



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

September 2, 2021

U. S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. Monte Matthews
NCDOT Coordinator

Subject: **Request for Modification for Section 404 Regional General Permit No. 201902350 and Section 401 Water Quality Certification** for the Interstate 485 (I-485) improvements from I-77 to US 74 (Independence Boulevard), Mecklenburg County, Division 10, TIP I-5507. Debit \$570.00 from WBS 43609.3.2.

Reference: 1) Section 404 Regional General Permit No. 201902350 (RGP 50), Action ID No. SAW-2013-02330, issued November 12, 2020; 2) Section 401 General Water Quality Certification No. 4135, NCDWR Project No. 20191337v.2, issued September 21, 2020.

Dear Sir:

The purpose of this letter is to request modification of the United States Army Corps of Engineers (USACE) Section 404 Regional General Permit 201902350 (RGP 50) and associated North Carolina Division of Water Resources (NCDWR) Section 401 Water Quality Certification for the above referenced project.

Revisions resulting in changes to permitted impacts are proposed at three impact sites (Sites 1, 4, and 22). The changes to these sites are described below.

In addition, permitted impact Sites 11 and 12 are included in the revised permit drawings to highlight the changes to the drainage design from previously approved permit drawings. The design changes at Sites 11 and 12 will not result in any changes to the amount or type of permitted impacts and are not discussed further.

Previously authorized permanent stream impacts for the entire project totaled 2,427 linear feet, which included 1,131 linear of bank stabilization. Previously authorized temporary stream impacts totaled 1,357 linear feet. Previously authorized wetland impacts included 0.83 acre of permanent impacts (including 0.29 acre of mechanized clearing) and no temporary or hand clearing impacts.

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

Telephone: (919) 707-6000
Fax: (919) 250-4224
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

The revised stream impacts for the project total 2,507 linear feet of permanent stream impacts (which includes 1,131 linear feet of stream bank stabilization impacts) and 1,318 linear feet of temporary stream impacts. The revised wetland impacts include 0.83 acre of permanent wetland impacts (0.56 acre of permanent fill and 0.27 acre of mechanized clearing) and no temporary or hand clearing impacts.

This modification will result in 0.02 acre of additional permanent wetland fill impacts and 80 linear feet of additional permanent stream channel impacts. There will be 0.02 acre less mechanized clearing impacts and 39 linear feet less temporary stream impacts than previously permitted. A summary of the changes is shown in Table 1 below.

Table 1 – Summary of changes to impacts*

Impact Type	Previously Permitted Impacts	Proposed Permit Modification	Difference
Permanent Stream Impacts	2,427	2,507	+80
<i>Bank Stabilization Impacts</i>	<i>1,131</i>	<i>1,131</i>	0
Temporary Stream Impacts	1,357	1,318	-39
Permanent Wetland Fill	0.54	0.56	+0.02
Mechanized Clearing in Wetlands	0.29	0.27	-0.02

*Stream impacts are in linear feet. Wetland impacts are in acres

Please see the enclosed DWR Pre-Filing Meeting Request Form, revised permit drawings, and roadway plans where drainage revisions resulted in design and/or impact changes to permitted impact sites. A narrative describing the revisions made to each permit impact site are presented in the following section.

Permit Impact Site Modifications (shown in revised permit drawings):

Site 1

The original design included the installation of a 52-foot long 48” reinforced concrete pipe (RCP). The 48” RCP would be an extension of an existing 42” RCP. Impacts at Site 1 included 28 linear feet of permanent stream impact from the pipe installation in stream SCC, 18 linear feet of permanent bank stabilization impacts and 10 linear feet of temporary stream impacts. To avoid conflicts with an existing 54” sanitary sewer line, the design has been revised. In the revised design, the proposed 48” RCP has been shortened to end before the sanitary sewer line and riprap will be installed in the stream channel to the top of bank. The new design includes a 24-foot long 48” RCP that does not impact the stream and 28 linear feet of riprap channel fill. The riprap fill will allow the proposed 48” RCP to drain over the existing sewer line and continue to provide vehicle access for billboard maintenance. The amount of permanent stream channel impacts will remain the same at this location; however, the impact type has been revised to riprap fill. The design change will not result in any change to permanent bank stabilization or temporary stream impacts at this location.

Site 4

A permit modification was approved for this site on November 12, 2020 that included design revisions to the originally permitted roadway fill slopes and channel change in this location to avoid impacting the existing sanitary sewer line. It has since been determined that the sanitary sewer line will need to be replaced; therefore, the proposed design will revert to a 2:1 roadway fill slope as was included in the original permit (approved by the USACE on December 18, 2019 and NCDWR on December 2, 2019). The previous permitted design shown in the permit modification included <0.01 acre of permanent wetland fill impacts due to roadway fill, <0.01 acre of permanent wetland fill impacts due to the channel change, and 0.02 acre of mechanized clearing impacts to wetland W3. Stream impacts totaled 130 linear feet of permanent stream channel impacts, including 95 linear feet due to roadway fill and 35 linear feet due to the channel change,

as well as 10 linear feet of temporary fill impacts to stream SNH. The proposed design will result in a total of 181 linear feet of permanent stream channel impacts to stream SNH, including 159 linear feet due to roadway fill and 22 linear feet due to the channel change, and no temporary stream impacts. Proposed wetland impacts will be 0.03 acre, including 0.02 acre of permanent wetland fill impacts due to roadway fill, <0.01 acre of permanent wetland fill impacts due to the channel change, and no mechanized clearing impacts in wetlands. The proposed design will result in an increase in permanent stream channel impacts of 51 linear feet and a decrease in temporary stream impacts of 10 linear feet. Overall total permanent wetland impacts to wetland W3 will remain 0.03 acre, although permanent wetland fill impacts have been increased to 0.03 acre and mechanized clearing impacts have been eliminated.

Site 22

During construction at this site, it was discovered the invert elevation used in the original design for the existing 48" RCP outfall did not accurately reflect field conditions. In the proposed design, the channel change for stream SG has been extended farther upstream to accommodate drainage from the 48" RCP extension. This 48" RCP extension has been installed at the correct pipe invert elevation based on field conditions and the length of the culvert extension will remain that same as previously permitted. Impacts for the previous permitted design included 140 linear feet of permanent stream channel impacts, including 129 linear feet from channel change and 11 linear feet from culvert extension, 24 linear feet of permanent bank stabilization impacts, and 49 linear feet of temporary stream impacts to stream SG. The proposed design will result in a total of 169 linear feet of permanent stream channel impacts, including 158 linear feet due to the channel change and 11 linear feet from the culvert extension, 24 linear feet of permanent stream bank stabilization impacts, and 20 linear feet of temporary stream impacts. The proposed design will result in an increase in permanent stream channel impacts of 29 linear feet and a decrease in temporary stream impacts of 29 linear feet. The design change will not result in any additional permanent bank stabilization impacts.

Revised Compensatory Mitigation

The North Carolina Division of Mitigation Services (NCDMS) previously provided compensatory mitigation for 1,296 linear of permanent stream impacts and 0.83 acre of permanent riparian wetland impacts, as referenced in the November 12, 2020 RGP 50 issued permit from the USACE and the September 21, 2020 401 WQC from NCDWR. The original permit approval indicated the NCDMS provided compensatory mitigation for 1,376 linear of permanent stream impacts and 0.83 acre of permanent riparian wetland impacts, as referenced in the December 18, 2019 GP 31 issued permit from the USACE and the December 2, 2019 401 WQC from NCDWR.


Of the revised permanent stream impacts totaling 2,507 linear feet for this modification, 1,131 linear feet are the result of bank stabilization and therefore do not require mitigation from USACE. Therefore, a total of 1,376 linear feet of permanent stream impacts will require mitigation based on this modification, which is an increase of 80 linear feet as compared to the previously approved November 12, 2021 RGP 50 issued permit. NCDWR would require a total of 444 linear feet of mitigation, which is the same amount of mitigation required by NCDWR shown in the previous permit modification. This amount is less than the mitigation required by USACE. There are no additional permanent wetland impacts, therefore no additional wetland mitigation is required.

No changes have occurred to special commitments for this project.

NCDOT requests to modify the permit for this project. Application is hereby made for modification of the USACE 404 permit and the 401 WQC from NCDWR. We have provided a method of debiting \$570.00 to be submitted to the NCDWR for processing the WQC renewal for I-5507, as noted in the subject line of this application.

A copy of this permit application and its distribution list will be posted in the NCDOT website at <http://connect.ncdot.gov/resources/Environmental>. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Erin Cheely at either ekcheely@ncdot.gov or (919) 323-5192.

Sincerely,

A handwritten signature in black ink that reads "Michael Cheely". The signature is written in a cursive style with a long, sweeping underline.A small handwritten signature in black ink that reads "PHS".

Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit Head

cc:
NCDOT Permit Application Standard Distribution List

Project Submittal Interim Form



Updated September 4, 2020

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

- Project Type:** *
- For the Record Only (Courtesy Copy)
 - New Project
 - Modification/New Project with Existing ID
 - More Information Response
 - Other Agency Comments
 - Pre-Application Submittal
 - Re-Issuance/Renewal Request
 - Stream or Buffer Appeal

Pre-Filing Meeting Information

Before submitting this form please ensure you have submitted the Pre-Filing Meeting Request Form as we will not be able to accept your application without this important first step. The Pre-Filing Meeting Request Form is used in accordance with 40 C.F.R. Section 121.4(a) "At least 30 days prior to submitting a certification request, the project proponent shall request a pre-filing meeting with the certifying agency" and in accordance with 40 C.F.R. Section 121.5(b)(7), and (c)(5) all certification requests shall include documentation that a pre-filing meeting request was submitted to the certifying authority at least 30 days prior to submitting the certification request. Click [here](#) to read more information on when this form is needed prior to application submission or [here](#) to view the form.

Attach documentation of Pre-Filing Meeting Request here: * I-5507 -
DWR Pre-
Filing
Meeting 59.26..
Request
Form Nov
2020.pdf

Date for Meeting Request * 9/2/2021

ID# 20191337 **Version** .2

Project Contact Information

Name: Michael Turchy
Who is submitting the information?

Email Address: * maturchy@ncdot.gov

Project Information

Existing ID #:*

20191337

20170001 (no dashes)

Existing Version:*

.2

1

Project Name:*

I-5507 Widening of I-485

Is this a public transportation project?*

Yes

No

Is this a DOT project?*

Yes

No

Is the project located within a NC DCM Area of Environmental Concern (AEC)?*

Yes No Unknown

TIP#:

I-5507

WBS#:

(Applies to DOT projects only)

County (ies) *

Mecklenburg

Please upload all files that need to be submitted.

[Click the upload button or drag and drop files here to attach document](#)

I-5507 Modification Mecklenburg September 2

17.88MB

2021.pdf

[Only pdf or kmz files are accepted.](#)

Describe the attachments or add comments:

See attached cover letter.

* By checking the box and signing box below, I certify that:

- I, the project proponent, hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.
- I, the project proponent, hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I agree that submission of this online form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the online form.

Signature:*



Submission Date:

Is filled in automatically once submitted.

DWR Pre-Filing Meeting Request Form



ID#* 20191337 **Version*** 3

Regional Office* Mooresville Regional Office - (704) 663-1699

Reviewer List* Donna Hood

Pre-Filing Meeting Request submitted 11/19/2020

Contact Name* Erin Cheely

Contact Email Address* ekcheely@ncdot.gov

Project Name* I-5507 Widening for I-485 in Mecklenburg County

Project Owner* NCDOT

Project County* Mecklenburg

Owner Address:

Street Address

1598 Mail Service Center

Address Line 2

City

Raleigh

Postal / Zip Code

27699

State / Province / Region

NC

Country

US

Is this a transportation project?* Yes No

Type(s) of approval sought from the DWR:

- 401 Water Quality Certification - Regular 401 Water Quality Certification - Express
 Individual Permit Modification
 Shoreline Stabilization

Does this project have an existing project ID#?*

Yes No

Please list all existing project ID's associated with this projects.*

20191337v.2

Do you know the name of the staff member you would like to request a meeting with?

no meeting requested

Please give a brief project description below.*

I-5507 is the widening of I-485 and the creation of Express Lanes from I-77 to US 74 in Mecklenburg County.

Please give a couple of dates you are available for a meeting.

Please attach the documentation you would like to have the meeting about.

pdf only

By digitally signing below, I certify that I have read and understood that per the Federal Clean Water Act Section 401 Certification Rule the following statements:

- This form completes the requirement of the Pre-Filing Meeting Request in the Clean Water Act Section 401 Certification Rule.
- I understand by signing this form that I cannot submit my application until 30 calendar days after this pre-filing meeting request.
- I also understand that DWR is not required to respond or grant the meeting request.

Your project's thirty-day clock started upon receipt of this application. You will receive notification regarding meeting location and time if a meeting is necessary. You will receive notification when the thirty-day clock has expired, and you can submit an application.

Signature



Michael Tunchy

Submittal Date

11/19/2020

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

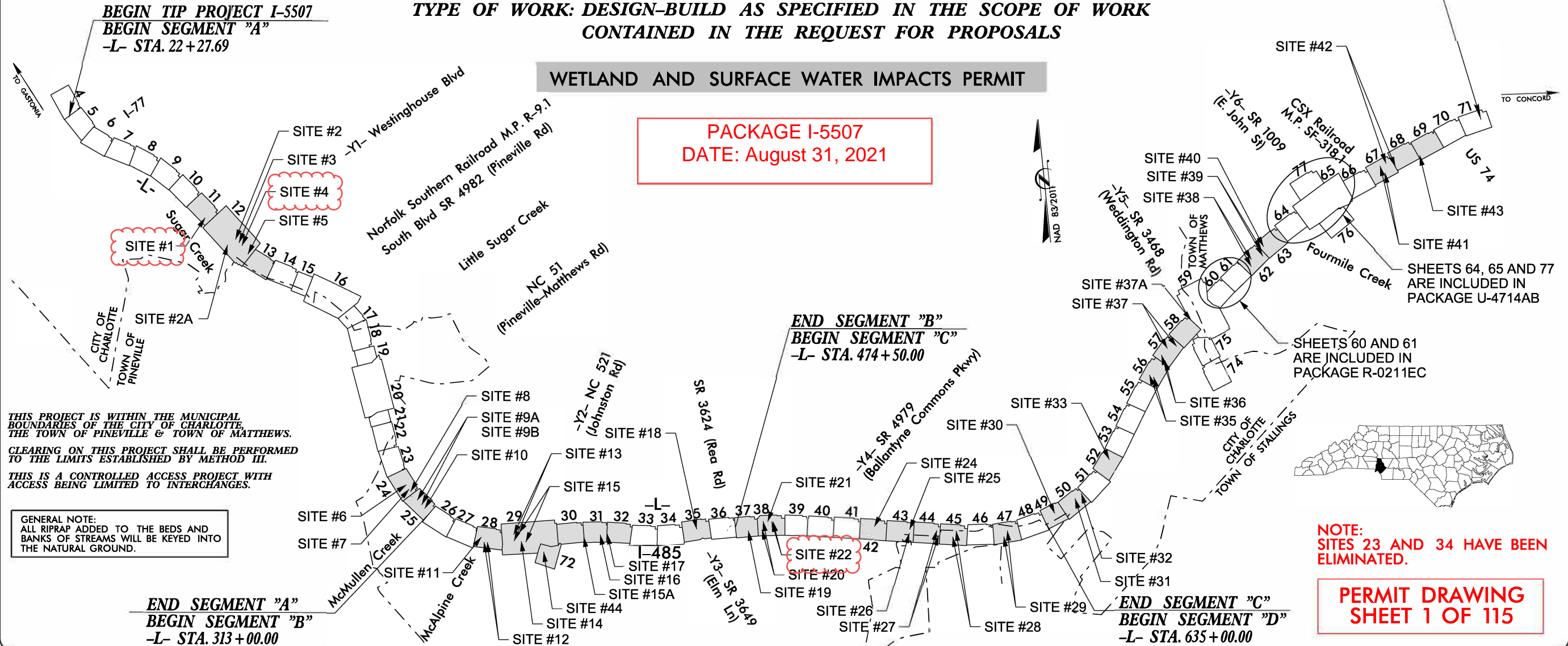
**LOCATION: I-485 FROM I-77 TO US 74 (INDEPENDENCE BOULEVARD) (I-5507);
I-485 / WEDDINGTON ROAD INTERCHANGE (R-0211EC); AND I-485 /
EAST JOHN STREET - OLD MONROE ROAD INTERCHANGE (U-4714AB)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5507	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
43609.3.2	NA	Design-Build	

TIP PROJECT: I-5507

CONTRACT: C203970

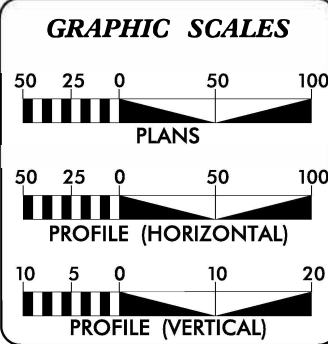


THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CHARLOTTE, THE TOWN OF PINEVILLE & TOWN OF MATTHEWS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

GENERAL NOTE:
ALL RIPRAP ADDED TO THE BEDS AND BANKS OF STREAMS WILL BE KEYED INTO THE NATURAL GROUND.

NOTE:
SITES 23 AND 34 HAVE BEEN ELIMINATED.

**PERMIT DRAWING
SHEET 1 OF 115**



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
1901 Morehead Square Dr.
Suite 610
Charlotte, NC, 28203
NC LIC NO. P-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY: SEPTEMBER 18, 2018	DANIEL H. BRIDGES, PE DESIGN PROJECT MANAGER
LETTING DATE: SEPTEMBER 18, 2018	DAVID B. GOURLEY, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

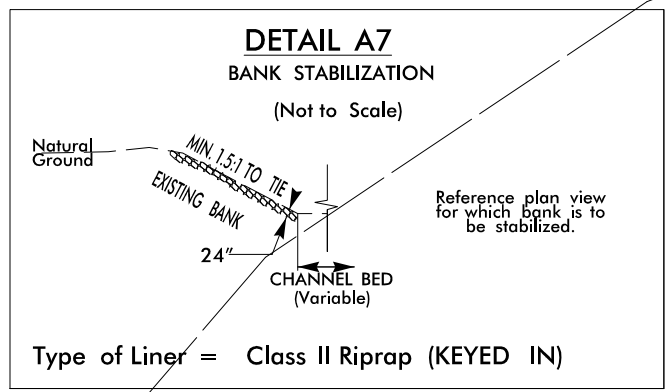
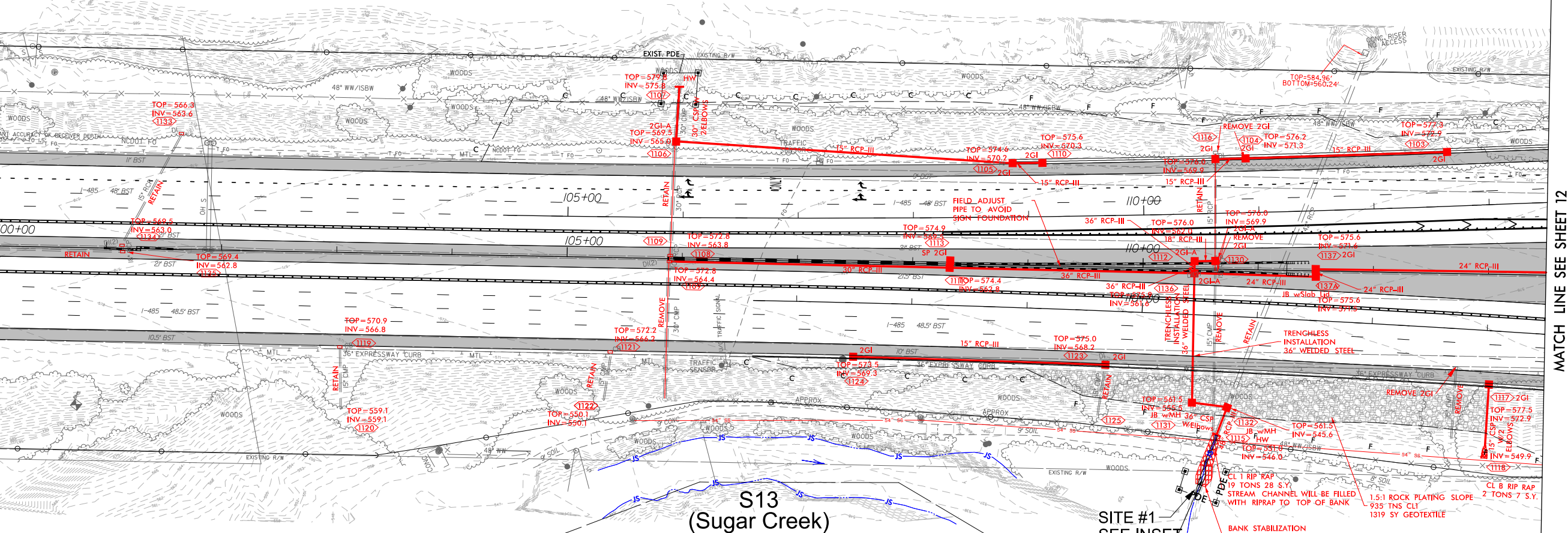
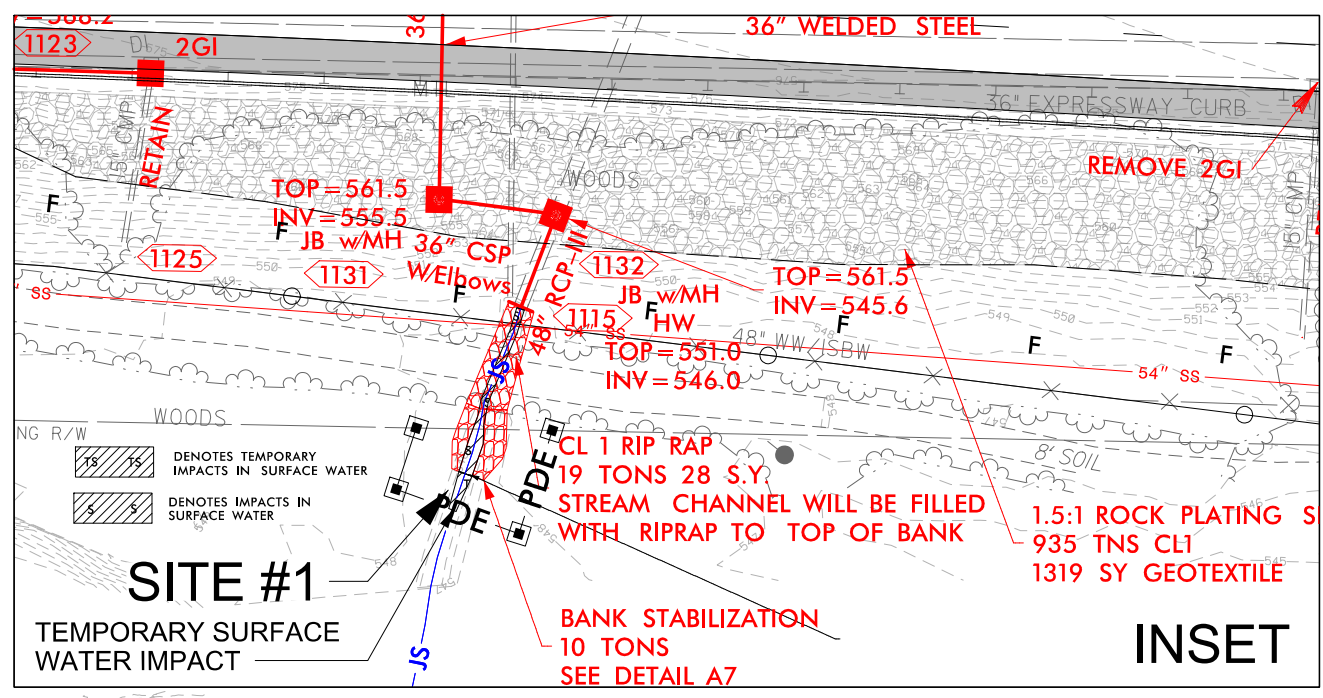
SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



9/20/2019 \\drdw\cs01\cs_work\mgdir\3990\336401_412\I5507_nyd_prm_wet_psh01_TSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
L-5507	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Revised August 2021

PERMIT DRAWING SHEET 9 OF 115

8/17/99
 8/31/2021
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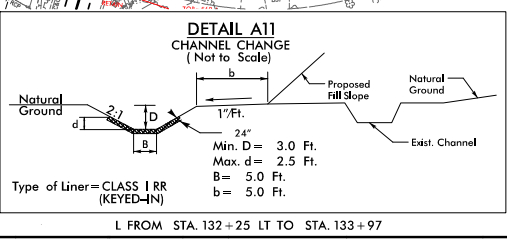
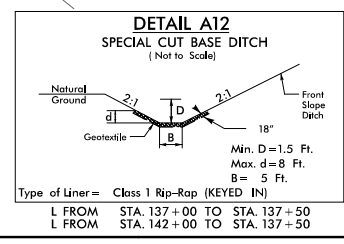
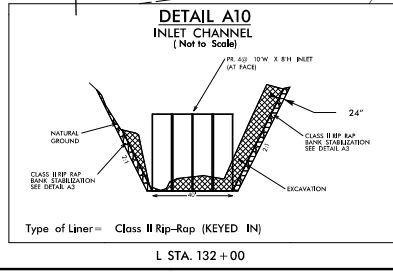
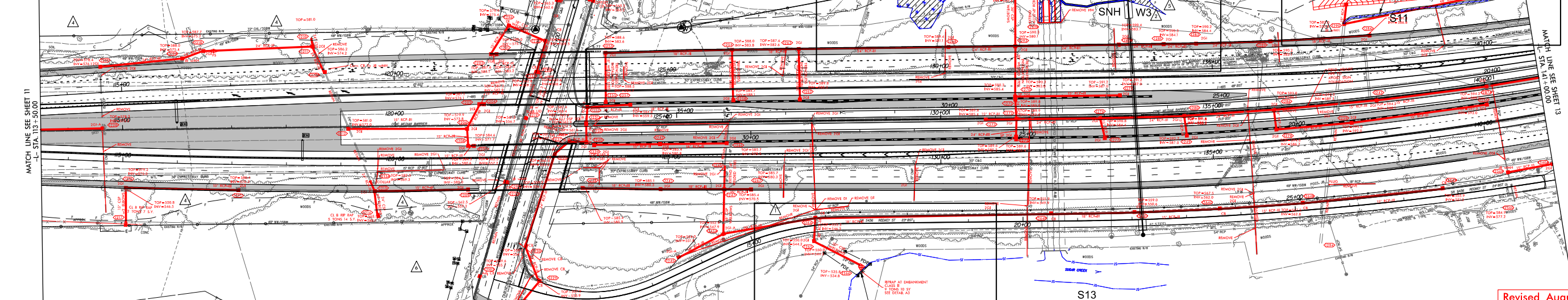
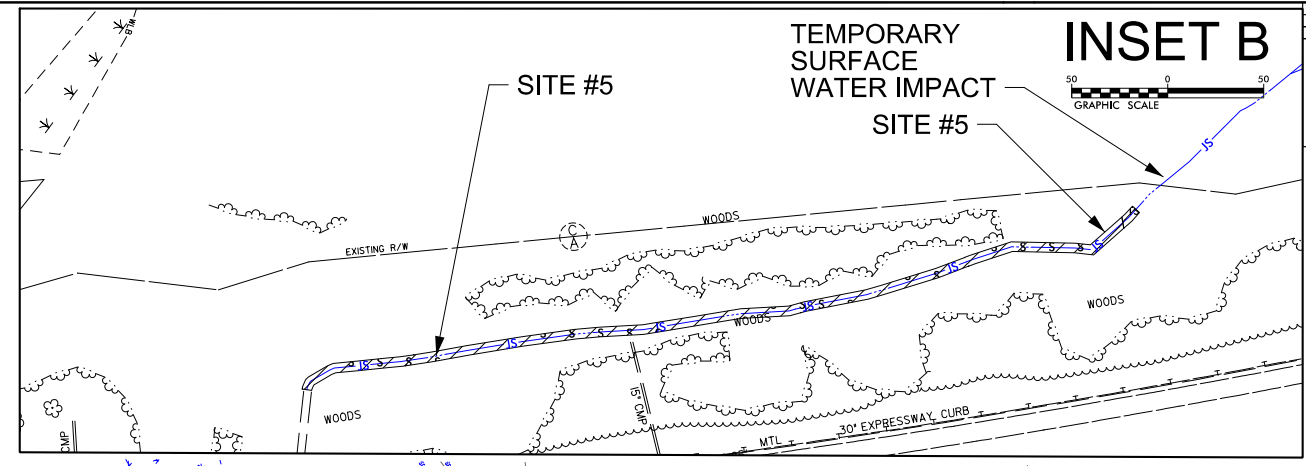
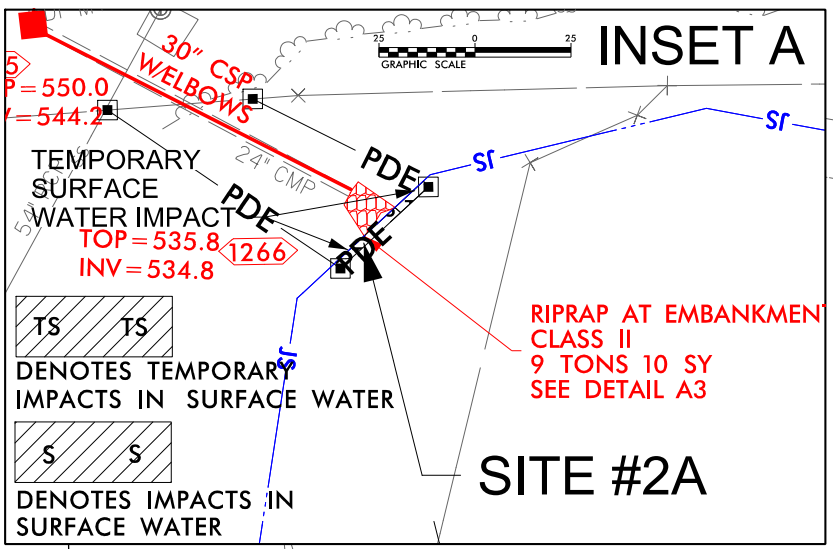
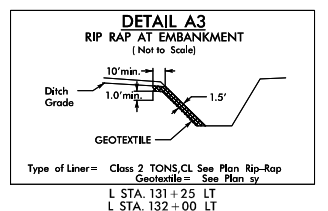
REVISIONS

MATCH LINE SEE SHEET 10
-L- STA. 100 + 00.00

MATCH LINE SEE SHEET 12
-L- STA. 113 + 50.00



REVISIONS

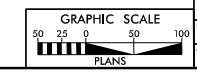


SITE #3 AND SITE #5 NOTE:
THE EXISTING CULVERT IS NOT BURIED. THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.

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

Revised August 2021

PERMIT DRAWING SHEET 10 OF 115



LOCATION: I-485 AT WESTINGHOUSE BLVD.

TP NO. I-5507 COUNTY: MCKENNBURG

DESIGNED BY: WSP

CHECKED BY: D. GOURLEY DATE: 8/31/2021

REVISIONS

1. 8/10/2021 - REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION. REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION.

2. 8/10/2021 - REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION.

3. 8/10/2021 - REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION.

4. 8/10/2021 - REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION.

5. 8/10/2021 - REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION.

6. 8/10/2021 - REVISED PERMITS AND PERMITTING BOARD AT 8:00 AM AND JUNCTION BOX ELEVATION.

REVISIONS

1. 8/10/2021 - REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION.

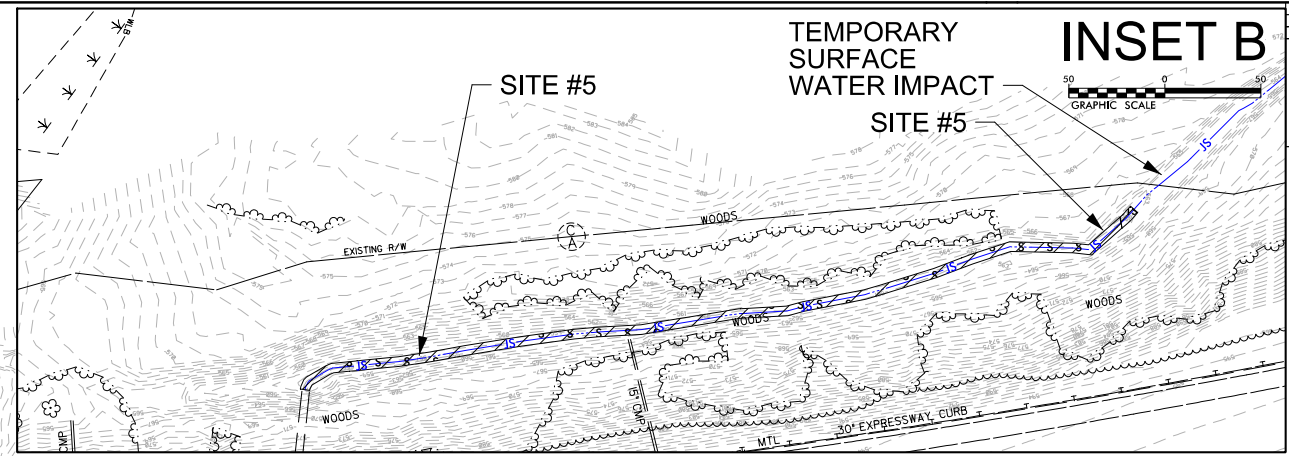
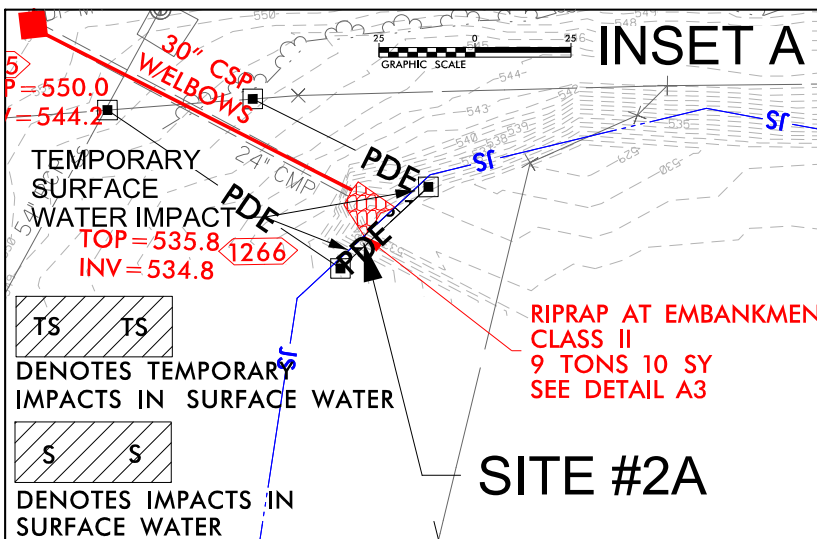
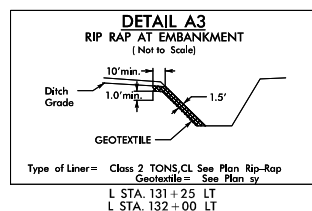
2. 8/10/2021 - REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION.

3. 8/10/2021 - REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION.

4. 8/10/2021 - REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION.

5. 8/10/2021 - REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION.

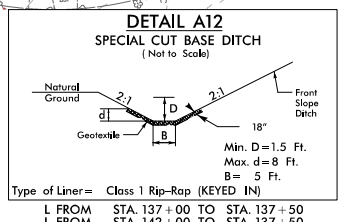
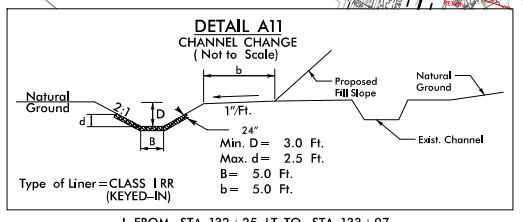
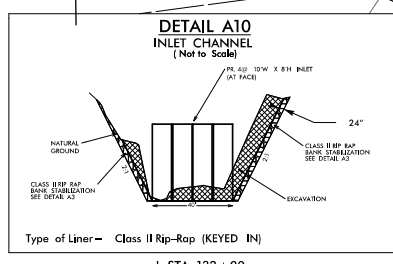
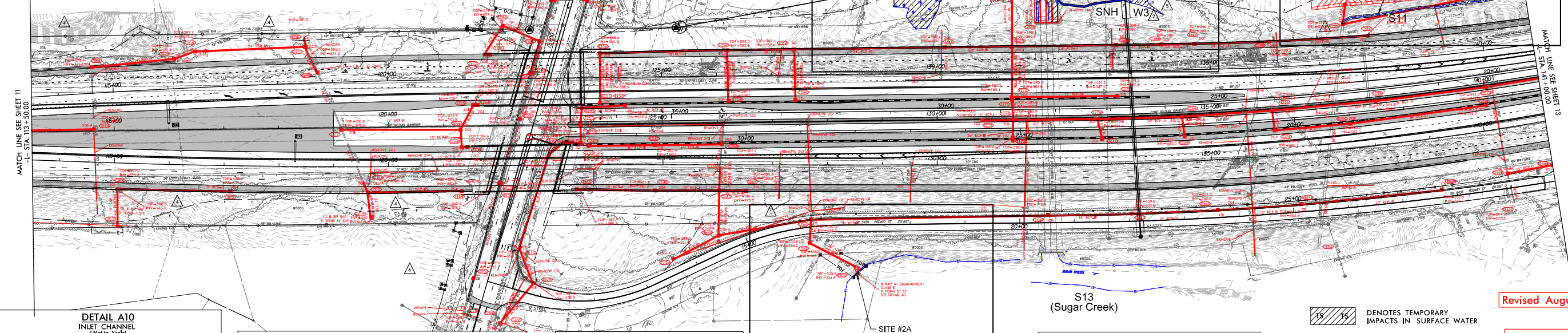
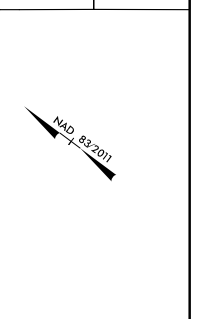
6. 8/10/2021 - REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION. REVISED PER COMMENTS FROM THE COUNTY ENGINEER REGARDING THE PERMANENT BORE AT THE END AND JUNCTION BOX ELEVATION.



PROJECT REFERENCE NO. I-5507
SHEET NO. 12

ROADWAY DESIGN
HYDRAULICS
SEAL
DESIGN
SEAL
DESIGN

DATE: 8/31/2021

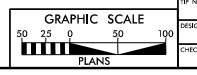


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- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND

Revised August 2021

PERMIT DRAWING SHEET 11 OF 115



LOCATION: I-485 AT WESTINGHOUSE BLVD.

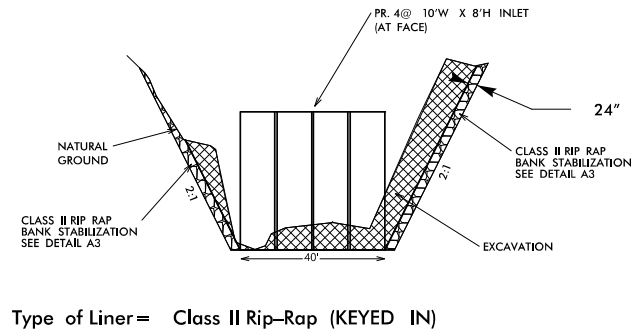
TP NO. I-5507 COUNTY: MCKENZIEBURG

DESIGNED BY: WSP

CHECKED BY: D. GOURLEY DATE: 8/31/2021

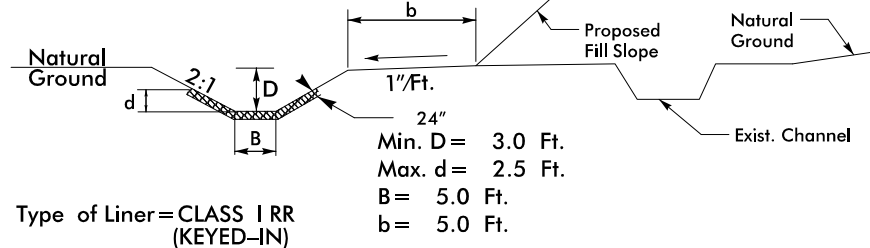
8/17/99

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



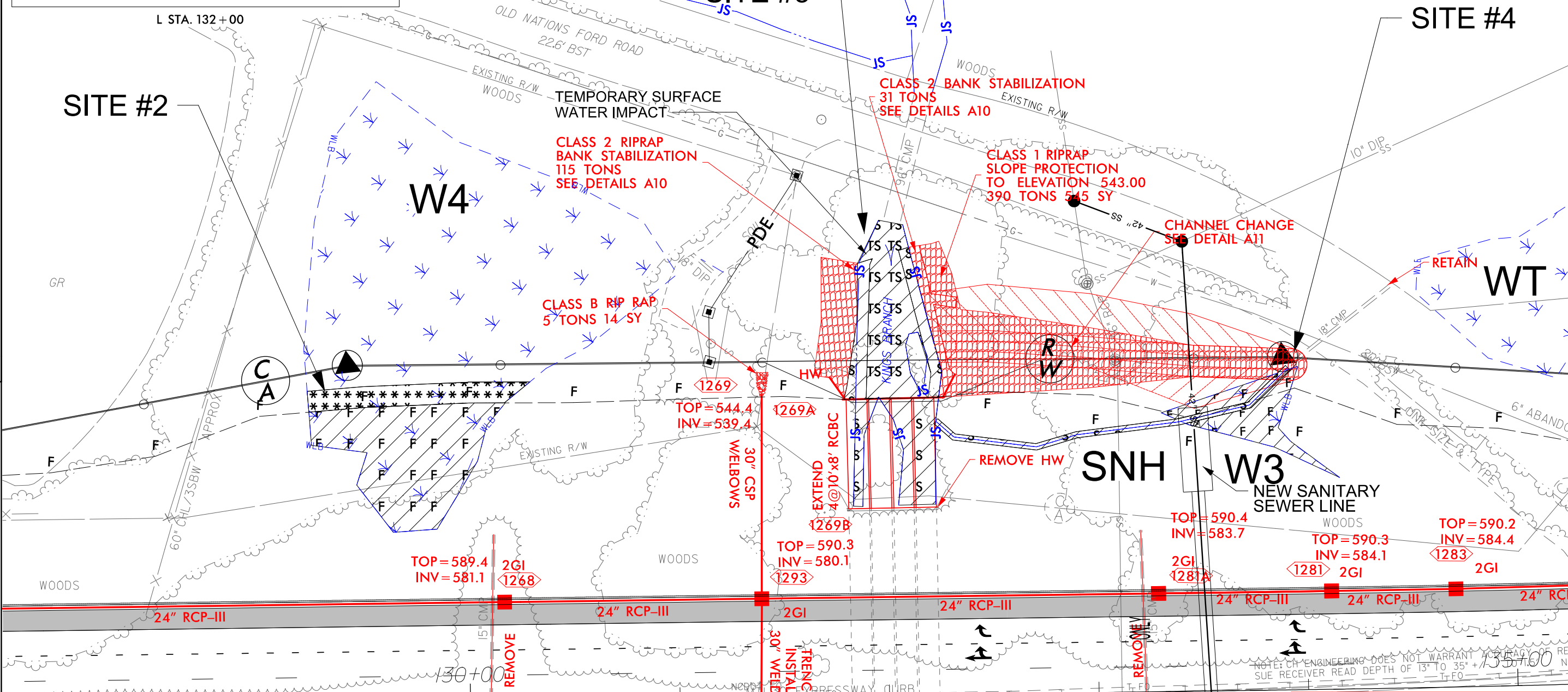
S12 (Kings Branch)

SITE #3

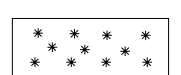
L FROM STA. 132+25 LT TO STA. 133+97

SITE #4

SITE #2



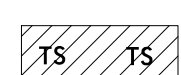
DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



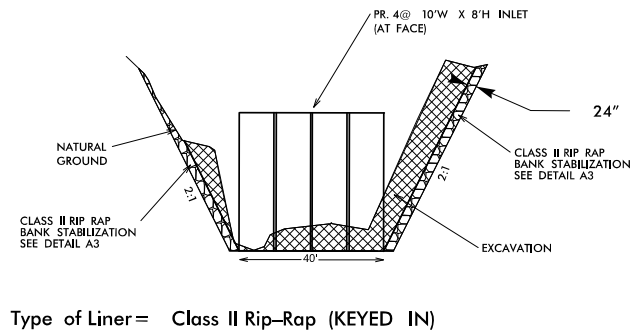
Revised August 2021

**PERMIT DRAWING
SHEET 12 OF 115**

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8/17/99

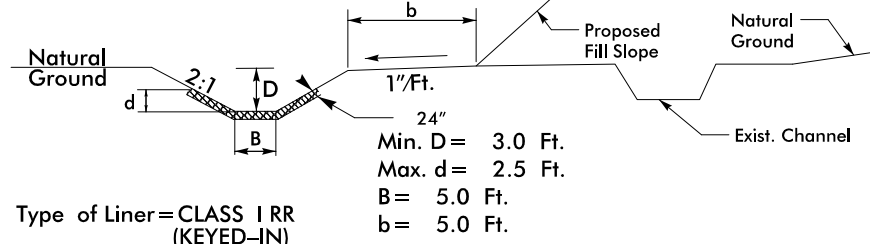
DETAIL A10 INLET CHANNEL (Not to Scale)



Type of Liner = Class II Rip-Rap (KEYED IN)

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)



Type of Liner = CLASS I RR (KEYED-IN)

L FROM STA. 132+25 LT TO STA. 133+97

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

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



S12 (Kings Branch)

SITE #3

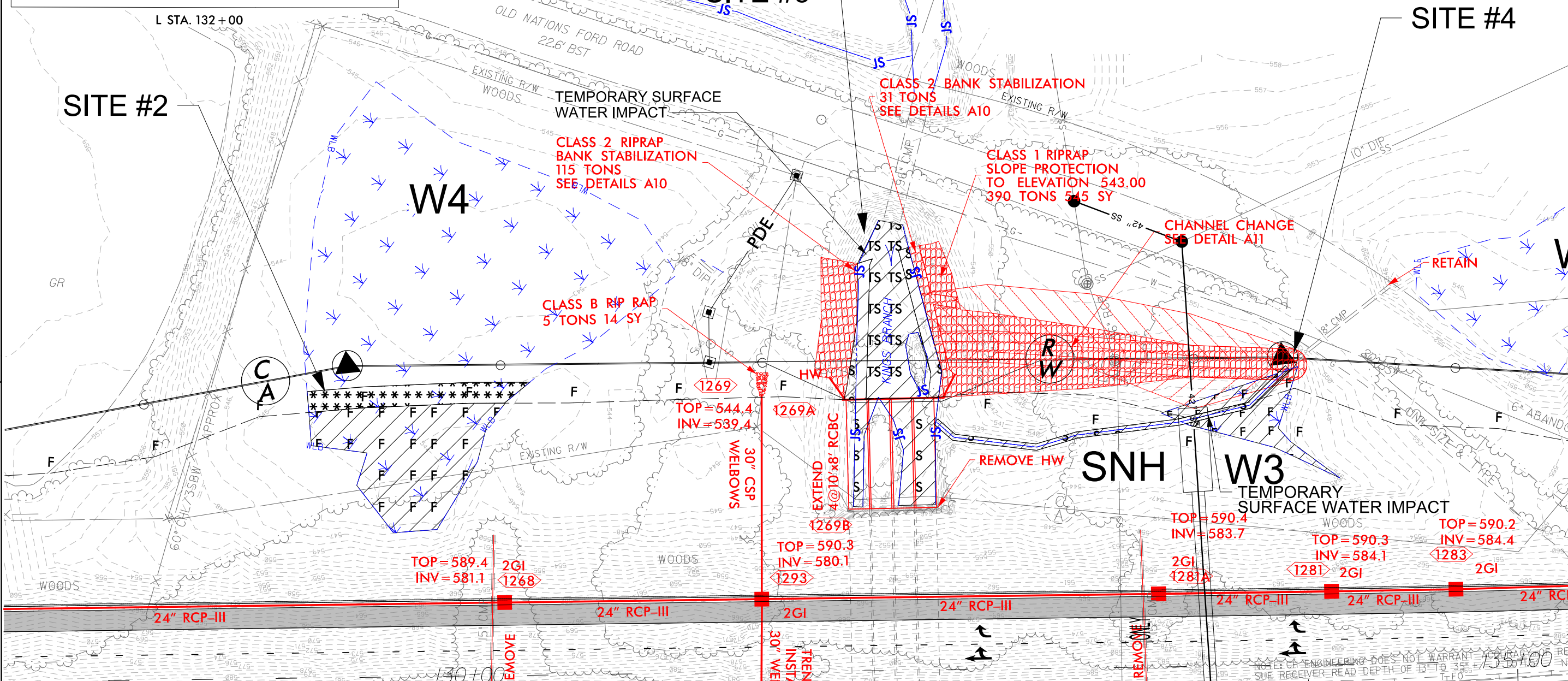
SITE #4

SITE #2

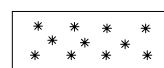
W4

SNH

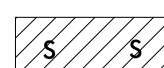
W3



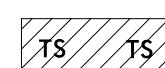
DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



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PERMIT DRAWING
SHEET 13 OF 115

8/31/2021
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 melville

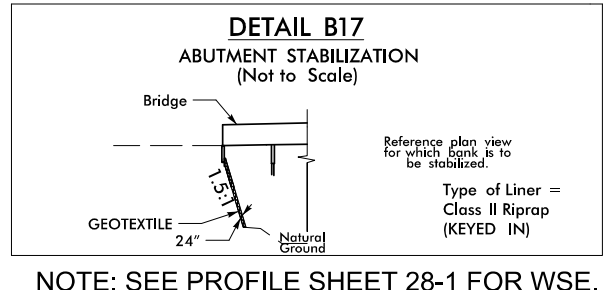
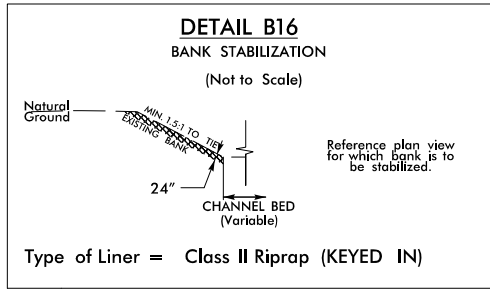
8/17/99

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

PROJECT REFERENCE NO. I-5507 SHEET NO. 28

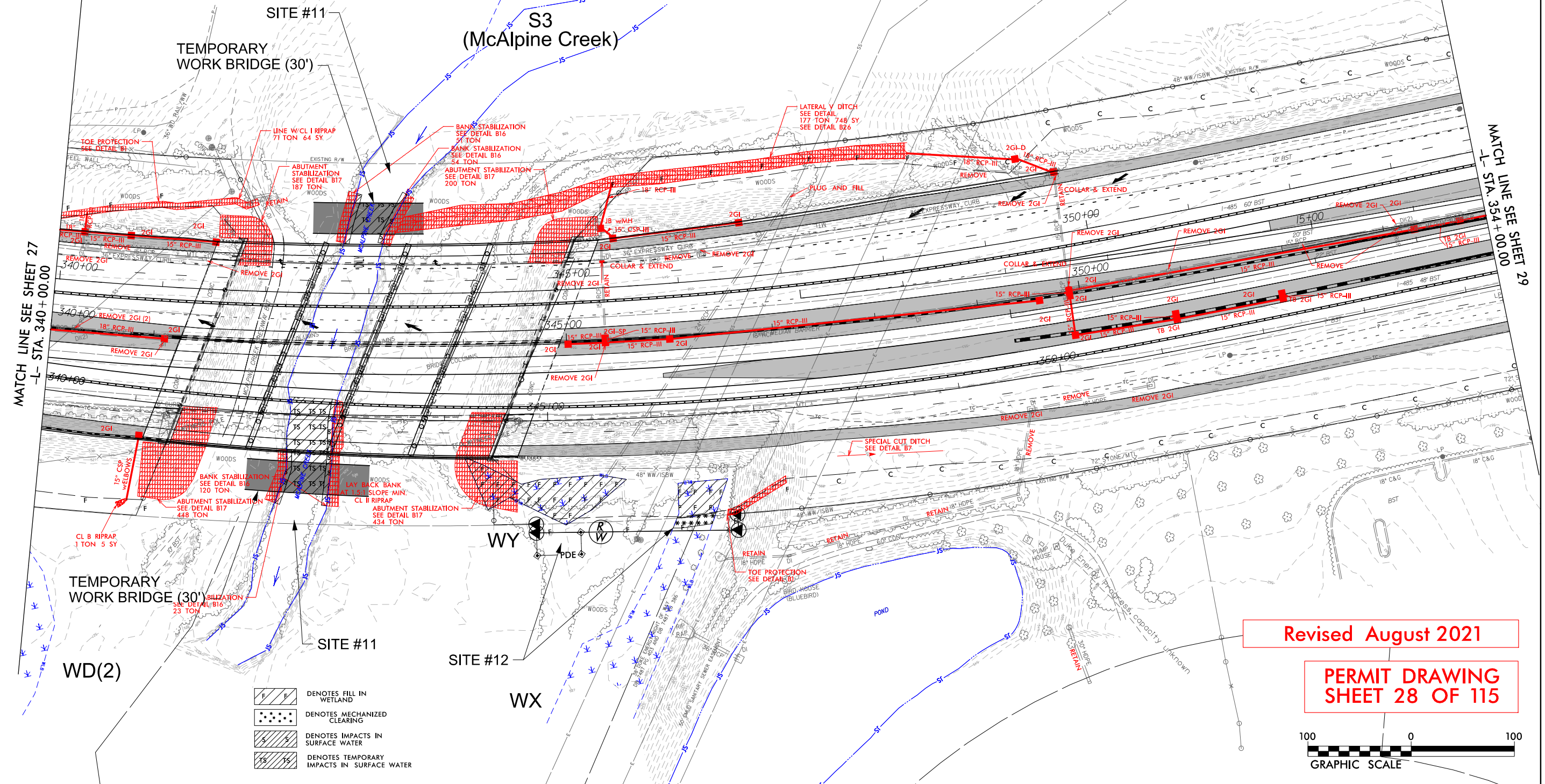
Roadway Design Engineer: SEAL 043225; Hydraulics Engineer: SEAL 041267

BLYTHE logo



NOTE: SEE PROFILE SHEET 28-1 FOR WSE.

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



MATCH LINE SEE SHEET 27 -L- STA. 340+00.00

MATCH LINE SEE SHEET 29 -L- STA. 354+00.00

- Legend for symbols: DENOTES FILL IN WETLAND, DENOTES MECHANIZED CLEARING, DENOTES IMPACTS IN SURFACE WATER, DENOTES TEMPORARY IMPACTS IN SURFACE WATER.

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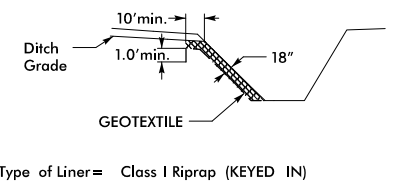
PERMIT DRAWING SHEET 28 OF 115



8/31/2021 C:\projects\wise\pb\project\wise\melville\033275\15507_Hyd_prm_wet_pah28_cont.dgn

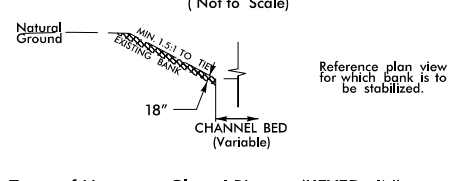
8/17/99

DETAIL C7 RIPRAP AT EMBANKMENT (Not to Scale)



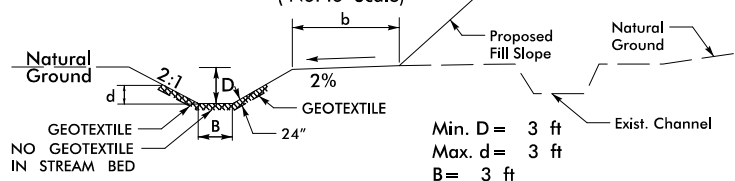
Type of Liner = Class I Riprap (KEYED IN)

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)

Min. D = 3 ft
Max. d = 3 ft
B = 3 ft
b = 5 ft



PROJECT REFERENCE NO.	SHEET NO.
L-5507	38
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



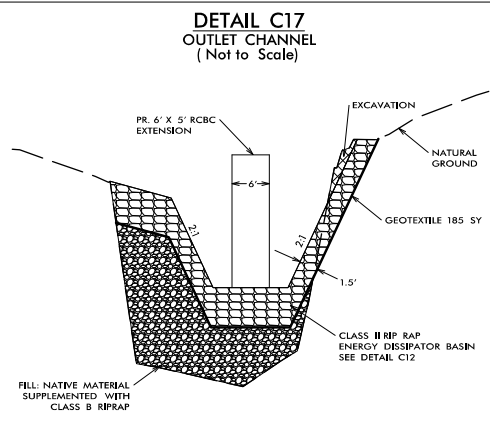
1001 Morehead Square Dr.
Suite 610
Charlotte, NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO. L-5507
SHEET NO. 38
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER



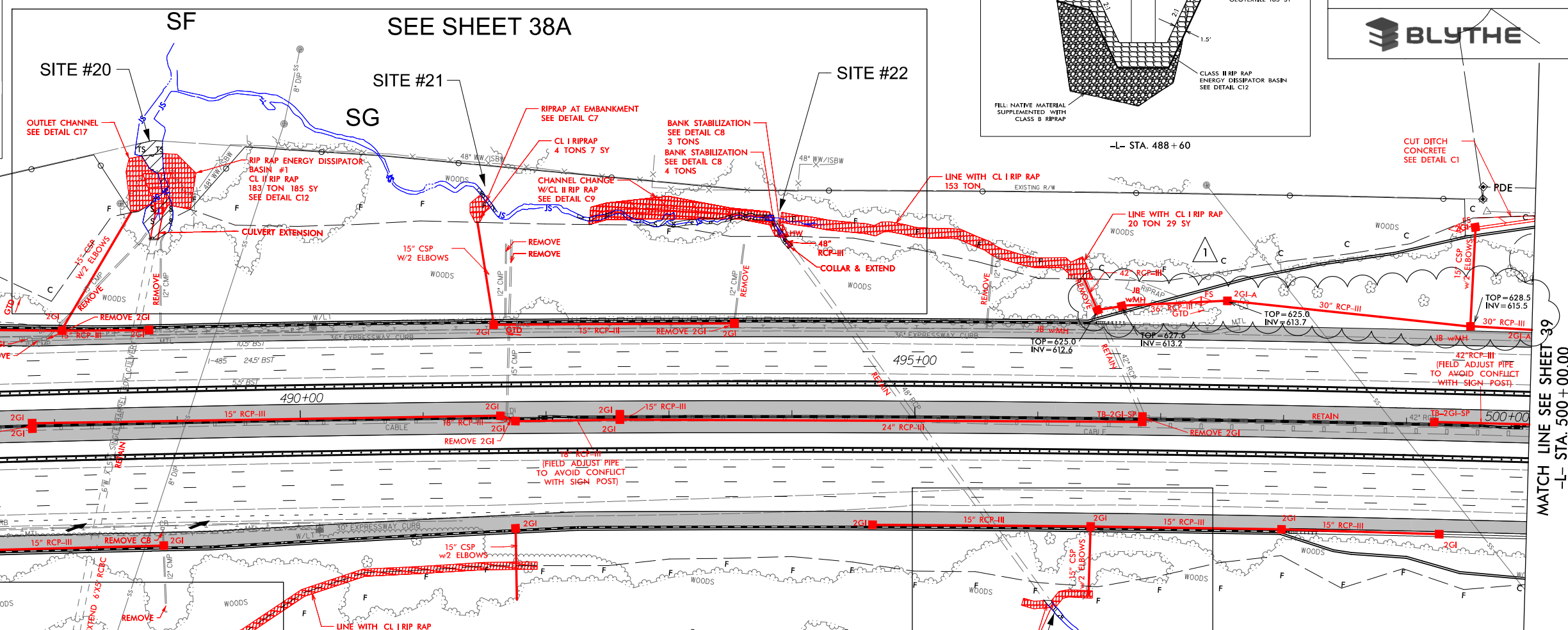
BLYTHE

DETAIL C17
OUTLET CHANNEL
(Not to Scale)



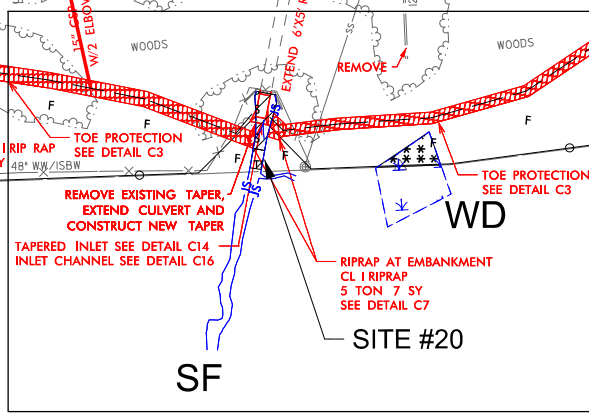
-L- STA. 488 + 60

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



SEE SHEET 38B

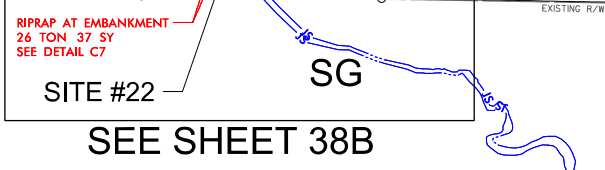
DETAIL C12 RIPRAP ENERGY DISSIPATOR BASIN

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.

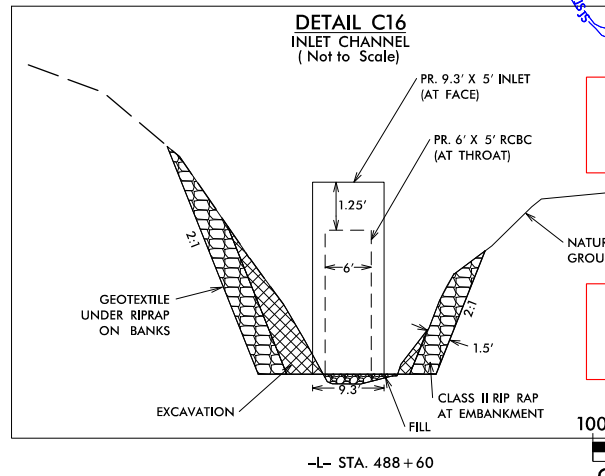
NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A-A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

DIM	1	2	3	4	5	6	7	8
A	30"							
B	21"							
C	16"							
D	1.6'							
E	10.2'							
F	11.7'							
G	18.0'							
H	8.0'							

*ALL DIMENSIONS APPROXIMATE



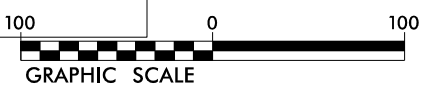
SEE SHEET 38B



-L- STA. 488 + 60

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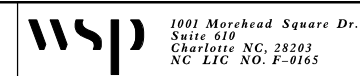
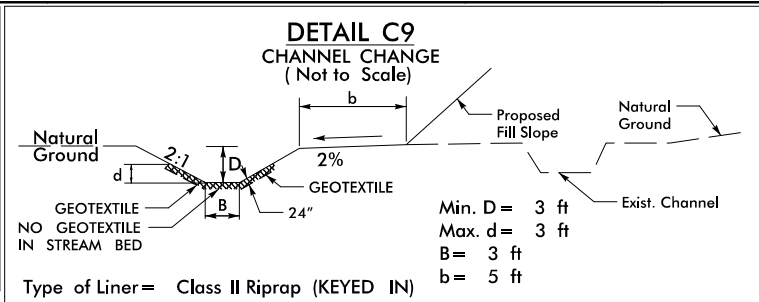
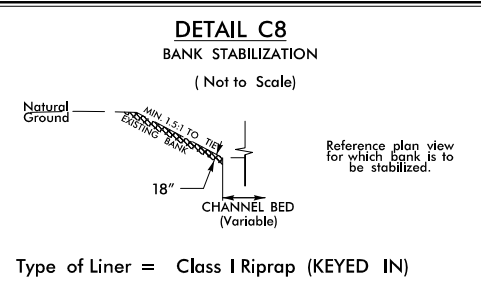
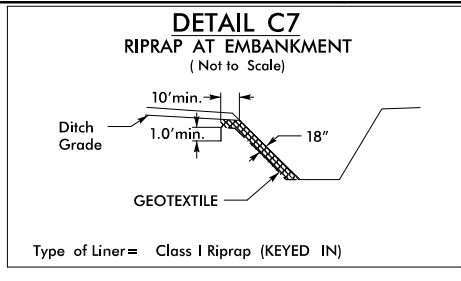
PERMIT DRAWING
SHEET 53 OF 115



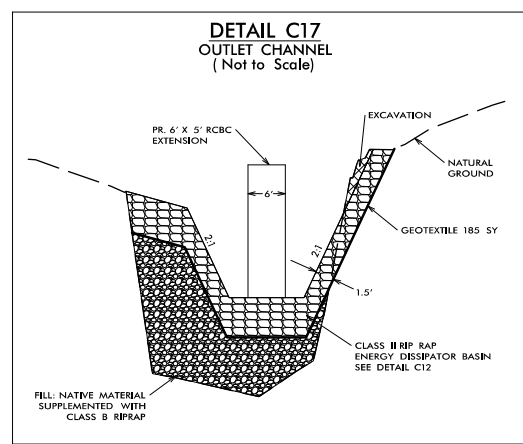
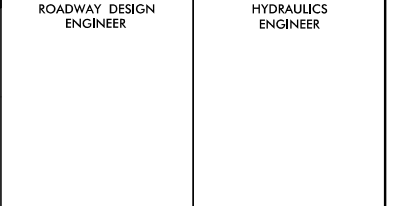
REVISIONS
1.10/19/20 - 8" DIP SANITARY SEWER CONFLICT WITH PIPE 3825

8/31/2021
C:\projects\wise\p\project\wise\melville\0339275\15507_Hyd_prm_wet_pah38.dgn
MELVILLE

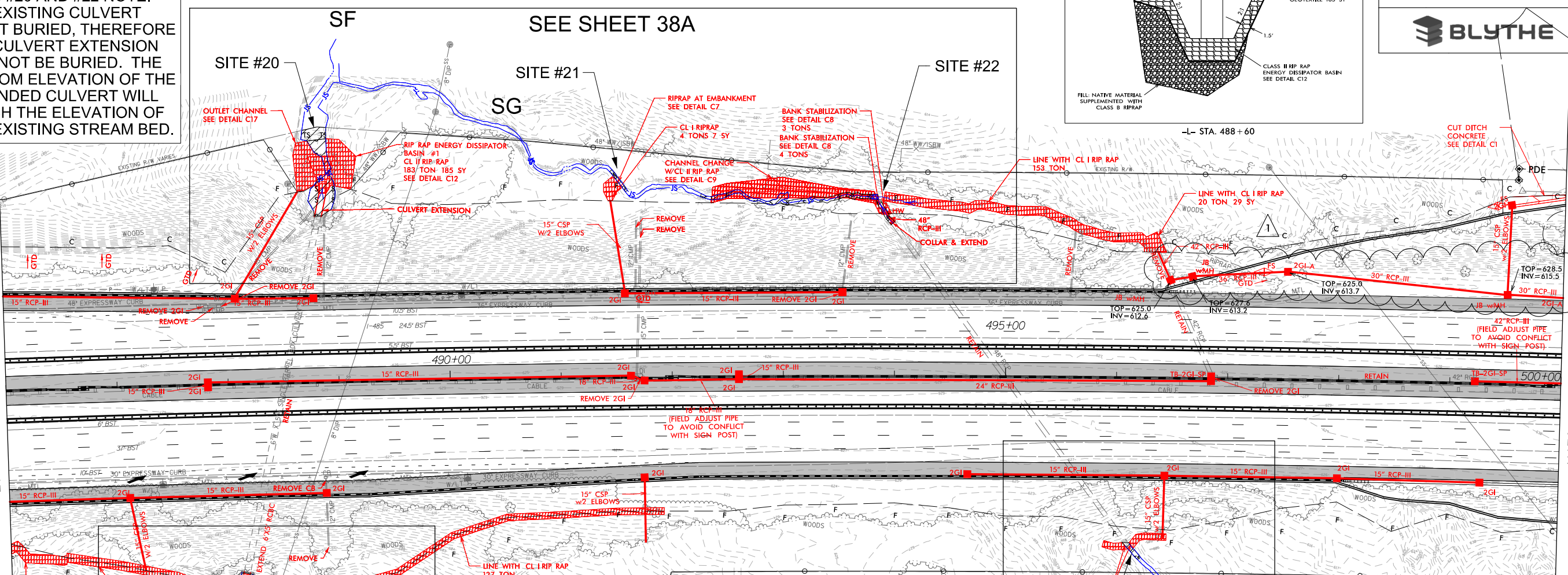
8/17/99



PROJECT REFERENCE NO.	SHEET NO.
L-5507	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

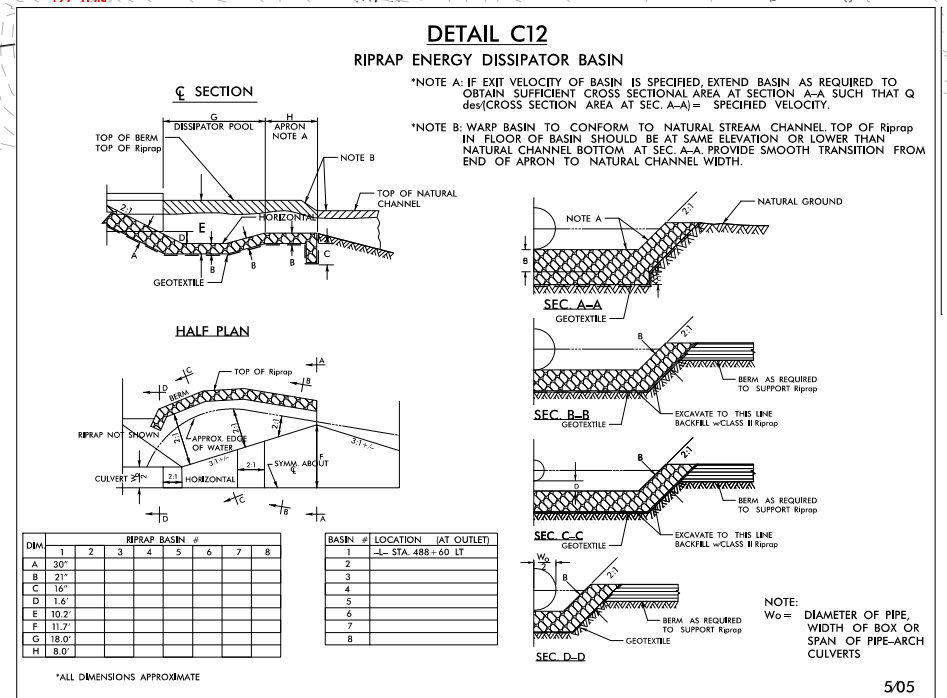
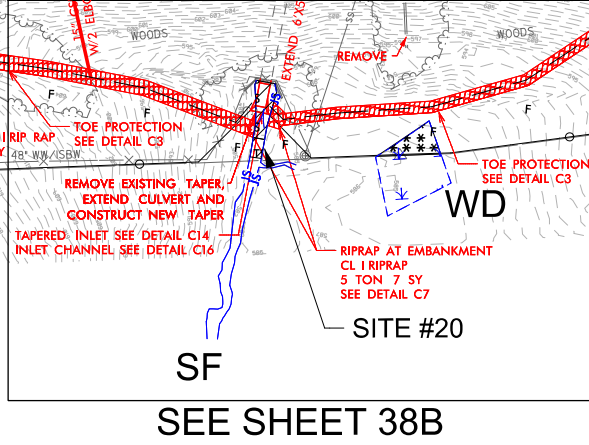


SITES #20 AND #22 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.



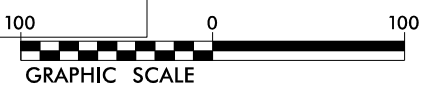
MATCH LINE SEE SHEET 37
-L- STA. 486+00.00

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



Revised August 2021

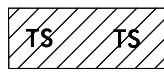
PERMIT DRAWING SHEET 54 OF 115



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

8/31/2021
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MELVILLE

8/17/99



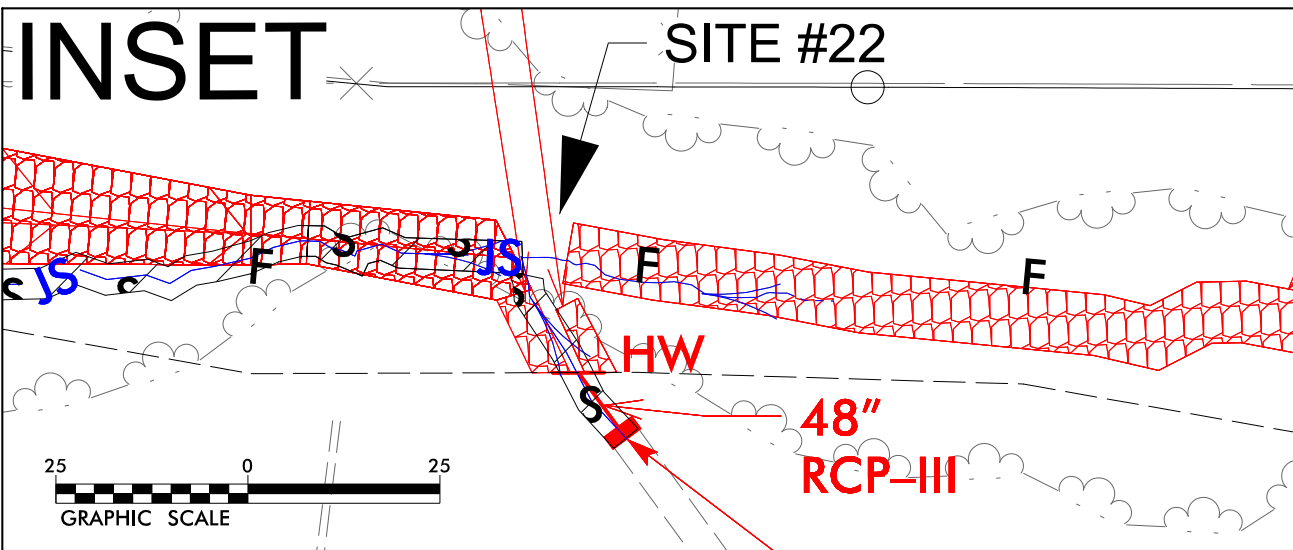
DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN SURFACE WATER

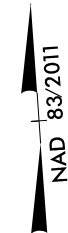
SITES #20 AND #22 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE THE CULVERT EXTENSION WILL NOT BE BURIED. THE BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL MATCH THE ELEVATION OF THE EXISTING STREAM BED.

INSET



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

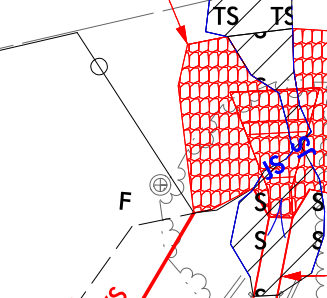
PROJECT REFERENCE NO. I-5507	SHEET NO. 38A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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

SITE #21

SG

TEMPORARY SURFACE
WATER IMPACT
15" CSP
W/2 ELBOWS

RIPRAP AT EMBANKMENT
SEE DETAIL C7

CL I RIPRAP
4 TONS 7 SY

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

CHANNEL CHANGE
W/CL II RIP RAP
SEE DETAIL C9

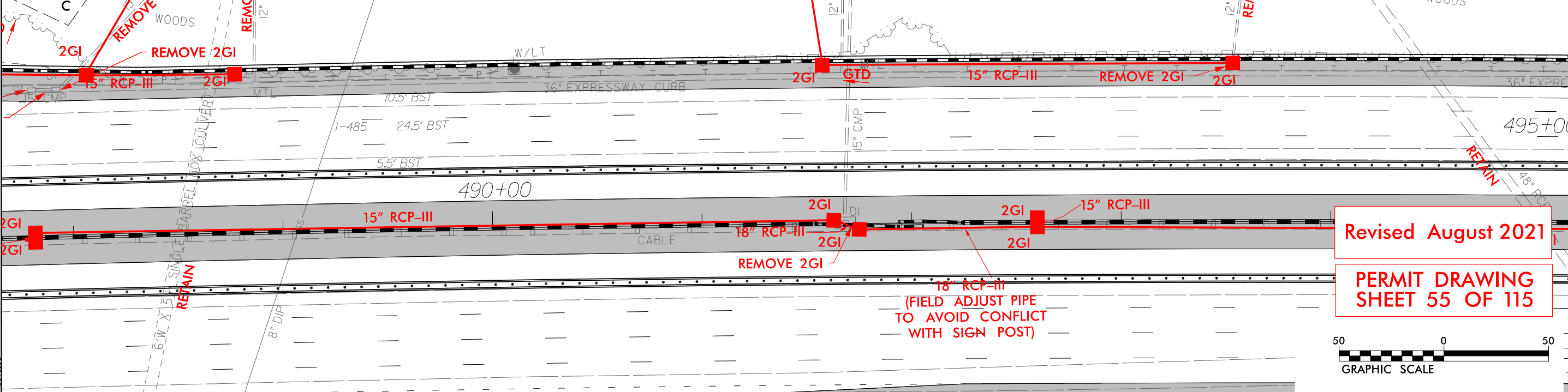
TEMPORARY SURFACE
WATER IMPACT

SITE #22 SEE INSET

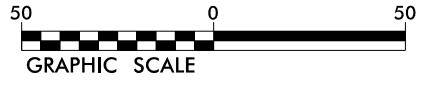
COLLAR & EXTEND
48" RCP-III

REVISIONS

8/31/2021
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Revised August 2021
PERMIT DRAWING
SHEET 55 OF 115



8/17/99



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

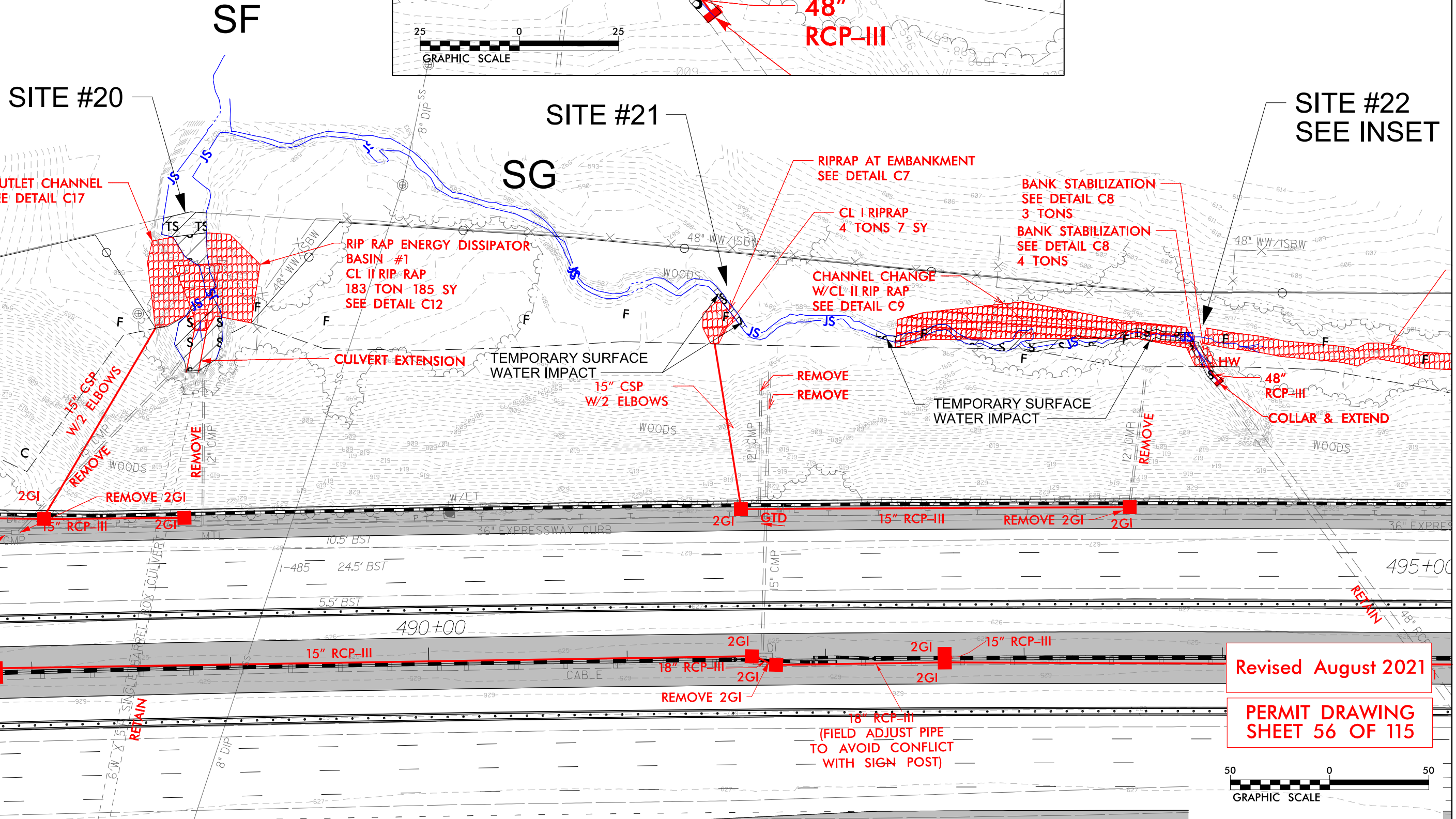
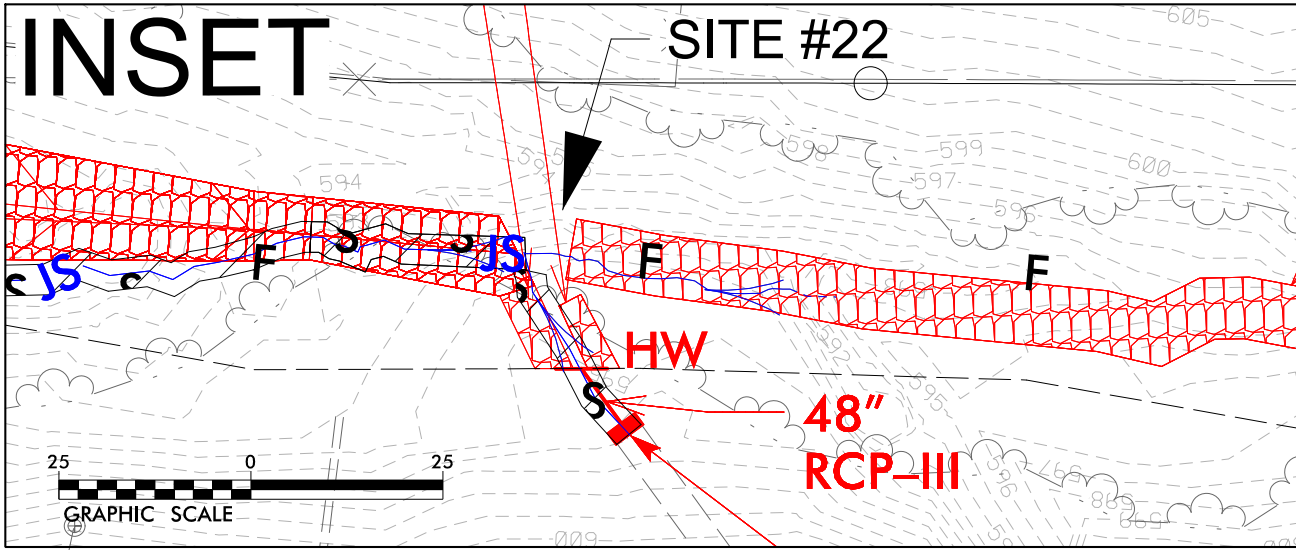
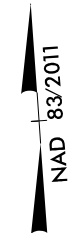


DENOTES IMPACTS IN SURFACE WATER

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.

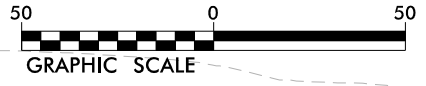
wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

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



Revised August 2021

PERMIT DRAWING SHEET 56 OF 115



8/31/2021
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 10/1/18

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	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 - 301+00 -L- LT	Rock Plating							0.07		680	
8	298+00 -L- LT	Concrete Energy Dissipator						< 0.01		7		
8	298+00 -L- LT	Bank Stabilization						< 0.01		10		
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		0.18	0.24	1186	789	0

*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 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

08/31/21

MECKLENBURG

TIP NO. I-5507

WBS NO. 43609.3.2

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
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	0

*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.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Revised 08/31/21

MECKLENBURG
TIP NO. I-5507
WBS NO. 43609.3.2

SHEET 113 OF 115

REVISIONS

1. 10/12/2021 - AT 10:00 AM, STAKE PLACEMENTS AND DIMENSIONS WERE AT 10:00 AM AND JUNCTION BOX (S&S) WAS REVISIONED TO ACCOMMODATE EXISTING SEWER LINE.
 2. 10/12/2021 - DRAINAGE REVISIONS TO ACCOMMODATE EXISTING SEWER LINE.
 3. 10/12/2021 - DELETED DIMENSIONS TO FOLLOW PAYMENT LIMITS AND LABELS.
 4. 10/12/2021 - DELETED DIMENSIONS TO FOLLOW PAYMENT LIMITS AND LABELS.
 5. 5/19/2022 - NEW DIMENSIONS AND DIMENSIONS FROM MOOT TO REPLACE THE EXISTING SANITARY SEWER.
 6. 5/19/2022 - NEW DIMENSIONS AND DIMENSIONS FROM MOOT TO REPLACE THE EXISTING SANITARY SEWER.
 7. 5/19/2022 - NEW DIMENSIONS AND DIMENSIONS FROM MOOT TO REPLACE THE EXISTING SANITARY SEWER.

PROJECT REFERENCE NO. I-5507 SHEET NO. 12

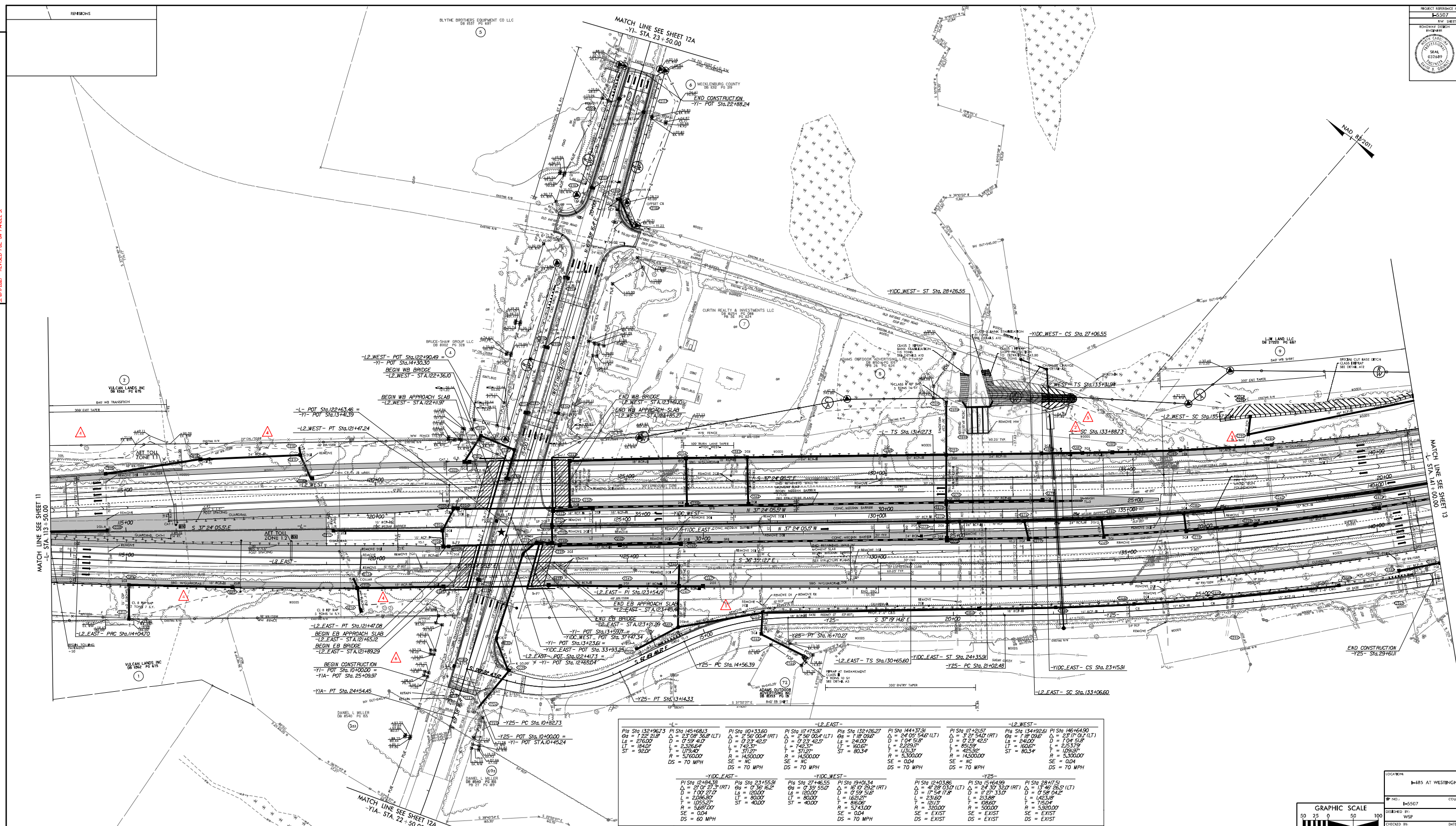
ROADWAY DESIGNER: [Seal]

HYDRAULIC ENGINEER: [Seal]

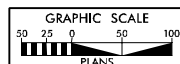
MECHANICAL ENGINEER: [Seal]

ELECTRICAL ENGINEER: [Seal]

CIVIL ENGINEER: [Seal]



-L2 EAST-		-L2 WEST-	
PI Sta 12+84.38	PI Sta 10+33.80	PI Sta 10+33.80	PI Sta 10+33.80
Δ = 21° 07' 27.3" (RT)	Δ = 2° 56' 00.4" (RT)	Δ = 2° 56' 00.4" (RT)	Δ = 2° 56' 00.4" (RT)
D = 170.00'	D = 170.00'	D = 170.00'	D = 170.00'
L = 2,086.80'	L = 142.37'	L = 142.37'	L = 142.37'
T = 1,043.40'	T = 71.19'	T = 71.19'	T = 71.19'
R = 5,697.00'	R = 14,500.00'	R = 14,500.00'	R = 14,500.00'
SE = 0.04	SE = NC	SE = NC	SE = NC
DS = 60 MPH	DS = 70 MPH	DS = 70 MPH	DS = 70 MPH



LOCATION: I-85 AT WESTINGHOUSE BLVD.

PROJECT NO.: I-5507 COUNTY: MECKLENBURG

DESIGNED BY: WSP

CHECKED BY: D. GOURLEY DATE: 8/18/2021

