STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

March 12, 2024

MEMORANDUM TO: Division Environmental and Construction Units

FROM: Michael A. Turchy, ECAP Group Leader
Environmental Analysis Unit

SUBJECT: Environmental Permits for the Improvements to NC211 from US15/501 in Aberdeen to SR1244/SR1311 in Raeford in Moore and Hoke Counties, Division 8, **TIP R-5709.**

Please find enclosed the following permits for this project:

Agency	Permit Type	Permit Expiration
US Army Corps of Engineers Section 404 Clean Water Act Permit	Regional General Permit 31 (dated 7/19/21)	May 25, 2025
NC Division of Water Resources Section 401 Water Quality Certification	General Cert. No. 4135 [RGP31] (dated 7/14/21)	May 25, 2025

Work depicted in this modification did not require revisions to the current issued permits for the project.

Work is authorized by the above referenced permit provided it is accomplished in strict accordance with the permitted plans.

The Environmental Coordination and Permitting Group or the Division Environmental Office must be consulted if any deviation from the permit(s) is required.

The General Conditions and Certifications for Nationwide and Regional Permits can be referenced at: https://xfer.services.ncdot.gov/pdea/PermIssued/_General_Conditions_and_Certifications/

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Dilday, Jason L

From: Brumagin, Stephen A (Steve) CIV USARMY CESAW (USA) <Stephen.A.Brumagin@usace.army.mil>
Sent: Monday, March 11, 2024 12:59 PM
To: Chris Rivenbark; Conchilla, Ryan
Cc: Dilday, Jason L; Matthews, Monte K CIV USARMY CESAW (USA)
Subject: [External] FW: 20211043_Permit Modification Approval for R-5709, NC 211 Moore & Hoke Counties, Division 8
Attachments: 20211043 Ver 1_Approval Letter.pdf; SAW-2018-02283 NCDOT R-5709 Moore Revised Plans 02_29_2024.pdf

Chris,

I wanted to let you know that I did review the proposed revisions and the former authorization. Since the proposed revision include reduction/elimination of impacts that may include loss of waters and only includes a minor increase of temporary impacts and hand clearing of wetlands, these revisions would be considered minor and would not require a formal modification of this permit. I have attached both the State's 401 WQC (with comments on this revision) and the revised plan sheets that the Corps utilized for our revision determination. This revision is approved, and all conditions included in the SAW-2018-02283 NCDOT R-5709 404 authorization apply to this revision. Please let me know if you have any questions. Thanks.

Stephen A. Brumagin
NCDOT Project Manager
U.S. Army Corps of Engineers,
Charlotte Field Office, Wilmington District
Work cell 704 798-6471

From: Conchilla, Ryan <ryan.conchilla@deq.nc.gov>
Sent: Tuesday, March 5, 2024 10:46 AM
To: Chris Rivenbark <crivenbark@rkk.com>; Brumagin, Stephen A (Steve) CIV USARMY CESAW (USA) <Stephen.A.Brumagin@usace.army.mil>
Cc: Dilday, Jason L <jldilday1@ncdot.gov>
Subject: [Non-DoD Source] 20211043_Permit Modification Approval for R-5709, NC 211 Moore & Hoke Counties, Division 8

Chris,
I've reviewed the modification request submitted on 2-29-24 and I do not have major concerns.
The impact changes requested are minor in comparison to the 401 WQC issued for the project on 7-14-21 (attached).
This email can be used as approval for your request.
It should be noted that the Project Conditions listed in the WQC still apply.

Let me know if I can provide additional assistance.

Ryan Conchilla, PWS
Environmental Specialist II

401 and Buffer Transportation Permitting Branch
North Carolina Department of Environmental Quality
919-707-9111 office
Ryan.Conchilla@deq.nc.gov

From: Chris Rivenbark <crivenbark@rkk.com>
Sent: Wednesday, February 28, 2024 9:25 AM
To: Brumagin, Stephen A (Steve) CIV USARMY CESAW (USA) <Stephen.A.Brumagin@usace.army.mil>; Conchilla, Ryan <ryan.conchilla@deq.nc.gov>
Cc: Dilday, Jason L <jldilday1@ncdot.gov>
Subject: [External] Permit Modification for R-5709, NC 211 Moore & Hoke Counties, Division 8

SAW-2018-02283
DWR# 20211043

Good morning,
NCDOT is working on a permit modification request for this project and plans to submit via Laserfiche in the next few days. Revised proposed impacts consist of:

- 0.03 ac increase-hand clearing
- <0.01 ac increase-temporary surface waters
- Minor decreases-permanent & temporary fill in wetlands
- Minor decreases-permanent & temporary stream impacts

The review date is 3/26/24. Given the nature of the impact changes and to save time, would it be possible to authorize the revisions as an in-field modification to allow inclusion in the contract?

We understand you'll need to see what's involved but wanted to ask if that route could be considered.

Thank you both in advance.

CHRIS RIVENBARK, PWS, CPM
Project Delivery Leader

8601 Six Forks Road
Forum 1 - Suite 700
Raleigh, NC 27615

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2018-02283** County: **Hoke and Moore** U.S.G.S. Quad: **NC-McCain**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: **NCDOT Division 8**
Phillip Harris
Address: **1000 Birch Ridge Drive**
Raleigh, NC 27610
Telephone Number: **919-749-0442**
E-mail: **pharris@ncdot.gov**

Size (acres) **N/A**
Nearest Waterway **Mountain Creek**
USGS HUC **03040203 and 03030004**

Nearest Town **Raeford**
River Basin **Lower Pee Dee and Cape Fear**
Coordinates Latitude: **35.0514**
Longitude: **-79.3431**

Location description: **The project corridor is existing NC 211 from its intersection with NC 15-501 in Aberdeen south to its intersection with West Palmer Street in Raeford, Moore and Hoke counties, North Carolina.**

Description of projects area and activity: **This verification authorizes the permanent discharge of fill material into 1,443 linear feet of stream channel and 2.3 acres of wetlands, and the temporary discharge of fill material into 161 linear feet of stream channel and 0.01 acre of wetlands for the widening of NC 211. Mitigation is required for this proposal.**

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

Authorization: **RGP198200031 and NWP 57 Electric Utility Line and Telecommunications Activities**

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

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached Conditions, your application signed and dated 6/24/2021, and the enclosed plans dated 6/18/2021. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

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

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

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 **James Lastinger at 919-554-4884 ext 32or James.C.Lastinger@usace.army.mil**.

Corps Regulatory Official: _____ Date: **7/19/2021**
Expiration Date of Verification: **5/25/2025**

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

Copy furnished:

SAW-2018-02283

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. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (PBO) titled, "NCDOT Program Effects on the Northern Long-eared Bat in Divisions 1-8", dated November 6, 2020, contains agreed upon conservation measures for the NLEB. As noted in the PBO, applicability of these conservation measures varies depending on the location of the project. Your authorization under this Department of the Army permit is conditional upon your compliance with all applicable conservation measures in the PBO, which are incorporated by reference in this permit. Failure to comply with the applicable conservation measures would 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 PBO, and with the ESA.

Action ID Number: SAW-2018-02283 **County: Hoke and Moore**

Permittee: NCDOT Division 8, Phillip Harris

Project Name: NCDOT/R-5709/NC 211 from US 15/501 to SR 1244/SR1311/Division 8

Date Verification Issued: 7/19/2021

Project Manager: James Lastinger

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: James Lastinger
Raleigh Regulatory Office
U.S Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587
or
James.C.Lastinger@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**

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: NCDOT Division 8, Phillip Harris **Action ID:** SAW-2018-02283
Project Name: NCDOT/R-5709/NC 211 from US 15/501 to SR 1244/SR1311/Division 8 **County:** Hoke and Moore

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 Wilmington District 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 verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether 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 ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the 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:** 03040203, Lumber River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
1,339				1.26	1.04	

*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:** 03040203, Lumber River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
2,678				2.52	2.08	

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 Wilmington District, 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 District 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 District 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. When NCDMS provides mitigation 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 NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District 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 District 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 District, the Sponsor must obtain case-by-case approval from the District 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 District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions: A letter from **NCDMS**, confirming they are willing and able to accept the applicant's compensatory mitigation responsibility, dated **6/22/2021** was included with the preconstruction notification.

This form is not valid unless signed below by the District 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 District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil)***. Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: James Lastinger
USACE Field Office: Raleigh Regulatory Office
US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587
Email: James.C.Lastinger@usace.army.mil

USACE Project Manager Signature	7/19/2021 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.

SAW-2018-02283

A. Determination of Jurisdiction:

1. ☒ There are **waters, including wetlands** on the above described project area that may be subject to Section 404 of the Clean Water Act (CWA) (33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction. Please note, if work is authorized by either a general or nationwide permit, and you wish to request an appeal of an approved JD, the appeal must be received by the Corps and the appeal process concluded prior to the commencement of any work in waters of the United States and prior to any work that could alter the hydrology of waters of the United States.

2. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA) (33 USC § 1344). This determination may be relied upon for a period not to exceed five years from the date of this notification, provided there is no change in law or our published regulations or new information that warrants revision of this determination.

3. ☐ There are **waters, including wetlands** within the above described project area that are subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). This determination may be relied upon for a period not to exceed five years from the date of this notification, provided there is no change in law or our published regulations or new information that warrants revision of this determination.

4. A jurisdiction determination was not completed with this request. Therefore, this is not an appealable action. However, you may request an approved JD, which is an appealable action, by contacting the Corps for further instruction.

5. ☐ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued. Action ID:.

B. Basis For Determination: See the preliminary jurisdictional determination form dated 7/19/2021.

C. Remarks:

D. Attention USDA Program Participants

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

E. Appeals Information for Approved Jurisdiction Determinations (as indicated in A2 and A3 above).

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

US Army Corps of Engineers
South Atlantic Division
Attn: Philip Shannin, Appeal Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

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

SAW-2018-02283

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: _____

James Lastinger

Date of JD: **7/19/2021** Expiration Date of JD: **Not applicable**

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 our Customer Satisfaction Survey, located online at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Copy furnished:

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

July 14, 2021

DWR # 20211043
Hoke and Moore County

Mr. Philip S. Harris, III, P.E., CPM
Environmental Analysis Unit Head
1598 Mail Service Center
Raleigh, NC 27699-1598

Subject: APPROVAL OF 401 WATER QUALITY CERTIFICATION WITH ADDITIONAL CONDITIONS
NCDOT **TIP # R-5709,** Hoke and Moore County

Dear Mr. Harris:

You have our approval for the impacts listed below for the purpose described in your application received by the Division of Water Resources (Division) on 6/24/2021. These impacts are covered by the Water Quality General Certification Number 4135 and the conditions listed below. This certification is associated with the use of Permit Number GP31 once it is issued to you by the U.S. Army Corps of Engineers. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

The Division has determined that the proposed project will comply with water quality requirements provided that you adhere to the conditions listed in the enclosed certification and to the additional conditions itemized below.

The following proposed impacts are hereby approved. No other impacts are approved, including incidental impacts. [15A NCAC 02H .0506(b)].

Stream Impacts in the Cape Fear and Lumber River Basin

Site	Permanent Impacts in Intermittent Stream (linear ft)	Temporary Impacts in Intermittent Stream (linear ft)	Permanent Impacts in Perennial Stream (linear ft)	Temporary Impacts in Perennial Stream (linear ft)	Total Stream Impacts (linear ft)
Site 3- SA	0	0	183	20	203
Site 4- SD	0	0	20	12	32
Site 8- SC	0	0	111	53	164
Site 10- SE	0	0	70	0	70
Site 14- SF	0	0	185	0	185
Site 15- SJ	140	11	0	0	151
Site 16- SG	0	0	136	11	147
Site 18- SH	0	0	228	38	266
Site 22- SM	341	12	0	0	353
Site 22A-SK	0	0	29	3	32
Total	**481**	**23**	**962**	**137**	**1,603**

Total Stream Impact for Project: 1,603 linear feet.

Wetland Impacts in the Cape Fear and Lumber River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
WB	0.020	0	0.008	0	< 0.01	0.028
WA	0.074	0	0.006	0	0.03	0.008
WF	0.019	0	0	0	0.03	0.019
WG	0.84	0	0	0	0.03	0.84
WG2	0.002	0	0.027	0	0.03	0.029
WH	0.062	0	0.005	0	0.03	0.067
WJ	0.014	0	0	0	0.02	0.014
WI	0.192	0	0	0	0.06	0.192
WM	0.072	0	0	0	0.22	0.072
WL	0.289	0	0	0	0.06	0.289
WN	0	0	0.016	0	< 0.01	0.016
WP	0.820	0.010	0	0	0.14	0.830
WQ	0.540	0	0	0	0.05	0.540
WR	0.030	0	0	0	0	0.030
WT	0.020	0	0	0	0.01	0.020
Total	**2.3**	**0.010**	**0.062**	**0**	**0.82**	**2.310**

Total Wetland Impact for Project: 2.310 acres.

Pond Impacts in the Cape Fear and Lumber River Basin

Site	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
PE	0.01	0	0.01
Total	**0.01**	**0**	**0.01**

Total Open Water Impact for Project: 0.01 acres.

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Certification. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)].

If you are unable to comply with any of the conditions of the Water Quality General Certification or with the additional conditions itemized below, you must notify the Transportation Permitting Branch (TPB) within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the TPB any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

Conditions of Certification

Project Specific Conditions

1) 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)

2) Off-Site Wetland Mitigation
Compensatory mitigation for impacts to 2.3 acres of 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 June 22, 2021, 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.

3) *Relocations not for credit*
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)

4) 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 utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain 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)

5) 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 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)]

6) 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)]

7) 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)]

8) For all 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)]

9) 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)]

10) 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]

11) 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)]

12) 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)]

13) 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)]

14) The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507 (c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

15) 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)]

16) 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)]

17) 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)]

18) 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)]

19) Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

20) 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]

21) 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)]

22) 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)]

23) The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization, including all non-commercial borrow and waste sites associated with the project, 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]

24) 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.

25) 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)]

26) Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer (or whomever is the authorized agent if a non-NCDOT project) 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)]

27) Native riparian vegetation (ex. list herbaceous, trees, and shrubs native to your geographic region) 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.0506(b)(2)]

28) 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)

29) 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.

30) Sediment and erosion control measures shall not be placed in wetlands or surface waters, or within 5 feet of the top of bank, without prior approval from DWR. [15A NCAC 02H.0506(b)(3) and (c)(3)].

31) 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]

32) 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, Trout, WS-1, WS-11, High Quality Waters (HQW), Outstanding Resource Waters (ORW), or 303(d) Impaired Waters, then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watershed*. [15A NCAC 02H.0506(b)(3) and (c)(3); GC 4135]

This approval and its conditions are final and binding unless contested. [G.S. 143-215.5] Please be aware that by having impacted waters without first applying for and securing the issuance of a 401 Water Quality Certification, you have violated Title 15A of the North Carolina Administrative Code (NCAC) 2H .0500. Title 15A NCAC 2H .0500 requires certifications pursuant to Section 401 of the Clean Water Act whenever construction or operation of facilities will result in a discharge into navigable waters, including wetlands, as described in 33 Code of Federal Regulations (CFR) Part 323. It also states any person desiring issuance of the State certification or coverage under a general certification required by Section 401 of the Federal Water Pollution Control Act shall file with the Director of the North Carolina Division of Water Quality. Pursuant to G.S. 143-215.6A, these violations and any future violations are subject to a civil penalty assessment of up to a maximum of $25,000.00 per day for each violation.

This Certification can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at http://www.ncoah.com/ or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

This letter completes the review of the Division under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Ryan Conchilla at 919-710-6516 or ryan.conchilla@ncdenr.gov if have any questions or concerns.

Sincerely,

DocuSigned by:
Amy Chapman
9C9886312DCD474...

S. Daniel Smith, Director
Division of Water Resources

cc:

James Lastinger, USACE Raleigh Regulatory Field Office (via email)
Art King, Division 8 Environmental Officer
Gordan Cashin, NCDOT
Amanetta Somerville, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services

Submitted 6/24/2021

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	50205.1.1	**TIP No.:**	R-5709	**County(ies):**	Hoke Moore	**Page**	1	**of**	3

General Project Information

WBS Element:	50205.1.1	**TIP Number:**	R-5709	**Project Type:**	Roadway Widening	**Date:**	6/18/2021
NCDOT Contact:	Paul Atkinson, PE			**Contractor / Designer:**	Trent Cormier		
Address:	1202 Birch Ridge Drive Raleigh, NC 27610			**Address:**	8601 Six Forks Road Forum 1, Suite 700 Raleigh, NC 27615		
Phone:	(919)707-6707			**Phone:**	(919)878-9560		
Email:	patkinson@ncdot.gov			**Email:**	tcormier@rkk.com		
City/Town:	Aberdeen, Raeford			**County(ies):**	Hoke	Moore	
River Basin(s):	Lumber			**CAMA County?**	No	No	
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	15.648 MI.	**Surrounding Land Use:**	Farmland, Woods, Residential		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	222.7	ac.		63.3	ac.
Typical Cross Section Description:	A typical cross-section - 178 foot-wide will be used; which will include four 12-foot travel lanes with varying grass medians (23 foot, 30 foot, or 46 foot). It also contains varying exterior shoulder sections where 10-feet is paved, curb and gutter, and open shoulder section.			The existing typical cross-section is 24-feet wide with two 12-foot travel lanes and varying 8 to 10-foot unpaved shoulders.	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 16,100 / 22,300	Year: 2022 / 2040		Existing: 10,000	Year: 2001

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

R-5709 is a roadway widening project of NC 211 from the existing two lanes to the proposed four lanes in Hoke and Moore Counties. The expansion is 15.648 miles long and begins from US 15-501 in Aberdeen to east of SR 1244 (West Palmer Street) – SR 1311 (Mockingbird Hill Road) in Raeford. Wetlands, perennial streams, and intermittent streams are found within the limits of the project area. The jurisdictional streams within the study area have no impairments and do not provide habitat for any threatened or endangered aquatic species.

Design Mitigations for wetlands and streams include:

1. Steepening of roadway fill slopes within jurisdictional areas.
2. Stormwater was designed to avoid direct discharge into jurisdictional features to the maximum extent practicable.
3. Stormwater design velocities entering jurisdictional features have been mitigated to be non-erosive (less than 2 fps).
4. Open shoulder sections were maximized to promote sheet flow from the roadway.
5. Diffuse flow provided at outlets that do not have a well defined outfall.

Waterbody Information

Surface Water Body (1):	UT to Devil Gut Branch		**NCDWR Stream Index No.:**	14-2-11-7		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SA, SB, SD			**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)						

Submitted 6/24/2021

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	50205.1.1	TIP No.:	R-5709	County(ies):	Hoke Moore	Page	2	of	3

Additional Waterbody Information

Surface Water Body (2):	Devil Gut Branch		NCDWR Stream Index No.:	14-2-11-7	
NCDWR Surface Water Classification for Water Body		Primary Classification:	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SC			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):	Quewhiffle Creek		NCDWR Stream Index No.:	14-2-14	
NCDWR Surface Water Classification for Water Body		Primary Classification:	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SE			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 (4):	UT to Quewhiffle Creek		NCDWR Stream Index No.:	14-2-14	
NCDWR Surface Water Classification for Water Body		Primary Classification:	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SF, SJ			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 (5):	UT to Mountain Creek		NCDWR Stream Index No.:	14-2-16-(2)	
NCDWR Surface Water Classification for Water Body		Primary Classification:	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SG			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)					

Submitted 6/24/2021

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	50205.1.1	**TIP No.:**	R-5709	**County(ies):**	Hoke Moore	**Page**	3	**of**	3

Additional Waterbody Information

Surface Water Body (6):	UT to Buffalo Creek		**NCDWR Stream Index No.:**	14-2.5	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SH			**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 (7):	UT to Toneys Creek		**NCDWR Stream Index No.:**	14-10-1.2	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	Swamp Waters (Sw)		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SI, SM			**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)					

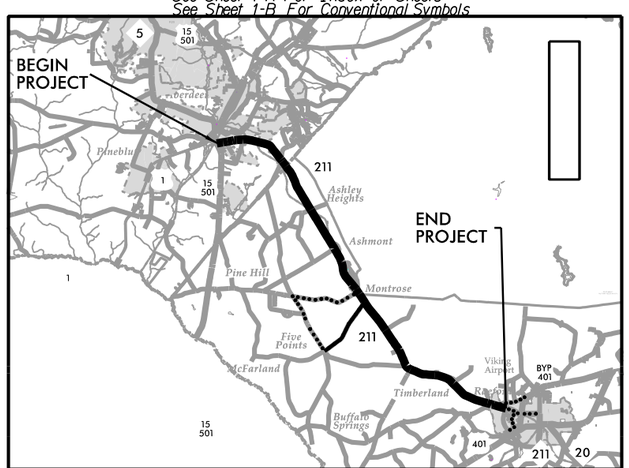
Surface Water Body (8):	UT to Rockfish Creek		**NCDWR Stream Index No.:**	18-31-(12)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SK, SL			**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)					

09/08/99

TIP PROJECT: R-5709

CONTRACT:

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



VICINITY MAP (NTS)

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE / HOKE COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5709	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
50205.1.1		PE
50205.2.1		ROW
50205.2.2		UTILITIES
50205.3.1		CONSTRUCTION

LOCATION: NC 211 FROM US 15/US 501 IN ABERDEEN TO SR 1244 (WEST PALMER ST) / SR 1311 (MOCKINGBIRD HILL RD) IN RAEFORD

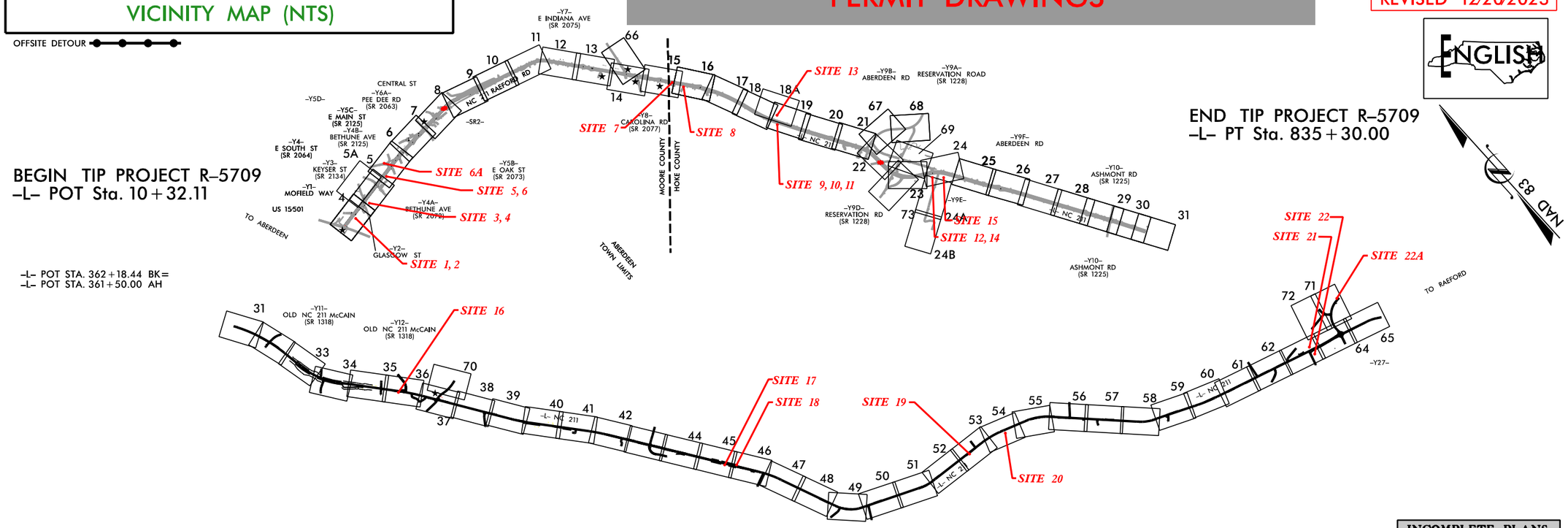
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES AND SIGNALS

WETLAND AND SURFACE WATER IMPACTS
PERMIT DRAWINGS

PERMIT DRAWING
SHEET 1 OF 60

REVISED 12/20/2023

ENGLISH



NOTE:
1. THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

★ PROPOSED SIGNAL

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = 16,400
ADT 2044 = 23,400
K = 9%
D = 60%
T = 21% *
**V = 50 MPH/60 MPH
* TTST = 16% DUAL 5%
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER
**DESIGN SPEED CHANGES AT COUNTY LINE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5709..... 15.607 miles
LENGTH STRUCTURE TIP PROJECT R-5709..... 0.031 miles
TOTAL LENGTH OF PROJECT R-5709..... 15.638 miles

NCDOT CONTACT

Terry E. Farr, PE
PROJECT MANAGER

PLANS PREPARED BY:
RK&K
8601 Six Forks Road, Forum 1 Suite 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 23, 2021

LETTING DATE:
MARCH 19, 2024

Brandon McInnis, PE
PROJECT ENGINEER

Mary Mays Yahl, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

1/3/2024
R:\Hydraulics\PERMITS_Environmental\Drawings\R5709_Hyd_tsh.dgn
choffman

PROJECT REFERENCE NO.	SHEET NO.
R-5709	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

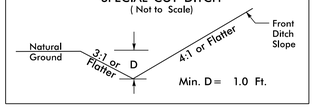
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 2 OF 60

REVISED 12/20/2023

ENGLISH

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



–L– FROM STA. 81+00 TO STA. 89+50 RT
–L– FROM STA. 94+50 TO STA. 97+50 RT
–L– FROM STA. 113+50 TO STA. 116+50 RT
–L– FROM STA. 134+00 TO STA. 135+75 RT
–L– FROM STA. 144+50 TO STA. 145+66 LT
–L– FROM STA. 156+00 TO STA. 157+00 LT
–L– FROM STA. 160+00 T0 STA. 164+30 RT
–L– FROM STA. 165+50 TO STA. 169+50 LT
–L– FROM STA. 174+00 TO STA. 175+00 LT
–L– FROM STA. 191+50 TO STA. 192+50 RT
–L– FROM STA. 194+50 TO STA. 195+00 RT
–L– FROM STA. 223+00 TO STA. 224+50 LT
–L– FROM STA. 227+00 TO STA. 227+50 LT
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–L– FROM STA. 266+00 TO STA. 268+00 LT
–L– FROM STA. 376+00 TO STA. 376+36 LT
–L– FROM STA. 384+50 TO STA. 385+00 LT
–L– FROM STA. 398+50 TO STA. 400+40 LT
–L– FROM STA. 415+64 TO STA. 417+00 LT
–L– FROM STA. 424+00 TO STA. 424+82 LT
–L– FROM STA. 428+00 TO STA. 428+50 RT
–L– FROM STA. 435+44 TO STA. 438+50 LT
–L– FROM STA. 464+50 TO STA. 465+50 LT
–L– FROM STA. 472+00 TO STA. 477+75 LT
–L– FROM STA. 484+00 TO STA. 487+50 LT
–L– FROM STA. 524+50 TO STA. 532+00 LT
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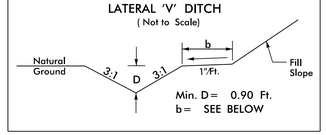
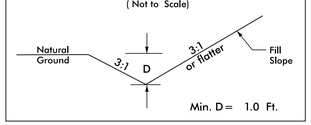
–L– FROM STA. 551+50 TO STA. 552+00 LT
–L– FROM STA. 573+00 TO STA. 573+50 LT
–L– FROM STA. 578+00 TO STA. 580+29 LT
–L– FROM STA. 592+50 TO STA. 596+00 RT
–L– FROM STA. 623+50 TO STA. 643+00 RT
–L– FROM STA. 642+50 TO STA. 670+50 LT
–L– FROM STA. 656+00 TO STA. 665+15 RT
–L– FROM STA. 671+20 TO STA. 676+00 LT
–L– FROM STA. 676+50 TO STA. 678+50 LT
–L– FROM STA. 681+00 TO STA. 684+00 RT
–L– FROM STA. 685+50 TO STA. 690+00 LT
–L– FROM STA. 692+00 TO STA. 696+00 RT
–L– FROM STA. 701+00 TO STA. 707+50 RT
–L– FROM STA. 708+66 TO STA. 710+03 LT
–L– FROM STA. 710+00 TO STA. 711+50 RT
–L– FROM STA. 715+00 TO STA. 715+50 LT
–L– FROM STA. 725+50 TO STA. 726+50 RT
–L– FROM STA. 726+50 TO STA. 731+50 LT
–L– FROM STA. 730+00 TO STA. 731+50 RT
–L– FROM STA. 733+50 TO STA. 736+00 LT
–L– FROM STA. 736+00 TO STA. 736+50 RT
–L– FROM STA. 743+00 TO STA. 745+00 LT
–L– FROM STA. 745+00 TO STA. 747+00 RT
–L– FROM STA. 746+50 TO STA. 751+00 LT
–L– FROM STA. 753+50 TO STA. 755+00 LT
–L– FROM STA. 756+50 TO STA. 757+00 RT
–L– FROM STA. 766+50 TO STA. 768+00 LT
–L– FROM STA. 769+50 TO STA. 772+50 RT
–L– FROM STA. 773+48 TO STA. 775+50 RT
–L– FROM STA. 778+50 TO STA. 782+50 LT
–L– FROM STA. 778+50 TO STA. 779+50 RT
–L– FROM STA. 786+00 TO STA. 786+97 LT
–L– FROM STA. 786+50 TO STA. 794+37 RT
–L– FROM STA. 795+28 TO STA. 795+65 RT
–L– FROM STA. 812+30 TO STA. 812+33 RT
–L– FROM STA. 814+00 TO STA. 815+00 RT
–L– FROM STA. 815+00 TO STA. 816+50 LT
–L– FROM STA. 818+50 TO STA. 820+50 RT
–L– FROM STA. 821+50 TO STA. 822+96 LT
–L– FROM STA. 822+50 TO STA. 822+64 RT
–L– FROM STA. 826+50 TO STA. 827+50 RT
–L– FROM STA. 832+00 TO STA. 834+00 LT
–Y9A– FROM STA. 26+00 TO STA. 27+00 LT
–Y9D– FROM STA. 13+00 TO STA. 13+50 LT
–L– /–Y11A– FROM STA. 376+00 TO STA. 376+39 RT
–Y21– FROM STA. 10+81 TO STA. 11+50 LT
–Y21– FROM STA. 10+71 TO STA. 12+00 RT
–Y22– FROM STA. 11+00 TO STA. 11+50 LT
–Y24A– FROM STA. 10+70 TO STA. 11+00 LT
–Y24A– FROM STA. 11+50 TO STA. 12+50 RT
–Y26– FROM STA. 14+00 TO STA. 14+50 RT
–Y26– FROM STA. 18+50 TO STA. 23+50 RT
–Y26A– FROM STA. 13+00 TO STA. 15+10 RT
–DR1– FROM STA. 11+00 TO STA. 12+50 LT
–DR1– FROM STA. 11+00 TO STA. 12+00 RT
–DR9– FROM STA. 10+74 TO STA. 11+47 RT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



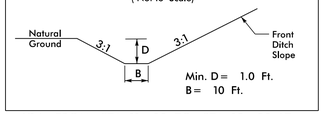
–L– FROM STA. 367+50 TO STA. 371+50 RT, b=5'
–L– FROM STA. 391+00 TO STA. 393+00 RT, b=2'
–L– FROM STA. 393+50 TO STA. 396+00 LT, b=2'
–L– FROM STA. 465+00 TO STA. 466+69 RT, b=2'
–L– FROM STA. 471+50 TO STA. 473+75 RT, b=5'
–L– FROM STA. 474+35 TO STA. 477+67 RT, b=5'
–L– FROM STA. 499+50 TO STA. 502+00 RT, b=2'
–L– FROM STA. 707+50 TO STA. 708+27 RT, b=5'
–L– FROM STA. 711+50 TO STA. 716+40 RT, b=5'
–L– FROM STA. 736+50 TO STA. 737+93 RT, b=2'
–L– FROM STA. 743+50 TO STA. 745+00 RT, b=5'
–L– FROM STA. 747+00 TO STA. 748+50 RT, b=5'
–L– FROM STA. 750+11 TO STA. 756+50 RT, b=5'
–L– FROM STA. 751+00 TO STA. 753+50 LT, b=5'
–L– FROM STA. 768+00 TO STA. 772+00 LT, b=4'
–L– FROM STA. 806+50 TO STA. 808+00 RT, b=5'
–L– FROM STA. 812+30 TO STA. 813+50 RT, b=5'
–Y11– FROM STA. 10+64 TO STA. 11+00 , b=2'
–Y11E– FROM STA. 11+00 TO STA. 11+50 LT, b=2'
–Y12– FROM STA. 11+00 TO STA. 11+50 RT, b=2'
–Y22– FROM STA. 11+00 TO STA. 11+50 LT, b=5'

DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



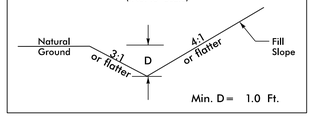
–L– FROM STA. 278+50 TO STA. 281+50 RT
–L– FROM STA. 467+49 TO STA. 468+04 RT
–L– FROM STA. 479+00 TO STA. 480+50 RT
–L– FROM STA. 502+00 TO STA. 503+00 RT
–L– FROM STA. 505+35 TO STA. 506+00 RT
–L– FROM STA. 545+48 TO STA. 547+00 RT
–L– FROM STA. 568+50 TO STA. 569+00 LT
–L– FROM STA. 716+39 TO STA. 724+00 RT
–L– FROM STA. 825+00 TO STA. 826+50 RT
–SR1– FROM STA. 15+00 TO STA. 17+50 RT
–Y9C– FROM STA. 11+00 TO STA. 14+50 LT
–Y11A– FROM STA. 10+25 TO STA. 11+50 LT
–Y11A– FROM STA. 11+00 TO STA. 11+50 LT
–Y14– FROM STA. 11+00 TO STA. 14+50 RT
–Y15– FROM STA. 11+75 TO STA. 14+50 LT
–Y15– FROM STA. 12+50 TO STA. 14+50 RT
–Y20– FROM STA. 13+00 TO STA. 14+90 LT
–Y20– FROM STA. 13+00 TO STA. 15+10 RT
–Y23– FROM STA. 10+85 TO STA. 11+50 RT
–Y23– FROM STA. 10+96 TO STA. 12+00 LT
–Y26– FROM STA. 11+13 TO STA. 14+00 RT
–Y26– FROM STA. 15+00 TO STA. 18+50 RT
–Y26– FROM STA. 19+50 TO STA. 25+00 LT
–Y26A– FROM STA. 10+50 TO STA. 11+00 RT
–Y26A– FROM STA. 10+50 TO STA. 12+50 LT
–Y26A– FROM STA. 14+50 TO STA. 15+50 LT
–Y27– FROM STA. 11+12 TO STA. 12+32 RT

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



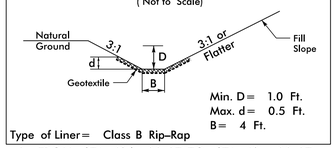
–Y14– FROM STA. 11+00 TO STA. 13+00 LT

DETAIL E
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



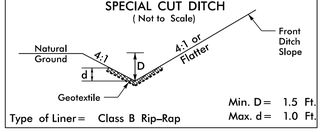
–L– FROM STA. 179+00 TO STA. 185+00 LT
–L– FROM STA. 189+00 TO STA. 194+00 LT
–L– FROM STA. 226+00 TO STA. 230+00 RT
–L– FROM STA. 368+00 TO STA. 371+00 LT
–L– FROM STA. 379+50 TO STA. 380+50 RT
–L– FROM STA. 387+50 TO STA. 389+50 LT
–L– FROM STA. 426+00 TO STA. 428+50 RT
–L– FROM STA. 430+50 TO STA. 432+50 LT
–L– FROM STA. 477+75 TO STA. 479+00 LT
–L– FROM STA. 480+50 TO STA. 483+00 LT
–L– FROM STA. 497+50 TO STA. 498+35 LT
–L– FROM STA. 498+00 TO STA. 499+37 RT
–L– FROM STA. 507+50 TO STA. 511+50 LT
–L– FROM STA. 524+50 TO STA. 526+91 RT
–L– FROM STA. 568+50 TO STA. 569+00 LT
–L– FROM STA. 573+50 TO STA. 576+83 LT
–L– FROM STA. 685+50 TO STA. 686+25 RT
–L– FROM STA. 698+00 TO STA. 700+50 LT
–L– FROM STA. 767+50 TO STA. 769+50 RT
–L– FROM STA. 820+50 TO STA. 822+49 RT
–L– FROM STA. 822+96 TO STA. 823+30 LT
–L– FROM STA. 832+50 TO STA. 834+00 LT
–DR3– FROM STA. 12+50 TO STA. 13+15 LT
–DR4– FROM STA. 11+00 TO STA. 12+50 RT
–Y9A– FROM STA. 32+70 TO STA. 34+00 RT
–Y9B– FROM STA. 14+00 TO STA. 15+30 LT
–Y9C– FROM STA. 14+50 TO STA. 15+40 RT
–Y26– FROM STA. 11+41 TO STA. 12+48 LT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



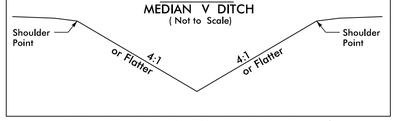
–L– FROM STA. 426+00 LT TO STA. 431+00 LT

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



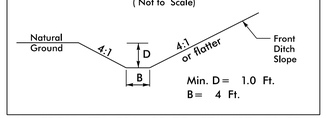
–L– FROM STA. 385+00 TO STA. 386+00 LT
–L– FROM STA. 471+00 TO STA. 471+50 LT
–L– FROM STA. 541+00 TO STA. 542+00 RT
–L– FROM STA. 772+00 TO STA. 774+00 LT
–L– FROM STA. 772+50 TO STA. 773+48 RT

DETAIL H
MEDIAN V DITCH
(Not to Scale)



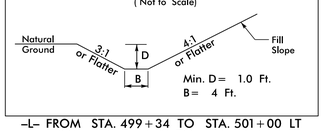
–L– FROM STA. 368+04 TO STA. 368+50 Median
–L– FROM STA. 389+50 TO STA. 390+50 Median
–L– FROM STA. 397+50 TO STA. 398+52 Median
–L– FROM STA. 398+52 TO STA. 399+00 Median
–L– FROM STA. 415+00 TO STA. 416+00 Median
–L– FROM STA. 437+50 TO STA. 438+28 Median
–L– FROM STA. 458+00 TO STA. 460+00 Median
–L– FROM STA. 465+00 TO STA. 466+50 Median
–L– FROM STA. 473+00 TO STA. 477+00 Median
–L– FROM STA. 478+00 TO STA. 483+94 Median
–L– FROM STA. 513+00 TO STA. 515+00 Median
–L– FROM STA. 524+50 TO STA. 527+50 Median
–L– FROM STA. 547+50 TO STA. 549+33 Median
–L– FROM STA. 562+50 TO STA. 563+50 Median
–L– FROM STA. 572+00 TO STA. 575+50 Median
–L– FROM STA. 582+50 TO STA. 587+61 Median
–L– FROM STA. 594+00 TO STA. 605+56 Median
–L– FROM STA. 612+00 TO STA. 616+50 Median
–L– FROM STA. 629+00 TO STA. 633+50 Median
–L– FROM STA. 640+00 TO STA. 647+75 Median
–L– FROM STA. 654+00 TO STA. 659+00 Median
–L– FROM STA. 659+50 TO STA. 665+15 Median
–L– FROM STA. 696+00 TO STA. 697+50 Median
–L– FROM STA. 701+00 TO STA. 706+00 Median
–L– FROM STA. 716+39 TO STA. 717+50 Median
–L– FROM STA. 724+50 TO STA. 727+00 Median
–L– FROM STA. 752+00 TO STA. 753+00 Median
–L– FROM STA. 758+00 TO STA. 760+00 Median
–L– FROM STA. 763+50 TO STA. 764+50 Median
–L– FROM STA. 773+41 TO STA. 775+00 Median
–L– FROM STA. 778+50 TO STA. 779+00 Median
–L– FROM STA. 780+50 TO STA. 781+50 Median
–L– FROM STA. 788+50 TO STA. 790+50 Median
–L– FROM STA. 796+26 TO STA. 803+50 Median
–L– FROM STA. 810+67 TO STA. 815+00 Median
–L– FROM STA. 817+00 TO STA. 817+37 Median

DETAIL J
SPECIAL CUT BASE DITCH
(Not to Scale)



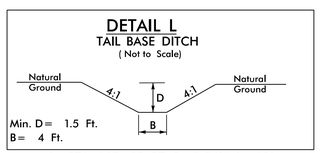
–L– FROM STA. 596+00 TO STA. 607+00 RT
–L– FROM STA. 718+50 TO STA. 719+00 LT

DETAIL K
SPECIAL LATERAL BASE DITCH
(Not to Scale)



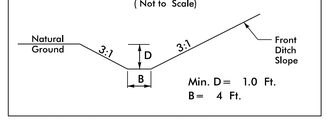
–L– FROM STA. 499+34 TO STA. 501+00 LT
–L– FROM STA. 717+00 TO STA. 718+50 LT
–L– FROM STA. 810+49 TO STA. 812+30 RT

DETAIL L
TAIL BASE DITCH
(Not to Scale)



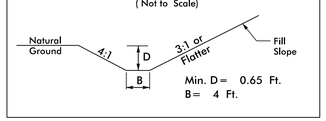
–L– STA. 665+15 RT; S=0.04%; L=60';
Beg El.=358.94; End El.=358.68; DDE=33 CY
–L– STA. 773+35 LT (RT OF RR); S=1.25%; L=40';
Beg El.=297.00; End El.=296.50; DDE=22 CY
–L– STA. 773+35 LT (LT OF RR); S=1.08%; L=28';
Beg. El.=296.19; End El.=295.89; DDE=16 CY
–L– STA. 774+00 LT; S=5.24%; L=63';
Beg El.=299.80; End El.=296.50; DDE=35 CY
–L– STA. 812+30 RT; S=0.00%; L=68';
Beg El.=280.58; End El.=280.58; DDE=120 CY

DETAIL M
SPECIAL CUT BASE DITCH
(Not to Scale)



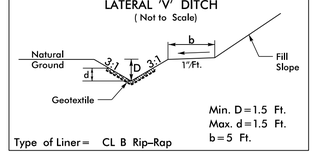
–L– FROM STA. 445+50 TO STA. 447+00 LT
–L– FROM STA. 592+00 TO STA 593+50 LT
–Y24– FROM STA. 12+50 TO STA. 14+75 LT

DETAIL N
SPECIAL LATERAL BASE DITCH
(Not to Scale)



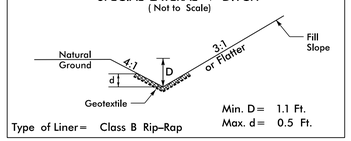
–L– FROM STA. 391+00 TO STA. 393+00 RT
–L– FROM STA. 505+50 TO STA. 506+00 RT

DETAIL O
LATERAL 'V' DITCH
(Not to Scale)



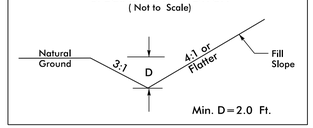
–L– FROM STA. 499+00 TO STA. 499+37 RT
–L– FROM STA. 731+50 TO STA. 733+27 RT

DETAIL P
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



–L– FROM STA. 542+00 TO STA. 543+00 RT
–Y12– FROM STA. 11+07 TO STA. 12+00 RT

DETAIL Q
SPECIAL CUT 'V' DITCH
(Not to Scale)



–L– FROM STA. 480+50 TO STA. 481+50 RT
–L– FROM STA. 489+50 TO STA. 498+00 RT
–L– FROM STA. 496+00 TO STA. 497+50 LT
–L– FROM STA. 506+00 TO STA. 507+50 RT
–L– FROM STA. 787+79 TO STA. 800+30 LT

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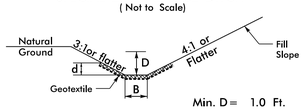
PERMIT DRAWING SHEET 3 OF 60

REVISED 12/20/2023

ENGLISH

DETAIL R
SPECIAL LATERAL BASE DITCH
(Not to Scale)

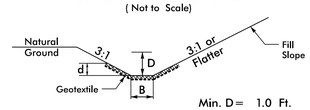


Min. D = 1.0 Ft.
Max. d = 0.5 Ft.
B = 4 Ft.

Type of Liner = Flexamat

–L– FROM STA. 418 + 00 TO STA. 420 + 50 LT

DETAIL S
SPECIAL LATERAL BASE DITCH
(Not to Scale)

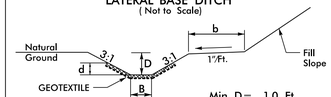


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 4 Ft.

Type of Liner = Class B Rip–Rap

–L– FROM STA. 431 + 00 TO STA. 432 + 50 LT
–L– FROM STA. 543 + 00 TO STA. 545 + 48 RT
–Y14– FROM STA. 13 + 00 TO STA. 14 + 50 LT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



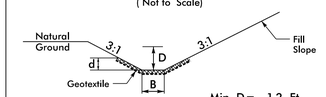
*When B is < 6.0'

Min. D = 1.0 Ft.
Max. d = 0.5 Ft.
B = 8 Ft.
b = 2 Ft.

Type of Liner = CLASS B Rip–Rap

–L– FROM STA. 831 + 00 LT TO STA. 832 + 00 LT

DETAIL V
SPECIAL LATERAL BASE DITCH
(Not to Scale)

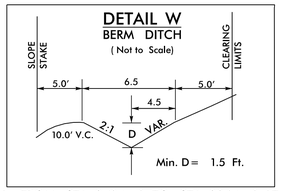


Min. D = 1.2 Ft.
Max. d = 1.0 Ft.
B = 6 Ft.

Type of Liner = CLASS B Rip–Rap

–L– FROM STA. 715 + 50 TO STA. 717 + 00 LT
–Y14– FROM STA. 13 + 00 TO STA. 14 + 50 LT

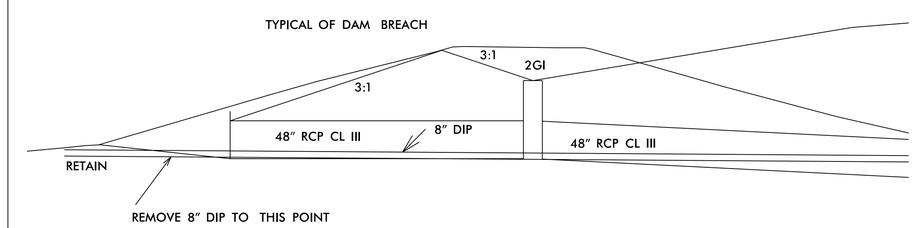
DETAIL W
BERM DITCH
(Not to Scale)



Min. D = 1.5 Ft.

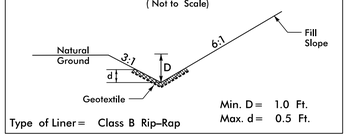
–L– FROM STA. 378 + 50 TO STA. 384 + 50 LT

DETAIL X
POND OUTLET CONTROL
(Not to Scale)



–L– STA. 168 + 02 LT

DETAIL Z
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

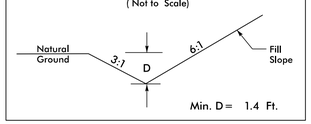


Min. D = 1.0 Ft.
Max. d = 0.5 Ft.

Type of Liner = Class B Rip–Rap

–Y13– FROM STA. 15 + 50 TO STA. 19 + 00 LT

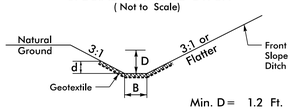
DETAIL AA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.4 Ft.

–Y13– FROM STA. 11 + 50 TO STA. 12 + 00 LT

DETAIL BA
SPECIAL CUT BASE DITCH
(Not to Scale)

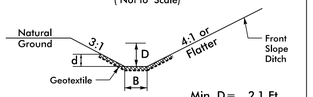


Min. D = 1.2 Ft.
Max. d = 1.0 Ft.
B = 6 Ft.

Type of Liner = CLASS B Rip–Rap

–Y14– FROM STA. 11 + 00 TO STA. 13 + 00 LT

DETAIL CA
SPECIAL CUT BASE DITCH
(Not to Scale)

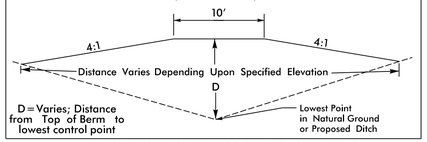


Min. D = 2.1 Ft.
Max. d = 1.0 Ft.
B = 8 Ft.

Type of Liner = CLASS B Rip–Rap

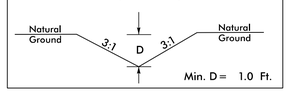
–Y14– FROM STA. 10 + 50 TO STA. 11 + 00 LT

DETAIL DA
10' WIDE BERM
(Not to Scale)



–L– STA. 386 + 00 LT; TOP ELEVATION = 447.3
–L– STA. 407 + 50 LT; TOP ELEVATION = 447.8
–L– STA. 471 + 50 LT; TOP ELEVATION = 447.0
–L– STA. 518 + 75 LT; TOP ELEVATION = 447.5
–L– STA. 708 + 44 LT; TOP ELEVATION = 349.2

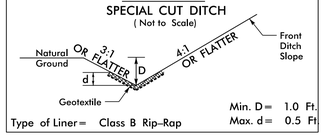
DETAIL EA
STANDARD TAIL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

–L– STA. 448 + 96 TO STA. 449 + 78 LT; S = 0.33%; L = 82';
Beg. El. = 473.74; End El. = 473.47; DDE = 5 CY
–L– STA. 656 + 70 LT; ; S = 0.85%; L = 39';
Beg. El. = 362.33; End El. = 362.00; DDE = 4 CY
–L– STA. 666 + 29 TO STA. 667 + 00 RT; S = 0.66%; L = 76';
Beg. El. = 359.25; End El. = 358.75; DDE = 19 CY
–L– FROM STA. 772 + 50 TO 773 + 30 LT (RT OF RR); S = 6.34%; L = 82';
Beg El. = 301.7; End El. = 296.5; DDE = 9 CY
–L– FROM STA. 772 + 94 TO 773 + 36 LT; S = 6.45%; L = 62';
Beg El. = 301.0; End El. = 297.0; DDE = 7 CY
–Y9C– STA. 14 + 50 RT; S = 3.5%; L = 100';
Beg El. = 448.2; End El. = 444.7; DDE = 12 CY
–Y9D– STA. 13 + 00 TO 14 + 00 LT; S = 4.34%; L = 100';
Beg El. = 410.5; End El. = 406.1; DDE = 22 CY
–Y13– STA. 12 + 00 RT; ; S = 0.48%; L = 44';
Beg. El. = 473 + 95; End El. = 473.74; DDE = 4 CY

DETAIL FA
SPECIAL CUT DITCH
(Not to Scale)

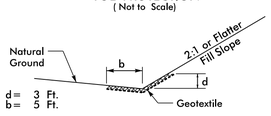


Min. D = 1.0 Ft.
Max. d = 0.5 Ft

Type of Liner = Class B Rip–Rap

–L– FROM STA. 146 + 00 TO STA. 146 + 50 RT
–L– FROM STA. 458 + 50 TO STA. 459 + 50 LT
–L– FROM STA. 700 + 50 TO STA. 708 + 27 LT
–L– FROM STA. 492 + 50 TO STA. 499 + 34 LT
–Y9D– FROM STA. 11 + 50 TO STA. 11 + 80 LT

DETAIL GA
TOE PROTECTION
(Not to Scale)

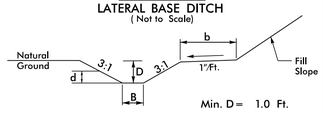


d = 3 Ft.
b = 5 Ft.

Type of Liner = Class B Rip–Rap

–L– FROM STA. 14 + 22 TO STA. 14 + 92 RT
–L– FROM STA. 34 + 63 TO STA. 35 + 50 RT
–L– FROM STA. 165 + 16 TO STA. 166 + 00 RT
–L– FROM STA. 168 + 20 TO STA. 169 + 35 RT
–L– FROM STA. 210 + 75 TO STA. 212 + 00 LT
–L– FROM STA. 337 + 00 TO STA. 338 + 50 RT
–L– FROM STA. 396 + 00 TO STA. 397 + 50 LT
–L– FROM STA. 419 + 00 TO STA. 421 + 50 RT
–L– FROM STA. 438 + 50 TO STA. 445 + 00 LT
–L– FROM STA. 483 + 00 TO STA. 484 + 46 RT
–L– FROM STA. 556 + 50 TO STA. 560 + 00 RT
–L– FROM STA. 557 + 80 TO STA. 559 + 75 LT
–L– FROM STA. 561 + 50 TO STA. 565 + 50 LT
–L– FROM STA. 564 + 65 TO STA. 568 + 00 RT
–L– FROM STA. 585 + 00 TO STA. 587 + 60 LT
–L– FROM STA. 590 + 00 TO STA. 591 + 50 LT
–L– FROM STA. 614 + 00 TO STA. 616 + 93 LT
–L– FROM STA. 808 + 80 TO STA. 810 + 07 LT
–L– FROM STA. 831 + 30 TO STA. 832 + 00 LT
–L– FROM STA. 831 + 30 TO STA. 832 + 00 RT
–Y11B– FROM STA. 10 + 35 TO STA. 11 + 40 RT
–Y11D– FROM STA. 12 + 53 TO STA. 14 + 75 LT
–Y12– FROM STA. 11 + 00 RT TO STA. 11 + 58 RT
–Y26– FROM STA. 13 + 50 LT TO STA. 14 + 50 LT

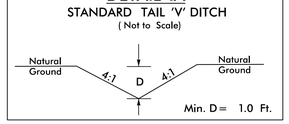
DETAIL HA
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 4 Ft.
b = 5 Ft.

–L– FROM STA. 607 + 00 TO STA. 610 + 77 RT
–L– FROM STA 612 + 00 TO STA. 622 + 00 RT
–L– FROM STA 811 + 07 TO STA. 812 + 30 RT

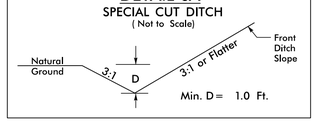
DETAIL IA
STANDARD TAIL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

–L– FROM STA. 479 + 00 TO 479 + 18 RT; L = 74'
S = 0.95%; Beg El. = 436.7; End El. = 436.0; DDE = 11 CY
–L– FROM STA. 527 + 84 TO 528 + 41 RT; L = 113'
S = 2.27%; Beg El. = 426.4; End El. = 429.0; DDE = 17 CY
–L– FROM STA. 526 + 91 TO 527 + 36 RT; L = 120'
S = 3.48%; Beg El. = 431.17; End El. = 427.0; DDE = 18 CY
–Y26A– FROM STA. 11 + 00 LT; L = 219'
S = 2.28%; Beg El. = 283.0; End El. = 278.0; DDE = 24 CY

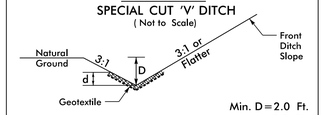
DETAIL JA
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.

–L– FROM STA. 579 + 50 TO STA. 582 + 17 RT
–L– FROM STA. 690 + 00 TO STA. 692 + 00 RT
–L– FROM STA. 808 + 00 TO STA. 809 + 11 RT
–Y24A– FROM STA. 11 + 00 TO STA. 11 + 88 LT

DETAIL KA
SPECIAL CUT 'V' DITCH
(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = Cl I Rip–Rap

–L– FROM STA. 22 + 00 TO STA. 24 + 50 RT
–L– FROM STA. 34 + 00 TO STA. 34 + 60 RT

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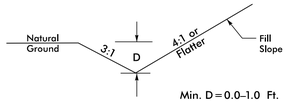
R:\Hydraulics\PERMITS_Environmental\Drawings\4CVR-5709_HYD_Ditch Detail.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-5709	2D-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

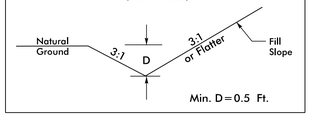
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL LA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



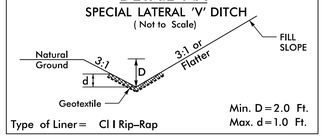
–L– FROM STA. 204+50 TO STA. 205+00 RT
–L– FROM STA. 274+50 TO STA. 275+50 RT
–L– FROM STA. 334+00 TO STA. 334+25 RT

DETAIL MA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



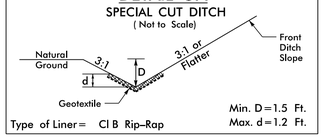
–L– FROM STA. 53+00 TO STA. 56+00 LT
–Y1– FROM STA. 11+00 TO STA. 12+50 RT
–Y2– FROM STA. 19+25 TO STA. 20+50 RT
–Y3– FROM STA. 18+20 TO STA. 18+90 LT
–Y4– FROM STA. 12+00 TO STA. 14+50 RT
–Y4A– FROM STA. 11+00 TO STA. 11+85 RT
–Y4B– FROM STA. 10+50 TO STA. 12+50 LT
–Y6– FROM STA. 13+00 TO STA. 14+50 LT
–Y6A– FROM STA. 11+22 TO STA. 11+75 LT
–Y9F– FROM STA. 20+50 TO STA. 21+00 LT

DETAIL NA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



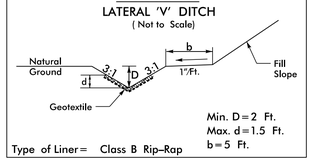
–L– FROM STA. 38+00 TO STA. 39+40 LT
–Y5A– FROM STA. 10+66 TO STA. 12+00 RT

DETAIL OA
SPECIAL CUT DITCH
(Not to Scale)



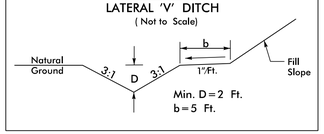
–L– FROM STA. 489+50 TO STA. 498+00 RT

DETAIL PA
LATERAL 'V' DITCH
(Not to Scale)



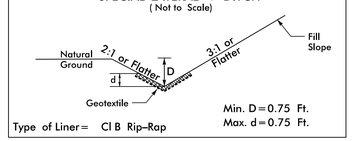
–Y9E– FROM STA. 11+00 TO STA. 12+00 RT

DETAIL QA
LATERAL 'V' DITCH
(Not to Scale)



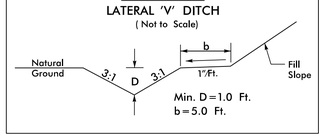
–Y9E– FROM STA. 12+00 TO STA. 13+00 RT
–L– FROM STA. 263+00 TO STA. 264+30 LT
–L– FROM STA. 264+50 TO STA. 266+00 LT

DETAIL RA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



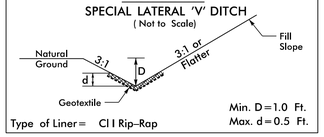
–L– FROM STA. 49+00 TO STA. 51+76.69 LT
–L– FROM STA. 60+32.75 TO STA. 60+75 RT
–Y6– FROM STA. 13+00 TO STA. 15+04 RT

DETAIL SA
LATERAL 'V' DITCH
(Not to Scale)



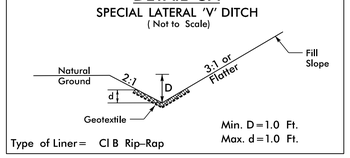
–L– FROM STA. 73+50 TO STA. 74+50 RT
–L– FROM STA. 243+70 TO STA. 244+80 LT
–L– FROM STA. 253+00 TO STA. 255+10 RT
–L– FROM STA. 254+85 TO STA. 260+30 LT
–Y9A– FROM STA. 11+71 TO STA. 12+85 RT

DETAIL TA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



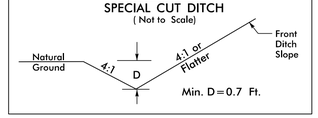
–Y2A– FROM STA. 14+50 TO STA. 14+93.84 RT
–Y11– FROM STA. 11+08 TO STA. 11+50 RT

DETAIL UA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



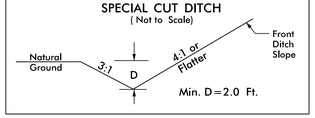
–L– FROM STA. 40+35 TO STA. 44+90 LT

DETAIL VA
SPECIAL CUT DITCH
(Not to Scale)



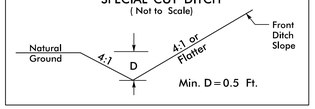
–L– FROM STA. 120+50 TO STA. 121+50 RT
–L– FROM STA. 127+50 TO STA. 128+25 RT

DETAIL WA
SPECIAL CUT DITCH
(Not to Scale)



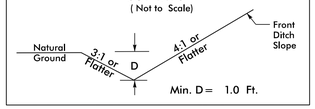
–L– FROM STA. 134+20 TO STA. 135+75 LT

DETAIL XA
SPECIAL CUT DITCH
(Not to Scale)



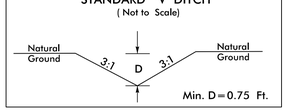
–L– FROM STA. 170+20 TO STA. 172+00 RT

DETAIL YA
CUT DITCH
(Not to Scale)



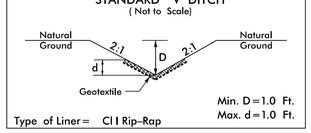
–L– FROM STA. 146+50 TO STA. 151+00 RT

DETAIL AB
STANDARD 'V' DITCH
(Not to Scale)



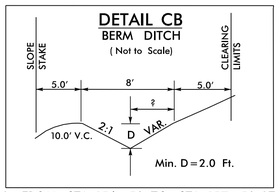
–Y9F– FROM STA. 20+00 TO STA. 20+50 LT; L=50'
S=1.75%; Beg El.=431.8; End El.=430.9; DDE=6 CY

DETAIL BB
STANDARD 'V' DITCH
(Not to Scale)



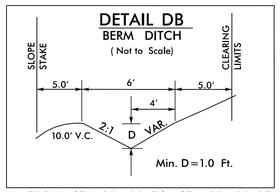
–L– FROM STA. 45+50 TO STA. 45+79 LT
–L– FROM STA. 686+92 TO STA. 687+42 RT; S=5.00%; L=50';
Beg El.=343.60 TO End El.=341.08; DDE=6 CY

DETAIL CB
BERM DITCH
(Not to Scale)



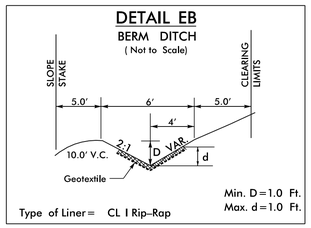
–L– FROM STA. 156+50 TO STA. 157+50 LT

DETAIL DB
BERM DITCH
(Not to Scale)



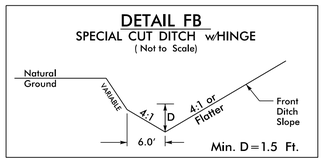
–L– FROM STA. 27+00 TO STA. 30+00 RT
–L– FROM STA. 32+00 TO STA. 33+00 RT
–L– FROM STA. 157+50 TO STA. 160+50 LT
–L– FROM STA. 161+25 TO STA. 163+50 LT

DETAIL EB
BERM DITCH
(Not to Scale)



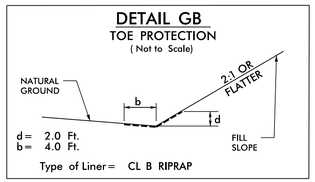
–L– FROM STA. 24+50 TO STA. 27+00 RT
–L– FROM STA. 33+00 TO STA. 34+00 RT

DETAIL FB
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



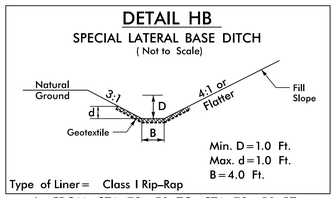
–L– FROM STA. 108+80 TO STA. 112+10 LT
–L– FROM STA. 128+18 TO STA. 131+50 LT
–L– FROM STA. 147+25 TO STA. 148+50 LT

DETAIL GB
TOE PROTECTION
(Not to Scale)



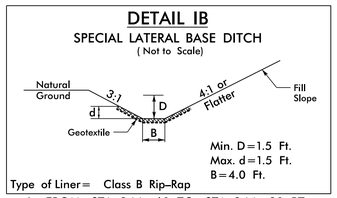
–L– FROM STA. 35+45 TO STA. 37+60 LT

DETAIL HB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



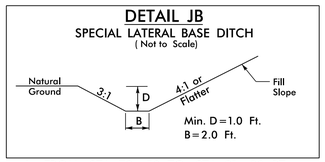
–L– FROM STA. 78+50 TO STA. 79+50 RT
–L– FROM STA. 201+00 TO STA. 201+80 LT

DETAIL IB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



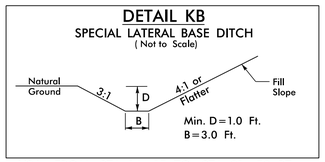
–L– FROM STA. 244+60 TO STA. 244+80 RT
–DR4– FROM STA. 12+50 TO STA. 13+00 RT

DETAIL JB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



–L– FROM STA. 79+50 TO STA. 81+00 RT
–L– FROM STA. 199+50 TO STA. 201+00 LT
–L– FROM STA. 237+50 TO STA. 238+05 RT
–Y9B– FROM STA. 18+50 TO STA. 22+75 RT

DETAIL KB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



–Y9A– FROM STA. 14+15 TO STA. 21+50 RT

ENGLISH

PERMIT DRAWING
SHEET 4 OF 60

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R-5709	2D-4
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PERMIT DRAWING SHEET 5 OF 60

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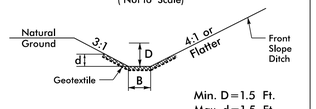
DETAIL LB
SPECIAL CUT BASE DITCH
(Not to Scale)

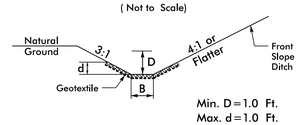


Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.

Type of Liner= Class B Rip-Rap

–L– FROM STA. 212+50 TO STA. 216+50 LT

DETAIL MB
SPECIAL CUT BASE DITCH
(Not to Scale)

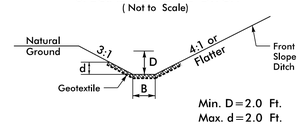


Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.

Type of Liner= Class B Rip-Rap

–L– FROM STA. 230+00 TO STA. 232+50 LT

DETAIL NB
SPECIAL CUT BASE DITCH
(Not to Scale)

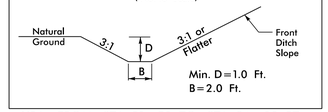


Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=4.0 Ft.

Type of Liner=Class B Rip-Rap

–L– FROM STA. 232+50 TO STA. 239+50 LT

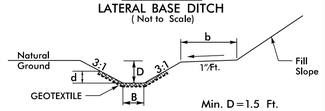
DETAIL OB
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D=1.0 Ft.
B=2.0 Ft.

–Y9A– FROM STA. 21+50 TO STA. 26+00 RT
–Y9C– FROM STA. 2+70 TO STA. 3+97 (CUL-DE-SAC) LT

DETAIL PB
LATERAL BASE DITCH
(Not to Scale)



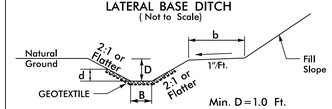
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=4.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

–L– FROM STA. 74+50 TO STA. 78+50 RT

DETAIL QB
LATERAL BASE DITCH
(Not to Scale)



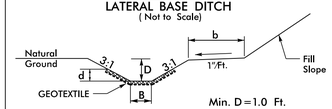
Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=5.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

–L– FROM STA. 208+50 TO STA. 210+50 LT

DETAIL RB
LATERAL BASE DITCH
(Not to Scale)



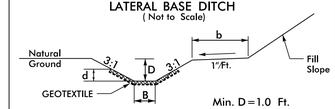
Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=3.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

–L– FROM STA. 208+00 TO STA. 210+00 RT

DETAIL SB
LATERAL BASE DITCH
(Not to Scale)



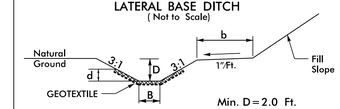
Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

–L– FROM STA. 167+65 TO STA. 168+27 RT
–L– FROM STA. 230+00 TO STA. 232+50 RT
–L– FROM STA. 360+50 TO STA. 362+00 RT

DETAIL TB
LATERAL BASE DITCH
(Not to Scale)



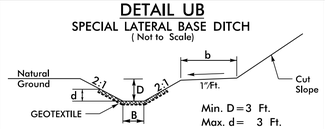
Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

–Y9A– FROM STA. 11+22 TO STA. 14+15 LT

DETAIL UB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



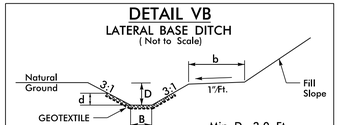
Min. D=3 Ft.
Max. d= 3 Ft.
B=4.0 Ft.
b=As needed for 28' clear recovery

*When B is < 6.0'

Type of Liner= CLASS I Rip-Rap

–L– FROM STA. 123+50 TO STA. 128+18 LT

DETAIL VB
LATERAL BASE DITCH
(Not to Scale)



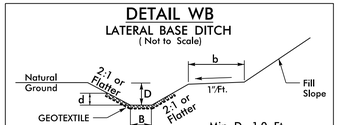
Min. D=2.0 Ft.
Max. d=1.5 Ft.
B=2 Ft.
b=5 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

–L– FROM STA. 262+00 TO STA. 262+30 LT
–Y9E– FROM STA. 10+90 TO STA. 11+00 RT

DETAIL WB
LATERAL BASE DITCH
(Not to Scale)



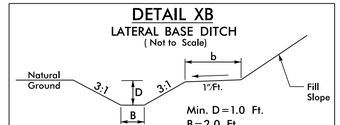
Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

–L– FROM STA. 207+00 TO STA. 208+50 LT

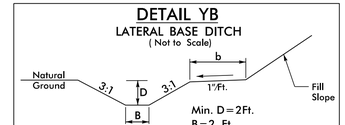
DETAIL XB
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

–L– FROM STA. 244+80 TO STA. 245+35 RT
–L– FROM STA. 246+80 TO STA. 254+00 LT

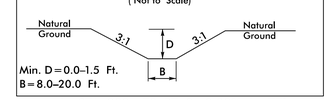
DETAIL YB
LATERAL BASE DITCH
(Not to Scale)



Min. D=2Ft.
B=2 Ft.
b=5 Ft.

–L– FROM STA. 262+30 TO STA. 263+00 LT
–L– FROM STA. 574+65 TO STA. 575+50 RT
–Y9D– FROM STA. 11+80 TO STA. 15+50 RT
–Y9D– FROM STA. 15+50 TO STA. 18+10 LT

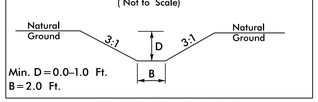
DETAIL ZB
TAIL BASE DITCH
(Not to Scale)



Min. D=0.0–1.5 Ft.
B=8.0–20.0 Ft.

–L– STA. 232+50 RT; S=0.33%; L=75'
DDE=38 CY
Beg El.=383.75; End El.=383.5

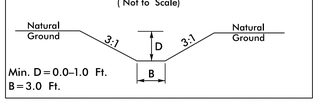
DETAIL AC
TAIL BASE DITCH
(Not to Scale)



Min. D=0.0–1.0 Ft.
B=2.0 Ft.

–L– STA. 237+50 RT; S=1.0%;
L=15';DDE=5 CY
Beg El.=393.15; End El.=393.0
–SR2– STA. 11+40 LT; S=0.5%; L=40'; DDE=8 CY
Beg El.=442.2; End El.=442.0

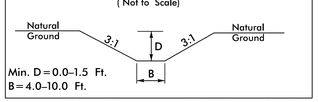
DETAIL BC
STANDARD BASE DITCH
(Not to Scale)



Min. D=0.0–1.0 Ft.
B=3.0 Ft.

–L– STA. 253+00 RT; S=0.3%; L=100';DDE=12 CY
Beg El.=413.0; End El.=412.7

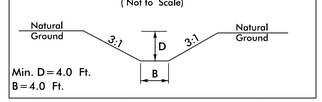
DETAIL CC
STANDARD BASE DITCH
(Not to Scale)



Min. D=0.0–1.5 Ft.
B=4.0–10.0 Ft.

–DR3– FROM STA. 10+20 TO STA. 11+50 LT
L=272'; DDE=234 CY
Beg El.=397.15'; End El.=395.50'

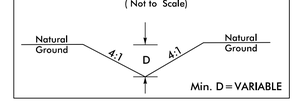
DETAIL DC
TAIL BASE DITCH
(Not to Scale)



Min. D=4.0 Ft.
B=4.0 Ft.

–L– STA. 128+18 RT; S=0.3%; L=267';DDE=495 CY
Beg El.=451.8; End El.=451.0

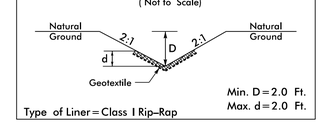
DETAIL EC
TAIL 'V' DITCH
(Not to Scale)



Min. D=VARIABLE

–L– STA. 135+75 RT; S=0.45%; L=100';
Beg El.=451.95; End El.=451.5
–L– STA. 269+20 RT; S=0.3%; L=56'
Beg El.=411.0; End El.=410.8

DETAIL FC
STANDARD 'V' DITCH
(Not to Scale)

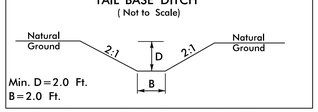


Min. D=2.0 Ft.
Max. d=2.0 Ft.

Type of Liner=Class I Rip-Rap

–Y7– FROM STA. 17+25 TO STA. 18+50 RT
DDE=4 CY

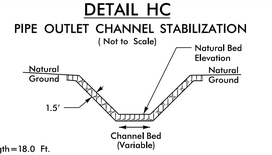
DETAIL GC
TAIL BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
B=2.0 Ft.

–L– STA. 168+00 LT; S=1.67%; L=18'; DDE=12 CY
Beg El.=422.1; End El.=421.8

DETAIL HC
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)

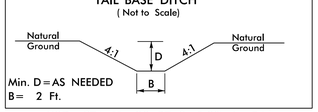


Length=18.0 Ft.

Type of Liner= CL I Rip-Rap – Keyed-In

–L– STA. 168+20 RT

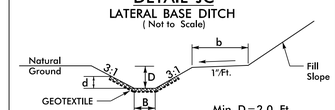
DETAIL IC
TAIL BASE DITCH
(Not to Scale)



Min. D=AS NEEDED
B= 2 Ft.

–Y9D– STA. 11+80 RT; S=1.2%; L=546'
Beg El.=402.6; End El.=396.0; DDE=296 CY

DETAIL JC
LATERAL BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner=Class B Rip-Rap

–Y9D– FROM STA. 18+10 TO STA. 21+03 LT

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PERMIT DRAWING SHEET 6 OF 60

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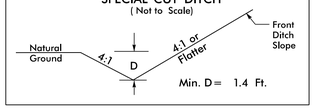
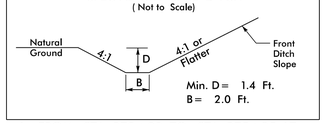
ENGLISH

DETAIL KC
SPECIAL CUT DITCH
(Not to Scale)



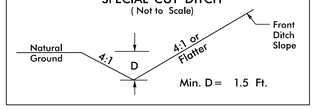
–L– FROM STA. 281+50 TO STA. 282+50 LT

DETAIL LC
SPECIAL CUT BASE DITCH
(Not to Scale)



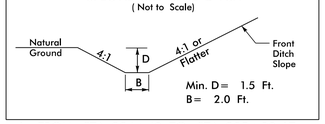
–L– FROM STA. 273+00 TO STA. 275+25 LT
–L– FROM STA. 276+10 TO STA. 281+50 LT

DETAIL MC
SPECIAL CUT DITCH
(Not to Scale)



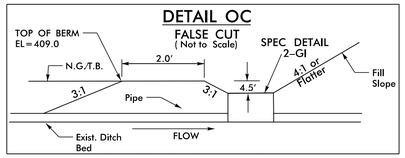
–L– FROM STA. 283+50 TO STA. 284+40 LT
–L– FROM STA. 286+60 TO STA. 295+00 LT
–L– FROM STA. 315+00 TO STA. 329+50 LT
–L– FROM STA. 336+00 TO STA. 339+00 LT
–L– FROM STA. 348+50 TO STA. 352+00 RT
–L– FROM STA. 358+00 TO STA. 358+88 RT
–L– FROM STA. 359+50 TO STA. 360+50 LT
–Y10– FROM STA. 15+00 TO STA. 15+85 RT
–Y10– FROM STA. 18+00 TO STA. 19+50 RT

DETAIL NC
SPECIAL CUT BASE DITCH
(Not to Scale)



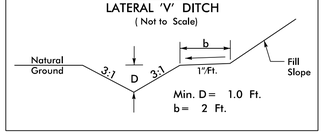
–L– FROM STA. 284+40 TO STA. 285+00 LT

DETAIL OC
FALSE CUT
(Not to Scale)



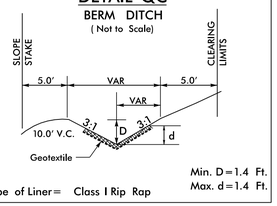
–L– STA. 302+59 TO STA 303+86 LT

DETAIL PC
LATERAL 'V' DITCH
(Not to Scale)



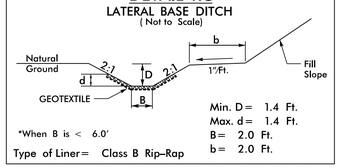
–L– FROM STA. 302+50 TO STA. 303+00 LT

DETAIL QC
BERM DITCH
(Not to Scale)



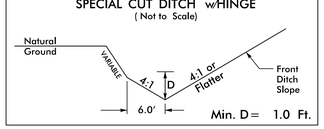
–L– FROM STA. 310+00 TO STA. 311+50 LT

DETAIL RC
LATERAL BASE DITCH
(Not to Scale)



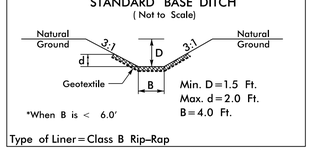
–L– FROM STA. 313+65 TO STA. 314+50 LT

DETAIL SC
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



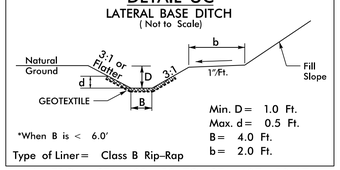
–L– FROM STA. 330+50 TO STA. 333+50 LT
–L– FROM STA. 352+50 TO STA. 359+50 LT

DETAIL TC
STANDARD BASE DITCH
(Not to Scale)



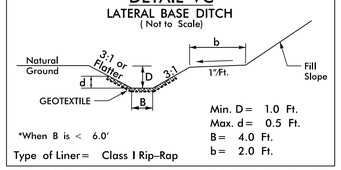
–L– STA. 208+50 LT; S=6.0%; L=25'; B=6'
Beg El.=373.4; End El.=371.9; DDE=13 CY
–L– STA. 644+46 LT; S=0.33%; L=60'; B=4'
Beg. El.=364.00; End El.=362.00; DDE=62 CY
–L– STA. 75+25 LT; S=4.717%; L=106' B=4'
Beg. El.=434; End El.=429; DDE=105 CY

DETAIL UC
LATERAL BASE DITCH
(Not to Scale)



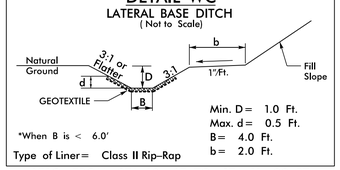
–L– FROM STA. 402+50 TO STA. 407+50 LT
–L– FROM STA. 557+00 TO STA. 557+75 LT
–L– FROM STA. 737+93 TO STA. 741+34 RT
–Y11E– FROM STA. 10+64 TO STA. 11+50 RT

DETAIL VC
LATERAL BASE DITCH
(Not to Scale)



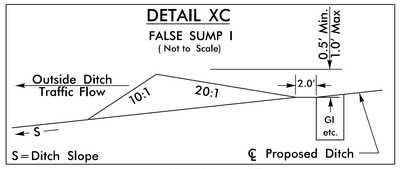
–DR3– FROM STA. 11+50 TO STA. 12+50 LT

DETAIL WC
LATERAL BASE DITCH
(Not to Scale)



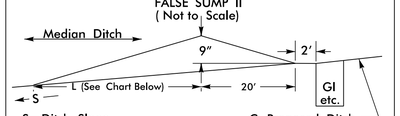
–Y11C– FROM STA. 10+67 TO STA. 11+28 RT

DETAIL XC
FALSE SUMP I
(Not to Scale)



–L– STA. 113+00 LT
–L– STA. 119+50 LT
–L– STA. 135+89 LT
–L– STA. 201+20 RT
–L– STA. 299+30 RT
–L– STA. 311+30 LT
–L– STA. 314+80 LT
–L– STA. 320+80 LT
–L– STA. 339+30 LT
–L– STA. 361+05 LT
–L– STA. 378+00 LT
–L– STA. 390+00 RT
–L– STA. 397+31 LT
–L– STA. 402+00 LT
–L– STA. 421+88 LT
–L– STA. 529+00 LT
–L– STA. 555+80 LT
–Y9B– STA, 10+00 RT
–Y11A– STA. 11+39 LT

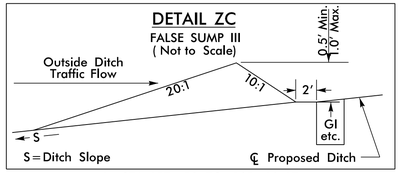
DETAIL YC
FALSE SUMP II
(Not to Scale)



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'

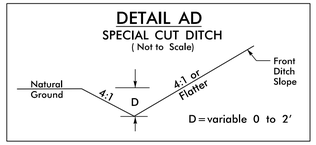
–L– STA. 173+19 MEDIAN
–L– STA. 264+30 TO 269+12 MEDIAN
–L– STA. 185+20 MEDIAN
–L– STA. 195+85 MEDIAN
–L– STA. 201+20 MEDIAN
–L– STA. 207+20 MEDIAN
–L– STA. 284+00 MEDIAN
–L– STA. 286+30 MEDIAN
–L– STA. 311+80 MEDIAN
–L– STA. 314+30 MEDIAN
–L– STA. 320+80 MEDIAN
–L– STA. 359+23 MEDIAN
–L– STA. 361+05 MEDIAN
–L– STA. 376+31 MEDIAN
–L– STA. 387+14 MEDIAN
–L– STA. 400+78 MEDIAN
–L– STA. 401+63 MEDIAN
–L– STA. 407+62 MEDIAN
–L– STA. 413+00 MEDIAN
–L– STA. 426+00 MEDIAN
–L– STA. 453+00 MEDIAN
–L– STA. 489+00 MEDIAN
–L– STA. 507+00 MEDIAN
–L– STA. 528+69 MEDIAN
–L– STA. 555+63 MEDIAN
–L– STA. 607+35 MEDIAN
–L– STA. 633+64 MEDIAN
–L– STA. 650+39 MEDIAN
–L– STA. 699+57 MEDIAN
–L– STA. 708+43 MEDIAN
–L– STA. 731+49 MEDIAN
–L– STA. 740+50 MEDIAN
–L– STA. 758+00 MEDIAN
–L– STA. 782+69 MEDIAN

DETAIL ZC
FALSE SUMP III
(Not to Scale)



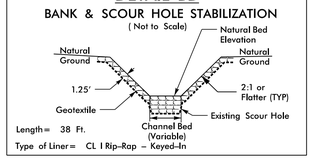
–L– STA. 157+50 TO 165+10 LT
–L– STA. 97+40 LT
–L– STA. 195+75 LT
–L– STA. 303+50 LT
–L– STA. 314+30 RT
–L– STA. 385+12 RT
–L– STA. 422+00 RT
–L– STA. 555+63 RT
–L– STA. 569+00 RT
–L– STA. 644+63 LT

DETAIL AD
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 172+75 TO STA. 173+17 –L– RT

DETAIL BD
BANK & SCOUR HOLE STABILIZATION
(Not to Scale)



–Y4– STA. 14+62 LT; Length=38 Ft.
–L– STA. 34+64 LT; Length=26 Ft.

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	2D-6
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

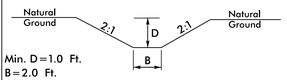
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 7 OF 60

REVISED 12/20/2023

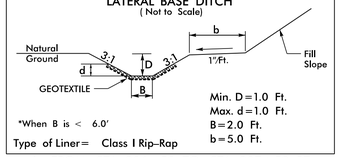
ENGLISH

DETAIL CD
STANDARD BASE DITCH
(Not to Scale)



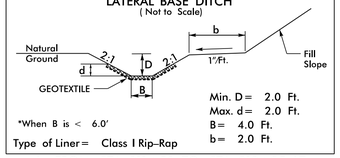
(DITCH CLEANOUT) STA. 146+00 –L– RT
DDE=95 CY

DETAIL ED
LATERAL BASE DITCH
(Not to Scale)



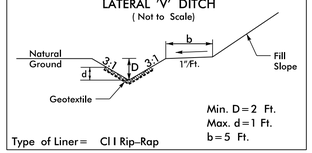
–L– FROM STA. 306+59 TO STA. 307+50 RT

DETAIL FD
LATERAL BASE DITCH
(Not to Scale)



–L– FROM STA. 311+50 TO STA. 313+25 LT

DETAIL GD
LATERAL 'V' DITCH
(Not to Scale)

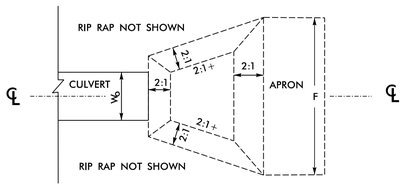


FROM STA. 14+32 TO STA. 15+45 –L– LT

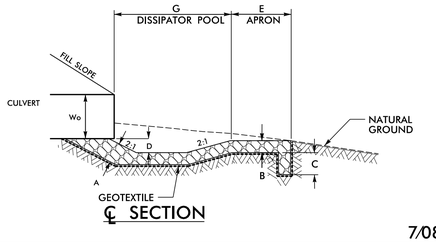
DETAIL ID
RIP–RAPPED ENERGY DISSIPATOR BASIN

DIM. (ft)	RIP RAP BASIN # 1	2	3
A	2.5	2	2
B	2.0	1.5	1.5
C	2.5	2	2
D	2.1	1.7	2
E	11	9	10
F	38	29	37
G	21	17	20

ALL DIMENSIONS APPROXIMATE



PLAN



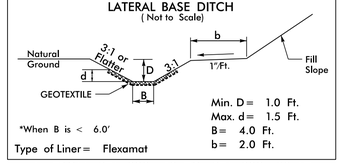
℄ SECTION

7/08

BASIN #	LOCATION (AT OUTLET)
1	–L– STA 278+35 RT
2	–L– STA 303+03 RT
3	–L– STA 312+00 RT

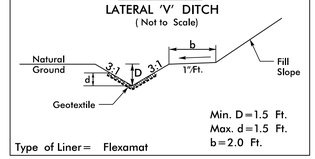
–L– STA 278+35 RT
–L– STA 303+03 RT
–L– STA 312+00 RT

DETAIL JD
LATERAL BASE DITCH
(Not to Scale)



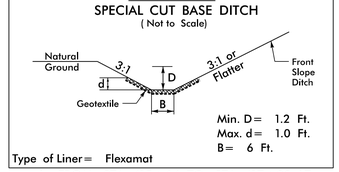
–L– FROM STA. 389+50 TO STA. 393+00 LT

DETAIL KD
LATERAL 'V' DITCH
(Not to Scale)



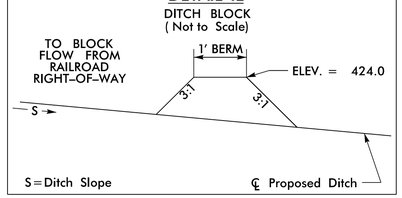
–L– FROM STA. 393+00 TO STA. 393+50 LT
–L– FROM STA. 407+50 TO STA 415+64 LT

DETAIL LD
SPECIAL CUT BASE DITCH
(Not to Scale)



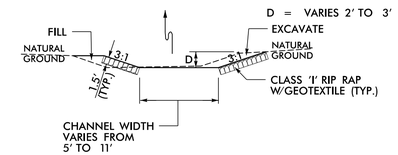
–L– FROM STA. 415+64 TO STA. 417+00 LT

DETAIL IE
DITCH BLOCK
(Not to Scale)



FROM STA. 254+80 –L– LT

DETAIL IF
OUTLET CHANNEL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE

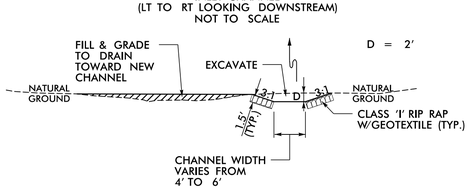


EST TON CLASS 'I' RIP RAP = 74 TONS
EST GEOTEXTILE = 100 SY

DDE = 30 CY

FROM STA. 14+10 –L– LT

DETAIL IG
INLET CHANNEL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE

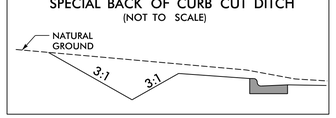


EST TON CLASS 'I' RIP RAP = 29 TONS
EST GEOTEXTILE = 40 SY

DDE = 15 CY

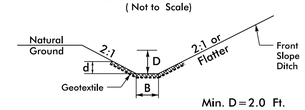
FROM STA. 14+65 –L– RT

DETAIL IH
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



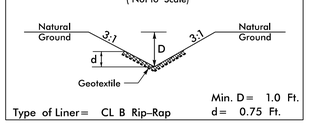
–Y8– FROM STA. 10+41 TO STA. 11+22 RT

DETAIL IJ
SPECIAL CUT BASE DITCH
(Not to Scale)



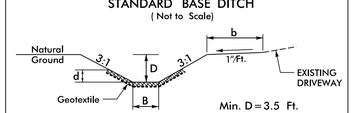
–Y9D– FROM STA. 11+80 TO STA. 13+00 LT

DETAIL IK
STANDARD 'V' DITCH
(Not to Scale)



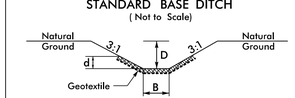
–DRIE– FROM STA. 28+75 TO STA. 29+25 LT

DETAIL ARL–1
STANDARD BASE DITCH
(Not to Scale)



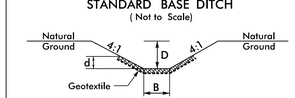
–DR11– STA. 17+17 TO STA. 36+00 RT

DETAIL ARL–2
STANDARD BASE DITCH
(Not to Scale)



–DR11– STA. 17+07 LT
L=115'; S=2.50%;
Beg. El.=370.1, End El.=367.15

DETAIL ARL–3
STANDARD BASE DITCH
(Not to Scale)



–DR11– STA. 16+90 LT
L=50'; S=0.30%;
Beg. El.=367.15, End El.=367.0

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Submitted 6/24/2021

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6"C+G	-L-	10+16.82	14+70.74	LT
2'-6"C+G	-Y1-	10+41.00	11+40.08	LT
2'-6"C+G	-Y1-	10+41.00	11+38.45	RT
2'-6"C+G	-L-	17+06.40	22+96.82	LT
1'-6"C+G	-L-	10+72.04	23+38.59	MEDIAN
2'-6"C+G	-L-	10+79.48	22+66.57	RT

F F — DENOTES FILL IN WETLAND

HC HC — DENOTES HAND CLEARING

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S — DENOTES IMPACTS IN SURFACE WATER

E E — DENOTES EXCAVATION IN WETLAND

-L- (NC 211) US 15-501

ADT 2024 16,844 / 23,900 — 4,556 / 7,500 — NC 211 -L- — 5,896 / 8,200 — 340 / 700 — 11,628 / 17,100 — ADT 2044 — US 15-501

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-5709	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

PERMIT DRAWING
SHEET 8 OF 60

GRAPHIC SCALE 100' 0' 100'

MATCHLINE -L- STA. 22+50.00
SEE SHEET 5

REVISIONS

8/17/99

N 31° 15' 03.6" W
25+00
-EY1-
-Y1-
-Y2A-
-DR1-
-L-
10+00
15+00
20+00
N 79° 38' 07.4" E
N 10° 17' 52.6" W
S 85° 40' 03.1" E
N 63° 46' 07.8" W

1A KEES APPIANO
1 TOWN OF ABERDEEN
2 ALICE P. HEINS, ET ALS
3 PRIME REALTY, INC
4 RSR GROUP, LLC
5 ALICE P. HEINS, ET ALS
8 SALISBURY-ROWAN COMMUNITY SERVICES COUNCIL HEAD START
REIDOR CORPORATION
W. FENTRESS PHILLIPS
TONY MURCHISON

SITE 1 — WB
SITE 2 — WA
SITE 3 — SA
SITE 4 — SD

V10=7.49fps
Q10=52cfs

LATERAL 'V' DITCH w/CL I RIPRAP SEE DETAIL GEN EST 62 TON EST 120 SY GF
OUTLET CHANNEL SEE DETAIL IF
TRENCHLESS INSTALLATION 54" WELDED STEEL
PLUG AND FILL
TOE PROTECTION SEE DETAIL GA
INLET CHANNEL SEE DETAIL IG
SPECIAL LATERAL 'V' DITCH SEE DETAIL MA
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL LATERAL 'V' DITCH SEE DETAIL MA
CL I RIP RAP ON BANKS ONLY EST 26 TON EST 47 SY GF
RETAIN
RETAIN SYSTEM
REMOVE
COLLAR
ACCESS BREAK
15" RCP-IV
15" RCP-III
15" RCP-V
24" W/2 ELBOWS
54" RCP (BURIED)
PUE
PDE
PROP D/H POW & TEL LINES
NC 211 RAEFORD RD
R5709-2 4" PL
HP -DR- Sta.13+26.31

★ PROPOSED SIGNAL

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NO. 74
FOR -EY1- PROFILE, SEE SHEET NO. 104
FOR -Y1- PROFILE, SEE SHEET NO. 104
FOR -Y2A- PROFILE, SEE SHEET NO. 104
FOR -DR1- PROFILE, SEE SHEET NO. 121

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED
FOR -L- USE RADIUS TYPE DRIVE TURNOUT
MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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kalford

Submitted 6/24/2021

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6"C+G	-L-	10+16.82	14+70.74	LT
2'-6"C+G	-Y1-	10+41.00	11+40.08	LT
2'-6"C+G	-Y1-	10+41.00	11+38.45	RT
2'-6"C+G	-L-	17+06.40	22+96.82	LT
1'-6"C+G	-L-	10+72.04	23+38.59	MEDIAN
2'-6"C+G	-L-	10+79.48	22+66.57	RT

F F — DENOTES FILL IN WETLAND

HC HC — DENOTES HAND CLEARING

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S — DENOTES IMPACTS IN SURFACE WATER

E E — DENOTES EXCAVATION IN WETLAND

-L- (NC 211) US 15-501

ADT 2024 16,844 / ADT 2044 23,900

4,556 / 7,500

NC 211 -L- 5896 / 8,200

340 / 700

13,628 / 17,100

US 15-501

PROJECT REFERENCE NO.	SHEET NO.
R-5709	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 9 OF 60

ENGLISH

NAD 83

GRAPHIC SCALE 100' 0' 100'

MATCHLINE -L- STA. 22+50.00
SEE SHEET 5

SITE 1 — WB
SITE 2 — WA
SITE 3 — SA
SITE 4 — SD

V10=7.49fps
Q10=52cfs

LATERAL "V" DITCH w/CL I RIPRAP SEE DETAIL GB EST 42 TON EST 120 SY GF

OUTLET CHANNEL SEE DETAIL IF

TRENCHLESS INSTALLATION 54" WELDED STEEL

TOE PROTECTION SEE DETAIL GA

INLET CHANNEL SEE DETAIL IG

SPECIAL LATERAL "V" DITCH SEE DETAIL MA

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL LATERAL "V" DITCH SEE DETAIL MA

CL I RIP RAP ON BANKS ONLY EST 24 TON EST 47 SY GF

RETAIN SYSTEM

RETAIN

PLUG AND FILL

REMOVE

ACCESS BREAK

N 37° 15' 03.6" W

N 48° 07' 18.8" W

N 79° 38' 07.4" E

N 10° 27' 52.6" W

S 85° 40' 03.1" E

★ PROPOSED SIGNAL

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NO. 74
FOR -EY1- PROFILE, SEE SHEET NO. 104
FOR -Y1- PROFILE, SEE SHEET NO. 104
FOR -Y2A- PROFILE, SEE SHEET NO. 104
FOR -DR1- PROFILE, SEE SHEET NO. 121

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED
FOR -L- USE RADIUS TYPE DRIVE TURNOUT
MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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8/18/2021
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kalford

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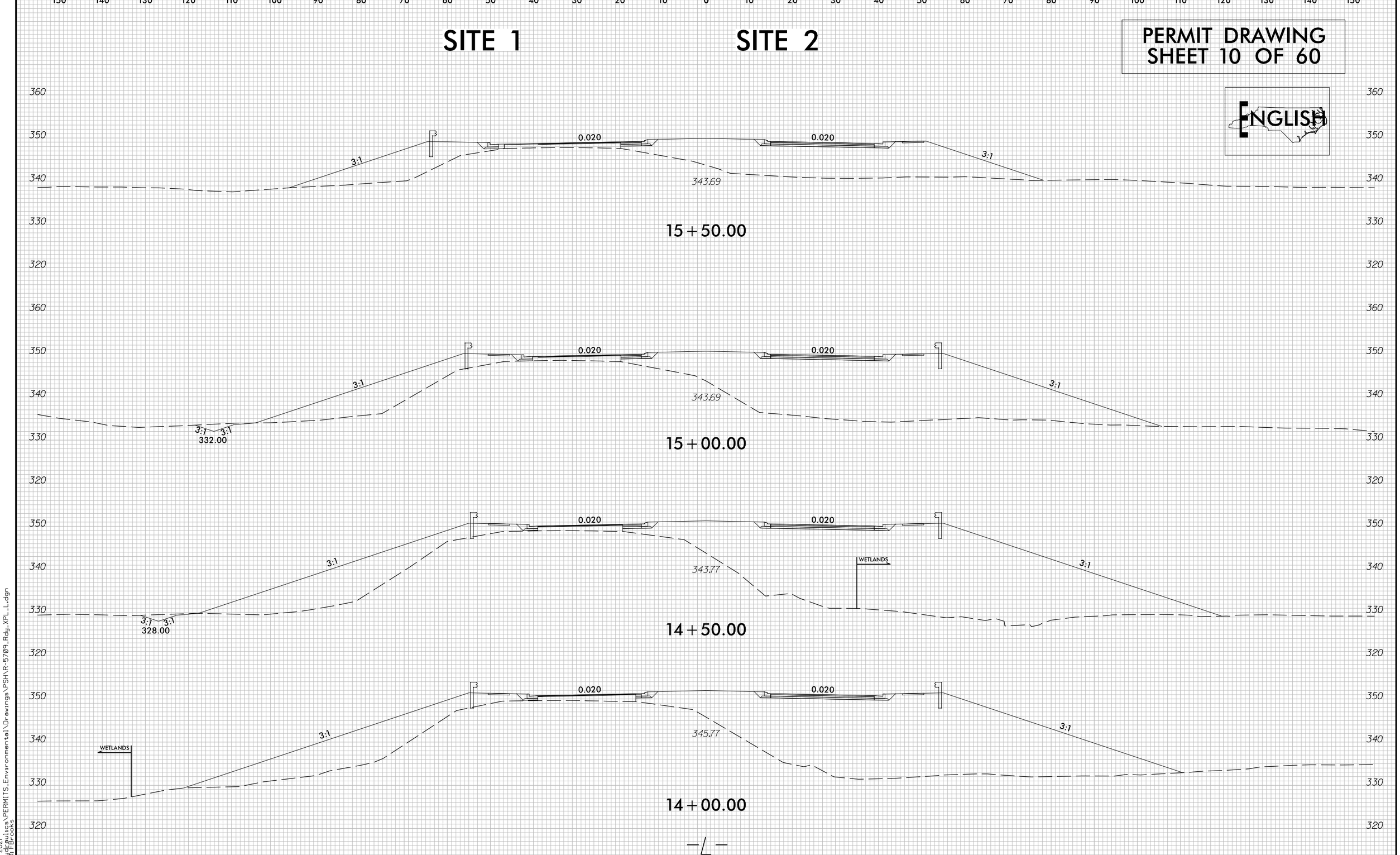
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-3

PERMIT DRAWING
SHEET 10 OF 60

ENGLISH

SITE 1 SITE 2



6/23/16

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USER:FBrooks

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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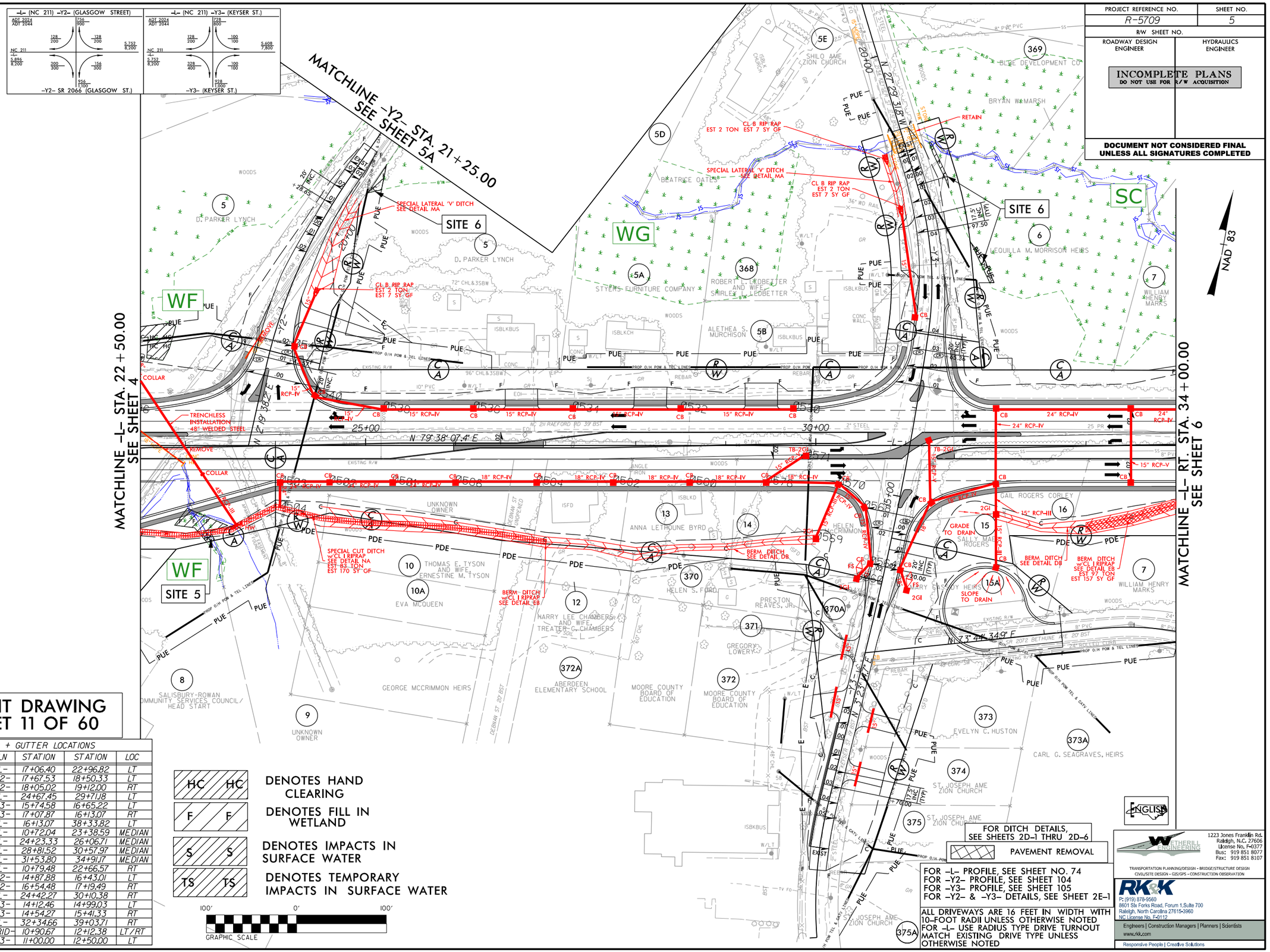

PERMIT DRAWING SHEET 11 OF 60

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-L-	17+06.40	22+96.82	LT
2'-6" C+G	-Y2-	17+67.53	18+50.33	LT
2'-6" C+G	-Y2-	18+05.02	19+12.00	RT
2'-6" C+G	-L-	24+67.45	29+71.18	LT
2'-6" C+G	-Y3-	15+74.58	16+65.22	LT
2'-6" C+G	-Y3-	17+07.87	16+13.07	RT
2'-6" C+G	-L-	16+13.07	38+33.82	LT
1'-6" C+G	-L-	10+72.04	23+38.59	MEDIAN
1'-6" C+G	-L-	24+23.33	26+06.71	MEDIAN
2'-6" C+G	-L-	28+81.52	30+57.97	MEDIAN
1'-6" C+G	-L-	31+53.80	34+91.17	MEDIAN
2'-6" C+G	-L-	10+79.48	22+66.57	RT
2'-6" C+G	-Y2-	14+87.88	16+43.01	LT
2'-6" C+G	-Y2-	16+54.48	17+19.49	RT
2'-6" C+G	-L-	24+42.27	30+10.38	RT
2'-6" C+G	-Y3-	14+12.46	14+99.03	LT
2'-6" C+G	-Y3-	14+54.27	15+41.33	RT
2'-6" C+G	-L-	32+34.66	39+03.71	RT
2'-6" C+G	-DRID-	10+90.67	12+12.38	LT/RT
VALLEY GUTTER	-Y3-	11+00.00	12+50.00	LT

HC HC	DENOTES HAND CLEARING
F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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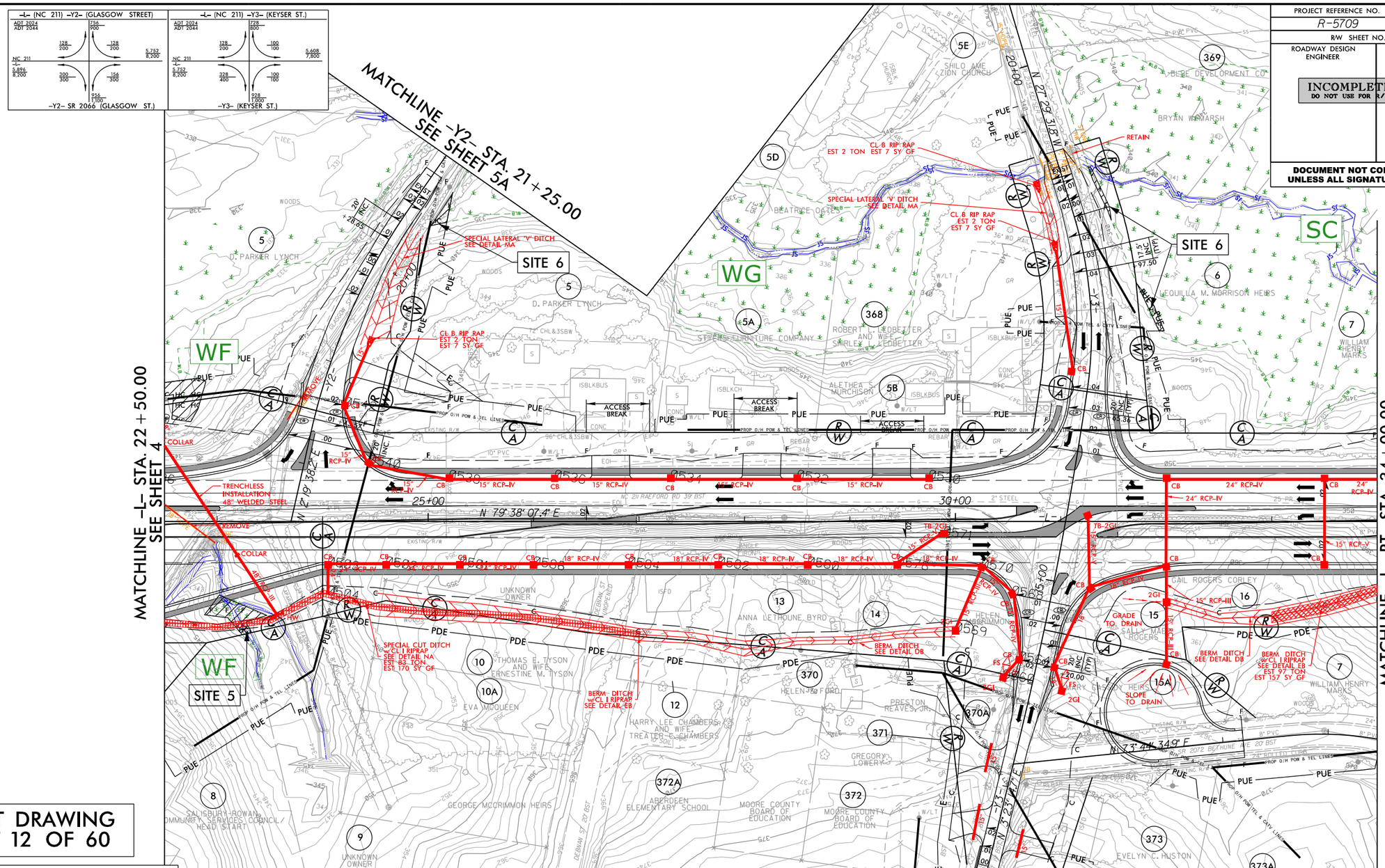

PERMIT DRAWING SHEET 12 OF 60

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-L-	17+06.40	22+96.82	LT
2'-6" C+G	-Y2-	17+67.53	18+50.33	LT
2'-6" C+G	-Y2-	18+05.02	19+12.00	RT
2'-6" C+G	-L-	24+67.45	29+71.18	LT
2'-6" C+G	-Y3-	15+74.58	16+65.22	LT
2'-6" C+G	-Y3-	17+07.87	16+13.07	RT
2'-6" C+G	-L-	16+13.07	38+33.82	LT
1'-6" C+G	-L-	10+72.04	23+38.59	MEDIAN
1'-6" C+G	-L-	24+23.33	26+06.71	MEDIAN
1'-6" C+G	-L-	28+81.52	30+57.97	MEDIAN
1'-6" C+G	-L-	31+53.80	34+91.17	MEDIAN
2'-6" C+G	-L-	10+79.48	22+66.57	RT
2'-6" C+G	-Y2-	14+87.88	16+43.01	LT
2'-6" C+G	-Y2-	16+54.48	17+19.49	RT
2'-6" C+G	-L-	24+42.27	30+10.38	RT
2'-6" C+G	-Y3-	14+12.46	14+99.03	LT
2'-6" C+G	-Y3-	14+54.27	15+41.33	RT
2'-6" C+G	-L-	32+34.66	39+03.71	RT
2'-6" C+G	-DRID-	10+90.67	12+12.38	LT/RT
VALLEY GUTTER	-Y3-	11+00.00	12+50.00	LT

HC HC — DENOTES HAND CLEARING

F F — DENOTES FILL IN WETLAND

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET NO. 74
FOR -Y2- PROFILE, SEE SHEET 104
FOR -Y3- PROFILE, SEE SHEET 105
FOR -Y2- & -Y3- DETAILS, SEE SHEET 2E-1

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED
FOR -L- USE RADIUS TYPE DRIVE TURNOUT
MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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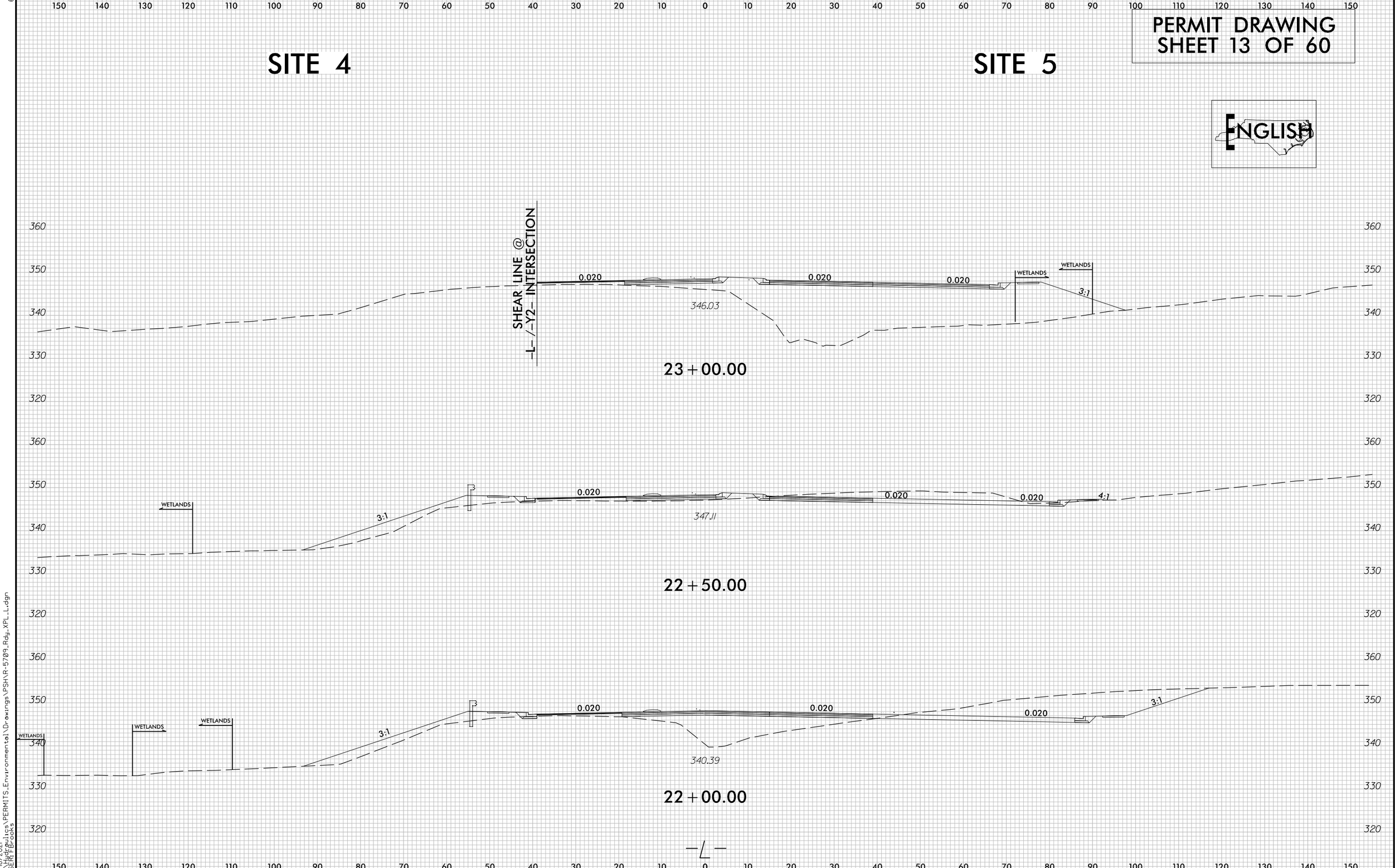
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-7

PERMIT DRAWING
SHEET 13 OF 60

ENGLISH

SITE 4

SITE 5



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6/18/2021
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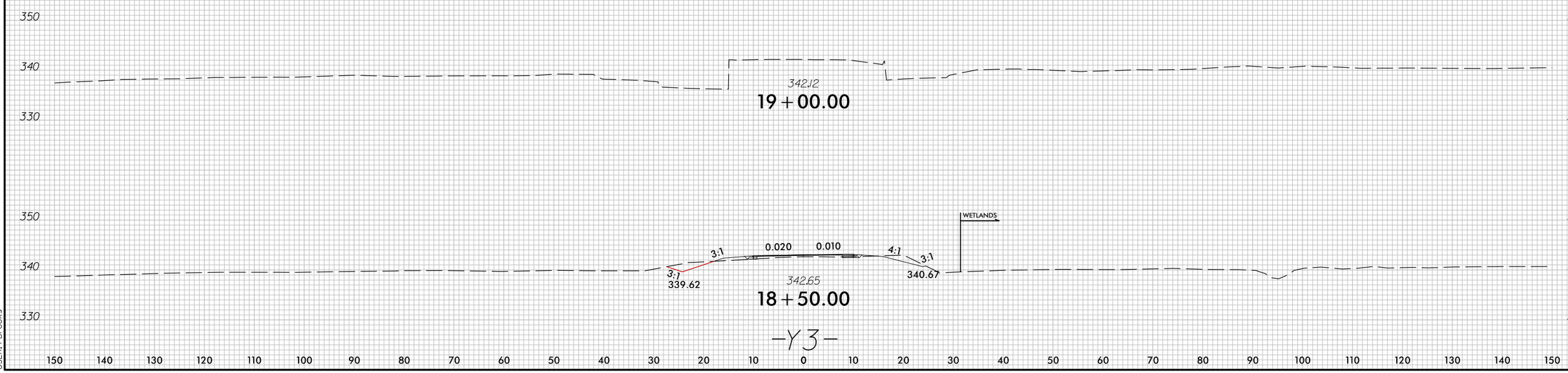
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-166

PERMIT DRAWING
SHEET 14 OF 60

ENGLISH

SITE 6



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USER: FBrooks

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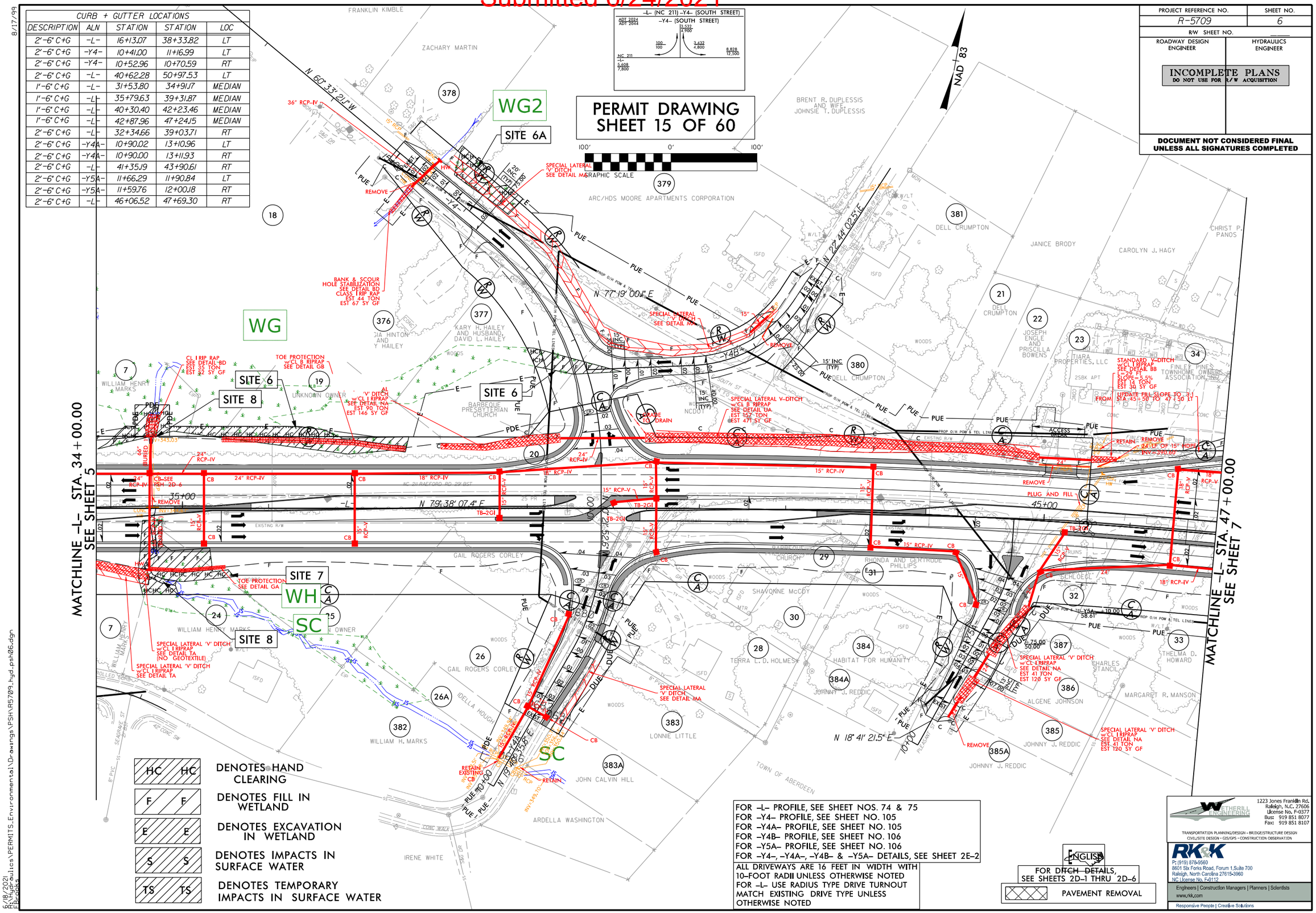
CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-L-	16+13.07	38+33.82	LT
2'-6" C+G	-Y4-	10+41.00	11+16.99	LT
2'-6" C+G	-Y4-	10+52.96	10+70.59	RT
2'-6" C+G	-L-	40+62.28	50+97.53	LT
1'-6" C+G	-L-	31+53.80	34+91.17	MEDIAN
1'-6" C+G	-L-	35+79.63	39+31.87	MEDIAN
1'-6" C+G	-L-	40+30.40	42+23.46	MEDIAN
1'-6" C+G	-L-	42+87.96	47+24.15	MEDIAN
2'-6" C+G	-L-	32+34.66	39+03.71	RT
2'-6" C+G	-Y4A-	10+90.02	13+10.96	LT
2'-6" C+G	-Y4A-	10+90.00	13+11.93	RT
2'-6" C+G	-L-	41+35.19	43+90.61	RT
2'-6" C+G	-Y5A-	11+66.29	11+90.84	LT
2'-6" C+G	-Y5A-	11+59.76	12+00.18	RT
2'-6" C+G	-L-	46+06.52	47+69.30	RT



PROJECT REFERENCE NO.	SHEET NO.
R-5709	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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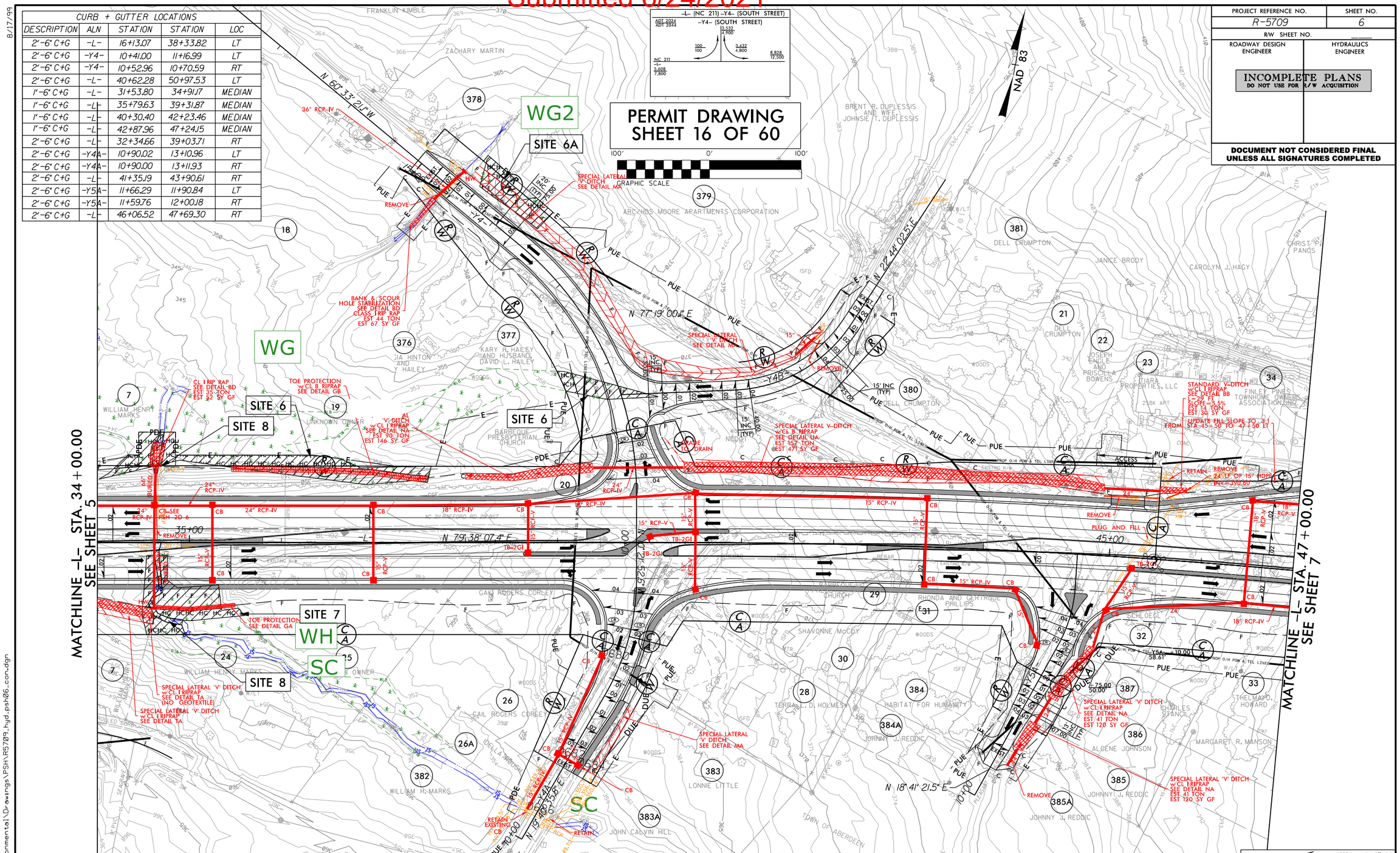
FBrooks

Submitted 6/24/2021

8/17/99

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C+G	-L-	16+13.07	38+33.82	LT
2'-6" C+G	-Y4-	10+41.00	11+16.99	LT
2'-6" C+G	-Y4-	10+52.96	10+70.59	RT
2'-6" C+G	-L-	40+62.28	50+97.53	LT
1'-6" C+G	-L-	31+53.80	34+91.17	MEDIAN
1'-6" C+G	-L-	35+79.63	39+31.87	MEDIAN
1'-6" C+G	-L-	40+30.40	42+23.46	MEDIAN
1'-6" C+G	-L-	42+87.96	47+24.15	MEDIAN
2'-6" C+G	-L-	32+34.66	39+03.71	RT
2'-6" C+G	-Y4A-	10+90.02	13+10.96	LT
2'-6" C+G	-Y4A-	10+90.00	13+11.93	RT
2'-6" C+G	-L-	41+35.19	43+90.61	RT
2'-6" C+G	-Y5A-	11+66.29	11+90.84	LT
2'-6" C+G	-Y5A-	11+59.76	12+00.18	RT
2'-6" C+G	-L-	46+06.52	47+69.30	RT



PROJECT REFERENCE NO.	SHEET NO.
R-5709	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -L- PROFILE, SEE SHEET NOS. 74 & 75
FOR -Y4- PROFILE, SEE SHEET NO. 105
FOR -Y4A- PROFILE, SEE SHEET NO. 105
FOR -Y4B- PROFILE, SEE SHEET NO. 106
FOR -Y5A- PROFILE, SEE SHEET NO. 106
FOR -Y4-, -Y4A-, -Y4B- & -Y5A- DETAILS, SEE SHEET 2E-2

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED
FOR -L- USE RADIUS TYPE DRIVE TURNOUT MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

ENGLISH

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

PAVEMENT REMOVAL

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ERoberts

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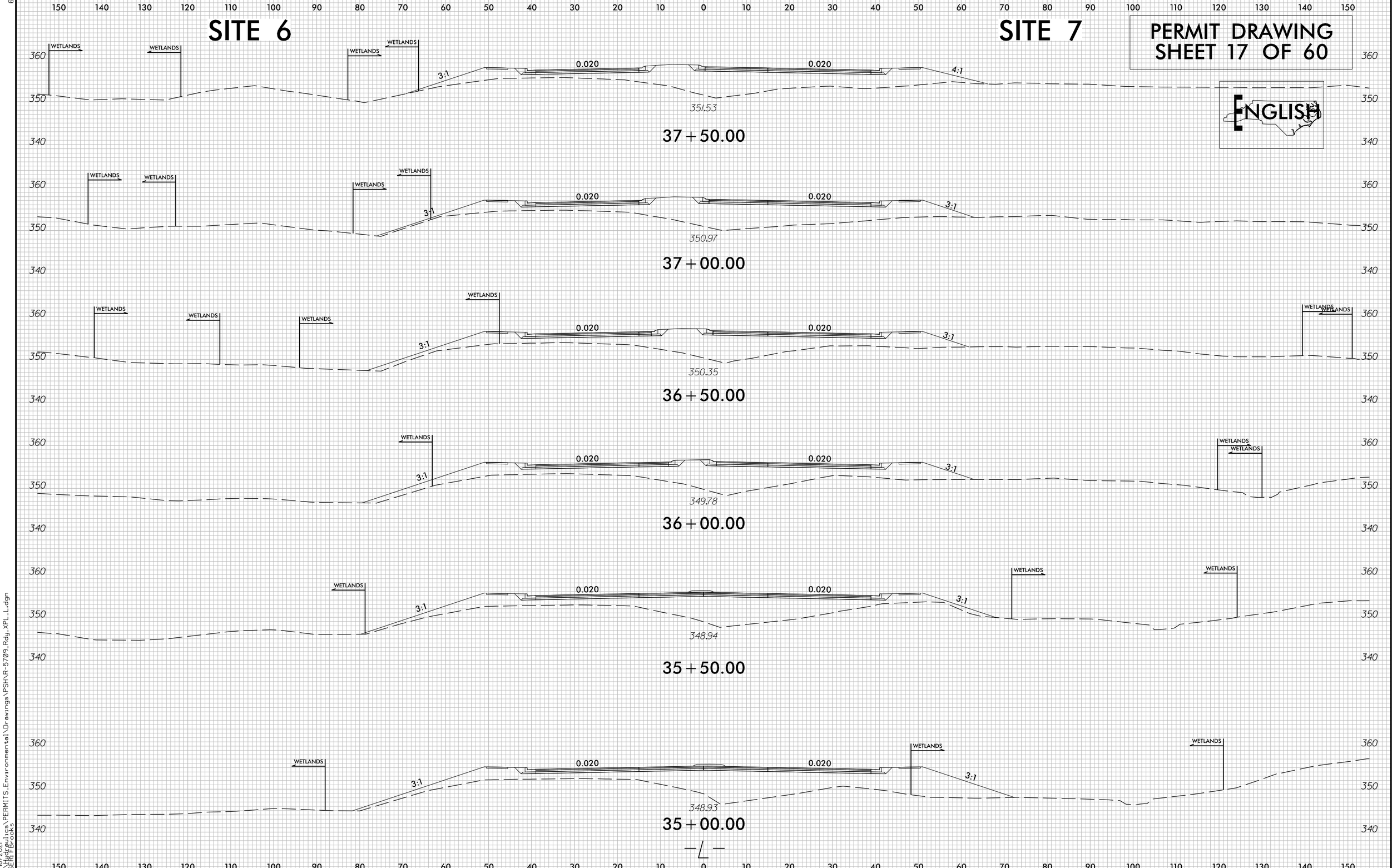
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-15

SITE 6

SITE 7

PERMIT DRAWING
SHEET 17 OF 60

ENGLISH



6/23/16

6/18/2021
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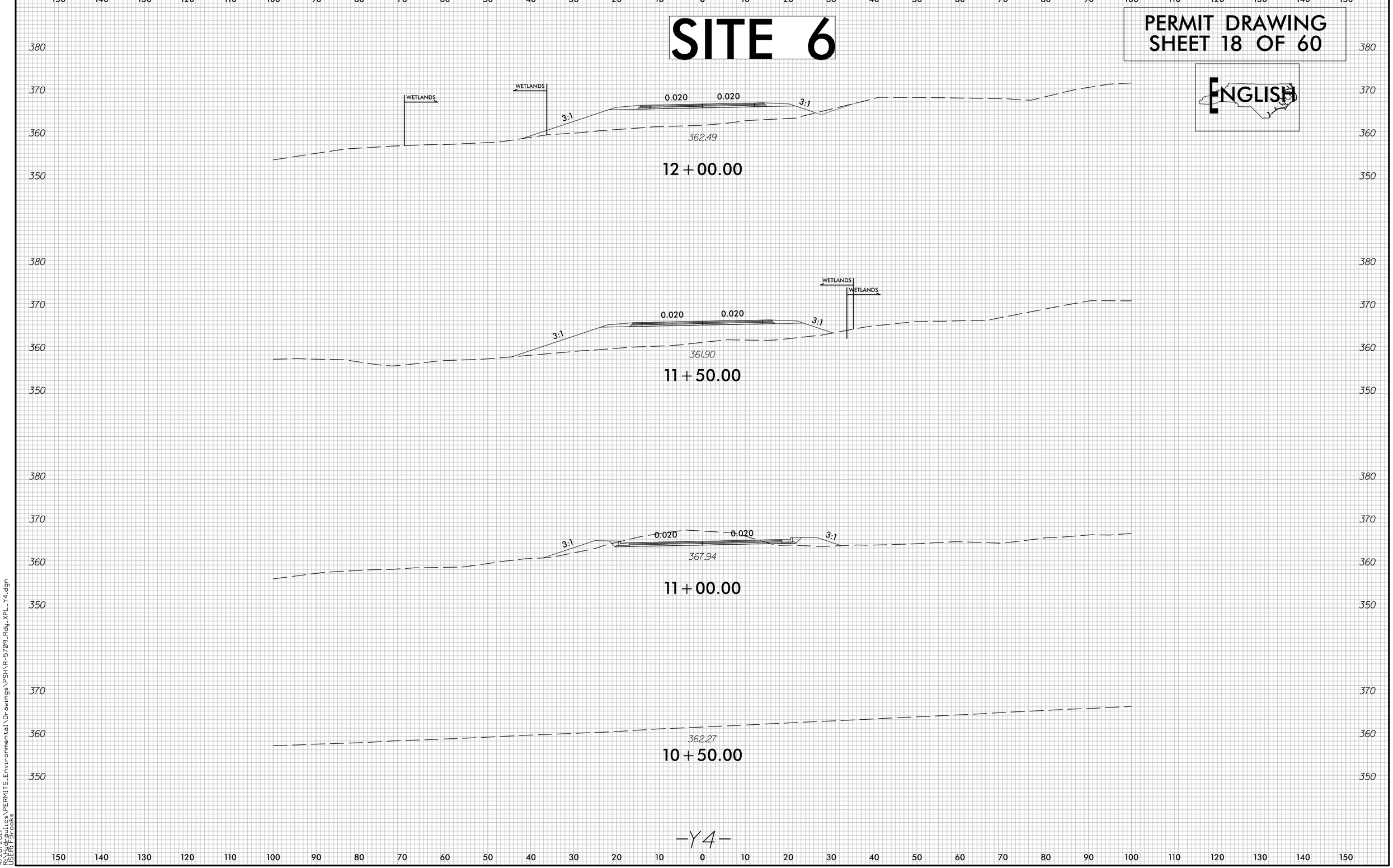
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-167

SITE 6

PERMIT DRAWING
SHEET 18 OF 60

ENGLISH



-Y4-

6/23/16

4/26/2021
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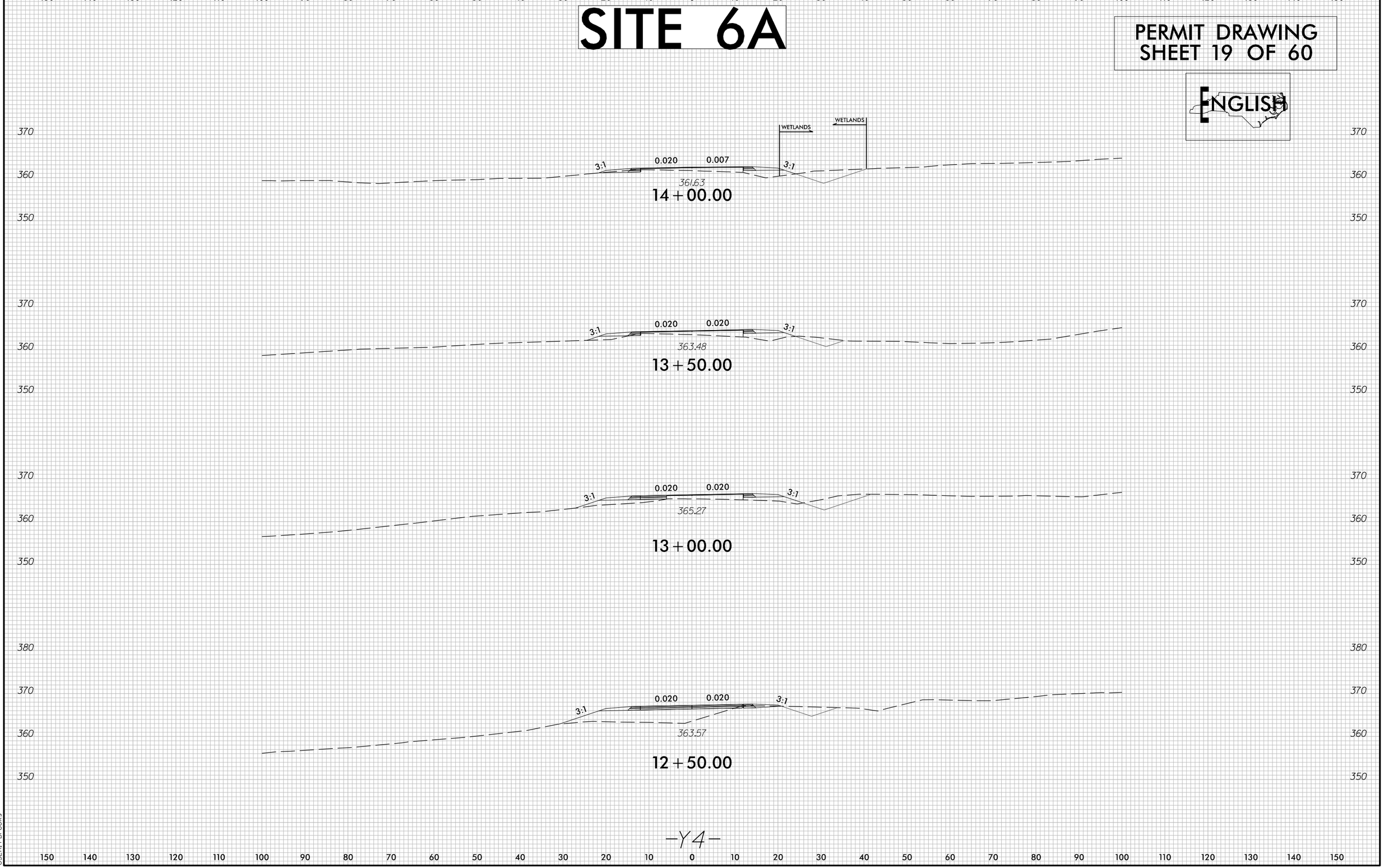
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-168

SITE 6A

PERMIT DRAWING
SHEET 19 OF 60

ENGLISH



-Y4-

6/23/16

4/26/2021
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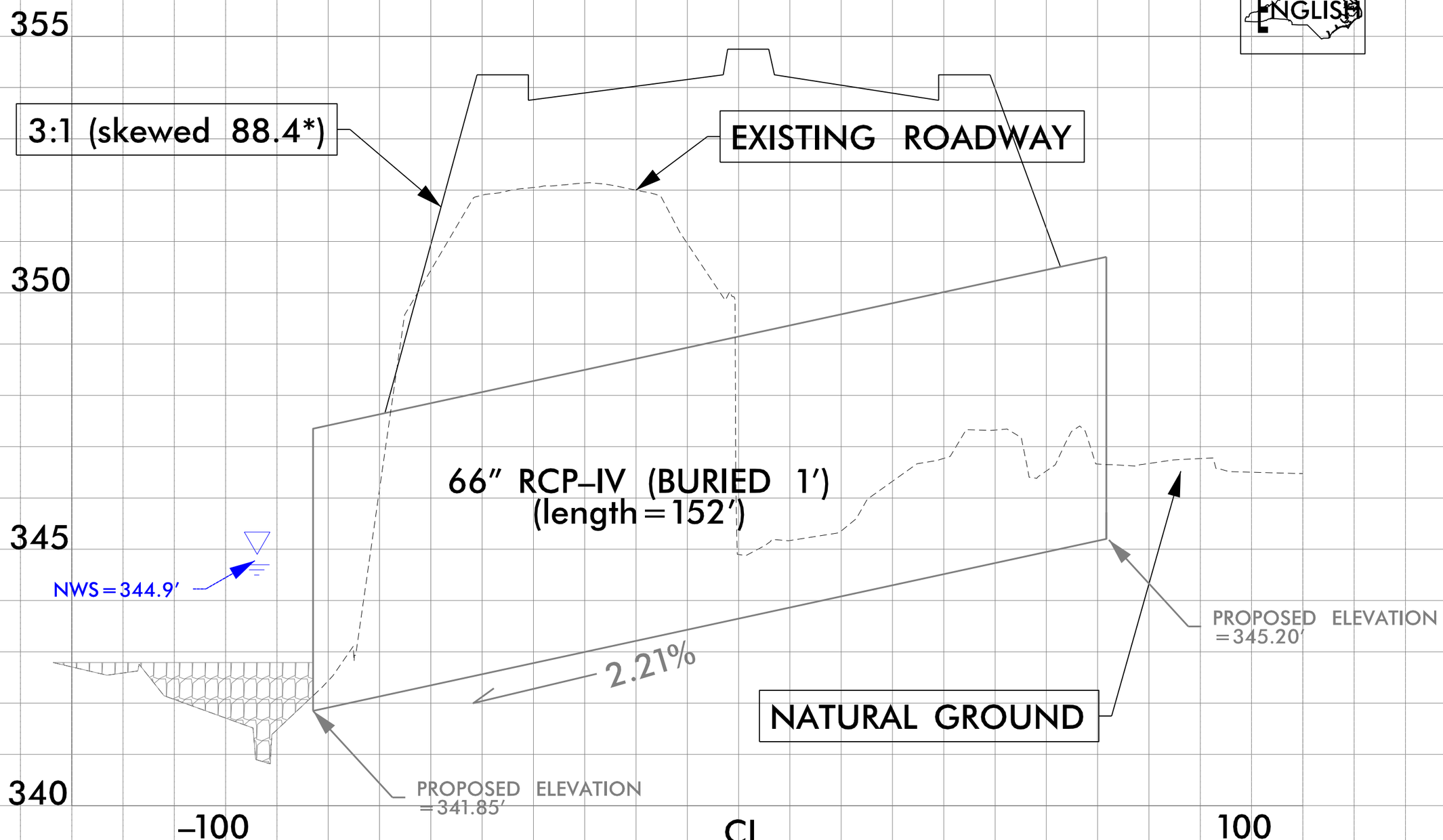
PROJ. REFERENCE NO.	SHEET NO.

PERMIT DRAWING
SHEET 20 OF 60

ENGLISH

SITE 8
–L– STA. 34+62



6/23/16

4/26/2021
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8/17/99

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
1'-6" C+G	-L-	155+04.61	160+29.61	MEDIAN
1'-6" C+G	-L-	161+18.55	163+93.98	MED.LT
1'-6" C+G	-L-	161+18.55	163+93.98	MED.RT
SBG	-L-	165+23.91	169+57.10	RT

PERMIT DRAWING
SHEET 21 OF 60

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
R-5709	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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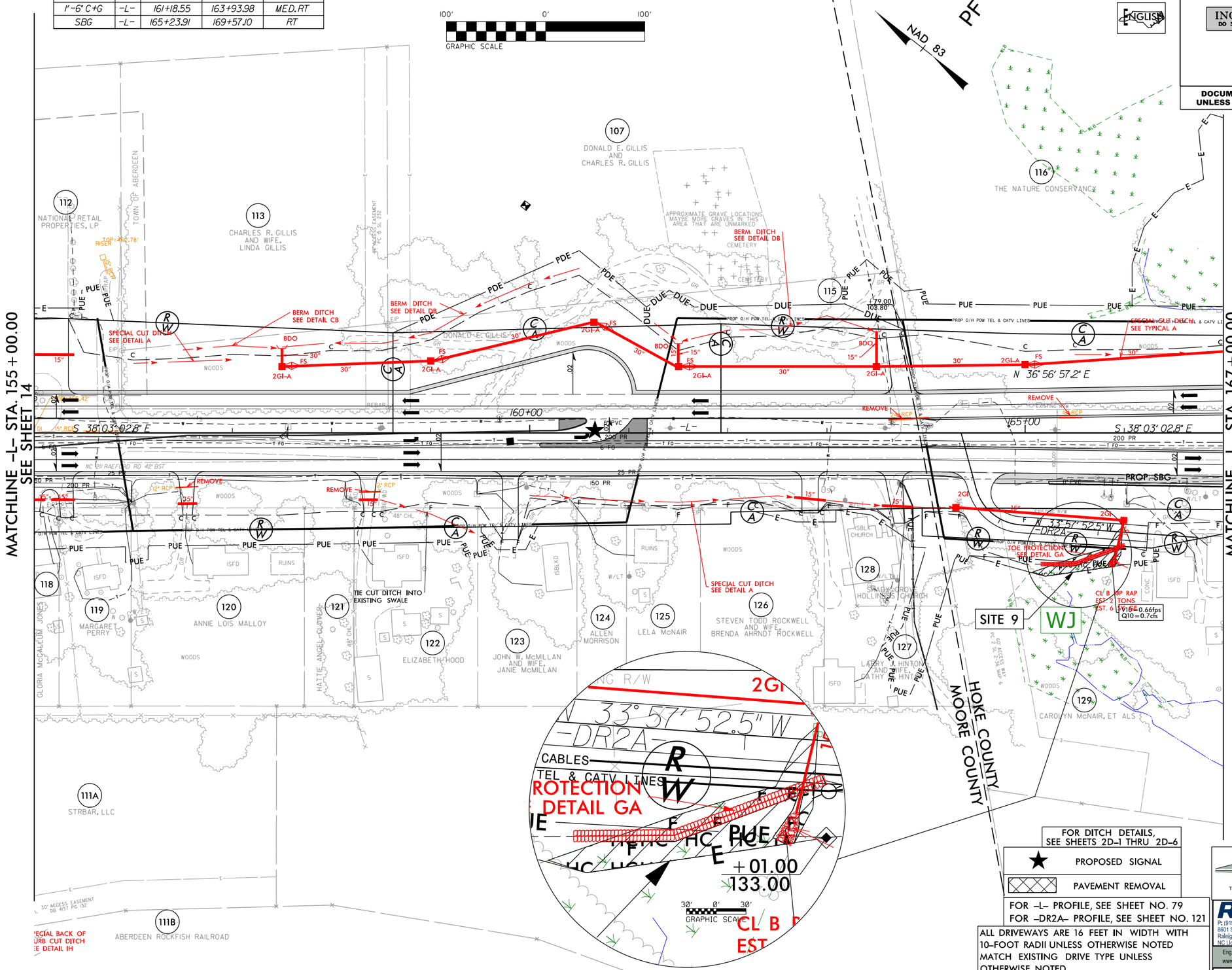

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

★ PROPOSED SIGNAL

PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET NO. 79
FOR -DR2A- PROFILE, SEE SHEET NO. 121

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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8/17/99

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
1'-6" C+G	-L-	155+04.61	160+29.61	MEDIAN
1'-6" C+G	-L-	161+18.55	163+93.98	MED.LT
1'-6" C+G	-L-	161+18.55	163+93.98	MED.RT
SBG	-L-	165+23.91	169+57.10	RT

PERMIT DRAWING SHEET 22 OF 60

HC / HC — DENOTES HAND CLEARING

F / F — DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
R-5709	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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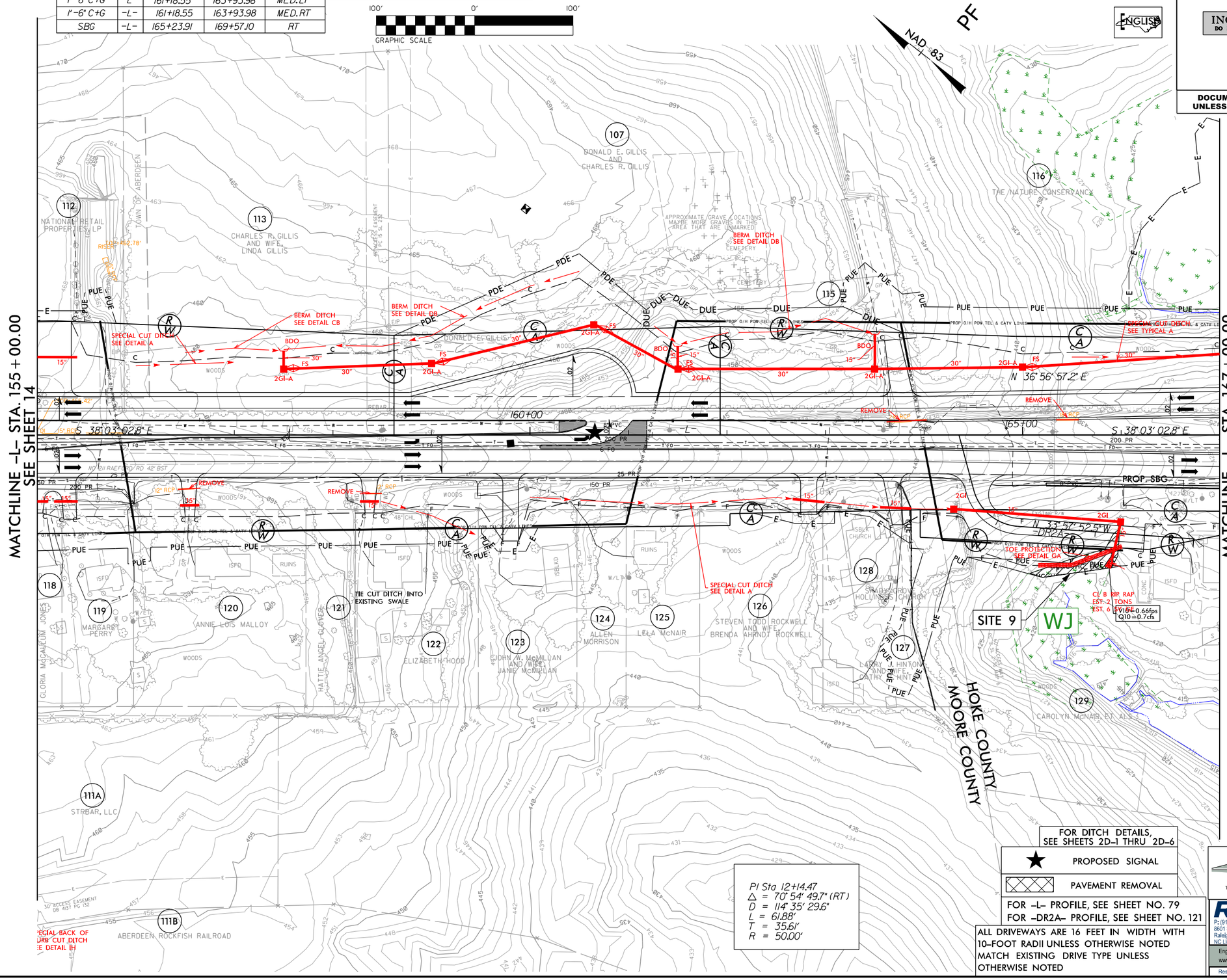

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

★ PROPOSED SIGNAL

PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET NO. 79

FOR -DR2A- PROFILE, SEE SHEET NO. 121

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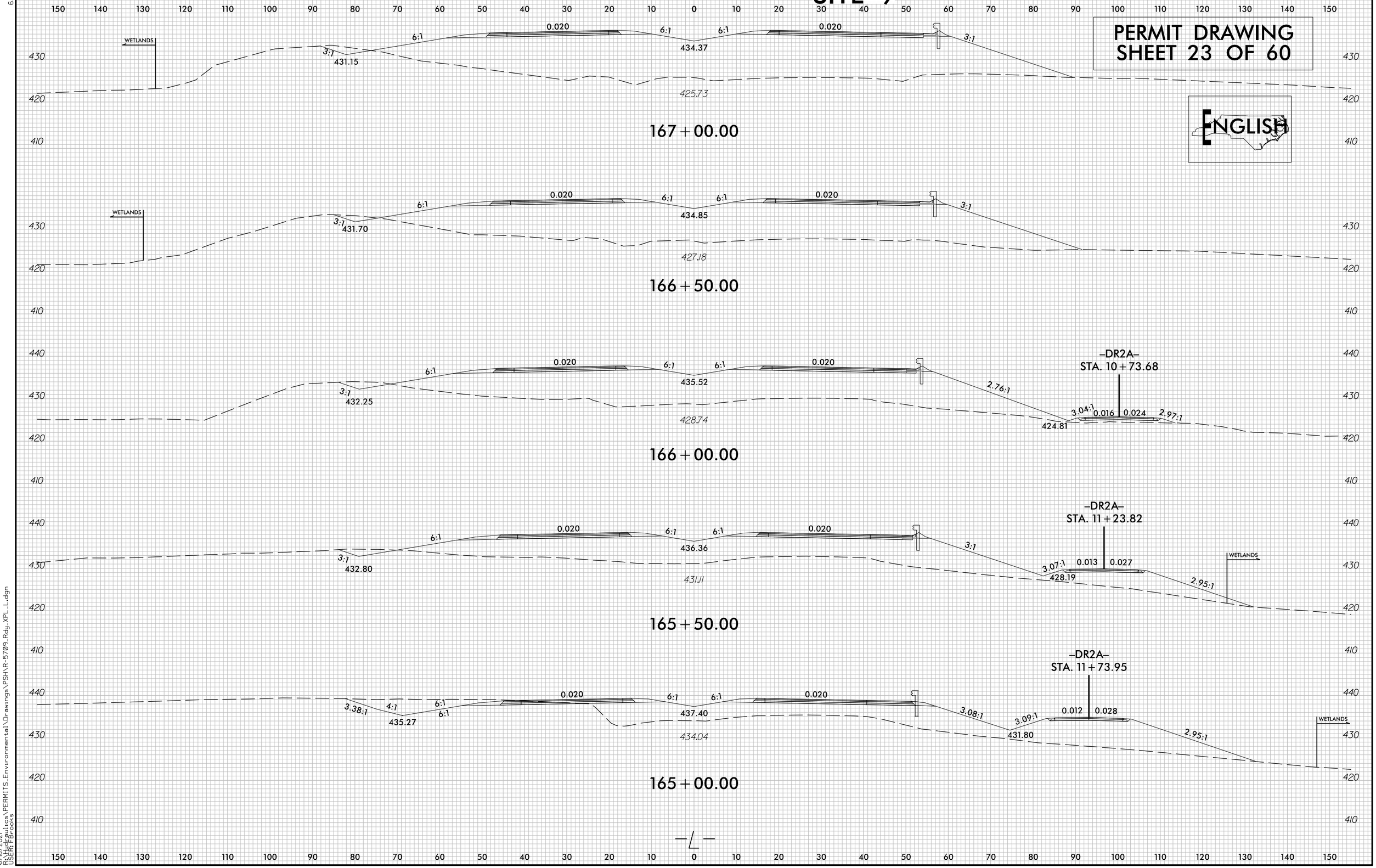
SITE 9

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-79

PERMIT DRAWING
SHEET 23 OF 60

ENGLISH



6/23/16

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USER: FBrooks

Submitted 6/24/2021

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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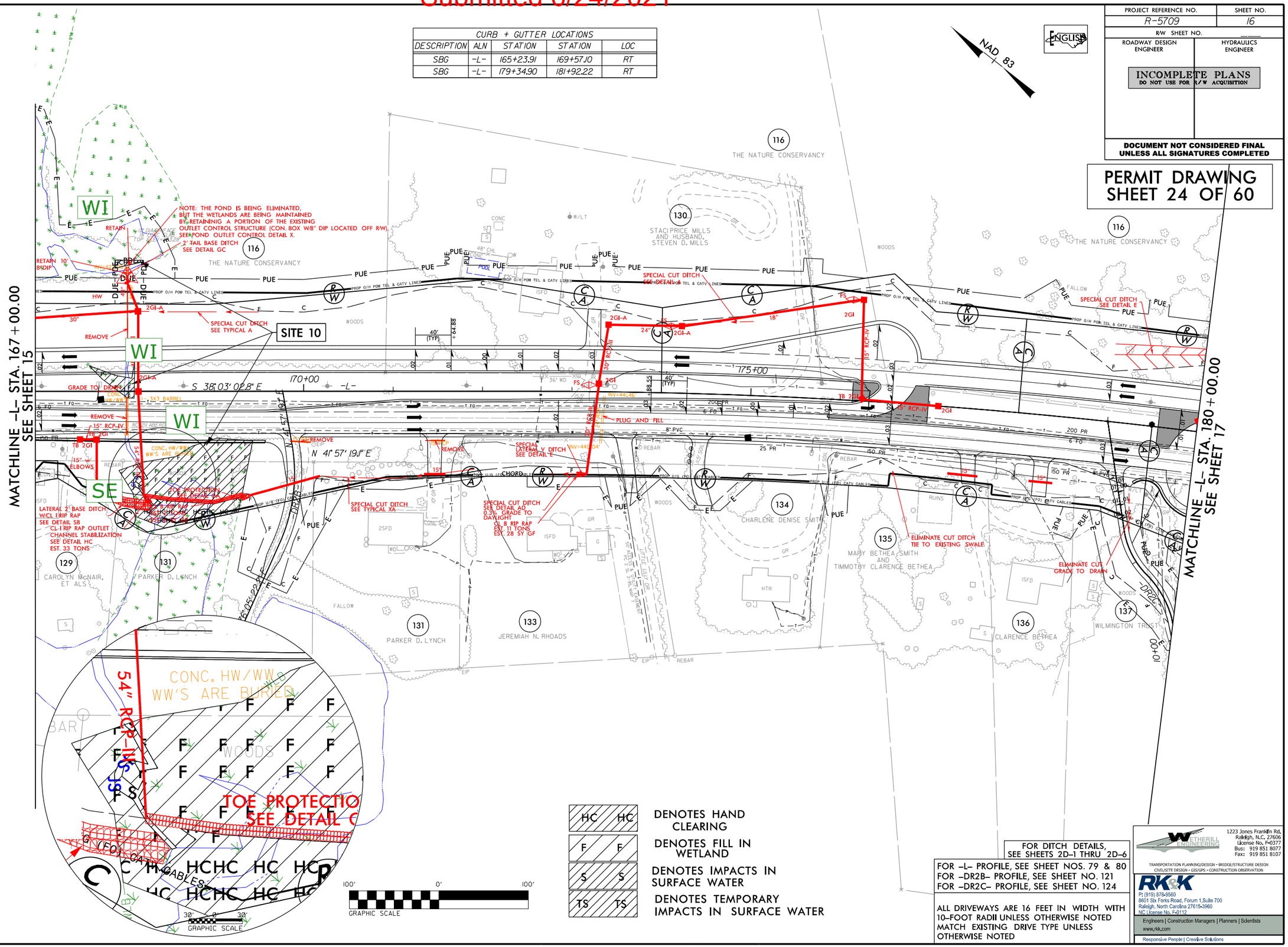
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 24 OF 60

ENGLISH

NAD 83

CURB + GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	165+23.91	169+57.10	RT
SBG	-L-	179+34.90	181+92.22	RT



HC HC	DENOTES HAND CLEARING
F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NOS. 79 & 80
FOR -DR2B- PROFILE, SEE SHEET NO. 121
FOR -DR2C- PROFILE, SEE SHEET NO. 124

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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R-5709	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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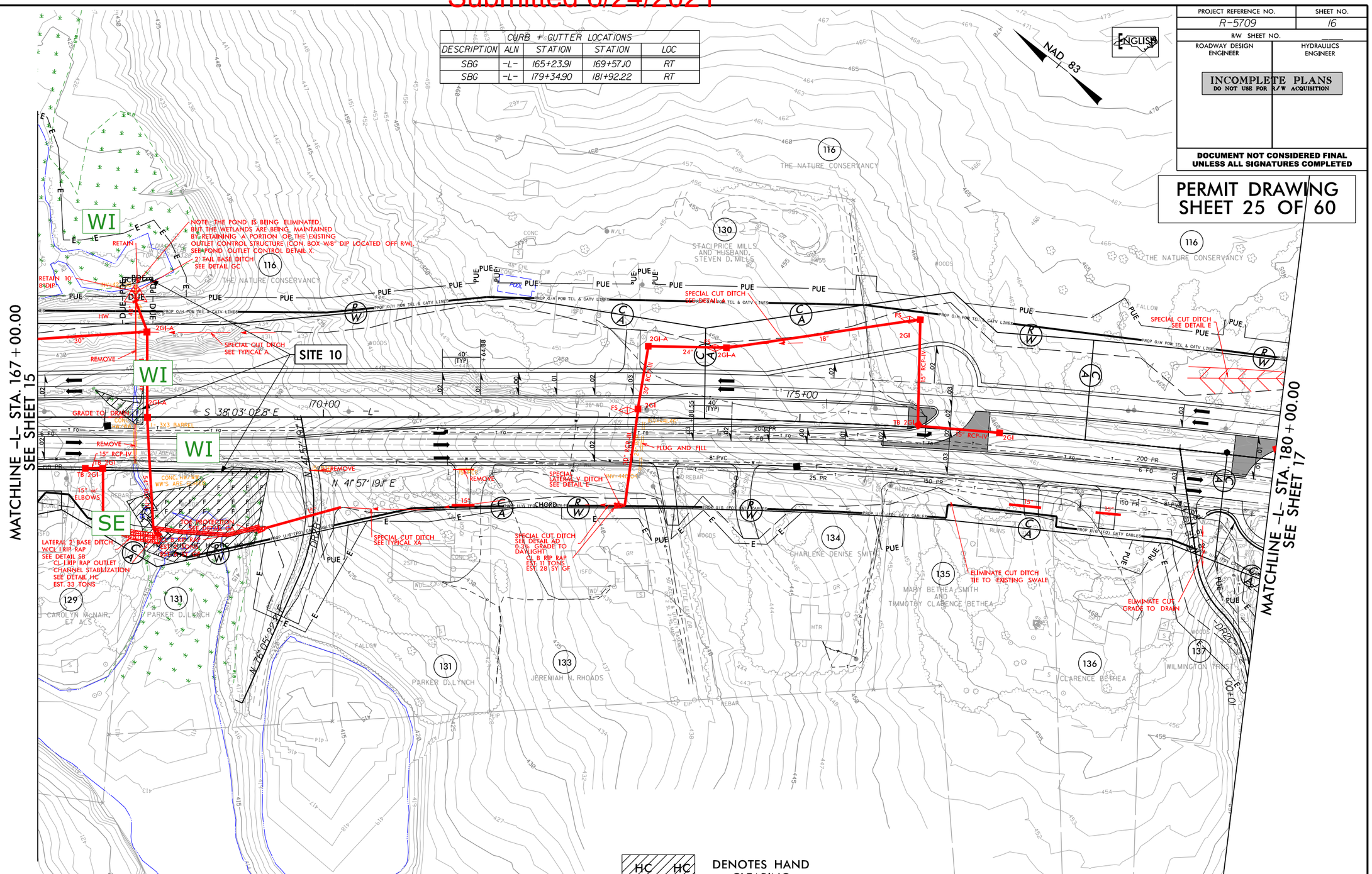
PERMIT DRAWING SHEET 25 OF 60

CURB + GUTTER LOCATIONS

DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	165+23.91	169+57.10	RT
SBG	-L-	179+34.90	181+92.22	RT



HC HC	DENOTES HAND CLEARING
F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NOS. 79 & 80
FOR -DR2B- PROFILE, SEE SHEET NO. 121
FOR -DR2C- PROFILE, SEE SHEET NO. 124

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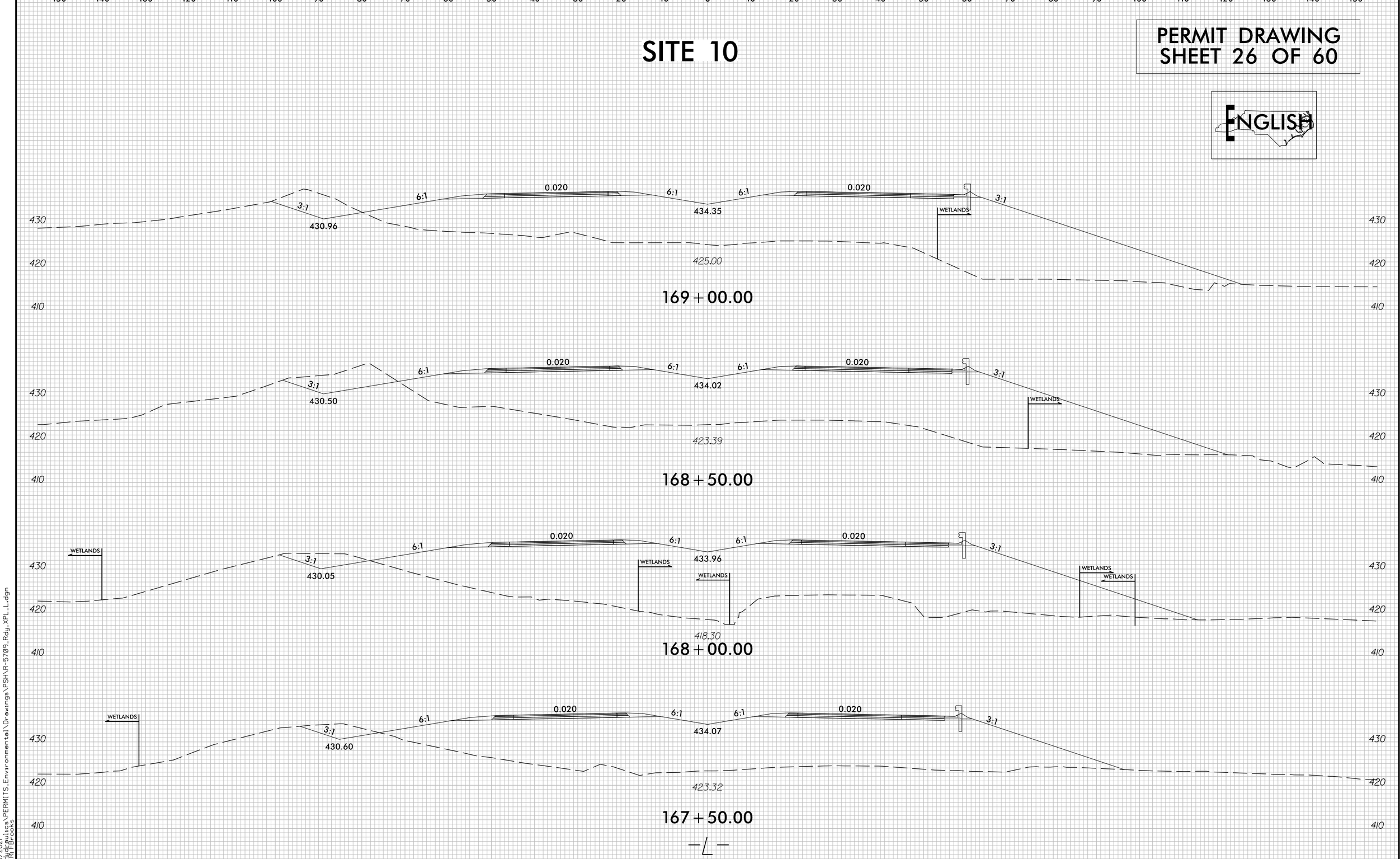
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-80

SITE 10

PERMIT DRAWING
SHEET 26 OF 60

ENGLISH



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USER:FBrooks

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8/17/99

PERMIT DRAWING
SHEET 27 OF 60

100' 0' 100'
GRAPHIC SCALE

ENGLISH

F F — DENOTES FILL IN WETLAND

HC HC — DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-5709	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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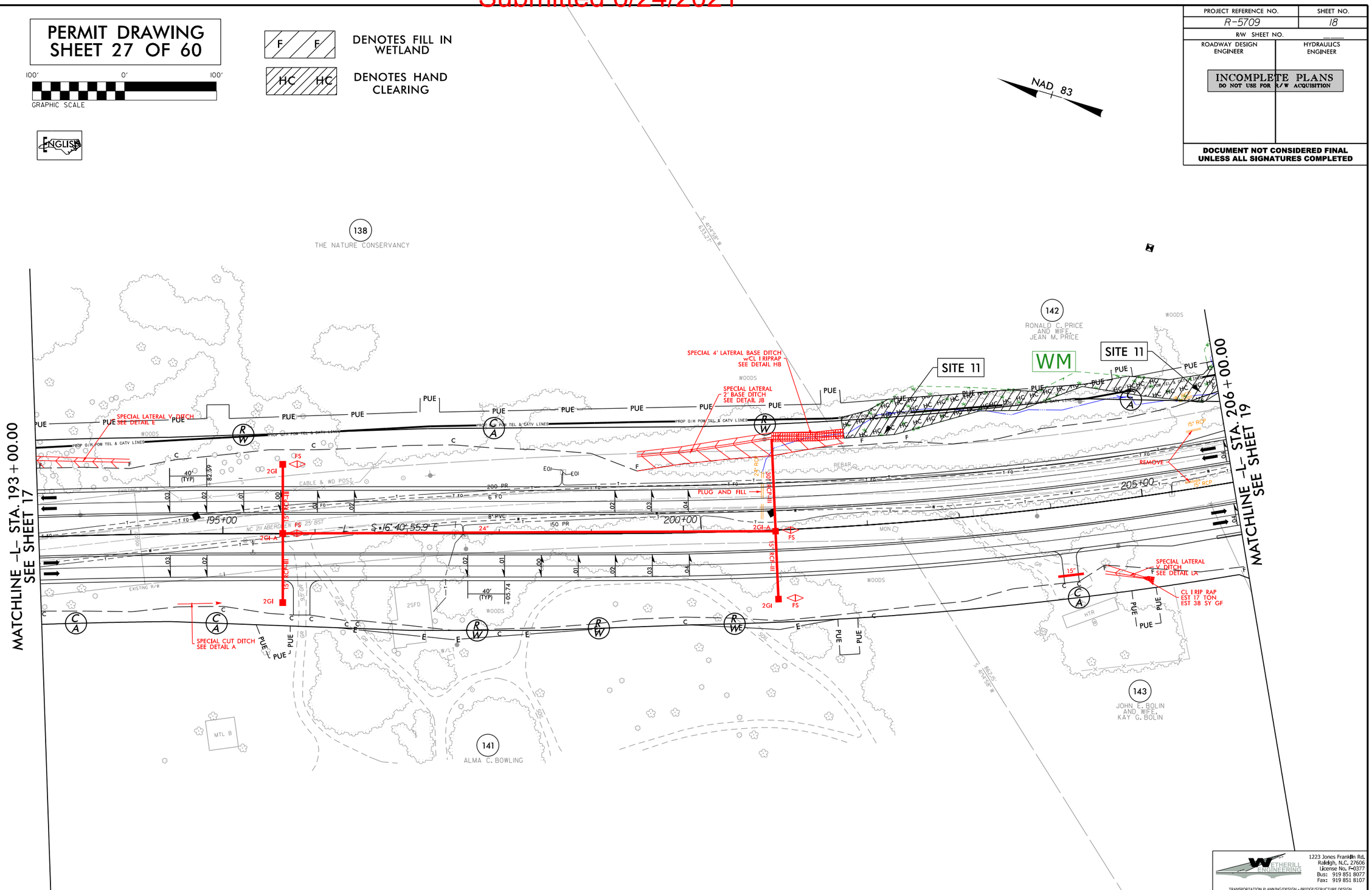

CURB + GUTTER LOCATION				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	205+73.14	206+00.00	RT

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NOS. 80 & 81

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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PERMIT DRAWING SHEET 28 OF 60

100' 0' 100'
GRAPHIC SCALE

F F — DENOTES FILL IN WETLAND

HC HC — DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-5709	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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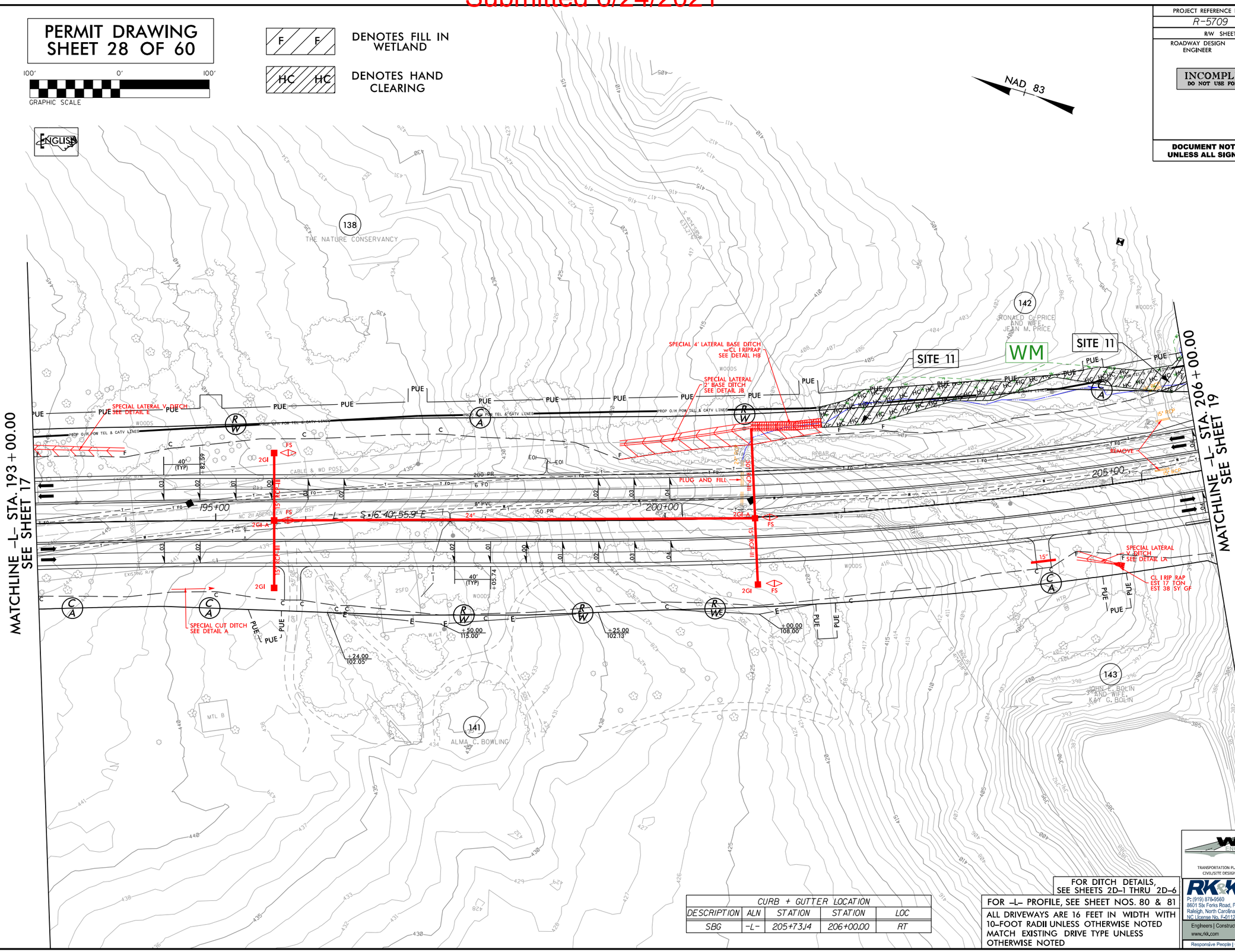

CURB + GUTTER LOCATION				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	205+73.14	206+00.00	RT

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NOS. 80 & 81

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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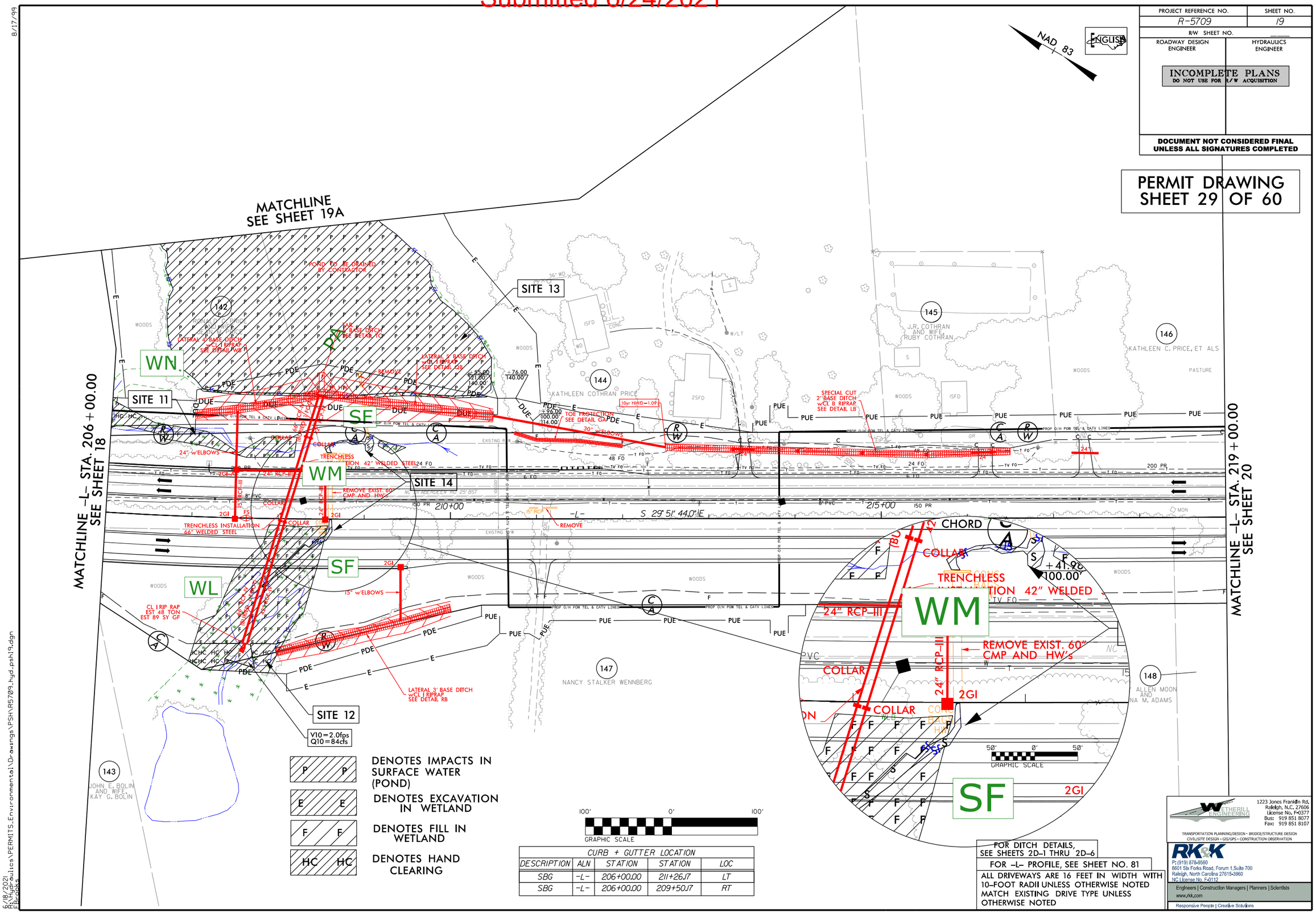
SHEET 29 OF 60



CURB + GUTTER LOCATION				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	206+00.00	211+26.17	LT
SBG	-L-	206+00.00	209+50.17	RT

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NO. 81

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED
MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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R-5709	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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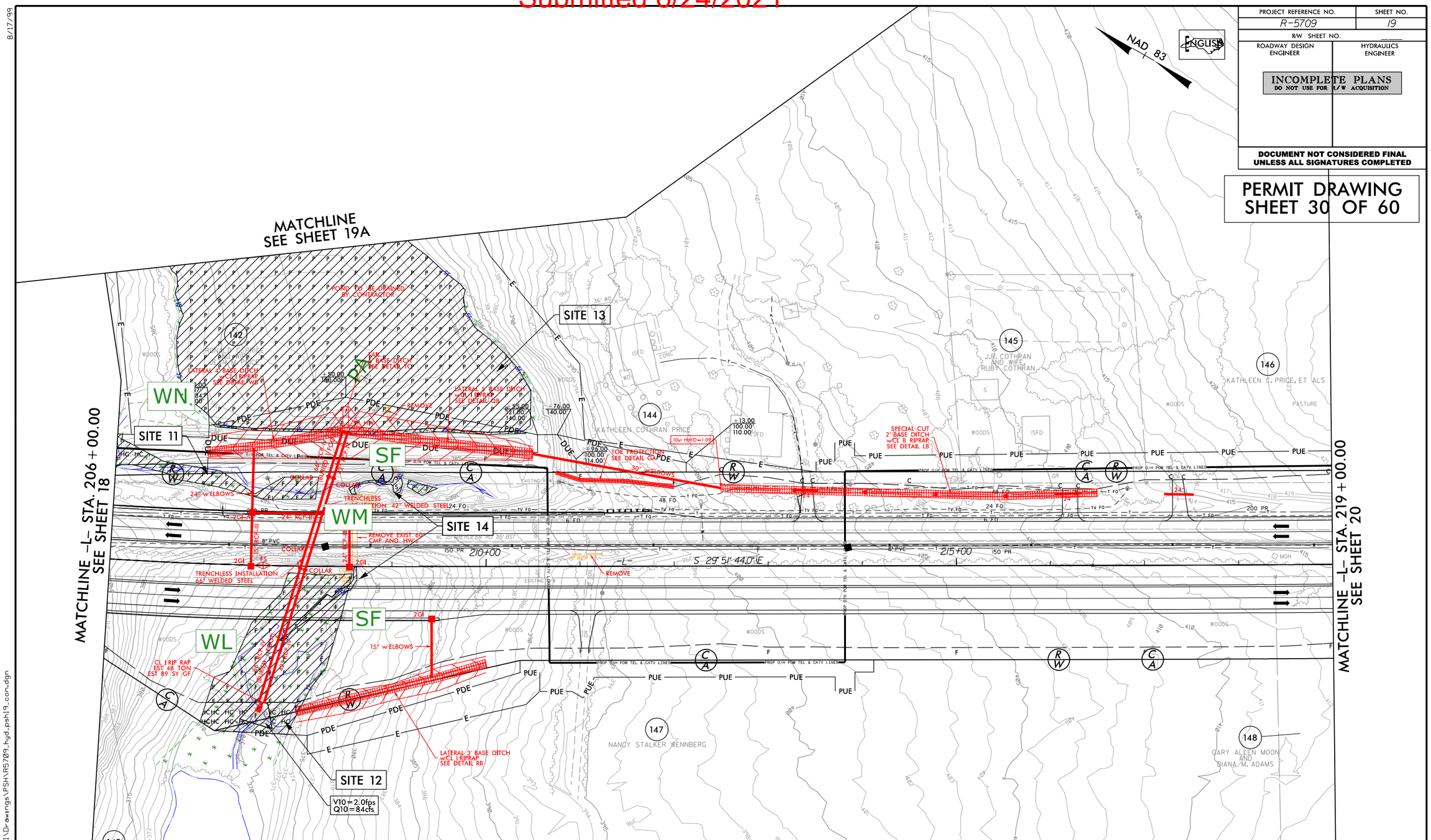
SHEET 30 OF 60



E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
P P	DENOTES IMPACTS IN SURFACE WATER (POND)
HC HC	DENOTES HAND CLEARING

CURB + GUTTER LOCATION

DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	206+00.00	211+26.17	LT
SBG	-L-	206+00.00	209+50.17	RT

100' 0' 100'
GRAPHIC SCALE

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NO. 81

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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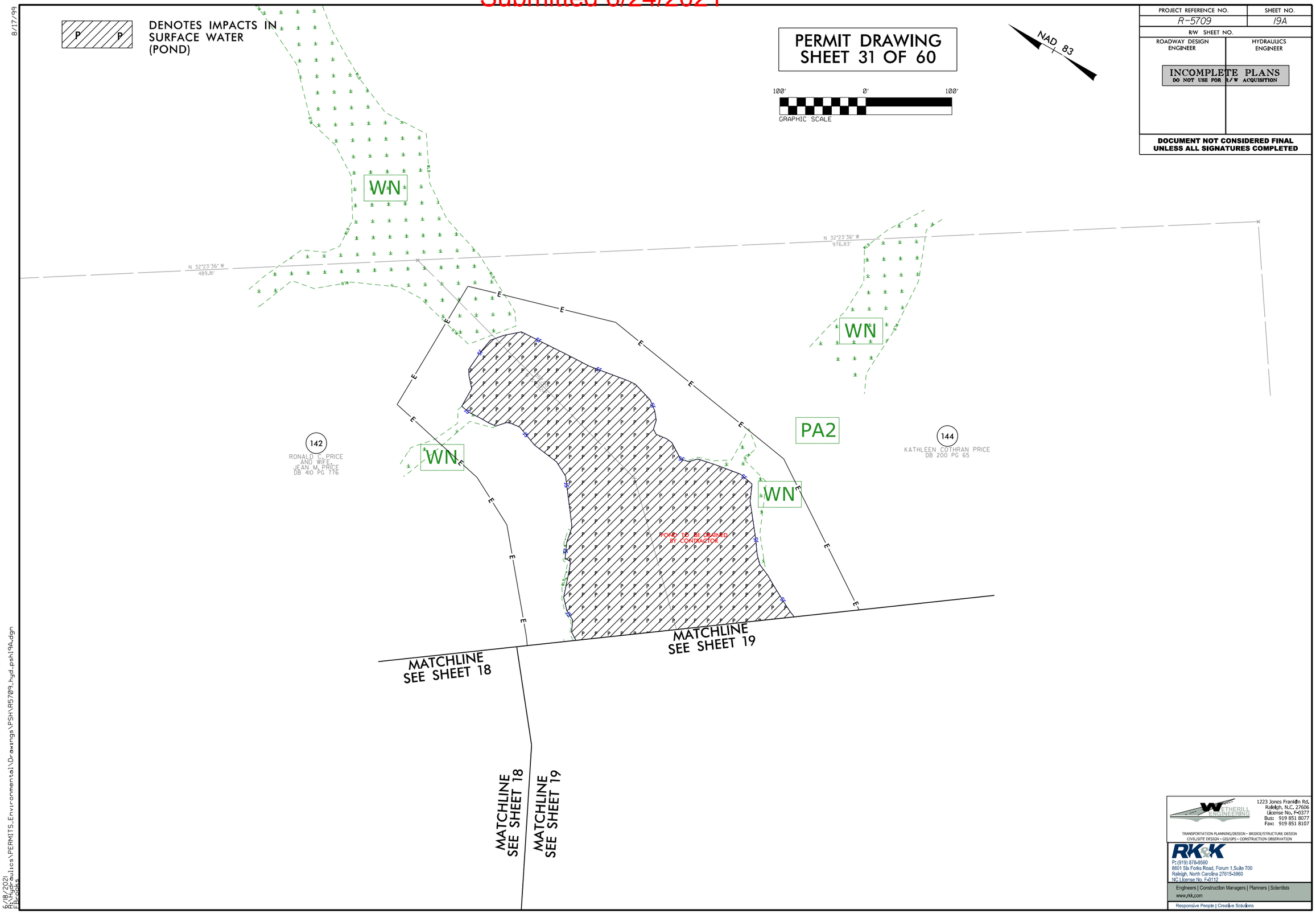

PROJECT REFERENCE NO.	SHEET NO.
R-5709	19A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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8/17/99

P P DENOTES IMPACTS IN SURFACE WATER (POND)

PERMIT DRAWING
SHEET 32 OF 60

NAD 83

100' 0' 100'
GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-5709	19A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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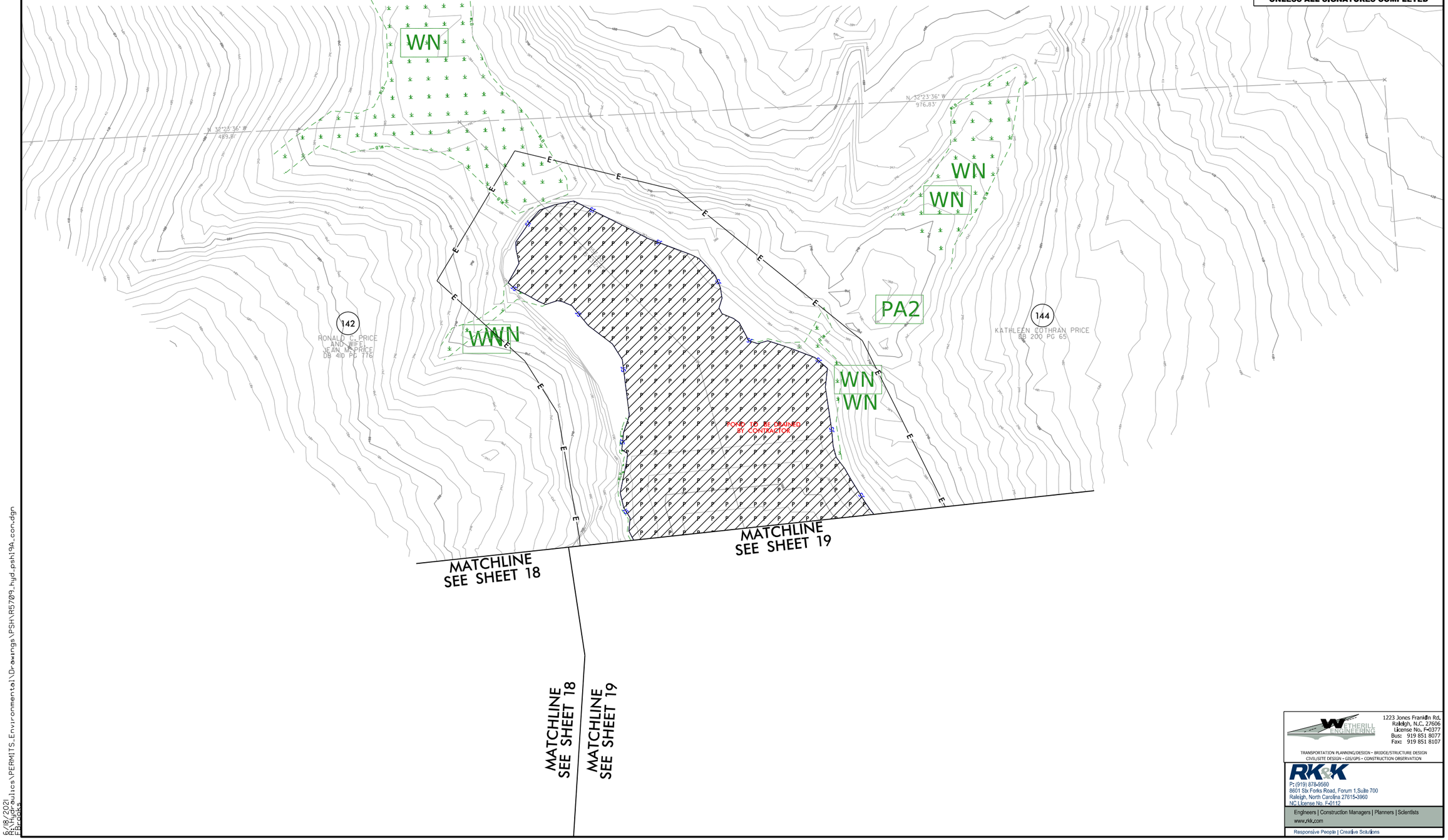

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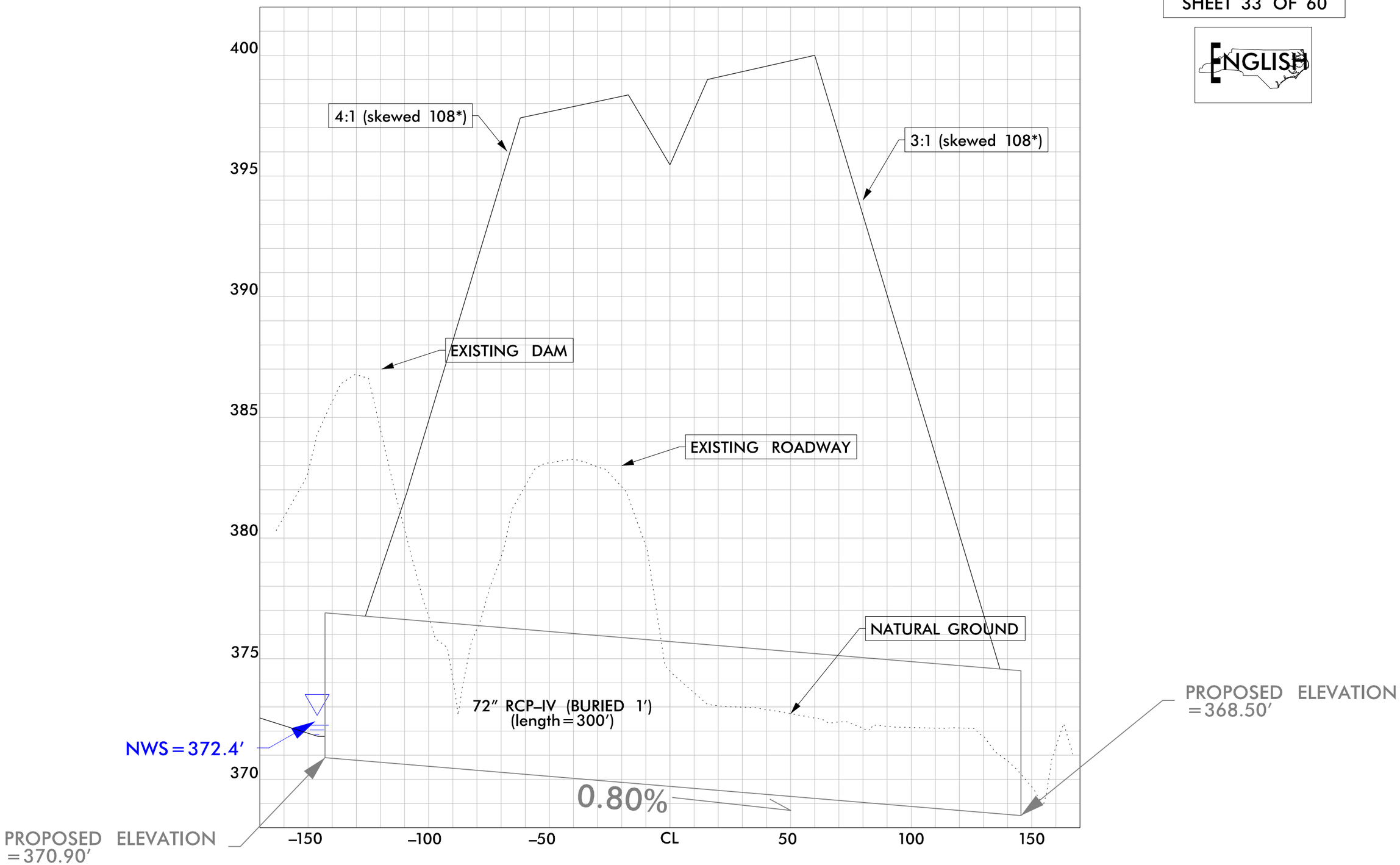
PROJ. REFERENCE NO.	SHEET NO.

PERMIT DRAWING
SHEET 33 OF 60

ENGLISH

SITE 14
–L– STA. 208+07



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6/18/2021
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USER: PBrooks

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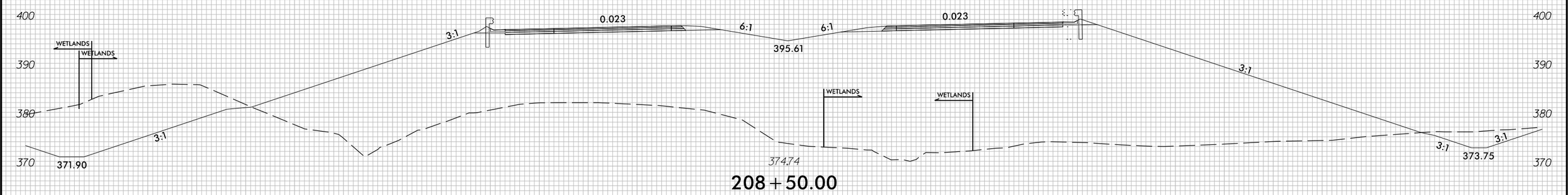
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-95

PERMIT DRAWING
SHEET 34 OF 60

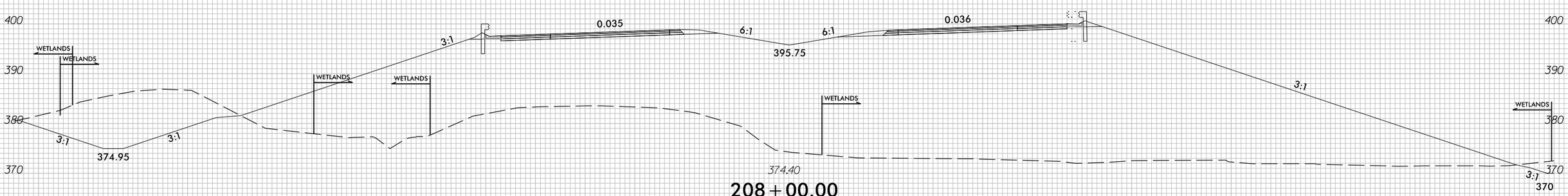
ENGLISH

SITES 11, 13



208 + 50.00

SITES 12



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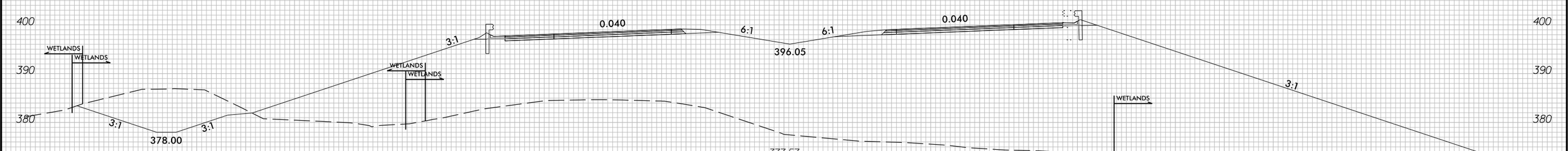

207 + 50.00

6/23/16

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USER: TBrooks

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SHEET 35 OF 60

REVISED 12/20/2023

PROJECT REFERENCE NO.	SHEET NO.
R-5709	24

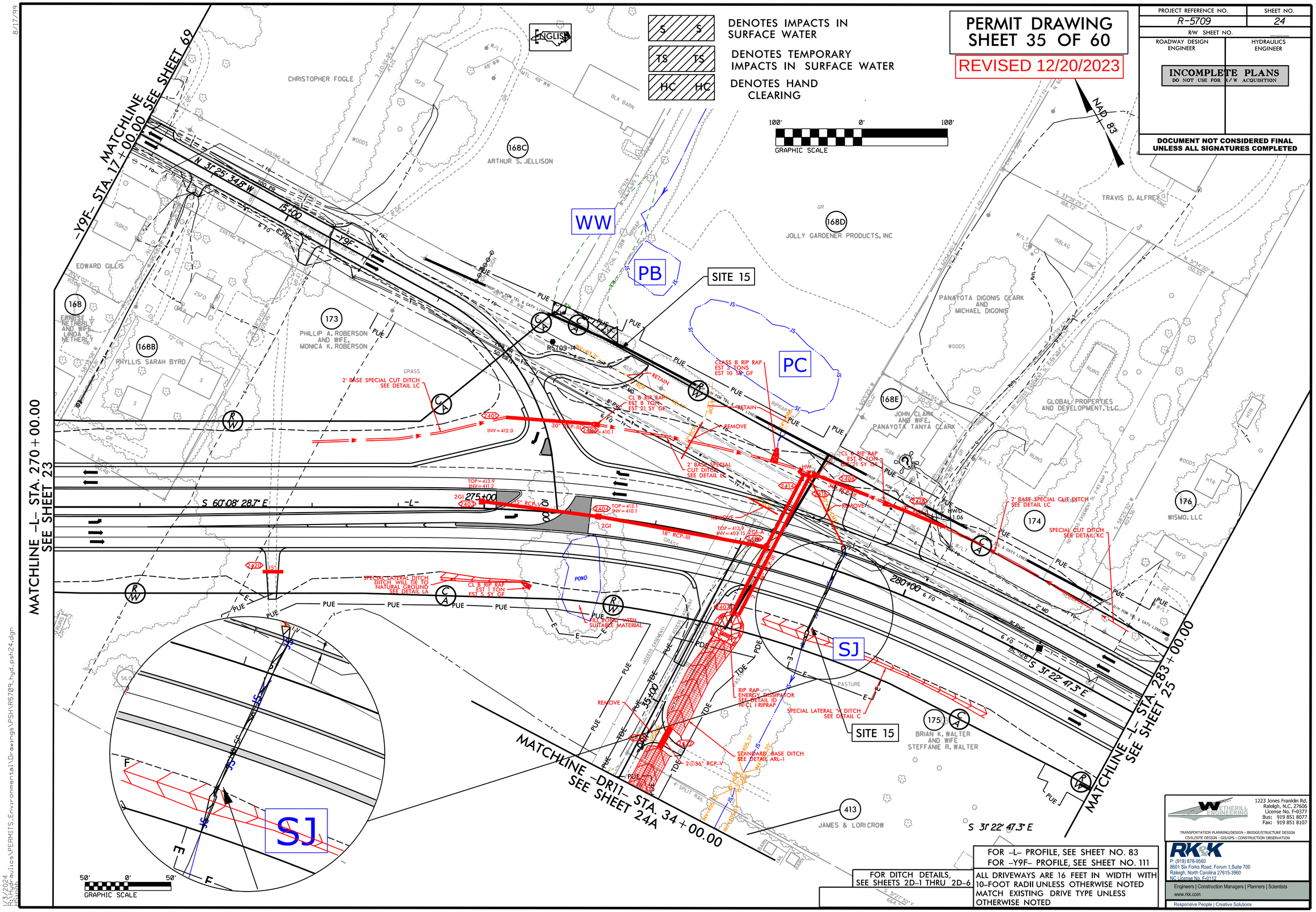
R/W SHEET NO. ____

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

S ▨ S	DENOTES IMPACTS IN SURFACE WATER
TS ▨ TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC ▨ HC	DENOTES HAND CLEARING



FOR -L- PROFILE, SEE SHEET NO. 83
FOR -Y9F- PROFILE, SEE SHEET NO. 111

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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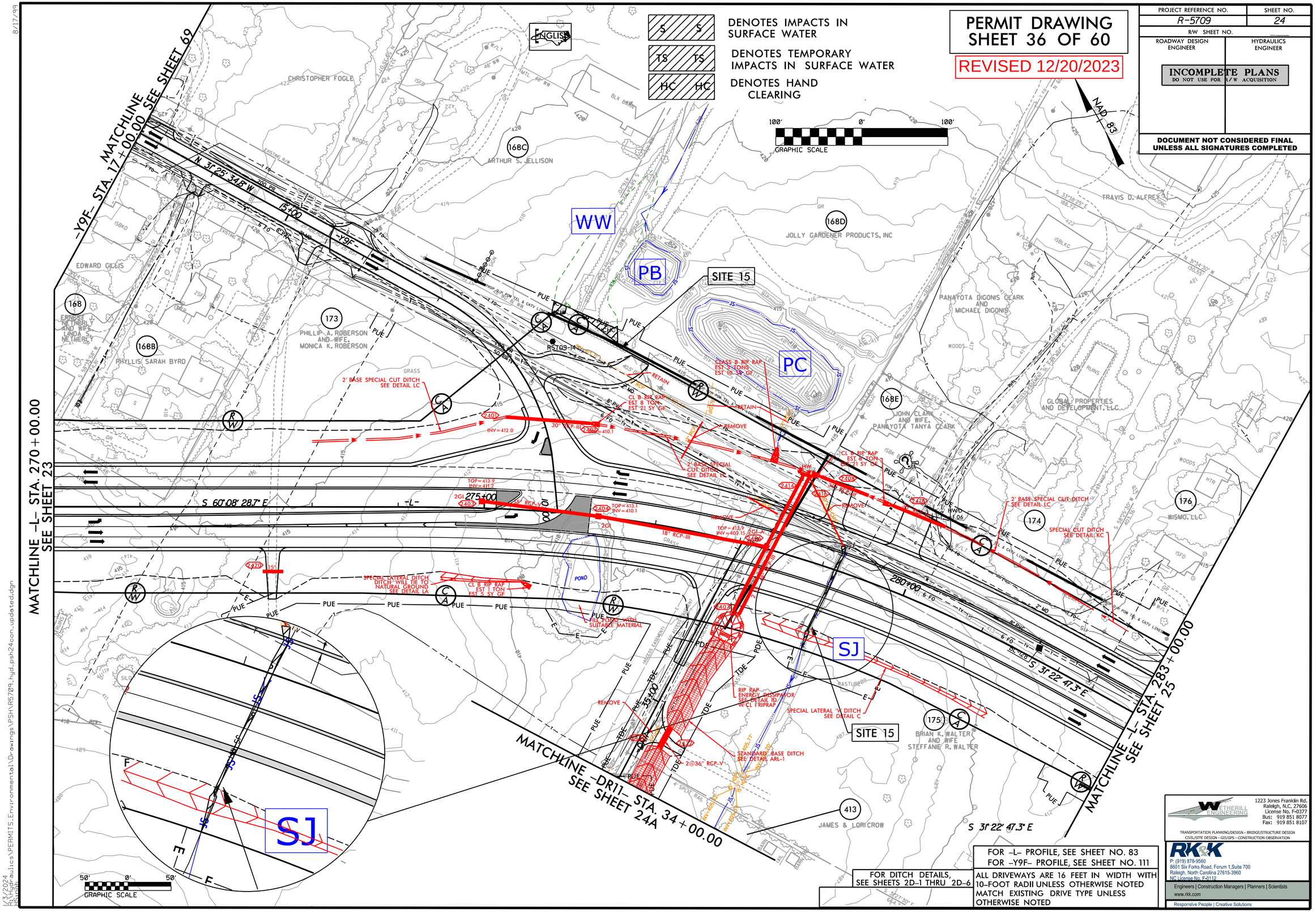
PERMIT DRAWING
SHEET 36 OF 60
REVISED 12/20/2023
PROJECT REFERENCE NO.
R-5709
SHEET NO.
24
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
GRAPHIC SCALE
NAD 83
MATCHLINE -Y9F- STA. 17+00.00 SEE SHEET 69
MATCHLINE -L- STA. 270+00.00 SEE SHEET 23
MATCHLINE -L- STA. 283+00.00 SEE SHEET 25
MATCHLINE -DR11- STA. 34+00.00 SEE SHEET 24A
WW
PB
PC
SJ
SITE 15
CHRISTOPHER FOGLE
ARTHUR S. JELLISON
JOLLY GARDENER PRODUCTS, INC
TRAVIS D. ALFRED
EDWARD GILES
ERNEST V. NETHERLY AND WIFE, LINDA S. NETHERLY
PHYLLIS SARAH BYRD
PHILLIP A. ROBERSON AND WIFE, MONICA K. ROBERSON
PANAYOTA DIGONIS CLARK AND MICHAEL DIGONIS
GLOBAL PROPERTIES AND DEVELOPMENT, LLC
JOHN CLARK AND WIFE, PANAYOTA TANYA CLARK
WISMO, LLC
BRIAN K. WALTER AND WIFE STEFFANIE R. WALTER
JAMES & LORI CROW
2' BASE SPECIAL CUT DITCH SEE DETAIL LC
SPECIAL CUT DITCH SEE DETAIL KC
SPECIAL LATERAL DITCH DITCH WILL BE TO NATURAL GROUND SEE DETAIL LA
FILL POND WITH SUITABLE MATERIAL
RIP RAP ENERGY DISSIPATOR SEE DETAIL ID W/CL I RIPRAP
SPECIAL LATERAL "V" DITCH SEE DETAIL C
STANDARD BASE DITCH SEE DETAIL ARL-1
CLASS B RIP RAP EST 3 TONS EST 10 SY GF
CL B RIP RAP EST 8 TON EST 21 SY GF
CL B RIP RAP EST 1 TON EST 5 SY GF
CL B RIP RAP EST 8 TON EST 21 SY GF
RETAIN
REMOVE
18" RCP-III
30" CSP-III
2@36" RCP-V
S 60°08' 28.7" E
S 31°22' 47.3" E
N 31°25' 34.8" W
POND
FOR -L-, SEE SHEET NO. 83
FOR -Y9F-, SEE SHEET NO. 111
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6
ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED
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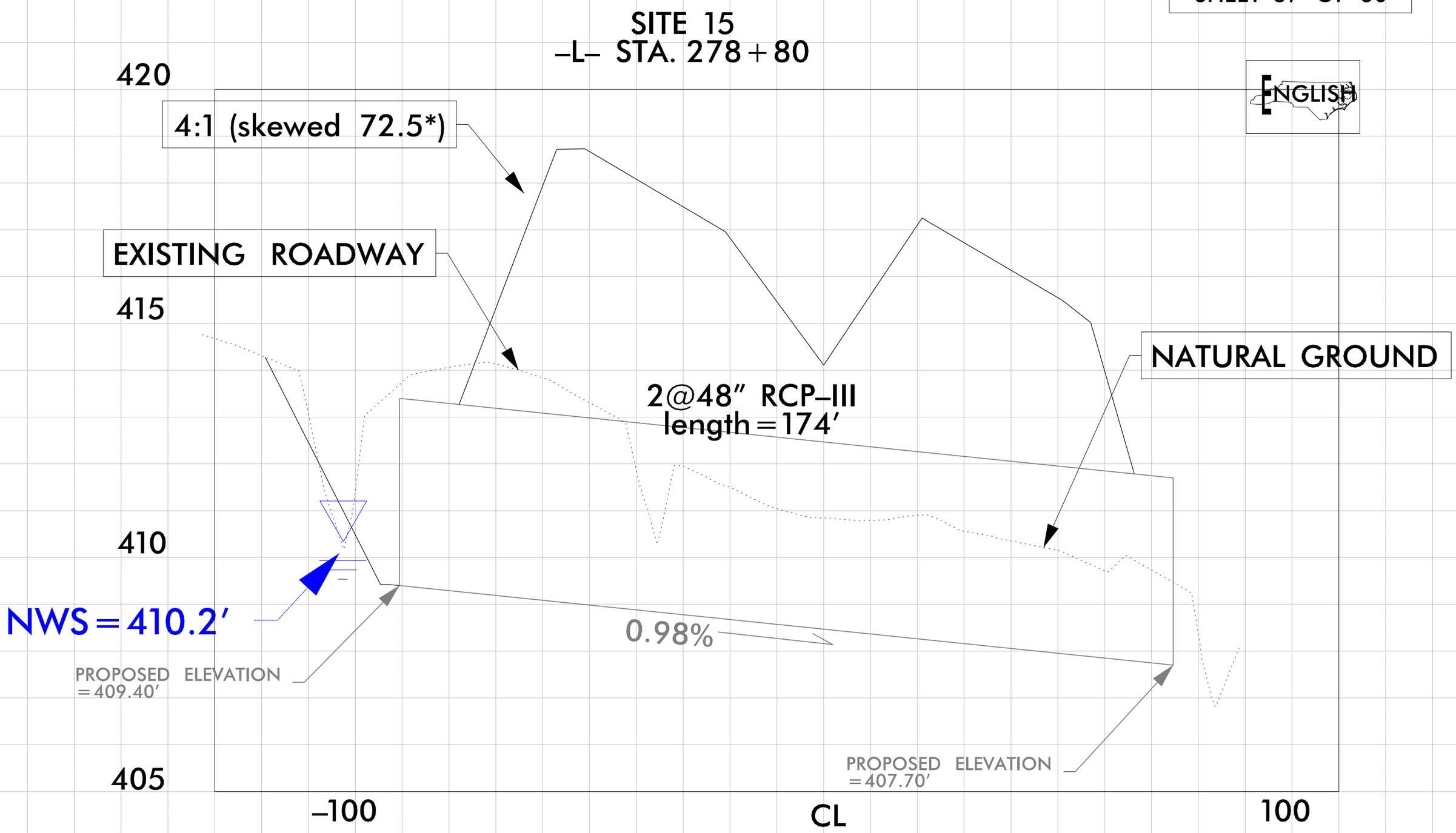
SHEET 37 OF 60

ENGLISH



6/23/16

6/18/2021
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USER: FBrooks

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-229

SITE 15

PERMIT DRAWING
SHEET 37A OF 60

ENGLISH

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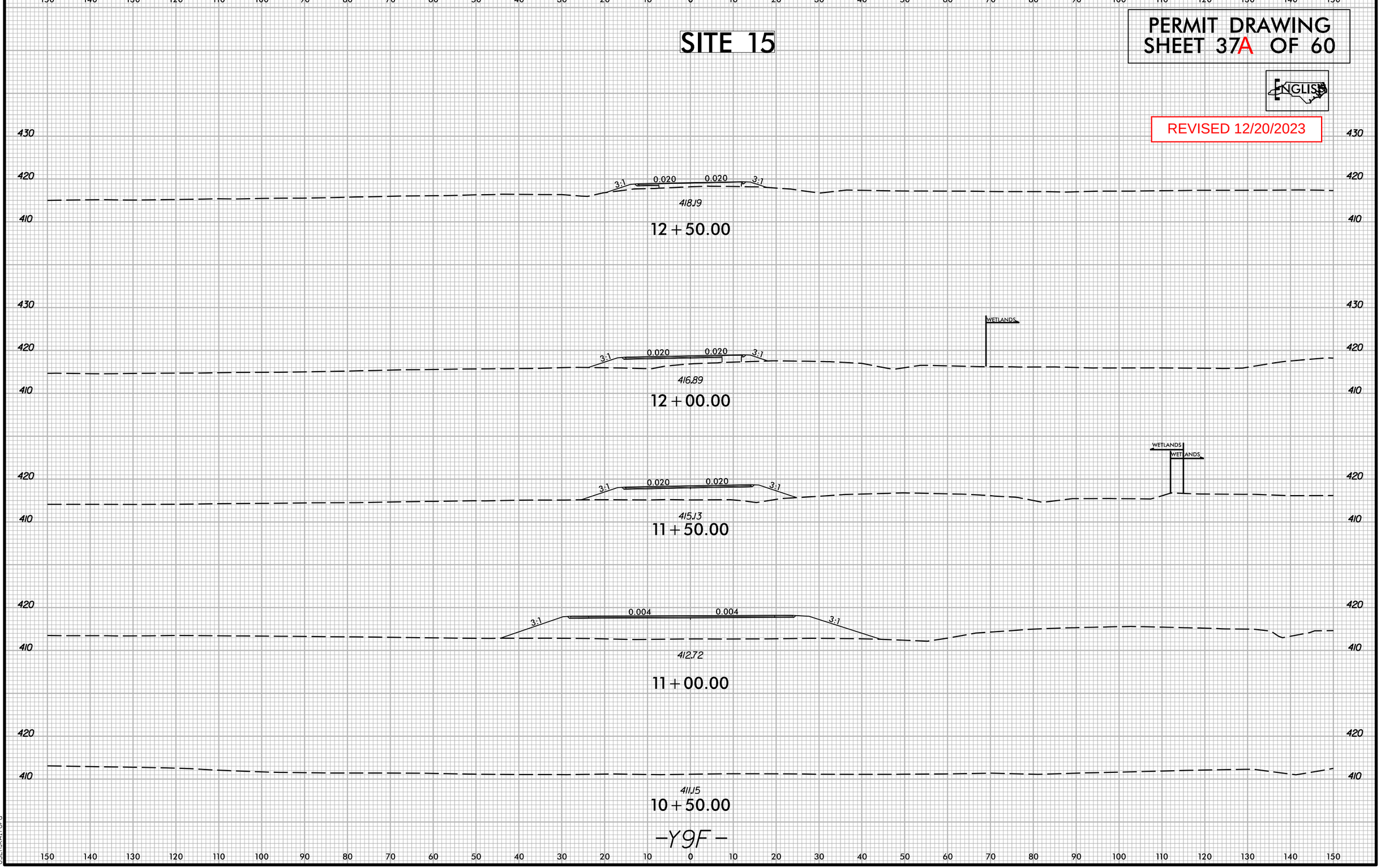

6/23/16

5/5/2023
R5709_Rdy_XPL_Y9F.dgn
USERNAME=Ford

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PERMIT DRAWING
SHEET 38 OF 60

REVISED 12/20/2023

PROJECT REFERENCE NO.	SHEET NO.
R-5709	24B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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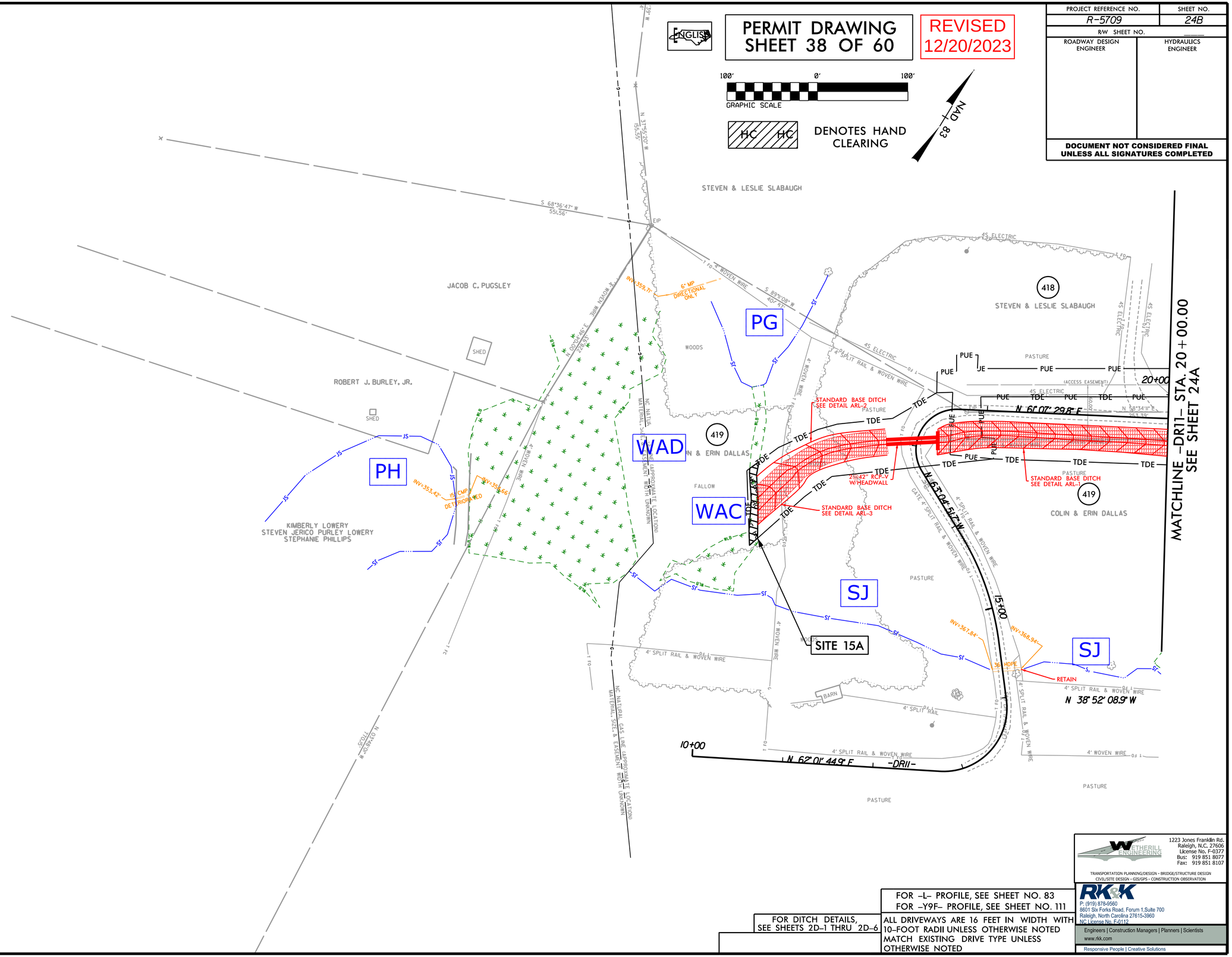
ENGLISH

100' 0' 100'
GRAPHIC SCALE

HC HC DENOTES HAND CLEARING

NAD 83



FOR -L- PROFILE, SEE SHEET NO. 83
FOR -Y9F- PROFILE, SEE SHEET NO. 111

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	24B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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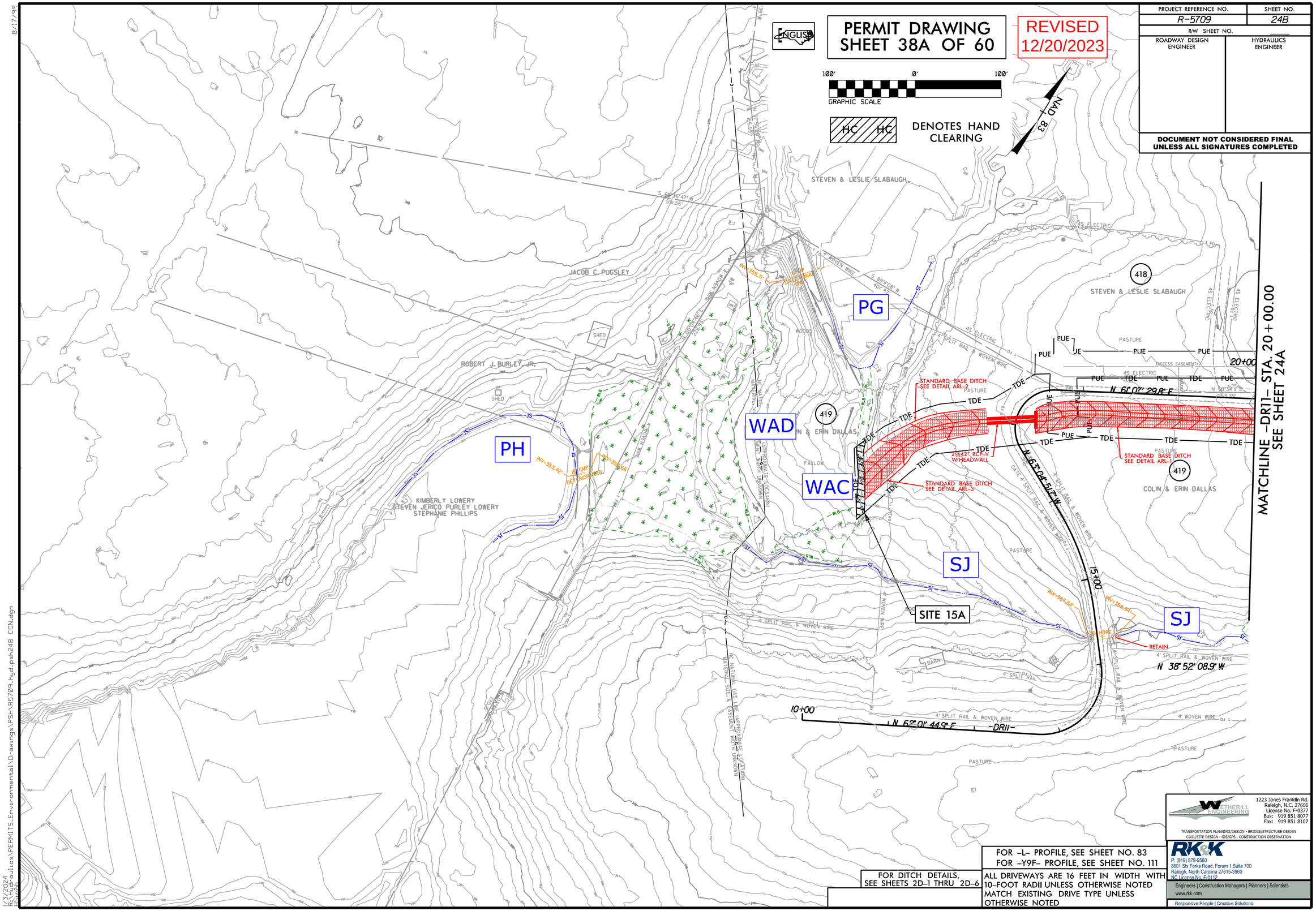
PERMIT DRAWING SHEET 38A OF 60

REVISED 12/20/2023

100' 0' 100'
GRAPHIC SCALE

HC HC DENOTES HAND CLEARING

NAD 83



FOR -L- PROFILE, SEE SHEET NO. 83
FOR -Y9F- PROFILE, SEE SHEET NO. 111

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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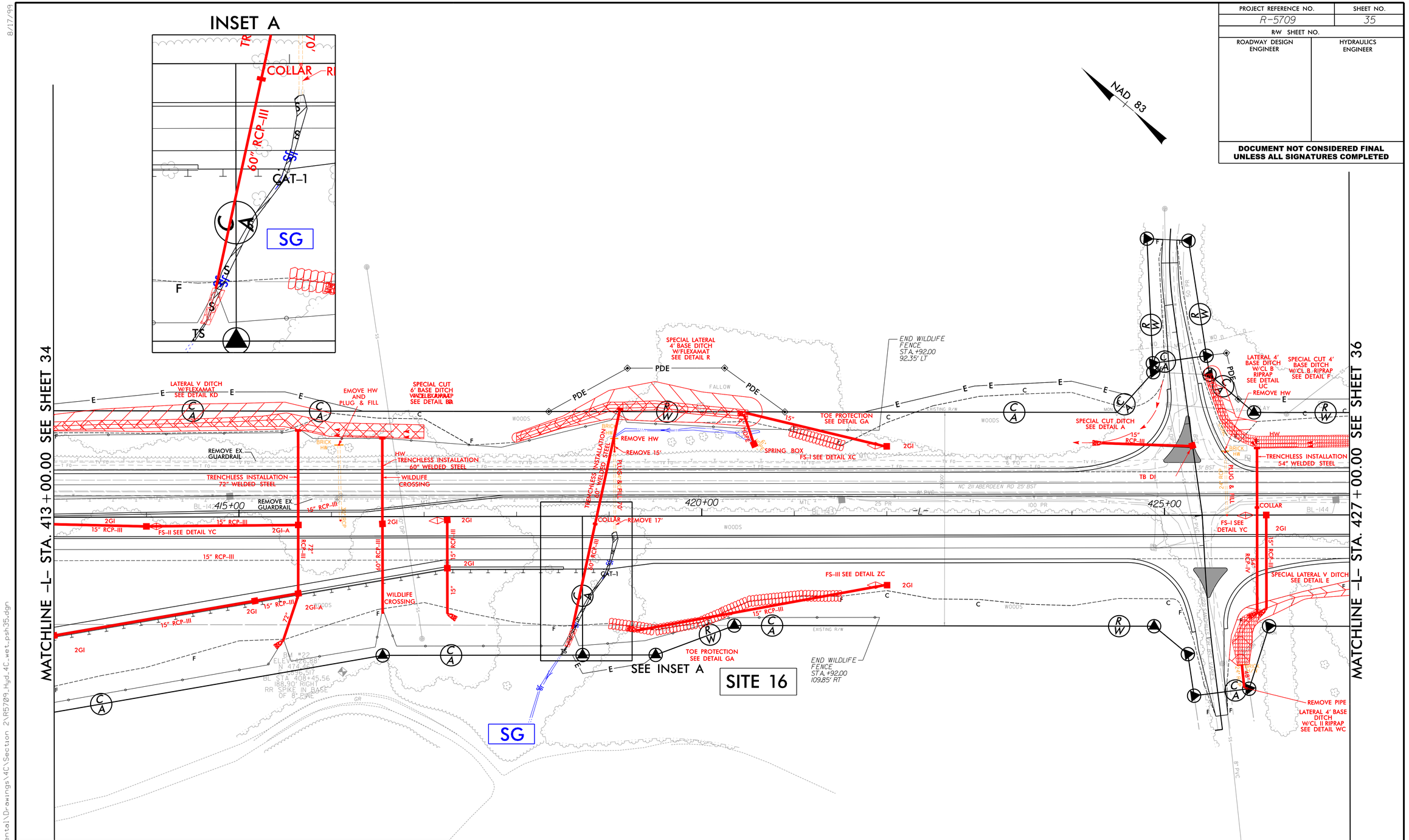

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 39 OF 60

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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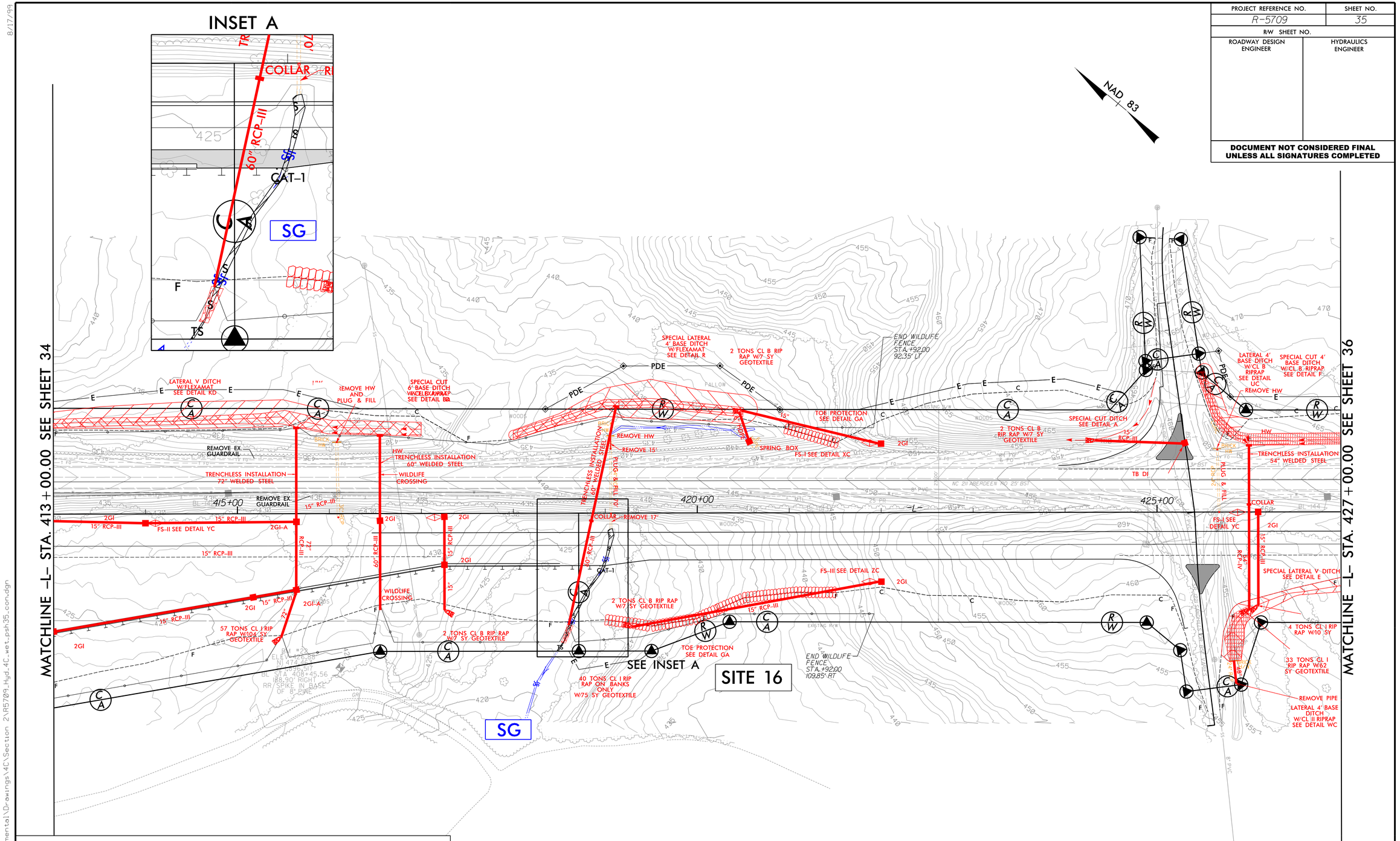

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 40 OF 60

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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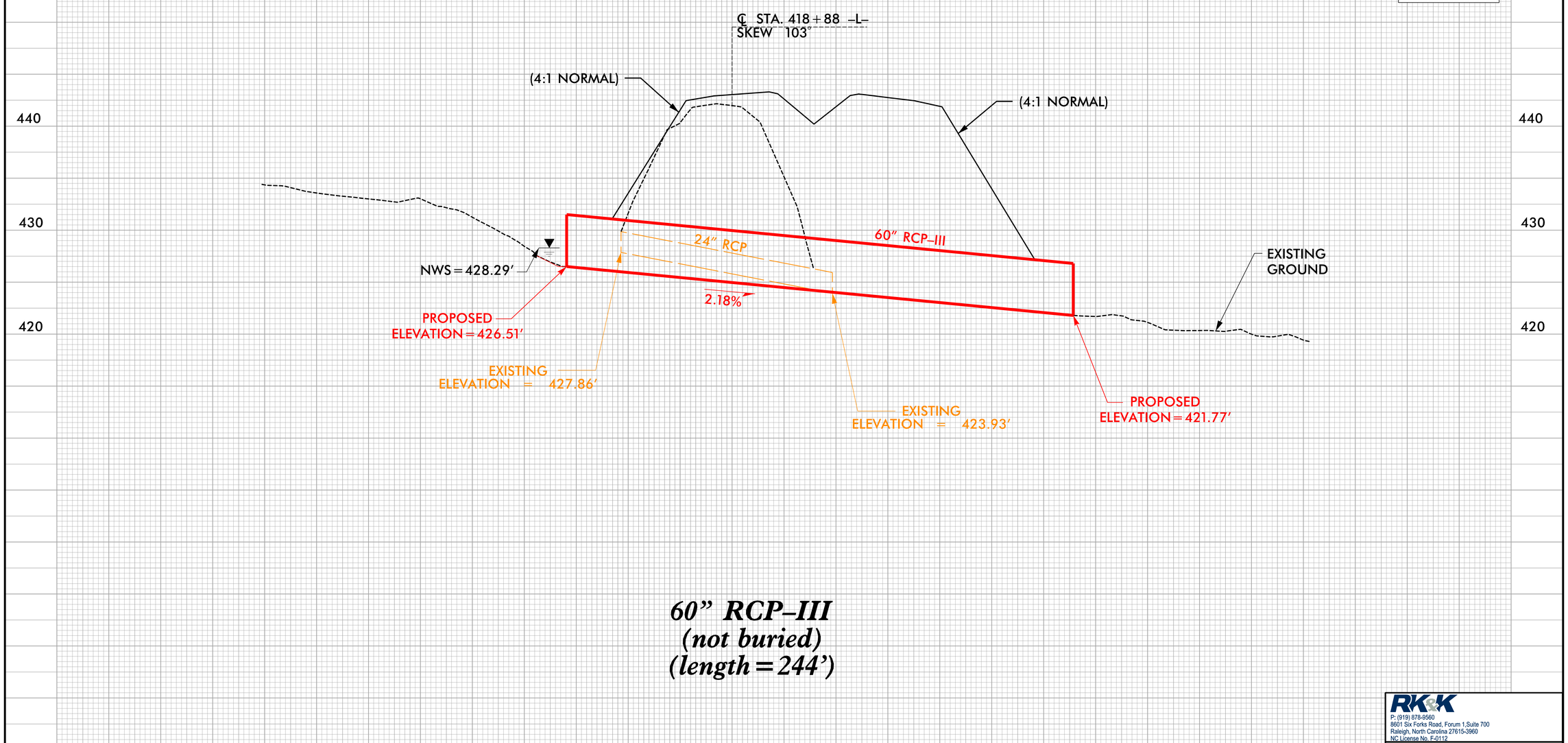
PROJECT REFERENCE NO.	SHEET NO.
R-5709	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 16
–L– STA. 418+88

PERMIT DRAWING
SHEET 41 OF 60

ENGLISH



60" RCP–III
(not buried)
(length = 244')

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

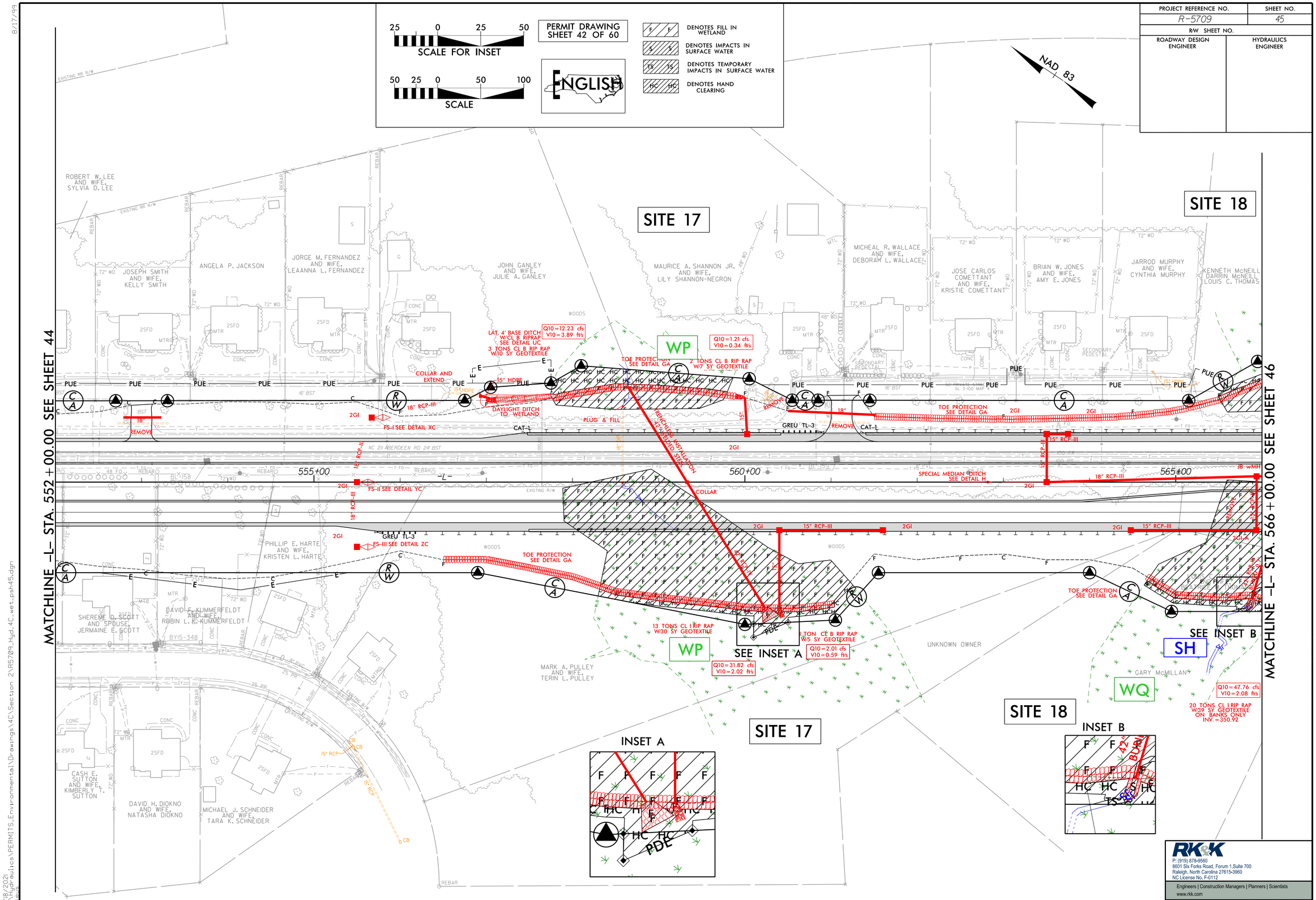
25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 42 OF 60

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC HC DENOTES HAND CLEARING



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R-5709	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

25 0 25 50
SCALE FOR INSET

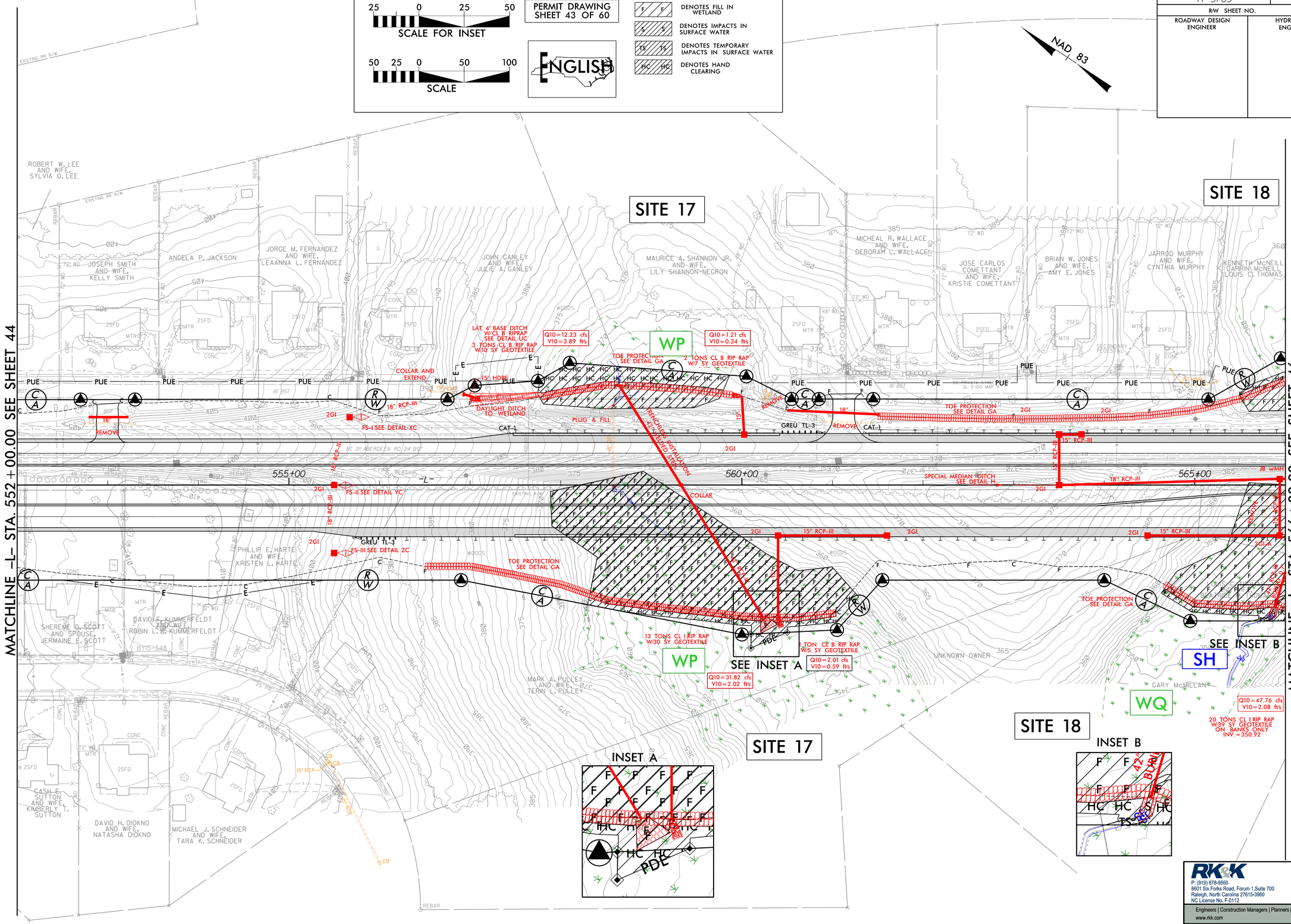
50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 43 OF 60

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC HC DENOTES HAND CLEARING

NAD 83



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PROJ. REFERENCE NO.	SHEET NO.
R-5709	S2 X-100

SITE 17

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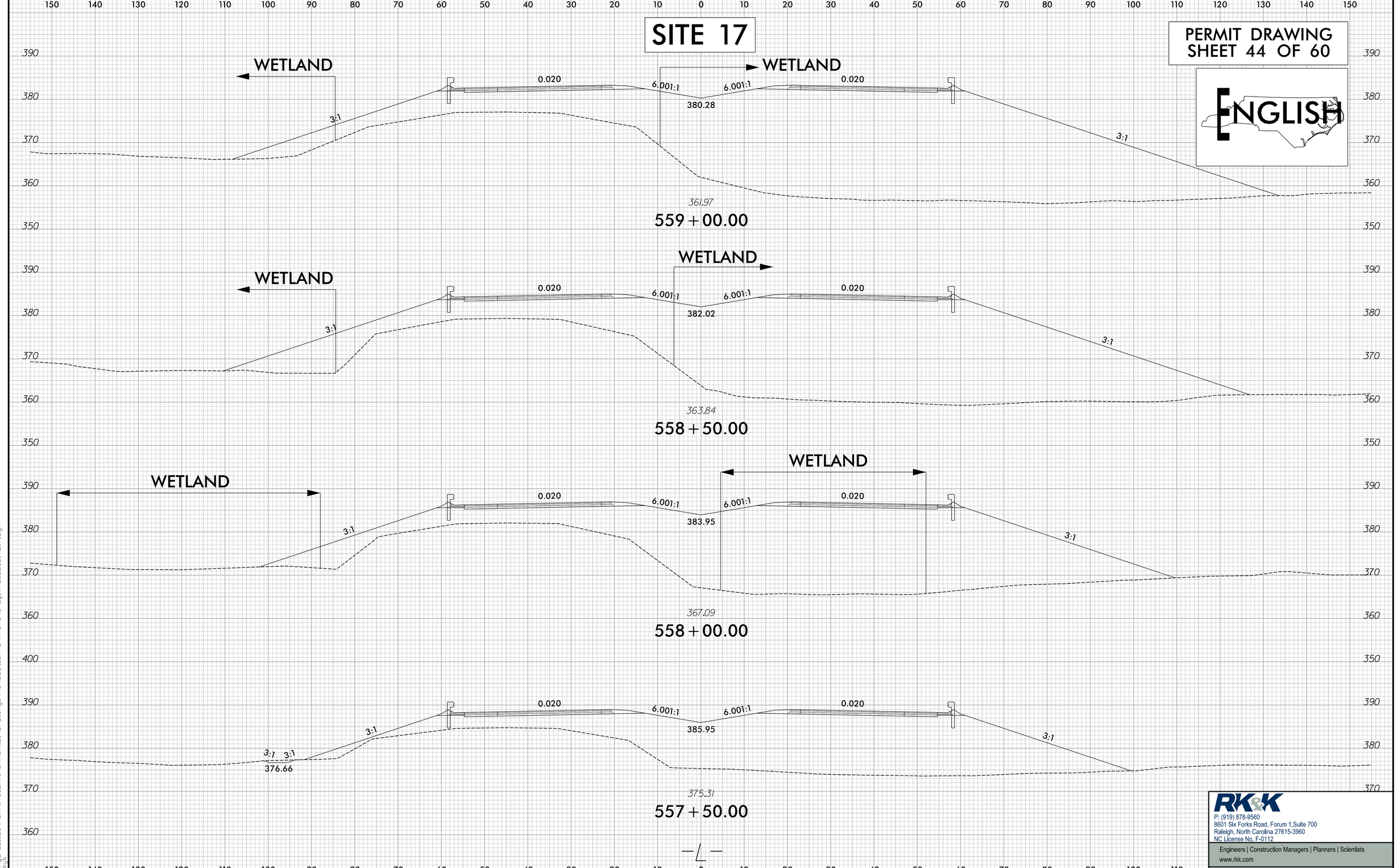
SHEET 44 OF 60

ENGLISH



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SITE 18

PROJ. REFERENCE NO.	SHEET NO.
R-5709	S2 X-104

0 5 10

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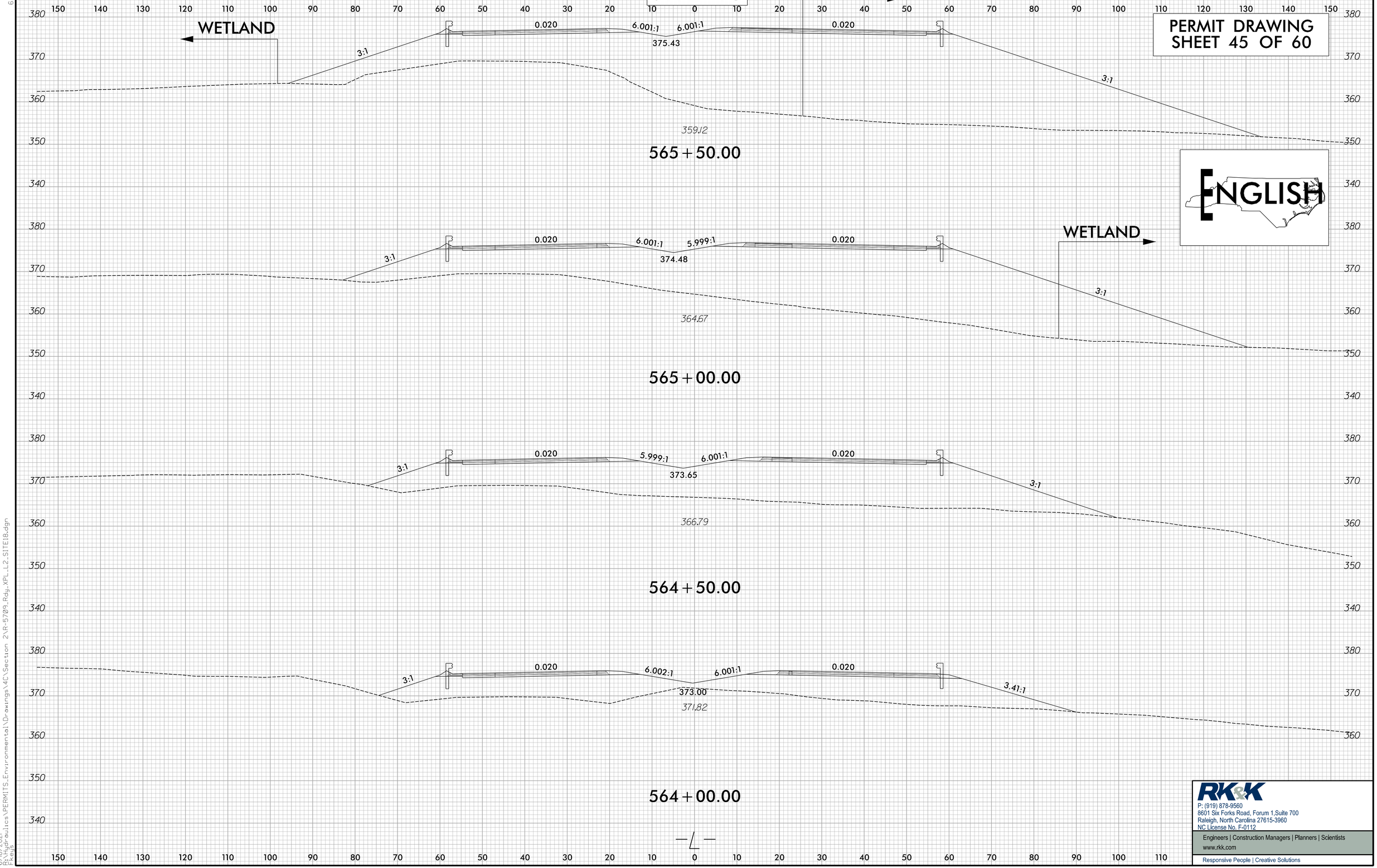
SHEET 45 OF 60



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PROJECT REFERENCE NO.	SHEET NO.
R-5709	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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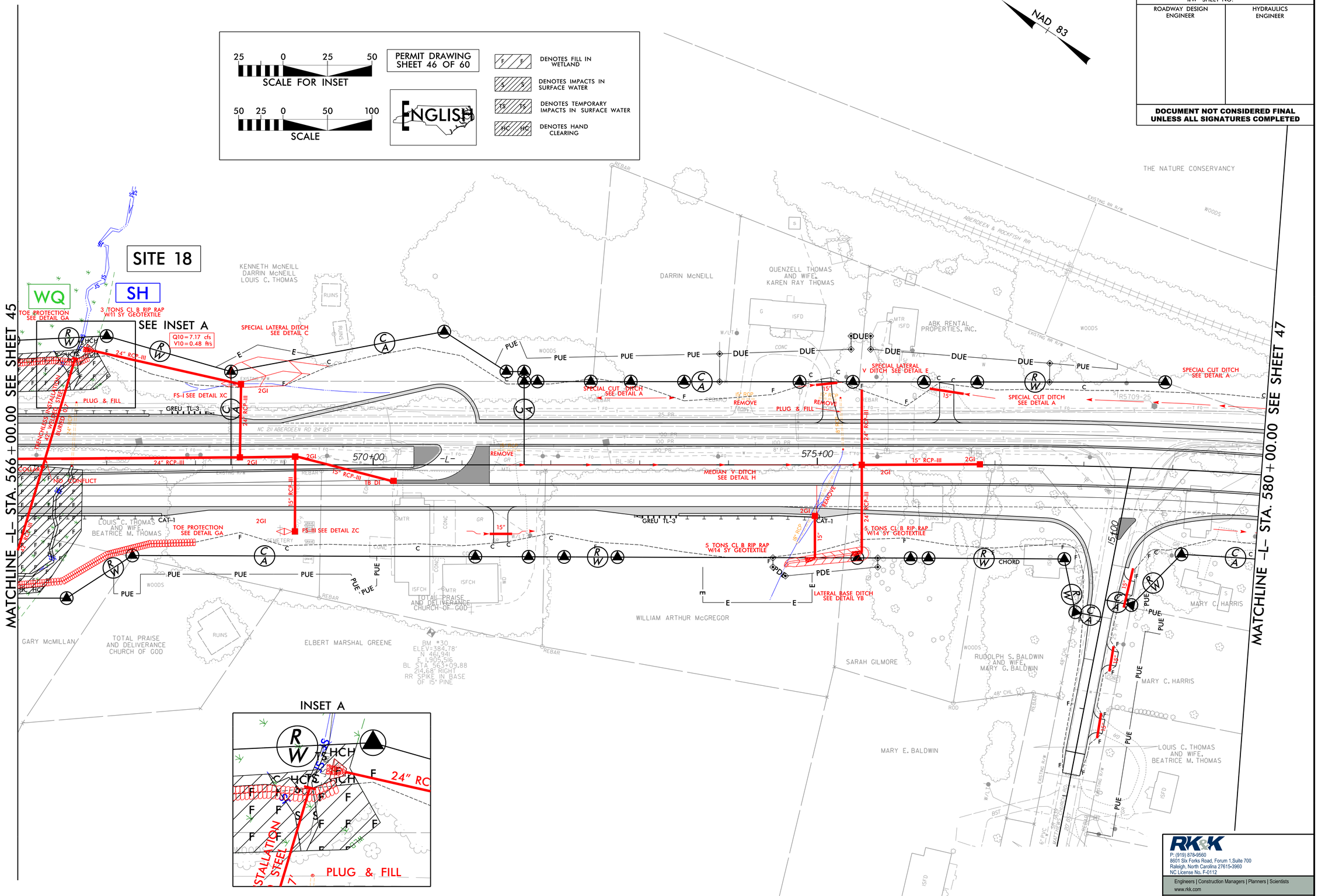

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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25 0 25 50
SCALE FOR INSET

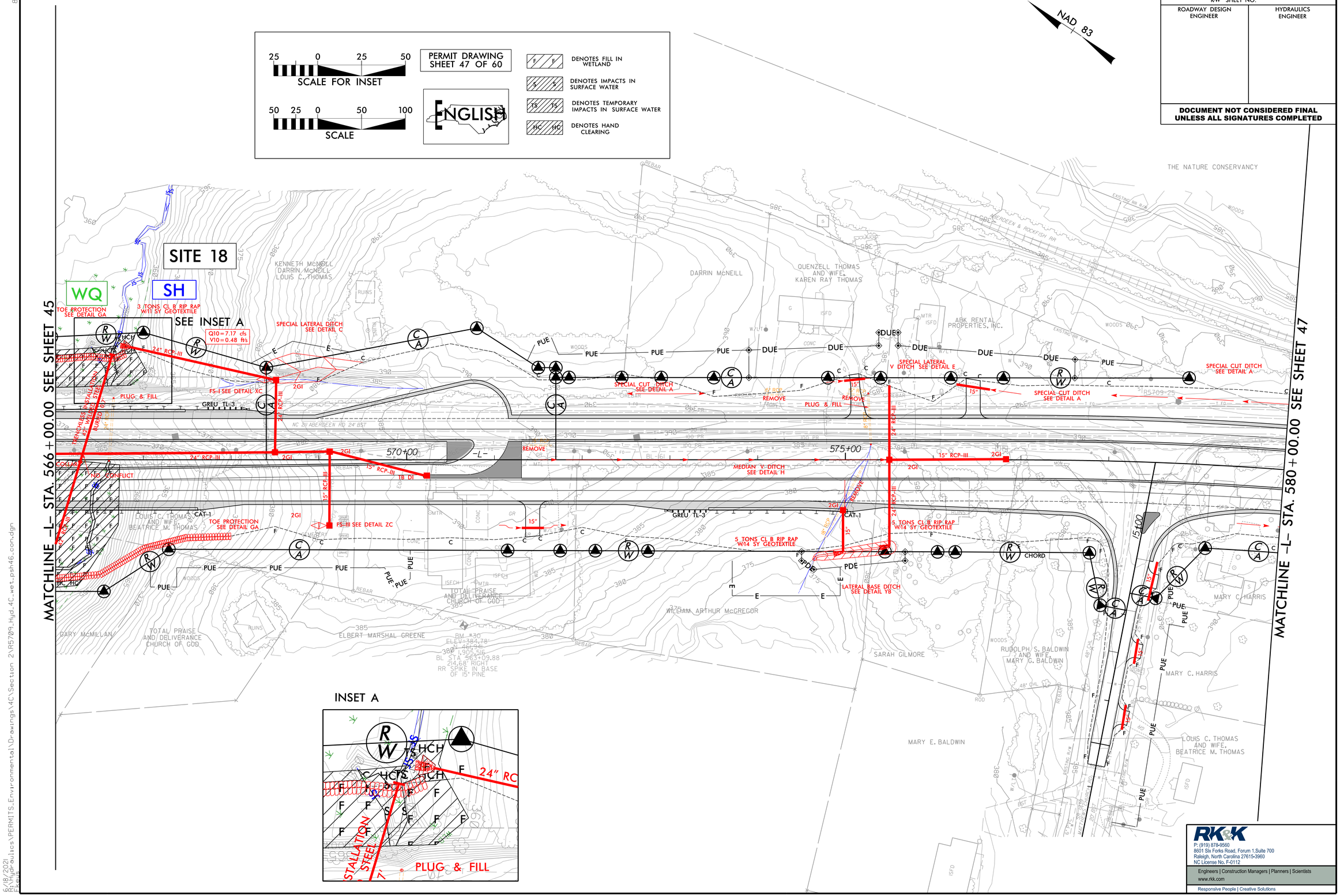
50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 47 OF 60

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC HC DENOTES HAND CLEARING

NAD 83



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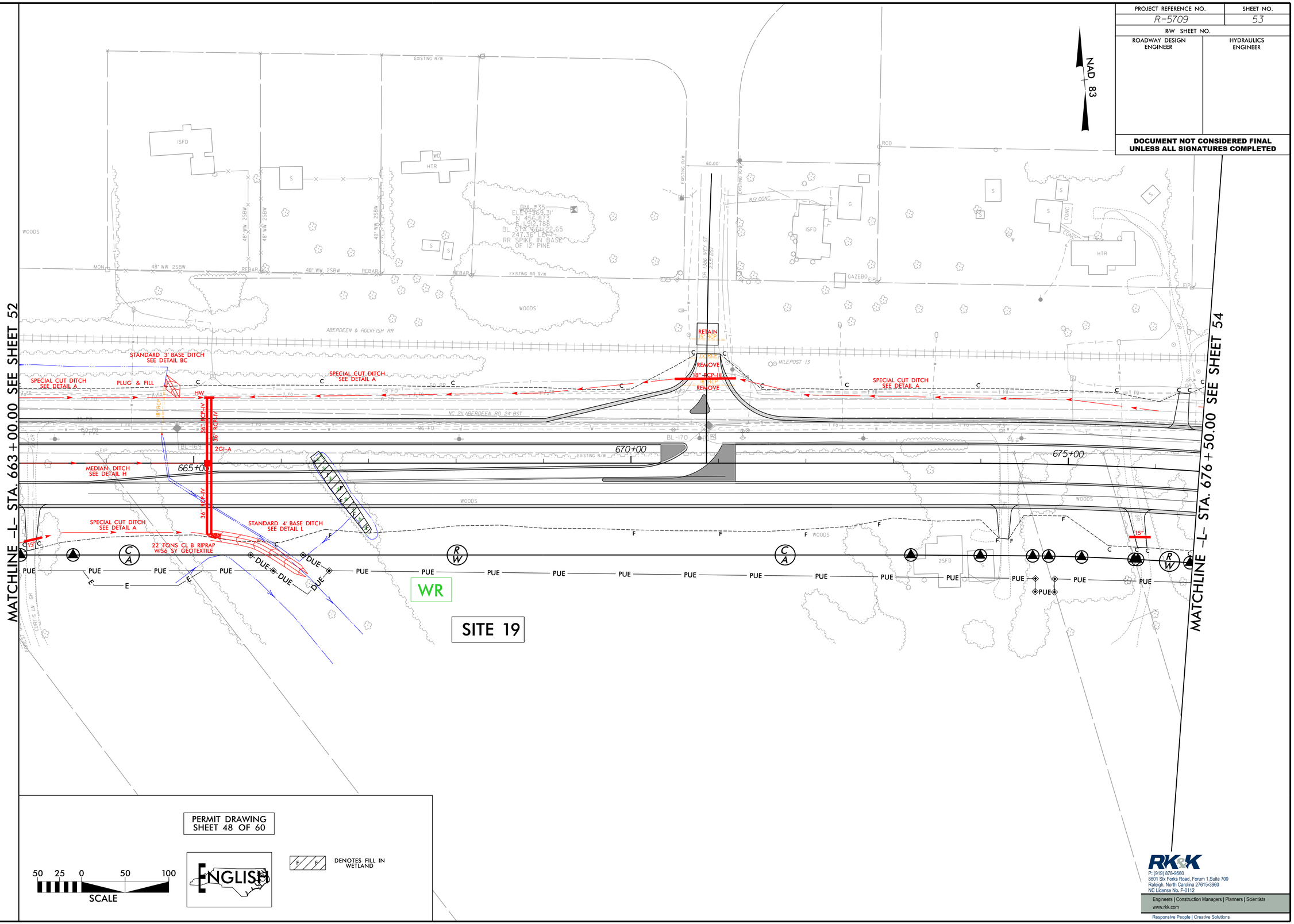
PROJECT REFERENCE NO.	SHEET NO.
R-5709	53
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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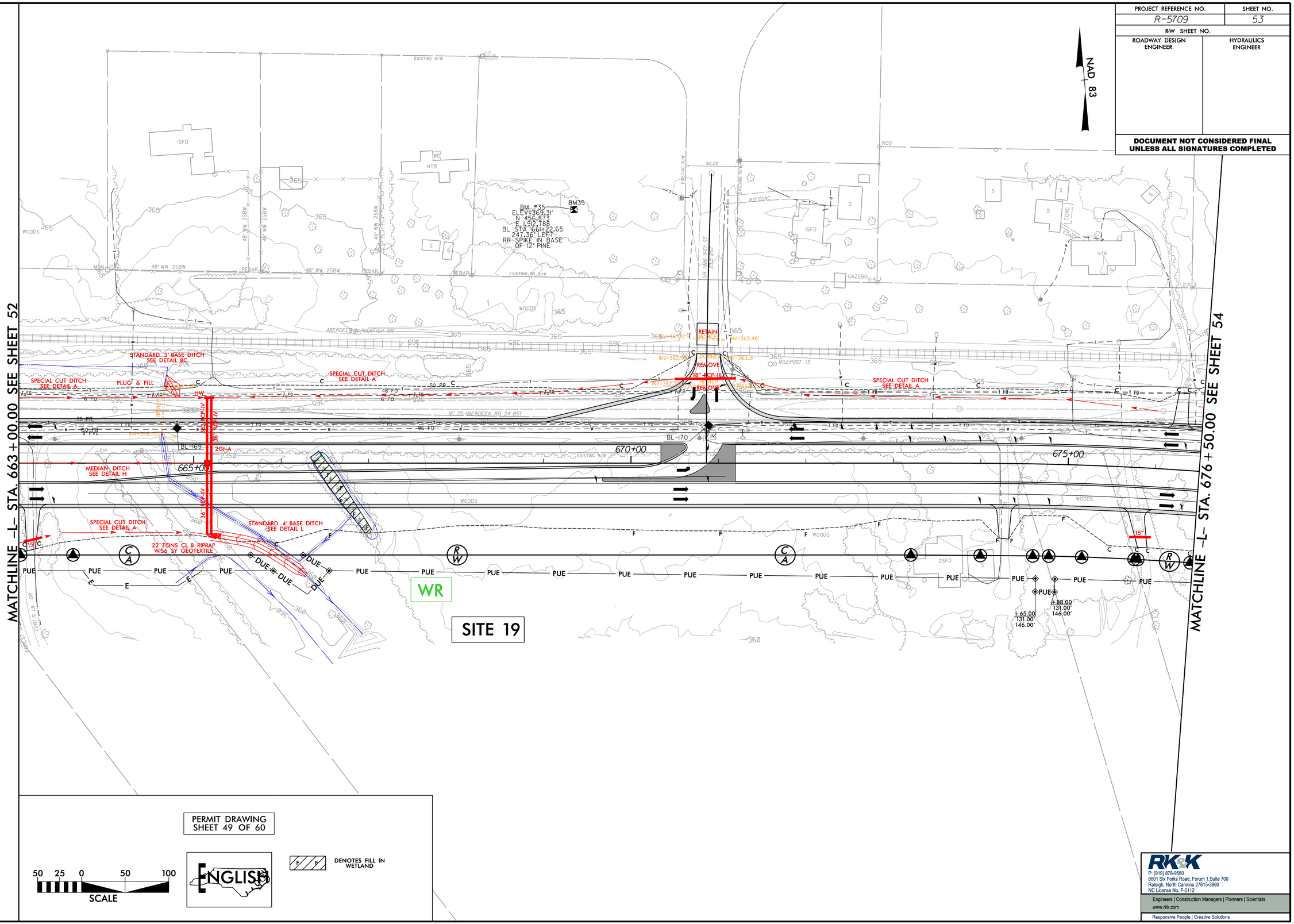
PROJECT REFERENCE NO.	SHEET NO.
R-5709	53
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S2 X-143

SITE 19

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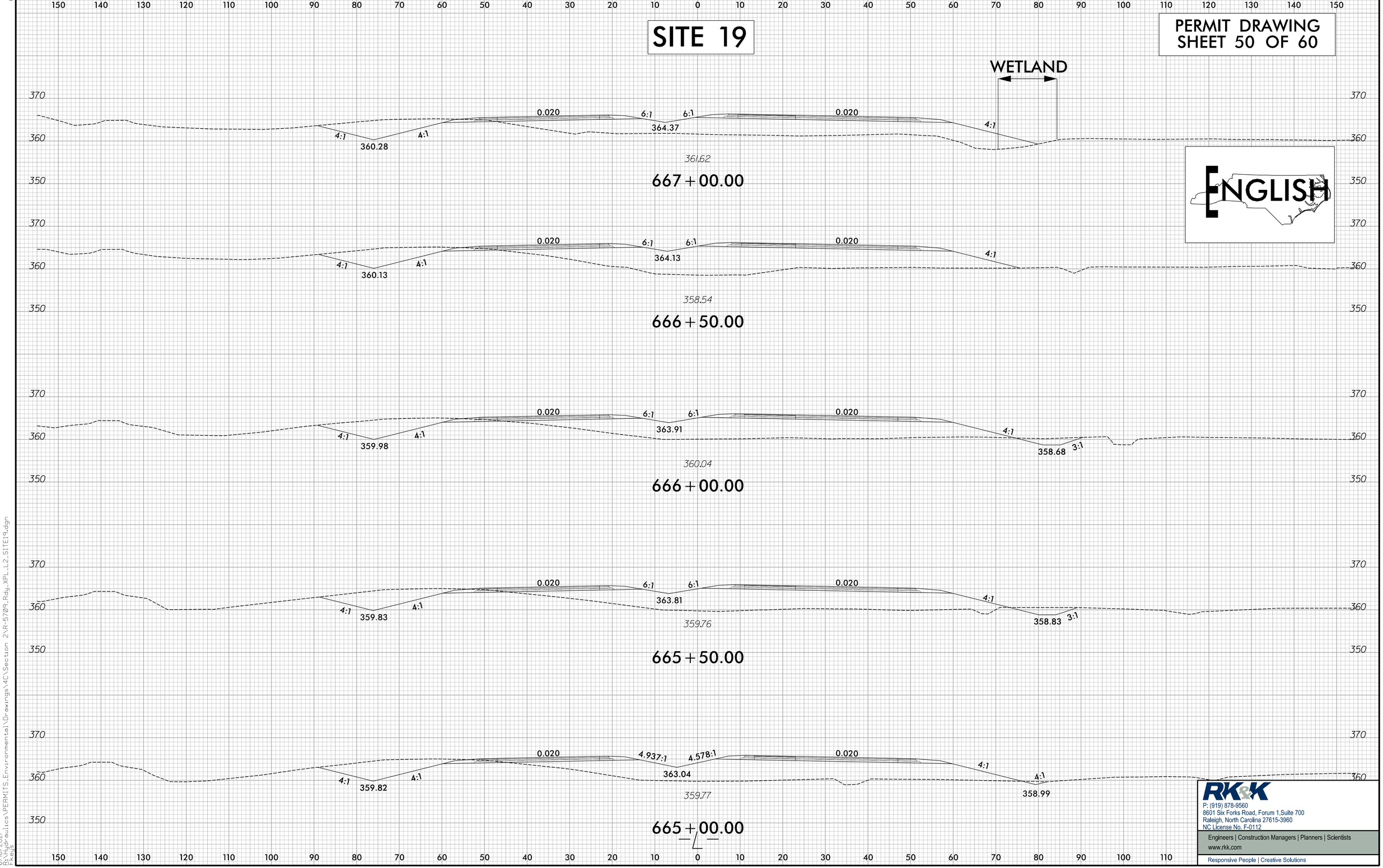
SHEET 50 OF 60



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R-5709	54
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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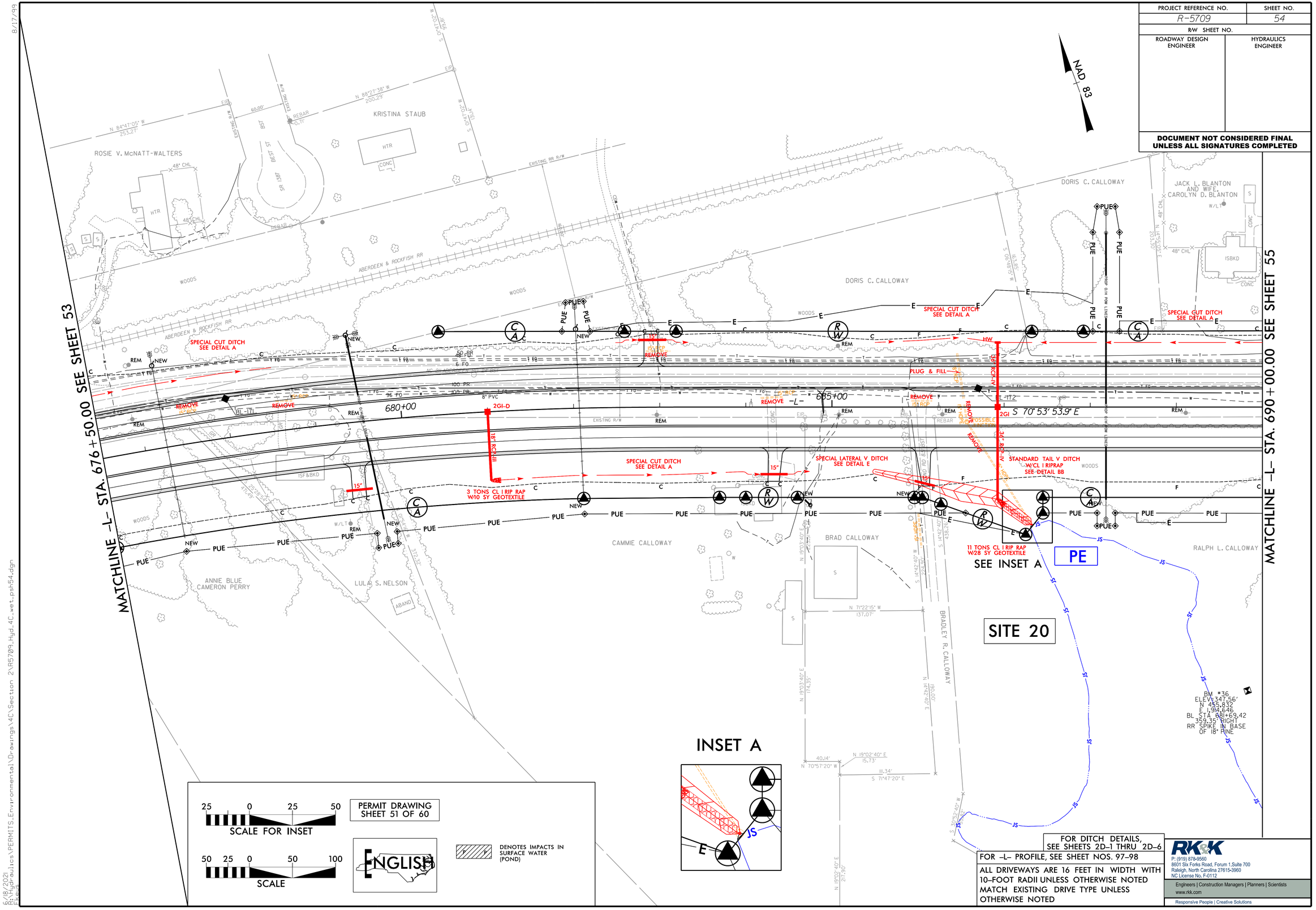

FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-6

FOR -L- PROFILE, SEE SHEET NOS. 97-98

ALL DRIVEWAYS ARE 16 FEET IN WIDTH WITH 10-FOOT RADII UNLESS OTHERWISE NOTED MATCH EXISTING DRIVE TYPE UNLESS OTHERWISE NOTED

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Submitted 6/24/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5709	54
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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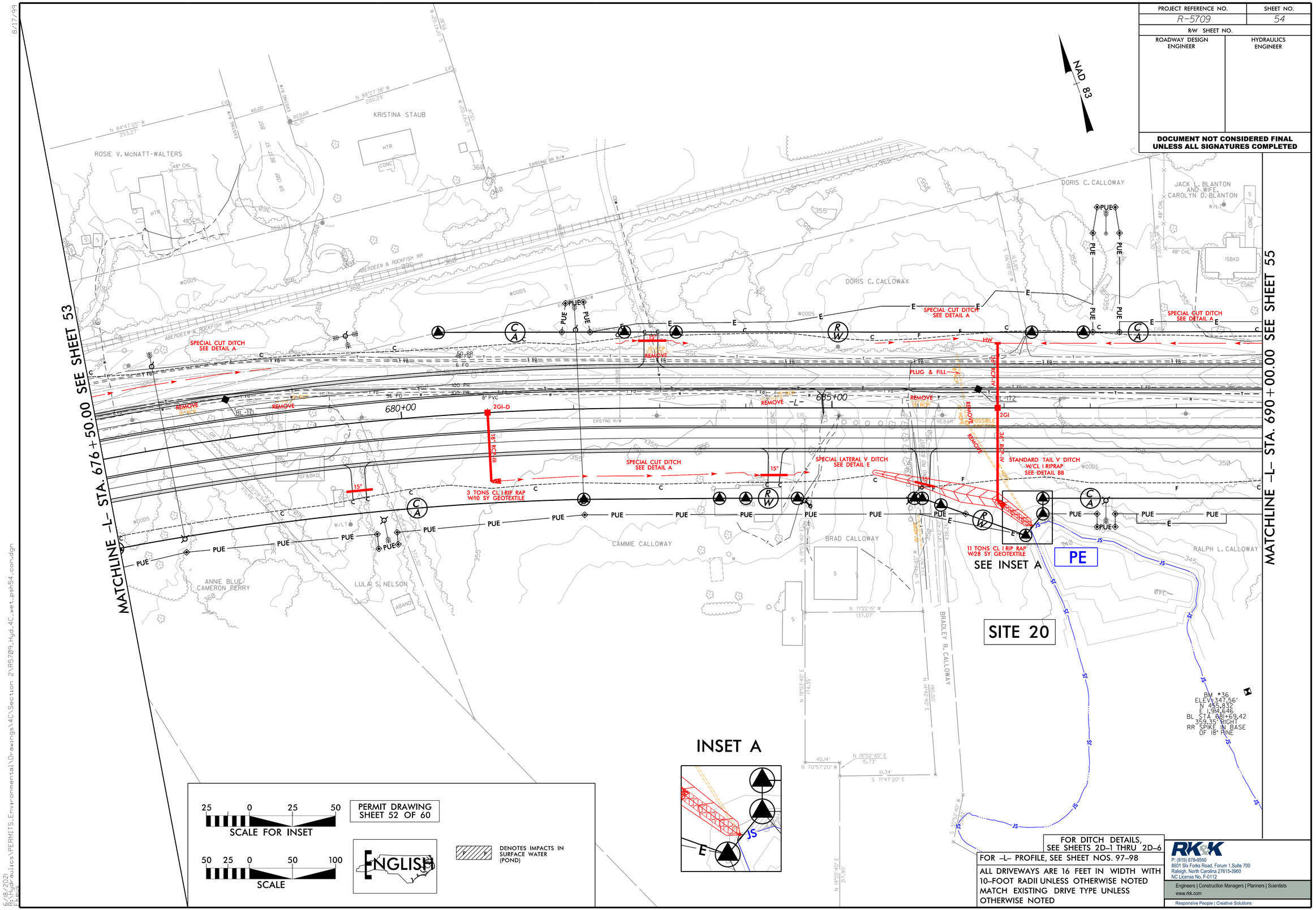

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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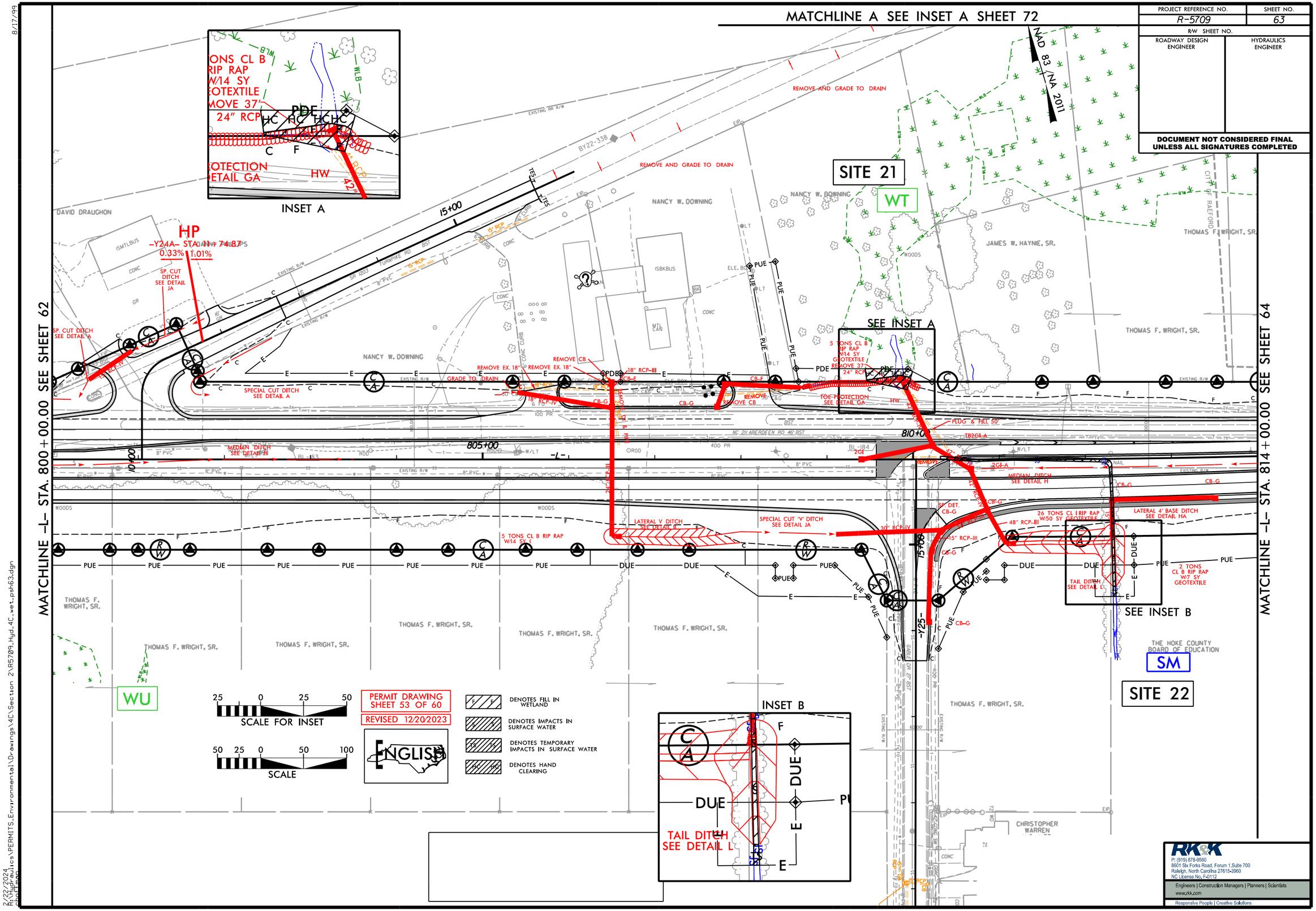

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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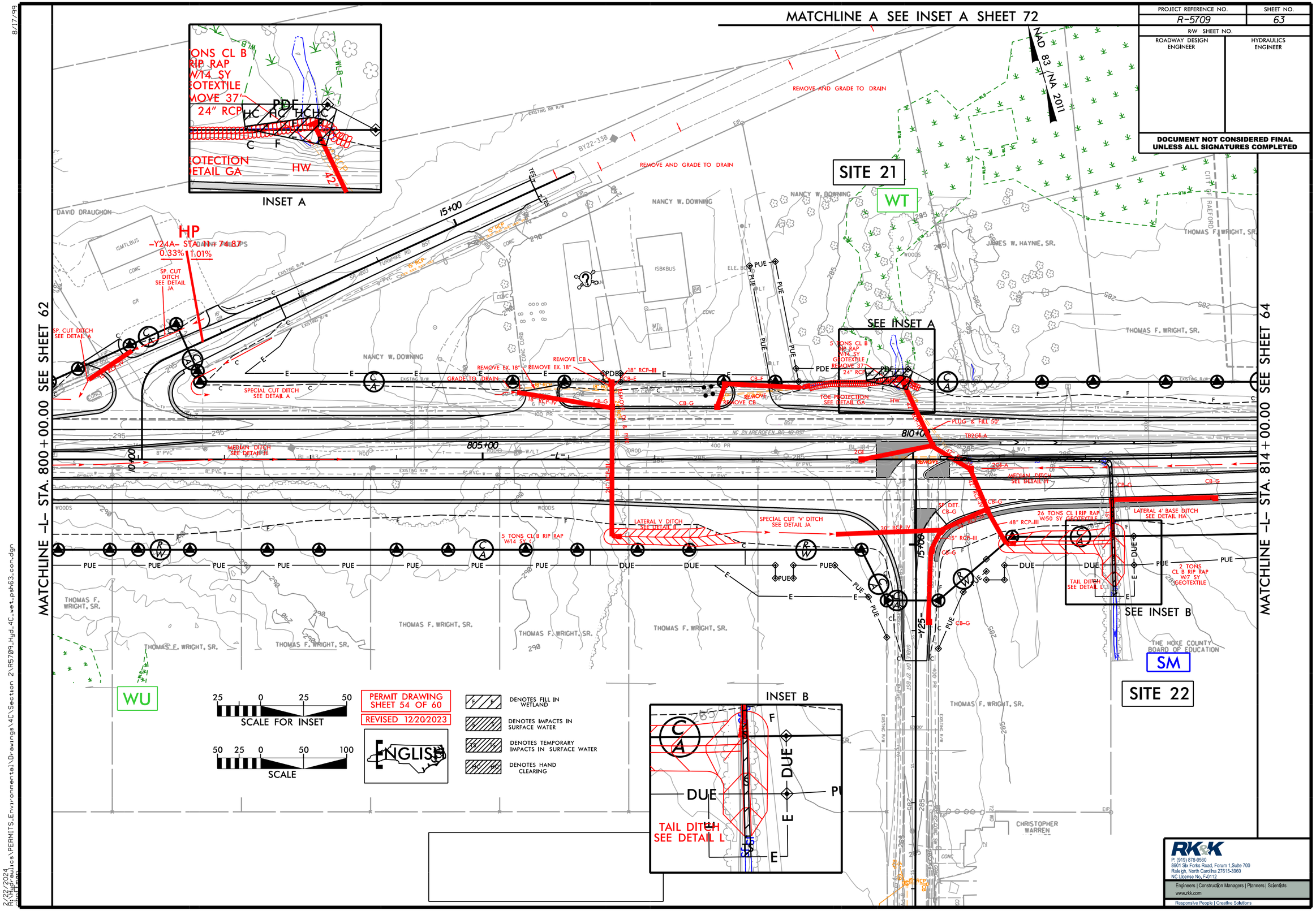

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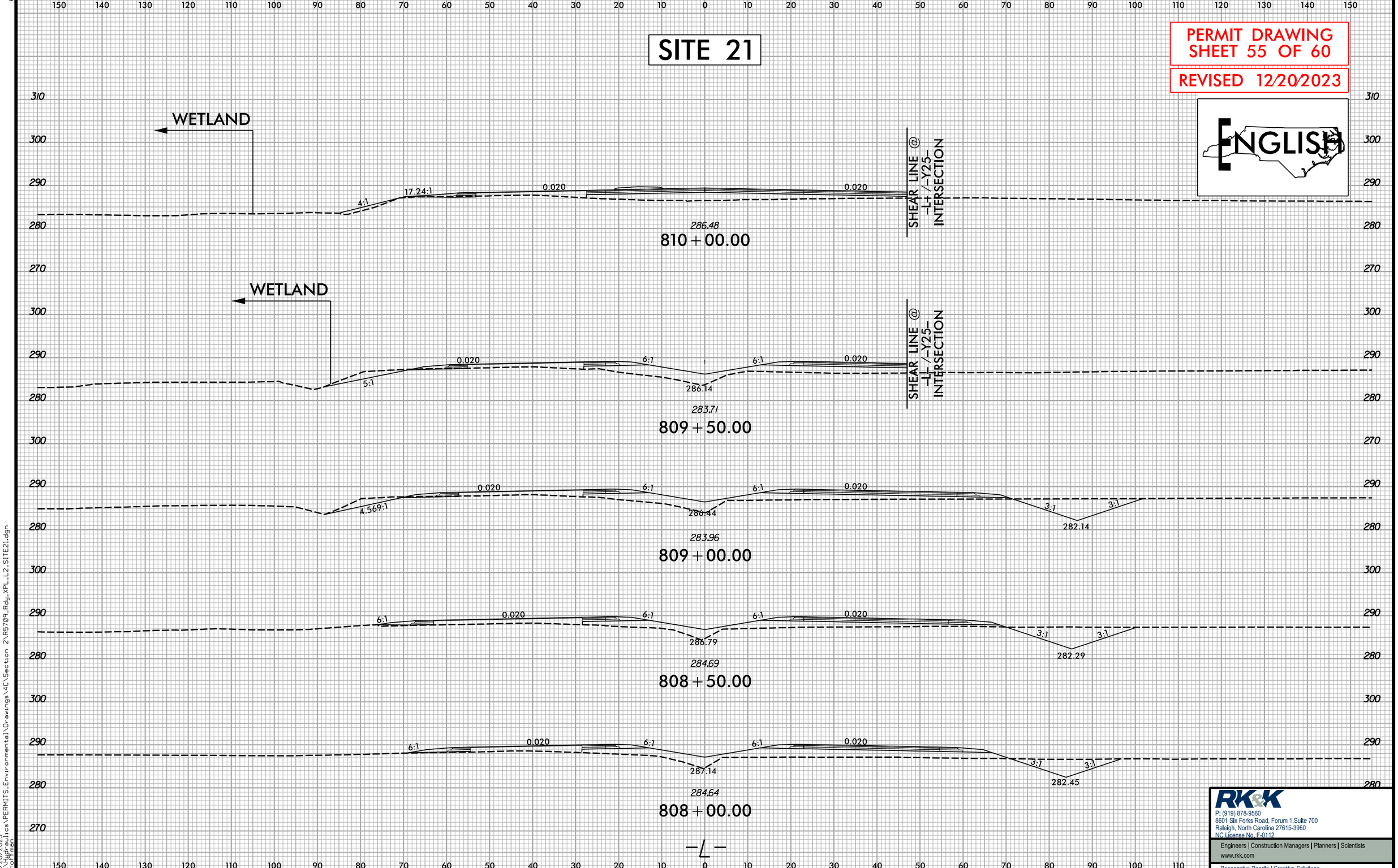
PROJ. REFERENCE NO.	SHEET NO.
R-5709	S2 X-198

PERMIT DRAWING
SHEET 55 OF 60

REVISED 12/20/2023

ENGLISH

SITE 21



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ch0hrman

Submitted 6/24/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5709	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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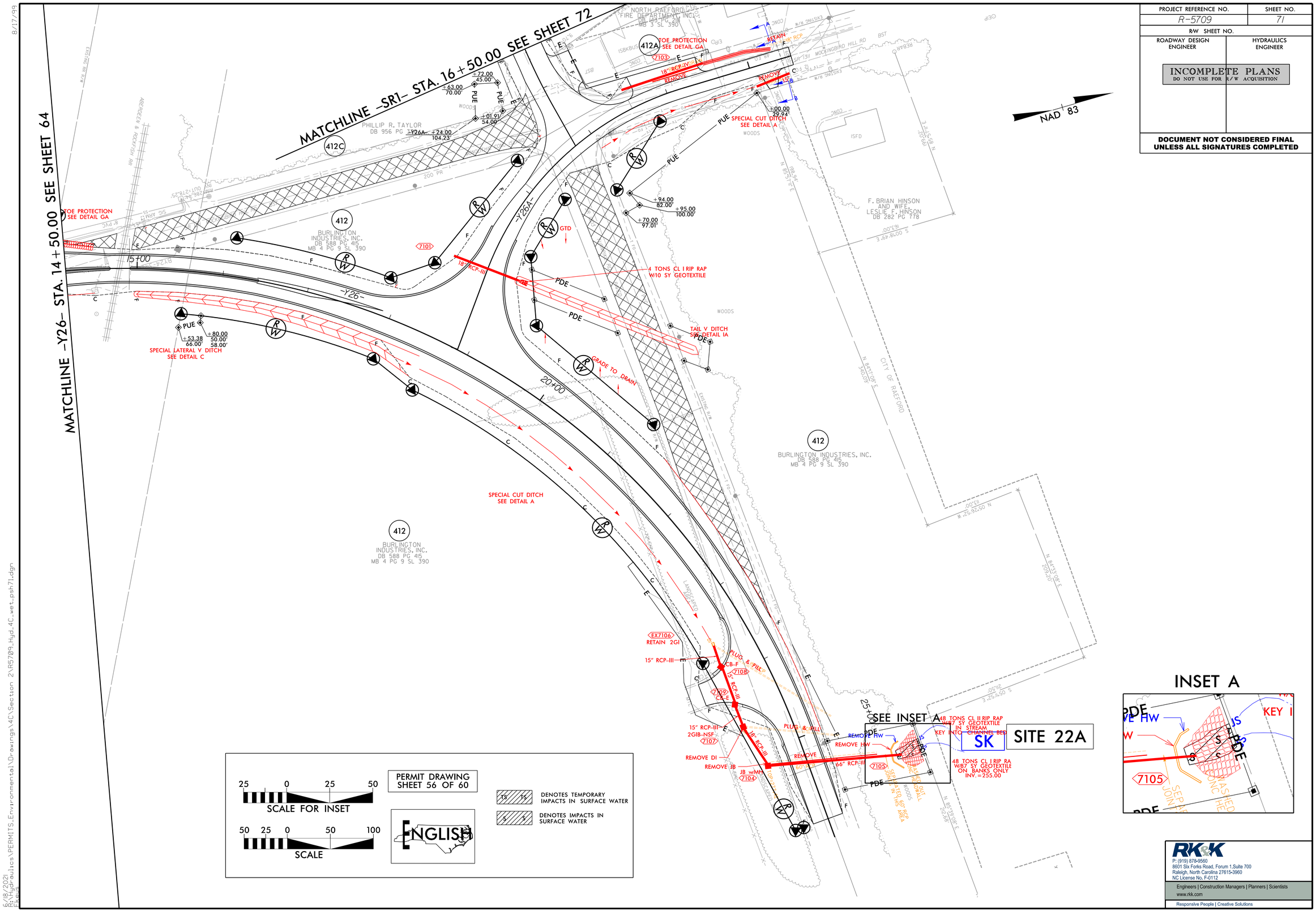

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Submitted 6/24/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5709	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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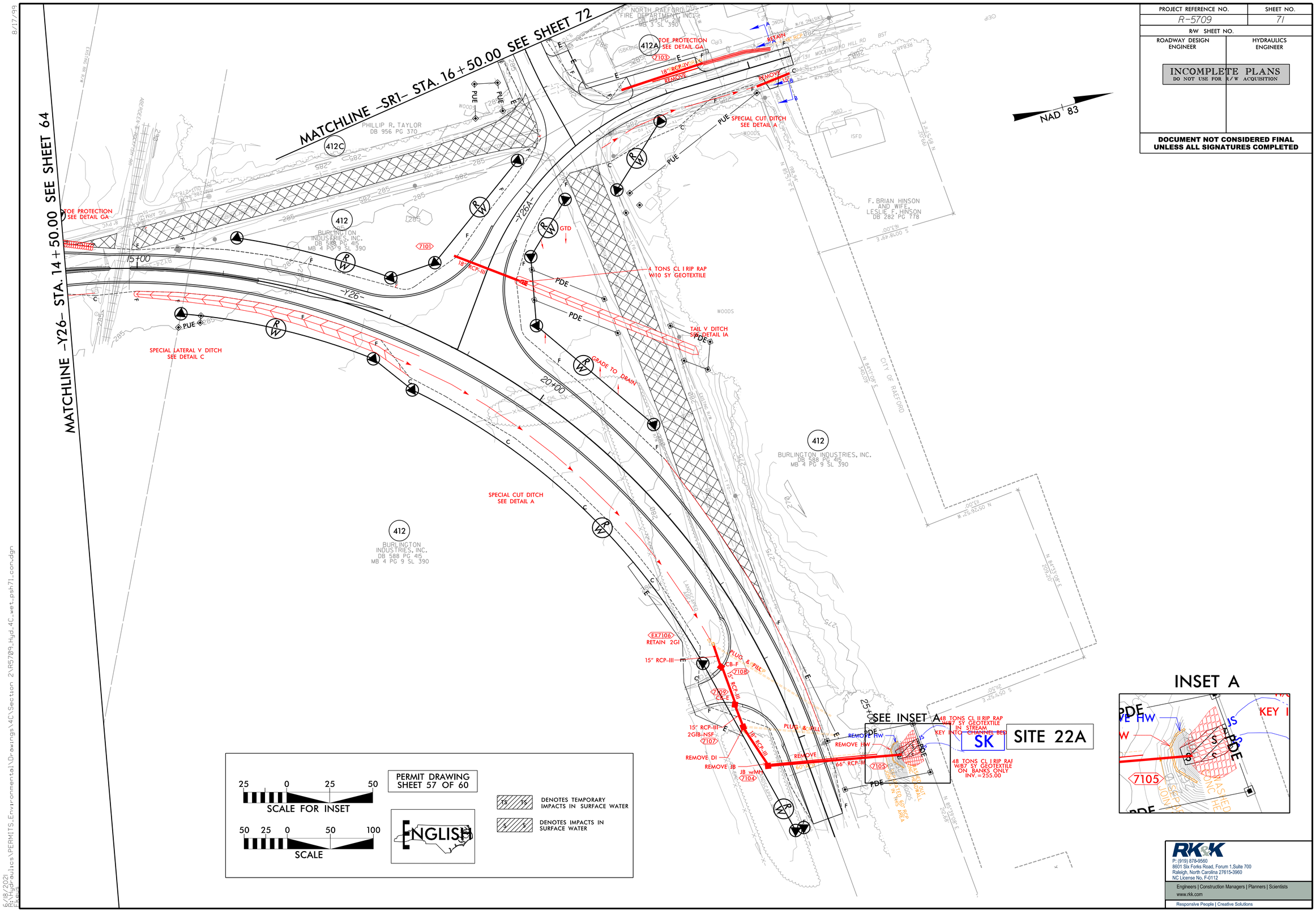

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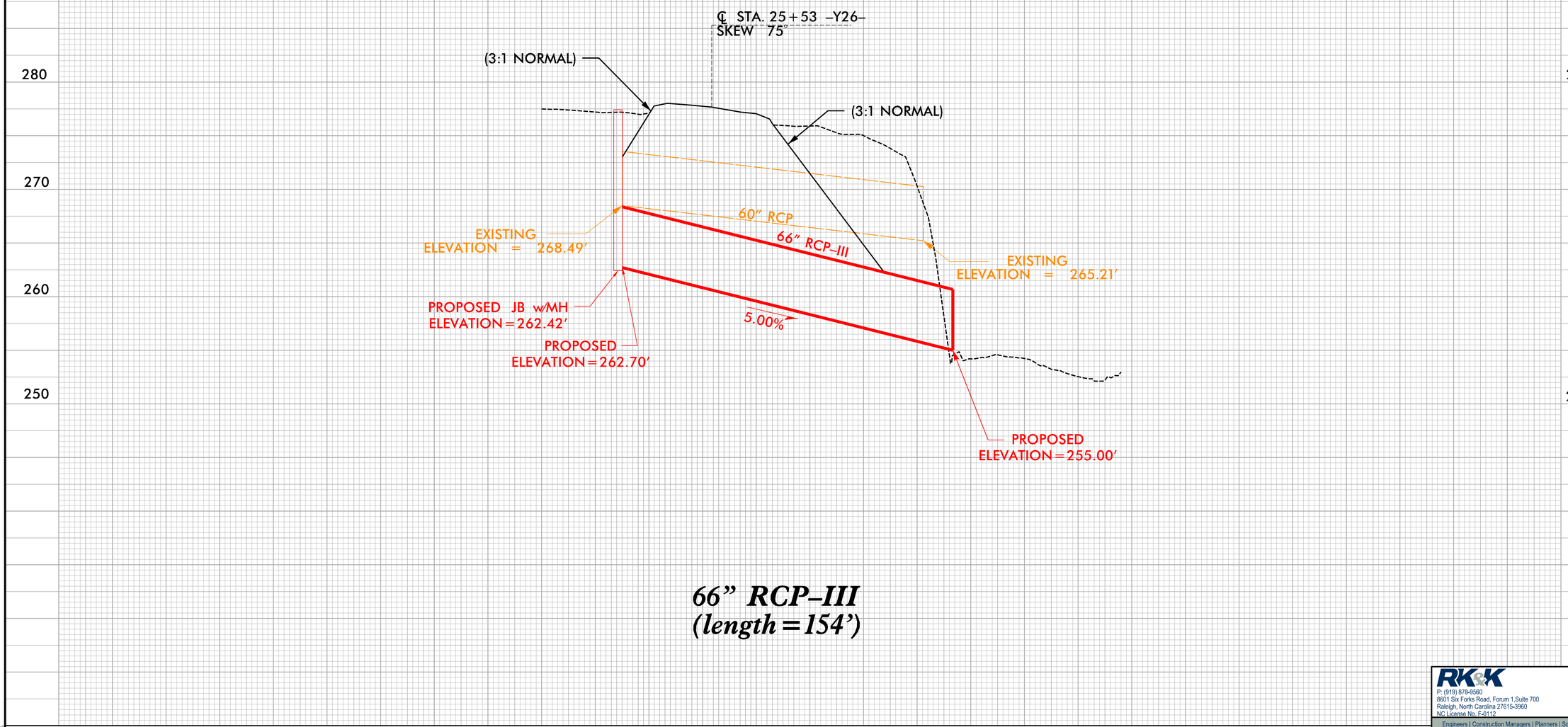
PROJECT REFERENCE NO.	SHEET NO.
R-5709	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 22A
–Y26– STA. 25+53

PERMIT DRAWING
SHEET 58 OF 60

ENGLISH



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6/18/2021
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Submitted 2/29/2024

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Pond Drained (ac)
1	14+10 -L- LT	ROADWAY FILL -WB	0.02		< 0.01		< 0.01					
2	14+50 -L- RT	ROADWAY FILL -WA	0.07		< 0.01		0.05					
3	14+30 -L-	54" RCP-III (BURIED 1') -SA						0.02	< 0.01	183	20	
4	22+30 -L- LT	BANK STABILIZATION -SD					0.01	< 0.01	< 0.01	20	12	
		ROADWAY FILL -WF					< 0.01					
		UTILITY IMPACTS					0.02					
5	23+25 -L- RT	-Y2- WF	0.02				< 0.01					
6	20+60 -Y2- RT	UTILITY IMPACTS -WG					< 0.01					
6	18+50 -Y3- RT	ROADWAY FILL -WG					< 0.01					
6	36+00 -L- LT	ROADWAY FILL -WG	0.06				0.09					
6	39+50 -L- LT	-Y4- WG	0.03				< 0.01					
6A	14+00 -Y4- RT	ROADWAY FILL -WG2	< 0.01		0.03		0.02					
7	35+00 -L- RT	ROADWAY FILL -WH	0.06		< 0.01		0.03					
8	34+65 -L-	66" RCP IV (BURIED 1') -SC						< 0.01	< 0.01	85	53	
		BANK STABILIZATION						< 0.01		26		
9	165+50 -L- RT	ROADWAY FILL -WJ	0.01				0.02					
10	168+00 -L-	ROADWAY FILL -WI	0.19				0.05					
		54" RCP-III -SE						< 0.01		70		
		UTILITY IMPACTS -WI					< 0.01					
11	203+50 -L- LT	ROADWAY FILL -WM	0.07				0.07					
		UTILITY IMPACTS					0.15					
12	207+80 -L- RT	ROADWAY FILL -WL	0.29				0.06					
13	208+50 -L- LT	POND DRAINAGE -WN			0.02		< 0.01					3
14	208+61 -L-	72" RCP IV (BURIED 1') -SF						0.02		185		
15	279+00 -L-	2@48" RCP III -SJ						< 0.01	< 0.01	103		
	11+75 -Y9F- RT	UTILITY IMPACTS-WW					0.01					
15A	17+00 -DR11- LT	-DR11- WAC					0.02					
TOTALS*:			0.83		0.06		0.65	0.06	< 0.01	672	85	3

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
February 2024
HOKE & MOORE COUNTIES
R-5709

Submitted 2/29/2024

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
16	419+00 -L- RT	60" RCP-III -SG						< 0.01		116		
		BANK STABILIZATION -SG						< 0.01	< 0.01	20	11	
17	557+75 -L-	ROADWAY FILL -WP	0.82				0.14					
18	564+63 -L-	ROADWAY FILL -WQ	0.54				0.05					
		INLET, 42" RCP-III -SH							< 0.01		26	
		CHANNEL RELOCATION -SH						0.02		213		
		BANK STABILIZATION -SH						< 0.01	< 0.01	15	12	
19	666+34 -L- RT	ROADWAY FILL -WR	0.03									
20	687+32 -L- RT	DITCH TO POND -PE						< 0.01				
21	809+80 -L- LT	ROADWAY FILL -WT	0.01				0.01					
22	810+32 -L- RT	ROADWAY FILL AND						0.02	< 0.01	341	12	
		TAIL DITCH -SM										
22A	25+53 -Y26- LT	66" RCP-III - SK						< 0.01	< 0.01	6		
		BANK STABILIZATION -SK						< 0.01		23	3	
	TOTALS for SHEET 1:		0.83		0.06		0.65	0.06	< 0.01	672	85	3
	TOTALS for SHEET 2:		1.41				0.20	0.06	< 0.01	734	65	
TOTALS*:			2.23		0.06		0.85	0.12	0.01	1406	150	3

*Rounded totals are sum of actual impacts

NOTES:
Site 19 has 13 SF of wetland WR that is outside of the fill slope. This area will be considered a take for the purposes of this summary
There will be 0.08 acre of temporary fill in wetlands in the hand clearing areas for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
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February 2024
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R-5709