

STATE OF NORTH DAKOTA
SHOWING COUNTIES

WALSH COUNTY, NORTH DAKOTA PLANS FOR FEDERAL AID PROJECT BRJ-0050(060) STRUCTURE REMOVAL, STRUCTURE REPLACEMENT & INCIDENTALS

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	BRJ-0050(060)	23966	1	1

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2024
Supplemental Specifications	NONE

PROJECT LENGTH

PROJECT	GROSS MILES	NET MILES
SITE 1 - STRUCTURE #50-138-07.1	0.076	0.076
SITE 2 - STRUCTURE #50-146-04.0	0.006	0.006
TOTAL	0.082	0.082

DESIGN DATA

TRAFFIC		AVERAGE DAILY			EST. 30th MAX. HR.
		PASSENGER	TRUCKS	TOTAL	
CURRENT TRAFFIC	2024	LESS THAN 100 VPD			
TRAFFIC FORECAST	2044				

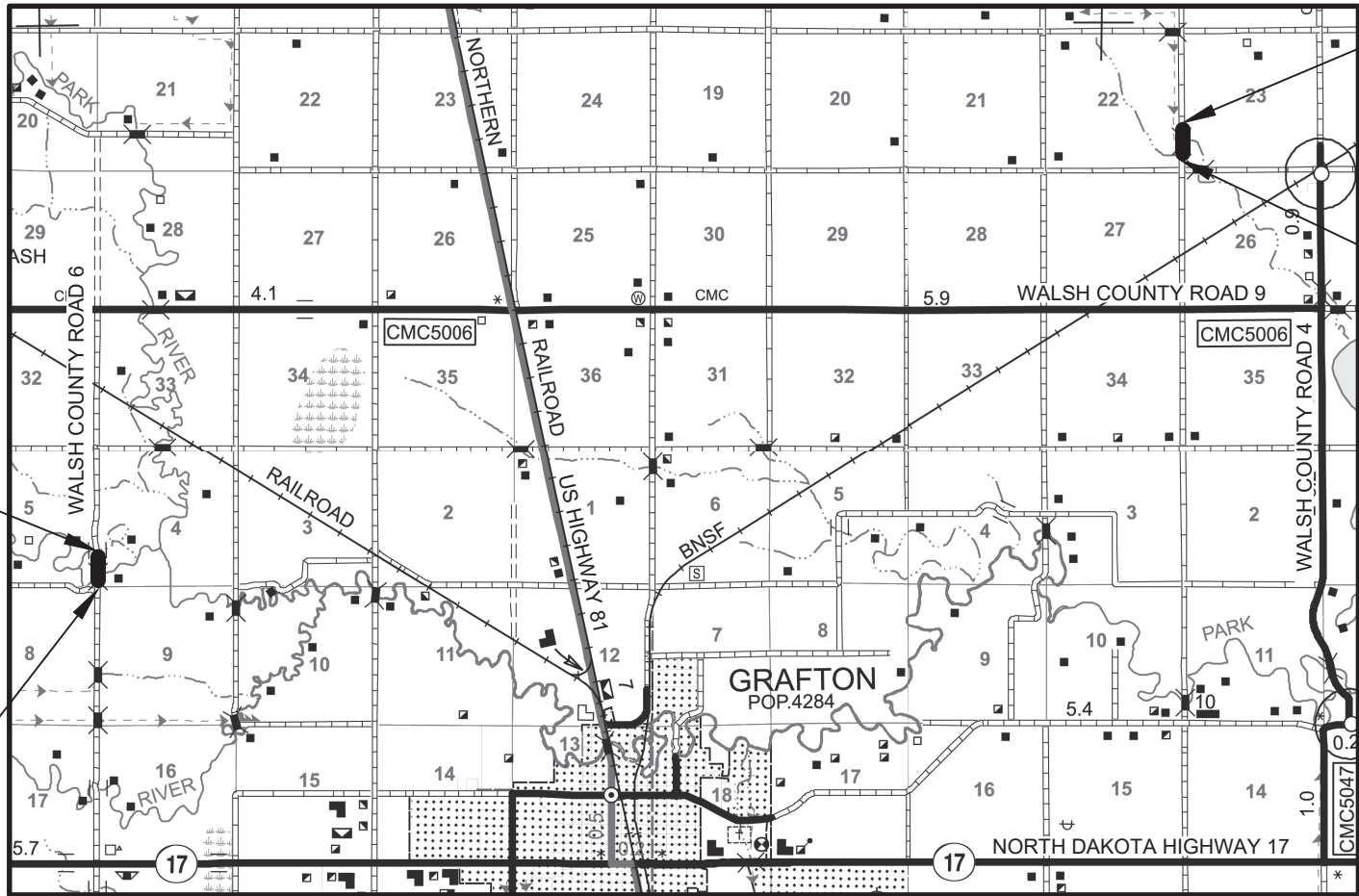
DESIGN SPEED 55 MPH
MINIMUM SIGHT DISTANCE (STOPPING) 495 FEET
DESIGN LOADS FOR STRUCTURE: HL-93

Project consists of two Structure Removals, one Installation of a Precast
DBL 14' x 14' x 54' R.C.B.C., Gravel Surfacing & Incidentals

Site 1 is located 3 miles west and 1 mile north of Grafton, ND and Site 2 is
located 3 miles east and 4 miles north of Grafton, ND

END SITE 1
STA. 15+50 A POINT
APPROXIMATELY 587
FEET WEST OF THE
NORTHWEST CORNER
OF SEC. 9. TWP. 157 N.,
RGE. 53 W.

BEGIN SITE 1
STA. 11+50 A POINT
APPROXIMATELY 187
FEET WEST OF THE
NORTHWEST CORNER
OF SEC. 9. TWP. 157 N.,
RGE. 53 W.



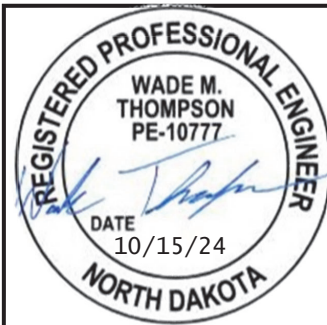
END SITE 2
STA. 200+15 A POINT
APPROXIMATELY 745
FEET NORTH OF THE
NORTHWEST CORNER
OF SEC. 26. TWP. 158
N., RGE. 52 W.

BEGIN SITE 2
STA. 199+85 A POINT
APPROXIMATELY 715
FEET NORTH OF THE
NORTHWEST CORNER
OF SEC. 26. TWP. 158 N.,
RGE. 52 W.

PS&E Correction Made
Surveyed & Designed Date

October 2024
November 2021 - September 2024

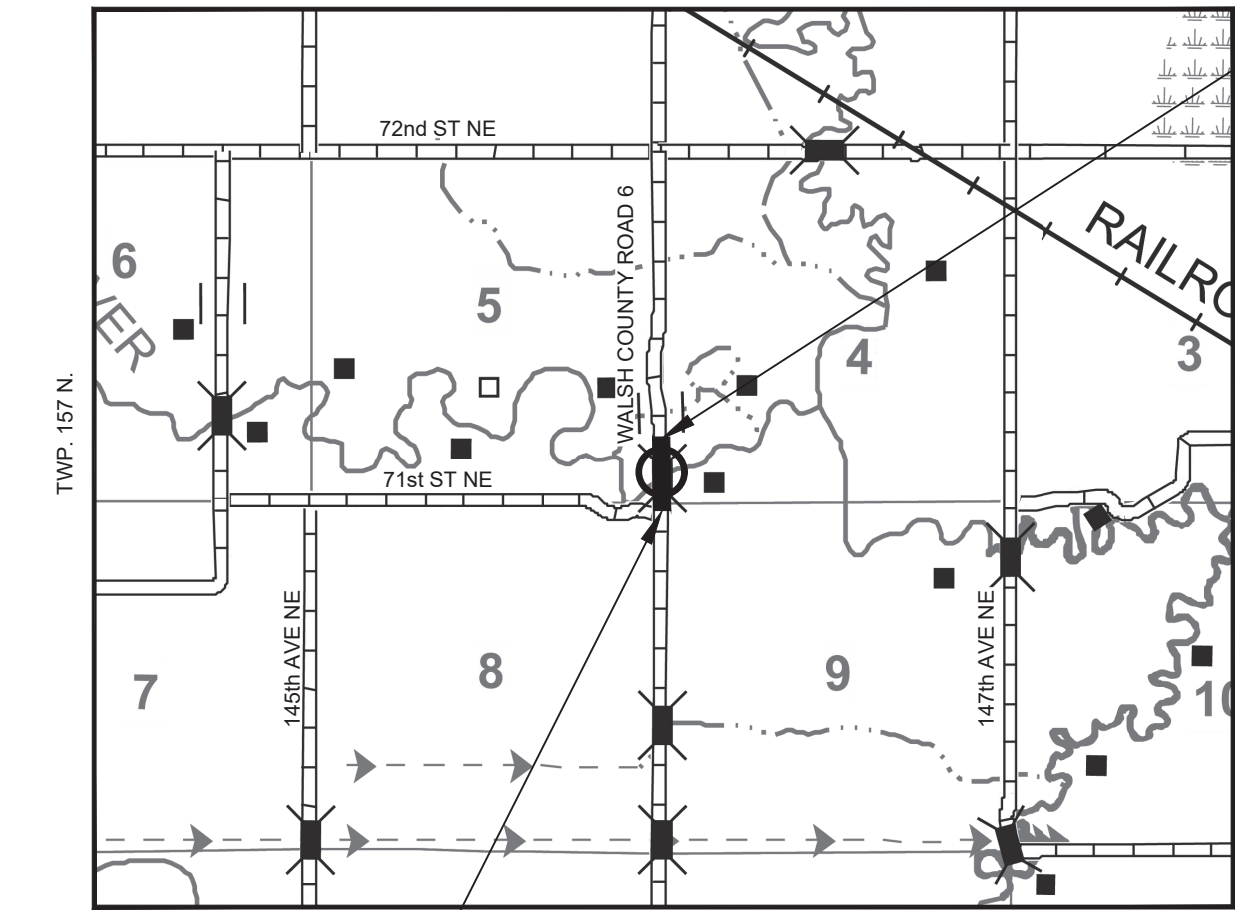
DESIGNER	Charlie Thompson
DESIGNER	Katie DeWitt
DESIGNER	-
DESIGNER	-
DESIGNER	-



864 WEST 12TH ST
GRAFTON, ND 58237-2120
(701) 352-1555, FAX (855) 288-8055

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			D-754-24A	Breakaway Coupler System For Perforated Tubes					
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SP 211(24)	Temporary Water Diversion								
SSP 1	Temporary Erosion and Sediment Best Management Practices								
SSP 2	Federal Migratory Bird Treaty Act								
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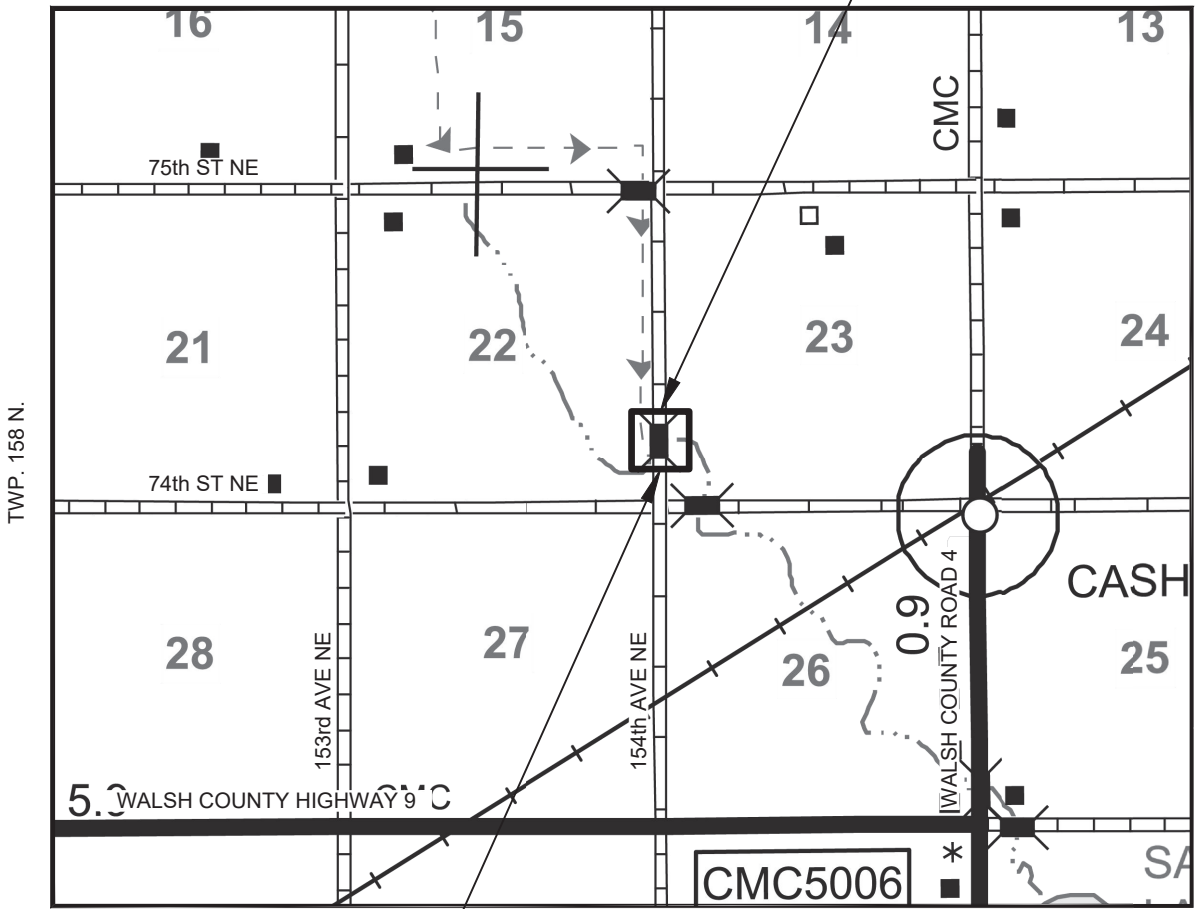
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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BEGIN SITE 1
STA. 11+50 = A POINT
APPROXIMATELY
187 FEET NORTH OF THE
NORTHWEST CORNER OF
SEC. 9, TWP. 157 N., RGE. 53 W.

END SITE 1
STA. 15+50 = A POINT
APPROXIMATELY
587 FEET NORTH OF THE
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SEC. 9, TWP. 157 N., RGE. 53 W.

- GRADING & GRAVELING
- STRUCTURE REPLACEMENT & INCIDENTALS
- STRUCTURE REMOVAL



BEGIN SITE 2
STA. 199+85 = A POINT
APPROXIMATELY
715 FEET NORTH OF THE
NORTHWEST CORNER OF
SEC. 26, TWP. 158 N., RGE. 52 W.

END SITE 2
STA. 200+15 = A POINT
APPROXIMATELY
745 FEET NORTH OF THE
NORTHWEST CORNER OF
SEC. 26, TWP. 158 N., RGE. 52 W.



BRJ-0050(060) WALSH COUNTY, NORTH DAKOTA STRUCTURE #50-138-07.1 & #50-146-04.0		
SCOPE OF WORK		
DRWN. BY CWT	CHKD BY JDD	PROJECT NO. 2302-01096

PLAN NOTES

100-P01

EROSION CONTORL: Bid items Temporary Cover Crop, Silt Fence, Fiber Rolls and Flotation Silt Curtain are included for use in conjunction with the Contractor's SWPPP. These quantities may be eliminated depending on the Contractor's operation. An estimated quantity has been set up for each item.

105-P01

UTILITIES: Utilities that the Engineer has been made aware of are shown in the plans. Other utilities may exist that are not shown. The horizontal utility locations shown in the plans are approximate. Plan locations should not be interpreted as exact for bidding or construction purposes.

Utility Coordination Table					
Sta	Offset	Appr. Qty	Comments	Utility Company	Type of Facility
11+50 to 15+50 (Site 1)	40' RT	400 LF	Contractor to protect in place	Polar Communications	Fiber Optic

202-P01

REMOVAL OF STRUCTURE – SITE 2: The existing structure is a 32-foot single span bridge. The superstructure consists of steel beams and a wooden deck. The lump sum bid item "REMOVAL OF STRUCTURE – SITE 2" includes all the work required to remove the existing superstructure in accordance with the Standard Specifications. Permanent signs will be installed for roadway termination per Standard D-754-18.

203-010

SHRINKAGE: 35 percent additional volume is included for shrinkage in earth embankment.

203-P01

TOPSOIL: The quantity of topsoil to be removed, salvaged, and respread is based upon an assumed existing depth of 6 inches. Make arrangements for topsoil storage areas if sufficient room is not available within the right of way. No payment will be made for additional handling of topsoil that must be moved to provide additional excavation area between the proposed grading limits and the right of way. Re-spread topsoil evenly over the areas to be seeded. The bid item "TOPSOIL" includes all labor, materials, and equipment associated with stripping, stockpiling, and resspreading the existing topsoil. "TOPSOIL" will be paid at plan quantity.

203-P02

COMMON EXCAVATION-TYPE B: Include all costs associated with excavating, transporting and placing the material in the price bid for "COMMON EXCAVATION-TYPE B". "COMMON EXCAVATION-TYPE B" will be paid at plan quantity. Any change to plan quantity must be approved by the Owner or Engineer.

203-P03

BORROW EXCAVATION: The estimated quantity of "BORROW EXCAVATION" assumes that all material excavated for "BOX CULVERT EXCAVATION" will be unsuitable to reuse for the embankment. If the Engineer determines that some or all of the material is suitable to reuse for the embankment, the pay quantity for "BORROW EXCAVATION" may be reduced or eliminated.

A reduction or elimination of the pay quantity for "BORROW EXCAVATION" will not result in an increase in pay quantity for any other bid item. If the material from "BOX CULVERT EXCAVATION" is determined to be suitable for the embankment, the placing of the material shall become incidental to the bid item "BOX CULVERT EXCAVATION"

251-P01

SEEDING & MULCHING: Cover all disturbed areas of the right of way, except the roadbed with Seeding CL II and Straw Mulch.

262-P01

FLOTATION SILT CURTAIN: Install the "FLOTATION SILT CURTAIN" within water prior to any removals or stripping of topsoil in the adjacent area.

Place the flotation silt curtain at a location that allows for sufficient area to construct the project without placing material against the flotation silt curtain. Place no material against the flotation silt curtain. If the project is not completed in one construction season, remove, and replace the flotation silt curtain in accordance with Standard Specification 262.04 B. The flotation silt curtain will not be paid for twice.

704-P01

TRAFFIC CONTROL FOR STRUCTURE REPLACEMENT: Use the construction signing layout on Sheet 2, Section 100 for the removal of the existing structure and installation of the proposed box culvert. The Contractor will be allowed to close the roadway at Site 1 for 21 consecutive days to remove the existing structures and install the box culvert. Liquidated damages will be assessed for each day beyond the closure limit or beyond the completion date in accordance with Standard Specification 108.07 B.1. Coordinate scheduling with the Engineer and the County to ensure the least amount of downtime and disruption to traffic. Provide additional signs at no cost to the Owner if needed for Contractor operations.

754-P01

ROADWAY TERMINATION – TYPE A: Include all costs for furnishing and installation of signs and barricades per Standard D-754-18 Type A and the signing layout on Sheet 1 Section 100 in the price bid for "ROADWAY TERMINATION-TYPE A."

STATE

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1

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WALSH COUNTY, NORTH DAKOTA

STRUCTURE #50-138-07.1 & #50-146-04.0

KLJ

DRWN. BY
CWT

PLAN NOTES

CHKD. BY
JDD

PROJECT NO.
2302-01096

REGISTERED PROFESSIONAL ENGINEER

BRYAN TYKWINSKI

PE-28896

DATE 10/16/24

NORTH DAKOTA

10/14/2024

4:59:44 PM

bryan tykwinski

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ENVIRONMENTAL NOTES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	6	2

ENVIRONMENTAL NOTES (EN): Walsh 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 requirements to comply with these commitments:

EN-1 SPAWNING RESTRICTION: Do not work within the Middle Branch of the Park River from April 15 to June 1.

EN-2 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, Ben 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).

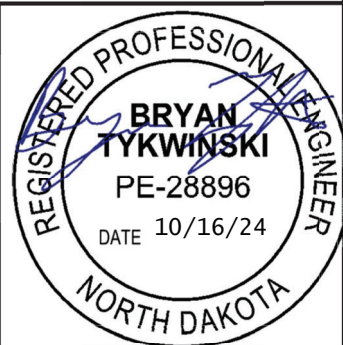
EN-3 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these areas to preconstruction contours.

EN-4 WETLAND MITIGATION CREDITS: Prior to beginning any work on the project at all sites, purchase exactly 0.076 acres of wetland mitigation credits from Ducks Unlimited to satisfy the Environmental Commitments shown in Section 75 of the plans and the Section 404 Permits issued for the project (see PSP 20(24)). No work can begin on the project until a Credit Sales Letter(s) from Ducks Unlimited is submitted to and accepted by the US Army Corps of Engineers (USACE), North Dakota Regulatory Office. Reference Project Number NWO-2024-00370-BIS (Site 1), when contacting the USACE and Ducks Unlimited.


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

Red River Basin: 0.08 Credits @ \$63,000/credit = \$5,040.

The contact information to purchase the wetland mitigation credits from Ducks Unlimited is
Trenton Hieb
Regional Biologist – Ecosystem Services – Mitigation
Ducks Unlimited (Great Plains Region)
2525 River Road
Bismarck, ND 58503
Phone: 701-355-3573
Email: thieb@ducks.org



BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #60-138-07.1



ENVIRONMENTAL
NOTES

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PROJECT NO.
2302-01096

Estimated Quantities						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	BRJ-0050(060)	8	1
SPEC	CODE	ITEM DESCRIPTION	UNIT	SITE 1	SITE 2				TOTAL
103	0100	CONTRACT BOND	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
203	0102	COMMON EXCAVATION-TYPE B	CY	242					242
203	0109	TOPSOIL	CY	139					139
203	0140	BORROW-EXCAVATION	CY	224					224
210	0050	BOX CULVERT EXCAVATION	EA	1					1
210	0210	FOUNDATION FILL	CY	547					547
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1					1
216	0100	WATER	M GAL	63					63
251	0200	SEEDING CLASS II	ACRE	0.12					0.12
251	2000	TEMPORARY COVER CROP	ACRE	0.12					0.12
253	0101	STRAW MULCH	ACRE	0.24					0.24
256	0200	RIPRAP GRADE II	CY	136					136
260	0200	SILT FENCE SUPPORTED	LF	50					50
260	0201	REMOVE SILT FENCE SUPPORTED	LF	50					50
261	0112	FIBER ROLLS 12IN	LF	320					320
261	0113	REMOVE FIBER ROLLS 12IN	LF	160					160
262	0100	FLOTATION SILT CURTAIN	LF	100					100
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	100					100
302	0356	AGGREGATE SURFACE COURSE CL 13	TON	375					375
606	3414	DBL 14FT X 14FT PRECAST RCB CULVERT	LF	54					54
606	7414	DBL 14FT X 14FT PRECAST RCB END SECTION	EA	2					2
702	0100	MOBILIZATION	L SUM	1					1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	388					388
704	1052	TYPE III BARRICADE	EA	16					16
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	381					381
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	204					204
752	0922	FENCE REMOVE & RESET	LF	206					206
754	0137	ROADWAY TERMINATION-TYPE A	EA		2				2
900	1000	TEMPORARY STREAM DIVERSION	EA	1					1
900	2001	WETLAND MITIGATION SITE 1	ACRE	0.08					0.08

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BASIS OF ESTIMATE


Aggregate Surface Course CL 13	1.875 Ton/CY (Shrinkage and Compaction)
Seeding & Mulching	All disturbed areas within the right of way and project limits minus hard surfaces.
Water	50 M Gal for Dust Palliative 10 Gal/CY for Embankment 20 Gal/TON for Aggregate Surface Course CL 13

Earthwork Summary						
Earthwork				Topsoil		
Spec and Code		203-0102	203-0140		203-0109	
Location	Embankment ²	Common Excavation-Type B	Borrow Excavation	Topsoil Embankment	Topsoil	Excess Topsoil
	A	B	C = A - B	D	E	F = E - D
Structure #50-138-07.1 (Site 1)	466	242	224	87	139	52 ¹

1) Topsoil quantities based on 6" stripping and 6" respreading. Excess topsoil shall be uniformly spread on the site within the ROW.
2) Embankment quantities include 35% for shrinkage.



BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1



BASIS OF ESTIMATE &
EARTHWORK SUMMARY

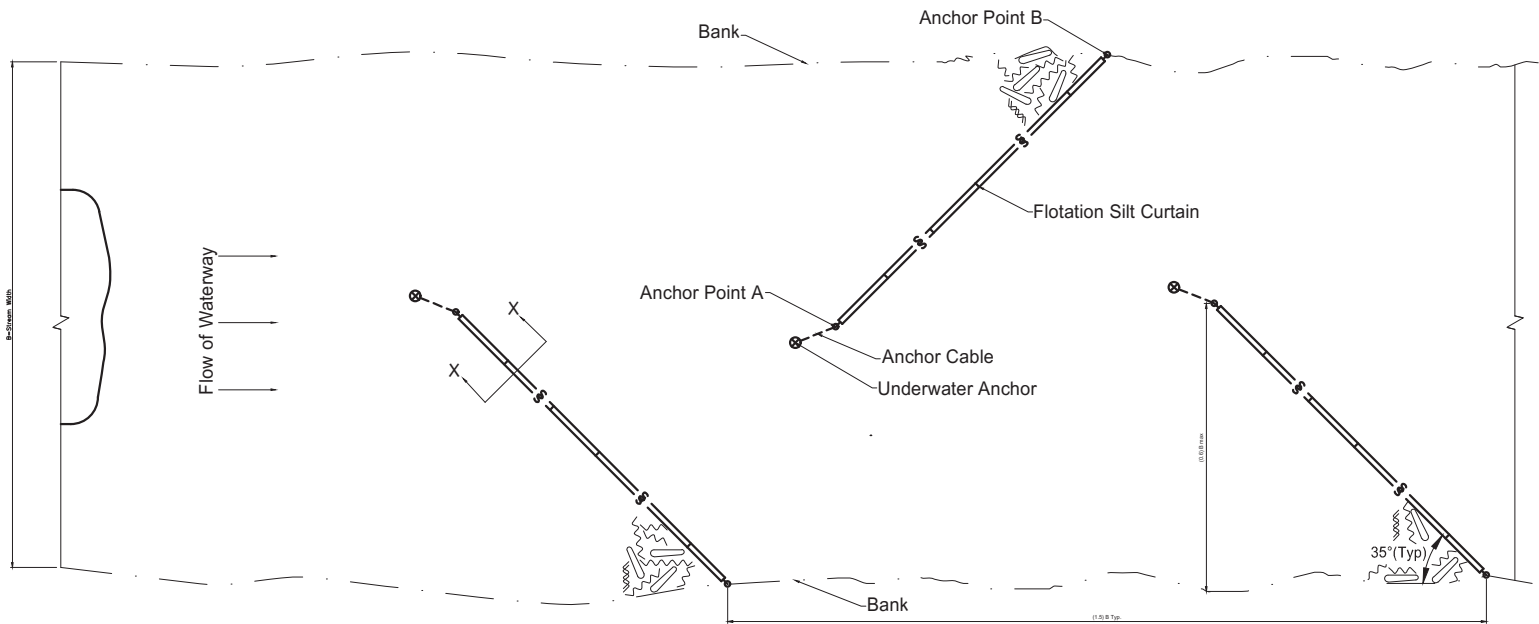
DRWN. BY
CWT

CHKD BY
JDD

PROJECT NO.
2302-01096

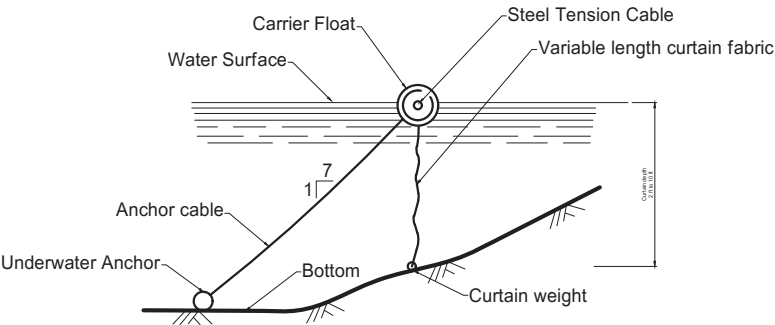
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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TYPICAL INSTALLATIONS
May vary with conditions



PLAN VIEW
FLOTATION SILT CURTAIN - TYPE HERRING BONE PATTERN

DESIGN GUIDELINES:
When temporary work encroaches more than 1/3 width of the stream
Or where stream width doesn't allow use of Type Moving Water

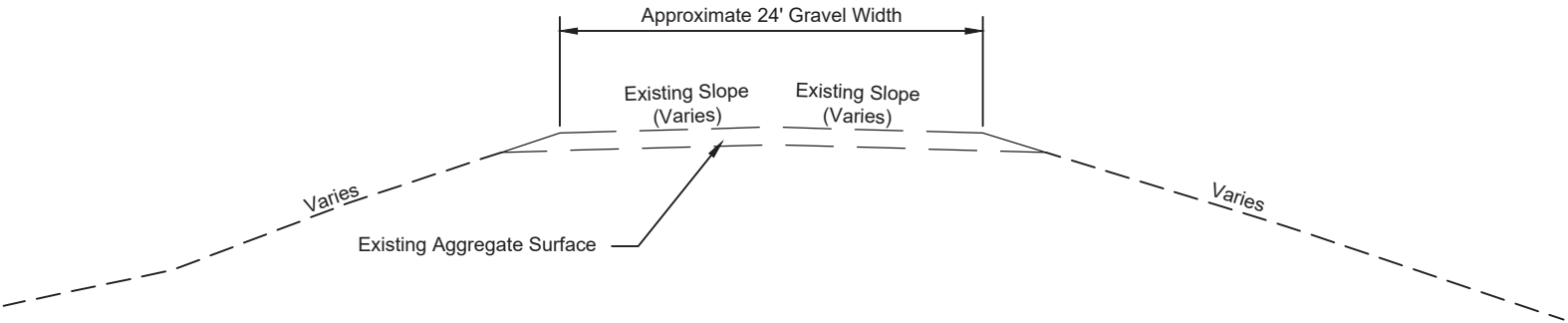


SECTION X-X
FLOTATION SILT CURTAINS

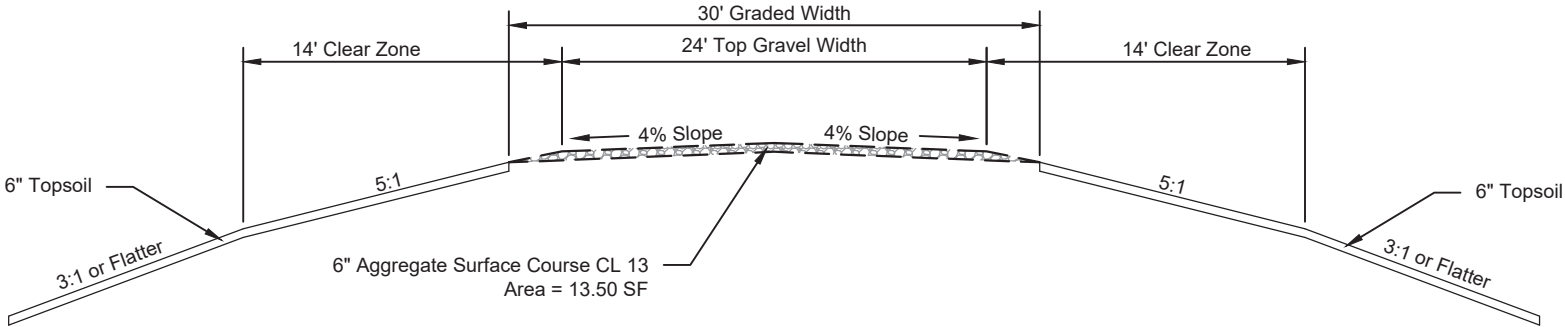


BRJ-0050(060) WALSH COUNTY, NORTH DAKOTA STRUCTURE #50-138-07.1		
	FLOTATION SILT CURTAIN DETAILS	
	DRWN. BY CWT	CHKD BY JDD
		PROJECT NO. 2302-01096

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EXISTING TYPICAL SECTION SITE 1
STA. 11+50 TO 15+50



PROPOSED TYPICAL SECTION SITE 1
STA. 11+50 TO 15+50



BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1

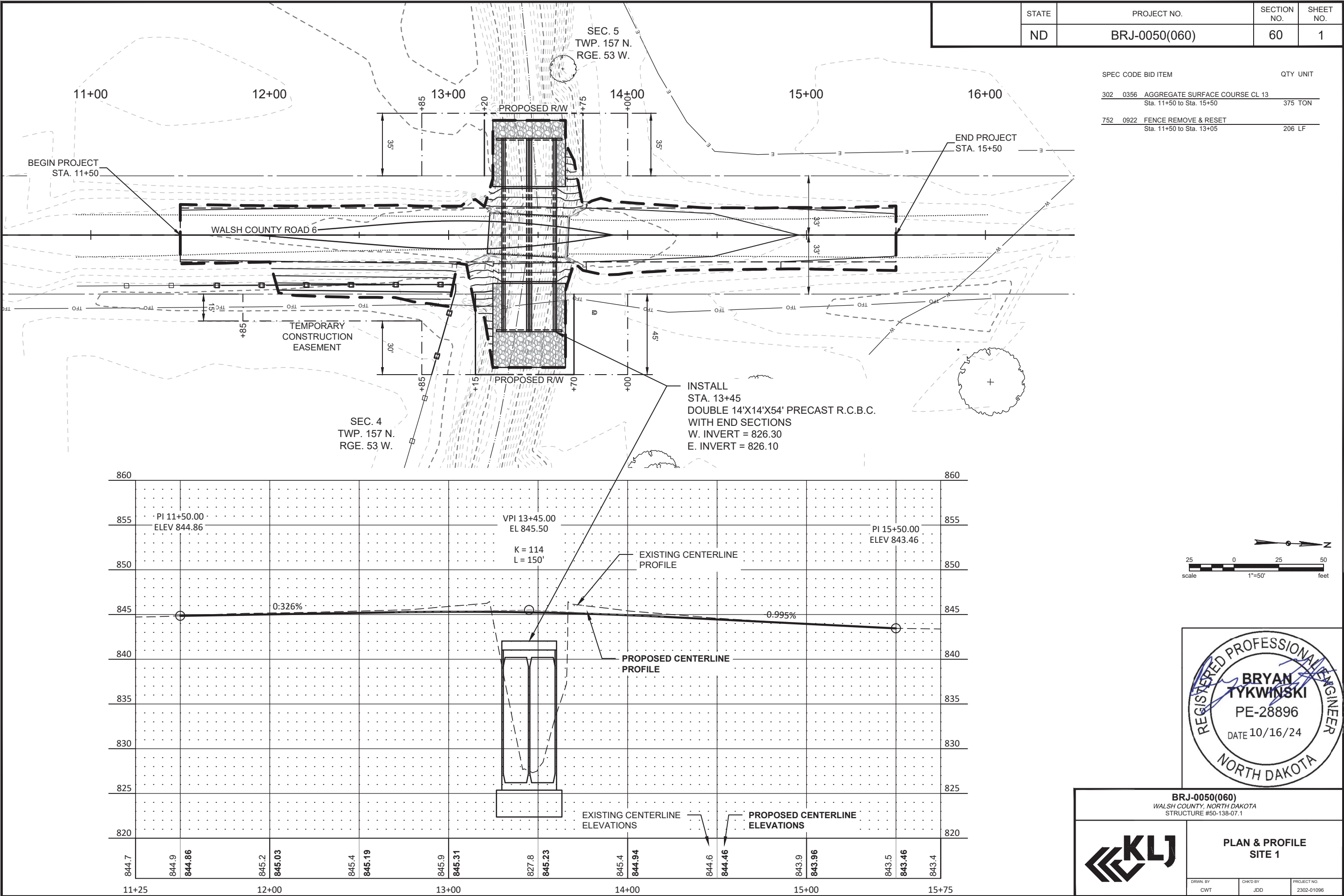


TYPICAL SECTIONS

DRWN. BY
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PROJECT NO.
2302-01096



Other Waters and Streams Impact Table																			
Number	Location	Type	Feature	USACE Jurisdictional ¹	Impacts to Other Waters						Other Water Mitigation								
					Acres			Linear Feet			Mitigation Proposed			USACE Mitigation Bank		Onsite Mitigaiton Method		Onsite Constructed Location	
					Temp.	Perm. (Loss)	Perm. (No Loss)	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Mitigation Location; ratio	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
OW-1	Sec 4&5, T-157-N R-53-W	Perennial Stream	Natural	Y	0.003	0.038	0.012	11.000	138.000		N	Y	N	Mitigation Bank; 2:1	0.076				
Totals					0.003	0.038									0.076		0.000	0.000	


¹ All delineation aquatic resources are assumed to be jurisdictional for the purpose of Section 404 Permitting

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total Acre(s)	WaterType	Total Acre(s)
Natural/JD (Fill/Drain)	-	Temporary Wetland JD	-
Natural/Non-JD (Fill/Drain)	-	Non-JD Wetland Temporary	-
Artificial/JD (Fill/Drain)	-		
Artificial /Non-JD (Fill/Drain))	-	Permanent OW	0.038
Total		Temporary OW	0.003
JD Natural (Cut)	-	Permanent OW-d	-
JD Artificial (Cut)	-	Temporary OW-d	-
Non-JD Natural (Cut)	-		
Non-JD Artificial (Cut)	-		
Total	0.000		

Mitigation Summary Table						
	Location	Ditch Shift Acre(s)	Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
USACE Only	Mitigation Bank	-	-		0.076	
EO 11990 Only	-			-		
USACE/11990	-		-			
USFWS						
Total		0	0	0	0.076	0



BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1



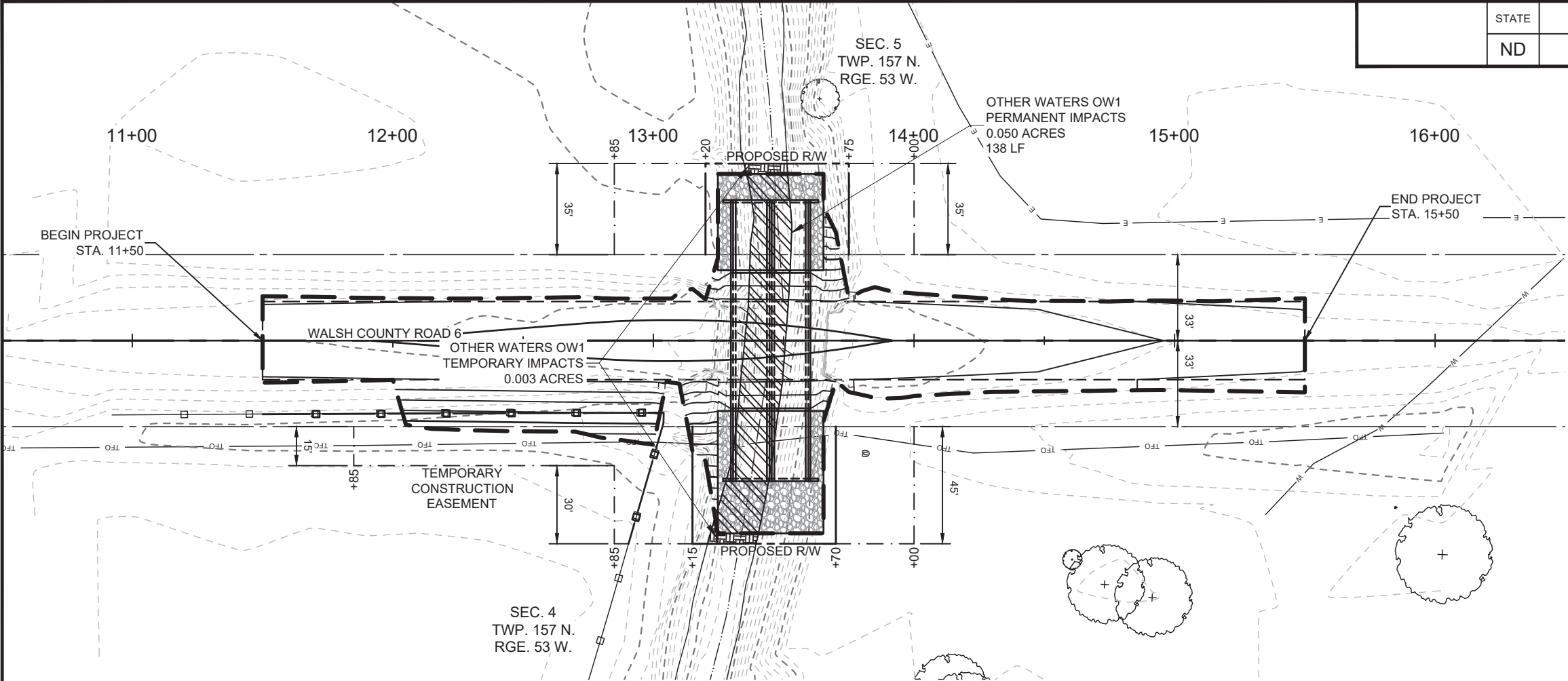
WETLAND IMPACTS
TABLE
SITE 1

DRWN. BY
CWT

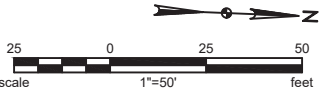
CHKD BY
JDD

PROJECT NO.
2302-01096

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	75	2



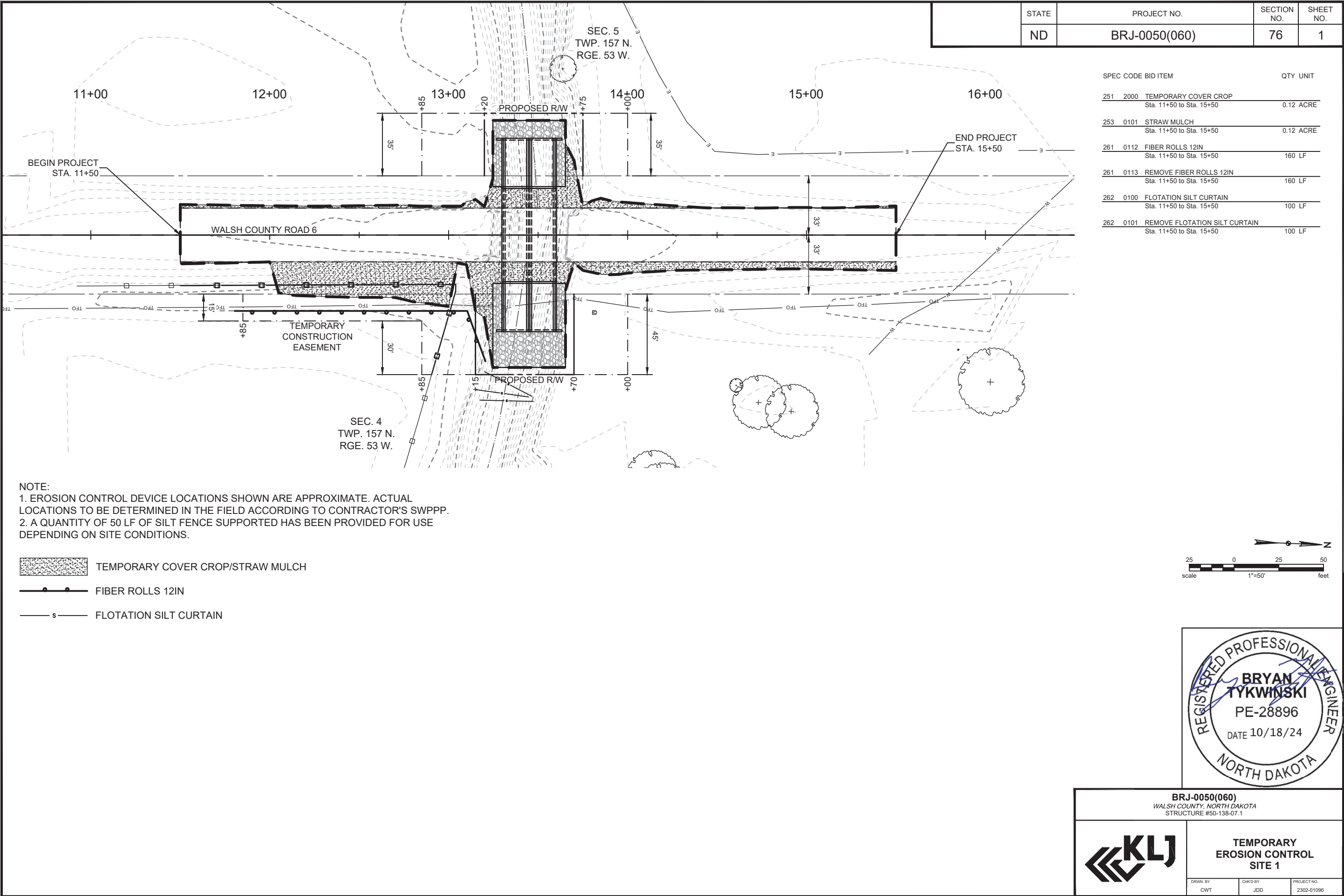
- DELINEATED AQUATIC RESOURCE
- PERMANENT OTHER WATERS IMPACTS (FILL DRAIN)
- TEMPORARY OTHER WATERS IMPACTS

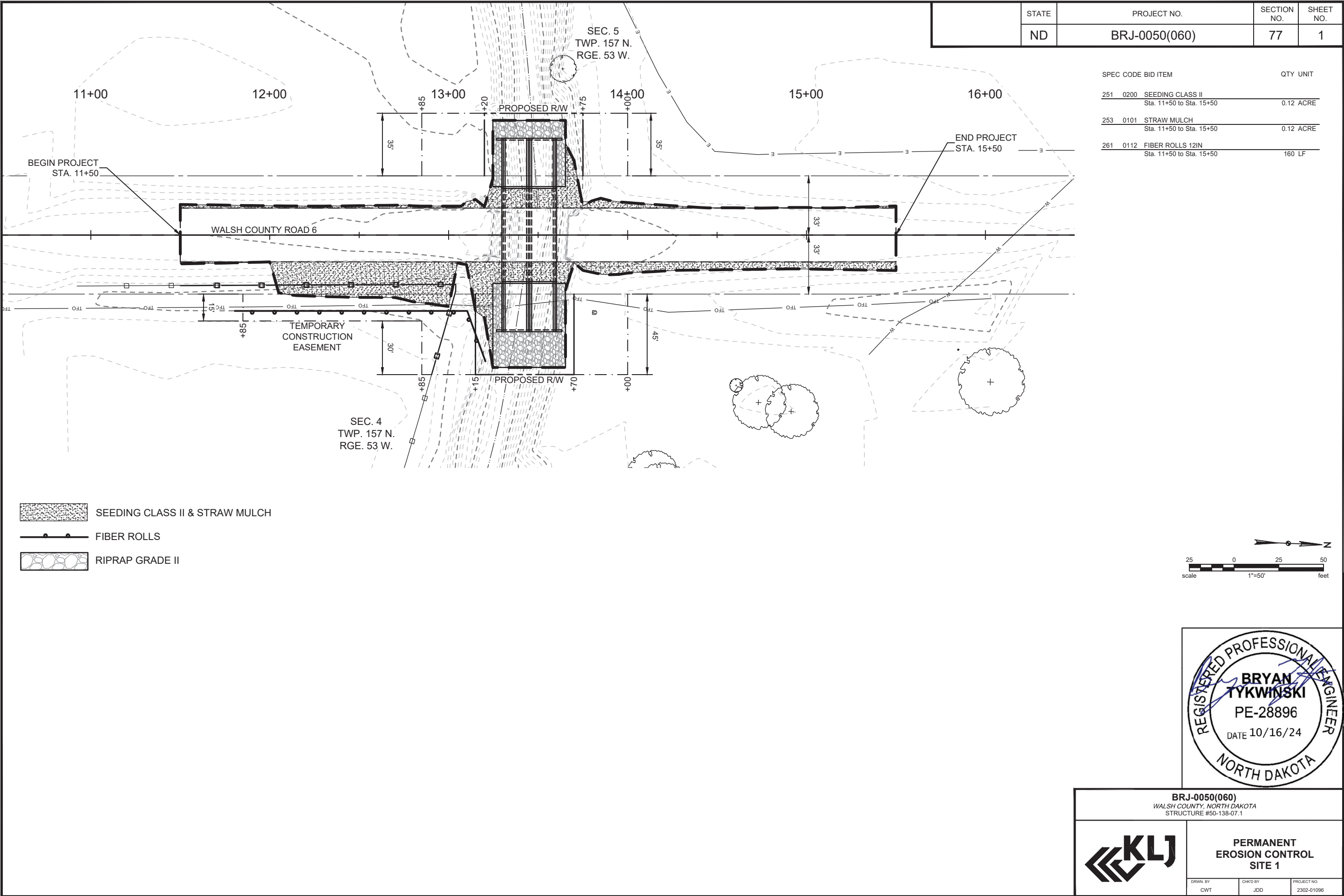


BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1

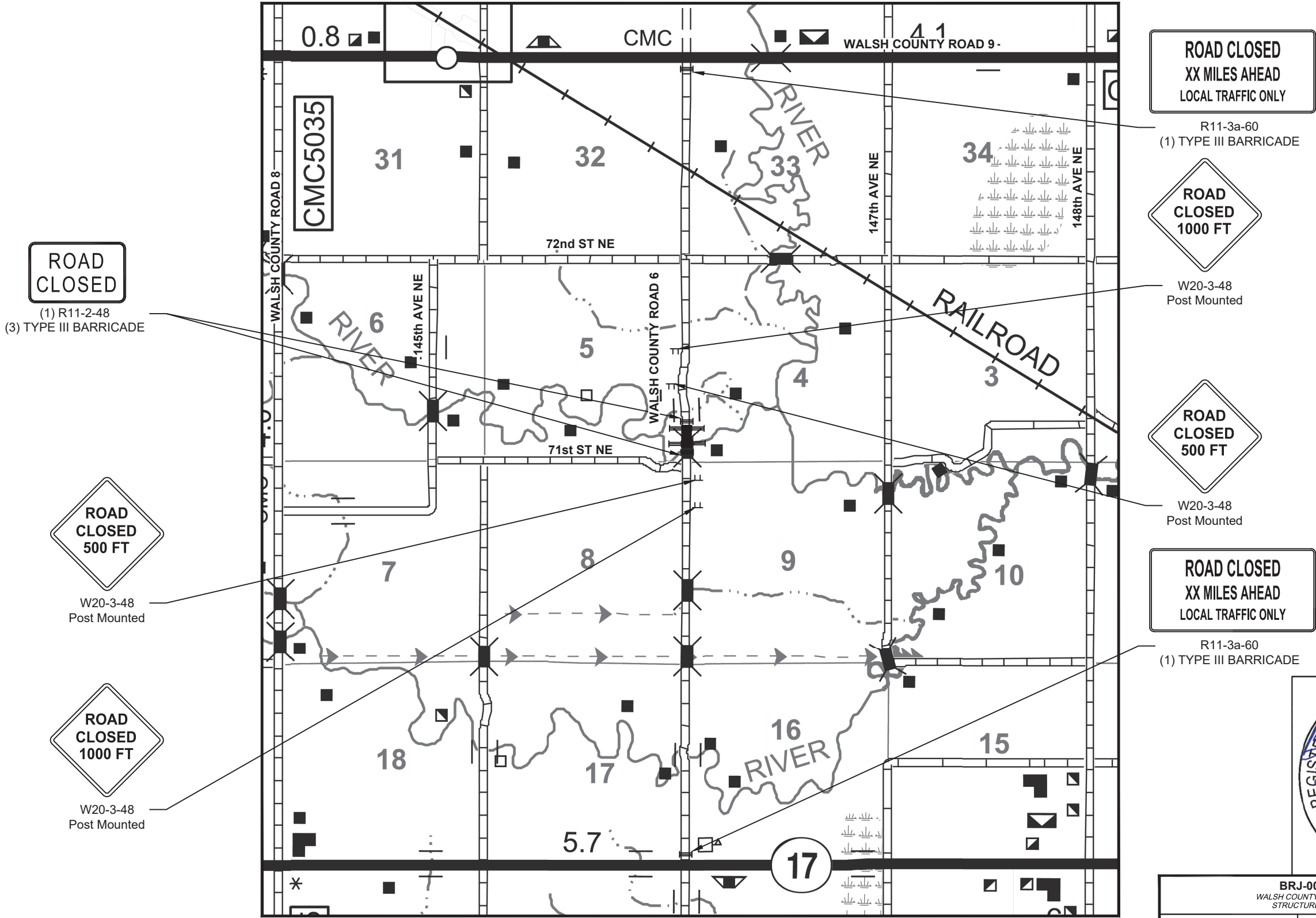
**WETLAND IMPACTS
SITE 1**

DRWN. BY CWT	CHKD BY JDD	PROJECT NO. 2302-01096
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	100	2



The sign layout as shown is for general information purposes only. The contractor will be required to conform to MUTCD and the Standard Drawings when installing the traffic control signing.



BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1

**CONSTRUCTION
SIGNING LAYOUT**

DRWN. BY
CWT

CHKD BY
JDD

PROJECT NO.
2302-01096

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	100	3



W20-3-48
Post Mounted



W20-3-48
Post Mounted



W20-3-48
Post Mounted



W20-3-48
Post Mounted



R11-3a-60
(1) TYPE III BARRICADE




(1) R11-2-48
(3) TYPE III BARRICADE



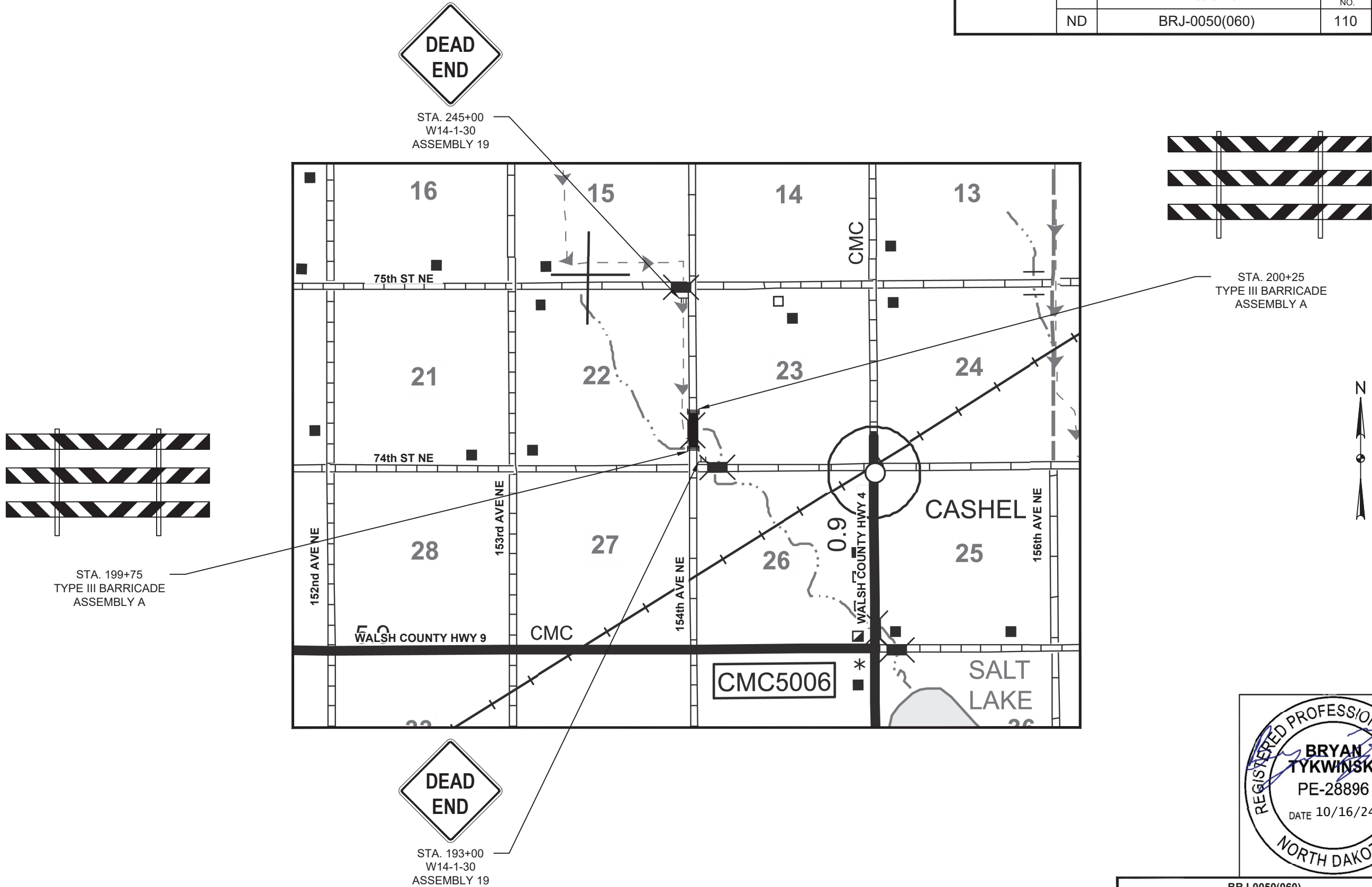
R11-3a-60
(1) TYPE III BARRICADE



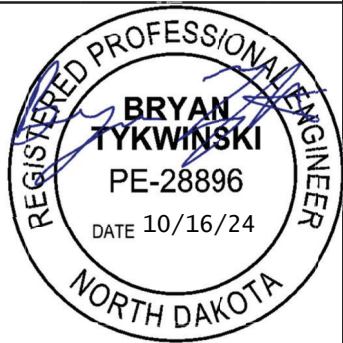
BRJ-0050(060) WALSH COUNTY, NORTH DAKOTA STRUCTURE #50-146-04.0		
		
CONSTRUCTION SIGNING LAYOUT		
DRWN. BY CWT	CHKD BY JDD	PROJECT NO. 2302-01096

The sign layout as shown is for general information purposes only. The contractor will be required to conform to MUTCD and the Standard Drawings when installing the traffic control signing.

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	110	1



The sign layout as shown is for general information purposes only. The contractor will be required to conform to MUTCD and the Standard Drawings when installing the traffic control signing. See standard drawing D-754-18 for mounting details.

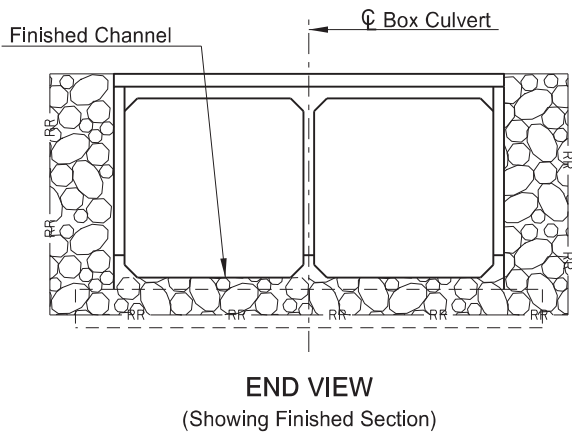
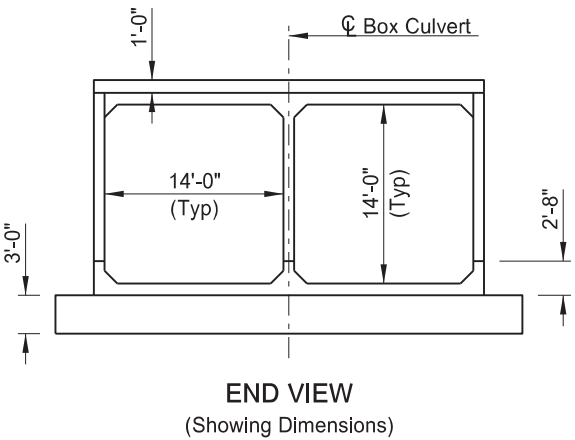
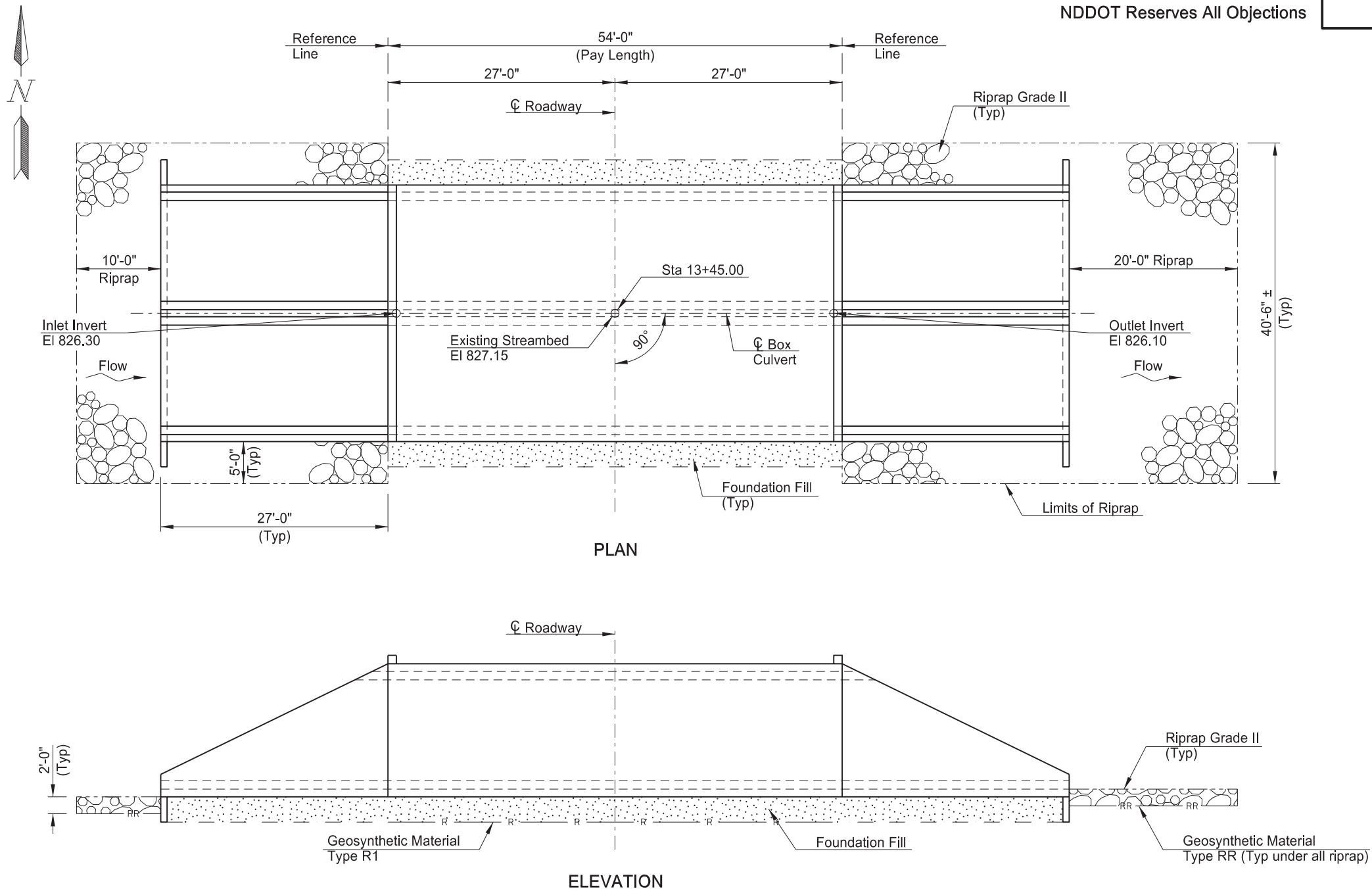


BRJ-0050(060)
 WALSH COUNTY, NORTH DAKOTA
 STRUCTURE #50-146-04.0

SIGNING PERMANENT

DRWN. BY CWT	CHKD BY JDD	PROJECT NO. 2302-01096
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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	BRJ-0050(060)	170	1



BOX CULVERT BID ITEMS

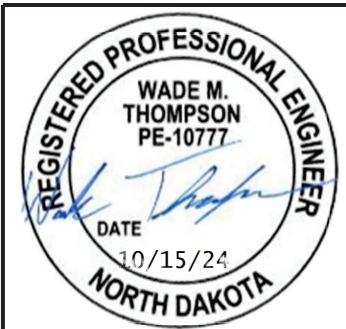
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0108	REMOVAL OF STRUCTURE-SITE 1	L SUM	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	547
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
256	0200	RIPRAP GRADE II	CY	136
606	3414	DBL 14FT X 14FT PRECAST RCB CULVERT	LF	54
606	7414	DBL 14FT X 14FT PRECAST RCB END SECTION	EA	2
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	381
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	204

HYDRAULIC DATA:

Drainage Area	76	sq mi
Stream Gradient	0.00056	ft/ft
Design Frequency	15	yr
Design Discharge	963	cfs
Design Headwater Stage	840.00	ft
Design Tailwater Stage	839.88	ft
Velocity Through Culvert	2.72	fps
100-Year Frequency Discharge	1785	cfs
100-Year Frequency Headwater	843.4	ft
Overtopping Stage	843.53	ft
Overtopping Discharge	1800	cfs

NOTE:

Invert elevation shown represents and elevation 1 foot below the existing streambed.



BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1



SITE 1
PRECAST BOX CULVERT
LAYOUT

DRAWN BY KLD	CHECKED BY WMT	PROJECT NO. 2302-01096
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		23 U.S.C. 407 NDDOT Reserves All Objections			STATE ND	PROJECT NUMBER BRJ-0050(060)	SECTION NO. 170	SHEET NO. 2
<div>STRUCTURAL NOTES</div> <div><div>100</div><div>SCOPE OF WORK: Work at Site 1 consists of removing an existing structure and building a new double barrel 14' x 14' x 54'-0" precast concrete box culvert.</div></div> <div><div>202</div><div>REMOVAL OF STRUCTURE: The existing structure is a 45'-0" long x 22'-0" wide single span bridge. The structure has steel beams, timber deck, and concrete abutments. The steel beams and timber deck will remain the property of Walsh County and shall be salvaged and stockpiled on site for County pickup. The lump sum bid item, "REMOVAL OF STRUCTURE - SITE 1" includes all work required to remove all bridge components in accordance with the Standard Specifications.</div></div> <div><div>210</div><div>FOUNDATION FILL: Use CL 5 as specified in Section 816 of the Standard Specifications, "Aggregates" except as noted below. Notify the Engineer if the Contractor elects to use a coarse rock material under the box culvert as replacement for a portion or all of the CL 5 material. The replacement of the CL 5 material with coarse rock under the box culvert is subject to the approval of the Engineer. No additional payment will be made for the substitution of the CL 5. All CL 5 and coarse rock used will be paid at the unit price bid for "FOUNDATION FILL". "FOUNDATION FILL" will be paid at plan quantity. Include any additional material required by the manufacturer in the price bid for "FOUNDATION FILL".</div></div> <div><div>606</div><div>PRECAST REINFORCED CONCRETE BOX CULVERT AND END SECTIONS: Tie all barrel sections together with prestressing strands or 1" diameter galvanized tie-bolts as shown on Standard Drawing D-714-22. If strands are used, use a minimum of six ½" diameter 270K strands for double box sections and four ½" diameter 270K strands for single box culverts, with one strand in each corner. Stress prestressing strands from opposite ends to a force of 20 kips. Protect prestressing cables against corrosion and grout their ends. If tie-bolts are used, the joints will require two ties per exterior wall located at the third points of the wall clear height. The "DBL 14FT X 14FT PRECAST RCB END SECTION" bid item consist of the cutoff wall, parapet, and sloped end section. Attach the end section to the last barrel section by the use of tie bolts or another approved method so the inside surface is smooth. After backfilling, end sections are to be in line. If the end sections are not in line, remove and reset the end sections to be in proper alignment. Any foundation fill not shown in plans that is required to facilitate the installation of the end sections is to be included in the price bid for "DBL 14FT X 14FT PRECAST RCB END SECTION". Separate single cell precast units may be used as alternatives to a multi cell culvert. Provide a minimum distance of 6" between separate precast units and a maximum distance of 1'-0". Fill this gap with a controlled density backfill. Use a controlled density backfill consisting of cement, water, pozzolanic materials, and fillers. Use a material that is able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. The Contractor shall provide mix designs and compression strength test results of the material to the Engineer for approval 5 days prior to placement. All bolts, plates, angles, and studs are to meet ASTM A36. Nuts are to be a heavy hex in conformance with ASTM A563 and washers shall be ASTM F436, Type 1. Welded pipe sleeves are to conform to ASTM A53, Grade B. Welders are required to be properly certified for all shop and field welds. Coat all field welds with galvanizing paint. Galvanize all hardware according to AASHTO M232. Galvanize structural steel after fabrication according to AASHTO M111. Cast holes at 3'-0" centers through the last end section and into the cutoff wall to receive ¾" diameter reinforcing bars. Cast holes in the last barrel section at 2'-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 806.02 of the Standard Specifications. DESIGN LOADS: A. HL-93 Loading B. Fill Height = 2'-0" to 5'-0" WORK DRAWINGS: Submit the following work drawings to the Engineer of Record: DBL 14FT X 14FT PRECAST RCB & END SECTION</div></div>								

REGISTERED PROFESSIONAL ENGINEER
WADE M. THOMPSON
PE-10777
DATE 10/17/24
NORTH DAKOTA

BRJ-0050(060)
WALSH COUNTY, NORTH DAKOTA
STRUCTURE #50-138-07.1

KLJ

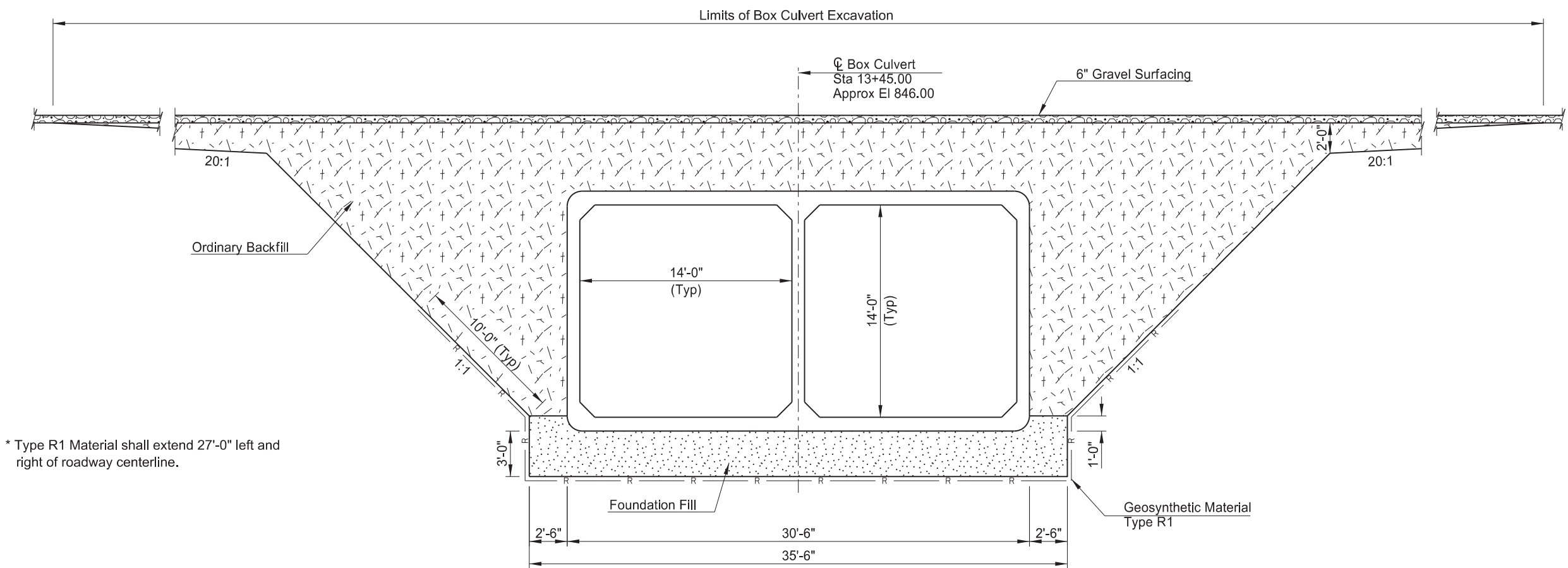
SITE 1
PRECAST BOX CULVERT
STRUCTURAL NOTES

DRAWN BY
KLD

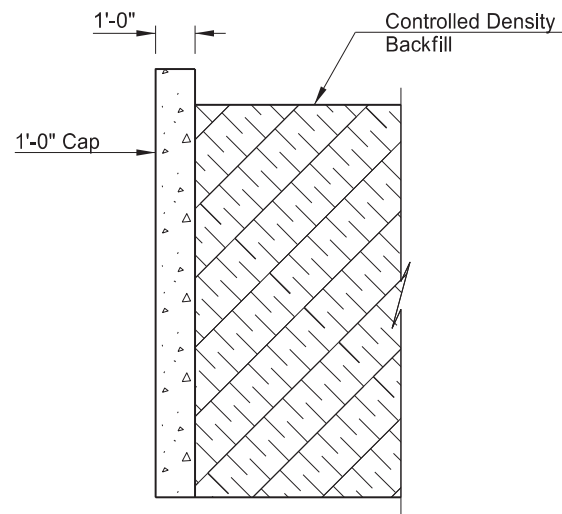
CHECKED BY
WMT

PROJECT NO.
2302-01096

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	BRJ-0050(060)	170	3

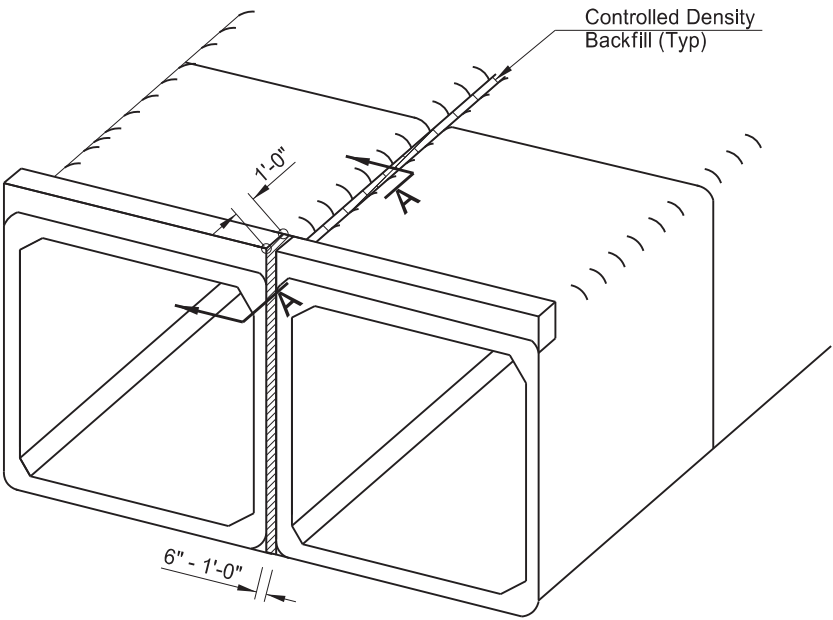


BOX CULVERT EXCAVATION AND BACKFILL

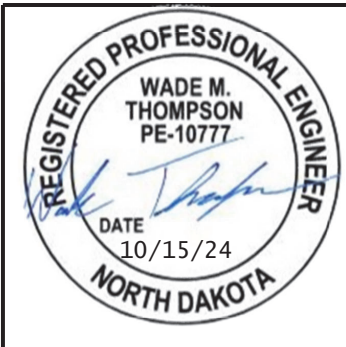


SECTION A-A

The intent of this drawing is to show only the placement of the controlled density backfill between adjacent barrels. The representation of the number of barrels is arbitrary.



MULTIPLE CELL INSTALLATION
(Wings & Sloped End Sections Not Shown)



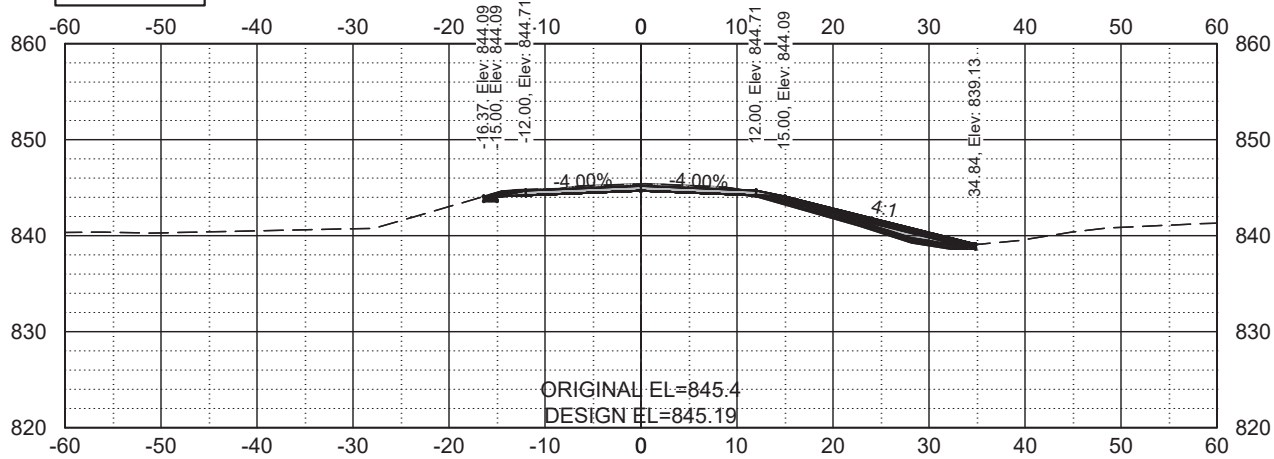
BRJ-0050(060) WALSH COUNTY, NORTH DAKOTA STRUCTURE #50-138-07.1		
	SITE 1 PRECAST BOX CULVERT BACKFILL DETAILS	
	DRAWN BY KLD	CHECKED BY WMT

CROSS-SECTIONS

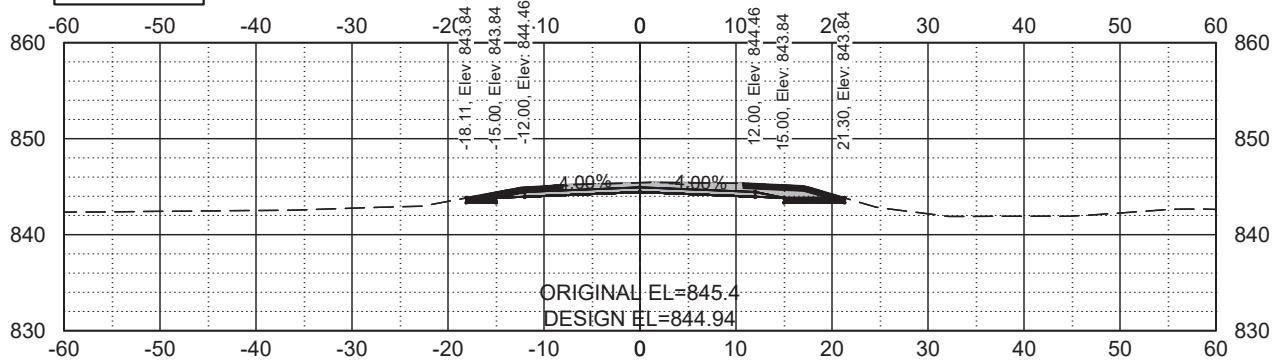


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	200	1

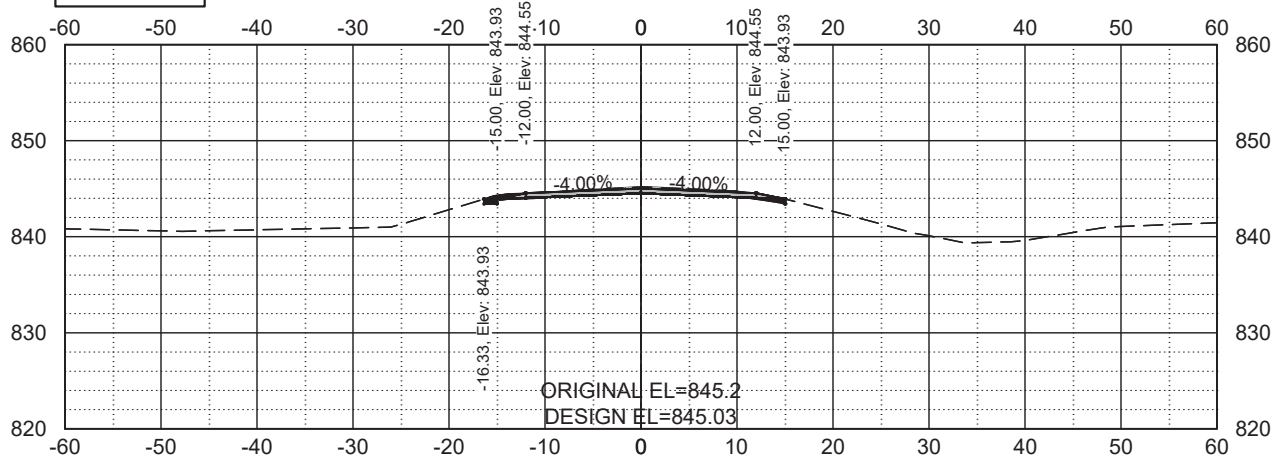
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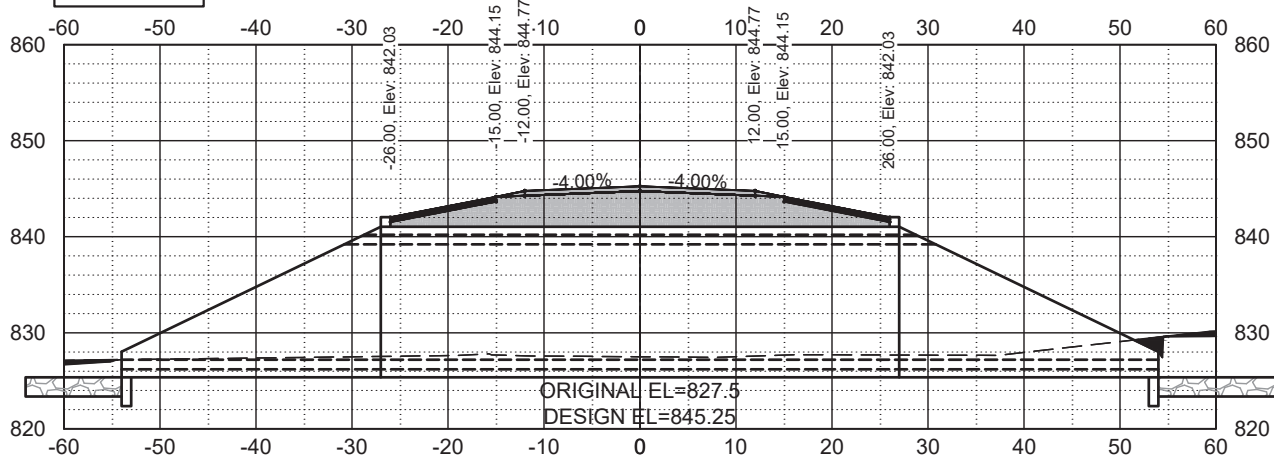
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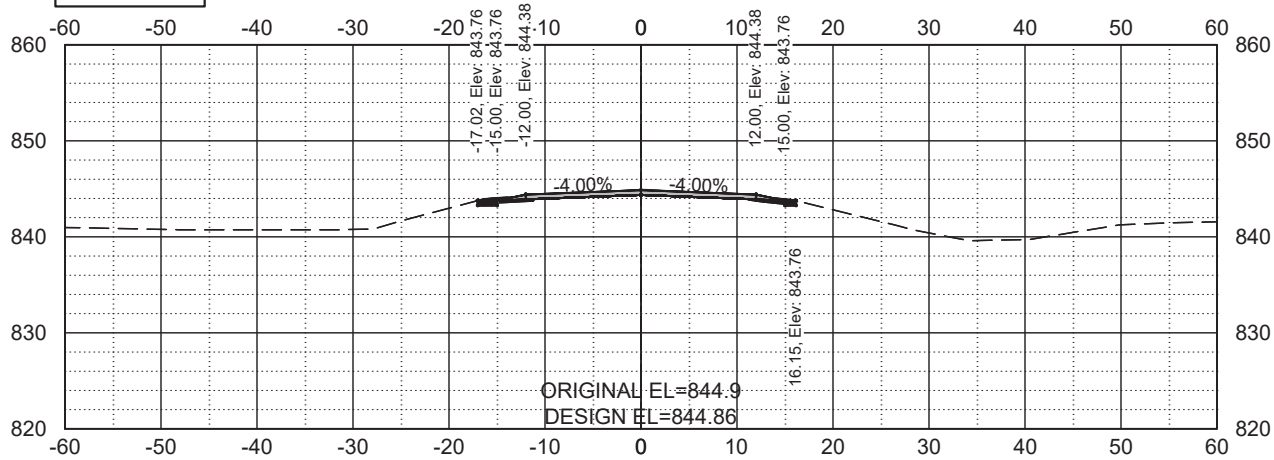
12+00.00



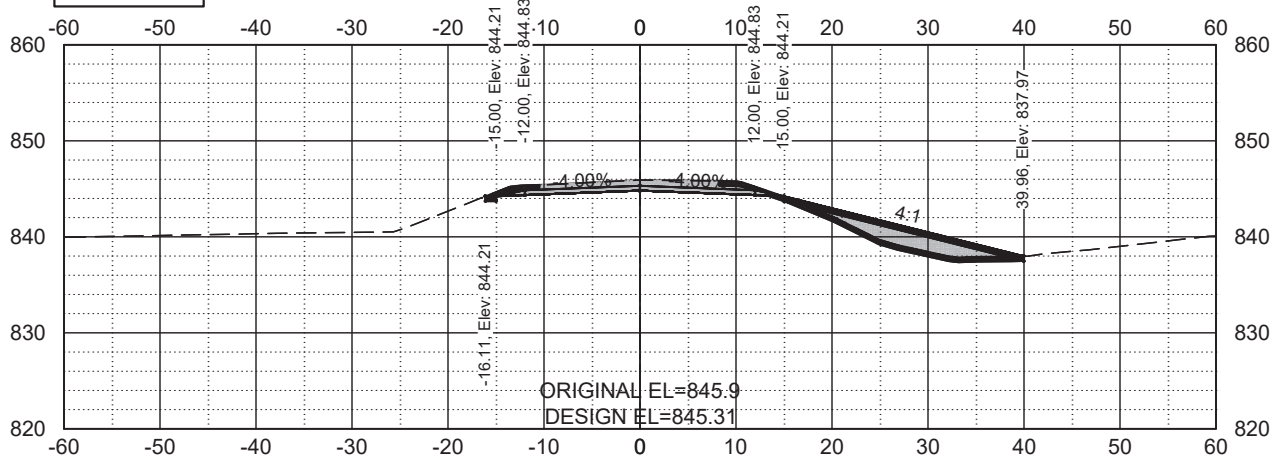
13+45.00



11+50.00



13+00.00

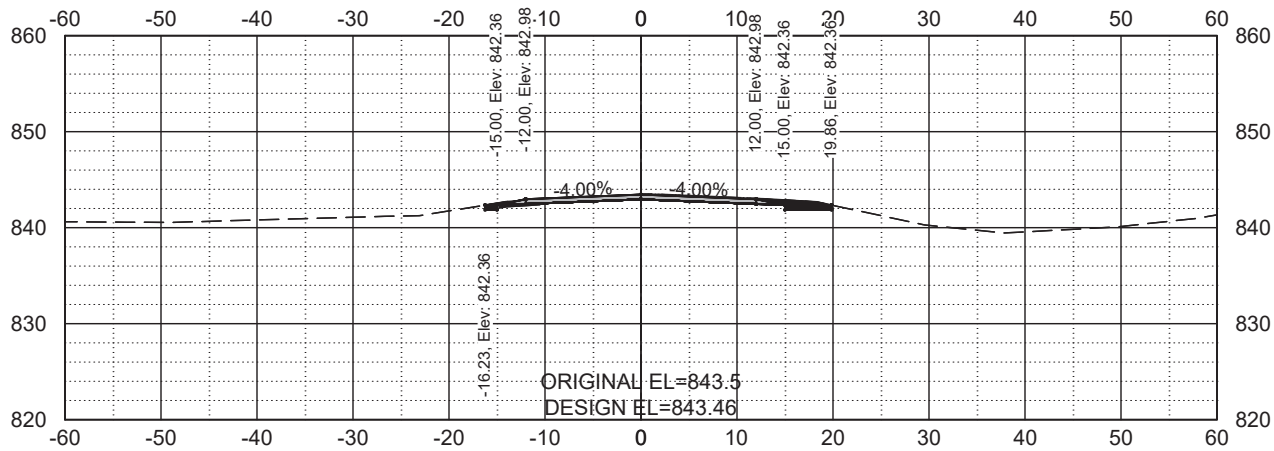


CROSS-SECTIONS

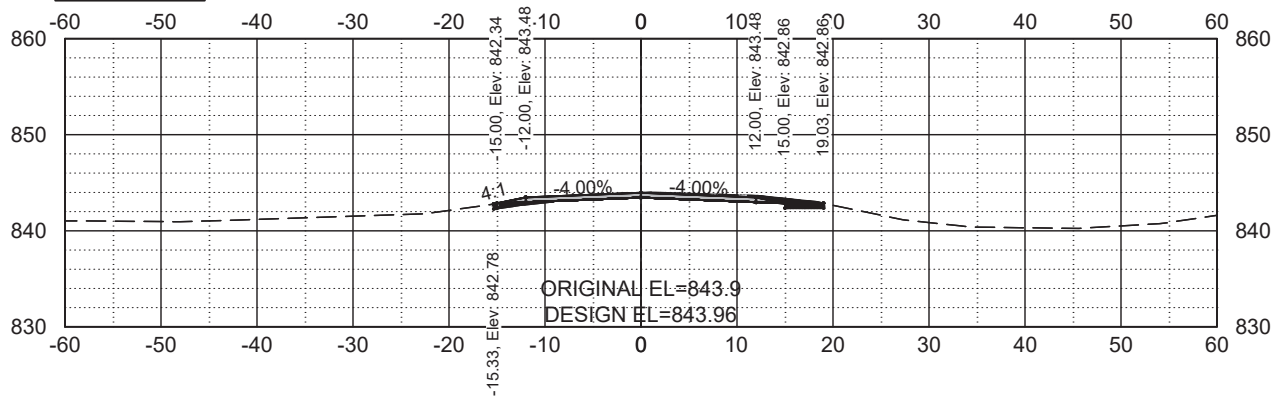


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0050(060)	200	2

15+50.00



15+00.00



14+50.00

