

I-2513 B & D

Permit
Drawings



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 3.02; Released April 23, 2024)

WBS Element:	34165.3.GV2	TIP/Proj No:	I-2513B&D	County(ies):	Buncombe	Page	1	of	5
General Project Information									
WBS Element:	34165.3.GV2	TIP Number:	I-2513B&D	Project Type:	Other	Date:	8/4/2025		
NCDOT Contact:	Solomon Mengesha			Contractor / Designer:	JV; Archer Wright / RK&K / WSP; Eleni Riggs, PE				
	Address:	Alternative Delivery 1020 Birch Ridge Drive Raleigh, NC 27610				Address:	8601 Six Forks Road Forum 1, Suite 700 Raleigh, NC 27615		
	Phone:	919-707-6616				Phone:	919-878-9560		
	Email:	smengesha@ncdot.gov				Email:	eriggs@rkk.com		
City/Town:	Asheville, NC			County(ies):	Buncombe				
River Basin(s):	French Broad			CAMA County?	No				
Wetlands within Project Limits?	Yes								
Project Description									
Project Length (lin. miles or feet):	2.985 miles		Surrounding Land Use:	Commercial and residential					
Proposed Project									
Project Built-Upon Area (ac.)	122.6		ac.	Existing Site					
Typical Cross Section Description:	A typical cross-section includes (3) 12-foot lanes in either direction with a minimum 23-foot paved median (minimum 10-foot inside shoulders). Outside shoulders are 12-15 feet.			A typical cross-section includes (2) approximately 12-foot lanes in either direction with an approximately 16.5-foot paved median (approximately 6.5-foot inside shoulders). Outside shoulders are approximately 10 feet.					
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	126,800	Year:	2045	Existing:	93,650	Year:	2025	
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The design-build project, I-2513B&D, improves the existing I-240 and I-26 corridor from south of Haywood Road to south of NC 251/SR 1781 (Broadway Street) as well as improve SR 1477 (Riverside Drive) from SR 1517 (Hill Street) to NC 251 (Broadway Street). The project will construct a 55 mph facility with a re-configured interchange between I-240, I-26 and SR 3548 (Patton Avenue). The project adds 12 new bridge locations, eliminates one bridge and reconstructs one bridge. The beginning of the project ties into the I-2513A&C project south of the Haywood Road interchange. Design Minimizations for wetlands and streams include: 1. Steepening of roadway fill slopes within jurisdictional areas. 2. Stormwater was designed to avoid direct discharge into jurisdictional features to the maximum extent practicable. 3. Stormwater design velocities entering jurisdictional features have been reduced to be non-erosive (less than 2 fps). 4. Open shoulder sections were maximized to promote sheet flow from the roadway. 5. Diffuse flow provided at outlets that do not have a well defined outfall. I-2513B&D has (13) major crossings consisting of (11) bridges over French Broad River, Smith Mill Creek and Emma Branch and (2) existing reinforced concrete box culverts that are being retained. Drainage outfalls along the project have been analyzed to verify stability and countersunk Class I & Class II riprap pads or riprap lined ditches have been incorporated at the outlet of jurisdictional crossings. Bank stabilization with Class I riprap keyed into the bank has been proposed at several outfall locations to provide stability along the banks. Due to topography and site constraints, stormwater detention basins are not anticipated at this time along the project corridor.								



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General Project Information

Waterbody Information

Surface Water Body (1):	UT1B to Smith Mill Creek		NCDWR Stream Index No.:	6-79	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SG		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					
Surface Water Body (2):	UT2B to Smith Mill Creek		NCDWR Stream Index No.:	6-79	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SU		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					
Surface Water Body (3):	Smith Mill Creek		NCDWR Stream Index No.:	6-79	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SR		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
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)					



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Additional Waterbody Information

Surface Water Body (4):	UT3B to Smith Mill Creek		NCDWR Stream Index No.:	6-79	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SS		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Surface Water Body (5):	UT4B to Smith Mill Creek [Emma Branch]		NCDWR Stream Index No.:	6-79-2	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SP		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
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)					

Surface Water Body (6):	French Broad River		NCDWR Stream Index No.:	6-(54.75)	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class B		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	fecal coliform				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SA		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
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)					

Surface Water Body (7):	UT3B to French Broad River		NCDWR Stream Index No.:	6-(54.75)	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class B		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SO		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					



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Additional Waterbody Information

Surface Water Body (8):	UT6B to French Broad River	NCDWR Stream Index No.:	6-(54.75)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class B	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?		Comments:	
NRTR Stream ID:	SM	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			

Surface Water Body (9):	UT5B to French Broad River	NCDWR Stream Index No.:	6-(54.75)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class B	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:			
Aquatic T&E Species?		Comments:	
NRTR Stream ID:	SL	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			

Surface Water Body (10):	UT2B to French Broad River	NCDWR Stream Index No.:	6-(54.75)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class B	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:			
Aquatic T&E Species?		Comments:	
NRTR Stream ID:	SI	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			

Surface Water Body (11):	UT4B to French Broad River	NCDWR Stream Index No.:	6-(54.75)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class B	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:			
Aquatic T&E Species?		Comments:	
NRTR Stream ID:	SK	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			



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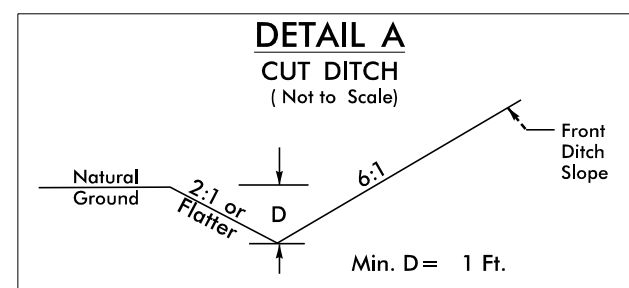
WBS Element:	34165.3.GV2	TIP No.:	I-2513B&D	County(ies):	Buncombe	Page	5	of	5	
Additional Waterbody Information										
Surface Water Body (12):	Reed Creek			NCDWR Stream Index No.:	6-80					
NCDWR Surface Water Classification for Water Body		Primary Classification:		Class C						
		Supplemental Classification:		None						
Other Stream Classification:	None									
Impairments:										
Aquatic T&E Species?			Comments:							
NRTR Stream ID:	SJ				Buffer Rules in Effect:		N/A			
Project Includes Bridge Spanning Water Body?	No		Deck Drains Discharge Over Buffer?		N/A		Dissipator Pads Provided in Buffer?		N/A	
Deck Drains Discharge Over Water Body?		N/A		(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)				
(If yes, provide justification in the General Project Narrative)										
Surface Water Body (13):	UT7B to French Broad			NCDWR Stream Index No.:	6-(54.75)					
NCDWR Surface Water Classification for Water Body		Primary Classification:		Class B						
		Supplemental Classification:		None						
Other Stream Classification:	None									
Impairments:	None									
Aquatic T&E Species?			Comments:							
NRTR Stream ID:	ST				Buffer Rules in Effect:		N/A			
Project Includes Bridge Spanning Water Body?	No		Deck Drains Discharge Over Buffer?		N/A		Dissipator Pads Provided in Buffer?		N/A	
Deck Drains Discharge Over Water Body?		N/A		(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)				
(If yes, provide justification in the General Project Narrative)										
Surface Water Body (14):				NCDWR Stream Index No.:						
NCDWR Surface Water Classification for Water Body		Primary Classification:								
		Supplemental Classification:								
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?			Comments:							
NRTR Stream ID:					Buffer Rules in Effect:					
Project Includes Bridge Spanning Water Body?			Deck Drains Discharge Over Buffer?				Dissipator Pads Provided in Buffer?			
Deck Drains Discharge Over Water Body?				(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)				
(If yes, provide justification in the General Project Narrative)										
Surface Water Body (15):				NCDWR Stream Index No.:						
NCDWR Surface Water Classification for Water Body		Primary Classification:								
		Supplemental Classification:								
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?			Comments:							
NRTR Stream ID:					Buffer Rules in Effect:					
Project Includes Bridge Spanning Water Body?			Deck Drains Discharge Over Buffer?				Dissipator Pads Provided in Buffer?			
Deck Drains Discharge Over Water Body?				(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)										

10/22/2025
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eriggs

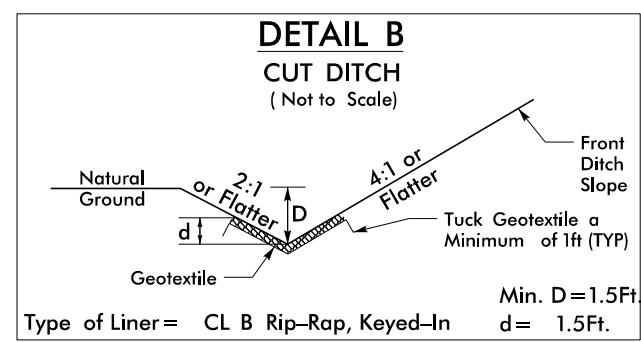
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The seal of the North Carolina Department of Transportation is a circular emblem. It features a stylized black silhouette of the state of North Carolina in the center. The words "STATE OF NORTH CAROLINA" are written in a circle around the top, and "DEPARTMENT OF TRANSPORTATION" is written around the bottom. A small star is located on the right side of the seal, between the top and bottom text.

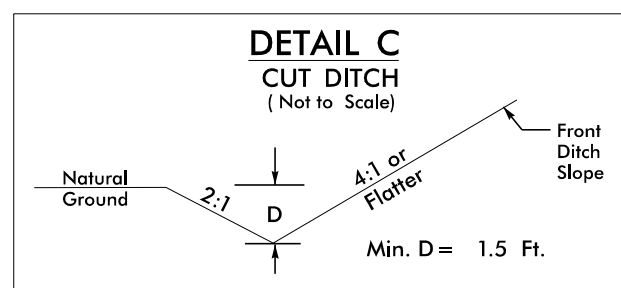
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		2D-1	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 2 OF 85			



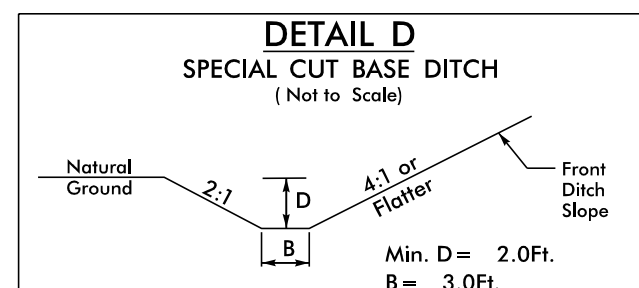
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 -240- STA. 23+50 TO STA. 26+50 LT
 -240- STA. 26+50 TO STA. 28+00 LT
 -240- STA. 32+75 TO STA. 36+00 LT



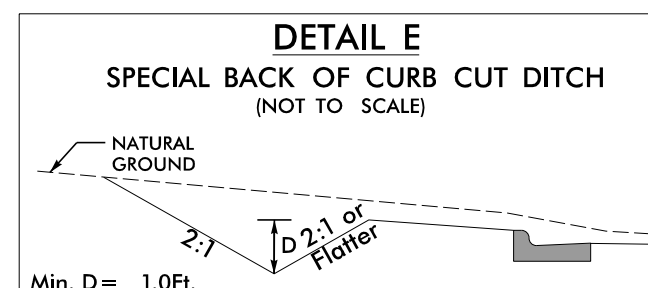
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 -240- STA. 28+50 TO STA. 38+50 RT



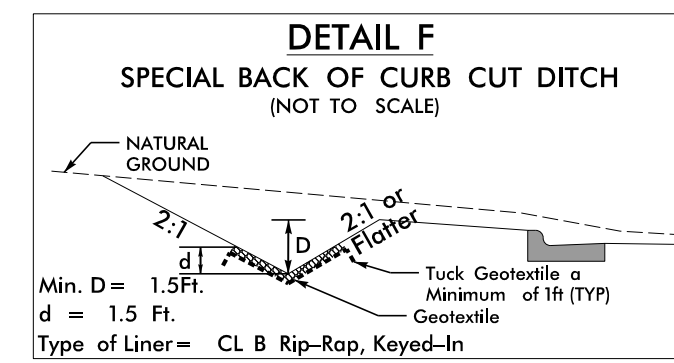
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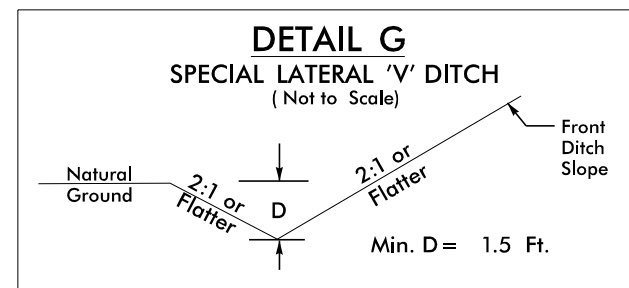
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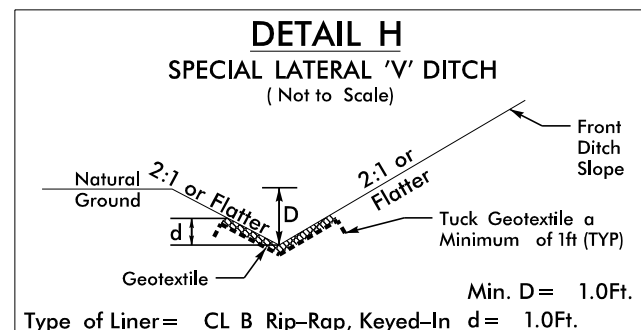
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 -Y28- STA. 10+50 TO STA. 13+40 RT
 -LB- STA. 88+00 TO STA. 89+90 RT
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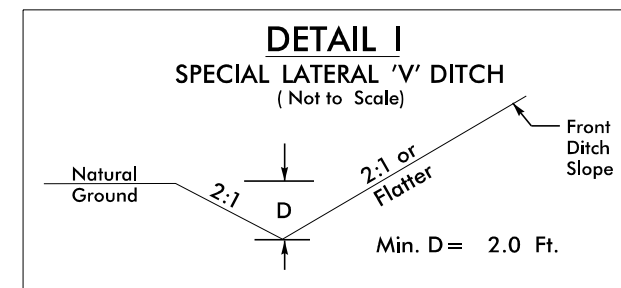
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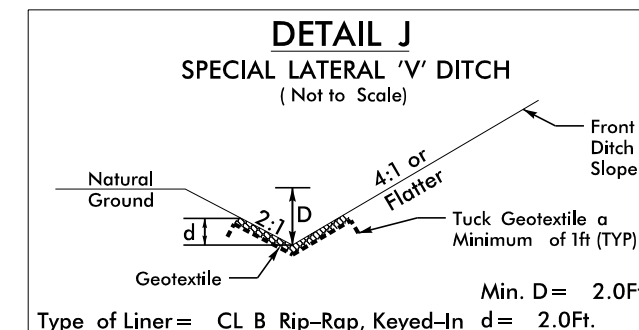
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 -Y36- STA. 15+00 TO STA. 16+27 RT
 -Y7 EB- STA. 62+00 TO STA. 66+00 RT
 -240- STA. 17+00 TO STA. 19+73 RT
 -Y25A- STA. 13+50 TO STA. 16+00 LT



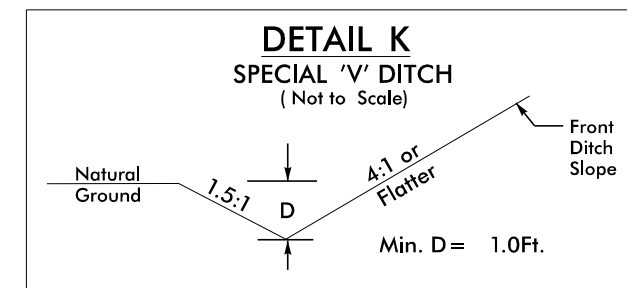
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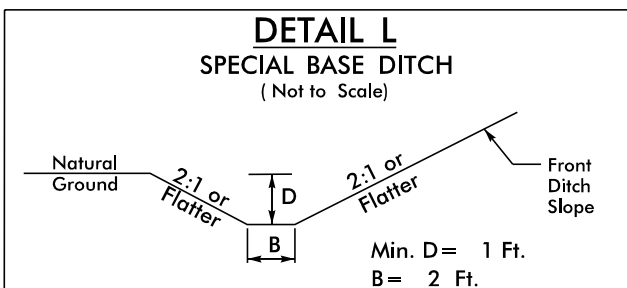
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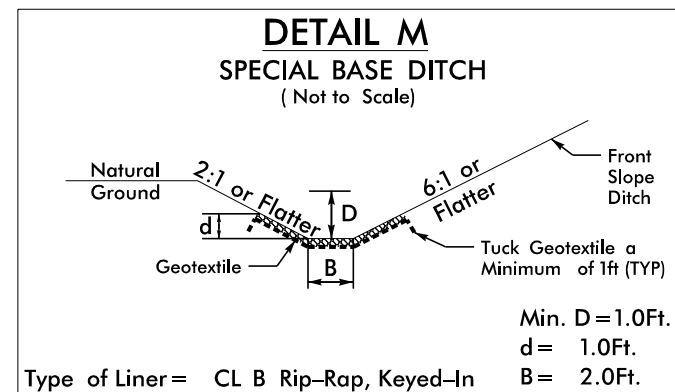
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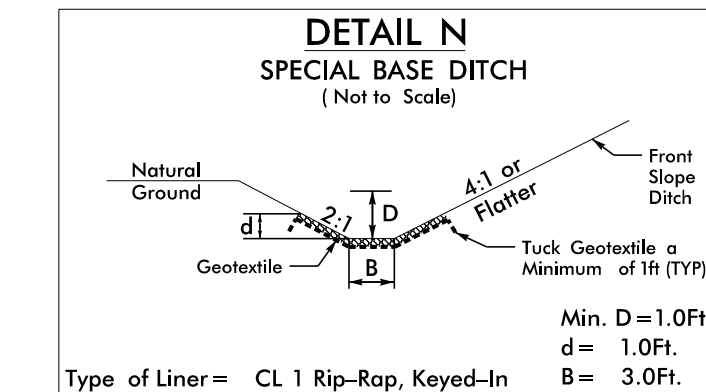
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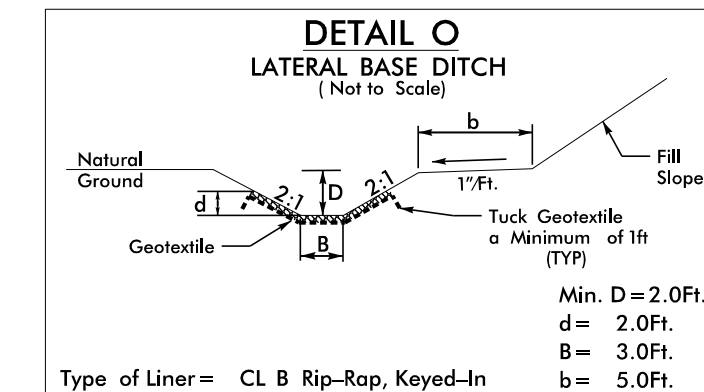
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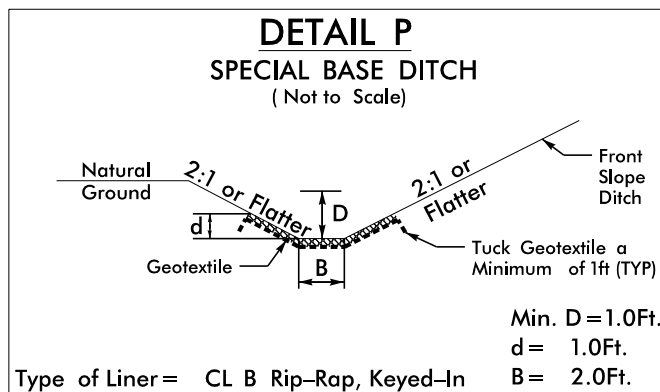
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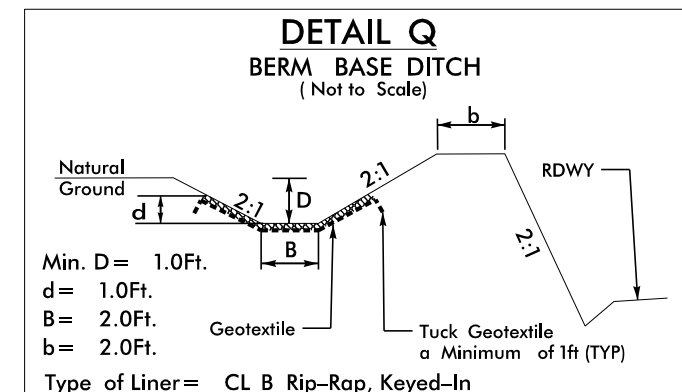
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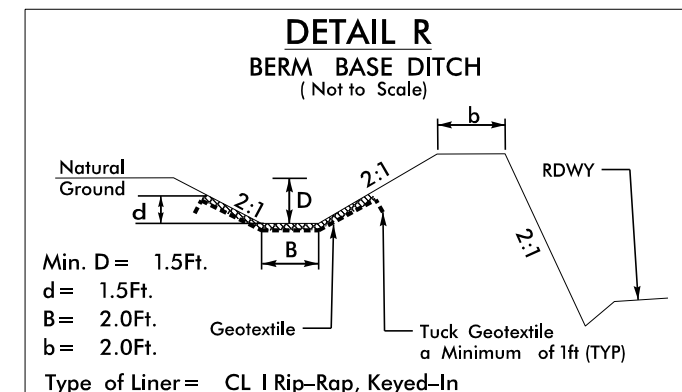
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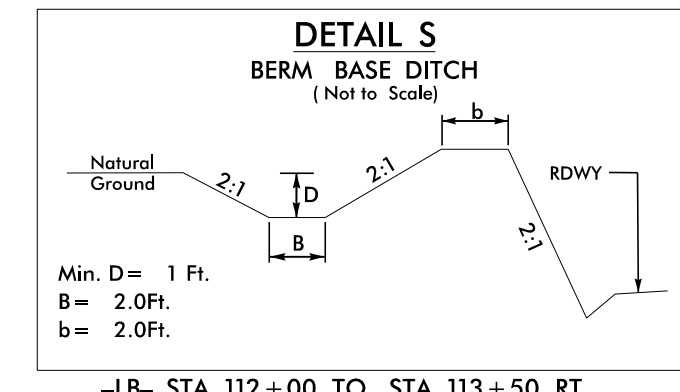
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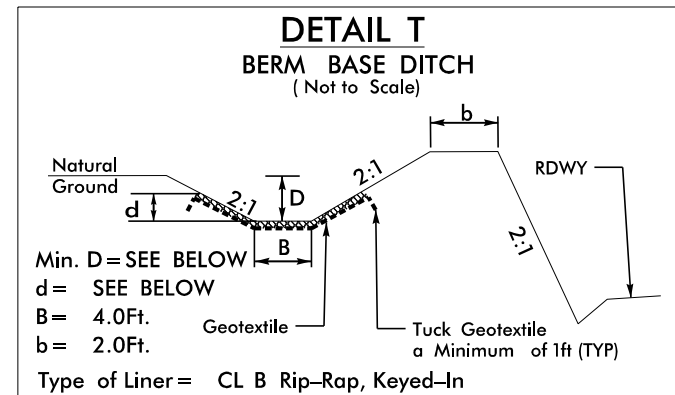
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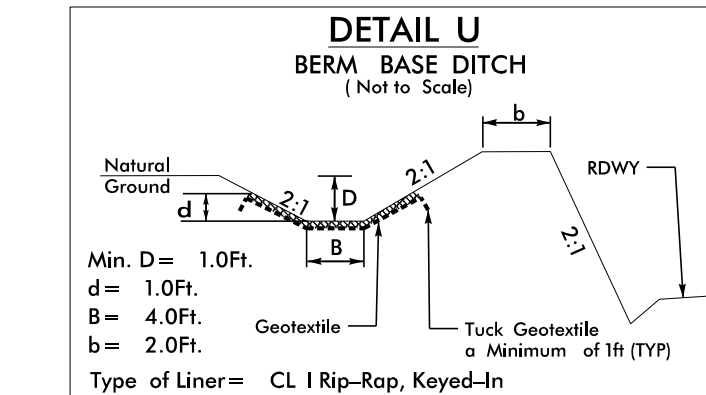
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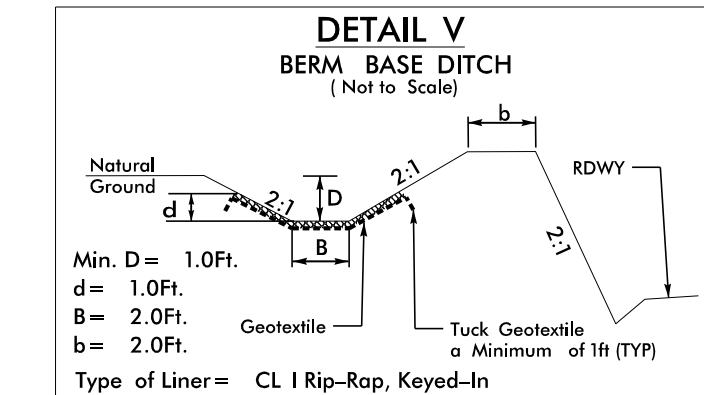
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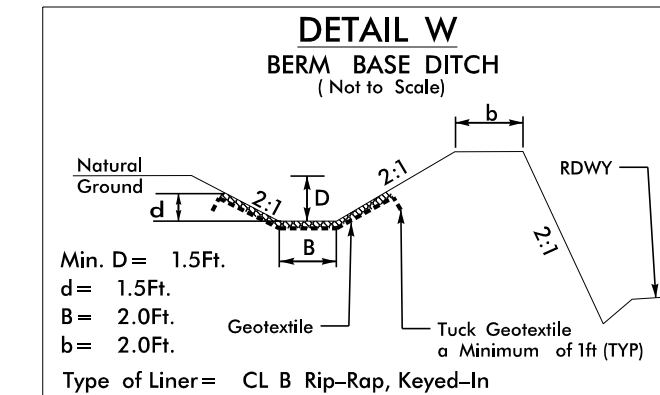
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 -LB- STA. 102+50 TO STA. 103+00 RT; D/d=1.0'
 -LB- STA. 119+00 TO STA. 119+50 RT; D/d=1.0'



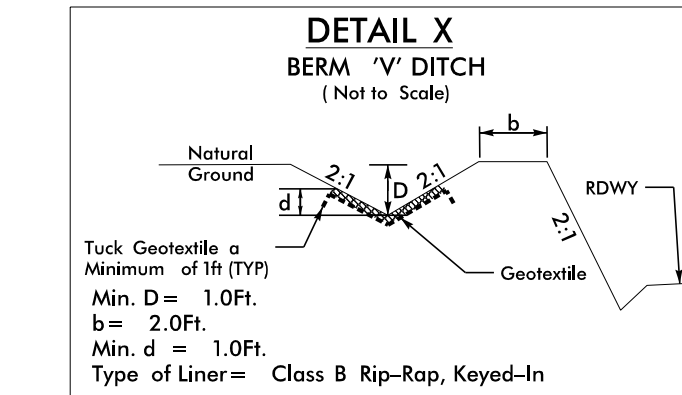
Type of Liner = CL I Rip-Rap, Keyed-In
 -LB- STA. 103+00 TO STA. 104+80 RT



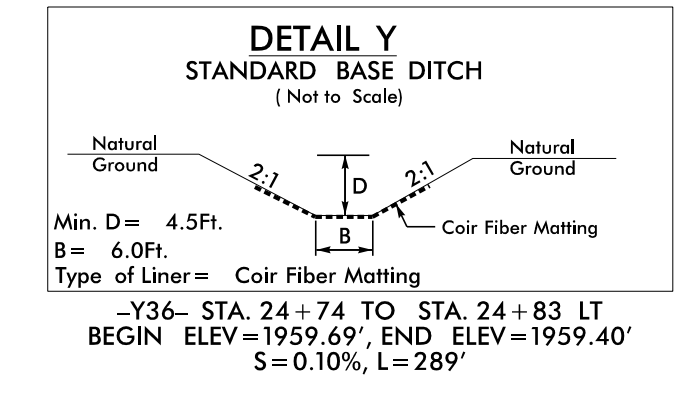
Type of Liner = CL I Rip-Rap, Keyed-In
 -LB- STA. 116+50 TO STA. 117+50 RT



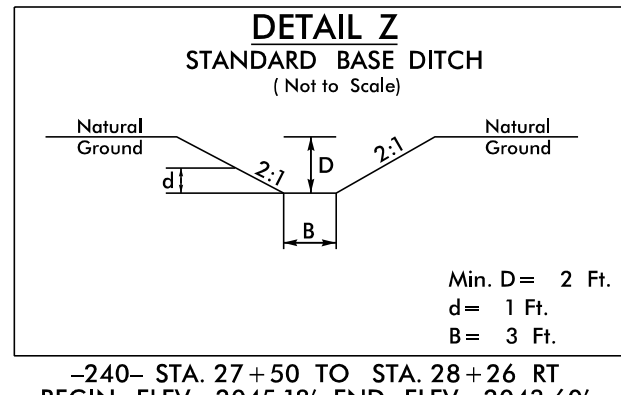
Type of Liner = CL B Rip-Rap, Keyed-In
 -LB- STA. 117+50 TO STA. 119+00 RT
 -LB- STA. 125+50 TO STA. 127+00 RT



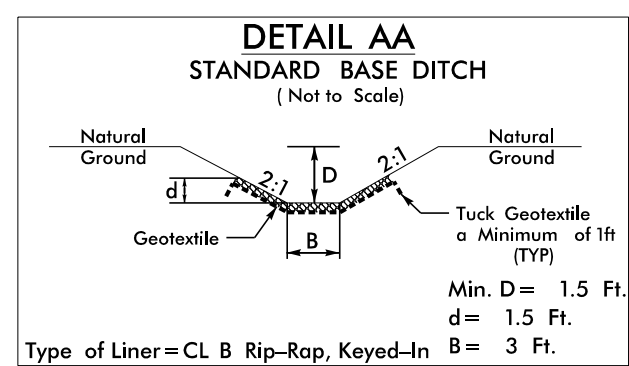
Type of Liner = Class B Rip-Rap, Keyed-In
 -LB- STA. 101+50 TO STA. 102+50 RT



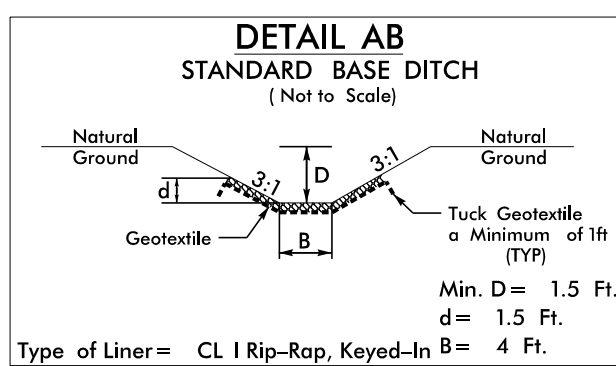
Type of Liner = Coir Fiber Matting
 -Y36- STA. 24+74 TO STA. 24+83 LT
 BEGIN ELEV = 1959.69', END ELEV = 1959.40'
 S = 0.10%, L = 289'



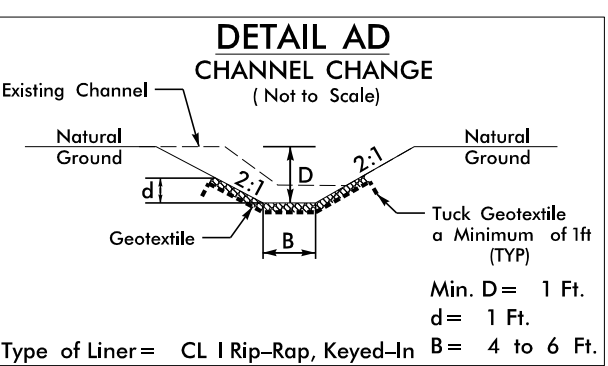
-240- STA. 27+50 TO STA. 28+26 RT
 BEGIN ELEV = 2045.18', END ELEV = 2043.60'
 S = 0.85%, L = 186'



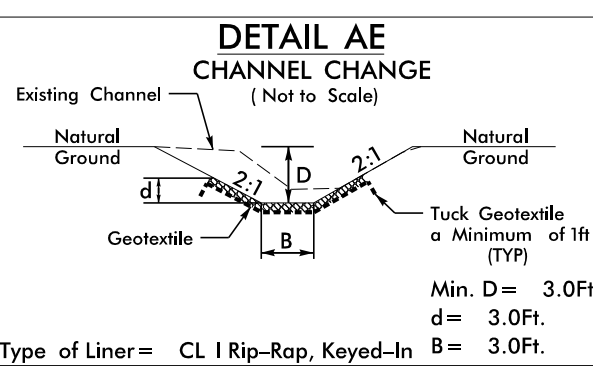
Type of Liner = CL B Rip-Rap, Keyed-In
 -Y7 EB- STA. 66+80 RT, L = 500', S = 4.80%
 BEGIN ELEV = 2080.00', END ELEV = 2056.00'



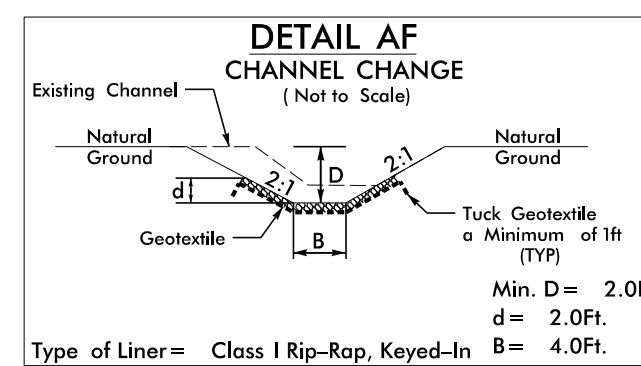
-Y24- STA. 18+96 RT, L = 40', S = 6.3%
 BEGIN ELEV = 1990.0', END ELEV = 1992.5'
 -Y7- STA. 25+00 LT, L = 240', S = 3.75%
 BEGIN ELEV = 2000.0', END ELEV = 2009.0'
 -Y7- STA. 25+00 LT, L = 169', S = 11.8%
 BEGIN ELEV = 2000.0', END ELEV = 2020.0'
 -Y36- STA. 12+00 RT, L = 149', S = 6.01%
 BEGIN ELEV = 1980.00', END ELEV = 1971.05'



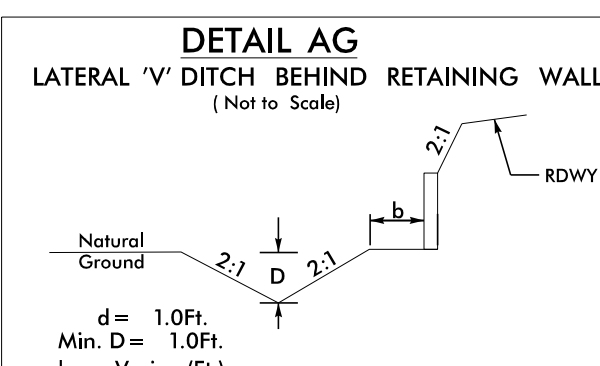
-23NB- STA. 41+00 RT, L = 30', S = 23.0%
 BEGIN ELEV = 1993.00, END ELEV = 1986.10
 -23NB- STA. 29+30 RT, L = 15', S = 3.43%
 BEGIN ELEV = 1970.15, END ELEV = 1969.65



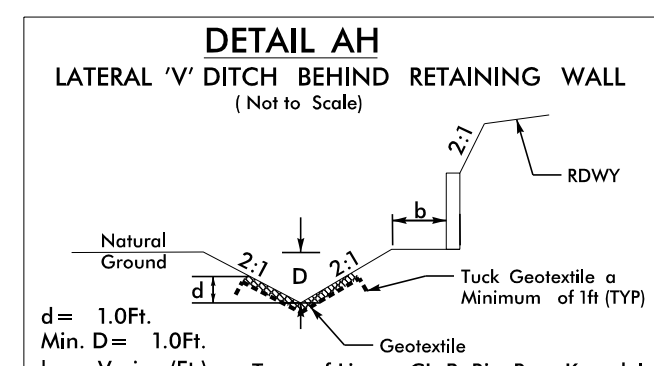
-Y36- STA. 18+14 TO STA. 18+32 LT
 BEGIN ELEV = 1961.56, END ELEV = 1960.00
 S = 0.42%, L = 370'



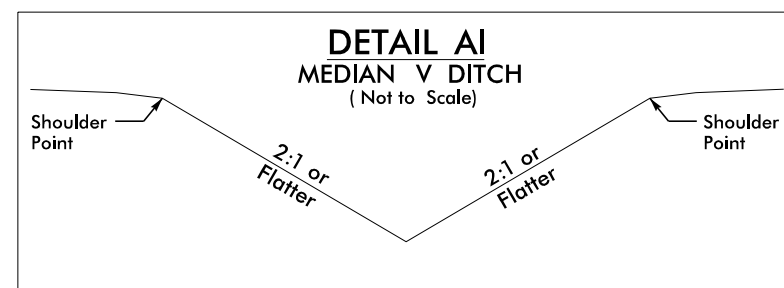
-LB- STA. 127+70 TO STA. 127+85 RT
 BEGIN ELEV = 1986.63, END ELEV = 1985.50
 S = 3.53%, L = 32'
 -LB- STA. 122+45 TO STA. 122+55 LT
 BEGIN ELEV = 1956.53, END ELEV = 1954.95
 S = 1.48%, L = 107'
 -LB- STA. 106+40 TO STA. 106+47 LT
 BEGIN ELEV = 1960.19, END ELEV = 1959.51,
 S = 0.36%, L = 190'



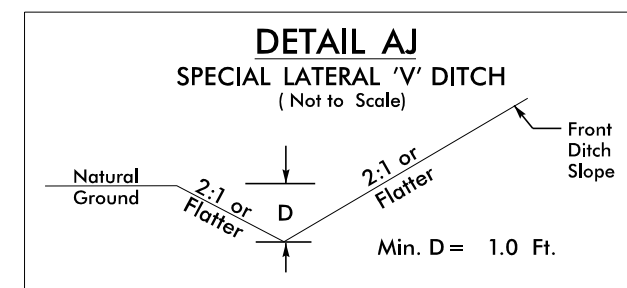
-LB- STA. 90+50 TO STA. 91+36 RT



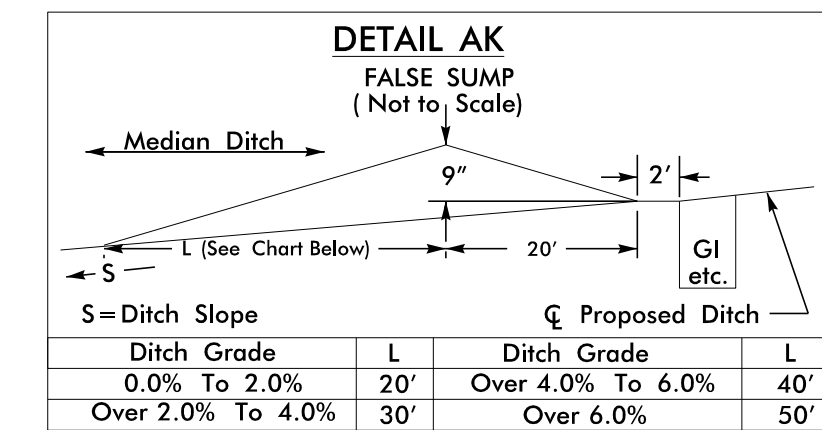
Type of Liner = CL B Rip-Rap, Keyed-In
 -LB- STA. 89+44 TO STA. 90+50 RT



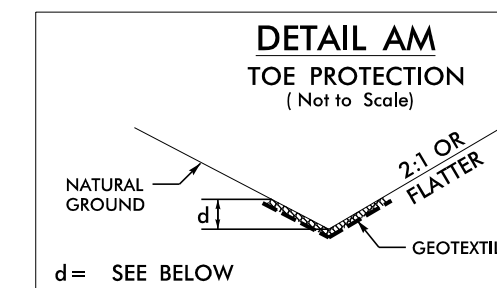
-LB- STA. 69+50 TO STA. 71+00 RT
 -Y24- STA. 16+00 TO STA. 16+50 RT
 -Y7RPC REV2- STA. 27+50 TO STA. 32+50 RT
 -LB- STA. 111+00 TO STA. 112+75 MED
 -LB- STA. 112+75 TO STA. 141+50 MED



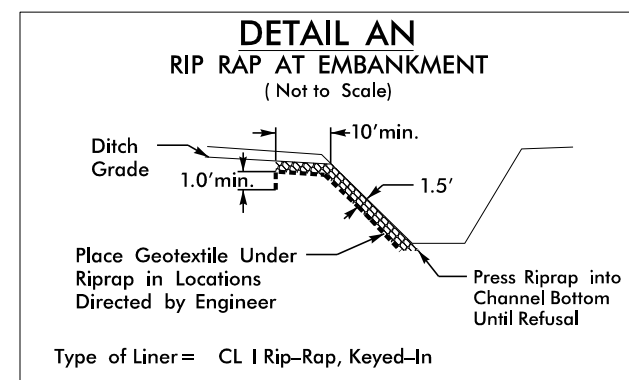
-23SB- STA. 89+50 TO STA. 93+95 RT
 -23SB- STA. 93+95 TO STA. 96+27 RT
 -23SB- STA. 96+27 TO STA. 98+00 RT
 -240- STA. 14+00 TO STA. 15+00 RT
 -240- STA. 16+50 TO STA. 17+43 RT



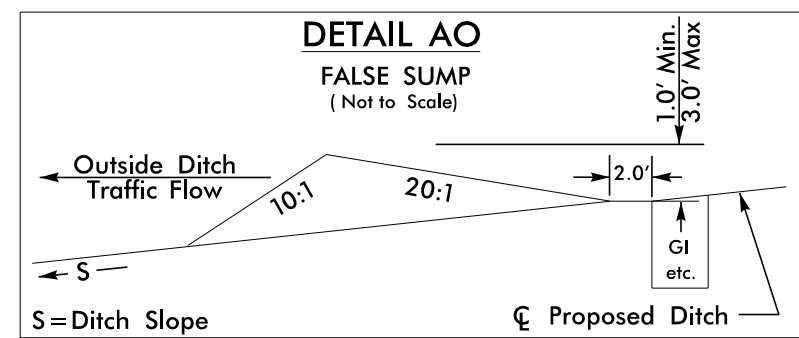
-LB- STA. 113+84 M
 -LB- STA. 117+30 M
 -LB- STA. 119+35 M
 -LB- STA. 122+83 M
 -LB- STA. 127+45 M
 -LB- STA. 129+85 M
 -LB- STA. 132+86 M
 -LB- STA. 134+34 M
 -LB- STA. 137+34 M
 -LB- STA. 139+35 M



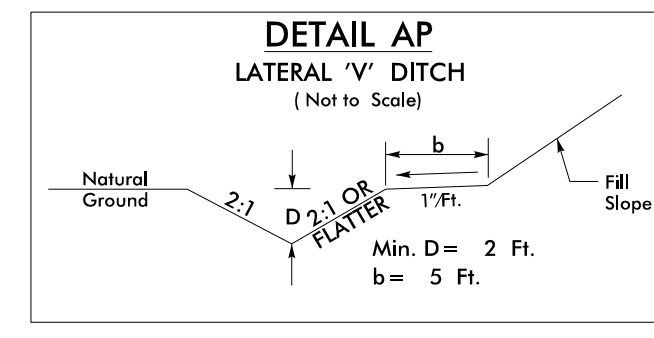
Type of Liner = CLASS I Rip-Rap
 -Y24- STA. 19+50 TO STA. 22+50 LT, d=2.0'
 -LB- STA. 105+00 TO STA. 106+60 RT, d=1.0'
 -LB- STA. 127+03 TO STA. 127+47 RT, d=1.0'
 -Y7 EAST REV2- STA. 80+00 TO STA. 82+00 RT, d=1.0'
 -Y25A REV2- STA. 28+20 TO STA. 29+90 LT, d=1.0'
 -Y7 EB- STA. 65+90 TO STA. 67+00 LT, d=1.0'
 -Y7 WB- STA. 61+17 TO STA. 63+41 LT, d=1.0'
 -23NB- STA. 18+65 TO STA. 19+65 RT, d=1.0'



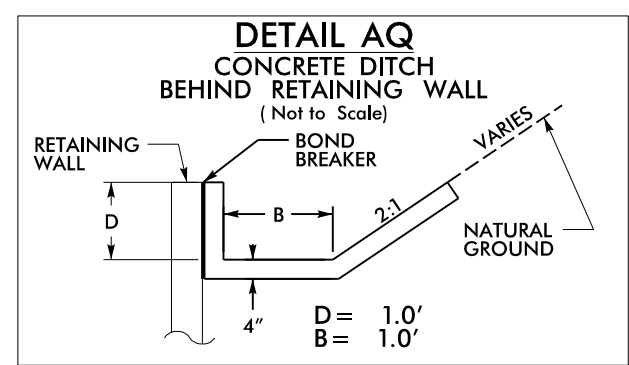
Type of Liner = CL I Rip-Rap, Keyed-In
 -Y25C2- STA. 11+45 LT
 -Y25C2- STA. 15+96 LT
 -Y25C2- STA. 16+08 LT
 -23NB- STA. 38+87 RT
 -23NB- STA. 38+95 RT
 -Y36 REV2- STA. 86+96 LT
 -LB- STA. 106+69 RT



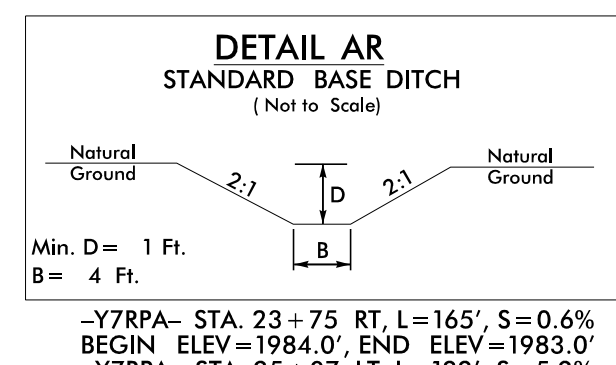
-240- STA. 21+13 LT
 -240- STA. 23+38 LT
 -240- STA. 24+00 RT
 -240- STA. 24+90 LT
 -240- STA. 26+38 LT
 -240- STA. 28+46 RT
 -240- STA. 32+63 LT
 -240- STA. 34+38 LT
 -240- STA. 36+13 LT
 -Y7 WB- STA. 68+06 LT
 -Y7 EB- STA. 61+89 RT
 -Y36- STA. 16+40 RT
 -LB- STA. 104+93 RT
 -LB- STA. 127+06 RT



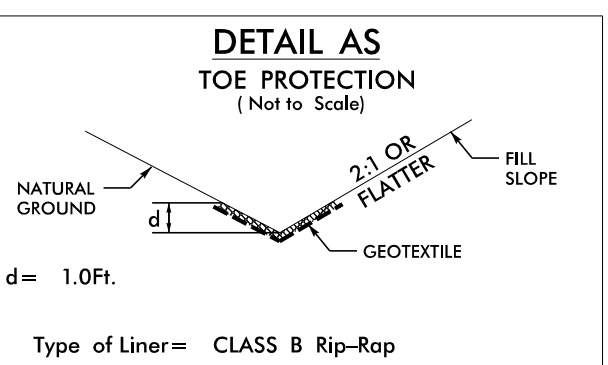
-Y7- STA. 70+00 TO STA. 77+50 LT



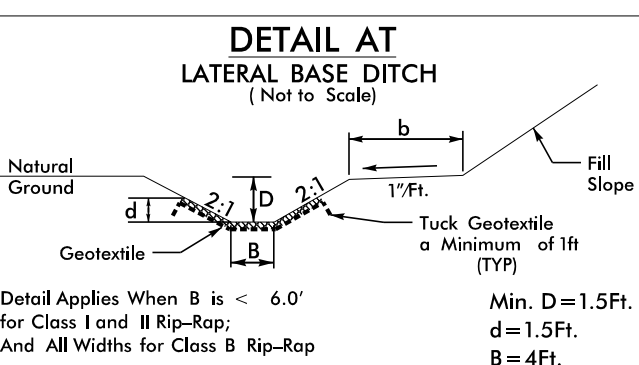
-Y7- STA. 17+50 TO STA. 19+00 LT



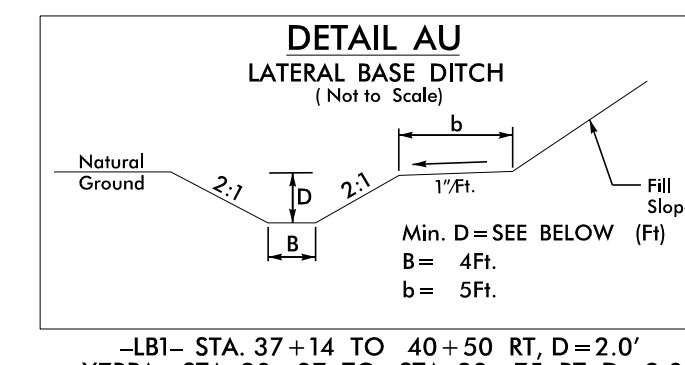
-Y7RPA- STA. 23+75 RT, L = 165', S = 0.6%
 BEGIN ELEV = 1984.0', END ELEV = 1983.0'
 -Y7RPA- STA. 25+07 LT, L = 122', S = 5.2%
 BEGIN ELEV = 1983.0', END ELEV = 1989.3'
 -Y7RPD- STA. 16+00 LT, L = 151', S = 1.7%
 BEGIN ELEV = 1986.0', END ELEV = 1983.5'

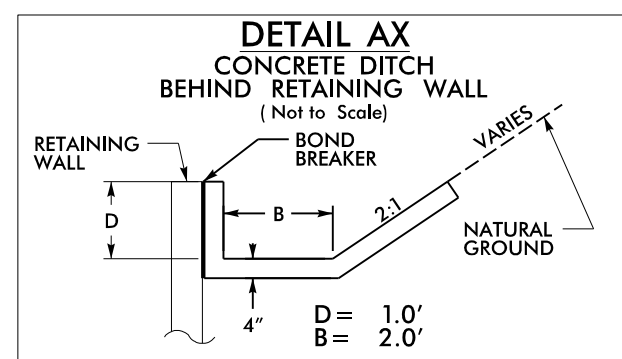


Type of Liner = CLASS B Rip-Rap
 -Y7- STA. 26+25 TO STA. 27+00 RT
 -Y7RPA- STA. 10+35 TO STA. 11+81 RT
 -Y7RPD- STA. 12+00 TO STA. 12+50 LT
 -Y7RPD- STA. 13+00 TO STA. 16+85 RT
 -MUPI- STA. 45+11 TO STA. 47+32 RT

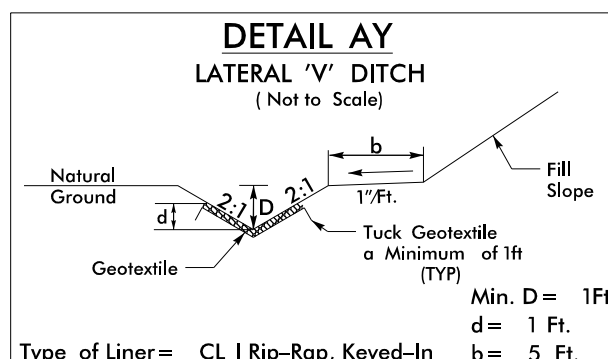


Detail Applies When B is < 6.0'
 for Class I and II Rip-Rap;
 And All Widths for Class B Rip-Rap
 Type of Liner = SEE BELOW, Keyed-In
 -LB1- STA. 40+50 TO STA. 41+50 RT, CL I
 -Y7RPA- STA. 15+23 TO STA. 19+88 RT, CL I
 -Y7RPA- STA. 19+88 TO STA. 20+37 RT, CL B
 -Y7- STA. 29+00 TO -Y7EB- STA. 37+72 RT, CL I

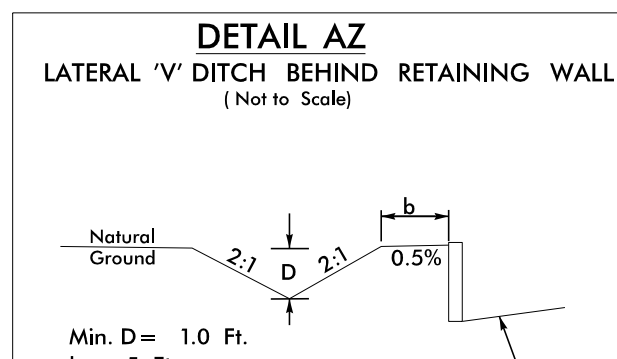




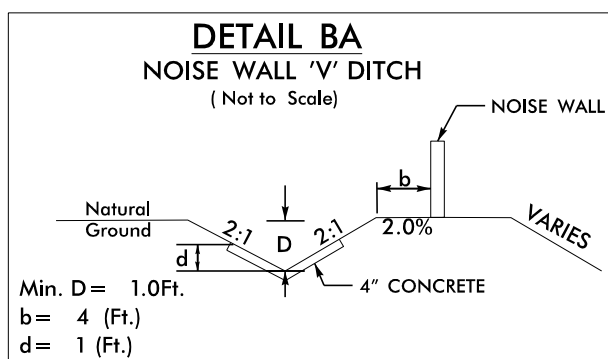
-LB1- STA. 18 + 50 TO STA. 21 + 00 RT
 -LB1- STA. 22 + 00 TO STA. 24 + 50 LT
 -LB1- STA. 26 + 00 TO STA. 29 + 00 LT
 -LB1- STA. 28 + 50 TO STA. 30 + 00 RT
 -LB1- STA. 29 + 50 TO STA. 30 + 50 LT
 -MUPI- STA. 12 + 80.57 TO STA. 13 + 20 RT
 -Y43- STA. 17 + 58 TO STA. 18 + 50 RT
 -Y43- STA. 20 + 61 TO STA. 21 + 40 RT



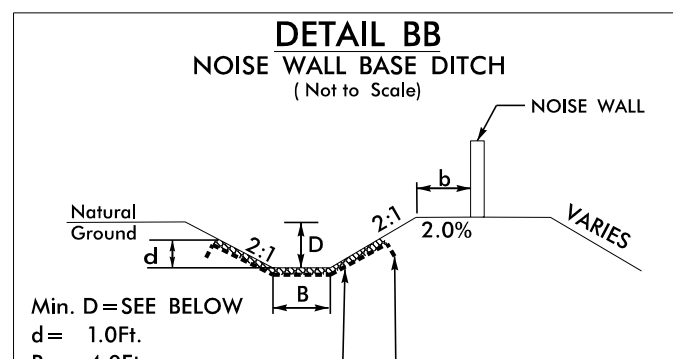
-LB1- STA. 10+00 TO STA. 12+50 RT



-LB1-	STA. 21+50	TO	STA. 24+75	LT
-LB1-	STA. 26+00	TO	STA. 29+00	LT
-LB1-	STA. 21+43	TO	STA. 24+15	RT
-LB1-	STA. 25+50	TO	STA. 28+00	RT

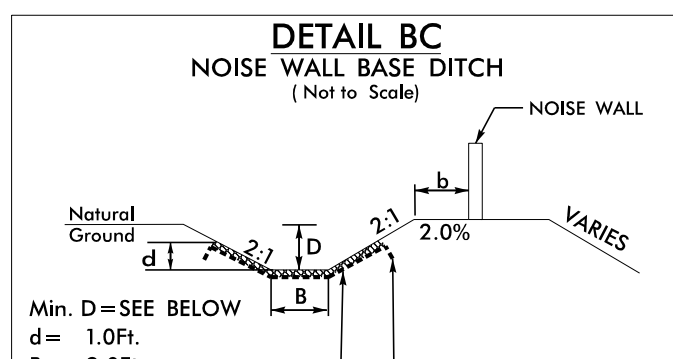


Type of Liner: 4" Concrete				
-Y6RPA-	STA. 17+19.40	TO	STA. 17+52.37	RT
-MUPI-	STA. 34+28.88	TO	STA. 35+24.56	RT
-MUPI-	STA. 36+67.98	TO	STA. 38+59.01	RT
-MUPI-	STA. 40+04.27	TO	STA. 41+02.72	RT
-MUPI-	STA. 43+02.59	TO	STA. 44+55.54	RT



b= 4.0 Ft. Geotextile Tuck Geotextile
 a Minimum of 1ft [TYP]
 Type of Liner= SEE BELOW, Keyed-In

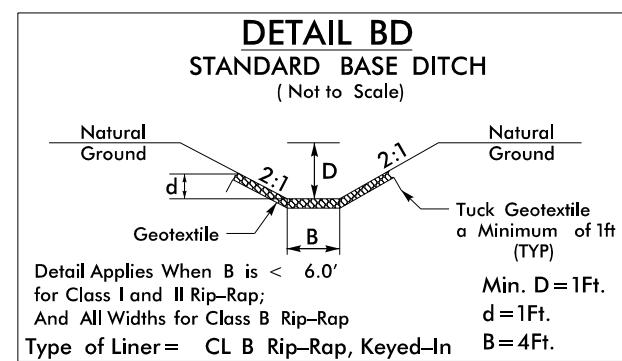
-LB1- STA. 42+00 TO STA. 43+00 LT, CL 1, D=1 FT
 -MU1- STA. 41+57 TO STA. 43+03 RT, CL B, D=1 FT



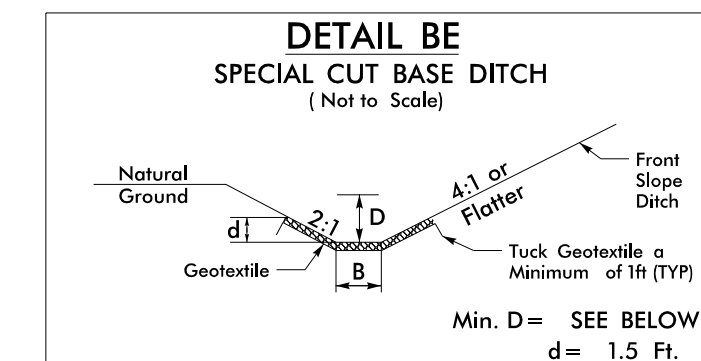
b = 2.0Ft. Geotextile Tuck Geotextile
 b = 4.0Ft. a Minimum of 1ft (TY)

Type of Liner = CL I Rip-Rap, Keyed-In

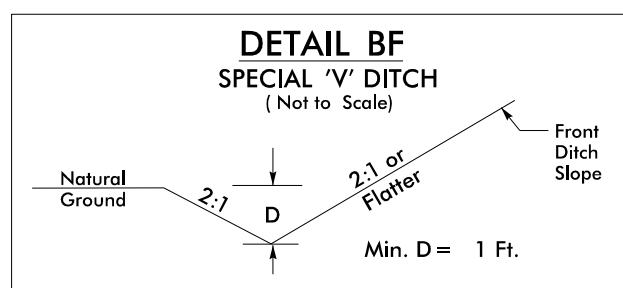
-LB- STA. 21+50 TO STA. 23+00 LT, D=1 FT



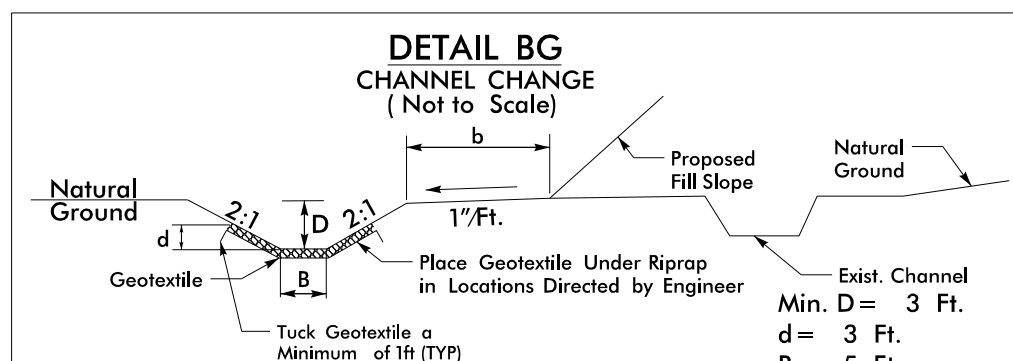
-LB- STA. 57+72 RT, L=134', S=11.4%
BEGIN ELEV=1980.0', END ELEV=1995.3'
-Y24- STA. 16+50 LT, L=23', S=7.4%
BEGIN ELEV=1993.7', END ELEV=1992.0'



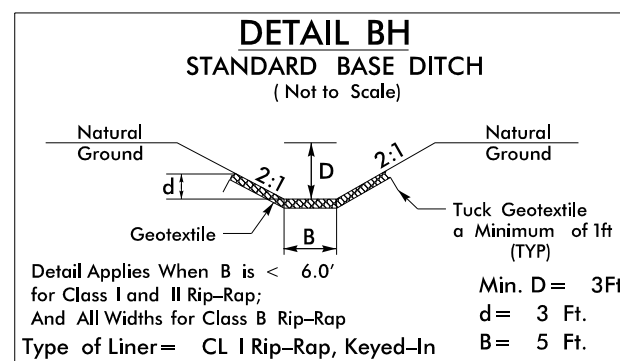
Type of Liner= CL I Rip-Rap, Keyed-In B= 4 Ft.
-LB1- STA. 41+50 TO STA. 43+50 RT, D=1.5'



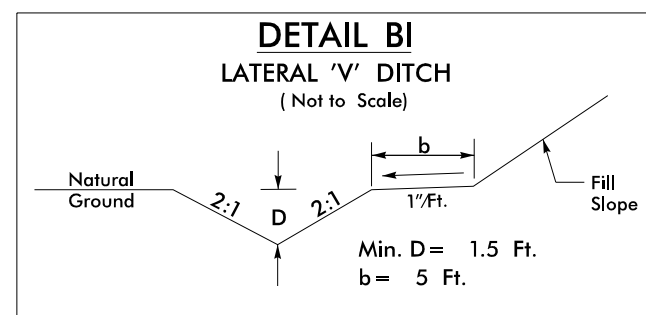
-MUP2- STA. 10+35 TO STA. 11+50 RT



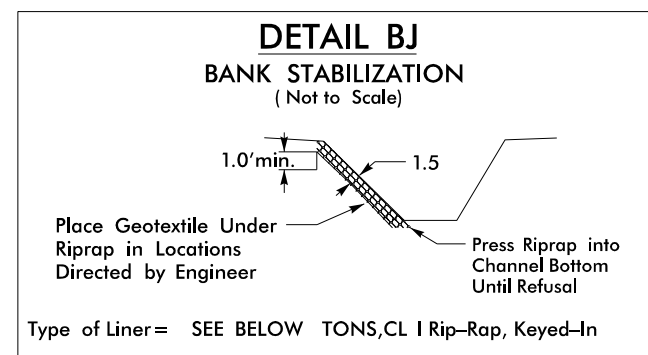
Type of Liner = CL II RIP-RAP, Keyed-In



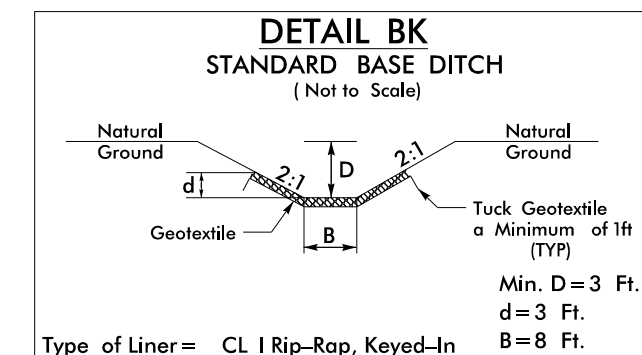
-LB- STA. 25+12 LT, L=17', S=1.76%
BEGIN ELEV=2014.30', END ELEV=2014.00'
-LB- STA. 36+41 LT, L=64', S=0.87%
BEGIN ELEV=2000.56', END ELEV=2000.0'



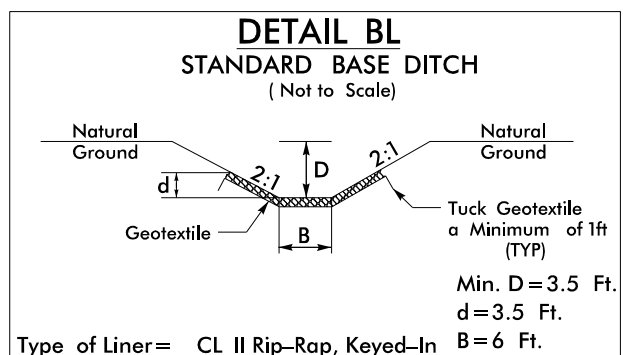
-LB- STA. 40+00 TO STA. 43+39 RT



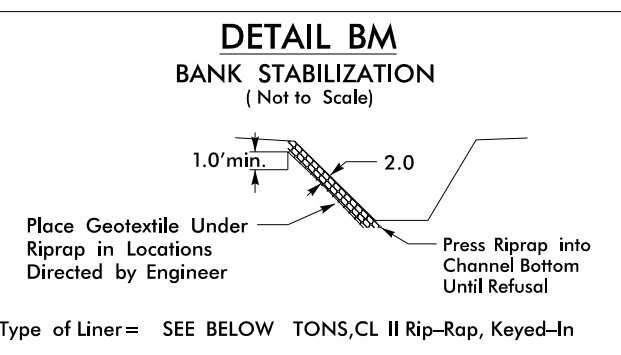
-LB- STA. 25+00 TO STA. 25+40 LT, 14 TONS
-LB- STA. 32+53 TO STA. 32+61 LT, 2.1 TONS
-LB- STA. 66+66 TO STA. 66+97 LT, 0.7 TONS
-LB- STA. 66+87 TO STA. 66+97 LT, 4.4 TONS
-Y7RPA- STA. 25+44 TO STA. 25+51 LT, 1.6 TONS
-Y7RBPREV- STA. 19+94 TO STA. 20+05 LT, 5.5 TONS
-Y7RPRE- STA. 25+82 TO STA. 22+02 LT, 5.3 TONS
-Y7RPFIDV- STA. 25+82 TO STA. 25+82 LT, 0.7 TONS
-Y7- STA. 14+50 TO STA. 14+60 RT, 5.1 TONS
-Y7- STA. 24+72 TO STA. 24+78 LT, 2.7 TONS
-Y24- STA. 16+60 TO STA. 16+67 LT, 0.9 TONS



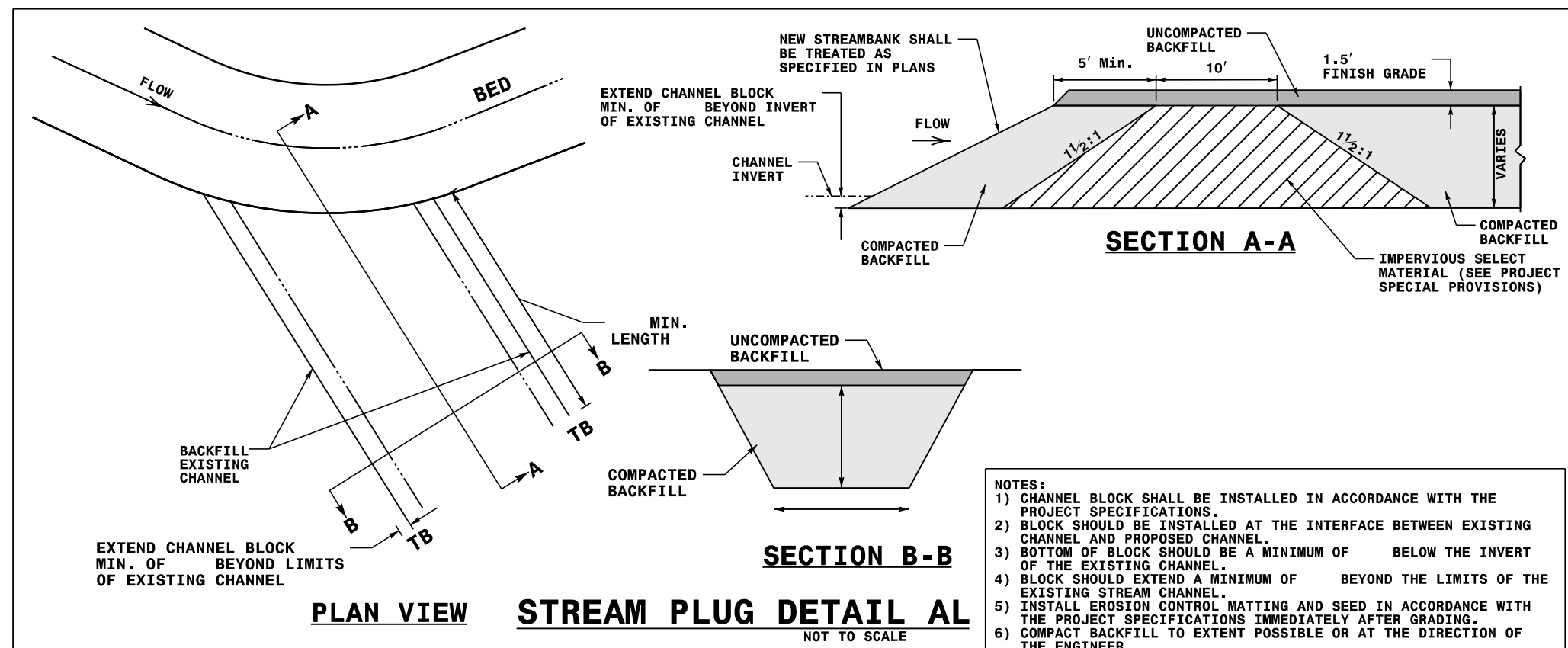
-LB- STA. 36+34 LT, L=50', S=0.88%
BEGIN ELEV=2001.00', END ELEV=2000.56'



-Y7RPBREV- STA. 20+35 LT, L=123', S=2.28%
BEGIN ELEV=1999.3', END ELEV=1996.5'



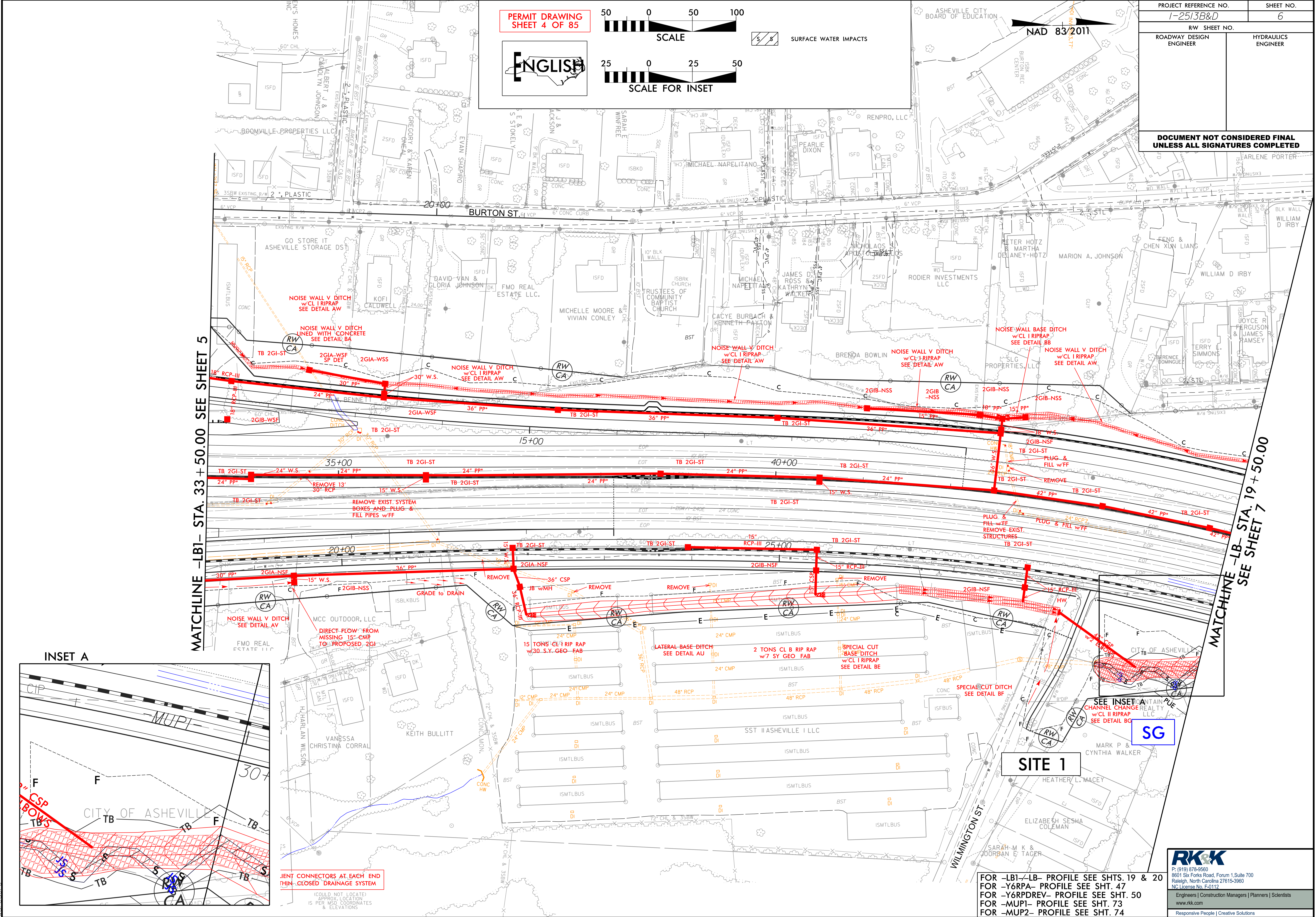
-LB- STA. 73+43 TO STA. 73+58 LT, 9.0 TONS



-23NB- STA. 38+80 RT
-23NB- STA. 47+87 RT
-23NB- STA. 40+90 RT

8/17/99

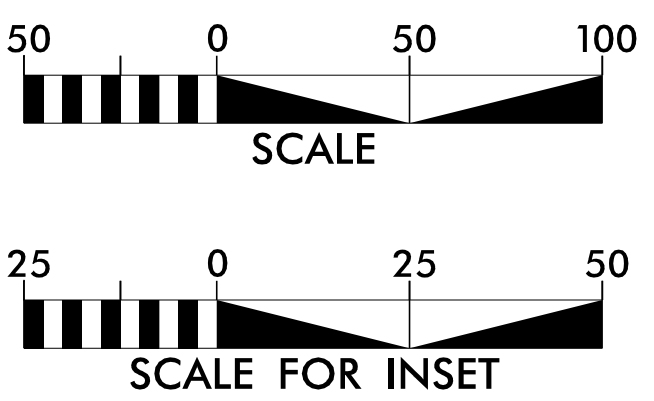
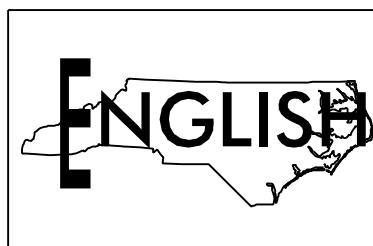
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8/17/99

10/17/2025
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PERMIT DRAWING
SHEET 5 OF 85



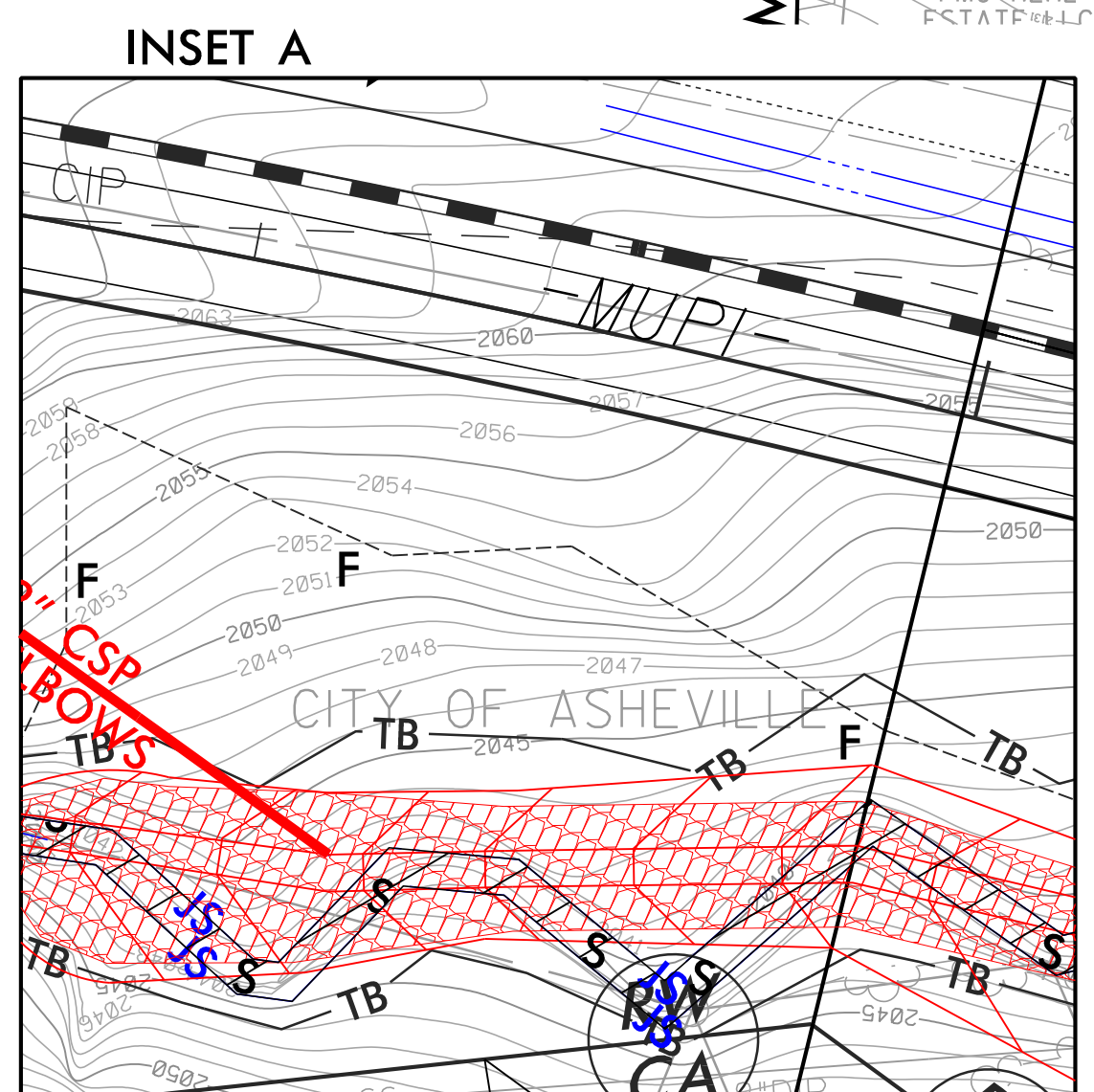
SURFACE WATER IMPACTS

NAD 83/2011

PROJECT REFERENCE NO. <i>1-2513B&D</i>		SHEET NO. <i>6</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -LB1- STA. 33+50.00 SEE SHEET 5

MATCHLINE -LB- STA. 19+50.00
SEE SHEET 7



ENT CONNECTORS AT EACH END
IN CLOSED DRAINAGE SYSTEM

SITE 1

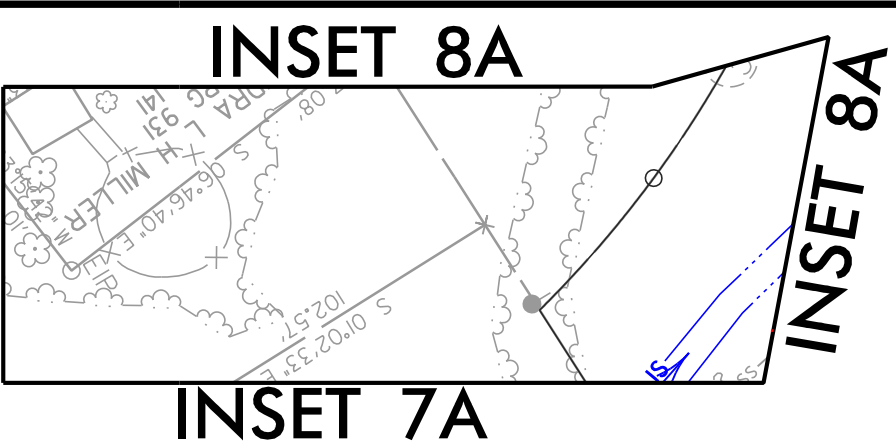
SG

FOR -LB1/-LB- PROFILE SEE SHTS. 19 & 20
FOR -Y6RPA- PROFILE SEE SHT. 47
FOR -Y6RPDPREV- PROFILE SEE SHT. 50
FOR -MUP1- PROFILE SEE SHT. 73
FOR -MUP2- PROFILE SEE SHT. 74

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PERMIT DRAWING
SHEET 6 OF 85

ENGLISH

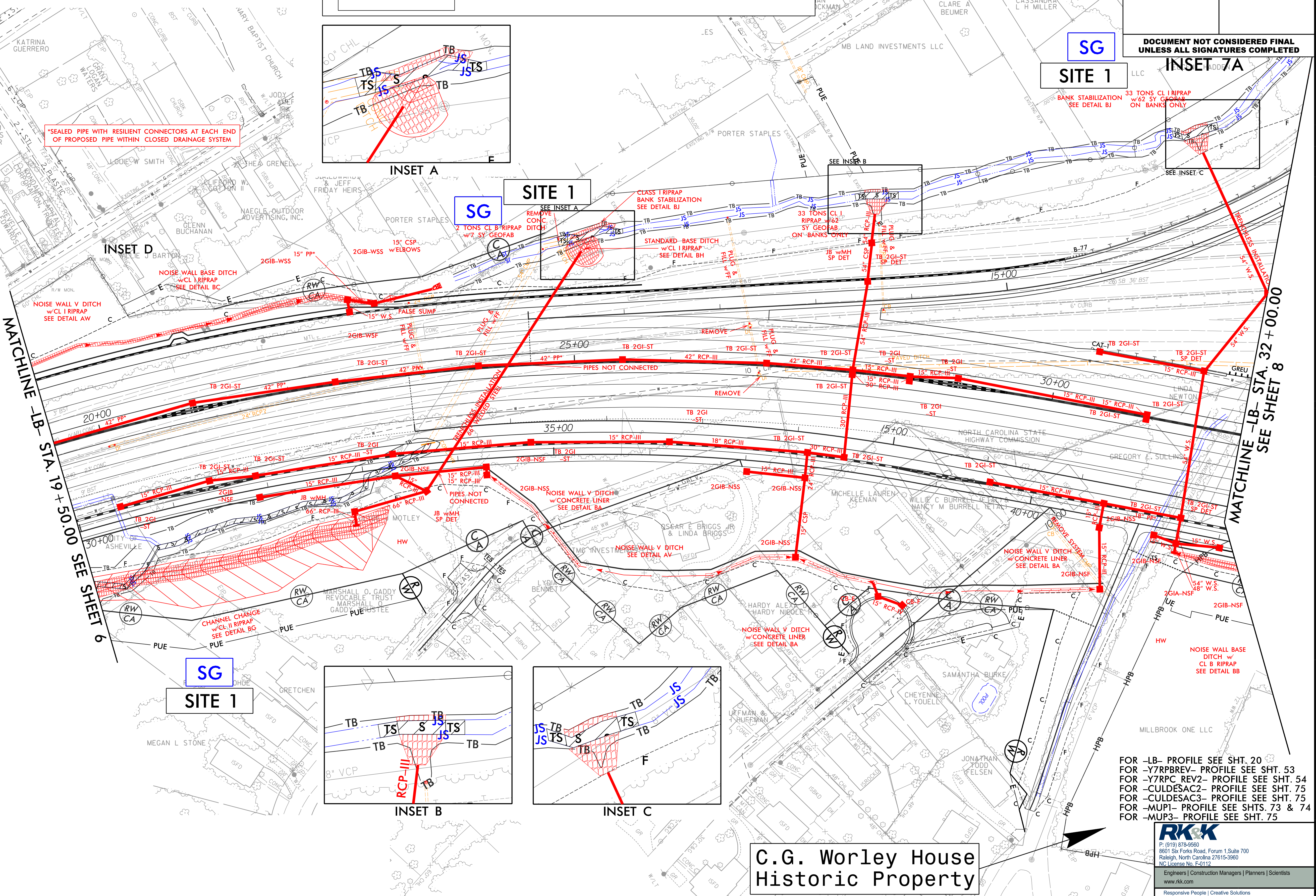
50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSET

SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

PROJECT REFERENCE NO. <i>1-2513B&D</i>		SHEET NO. <i>7</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



C.G. Worley House
Historic Property

FOR -LB- PROFILE SEE SHT. 20
FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7RPC REV2- PROFILE SEE SHT. 54
FOR -CULDESAC2- PROFILE SEE SHT. 75
FOR -CULDESAC3- PROFILE SEE SHT. 75
FOR -MUP1- PROFILE SEE SHTS. 73 & 74
FOR -MUP3- PROFILE SEE SHT. 75

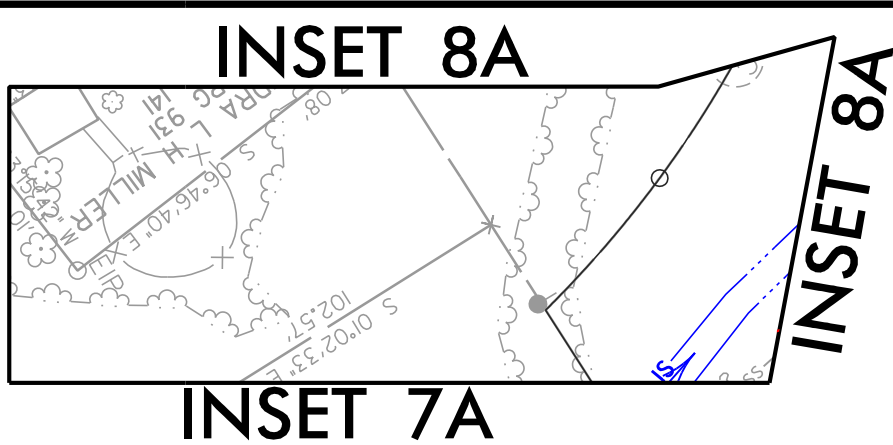
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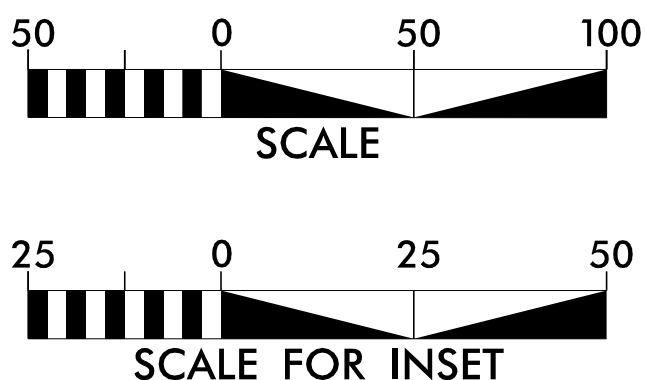
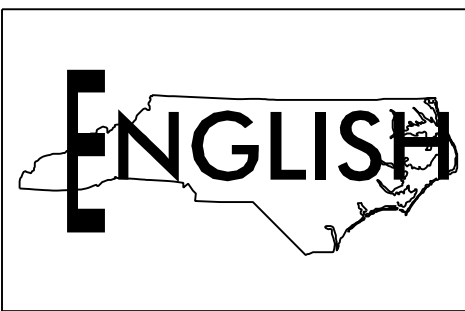
Responsive People | Creative Solutions

8/17/99

10/17/2025
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C:\Users\jgordon



PERMIT DRAWING
SHEET 7 OF 85



SURFACE WATER IMPACTS

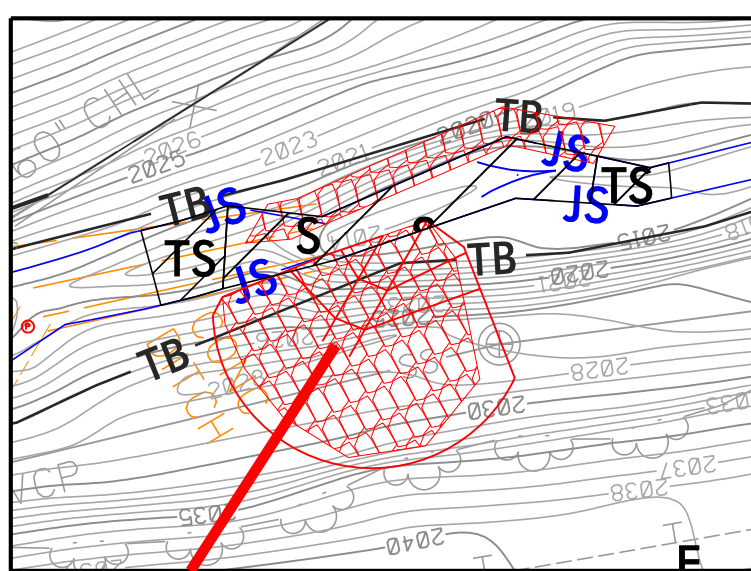
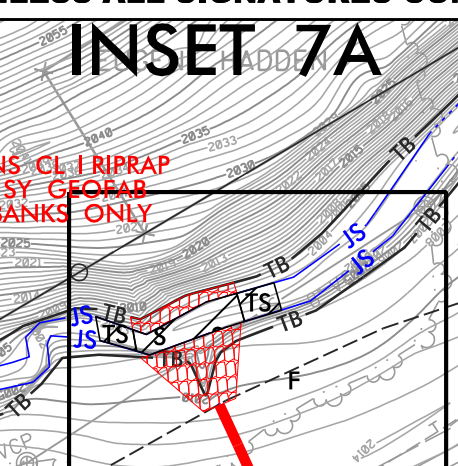
TEMPORARY SURFACE WATER IMPACTS

NAD 83/2011

PROJECT REFERENCE NO. <i>1-251380</i>		SHEET NO. 7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SG
SITE 1



INSET A

SITE 1

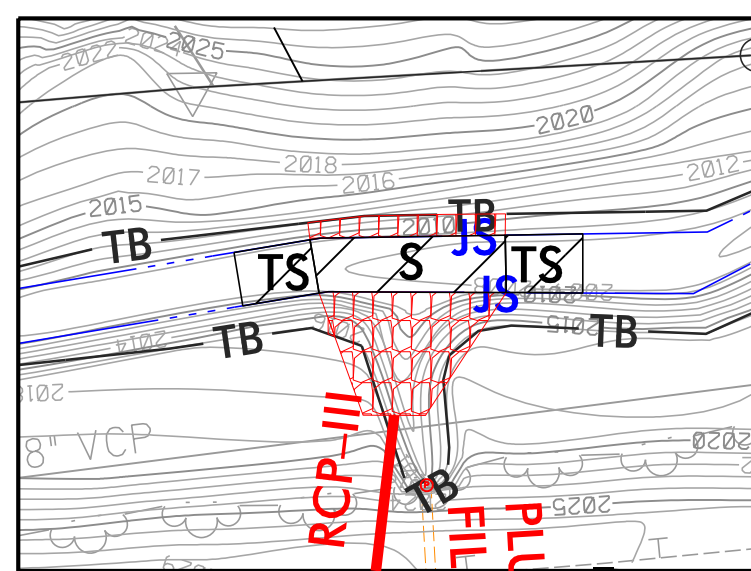
SG

MATCHLINE -LB- STA. 19 + 50.00 SEE SHEET 6

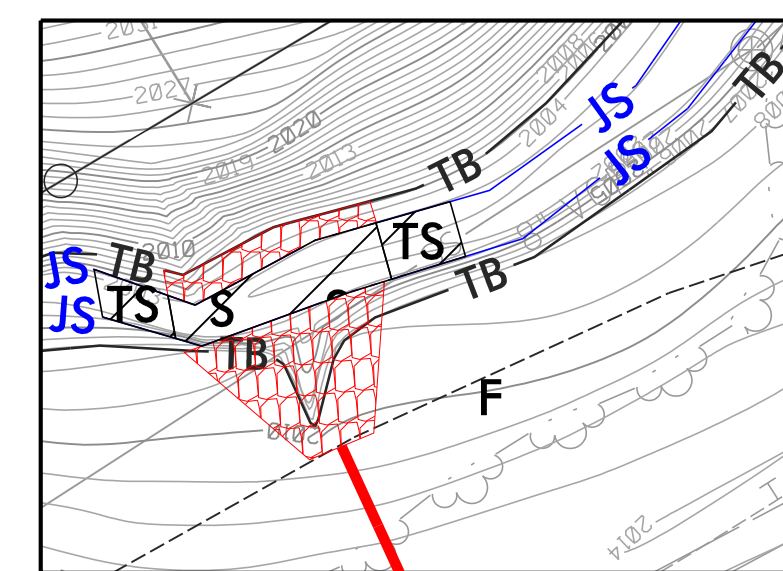
MATCHLINE -LB- STA. 32 + 00.00
SEE SHEET 8

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH
END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

SG
SITE 1



INSET B



INSET C

C.G. Worley House
Historic Property

FOR -LB- PROFILE SEE SHT. 20
FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7RPC REV2- PROFILE SEE SHT. 54
FOR -CULDESAC2- PROFILE SEE SHT. 75
FOR -CULDESAC3- PROFILE SEE SHT. 75
FOR -MUP1- PROFILE SEE SHTS. 73 & 74
FOR -MUP3- PROFILE SEE SHT. 75

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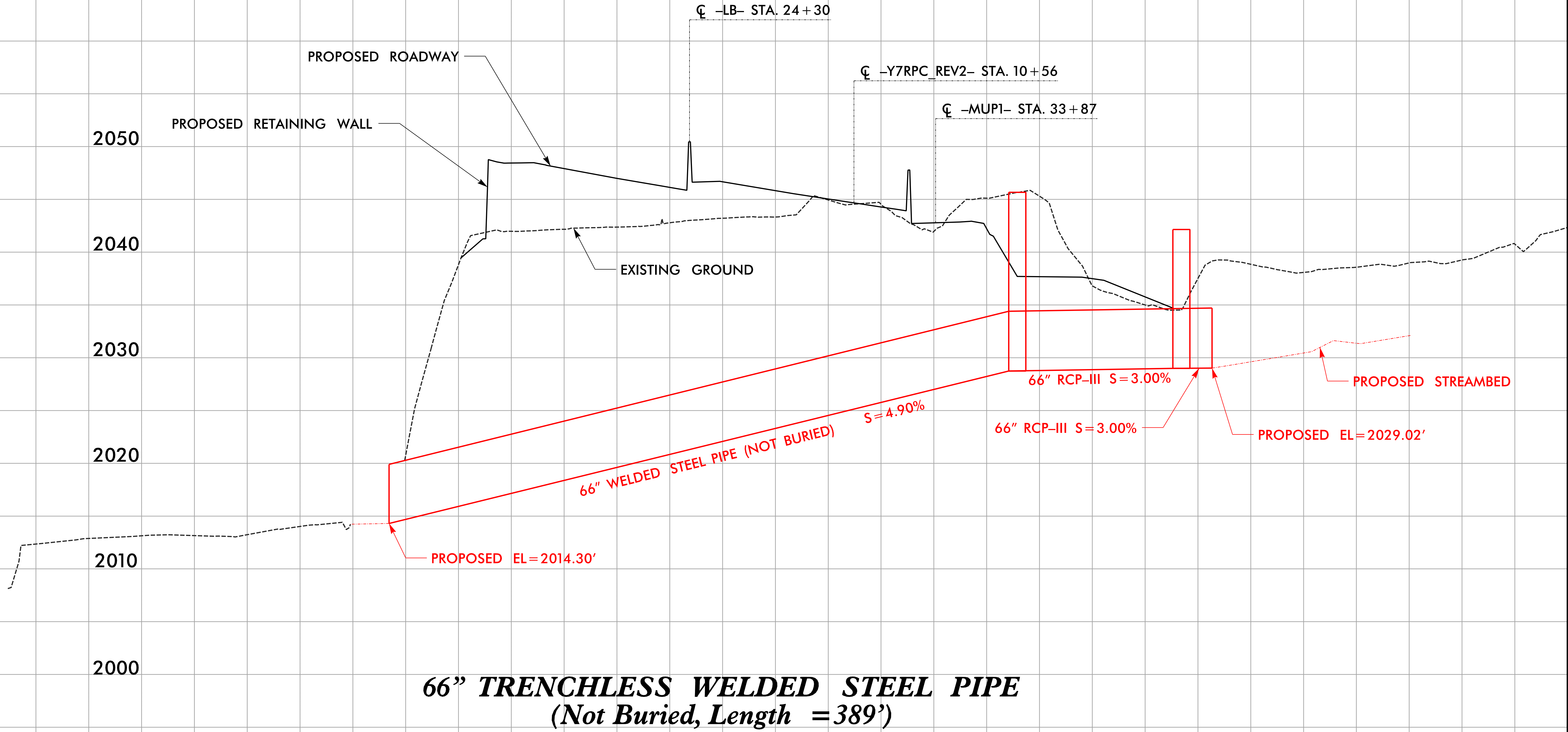
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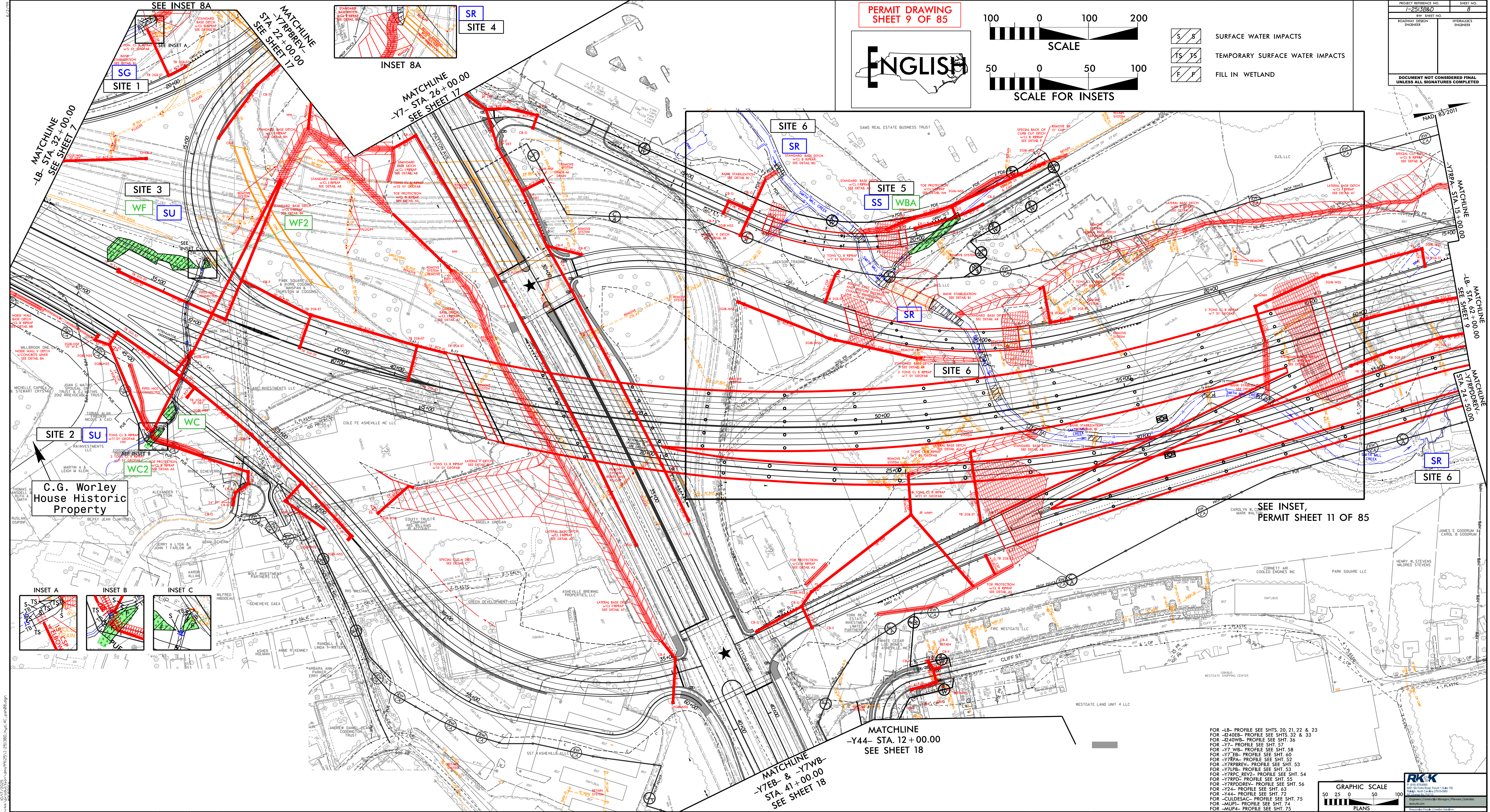
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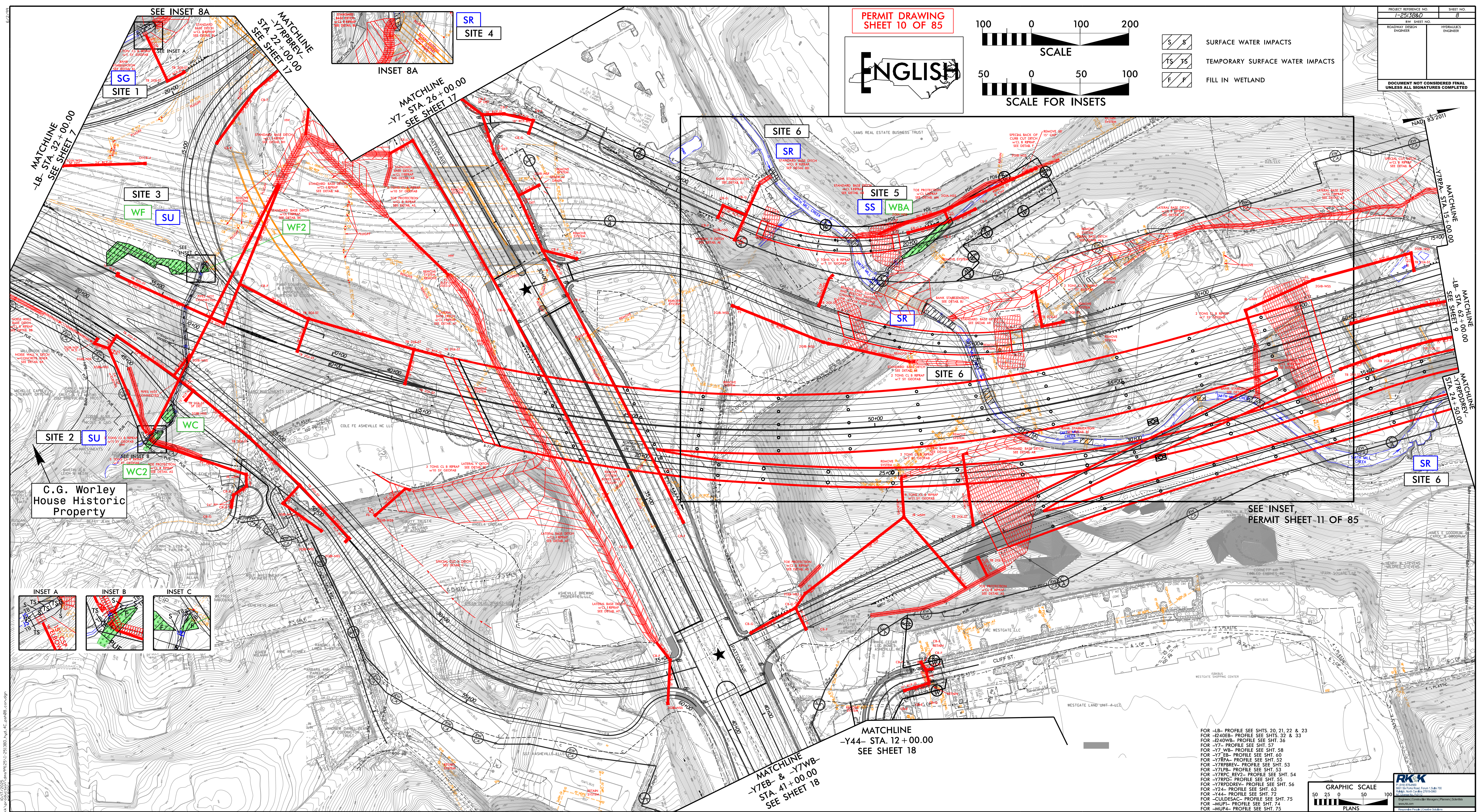
10/17/2025
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PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 8 OF 85		

SITE 1
-LB- STA. 24+30



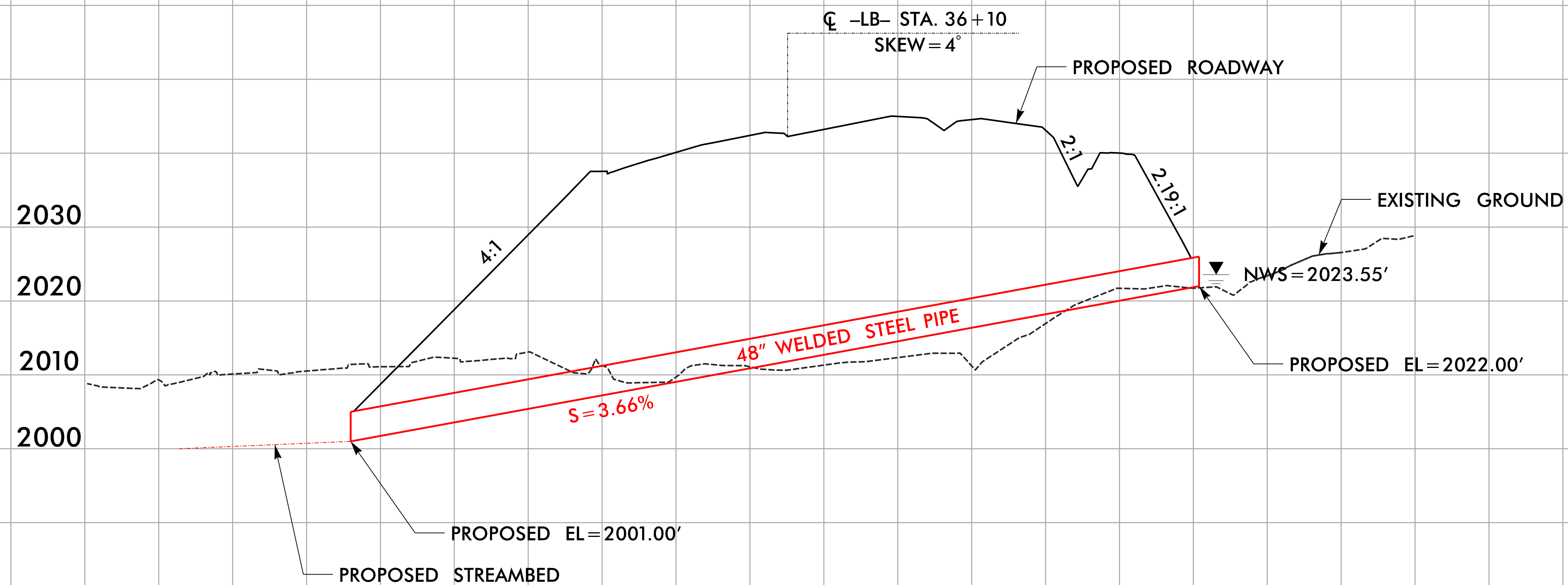




5/14/99

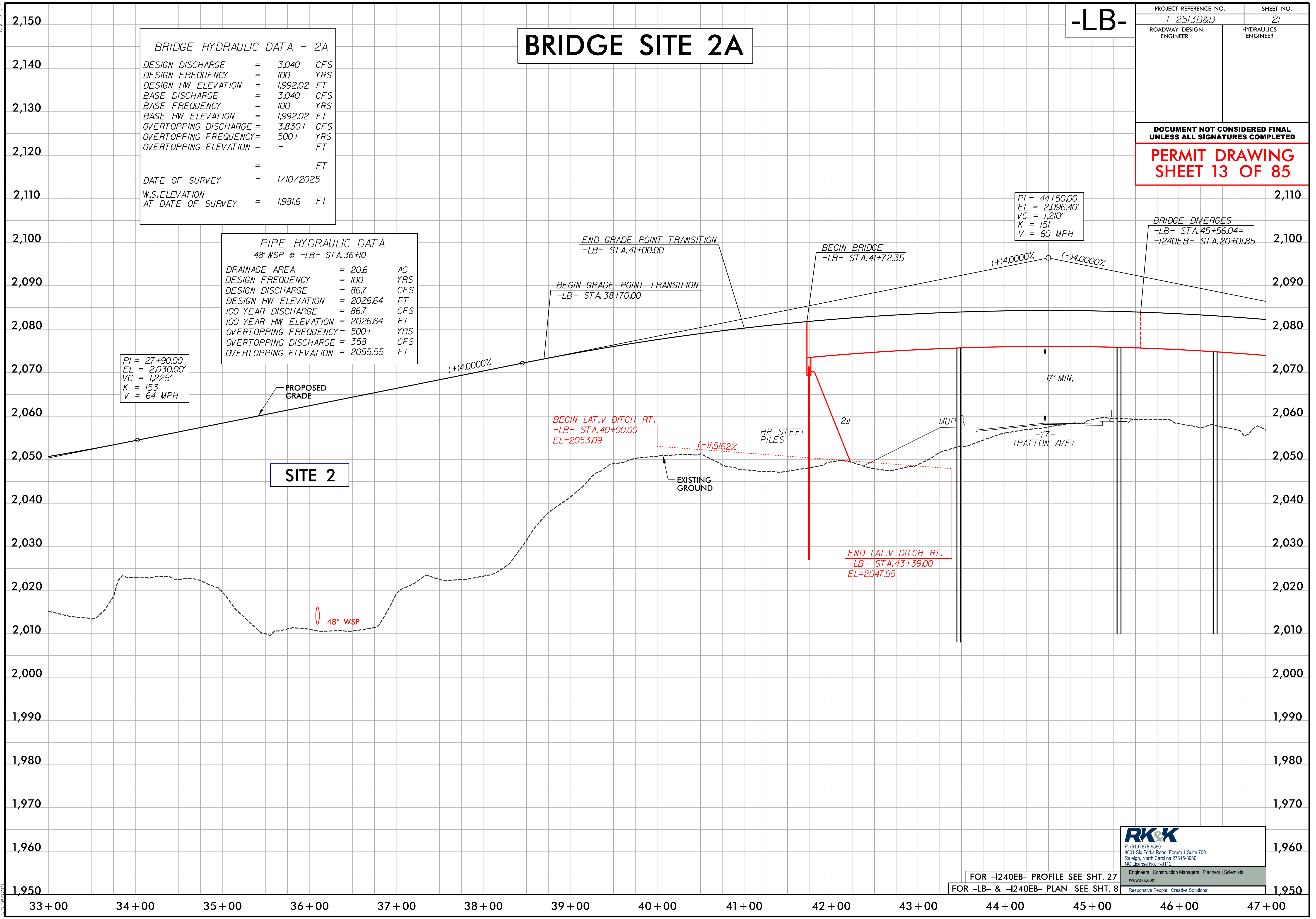
PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

SITE 2
-LB- STA. 36+10 +/-



48" TRENCHLESS WELDED STEEL PIPE
(Not Buried, Length = 574')

5/28/99
10/17/2025
C:\pwworking\rk\production\dms9\125\125138D_rdy.DSN_PEL_21.PSH8.dgn
K&K



BRIDGE HYDRAULIC DATA - 2A			
DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,981.6	FT

PIPE HYDRAULIC DATA			
48" WSP @ -LB- STA.36+10			
DRAINAGE AREA	=	20.6	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	86.7	CFS
DESIGN HW ELEVATION	=	2026.64	FT
100 YEAR DISCHARGE	=	86.7	CFS
100 YEAR HW ELEVATION	=	2026.64	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	358	CFS
OVERTOPPING ELEVATION	=	2055.55	FT

PI = 27+90.00
EL = 2,030.00'
VC = 1,225'
K = 153
V = 64 MPH

PI = 44+50.00
EL = 2,096.40'
VC = 1,210'
K = 151
V = 60 MPH

BRIDGE DIVERGES
+LB- STA.45+56.04=
-I240EB- STA.20+01.85

BRIDGE SITE 2A

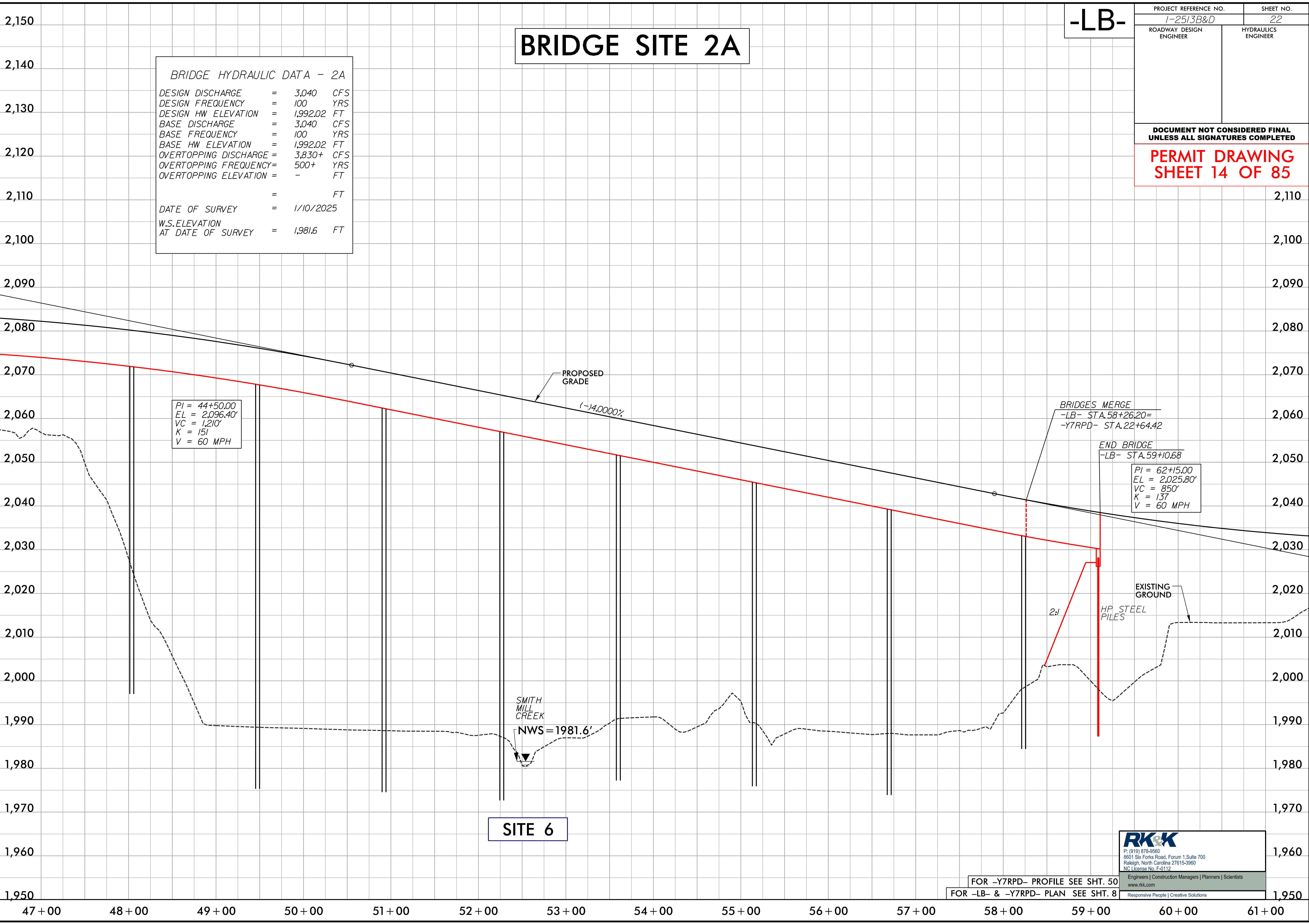
-LB-

PROJECT REFERENCE NO.		SHEET NO.
I-25/3B&D		21
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 13 OF 85		

FOR -I240EB- PROFILE SEE SHT. 27
FOR -LB- & -I240EB- PLAN SEE SHT. 8

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10/17/2025
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W840001



-LB-

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 14 OF 85		

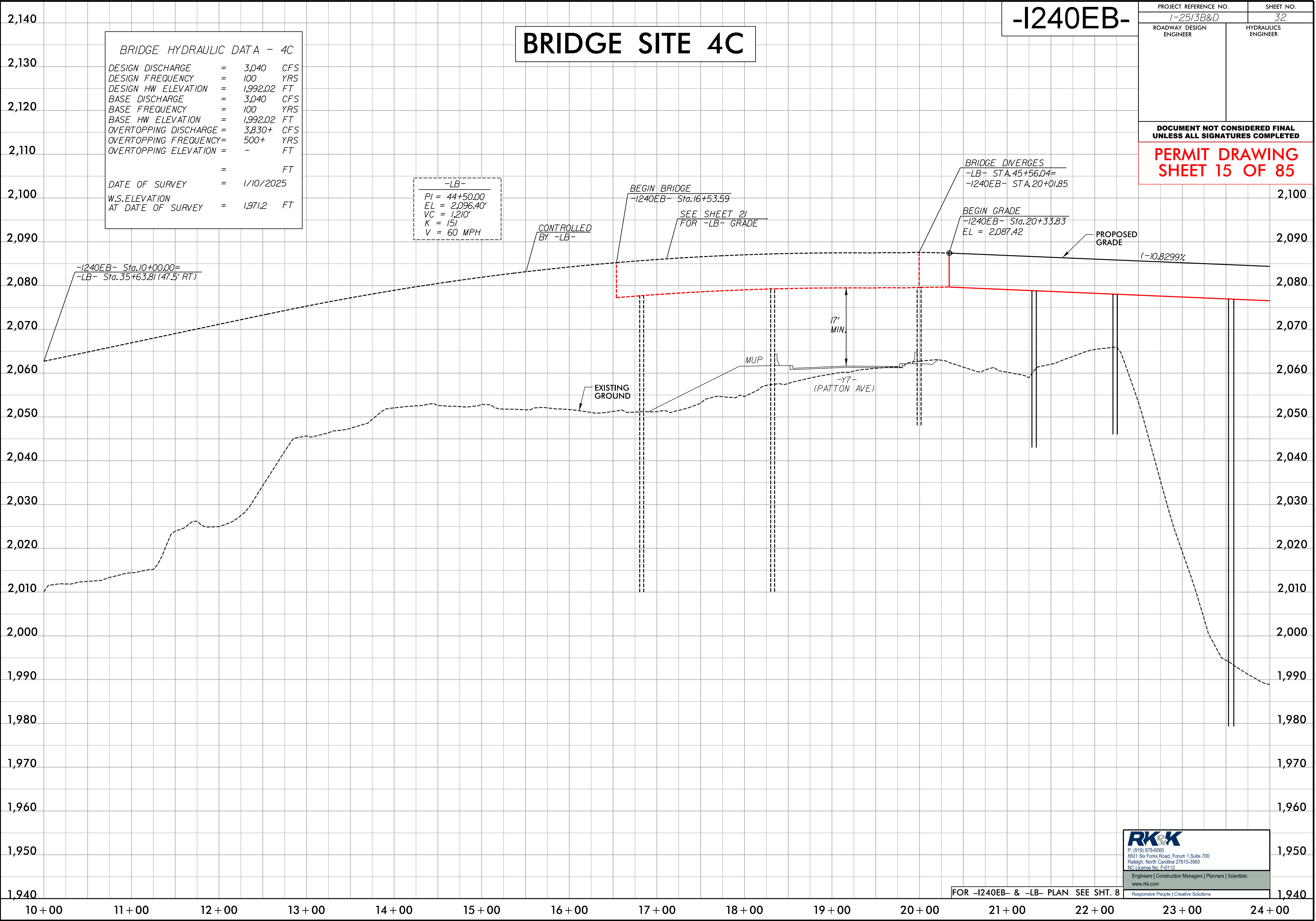


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K040001



-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
1-2513B&D	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 16 OF 85

2,100

2,090

2,080

2,070

2,060

2,050

2,040

2.030

2.020

2.010

2 000

1 990

1980

1970

1960

1950

1 940

BRIDGE SITE 4C

SITE 6

SITE 6

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT

$$= FT$$

DATE OF SURVEY = 1/10/2025

W.S. ELEVATION
AT DATE OF SURVEY = 1,971.2 FT

—	PROPOSED	
	GRADE	

$(-10.8299\%$ $(-14.9771\%$

$$\begin{aligned} PI &= 31+40.00 \\ EL &= 2,078.24' \\ VC &= 350' \\ K &= 85 \\ V &= 50 \text{ MPH} \end{aligned}$$

-Y7RPD-

18' MIN.

INVERTED TEE
STRADDLE BENT

— EXISTING
GROUND

SMITH
MILL
CREEK

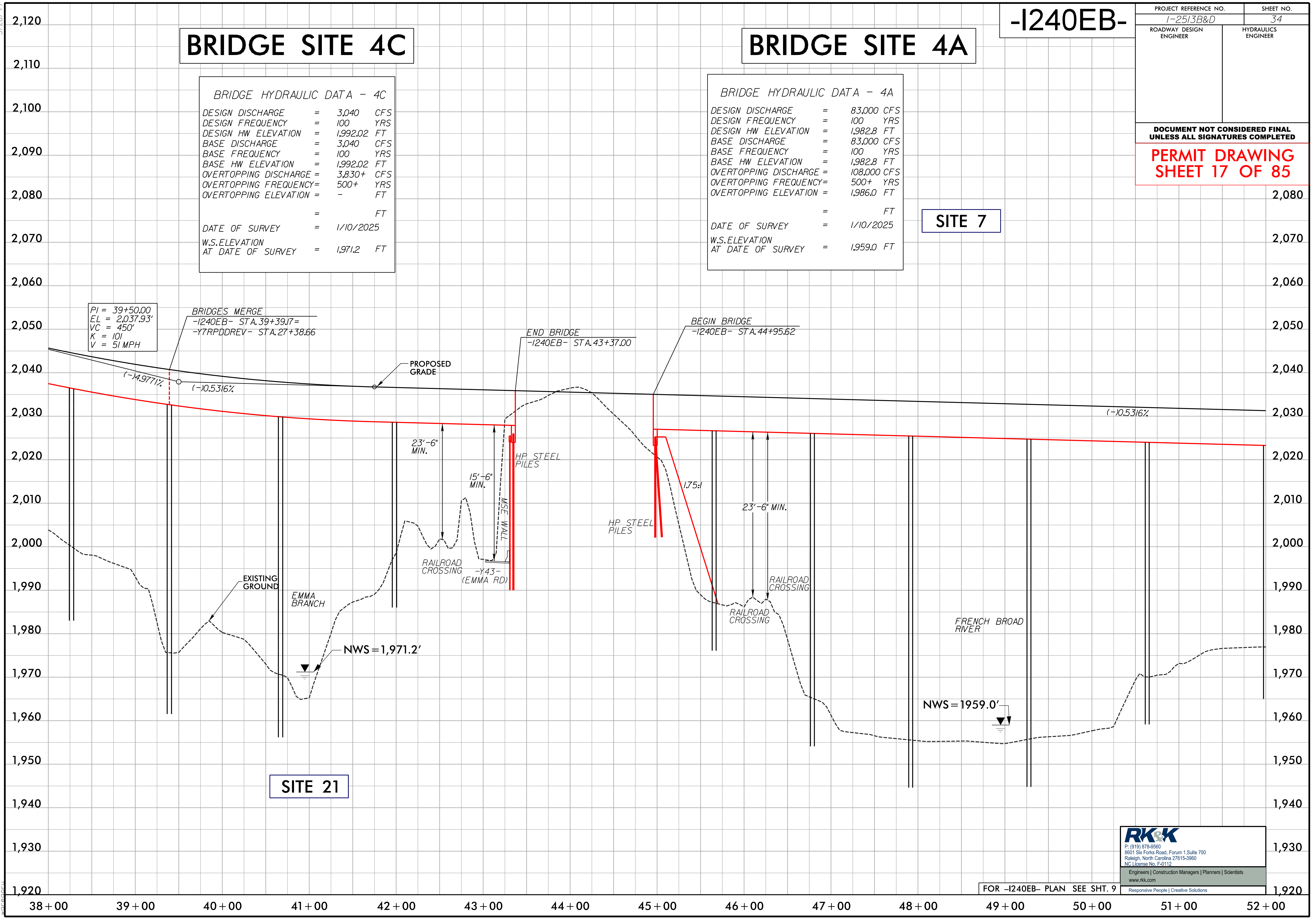
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FOR -I240EB- PLAN SEE SHTS. 8 & 9

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5/28/24
10/17/2025
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W842001



-I240EB-

PROJECT REFERENCE NO.
1-2513B&D

ROADWAY DESIGN ENGINEER

SHEET NO.
34

HYDRAULICS ENGINEER

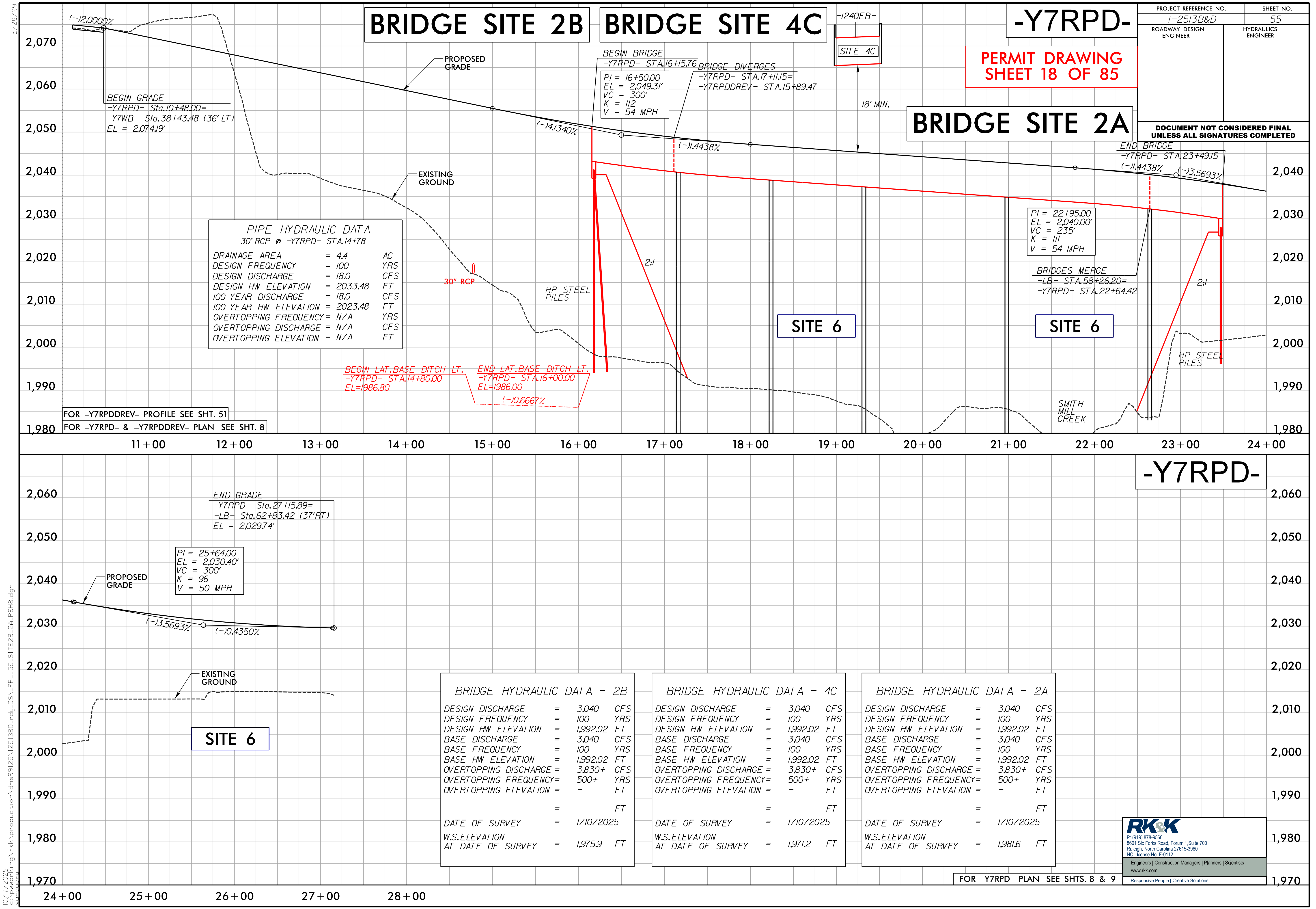
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UNLESS ALL SIGNATURES COMPLETED

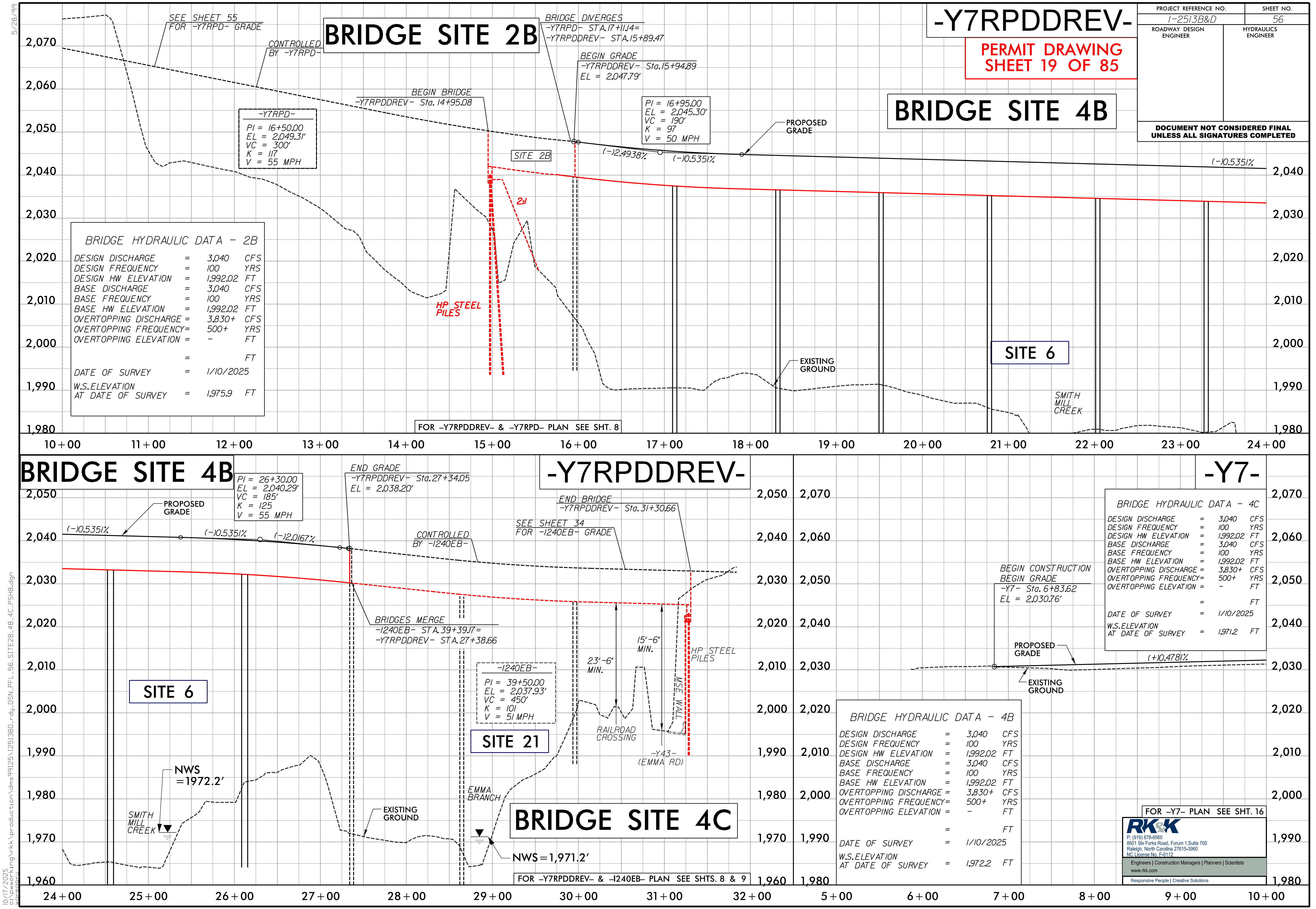
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SHEET 17 OF 85

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-Y7RPDDREV-

PERMIT DRAWING
SHEET 19 OF 85

BRIDGE SITE 4B

BRIDGE SITE 2B

BRIDGE DIVERGES
-Y7RPD- STA.17+11.14=
-Y7RPDDREV- STA.15+89.47

BEGIN GRADE
-Y7RPDDREV- Sta.15+94.89
EL = 2,047.79'

PI = 16+95.00
EL = 2,045.30'
VC = 190'
K = 97
V = 50 MPH

-Y7RPD-
PI = 16+50.00
EL = 2,049.31'
VC = 300'
K = 117
V = 55 MPH

BRIDGE HYDRAULIC DATA - 2B

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT

DATE OF SURVEY = 1/10/2025
W.S.ELEVATION AT DATE OF SURVEY = 1,975.9 FT

FOR -Y7RPDDREV- & -Y7RPD- PLAN SEE SHT. 8

-Y7RPDDREV-

-Y7-

BRIDGE SITE 4B

PI = 26+30.00
EL = 2,040.29'
VC = 185'
K = 125
V = 55 MPH

END GRADE
-Y7RPDDREV- Sta.27+34.05
EL = 2,038.20'

END BRIDGE
-Y7RPDDREV- Sta.31+30.66

SEE SHEET 34
FOR -I240EB- GRADE

CONTROLLED
BY -I240EB-

BRIDGES MERGE
-I240EB- STA.39+39.17=
-Y7RPDDREV- STA.27+38.66

-I240EB-
PI = 39+50.00
EL = 2,037.93'
VC = 450'
K = 101
V = 51 MPH

SITE 21

BRIDGE SITE 4C

NWS=1,971.2'

FOR -Y7RPDDREV- & -I240EB- PLAN SEE SHTS. 8 & 9

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT

DATE OF SURVEY = 1/10/2025
W.S.ELEVATION AT DATE OF SURVEY = 1,971.2 FT

BRIDGE HYDRAULIC DATA - 4B

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT

DATE OF SURVEY = 1/10/2025
W.S.ELEVATION AT DATE OF SURVEY = 1,972.2 FT

FOR -Y7- PLAN SEE SHT. 16



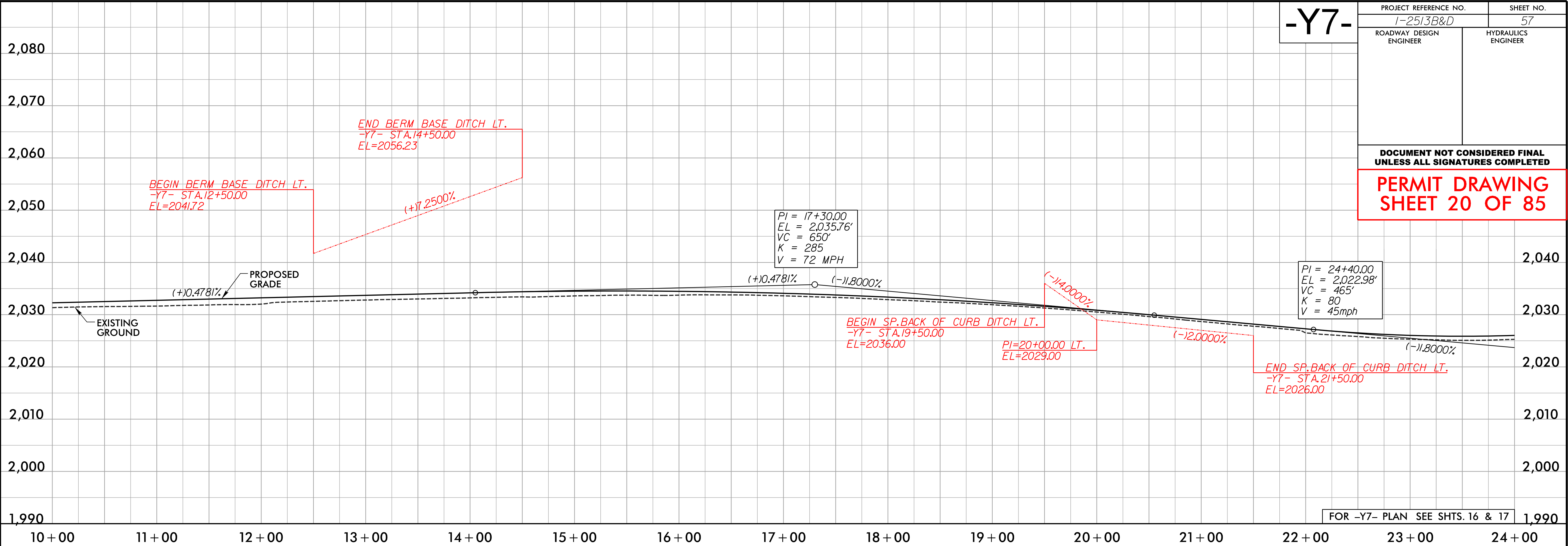
5/28/99

-Y7-

PROJECT REFERENCE NO.		SHEET NO.
I-25/3B&D		57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

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PERMIT DRAWING
SHEET 20 OF 85



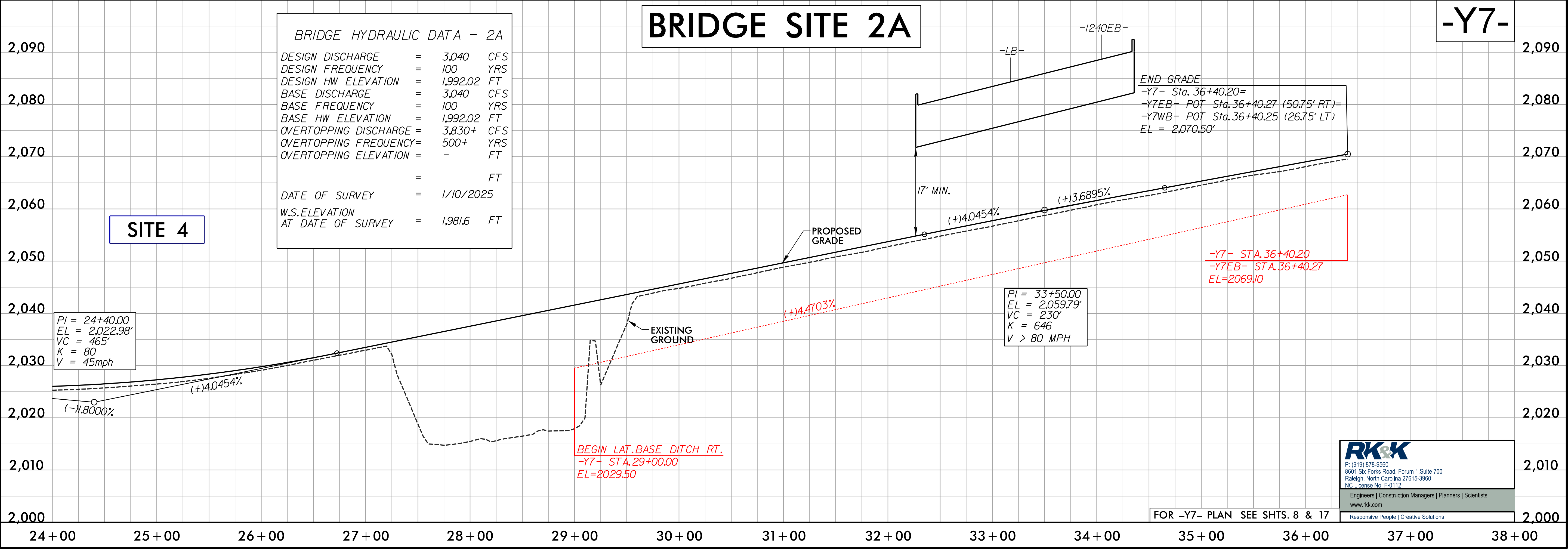
FOR -Y7- PLAN SEE SHTS. 16 & 17

BRIDGE SITE 2A

-Y7-

BRIDGE HYDRAULIC DATA - 2A		
DESIGN DISCHARGE	=	3,040 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,992.02 FT
BASE DISCHARGE	=	3,040 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,992.02 FT
OVERTOPPING DISCHARGE	=	3,830+ CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	- FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S. ELEVATION AT DATE OF SURVEY	=	1,981.6 FT

SITE 4

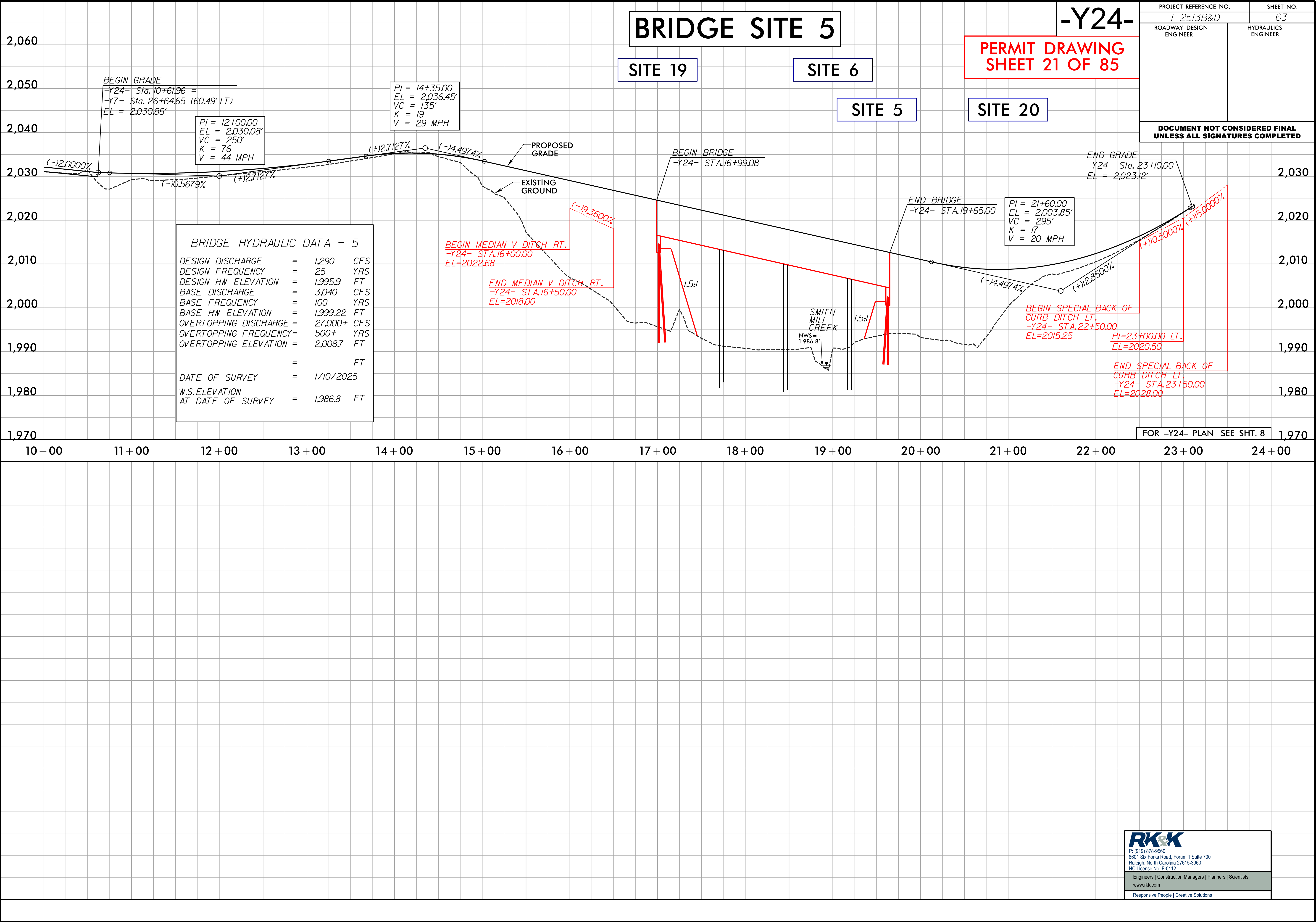


FOR -Y7- PLAN SEE SHTS. 8 & 17

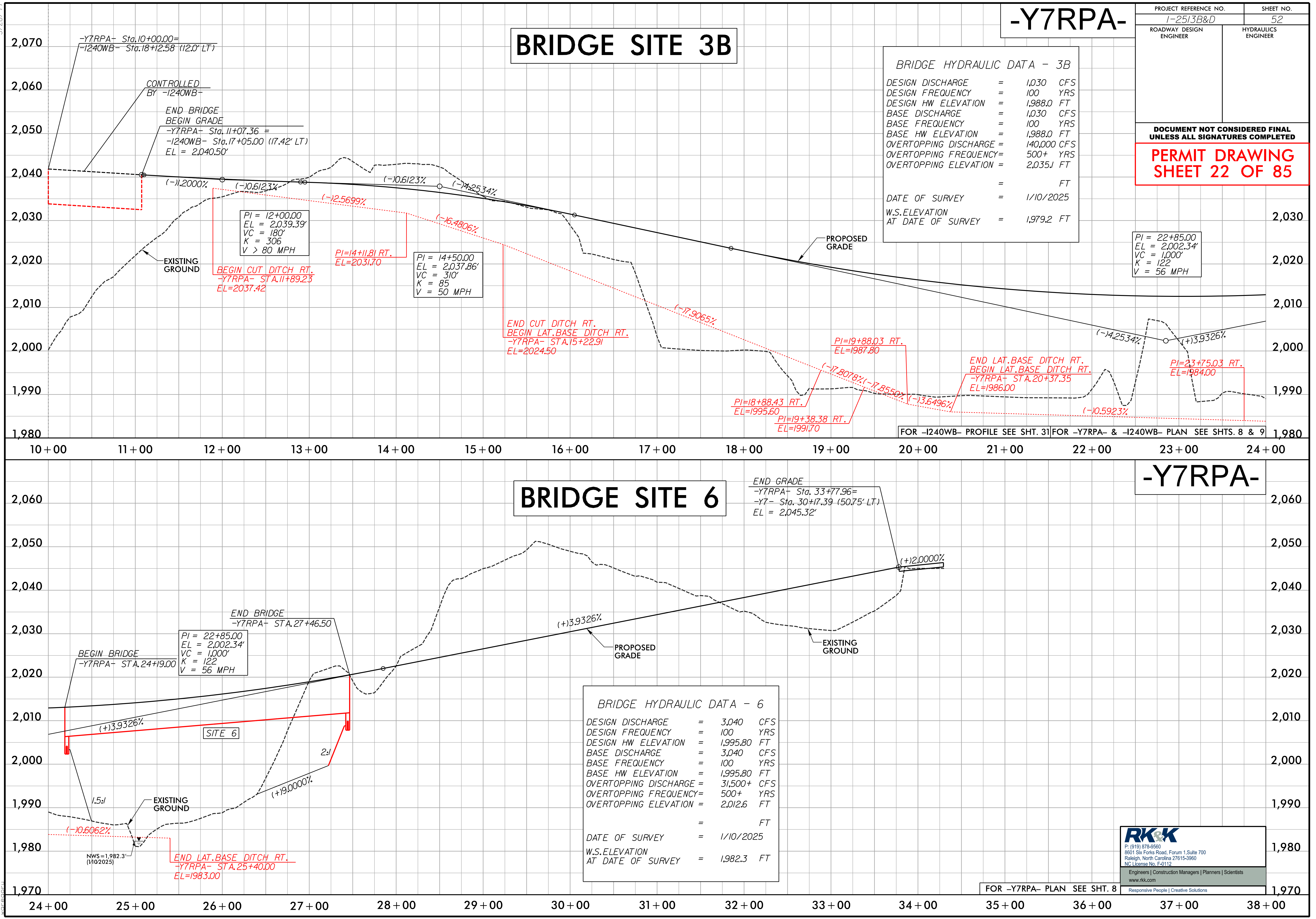
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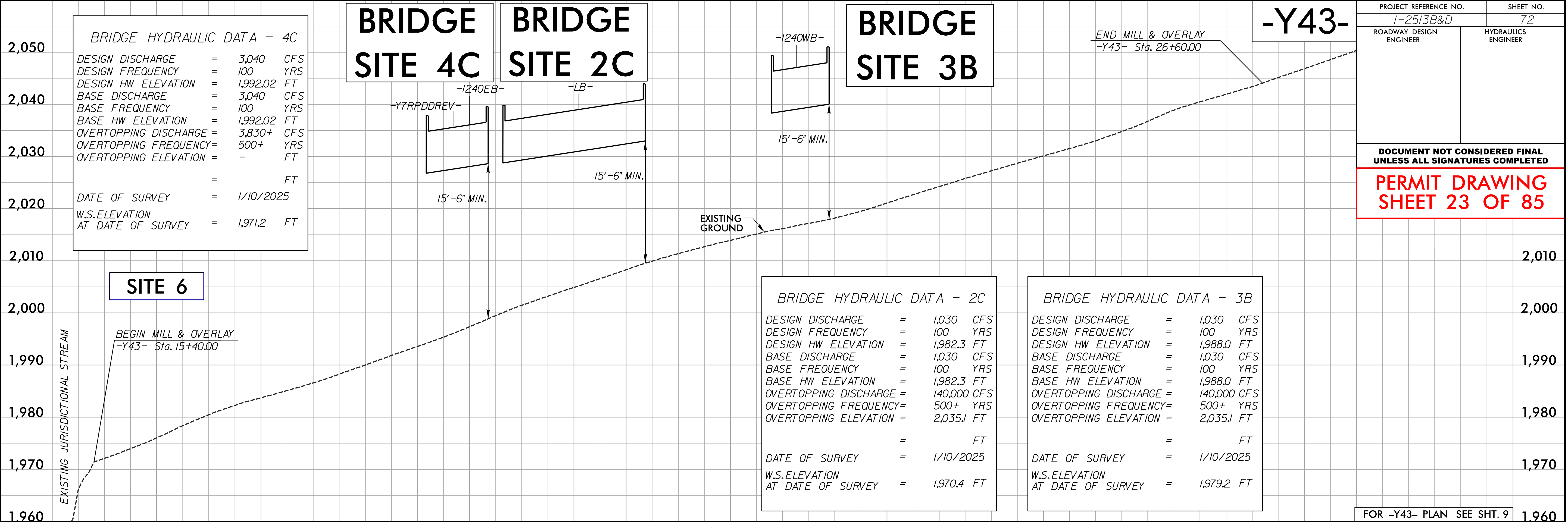
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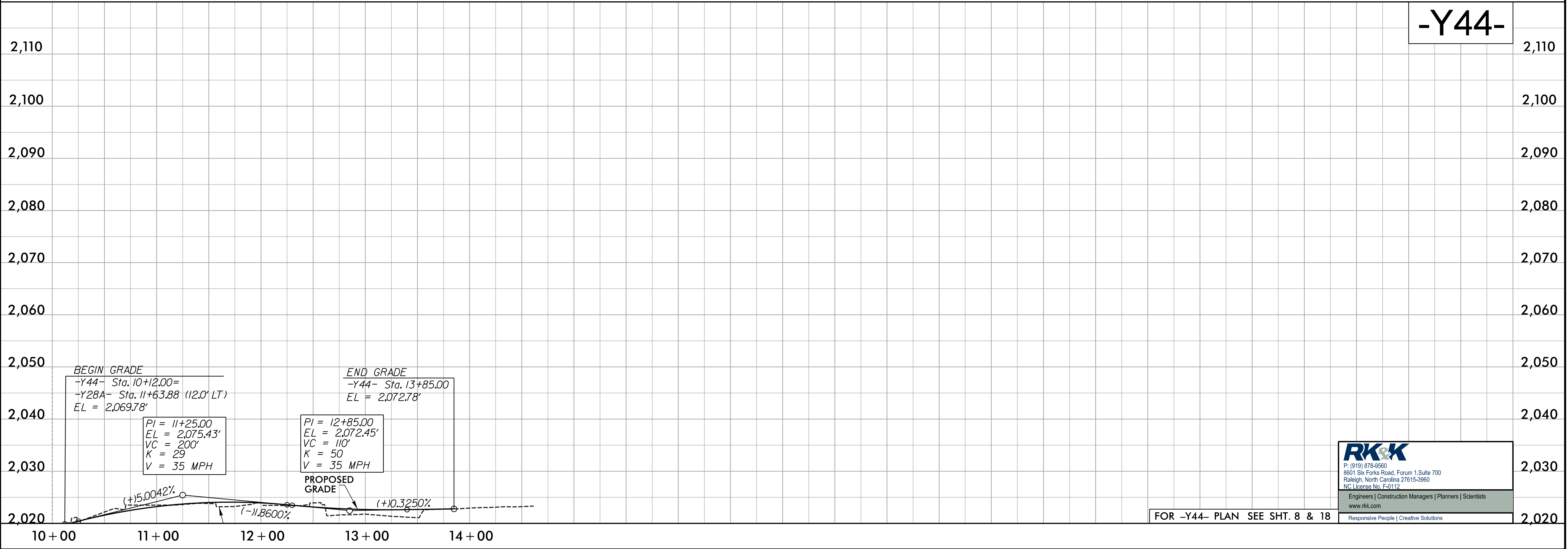
5/28/99
10/17/2025
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5/28/99



10/17/2025
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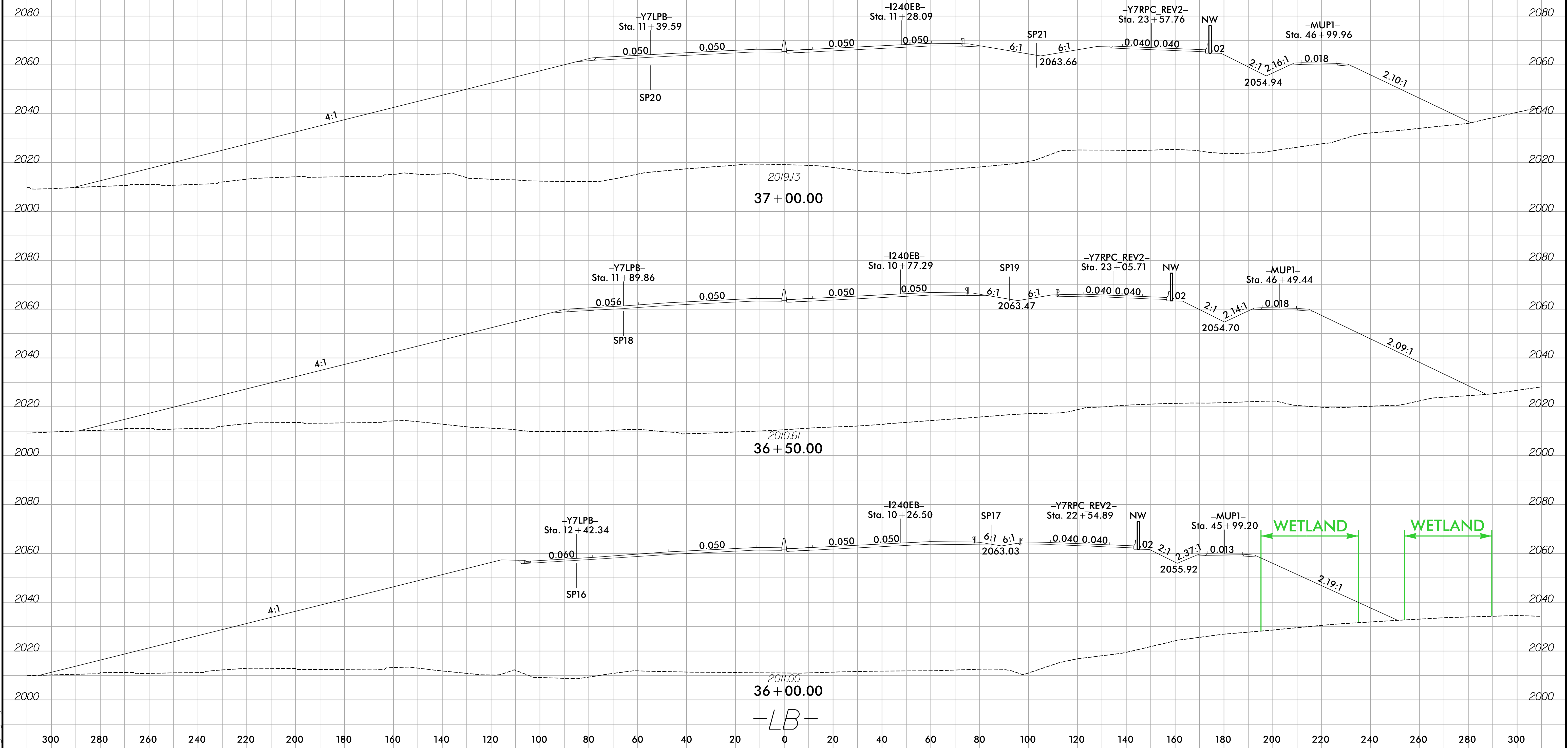


6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-2513B&D	X-28

SITE 2

PERMIT DRAWING
SHEET 24 OF 85

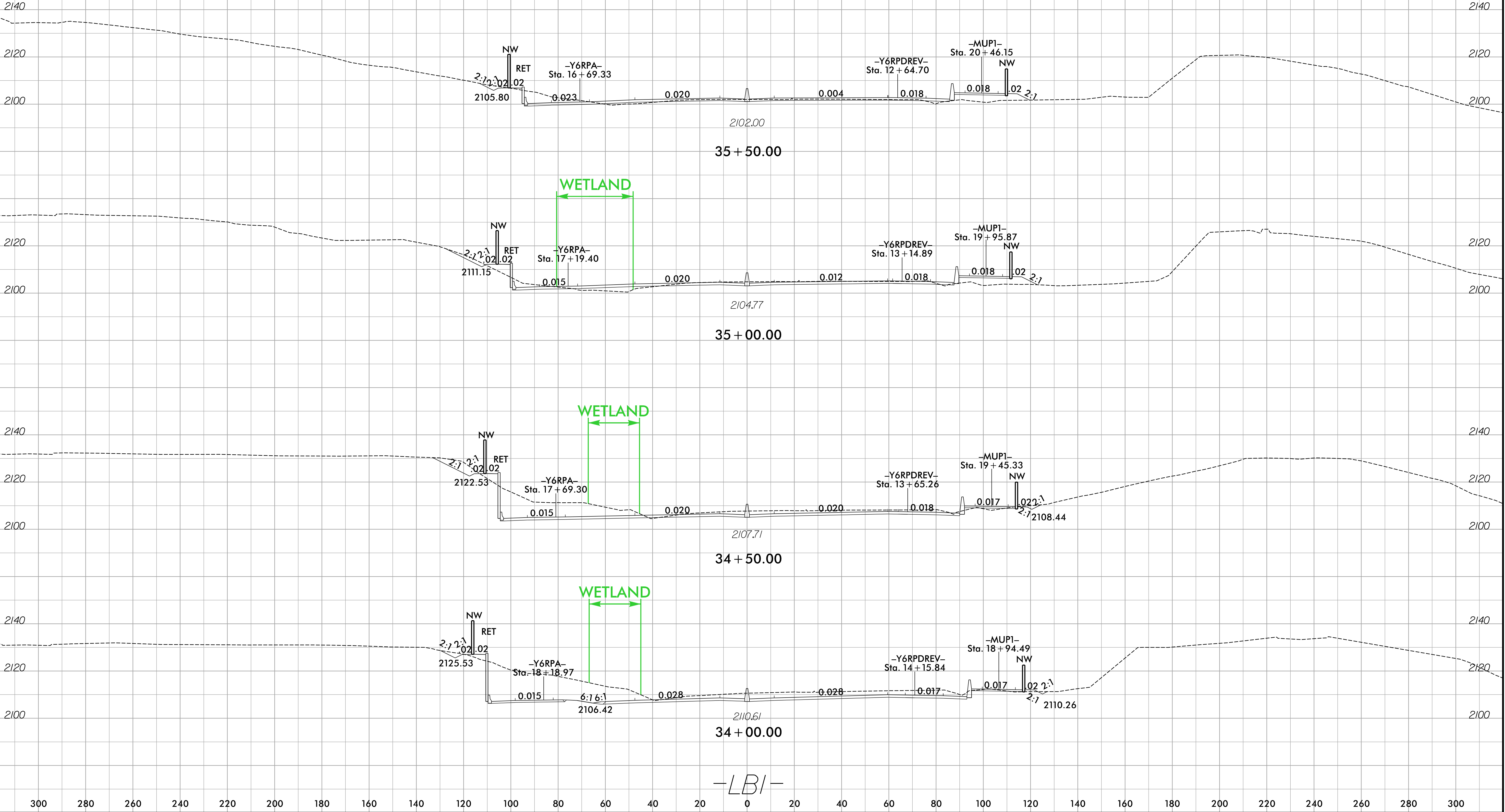


6/23/16

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SITE 3

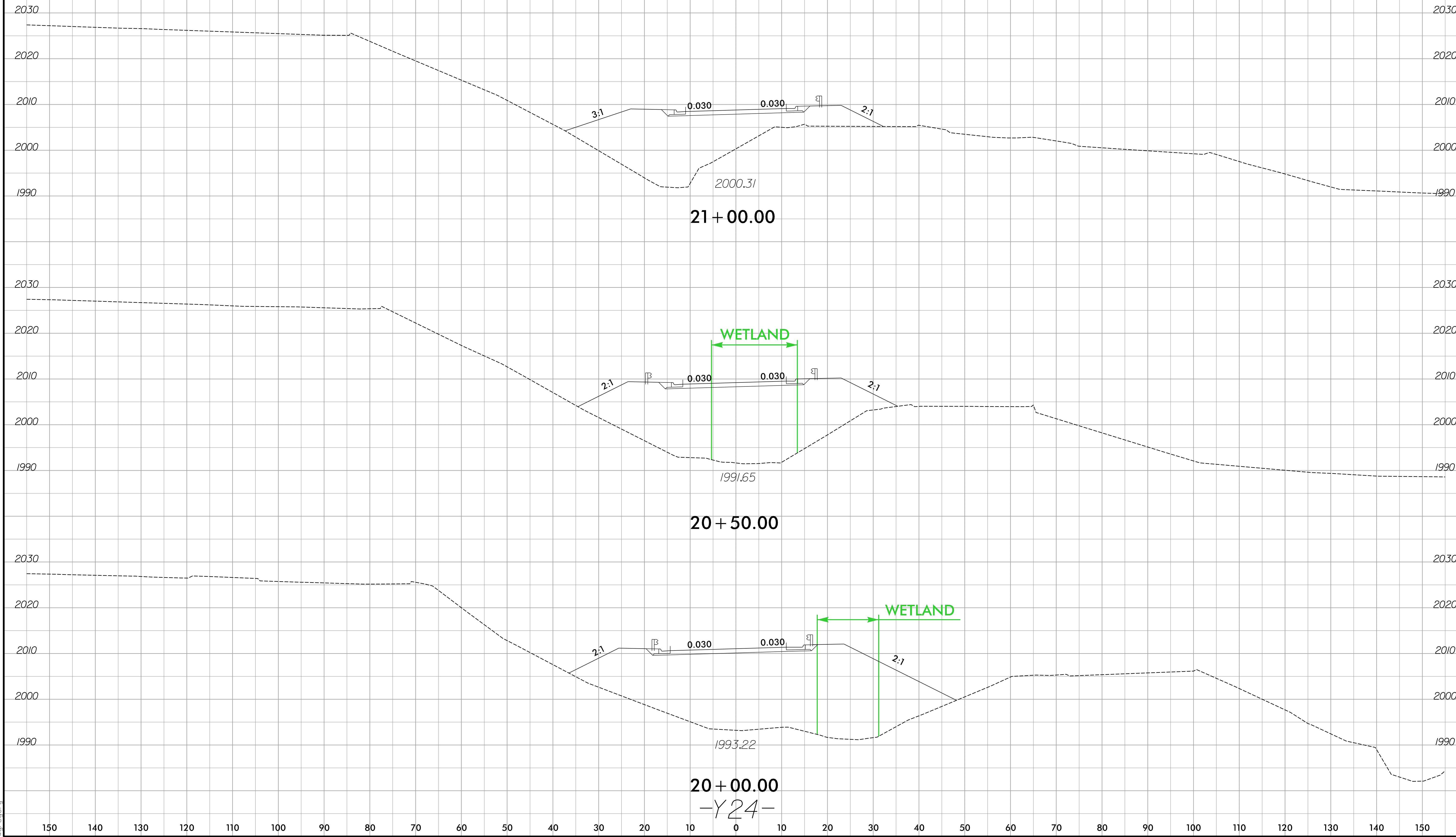
PERMIT DRAWING
SHEET 25 OF 85

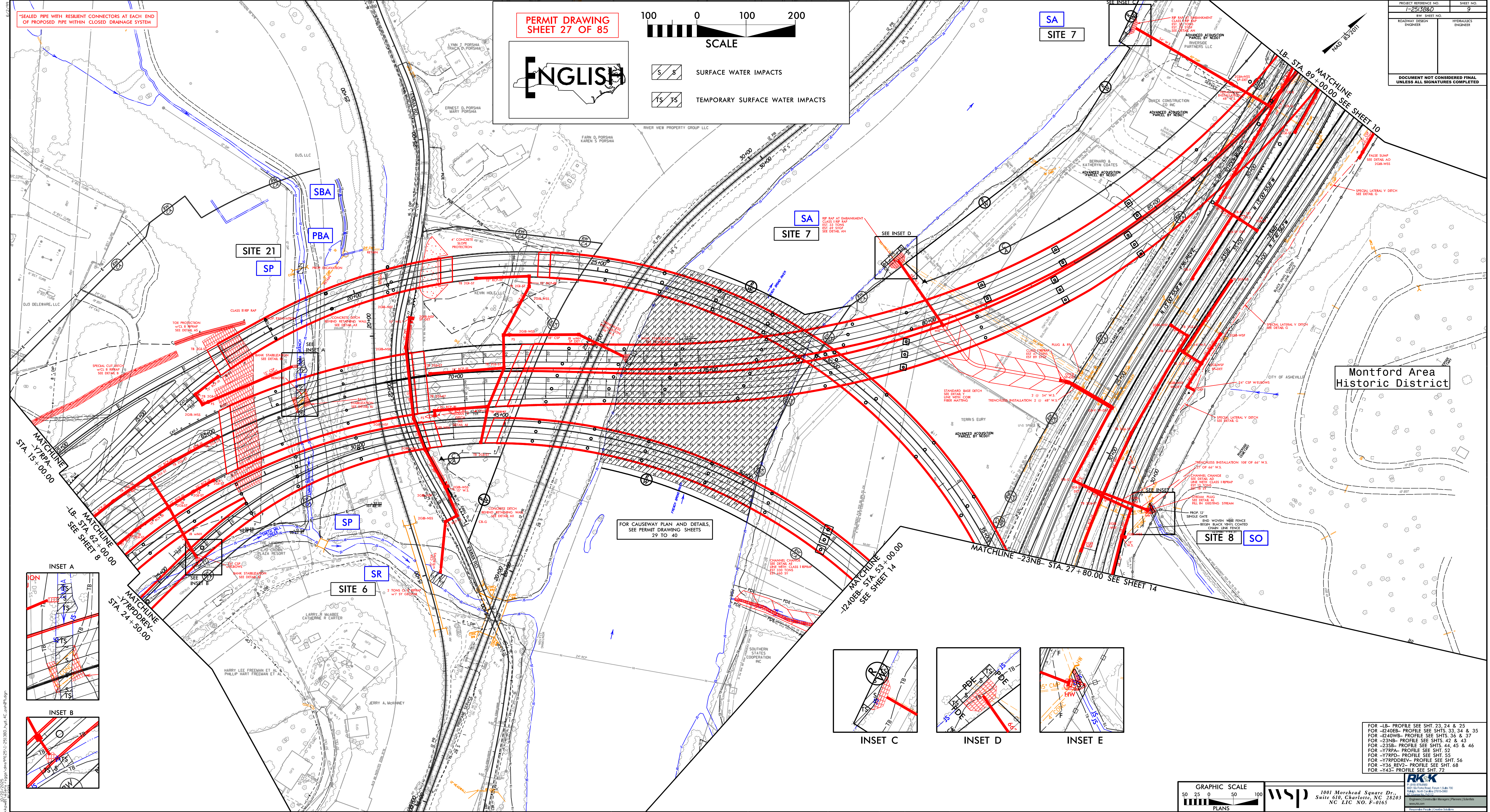


6/23/16

SITE 5

PERMIT DRAWING
SHEET 26 OF 85





SEALING PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

PERMIT DRAWING
SHEET 27 OF 85

ENGLISH

100 0 100 200
SCALE

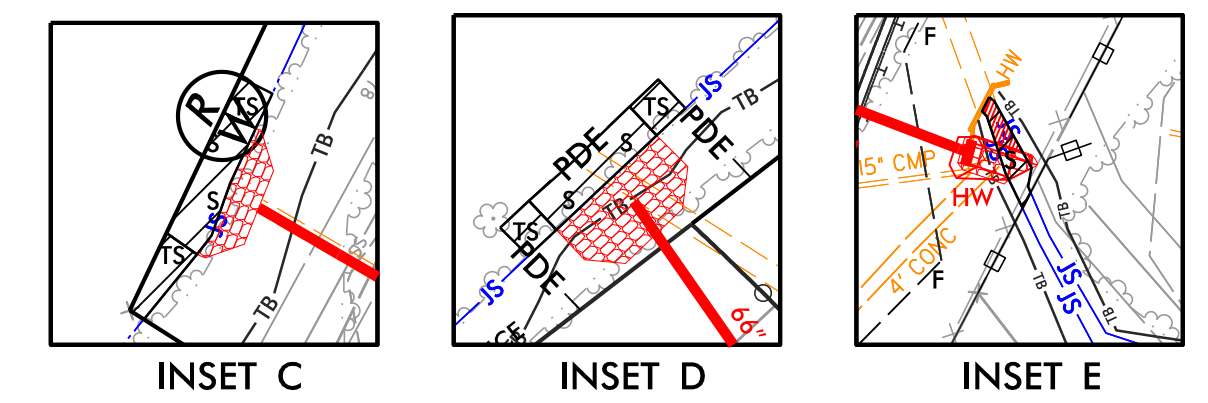
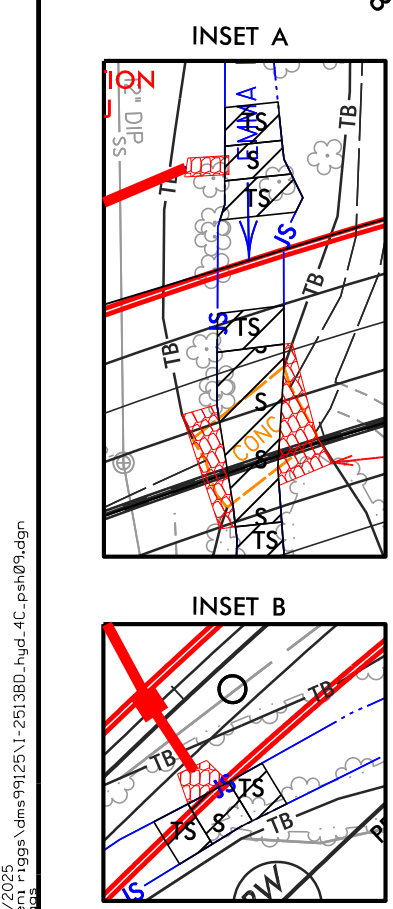
5 8 SURFACE WATER IMPACTS
TS TS TEMPORARY SURFACE WATER IMPACTS

SA SITE 7

SA SITE 7

SA SITE 7

PROJECT REFERENCE NO. 7-251380
SHEET NO. 9
REV. SHEET NO. ROADWAY DESIGN SHOWER HYDRAULICS SHOWER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



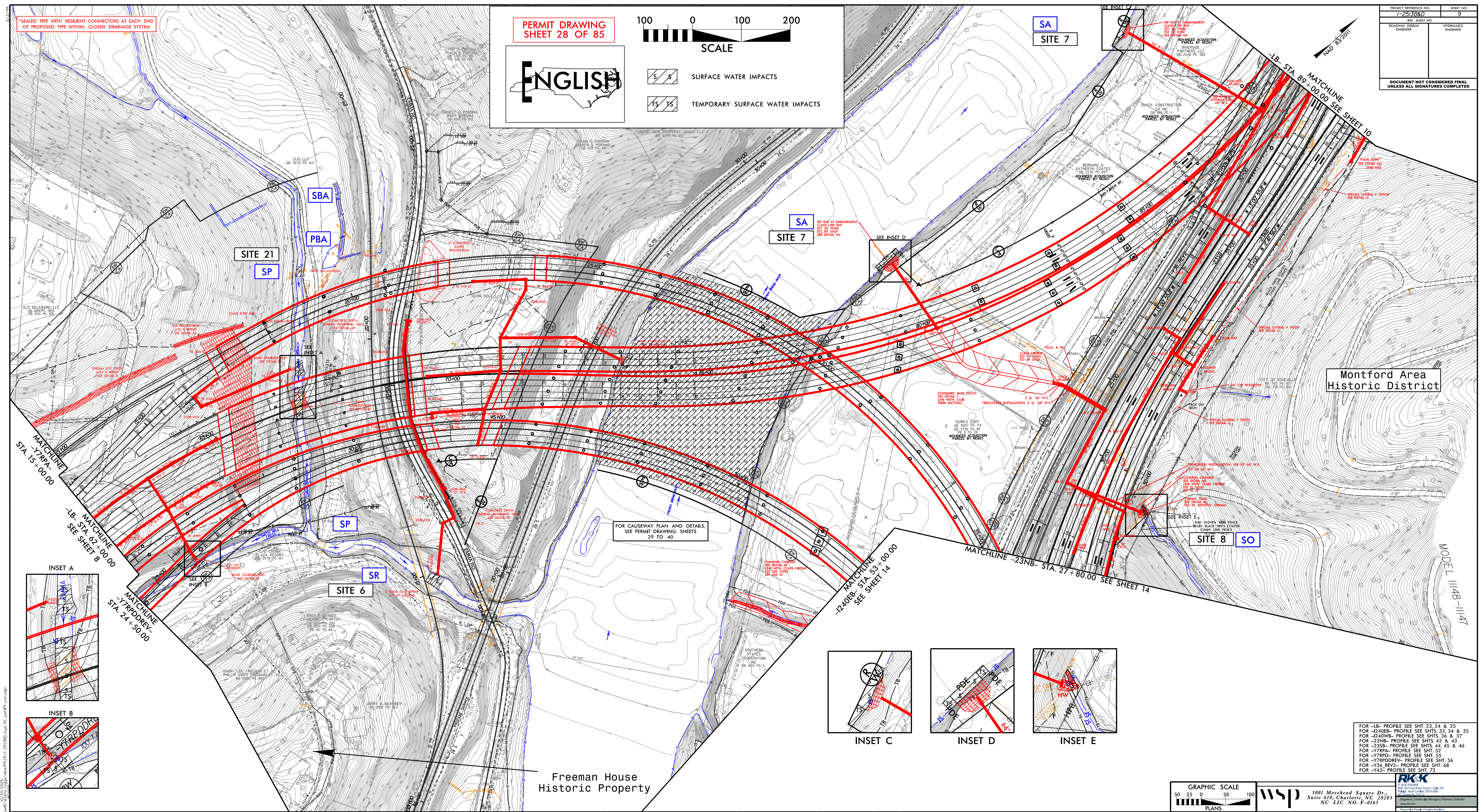
FOR CAUSEWAY PLAN AND DETAILS,
SEE PERMIT DRAWING SHEETS
29 TO 40

FOR -LB- PROFILE SEE SHT. 23, 24 & 25
FOR -1240B- PROFILE SEE SHTS. 33, 34 & 35
FOR -1240WB- PROFILE SEE SHTS. 36 & 37
FOR -23NB- PROFILE SEE SHTS. 42 & 43
FOR -23SB- PROFILE SEE SHTS. 44, 45 & 46
FOR -Y7RPA- PROFILE SEE SHT. 52
FOR -Y7RPD- PROFILE SEE SHT. 55
FOR -Y7RPDDREV- PROFILE SEE SHT. 56
FOR -Y36 REV- PROFILE SEE SHT. 58
FOR -Y43- PROFILE SEE SHT. 72

GRAPHIC SCALE
50 25 0 50 100
PLANS

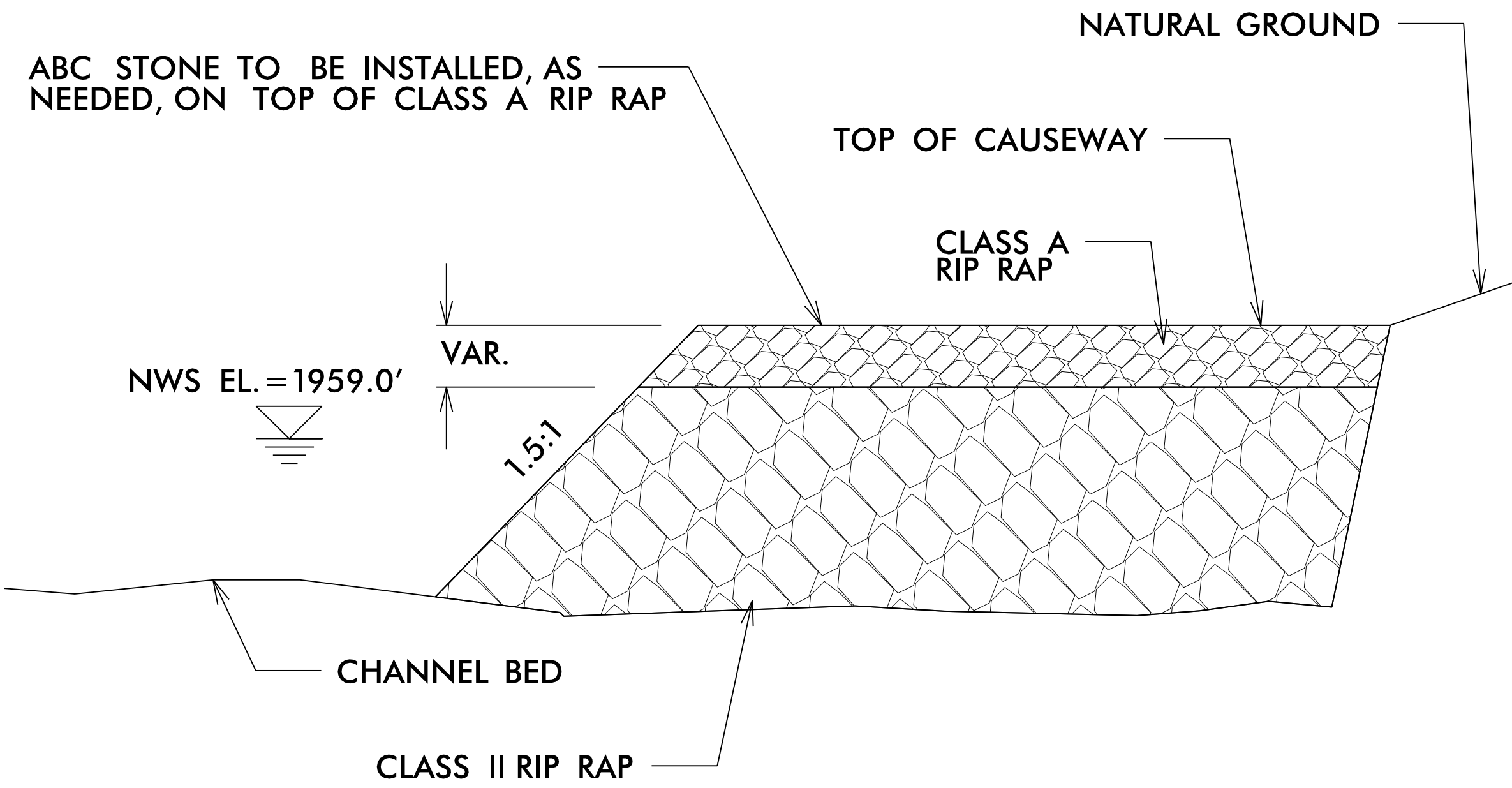
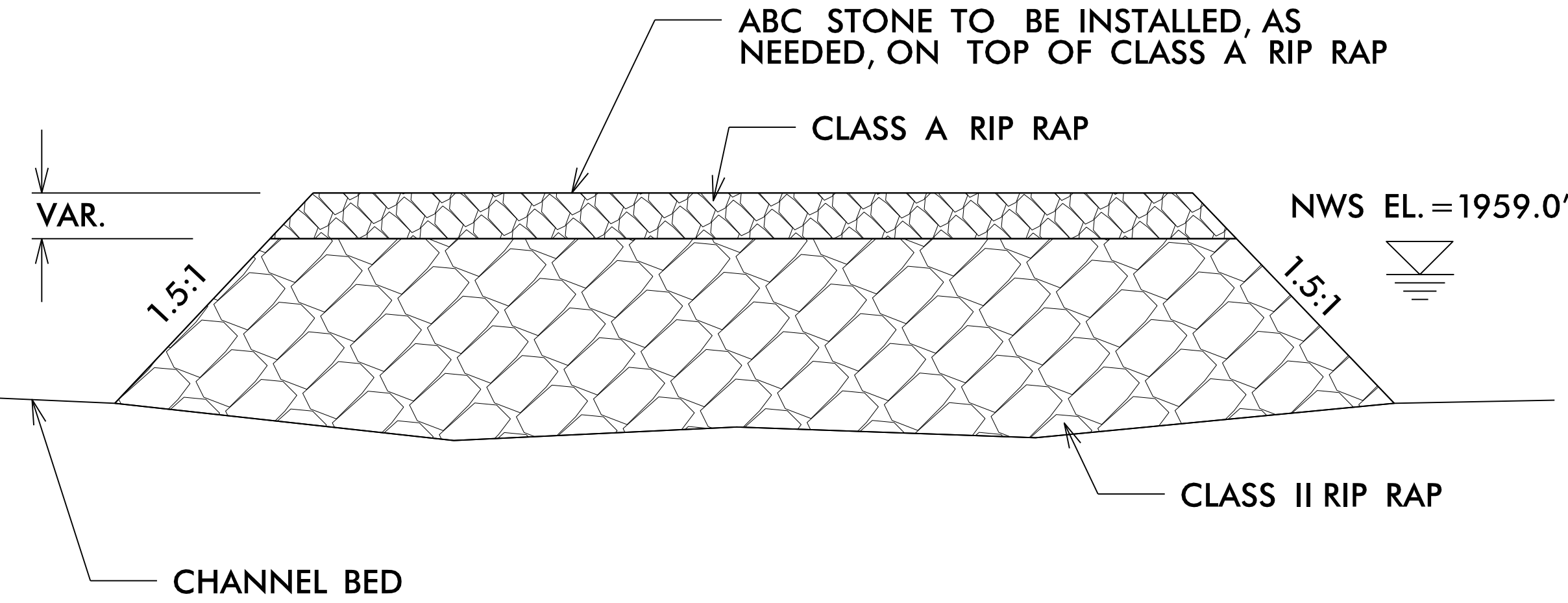
wsp 1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203
NC LIC. NO. F-0165

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



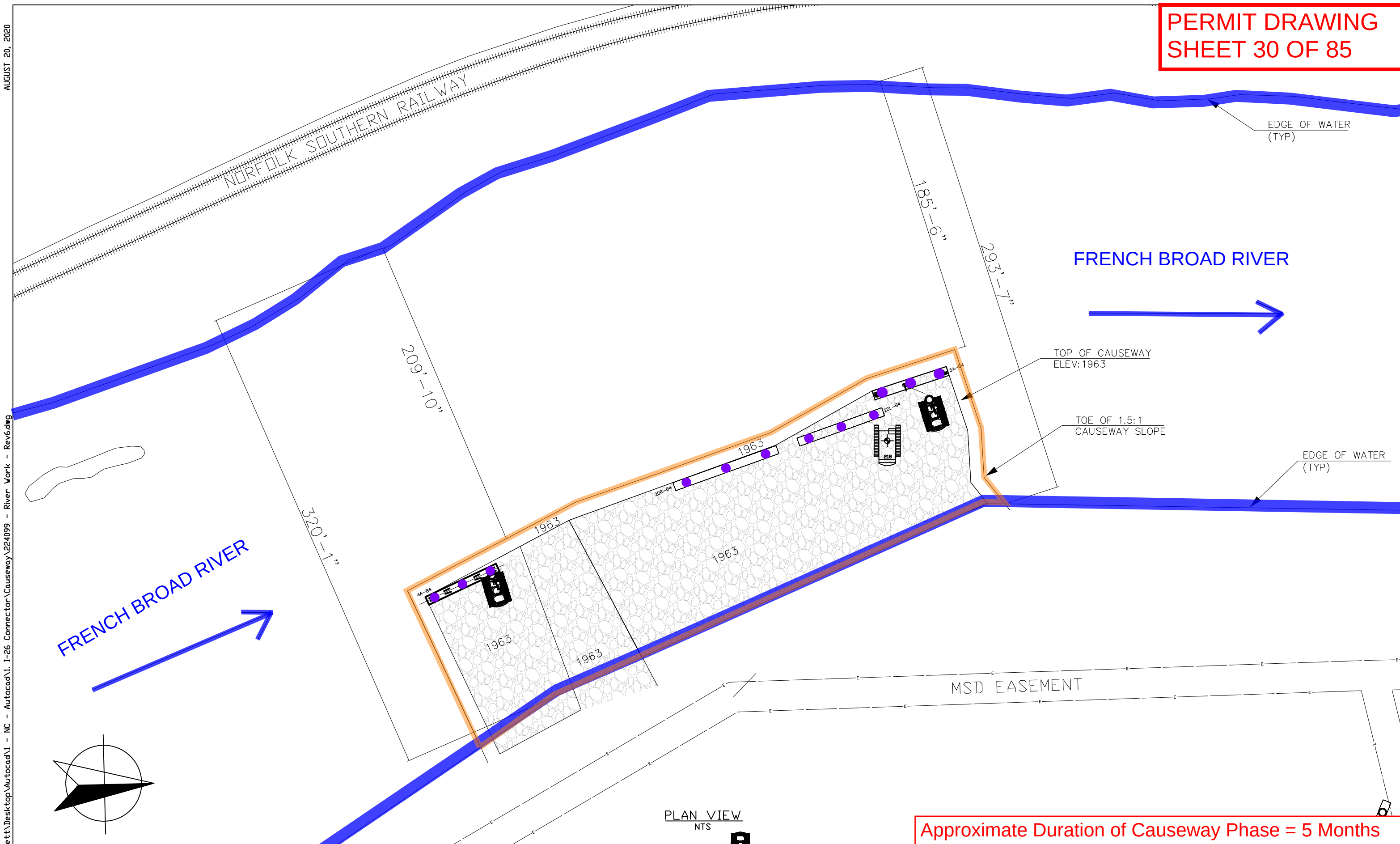
TEMPORARY WORK PAD DETAIL

NOT TO SCALE



PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 29 OF 85	

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PLAN VIEW
NTS

ISSUE	REVISIONS			SCALE	NTS
	-	-	-	DRAWN	WCJ
				CHECKED	JTH
				DATE	
				OWNER	NCDOT
				GEN. CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P1A

ARCHER-WRIGHT JV

554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801



NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

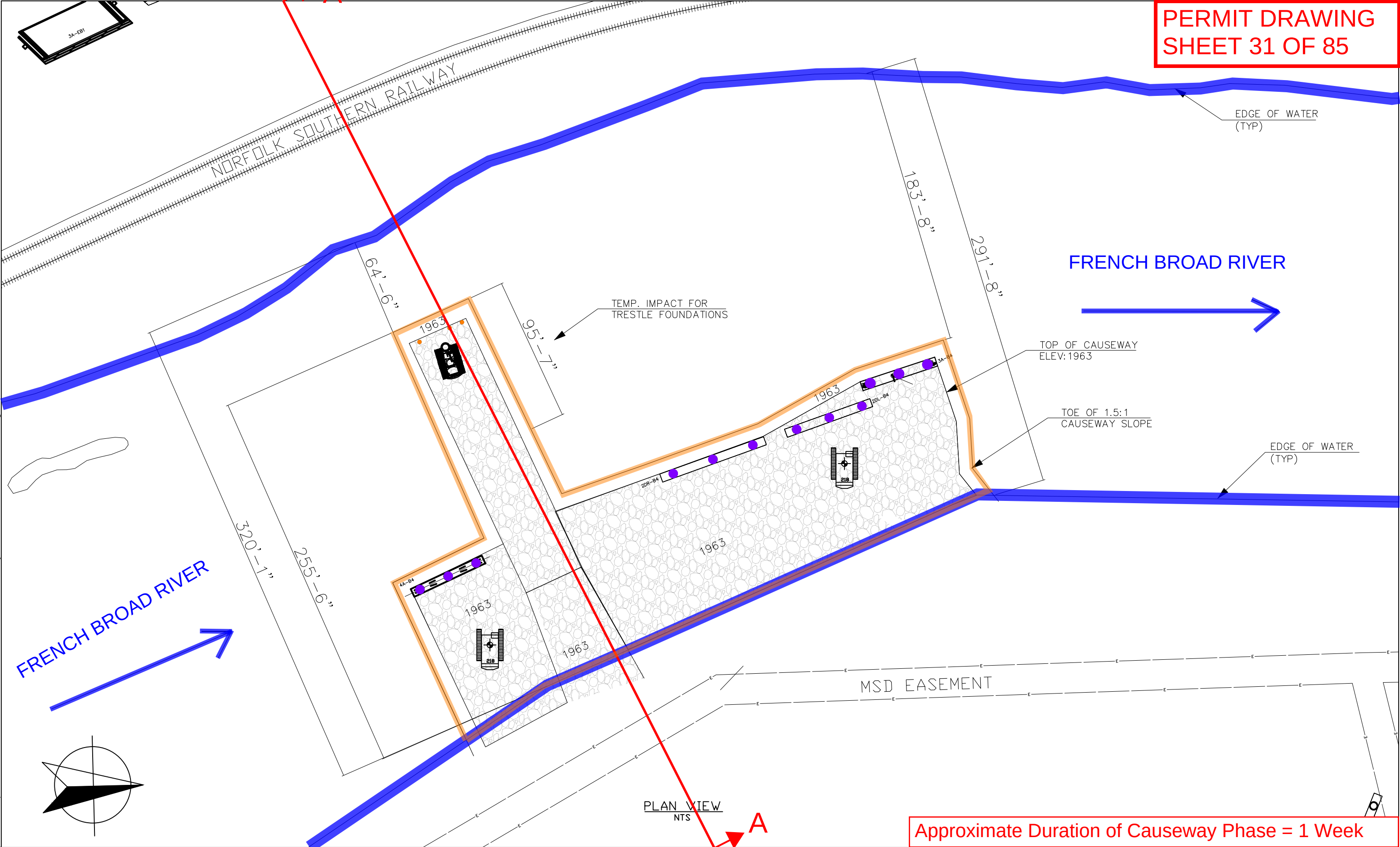
DWG NO: 2 OF 7

REV: 0

AUGUST 20, 2020

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PERMIT DRAWING
SHEET 31 OF 85



ISSUE		REVISIONS		SCALE		NTS		CAUSEWAY - P1B		ARCHER-WRIGHT JV		NC DEPARTMENT OF TRANSPORTATION	
				DRAWN		WCJ				554 RIVERSIDE DRIVE		ASHEVILLE I-26 CONNECTOR	
				CHECKED		JTH				ASHEVILLE, NC 28801			
				DATE									
				OWNER		NCDOT							
				GEN.CONTR.		ARCHER-WRIGHT JV							
												DWG NO: 1 OF 7	
												REV: 0	

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5/14/99

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 32 OF 85		

PHASE 1B

**TEMPORARY CAUSEWAY TO CONSTRUCT
FOUNDATIONS FOR TRESTLE BRIDGE**

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 93.5 SF
BLOCKED AREA BELOW NWS = 571.9 SF
RIVER FLOW AREA 14.1% OPEN

**APPROXIMATE DURATION OF CAUSEWAY PHASE
= 1 WEEK**

2010

2000

1990

1980

1970

1960

1950

RAILROAD

TRESTLE
FOUNDATIONS

Unobstructed Flow

Baseflow WS = 1959.0
Baseflow Velocity = 4.2 ft/s

10-YR WS = 1969.4'
10-YR Velocity = 5.8 ft/s

10-YR WS = 1969.5'
10-YR Velocity = 9.6 ft/s

Baseflow WS = 1961.7'
Baseflow Velocity = 12.2 ft/s

NWS =
1959.0'

TOP OF CAUSEWAY = 1963.0'

1.5:1

SECTION A-A

100

200

300

400

500

600

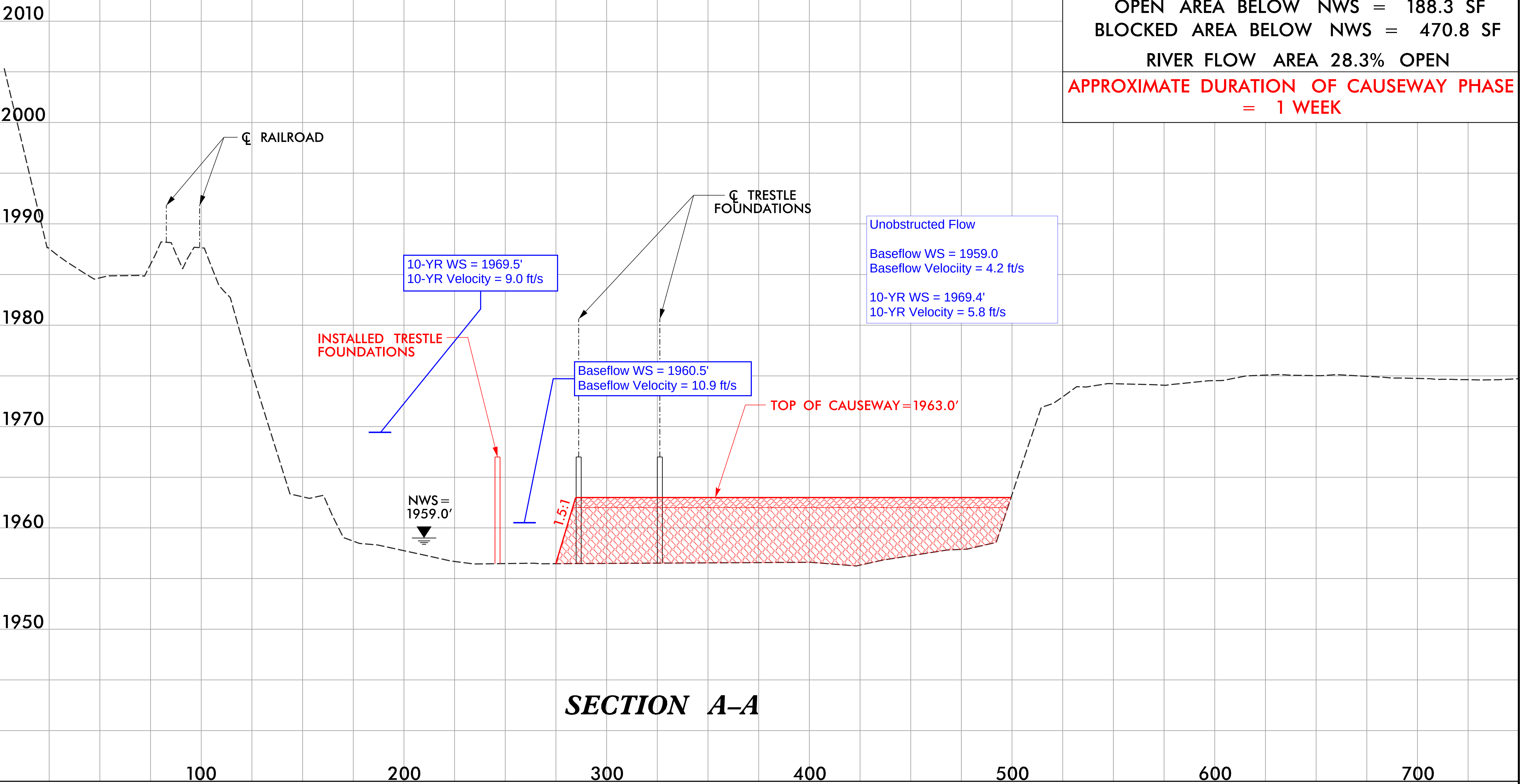
700

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5/14/99

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 34 OF 85		

PHASE 1C
TEMPORARY CAUSEWAY TO CONSTRUCT
FOUNDATIONS FOR TRESTLE BRIDGE

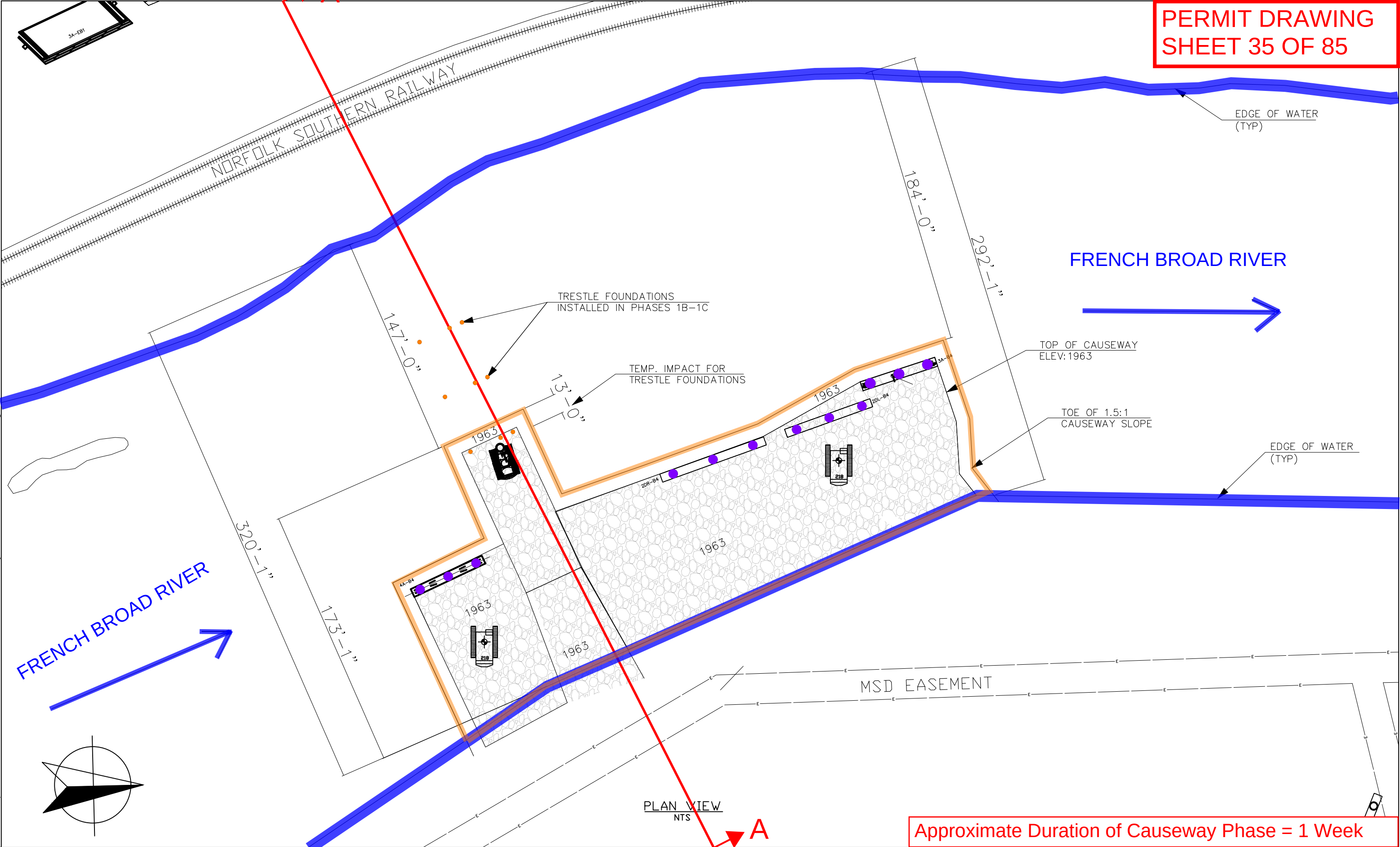
TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 188.3 SF
BLOCKED AREA BELOW NWS = 470.8 SF
RIVER FLOW AREA 28.3% OPEN
APPROXIMATE DURATION OF CAUSEWAY PHASE
= 1 WEEK



AUGUST 20, 2020

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PERMIT DRAWING
SHEET 35 OF 85



ISSUE		REVISIONS		SCALE		NTS		CAUSEWAY - P1D		ARCHER-WRIGHT JV		NC DEPARTMENT OF TRANSPORTATION	
				DRAWN		WCJ				554 RIVERSIDE DRIVE		ASHEVILLE I-26 CONNECTOR	
				CHECKED		JTH				ASHEVILLE, NC 28801			
				DATE									
				OWNER		NCDOT							
				GEN.CONTR.		ARCHER-WRIGHT JV							
												DWG NO: 1 OF 7	
												REV: 0	

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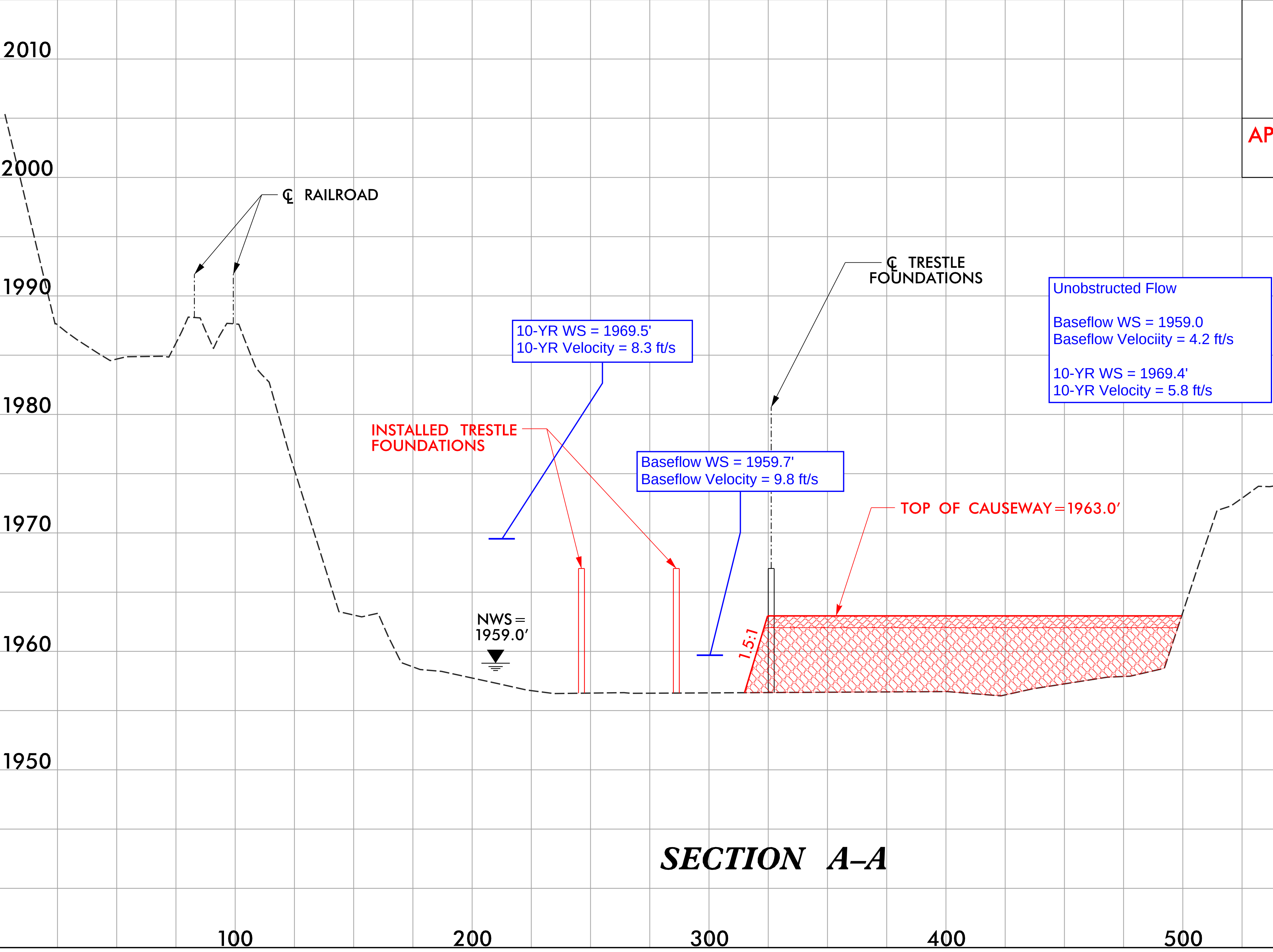
PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 36 OF 85		

PHASE 1D

**TEMPORARY CAUSEWAY TO CONSTRUCT
FOUNDATIONS FOR TRESTLE BRIDGE**

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 282.5 SF
BLOCKED AREA BELOW NWS = 370.3 SF
RIVER FLOW AREA 42.5% OPEN

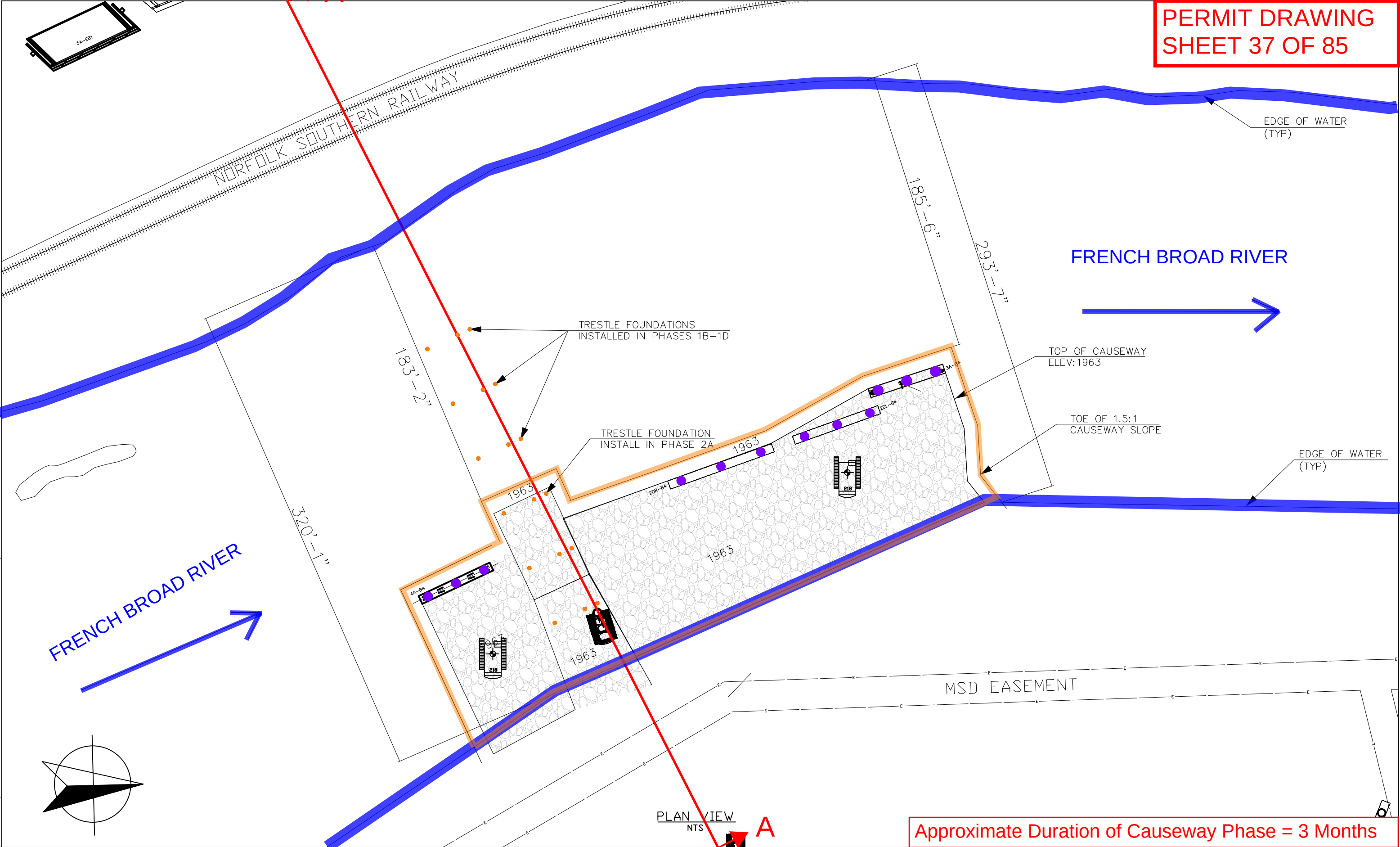
APPROXIMATE DURATION OF CAUSEWAY PHASE
= 1 WEEK



AUGUST 20, 2020

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PERMIT DRAWING
SHEET 37 OF 85



ISSUE		REVISIONS			SCALE	NTS	CAUSEWAY - 2	 ARCHER-WRIGHT JV 554 RIVERSIDE DRIVE ASHEVILLE, NC 28801  <th colspan="2">NC DEPARTMENT OF TRANSPORTATION</th>	NC DEPARTMENT OF TRANSPORTATION		
	-	-	-	DRAWN	WCJ	ASHEVILLE I-26 CONNECTOR					
				CHECKED	JTH						
				DATE							
				OWNER	NCDOT						
				GEN.CONTR.	ARCHER-WRIGHT JV						
								DWG NO: 2 OF 7		REV: 0	

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5/14/99

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 38 OF 85		

PHASE 2
TEMPORARY CAUSEWAY TO CONSTRUCT
FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 390.3 SF
BLOCKED AREA BELOW NWS = 275.1 SF
RIVER FLOW AREA 58.7% OPEN
APPROXIMATE DURATION OF CAUSEWAY PHASE
= 3 MONTHS

2010

2000

1990

1980

1970

1960

1950

☐ RAILROAD

☐ TRESTLE
FOUNDATIONS

INSTALLED TRESTLE
FOUNDATIONS

NWS =
1959.0'

TOP OF CAUSEWAY
=1963.0'

1.5:1

SECTION A-A

100

200

300

400

500

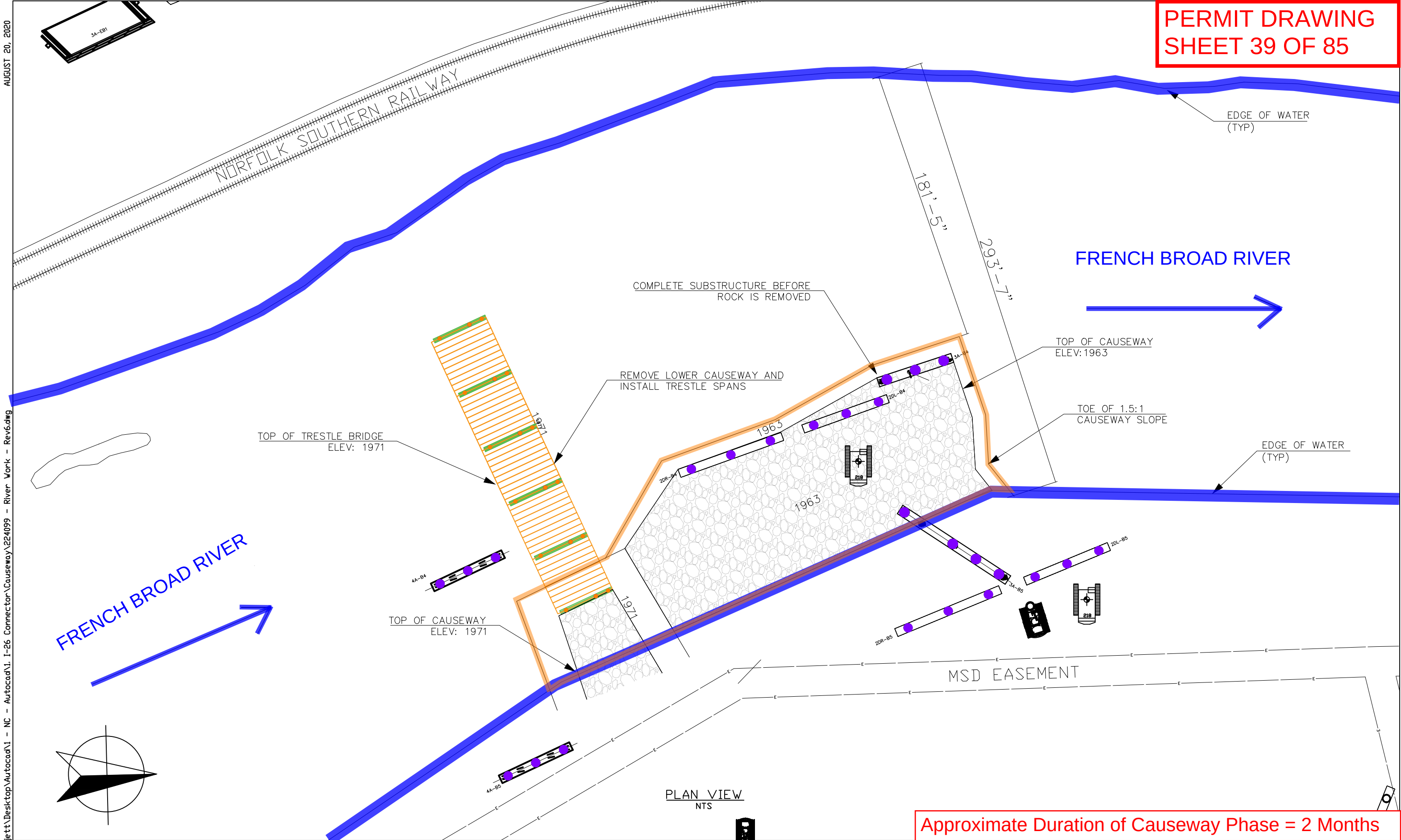
600

700

AUGUST 20, 2020

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PERMIT DRAWING
SHEET 39 OF 85



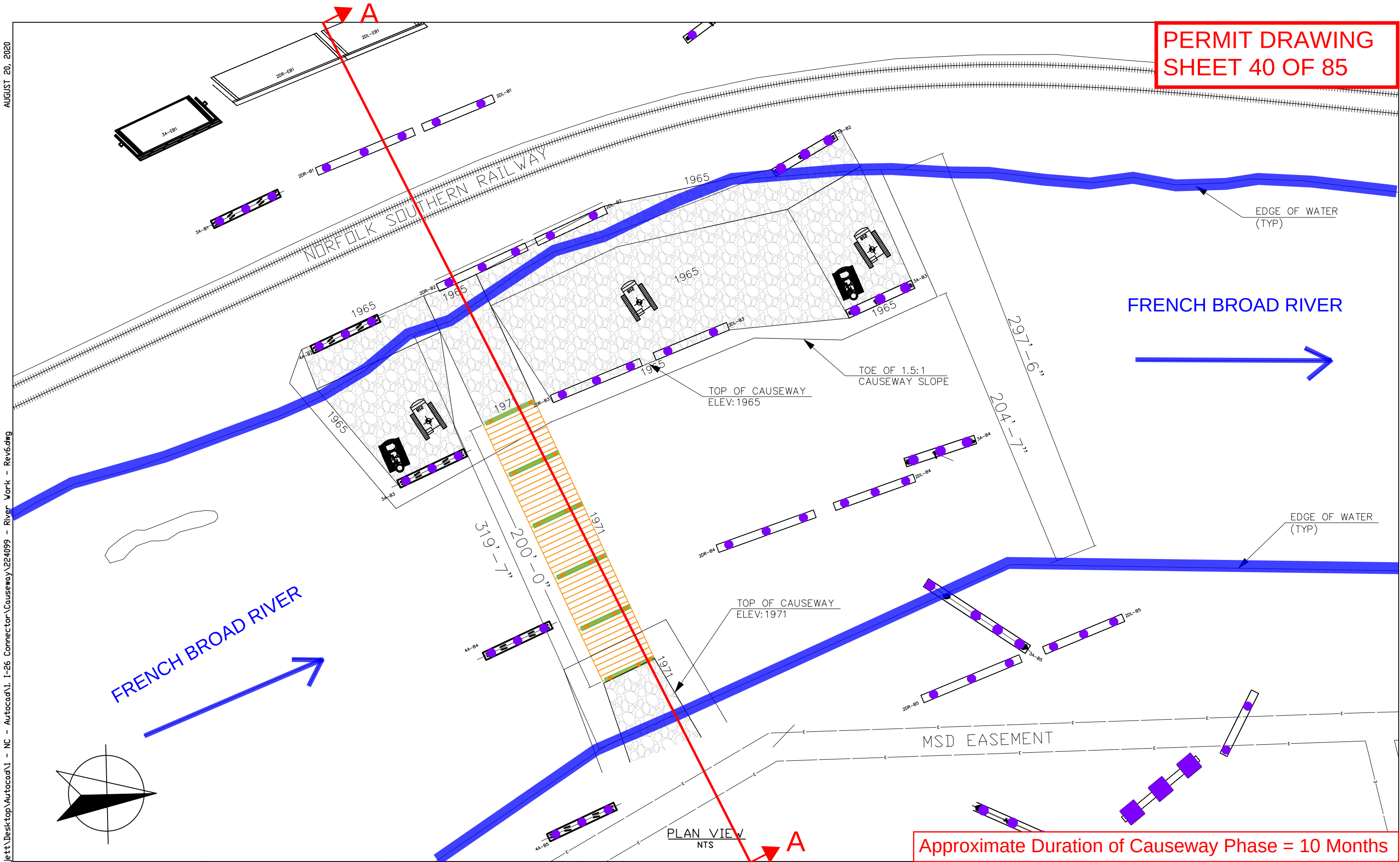
Approximate Duration of Causeway Phase = 2 Months

ISSUE		REVISIONS			SCALE	NTS	CAUSEWAY - 3	 <u>ARCHER-WRIGHT JV</u> 554 RIVERSIDE DRIVE ASHEVILLE, NC 28801		NC DEPARTMENT OF TRANSPORTATION ASHEVILLE I-26 CONNECTOR		
	-	-	-	DRAWN	WCJ							
				CHECKED	JTH							
				DATE								
				OWNER	NCDOT							
				GEN.CONTR.	ARCHER-WRIGHT JV							
										DWG NO: 3 OF 7		REV: 0

AUGUST 20, 2020

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PERMIT DRAWING
SHEET 40 OF 85



ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P4



ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

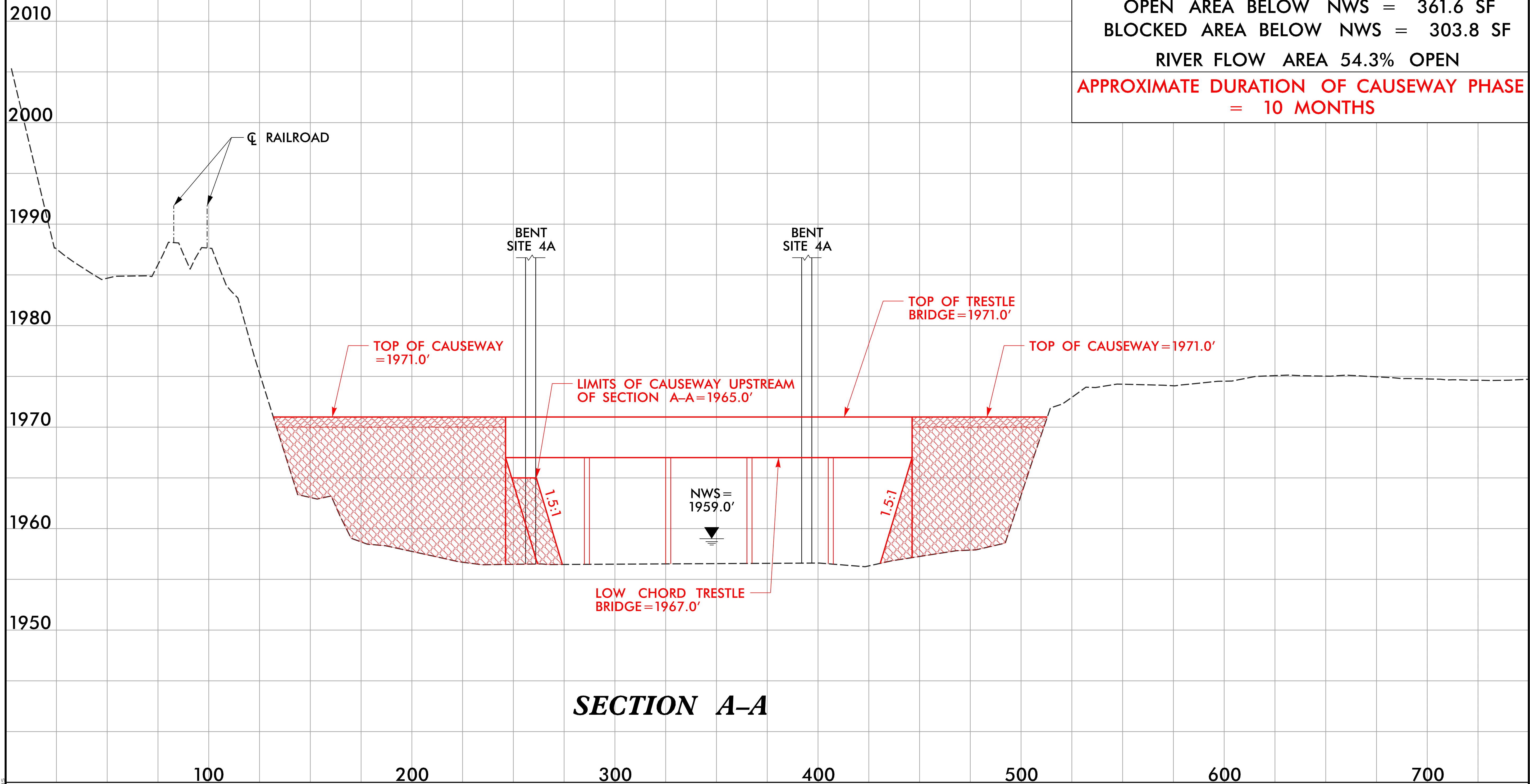


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PROJECT REFERENCE NO.		SHEET NO.	
1-2513B&D			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

PHASE 4
TRESTLE BRIDGE

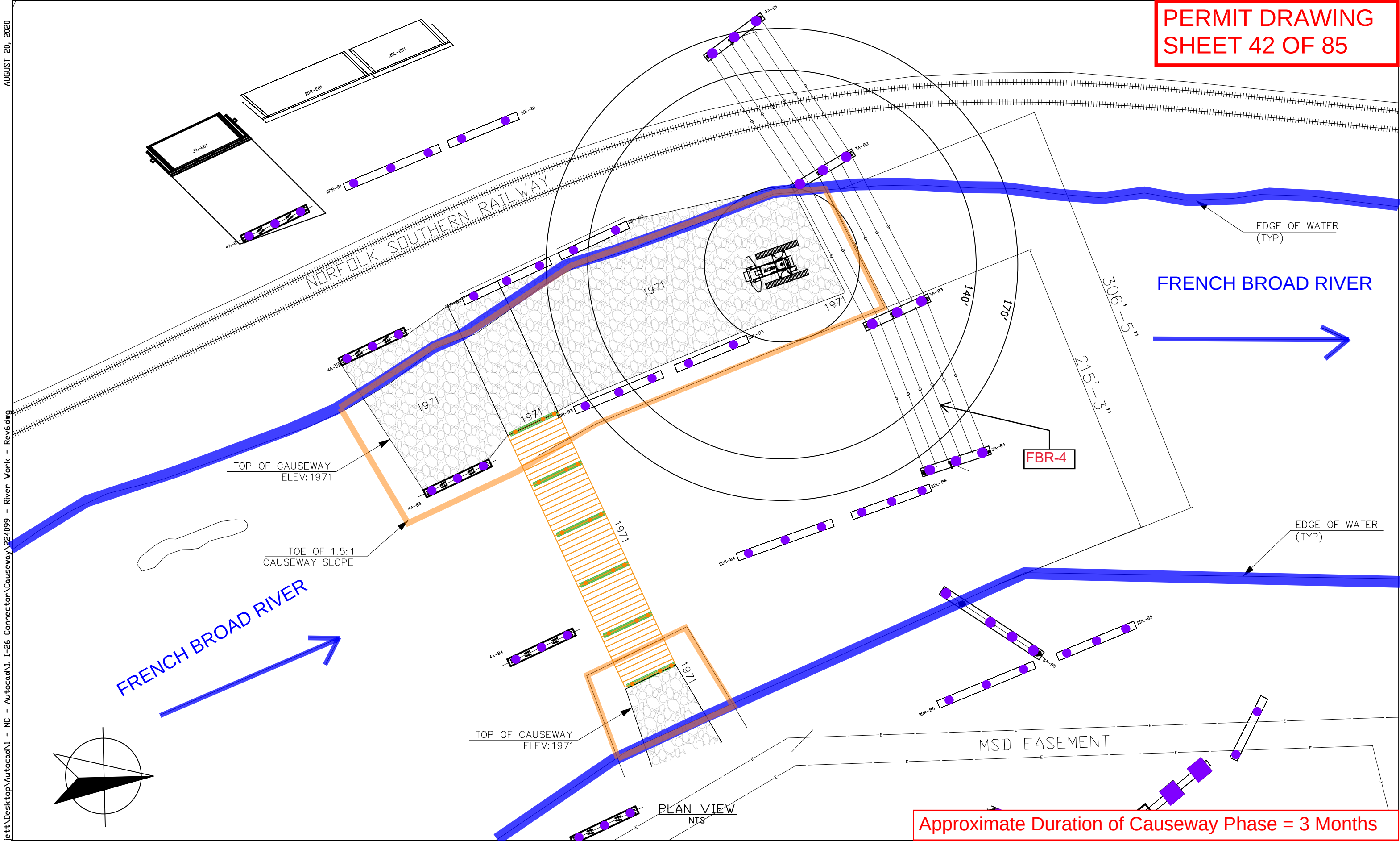
TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 361.6 SF
BLOCKED AREA BELOW NWS = 303.8 SF
RIVER FLOW AREA 54.3% OPEN
APPROXIMATE DURATION OF CAUSEWAY PHASE
= 10 MONTHS



AUGUST 20, 2020

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PERMIT DRAWING
SHEET 42 OF 85



Approximate Duration of Causeway Phase = 3 Months

ISSUE

REVISIONS		
-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NC DOT
GEN. CONTR.	ARCHER-WRIGHT JV

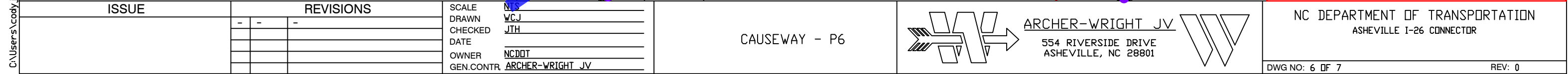
CAUSEWAY - P5



ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801



NC DEPARTMENT OF TRANSPORTATION ASHEVILLE I-26 CONNECTOR	
DWG NO: 5 OF 7	REV: 0



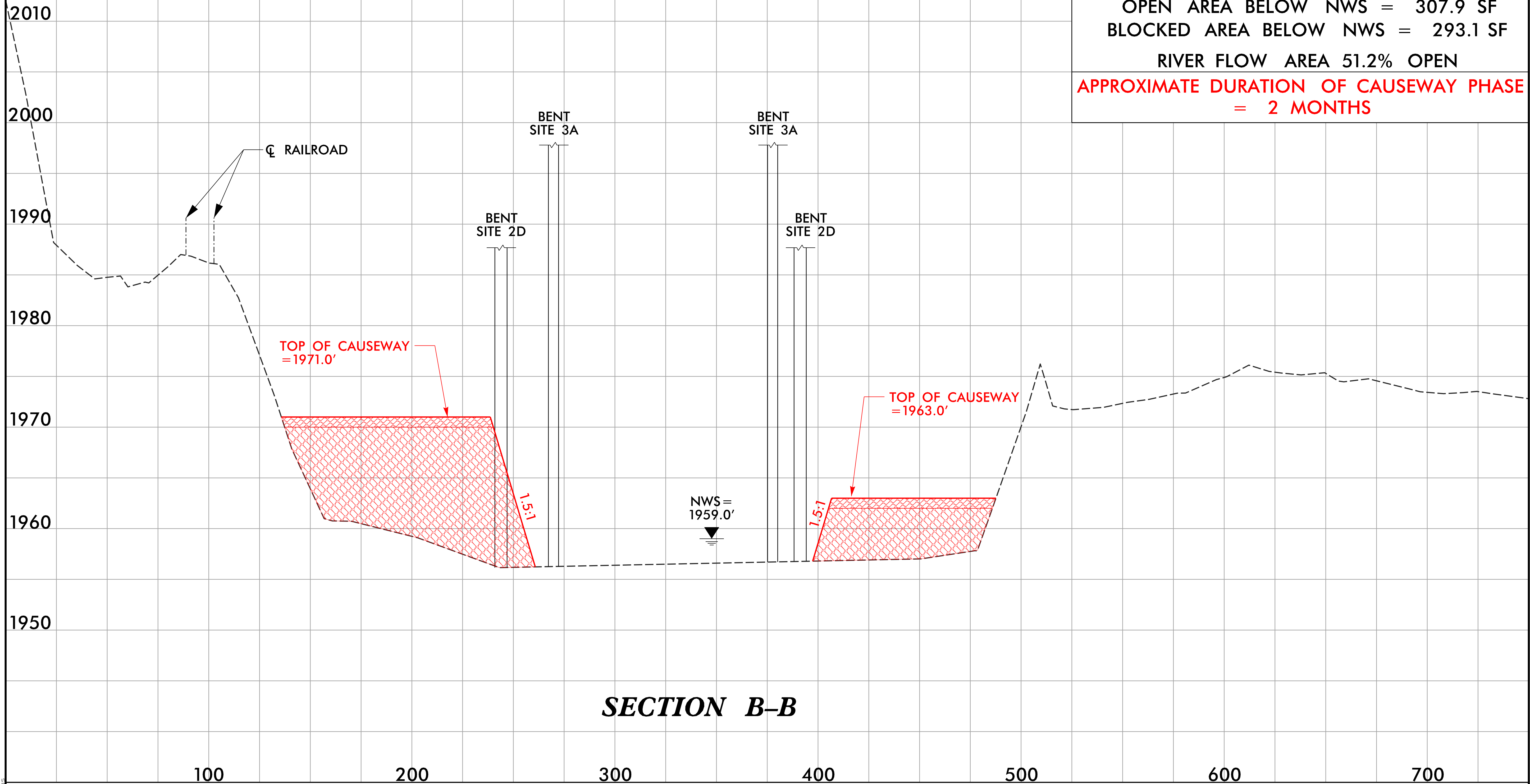
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10/9/2025
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8/10/2025

PROJECT REFERENCE NO.		SHEET NO.	
1-2513B&D			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 44 OF 85			

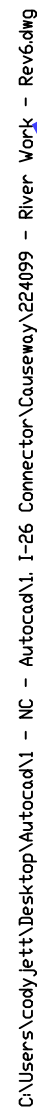
PHASE 6

PARALLEL CAUSEWAYS

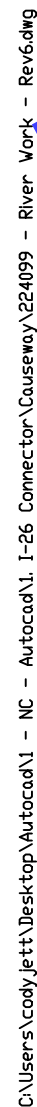
TOTAL AREA BELOW NWS = 601.0 SF
OPEN AREA BELOW NWS = 307.9 SF
BLOCKED AREA BELOW NWS = 293.1 SF
RIVER FLOW AREA 51.2% OPEN
APPROXIMATE DURATION OF CAUSEWAY PHASE
= 2 MONTHS



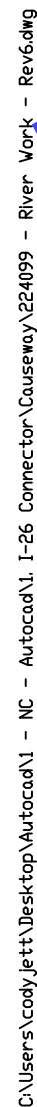
SECTION B-B

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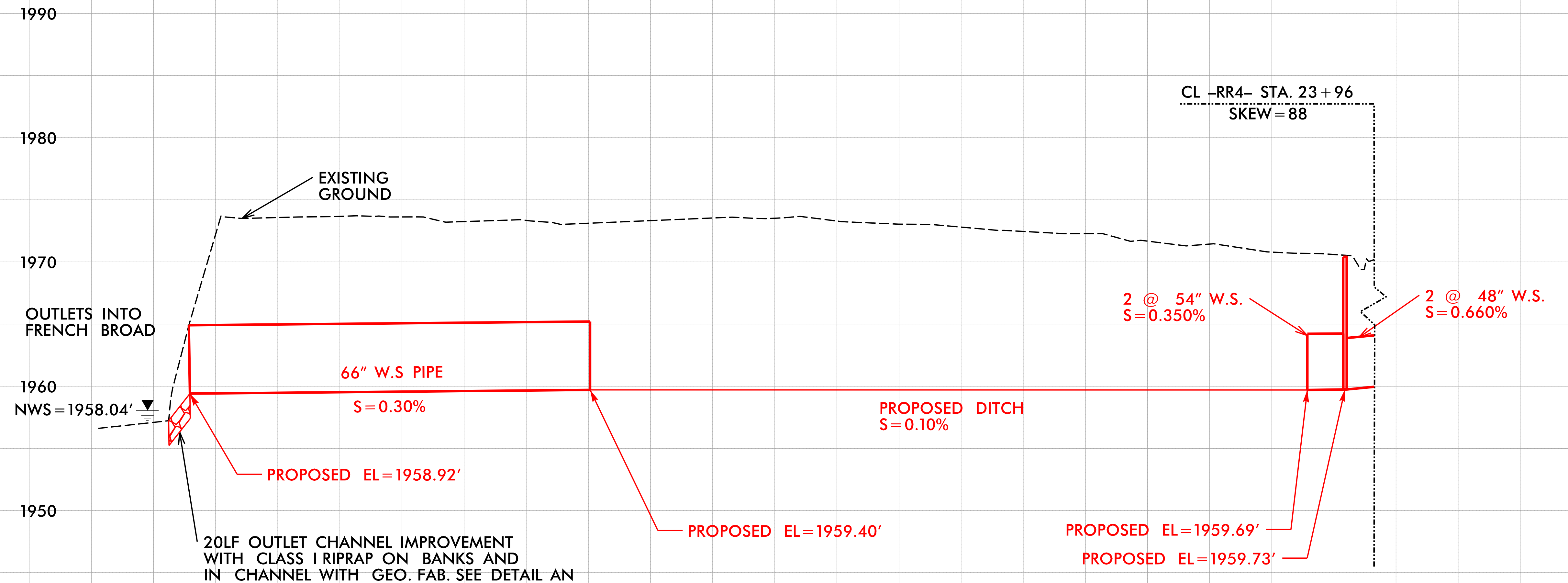


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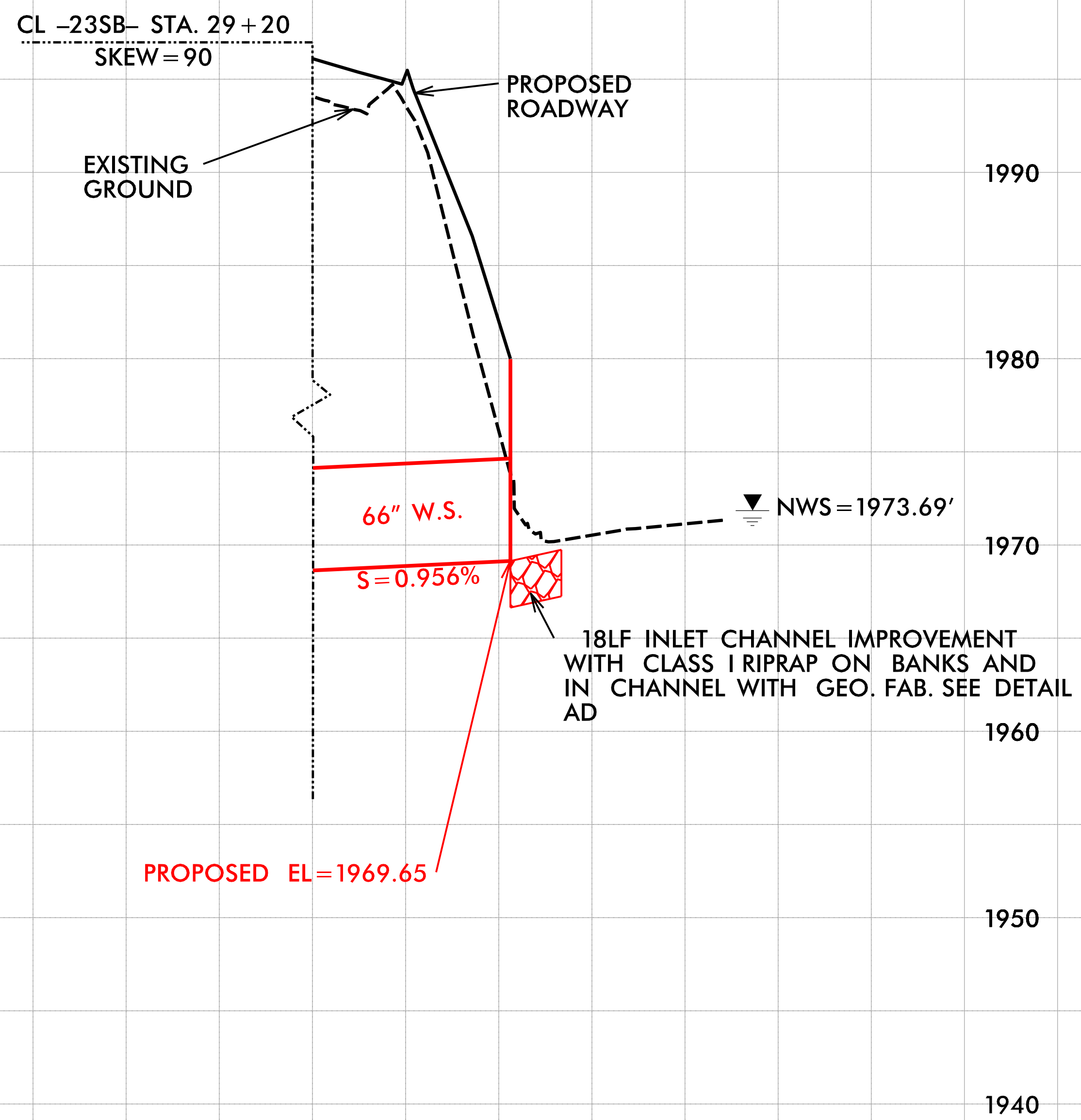
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SITE 7
—RR4— STA. 23 + 97



**66" RC PIPE
(NOT BURIED, LENGTH = 161')**

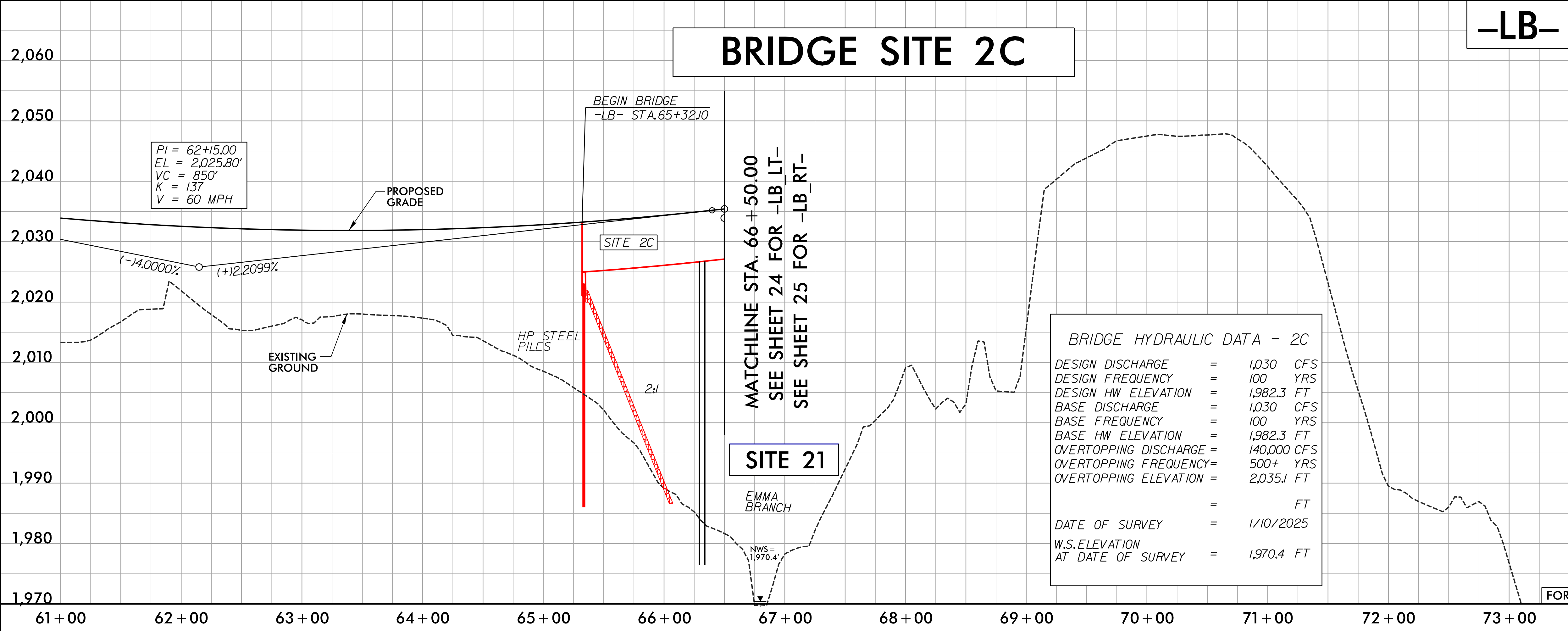
SITE 8
-23SB- STA. 29 + 20



**66" W.S. PIPE
(NOT BURIED, LENGTH = 135')**

5/28/99

10/17/2025
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K045001



-LB-

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 49 OF 85		

-LB LT-

BRIDGE HYDRAULIC DATA - 2D

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT

DATE OF SURVEY	=	1/10/2025
W.S.ELEVATION AT DATE OF SURVEY	=	1,959.0 FT

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT

DATE OF SURVEY = 1/10/2025
W.S.ELEVATION
AT DATE OF SURVEY = 1,959.0 FT

MATCHLINE STA. 66 + 50.00
SEE SHEET 23 FOR -LB-

$$\begin{aligned} &= 70 + 80.00 \\ &= 2,044.91' \\ &= 825' \\ &= 151 \\ &= 60 \text{ MPH} \end{aligned}$$

PERMIT DRAWING
SHEET 50 OF 85

PROJECT REFERENCE NO.		SHEET NO.	
1-2513B&D		24	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

SITE 6

SMITH
MILL
CREEK

END BRIDGE
-1B- STA 69+16.46

3. $(-1, 0)$

PROPOSED
— GRADE
— LB —

BEGIN BRIDGE
-LP- STA 71+37.61

BEGIN GRADE	POINT TRANSITION
END GRADE -LB-	
STA.70+00 EL = 2,039.50	
BEGIN GRADE -LB_LRT- STA.70+00	
(OFF = 27.42' LT) EL = 2,041.14	
BEGIN GRADE -LB_LRT- STA.70+00	
(OFF = 25' RT) EL = 2,038.00	

HP STEEL
PIIFSHP STEEL
RULESRAILROAD
CROSSING

	-Y43-
	(EMMA RD)

—PROPOSED
GRADE —LB LT—

SITE 2D

SITE 7

FRENCH BROAD
RIVER

FOR -LB- PLAN SEE SHTS. 8 & 9

—LB LT—

SITE 3A

17' MIN.

END SECTION 1
-LB- STA.83+00.00
BEGIN SECTION 2

PROPOSED
GRADE -LB LT-
$$\begin{aligned} & -LB_LT- \\ I &= 79+81.48 \\ L &= 2,017.38' \\ C &= 410' \\ &= 150 \\ &= 63 \text{ MPH} \end{aligned}$$

SITE 7

FRENCH BROAD RIVER

HP STEEL
PILES

EXISTING —
GROUND

HP STEEL
PILES

STRADDLE
BENT —

STRADDLE
BENT —

23'-6"
MIN.

RAILROAD
CROSSING

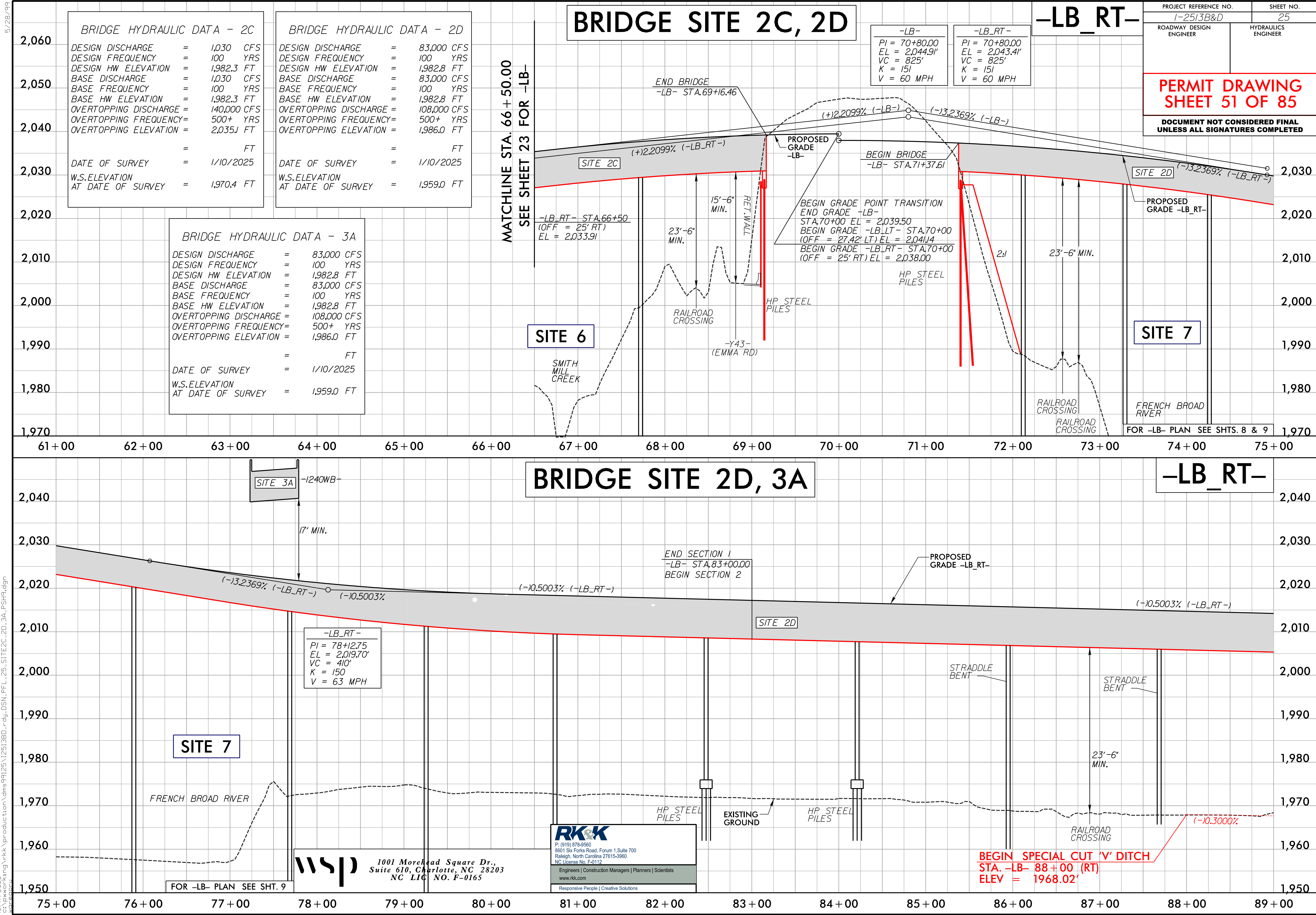
WS | D

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NC LIC NO. F-0165

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P: (919) 878-9560
8601 Six Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
NC License No. F-0112

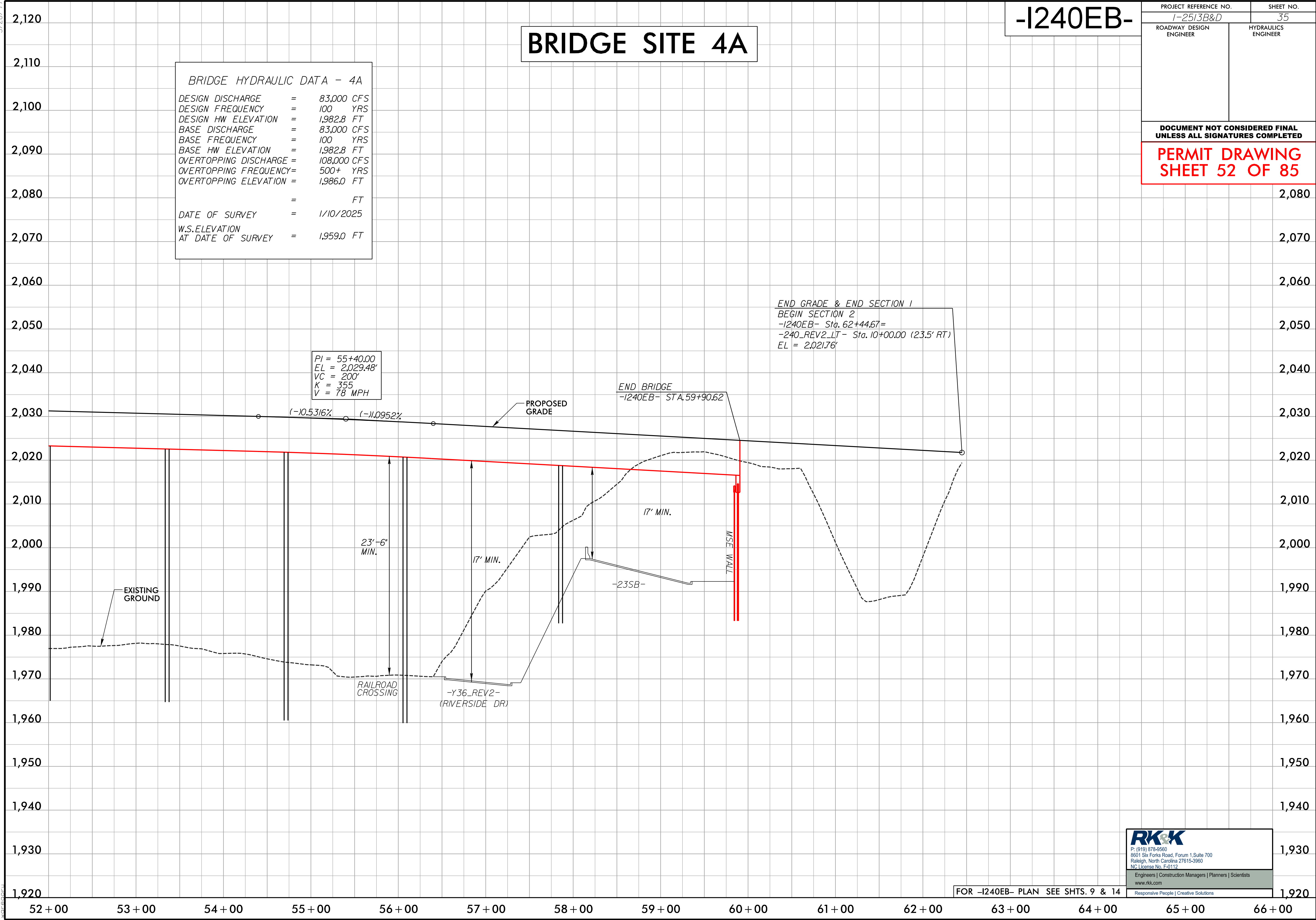
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10/17/2025
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WAT0001



-I240EB-

PROJECT REFERENCE NO.		SHEET NO.
I-25/3B&D		35
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 52 OF 85		

2,080
2,070
2,060
2,050
2,040
2,030
2,020
2,010
2,000
1,990
1,980
1,970
1,960
1,950
1,940
1,930
1,920

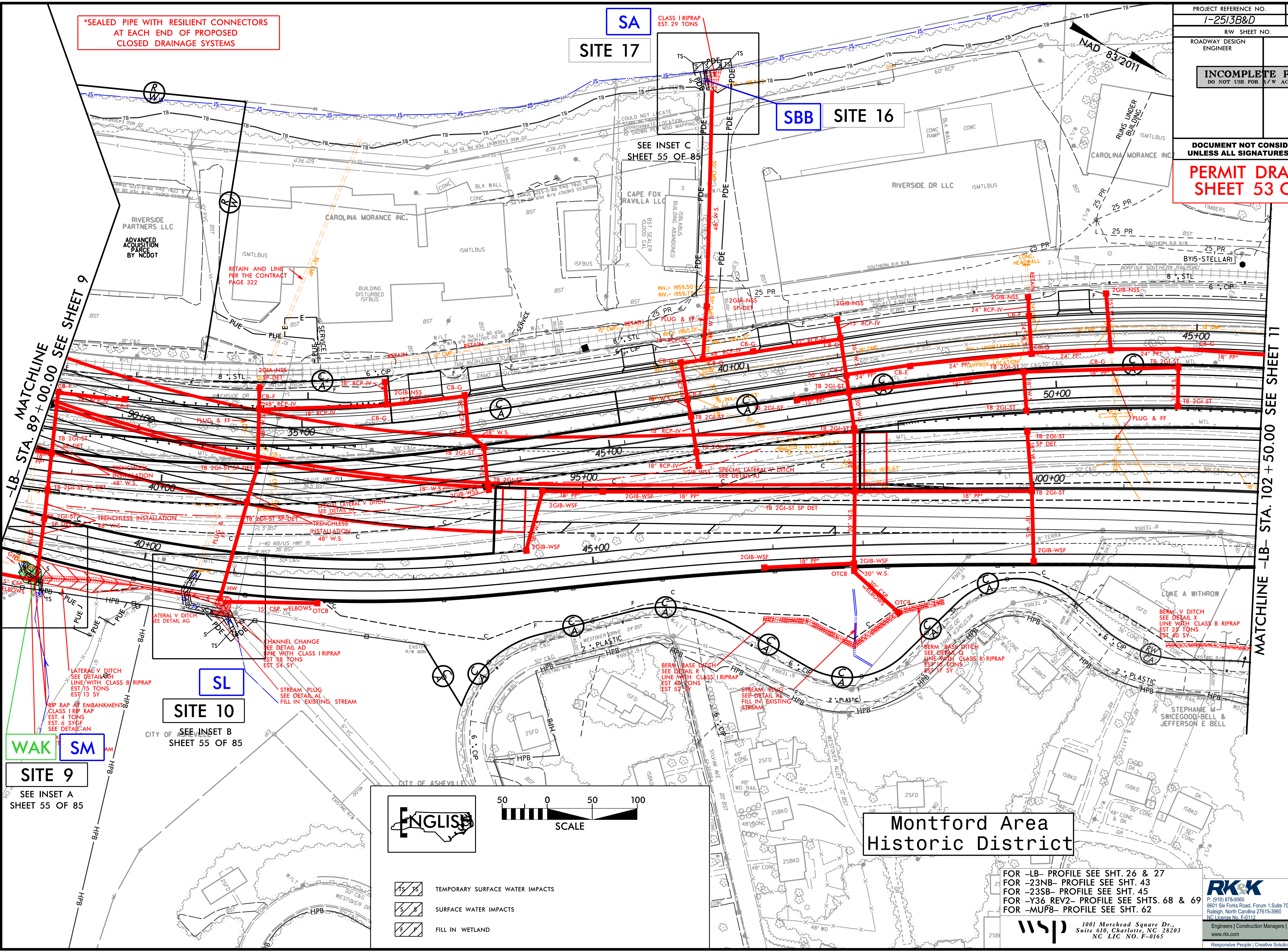
8/17/99

*SEALED PIPE WITH RESILIENT CONNECTORS
AT EACH END OF PROPOSED
CLOSED DRAINAGE SYSTEMS

SA
SITE 17

SBB
SITE 16

PROJECT REFERENCE NO. 1-2513B&D		SHEET NO. 10	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 53 OF 85			



-LB- STA. 89+00.00 SEE SHEET 9

MATCHLINE -LB- STA. 102+50.00 SEE SHEET 11

WAK
SITE 9
SEE INSET A
SHEET 55 OF 85

SL
SITE 10
SEE INSET B
SHEET 55 OF 85

ENGLISH

50 0 50 100
SCALE

	TEMPORARY SURFACE WATER IMPACTS
	SURFACE WATER IMPACTS
	FILL IN WETLAND

Montford Area
Historic District

FOR -LB- PROFILE SEE SHT. 26 & 27
FOR -23NB- PROFILE SEE SHT. 43
FOR -23SB- PROFILE SEE SHT. 45
FOR -Y36 REV2- PROFILE SEE SHTS. 68 & 69
FOR -MUP8- PROFILE SEE SHT. 62

wsp
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wsp

8/17/99
10/16/2025
C:\pwworking\king\kase\scholar\d0102832 1-2513B&D.hyd.4C.pst10.dgn

*SEALED PIPE WITH RESILIENT CONNECTORS
AT EACH END OF PROPOSED
CLOSED DRAINAGE SYSTEMS

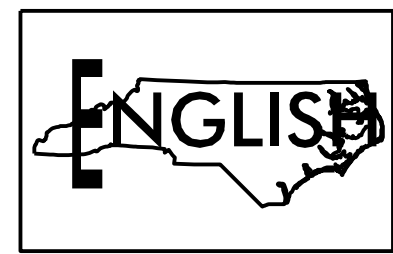
SA
SITE 17

SBB
SITE 16

SL
SITE 10

WAK
SITE 9

SM



50 0 50 100
SCALE

- TEMPORARY SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS
- FILL IN WETLAND

Montford Area
Historic District

FOR -LB- PROFILE SEE SHT. 26 & 27
FOR -23NB- PROFILE SEE SHT. 43
FOR -23SB- PROFILE SEE SHT. 45
FOR -Y36 REV2- PROFILE SEE SHTS. 68 & 69
FOR -MUP8- PROFILE SEE SHT. 62

wsp
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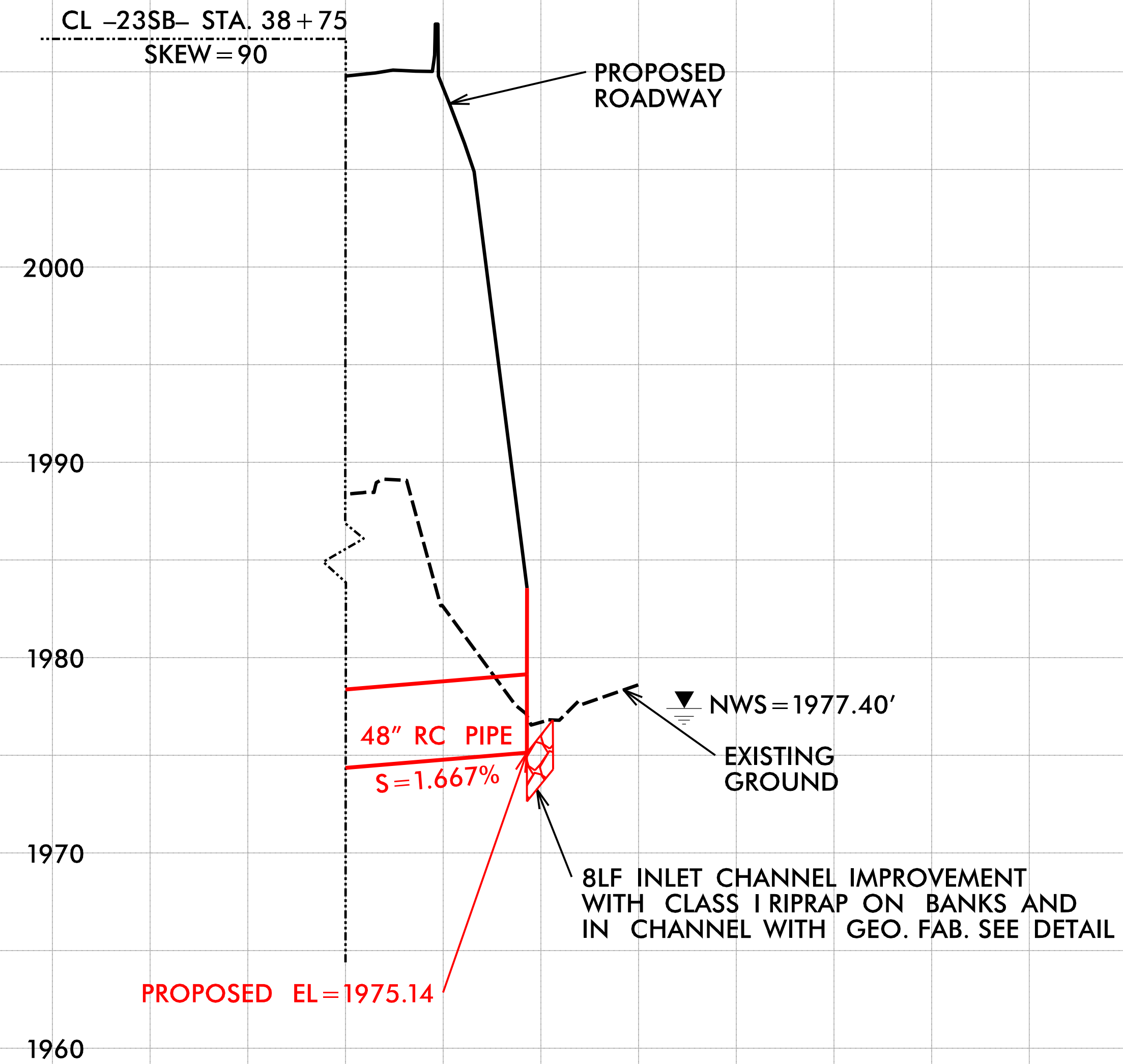
PROJECT REFERENCE NO. 1-2513B&D		SHEET NO. 10	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 54 OF 85			

MATCHLINE -LB- STA. 102 + 50.00 SEE SHEET 11

-LB- STA. 89 + 00.00 SEE SHEET 9

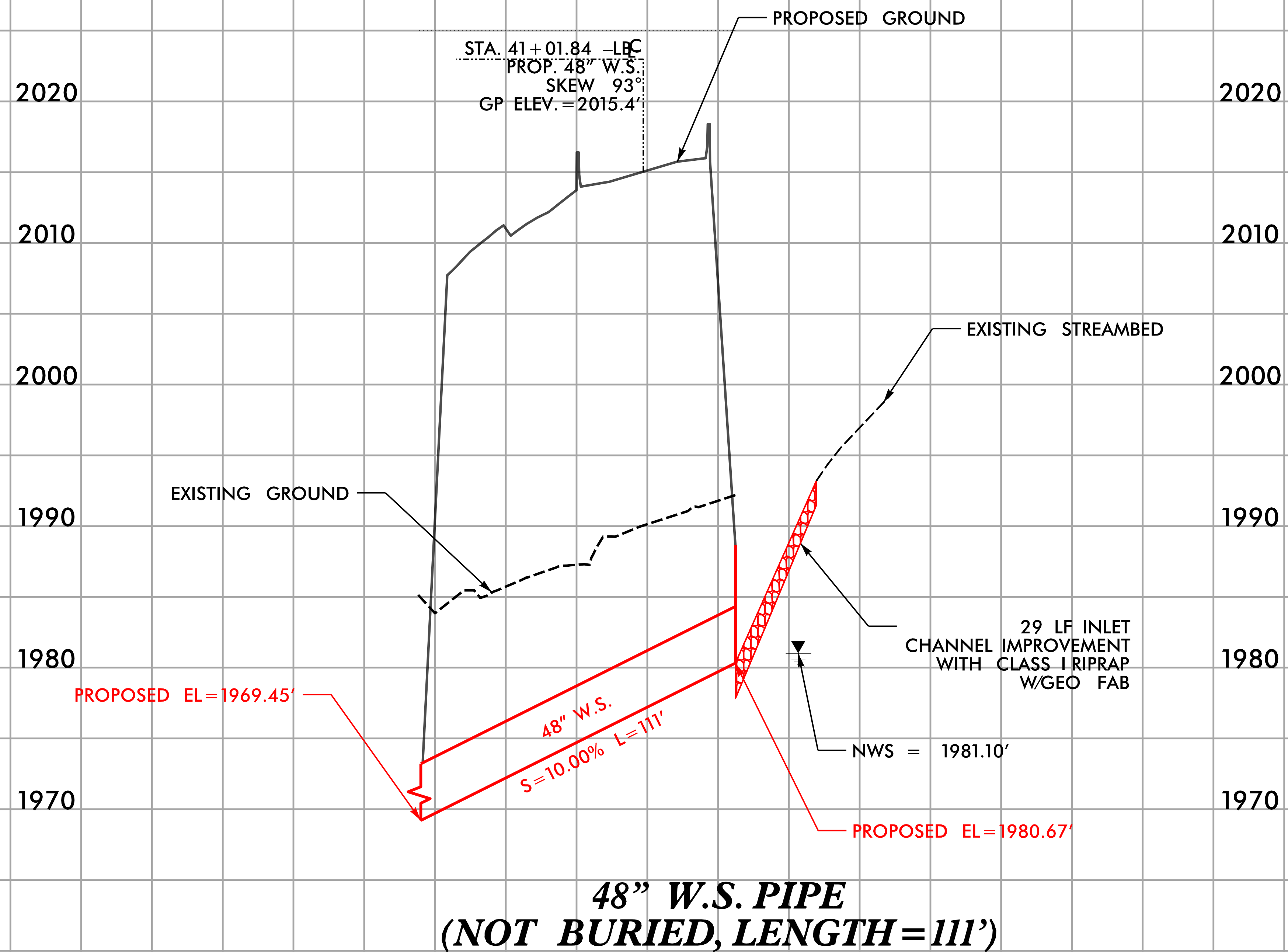
**48" W.S. PIPE
(NOT BURIED, LENGTH = 237')**

SITE 9
-23SB- STA. 38 + 75

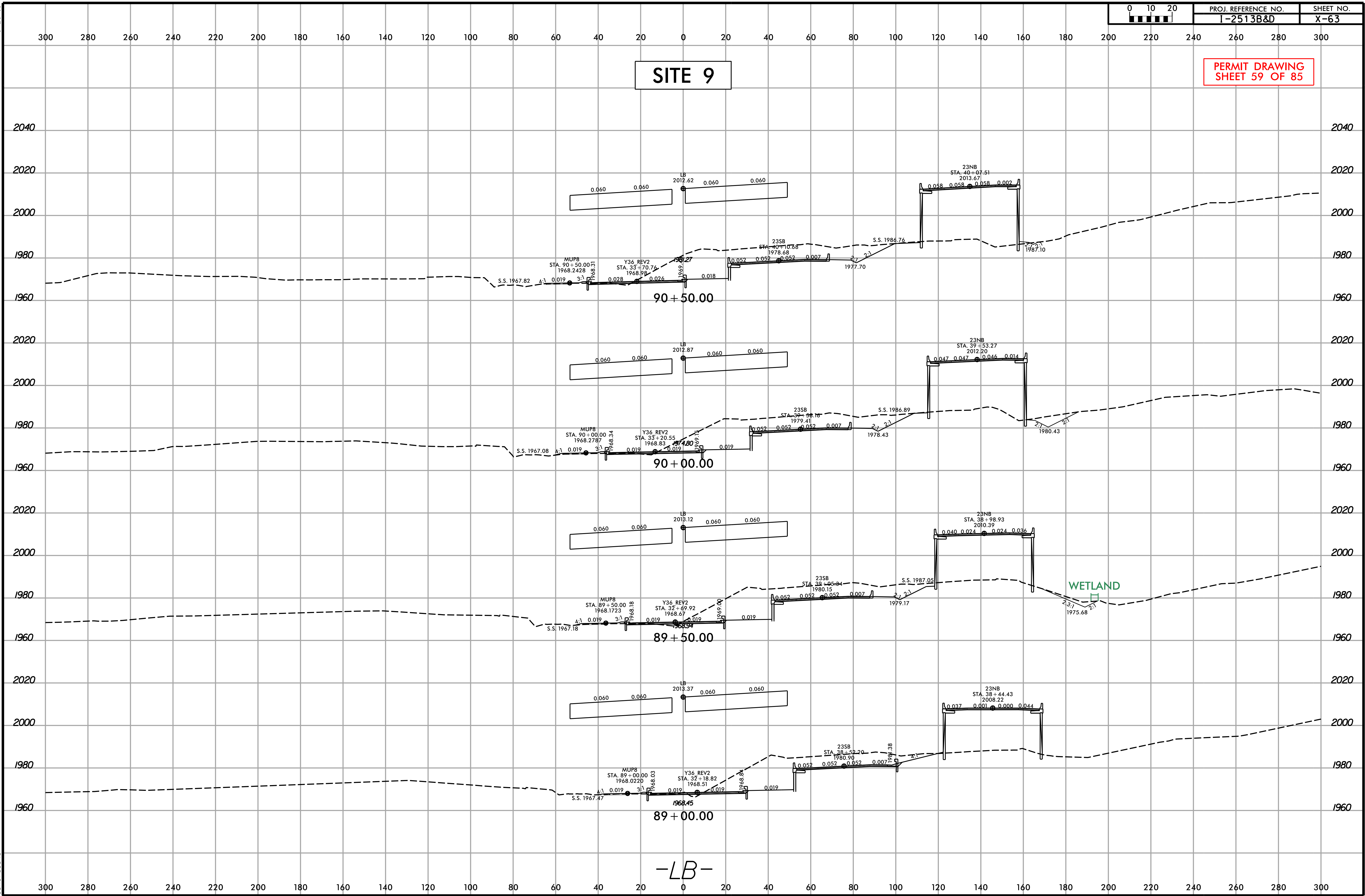


**48" W.S. PIPE
(NOT BURIED, LENGTH = 65')**

SITE 10
-23NB- STA. 41 + 01.84



**48" W.S. PIPE
(NOT BURIED, LENGTH=111')**



8/17/99

10/16/2025

\\p01\work\king\vr\kpw01\kase scholars\0102832-1-25138D.hyd.4C-psht11.dgn

*SEALED PIPE WITH RESILIENT CONNECTORS
AT EACH END OF PROPOSED
CLOSED DRAINAGE SYSTEMS

SA

SITE 11

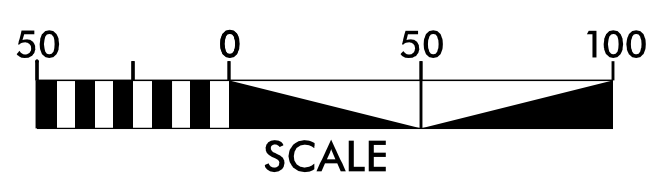
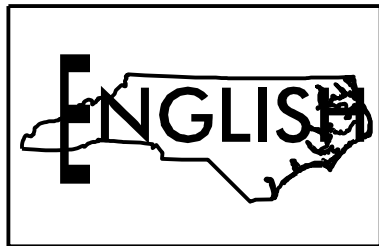
SI

SEE INSET A
SHEET 62 OF 85

SITE 11

SI

SEE INSET B
SHEET 62 OF 85



- TEMPORARY SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS

PROJECT REFERENCE NO. 1-2513B&D		SHEET NO. 11	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 60 OF 85			
 1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203 NC LIC NO. F-0165			
 P: (919) 878-9660 8601 Six Forks Road, Forum 1, Suite 700 Raleigh, North Carolina 27615-3960 NC License No. F-0112			
Engineers Construction Managers Planners Scientists www.rkk.com Responsive People Creative Solutions			
FOR -LB- PROFILE SEE SHT. 26, 27, 28 & 29 FOR -235B- PROFILE SEE SHTS. 45 & 46 FOR -Y36 REV2- PROFILE SEE SHT. 69			

8/17/99

*SEALED PIPE WITH RESILIENT CONNECTORS
AT EACH END OF PROPOSED
CLOSED DRAINAGE SYSTEMS

SA

CHANNEL CHANGE
SEE DETAIL A
LINE WITH CLASS I RIPRAP
EST 122 TONS
EST 173 SY

CLASS I RIP RAP
EST 83 TONS
EST 62 SYGF

SITE 11

SI

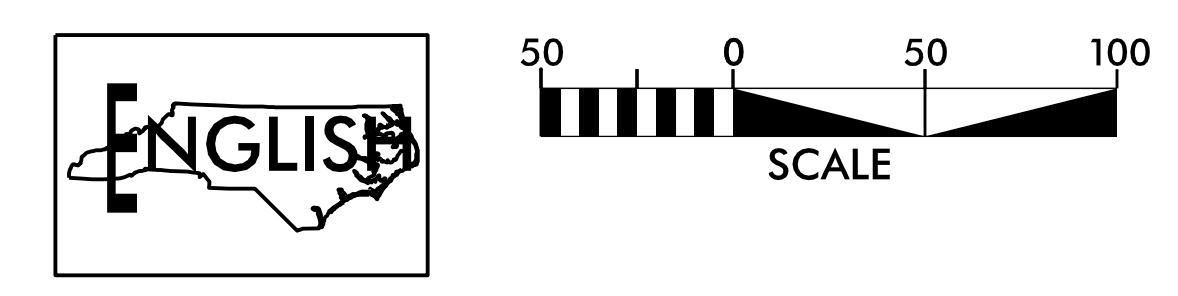
SEE INSET A
SHEET 62 OF 85

PROJECT REFERENCE NO. I-2513B&D		SHEET NO. 11	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 61 OF 85			
wsp 1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203 NC LIC NO. F-0165			
RK&K P: (919) 878-9680 8601 Six Forks Road, Suite 100 Raleigh, North Carolina 27615-3980 NC License No. F-0112 Engineers Construction Managers Planners Scientists www.rkk.com Responsive People Creative Solutions			
FOR -LB- PROFILE SEE SHT. 26, 27, 28 & 29 FOR -235B- PROFILE SEE SHTS. 45 & 46 FOR -Y36 REV2- PROFILE SEE SHT. 69			

REVISIONS

MATCHLINE -LB- STA. 102+50.00 SEE SHEET 10

MATCHLINE -LB- STA. 116+00.00 SEE SHEET 12



- TEMPORARY SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS

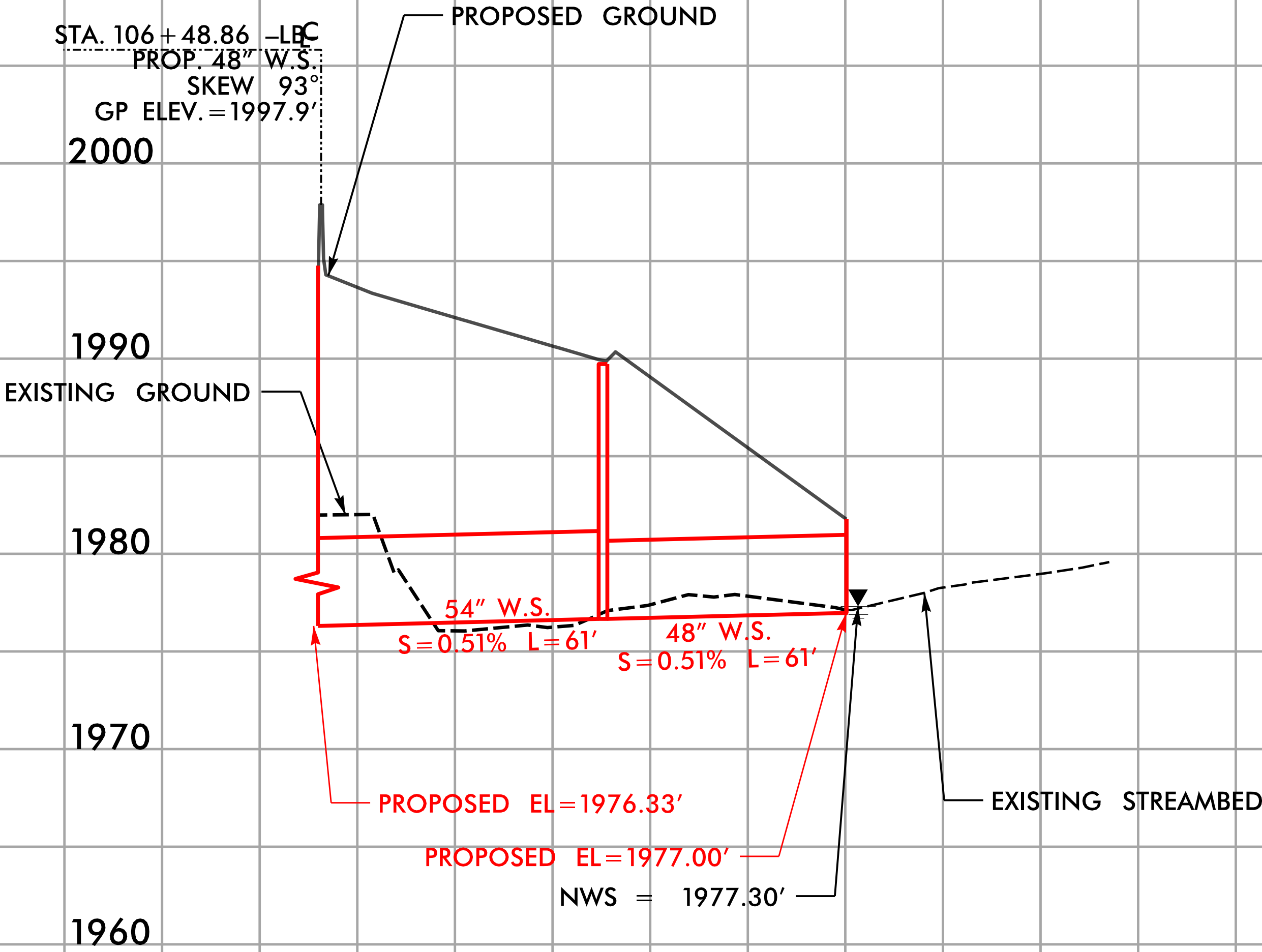
10/16/2025
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Kase Scholars

5/14/99

10/16/2025
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15:25:43

PROJECT REFERENCE NO.		SHEET NO.	
1-2513B&D			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 63 OF 85			

SITE 11 INLET
-LB- STA. 106 + 48.86

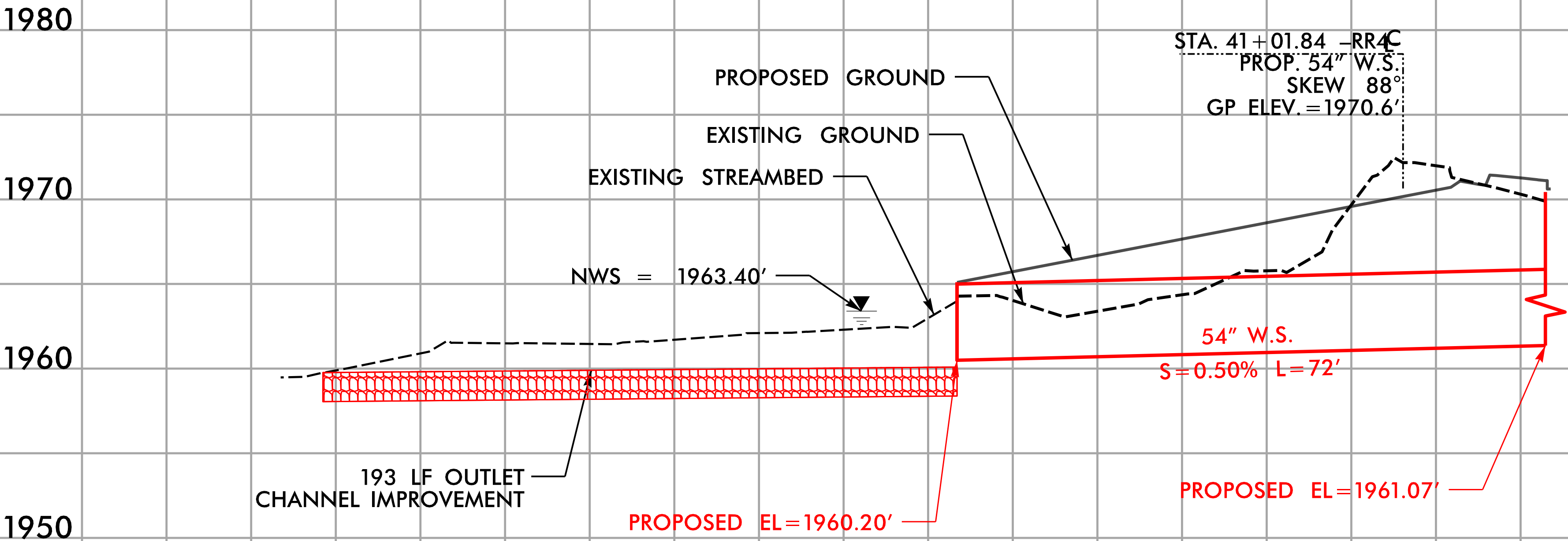


48" W.S. PIPE
(NOT BURIED, LENGTH=61')

10/16/2025
G:\Bwork\king\kpw01\kase scholais\0102832 1-25138D_hyd_profile SITE11-INLET & OUTLET_psh11.dgn
5/14/99

***SITE 11 OUTLET
-RR4- STA. 49+75.78***

PROJECT REFERENCE NO. <i>1-2513B&D</i>		SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 64 OF 85		



***54" W.S. PIPE
(NOT BURIED, LENGTH = 72')***

8/17/99

10/16/2025
C:\pwworking\kase\scholaris\d0102832\1-25138D_hyd_4C-psht12.dgn
R:\25138D\1-25138D_hyd_4C-psht12.dgn

*SEALED PIPE WITH RESILIENT CONNECTORS
AT EACH END OF PROPOSED
CLOSED DRAINAGE SYSTEMS

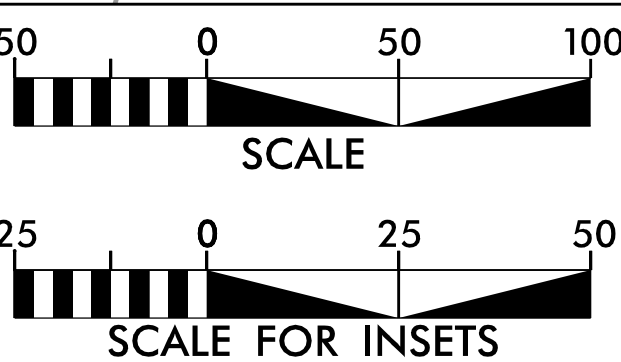
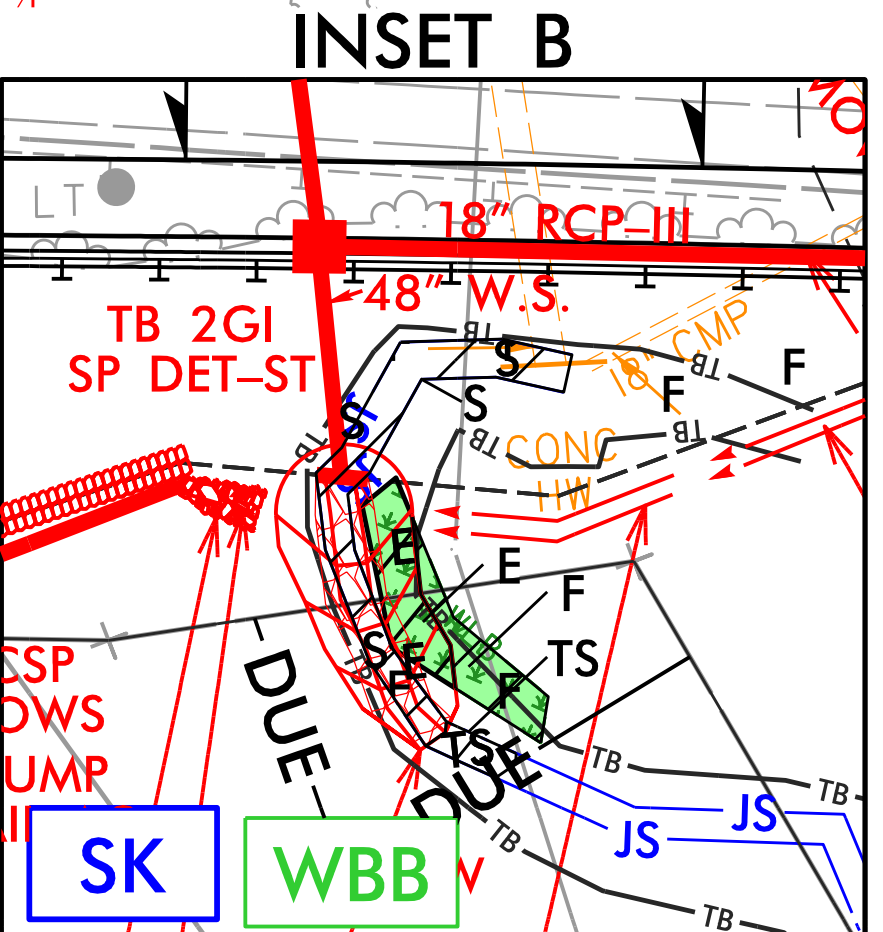
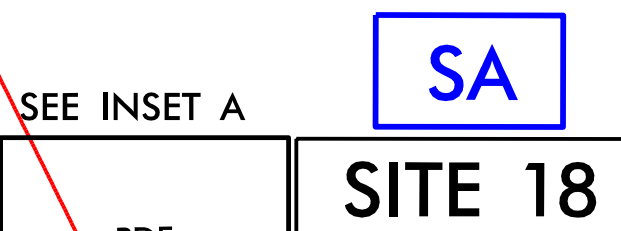
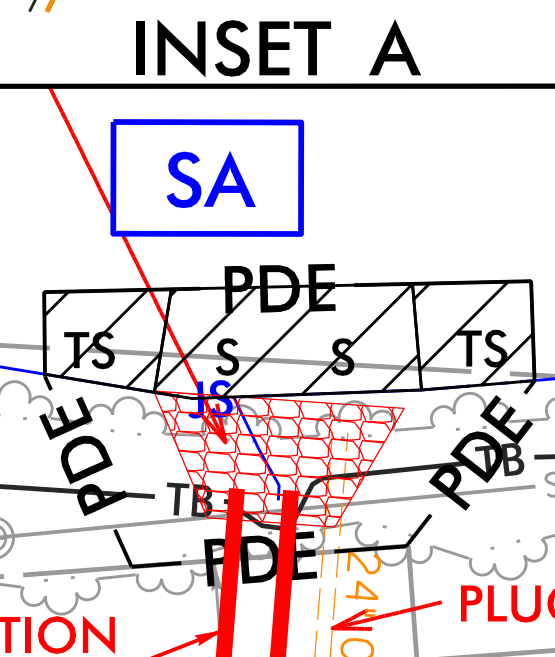
NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
1-25138D	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 65 OF 85



- TEMPORARY SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS
- TEMPORARY FILL IN WETLAND
- WETLAND EXCAVATION

Hills
Hills Dr.
(Boundary Expansion)
Historic District

FOR -LB- PROFILE SEE SHTS. 28, 29 & 30
FOR -23SB- PROFILE SEE SHT. 46
FOR -Y36_REV2- PROFILE SEE SHTS. 69 & 70
FOR -Y37- PROFILE SEE SHT. 71

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



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MATCHLINE -LB- STA. 116 + 00.00 SEE SHEET 11

MATCHLINE -LB- STA. 128 + 25.00 SEE SHEET 13

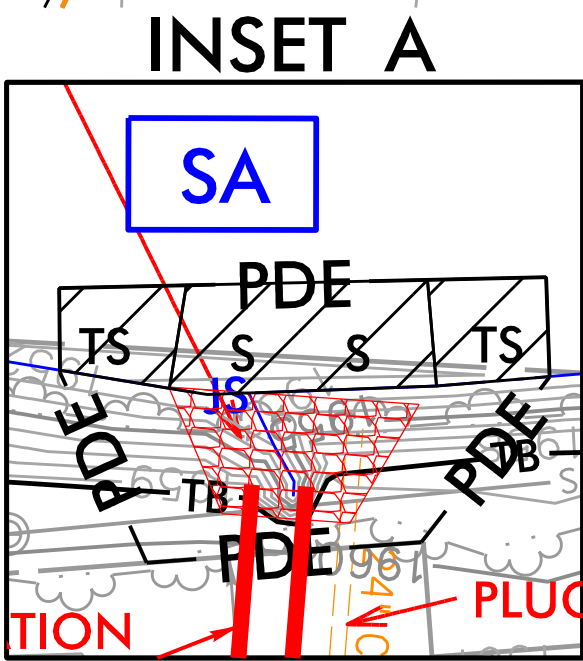
*SEALED PIPE WITH RESILIENT CONNECTORS
AT EACH END OF PROPOSED
CLOSED DRAINAGE SYSTEMS

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
1-2513B&D	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 66 OF 85



CLASS-I RIP RAP
EST. 30 TONS

SEE INSET A

SA

SITE 18

TRENCHLESS INSTALLATION
42" WELDED STEEL

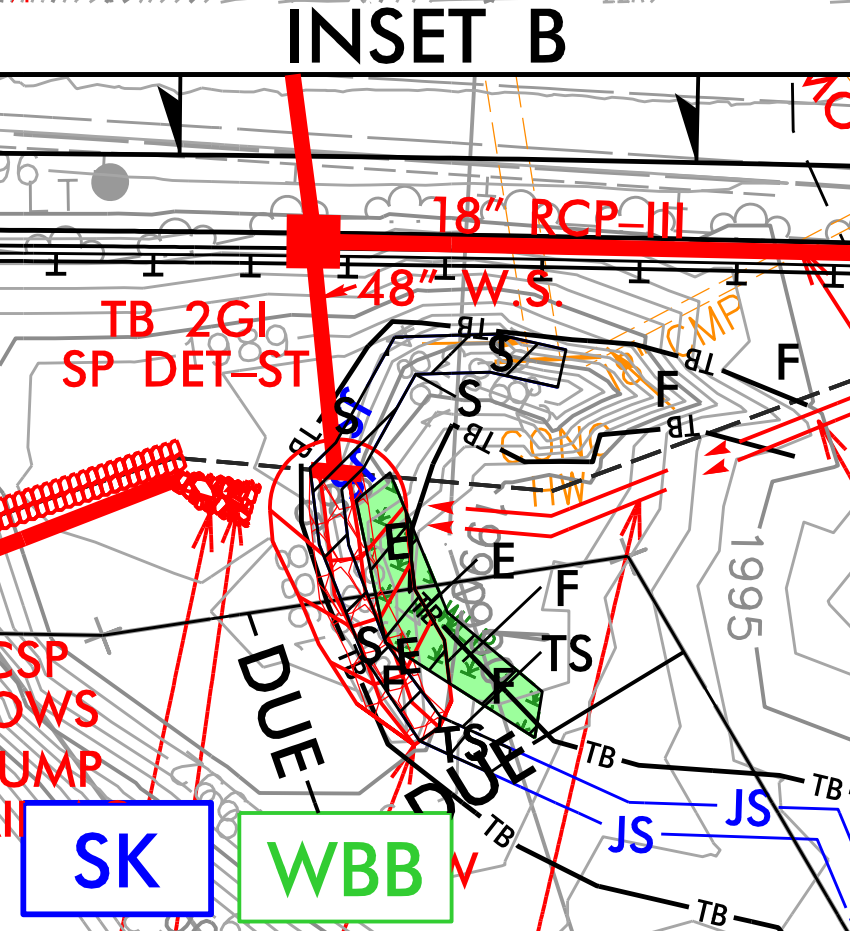
CHANNEL CHANGE
SEE DETAIL AF
LINE WITH CLASS I RIPRAP
EST. 60 TONS
EST. 85 SY

CLASS-I RIP RAP
EST. 39 SY

TRENCHLESS INSTALLATION
42" WELDED STEEL

MATCHLINE -LB- STA. 116 + 00.00 SEE SHEET 11

MATCHLINE -LB- STA. 128 + 25.00 SEE SHEET 13

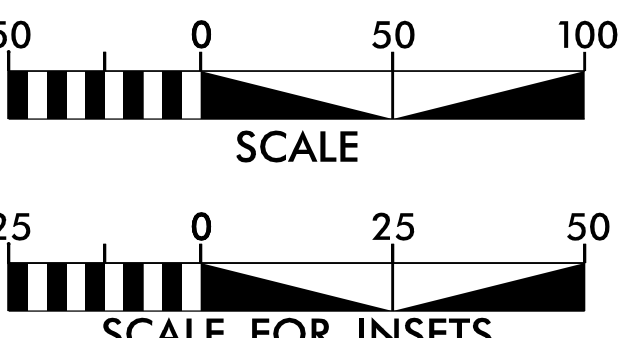


CLEAN AND MAINTAIN/REPLACE
CONCRETE LINING IN DITCH

SK

WBB

SITE 12



- TEMPORARY SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS
- TEMPORARY FILL IN WETLAND
- WETLAND EXCAVATION

Hills
Hilltop Dr.
(Boundary Expansion)
Historic District

FOR -LB- PROFILE SEE SHTS. 28, 29 & 30
FOR -23SB- PROFILE SEE SHT. 46
FOR -Y36_REV2- PROFILE SEE SHTS. 69 & 70
FOR -Y37- PROFILE SEE SHT. 71

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



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8601 Six Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
NC License No. F-0112

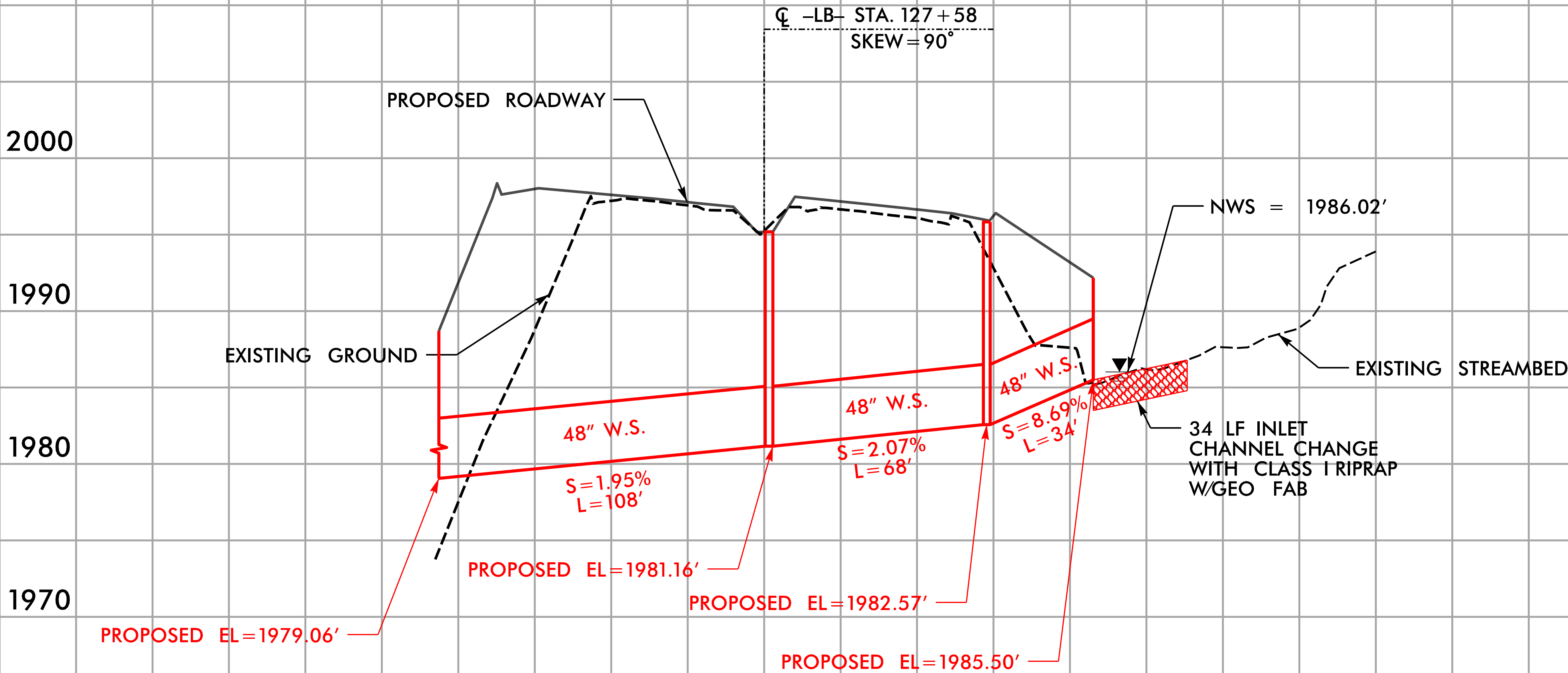
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Responsive People | Creative Solutions

5/14/99

10/16/2025
G:\Bwork\king\kpw01\kase scholar\0102832\12513BD_hyd_prof\1e-SITE12_psh12.dgn
12513BD.dgn

SITE 12
-LB- STA. 127+58

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 67 OF 85		



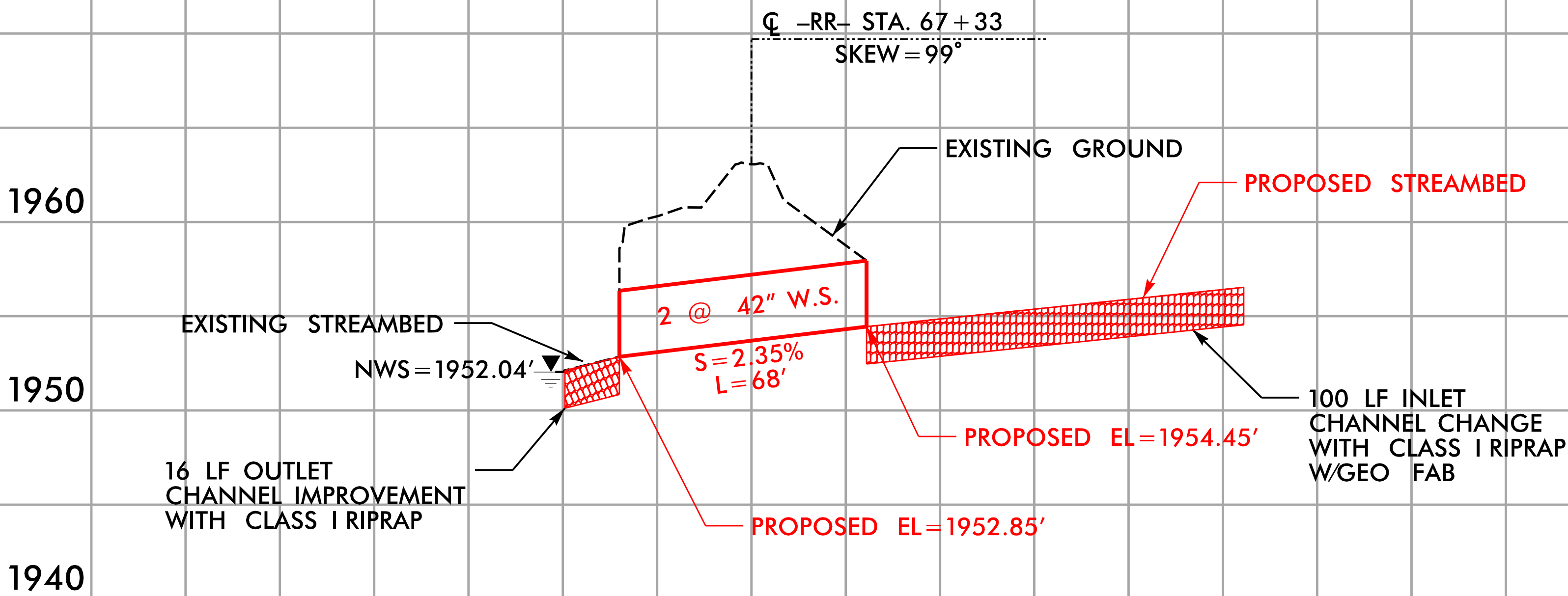
48" TRENCHLESS WELDED STEEL PIPE
(NOT BURIED, LENGTH = 34')

5/14/99

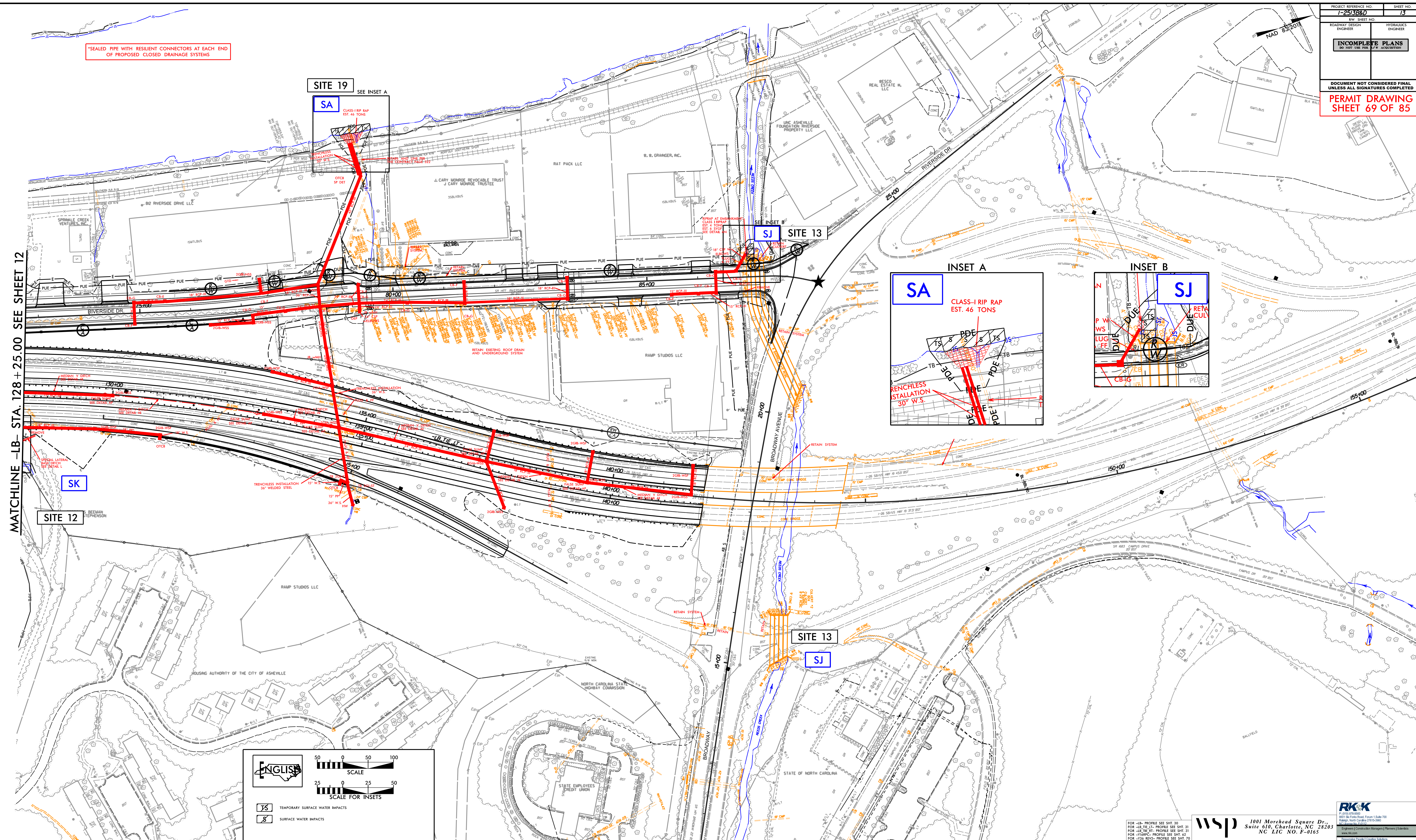
10/16/2025
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12513BD.dgn

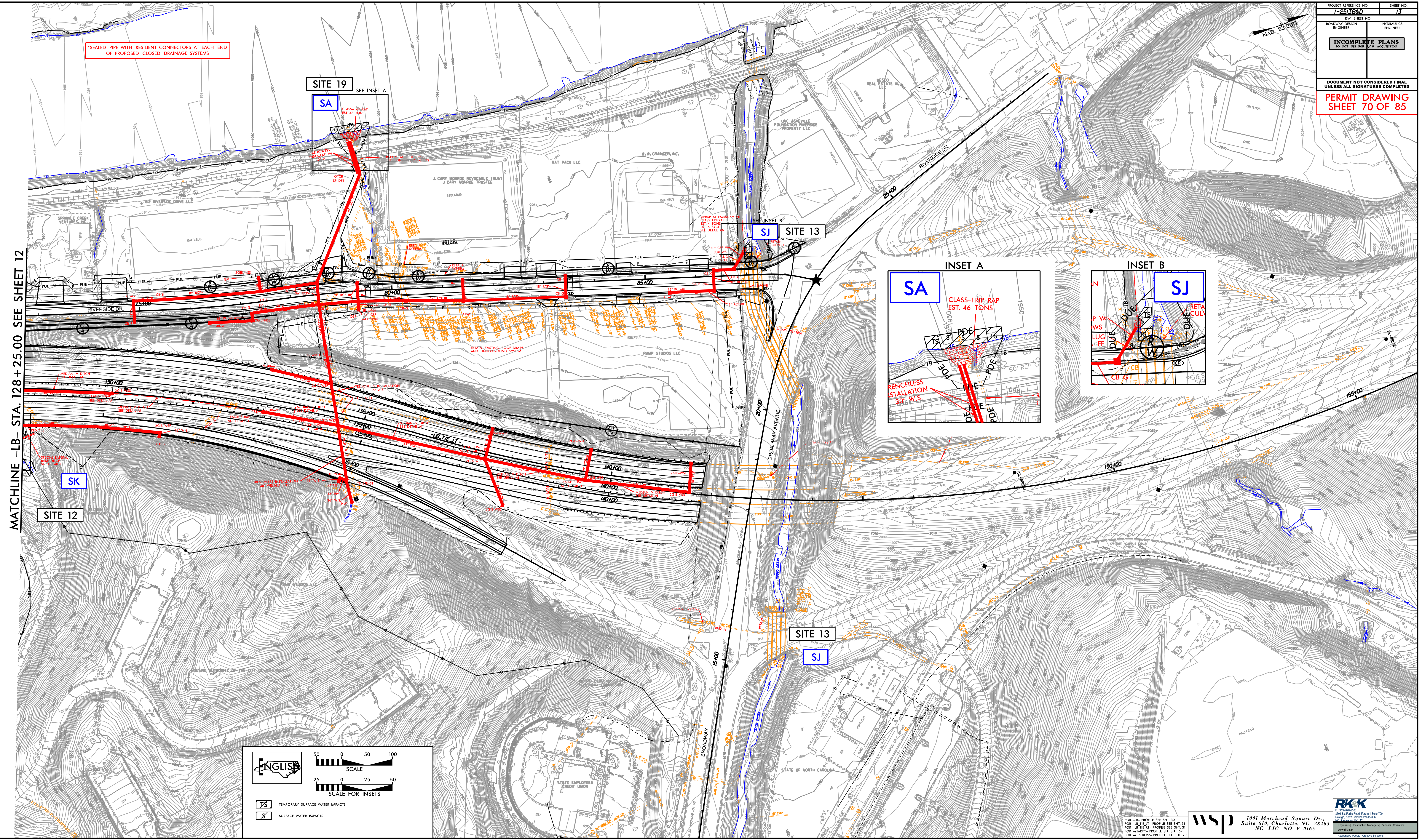
SITE 18
-RR- STA. 67+33

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 68 OF 85		



2 @ 42" TRENCHLESS WELDED STEEL
(NOT BURIED, LENGTH = 68')



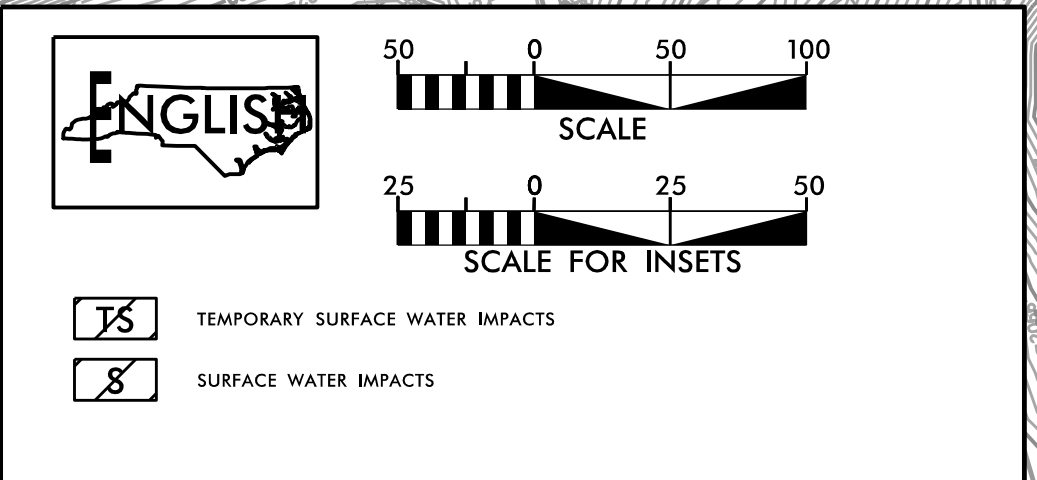
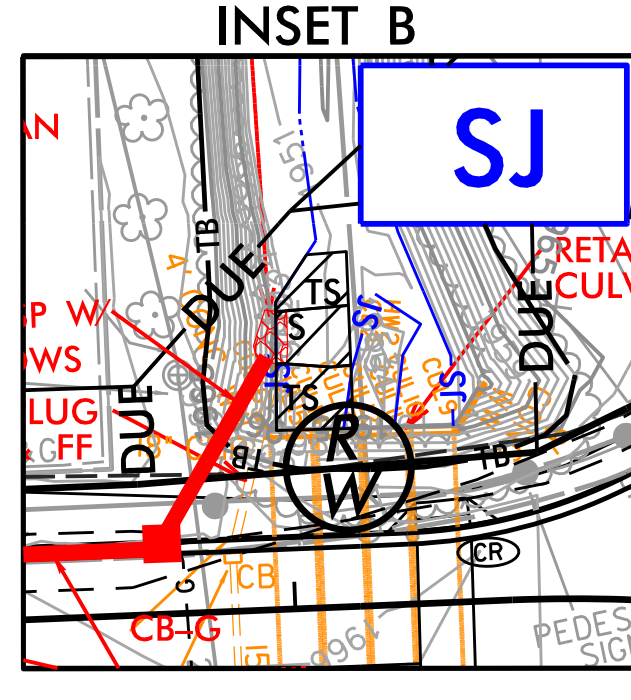
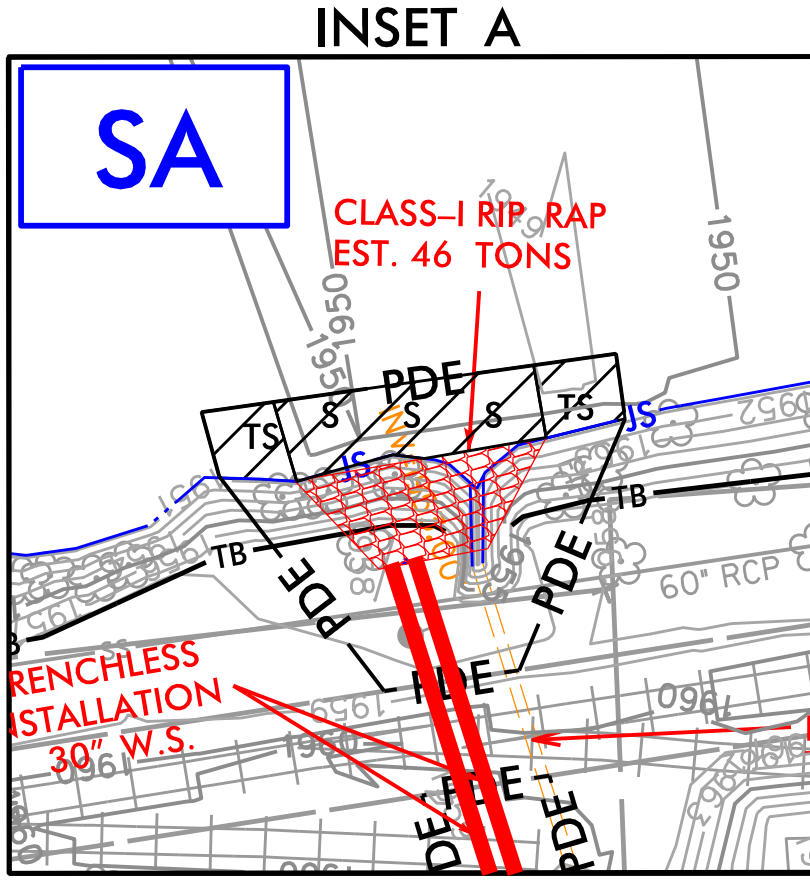


*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

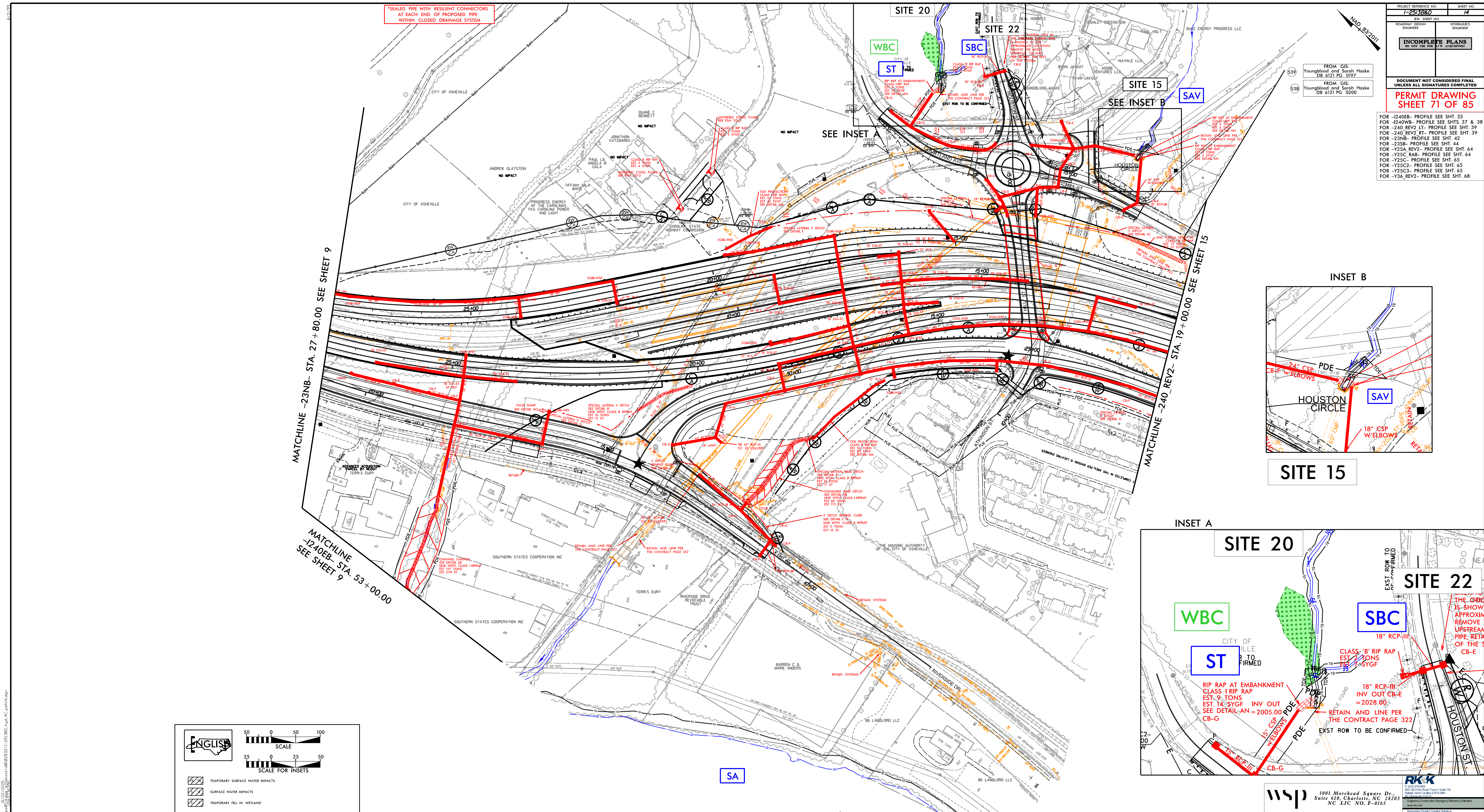
SITE 19
SA
SEE INSET A

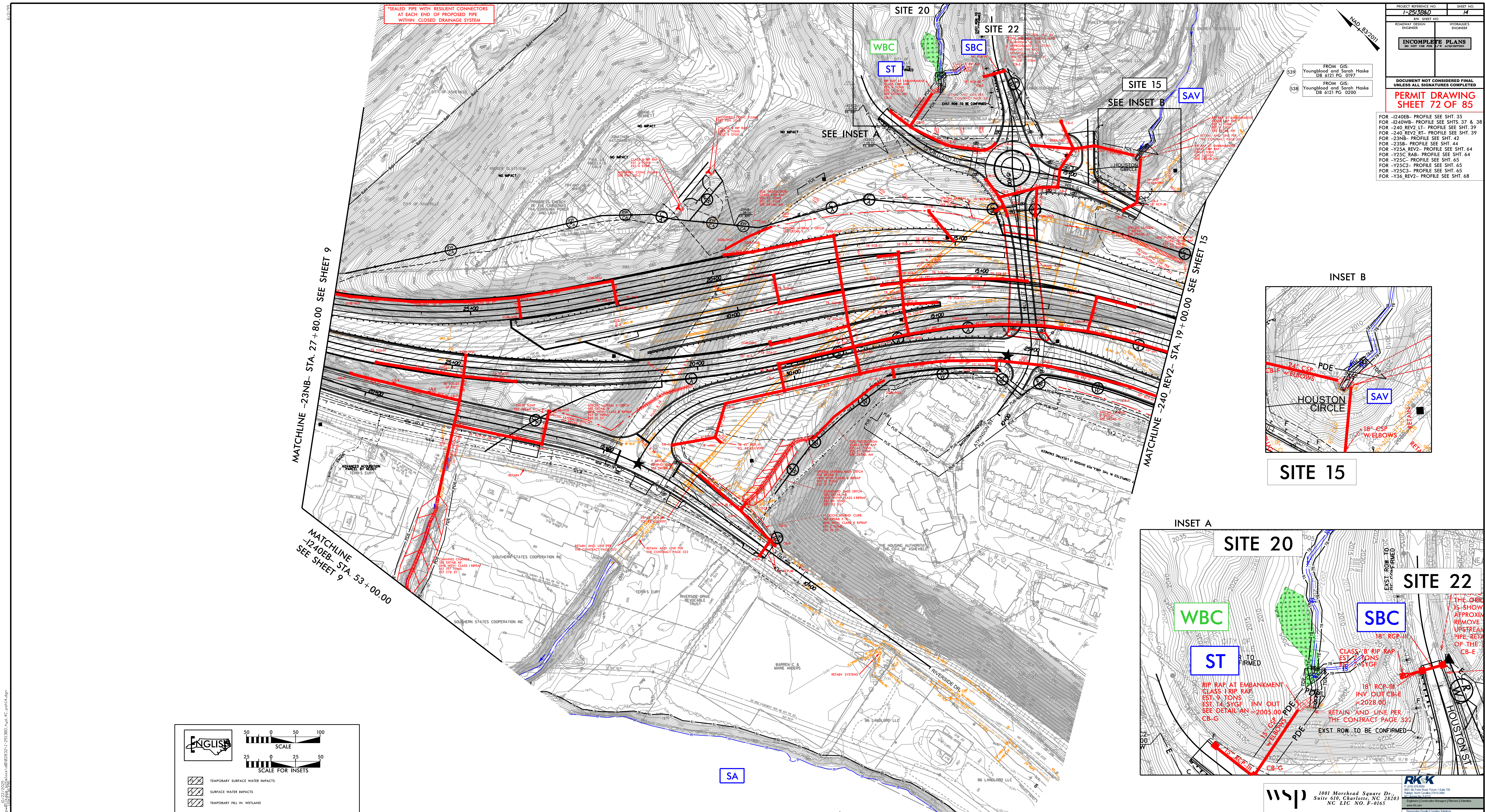
SITE 13
SJ
SEE INSET B

SK
SITE 12



PROJECT REFERENCE NO.	SHEET NO.
1-251388D	73
ROADWAY DESIGN	HYDRAULICS
ENGINEER	ENGINEER
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 70 OF 85	



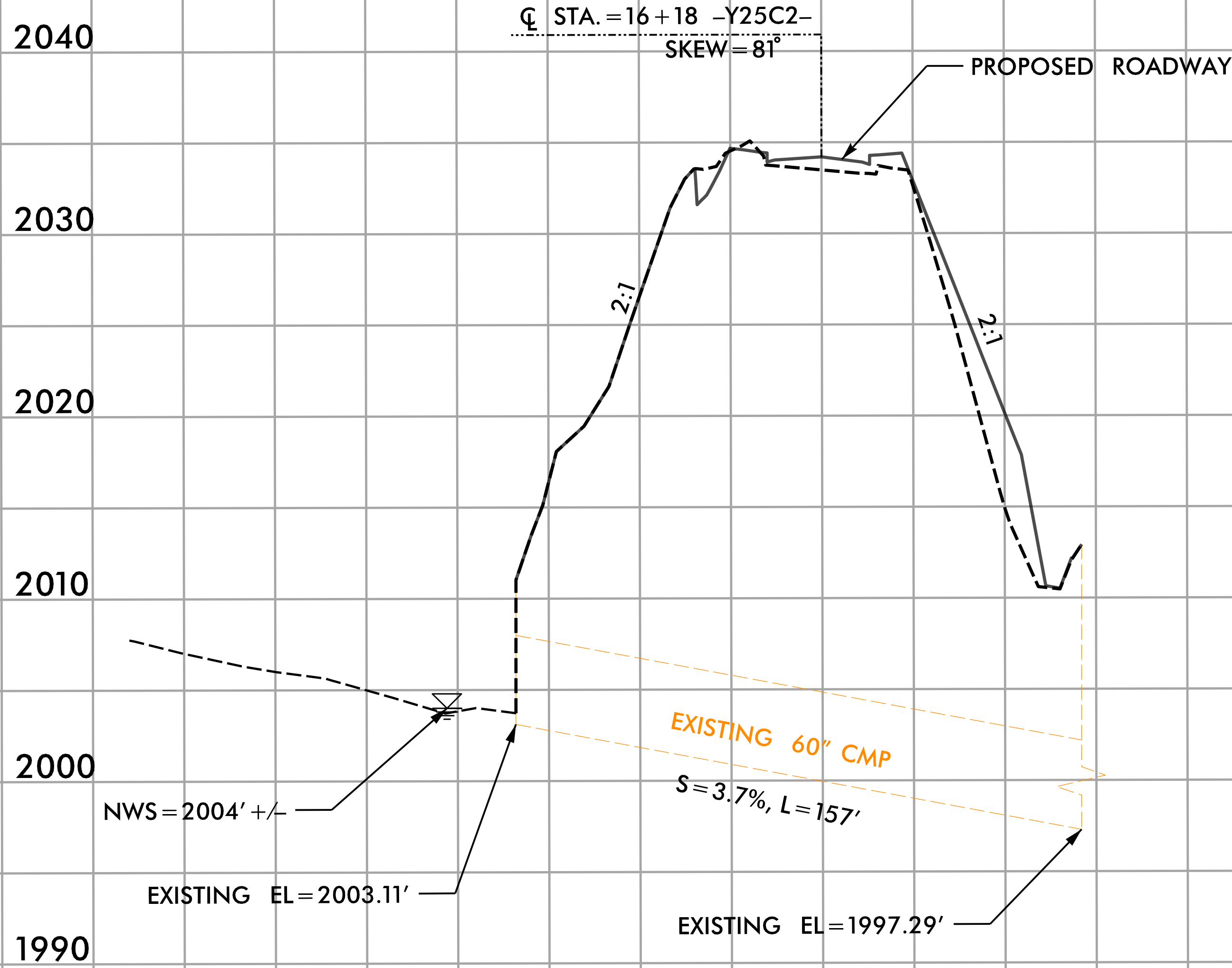


5/14/99

10/6/2025
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15K5738305

PROJECT REFERENCE NO.		SHEET NO.
I-25/3B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

SITE 15
-Y25C2- STA. 16+18

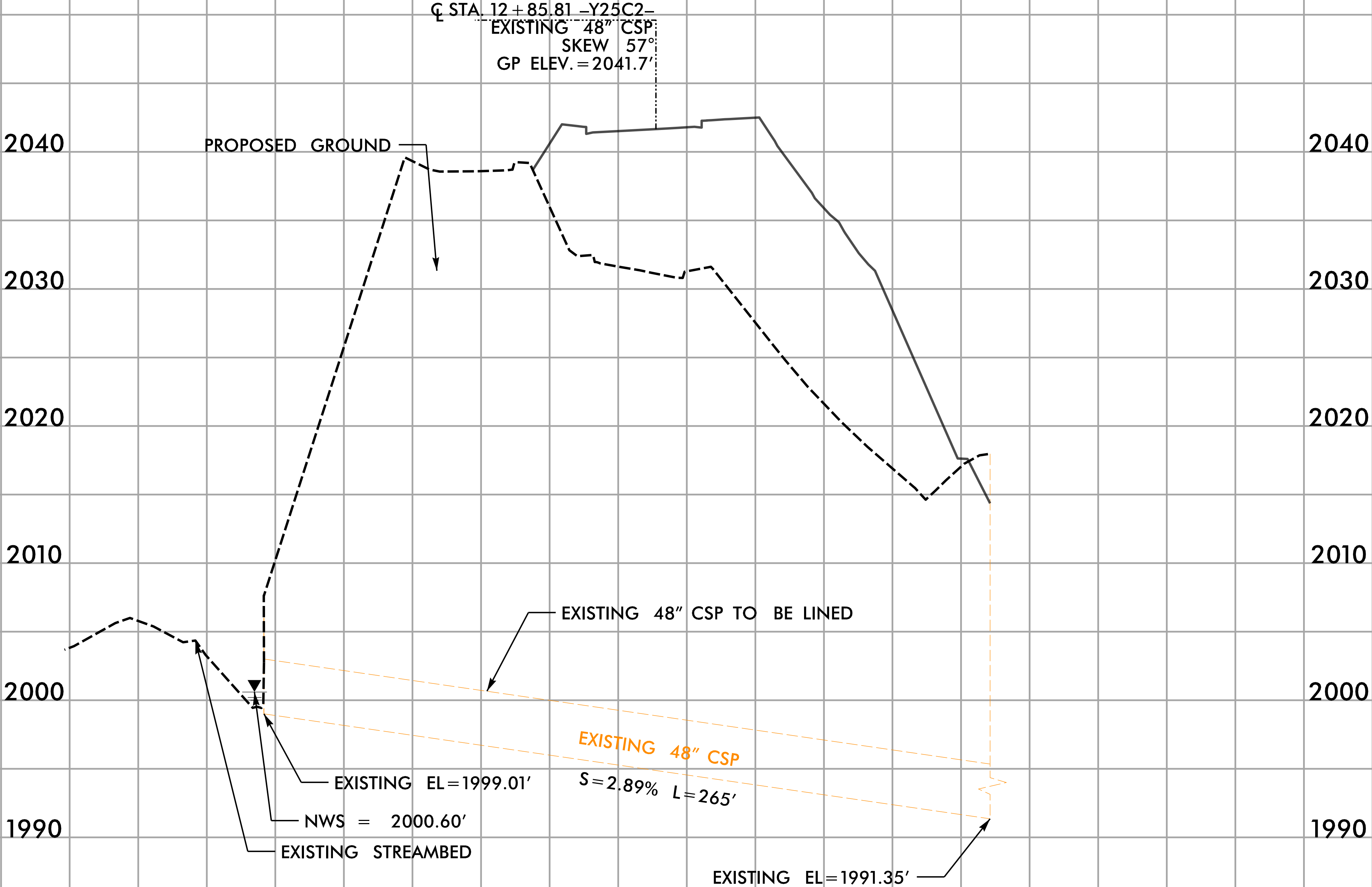


RETAIN EXISTING 60" CMP
(NOT BURIED, LENGTH = 157')

5/14/99

PROJECT REFERENCE NO. <i>I-2513B&D</i>		SHEET NO.	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 74 OF 85			

SITE 20 & 22 -Y25C2- STA. 12+85.81

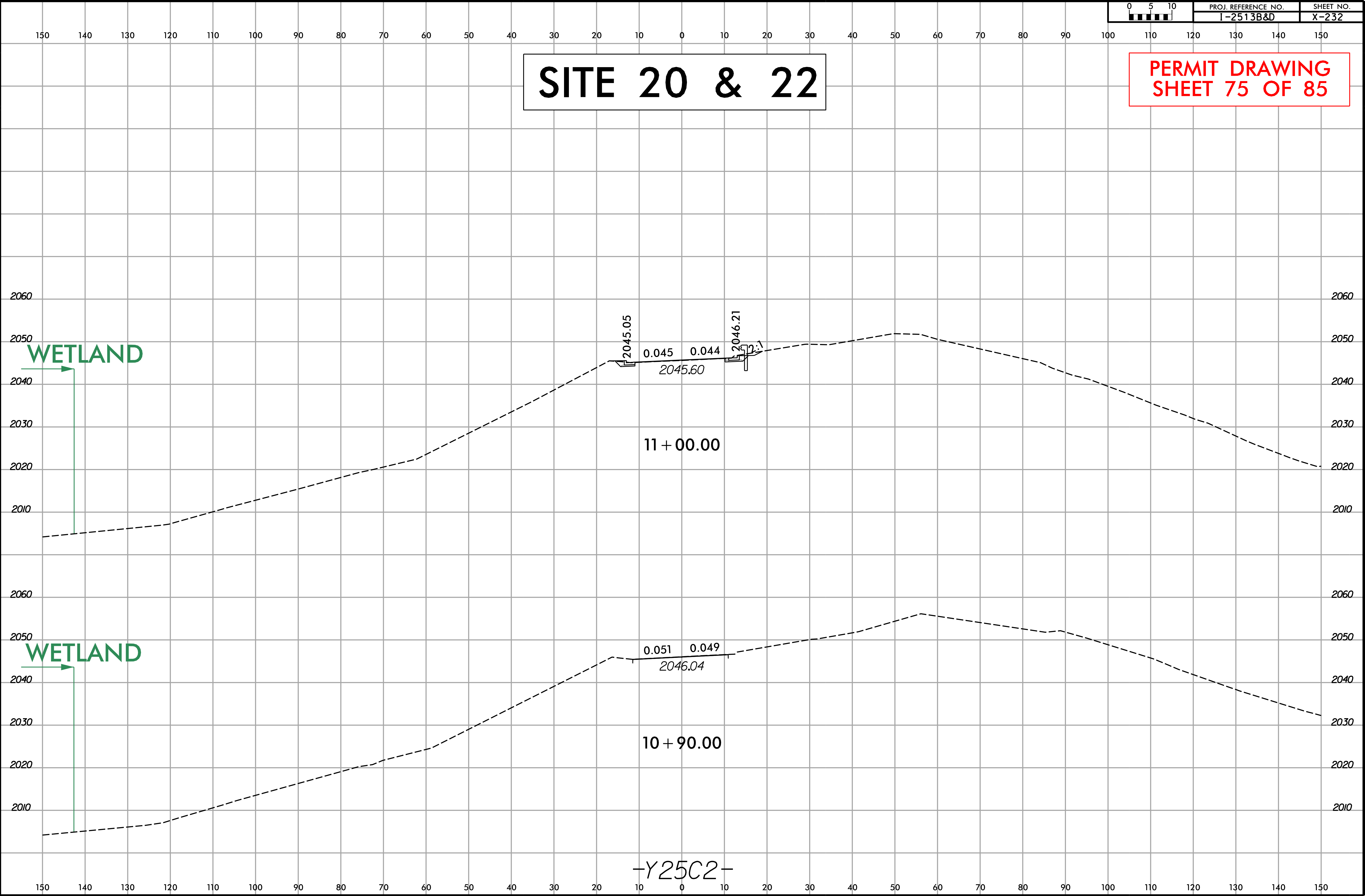


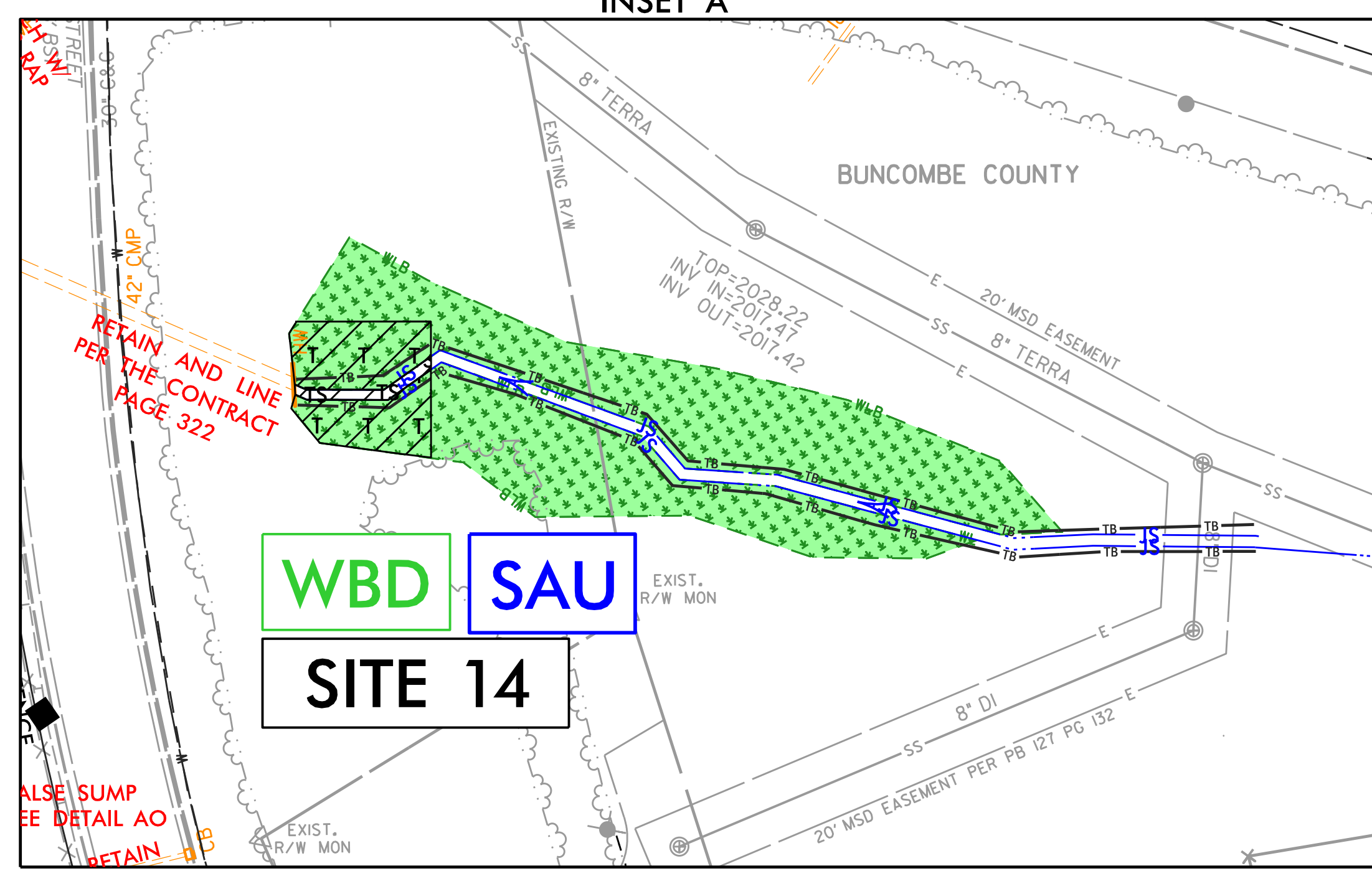
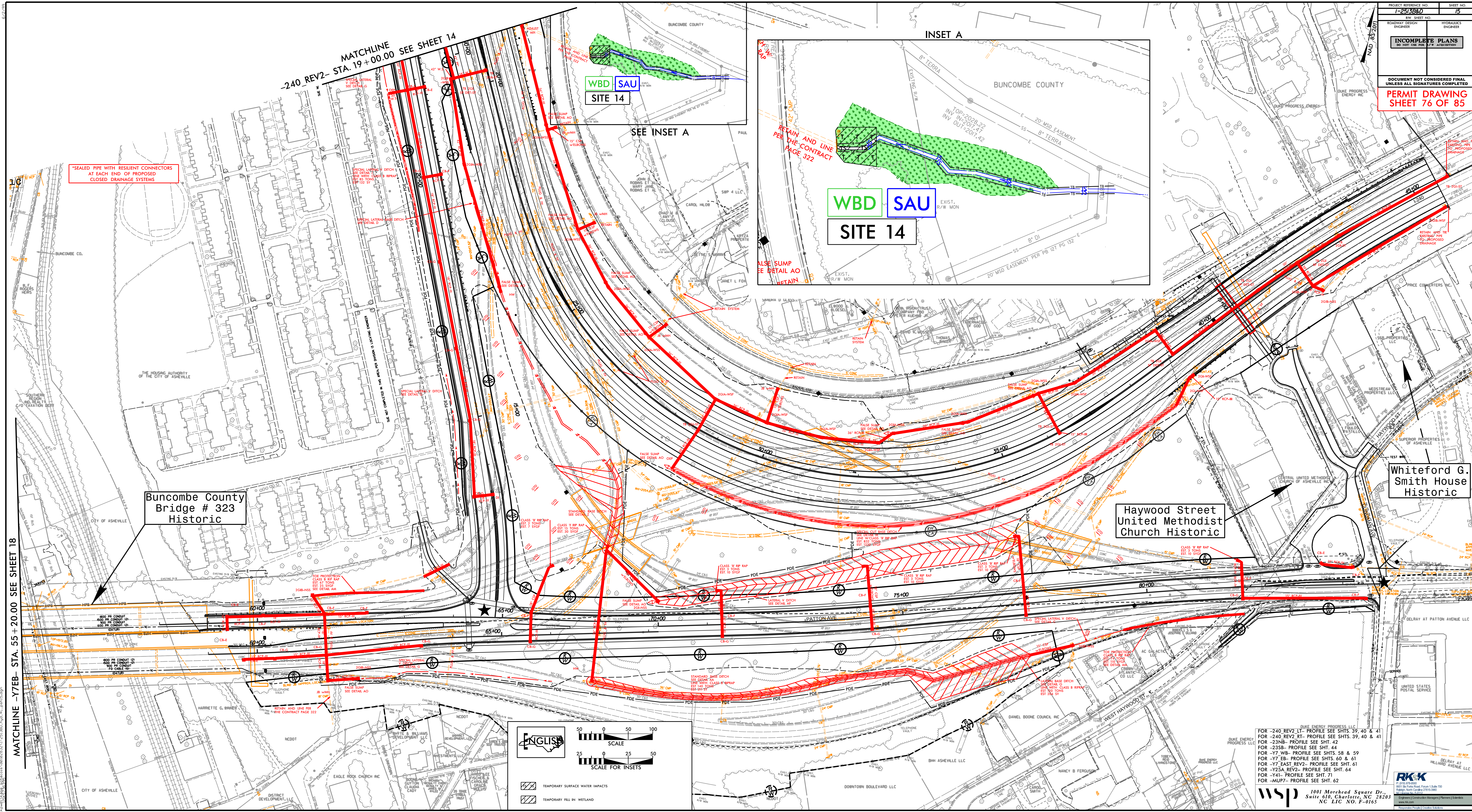
***EXISTING 48" W.S. PIPE
(NOT BURIED, LENGTH=265')***

10/22/2025
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6/23/16

05	10	PROJ. REFERENCE NO.	SHEET NO.
0	5	I-2513B&D	X-232



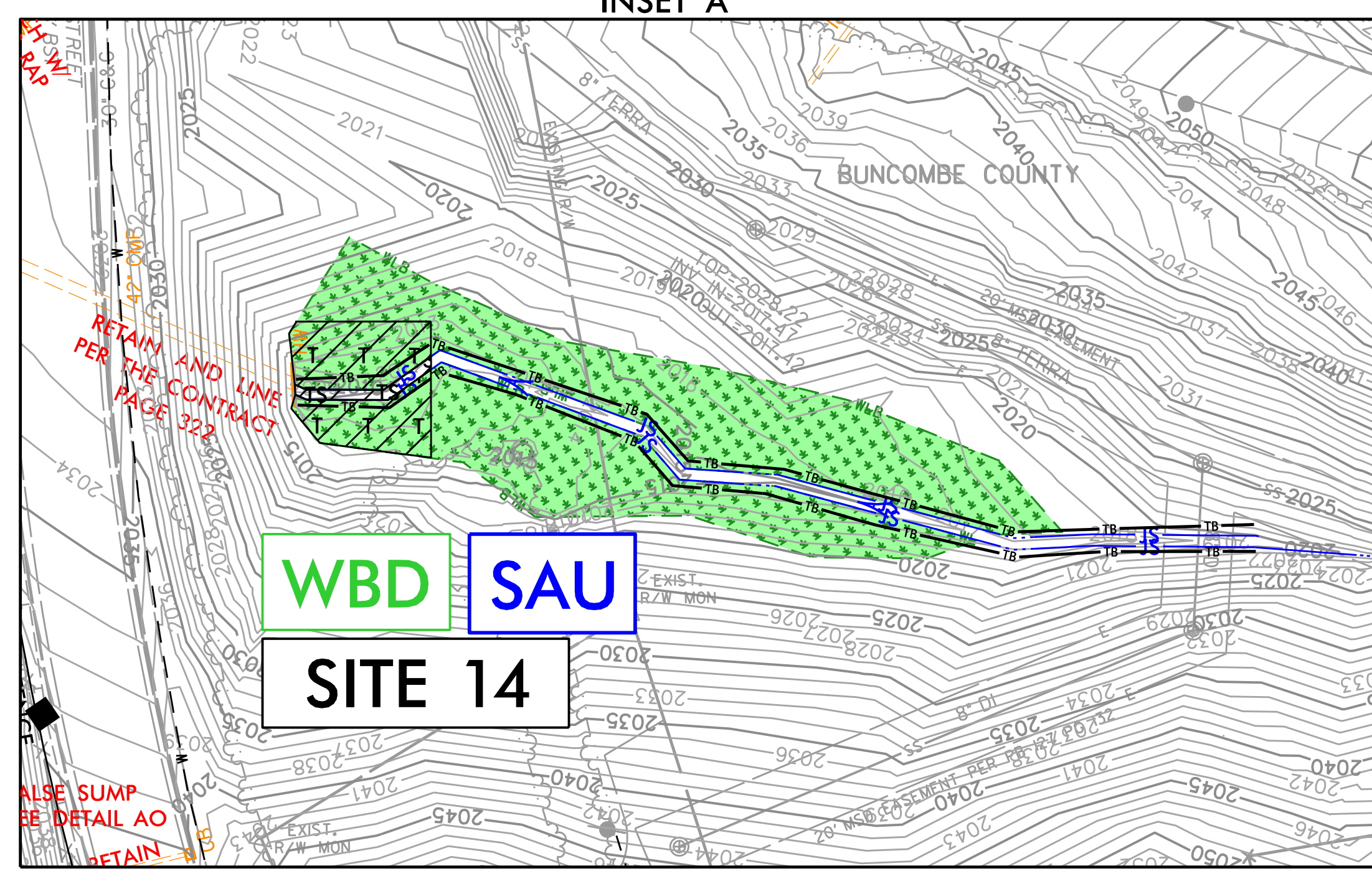
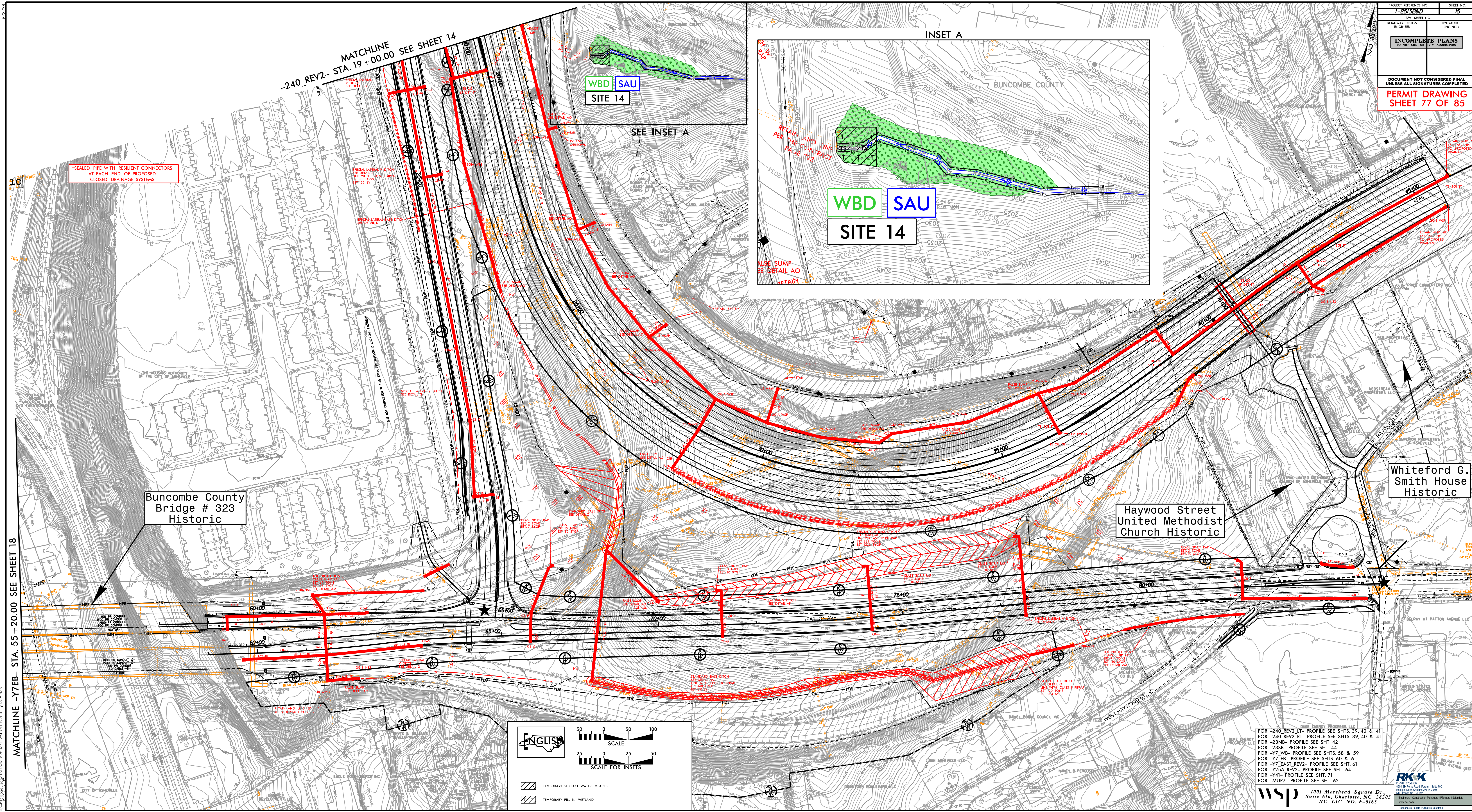


PROJECT REFERENCE NO. 1-251588D
 SHEET NO. 75
 ROADWAY DESIGN
 INCOMPLETE PLANS
 DO NOT USE FOR CONSTRUCTION
 DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED
 PERMIT DRAWING
 SHEET 76 OF 85

FOR -240 REV2 LT- PROFILE SEE SHTS. 39, 40 & 41
 FOR -240 REV2 RT- PROFILE SEE SHTS. 39, 40 & 41
 FOR -239B- PROFILE SEE SHT. 42
 FOR -17 WB- PROFILE SEE SHTS. 58 & 59
 FOR -17 EB- PROFILE SEE SHTS. 60 & 61
 FOR -17 EAST REV2- PROFILE SEE SHT. 61
 FOR -1725A REV2- PROFILE SEE SHT. 64
 FOR -141- PROFILE SEE SHT. 71
 FOR -MUP7- PROFILE SEE SHT. 62

WSP 1001 Morehead Square Dr., Suite 510, Charlotte, NC 28203
 NC LIC. NO. F-9163

RK&K
 2101 E. 10th Street, Suite 100
 Raleigh, NC 27601
 919.286.1111
 rk&k.com



PROJECT REFERENCE NO.	SHEET NO.
1-251388D	75
ROADWAY DESIGN	HYDRAULICS
ENGINEER	ENGINEER
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 77 OF 85	

MATCHLINE -Y7EB- STA. 55+20.00 SEE SHEET 18

MATCHLINE
-240 REV2- STA. 19+00.00 SEE SHEET 14

WBD SAU
SITE 14

SEE INSET A

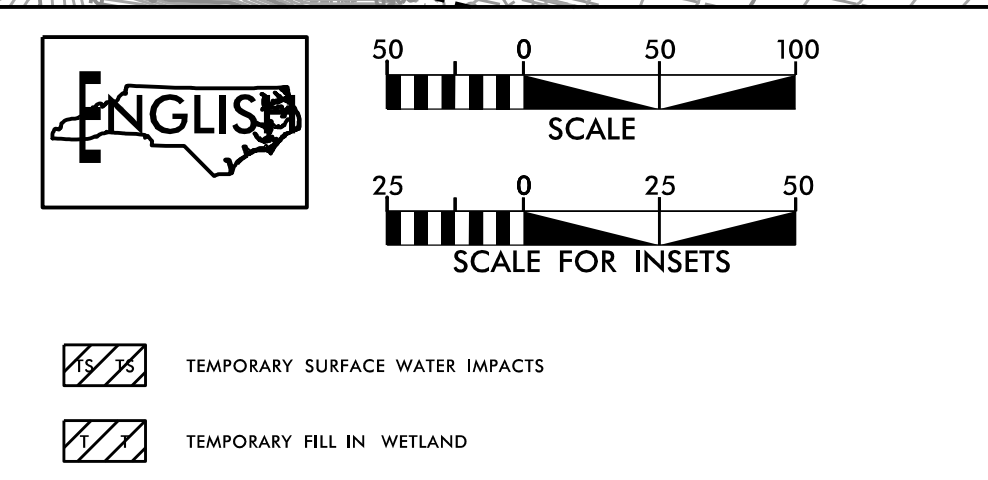
INSET A

WBD SAU
SITE 14

Buncombe County
Bridge # 323
Historic

Haywood Street
United Methodist
Church Historic

Whiteford G.
Smith House
Historic



FOR -240 REV2 LT- PROFILE SEE SHTS. 39, 40 & 41
FOR -240 REV2 RT- PROFILE SEE SHTS. 39, 40 & 41
FOR -239B- PROFILE SEE SHT. 42
FOR -235B- PROFILE SEE SHT. 44
FOR -Y7 WB- PROFILE SEE SHTS. 58 & 59
FOR -Y7 EB- PROFILE SEE SHTS. 60 & 61
FOR -Y7 EAST REV2- PROFILE SEE SHT. 61
FOR -Y25A REV2- PROFILE SEE SHT. 64
FOR -Y41- PROFILE SEE SHT. 71
FOR -MUP7- PROFILE SEE SHT. 62

WSP 1001 Morehead Square Dr.
Suite 210, Charlotte, NC 28203
NC LIC. NO. 7-9165

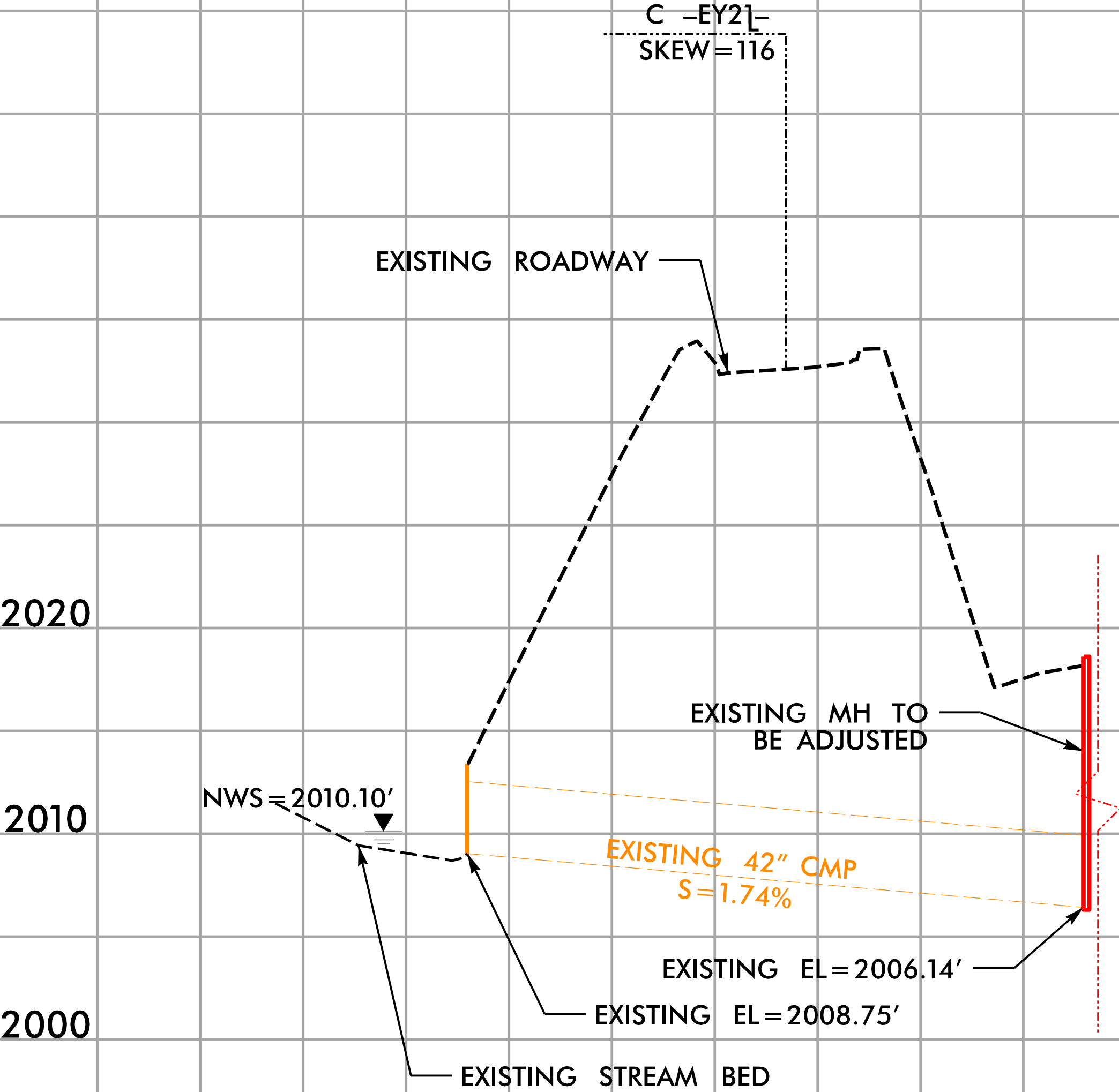
RK&K
2101 E. 10th Street, Suite 105
Raleigh, NC 27601
Engineer/Consultant/Manager/Reviewer/Designer

5/14/99

10/16/2025
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12513BD.dgn

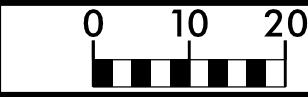
PROJECT REFERENCE NO.		SHEET NO.
I-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 78 OF 85		

SITE 14
-EY21- STR. EX15126



RETAIN EXISTING 42" CMP
(NOT BURIED, LENGTH=151')

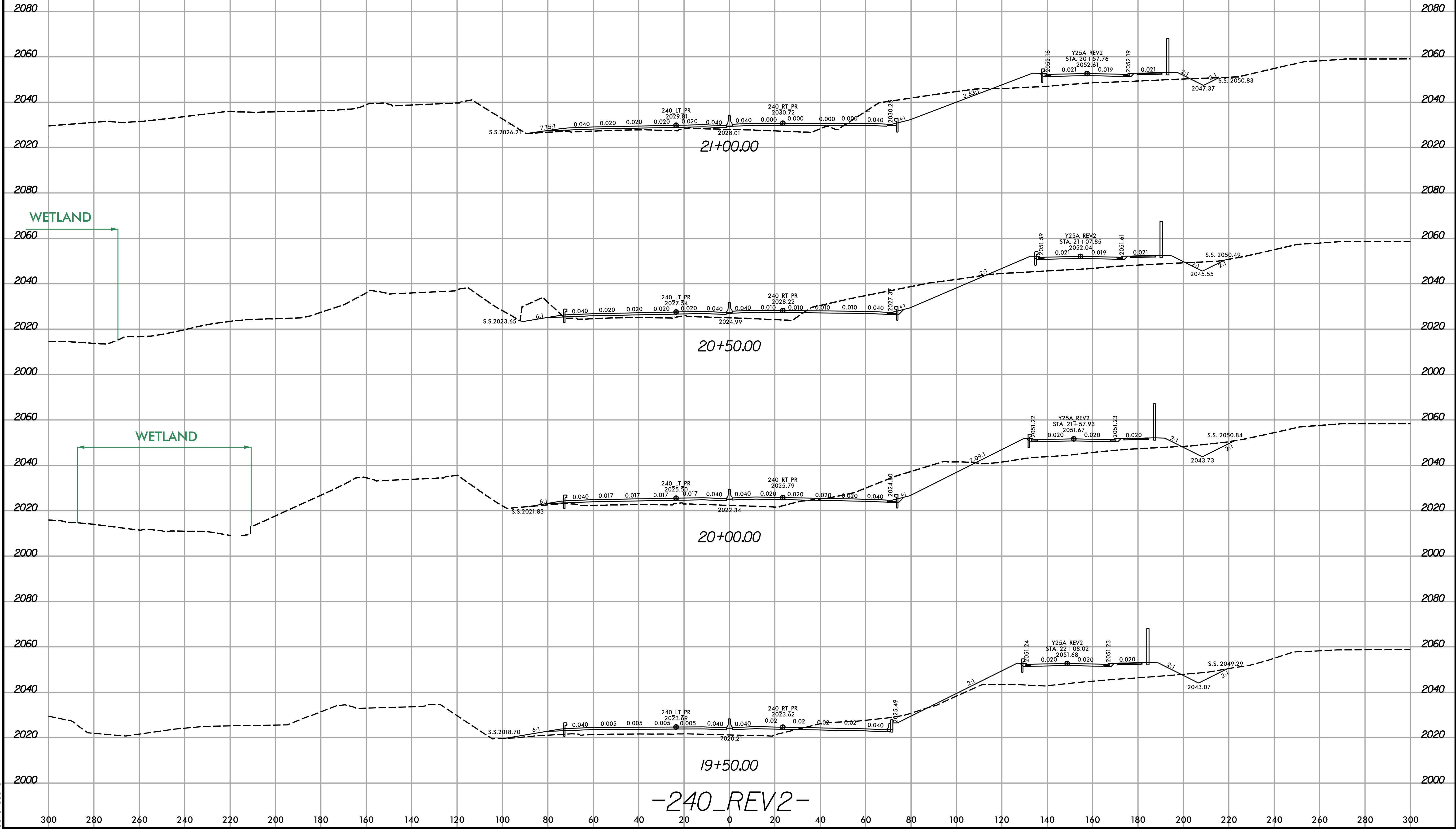
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
I-2513B&D	X-115

SITE 14

PERMIT DRAWING
SHEET 79 OF 85

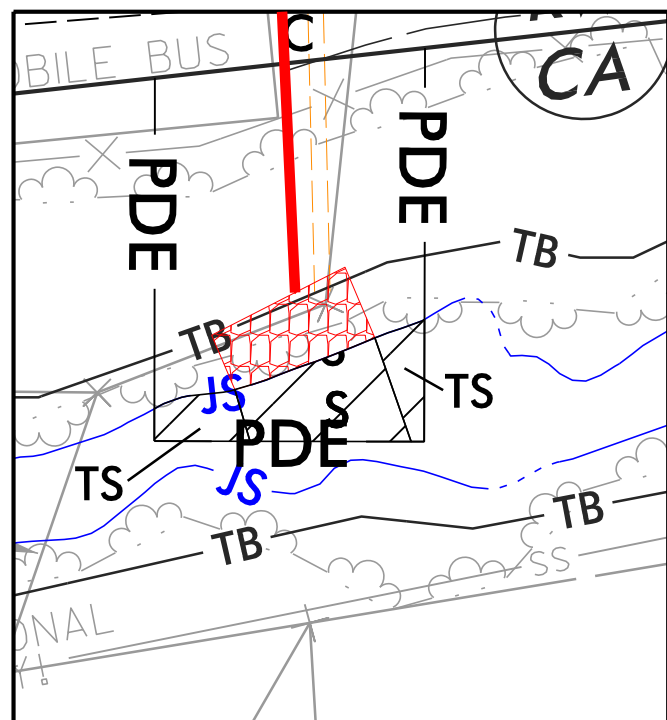


-240_REV2-

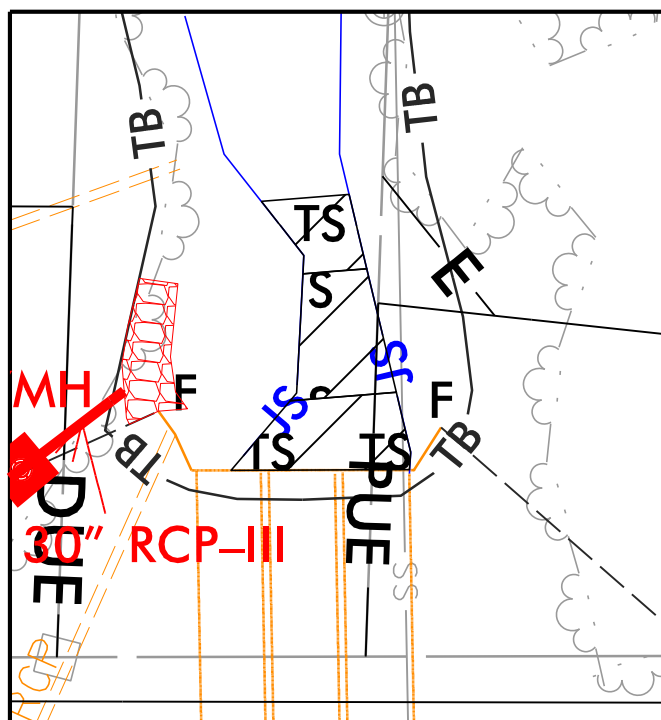
10/16/2025
G:\pwworking\kase schalois\0102632\XPL_Site 14.dgn
0585736395

8/17/99

10/20/2025
c:\pwworking\yorkpw01\elern_riggs\dms99\251-25138D_hyd_4C_psh17.dgn
elern_riggs



INSET A

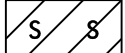
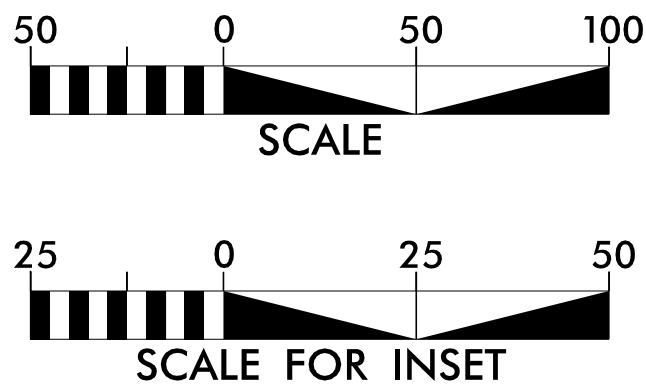


INSET B

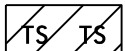
*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END
OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

PERMIT DRAWING
SHEET 80 OF 85

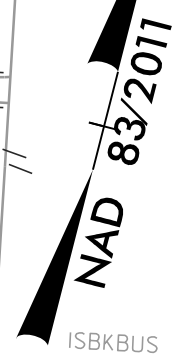
ENGLISH



SURFACE WATER IMPACTS

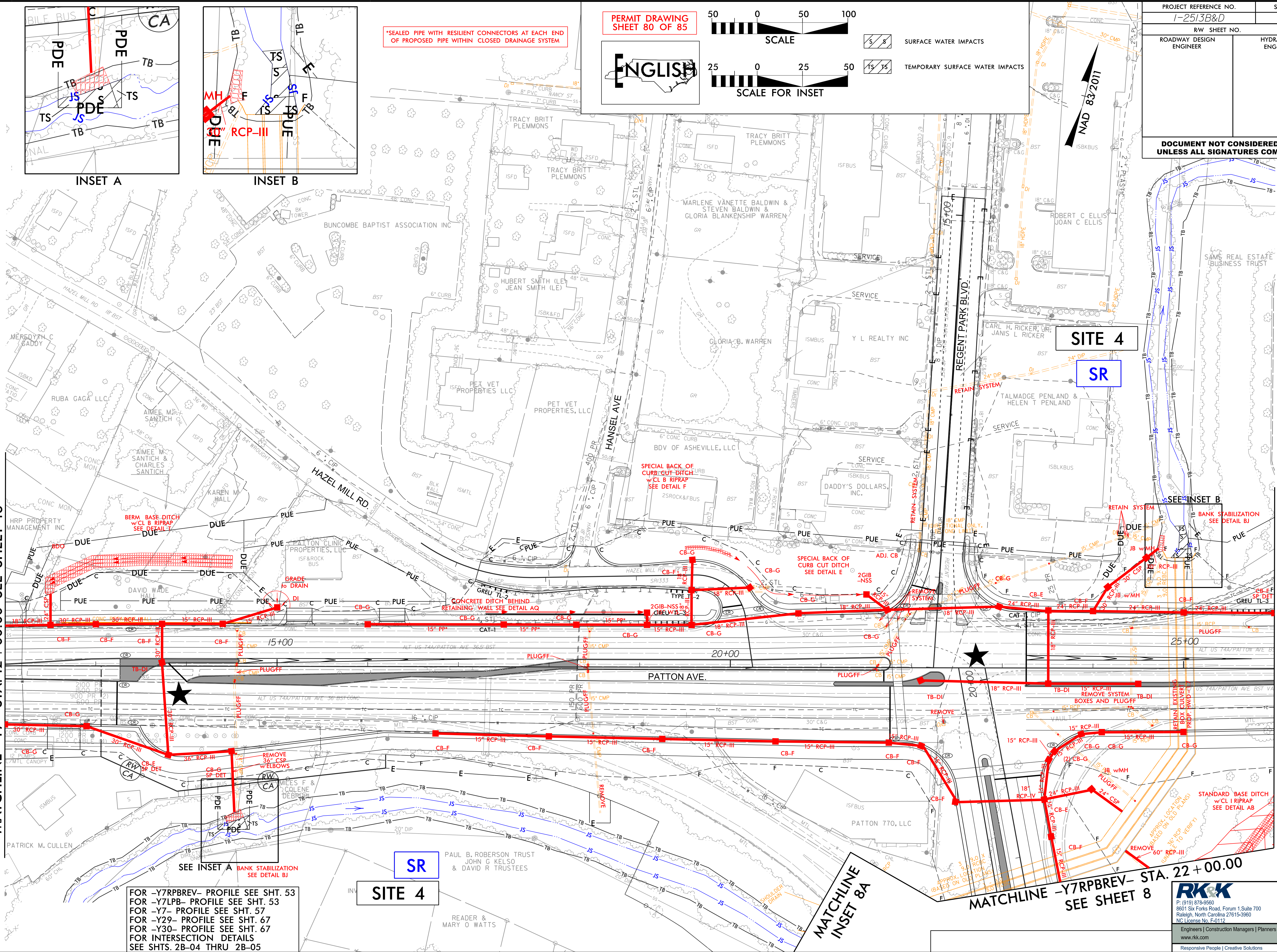


TEMPORARY SURFACE WATER IMPACTS



PROJECT REFERENCE NO. 1-2513B&D		SHEET NO. 17	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

MATCHLINE -Y7- STA. 12 + 00.00 SEE SHEET 16



SITE 4

SR

SR

SITE 4

FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7LPB- PROFILE SEE SHT. 53
FOR -Y7- PROFILE SEE SHT. 57
FOR -Y29- PROFILE SEE SHT. 67
FOR -Y30- PROFILE SEE SHT. 67
FOR INTERSECTION DETAILS
SEE SHTS. 2B-04 THRU 2B-05

MATCHLINE -Y7- STA. 26 + 00.00 SEE SHEET 8

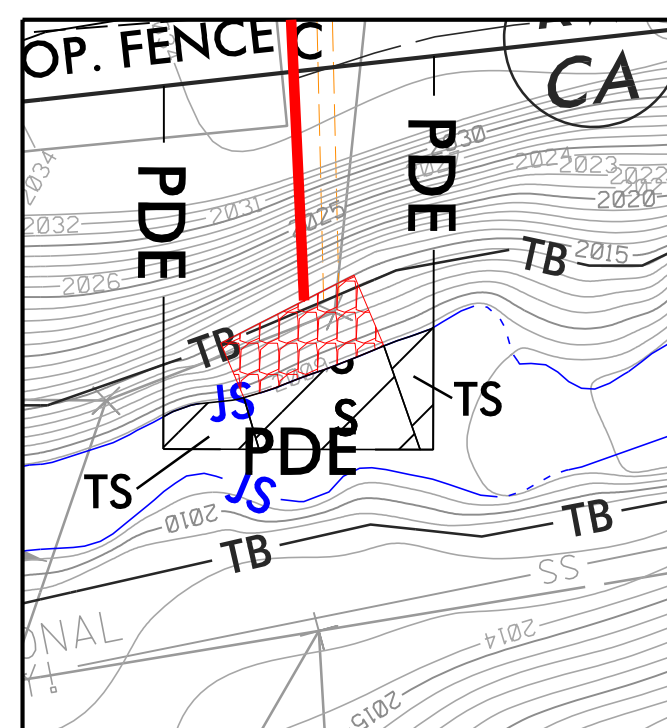
MATCHLINE -Y7RPBREV- STA. 22 + 00.00
SEE SHEET 8

MATCHLINE
INSET 8A

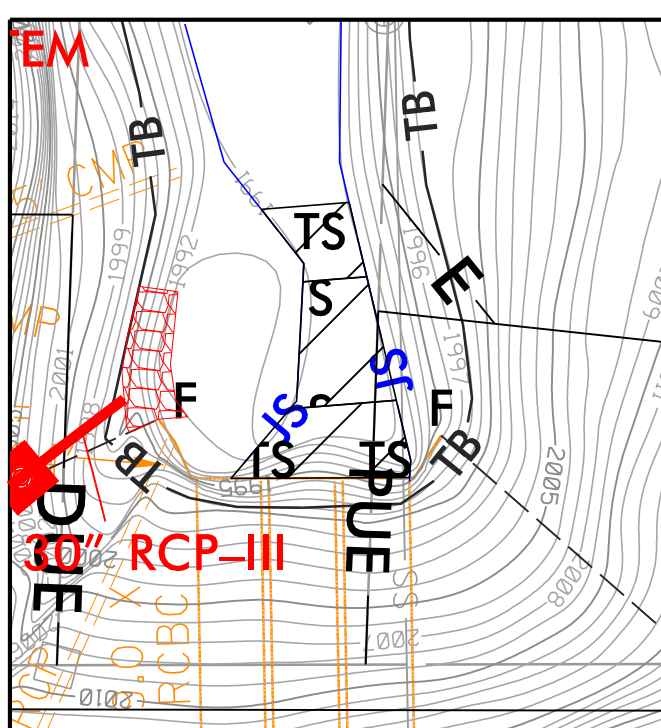
RK&K

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8601 Six Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
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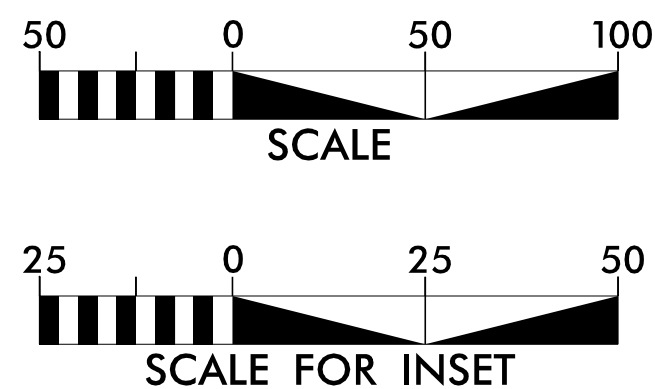
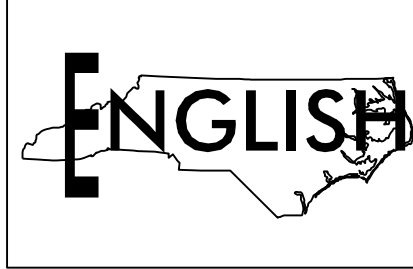


INSET A



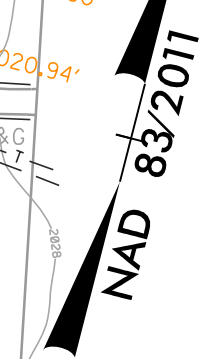
INSET B

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END
OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

PERMIT DRAWING
SHEET 81 OF 85

SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS



SITE 4

SR

SR

SITE 4

FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7LPB- PROFILE SEE SHT. 53
FOR -Y7- PROFILE SEE SHT. 57
FOR -Y29- PROFILE SEE SHT. 67
FOR -Y30- PROFILE SEE SHT. 67
FOR INTERSECTION DETAILS
SEE SHTS. 2B-04 THRU 2B-05

MATCHLINE -Y7RPBREV- STA. 22 + 00.00
SEE SHEET 8

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PROJECT REFERENCE NO.

1-251.3B&D

SHEET NO.

17

SHEET NO.

ROADWAY DESIGN

HYDRAULICS

ENGINEER

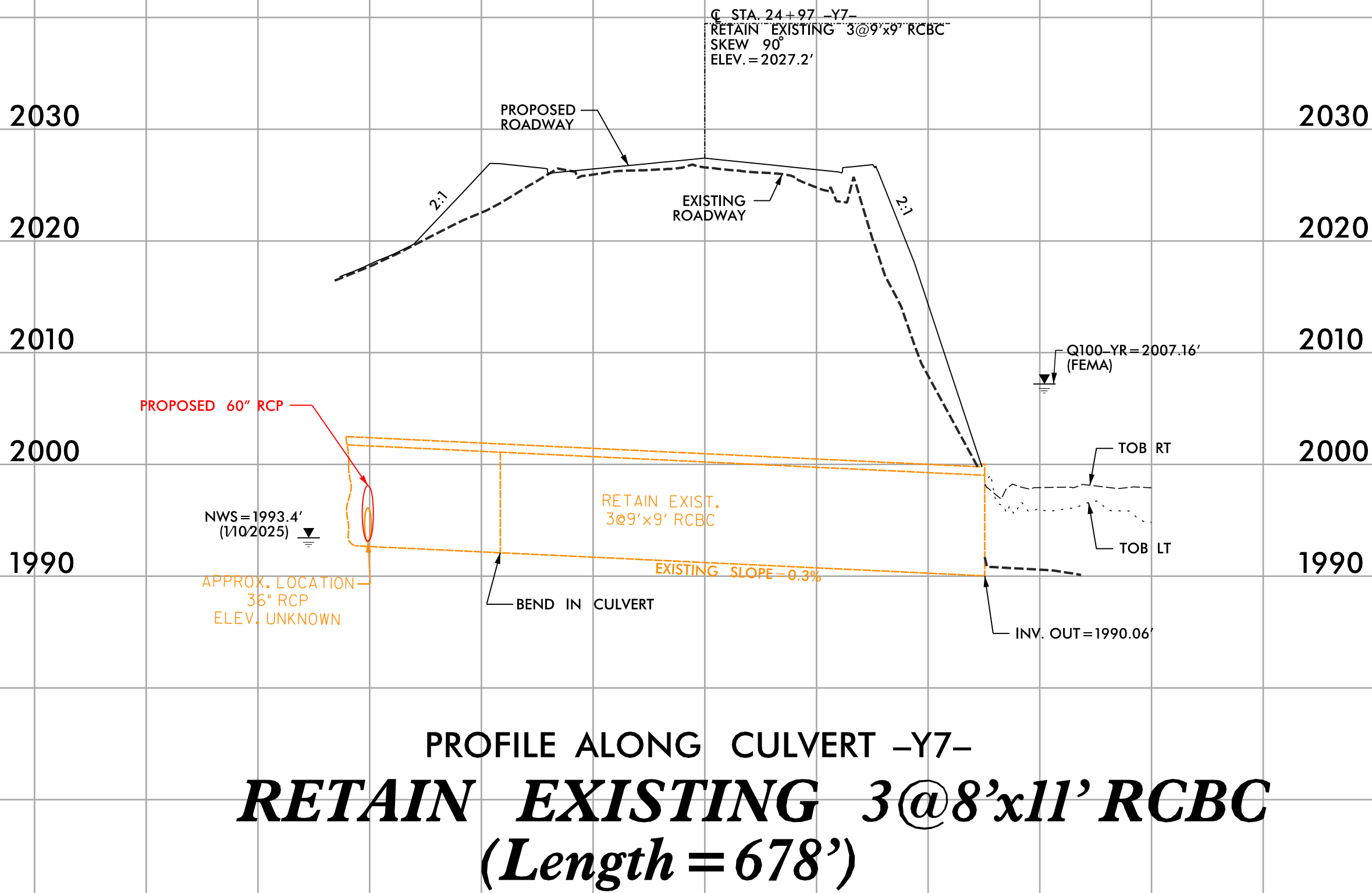
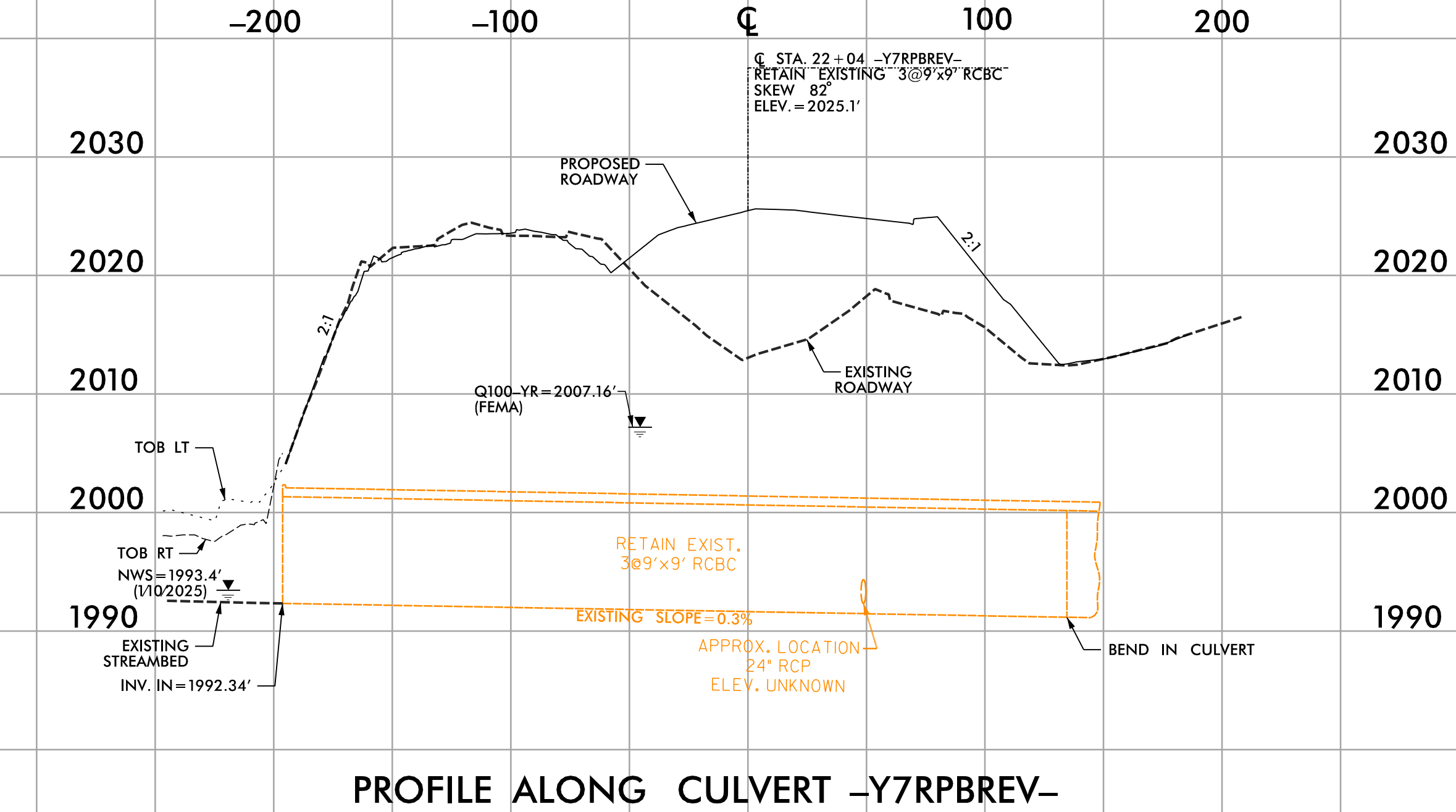
ENGINEER

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

5/14/99
10/17/2025
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SITE 4
-Y7- STA. 25+00

PROJECT REFERENCE NO.		SHEET NO.
1-2513B&D		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PERMIT DRAWING SHEET 82 OF 85		



PROFILE ALONG CULVERT -Y7-
RETAIN EXISTING 3@8'x11' RCBC
(Length = 678')

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	-MUP1- 28+85 to 33+81 RT	Channel Change (SG)						0.063		548		
1	-Y7RPBREV- 10+35 to 11+03 LT	Bank Stabilization (SG)						0.008	0.003	49	20	
1	-Y7RPBREV- 13+47 to 13+92 LT	Bank Stabilization (SG)						0.004	0.004	25	20	
1	-Y7RPBREV- 17+24 to 17+76 LT	Bank Stabilization (SG)						0.005	0.003	29	20	
1	-Y7RPBREV- 19+82 to 20+17 LT	Bank Stabilization (SG)						0.002	0.004	9	21	
1	-Y7RPBREV- 20+17 to 20+33 LT	Ditch (SG)						0.001	0.002	3	10	
2	-LB- 35+48 to 36+21	Roadway Fill (SU, WC, WC2)	0.029					0.026	0.001	410	12	
3	-LB- 33+59 to 25+70 LT	Roadway Fill (WF, WF2)	0.104									
5	-Y24- 19+48 to 20+96	Roadway Fill (SS, WBA)	0.045					0.005		43		
6	-Y24- 16+58 to 16+86 LT	Bank Stabilization / Ditch Tie-In (SR)						0.002	0.006	8	20	
6	-Y24- 18+65 to 18+88 LT	Bank Stabilization / Ditch Tie-In (SR)						0.005	0.006	15	20	
6	-Y24- 19+19 to 19+32 RT	Channel Change / Pipe Removal (SR)							0.019		21	
6	-Y7RPA- 25+68 to 26+06 RT	Channel Change / Pipe Removal (SR)							0.016		40	
6	-Y7RPA- 25+38 to 25+68 RT	Bank Stabilization / Ditch Tie-In (SR)						0.005	0.006	15	20	
6	-Y7RPA- 24+88 to 24+97 LT	Bank Stabilization / Ditch Tie-In (SR)						0.002	0.006	8	20	
6	-LB- 52+35 to 52+44 LT	Bridge Removal (SR)							0.011		33	
6	-LB- 52+90 to 53+24 RT	Bank Stabilization / Ditch Tie-In (SR)						0.005	0.006	20	20	
6	-LB- 54+08 to 54+31 RT	Bridge Removal (SR)							0.007		26	
6	-LB- 56+47 to 56+72 RT	Bridge Removal (SR)							0.006		27	
6	-LB- 57+53 to 57+81 RT	Bank Stabilization / Ditch Tie-In (SR)						0.004	0.006	17	20	
6	-Y7RPDDREV- 25+71 to 26+02 RT	Bank Stabilization / Pipe Tie-In (SR)						0.003	0.006	12	20	
6	-Y43- 15+87 to 16+10 LT	Bank Stabilization / Pipe Tie-In(SR)						0.006	0.011	11	20	
6	-Y24- 18+45 LT to -Y7RPDDREV- 26+84 RT	Construction Access (SR)							0.413		1221	
SHEET TOTALS*:			0.178	0.000	0.000	0.000	0.000	0.146	0.542	1222	1631	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
OCTOBER 23, 2025
BUNCOMBE
I-2513B&D

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)
21	-Y43- 19+70 to 20+08 LT	Bridge Removal / Bank Stabilization (SP)						0.016	0.007	46	20	
21	-Y43- 20+29 to 20+50 LT	Bank Stabilization / Pipe Tie-In (SP)						0.003	0.007	9	20	
21	-Y43- 22+24 to 22+44 LT	Bridge Removal (SP)							0.005		20	
7	-LB- 73+47 to 73+65 LT	Bank Stabilization / Pipe Tie-In (SA)						0.005	0.004	19	20	
7	-LB- 73+39 to 77+07	Bridge Construction and Causeway (SA)							3.113		389	
7	Y36_REV2 24+60 to 25+06 LT	Bank stabilization (SA)						0.008	0.004	36	20	
7	Y36_REV2 31+00 to 31+75 LT	Bank stabilization (SA)						0.008	0.006	36	32	
8	23NB 29+21 to 29+46 RT	Channel change (SO)						0.003		27		
9	23NB 38+68 to 38+96 RT	5" CSP /48" WS/Bank Stabilization (SM, WAK)	0.009					0.002	0.001	33	7	
10	23NB 40+55 to 40+04 RT	Channel change (SL)						0.009	0.001	101	11	
11	Y36_REV2 49+82 to 50+28 LT	Channel change (SI)						0.022	0.001	315	12	
11	LB 106+49 to 106+70 RT	Roadway fill (SI)						0.009		100		
11	LB 106+66 to 106+75 RT	Bank stabilization (SI)						0.001	0.001	12	10	
16	Y36_REV2 39+91 to 40+29 LT	Structure/Bank stabilization (SBB)						0.001	0.001	21		
17	Y36_REV2 39+90 to 40+32 LT	Bank stabilization (SA)						0.005	0.005	20	22	
12	LB 127+68 to 128+02 RT	Roadway fill/Channel change (SK, WBB)	0.003		0.003			0.008	0.001	75	10	
18	Y36_REV2 66+80 to 67+50 LT	Bank stabilization (SA)						0.011	0.009	34	30	
13	Y36_REV2 87+98 to 87+12 LT	Bank stabilization - SJ						0.003	0.007	10	24	
19	Y36_REV2 79+03 to 79+69 LT	Bank stabilization (SA)						0.015	0.008	48	29	
15	-Y25C2- 16+01 to 16+05 LT	Bank stabilization (SAV)						0.001		12		
15	-Y25C2- 16+02 to 16+12 LT	Pipe Lining (SAV)							0.002		28	
20	Y25C2 11+23 to 11+42 LT	Bank stabilization (ST)						0.001		12		
20	Y25C2 11+39 to 11+40 LT	Pipe Lining (ST, WBC)		0.005					0.001		29	
22	Y25C2 11+39 to 11+40 LT	Pipe Lining (SBC)							0.001		12	
14	240_REV2 19+85 to 20+24 LT	Pipe Lining (WBD, SAU)		0.031					0.003		43	
SHEET TOTALS*:			0.012	0.036	0.003	0.000	0.000	0.131	3.188	966	788	0

*Rounded totals are sum of actual impacts

NOTES:

Site 6 Construction Access: includes all areas between the individual impact areas along Smith Mill Creek. Not shown in the permit drawings.

Bridge Site 4A: 6 columns @ 5' diameter = 118 sf

Bridge Site 2D: 11 columns @ 5' diameter = 216 sf

Bridge Site 3A: 7 columns @ 6' diameter = 198 sf

Total Surface Water Impacts from Bridge Columns = 532 sf = 0.012 acres (not included in Temporary Surface Water Impacts for Site 7 Bridge Construction)

NC DEPARTMENT OF TRANSPORTATION
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OCTOBER 23, 2025
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SHEET 84 OF 85

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)
4	-Y7- 14+37 to 14+76 RT	Bank Stabilization / Pipe Tie-In (SR)						0.005	0.003	20	16	
4	-Y7- 20+80 to 21+09 RT	Bank Stabilization / Channel Tie (SR)						0.005	0.003	21	10	
4	-Y7- 24+86 to 25+09 LT	Bank Stabilization (SR)						0.004	0.006	16	20	
SHEET TOTALS*:			0.000	0.000	0.000	0.000	0.000	0.014	0.012	57	46	0
TOTALS for SHEET 83:			0.178	0.000	0.000	0.000	0.000	0.146	0.542	1222	1631	0
TOTALS for SHEET 84:			0.012	0.036	0.003	0.000	0.000	0.131	3.188	966	788	0
TOTALS for SHEET 85:			0.000	0.000	0.000	0.000	0.000	0.014	0.012	57	46	0
GRAND TOTAL FOR PROJECT:			0.190	0.036	0.003	0.000	0.000	0.291	3.742	2245	2465	0

*Rounded totals are sum of actual impacts
 NOTES:

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