

DESIGN DATA - SITE 1				
Traffic	Average Daily			Max.Hr.
Current 2026	Pass: -	Trucks: -	Total: <100	-
Forecast 2046	Pass: -	Trucks: -	Total: <100	-
Clear Zone Distance: 14'			Design Speed: 55 MPH	
Minimum Sight Dist. for Stopping: 495'			Bridges: HL-93	
Sight Dist. for No Passing Zone: -				
DESIGN DATA - SITE 2				
Traffic	Average Daily			Max.Hr.
Current 2026	Pass: -	Trucks: -	Total: <100	-
Forecast 2046	Pass: -	Trucks: -	Total: <100	-
Clear Zone Distance: 12'			Design Speed: 55 MPH	
Minimum Sight Dist. for Stopping: 495'			Bridges: HL-93	
Sight Dist. for No Passing Zone: -				



MCHENRY COUNTY
NORTH DAKOTA

FEDERAL AID PROJECT
BRO-2500(023) AND BRO-0025(055)
STRUCTURE REPLACEMENTS

SITE 1: OLD STRUCTURE #25-107-26.1/NEW STRUCTURE #25-107-26.2
SITE 2: OLD STRUCTURE #25-113-02.0/NEW STRUCTURE #25-113-02.1

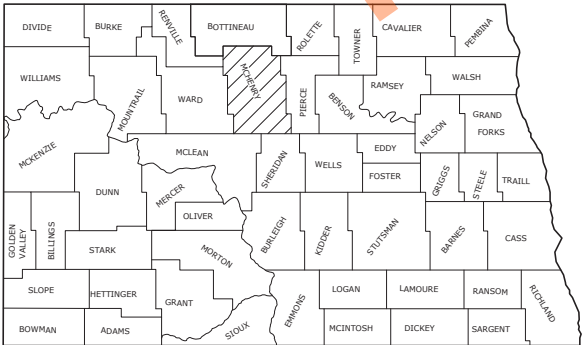
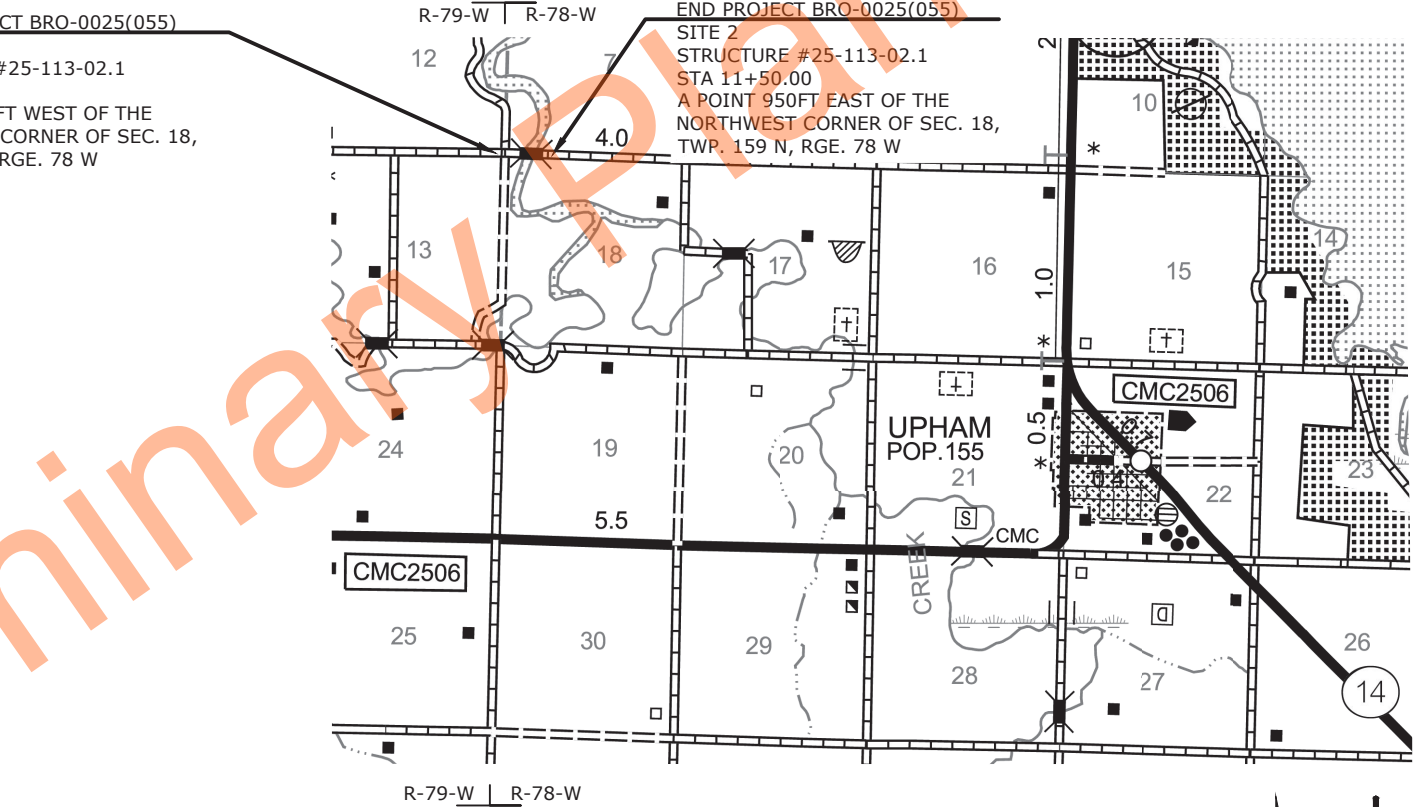
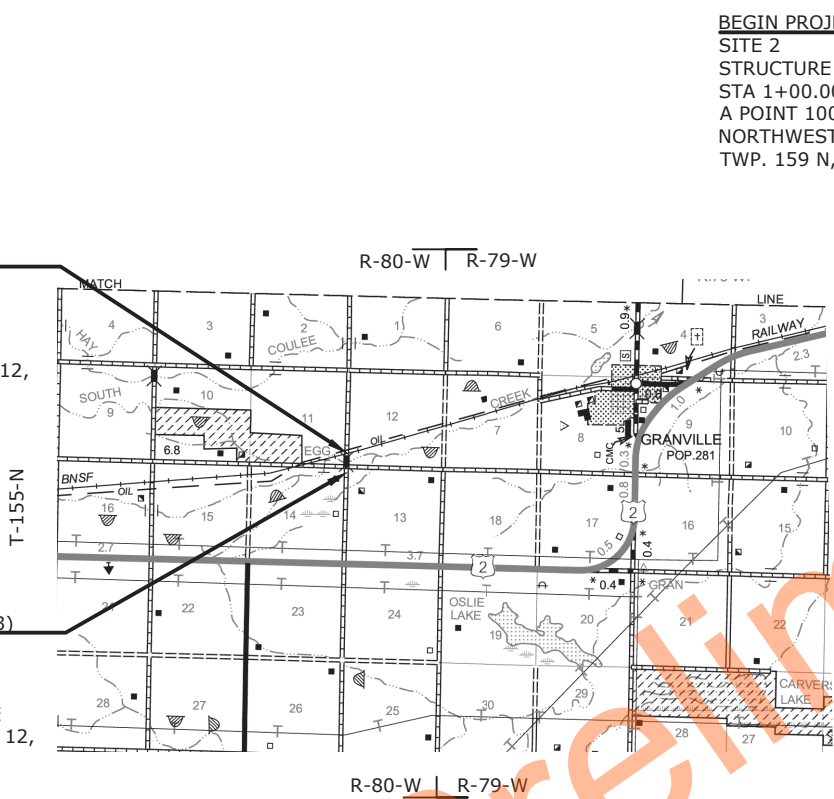
THE PROJECT CONSISTS OF REMOVAL OF EXISTING BRIDGES AND
INSTALLATION OF PRECAST REINFORCED CONCRETE BOXES AT MULTIPLE LOCATIONS

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.	
ND	BRO-2500(023)	23983	1	1	
BRO-0025(055)		25695			
GOVERNING SPECIFICATIONS		Date Published and Adopted by the North Dakota Department of Transportation			
Standard Specifications		7/1/2025			
Supplemental Specifications		NONE			

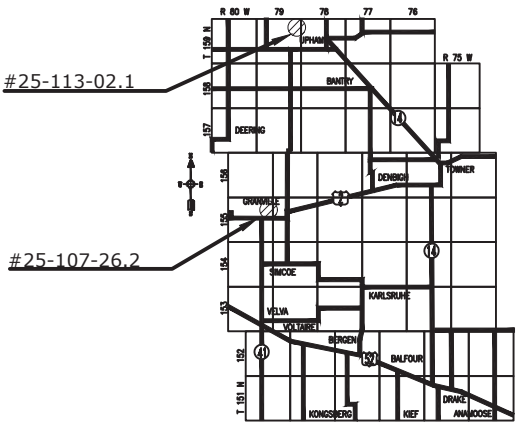
PROJECT NUMBER \ STRUCTURE #	NET MILES	GROSS MILES
SITE 1 BRO-2500(023) #25-107-26.2	0.097	0.097
SITE 2 BRO-0025(055) #25-113-02.1	0.199	0.199
Project Total	0.296	0.296

END PROJECT BRO-2500(023)
SITE 1
STRUCTURE #25-107-26.2
STA 6+95.00
A POINT 695FT NORTH OF THE
SOUTHWEST CORNER OF SEC. 12,
TWP. 155 N, RGE. 80 W

BEGIN PROJECT BRO-2500(023)
SITE 1
STRUCTURE #25-107-26.2
STA 1+83.00
A POINT 183FT NORTH OF THE
SOUTHWEST CORNER OF SEC. 12,
TWP. 155 N, RGE. 80 W



STATE COUNTY MAP



SKETCH MAP OF MCHENRY COUNTY



WOLD
ENGINEERING, P.C.

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE _____
Seth DeMontigny Digitally signed by Seth DeMontigny
Date: 2026.09.09 10:58:55 -05'00'

Wold Engineering, P.C.

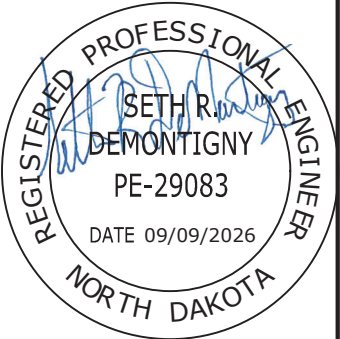


TABLE OF CONTENTS						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	BRO-2500(023)	2	1
PLAN SECTIONS					LIST OF STANDARD DRAWINGS				
					BRO-0025(055)				
Section	Page(s)	Description	Number	Description					
1	1	Title Sheet	D-101-1, 2-4	NDDOT Abbreviations					
2	1	Table of Contents	D-101-10	NDDOT Utility Company and Organization Abbreviations					
6	1	Notes	D-101-20, 21	Line Styles					
6	2	Environmental Notes	D-101-30, 31-33	Symbols					
8	1 - 2	Quantities	D-101-40	Cross Section Legend					
10	1	Basis of Estimate	D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation					
20	1	General Details	D-260-1	Erosion And Siltation Controls - Silt Fence					
30	1 - 2	Typical Sections	D-261-1	Erosion Control - Fiber Roll Placement Details					
60	1 - 2	Plan & Profile	D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube					
75	1 - 4	Wetland Impacts	D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post					
76	1 - 2	Temporary Erosion Control	D-704-9	Construction Sign Details - Terminal And Guide Signs					
77	1 - 2	Permanent Erosion Control	D-704-10	Construction Sign Details - Regulatory Signs					
81	1 - 2	Survey Coordinate and Curve Data	D-704-13	Barricade And Channelizing Device Details					
100	1 - 2	Work Zone Traffic Control	D-704-14	Construction Sign Punching And Mounting Details					
170	1 - 6	Bridges and Box Culverts	D-714-22	Concrete Pipe, Cattle Pass, or Precast Concrete Box Culvert Ties					
200	1 - 12	Cross Sections	D-752-1	Standard Barbed Wire Fence					
			D-754-82	Object Markers					
SPECIAL PROVISIONS									
Number	Description								
SSP 1	Temporary Erosion and Sediment Best Management Practices								
SSP 2	Federal Migratory Bird Treaty Act								
SSP 3	Local Agency Contracts								
PSP 100(025)	Permits and Environmental Considerations								
SP 613(25)	Temporary Stream Diversion								
SP 615(25)	Railroad Requirements								

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	6	1
	BRO-0025(055)		

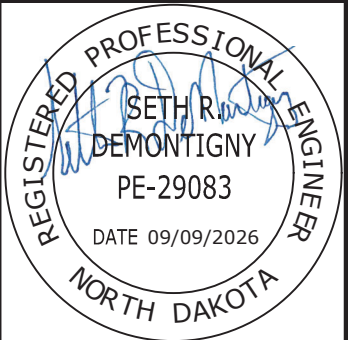
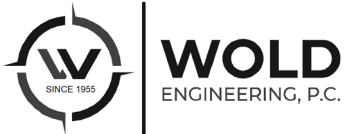
NOTES

- 100-P01 CONSTRUCTION COMPLETION:** The overall project completion date is October 30th, 2027.
- 105-P01 UTILITIES:** Notify all utility owners of the project schedule as specified in Section 105.03, “Cooperation with Utility Owners” of the Standard Specifications. Coordinate and perform construction activities in a manner that accommodates the utility coordination requirements included in the Utility Coordination Table. Protect utilities not listed in the Utility Coordination Table in their existing locations.

Utility Coordination Table for Site 1						
Station	Offset	Appr. Qty	Comments	Utility Company	Type of Facility	Approx. Max Cut/Fill
0+60.00	100’ LT to 100’ RT	200’	Protect in place/No Conflict	Souris River Telephone (SRT)	Fiber Optic	0
1+00 to 6+00	86’ LT	500’	Protect in place	Verendrye Electric Cooperative	Overhead Power Line	0
6+40, parallel to RR tracks	100’ LT to 100’ RT	200’	Protect in Place/No Conflict	Enbridge Inc.	Pipeline	6’ Fill Inslope of road
Utility Coordination Table for Site 2						
Station	Offset	Appr. Qty	Comments	Utility Company	Type of Facility	Approx. Max Cut/Fill
0+00 to 12+00	55’ RT	1200’	Coordinate Relocation	North Central Electric Cooperative	Overhead Power Line	0

- 105-P03 UTILITIES:** The Verendrye Electric Cooperative (VEC) overhead power is outside of the grading limits of the project and will need to be protected in place. VEC can deenergize the overhead power line during construction activities that take place near the line. Contractor will coordinate deenergizing the line with VEC.
- 105-P04 UTILITIES:** The North Central Electric Cooperative (NCEC) overhead power is outside of the grading limits of the project but will need to be relocated due to box culvert placement operations. NCEC will relocate the line to the temporary easement during construction operations. Contractor will coordinate and provide adequate access for relocation of the line with NCEC.
- 201-P01 REMOVAL OF TREES AND BRUSH:** Include all costs associated with removal of existing trees, stumps, and brush within the grading area including but not limited to removal, hauling, and disposal at a location outside of the right of way, and approved of by the Engineer, in the Lump Sum Bid Item “REMOVAL OF TREES AND BRUSH”.
- 203-P01 COMPACTION CONTROL:** Place embankment material in accordance with Section 203.04 G3 of the Standard Specifications (Compaction Control, Type B).
- 203-P02 WATER:** Include the application of water for compaction of subgrade and aggregates, and for use as a dust palliative within the construction limits, the detour route, and depending on hauling operations, near residences or farmsteads, as required, in the cost for other bid items.
- 203-P03 TOPSOIL:** Topsoil quantity assumes depth of 4 inches. Include all costs associated with stripping, stockpiling, and respreading topsoil in the unit price bid item “TOPSOIL”. “TOPSOIL” will be paid at plan quantity with no cost adjustment for varying topsoil depths.
- 203-P04 SHRINKAGE:** An additional 30 percent volume has been included in the embankment quantity to account for shrinkage.

- 752-P01 TEMPORARY FENCE:** Temporary fencing, if needed, will be provided by the Contractor after determining the presence of livestock during construction and in consultation with the landowner. The Contractor will coordinate with the adjacent landowners to determine if livestock will be present during construction. If a temporary fence is needed, the Contractor will install and maintain an electric fence to contain the livestock. The temporary electric fence will remain in place until the permanent fence is installed. If no livestock is present during construction this bid item will be removed. Include installation, maintenance and removal of the temporary electric fence in the price bid for “Temporary Fence”.
- 754-P01 EXISTING SIGNAGE:** Existing bridge marker and load posting signs will be salvaged and delivered to the County Shop in either Upham or Granville. Coordinate delivery with Darlene Carpenter, McHenry County Highway Superintendent, at 701-537-5724. Include the cost to salvage and deliver existing bridge markers and load posting signs in the cost for traffic control bid items.
- 858-P01 GEOSYNTHETIC MATERIAL TYPE G:** Provide Tensar NX850 or approved equal geogrid.



ENVIRONMENTAL NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	6	2
	BRO-0025(055)		

ENVIRONMENTAL NOTES (EN): McHenry County, the North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The following environmental notes are the commitments:

EN-1 SPAWNING RESTRICTION: Do not work within the Deep River from April 15th to June 1st.

EN-2 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

EN-3 WETLAND IMPACTS:

Site 1

There are 0.49 acres of temporary impacts and 0.44 acres of permanent impacts to Stream and Wetlands for this site. There are 0.04 acres of Wetlands impact reduction due to riprap lowered 1-foot below channel invert. The permanent impacts to Wetlands totaling 0.40 require mitigation and will be mitigated through Ducks Unlimited credit purchase at a ratio of 0.35 acres at 1:1 and 0.05 acres at 2:1, totaling 0.45 in-lieu fee credit purchase.

Site 2

There are 0.65 acres of temporary impacts and 0.61 acres of permanent impacts to Wetlands for this site. There are 0.06 acres of Wetland impact reduction due to riprap lowered 1-foot below channel invert. There are 0.03 acres of Wetland impact that is below required mitigation threshold per USACE. The permanent impacts to Wetlands totaling 0.52 require mitigation and will be mitigated through Ducks Unlimited credit purchase at a ratio of 1:1.

See Section 75 in the plans for impact tables and mitigation ratios.

EN-4 AQUATIC NUISANCE SPECIES (ANS): Equipment that was last used outside of North Dakota or within a Class I infested waterbody (identified on the North Dakota Game and Fish Department (NDGFD) website) requires an inspection by NDGFD. Notify the NDGFD at least 10 business days prior to pumps, watercraft, or any equipment entering a public water to allow the NDGFD sufficient time to inspect any and all such equipment for ANS. Contact the NDGFD ANS Coordinator, Mr. Benjamin Holen by e-mail bholen@nd.gov for equipment inspections. Supply one of the following to the engineer as proof of compliance prior to work taking place in the water: (1) the NDGFD inspection report, (2) documented NDGFD correspondence (email or signed letter). If an inspection is not required, no follow up documentation is required.

EN-5 WETLAND MITIGATION CREDITS: Prior to beginning any work on the project, the Contractor will purchase wetland mitigation credits from Ducks Unlimited to satisfy the Environmental Commitments shown in Section 75 of the plans. No work will begin on the project until a Credit Sales Letter from Ducks Unlimited for each Site is submitted to and accepted by the U.S. Army Corps of Engineers.

Purchase the wetland mitigation credits from the Souris River Basin mitigation site. The details are:

Site 1 0.45 credits @ \$81,000/credit = \$36,450

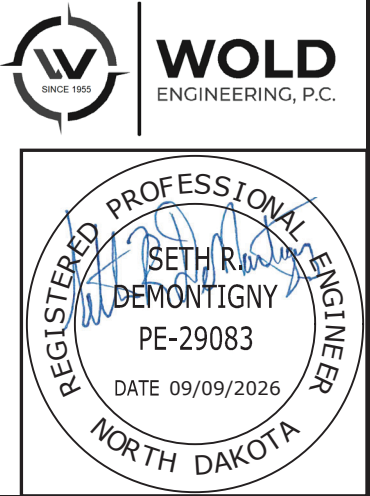
Site 2 0.52 credits @ \$81,000/credit = \$42,120

The contact information to purchase the wetland mitigation credits from Ducks Unlimited is provided below:

Trenton Hieb
Biologist in Ecosystem Services – Mitigation
Ducks Unlimited (Great Plains Region)
2525 River Road
Bismarck, ND 58503
Phone: 701-355-3573
Email: thieb@ducks.org

PERMITS REQUIRED:

- North Dakota Department of Environmental Quality – NDPDES Permit
Status: To be obtained by the Contractor prior to construction. Owner is to be McHenry County.
- USACE – Section 404 Permit
Status: A Nation-Wide Permit will be obtained by McHenry County for these projects.
Site 1: NWO-2024-01042-BIS
Site 2: NWO-2021-02149-BIS



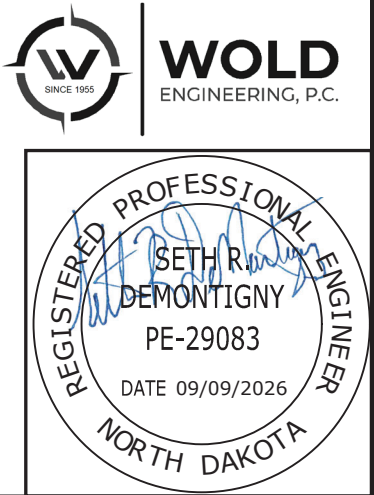
Estimated Quantities						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	BRO-2500(023) PCN 23983	8	1
BRO-0025(055) PCN 25695									
SPEC	CODE	ITEM DESCRIPTION	UNIT	BRO-2500(023)	BRO-0025(055)	TOTAL			
103	0100	CONTRACT BOND	L SUM	0.5	0.5	1			
107	0103	RAILWAY PROTECTION INSURANCE-SITE 1	EA	1		1			
201	0352	REMOVAL OF TREES & BRUSH	L SUM	1		1			
202	0108	REMOVAL OF STRUCTURE-SITE 1	L SUM	1		1			
202	0109	REMOVAL OF STRUCTURE-SITE 2	L SUM		1	1			
202	0312	REMOVE EXISTING FENCE	LF	405		405			
203	0102	COMMON EXCAVATION-TYPE B	CY	120	771	891			
203	0109	TOPSOIL	CY	300	576	876			
203	0119	TOPSOIL-IMPORTED	CY	100	100	200			
203	0140	BORROW-EXCAVATION	CY	3170	2410	5580			
210	0051	BOX CULVERT EXCAVATION - SITE 1	EA	1		1			
210	0052	BOX CULVERT EXCAVATION - SITE 2	EA		1	1			
210	0202	FOUNDATION PREPARATION-SITE 1	L SUM	1		1			
210	0203	FOUNDATION PREPARATION-SITE 2	L SUM		1	1			
210	0210	FOUNDATION FILL	CY	558	1085	1643			
251	0200	SEEDING CLASS II	ACRE	0.55	1.05	1.6			
251	2000	TEMPORARY COVER CROP	ACRE	0.55	1.05	1.6			
253	0101	STRAW MULCH	ACRE	1.1	2.1	3.2			
255	0103	ECB TYPE 3	SY	131	950	1081			
256	0200	RIPRAP GRADE II	CY	134	455	589			
260	0300	SILT FENCE	LF	110		110			
260	0301	REMOVE SILT FENCE	LF	110		110			
261	0112	FIBER ROLLS 12IN	LF	1850	3200	5050			
261	0113	REMOVE FIBER ROLLS 12IN	LF	925	1600	2525			
262	0100	FLOTATION SILT CURTAIN	LF	100	220	320			
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	100	220	320			
302	0356	AGGREGATE SURFACE COURSE CL 13	TON	359	683	1042			
606	1813	18FT8IN X 13FT PRECAST RCB CULVERT	LF		232	232			
606	3406	DBL 14FT X 6FT PRECAST RCB CULVERT	LF	50		50			
606	5813	18FT8IN X 13FT PRECAST RCB END SECTION	EA		8	8			
606	7406	DBL 14FT X 6FT PRECAST RCB END SECTION	EA	2		2			
702	0121	MOBILIZATION - SITE 1	L SUM	1		1			
702	0122	MOBILIZATION - SITE 2	L SUM		1	1			
704	1000	TRAFFIC CONTROL SIGNS	UNIT	224	164	388			
704	1052	TYPE III BARRICADE	EA	10	6	16			
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	288	1044	1332			
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	200	683	883			
709	0161	GEOSYNTHETIC MATERIAL TYPE S1	SY	625	2136	2761			
752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	415		415			
752	0905	TEMPORARY FENCE	LF	520		520			
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST	EA	2		2			
754	0803	OBJECT MARKERS - TYPE III	EA	4	4	8			
900	1001	TEMPORARY STREAM DIVERSION - SITE 1	EA	1		1			
900	1002	TEMPORARY STREAM DIVERSION - SITE 2	EA		1	1			
900	2001	WETLAND MITIGATION SITE 1	ACRE	0.45		0.45			
900	2002	WETLAND MITIGATION SITE 2	ACRE		0.52	0.52			

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	10	1
	BRO-0025(055)		

BASIS OF ESTIMATE SITE 1 BRO-2500(023)					
Typical Section Structure #25-107-26.2 Sta. 1+83 to 6+95 (0.097 Miles)					
Description	Unit	Width	Unit/Mile	Site Length	Total
Aggregate Surface Course CL. 13 @1.875 Ton/CY	TON	28'	3,179	512	309
				Gravel Transition at Ends	
				Begin Project	25
				End Project	25
				Total CL. 13	359
Earthwork					
Common Exc (CY)	Embankment (CY)	Waste ¹ (CY)	Borrow Excavation (CY)	Topsoil (CY)	Import Topsoil ³ (CY)
120	3,290	710	3,170	300	100

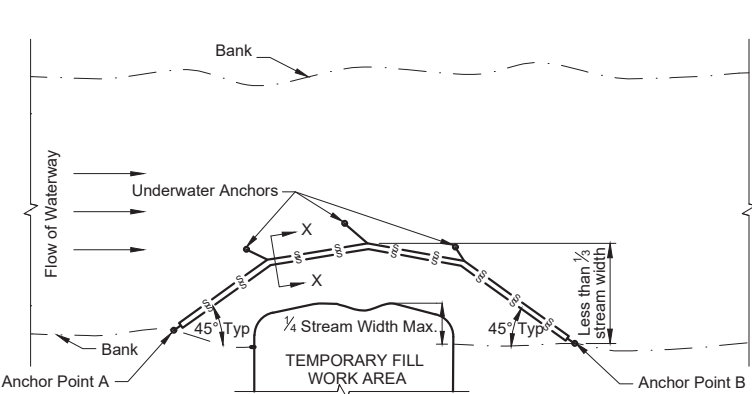
BASIS OF ESTIMATE SITE 2 BRO-0025(055)					
Typical Section Structure #25-113-02.1 Sta. 1+00 to 11+50 (0.199 Miles)					
Description	Unit	Width	Unit/Mile	Site Length	Total
Aggregate Surface Course CL. 13 @1.875 Ton/CY	TON	28'	3,179	1050	633
				Gravel Transition at Ends	
				Begin Project	25
				End Project	25
				Total CL. 13	683
Earthwork					
Common Exc (CY)	Embankment (CY)	Waste ² (CY)	Borrow Excavation (CY)	Topsoil (CY)	Import Topsoil ³ (CY)
771	3,181	1,500	2,410	576	100

1. Waste is not a pay item, but it includes for informational purposes approximate excavation quantities of 591CY for foundation fill and 119CY for riprap, totaling 710CY of approximate waste. If waste is approved by Engineer for use as embankment, no additional payment will be made for placement and compaction of the material.
2. Waste is not a pay item, but it includes for informational purposes approximate excavation quantities of 1045 CY for foundation fill and 455 CY for riprap, totaling 1500 CY of approximate waste. If waste is approved by Engineer for use as embankment, no additional payment will be made for placement and compaction of the material.
3. Import topsoil may be eliminated if the Contractor is successful in salvaging all stripped topsoil. Due to difficulties in salvaging all topsoil, a cursory figure of topsoil has been added to either replace or enhance topsoil on site. This does not relieve the Contractor from exercising caution when stripping and stockpiling topsoil but is meant to improve the final product. The Engineer may eliminate, increase, or decrease the quantity at their discretion.



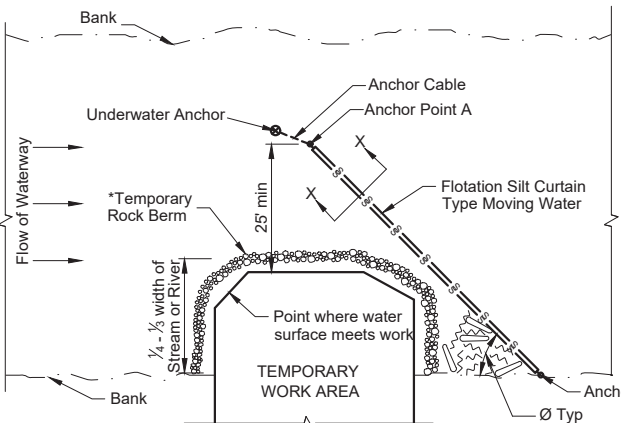
Basis of Estimate

TYPICAL INSTALLATIONS
May vary with conditions



PLAN VIEW
FLOTATION SILT CURTAIN - TYPE WORK AREA

DESIGN GUIDELINES:
When temporary work encroaches less than $\frac{1}{4}$ of the width of stream.

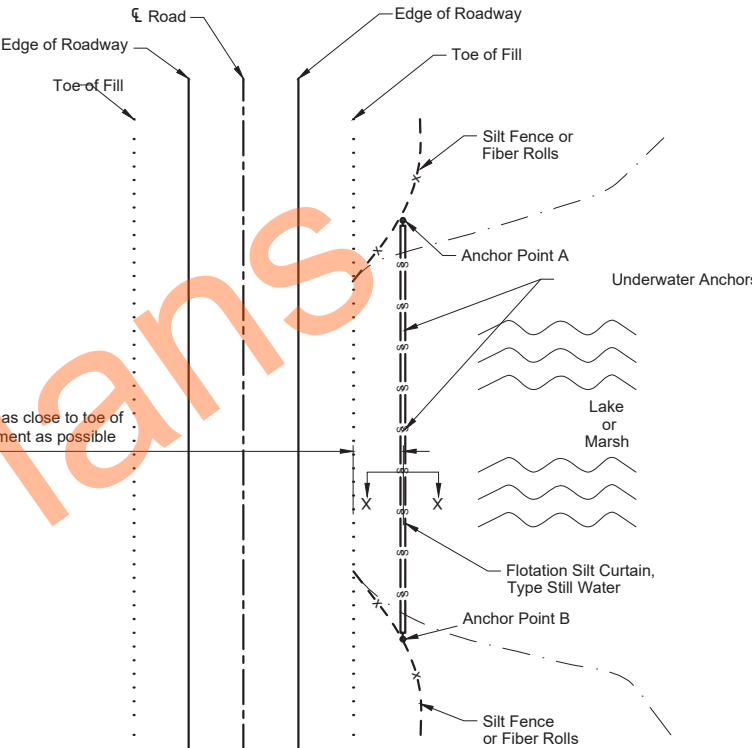


Ø	WATER VELOCITY
45°	slow, less than 3 ft/sec
35°	moderate, 3 - 5 ft/sec

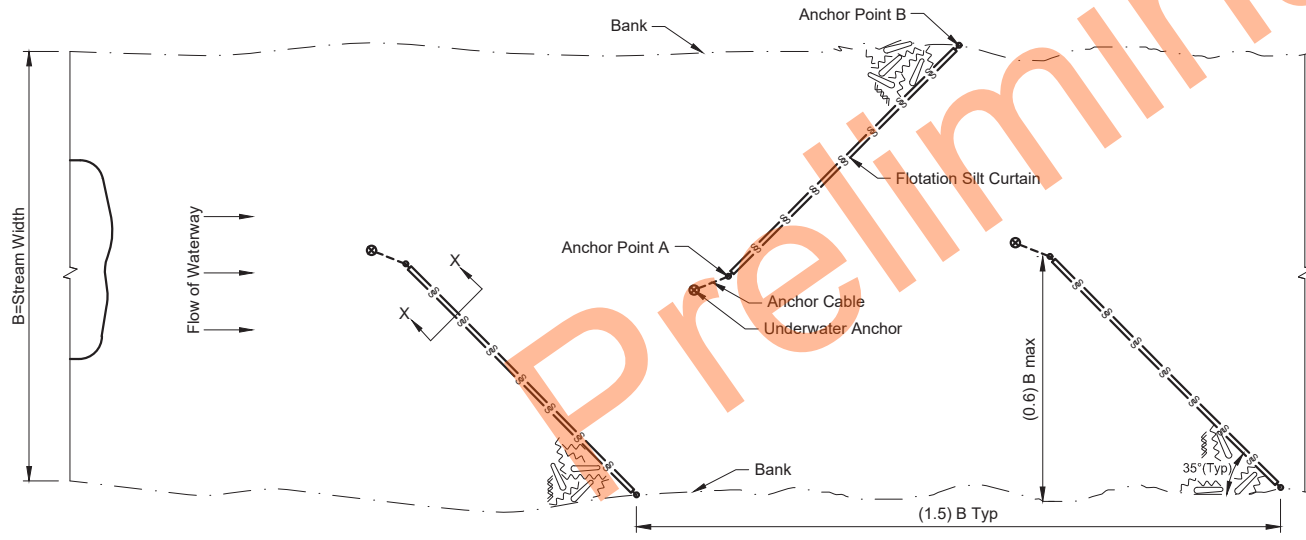
PLAN VIEW
FLOTATION SILT CURTAIN - TYPE MOVING WATER

DESIGN GUIDELINES:
When temporary work encroaches more than $\frac{1}{4}$ but less than $\frac{1}{2}$ width of the stream.
For narrow waterways, the curtain may be placed 1 foot above the bottom of waterway to allow water flow.

*In areas where the plans call for riprap at the bridge, provide a temporary rock berm. Include all costs for the temporary rock berm in price bid for the "Riprap".

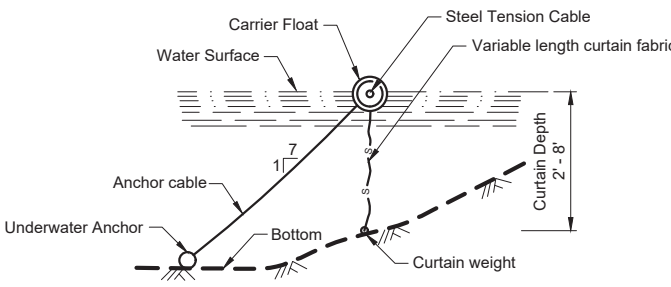
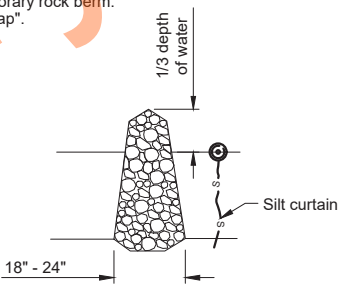


PLAN VIEW
FLOTATION SILT CURTAIN - TYPE STILL WATER
The silt curtain shall extend onto shore and shall also be anchored there.



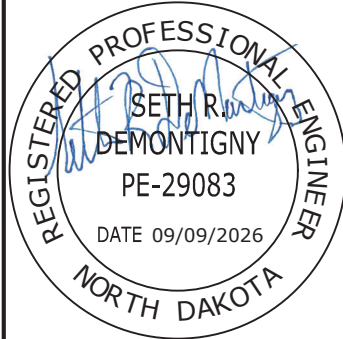
PLAN VIEW
FLOTATION SILT CURTAIN - TYPE HERRING BONE PATTERN

DESIGN GUIDELINES:
When temporary work encroaches more than $\frac{1}{2}$ width of the stream
Or where stream width doesn't allow use of Type Moving Water



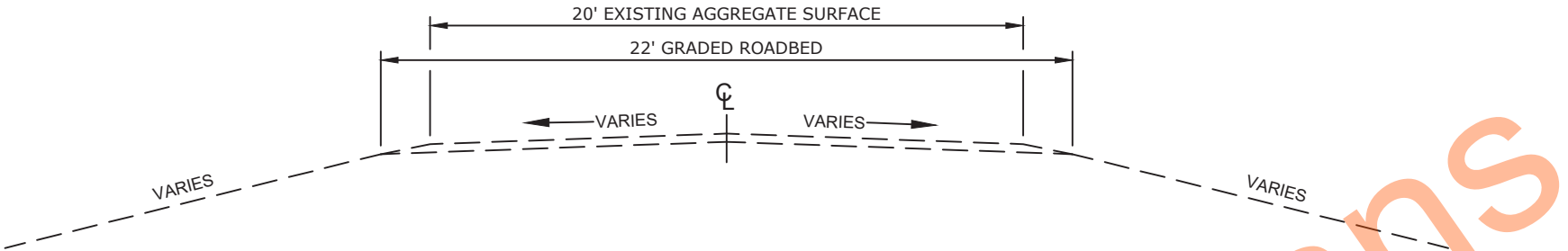
SECTION X-X
FLOTATION SILT CURTAINS

Note:
Maximum water velocity for moving water = 5 ft/sec

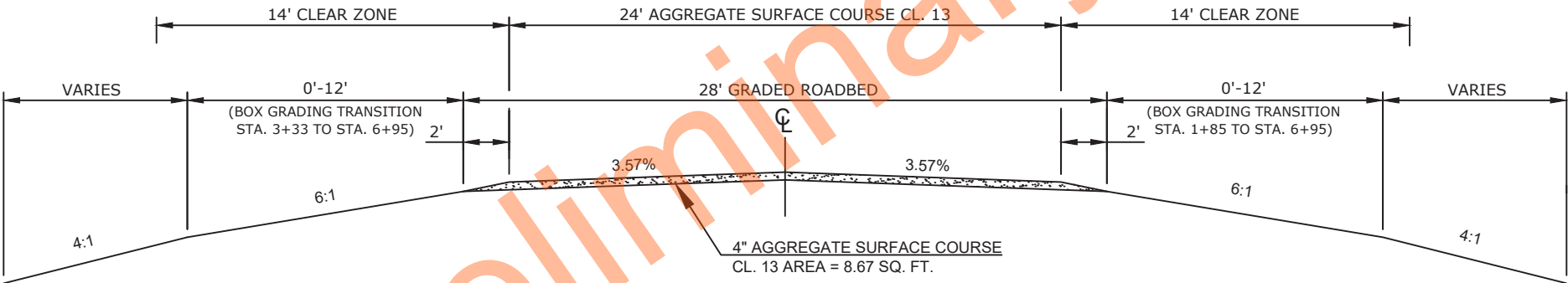


Temporary Erosion Control
Flotation Silt Curtain

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	30	1



EXISTING TYPICAL SECTION
STA. 1+83 TO 6+95



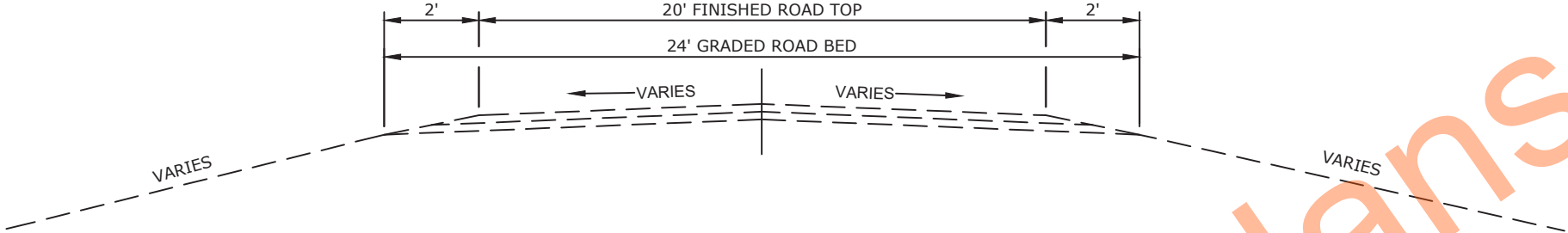
PROPOSED TYPICAL SECTION
STA. 1+83 TO 6+95

(Transition to existing section within 50 feet of
beginning and end of project.)

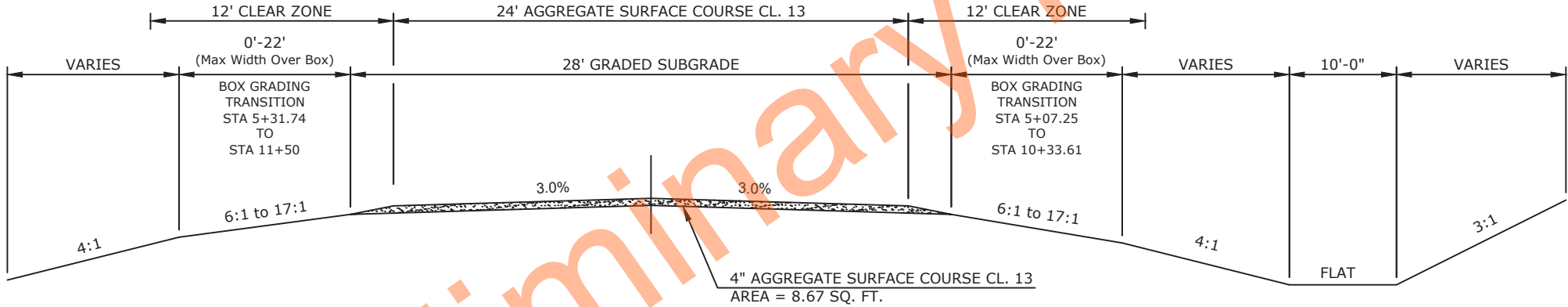


TYPICAL SECTION
SITE 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	30	2



EXISTING TYPICAL SECTION
STA. 1+00 TO 11+50



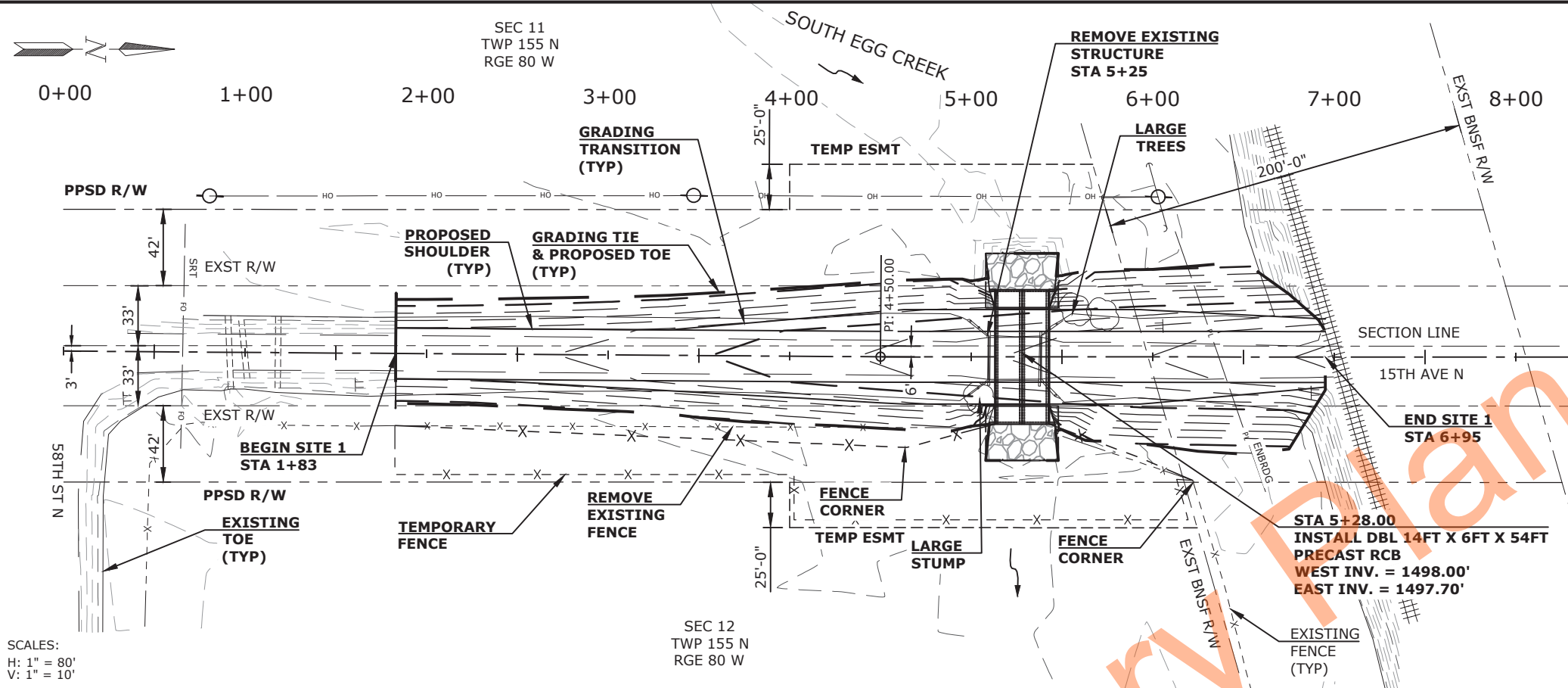
FILL

PROPOSED TYPICAL SECTION
STA. 1+00 TO 11+50
(Transition to existing section within 50 feet of
beginning and end of project.)

CUT



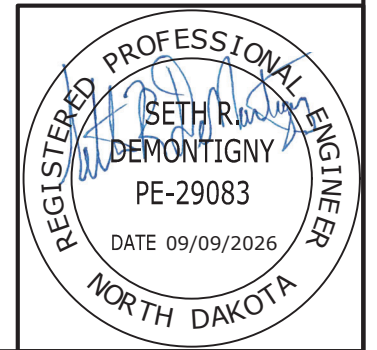
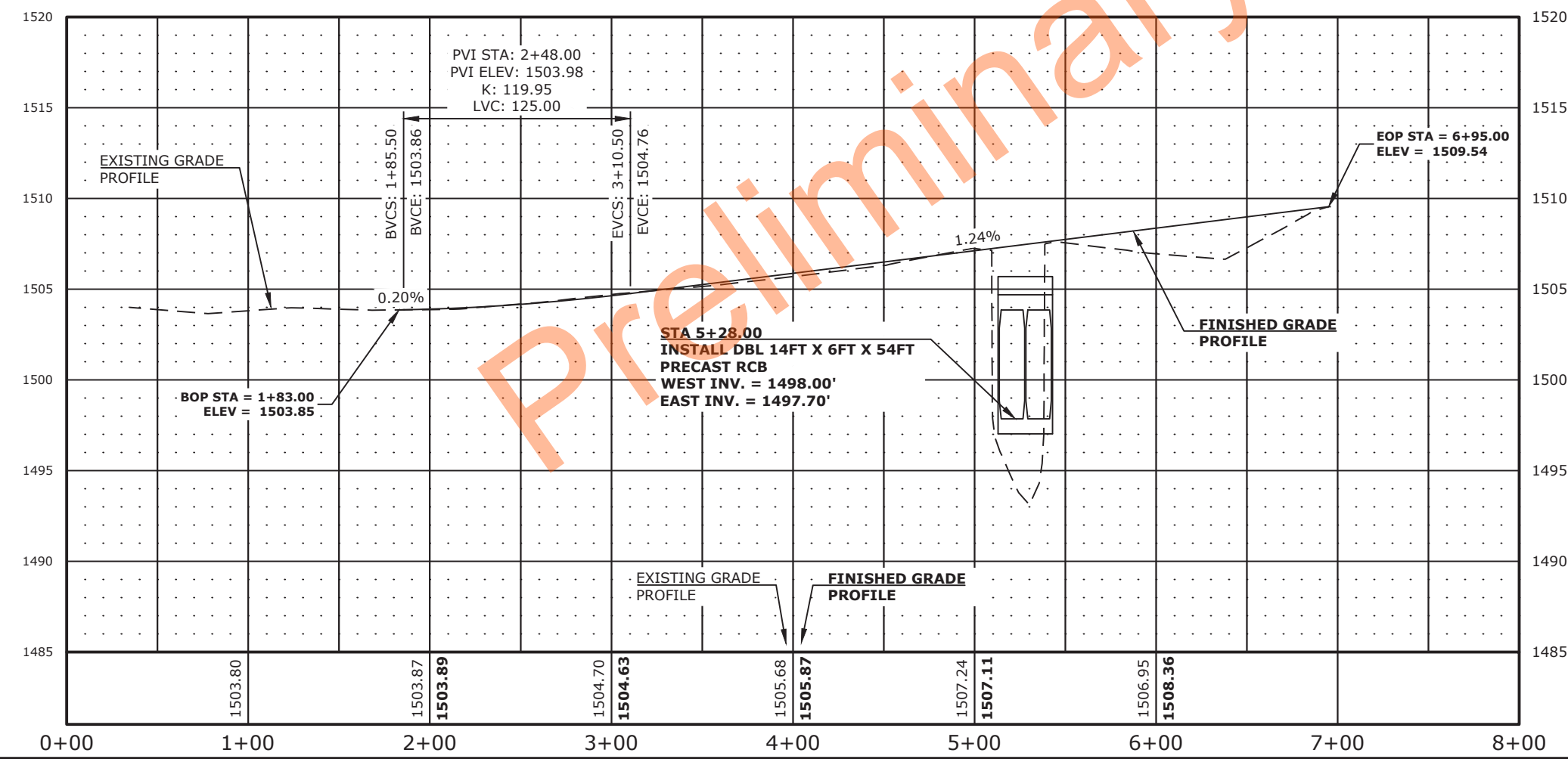
TYPICAL SECTION
SITE 2



SCALES:
H: 1" = 80'
V: 1" = 10'

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	60	1

SPEC CODE	BID ITEM	QTY	UNIT
201 0352	REMOVAL OF TREES AND BRUSH		
STA. 5+50 LT & RT		1	L SUM
302 0356	AGGREGATE SURFACE COURSE CL 13		
STA. 1+83 TO 6+95 - 28' Width (With Approaches)		359	TON
202 0312	REMOVE EXISTING FENCE		
STA. 1+83 TO 5+08 RT		325	LF
STA. 5+48 TO 6+22 RT		80	LF
752 0905	TEMPORARY FENCE		
STA. 1+83 TO 6+95 RT		520	LF
752 0320	FENCE BARBED WIRE 4 STRAND-STEEL POST		
STA. 1+83 TO 5+12 RT		330	LF
STA. 5+44 TO 6+22 RT		85	LF
752 3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST		
STA. 4+65 RT		1	EA
STA. 6+22 RT		1	EA



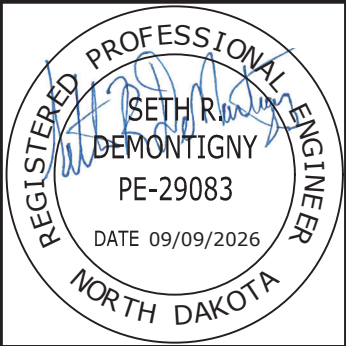
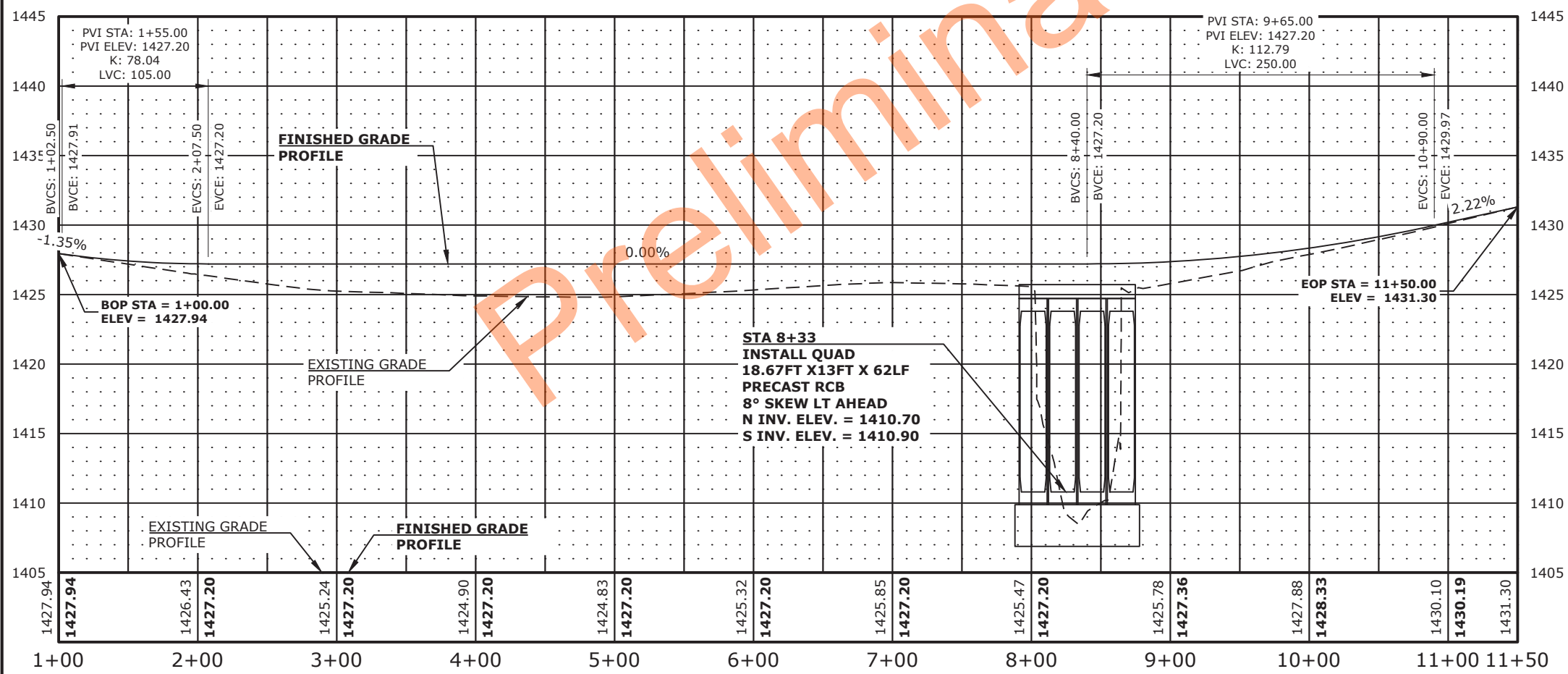
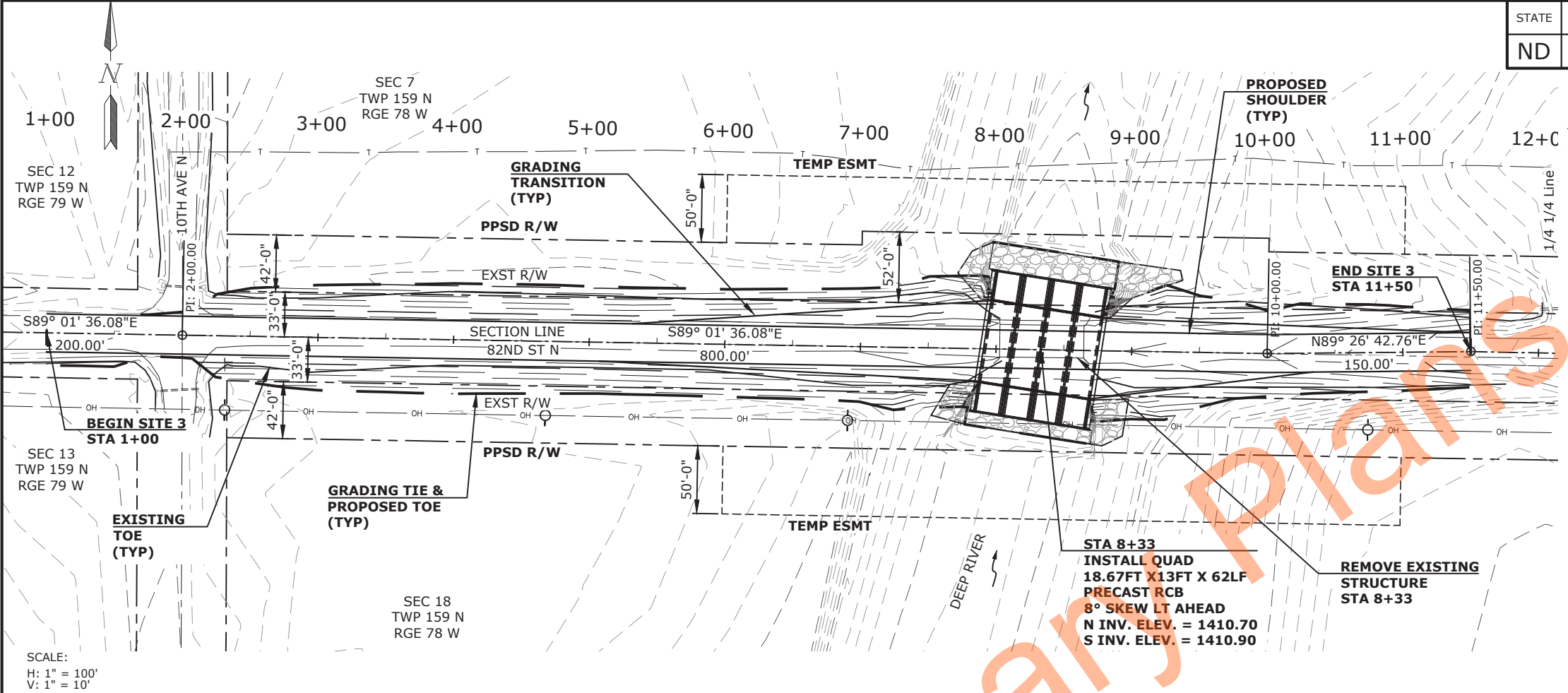
PLAN & PROFILE
SITE 1
STA. 1+83.00 TO 6+95.00
#25-107-26.2

FILE:
BRC-BRJ-2500(023).dwg

0 40 80 120
SCALE IN FEET

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	60	2

SPEC CODE	BID ITEM	QTY	UNIT
302 0356	AGGREGATE SURFACE COURSE CL 13		
STA. 1+00.00 TO 11+50.00 - 28' Width (With Approaches)		683	TON

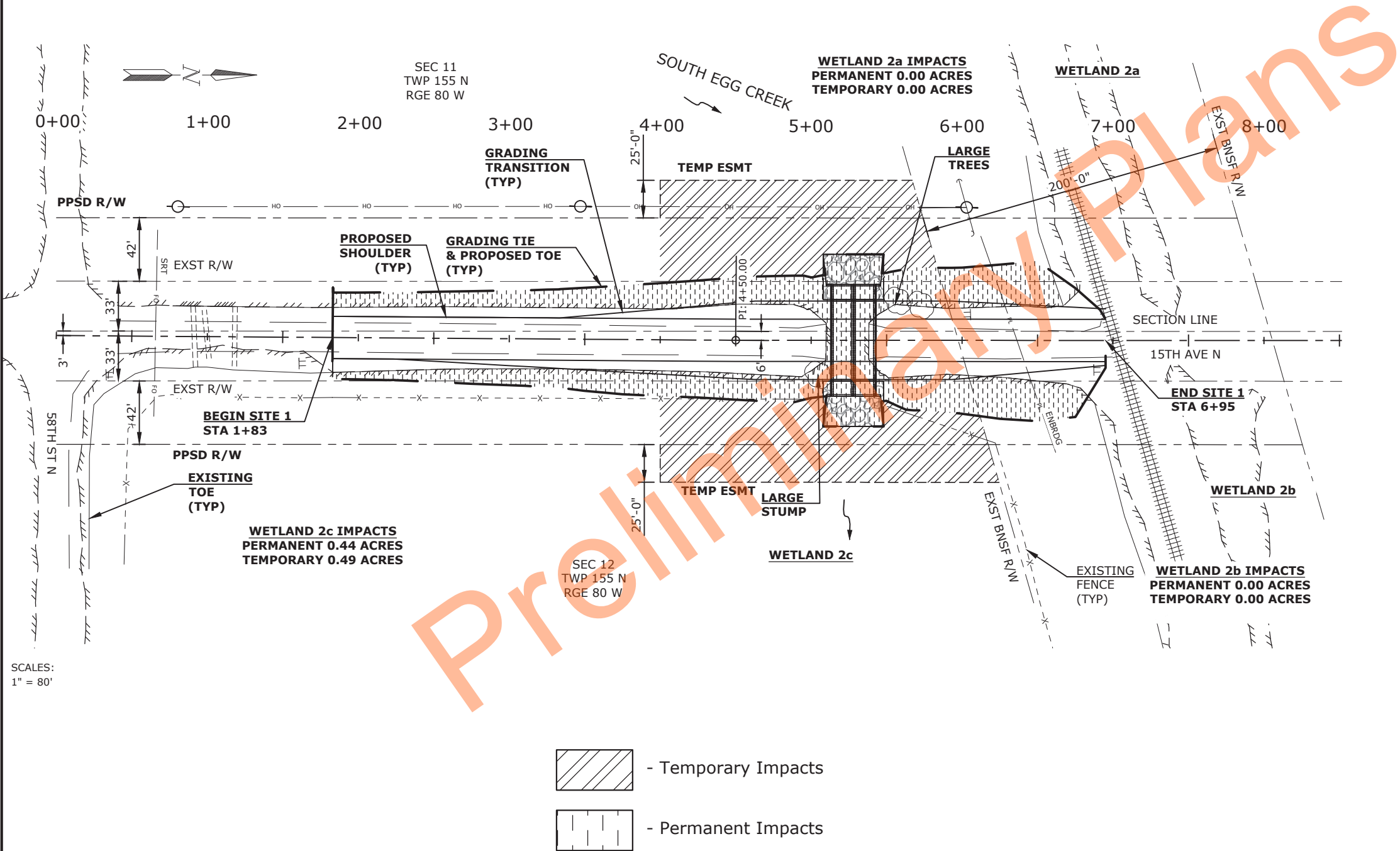


PLAN & PROFILE
SITE 2
STA. 1+00.00 TO 11+50.00
#25-113-02.1

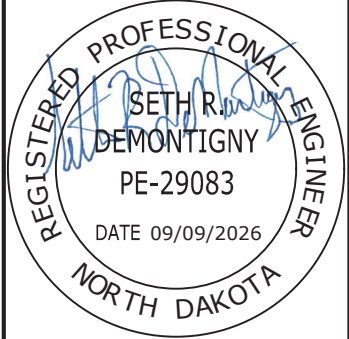
FILE:
BRZ-0025(052)_Design.dwg

0 50 100 150
SCALE IN FEET

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	75	1



SCALES:
1" = 80'



WETLAND IMPACTS
SITE 1
STRUCTURE NO. 25-107-26.2

FILE:
BRC-BRJ-2500(023).dwg

0 40 80 120
SCALE IN FEET

Wetland Impact Table																				
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands¹	Wetland Impacts Acre(s)			Wetland Mitigation												
								Mitigation Required			USACE/11990 Bank		11990 Bank		USFWS Bank			Onsite		
					Temp.	Perm.	Riprap Lowered 1FT	EO 11990	USACE	USFWS	Location	Acre(s)	Loc atio n	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
2a	Sec. 11, T155N, R80W	Swale	Natural	N	0.00	0.00	0.00	N	N	N	Ducks Unlimited	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A
2b	Sec. 12, T155N, R80W	Swale	Natural	N	0.00	0.00	0.00	N	N	N	Ducks Unlimited	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A
2c	Sec. 11 & 12, T155N, R80W	Stream/Swale	Natural	N	0.49	0.44	0.04	Y	Y	N	Ducks Unlimited	0.05 Stream/ 0.35 Wetland	N/A	0.00	N/A	0.00	DU; 2:1/1:1	0.00	N/A	N/A
3	Sec. 14, T155N, R80W	Ditch	Natural	N	0.00	0.00	0.00	N	N	N	Ducks Unlimited	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A
4	Sec. 13 & 14, T155N, R80W	Ditch	Natural	N	0.00	0.00	0.00	N	N	N	Ducks Unlimited	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A
					0.49	0.44	0.04					0.45								

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.45	Temporary JD	0.49
Natural/Non-JD	0	Non-JD Temporary	0
Artificial/JD	0	Permanent JD > 0.10	0
Artificial /Non-JD	0	Permanent OW	0.00 /0 ft.
Total	0.45	Temporary OW	0.00 ac /0 ft.

Mitigation Summary Table					
	Location	Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
USACE Only					
EO 11990 Only					
USACE/11990	Ducks Unlimited	N/A		0.45	
USFWS	N/A				
Total		0	0	0.45	0

¹ A wetland Jurisdictional Determination was issued by the USACE on June 26, 2024; NWO-2024-01042-BIS.

² Riprap placed in stream considered “no loss” and is removed from required mitigation.



REGISTERED PROFESSIONAL ENGINEER

SETH R. DEMONTIGNY

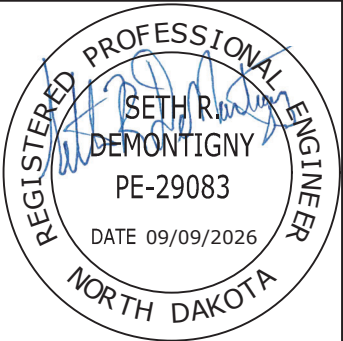
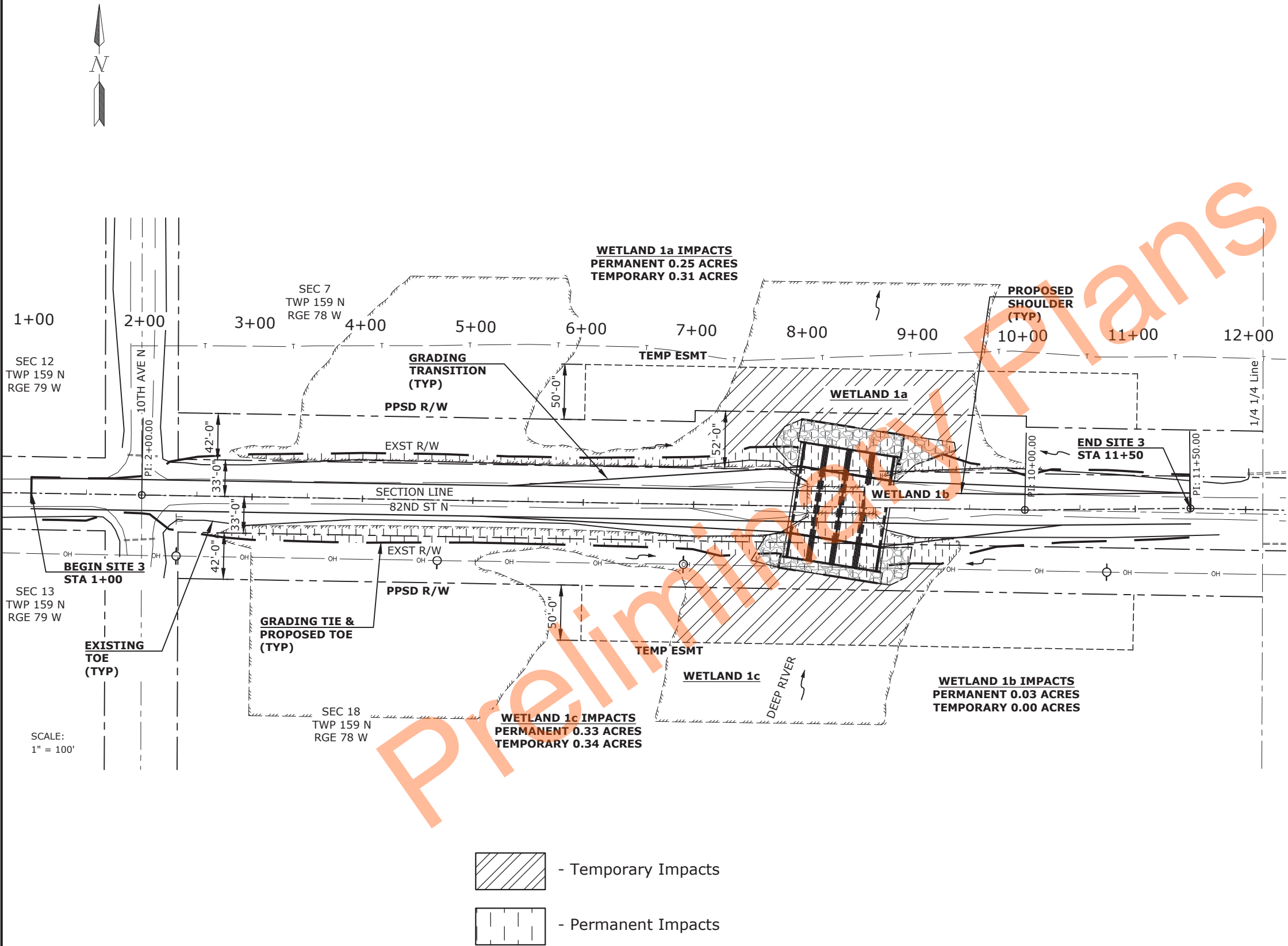
PE-29083

DATE 09/09/2026

NORTH DAKOTA

WETLANDS MITIGATION AND ENVIRONMENTAL
SITE 1
#25-107-26.2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	75	3



WETLAND IMPACTS
SITE 2
STRUCTURE NO. 25-113-02.1

FILE:
BRZ-0025(052)_Design.dwg

0 50 100 150
SCALE IN FEET

Wetland Impact Table																						
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands ¹	Wetland Impacts Acre(s)			USFWS Easement Impacts Acre(s)		Wetland Mitigation												
										Mitigation Required			USACE/11990 Bank		11990 Bank		USFWS Bank			Onsite		
					Temp.	Perm.	Riprap Lowered 1ft	Temp.	Perm.	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
1a	Sec.7, T159N, R78W	Drainageway	Natural	Y	0.31	0.25	0.04	0	0	N	Y	N	DU Bank	0.21	N/A	0.00	N/A	0.00	DU; 1:1	0.00	N/A	N/A
1b	Sec.7/18, T159N, R78W	Drainageway	Natural	Y	0	0.03	0.00	0	0	N	N	N	DU Bank	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A
1c	Sec.18, T159N, R78W	Drainageway	Natural	Y	0.34	0.33	0.02	0	0	N	Y	N	DU Bank	0.31	N/A	0.00	N/A	0.00	DU; 1:1	0.00	N/A	N/A
2	Sec.18, T159N, R78W	Depression	Natural	Y	0	0	0.00	0	0	N	Y	N	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A
					0.65	0.61	0.06	0	0					0.52		0		0		0		0

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.52	Temporary JD	0.65
Natural/Non-JD	0	Non-JD Temporary	0
Artificial/JD	0	Permanent JD > 0.10	0
Artificial /Non-JD	0	Permanent OW	0.00 ac /0 ft.
Total	0.52	Temporary OW	0.00 ac /0 ft.

Mitigation Summary Table					
	Location	Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
USACE Only	DU Bank			0.52	
EO 11990 Only					
USACE/11990					
USFWS					
Total		0	0	0.52	0

¹ A wetland Jurisdictional Determination was issued by the USACE on 1/03/22; NWO-2021-02149-BIS.
² Riprap placed in stream considered “no loss” and is removed from required mitigation.



REGISTERED PROFESSIONAL ENGINEER

SETH R. DEMONTIGNY

PE-29083

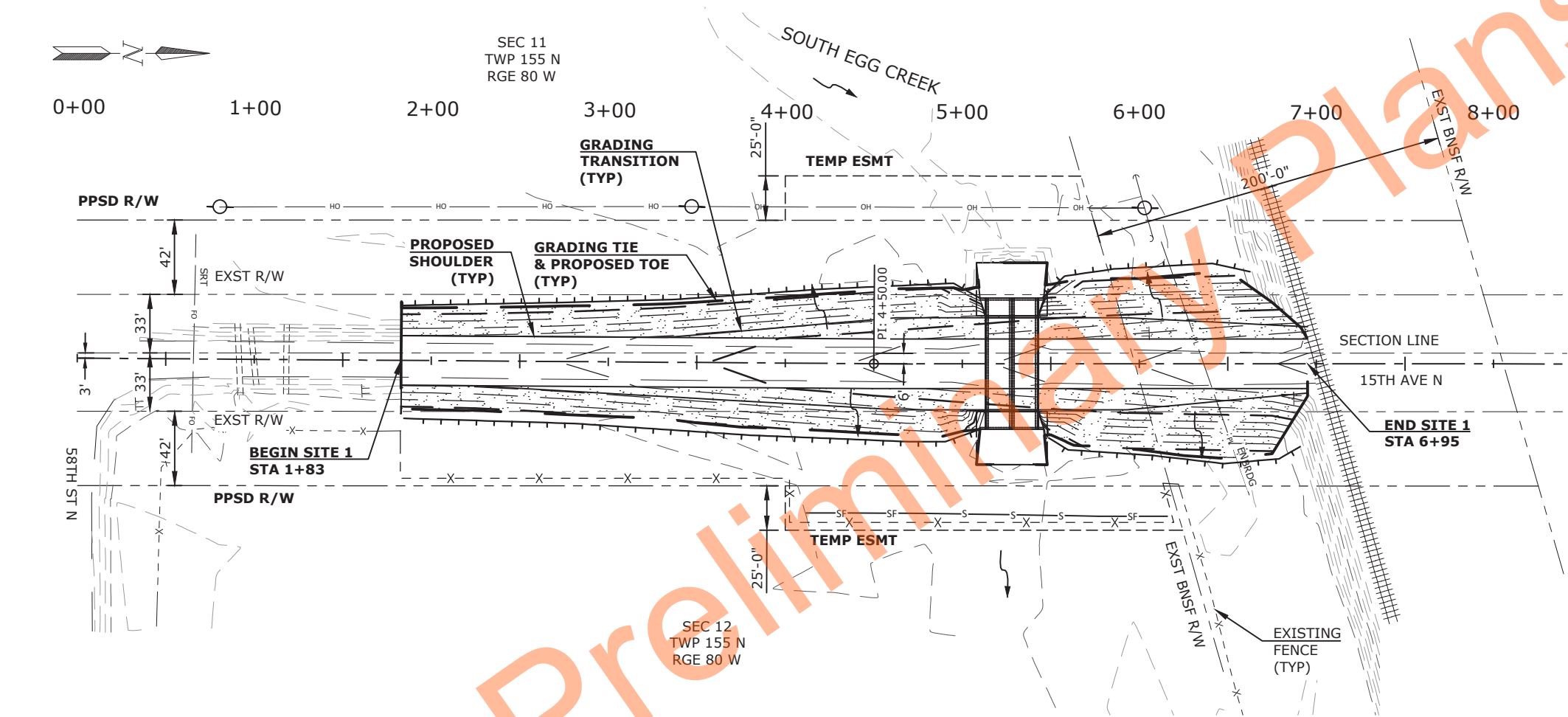
DATE 09/09/2026

NORTH DAKOTA

WETLANDS MITIGATION AND ENVIRONMENTAL
SITE 2
#25-113-02.1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	76	1

SPEC CODE	BID ITEM	QTY	UNIT
251 2000	TEMPORARY COVER CROP		
STA. 1+83 TO 6+95 LT		0.28	ACRE
STA. 1+83 TO 6+95 RT		0.27	ACRE
253 0101	STRAW MULCH		
STA. 1+83 TO 6+95 LT		0.28	ACRE
STA. 1+83 TO 6+95 RT		0.27	ACRE
260 0300	SILT FENCE		
STA. 4+10 TO 6+15 RT		110	LF
260 0301	REMOVE SILT FENCE		
STA. 4+10 TO 6+15 RT		110	LF
261 0112	FIBER ROLLS 12IN		
STA. 1+83 TO 6+95 RT		475	LF
STA. 1+83 TO 6+95 LT		450	LF
261 0113	REMOVE FIBER ROLLS 12IN		
STA. 1+83 TO 6+95 RT		475	LF
STA. 1+83 TO 6+95 LT		450	LF
262 0100	FLOTATION SILT CURTAIN		
STA. 4+80 TO 5+80 RT		100	LF
262 0101	REMOVE FLOTATION SILT CURTAIN		
STA. 4+80 TO 5+80 RT		100	LF



SCALES:
1" = 80'

- TEMPORARY COVER CROP
- FIBER ROLLS 12 IN
- SILT FENCE
- FLOTATION SILT CURTAIN



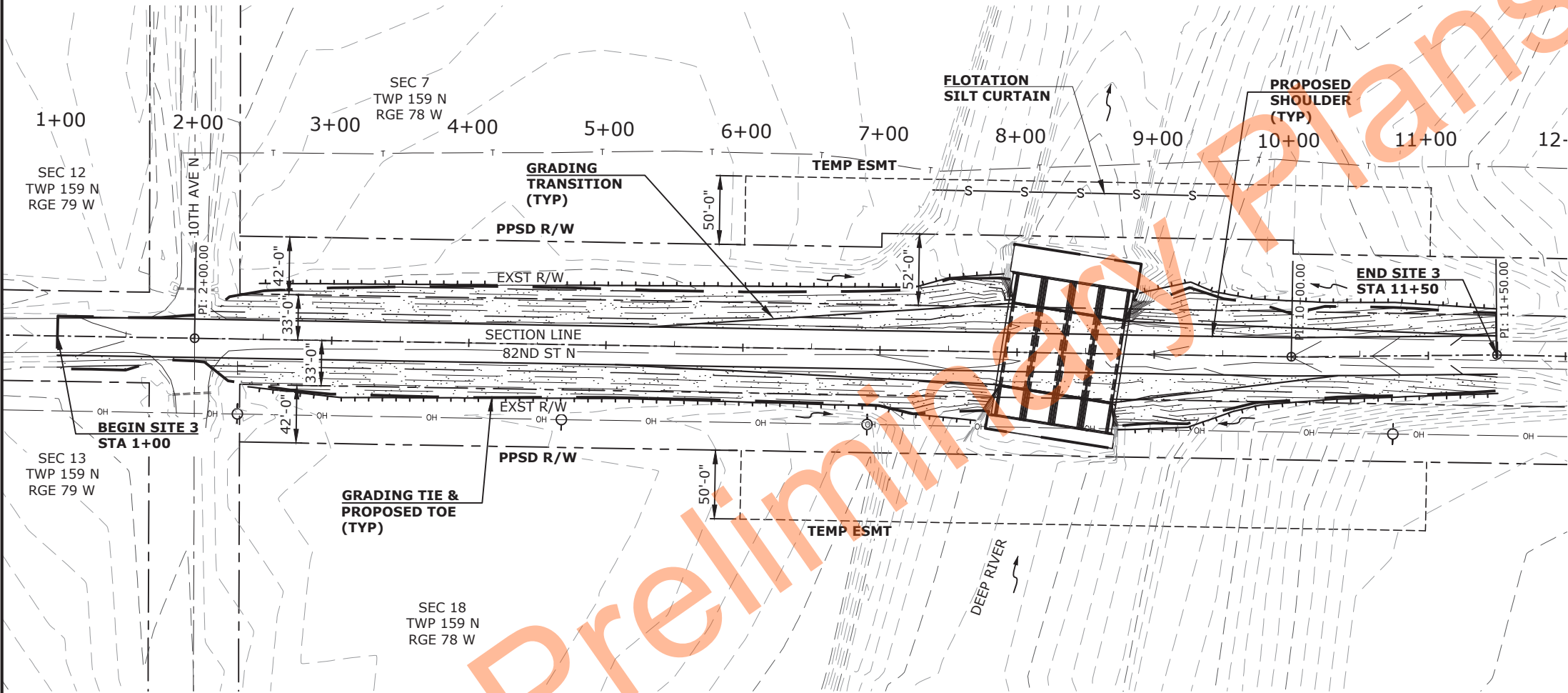
TEMPORARY EROSION CONTROL
SITE 1
STA. 1+83.00 TO 6+95.00
STR #25-107-26.2

FILE:
BRC-BRJ-2500(023).dwg



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	76	2

SPEC CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP	
	STA. 1+00 TO 11+50 LT	0.54	ACRE
	STA. 1+00 TO 11+50 RT	0.51	ACRE
253	0101	STRAW MULCH	
	STA. 1+00 TO 11+50 LT	0.54	ACRE
	STA. 1+00 TO 11+50 RT	0.51	ACRE
261	0112	FIBER ROLLS 12IN	
	STA. 1+00 TO 11+50 LT	800	LF
	STA. 1+00 TO 11+50 RT	800	LF
261	0113	REMOVE FIBER ROLLS 12IN	
	STA. 1+00 TO 11+50 LT	800	LF
	STA. 1+00 TO 11+50 RT	800	LF
262	0100	FLOTATION SILT CURTAIN	
	STA. 1+00 TO 11+50	220	LF
262	0101	REMOVE FLOTATION SILT CURTAIN	
	STA. 1+00 TO 11+50	220	LF



SCALE:
1" = 100'

-  TEMPORARY COVER CROP
-  FIBER ROLLS 12 IN
-  FLOTATION SILT CURTAIN



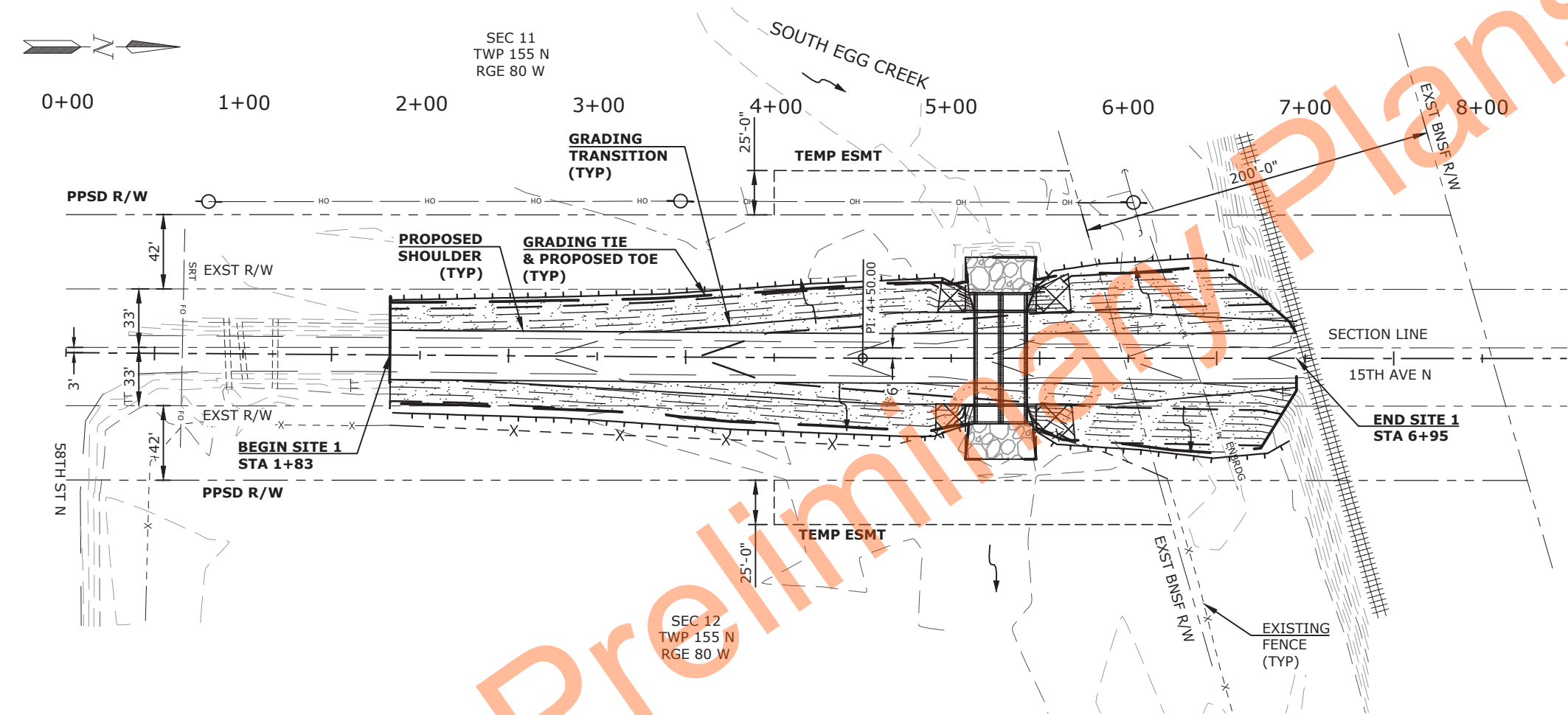
TEMPORARY EROSION CONTROL
SITE 2
STA. 1+00.00 TO 11+50.00
STR #25-113-02.1

FILE:
BRZ-0025(052)_Design.dwg



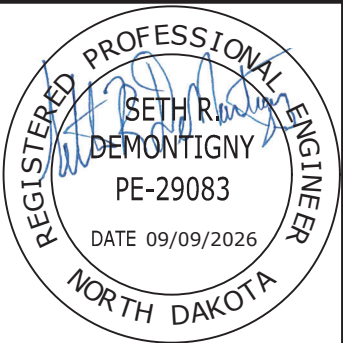
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	77	1

SPEC CODE	BID ITEM	QTY	UNIT
251	0200 SEEDING CLASS II		
	STA. 1+83 TO 6+95 LT	0.28	ACRE
	STA. 1+83 TO 6+95 RT	0.27	ACRE
253	0101 STRAW MULCH		
	STA. 1+83 TO 6+95 LT	0.28	ACRE
	STA. 1+83 TO 6+95 RT	0.27	ACRE
255	0103 ECB TYPE 3		
	STA. 4+80 TO 5+60 LT	65	SY
	STA. 4+80 TO 5+60 RT	66	SY
256	0200 RIPRAP GRADE II		
	STA. 1+83 TO 6+95 RT	67	CY
	STA. 1+83 TO 6+95 LT	67	CY
261	0112 FIBER ROLLS 12IN		
	STA. 1+83 TO 6+95 RT	475	LF
	STA. 1+83 TO 6+95 LT	450	LF
709	0151 GEOSYNTHETIC MATERIAL TYPE RR		
	STA. 1+83 TO 6+95 RT	100	SY
	STA. 1+83 TO 6+95 LT	100	SY



SCALES:
1" = 80'

- SEEDING CLASS II AND STRAW MULCH
- ECB TYPE 3 & SEEDING CLASS II
- RIPRAP GRADE II
- FIBER ROLLS 12 IN



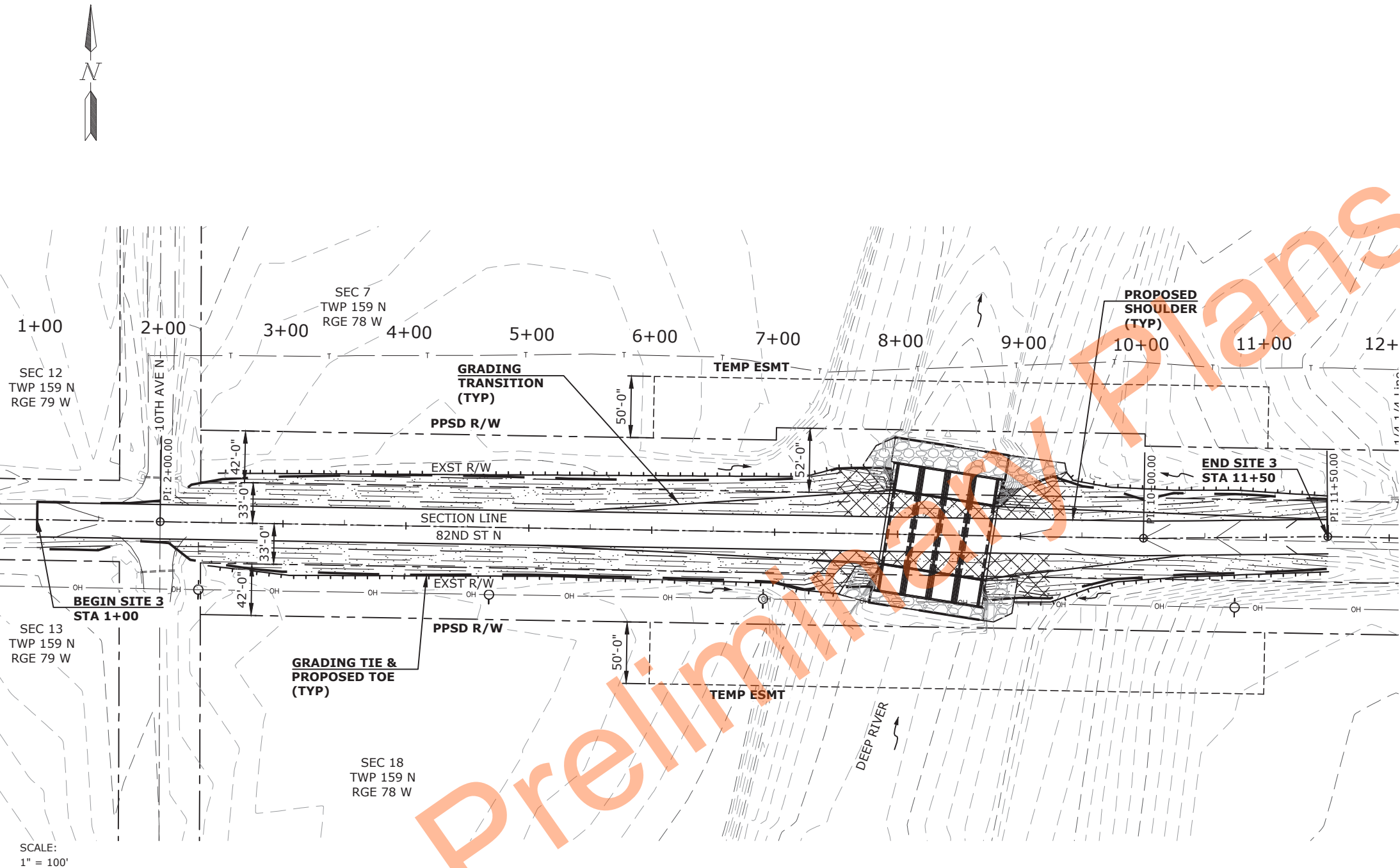
PERMANENT EROSION CONTROL
SITE 1
STA. 1+83.00 TO 6+95.00
STR #25-107-26.2

FILE:
BRC-BRJ-2500(023).dwg



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	77	2

SPEC CODE	BID ITEM	QTY	UNIT
251	0200 SEEDING CLASS II		
	STA. 1+00 TO 11+50 LT	0.54	ACRE
	STA. 1+00 TO 11+50 RT	0.51	ACRE
253	0101 STRAW MULCH		
	STA. 1+00 TO 11+50 LT	0.54	ACRE
	STA. 1+00 TO 11+50 RT	0.51	ACRE
255	0103 ECB TYPE 3		
	STA. 7+50 TO 9+50 LT	490	SY
	STA. 7+50 TO 9+50 RT	460	SY
256	0200 RIPRAP GRADE II		
	STA. 7+75 TO 9+25 LT	274	CY
	STA. 7+50 TO 9+00 RT	181	CY
261	0112 FIBER ROLLS 12 IN		
	STA. 1+00 TO 11+50 LT	800	LF
	STA. 1+00 TO 11+50 RT	800	LF
709	0155 GEOSYNTHETIC MATERIAL TYPE RR		
	STA. 8+30 LT	410	SY
	STA. 8+30 RT	273	SY



-  SEEDING CLASS II AND STRAW MULCH
-  ECB TYPE 3 & SEEDING CLASS II
-  RIPRAP GRADE II
-  FIBER ROLLS 12 IN



PERMANENT EROSION CONTROL
SITE 2
STA. 20+82.00 TO 31+75.00
STR #25-113-02.1

[illegible]

[illegible]

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE		35	
G20-1-60	60"x24"	ROAD WORK NEXT MILES		28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)		18	
G20-2-48	48"x24"	END ROAD WORK		26	
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR		18	
G20-50a-72	72"x36"	ROAD WORK NEXT MILES RT & LT ARROWS		43	
G20-52a-72	72"x24"	ROAD WORK NEXT MILES RT or LT ARROW		36	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$150 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		11	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)		7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-2-60	60"x60"	YIELD		29	
R2-1-36	36"x48"	SPEED LIMIT (Portable only)		30	
R2-1-48	48"x60"	SPEED LIMIT		39	
R2-1aP-24	24"x18"	MINIMUM FEE \$150 (Mounted on Speed Limit post)		10	
R3-2-48	48"x48"	NO LEFT TURN		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)		14	
R7-1-12	12"x18"	NO PARKING ANY TIME		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)	4	12	48
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)		12	
R11-3a-60	60"x30"	ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)	4	15	60
R11-3c-60	60"x30"	STREET CLOSED MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)		15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT		35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT		35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	48"x48"	SIGNAL AHEAD		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD		35	
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC		35	
W8-1-48	48"x48"	BUMP		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER LINE		35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or FT or MILE		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or FT or MILE		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W13-1P-30	30"x30"	MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)		14	
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	30"x24"	FEET PLAQUE (Mounted on warning sign post)		10	
W20-1-48	48"x48"	ROAD WORK AHEAD or FT or MILE		35	
W20-2-48	48"x48"	DETOUR AHEAD or FT or MILE		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or FT or MILE	8	35	280
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or FT or MILE		35	
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or FT or MILE		35	
W20-7-48	48"x48"	FLAGGER		35	
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back		5	
W20-52P-54	54"x12"	NEXT MILES (Mounted on warning sign post)		12	
W21-1-48	48"x48"	WORKERS		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or FT or MILE		35	
W21-5-48	48"x48"	SHOULDER WORK		35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or FT or MILE		35	

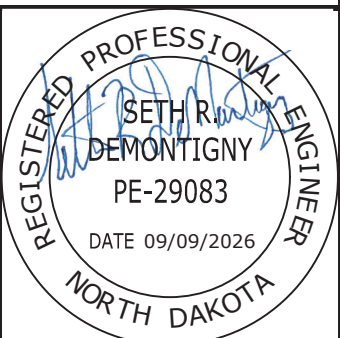
[illegible][illegible]

SPEC & CODE			
704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	388

[illegible]

PROJECT NO.
BRO-0025(055)

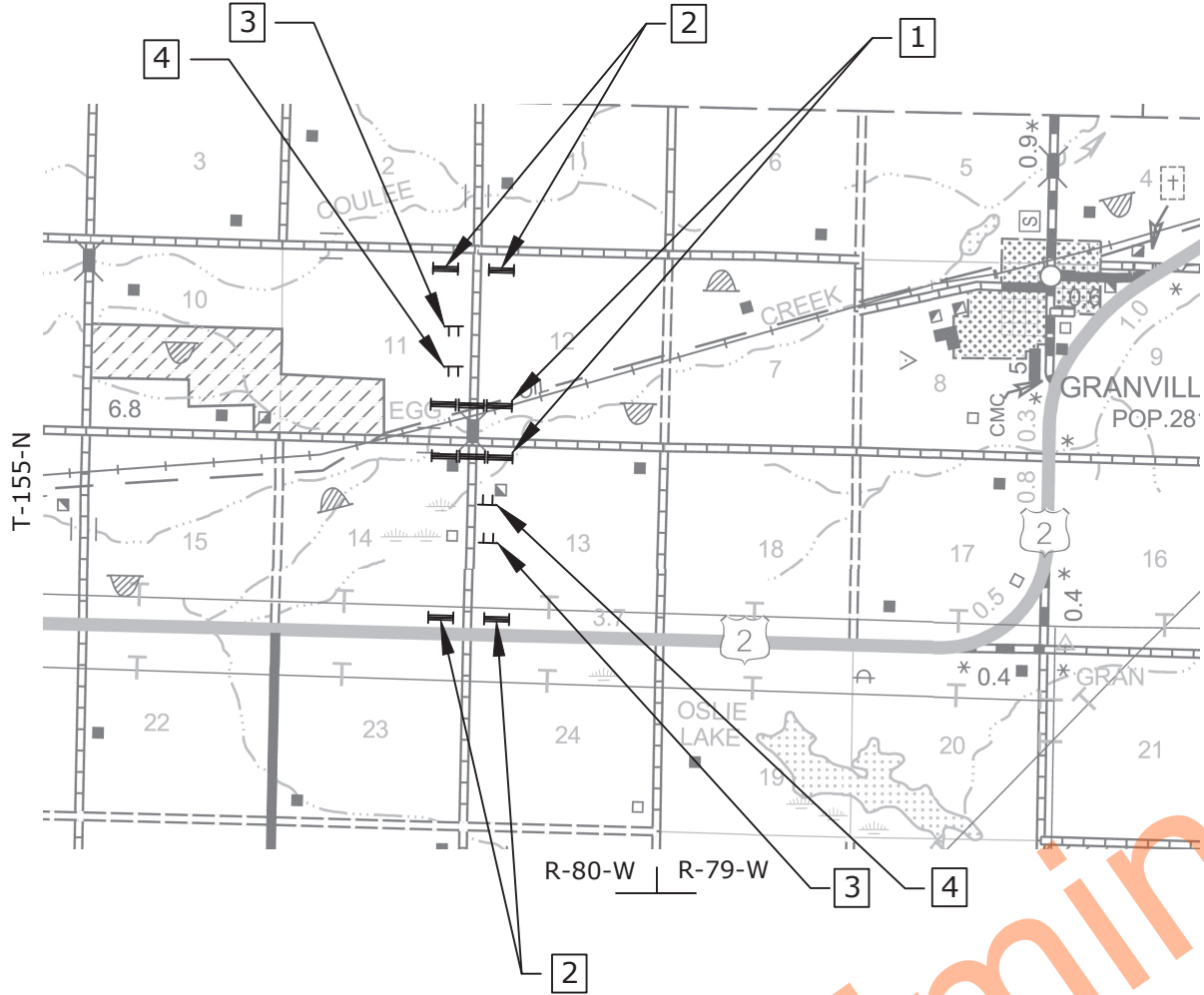
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
<http://www.dot.nd.gov/>



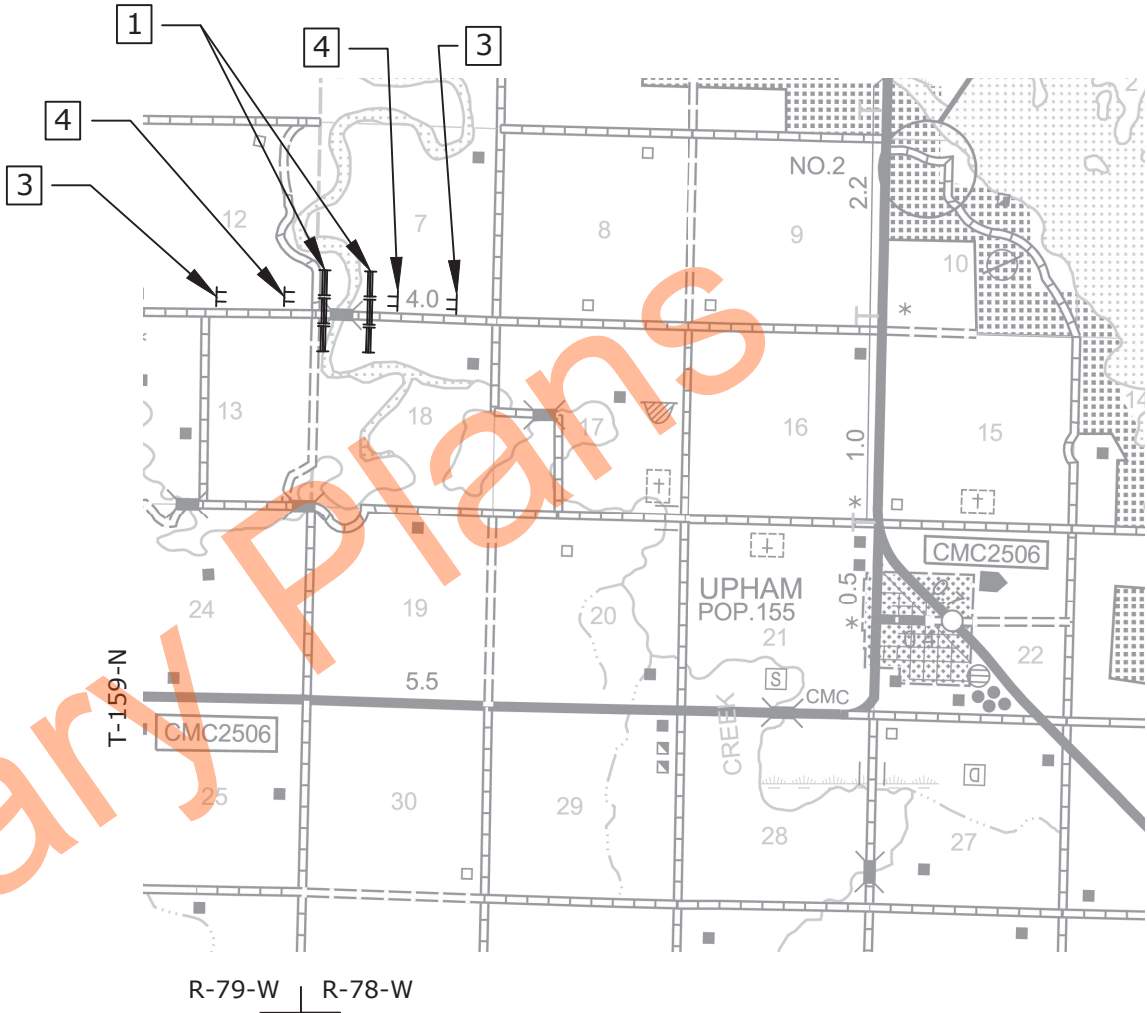
Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	100	2

BRO-0025(055)

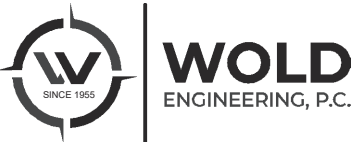


SITE 1



SITE 2

Traffic Control Layout



WORK ZONE
TRAFFIC CONTROL
SITES 1 & 2

1

ROAD CLOSED

R11-2-48
Type III Barricade
Skid Mounted

2

ROAD CLOSED
X.X MILES AHEAD
LOCAL TRAFFIC ONLY

R11-3a-60
Type III Barricade
Post Mounted

3

ROAD CLOSED
1440 FT

W20-3-48
Post Mounted

4

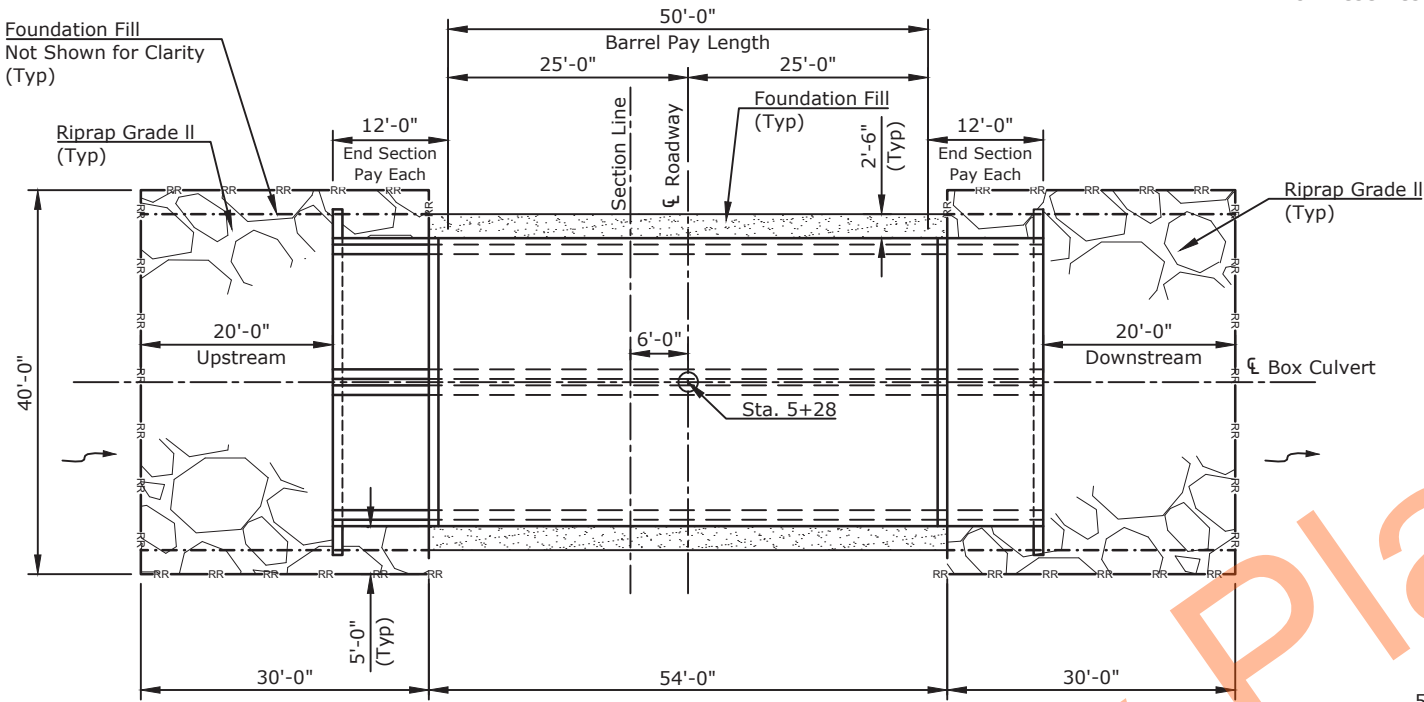
ROAD CLOSED
720 FT

W20-3-48
Post Mounted

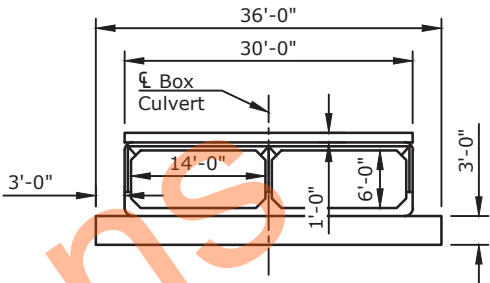
LEGEND

- 1 R11-2-48: ROAD CLOSED (Mounted on Barricade)
- 2 R11-3a-60: ROAD CLOSED _ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on Barricade)
- 3 W20-3-48: ROAD CLOSED 1440 FT (Post Mounted)
- 4 W20-3-48: ROAD CLOSED 720 FT (Post Mounted)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	170	1

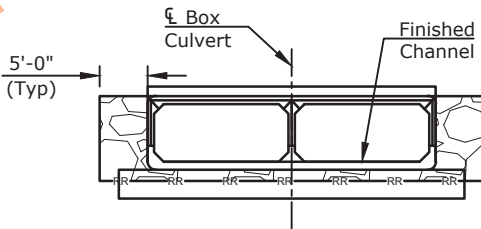


PLAN



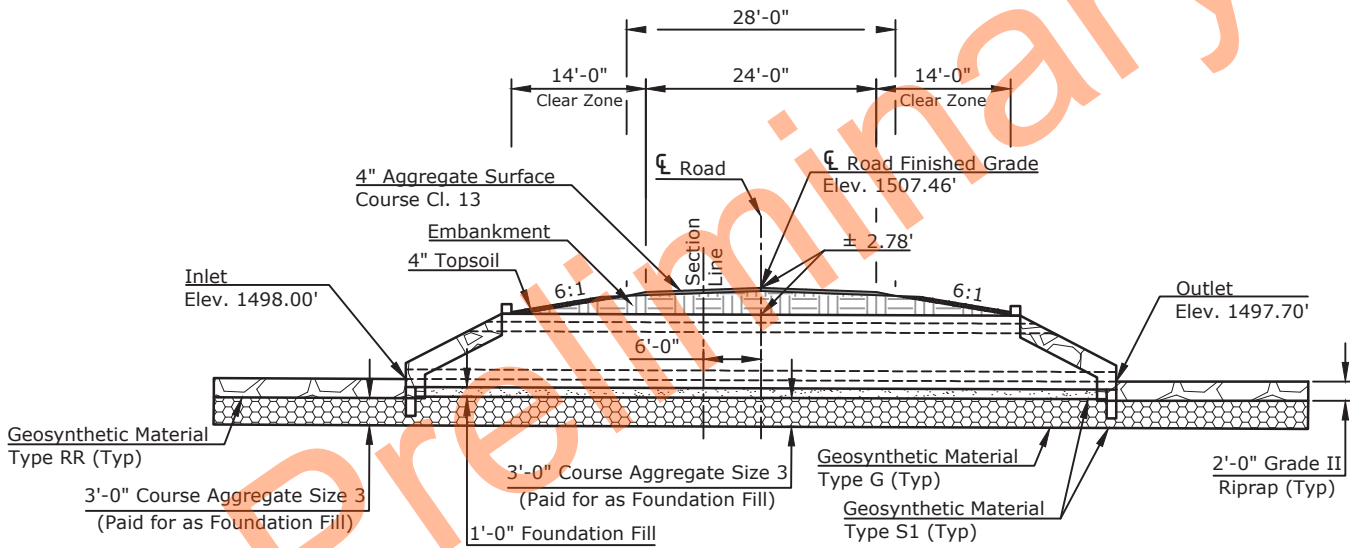
END VIEW

(Showing Dimensions)



END VIEW

(Showing Finished Section)



ELEVATION

HYDRAULIC DATA

DRAINAGE AREA	29.2 sq. miles
STREAM SLOPE	0.00142 ft/ft
DESIGN FREQUENCY	15 year
DESIGN DISCHARGE	471 cfs
DESIGN HEADWATER STAGE	1,502.71'
DESIGN TAILWATER STAGE	1,501.27'
DESIGN VELOCITY	6.55 fps
100-YEAR FREQUENCY DISCHARGE	912 cfs
100-YEAR FREQUENCY HEADWATER	1,504.21'
OVERTOPPING STAGE	1,503.80'
OVERTOPPING DISCHARGE	700 cfs

Reinforced Concrete Box Culvert Quantities

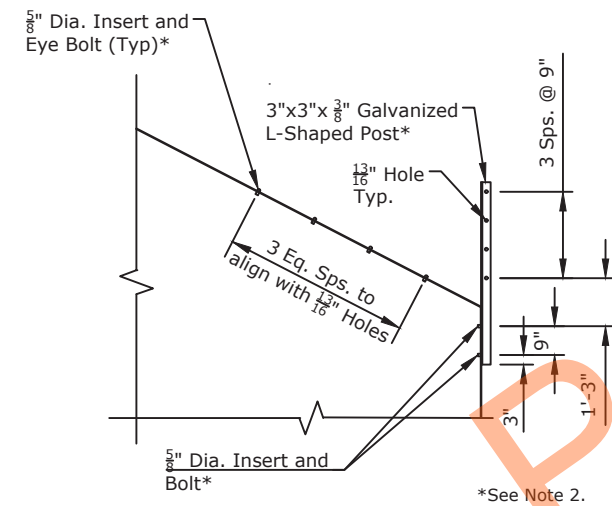
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0108	REMOVAL OF STRUCTURE-SITE 1	L SUM	1
210	0051	BOX CULVERT EXCAVATION - SITE 1	EA	1
210	0210	FOUNDATION FILL	CY	558
210	0202	FOUNDATION PREPARATION-SITE 1	EA	1
606	3406	DBL 14FT X 6FT PRECAST RCB CULVERT	LF	50
606	7406	DBL 14FT X 6FT PRECAST RCB END SECTION	EA	2
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	288
709	0161	GEOSYNTHETIC MATERIAL TYPE S1	SY	625



PRECAST CONCRETE BOX LAYOUT
SITE 1
STA. 5+28.00
STR #25-107-26.2

FILE:
BRC-BRJ-2500(023).dwg



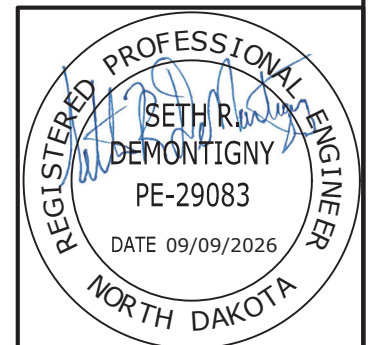


(SHOWING SECTION ALONG $\angle$ OF ROAD)
**BOX CULVERT EXCAVATION
& BACKFILL DETAIL**

-
- 2'-0"
- 2" Maximum Crushed Aggregate*
- Riprap Grade II

***NOTE:**

Place 2" aggregate on top of riprap to create a walking surface for safer access to the box culvert barrels. Do not place 2" aggregate on inslopes of end sections. The 2" aggregate will be paid for as foundation fill. Foundation fill bid item increased 20CY to account for 2" max crushed aggregate.



EXCAVATION AND BACKFILL
DETAILS - SITE 1
STA. 5+28.00
STR #25-107-26.2

NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-2500(023)	170	3

100-P01 SCOPE OF WORK: The project consists of removing existing structure number 25-107-26.1 and installing a double 14-foot span by 6-foot rise precast concrete box culvert with sloped end sections.

202-P01 REMOVAL OF STRUCTURE--SITE 1: The existing structure is a 30.8-foot single-span steel beam and timber substructure bridge with a clear roadway width of 23-feet and an overall bridge width of 24.3-feet.

Contractor is to salvage timber planks, beams, and caps and deliver them to the McHenry County Highway Department shop in Granville, ND. Coordinate delivery placement with Darlene Carpenter, McHenry County Highway Superintendent at 701-537-5724. Include all costs associated with handling and delivering the salvaged material in the structure removal bid items.

All non-salvageable materials become property of the Contractor and will be handled in accordance with Section 107.17 of the Standard Specifications.

Cut off existing piling a minimum of one foot below the proposed foundation fill limits and backfill with foundation fill.

210-P01 FOUNDATION FILL: The quantity for foundation fill was computed as in-place to a depth of 4'-0" below the box culvert; however, this may vary depending on the soil conditions. If a suitable subgrade exists under the culvert site, the foundation fill may be reduced or eliminated at the direction of the Engineer. The bottom 3'-0" of the box culvert excavation will consist of coarse aggregate size 3, meeting the gradation in Table 802-03 of the Standard Specifications, and will be paid for as "FOUNDATION FILL." The coarse aggregate material will be accepted by Engineer's Statement with no testing required unless deemed necessary by the Engineer. The remaining foundation fill will be as specified in Section 210 of the Standard Specifications and will be paid for as "FOUNDATION FILL". Place foundation fill in layers of not more than 12", moisten or dry as required, and compact according to Section 203.04 G.3 of the Standard Specifications with exception of using smooth drum or plate compacting equipment. The final pay quantity will be based on in-place plan dimensions, and the Contractor will be responsible for extra material due to shrinkage.

210-P02 BOX CULVERT EXCAVATION – SITE 1: Include all box culvert excavation, foundation fill excavation, channel excavation, riprap excavation, topsoil removal and replacement, placement of ordinary backfill, compaction, water, and shaping of channel slopes in the unit price bid for "BOX CULVERT EXCAVATION - SITE 1".

The suitability of material from on-site excavations for use as ordinary backfill and embankment will be determined by the Engineer. The Contractor will remove and replace approximately 4" of topsoil over the excavation and embankment areas, except the 28' roadbed. Place and compact backfill in accordance with Section 203.04 G.3 of the Standard Specifications. Water may be required to compact the backfill and will be incidental. Embankment constructed from excavated material will not be measured for separate payment but will be included in the price bid for "BOX CULVERT EXCAVATION - SITE 1". If the excavated material is deemed not suitable for ordinary backfill or embankment, it will become property of the Contractor and will be disposed of outside of the road right-of-way, not adjacent to the construction site, and at a site approved by the Engineer. Include all costs associated with excavation, hauling, depositing and leveling the waste material in the unit price bid for "BOX CULVERT EXCAVATION - SITE 1".

256-P01 RIPRAP GRADE II: Final pay quantity for "RIPRAP GRADE II" will be determined by field measurements in accordance with plan length, width, and depth.

606-P01 PRECAST RCB CULVERT
Dimensions:

Double 14ft. span x 6 ft. rise sections.

Fill: 0ft. to 5ft.

Design Load: HL-93

Tie Bolts: All sections will be tied together with a minimum of 2 tie bolts per outside wall. Place the tie bolts at third points of the outside walls. Include cost of ties in the price bid for "DBL 14FT X 6FT PRECAST RCB CULVERT". An alternate tie system

using pre-cast tubes and an internal cable tie will be allowed, but subject to review of work drawings.

End Sections: Cast holes at 3' centers through the floor of the last barrel section and into the cutoff wall to receive ¾" diameter reinforcing bars. Cast holes in the roof of the last barrel section at 1'-0" centers for ½" diameter reinforcing bars to attach the parapet. Cast the parapet against the section. Install the bars according to the Manufacturer's recommendation with a high-strength adhesive specifically intended for concrete anchorage in accordance with Section 806.06 of the NDDOT Standard Specifications.

The "DBL 14FT X 6FT PRECAST RCB END SECTION" bid item will consist of the threaded inserts, eye bolts, galvanized L-shape, cutoff wall, parapet, and sloped end sections.

Threaded Inserts for Bolts: Provide six (6) 5/8" Dia. galvanized threaded inserts, four (4) 5/8" Dia. threaded eyebolts, and two (2) galvanized bolts per outer-most wall on each end section to provide anchor points for fencing and galvanized angle. The concrete inserts will be of such design that when installed in concrete, will be capable of developing the full strength of the 5/8" Dia. threaded eye bolt. The inserts will start at the midpoint of the end section outer wall and be spaced at equal intervals up the wall to match hole spacing in galvanized L3x3x3/8" angle. Include all costs associated with the 5/8" Dia. Inserts, eye bolts, bolts, and galvanized L3x3x3/8" angle in the price bids for the "DBL 14FT X 6FT PRECAST RCB END SECTION".

Joints: Provide watertight joints on the floor, on the exterior walls, and roof using a preformed mastic meeting ASTM C 990. Cover all joints with a minimum of 12 inches wide waterproof membrane on the exterior walls and roof. Prepare the walls and roof exterior surface of the joints according to the waterproof membrane Manufacturer's recommendation. Roll the membrane to the surface keeping it free of wrinkles and bubbles. Lap waterproof membrane joints a minimum of 2.5 inches. Seal the joints and exposed edges with a joint sealing mastic recommended by the Manufacturer of the membrane.

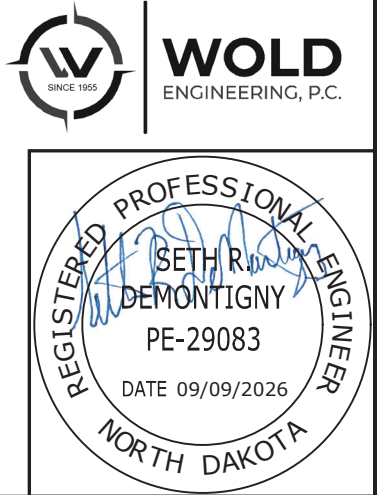
Lifting Holes: Plug all lifting holes on the roof and walls with popits and cover with a minimum of 9-inch by 9-inch waterproof membrane squares. Prepare the walls and roof exterior surface of the lifting holes according to the waterproof membrane Manufacturer's recommendations. Roll the membrane to the surface keeping it free of wrinkles and bubbles. Grout all lifting holes in the floor and walls of the end sections with an approved non-shrink grout.

Single Cell Units: Separate single cell precast units may be used as alternates to a multi cell culvert. No adjustments to quantities or additional payments will be made to foundation fill or other incidental items affected by using separate single cell units.

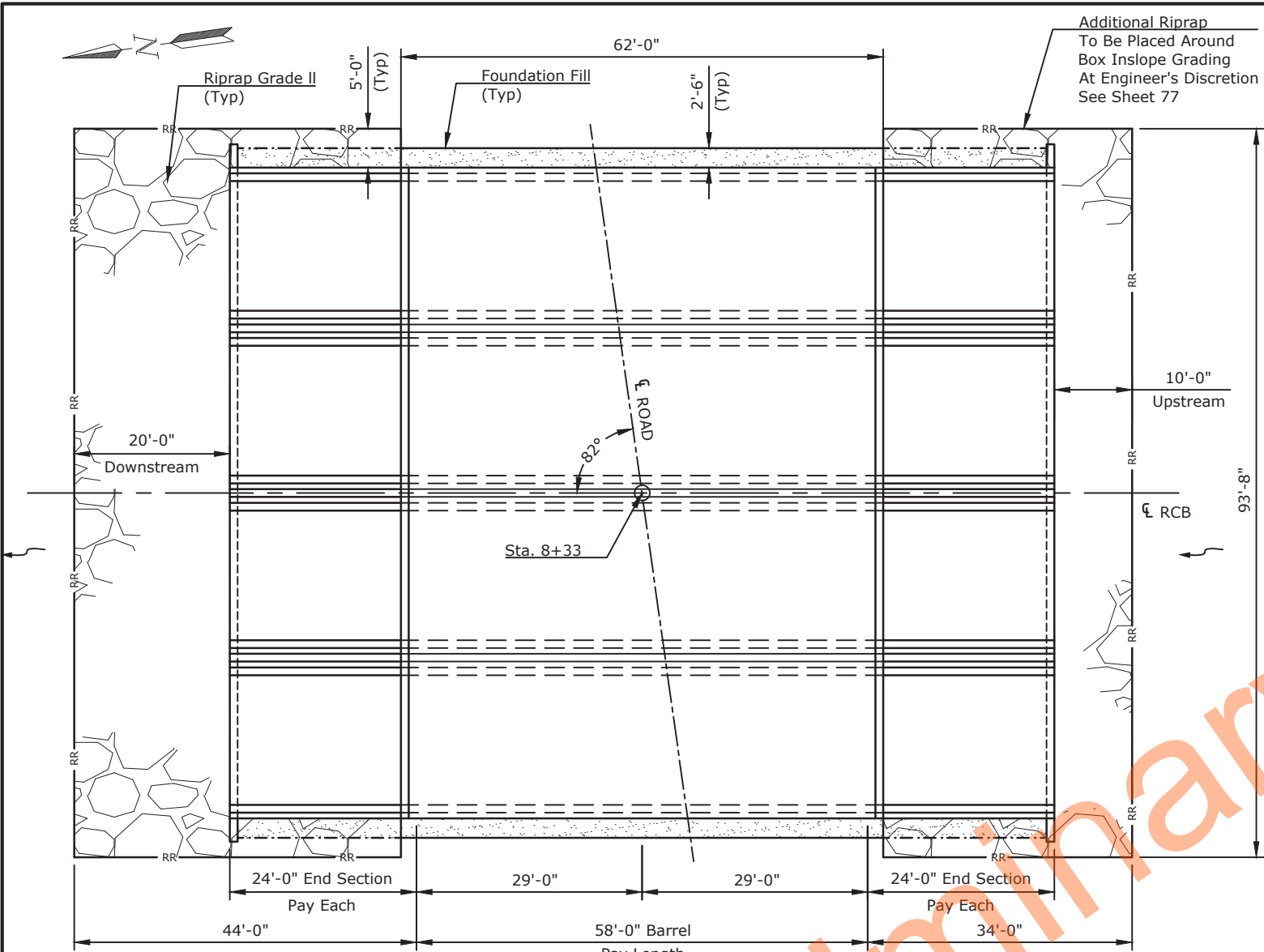
Single to Single RCB Spacing: Install each single span precast box culvert with a space Between barrel lines of 1'-0" maximum. Fill this space with grout following this mix design:

Mix Design	
¾" minus Rock	800 lbs
Sand	2,300 lbs
Fly Ash	100 lbs
Cement	560 lbs
Air	5%
Slump	5" to 6"

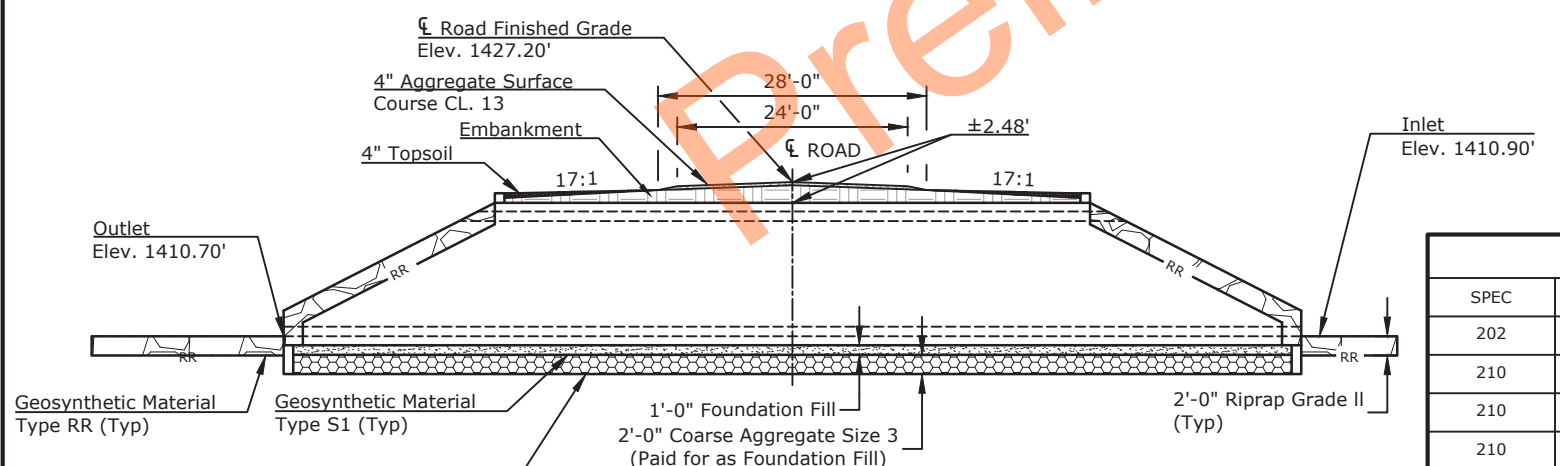
The grout will be fluid on placement to flow around and fill voids in the backfill area. Include price of grout in price bid for precast units.



NOTES
SITE 1

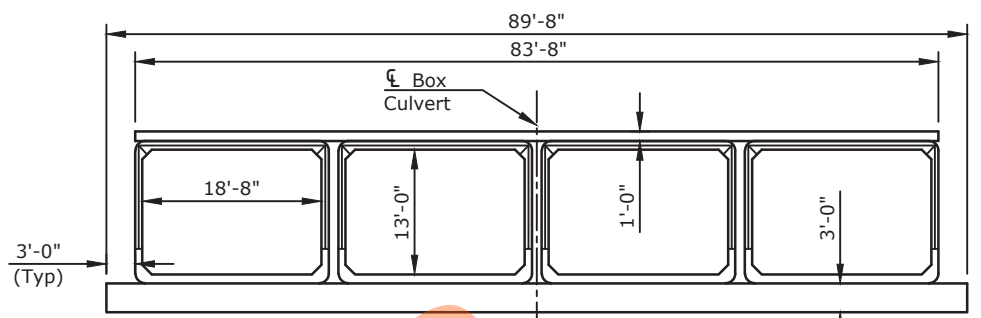


PLAN

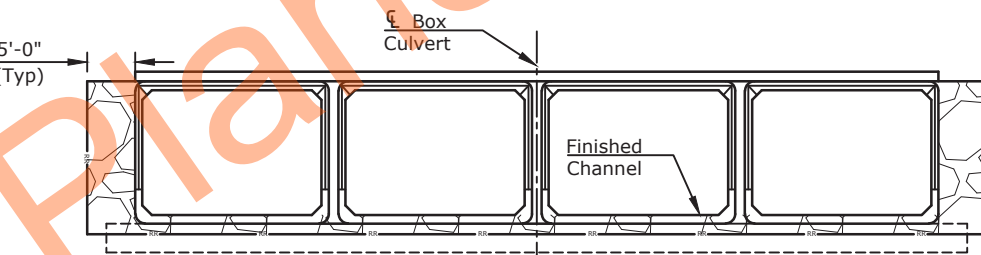


ELEVATION

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	170	4



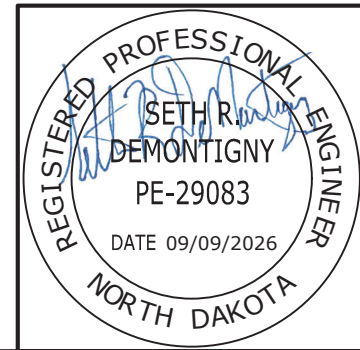
END VIEW
(Showing Dimensions)



END VIEW
(Showing Finished Section)

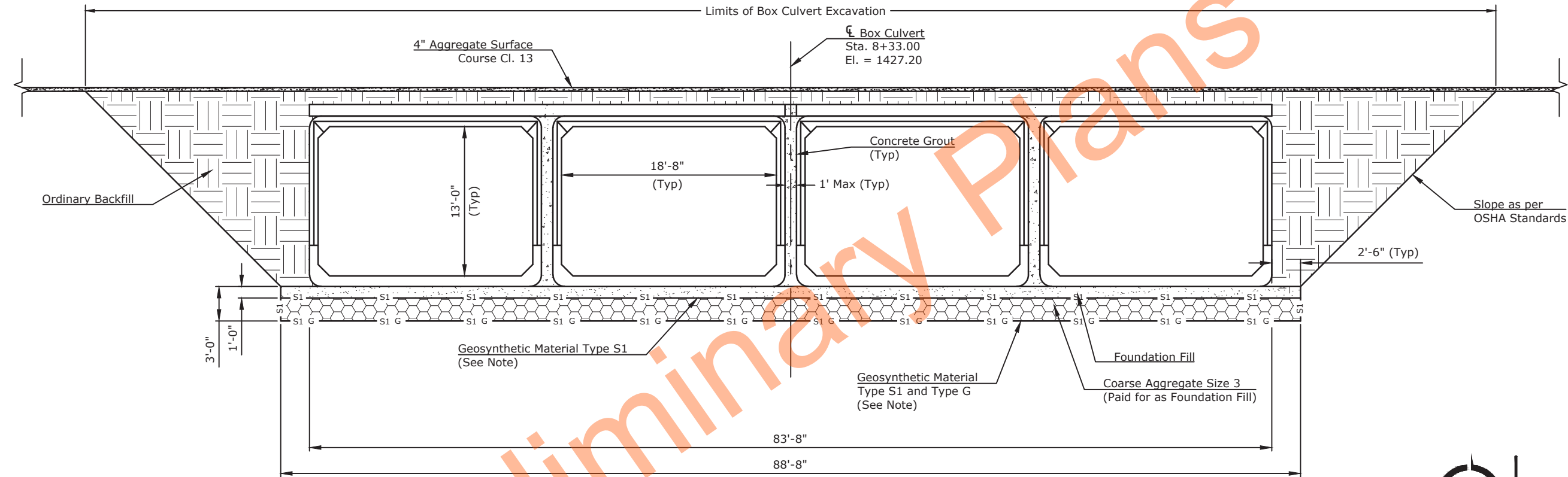
HYDRAULIC DATA	
DRAINAGE AREA	1,580 sq. miles
STREAM SLOPE	0.00040 ft/ft
DESIGN FREQUENCY	15 year
DESIGN DISCHARGE	3,748 cfs
DESIGN HEADWATER STAGE	1,426.68'
DESIGN TAILWATER STAGE	1,426.29'
DESIGN VELOCITY	4.18 fps
100-YEAR FREQUENCY DISCHARGE	7,559 cfs
100-YEAR FREQUENCY HEADWATER	1,428.82'
OVERTOPPING STAGE	1,427.20'
OVERTOPPING DISCHARGE	4,000 cfs

Reinforced Concrete Box Culvert Quantities				
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0109	REMOVAL OF STRUCTURE-SITE 2	L SUM	1
210	0052	BOX CULVERT EXCAVATION - SITE 2	EA	1
210	0210	FOUNDATION FILL	CY	1,085
210	0203	FOUNDATION PREPARATION-SITE 2	EA	1
606	1813	18FT8IN X 13FT PRECAST RCB CULVERT	LF	232
606	5813	18FT8IN X 13FT PRECAST RCB END SECTION	EA	8
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	1,044
709	0161	GEOSYNTHETIC MATERIAL TYPE S1	SY	2,136



PRECAST CONCRETE BOX LAYOUT
SITE 2
STA. 8+33
STR #25-113-02.1

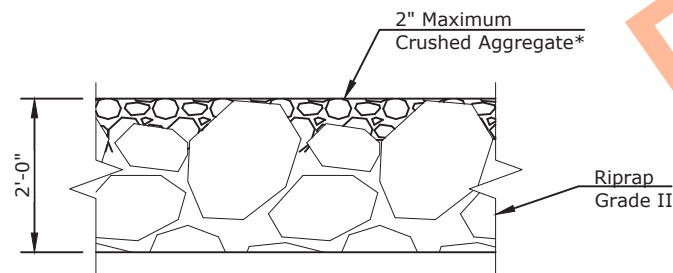
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRO-0025(055)	170	5



(SHOWING SECTION ALONG ∇ OF ROAD)
**BOX CULVERT EXCAVATION
& BACKFILL DETAIL**

NOTE:

Geo fabric will extend to the cutoff wall.



RIPRAP INFILL DETAIL

***Note:**

Place 2" aggregate on top of riprap to create a walking surface for safer access to the box culvert barrels. Do not place 2" aggregate on inslopes of end sections. The 2" aggregate will be paid for as foundation fill. Foundation fill bid item increased 40CY to account for 2" max crushed aggregate.



**EXCAVATION AND BACKFILL
DETAILS - SITE 2**
STA. 8+33.00
STR #25-113-02.1

23 U.S.C. 407 NDDOT Reserves All Objections		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	BRO-0025(055)	170	6

NOTES

100-P01 SCOPE OF WORK: The project consists of removing existing structure number 25-113-02.0 and installing a quad 18-foot-8-inch span by 13-foot rise precast concrete box culvert with sloped end sections.

202-P01 REMOVAL OF STRUCTURE-SITE 2: The existing structure is a 62-foot two-span concrete channel beam and timber substructure bridge with a clear roadway width of 24.3-feet and an overall bridge width of 25.9-feet.

Contractor is to deliver salvageable material to the McHenry County Highway Department shop in Upham, ND. Coordinate delivery placement with Darlene Carpenter, McHenry County Highway Superintendent at 701-537-5724. Include all costs associated with handling and delivering the salvaged material in the structure removal bid items.

All non-salvageable materials become property of the Contractor and will be handled in accordance with Section 107.17 of the Standard Specifications.

Cut off existing piling a minimum of one foot below the proposed foundation fill limits and backfill with foundation fill.

210-P01 FOUNDATION FILL: The quantity for foundation fill was computed as in-place to a depth of 3'-0" below the box culvert; however, this may vary depending on the soil conditions. If a suitable subgrade exists under the culvert site, the foundation fill may be reduced or eliminated at the direction of the Engineer. The bottom 2'-0" of the box culvert excavation will consist of coarse aggregate size 3, meeting the gradation in Table 802-03 of the Standard Specifications, and will be paid for as "FOUNDATION FILL." The coarse aggregate material will be accepted by Engineer's Statement with no testing required unless deemed necessary by the Engineer. The remaining foundation fill will be as specified in Section 210 of the Standard Specifications and will be paid for as "FOUNDATION FILL". Place foundation fill in layers of not more than 12", moisten or dry as required, and compact according to Section 203.04 G.3 of the Standard Specifications with exception of using smooth drum or plate compacting equipment. The final pay quantity will be based on in-place plan dimensions, and the Contractor will be responsible for extra material due to shrinkage.

210-P02 BOX CULVERT EXCAVATION – SITE 2: Include all box culvert excavation, foundation fill excavation, channel excavation, riprap excavation, topsoil removal and replacement, placement of ordinary backfill, compaction, water, and shaping of channel slopes in the unit price bid for "BOX CULVERT EXCAVATION – SITE 2".

The suitability of material from on-site excavations for use as ordinary backfill and embankment will be determined by the Engineer. The Contractor will remove and replace approximately 4" of topsoil over the excavation and embankment areas, except the 28' roadbed. Place and compact backfill in accordance with Section 203.04 G.3 of the Standard Specifications. Water may be required to compact the backfill and will be incidental. Embankment constructed from excavated material will not be measured for separate payment but will be included in the price bid for "BOX CULVERT EXCAVATION – SITE 2". If the excavated material is deemed not suitable for ordinary backfill or embankment, it will become property of the Contractor and will be disposed of outside of the road right-of-way, not adjacent to the construction site, and at a site approved by the Engineer. Include all costs associated with excavation, hauling, depositing and leveling the waste material in the unit price bid for "BOX CULVERT EXCAVATION – SITE 2".

256-P01 RIPRAP GRADE II: Final pay quantity for "RIPRAP GRADE II" will be determined by field measurements in accordance with plan length, width, and depth.

606-P01 PRECAST RCB CULVERT
Dimensions:

Single 18ft.8in. span x 13 ft. rise sections.

Fill: 0ft. to 5ft.

Design Load: HL-93

Tie Bolts: All sections will be tied together with a minimum of 2 tie bolts per outside wall. Place the tie bolts at third points of the outside walls. Include cost of ties in the price bid for "18FT8IN X 13FT PRECAST RCB CULVERT". An alternate tie system

using pre-cast tubes and an internal cable tie will be allowed, but subject to review of work drawings.

End Sections: Cast holes at 3' centers through the floor of the last barrel section and into the cutoff wall to receive ¾" diameter reinforcing bars. Cast holes in the roof of the last barrel section at 1'-0" centers for ½" diameter reinforcing bars to attach the parapet. Cast the parapet against the section. Install the bars according to the Manufacturer's recommendation with a high-strength adhesive specifically intended for concrete anchorage in accordance with Section 806.06 of the NDDOT Standard Specifications.

The "18FT8IN X 13FT PRECAST RCB END SECTION" bid item will consist of the cutoff wall, parapet, and sloped end sections.

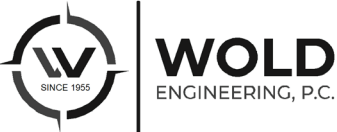
Joints: Provide watertight joints on the floor, on the exterior walls, and roof using a preformed mastic meeting ASTM C 990. Cover all joints with a minimum of 12 inches wide waterproof membrane on the exterior walls and roof. Prepare the walls and roof exterior surface of the joints according to the waterproof membrane Manufacturer's recommendation. Roll the membrane to the surface keeping it free of wrinkles and bubbles. Lap waterproof membrane joints a minimum of 2.5 inches. Seal the joints and exposed edges with a joint sealing mastic recommended by the Manufacturer of the membrane.

Lifting Holes: Plug all lifting holes on the roof and walls with popits and cover with a minimum of 9-inch by 9-inch waterproof membrane squares. Prepare the walls and roof exterior surface of the lifting holes according to the waterproof membrane Manufacturer's recommendations. Roll the membrane to the surface keeping it free of wrinkles and bubbles. Grout all lifting holes in the floor and walls of the end sections with an approved non-shrink grout.

RCB Spacing:
The Contractor will place grout with the following mix design between box culvert sections:

<u>MIX DESIGN</u>	
¾" minus Rock	800 lbs
Sand	2,300 lbs
Fly Ash	100 lbs
Cement	560 lbs
Air	5%
Slump	5" to 6"

The grout will be fluid on placement to flow around and fill voids in the backfill area. Include price of grout in price bid for precast units.



REGISTERED PROFESSIONAL ENGINEER

SETH R. DEMONTIGNY

PE-29083

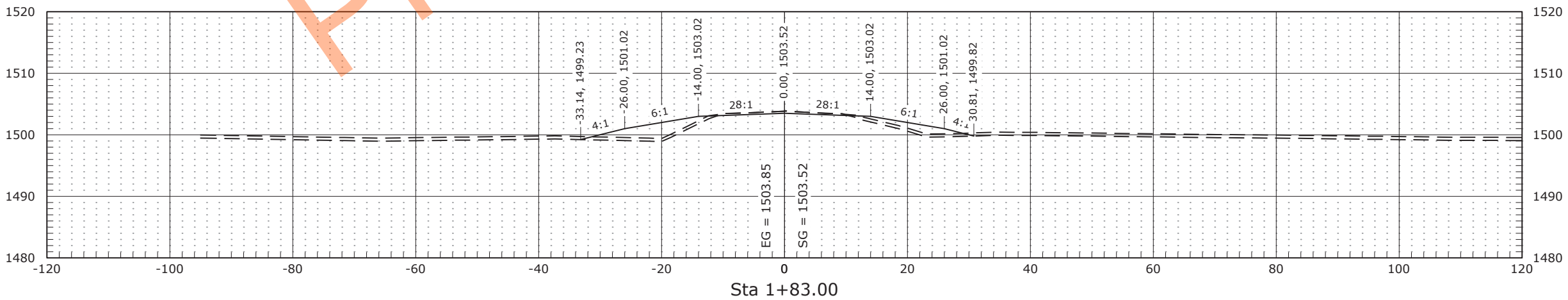
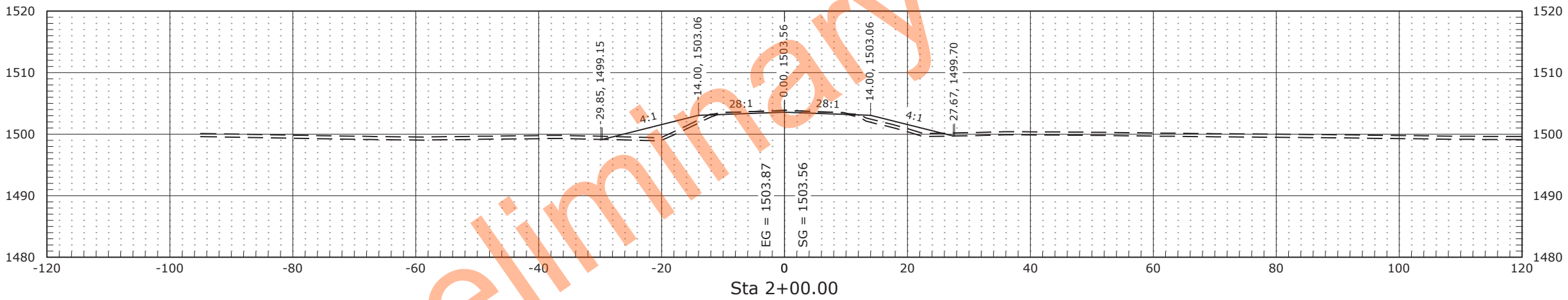
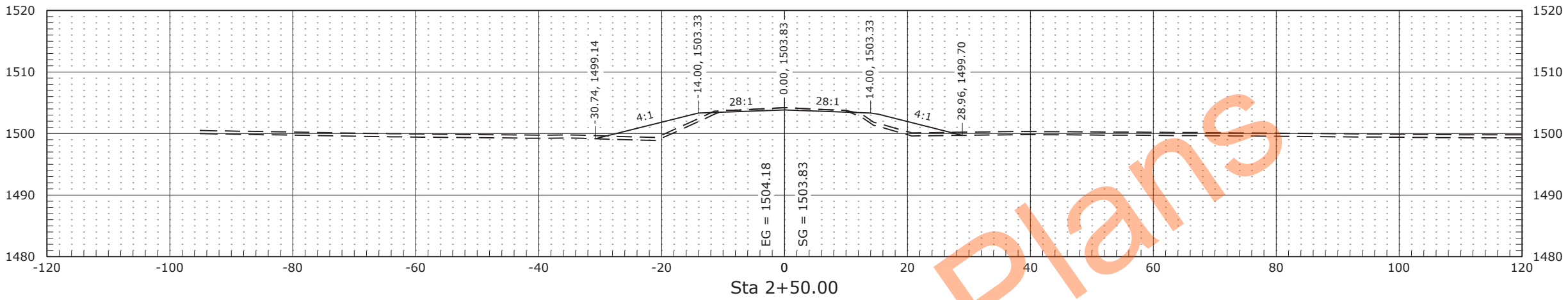
DATE 09/09/2026

NORTH DAKOTA

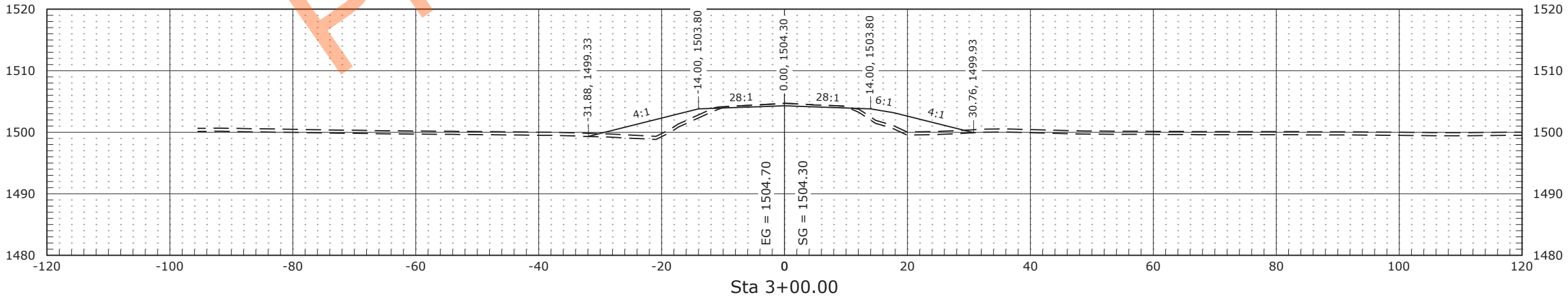
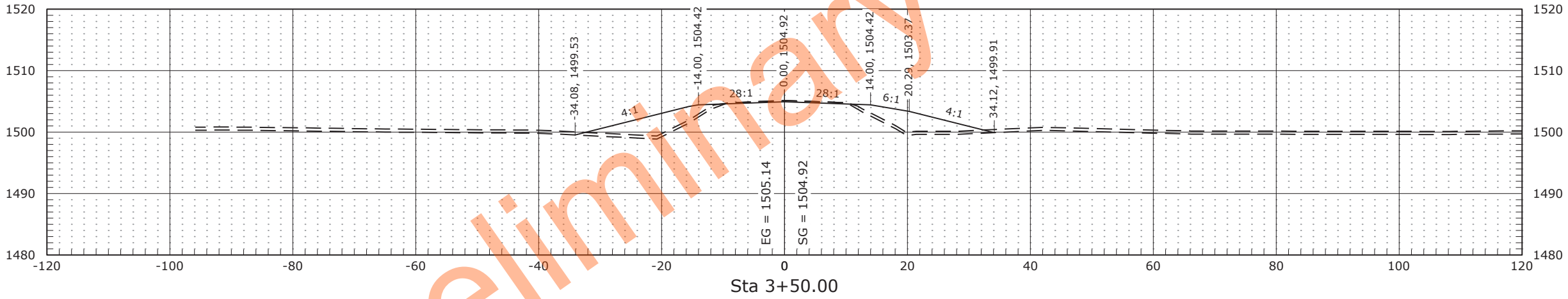
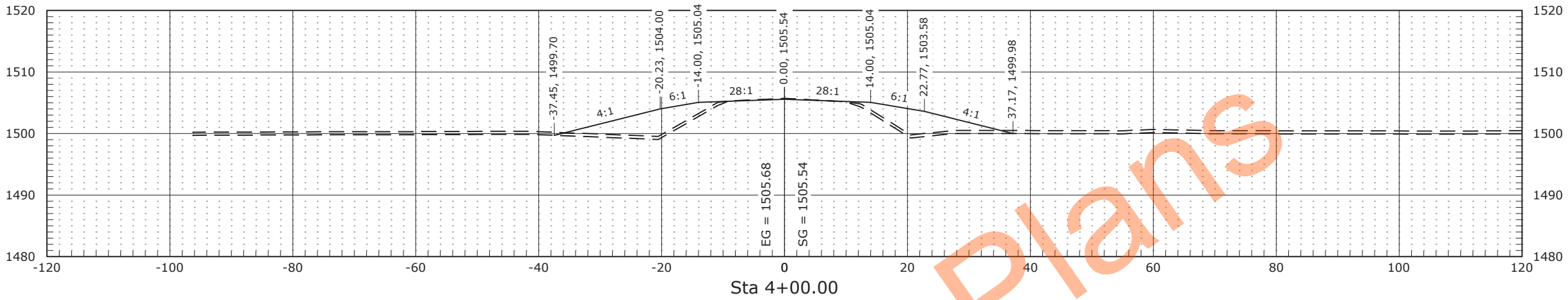
NOTES
SITE 2

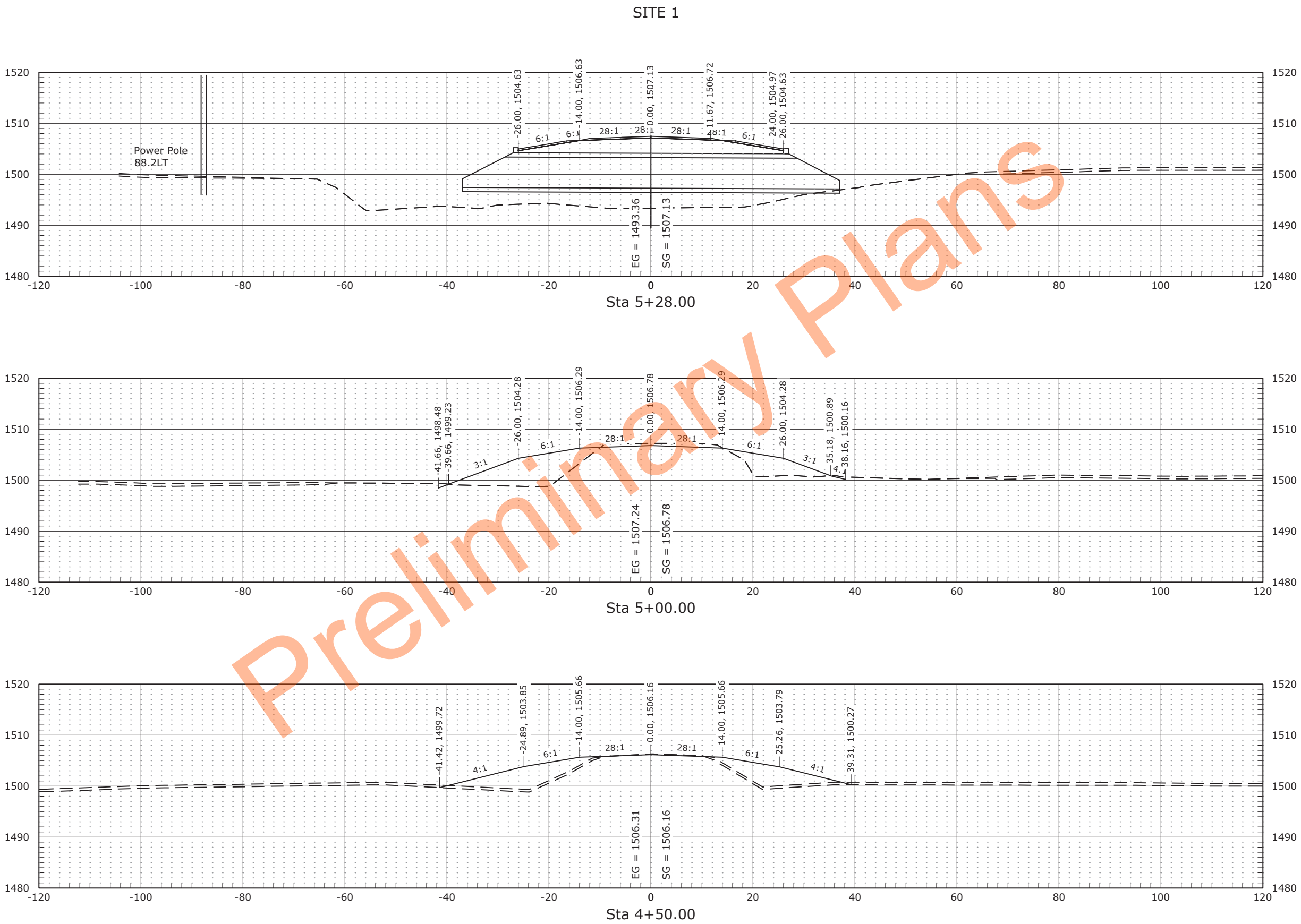
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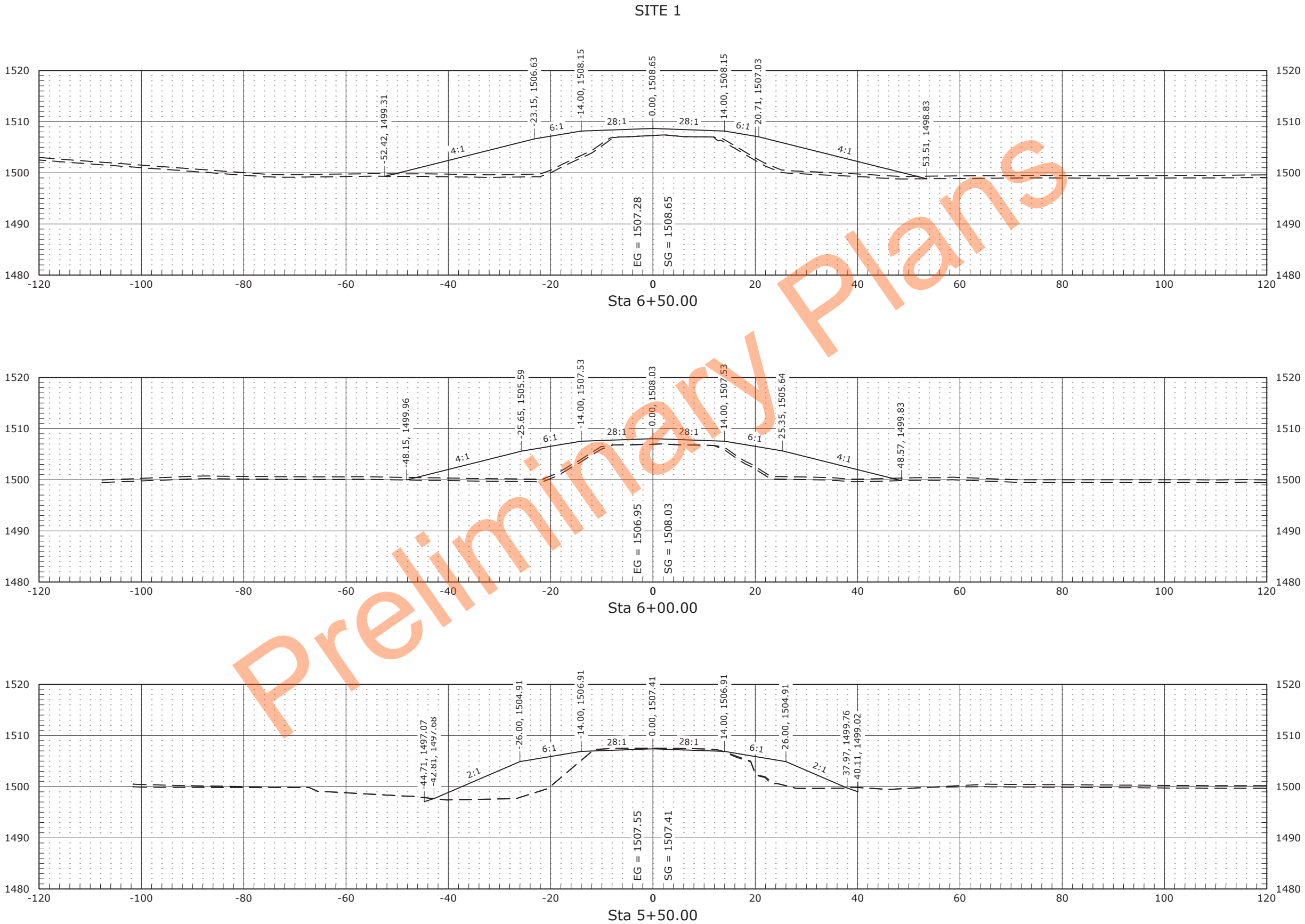
SITE 1

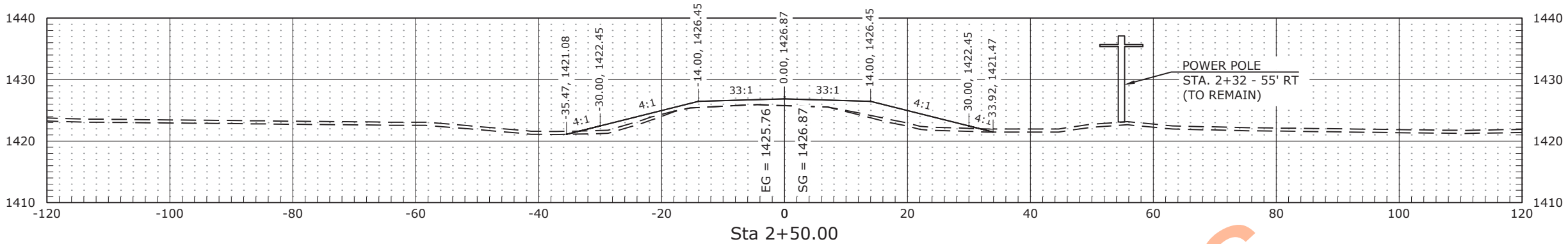


SITE 1

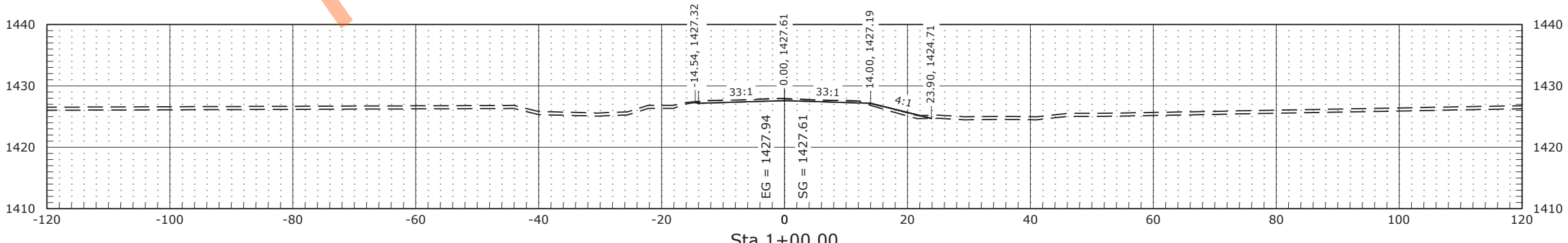
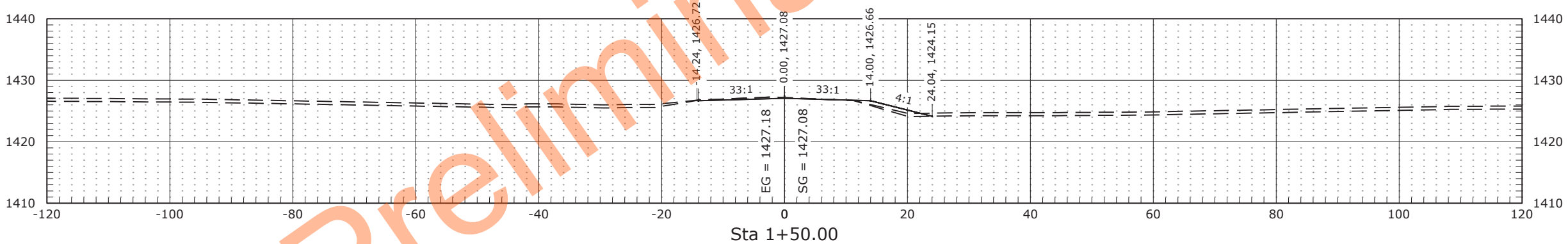
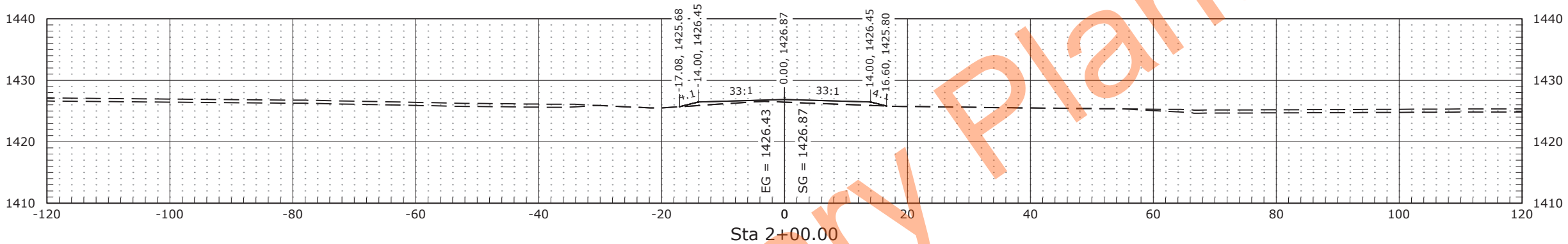




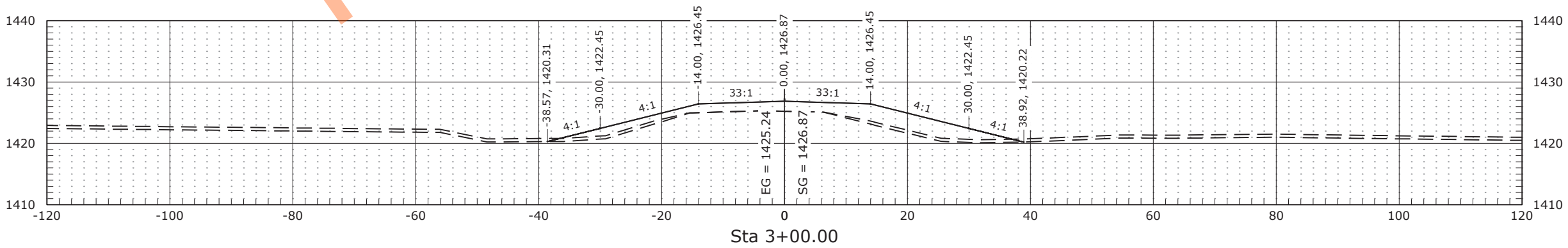
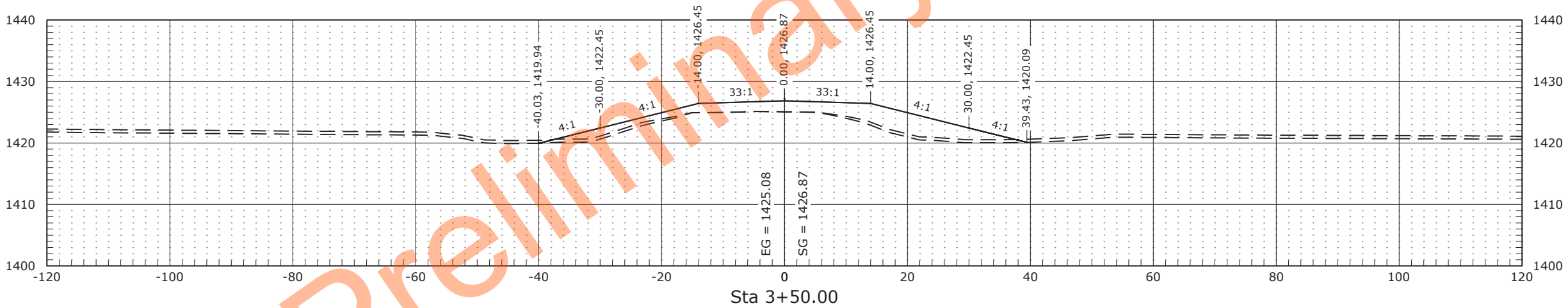
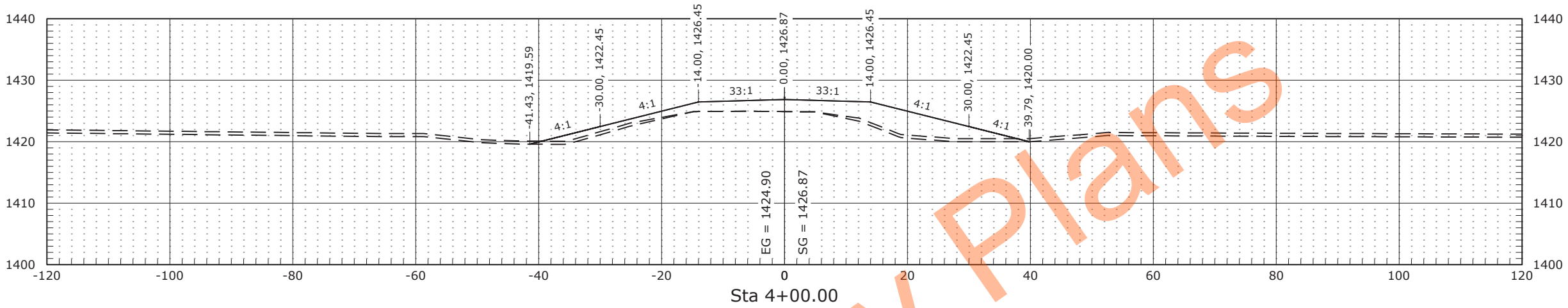




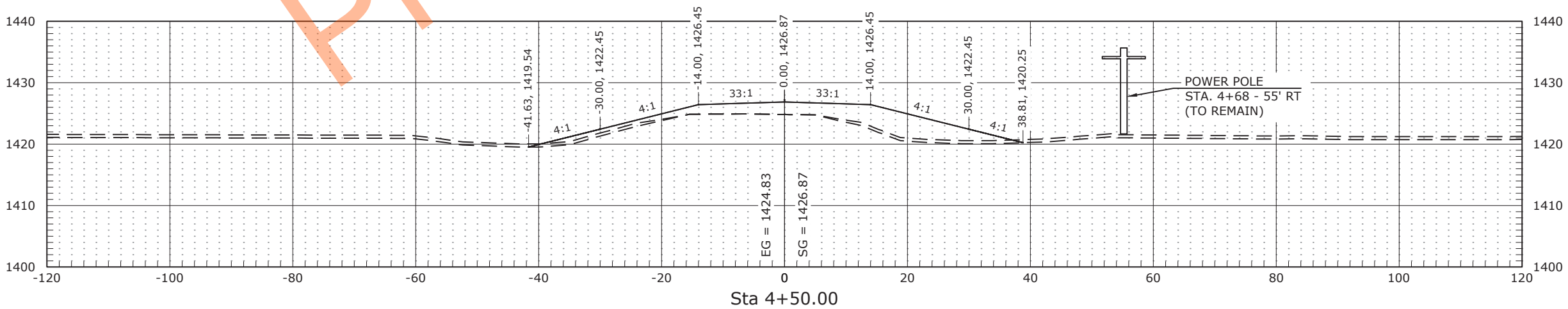
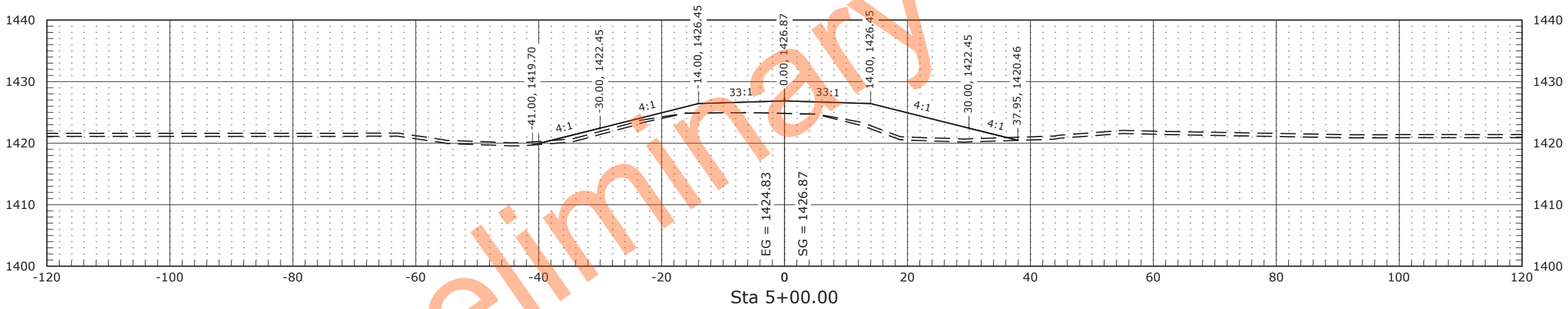
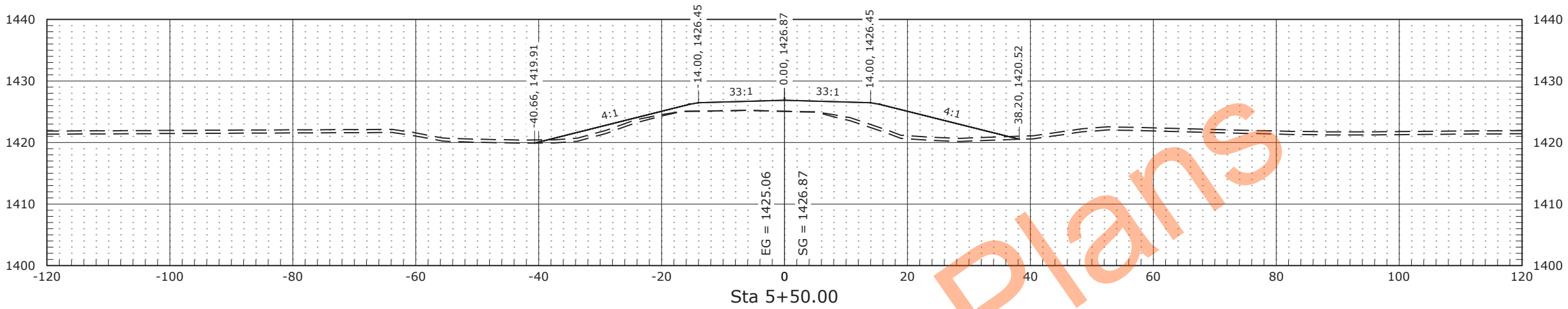
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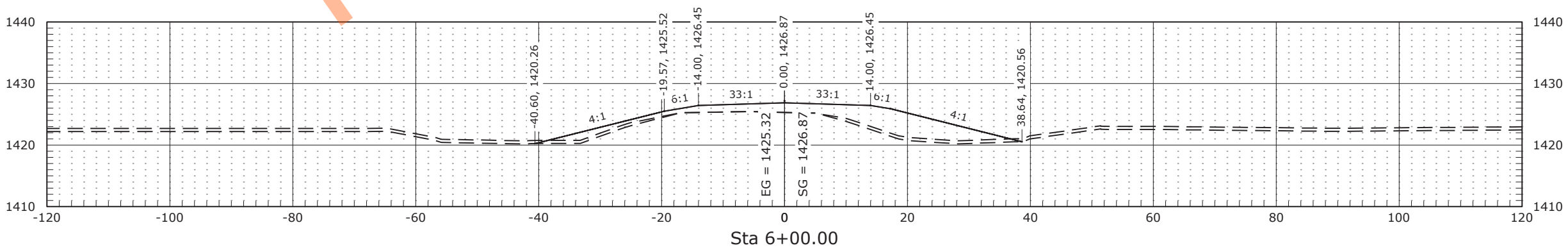
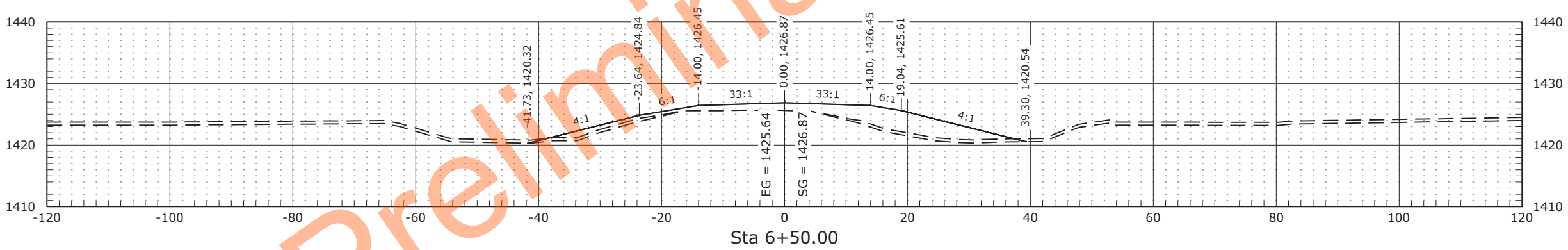
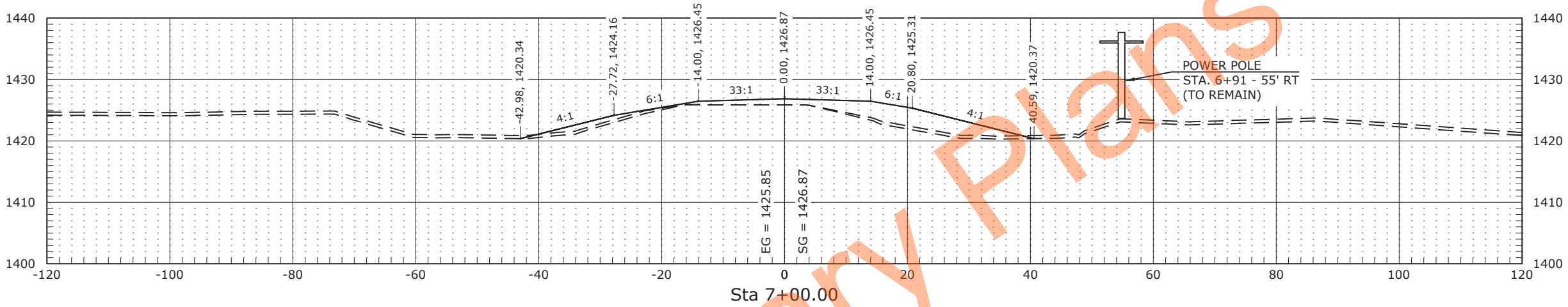
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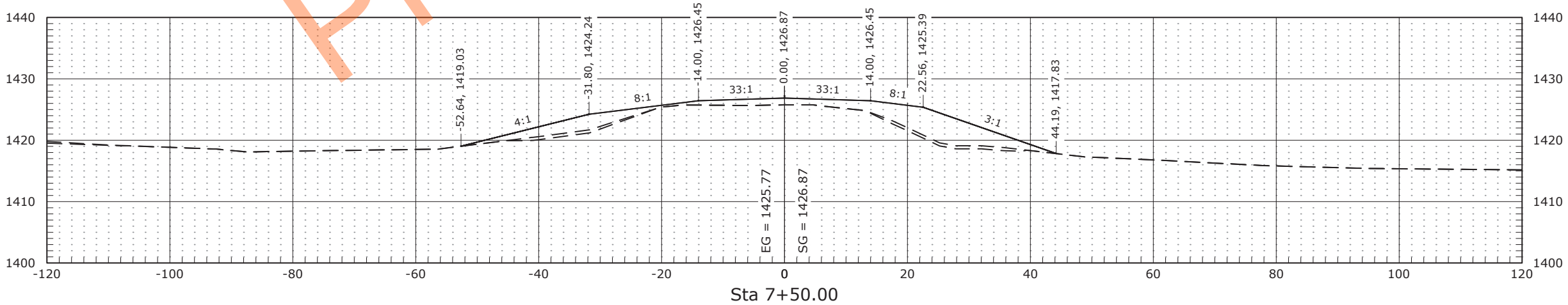
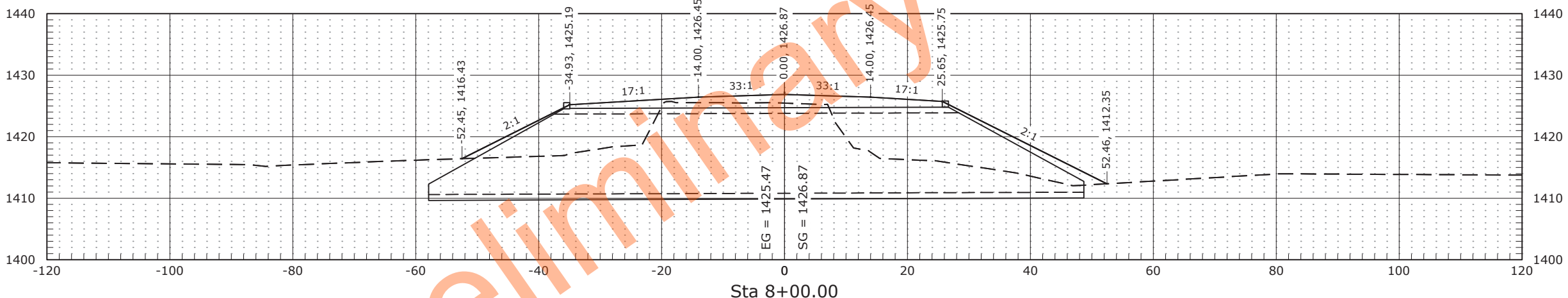
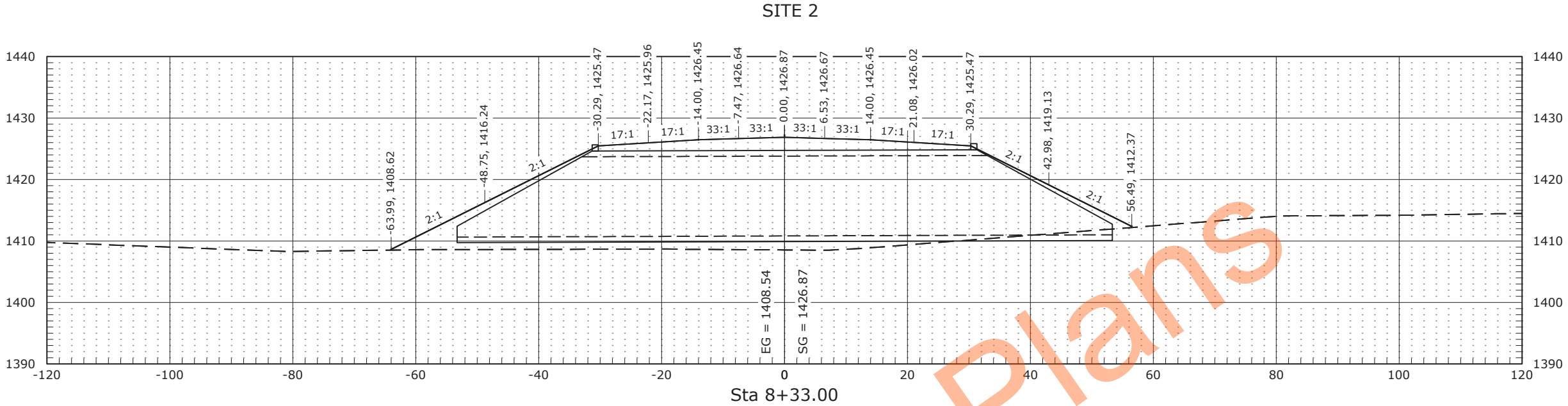


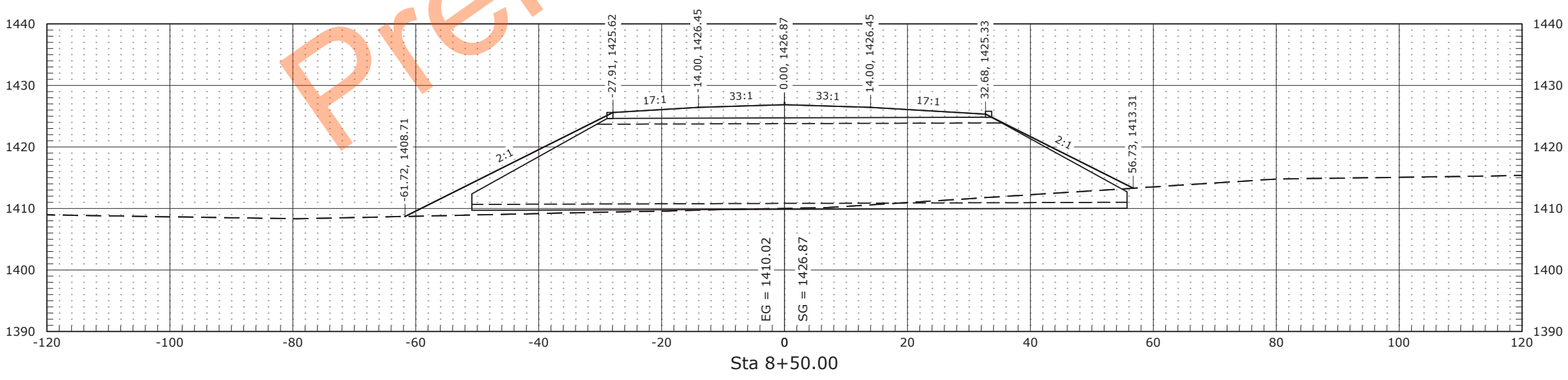
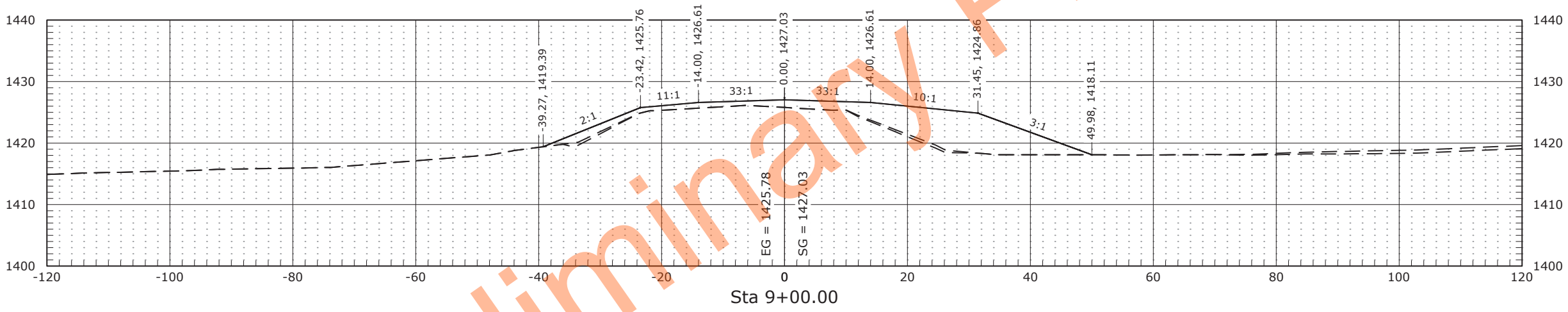
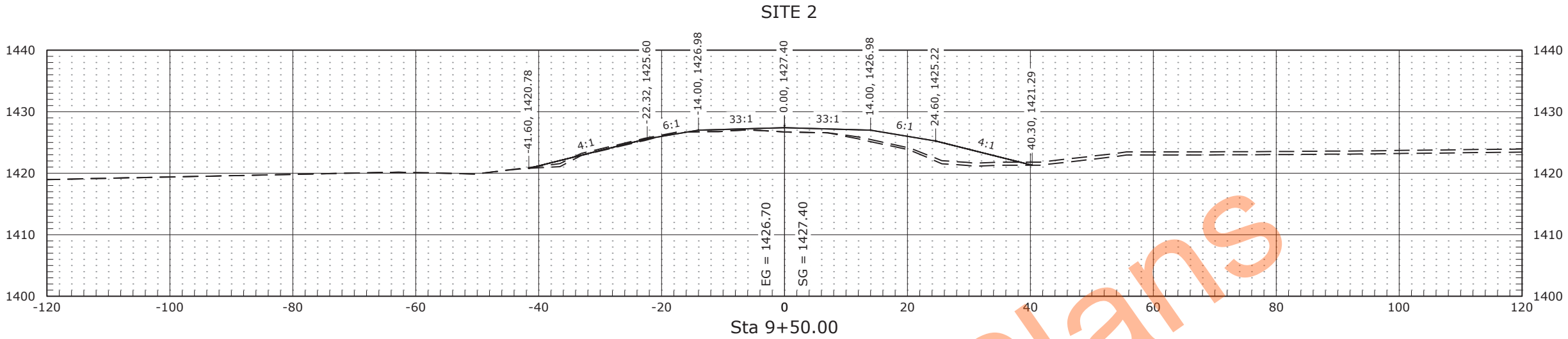
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