STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

1/29/2026

MEMORANDUM TO: Division Environmental and Construction Units

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

SUBJECT: Environmental Permits for the Improvements to NC42, US421 (Horner Boulevard) in Sanford to SR1579 (Broadway Road) and SR1579 (Broadway Road/North Main Street), NC 42 (Avents Ferry Road) to SR1538 (East Harrington Avenue) in Broadway, Lee County, Division 8, **TIP R-3830.**

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 50 (renewed 1/21/2026) *Replaces previous 3/3/21issuance*	May 25, 2030
NC Division of Water Resources Section 401 Water Quality Certification	General Cert. No. 4135 [RGP50] (renewed 12/9/2025) *Replaces previous 1/19/21issuance*	May 25, 2030

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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT
WILMINGTON REGULATORY OFFICE
69 DARLINGTON AVENUE
WILMINGTON NORTH CAROLINA 28403

December 15, 2025

Regulatory Program/Division
SAW-2018-02283

Sent Via Email: jldilday1@ncdot.gov

Jason Dilday, Eastern Regional Team Lead
NCDOT, ECAP, Environmental Analysis Unit
1598 Mail Service Center
Raleigh, NC 27699-1598

Dear Mr. Dilday:

This letter is in response to the application you submitted to the Wilmington District, WRDA / Transportation Branch on October 21, 2025, for a Department of the Army general permit verification. This project has been assigned the file number SAW-2018-02283 and is known as NCDOT/R-5709/NC 211 from US 15/501 to SR 1244/SR1311/Division 8. This file number should be referenced in all correspondence concerning this project.

A review of the information provided indicates that the proposed work would include the widening of approximately 15.6-mile-long segment of NC-211 from Aberdeen to Raeford. This verification of the R-5709 project includes minor modifications from what was previously authorized by the Corps on July 19, 2021. The revised R-5709 project will include the permanent placement of fill/structures in a total of 2.29 acres of several wetlands, permanent placement of structures/fill in a total of 1,302 linear feet (lf) of several tributaries, the permanent placement of a total of 104 lf of bank stabilization in several tributaries, the temporary placement of structures/fill in a total of 150 lf of several tributaries for construction/dewatering, and will include the dewatering of a 3 acre open water impoundment. In addition to these impacts, this project will include hand clearing activities in several wetland areas as part of the project construction and utility work. The project area for this determination includes an approximately 223 acres area which is illustrated on the enclosed site plans/maps. The project/review area is located along an approximately 15.6-mile-long segment of NC-211 from the existing two travel lane to the proposed four travel lanes from the NC-211 intersection with NC 15-501 in Aberdeen south to its intersection with SR 1244 (West Palmer Street) and SR 1311 (Mockingbird Hill Road) in Raeford, at Latitude 35.055560 and Longitude -79.332960; in Moore and Hoke Counties, North Carolina.

We have determined that the proposed work is authorized by Regional General Permit 31 (RGP-31) pursuant to authorities under Section 404 of the Clean Water Act (33 U.S.C § 1344). The proposed work must be accomplished in strict accordance with

the enclosed general permit conditions, any regional conditions, the special conditions listed in this letter, the application materials, and the enclosed plans Sheets 1-60 of 60, entitled, “TIP Project: R-5709, NC 211 from US15/US 501 in Aberdeen to SR 1244 (West Palmer St)/SR 1311 (Mockingbird Hill Rd) in Raeford, Moore/Hoke Counties” and dated November 5, 2025 by NCDOT. If the extent of the project area and/or nature of the authorized impacts to waters are modified, a revised application must be submitted to this office for written approval before work is initiated. Any deviation from the terms and conditions of the permit, or your submitted plans, may subject the permittee to enforcement action.

This verification is valid until May 25, 2030, unless the subject general permit(s) is suspended, revoked, or is modified prior to that date such that the activity no longer complies with the terms and conditions of the general permit.

Project Specific Special Conditions:

1. All work must be performed in strict compliance with (a) the description of work in the PCN and (b) the Wetlands and Surface Water Impact Permit Drawing(s) (Permit Plans) in the application dated October 21, 2025. Any modification to the description of work and/or the permit plans must be approved by the USACE prior to implementation.

2. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this authorization letter in the construction and maintenance of this project and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this authorization letter, all conditions, and any authorized modifications. A copy of this authorization letter, all conditions, and any authorized modifications, shall be available at the project site during construction and maintenance of this project.

3. The U.S. Fish and Wildlife Service’s (USFWS’s) Programmatic Conference Opinion (PCO) titled "NCDOT Program Effects on the Tricolored Bat in Divisions 1-8”, dated November 20, 2023, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with “incidental take” that are specified in the PCO. Your authorization under this Corps permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the PCO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the PCO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PCO, and with the ESA.

This general permit verification and any associated authorizations does not preclude the necessity to obtain any other Federal, State, or local permits, licenses, and/or certifications, which may be required.

If you have any questions related to this verification or have issues accessing documents referenced in this letter, please contact Stephen Brumagin, WRDA/Transportation Project Manager of the Charlotte Field Office at 704-798-6471, by mail at the above address, or by email at stephen.a.brumagin@usace.army.mil. Please take a moment to complete our customer satisfaction survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Sincerely,

M. Scott Jones, PWS
WRDA/Transportation Branch Chief

Enclosures

Revised R-5709 project plans
401 WQC
RGP 31

cc (w/enclosures):

Rex Badgett, NCDOT Div 8 DEO (via jsbadgett@ncdot.gov)

U.S. Army Corps of Engineers (USACE)

CERTIFICATION OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

For use of this form, see Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research, and Sanctuaries Act; the proponent agency is CECW-COR.

Form Approved -
OMB No. 0710-0003
Expires 2027-10-31

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0003, is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PURPOSE: This form is used by recipients of U.S. Army Corps of Engineer Regulatory permits to certify compliance with the permit terms and conditions.

Your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the U.S. Army Corps of Engineers, Wilmington District, Regulatory Office.

The certification can be submitted by email at Enter Email Name @usace.army.mil or by mail at the below address:

U.S. Army Corps of Engineers
Wilmington District Office
Street Address: 69 Darlington Avenue
City: Wilmington State: North Carolina Zip Code: 28403

COMPLETED BY THE CORPS

Corps Action Number: SAW-2018-02283

Permit Type: General Permit

General Permit Number and Name (*if applicable*): RGP-31

Name of Permittee: Jason Dilday

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

Project Location (*physical address*): NC 211 from US 15/501 in Aberdeen to SR 1244/SR 1311 in Raeford
Moore and Hoke Counties, North Carolina

PERMITTEE'S CERTIFICATION

Date Work Started: _____

Date Work Completed: _____

Enclose photographs showing the completed project (*if available*).

I _____ hereby certify that the work authorized by the above referenced permit has been completed in accordance with all of the permit terms and conditions, and that any required compensatory mitigation has been completed in accordance with the permit conditions.

Name	Date	Signature

11/5/2025 (For Reverification Purposes)

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

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
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)			

11/5/2025 (For Reverification Purposes)

North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

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)						

11/5/2025 (For Reverification Purposes)

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)							

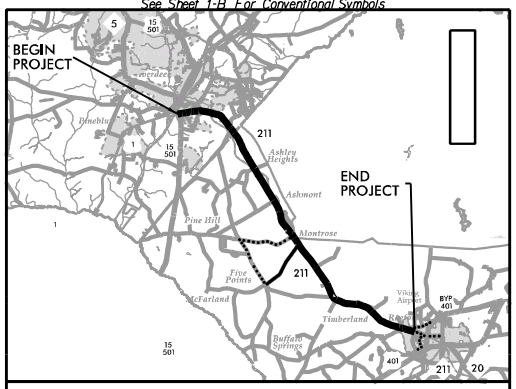
Surface Water Body (7):	UT to Toneys Creek		**NCDWR Stream Index No.:**	14-10-1.2			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	Swamp Waters (Sw)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic 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)							

11/5/2025 (For Reverification Purposes)

CONTRACT: TIP PROJECT: R–5709

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



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

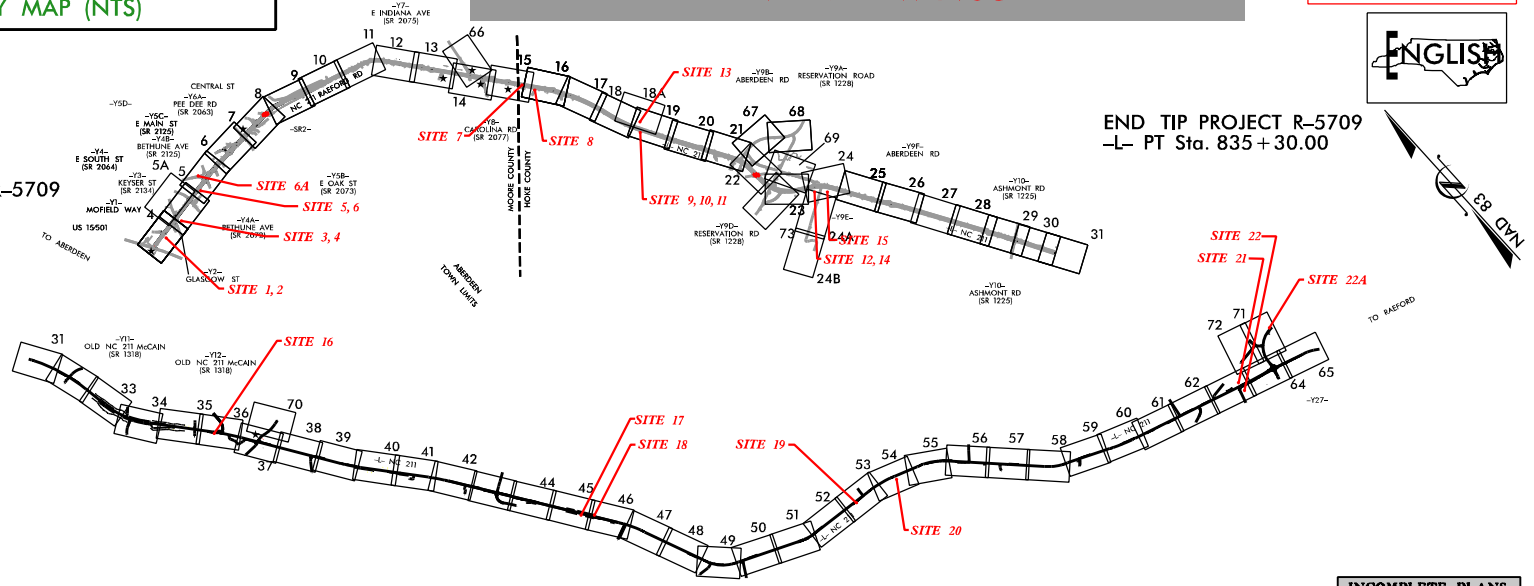
OFFSITE DETOUR

BEGIN TIP PROJECT R–5709
–L– POT Sta. 10 + 32.11

–L– POT STA. 362 + 18.44 BK =
–L– POT STA. 361 + 50.00 AH

END TIP PROJECT R–5709
–L– PT Sta. 835 + 30.00

NAD 83



★ PROPOSED SIGNAL

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

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

GRAPHIC SCALES

PLANS 50 25 0 50 100
PROFILE (HORIZONTAL) 50 25 0 50 100
PROFILE (VERTICAL) 10 5 0 10 20

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
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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

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

01/03/2024
R:\Hydraulics\PERMITS_Environmental\Drawings\R5709_Hyd_tsh.dgn
cnolfman

11/5/2025 (For Reverification Purposes)

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

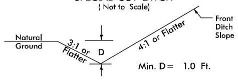
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 2 OF 60

REVISED 12/20/2023

ENGLISH

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0 Ft.

-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 TO 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
-L- FROM STA. 238+05 TO STA. 238+50 RT
-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
-L- FROM STA. 544+00 TO STA. 549+50 LT
-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
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-L- FROM STA. 623+50 TO STA. 643+00 RT
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-L- FROM STA. 708+66 TO STA. 710+03 LT
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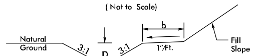
-L- FROM STA. 745+00 TO STA. 747+00 RT
-L- FROM STA. 746+50 TO STA. 751+00 LT
-L- FROM STA. 753+50 TO STA. 755+00 LT
-L- FROM STA. 756+50 TO STA. 757+00 RT
-L- FROM STA. 766+50 TO STA. 768+00 LT
-L- FROM STA. 769+50 TO STA. 772+50 RT
-L- FROM STA. 773+48 TO STA. 775+50 RT
-L- FROM STA. 778+50 TO STA. 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

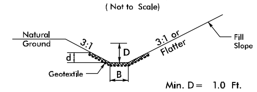
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 0.90 Ft.
b= SEE BELOW

-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'

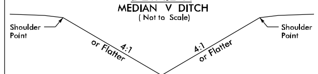
DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 0.5 Ft.
B= 4 Ft.
Type of Liner= Class B Rip-Rap

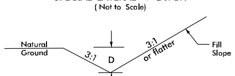
-L- FROM STA. 426+00 LT TO STA. 431+00 LT

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

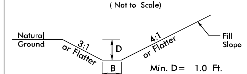
DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.

-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

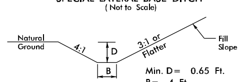
DETAIL K
SPECIAL LATERAL BASE DITCH
(Not to Scale)



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

-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

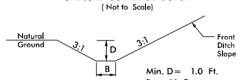
DETAIL N
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 0.65 Ft.
B= 4 Ft.

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

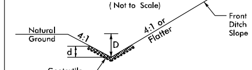
DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 10 Ft.

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

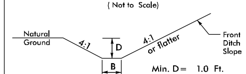
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class B Rip-Rap

-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

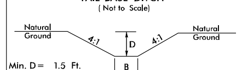
DETAIL J
SPECIAL CUT BASE DITCH
(Not to Scale)



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

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

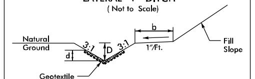
DETAIL L
TAIL BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.
B= 4 Ft.

-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

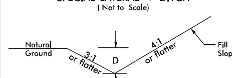
DETAIL O
LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
b=5 Ft.
Type of Liner= CL B Rip-Rap

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

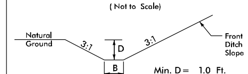
DETAIL E
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.

-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

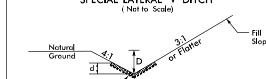
DETAIL M
SPECIAL CUT BASE DITCH
(Not to Scale)



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

-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

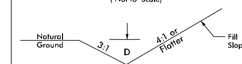
DETAIL P
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.1 Ft.
Max. d= 0.5 Ft.
Type of Liner= Class B Rip-Rap

-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)



Min. D=2.0 Ft.

-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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8/17/99

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

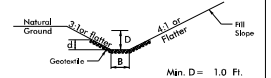
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 3 OF 60

REVISED 12/20/2023

ENGLISH

DETAIL R
SPECIAL LATERAL BASE DITCH
(Not to Scale)

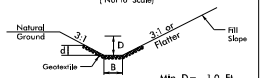


Min. D = 1.0 Ft.
Max. d = 0.5 Ft.
B = 4 Ft.

Type of Liner = Flexamat

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

DETAIL S
SPECIAL LATERAL BASE DITCH
(Not to Scale)

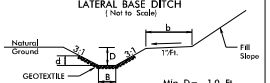


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 4 Ft.

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)



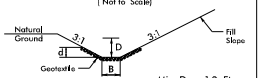
*When B Is < 6.0'

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)

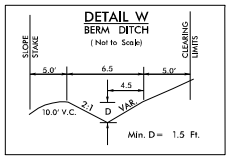


Min. D = 1.2 Ft.
Max. d = 1.0 Ft.
B = 6 Ft.

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

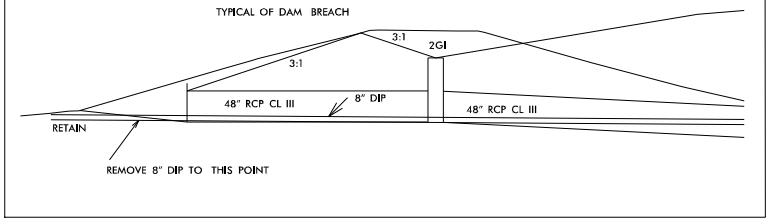
DETAIL W
BERM DITCH
(Not to Scale)



Min. D = 1.5 Ft.

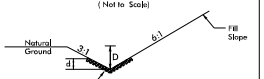
–L– FROM STA. 378+50 TO STA. 384+50 LT

DETAIL X
POND OUTLET CONTROL
(Not to Scale)



–L– STA. 168+02 LT

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

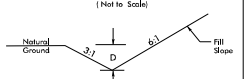


Min. D = 1.0 Ft.
Max. d = 0.5 Ft.

Type of Liner = Class B Rip-Rap

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

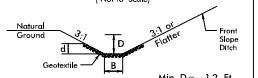
DETAIL AA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.4 Ft.

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

DETAIL BA
SPECIAL CUT BASE DITCH
(Not to Scale)

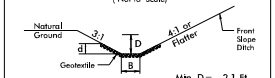


Min. D = 1.2 Ft.
Max. d = 1.0 Ft.
B = 6 Ft.

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)

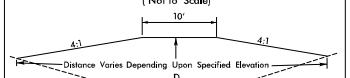


Min. D = 2.1 Ft.
Max. d = 1.0 Ft.
B = 8 Ft.

Type of Liner = CLASS B Rip-Rap

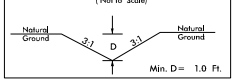
–Y14– FROM STA. 10+50 TO STA. 11+00 LT

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

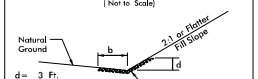
DETAIL FA
SPECIAL CUT DITCH
(Not to Scale)

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)

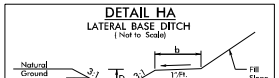


d= 3 Ft.
b= 5 Ft.

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

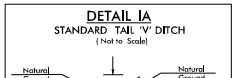
DETAIL HA
LATERAL BASE DITCH
(Not to Scale)



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

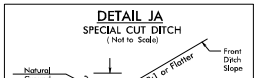
DETAIL IA
STANDARD TAIL 'V' DITCH
(Not to Scale)



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

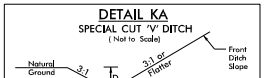
DETAIL JA
SPECIAL CUT DITCH
(Not to Scale)



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 = CLI 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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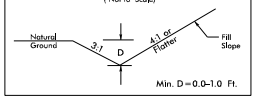
11/5/2025 (For Reverification Purposes)

8/17/99

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

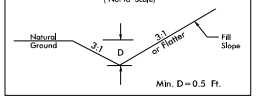
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



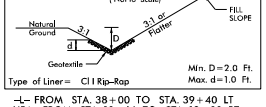
–L– FROM STA. 204+50 TO STA. 205+00 RT
–L– FROM STA. 274+50 TO STA. 275+50 RT
–L– FROM STA. 334+00 TO STA. 334+25 RT

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



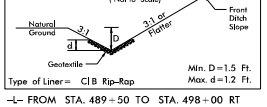
–L– FROM STA. 53+00 TO STA. 56+00 LT
–Y1– FROM STA. 11+00 TO STA. 12+50 RT
–Y2– FROM STA. 19+25 TO STA. 20+50 RT
–Y3– FROM STA. 18+20 TO STA. 18+90 LT
–Y4– FROM STA. 12+00 TO STA. 14+50 RT
–Y4A– FROM STA. 11+00 TO STA. 11+85 RT
–Y4B– FROM STA. 10+50 TO STA. 12+50 LT
–Y6– FROM STA. 13+00 TO STA. 14+50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



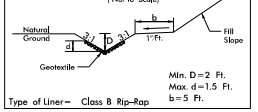
–L– FROM STA. 38+00 TO STA. 39+40 LT
–Y5A– FROM STA. 10+66 TO STA. 12+00 RT

DETAIL OA
SPECIAL CUT DITCH
(Not to Scale)



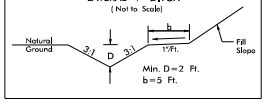
–L– FROM STA. 489+50 TO STA. 498+00 RT

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)

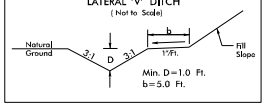


–Y9E– FROM STA. 12+00 TO STA. 13+00 RT
–L– FROM STA. 263+00 TO STA. 264+30 LT
–L– FROM STA. 264+50 TO STA. 266+00 LT

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

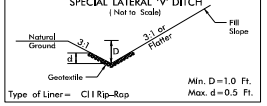
–L– FROM STA. 49+00 TO STA. 51+76.69 LT
–L– FROM STA. 60+32.75 TO STA. 60+75 RT
–Y6– FROM STA. 13+00 TO STA. 15+04 RT

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



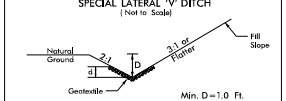
–L– FROM STA. 73+50 TO STA. 74+50 RT
–L– FROM STA. 243+70 TO STA. 244+80 LT
–L– FROM STA. 253+00 TO STA. 255+10 RT
–L– FROM STA. 254+85 TO STA. 260+30 LT
–Y9A– FROM STA. 11+71 TO STA. 12+85 RT

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



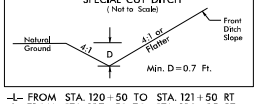
–Y2A– FROM STA. 14+50 TO STA. 14+93.84 RT
–Y11– FROM STA. 11+08 TO STA. 11+50 RT

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

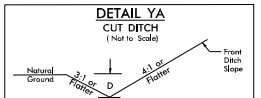
DETAIL WA
SPECIAL CUT DITCH
(Not to Scale)

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

DETAIL XA
SPECIAL CUT DITCH
(Not to Scale)

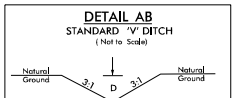
–L– FROM STA. 170+20 TO STA. 172+00 RT

DETAIL YA
CUT DITCH
(Not to Scale)



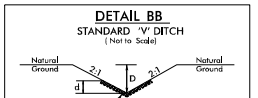
–L– FROM STA. 146+50 TO STA. 151+00 RT

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



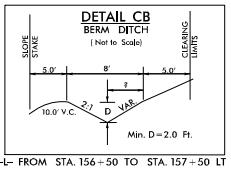
–Y9F– FROM STA. 20+00 TO STA. 20+50 LT; L=50'
S=1.75%; Beg El.=431.8; End El.=430.9; DDE=6 CY

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



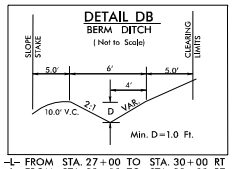
–L– FROM STA. 45+50 TO STA. 45+79 LT
–L– FROM STA. 686+92 TO STA. 687+42 RT; S=5.00%; L=50';
Beg El.=343.60 TO End El.=341.08; DDE=6 CY

DETAIL CB
BERM DITCH
(Not to Scale)



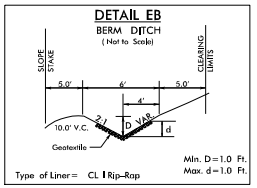
–L– FROM STA. 156+50 TO STA. 157+50 LT

DETAIL DB
BERM DITCH
(Not to Scale)



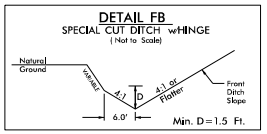
–L– FROM STA. 27+00 TO STA. 30+00 RT
–L– FROM STA. 32+00 TO STA. 33+00 RT
–L– FROM STA. 157+50 TO STA. 160+50 LT
–L– FROM STA. 161+25 TO STA. 163+50 LT

DETAIL EB
BERM DITCH
(Not to Scale)



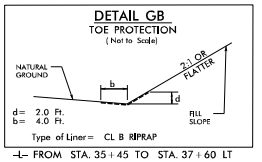
–L– FROM STA. 24+50 TO STA. 27+00 RT
–L– FROM STA. 33+00 TO STA. 34+00 RT

DETAIL FB
SPECIAL CUT DITCH wHINGE
(Not to Scale)



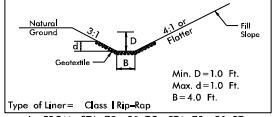
–L– FROM STA. 108+80 TO STA. 112+10 LT
–L– FROM STA. 128+18 TO STA. 131+50 LT
–L– FROM STA. 147+25 TO STA. 148+50 LT

DETAIL GB
TOE PROTECTION
(Not to Scale)



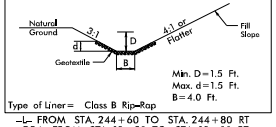
–L– FROM STA. 35+45 TO STA. 37+60 LT

DETAIL HB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



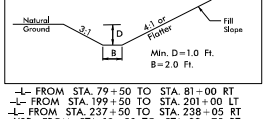
–L– FROM STA. 78+50 TO STA. 79+50 RT
–L– FROM STA. 201+00 TO STA. 201+80 LT

DETAIL IB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



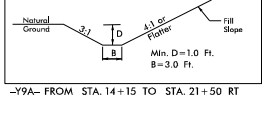
–L– FROM STA. 244+60 TO STA. 244+80 RT
–DR4– FROM STA. 12+50 TO STA. 13+00 RT

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

REVISED 12/20/2023

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1/3/2024
K:\Projects\PERMITS_Environmental\Drawings\MCR-5709_HYD_Ditch Detail.dgn

11/5/2025 (For Reverification Purposes)

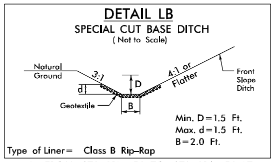
PROJECT REFERENCE NO.	SHEET NO.
R-5709	2D-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

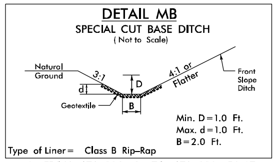
PERMIT DRAWING
SHEET 5 OF 60

REVISED 12/20/2023

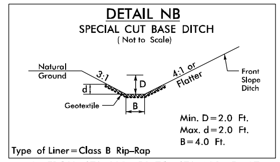
ENGLISH



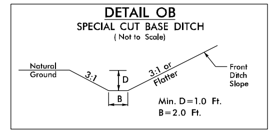
-L- FROM STA. 212+50 TO STA. 216+50 LT



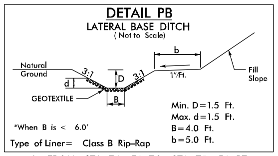
-L- FROM STA. 230+00 TO STA. 232+50 LT



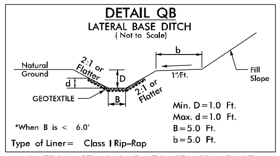
-L- FROM STA. 232+50 TO STA. 239+50 LT



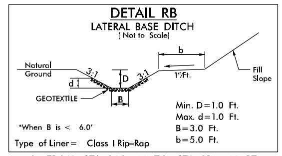
-Y9A- FROM STA. 21+50 TO STA. 26+00 RT
-Y9C- FROM STA. 2+70 TO STA. 3+97 (CUL-DE-SAC) LT



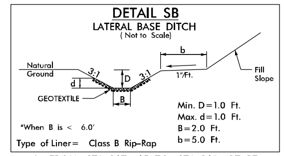
-L- FROM STA. 74+50 TO STA. 78+50 RT



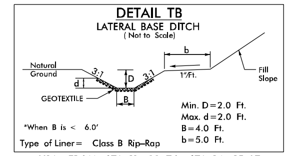
-L- FROM STA. 208+50 TO STA. 210+50 LT



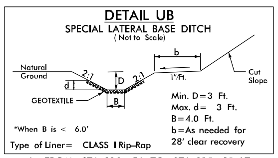
-L- FROM STA. 208+00 TO STA. 210+00 RT



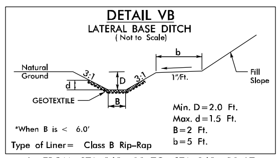
-L- FROM STA. 167+65 TO STA. 168+27 RT
-L- FROM STA. 230+00 TO STA. 232+50 RT
-L- FROM STA. 360+50 TO STA. 362+00 RT



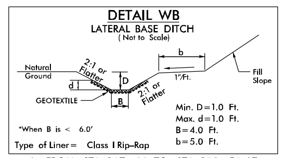
-Y9A- FROM STA. 11+22 TO STA. 14+15 LT



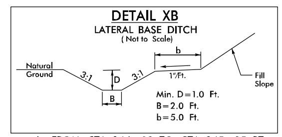
-L- FROM STA. 123+50 TO STA. 128+18 LT



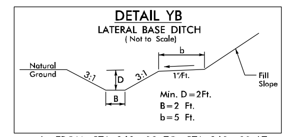
-L- FROM STA. 262+00 TO STA. 262+30 LT
-Y9E- FROM STA. 10+90 TO STA. 11+00 RT



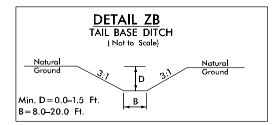
-L- FROM STA. 207+00 TO STA. 208+50 LT



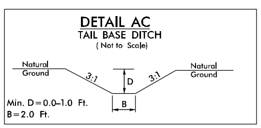
-L- FROM STA. 244+80 TO STA. 245+35 RT
-L- FROM STA. 246+80 TO STA. 254+00 LT



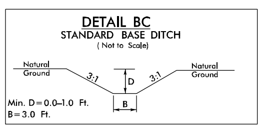
-L- FROM STA. 262+30 TO STA. 263+00 LT
-L- FROM STA. 574+65 TO STA. 575+50 RT
-Y9D- FROM STA. 11+80 TO STA. 15+50 RT
-Y9D- FROM STA. 15+50 TO STA. 18+10 LT



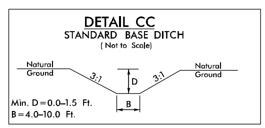
-L- STA. 232+50 RT; S=0.33%; L=75'
DDE=38 CY
Beg El.=383.75; End El.=383.5



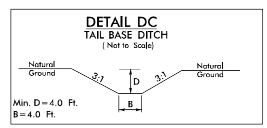
-L- STA. 237+50 RT; S=1.0%;
L=15';DDE=5 CY
Beg El.=393.15; End El.=393.0
-SR2- STA. 11+40 LT; S=0.5%; L=40'; DDE=8 CY
Beg El.=442.2; End El.=442.0



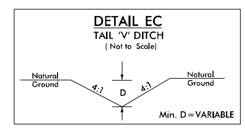
-L- STA. 253+00 RT; S=0.3%; L=100';DDE=12 CY
Beg El.=413.0; End El.=412.7



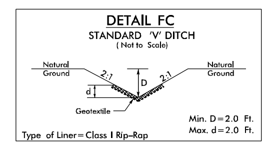
-DR3- FROM STA. 10+20 TO STA. 11+50 LT
L=272'; DDE=234 CY
Beg El.=397.15'; End El.=395.50'



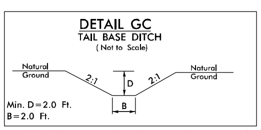
-L- STA. 128+18 RT; S=0.3%; L=267';DDE=495 CY
Beg El.=451.8; End El.=451.0



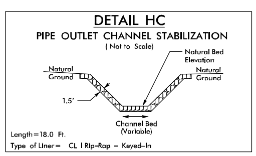
-L- STA. 135+75 RT; S=0.45%; L=100';
Beg El.=451.95; End El.=451.5
-L- STA. 269+20 RT; S=0.3%; L=56'
Beg El.=411.0; End El.=410.8



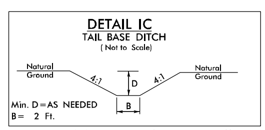
-Y7- FROM STA. 17+25 TO STA. 18+50 RT
DDE=4 CY



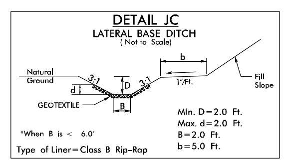
-L- STA. 168+00 LT; S=1.67%; L=18'; DDE=12 CY
Beg El.=422.1; End El.=421.8



-L- STA. 168+20 RT



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



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

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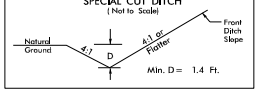
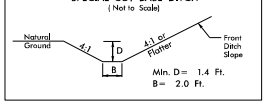
DETAIL KC
SPECIAL CUT DITCH
(Not to Scale)



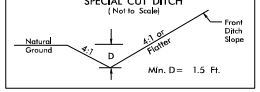
–L– FROM STA. 281+50 TO STA. 282+50 LT

DETAIL LC
SPECIAL CUT BASE DITCH
(Not to Scale)



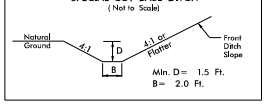
–L– FROM STA. 273+00 TO STA. 275+25 LT
–L– FROM STA. 276+10 TO STA. 281+50 LT

DETAIL MC
SPECIAL CUT DITCH
(Not to Scale)



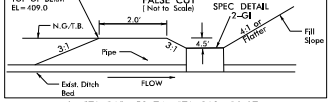
–L– FROM STA. 283+50 TO STA. 284+40 LT
–L– FROM STA. 286+60 TO STA. 295+00 LT
–L– FROM STA. 315+00 TO STA. 329+50 LT
–L– FROM STA. 336+00 TO STA. 339+00 LT
–L– FROM STA. 348+50 TO STA. 352+00 RT
–L– FROM STA. 358+00 TO STA. 358+88 RT
–L– FROM STA. 359+50 TO STA. 360+50 LT
–Y10– FROM STA. 15+00 TO STA.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

DETAIL NC
SPECIAL CUT BASE DITCH
(Not to Scale)



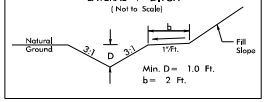
–L– FROM STA. 284+40 TO STA. 285+00 LT

DETAIL OC
FALSE CUT
(Not to Scale)



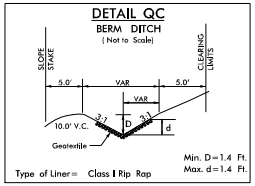
–L– STA. 302+59 TO STA 303+86 LT

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



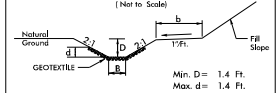
–L– FROM STA. 302+50 TO STA. 303+00 LT

DETAIL QC
BERM DITCH
(Not to Scale)



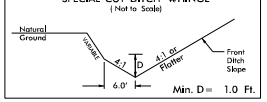
–L– FROM STA. 310+00 TO STA. 311+50 LT

DETAIL RC
LATERAL BASE DITCH
(Not to Scale)



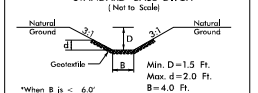
–L– FROM STA. 313+65 TO STA. 314+50 LT

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



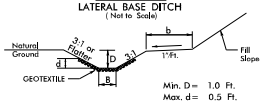
–L– FROM STA. 330+50 TO STA. 333+50 LT
–L– FROM STA. 352+50 TO STA. 359+50 LT

DETAIL TC
STANDARD BASE DITCH
(Not to Scale)



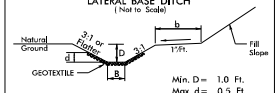
–L– STA. 208+50 LT; S=6.0%; L=25'; B=6'
Beg. El.=373.4; End El.=371.9; DDE=13 CY
–L– STA. 644+46 LT; S=0.33%; L=60'; B=4'
Beg. El.=364.00; End El.=362.00; DDE=62 CY
–L– STA. 75+25 LT; S=4.717%; L=106' B=4'
Beg. El.=434; End El.=429; DDE=105 CY

DETAIL UC
LATERAL BASE DITCH
(Not to Scale)



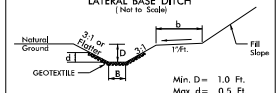
–L– FROM STA. 402+50 TO STA. 407+50 LT
–L– FROM STA. 557+00 TO STA. 557+75 LT
–L– FROM STA. 737+93 TO STA. 741+34 RT
–Y11E– FROM STA. 10+64 TO STA. 11+50 RT

DETAIL VC
LATERAL BASE DITCH
(Not to Scale)



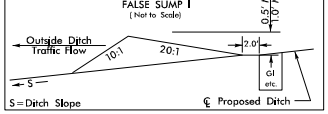
–DR3– FROM STA. 11+50 TO STA. 12+50 LT

DETAIL WC
LATERAL BASE DITCH
(Not to Scale)



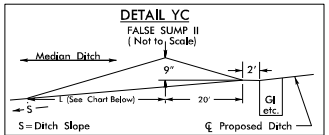
–Y11C– FROM STA. 10+67 TO STA. 11+28 RT

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

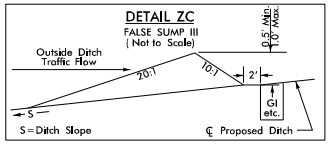
DETAIL YC
FALSE SUMP II
(Not to Scale)



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'

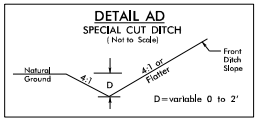
–L– STA. 173+19 MEDIAN
–L– STA. 264+30 TO 269+12 MEDIAN
–L– STA. 185+20 MEDIAN
–L– STA. 195+85 MEDIAN
–L– STA. 201+20 MEDIAN
–L– STA. 207+20 MEDIAN
–L– STA. 284+00 MEDIAN
–L– STA. 286+30 MEDIAN
–L– STA. 311+80 MEDIAN
–L– STA. 314+30 MEDIAN
–L– STA. 320+80 MEDIAN
–L– STA. 359+23 MEDIAN
–L– STA. 361+05 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)



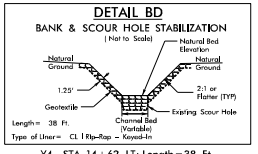
–L– STA. 157+50 TO 165+10 LT
–L– STA. 97+40 LT
–L– STA. 195+75 LT
–L– STA. 303+50 LT
–L– STA. 314+30 RT
–L– STA. 385+12 RT
–L– STA. 422+00 RT
–L– STA. 555+63 RT
–L– STA. 569+00 RT
–L– STA. 644+63 LT

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.

PROJECT REFERENCE NO.	SHEET NO.
R-5709	2D-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 6 OF 60

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	2D-6

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 7 OF 60

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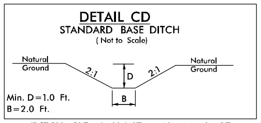
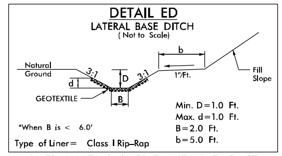
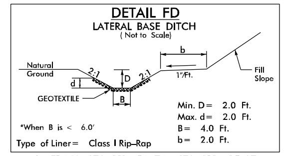


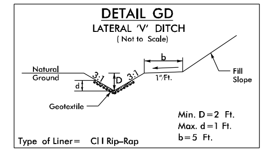
(DITCH CLEANOUT) STA. 146+00 -L- RT
DDE=95 CY



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



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



FROM STA. 14+32 TO STA. 15+45 -L- LT

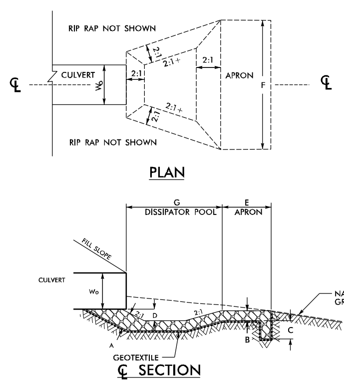
DETAIL ID

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

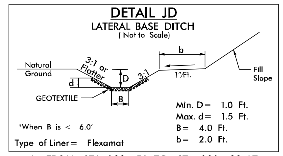
ALL DIMENSIONS APPROXIMATE

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

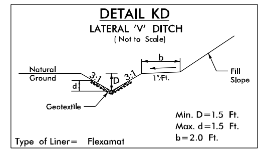


7/08

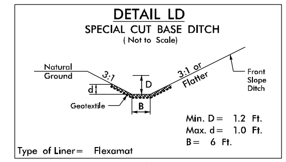
-L- STA 278+35 RT
-L- STA 303+03 RT
-L- STA 312+00 RT



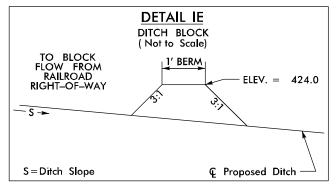
-L- FROM STA. 389+50 TO STA. 393+00 LT



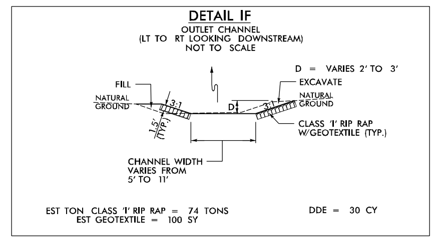
-L- FROM STA. 393+00 TO STA. 393+50 LT
-L- FROM STA. 407+50 TO STA. 415+64 LT



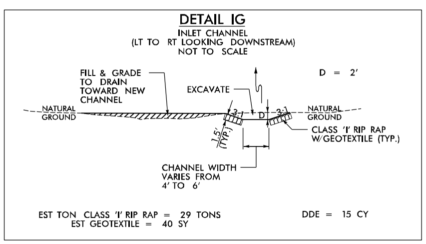
-L- FROM STA. 415+64 TO STA. 417+00 LT



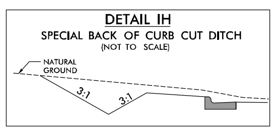
FROM STA. 254+80 -L- LT



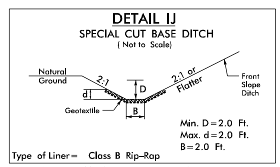
FROM STA. 14+10 -L- LT



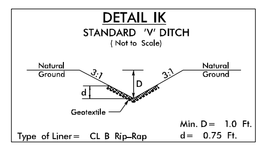
FROM STA. 14+65 -L- RT



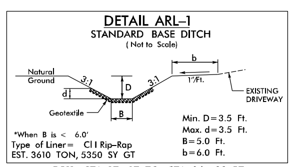
-Y8- FROM STA. 10+41 TO STA. 11+22 RT



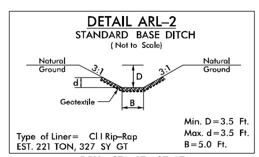
-Y9D- FROM STA. 11+80 TO STA. 13+00 LT



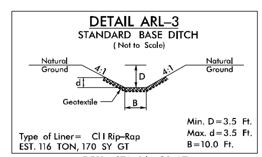
-DRIE- FROM STA. 28+75 TO STA. 29+25 LT



-DR11- STA. 17+17 TO STA. 36+00 RT



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



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

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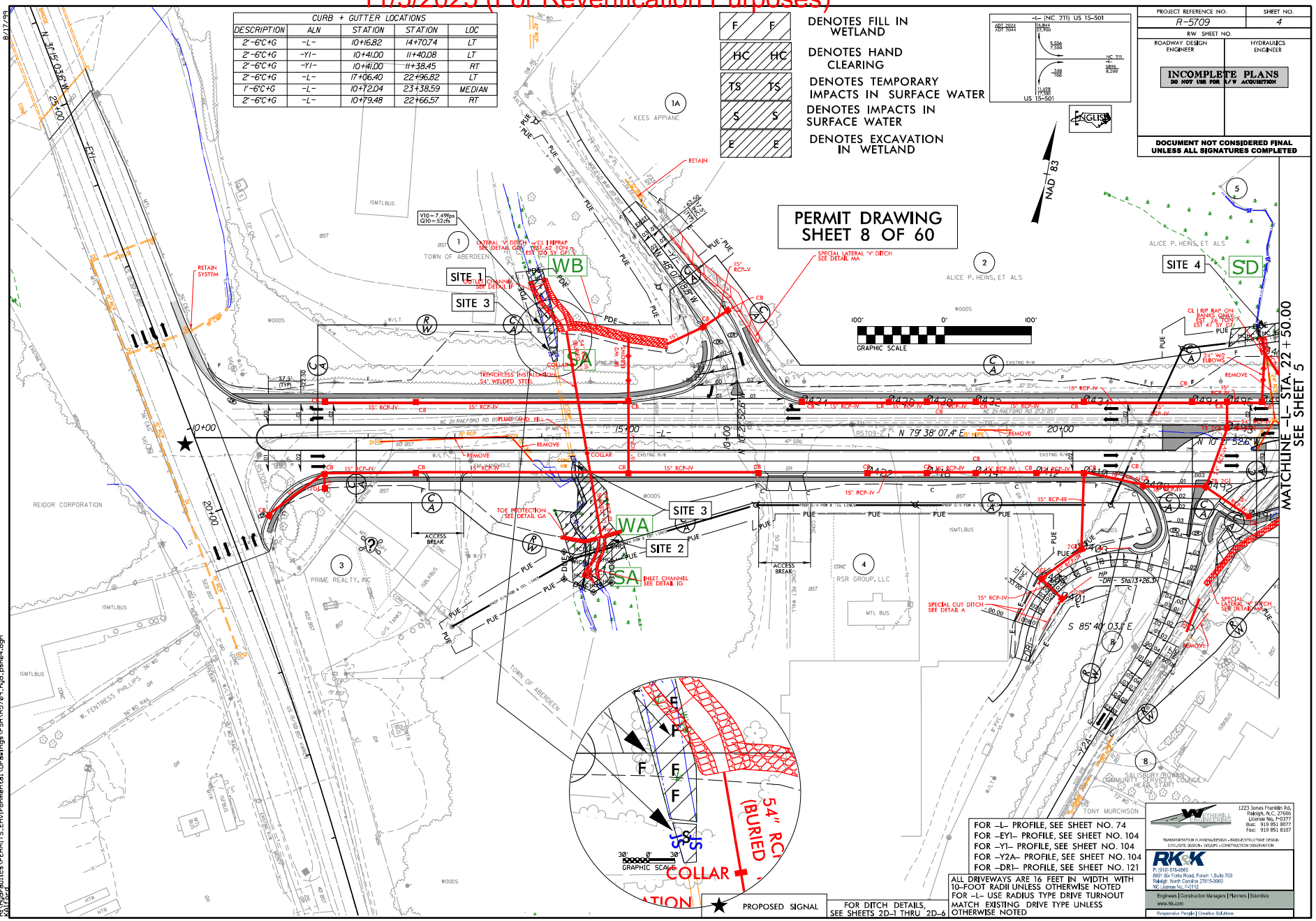

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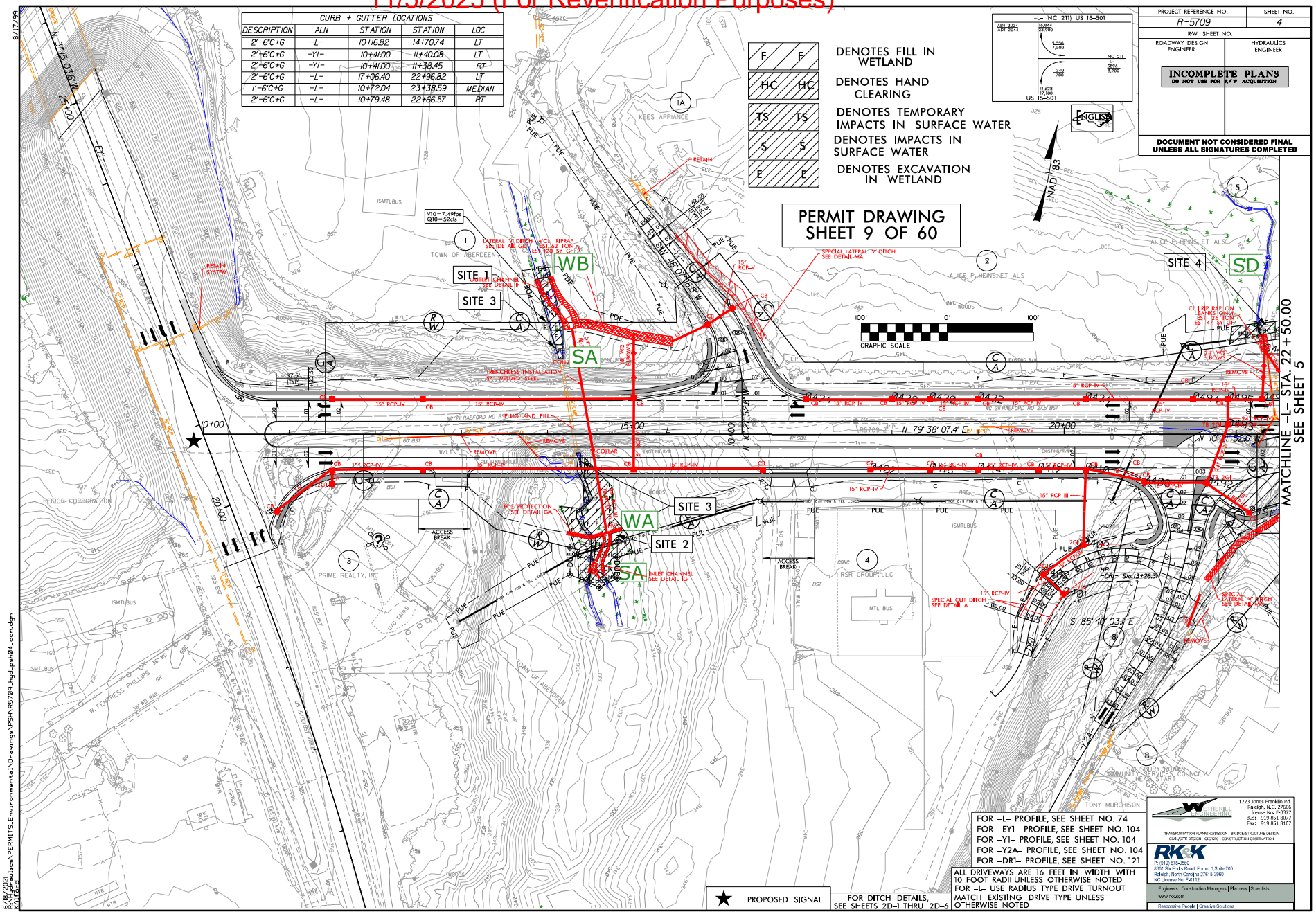

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6/23/16

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

SITE 1

SITE 2

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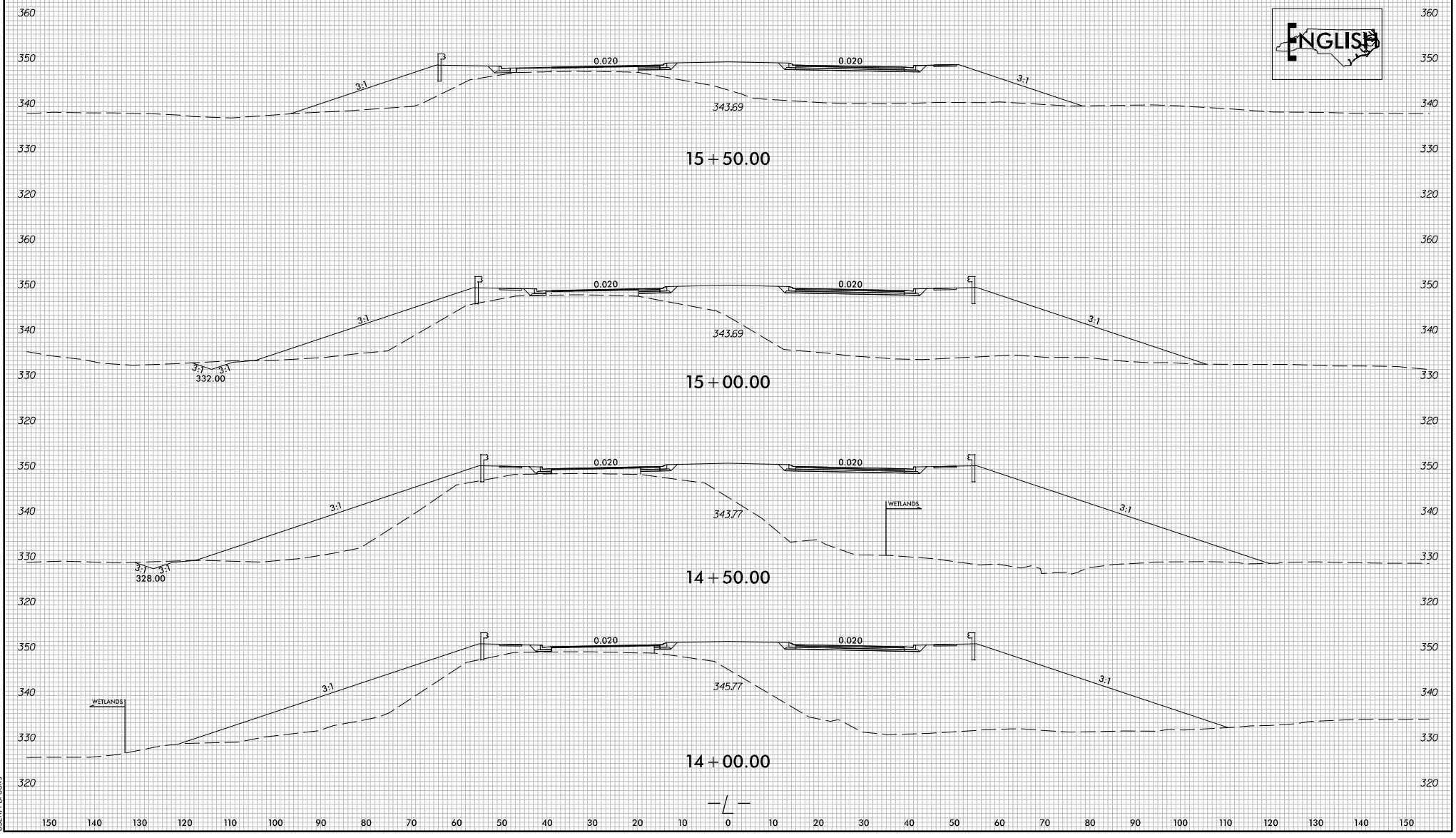
SHEET 10 OF 60

ENGLISH



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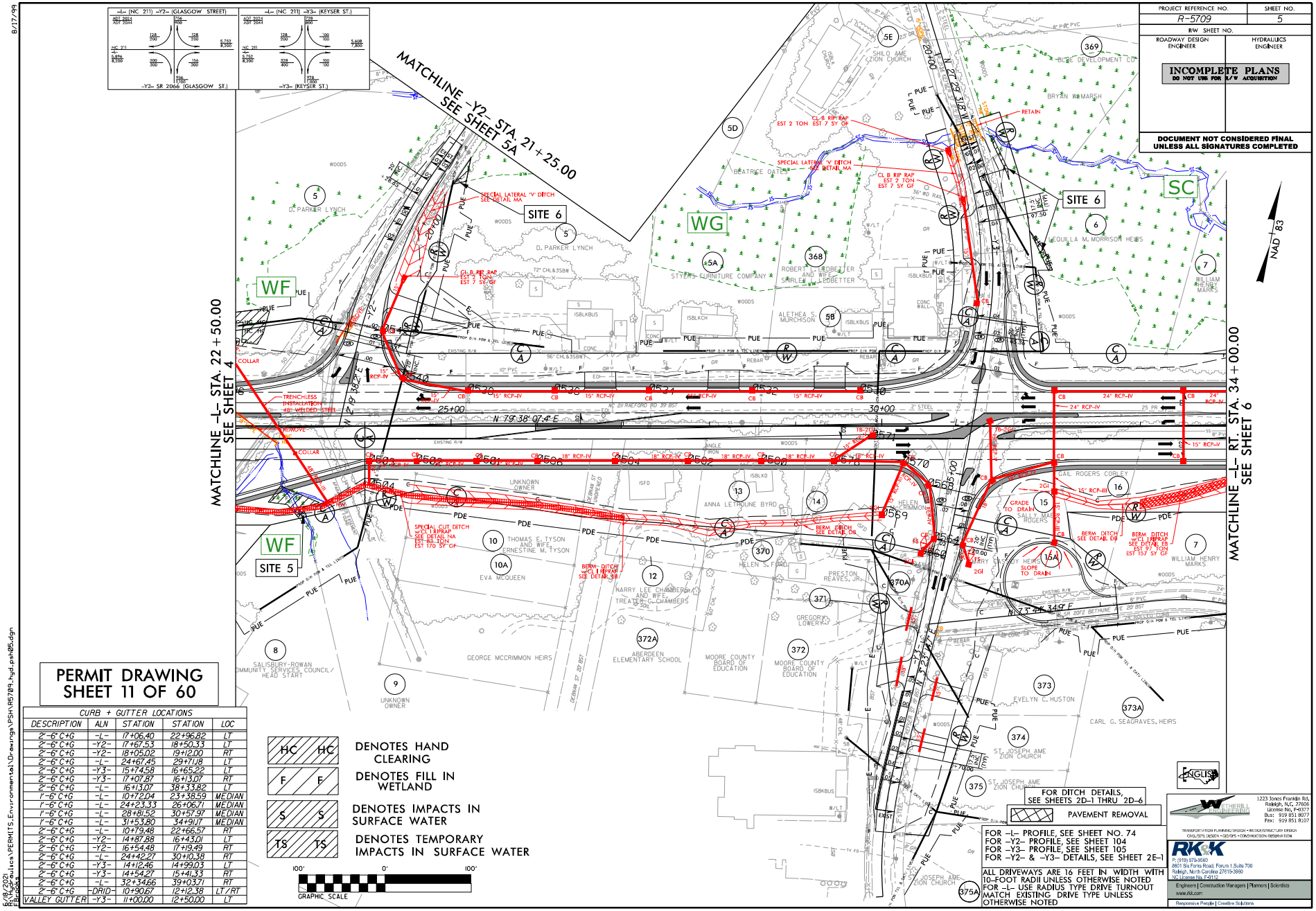

CURB + GUTTER LOCATIONS

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+71.08	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+57.91	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

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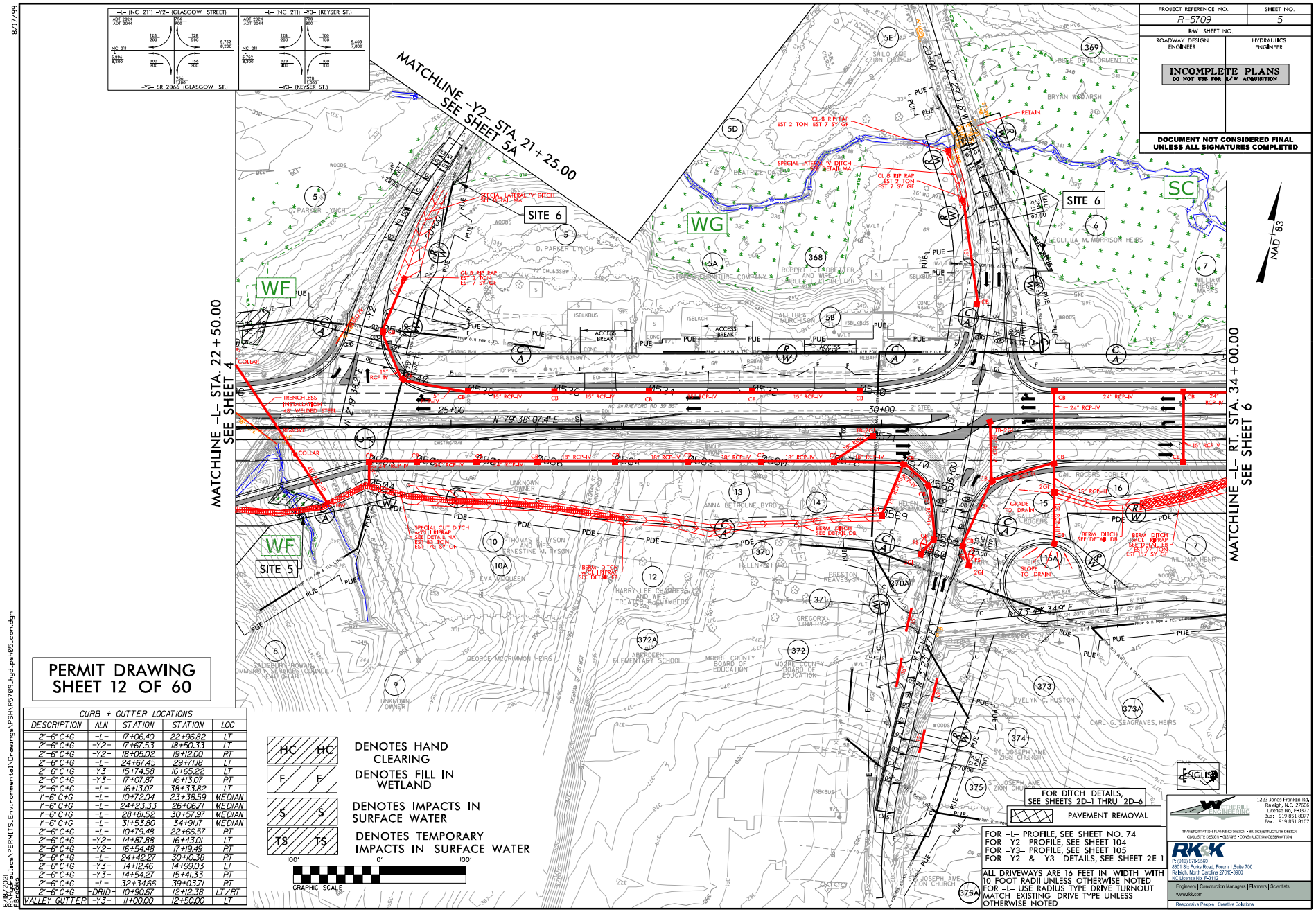

CURB + GUTTER LOCATIONS

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+71.08	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+57.91	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

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	R-5709	S1 X-7

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SHEET 13 OF 60

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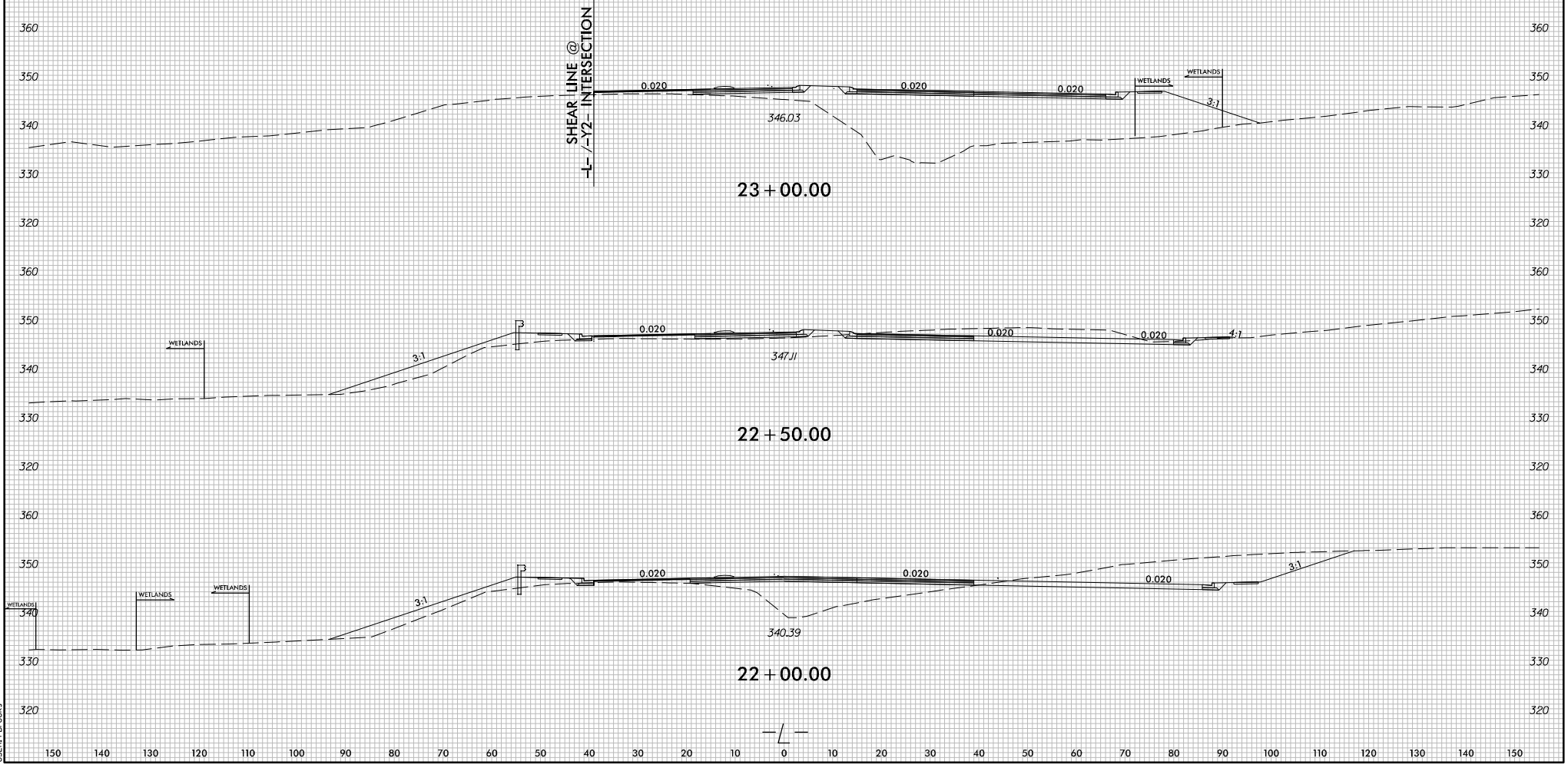
SITE 4

SITE 5



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6/18/2021
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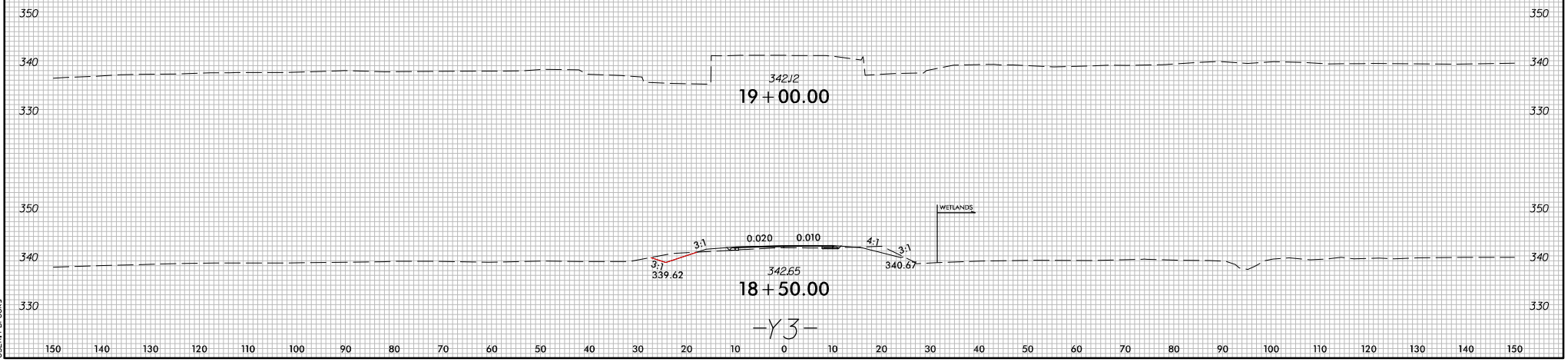
	R-5709	S1 X-166

PERMIT DRAWING
SHEET 14 OF 60

ENGLISH

SITE 6



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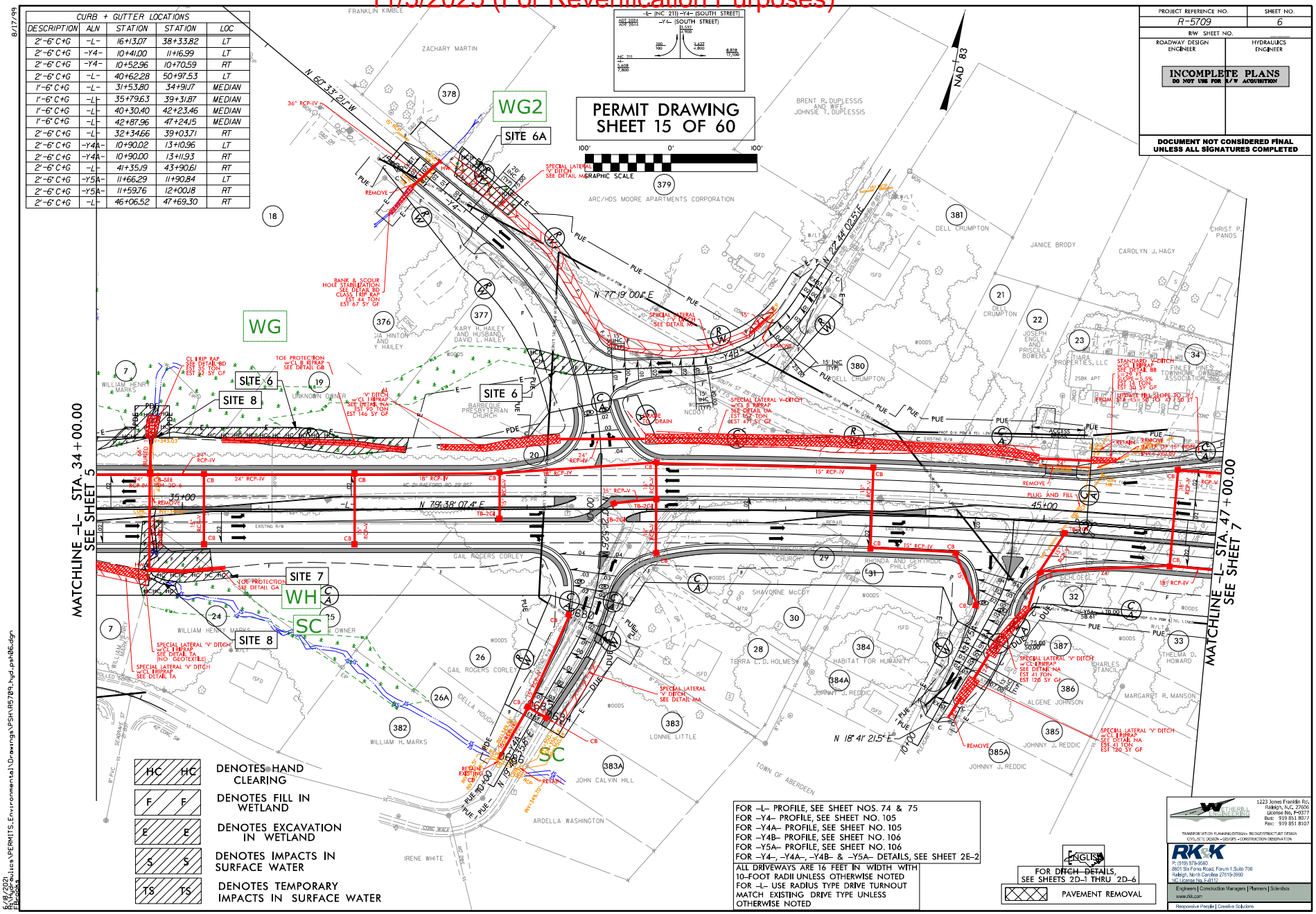

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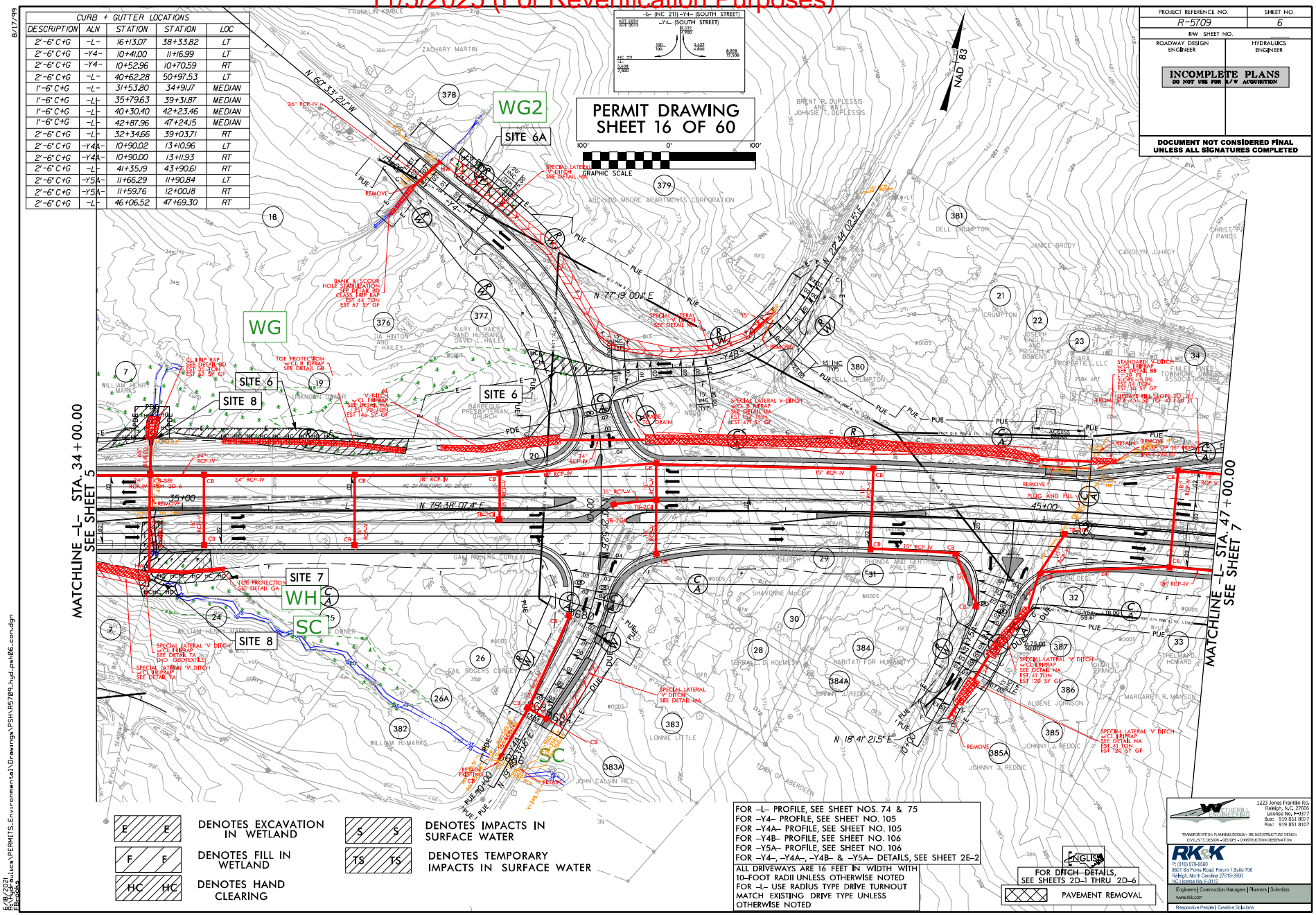

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	R-5709	S1 X-15

SITE 6

SITE 7

PERMIT DRAWING
SHEET 17 OF 60

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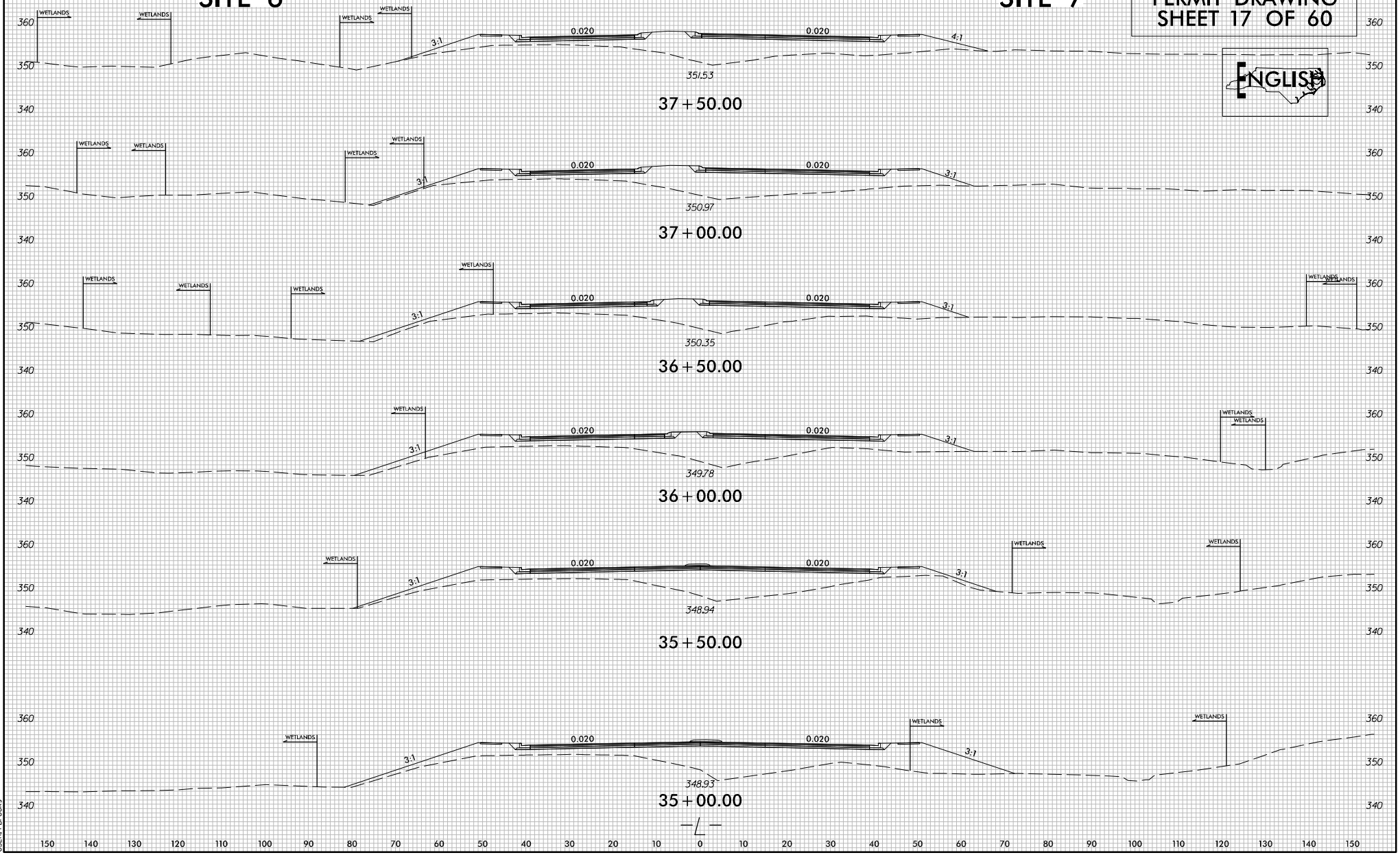

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	R-5709	S1 X-167

SITE 6

PERMIT DRAWING
SHEET 18 OF 60

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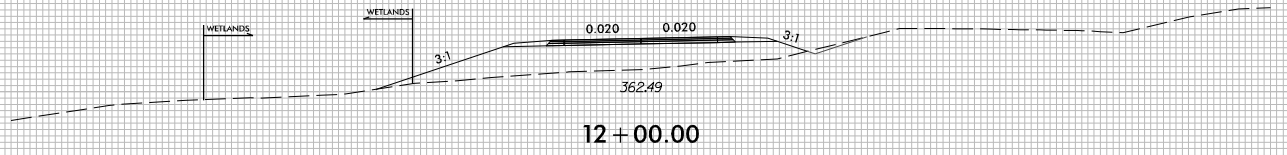
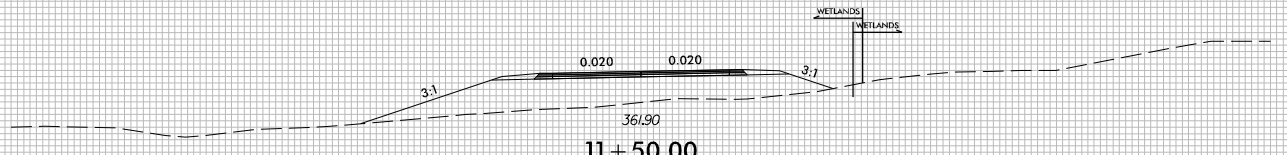
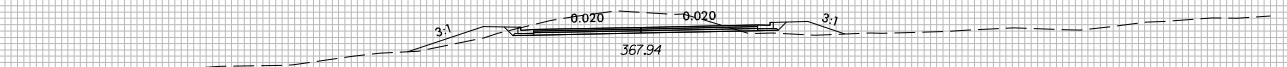


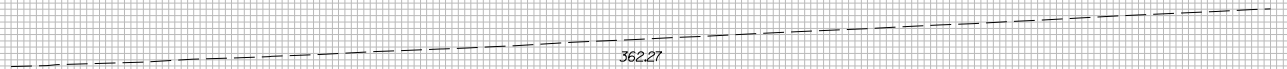
12+00.00



11+50.00



11+00.00



10+50.00

-Y4-

4/26/2021
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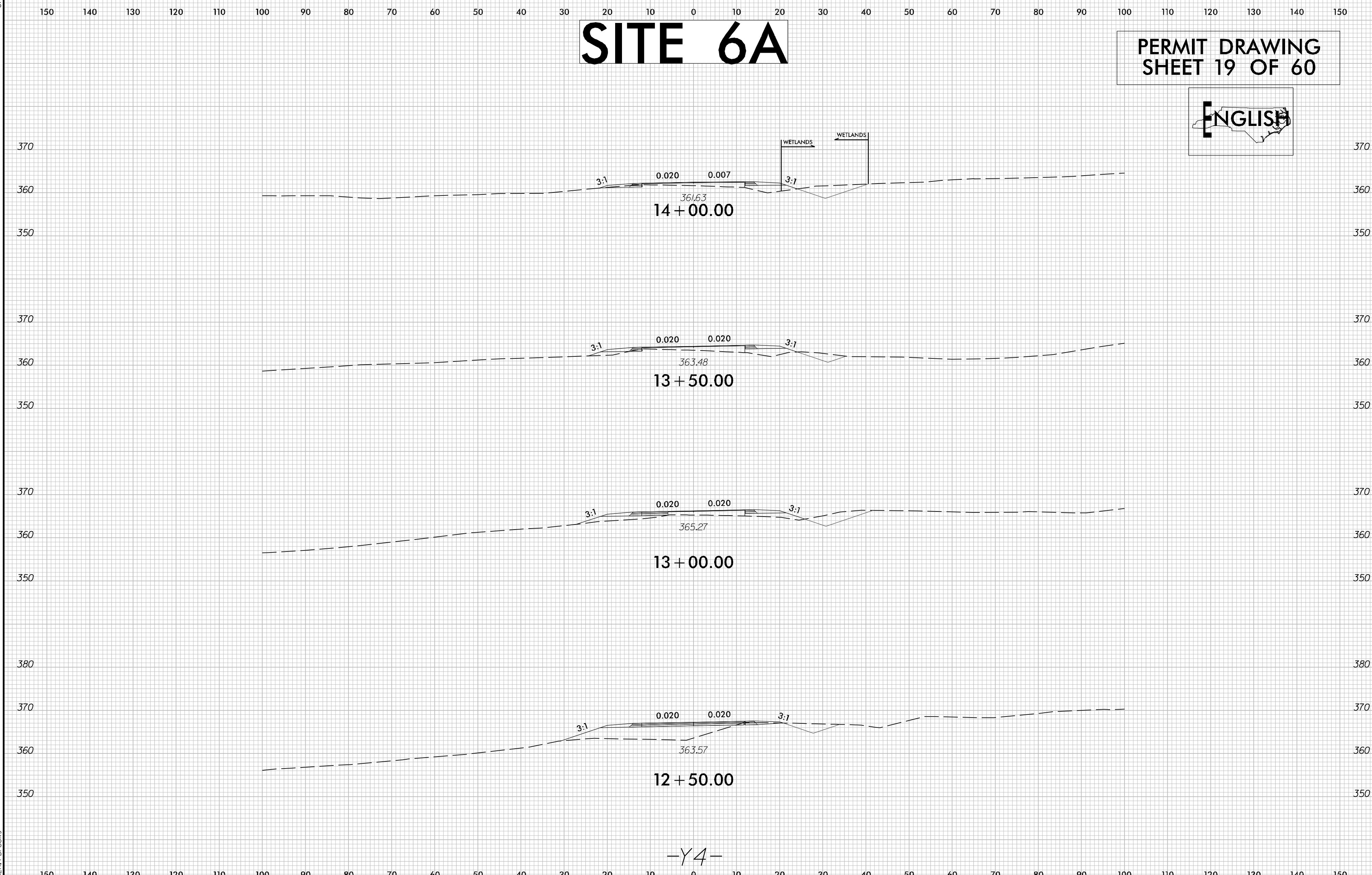
SHEET 19 OF 60



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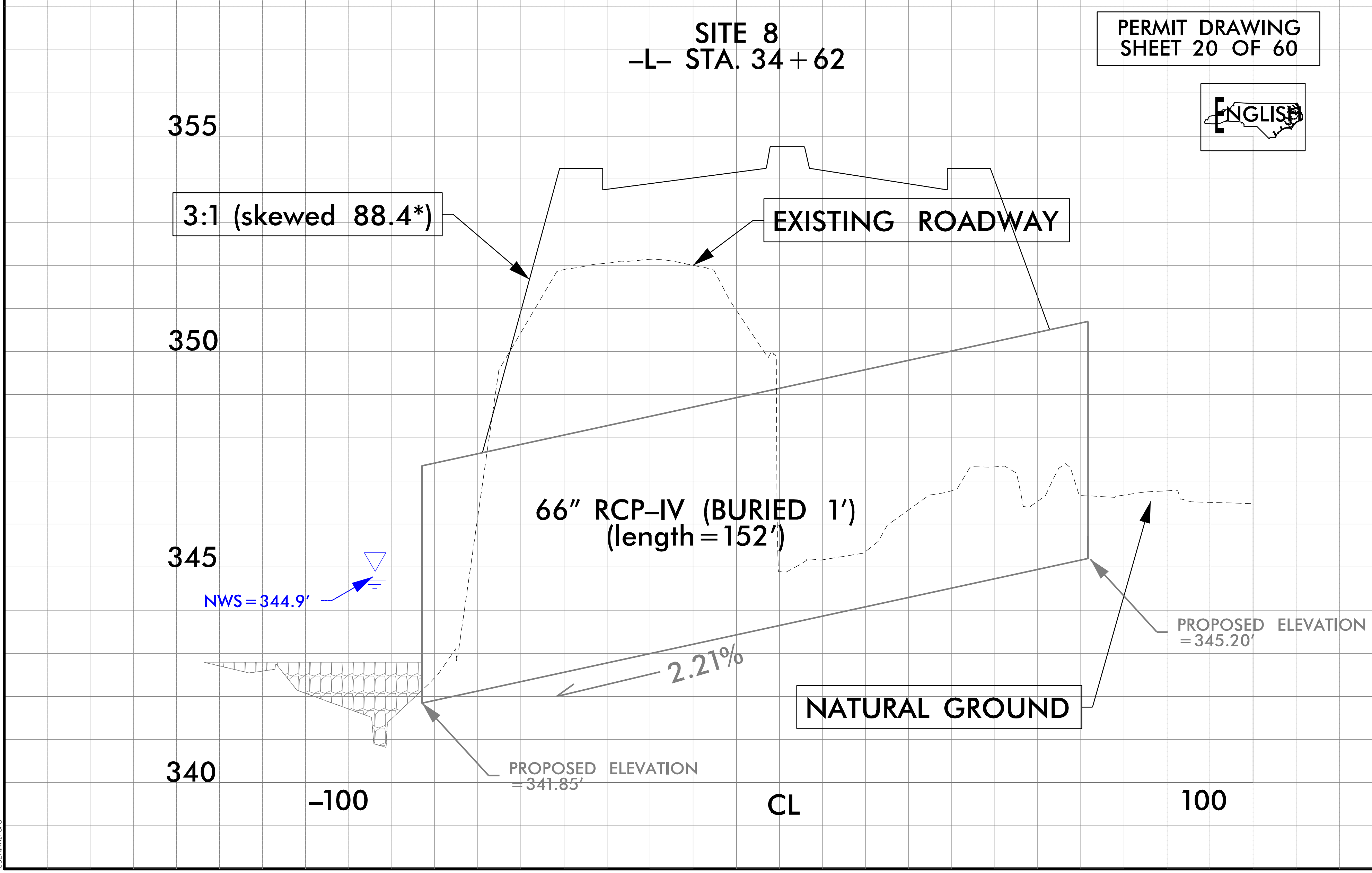
PERMIT DRAWING
SHEET 20 OF 60



6/23/16

4/26/2021
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USERKAIford

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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

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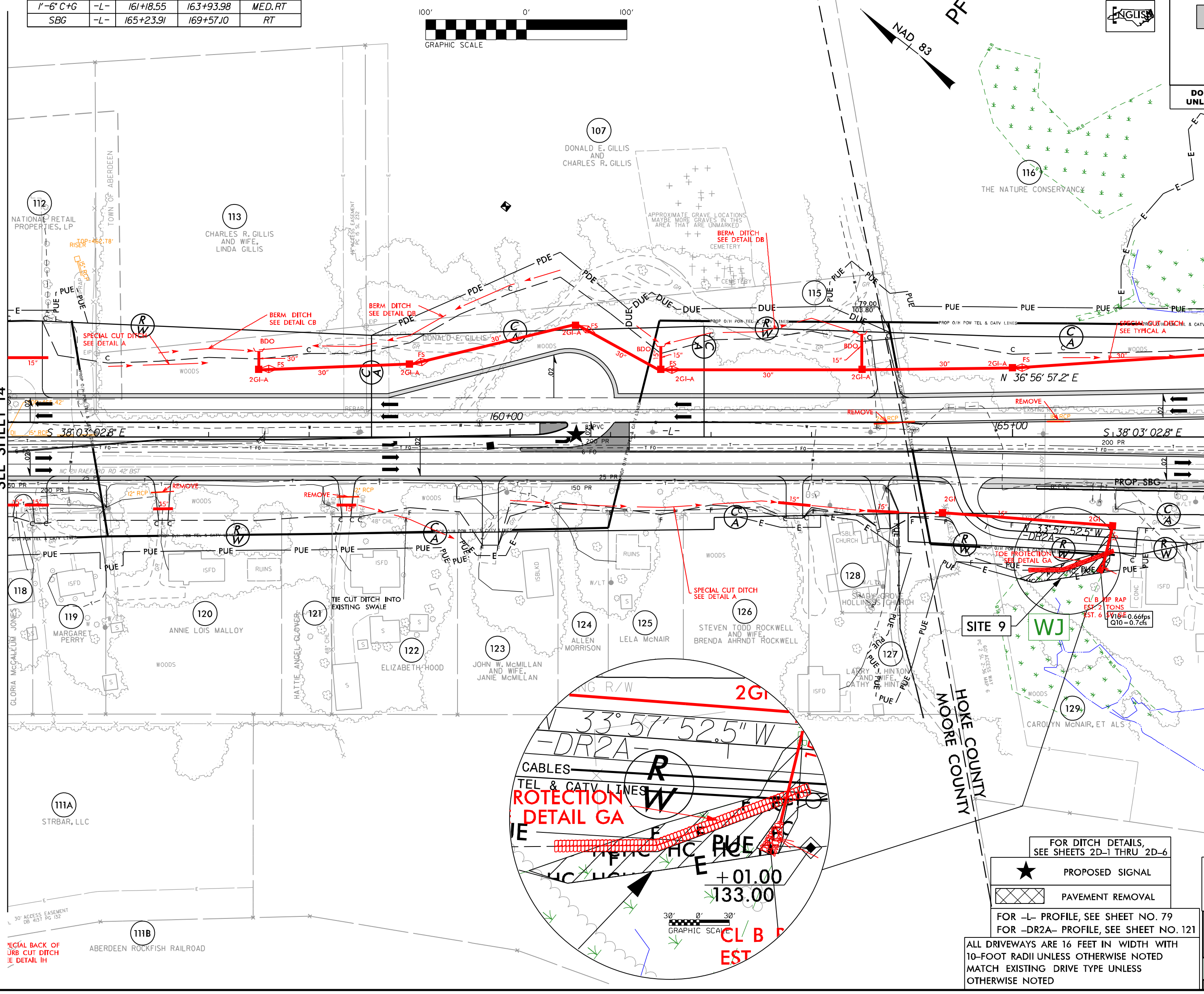
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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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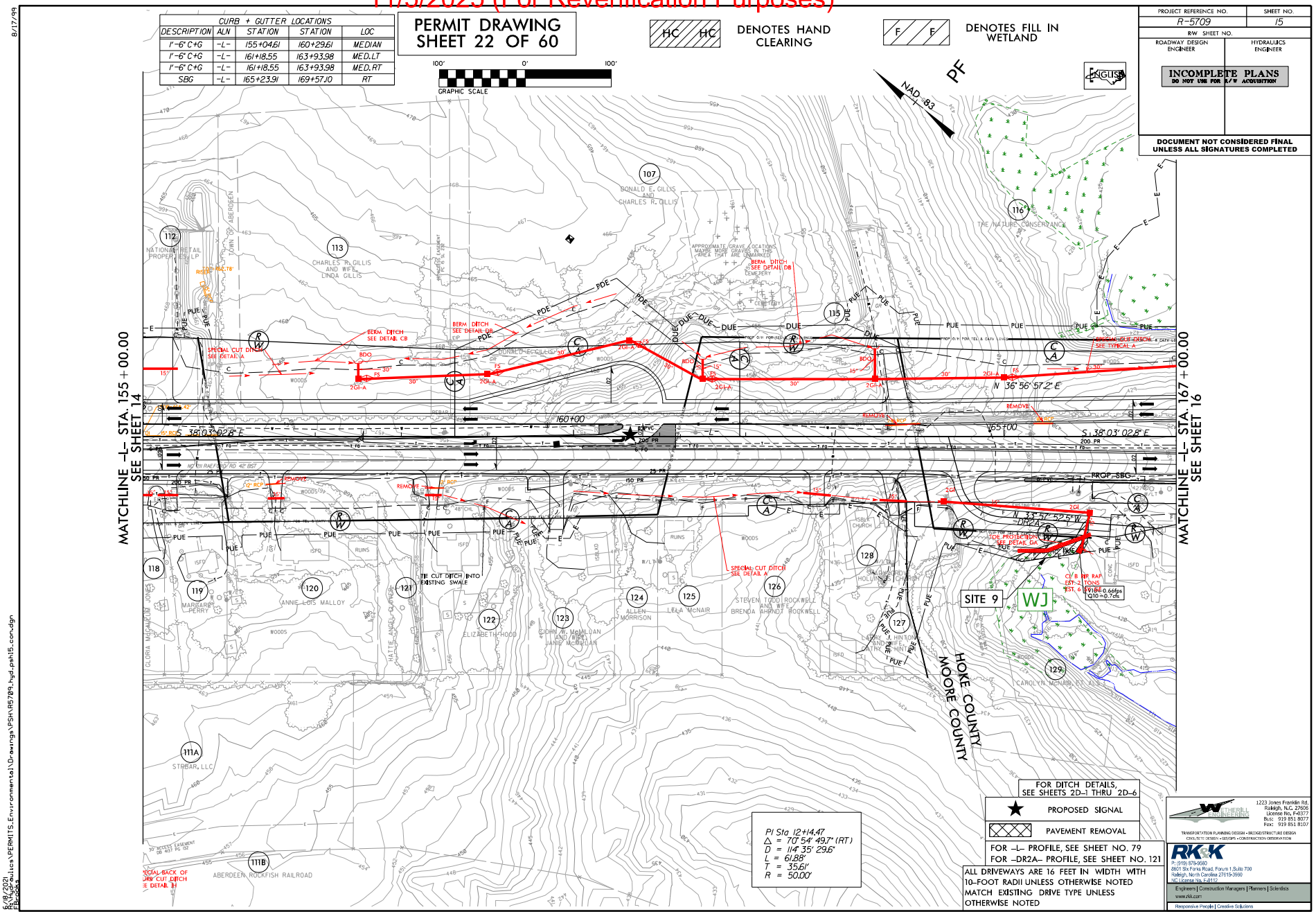

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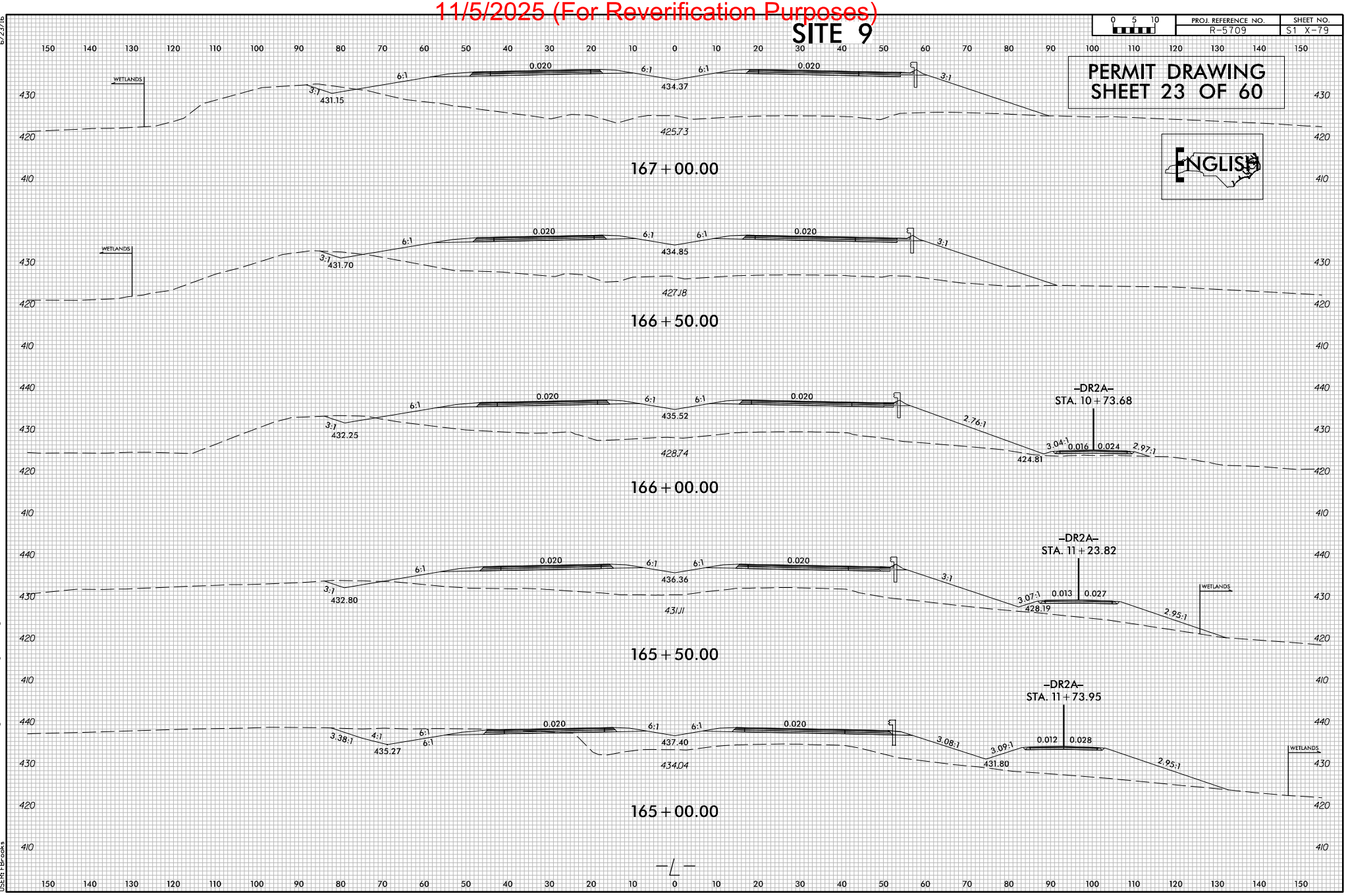
SITE 9

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

PERMIT DRAWING
SHEET 23 OF 60

ENGLISH



6/23/16

6/18/2021
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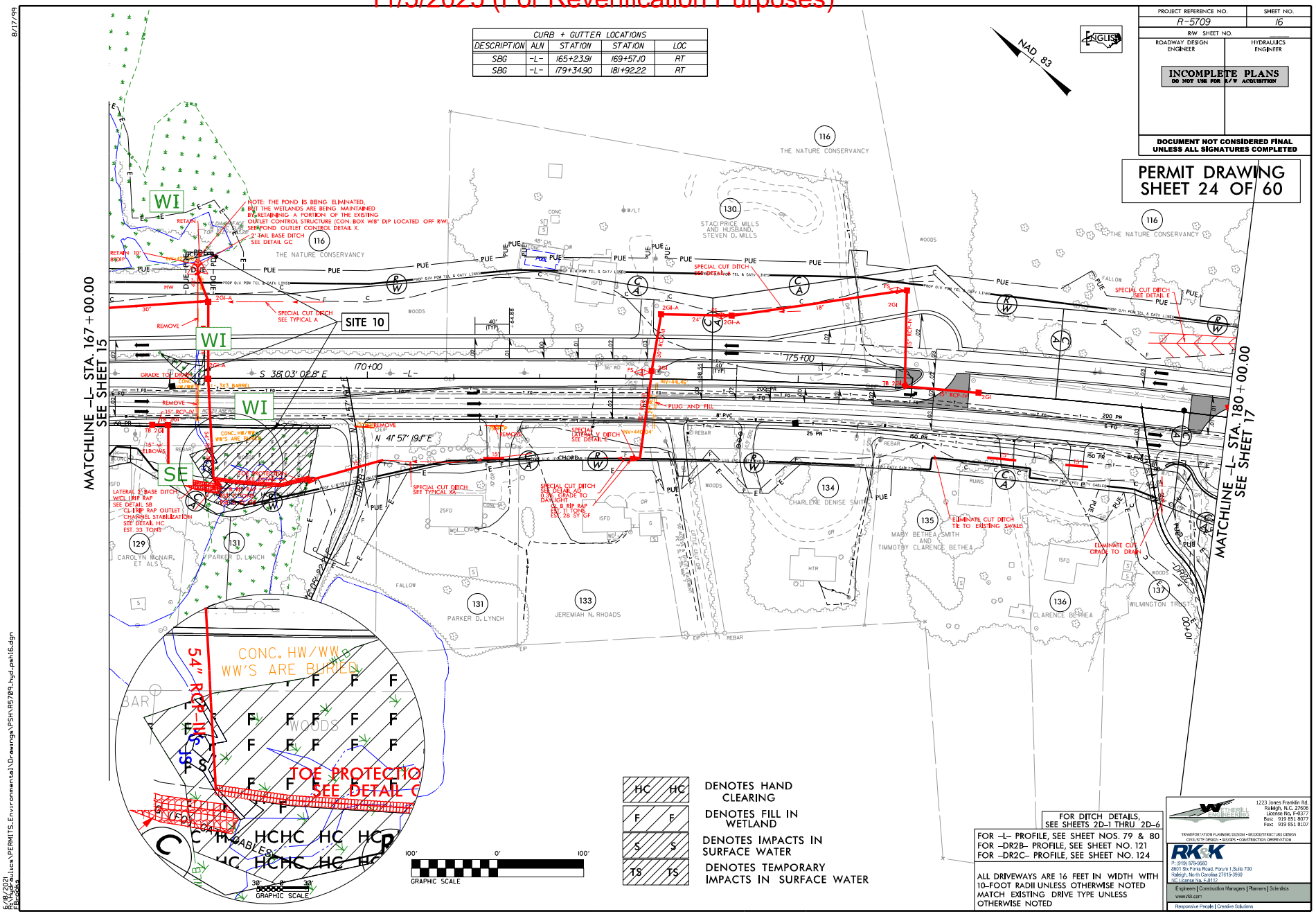

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	16

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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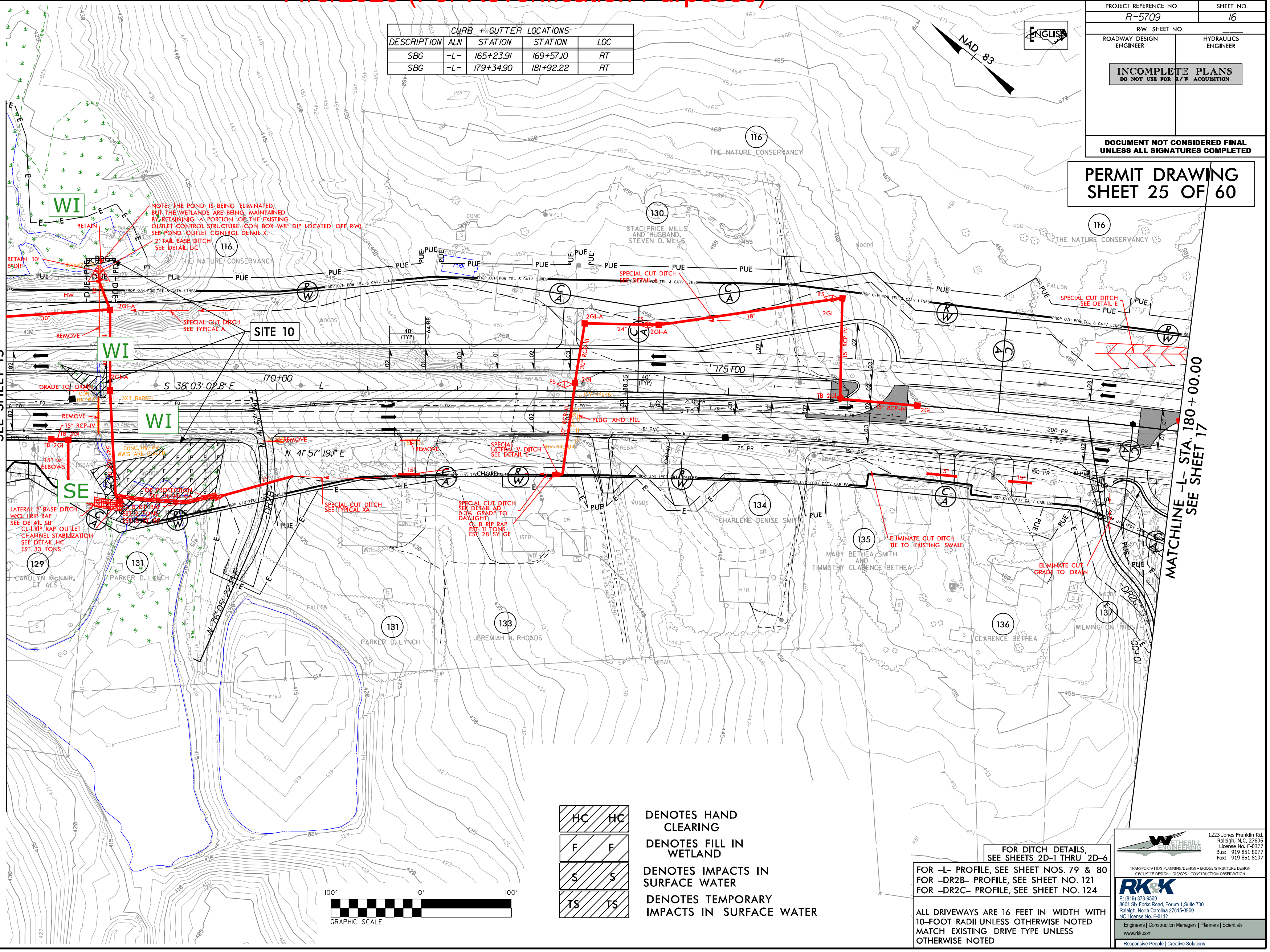
PERMIT DRAWING SHEET 25 OF 60

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



HC — DENOTES HAND CLEARING

F — DENOTES FILL IN WETLAND

S — DENOTES IMPACTS IN SURFACE WATER

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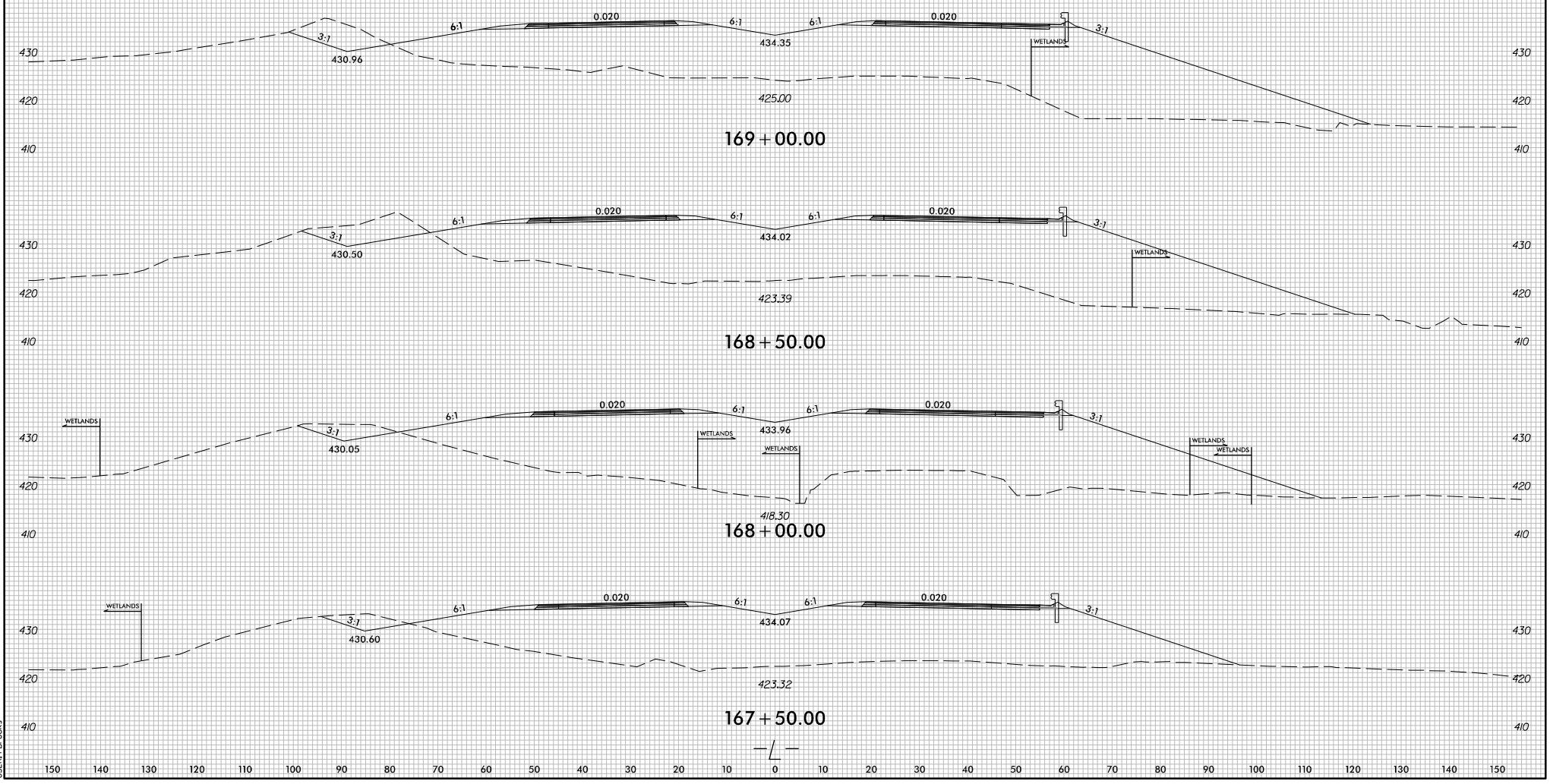
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-80

SITE 10

PERMIT DRAWING
SHEET 26 OF 60

ENGLISH



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PERMIT DRAWING
SHEET 27 OF 60

GRAPHIC SCALE: 100' 0' 100'

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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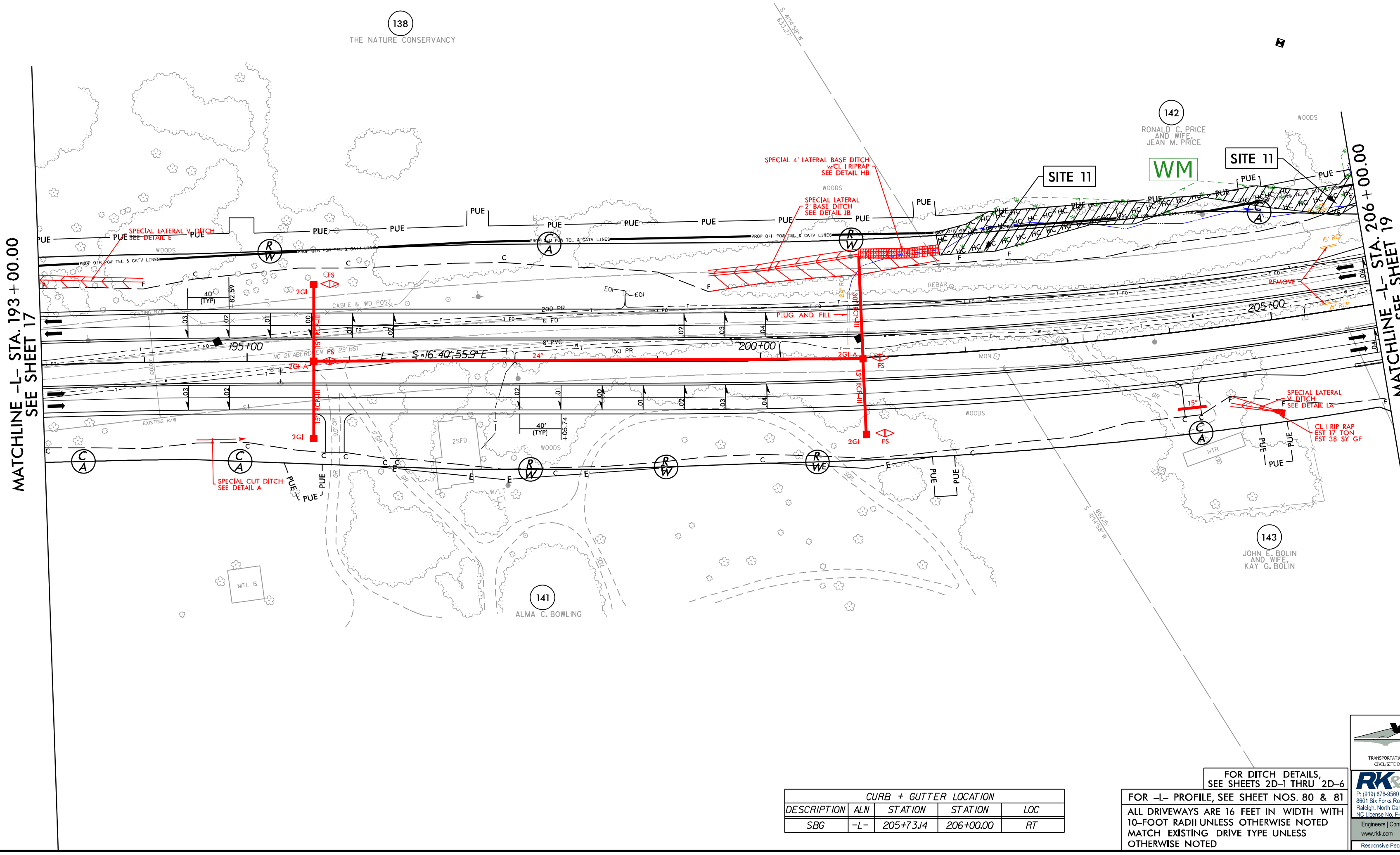

CURB + GUTTER LOCATION				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	205+73.14	206+00.00	RT

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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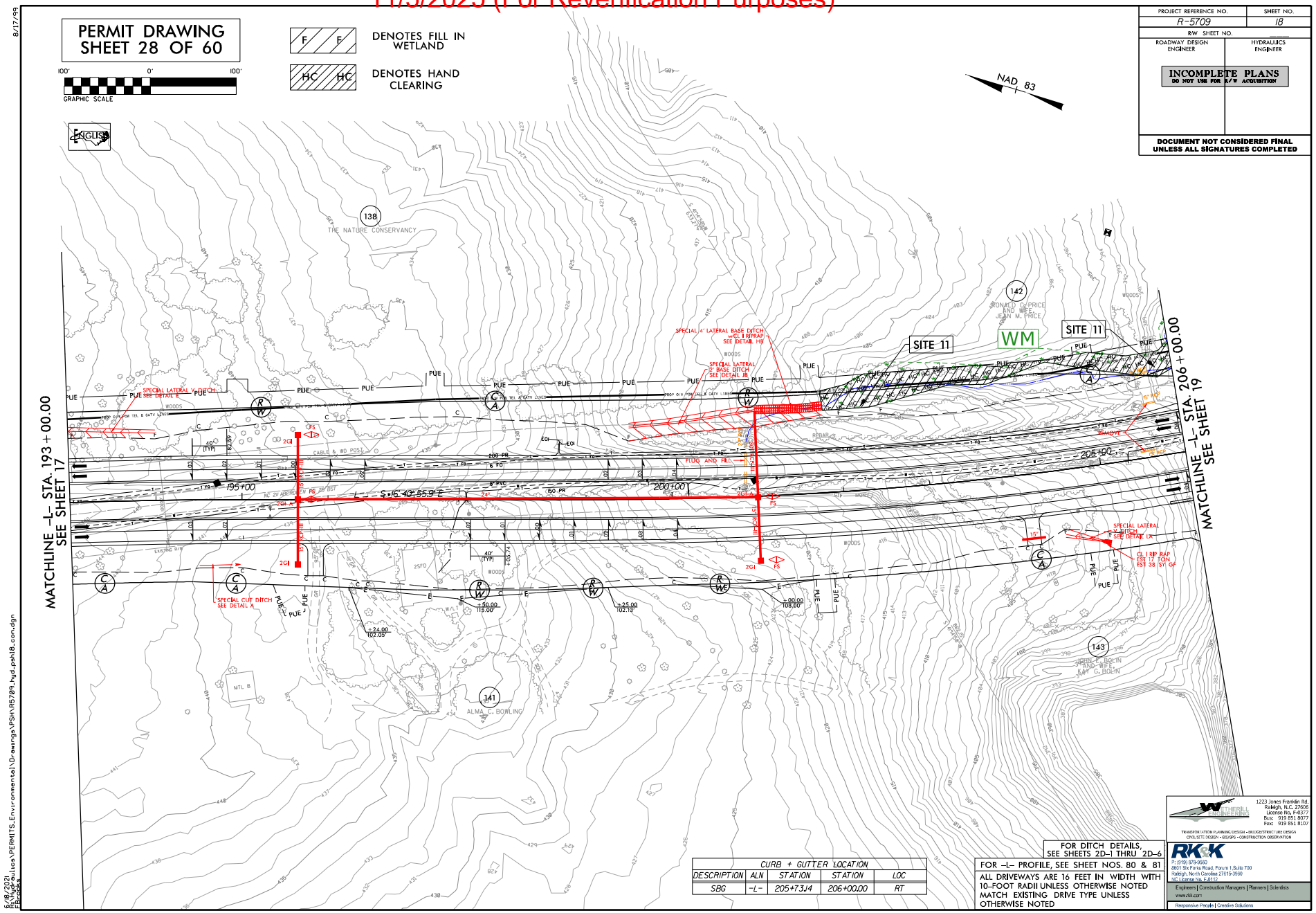

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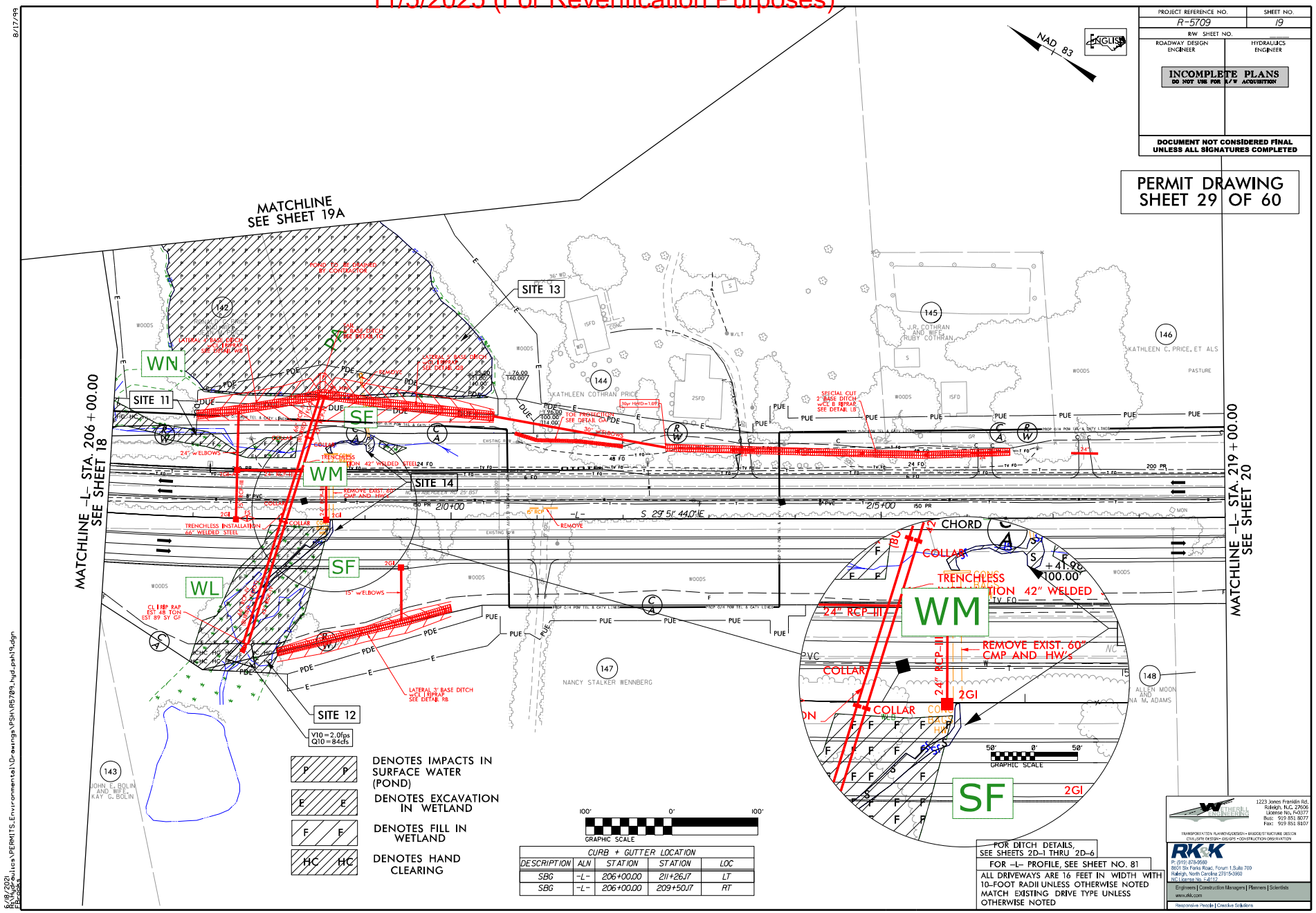

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PROJECT REFERENCE NO.	SHEET NO.
R-5709	19

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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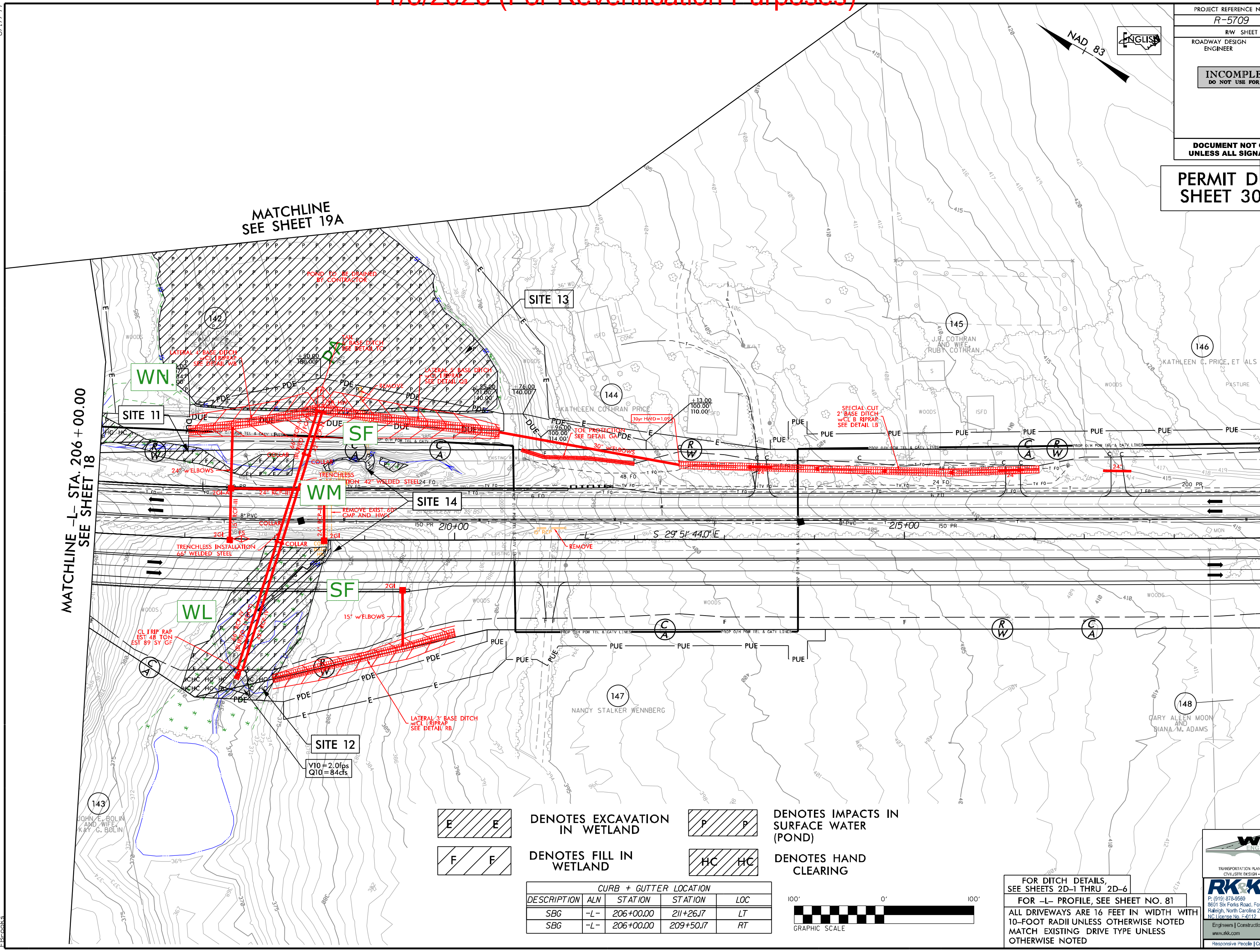
PERMIT DRAWING SHEET 30 OF 60



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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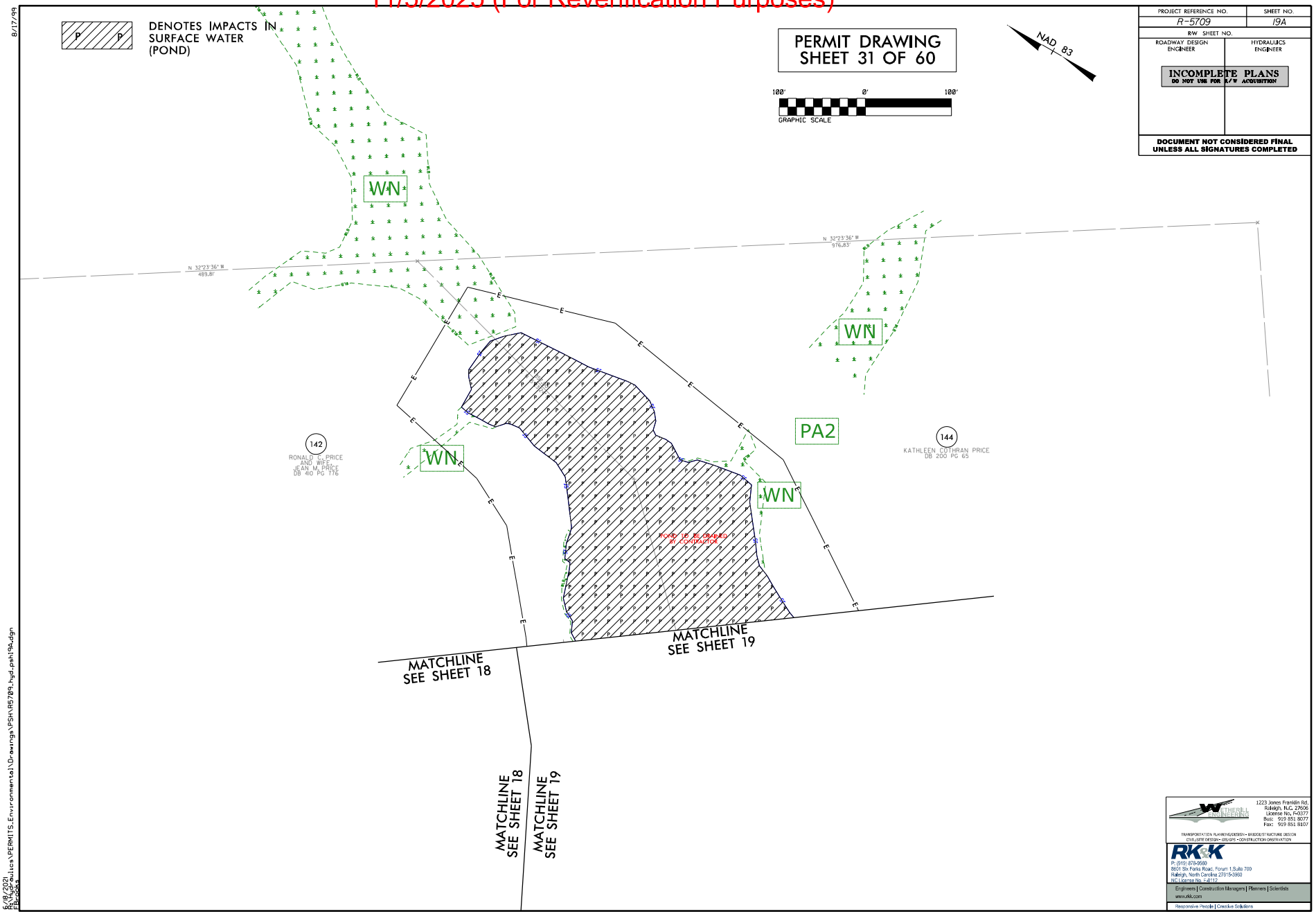

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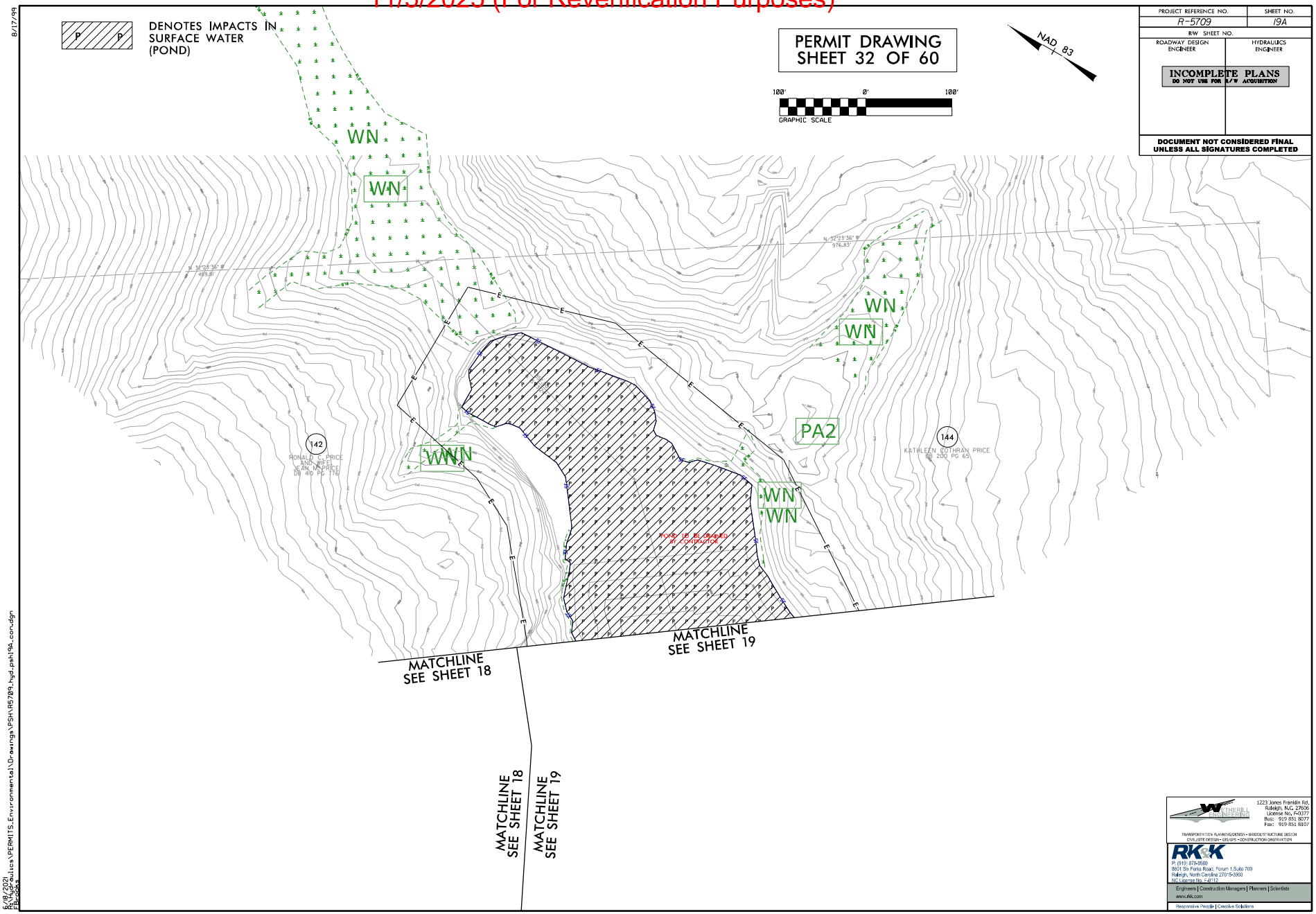

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PROJ. REFERENCE NO.	SHEET NO.

SITE 14
–L– STA. 208+07

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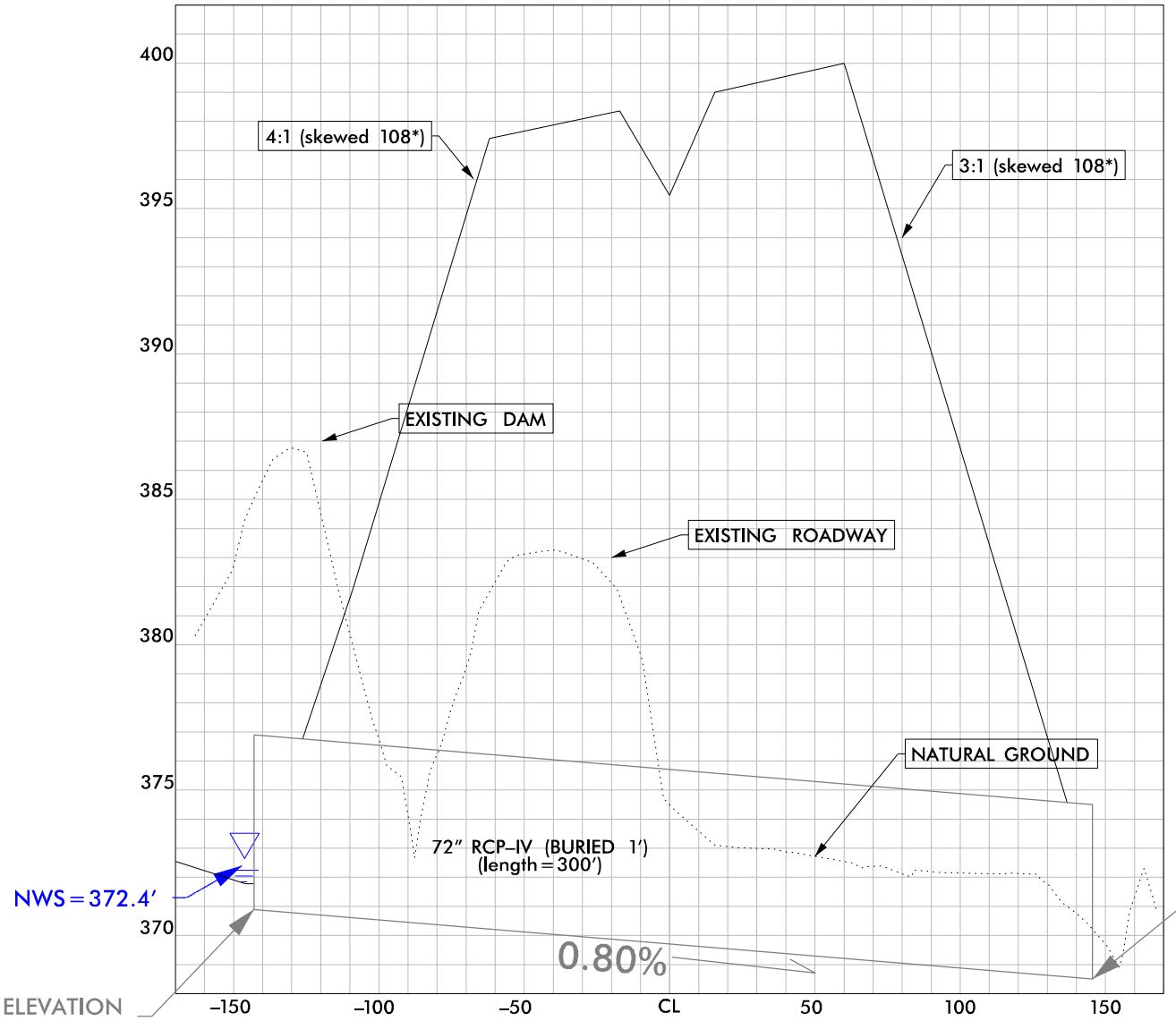
SHEET 33 OF 60

ENGLISH



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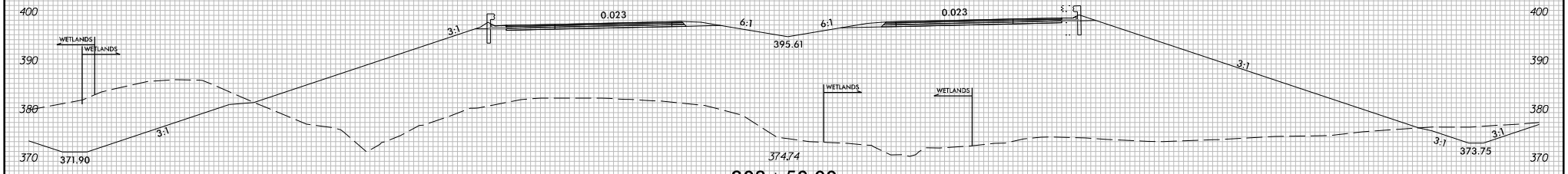
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5709	S1 X-95

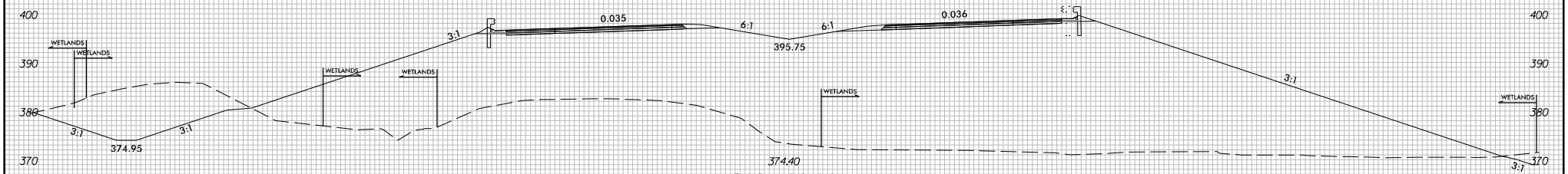
PERMIT DRAWING
SHEET 34 OF 60

ENGLISH

SITES 11, 13



208+50.00



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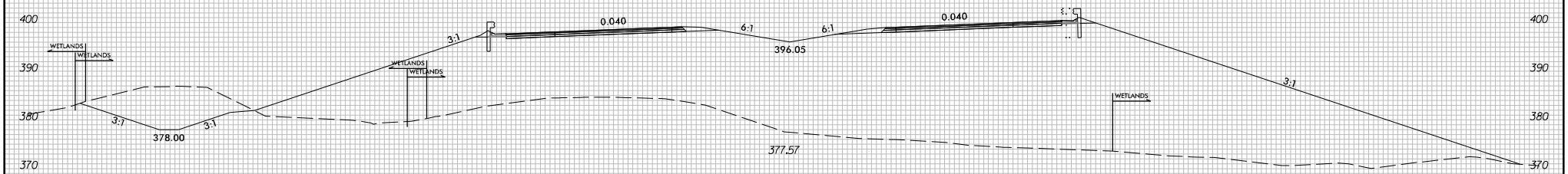

207+50.00

6/23/16
6/18/2021
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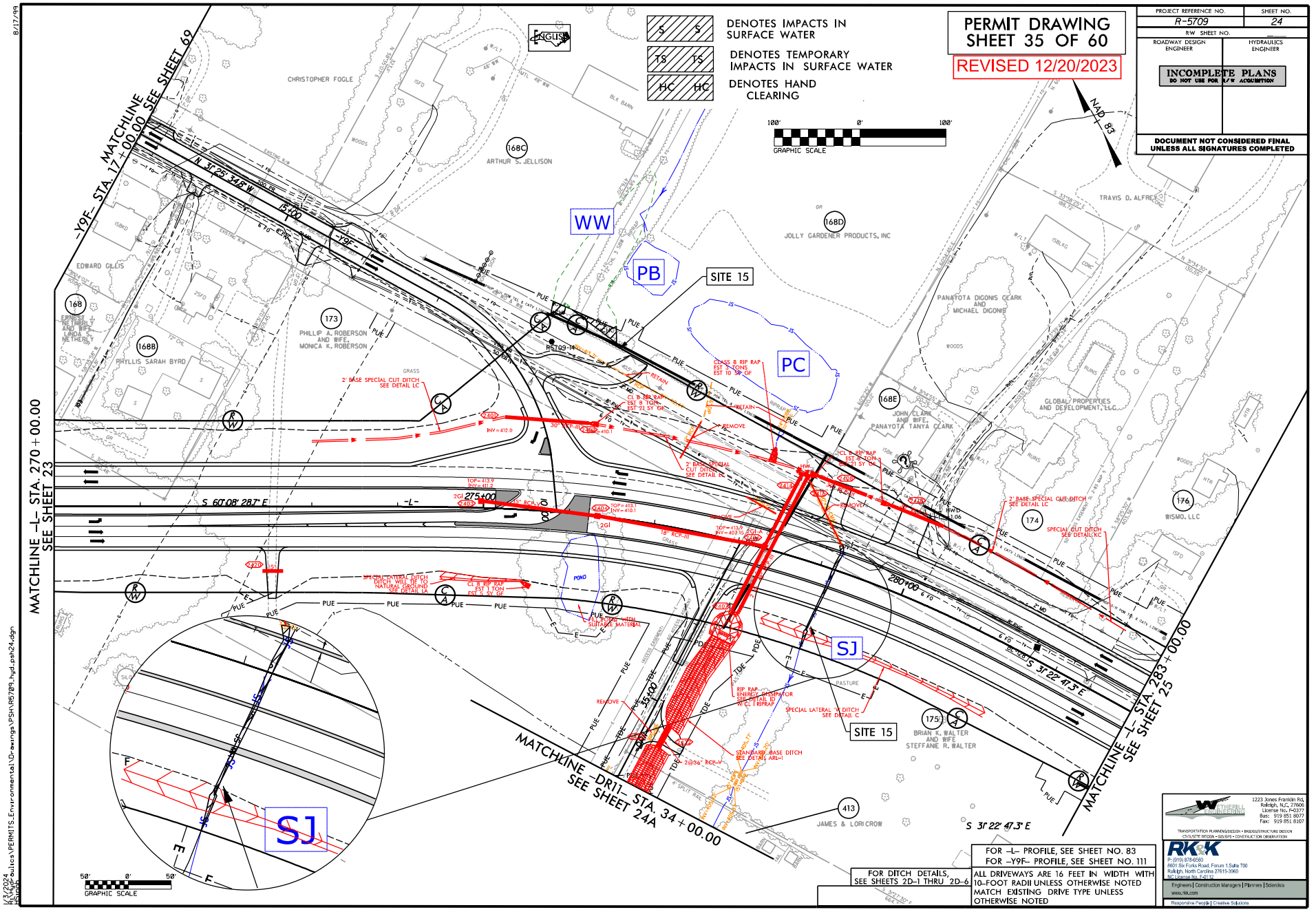

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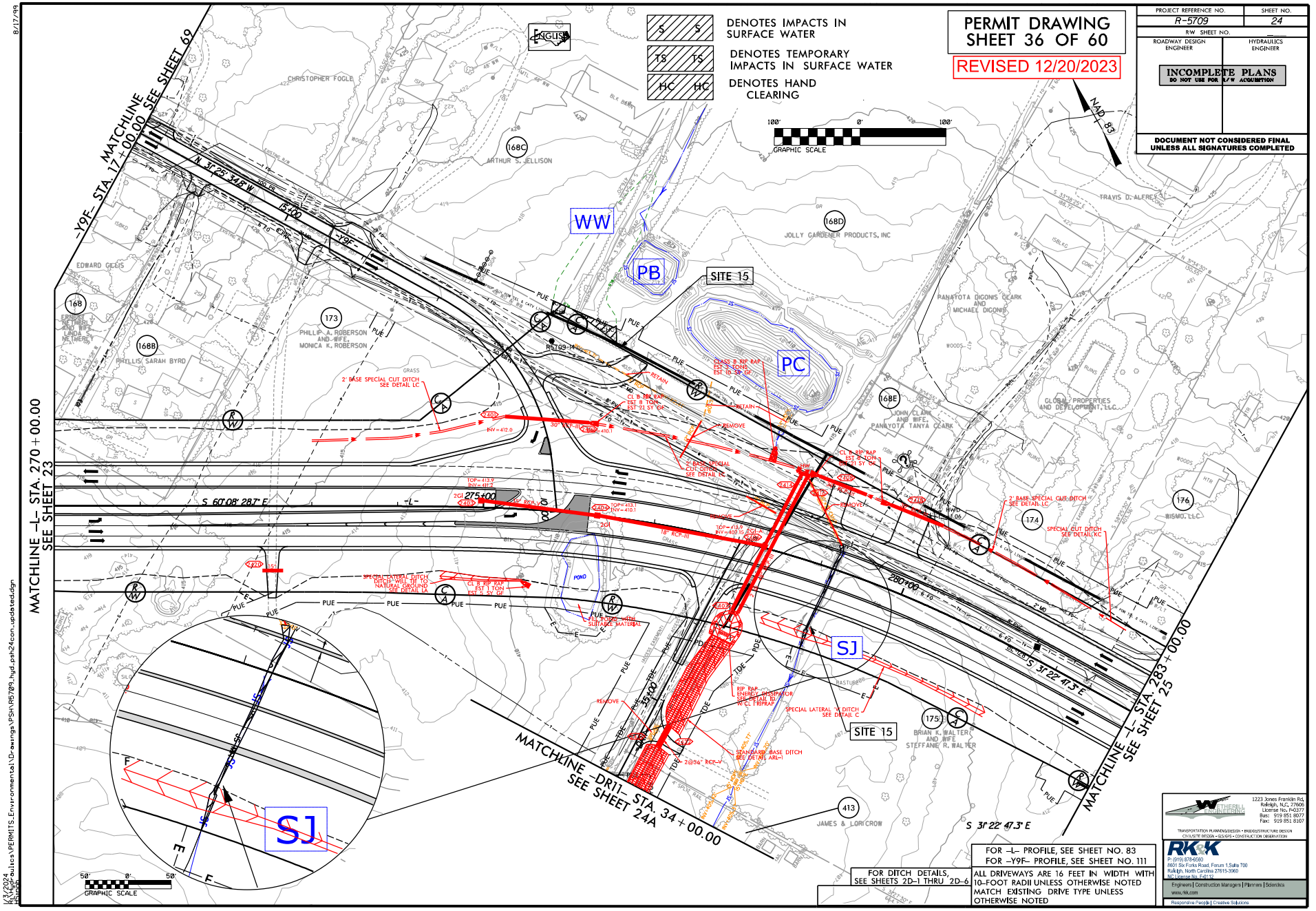

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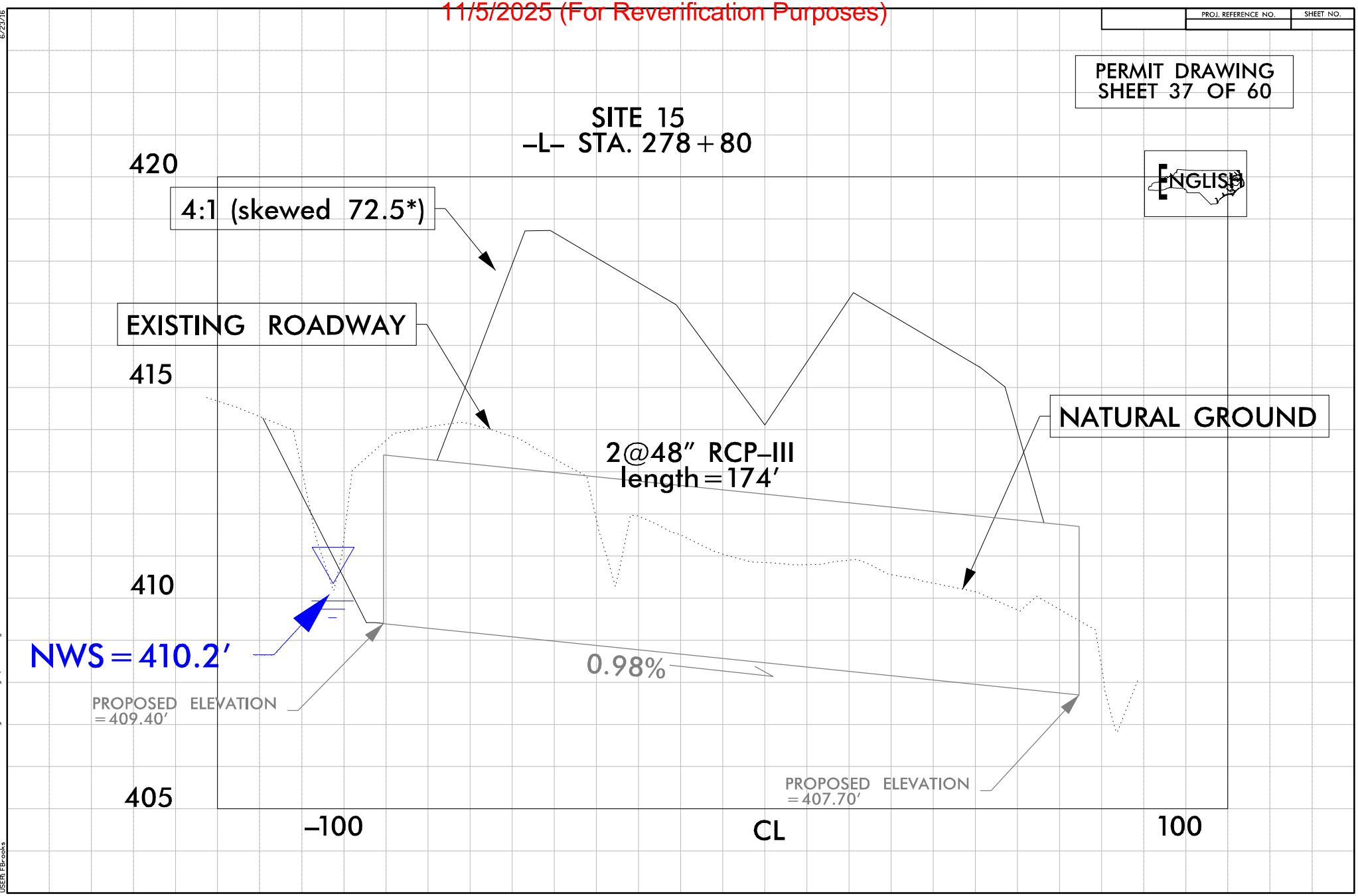
PROJ. REFERENCE NO.	SHEET NO.

PERMIT DRAWING
SHEET 37 OF 60



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6/18/2021
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PROJ. REFERENCE NO.	SHEET NO.
R-5709	S1 X-229

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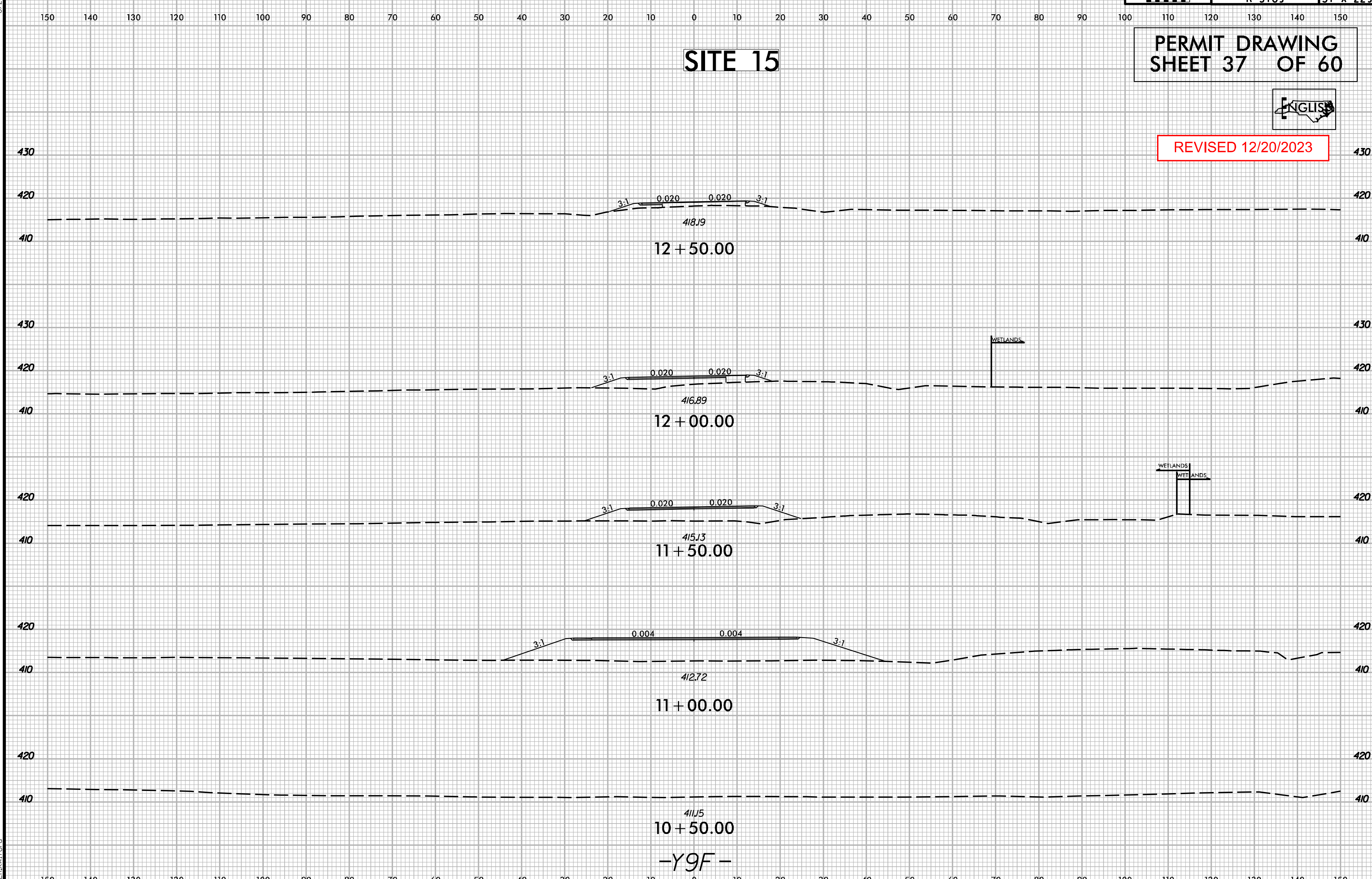
SHEET 37 OF 60

REVISED 12/20/2023

SITE 15



6/23/16

5/5/2023
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USER:KAlford

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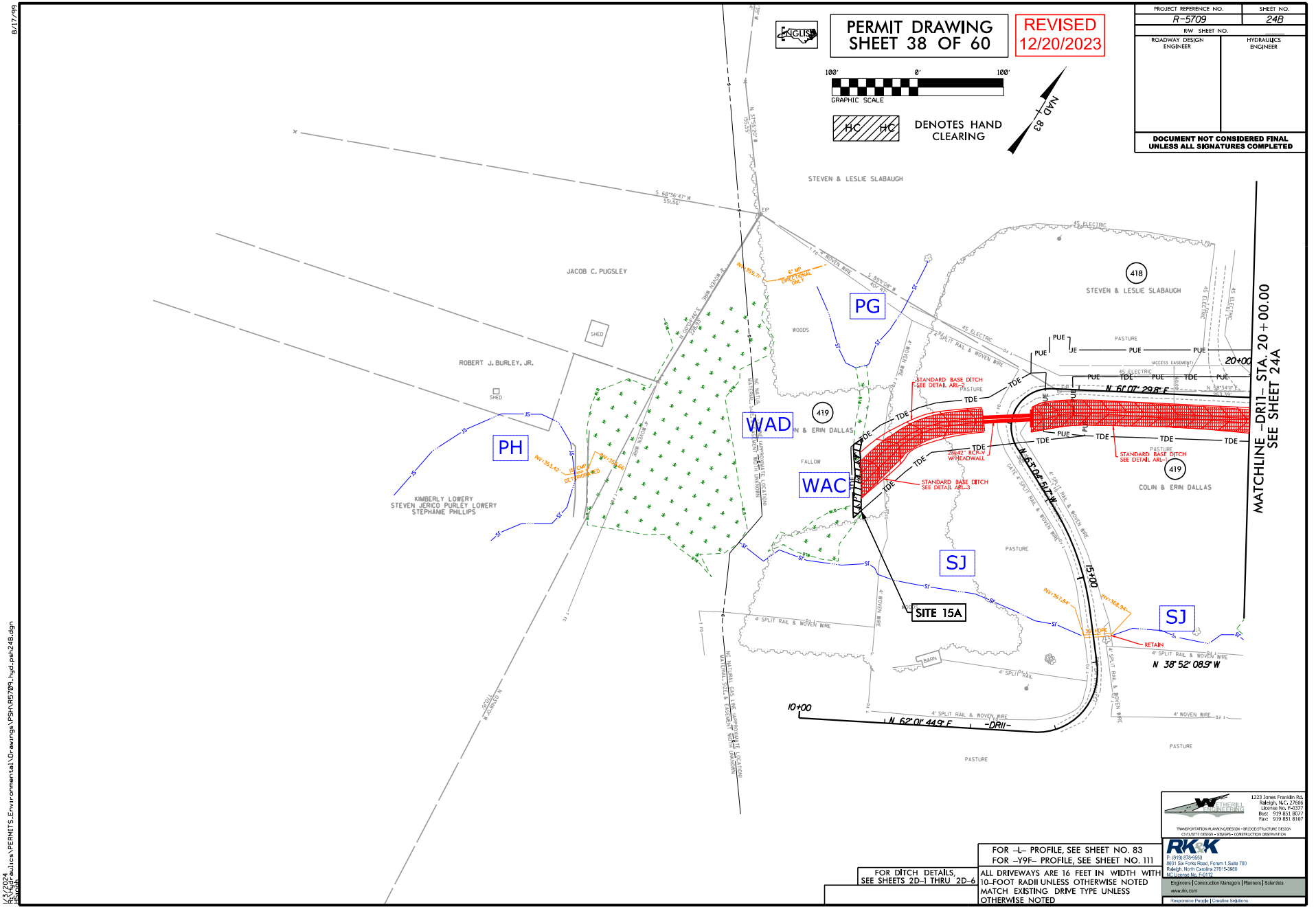

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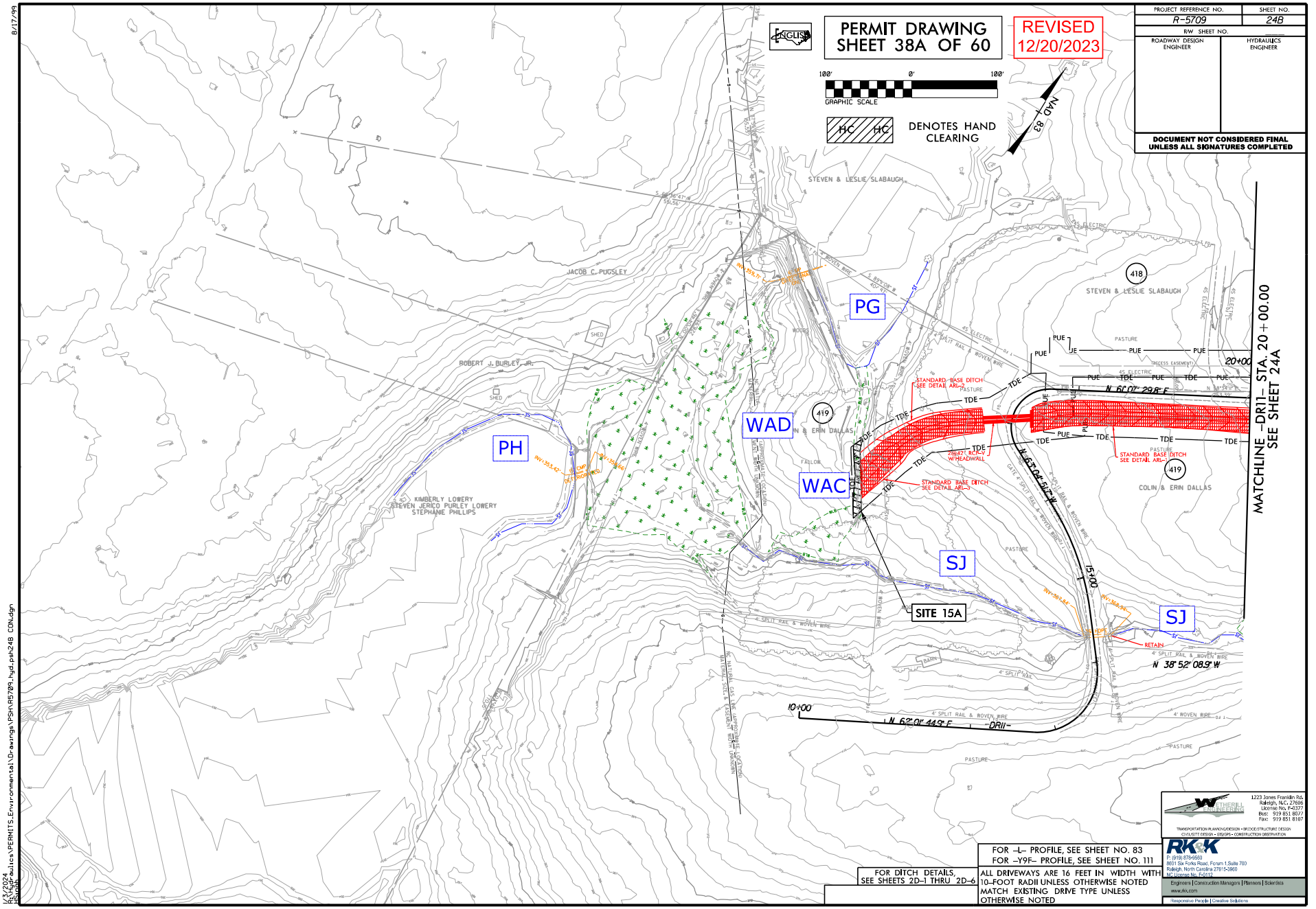

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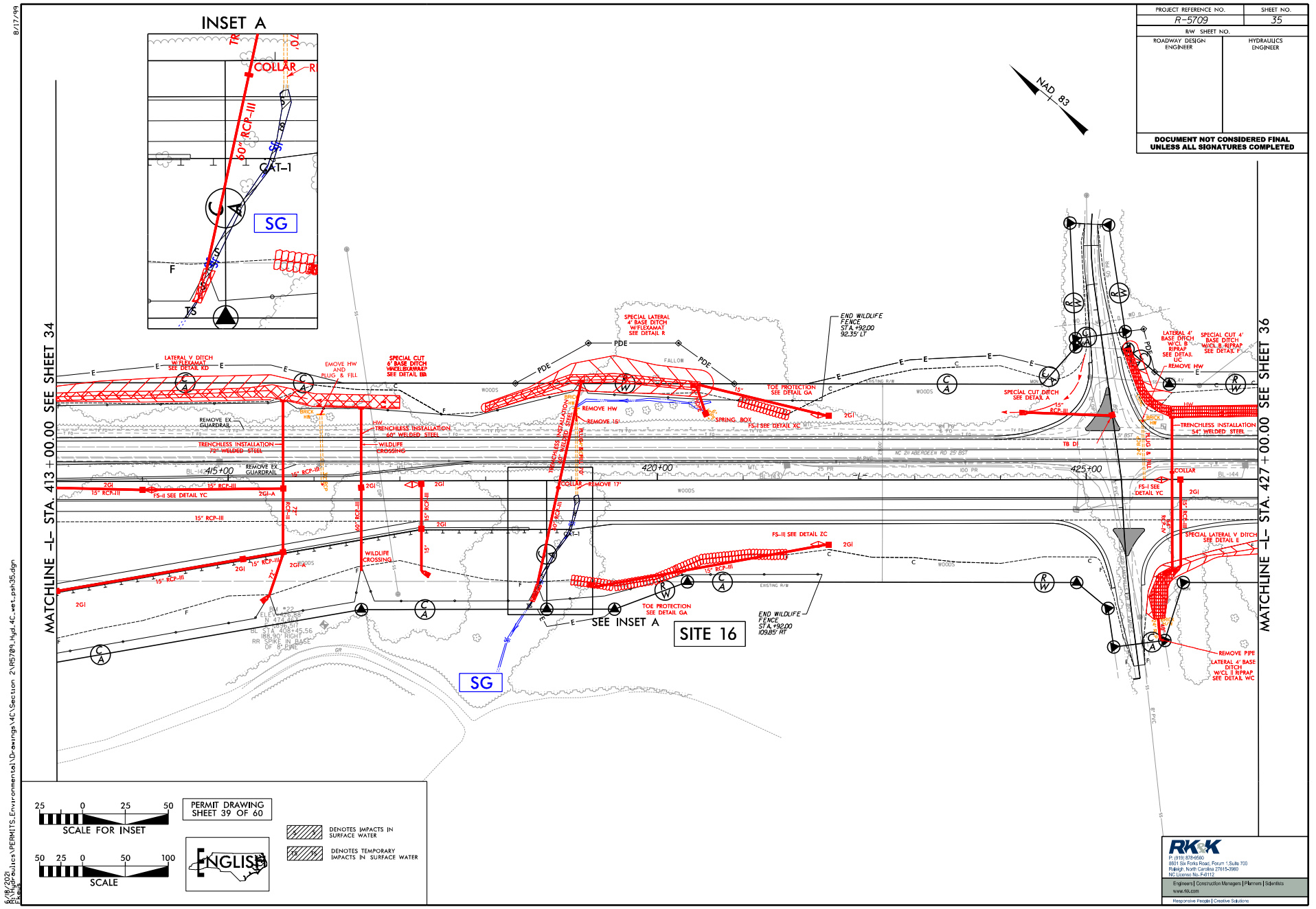

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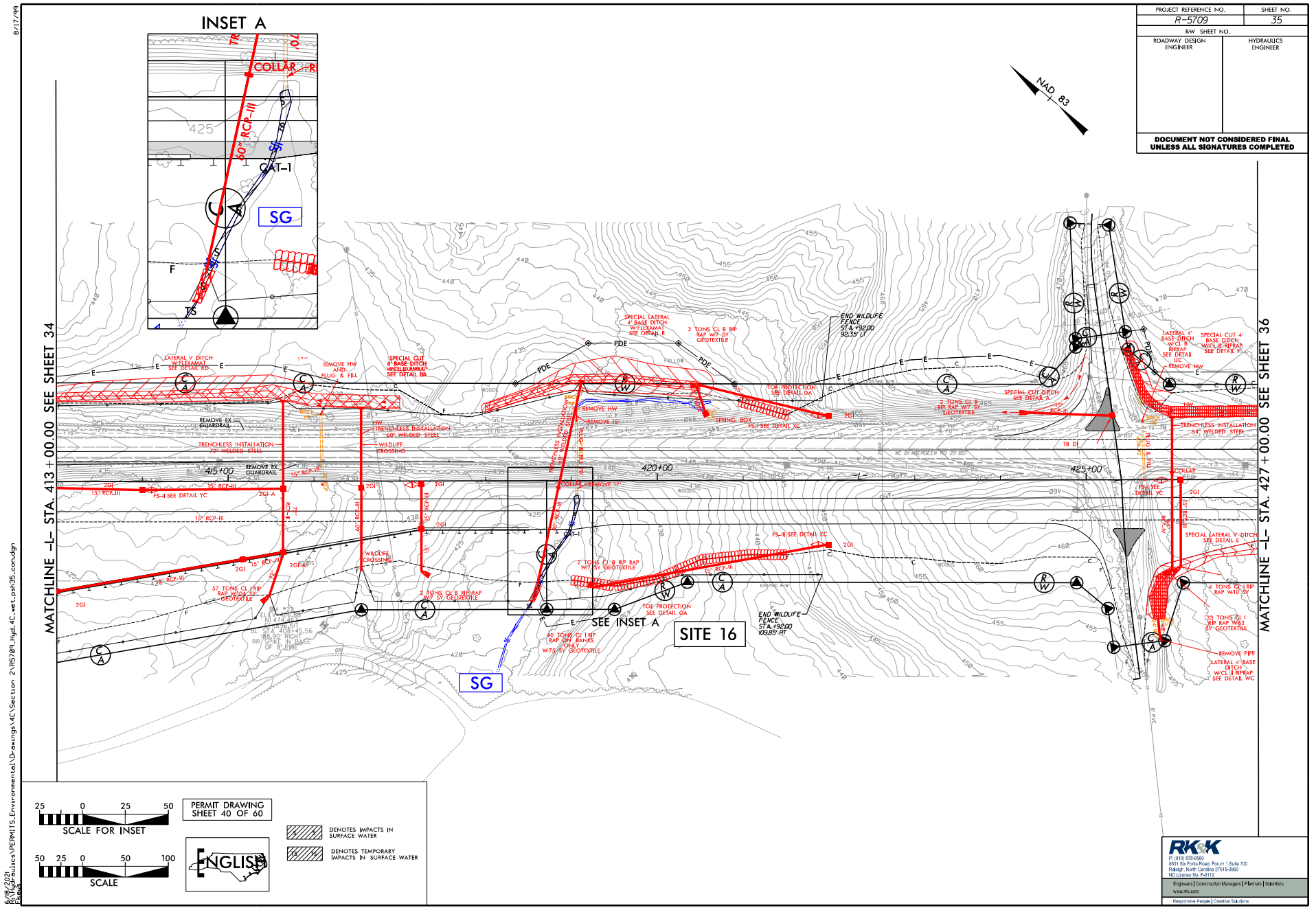

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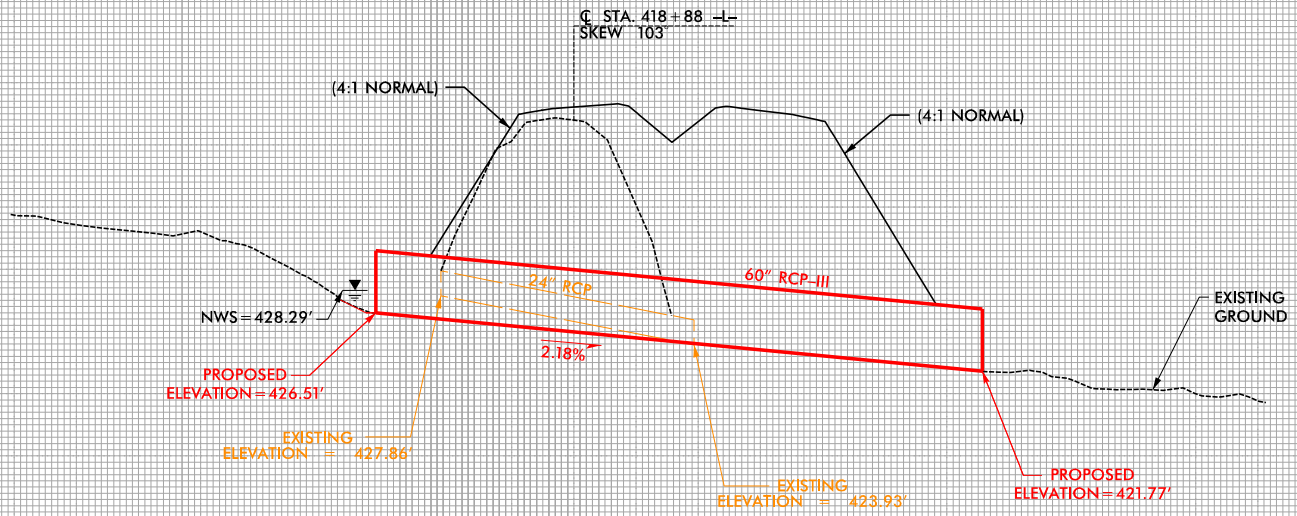
PROJECT REFERENCE NO.	SHEET NO.
R-5709	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 16
–L– STA. 418+88

PERMIT DRAWING
SHEET 41 OF 60

ENGLISH



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

250 200 150 100 50 0 50 100 150 200 250

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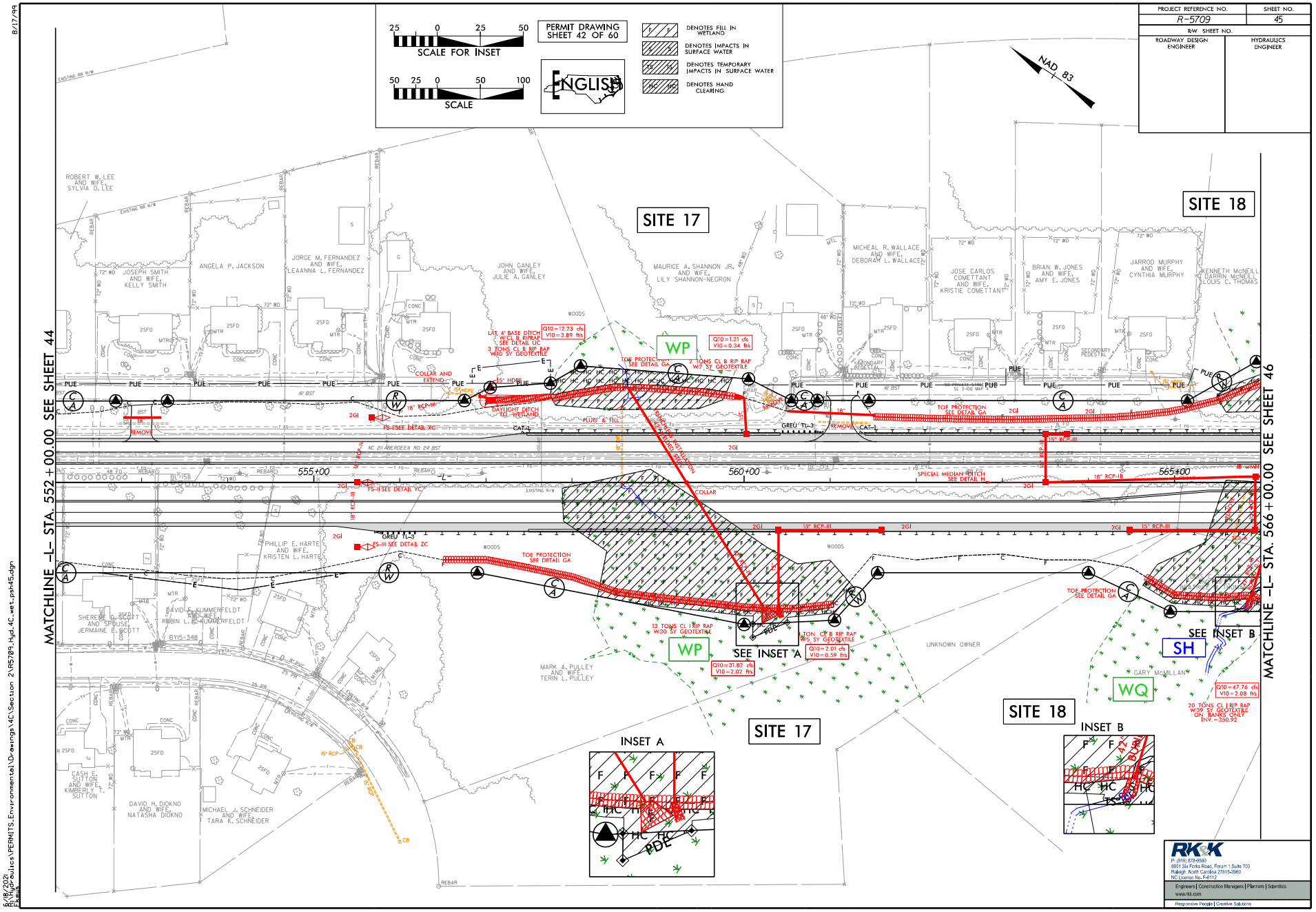

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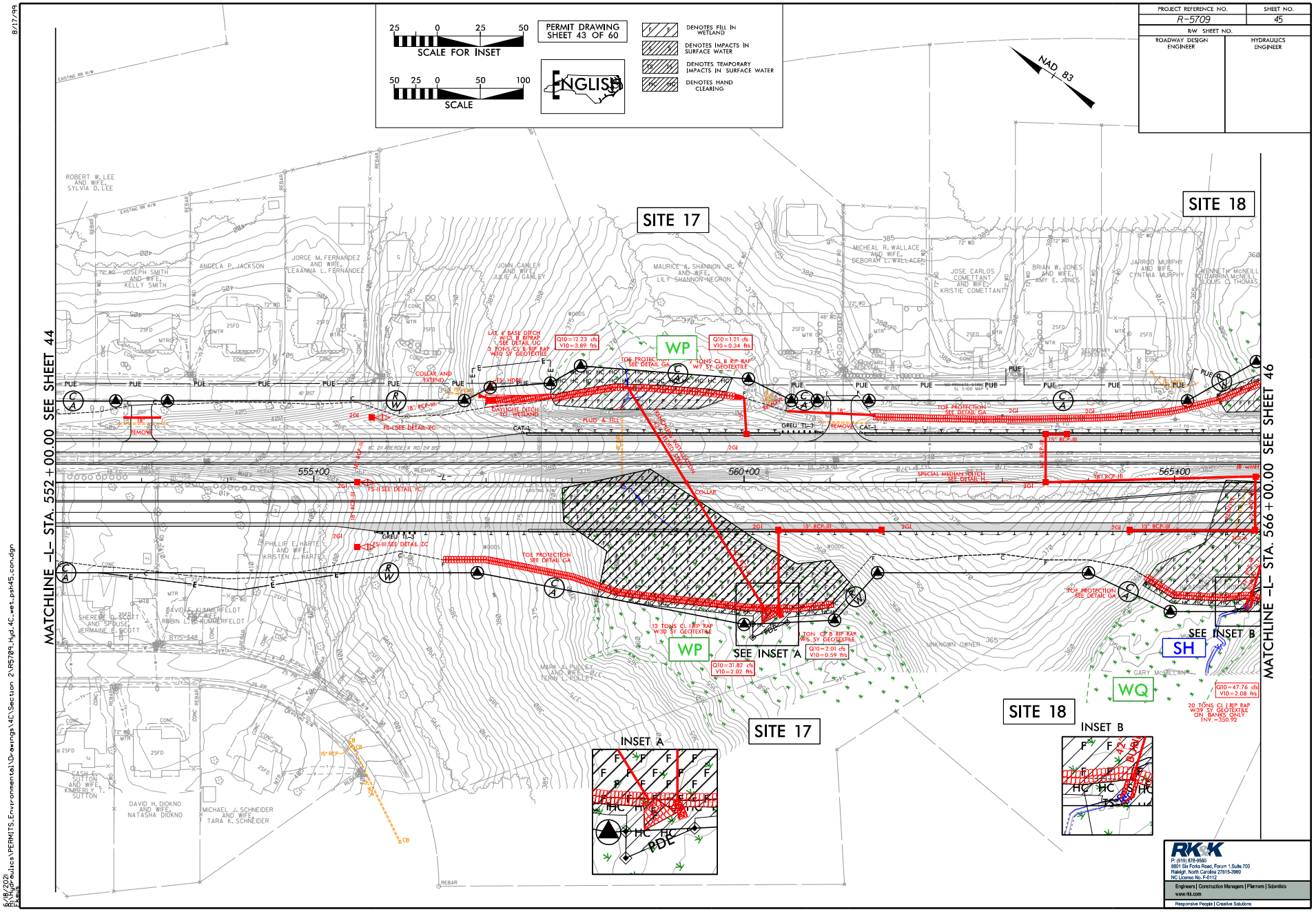

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PROJ. REFERENCE NO.	SHEET NO.
R-5709	S2 X-100

SITE 17

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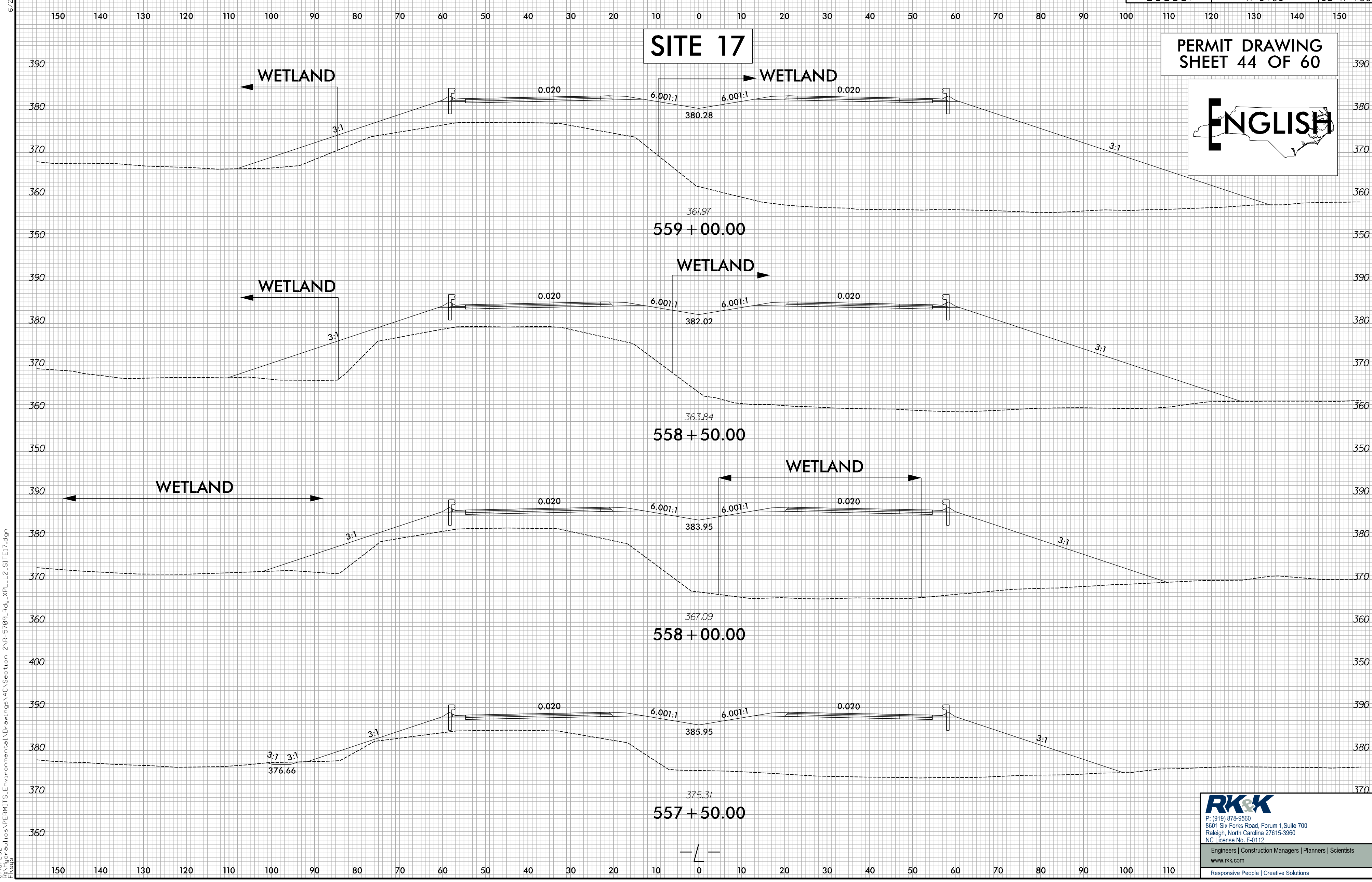
SHEET 44 OF 60



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R-5709	S2 X-104

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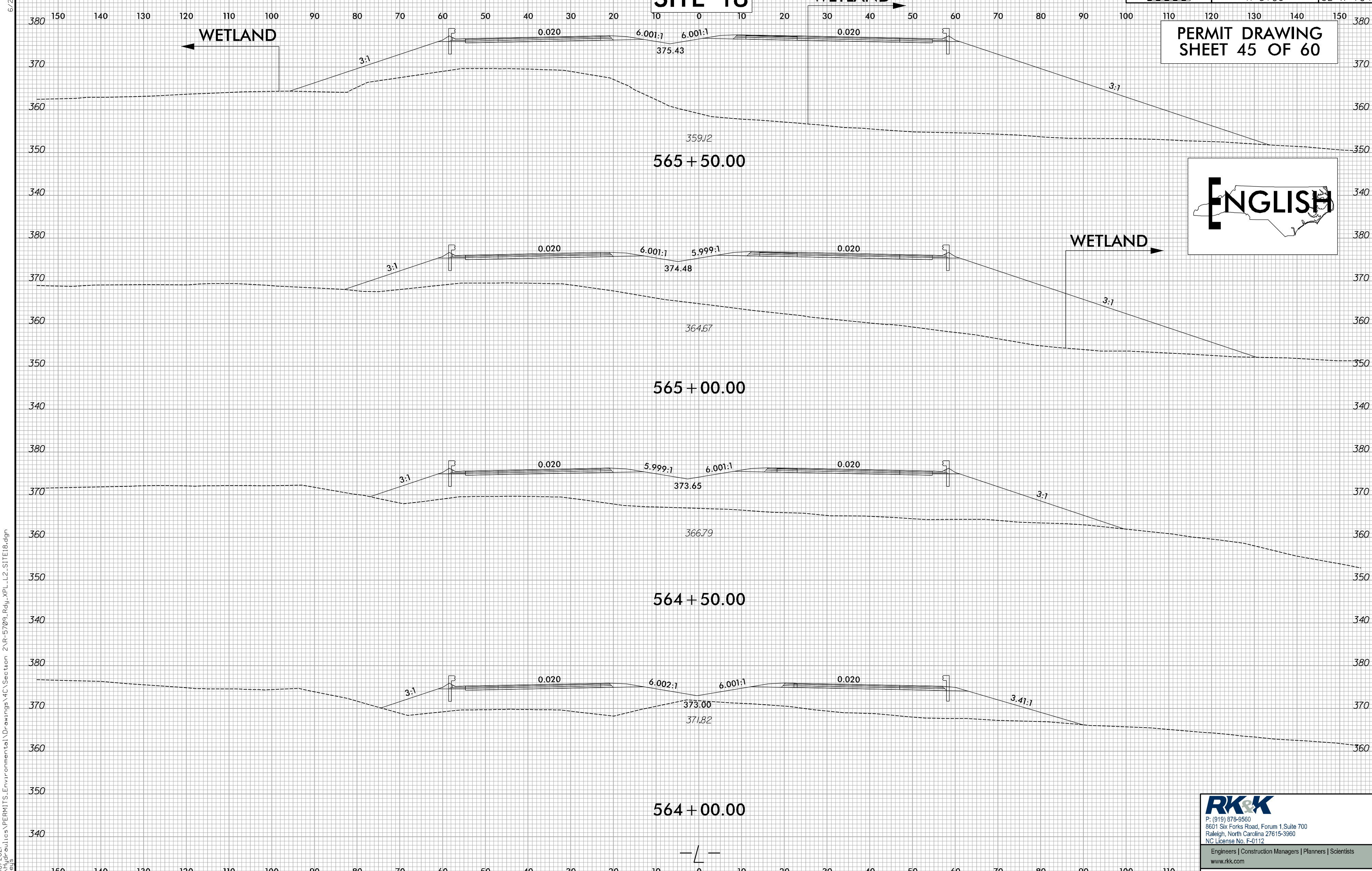
SHEET 45 OF 60

SITE 18



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11/5/2025 (For Reverification Purposes)

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

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NAD 83

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SCALE FOR INSET

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PERMIT DRAWING SHEET 46 OF 60

ENGLISH

DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING

SITE 18

WQ

SH

MATCHLINE –L– STA. 566+00.00 SEE SHEET 45

MATCHLINE –L– STA. 580+00.00 SEE SHEET 47

SEE INSET A

INSET A

PLUG & FILL

TOE PROTECTION SEE DETAIL GA

SPECIAL LATERAL DITCH SEE DETAIL C

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL YB

570+00

575+00

-L-

KENNETH McNEILL
DARRIN McNEILL
LOUIS C. THOMAS

DARRIN McNEILL

QUENZELL THOMAS AND WIFE, KAREN RAY THOMAS

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THE NATURE CONSERVANCY

LOUIS C. THOMAS AND WIFE, BEATRICE M. THOMAS

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ELBERT MARSHAL GREENE

WILLIAM ARTHUR McGREGOR

SARAH GILMORE

RUDOLPH S. BALDWIN AND WIFE, MARY C. BALDWIN

MARY C. HARRIS

MARY E. BALDWIN

GARY McMILLAN

BM #30
ELEV=384.78'
N 461,941
E 1,905,516
BL STA 563+09.88
214.68' RIGHT
RR SPIKE IN BASE
OF 15" PINE

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11/5/2025 (For Reverification Purposes)

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

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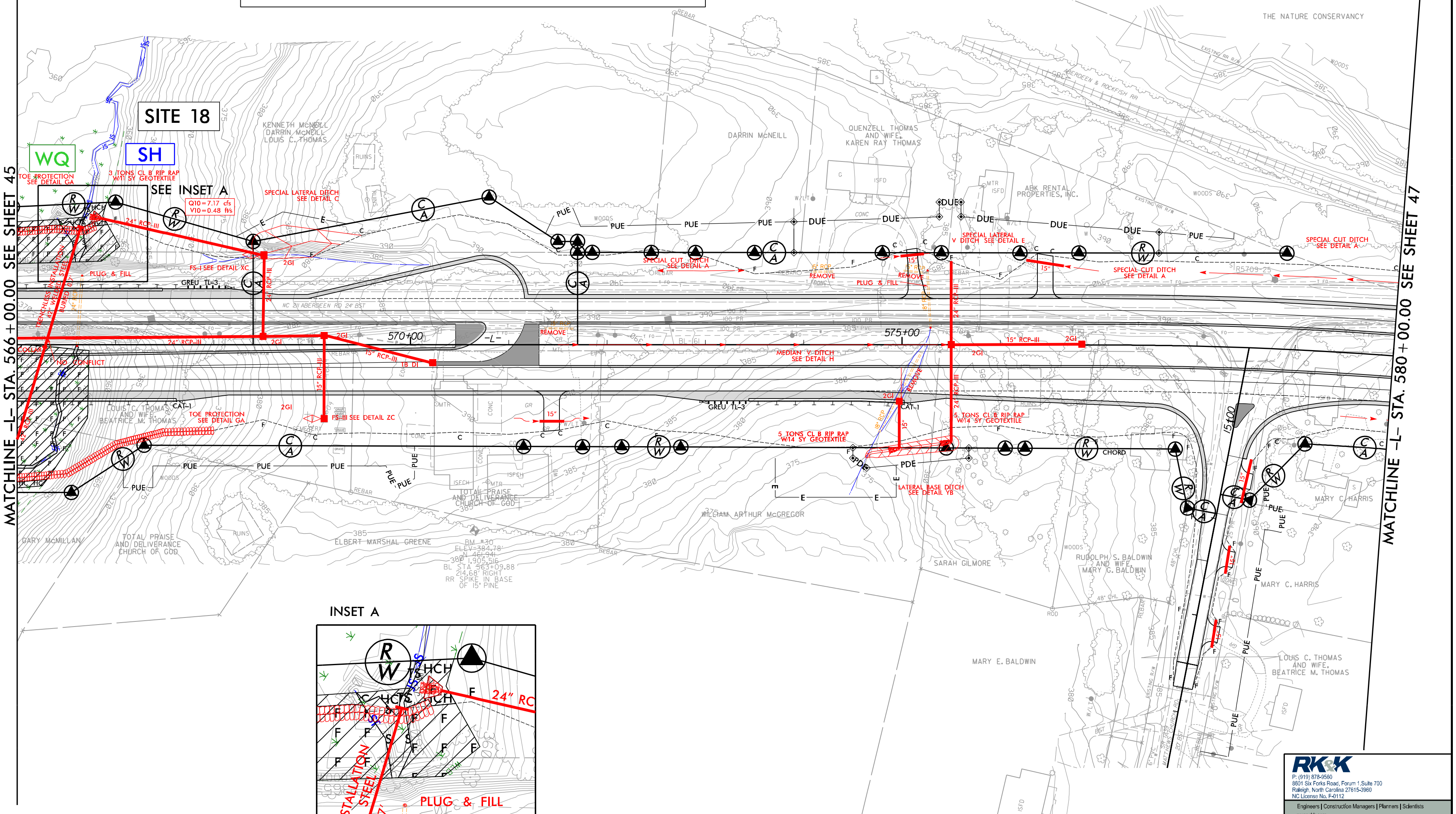
PERMIT DRAWING
SHEET 47 OF 60

ENGLISH

DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING

NAD 83



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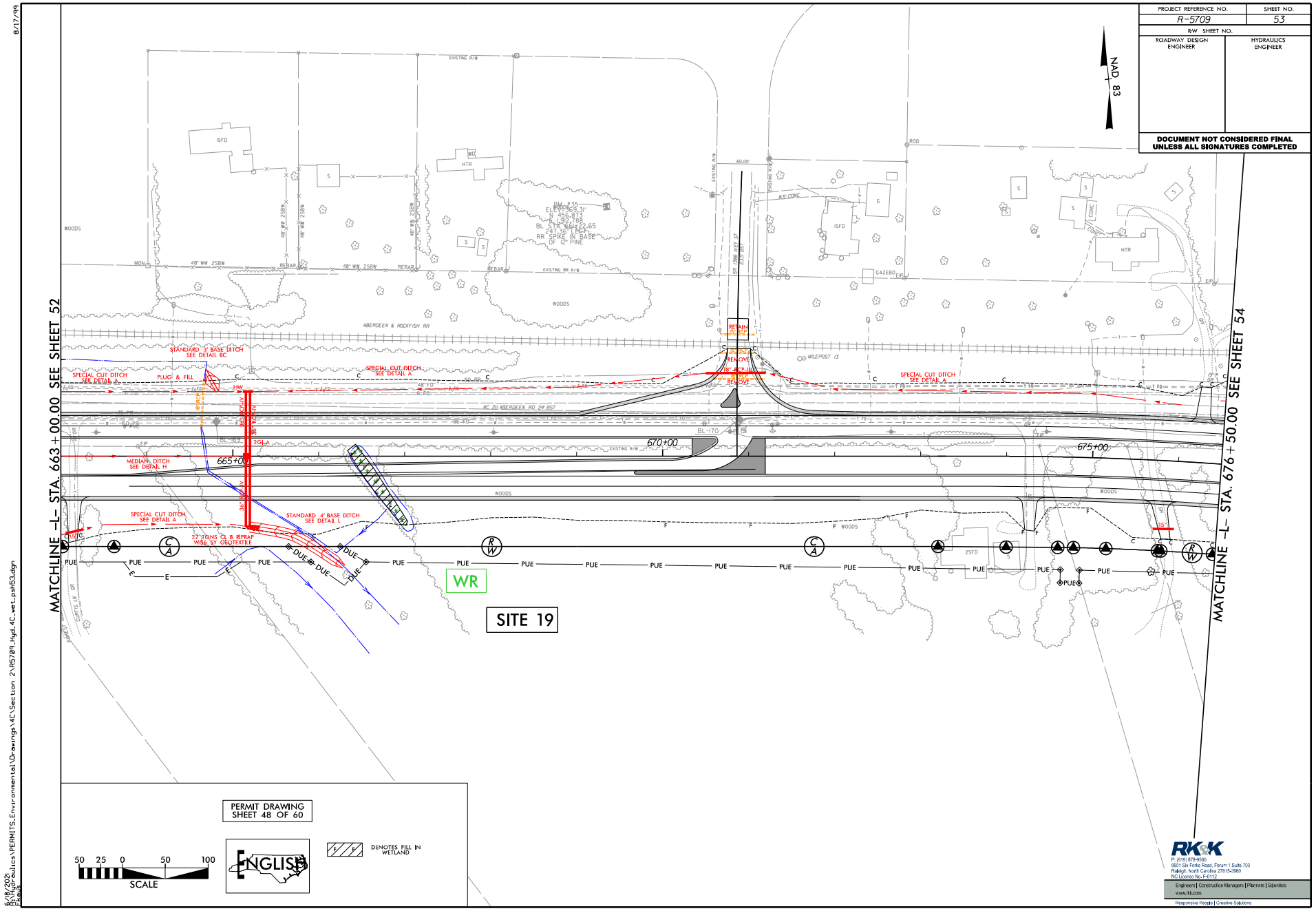

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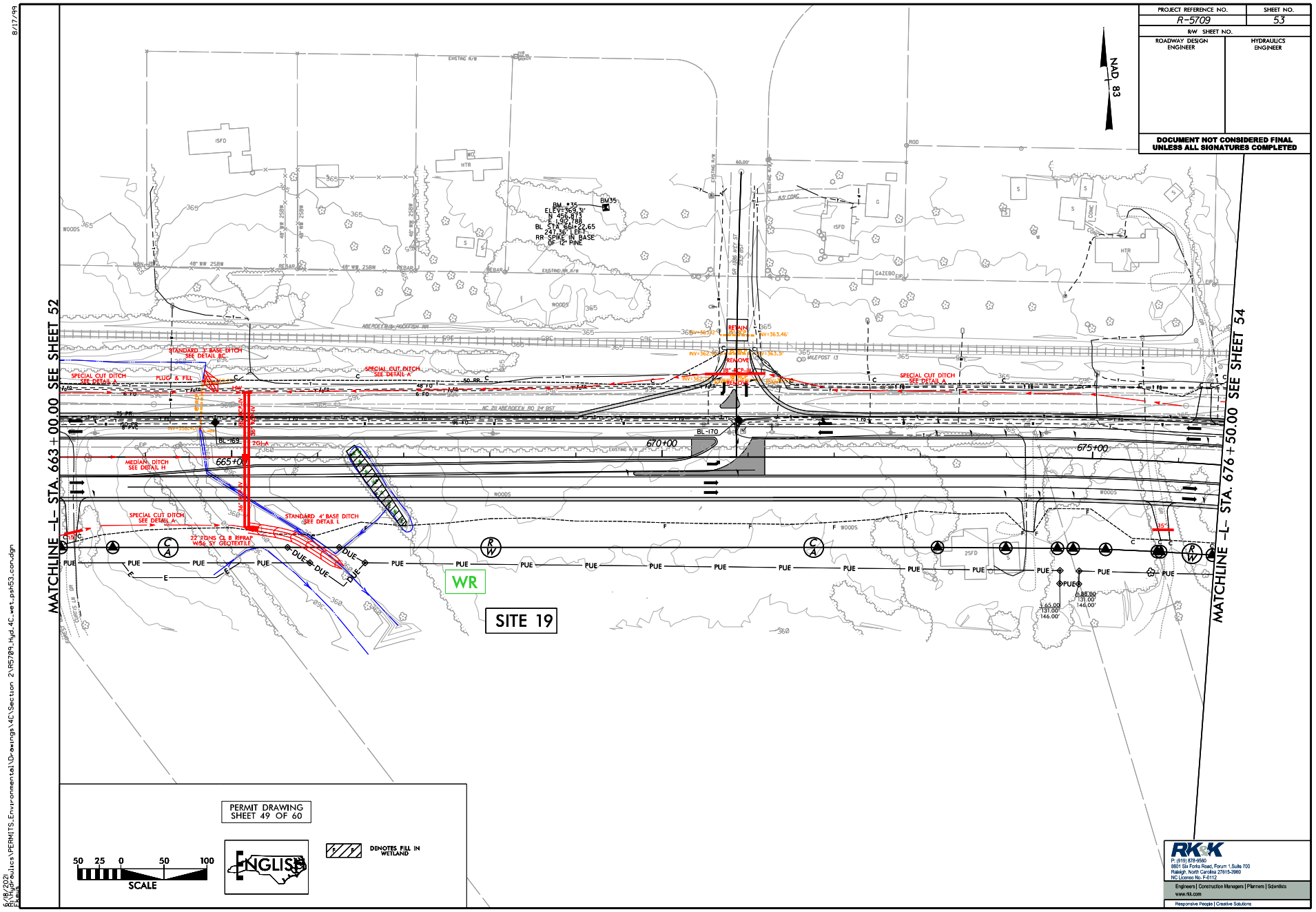

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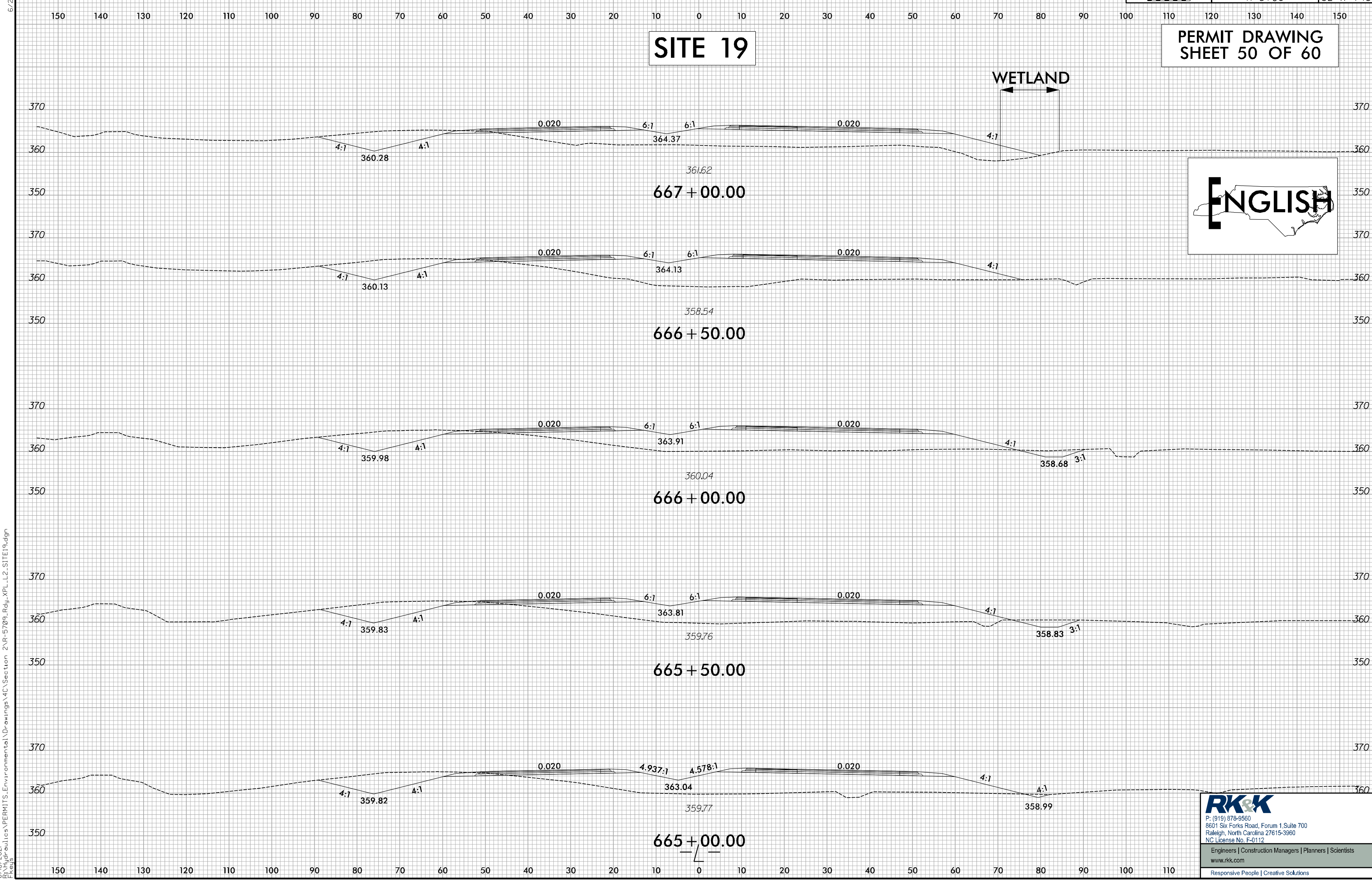
PROJ. REFERENCE NO.	SHEET NO.
R-5709	S2 X-143

SITE 19

PERMIT DRAWING
SHEET 50 OF 60



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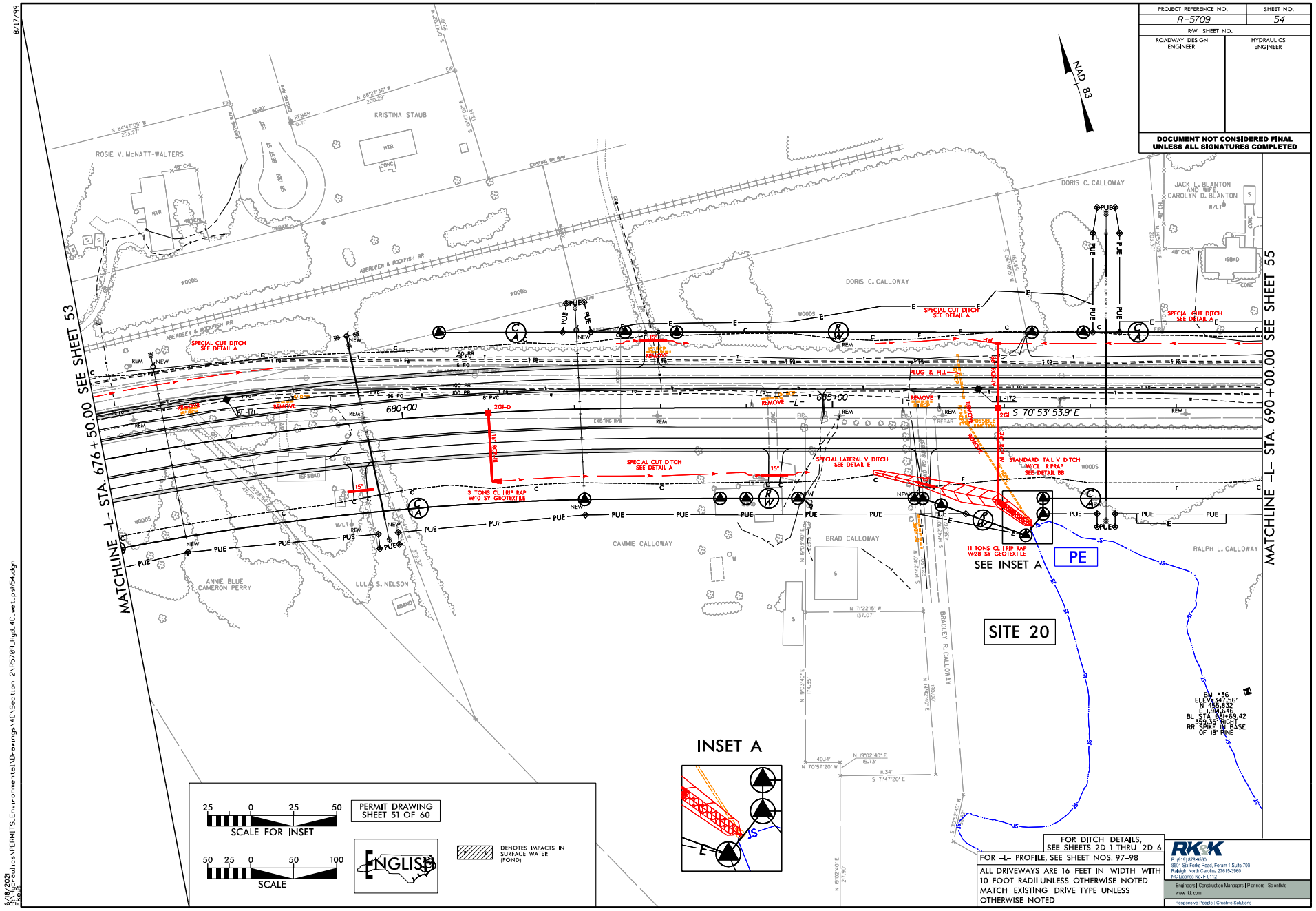

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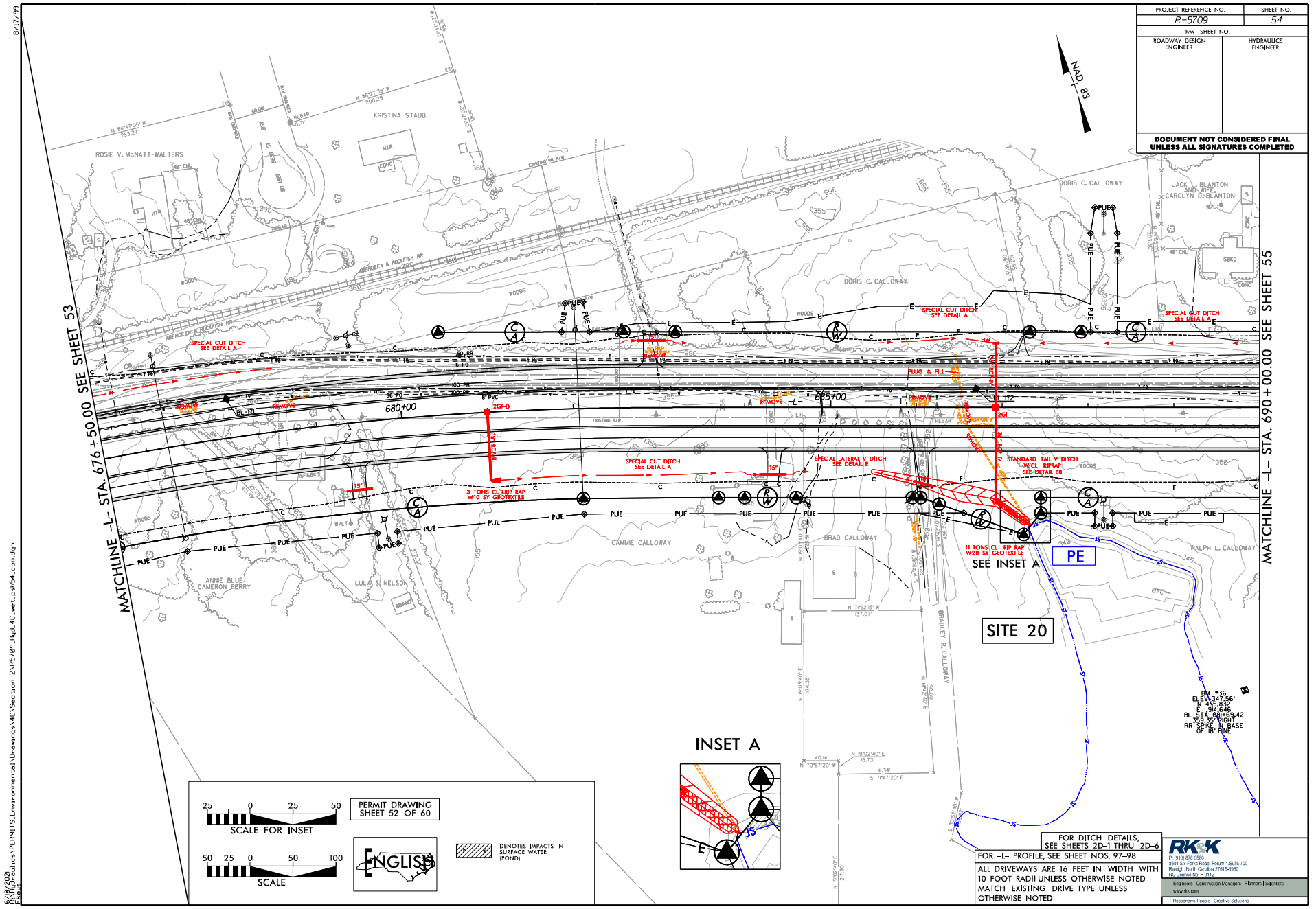

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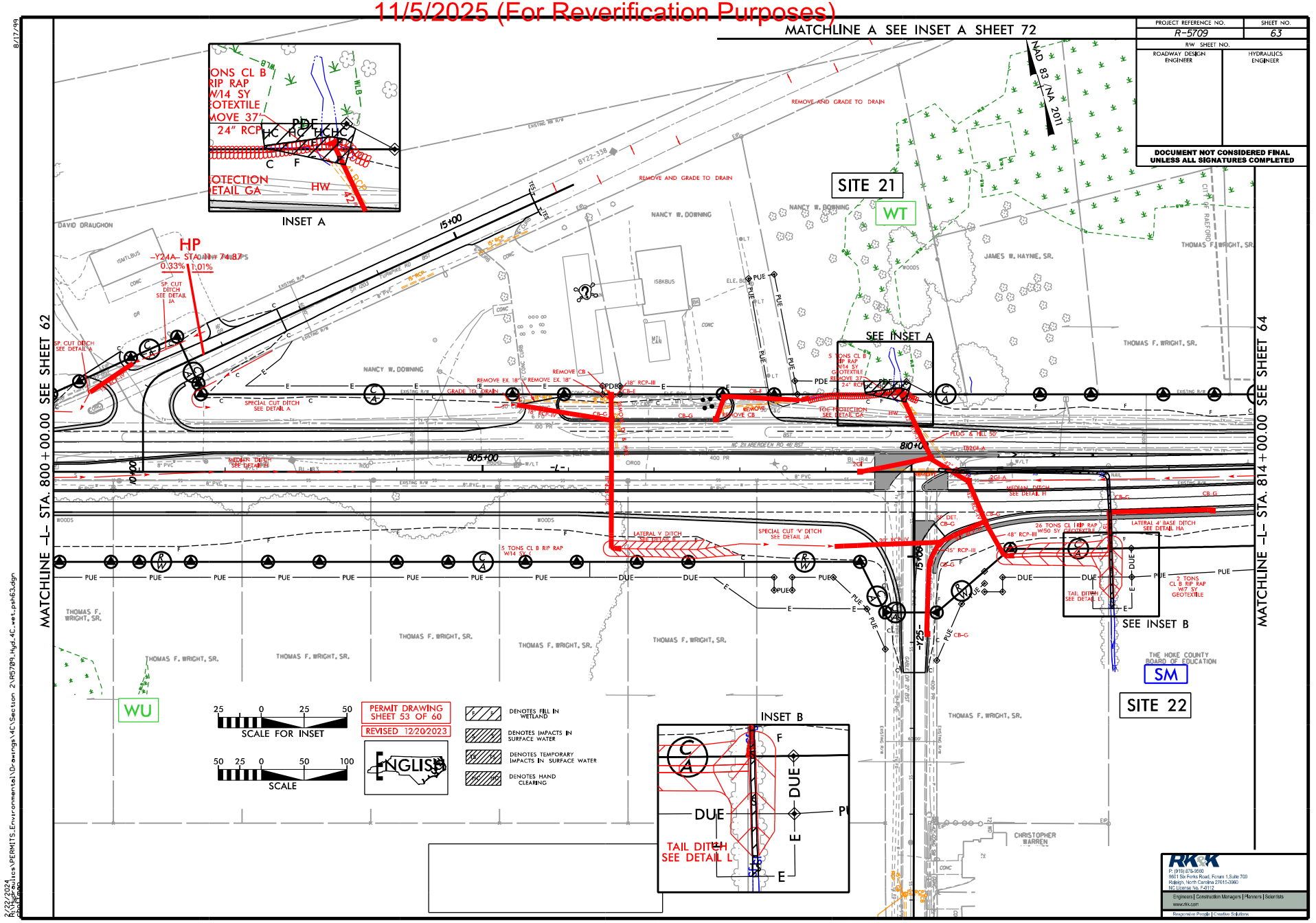

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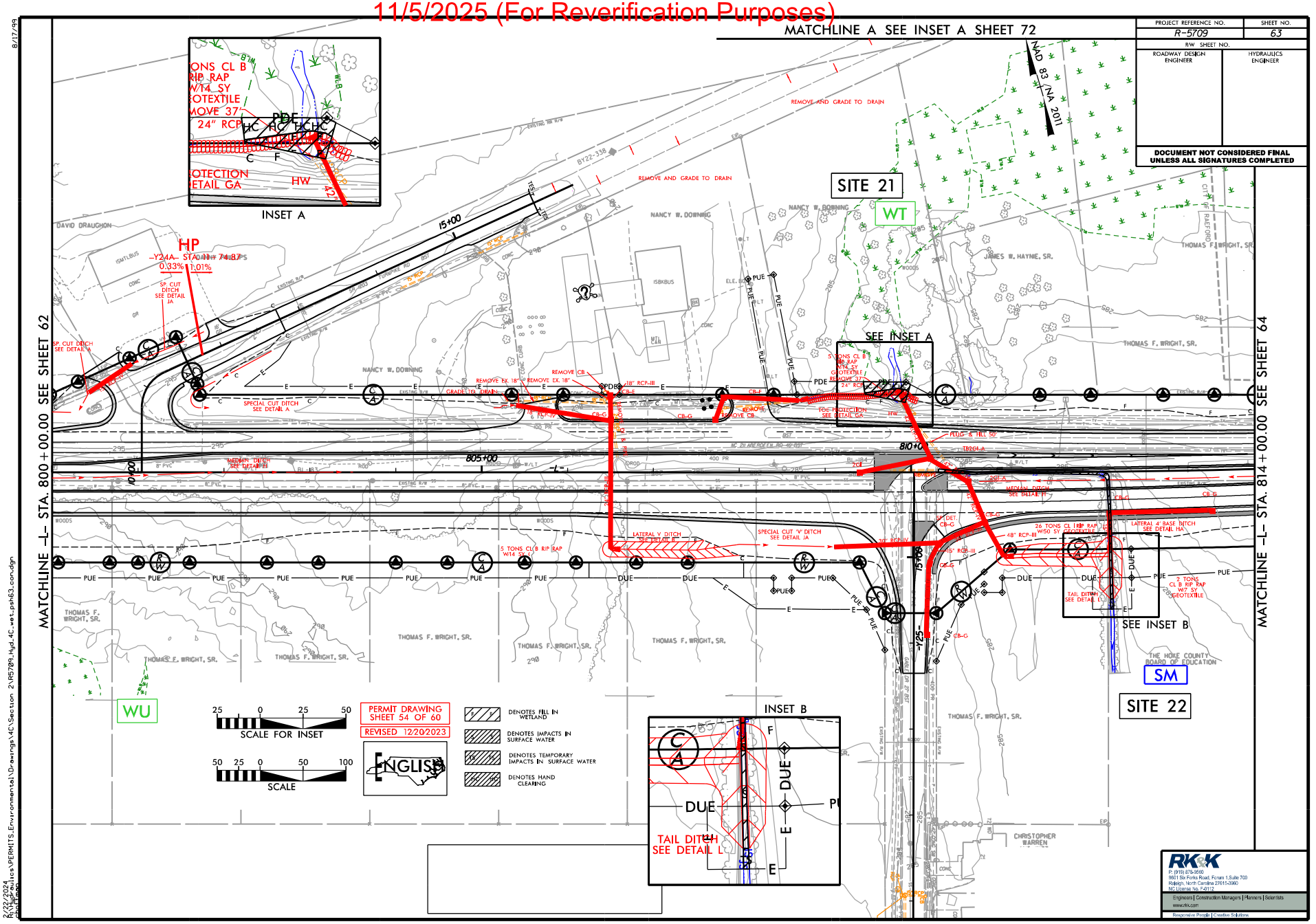

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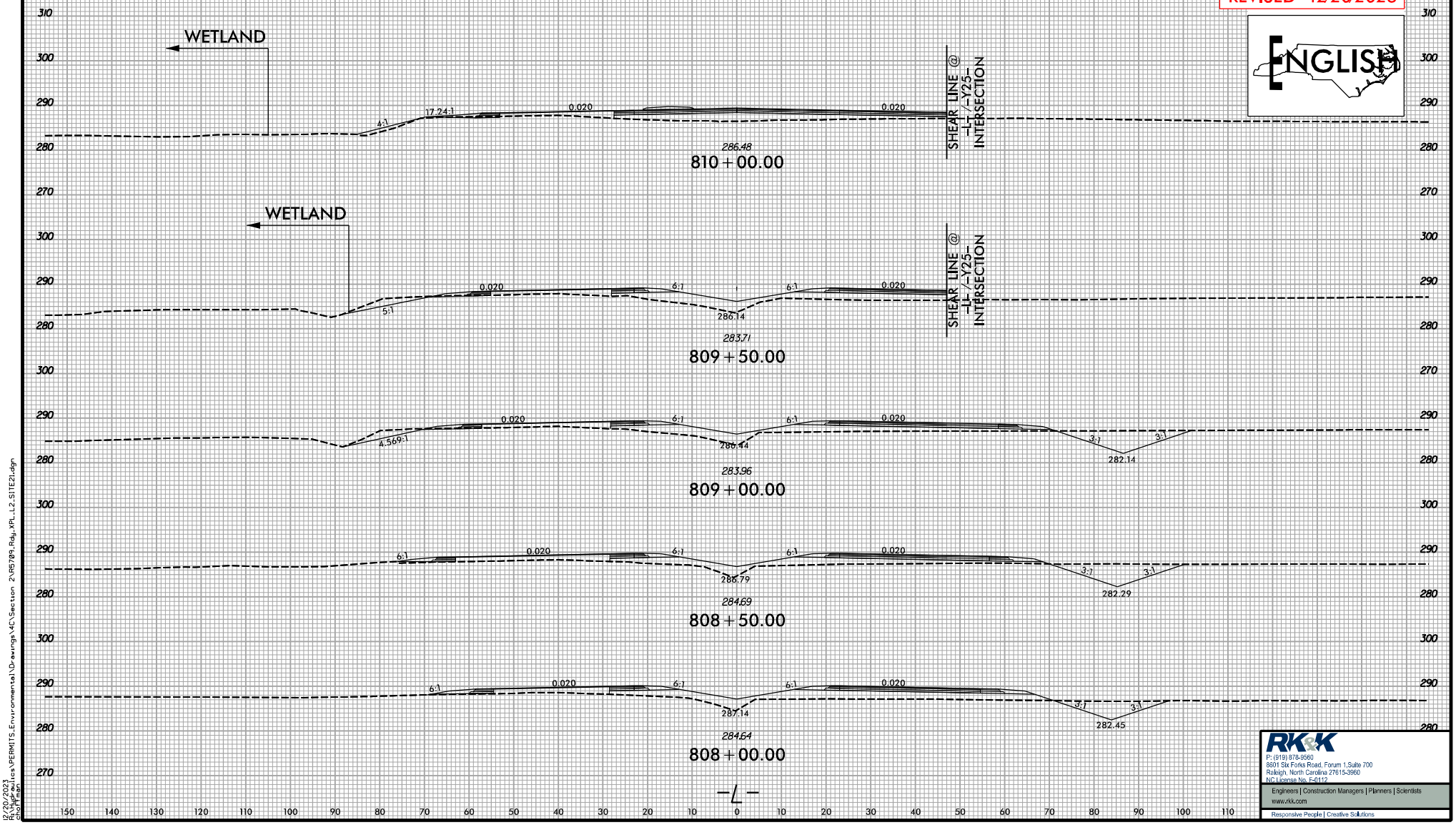
PROJ. REFERENCE NO.	SHEET NO.
R-5709	S2 X-198

SITE 21

PERMIT DRAWING
SHEET 55 OF 60

REVISED 12/20/2023



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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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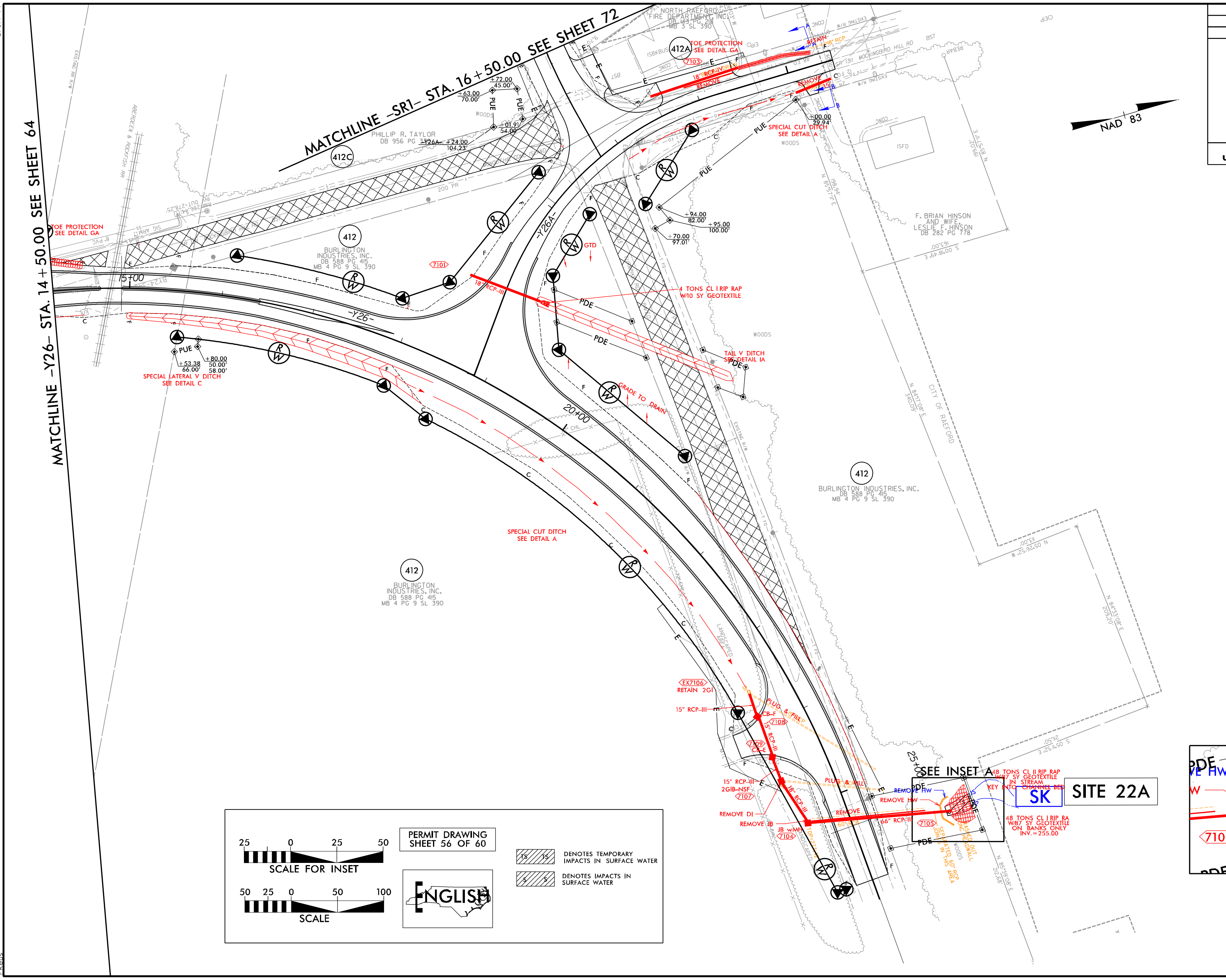

PERMIT DRAWING
SHEET 56 OF 60

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

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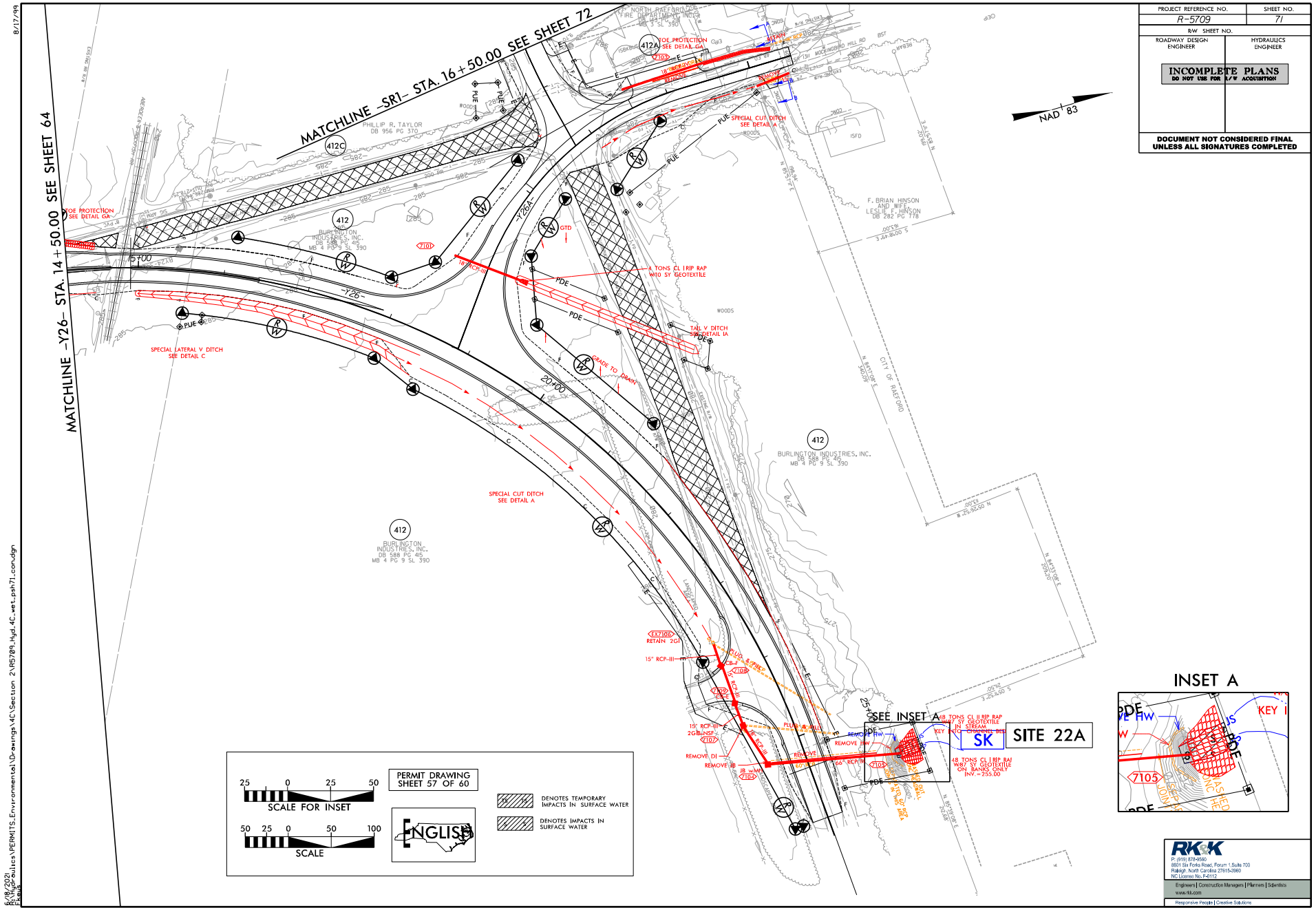

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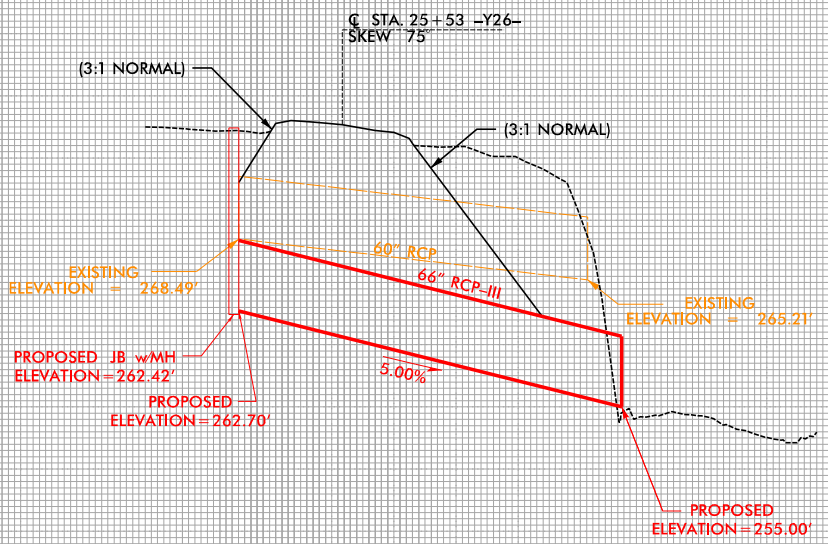
PROJECT REFERENCE NO.	SHEET NO.
R-5709	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 22A
–Y26– STA. 25+53

PERMIT DRAWING
SHEET 58 OF 60

ENGLISH



66" RCP–III
(length=154')

280 270 260 250

250 200 150 100 50 0 50 100 150 200 250

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11/5/2025 (For Reverification Purposes)

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	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	3.00				
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	3.06	< 0.01	672	85	

*Rounded totals are sum of actual impacts

NOTES:

**Site 13 Pond Drainage - WN is a total pond take.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
February 2024 (Revised October 2025)
HOKE & MOORE COUNTIES
R-5709

11/5/2025 (For Reverification Purposes)

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: 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	3.06	< 0.01	672	85	
	TOTALS for SHEET 2:		1.41				0.20	0.06	< 0.01	734	65	
TOTALS*:			2.23		0.06		0.85	3.12	0.01	1406	150	

*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
DIVISION OF HIGHWAYS
February 2024 (Revised October 2025)
HOKE & MOORE COUNTIES
R-5709

Docusign Envelope ID: 804B21A8-783A-4F8B-A943-2A8BD272F889

JOSH STEIN
Governor
D. REID WILSON
Secretary
RICHARD E. ROGERS, JR.
Director

NORTH CAROLINA
Environmental Quality

December 9, 2025

Mr. Jason Dilday
NCDOT- ECAP Eastern Regional Team Lead
Environmental Analysis Unit
1000 Birch River Drive
Raleigh, NC 27610
jldilday1@ncdot.gov

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the proposed improvements to NC 211 from US 15/501 in Aberdeen to SR 1244/SR 1311 in Raeford, Moore and Hoke Counties.
NCDWR Project No. 20211043.V3 NCDOT TIP: R-5907. SAW-2018-02283

Dear Mr. Dilday,

Attached hereto is a copy of Certification No. 008413 issued to the NCDOT dated December 9, 2025.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Signed by:
Faith Hardin
3185423002EA45E...

Richard E. Rogers, Jr. Director
Division of Water Resources

Electronic copy only distribution:

Steve Brumagin, US Army Corps of Engineers
Chris Rivenbark, RK&K
Rex Badgett, NCDOT Division 8 DEO

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401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS.

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact 1,556 linear feet of jurisdictional streams and 3.14 acres of jurisdictional wetlands located in Hoke/Moore County. The project shall be constructed pursuant to the application dated September 11, 2025, and updated impact tables submitted on November 5, 2025. The authorized impacts are described below:

Stream Impacts in the Cape Fear and Lumber River Basin

Site	Permanent Impacts in Perennial Stream (linear ft)	Temporary Impacts in Perennial Stream (linear ft)	Total Stream Impacts (linear ft)	Total Stream Mitigation (linear ft)
Site 3- 54" RCP-III, (Buried 1') SA	183	20	203	183
Site 4- Bank Stabilization- SD	20	12	32	
Site 8- 66" RCP IV, (Buried 1') SC	111	53	164	111
Site 10- 54" RCP-III, SE	70	0	70	70
Site 14- 72" RCP-III, (Buried 1') SF	185	0	185	185
Site 15- 2 at 48" RCP III, SJ	103	0	103	103
Site 16- 60" RCP-III, Bank Stabilization-SG	136	11	147	136
Site 18- Inlet, 42'RCP-III, channel relocation, bank stabilization, SH	228	38	266	228
Site 22- Roadway fill and Tail Ditch- SM	341	12	353	341
Site 22A- 66'RCP-III, Bank Stabilization- SK	29	3	32	29
Total	**1,406**	**150**	**1,556**	

Total Stream Impact for Project: 1,556 linear feet.

Wetland Impacts in the Cape Fear and Lumber River Basin

Site	Permanent Fill (ac)	Excavation (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
Site 1-Roadway Fill- WB	0.02	<0.01	< 0.01	0.02
Site 2- Roadway Fill-WA	0.07	<0.01	0.05	0.12
Site 4- Roadway Fill -WF Utility Impacts	0	0	< 0.01 0.02	0.02
Site 5- Y2- WF	0.02	0	<0.01	0.02
Site 6- Utility Impacts- WG	0	0	<0.01	0
Site 6-Roadway Fill- WG	0	0	<0.01	0
Site 6-Roadway Fill- WG	0.06	0	0.09	0.15
Site 6- Y4- WG	0.03	0	<0.01	0.03
Site 6A -Roadway Fill- WG2	<0.01	0.03	0.02	0.05
Site 7- Roadway Fill - WH	0.06	<0.01	0.03	0.09
Site 9- Roadway Fill- WJ	0.01	0	0.02	0.03
Site 10-Roadway Fill-WI Utility Impacts- WI	0.19	0	0.05 <0.01	0.24
Site 11-Roadway Fill- WM Utility Impacts- WM	0.07	0	0.07 0.15	0.29
Site 12- Roadway Fill- WL	0.29	0	0.06	0.35
Site 13-Pond Drain- WN	0	0.02	0.01	0.02
Site 15- Utility Impacts-WW	0	0	< 0.01	0.016
Site 15A- DR11- WAC	0	0	0.02	0.02

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Site	Permanent Fill (ac)	Excavation (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
Site 17- Roadway Fill- WP	0.82	0	0.14	0.96
Site 18- Roadway Fill- WQ	0.54	0	0.05	0.59
Site 19- Roadway Fill- WR	0.03	0	0	0.03
Site 21- Roadway Fill- WT	0.01	0	0.01	0.02
Total	**2.23**	**0.06**	**0.85**	**3.14**

Total Wetland Impact for Project: 3.14 acres.

* Site 19 has 13.0 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 acres of temporary fill in wetlands in the hand clearing areas for erosion control measures.

Open Water Impacts in the Cape Fear and Lumber River Basin

Site	Permanent Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
Site 3- 54" RCP-III, (Buried 1') SA	0.02	0.02
Site 4- Bank Stabilization- SD	<0.01	<0.01
Site 8- 66" RCP IV, (Buried 1') SC	<0.01	<0.01
Site 10- 54" RCP-III, SE	<0.01	<0.01
Site 13-Pond Drain- WN	3.0	3.0
Site 14- 72" RCP-III, (Buried 1') SF	0.02	0.02
Site 15- 2 at 48" RCP III, SJ	<0.01	<0.01
Site 16- 60" RCP-III, Bank Stabilization-SG	<0.01	<0.01
Site 18- Channel relocation, SH Bank Stabilization	0.02 <0.01	0.02 <0.01
Site 20- Ditch to Pond- PE	<0.01	0.01
Site 22- Roadway fill and Tail Ditch- SM	0.02	0.02
Site 22A- 66'RCP-III, Bank Stabilization- SK	<0.01	<0.01
Total	**3.12**	**3.12**

Total Open Water Impact for Project: 3.12 acres.

*Site 13- Pond Drainage- WN is a total pond take.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear and Lumber River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7).

For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

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This Water Quality Certification neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Water Quality Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This Water Quality Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Water Quality Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded. Upon the presentation of proper credentials, the Division may inspect the property.

Condition(s) 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 the NCDWR. If this condition is unable to be met due to bedrock or other limiting features

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encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]

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)] 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)]

7. 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).

8. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be, captured, treated, and disposed of properly. [15A NCAC 02H .0506(b)(3)

9. For all linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H. 0506(b)(2)]

10. 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. [15A NCAC 02H. 0506(b)(2)]

General Conditions

1. 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]

2. 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)]

3. 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)]

4. 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)]

5. 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)]

6. 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 02II.0506(b)(3) and (c)(3)]

7. 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)]

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8. 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)]

9. 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)]

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

11. 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]

12. 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)]

13. 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)]

14. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]

15. 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.

16. 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)]

17. Upon completion of the project (including any impacts at associated borrow or waste sites), NCDOT project engineer (or appointee) 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)]

18. 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)]

19. 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*.

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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.

20. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]

21. 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]

22. 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.

23. 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.

This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit. Please be aware that impacting waters without first applying for and securing the issuance of a 401 Water Quality Certification violates 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. Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. 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 approval and its conditions are final and binding unless contested [G.S. 143-215.5]. Please be aware that impacting waters without first applying for and securing the issuance of a 401 Water Quality Certification violates 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

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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.

A party filing a Petition must serve a copy of the Petition on:

Dan Hirchman, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

If the party filing the Petition is not the permittee, then the party must also serve the recipient of the Certification in accordance with N.C.G.S 150B-23(a).

This the 9th day of December, 2025

DIVISION OF WATER RESOURCES

Signed by:
Faith Hardin
31A542B002EB455...
Richard L. Rogers, Jr., Director

WQC No. 008413