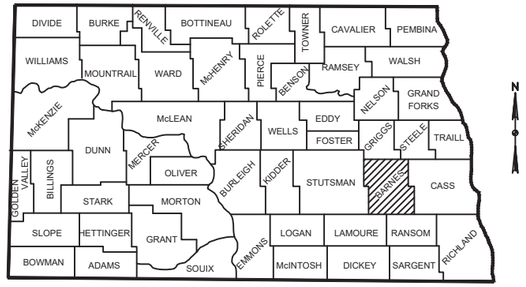
STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	24081	1	1



STATE OF NORTH DAKOTA
SHOWING COUNTIES

BARNES COUNTY, NORTH DAKOTA
PLANS FOR FEDERAL AID PROJECT
CERP-0221(084)

HILL SLIDE REPAIR
BARNES COUNTY HIGHWAY 21 (CMC 0221)

1 Mile South of Kathryn

Slide Repair, Underdrain, Grading, Erosion Control,
Aggregate Base, and HMA

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	EXCEPTION MILES	NET MILES
CERP-0221(084)	0.109	0.000	0.109
TOTAL	0.109	0.000	0.109

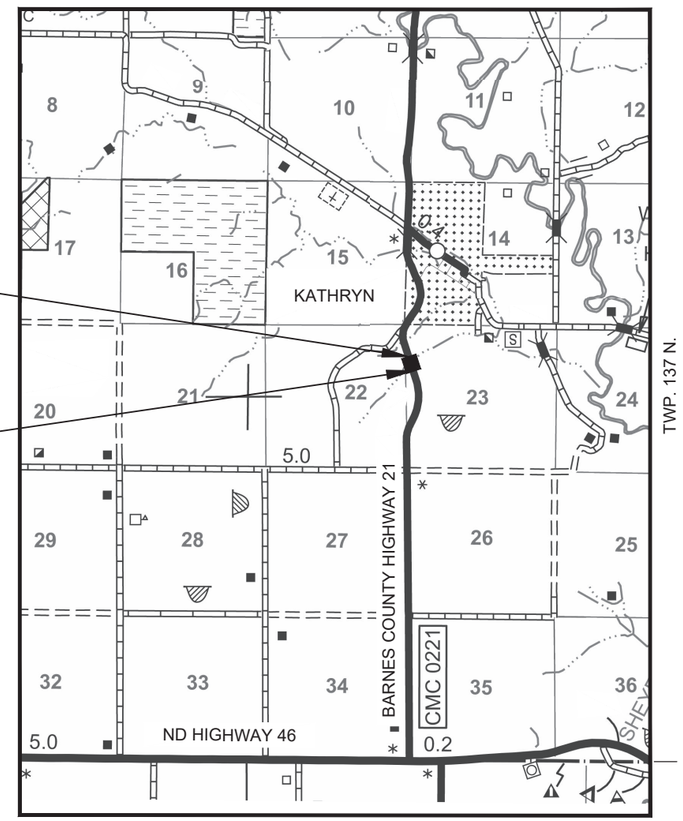
DESIGN DATA

TRAFFIC		AVERAGE DAILY PASSENGER	TRUCKS	TOTAL	EST. 30th MAX. HR.
CURRENT TRAFFIC	2025	215	10	225	23
TRAFFIC FORECAST	2045	240	10	250	25

DESIGN SPEED 55 MPH
MINIMUM SIGHT DISTANCE (STOPPING) 495 FEET

END PROJECT CERP-0221(084)
Sta. 20+00 = A Point Approximately
14 Feet West and 872 Feet South
of the Northwest Corner of Sec. 23,
Twp. 137 N., Rge. 58 W.

BEGIN PROJECT CERP-0221(084)
Sta. 14+25 = A Point Approximately
163 Feet East and 1,419 Feet South
of the Northwest Corner of Sec. 23,
Twp. 137 N., Rge. 58 W.



PS&E Corrections Made	February 2025
Surveyed & Designed Date	April/November 2024

DESIGNER	Bryan Tykwinski, PE
DESIGNER	Zach Vlaminck
DESIGNER	Alex Glowacki, EI
DESIGNER	Zach Nelson, EI
DESIGNER	-

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

KLJ
1010 4TH AVENUE SW
VALLEY CITY, ND 58072-0937
(701) 845-4980, FAX (855) 288-8055

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	2	1

TABLE OF CONTENTS

PLAN SECTIONS

Section	Page(s)	Description
1	1	Title Sheet
2	1	Table of Contents
4	1	Scope of Work
6	1	Notes
6	2	Environmental Notes
8	1	Quantities
10	1	Basis of Estimate
20	1 - 3	General Details
30	1 - 2	Typical Sections
40	1	Removals
51	1	Allowable Pipe List
60	1	Plan & Profile
75	1 - 2	Wetland Impacts
76	1	Temporary Erosion Control
77	1	Permanent Erosion Control
81	1	Survey Coordinate and Curve Data
100	1 - 3	Work Zone Traffic Control
110	1 - 2	Signing
200	1 - 11	Cross Sections

SPECIAL PROVISIONS

Number	Description
SP 458(24)	Utility Coordination
PSP 58(24)	Permits and Environmental Considerations
SP 497(24)	Commercial Grade Asphalt
SSP 1	Temporary Erosion and Sediment Best Management Practices
SSP 3	Local Agency Contracts

LIST OF STANDARD DRAWINGS

Number	Description
D-101-1, 2, 3, 4	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31, 32, 33	Symbols
D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation
D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11	Construction Sign Details - Warning Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-19	Road Closure And Lane Closure On A Two Way Road Layouts
D-704-21	Detour And Roadway Diversion Sign Layouts
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection
D-714-1	Reinforced Concrete Pipe Culverts And End Sections (Round Pipe)
D-714-22	Concrete Pipe, Cattle Pass, or Precast Concrete Box Culvert Ties
D-714-25	Transverse Mainline Pipe Installation Detail - Pipes More Than 4 Feet Below Top of Subgrade
D-752-1	Standard Barbed Wire Fence
D-754-23	Perforated Tube Assembly Details
D-754-24	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-37	Sign Punching, Stringer and Support Location Details Regulatory, Warning and Guide Signs
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D-762-4	Pavement Marking

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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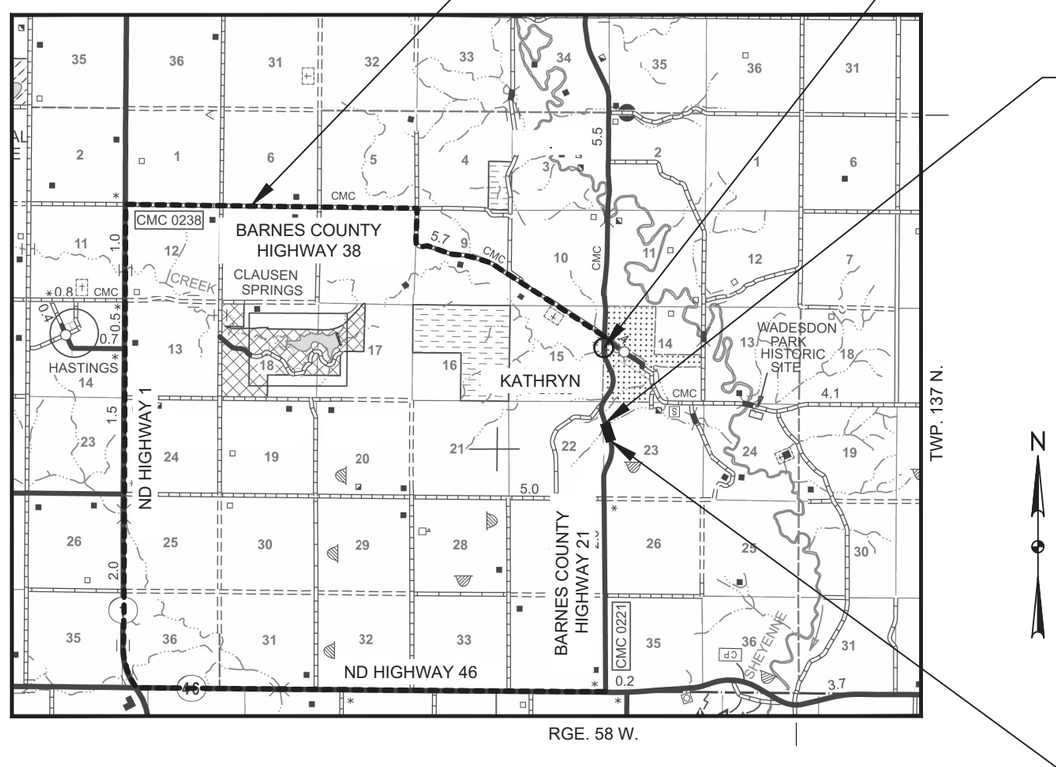
HILLSLIDE REPAIR & INCIDENTALS

TRAFFIC CONTROL - DETOUR ROUTE

DETOUR ROUTE
See Section 100

ASPHALT PATCH
See Section 6, Section 10 & Section 30

END PROJECT CERP-0221(084)
Sta. 20+00 = A Point Approximately 14 Feet West and 872 Feet South of the Northwest Corner of Sec. 23, Twp. 137 N., Rge. 58 W.



BEGIN PROJECT CERP-0221(084)
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REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA

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SCOPE OF WORK

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

Feb 13, 2025 - 12:41pm - K:\Projects\County\ND\Barnes\2302-01468_24081_ER_HillslideSouth\CAD\Design\Plans\2302-01468_004SW.dwg

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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PLAN NOTES

100-P01 **EROSION CONTROL:** Bid items Silt Fence and Fiber Rolls 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.

201-P01 **CLEARING & GRUBBING:** All trees considered suitable habitat for the northern long-eared bat will be removed by others during the inactive season (October 1 – March 31). Remove all brush and stumps within the project limits necessary for construction operations. Include all costs associated with removal of trees, brush and stumps in the price bid for "CLEARING & GRUBBING"

201-P01 **REMOVAL OF STRUCTURE:** The existing structure is a 4'x3' concrete box culvert measuring approximately 60' in length and is located within the abandoned roadbed to be removed. Include all costs to remove and dispose of the existing structure in the price bid for "REMOVAL OF STRUCTURE"

203-385 **AVERAGE HAUL:** No average haul has been computed for this project.

203-P01 **COMPACTION AND DENSITY CONTROL:** Compact roadway embankment material as specified in Section 203.04 G.2a of the Standard Specifications, with the exception of minimum compaction requirement of 95% of the maximum dry density. Construct the embankment outside the roadbed prism 1:1's in accordance with Section 203.04 G.3 of the Standard Specifications. Do not construct on laminated surfaces. Use disking equipment prior to compaction to manipulate embankment material. Compact Class 3M aggregate under the roadway as specified in Section 203.04 G.2a of the Standard Specifications, with the exception of minimum compaction requirement of 98% of the maximum dry density.

203-P02 **EARTHWORK ITEMS:** A total of 13,880 CY of excavation will be required for the project. It has been assumed that 50 percent of the excavation will be unsuitable material to be wasted off-site. Actual amount of waste may vary. An increase or decease in quantity is not a basis for an adjustment in price bid for earthwork items. "COMMON EXCAVATION – WASTE" and "BORROW – EXCAVATION" quantities will be quantified by topographic survey in accordance with Section 203.05 B. "COMMON EXCAVATION – TYPE A" will be paid as the difference between total planned excavation and "COMMON EXCAVATION – WASTE".

203-P03 **COMMON EXCAVATION-TYPE A:** Include all costs associated with excavating, transporting, conditioning and placing the material in the price bid for "COMMON EXCAVATION-TYPE A". If sufficient room onsite is not available, make other arrangements to stockpile and condition the material at an offsite location.

203-P04 **COMMON EXCAVATION – WASTE:** Excavated material not suitable for use within the embankment and any excess material will be designated as waste material. Dispose of waste material outside the road's right of way at a site approved by the Engineer and in accordance with Section 107.17 of the Standard Specifications. Include all costs associated with excavating, hauling, dumping, and leveling the waste material in the unit price bid for "COMMON EXCAVATION – WASTE". Waste material is described as any material composted of greater than 2% organic content, material with liquid limit greater than 45, material having particle size greater than 2", or any other material deemed unsuitable by the Engineer.

203-P05 **BORROW-EXCAVATION:** Provide material for "BORROW-EXCAVATION" that is composed of no greater than 2% organic content, material with a liquid limit less than 45, and having a particle size of 2" or less.

203-P06 **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 respreading the existing topsoil. "TOPOSIL" will be paid at plan quantity.

302-P01 **AGGREGATE SURFACE COURSE:** A quantity of 3,050 tons of "AGGREGATE SURFACE COURSE CL 13" has been provided to prepare the detour route for usage. Include all cost for materials, hauling, and placement of the gravel surfacing in the unit price for "AGGREAGTE SURFACE COURSE CL 13" Place, spread, and compact the gravel surfacing at a rate of 550 tons per mile before utilizing the detour route and before applying the dust palliative material.

430-P01 **COMMERCIAL GRADE HOT MIX ASPHALT:** Place the hot mix asphalt as shown on the typical section. Exercise extreme care not to mark or tear the new driving surface and keep all loaded trucks off the newly placed hot mix asphalt. Any damage to the newly paved surface will be repaired at the Contractor's expense.

430-P02 **TACK COAT:** Supply a tack coat the meets the requirements of Section 401.03 B "Tack Coat". Apply the tack coat according to Section 401.04 "Construction Requirements". Undiluted application rates are shown in the basis of estimate. Tack coat will not be measured for payment and will be included in the unit price bid for "COMMERCIAL GRADE HOT MIX ASPHALT".

430-P03 **ORDINARY COMPACTION:** Compact all HMA according to Section 430.04 I.3 "Ordinary Compaction".

430-P04 **ASPHALT PATCH:** Mill and overlay a distance of 100 LF centered over the culverts. Engineer to mark exact limits in the field.

704-P01 **TRAFFIC CONTROL:** The traffic control details have been developed based on the premise that the road will remain closed during construction. Establish the traffic detour route by placing traffic control devised as shown in Section 100 after all detour preparation has been completed. The Contractor is responsible to maintain devices throughout construction.

714-P01 **UNDERDRAIN:** Install the underdrain system per the plan details. Engineer may modify the trench depths based on field conditions in order to meet the recommendations of the geotechnical report. Include all labor and materials needed to excavate the trenches to the depth required in the unit price bid for "UNDERDRAIN FILL GRANULAR MATERIAL."

Provide aggregate for the "UNDERDRAIN FILL GRANULAR MATERIAL" that meets the requirements of 714.03B as listed on Table 714-01.

Provide perforated, corrugated polyethylene pipe for the underdrain that is wrapped with a geotextile fabric sock. Provide pipe that meets the requirements of 830.03 A.4 and geotextile that meets requirements of 858.01 Type D4. Include the cost of the geotextile fabric sock in the unit price bid for "PIPE POLYETHYLENE CORR PERF 8IN DRAIN".

Include all costs including caps, wyes, elbows and rebar needed for installation of the cleanouts in the price bid for "UNDERDRAIN CLEANOUT RISER".

Include costs for all connections, wyes, elbows, dewatering, excavating, and waste disposal necessary for construction of the underdrain system in the price bid for "PIPE POLYETHELYNE CORR PERF 8IN DRAIN".

Submit a shop drawing for fitting that is approved by the supplier for the connection of the 8" polyethylene underdrain to the 8" pipe conduit at the outlet. Include the cost of the fitting in the price bid for other items.

762-050 **PAVEMENT MARKING:** If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items. Apply all striping at a width of 4 inches.

752-P01 **FENCE:** Coordinate with the landowner before removing any fence. Install a temporary fence of like material, or the proposed permanent fence on the proposed right of way line prior to removing the existing fence unless otherwise approved by the Engineer in the field. Include all costs associated with installing, maintaining, and removing the temporary fence in the price bid for "FENCE BARBED WIRE 4 STRAND". Supply and install the necessary corner brace assemblies and any double brace assemblies as needed for the proposed fence. Include all costs for all fencing items in the price bid for "FENCE BARBED WIRE 4 STRAND

754-P01 **SIGNS:** Remove and stockpile existing signs onsite in an accessible location for the Barnes County Highway Department to collect. Include all costs to remove and stockpile existing signs in the price bid for other items. See Section 110 for signs to be removed.

920-P01 **DUST PALLIATIVE MATERIAL:** After detour route graveling operations are complete and before utilizing the detour route, apply a dust palliative treatment on Barnes County Highway 38. See section 100 sheet 3 for locations to apply dust palliative treatment. Total lineal footage of dust palliative material is 9,900 LF.

Use Magnesium or Calcium Chloride or Engineer approved equal as the dust palliative material.

Grade and wet the roadway prior to application of the dust palliative material to re-shape aggregate cross slope and profile. Apply the dust palliative in a uniform matter according to the manufacturer's recommended application rate. Include all costs for grading the roadway prior to application in the cost bid for "AGGREGATE SURFACE COURSE CL 13". The Engineer reserves the right to adjust the application rate as needed to achieve the optimum rate for the material. Apply dust palliative at a width of 10' per lane (20' total width).

930 - P01 **DEWATERING:** Submit a dewatering and stream flow management plan to the Engineer prior to excavation activities. Include all costs for dewatering throughout the site and runoff through the project work zone in the price bid for other items.

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA

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PLAN NOTES

DRWN. BY	CHKD. BY	PROJECT NO.
ZBN	BJT	2302-01468

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	6	2

ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES (EN): Barnes 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 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 wetlands to preconstruction contours.

EN-2 TREE REMOVAL: The project will commit to removing trees during the inactive season (October 1 – March 31, inclusive). The project is located within suitable habitat (forested/wooded areas/bridges) for the northern long-eared bad (active season: April 1 – September 30, inactive season: October 1 – March 31). If any northern long-eared bats are identified within 1 mile of the projects, the Contractor will notify the Engineer immediately and cease construction activities in the vicinity until an avoidance area is established. The Engineer will establish an avoidance area that is at least 0.5 mile and immediately coordinate with the USFWS (701-355-8513), FHWA (701-221-9464), and NDDOT Environmental and Transportation Services (701-328-2592). The Contractor will not resume work within the avoidance area until the Engineer has confirmed with the agencies that work may proceed (either the species have left the area, or approved avoidance/minimization measures have been implemented).

PERMITS REQUIRED:

United States Army Corp of Engineers – Section 404 Permit
Status: Permit Obtained

North Dakota Department of Environmental Quality – NDPDES Permit
Status: To be obtained by the Contractor prior to construction. Owner is to be listed as Barnes County on the permit.

REGISTERED PROFESSIONAL ENGINEER
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DATE 02/27/25
NORTH DAKOTA

CERP-0221(084)
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ENVIRONMENTAL NOTES

DRWN. BY	CHKD. BY	PROJECT NO.
ZRV	BJT	2302-01468

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	8	1

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:					TOTAL
103	0100	CONTRACT BOND	L SUM	1					1
201	0330	CLEARING & GRUBBING	L SUM	1					1
202	0105	REMOVAL OF STRUCTURE	L SUM	1					1
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	885					885
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	115					115
202	0312	REMOVE EXISTING FENCE	LF	124					124
203	0101	COMMON EXCAVATION-TYPE A	CY	7494					7494
203	0109	TOPSOIL	CY	877					877
203	0113	COMMON EXCAVATION-WASTE	CY	7494					7494
203	0140	BORROW-EXCAVATION	CY	7300					7300
216	0100	WATER	M GAL	350					350
251	0200	SEEDING CLASS II	ACRE	1.08					1.08
251	2000	TEMPORARY COVER CROP	ACRE	1.09					1.09
253	0101	STRAW MULCH	ACRE	1.09					1.09
253	0201	HYDRAULIC MULCH	ACRE	0.64					0.64
255	0103	ECB TYPE 3	SY	2095					2095
256	0200	RIPRAP GRADE II	CY	28					28
260	0200	SILT FENCE SUPPORTED	LF	50					50
260	0201	REMOVE SILT FENCE SUPPORTED	LF	50					50
261	0112	FIBER ROLLS 12IN	LF	1270					1270
261	0113	REMOVE FIBER ROLLS 12IN	LF	678					678
302	0120	AGGREGATE BASE COURSE CL 5	TON	760					760
302	0356	AGGREGATE SURFACE COURSE CL 13	TON	3050					3050
306	0105	AGGREGATE CL 3M	TON	6560					6560
411	0105	MILLING PAVEMENT SURFACE	SY	953					953
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	349					349
702	0100	MOBILIZATION	L SUM	1					1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	1353					1353
704	1052	TYPE III BARRICADE	EA	10					10
706	0500	AGGREGATE LABORATORY	EA	1					1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	133					133
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	2765					2765
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	42					42
714	1320	PIPE CONC REINF 60IN CL IV	LF	132					132
714	4075	PIPE CONDUIT 8IN	LF	30					30
714	6583	PIPE POLYETHYLENE CORR PERF 8IN DRAIN	LF	619					619
714	9700	UNDERDRAIN FILL GRANULAR MATERIAL	CY	91					91
714	9705	UNDERDRAIN CLEANOUT RISER	EA	9					9
752	0200	FENCE BARBED WIRE 4 STRAND	LF	124					124
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	11.3					11.3
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	19					19
754	0805	OBJECT MARKERS - CULVERTS	EA	2					2
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	560					560
762	1104	PVMT MK PAINTED 4IN LINE	LF	560					560
920	1500	DUST PALLIATIVE MATERIAL	GAL	6600					6600

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	10	1

TYPICAL SECTIONS								
TYPICAL SECTION 1 (0.062 MILES)		TYPICAL SECTION 2 (0.047 MILES)		TYPICAL SECTION 2 (Patch Location See Section 4 Sheet 1 for Location) (0.019 MILES)				
QUANTITY PER MILE	WIDTH	QUANTITY PER MILE	WIDTH	QUANTITY PER MILE	WIDTH	FIELD DRIVES (1)	UNIT	DESCRIPTION
-	-	-	-	-	-	-	M GAL	Water (10 Gal/CY Embankment; 20 Gal/Ton Aggregate Base Class 5 & 3)
106,568	73'	-	-	-	-	-	TON	Aggregate Base Course Class 3M (1.875 Tons/CY)
12,100	34'	-	-	-	-	10	TON	Aggregate Base Course Class 5 (1.875 Tons/CY)
763	26'	763	26'	763	26'	2	GAL	Tack Coat - Wearing Course (0.05 Gal/SY) (Commercial Grade Hot Mix Asphalt)
2,120	26'	-	-	-	-	-	TON	Commercial Grade Hot Mix Asphalt - Base Course (2.0 Tons/CY)
1,693	28'	1,630	25'	1,630	25'	5	TON	Commercial Grade Hot Mix Asphalt - Wearing Course (2.0 Tons/CY)
44,587	76'	-	-	-	-	-	SY	Geosynthetic Material Type R1

EARTHWORK SUMMARY								
Earthwork						Topsoil[3]		
Location	Excavation[1] (CY)	Embankment[2] (CY)	203 0101 Common Excavation-Type A (CY)	203 0113 Common Excavation-Waste (CY)	203 0140 Borrow Excavation (CY)	203 0109 Topsoil Stripped (CY)	Topsoil Embankment (CY)	Excess Topsoil (CY)
	A	B	C = A / 2	D= A / 2	E = B - C	F	G	H = F - G
Barnes Hwy 21	14,987	14,793	7,494	7,494	7,300	877	766	111

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

PAVEMENT MARKING				
Description			Unit	Quantity Per Location
4" Yellow No Passing Zone (Solid Line)				
STA. 17+10	TO 20+00	RT	LF	290
CULVERT PATCH LOCATION		LT	LF	100
4" Yellow Center Lines (10' Line, 30' Skip)				
STA. 14+25	TO 20+00		LF	145
CULVERT PATCH LOCATION			LF	25
Total (Yellow)			LF	560

UNDERDRAIN FILL GRANULAR MATERIAL						
Roadway	Detail (Section 20 Sheet 3)	Begin Station	End Station	Length	Area (Cross Section)	Quantity
				(LF)	(SF)	(CY)
Barnes Hwy 21	a-a	14+25	16+55	272	4.15	42
	b-b	16+55	16+55	72	4.15	11
	-	-	-	250	4.15	38
					TOTAL =	91

DETOUR (5.55 MILES)			
QUANTITY PER MILE	WIDTH	UNIT	DESCRIPTION
10	-	M GAL	10 M Gal/Mile for Dust Palliative Prep
550	20'	TON	Aggregate Surface Course Class 13 (1.875 Tons/CY)
3,520	20'	GAL	Dust Palliative Material - 9,900 LF (0.3 GAL/SY)*

*Apply Dust Palliative Material at manufacturer's recommended rate.

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DATE 02/27/25
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BASIS OF ESTIMATE

DRWN. BY	CHK'D BY	PROJECT NO.
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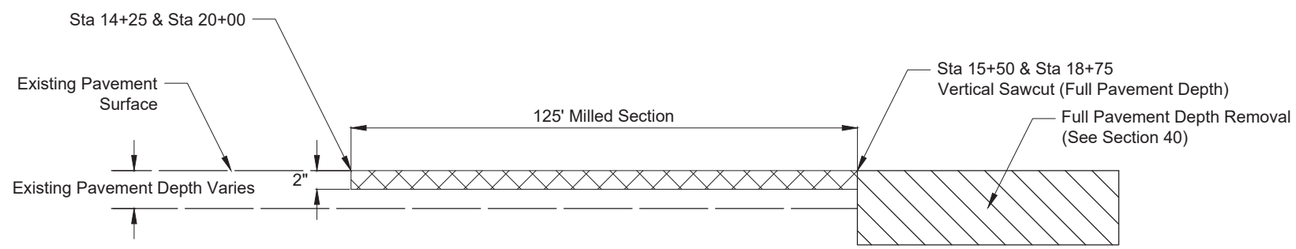
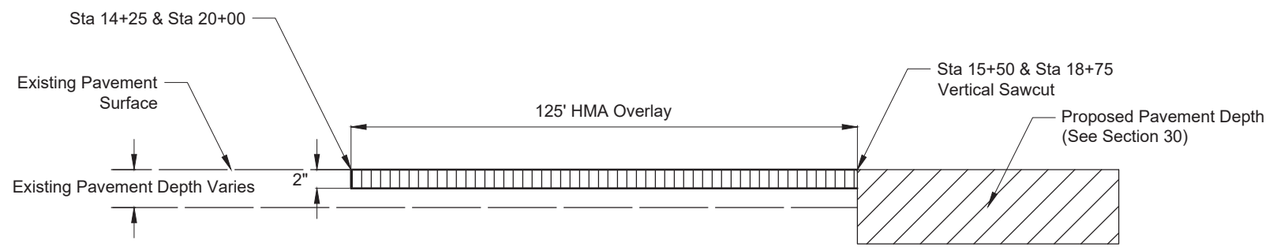
ND	CERP-0221(084)	20	1





MILLING & HMA OVERLAY

Mill the existing pavement as shown above.
Place a wearing course matching the roadway surface elevation at the ends of the project.

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CERP-0221(084)
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MILLING DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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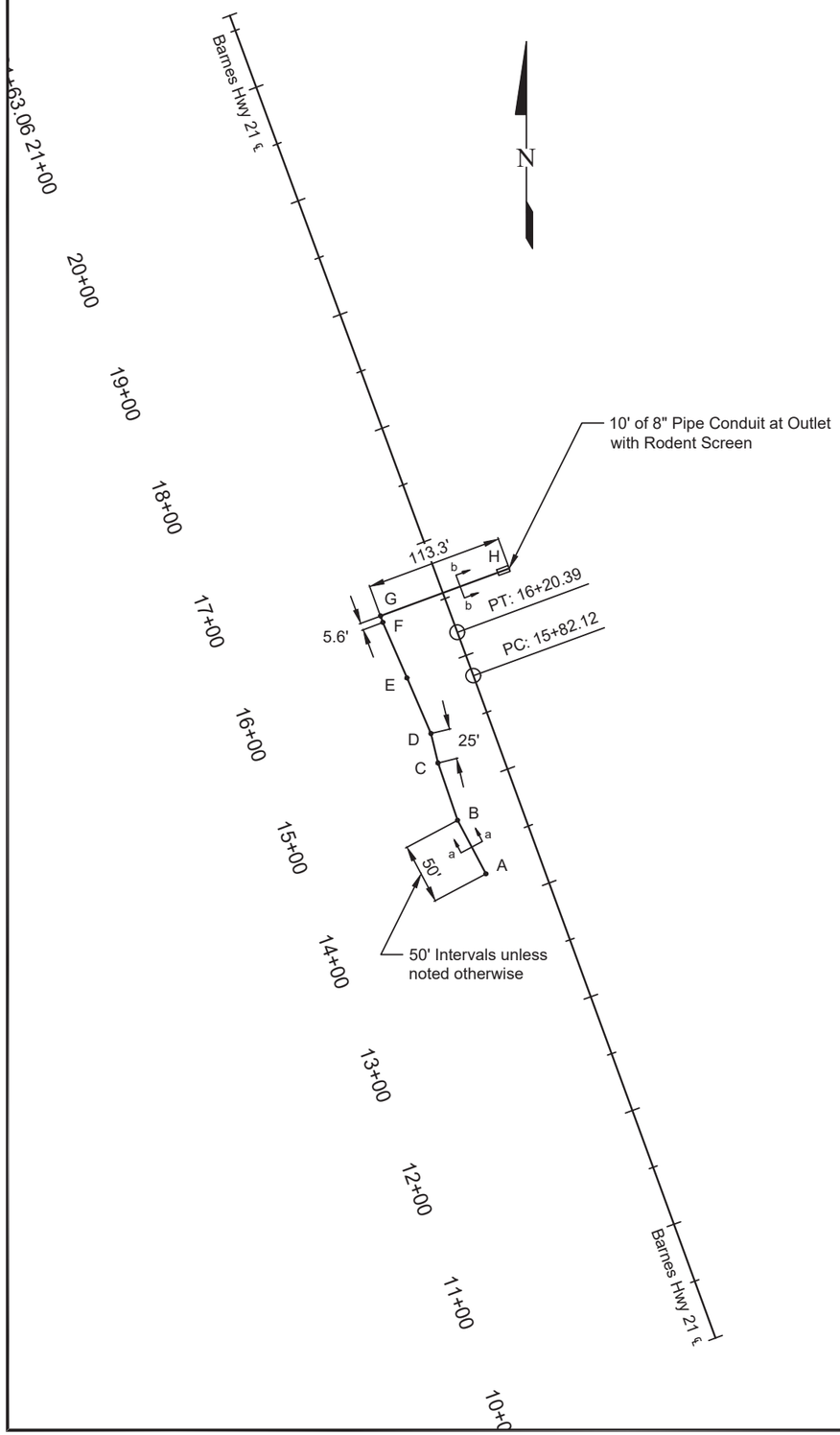
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	20	2

SPEC	CODE	BID ITEM	QTY	UNIT
714	4075	PIPE CONDUIT 8IN		
		Pipe Conduit 8IN	30	LF
714	6583	PIPE POLYETHYLENE CORR PERF 8IN DRAIN		
		Pipe Polyethylene Corr Perf 8IN Drain	619	LF
714	9705	UNDERDRAIN CLEANOUT RISER		
		Underdrain Cleanout Riser	9	EA



UNDERDRAIN DETAILS TABLE

LABEL	DESCRIPTION	LOCATION OR LENGTH	INV.	FG	CAP, 8"	8"X8" WYE	8" 45°	REBAR
A	CLEANOUT	STA 14+25.00, 46.50' LT	1271.36	1278.55	1	1	2	1
A-B	UNDERDRAIN 8"	50'						
B	CLEANOUT	STA 14+74.53, 55.33' LT	1269.61	1273.84	1	1	1	1
B-C	UNDERDRAIN 8"	50'						
C	CLEANOUT	STA 15+24.52, 52.19' LT	1267.86	1271.57	1	1	1	1
C-D	UNDERDRAIN 8"	25'						
D	CLEANOUT	STA 15+49.35, 49.32' LT	1266.99	1270.45	1	1	1	1
D-E	UNDERDRAIN 8"	50'						
E	CLEANOUT	STA 15+99.35, 52.19' LT	1265.24	1268.30	1	1	1	1
E-F	UNDERDRAIN 8"	50'						
F	CLEANOUT	STA 16+49.38, 54.92' LT	1263.49	1265.95	1	1	1	1
F-G	UNDERDRAIN 8"	5.6'						
G	CLEANOUT	STA 16+55.00, 54.96' LT	1263.47	1265.47	1	1	3	1
G-H	UNDERDRAIN 8"	113.3'						
H	OUTLET W/ 10' OF 8" CMP & RODENT GUARD	STA 16+55.00, 58.30' RT	1263.05	1263.05				

Notes:
1. Additional 25 LF of "Pipe Polyethylene Corr Perf 8IN Drain" included to account for pipe grading.
2. Custom elbows for vertical changes in pipe slopes are considered incidental to "Pipe Polyethylene Corr Perf 8IN Drain".
3. Additional 250 LF of "Pipe Polyethylene Corr Perf 8IN Drain", 2 EA "Underdrain Cleanout Riser", and 20 LF of "Pipe Conduit 8IN" have been included to account for additional groundwater encountered during excavation.

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PE-28896
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UNDERDRAIN LAYOUT

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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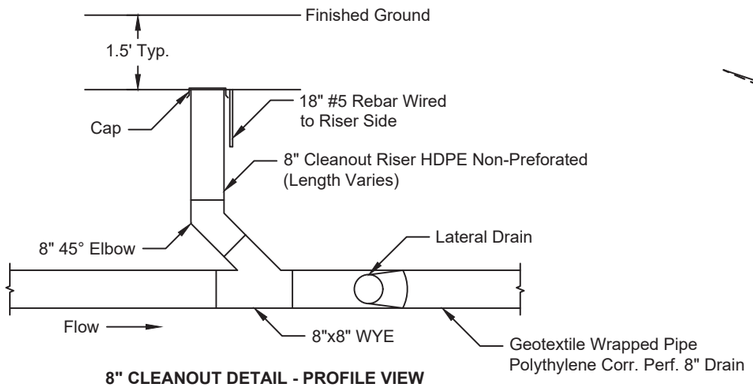
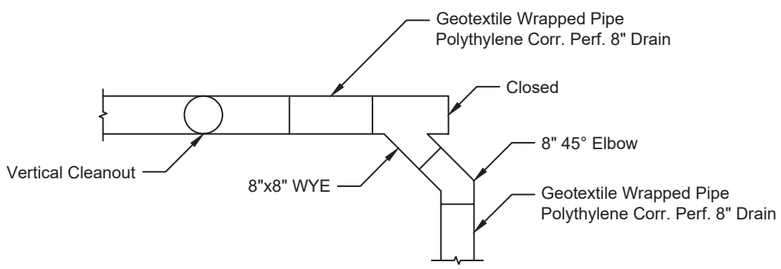
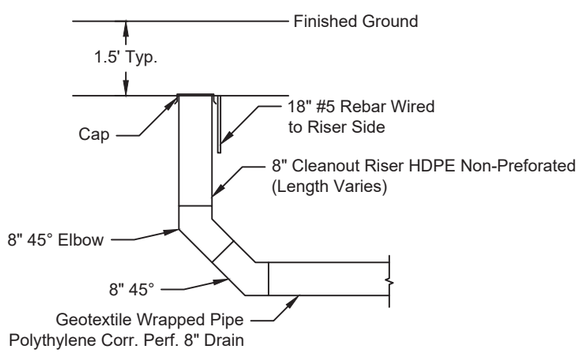
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	20	3



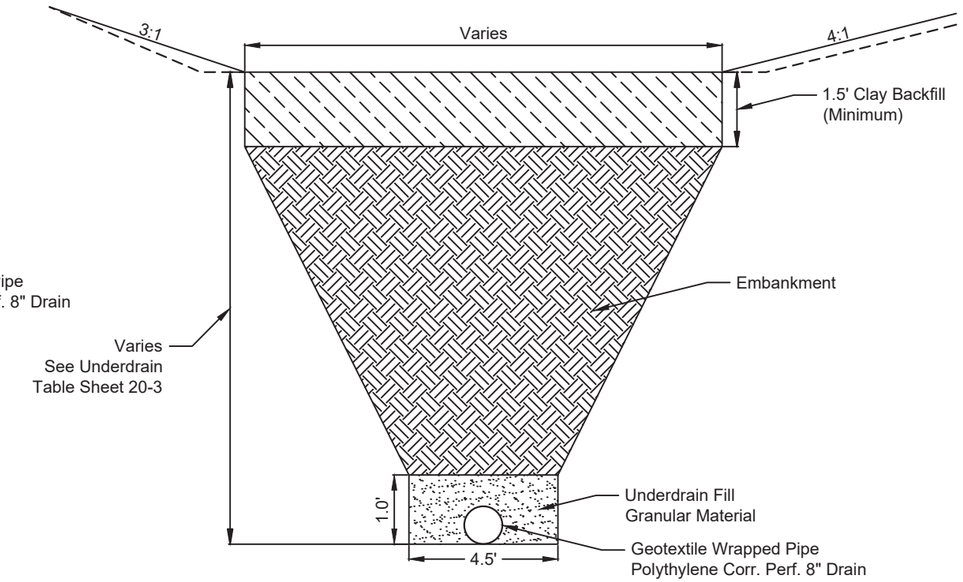
8" CLEANOUT DETAIL - PROFILE VIEW



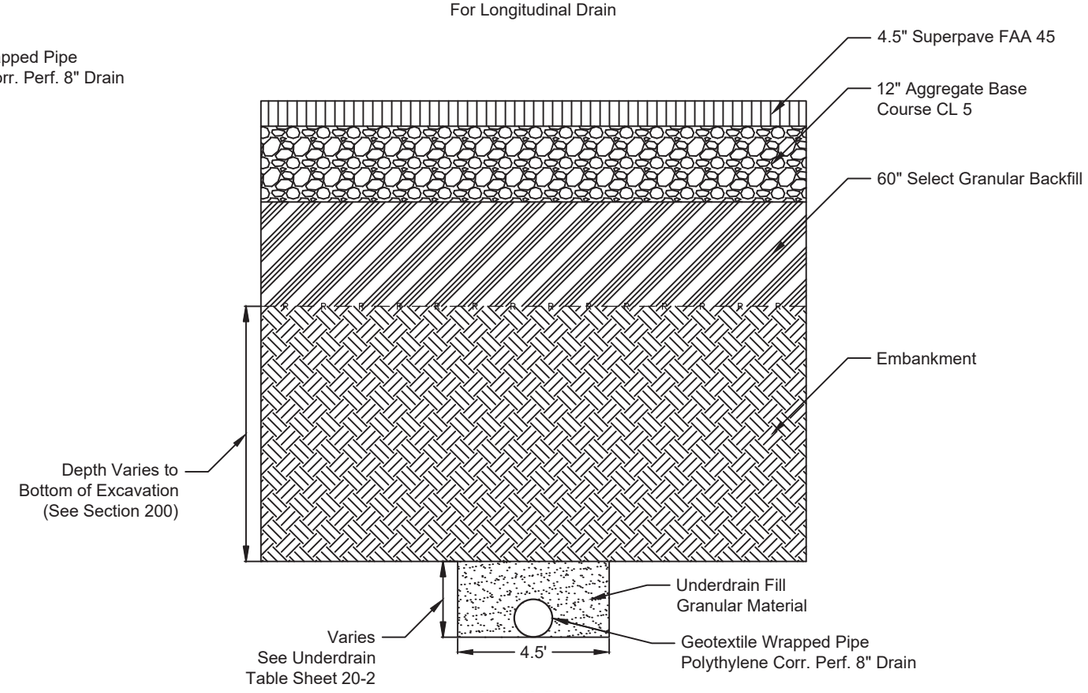
8" CLEANOUT DETAIL - PLAN VIEW



INLET A 8" CLEANOUT DETAIL - PROFILE VIEW



DETAIL "a-a"
For Longitudinal Drain



DETAIL "b-b"
For Transverse Drain

Notes:
1. OSHA safety requirements for trench excavation must be followed and all associated costs will be at the contractor's expense.

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UNDERDRAIN DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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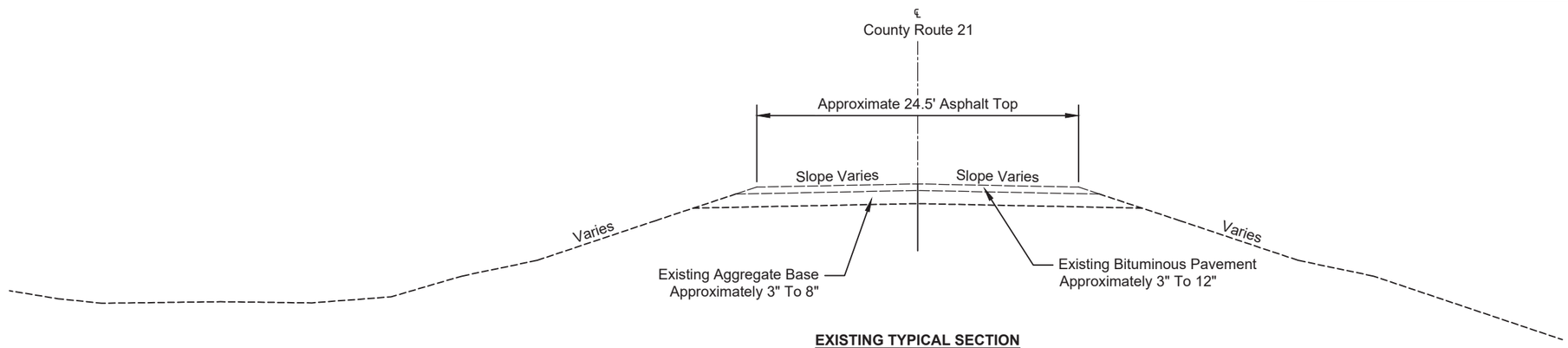
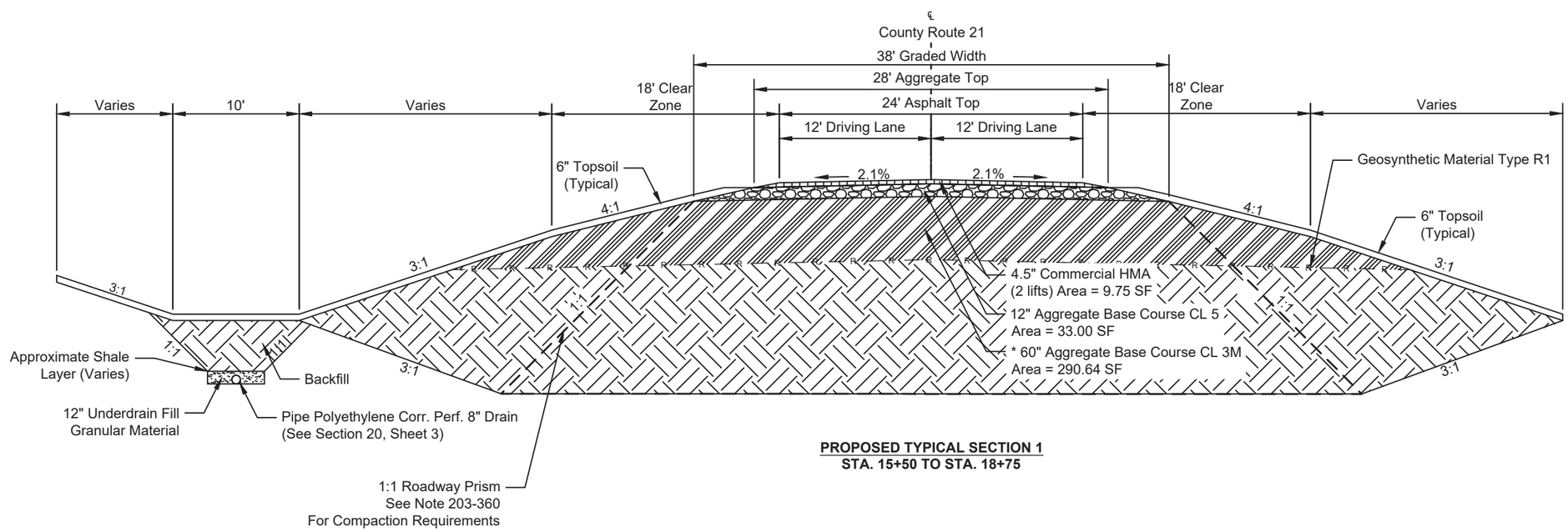
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	30	1



EXISTING TYPICAL SECTION
STA. 14+25 TO STA. 20+00



PROPOSED TYPICAL SECTION 1
STA. 15+50 TO STA. 18+75

*Transition 60" Aggregate Base Course CL 3M to 0" from Sta. 15+50 to Sta. 15+60 & Sta. 18+65 to Sta. 18+75

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TYPICAL SECTIONS

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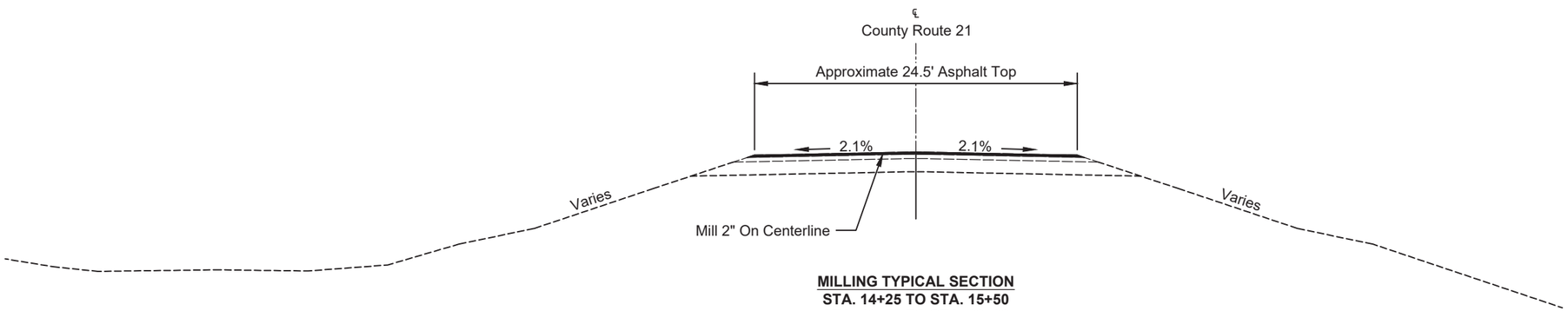
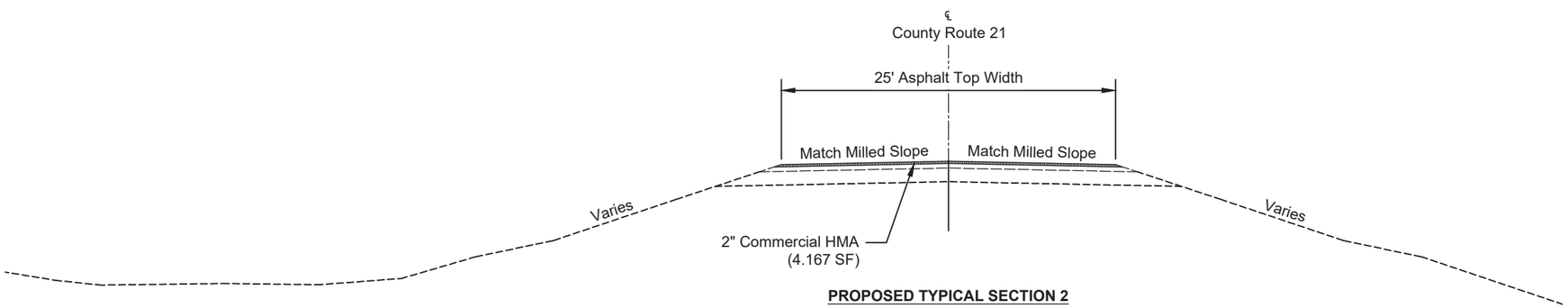
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	30	2



MILLING TYPICAL SECTION
STA. 14+25 TO STA. 15+50
STA. 18+75 TO STA. 20+00
& CULVERT PATCH



PROPOSED TYPICAL SECTION 2
STA. 14+25 TO STA. 15+50
STA. 18+75 TO STA. 19+75
& CULVERT PATCH

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TYPICAL SECTIONS

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ACG	BJT	2302-01468

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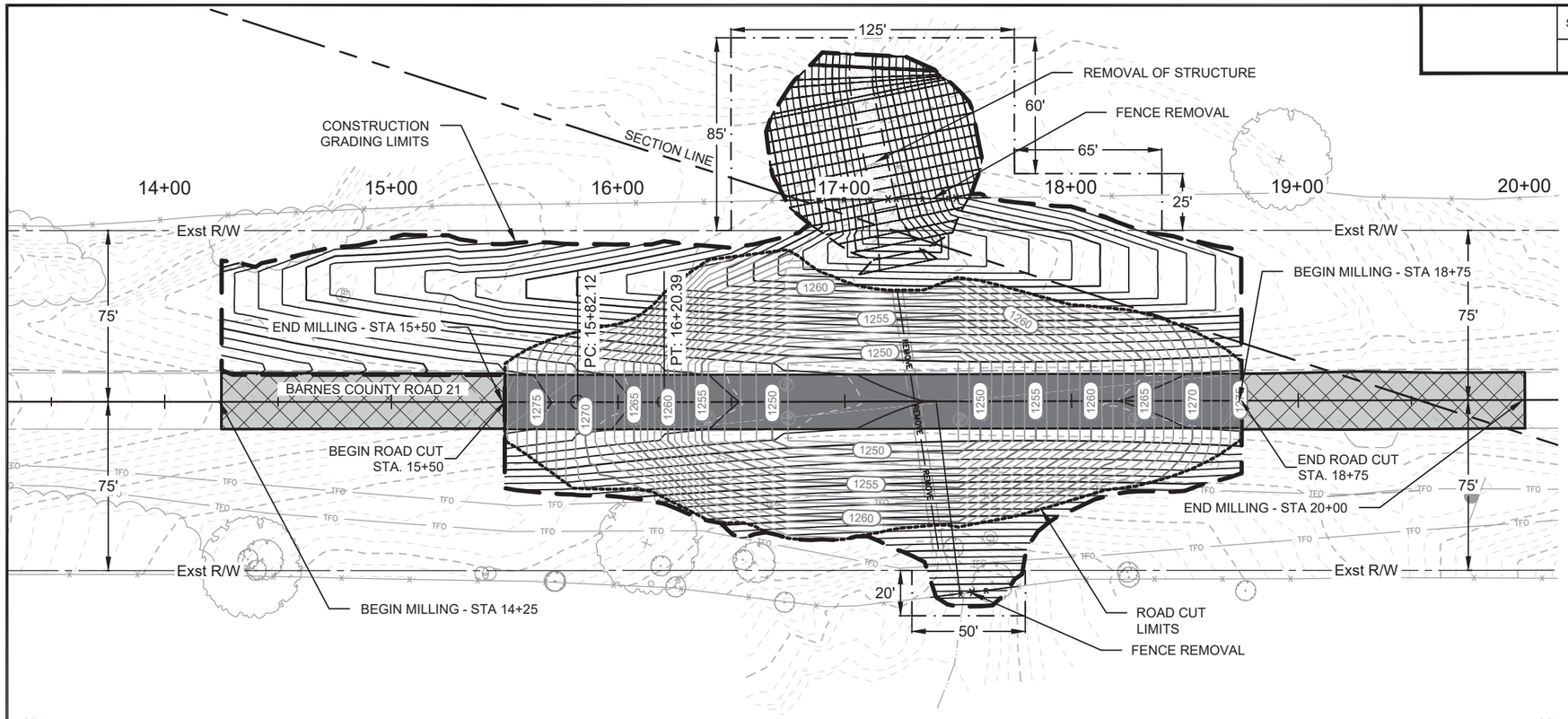
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	40	1



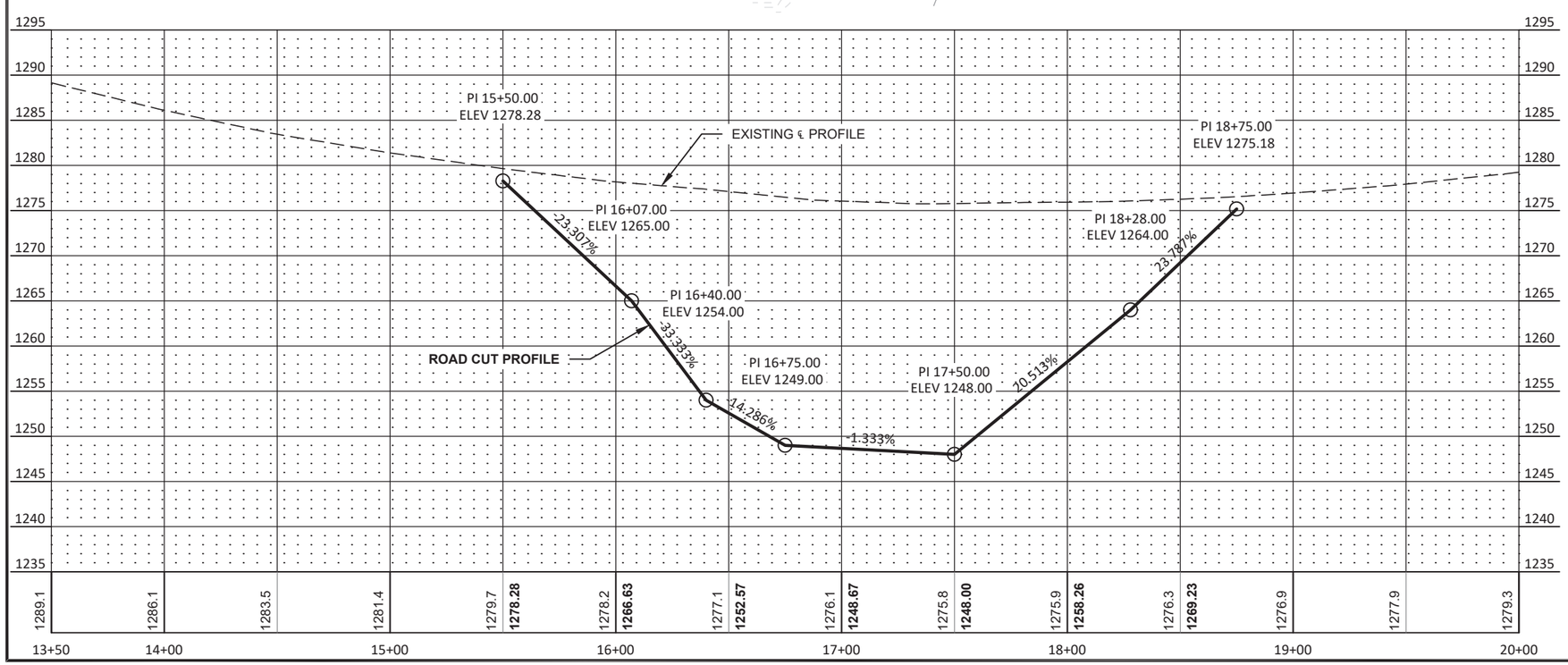
SPEC	CODE	BID ITEM	QTY	UNIT
201	0330	CLEARING & GRUBBING		
		STA 14+25 TO STA 20+00	1	L SUM
202	0105	REMOVAL OF STRUCTURE		
		STA 17+15 LT	1	L SUM
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		STA 15+50 TO STA 18+75	885	SY
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES		
		STA 17+31 ~ ℄	115	LF
202	0312	REMOVE EXISTING FENCE		
		STA 16+74 TO STA 17+65 LT	91	LF
		STA 17+40 TO STA 17+72 RT	33	LF
411	0105	MILLING PAVEMENT SURFACE		
		STA 14+25 TO STA 15+50	340	SY
		STA 18+75 TO STA 20+00	340	SY

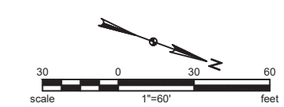
REMOVAL OF BITUMINOUS PAVEMENT

MILLING OF BITUMINOUS PAVEMENT

REMOVE — REMOVAL OF CULVERTS-ALL TYPES & SIZES

x — R — REMOVE EXISTING FENCE





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REMOVALS

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	51	1

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
17+23.22	60.20' LT	17+19.09	69.24' RT	60	Pipe Conc. Reinf. CL IV	132	Reinforced Concrete Pipe - Class III	60	-	-	-	133	FES	FES	D-714-25

Corrugations: **2** = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Coatings: **Z** = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Spiral Ribs: **3/4** = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section

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ALLOWABLE PIPE LIST

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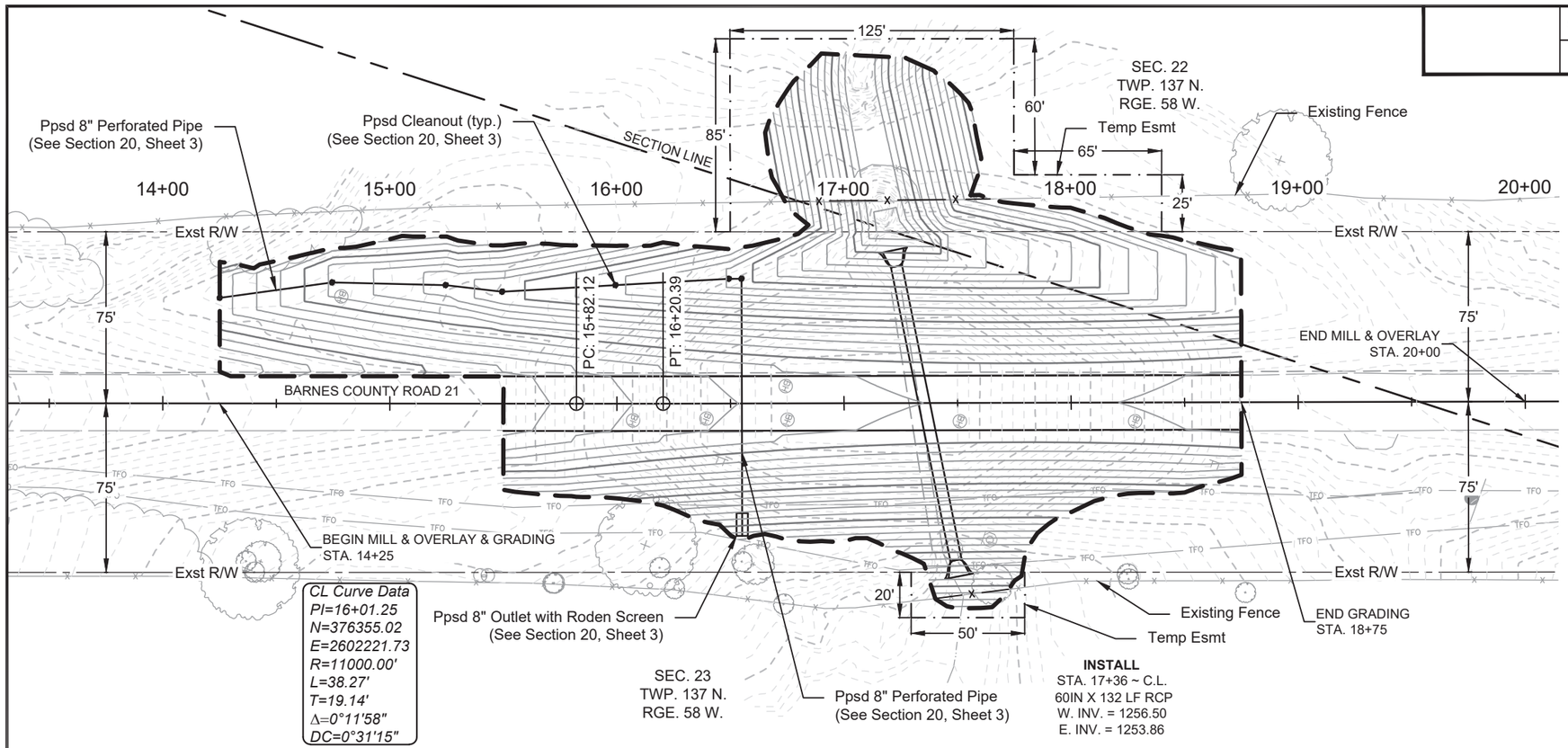
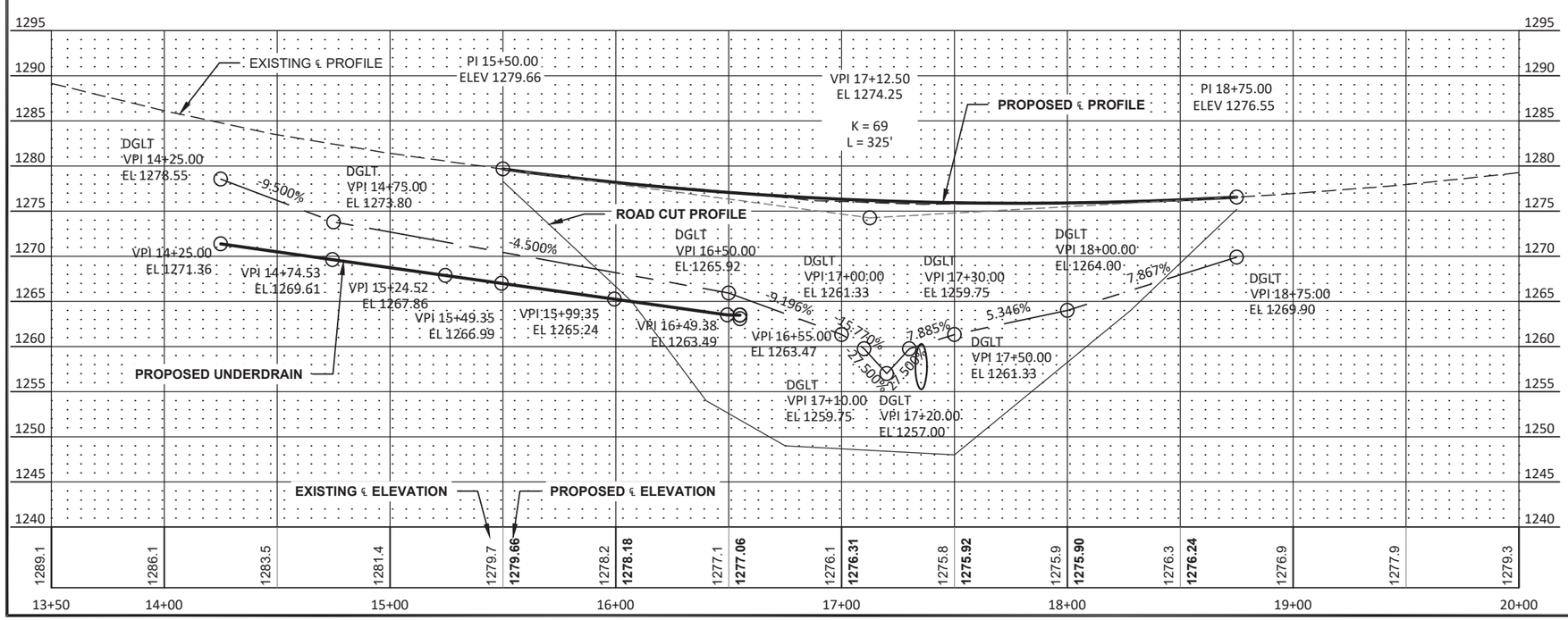
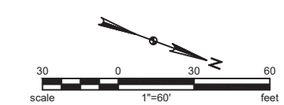
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	60	1



SPEC	CODE	BID ITEM	QTY	UNIT
714	1320	PIPE CONC REINF 60IN CL IV		
		STA 17+36 ~ ℄	132	LF
752	0200	FENCE BARBED WIRE 4 STRAND		
		STA 16+74 TO STA 17+65 LT	91	LF
		STA 17+40 TO STA 17+72 RT	33	LF





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PLAN & PROFILE

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	75	1

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact: Wetland Impacts Acre(s)			Wetland Mitigation: Mitigation Proposed		USACE/11990 Bank		Onsite Mitigation Method		
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Onsite Acre(s)
1	Sec. 22 & 27, T143N, R61W	Riverine	Natural	Y	0.005	0.014	-	N	N	-	-	-	-	-
2a	Sec. 22, T143N, R61W	Slope	Created	Y	-	-	-	N	-	-	-	-	-	-
2b	Sec. 22, T143N, R61W	Slope	Natural	Y	-	-	-	N	-	-	-	-	-	-
3a	Sec. 22 & 27, T143N, R61W	Slope	Created	Y	-	0.019	-	N	N	-	-	-	-	-
3b	Sec. 22, T143N, R61W	Slope	Natural	Y	-	0.001	-	N	N	-	-	-	-	-
4	Sec. 22, T143N, R61W	Slope	Natural	Y	-	-	-	N	-	-	-	-	-	-
				Totals	**0.005**	**0.034**	**0.000**				**0.000**		**-**	**-**

[1] A wetland Jurisdictional Determination was not issued by the USACE. Delineated wetlands are assumed to be jurisdictional.
[2] Mitigation for EO 11990 impacts is not required per Appendix E of the NDDOT Emergency Repair Mannual 2015

Impact Summary Table

Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	**Total Acre(s)**	**WaterType**	**Total Acre(s)**
Natural/JD (Fill/Drain)	0.015	**Temporary Wetland JD**	0.005
Natural/Non-JD (Fill/Drain)	0.000	**Non-JD Wetland Temporary**	0.000
Created/JD (Fill/Drain)	0.019		
Created /Non-JD (Fill/Drain))	0.000	**Permanent OW**	-
Total	**0.034**	**Temporary OW**	-
JD Natural (Cut)	0.000	**Permanent OW-d**	-
JD Created (Cut)	0.000	**Temporary OW-d**	-
Non-JD Natural (Cut)	0.000		
Non-JD Created (Cut)	0.000		
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	In Lieu Fee	-	-		-	
EO 11990 Only	In Lieu Fee	-	-	-		
USACE/11990	In Lieu Fee	-	-		-	
USFWS		-				-
	Total	**0**	**0**	**0**	**0**	**0**

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WETLAND IMPACT TABLES

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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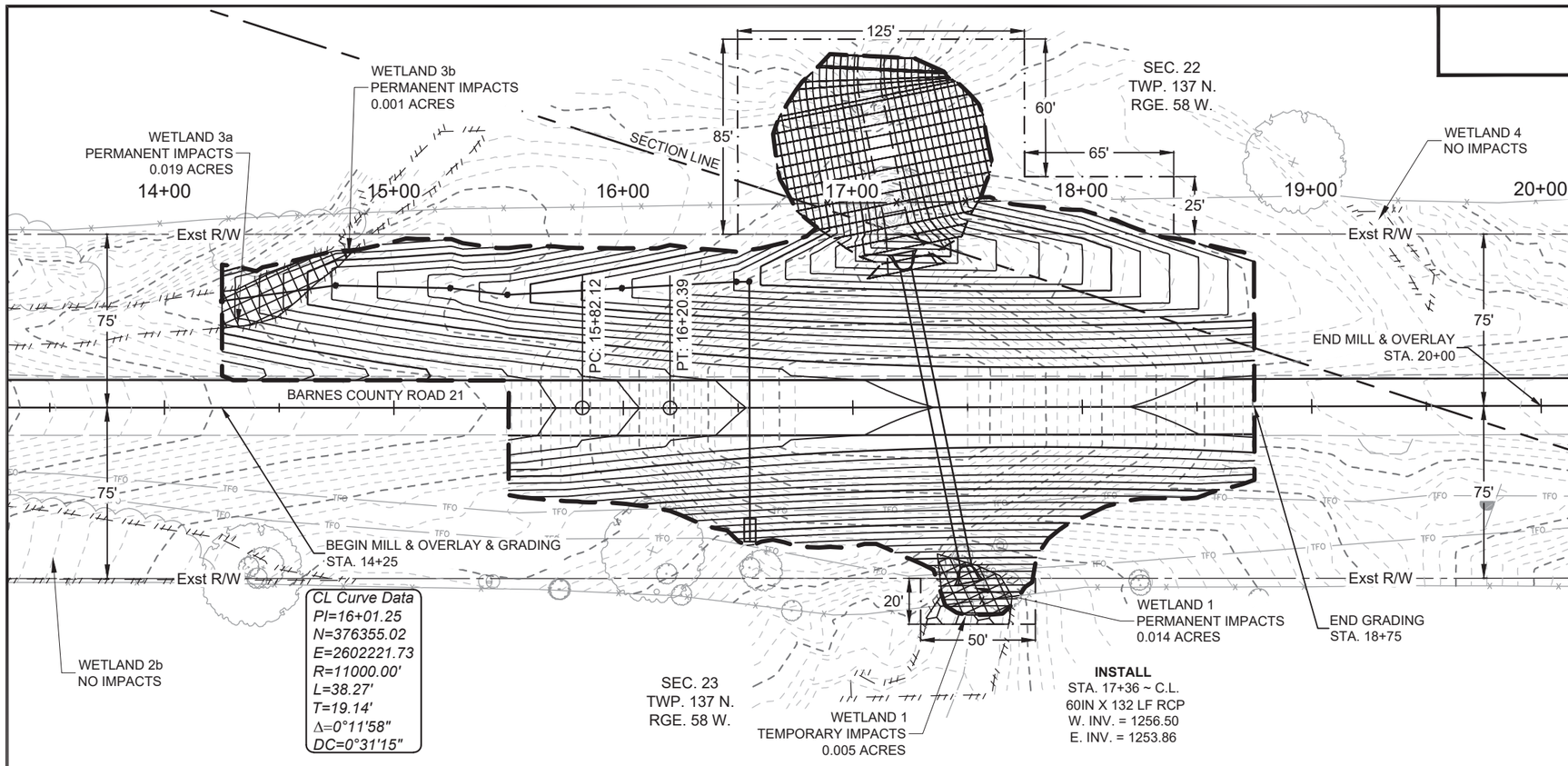
ND	CERP-0221(084)	75	2



DELINEATED AQUATIC RESOURCE

TEMPORARY WETLAND IMPACTS

PERMANENT WETLAND IMPACTS (FILL DRAIN)

PERMANENT OTHER WATERS IMPACTS (FILL DRAIN)

TEMPORARY OTHER WATERS IMPACTS

30 0 30 60
scale 1"=60' feet

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NORTH DAKOTA

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WETLAND IMPACTS

DRWN. BY	CHK'D BY	PROJECT NO.
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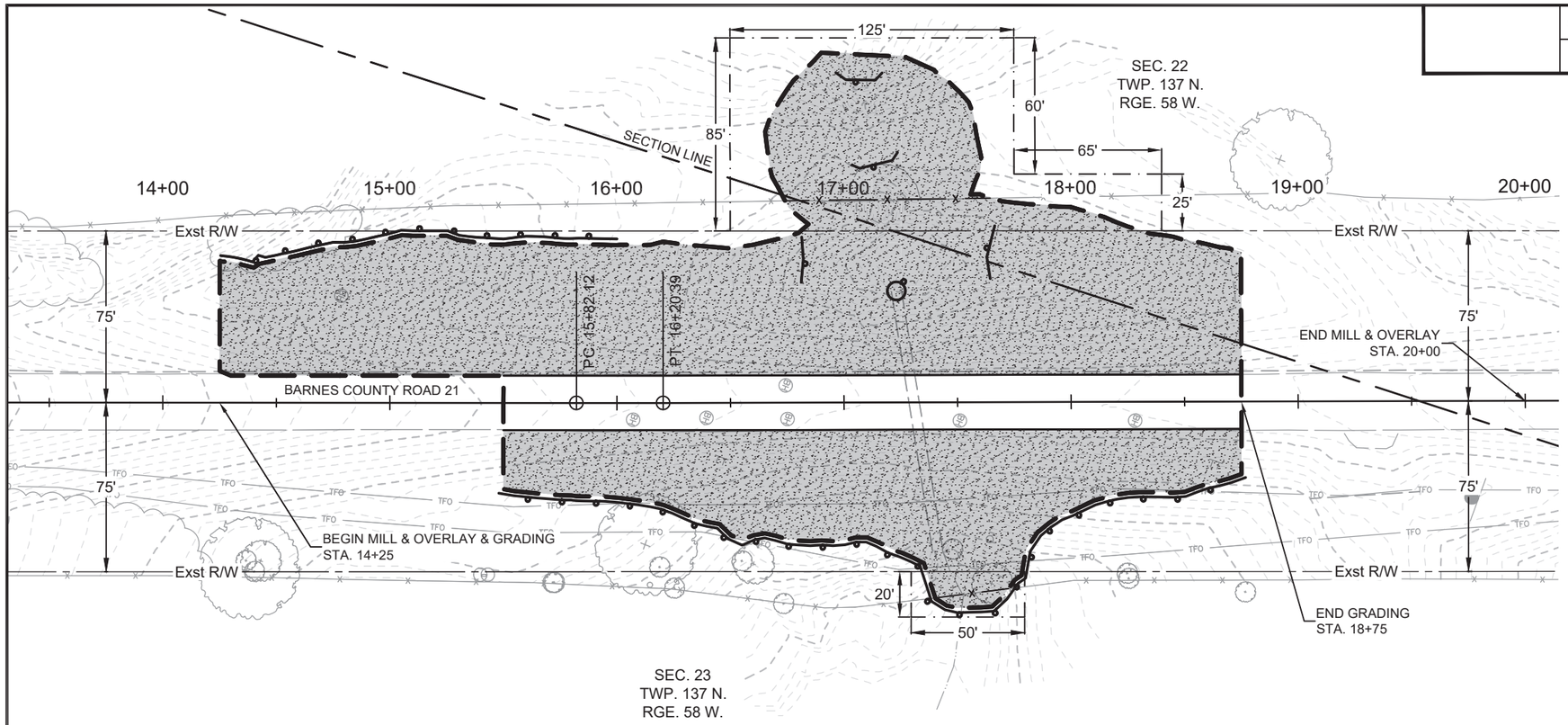
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	76	1

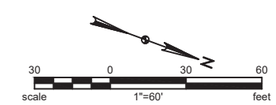


SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP STA 14+25 TO STA 20+00	1.09	ACRE
253	0101	STRAW MULCH STA 14+25 TO STA 20+00	1.09	ACRE
260	0200	SILT FENCE SUPPORTED STA 14+25 TO STA 20+00	50	LF
260	0201	REMOVE SILT FENCE SUPPORTED STA 14+25 TO STA 20+00	50	LF
261	0112	FIBER ROLLS 12IN STA 14+25 TO STA 20+00	678	LF
261	0113	REMOVE FIBER ROLLS 12IN STA 14+25 TO STA 20+00	678	LF

Notes:
1. Erosion control device locations shown are approximate.
   Actual locations to be determined in the field according to Contractor's SWPPP.
2. A quantity of 50 LF of Silt Fence Supported has been provided for use depending on site conditions.

TEMORARY COVER CROP/STRAW MULCH

FIBER ROLLS 12IN



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TEMPORARY EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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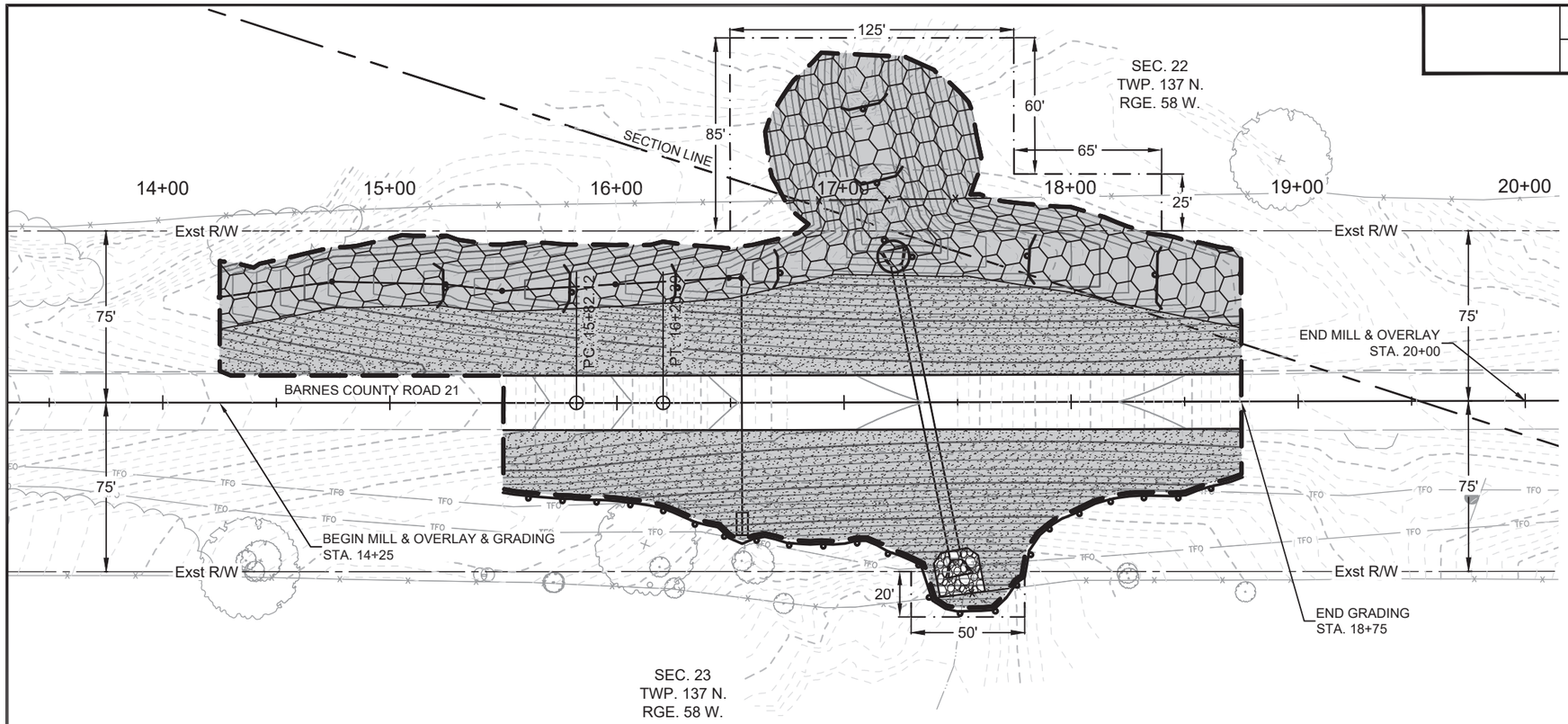
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	77	1



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II STA 14+25 TO STA 20+00	1.08	ACRE
253	0201	HYDRAULIC MULCH STA 14+25 TO STA 20+00	0.64	ACRE
255	0103	ECB TYPE 3 STA 14+25 TO STA 20+00	2,095	SY
256	0200	RIPRAP GRADE II STA 14+25 TO STA 20+00	28	CY
261	0112	FIBER ROLLS 12IN STA 14+25 TO STA 20+00	592	LF
709	0155	GEOSYNTHETIC MATERIAL TYPE RR STA 14+25 TO STA 20+00	42	SY

SEEDING CLASS II & HYDRAULIC MULCH

FIBER ROLLS 12IN

SEEDING CLASS II & ECB TYPE 3

RIPRAP GRADE II

30 0 30 60
scale 1"=60' feet

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PE-28896
DATE 02/27/25
NORTH DAKOTA

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA

KLJ

PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

Feb 21, 2025 - 8:15am - K:\Projects\County\ND\Barnes\2302-01468_24081_ER_HillslideSouth\CAD\Design\Plans\2302-01468_077PEC.dwg

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PRELIMINARY SURVEY COORDINATE AND CURVE DATA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
PI	10+00.00	375790.34	2602428.24
PC	15+82.12	376337.05	2602228.30
PI	16+01.25	376355.02	2602221.73
PT	16+20.39	376372.97	2602215.10
PI	21+63.06	376881.98	2602026.94

CURVE DATA

ARC DEFINITION	
CURVE 1	
PI STA=	16+01.25
DELTA=	0°11'58" (LT)
D=	0°31'15"
R=	11000.00'
T=	19.14'
L=	38.27'

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING
T-137-N R-58-W			
NW Cor Sec 23	9-G	377601.38	2602063.80
SW Cor Sec 23	9-J	372318.86	2602270.35

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STA	OFFSET	CONTROL POINT DESCRIPTION
#1	384035.20	2601804.28	1346.77	N/A	N/A	#5 Rebar
#2	374333.55	2602559.50	1411.44	N/A	N/A	#5 Rebar
#3	384035.17	2601804.32	1346.66	N/A	N/A	#5 Rebar

All coordinates and measurements on this document derived from the International Foot definition.

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

NOTES:

Date Survey Completed 04/29/2024

☐ Assumed Coordinates

☒ All coordinates on this sheet are North Dakota State Plane Coordinates.They are derived from the "North American Datum of 1983", NAD83, 2011 Reference Frame; North Dakota South Zone;

Scale Factor = 1.0001290166

INITIALIZING BENCH MARK
OPUS

☒ NAVD-88 GEOID 18
☐ NGVD-29

☒ ENGLISH UNITS
☐ METRIC UNITS

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA

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SURVEY COORDINATE & CURVE DATA

DRWN. BY	CHK'D BY	PROJECT NO.
ZRV	BJT	2302-01468

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	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 $80 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	
M1-6-24	**24"x24"**	**COUNTY ROUTE MARKER (Post and installation only)**	**29**	**15**	**435**
M3-1-24	**24"x12"**	**NORTH (Mounted on route marker post)**	**16**	**7**	**112**
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	**24"x12"**	**SOUTH (Mounted on route marker post)**	**13**	**7**	**91**
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	**24"x12"**	**DETOUR (Mounted on route marker post)**	**28**	**7**	**196**
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)**	**2**	**7**	**14**
M5-1-21	**21"x15"**	**ADVANCE TURN ARROW RT or LT(Mounted on route marker post)**	**9**	**7**	**63**
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)**	**9**	**7**	**63**
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)**	**2**	**7**	**14**
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 $80 (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)**	**2**	**12**	**24**
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)**	**2**	**15**	**30**
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**	**3**	**35**	**105**
W20-3-48	**48"x48"**	**ROAD or STREET CLOSED AHEAD or __ FT or _ MILE**	**4**	**35**	**140**
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	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE		35	
W21-6-48	48"x48"	SURVEY CREW		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W21-52-48	48"x48"	PAVEMENT BREAKS		35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE		35	

SPECIAL SIGNS

D6-4-24	**24"x24"**	**SCENIC BYWAY (Mounted on route marker post)**	**11**	**6**	**66**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1353**

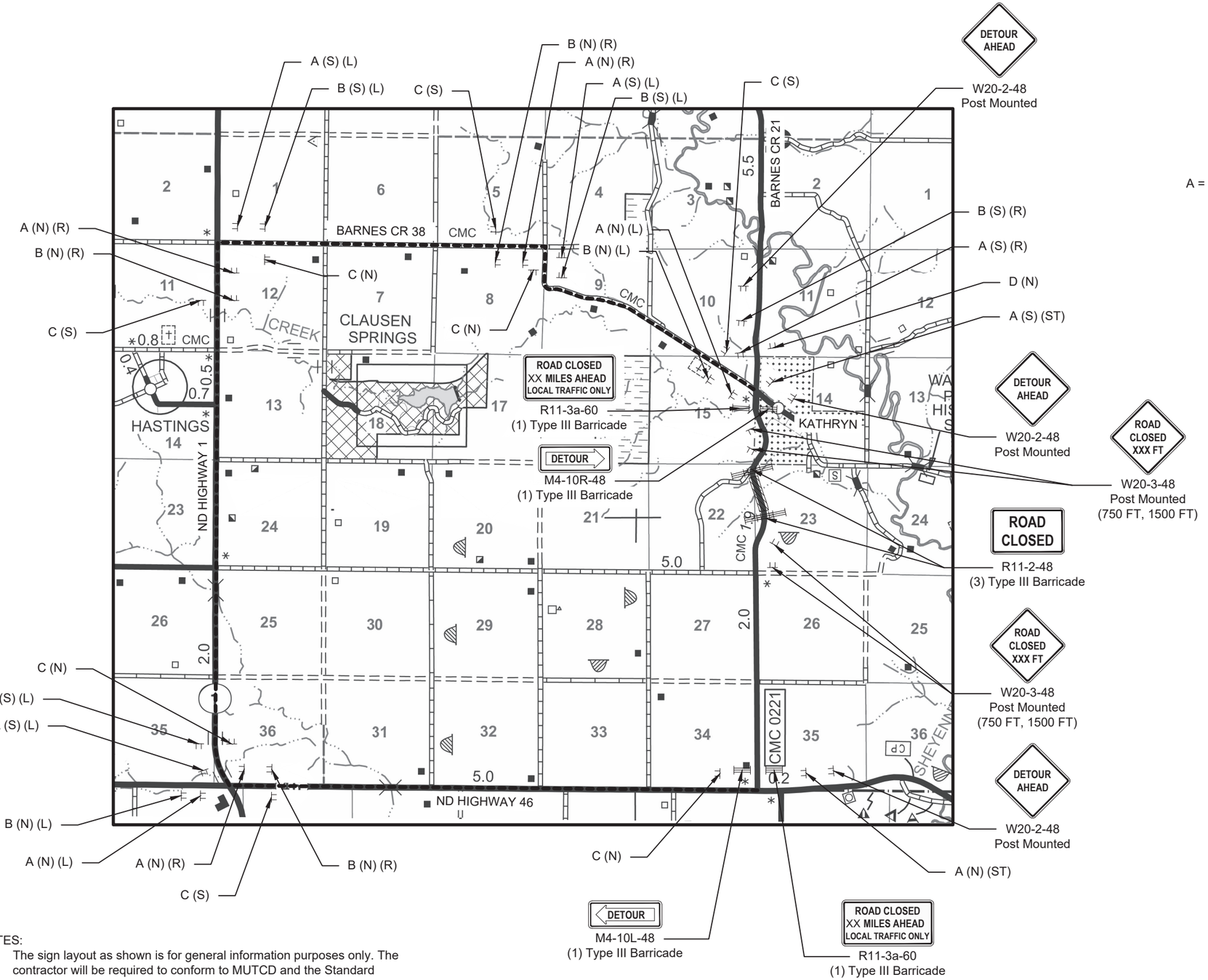
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**10**
704-1060	DELINEATOR DRUMS	EACH	
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	STACKABLE VERTICAL PANELS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	**SHORT TERM 4IN LINE - TYPE NR**	**LF**	**560**

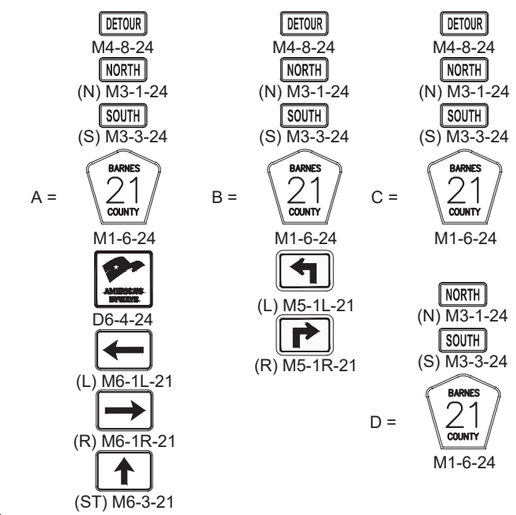
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	100	2





LEGEND

- Proposed Detour Route
- Work Area
- Sign
- Type III Barricade

N

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

NOTES:

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.
2. All M1-6-24 signs to be property of Barnes County upon project completion.

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA

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TRAFFIC CONTROL SIGNING LAYOUT

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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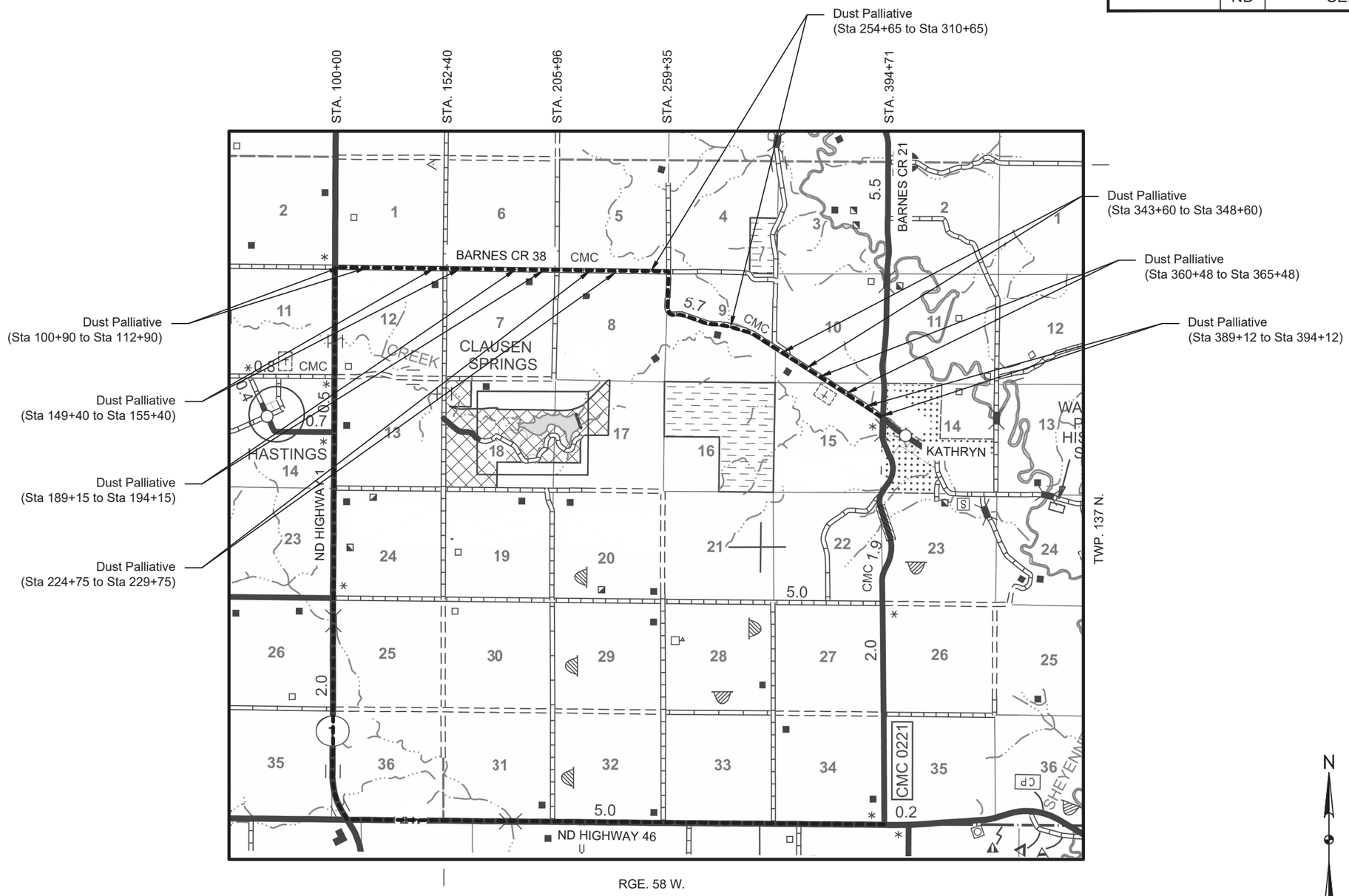
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	100	3



LEGEND

Proposed Detour Route

Work Area

N

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA

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DUST PALLIATIVE LOCATIONS

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

Notes:
1. Engineer to mark final locations in the field for Dust Palliative Material

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	CERP-0221(084)	110	1

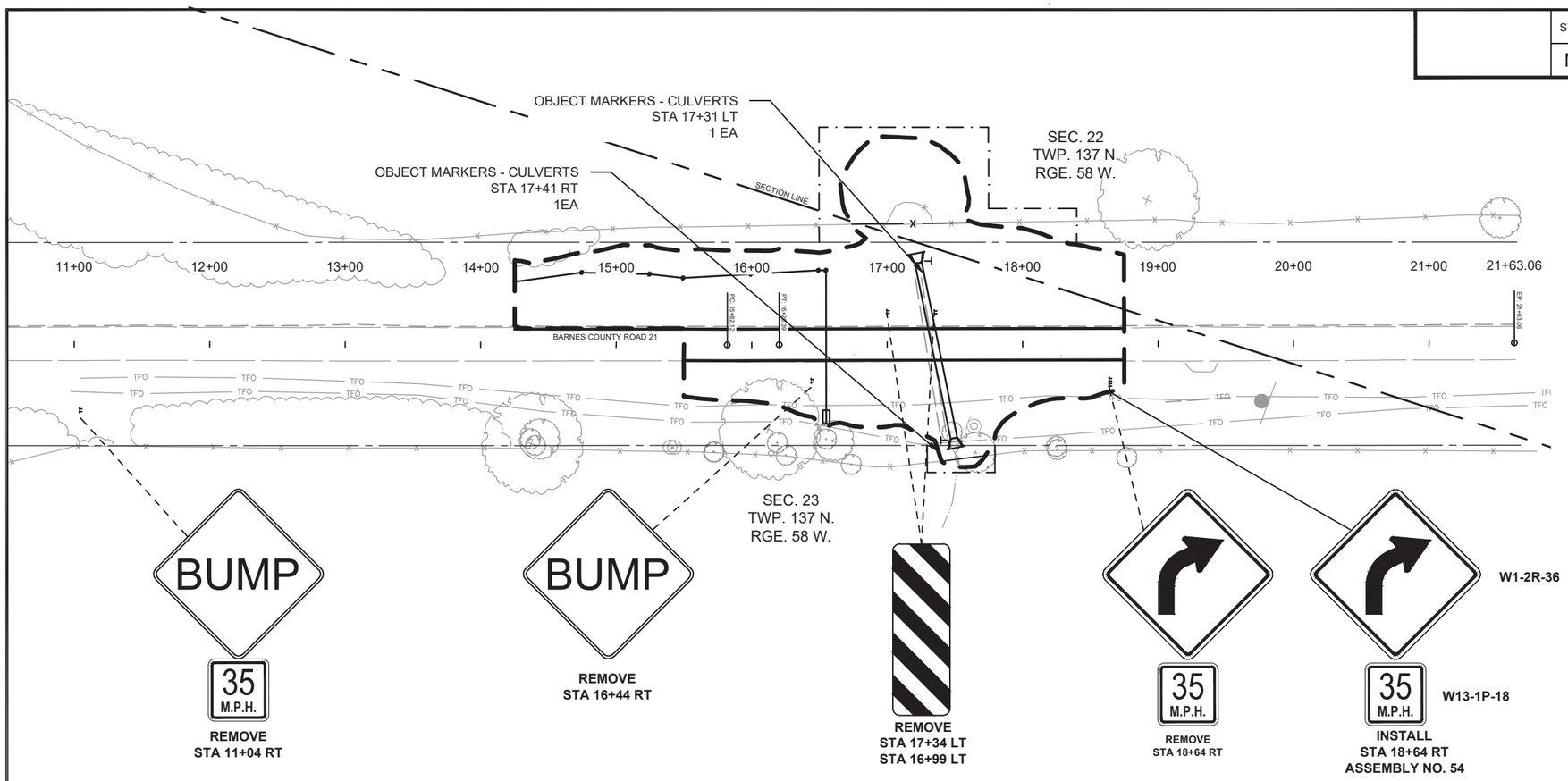
Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Vert Clear-ance FT	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
18+64 Rt	W1-2R-36, W13-1P-18	54		11.3	14.7				5.0	2 x 2 12 ga	15.8	4.9					1	4	2.25 x 2.25 12 ga				
Sub Total			0.0	11.3		**Total**	14.7										**Total**	4.0		0	0	0	
Grand Total			**0.0**	**11.3**		**Total**	**14.7**										**Total**	**4**	**0**	**0**	**0**	**0**	

REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

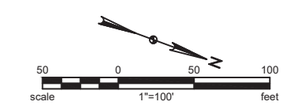
Sign Summary
Perforated Tube

CR 21 Hill Slide Repair
1 Mile South of Kathryn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	110	2



SPEC	CODE	BID ITEM	QTY	UNIT
754	0805	OBJECT MARKERS - CULVERTS		
		STA 17+31 LT	1	EA
		STA 17+41 RT	1	EA



REGISTERED PROFESSIONAL ENGINEER
BRYAN TYKWINSKI
PE-28896
DATE 02/27/25
NORTH DAKOTA

CERP-0221(084)
BARNES COUNTY, NORTH DAKOTA
1 MILE SOUTH OF KATHRYN

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PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
ACG	BJT	2302-01468

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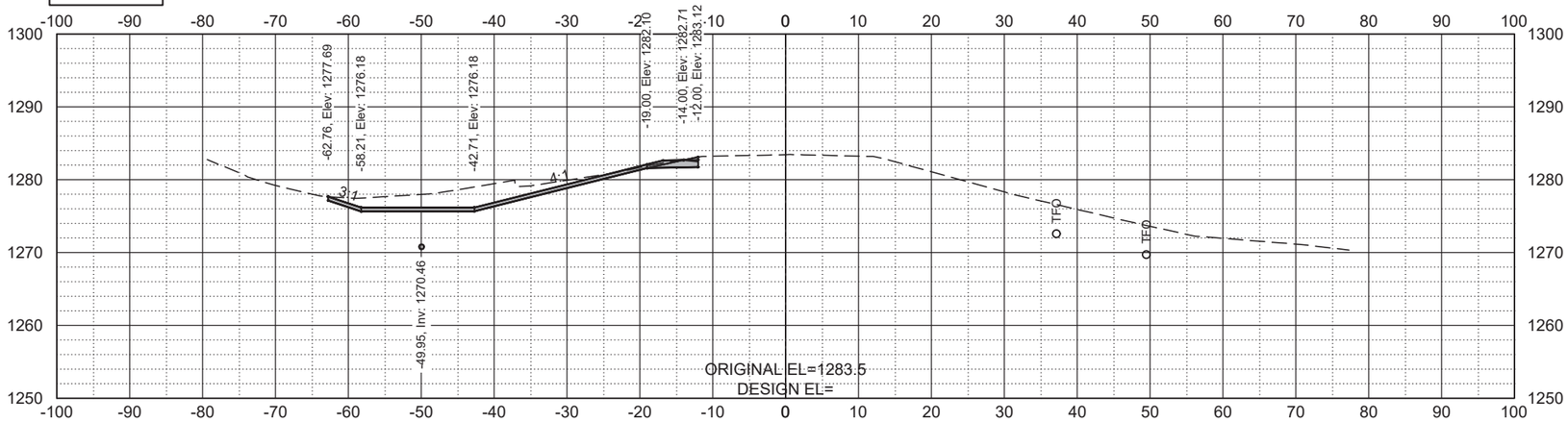
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	1

14+50.00



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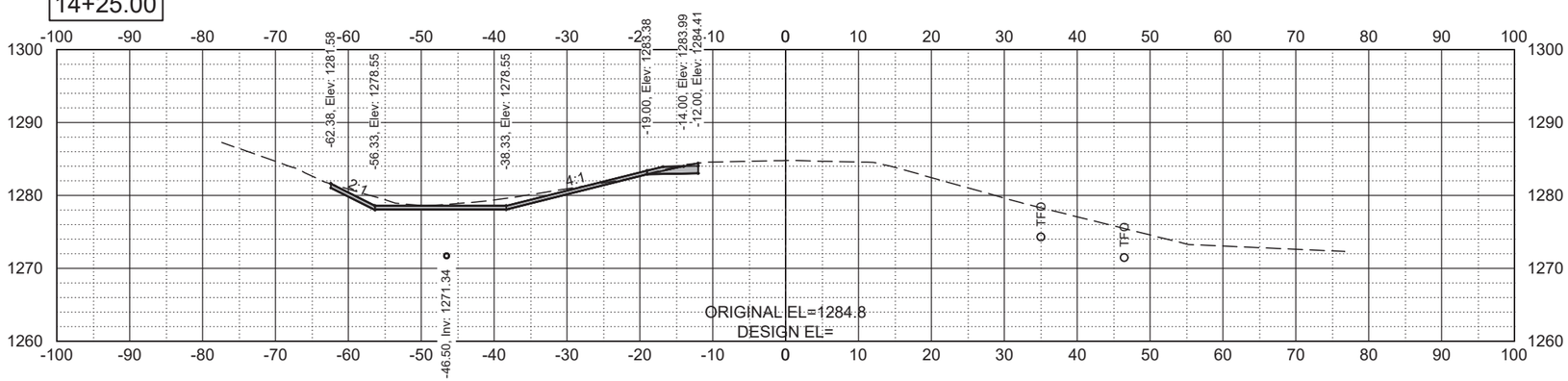

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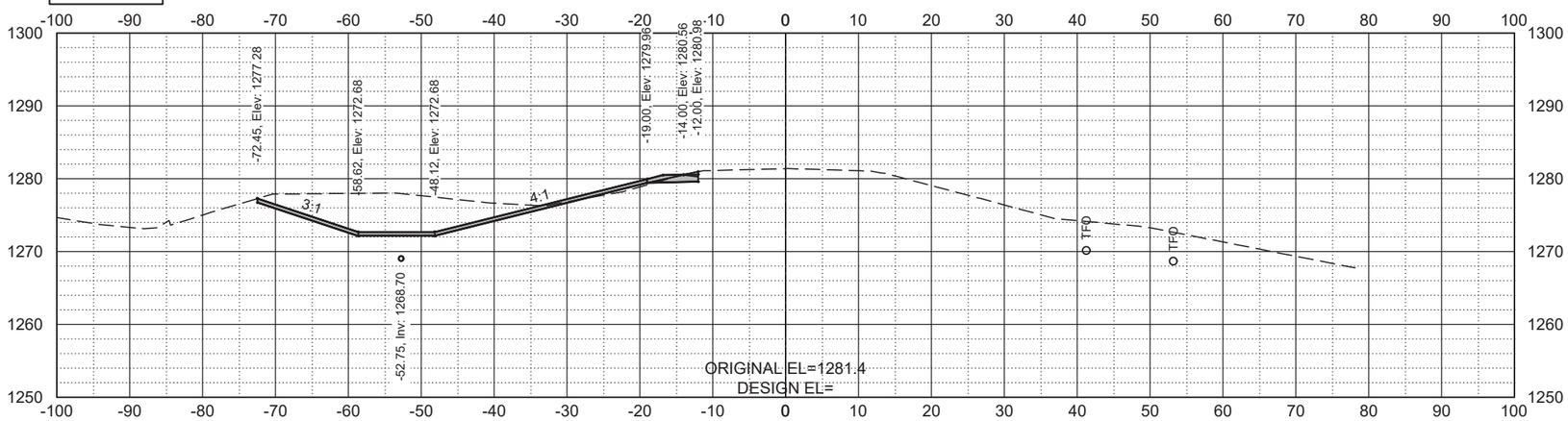
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	2

15+00.00



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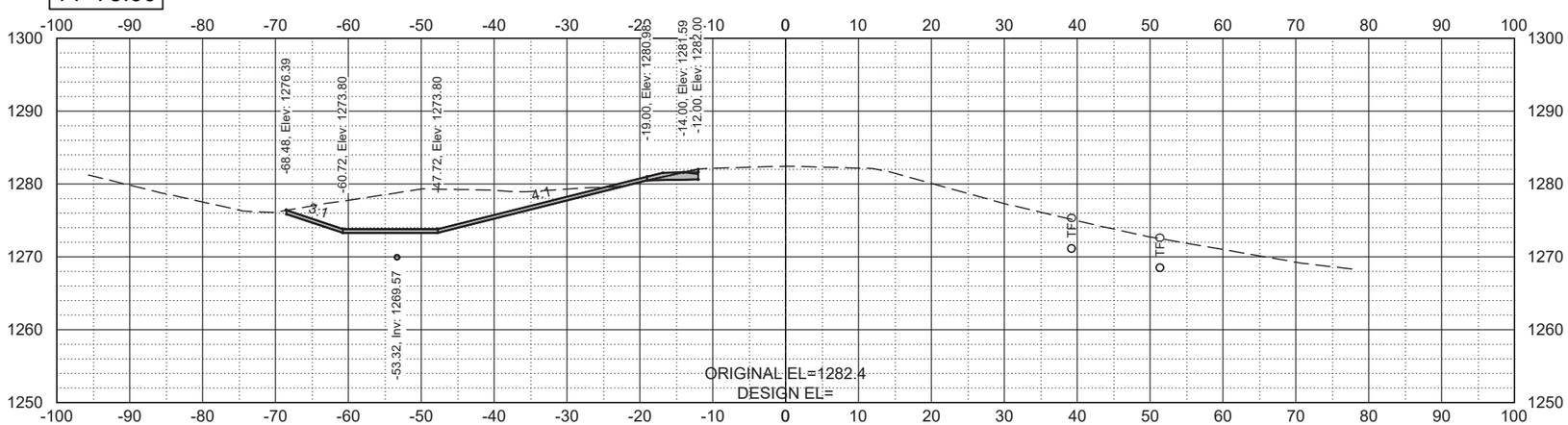

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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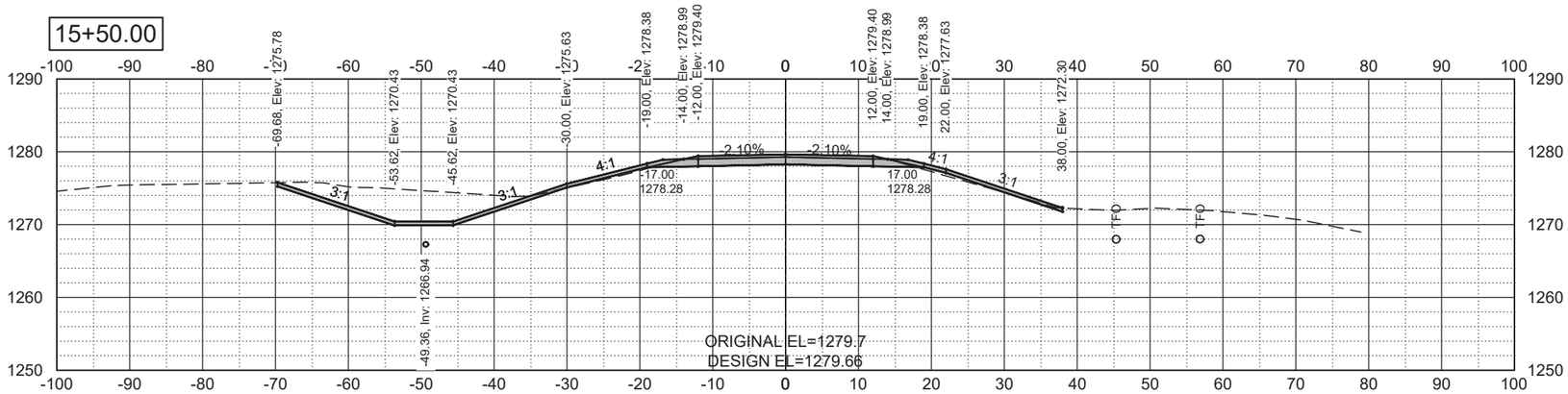

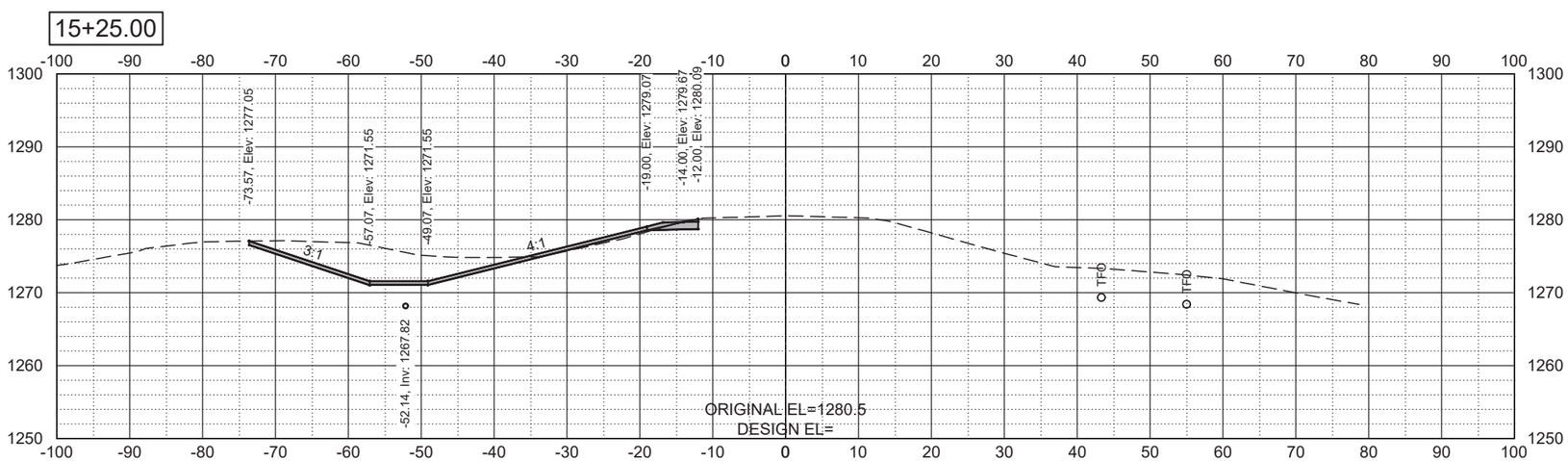

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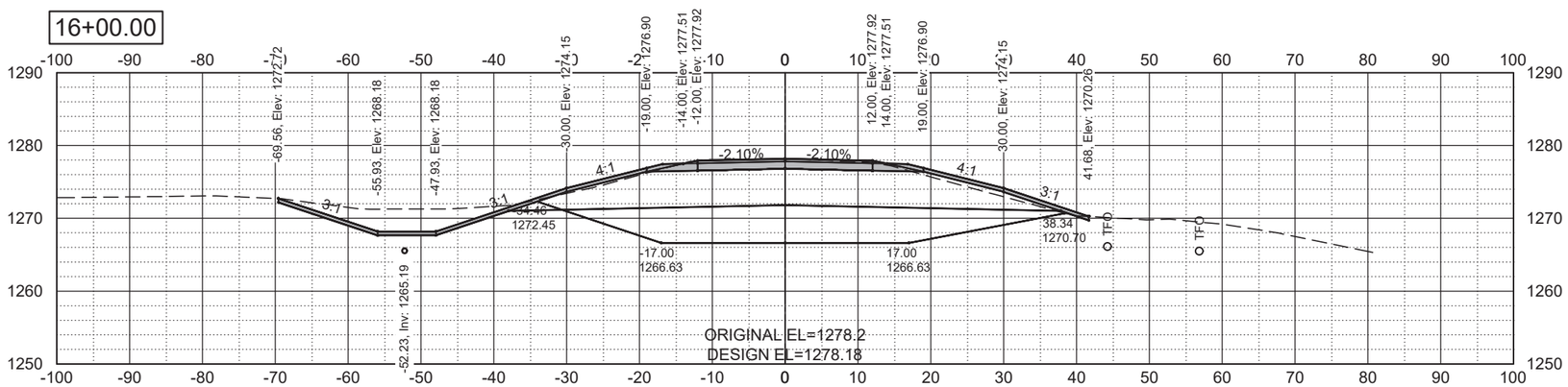

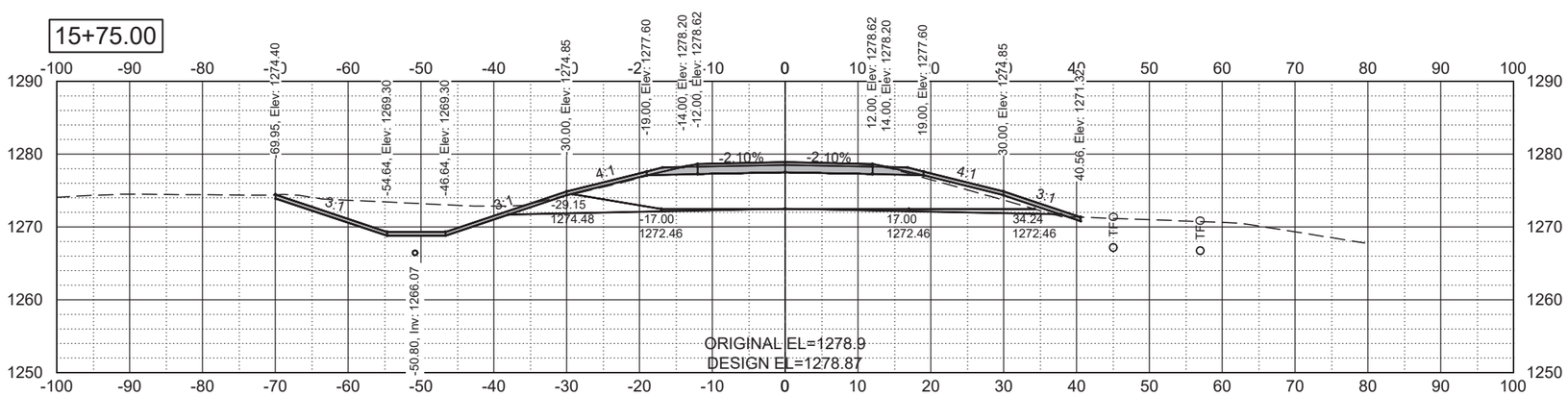

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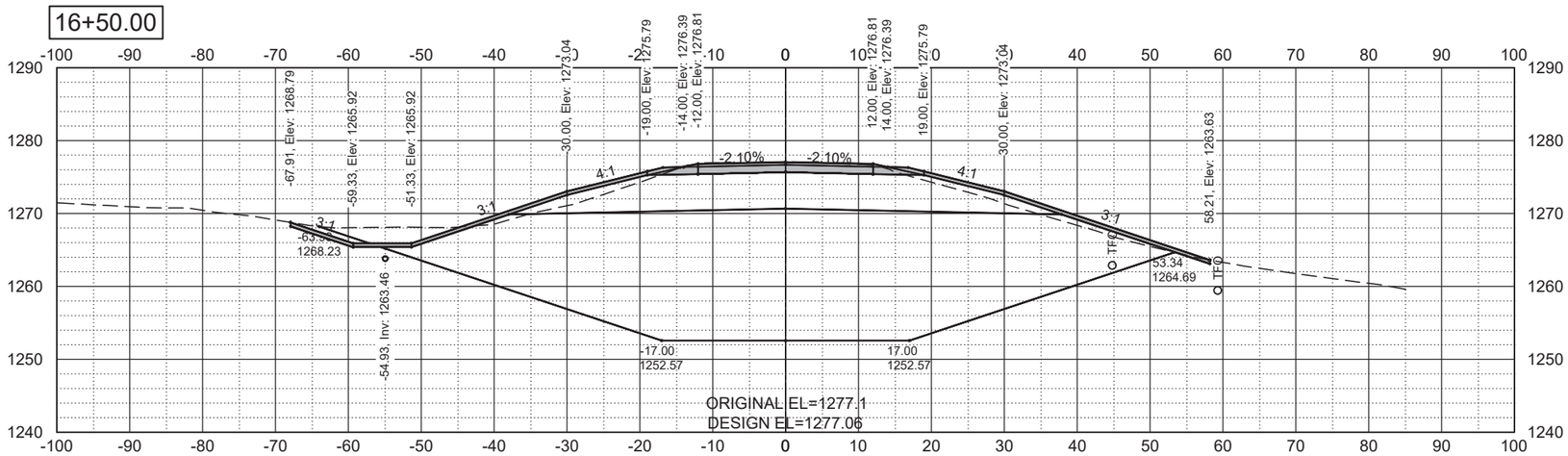

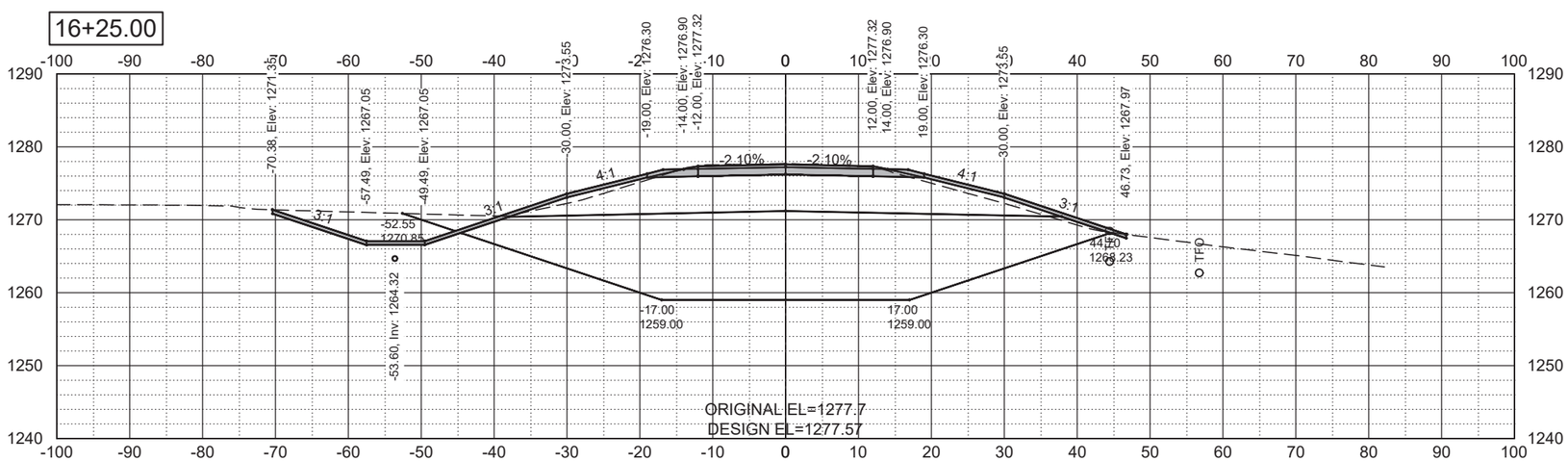

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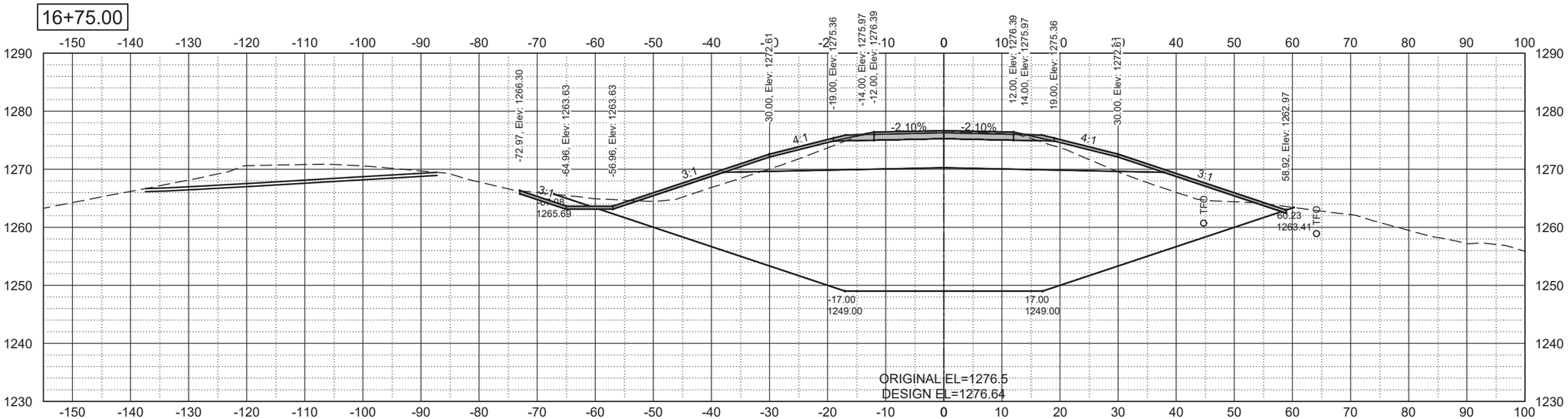
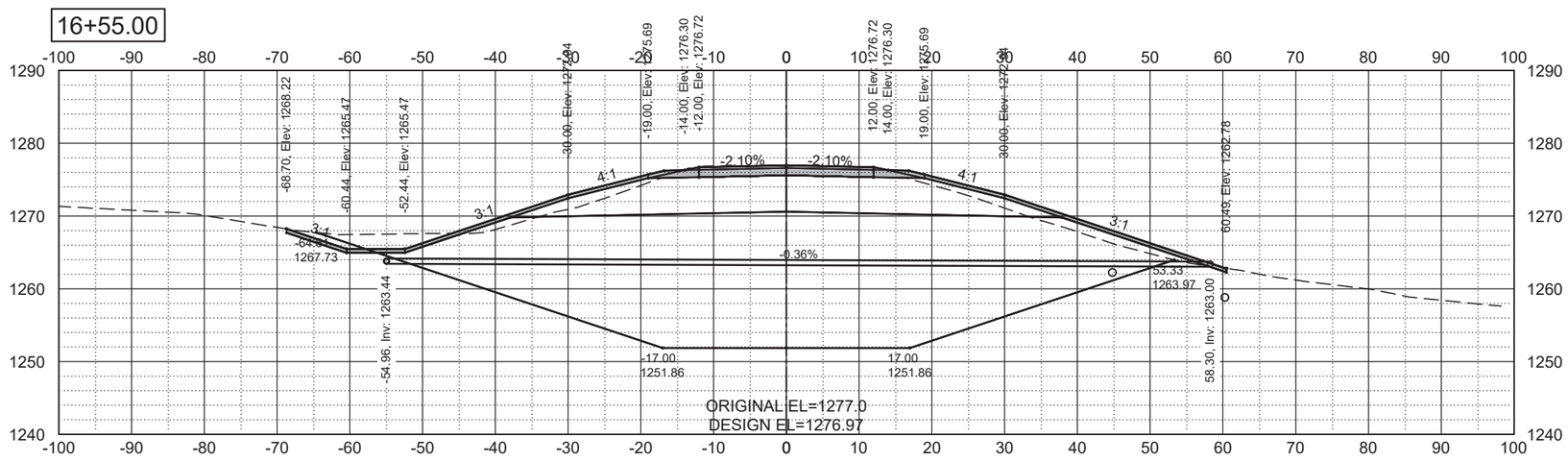
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	6





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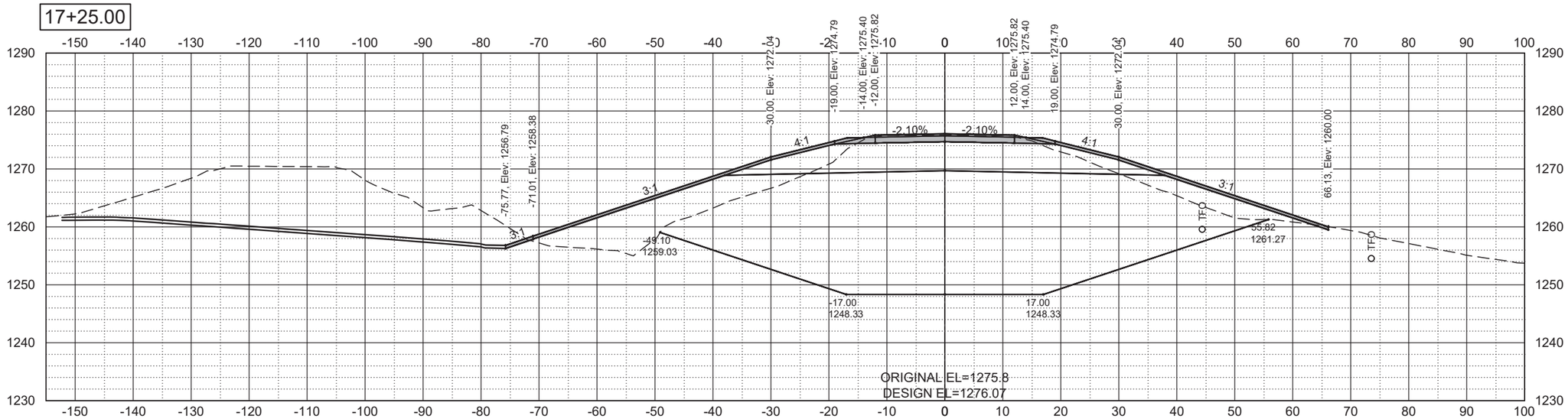
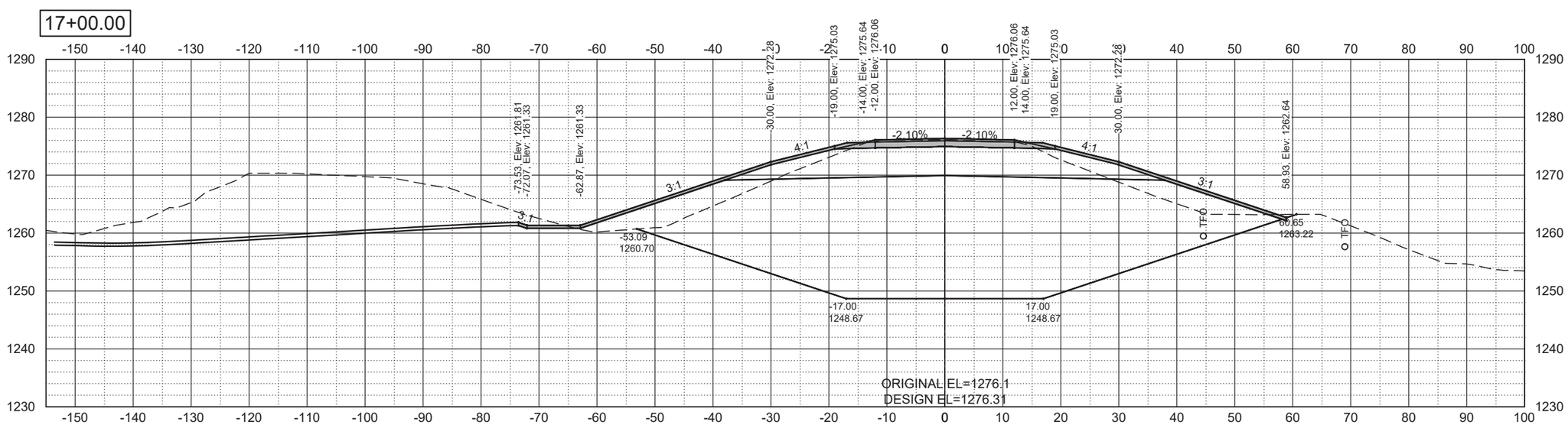
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	7





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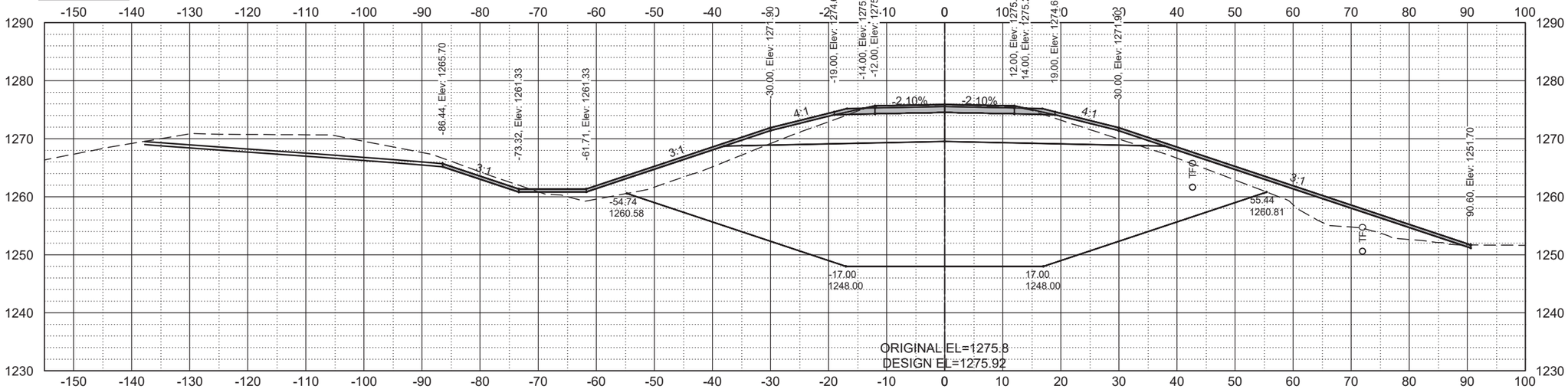
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	8

17+50.00



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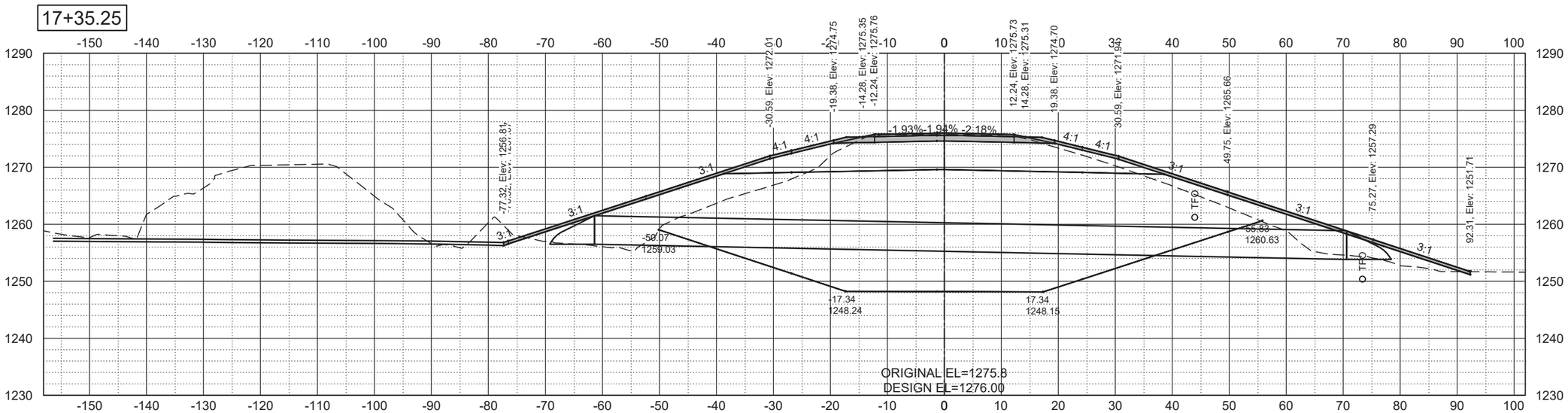

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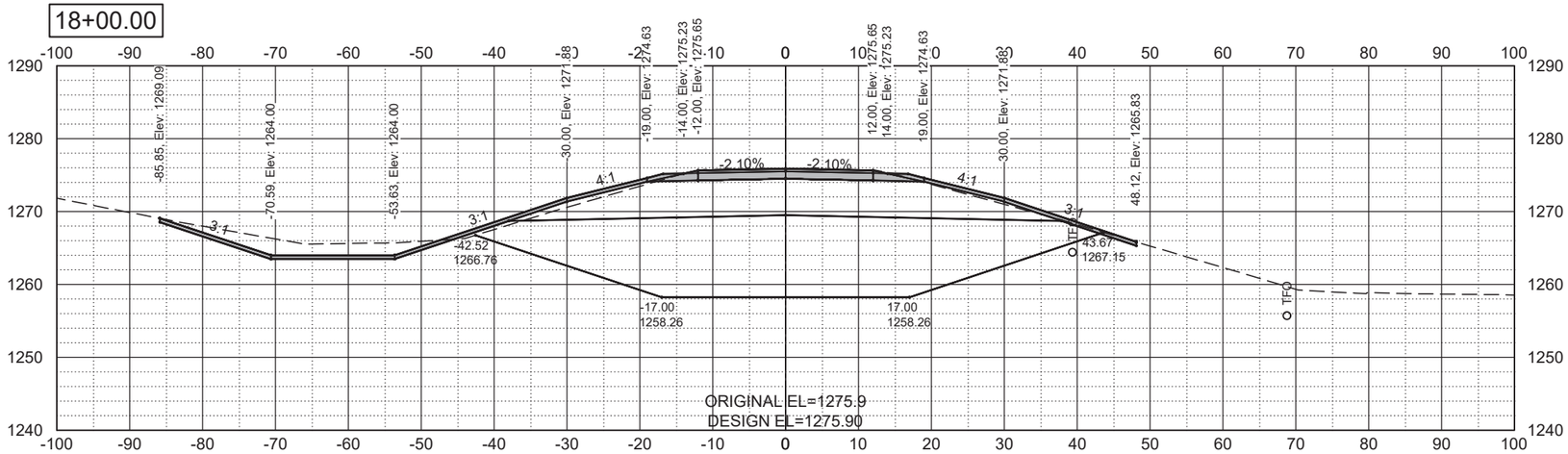
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	9

18+00.00



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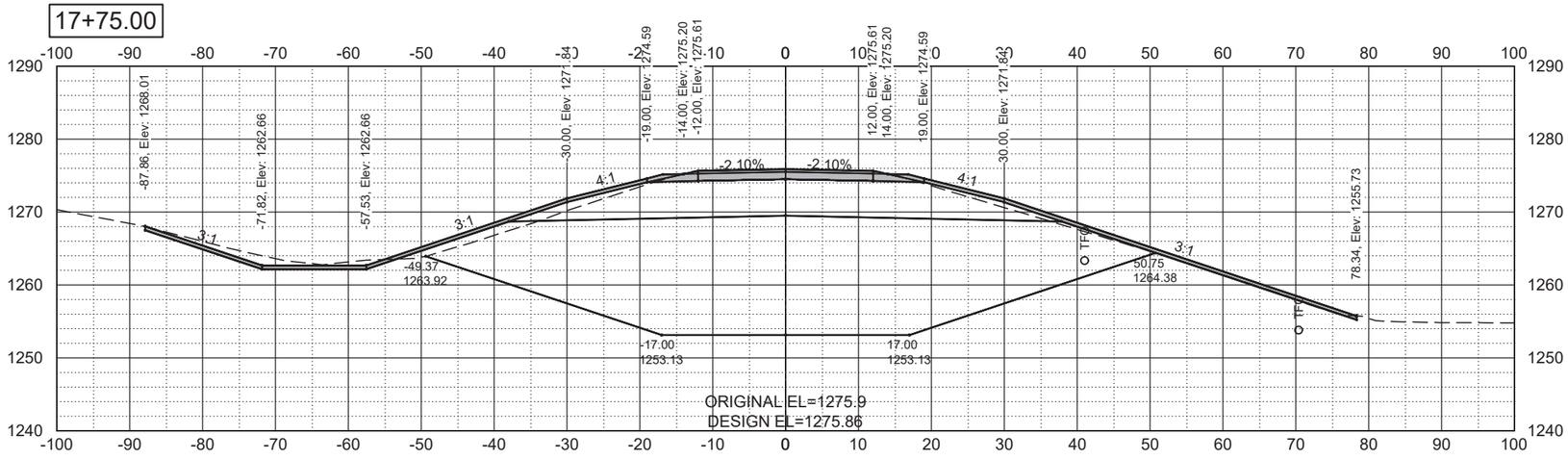

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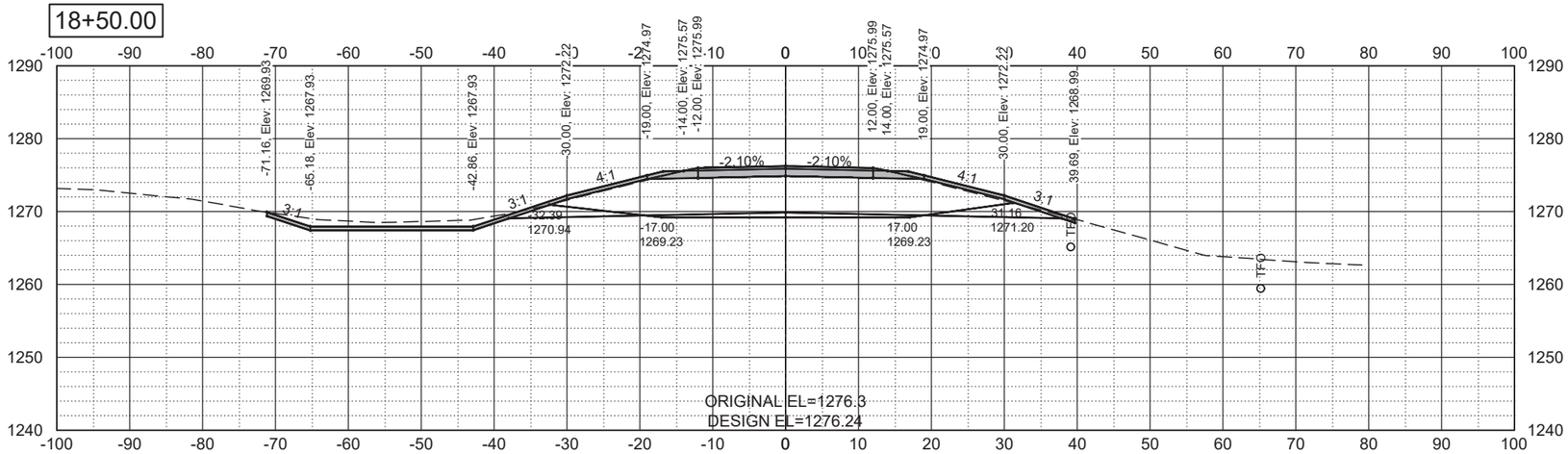
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	10

18+50.00



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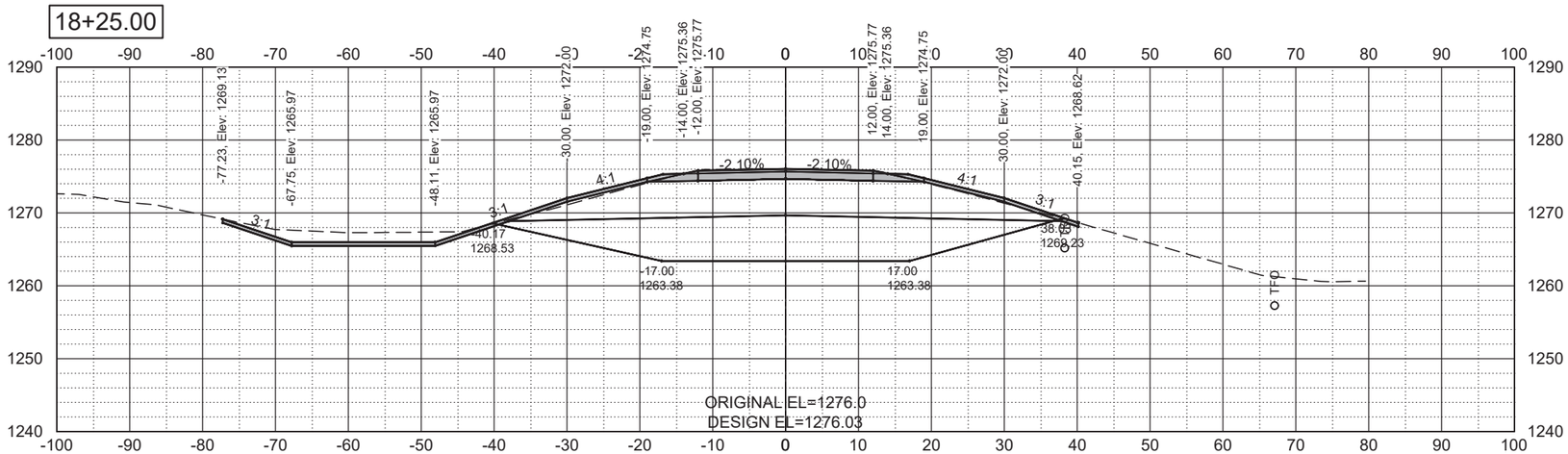

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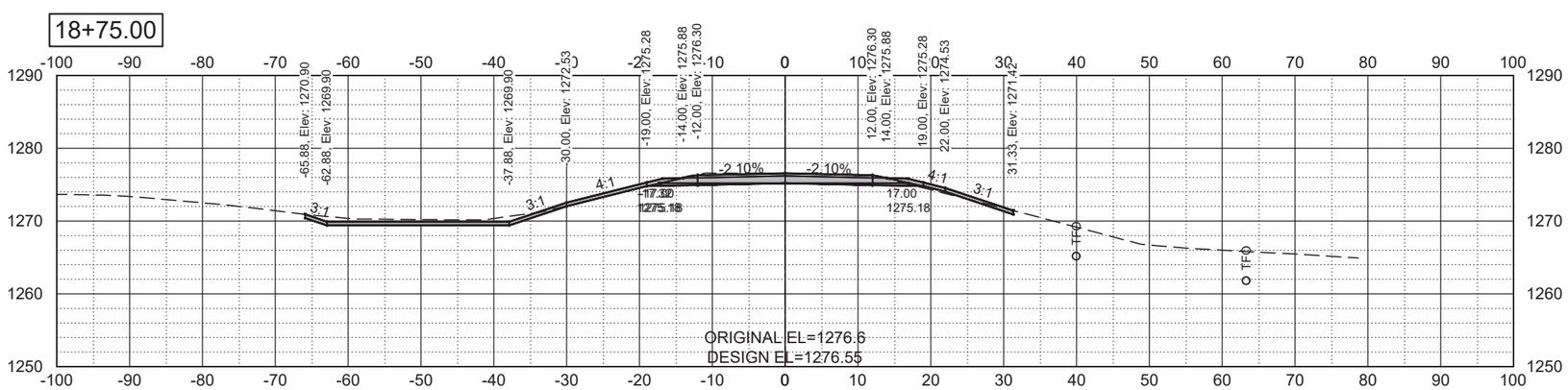
CROSS-SECTIONS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	CERP-0221(084)	200	11



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