

DESIGN DATA			
Traffic	Average Daily		
Current 2019	Pass: 13,720	Trucks: 380	Total: 14,100
Forecast 2039	Pass: 17,425	Trucks: 515	Total: 17,940
Clear Zone Dist. Existing	Design Speed: 55 mph		
Minimum Sight Dist. for Stopping:	Bridges: N/A		
Full Control of Access, No Point of Access Other Than at Interchange Ramps			
Pavement Design Life 20 (years)			
Design Accumulated One-way Rigid ESALs:			

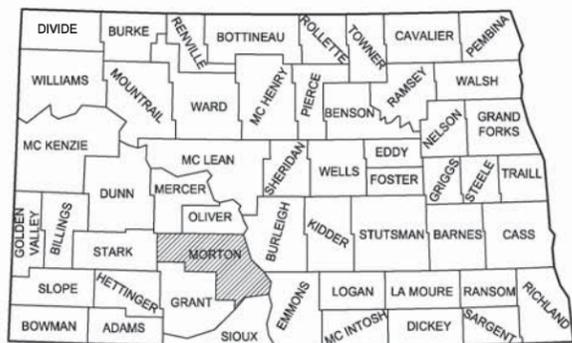
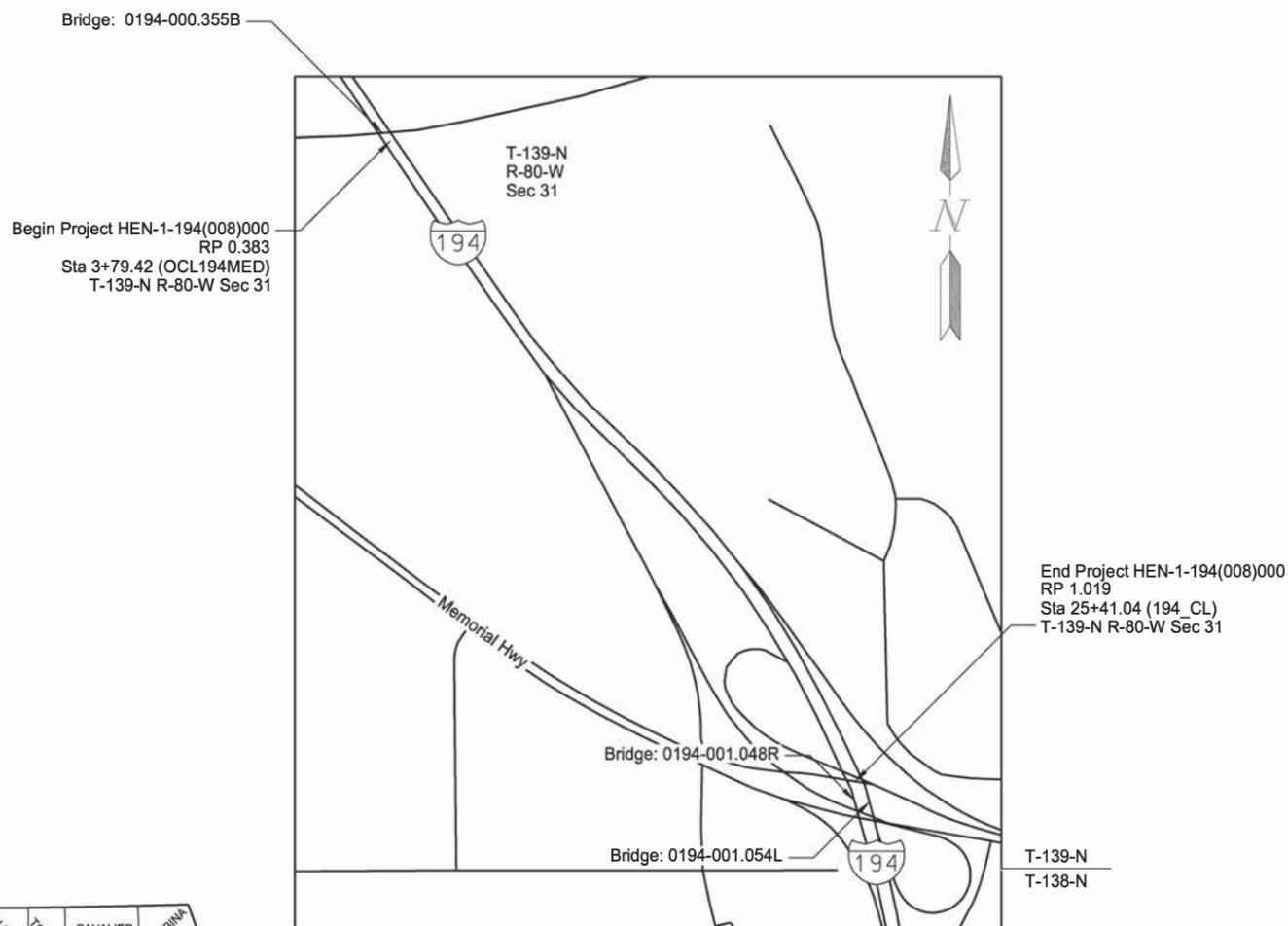
STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	22440	1	1

JOB #22 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

HEN-1-194(008)000
Morton County
I-194 from S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

GOVERNING SPECIFICATIONS:
2020 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
HEN-1-194(008)000	0.636 mi	0.636 mi



STATE COUNTY MAP

DESIGNER Aaron Murra P.E.
DESIGNER Brady Haussler P.E.
DESIGNER Jakob Ebinger
DESIGNER Mackenzie Holkesvig

ND DEPARTMENT OF TRANSPORTATION
OFFICE OF PROJECT DEVELOPMENT
Chad M. Orn
Orn, Chad M.
09 04 2020

Design Division

09/04/20

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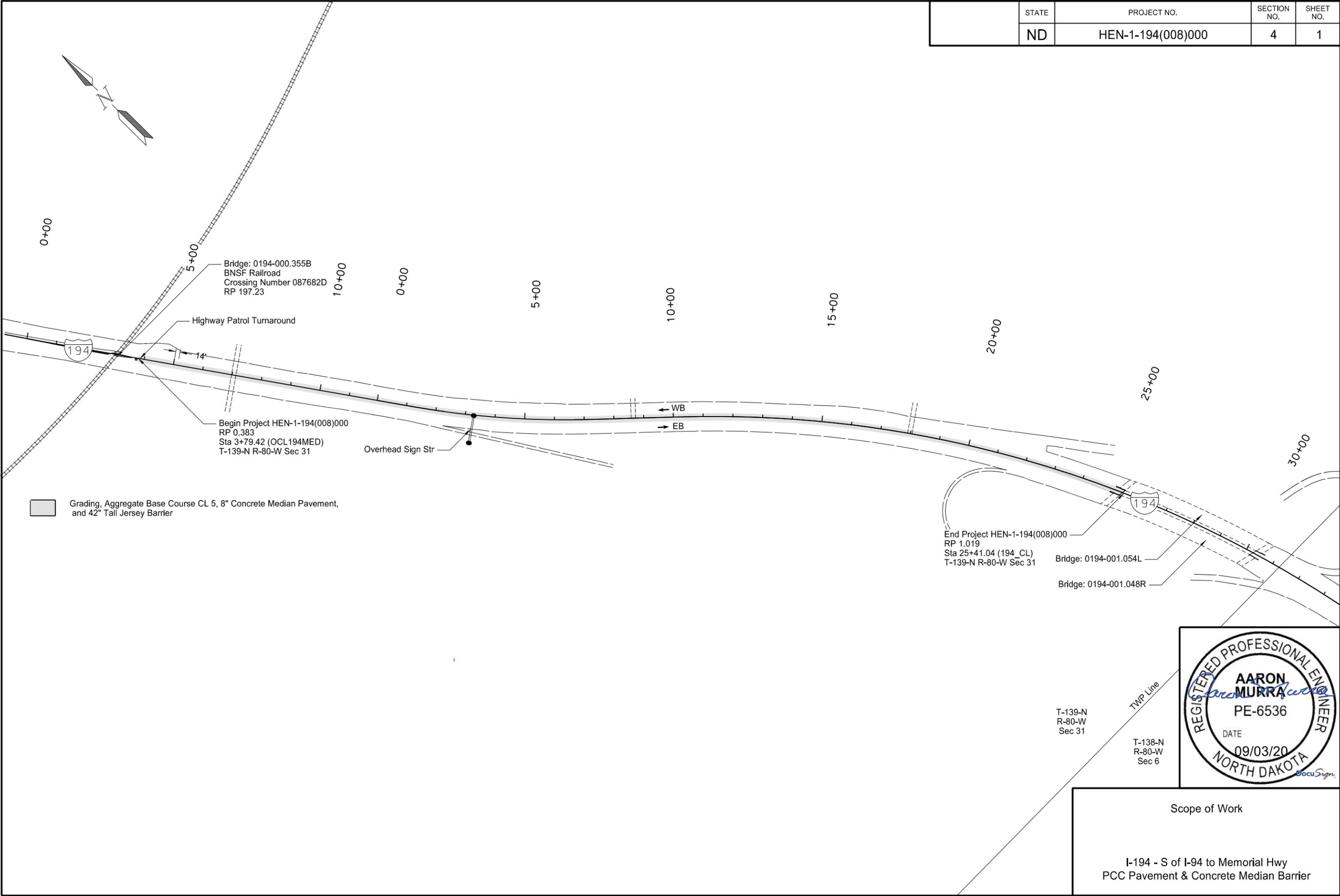
PLAN SECTIONS

Section	Page(s)	Description
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2	1	Table of Contents
4	1	Scope of Work
6	1 - 2	Notes
8	1	Quantities
10	1	Basis of Estimate
11	1	Data Tables
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81	1	Survey Coordinate and Curve Data
82	1 - 3	Survey Data Layouts
90	1 - 5	Paving Layouts
100	1 - 2	Work Zone Traffic Control
110	1 - 5	Signing
130	1 - 5	Guardrail
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Number	Description
D-101-1, 2,3	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31,32	Symbols
D-101-40	Cross Section Legend
D-261-1	Erosion Control - Fiber Roll Placement Details
D-550-2	Longitudinal Joint Details
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-704-12	Shoulder Closure Tapers
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-35	Sign Layout For One Lane Closure - Interstate System
D-704-50	Portable Sign Support Assembly
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-714-26	Transverse Mainline Pipe Installation Detail - Pipes 4 Feet or Less Below Top of Subgrade
D-722-1B	Inlet - Special
D-722-2	Inlet - Type 2
D-722-5	Manhole Details

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Scope of Work

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

NOTES

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107-115 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the BNSF Railway Company at RP 197.23. The type of work that will be performed within the railroad right of way is grading, base, concrete median paving, and concrete jersey barrier installation. Direct inquiries regarding protective liability insurance to:

Rosa Martinez
Marsh USA Inc.
4400 Comerica Bank Tower
1717 Main Street
Dallas, TX 75201-7357, USA
214-303-8519
Rosa.M.Martinez@marsh.com

Obtain information regarding crossing number 087682D from the Federal Railroad Administration website: <http://safetydata.fra.dot.gov/Officeofsafety/>

202-P01 REMOVAL OF BITUMINOUS SURFACING: Removal of the existing hot bituminous pavement includes the aggregate base beneath it as shown in the plans. Removal is based on the area between edge of proposed pavement and bottom of existing aggregate sluff.

203-P01 EXCESS TOPSOIL & EXCAVATION: Haul excess material to an approved location outside of NDDOT right-of-way. Include costs related to hauling excess excavation and topsoil off the project in the unit price bid for "COMMON EXCAVATION-WASTE" and "TOPSOIL."

550-P01 STORM SEWER CASTINGS: Install storm sewer castings while the concrete is still in a plastic state and in a manner that does not create additional joints in the pavement, which were not part of the designed joint layout. Install inlet castings that are adjacent to the concrete roadway concurrently with the driving surface paving operation. Install manhole castings that lie within the limits of the concrete pavement with the paving operation. Install castings 1/4 inch to 3/8 inch below the finished pavement surface.

If installing a casting after the paving machine has passed, use vibratory methods to consolidate concrete placed or disturbed as part of the casting installation.

Include all costs in the unit price bid for "CONCRETE MEDIAN PAVEMENT."

602-P01 JERSEY BARRIER FORMED OR SLIP FORMED: Measure the I-194 mainline jersey median barrier walls from the beginning to the end of each wall segment installed, including overlapping portions.

Construct the barriers according to the provisions of Section 602.04, but do not use deflection joints. Make 3/4" V-grooves in all faces of the barriers at 15 foot spacings to match transverse joints in median slab.

Finish the jersey barrier walls with surface finish "D." Provide a surface finish color to match the color of the existing permanent concrete median barrier on I-194 west of the project limits.

Install vertical steel reinforcement spaced at 8" C to C. Use grade 60 steel for the reinforcing. Include the costs for all labor, equipment, and materials required to install the A1, A2, A3, and longitudinal bars in the unit price bid for "JERSEY BARRIER FORMED OR SLIP FORMED."

Construct the barriers using Class AAE-3 concrete.

Include furnishing and installing Class AAE-3 concrete, grade 60 reinforcing steel, chemical adhesive, mastic, joint sealant materials, and all other materials, equipment, and labor required to complete the installation as shown in the plans in the unit price bid for "JERSEY BARRIER FORMED OR SLIP FORMED."

Include all costs associated with the saw cutting, removal, and disposal of concrete in the unit price bid for "JERSEY BARRIER FORMED OR SLIP FORMED."

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

704-P01 TRAFFIC CONTROL: Provide temporary traffic control consisting of inside shoulder closures and flagging as described. Close the inside lane and shoulder on EB and WB and maintain existing lane widths. Take down lane closures and open all lanes to traffic when work is not anticipated on this project for the following day. The traffic control device list was developed using the following standard drawings:

D-704-12 for 1 shoulder closures
D-704-35 for 2 single lane closures

To operate in a manner different than what is described, provide a complete traffic control layout to the Engineer for review and approval prior to work being performed.

704-P02 OVERHEAD SIGN TRAFFIC CONTROL: Provide temporary traffic control for a temporary road closure and flagging during the overhead sign removal and resetting. Limit the closure to 30 minutes and complete work between 1AM and 5AM.

704-P03 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the shoulder and adjacent driving lane are not even at the end of the day, the following criteria will apply:

Place the following sign assembly at the locations listed below.

Sign Assembly: Sign No. W8-17-48 "Shoulder Drop Off" and supplemental plate Sign No. W20-52P-54 to identify the distance.

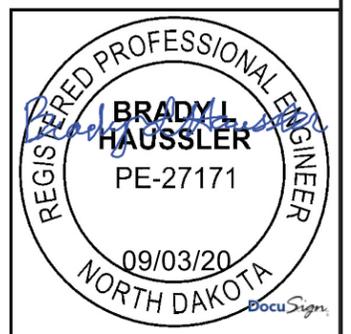
Locations:

- In advance of the drop off;
- Spaced at each mile from the advance sign; and
- At major intersections (CMC routes, state and US highways, and Interstate Ramps).

If the difference in elevation between the shoulder and the driving lane is 2" or greater, construct a slough on the driving lane that is 4:1 or flatter.

If the difference in elevation between the shoulder and driving lane is less than 2", no slough is required.

Sign assemblies will be measured and paid for according to Section 704 "TEMPORARY TRAFFIC CONTROL."



NOTES

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- 708-P01 INLET PROTECTION: Include all costs for installing, cleaning, removing sediment, maintaining, removing, and replacing damaged inlet protection devices in the unit price bid for "INLET PROTECTION-SPECIAL."
- 714-P01 PLUG PIPE – ALL TYPES AND SIZES: Plug the pipe and remove the top of the manhole to 2 feet below subgrade at the locations designated on the plans. Blow the manhole full of sand or pump full of controlled density backfill. Remove the end section of the pipe and 1 section of pipe and fill the end with topsoil. Include all costs for labor, materials, and equipment in the unit price bid for "REMOVAL OF INLETS."
- 714-P02 PIPE CONDUIT JACKED OR BORED: Supply pipe meeting Section 830.02 F, "Smooth Wall Steel Pipe"; pipe meeting ASTM A 252, Grade 2; or pipe meeting ASTM A 53, Grade B.

Provide pipes with a minimum wall thickness as specified in Table 830-01 of the Standard Specifications.
- 714-P03 PIPE CONDUIT JACKED OR BORED: The culvert consists of separate bid items for each portion: "PIPE CONC REINF 30IN CL III-STORM DRAIN" and "PIPE CONDUIT 30IN – JACKED OR BORED". The pay lengths of the pipe bid items are as shown for the type and size specified per linear foot.

Include all costs for required materials, labor, and equipment (including connecting bands or Couplers), and restoring bore pits to pre-construction conditions in the unit price bid for "PIPE CONDUIT 30IN – JACKED OR BORED."
- 722-P01 REMOVE AND REPLACE INLETS: Remove the existing drain frames, grates, and risers, and modify the ends of the existing reinforced concrete outlet pipe to fit the new inlets.

Backfill the remaining hole with CI 5 aggregate base course. Place and compact the backfill in 6-inch layers using a mechanical tamper with an appropriate sized tamping head.

Include the costs for all labor, equipment and materials required to remove the inlets and modify existing pipes as described above in the unit price bid for "REMOVAL OF INLETS."

Include the costs for all labor, equipment, and materials required to install the inlets, including modifying the outlet pipe to connect to the new inlets and backfilling the remaining hole as described above in the unit price bid for "INLET - TYPE 2" and "INLET - TYPE 2 DOUBLE."
- 722-P02 INLETS AND MANHOLES: All new inlets except 6A have been specified with a minimum 4-foot riser height. At inlets 1A, 2A, 3A, 4A, 5A, 6A, 7A, 8A, and 9A, the base elevation has been set deeper than required for the outlet storm drain conduit. Fill void between inlet base and bottom of lowest pipe with Class AE-3 concrete, and then slope the inlet bottom to drain using either Class AE-3 concrete or mortar in accordance with the details shown on standard drawings D-722-1B AND D-722-2. Include the costs to accomplish this work in the unit price bid for the respective inlet pay item.
- 764-P01 REMOVE W-BEAM GUARDRAIL & POSTS: Deliver the removed W-beam guardrail materials to the Bismarck District back lot:
Bismarck District Office
218 Airport Road
Bismarck, ND 58504-6003

- Neatly stack the materials at a location designated by the Engineer. Include the cost for delivery and stacking of the removed W-beam guardrail materials in the unit price bid for "REMOVE W-BEAM GUARDRAIL & POSTS."
- 764-P02 REMOVE BOX BEAM MEDIAN GUARDRAIL: Deliver the removed box beam guardrail and post materials to the Bismarck District back lot:
Bismarck District Office
218 Airport Road
Bismarck, ND 58504-6003

Neatly stack the materials at a location designated by the Engineer.

Include the cost for delivery and stacking of the removed box beam guardrail materials in the unit price bid for "REMOVE BOX BEAM MEDIAN BARRIER."
- 764-P03 REMOVE BOX BEAM MEDIAN BARRIER END SECTION: Deliver the removed end section materials to the Bismarck District back lot:
Bismarck District Office
218 Airport Road
Bismarck, ND 58504-6003

Neatly stack the materials at a location designated by the Engineer.

Measure the item "REMOVE BOX BEAM MEDIAN BARRIER END SECTION" by the number removed.

Include the cost for delivery and stacking of the removed end section materials in the unit price bid for "REMOVE BOX BEAM MEDIAN BARRIER END SECTION."
- 764-P04 ATTENUATING CRASH CUSHION TL-3: Install a 24" wide crash cushion at the end of the median barrier at RP 0.389. The cushion will not require a separate slab. Anchor the unit to the concrete median pavement slab in accordance with manufacturer's recommendations. Test crash cushions in accordance with MASH.

Install the crash cushion on a concrete pad in accordance with the crash cushions manufacturer's recommendations, with tension strut(s), transition panels on both sides of the unit, and a Type XI yellow retroreflective sheeting on the nose. Installation the transition panels using manufacturer's recommendations.

Include all costs for supplying and installing the concrete slab, tension strut(s), transition panels, and retroreflective sheeting in the unit price bid for "ATTENUATING CRASH CUSHION TL-3."



ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	8	1

SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
-----	-----	-----	-----	-----
103	0100 CONTRACT BOND	L SUM	0.45	0.45
107	0100 RAILWAY PROTECTION INSURANCE	L SUM	1	1
202	0111 REMOVAL OF CONCRETE	L SUM	1	1
202	0130 REMOVAL OF CURB & GUTTER	LF	29	29
202	0132 REMOVAL OF BITUMINOUS SURFACING	SY	5,236	5,236
202	0230 REMOVAL OF INLETS	EA	2	2
203	0109 TOPSOIL	CY	1,190	1,190
203	0113 COMMON EXCAVATION-WASTE	CY	1,155	1,155
216	0100 WATER	M GAL	118	118
230	0320 SUBGRADE PREPARATION-TYPE C-12IN	STA	34	34
255	0102 ECB TYPE 2	SY	197	197
261	0112 FIBER ROLLS 12IN	LF	30	30
302	0120 AGGREGATE BASE COURSE CL 5	TON	4,310	4,310
550	3005 CONCRETE MEDIAN PAVEMENT	SY	9,037	9,037
602	1130 CLASS AE-3 CONCRETE	CY	11.9	11.9
602	1200 JERSEY BARRIER FORMED OR SLIP FORMED	LF	3,300	3,300
612	0115 REINFORCING STEEL-GRADE 60	LBS	452	452
702	0100 MOBILIZATION	L SUM	0.45	0.45
704	0100 FLAGGING	MHR	500	500
704	1000 TRAFFIC CONTROL SIGNS	UNIT	1,051	1,051
704	1052 TYPE III BARRICADE	EA	2	2
704	1060 DELINEATOR DRUMS	EA	22	22
704	1067 TUBULAR MARKERS	EA	221	221
704	1087 SEQUENCING ARROW PANEL-TYPE C	EA	1	1
708	1540 INLET PROTECTION-SPECIAL	EA	38	38
714	0825 PIPE CONC REINF 30IN CL III-STORM DRAIN	LF	58	58
714	4097 PIPE CONDUIT 15IN-STORM DRAIN	LF	327	327
714	4166 PIPE CONDUIT 30IN-JACKED OR BORED	LF	549	549
722	3510 INLET-TYPE 2	EA	3	3
722	3520 INLET-TYPE 2 DOUBLE	EA	17	17
722	3701 INLET SPECIAL-TYPE 2 48IN	EA	1	1
722	3761 INLET SPECIAL-TYPE 2 60IN	EA	8	8
754	0593 RESET SIGN SUPPORT	EA	1	1

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	8	2

SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
-----	-----	-----	-----	-----
754	1599 REVISE OVERHEAD SIGN STR TRUSS	EA	1	1
764	0151 REMOVE W-BEAM GUARDRAIL & POSTS	LF	207	207
764	2075 REMOVE BOX BEAM MEDIAN BARRIER	LF	519	519
764	2079 REMOVE BOX BEAM MEDIAN BARRIER END SECTION	EA	4	4
764	9011 ATTENUATING CRASH CUSHION TL-3	EA	1	1
930	9647 BARRIER END MODIFICATION	EA	1	1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC CODE	BID ITEM	QTY	UNIT
Use or Location	Rate or Station		
202 0132	REMOVAL OF BITUMINOUS SURFACING		
Mainline Pavement	Varies 13" to 15"	4751	SY
Existing Median Pavement	8" Aggregate (Sta 9+32.42 to 9+74.14 (OCL194MED))	45	SY
	6" Thickness (Sta 3+79.41 to 4+11.07 (OCL194MED))	89	SY
	- 2" HBP		
	- 4" Aggregate		
	6" Thickness (Sta 24+05.77 to 25+47.66 (194_CL))	351	SY
	- 2" HBP		
	- 4" Aggregate		
216 0100	WATER		
I-194 EB & WB Median	25 MGal/Mile for Dust Palliative	16	MGAL
	20 Gal/Ton for Aggregates	86	MGAL
	25 MGal/mile for Subgrade Prep	16	MGAL
230 0320	SUBGRADE PREPARATION-TYPE C-12IN		
I-194 EB & WB Median	Sta 3+79.41 to 11+95.38 (OCL194MED)	8	STA
	Sta 0+00 to 25+41.04 (194_CL)	26	STA
302 0120	AGGREGATE BASE COURSE CL 5		
I-194 EB & WB Median	8" Base Thickness	3766	TON
	Aggregate Fill	544	TON
550 3005	CONCRETE MEDIAN PAVEMENT		
I-194 EB & WB Median	8" Pavement Thickness	9037	SY
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED		
I-194 EB & WB Median	Sta 0+00 to 11+25 (194_BA1)	1103	LF
	Sta 0+00 to 21+97 (194_BA3)	2197	LF



Basis of Estimate

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

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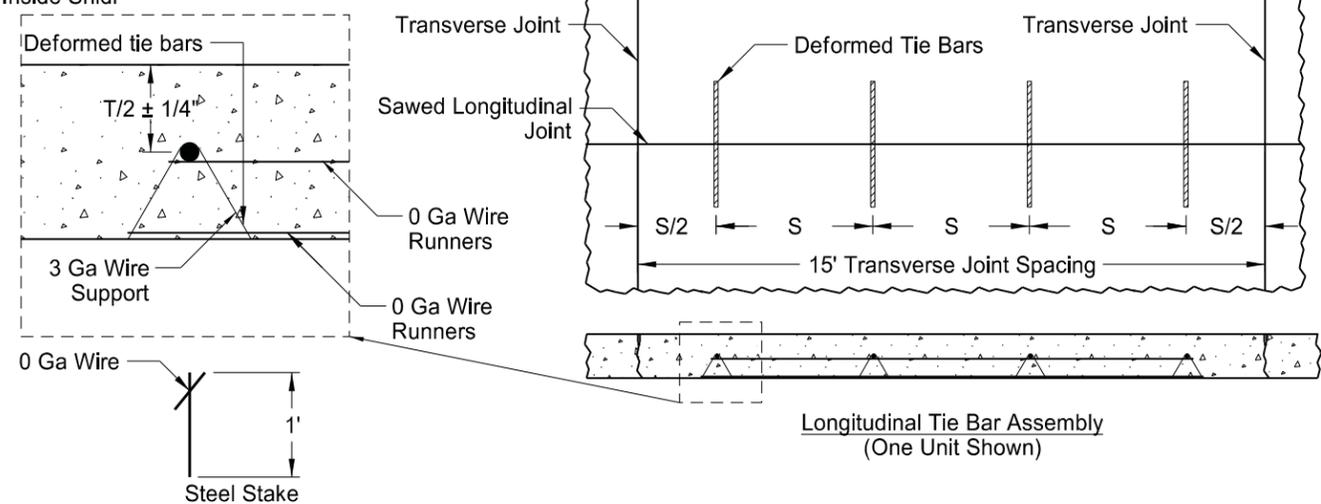
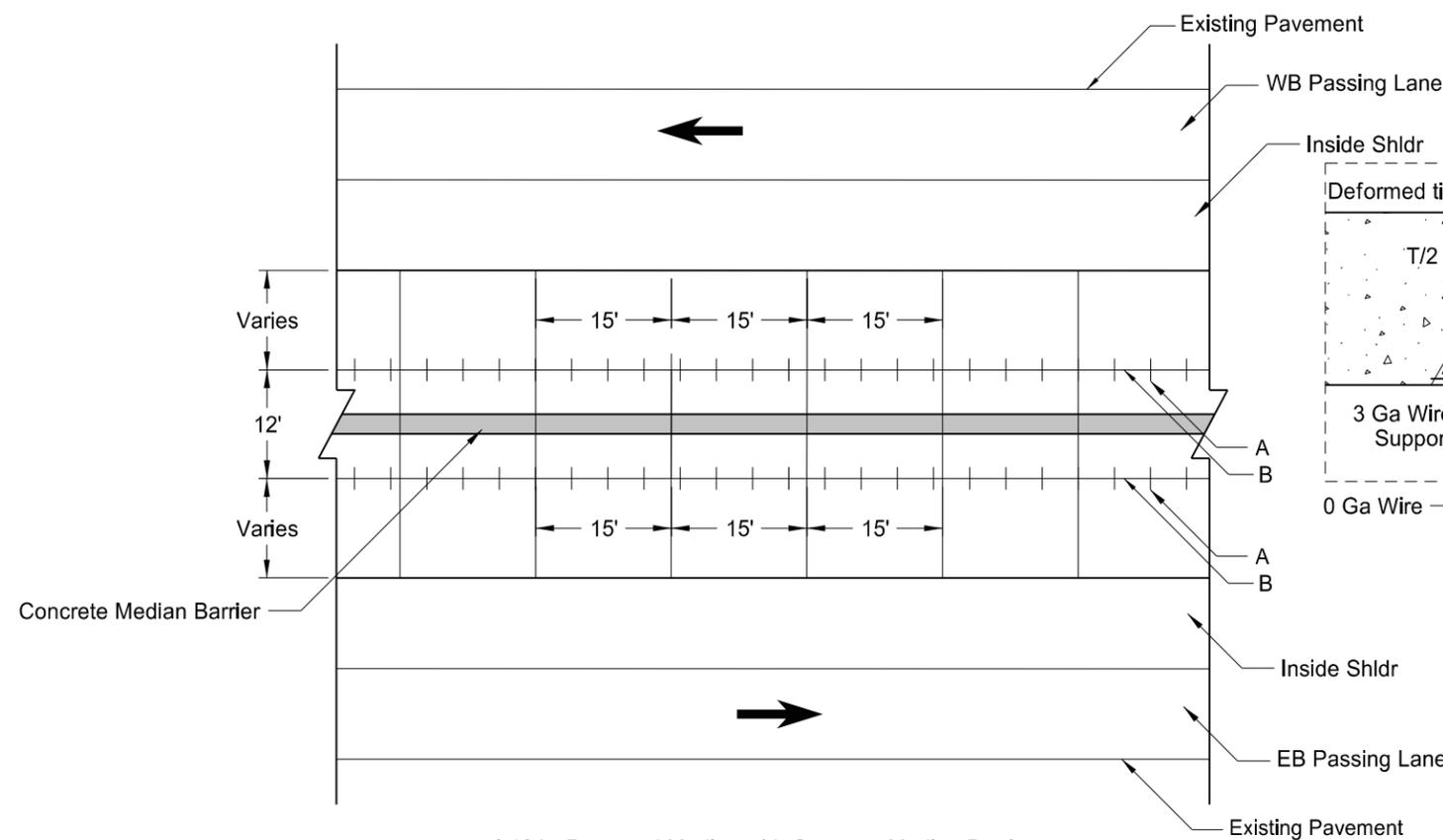
Common Excavation Waste (Pay Item)	Topsoil (Pay Item)
CY	CY
1155	1190



Earthwork Summary

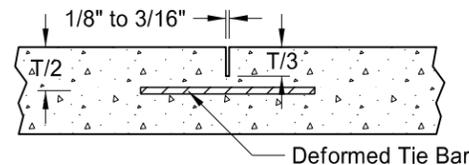
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

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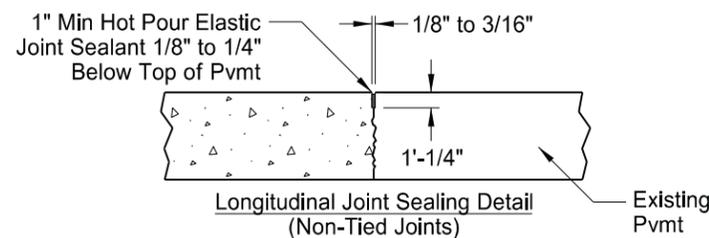


Location	Pvmt Thickness	Steel Grade	Bar Size & Length	Spacing "S"
Sta 3+79 to 11+95.38 (OCL194MED)	8"	60	# 6 Bar x 48"	45"
Sta 0+00 to 25+41 (194_CL)		60	# 5 Bar x 42"	45"

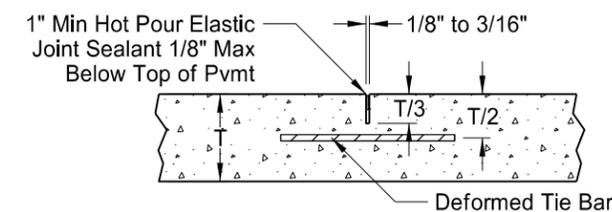
I-194 - Proposed Median with Concrete Median Barrier
 Sta 3+79 to Sta 11+95.38 (OCL194MED)
 Sta 0+00 to Sta 25+41 194_CL



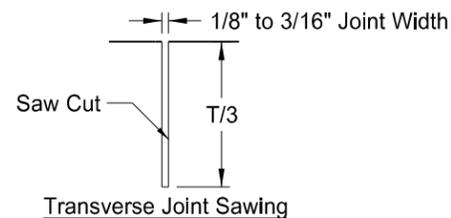
Longitudinal Joint Sawning Detail
 (Sawed and Tied Joints)



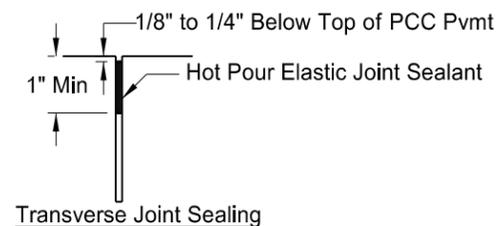
Longitudinal Joint Sealing Detail
 (Non-Tied Joints)



Longitudinal Joint Sealing Detail
 (Sawed and Tied Joints)



Transverse Joint Sawning



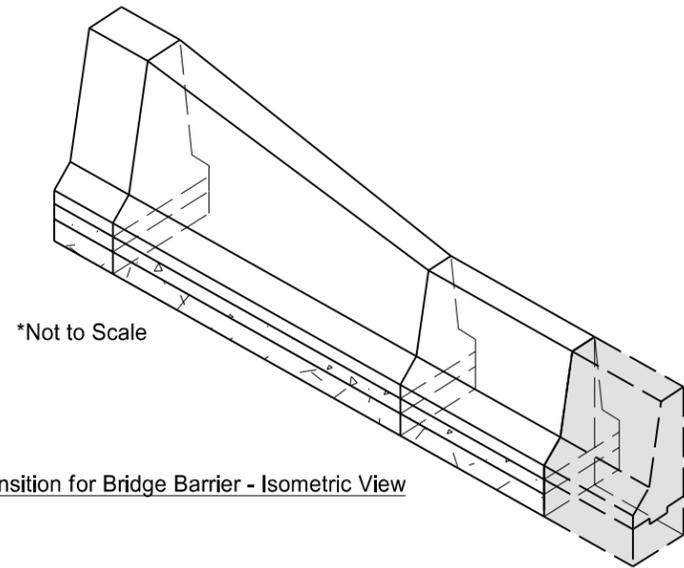
Transverse Joint Sealing

Notes:
 A = XX" Deformed Tie Bars @ X'-X" C to C Spacing.
 B = Sawed & Sealed Longitudinal Joints.
 S = Tie Bar Spacing.
 T = Pavement Thickness.
 Do Not Place a Tie Bar Within 15" of a Transverse Joint.
 See Standard Drawing for More Details.
 "OCL194MED" and "194_CL" are the Proposed Centerline Alignments.
 Provide Hot Poured Joint Sealant Meeting the Requirements of Section 826.02A.2 of the Standard Specifications.
 Include All Costs of the Longitudinal Joint and Seal in the Price Bid for the PCC Pavement.
 Use Grade 60 Steel for Tie Bars Installed Bent and Later Straightened.
 Increase the Tie Bar Spacing Up to 10%, when necessary to Facilitate Construction.
 Place Tie Bars at a 48" Maximum Spacing.



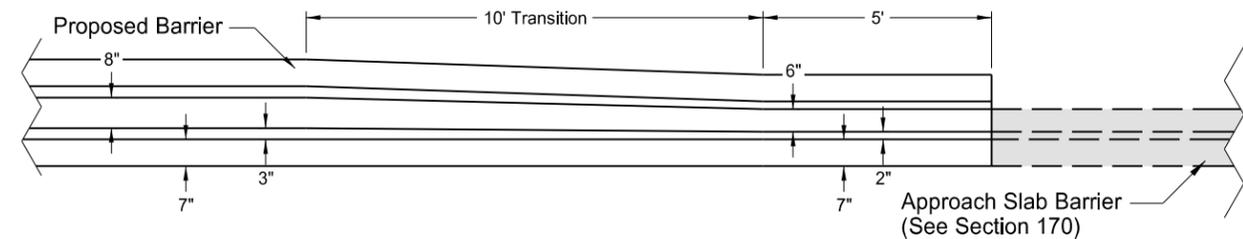
Transverse and Longitudinal Joint Detail
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

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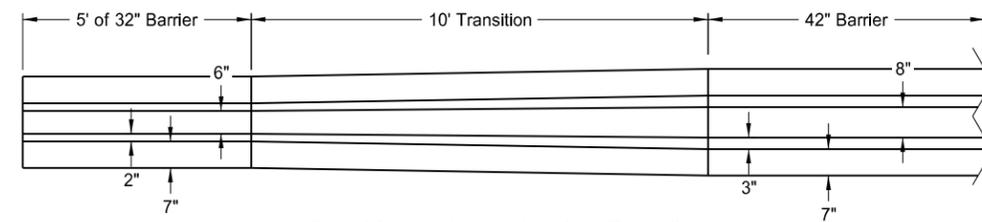


Transition for Bridge Barrier - Isometric View

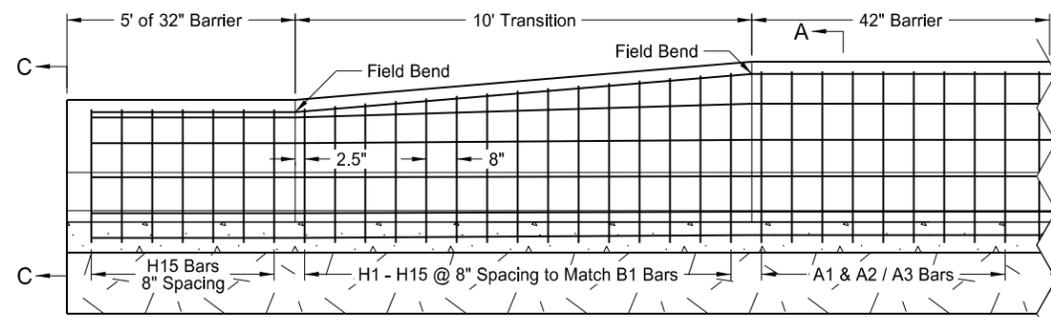
- Notes:
1. See Section 130 for the proposed barrier bar list.
 2. See Section 170 for approach slab barrier details.



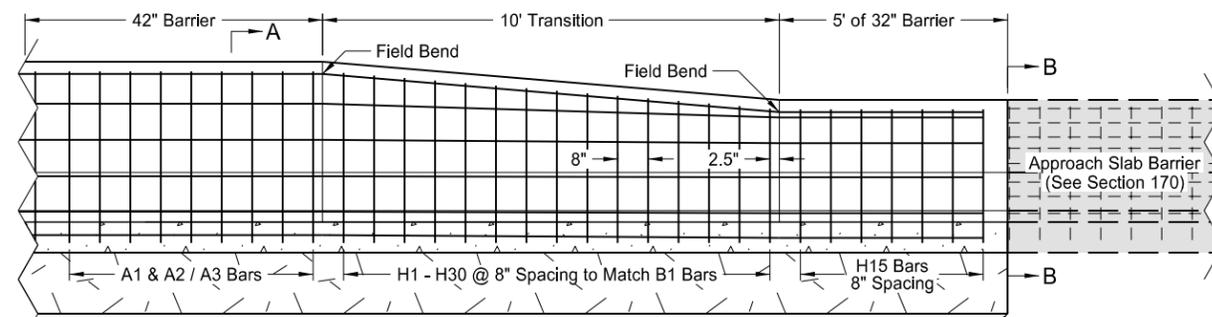
Transition for Bridge Barrier - Plan View



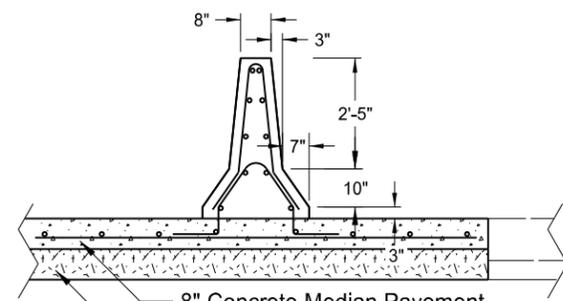
Transition for Crash Cushion- Plan View



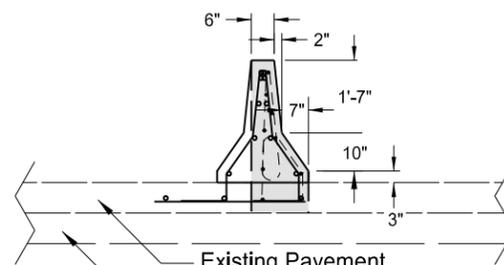
Transition for Crash Cushion - Elevation View



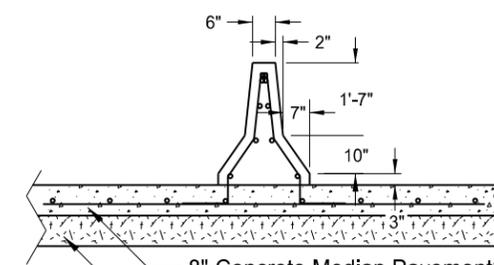
Transition for Bridge Barrier - Elevation View



Section A-A
*Drawing Not to Scale



Section B-B
*Drawing Not to Scale

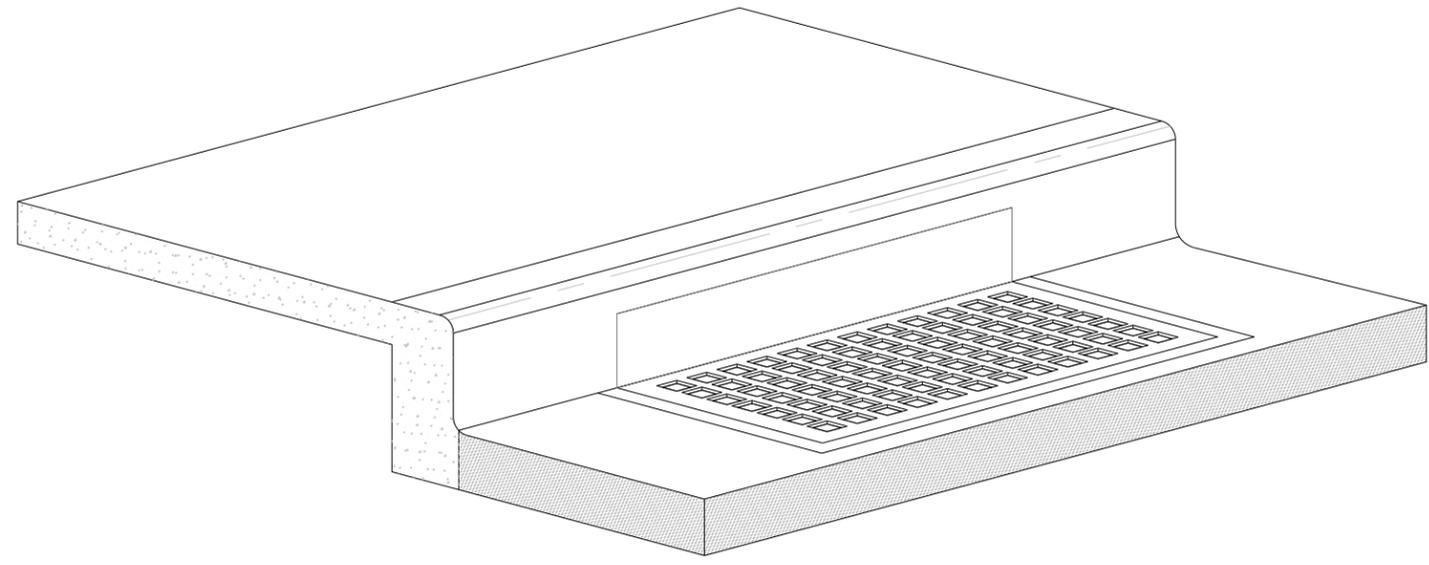


Section C-C
*Drawing Not to Scale



Jersey Barrier Transition
Crash Cushion & Bridge Barrier Transitions
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

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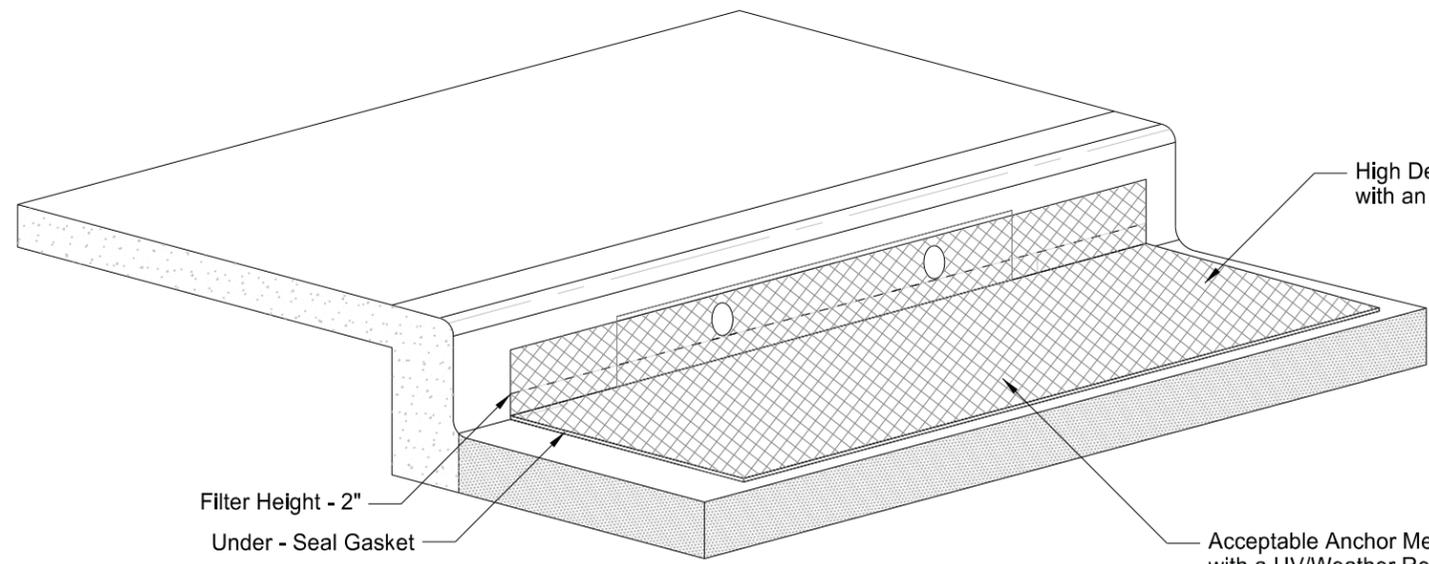
Inlet Protection Device

Installation Notes:

1. Place device tightly against drain opening and cover entire grate. Extend the device at least 2 inches past the grate toward the street.
2. Overlap the segments at longer openings.
3. Anchor the device so that water cannot flow behind it.

General Notes:

1. Remove material that falls into the inlet during maintenance or removal of the device.



High Density Polyethylene (HDPE) high flow jacket filter (8,000 opening per SY) with an integrated 425 um (micron meter) fine filter particle mesh

Filter Height - 2"
Under - Seal Gasket

Acceptable Anchor Method: Fasten to inlet casting grate with a UV/Weather Resistant Plastic Cable Zip Ties - 16 to 24 in. Install zip ties at each corner of the inlet near the perimeter and two additional zip ties near the middle of the casting. Punch hole through filter and run cable tie downward around grate and back up to fasten.



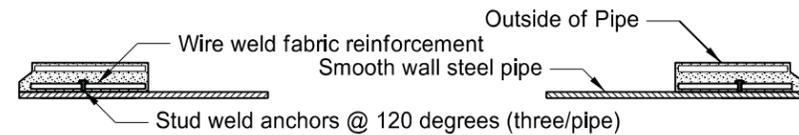
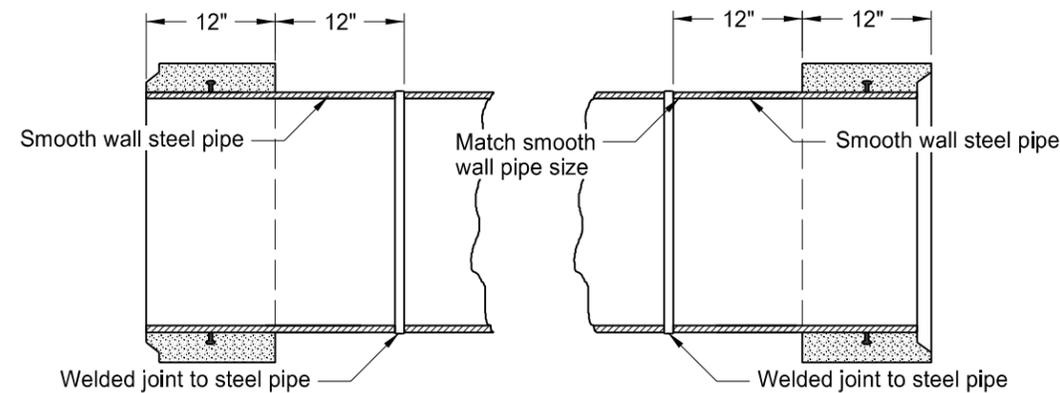
Inlet Protection - Special

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

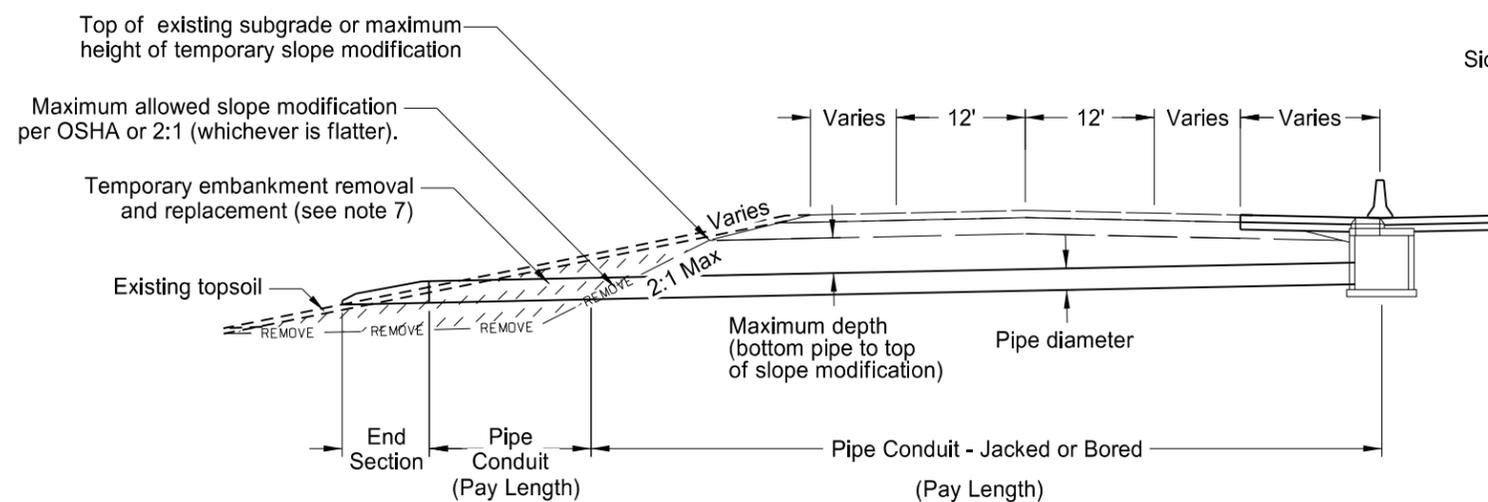
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	20	4

NOTES:

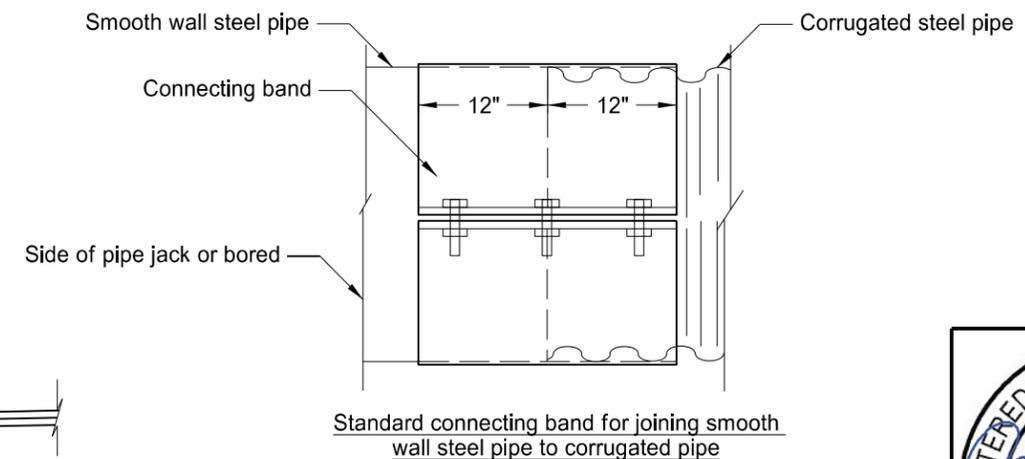
1. Bore or jack pipe indicated as jacked on the plans. If the boring method is used, use of smooth wall steel pipe in lieu of RCP is acceptable. For jacked concrete pipe sections, use the class required for the height of fill, but with a minimum concrete compressive strength of 6,000 psi.
2. Install bored or jacked pipe culverts in accordance with section 714 and section 830 of the standard specifications.
3. Bore or jack pipe culverts with equipment that encases the hole as the earth is removed and installs the pipe concurrently
4. Protect the traveling public with proper traffic control and taffic safety measures during the jacking or boring process (while extending the pipe through the undisturbed fill) without disrupting traffic, or damaging roadway grade and surface.
5. Use an encased hole a maximum of 0.1 foot greater than the outside diameter of the pipe.
6. Do not use water in the boring or jacking process.
7. Include temporary removal and replacement of embankment in price bid for: "PIPE CONDUIT 30IN-JACKED OR BORED." Use a maximum 2:1 slope beyond the existing pavement section (base, pavement, etc) for any temporary removal of embankment. Protect and stabilize the slope throughout the jacking or boring process.
8. Use proper cushioning material between the jack and pipe. Remove damaged sections with an unsatisfactory joint and install a new section.
9. Start the boring or jacking from the low or downstream end and proceed in straight lines to the grade and alignment as shown on the plans. Maintain flow line elevation at the starting point for boring or jacking within 0.1 ft. of staked grade; do not reverse the flow line at any point; and do not vary the line and grade at any point within the pipe more than 0.5 ft. from the designated line and grade.
10. Fill openings greater than 1/4 inch (5 mm) in width between adjacent sections of concrete pipe with 1:2 cement/sand mortar. Tie all concrete pipe sections and end sections in accordance with standard drawing D-714-22. Weld all steel sections continuously around their periphery.
11. Once the pipe jacking has begun, proceed with the operation without interruption to prevent the pipe from becoming firmly set in the embankment.



Standard detail for joining smooth wall steel pipe to reinforced concrete pipe

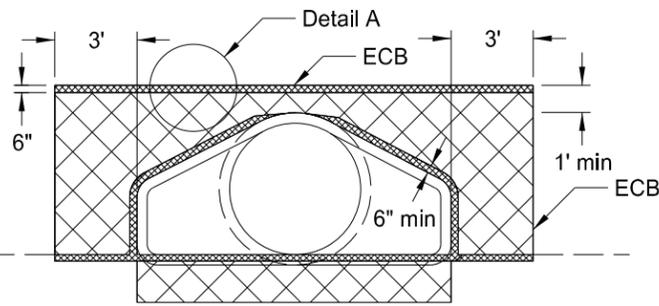


Jacked and Bored Pay Length

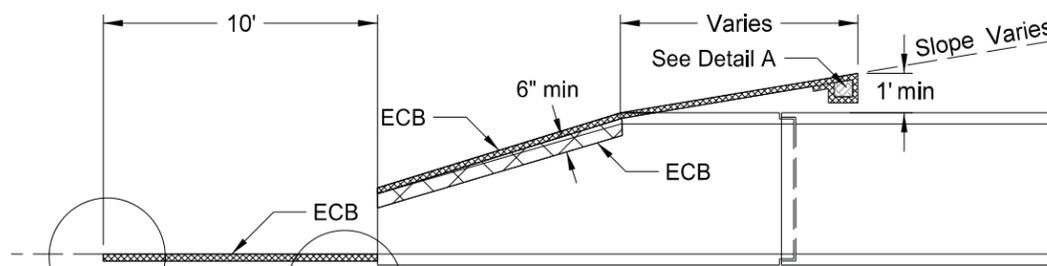


Jacked or Bored Pipe Detail

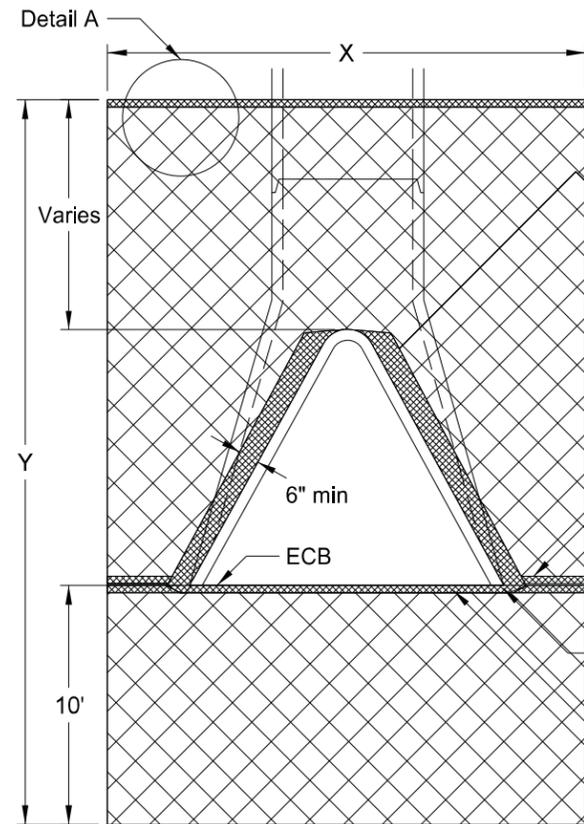
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier



FRONT VIEW

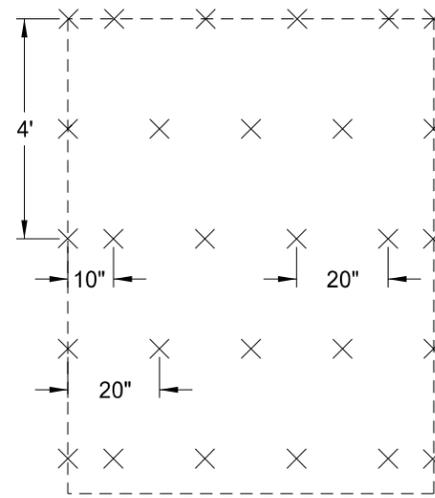


SIDE VIEW



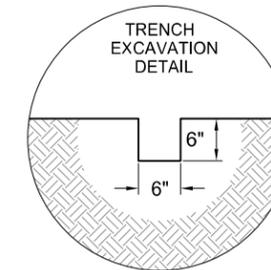
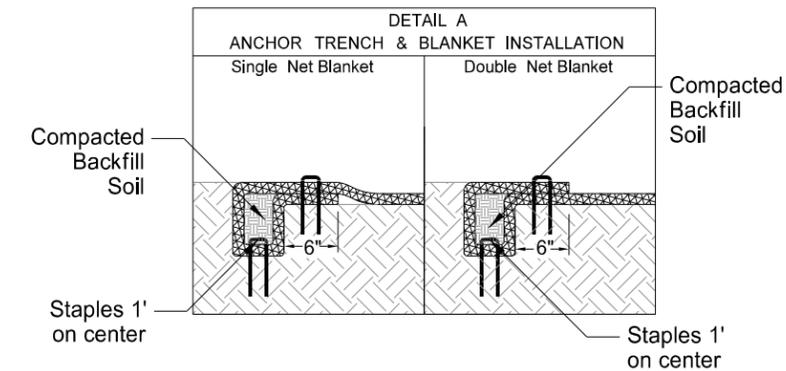
TOP VIEW

ECB
 Tuck this end a minimum of 6" into the embankment.
 Inlet side - see applicable detail for pipe inlet
 Outlet side - see applicable detail for pipe outlet
 Tuck this end a minimum of 6" into the embankment

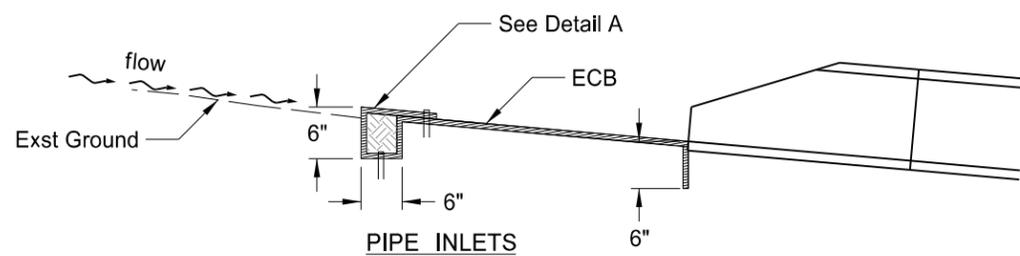


STAPLE PATTERN

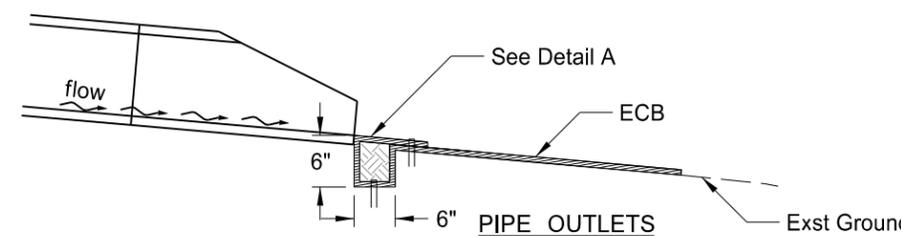
Erosion Control Blanket (ECB)							
Alignment	Location to be Protected	Culvert Type Appr/CL	Pipe Diam (Inch)	ECB Type 2			
				X Ft	Y Ft	Unit Quantity SF	Unit Quantity SY
OCL194MED	Sta 4+50.86 Rt	CL	30	11.6	18.5	195.1	22
	Sta 11+49.48 Lt	CL	30	11.6	20.5	218.3	25
194_CL	Sta 2+98.85 Lt	CL	30	11.6	20.5	218.3	25
	Sta 5+60.72 Lt	CL	30	11.6	20.5	218.3	25
	Sta 11+40.34 Lt	CL	30	11.6	20.5	218.3	25
	Sta 14+60.05 Lt	CL	30	11.6	20.5	218.3	25
	Sta 16+92.45 Lt	CL	30	11.6	20.5	218.3	25
	Sta 18+92.33 Lt	CL	30	11.6	20.5	218.3	25



NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.



PIPE INLETS

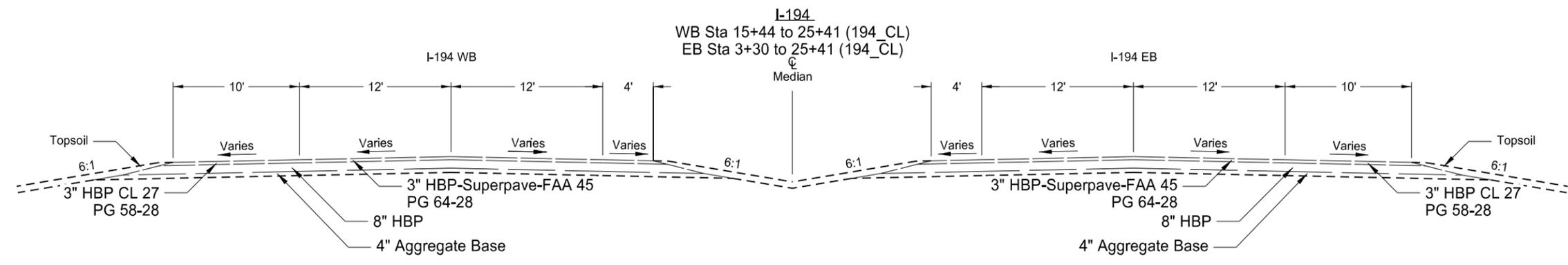
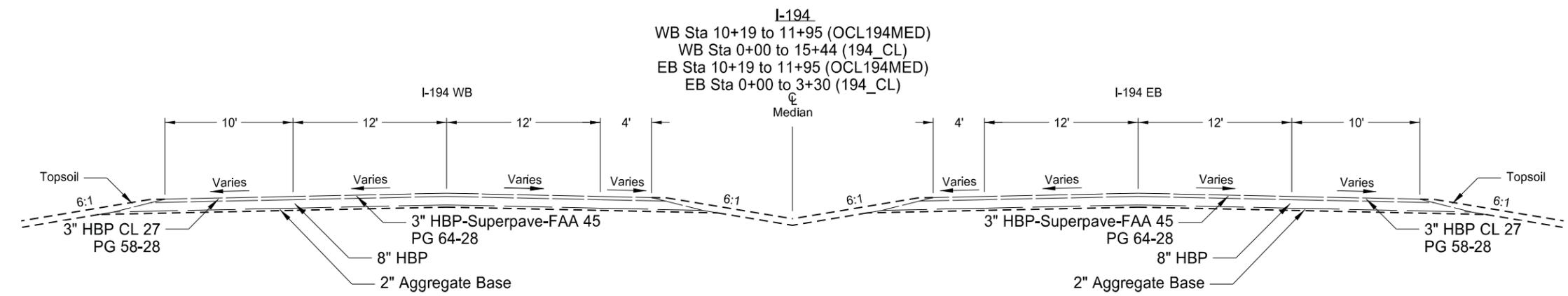
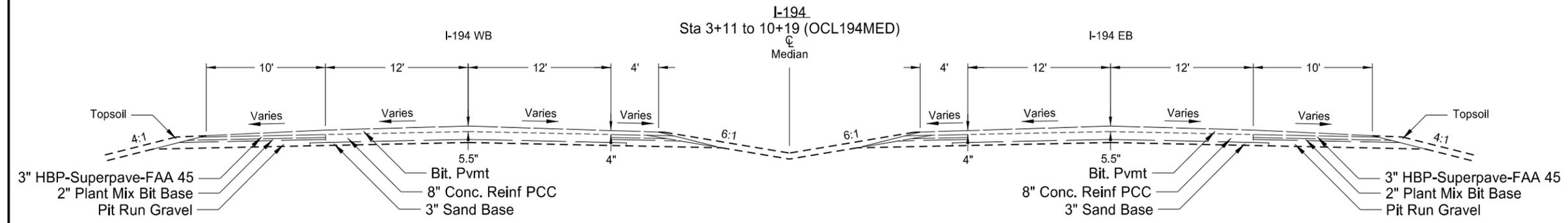


PIPE OUTLETS

Erosion Control at Culvert Flared End Sections

I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

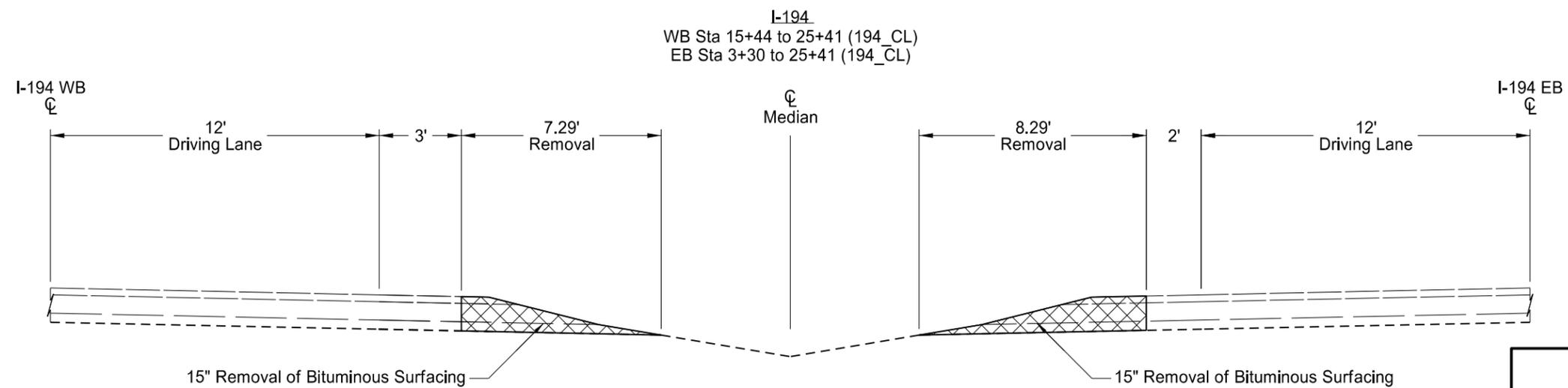
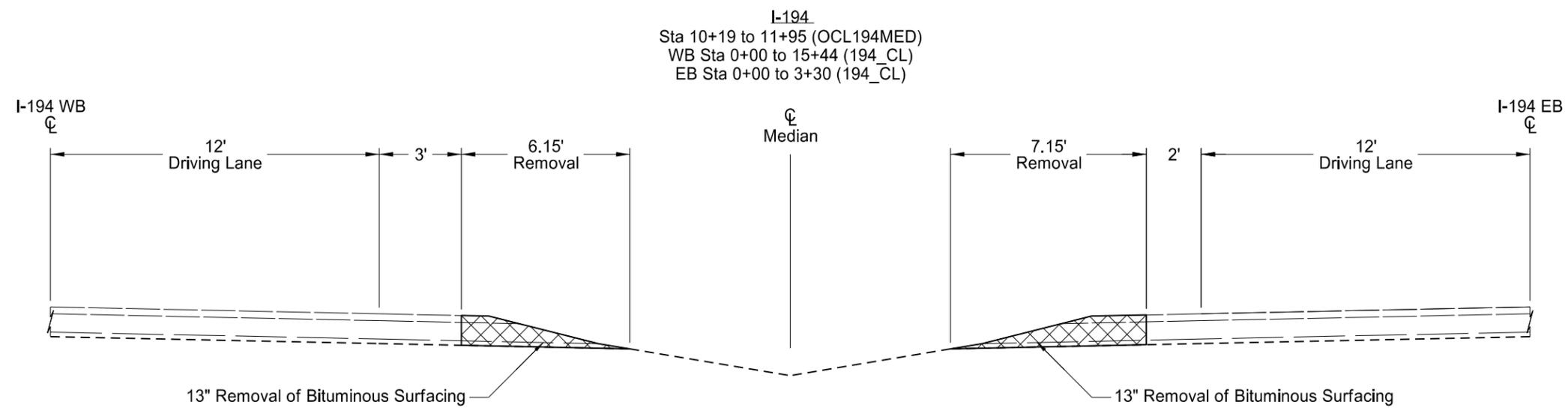
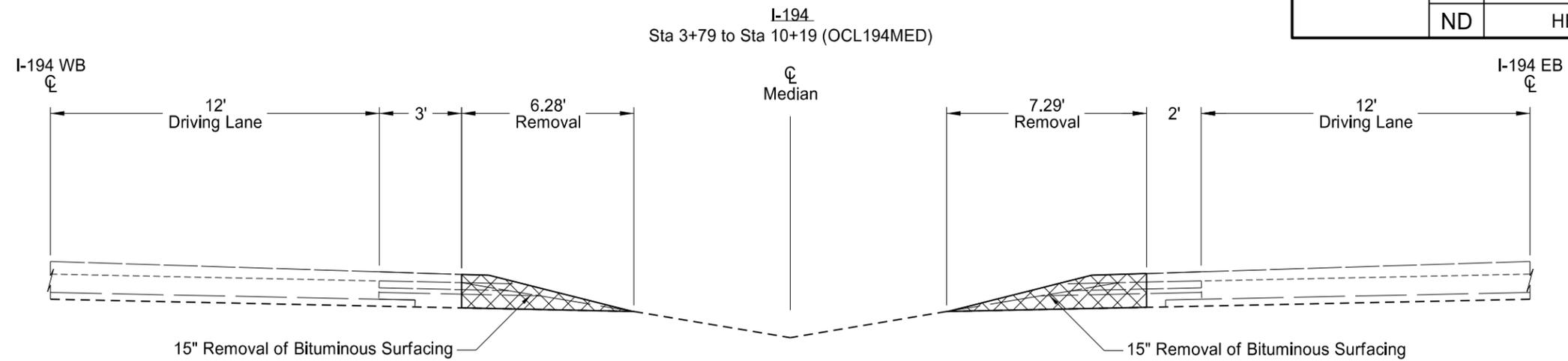
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	30	1



Existing Typical Sections

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

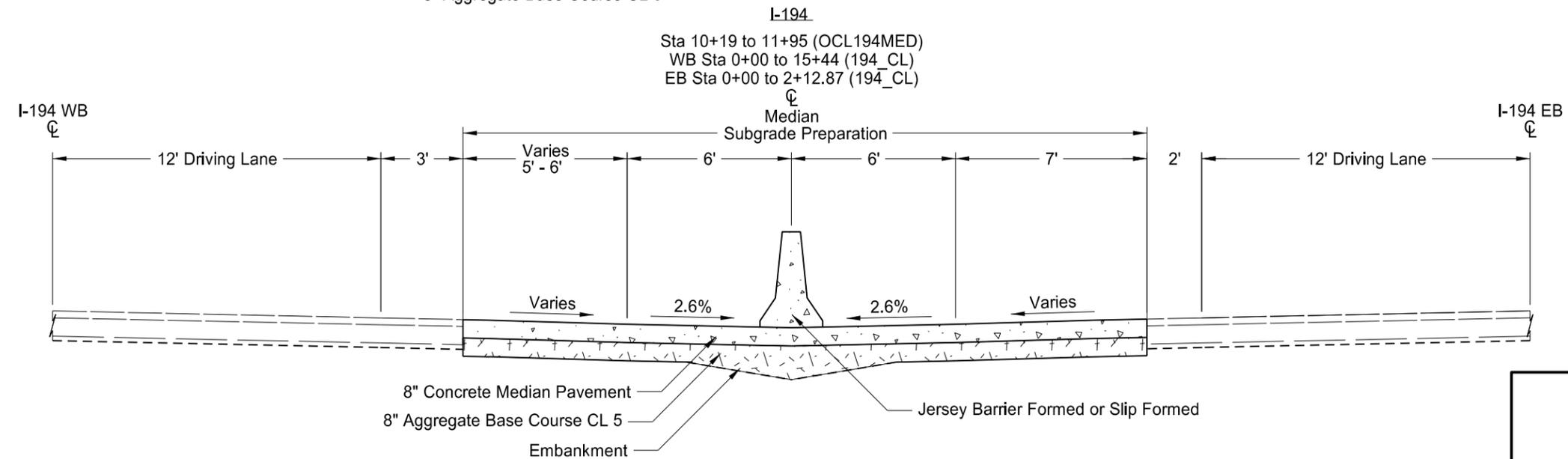
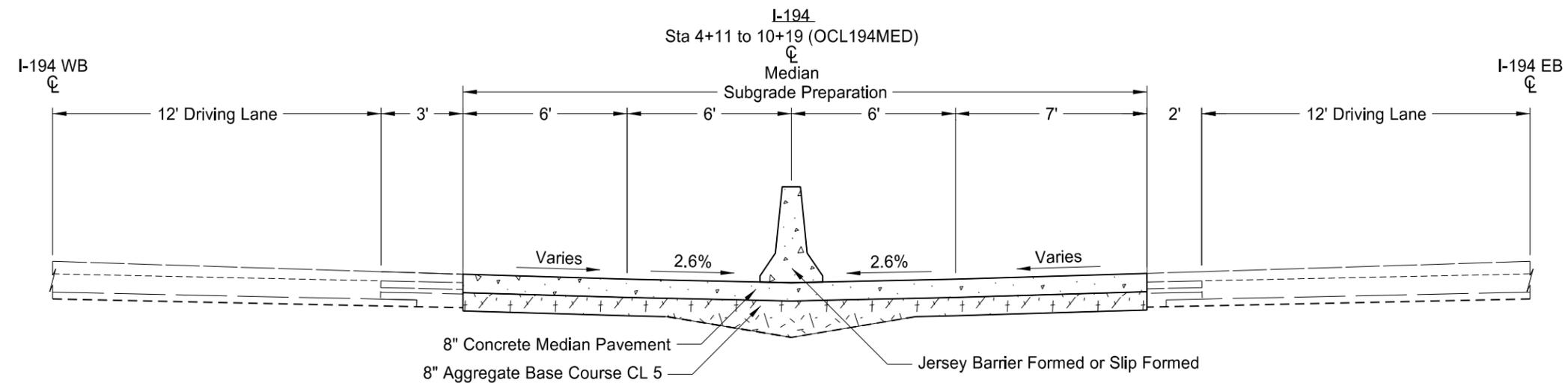
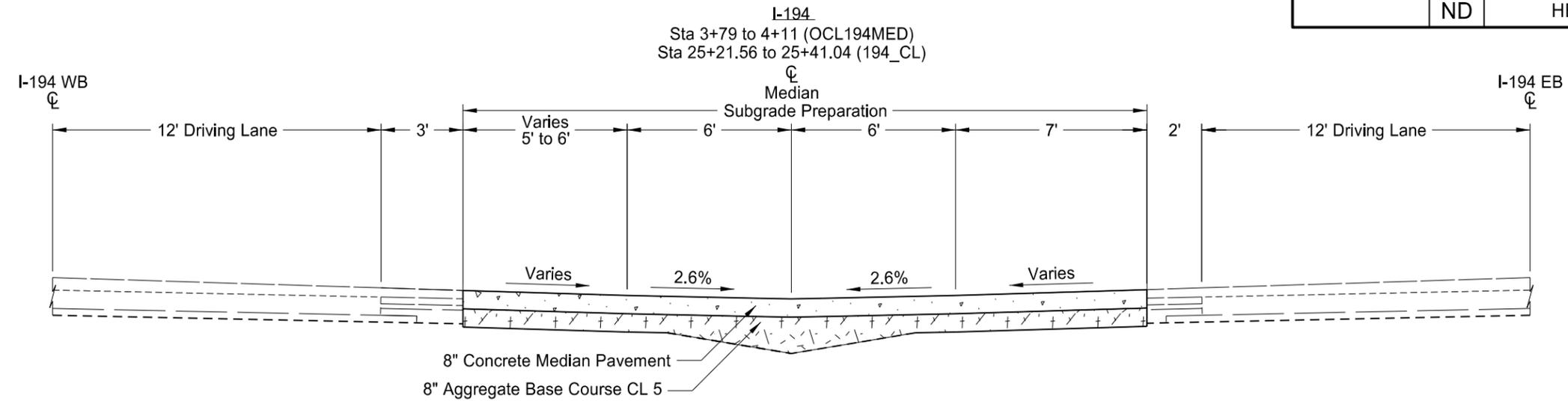
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	30	2



Removal Typical Sections

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

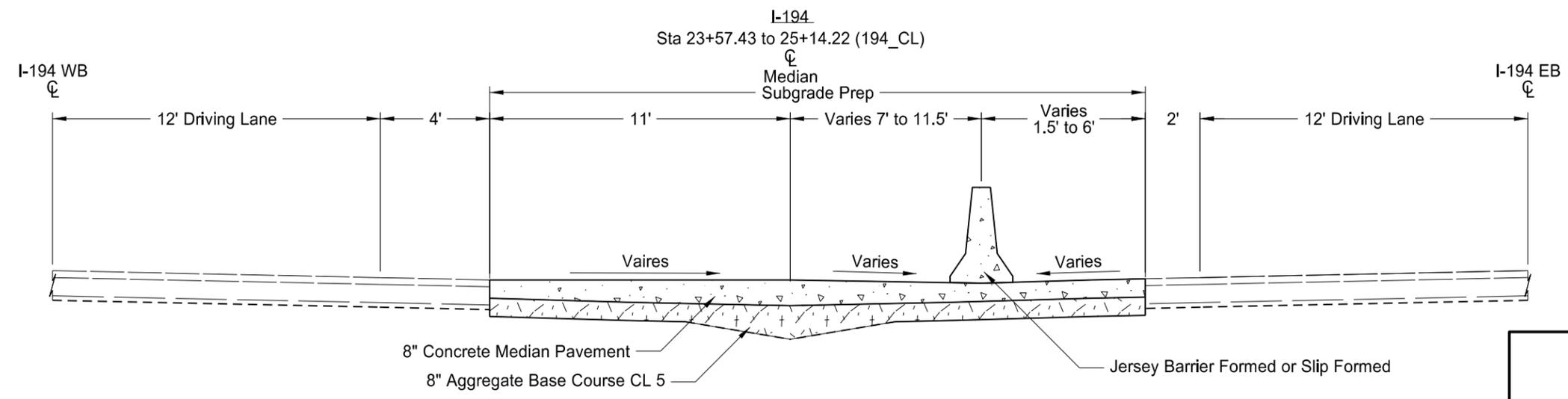
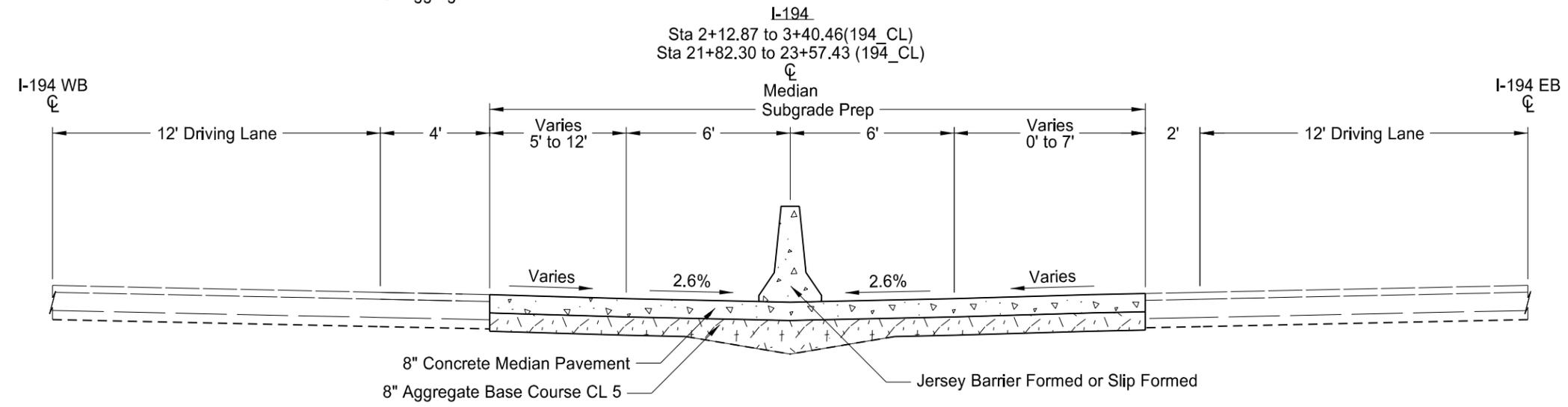
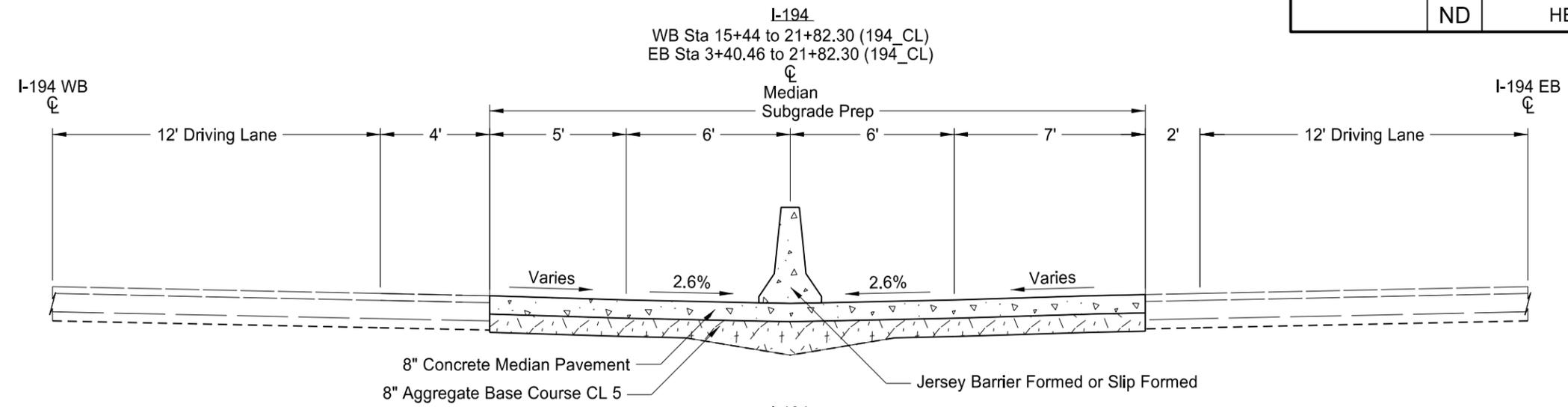
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	30	3



Proposed Typical Sections

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	30	4

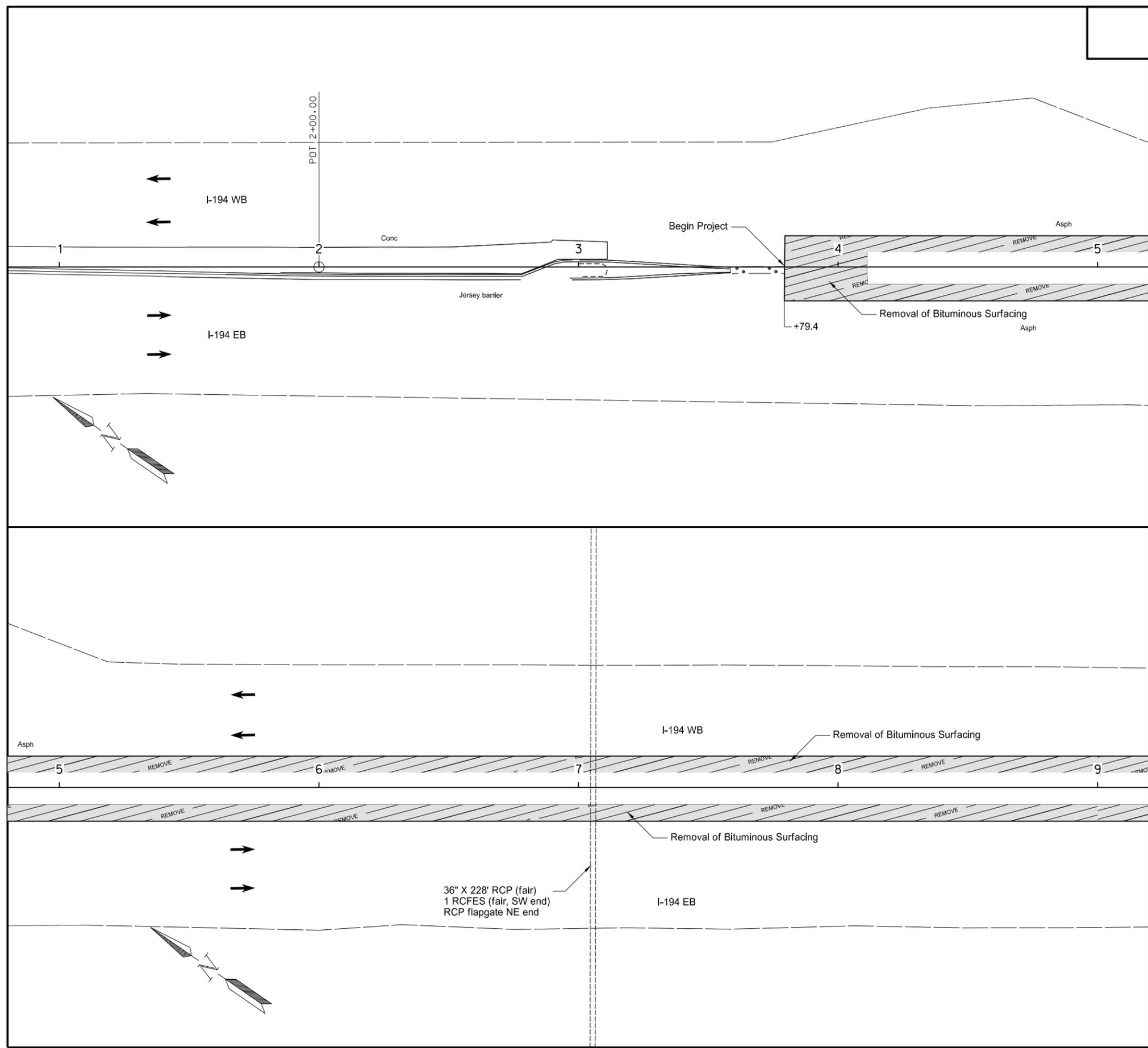


Proposed Typical Sections

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	40	1

SPEC CODE	BID ITEM	QTY	UNIT
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	Sta 3+79.41 to 9+00 (OCL194MED)	773	SY



— REMOVE — Removal of Guardrail

REMOVE Removal of Bituminous Surfacing

REGISTERED PROFESSIONAL ENGINEER

Bradly Haussler

BRADLY HAUSSLER

PE-27171

09/03/20

NORTH DAKOTA

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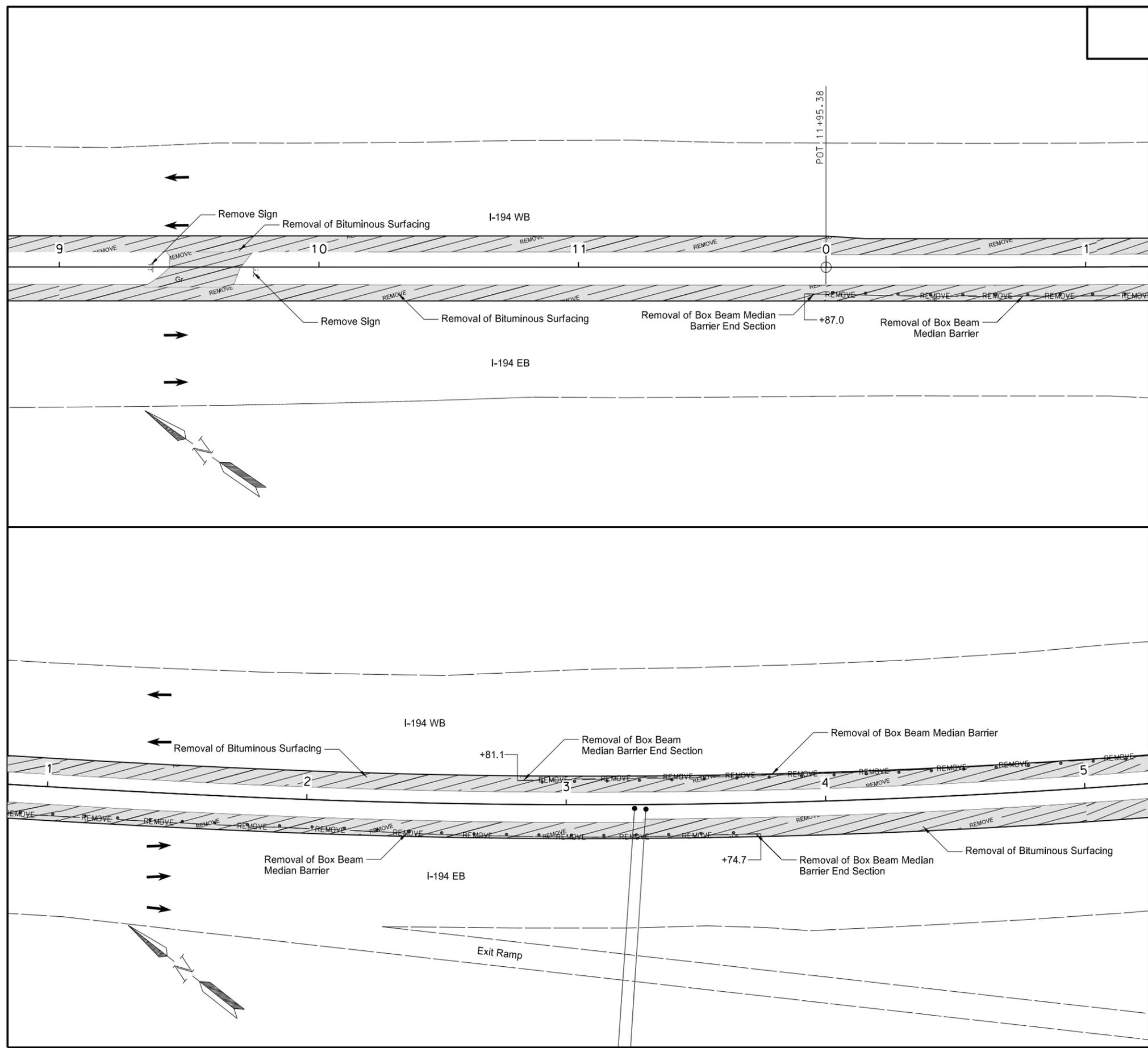
Removals

Sta 1+00 to 9+00 (OCL194MED)

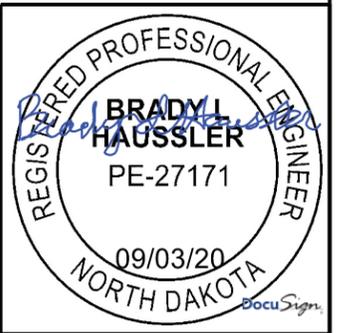
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	40	2

SPEC CODE	BID ITEM	QTY	UNIT
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	Sta 9+00 to 11+95.38 (OCL194MED)	449	SY
	Sta 0+00 to 5+00 (194_CL)	706	SY
764 2075	REMOVE BOX BEAM MEDIAN BARRIER		
	Sta 0+40.74 to 3+25.58 (194_CL) Rt	285	LF
	Sta 3+30.3 to 5+00 (194_CL) Lt	170	LF
764 2079	REMOVE BOX BEAM MEDIAN BARRIER END SECTION		
	Sta. 11+86.96 (OCL194MED) to 0+40.74 (194_CL) Rt	1	EA
	Sta 3+25.58 to 3+74.74 (194_CL) Rt	1	EA
	Sta 2+81.14 to 3+30.30 (194_CL) Lt	1	EA

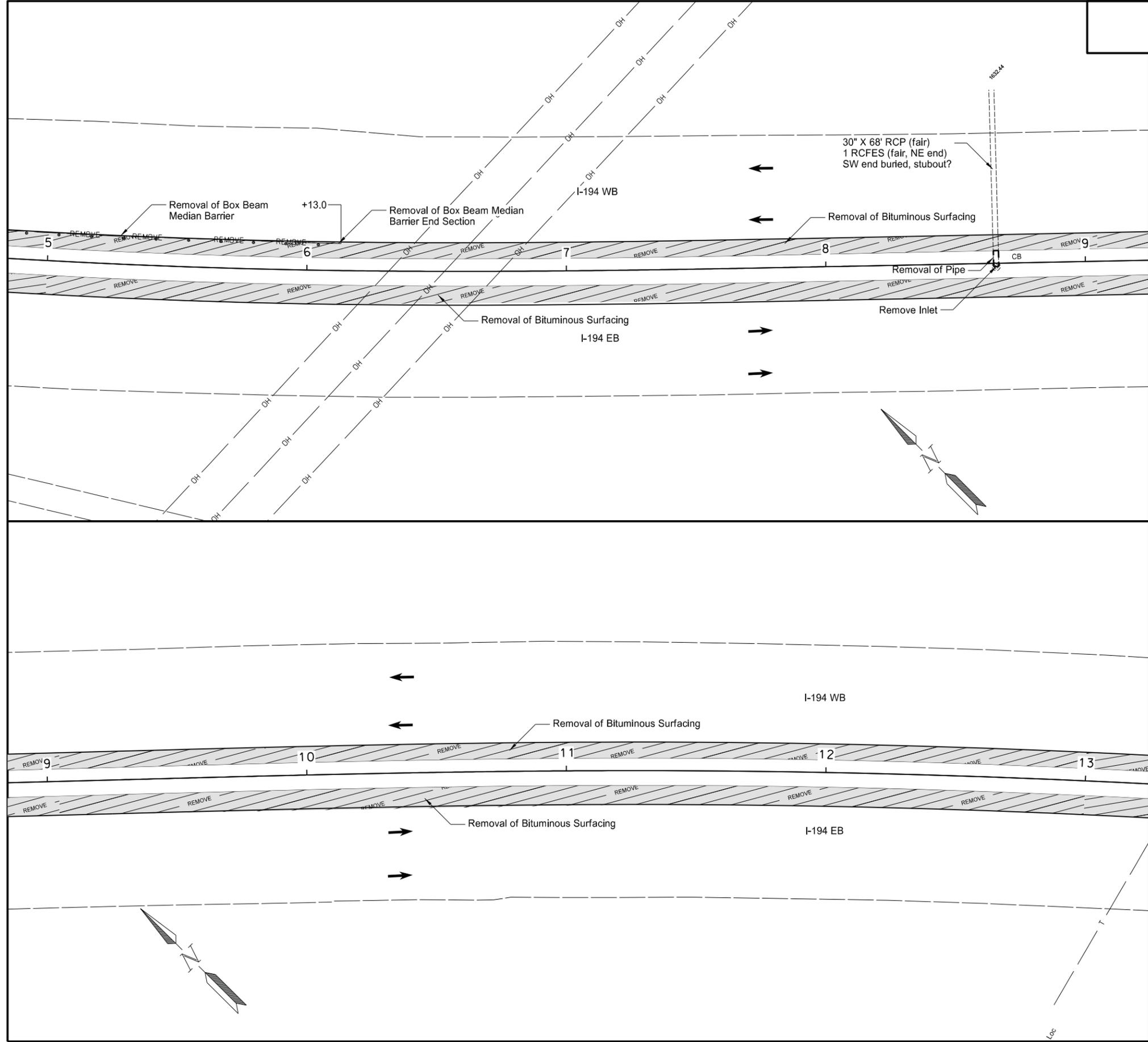


- REMOVE - Removal of Guardrail
 Removal of Bituminous Surfacing



Removals
 Sta 9+00 to 11+95.38 (OCL194MED)
 Sta 0+00 to 5+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	40	3



SPEC CODE	BID ITEM	QTY	UNIT
202 0132	REMOVAL OF BITUMINOUS SURFACING Sta 5+00 to 13+00 (194_CL)	1192	SY
202 0230	REMOVAL OF INLETS Sta 8+65.64 (194_CL)	1	EA
764 2075	REMOVE BOX BEAM MEDIAN BARRIER Sta 5+00 to 5+63.86 (194_CL)	64	LF
764 2079	REMOVE BOX BEAM MEDIAN BARRIER END SECTION Sta 5+63.86 to 6+13.02 (194_CL) Lt	1	EA

— REMOVE — Removal of Guardrail

Removal of Bituminous Surfacing

REGISTERED PROFESSIONAL ENGINEER

Bradyl Haussler

BRADYL HAUSSLER

PE-27171

09/03/20

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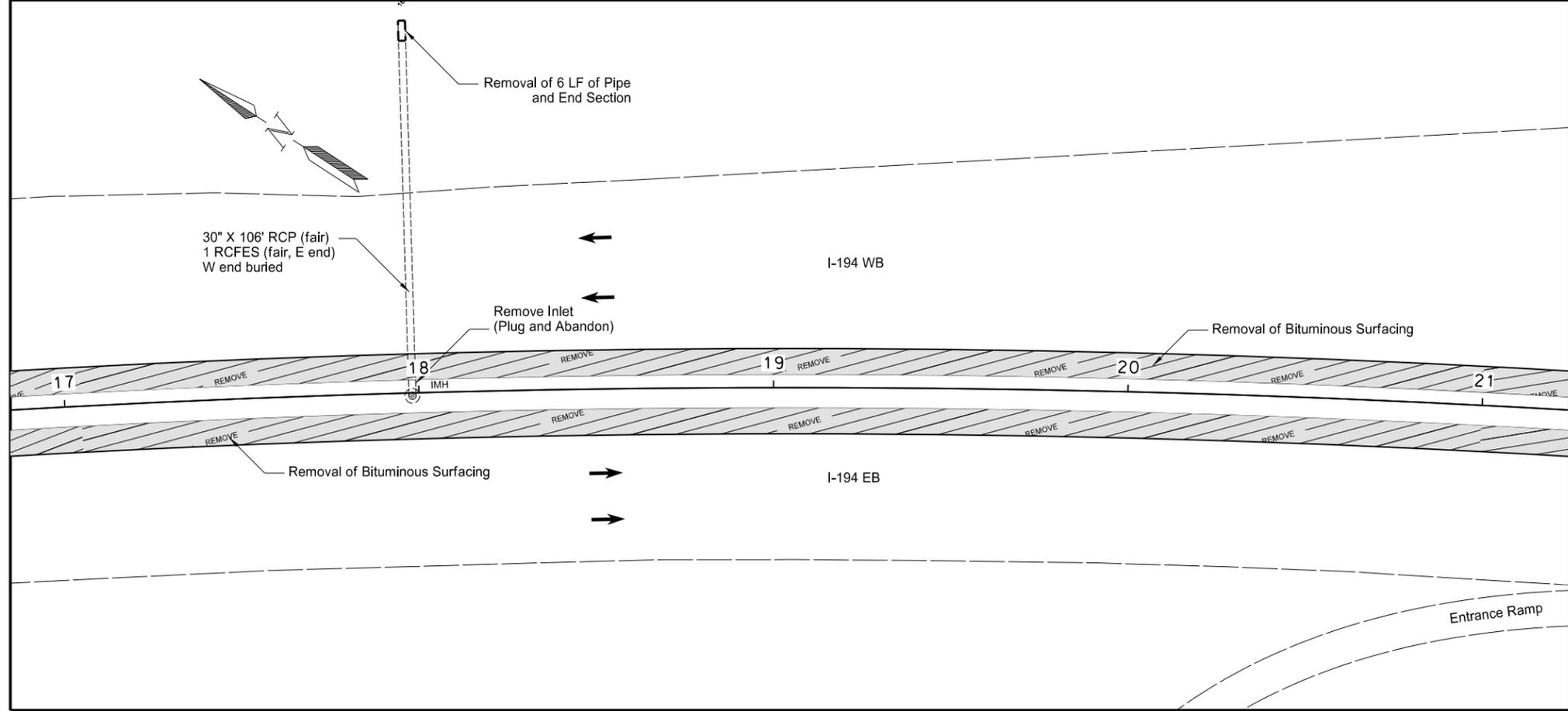
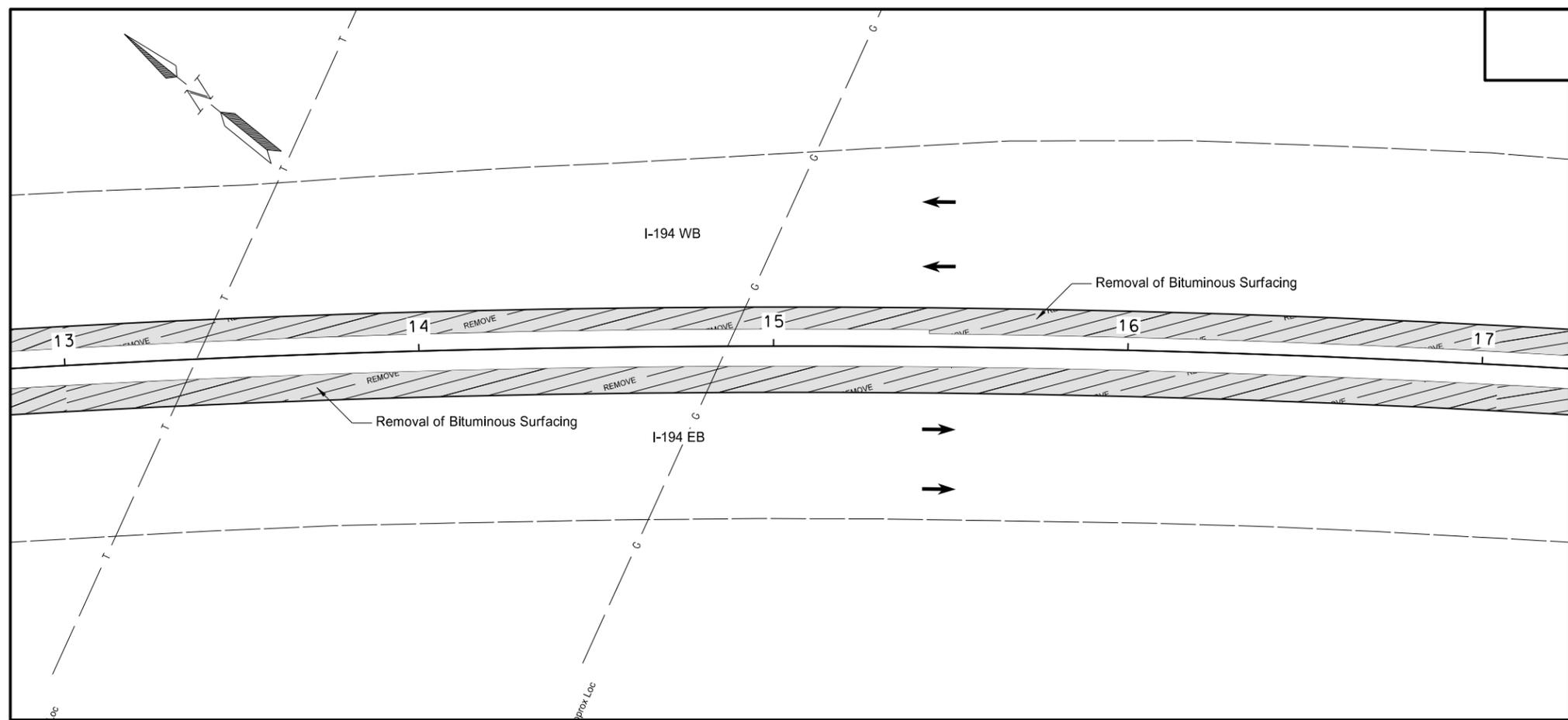
Removals

Sta 5+00 to 13+00 (194_CL)

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

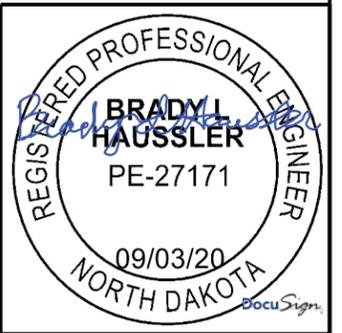
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	40	4

SPEC CODE	BID ITEM	QTY	UNIT
202 0132	REMOVAL OF BITUMINOUS SURFACING Sta 13+00 to 21+00 (194_CL)	1266	SY
202 0230	REMOVAL OF INLETS Sta 17+98.12 (194_CL)	1	EA



— REMOVE — Removal of Guardrail

REMOVE Removal of Bituminous Surfacing

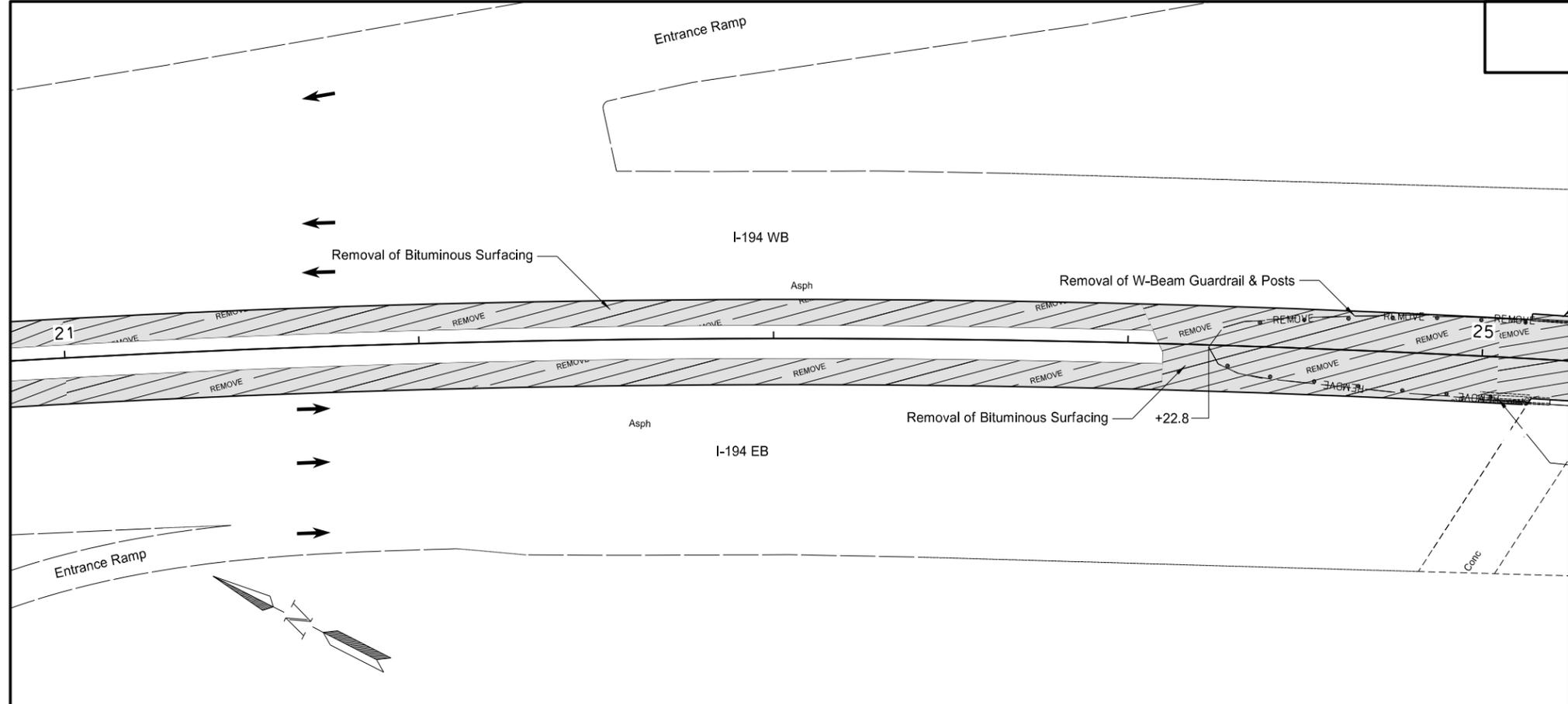


Removals

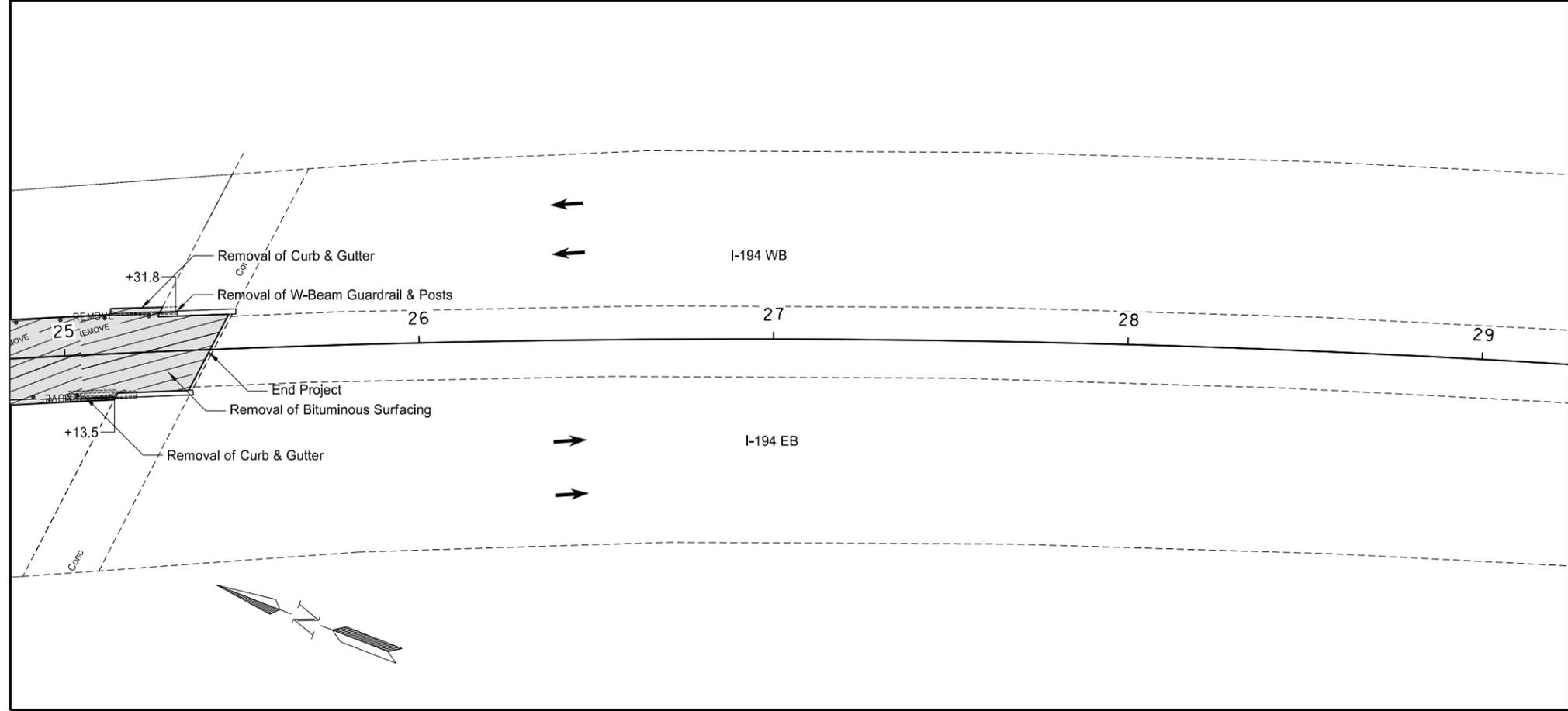
Sta 13+00 to 21+00 (194_CL)

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	40	5



SPEC CODE	BID ITEM	QTY	UNIT
202 0130	REMOVAL OF CURB & GUTTER		
	Sta 25+00.17 to 25+13.50 Rt (194_CL)	14	LF
	Sta 25+13.52 to 25+27.82 Lt (194_CL)	15	LF
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	Sta 21+00 to 25+47.66 (194_CL)	850	SY
764 0151	REMOVE W-BEAM GUARDRAIL & POSTS		
	Sta 24+22.82 to 25+32.23 (194_CL)	207	LF



— REMOVE — Removal of Guardrail

Removal of Bituminous Surfacing

REGISTERED PROFESSIONAL ENGINEER

Bradley Haussler

BRADLEY HAUSSLER

PE-27171

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Removals

Sta 21+00 to 29+00 (194_CL)

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

INLET AND MANHOLE SUMMARY

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	50	1

Inlet No. 1A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 0+71.2 - 2.9' Rt. (194_BA1)
Grate Elev. 1649.95
Base Elev. 1644.53
Invert Elev. 1644.82
H' Dist. 4.00 Ft.

 30 In. Conduit SW 1644.82
 15 In. Conduit SE 1645.31
 15 In. Conduit N 1645.35

Inlet No. 1B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 0+83.9 - 1.7' Rt. (194_BA1)
Grate Elev. 1649.83
Base Elev. 1645.08
Invert Elev. 1645.44
H' Dist. 4.00 Ft.

Inlet No. 1C
Type Inlet - Type 2 - Double
Grate Style V
Sta. 0+57.0 - 1.7' Lt. (194_BA1)
Grate Elev. 1650.09
Base Elev. 1645.34
Invert Elev. 1645.53
H' Dist. 4.00 Ft.

Inlet No. 1D
Type Inlet - Type 2 - Double
Grate Style V
Sta. 0+43.0 - 1.6' Lt. (194_BA1)
Grate Elev. 1650.22
Base Elev. 1645.47
Invert Elev. 1645.66
H' Dist. 4.00 Ft.

Inlet No. 2A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 7+39.7 - 2.9' Lt. (194_CL)
Grate Elev. 1643.49
Base Elev. 1638.07
Invert Elev. 1638.36
H' Dist. 4.00 Ft.

 30 In. Conduit NE 1638.36
 15 In. Conduit NW 1638.88
 15 In. Conduit S 1638.64

Inlet No. 2B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 7+26.9 - 1.7' Lt. (194_CL)
Grate Elev. 1643.60
Base Elev. 1638.85
Invert Elev. 1639.04
H' Dist. 4.00 Ft.

Inlet No. 2C
Type Inlet - Type 2 - Double
Grate Style V
Sta. 7+53.4 - 1.7' Rt. (194_CL)
Grate Elev. 1643.37
Base Elev. 1638.62
Invert Elev. 1638.81
H' Dist. 4.00 Ft.

Inlet No. 2D
Type Inlet - Type 2 - Double
Grate Style V
Sta. 7+67.4 - 1.7' Rt. (194_CL)
Grate Elev. 1643.28
Base Elev. 1638.53
Invert Elev. 1638.92
H' Dist. 4.00 Ft.

Inlet No. 3A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 2+98.4 - 0.1' Lt. (194_CL)
Grate Elev. 1641.33
Base Elev. 1635.91
Invert Elev. 1636.20
H' Dist. 4.00 Ft.

 30 In. Conduit NE 1636.20
 15 In. Conduit NW 1636.89

Inlet No. 3B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 2+83.7 - 4.5' Rt. (194_CL)
Grate Elev. 1641.64
Base Elev. 1636.89
Invert Elev. 1637.08
H' Dist. 4.00 Ft.

Inlet No. 4A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 5+53.4 - 2.9' Lt. (194_CL)
Grate Elev. 1639.76
Base Elev. 1634.34
Invert Elev. 1634.63
H' Dist. 4.00 Ft.

 30 In. Conduit NE 1634.63
 15 In. Conduit W 1635.20

Inlet No. 4B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 5+39.4 - 1.7' Rt. (194_CL)
Grate Elev. 1639.94
Base Elev. 1635.19
Invert Elev. 1635.38
H' Dist. 4.00 Ft.

Inlet No. 4C
Type Inlet - Type 2
Grate Style V
Sta. 5+26.9 - 1.7' Rt. (194_CL)
Grate Elev. 1640.00
Base Elev. 1635.25
Invert Elev. 1635.54
H' Dist. 4.00 Ft.

Inlet No. 5A
Type Inlet - Special - Type 2 - 48 In.
Grate Style D
Sta. 8+05.5 - 2.4' Lt. (194_CL)
Grate Elev. 1639.30
Base Elev. 1634.05
Invert Elev. 1634.86
H' Dist. 4.00 Ft.

Inlet No. 5B
Type Inlet - Type 2 - Double
Grate Style DR/DL
Sta. 7+91.3 - 1.7' Rt. (194_CL)
Grate Elev. 1639.22
Base Elev. 1634.47
Invert Elev. 1635.00
H' Dist. 4.00 Ft.



INLET AND MANHOLE SUMMARY

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	50	2

Inlet No. 6A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 8+65.8 - 2.9' Lt. (194_CL)
Grate Elev. 1639.37
Base Elev. 1633.25
Invert Elev. 1633.54
H' Dist. 4.70 Ft.

 Existing 30 In. Conduit NE 1633.54
 15 In. Conduit S 1634.58
 15 In. Conduit NW 1634.20

Inlet No. 6B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 8+80.0 - 1.7' Rt. (194_CL)
Grate Elev. 1639.32
Base Elev. 1634.57
Invert Elev. 1634.76
H' Dist. 4.00 Ft.

Inlet No. 6C
Type Inlet - Type 2 - Double
Grate Style V
Sta. 8+18.1 - 1.7' Lt. (194_CL)
Grate Elev. 1639.30
Base Elev. 1634.55
Invert Elev. 1634.76
H' Dist. 4.00 Ft.

Inlet No. 7A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 11+38.1 - 3.0' Lt. (194_CL)
Grate Elev. 1640.24
Base Elev. 1634.82
Invert Elev. 1635.11
H' Dist. 4.00 Ft.

 30 In. Conduit NE 1635.11
 15 In. Conduit SE 1635.58
 15 In. Conduit W 1635.38

Inlet No. 7B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 11+51.1 - 1.7' Lt. (194_CL)
Grate Elev. 1640.29
Base Elev. 1635.54
Invert Elev. 1635.73
H' Dist. 4.00 Ft.

Inlet No. 7C
Type Inlet - Type 2 - Double
Grate Style V
Sta. 11+23.8 - 1.7' Rt. (194_CL)
Grate Elev. 1640.12
Base Elev. 1635.37
Invert Elev. 1635.56
H' Dist. 4.00 Ft.

Inlet No. 8A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 14+65.7 - 2.9' Lt. (194_CL)
Grate Elev. 1641.53
Base Elev. 1636.11
Invert Elev. 1636.40
H' Dist. 4.00 Ft.

 30 In. Conduit NE 1636.40
 15 In. Conduit SE 1636.85
 15 In. Conduit W 1636.52

Inlet No. 8B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 14+78.4 - 1.7' Lt. (194_CL)
Grate Elev. 1641.56
Base Elev. 1636.81
Invert Elev. 1637.00
H' Dist. 4.00 Ft.

Inlet No. 8C
Type Inlet - Type 2
Grate Style V
Sta. 14+52.8 - 1.8' Rt. (194_CL)
Grate Elev. 1641.26
Base Elev. 1636.51
Invert Elev. 1636.70
H' Dist. 4.00 Ft.

Inlet No. 9A
Type Inlet - Special - Type 2 - 60 In.
Grate Style V
Sta. 17+04.5 - 2.9' Lt. (194_CL)
Grate Elev. 1643.04
Base Elev. 1637.62
Invert Elev. 1637.91
H' Dist. 4.00 Ft.

 30 In. Conduit NE 1637.91
 15 In. Conduit SE 1638.45
 15 In. Conduit NW 1637.95

Inlet No. 9B
Type Inlet - Type 2 - Double
Grate Style V
Sta. 17+17.1 - 1.7' Lt. (194_CL)
Grate Elev. 1643.16
Base Elev. 1638.41
Invert Elev. 1638.60
H' Dist. 4.00 Ft.

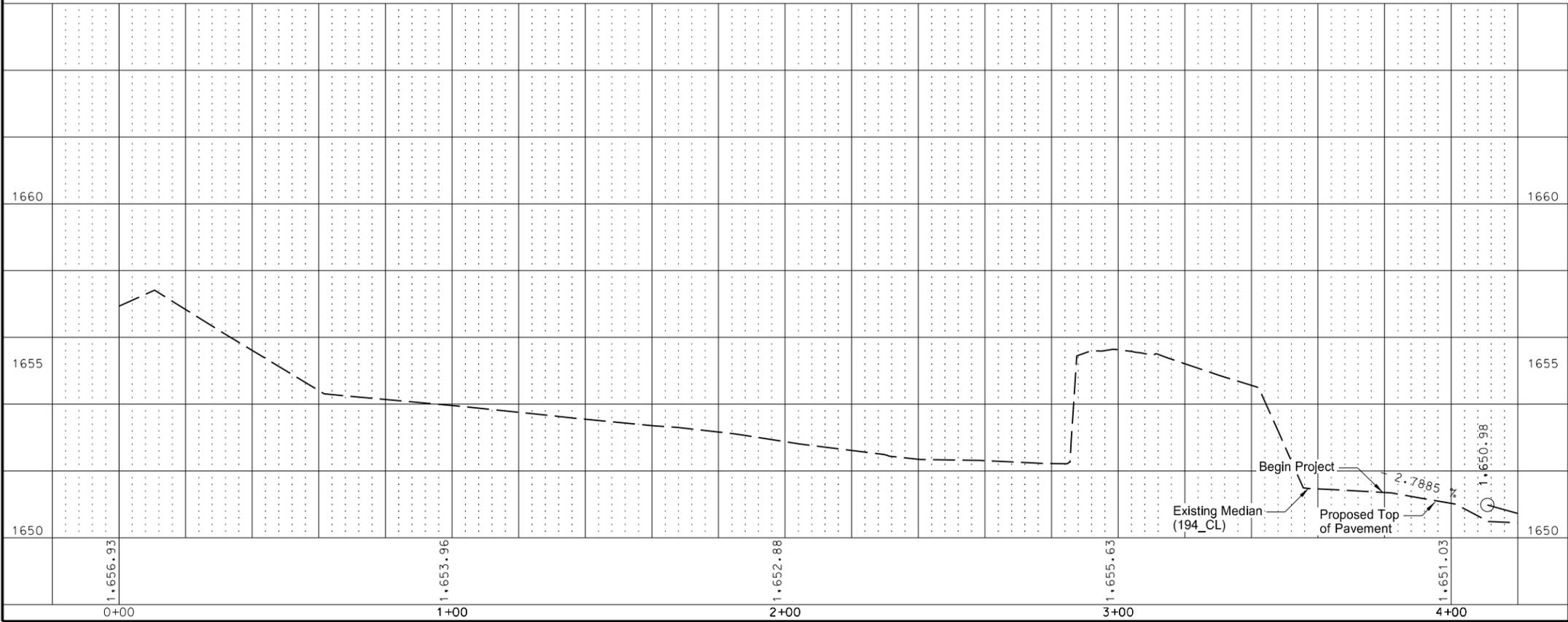
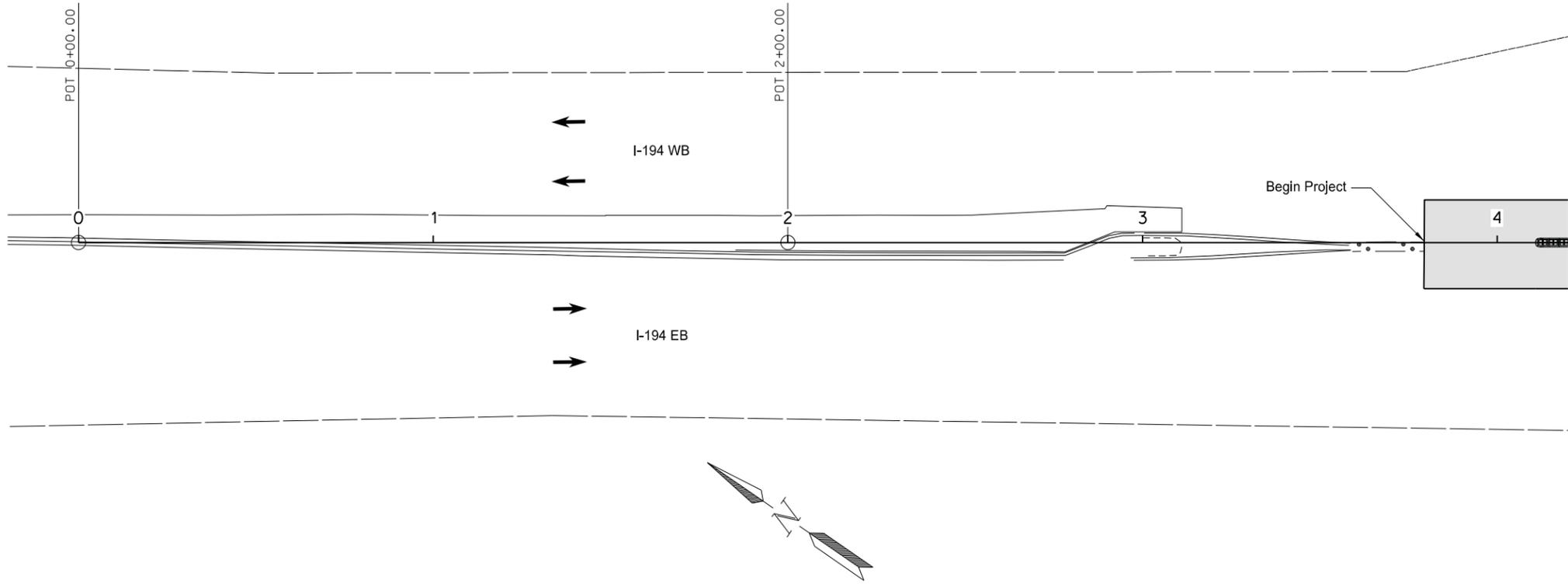
Inlet No. 9C
Type Inlet - Type 2 - Double
Grate Style V
Sta. 16+90.0 - 1.7' Rt. (194_CL)
Grate Elev. 1642.69
Base Elev. 1637.94
Invert Elev. 1638.13
H' Dist. 4.00 Ft.

Inlet No. 9D
Type Inlet - Type 2 - Double
Grate Style V
Sta. 18+92.3 - 1.7' Lt. (194_CL)
Grate Elev. 1645.52
Base Elev. 1640.77
Invert Elev. 1640.96
H' Dist. 4.00 Ft.

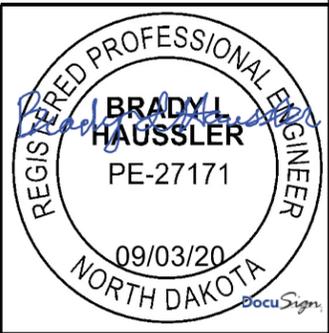
Inlet No. 9E
Type Inlet - Type 2
Grate Style V
Sta. 18+73.2 - 1.7' Rt. (194_CL)
Grate Elev. 1645.08
Base Elev. 1640.33
Invert Elev. 1641.20
H' Dist. 4.00 Ft.



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	1



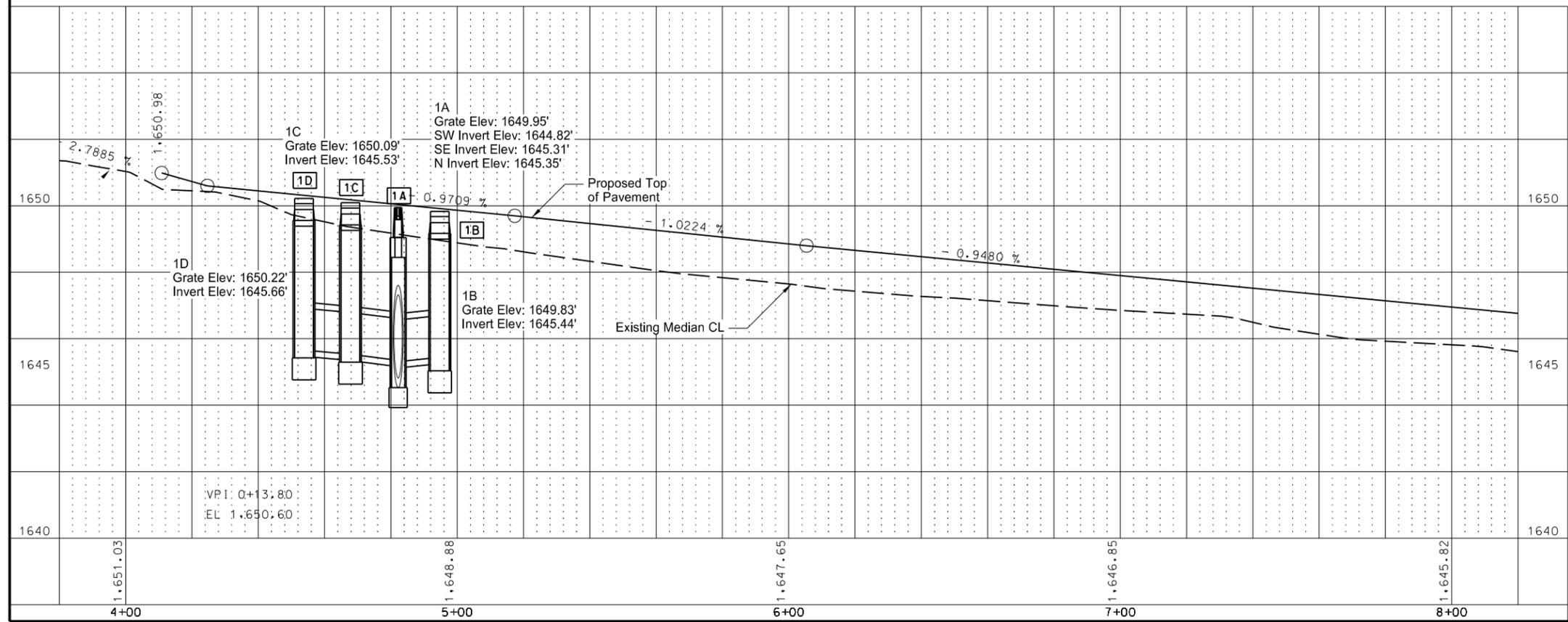
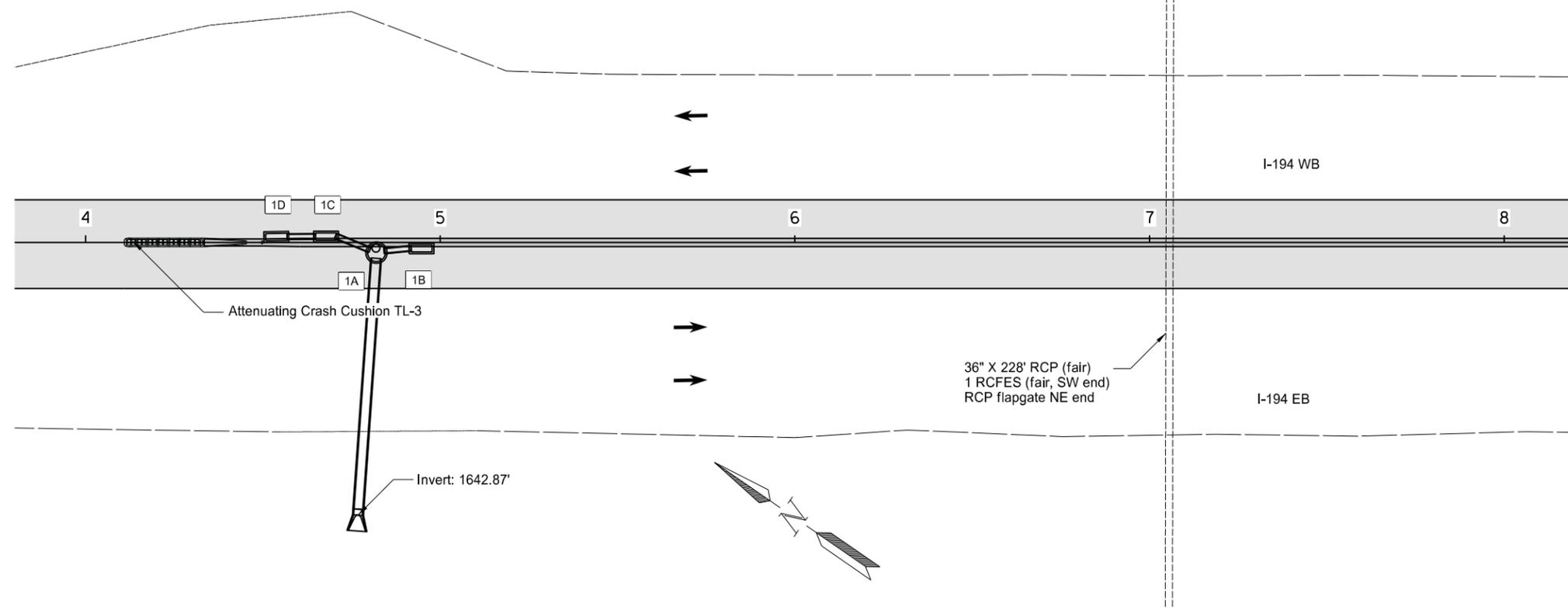
- Concrete Median Pavement
- Concrete Median Barrier



Plan & Profiles
 Sta 0+00 to 4+00 (OCL194MED)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	2

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED Sta 0+22 to 3+89 (194_BA1)	367	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN Sta 4+52.67 to 4+51.27 95.1' Rt	8	LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN		
	1D to 1C	14	LF
	1C to 1A	16	LF
	1B to 1A	13	LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED 1A to Sta 4+51.10 77.6' Rt	71	LF
722 3520	INLET-TYPE 2 DOUBLE 1B, 1C, 1D	3	EA
722 3761	INLET SPECIAL-TYPE 2 60IN 1A	1	EA
764 9011	ATTENUATING CRASH CUSHION TL-3 Sta 4+10.85 (OCL194MED)	1	EA



Legend:

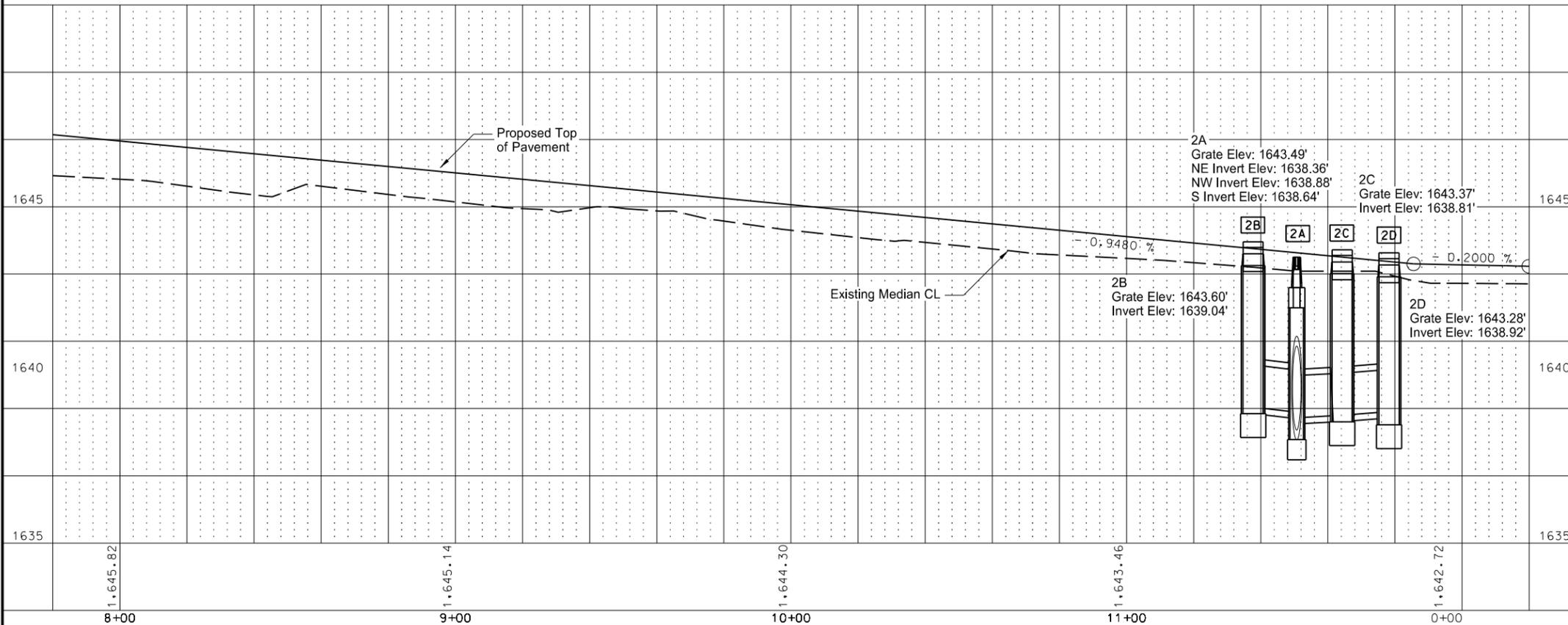
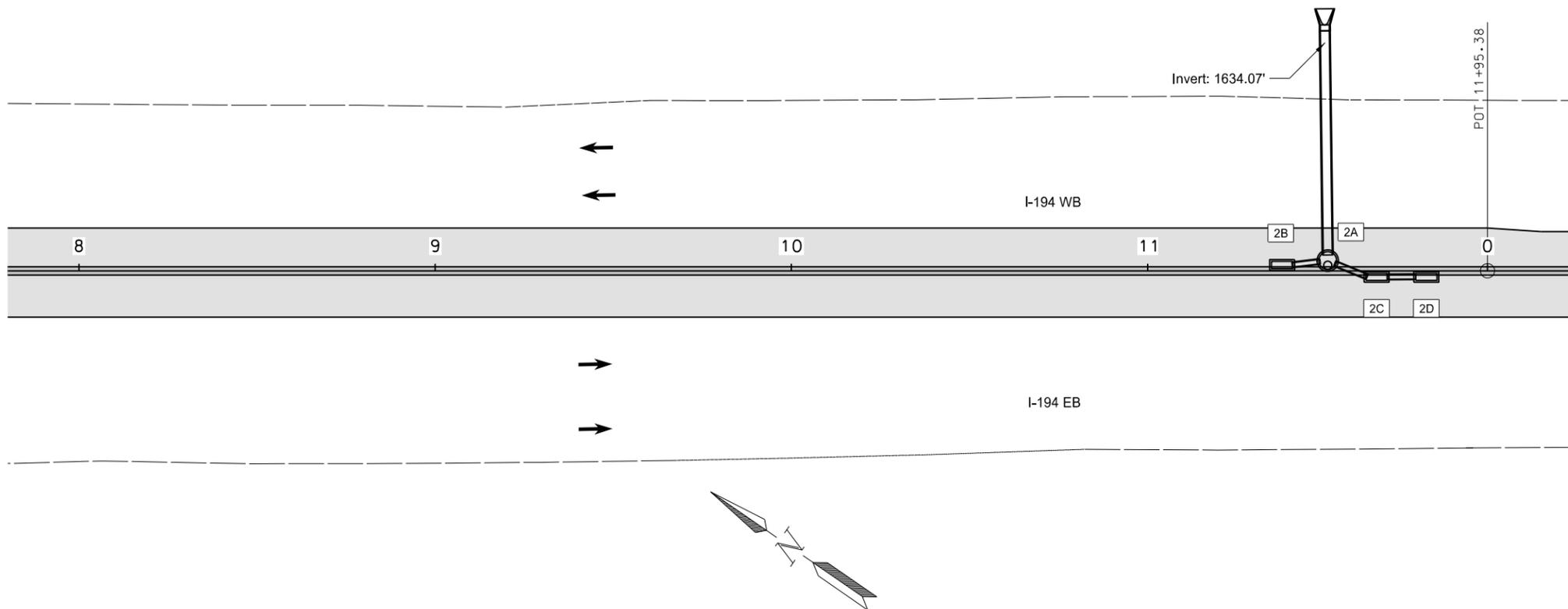
- Concrete Median Pavement
- Concrete Median Barrier

REGISTERED PROFESSIONAL ENGINEER
BRADY HAÜSSLER
 PE-27171
 09/03/20
 NORTH DAKOTA
DocuSign

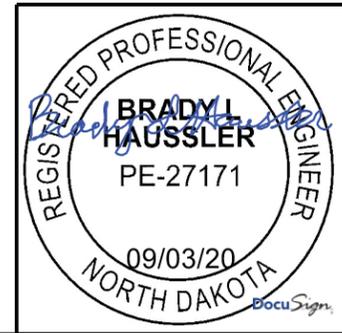
Plan & Profiles
 Sta 4+00 to 8+00 (OCL194MED)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	3

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED Sta 3+89 to 7+84 (194_BA1)	395	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN Sta 11+49.78 to 11+49.53 82.9' Lt	6	LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN		
	2B to 2A	13	LF
	2D to 2C	14	LF
	2C to 2A	15	LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED 2A to Sta 11+49.53 62.9' Lt	63	LF
722 3520	INLET-TYPE 2 DOUBLE 2B, 2C, 2D	3	EA
722 3761	INLET SPECIAL-TYPE 2 60IN 2A	1	EA



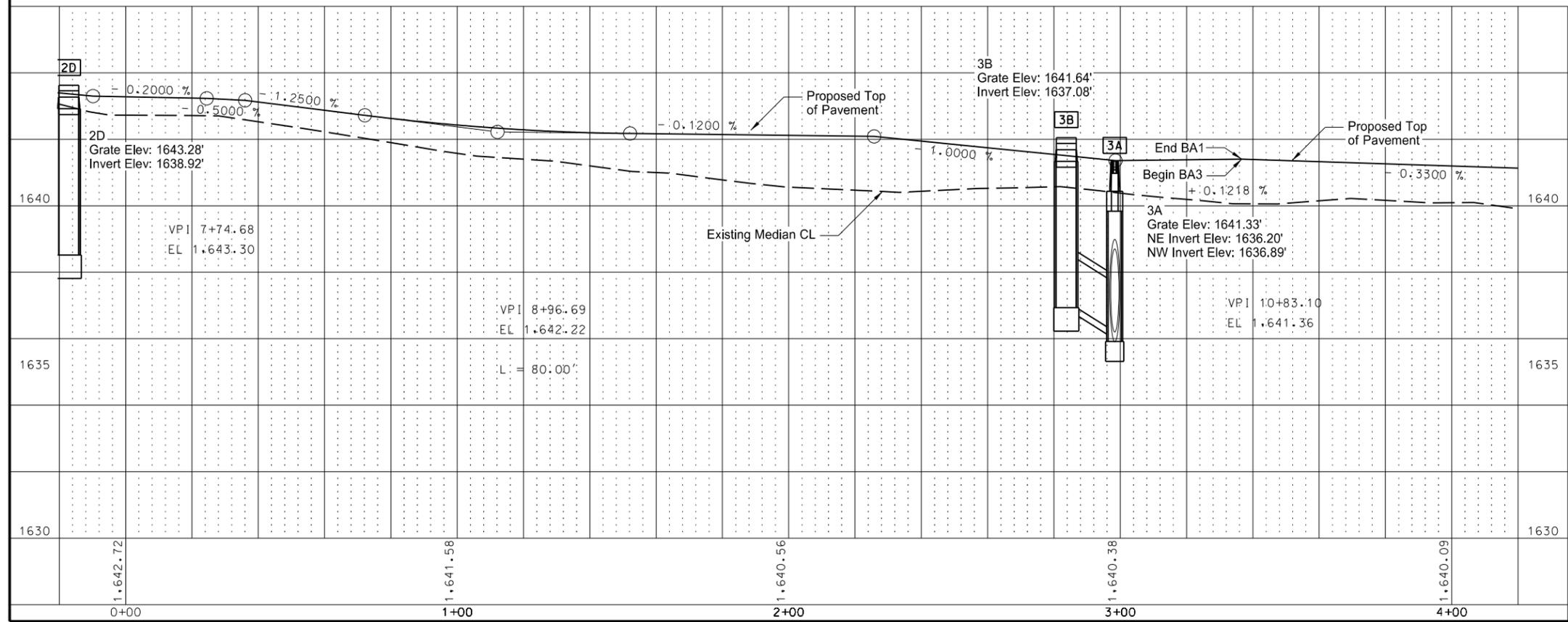
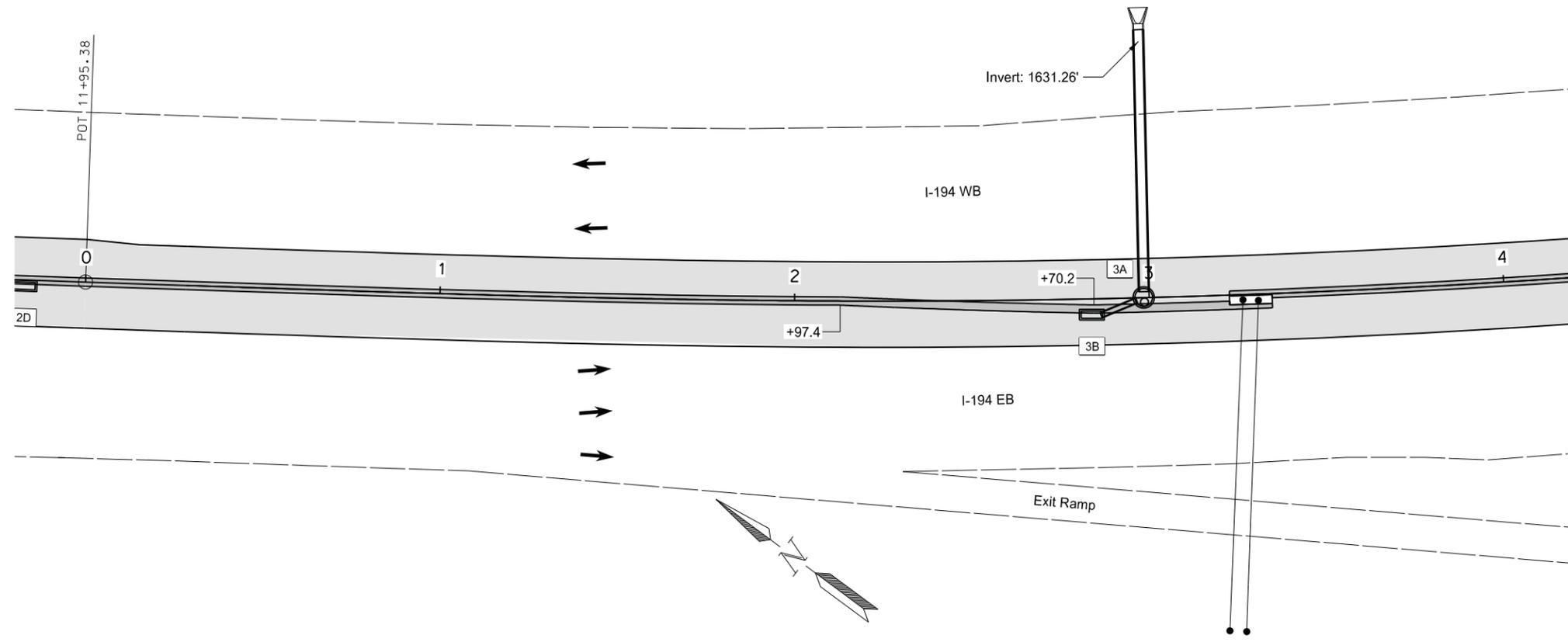
Concrete Median Pavement
 Concrete Median Barrier



Plan & Profiles
 Sta 8+00 to 11+95.38 (OCL194MED)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	4

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED		
	Sta 7+84 to 11+25 (194_BA1)	341	LF
	Sta 0+00 to 0+83 (194_BA3)	83	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN		
	Sta 2+98.80 to 2+98.91 80.5' Lt	6	LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN		
	3B to 3A	16	LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED		
	3A to Sta 2+98.91 60.5' Lt	70	LF
722 3520	INLET-TYPE 2 DOUBLE		
	3B	1	EA
722 3761	INLET SPECIAL-TYPE 2 60IN		
	3A	1	EA

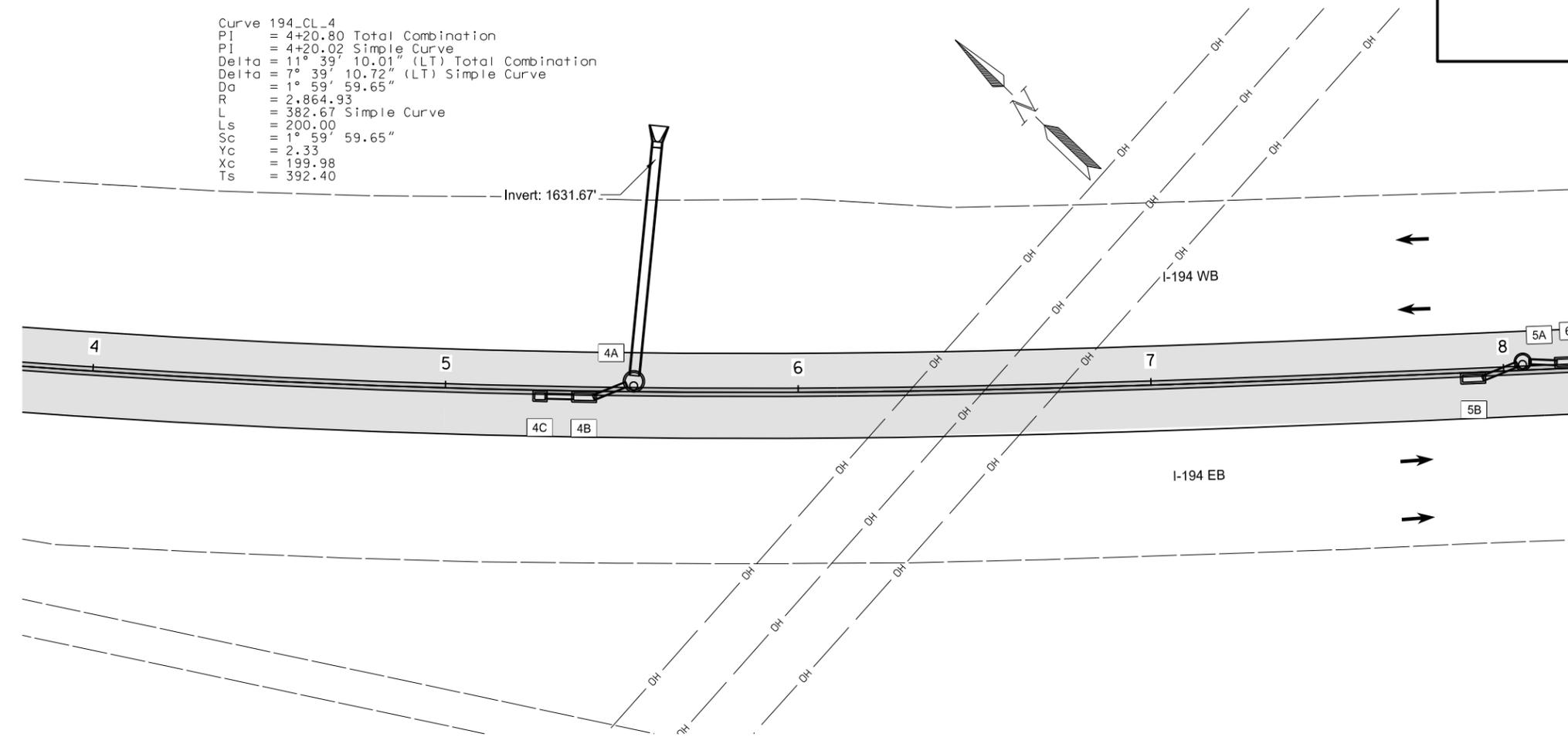


- Concrete Median Pavement
- Concrete Median Barrier

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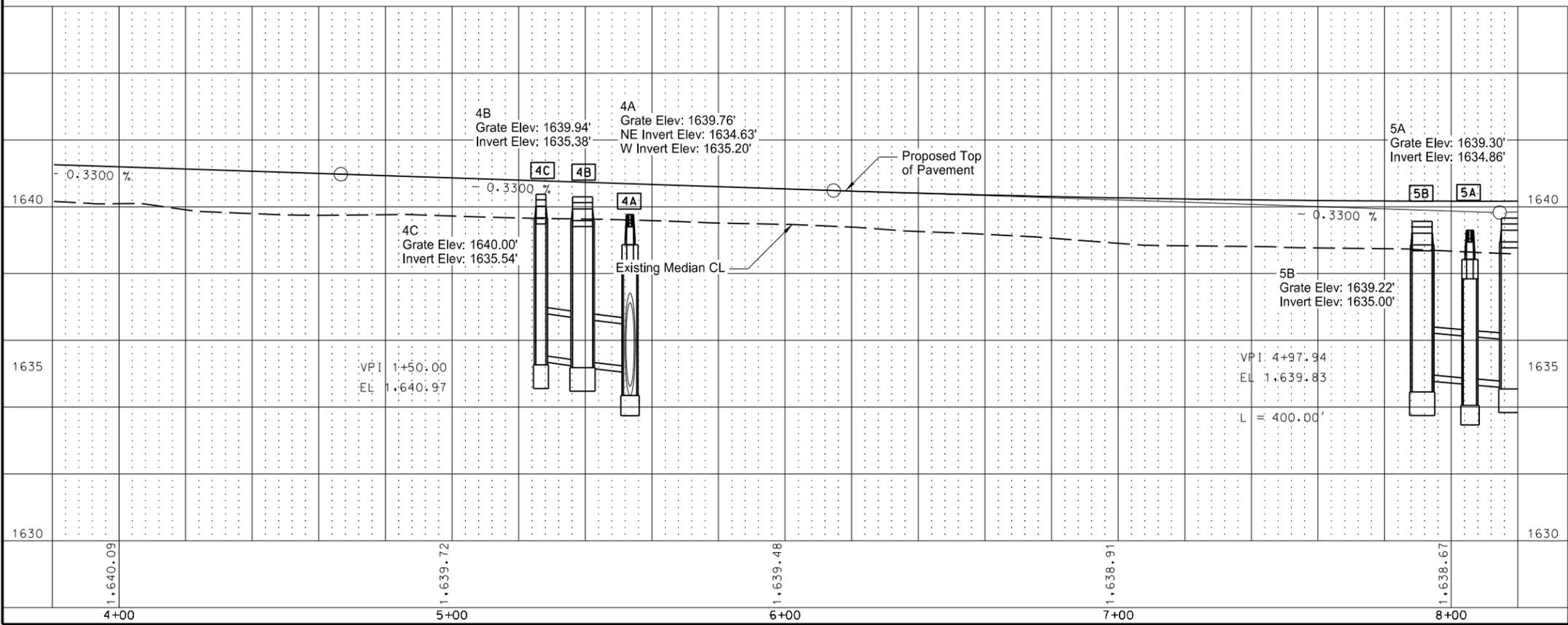
Plan & Profiles
 Sta 0+00 to 4+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

Curve 194_CL_4
 PI = 4+20.80 Total Combination
 PI = 4+20.02 Simple Curve
 Delta = 11° 39' 10.01" (LT) Total Combination
 Delta = 7° 39' 10.72" (LT) Simple Curve
 Da = 1° 59' 59.65"
 R = 2,864.93
 L = 382.67 Simple Curve
 Ls = 200.00
 Sc = 1° 59' 59.65"
 Yc = 2.33
 Xc = 199.98
 Ts = 392.40

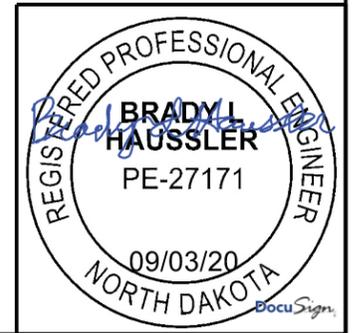


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	5

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED Sta 0+83 to 4+83 (194_BA3)	400	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN Sta 5+58.33 to 5+60.16 78.5' Lt	6	LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN 4C to 4B	13	LF
	4B to 4A	15	LF
	5B to 5A	15	LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED 4A to Sta 5+60.16 59.0' Lt	61	LF
722 3510	INLET-TYPE 2 4C	1	EA
722 3520	INLET-TYPE 2 DOUBLE 4B, 5B	2	EA
722 3761	INLET SPECIAL-TYPE 2 60IN 4A	1	EA



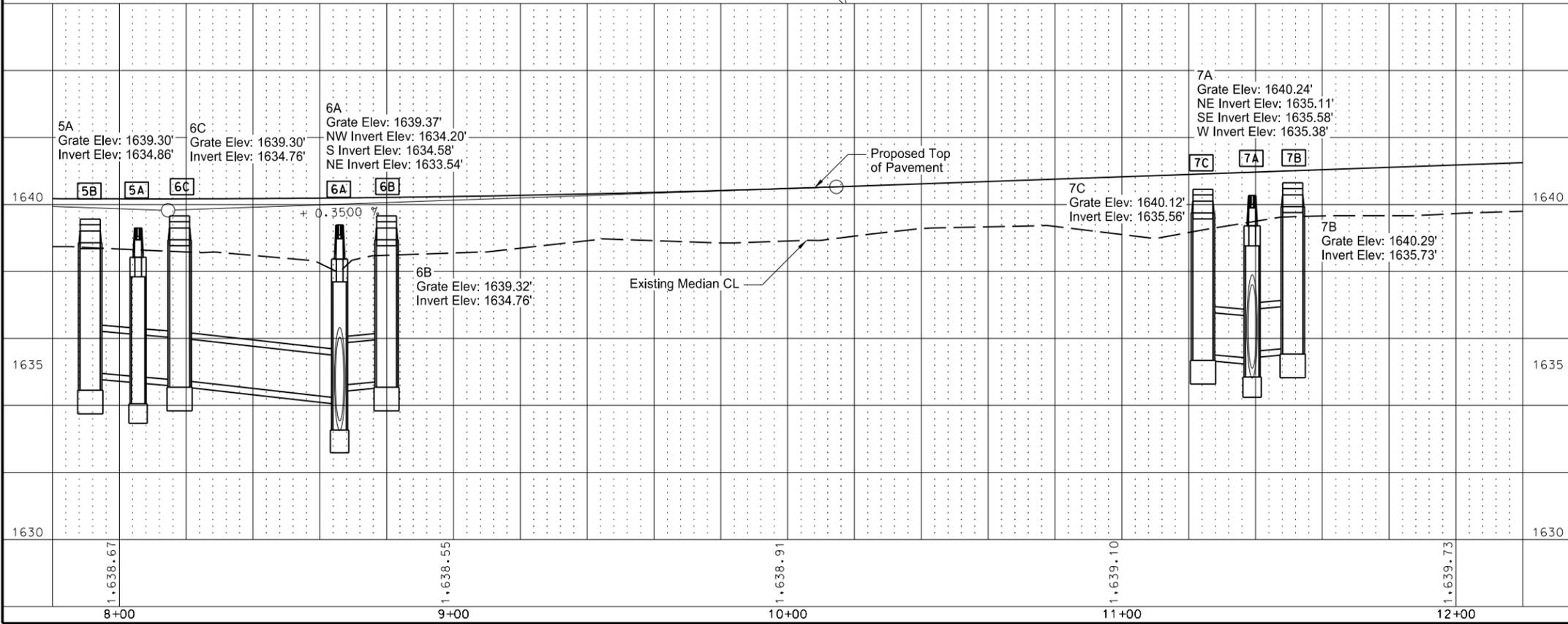
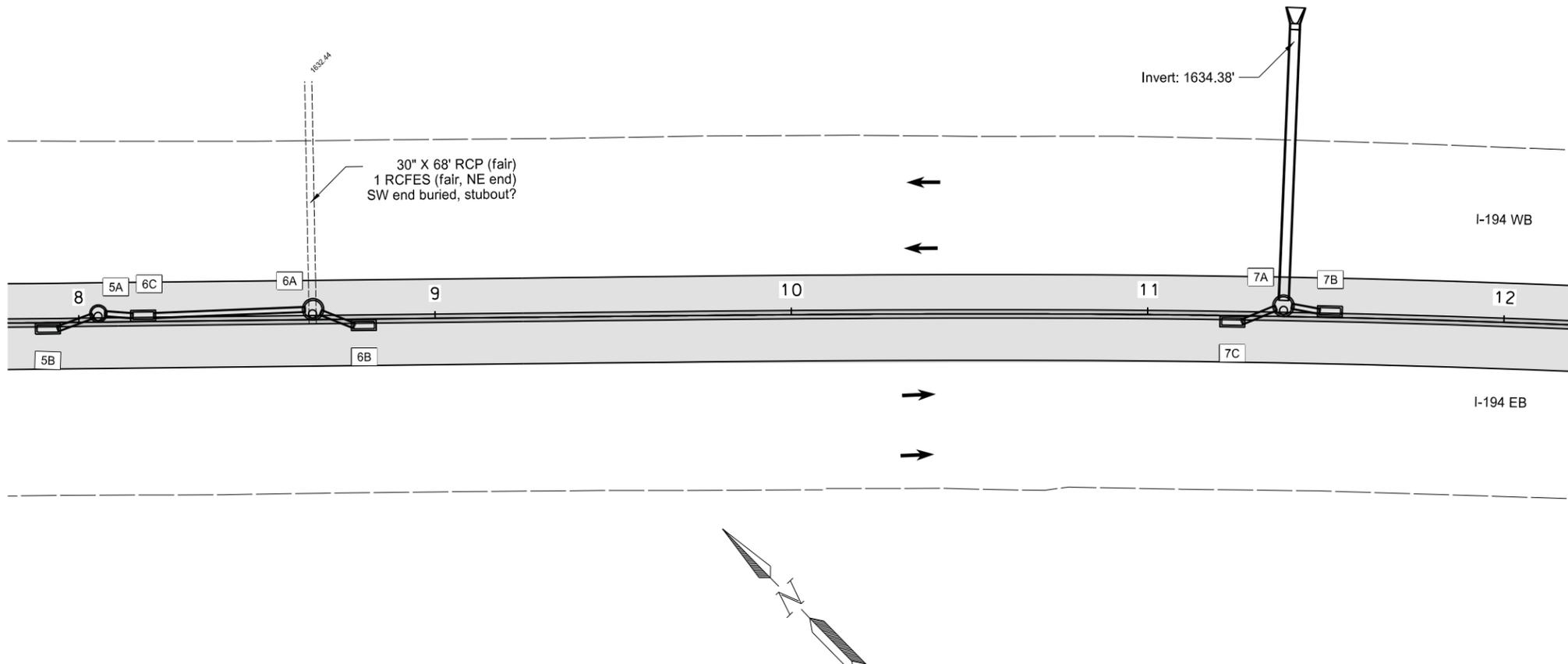
Concrete Median Pavement
 Concrete Median Barrier



Plan & Profiles
 Sta 4+00 to 8+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	6

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED Sta 4+83 to 8+83 (194_BA3)	400	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN Sta 11+39.77 to 11+40.21 97.8' Lt	8	LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN		
	5A to 6C	13	LF
	6C to 6A	48	LF
	6B to 6A	16	LF
	7C to 7A	16	LF
	7B to 7A	14	LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED 7A to Sta 11+40.21 77.8' Lt	66	LF
722 3520	INLET-TYPE 2 DOUBLE 6B, 6C, 7B, 7C	4	EA
722 3701	INLET SPECIAL-TYPE 2 48IN 5A	1	EA
722 3761	INLET SPECIAL-TYPE 2 60IN 6A, 7A	2	EA



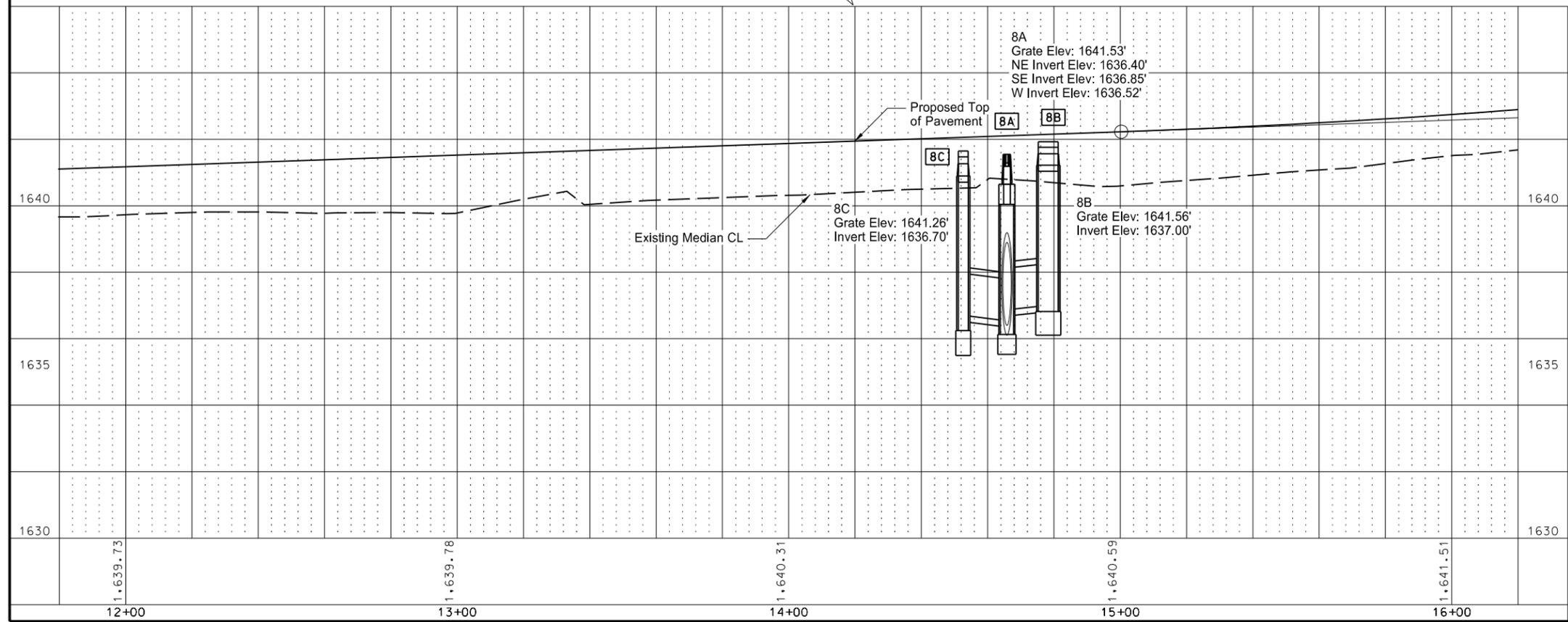
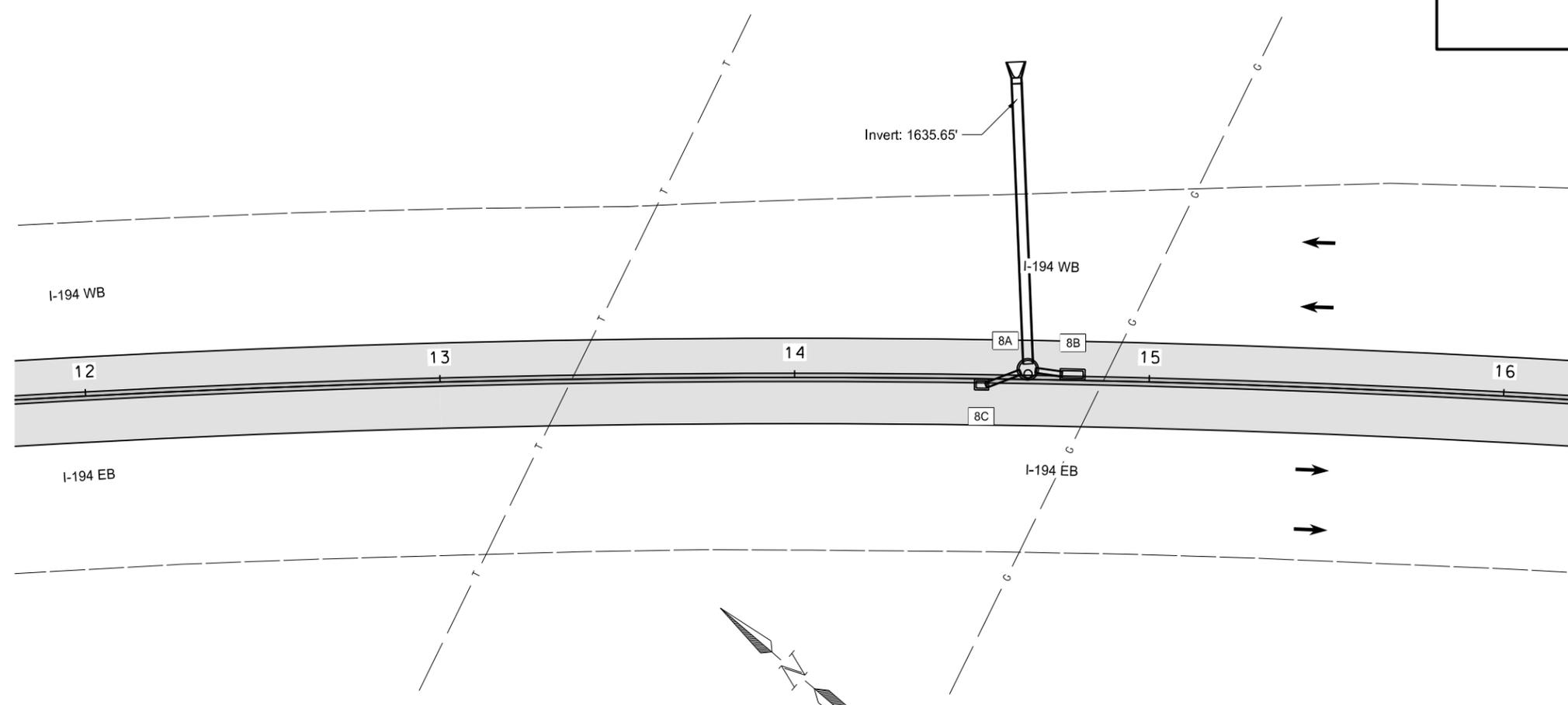
	Concrete Median Pavement
	Concrete Median Barrier



Plan & Profiles
 Sta 8+00 to 12+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	7

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED Sta 8+83 to 12+83 (194_BA3)	400	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN Sta 14+61.49 to 14+60.39 100.1' Lt	8	LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN 8C to 8A	14	LF
	8B to 8A	13	LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED 8A to Sta 14+60.39 80.5' Lt	69	LF
722 3510	INLET-TYPE 2 8C	1	EA
722 3520	INLET-TYPE 2 DOUBLE 8B	1	EA
722 3761	INLET SPECIAL-TYPE 2 60IN 8A	1	EA

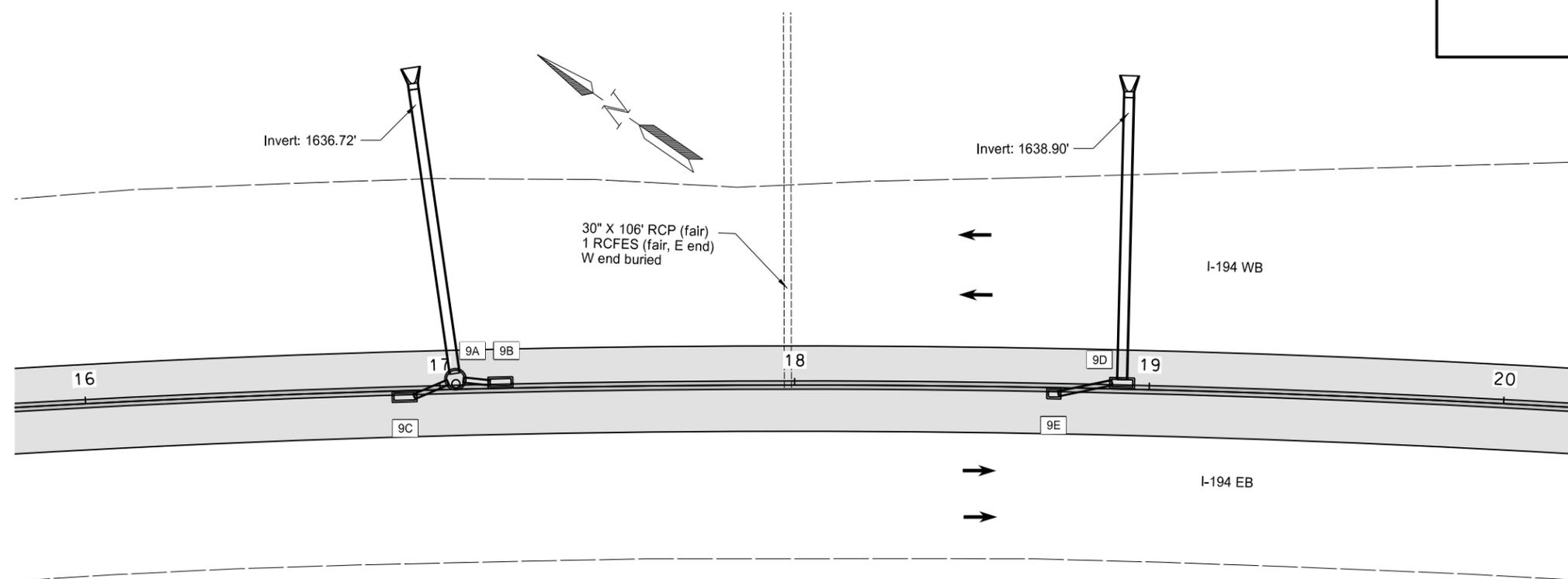


Concrete Median Pavement
 Concrete Median Barrier

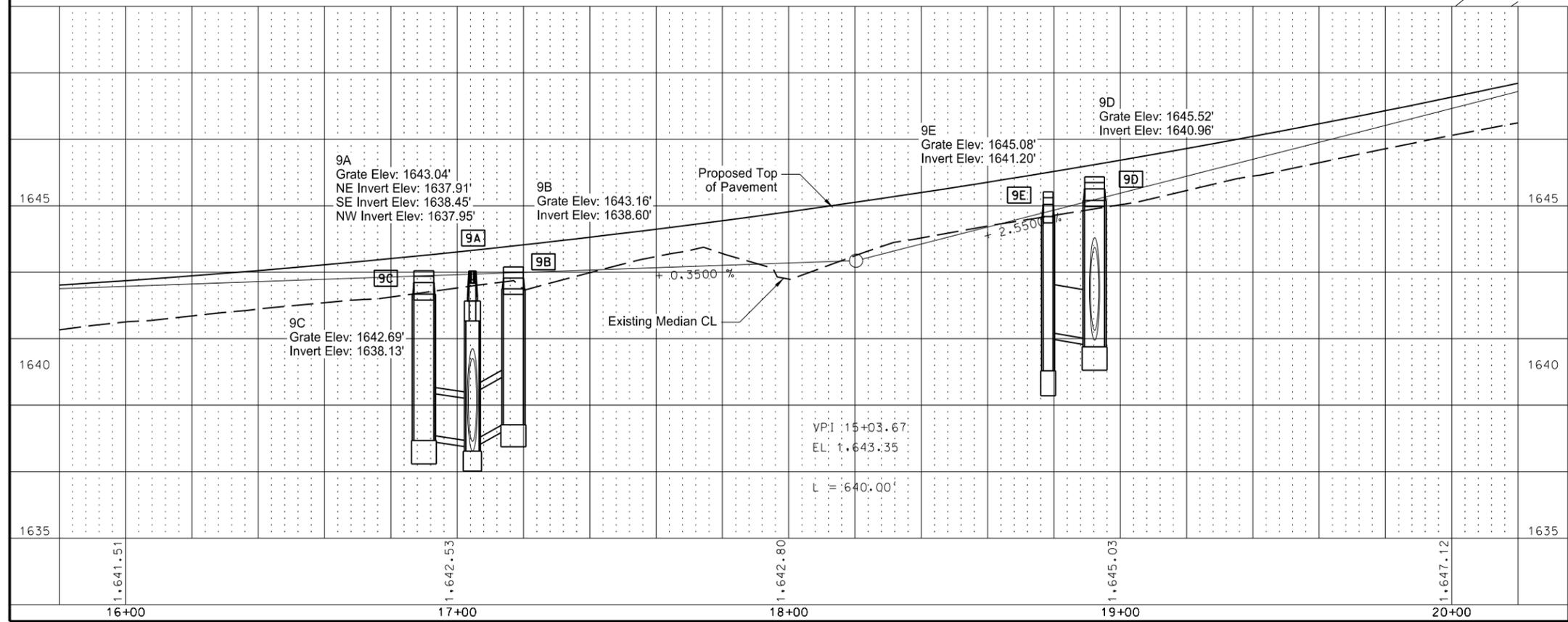
REGISTERED PROFESSIONAL ENGINEER
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 PE-27171
 09/03/20
 NORTH DAKOTA
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Plan & Profiles
 Sta 12+00 to 16+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	8



SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED Sta 12+83 to 16+83 (194_BA3)	400	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN Sta 16+93.15 to 16+95.41 100.4' Lt Sta 18+92.32 to 18+92.32 107.4' Lt	8 8	LF LF
714 4097	PIPE CONDUIT 15IN-STORM DRAIN 9C to 9A 9B to 9A 9E to 9D	16 13 20	LF LF LF
714 4166	PIPE CONDUIT 30IN-JACKED OR BORED 9A to Sta 16+95.41 80.5' Lt 9D to Sta 18+92.32 87.3' Lt	73 76	LF LF
722 3510	INLET-TYPE 2 9E	1	EA
722 3520	INLET-TYPE 2 DOUBLE 9B, 9C, 9D	3	EA
722 3761	INLET SPECIAL-TYPE 2 60IN 9A	1	EA



Concrete Median Pavement

Concrete Median Barrier



Plan & Profiles

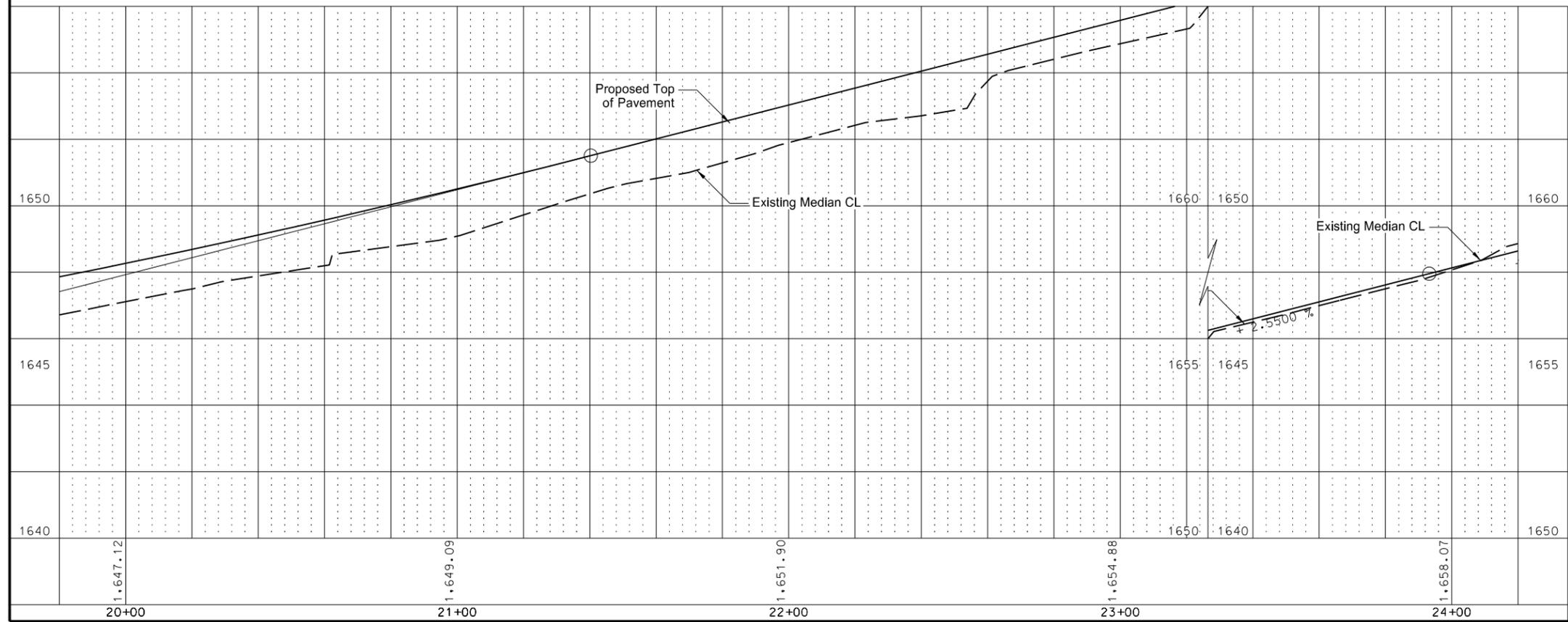
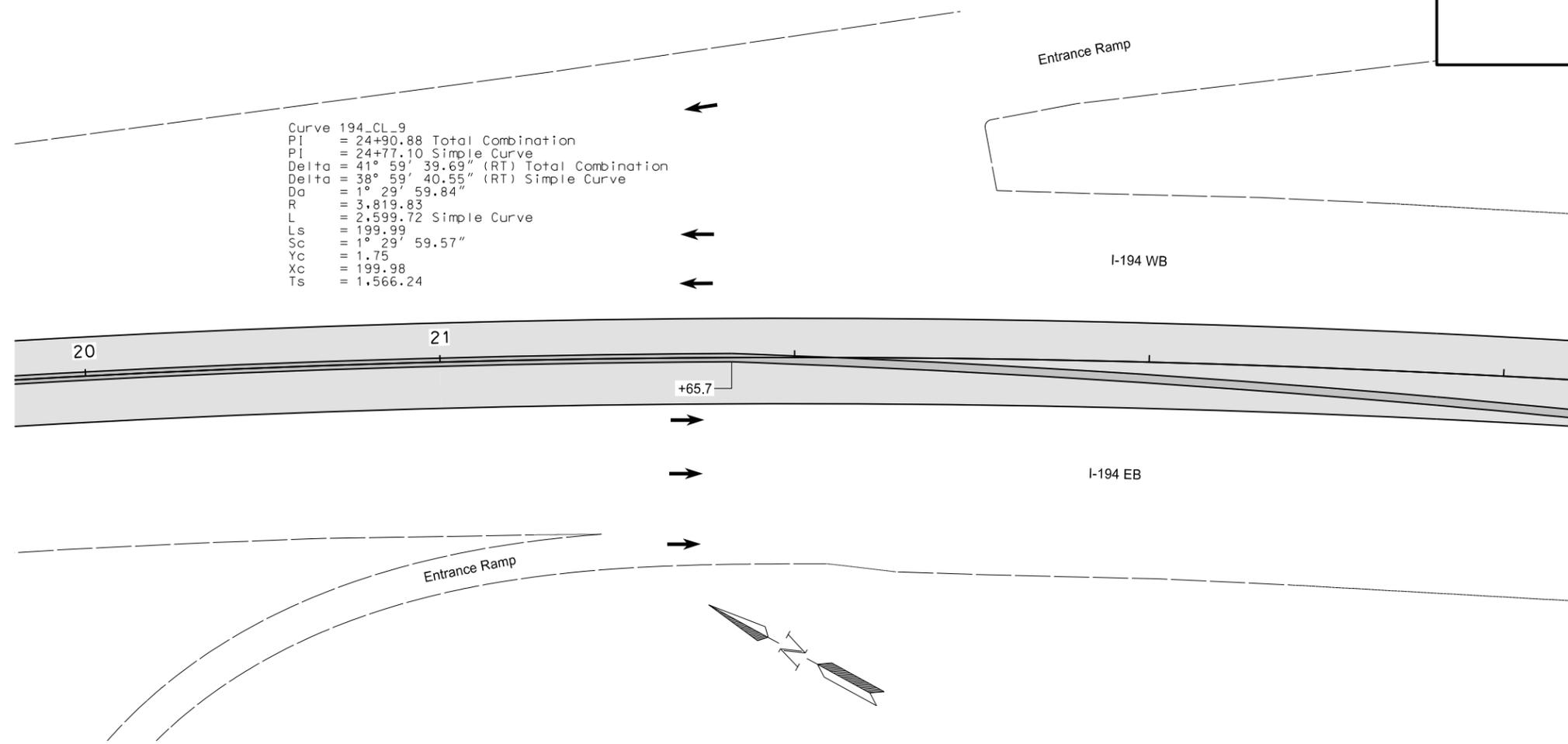
Sta 16+00 to 20+00 (194_CL)

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

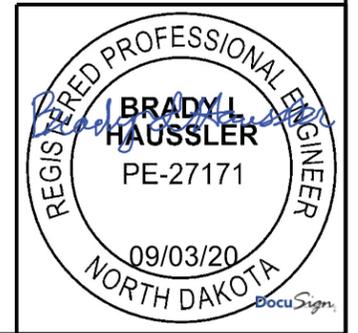
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	9

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED		
	Sta 16+83 to 20+83 (194_BA3)	400	LF

Curve 194_CL_9
 PI = 24+90.88 Total Combination
 PI = 24+77.10 Simple Curve
 Delta = 41° 59' 39.69" (RT) Total Combination
 Delta = 38° 59' 40.55" (RT) Simple Curve
 Da = 1° 29' 59.84"
 R = 3,819.83
 L = 2,599.72 Simple Curve
 Ls = 199.99
 Sc = 1° 29' 59.57"
 Yc = 1.75
 Xc = 199.98
 Ts = 1,566.24



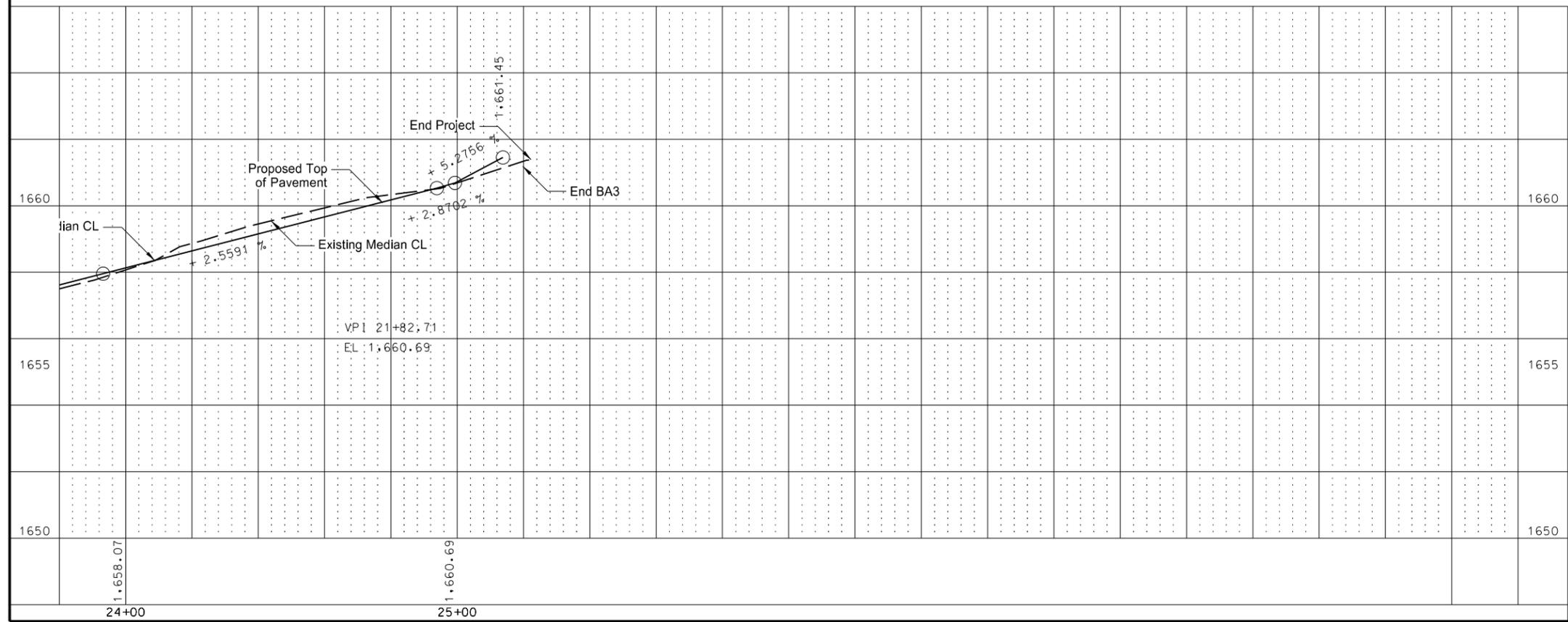
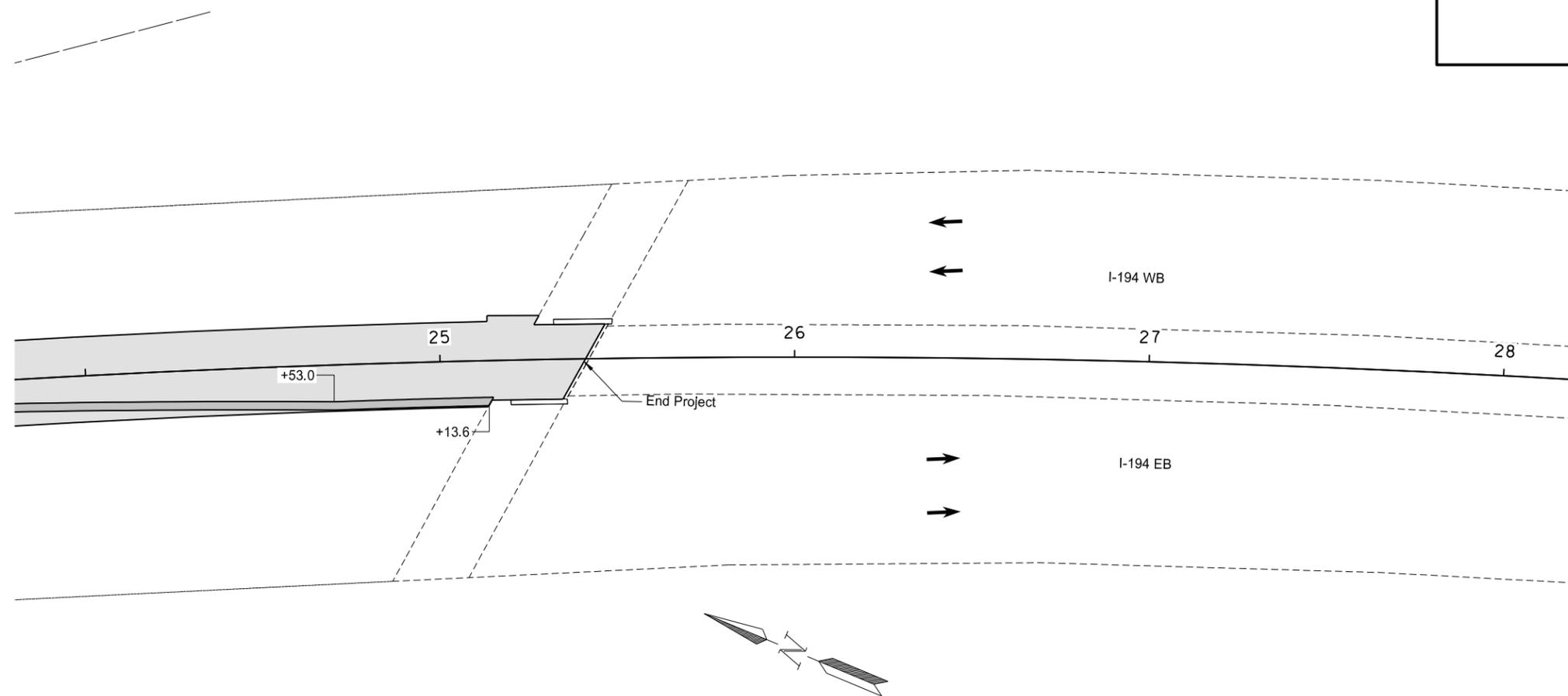
	Concrete Median Pavement
	Concrete Median Barrier



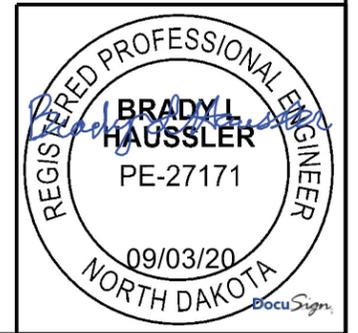
Plan & Profiles
 Sta 20+00 to 24+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	60	10

SPEC CODE	BID ITEM	QTY	UNIT
602 1200	JERSEY BARRIER FORMED OR SLIP FORMED		
	Sta 20+83 to 21+97 (194_BA3)	114	LF



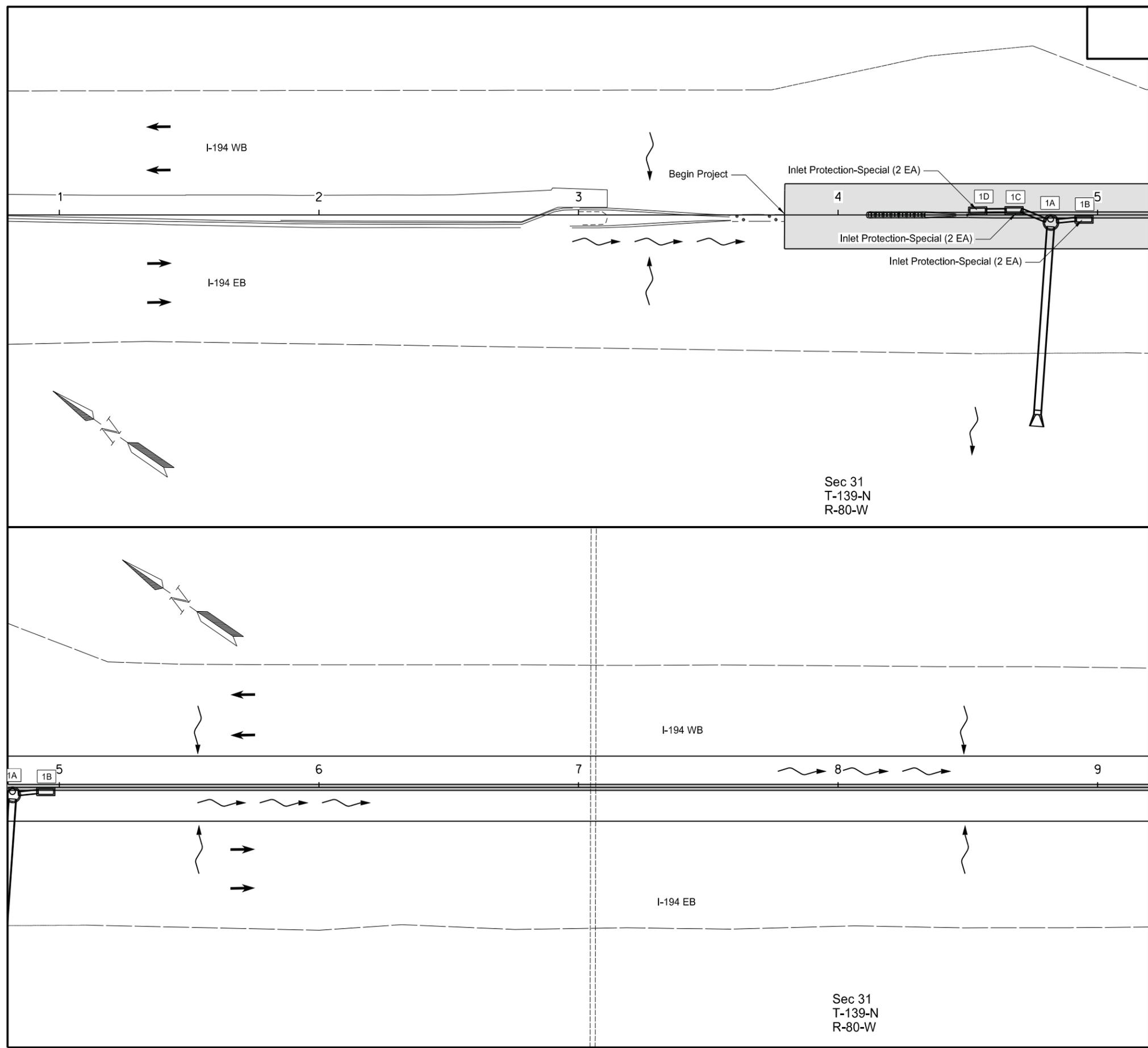
	Concrete Median Pavement
	Concrete Median Barrier



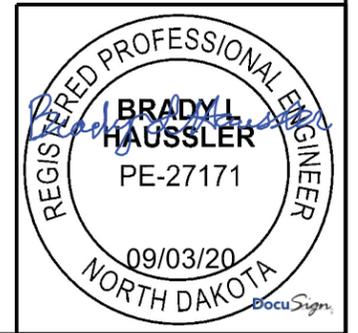
Plan & Profiles
 Sta 24+00 to 28+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	76	1

SPEC CODE	BID ITEM	QTY	UNIT
708	1540 INLET PROTECTION-SPECIAL	6	EA
	1B, 1C, 1D		



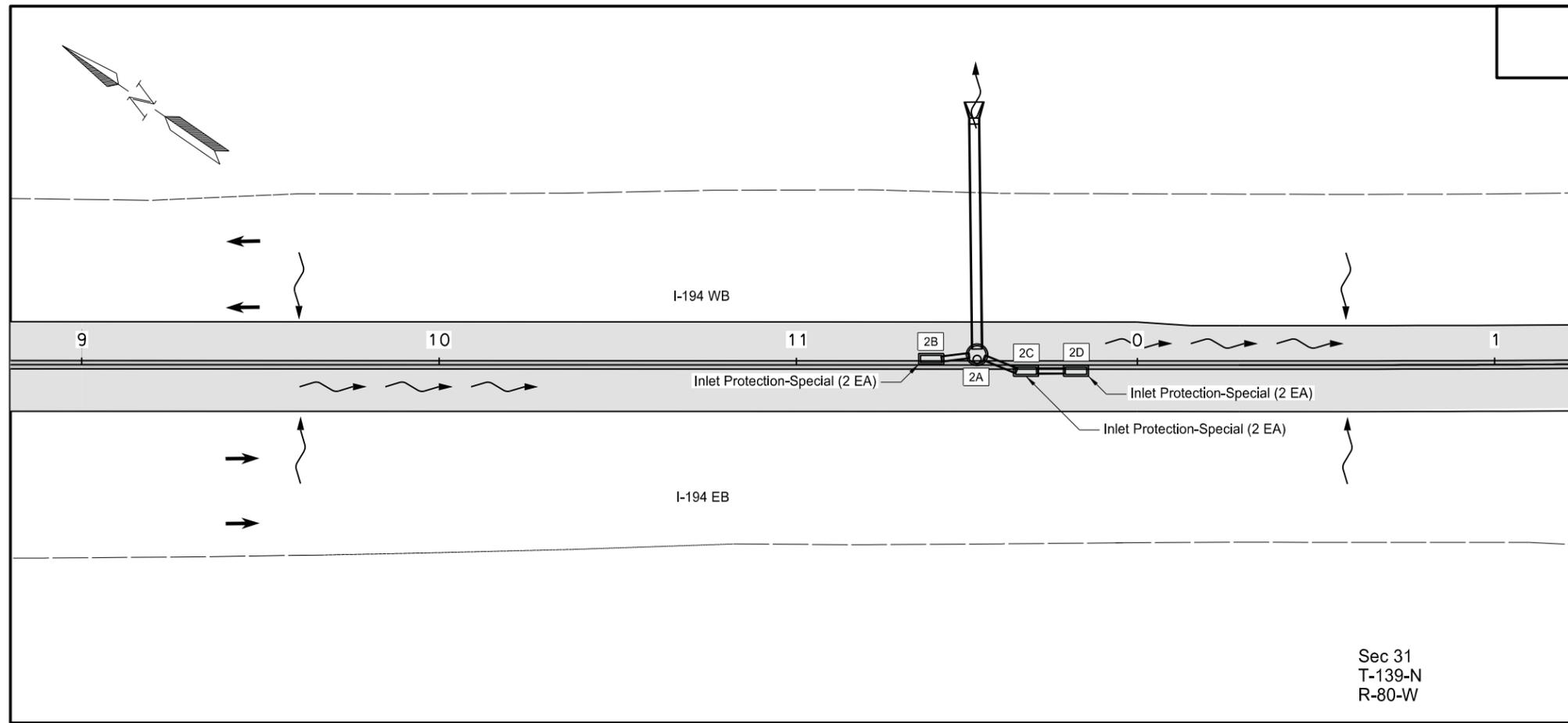
— Fiber Rolls 12IN



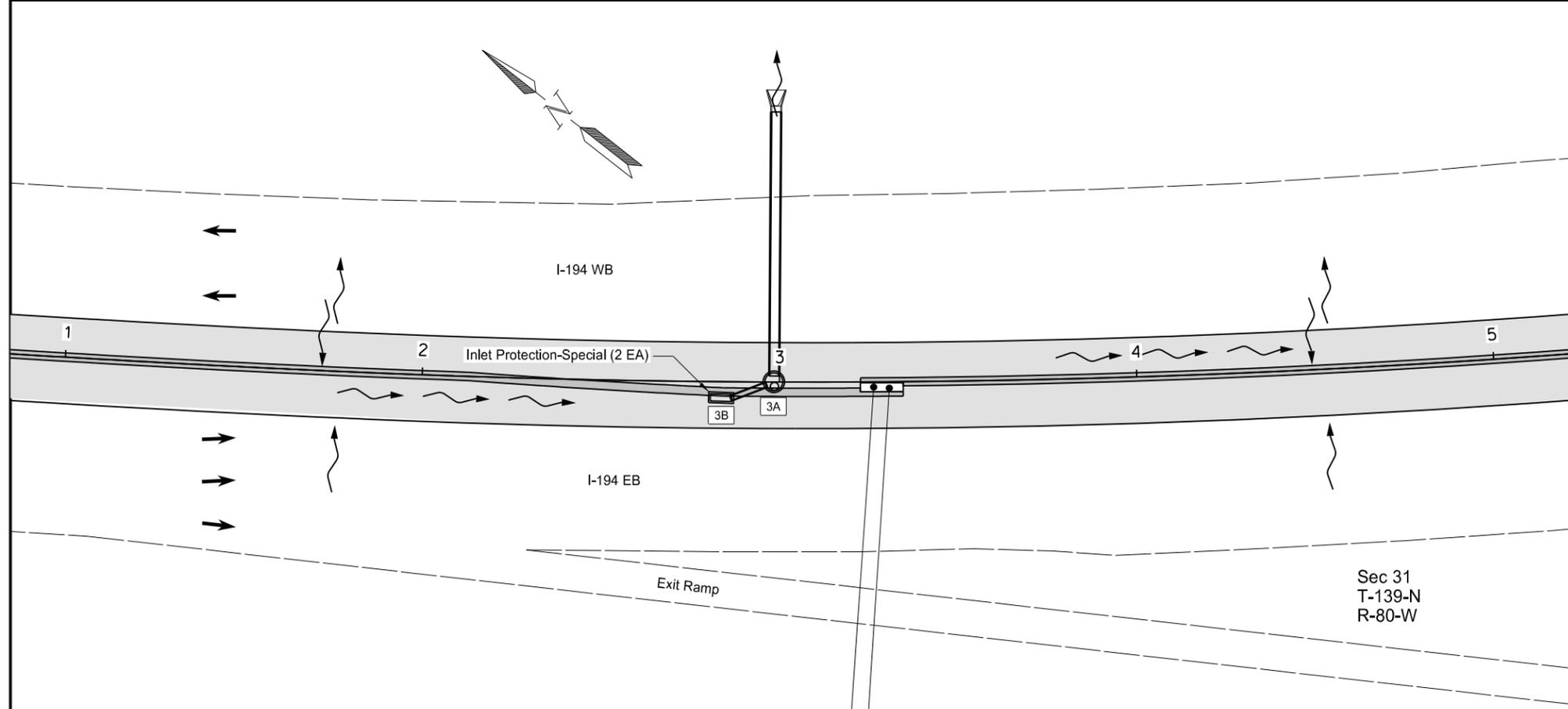
Temporary Sediment and Erosion Control
 Sta 1+00 to 9+00 (OCL194MED)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	76	2

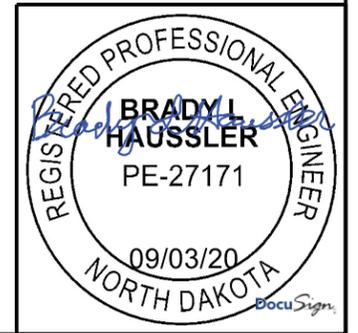
SPEC CODE	BID ITEM	QTY	UNIT
708	1540 INLET PROTECTION-SPECIAL	8	EA
	2B, 2C, 2D, 3B		



Sec 31
T-139-N
R-80-W



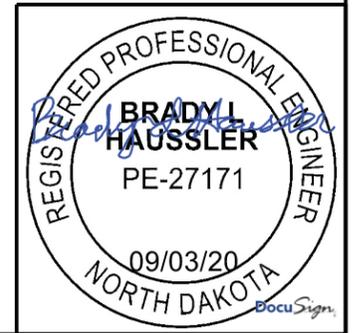
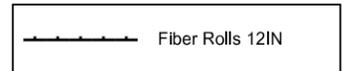
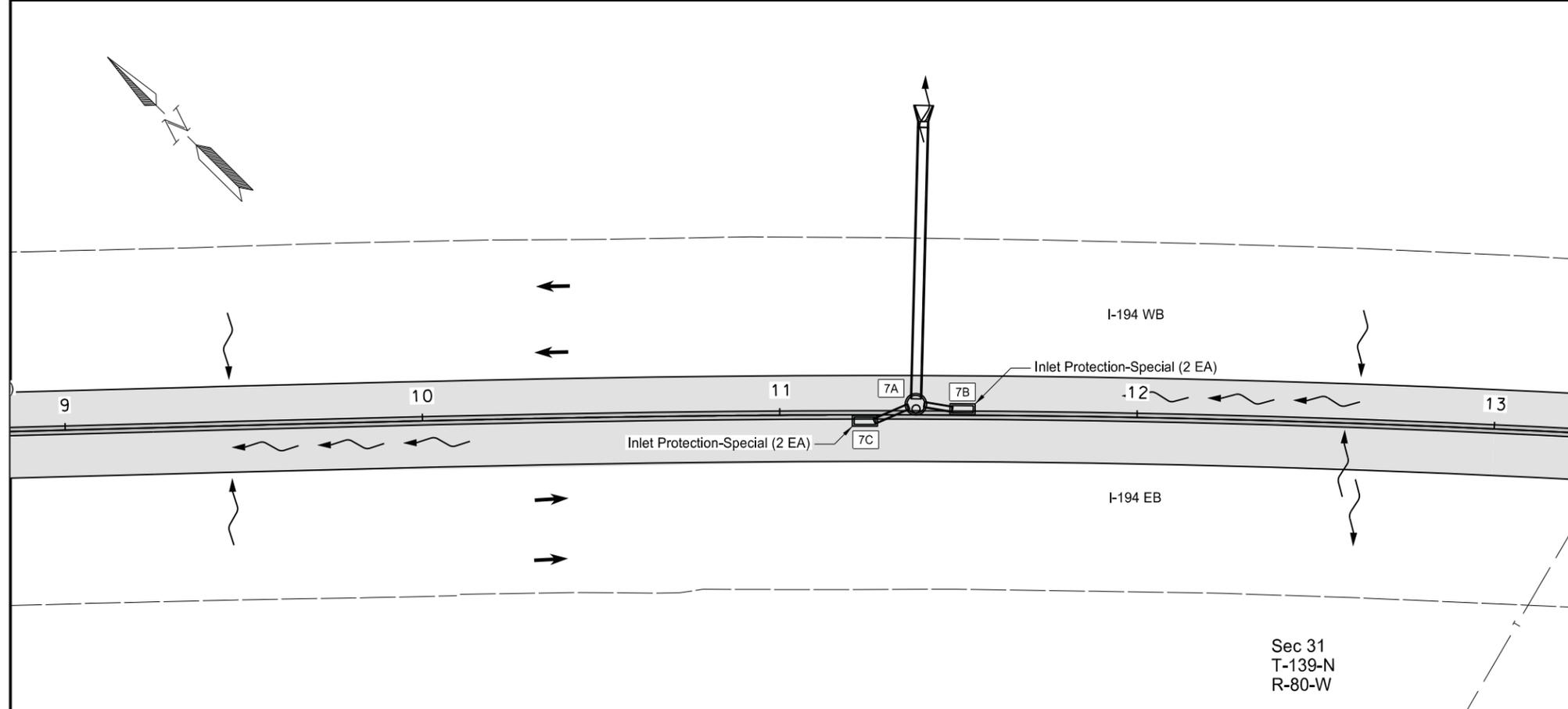
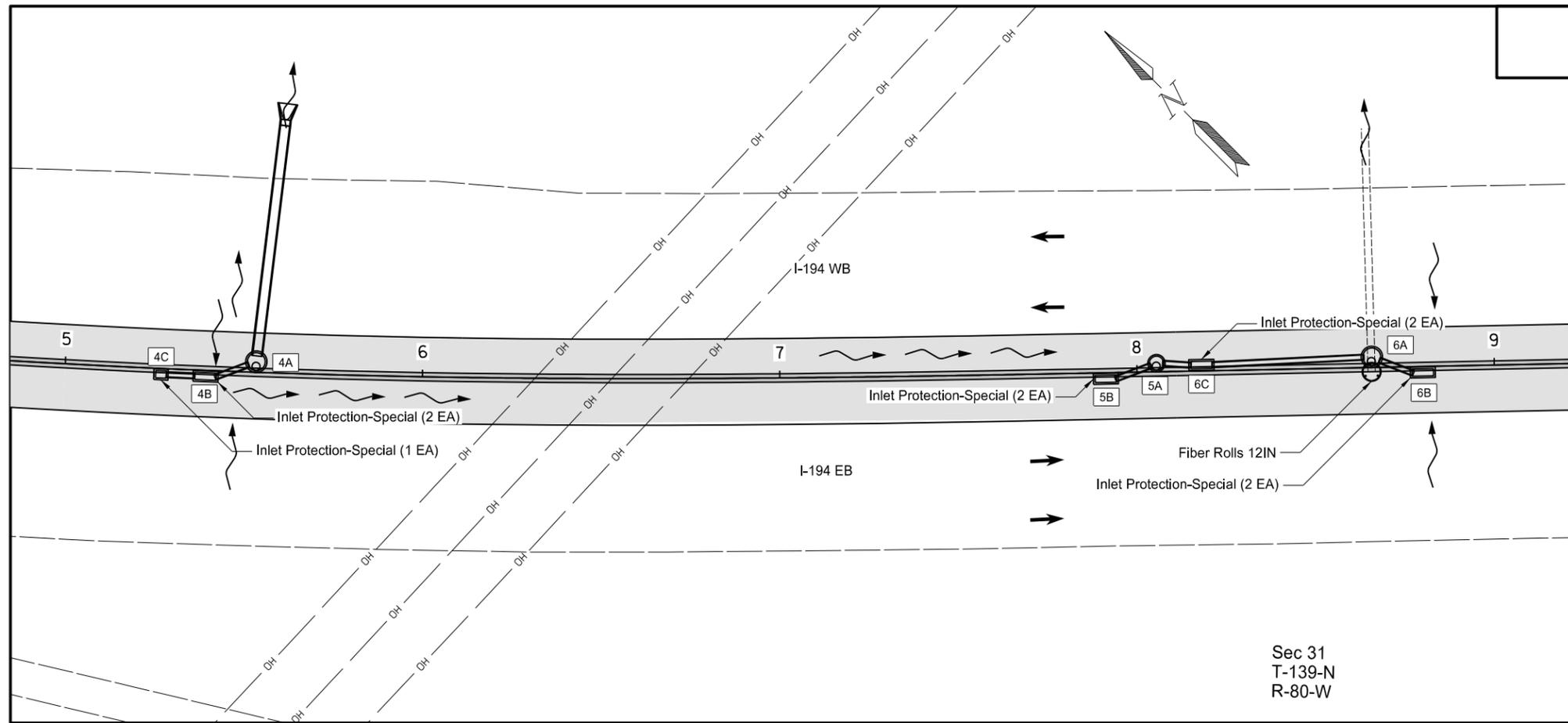
----- Fiber Rolls 12IN



Temporary Sediment and Erosion Control
Sta 9+00 to 11+95.38 (OCL194MED)
Sta 0+00 to 5+00 (194_CL)
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	76	3

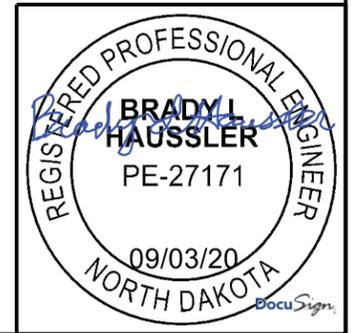
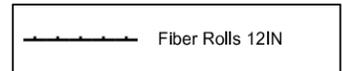
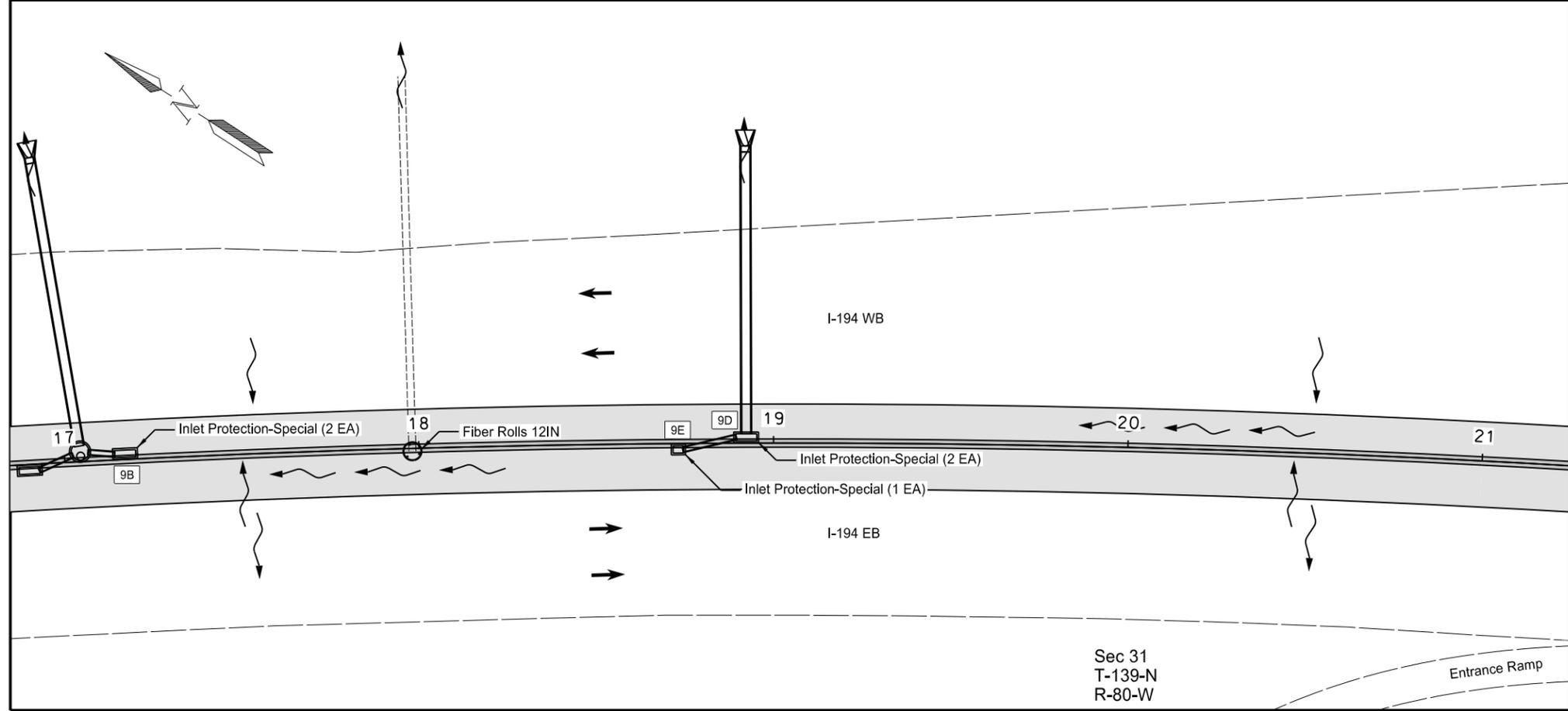
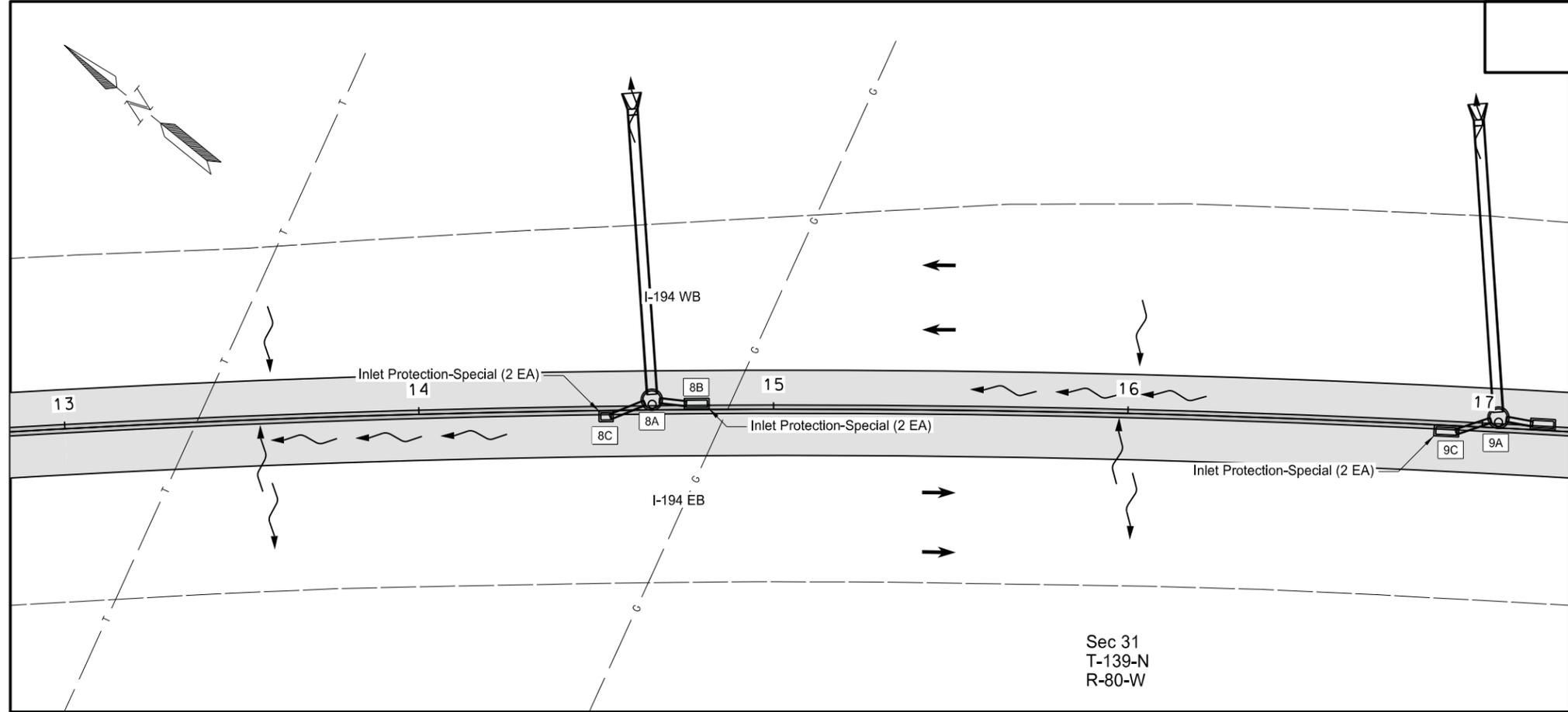
SPEC CODE	BID ITEM	QTY	UNIT
261 0320	FIBER ROLLS 12IN Sta 8+65.64	15	LF
708 1540	INLET PROTECTION-SPECIAL 4B, 4C, 5B, 6B, 6C, 7B, 7C	13	EA



Temporary Sediment and Erosion Control
Sta 5+00 to 13+00 (194_CL)
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	76	4

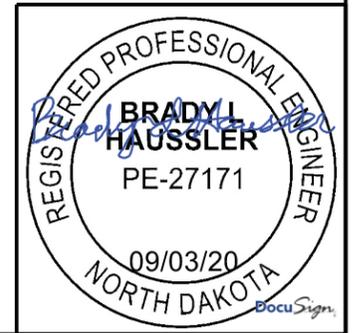
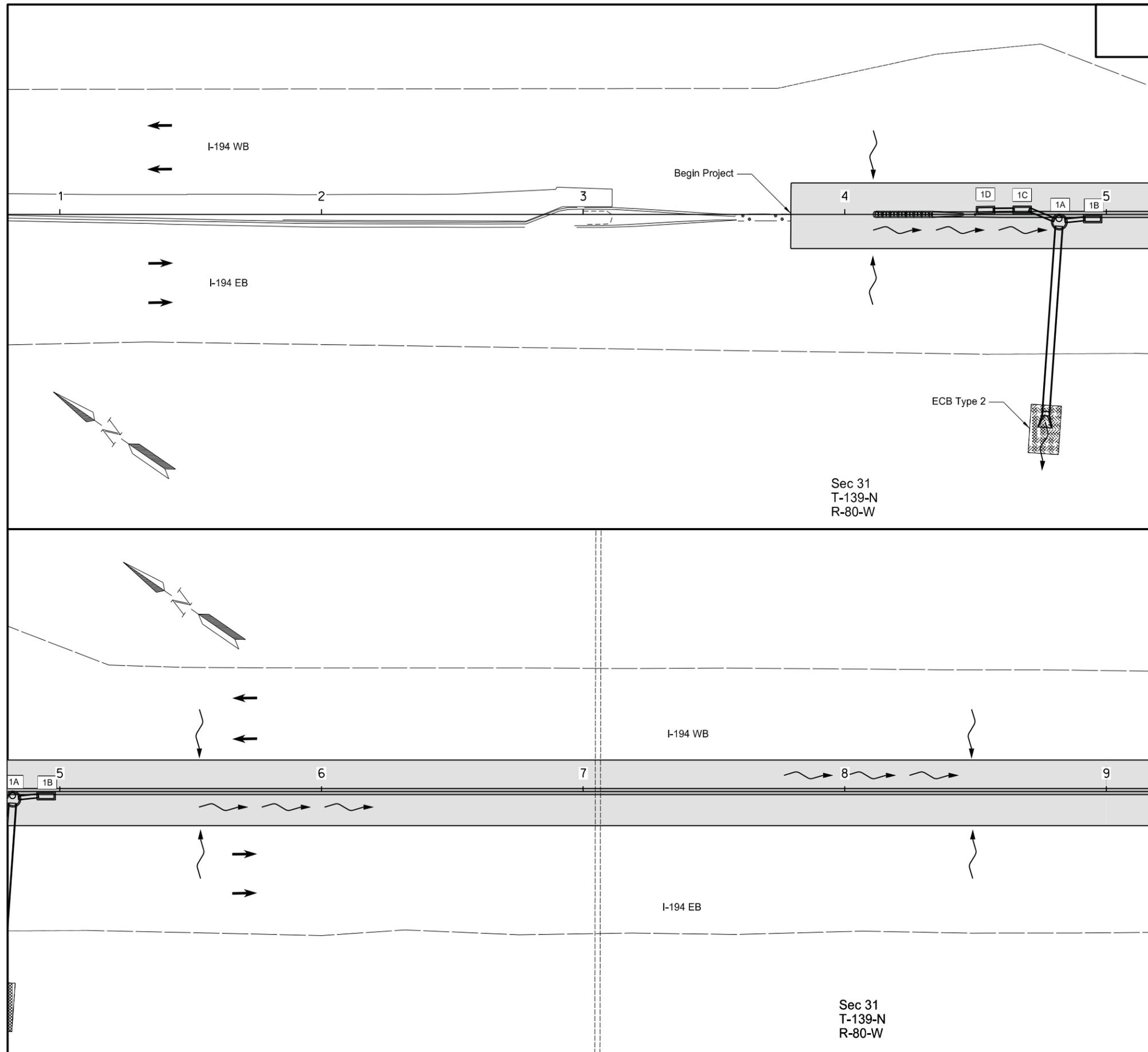
SPEC CODE	BID ITEM	QTY	UNIT
261 0320	FIBER ROLLS 12IN Sta 17+98.12	15	LF
708 1540	INLET PROTECTION-SPECIAL 8B, 8C, 9B, 9C, 9D, 9E	11	EA



Temporary Sediment and Erosion Control
 Sta 13+00 to 21+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	77	1

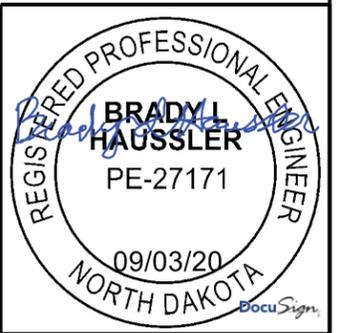
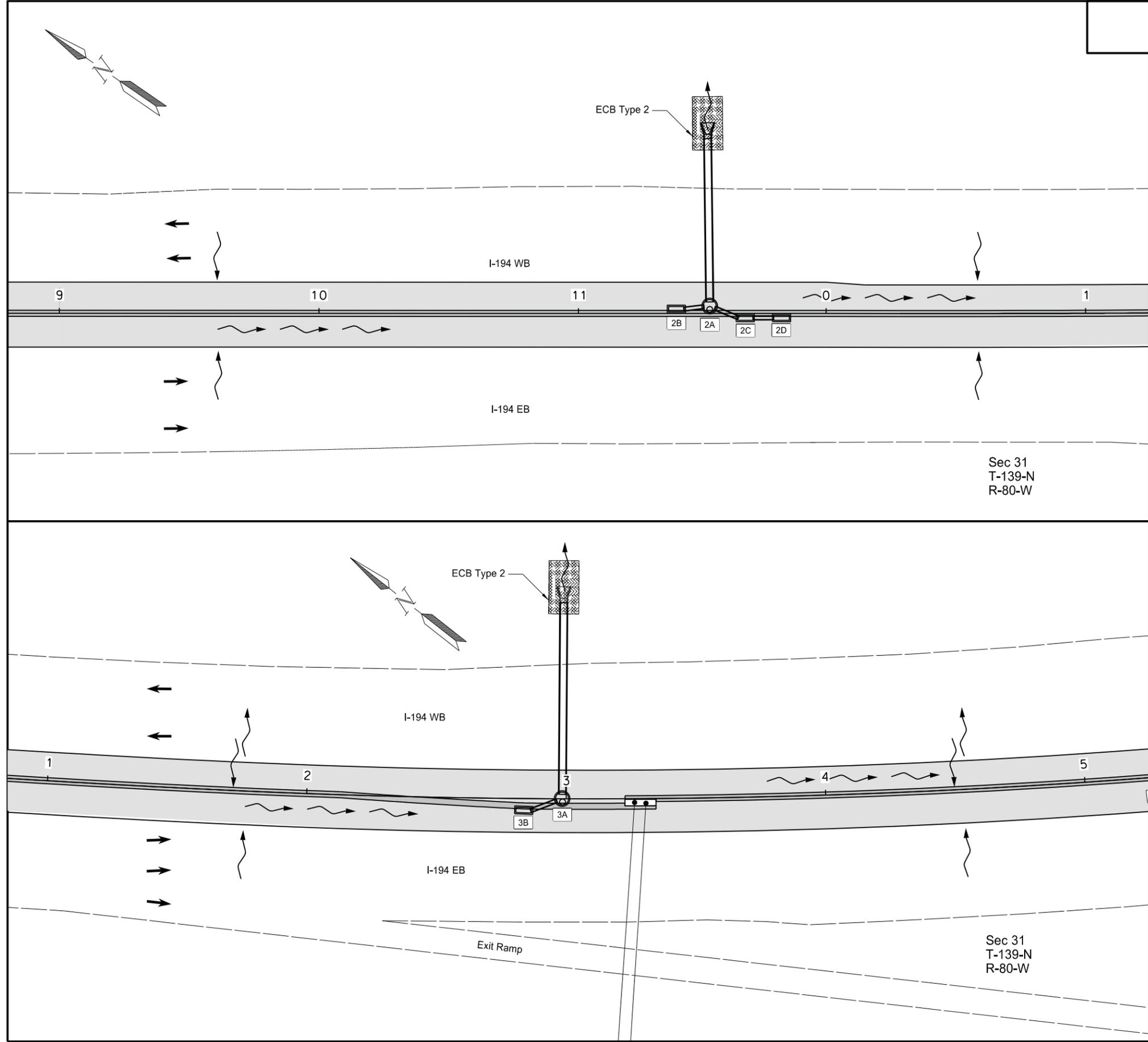
SPEC CODE	BID ITEM	QTY	UNIT
255 0102 ECB TYPE 2	Sta 4+52.62 Rt 76.18' (OCL194MED)	22	SY



Permanent Sediment and Erosion Control
 Sta 1+00 to 9+00 (OCL194MED)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	77	2

SPEC CODE	BID ITEM	QTY	UNIT
255 0102	ECB TYPE 2		
	Sta 11+49.75 Lt 68.36' (OCL194MED)	25	SY
	Sta 2+98.81 Lt 76.57' (194_CL)	25	SY

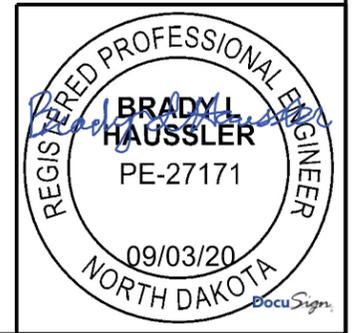
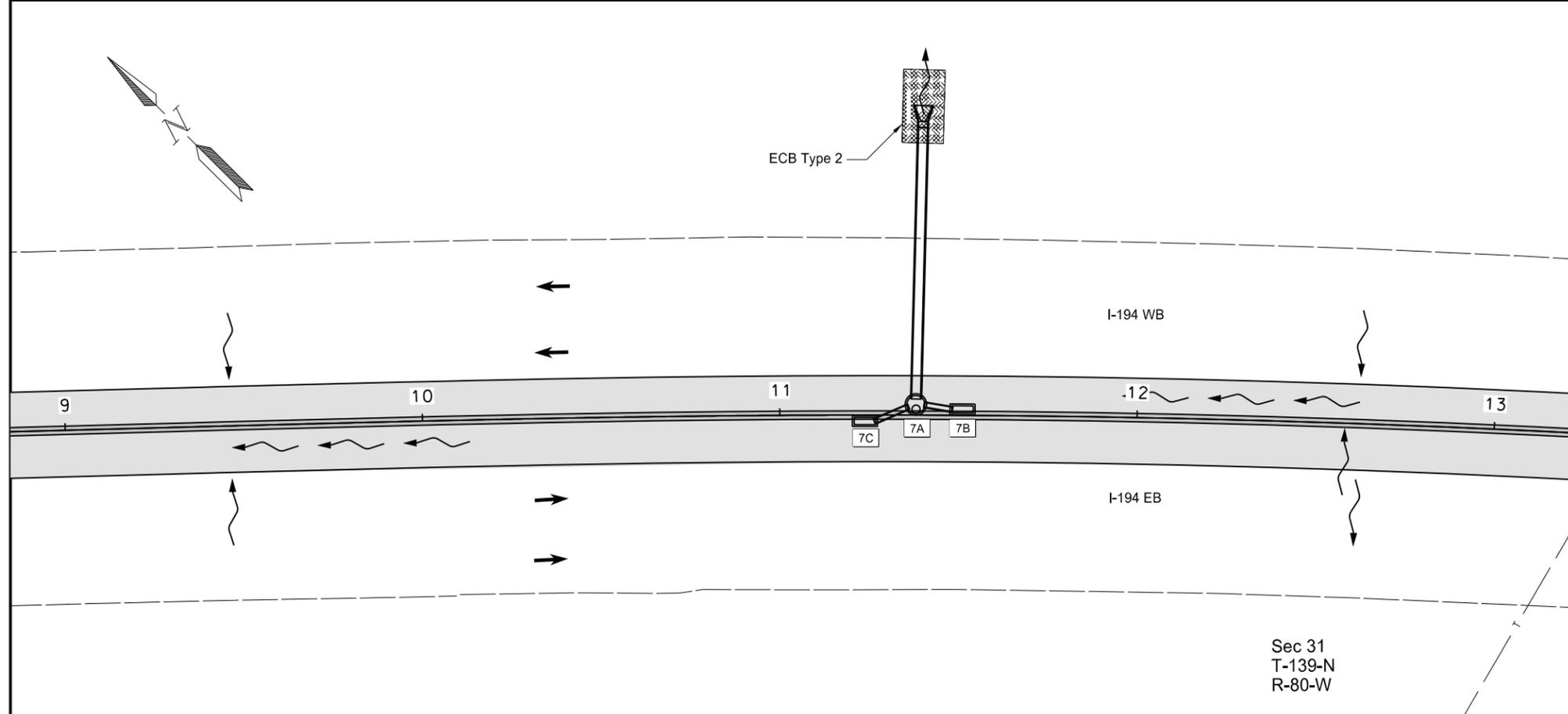
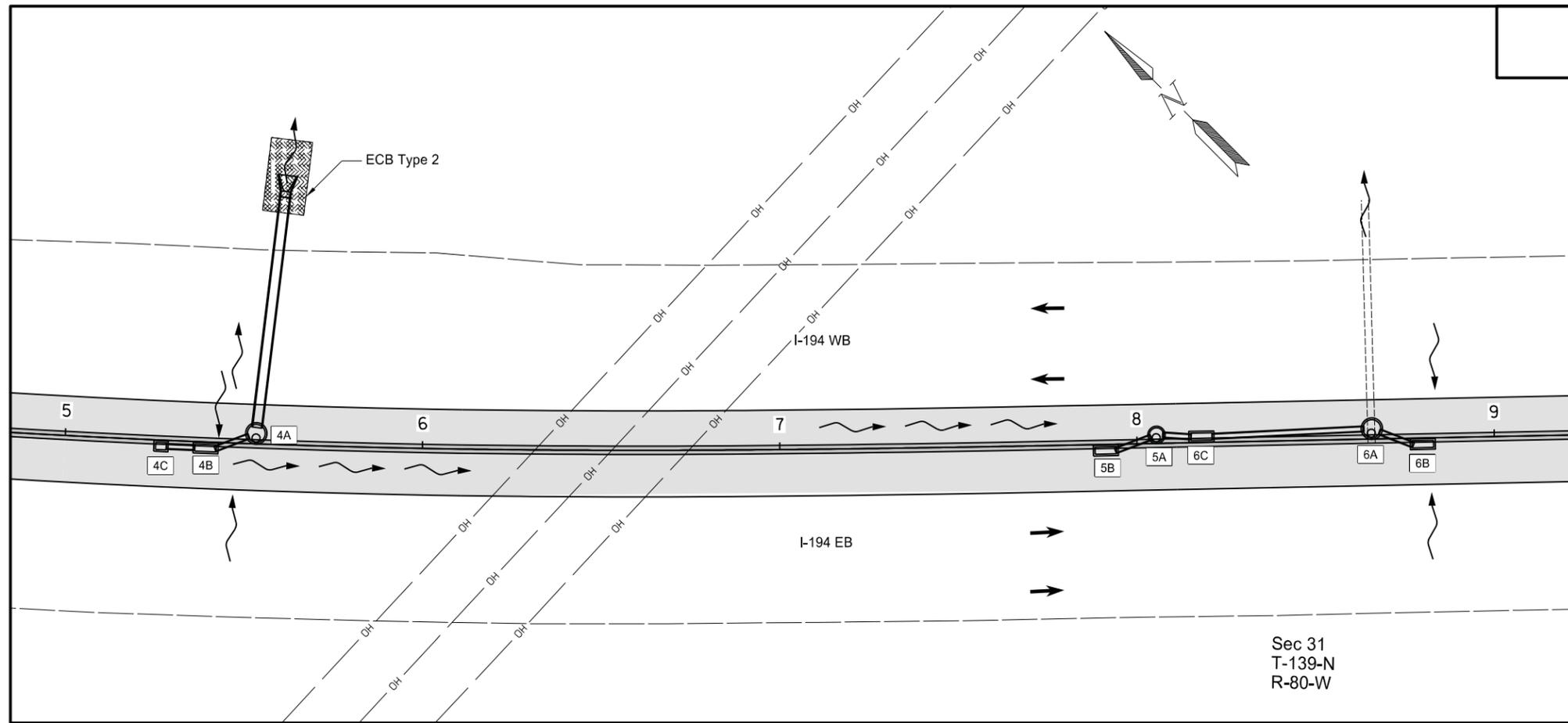


Permanent Sediment and Erosion Control

Sta 9+00 to 11+95.38 (OCL194MED)
 Sta 0+00 to 5+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

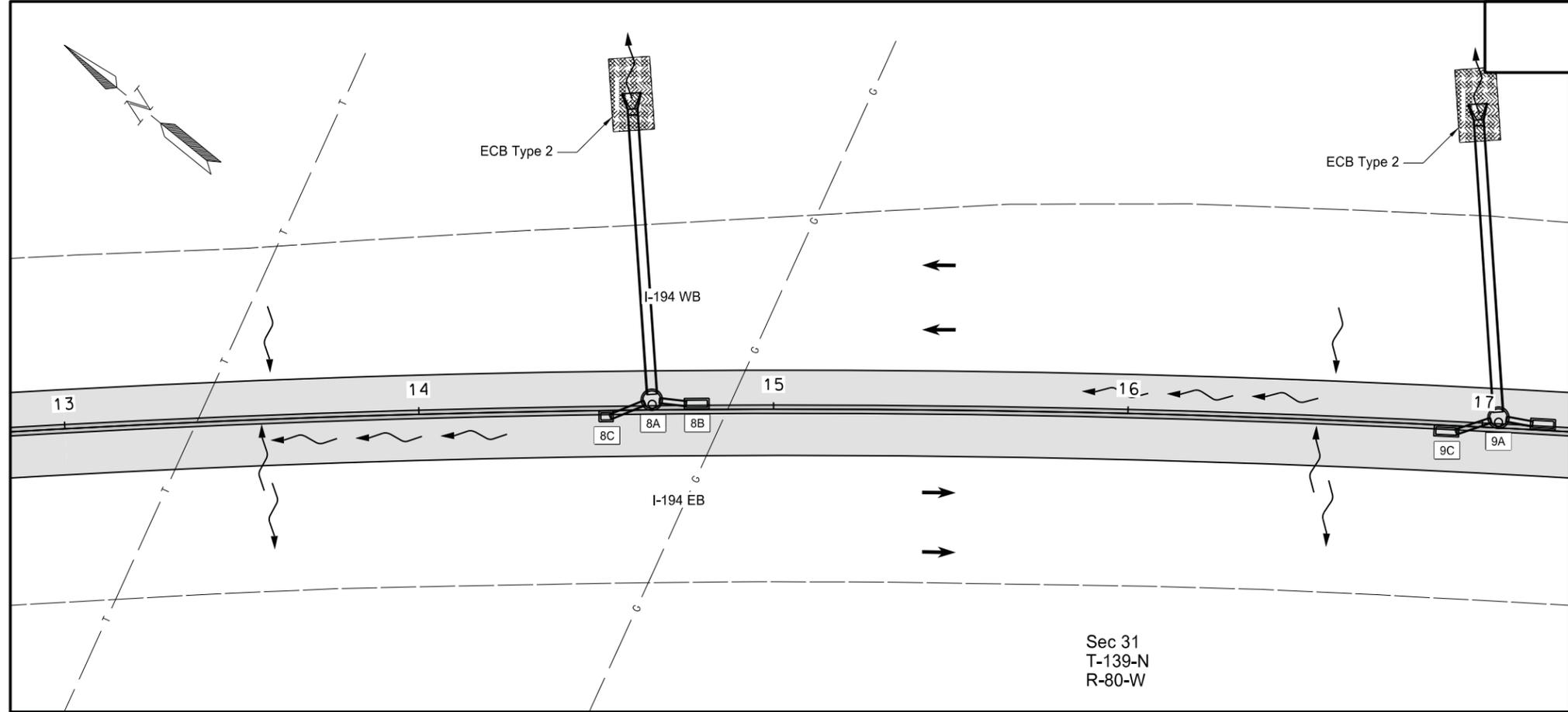
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	77	3

SPEC CODE	BID ITEM	QTY	UNIT
255 0102	ECB TYPE 2		
	Sta 5+59.40 Lt 70.19' (194_CL)	25	SY
	Sta 11+39.85 Lt 81.45' (194_CL)	25	SY



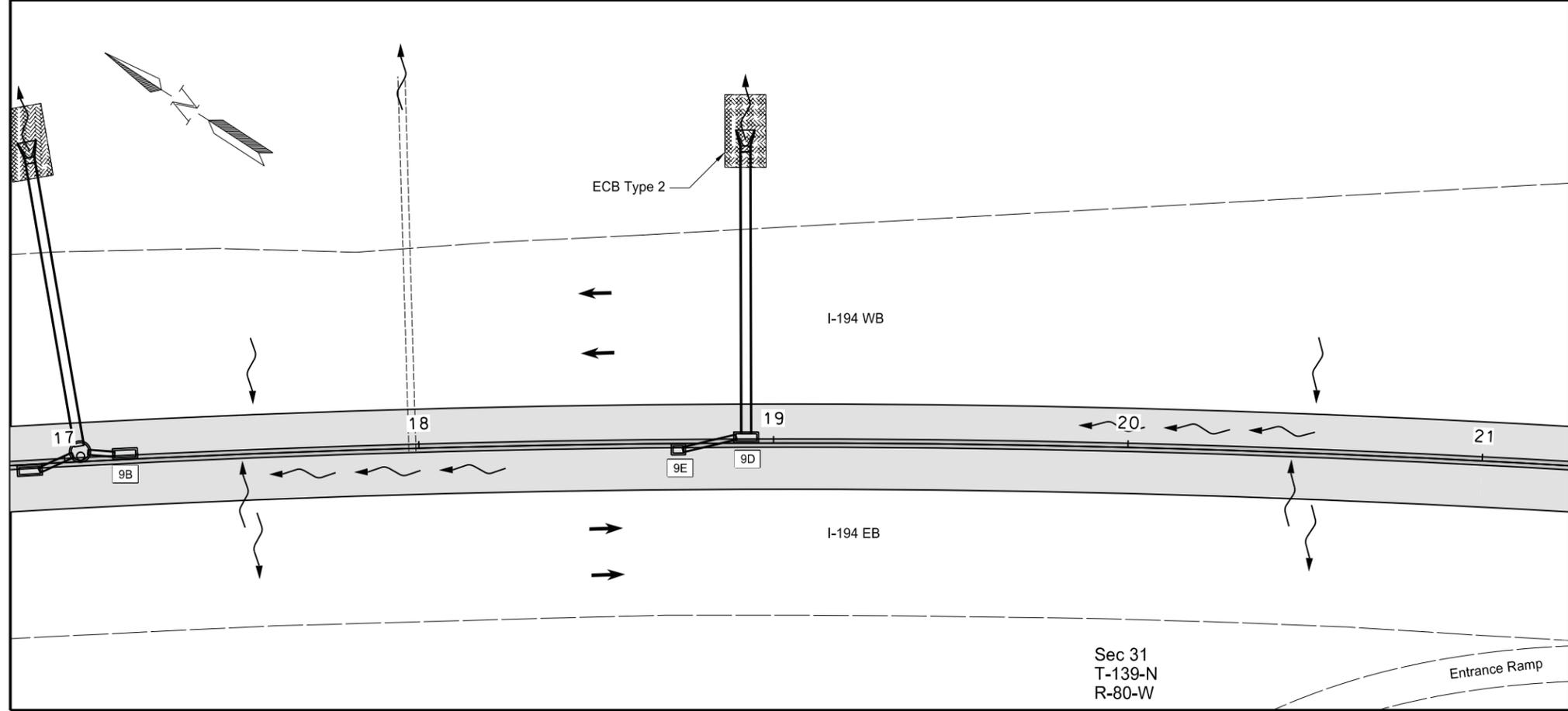
Permanent Sediment and Erosion Control
 Sta 5+00 to 13+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	77	4

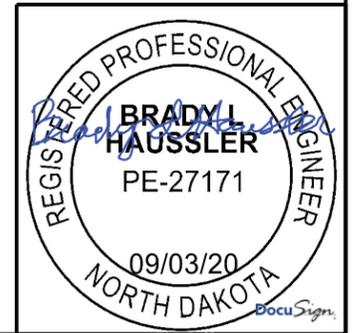


Sec 31
T-139-N
R-80-W

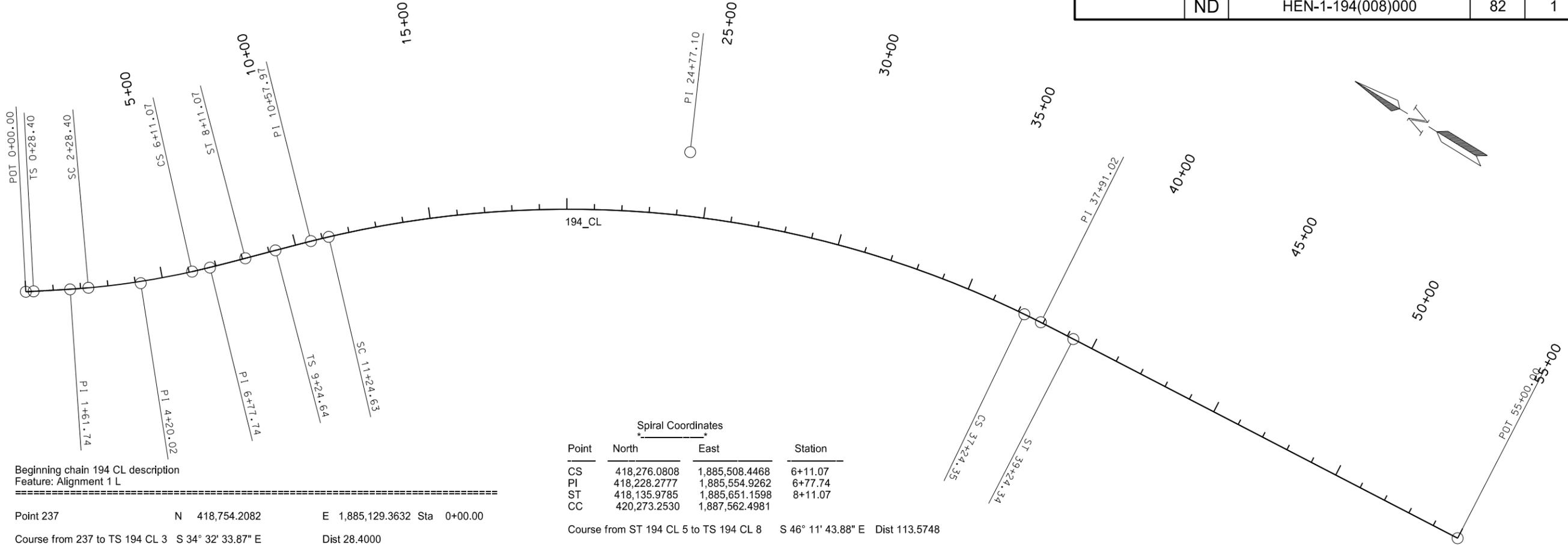
SPEC CODE	BID ITEM	QTY	UNIT
255 0102	ECB TYPE 2		
	Sta 14+61.29 Lt 83.24' (194_CL)	25	SY
	Sta 16+94.91 Lt 84.79' (194_CL)	25	SY
	Sta 18+92.34 Lt 82.17' (194_CL)	25	SY



Sec 31
T-139-N
R-80-W



Permanent Sediment and Erosion Control
Sta 13+00 to 21+00 (194_CL)
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier



Beginning chain 194 CL description
Feature: Alignment 1 L

Point 237 N 418,754.2082 E 1,885,129.3632 Sta 0+00.00
Course from 237 to TS 194 CL 3 S 34° 32' 33.87" E Dist 28.4000

Point	North	East	Station
CS	418,276.0808	1,885,508.4468	6+11.07
PI	418,228.2777	1,885,554.9262	6+77.74
ST	418,135.9785	1,885,651.1598	8+11.07
CC	420,273.2530	1,887,562.4981	

Point	North	East	Station
CS	418,276.0808	1,885,508.4468	6+11.07
PI	418,228.2777	1,885,554.9262	6+77.74
ST	418,135.9785	1,885,651.1598	8+11.07
CC	420,273.2530	1,887,562.4981	

Course from ST 194 CL 5 to TS 194 CL 8 S 46° 11' 43.88" E Dist 113.5748

Point	North	East	Station
CS	415,610.4915	1,886,961.8423	37+24.35
PI	415,544.1535	1,886,968.4650	37+91.02
ST	415,411.1803	1,886,978.2326	39+24.34
CC	415,231.0375	1,883,160.9061	

Point	North	East	Station
CS	415,610.4915	1,886,961.8423	37+24.35
PI	415,544.1535	1,886,968.4650	37+91.02
ST	415,411.1803	1,886,978.2326	39+24.34
CC	415,231.0375	1,883,160.9061	

Course from ST 194 CL 10 to 238 S 4° 12' 04.19" E Dist 1,575.6620

Point 238 N 413,839.7521 E 1,887,093.6632 Sta 55+00.00

Ending chain 194 CL description

Point	North	East	Station
TS	418,730.8151	1,885,145.4666	0+28.40
PI	418,620.9809	1,885,221.0742	1+61.74
SC	418,567.4138	1,885,260.7735	2+28.40
CC	420,273.2530	1,887,562.4981	

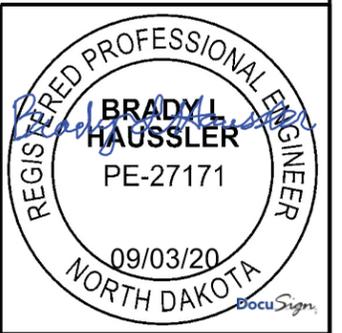
Point	North	East	Station
TS	418,057.3621	1,885,733.1275	9+24.64
PI	417,965.0701	1,885,829.3536	10+57.97
SC	417,917.6792	1,885,876.2437	11+24.63
CC	415,231.0375	1,883,160.9061	

Curve Data			
Curve 194 CL 4			
P.I. Station	4+20.02	N	418,413.4646 E 1,885,374.8673
Delta	= 7° 39' 10.72" (LT)		
Degree	= 1° 59' 59.65"		
Tangent	= 191.6188		
Length	= 382.6677		
Radius	= 2,864.9300		
External	= 6.4010		
Long Chord	= 382.3833		
Mid. Ord.	= 6.3867		
P.C. Station	2+28.40	N	418,567.4138 E 1,885,260.7735
P.T. Station	6+11.07	N	418,276.0808 E 1,885,508.4468
C.C.		N	420,273.2530 E 1,887,562.4981
Back	= S 36° 32' 33.52" E		
Ahead	= S 44° 11' 44.24" E		
Chord Bear	= S 40° 22' 08.88" E		

Curve Data			
Curve 194 CL 9			
P.I. Station	24+77.10	N	416,956.2718 E 1,886,827.4908
Delta	= 38° 59' 40.55" (RT)		
Degree	= 1° 29' 59.84"		
Tangent	= 1,352.4700		
Length	= 2,599.7155		
Radius	= 3,819.8300		
External	= 232.3640		
Long Chord	= 2,549.8313		
Mid. Ord.	= 219.0396		
P.C. Station	11+24.63	N	417,917.6792 E 1,885,876.2437
P.T. Station	37+24.35	N	415,610.4915 E 1,886,961.8423
C.C.		N	415,231.0375 E 1,883,160.9061
Back	= S 44° 41' 44.31" E		
Ahead	= S 5° 42' 03.76" E		
Chord Bear	= S 25° 11' 54.04" E		

Point	North	East	Station
CS	418,276.0808	1,885,508.4468	6+11.07
PI	418,228.2777	1,885,554.9262	6+77.74
ST	418,135.9785	1,885,651.1598	8+11.07
CC	420,273.2530	1,887,562.4981	

Point	North	East	Station
CS	418,276.0808	1,885,508.4468	6+11.07
PI	418,228.2777	1,885,554.9262	6+77.74
ST	418,135.9785	1,885,651.1598	8+11.07
CC	420,273.2530	1,887,562.4981	



Survey Data Layout

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	82	2

Beginning chain 194 BA1 description
Feature: Alignment 4 L

Point 15558 N 419,400.4325 E 1,884,684.5154 Sta 0+00.00

Course from 15558 to 15559 S 34° 32' 33.87" E Dist 784.5351

Point 15559 N 418,754.2082 E 1,885,129.3632 Sta 7+84.54

Course from 15559 to TS 194 BA1 5 S 34° 32' 33.87" E Dist 28.4000

Spiral 194 BA1 5 Type 1 Spiral Element

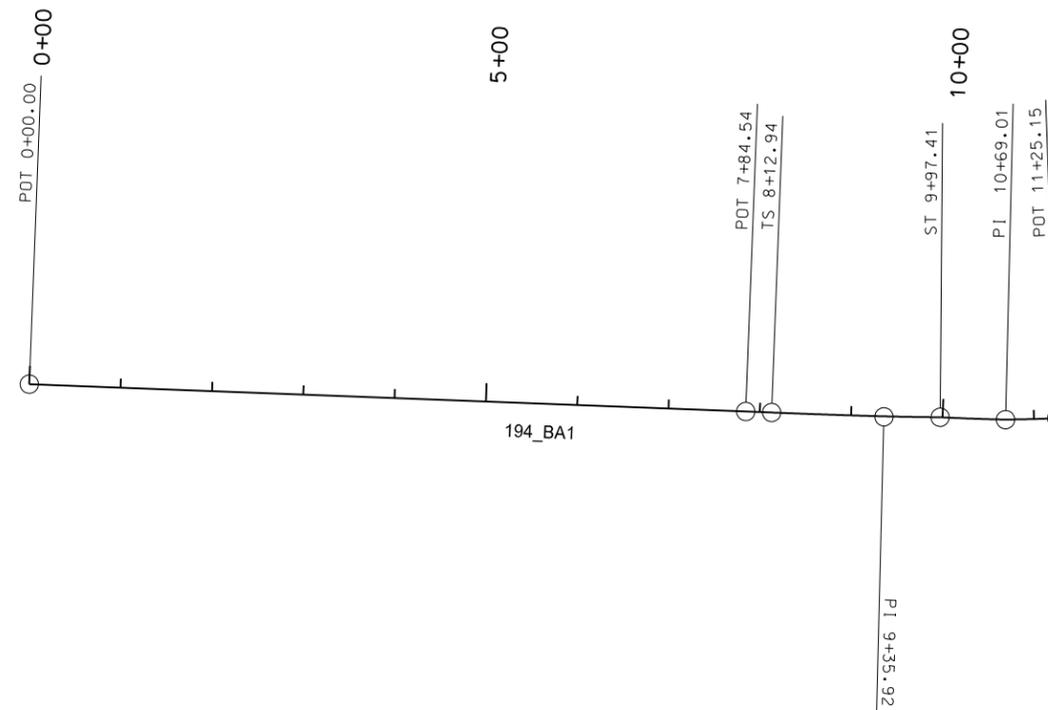
Angle 1° 42' 05.26" (LT) P 0.4565 BK S 34° 32' 33.87" E
 LS 184.4747 K 92.2346 AH S 36° 14' 39.14" E
 R 3,106.0408 LT 122.9888 CB S 35° 06' 35.61" E
 YS 1.8259 ST 61.4967 Defl 0° 34' 01.74"
 XS 184.4585 LC 184.4675 Deg 1° 50' 40.76"

Point	Spiral Coordinates		Station
	North	East	
TS	418,730.8151	1,885,145.4666	8+12.94
PI	418,629.5087	1,885,215.2038	9+35.92
SC	418,579.9113	1,885,251.5624	9+97.41
CC	420,416.2899	1,887,756.5979	

Point 15599 N 418,521.0191 E 1,885,292.2777 Sta 10+69.01

Point 15619 N 418,476.9163 E 1,885,327.0119 Sta 11+25.15

Ending chain 194 BA1 description



Beginning chain OCL194MED description
Feature: Alignment 3 L

Point 234 N 419,738.8501 E 1,884,451.5555 Sta 0+00.00

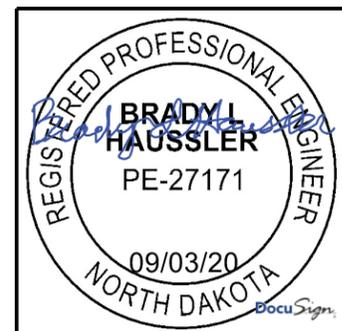
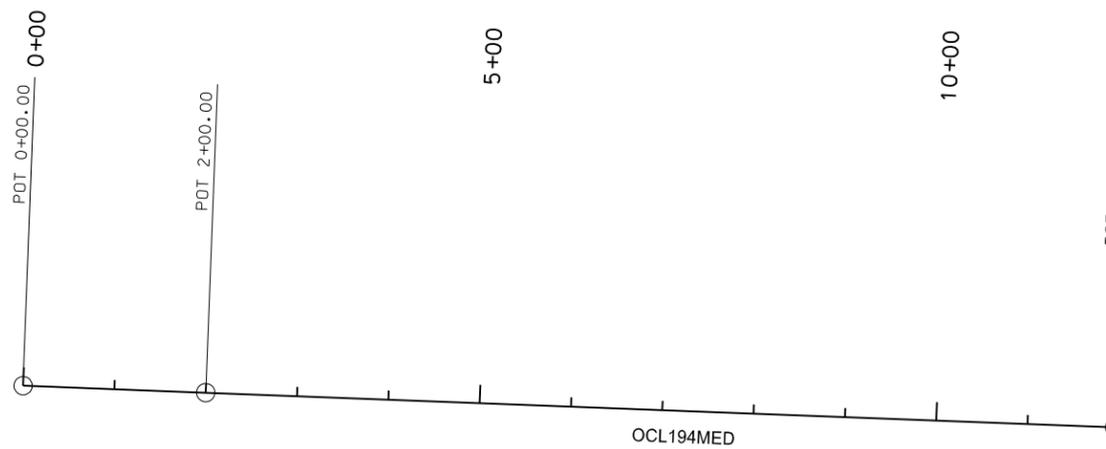
Course from 234 to 235 S 34° 32' 33.87" E Dist 200.0000

Point 235 N 419,574.1094 E 1,884,564.9597 Sta 2+00.00

Course from 235 to 236 S 34° 32' 33.87" E Dist 995.3839

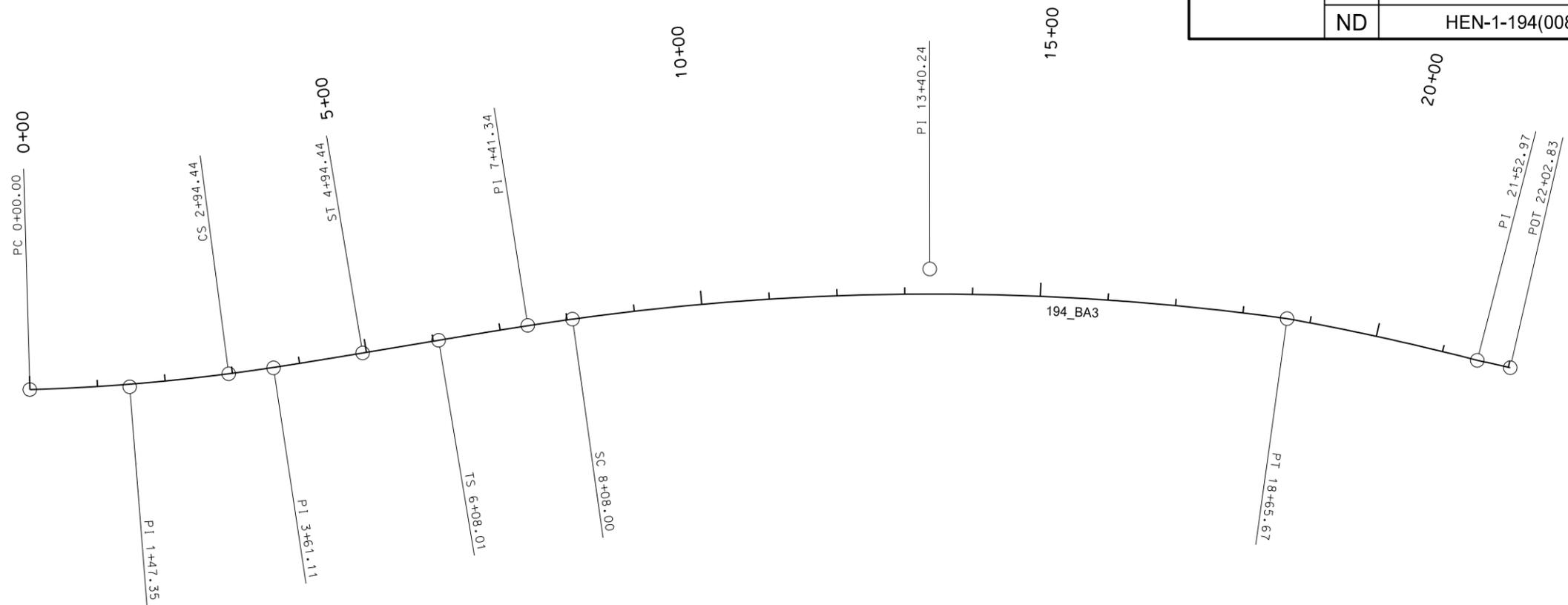
Point 236 N 418,754.2082 E 1,885,129.3632 Sta 11+95.38

Ending chain OCL194MED description



Survey Data Layout

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier



Beginning chain 194 BA3 description
Feature: Alignment 5 S

Curve Data			
Curve 194 BA3 1			
P.I. Station	1+47.35 N	418,381.7244 E	1,885,405.7286
Delta =	5° 53' 18.47" (LT)		
Degree =	1° 59' 59.65"		
Tangent =	147.3486		
Length =	294.4377		
Radius =	2,864.9300		
External =	3.7867		
Long Chord =	294.3081		
Mid. Ord. =	3.7817		
P.C. Station	0+00.00 N	418,497.3486 E	1,885,314.3906
P.T. Station	2+94.44 N	418,276.0808 E	1,885,508.4468
C.C.	N	420,273.2530 E	1,887,562.4981
Back =	S 38° 18' 25.77" E		
Ahead =	S 44° 11' 44.24" E		
Chord Bear =	S 41° 15' 05.00" E		

Spiral Coordinates			
Point	North	East	Station
TS	418,057.3621	1,885,733.1275	6+08.01
PI	417,965.0701	1,885,829.3536	7+41.34
SC	417,917.6792	1,885,876.2437	8+08.00
CC	415,231.0375	1,883,160.9061	

Curve Data			
Curve 194 BA3 6			
P.I. Station	13+40.24 N	417,539.3340 E	1,886,250.5905
Delta =	15° 51' 52.65" (RT)		
Degree =	1° 29' 59.84"		
Tangent =	532.2411		
Length =	1,057.6725		
Radius =	3,819.8300		
External =	36.9020		
Long Chord =	1,054.2970		
Mid. Ord. =	36.5489		
P.C. Station	8+08.00 N	417,917.6792 E	1,885,876.2437
P.T. Station	18+65.67 N	417,073.0665 E	1,886,507.2520
C.C.	N	415,231.0375 E	1,883,160.9061
Back =	S 44° 41' 44.31" E		
Ahead =	S 28° 49' 51.66" E		
Chord Bear =	S 36° 45' 47.98" E		

Spiral 194 BA3 2 Type 2 Spiral Element			
Angle	1° 59' 59.65" (LT) P	0.5817	BK S 44° 11' 44.24" E
LS	200.0000	K	99.9959 AH S 46° 11' 43.88" E
R	2,864.9300	LT	133.3418 CB S 45° 31' 44.03" E
YS	2.3268	ST	66.6744 Defl 0° 39' 59.86"
XS	199.9756	LC	199.9892 Deg 1° 59' 59.65"

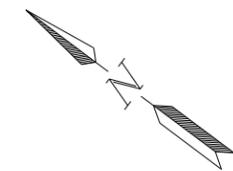
Spiral Coordinates			
Point	North	East	Station
CS	418,276.0808	1,885,508.4468	2+94.44
PI	418,228.2777	1,885,554.9262	3+61.11
ST	418,135.9785	1,885,651.1598	4+94.44
CC	420,273.2530	1,887,562.4981	

Point 16403	N	416,811.4537 E	1,886,625.8249 Sta	21+52.97
Point 16423	N	416,765.9614 E	1,886,646.2193 Sta	22+02.83

Ending chain 194 BA3 description

Course from ST 194 BA3 2 to TS 194 BA3 5 S 46° 11' 43.88" E Dist 113.5748

Spiral 194 BA3 5 Type 1 Spiral Element			
Angle	1° 29' 59.57" (RT) P	0.4363	BK S 46° 11' 43.88" E
LS	199.9900	K	99.9927 AH S 44° 41' 44.31" E
R	3,819.8300	LT	133.3315 CB S 45° 41' 44.04" E
YS	1.7450	ST	66.6677 Defl 0° 29' 59.85"
XS	199.9763	LC	199.9839 Deg 1° 29' 59.84"

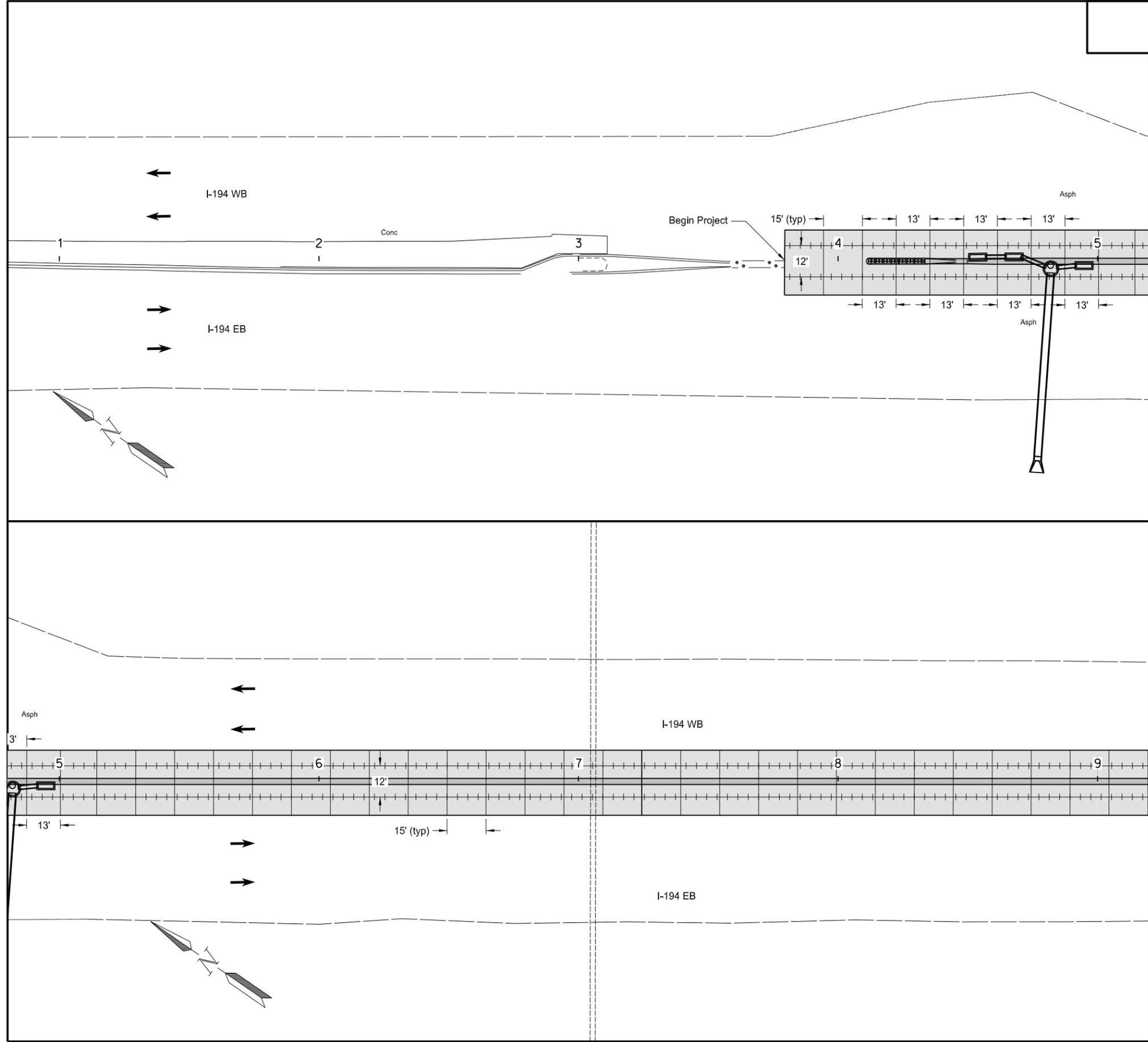


Survey Data Layout

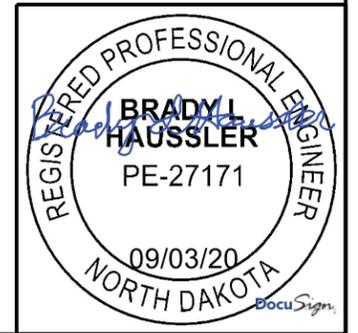
I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	90	1

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 Sta 3+79.41 to 9+00 (OCL194MED)	690	TON
550 3005	CONCRETE MEDIAN PAVEMENT Sta 3+79.41 to 9+00 (OCL194MED)	1446	SY



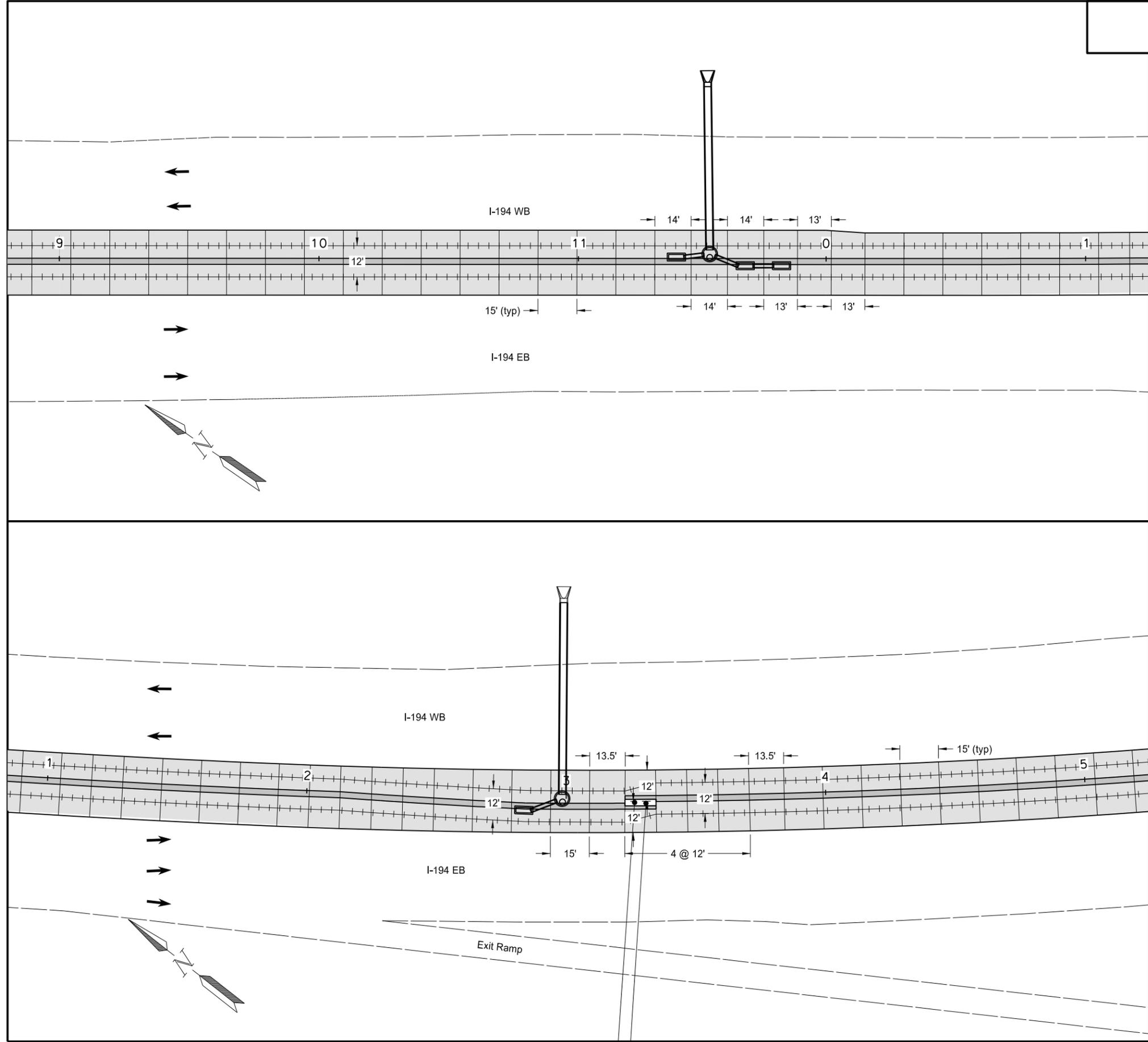
	Untied Joint
	Tied Joint
	Concrete Median Pavement
	Concrete Median Barrier



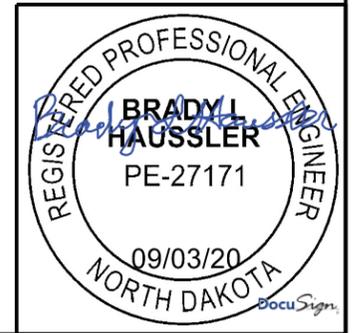
Paving Layouts
 Sta 1+00 to 9+00 (OCL194MED)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	90	2

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5		
	Sta 9+00 to 11+95.38 (OCL194MED)	391	TON
	Sta 0+00 to 5+00 (194_CL)	636	TON
550 3005	CONCRETE MEDIAN PAVEMENT		
	Sta 9+00 to 11+95.38 (OCL194MED)	821	SY
	Sta 0+00 to 5+00 (194_CL)	1334	SY



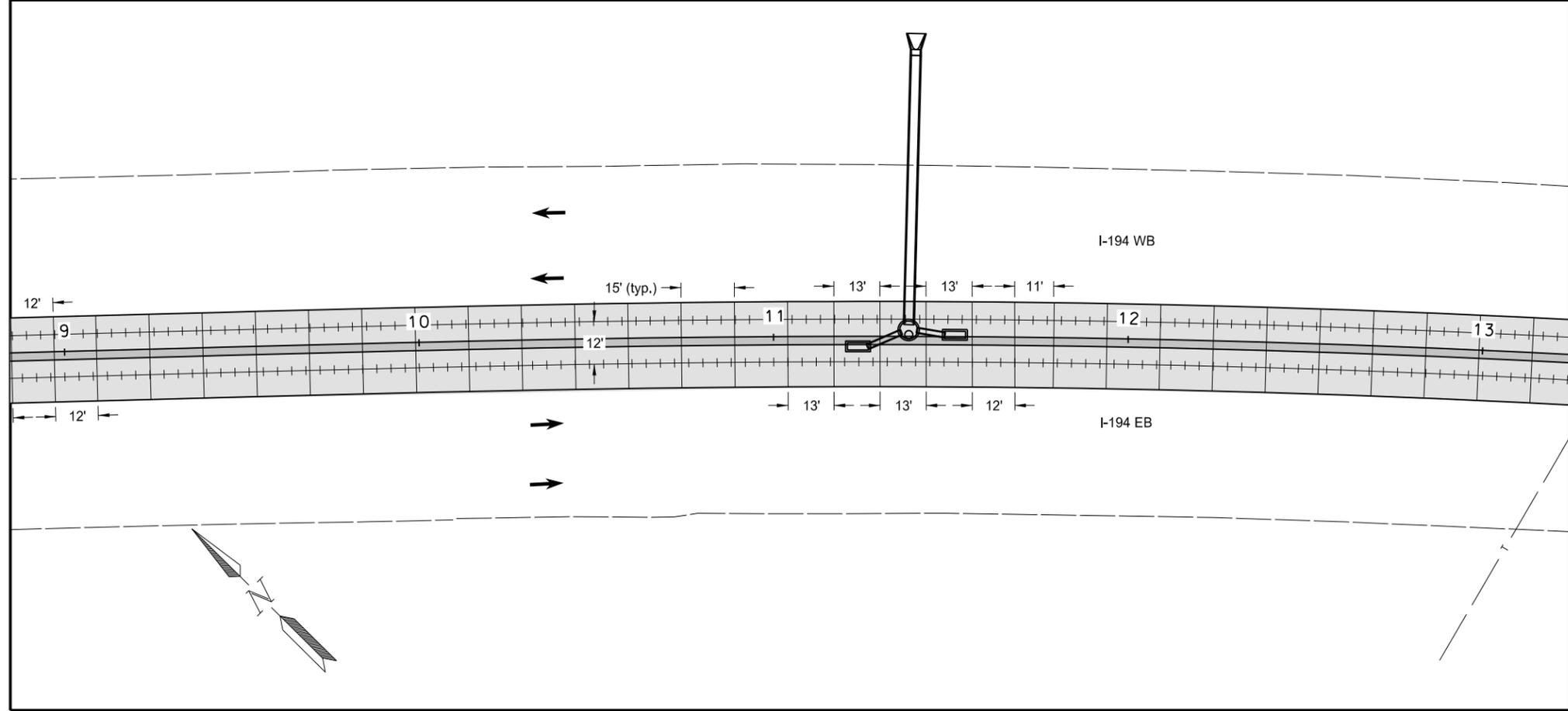
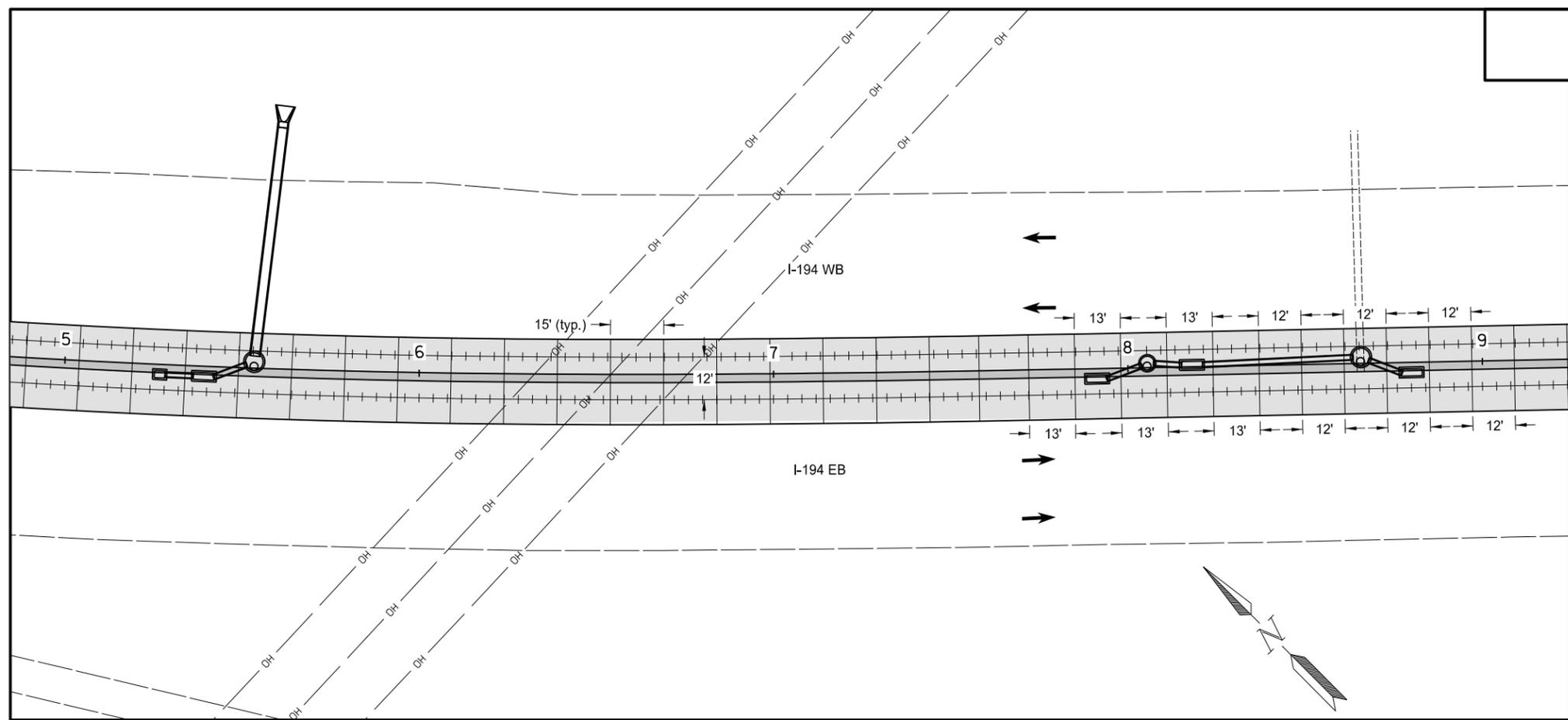
	Untied Joint
	Tied Joint
	Concrete Median Pavement
	Concrete Median Barrier



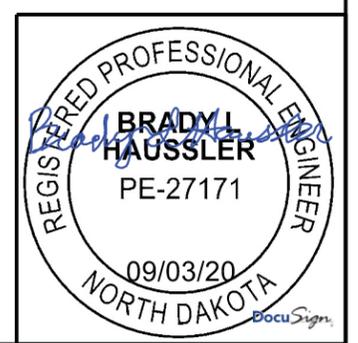
Paving Layouts
 Sta 9+00 to 11+95.38 (OCL194MED)
 Sta 0+00 to 5+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	90	3

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 Sta 5+00 to 13+00 (194_CL)	1018	TON
550 3005	CONCRETE MEDIAN PAVEMENT Sta 5+00 to 13+00 (194_CL)	2133	SY



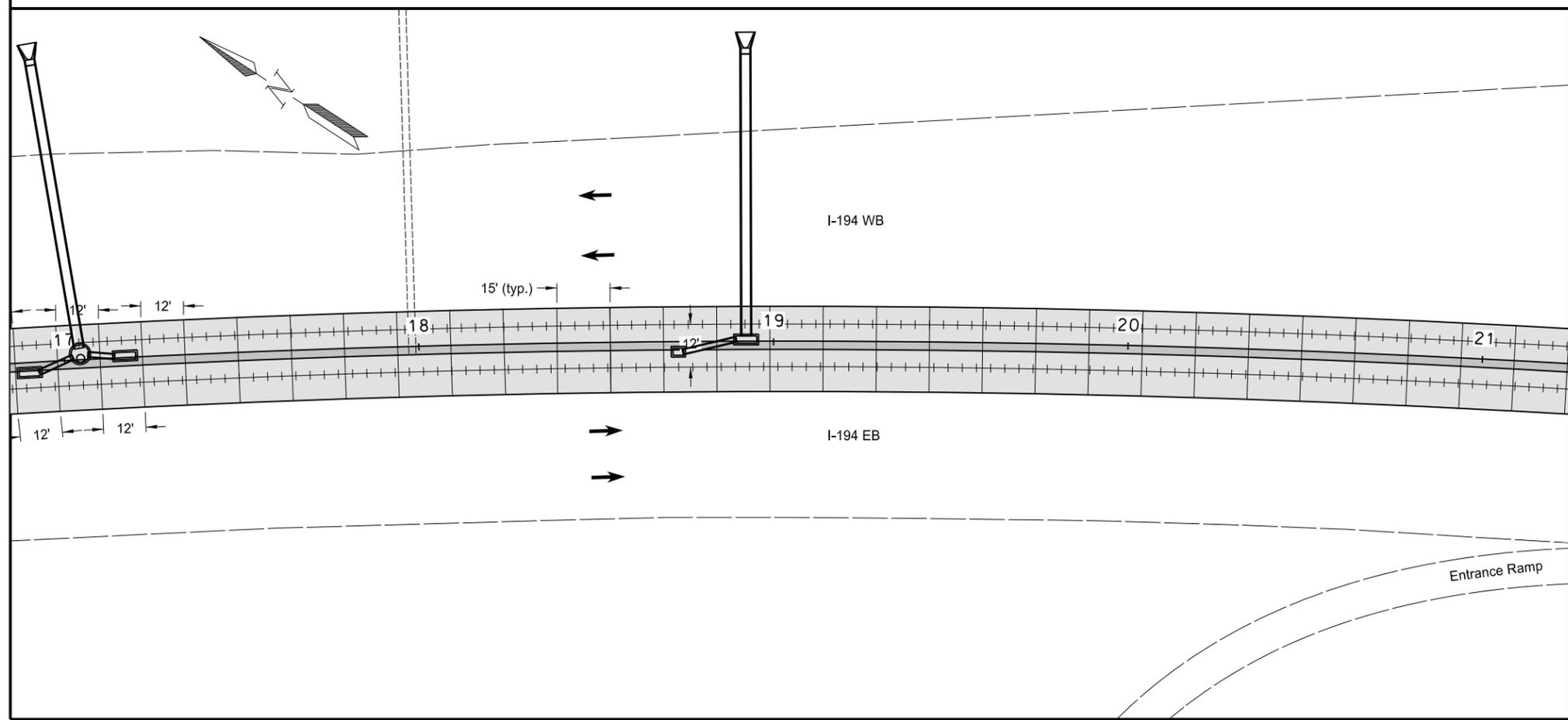
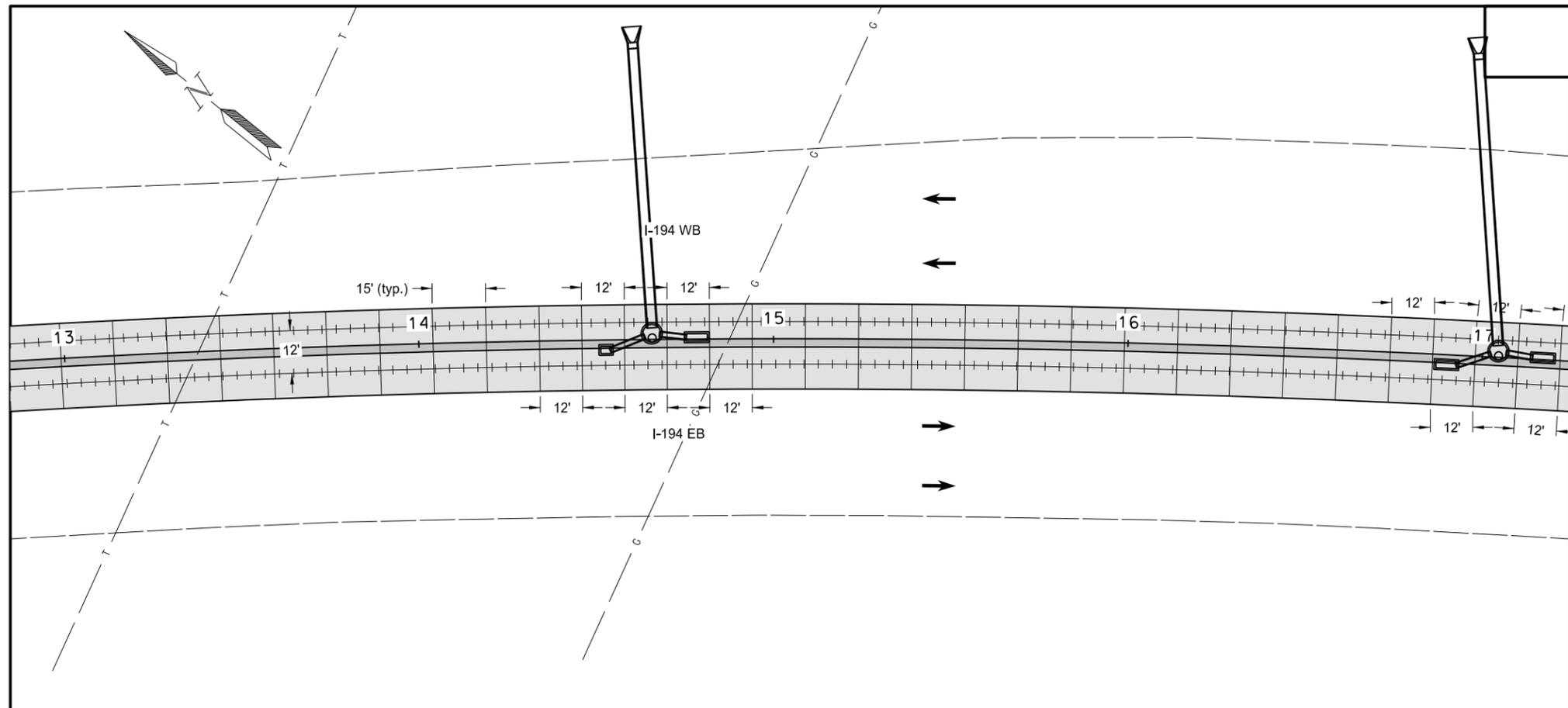
	Untied Joint
	Tied Joint
	Concrete Median Pavement
	Concrete Median Barrier



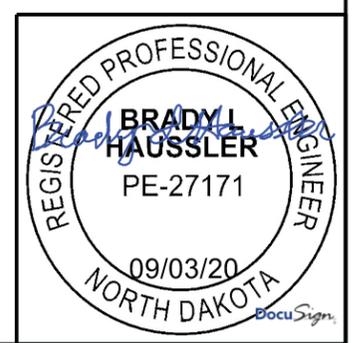
Paving Layouts
 Sta 5+00 to 13+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	90	4

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 Sta 13+00 to 21+00 (194_CL)	1018	TON
550 3005	CONCRETE MEDIAN PAVEMENT Sta 13+00 to 21+00 (194_CL)	2133	SY



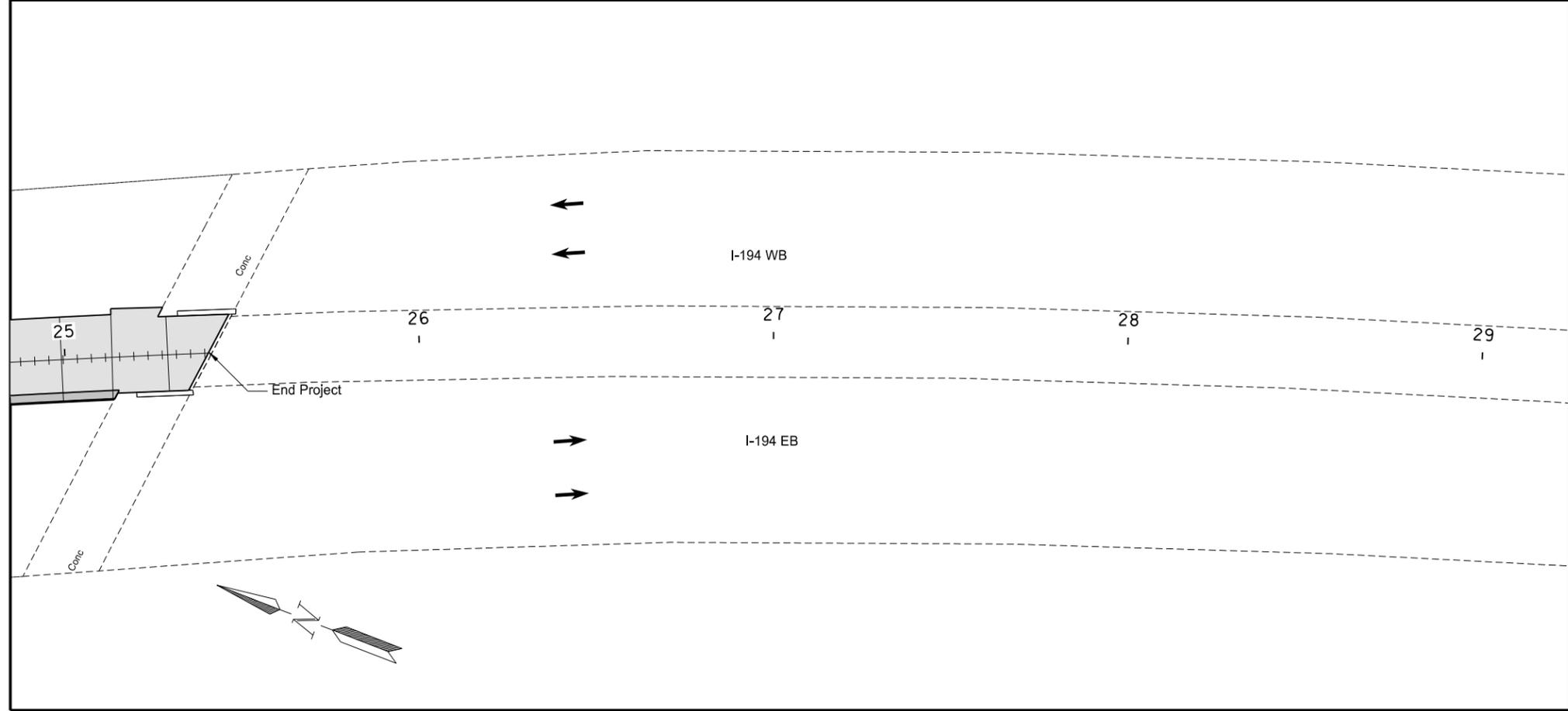
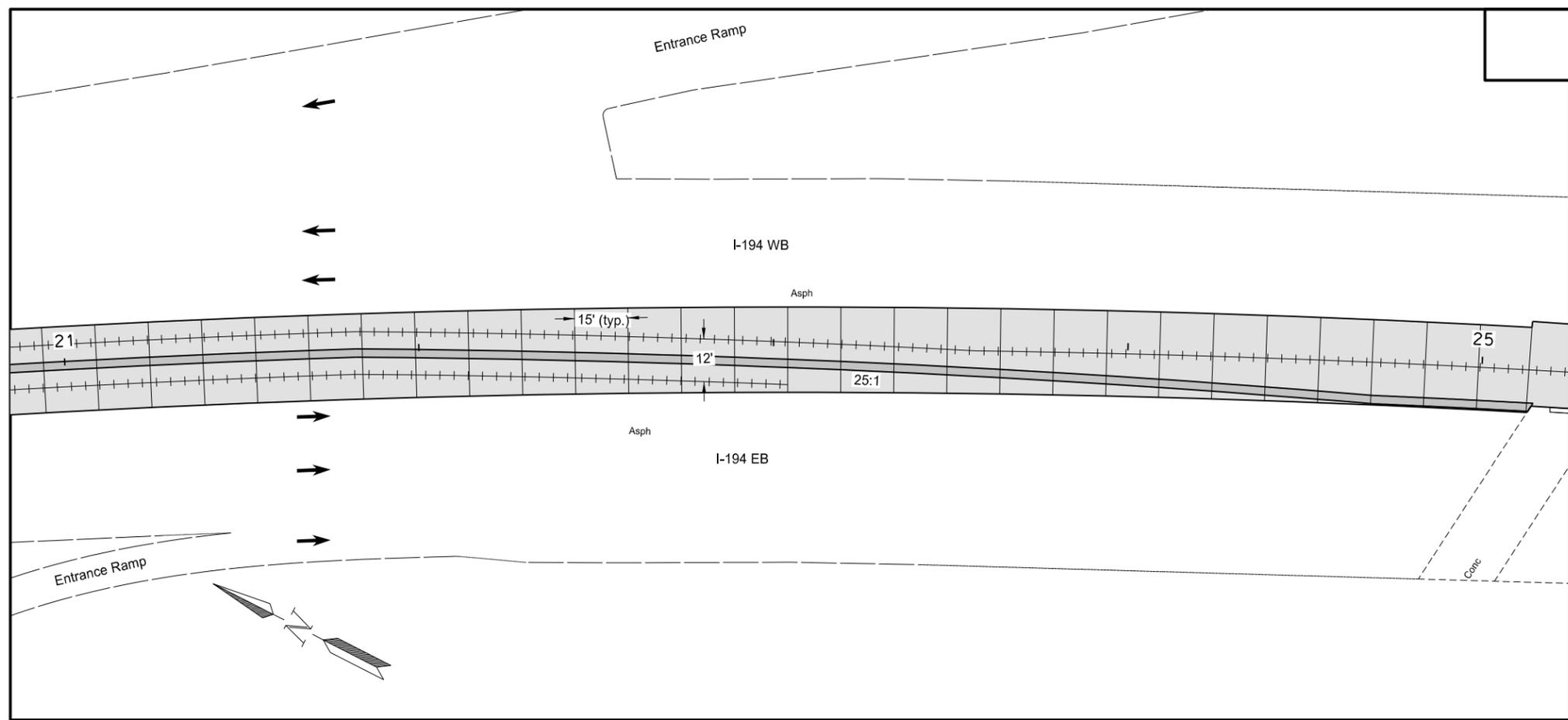
	Untied Joint
	Tied Joint
	Concrete Median Pavement
	Concrete Median Barrier



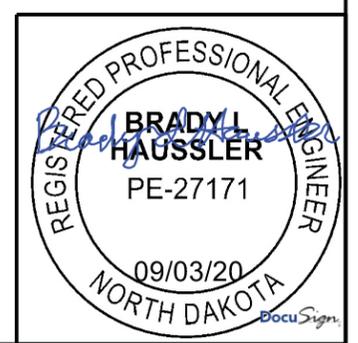
Paving Layouts
 Sta 13+00 to 21+00 (194_CL)
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	90	5

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 Sta 21+00 to 25+47.66 (194_CL)	557	TON
550 3005	CONCRETE MEDIAN PAVEMENT Sta 21+00 to 25+47.66 (194_CL)	1170	SY



	Untied Joint
	Tied Joint
	Concrete Median Pavement
	Concrete Median Barrier



Paving Layouts

Sta 21+00 to 29+00 (194_CL)

I-194 - S of I-94 to Memorial Hwy

PCC Pavement & Concrete Median Barrier

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	3	26	78
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		70	
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	3	59	177
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
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	1	29	29
R2-1-36	36"x48"	SPEED LIMIT (Portable only)	3	30	90
R2-1-48	48"x60"	SPEED LIMIT	4	39	156
R2-1aP-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	7	10	70
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)		12	
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)		15	
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	2	35	70
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT	2	35	70
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	
W12-2-48	48"x48"	LOW CLEARANCE		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	2	35	70
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		35	
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	2	35	70
W20-7-48	48"x48"	FLAGGER	1	35	35
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back	2	5	10
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	

SPECIAL SIGNS					
CONSIGN	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
Consign 1	120"x36"	MAIN AVE MEMORIAL HWY	1	63	63
Consign 2	96"x42"	McKenzie Dr EXIT 1 MILE	1	63	63

SPEC & CODE	DESCRIPTION	TOTAL UNITS
704-1000	TRAFFIC CONTROL SIGNS	1051

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	500
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1052	TYPE III BARRICADES	EACH	2
704-1060	DELINEATOR DRUMS	EACH	22
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	221
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	1
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	

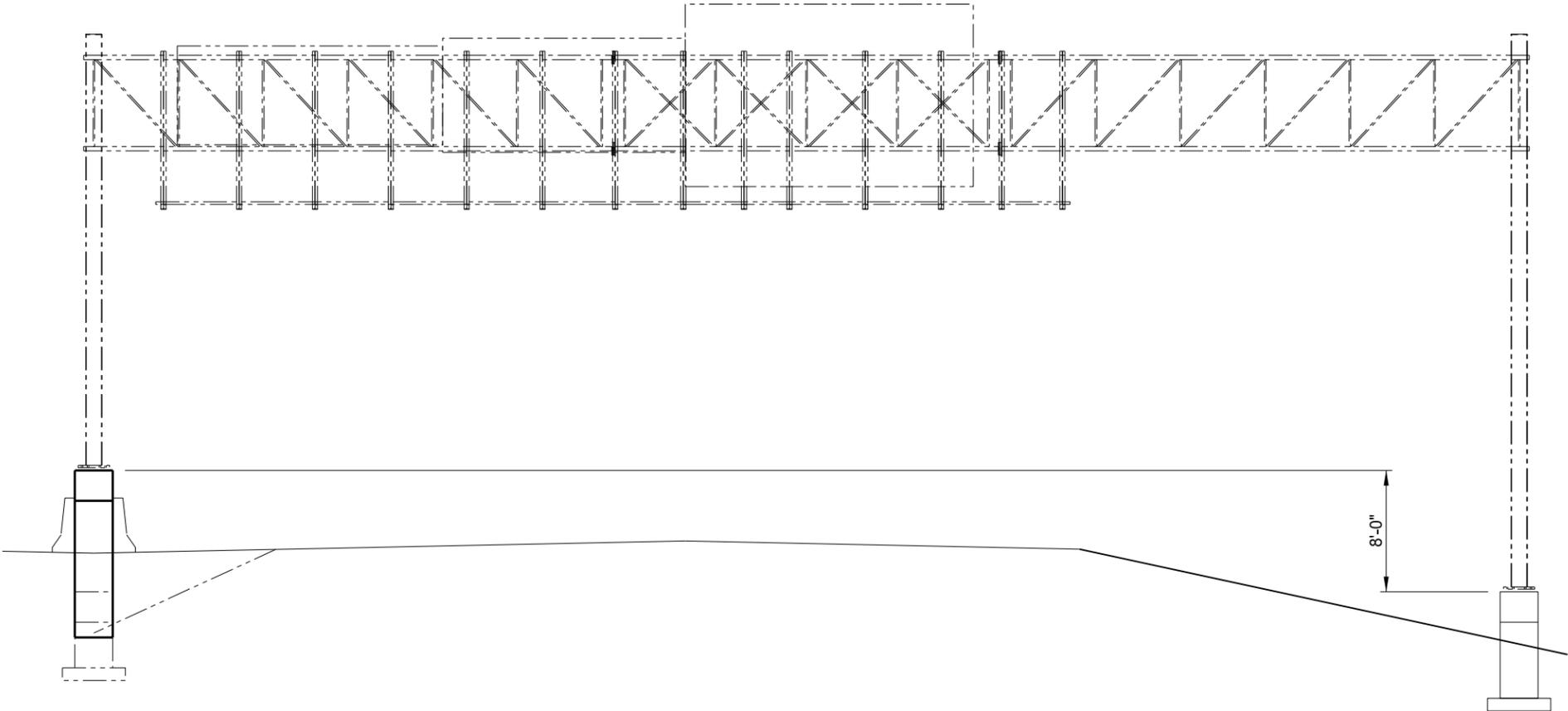
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
<http://www.dot.nd.gov/>



Traffic Control Devices List

I-194-S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	HEN-1-094(008)000	110	1



ELEVATION VIEW

NOTE:

- 100 SCOPE OF WORK: Work at this site consists of removing the overhead sign, modifying the median footing and median sign columns, and resetting the overhead sign.
- 754 RESET SIGN SUPPORT: New U-Bolts, bolts, nuts, and washers are required for all connections that are loosened or detached to reset the overhead sign. Provide new connection hardware in accordance with Section 894.05. Include all labor, equipment, and materials for removing and resetting the overhead sign; including the new anchor bolts, U-bolts, nuts, and washers, in the price bid for "Reset Sign Support."

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0111	REMOVAL OF CONCRETE	LSUM	1
602	1130	CLASS AE-3 CONCRETE	CY	11.9
612	0115	REINFORCING STEEL-GRADE 60	LBS	452
754	0593	RESET SIGN SUPPORT	EA	1
754	1599	REVISE OVERHEAD SIGN STR TRUSS	EA	1



OVERHEAD SIGN STRUCTURE

NW RAMP MEMORIAL INT EB
 STATION: 3+30

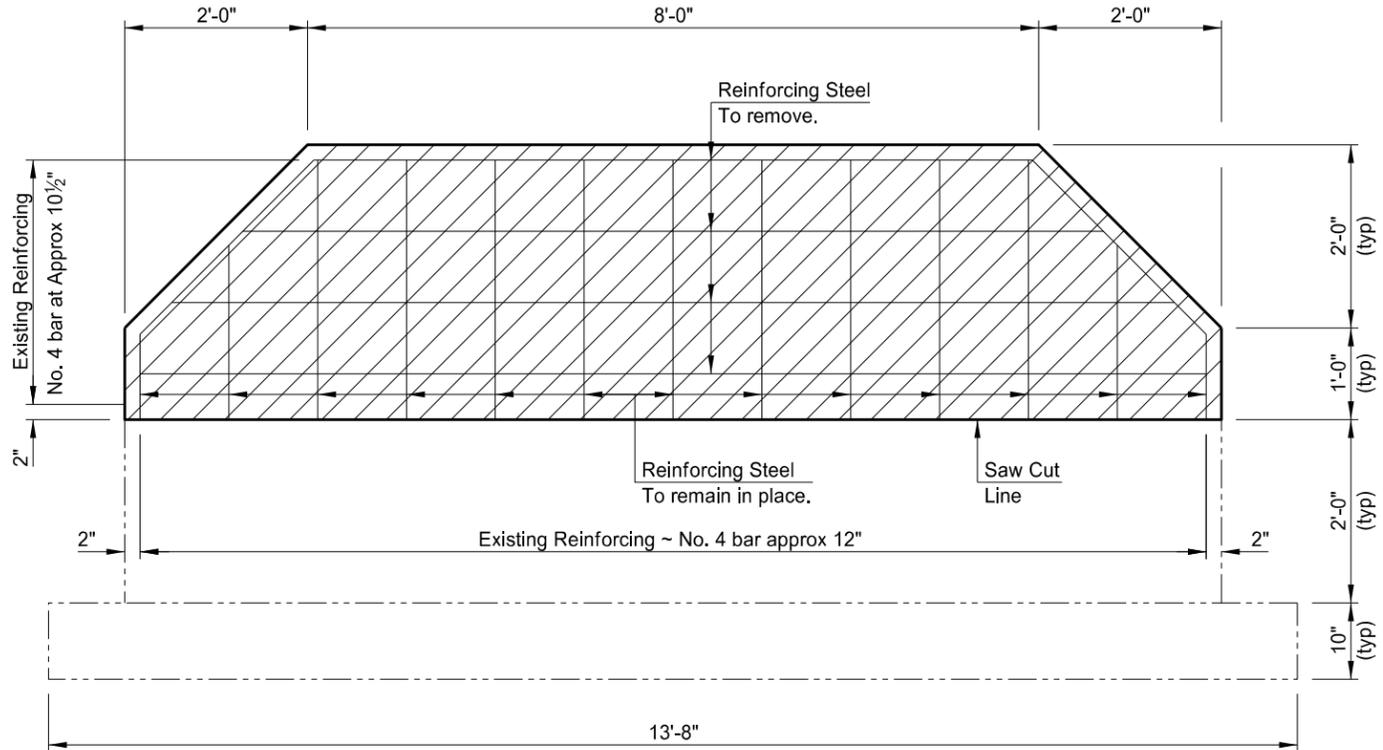
**(SHOWING REMOVAL)
 FOOTING DETAILS**

ND DEPARTMENT OF TRANSPORTATION
 BRIDGE DIVISION

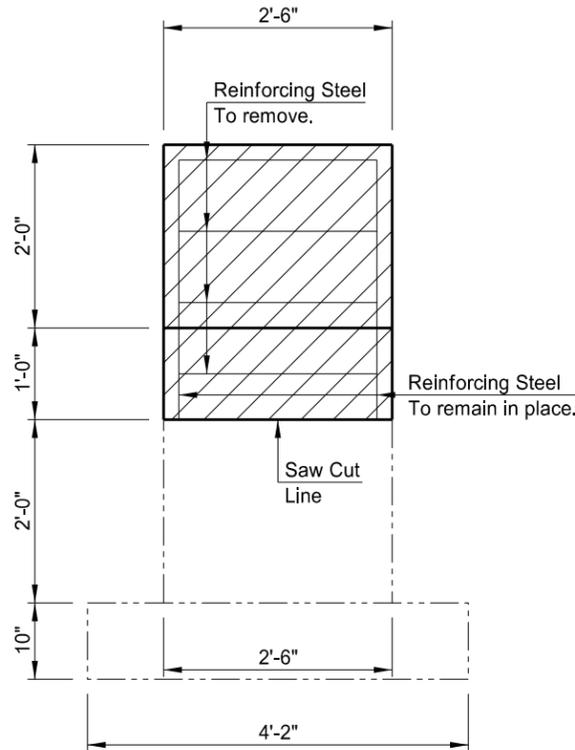
08/28/20
Don Ketterling

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	110	2

 The hatched areas indicate concrete to be removed. Saw cut to a depth of 1" to produce a neat line between the concrete to be removed and the concrete to remain. Carefully remove concrete to ensure no damage is done to the existing reinforcing steel that is to remain in place. Sandblast clean any rust scale found on the exposed existing reinforcing bars.



ELEVATION



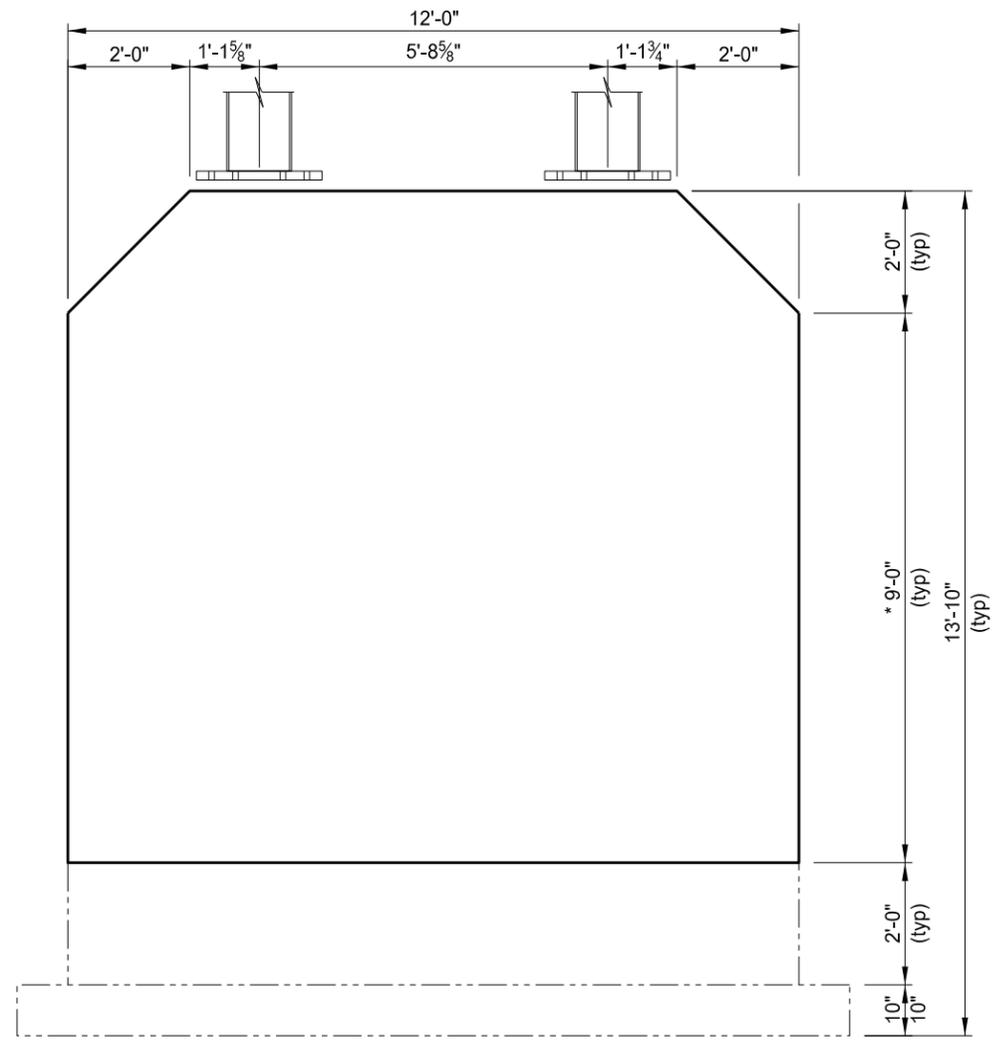
END VIEW



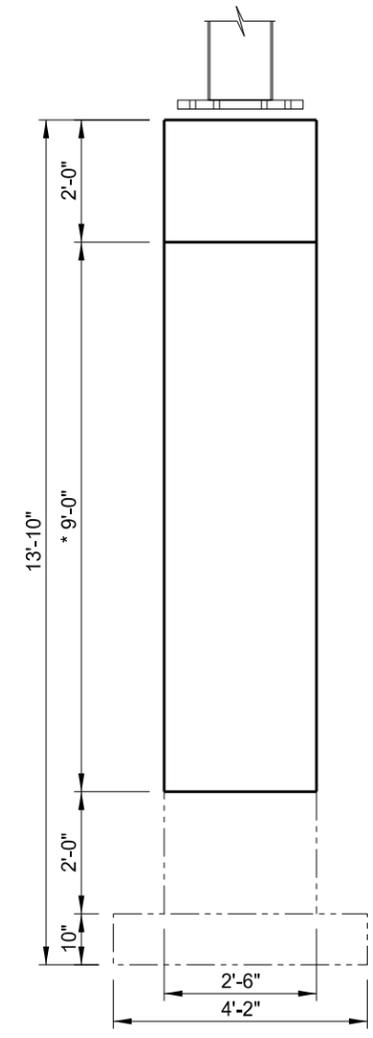
QUANTITIES	
REMOVAL OF CONCRETE	1 LSUM
OVERHEAD SIGN STRUCTURE	
NW RAMP MEMORIAL INT EB STATION: 3+30	
(SHOWING REMOVAL) FOOTING DETAILS	

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	HEN-1-094(008)000	110	3

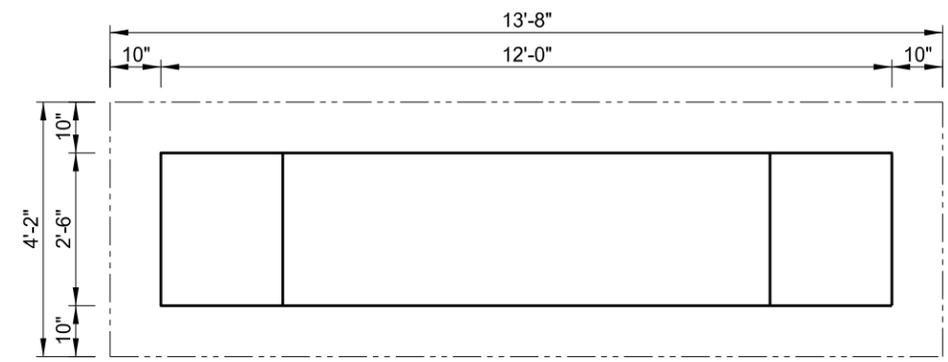
* Adjust dimension to maintain 8'-0" difference between top of median footing and top of outside footing.



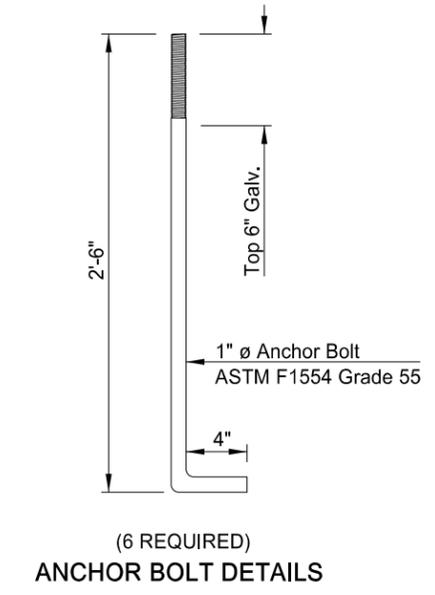
ELEVATION



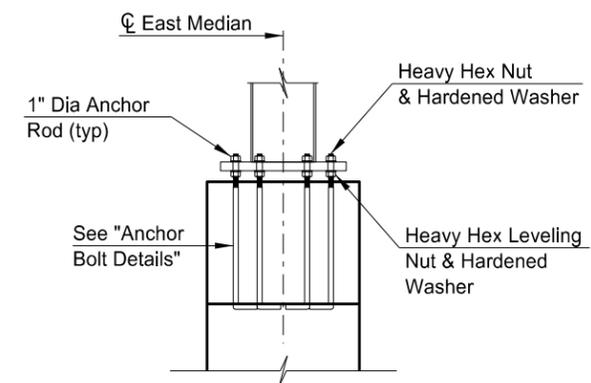
END VIEW



PLAN



NOTES:
Include the cost for furnishing and placing the anchor bolts in the price bid for "Revise Overhead Sign Str Truss."



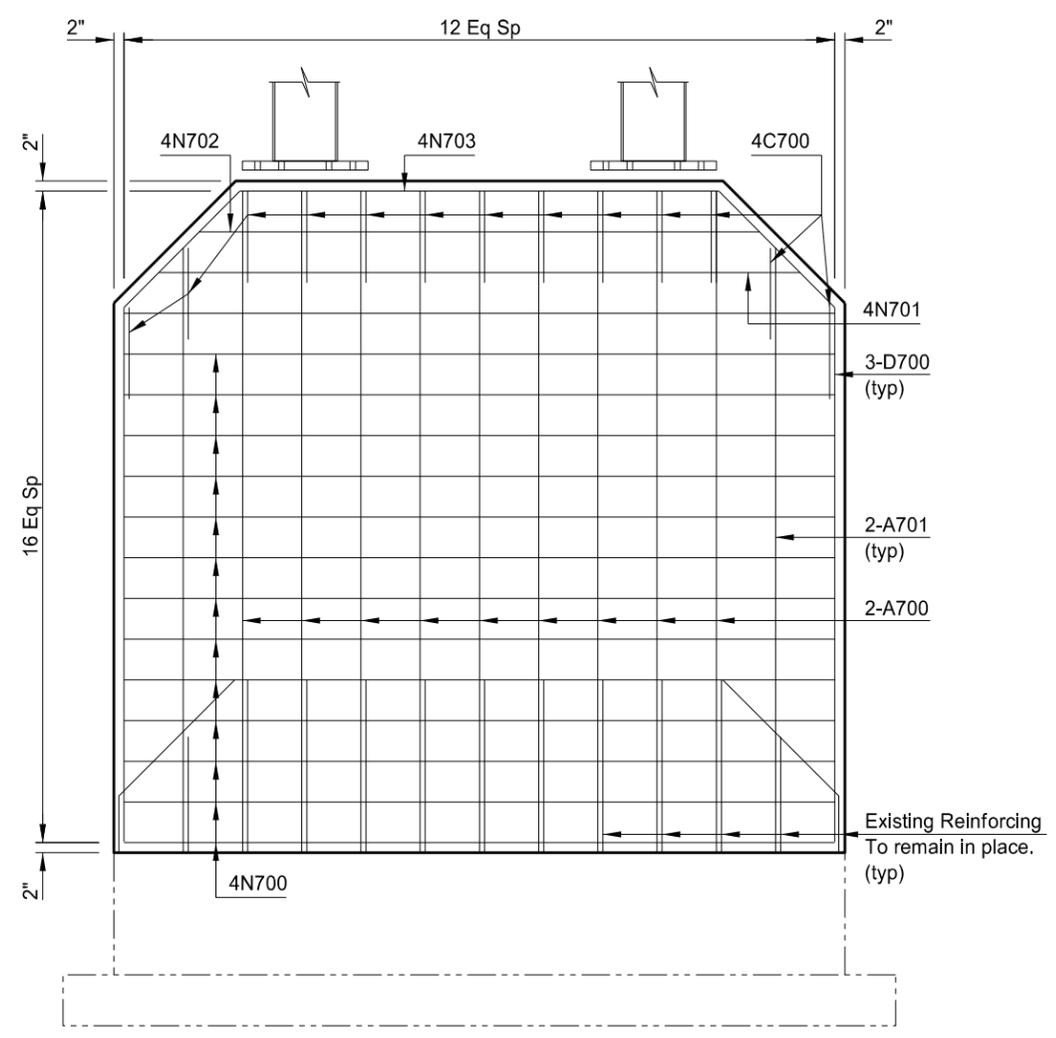
ANCHOR ROD DETAIL



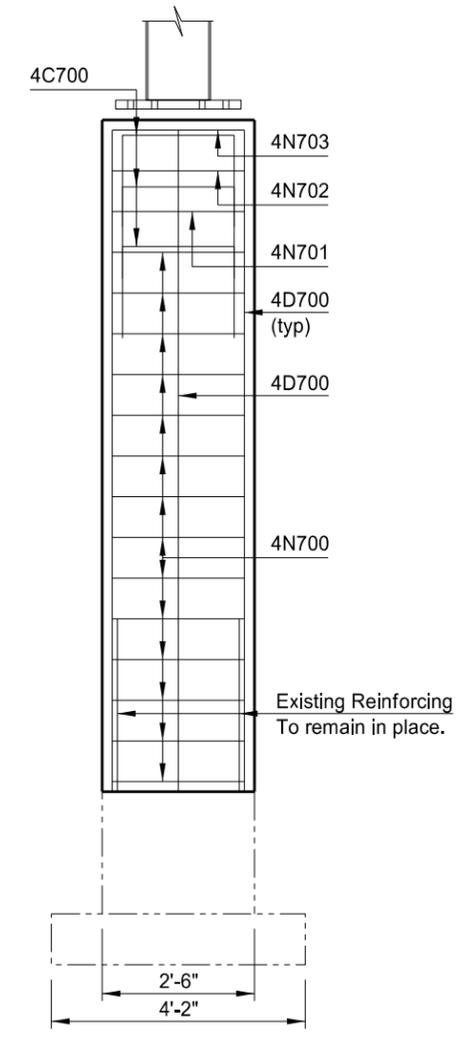
QUANTITIES
SEE DWG OS194-000.572R-4
OVERHEAD SIGN STRUCTURE
NW RAMP MEMORIAL INT EB STATION: 3+30
(SHOWING DIMENSIONS) FOOTING DETAILS

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	HEN-1-094(008)000	110	4

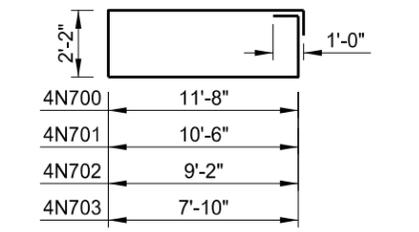
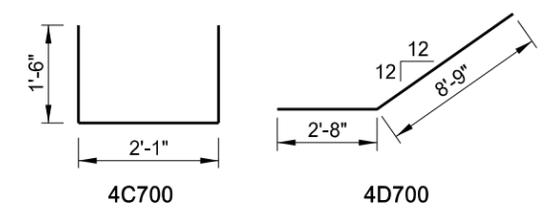
BAR LIST			
SIZE	MARK	NO	LENGTH
4	A700	18	10'-8"
4	A701	4	9'-8"
4	C700	13	5'-1"
4	D700	6	11'-5"
4	N700	8	29'-8"
4	N701	1	27'-4"
4	N702	1	24'-8"
4	N703	1	22'-0"



ELEVATION



END VIEW



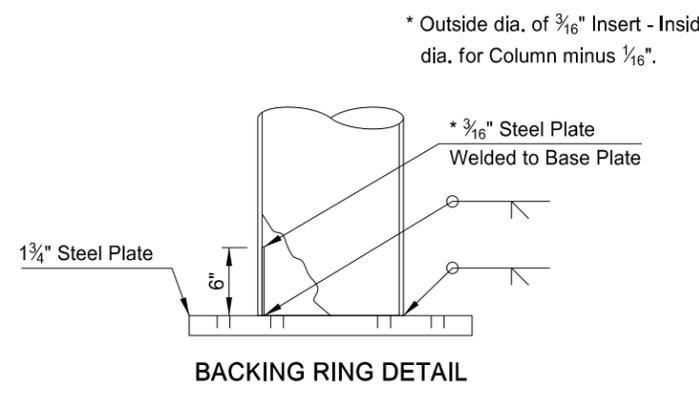
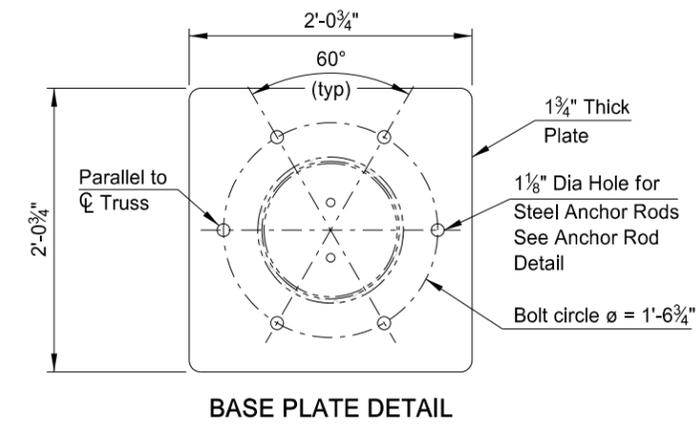
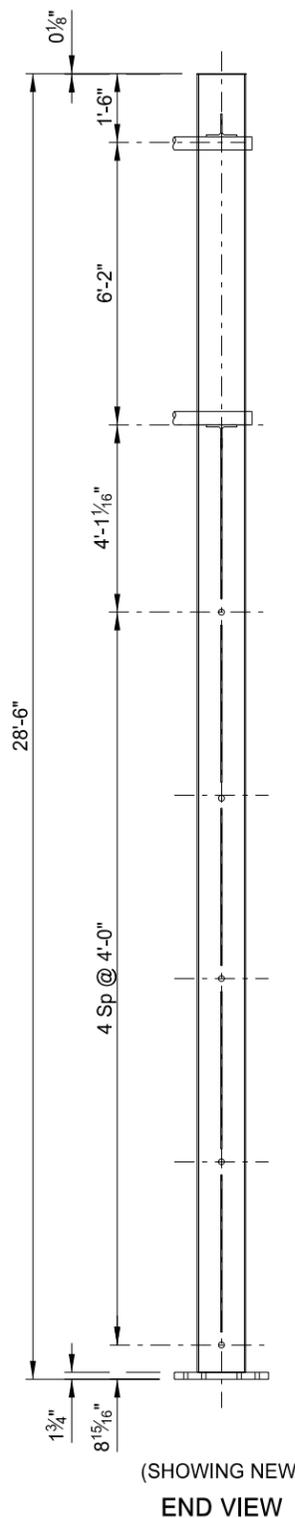
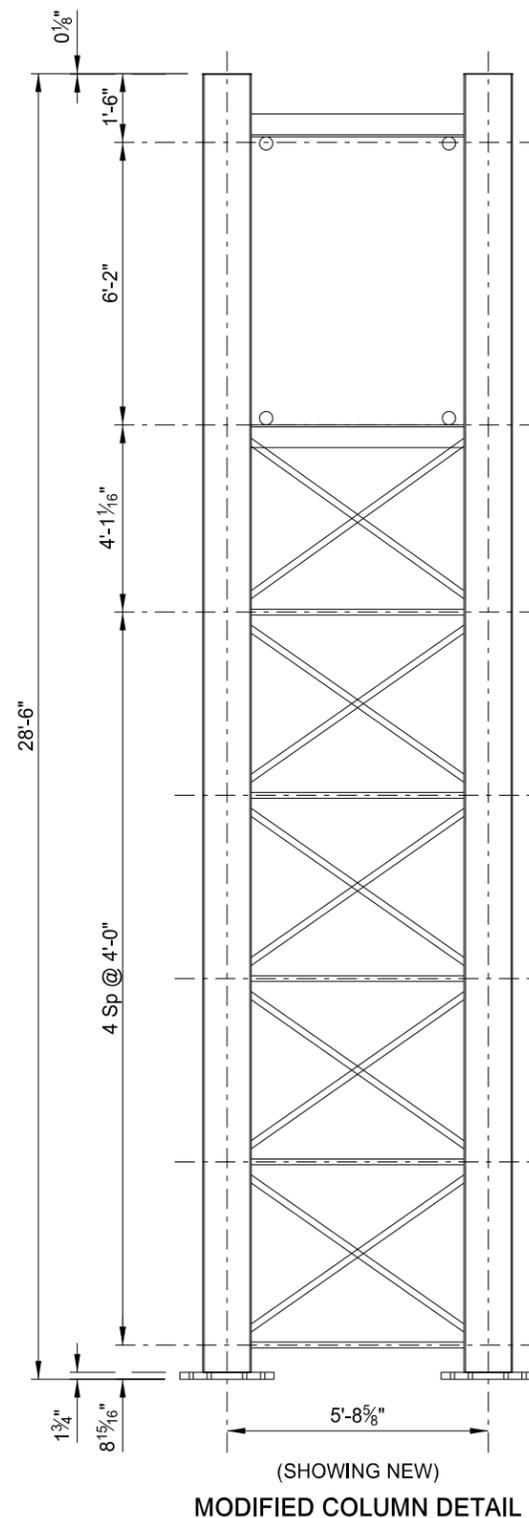
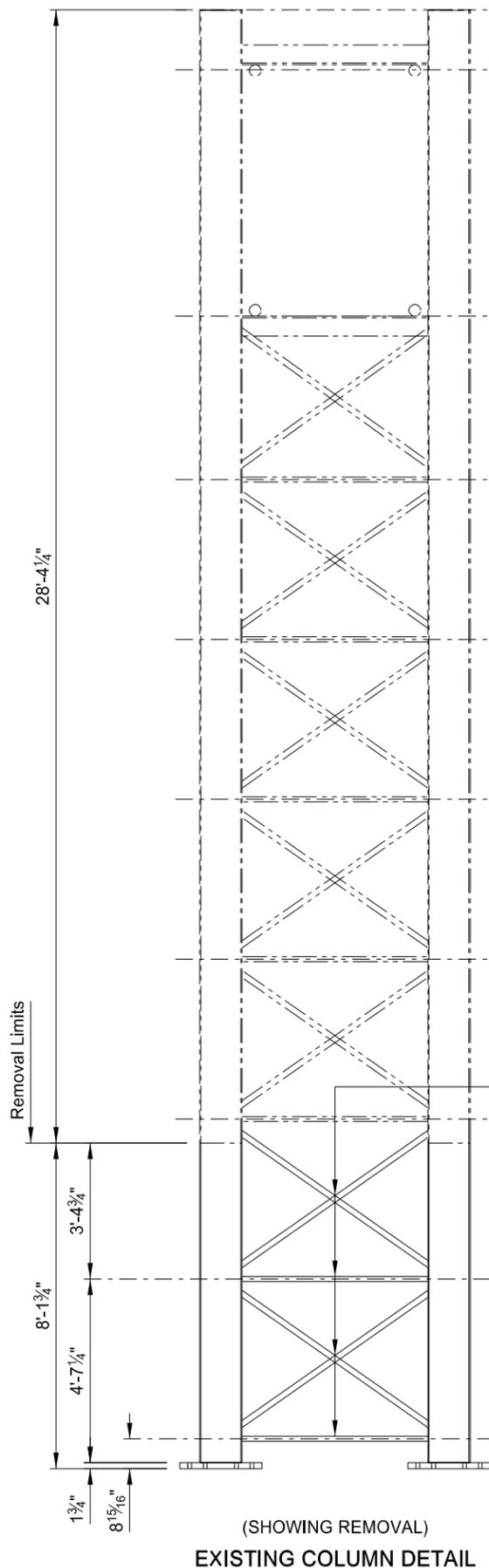
4N700 - 4N703
(DIMENSIONS ARE SHOWN OUT TO OUT)
BENT BAR DETAIL

QUANTITIES	
CLASS AE-3 CONCRETE	11.9 CY
REINFORCING STEEL	452 LBS



OVERHEAD SIGN STRUCTURE
NW RAMP MEMORIAL INT EB
STATION: 3+30
(SHOWING DIMENSIONS)
FOOTING DETAILS

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	HEN-1-094(008)000	110	5



NOTES:

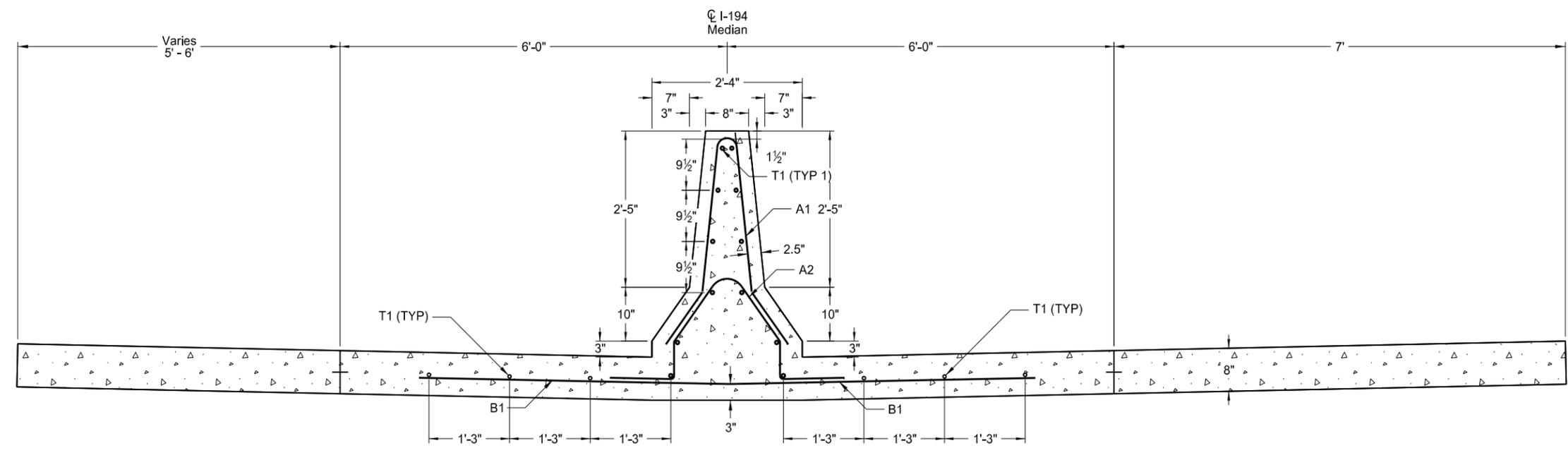
754 REVISE OVERHEAD SIGN STR TRUSS: Revise the existing median side overhead sign columns by removing the base plates, columns, and bracing as shown in the removal details. Weld new base plates to the modified columns in accordance with AWS Structural Welding Code D1.1, with welders certified in accordance with Section 622.04 F. Perform the removals and welding in a fabrication shop, and hot dip galvanize the modified columns and base plates in accordance with Section 854.01. Provide galvanization venting and draining as required for the galvanization process.

Include all labor, equipment, and materials for revising the sign truss in the price bid for "Revise Overhead Sign Str Truss."

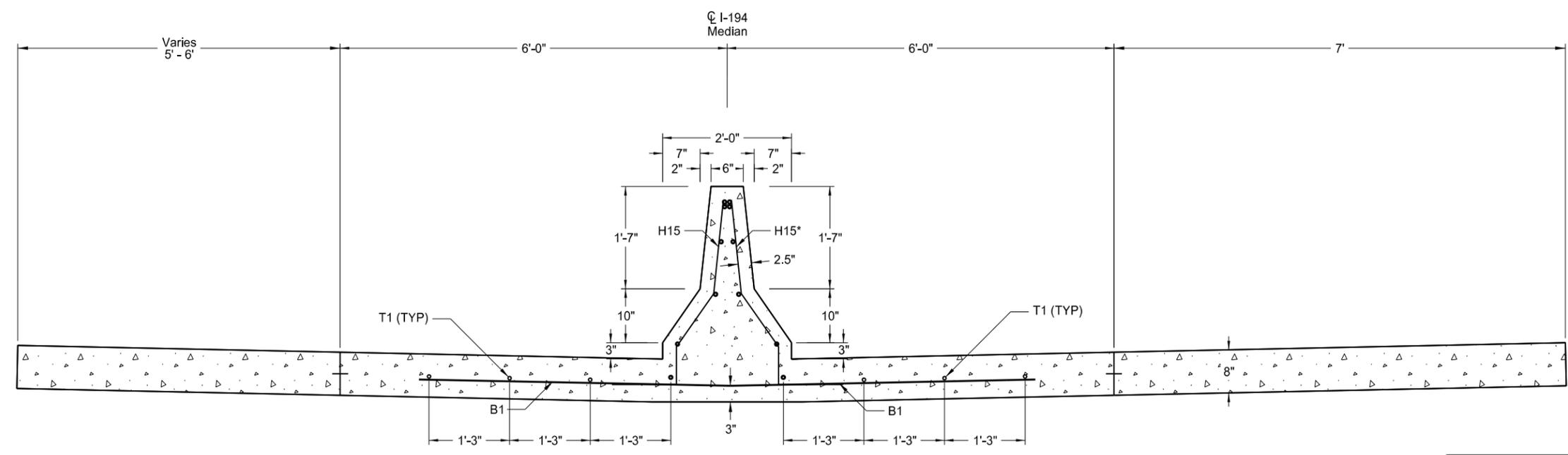


QUANTITIES	
REVISE OVERHEAD SIGN STR TRUSS	1 EA
OVERHEAD SIGN STRUCTURE	
STATION: 3+30	
SHOWING REMOVAL & MODIFIED COLUMN DETAILS	

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	130	1



Proposed Barrier Reinforcement 1
 Sta 0+00 to 11+25.15 (194_BA1)
 Sta 0+00 to 21+97.27 (194_BA3)



Proposed Barrier Reinforcement 2
 32" Barrier at Crash Cushion and Bridge Transition
 *H30 for Bridge Barrier Transition

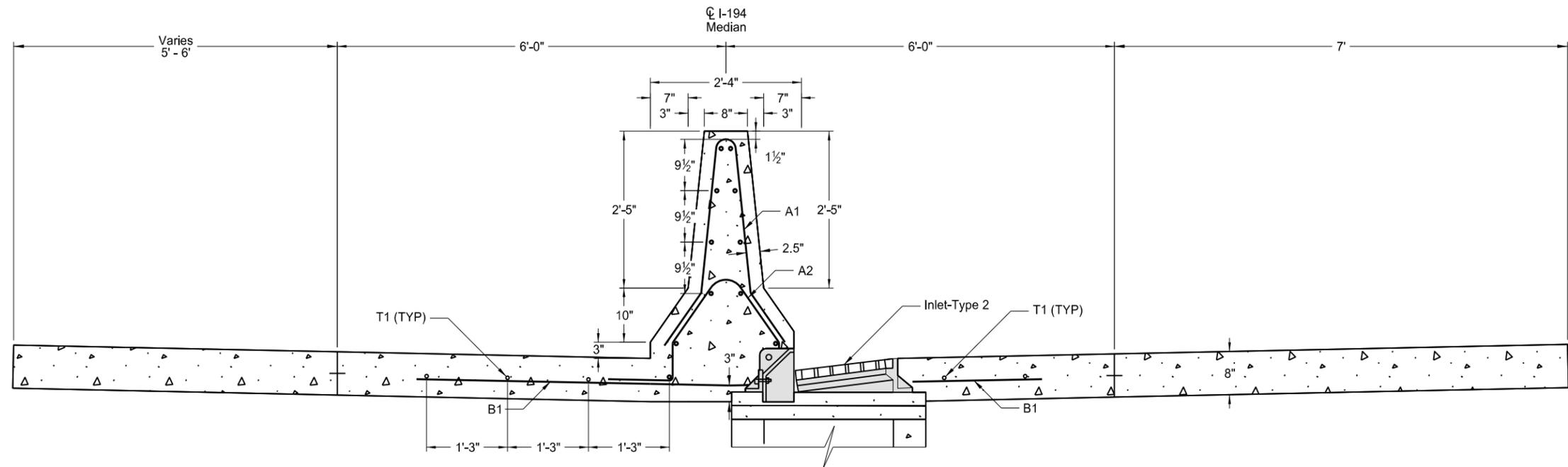


Barrier Details

I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

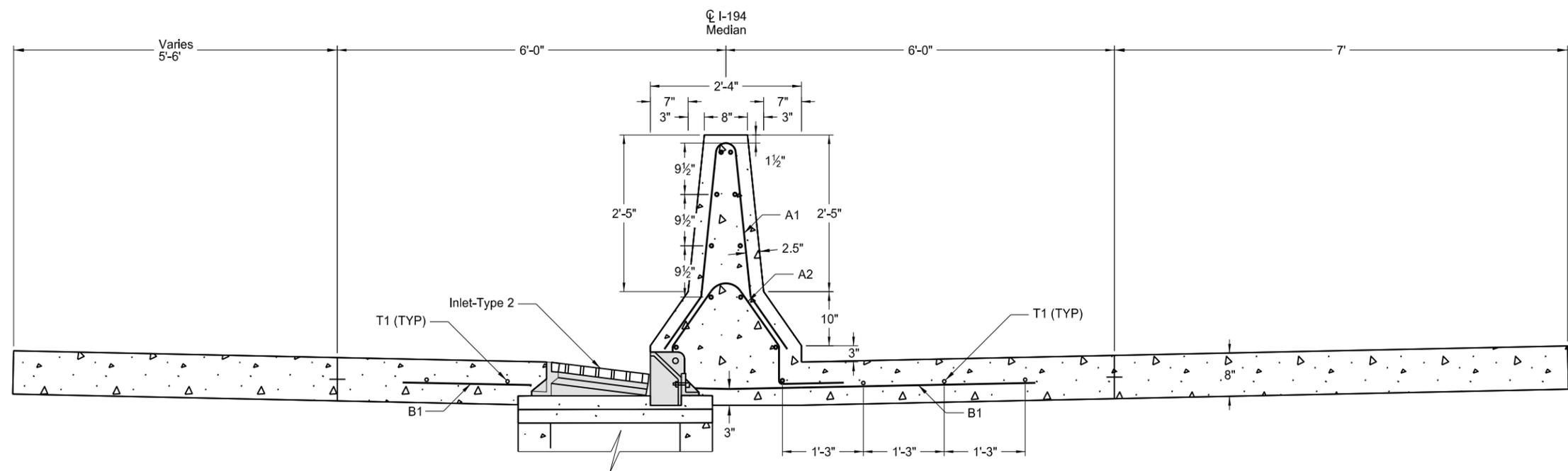
23 USC § 409 Documents
 NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	130	2



Proposed Barrier Reinforcement 2

Inlets:
1A, 1B, 2C, 2D, 3B, 4B, 4C,
5B, 6B, 7C, 8C, 9C, 9D, 9E



Proposed Barrier Reinforcement 3

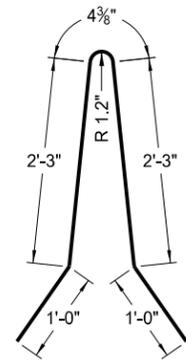
Inlets:
1C, 1D, 2A, 2B
3A, 3C, 3D, 4A, 5A,
6A, 6C, 7A, 7B,
8A, 8B, 9A, 9B, 9D



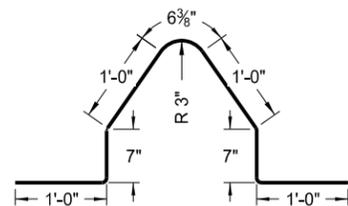
Barrier Details

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

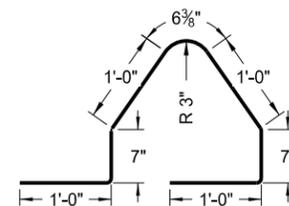
23 USC § 409 Documents
NDDOT Reserves All Objections



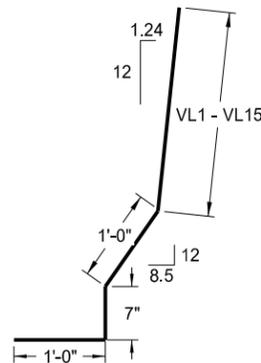
A1 Bar



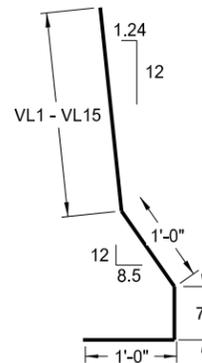
A2 Bar



A3 Bar



H1 - H15
Length, 1 Set = 66.53'
H15 = 4.05'



H16 - H30
Length, 1 Set = 66.53'
H30 = 4.05'

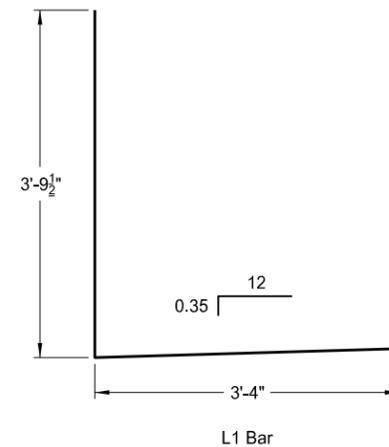
Notes:

- (A) These quantities are provided for informational purposes only. Include the costs for all materials, equipment, and labor to construct the jersey barrier walls and 8" thick median slab in the prices bid for the items "CONCRETE MEDIAN PAVEMENT" and "JERSEY BARRIER FORMED OR SLIP FORMED."
- Field cut T1 bars at the slab and barrier ends, and substitute the remaining bars (5' in length or longer) for T1 bars elsewhere.
 - Dimensions of bent bars are given out to out. The listed length of the bent bars is the sum of the detailing dimensions.

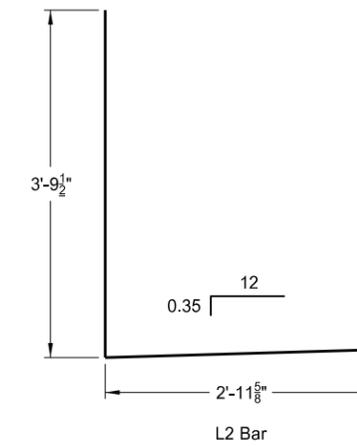
Bar List - Jersey Barrier Walls (A)					
Mark	Size	Number		Length	Shape
		194_BA1	194_BA3		
A1	5	1658	3266	6'-10 3/8"	Bent
T1	5	193	376	60'	Straight

Bar List - 8" Concrete Median Slab (A)					
Mark	Size	Number		Length	Shape
		194_BA1	194_BA3		
A2	5	1626	3179	5'-8 3/8"	Bent
A3	5	0	55	5'-8 3/8"	Bent
B1	5	1688	3296	10'	Straight
T1	5	154	301	60'	Straight
L1	5	8	8	7'-1 1/2"	Bent
L2	5	8	8	6'-9 1/8"	Bent
L3	5	8	8	5'-10 1/2"	Bent
L4	5	8	8	7'-2 1/2"	Bent
L5	5	8	8	5'-4 1/2"	Bent
H1	5	8	8	4'-10"	Bent
H1 - H15	5	2 Sets	1 Set	66.53'	Bent
H16 - H30	5		1 Set	66.53'	Bent
H15	5	14	7	4.05'	Bent
H30	5		7	4.05'	Bent

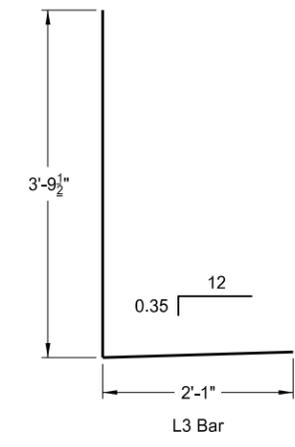
Concrete Volumes (Cubic Yards) (A)					
Location	3+79 to 9+00	9+00 to 11+95 0+00 to 5+00	5+00 to 13+00	13+00 to 21+00	21+00 to 25+47
8" Median Slab	154	236	237	237	130
Barrier Wall	77	129	126	126	65
Total	231	365	363	363	195



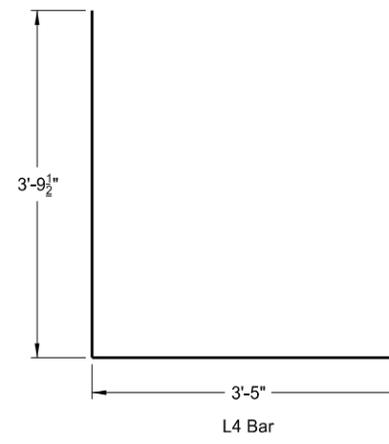
L1 Bar



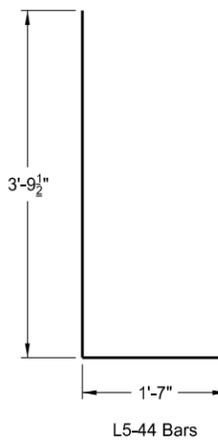
L2 Bar



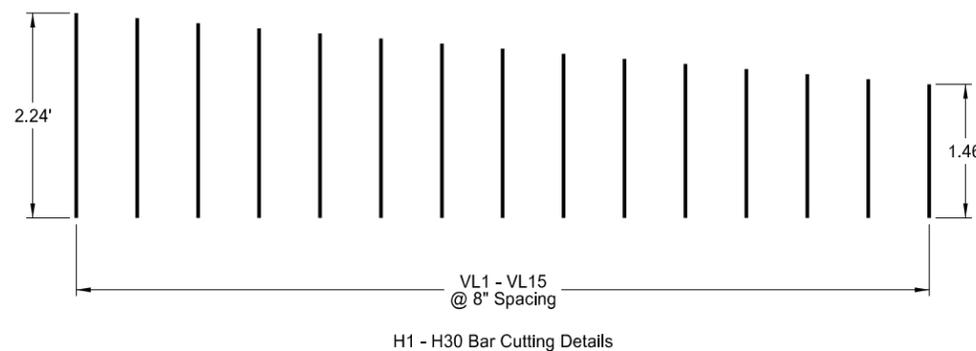
L3 Bar



L4 Bar



L5-44 Bars



H1 - H30 Bar Cutting Details

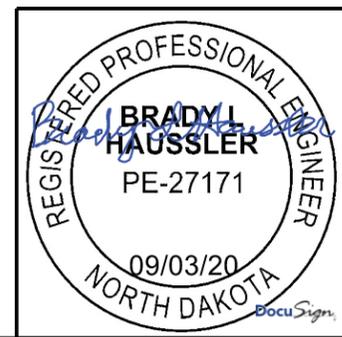
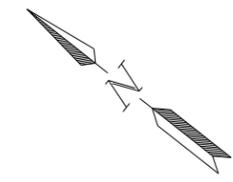
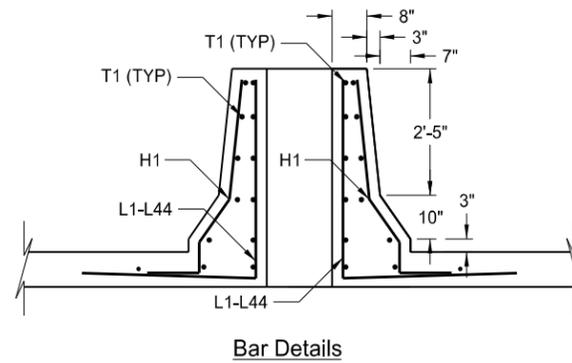
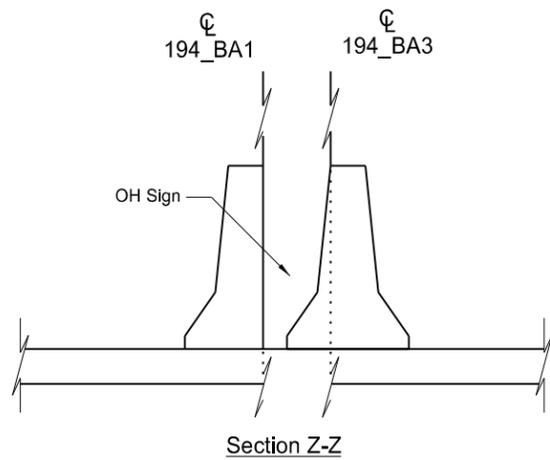
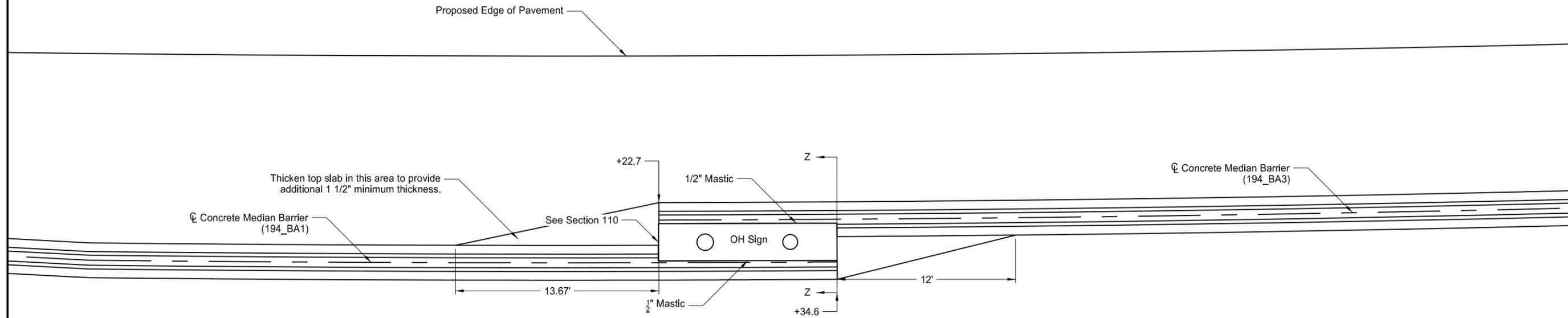


Barrier Details

I-194 - S of I-94 to Memorial Hwy
PCC Pavement & Concrete Median Barrier

23 USC § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	130	4

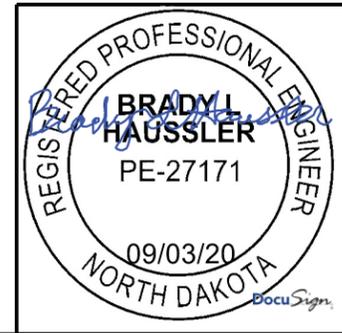
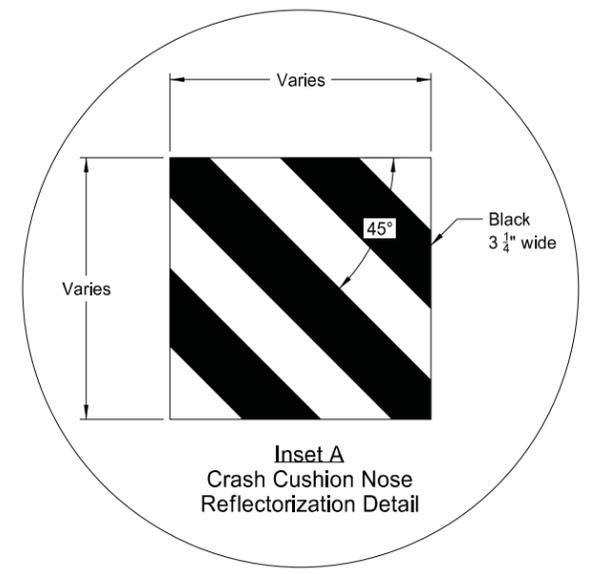
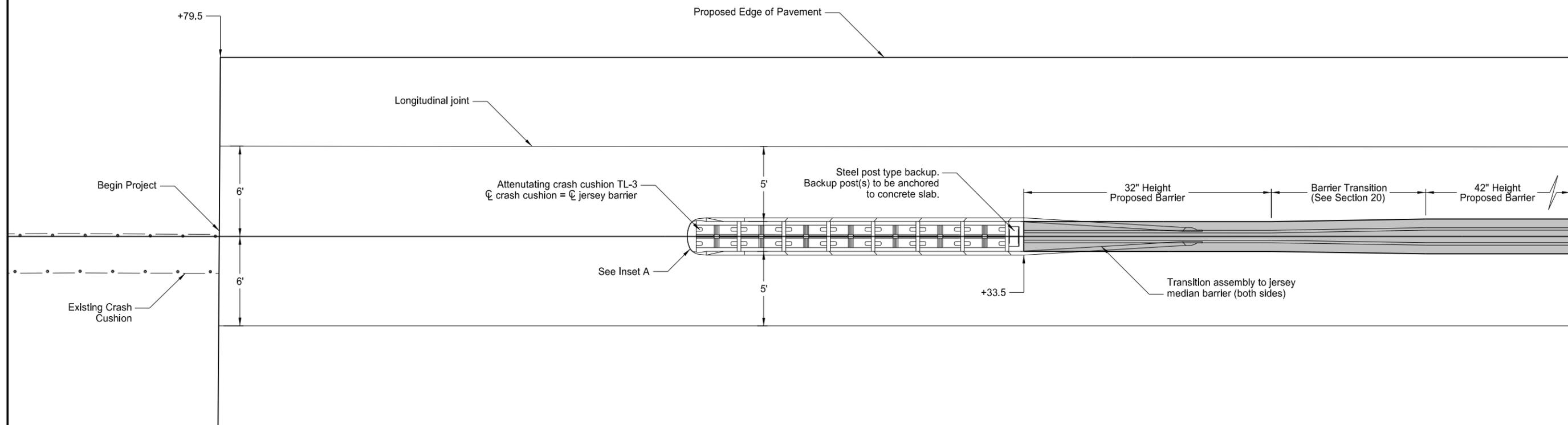
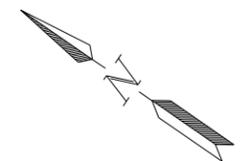


23 USC § 409 Documents
 NDDOT Reserves All Objections

Crash Cushion Layout

I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

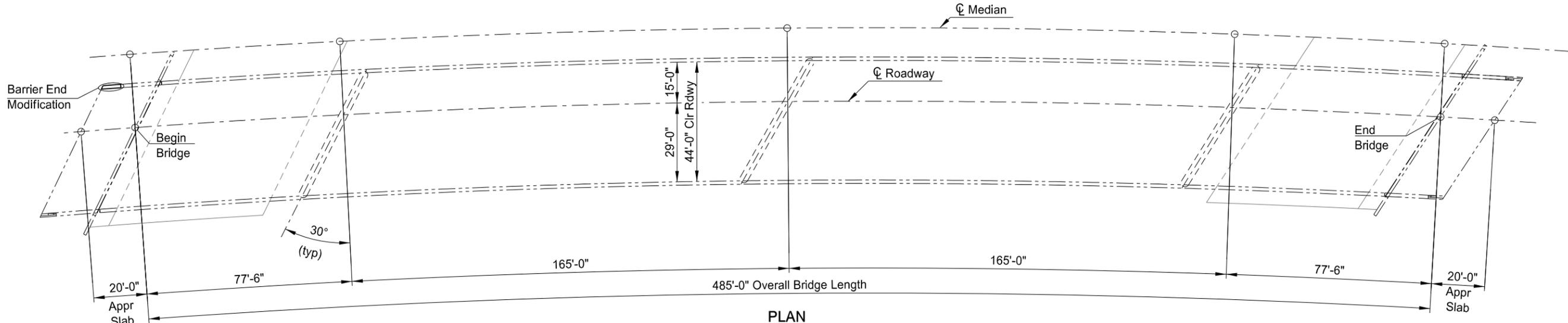
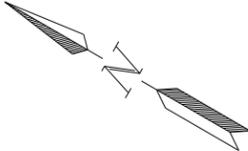
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	130	5



23 USC § 409 Documents
 NDDOT Reserves All Objections

Crash Cushion Layout
 I-194 - S of I-94 to Memorial Hwy
 PCC Pavement & Concrete Median Barrier

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PLAN



BUSINESS I-94 ~ MEMORIAL HIGHWAY
 MANDAN

BRIDGE LAYOUT

NOTES:

100 SCOPE OF WORK: Work at this site consists of modifying the entrance end, median side, approach slab barrier.

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
930	9647	BARRIER END MODIFICATION	EA	1

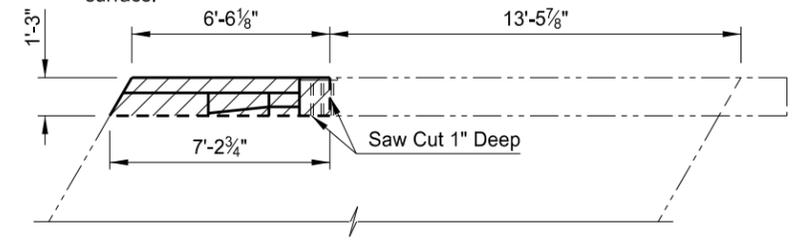
ND DEPARTMENT OF TRANSPORTATION
 BRIDGE DIVISION

08/28/20

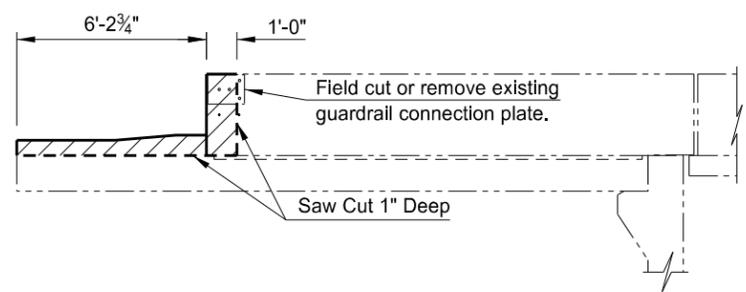
Don Ketterling

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	HEN-1-194(008)000	170	2

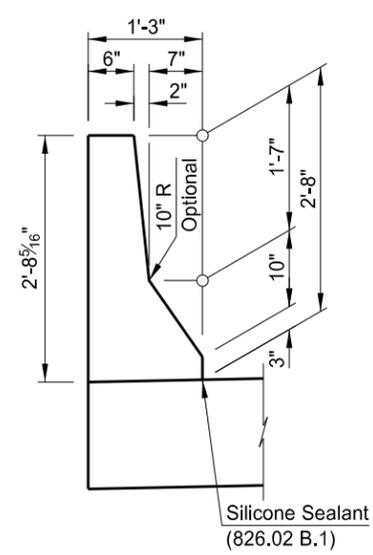
Hatched area indicates concrete to be removed.
 Bush Hammer Finish: Before any concrete is placed against existing concrete, prepare the surface with a bush hammer to produce a clean, rough surface with a minimum amplitude of 1/4". Do not bush hammer finish the first 2 inches adjacent to the driving surface.



(NORTHEAST ENTRANCE CORNER)
 PARTIAL REMOVAL PLAN

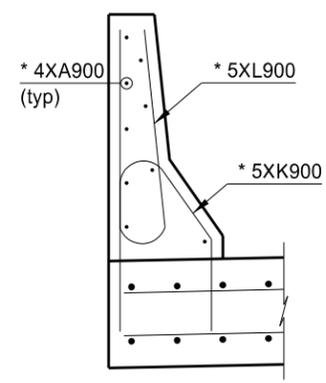


PARTIAL REMOVAL ELEVATION



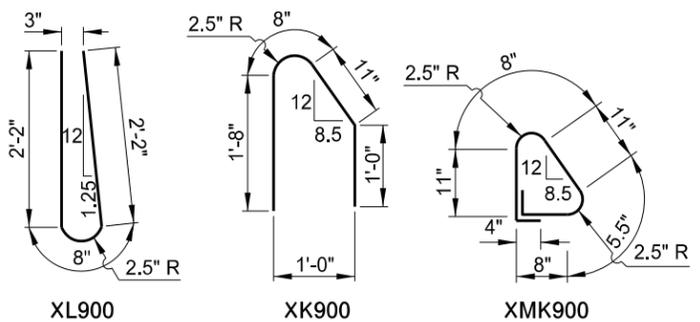
SHOWING DIMENSIONS

B-B

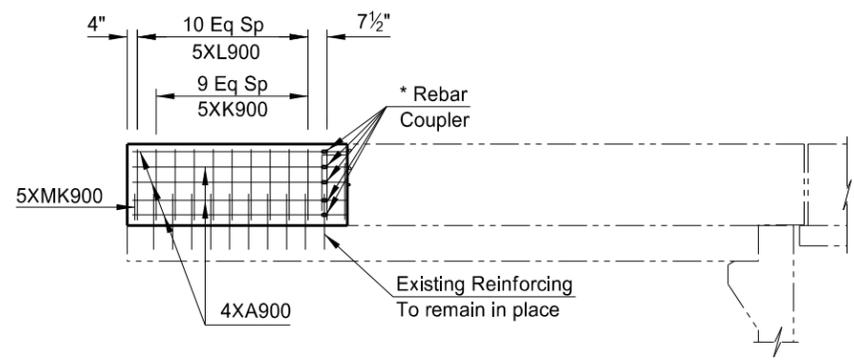


* Provide a 1 1/2" clearance to the barrier reinforcing.

SHOWING REINFORCING



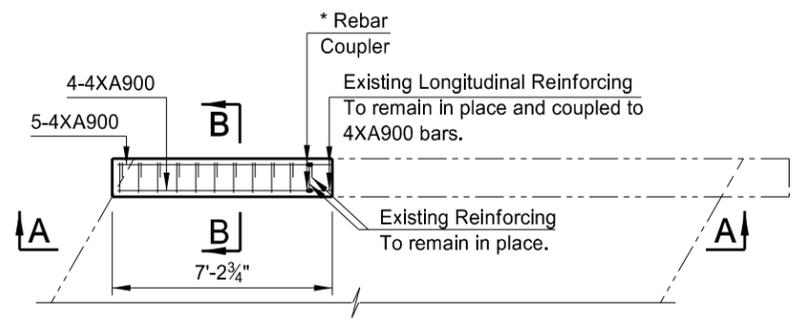
BENT BAR DETAILS



ELEVATION

NOTES:

* Couple the 4XA900 bars to the existing reinforcing steel. Use approved mechanical couplers capable of developing 125% of the reinforcing steel specified yield strength. Provide epoxy coated couplers according to Section 836.02 A and repair any damaged epoxy coating to the existing reinforcing steel and couplers according to Section 612.04 E. Provide couplers that have a maximum outside diameter of 2". Include the cost of furnishing and placing rebar couplers in the price bid for "Barrier End Modification."



(NORTHEAST ENTRANCE CORNER)
 PARTIAL PLAN

SKEW ANGLE = 0°

BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
4	XA900	9	* 6'-2"
5	XK900	9	4'-3"
5	XLK900	10	5'-0"
5	XMK900	1	4'-1"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS)	CONCRETE (CY)
133	0.6

NOTES:

The estimated material quantities shown are for information purposes only.

Include the concrete, reinforcing bars, silicone sealant, and labor required to modify the barrier, including the existing curb and barrier removals and special surface finish matching the adjacent existing barrier, in the pay item "Barrier End Modification." Use Class AE-3 concrete and Grade 60 reinforcing steel. Provide concrete and surface finish that meets the requirements of Section 602 and reinforcing steel that meets the requirements of Section 612.

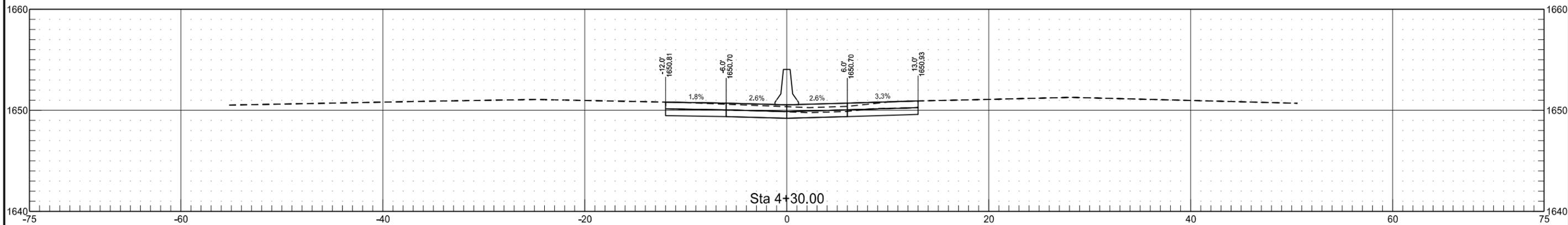
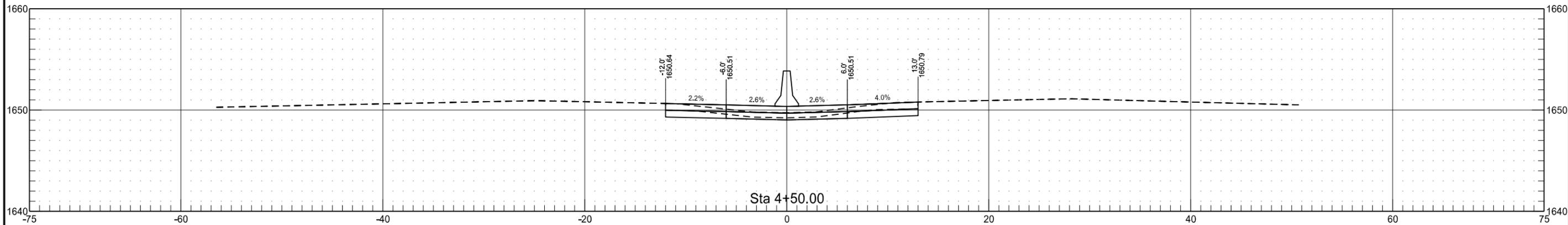
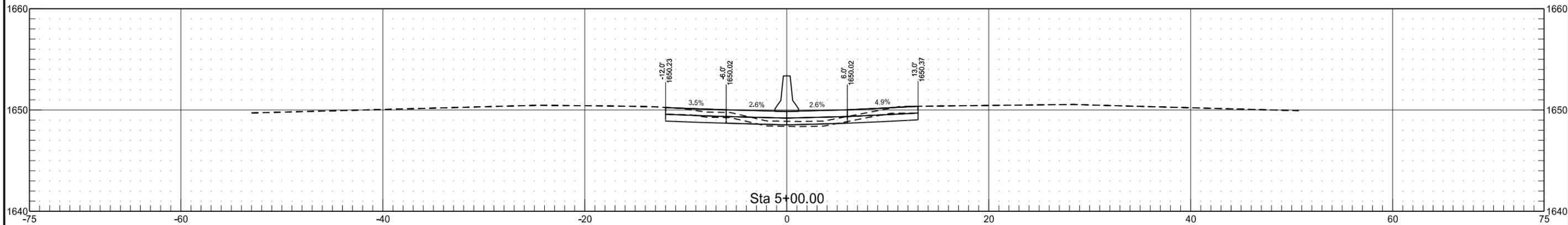
The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out.

Install 5XK900 bars according to manufacturer's recommendations, with a high strength adhesive specifically intended for concrete anchorage (16k min. ultimate pullout) and that meets the requirements of Section 806.02.

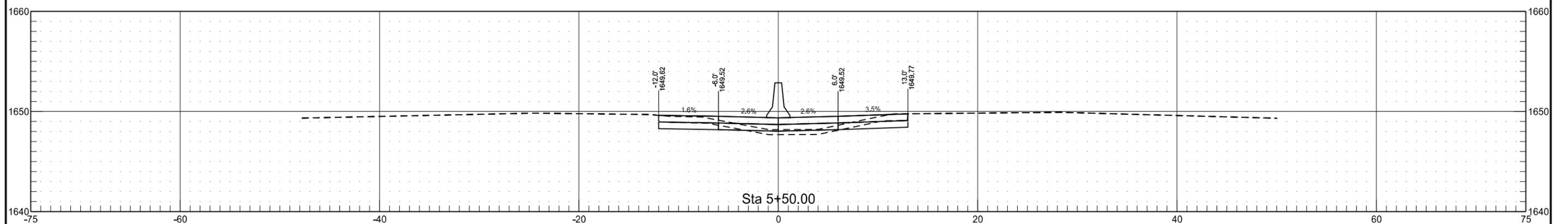
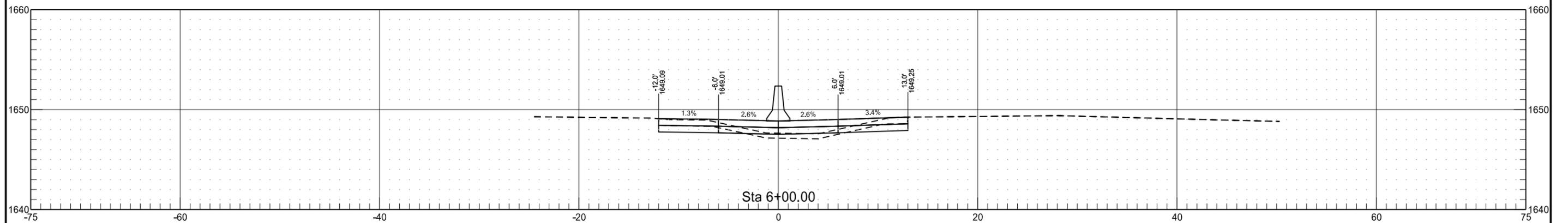
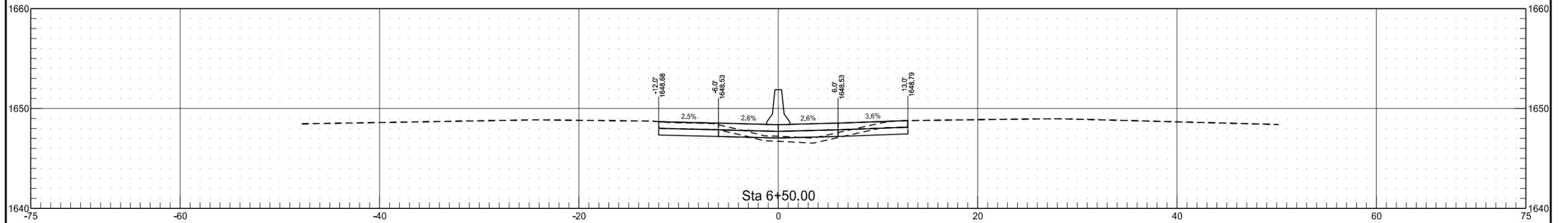


QUANTITIES	
BARRIER END MODIFICATION	1 EA
BUSINESS I-94 ~ MEMORIAL HIGHWAY MANDAN	
APPROACH SLAB DETAILS	

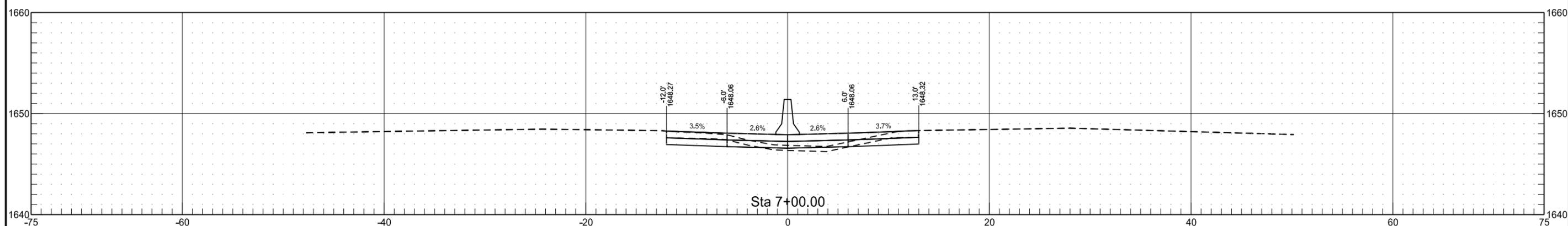
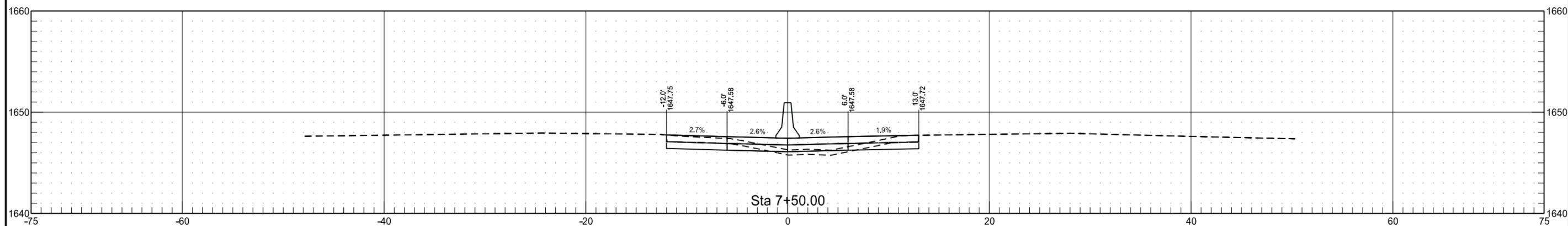
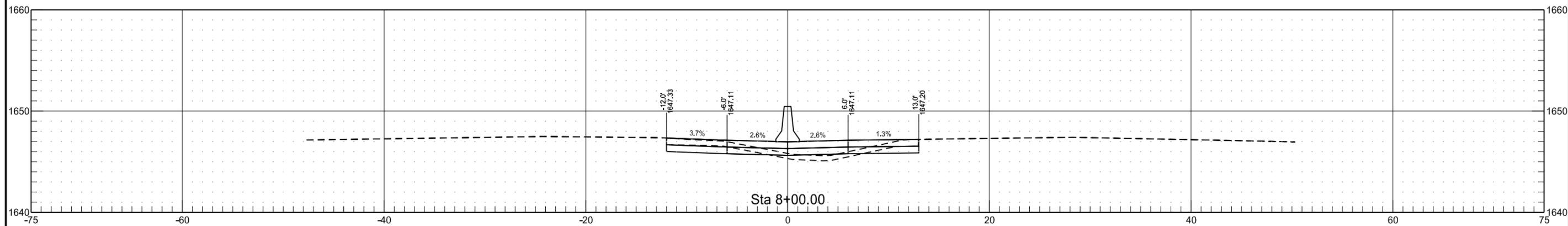
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	ND	HEN-1-194(008)000	200	1



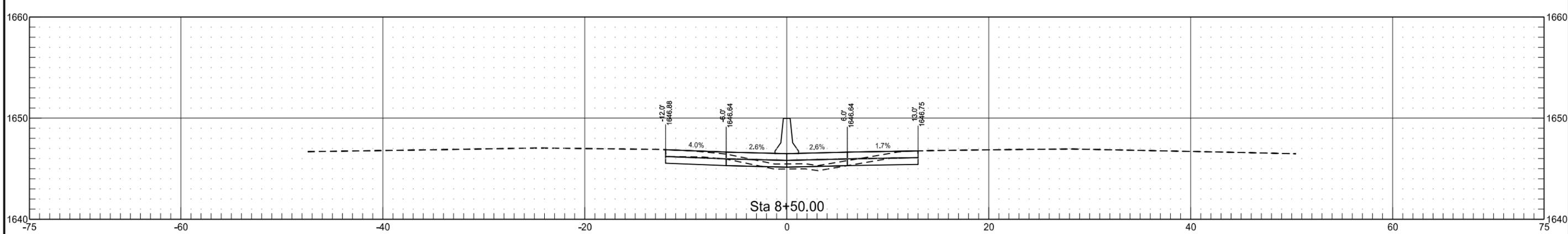
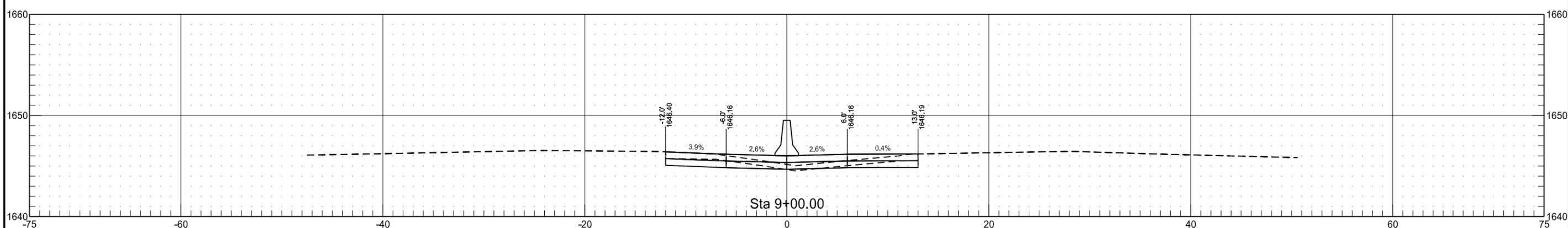
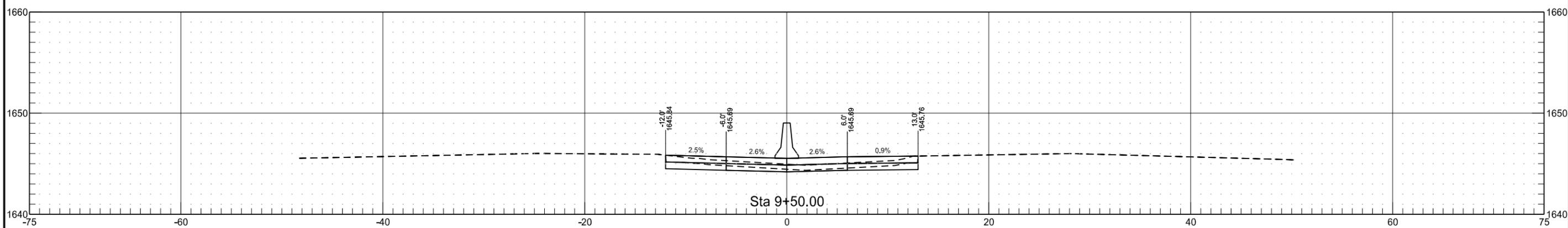
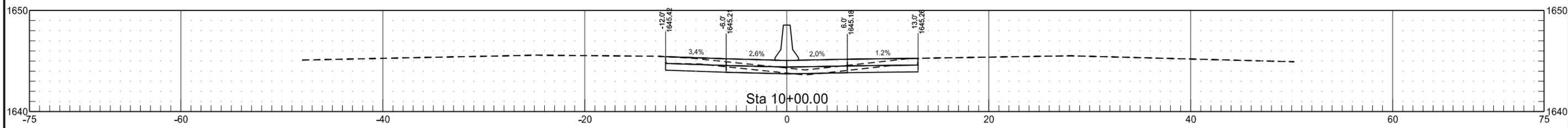
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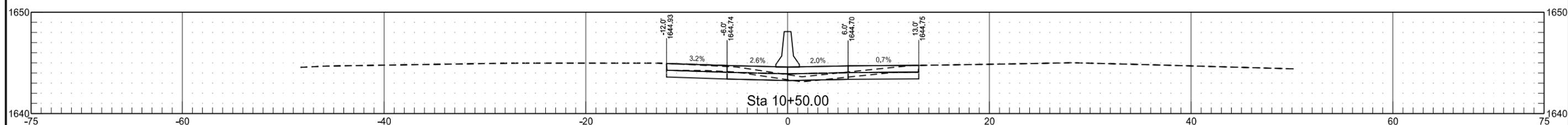
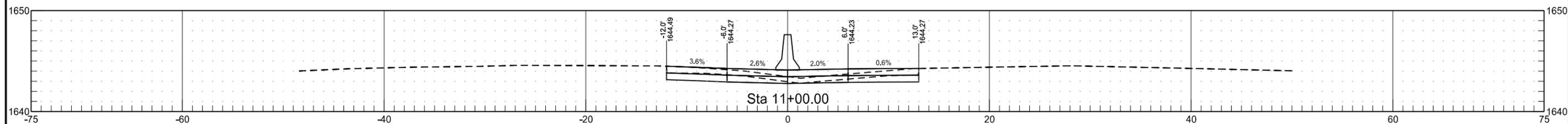
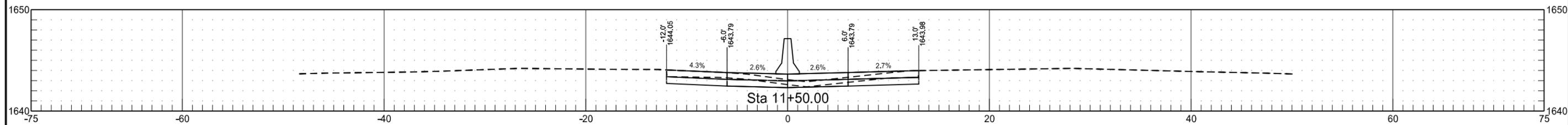
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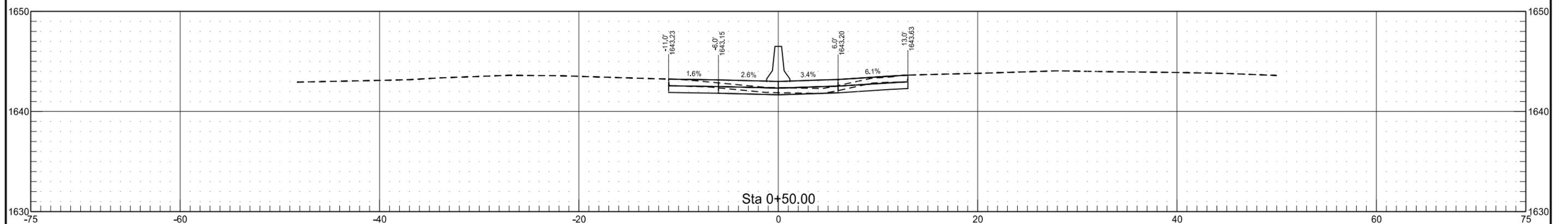
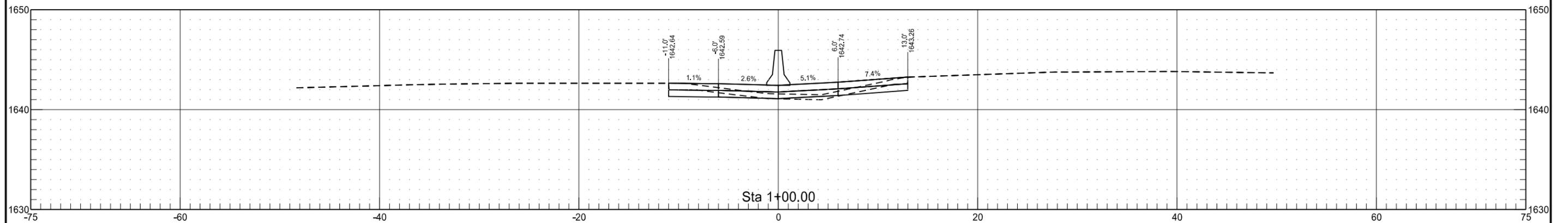
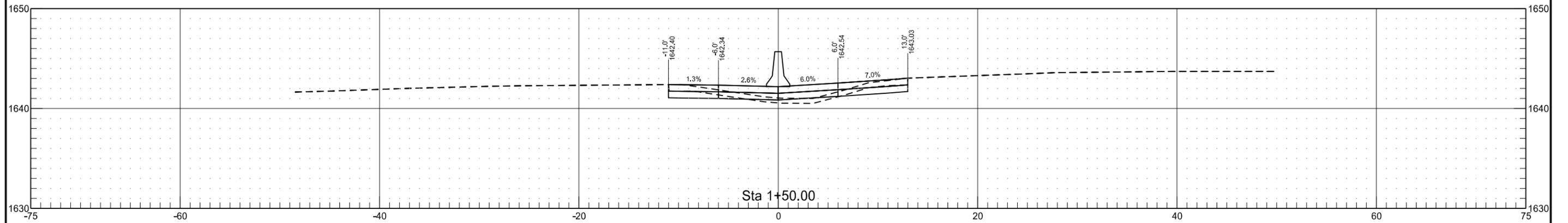
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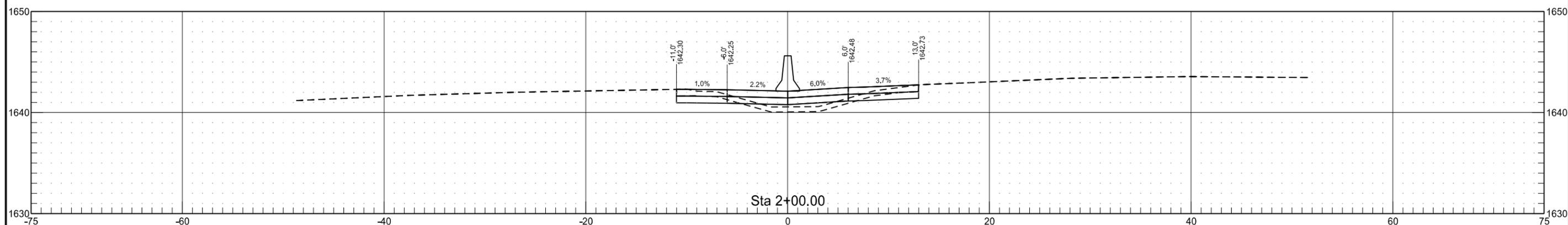
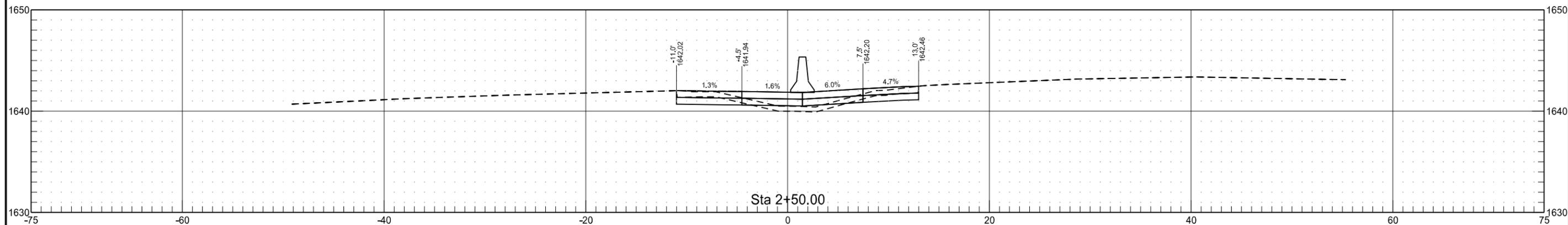
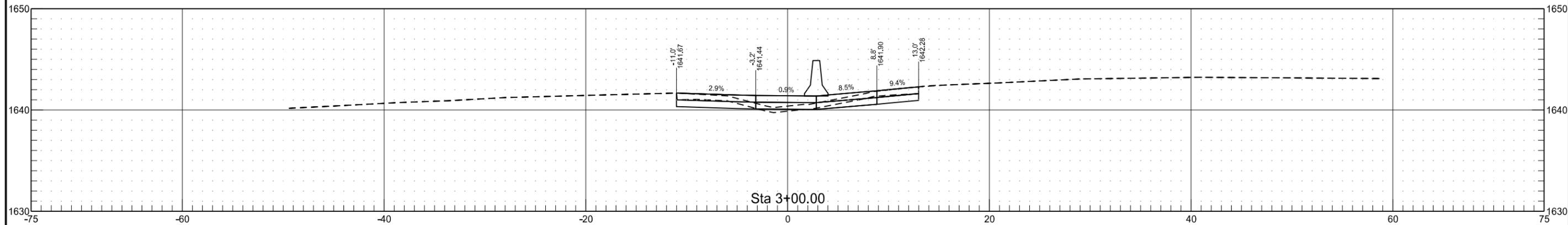
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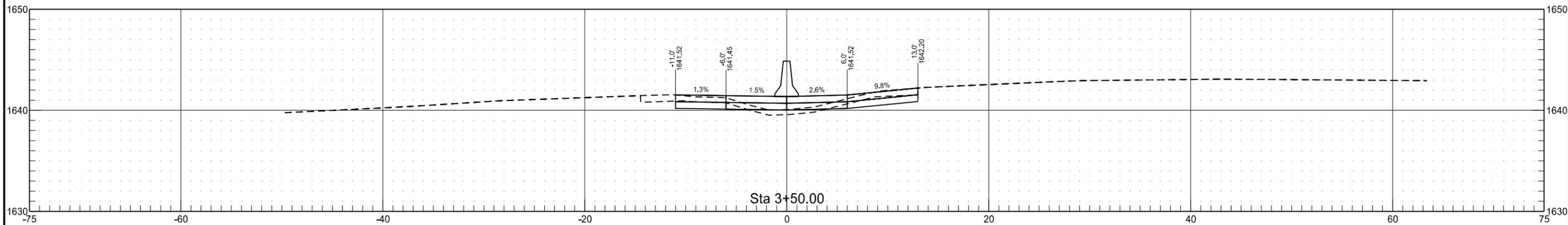
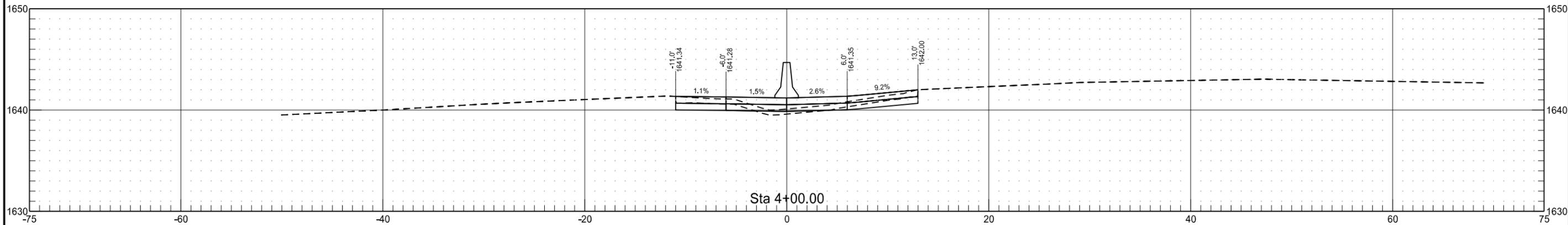
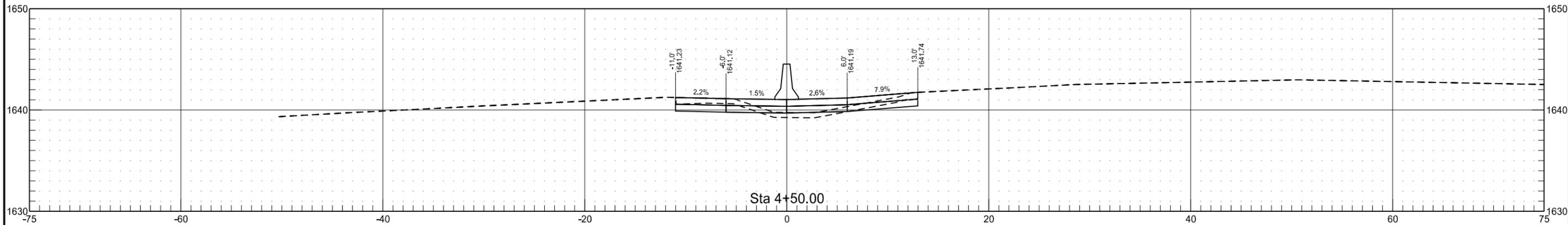
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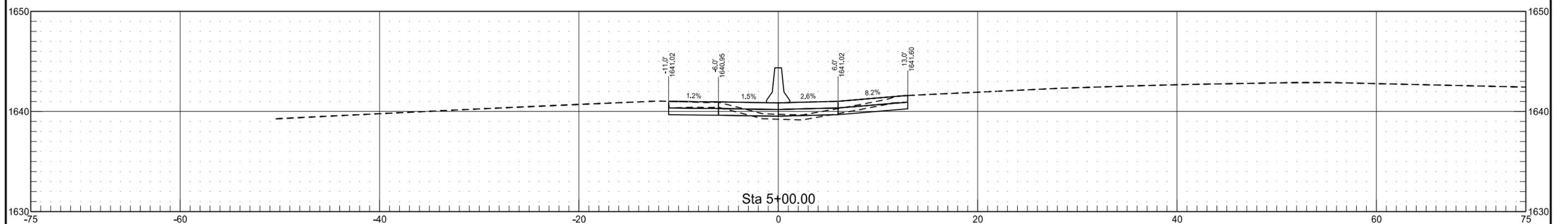
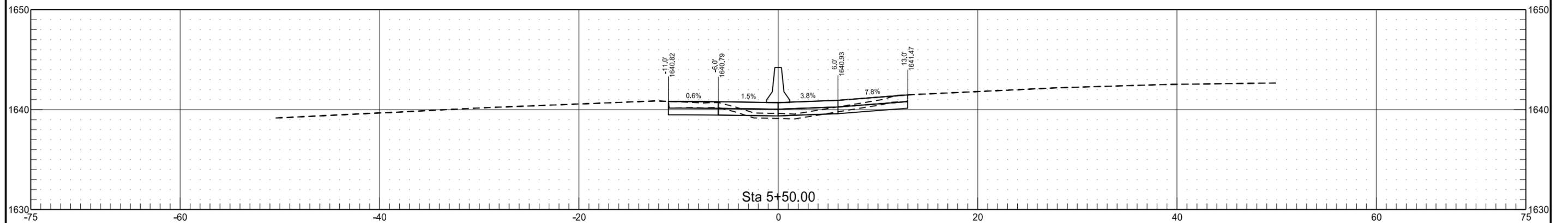
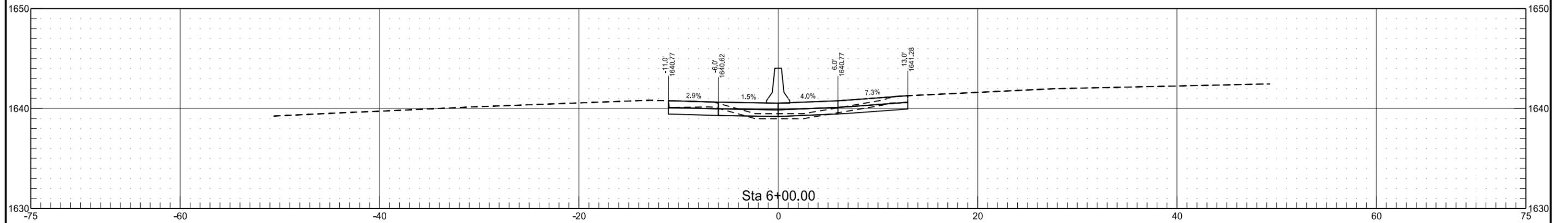
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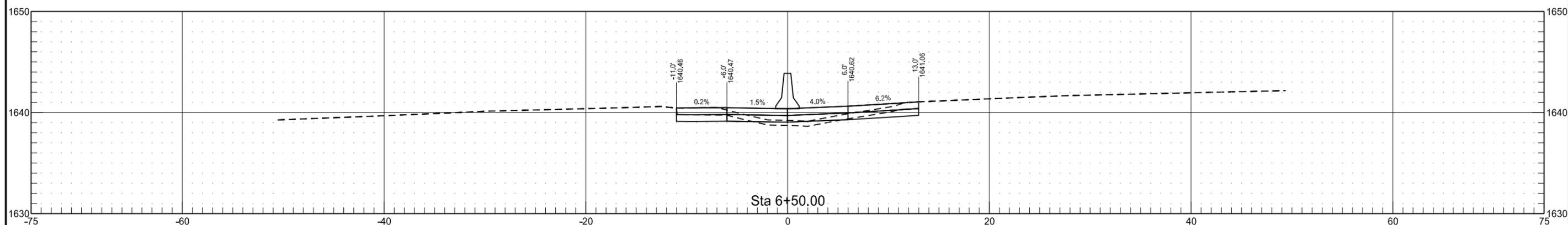
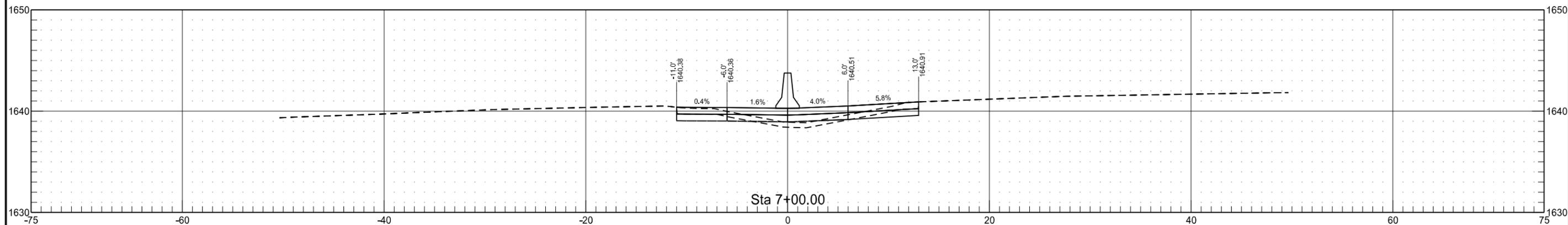
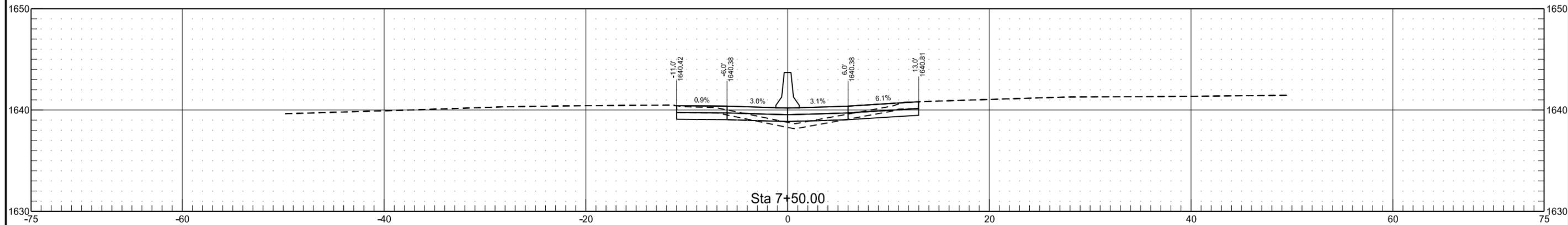
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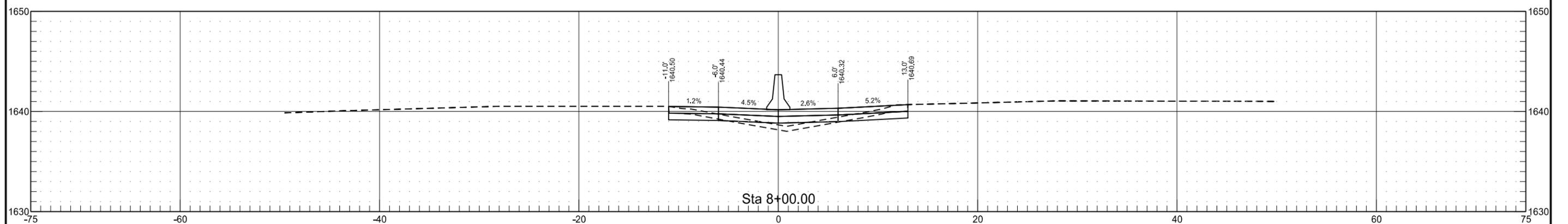
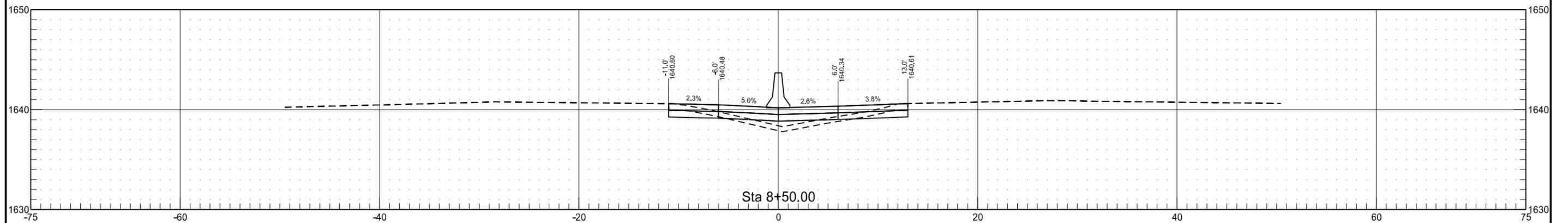
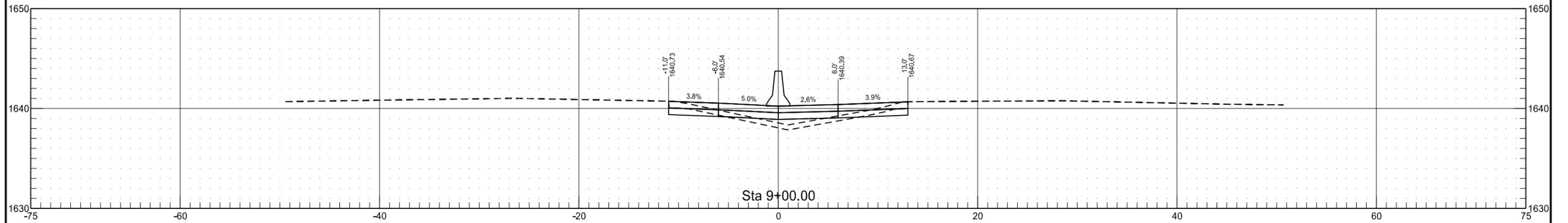
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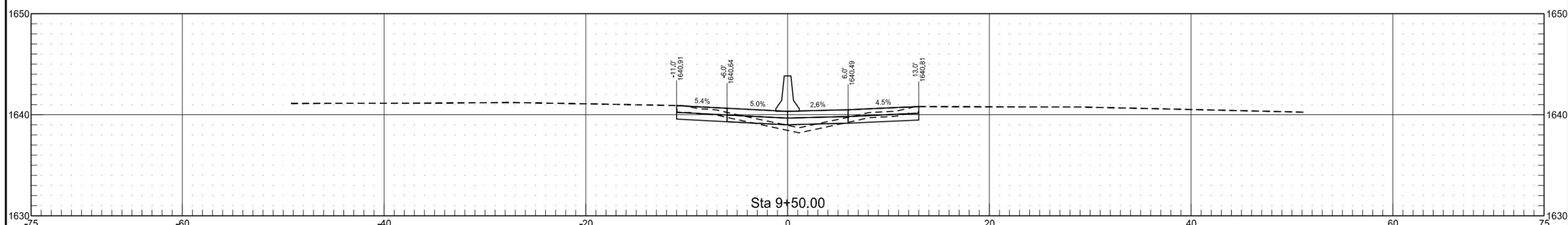
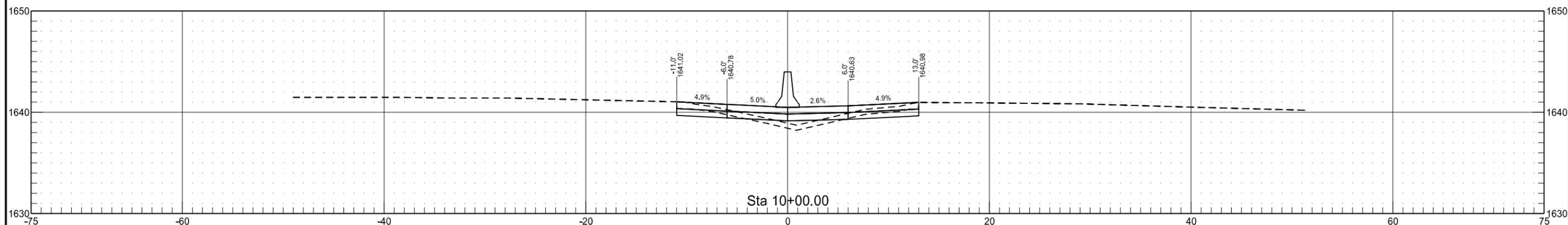
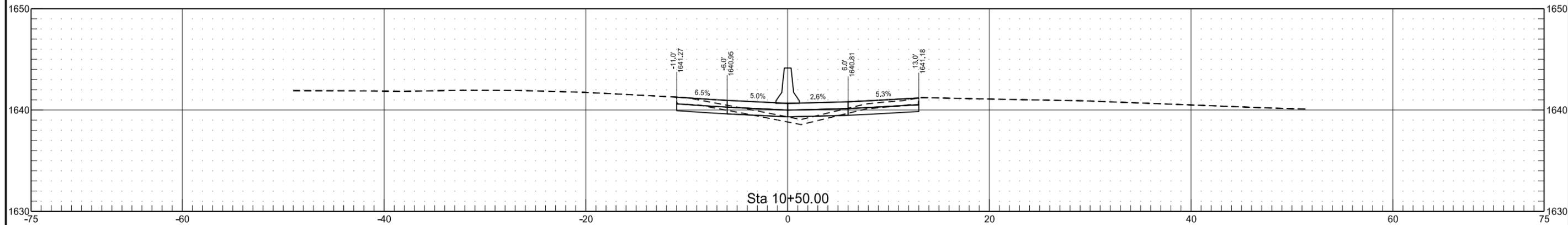
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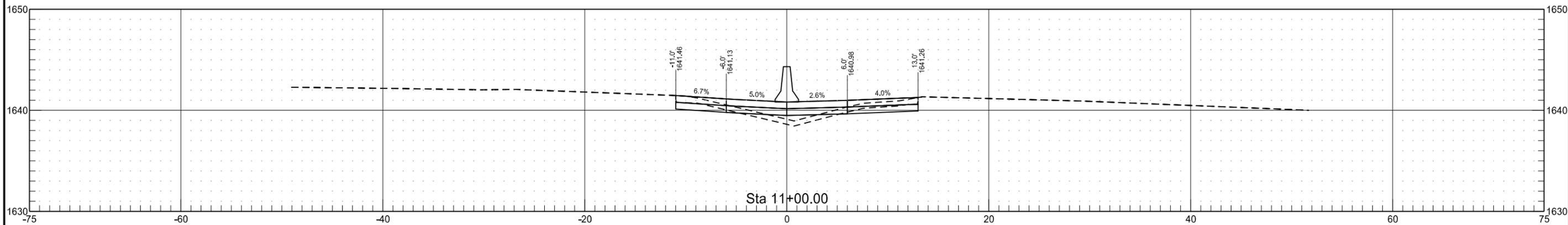
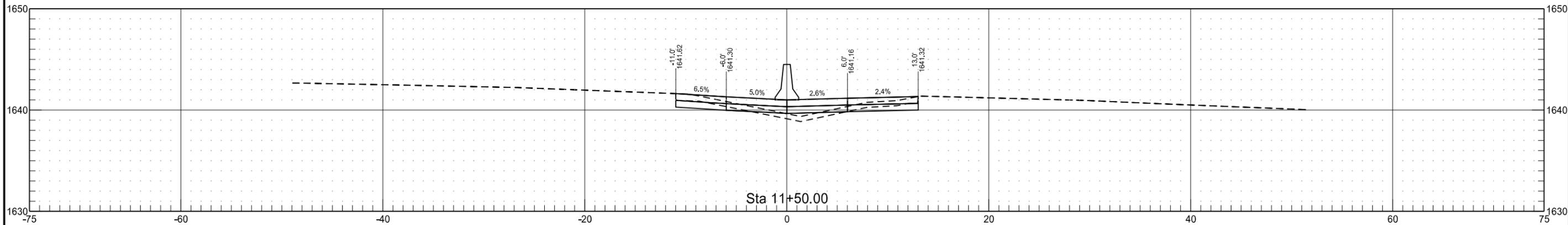
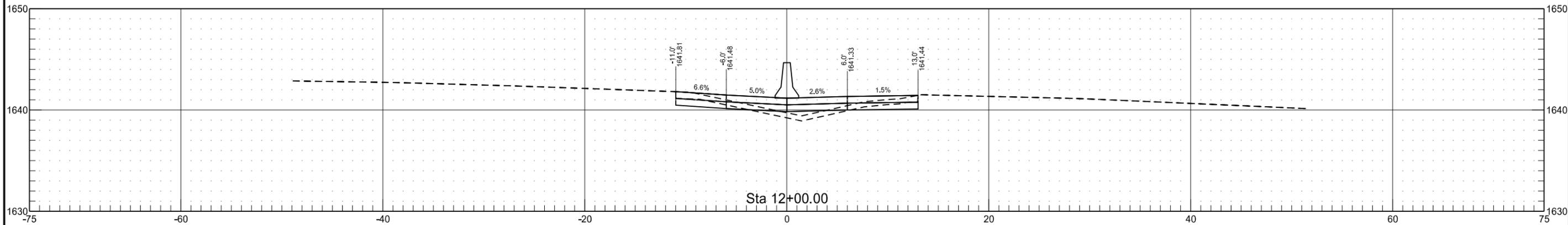
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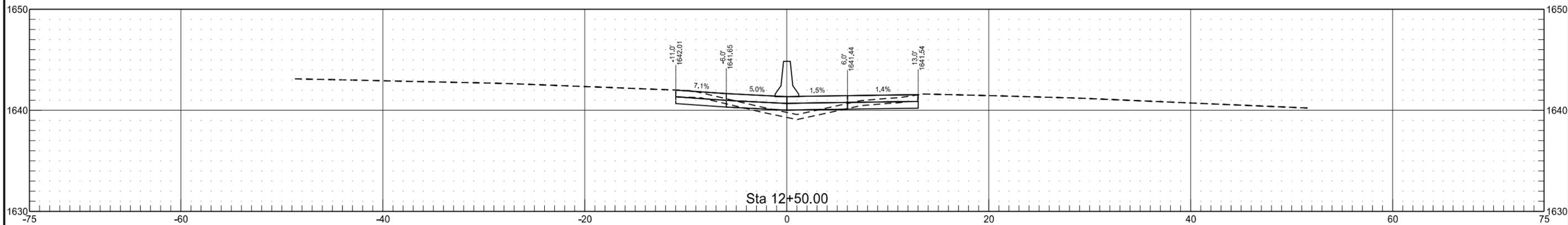
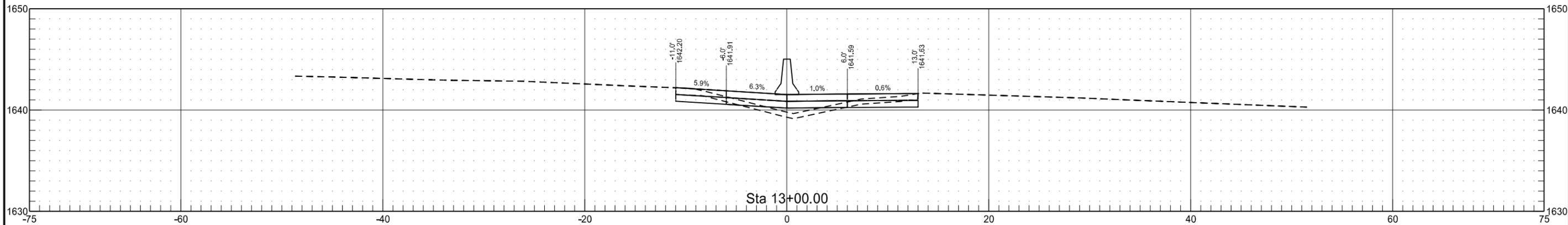
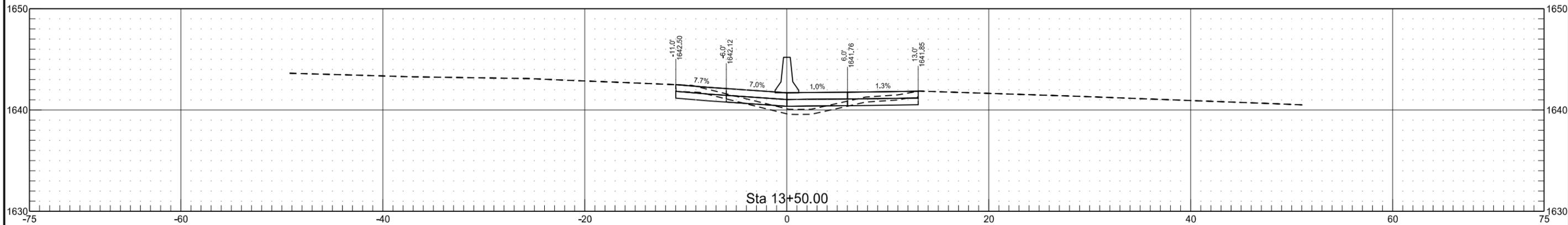
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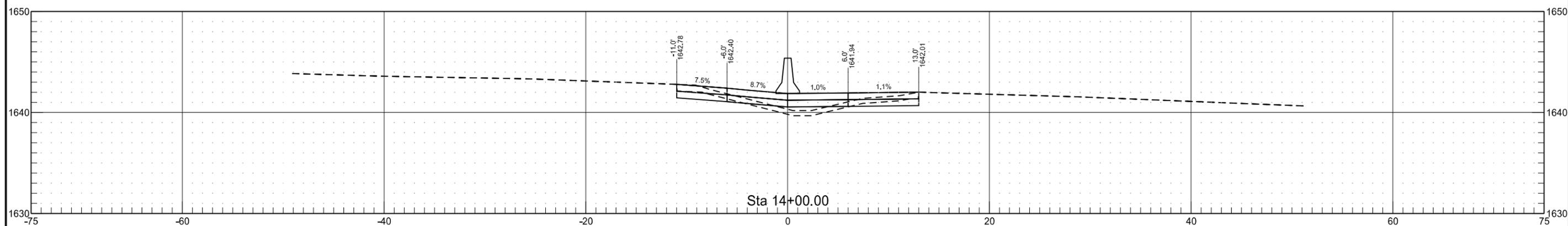
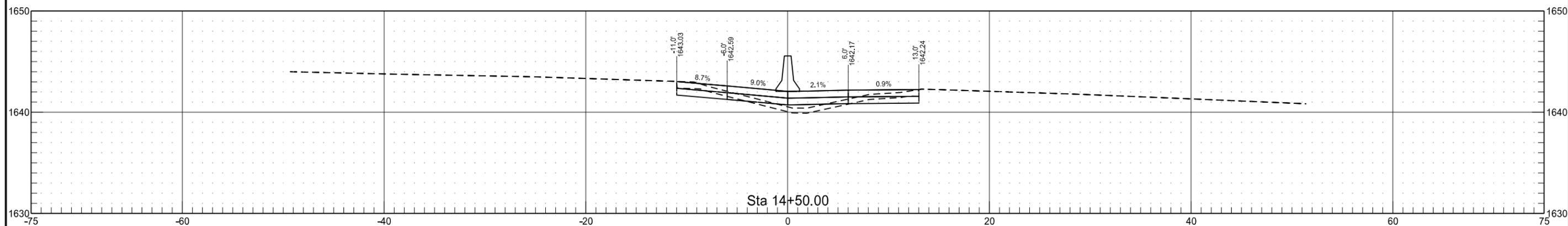
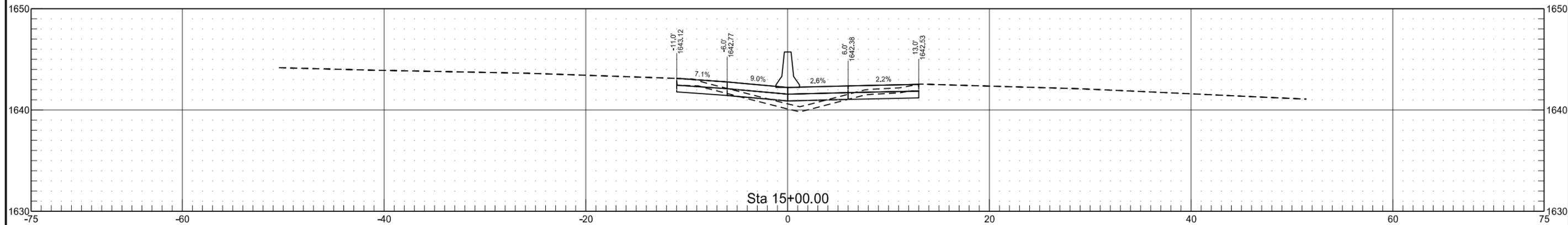
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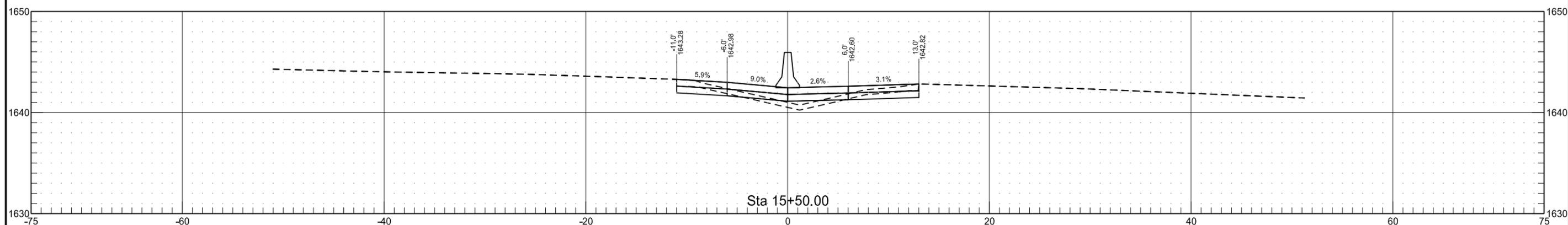
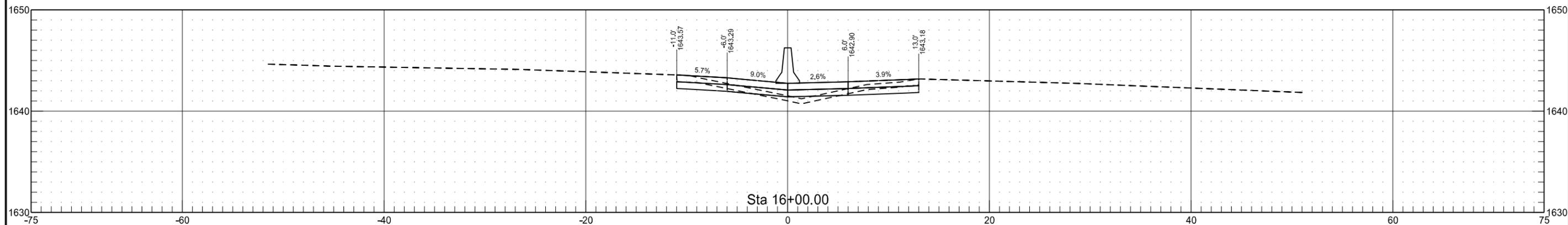
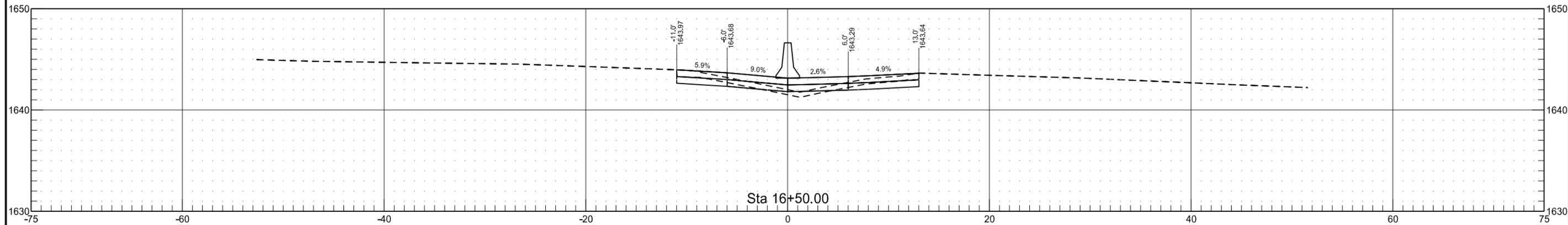
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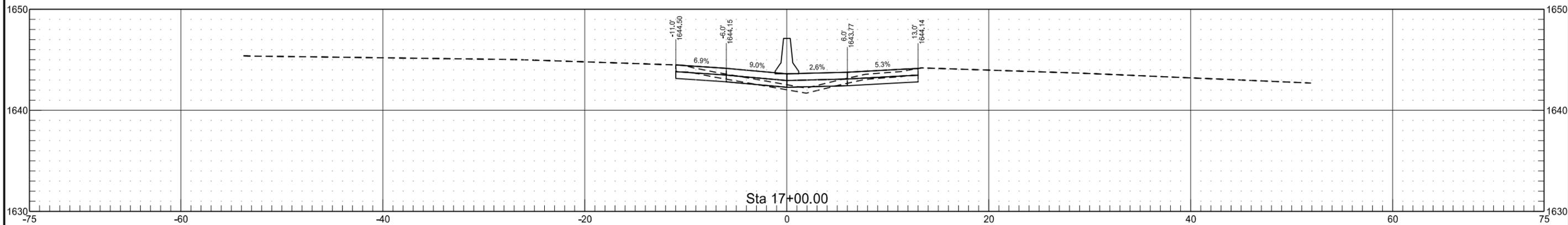
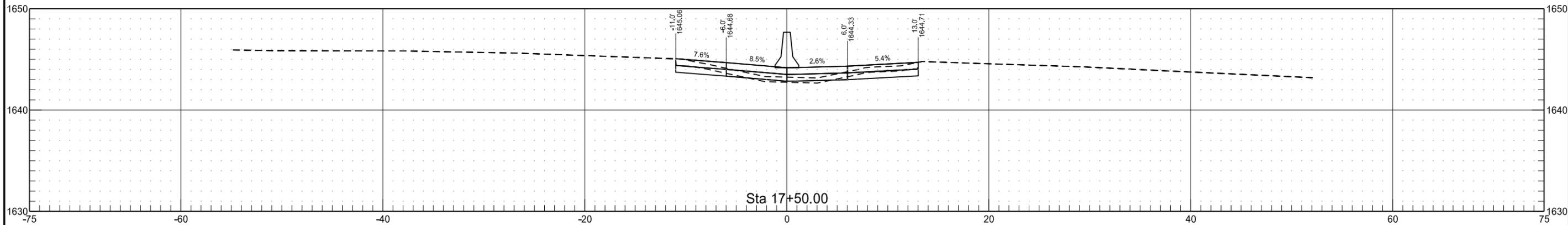
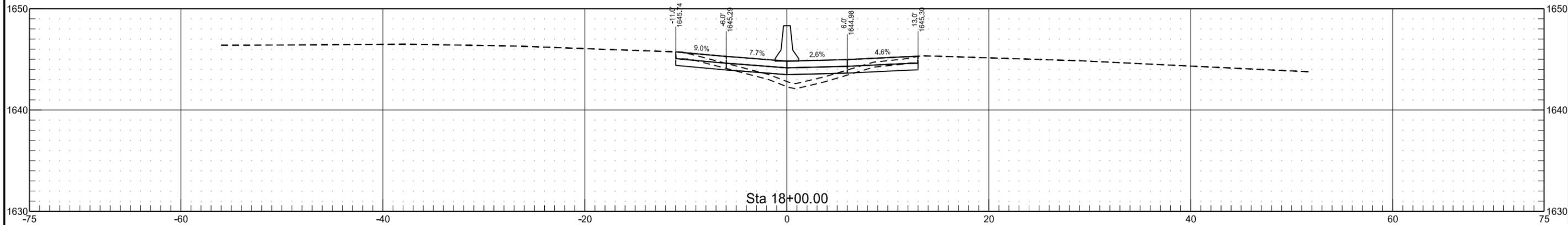
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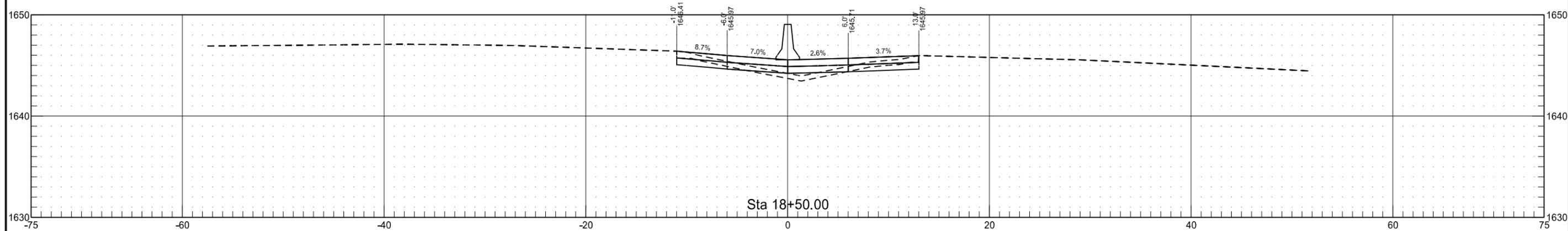
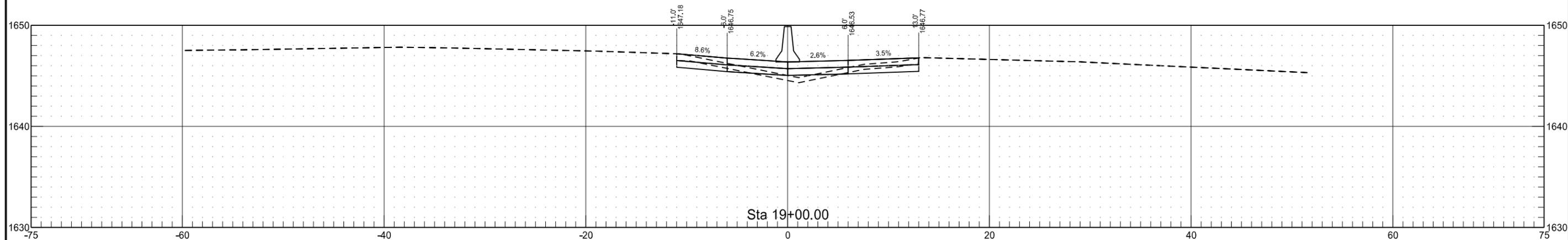
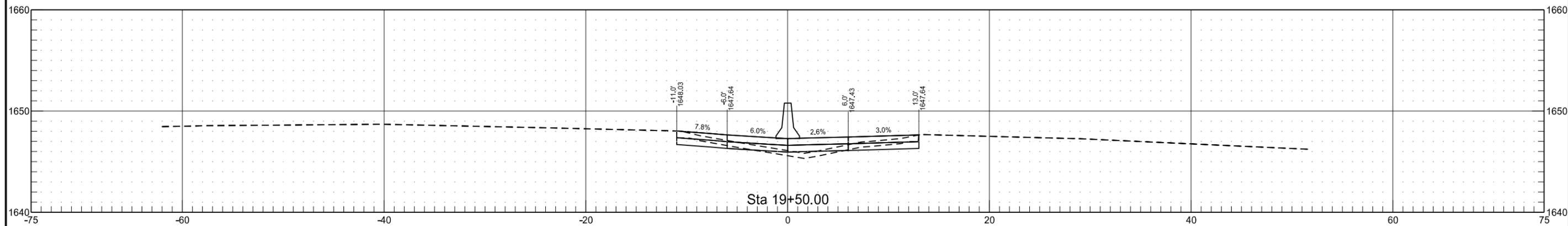
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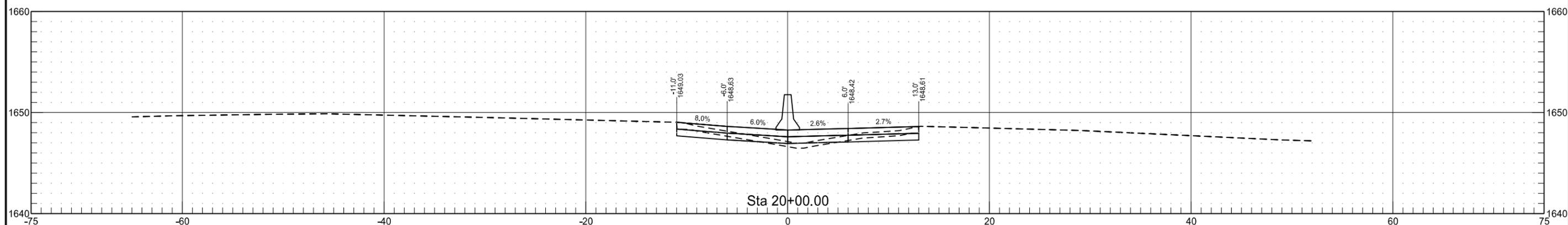
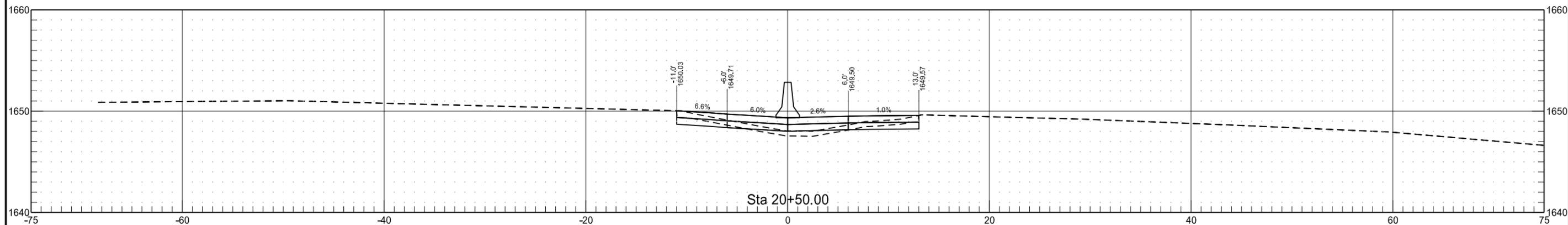
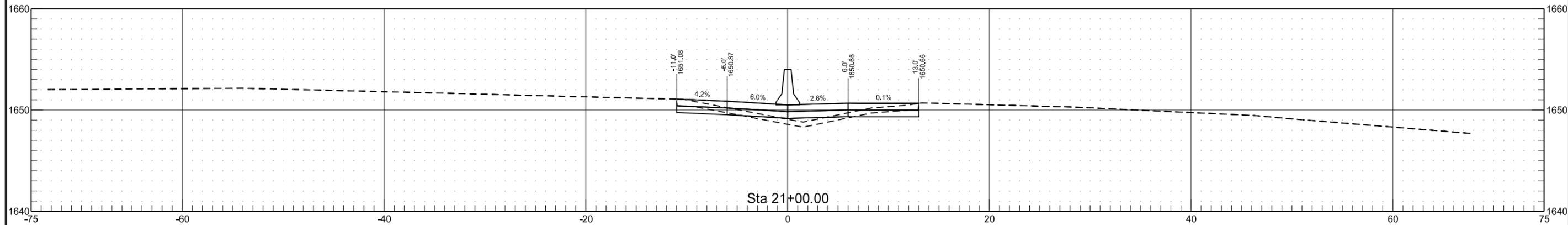
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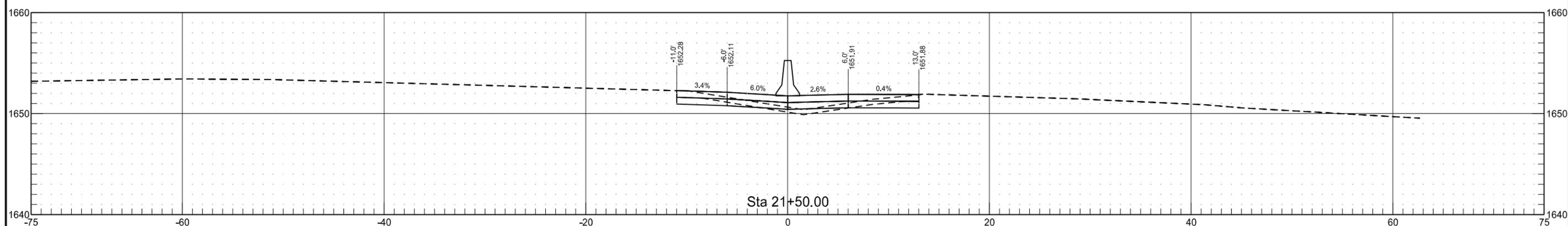
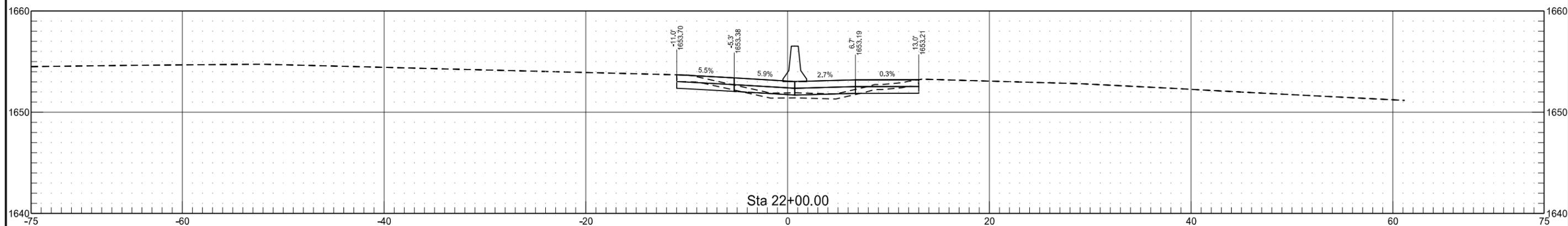
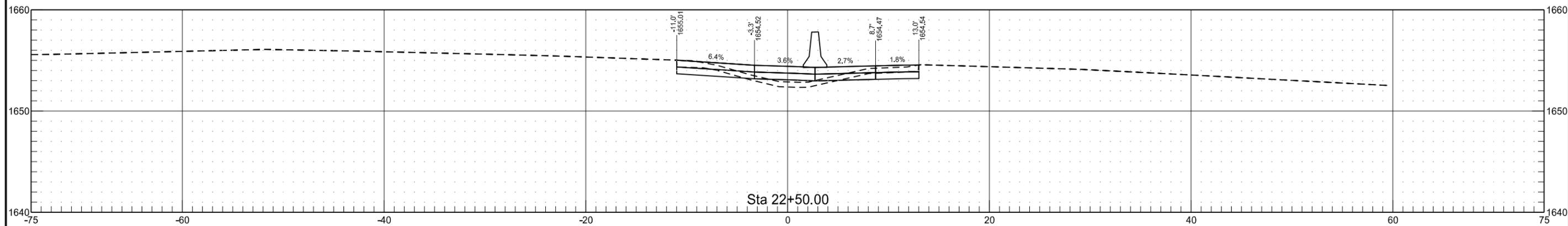
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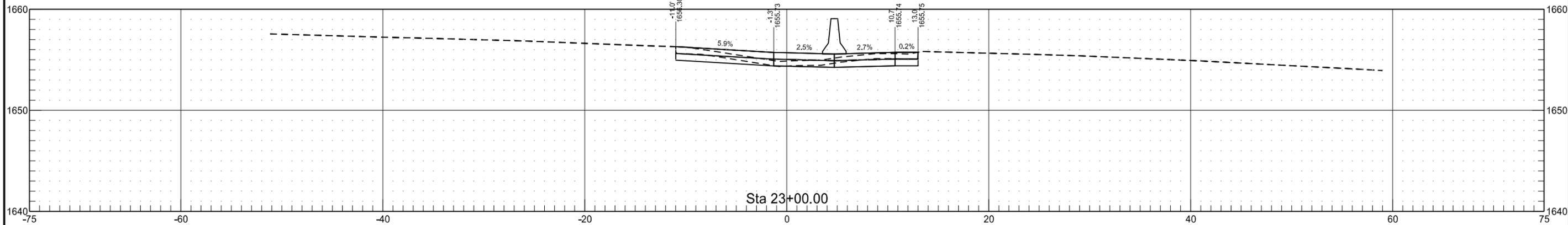
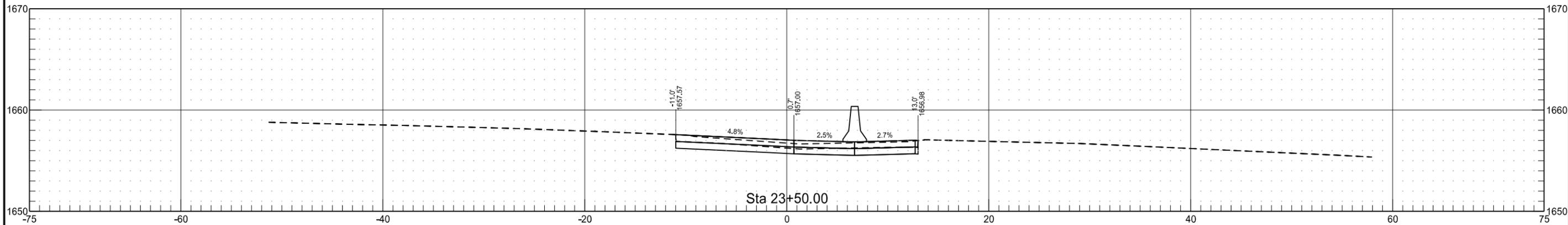
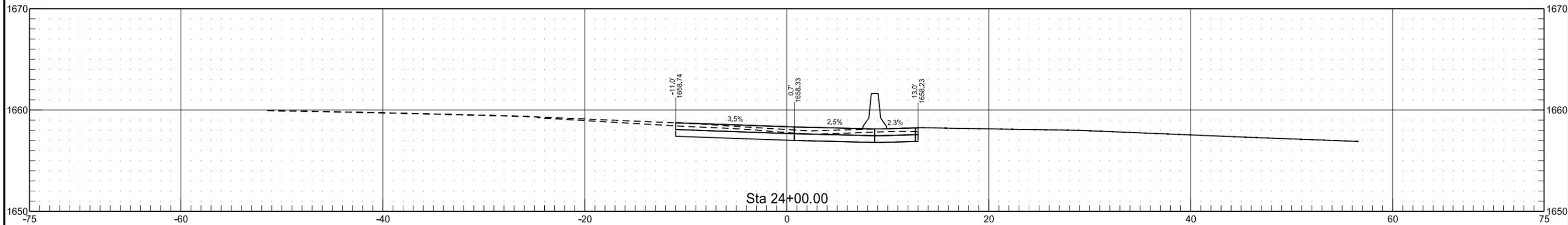
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HEN-1-194(008)000	200	20



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HEN-1-194(008)000	200	21



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HEN-1-194(008)000	200	22

