



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

January 7, 2022

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

ATTN: Mr. Eric Alsmeyer
NCDOT Coordinator

Subject: **Request for Modification for Section 404 Regional General Permit No. 201902350 and Section 401 Water Quality Certification** for the Proposed I-485 and East John Street – Old Monroe Road (SR 1009) Interchange Improvements, Mecklenburg County, Division 10, STIP U-4714AB. Debit \$570.00 from WBS 43609.3.2.

Reference: 1) Section 404 Regional General Permit No. 201902350 (RGP 50), Action ID No. SAW-2019-01774, issued October 7, 2019, re-verified May 6, 2021; 2) Section 401 General Water Quality Certification No. 4135, NCDWR Project No. 20191245v.2, issued June 8, 2021.

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 two impact sites (Sites 3 and 4). The changes to these sites are described below.

Previously authorized permanent stream impacts for the entire project totaled 401 linear feet, which included 159 linear feet of bank stabilization. Previously authorized temporary stream impacts totaled 118 linear feet (0.03 acre).

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DRIVE
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

RALEIGH NC 27610

The revised stream impacts for the project total 473 linear feet of permanent stream impacts, which includes 175 linear feet of stream bank stabilization impacts, and 150 linear feet (0.08 acre) of temporary stream impacts.

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	401	473	+72
<i>Bank Stabilization Impacts</i>	<i>159</i>	<i>175</i>	<i>+16</i>
Temporary Stream Impacts	118	150	+32

*Stream impacts are in linear feet.

Please see the enclosed DWR Pre-Filing Meeting Request Form, revised DMS acceptance letter, revised permit drawings and roadway plans where drainage revisions resulted in design and/or impact changes to permitted impact sites. Narratives 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 3

The original design included 197 linear feet of permanent stream impact to stream SSG resulting from the installation of 30-inch and 15-inch reinforced concrete pipes (RCP) for drainage, 31 linear feet of permanent bank stabilization impacts, and 10 linear feet of temporary stream impacts.

The design has been revised to include ditch drainage along the exit ramp rather than a closed drainage system in this location. In the revised design, the 15-inch RCP has been eliminated and the upper reach of stream SSG will be filled and drainage will be captured in a new roadside ditch before draining into the previously-approved 30" RCP. The new design includes 197 linear feet of permanent stream impact, including 100 linear feet of impact from installation of the 30" RCP and 97 linear feet of roadway fill impact. Bank stabilization will remain at 31 linear feet and temporary stream impacts will remain at 10 linear feet. The proposed design will result in no change to the length of permanent or temporary stream channel impacts.

Site 4

The original design included 26 linear feet of permanent stream channel impacts from bank stabilization and 24 linear feet (<0.01 acre) of temporary stream impacts to stream SAG (Four Mile Creek).

The design has been revised to extend the widening of East John Street to the north and includes construction of the intersection of the future Greylock Ridge Road Extension (Project No. HL-0025) on the east side of East John Street. This will result in the need to extend the dual 7x7 reinforced concrete box culvert (RCBC) beneath East John Street at stream SAG (Four Mile Creek). This project modification is being proposed to alleviate future traffic congestion at the I-485 interchange at East John Street, simplify traffic control for the public in this area, and minimize the risk of sedimentation into stream SAG.

Based on a request from the Town of Matthews, endorsed through a resolution by the Charlotte Regional Transportation Planning Organization (CRTPO), the Department decided to delay implementing the East John Street widening from I-485 to Trade Street in downtown Matthews, now known as U-4714AA.

As a result of this delay, an additional operational analysis of the East John Street interchange was conducted assuming U-4714AA would not be constructed for a number of years. The updated analysis, and a supplemental addendum completed in April 2020 for the interchange, showed traffic queuing from not building U-4714AA would block the interchange. As such, the Department needs to extend the widening of East John Street further to the north in order to meet the purpose and need for U-4714AB. Although construction of U-4714AA is currently unfunded, the future widening of E. John Street from Trade Street to the I-485 interchange is included in the Charlotte Regional Transportation Planning Organization (CRTPO) 2045 Metropolitan Transportation Plan (MTP)'s Fiscally Constrained project list for Horizon Year 2025. By performing this additional work under U-4714AB, the Department will help alleviate previously-unanticipated congestion to the East John Street interchange, increasing both the safety of the traveling public and the movement of goods and services in the area.

The extension of the East John Street widening further to the north would also include the construction of the intersection with the future Greylock Ridge Road Extension. Extending East John Street and building the Greylock Ridge Road Extension intersection at the same time will benefit the traveling public by simplifying and providing uninterrupted traffic control along East John Street. If constructed separately, motorists, bicyclists and pedestrians will endure two separate traffic control patterns for these two projects over a span of 2 to 3 years. In addition, by including the Greylock Ridge Road Extension intersection with the widening of John Street as part of U-4714AB, the project area in the vicinity of stream SAG can be disturbed and stabilized at one time. Otherwise, ground disturbance in the vicinity of stream SAG will take place during two separate construction efforts.

The new design includes 56 linear feet of permanent stream channel impacts resulting from the dual 7x7 RCBC extension, 42 linear feet of stream bank stabilization impacts, and 56 linear feet (0.06 acre) of temporary stream impacts. The proposed design will result in an increase in permanent stream channel impacts of 72 linear feet (including an increase of 16 linear feet of stream bank stabilization impacts) and an increase in temporary stream impacts of 32 linear feet (0.05acre).

Revised Compensatory Mitigation

The original permit approvals indicated the North Carolina Division of Mitigation Services (NCDMS) would provide compensatory mitigation for 242 linear of permanent stream impacts, as referenced in the October 7, 2019 GP 31 issued permit from the USACE and the November 15, 2019 401 WQC from NCDWR.

Of the revised permanent stream impacts totaling 473 linear feet for this modification, 175 linear feet are the result of bank stabilization and therefore do not require mitigation from USACE. Therefore, a total of 298 linear feet of permanent stream impacts will require mitigation based on this modification, which is an increase of 56 linear feet as compared to the previously approved permit. There are no additional permanent wetland impacts, therefore no additional wetland mitigation is required. A revised DMS acceptance letter reflecting this change was issued and received on November 4, 2021 (attached).


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 U-4714AB, 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, appearing to read "Michael L. Harris".

 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

Project Contact Information

Name:

Erin Cheely

Who is submitting the information?

Email Address: *

ekcheely@ncdot.gov

Project Information

Existing ID #: *

20191245

20170001 (no dashes)

Existing Version: *

2

1

Project Name: *

U-4714 AB - Proposed I-485 and East John Street / Old Monroe Road (SR 1009)
Interchange Improvements

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#:

U-4714 AB

WBS#:

43609.3.2

(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](#)

U-4714AB Modification Mecklenburg January 7

9.85MB

2022.pdf

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

Describe the attachments or add comments:

Permit modification package.

* ☒ 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: *

A rectangular box containing a handwritten signature in black ink that reads "Michael Turchy".

Submittal Date:

[Is filled in automatically once submitted.](#)

DWR Pre-Filing Meeting Request Form



ID#* 20191245 **Version*** 3

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

Reviewer List* Donna Hood

Pre-Filing Meeting Request submitted 8/11/2021

Contact Name* Erin Cheely

Contact Email Address* ekcheely@ncdot.gov

Project Name* U-4714AB

Project Owner* NCDOT

Project County* Mecklenburg

Owner Address:

Street Address	
1598 Mail Service Center	
Address Line 2	
City	State / Province / Region
Raleigh	NC
Postal / Zip Code	Country
27699	United States of America

Is this a transportation project?* ☒ Yes ☐ No

Type(s) of approval sought from the DWR:

- | | |
|---|--|
| <input checked="" type="checkbox"/> 401 Water Quality Certification - Regular | <input type="checkbox"/> 401 Water Quality Certification - Express |
| <input type="checkbox"/> Individual Permit | <input checked="" type="checkbox"/> Modification |
| <input type="checkbox"/> Shoreline Stabilization | |

Does this project have an existing project ID#?*

☒ Yes ☐ No

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

20191245

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

No meeting is requested

Please give a brief project description below and include location information.*

I-485 and East John Street-Old Monroe Road (SR 1003) interchange improvements

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

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

A rectangular box containing a handwritten signature in black ink. The signature is written in a cursive, slightly slanted style and reads "ERIN F. CHEELY".

Submittal Date

8/11/2021



November 4, 2021

Mr. Philip S. Harris, P.E., CPM
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

U-4714AB, SR 1009 (John Street / Old Monroe Road) at I-485 – Improve Interchange, Mecklenburg County

References: USACE 404 General Permit 31 issued October 7, 2019 (USACE Action ID 2019-01774)

NCDWR 401 Water Quality Certification issued November 15, 2019 (NCDWR ID 2019-1245)

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional compensatory stream mitigation for the subject project. Based on the information supplied by you on November 1, 2021, the impacts are located in CU 03050103 of the Catawba River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Table 1 – Additional Impacts (feet / acres)

Catawba 03050103 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	56.000	0	0	0	0	0

*NOTE: Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This additional impact and associated mitigation needs were not projected by the NCDOT in the 2021 impact data. DMS is currently providing stream mitigation for the impacts associated with this project located in expanded Catawba 03 service area as required by the 404 and 401 permits issued in October and November 2019, as shown in the below table (in mitigation credits)



Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on issued permits) and Revised Anticipated Impacts (based on mitigation request)

Impact Type	Total Permitted Impacts (feet / acre / sq ft)	Mitigation Provided by DMS per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts*
Stream (warm)	242.000	484.000	56.000	298.000

*Some of the additional stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. DMS will provide the amount of mitigation as determined by the regulatory agencies.

This mitigation acceptance letter replaces the mitigation acceptance letters issued on March 12, 2018 and September 13, 2019. The impacts and associated mitigation needs were not projected by the NCDOT in the 2021 impact data. DMS will commit to implement sufficient stream mitigation credits to offset the additional stream impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010, and consistent with the Guidance for Expanded Service Area for Mitigating Impacts within the Lower Catawba River Basin approved by the IRT. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,



James B. Stanfill
Asset Management Supervisor

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Resources, Wetlands/401 Unit
File: U-4714AB Additional



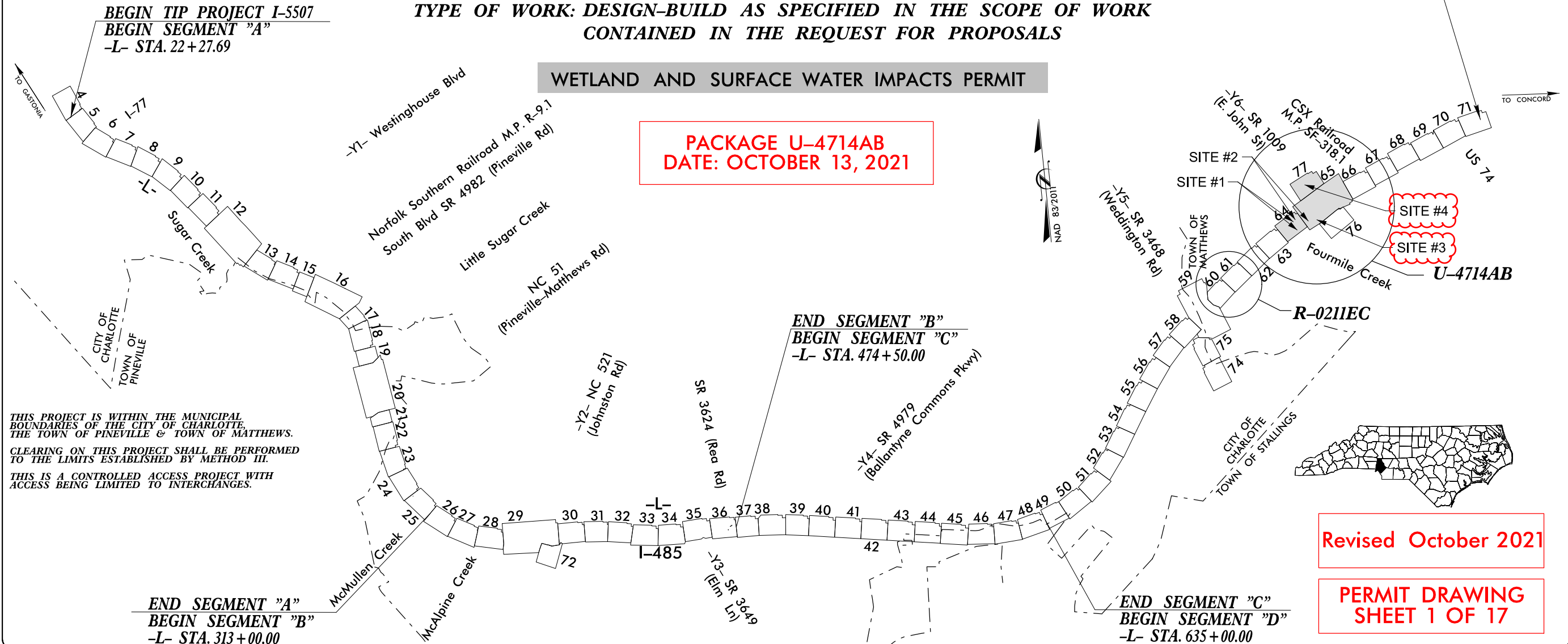
CONTRACT: C203970

MECKLENBURG COUNTY

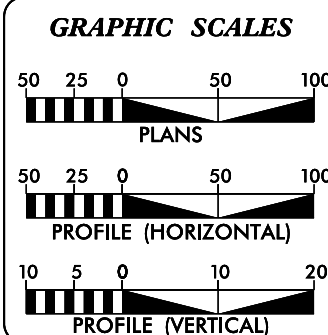
END TIP PROJECT I-5507
END SEGMENT "D"
-L- STA. 947+96.48

WETLAND AND SURFACE WATER IMPACTS PERMIT

END TIP PROJECT I-5507
END SEGMENT "D"
-L- STA. 947+96.48



PERMIT DRAWING
SHEET 1 OF 17



DESIGN DATA

ADT	2018	=	118,400
ADT	2040	=	159,200
DHV		=	9 %
D		=	55 %
T		=	9 % *
V		=	7075 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

RIGHT OF WAY:
SEPTEMBER 18, 2018

LETTING DATE:
SEPTEMBER 18, 2018

DANIEL H. BRIDGES, PE
DESIGN PROJECT MANAGER

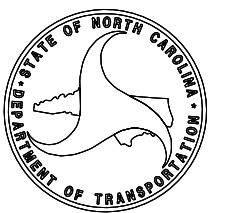
DAVID B. GOURLEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ ***P.E.***
***ROADWAY DESIGN
ENGINEER***

SIGNATURE: _____ *P.E.*

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

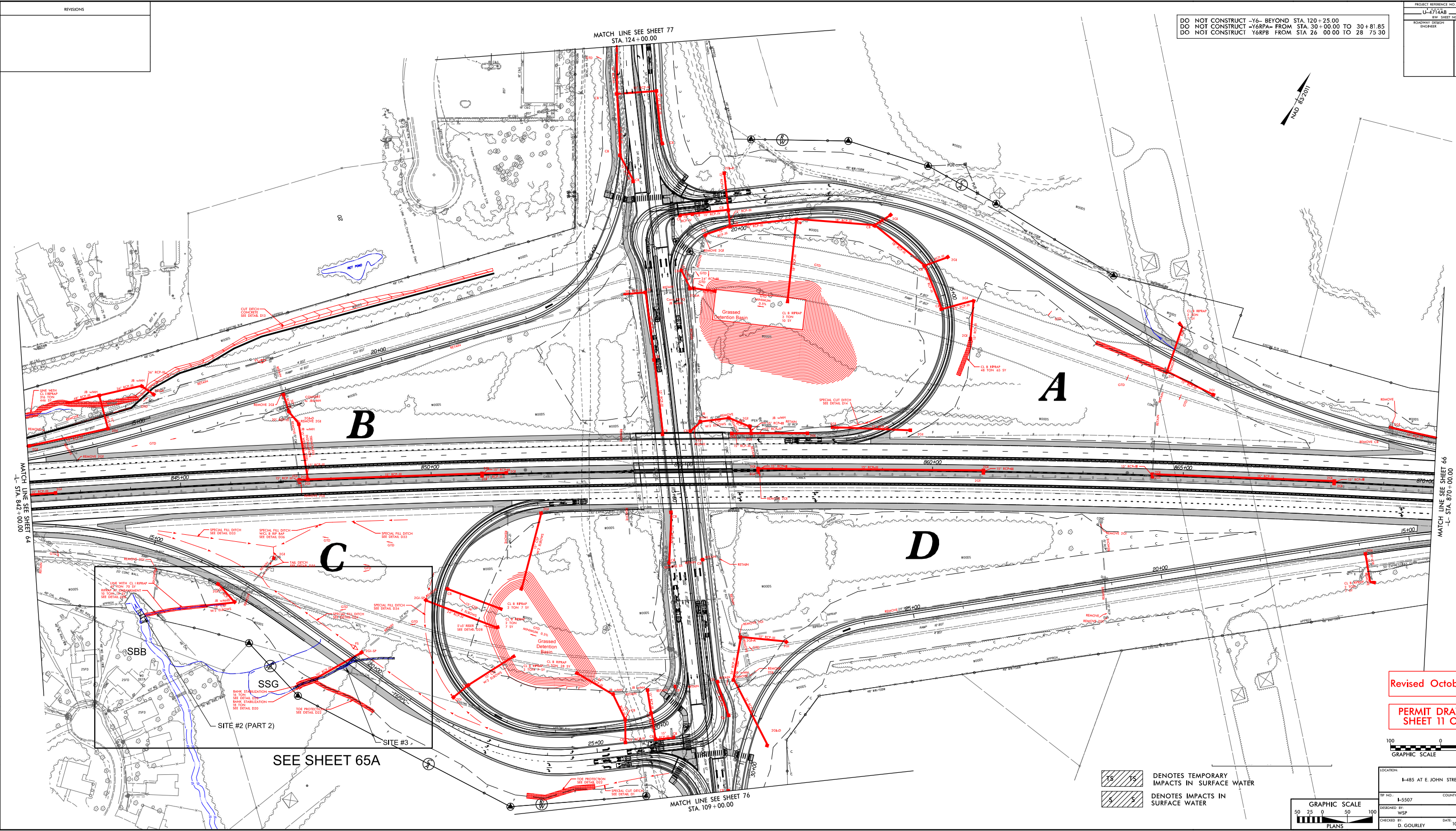


Q/II/2021
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REVISIONS
1.7.20/2022 - REMOVED THE PROPOSED ACCESS ROAD FROM THE DESIGN
2.10/9/2022 - REVISED -66-, -68- & -69- FOR NORTHERN EXTENSION

DO NOT CONSTRUCT -Y6- BEYOND STA. 120+25.00
DO NOT CONSTRUCT -Y6RPA- FROM STA. 30+00.00 TO 30+81.85
DO NOT CONSTRUCT -Y6RFB- FROM STA. 26-00.00 TO 28-73.30

PROJECT REFERENCE NO.	SHEET NO.
U-4714AB	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Revised October 2021

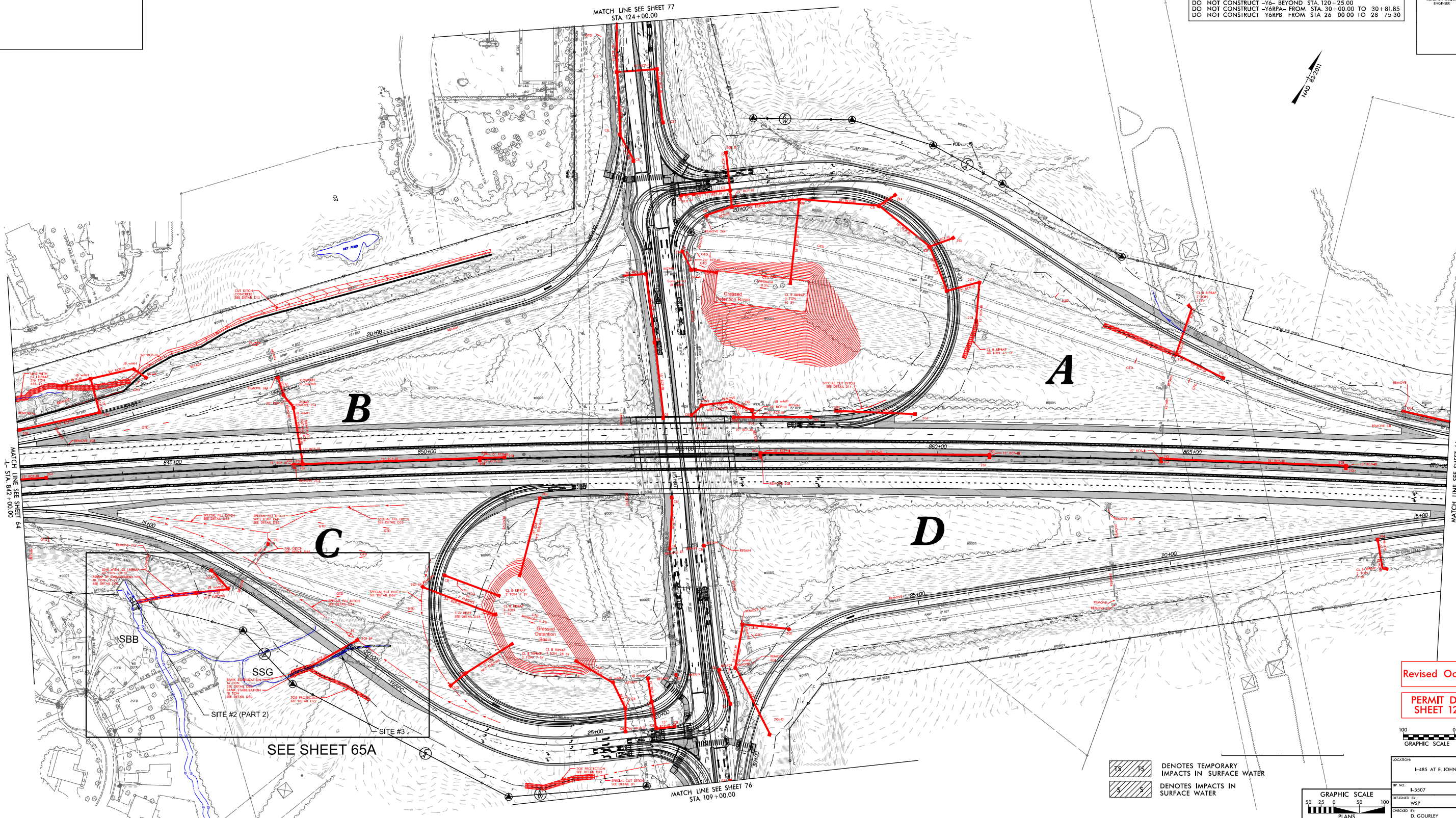
PERMIT DRAWING
SHEET 11 OF 17

LOCATION	I-485 AT E. JOHN STREET (SR 1010)
TRIP NO.	I-5507
DESIGNED BY	WSP
CHECKED BY	D. GOURLEY
DATE	10/12/2021

REVISIONS
1.7.20/2022 - REMOVED THE PROPOSED ACCESS ROAD FROM THE DESIGN
2.10/9/2020 - REVISED -66-, -68- & -69- FOR NORTHERN EXTENSION

DO NOT CONSTRUCT -Y6- BEYOND STA. 120+25.00
DO NOT CONSTRUCT -Y6RPA- FROM STA. 30+00.00 TO 30+81.85
DO NOT CONSTRUCT Y6RPA FROM STA. 26 00 00 TO 28 75 30

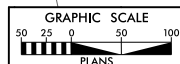
PROJECT REFERENCE NO.	SHEET NO.
U-4714AB	65
ROADWAY DESIGN	HYDRAULICS
ENGINEER	ENGINEER



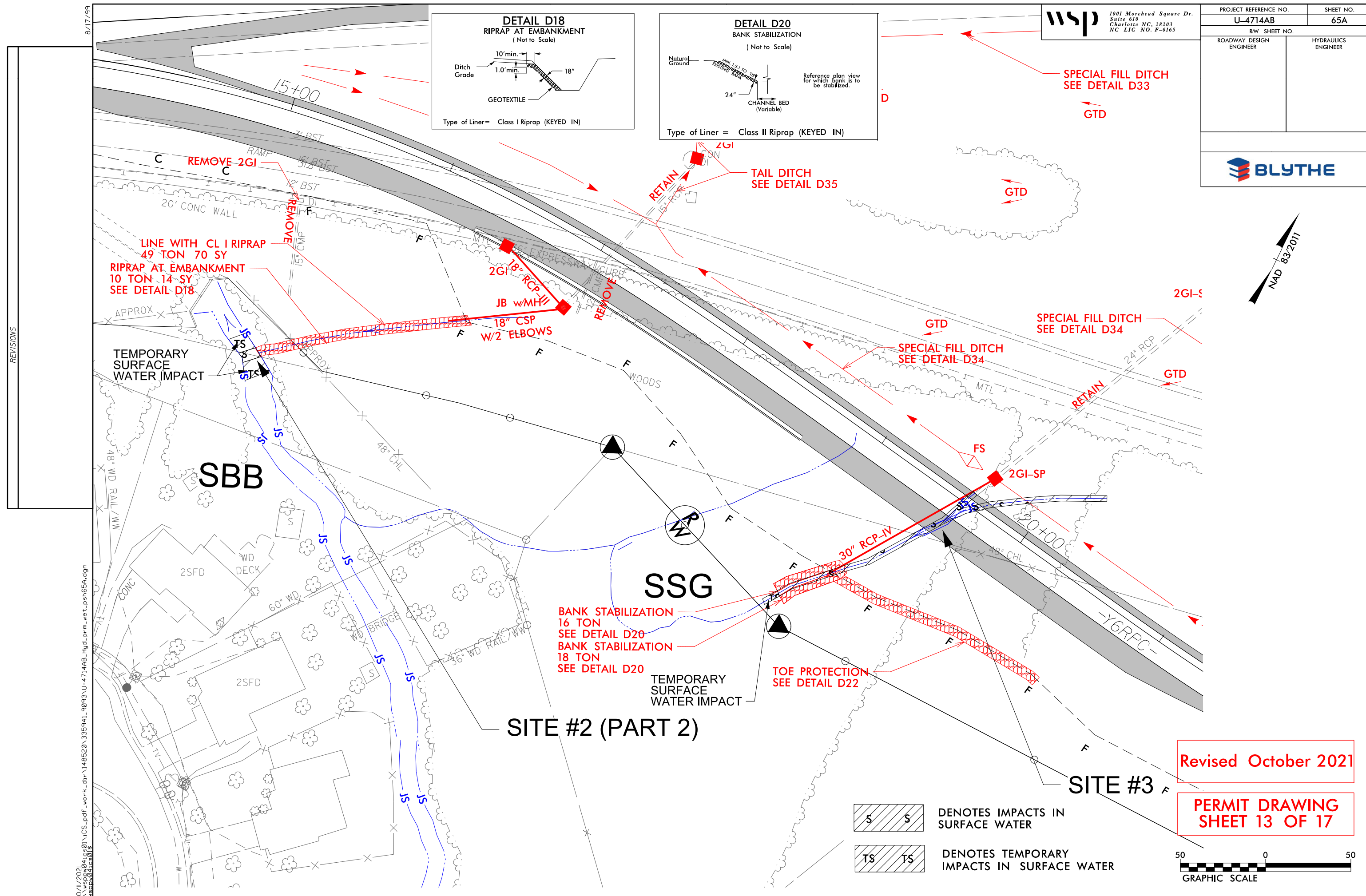
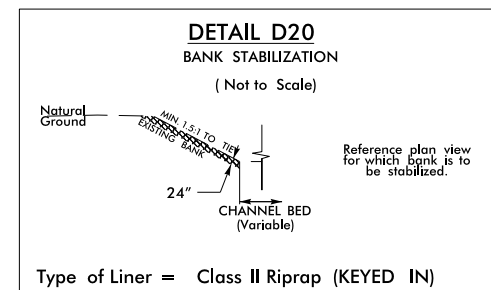
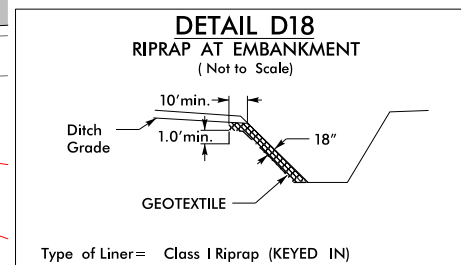
Revised October 2021
PERMIT DRAWING
SHEET 12 OF 17

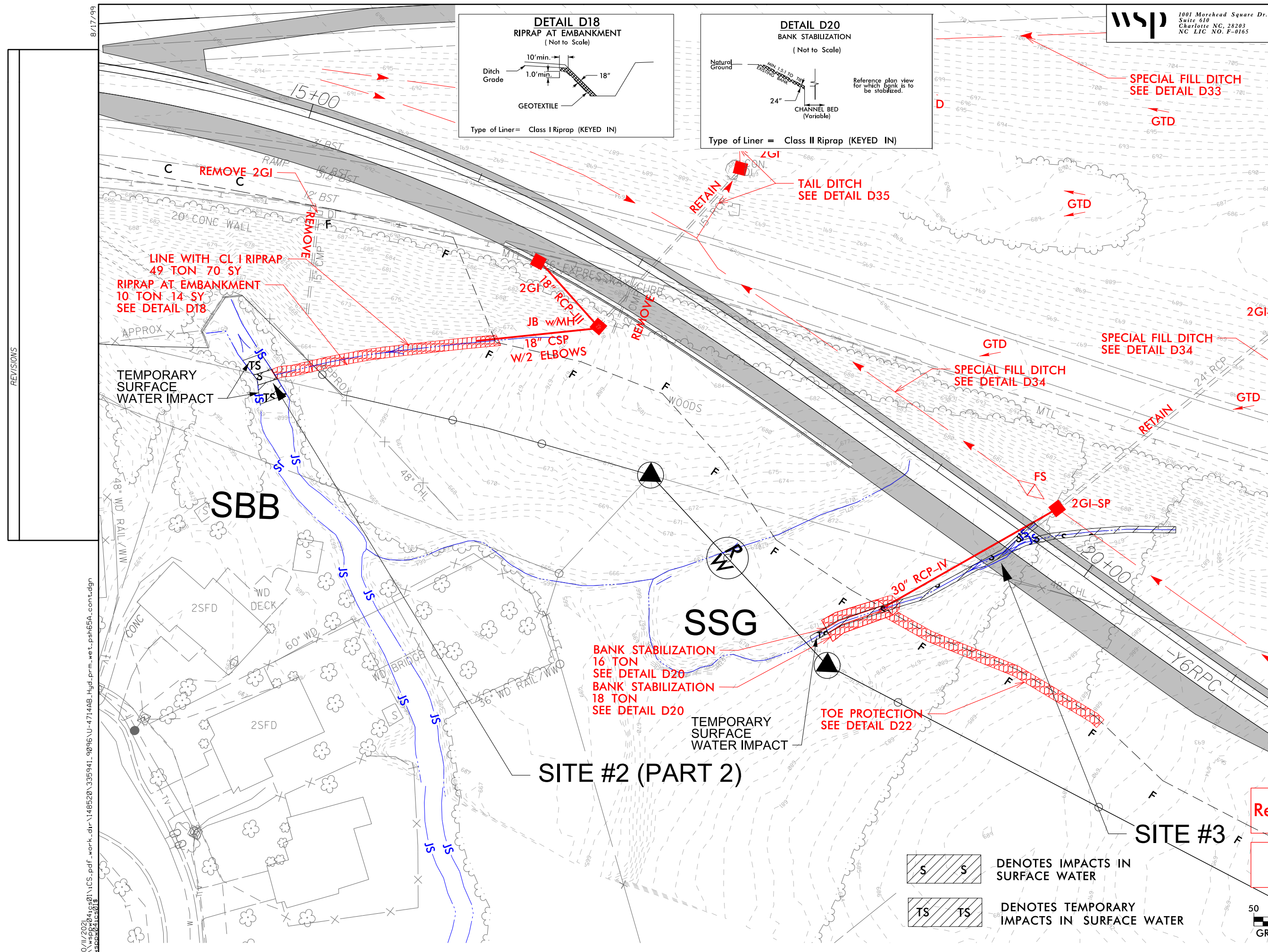
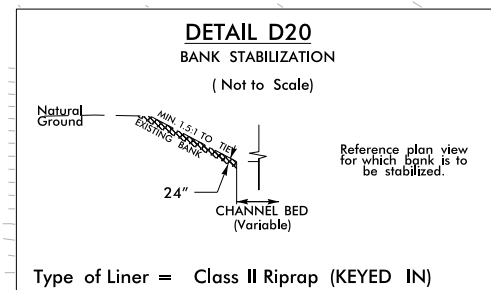


15 15
5 5
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN
SURFACE WATER



LOCATION:	I-485 AT E. JOHN STREET (SR 1010)
TRP NO.:	I-5507
DESIGNED BY:	WSP
CHECKED BY:	D. GOURLEY
DATE:	10/12/2021





DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

NAD 83/2011

GRAPHIC SCALE

SAG
(Four
Mile Creek)

SEE INSET A
SITE #4

SITE #4

DETAIL D18-A
RIPRAP AT EMBANKMENT
(Not to Scale)

Type of Liner = Class II Riprap (KEYED IN)

-Y6- STA. 129+88 LT

FUTURE PROJECT BY OTHERS

Revised October 2021

PERMIT DRAWING
SHEET 15 OF 17

SEE SHEET 162, 163 FOR -Y6- PROFILE
SEE SHEET 163 FOR -Y6B- PROFILE

100 0 100

GRAPHIC SCALE

INSET A

NAD 83/2011

SAG
(Four
Mile Creek)

SEE INSET A
SITE #4 →

SITE #4

FUTURE PROJECT BY OTHERS

Revised October 2021

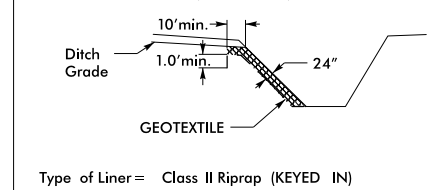
PERMIT DRAWING
SHEET 16 OF 17

SEE SHEET 162, 163 FOR -Y6- PROFILE
SEE SHEET 163 FOR -Y6B- PROFILE

100 0 100

GRAPHIC SCALE

DETAIL D18-A
RIPRAP AT EMBANKMENT
(Not to Scale)



-Y6- STA. 129+88 LT

STA. 124+00.00

MATCH LINE SEE SHEET 77A
STA. 138 + 00.00

SITE #4

DETAIL D18-A
INSET B

 DENOTES IMPACTS IN SURFACE WATER

TS TS

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE #4

CP-III CB
18" RCP-III

MOVE HW

EXTEND 2-7x7 BOX CULVERT

RIPRAP AT EMBANKMENT
44 TONS, 47 SY
SEE DETAIL D18-A

HW

C

TEMPORARY SURFACE WATER IMPACT

PDE

CL B RIPRAP
5 TON
14 SY

24" CSP W/ELBOWS

CB 18" RCP-III

R
W

F

PDE

RIPRAP AT EMBANKMENT
47 TONS, 50 SY
SEE DETAIL D18-A

INSET B

MOVE HW
EXTEND 2-7x7
BOX CULVERT
RIPRAP AT
EMBANKMENT
44 TONS, 47 SY
SEE DETAIL D18-A

TEMPORARY
SURFACE
WATER IMPACT PDE-
CL B RIPRAP
5 TON
14 SY SITE #4

RIPRAP AT EMBANKMENT
47 TONS, 50 SY
SEE DETAIL D18-A

REVISIONS


8/17/99

\\22\2021\\\wspow14\cs02\ICS.pdf_work_dir\381\335941_9120_U-4714AB-Hyd_prm_wet.psh77_cont.20211309.dgn
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5/28/99

10/11/2021
\\wsp\p04\cs\pdf_work_dir\148520\335941_9098\5507_Hyd_prm_wet.psh77.plt_culvert.dgn
wsp04\cs\15

SITE #4



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


PROJECT REFERENCE NO.
U-4714AB

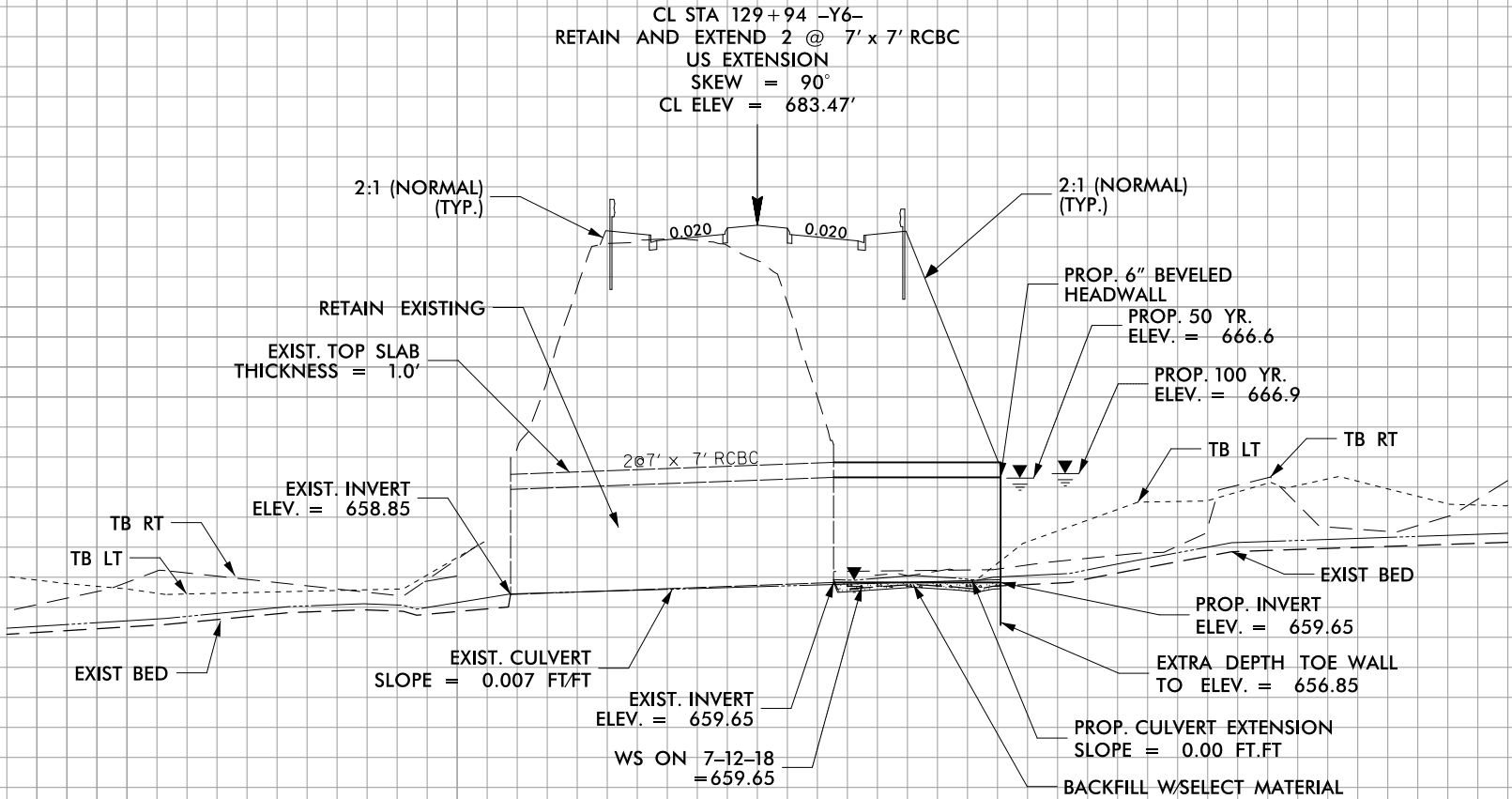
ROADWAY DESIGN
ENGINEER

SHEET NO.
77-1

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED





CULVERT PROFILE AT -L- STA. 129+94
STREAM SAG (FOUR MILE CREEK)

3+00 2+00 1+00 0+00 1+00 2+00 3+00

Revised October 2021

PERMIT DRAWING
SHEET 16A OF 17

50 0 50
GRAPHIC SCALE (HORIZONTAL)

10 0 10
GRAPHIC SCALE (VERTICAL)

[illegible]

NOTES:

At Sites 1 and 2, 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 (45 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

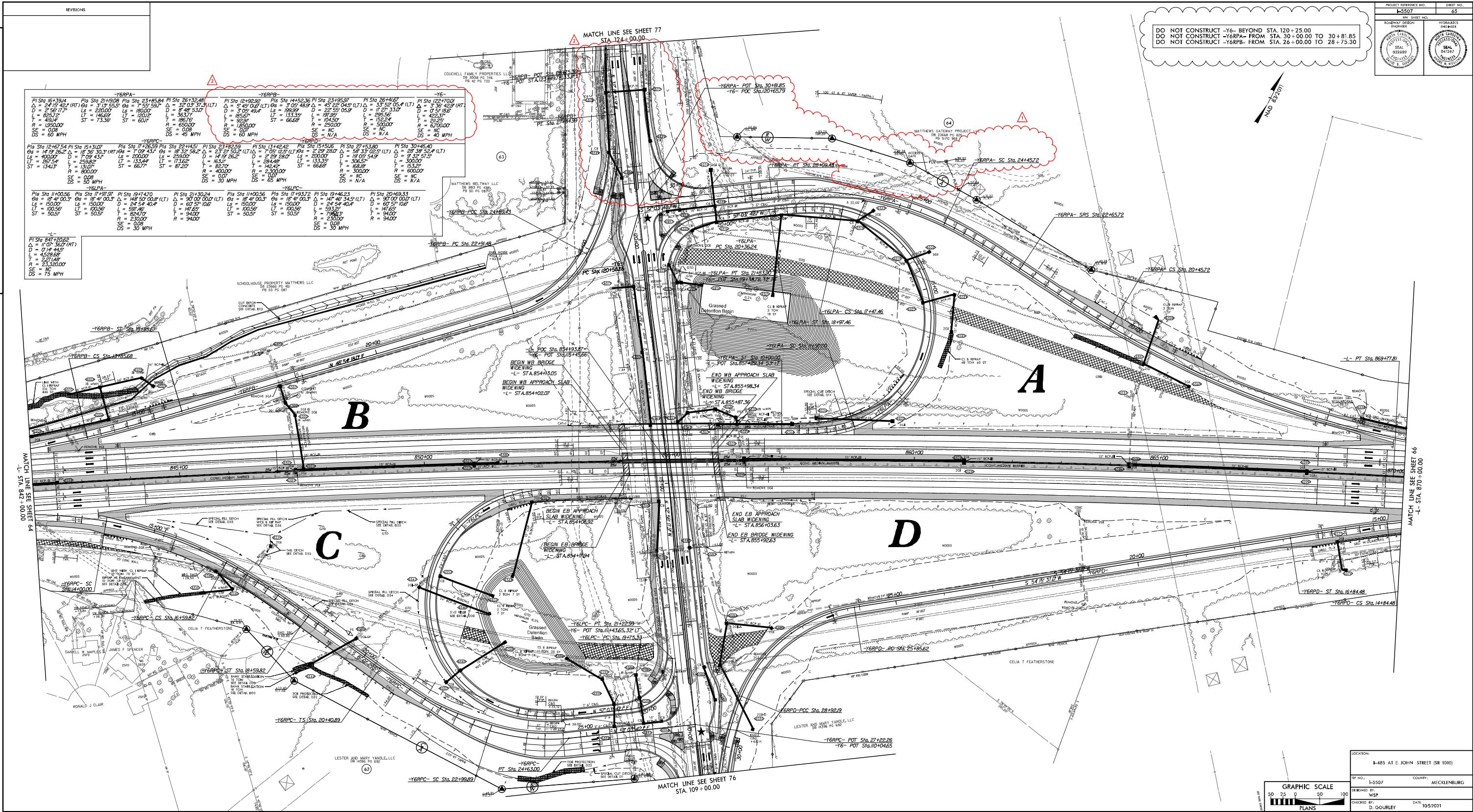
At Site 2, 0.01 ac (51 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 3, <0.01 ac (31 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

Revised 10/11/2021
MECKLENBURG
TIP NO. U-4714AB
WBS NO. 39078.1.1

KEYNOTES
1. 11/10/2022 - REMOVED THE PROHIBITORY ACCESS ROAD FROM THE DESIGN
2. 11/10/2022 - REVISED -Y6-, -Y6P-, -Y6R- & -Y6RPP- FOR NORTHERN EXTENSION

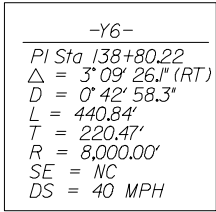
-Y6RPA- PI Sta 16+39.4 Δ = 241° 15' 42" (RT) D = 2561.77' L = 685.12' T = 418.14' R = 1950.00' SE = 0.08 DS = 60 MPH	-Y6RPA- PI Sta 21+80.8 Δ = 11° 15' 52" (RT) D = 220.00' L = 146.69' T = 73.35' R = 120.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 23+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 24+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 25+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 26+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 27+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 28+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 29+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH	-Y6RPA- PI Sta 30+45.84 Δ = 32° 03' 31" (LT) D = 848.530' L = 363.71' T = 186.76' R = 650.00' SE = 0.08 DS = 45 MPH
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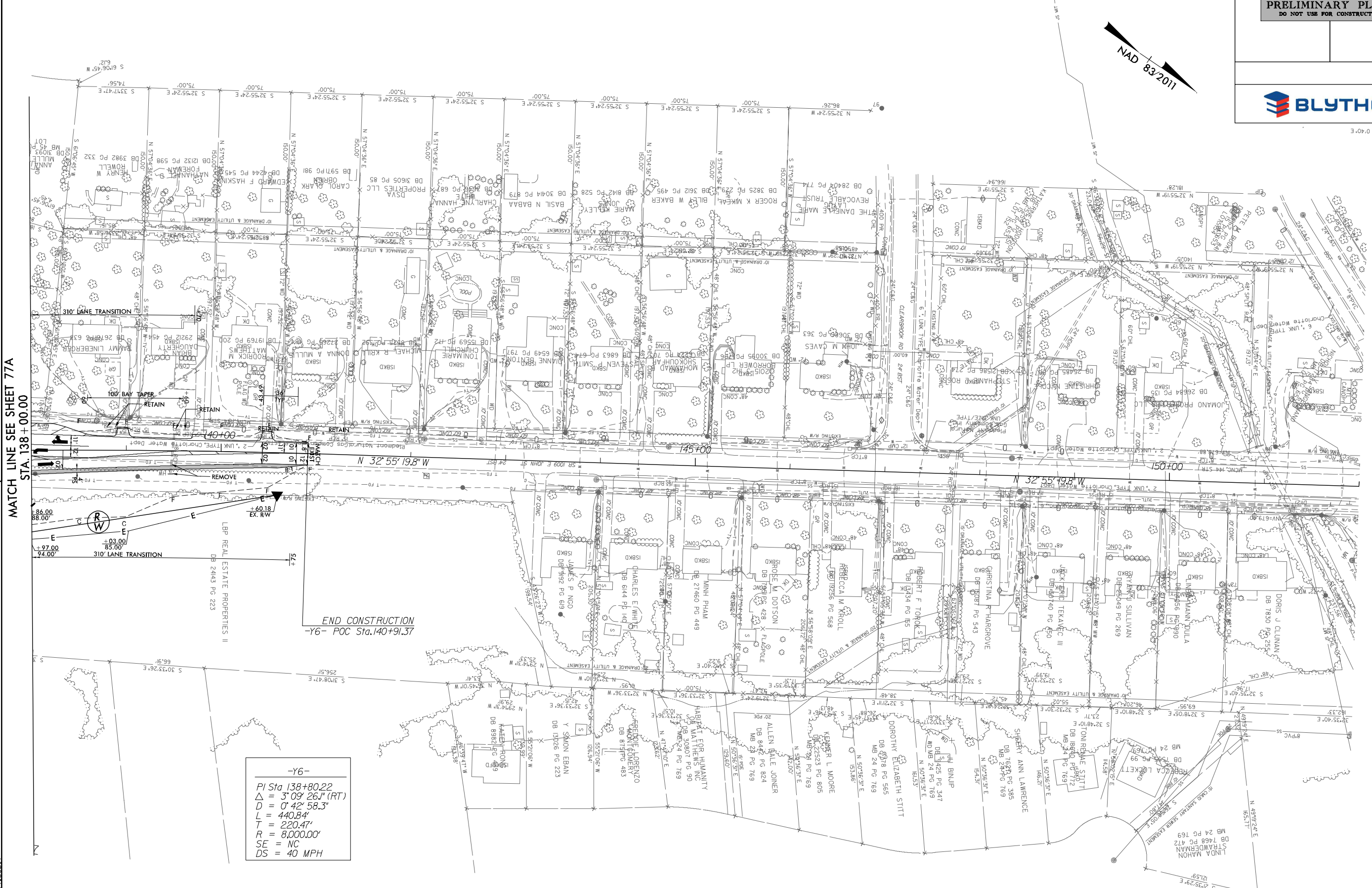


DO NOT CONSTRUCT -Y6- BEYOND STA. 120+25.00
DO NOT CONSTRUCT -Y6RPA- FROM STA. 30+00.00 TO 30+81.85
DO NOT CONSTRUCT -Y6RPP- FROM STA. 26+00.00 TO 28+75.30

PROJECT REFERENCE NO.	SHEET NO.
I-5507	65
ROADWAY DESIGN	HYDRAULICS
DESIGNED BY	CHECKED BY
WSP	D. GOURLEY
DATE	10/5/2021

LOCATION	I-485 AT E. JOHN STREET (SR 1010)	
TIP NO.	I-5507	COUNTY
DESIGNED BY	WSP	MECKLENBURG
CHECKED BY	D. GOURLEY	DATE
		10/5/2021





REVISIONS

MATCH LINE SEE SHEET 77A
STA. 138+00.00

-Y6-

Pl Sta 138+80.22
 $\Delta = 3^{\circ} 09' 26.1''$ (RT)
 $D = 0^{\circ} 42' 58.3''$
 $L = 440.84'$
 $T = 220.47'$
 $R = 8,000.00'$
 $SE = NC$
 $DS = 40$ MPH