
SITE 41

SITE 43

(178) RICHARD GRIFFIN

NOTES:
 1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
 2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 3. RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING. IF FRACTURED ROCK IS ENCOUNTERED, USE IMPERVIOUS PLASTIC TO LINE BASIN. SEE SPECIAL DETAIL 72, SHEET 2D-4 EST 375 SY IMPERVIOUS PLASTIC

SEE SHEET 49 FOR -L- PROFILE
 SEE SHEET 61 FOR -DRWIT- PROFILE
 SEE SHEET C06-1 THRU C06-8 FOR CULVERT PLANS



5/14/99

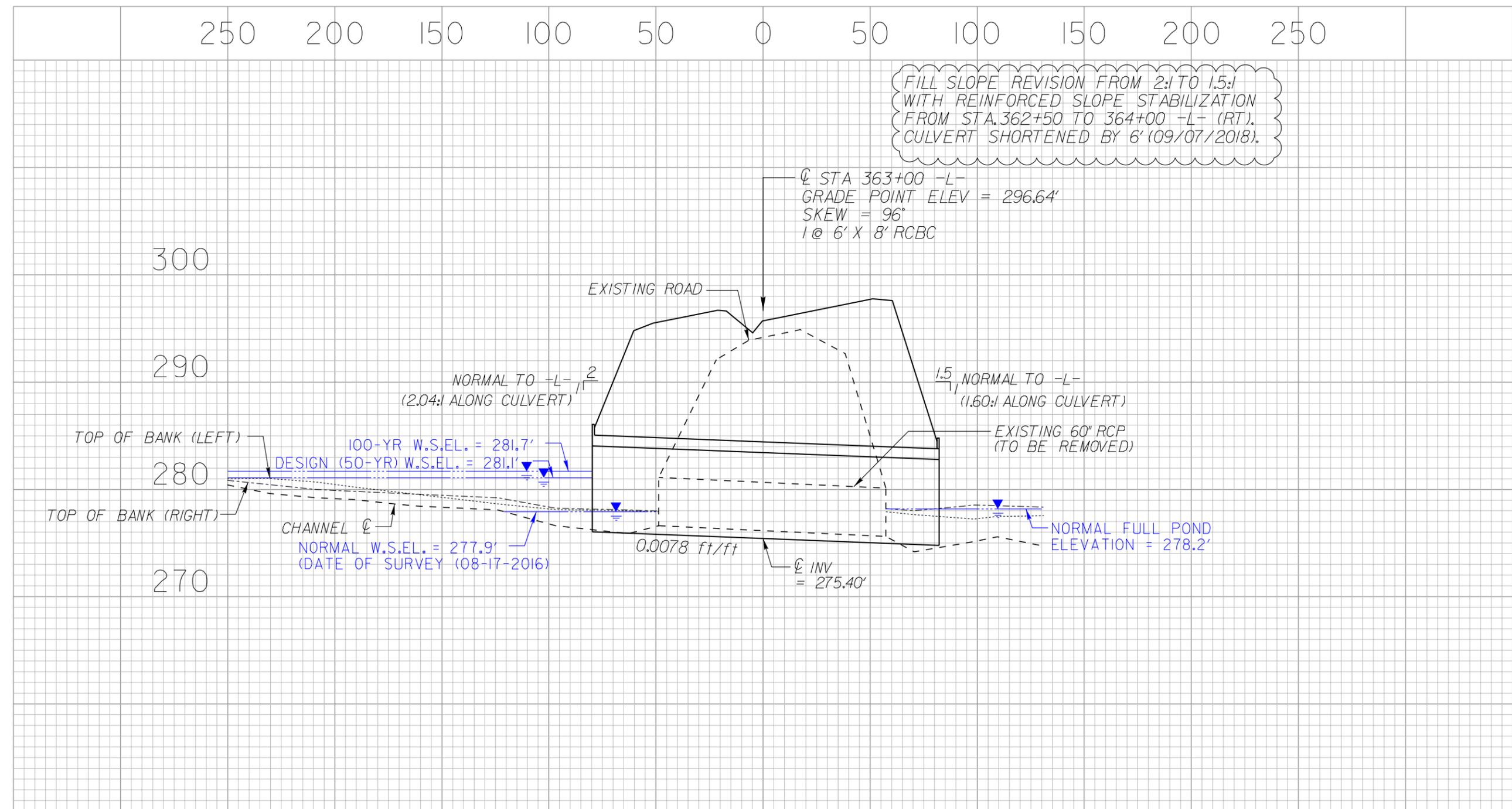
Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SITE 41 & 42

PERMIT DRAWING
SHEET 60 OF 84



FILL SLOPE REVISION FROM 2:1 TO 1.5:1
WITH REINFORCED SLOPE STABILIZATION
FROM STA. 362+50 TO 364+00 -L- (RT).
CULVERT SHORTENED BY 6' (09/07/2018).

CL STA 363+00 -L-
GRADE POINT ELEV = 296.64'
SKEW = 96°
1 @ 6' X 8' RCBC

100-YR W.S.E.L. = 281.7'
DESIGN (50-YR) W.S.E.L. = 281.1'
NORMAL W.S.E.L. = 277.9' (DATE OF SURVEY (08-17-2016))
NORMAL FULL POND ELEVATION = 278.2'
CL INV = 275.40'

REVISIONS

5/21/2019

8/23/99

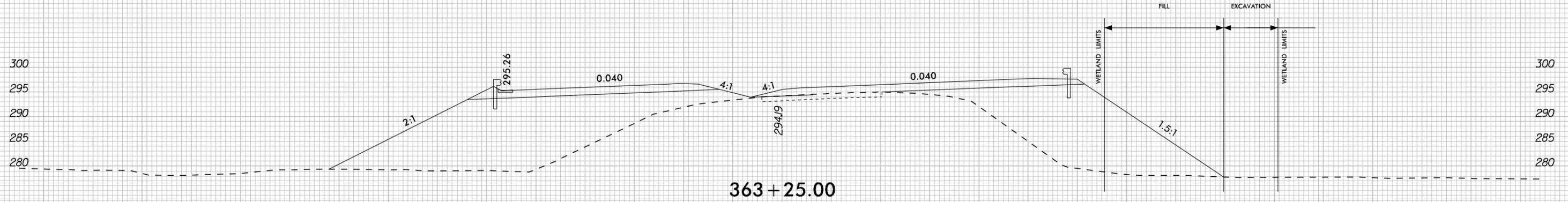
PERMIT DRAWING
SHEET 61 OF 84



PROJ. REFERENCE NO.
R-2530B

SHEET NO.

SITE 43



-L- NC 24-27-73

5/21/2019

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

NOTES:
 1. FALSE SUMP
 2. TEMPORARY SHORING (TYP)
 3. SEAL ABANDONED WELL

5/14/99
 (93) KENNETH R FURR
 BY WILL

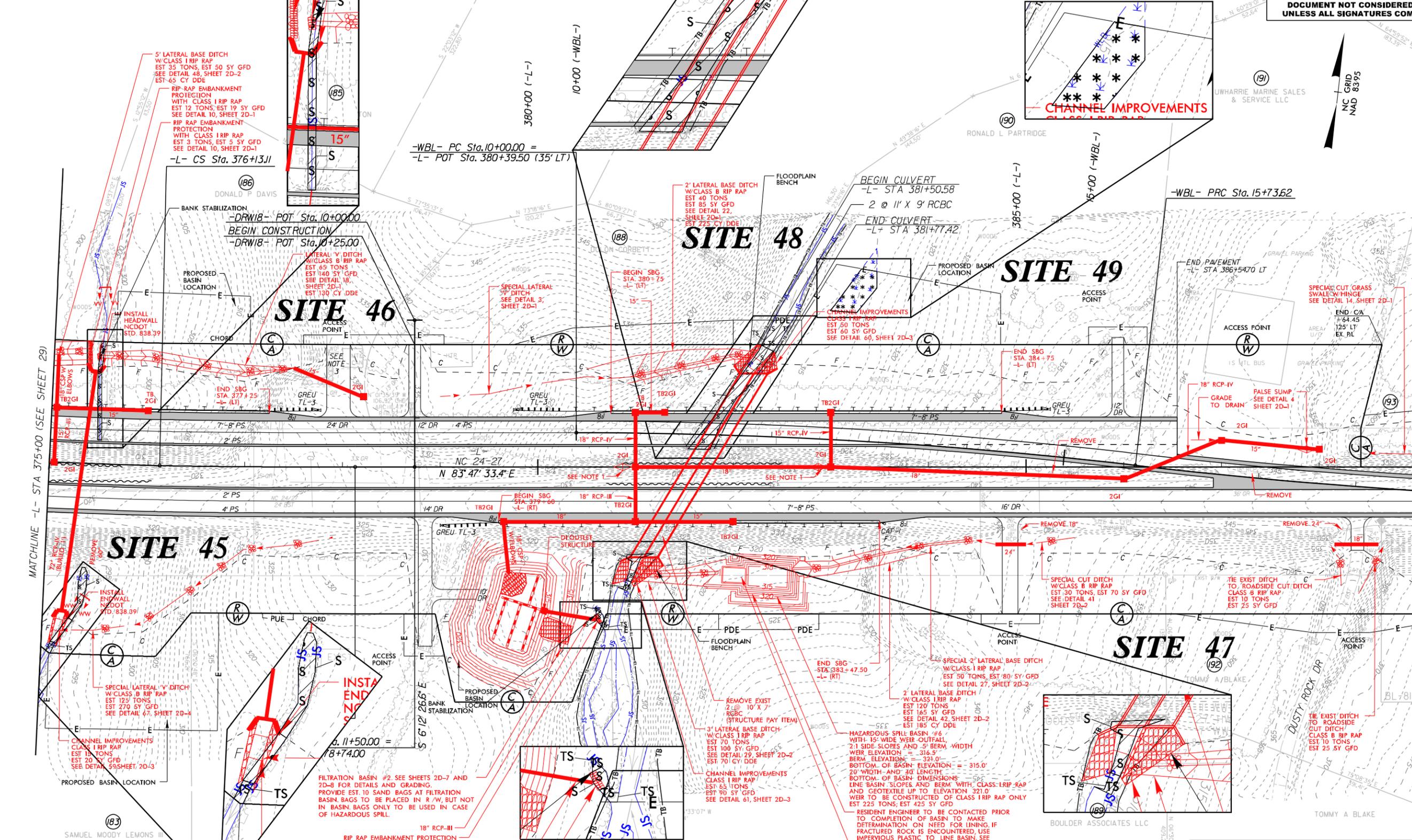
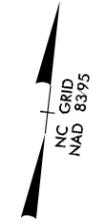
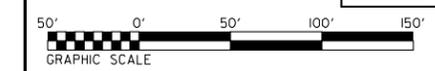
LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
 SHEET 63 OF 84

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



5/21/2019

SITE 47A

SEE SHEET 50 FOR -L- PROFILE
 SEE SHEET 51 FOR -WBL- PROFILE
 SEE SHEET 61 FOR -DRW18- PROFILE
 SEE SHEET C07-I THRU C07-II FOR CULVERT PLANS

5/14/99

Kimley»Horn
 P.O. BOX 33068 • RALEIGH, N.C. 27636-3068
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

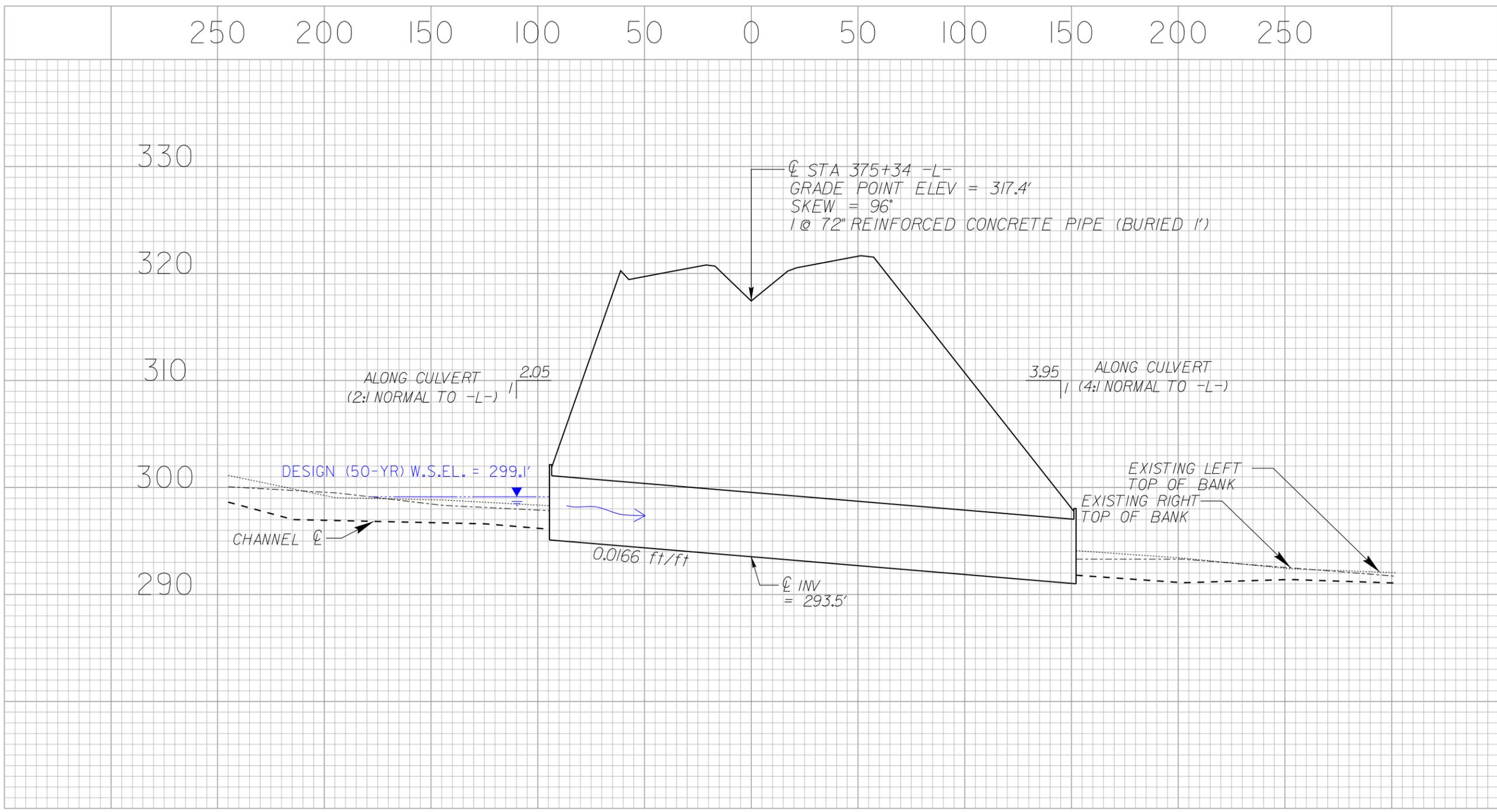
PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 45 & 46

PERMIT DRAWING SHEET 64 OF 84

REVISIONS



5/21/2019

5/14/99

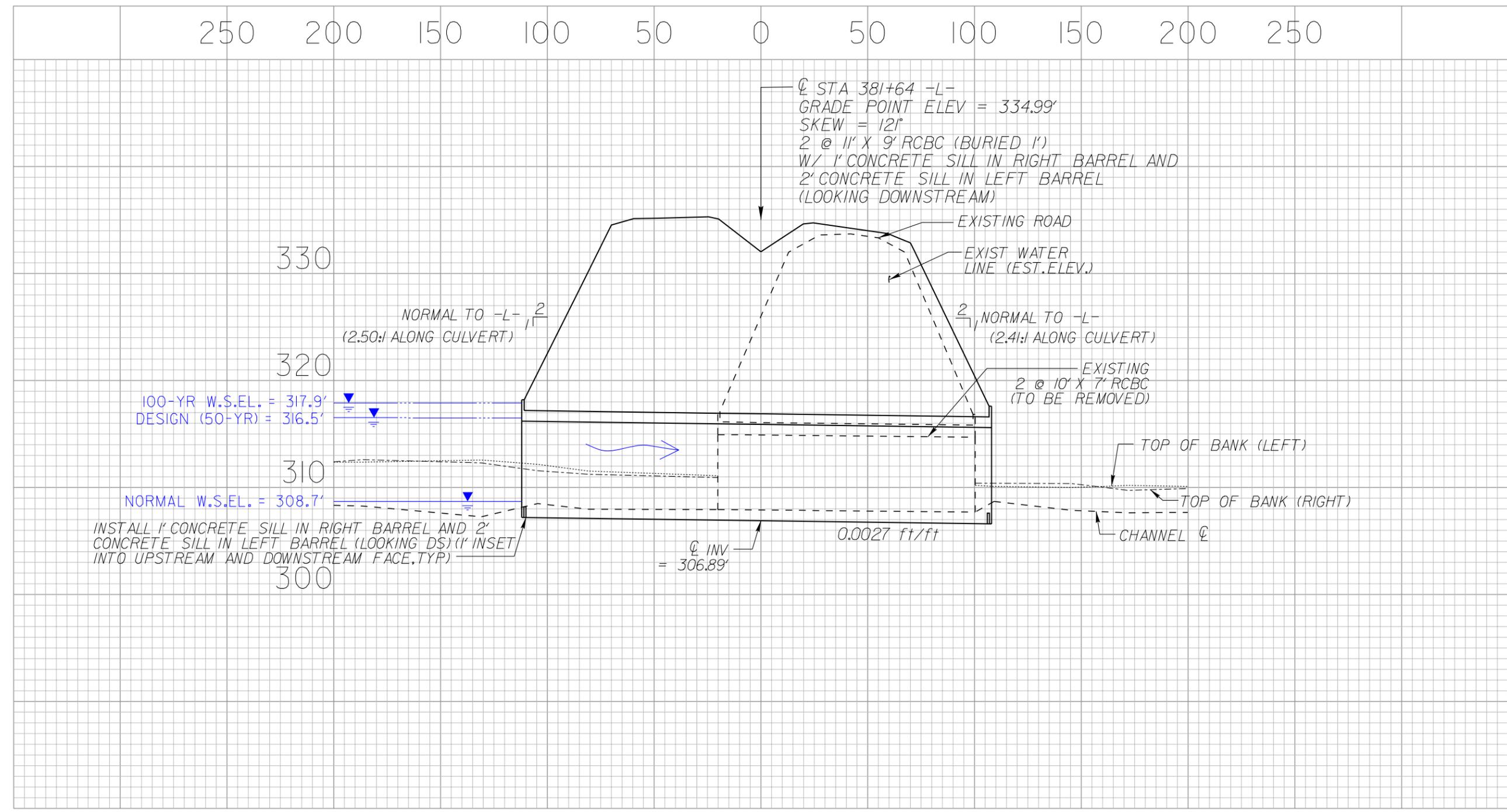
PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SITE 47 & 48

PERMIT DRAWING
SHEET 65 OF 84

REVISIONS



5/21/2019

8/23/99

PERMIT DRAWING
SHEET 66 OF 84

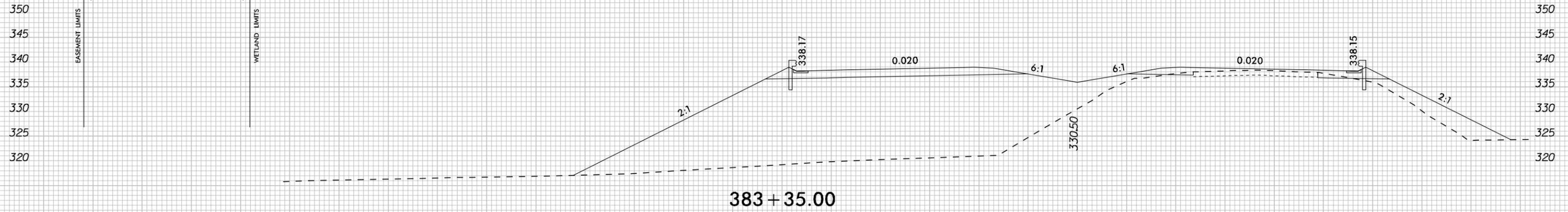


PROJ. REFERENCE NO.
R-2530B

SHEET NO.

SITE 49

MECHANIZED CLEARING



-L- NC 24-27-73

5/21/2019

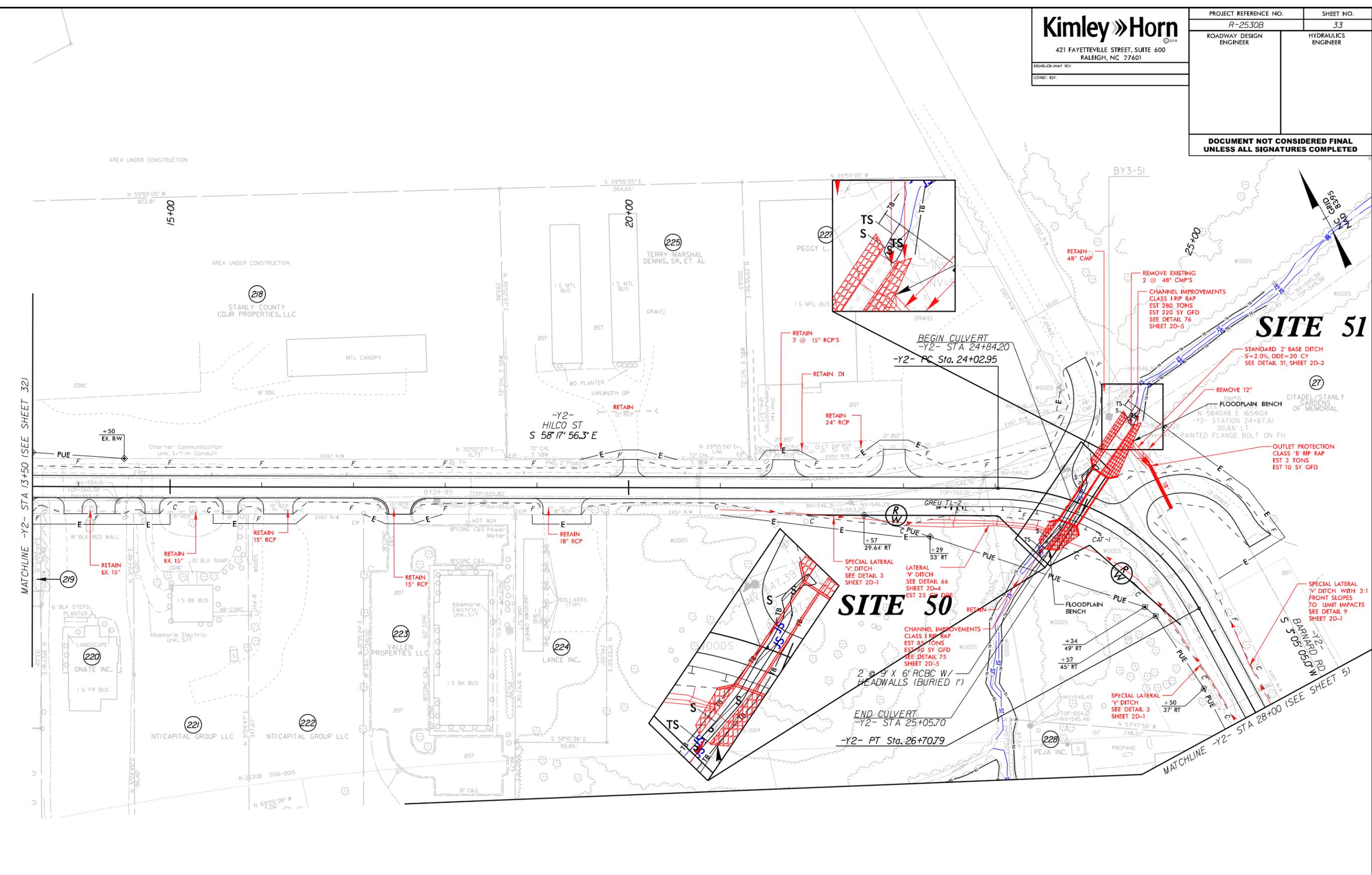
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

PROJECT REFERENCE NO. <i>R-2530B</i>	SHEET NO. 33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SITE 51

SITE 50



REVISIONS

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING
SHEET 67 OF 84



SEE SHEET 52 FOR -Y2- PROFILE

5/14/99

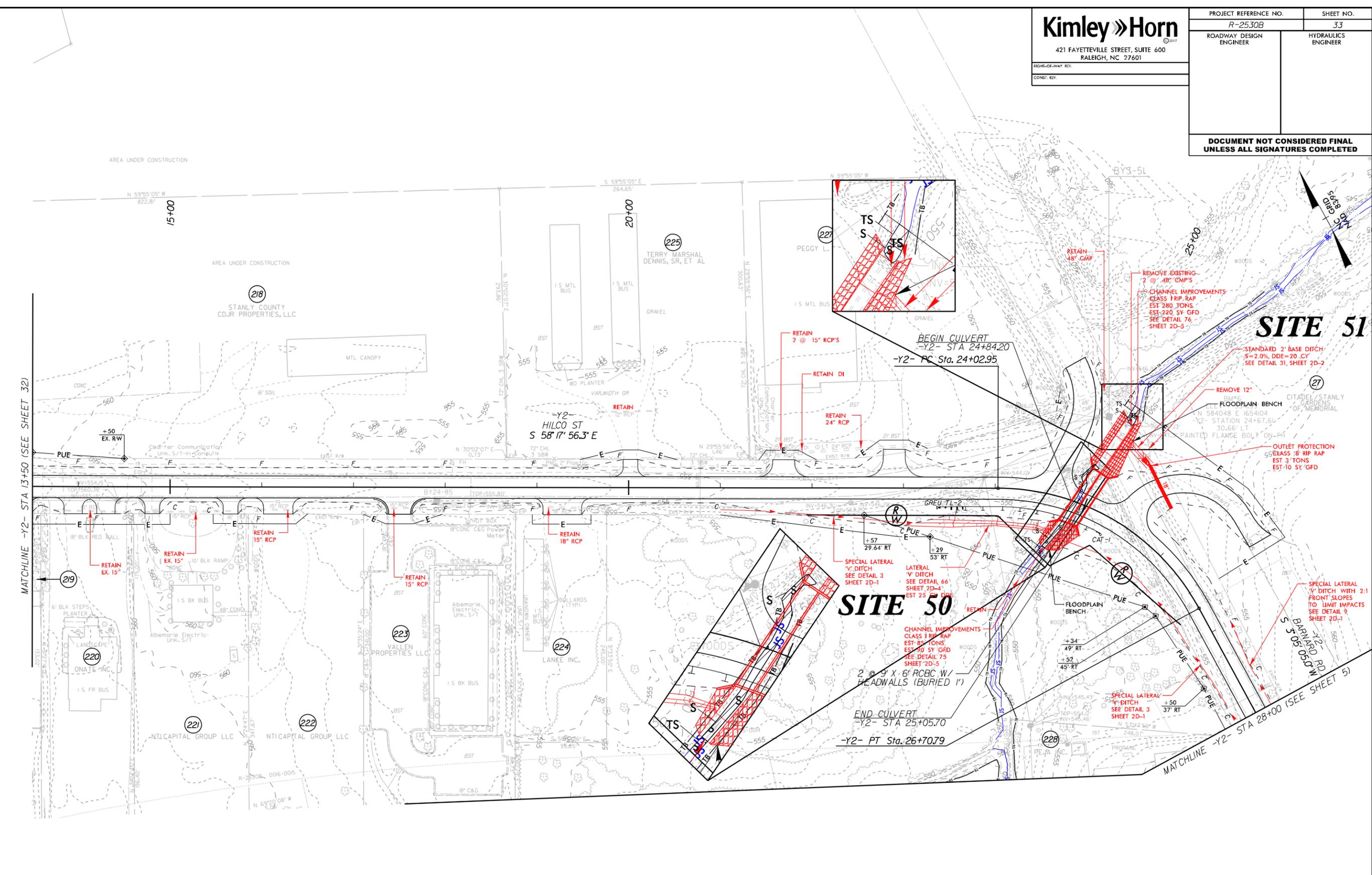
5/21/2019

PROJECT REFERENCE NO. R-2530B	SHEET NO. 33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SITE 51

SITE 50



REVISIONS

LEGEND

	DENOTES FILL IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
	DENOTES EXCAVATION IN WETLAND		

PERMIT DRAWING SHEET 68 OF 84



SEE SHEET 52 FOR -Y2- PROFILE

5/14/99

5/21/2019

5/14/99

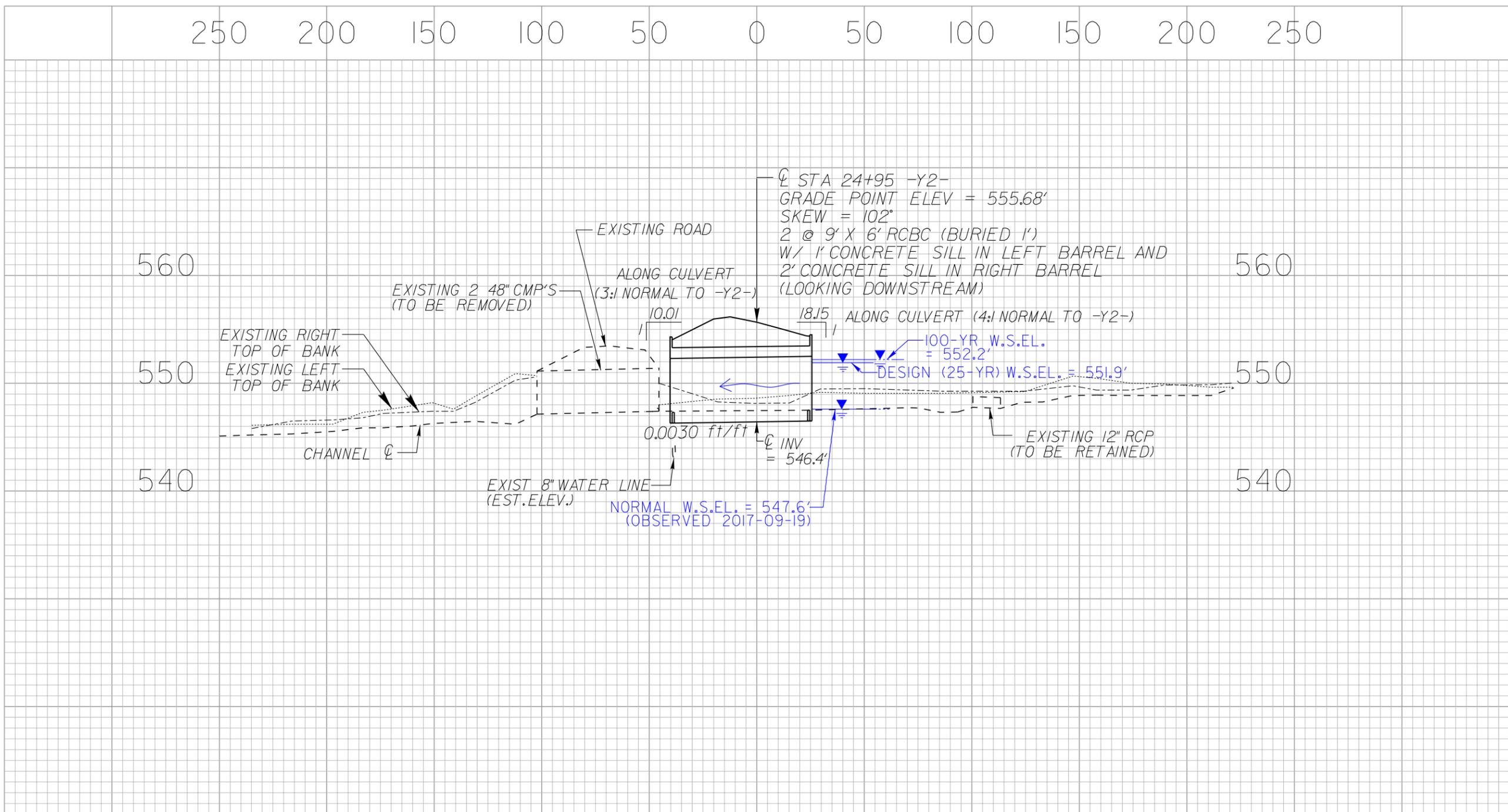
PROJECT REFERENCE NO. R-2530B	SHEET NO. -----
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

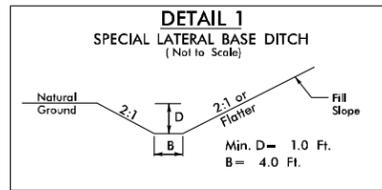
SITE 50 & 51

PERMIT DRAWING
SHEET 69 OF 84

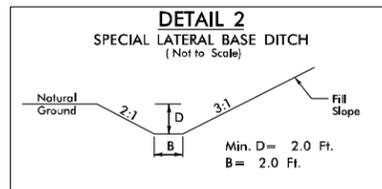
REVISIONS



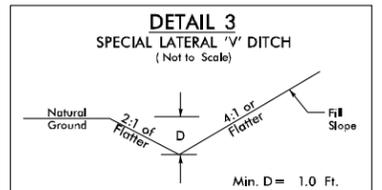
5/21/2019



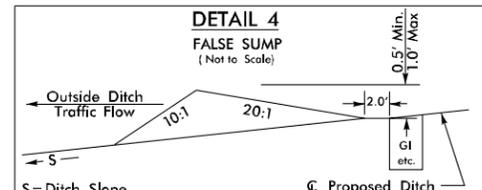
FROM STA. 89+00 TO STA. 89+28 -L- (RT)



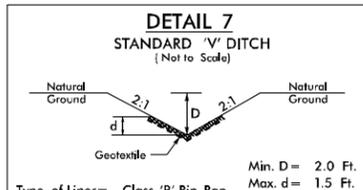
FROM STA. 119+10 TO STA. 120+57 -L- (RT)



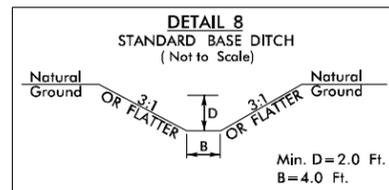
FROM STA. 21+00 TO STA. 23+50 -Y2- (RT)
 FROM STA. 24+90 TO STA. 29+00 -Y2- (RT)
 FROM STA. 14+00 TO STA. 14+50 -Y2A- (LT)
 FROM STA. 43+79 TO STA. 47+00 -L- (LT)
 FROM STA. 61+56 TO STA. 61+75 -L- (LT)
 FROM STA. 61+75 TO STA. 63+00 -L- (LT)
 FROM STA. 72+96 TO STA. 74+00 -L- (LT)
 FROM STA. 74+60 TO STA. 75+00 -L- (LT)
 FROM STA. 75+00 TO STA. 76+00 -L- (LT)
 FROM STA. 79+50 TO STA. 81+16 -L- (LT)
 FROM STA. 81+60 TO STA. 83+00 -L- (LT)
 FROM STA. 84+15 TO STA. 85+00 -L- (LT)
 FROM STA. 85+50 TO STA. 86+75 -L- (LT)
 FROM STA. 87+25 TO STA. 89+90 -L- (LT)
 FROM STA. 89+90 TO STA. 90+47 -L- (LT)
 FROM STA. 17+10 TO STA. 18+00 -Y7- (RT)
 FROM STA. 16+00 TO STA. 18+00 -Y7- (LT)
 FROM STA. 91+33 TO STA. 93+00 -L- (LT)
 FROM STA. 96+27 TO STA. 97+50 -L- (RT)
 FROM STA. 101+50 TO STA. 102+40 -L- (RT)
 FROM STA. 102+40 TO STA. 104+00 -L- (RT)
 FROM STA. 103+20 TO STA. 104+50 -L- (LT)
 FROM STA. 125+50 TO STA. 126+50 -L- (LT)
 FROM STA. 131+00 TO STA. 134+00 -L- (RT)
 FROM STA. 134+20 TO STA. 136+00 -L- (RT)
 FROM STA. 148+00 TO STA. 149+62 -L- (RT)
 FROM STA. 149+62 TO STA. 153+00 -L- (RT)
 FROM STA. 18+80 TO STA. 19+50 -Y8- (RT)
 FROM STA. 13+50 TO STA. 15+50 -Y8- (RT)
 FROM STA. 25+00 TO STA. 26+50 -Y8- (RT)
 FROM STA. 153+00 TO STA. 155+50 -L- (LT)
 FROM STA. 154+00 TO STA. 157+10 -L- (RT)
 FROM STA. 18+20 TO STA. 18+30 -Y9- (RT)
 FROM STA. 163+50 TO STA. 169+00 -L- (RT)
 FROM STA. 171+00 TO STA. 173+00 -L- (LT)
 FROM STA. 176+00 TO STA. 177+90 -L- (LT)
 FROM STA. 178+50 TO STA. 180+50 -L- (LT)
 FROM STA. 181+00 TO STA. 187+75 -L- (LT)
 FROM STA. 182+15 TO STA. 184+00 -L- (RT)
 FROM STA. 221+50 TO STA. 222+50 -L- (LT)
 FROM STA. 227+50 TO STA. 230+00 -L- (LT)
 FROM STA. 243+00 TO STA. 246+00 -L- (LT)
 FROM STA. 250+70 TO STA. 251+50 -L- (LT)
 FROM STA. 251+50 TO STA. 253+00 -L- (LT)
 FROM STA. 251+50 TO STA. 253+00 -L- (RT)
 FROM STA. 253+00 TO STA. 254+30 -L- (LT)
 FROM STA. 11+00 TO STA. 12+50 -Y12- (RT)
 FROM STA. 13+00 TO STA. 15+00 -Y12- (RT)
 FROM STA. 14+90 TO STA. 16+00 -Y12- (LT)
 FROM STA. 276+65 TO STA. 277+50 -L- (LT)
 FROM STA. 15+50 TO STA. 16+72 -Y13- (RT)
 FROM STA. 11+50 TO STA. 13+00 -Y14- (LT)
 FROM STA. 13+50 TO STA. 14+00 -Y14- (LT)
 FROM STA. 11+50 TO STA. 13+00 -Y15- (RT)
 FROM STA. 15+00 TO STA. 16+95 -Y15- (RT)
 FROM STA. 331+50 TO STA. 332+50 -L- (RT)
 FROM STA. 364+50 TO STA. 369+50 -L- (RT)
 FROM STA. 379+00 TO STA. 381+00 -L- (LT)



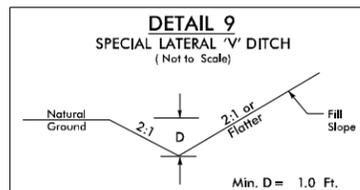
STA. 116+85 -L- (LT) STA. 199+85 -L- (LT) STA. 326+64 -L- (RT)
 STA. 118+85 -L- (LT) STA. 206+15 -L- (RT) STA. 329+63 -L- (RT)
 STA. 121+85 -L- (LT) STA. 208+15 -L- (RT) STA. 335+13 -L- (RT)
 STA. 130+15 -L- (RT) STA. 209+65 -L- (RT) STA. 364+85 -L- (LT)
 STA. 134+15 -L- (RT) STA. 251+15 -L- (RT) STA. 387+85 -L- (LT)
 STA. 136+15 -L- (RT) STA. 260+84 -L- (LT) STA. 393+70 -L- (LT)
 STA. 158+35 -L- (LT) STA. 269+15 -L- (RT)
 STA. 190+55 -L- (RT)
 STA. 191+65 -L- (RT)



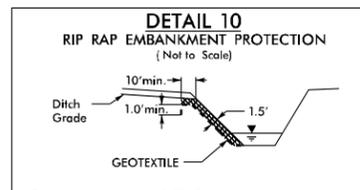
STA. 63+40 -L- (LT)



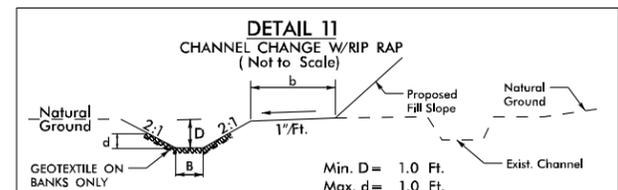
FROM STA. 53+86 TO STA. 54+50 -L- (LT)
 FROM STA. 253+00 TO STA. 253+53 -L- (RT)



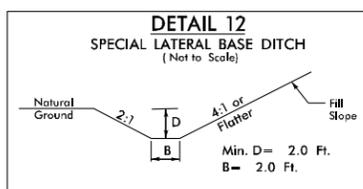
FROM STA. 14+90 TO STA. 16+00 -Y1- (RT)
 FROM STA. 27+00 TO STA. 31+00 -Y2- (LT)
 FROM STA. 48+50 TO STA. 51+50 -L- (LT)
 FROM STA. 65+65 TO STA. 67+00 -L- (LT)
 FROM STA. 67+00 TO STA. 68+50 -L- (LT)
 FROM STA. 10+85 TO STA. 12+25 -Y6- (LT)



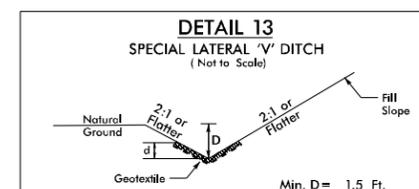
STA. 53+35 -L- (LT)
 STA. 53+86 -L- (LT)
 STA. 232+50 -L- (RT)
 STA. 233+50 -L- (RT)
 STA. 375+40 -L- (LT)
 STA. 375+45 -L- (LT)
 STA. 380+60 -L- (RT)



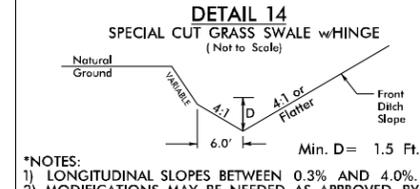
FROM STA. 52+72 TO STA. 53+25 -L- (RT)



FROM STA. 142+00 TO STA. 143+25 -L- (RT)

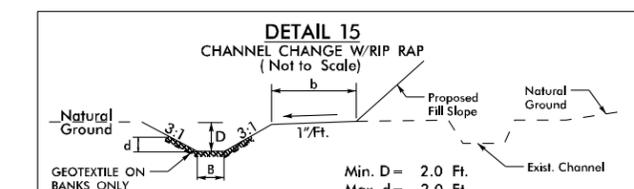


FROM STA. 51+50 TO STA. 53+10 -L- (LT)

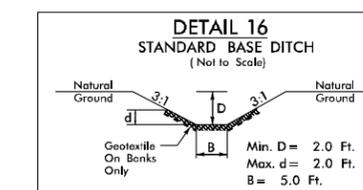


*NOTES:
 1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
 2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

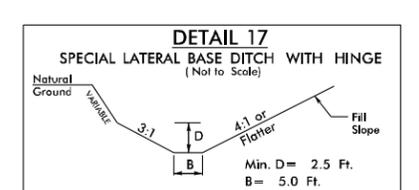
FROM STA. 144+00 TO STA. 145+50 -L- (RT)
 FROM STA. 177+15 TO STA. 178+50 -L- (RT)
 FROM STA. 196+00 TO STA. 197+25 -L- (RT)
 FROM STA. 258+00 TO STA. 259+00 -L- (LT)
 FROM STA. 351+50 TO STA. 353+00 -L- (LT)
 FROM STA. 388+50 TO STA. 393+00 -L- (LT)



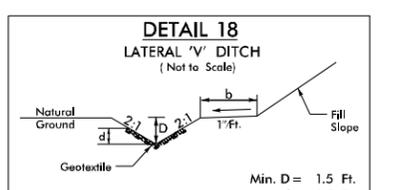
FROM STA. 38+90 TO STA. 40+35 -L- (RT)



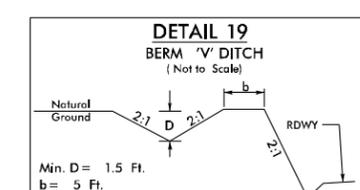
STA. 40+35 -L- (RT)



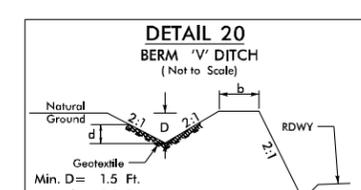
FROM STA. 293+00 TO STA. 297+50 -L- (RT)



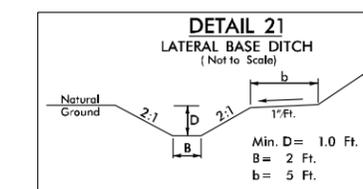
FROM STA. 100+95 TO STA. 102+00 -L- (LT)
 FROM STA. 363+32 TO STA. 364+50 -L- (RT)
 FROM STA. 375+45 TO STA. 377+50 -L- (LT)



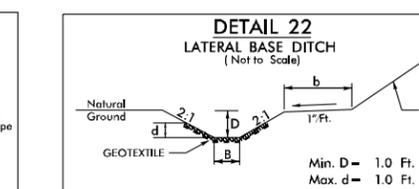
FROM STA. 119+00 TO STA. 121+80 -L- (LT)
 FROM STA. 124+00 TO STA. 124+68 -L- (LT)
 FROM STA. 127+50 TO STA. 129+00 -L- (RT)
 FROM STA. 129+00 TO STA. 130+00 -L- (RT)
 FROM STA. 186+50 TO STA. 188+89 -L- (RT)
 FROM STA. 189+21 TO STA. 190+40 -L- (RT)
 FROM STA. 190+40 TO STA. 192+35 -L- (RT)
 FROM STA. 203+00 TO STA. 203+50 -L- (RT)
 FROM STA. 203+50 TO STA. 205+00 -L- (RT)
 FROM STA. 208+00 TO STA. 208+50 -L- (RT)
 FROM STA. 208+50 TO STA. 209+50 -L- (LT)
 FROM STA. 268+50 TO STA. 269+85 -L- (LT)
 FROM STA. 272+00 TO STA. 273+00 -L- (LT)
 FROM STA. 296+20 TO STA. 297+50 -L- (LT)
 FROM STA. 297+50 TO STA. 300+00 -L- (LT)
 FROM STA. 300+00 TO STA. 301+00 -L- (LT)
 FROM STA. 301+00 TO STA. 302+00 -L- (LT)



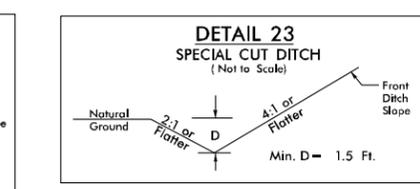
FROM STA. 122+00 TO STA. 124+00 -L- (LT)
 FROM STA. 136+00 TO STA. 138+00 -L- (LT)
 FROM STA. 138+00 TO STA. 141+50 -L- (LT)
 FROM STA. 205+00 TO STA. 208+00 -L- (RT)
 FROM STA. 209+50 TO STA. 212+00 -L- (LT)
 FROM STA. 270+15 TO STA. 272+50 -L- (LT)
 FROM STA. 273+00 TO STA. 274+50 -L- (LT)
 FROM STA. 274+50 TO STA. 275+25 -L- (LT)
 FROM STA. 302+00 TO STA. 304+00 -L- (RT)
 FROM STA. 311+00 TO STA. 313+80 -L- (RT)
 FROM STA. 314+00 TO STA. 317+80 -L- (RT)
 FROM STA. 318+00 TO STA. 320+50 -L- (RT)



FROM STA. 53+25 TO STA. 53+80 -L- (RT)
 FROM STA. 150+00 TO STA. 152+00 -L- (LT)
 FROM STA. 198+30 TO STA. 199+00 -L- (RT)



FROM STA. 148+70 TO STA. 150+00 -L- (LT)
 FROM STA. 199+00 TO STA. 200+50 -L- (RT)
 FROM STA. 362+00 TO STA. 363+05 -L- (LT)
 FROM STA. 381+00 TO STA. 382+20 -L- (LT)

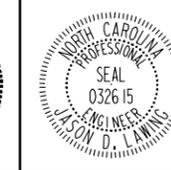
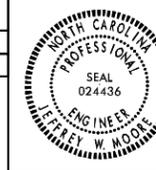


FROM STA. 12+00 TO STA. 14+05 -Y2A- (LT)
 FROM STA. 57+90 TO STA. 60+87.38 -L- (LT)
 FROM STA. 14+00 TO STA. 14+31.28 -Y4- (RT)
 FROM STA. 77+00 TO STA. 79+50 -L- (LT)
 FROM STA. 19+50 TO STA. 20+00 -Y8- (RT)
 FROM STA. 17+50 TO STA. 18+00 -Y9- (LT)
 FROM STA. 173+50 TO STA. 174+50 -L- (RT)
 FROM STA. 247+00 TO STA. 249+00 -L- (LT)
 FROM STA. 277+50 TO STA. 278+50 -L- (LT)
 FROM STA. 13+72 TO STA. 14+50 -Y13- (LT)

PROJECT REFERENCE NO. R-2530B	SHEET NO. 2D-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

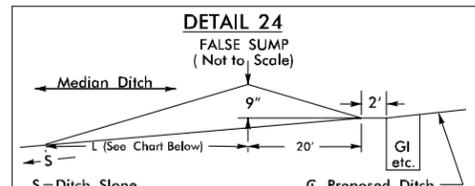
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 70 OF 84



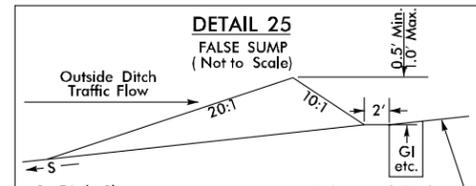
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 71 OF 84



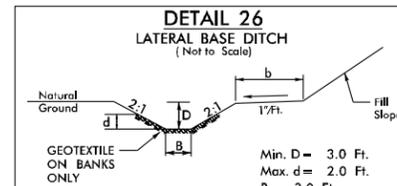
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 101+59 -L-	STA. 215+65 -L-	STA. 302+14 -L-
STA. 107+36 -L-	STA. 221+14 -L-	STA. 308+86 -L-
STA. 113+17 -L-	STA. 232+14 -L-	STA. 310+36 -L-
STA. 122+85 -L-	STA. 243+18 -L-	STA. 313+86 -L-
STA. 130+15 -L-	STA. 251+20 -L-	STA. 317+86 -L-
STA. 134+15 -L-	STA. 253+20 -L-	STA. 325+13 -L-
STA. 136+15 -L-	STA. 260+30 -L-	STA. 326+64 -L-
STA. 155+85 -L-	STA. 269+15 -L-	STA. 335+13 -L-
STA. 156+85 -L-	STA. 272+15 -L-	STA. 351+65 -L-
STA. 159+85 -L-	STA. 276+15 -L-	STA. 357+15 -L-
STA. 163+35 -L-	STA. 278+70 -L-	STA. 359+13 -L-
STA. 166+85 -L-	STA. 281+40 -L-	STA. 362+65 -L-
STA. 170+85 -L-	STA. 287+14 -L-	STA. 363+85 -L-
STA. 178+65 -L-	STA. 289+13 -L-	STA. 371+50 -L-
STA. 191+65 -L-	STA. 293+14 -L-	STA. 374+85 -L-
STA. 212+15 -L-	STA. 297+65 -L-	STA. 380+85 -L-
		STA. 382+85 -L-

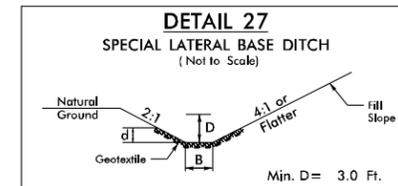


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

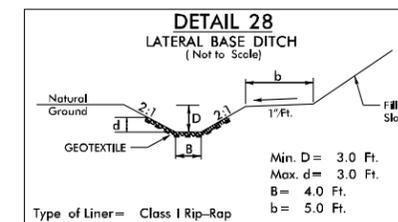
STA. 93+15 -L-	STA. 274+65 -L-	STA. 276+15 -L-
STA. 122+84 -L-	STA. 276+15 -L-	STA. 291+64 -L-
STA. 139+15 -L-	STA. 291+64 -L-	STA. 297+63 -L-
STA. 141+65 -L-	STA. 297+63 -L-	STA. 301+14 -L-
STA. 184+40 -L-	STA. 301+14 -L-	STA. 304+64 -L-
STA. 205+15 -L-	STA. 304+64 -L-	STA. 310+37 -L-
STA. 208+65 -L-	STA. 310+37 -L-	STA. 313+87 -L-
STA. 212+15 -L-	STA. 313+87 -L-	STA. 317+86 -L-
STA. 215+65 -L-	STA. 317+86 -L-	STA. 326+64 -L-
STA. 221+14 -L-	STA. 326+64 -L-	STA. 329+14 -L-
STA. 230+15 -L-	STA. 329+14 -L-	STA. 334+10 -L-
STA. 272+15 -L-	STA. 334+10 -L-	STA. 393+50 -L-



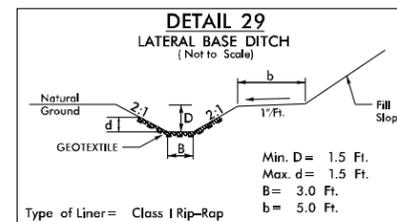
Type of Liner = Class I Rip-Rap
FROM STA. 129+00 TO STA. 131+60 -L- (LT)
FROM STA. 134+50 TO STA. 135+50 -L- (LT)
FROM STA. 210+00 TO STA. 212+00 -L- (RT)



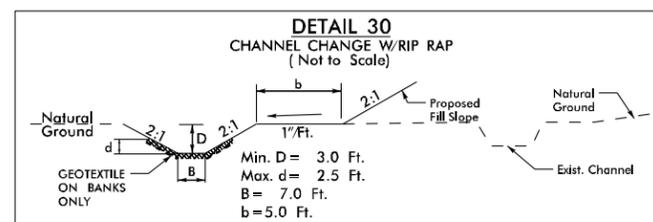
Type of Liner = Class I Rip-Rap
FROM STA. 145+50 TO STA. 147+50 -L- (RT)
FROM STA. 384+00 TO STA. 384+50 -L- (RT)



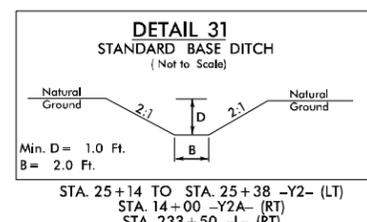
Type of Liner = Class I Rip-Rap
FROM STA. 89+71 TO STA. 93+50 -L- (RT)
FROM STA. 143+75 TO STA. 144+00 -L- (RT)



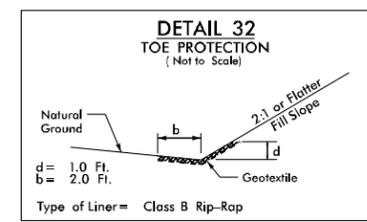
Type of Liner = Class I Rip-Rap
FROM STA. 115+35 TO STA. 116+50 -L- (LT)
FROM STA. 304+85 TO STA. 307+00 -L- (RT)
FROM STA. 381+05 TO STA. 381+85 -L- (RT)



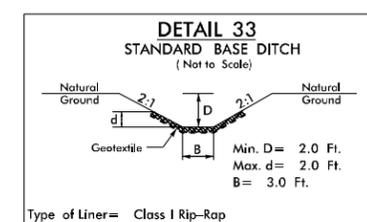
Type of Liner = Class I Rip Rap
FROM STA. 235+27 TO STA. 238+00 -L- (RT)



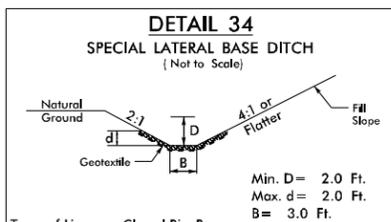
FROM STA. 25+14 TO STA. 25+38 -Y2- (LT)
STA. 14+00 -Y2A- (RT)
STA. 233+50 -L- (RT)



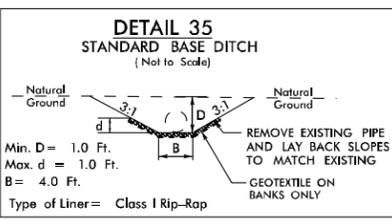
Type of Liner = Class B Rip-Rap
FROM STA. 157+50 TO STA. 158+50 -L- (LT)
FROM STA. 232+50 TO STA. 233+50 -L- (RT)
FROM STA. 259+00 TO STA. 259+55 -L- (LT)
FROM STA. 259+65 TO STA. 260+00 -L- (LT)
FROM STA. 359+00 TO STA. 359+62 -L- (RT)



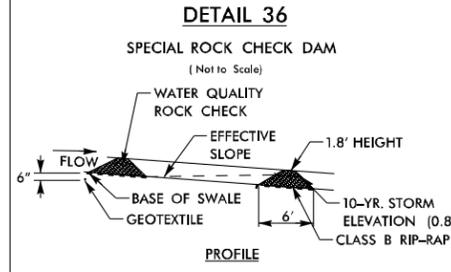
Type of Liner = Class I Rip-Rap
FROM STA. 216+00 TO STA. 216+50 -L- (LT)
FROM STA. 232+00 TO STA. 232+50 -L- (RT)



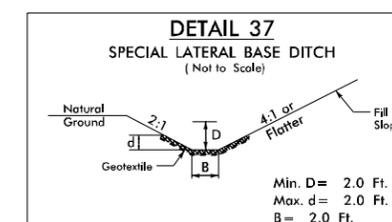
Type of Liner = Class I Rip-Rap
FROM STA. 228+50 TO STA. 232+00 -L- (RT)
FROM STA. 307+00 TO STA. 310+00 -L- (RT)



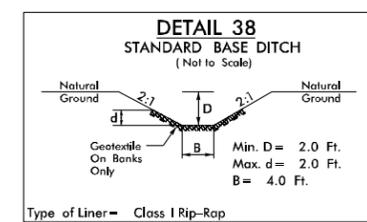
Type of Liner = Class I Rip-Rap
FROM STA. 147+98 TO STA. 148+21 -L- (LT)



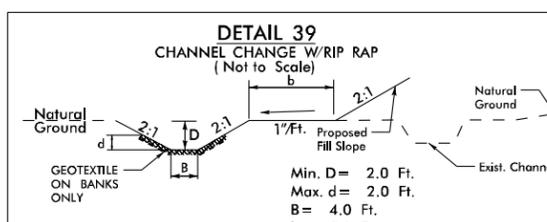
FROM STA. 276+50 TO STA. 277+75 -L- (RT)
FROM STA. 290+50 TO STA. 297+50 -L- (RT)
FROM STA. 307+00 TO STA. 308+50 -L- (LT)
FROM STA. 332+00 TO STA. 334+00 -L- (LT)



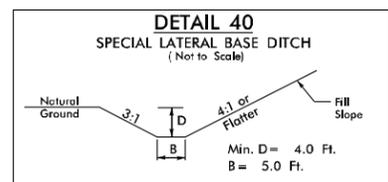
Type of Liner = Class B Rip-Rap
FROM STA. 12+00 TO STA. 14+50 -Y16- (RT)



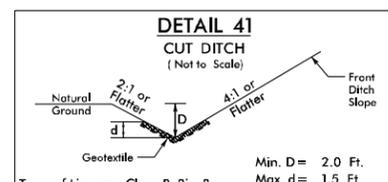
Type of Liner = Class I Rip-Rap
FROM STA. 144+00 TO STA. 144+48 -L- (LT)
FROM STA. 148+58 TO STA. 148+70 -L- (LT)
FROM STA. 149+62 -L- (RT)
FROM STA. 157+37 -L- (LT)
FROM STA. 198+80 -L- (LT)
FROM STA. 216+44 TO STA. 217+11 -L- (LT)
FROM STA. 219+00 TO STA. 219+21 -L- (RT)
FROM STA. 259+54 -L- (RT)
FROM STA. 278+23 TO STA. 278+33 -L- (RT)
FROM STA. 298+00 TO STA. 298+16 -L- (RT)
FROM STA. 359+62 TO STA. 359+65 -L- (RT)



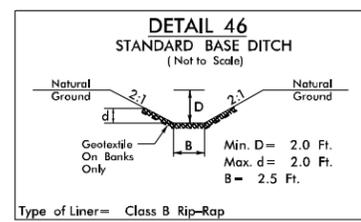
Type of Liner = Class I Rip Rap
FROM STA. 292+50 TO STA. 295+27 -L- (LT)



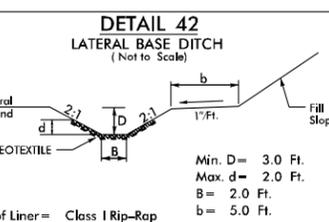
FROM STA. 290+50 TO STA. 293+00 -L- (RT)



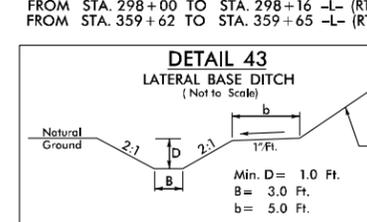
Type of Liner = Class B Rip-Rap
FROM STA. 385+00 TO STA. 385+50 -L- (RT)



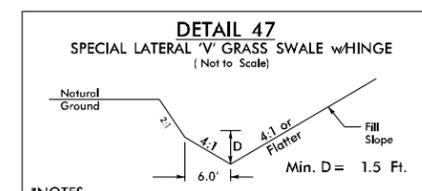
Type of Liner = Class B Rip-Rap
STA. 66+95 -L- (RT)
FROM STA. 128+81 TO STA. 129+00 -L- (LT)
FROM STA. 192+13 TO STA. 192+25 -L- (LT)
STA. 238+66 -L- (RT)
FROM STA. 276+27 TO STA. 276+60 -L- (LT)
FROM STA. 371+67 TO STA. 371+75 -L- (LT)



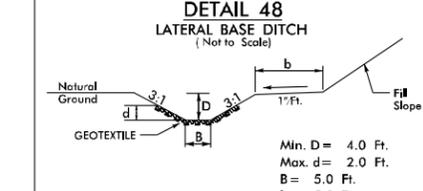
Type of Liner = Class I Rip-Rap
FROM STA. 382+60 TO STA. 384+00 -L- (RT)



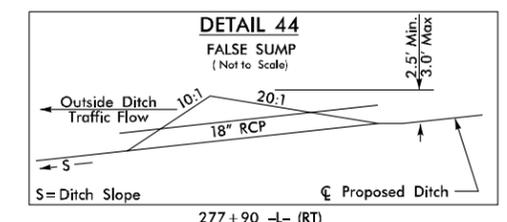
FROM STA. 308+50 TO STA. 309+50 -L- (LT)



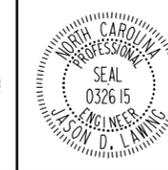
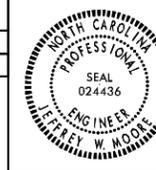
*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.
FROM STA. 349+50 TO STA. 351+50 -L- (LT)



Type of Liner = Class I Rip-Rap
FROM STA. 276+50 TO STA. 277+75 -L- (RT)
FROM STA. 306+04 TO STA. 306+50 -L- (LT)
FROM STA. 307+00 TO STA. 308+50 -L- (LT)
FROM STA. 375+00 TO STA. 375+40 -L- (LT)

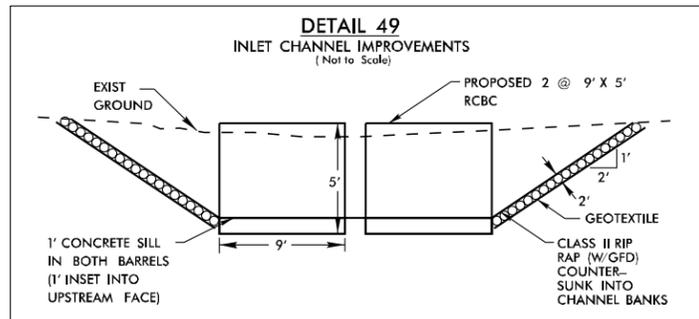


FROM STA. 277+90 -L- (RT)

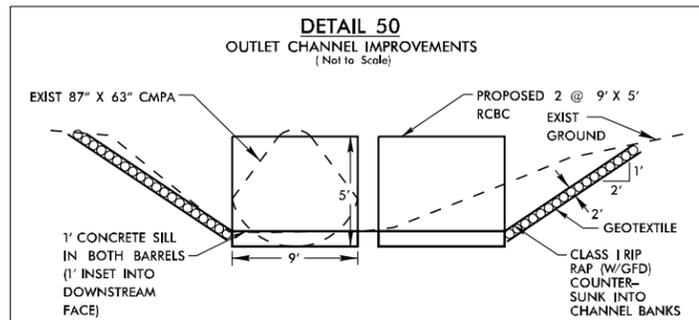


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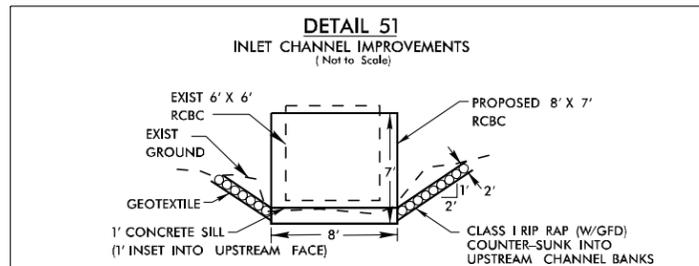
PERMIT DRAWING SHEET 72 OF 84



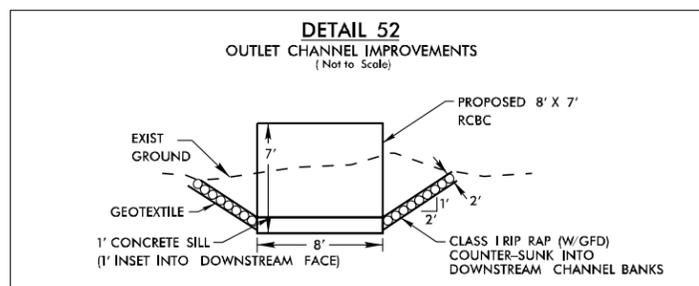
STA. 38+90 -L- (RT)



STA. 38+76 -L- (LT)



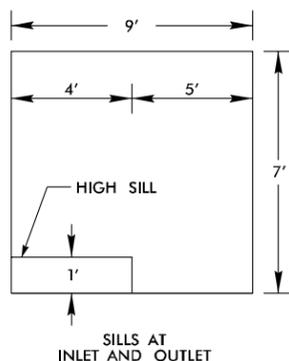
STA. 52+78 -L- (RT)



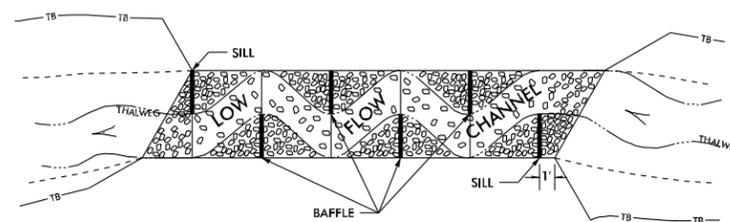
STA. 53+25 -L- (LT)

***NOTES:**

- 1) CLASS B RIP RAP BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. EXISTING CHANNEL CONSISTS OF ROCK THEREFORE EXCAVATED NATIVE MATERIAL IS NOT ANTICIPATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION.
- 2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 3) NO LOW FLOW SILLS/BAFFLES WILL BE REQUIRED AT UPSTREAM AND DOWNSTREAM CULVERT FACE AS CULVERT WILL NOT BE BURIED DUE TO PRESENCE OF ROCK IN STREAM BED.
- 4) SILLS/BAFFLES ARE TO BE 1' HIGH.
- 5) NUMBER OF SILLS/BAFFLES DETERMINED BY THE ENGINEER.
- 6) CULVERT SHOULD BE BACKFILLED WITH CLASS B RIP RAP TO SILL/BAFFLE HEIGHT.



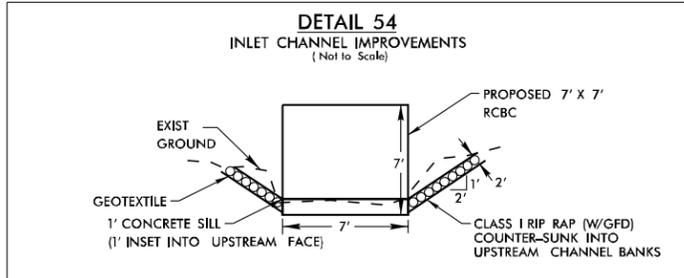
DETAIL 53
(NOT TO SCALE)
SINGLE BARREL CULVERT SKEWED LOW FLOW CHANNEL AND SILLS



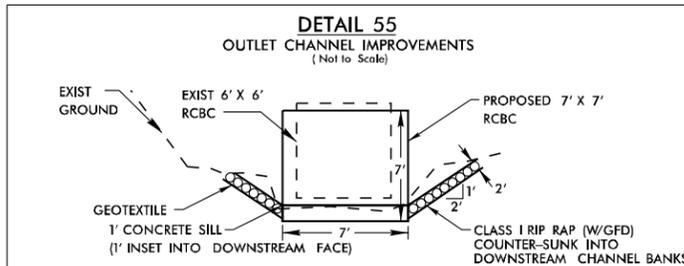
NUMBER OF BAFFLES - 8 ON 25 FT CENTERS FROM UPSTREAM SILL

PLAN VIEW

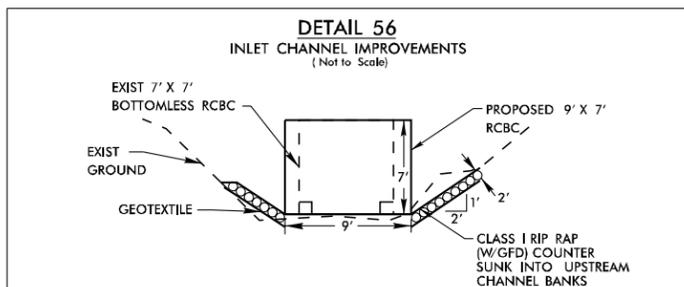
STA. 305+27 -L-



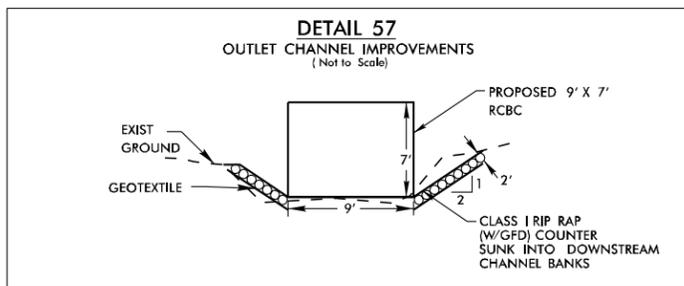
STA. 93+60 -L- (RT)



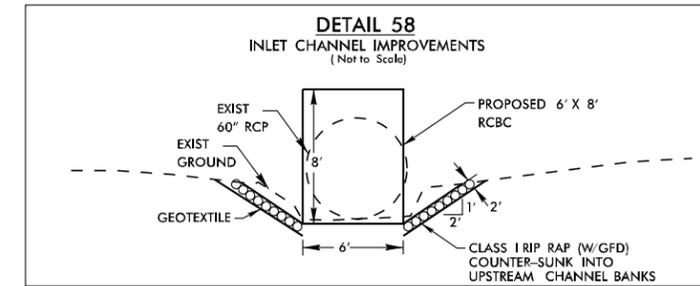
STA. 93+56 -L- (LT)



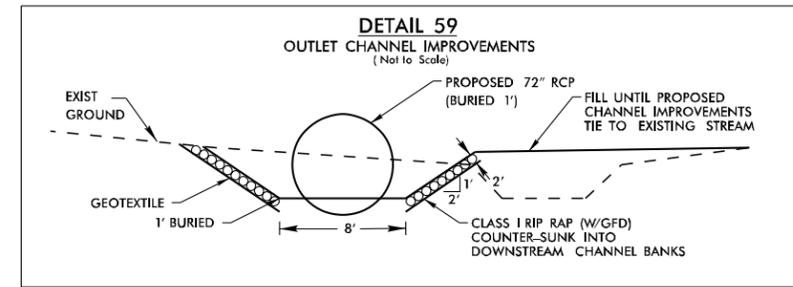
STA. 304+69 -L- (RT)



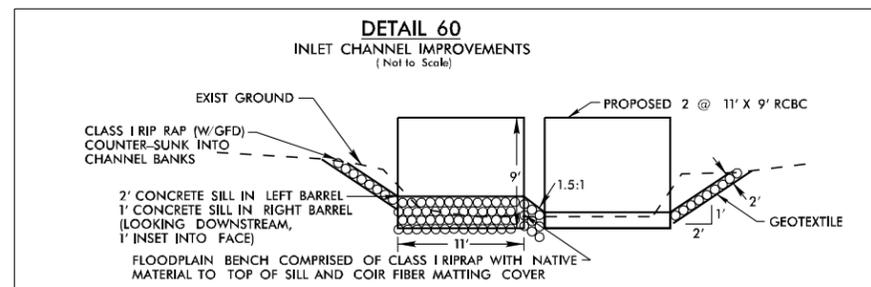
STA. 305+92 -L- (LT)



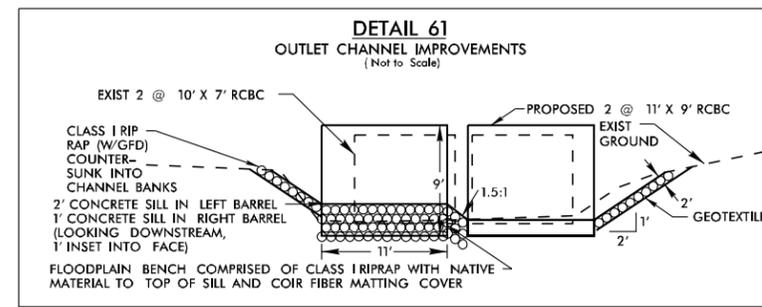
STA. 363+08 -L- (LT)



STA. 375+19 -L- (RT)



STA. 382+22 -L- (LT)



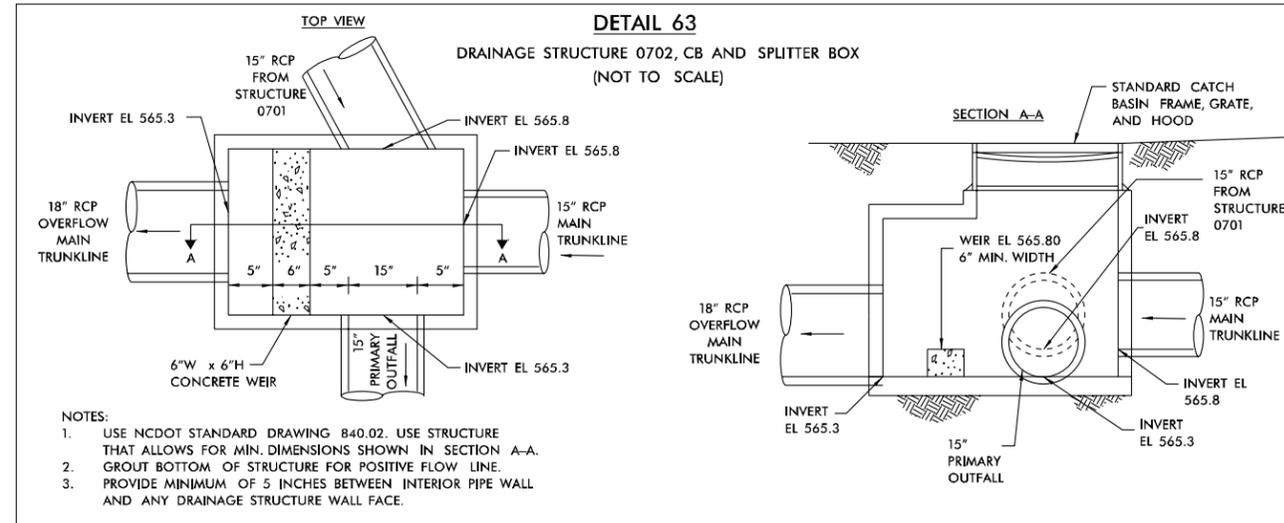
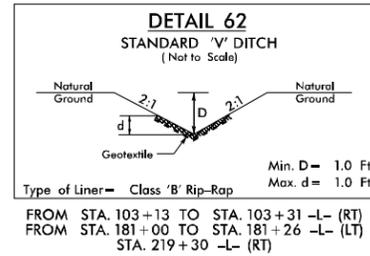
STA. 381+08 -L- (RT)

5/14/99

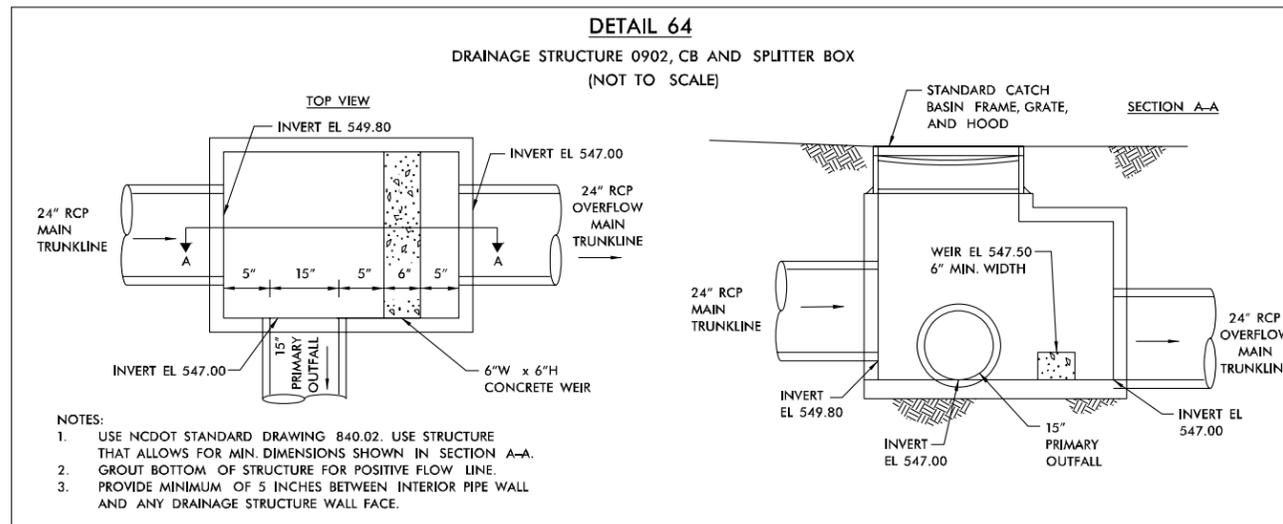


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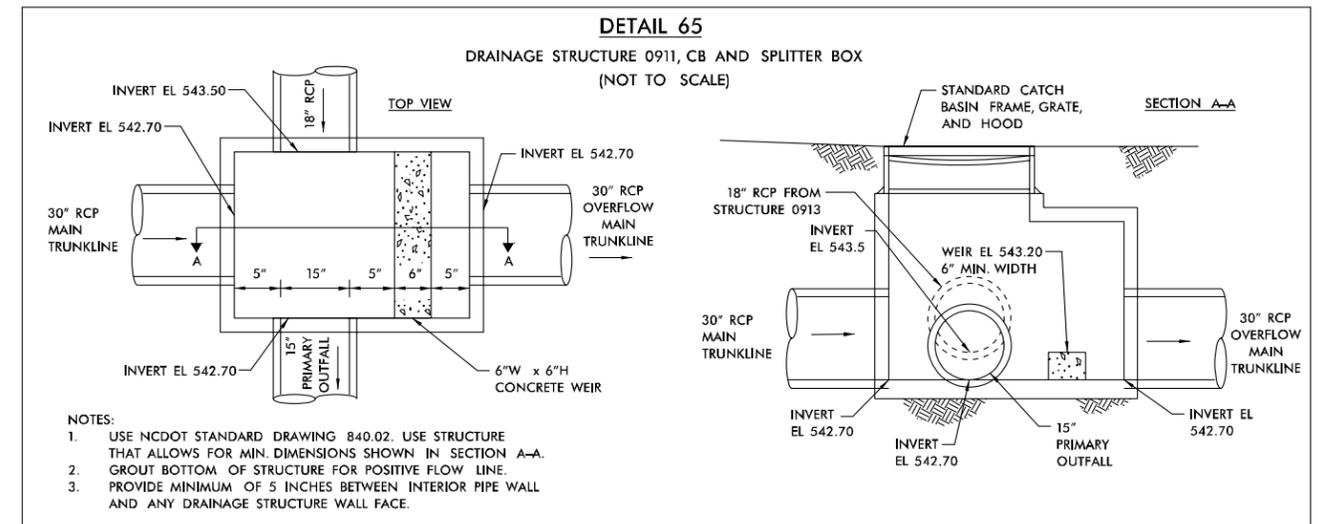
PERMIT DRAWING SHEET 73 OF 84



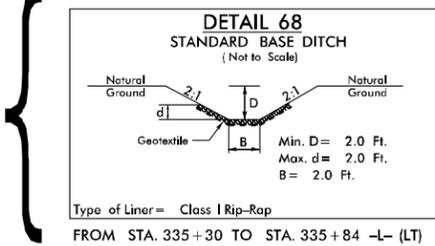
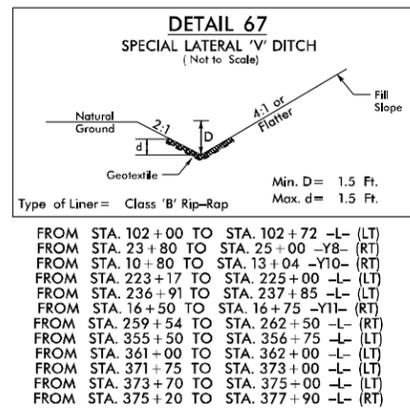
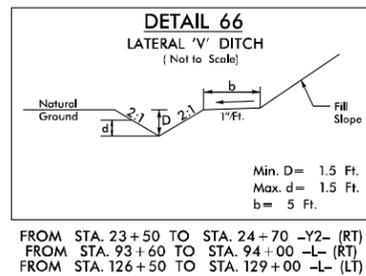
STA. 59+84 -L- (RT)



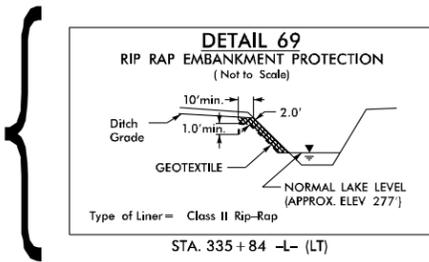
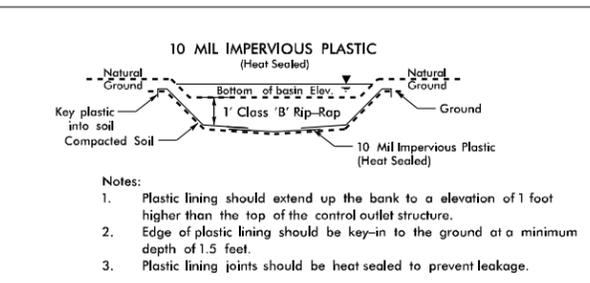
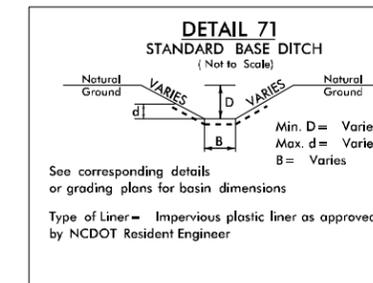
STA. 88+15 -L- (RT)



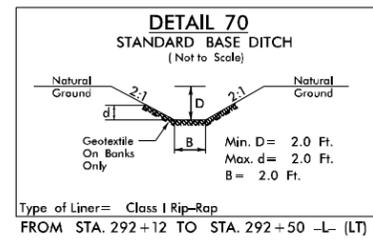
STA. 91+96 -L- (RT)



BY OTHERS



BY OTHERS



5/21/2019

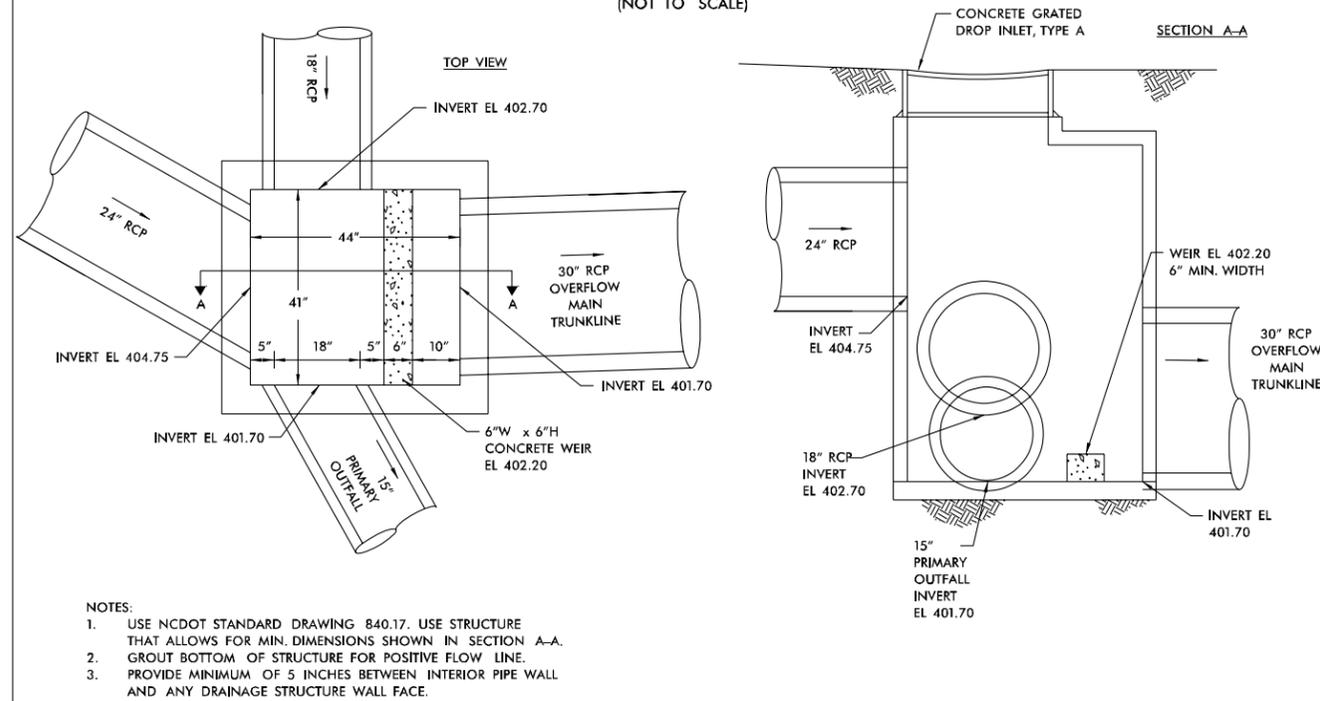
5/14/99



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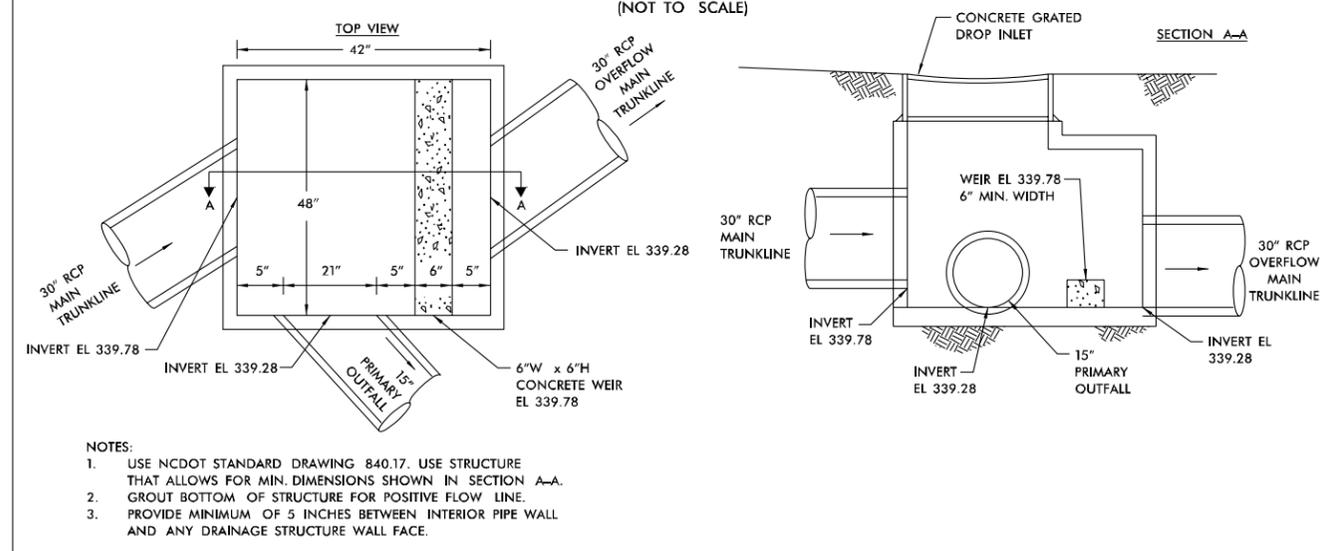
PERMIT DRAWING
SHEET 74 OF 84

DETAIL 73 DRAINAGE STRUCTURE 2202, 2GI-A AND SPLITTER BOX (NOT TO SCALE)



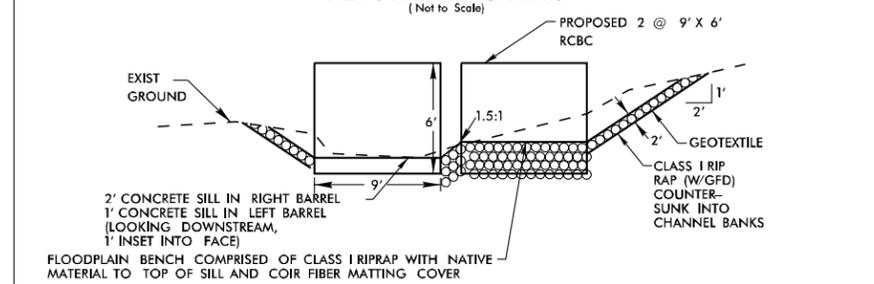
STA. 276+00 -L- (RT)

DETAIL 74 DRAINAGE STRUCTURE 2403, OVERSIZED TB2GI AND SPLITTER BOX (NOT TO SCALE)



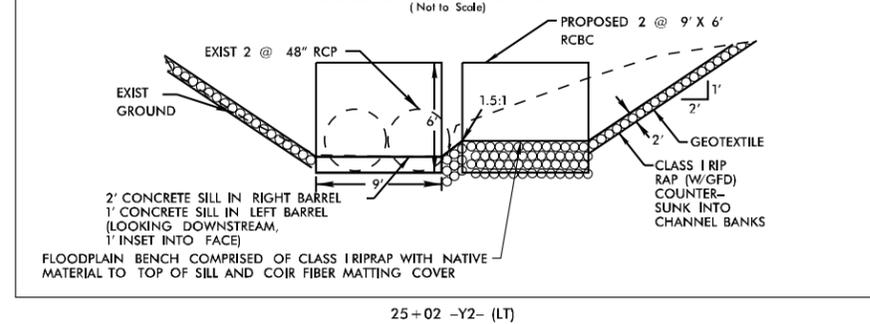
STA. 295+95 -L-

DETAIL 75 INLET CHANNEL IMPROVEMENTS (Not to Scale)



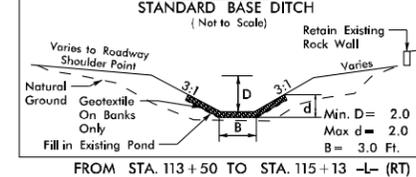
24+87 -Y2- (RT)

DETAIL 76 OUTLET CHANNEL IMPROVEMENTS (Not to Scale)



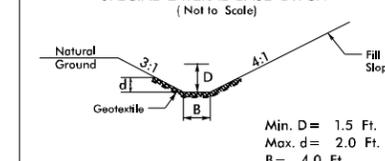
25+02 -Y2- (LT)

DETAIL 77 STANDARD BASE DITCH (Not to Scale)



FROM STA. 113+50 TO STA. 115+13 -L- (RT)

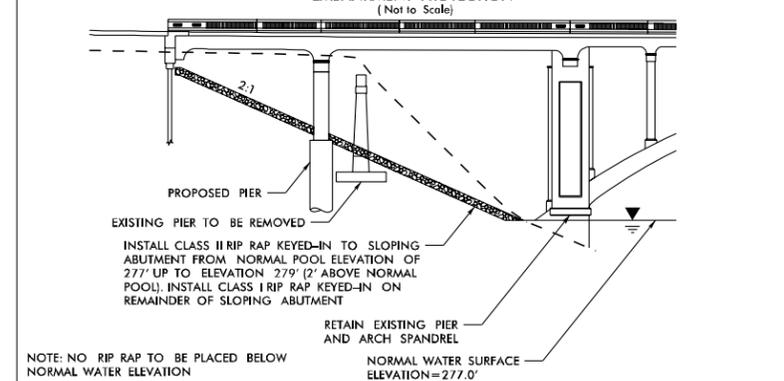
DETAIL 78 SPECIAL LATERAL BASE DITCH (Not to Scale)



FROM STA. 332+00 TO STA. 334+00 -L- (LT)

BY OTHERS

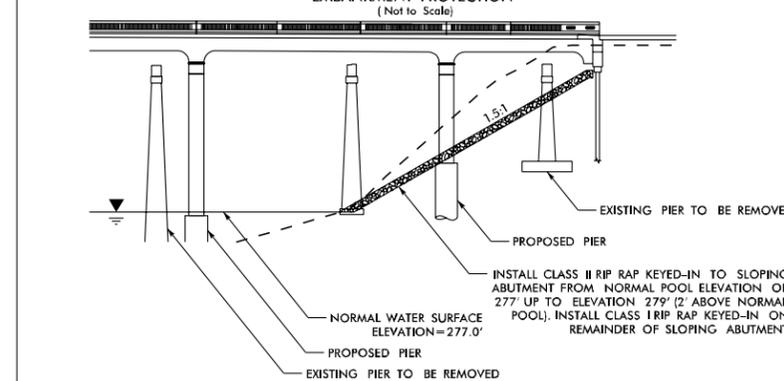
DETAIL 79 SLOPING ABUTMENT EMBANKMENT PROTECTION (Not to Scale)



FROM STA. 335+48 TO STA. 336+42 -L-

BY OTHERS

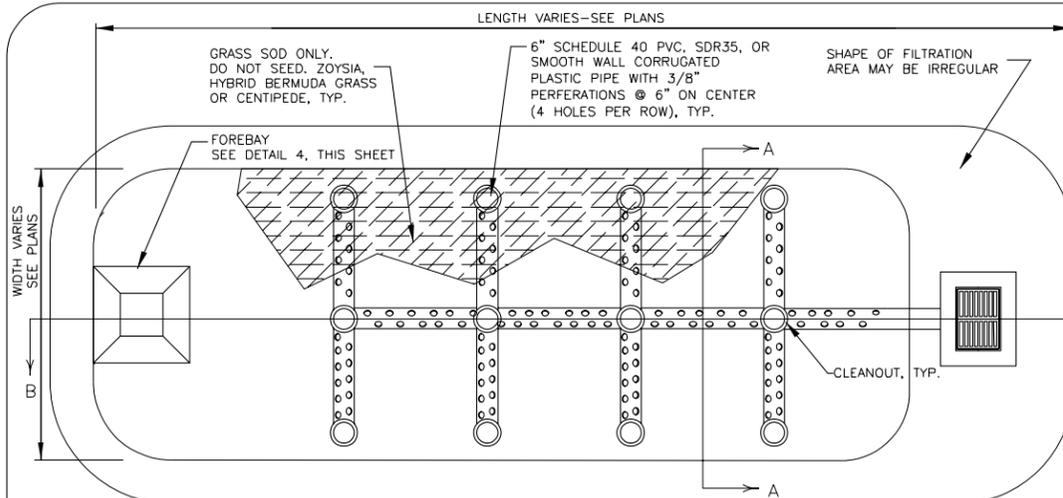
DETAIL 80 SLOPING ABUTMENT EMBANKMENT PROTECTION (Not to Scale)



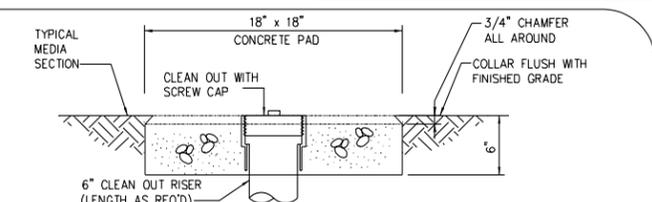
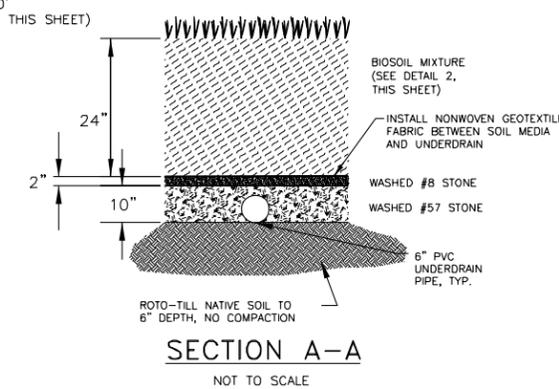
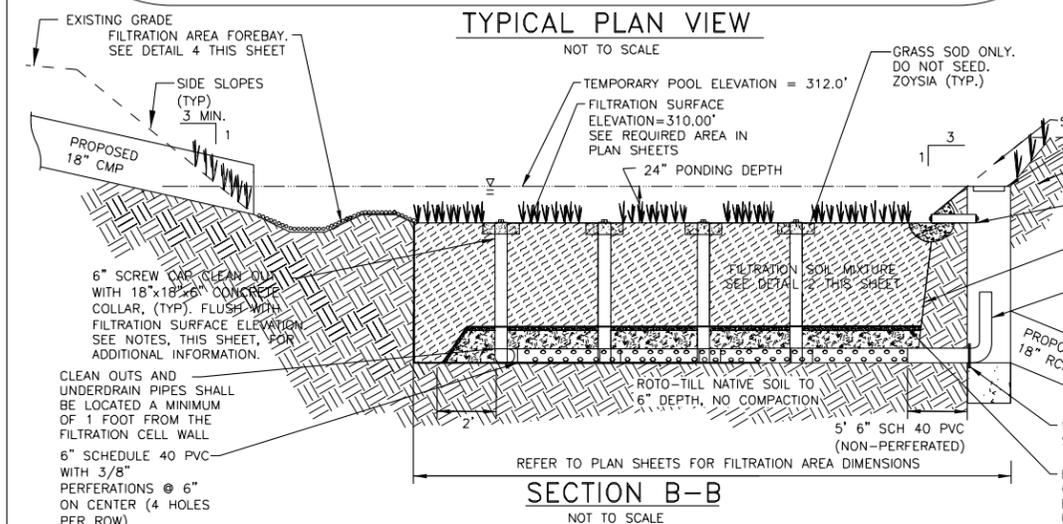
FROM STA. 345+86 TO STA. 346+92 -L-

REVISIONS

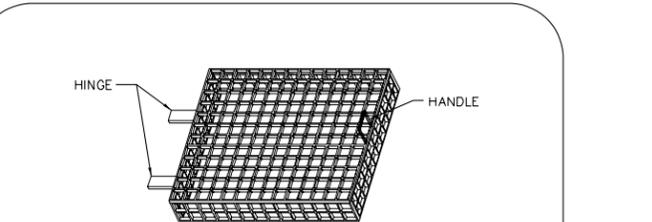
5/21/2019



- NOTES:**
- TEMPORARY PONDING DEPTH: 24"
 - UNDERDRAIN TO BE 6" SCHEDULE 40 PVC CORRUGATED PLASTIC PIPE WITH 3/8" PERF. @ 6" O.C., 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; GRAVEL NOT NECESSARY UNDER PIPES. MINIMUM SLOPE FOR UNDERDRAIN SHALL BE 0.005 FT/FT
 - UNDERDRAIN PIPES AND CLEANOUTS SHOULD BE LOCATED IN THE QUANTITY AND ELEVATION FOUND ON THE GRADING AND DRAINAGE PLAN (SHEET 2D-6).
 - CLEANOUT PIPE SHALL BE LOCATED A MINIMUM OF 1.0' FROM THE FILTRATION CELL WALL.
 - EXPOSED CLEANOUT CAP AND CONNECTORS TO BE CONSTRUCTED OF WHITE UV RESISTANT PVC MATERIAL.
 - GRASS SOD: SOD IS TO BE PLANTED WITHIN THE FILTRATION AREA AND ALONG THE ADJACENT SIDE SLOPES. SOD IS TO BE ZOYSIA WHICH HAS BEEN GROWN IN SANDY SOILS. LARGE DEPOSITS OF FINES ATTACHED TO THE ROOTS SHALL BE WASHED OFF OR REMOVED FROM THE SOD PRIOR TO INSTALLATION.
 - THE LOCATION OF FILTRATION AREA SHALL BE PROTECTED FROM EROSION AND SEDIMENT DURING SITE CONSTRUCTION. FILTRATION SOIL MIXTURE SHALL NOT BE PLACED UNTIL THE SURROUNDING SITE IS STABILIZED AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING FILTRATION SOIL MIXTURE IMPACTED BY SEDIMENT DEPOSITS DURING CONSTRUCTION.
 - FILTRATION BASIN CONSTRUCTION SEQUENCE:
 1. CONSTRUCT DRAINAGE MEASURES.
 2. MAINTAIN EXISTING SYSTEM AS NECESSARY UNTIL FILTRATION MEDIA INSTALLATION IS COMPLETE. USE TEMPORARY BYPASS CONVEYANCE AS NECESSARY. (INTENTION IS TO BYPASS FLOW THROUGH EXISTING SYSTEM UNTIL THE BASIN IS STABLE)
 3. ENSURE SITE IS PROPERLY STABILIZED WITH A GOOD STAND OF ESTABLISHED VEGETATION BEFORE PROCEEDING. ALL SLOPES DRAINING TO THE FILTRATION AREA SHOULD HAVE ESTABLISHED AT LEAST 90% VEGETATED COVERAGE, AND BE APPROVED BY THE ENGINEER.
 4. EXCAVATE AS NECESSARY TO INSTALL FOREBAY, RIP RAP, UNDERDRAIN SYSTEM AND BIOSOIL MIXTURE AFTER COMPLETING UNDERDRAIN SYSTEM ADD BIOSOIL MIXTURE PER THE DETAILS ON THIS SHEET.
 5. AFTER THE FILTRATION AREA HAS REACHED FINAL GRADE, REMOVE PORTION OF EXISTING SYSTEM TO ALLOW FLOW INTO BASIN.



DETAIL 5: 18" x 18" x 6" CONCRETE COLLAR



- REMOVEABLE TRASH RACK NOTES:**
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
 2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW 2018 NCDOT STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
 3. TRASH RACKS SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
 4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM 153.
 5. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF THE PROPOSED TRASH RACKS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.

DETAIL 6: REMOVEABLE TRASH RACK (NOT TO SCALE)

DETAIL 1: TYPICAL GRASS FILTRATION AREA (NOT TO SCALE) FROM -BMP-L- Sta. 352+25 to -BMP-Y16- Sta. 11+95

FILTRATION SOIL MIXTURE SHALL BE A MIX THAT MEETS THE FOLLOWING SPECIFICATION:

ITEM	PERCENT BY VOLUME	MATERIAL
SAND	80%	RECYCLED EXPANDED SLATE FINES
ORGANIC MATERIAL	20%	APPROVED COMPOST ORGANIC COMPONENT

FILTRATION SOIL MIXTURE (FSM): SHALL BE THOROUGHLY MECHANICALLY MIXED AT 1 PART COMPOST WITH 4 PARTS OF EXPANDED SLATE FINES UNTIL A UNIFORM DISTRIBUTION OF THE COMPONENTS IS ACHIEVED. SHALL BE PLACED AND GRADED USING LOW GROUND-CONTACT PRESSURE EQUIPMENT OR BY EXCAVATORS AND/OR BACKHOES OPERATING ON THE GROUND ADJACENT TO THE FILTRATION FACILITY. NO HEAVY EQUIPMENT SHALL BE USED WITHIN THE PERIMETER OF THE FILTRATION FACILITY BEFORE, DURING, OR AFTER THE PLACEMENT OF THE FSM. THE FSM SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 INCHES FOR THE ENTIRE AREA OF THE FILTRATION FACILITY. THE FSM SHALL BE COMPACTED BY SATURATING THE ENTIRE AREA OF THE FILTRATION FACILITY AFTER EACH LIFT OF FSM IS PLACED UNTIL WATER FLOWS FROM THE UNDERDRAIN. WATER FOR SATURATION SHALL BE APPLIED BY SPRAYING OR SPRINKLING. AN APPROPRIATE SEDIMENT CONTROL DEVICE SHALL BE USED TO TREAT ANY SEDIMENT-LADEN WATER DISCHARGED FROM THE UNDERDRAIN. IF THE FSM BECOMES CONTAMINATED DURING THE CONSTRUCTION OF THE FACILITY, THE CONTAMINATED MATERIAL SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED MATERIAL AT NO ADDITIONAL COST TO THE ADMINISTRATION. FINAL GRADING OF THE FSM SHALL BE PERFORMED AFTER A 24-HOUR SETTLING PERIOD. FINAL ELEVATIONS SHALL BE WITHIN 2 INCHES OF ELEVATIONS SHOWN ON THE CONTRACT PLANS.

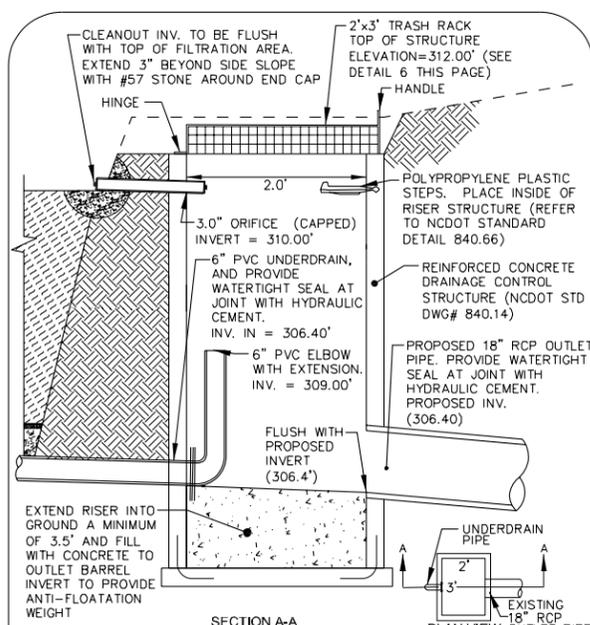
THE FILTRATION SOIL MIXTURE (FSM) SHALL HAVE A P-INDEX RANGE LESS THAN 30.

HYDRAULIC CONDUCTIVITY OF FILTRATION SOIL MIX SHALL BE BETWEEN 3.0-6.0 IN/HR.

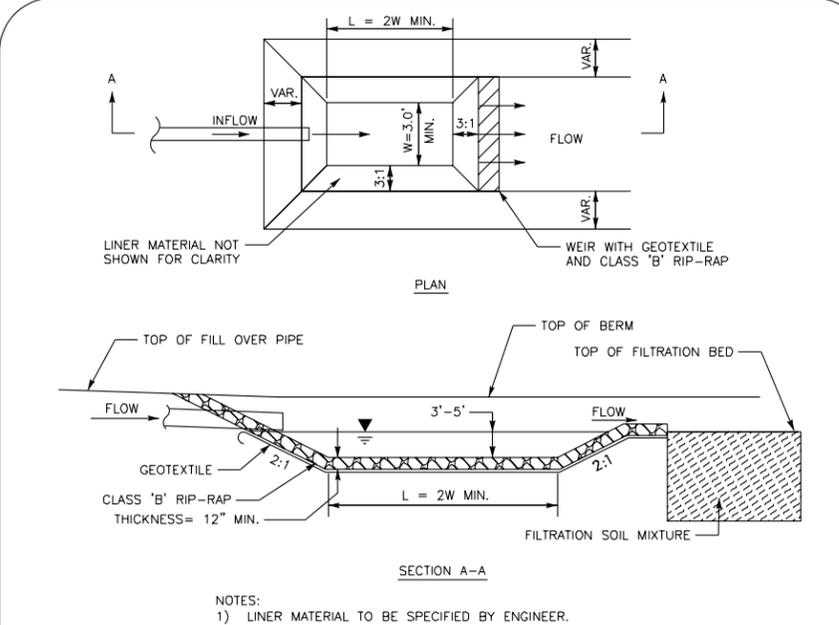
THE FILTRATION SOIL MIXTURE (FSM) SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES EXCLUDING MULCH. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE FILTRATION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS.

PRIOR TO PLACING THE UNDERDRAIN AND THE FSM, THE BOTTOM OF THE EXCAVATION SHALL BE ROTO-TILLED TO A MINIMUM DEPTH OF 6 INCHES TO ALLEVIATE ANY COMPACTION OF THE FACILITY BOTTOM. ANY SUBSTITUTE METHOD FOR ROTO-TILLING MUST BE APPROVED BY THE ENGINEER PRIOR TO USE. ANY PONDING WATER SHALL BE REMOVED FROM THE BOTTOM OF THE FACILITY AND THE SOIL SHALL BE FRIABLE BEFORE ROTO-TILLING.

DETAIL 2: FILTRATION SOIL MIXTURE



DETAIL 3: OUTLET STRUCTURE (NOT TO SCALE)

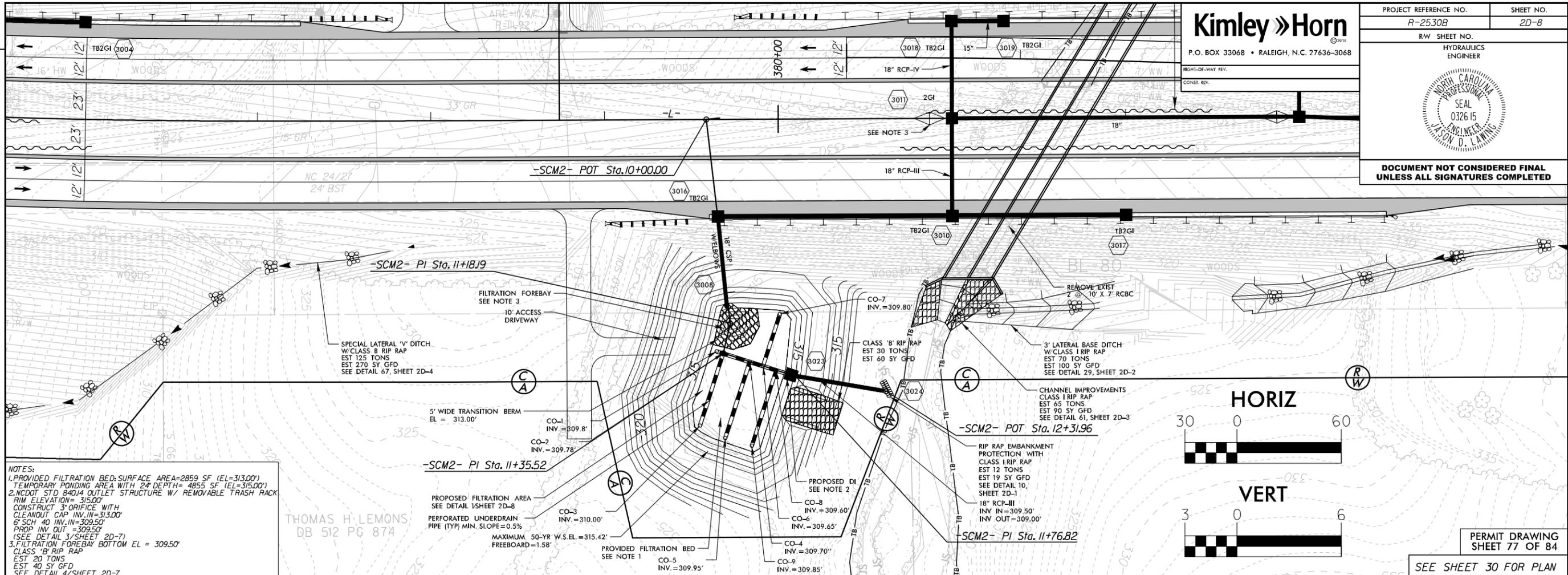


DETAIL 4: FILTRATION AREA FOREBAY

- NOTES:**
- 1) LINER MATERIAL TO BE SPECIFIED BY ENGINEER.
 - 2) FOREBAY LAYOUT MAY BE IRREGULAR. SEE PLANS.
 - 3) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.



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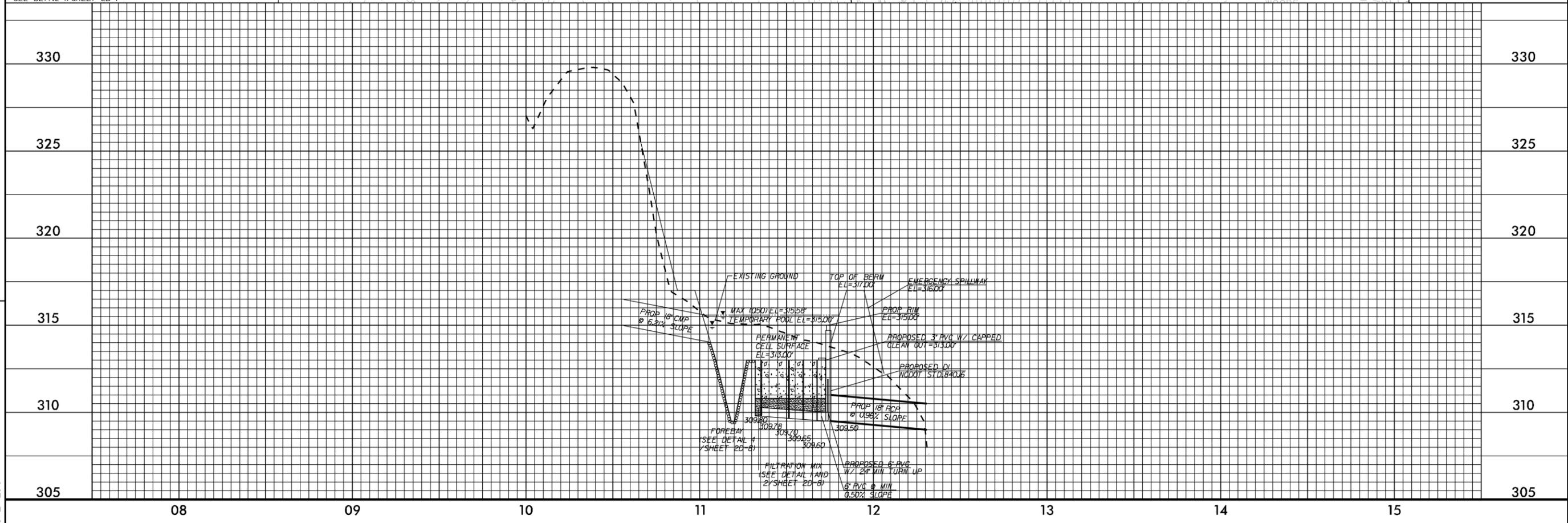


NOTES:
 1. PROVIDED FILTRATION BED SURFACE AREA=2859 SF (EL=313.00)
 TEMPORARY PONDING AREA WITH 2' DEPTH= 4855 SF (EL=315.00)
 2. NCDOT STD 840/4 OUTLET STRUCTURE W/ REMOVABLE TRASH RACK
 RIM ELEVATION= 315.00'
 CONSTRUCT 3" ORIFICE WITH
 CLEANOUT CAP INV. IN=313.00'
 6" SCH 40 INV. IN=309.50'
 PROP INV OUT =309.50'
 (SEE DETAIL 3/SHEET 2D-7)
 3. FILTRATION FOREBAY BOTTOM EL = 309.50'
 CLASS 'B' RIP RAP
 EST 20 TONS
 EST 40 SY GFD
 SEE DETAIL 4/SHEET 2D-7

THOMAS H. LEMONS
 DB 512 PG 874

PERMIT DRAWING SHEET 77 OF 84

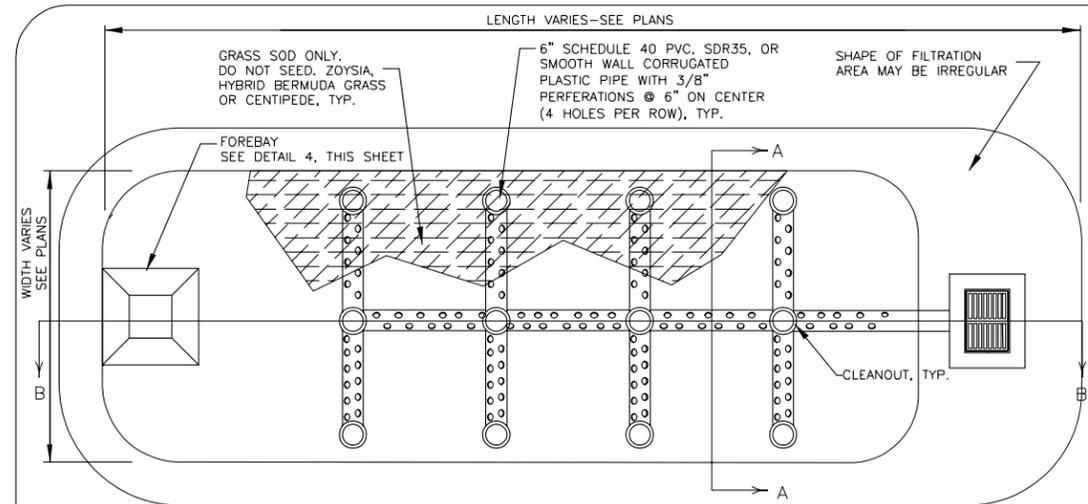
SEE SHEET 30 FOR PLAN



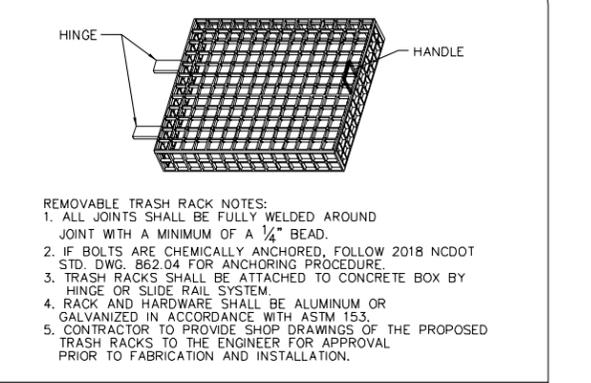
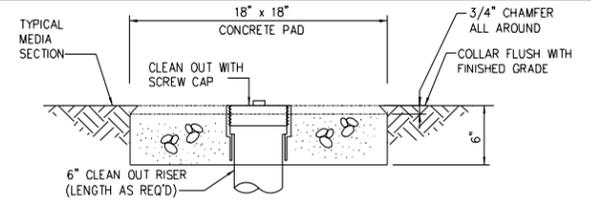
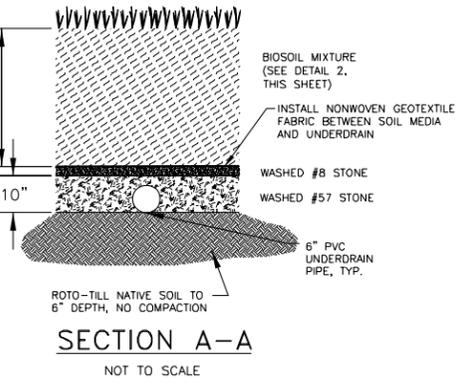
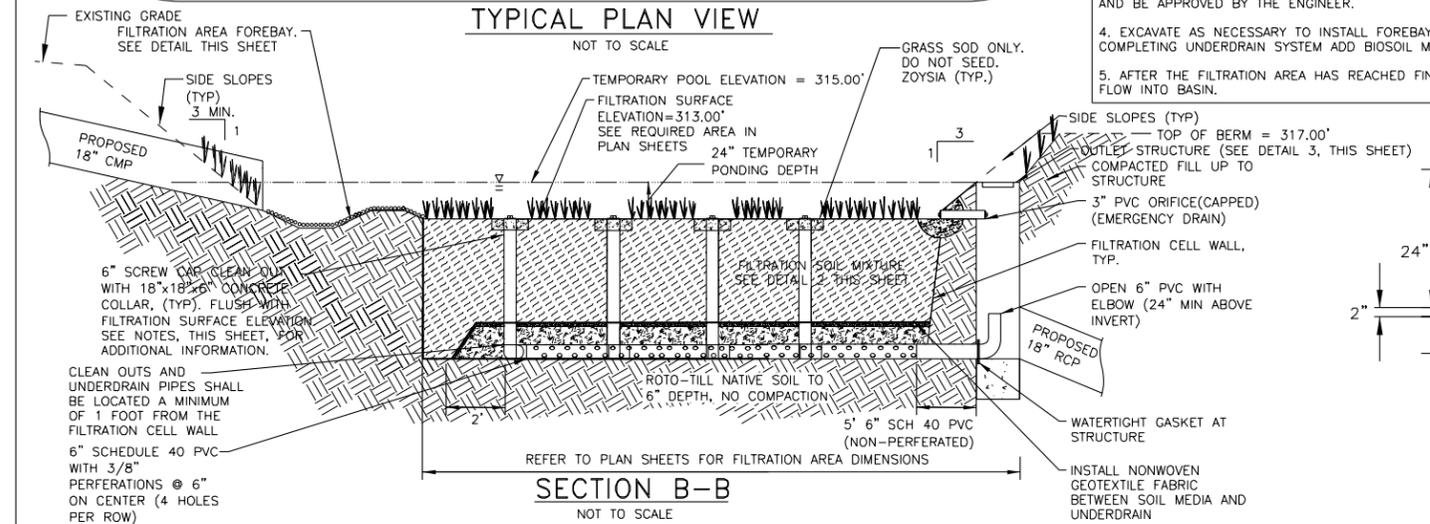
REVISIONS

5/21/2019

Kimley»Horn
 P.O. BOX 33068 • RALEIGH, N.C. 27636-3068
 HYDRAULICS ENGINEER
 PERMIT DRAWING SHEET 78 OF 84
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES:
 TEMPORARY PONDING DEPTH: 24"
 UNDERDRAIN TO BE 6" SCHEDULE 40 PVC CORRUGATED PLASTIC PIPE WITH 3/8" PERF. @ 6" O.C., 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; GRAVEL NOT NECESSARY UNDER PIPES. MINIMUM SLOPE FOR UNDERDRAIN SHALL BE 0.005 FT/FT
 UNDERDRAIN PIPES AND CLEANOUTS SHOULD BE LOCATED IN THE QUANTITY AND ELEVATION FOUND ON THE GRADING AND DRAINAGE PLAN (SHEET 4).
 CLEANOUT PIPE SHALL BE LOCATED A MINIMUM OF 1.0' FROM THE FILTRATION CELL WALL.
 EXPOSED CLEANOUT CAP AND CONNECTORS TO BE CONSTRUCTED OF WHITE UV RESISTANT PVC MATERIAL.
 GRASS SOD: SOD IS TO BE PLANTED WITHIN THE FILTRATION AREA AND ALONG THE ADJACENT SIDE SLOPES. SOD IS TO BE ZOYSIA WHICH HAS BEEN GROWN IN SANDY SOILS. LARGE DEPOSITS OF FINES ATTACHED TO THE ROOTS SHALL BE WASHED OFF OR REMOVED FROM THE SOD PRIOR TO INSTALLATION.
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 3. ENSURE SITE IS PROPERLY STABILIZED WITH A GOOD STAND OF ESTABLISHED VEGETATION BEFORE PROCEEDING. ALL SLOPES DRAINING TO THE FILTRATION AREA SHOULD HAVE ESTABLISHED AT LEAST 90% VEGETATED COVERAGE, AND BE APPROVED BY THE ENGINEER.
 4. EXCAVATE AS NECESSARY TO INSTALL FOREBAY, RIP RAP, UNDERDRAIN SYSTEM AND BIOSOIL MIXTURE AFTER COMPLETING UNDERDRAIN SYSTEM ADD BIOSOIL MIXTURE PER THE DETAILS ON THIS SHEET.
 5. AFTER THE FILTRATION AREA HAS REACHED FINAL GRADE, REMOVE PORTION OF EXISTING SYSTEM TO ALLOW FLOW INTO BASIN.



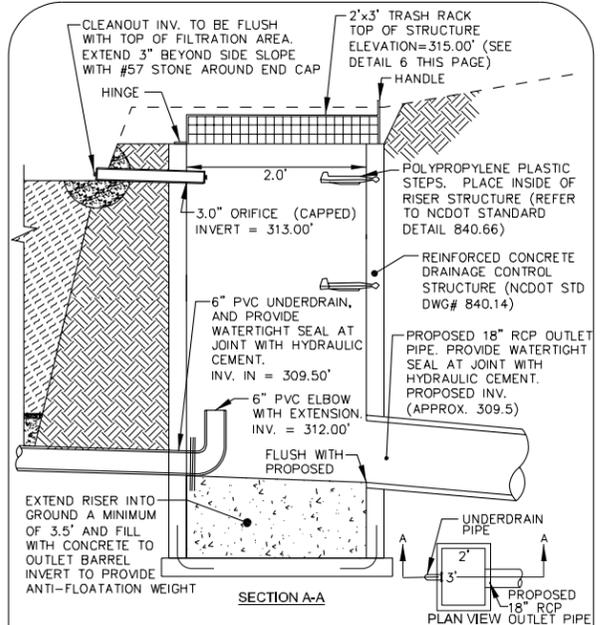
DETAIL 1: TYPICAL GRASS FILTRATION AREA
 (NOT TO SCALE)
 FROM -BMP-L- Sta. 379+09 to -BMP-Y16- Sta. 380+61

FILTRATION SOIL MIXTURE SHALL BE A MIX THAT MEETS THE FOLLOWING SPECIFICATION:

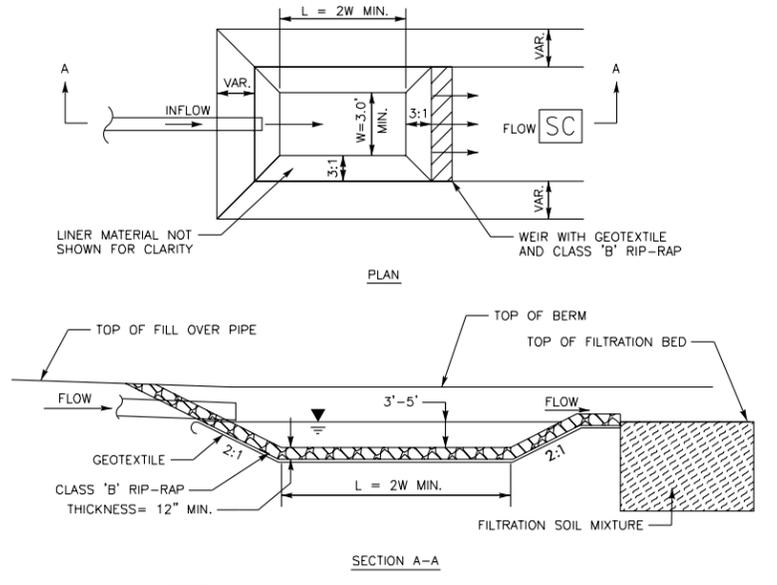
ITEM	PERCENT BY VOLUME	MATERIAL
SAND	80%	RECYCLED EXPANDED SLATE FINES
ORGANIC MATTER	20%	APPROVED COMPOST ORGANIC COMPONENT

FILTRATION SOIL MIXTURE (FSM): SHALL BE THOROUGHLY MECHANICALLY MIXED AT 1 PART COMPOST WITH 4 PARTS OF EXPANDED SLATE FINES UNTIL A UNIFORM DISTRIBUTION OF THE COMPONENTS IS ACHIEVED. SHALL BE PLACED AND GRADED USING LOW GROUND-CONTACT PRESSURE EQUIPMENT OR BY EXCAVATORS AND/OR BACKHOES OPERATING ON THE GROUND ADJACENT TO THE FILTRATION FACILITY. NO HEAVY EQUIPMENT SHALL BE USED WITHIN THE PERIMETER OF THE FILTRATION FACILITY BEFORE, DURING, OR AFTER THE PLACEMENT OF THE FSM. THE FSM SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 INCHES FOR THE ENTIRE AREA OF THE FILTRATION FACILITY. THE FSM SHALL BE COMPACTED BY SATURATING THE ENTIRE AREA OF THE FILTRATION FACILITY AFTER EACH LIFT OF FSM IS PLACED UNTIL WATER FLOWS FROM THE UNDERDRAIN. WATER FOR SATURATION SHALL BE APPLIED BY SPRAYING OR SPRINKLING. AN APPROPRIATE SEDIMENT CONTROL DEVICE SHALL BE USED TO TREAT ANY SEDIMENT-LADEN WATER DISCHARGED FROM THE UNDERDRAIN. IF THE FSM BECOMES CONTAMINATED DURING THE CONSTRUCTION OF THE FACILITY, THE CONTAMINATED MATERIAL SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED MATERIAL AT NO ADDITIONAL COST TO THE ADMINISTRATION. FINAL GRADING OF THE FSM SHALL BE PERFORMED AFTER A 24-HOUR SETTLING PERIOD. FINAL ELEVATIONS SHALL BE WITHIN 2 INCHES OF ELEVATIONS SHOWN ON THE CONTRACT PLANS.
 THE FILTRATION SOIL MIXTURE (FSM) SHALL HAVE A P-INDEX RANGE LESS THAN 30.
 HYDRAULIC CONDUCTIVITY OF FILTRATION SOIL MIX SHALL BE BETWEEN 3.0-6.0 IN/HR.
 THE FILTRATION SOIL MIXTURE (FSM) SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES EXCLUDING MULCH. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE FILTRATION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS.
 PRIOR TO PLACING THE UNDERDRAIN AND THE FSM, THE BOTTOM OF THE EXCAVATION SHALL BE ROTO-TILLED TO A MINIMUM DEPTH OF 6 INCHES TO ALLEVIATE ANY COMPACTION OF THE FACILITY BOTTOM. ANY SUBSTITUTE METHOD FOR ROTO-TILLING MUST BE APPROVED BY THE ENGINEER PRIOR TO USE. ANY PONDING WATER SHALL BE REMOVED FROM THE BOTTOM OF THE FACILITY AND THE SOIL SHALL BE FRIABLE BEFORE ROTO-TILLING.

DETAIL 2: FILTRATION SOIL MIXTURE



DETAIL 3: OUTLET STRUCTURE
 (NOT TO SCALE)



DETAIL 4: FILTRATION AREA FOREBAY

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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	38+70 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	19	9	
2	52+52/52+68 -L-(RT)	Fill						< 0.01	< 0.01	34	7	
2	52+64/52+92 -L-(RT)	1 @ 8' x 7' RCBC						0.01		72		
2	52+68/53+28 -L-(RT)	Lateral Base Ditch						< 0.01	< 0.01	65	10	
3	52+85/53+06 -L- (LT)	Fill						< 0.01		38		
3	53+06/53+45 -L- (LT)	Bank Stabilization						< 0.01		40		
3	53+45/53+67 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	11	14	
3	53+67/53+89 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	10	25	
4	66+88 -L- (RT)	Outlet Protection						< 0.01	< 0.01	5	7	
5	12+34/12+57 -Y6- (RT)	Outlet Protection						< 0.01	< 0.01	16	10	
6	87+75/93+55 -L- (RT)	Fill/Ditch Excavation	0.19		0.15	0.12						
7	93+53 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	26	10	
7	93+60 -L- (RT)	1 @ 7' x 7' RCBC						< 0.01		60		
8	93+61 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	16	10	
9	100+72/100+95 -L- (LT)	Outlet Protection						< 0.01	< 0.01	18	10	
9	100+95/101+95 -L- (LT)	36" RCP and Fill						0.01		109		
TOTALS*:			0.19		0.15	0.12		0.07	0.01	539	112	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 05-06-2019
 STANLY AND MONTGOMERY COUNTIES
 R-2530B & B-4974
 34446.1.6
 SHEET 79 OF 84

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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)
10	103+40 -L- (RT)	Mechanized Clearing				< 0.01						
11	113+36/113+62 -L- (RT)	Fill/Ditch Excavation						< 0.01		27		
11	115+08/116+10 -L- (RT)	Fill						< 0.01		35		
12	115+24/115+39 -L- (LT)	Outlet Protection						< 0.01	< 0.01	21	10	
12	115+39/116+14 -L- (LT)	Fill / 60" RCP						0.01		126		
13	116+16 -L- (RT)	Fill / 60" RCP						< 0.01	< 0.01	23	10	
14	116+84/118+60 -L- (RT)	Fill	0.09			0.09						
15	118+96/120+93 -L- (RT)	Fill	0.05			0.02						
15	121+18/121+67 -L- (RT)	Erosion Control Basin	< 0.01		< 0.01	< 0.01						
16	126+81/131+74 -L- (LT)	Fill/Ditch Excavation						0.04	< 0.01	368	10	
17	134+35/134+87 -L- (LT)	Lateral Base Ditch						< 0.01	< 0.01	45	10	
17	134+87/144+06 -L- (LT)	Fill						0.09		947		
17	144+06/144+68 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	55	25	
18	147+91/148+73 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	21	34	
18	148+73/149+50 -L- (LT)	42" RCP and Fill						0.01		130		
TOTALS*:			0.15		< 0.01	0.12		0.17	< 0.01	1798	99	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 05-06-2019
 STANLY AND MONTGOMERY COUNTIES
 R-2530B & B-4974
 34446.1.6
 SHEET 80 OF 84

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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)
19	149+52/149+63 -L- (RT)	Fill						< 0.01		20		
19	149+59/149+69 -L- (RT)	Standard Base Ditch						< 0.01	< 0.01	24	12	
19	149+63 -L- (RT)	Mechanized Clearing				< 0.01						
20	157+10/157+46 -L- (LT)	Fill						0.01		116		
20	157+37 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	15	12	
21	180+34/180+73 -L- (RT)	Fill	0.02				< 0.01					
22	191+57/192+12 -L- (LT)	Fill						< 0.01		59		
22	192+12/192+31 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	11	10	
23	208+74/211+68 -L- (RT)	Fill						0.03		333		
23	211+68/212+09 -L- (RT)	Lateral Base Ditch						< 0.01	< 0.01	38	10	
24	216+31/217+11 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	86	12	
24	217+11/217+17 -L- (LT)	Fill						< 0.01		10		
25	217+82/218+73 -L- (RT)	Fill						0.01		136		
25	218+73/219+22 -L- (RT)	Standard Base Ditch						< 0.01	< 0.01	73	10	
26	232+30/232+68 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	20	20	
27	233+34/233+64 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	10	20	
TOTALS*:			0.02			< 0.01	< 0.01	0.09	0.01	951	106	0

*Rounded totals are sum of actual impacts

NOTES:

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 R-2530B & B-4974
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 SHEET 81 OF 84

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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)
28	235+16/238+03 -L- (RT)	Lateral Base Ditch						< 0.01	< 0.01	52	20	
28	235+47/237+70 -L- (RT)	Fill						0.04		310		
29	236+89/237+10 -L- (LT)	Fill						< 0.01	< 0.01	16	10	
30	238+51/238+77 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	10	16	
31	259+57 -L- (LT)	Fill						0.01	< 0.01	107	10	
32	276+19/276+66 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	66	10	
32	276+66/277+16 -L- (LT)	Fill						< 0.01		98		
33	277+19/278+21 -L- (RT)	Fill						0.01		118		
33	278+21/278+37 -L- (RT)	Outlet Protection						< 0.01	< 0.01	25	13	
34	292+05/292+77 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	75	25	
34	292+77/296+87 -L- (LT)	Fill						0.02		178		
35	297+72/298+00 -L- (RT)	Fill						< 0.01		35		
35	298+00/298+26 -L- (RT)	Outlet Protection						< 0.01	< 0.01	11	10	
36	304+54/304+66 -L- (RT)	Bank Stabilization						< 0.01		17		
36	304+66/304+81 -L- (RT)	1 @ 9' x 7' RCBC						< 0.01		23		
TOTALS*:								0.12	0.01	1141	114	0

*Rounded totals are sum of actual impacts

NOTES:

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WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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)
37	305+21/305+95 -L- (LT)	1 @ 9' x 7' RCBC						0.02		136		
37	305+95/306+06 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	27	10	
38	335+75/336+40 -L-	Sloping Abutment and Bank Stabilization and Temp. Bridge						0.05	0.02	238	18	
39	345+69/346+12 -L-	Sloping Abutment and Bank Stabilization and Causeway						0.04	0.02	171	20	
40	359+25/359+62 -L- (RT)	36" RCP and fill						0.01		89		
40	359+62/359+72 -L- (RT)	Outlet Protection						< 0.01	< 0.01	10	11	
41	362+75/363+05 -L- (RT)	1 @ 6' x 8' RCBC						0.01	< 0.01	24	12	
42	363+00/363+07 -L- (LT)	1 @ 6' x 8' RCBC						< 0.01		32		
42	363+07/363+21 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	44	7	
43	363+07/363+41 -L- (RT)	Fill/Ditch Excavation	0.02		< 0.01							
44	371+48 -L- (RT)	Outlet Protection						< 0.01	< 0.01	7	10	
45	375+05/375+43 -L- (RT)	72" RCP and Fill						0.01	< 0.01	86	11	
TOTALS*:			0.02		< 0.01			0.16	0.06	864	99	0

*Rounded totals are sum of actual impacts

NOTES:

Total Temporary Pier Impacts for Bridge No. 50 = 0.045 AC (2000 Sq. Ft.)
 Total Temporary Pier Impacts for Bridge No. 51 = 0.04 AC (1880 Sq. Ft.)
 Total Permanent Pier Impacts for Bridge No. 51 = 0.001 AC (60 Sq. Ft.)

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WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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)
46	375+49 -L- (LT)	72" RCP and Fill						< 0.01		75		
46	375+51 -L- (LT)	Bank Stabilization						< 0.01		26		
47A	380+64 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	10	16	
47	380+82/381+00 -L- (RT)	2 @ 11' x 9' RCBC						< 0.01		4		
47	381+00/381+19 -L- (RT)	Floodplain Bench						< 0.01	< 0.01	25	10	
48	381+54/382+18 -L- (LT)	2 @ 11' x 9' RCBC						0.03		94		
48	382+18/382+46 -L- (LT)	Floodplain Bench						< 0.01	0.01	31	33	
49	383+00/383+47 -L- (LT)	Mechanized Clearing				0.03						
50	24+59/24+84 -Y2- (RT)	Floodplain Bench						< 0.01	< 0.01	35	10	
50	24+84/24+94 -Y2-	2 @ 9' x 6' RCBC						< 0.01		74		
51	25+09 -Y2- (LT)	Floodplain Bench						< 0.01	< 0.01	8	12	
TOTALS*:						0.03		0.06	0.02	382	81	0
PROJECT TOTALS*:			0.38		0.15	0.27		0.67	0.11	5675	611	0

*Rounded totals are sum of actual impacts

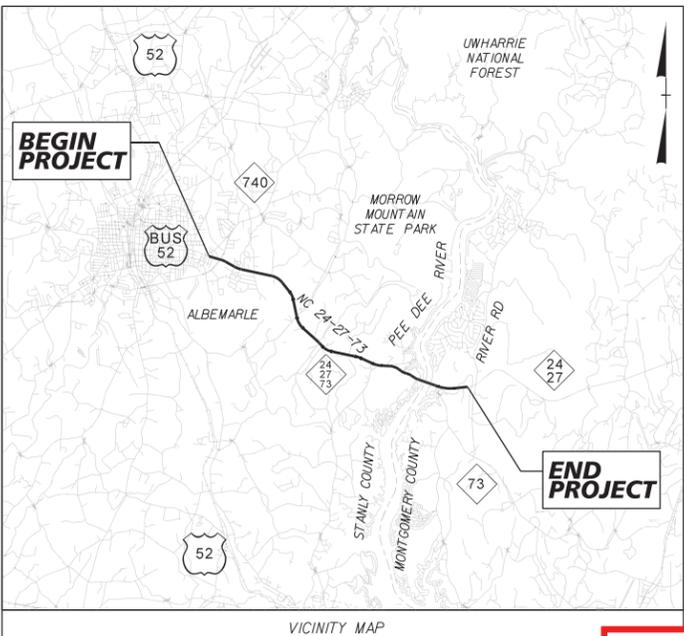
NOTES:

* R-2527 Stream and Wetland Impacts are included in this permit summary table to meet the purpose and need of the completed Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), since both these documents included all three TIP projects R-2530B, B-4974 and R-2527. The stream impact lengths and wetland impact areas were pulled directly from the FONSI. Total of Approximately 0.70 Acres of permanent SW impacts due to ponds being filled.

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TIP PROJECT: R-2530B/B-4974



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

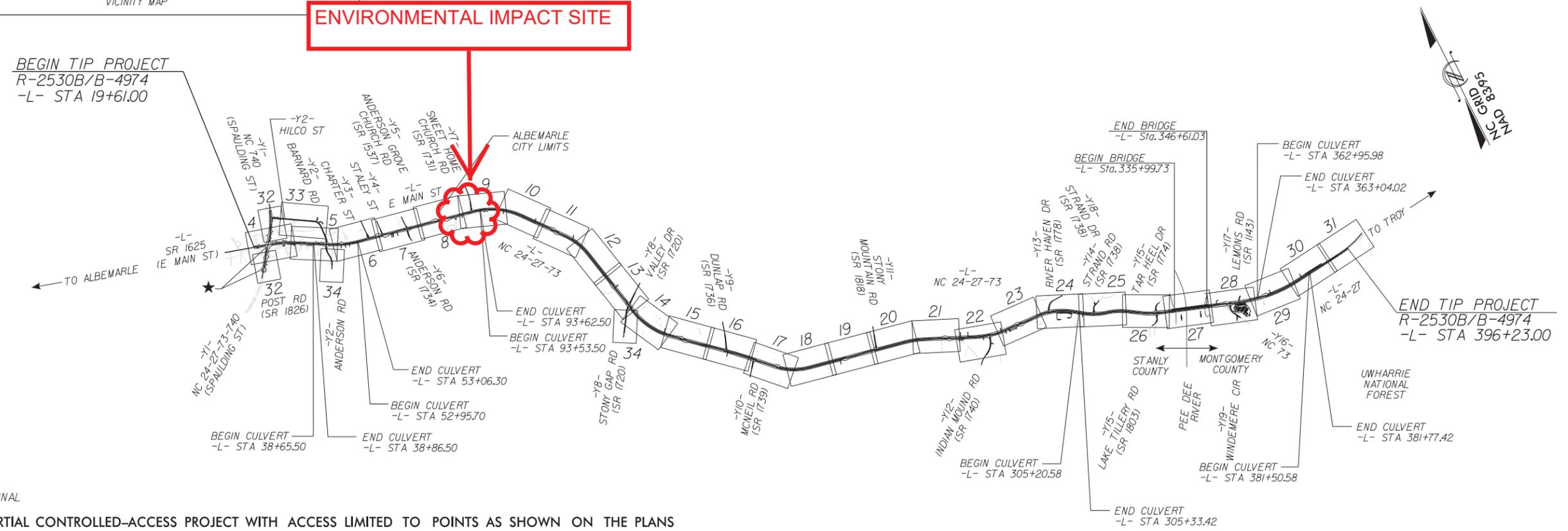
NEU PERMIT PLANS
STANLY & MONTGOMERY COUNTIES

T.I.P. NO.	SHEET NO.
R-2530BB-4974	UE-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

Environmental Impacts - Utilities

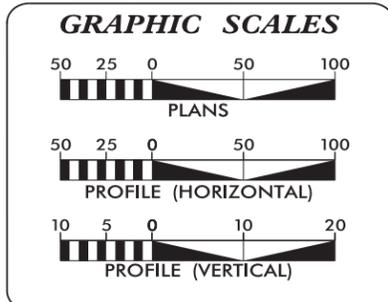
LOCATION: NC 24-27 FROM NC 740 IN ALBEMARLE TO EAST OF THE PEE DEE RIVER
TYPE OF WORK: POWER DISTRIBUTION, COMMUNICATIONS AND GAS RELOCATION



★ TRAFFIC SIGNAL

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF ALBEMARLE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UE-1	TITLE SHEET
UE-6 THRU UE-7	UE PLAN SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER DISTRIBUTION - CITY OF ALBEMARLE
(B) WATER, SEWER - CITY OF ALBEMARLE

PREPARED IN THE OFFICE OF:

Michael Baker INTERNATIONAL

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
919-463-5488

Daniel Oliver	PROJECT UTILITY COORDINATOR
Christina Newsome	PROJECT UTILITY TECHNICIAN

**DIVISION OF HIGHWAYS
UTILITIES UNIT**
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

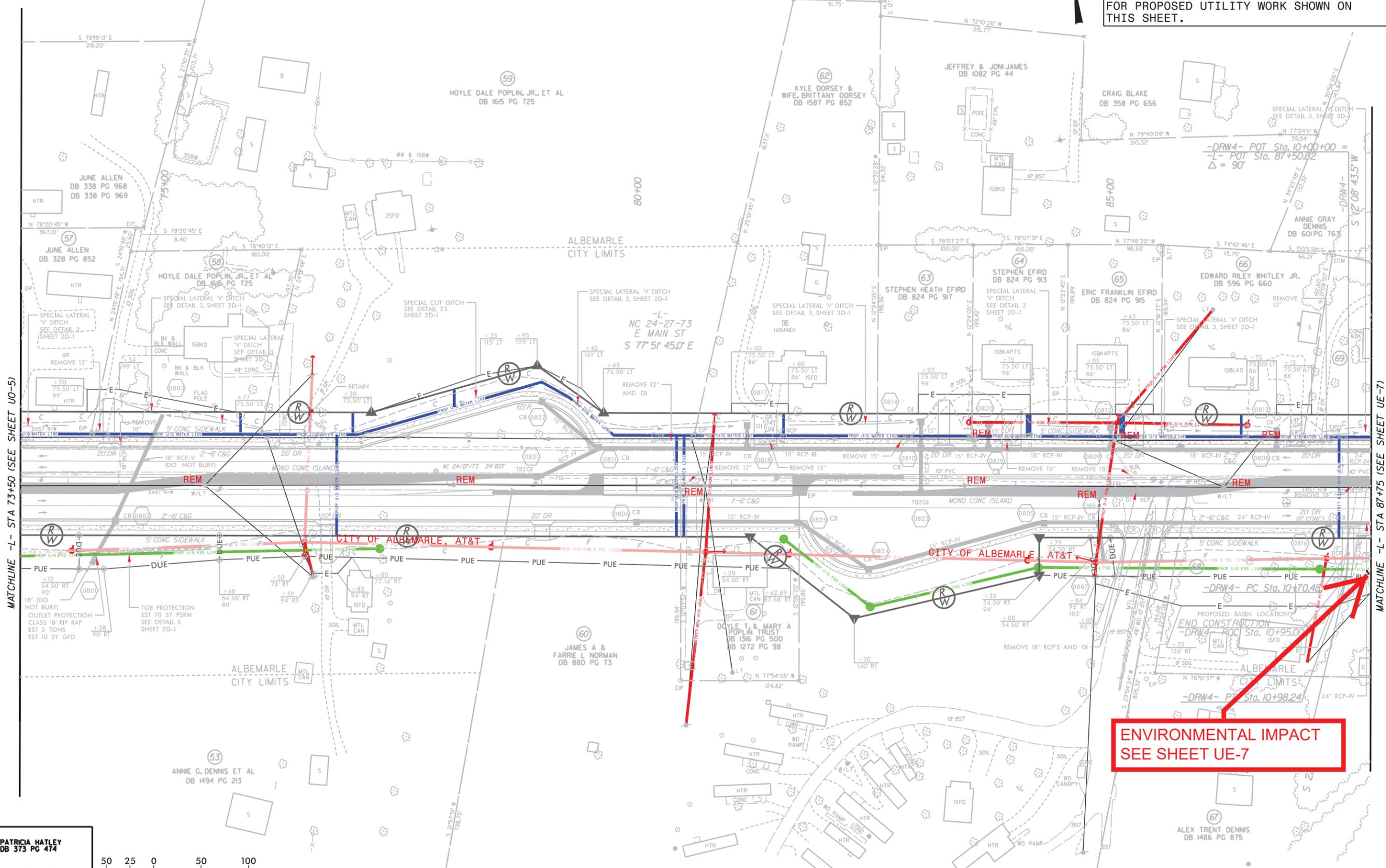
Michael Bright	UTILITIES REGIONAL ENGINEER
Donald Hampton	UTILITIES ENGINEER
Amy Dupree	UTILITIES AREA COORDINATOR
Steve Trexler	UTILITIES COORDINATOR

5/14/99

PROJECT REFERENCE NO. R-2530B/B-4974	SHEET NO. UE-6
THIS SHEET CORRESPONDS TO RDY-8	

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



MATCHLINE -L- STA 73+50 (SEE SHEET UO-5)

MATCHLINE -L- STA 87+75 (SEE SHEET UE-7)

- 68 PATRICIA HATLEY
DB 373 PG 474
- 69 ANNE GRAY DENNIS
DB 167 PG 406

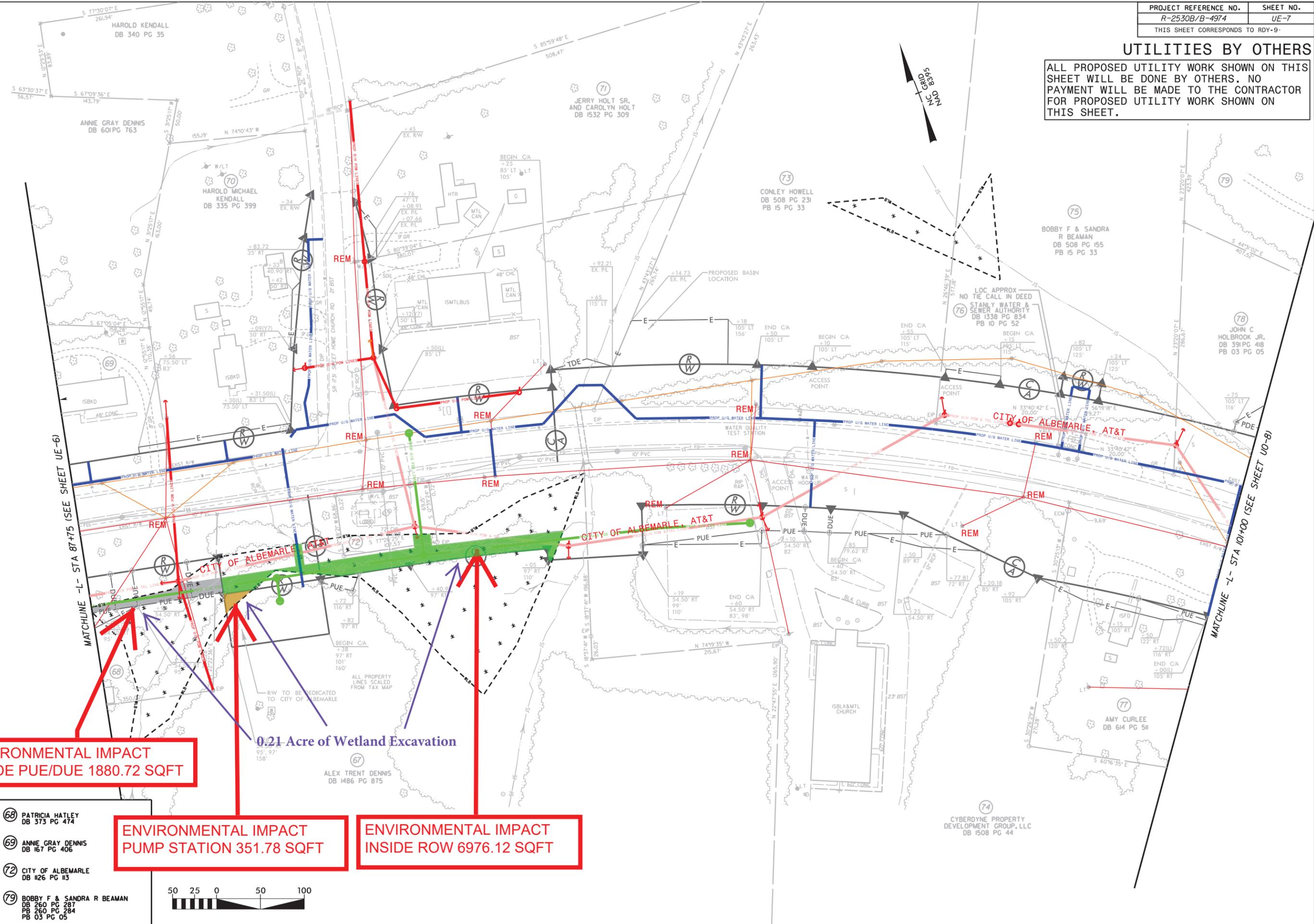


**ENVIRONMENTAL IMPACT
SEE SHEET UE-7**

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

5/14/99



ENVIRONMENTAL IMPACT INSIDE PUE/DUE 1880.72 SQFT

ENVIRONMENTAL IMPACT PUMP STATION 351.78 SQFT

ENVIRONMENTAL IMPACT INSIDE ROW 6976.12 SQFT

0.21 Acre of Wetland Excavation

- 68 PATRICIA HATLEY DB 373 PG 474
- 69 ANNIE GRAY DENNIS DB 167 PG 406
- 72 CITY OF ALBEMARLE DB 126 PG 113
- 79 BOBBY F & SANDRA R BEAMAN DB 260 PG 287 PB 260 PG 284 PB 03 PG 05

