
		North Carolina Department of Transportation Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS				
(Version 2.08; Released April 2018)						
WBS Element: BP2.R018.1		TIP No.: BP2.R018.1	County(ies): Pitt		Page 1 of 2	
General Project Information						
WBS Element:		BP2.R018.1	TIP Number:	BP2.R018.1	Project Type:	Bridge Replacement
NCDOT Contact:		Michael Aman, PE		Contractor / Designer:	Kisinger Campo & Associates	
Address:		1037 W.H. Smith Blvd Greenville, NC 27835		Address:	301 Fayetteville St., Suite 1500 Raleigh, NC 27601	
Phone:		(252) 439-2812		Phone:	(919) 882-7839	
Email:		mcaman@ncdot.gov		Email:	jmcnulty@kcaeng.com	
City/Town:		Grimesland		County(ies):	Pitt	
River Basin(s):		Tar-Pamlico		CAMA County?	No	
Wetlands within Project Limits?		Yes				
Project Description						
Project Length (lin. miles or feet):		700 ft.	Surrounding Land Use:	Agricultural		
		Proposed Project		Existing Site		
Project Built-Upon Area (ac.):		0.6	ac.	0.6	ac.	
Typical Cross Section Description:		<p>The proposed typical section on either side of the bridge will be normal crown with cross slope of 0.02 consisting of (2) 10' lanes with a 4' shoulder (2' paved and 2' unpaved). The proposed bridge typical is superelevated with a cross slope of 0.025 on the bridge, consisting of two 10' lanes with 3'-11" paved shoulder and barrier rails for a total out-to-out width 30'-0". All side slopes will be 3:1 or flatter side slopes to existing ground with the exception around the bridge opening.</p>		Existing roadways consists of two 10' lanes, with 3' unpaved shoulders.		
Annual Avg Daily Traffic (veh/hr/day):		Design/Future: 800	Year: 2040	Existing: 400	Year: 2018	
General Project Narrative: (Description of Minimization of Water Quality Impacts)		<p>State project BP2.R018.1 will consist of replacing the structurally deficient NCDOT bridge #730015 on SR 1565 over Chicod Creek. The proposed replacement structure is a 2-span (1@55';1@50") 21" PCCS with 2.5' caps with an out-to-out deck width of 30' which will replace the existing 3-span (1@30'-5", 1@30'-0", 1@30'-7"). Roadway fill slopes will be 3:1 or flatter, with the exception around the bridge opening, and will all be grassy to encourage a diffuse flow pattern and passive stormwater treatment. Stormwater runoff from the bridge and approach slabs will be collected by traffic bearing grated inlets in the Northeast quadrant, and a concrete flume in the Southeast quadrant of the project, where water will discharge to roadside swales with rip rap dissipator pads at the pipe outlets. Roadside swales are to be installed to provide an appropriate amount of treatment length before entering Chicod Creek. Provided treatment length was calculated to be in accordance to the Tar-Pamlico Watershed Buffer Zone rules. All runoff outlet areas will be armored with rip rap dissipator pads to remove erosive velocities. All areas in which fill slopes impact existing ditches will be replaced by a swale to maintain existing drainage patterns.</p>				
Waterbody Information						
Surface Water Body (1):		Chicod Creek		NCDWR Stream Index No.:	28-101	
NCDWR Surface Water Classification for Water Body		Primary Classification:	Class C	Supplemental Classification:	Nutrient Sensitive Waters (NSW)	
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Yes	Comments: Atlantic Pigtoe, Neuse River Waterdog, Northern long-eared bat, anadromous fish water work moratoria (Feb 2 - June 30)			
NRTR Stream ID:		N/A			Buffer Rules in Effect: Tar-Pamlico	
Project Includes Bridge Spanning Water Body?		Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer? Yes	
Deck Drains Discharge Over Water Body?		No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)						



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



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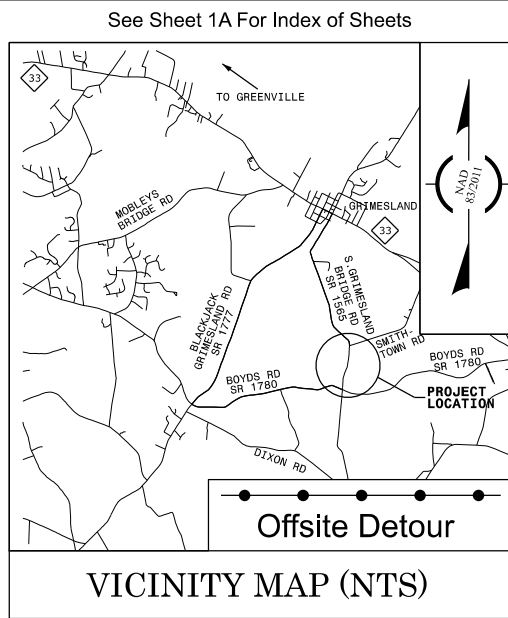
Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4	13+97 - 14+03 37.461138, -81.143999	(1)Chicod Creek	0.0	3.0	3.0	0.1	6	14	2.86%	0.3	1.7	0.4	2.0	Yes	No
4	16+51 - 17+10 37.461138, -81.143999	(1)Chicod Creek	0.0	4.0	4.0	0.5	48	59	0.34%	2.2	1.3	2.8	1.4	No	No

Additional Comments

Please note: Swales are proposed to compensate for existing swales impacted by proposed fill slopes. Rip rap dissipator pads are provided at the flume and pipe outfall locations. Recommended treatment length determined from impervious drainage area collected from shoulder berm gutter and discharging to a single location. Velocities and Flow Rates determined for overall drainage area, including offsiteflow into swales.

08/12/2021 9726780
TIP PROJECT: BP2.R018.1
CONTRACT: TBD



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

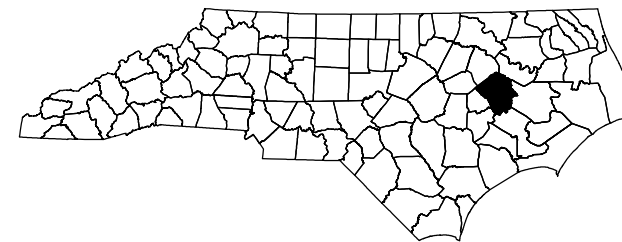
9 / 27 / 2021

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2.R018.1	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
BP2.R018.1		PE	
BP2.R018.2		RW, UTILITIES	
BP2.R018.3		CONSTRUCTION	

PITT COUNTY

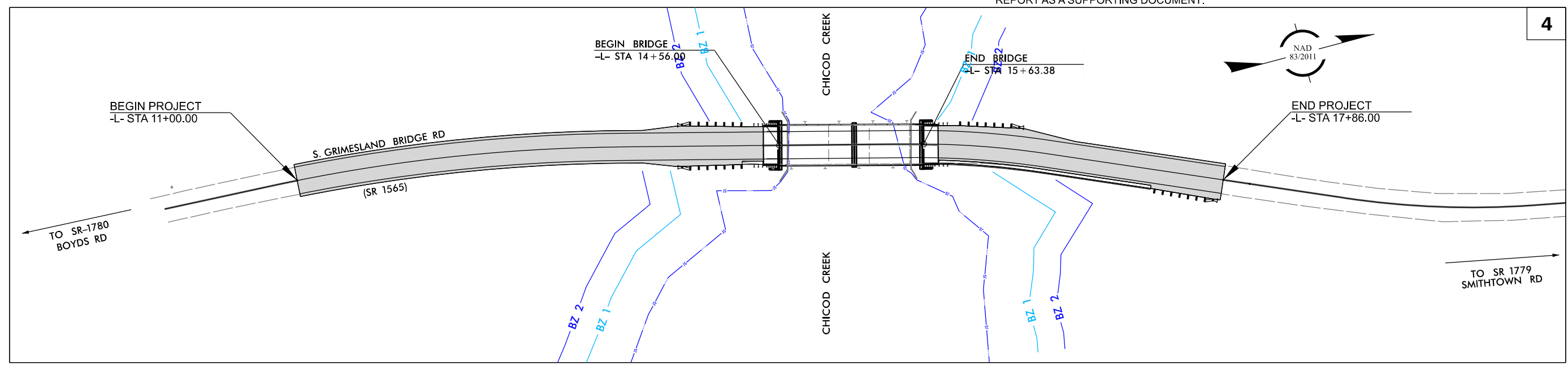
LOCATION: BRIDGE NO. 730015 ON SR 1565 (S. GRIMESLAND BRIDGE ROAD)
OVER CHICOD CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



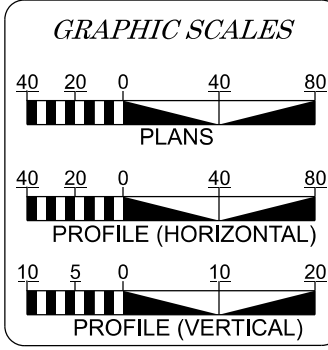
NOTE TO REVIEWER:
 PRINT STYLE AND PSET DEVELOPMENT IS STILL IN PROGRESS BY NCDOT FOR ORD DEVELOPED SHEETS AND CROSS SECTIONS. PLOTTING IN THIS SET IS ACCOMPLISHED USING NCDOT'S DEVELOPMENTAL STANDARDS FOR PLAN-ELEVATION AND CROSS SECTION SHEETS. ALL OTHER SHEETS UTILIZE THE FORMER ORD PRINT SYTLE.
 THE CROSS SECTION SUMMARY SHEET HAS BEEN REMOVED FROM THIS PLAN SET. THE SUMMARY OF EARTHWORK QUANTITIES ARE SHOWN IN SHEET 3B-1 AND ALL EARTHWORK QUANTITY CALCULATIONS SHALL BE PROVIDED VIA A VOLUMETRIC ORD REPORT AS A SUPPORTING DOCUMENT.

WETLAND & STREAM IMPACTS
 Plans Developed with
OpenRoads
PERMIT DRAWING
SHEET 1 OF 7



**DESIGN EXCEPTION REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS AND HORIZONTAL STOPPING SIGHT DISTANCE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2022	=	480
ADT 2042	=	840
K	=	N/A %
D	=	N/A %
T	=	6 % *
V	=	60 MPH
* TTST = 3% DUAL 3%		
FUNC CLASS = LOCAL		
SUB-REGIONAL TIER		

PROJECT LENGTH

PROJECT LENGTHS FOR TIP PROJECT BP2.R018.1:

LENGTH ROADWAY	=	0.110 MILES
LENGTH STRUCTURES	=	0.020 MILES
TOTAL LENGTH	=	0.130 MILES

NCDOT Contact: CATHRINE HOSSACK-MEYER, PE
 Prepared in the Office of: **KCA** KESINGER CAMPO & ASSOCIATES
 NC FIRM LICENSE No: C-1506
 301 Fayetteville St., Suite 1500
 Raleigh, NC 27601
 (919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 10/15/2021
 LETTING DATE: 03/15/2022

JOHN P. MAZERES, P.E.
PROJECT ENGINEER

JASON M. DEBONE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

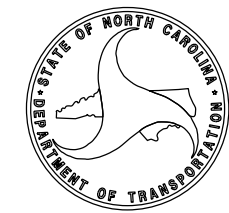
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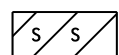
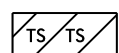

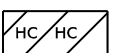
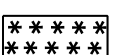
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ROADWAY DESIGN ENGINEER

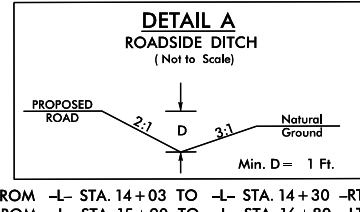
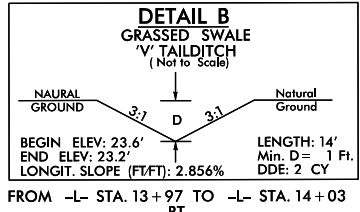
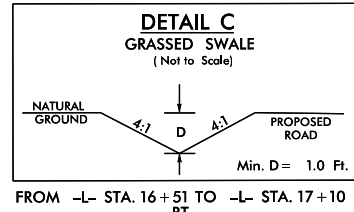
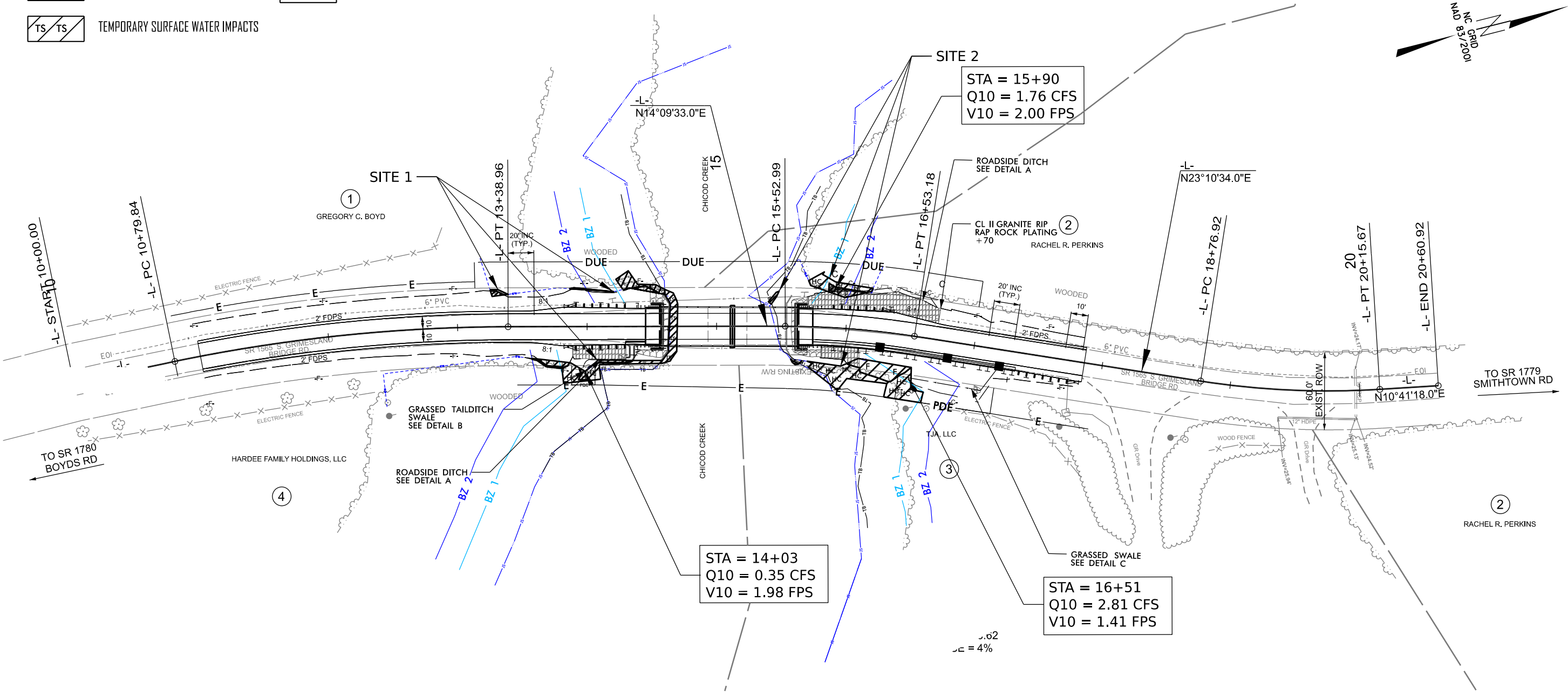
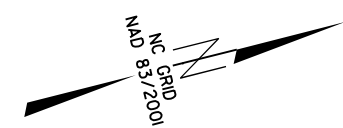
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-  PERMANENT FILL IN WETLANDS
-  EXCAVATION IN WETLANDS
-  PERMANENT SURFACE WATER IMPACTS
-  TEMPORARY SURFACE WATER IMPACTS
-  DENOTES RIP RAP
-  HAND CLEARING
-  MECHANIZED CLEARING

PERMIT DRAWING SHEET 2 OF 7



BP2.R018.1
4ENI 004
ROADWAY DESIGN ENGINEER

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STATE OF NORTH CAROLINA

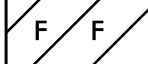

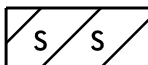
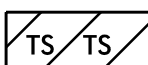

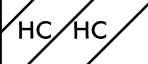

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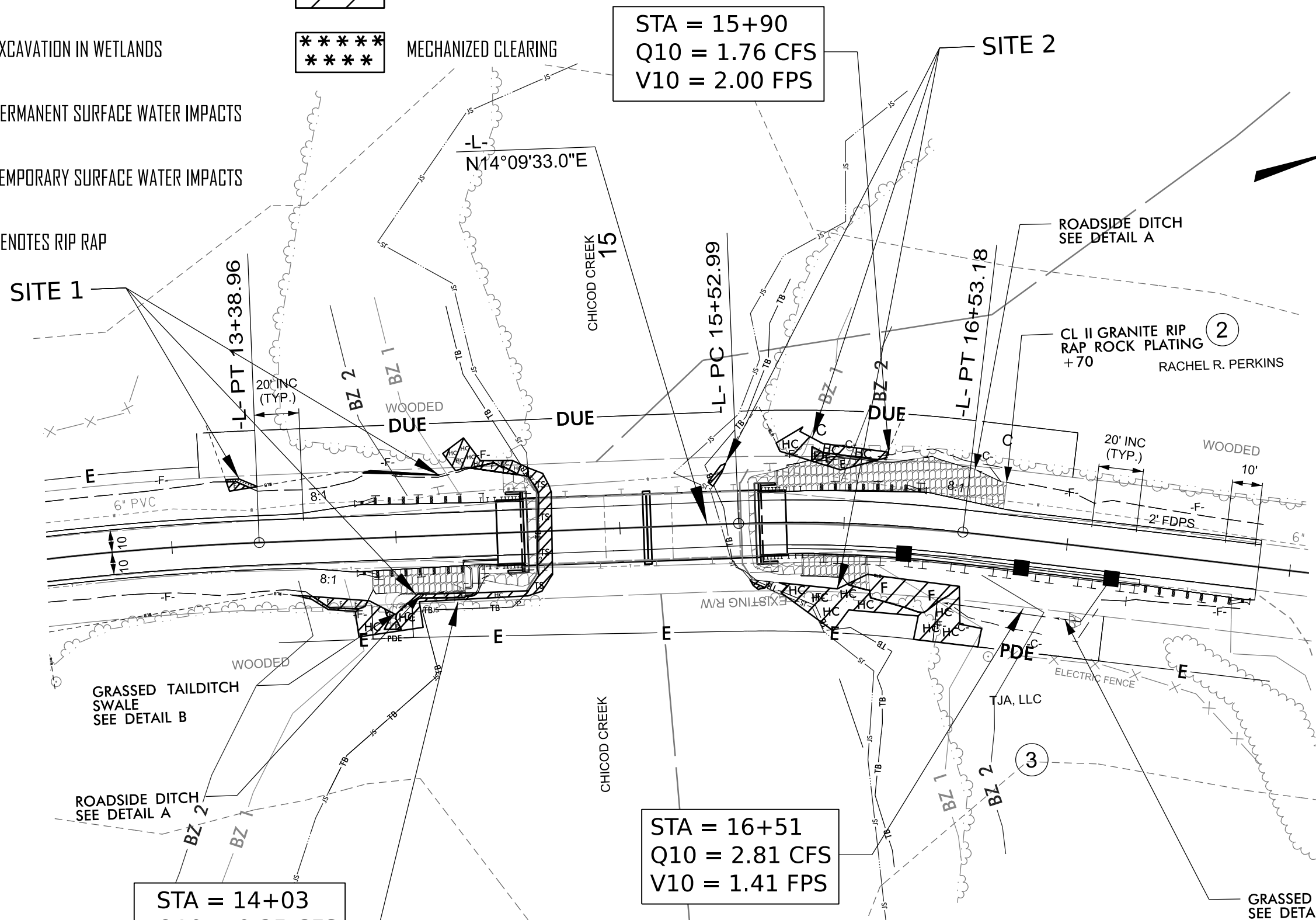
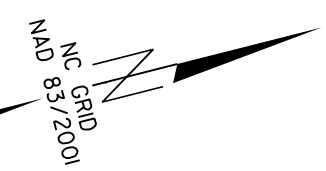
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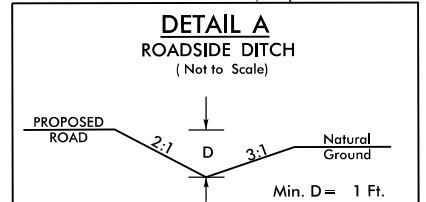


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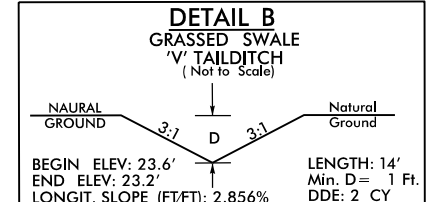
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Q10 = 0.35 CFS
V10 = 1.98 FPS

STA = 16+51
Q10 = 2.81 CFS
V10 = 1.41 FPS

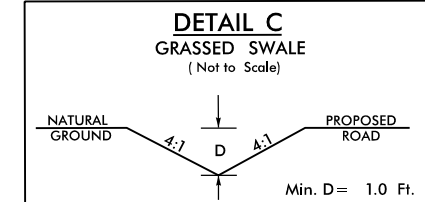
STA = 15+90
Q10 = 1.76 CFS
V10 = 2.00 FPS



FROM -L- STA. 14+03 TO -L- STA. 14+30 -RT-
FROM -L- STA. 15+90 TO -L- STA. 16+80 -LT-



FROM -L- STA. 13+97 TO -L- STA. 14+03 -RT-

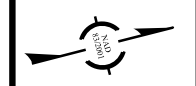


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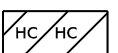
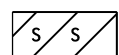
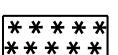
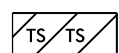
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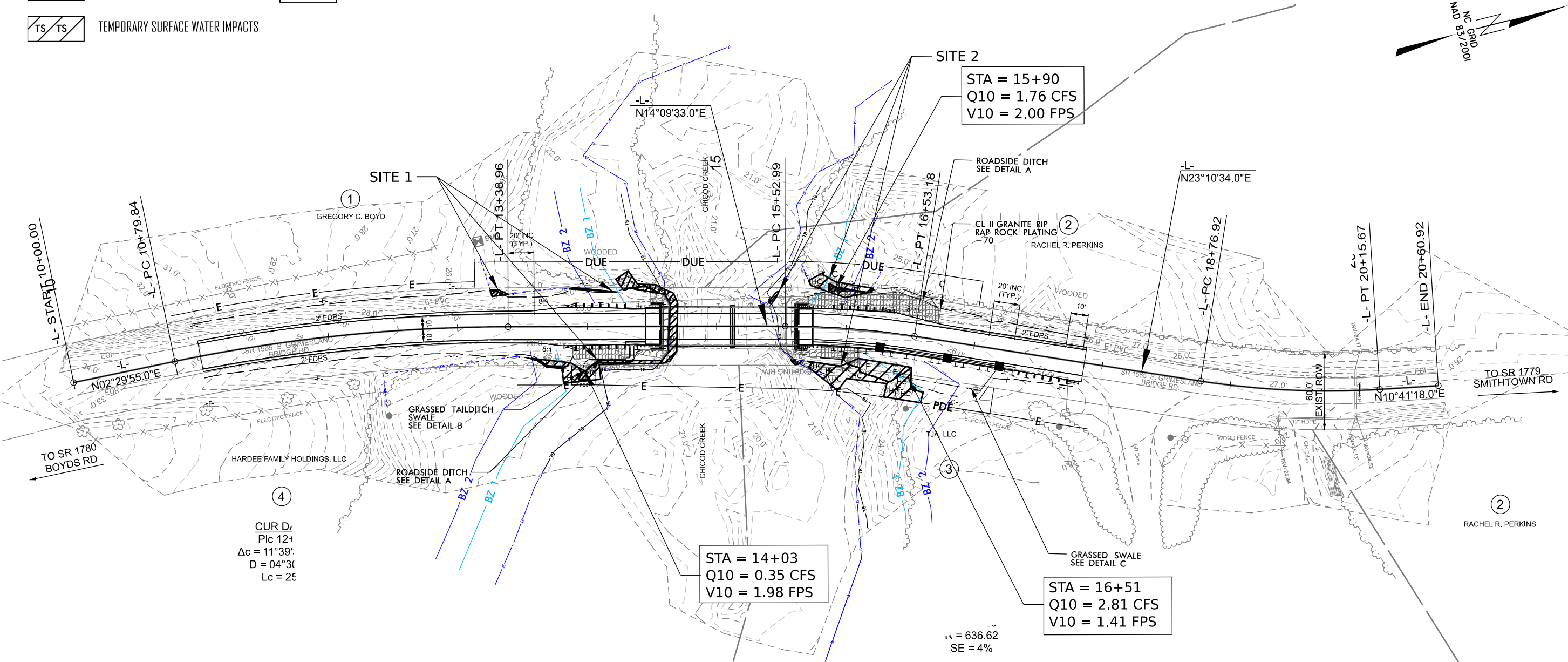
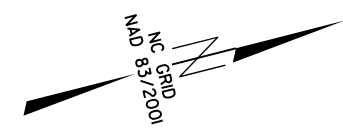
ROADWAY DESIGN UNIT
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Suite 1500
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(919)882-7839



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR A/F ACCEPTANCE

 PERMANENT FILL IN WETLANDS	 DENOTES RIP RAP
 EXCAVATION IN WETLANDS	 HAND CLEARING
 PERMANENT SURFACE WATER IMPACTS	 MECHANIZED CLEARING
 TEMPORARY SURFACE WATER IMPACTS	

PERMIT DRAWING
SHEET 4 OF 7



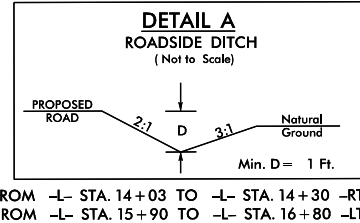
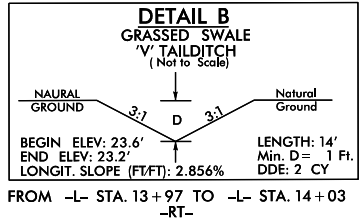
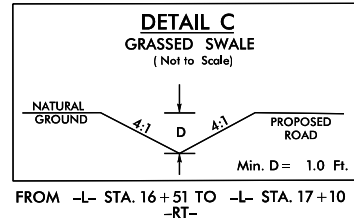
CUR D,
P/c 12+
Δc = 11°39'
D = 04°3'
Lc = 25'

STA = 14+03
Q10 = 0.35 CFS
V10 = 1.98 FPS

STA = 16+51
Q10 = 2.81 CFS
V10 = 1.41 FPS

Δ = 636.62
SE = 4%

- NOTES:
- 1.) ALL BRIDGE GUARDRAIL ANCHOR UNITS ARE TYPE III.
 - 2.) ALL GUARDRAIL ANCHOR UNITS ARE GREU TL-3.
 - 3.) EXISTING PAVEMENT LANE WIDTHS AT THE BEGINNING AND END OF PROJECT ARE APPROXIMATELY 10.0 FT WIDE.
 - 4.) DESIGN EXCEPTION REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS AND HORIZONTAL STOPPING SIGHT DISTANCE.
 - 5.) BENCHMARK INFORMATION:
EASTING: 2538979.9855'
NORTHING: 653782.9415'
ELEVATION: 20.5450'
 - 6.) SEE SHEET 4A FOR R/W AND EASEMENT STATIONING.
 - 7.) SEE SHEET 5 FOR PROFILE.
 - 8.) SEE GENERAL NOTES FOR SEALING TIE IN JOINTS AT BEGIN/END PROJECT.



BP2.R018.1
4ENI 004
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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SHEET 5 OF 7

HYDRAULICS
ENGINEER

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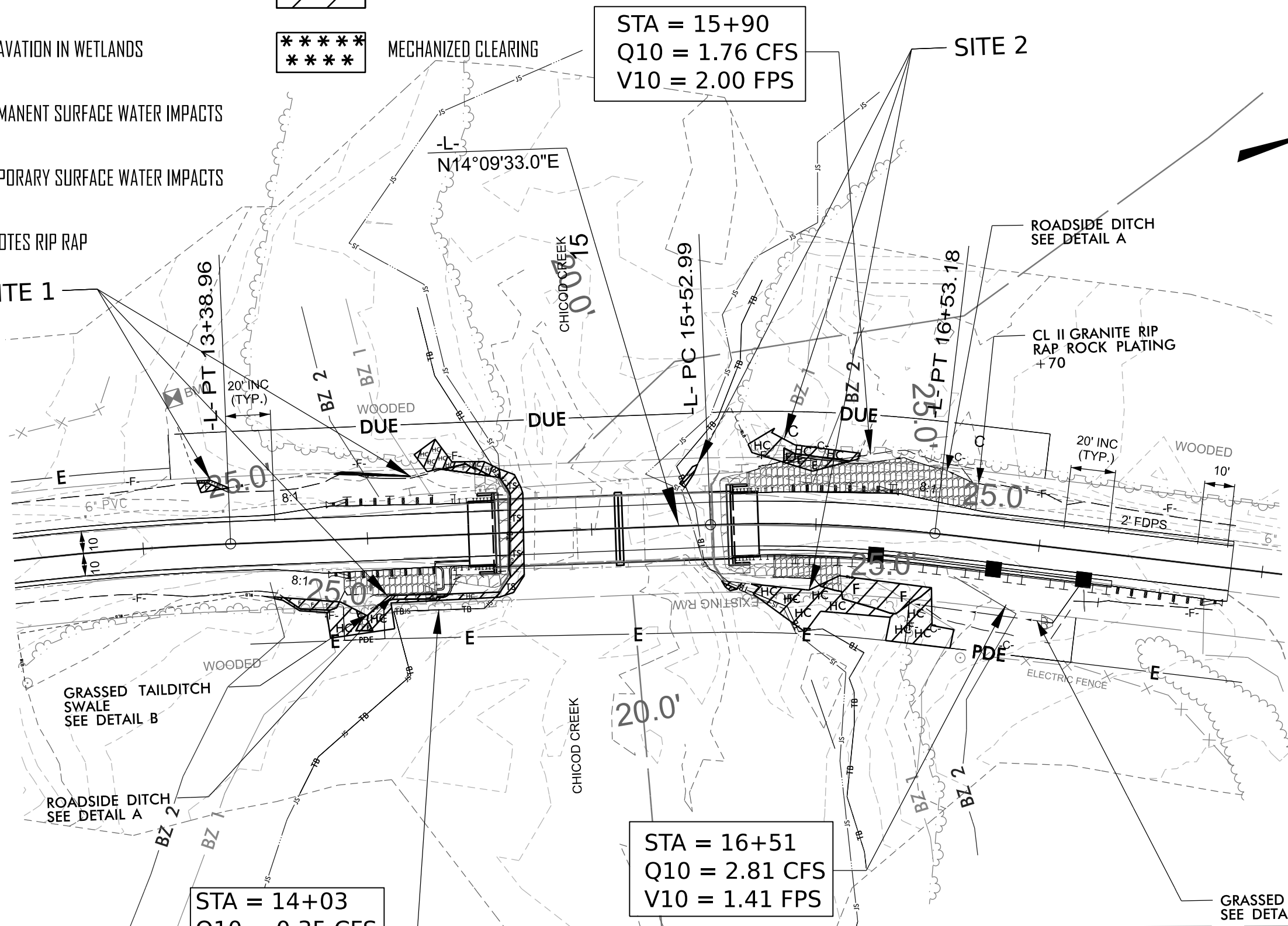
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STA = 15+90
Q10 = 1.76 CFS
V10 = 2.00 FPS

SITE 1

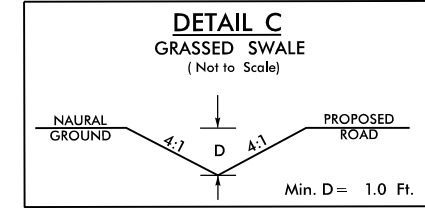
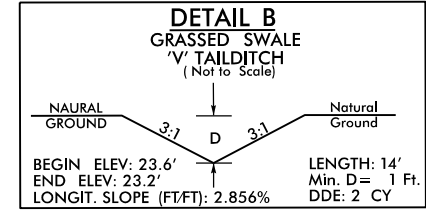
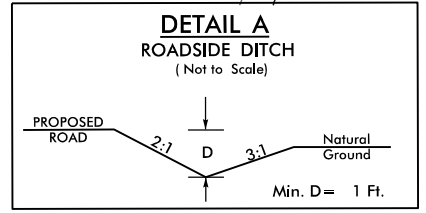
SITE 2



STA = 14+03
Q10 = 0.35 CFS
V10 = 1.98 FPS

STA = 16+51
Q10 = 2.81 CFS
V10 = 1.41 FPS

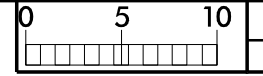
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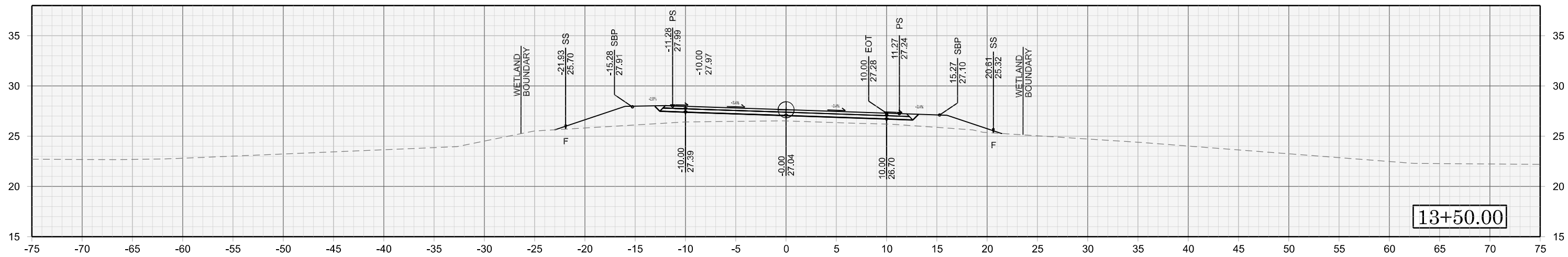
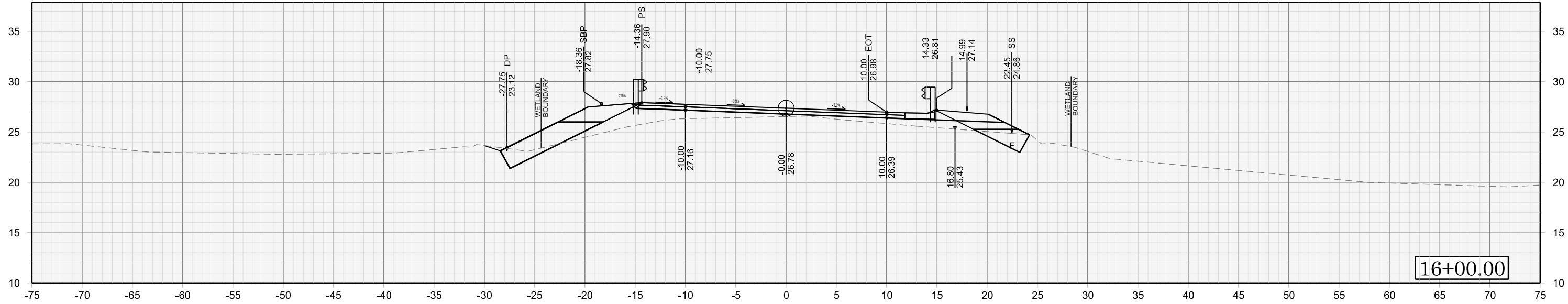
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FROM -L- STA. 15+90 TO -L- STA. 16+80 -LT-

FROM -L- STA. 13+97 TO -L- STA. 14+03
-RT-

FROM -L- STA. 16+51 TO -L- STA. 17+10
-RT-



PERMIT DRAWING
 SHEET 6 OF 7



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	13+26 / 14+56	Roadway Fill	< 0.01			< 0.01	0.01					
1	14+57 / 14+69	Bridge Begin							< 0.01		57	
2	15+57 / 15+68	Bridge End			< 0.01			< 0.01		5		
2	15+85 / 16+54	Roadway Fill	0.01		< 0.01	< 0.01	0.03					
TOTALS*:			0.02		< 0.01	< 0.01	0.04	< 0.01	< 0.01	5	57	0

*Rounded totals are sum of actual impacts

NOTES:

Site 1 Permanent Fill in Wetlands: 240 sq. ft
 Site 1 Mechanized Clearing: 21 sq. ft
 Site 1 Temporary Surface Water Impacts: 345 sq. ft
 Site 2 Excavation in Wetlands (Abutment Excavation):
 Site 2 Permanent Surface Water Impacts: 8 sq. ft
 Site 2 Excavation in Wetlands: 127 sq. ft
 Site 2 Mechanized Clearing: 19 sq. ft

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 10/27/2021

Pitt
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