



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

September 9, 2026

MEMORANDUM TO: Division Environmental and Construction Units

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

SUBJECT: Environmental Permits for the Improvements to Interstate 485 from I-77
to US 74 in Mecklenburg County, Division 10, **TIP I-5507**

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 12/19/25, modified 9/4/26) <i>Replaces previous 12/18/19, 11/12/20, 9/7/21, and 10/24/23 issuances</i>	May 25, 2030
NC Division of Water Resources Section 401 Water Quality Certification	Individual Cert. No. 008496 (renewed 12/4/25, modified 9/4/26) <i>Replaces Previous General Certifications issued 12/2/19, 9/21/20, 10/22/21, and 10/2/23</i>	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/

PROJECT COMMITMENTS

T.I.P Project No. I-5507
I-485 (Charlotte Outer Loop) Express Lanes
From I-77 to US 74 (Independence Boulevard)
Mecklenburg County
WBS Element 43609.1.1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Division 10

- There are several planned greenways (along Sugar Creek, Kings Branch, and Little Sugar Creek) under development in the project study area. NCDOT Division 10 will coordinate with Mecklenburg County Park and Recreation and the Charlotte Regional Transportation Planning Organization regarding project scheduling and/or design requirements necessary to accommodate these greenways.
- NCDOT Division 10 will coordinate with Mecklenburg County Park and Recreation prior to bridge construction over the existing McMullen Creek and McAlpine Creek Greenways regarding accommodations for greenway users during construction.
- This project involves construction activities on or adjacent to FEMA-regulated streams. Therefore, the Division will submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.
- NCDOT Division 10 will coordinate prior to construction with Charlotte Area Transit System (CATS) to allow for necessary planning regarding mass transit routes/schedules and commuter programs in the project area.
- Site 31MK273** (Cemetery at John Dinkins Farm) is the surviving remnant of a site listed on the National Register of Historic Places. No project activities are to take place within the limits of the cemetery, including but not limited to the staging/storage of materials and/or equipment and vehicles. If Site 31MK273** is impacted in any way, additional consultation with the State Historic Preservation Office and the Charlotte-Mecklenburg Historic Landmarks Commission will be required. The design is staying within the existing right-of-way and will not impact the Cemetery at John Dinkins Farm).

NCDOT Hydraulics Unit

- During final design, the NCDOT Hydraulics Unit will coordinate with the Charlotte-Mecklenburg Storm Water Services Department and NC Floodplain Mapping Program for approval of any Conditional Letter of Map Revision (CLOMR) and subsequent Letter of Map Revision (LOMR). (There is no CLOMR/LOMR required as part of this project).

City of Charlotte/NCDOT Local Programs Management Office

- The City of Charlotte and NCDOT LPMO will complete a municipal agreement prior to construction for additional pedestrian and bicycle accommodations on bridges to be replaced carrying arterial or local streets over or under I-485 in the project area.

COMMITMENTS FROM PERMITTING

See 404 Permit and 401 Certification for special conditions developed during permitting.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2013-02330 County: Mecklenburg U.S.G.S. Quad: NC-Weddington

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: North Carolina Department of Transportation
attn: Ms. Erin Cheely
Address: 1598 Mail Service Road
Raleigh, NC 27699-1598
Telephone Number: (919) 707-6008
E-mail: ekcheely@ncdot.gov

Size (acres)	<u>N/A</u>	Nearest Town	<u>Charlotte</u>
Nearest Waterway	<u>McAlpine Creek</u>	River Basin	<u>Lower Catawba</u>
USGS HUC	<u>03050103</u>	Coordinates	Latitude: <u>35.064018</u> Longitude: <u>-80.815709</u>

Location description: This project is located along the existing I-485 corridor between the I-485 interchange with I-77 and US 74 (Independence Boulevard) in City of Charlotte and Matthews, Mecklenburg County, North Carolina.

Description of projects area and activity: This verification authorizes the construction of NCDOT I-5507 project which includes the construction of one Managed Lane in each direction (both inner loop and outer loop) in the existing median of I 485, between I 77 and US 74 (Independence Boulevard). The project also includes the construction of at-grade ingress and egress access to the Managed Lanes, as well as direct connector ramps, and the construction of connectors to and from the Managed Lanes to local side streets. This project will include a total stream impact of 3,948 linear feet (lf) and total impact to 0.83 acres of wetland. Specifically, 1,494 lf permanent impact to streams from placement of fill/structures, placement of 1,325 lf of stream bank stabilization, maintenance of 500 lf of existing stream bank stabilization, temporary impact to 629 lf of stream channel, permanent impact to 0.56 acre of wetlands from placement of fill/structures and 0.27 acre of mechanized wetland clearing.

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

Authorization: **Regional General Permit 50 (RGP-50)**

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

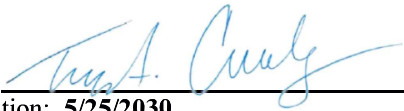
Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached Conditions, your application signed and dated 11/17/2025, and the enclosed plans Sheets 1, 18-23, 73-77, 84, 85, 88, 89 & 112-115 of 115, entitled, "NCDOT TIP Project: I-5507 Mecklenburg County" revised July 2023. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

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

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

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

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits. If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Stephen A. Brumagin at (704) 798 6471 or stephen.a.brumagin@usace.army.mil**.

Corps Regulatory Official:  Date: **12/19/2025**
Expiration Date of Verification: **5/25/2030**

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

Copy furnished:

July 2023 Revised plans
401 WQC
RGP 50

Agent: **North Carolina Department of Transportation, Division 10**
Mr. Joel Howard, PDEA Engineer
Address: **716 West Main Street**
Albemarle, NC 28001
Telephone Number: **(704) 983-4400**
E-mail: **jmhoward@ncdot.gov**

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 April 3, 2020. 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.

Action ID Number: SAW-2013-02330

County: Mecklenburg

Permittee: North Carolina Department of Transportation, attn: Ms. Erin Cheely

Project Name: NCDOT I-5507 I-485 Managed Lanes Mecklenburg County

Date Verification Issued: 12/19/2025

Project Manager: Stephen A. Brumagin

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

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Stephen A. Brumagin
Charlotte Regulatory Office
U.S Army Corps of Engineers
8430 University Executive Park Drive, Suite 615
Charlotte, North Carolina 28262
or
stephen.a.brumagin@usace.army.mil

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

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

Signature of Permittee

Date

Cheely, Erin K

From: Brumagin, Stephen A (Steve) CIV USARMY CESAW (USA)
<Stephen.A.Brumagin@usace.army.mil>
Sent: Friday, September 4, 2026 11:22 AM
To: Cheely, Erin K
Cc: Sheldon, Chris J; Howard, Joel M
Subject: [External] I-5507 Mecklenburg Site #4 modification
Attachments: I-5507 Mecklenburg Site #4 modification plans 9-4-2026.pdf

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Erin,

In response to you latest modification notification for NCDOT I-5507 in Mecklenburg County, I wanted to let you know that no further action is necessary for NCDOT on this minor 404 permit modification and that I will be updating the Corps project archive files for I-5507 to include this information. Since this modification includes a change of impact/activity description only (from fill / relocation to an enclosure/culvert), and does not change the scope/footprint/impact of the previous authorization, no written/formal modification will be required or provided by the Corps.

For this specific impact at Site #4, the Corps had authorized the placement of fill in a 159 linear foot (lf) segment of Tributary SHN, relocation of 22 lf of Tributary SNH, and placement of fill in 0.02 acre of wetland W3 for the widening of I-485 (Express lanes). This authorization also required NCDOT to provide both stream and wetland in-lieu fee mitigation for these impacts through NCDMS. These activities were to allow NCDOT to place the required roadway widening fill and relocate Tributary SNH into a rock lined channel constructed in uplands beyond the roadway fill. This new rock lined tributary channel was to be constructed in an area occupied by an existing underground utility. The original plan included the utility (sanitary sewer) being moved beyond this relocated channel project area. However, since the time of design, circumstances have changed and the sanitary sewer will not be moved and NCDOT is now requesting to place Tributary SNH within an approximately 181 linear foot long by 18-inch diameter enclosure/culvert near its delineated location but now within the previously authorized roadway slope fill. I have attached permit plans depicting the requested modifications at Site #4 as detailed in this e-mail

Please let me know if you have any questions.

Respectfully,

Stephen A. Brumagin, Project Manager
WRDA/Transportation Branch
USACE-Wilmington District
704 798-6471

Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation, attn: Ms. Erin Cheely

Action ID: SAW-2013-02330

Project Name: NCDOT I-5507 I-485 Managed Lanes Mecklenburg County

County: Mecklenburg

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

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:

Permitted Impacts Requiring Mitigation*			8-digit HUC and Basin: 03050103, Catawba River Basin			
Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
118						

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

Compensatory Mitigation Requirements:			8-digit HUC and Basin: 03050103, Catawba River Basin			
Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
236						

Mitigation Site Debited: _____

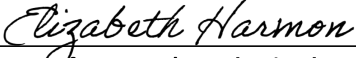
(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

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

Mitigation Sponsor Name: NCDEQ - DMS

Name of Sponsor's Authorized Representative: Beth Harmon


Signature of Sponsor's Authorized Representative

10/27/2023
Date of Signature

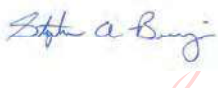
Conditions for Transfer of Compensatory Mitigation Credit:

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

Comments/Additional Conditions: A letter from NCDMS, confirming they are willing and able to accept the applicant's compensatory mitigation responsibility, dated 7/27/2023 was included with the preconstruction notification.

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil).*** Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: Stephen A. Brumagin
USACE Field Office: Charlotte Regulatory Office
US Army Corps of Engineers
8430 University Executive Park Drive, Suite 615
Charlotte, North Carolina 28262
Email: stephen.a.brumagin@usace.army.mil


Digitally signed by
BRUMAGIN.STEPHEN.A.128
3520737
Date: 2023.10.24 08:26:22
-04'00'

USACE Project Manager Signature

10/24/2023

Date of Signature

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

JOSH STEIN
Governor

D. REID WILSON
Secretary

RICHARD E. ROGERS, JR.
Director



December 4, 2025
Mecklenburg County
NCDWR Project No. 20191337 V5
I-485 Express Lanes
STIP #I-5507

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Ms. Erin Cheely
NCDOT
1598 Mail Service Center
Raleigh, NC 27699-1598
EKCheely@NCDOT.gov

Subject: Approval of Renewal to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the I-485 Express Lanes in Mecklenburg County, NCDWR Project No. 20191337 V5, STIP #I-5507.

Dear Ms. Cheely

Attached hereto is a copy of Certification No. WQC008496 issued to The NCDOT dated December 4, 2025.

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Water Quality Certification. If you change your project, you must notify the Division, and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)]. This Certification does not relieve the permittee of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

This letter completes the review of the Division under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Mary Plummer at 704-235-2193 or Mary.Plummer@deq.nc.gov if you have any questions or concerns.

Sincerely,

Signed by:

Faith Hardin

3185423002EA45E...
Richard E. Rogers, Jr., Director
Division of Water Resources

Electronic copy only distribution:

Joel Howard, NCDOT
Steve Brumagin, US Army Corps of Engineers, Charlotte Field Office
Holland Youngman, US Fish and Wildlife Service
David McHenry, NC Wildlife Resources Commission



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

Approval of Renewal to the 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 3,948 Linear Feet of jurisdictional streams and .83 Acres of jurisdictional wetlands in Mecklenburg County. The project shall be constructed pursuant to the application dated and received November 18, 2025. The authorized impacts are as described below:

Stream Impacts (Linear Feet) in the Catawba River Basin.

I-5507 - DWR Project No. 20191337

Stream Impacts in the Catawba River Basin

Site	Bank Stabilization	Permanent Fill in Intermittent Stream (LF)	Temporary Fill in Intermittent Stream (LF)	Permanent Fill in Perennial Stream (LF)	Temporary Fill in Perennial Stream (LF)	Total Stream Impacts (LF)	Stream Impacts Requiring Mitigation (LF)
1*	18	28	13			59	
2A	11				20	31	
3*	70			52	16	138	52
4		181				181	
5				444	10	454	444
6	48		10			58	
7	200+500**	100				800	
8		7				7	
10*	65					65	
11*	157					157	
13*	46			49	40	135	49
15*	83			165	30	278	165
15A	8				20	28	
16	36				20	56	
17	10		10			20	
18	13					13	
19	15				10	25	
20*	34			69	22	125	69
21	13				10	23	
22*	24			169	20	213	169
24*	22	6	10			38	
27	33				20	53	
28	37				20	57	
29	25				30	55	
30		13	20			33	
31*	19	4	10			33	
32	15				24	39	
33	40		10			50	
35	50		42			92	



36	17		25			42	
37	31	4	20			55	
37A	13					13	
38	32		30			62	
39	13				10	23	
40	16				24	40	
41*	33	52	42			127	
42*	20	125	12			157	
43	30		10			40	
44*	28			26	19	73	
TOTAL	1325+500**	520	264	974	365	3948	948

* Locations where there are temporary impact quantities in the same footprint as bank stabilization quantities not included in table so that impacts are not double counted.

** 500 feet of bank stabilization impacts are for stream bank maintenance.

The orange highlights signify pipe/culvert extensions that have been approved for the requested exemption from the burial requirement.

Red indicates sites with authorized modifications since 2019 permitting.

Total Stream Impacts for Project: 3,948 Linear Feet.

I-5507 - DWR Project No. 20191337
Wetland Impacts in the Catawba River Basin

Site	Fill (Ac)	Fill (temporary) (Ac)	Excavation (Ac)	Mechanized Clearing (Ac)	Hand Clearing (Ac)	Total Wetland Impacts (Ac)	Impacts Requiring Mitigation (Ac)
2	0.08			0.02		0.10	0.10
4	0.03			0.00		0.03	0.03
9A	0.05			0.05		0.10	0.10
9B	0.07			0.07		0.14	0.14
12	0.13			<0.01		0.14	0.14
14	0.10			0.00		0.10	0.10
18	<0.01			0.04		0.05	0.05
20	0.00			<0.01		<0.01	<0.01
25	0.02			0.04		0.06	0.06
26	0.00			0.01		0.01	0.01
27	<0.01			0.00		<0.01	<0.01
31	<0.01			0.00		<0.01	<0.01
32	0.02			0.00		0.02	0.02
33	<0.01			<0.01		0.01	0.01
35	<0.01			<0.01		0.01	0.01
41	0.02			0.00		0.02	0.02
42	0.03			0.00		0.03	0.03
TOTAL*	0.54	0	0	0.29	0	0.83	0.83

Wetland impacts highlighted in green are considered total takes.

Red indicates sites with authorized modifications since 2019 permitting.

* Values are based on rounding due to calculating totals with actual numbers to the thousandths.



Total Wetland Impacts for Project: .83 Acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Catawba 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 dated and received November 18, 2025. 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 300 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.

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. All the authorized activities and conditions associated with the original Water Quality Certification dated December 2, 2019, revised on September 21, 2020, October 22, 2021, September 26, 2023, and October 2, 2023, still apply except where superseded by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]
2. All work in or adjacent to stream waters shall be conducted per approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual. [15A NCAC 02H.0506(b)(3) and (c)(3)]
3. Compensatory mitigation for impacts to 948 linear feet of impacts to perennial streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Services (DMS), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated September 27, 2019, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010
4. Compensatory mitigation for impacts to .83 acres of riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated September 27, 2019, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.



5. All stream sites except 30, 31, 32, and 33, are within a watershed with an approved TMDL for turbidity. This TMDL has maximum loading requirements for suspended solids (turbidity) to ensure water quality for human and aquatic life. To meet the loading requirements of the TMDL, which establishes protocol to help reduce waterbody impairment, erosion control measures for sensitive watersheds will be required in these areas. [15A NCAC 02H.0506(b)(2)]
6. Stream sites 30, 31, and 32 are in the 6 Mile Creek watershed which is habitat to the endangered freshwater mussel, *Lasmigona decorata* (Carolina Heelsplitter). For protection of a federally endangered species, sediment and erosion control measures for sensitive watersheds are required at these locations. [15A NCAC 02H.0506(b)(2)]
7. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances (all impact sites) shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters. [15A NCAC 02B.0200]
8. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
9. Design and placement of the culverts and other structures shall be installed in such a manner that the original stream profiles are not altered (i.e., the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions (including pattern and profile) are to be maintained above and below locations of each culvert. The structures shall be designed and installed to allow for fish and other wildlife movement as well as prevent headcutting of the stream. The applicant may be required to provide evidence that the equilibrium has been maintained if requested in writing by the NCDWR. [15A NCAC 02H.0506(b)(2)]
10. 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)]
11. Riprap shall not be placed in the active thalweg channel. If placement in the streambed is approved per plans and permit, the riprap must be keyed-into the streambed in a manner that shall not preclude aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]
12. For all streams being impacted due to site dewatering activities or other temporary impacts, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]
13. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)].
14. The waiver for culvert burial was granted as requested. Stream bed is required to be level with the end of the culvert extension, as presented in the application. [15A NCAC 02H.0506(b)(2)]
15. Channel relocations shall be completed, 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)]

16. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species. [15A NCAC 02H .0506(b)(2)]
17. As a condition of this 401 Water Quality Certification, the bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
18. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS0000250, please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
19. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first. [15A NCAC 02H.0506(b)(2)]
20. 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)]
21. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water. [15A NCAC 02H .0506(b)(3)]
22. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.
23. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.
24. Tall fescue shall not be used in the establishment of temporary or permanent ground cover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed steep slopes with the following exception: Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied with a fertilizer – and limestone – free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters is prohibited. Riparian areas are defined at a distance 25 feet landward from top of stream bank.
25. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds (15A NCAC 4B .0124). However, due to the size of the project, NCDOT shall not be required to meet 15A NCAC 4B .01249(a) regarding the maximum amount of uncovered acres. [15A NCAC



02B.0200]

26. At the Site 5 stream relocation, Class I and Class II riprap shall be used for streambank stabilization, if banks cannot be stabilized as submitted. [15A NCAC 02H .0506(b)(2)]
27. Wetland impacts in areas where the entire wetland is not a complete take, will maintain wetland status during construction as well as after the project is completed. Any wetland area that is permanently impacted from construction activities that was not permitted to be impacted could require a permit modification and additional mitigation credits. [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 any 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 02H.0506(b)(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)]
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 hydroseeders 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 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, including all non-commercial borrow and waste sites associated with the project, shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
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), the authorized agent shall complete and return the "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0507]
18. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0506(b)(2)]
19. 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)]
20. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within jurisdictional wetlands. [15A NCAC 2H.0506; 15A NCAC 2H.0507]
21. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act
22. Sediment and erosion control measures shall not be placed in wetlands or surface waters, or within 5 feet of the top of bank, without prior approval from DWR. [15A NCAC 02H.0506(b)(3) and (c)(3)]
23. 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]

24. 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*.
25. 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.
26. 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.
27. With the issuance of this 401 certification, the DWR approves the stormwater drainage and treatment designs as shown in the roadway plans and permit drawings submitted as part of the 401 application, which are incorporated by reference and are enforceable by the DWR. Significant modifications to the way stormwater is managed and conveyed, any outfalls, or stormwater control measures represented in the roadway plans or permit drawings after issuance of this 401 certification are prohibited without prior approval from the DWR.
28. In the event that discharges of sediment or other pollutants from the drainage system outfall are found by DWR to cause or contribute to a violation of surface water quality standards, DWR may take enforcement action, or NCDOT and DWR shall conduct an assessment and implement the appropriate best management practices necessary to adequately address NCDOT's contribution to the water quality standards violation. Implementation of such best management practices shall be made within a reasonable timeframe as agreed upon by NCDOT and DWR; and may require NCDOT to obtain a 404 Permit from the US Army Corps of Engineers and a 401 Certification from the DWR.

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 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 Hirschman, 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 4th day of December 2025

DIVISION OF WATER RESOURCES

Signed by:

Paith Hardin

31854230025A45E
Richard E. Rogers, Jr., Director

WQC No. WQC008496



JOSH STEIN
Governor

D. REID WILSON
Secretary

RICHARD E. ROGERS, JR.
Director



September 4, 2026

DWR #20191337 v6
Mecklenburg County

Ms. Erin Cheely
North Carolina Department of Transportation
1598 Mail Service Center Raleigh,
NC 27699-1598
ekcheely@ncdot.gov

Subject: Approval of Modification of Individual 401 Water Quality Certification
I-485 Express Lanes in Mecklenburg County STIP# I-5507
USACE Action ID. No. SAW-2013-02330

Location: Lat: 35.063857 Long: 80.805614

Dear Ms. Cheely:

Attached hereto is a copy of Certification No. WQC008496 issued to Ms. Cheely and North Carolina Department of Transportation (NCDOT) dated September 4, 2026. **This Certification replaces the Certification issued on December 4, 2025.** This Certification is being issued pursuant to a modification request submitted on August 17, 2026 with fee received August 17, 2026 to Stream SNH is being placed into a permanent pipe instead of the previously proposed large rip-rap lined ditch. Stream SNH is currently in a temporary pipe. All of the authorized activities and conditions of certification associated with the Water Quality Certification No. WQC008496 dated December 2, 2019, and subsequent modifications dated September 21, 2020, October 22, 2021, September 26, 2023, October 2, 2023, and December 4, 2025, still apply except where superseded by this certification.

This Water Quality Certification does not relieve the recipient of the certificate (or the Permittee) of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

Upon the presentation of proper credentials, the Division of Water Resources (Division or DWR) may inspect the property.



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

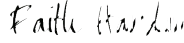
This Water Quality Certification shall expire on the same day as the expiration date of the corresponding Section 404 Permit that is current at the time this Certification is issued. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Water Quality Certification.

Non-compliance with or violation of the conditions herein set forth may result in revocation of this Water Quality Certification for the project and may also result in criminal and/or civil penalties.

Notice regarding the right to contest this 401 Water Quality Certification decision is attached to this letter.

This letter completes the Division's review under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Chris Sheldon at 704-235-2193 or chris.sheldon@deq.nc.gov if you have any questions or concerns.

Sincerely,

Signed by:

3105419000014790

Faith Hardin, Supervisor
401 & Buffer Transportation Permitting Branch
Division of Water Resources, NCDEQ

Electronic cc:

Joel Howard, (jmhoward@ncdot.gov), NCDOT
Steve Brumagin, (stephen.a.brumagin@usace.army.mil), USACE Charlotte Regulatory Field Office
Dave McHenry, (David.mchenry@ncwildlife.gov), NCWRC
Beth Harmon, (beth.harmon@deq.nc.gov), DMS
DWR 401 & Buffer Permitting Branch Electronic file



**NOTICE REGARDING THE RIGHT TO CONTEST A DWR 401 WATER QUALITY
CERTIFICATION AND/OR BUFFER AUTHORIZATION**

Right of Persons Aggrieved to File a Contested Case for the Decision on a 401 Water Quality Certification and/or Buffer Authorization:

The Division's decision is subject to review under NCGS 150B-23.

Rights of Persons Aggrieved to File a Contested Case: Pursuant to NCGS 150B, Article 3, a party or person aggrieved may commence a contested case by filing a petition under NCGS 150B-23 in the Office of Administrative Hearings within 60 days after the Division provides notice of its decision on an application, as provided in NCGS 150B-23(f). If no contested case is commenced within the required time, the Division's decision is final and is not subject to review.

General Filing Instructions: A petition for contested case hearing must be in the form of a written petition, conforming to NCGS 150B-23, and filed with the Office of Administrative Hearings, 1711 New Hope Church Road, Raleigh NC, 27609, along with a fee in an amount provided in NCGS 150B-23.2. A petition for contested case hearing form may be obtained upon request from the Office of Administrative Hearings or on its website at <https://www.oah.nc.gov/hearings-division/filing/hearing-forms>. Additional specific instructions for filing a petition are set forth at 26 NCAC Chapter 03.

Service Instructions: A party filing a contested case is required to serve a copy of the petition, by any means authorized under 26 NCAC 03 .0102, on the process agent for the Department of Environmental Quality:

Daniel Hirschman, General Counsel
North Carolina Department of Environmental Quality
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

If the party filing the petition is a person aggrieved other than the recipient of the certificate (the "Permittee"), the party must also serve the Permittee in accordance with NCGS 150B-23(a).

Be aware that other rules or laws may apply to the filing of a petition for a contested case. Additional information is available at <https://www.oah.nc.gov/hearings-division/hearing-process/filing-contested-case>. Please contact the Office of Administrative Hearings at (984) 236-1850 with all questions regarding the filing fee and/or the details of the filing process.



NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

CERTIFICATION #WQC008496 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to North Carolina's Regulations in 15 NCAC 02H .0500 and 15A NCAC 02B .0200, to Erin Cheely and NCDOT, who have authorization for the impacts listed below, as described within your modification request received by the Division of Water Resources (Division or DWR) on August 17, 2026 with fee received on August 17, 2026 and within the *Reasonable Period of Time* pursuant to 40 CFR Part 121.6.

The State of North Carolina certifies that this activity will comply with water quality requirements and the applicable portions of Sections 301, 302, 303, 306, 307 of the Public Laws 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, and conditions hereinafter set forth.

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

Type of Impact	Amount Approved Permanent	Amount Approved Temporary
Intermittent Streams		
Site 4 Culvert*	0 linear feet	0 linear feet
<i>Totals:</i>	<i>0 linear feet</i>	<i>0 linear feet</i>

**The modification impact number has not changed.*

This approval requires you to follow the conditions listed in the certification below.

CONDITIONS OF CERTIFICATION [15A NCAC 02H .0507(c)]:

Project Specific Conditions

1. All the authorized activities and conditions associated with the original Water Quality Certification dated December 2, 2019, revised on September 21, 2020, October 22, 2021, September 26, 2023, October 2, 2023, and December 4, 2025 still apply except where superseded by this Certification.

Citation: 15A NCAC 02H.0506(b)(3) and (c)(3)

2. All work in or adjacent to stream waters shall be conducted per approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual.

Citation: 15A NCAC 02H.0506(b)(3) and (c)(3)



3. Compensatory mitigation for impacts to 948 linear feet of impacts to perennial streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Services (DMS), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated September 27, 2019, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010
4. Compensatory mitigation for impacts to .83 acres of riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated September 27, 2019, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.
5. All stream sites except 30, 31, 32, and 33, are within a watershed with an approved TMDL for turbidity. This TMDL has maximum loading requirements for suspended solids (turbidity) to ensure water quality for human and aquatic life. To meet the loading requirements of the TMDL, which establishes protocol to help reduce waterbody impairment, erosion control measures for sensitive watersheds will be required in these areas.

Citation: 15A NCAC 02H.0506(b)(2)

6. Stream sites 30, 31, and 32 are in the 6 Mile Creek watershed which is habitat to the endangered freshwater mussel, *Lasmigona decorate* (Carolina Heelsplitter). For protection of a federally endangered species, sediment and erosion control measures for sensitive watersheds are required at these locations.

Citation: 15A NCAC02H.0506(b)(2)

7. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances (all impact sites) shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.

Citation: 15A NCAC 02B.0200



8. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required.

Citation: 15A NCAC 02H.0506(b)(2)

9. Design and placement of the culverts and other structures shall be installed in such a manner that the original stream profiles are not altered (i.e., the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions (including pattern and profile) are to be maintained above and below locations of each culvert. The structures shall be designed and installed to allow for fish and other wildlife movement as well as prevent headcutting of the stream. The applicant may be required to provide evidence that the equilibrium has been maintained if requested in writing by the NCDWR.

Citation: 15A NCAC 02H.0506(b)(2)

10. 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.

Citation: 15A NCAC 02H.0506(b)(2)

11. Riprap shall not be placed in the active thalweg channel. If placement in the streambed is approved per plans and permit, the riprap must be keyed-into the streambed in a manner that shall not preclude aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

Citation: 15A NCAC 02H.0506(b)(2)

12. For all streams being impacted due to site dewatering activities or other temporary impacts, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.

Citation: 15A NCAC 02H.0506(b)(2)



13. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.

Citation: 15A NCAC 02H.0506(b)(2)

14. The waiver for culvert burial was granted as requested. Stream bed is required to be level with the end of the culvert extension, as presented in the application.

Citation: 15A NCAC 02H.0506(b)(2)

15. Channel relocations shall be completed, 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.

Citation: 15A NCAC 02H .0506(b)(3)

16. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

Citation: 15A NCAC 02H .0506(b)(2)

17. As a condition of this 401 Water Quality Certification, the bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities.

Citation: 15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)

18. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS0000250, please refer to the most recent version of the *North Carolina Department of Transportation Storm water Best Management Practices Toolbox* manual for approved measures.

Citation: 15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)



19. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first.

Citation: 15A NCAC 02H.0506(b)(2)

20. 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.

Citation: 15A NCAC 02H .0506(b)(3)

21. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water.

Citation: 15A NCAC 02H .0506(b)(3)

22. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.

23. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.

24. Tall fescue shall not be used in the establishment of temporary or permanent ground cover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed steep slopes with the following exception: Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied with a fertilizer - and limestone - free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters is prohibited. Riparian areas are defined at a distance 25 feet landward from top of stream bank.



25. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds (15A NCAC 4B .0124). However, due to the size of the project, NCDOT shall not be required to meet 15A NCAC 4B .01249(a) regarding the maximum amount of uncovered acres.

Citation: 15A NCAC 02B.0200

26. At the Site 5 stream relocation, Class I and Class II riprap shall be used for streambank stabilization, if banks cannot be stabilized as submitted.

Citation: 15A NCAC 02H .0506(b)(2)

27. Wetland impacts in areas where the entire wetland is not a complete take, will maintain wetland status during construction as well as after the project is completed. Any wetland area that is permanently impacted from construction activities that was not permitted to be impacted could require a permit modification and additional mitigation credits.

Citation: 15A NCAC 02H .0506(b)(2)

General Conditions

28. 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.

Citation: 15A NCAC 02B.0200

29. 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.

Citation: 15A NCAC 02H.0506(b)(2)

30. The dimension, pattern and profile of the stream above and below any crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

Citation: 15A NCAC 02H.0506(b)(2)

31. 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.

Citation: 15A NCAC 02H.0506(b)(2)



32. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

Citation: 15A NCAC 02H .0507 (c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)

33. 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.

Citation: 15A NCAC 02H.0506(b)(3)

34. 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.

Citation: 15A NCAC 02H.0506(b)(3)

35. 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.

Citation: 15A NCAC 02H.0506(b)(3)

36. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

Citation: 15A NCAC 02H.0506(b)(3)

37. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

Citation: 15A NCAC 02H.0506(b)(3)

38. 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.

Citation: 15A NCAC 02B.0200



39. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3: 1, unless otherwise authorized by this certification.

Citation: 15A NCAC 02H.0506(b)(2)

40. 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 Engineer and the on-site project manager.

Citation: 15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)

41. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization, including all non-commercial borrow and waste sites associated with the project, shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

Citation: 15A NCAC 02H.0501 and .0502

42. 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.

43. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery.

Citation: 15A NCAC 02B.0506(b)(2)

44. Upon completion of the project (including any impacts at associated borrow or waste sites), the authorized agent shall complete and return the "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed.

Citation: 15A NCAC 02H.0507

45. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

Citation: 15A NCAC 02B.0506(b)(2)



46. 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.

Citation: 15A NCAC 02H.0506(b)(3) and (c)(3)

47. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within jurisdictional wetlands.

Citation: 15A NCAC 2H.0506; 15A NCAC 2H.0507

48. 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

Citation: 15A NCAC 02H.0506(b)(3) and (c)(3):

- a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the North Carolina Sediment and Erosion Control Planning and Design Manual.
- b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the North Carolina Sediment and Erosion Control Manual. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the North Carolina Surface Mining Manual.
- d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act

49. Sediment and erosion control measures shall not be placed in wetlands or surface waters, or within 5 feet of the top of bank, without prior approval from DWR.

Citation: 15A NCAC 02H.0506(b)(3) and (c)(3)

50. 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.

Citation: 15A NCAC 02H .0506{b}(3) and (c)(3) and 15A NCAC 02B .0200



51. 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.
52. 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 storm water routing and treatment shall be on site at all times.
53. 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.
54. With the issuance of this 401 certification, the DWR approves the stormwater drainage and treatment designs as shown in the roadway plans and permit drawings submitted as part of the 401 application, which are incorporated by reference and are enforceable by the DWR. Significant modifications to the way stormwater is managed and conveyed, any outfalls, or stormwater control measures represented in the roadway plans or permit drawings after issuance of this 401 certification are prohibited without prior approval from the DWR.
55. In the event that discharges of sediment or other pollutants from the drainage system outfall are found by DWR to cause or contribute to a violation of surface water quality standards, DWR may take enforcement action, or NCDOT and DWR shall conduct an assessment and implement the appropriate best management practices necessary to adequately address NCDOT's contribution to the water quality standards violation. Implementation of such best management practices shall be made within a reasonable timeframe as agreed upon by NCDOT and DWR; and may require NCDOT to obtain a 404 Permit from the US Army Corps of Engineers and a 401 Certification from the DWR.

This Water Quality Certification shall expire on the same day as the expiration date of the corresponding Section 404 Permit that is current at the time this Certification is issued. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Water Quality Certification.

Upon completion of the proposed project, the applicant shall submit a Certificate of Completion and/or shall provide as-built documentation. Certificates of Completion and/or as-built documentation can be submitted via the DWR website: <https://edocs.deq.nc.gov/Forms/Certificate-of-Completion>.



This, the fourth day of September 2026

Signed by:

Faith Hardin

11054230021 A458

Faith Hardin, Supervisor

401 & Buffer Permitting Branch / RO



North Carolina Department of Environmental Quality | Division of Water Resources

512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617

919.707.9000

JOSH STEIN

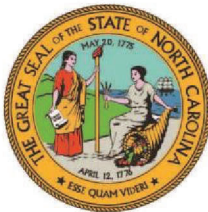
Governor

D. REID WILSON

Secretary

RICHARD E. ROGERS, JR.

Director



NORTH CAROLINA
Environmental Quality

NCDWR Project No.: _____

County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, **or** the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

Completed hard copies can be emailed to kristilynn.carpenter@ncdenr.gov or mailed to:

NCDEQ Transportation Permitting

1617 Mail Service Center

Raleigh NC 27699-1617



North Carolina Department of Environmental Quality | Division of Water Resources

512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617

919.707.9000

10/2/2023
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TIP PROJECT: I-5507

CONTRACT: C203970

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

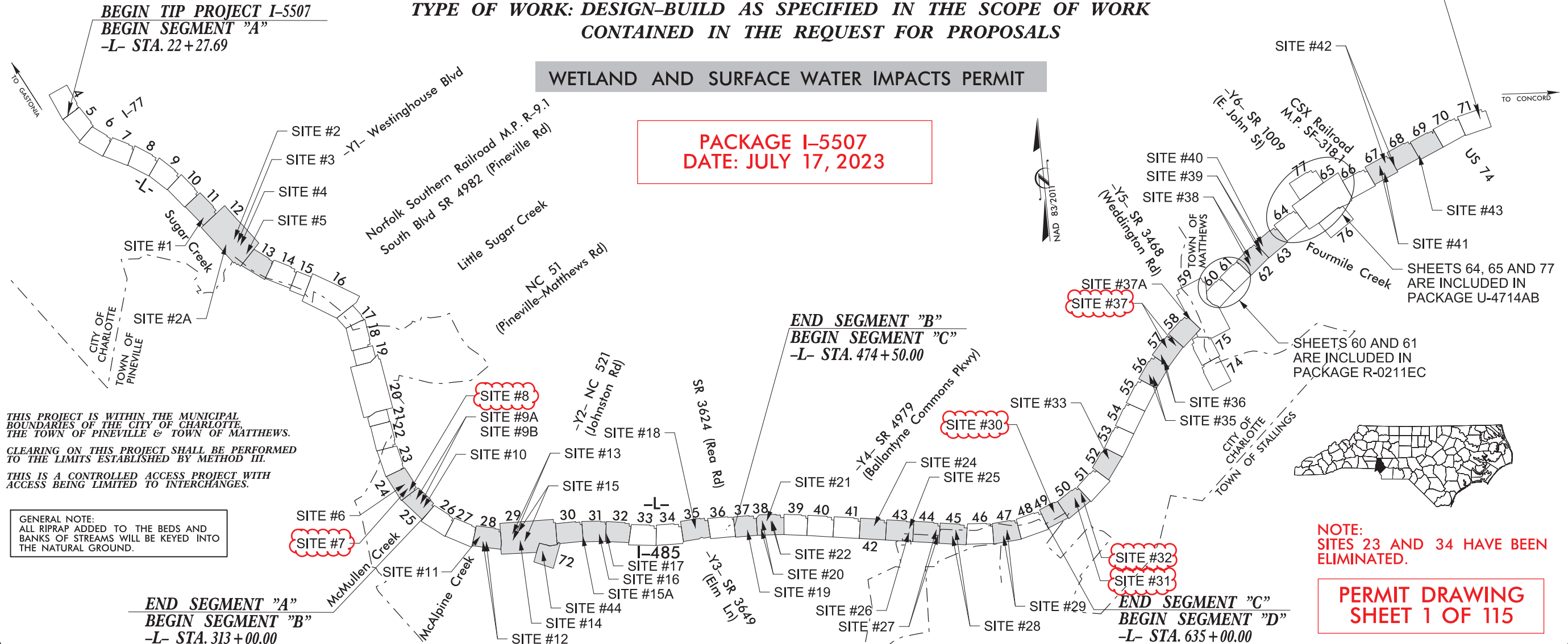
MECKLENBURG COUNTY

LOCATION: I-485 FROM I-77 TO US 74 (INDEPENDENCE BOULEVARD) (I-5507);
I-485 / WEDDINGTON ROAD INTERCHANGE (R-0211EC); AND I-485 /
EAST JOHN STREET - OLD MONROE ROAD INTERCHANGE (U-4714AB)

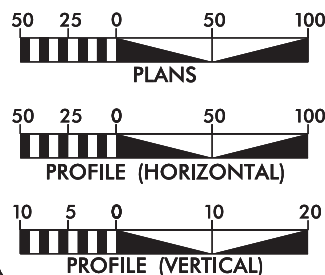
TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK
CONTAINED IN THE REQUEST FOR PROPOSALS

WETLAND AND SURFACE WATER IMPACTS PERMIT

PACKAGE I-5507
DATE: JULY 17, 2023



GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 118,400
ADT 2040 = 159,200
DHV = 9 %
D = 55 %
T = 9 % *
V = 70/75 MPH
(TTST 4 + DUAL 5)

FUNCTIONAL CLASSIFICATION:
INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT I-5507 = 17.137 mi
LENGTH OF STRUCTURES TIP PROJECT I-5507 = 0.395 mi
(BASED ON 485 WB BRIDGES)
TOTAL LENGTH OF TIP PROJECT I-5507 = 17.532 mi

NCDOT CONTACT:

TIM MCFADDEN, PE
DESIGN BUILD PROJECT ENGINEER -
TRANSPORTATION PROGRAM MANAGEMENT UNIT

Prepared In the Office of:

wsp

1001 Morehead Square Dr.
Suite 610
Charlotte, NC, 28203
NC LIC NO. F-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY:
SEPTEMBER 18, 2018

LETTING DATE:
SEPTEMBER 18, 2018

DANIEL H. BRIDGES, PE
DESIGN PROJECT MANAGER

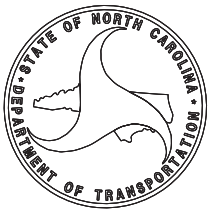
DAVID B. GOURLEY, PE
PROJECT DESIGN ENGINEER

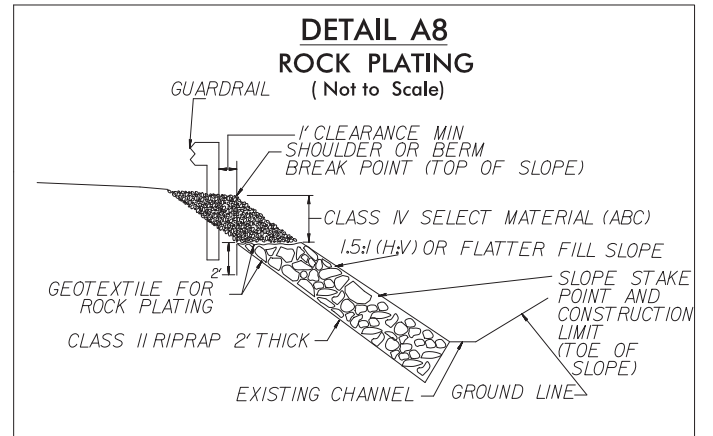
HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN
ENGINEER

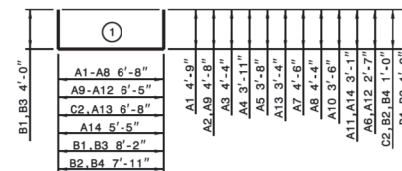
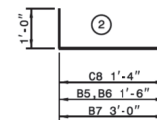
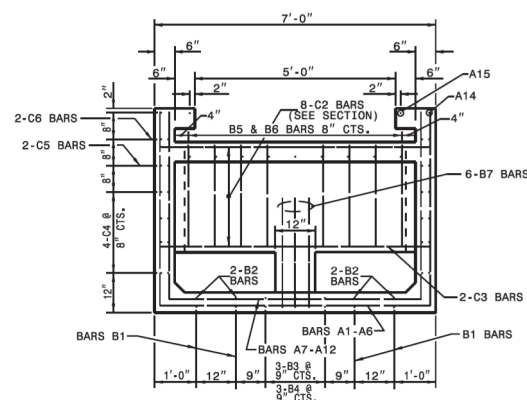
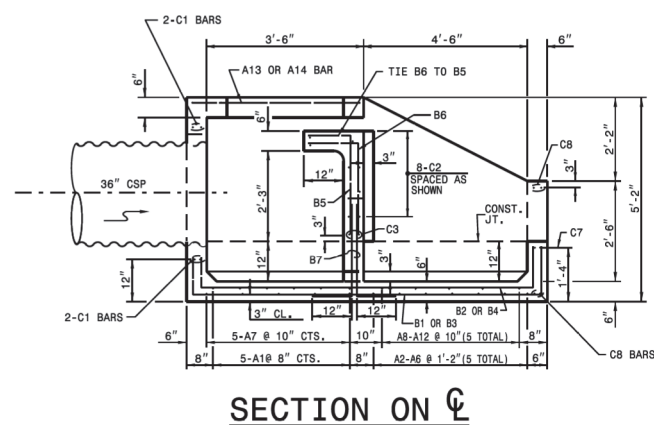
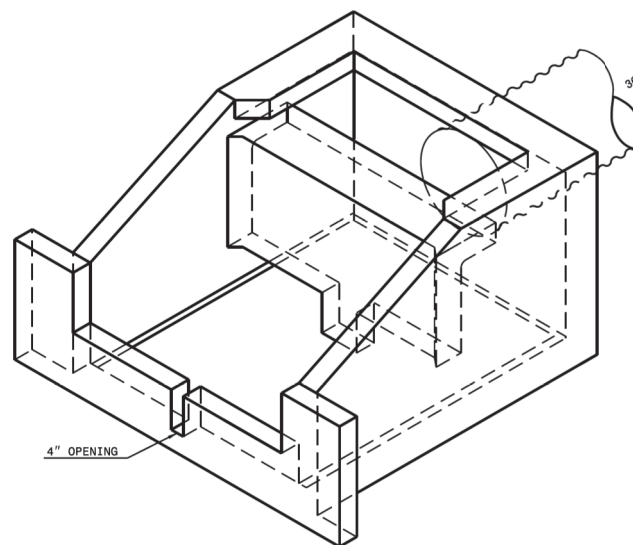
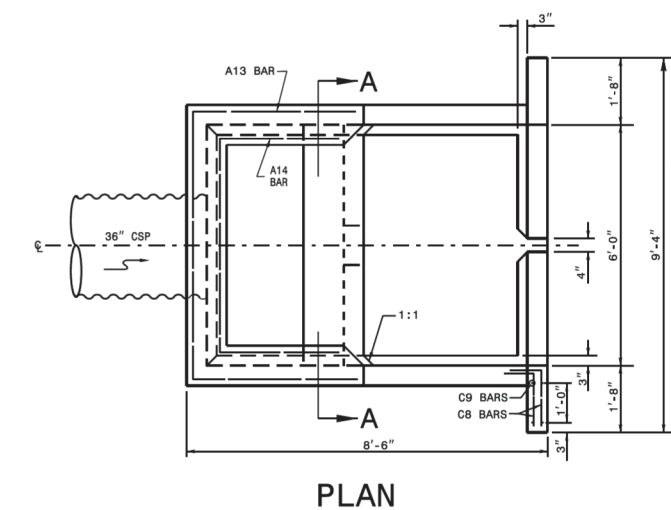
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA





BILL OF MATERIAL						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	5	5	1	16'-2"	84.	
A2	1	5	1	16'-0"	16.	
A3	1	5	1	15'-4"	15.	
A4	1	5	1	14'-6"	15.	
A5	1	5	1	14'-0"	14.	
A6	1	5	1	11'-10"	12.	
A7	5	5	1	15'-8"	81.	
A8	1	5	1	15'-4"	15.	
A9	1	4	1	15'-3"	10.	
A10	1	4	1	13'-4"	8.	
A11	1	4	1	12'-7"	8.	
A12	1	4	1	11'-7"	7.	
A13	1	4	1	13'-5"	8.	
A14	1	4	1	11'-7"	7.	
B1	4	4	1	13'-4"	35.	
B2	4	4	1	9'-11"	26.	
B3	3	4	1	13'-4"	26.	
B4	3	4	1	9'-11"	19.	
B5	9	4	2	2'-6"	15.	
B6	9	4	2	2'-6"	15.	
B7	6	4	2	4'-0"	16.	
C1	4	4	STR	6'-8"	17.	
C2	8	8	STR	8'-3"	186.	
C3	2	8	STR	6'-8"	87.	
C4	16	4	STR	8'-2"	87.	
C5	4	4	STR	4'-11"	13.	
C6	4	4	STR	6'-7"	17.	
C7	4	4	STR	2'-8"	7.	
C8	8	4	2	2'-4"	12.	
C9	8	4	STR	2'-8"	14.	
TOTAL REINF. STEEL (LBS.)						855.
CONCRETE (CU.YDS.)						3.4



- * ALL SPLICES SHALL BE 1'-6" MIN.
- * ALL REINFORCING STEEL SHALL BE 2" CL. OF ANY FACE UNLESS SHOWN OTHERWISE.

* SHIFT B3 & B4 BARS AS NECESSARY TO CLEAR 4" OPENING

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
ce 919-707-6950 FAX 919-250-4119

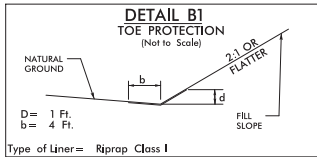
ENERGY DISSIPATOR

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MODIFIED BY: T.S.S. DATE: JULY 20, 2011
CHECKED BY: DATE:
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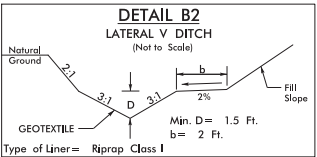
PERMIT DRAWING
SHEET 2 OF 115



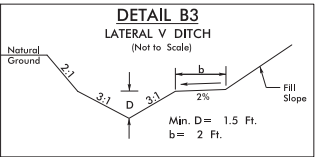
PROJECT REFERENCE NO.	SHEET NO.
I-5507	2D-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



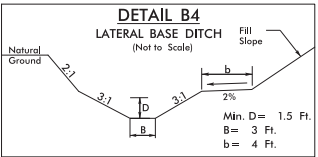
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—L3 WEST— FROM STA. 364+25 TO 366+30 LT
—Y2DCC— FROM STA. 21+41 TO 27+26 RT
—Y2DCD— FROM STA. 29+38 TO 31+43 LT
—Y2RPB— FROM STA. 14+25 TO 16+66 LT
—Y2RPDB— FROM STA. 24+23 TO 27+27 LT
—Y3— FROM STA. 10+00 TO 11+53 LT
—Y3— FROM STA. 14+50 TO 15+72 LT
—Y3— FROM STA. 20+37 TO 24+13 LT



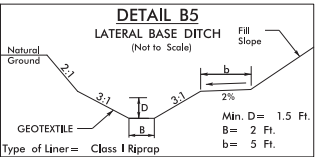
—L3 EAST— FROM STA. 358+49 TO 358+83 RT



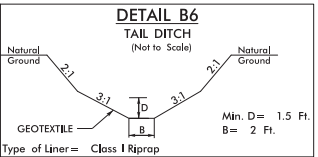
—L3 EAST— FROM STA. 358+83 TO 359+33 RT



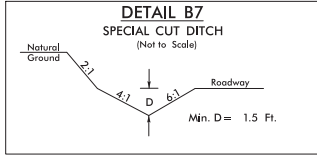
—L3 EAST— FROM STA. 359+33 TO 360+22 RT



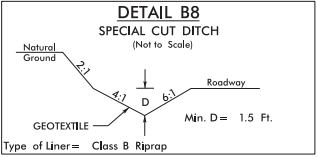
—Y2RPDB— FROM STA. 10+10 TO 11+38 LT



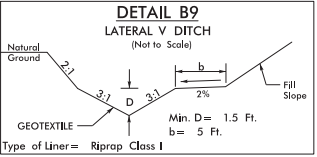
—Y2RPDB— FROM STA. 11+38 TO 12+71 LT



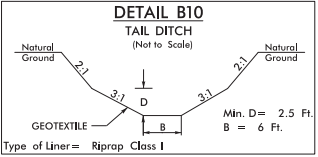
—L— FROM STA. 461+50 TO 462+00 LT
—L— FROM STA. 465+00 TO 467+50 LT
—L— FROM STA. 438+11 TO 439+00 RT
—L3 EAST— FROM STA. 347+76 TO 348+78 RT
—L3 EAST— FROM STA. 354+34 TO 357+33 RT
—Y2RPDB— FROM STA. 47+40 TO 48+40 RT
—Y2RPB— FROM STA. 16+02 TO 16+50 RT



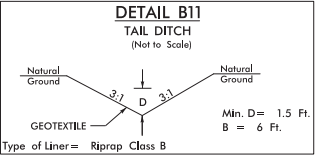
—L— FROM STA. 403+50 TO 403+78



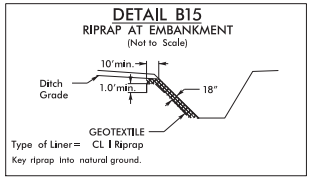
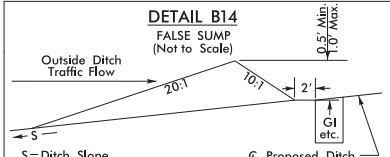
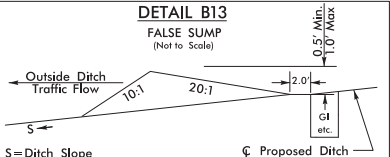
—Y2RPDB— FROM STA. 17+00 TO 22+00 LT



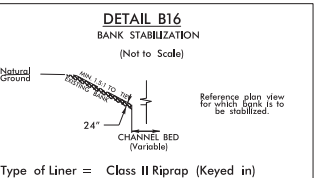
—Y2RPDB— STA. 15+47 TO 17+00 LT



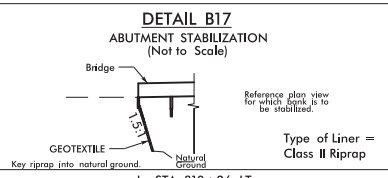
—L— STA. 336+95 RT



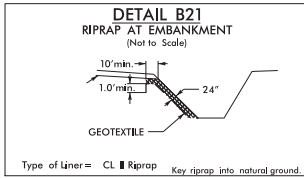
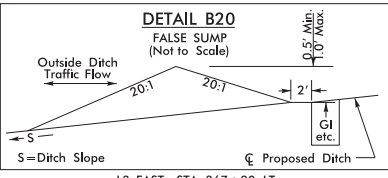
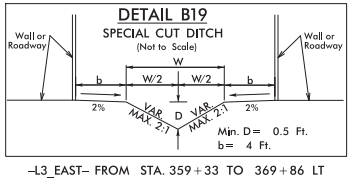
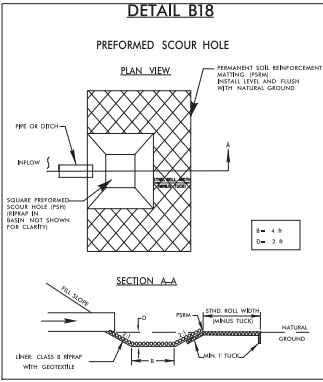
—L— STA. 454+71 LT
—L— STA. 408+20 RT
—L— STA. 725+09 RT
—Y2DCC— STA. 28+06 RT
—Y2RPDB— STA. 12+74 LT
—Y2RPDB— STA. 15+62 LT
—Y2RPDB— STA. 36+96 LT



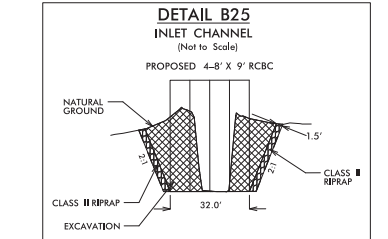
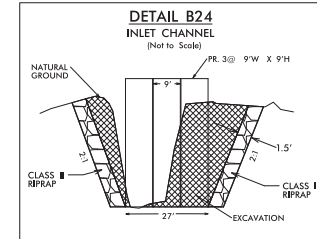
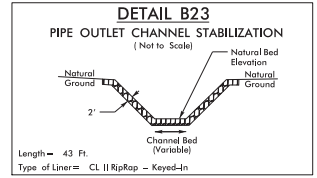
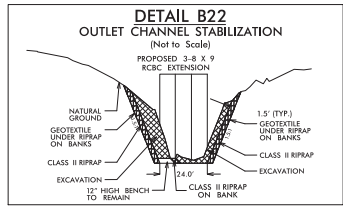
—L— STA. 309+20 LT
—L— STA. 309+60 LT
—L— STA. 342+86 LT
—L— STA. 342+86 LT
—L— STA. 343+36 LT
—L— STA. 342+28 RT
—L— STA. 342+78 RT
—Y2DCC— STA. 21+16 RT
—Y2DCC— STA. 21+46 RT
—Y2DCC— STA. 27+14 RT
—Y2DCC— STA. 27+54 RT
—Y2DCC— STA. 38+88 RT
—Y2DCC— STA. 39+25 RT
—Y2RPDB— STA. 36+70 LT
—Y2RPDB— STA. 36+80 LT



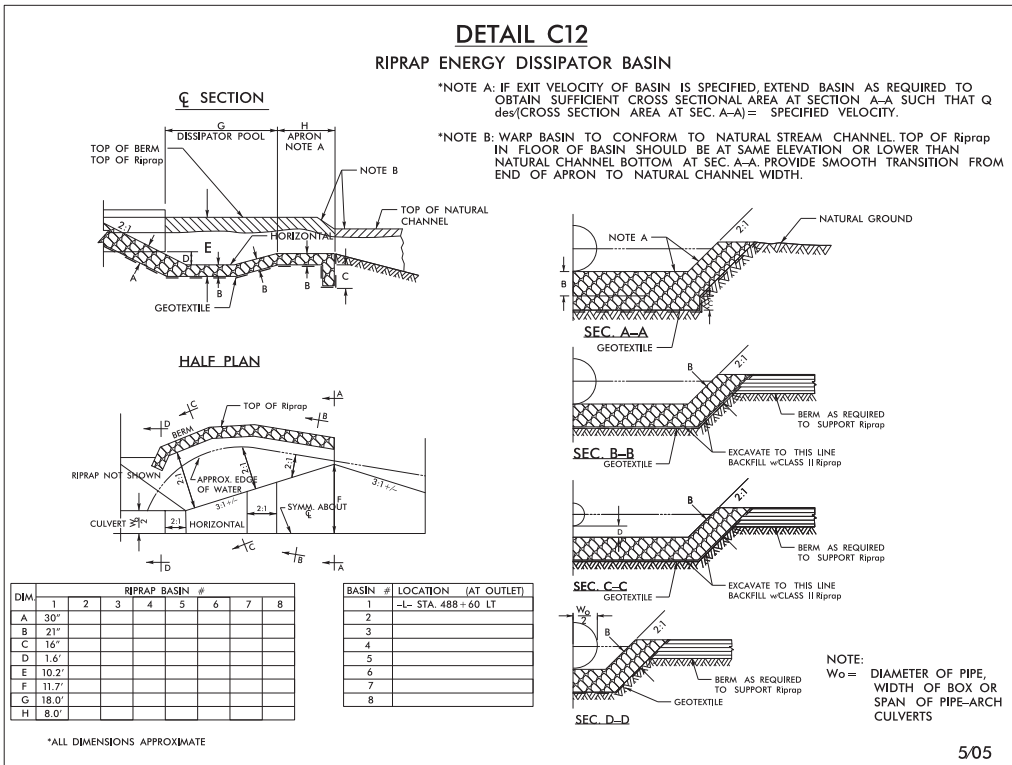
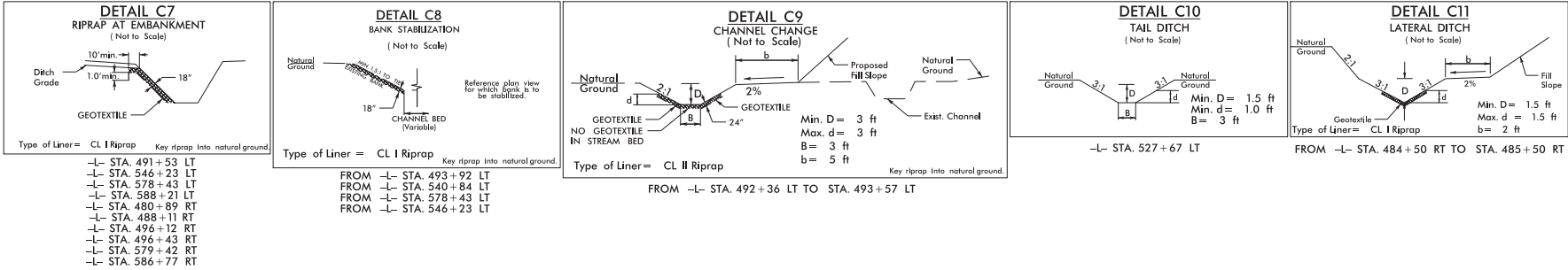
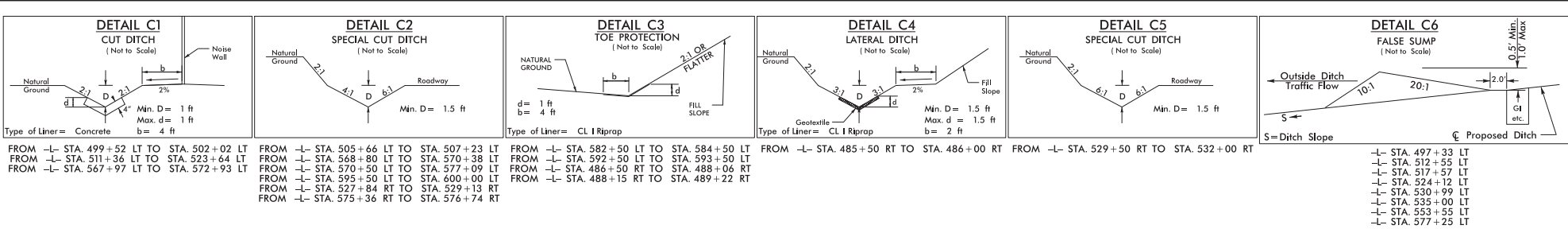
—L— STA. 310+26 LT
—L— STA. 341+95 LT
—L— STA. 344+97 LT
—L— STA. 341+30 RT
—L— STA. 344+15 RT



—L— STA. 404+34 RT

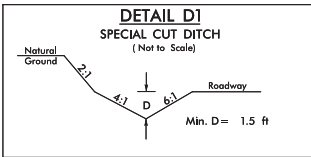


PERMIT DRAWING
SHEET 3 OF 115

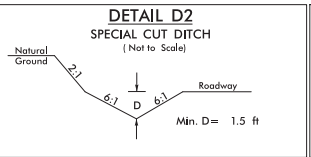


PROJECT REFERENCE NO.	SHEET NO.
I-5507	2D-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

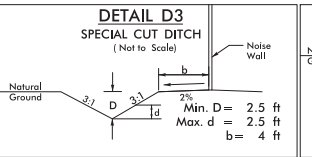
PROJECT REFERENCE NO.	SHEET NO.
I-5507	2D-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



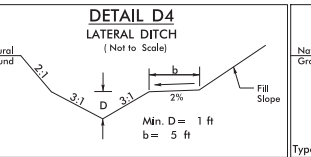
-L- FROM STA. 615+81 TO 619+50 LT
-L- FROM STA. 688+57 TO 701+37 LT
-L- FROM STA. 706+21 TO 711+00 LT
-L- FROM STA. 753+98 TO 760+32 LT
-L- FROM STA. 794+62 TO 795+50 LT
-L- FROM STA. 764+81 TO 767+50 LT
-L- FROM STA. 916+63 TO 917+50 LT
-L- FROM STA. 929+50 TO 931+50 LT
-L- FROM STA. 709+81 TO 713+00 RT
-L- FROM STA. 804+50 TO 805+50 RT
-L- FROM STA. 901+00 TO 905+17 RT
-Y5RPD- STA. 24+00 TO 26+50 RT
-Y6RPC- FROM STA. 24+50 TO 26+50 RT



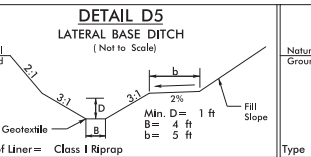
-L- FROM STA. 615+81 TO 619+50 LT



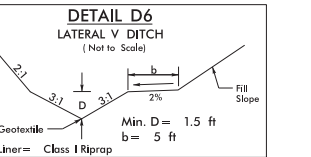
-L- FROM 628+73 TO 634+63 LT



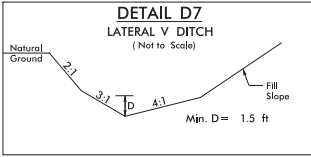
-L- FROM STA. 890+47 TO 892+50 LT
-L- FROM STA. 898+00 TO 900+00 LT
-L- FROM STA. 936+50 TO 940+50 LT
-L- FROM STA. 885+00 TO 888+19 RT
-L- FROM STA. 892+00 TO 897+09 RT



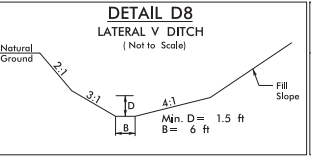
-L- FROM STA. 791+50 TO 793+50



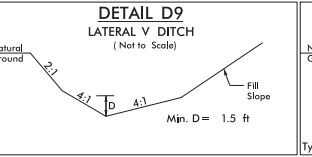
-L- FROM STA. 835+50 TO 837+27 LT
-L- FROM STA. 893+84 TO 898+00 LT
-L- FROM STA. 888+19 TO 890+77 RT
-L- FROM STA. 890+91 TO 892+00 RT
-L- FROM STA. 897+24 TO 899+50 RT



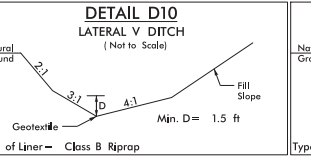
-Y5LPA- FROM STA. 14+78 TO 15+28 LT
-Y5RPA- FROM STA. 20+24 TO 22+00 LT



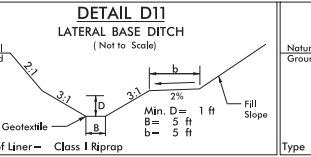
-Y5LPA- FROM STA. 15+28 TO 15+73



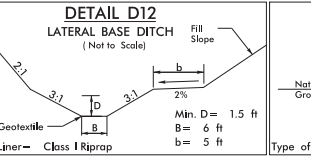
-Y5LPA- FROM STA. 15+73 TO 17+00 LT



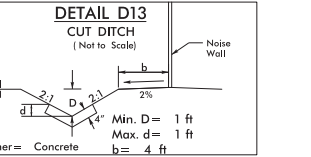
-Y5RPA- FROM STA. 19+50 TO 20+24 LT



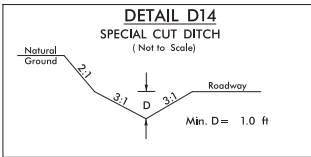
-L- FROM STA. 788+50 TO 790+00



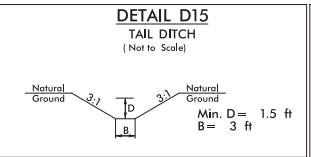
-Y6RPB- FROM 9+77 TO 11+02 LT



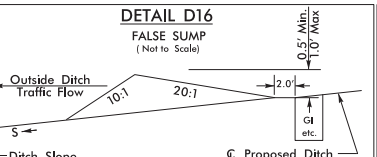
-L- FROM 706+50 TO 711+41 RT
-L- FROM 727+77 TO 729+44 RT
-Y6RPB- FROM 15+11 TO 22+63 LT



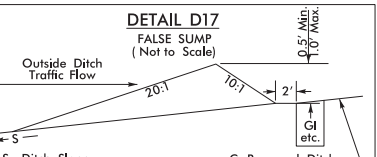
-Y6LPA- FROM 10+74 TO 11+87 LT



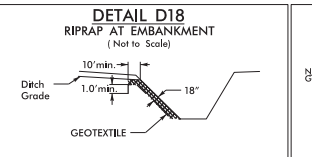
-L- STA. 777+37 LT



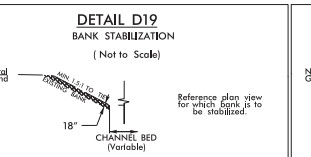
-L- STA. 794+55 LT
-L- STA. 709+74 RT
-L- STA. 760+50 RT
-L- STA. 774+58 RT
-L- STA. 827+52 RT
-Y6RPC- STA. 17+70 LT



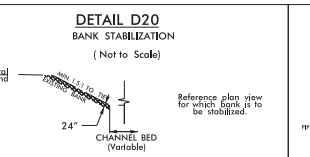
-L- STA. 701+58 LT
-L- STA. 827+52 LT
-L- STA. 835+03 LT
-L- STA. 617+94 RT
-L- STA. 795+69 RT
-L- STA. 808+22 RT
-Y5RPA- STA. 15+25 LT
-Y5RPD- STA. 21+39 LT
-Y5RPD- STA. 21+31 RT



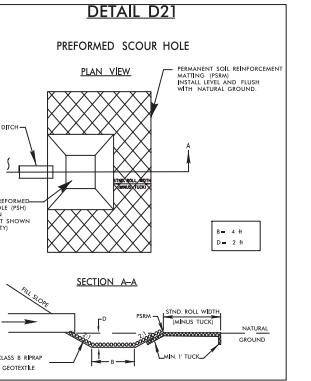
-L- STA. 615+00 LT
-L- STA. 654+53 LT
-L- STA. 654+58 LT
-L- STA. 658+97 LT
-L- STA. 683+21 LT
-L- STA. 729+85 LT
-L- STA. 730+13 LT
-L- STA. 741+73 LT
-L- STA. 746+32 LT
-L- STA. 791+36 LT
-L- STA. 808+85 LT
-L- STA. 816+10 LT
-L- STA. 818+86 LT
-L- STA. 890+43 LT
-L- STA. 893+74 LT
-L- STA. 893+80 LT
-L- STA. 910+17 LT
-Y6RPC- STA. 15+28 RT



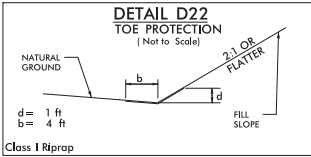
-L- STA. 764+97 LT
-L- STA. 890+34 LT
-L- STA. 893+72 LT
-Y19RPC- STA. 18+60 RT
-Y19RPC- STA. 18+64 RT



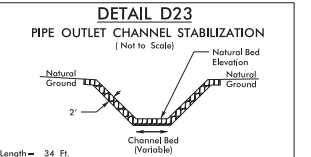
-L- STA. 837+91 LT
-L- STA. 838+91 LT
-Y6RPC- STA. 19+10 RT



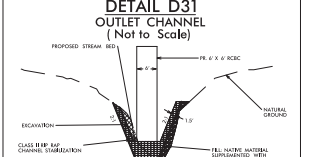
-L- STA. 790+75 LT



-L- FROM STA. 651+50 TO 654+49 LT
-L- FROM STA. 654+64 TO 656+50 LT
-L- FROM STA. 814+50 TO 816+04 LT
-L- FROM STA. 845+32 TO 854+00 LT
-L- FROM STA. 649+50 TO 653+10 RT
-L- FROM STA. 791+44 TO 792+52 RT
-Y5RPA- FROM STA. 21+43 TO 24+00 RT
-Y6LPC- FROM STA. 12+03 TO 13+79 RT
-Y6RPC- FROM STA. 19+26 TO 20+55 RT
-Y6RPC- FROM STA. 23+69 TO 24+87 RT



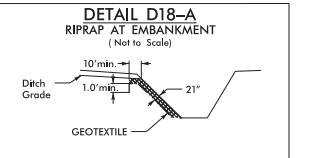
-L- STA. 790+14 LT



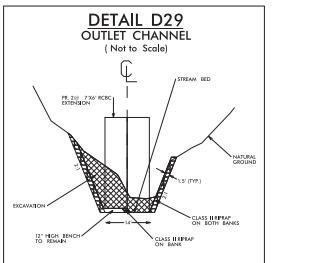
-L- STA. 789+30



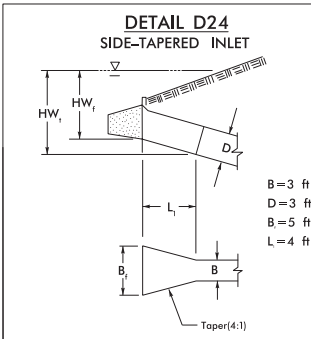
-L- STA. 841+00



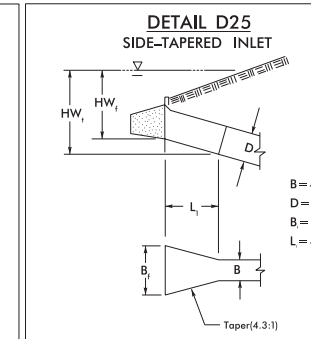
-Y6- STA. 129+88 LT



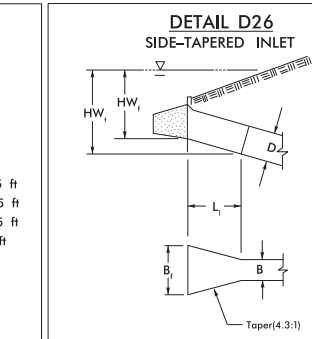
-L- STA. 837+70 LT



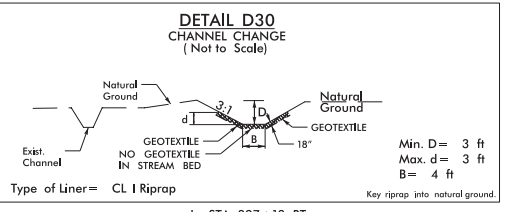
-L- STA. 641+48 LT



-L- STA. 749+91 RT
-Y24RPA- STA. 18+83 RT



-L- STA. 644+52 LT

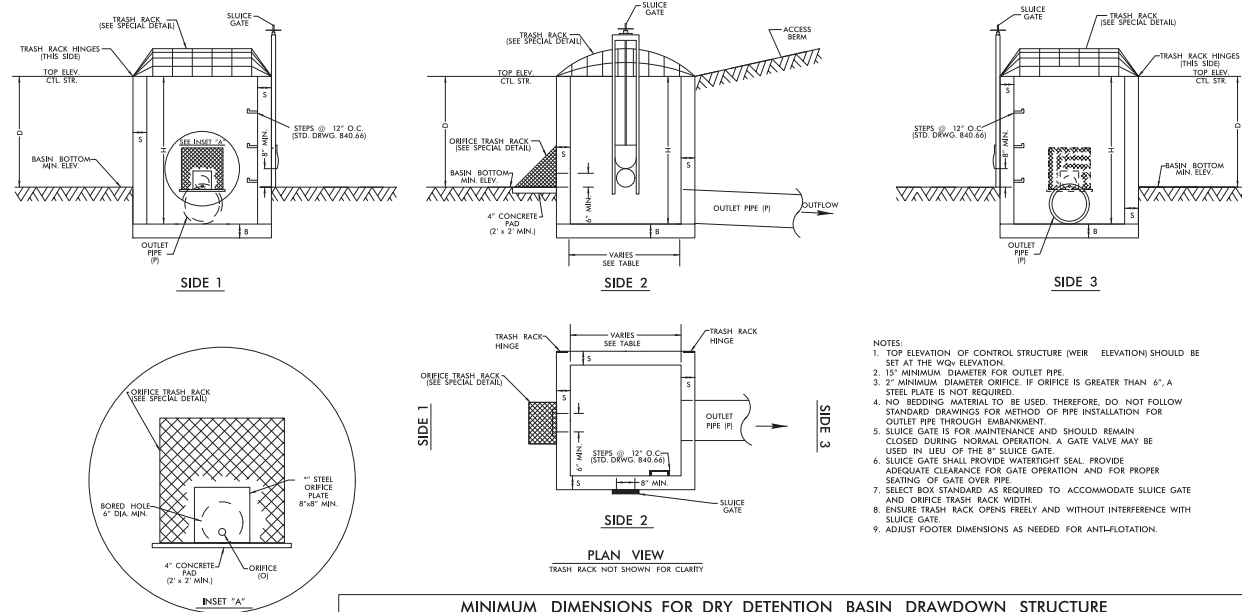


-L- STA. 897+13 RT

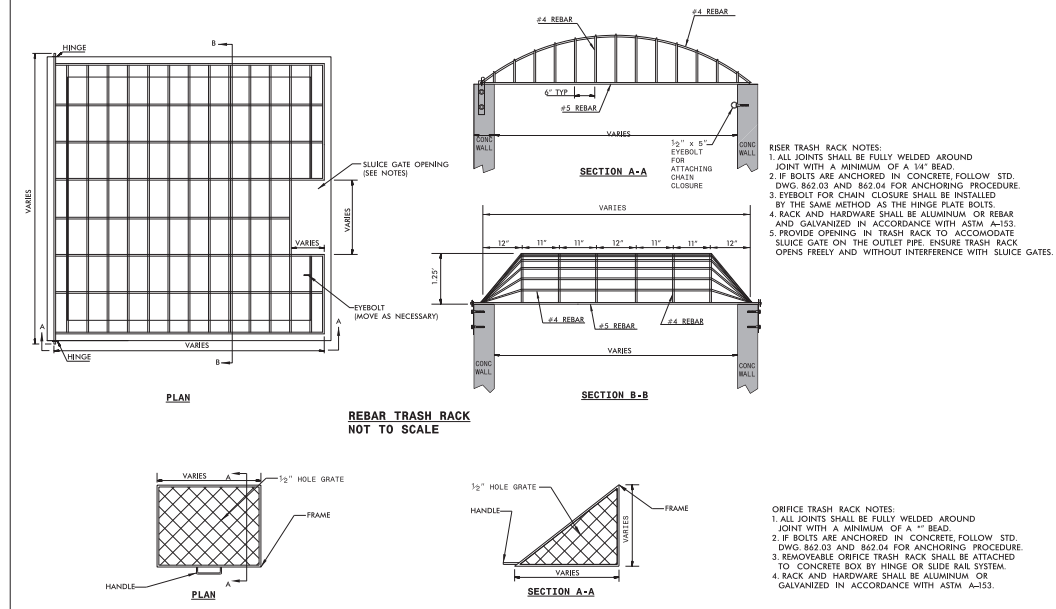
PERMIT DRAWING
SHEET 5 OF 115

PROJECT REFERENCE NO.	SHEET NO.
I-5507	2D-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

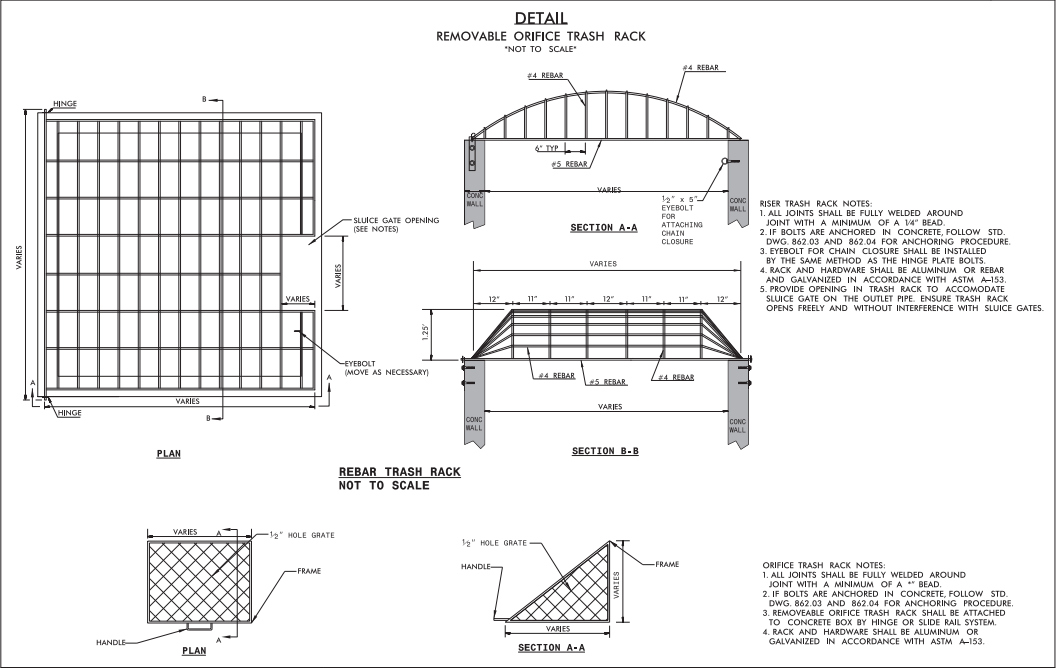
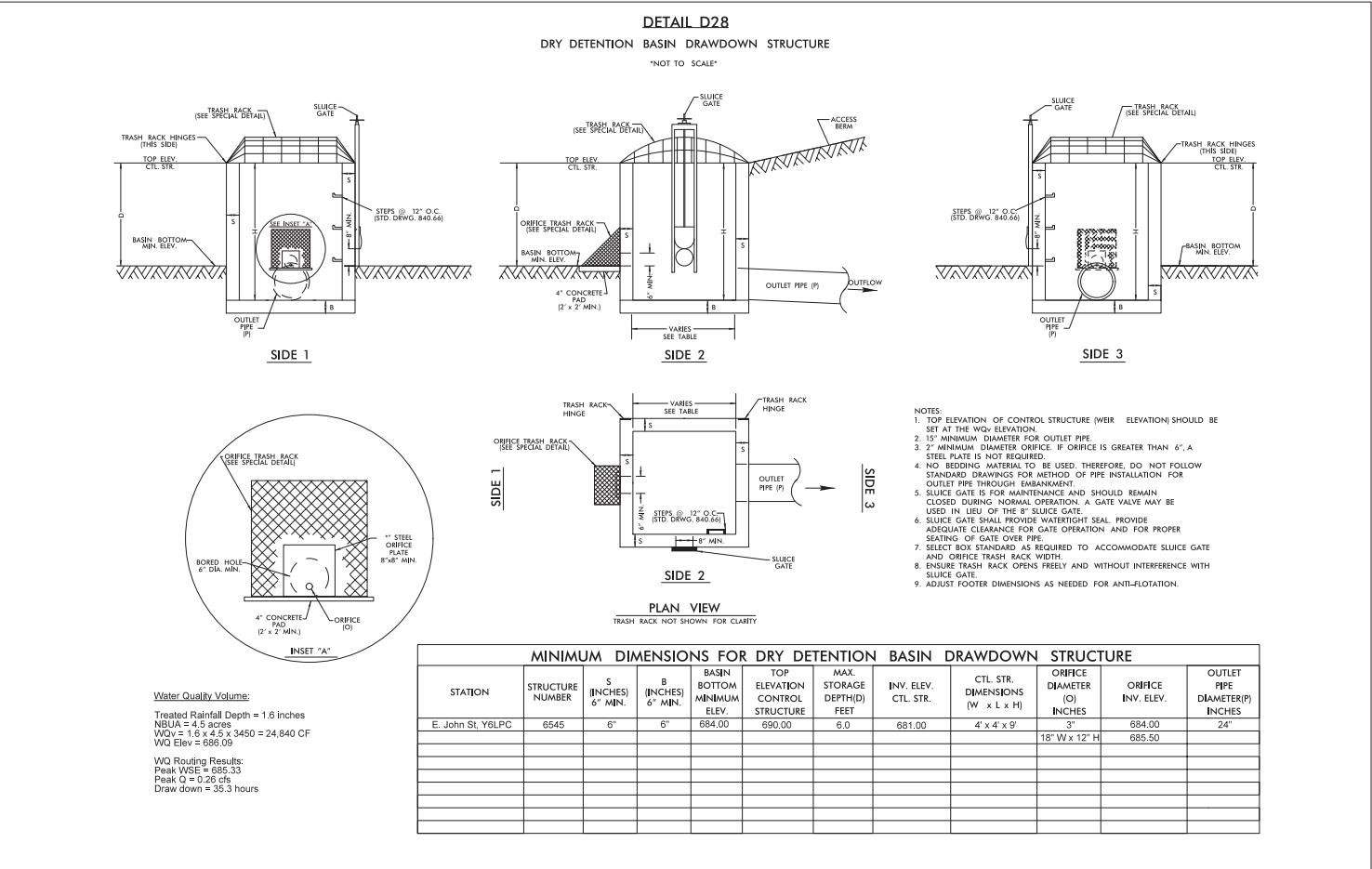
DETAIL D27
DRY DETENTION BASIN DRAWDOWN STRUCTURE
 NOT TO SCALE

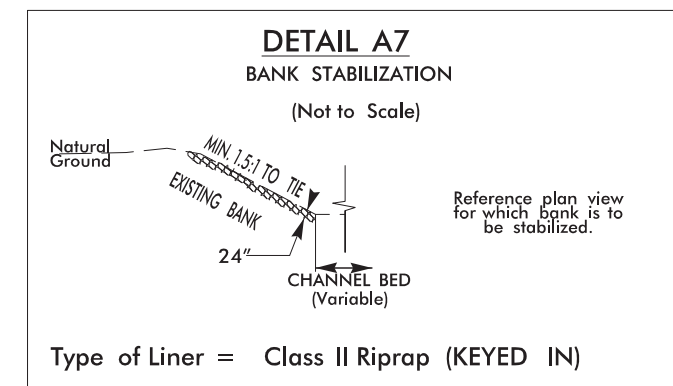
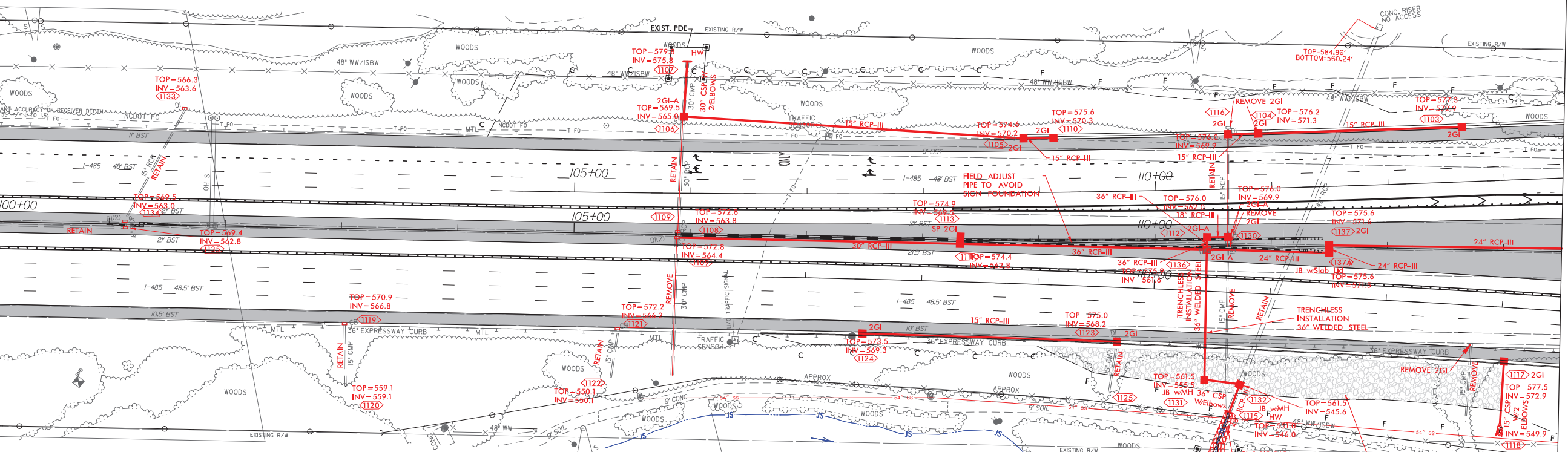
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DETAIL
REMOVABLE ORIFICE TRASH RACK
NOT TO SCALE



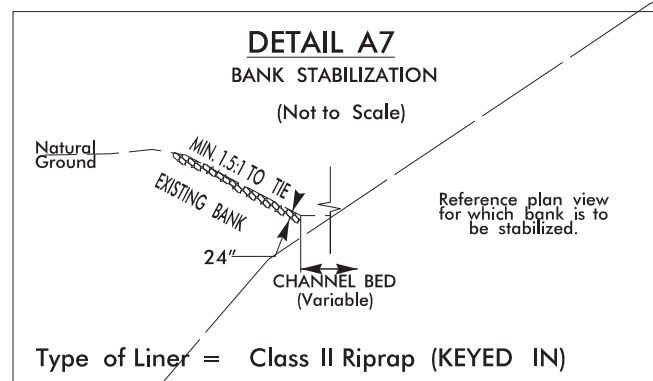
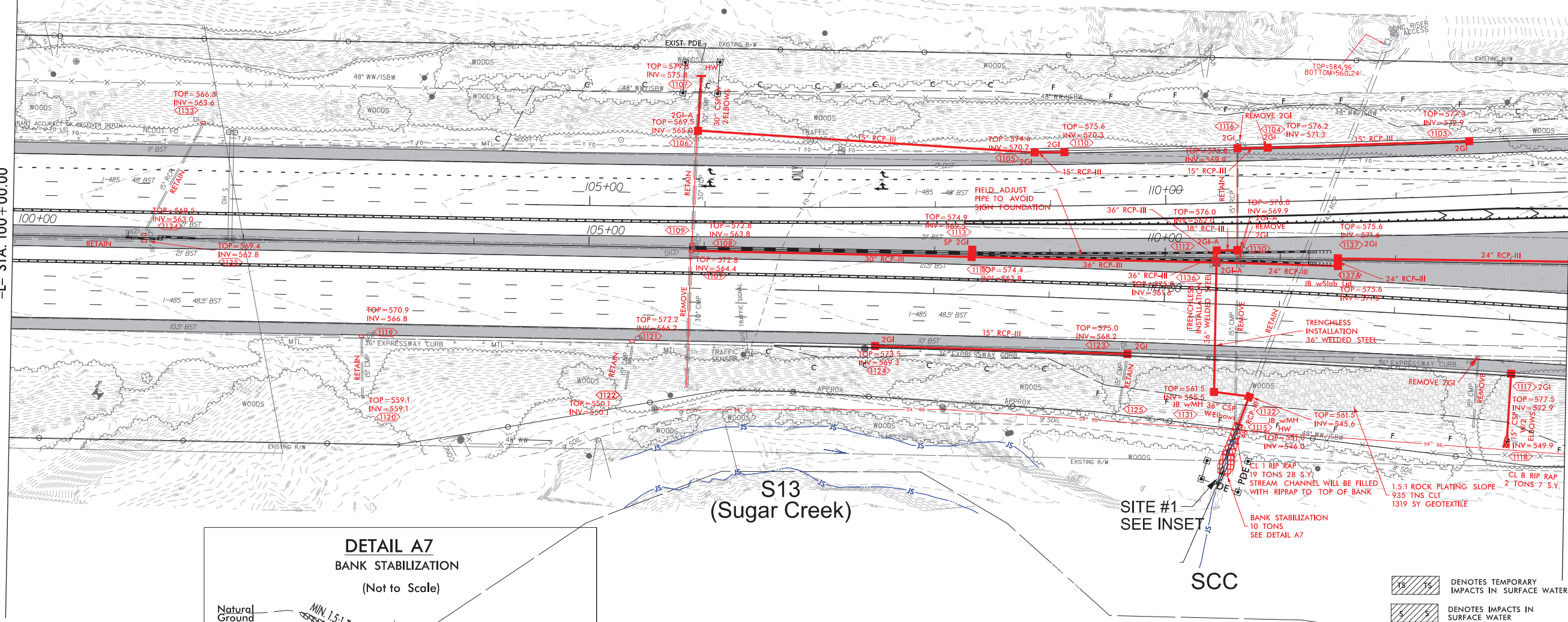
PERMIT DRAWING
SHEET 6 OF 115





PERMIT DRAWING
SHEET 8 OF 115

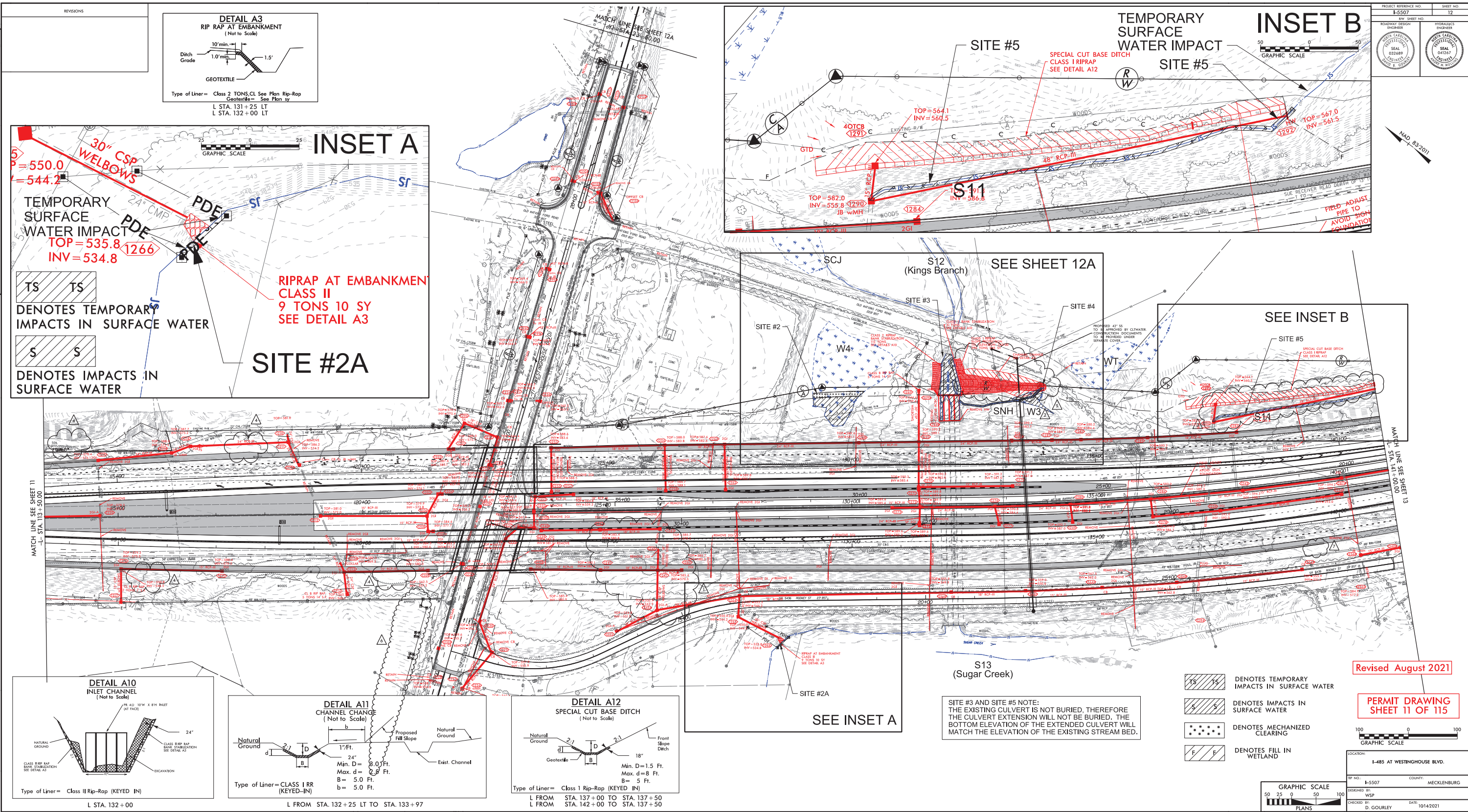




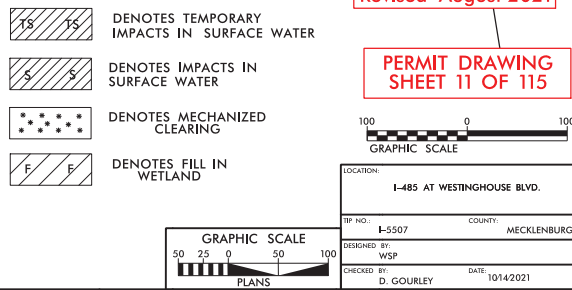
PERMIT DRAWING
SHEET 9 OF 115

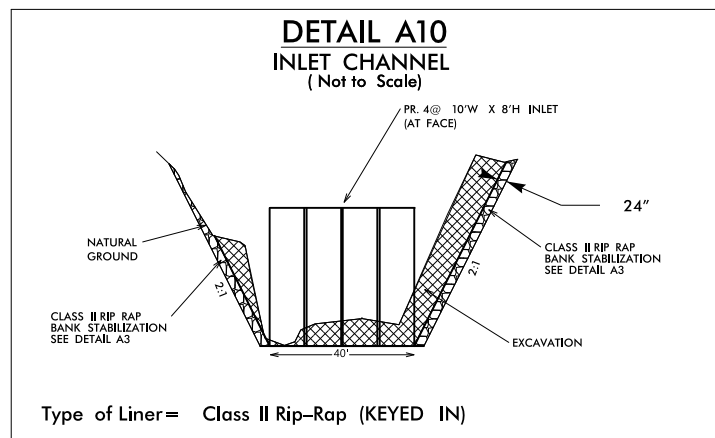


GRAPHIC SCALE
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PLANS

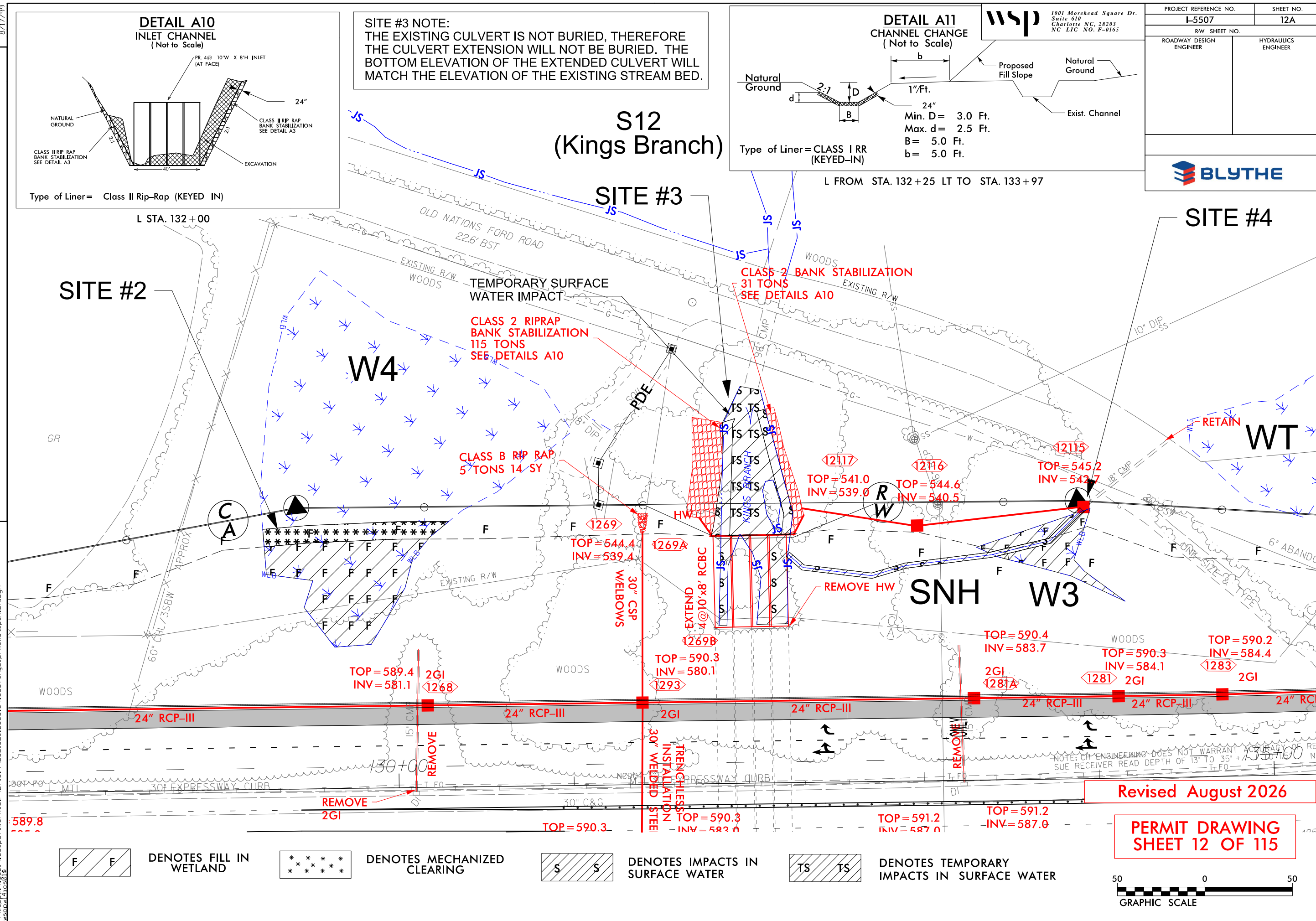
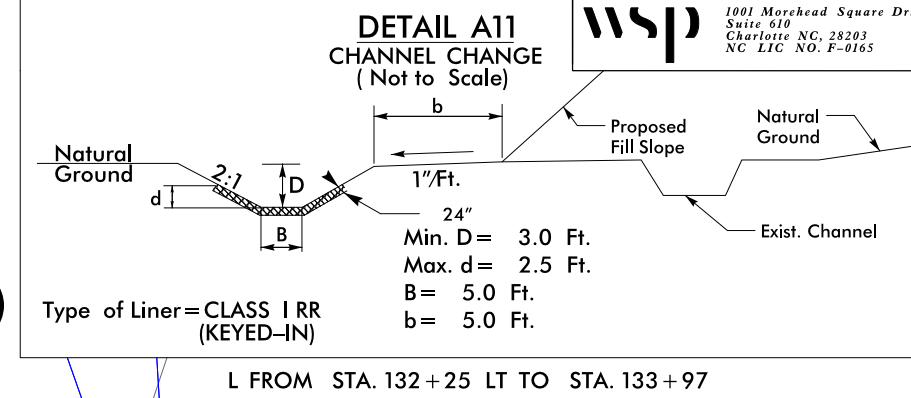
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Revised August 2021

PERMIT DRAWING
SHEET 11 OF 115

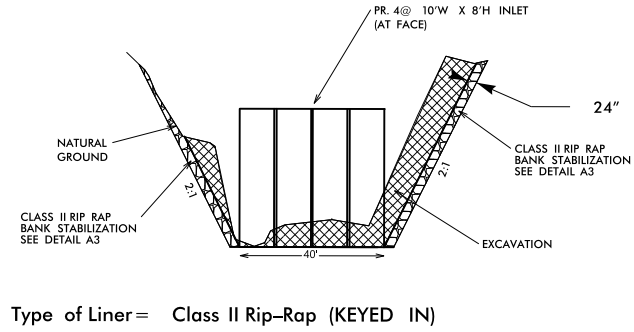


SITE #3 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.



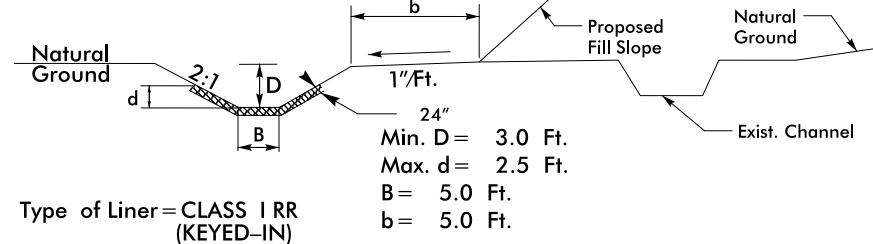
8/17/99

DETAIL A10 INLET CHANNEL (Not to Scale)



SITE #3 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.

DETAIL A11 CHANNEL CHANGE (Not to Scale)



wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.
I-5507		12A
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

BLYTHE

S12 (Kings Branch)

SITE #3

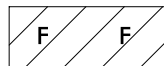
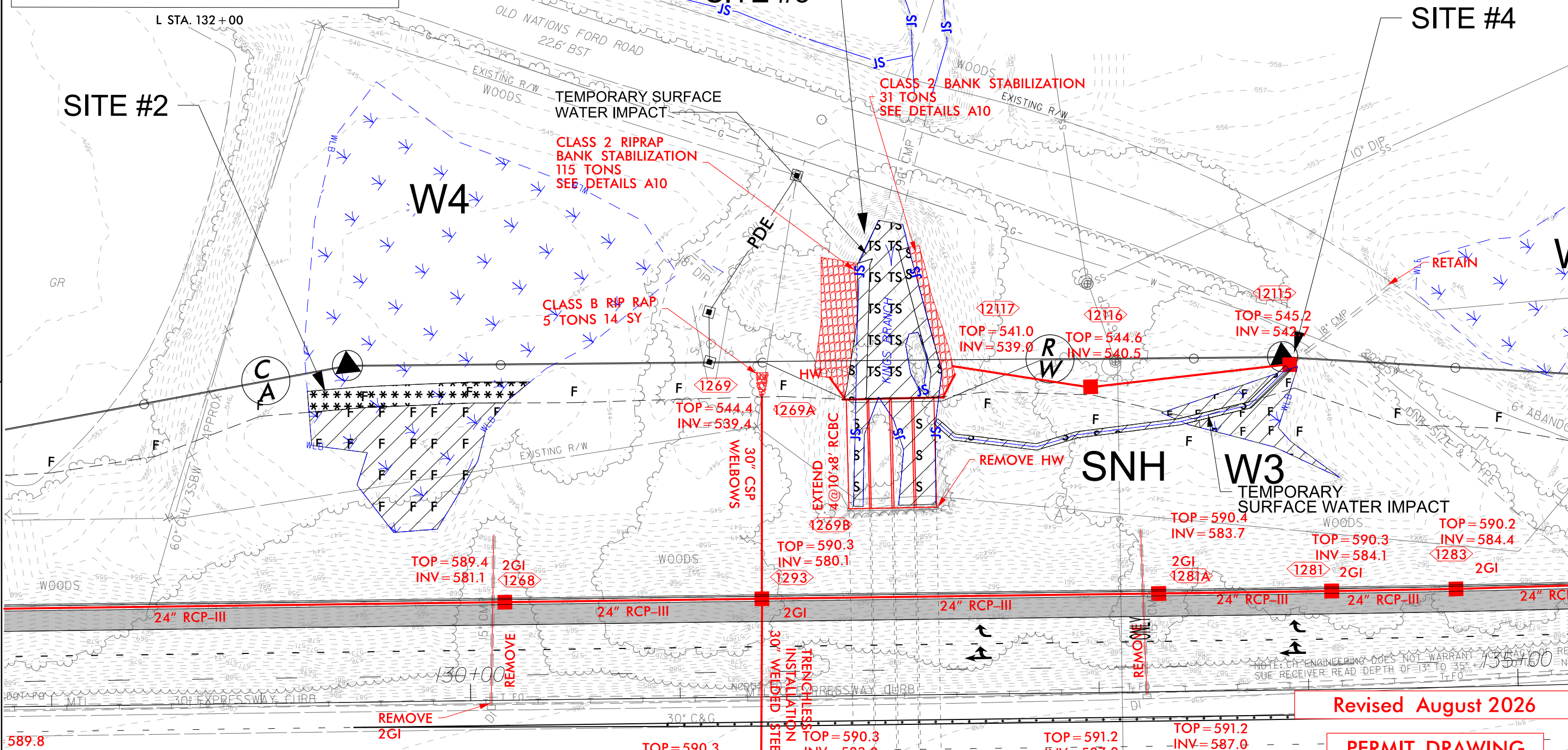
SITE #4

SITE #2

W4

SNH

W3



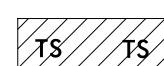
DENOTES FILL IN WETLAND



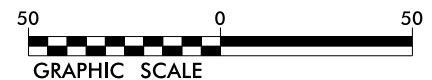
DENOTES MECHANIZED CLEARING



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



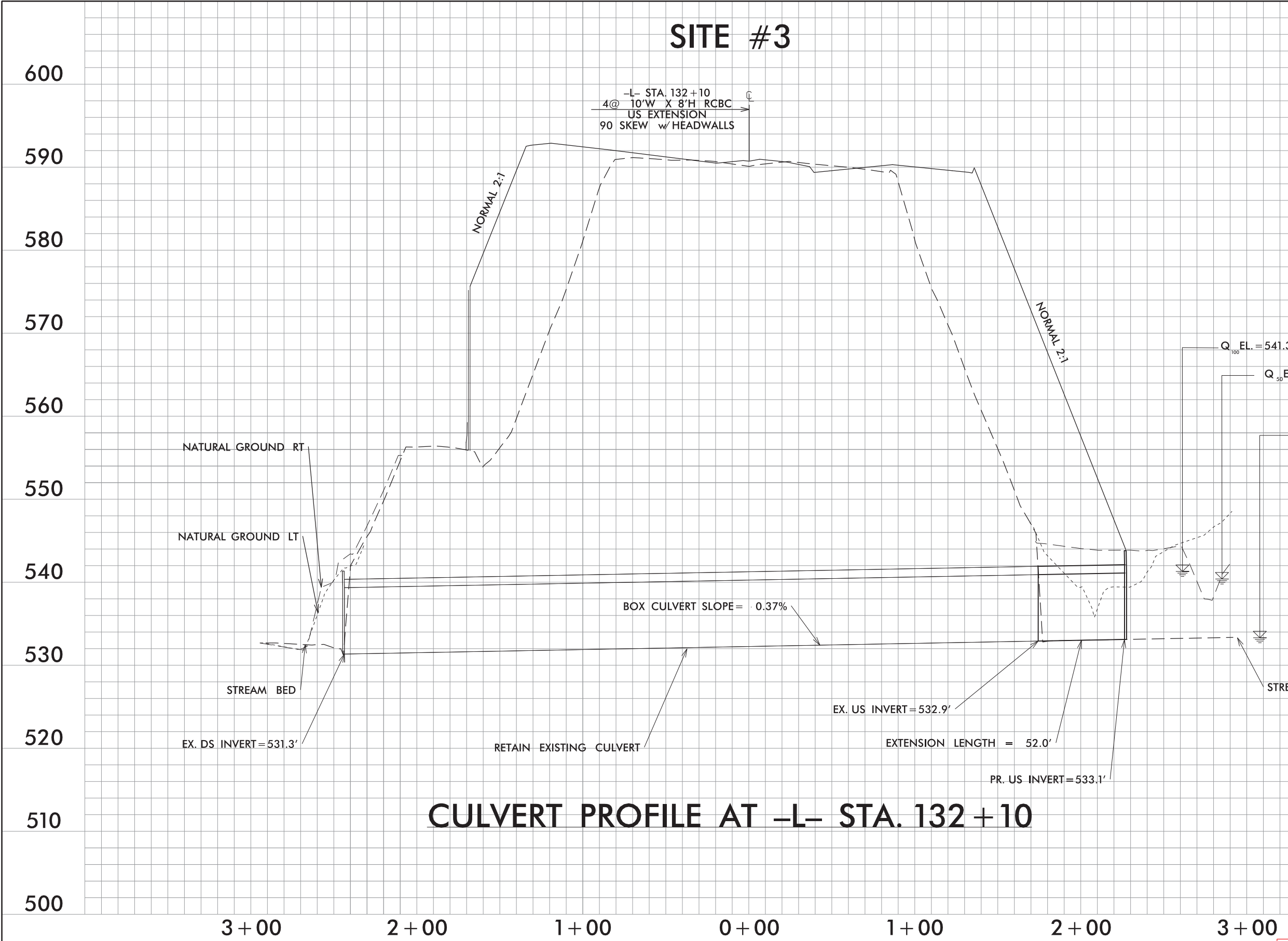
Revised August 2026

PERMIT DRAWING
SHEET 13 OF 115

8/6/2026
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wsp\px14\gs01

5/28/99

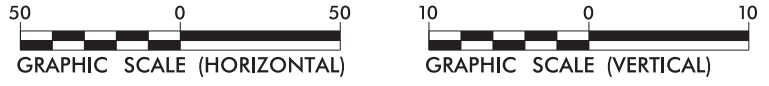
9/12/2019
\\spsdpc\cs01\ics_workingdir\3084\336401.3945\5507_Hyd_prm_wet_psh12.pfl_culvert.dgn
PDRWICS01



CULVERT PROFILE AT -L- STA. 132+10

PROJECT REFERENCE NO.		SHEET NO.	
I-5507		12-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PERMIT DRAWING
SHEET 14 OF 115

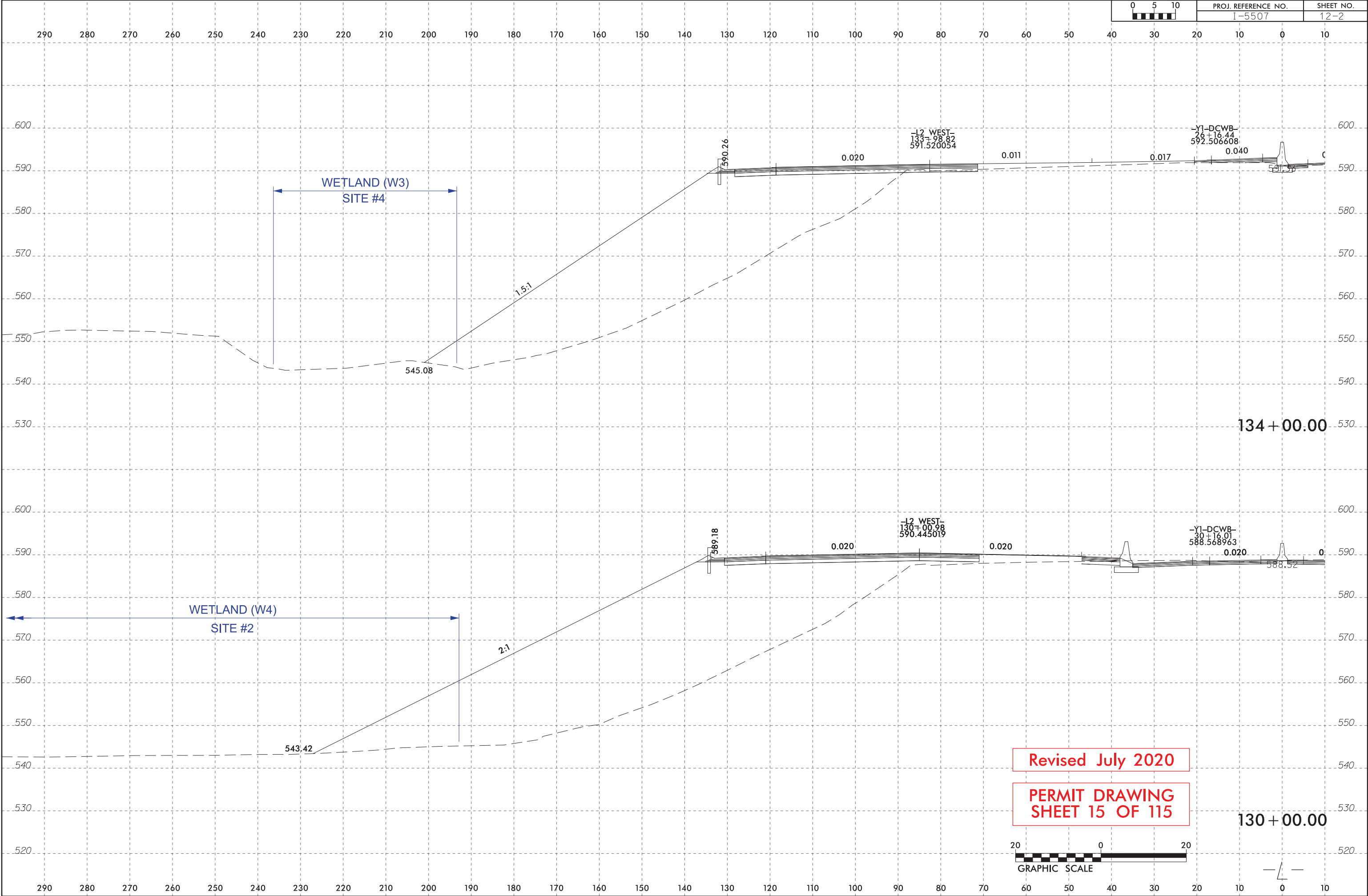


6/23/16

7/22/2020
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PRD\WTC5026

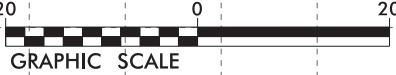


PROJ. REFERENCE NO.	SHEET NO.
1-5507	12-2



Revised July 2020

PERMIT DRAWING
SHEET 15 OF 115



8/17/99

REVISIONS

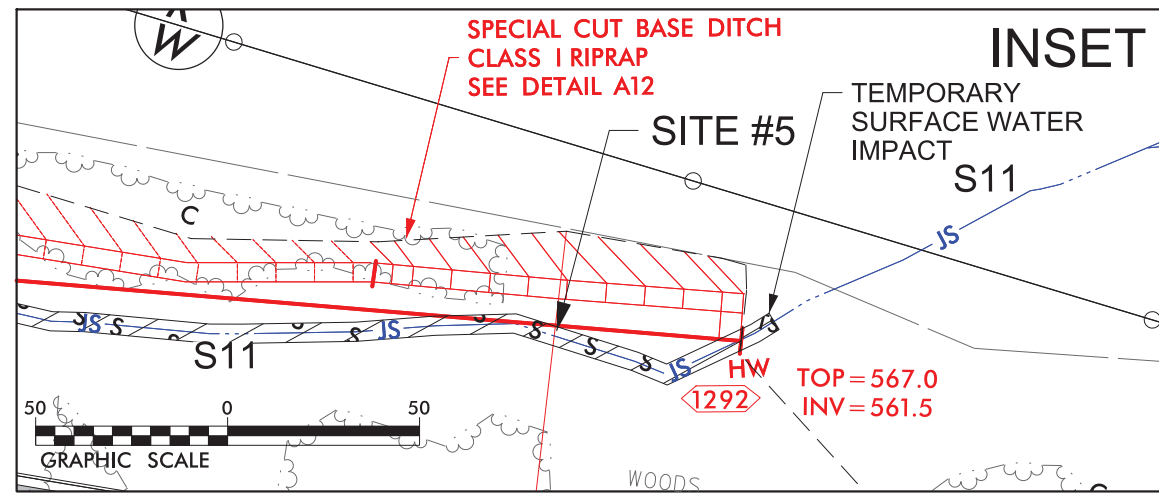
7/22/2020
S:\p\dw\102\102\res-workingdir\9684\336401_5023\5507_Hyd_prm_wet-psht13.dgn
PDP\WIC5023



DENOTES IMPACTS IN
SURFACE WATER



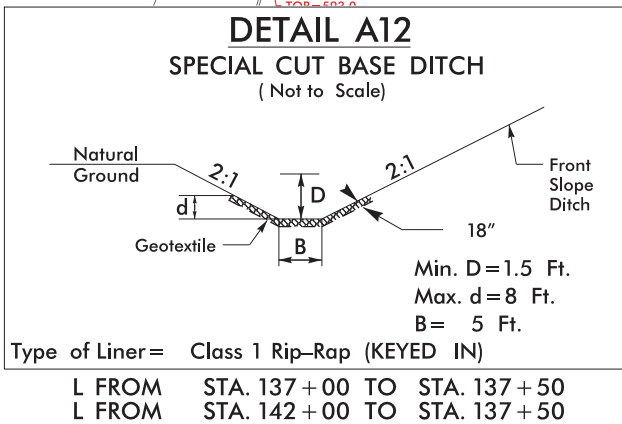
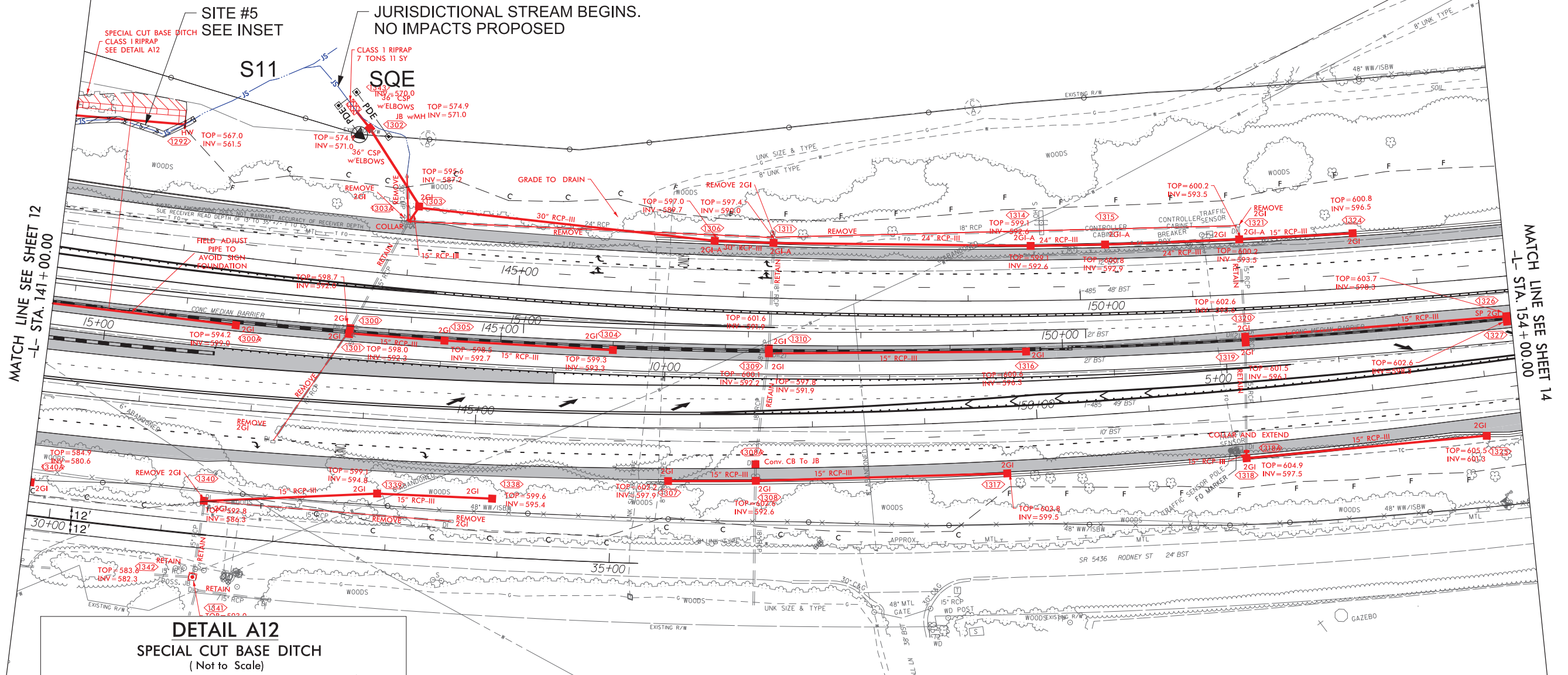
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.
I-5507		13
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

BLYTHE



Revised July 2020

PERMIT DRAWING
SHEET 16 OF 115

DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



8/17/99

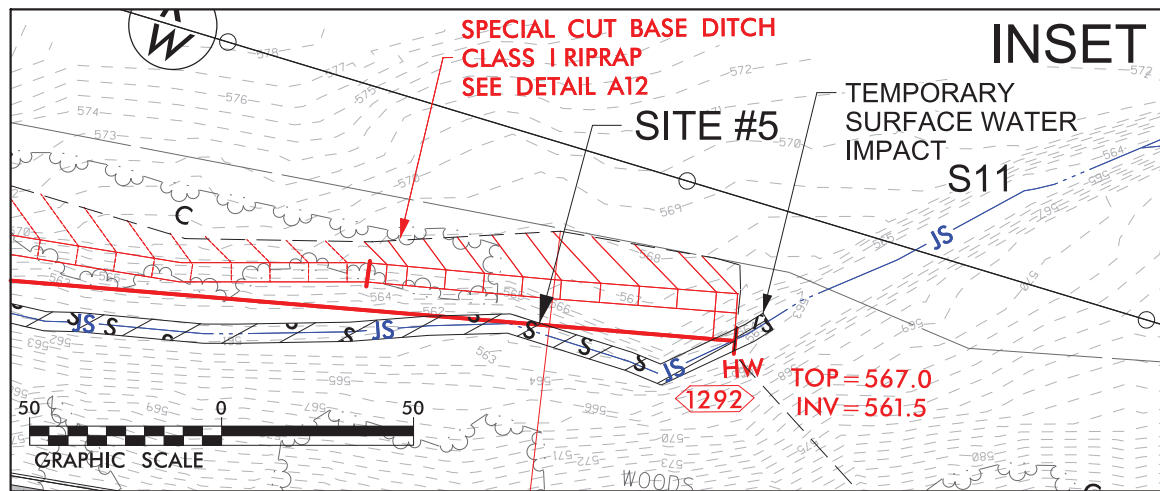
7/22/2020
C:\p\cwg\02\ics_workingdir\9684\336401_5024\15507_Hyd_prm_wet.psh13_cont.dgn
PDPWIC5024



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.

L-5507

SHEET NO.

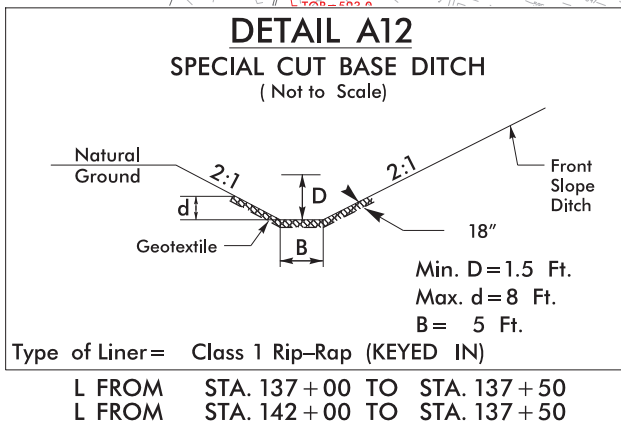
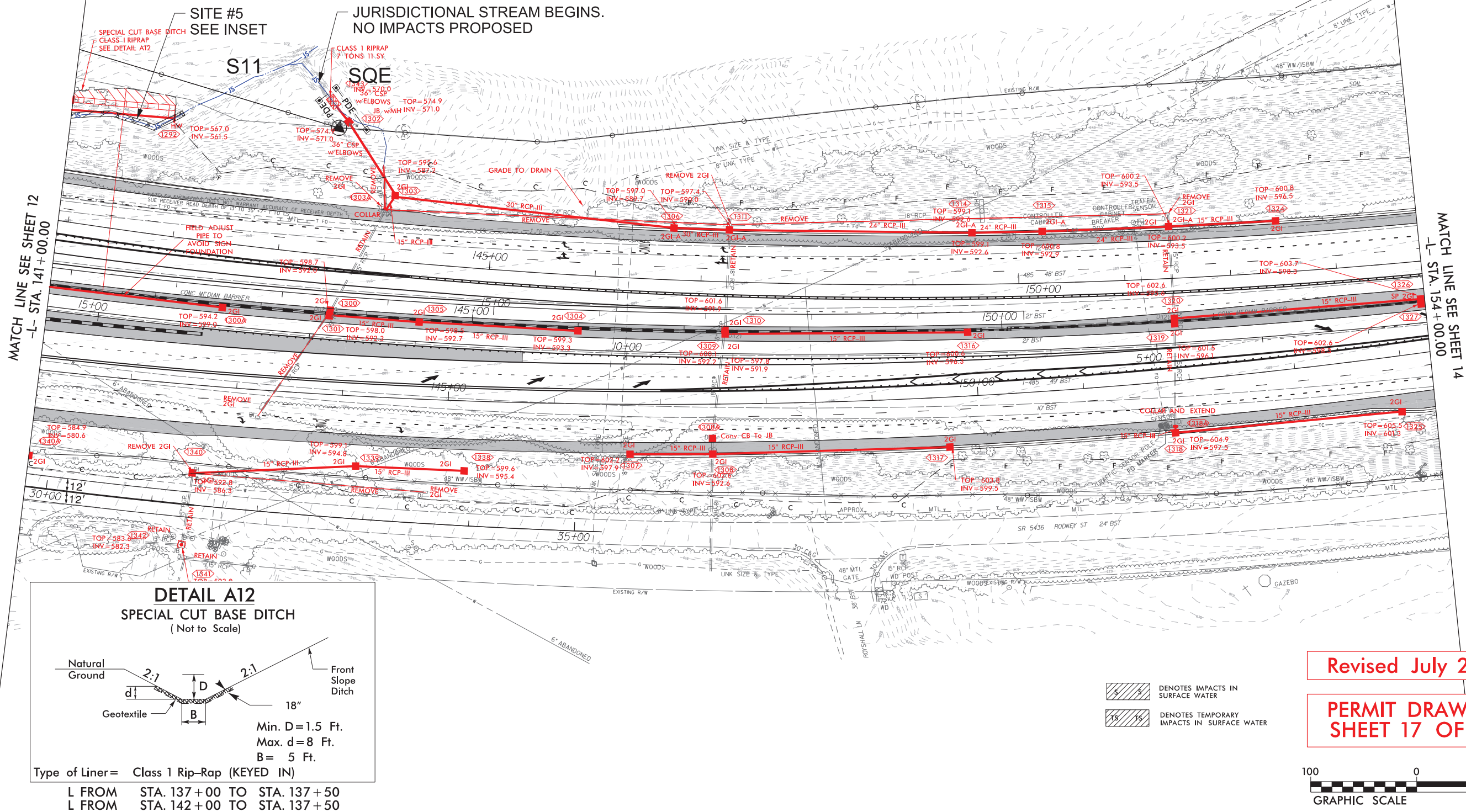
13

R/W SHEET NO.

ROADWAY DESIGN
ENGINEER



HYDRAULICS
ENGINEER



Revised July 2020

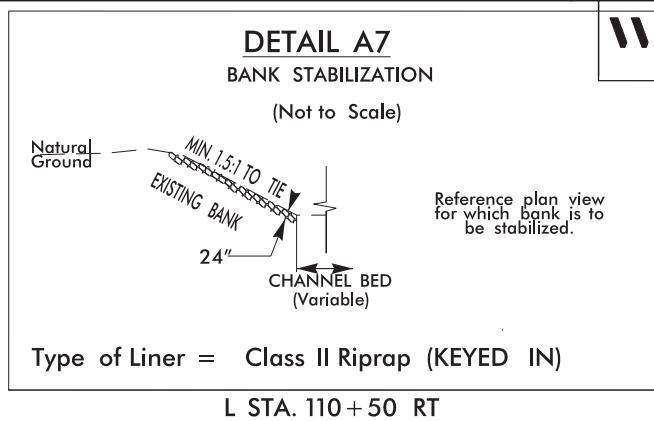
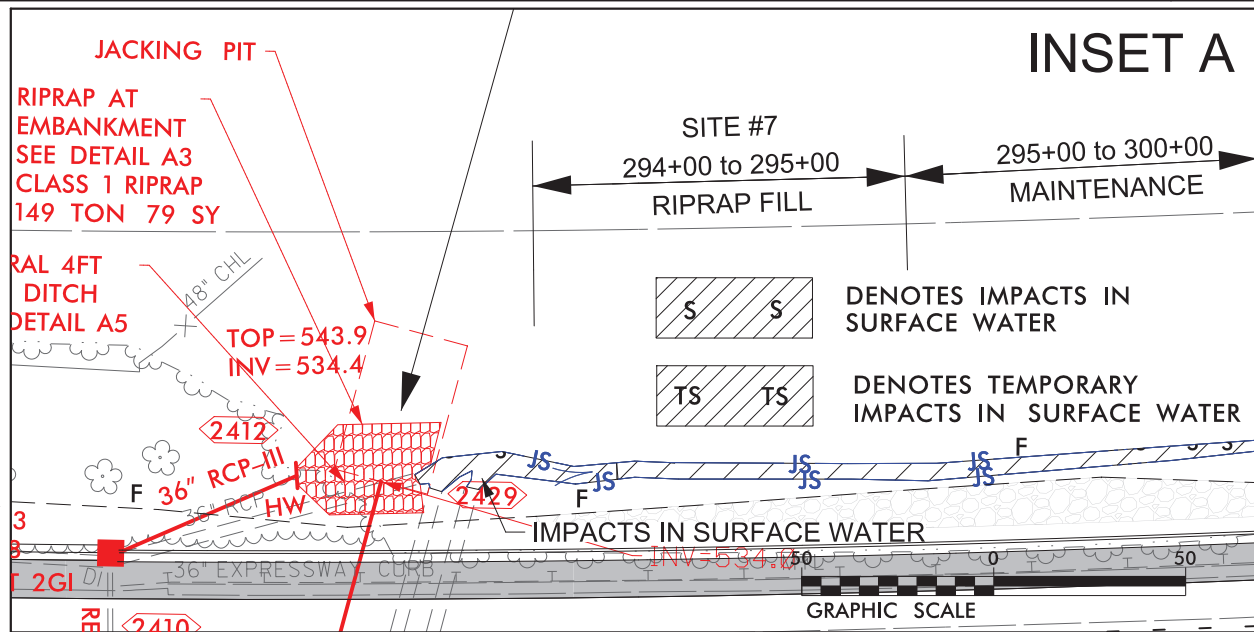
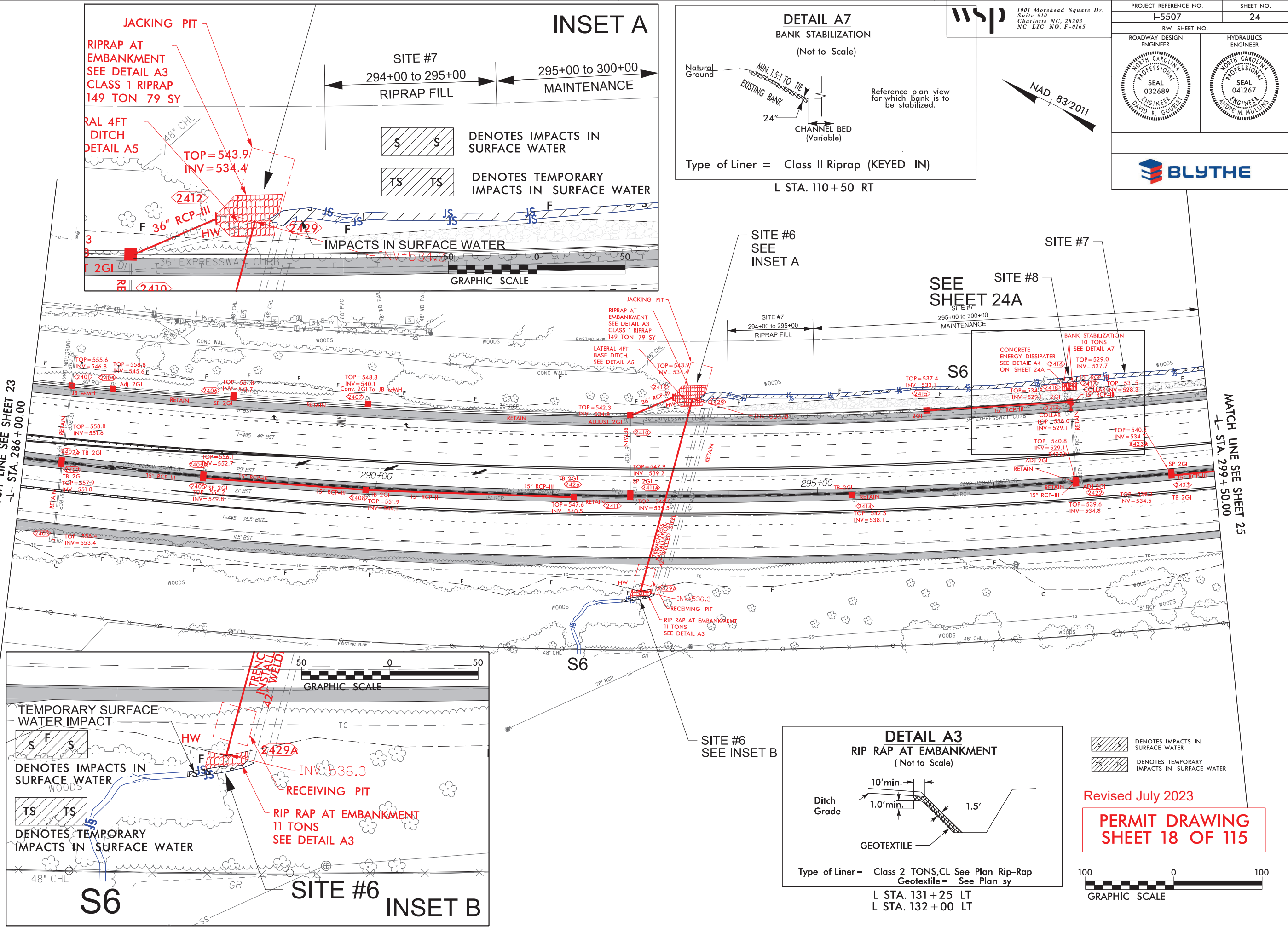
PERMIT DRAWING
SHEET 17 OF 115



REVISIONS

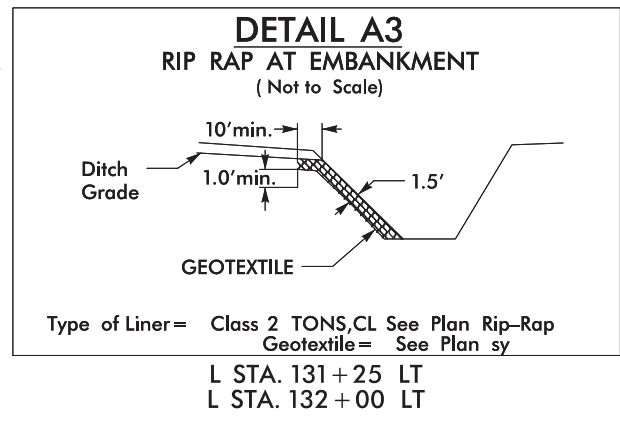
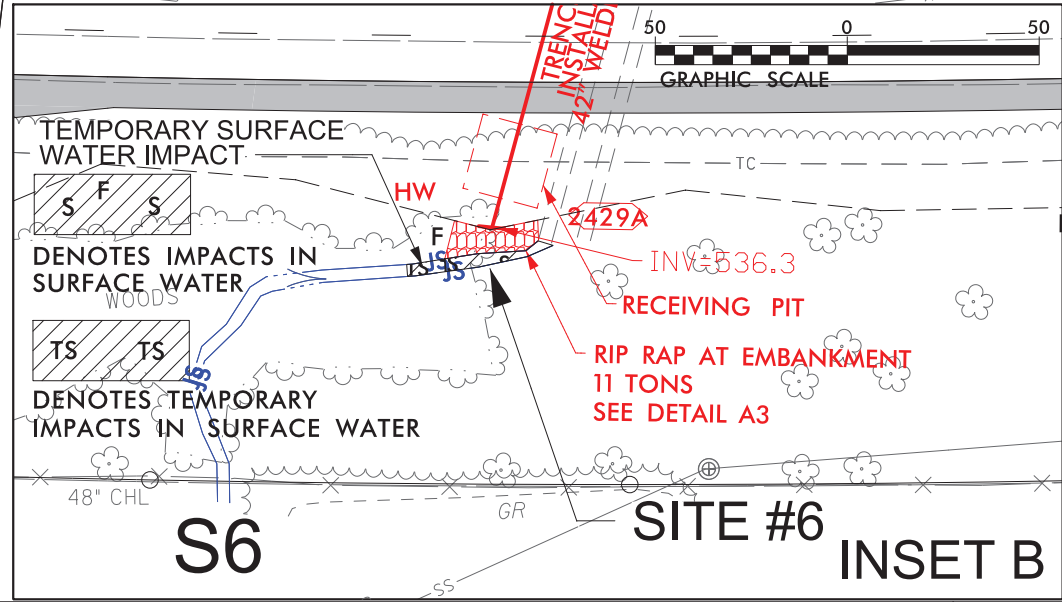
MATCH LINE SEE SHEET 23
-L- STA. 286 + 00.00

MATCH LINE SEE SHEET 25
-L- STA. 299 + 50.00



wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.	
I-5507		24	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



Revised July 2023

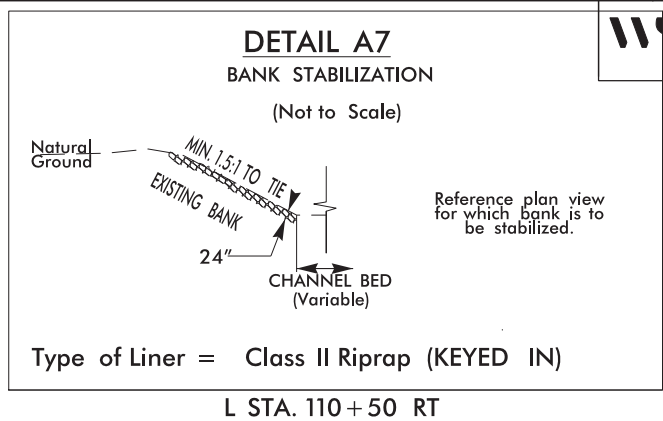
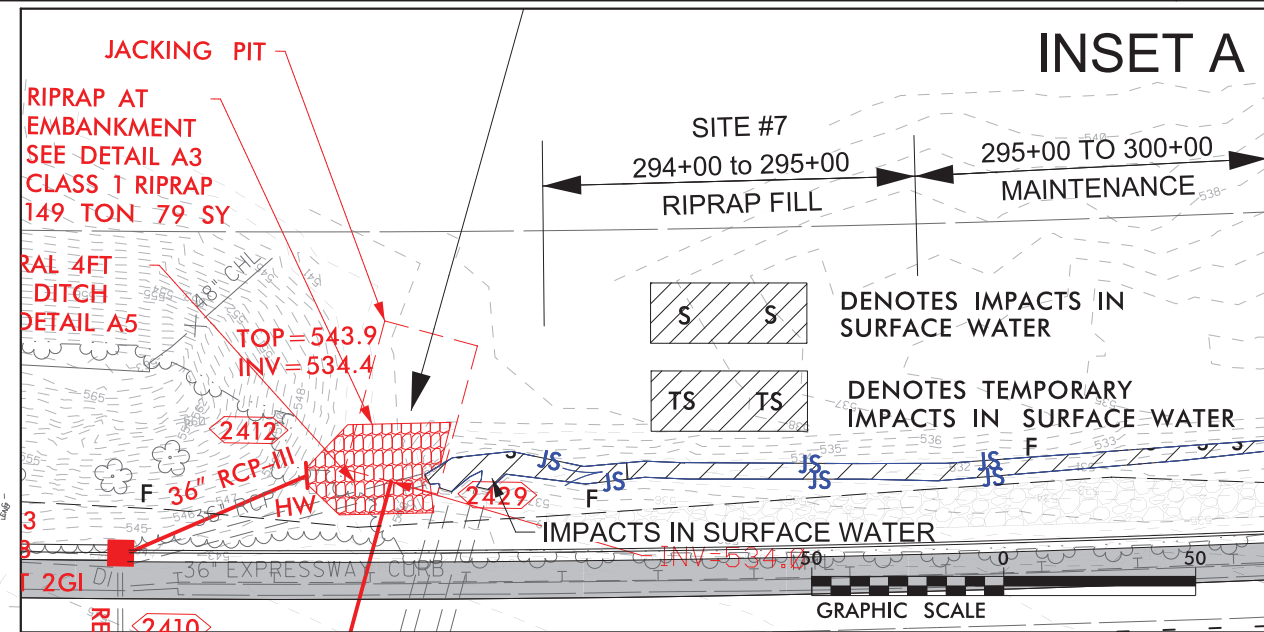
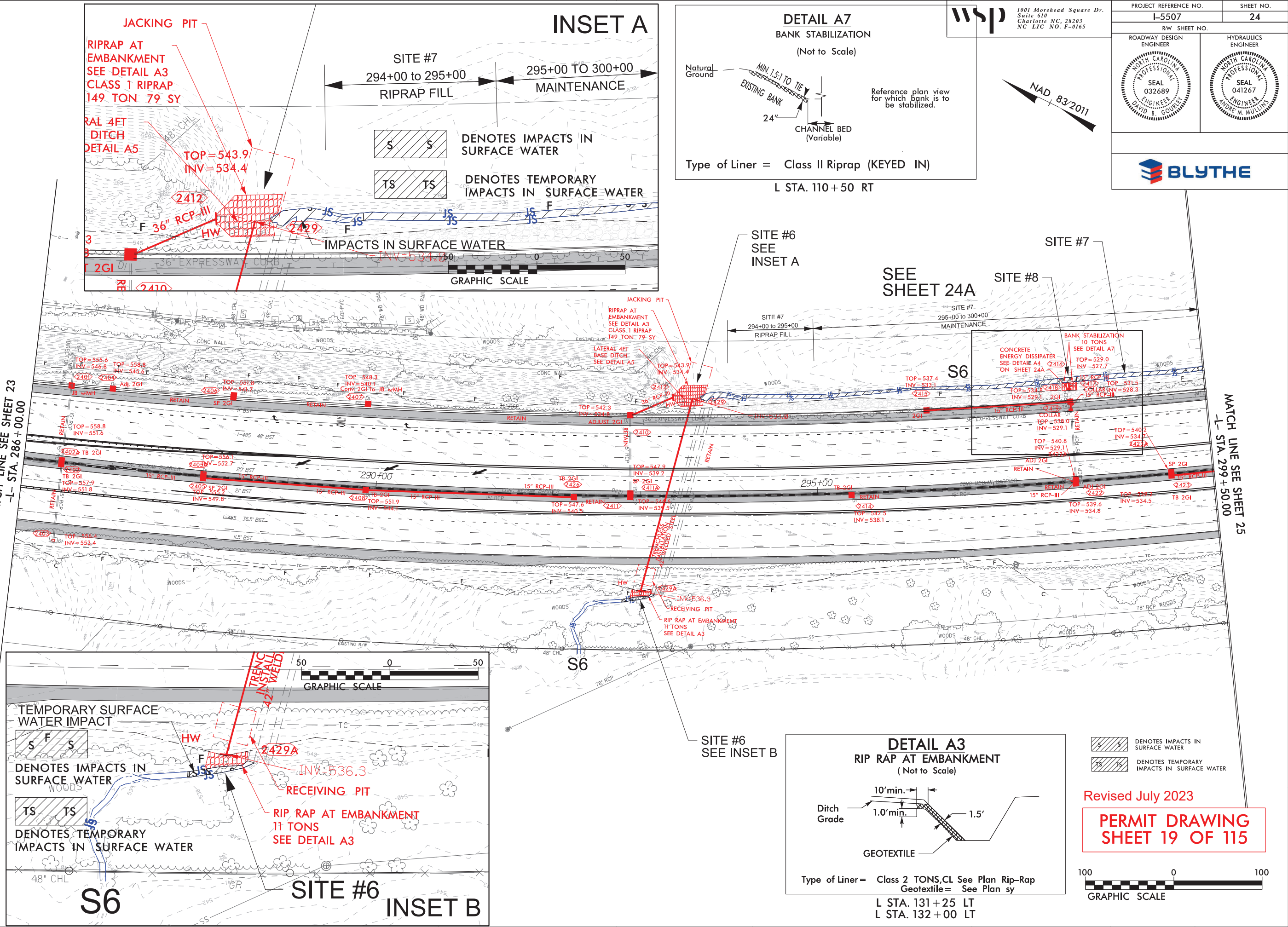
PERMIT DRAWING
SHEET 18 OF 115



REVISIONS

MATCH LINE SEE SHEET 23
-L- STA. 286 + 00.00

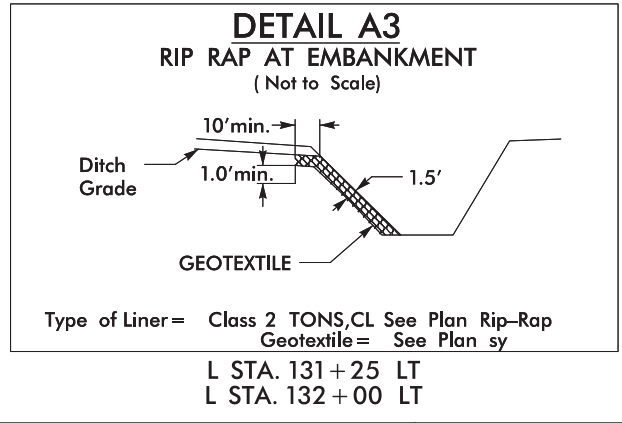
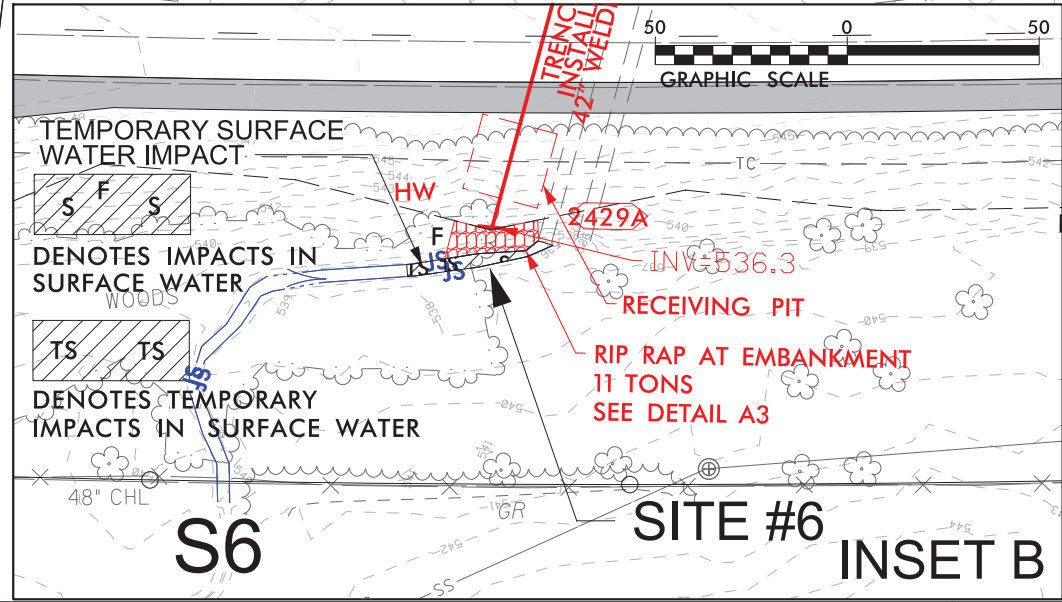
MATCH LINE SEE SHEET 25
-L- STA. 299 + 50.00





1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

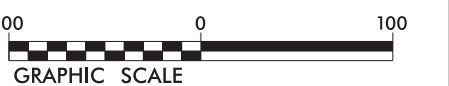
PROJECT REFERENCE NO.		SHEET NO.	
I-5507		24	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 041267 ENGINEER DAVID B. GOULEY	
SEAL 032689 ENGINEER DAVID B. GOULEY		BLYTHE	





Revised July 2023

PERMIT DRAWING
SHEET 19 OF 115



8/17/99



DENOTES IMPACTS IN
SURFACE WATER

295+00 to 300+00
MAINTENANCE

SITE #7

SITE #8

IMPACTS IN SURFACE WATER
CONCRETE
ENERGY DISSIPATER
SEE DETAIL A4
ON SHEET 24A

BANK STABILIZATION
10 TONS
SEE DETAIL A7

TOP = 529.0
INV = 527.7

WOODS

NAD 83/2011



PROJECT REFERENCE NO. I-5507		SHEET NO. 24A	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

S6

TOP = 534.8
INV = 529.1

2416

15" RCP-III

2417

TOP = 531.5

COLLAR INV = 528.3

15" RCP-III

15" RCP-III

2419

COLLAR
TOP = 538.0
INV = 529.1

RETAIN

TOP = 540.2
INV = 534.7

2423A

TOP = 540.8
INV = 529.1

2422A

ADJ 2GI

RETAIN

RETAIN

15" RCP-III

ADJ 2GI

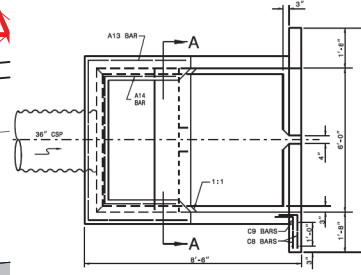
2422

TOP = 539
INV = 534

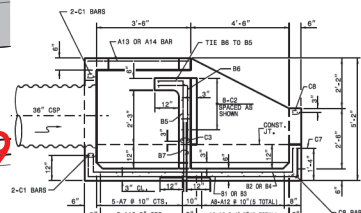
TOP = 539.6
INV = 534.6

DETAIL A4
ENERGY DISSIPATOR

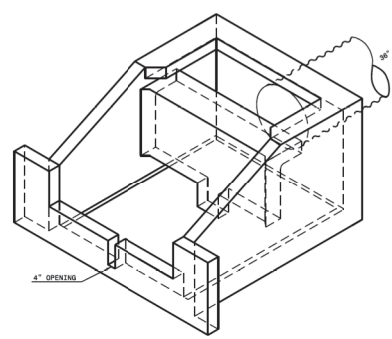
133+50 LT
Type of Liner = Class B Rip-Rap (KEYED IN)
L STA 132+00
DETAIL A4
ENERGY DISSIPATOR
L FROM STA 132+25 LT TO STA 133+97
L FROM STA 137+00 TO STA 137+50
L FROM STA 142+00 TO STA 147+50



PLAN



SECTION ON C



BILL OF MATERIAL	
NO.	QTY
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	1.00
12	1.00
13	1.00
14	1.00
15	1.00
16	1.00
17	1.00
18	1.00
19	1.00
20	1.00
21	1.00
22	1.00
23	1.00
24	1.00
25	1.00
26	1.00
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28	1.00
29	1.00
30	1.00
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41	1.00
42	1.00
43	1.00
44	1.00
45	1.00
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50	1.00
51	1.00
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89	1.00
90	1.00
91	1.00
92	1.00
93	1.00
94	1.00
95	1.00
96	1.00
97	1.00
98	1.00
99	1.00
100	1.00

* ALL SPLICES SHALL BE 1'-6" MIN.
* ALL REINFORCING STEEL SHALL
BE IN CON. OF ANY FACE UNLESS
OTHERWISE SPECIFIED.

NO.	QTY
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	1.00
12	1.00
13	1.00
14	1.00
15	1.00
16	1.00
17	1.00
18	1.00
19	1.00
20	1.00
21	1.00
22	1.00
23	1.00
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26	1.00
27	1.00
28	1.00
29	1.00
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92	1.00
93	1.00
94	1.00
95	1.00
96	1.00
97	1.00
98	1.00
99	1.00
100	1.00

* SHIFT BS A B4 BARS AS NECESSARY TO CLEAR 4" OPENING

PERMIT DRAWING
SHEET 20 OF 115

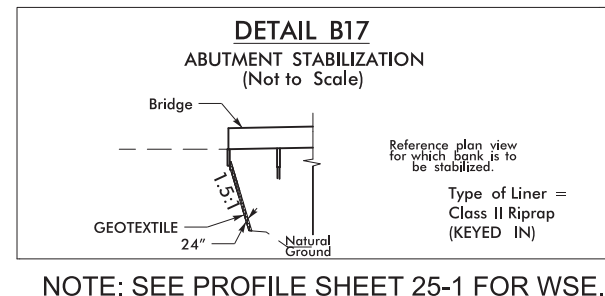
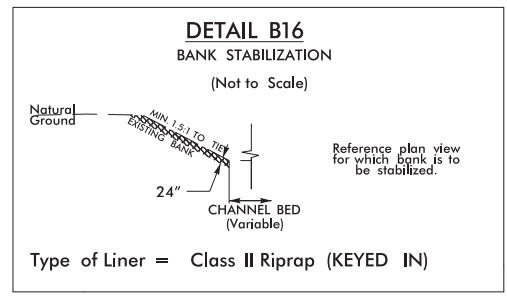
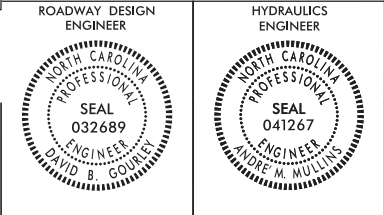
Revised July 2023



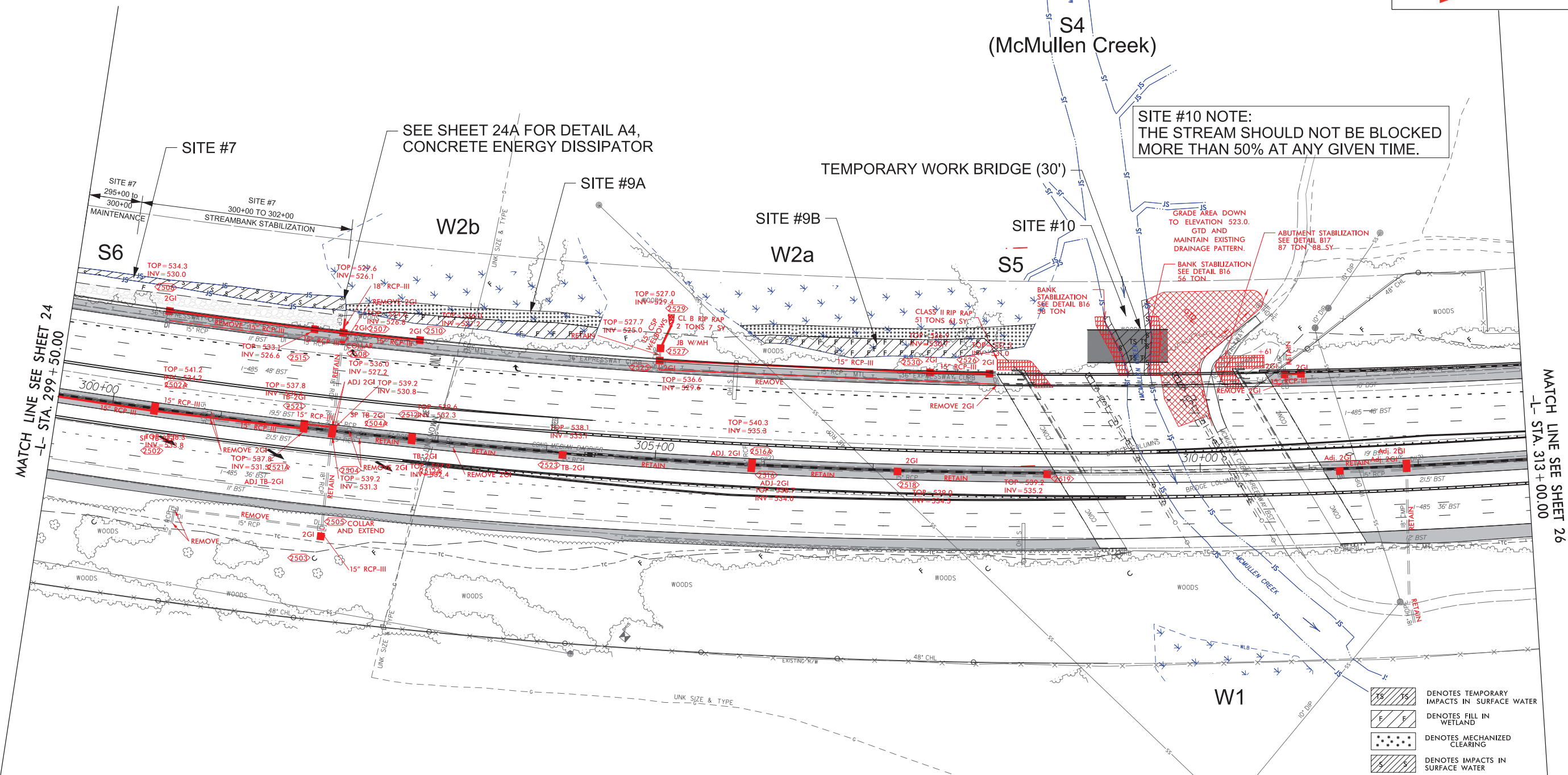
GRAPHIC SCALE

REVISIONS

8/9/2023
\\wsp\p14\gs01\1\CS_pdf_work_dir\135933_335941_9780\15507_Hyd_prm_wet_psh24A.dgn
msd\w14\gs01



NOTE: SEE PROFILE SHEET 25-1 FOR WSE.

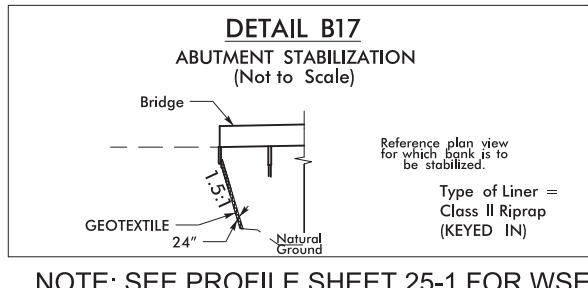
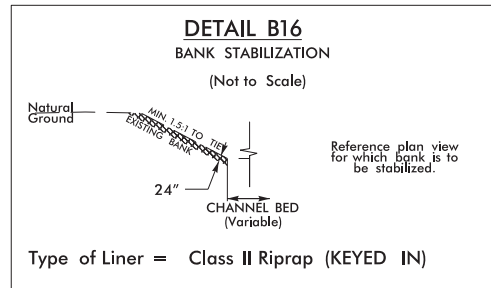


- 1S 1S DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- F F DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- S S DENOTES IMPACTS IN SURFACE WATER

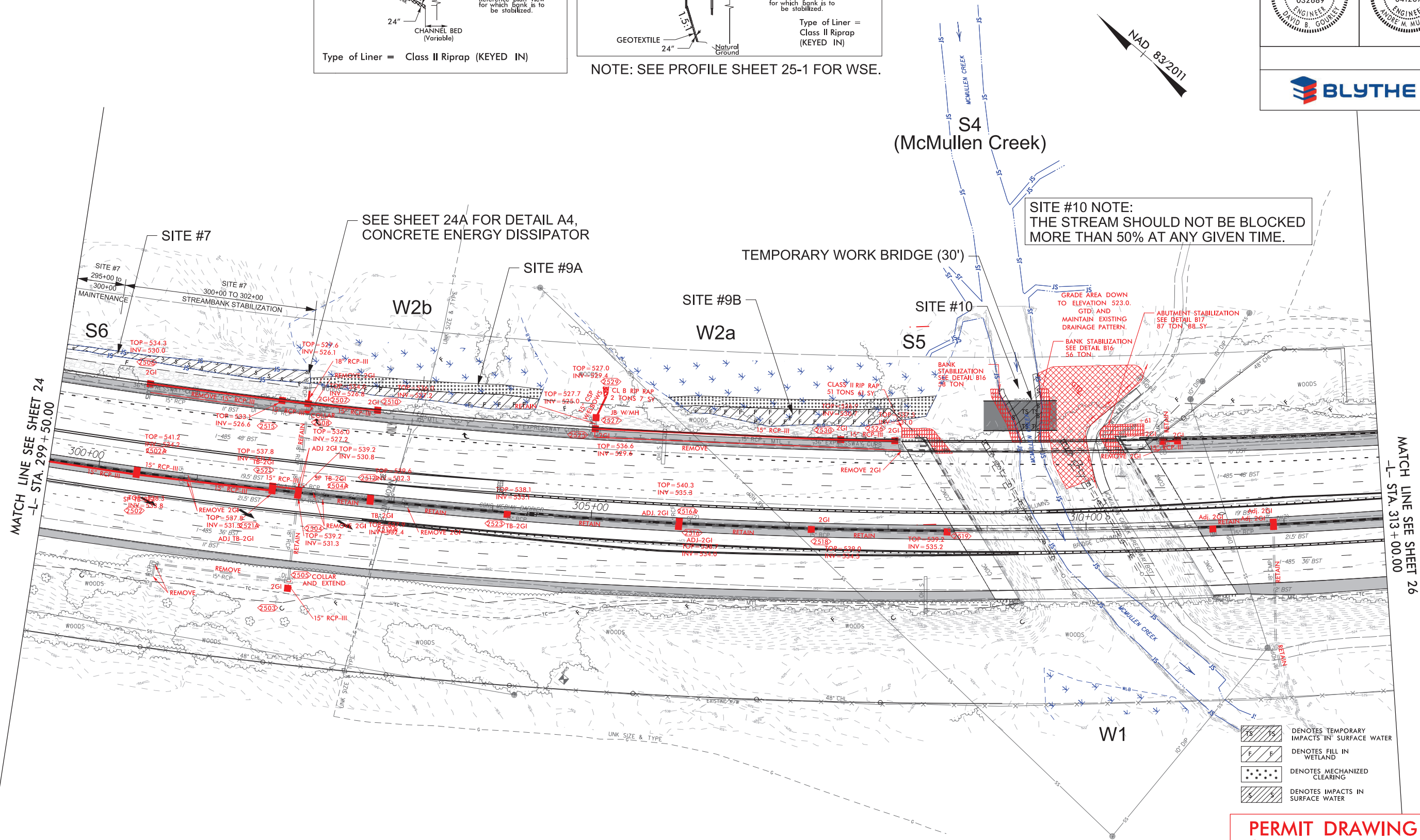
PERMIT DRAWING
SHEET 22 OF 115

Revised July 2023

100 0 100
GRAPHIC SCALE



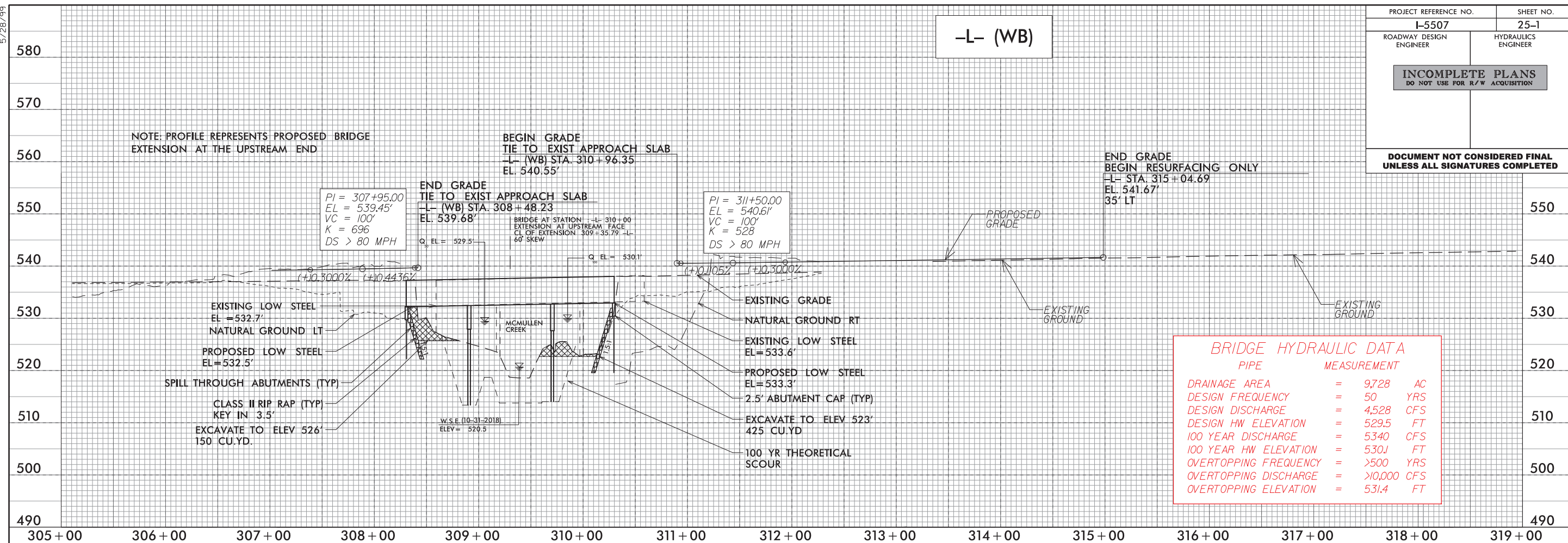
NOTE: SEE PROFILE SHEET 25-1 FOR WSE.



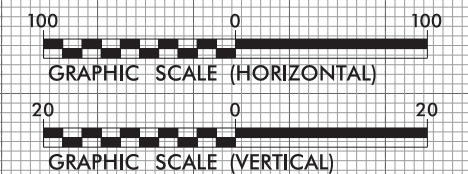
PERMIT DRAWING
SHEET 23 OF 115

Revised July 2023





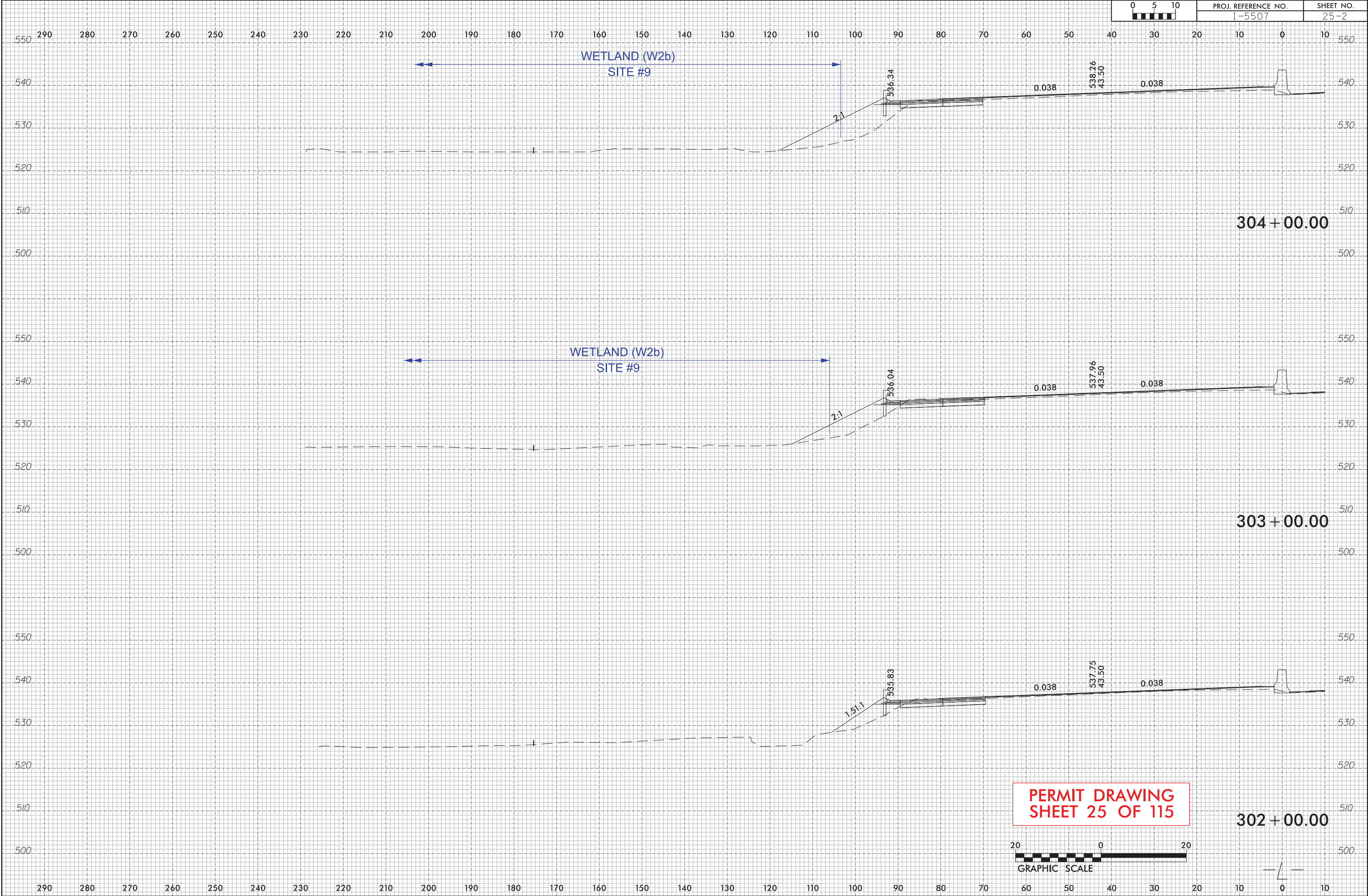
PERMIT DRAWING
SHEET 24 OF 115



6/23/16



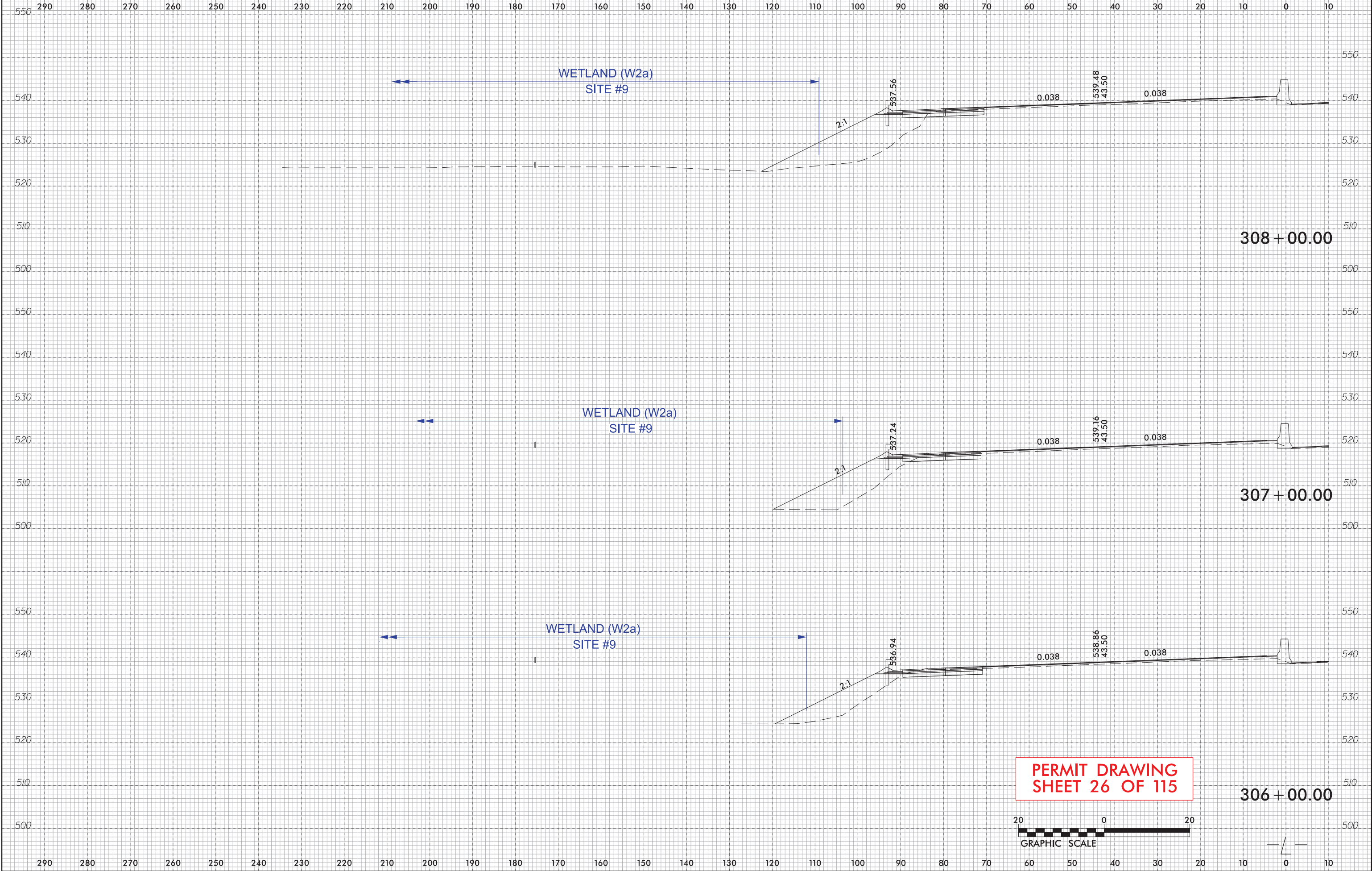
PROJ. REFERENCE NO.	SHEET NO.
1-5507	25-2

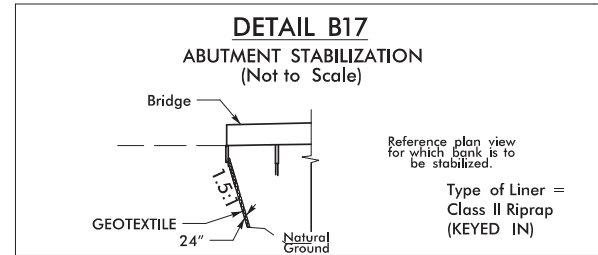


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
I-5507	25-3

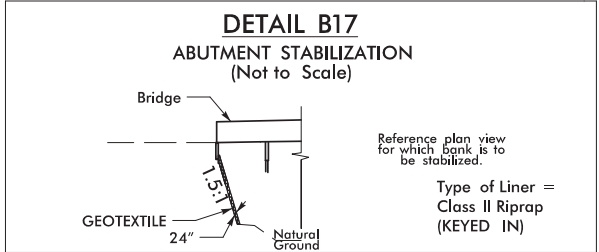
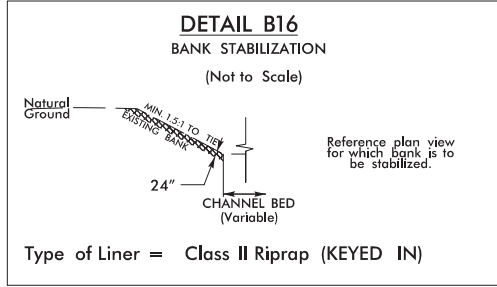




SITE #11 NOTE:
THE STREAM SHOULD NOT BE BLOCKED
MORE THAN 50% AT ANY GIVEN TIME.

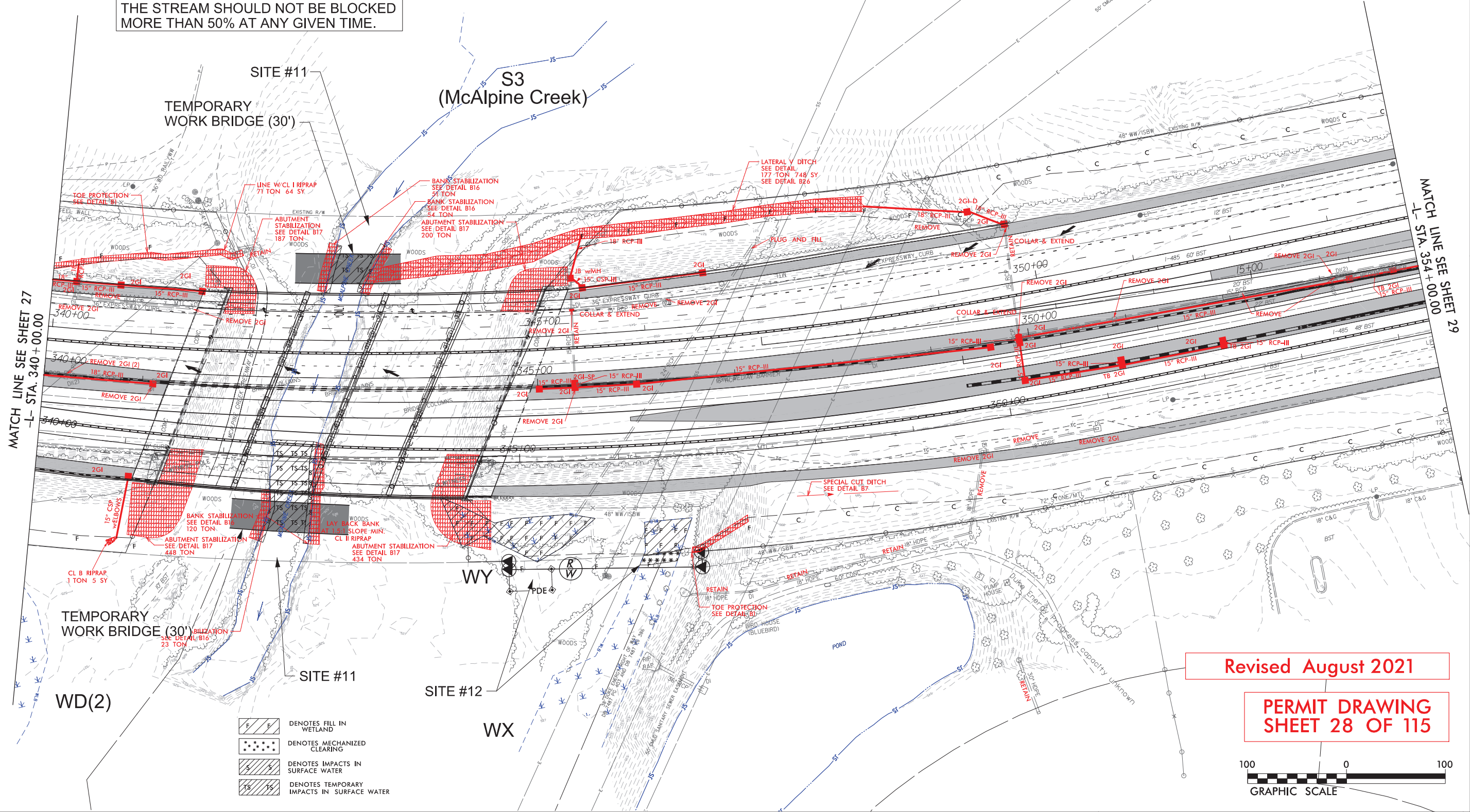


PROJECT REFERENCE NO.		SHEET NO.
I-5507		28
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
		



NOTE: SEE PROFILE SHEET 28-1 FOR WSE.

SITE #11 NOTE:
THE STREAM SHOULD NOT BE BLOCKED MORE THAN 50% AT ANY GIVEN TIME.



Revised August 2021

PERMIT DRAWING
SHEET 28 OF 115

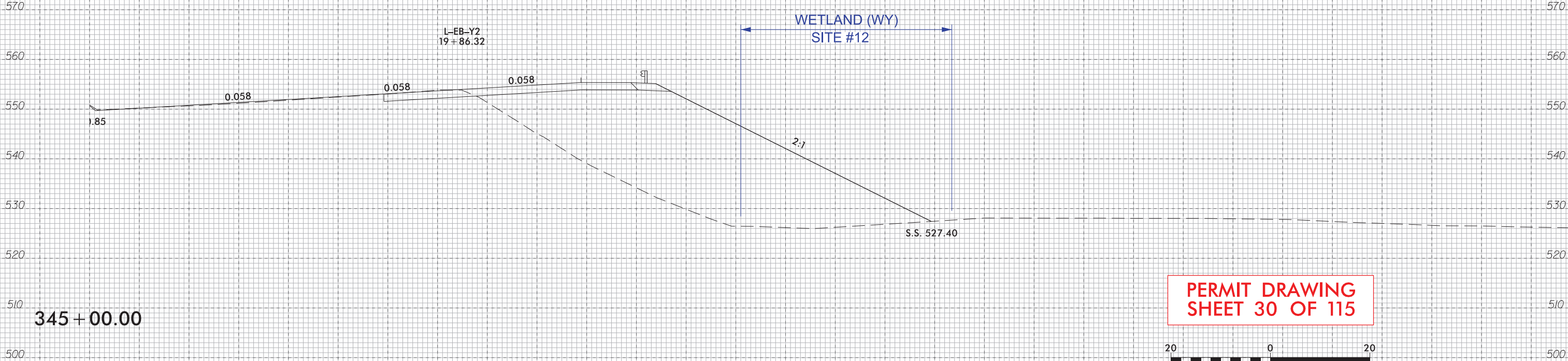
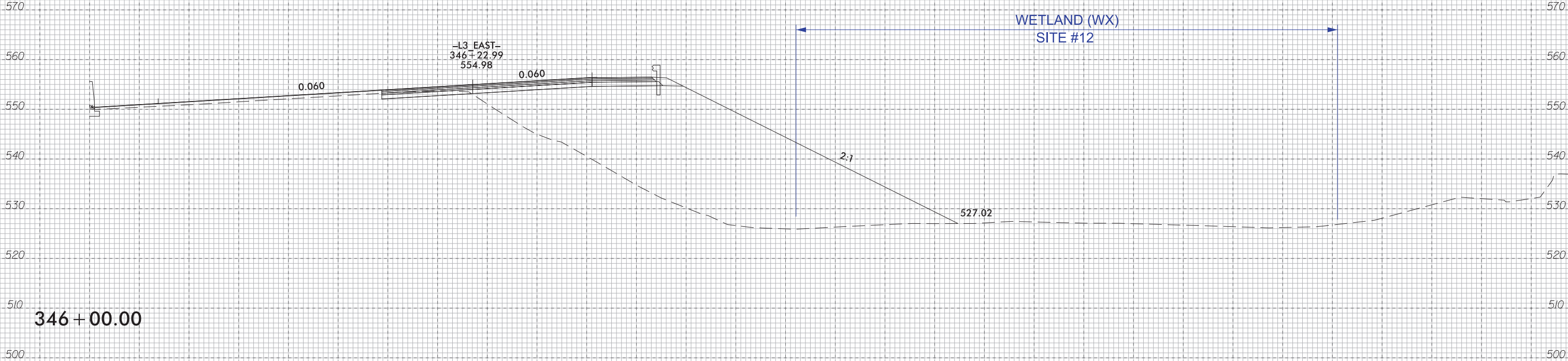


6/23/16

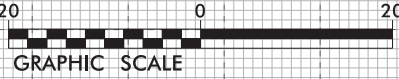


PROJ. REFERENCE NO.	SHEET NO.
I-5507	28-2

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

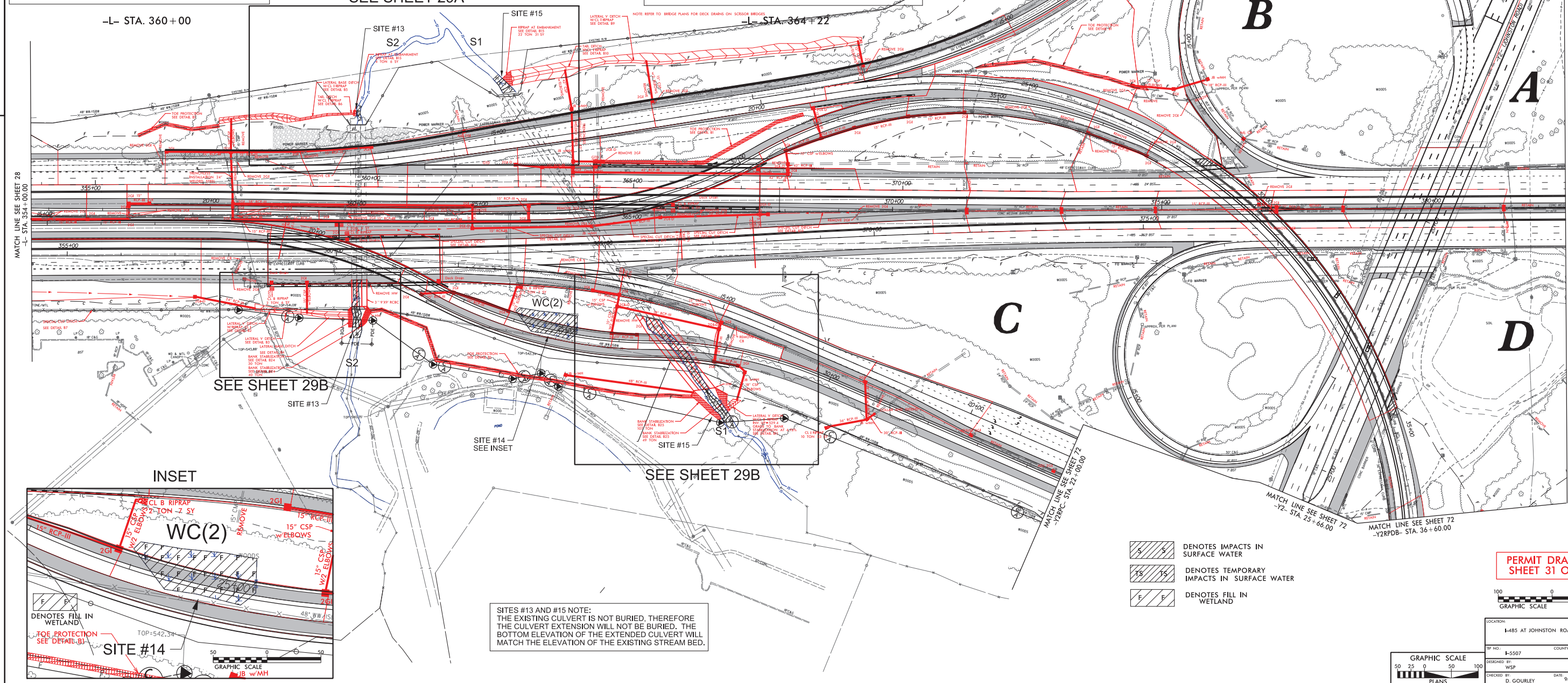
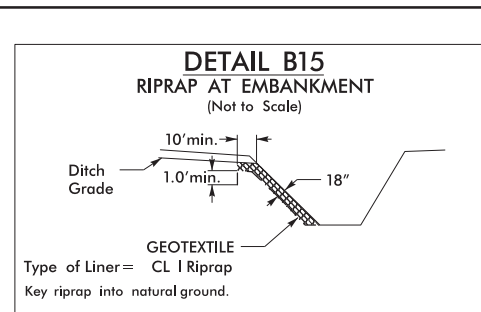


PERMIT DRAWING
SHEET 30 OF 115



10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

9/12/2018
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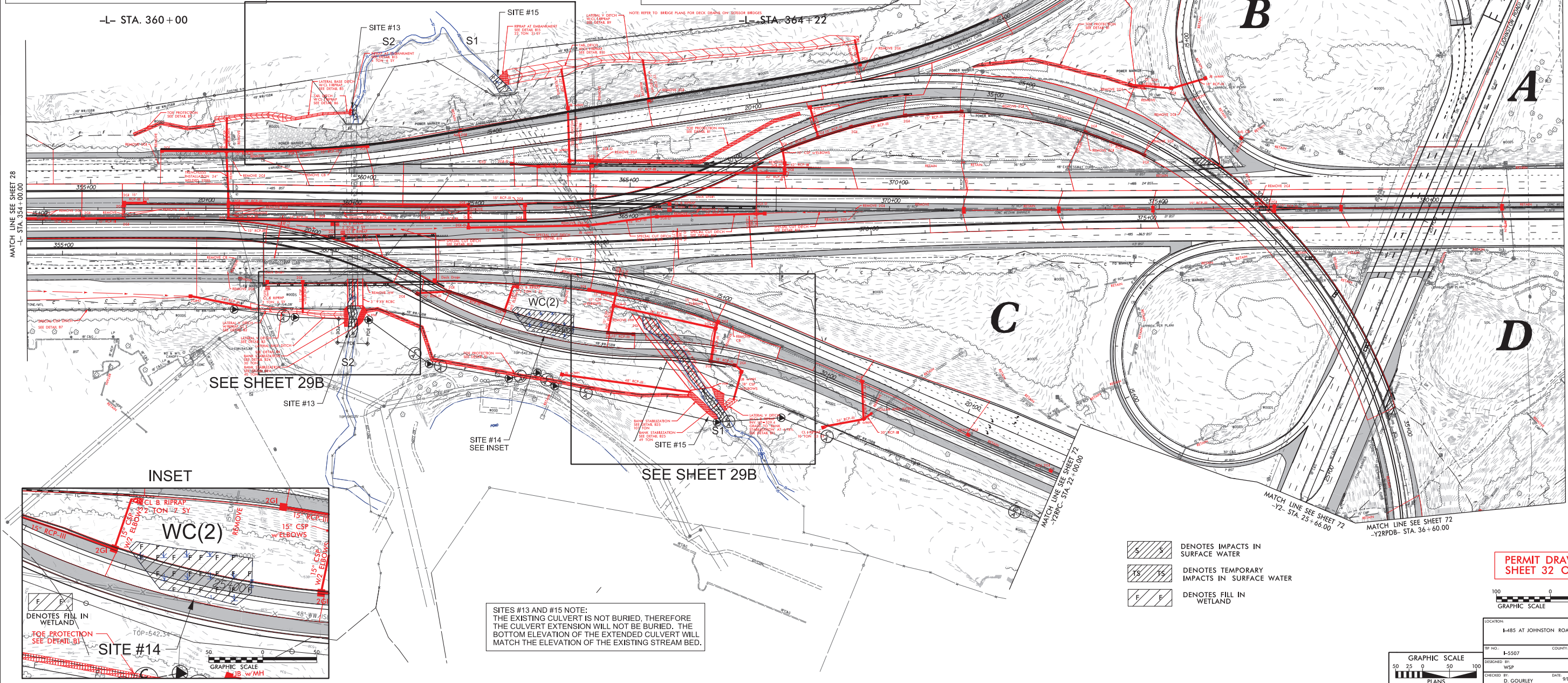
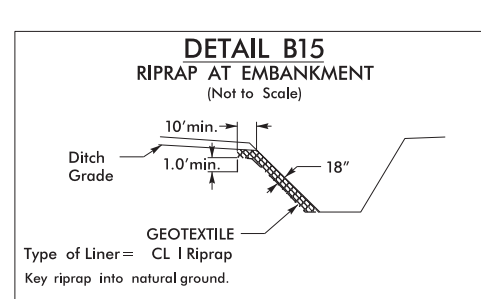


PROJECT REFERENCE NO.		SHEET NO.	
I-5507		29	
BW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL			

PERMIT DRAWING
SHEET 31 OF 115



LOCATION:	
I-485 AT JOHNSTON ROAD (US 521)	
TIP NO.:	COUNTY:
I-5507	MECKLENBURG
DESIGNED BY:	
WSP	
CHECKED BY:	DATE:
D. GOURLEY	9/12/2019

PERMIT DRAWING
SHEET 32 OF 115

LOCATION:	
I-485 AT JOHNSTON ROAD (US 521)	
TRF NO.:	COUNTY:
I-5507	MECKLENBURG
DESIGNED BY:	
WSP	
CHECKED BY:	DATE:
D. GOURLEY	9/12/2019



9/12/2019
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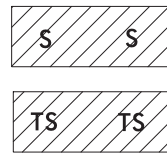


9/12/2019
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8/17/99

REVISIONS

9/12/2019
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PDP\WCS01



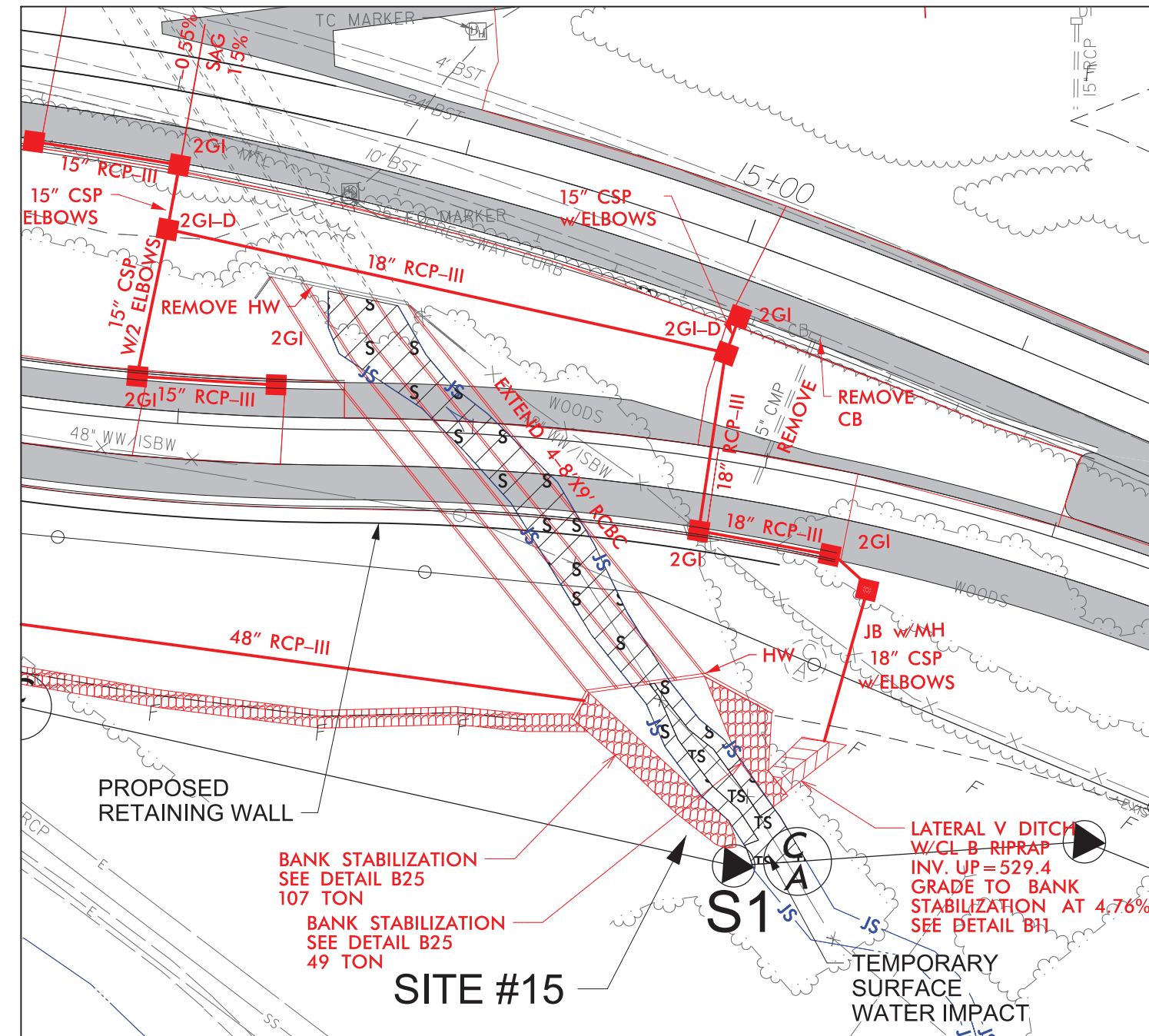
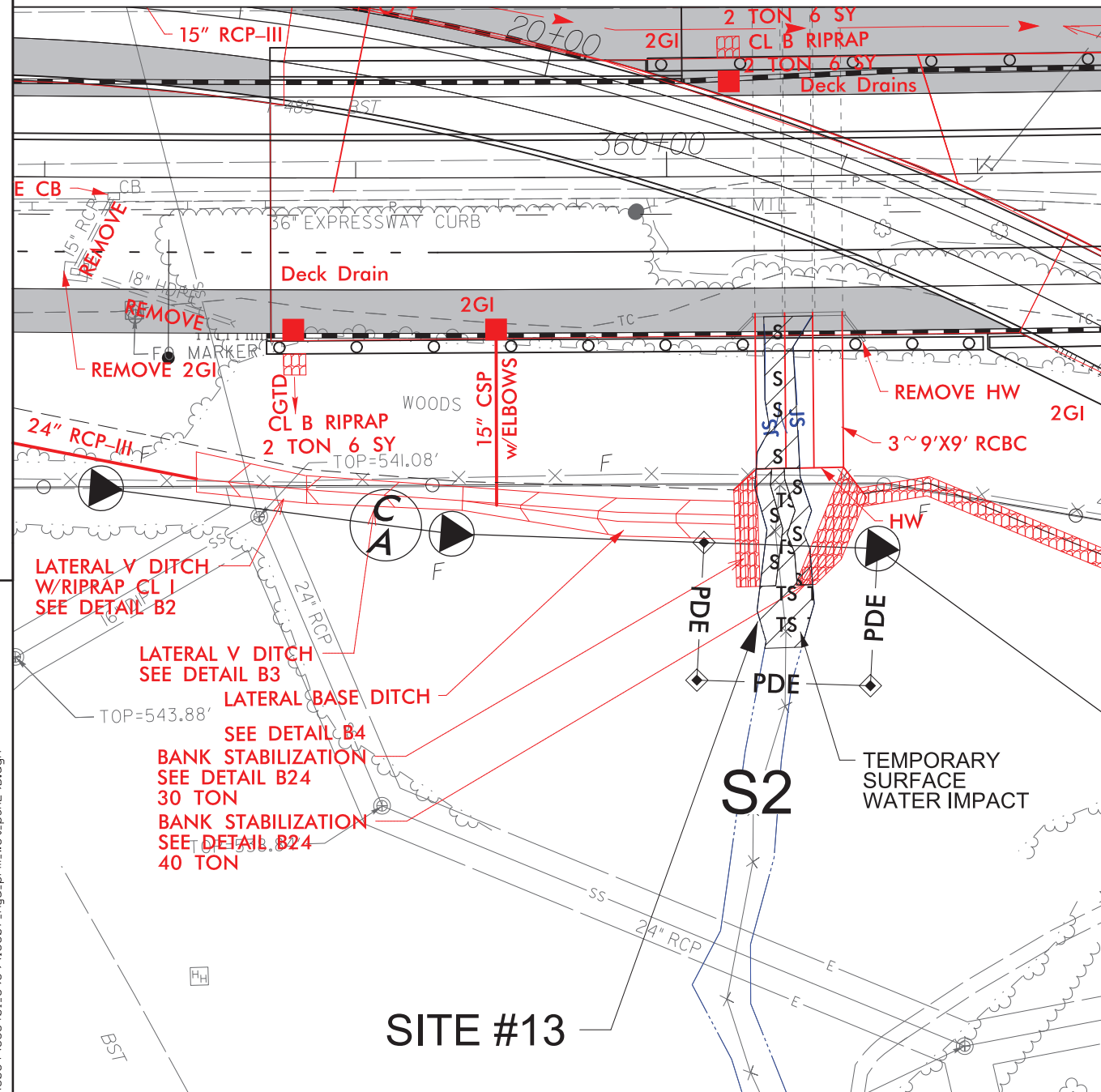
DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.
I-5507		29B
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

NAD 83/2011

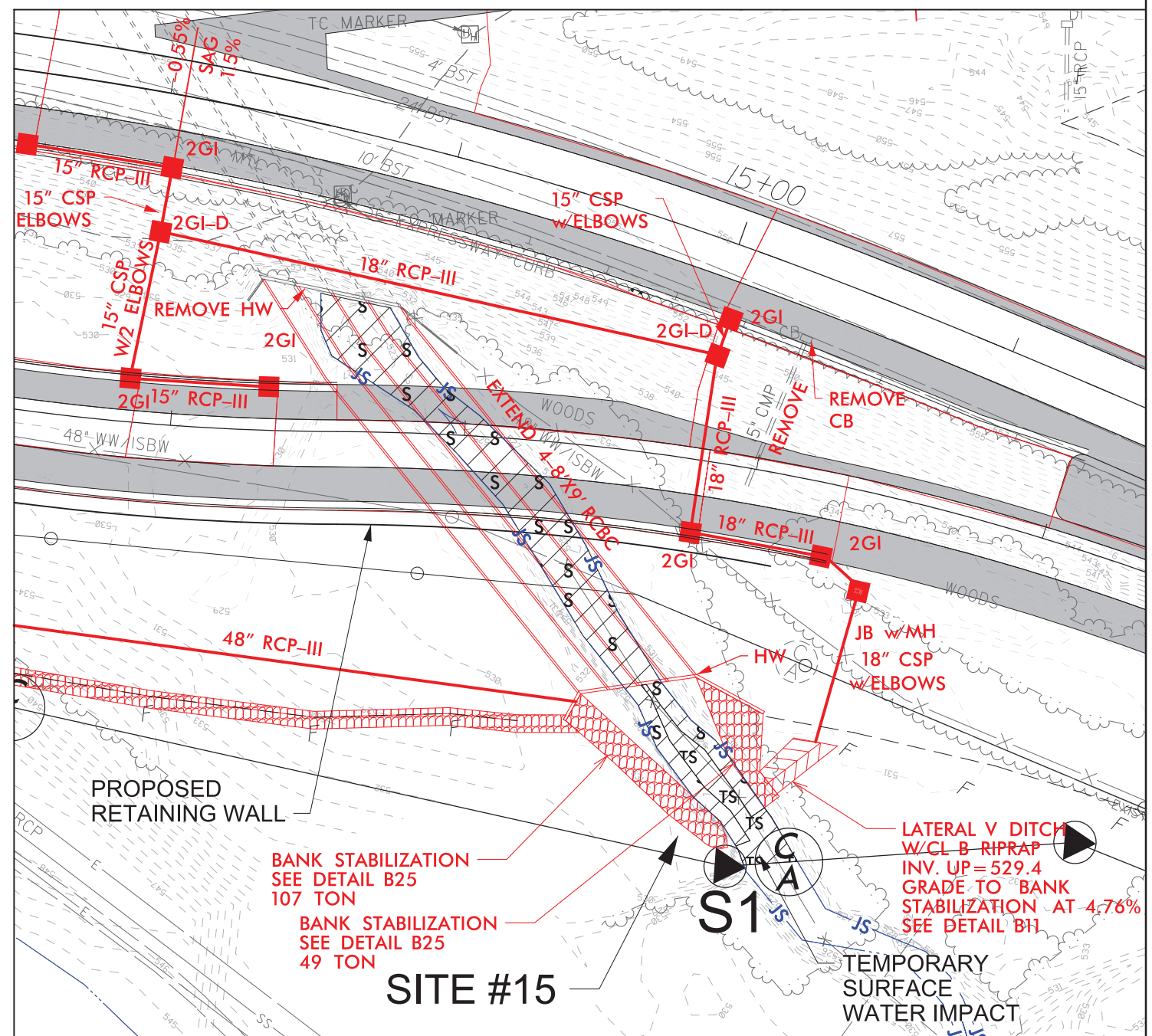


SITES #13 AND #15 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

PERMIT DRAWING
SHEET 35 OF 115



NAD 83/2011



SITES #13 AND #15 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

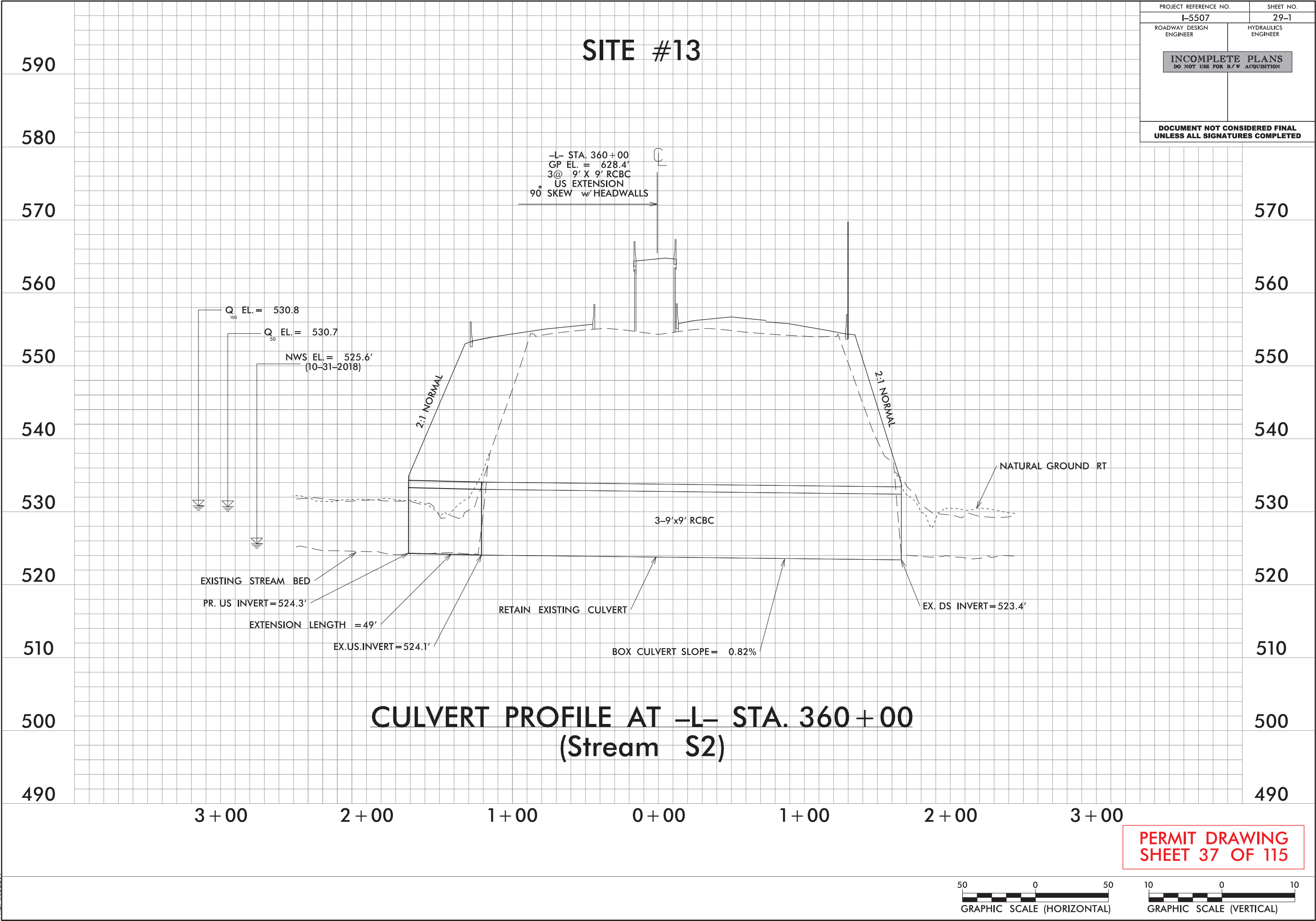
PERMIT DRAWING
SHEET 36 OF 115

[illegible]

5/28/99

9/12/2019
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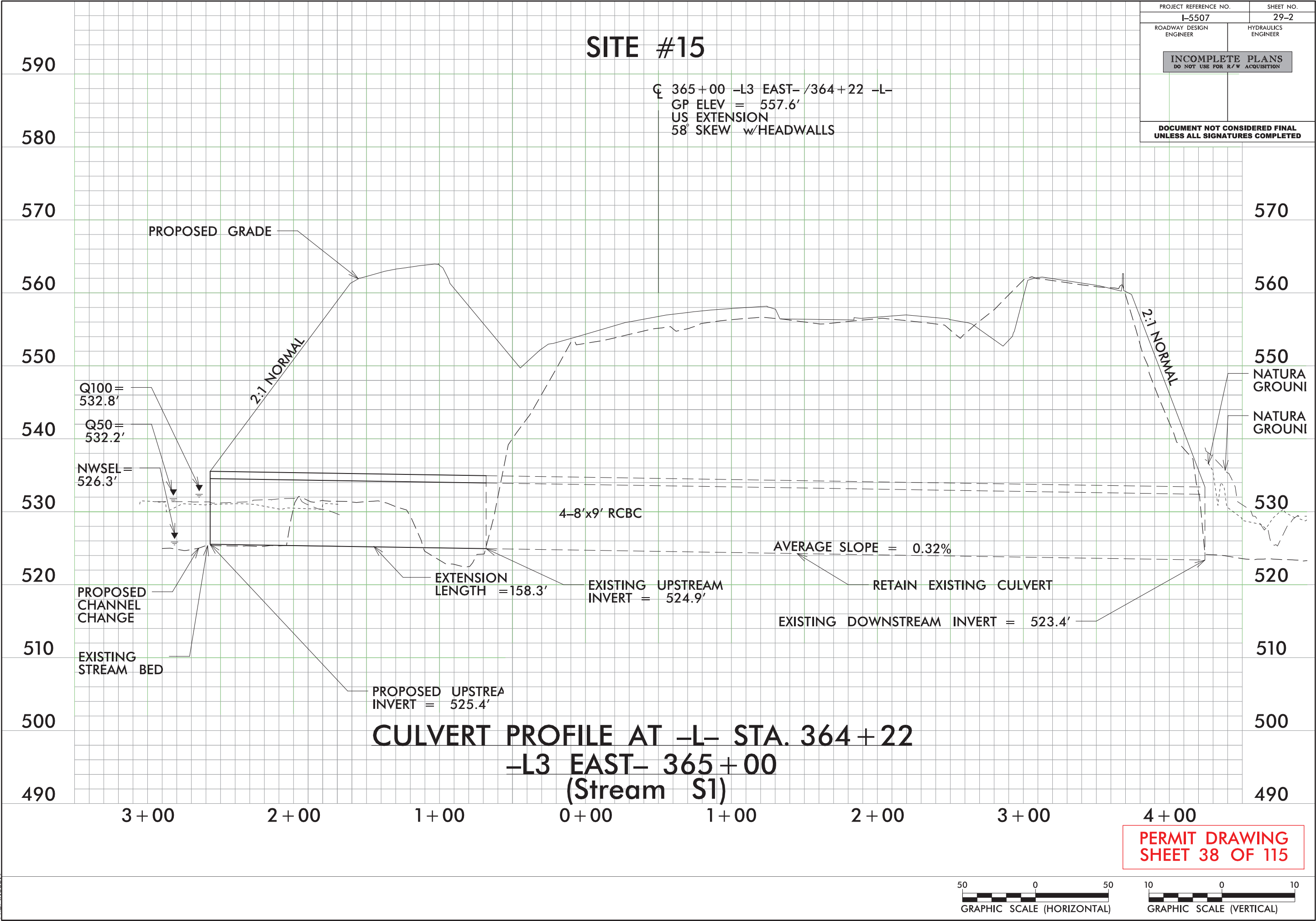
PROJECT REFERENCE NO.		SHEET NO.	
I-5507		29-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

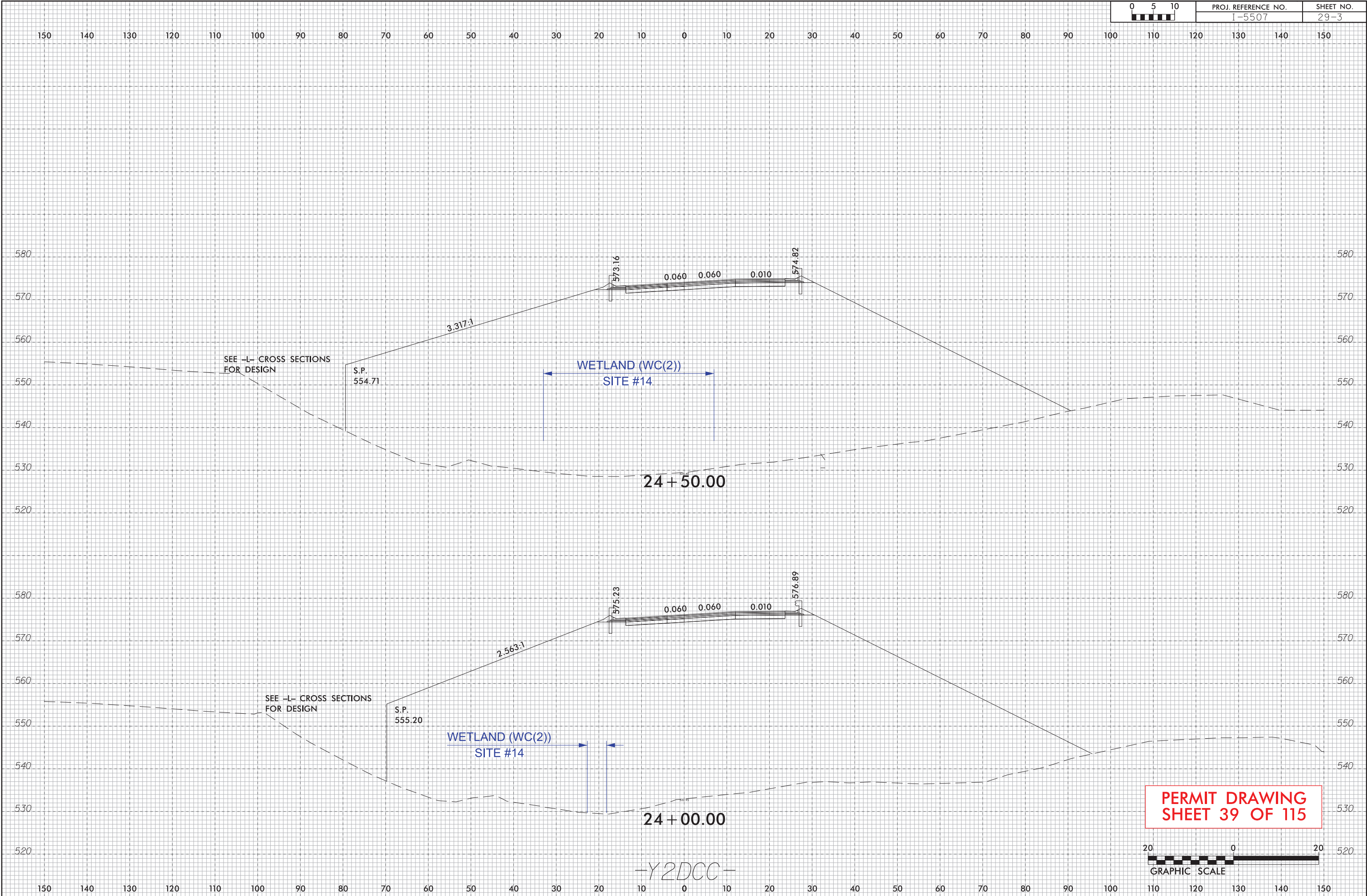


5/28/99

9/12/2019
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PLOTWCS01

PROJECT REFERENCE NO.	SHEET NO.
I-5507	29-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	





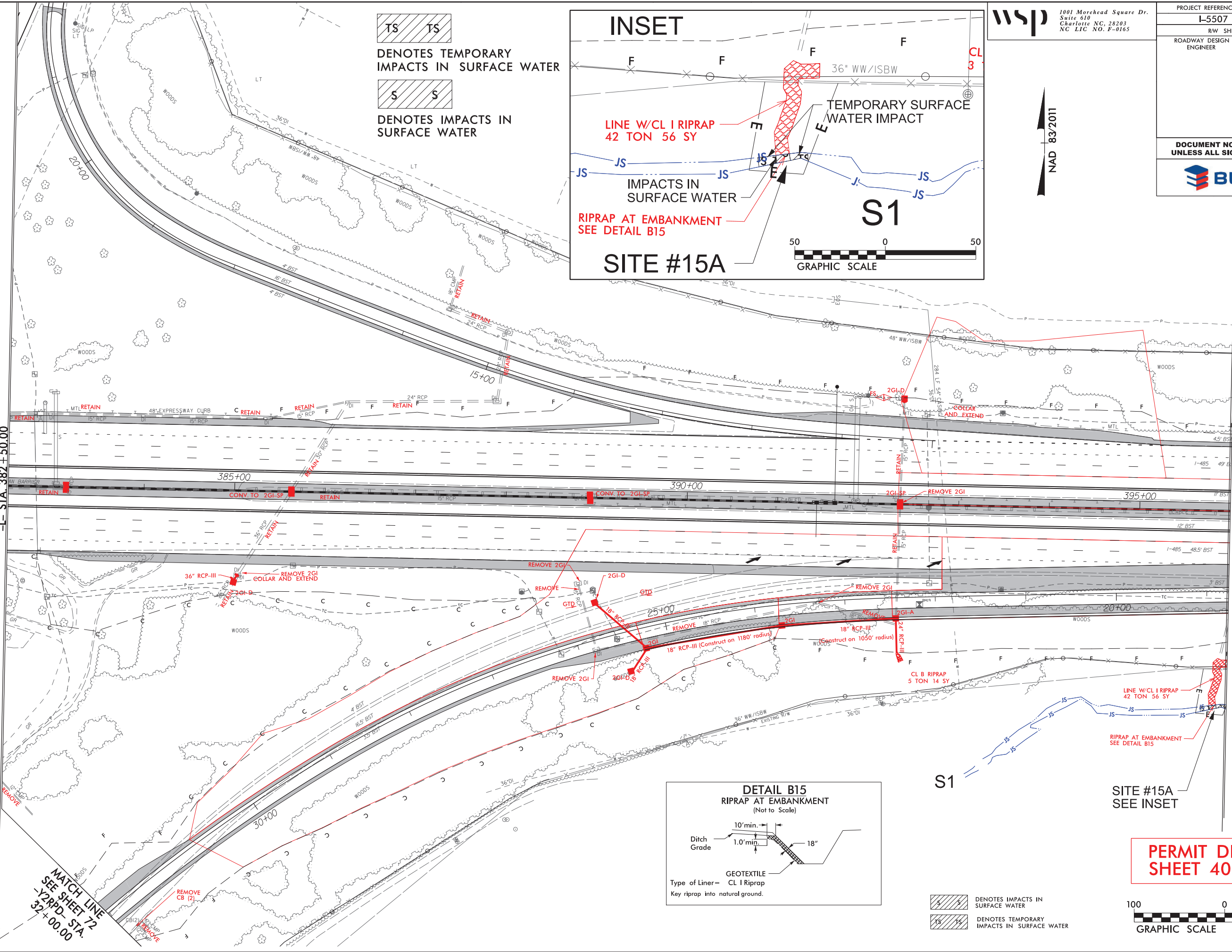
8/17/99

REVISIONS

9/12/2019
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MATCH LINE SEE SHEET 29
-L- STA. 382+50.00

MATCH LINE
SEE SHEET 72
-Y2RFD- STA.
32+00.00

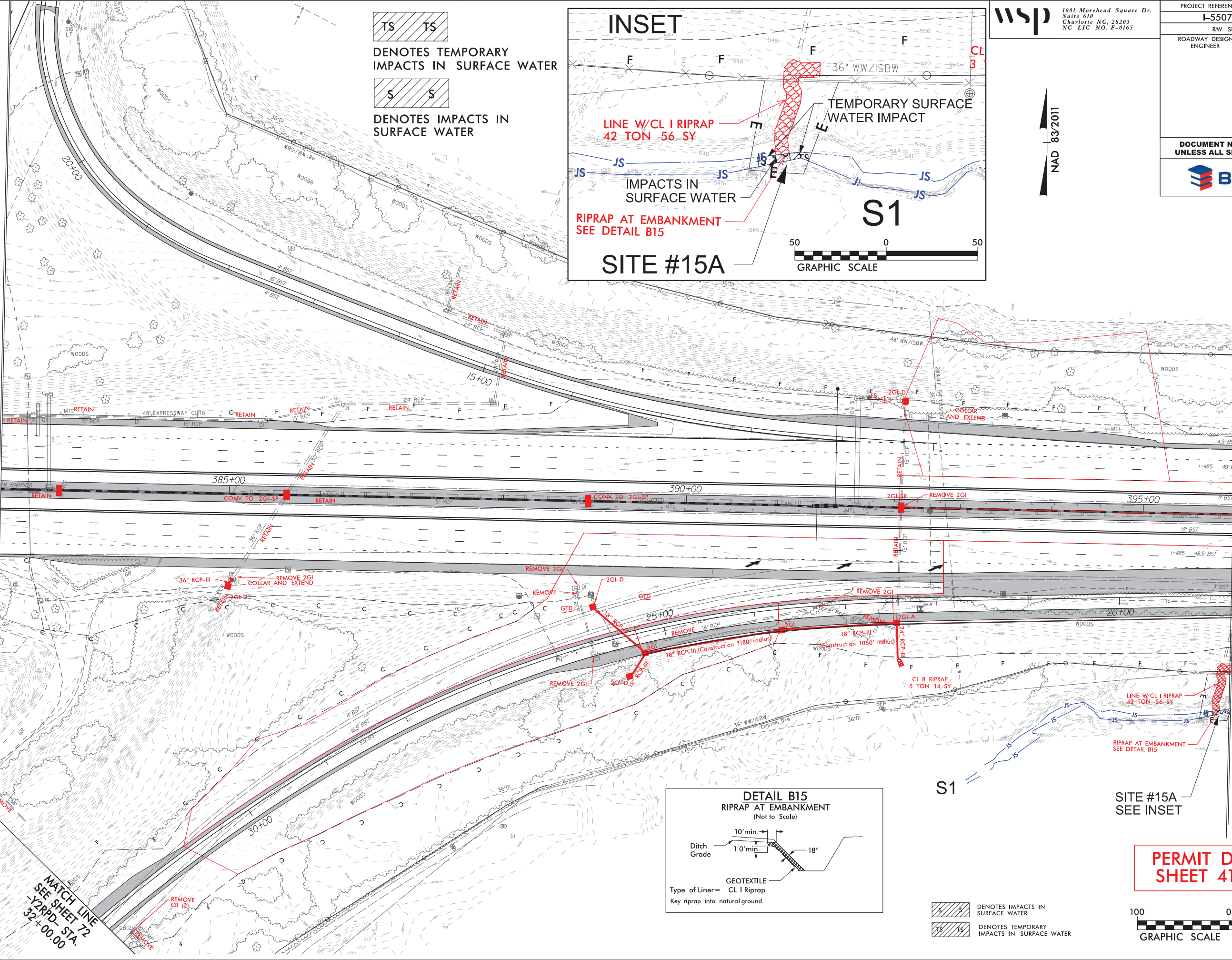


8/17/99

REVISIONS

9/12/2019
p:\p\dwg\01\ics_workingdir\3086\336401.3978\15507_Hyd.prm_wet_psh30_cont.dgn
PDP\WCS01

MATCH LINE SEE SHEET 29
-L- STA. 382+50.00



MATCH LINE
SEE SHEET 72
-Y2RFD- STA.
332+00.00

INSET

LINE W/CL I RIPRAP
42 TON 56 SY

IMPACTS IN
SURFACE WATER

RIPRAP AT EMBANKMENT
SEE DETAIL B15

SITE #15A

TEMPORARY SURFACE
WATER IMPACT

S1

50 0 50
GRAPHIC SCALE

wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

NAD 83/2011

PROJECT REFERENCE NO.		SHEET NO.
I-5507		30
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
</		

SITE #15A
SEE INSET

PERMIT DRAWING
SHEET 41 OF 115

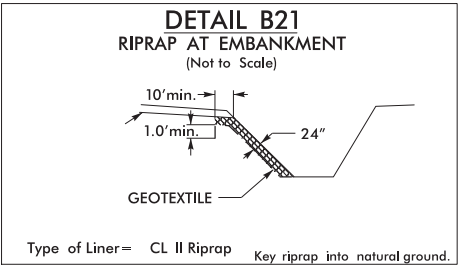
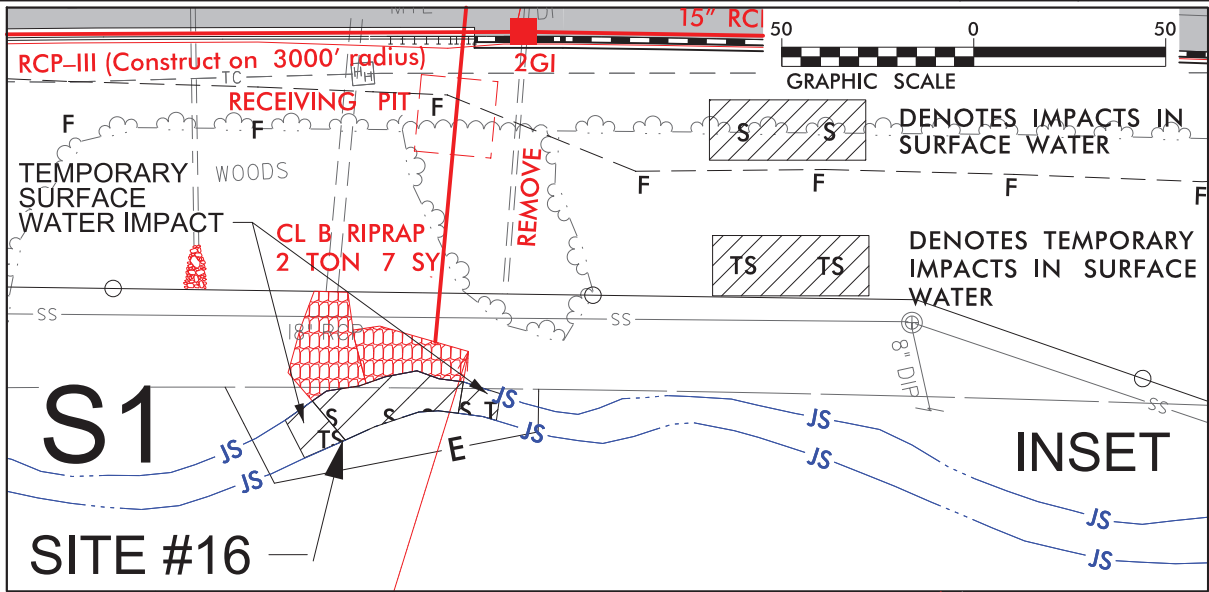
100 0 100
GRAPHIC SCALE

MATCH LINE SEE SHEET 31
-L- STA. 396+00.00

8/17/99

9/12/2019
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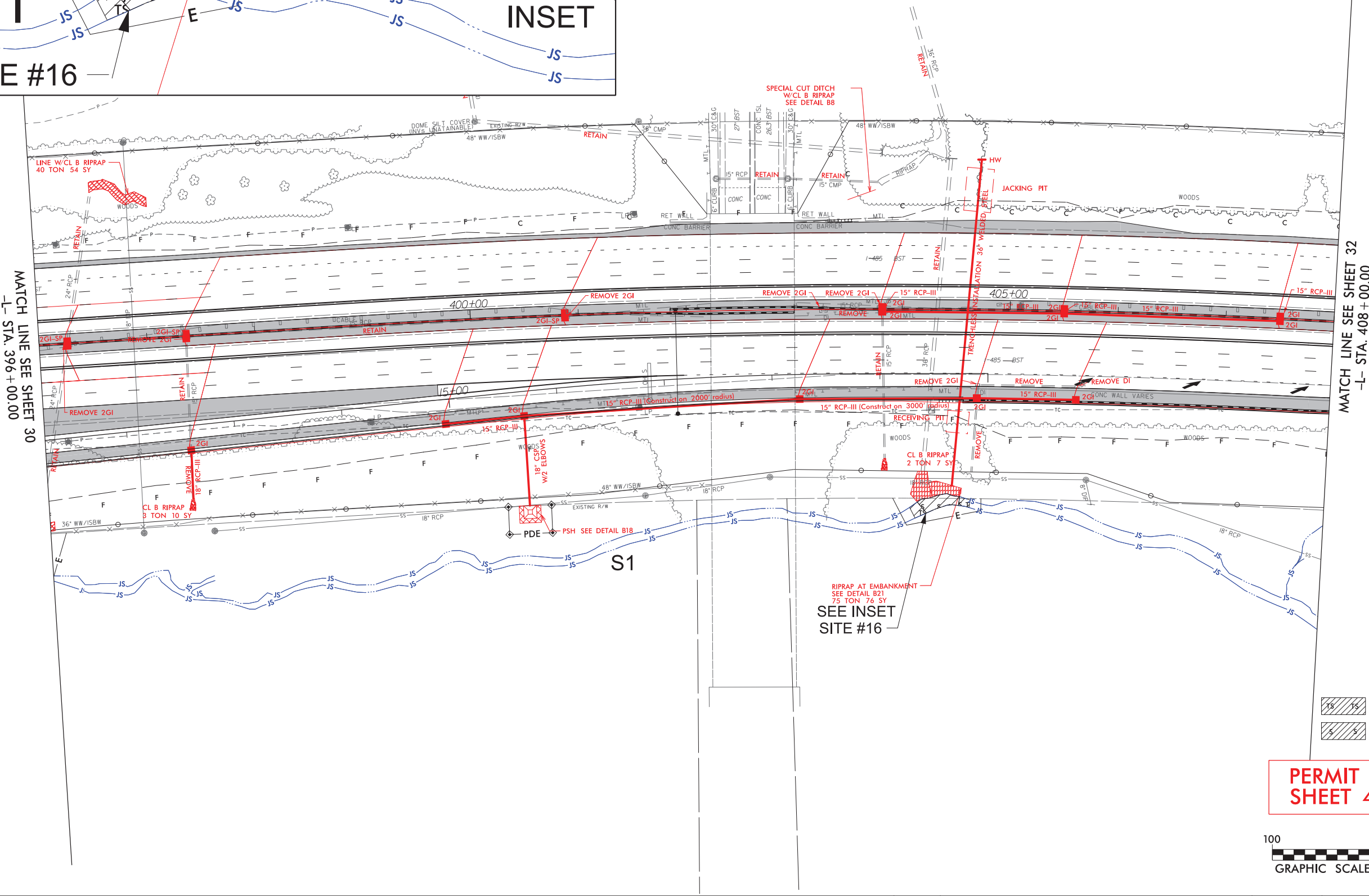
REVISIONS



wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

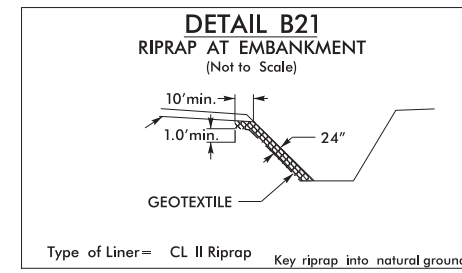
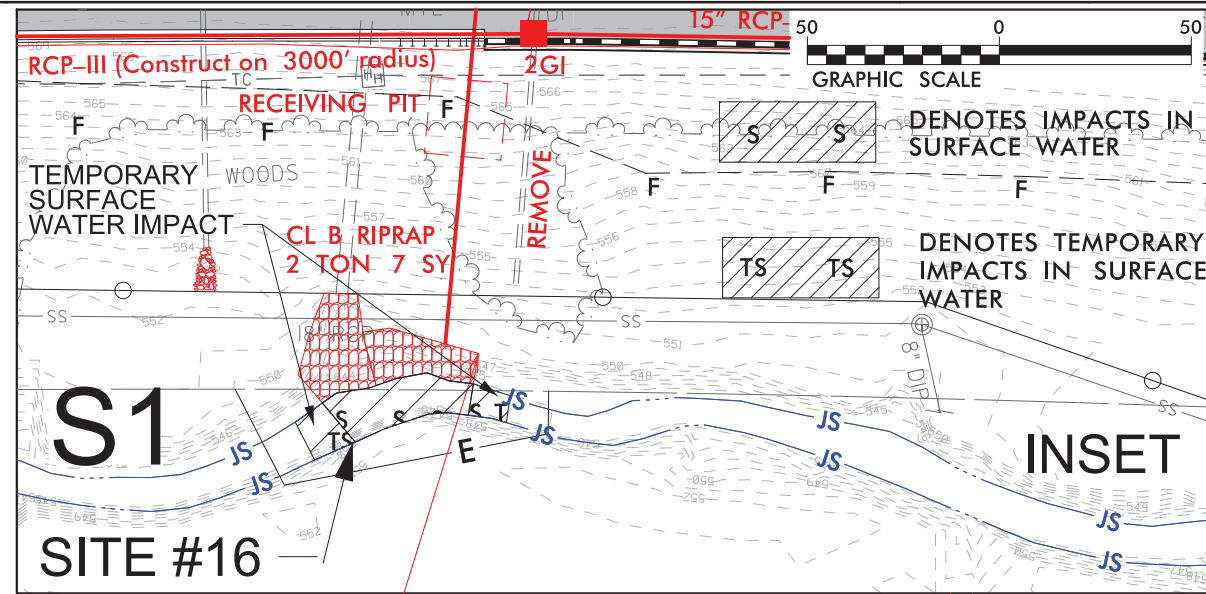
PROJECT REFERENCE NO.	SHEET NO.
I-5507	31
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



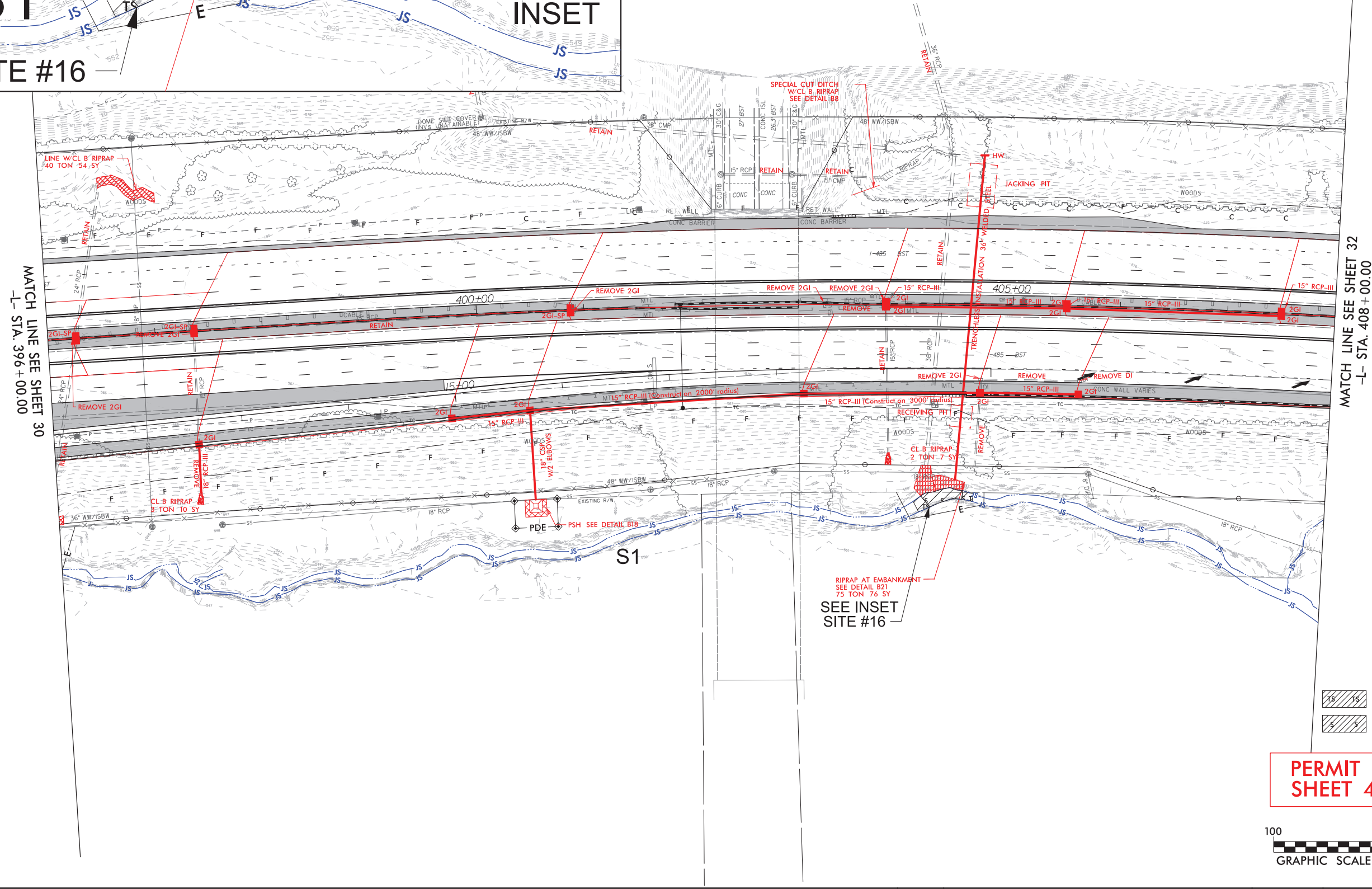
PERMIT DRAWING
SHEET 42 OF 115





wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.	SHEET NO.
I-5507	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PROJECT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 BLYTE	



PERMIT DRAWING
SHEET 43 OF 115



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



DETAIL B15
RIPRAP AT EMBANKMENT
(Not to Scale)

Ditch Grade

10' min.

1.0' min.

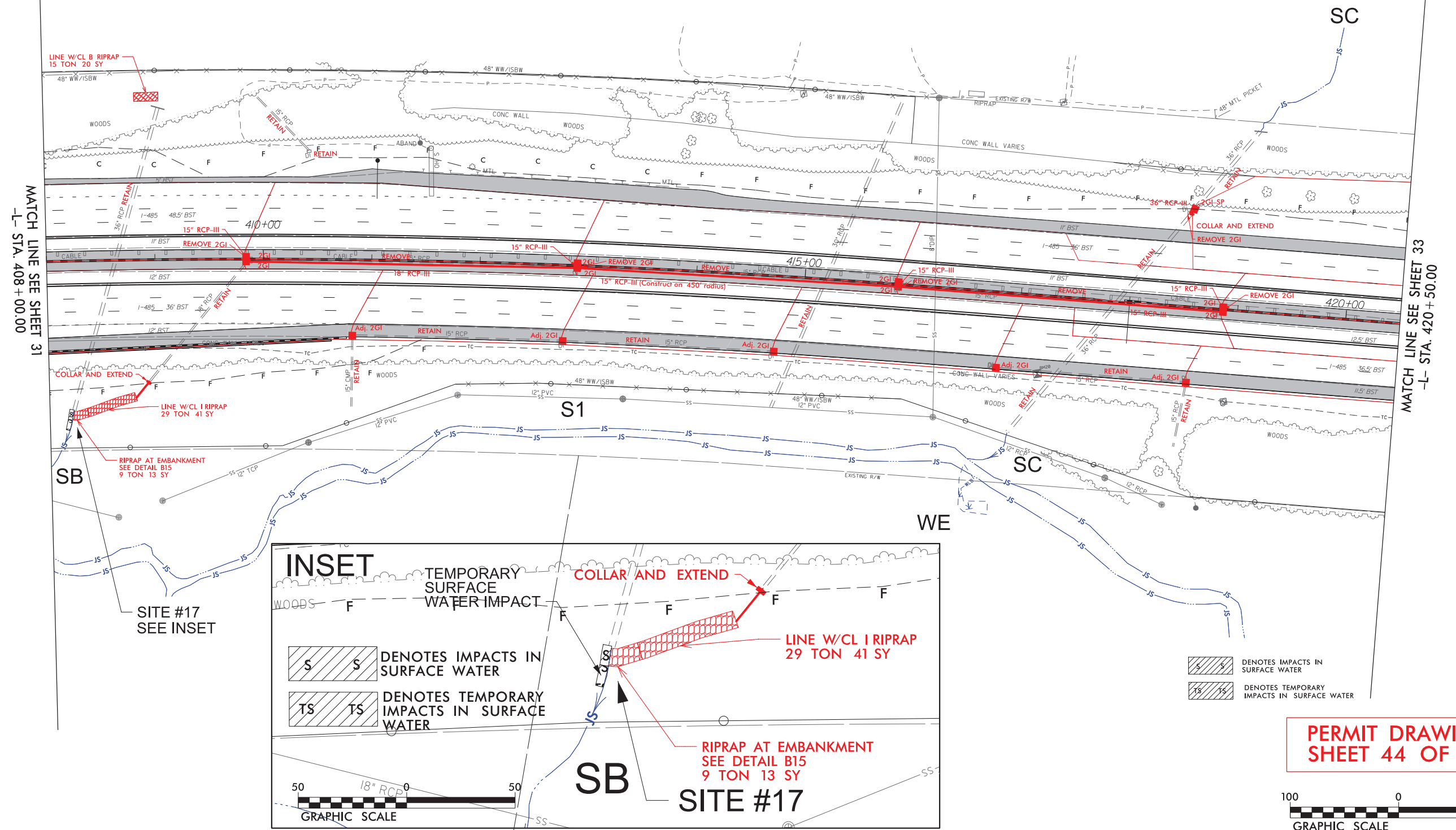
18"

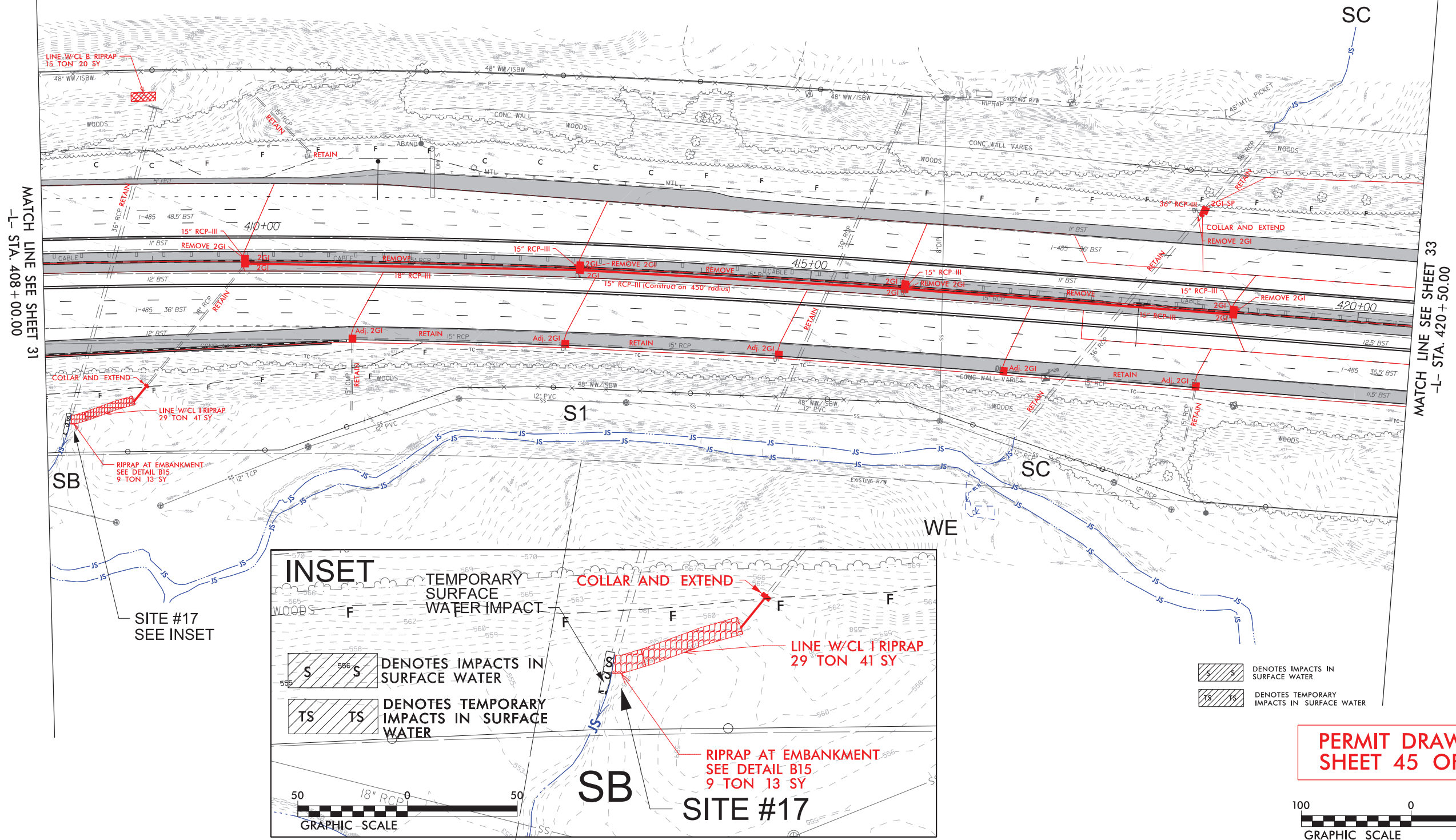
GEOTEXTILE

Type of Liner = CL I Riprap

Key riprap into natural ground.

NAD 83/2011





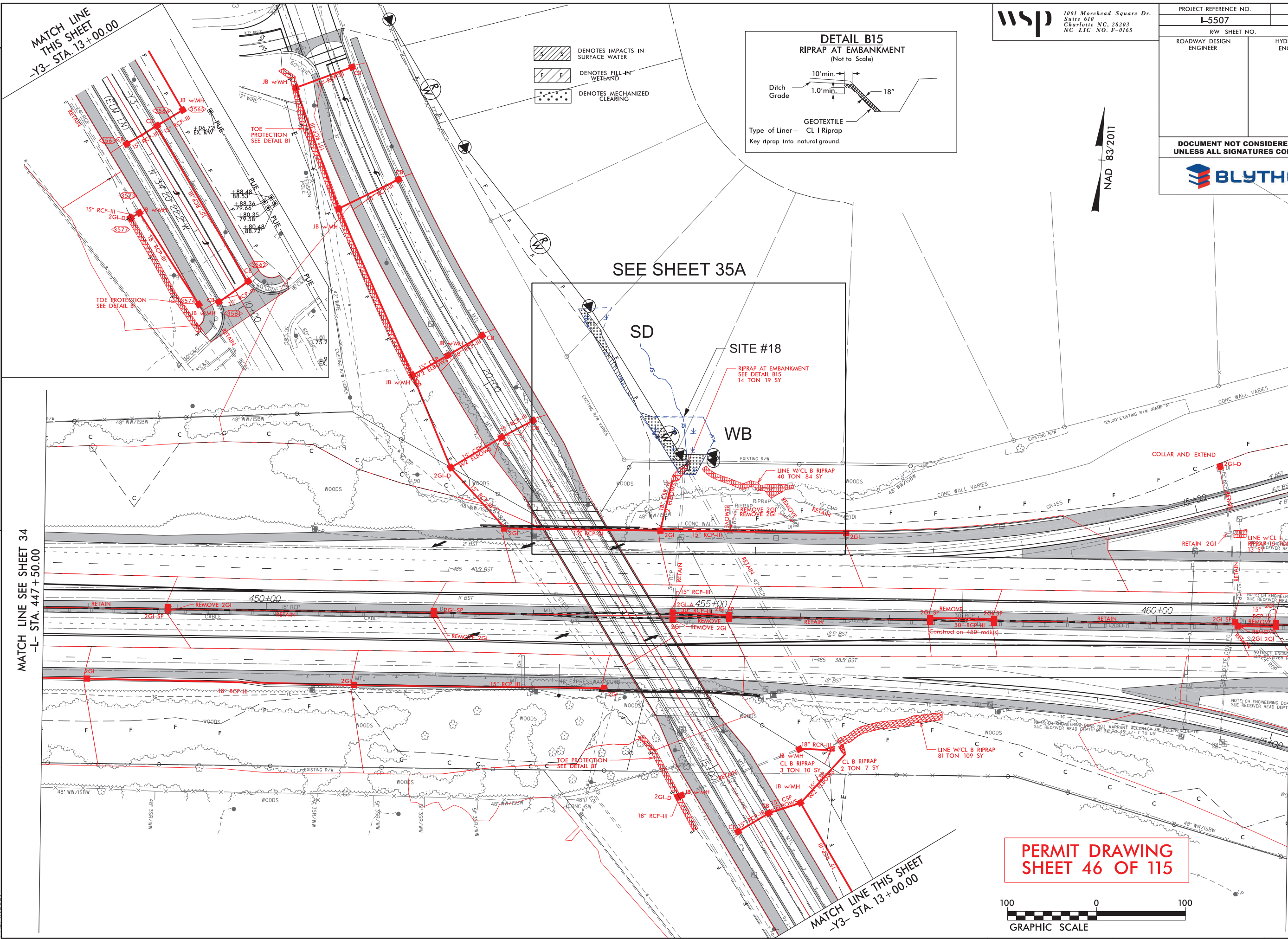
8/17/99

REVISIONS
1. 9/5/19 - ADDED BOXES 3550 AND 3550A.

9/12/2019
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P:\DW\ICS01

MATCH LINE
THIS SHEET
-Y3- STA. 13+00.00

MATCH LINE SEE SHEET 34
-L- STA. 447+50.00



SEE SHEET 35A

SITE #18

RIPRAP AT EMBANKMENT
SEE DETAIL B15
14 TON 19 SY

WB

LINE W/CL B RIPRAP
40 TON 84 SY

REMOVE 2GI
REMOVE 2GI

REMOVE 2GI
REMOVE 2GI

REMOVE 2GI
REMOVE 2GI

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REMOVE 2GI

wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.
I-5507		35
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
 BLYTE		

PERMIT DRAWING
SHEET 46 OF 115



8/17/99

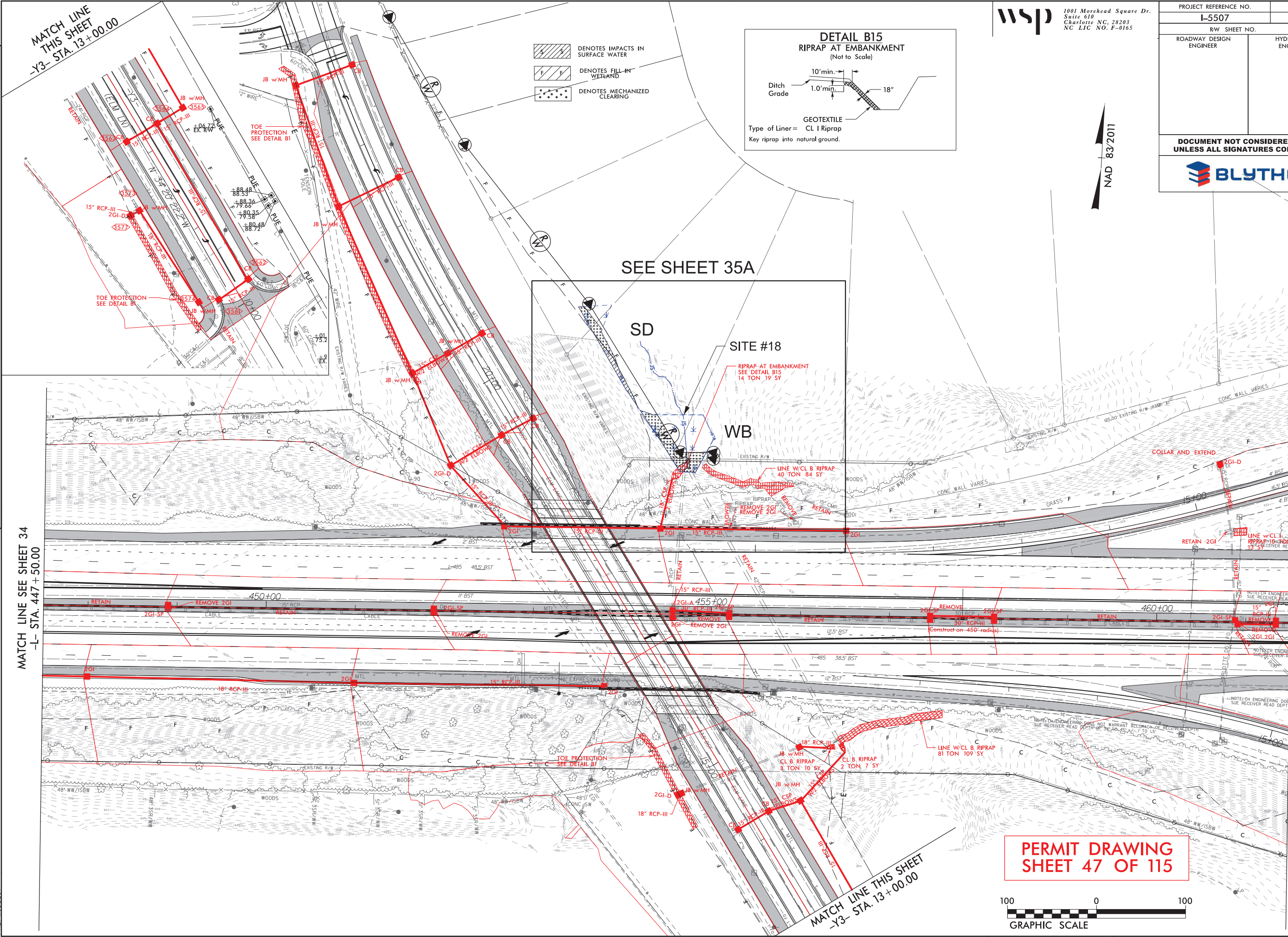
REVISIONS

1. 9/5/19 - ADDED BOXES 3550 AND 3550A

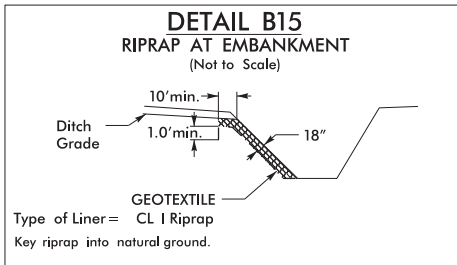
9/12/2019
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PDP\WCS01

MATCH LINE
THIS SHEET
-Y3- STA. 13+00.00

MATCH LINE SEE SHEET 34
-L- STA. 447+50.00



- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL-IN WETLAND
- DENOTES MECHANIZED CLEARING



NAD 83/2011

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Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.	
I-5507		35	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 BLYTHE			

PERMIT DRAWING
SHEET 47 OF 115



MATCH LINE SEE SHEET 36
-L- STA. 461+50.00

MATCH LINE THIS SHEET
-Y3- STA. 13+00.00

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



A rectangular block with diagonal hatching (lines from top-left to bottom-right). Inside the block, there are two 'S' symbols, one on the left and one on the right.

DENOTES IMPACTS IN
SURFACE WATER

A rectangular block with diagonal hatching (lines from bottom-left to top-right). Two 'F' labels are placed within the block, one on the left and one on the right.

DENOTES FILL IN WETLAND

DENOTES MECHANIZED
CLEARING

SD

SITE #18

— RIPRAP AT EMBANKMENT
SEE DETAIL B15
14 TON 19 SY

WB

EXISTING R/W

— LINE W/CL B RIPRAP
40 TON 84 SY

PERMIT DRAWING
SHEET 48 OF 115

25 0 25

GRAPHIC SCALE

REVISIONS

8/17/99

9/12/2019
C:\prdwics01\ics-workingdir\3086\336401_3977\15507_Hyd-prm-wet_psh35A.dgn
RDPWICS01\$



SITE #18

RIPRAP AT EMBANKMENT
SEE DETAIL B15
14 TON 19 SY

WB

LINE W/CL B RIPRAP
40 TON 84 SY

PERMIT DRAWING
SHEET 49 OF 115

REVISIONS

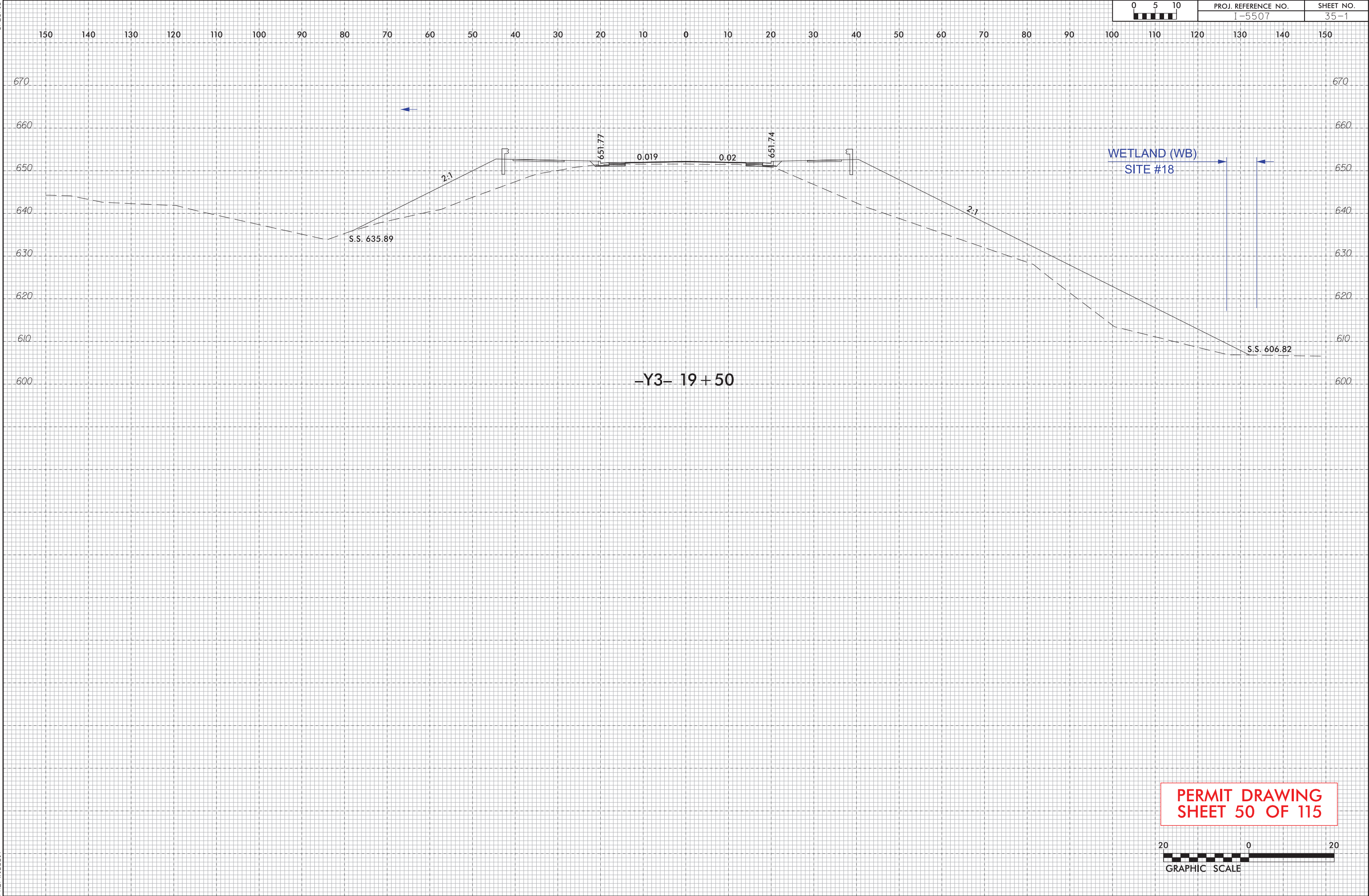
9/12/2019
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6/23/16

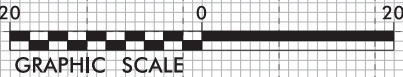


PROJ. REFERENCE NO.
I-5507

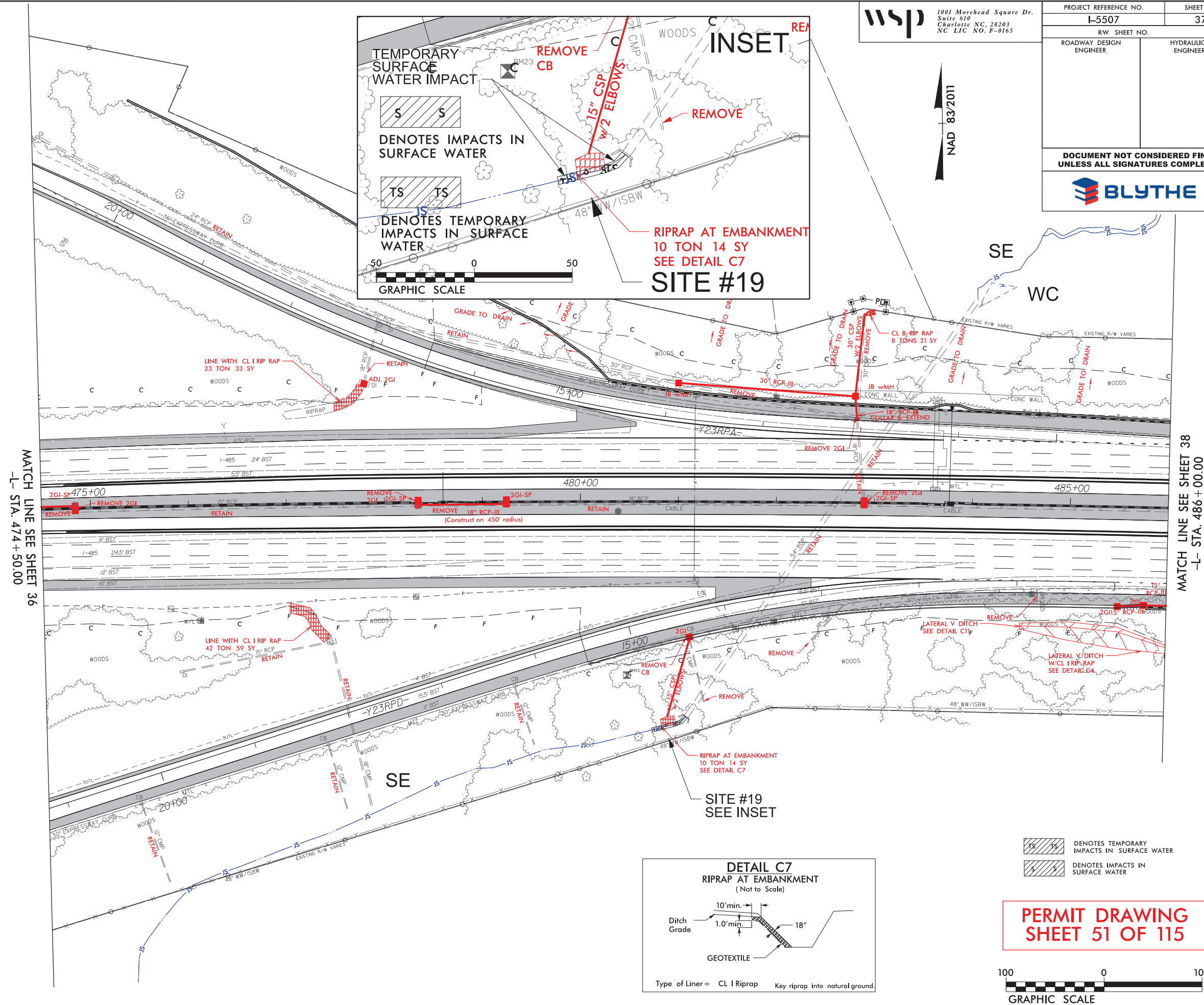
SHEET NO.
35-1



PERMIT DRAWING
SHEET 50 OF 115



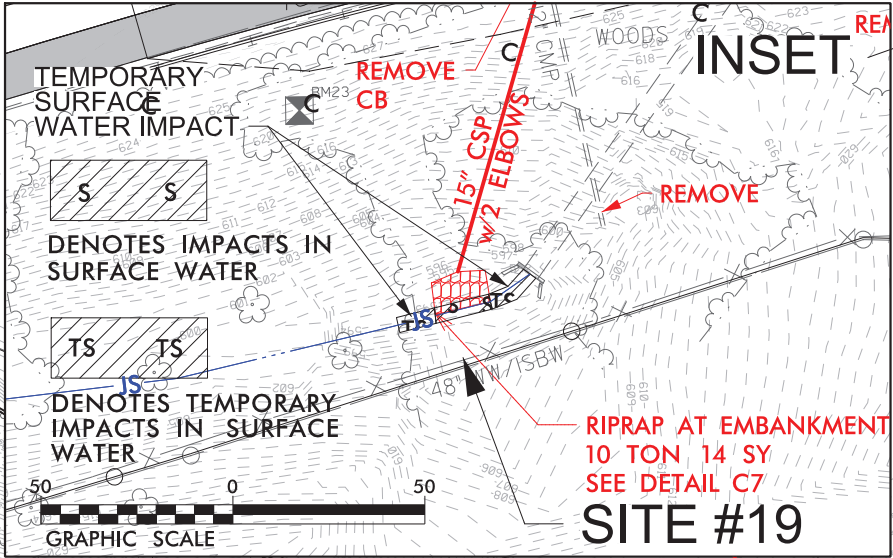
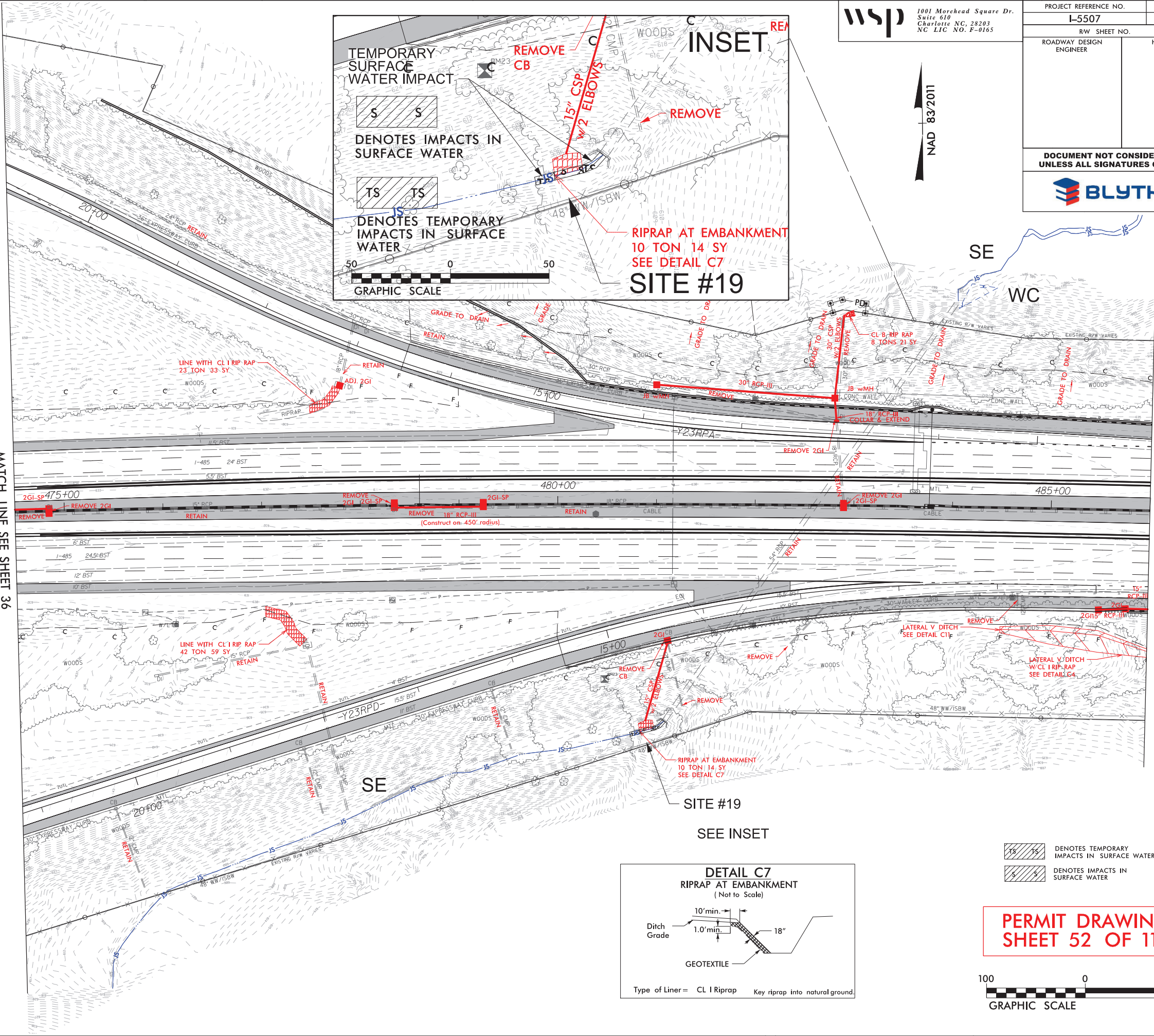
9/12/2019
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PRD5W7C501\$



REVISIONS

MATCH LINE SEE SHEET 36
-L- STA. 474+50.00

MATCH LINE SEE SHEET 38
-L- STA. 486+00.00

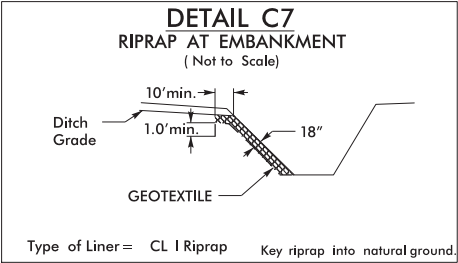


wsp
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Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.
I-5507		37
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BLYTHE



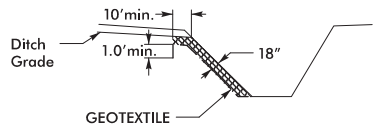
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S DENOTES IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 52 OF 115



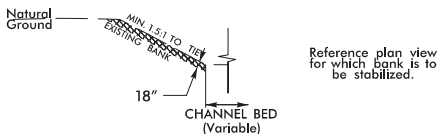
8/17/99

DETAIL C7
RIPRAP AT EMBANKMENT
(Not to Scale)



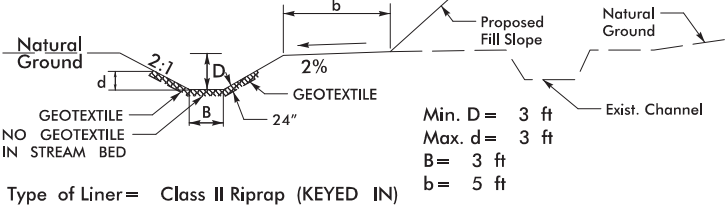
Type of Liner = Class I Riprap (KEYED IN)

DETAIL C8
BANK STABILIZATION
(Not to Scale)



Type of Liner = Class I Riprap (KEYED IN)

DETAIL C9
CHANNEL CHANGE
(Not to Scale)



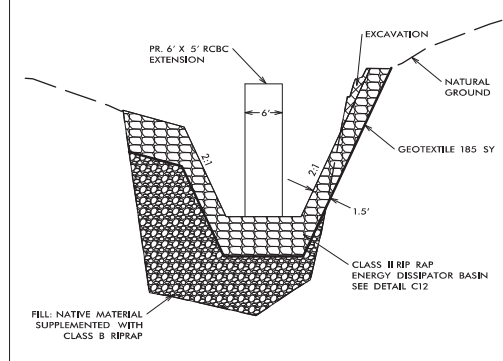
Type of Liner = Class II Riprap (KEYED IN)

wsp 1001 Morehead Square Dr.
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Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.
I-5507
SHEET NO.
38

R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

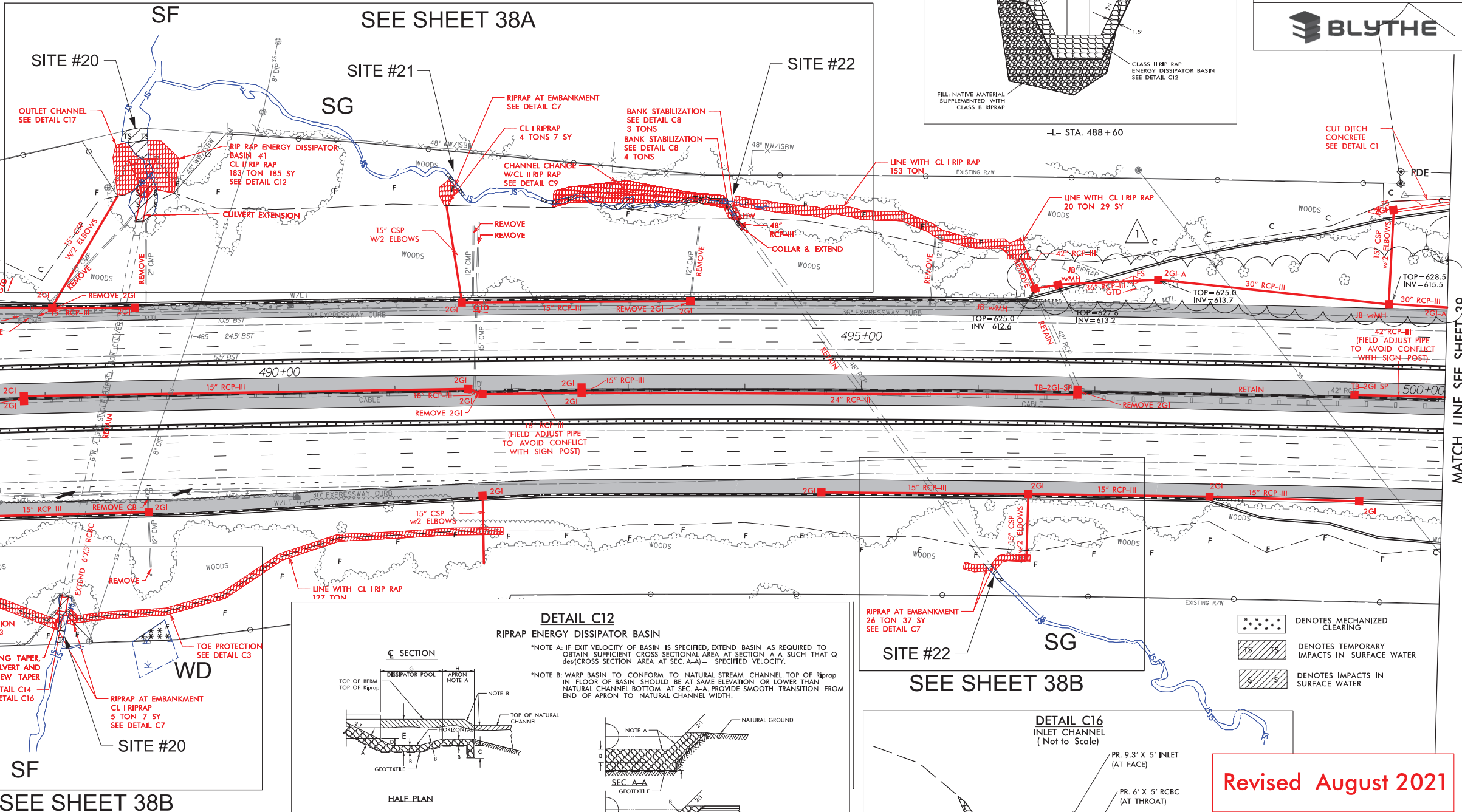
DETAIL C17
OUTLET CHANNEL
(Not to Scale)



-L- STA. 488 + 60

BLYTHE

SITES #20 AND #22 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.



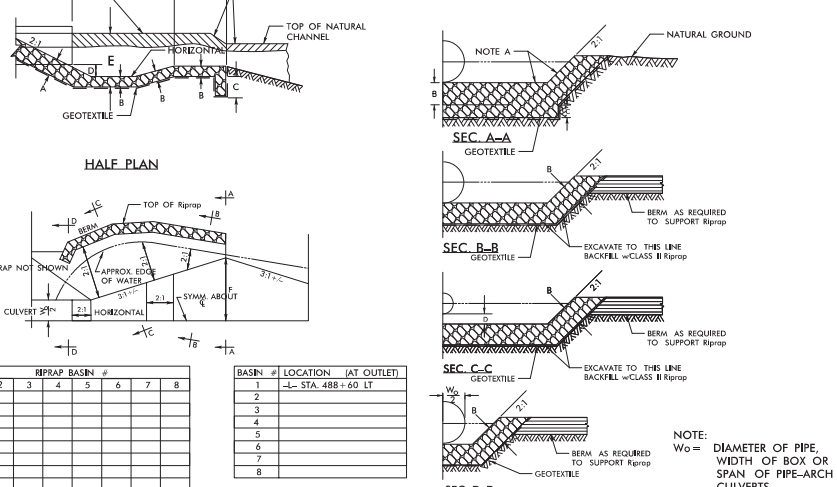
MATCH LINE SEE SHEET 37
-L- STA. 486 + 00.00

MATCH LINE SEE SHEET 39
-L- STA. 500 + 00.00

DETAIL C12
RIPRAP ENERGY DISSIPATOR BASIN

NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A-A SUCH THAT Q_{DES} (CROSS SECTION AREA AT SEC. A-A) = SPECIFIED VELOCITY.

NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM. AT SEC. A-A, PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



DIM	1	2	3	4	5	6	7	8
A	30'							
B	21'							
C	16'							
D	14'							
E	10.2'							
F	11.7'							
G	18.0'							
H	8.0'							

*ALL DIMENSIONS APPROXIMATE

505

Revised August 2021

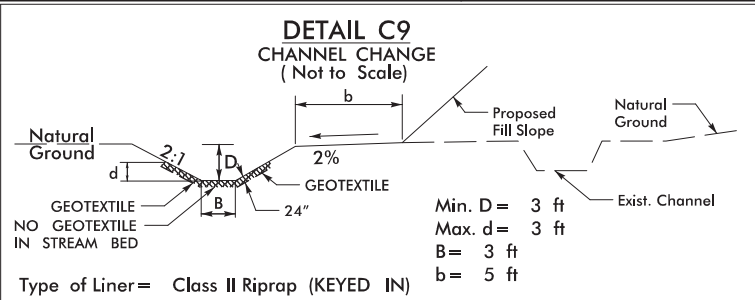
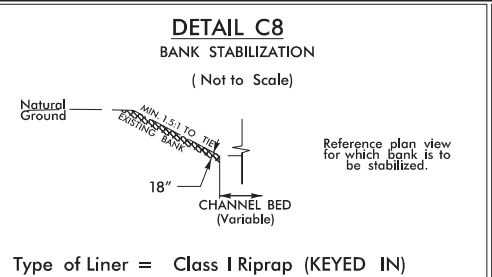
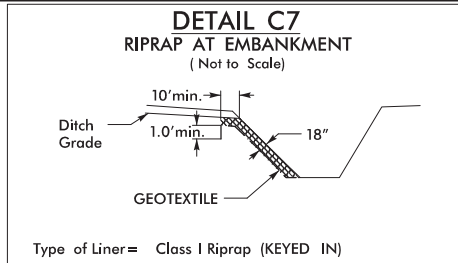
PERMIT DRAWING
SHEET 53 OF 115



REVISIONS
1.10/19/20 - 8" DIP SANITARY SEWER CONFLICT WITH PIPE 3825

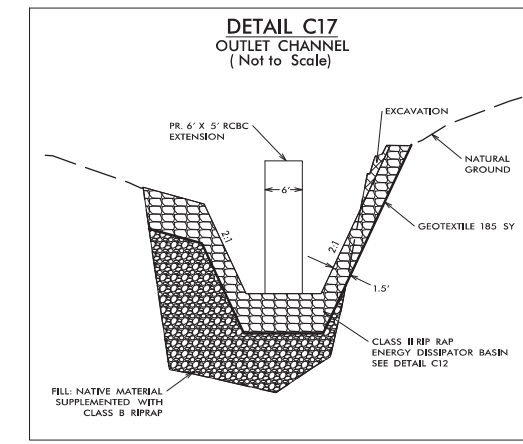
8/31/2021
c:\projects\wise\pb\project\wise\melville\0339275\I5507_Hyd.prm_wet.pah38.dgn
melville

8/17/99



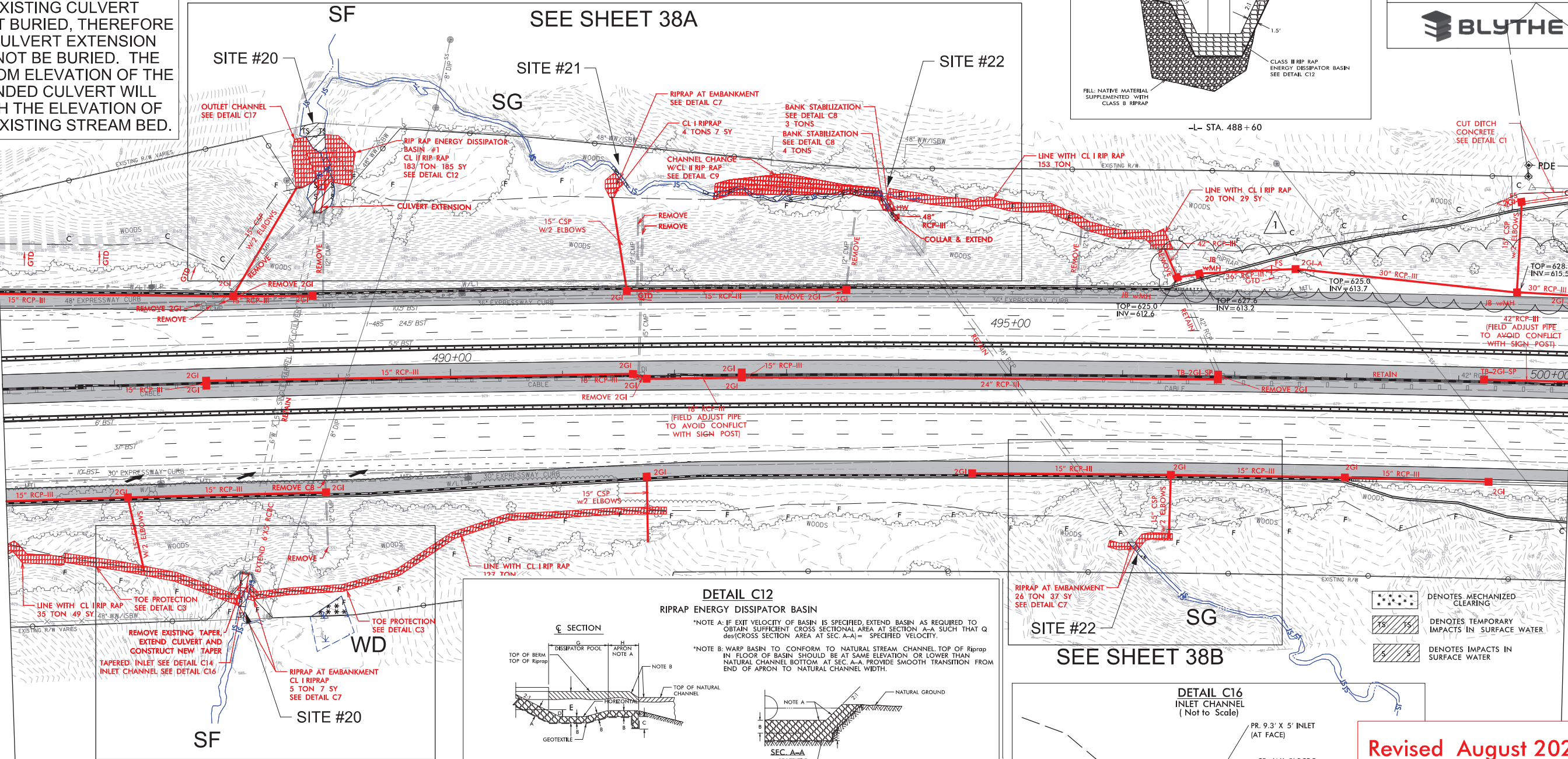
wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO. I-5507		SHEET NO. 38
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
BLYTHE		

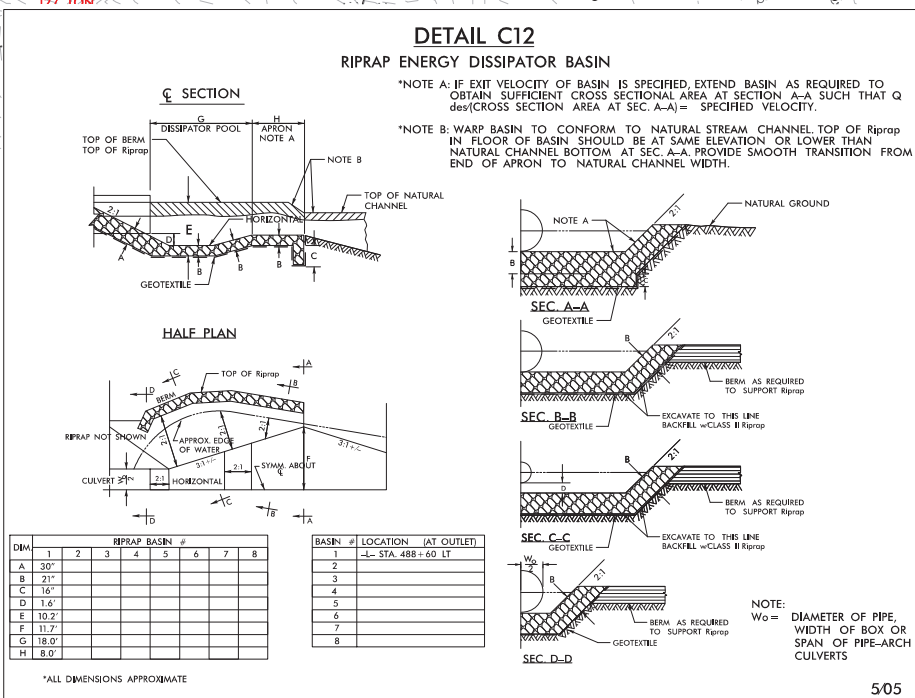


SITES #20 AND #22 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.

MATCH LINE SEE SHEET 37
-L- STA. 486+00.00



MATCH LINE SEE SHEET 39
-L- STA. 500+00.00



Revised August 2021

PERMIT DRAWING
SHEET 54 OF 115



8/17/99



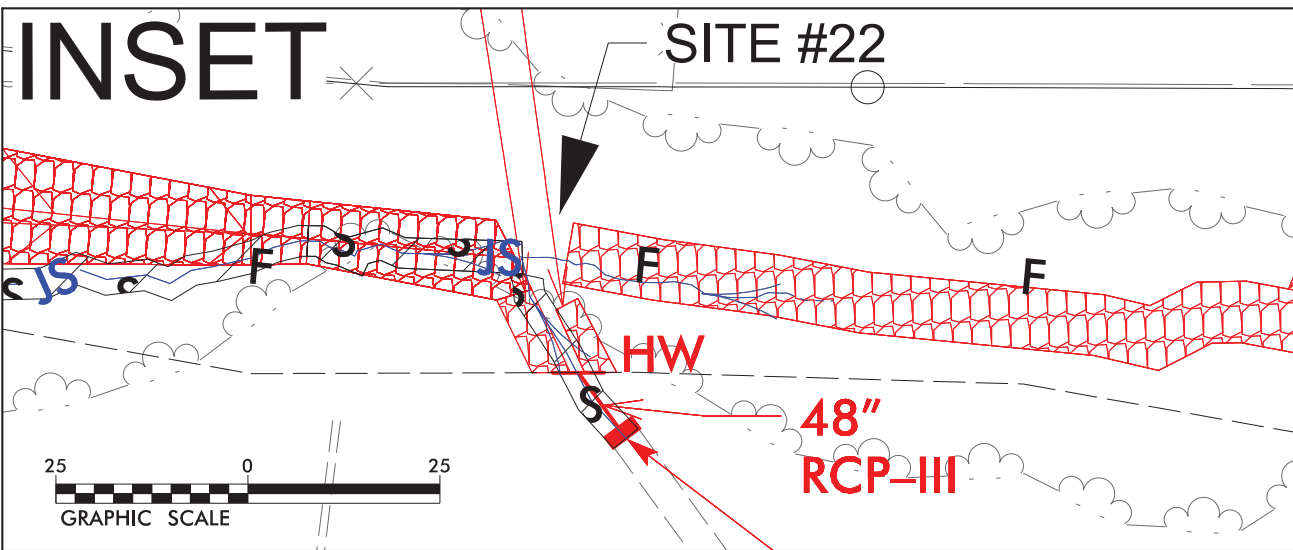
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

SITES #20 AND #22 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

INSET



wsp

1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.

I-5507

SHEET NO.

38A

R/W SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

BLYTHE

SITE #20

OUTLET CHANNEL
SEE DETAIL C17

SF

SITE #21

SG

RIP RAP ENERGY DISSIPATOR
BASIN #1
CL II RIP RAP
183 TON 185 SY
SEE DETAIL C12

CULVERT EXTENSION

TEMPORARY SURFACE
WATER IMPACT

15" CSP
W/2 ELBOWS

RIPRAP AT EMBANKMENT
SEE DETAIL C7

CL I RIPRAP
4 TONS 7 SY

CHANNEL CHANGE
W/CL II RIP RAP
SEE DETAIL C9

BANK STABILIZATION
SEE DETAIL C8
3 TONS

BANK STABILIZATION
SEE DETAIL C8
4 TONS

TEMPORARY SURFACE
WATER IMPACT

SITE #22
SEE INSET

COLLAR & EXTEND

Revised August 2021

PERMIT DRAWING
SHEET 55 OF 115



GRAPHIC SCALE

8/31/2021
c:\projects\wise\melville\0339275\I-5507_Hyd.prm_wet_psh38A.dgn
melville

8/17/99



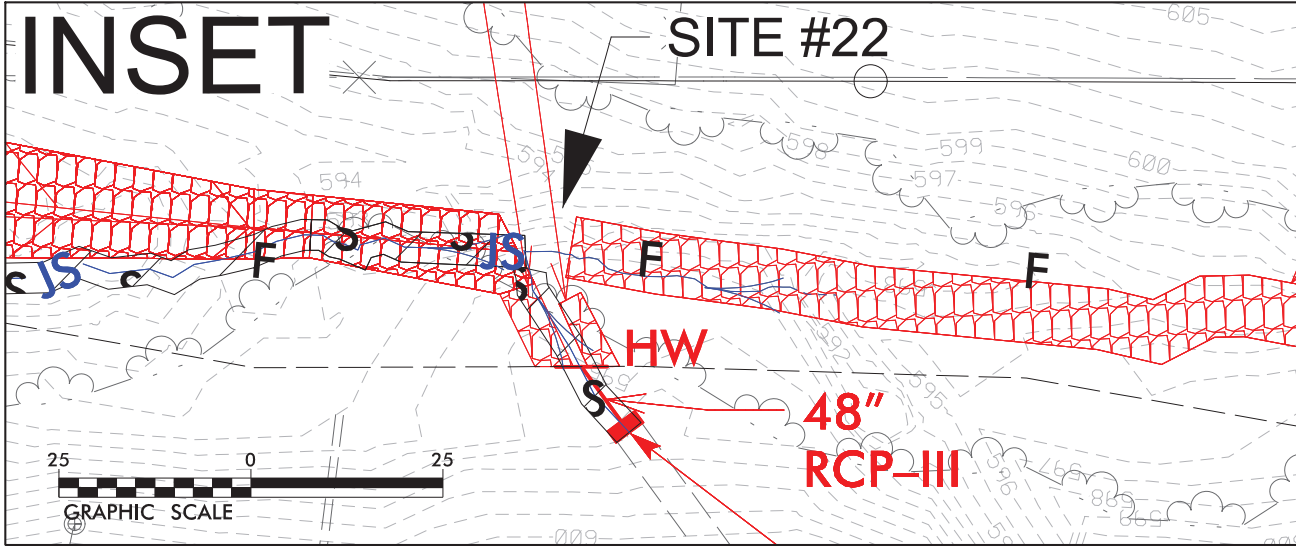
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

SITES #20 AND #22 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

INSET



wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.	
I-5507		38A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 BLYTHE			

SF

SITE #20

OUTLET CHANNEL
SEE DETAIL C17

RIP RAP ENERGY DISSIPATOR
BASIN #1
CL II RIP RAP
183 TON 185 SY
SEE DETAIL C12

CULVERT EXTENSION

TEMPORARY SURFACE
WATER IMPACT

SG

SITE #21

RIPRAP AT EMBANKMENT
SEE DETAIL C7

CL I RIPRAP
4 TONS 7 SY

CHANNEL CHANGE
W/CL II RIP RAP
SEE DETAIL C9

BANK STABILIZATION
SEE DETAIL C8
3 TONS
BANK STABILIZATION
SEE DETAIL C8
4 TONS

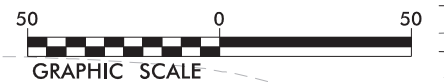
TEMPORARY SURFACE
WATER IMPACT

SITE #22 SEE INSET

COLLAR & EXTEND

Revised August 2021

PERMIT DRAWING
SHEET 56 OF 115

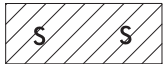
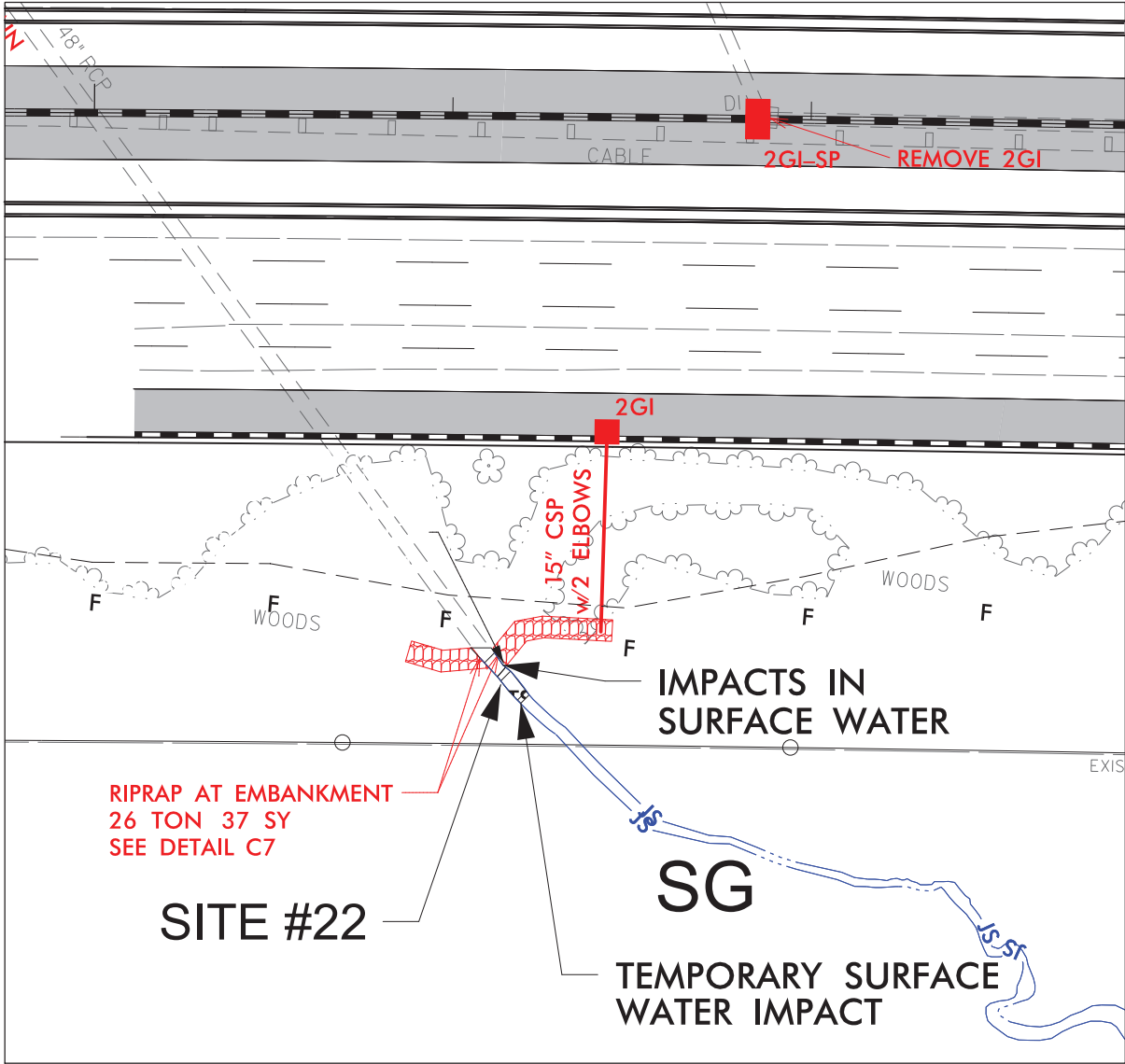
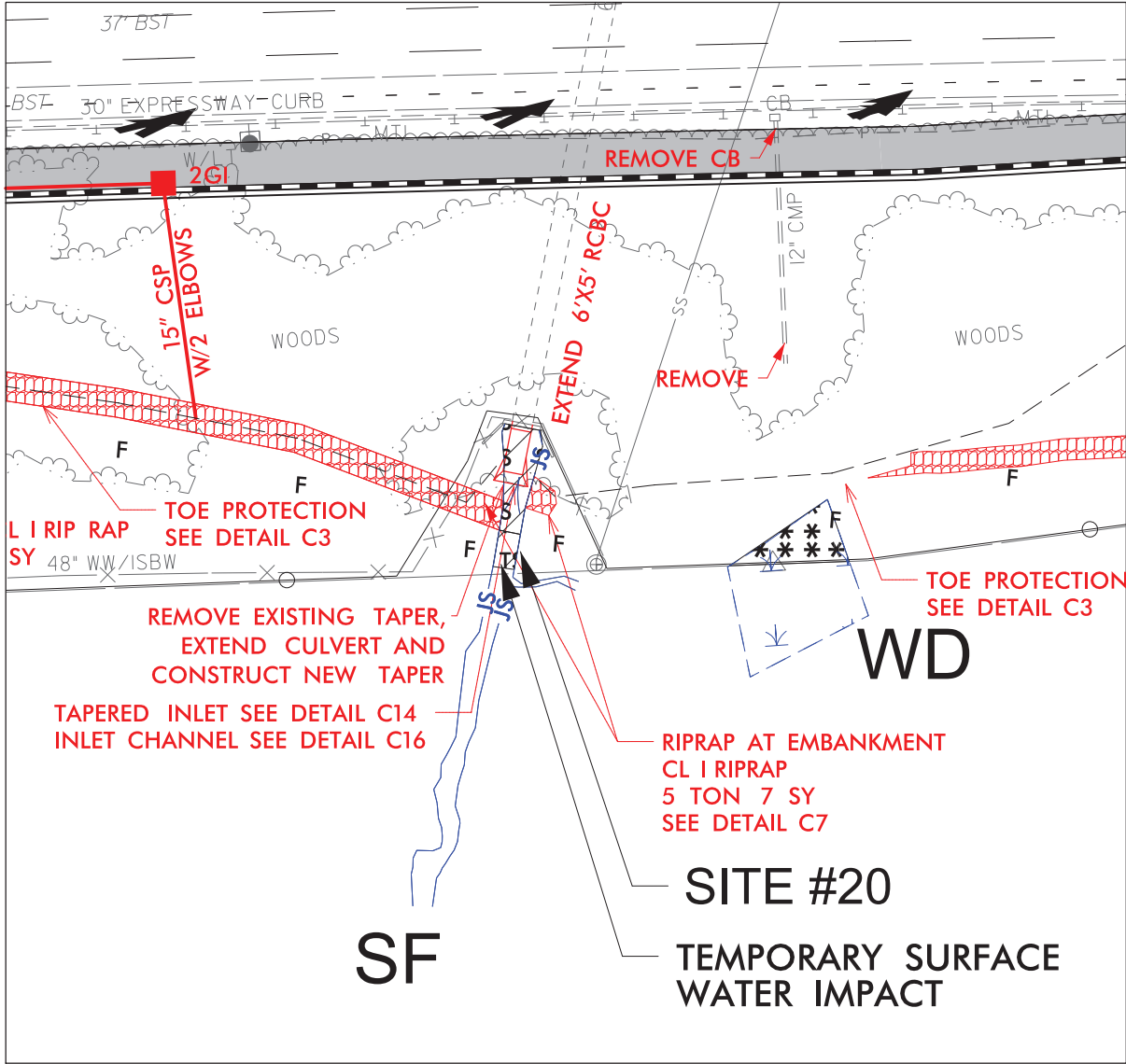


8/31/2021
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REVISIONS

REVISIONS

PROJECT REFERENCE NO.		SHEET NO.
I-5507		38B
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
BLYTHE		



DENOTES IMPACTS IN SURFACE WATER



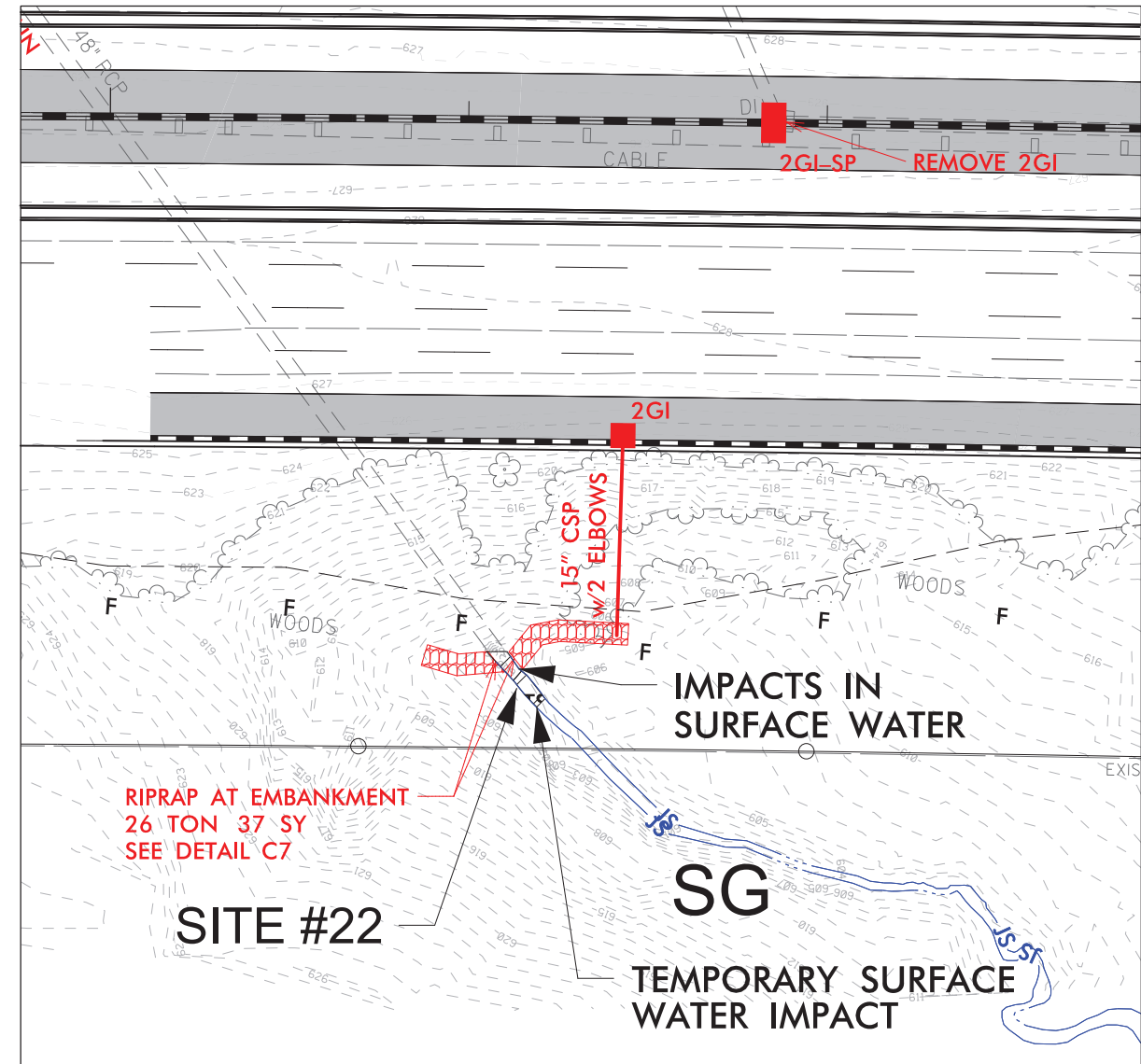
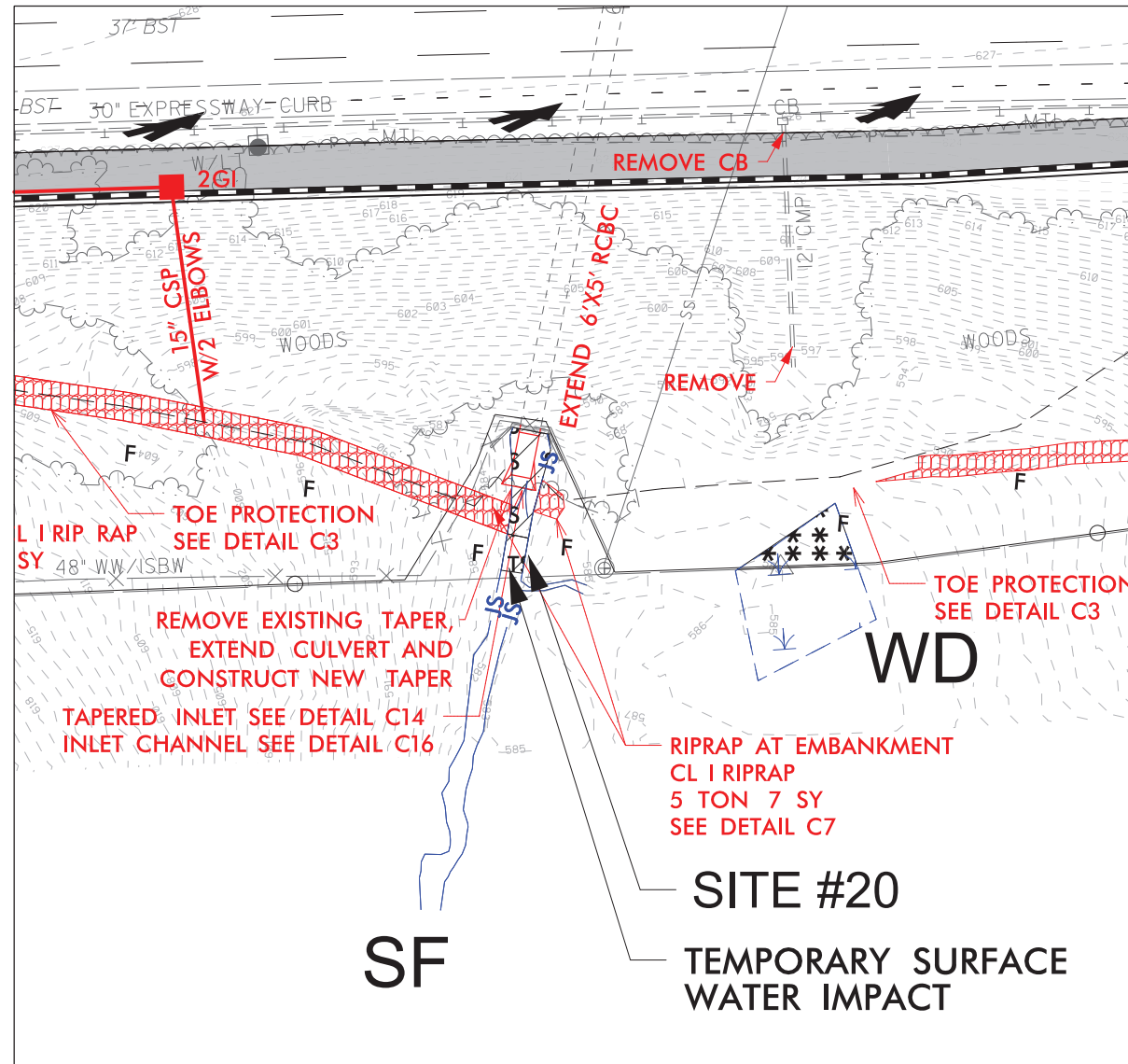
DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET 57 OF 115





A rectangular area with diagonal hatching (lines from top-left to bottom-right) containing two 'S' symbols.

DENOTES IMPACTS IN
SURFACE WATER

TS TS

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

DENOTES MECHANIZED
CLEARING

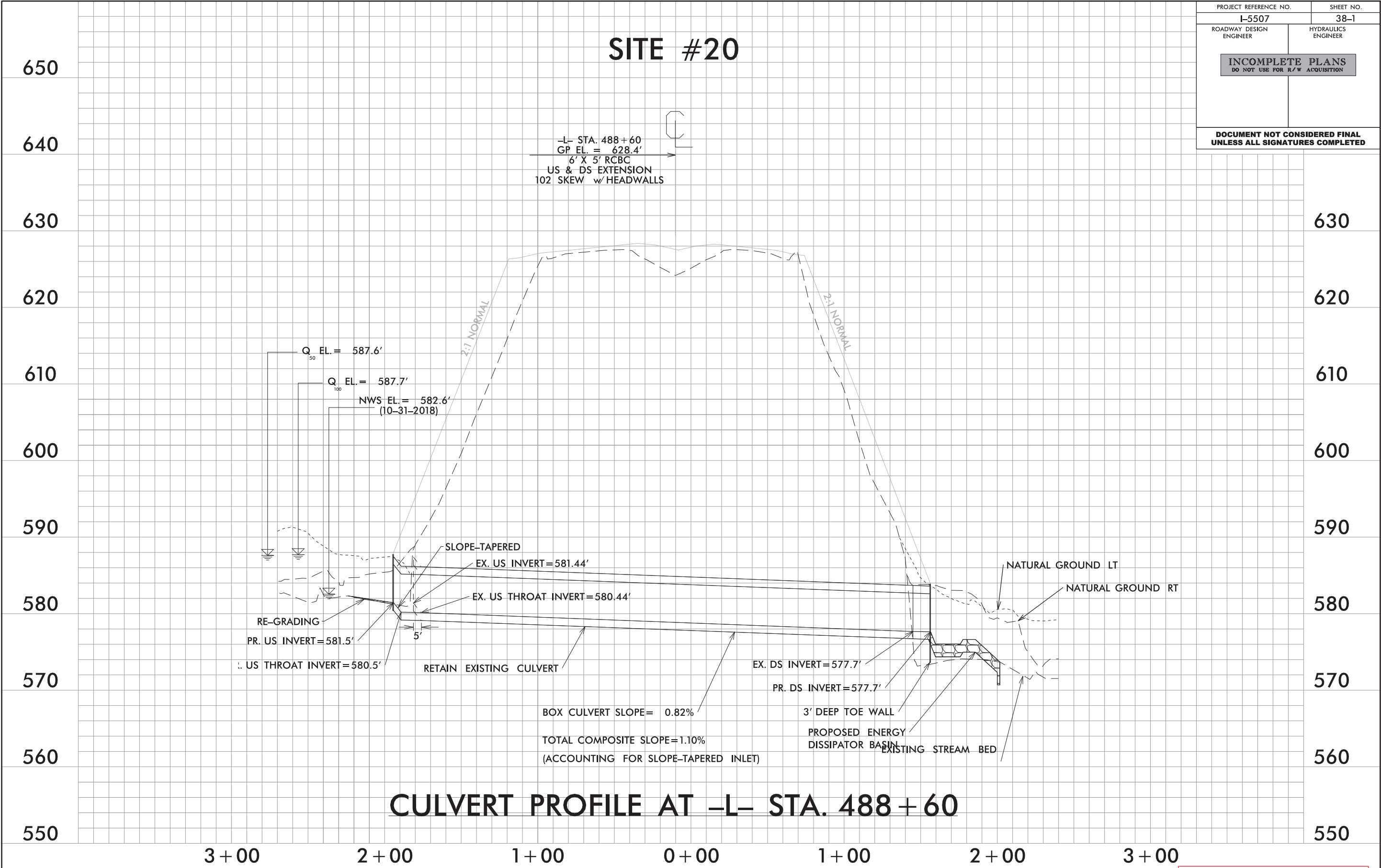
PERMIT DRAWING
SHEET 58 OF 115



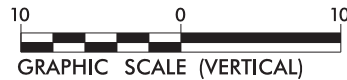
5/28/99

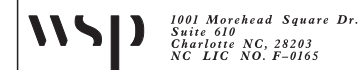
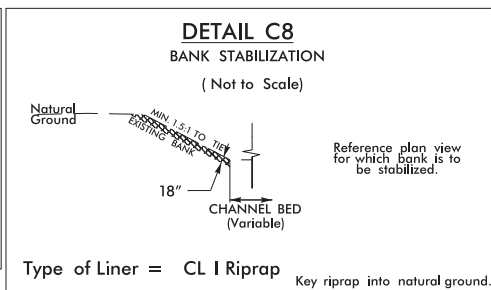
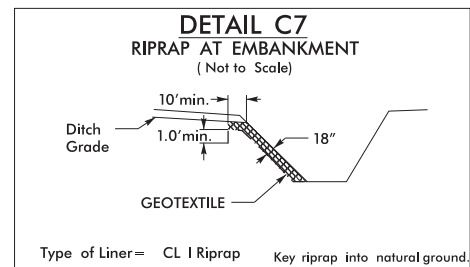
9/12/2019
\\snpdpc\cs01\ics_workingdir\3086\336401.3972\5507_Hyd_prm_wet_pah36.pfl\culvert.t.488.dgn
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PROJECT REFERENCE NO.		SHEET NO.	
I-5507		38-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

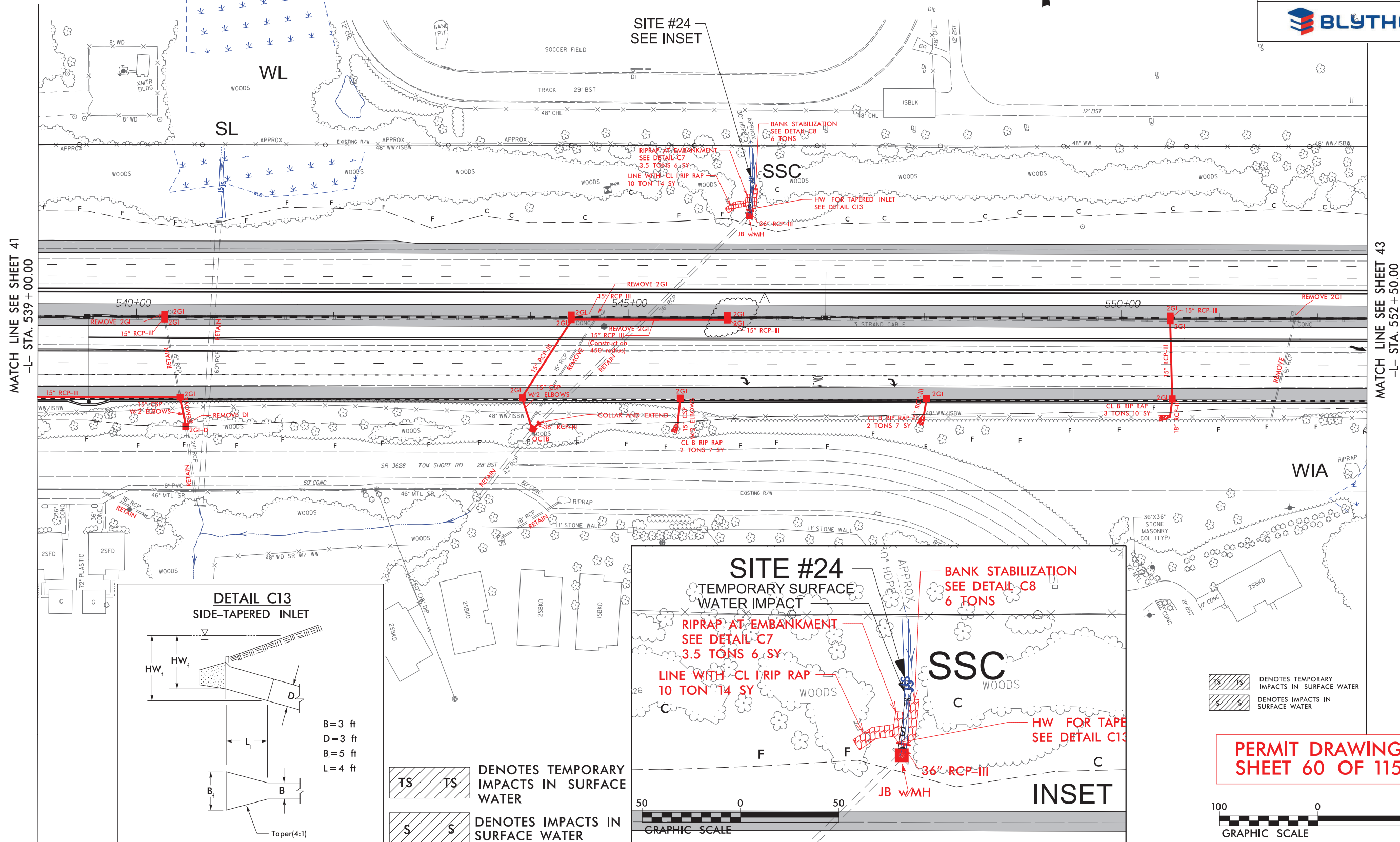


**PERMIT DRAWING
SHEET 59 OF 115**





PROJECT REFERENCE NO.	SHEET NO.
I-5507	42
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	



8/17/99

REVISIONS
1. 9/15/19 - ADDED BOXES 4315a AND 4315.

9/12/2019
S:\projects\02\ics_workingdir\3792_336401_3987\15507_Hyd_prm_wet.psh43.dgn
PDPWICS028



1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

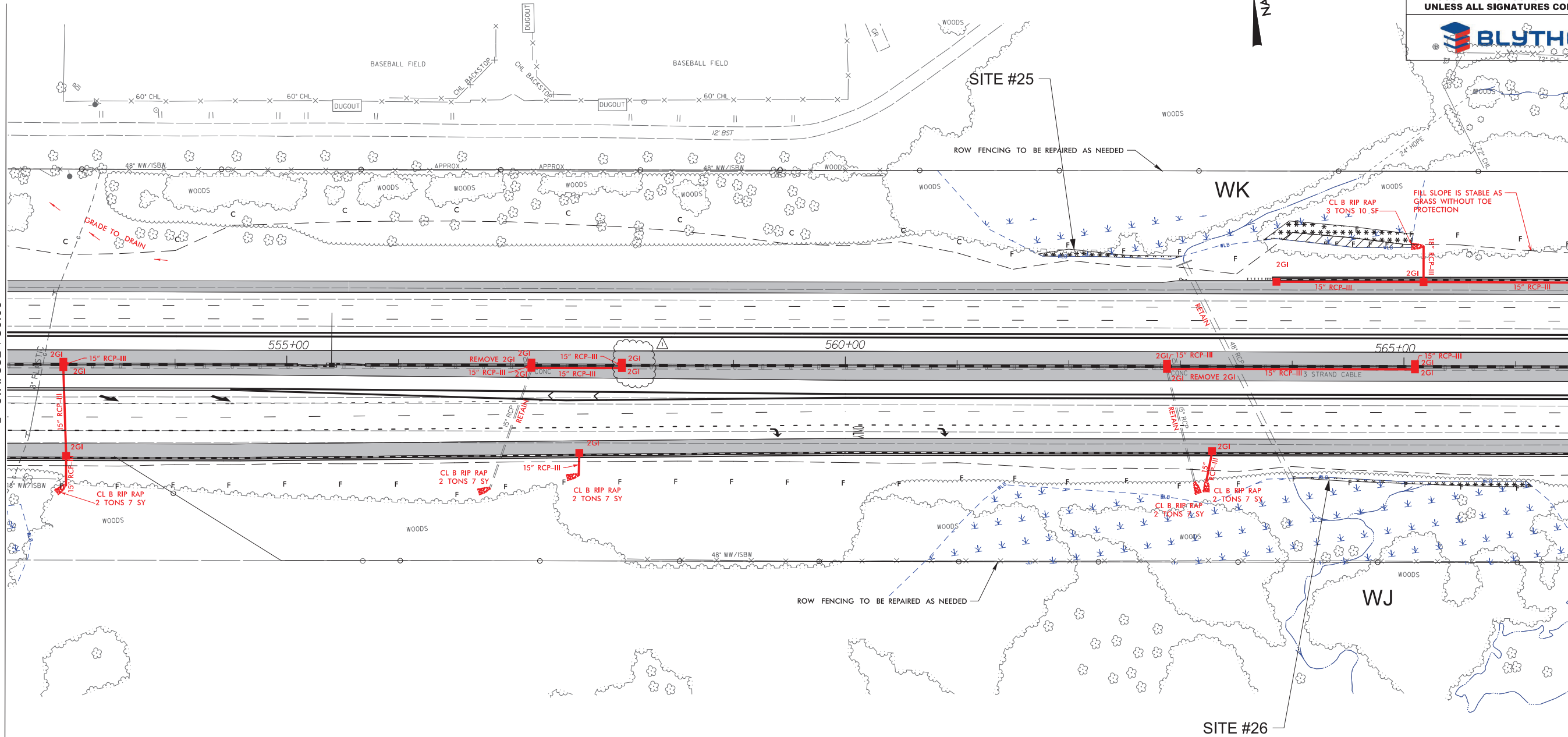
PROJECT REFERENCE NO.		SHEET NO.
I-5507		43
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



NAD 83/2011

MATCH LINE SEE SHEET 42
-L- STA. 552 + 50.00



MATCH LINE SEE SHEET 44
-L- STA. 566 + 50.00

DENOTES FILL IN
WETLAND
DENOTES MECHANIZED
CLEARING

PERMIT DRAWING
SHEET 62 OF 115



8/17/99

REVISIONS
1. 9/5/19 - ADDED BOXES 4315a AND 4315.

9/12/2019
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PDPWIC5028

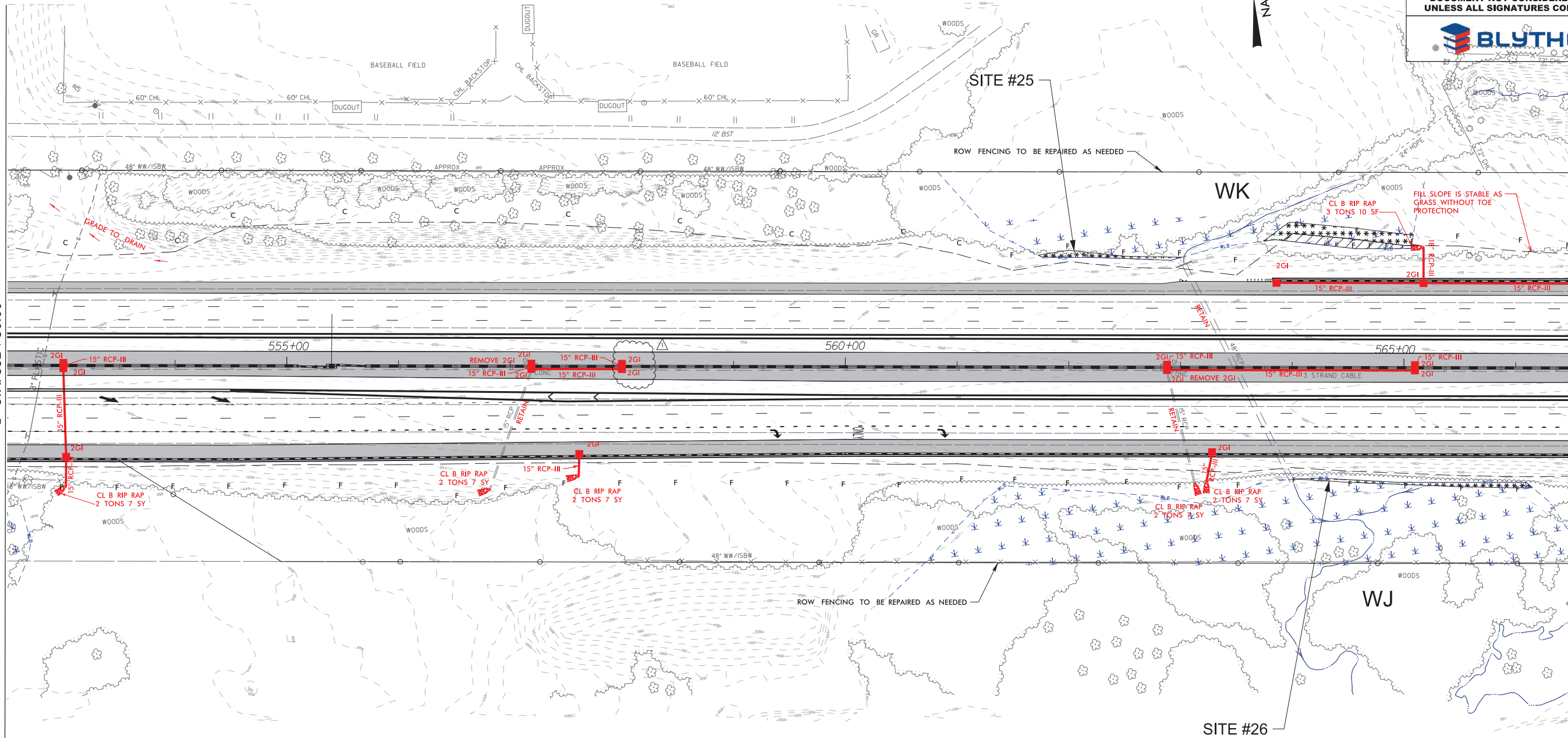
wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.
I-5507		43
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



MATCH LINE SEE SHEET 42
-L- STA. 552 + 50.00



MATCH LINE SEE SHEET 44
-L- STA. 566 + 50.00

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

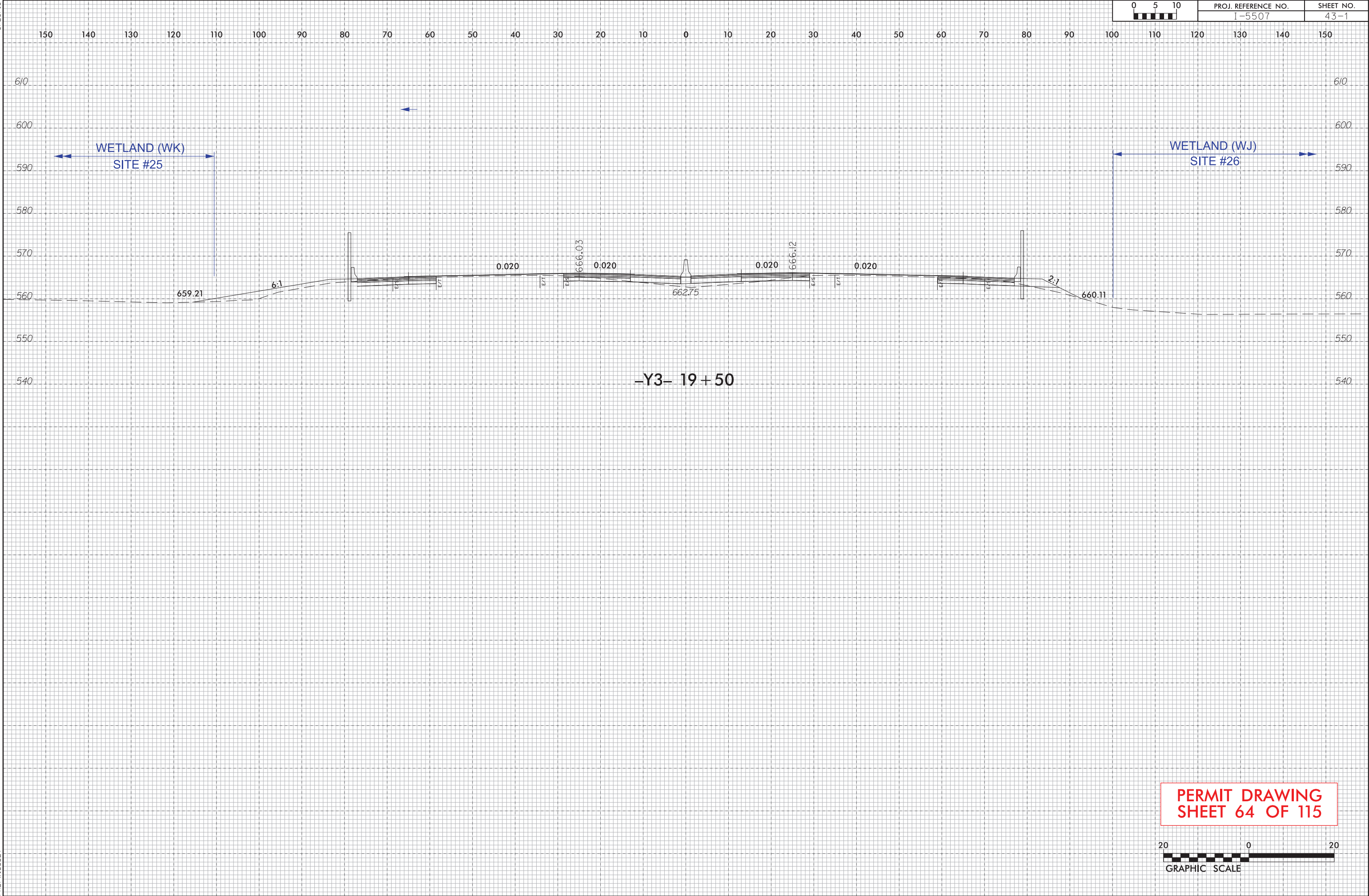
PERMIT DRAWING
SHEET 63 OF 115



6/23/16

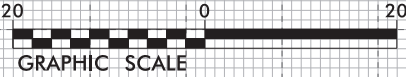


PROJ. REFERENCE NO.	SHEET NO.
I-5507	43-1



-Y3- 19+50

PERMIT DRAWING
SHEET 64 OF 115



9/12/2018
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PRBFWC5026



SSB

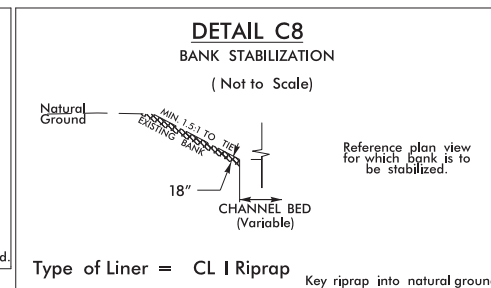
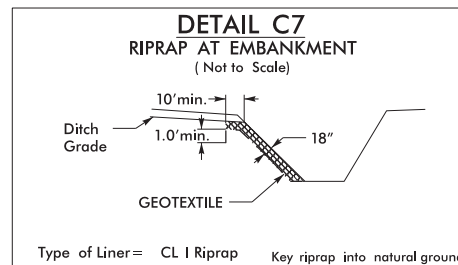
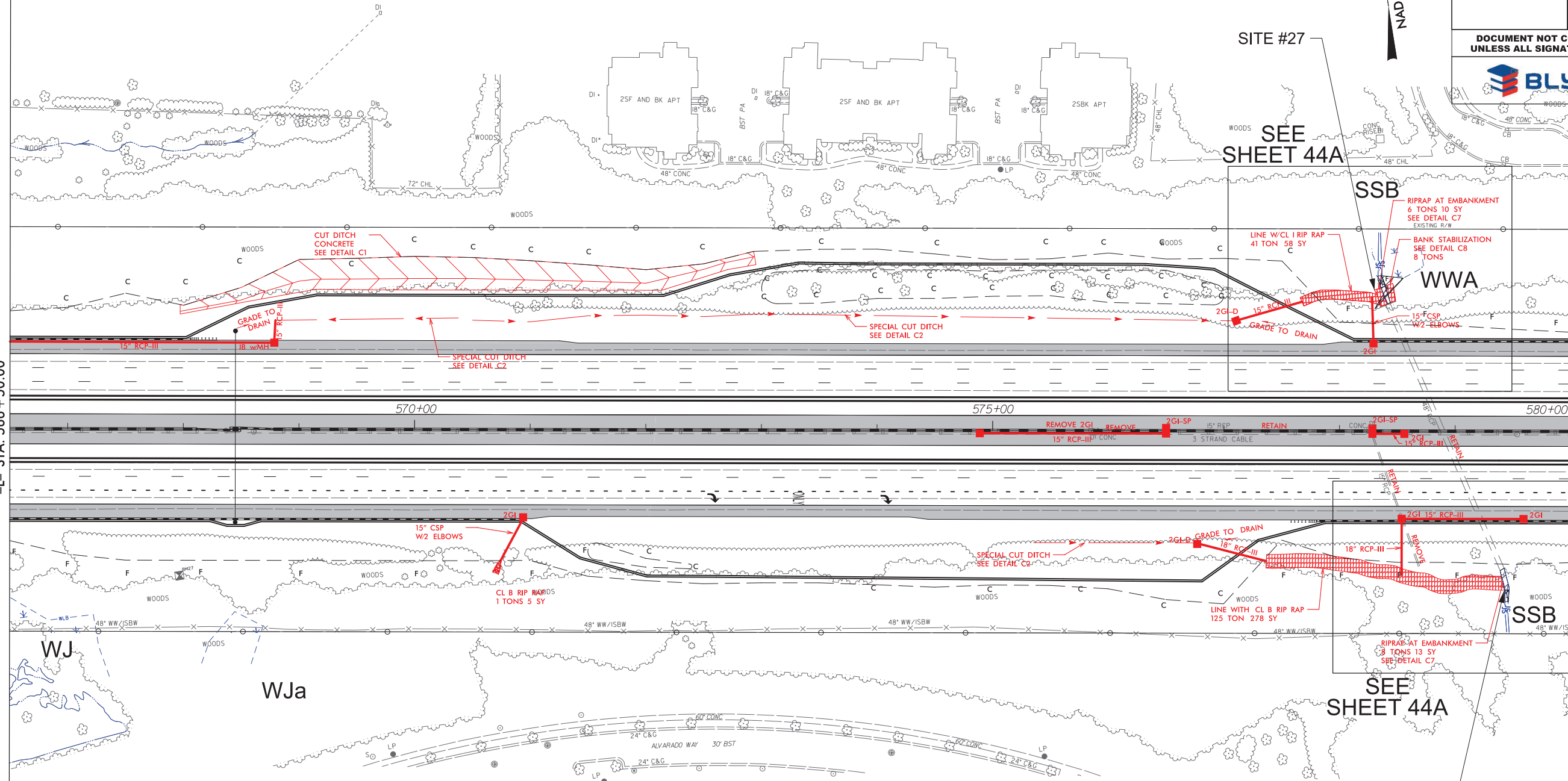
RIPRAP AT EMBANKMENT
6 TONS 10 SY
SEE DETAIL C7
EXISTING R/W

BANK STABILIZATION
SEE DETAIL C8
8 TONS

WWA

15° CSP
W/2 ELBOWS

PERMIT DRAWING
SHEET 65 OF 115



 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

 DENOTES FILL IN WETLAND.

MATCH LINE SEE SHEET 43
-L- STA. 566+50.00

MATCH LINE SEE SHEET 45
-L- STA. 580+00.00

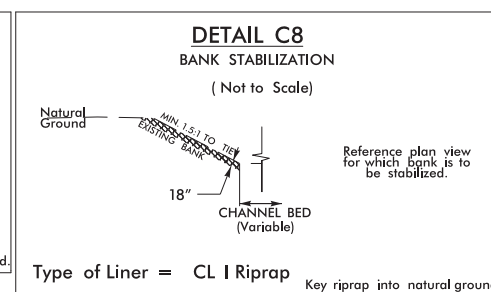
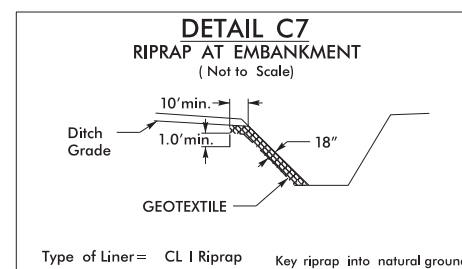
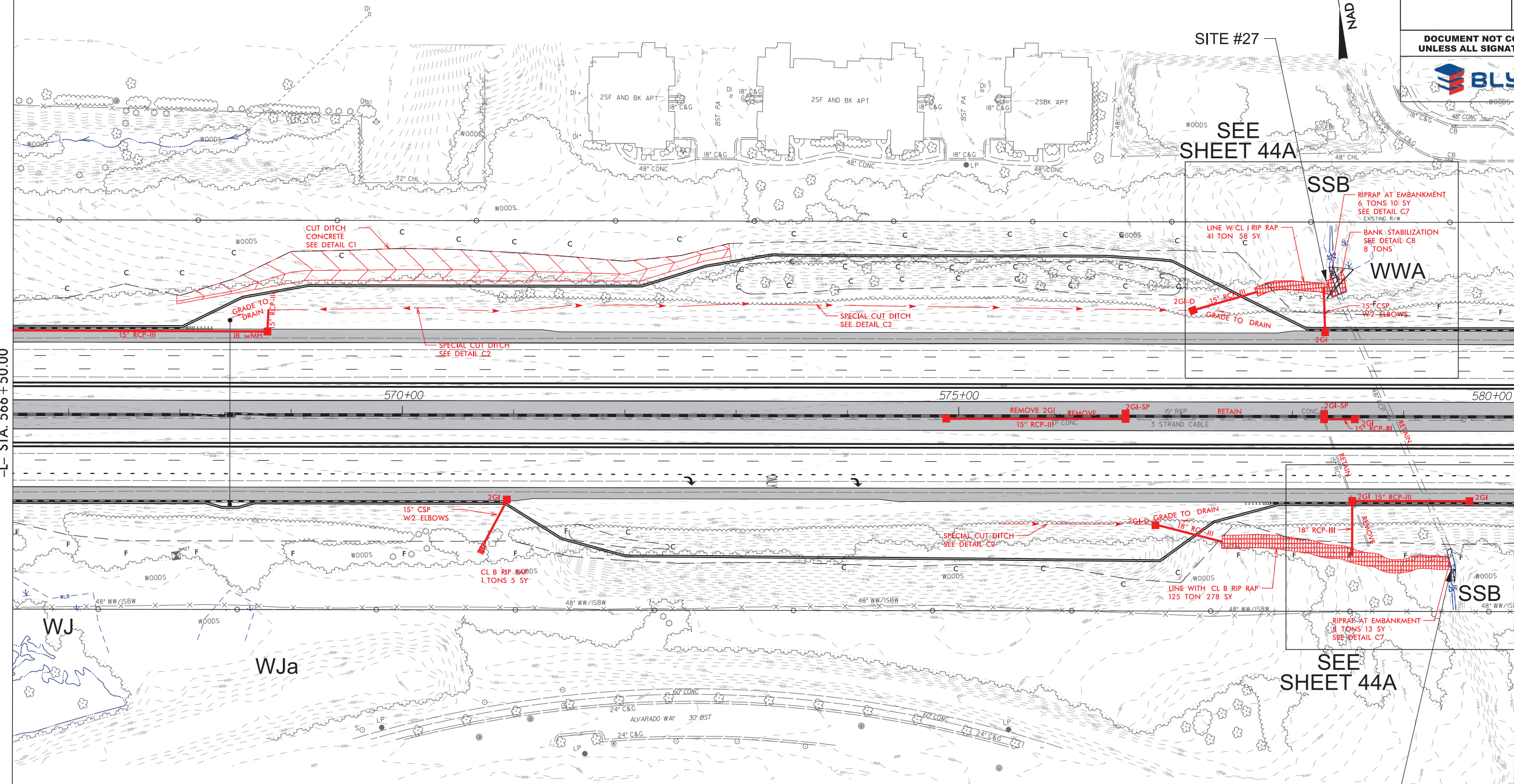
SITE #27

NIAD 83/2011

REVISIONS

8/17/99

9/12/2019
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 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES FILL IN WETLAND.

PERMIT DRAWING
SHEET 66 OF 115



REVISIONS

MATCH LINE SEE SHEET 43
-L- STA. 566 + 50.00

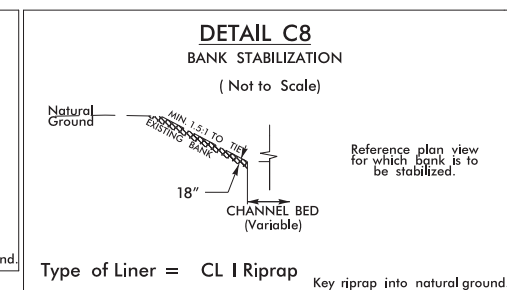
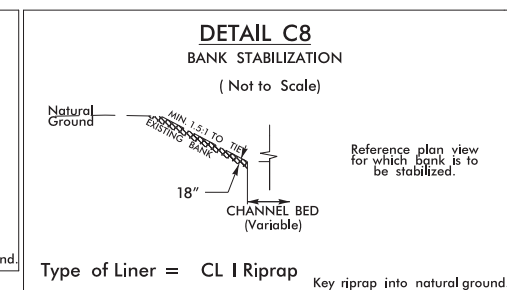
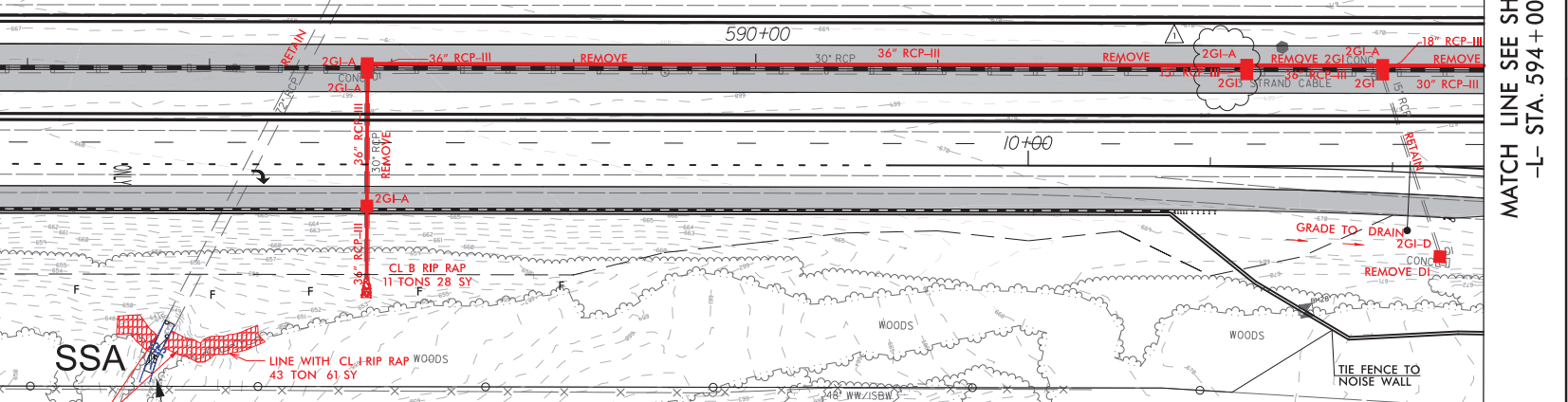
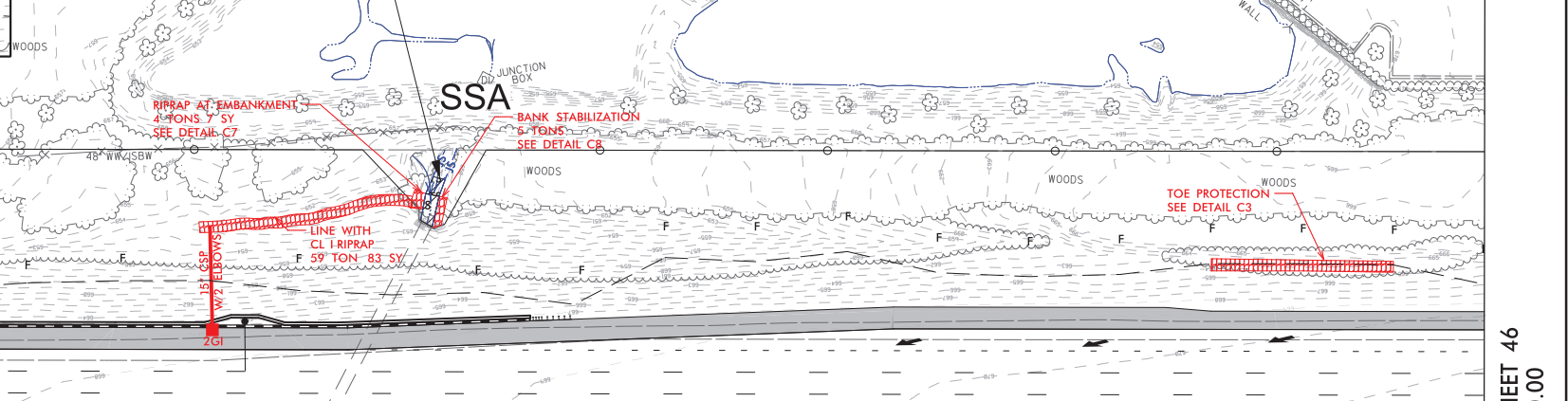
MATCH LINE SEE SHEET 45
-L- STA. 580+00.00

8/17/99

9/12/2019
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 PRDPMIC502\$



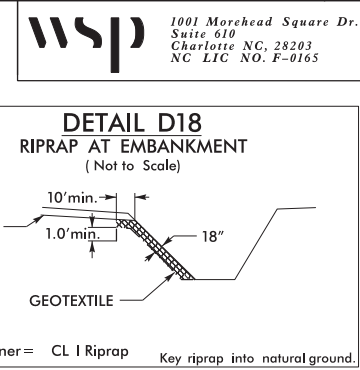
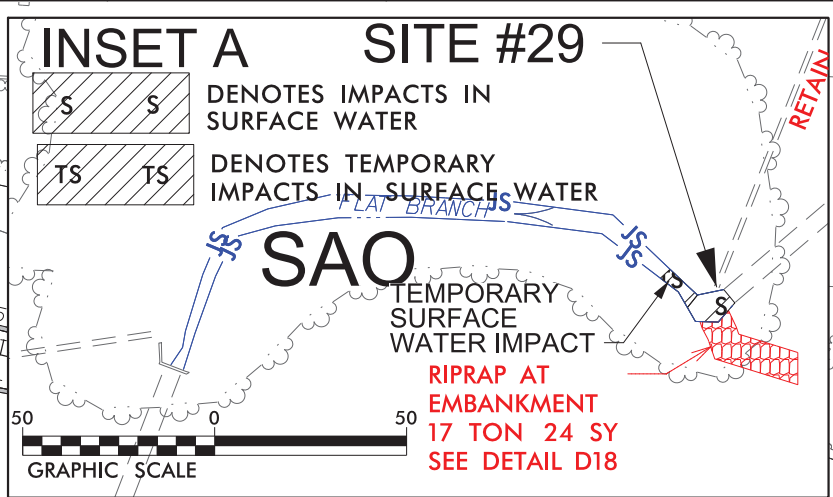
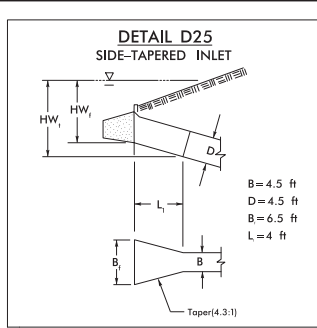




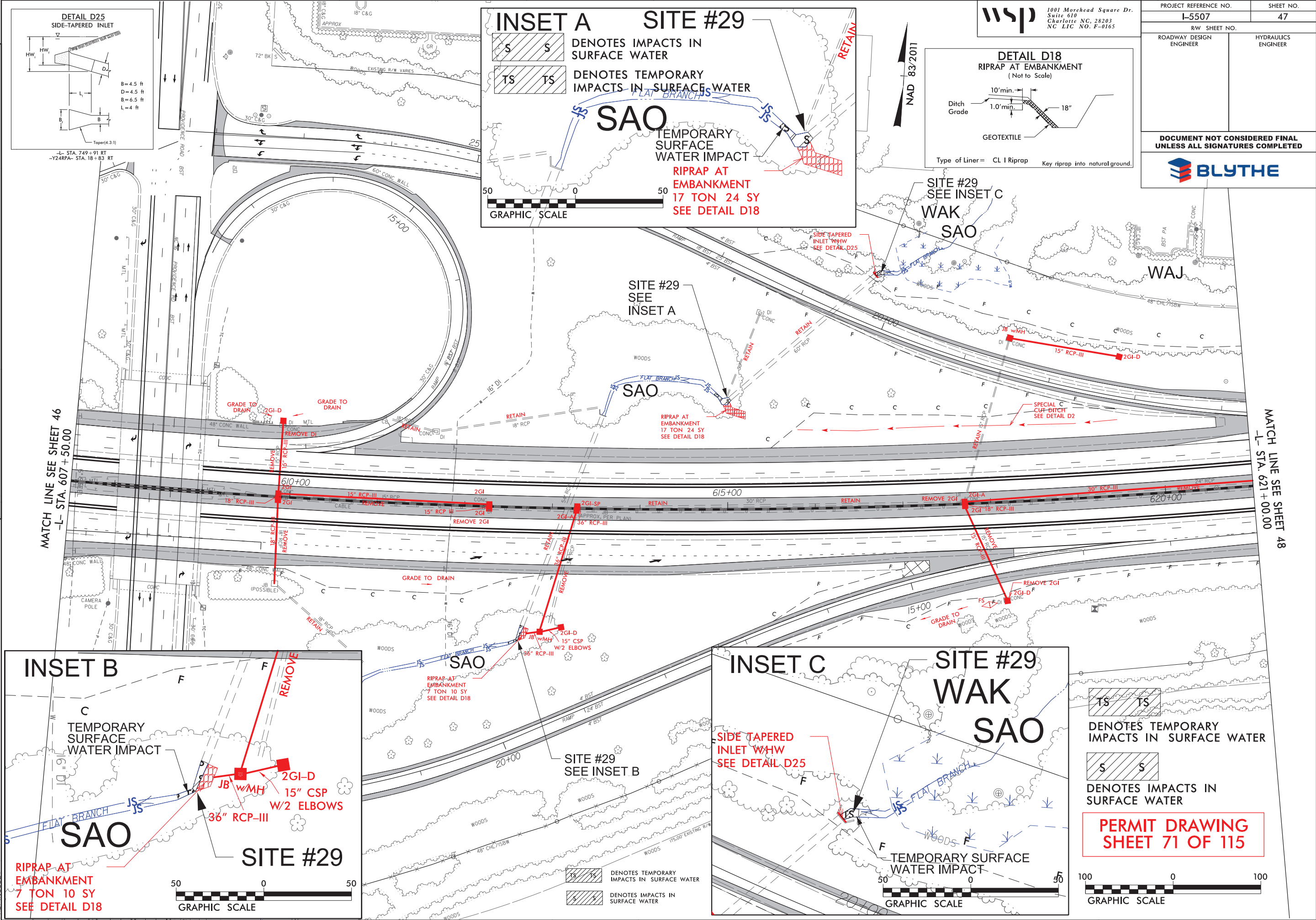
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GRAPHIC SCALE

8/17/99

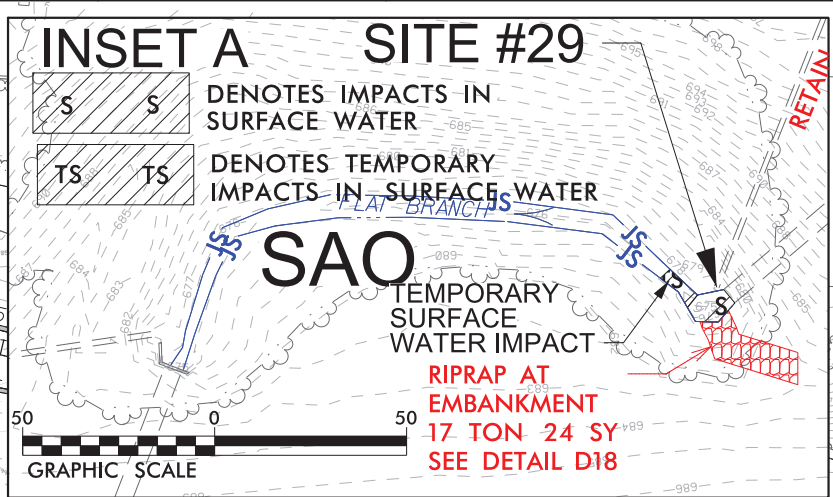
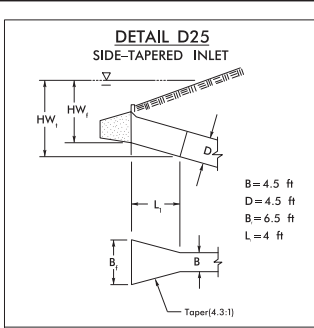


PROJECT REFERENCE NO.	SHEET NO.
I-5507	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

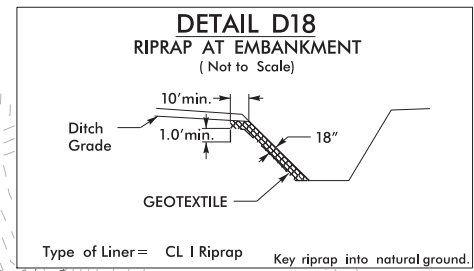


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8/17/99



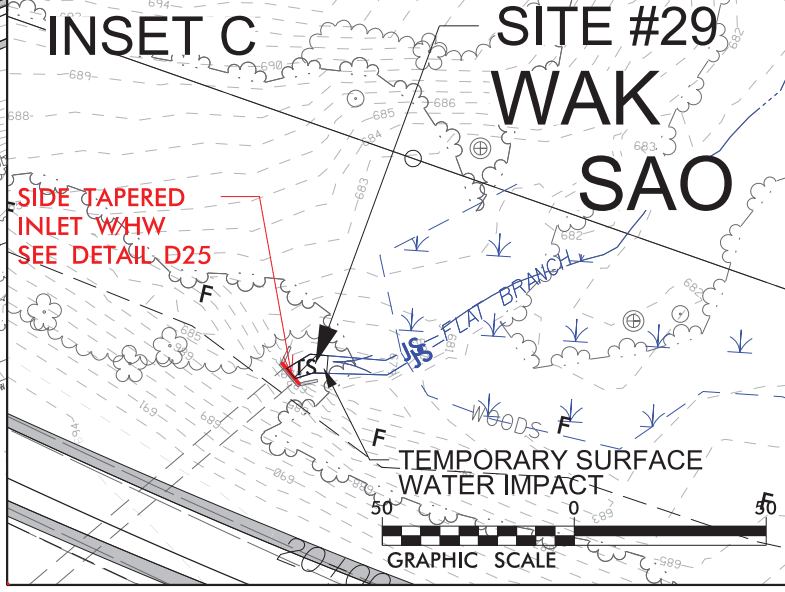
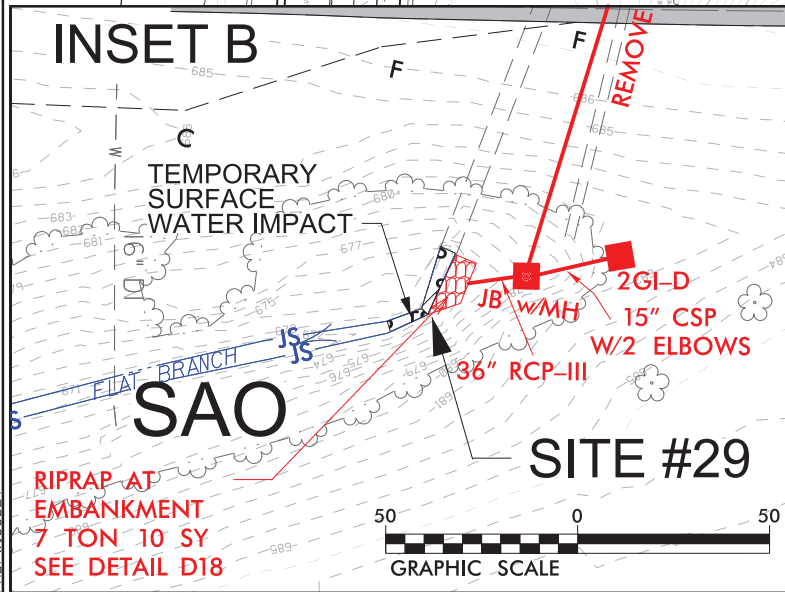
wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165



PROJECT REFERENCE NO.	SHEET NO.
I-5507	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
BLYTHE	

MATCH LINE SEE SHEET 46
—L- STA. 607+50.00

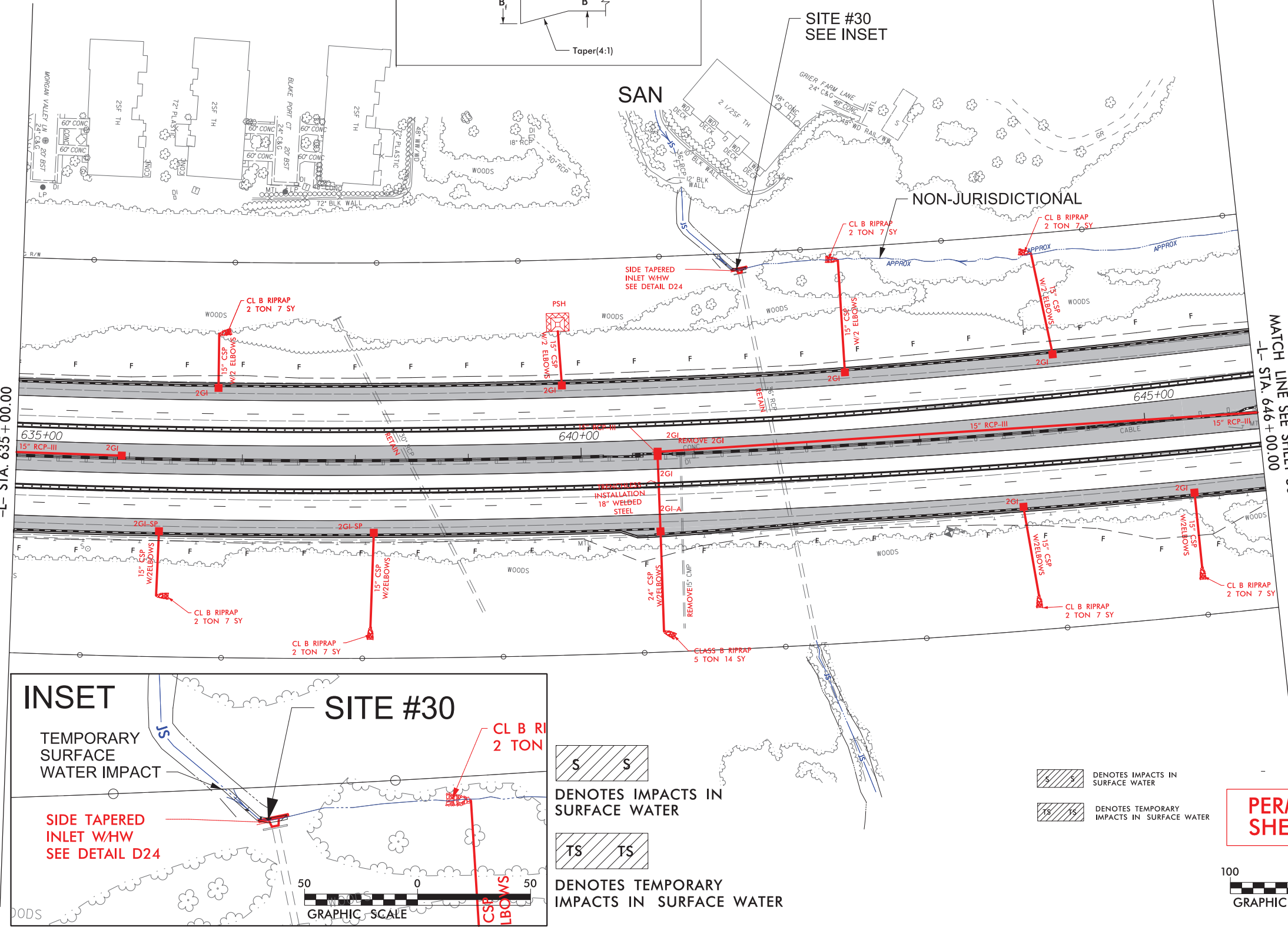
MATCH LINE SEE SHEET 48
—L- STA. 621+00.00



PERMIT DRAWING
SHEET 72 OF 115

GRAPHIC SCALE 100 0 100

9/12/2019
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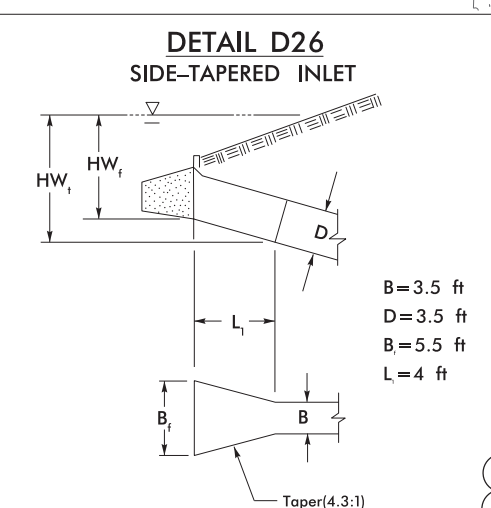
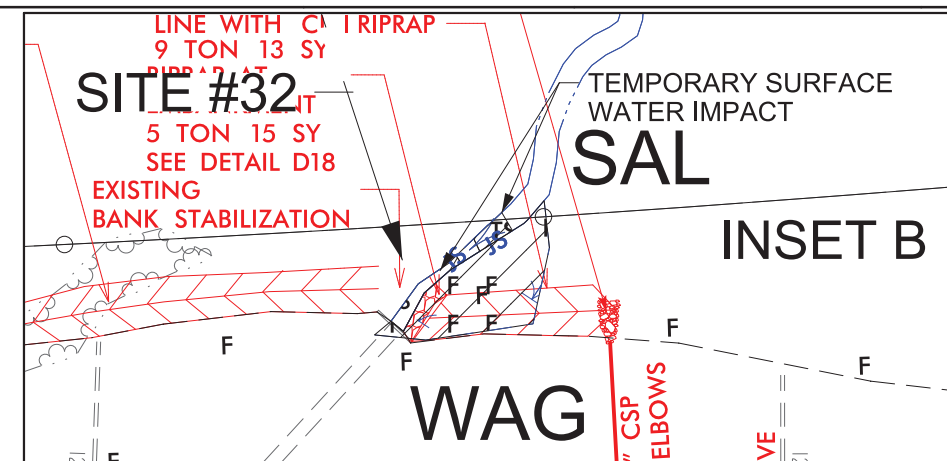
PERMIT DRAWING
SHEET 73 OF 115



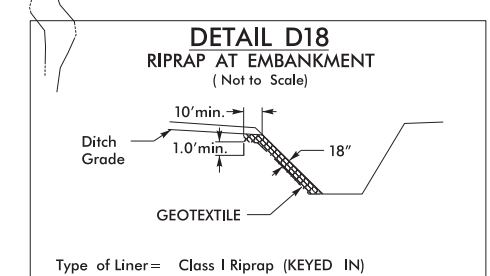
8/9/2023
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8/9/2023
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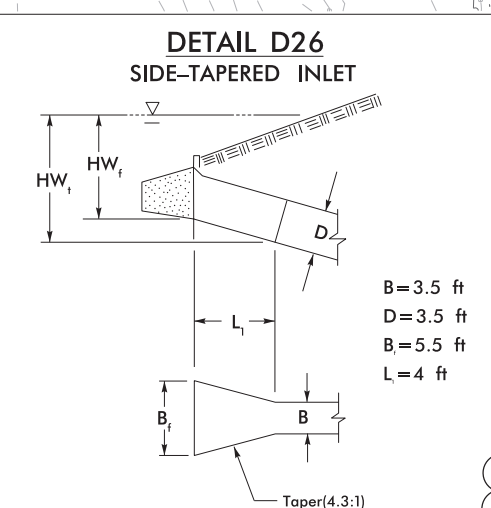
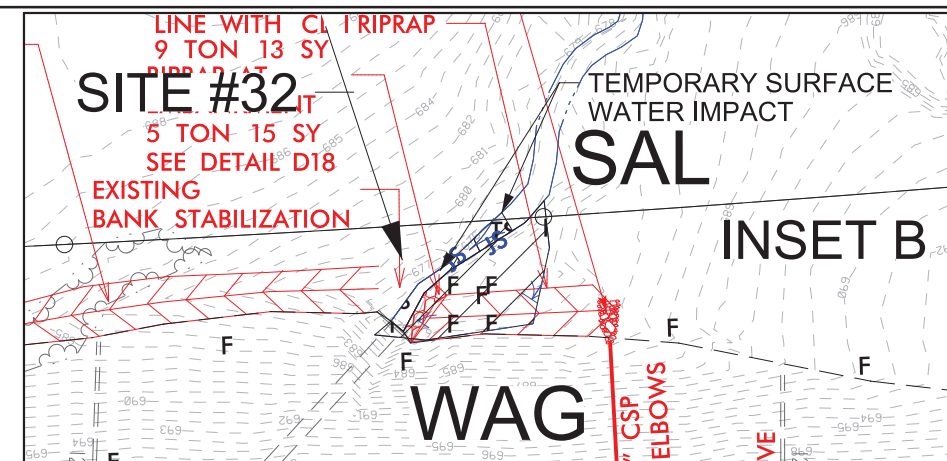
SITE #31 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.



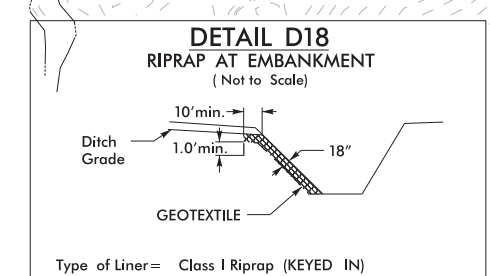

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES FILL IN WETLAND
 DENOTES IMPACTS IN SURFACE WATER

**PERMIT DRAWING
SHEET 75 OF 115**





SITE #31 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.



**PERMIT DRAWING
SHEET 76 OF 115**

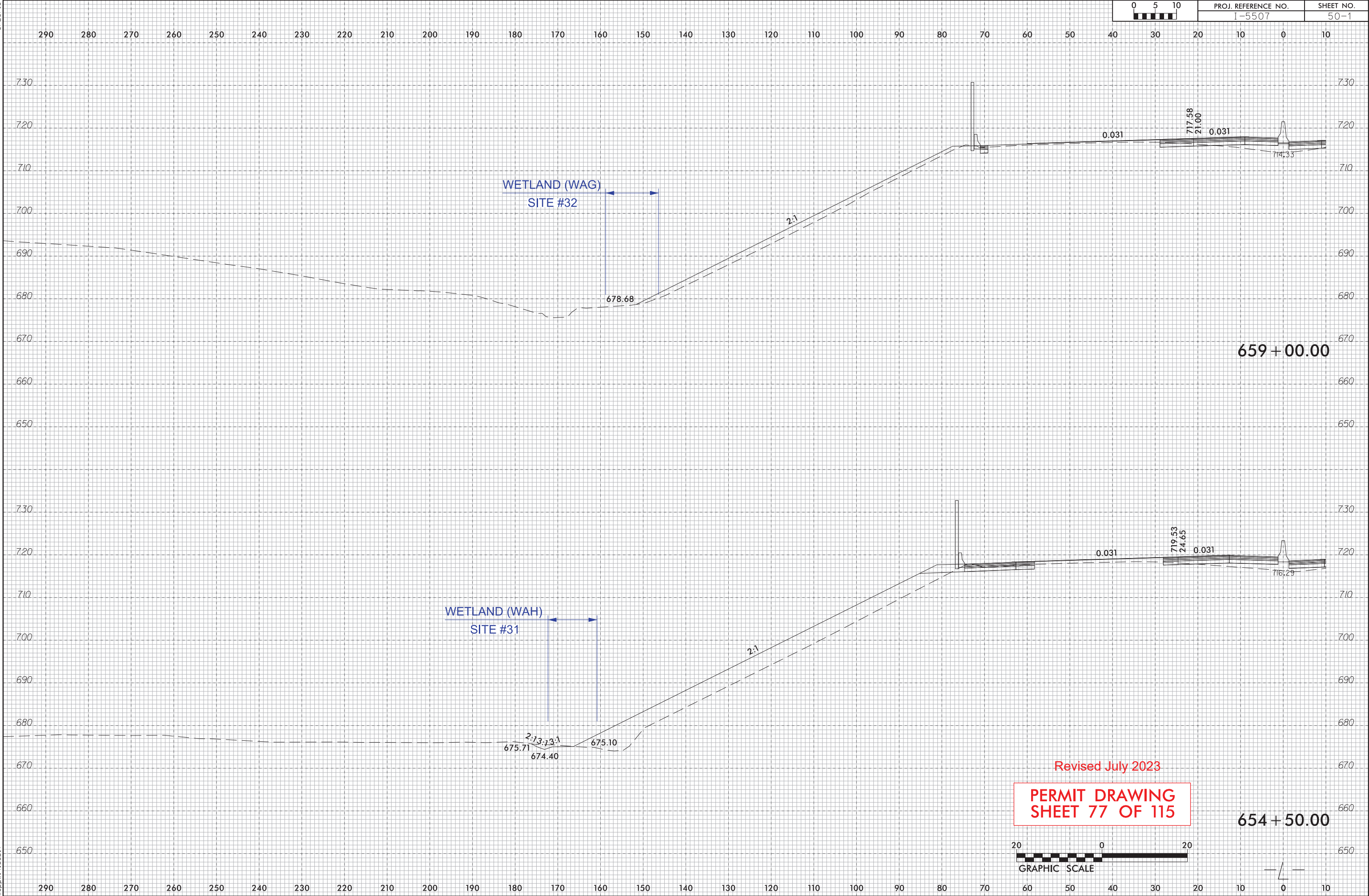
Revised July 2023



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
I-5507	50-1



8/9/2023
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SITE #33

DENOTES FILL IN
WETLAND

DENOTES IMPACTS IN
SURFACE WATER

DENOTES MECHANIZED
CLEARING

SBH

50 0 50

GRAPHIC SCALE

SITE #33
SEE
INSET A

SITE #33
SEE INSET

SITE #33
SEE INSET B

WO

DS SBI

MATCH LINE SEE SHEET 51
-L- STA. 673 + 00.00

MATCH LINE SEE SHEET 53
-1- STA. 686 + 00.00

RIPRAP AT
EMBANKMENT
SEE DETAIL D18

INSET B
SITE #33

— TEMPORARY
SURFACE
WATER IMPACT

TEMPORARY SURFACE WATER IMPACT

DENOTES IMPACTS IN
SURFACE WATER

TS TS

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL D18
RIPRAP AT EMBANKMENT
(Not to Scale)

Type of Liner = CL I Riprap Key riprap into natural ground

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER DENOTES FILL IN WETLAND

 DENOTES IMPACT SURFACE WATER

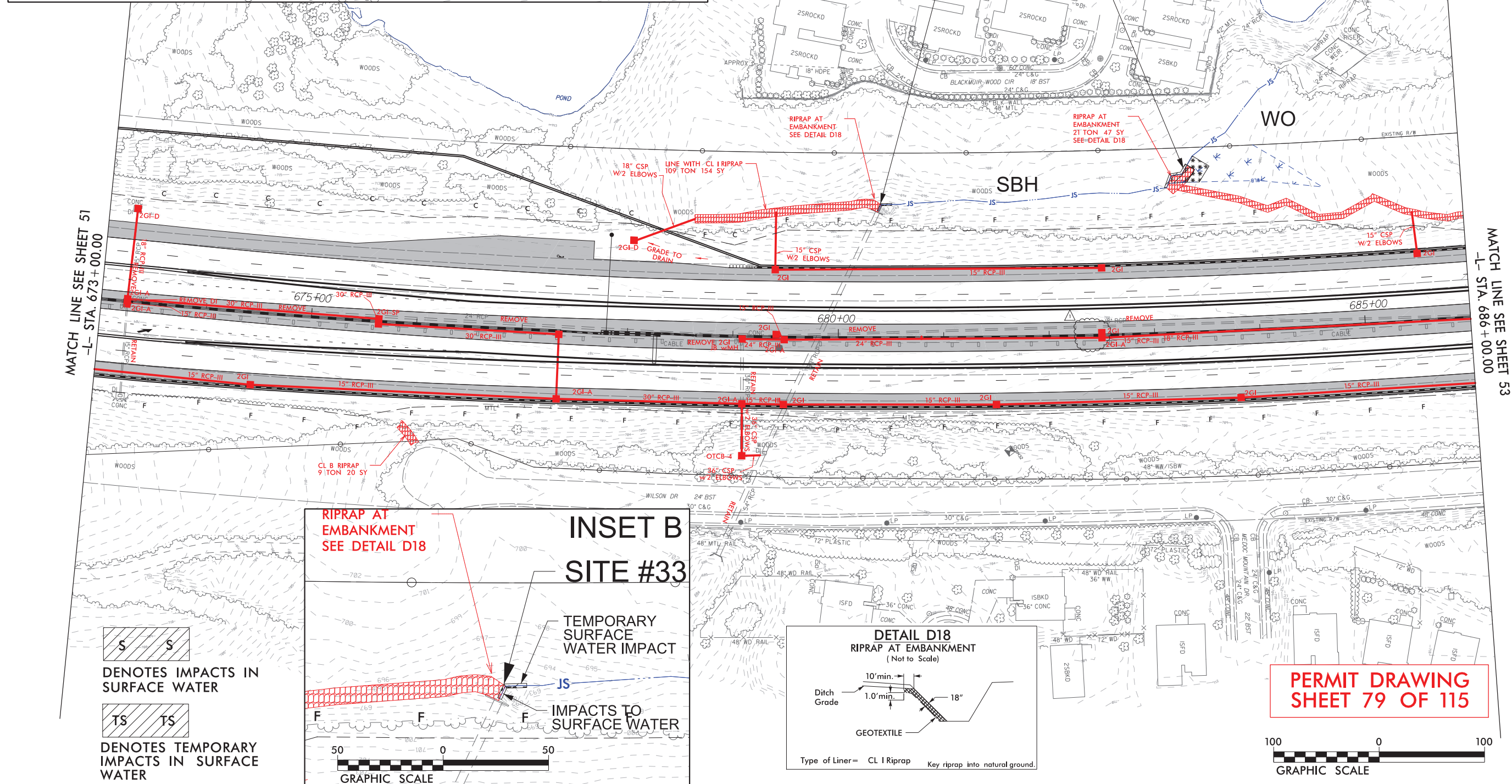
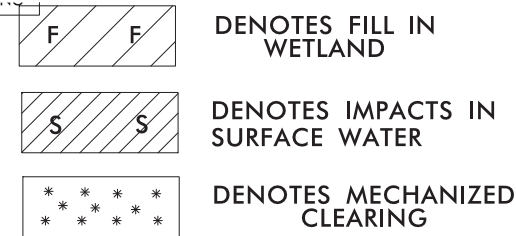
• DENOTES MECHANIZED
• CLEARING

PERMIT DRAWING
SHEET 78 OF 115

A horizontal scale bar with a black and white checkered pattern on the left half and a solid black pattern on the right half. The left end is labeled '100', the center (where the pattern changes) is labeled '0', and the right end is labeled '100'. Below the bar, the text 'GRAPHIC SCALE' is written in bold capital letters.

REVISIONS

9/12/2019
\\propiwics01\ics_workingdir\3088\336401_4002\15507_Hyd-prm_wet.psh52.dgn
PROPWICS01\$



8/17/99

9/12/2019
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PDPWICS01

REVISIONS

wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

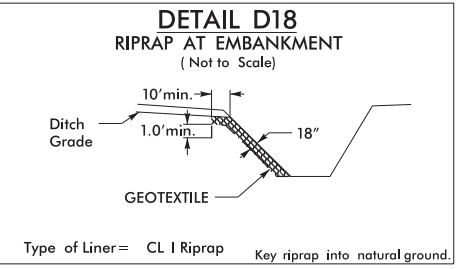
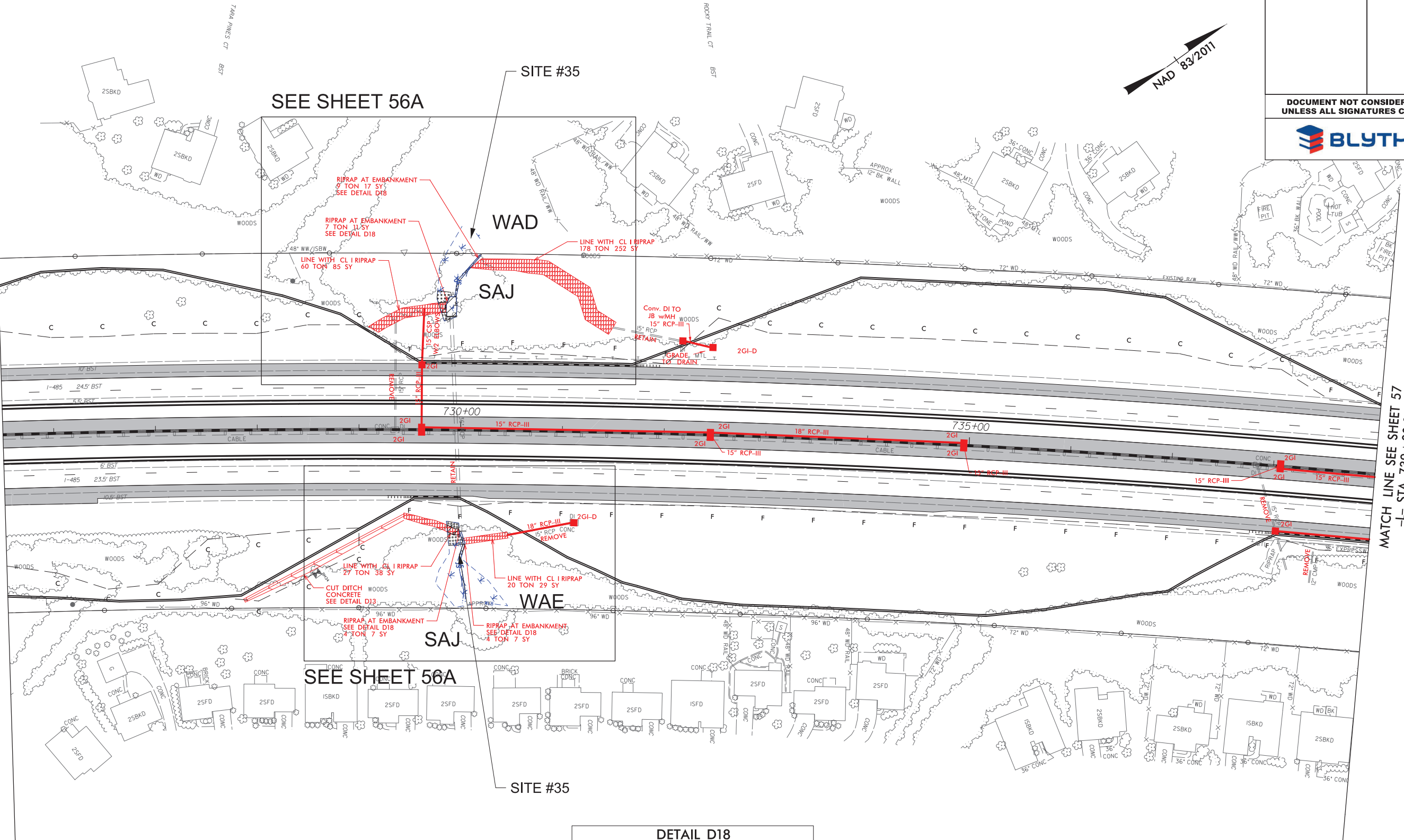
PROJECT REFERENCE NO.		SHEET NO.
I-5507		56
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



MATCH LINE SEE SHEET 55
-L- STA. 725 + 50.00

MATCH LINE SEE SHEET 57
-L- STA. 739 + 00.00



- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND

**PERMIT DRAWING
SHEET 80 OF 115**



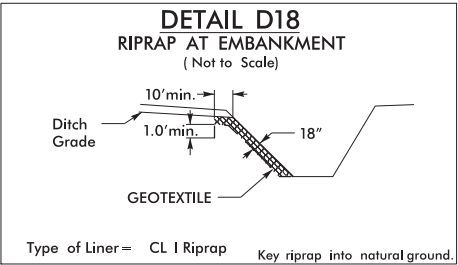
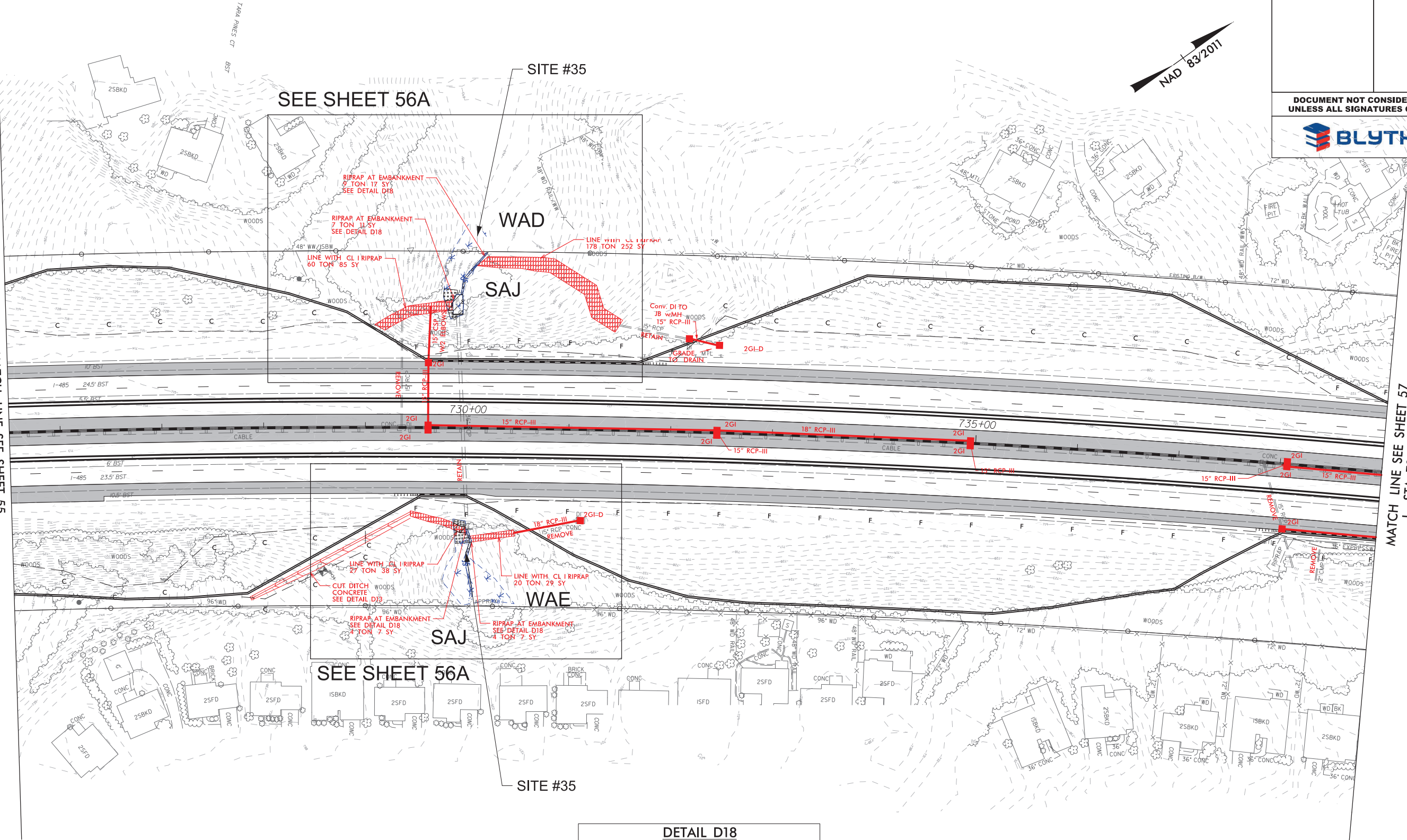
REVISIONS

PROJECT REFERENCE NO.		SHEET NO.
I-5507		56
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
BLYTHE		



MATCH LINE SEE SHEET 55
-L- STA. 725 + 50.00

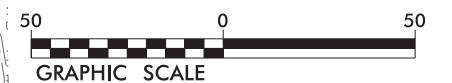
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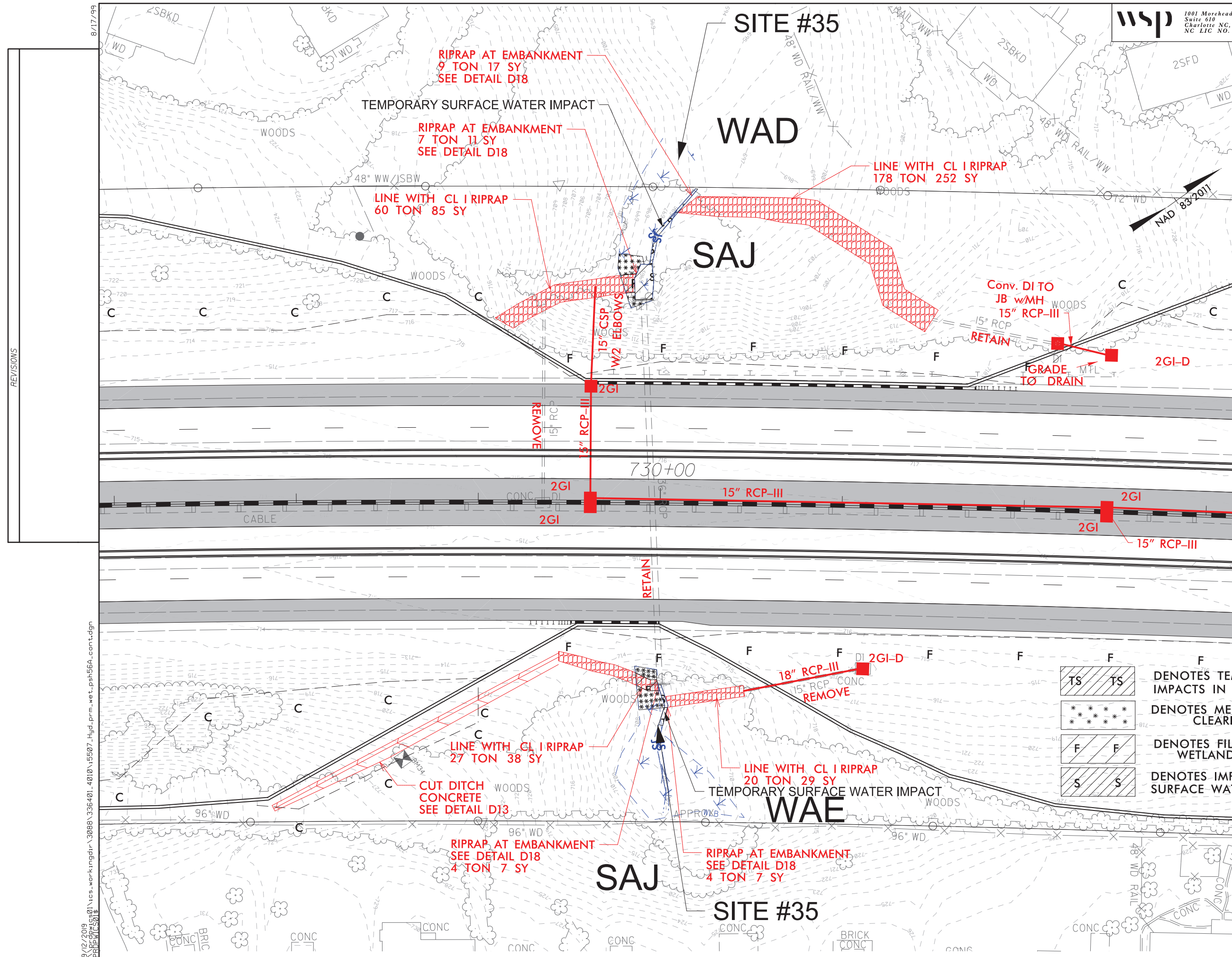
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND

**PERMIT DRAWING
SHEET 81 OF 115**

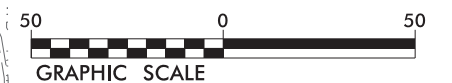


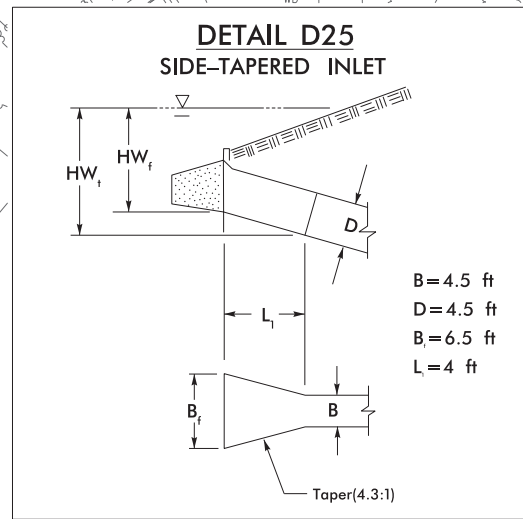


**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



PERMIT DRAWING
SHEET 83 OF 115

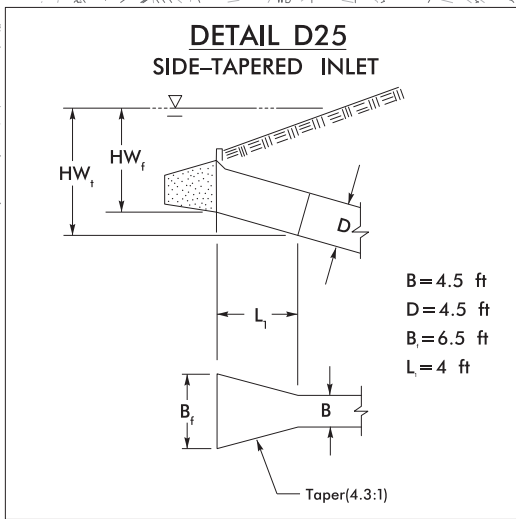
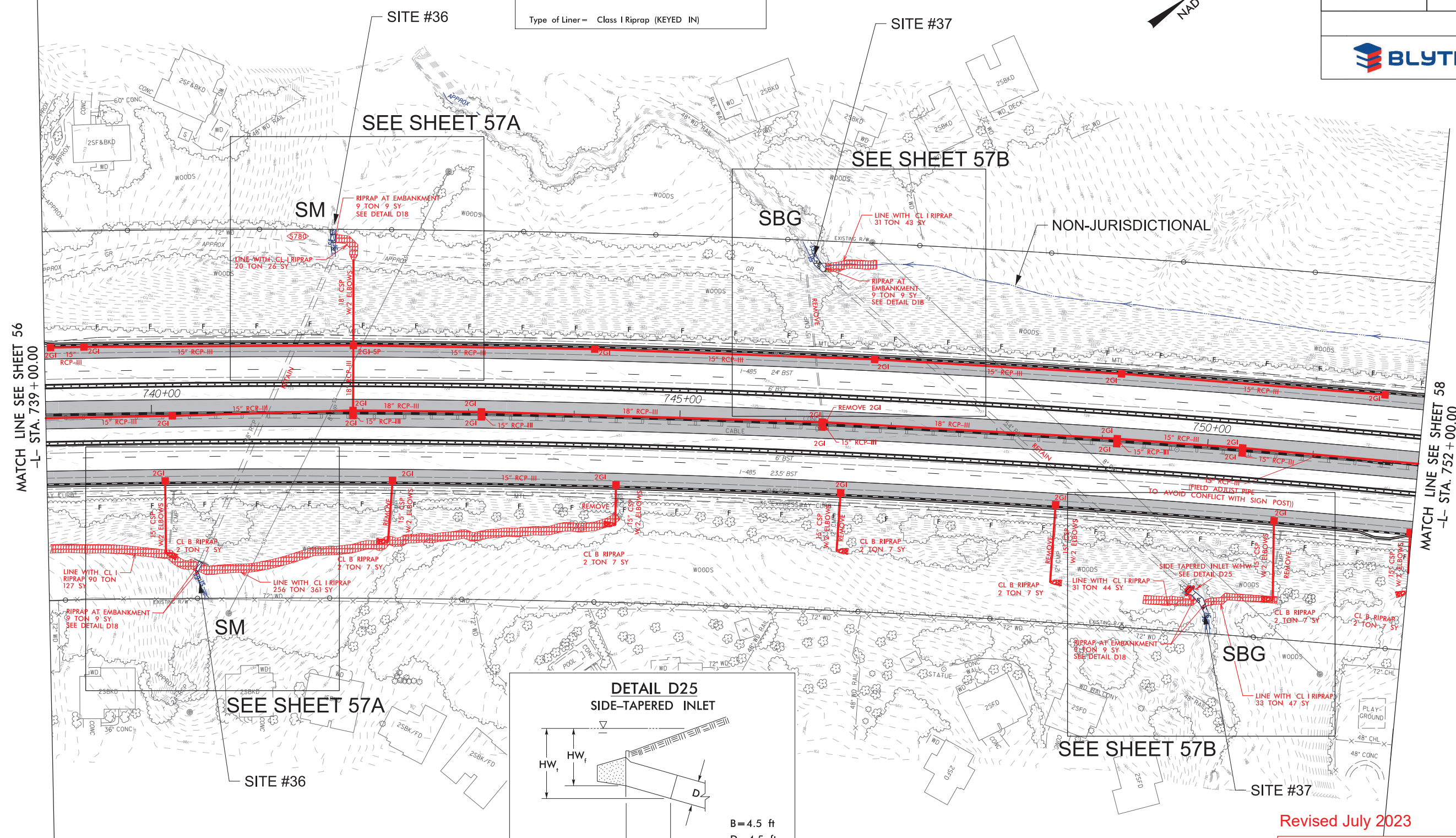
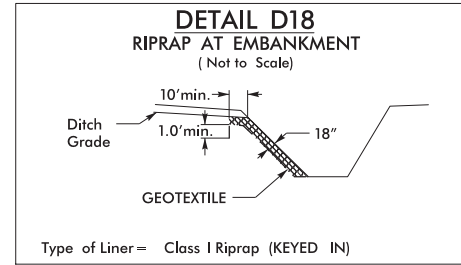




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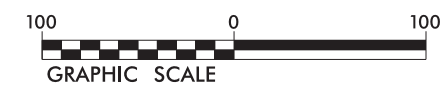
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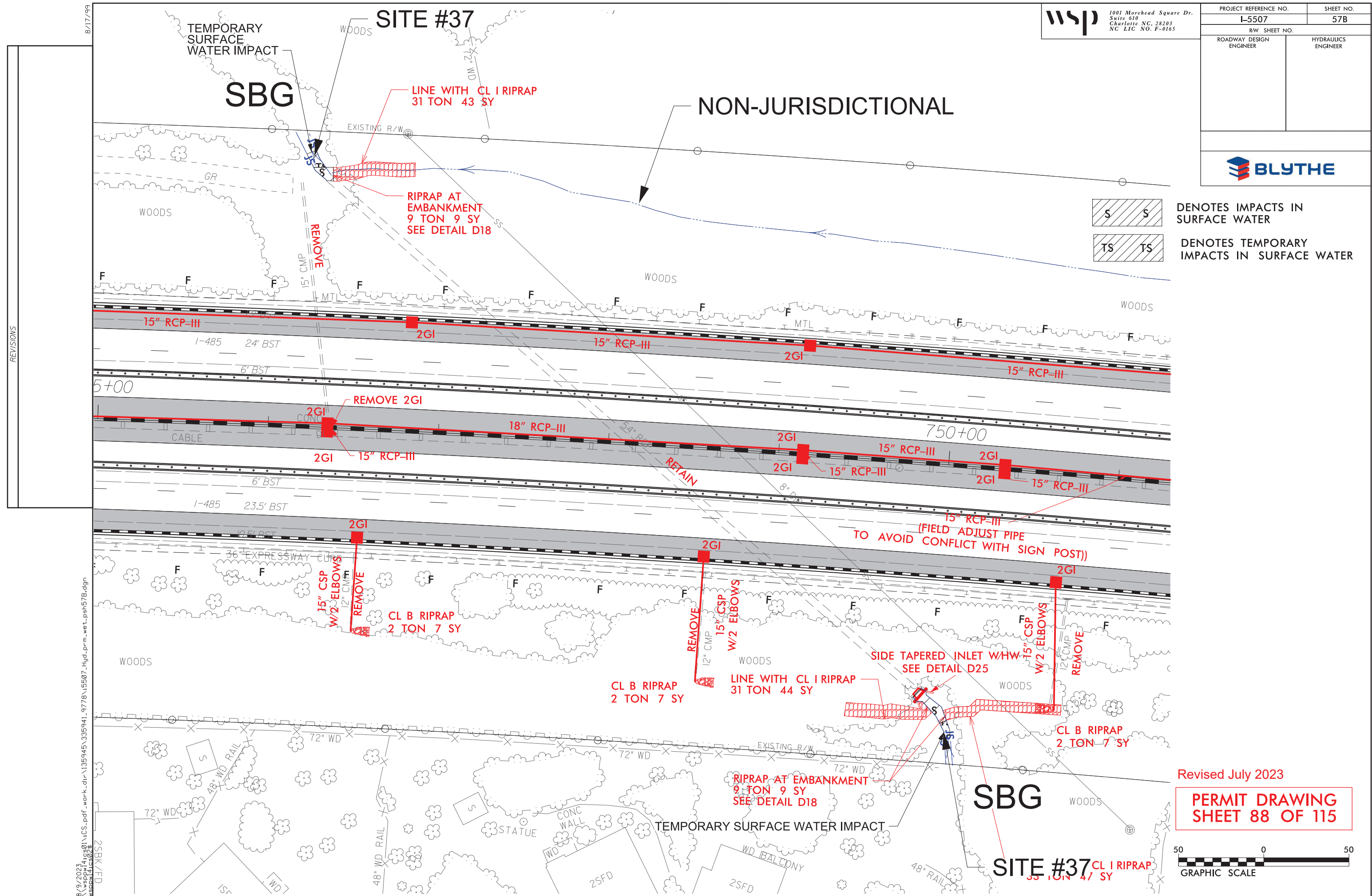
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I-5507	57
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 BLYTHE	

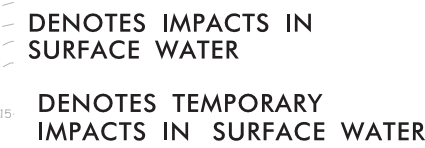


Revised July 2023

**PERMIT DRAWING
SHEET 85 OF 115**







Revised July 2023

**PERMIT DRAWING
SHEET 89 OF 115**



SITE #37A

BANK STABILIZATION
SEE DETAIL D19
9 TON

BANK STABILIZATION -
SEE DETAIL D19
9 TON

DENOTES IMPACTS IN
SURFACE WATER

SSH

INSET

SPECIAL CUT
DITCH
SEE DETAIL D

50
C 
GRAPHIC SCALE

SITE #37A -
SEE INSET

BANK STABILIZATION
SEE DETAIL D19
9 TON

BANK STABILIZATION -
SEE DETAIL D19
9 TON

CUT
FAIL D1

MATCH LINE SEE SHEET 57
-L- STA. 752 + 00.00

-L- STA. 752+00.00

MATCH LINE SEE SHEET 59
-L- STA. 765+00.00

-L- STA. 765+00.00

DETAIL D19
BANK STABILIZATION
(Not to Scale)

PERMIT DRAWING
SHEET 90 OF 115

A horizontal graphic scale bar. It is divided into two main sections. The left section is marked with '100' at the far left and '0' in the middle. It contains a series of alternating black and white squares. The right section is marked with '10' at the far right and is a solid black bar. Below the bar, the text 'GRAPHIC SCALE' is written in capital letters.

NAD 83/2017

wsp |

1001 Morehead Square Dr.
Suite 610
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NC LIC NO. F-0165

PROJECT REFERENCE NO.

I-5507

SHEET NO.

58

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

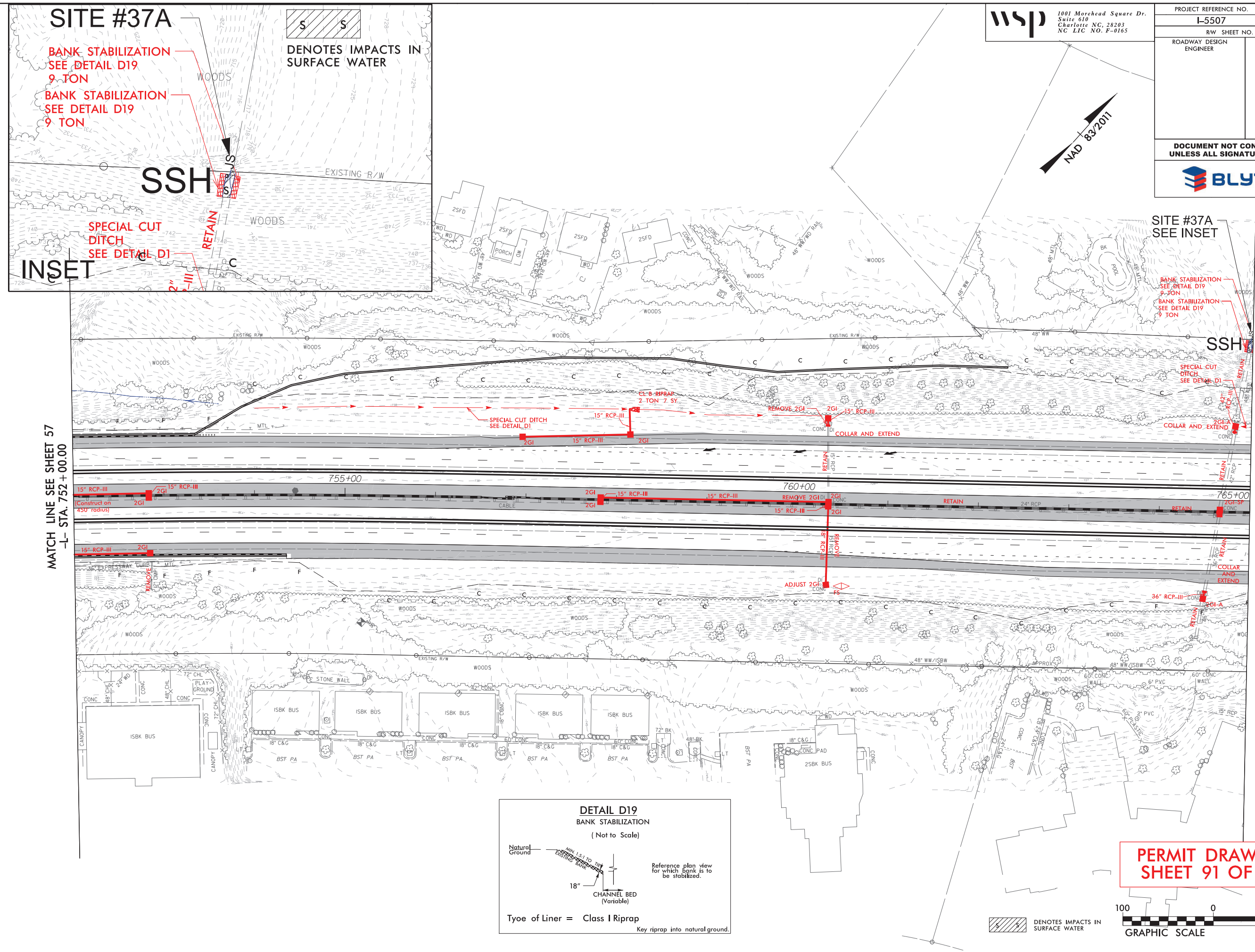
HYDRAULICS
ENGINEER

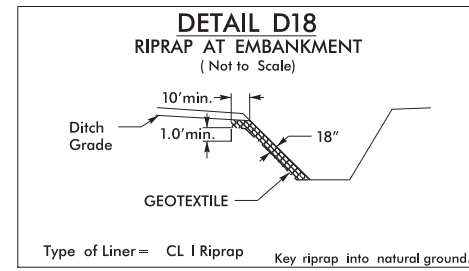
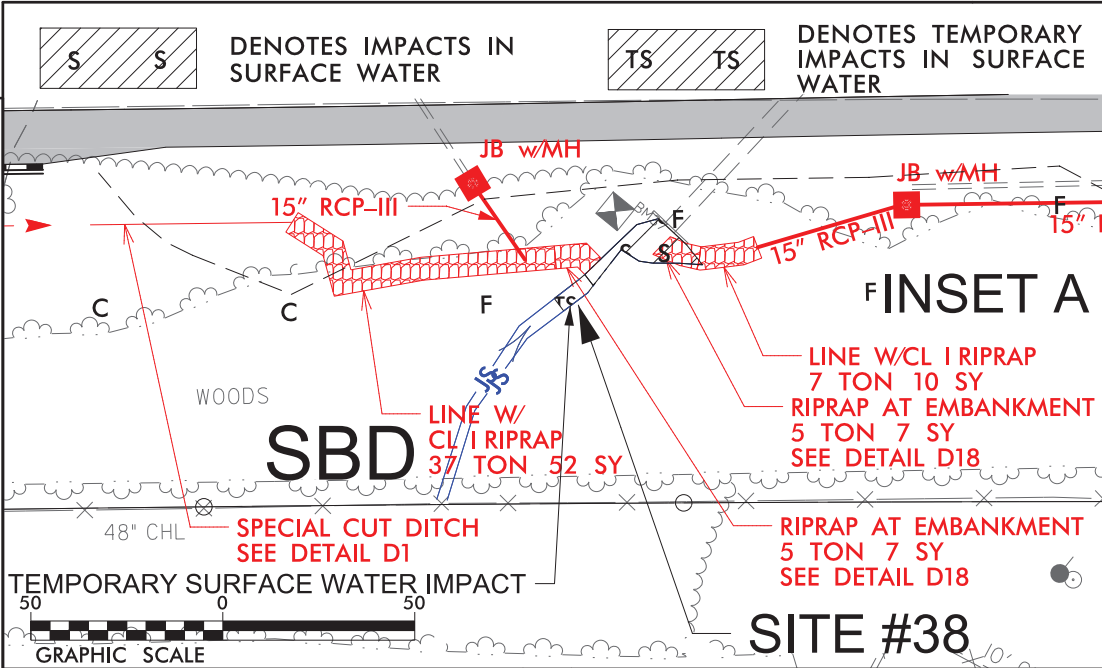
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETE**



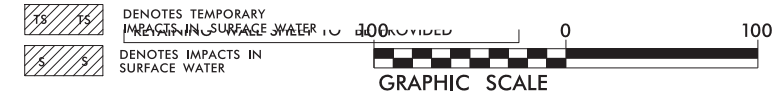
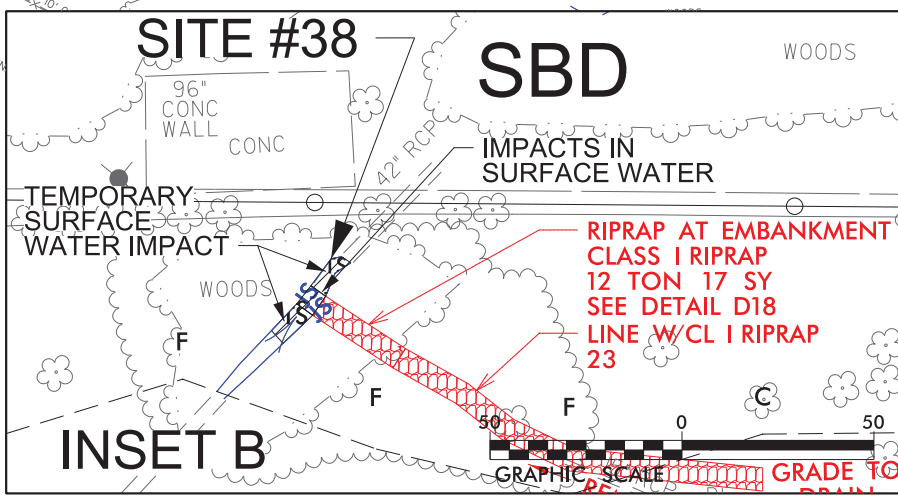
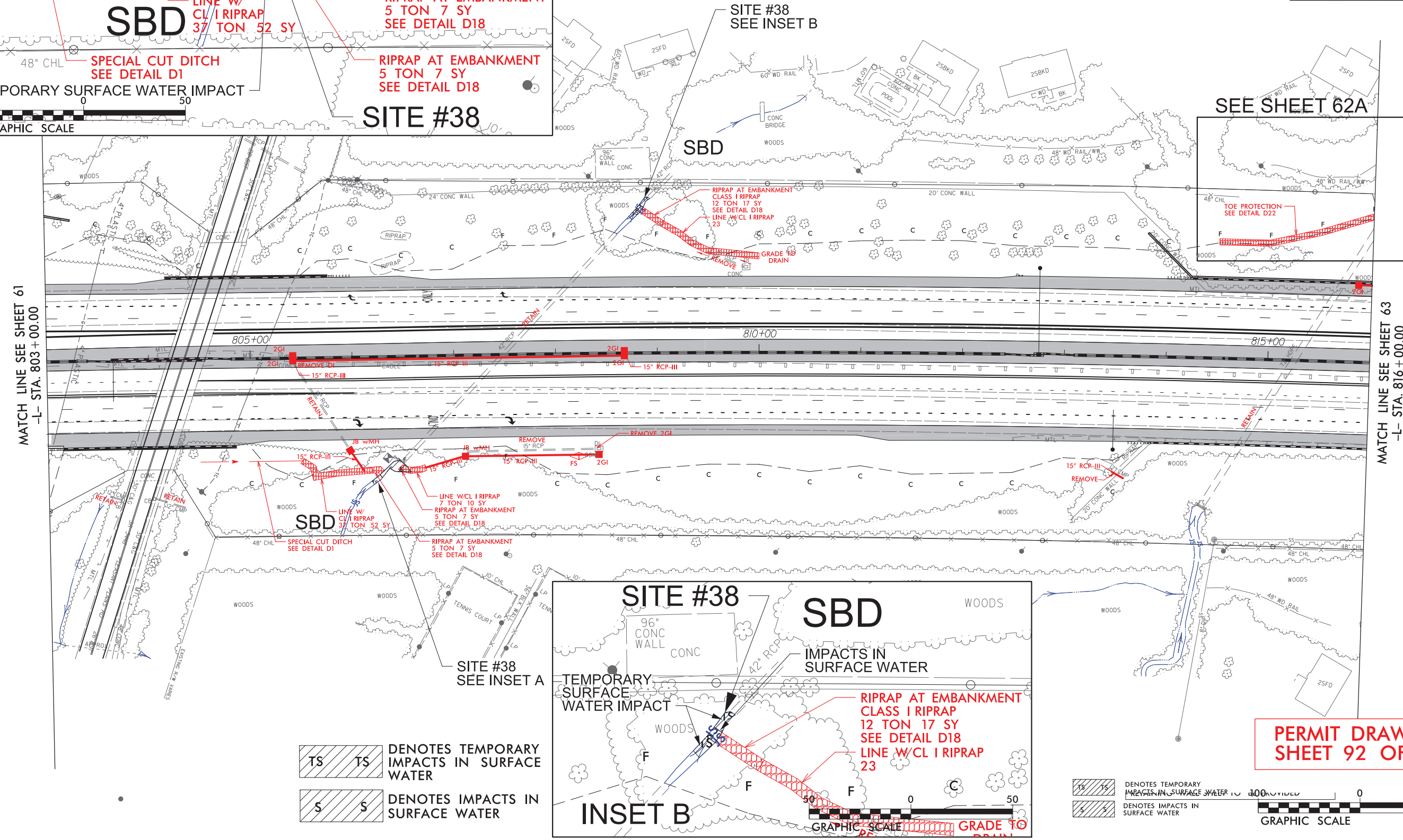
BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
I-5507	58
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	





PROJECT REFERENCE NO.	SHEET NO.
I-5507	62
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	



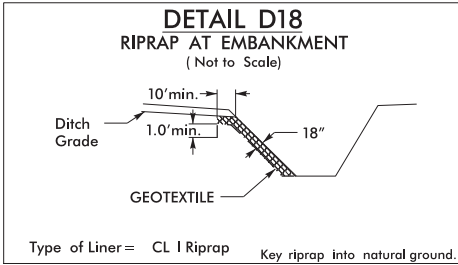
8/17/99



DENOTES IMPACTS IN
SURFACE WATER

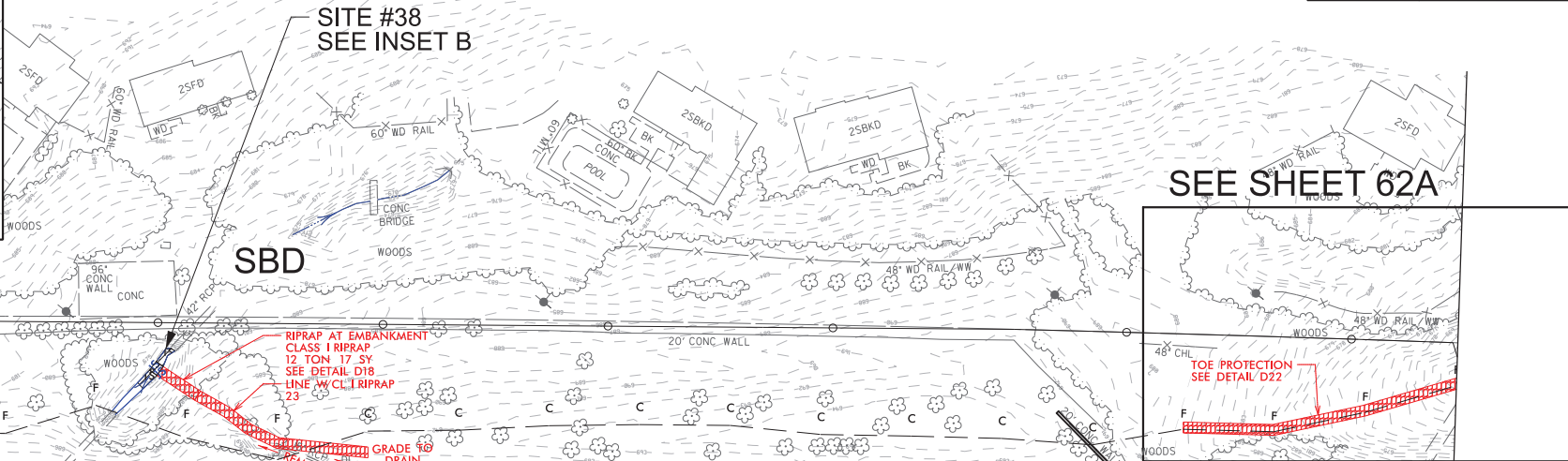
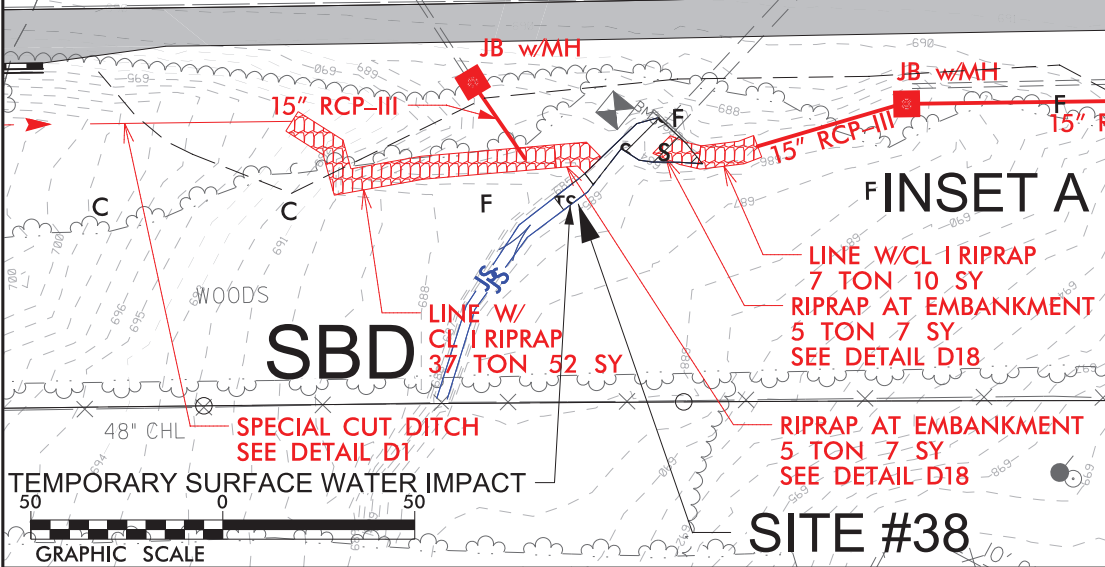


DENOTES TEMPORARY
IMPACTS IN SURFACE
WATER

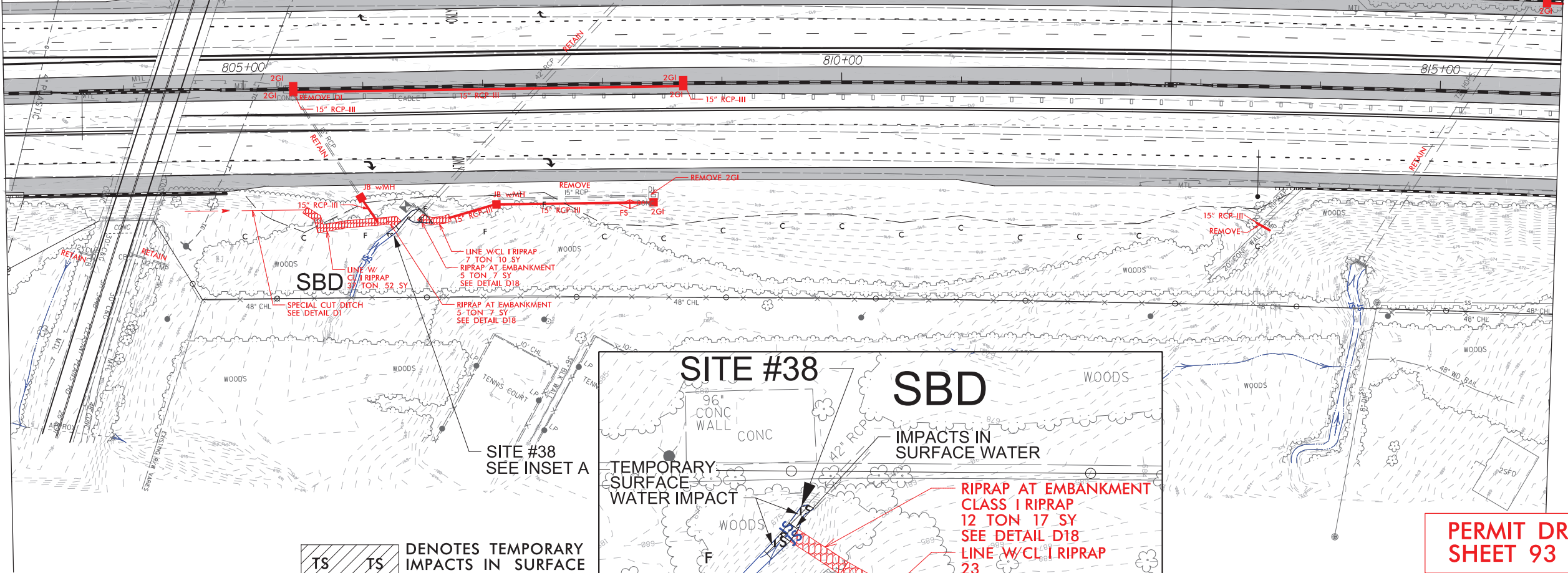


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Suite 610
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NC LIC NO. F-0165

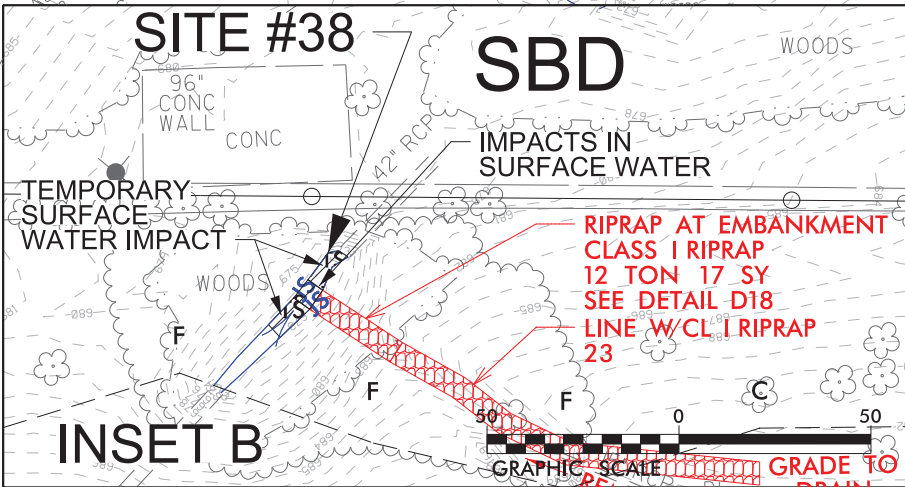
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RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
 BLYTHE		



MATCH LINE SEE SHEET 61
-L- STA. 803 + 00.00



MATCH LINE SEE SHEET 63
-L- STA. 816 + 00.00



PERMIT DRAWING
SHEET 93 OF 115

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN
SURFACE WATER

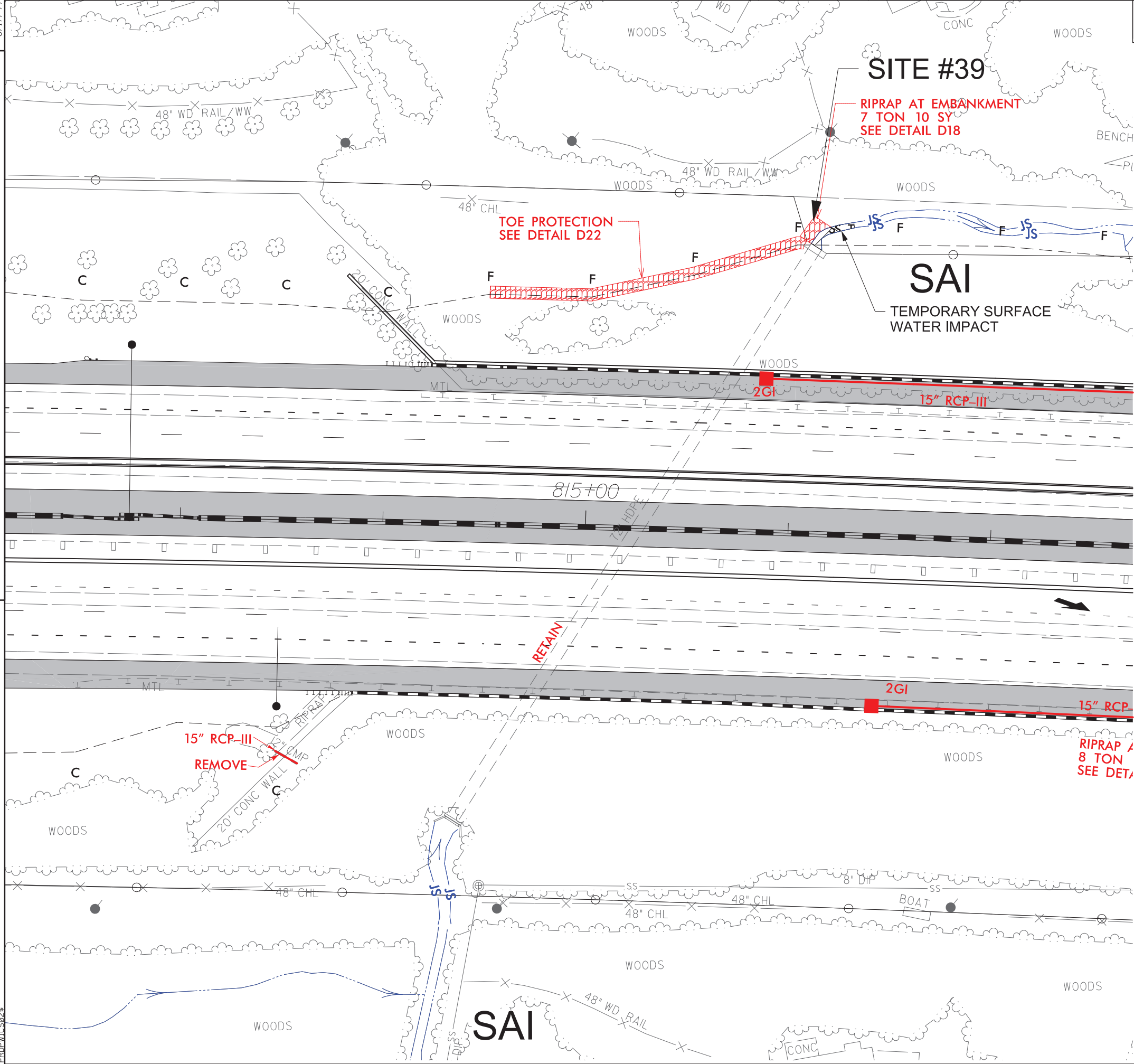


9/12/2019
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8/17/99

REVISIONS

9/12/2019
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PDP\WCS028



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NC LIC NO. F-0165



PROJECT REFERENCE NO.		SHEET NO.	
I-5507		62A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 BLYTHE			



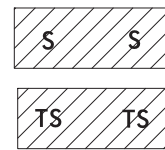
DENOTES IMPACTS IN
SURFACE WATER



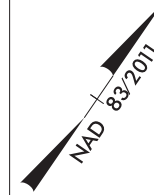
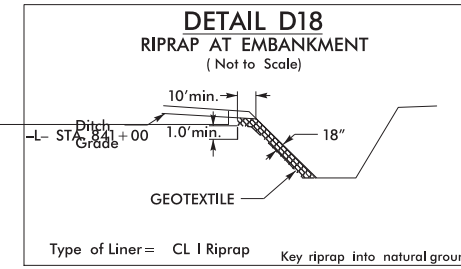
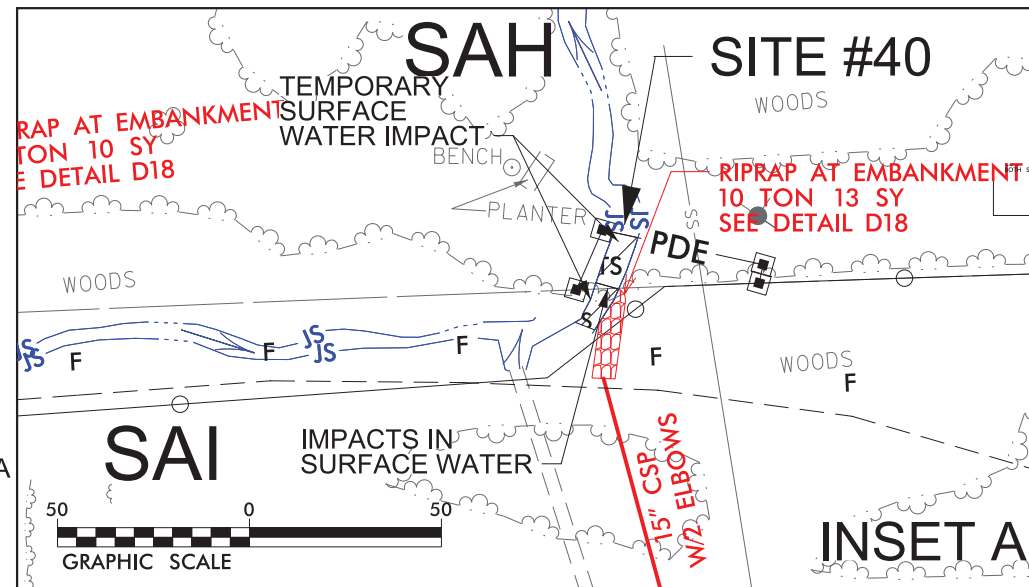
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

**PERMIT DRAWING
SHEET 94 OF 115**

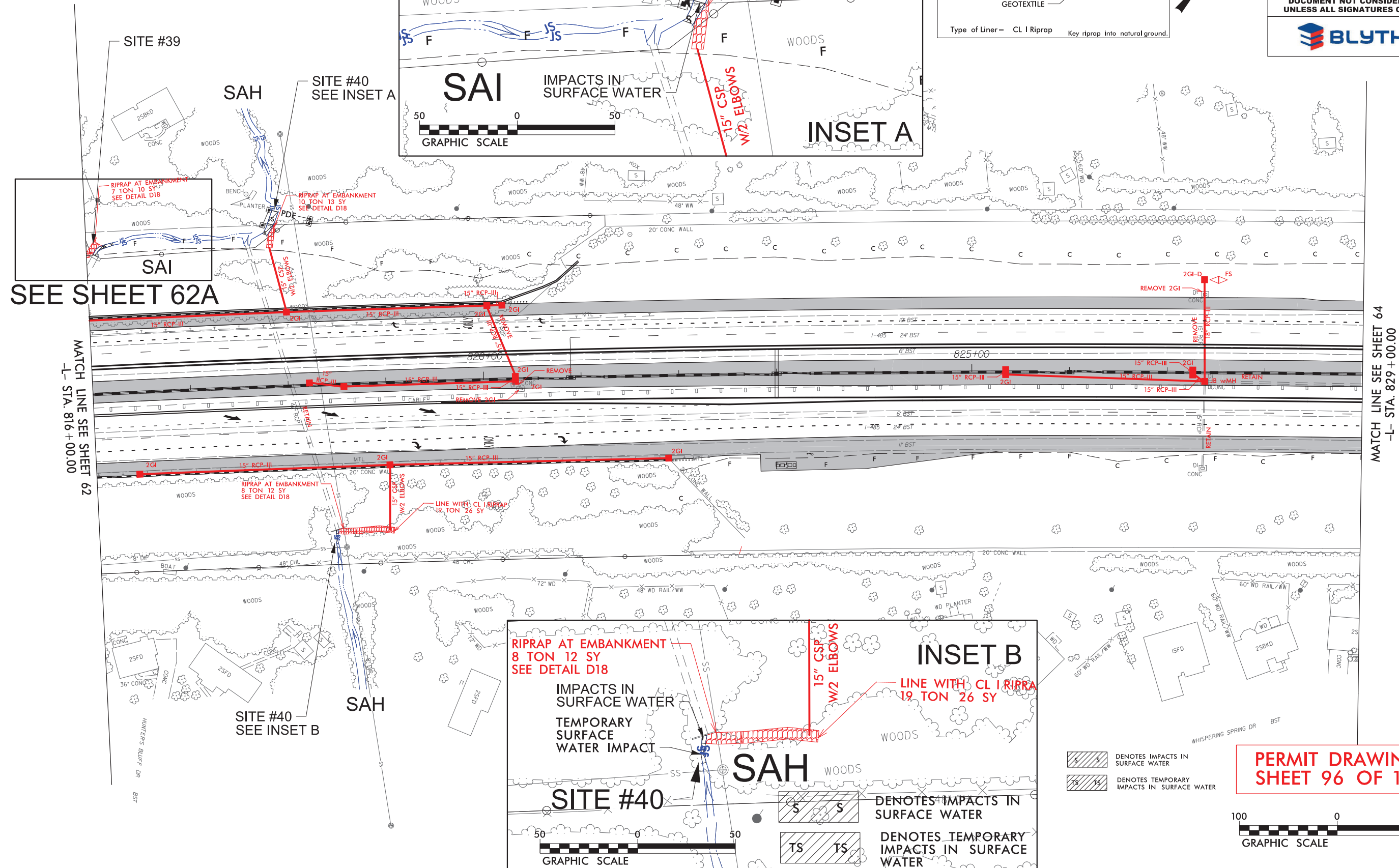


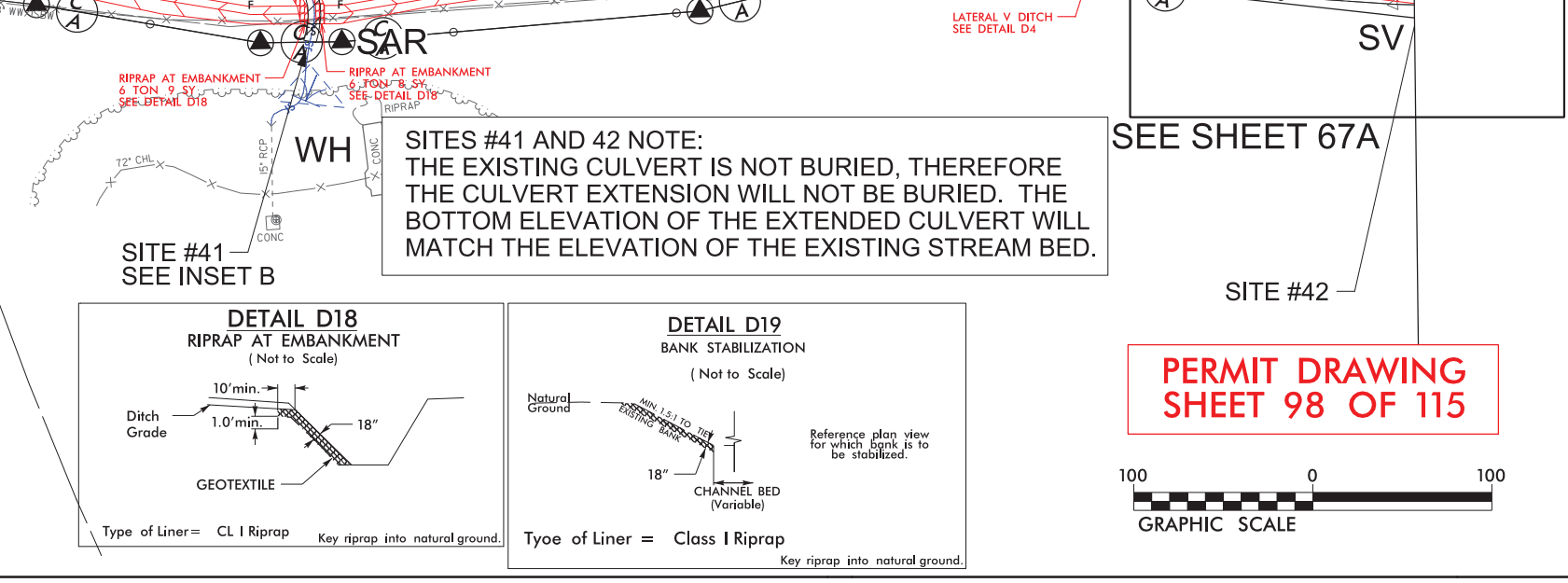
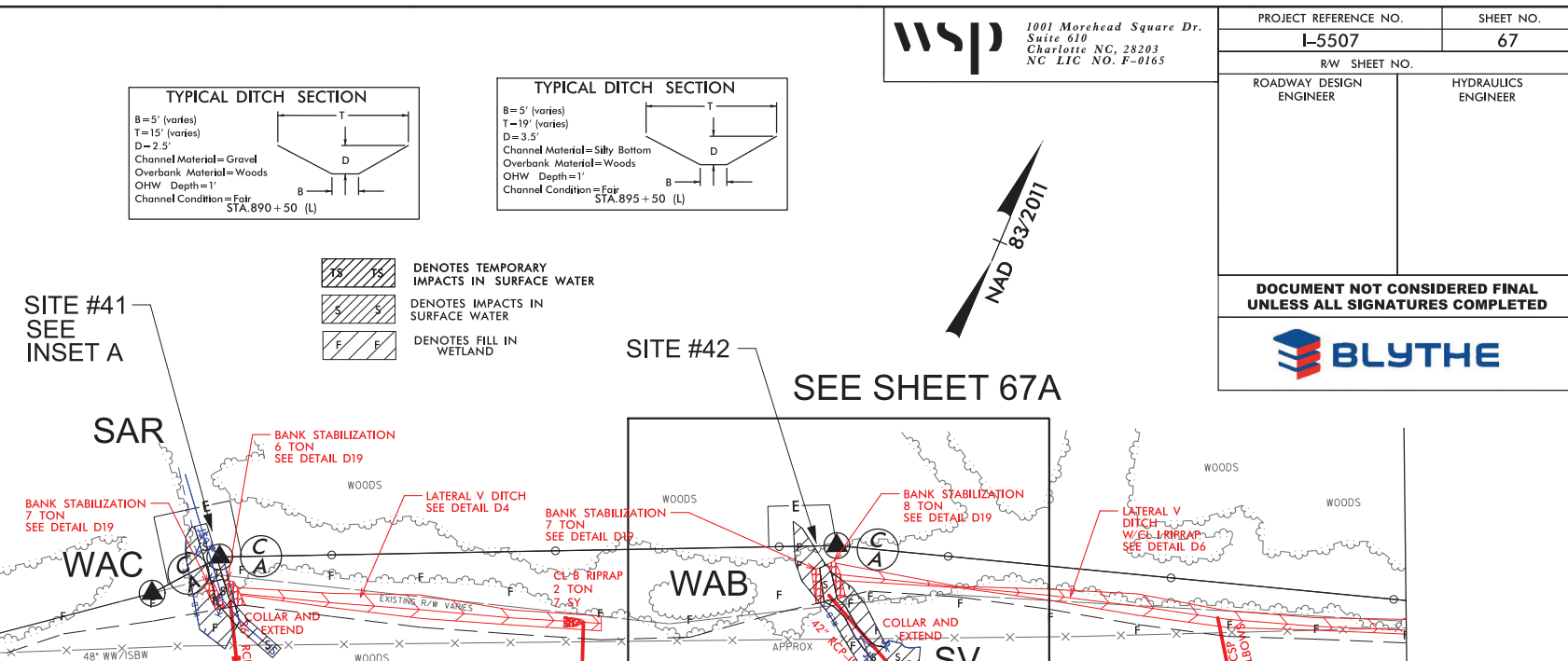
DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE
WATER



PROJECT REFERENCE NO.	SHEET NO.
I-5507	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 BLYTHE	

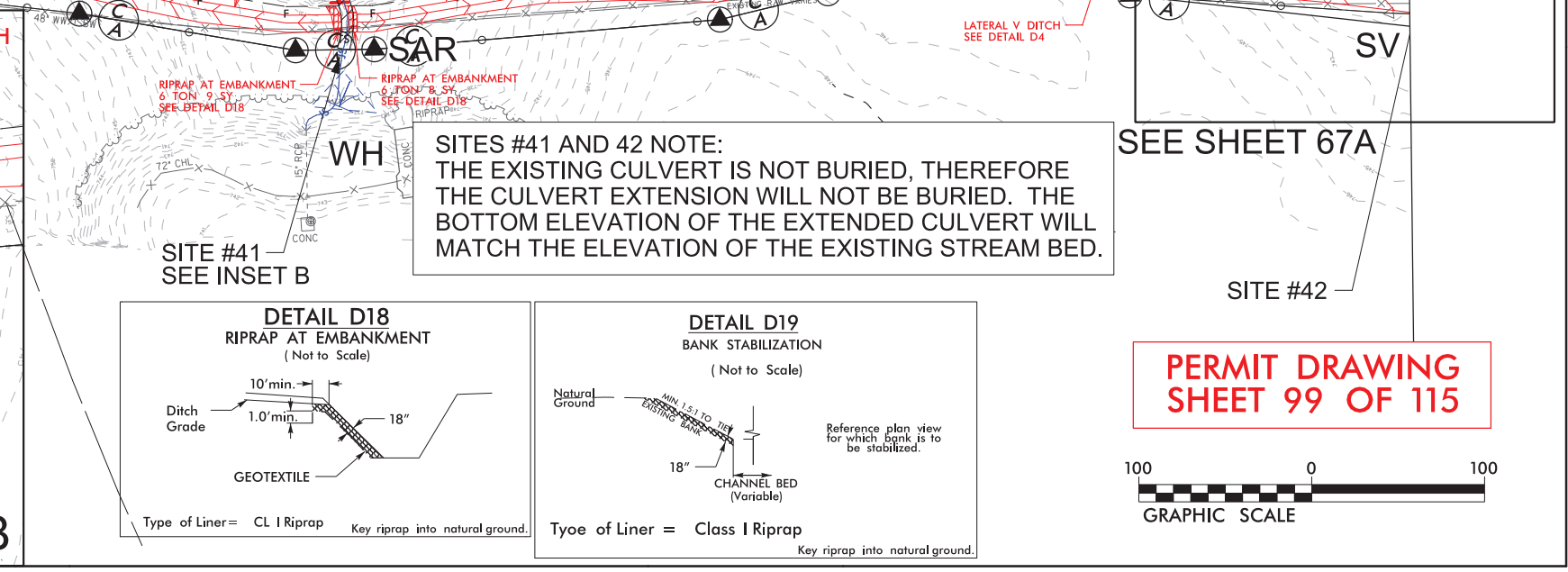
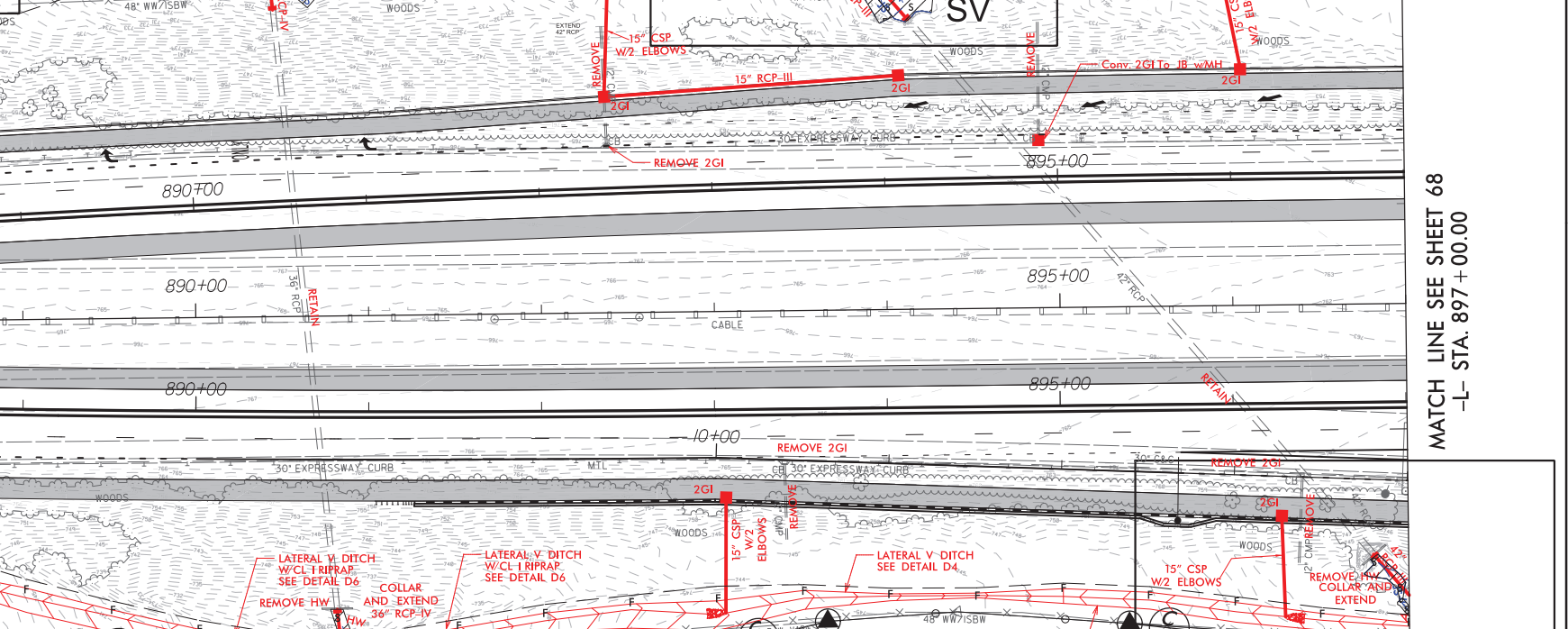
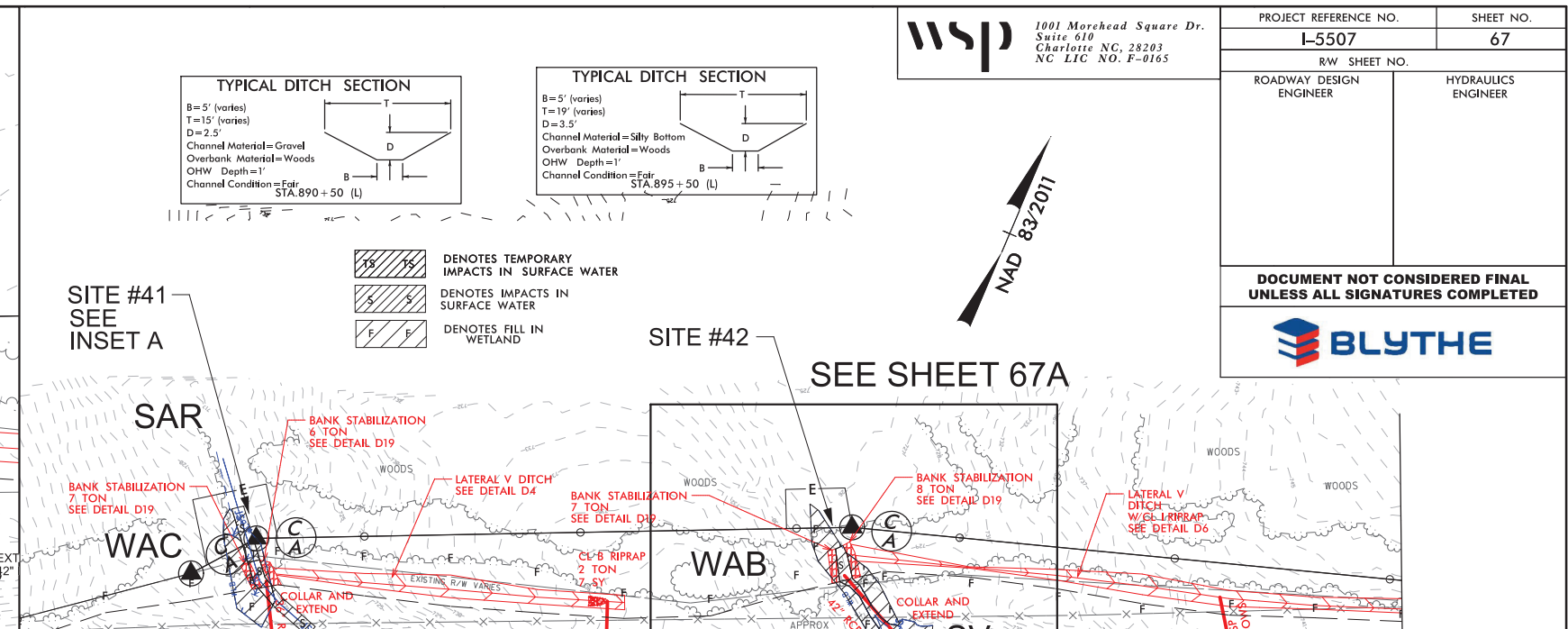




SITES #41 AND 42 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

PERMIT DRAWING
SHEET 98 OF 115







DETAIL D30

CHANNEL CHANGE
(Not to Scale)

Min. D = 3 ft
Max. d = 3 ft
B = 4 ft

Key riprap into natural ground.

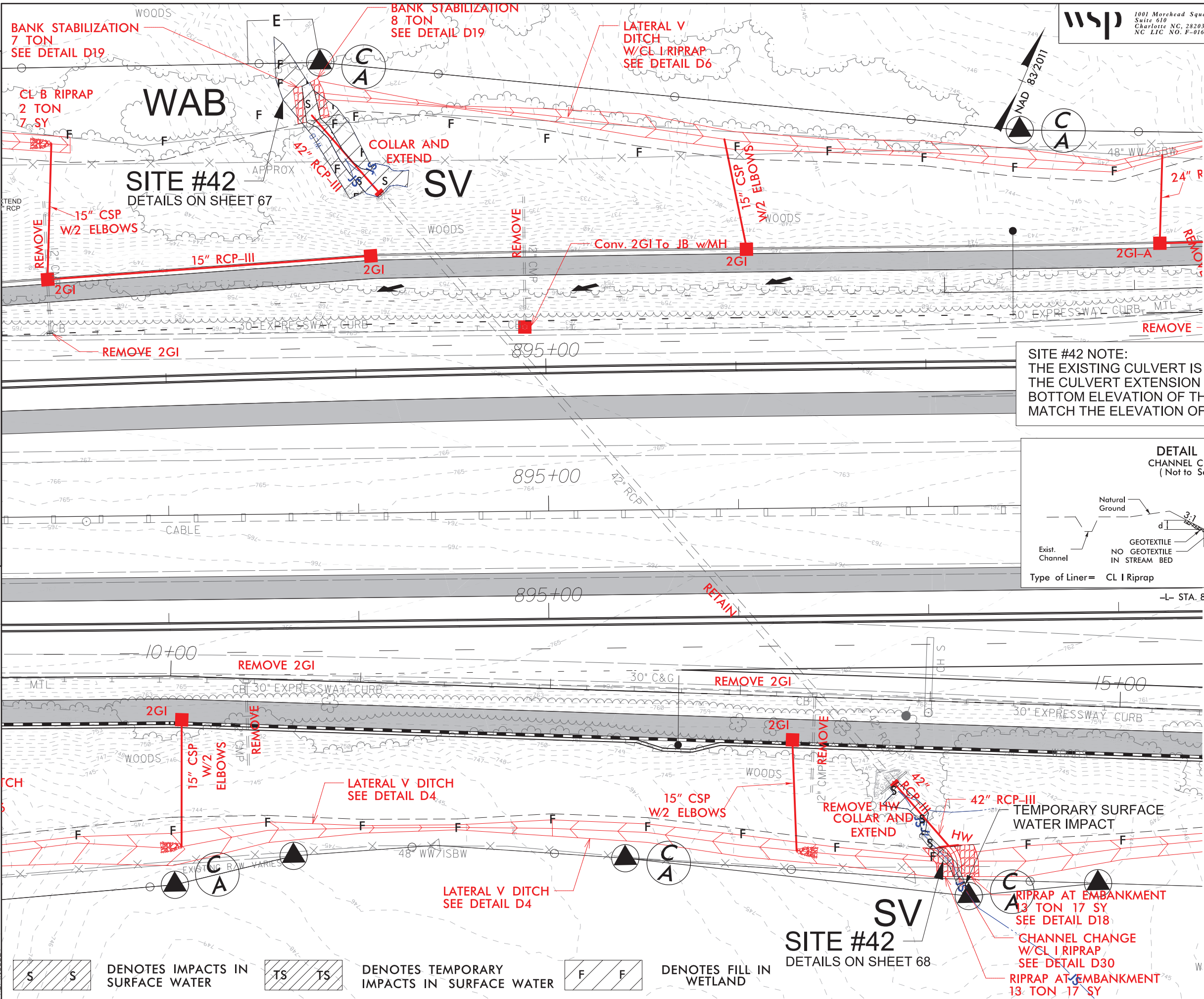
PERMIT DRAWING
SHEET 100 OF 115



8/17/99

9/12/2019
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PLOT W/CS028

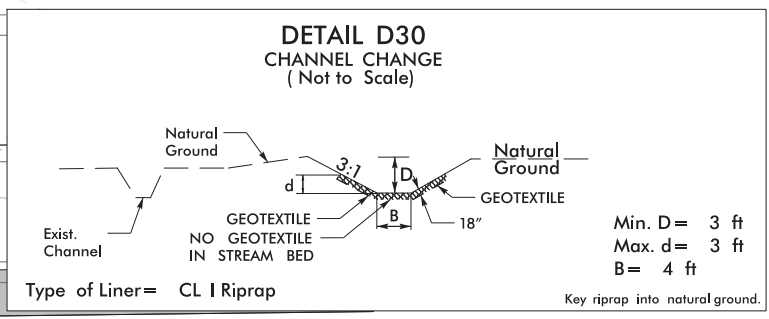
REVISIONS



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Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

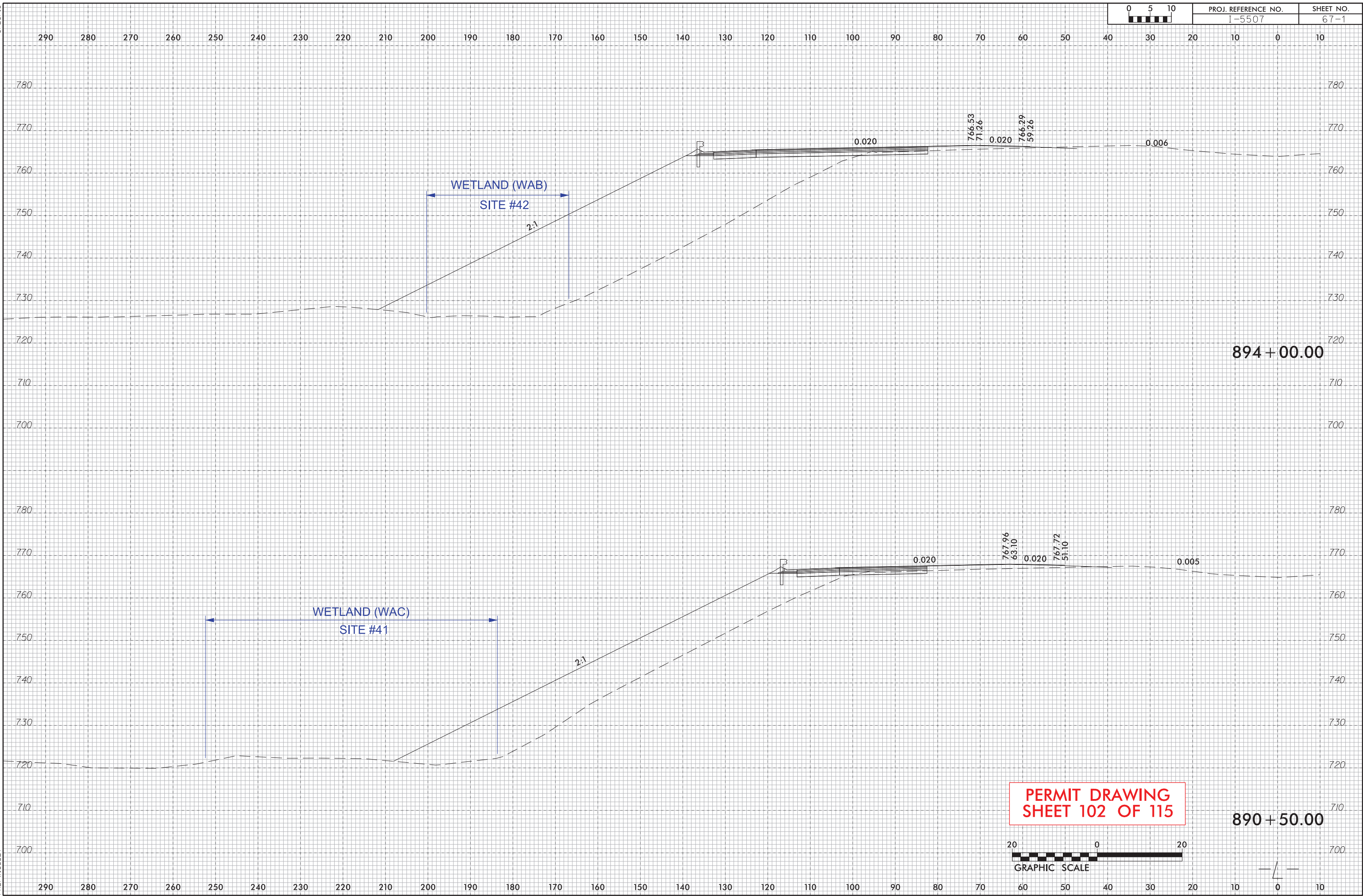
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RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 BLYTHE			

SITE #42 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.



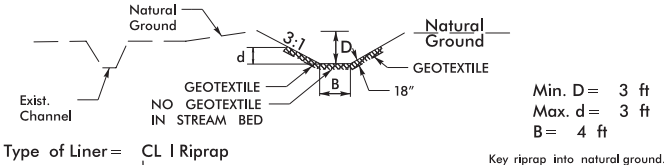
PERMIT DRAWING
SHEET 101 OF 115





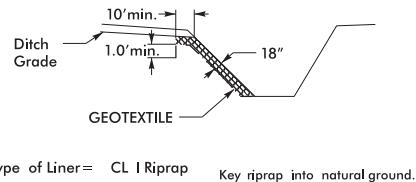
8/17/99

DETAIL D30
CHANNEL CHANGE
(Not to Scale)



-L- STA. 897+13 RT

DETAIL D18
RIPRAP AT EMBANKMENT
(Not to Scale)



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Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.	SHEET NO.
L-5507	68
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



MATCH LINE SEE SHEET 67
-L- STA. 897+00.00

SITE #42

SEE SHEET 67A

MATCH LINE SEE SHEET 69
-L- STA. 910+00.00

PERMIT DRAWING
SHEET 103 OF 115

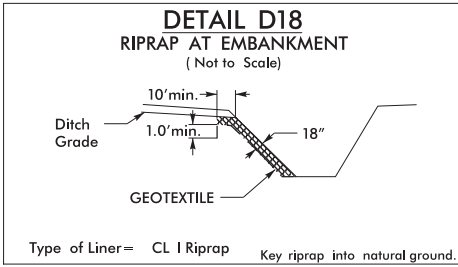
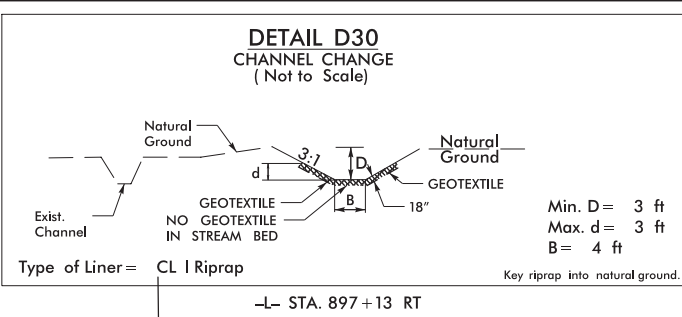


- 5' DENOTES IMPACTS IN SURFACE WATER
- 15' DENOTES TEMPORARY IMPACTS IN SURFACE WATER

8/17/99

9/12/2019
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PDP\WCS028

REVISIONS



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Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.
I-5507

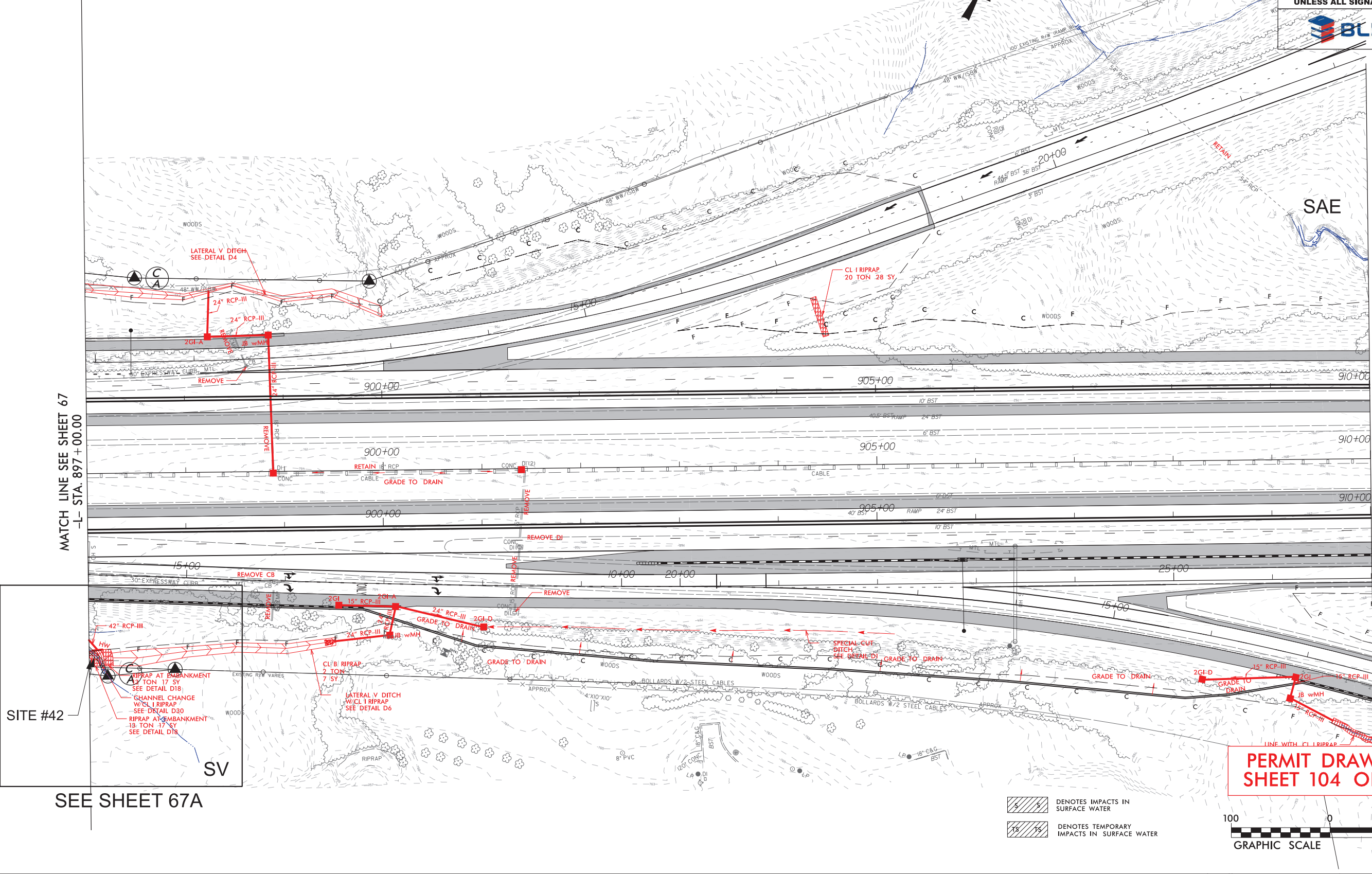
ROADWAY DESIGN ENGINEER

SHEET NO.
68

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BLYTHE



**PERMIT DRAWING
SHEET 104 OF 115**

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

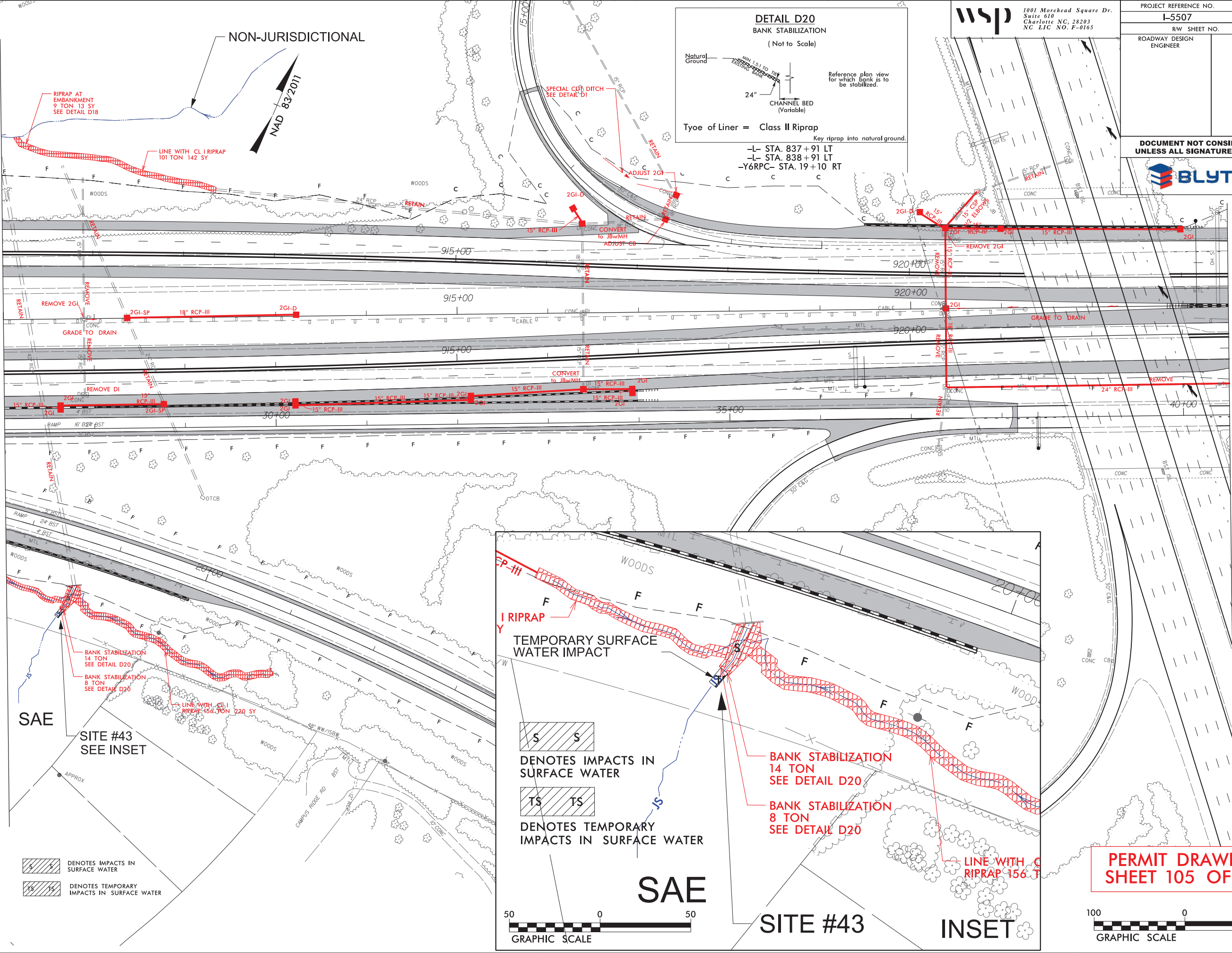


8/17/99

9/12/2019
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REVISIONS

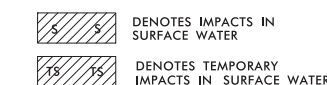
MATCH LINE SEE SHEET 68
-L- STA. 910+00.00



MATCH LINE SEE SHEET 70
-L- STA. 923+50.00

PROJECT REFERENCE NO.		SHEET NO.
I-5507		69
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
 BLYTHE		





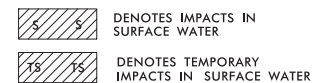
PERMIT DRAWING
SHEET 107 OF 115



SITE #44 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.

MATCH LINE
SEE SHEET 30
Y2RPD- STA.
32 + 00.00

9/12/2019
C:\Program Files\Internet Explorer\IEXPLORE.EXE
PRG: C:\Program Files\Internet Explorer\IEXPLORE.EXE



PERMIT DRAWING
SHEET 108 OF 115



SITE #44 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

MATCH LINE
SEE SHEET 30
-Y2RPD- STA.
32 + 00.00

9/12/2019
 \prod\pwworkingdir\3797\336401_4036\15507_Hyd_prm-wet-psh72-cont.dgn
 PRDPMIC502\$

8/17/99



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

SITE #44 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

SITE #44

S1

OUTLET CHANNEL STABILIZATION
SEE DETAIL B22
46 TON 55 SY

EXTEND EXISTING
3-8'X9' RCBC

PIPE OUTLET
CHANNEL STABILIZATION
SEE DETAIL B23
54 TON

REMOVE HW

15" C&P
w/ELBOWS

CL B RIPRAP
1 TON 5 SY

JB w/MH

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

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12" CMP

15" RCP III

2GI-D

10' BST

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15" RCP III

2GI-D

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12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

2GI-D

10' BST

RETAIN

MTL

12" CMP

15" RCP III

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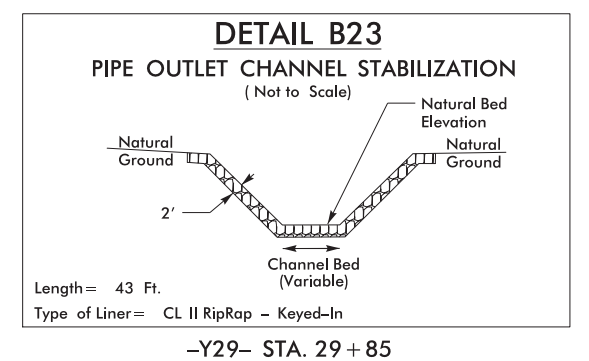
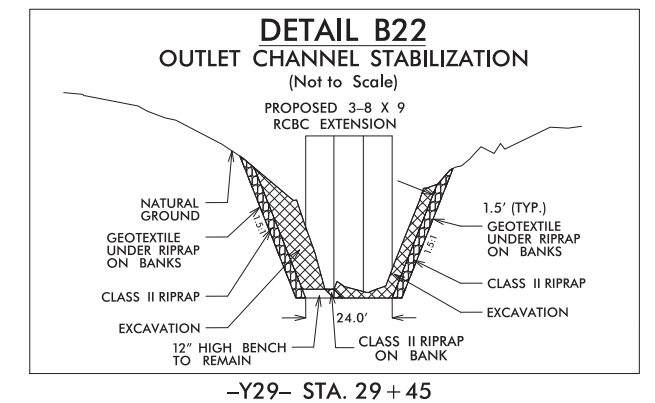
15" RCP III

2GI-D

10' BST

RETAIN

NAD 83/2011



PERMIT DRAWING
SHEET 110 OF 115



SITE #44 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

SITE #44

PIPE OUTLET
CHANNEL STABILIZATION
SEE DETAIL B23
54 TON

S1

- REMOVE HW

- RETAIN

36" EXPRESSWAY CURB

US 521 JOHNSTON RD
-69- SBL 36.5' BST

$$40 \pm 00$$
~~30+00~~~~CONFIDENTIAL~~

RETAIN

TAH

15" RCP

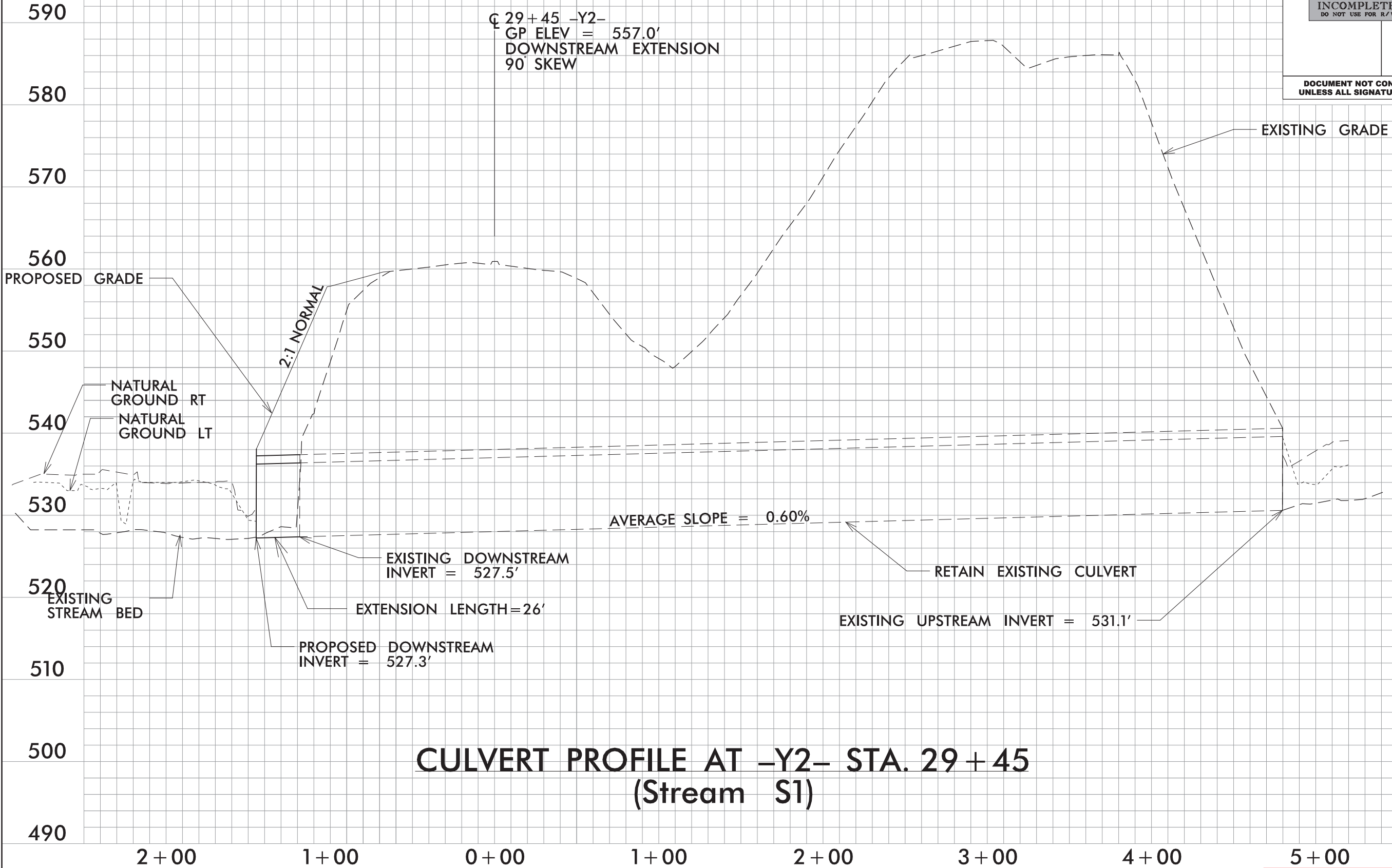
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GRAPHIC SCALE

5/28/99
9/12/2019
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P:\DWG\CS028

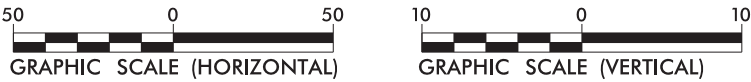
SITE #44

PROJECT REFERENCE NO.		SHEET NO.	
I-5507		72-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



CULVERT PROFILE AT -Y2- STA. 29 + 45
(Stream S1)

PERMIT DRAWING
SHEET 111 OF 115



WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	110+50 -L- RT	Riprap Fill						< 0.01		28		
1	110+50 -L- RT	Bank Stabilization						< 0.01	< 0.01	18	13	
2	129+00 - 130+00 -L- LT	Roadway Fill	0.08			0.02						
2A	128+50 -L- RT	Bank Stabilization						< 0.01	< 0.01	11	20	
3	132+00 -L- LT	Extend 4 @ 10'x8' RCBC						0.03		52		
3	132+00 LT	Bank Stabilization						0.02	< 0.01	70	16	
3	132+00 LT	Culvert Construction Activities							0.03			
4	132+00 - 134+00 -L- LT	Roadway Fill	0.02					< 0.01		159		
4	134+00 - 135+00 -L- LT	Channel Change	< 0.01					< 0.01		22		
5	137+40 - 142+25 -L- LT	Extend 48" RCP with Junction Box						0.05	< 0.01	444	10	
6	293+50 -L-	Bank Stabilization						< 0.01	< 0.01	48	10	
7	294+00 - 295+00 -L- LT	Riprap Fill						< 0.01		100		
7	295+00 - 300+00 -L- LT	Maintenance Bank Stabilization						0.02		500		
7	300+00 - 302+00 -L- LT	Bank Stabilization						0.04		200		
8	298+00 -L- LT	Concrete Energy Dissipator						< 0.01		7		
9A	302+00 - 308+50 LT	Roadway Fill	0.05			0.05						
9B	309+50 -L- LT	Roadway Fill	0.07			0.07						
10	309+50 -L- LT	Bank Stabilization at Temp. Bridge						0.01	0.01	65		
11	343+00 -L-	Bank Stabilization at Temp. Bridge						0.03	0.05	157		
11	343+00 -L-	Drill Shaft Installation							0.05			
12	344+50 - 346+50 -L- RT	Roadway Fill	0.13			< 0.01						
13	360+00 -L- LT	Bank Stabilization						< 0.01	< 0.01	8	20	
13	360+00 -L- RT	Extend 3@ 9'x9' RCBC						0.01		49		
13	360+50 -L- RT	Bank Stabilization						< 0.01	< 0.01	38	20	
13	360+50 -L- RT	Culvert Construction Activities							< 0.01			
TOTALS*:			0.35			0.15		0.25	0.17	1976	109	

*Rounded totals are sum of actual impacts

NOTES:

- At Sites 3, 5, and 13, the existing culvert is not buried, therefore the culvert extension will not be buried. The bottom elevation of the extended culvert will match the elevation of the existing stream bed.
- At Site 1, <0.01 ac (18 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.
- At Site 3, 0.02 ac (70 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.
- At Site 7, 0.07 ac (700 lf) of temporary impacts due to construction activities are included within the maintenance and bank stabilization impacts.
- At Site 10, <0.01 ac (30 lf) of temporary impacts due to the temporary bridge are included within the bank stabilization impacts.
- At Site 11, 0.03 ac (122 lf) of temporary impacts due to the temporary bridge and installation of the drilled shaft are included within the bank stabilization impacts.
- At Site 13, <0.01 ac (38 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Revised 7/10/2023

MECKLENBURG
TIP NO. I-5507
WBS NO. 43609.3.2

SHEET112OF115

WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
14	363+50 -L- RT	Roadway Fill	0.10									
15	363+00 -L- LT	Bank Stabilization						< 0.01	< 0.01	18	20	
15	365+00 -L- RT	Extend 4@ 8'x9' RCBC						0.08		165		
15	365+00 -L- RT	Bank Stabilization						0.01	< 0.01	65	10	
15	365+00 -L- RT	Culvert Constuction Activities							< 0.01			
15A	395+80 -L- RT	Bank Stabilization						< 0.01	< 0.01	8	20	
16	404+50 -L- RT	Bank Stabilization						< 0.01	< 0.01	36	20	
17	408+50 -L- RT	Bank Stabilization						< 0.01	< 0.01	10	10	
18	454+50 -L- LT	Roadway Fill	< 0.01			0.04						
18	454+50 -L- LT	Riprap Outfall	< 0.01									
18	454+50 -L- LT	Bank Stabilization						< 0.01		13		
19	15+00 -Y23RPD- RT	Bank Stabilization						< 0.01	< 0.01	15	10	
20	488+30 -L- RT	Extend 6' x 5' RCBC						< 0.01		13		
20	488+30 -L- RT	Bank Stabilization				< 0.01		< 0.01	< 0.01	17	10	
20	488+80 -L- LT	Energy Dissipator Basin						< 0.01		35		
20	488+80 -L- LT	Extend 6' x 5' RCBC						0.01		21		
20	488+80 -L- LT	Bank Stabilization						< 0.01	< 0.01	17	12	
21	491+50 -L- LT	Bank Stabilization						< 0.01	< 0.01	13	10	
22	492+50 - 493+70 -L- LT	Channel Change						0.01	< 0.01	158	10	
22	494+00 -L- LT	Extend 48" RCP						< 0.01		11		
22	494+00 -L- LT	Bank Stabilization						< 0.01		15		
22	496+00 RT	Bank Stabilization						< 0.01	< 0.01	9	10	
24	545+30 -L- LT	JB and 36" RCP						< 0.01		6		
24	545+30 -L- LT	Bank Stabilization						< 0.01	< 0.01	22	10	
TOTALS*:			0.11			0.04		0.15	0.04	667	152	

*Rounded totals are sum of actual impacts

NOTES:

At Sites 15, 20, and 22, the existing culvert is not buried, therefore the culvert extension will not be buried. The bottom elevation of the extended culvert will match the elevation of the existing stream bed.

At Site 15, 0.02 ac (65 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 20, <0.01 ac (34 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 22, <0.01 ac (24 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 24, <0.01 ac (22 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

WETLAND AND SURFACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
25	561+80 - 565+00 -L- LT	Roadway Fill	0.02			0.04						
26	564+00 - 566+20 -L- RT	Roadway Fill				0.01						
27	578+50/579+30 -L-	Bank Stabilization	< 0.01					< 0.01	< 0.01	33	20	
28	586+70/588+00 -L-	Bank Stabilization						< 0.01	< 0.01	37	20	
29	612+00/615+00 -L-	Bank Stabilization						< 0.01	< 0.01	25	30	
30	641+50 -L- LT	Extend 36" RCP with Headwall						< 0.01	< 0.01	13	20	
31	654+50 -L- LT	Extend 42" RCP with Headwall						< 0.01		4		
31	654+50 -L- LT	Lateral Ditch/Stabilization	< 0.01					< 0.01	< 0.01	19	10	
32	658+70 -L- LT	Roadway Fill	0.02									
32	658+70 -L- LT	Bank Stabilization						< 0.01	< 0.01	15	24	
33	680+20 -L- LT	Bank Stabilization						< 0.01	< 0.01	7	10	
33	683+40 -L- LT	Bank Stabilization	< 0.01			< 0.01		< 0.01		33		
35	729+90 -L-	Bank Stabilization						< 0.01	< 0.01	50	42	
35	729+90 -L- LT	Class I Riprap	< 0.01			< 0.01						
36	740+50/741+50 -L-	Bank Stabilization						< 0.01	< 0.01	17	25	
37	746+30/750+00 -L-	Extend 54" RCP with Headwall								4		
37	746+30/750+00 -L-	Bank Stabilization						< 0.01	< 0.01	31	20	
37A	765+00 -L- LT	Bank Stabilization						< 0.01		13		
38	806+50 -L- RT	Bank Stabilization						< 0.01	< 0.01	26	10	
38	808+50 -L- LT	Bank Stabilization						< 0.01	< 0.01	6	20	
39	814+50/816+00 -L- LT	Bank Stabilization						< 0.01	< 0.01	13	10	
40	818+00 -L-	Bank Stabilization						< 0.01	< 0.01	16	24	
TOTALS*:			0.05			0.07		0.04	0.03	362	285	

*Rounded totals are sum of actual impacts

NOTES:

At Sites 31 and 41, the existing culvert is not buried, therefore the culvert extension will not be buried. The bottom elevation of the extended culvert will match the elevation of the existing stream bed.

At Site 31, <0.01 ac (20 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 41, <0.01 ac (33 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Revised 7/10/2023

MECKLENBURG

TIP NO. I-5507

WBS NO. 43609.3.2

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