NORTH Dakota | Transportation
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November 8, 2024

ADDENDUM 1 – JOB 22957

TO: All prospective bidders on Projects IM-X-1-094(214)162, Job No. 22957 scheduled for the November 15, 2024 bid opening.

The following revision(s) shall be made:

Plan Revisions:
See attached summary from Kirk J. Hoff, P.E. dated November 8, 2024 for an explanation.

Request for Proposal Revisions:

- Remove and replace pages 5 thru 14 of 16 of the Proposal pages located at the beginning of the Request for Proposal with pages revised November 8, 2024.

- Bid Item Changes are summarized in the Plan Addendum Summary and Approval.

This addendum is to be incorporated into the bidder's proposal for this project. AASHTOWare Project Bids files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at http://www.bidx.com/ and load it into the AASHTOWare Project Bids program.

PHILLIP MURDOFF, P.E. – CONSTRUCTION SERVICES ENGINEER
80: jwj
Enclosure

PLAN ADDENDUM SUMMARY AND APPROVAL

PROJECT INFORMATION					
Project:	IM-X-1-094(214)162			**PCN:**	22957
Location:	BURLEIGH CO; I-94, BISMARCK E TO E OF MENOKEN - EB				
Date:	11/7/24	**Lead Designer:**	Apex Engineering Group		
Bid Opening Date:	11/15/24	**JOB#:**	22957	**Addendum#:**	1

PLAN SHEET CHANGES		
Section	**Sheet**	**Description**
6	1	Removed plan note 105-P01 Revised plan note 202-P05
6	2	Revised plan note 202-P07 Plan notes 202-P08 thru 302-115 moved from sheet 3 to sheet 2
6	3	Plan note 550-P03 moved from sheet 4 to sheet 3
6	4	Revised plan note 704-P01 for the additional median barriers
6	5	Revised layout of plan notes
6	6	Replaced plan note 714-P02 PLUG PIPE with 714-P02 PIPE CONDUIT 66IN Revised pipe sizes and language in plan note 714-P03 Deleted plan note 714-P04 ADJUST INLET and renumbered remainder of 714 notes Added pipe in table for plan note 714-P04 TEMPORARY CULVERT STOPPERS Revised bid item and language in plan note 714-P05 to EDGEDRAIN NON PERMEABLE BASE
6	7	Revised plan note 930-P01
8	1	Revised quantity for REMOVAL OF END SECTION-ALL TYPES & SIZES Revised quantity for REMOVAL OF PIPE ALL TYPES AND SIZES Added bid item REMOVAL OF MEDIAN GRAIN PRECAST CONCRETE Revised quantity for ECB TYPE 3 Revised quantity for RIPRAP GRADE I Revised quantity for RIPRAP GRADE II Revised quantity for 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED
8	2	Revised quantity for ATTENUATION DEVICE-TYPE B-75 Revised quantity for OBLITERATION OF PAVEMENT MARKING Revised quantity for STATE FURNISHED MEDIAN BARRIER Revised quantity for GEOSYNTHEHIC MATERIAL TYPE G Revised quantity for GEOSYNTHEHIC MATERIAL TYPE RR Revised quantity for PIPE CONC REINF 18IN CL III Revised quantity for PIPE CONC REINF 24IN CL III Revised quantity for PIPE CONC REINF 30IN CL III Revised quantity for PIPE CONC REINF 36IN CL III

		Revised quantity for PIPE CONC REINF 42IN CL III Revised quantity for PIPE CONC REINF 72IN CL III Revised quantity for END SECT-TRAVERSABLE REINF. CONC.18IN Revised quantity for END SECT-TRAVERSABLE REINF. CONC.24IN Revised quantity for PIPE CONDUIT 12IN Revised quantity for PIPE CONDUIT 15IN Revised quantity for PIPE CONDUIT 24IN Revised quantity for PIPE CONDUIT 30IN Revised quantity for PIPE CONDUIT 36IN Added bid item PIPE CONDUIT 66IN Added bid item PIPE CONDUIT ARCH 58IN X 36IN Revised quantity for RELAY END SECTION-ALL TYPES & SIZES Revised quantity for REMOVE & RELAY PIPE-ALL TYPES & SIZES Revised quantity for REMOVE & RELAY END SECTION-ALL TYPE & SIZES Added bid item EDGEDRAIN NON PERMEABLE BASE Removed bid item UNDERDRAIN PIPE PVC PERFORATED 4IN
8	3	Added bid item MEDIAN DRAIN PRECAST CONCRETE-TYPE A Revised quantity for ADJUST INLET Revised quantity for GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE) Revised quantity for PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING Added bid item SHORT TERM 6IN LINE – TYPE R Revised quantity for SHORT TERM 6IN LINE – TYPE NR Revised quantity for PVMT MK PAINTED 4IN LINE Revised quantity for PVMT MK PAINTED 6IN LINE
8	4	Revised quantity for SHORING Added bid item REMOVAL OF SHORING
10	1	Revised 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED and GEOSYNTHETIC MATERIAL TYPE G quantities in Typical 5
10	2	Revised 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED and GEOSYNTHETIC MATERIAL TYPE G quantities in tables
10	3	Revised 714-9720 UNDERDRAIN PIPE PVC PERFORATED 4IN summary table to 714-9696 EDGEDRAIN NON PERMEABLE BASE summary table
20	2	Revised dowel bar locations in plan view
20	5	Replaced Mainline Widening CL Pipe Extension Detail Sheet with Removal of 72” Culvert Detail Sheet
20	6 & 8	Revised detail and added REMOVAL OF SHORING quantity
20	14	Revised ECB Table for new pipes
20	15	Added rest area to dowel bar and tie bar charts
20	17	Revised riprap and geosynthetic table
30	8	Revised UNDERDRAIN PIPE PVC PERFORATED 4IN to EDGEDRAIN NON PERMEABLE BASE in typicals. Also updated location of edgedrain in proposed Typical Section 2.

50	1	Revised hydraulic information on new pipes
51	1-2	Revised all pipe extensions to new pipe installations.
60	All	Reprinted sheets to show new culvert installations.
75	All	Reprinted sheets to show new culvert installations.
77	All	Reprinted sheets to show new culvert installations.
90	2-6	Revised dowel bar locations in plan view
100	1	Revised quantity for ATTENUATION DEVICE TYPE B-75, OBLITERATION OF PVMT MK and STATE FURNISHED MEDIAN BARRIER. Changed SHORT TERM 6IN LINE – TYPE NR to SHORT TERM 6IN LINE – Type R
100	10	Revised SHORT TERM 6IN LINE – TYPE NR to SHORT TERM 6IN LINE – Type R
100	11	Revised SHORT TERM 6IN LINE – TYPE NR to SHORT TERM 6IN LINE – Type R
100	19	Revised OBLITERATION OF PAVEMENT MARKING quantity and revised bid item and references for PVMT MK PAINTED 4IN LINE to PVMT MK PAINTED 6IN LINE
100	20	Added Pipe Work Area at STA 2110+07, Revised quantity for ATTENUATION DEVICE TYPE B-75 and STATE FURNISHED MEDIAN BARRIER
110	1	Revised quantities due to sign panel size changes
110	4	Sign 5 remove symbols and revised arrow
110	5	Sign 7 revised size
110	6	Sign 1 size changed & Sign 2 revised letter spacing
110	7	Sign 3 revised size Sign 4 revised border color, border thickness, and radius change Sign 5 removed symbols
110	8	Sign 6 revised border thickness and radius Sign 7 revised size
110	9	Sign 10 revised size and arrow Sign 11 revised size, border width, radius, and text size
200	139-153	Revised all pipe extensions to new pipe installations.

CHANGES MADE TO BID ITEMS FOR JOB					
Spec	**Code**	**Description**	**Unit**	**Previous Quantity**	**Revised Quantity**
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	10	0
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1783	3420
202	0237	REMOVAL OF MEDIAN DRAIN PRECAST CONCRETE	EA	0	3
255	0103	ECB TYPE 3	SY	5540	5305
256	0100	RIPRAP GRADE I	CY	227	315

256	0200	RIPRAP GRADE II	CY	277	161
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	187,025	185,002
704	1045	ATTENUATION DEVICE-TYPE B-75	EA	8	10
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	5767	7892
704	3511	STATE FURNISHED MEDIAN BARRIER	LF	2840	3780
709	0100	GEOSYNTHEHIC MATERIAL TYPE G	SY	323,873	321,167
709	0155	GEOSYNTHEHIC MATERIAL TYPE RR	SY	1094	1081
714	0310	PIPE CONC REINF 18IN CL III	LF	122	0
714	0615	PIPE CONC REINF 24IN CL III	LF	16	0
714	0820	PIPE CONC REINF 30IN CL III	LF	28	0
714	0905	PIPE CONC REINF 36IN CL III	LF	10	0
714	1005	PIPE CONC REINF 42IN CL III	LF	22	0
714	1510	PIPE CONC REINF 72IN CL III	LF	14	0
714	3013	END SECT-TRAVERSABLE REINF. CONC.18IN	EA	9	0
714	3023	END SECT-TRAVERSABLE REINF. CONC.24IN	EA	1	0
714	4105	PIPE CONDUIT 24IN	LF	625	1210
714	4110	PIPE CONDUIT 30IN	LF	1009	1416
714	4115	PIPE CONDUIT 36IN	LF	876	1290
714	4120	PIPE CONDUIT 42IN	LF	0	240
714	4140	PIPE CONDUIT 66IN	LF	0	154
714	4229	PIPE CONDUIT ARCH 58IN X 36IN	LF	0	89
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	13	0
714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	0	21,332
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN	LF	21,332	0
722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A	EA	0	3
722	6160	ADJUST INLET	EA	2	0
754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	517	520
754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	775	794
762	0422	SHORT TERM 6IN LINE – TYPE R	LF	0	7210
762	0432	SHORT TERM 6IN LINE – TYPE NR	LF	7210	0
762	1104	PVMT MK PAINTED 4IN LINE	LF	51,010	0
762	1106	PVMT MK PAINTED 6IN LINE	LF	232,808	283,818
930	8230	SHORING	EA	2	3
930	8235	REMOVAL OF SHORING	EA	0	3

APPROVAL

Should the revisions described above be processed as a plan addendum?

X Yes _____ No

Kirk J Hoff

Kirk J. Hoff, P.E. – Design Engineer

11/8/2024

Date

BID ITEMS

Project: IM-X-1-094(214)162 (PCN-22957)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	109	1000	E-TICKETING	L SUM	1.				
003	201	0330	CLEARING & GRUBBING	L SUM	1.				
004	202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	110,166.				
005	202	0108	REMOVAL OF STRUCTURE-SITE 1	L SUM	1.				
006	202	0109	REMOVAL OF STRUCTURE-SITE 2	L SUM	1.				
007	202	0110	REMOVAL OF STRUCTURE-SITE 3	L SUM	1.				
008	202	0111	REMOVAL OF CONCRETE	L SUM	1.				
009	202	0130	REMOVAL OF CURB & GUTTER	LF	70.				
010	202	0136	REMOVAL OF PAVEMENT	TON	60,850.				
011	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	3,420.				
012	202	0237	REMOVAL OF MEDIAN DRAIN PRECAST CONCRETE	EA	3.				
013	202	0312	REMOVE EXISTING FENCE	LF	53,533.				
014	202	0350	REMOVAL OF TEMPORARY BYPASS	EA	4.				
015	203	0101	COMMON EXCAVATION-TYPE A	CY	79,935.				
016	203	0109	TOPSOIL	CY	59,034.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
017	203	0140	BORROW-EXCAVATION	CY	2,537.				
018	216	0100	WATER	M GAL	3,895.				
019	220	0100	PREPARE STOCKPILE SITE	L SUM	1.				
020	220	0200	RESTORE STOCKPILE SITE	L SUM	1.				
021	251	0200	SEEDING CLASS II	ACRE	112.700				
022	251	2000	TEMPORARY COVER CROP	ACRE	112.800				
023	253	0061	SOIL STABILIZATION	ACRE	225.500				
024	255	0103	ECB TYPE 3	SY	5,305.				
025	256	0100	RIPRAP GRADE I	CY	315.				
026	256	0200	RIPRAP GRADE II	CY	161.				
027	256	0300	RIPRAP GRADE III	CY	195.				
028	260	0100	SILT FENCE UNSUPPORTED	LF	3,664.				
029	260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	3,664.				
030	261	0112	FIBER ROLLS 12IN	LF	39,230.				
031	261	0113	REMOVE FIBER ROLLS 12IN	LF	18,822.				
032	302	0100	SALVAGED BASE COURSE	TON	141,394.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
033	401	0050	TACK COAT	GAL	2,619.				
034	401	0060	PRIME COAT	GAL	11,508.				
035	411	0114	MILLING PAVEMENT SURFACE - 2 INCH	SY	6,034.				
036	430	0143	RAP - SUPERPAVE FAA 43	TON	10,772.				
037	430	1000	CORED SAMPLE	EA	118.				
038	430	2000	PATCHING	TON	500.				
039	430	5815	PG 58S-34 ASPHALT CEMENT	TON	382.				
040	550	0112	8IN NON-REINF CONCRETE PAVEMENT CL AE	SY	1,008.				
041	550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	185,002.				
042	550	1013	3IN EXPANSION JOINT	LF	74.				
043	550	1031	CONCRETE SLEEPER SLAB	SY	50.				
044	602	1130	CLASS AE-3 CONCRETE	CY	4.100				
045	602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	164.400				
046	602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	940.				
047	602	2105	CURB REPAIR	SF	50.				
048	602	7000	SPECIAL SURFACE FINISH	SF	1,045.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
049	624	3001	DOUBLE BOX BEAM RAIL RETROFIT-FREE STANDING	LF	392.				
050	624	3005	CONNECTION PLATE MODIFICATION	EA	2.				
051	702	0100	MOBILIZATION	L SUM	1.				
052	704	0100	FLAGGING	MHR	3,300.				
053	704	1000	TRAFFIC CONTROL SIGNS	UNIT	6,803.				
054	704	1045	ATTENUATION DEVICE-TYPE B-75	EA	10.				
055	704	1052	TYPE III BARRICADE	EA	52.				
056	704	1060	DELINEATOR DRUMS	EA	240.				
057	704	1067	TUBULAR MARKERS	EA	368.				
058	704	1070	DELINEATOR	EA	195.				
059	704	1072	FLEXIBLE DELINEATORS	EA	609.				
060	704	1081	VERTICAL PANELS-BACK TO BACK	EA	6.				
061	704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	4.				
062	704	1088	SEQUENCING ARROW PANEL-TYPE C-CROSSOVER	EA	2.				
063	704	1090	FLASHING BEACON	EA	2.				
064	704	1500	OBLITERATION OF PAVEMENT MARKING	SF	7,892.				

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						$$$$$	000	$$$$$	00
065	704	3511	STATE FURNISHED MEDIAN BARRIER	LF	3,780.				
066	704	8015	VEHICLE SPEED FEEDBACK SIGN	EA	2.				
067	706	0400	FIELD OFFICE	EA	1.				
068	706	0500	AGGREGATE LABORATORY	EA	1.				
069	706	0550	BITUMINOUS LABORATORY	EA	1.				
070	706	0600	CONTRACTOR'S LABORATORY	EA	1.				
071	709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	321,167.				
072	709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	1,081.				
073	710	0100	TEMPORARY BYPASS	EA	2.				
074	714	3150	HEADWALL-PRECAST CONCRETE 4IN	EA	76.				
075	714	4090	PIPE CONDUIT 12IN	LF	256.				
076	714	4095	PIPE CONDUIT 15IN	LF	356.				
077	714	4105	PIPE CONDUIT 24IN	LF	1,210.				
078	714	4110	PIPE CONDUIT 30IN	LF	1,416.				
079	714	4115	PIPE CONDUIT 36IN	LF	1,290.				
080	714	4120	PIPE CONDUIT 42IN	LF	240.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
081	714	4140	PIPE CONDUIT 66IN	LF	154.				
082	714	4155	PIPE CONDUIT 84IN	LF	158.				
083	714	4160	PIPE CONDUIT 90IN	LF	106.				
084	714	4172	PIPE CONDUIT 108IN	LF	165.				
085	714	4229	PIPE CONDUIT ARCH 58IN X 36IN	LF	89.				
086	714	9630	RELAY END SECTION-ALL TYPES & SIZES	EA	1.				
087	714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	12.				
088	714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	21,332.				
089	720	0110	RIGHT OF WAY MARKERS	EA	7.				
090	720	0125	ALIGNMENT MONUMENTS	EA	7.				
091	720	0130	IRON PIN R/W MONUMENTS	EA	2.				
092	720	0135	IRON PIN REFERENCE MONUMENTS	EA	10.				
093	722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A	EA	3.				
094	748	0140	CURB & GUTTER-TYPE I	LF	70.				
095	748	0141	CURB & GUTTER-TYPE 1 SPECIAL	LF	20.				
096	750	0115	SIDEWALK CONCRETE 4IN	SY	69.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
097	750	2115	DETECTABLE WARNING PANELS	SF	40.				
098	752	0300	FENCE BARBED WIRE 4 STRAND-WOOD POST	LF	51,752.				
099	752	0600	FENCE CHAIN LINK	LF	1,302.				
100	752	0993	FENCE TERMINAL	EA	4.				
101	752	2100	VEHICLE GATE	EA	5.				
102	752	2120	REMOVE VEHICLE GATE	EA	5.				
103	752	2995	CORNER ASSEMBLY-WOOD POST	EA	32.				
104	752	3100	CORNER ASSEMBLY CHAIN LINK	EA	4.				
105	752	3995	DOUBLE BRACE ASSEMBLY-WOOD POST	EA	43.				
106	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	89.				
107	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	52.				
108	754	0154	DELINEATORS-TYPE A-SINGLE SIDED	EA	102.				
109	754	0160	DELINEATORS-TYPE B	EA	40.				
110	754	0166	DELINEATORS-TYPE E	EA	12.				
111	754	0168	DELINEATORS-TYPE D	EA	9.				
112	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	215.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
113	754	0210	GALV STEEL POST-STANDARD PIPE	LF	116.				
114	754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	520.				
115	754	0530	PANEL FOR SIGNS-TYPE XI REFLECTIVE SHEETING	SF	62.				
116	754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	794.				
117	754	0557	INTERSTATE MILE POSTS-TYPE C	EA	10.				
118	754	0805	OBJECT MARKERS - CULVERTS	EA	82.				
119	754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	4.				
120	754	1104	REMOVE SIGN FOUNDATION	EA	26.				
121	760	0021	SINUSOIDAL RUMBLE STRIP - CONCRETE SHOULDER	MILE	19.492				
122	762	0113	EPOXY PVMT MK 4IN LINE	LF	2,624.				
123	762	0114	EPOXY PVMT MK 6IN LINE	LF	3,837.				
124	762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	4,186.				
125	762	0134	EPOXY PVMT MK 12IN LINE-GROOVED	LF	49.				
126	762	0200	RAISED PAVEMENT MARKERS	EA	22,799.				
127	762	0422	SHORT TERM 6IN LINE-TYPE R	LF	7,210.				
128	762	1106	PVMT MK PAINTED 6IN LINE	LF	283,818.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
129	762	1124	PVMT MK PAINTED 24IN LINE	LF	87.				
130	762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	66.				
131	764	0131	W-BEAM GUARDRAIL	LF	656.				
132	764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	6.				
133	764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	581.				
134	764	2081	REMOVE END TREATMENT & TRANSITION	EA	3.				
135	764	8080	MODIFY BARREL ATTENUATION DEVICE	EA	3.				
136	770	4579	REMOVE PULL BOX	EA	2.				
137	772	0520	FEED POINT-FLASHING BEACON	EA	1.				
138	772	2160	FLASHING BEACON	EA	1.				
139	900	1000	TEMPORARY STREAM DIVERSION	EA	3.				
140	930	8230	SHORING	EA	3.				
141	930	8235	REMOVAL OF SHORING	EA	3.				
142	930	9223	CRACK SEALING	LF	1,600.				
			TOTAL SUM BID						

NOTES

GENERAL NOTES

107-300 CONSTRUCTION TRAFFIC ACCESS: Access areas within the right of way only at interchanges. The Engineer may allow temporary access at other locations.

To obtain temporary access, provide an access plan containing the following information:

- A traffic control plan;
- A traffic impact analysis;
- A safety analysis;
- A COA; and
- An environmental impact analysis.

To be considered for approval, the following minimum conditions must be met in the access plan:

- Construction traffic will not be allowed to cross the interstate median or lanes of traffic being used by the public at grade;
- The access plan must show that there will be methods in place, at all times, to prevent public traffic from using the access;
- A plan to restore the area disturbed by the access, including right of way fences, to preexisting or better condition.

All work necessary to provide the access plan, comply with the plan, and to restore the area to its pre-exiting condition must be completed at no additional cost to the Department.

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.

109-P01 MEASUREMENT OF QUANTITIES: A prismoidal method was used for volume calculations of the earthwork items.

202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removing and salvaging concrete pavement, reinforced concrete pavement, doweled jointed pavement, and approximately 2” aggregate base underneath the concrete.

Do not stockpile concrete chunks, rebar, or fabric on the highway right of way. Include the cost for removal of reinforcing steel in the price bid for “Removal of Pavement.”

The existing continuous reinforcement details are included in the supplemental data.

202-P02 REMOVE AGGREGATE BASE & SURFACING: The existing bituminous pavement thicknesses are averages based on previous construction plans and maintenance data. Actual thicknesses may vary.

202-P03 EXISTING UNDERDRAIN: Remove the existing underdrain system as indicated in the typical sections, including the pipe, aggregate, fabric and headwalls. Include the cost for removal of existing underdrain in the price bid for “Remove Aggregate Base & Surfacing.”

202-P04 REMOVAL OF TEMPORARY BYPASS: Remove the eastbound temporary ramp connections and ramp connection detours when no longer needed to maintain traffic.

This work consists of:

1. Saw cutting the pavement to be removed at the edge of the finished shoulder.
2. Constructing an aggregate slough at the edge of the saw cut.
3. Shaping the median foreslopes to 6:1 and placing topsoil. This includes the topsoil stockpiled in the Interstate median and on the backslope.
4. Removal, hauling, and disposal of all materials.
5. Reshaping existing slopes on ditch blocks as shown on the Ditch Block Detail.

Include all labor and equipment costs for removing, hauling, and disposing off materials, removal and replacement of topsoil, and shaping of median slopes, foreslopes, and ditch block slopes in the unit price bid for “Removal of Temporary Bypass”.

202-P05 REMOVAL OF STRUCTURE-SITE 1: At Station 2122+11, remove the south half of the existing 9’ diameter structural plate pipe with concrete headwall (Structure 0094-162.739), from the median to the outlet (south) end of the structure, with the upper portion of the pipe cut and removed from 3’ south of the median centerline, and the lower portion removed beginning at 1’ north of the median centerline to allow for insertion of the new 84” diameter RCP into the structural plate pipe, as shown in the plans.

After shoring has been installed, excavate to allow removal of the south half of the structural plate pipe and installation of the 84” RCP culvert as shown in the plans.

Provide dewatering if necessary according to site conditions.

Make neat vertical and horizontal cuts in the existing structural plate pipe end to remove the south half of the structure, and to provide for the installation of the new 84” diameter RCP culvert into the end of the structural plate pipe, with a 4’ overlap of the pipes. Remove bedding or soils from under the existing SPP to a depth of 1’ below the proposed 84” RCP, from 2’ north of the median centerline to 1’ south of the median centerline and fill the resulting void with grout as shown in the plans to provide a seal between the lower end of the new RCP and the structural plate pipe. Protect the joint of the 84” diameter RCP from intrusion of grout to allow for future extension of the pipe through the westbound roadway.

Form and fill the void between the new 84” diameter RCP and the structural plate pipe with Class AE-3 concrete, as shown in the plans.

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Include all costs to remove the structural plate pipe with concrete headwall, and to furnish and place grout, and dewatering in the price bid for the item “Removal of Structure – Site 1.”

202-P06 REMOVAL OF STRUCTURE-SITE 2: The existing structural plate pipe with concrete headwall at Station 2236+85 (Structure 0094-164.917) was previously lined by placing 84” diameter and 36” diameter spiral rib corrugated steel pipes through the structure, and filling of the remaining void with grout through the entire length of the structure. Portions of the structural plate pipe floor were also removed, and voids below the invert of the structural plate pipe were filled with grout.

Excavate to remove the south half of the 12’-10” x 8’-4” structural plate pipe, headwall, and liner pipes as shown in the plans. Make neat vertical cuts at the median centerline through the existing structural plate pipe, grout and spiral rib liner pipes to remove the south half of the structure and to provide for the installation of the new 90” diameter RCP culvert.

Provide dewatering if necessary according to site conditions.

Remove bedding, or soils or grout from under the existing SPP to a depth of 6” below the proposed 90” RCP, from 6” north of the median centerline to 6” south of the median centerline. Fill the resulting void with grout as shown in the plans to provide a 1’ wide seal across the joint between the lower end of the new RCP and the structural plate pipe, before setting the 90” RCP pipe section in place to the end of the 84” diameter spiral rib liner pipe. Protect the joint of the 90” diameter RCP from intrusion of grout to allow for future extension of the pipe through the westbound roadway. Place a minimum 6” thick by 1’ wide seal of grout around the joint between the end of the 84” spiral rib liner pipe and the new 90” diameter RCP.

Plug the cut end of the existing 36” diameter spiral rib liner pipe as shown on the concrete pipe plug detail on Standard Drawing D-714-1. Either grout or Class AE-3 concrete may be used to plug this pipe end.

Include all costs to remove the structural plate pipe with headwall, and to furnish and place Class AE-3 concrete or grout, and dewatering in the price bid for the item “Removal of Structure – Site 2.”

202-P07 REMOVAL OF STRUCTURE-SITE 3: At Station 2363+83, remove the south half of the existing 11’ diameter structural plate pipe with concrete headwall, Structure 0094-167.314), from the median to the outlet (south) end of the structure, with the upper portion of the pipe cut and removed from 3’ south of the median centerline, and the lower portion removed beginning at 1’ north of the median centerline to allow for insertion of the new 108” diameter RCP into the structural plate pipe, as shown in the plans.

After shoring has been installed, excavate to allow removal of the south half of the structural plate pipe and installation of the 108” diameter RCP culvert as shown in the plans.

Provide dewatering if necessary according to site conditions.

Make neat vertical and horizontal cuts in the existing structural plate pipe end to remove the south half of the structure, and to provide for the installation of the new 108” diameter RCP culvert into the end of the structural plate pipe, with a 4’ overlap of the pipes. Remove bedding or soils from under the existing SPP to a depth of 1’ below the proposed 108” RCP, from 2’ north of the median centerline to 1’ south of the median centerline and fill the resulting void with grout as shown in the plans to provide a seal between the lower end of the new RCP and the structural plate pipe. Protect the joint of the 108” RCP from intrusion of grout to allow for future extension of the pipe through the westbound roadway.

Form and fill the void between the new 108” RCP and the structural plate pipe with Class AE-3 concrete, as shown in the plans.

Include all costs to remove the structural plate pipe with concrete headwall and to furnish and place grout, and dewatering in the price bid for the item “Removal of Structure – Site 3.”

202-P08 REMOVE FENCE: The number of strands on the existing fence vary along the project and may contain up to five strands of wire. The bottom wires are buried in grass and topsoil in some locations. Remove the posts and wire completely in the locations shown in section 80. Include the cost of all equipment, material, and labor to remove the existing fence in the price bid for “Remove Existing Fence".

203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.

203-P01 SUBGRADE SURFACE TOLERANCE: Construct the final subgrade elevation to within 0.08 feet of the proposed subgrade elevation.

261-P01 PERMANENT FIBER ROLLS: If fiber rolls are to remain on the project, use fiber rolls that are composed of 100 percent bio- or photo-degradable netting that has a life expectancy between 6 to 24 months.

302-115 BASE COURSE: Trim base course as specified in 302.04 C.3, "Surface Tolerance Type C."

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302-P01 HAULING: The shoulder of eastbound I-94 can be used as a haul route. Do not drive on the base course and/or geosynthetic material, except when the haul vehicle is dumping. When dumping, the haul vehicle is allowed to drive on the base course in the immediate vicinity of where the load is dumped.

Repair any subgrade damage from hauling operations per 203.04D. Scarify, shape and compact the damaged subgrade to a depth specified by the Engineer. Re-establish subgrade tolerance per contract requirements prior to placement of the salvaged base course. Repair any base course damage from hauling operations per 302.04B and re-establish base course tolerance per contractor requirements.

Repair any base course or subgrade damage from hauling operations at no additional cost to the Department.

401-P01 TRIMMING AND PRIME: Prime shoulders within one mile or within 48 hours of the trimming operations unless HMA paving is to take place within 24 hours of trimming.

430-P01 MAINTENANCE OF TRAVELED ROADWAY USING HOT MIX ASPHALT: The Contractor will be fully responsible for monitoring the condition of the traveled roadway, crossovers and ramp connections within the limits of the project.

Patch with an approved mix any areas that have subsided more than one inch from the adjacent pavement, any rutting, sponginess and/or breakups as directed by the Engineer. Compact patched areas in accordance with Section 430.04 I.3 of the Standard Specifications. Include all cost of equipment, labor, and materials, including asphalt cement and tack coat in the unit price bid for "Patching".

Provide a traffic control plan that minimizes disruption to traffic. Necessary traffic control devices and flagging will be paid for under the normal contract bid item. Additionally, the contractor will be required to perform an initial inspection of the roadway, used by the traveling public before construction begins, and make all repairs in accordance with the above requirements or as directed by the Engineer.

A quantity of 500 Tons of "Patching" has been provided for this purpose.

430-P02 RAP SUPERPAVE: Incorporate RAP at a rate between 10 and 35 percent of the mix, by weight.

430-P03 SPECIFIED DENSITY: Section 430.04 I.2, calculated density, will apply to mainline shoulder pavement.

550-P01 CONCRETE PAVEMENT: The Department will waive the requirement to place the reinforcing steel, tie bars and dowel bar assemblies a minimum of 2,000 feet ahead of the paving operation as stated in Sections 550.04 B.1 and 550.04 F.2 and allow the use of the roadway as a haul road at the Contractor's request, provided the following conditions are met:

- Repair all damaged areas.
- Provide an additional trimmer in advance of the paving operation.
- Construct the finished surface to within 0.10 feet of the proposed elevation with the first pass of trimming equipment.
- Construct the finished surface to the specified surface tolerance prior to the placement of reinforcing steel, tie bars and dowel bar assemblies.
- Place the reinforcing steel and tie bars on approved supports securely, properly and accurately in advancing of the paving operation.

550-P02 3IN EXPANSION JOINT: Install expansion joints consisting of a pre-compressed polymer impregnated self-expanding polyurethane foam joint seal coated with a silicone surface providing a permanent weather tight seal. The joint seal may be:

1. Wabo FS Bridge Seal (Watson Bowman Acme);
2. BEJS Bridge Expansion Joint System (EMSEAL);
3. Iso-Flex Silfast XL (LymTal International),

Prepare the joint opening and install the joint seal according to the manufacturer's recommendations.

Follow the manufacturer's recommendation for attaching the expansion joint seal to the concrete and for splicing foam together. Install the membrane sealant material into the joint, positioning it with the manufacturer's recommended recess from the top surface of the concrete. Do not stretch or compress the membrane sealant material.

Fabricate and install protection armor angles on each side of the expansion joint as shown in the Sec 20 Details. Galvanize the armor angles according to Section 854.01, "Galvanizing". Splices are permitted. Weld spliced ends. Coat weld splices or damaged coating areas with galvanizing paint according to Section 854.02, "Damaged Galvanized Coatings".

Include all work and materials associated with the expansion joint seal and protection armor angles in the contract unit price of "3 IN Expansion Joint."

550-P03 CONCRETE SLEEPER SLAB: This work consists of constructing a concrete sleeper slab at the location of an expansion joint in the PCC pavement.

Finish the surface of the sleeper slab smooth. Allow the sleeper slab to cure for 24 hours before performing additional work on or adjacent to the slab. Cover the sleeper slab with a double layer of 4 or 6 mil polyethylene sheeting before covering the slab with the concrete roadway.

Include all costs for any excavation, removal of existing sleeper slab, aggregate base, reinforcing steel, labor, and equipment in the contract unit price of "Concrete Sleeper Slab".

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

704-300 FLASHING BEACON: Provide solar powered flashing beacons that meet the requirements of the MUTCD and ITE. Provide beacons that are visible for a distance of 0.25 miles (1,320 feet) and are capable of operating for 20 days without a solar charge.

Include all costs for materials, equipment, labor, and incidentals in the contract unit price for "Flashing Beacon".

704-301 SEQUENCING ARROW PANEL – TYPE C – CROSSOVER: Provide solar powered arrow panels that meet the requirements of the MUTCD and ITE and that are capable of operating for 20 days without a solar charge.

Include all costs for materials, equipment, labor, and incidentals in the contract unit price for "Sequencing Arrow Panel – Type C – Crossover".

704-P01 STATE FURNISHED MEDIAN BARRIER: Obtain (284) 2.5’ x 10’ concrete barriers. They can be picked up and returned to the Casselton yard at 15482 37th St SE in Casselton ND 58012. The hardware can be picked up and returned to the Fargo District yard at 503 38th St S in Fargo ND 58103. Contact the Fargo District office at 701-239-8900 to facilitate the exchanges.

Obtain (80) 2.5’ x 10’ concrete barriers. They can be picked up from the Sterling yard and returned to the New Salem yard. Contact the Bismarck District office at 701-328-6950 to facilitate the exchanges.

Obtain (14) 2.5’ x 10’ concrete barriers. They can be picked up and returned to the Minot District yard at 1305 Hwy 2 Bypass E in Minot ND 58701. Contact the Minot District office at 701-857-6925 to facilitate the exchanges.

If returning barriers with connection components, coordinate the delivery location for the connecting components with the Engineer. Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department.

Include all costs associated with median barriers in the contract unit price for “State Furnished Median Barrier”.

704-P02 OBLITERATION OF PAVEMENT MARKINGS: Obliterate the white centerline marking and white and yellow edge lines at the begin and end project locations where the roadway alignment is changed.

Mask the dashed white centerline markings throughout the two-lane, two-way area, designated for obliteration using removable, non-reflective preformed tape that is approximately the same color as the pavement surface and that overlaps the marking a minimum of 1 inch on each side.

Include the cost of all equipment, material, and labor, including the removal of tape, if used, in the unit price bid for "Obliteration of Pavement Marking."

704-P03 TRAFFIC CONTROL: The traffic control devices list for each phase has been developed using traffic control signing layouts (shown in Section 100 of the plans) and Standard Drawings listed below:

D-704-24, Layouts Type HH, Type S, and Type T for shoulder closure on interstate, work beyond the shoulder, and mobile operation on shoulder.

D-704-35 for outside or inside single lane closures on interstate, for work described in Note 704-P03 for Phases 1A, 1B, 3A, and 3B. Two sign layouts for one lane closure have been provided in the plans.

D-704-45 for construction traffic median crossover under head-to-head traffic.

D-704-49 for construction traffic median crossing.

D-704-57 for installation of new pipe at RP 162.739, RP 164.917, and RP 167.314. Layouts for two locations have been provided in the plans.

The Department will pay for all necessary devices, regardless of the length of the lane closure.

704-P04 TRAFFIC CONTROL PHASING: The Contractor is responsible for removing and resetting devices for each phase of construction. The cost associated with removing and resetting each traffic control device is included in the price bid for the respective traffic control device. The traffic control details, as indicated in the plans, have been developed based on the premise that this project will be constructed as follows.

The construction phasing plan is listed below.

<u>Phase 1A:</u> Close the outside westbound lane of I-94.

- Install temporary guardrail at Apple Creek Bridge and Menoken Interchange as shown in the plans.

<u>Phase 1B:</u> Close the inside westbound lane of I-94.

- Rotate existing median pier protection at Gibbs Separation, Apple Creek Separation, and Menoken Interchange.
- Install temporary guardrail at Apple Creek Bridge as shown in the plans.
- Obliterate existing pavement marking and install new temporary traffic control pavement marking.

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Phase 2: Close eastbound I-94, implement head-to-head traffic on westbound I-94.

- Activate the temporary ramp connections and median crossovers for the reconstruction of eastbound I-94.
- Reconstruct eastbound mainline I-94 and ramp connections at Apple Creek Rest Area and Menoken Interchange.
- Install new pipe at RP 162.739, RP 164.917, and RP 167.314.
- Install new eastbound approach slabs at Apple Creek Bridge.
- Complete 9” PCC surfacing of truck parking area and 2” mill and HMA overlay and pavement markings at Apple Creek Rest Area.
- Install pavement marking on eastbound I-94.
- Modify existing median pier protection at Gibbs Separation, Apple Creek Separation, and Menoken Interchange to permanent configuration.

Phase 3A: Return eastbound I-94 traffic to its normal flow.

- Close the inside lanes of westbound and eastbound I-94.
- Install flexible delineators at the west and east median crossovers.
- Remove temporary guardrail and end terminals at Apple Creek Bridge.
- Remove eastbound temporary ramp connections in southwest and southeast quadrants at Menoken Interchange within the interstate median.
- Construct portion of temporary ramp connection in interstate median for northwest and northeast quadrants of Menoken Interchange (for future I-94 WB reconstruction project).

Phase 3B: Close the outside lanes of westbound and eastbound I-94.

- Remove temporary guardrail and end terminals at Apple Creek Bridge and Menoken Interchange.
- Remove eastbound temporary ramp connections in southwest and southeast quadrants at Menoken Interchange within the infield areas.
- Construct portion of temporary ramp connection within infield areas for northwest and northeast quadrants of Menoken Interchange (for future I-94 WB reconstruction project).
- Install flexible delineators at the temporary ramp connections.

Install pavement marking on westbound I-94.
Install pavement marking on eastbound I-94.

704-P05 MEDIAN CROSSOVER AND RAMP CONNECTIONS REMOVAL: For exiting and entering median when removing ramp connections and median crossovers, use standard drawing D-704-49 in conjunction with one lane closures. If trucks will be entering or exiting roadway from the 10 foot shoulder, Trucks Entering Highway (W8-53-48) or Trucks Exiting Highway (W8-56-48) signs should be used respectively. Scrapers will not be allowed on Interstate roadway with public traffic.

704-P06 FLEXIBLE DELINEATORS: Salvage the 121 existing flexible delineators located at the existing double median crossovers and ramp connections. Remove just prior to changing traffic flow and salvage for reuse after the eastbound roadway reconstruction and the construction of the new temporary ramp connections in preparation for future westbound I-94 reconstruction.

Upon completion of the eastbound reconstruction project, reset flexible delineators at 5’ spacing block off the median crossovers and ramp connections.

Include the cost for removing, salvaging, and resetting the existing 121 flexible delineators in the contract unit price bid for “Flexible Delineators” that will be set.

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Minimum total area of 800 square feet
2. Indoor bathroom facilities and supplies with weekly cleaning services
3. Hookups for heat, electricity, sewer, and potable water.
4. Minimum cabinet space of 32 cubic feet
5. Minimum counter space of 40 square feet
6. Air conditioner with a minimum of 20,000 BTUs
7. Lighting with a minimum of 110 foot-candles
8. DSL broadband internet and a router that broadcasts Wi-Fi and will allow for hard wiring of a computer.
9. Photocopy/Printer with scanning capabilities capable of 11x17 photocopies and toner to last the duration of the project. Other features to include digital copying and scanning. Copier/printer machine with operating software compatible with that used by the NDDOT.

Place the field office on the project, or as close to the project as possible. The Contractor is responsible for furnishing the office equipment and for the pay for the following:

- Rental fees;
- Heating;
- Electrical;
- Sewer, and
- Potable water.

Make the field office available for occupancy one week before the start of the project. The Engineer will approve the location and the condition of the office. Do not remove the field office until the Engineer releases the field office.

All requirements of the Field Office are subject to approval by the Engineer. Include the costs for the field office in the bid item "Field Office".

Schedule for Payments:
25% when set up on site.
50% when 30% of the work is complete.
75% when 60% of the work is complete.
100% when project is complete.

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710-P01 INTERCHANGE RAMP CONNECTION DETOURS: Route public ramp traffic around gap paving areas with ramp connection detours during the gap reconstruction and paving at ramp connections. Include all costs for embankment, salvaged base course, drainage items, and water to construct and maintain ramp connection detours in the unit price bid for “Temporary Bypass.”

714-P01 PIPE WORK: Provide dewatering for pipe culvert installations if necessary according to site conditions. Include all costs associated with dewatering in the price bid for pipe installation.

714-P02 PIPE CONDUIT 66IN: At Station 2110+07, remove the south half of the existing 72” diameter RCP beginning at approximately 7 feet north of the median centerline (measured along the centerline of the skewed culvert). Make a neat vertical saw cut to allow for removal of the pipe, and to allow for installation of the 66” RCP. Provide a temporary connection consisting of a minimum thickness of 12 inches of grout around the ends of the 72” and 66” diameter pipe ends. Form as necessary and protect the female joint of the 66” pipe end to prevent intrusion of grout into the joint.

Include the cost for saw cutting the existing 72” RCP in the price bid for the item “Removal of Pipe All Types and Sizes.” Include all costs for forming and placing grout around the pipe ends in the price bid for the item “Pipe Conduit 66IN.”

714-P03 CULVERT VERTICAL BEND SECTIONS: Install culverts at the locations described below with a minimum 4’ long precast vertical bend section as shown in the plans. Locations and invert elevations of these installations have been noted on the cross sections.

Station	Pipe Diameter (Inches)	Vertical Deflection Angle (Degrees)
2131+27 Lt	30”	7.5
2177+54 Lt	30”	7.5

Include all costs for materials, equipment and labor to install the vertical bend pipe sections as described above in the price bid for the item “Pipe Conduit 30IN.”

714-P04 TEMPORARY PRECAST CULVERT STOPPERS: Install precast concrete caps (to male pipe ends) and plugs (to female ends) of RCP culverts at the left (median) end of the pipes at locations described below, which will be backfilled and remain in place until the westbound roadway is reconstructed. Manufacture the precast caps and plugs to be suitable for the height of fill associated with the class of RCP.

Station	Pipe Diameter (In.)	RCP Class	Stopper Type
2214+99	36”	III	Cap
2257+21	36”	III	Plug
2264+77	36”	III	Plug
2287+75	36”	III	Plug
2321+03	30”	III	Cap
2333+03	30”	III	Cap
2394+76	30”	III	Plug

Include all costs for labor, materials, and equipment to furnish and install the precast concrete caps and plugs in the unit prices bid for the items “Pipe Conduit 30IN” and “Pipe Conduit 36IN.”

714-P05 EDGEDRAIN SYSTEM: The edgedrain system consists of fabric wrapped 4” drainage pipe placed in a trench and backfilled with Class 43 aggregate. All work and materials required to install the edgedrain system, including outlet connections and discharge pipe, include all costs in the unit price bid for “EDGEDRAIN NON PERMEABLE BASE”.

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754-P01 REMOVE SIGNS & SUPPORTS: Remove and dispose of all existing telescoping perforated tube, w-shape post supports, signs and extruded aluminum sign panels. Salvage and deliver the existing round pipe supports to the NDDOT Bismarck District Yard, 218 Airport Road, Bismarck, ND. Contact the Bismarck District 24 hours prior to delivery at 701-328-6950. Include all costs associated with the removal and delivery of the sign panels and supports in the price bid for the item “Remove Sign Foundation.”

754-P02 DELINEATOR-TYPE A-SINGLE SIDED: Provide 3” x 9” reflectors on delineator posts. Install Delineators-Type A as shown in the signing plans. The NDDOT currently owns a stockpile of Type A delineator posts and white reflectors at the Bismarck District Yard. Obtain the delineators at the NDDOT Bismarck District Yard, 218 Airport Road, Bismarck, ND. Provide new yellow reflectors and fastening hardware.

At least two weeks before obtaining the stockpiled materials, notify the Engineer and contact Larry Gangl, (District Engineer) of the date that the materials will be obtained. Contact the District Office at 701-328-6950. Notify the District staff 24 hours in advance to verify the time of pickup. Before obtaining materials, perform an inventory of materials to be received with the district staff, and document the results. Both parties must sign and date the inventory. Each party must retain a signed copy of the inventory. Provide necessary equipment to load and deliver the materials to the project work site. Include all costs for this described work in the contract unit price bid for “DELINEATOR-TYPE A-SINGLE SIDED”

754-P03 DELINEATORS: Remove the existing delineators within the I-94 project limits. Furnish and install new delineators per plans. Include the cost for removal and disposal of the delineators in the price bid for “Delineators-Type_”.

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.

770-P01 REMOVAL OF PULL BOX: There is an existing weigh in motion site (WIM) located at RP 165.0. NDIT will disconnect the roadway sensors at the pull box prior to construction. Remove two pull boxes and cap the associated conduit at the pull box locations. Contact the Project Engineer two weeks prior to working in area. Project Engineer will contact NDIT at 701-328-6973 to coordinate the disconnecting of the roadway sensors. Include all costs for this described work in the contract unit price bid for “Remove Pull Box”.

772-P01 FEED POINT – FLASHING BEACON: This pay item is for the installation of the new control switch, flasher cabinet, work within the rest area building, bollards, concrete pad, mounting structures, and all associated basic electrical materials as shown on the detail drawings.

772-P02 FLASHING BEACON: This pay item is for the installation of the new Flashing Beacons and all related conduit, conductor, hardware, confirmation light, and other incidental items mounted to the new sign structure. The Flasher Cabinet/Beacons are to be wired so the flashing beacons become activated once the switch at the rest area is turned on. The confirmation light is also to turn on to indicate beacons are operational and is to be aimed as directed in the field.

930-P01 SHORING: Obtain the services of a registered professional engineer to design shoring for the excavations to remove the south half of the existing 72” diameter RCP culvert at Station 2110+07, the south half of the 9’ diameter structural plate pipe (Structure 0094-162.739) at Station 2122+11, and the south half of the existing 11’ diameter structural plate pipe (Structure 0094-167.314) at Station 2363+83.

Design the shoring systems to allow for excavation of the eastbound roadway and removal of the south half of the 72” diameter RCP and south half of the structural plate pipes, and installation of the 66” diameter, 84” diameter and 108” diameter RCP centerline culverts as shown in the plans.

At Station 2110+07, the proposed 66” diameter RCP will be installed with a riser and median drain at the median centerline. Install shoring as necessary approximately 7’ north of the median centerline to allow for the removal of the 72” diameter RCP, and for installation of a 6’ long 66” diameter median drain tee section, and a 4’ section of 66” RCP.

Remove all shoring after culvert installations have been completed.

Submit design calculations and working drawings for each of the shoring installations to the Engineer for review.

Include all costs for design, materials, equipment and labor to install the shoring in the price bid for the item “Shoring.” Include all costs for removal of shoring in the price bid for the item “Removal of Shoring.”

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		ND	IM-X-1-094(214)162	8	1

Estimated Quantities

Mainline:

SPEC	CODE	ITEM DESCRIPTION	UNIT					TOTAL
103	0100	CONTRACT BOND	L SUM	1				1
109	1000	E-TICKETING	L SUM	1				1
201	0330	CLEARING & GRUBBING	L SUM	1				1
202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	110166				110166
202	0108	REMOVAL OF STRUCTURE-SITE 1	L SUM	1				1
202	0109	REMOVAL OF STRUCTURE-SITE 2	L SUM	1				1
202	0110	REMOVAL OF STRUCTURE-SITE 3	L SUM	1				1
202	0111	REMOVAL OF CONCRETE	L SUM	1				1
202	0130	REMOVAL OF CURB & GUTTER	LF	70				70
202	0136	REMOVAL OF PAVEMENT	TON	60850				60850
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	3420				3420
202	0237	REMOVAL OF MEDIAN DRAIN PRECAST CONCRETE	EA	3				3
202	0312	REMOVE EXISTING FENCE	LF	53533				53533
202	0350	REMOVAL OF TEMPORARY BYPASS	EA	4				4
203	0101	COMMON EXCAVATION-TYPE A	CY	79935				79935
203	0109	TOPSOIL	CY	59034				59034
203	0140	BORROW-EXCAVATION	CY	2537				2537
216	0100	WATER	M GAL	3895				3895
220	0100	PREPARE STOCKPILE SITE	L SUM	1				1
220	0200	RESTORE STOCKPILE SITE	L SUM	1				1
251	0200	SEEDING CLASS II	ACRE	112.7				112.7
251	2000	TEMPORARY COVER CROP	ACRE	112.8				112.8
253	0061	SOIL STABILIZATION	ACRE	225.5				225.5
255	0103	ECB TYPE 3	SY	5305				5305
256	0100	RIPRAP GRADE I	CY	315				315
256	0200	RIPRAP GRADE II	CY	161				161
256	0300	RIPRAP GRADE III	CY	195				195
260	0100	SILT FENCE UNSUPPORTED	LF	3664				3664
260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	3664				3664
261	0112	FIBER ROLLS 12IN	LF	39230				39230
261	0113	REMOVE FIBER ROLLS 12IN	LF	18822				18822
302	0100	SALVAGED BASE COURSE	TON	141394				141394
401	0050	TACK COAT	GAL	2619				2619
401	0060	PRIME COAT	GAL	11508				11508
411	0114	MILLING PAVEMENT SURFACE - 2 INCH	SY	6034				6034
430	0143	RAP - SUPERPAVE FAA 43	TON	10772				10772
430	1000	CORED SAMPLE	EA	118				118
430	2000	PATCHING	TON	500				500
430	5815	PG 58S-34 ASPHALT CEMENT	TON	382				382
550	0112	8IN NON-REINF CONCRETE PAVEMENT CL AE	SY	1008				1008
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	185002				185002
550	1013	3 IN EXPANSION JOINT	LF	74				74
550	1031	CONCRETE SLEEPER SLAB	SY	50				50
602	1130	CLASS AE-3 CONCRETE	CY	4.1				4.1
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	164.4				164.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	940				940
602	2105	CURB REPAIR	SF	50				50

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SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
602	7000	SPECIAL SURFACE FINISH	SF	1045				1045
624	3001	DOUBLE BOX BEAM RAIL RETROFIT-FREE STANDING	LF	392				392
624	3005	CONNECTION PLATE MODIFICATION	EA	2				2
702	0100	MOBILIZATION	L SUM	1				1
704	0100	FLAGGING	MHR	3300				3300
704	1000	TRAFFIC CONTROL SIGNS	UNIT	6803				6803
704	1045	ATTENUATION DEVICE-TYPE B-75	EA	10				10
704	1052	TYPE III BARRICADE	EA	52				52
704	1060	DELINEATOR DRUMS	EA	240				240
704	1067	TUBULAR MARKERS	EA	368				368
704	1070	DELINEATOR	EA	195				195
704	1072	FLEXIBLE DELINEATORS	EA	609				609
704	1081	VERTICAL PANELS-BACK TO BACK	EA	6				6
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	4				4
704	1088	SEQUENCING ARROW PANEL-TYPE C-CROSSOVER	EA	2				2
704	1090	FLASHING BEACON	EA	2				2
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	7892				7892
704	3511	STATE FURNISHED MEDIAN BARRIER	LF	3780				3780
704	8015	VEHICLE SPEED FEEDBACK SIGN	EA	2				2
706	0400	FIELD OFFICE	EA	1				1
706	0500	AGGREGATE LABORATORY	EA	1				1
706	0550	BITUMINOUS LABORATORY	EA	1				1
706	0600	CONTRACTOR'S LABORATORY	EA	1				1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	321167				321167
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	1081				1081
710	0100	TEMPORARY BYPASS	EA	2				2
714	3150	HEADWALL-PRECAST CONCRETE 4IN	EA	76				76
714	4090	PIPE CONDUIT 12IN	LF	256				256
714	4095	PIPE CONDUIT 15IN	LF	356				356
714	4105	PIPE CONDUIT 24IN	LF	1210				1210
714	4110	PIPE CONDUIT 30IN	LF	1416				1416
714	4115	PIPE CONDUIT 36IN	LF	1290				1290
714	4120	PIPE CONDUIT 42IN	LF	240				240
714	4140	PIPE CONDUIT 66IN	LF	154				154
714	4155	PIPE CONDUIT 84IN	LF	158				158
714	4160	PIPE CONDUIT 90IN	LF	106				106
714	4172	PIPE CONDUIT 108IN	LF	165				165
714	4229	PIPE CONDUIT ARCH 58IN X 36IN	LF	89				89
714	9630	RELAY END SECTION-ALL TYPES & SIZES	EA	1				1
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	12				12
714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	21332				21332
720	0110	RIGHT OF WAY MARKERS	EA	7				7
720	0125	ALIGNMENT MONUMENTS	EA	7				7
720	0130	IRON PIN R/W MONUMENTS	EA	2				2
720	0135	IRON PIN REFERENCE MONUMENTS	EA	10				10
722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A	EA	3				3
748	0140	CURB & GUTTER-TYPE I	LF	70				70

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
748	0141	CURB & GUTTER-TYPE 1 SPECIAL	LF	20				20
750	0115	SIDEWALK CONCRETE 4IN	SY	69				69
750	2115	DETECTABLE WARNING PANELS	SF	40				40
752	0300	FENCE BARBED WIRE 4 STRAND-WOOD POST	LF	51752				51752
752	0600	FENCE CHAIN LINK	LF	1302				1302
752	0993	FENCE TERMINAL	EA	4				4
752	2100	VEHICLE GATE	EA	5				5
752	2120	REMOVE VEHICLE GATE	EA	5				5
752	2995	CORNER ASSEMBLY-WOOD POST	EA	32				32
752	3100	CORNER ASSEMBLY CHAIN LINK	EA	4				4
752	3995	DOUBLE BRACE ASSEMBLY-WOOD POST	EA	43				43
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	89				89
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	52				52
754	0154	DELINEATORS-TYPE A-SINGLE SIDED	EA	102				102
754	0160	DELINEATORS-TYPE B	EA	40				40
754	0166	DELINEATORS-TYPE E	EA	12				12
754	0168	DELINEATORS-TYPE D	EA	9				9
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	215				215
754	0210	GALV STEEL POST-STANDARD PIPE	LF	116				116
754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	520				520
754	0530	PANEL FOR SIGNS-TYPE XI REFLECTIVE SHEETING	SF	62				62
754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	794				794
754	0557	INTERSTATE MILE POSTS-TYPE C	EA	10				10
754	0805	OBJECT MARKERS - CULVERTS	EA	82				82
754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	4				4
754	1104	REMOVE SIGN FOUNDATION	EA	26				26
760	0021	SINUSOIDAL RUMBLE STRIP - CONCRETE SHOULDER	MILE	19.492				19.492
762	0113	EPOXY PVMT MK 4IN LINE	LF	2624				2624
762	0114	EPOXY PVMT MK 6IN LINE	LF	3837				3837
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	4186				4186
762	0134	EPOXY PVMT MK 12IN LINE-GROOVED	LF	49				49
762	0200	RAISED PAVEMENT MARKERS	EA	22799				22799
762	0422	SHORT TERM 6IN LINE-TYPE R	LF	7210				7210
762	1106	PVMT MK PAINTED 6IN LINE	LF	283818				283818
762	1124	PVMT MK PAINTED 24IN LINE	LF	87				87
762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	66				66
764	0131	W-BEAM GUARDRAIL	LF	656				656
764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	6				6
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	581				581
764	2081	REMOVE END TREATMENT & TRANSITION	EA	3				3
764	8080	MODIFY BARREL ATTENUATION DEVICE	EA	3				3
770	4579	REMOVE PULL BOX	EA	2				2
772	0520	FEED POINT-FLASHING BEACON	EA	1				1
772	2160	FLASHING BEACON	EA	1				1
900	1000	TEMPORARY STREAM DIVERSION	EA	3				3
930	8230	SHORING	EA	3				3
930	8235	REMOVAL OF SHORING	EA	3				3

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Estimated Quantities

Mainline:

SPEC	CODE	ITEM DESCRIPTION	UNIT					TOTAL
930	9223	CRACK SEALING	LF	1600				1600

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Typical Section 1				Typical Section 2 (4.2% SE)		Typical Section 3 (3.3% SE)		Typical Section 4 (2.3% SE)		Typical Section 5 Widening for ramps	
Stations			# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta
2103+61	to	2121+22	17.610	2121+22 to 2147+13	25.910	2261+03 to 2270+85	9.820	2293+56 to 2310+65	17.090	2408+35 to 2415+60	7.250
2147+13	to	2261+03	113.900							2434+13 to 2444+25	10.120
2270+85	to	2293+56	22.710							2517+19 to 2524+44	7.250
2310+65	to	2400+33	89.680							2541+28 to 2549+85	8.570
2415+60	to	2434+13	18.530								
2444+25	to	2517+19	72.940								
2524+44	to	2529+23	4.790								
2532+62	to	2541+28	8.660								
2549+85	to	2618+21	68.360								
Total Stations =			417.18	Total Stations =	25.91	Total Stations =	9.82	Total Stations =	17.09	Total Stations =	33.19

Material	Unit	Typical Section 1 Area (SF) or Width (LF)	Typical Section 1 Quantity per Station	Typical Section 2 Area (SF) or Width (LF)	Typical Section 2 Quantity per Station	Typical Section 3 Area (SF) or Width (LF)	Typical Section 3 Quantity per Station	Typical Section 4 Area (SF) or Width (LF)	Typical Section 4 Quantity per Station	Typical Section 5 Area (SF) or Width (LF)	Typical Section 5 Quantity per Station
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Ton	38.05	264.24	39.58	274.86	39.10	271.53	37.43	259.93	23.86	165.69
401 0050 TACK COAT @ 0.05 Gal/SY (1)	Gal	8.30	4.61	8.30	4.61	8.30	4.61	8.30	4.61	-	-
401 0060 PRIME @ 0.25 Gal/SY	Gal	8.60	23.89	8.60	23.89	8.60	23.89	8.60	23.89	-	-
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton	2.77	20.52	2.77	20.52	2.77	20.52	2.76	20.44	-	-
430 5815 PG 58S-34 ASPHALT CEMENT @ 3.5%	Ton		0.72		0.72		0.72		0.72	-	-
550 0305 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	30.00	333.33	30.00	333.33	30.00	333.33	30.00	333.33	30.00	333.33
709 0100 GEOSYNTHETIC MATERIAL TYPE G	SY	55.00	611	55.00	611	55.00	611	55.00	611	38.00	422

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Typical Section 6 Ramp Connections				Typical Section 7 Guardrail Widening (see 10-2 for add quantities)		Typical Section 8 Guardrail Widening (see 10-2 for add quantities)		Typical Section 9 Guardrail Widening		Typical Section 10 Guardrail Widening (see 10-2 for add quantities)	
Stations			# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta
8+83	to	9+73	0.900	2400+33 to 2401+14	0.810	2401+14 to 2403+95	2.810	2406+30 to 2408+35	2.050	2529+23 to 2532+62	3.390
27+64	to	28+09	0.450								
8+04	to	9+25	1.210								
8+60	to	9+05	0.450								
Total Stations =			3.01	Total Stations =	0.81	Total Stations =	2.81	Total Stations =	2.05	Total Stations =	3.39

Material	Unit	Typical Section 6 Area (SF) or Width (LF)	Typical Section 6 Quantity per Station	Typical Section 7 Area (SF) or Width (LF)	Typical Section 7 Quantity per Station	Typical Section 8 Area (SF) or Width (LF)	Typical Section 8 Quantity per Station	Typical Section 9 Area (SF) or Width (LF)	Typical Section 9 Quantity per Station	Typical Section 10 Area (SF) or Width (LF)	Typical Section 10 Quantity per Station
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Ton	23.44	162.78	37.10	257.64	31.65	219.79	32.82	227.92	38.05	264.24
401 0050 TACK COAT @ 0.05 Gal/SY (1)	Gal		-	8.30	4.61	-	-	-	-	8.30	4.61
401 0060 PRIME @ 0.25 Gal/SY	Gal		-	8.60	4.78	-	-	-	-	8.60	4.78
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton		-	2.76	20.44	-	-	-	-	-	-
430 5815 PG 58S-34 ASPHALT CEMENT @ 3.5%	Ton		-	-	0.72	-	-	-	-	-	-
550 0305 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	24.00	266.67	30.00	333.33	38.00	422.22	38.00	422.22	30.00	333.33
709 0100 GEOSYNTHETIC MATERIAL TYPE G	SY	33.00	367	55.00	611	57.00	633	55.00	611	55.00	611

Basis of Estimate

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.10.31 14:09:08 -05'00'
NORTH DAKOTA

Revised 10/30/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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		I-94					
		Addl qty for guardrail widening at obstruction (D-764-23)	Addl qty for decal lane widening	Addl qty for accel lane widening	Addl qty for decal lane widening	Addl qty for accel lane widening	Addl qty for Rest Area Parking Lot
		Stations	Stations	Stations	Stations	Stations	Stations
		Sta 2400+33 to 2403+95	Sta 2408+35 to 2415+60	Sta 2434+13 to 2444+25	Sta 2517+19 to 2524+44	Sta 2541+28 to 2549+85	Sta 16+75 to 23+18
		Sta 2529+23 to 2532+62					
Material	Unit	Total Quantity	Total Quantity	Total Quantity	Total Quantity	Total Quantity	Total Quantity
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Ton	438	943	1335	944	1089	
401 0060 PRIME @ 0.25 Gal/SY	Gal	260					
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton	115					
430 5815 PG 58S-34 ASPHALT CEMENT @ 3.5%	Ton	7					
550 0305 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY		1561	2207	1562	1788	5901
709 0100 GEOSYNTHETIC MATERIAL TYPE G	SY		2203	3103	2197	2541	

Summary Table (1 of 3): Mainline Paving Tables		
Material	Unit	Total
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Ton	137,393
401 0050 TACK COAT @ 0.05 Gal/SY (1)	Gal	2,186
401 0060 PRIME @ 0.25 Gal/SY	Gal	11,508
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton	9,775
430 5815 PG 58S-34 ASPHALT CEMENT @ 3.5%	Ton	346
550 0305 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	185,002
709 0100 GEOSYNTHETIC MATERIAL TYPE G	SY	317,923

Summary Table (2 of 3): Subtotals from Section 20		
Material	Unit	Total
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Ton	50
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton	3

Summary Table (3 of 3): Subtotals from Section 90		
Material	Unit	Total
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Gal	1,853
401 0050 TACK COAT	Gal	433
411 0114 MILLING PAVEMENT SURFACE - 2 INCH	SY	6,034
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton	994
430 5815 PG 58S-34 ASPHALT CEMENT @ 3.5%	Ton	36
550 0112 8IN NON-REINF CONCRETE PVMT CL AE	SY	1,008
709 0100 GEOSYNTHETIC MATERIAL TYPE G	SY	778

Cumulative Paving Summary Table: Summation of Summary Tables 1-3		
Material	Unit	Total
302 0100 SALVAGED BASE COURSE @ 1.875 Ton/CY	Ton	139,296
401 0050 TACK COAT @ 0.05 Gal/SY (1)	Gal	2,619
401 0060 PRIME @ 0.25 Gal/SY	Ton	11,508
411 0114 MILLING PAVEMENT SURFACE - 2 INCH	SY	6,034
430 0143 RAP-SUPERPAVE FAA 43 @ 2 Ton/CY	Ton	10,772
430 5815 PG 58S-34 ASPHALT CEMENT @ 3.5%	Ton	382
550 0112 8IN NON-REINF CONCRETE PVMT CL AE	SY	1,008
550 0305 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	185,002
709 0100 GEOSYNTHETIC MATERIAL TYPE G	SY	318,701

Salvaged Aggregate Summary			
	SY	TON	TON
Milling Pavement Surface	6,034	670	
Removal of Aggregate Base & Surfacing		110,163	
Removal of Pavement		60,843	
Subtotal		171,676	
5% Less for Crushing and Handling		8,584	
Total Salvaged Material Available			163,092
Total Salvaged Base Course needed		139,296	
Total Salvaged Material needed for 100% blend			139,338
Total Salvage need for RAP-SUPERPAVE 43 (35% Maximum)			3,770
Salvage Material Excess			19,984

Note: This is not a balance sheet. The contractor must balance their own materials. Material may not be available when needed.

Removals	
Asphalt Pavement	2.0 Ton/CY
Concrete Pavement	2.0 Ton/CY
Aggregate Base	1.875 Ton/CY

Basis of Estimate

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.10.31 14:09:22 -05'00'
NORTH DAKOTA

Revised 10/30/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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754 0805 OBJECT MARKERS - CULVERTS		
Alignment	Station	EA
EX94EB	2110+07	1
	2119+38	2
	2122+11	1
	2131+27	2
	2140+17	2
	2140+27	2
	2153+64	2
	2153+74	2
	2177+54	2
	2214+84	1
	2214+99	1
	2215+09	1
	2227+10	2
	2236+85	1
	2239+60	2
	2249+11	2
	2257+11	1
	2257+21	1
	2264+67	1
	2264+77	1
	2287+65	1
	2287+75	1
	2294+26	2
	2294+36	2
	2321+13	1
	2333+03	1
	2333+13	1
	2353+13	2
	2363+71	1
	2366+47	2
	2375+18	1
	2385+13	2
	2394+76	1
	2394+86	1
	2401+88	2
	2407+52	2
	2413+12	1
	2426+12	2
	2439+11	2
	2448+12	2
	2468+12	2
	2476+12	1
	2500+14	1
	2508+13	2
	2519+12	2
	2534+13	2
	2547+14	2
	2566+16	2
	2576+15	2
	2586+08	2
MNW	10+52 - 11+60	2
MNE	32+14 - 30+94	2
Total:		82

Note: Refer to Standard Drawing D-754-83

430 1000 CORED SAMPLE										
				A	B		C			
Specification Section	Location	Begin Station	End Station	Distance (Ft) /1000	Lanes	Joints	Lifts	Quantity (A * B * C)	Quantity (1 per mile)	Unit
430.04 I.2.b(2), "Pavement Density Cores"										
Rest Area	RP 168.469	9+75	27+60	2	2	N/A	1	4	N/A	EA
HMA Mainline Shoulder		2103+61	2618+21	51	1	N/A	2	102		
SSP 4 Longitudinal Joint Density in HMA Pavments (Centerline)										
Rest Area	RP 168.469	9+75	27+60	2	N/A	1	1	2	N/A	EA
430.04 I.2.b(3), "Pavement Thickness Determination Cores"										
HMA Mainline Shoulder		2103+61	2618+21	N/A	N/A	N/A	N/A	N/A	10	EA
							Subtotal:	108	10	EA
							Total:	118		EA

714 9696 EDGEDRAIN NON PERMEABLE BASE		
Begin Station	End Station	Quantity (LF)
2103+61	2210+27	21,332
	Total:	21,332

Delineators			
Item	Unit	subtotal	Total
754 0154 DELINEATOR -TYPE A-SINGLE SIDED (White)	EA	102	102
754 0160 DELINEATOR - TYPE B (White)	EA	24	40
754 0160 DELINEATOR - TYPE B (Yellow)	EA	16	
754 0166 DELINEATOR - TYPE E (White) (From Section 110)	EA	12	12
754 0168 DELINEATOR - TYPE D (White)	EA	6	9
754 0168 DELINEATOR - TYPE D (Yellow)	EA	3	

760 0021 SINUSOIDAL RUMBLE STRIP - CONCRETE SHOULDER			
Begin Station	End Station	Basis	Quantity (Mile)
2103+61	2618+21	10,560 LF/Mile	19.492
		Total:	19.492 Mile

216 0100 WATER			
Material	Basis	Basis Quantity	Quantity (MGAL)
Dust Palliative	25 MGal/Mile	10 Mile	243
Embankment	10 Gal/CY	82,472 CY	825
Aggregates	20 Gal/Ton	139,296 Ton	2,786
		Total:	3,853 MGal

714 3150 HEADWALL-PRECAST CONCRETE 4IN			
Median (Lt Ditch)		Right Ditch	
Station	Station	Station	Station
2123+41	2170+90	2123+41	2170+90
2125+90	2175+90	2125+90	2175+90
2128+40	2178+40	2128+40	2178+40
2130+90	2180+90	2130+90	2180+90
2133+40	2183+40	2133+40	2183+40
2135+90	2185+90	2135+90	2185+90
2138+40	2188+40	2138+40	2188+40
2140+90	2190+90	2140+90	2190+90
2143+40	2193+40	2143+40	2193+40
2145+90	2195+90	2145+90	2195+90
2148+40	2198+40	2148+40	2198+40
2150+90	2200+90	2150+90	2200+90
2153+40	2203+40	2153+40	2203+40
2155+90	2205+90	2155+90	2205+90
2158+40	2208+40	2158+40	2208+40
2160+90	2210+90	2160+90	2210+90
2163+40	2213+40	2163+40	2213+40
2165+90	2215+90	2165+90	2215+90
2168+40	2219+15	2168+40	2219+15
		Total:	76

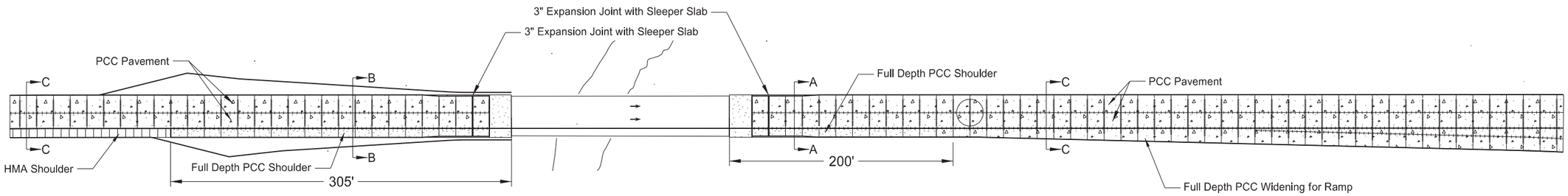
Basis of Estimate

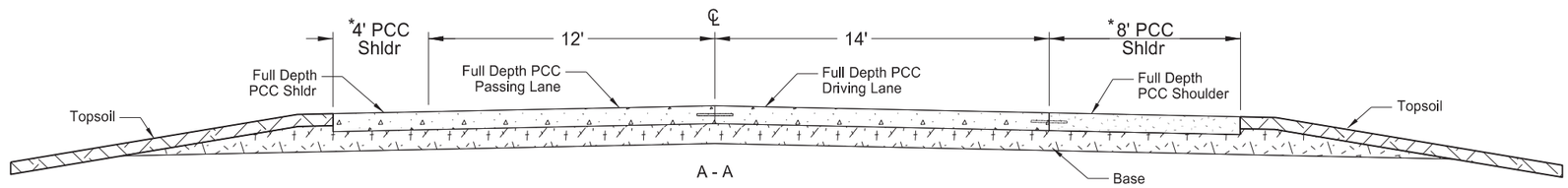
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

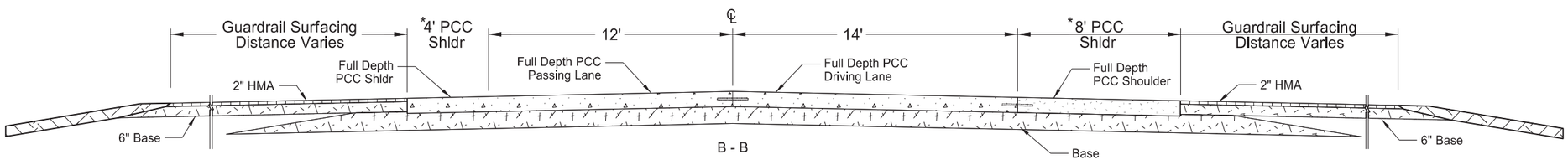
REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.10.31 14:09:35 -05'00'
NORTH DAKOTA

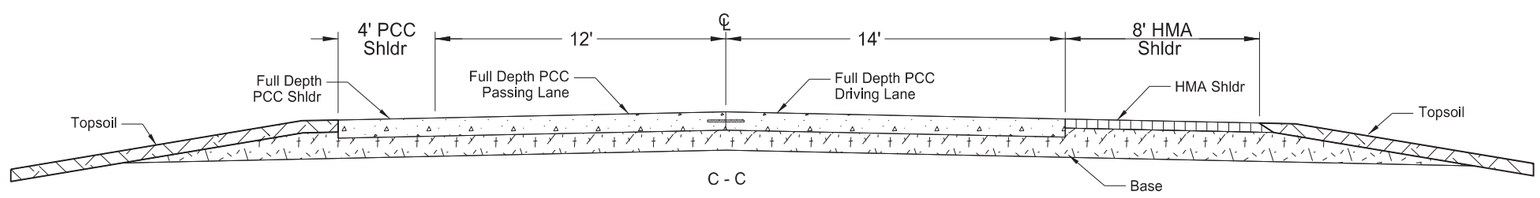
Revised 10/30/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	20	2





* See sheet 90-2 for shoulder width transition





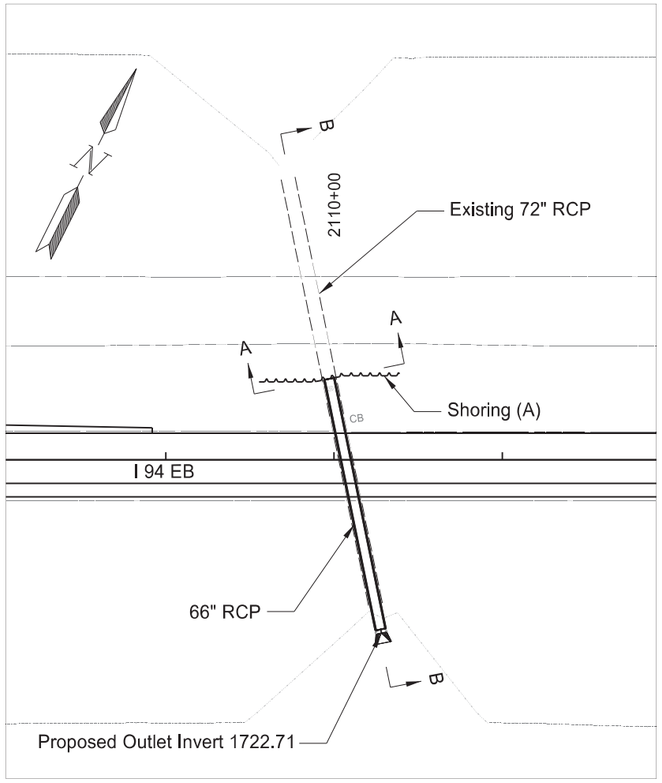
Interstate Paving at Bridge Ends Detail

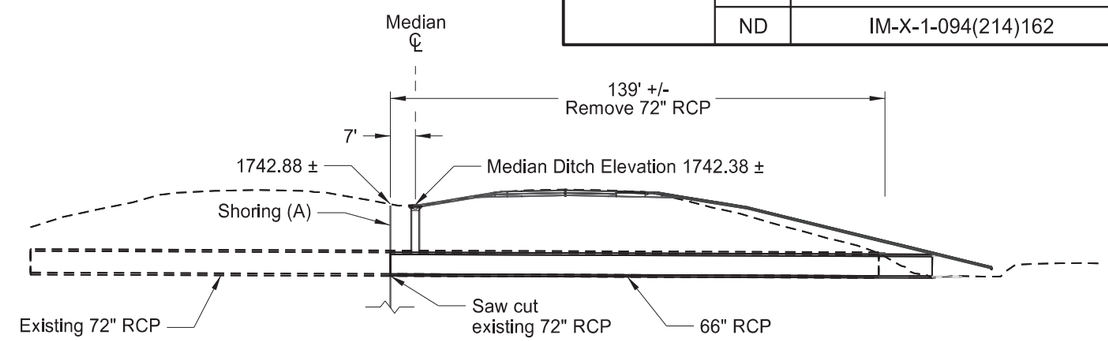
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

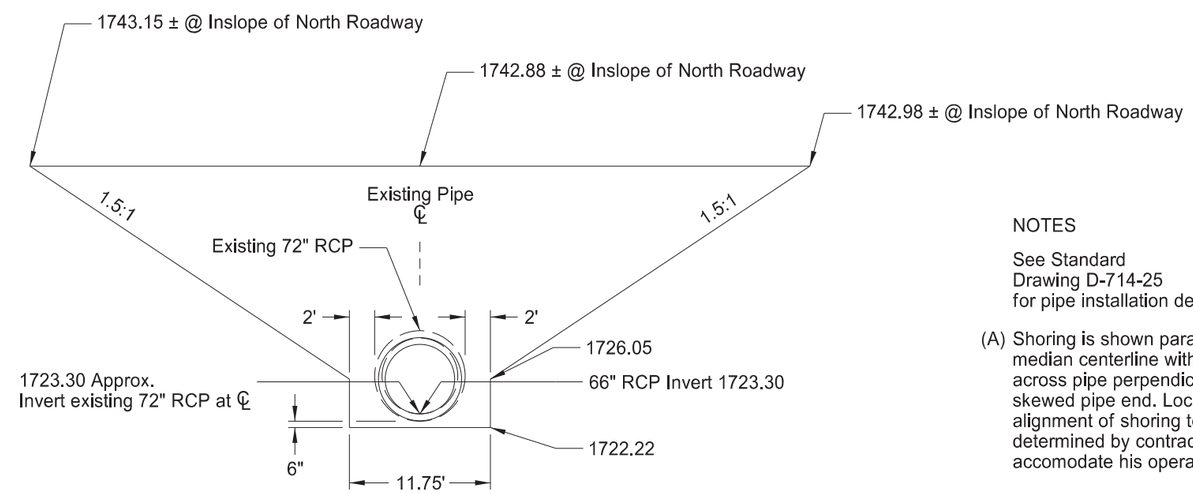
REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.10.31 12:31:13 -05'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	20	5





B - B

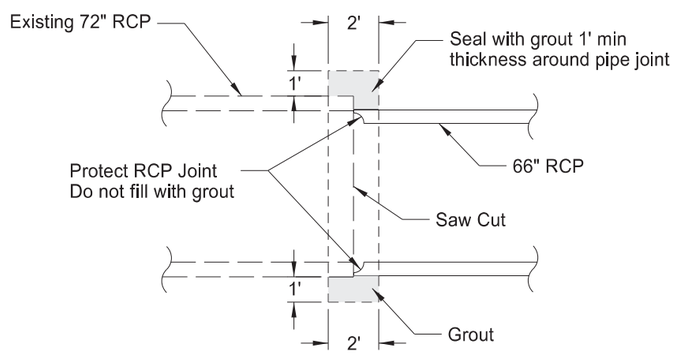


A - A

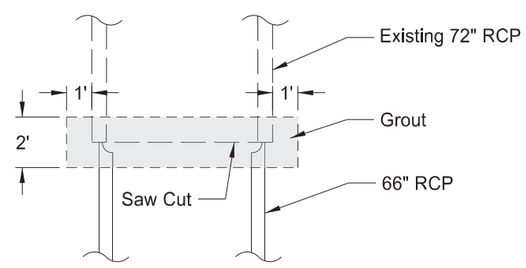
NOTES

See Standard Drawing D-714-25 for pipe installation details

(A) Shoring is shown parallel to the median centerline with portion across pipe perpendicular to skewed pipe end. Location and alignment of shoring to be determined by contractor to accomodate his operations.



Side View



Top View

Pipe Connection Details

SPEC	CODE	BID ITEM	QTY	UNIT
930	8230	SHORING		
		Sta 2110+07	1	EA
930	8235	REMOVAL OF SHORING		
		Sta 2110+07	1	EA

Removal of 72" Culvert RCP
and 66" RCP Culvert Installation Details

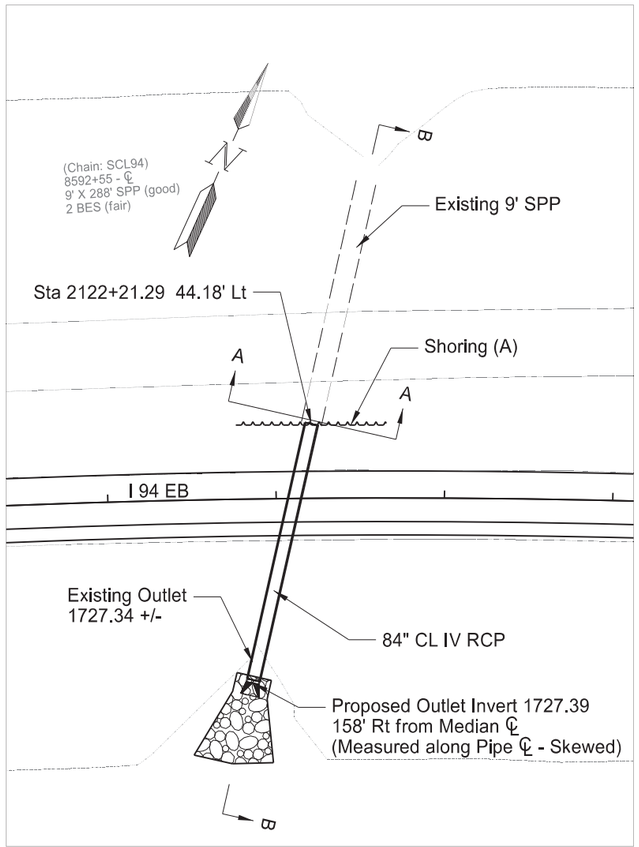
Sta 2110+07

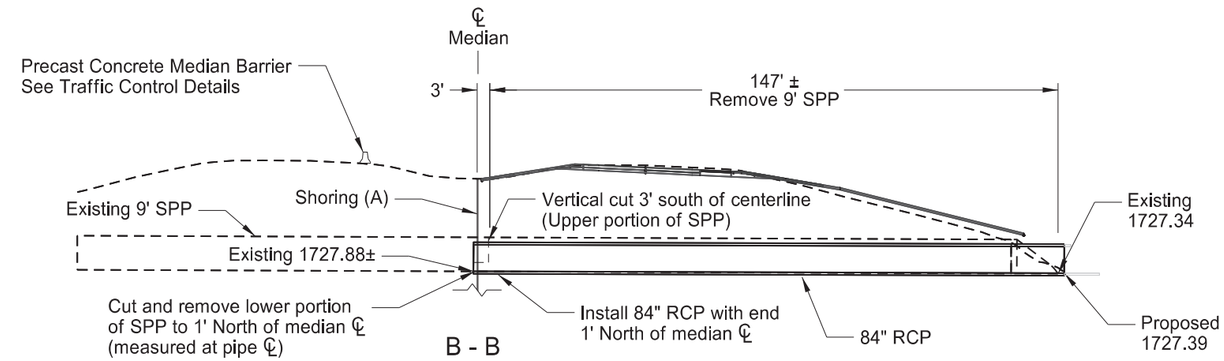
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

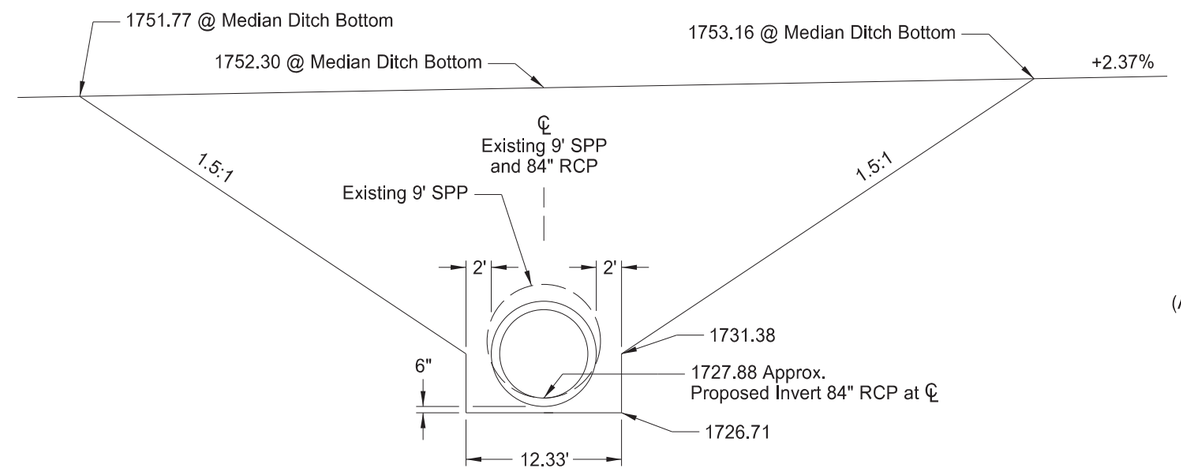
BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:13:04 -06'00'
ENGINEER
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	20	6





B - B

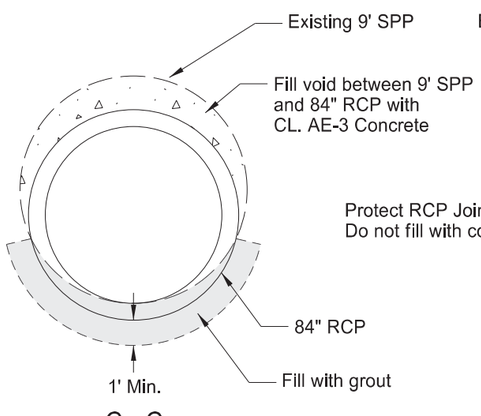


A - A

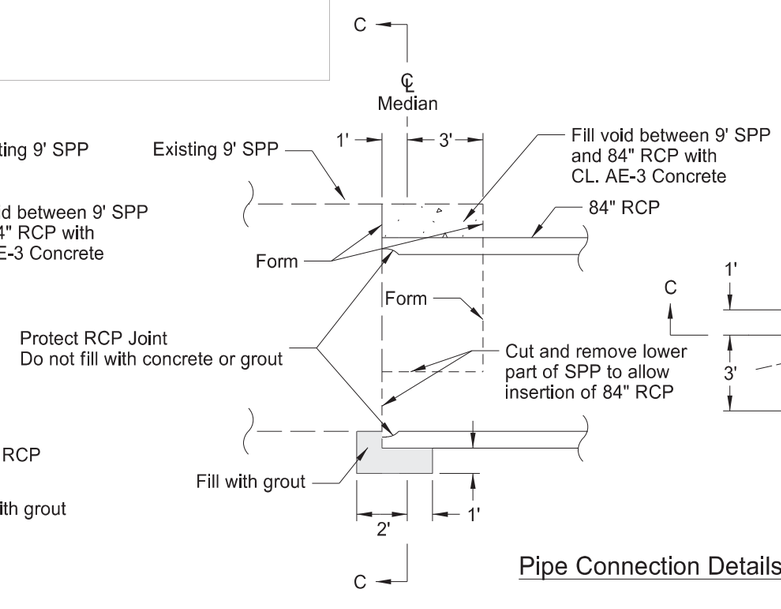
NOTES:

See Standard Drawing D-714-25 for pipe installation details

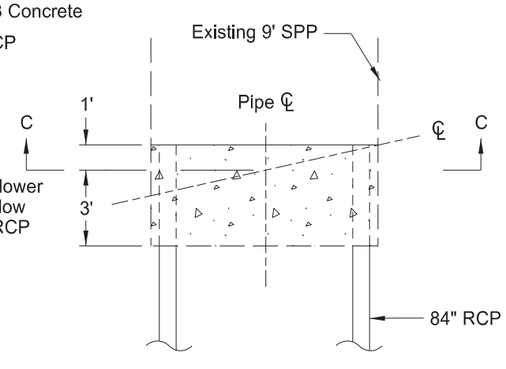
(A) Shoring is shown parallel to the median centerline. Location and alignment of shoring to be determined by contractor to accomodate his operations.



C - C



Pipe Connection Details



Top View

SPEC	CODE	BID ITEM	QTY	UNIT
202	0108	REMOVAL OF STRUCTURE-SITE 1		
		Sta 2122+11	1	L SUM
602	1130	CLASS AE-3 CONCRETE		
		Sta 2122+11	2.0	CY
930	8230	SHORING		
		Sta 2122+11	1	EA
930	8235	REMOVAL OF SHORING		
		Sta 2122+11	1	EA

Removal of Structural Plate Pipe
and Culvert Installation Details

Structure 0094-162.739

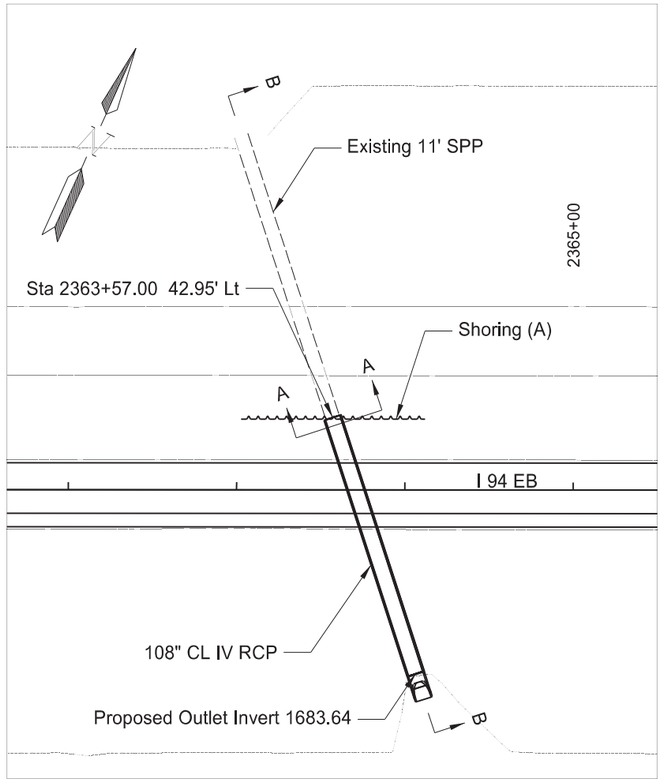
Sta 2122+11

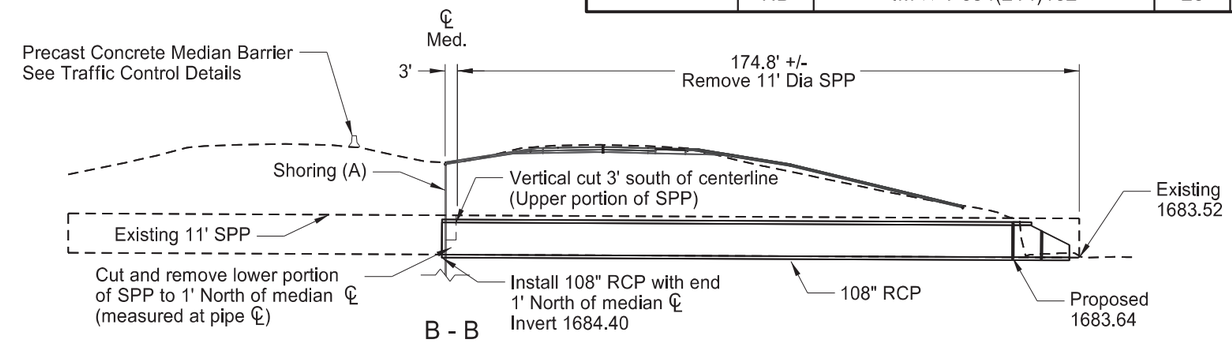
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

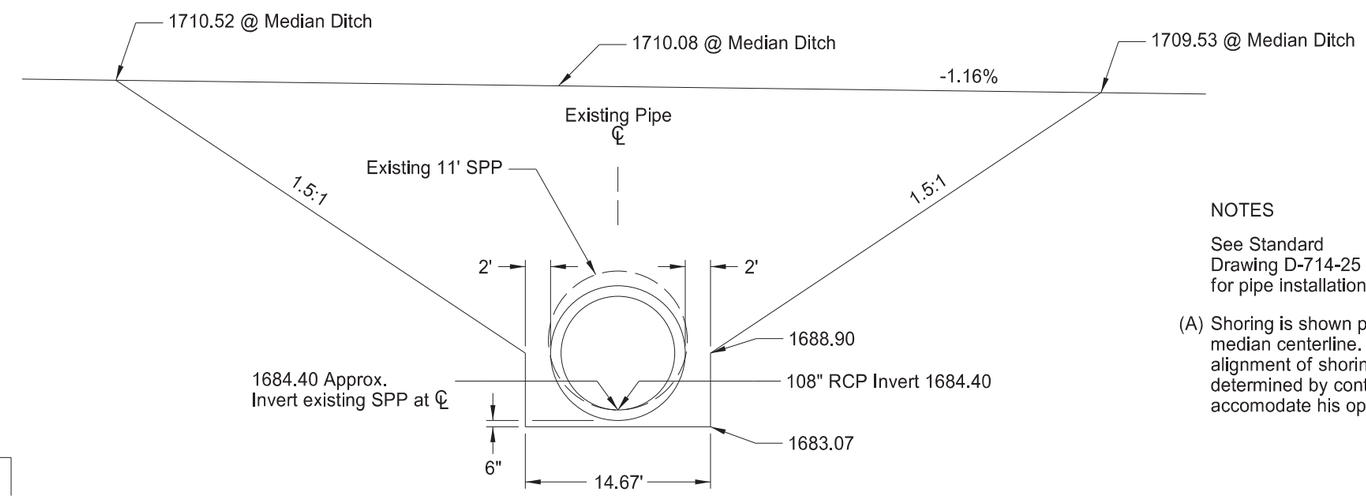
BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:13:37 -06'00'
ENGINEER
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	20	8





B - B

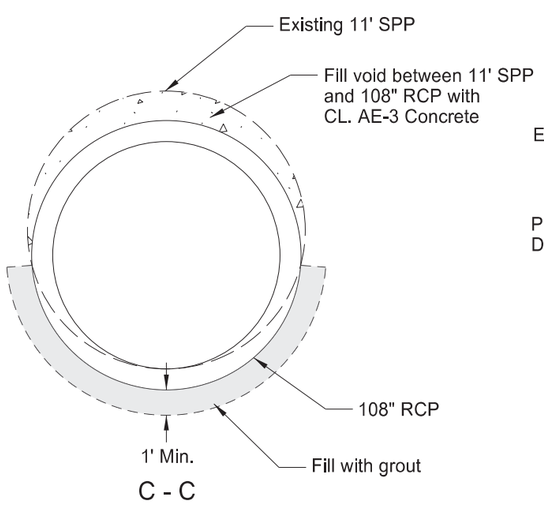


A - A

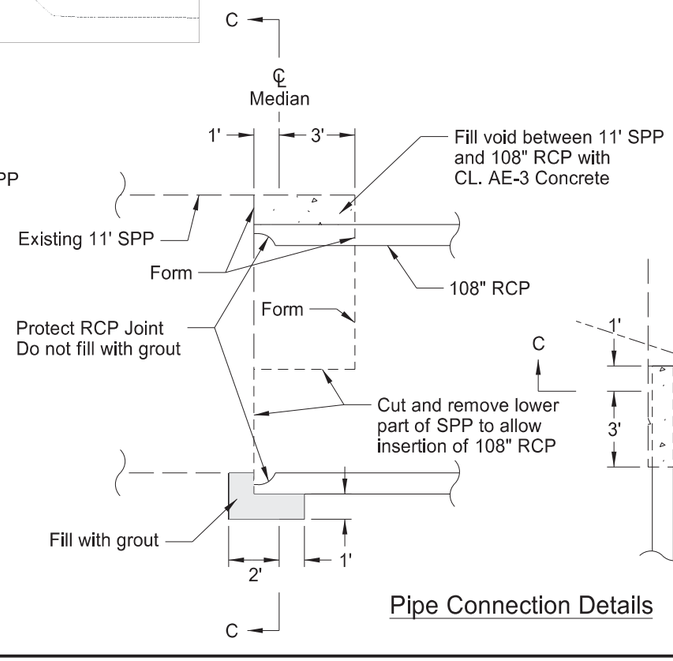
NOTES

See Standard
Drawing D-714-25
for pipe installation details

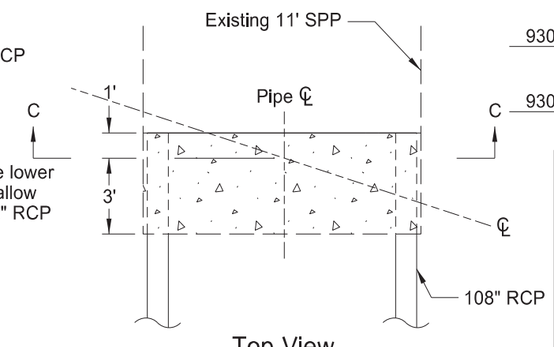
(A) Shoring is shown parallel to the median centerline. Location and alignment of shoring to be determined by contractor to accomodate his operations.



C - C



Pipe Connection Details



Top View

SPEC	CODE	BID ITEM	QTY	UNIT
202	0110	REMOVAL OF STRUCTURE-SITE 3		
		Sta 2363+83	1	L SUM
602	1130	CLASS AE-3 CONCRETE		
		Sta 2363+83	2.1	CY
930	8230	SHORING		
		Sta 2363+83	1	EA
930	8235	REMOVAL OF SHORING		
		Sta 2363+83	1	EA

Removal of Structural Plate Pipe
and Culvert Installation Details

Structure 0094-167.314

Sta 2363+83

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:14:09 -06'00'
ENGINEER
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	20	14

255 0103 ECB TYPE 3
CENTERLINE CULVERTS

Location of Surface Area to be Protected			Pipe Diameter	No.	X	Y	Unit Quantity	Total Quantity
Chain	Station	Offset	(IN)		(FT)	(FT)	(SY)	(SY)
EX94EB	2110+07	CL	Median Drain	1	24.0	24.0	63	63
	2119+38	Lt & Rt	30*	2	9.1	23.5	23	46
	2131+27	Lt & Rt	30*	2	9.1	23.5	23	46
	2140+17	Lt & Rt	Dbl 36*	2	9.9	23.2	25.5	51
	2140+27	Lt & Rt		2	9.9	23.2	25.5	51
	2153+64	Lt & Rt	Dbl 36	2	11.9	19.2	21.5	43
	2153+74	Lt & Rt		2	11.9	19.2	21.5	43
	2177+54	Lt	30	1	11.6	18.5	22	22
		Rt	30*	1	9.1	23.5	23	23
	2214+99	Rt	36	1	12.7	19.2	24	24
		CL	24" T Connection*	1	8.5	26.0	24	24
	2215+09	Rt	36	1	12.7	21.2	27	27
	2227+10	Lt & Rt	30*	2	9.1	23.5	23	46
	2239+60	Lt & Rt	24*	2	8.5	22.0	20	40
	2249+11	Lt & Rt	24*	2	8.5	22.0	20	40
	2257+11	Rt	36	1	12.7	21.2	27	27
		CL	Slotted Drain	1	21.5	24.0	57	57
	2257+21	Rt	36	1	12.7	21.2	27	27
		CL	Slotted Drain	1	21.5	24.0	57	57
	2264+67	CL	Median Drain	1	24.0	24.0	63	63
	2287+65	Rt	36	1	12.7	19.2	24	24
		CL	Median Drain	1	24.0	24.0	63	63
	2287+75	Rt	36	1	12.7	19.2	24	24
	2294+26	Lt & Rt	Dbl 30*	2	9.6	23.5	24.5	49
	2294+36	Lt & Rt		2	9.6	23.5	24.5	49
	2321+03	Lt & Rt	30	2	11.6	20.5	25	50
	2321+13	Rt	58x36	1	14.0	19.2	26	26
		CL	18" T Connection*	1	8.0	25.8	23	23
	2333+03	Rt	Dbl 30	1	11.7	18.5	21	21
	2333+13	Rt		1	11.7	18.5	21	21
		CL	Median Drain	1	24.0	24.0	63	63
	2353+13	Lt & Rt	24*	2	8.5	22.0	20	40
	2366+47	Lt	30*	1	9.1	23.5	23	23
		Rt	30**	1	11.6	8.5	9	9
	2375+18	CL	Median Drain	1	24.0	24.0	63	63
	2385+13	Lt & Rt	30*	2	9.1	23.5	23	46
	2394+76	Rt	Dbl 30	1	11.7	18.5	21	21
	2394+86	Rt		1	11.7	18.5	21	21
		CL	Median Drain	1	24.0	24.0	63	63
	2401+88	Lt	24*	1	8.5	22.0	20	20
	2407+52	Lt	24*	1	8.5	22.0	20	20
	2413+12	Rt	42	1	13.3	19.2	25	25
		CL	Median Drain	1	24.0	24.0	63	63
	2426+12	Lt & Rt	24*	2	8.5	22.0	20	40
	2439+11	Lt	24*	1	8.5	22.0	20	20
		Rt	24	1	10.5	19.6	22	22
	2448+12	Lt & Rt	24*	2	8.5	22.0	20	40
	2468+12	Lt & Rt	24*	2	8.5	22.0	20	40
	2476+12	Lt & Rt	30*	2	9.1	23.5	23	46
	2500+14	Lt & Rt	30*	2	9.1	23.5	23	46
	2508+13	Lt & Rt	24*	2	8.5	22.0	20	40
	2519+12	Lt & Rt	24*	2	8.5	22.0	20	40
	2534+13	Lt & Rt	24*	2	10.5	19.6	22	44
	2547+14	Lt	24*	1	8.5	22.0	20	20
		Rt	24	1	10.5	17.6	20	20
	2566+16	Lt & Rt	24*	2	10.5	19.6	22	44
	2576+15	Lt & Rt	24*	2	8.5	22.0	20	40
	2586+08	Lt & Rt	30*	2	9.1	23.5	23	46
							TOTAL =	2,195

Notes:

1. Quantites based on 10:1 inslopes for T Connections within median.
2. Quantites based on 6:1 inslopes for centerline culverts within 38 ft Clear Zone.
3. Quantites based on 4:1 inslopes for centerline culverts beyond 38 ft Clear Zone.
4. Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.
5. * = Traversable End Section
6. ** ECB installed from pipe outlet to 1 foot above top of pipe.

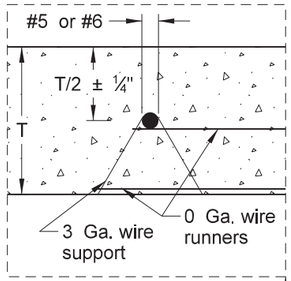
ECB Tables

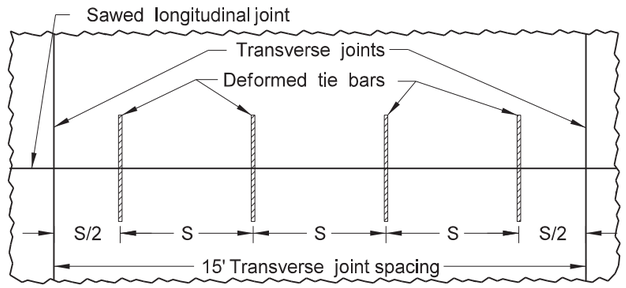
I-94 Reconstruction

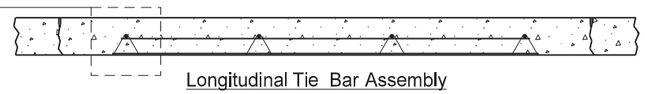
Bismarck to E of Menoken Interchange - EB

BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:16:15 -06'00'
ENGINEER
NORTH DAKOTA

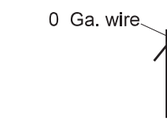
Revised 10/30/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	20	15



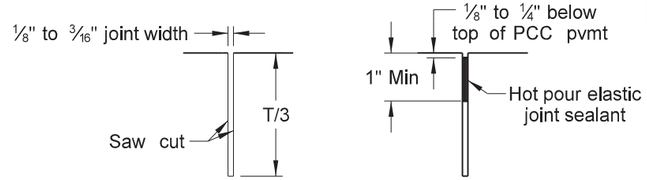




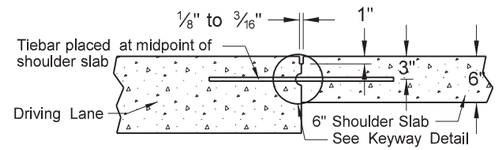
Longitudinal Tie Bar Assembly
(One unit shown)



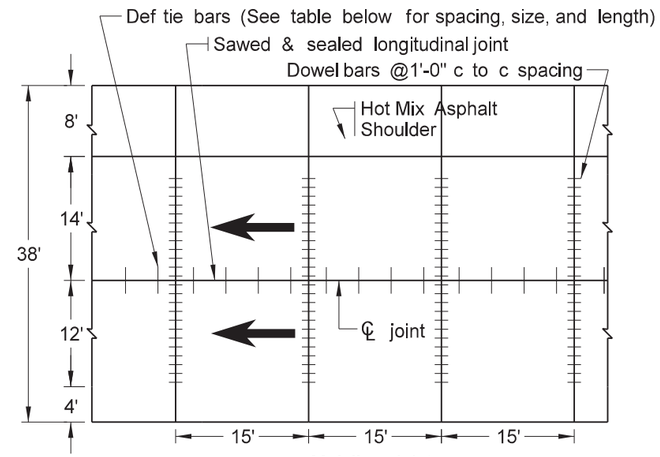
Steel stake



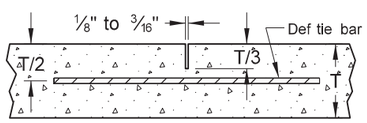
Transverse Joint Sawing Transverse Joint Sealing



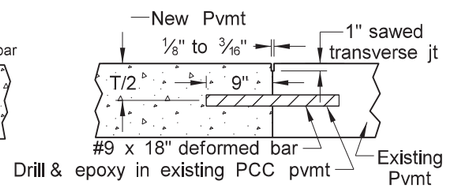
Longitudinal shoulder construction joint
(tied keyed joint)



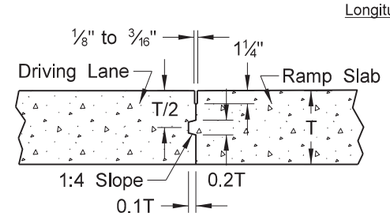
Mainline Joints
15' joint spacing



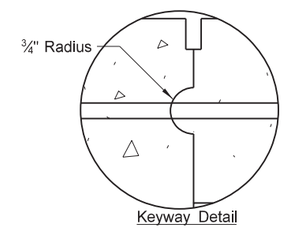
Longitudinal Joint Sawing Detail
(sawed and tied joints)



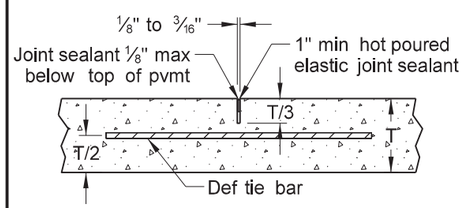
Deformed Bar Installation (2' c to c)
(Transverse Joints)



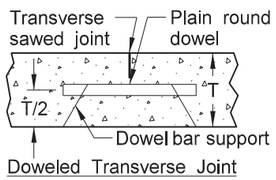
Longitudinal Joint Sawing Detail
(at ramps - non-tied keyed joints)



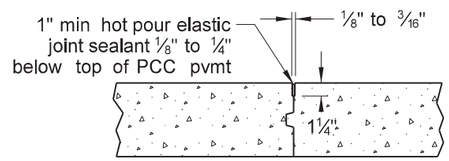
Keyway Detail



Longitudinal Joint Sealing Detail
(sawed and tied joints)



Doweled Transverse Joint



Longitudinal Joint Sealing Detail
(non-tied keyed joints)

Notes:
1. S = Tiebar spacing
2. T = Pavement thickness
3. Place dowels in ramp tapers also.
4. Place no tie bar within 15" of a transverse joint.

Transverse Joint Dowel Bars

Joint Location	Dia x Length
ML & Rest Area	1.25" x 18"

Grade 40 Longitudinal Joint Tie Bars															
PCC Depth	8"	8 1/2"	9"	9 1/2"	10"	10 1/2"	11"	11 1/2"	12"	12 1/2"	13"	13 1/2"	14"	14 1/2"	15"
Mainline Centerline															
Bar Size x Length (S=30")	#5 x 30"							#6 x 36"							
Bar Size x Length (S=45")	#6 x 36"								Grade 60 Required						
Rest Area/Ramp/Loop Centerline															
Bar Size x Length (S=30")	#4 x 24"		#5 x 30"										#6 x 36"		
Bar Size x Length (S=45")	#5 x 30"			#6 x 36"									Grade 60 Required		

Grade 60 Longitudinal Joint Tie Bars															
PCC Depth	8"	8 1/2"	9"	9 1/2"	10"	10 1/2"	11"	11 1/2"	12"	12 1/2"	13"	13 1/2"	14"	14 1/2"	15"
Mainline Centerline															
Bar Size x Length (S=30")	#4 x 36"						#5 x 42"								
Bar Size x Length (S=45")	#5 x 42"								#6 x 48"						
Rest Area/Ramp/Loop Centerline															
Bar Size x Length (S=30")	#4 x 36"											#5 x 42"			
Bar Size x Length (S=45")	#4 x 36"		#5 x 42"										#6 x 48"		

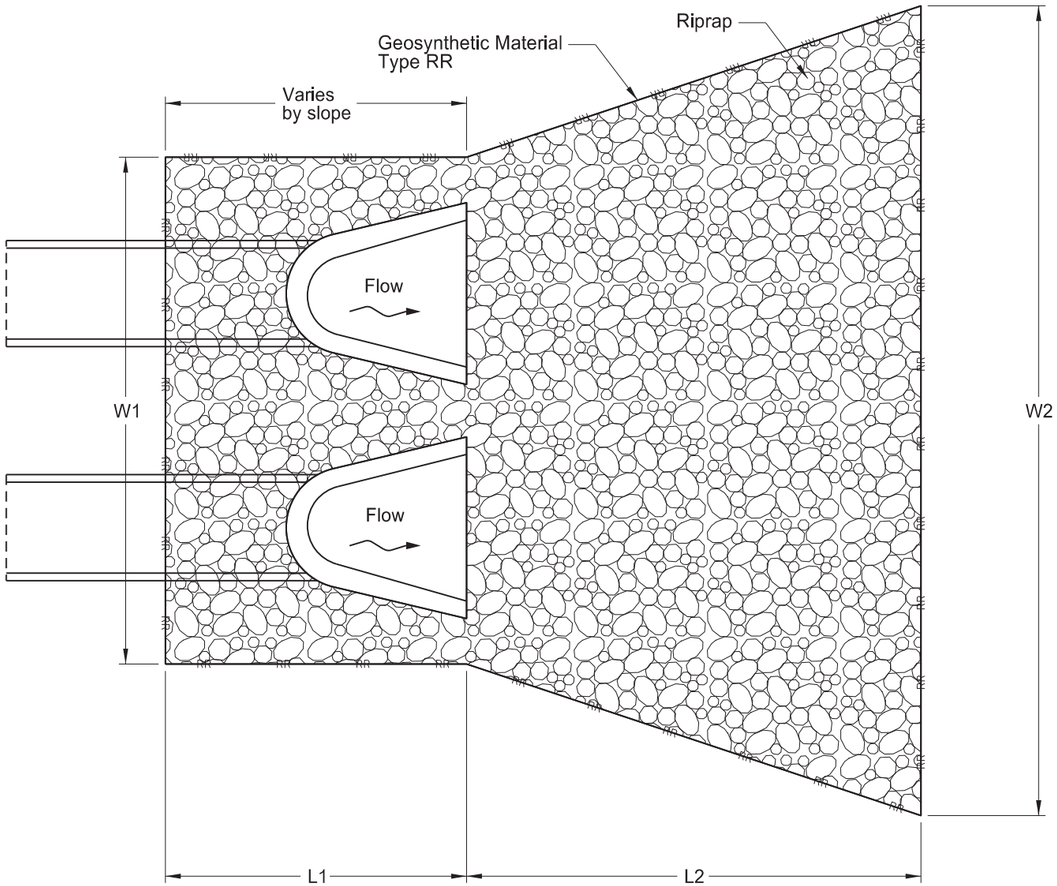
PCC Pavement - Perpendicular Joints@15' Spacing

I-94 Reconstruction

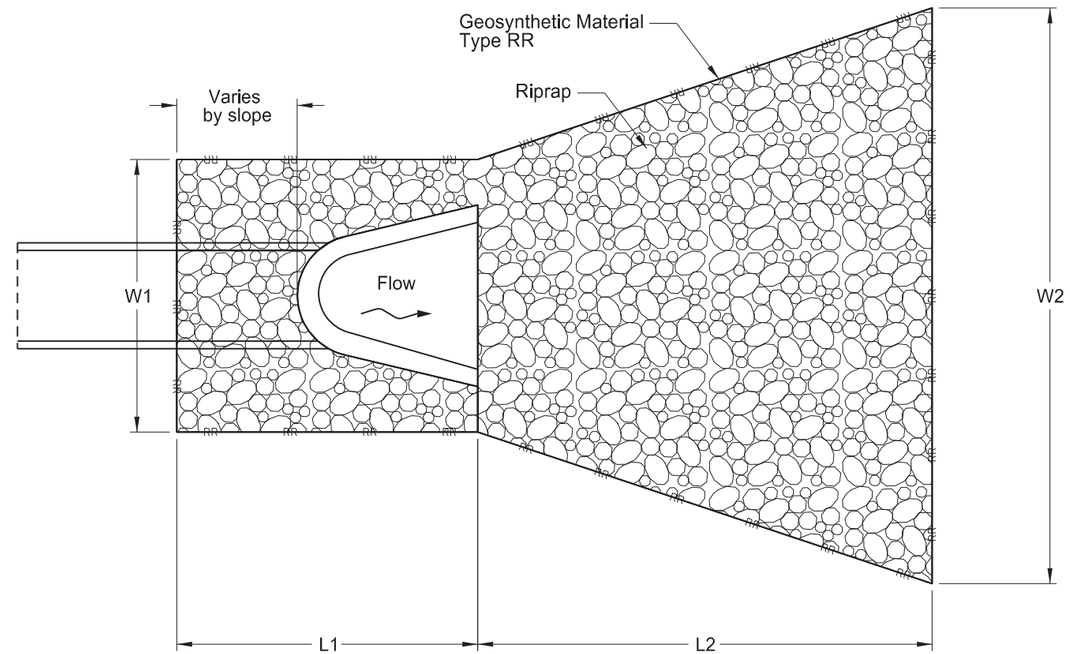
Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.10.31 14:10:08 -05'00'
NORTH DAKOTA

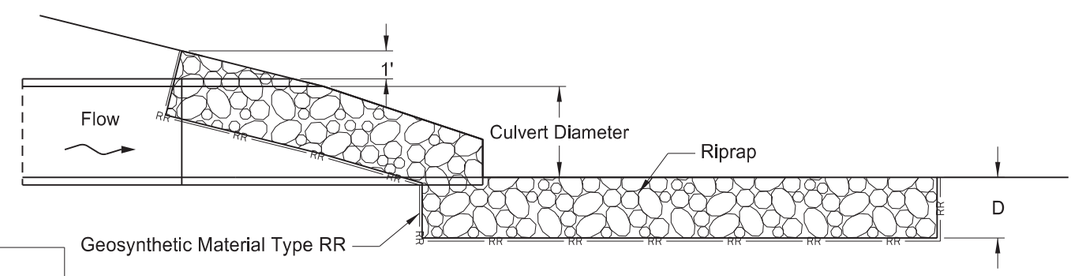
Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	20	17



PLAN VIEW
(Double Pipe)



PLAN VIEW
(Single Pipe)



PROFILE VIEW

RIPRAP AND GEOSYNTHETIC MATERIAL

Location of Surface Area to be Protected			Pipe Diameter	L1	L2	W1	W2	D	Riprap Grade	256 0100 RIPRAP GRADE I	256 0200 RIPRAP GRADE II	256 0300 RIPRAP GRADE III	709 0155 GEOSYNTHETIC MATERIAL TYPE RR
Chain	Station	Offset	(IN)	(FT)	(FT)	(FT)	(FT)	(FT)		(CY)	(CY)	(CY)	(SY)
EX94EB	2110+07	Rt	66	10.0	33.0	16.5	38.5	2.1	I	84	-	-	153
	2122+11	Rt	84	11.5	42.0	21.0	49.0	2.2	I	140	-	-	235
	2236+85	Rt	90	11.3	41.0	22.5	49.8	2.5	II	-	161	-	244
	2264+67	Rt	Dbl 36	9.3	13.2	19.0	27.8	2.1	I	38	-	-	76
	2363+71	Rt	108	14.7	35.0	27.0	50.3	3.0	III	-	-	195	255
	2366+47	Rt	30	0.0	8.1	7.5	12.9	2.0	I	7	-	-	18
	2375+18	Rt	42	9.3	15.7	10.5	21.0	2.5	I	32	-	-	62
	2401+88	Rt	24	7.6	5.0	6.0	9.3	2.0	I	7	-	-	19
	2407+52	Rt	24	7.6	5.0	6.0	9.3	2.0	I	7	-	-	19
									TOTAL =	315	161	195	1,081

Note: At Sta 2366+47 Rt, riprap is only to extend from the outlet of the pipe. Install no riprap up the inslope.

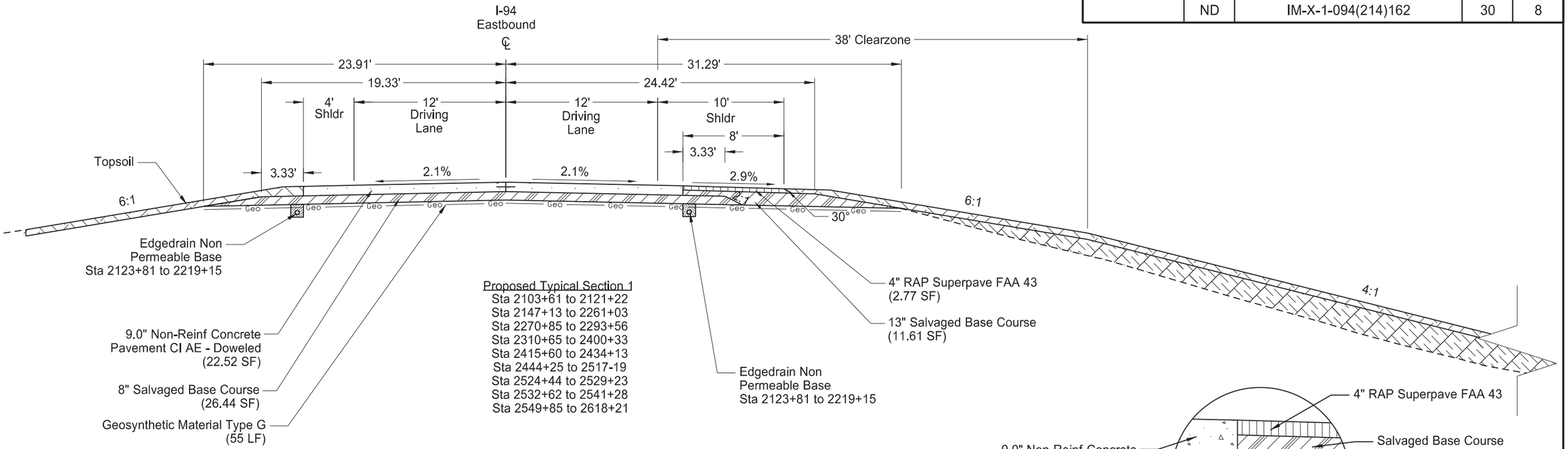
Riprap Detail

I-94 Reconstruction

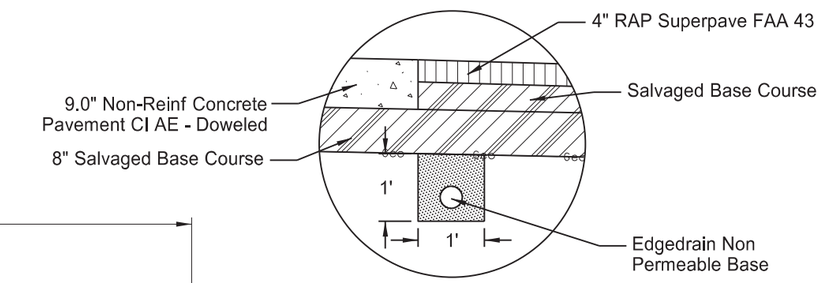
Bismarck to E of Menoken Interchange - EB

BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:17:02 -06'00'
ENGINEER
NORTH DAKOTA

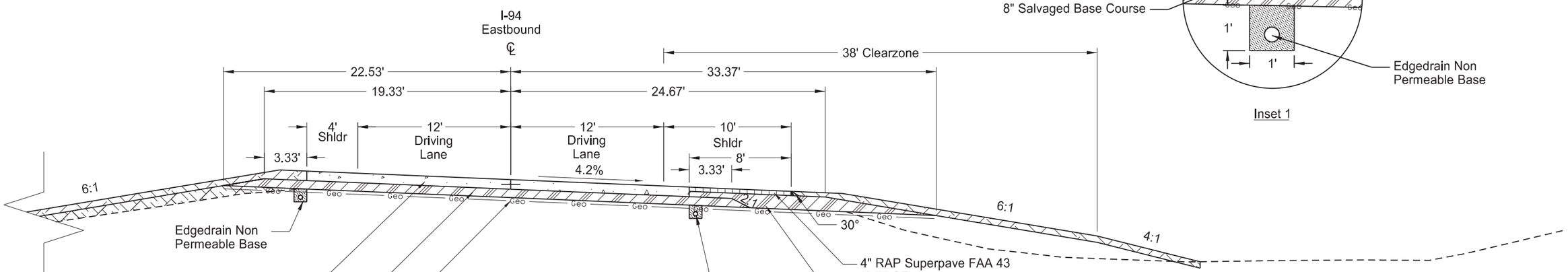
Revised 10/30/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	30	8



Proposed Typical Section 1
Sta 2103+61 to 2121+22
Sta 2147+13 to 2261+03
Sta 2270+85 to 2293+56
Sta 2310+65 to 2400+33
Sta 2415+60 to 2434+13
Sta 2444+25 to 2517-19
Sta 2524+44 to 2529+23
Sta 2532+62 to 2541+28
Sta 2549+85 to 2618+21



Inset 1



Proposed Typical Section 2
Sta 2121+22 to 2147+13

(Transition to Superelevation 2118+63 to 2121+22)
(Transition from Superelevation 2147+13 to 2149+72)
See Section 20 sheet 1 for more superelevation details.

Proposed Typical Sections
EB Mainline

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.10.31 12:30:02 -05'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	50	1

HYDRAULIC DATA FOR IM-X-1-094(214)162 (A)

STATION	EXISTING PIPE	PROPOSED PIPE SIZE	DRAINAGE AREA (ACRES)	50-YEAR DATA				100-YEAR DATA	
				DESIGN DISCHARGE (CFS)	DESIGN HEADWATER (FT)	DESIGN VELOCITY (FPS)	DESIGN STAGE (NAVD 88)	100-YEAR DISCHARGE (CFS)	100-YEAR STAGE (NAVD 88)
2110+07	72" RCP	66" (B)	629.9	185.2	6.12	10.55	1729.94	229.3	1731.19
2119+38	18" RCP	30"	2.8	22.4	2.46	9.93	1747.79	27.4	1748.20
2122+11	9' SPP	84"	1494.8	286.6	6.75	11.11	1735.16	355.7	1736.13
2131+27	18" RCP	30"	2.6	20.9	2.38	9.16	1774.90	25.9	1775.28
2140+17 & 2140+27	24" RCP	Dbl 36"	24.8	76.3	3.29	7.57	1794.75	94.9	1795.05
2153+64 & 2153+74	30" RCP	Dbl 36"	31.2	49.8	2.40	7.08	1826.00	61.8	1826.34
2177+54	24" RCP	30"	2.3	14.0	1.80	2.85	1866.40	17.4	1866.64
2214+99 & 2215+09	36" RCP	Dbl 36" (B)	87.9	84.9	3.84	7.95	1785.25	105.2	1785.70
2227+10	18" RCP	30"	2.3	11.9	1.67	9.48	1776.36	14.6	1776.58
2236+85	84"&36" SR CSP	90"	2733.9	370.9	7.85	14.00	1766.52	459.3	1767.99
2239+60	18" RCP	24"	4.1	7.2	1.35	8.00	1769.31	8.8	1769.54
2249+11	18" RCP	24"	1.6	6.8	1.36	7.41	1770.21	8.3	1770.32
2257+11 & 2257+21	36" RCP	Dbl 36" (B)	47.0	55.8	2.57	8.75	1770.31	69.2	1770.60
2264+67 & 2264+77	36" RCP	Dbl 36" (B)	51.1	73.1	3.06	11.42	1771.14	90.9	1771.58
2287+65 & 2287+75	36" RCP	Dbl 36" (B)	34.8	46.0	2.24	8.51	1763.63	57.1	1763.85
2294+26 & 2294+36	24" RCP	Dbl 30"	10.5	27.1 (C)	1.80	9.25	1756.12	36.9 (C)	1756.51
2321+03 & 2321+13	58"x36" RCP Arch	58"x36" Arch (B) 30"	174.2	88.3	1.85	4.75	1731.11	108.9	1731.28
2333+03 & 2333+13	30" RCP	Dbl 30" (B)	60.4	44.0	2.78	6.66	1727.77	54.7	1728.12
2353+13	18" RCP	24"	2.2	11.3	1.80	8.36	1723.99	13.8	1724.21
2363+71	11' SPP	108"	3703.4	572.2	9.57	14.88	1694.72	707.3	1696.88
2366+47	18" RCP	30"	2.7	15.2	1.89	12.08	1708.75	18.6	1709.03
2375+18	42" RCP	42" (B)	39.2	56.3	3.69	11.94	1693.68	69.8	1694.19
2385+13	18" RCP	30"	2.0	13.0	1.75	9.50	1688.84	15.9	1689.08
2394+76 & 2394+86	30" RCP	Dbl 30" (B)	19.5	58.2	2.67	6.52	1674.87	72.1	1675.02
2401+88	18" RCP	24"	1.7	5.1	1.07	10.45	1679.42	6.3	1679.55
2407+52	18" RCP	24"	1.3	5.6	1.21	10.57	1679.70	6.9	1679.82
2413+12	42" RCP	42" (B)	186.2	76.1 (D)	4.93	9.45	1674.13	94.0 (D)	1675.41
2426+12	18" RCP	24"	2.6	16.5	2.37	9.38	1699.60	20.2	1700.00
2439+11	18" RCP	24"	1.8	7.6	1.47	8.97	1716.87	9.3	1716.98
2448+12	18" RCP	24"	2.2	7.3	1.36	6.33	1717.49	9.0	1717.72
2468+12	18" RCP	24"	1.9	7.0	1.36	6.91	1718.63	9.0	1718.85
2476+12	24" RCP	30"	18.8	31.0 (E)	1.22	4.18	1716.22	38.2 (E)	1716.31
2500+14	24" RCP	30"	23.6	26.5	1.42	4.63	1718.72	32.4	1718.77
2508+13	18" RCP	24"	2.3	7.4	1.34	9.28	1721.55	9.1	1721.78
2519+12	18" RCP	24"	2.6	6.6	1.34	9.50	1723.17	8.1	1723.29
2534+13	18" RCP	24"	3.1	6.5	1.35	7.96	1724.49	8.0	1724.61
2547+14	18" RCP	24"	1.5	6.7	1.35	7.89	1725.68	8.3	1725.80
2566+16	18" RCP	24"	2.4	7.3	1.35	8.47	1725.00	8.9	1725.23
2576+15	18" RCP	24"	2.0	6.9	1.35	8.04	1724.15	8.5	1724.25
2586+08	24" RCP	30"	16.4	15.1	2.05	5.78	1722.15	18.5	1722.33

(A) Hydraulic data provided is for smooth-walled (Manning's n=0.012) type conduits.
(B) Median Drain, Slotted RCP Section, or Tee Section.
(C) 50-year and 100-year discharges include 1.3 CFS and 4.8 CFS respectively to account for breakout flow from Sta. 2287+65.
(D) 50-year and 100-year discharges include 25.8 CFS and 32.1 CFS respectively to account for breakout flow from Sta. 2476+12.
(E) 50-year and 100-year discharges include 19.6 CFS and 24.2 CFS respectively to account for breakout flow from Sta. 2500+14.

Hydraulic Data

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:17:48 -06'00'
ENGINEER
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	51	1

Alignment	Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
														Begin	End	
					In	Bid Item	LF		In	Type		In	SY	EA	EA	
EX94EB	2109+97	48.1' Lt	2110+28	103.0' Rt	66	Pipe Conduit	154	Reinforced Concrete Pipe - Class IV (barrel length = 152 LF)	66				165 (A)		FES	D-714-25
	2109+99	41.2' Lt			24	Pipe Conduit (Riser)	11	Reinforced Concrete Pipe - Class III (barrel length = 11 LF)	24							
	2119+38	28.7' Lt	2119+38	39.3' Rt	30	Pipe Conduit	68	Reinforced Concrete Pipe - Class III (barrel length = 66 LF)	30				45	TES (4:1)	TES (4:1)	D-714-26
	2122+21	44.2' Lt	2121+85	107.6' Rt	84	Pipe Conduit	158	Reinforced Concrete Pipe - Class IV (barrel length = 156 LF)	84				209 (A)		FES	D-714-25
	2131+27	32.9' Lt	2131+27	38.6' Rt	30	Pipe Conduit	72	Reinforced Concrete Pipe - Class III (barrel length = 70 LF) (includes 4 LF 7.5° bend)	30				48	TES (4:1)	TES (4:1)	D-714-26
	2140+18	44.8' Lt	2140+18	41.7' Rt	36	Pipe Conduit	87	Reinforced Concrete Pipe - Class III (barrel length = 84 LF)	36				74	TES (4:1)	TES (4:1)	D-714-26M
	2140+28	44.8' Lt	2140+28	41.7' Rt	36	Pipe Conduit	87	Reinforced Concrete Pipe - Class III (barrel length = 84 LF)	36				74	TES (4:1)	TES (4:1)	D-714-26M
	2153+64	60.9' Lt	2153+64	62.9' Rt	36	Pipe Conduit	124	Reinforced Concrete Pipe - Class III (barrel length = 118 LF)	36				110	FES	FES	D-714-25M
	2153+74	60.9' Lt	2153+74	62.9' Rt	36	Pipe Conduit	124	Reinforced Concrete Pipe - Class III (barrel length = 118 LF)	36				110	FES	FES	D-714-25M
	2177+54	61.8' Lt	2177+54	44.5' Rt	30	Pipe Conduit	107	Reinforced Concrete Pipe - Class III (barrel length = 104 LF)	30				75	FES	TES (4:1)	D-714-25
	2214+84	41.7' Lt	2214+96	41.7' Lt	24	Remove & Relay Pipe-All Types & Sizes	12							Remove & Relay		D-714-27
	2214+99	44.7' Lt	2214+99	50.2' Rt	36	Pipe Conduit	95	Reinforced Concrete Pipe - Class III (barrel length = 92 LF) (Includes 24IN Tee Section)	36				88 (A)	Precast Conc. Cap	FES	D-714-26M
	2215+09	44.7' Lt	2215+09	50.2' Rt	36	Pipe Conduit	95	Reinforced Concrete Pipe - Class III (barrel length = 92 LF)	36				88 (A)		FES	D-714-26M
	2227+10	31.9' Lt	2227+10	48.0' Rt	30	Pipe Conduit	80	Reinforced Concrete Pipe - Class III (barrel length = 78 LF)	30				54	TES (4:1)	TES (4:1)	D-714-26
	2236+95	42.1' Lt	2236+70	58.8' Rt	90	Pipe Conduit	106	Reinforced Concrete Pipe - Class III (barrel length = 104 LF)	90				144 (A)		FES	D-714-25
	2239+60	28.9' Lt	2239+60	43.1' Rt	24	Pipe Conduit	72	Reinforced Concrete Pipe - Class III (barrel length = 70 LF)	24				44	TES (4:1)	TES (4:1)	D-714-26
	2249+11	30.0' Lt	2249+11	42.0' Rt	24	Pipe Conduit	72	Reinforced Concrete Pipe - Class III (barrel length = 70 LF)	24				44	TES (4:1)	TES (4:1)	D-714-26
	2257+11	41.9' Lt	2257+11	55.1' Rt	36	Pipe Conduit	97	Reinforced Concrete Pipe - Class III (barrel length = 94 LF)	36				90 (A)		FES	D-714-26M
	2257+21	41.9' Lt	2257+21	55.1' Rt	36	Pipe Conduit	97	Reinforced Concrete Pipe - Class III (barrel length = 94 LF)	36				90 (A)	Precast Conc. Plug	FES	D-714-26M
	2264+74	44.7' Lt	2264+56	68.9' Rt	36	Pipe Conduit	115	Reinforced Concrete Pipe - Class III (barrel length = 112 LF)	36				107 (A)		FES	D-714-25M
	2264+84	46.7' Lt	2264+66	68.9' Rt	36	Pipe Conduit	117	Reinforced Concrete Pipe - Class III (barrel length = 114 LF)	36				109 (A)	Precast Conc. Plug	FES	D-714-25M
	2287+65	55.6' Lt	2287+65	67.3' Rt	36	Pipe Conduit	123	Reinforced Concrete Pipe - Class III (barrel length = 120 LF)	36				115 (A)		FES	D-714-25M
	2287+75	61.2' Lt	2287+75	67.7' Rt	36	Pipe Conduit	129	Reinforced Concrete Pipe - Class III (barrel length = 126 LF)	36				120 (A)	Precast Conc. Plug	FES	D-714-25M
	2294+26	37.6' Lt	2294+26	56.4' Rt	30	Pipe Conduit	94	Reinforced Concrete Pipe - Class III (barrel length = 92 LF)	30				78	TES (4:1)	TES (4:1)	D-714-26M
	2294+36	37.6' Lt	2294+36	56.4' Rt	30	Pipe Conduit	94	Reinforced Concrete Pipe - Class III (barrel length = 92 LF)	30				78	TES (4:1)	TES (4:1)	D-714-26M
	2321+03	39.0' Lt	2321+03	50.7' Rt	30	Pipe Conduit	90	Reinforced Concrete Pipe - Class III (barrel length = 88 LF)	30				80 (A)	Precast Conc. Cap	FES	D-714-25M
	2321+13	39.0' Lt	2321+13	50.0' Rt	58 x 36	Pipe Conduit	89	Reinforced Concrete Pipe Arch - Class III (barrel length = 86 LF)	58 x 36				93 (A)		FES	D-714-25M
	2333+03	40.3' Lt	2333+03	57.4' Rt	30	Pipe Conduit	98	Reinforced Concrete Pipe - Class III (barrel length = 96 LF)	30				73 (A)	Precast Conc. Cap	FES	D-714-25M
	2333+13	38.3' Lt	2333+13	57.4' Rt	30	Pipe Conduit	96	Reinforced Concrete Pipe - Class III (barrel length = 94 LF)	30				86 (A)		FES	D-714-25M
	2353+13	31.1' Lt	2353+13	42.9' Rt	24	Pipe Conduit	74	Reinforced Concrete Pipe - Class III (barrel length = 72 LF)	24				45	TES (4:1)	TES (4:1)	D-714-26
	2363+57	43.0' Lt	2364+08	114.0' Rt	108	Pipe Conduit	165	Reinforced Concrete Pipe - Class IV (barrel length = 160 LF)	108				260 (A)		FES	D-714-25

Corrugations: 2 = 2-2/3"x1/2"
Spiral Ribs: 3/4 = 3/4" x 3/4" @ 7-1/2"
1 = 3/4" x 1" @ 11-1/2"

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

(A) Geosynthetic Material - Type G to be placed to left pipe end at the joint between the end section and first barrel section.

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

Allowable Pipe List

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:30:28 -06'00'
ENGINEER
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	51	2

Alignment	Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
														Begin	End	
					In	Bid Item	LF		In	Type		In	SY	EA	EA	
EX94EB	2366+47	25.6' Lt	2366+47	50.4' Rt	30	Pipe Conduit	77	Reinforced Concrete Pipe - Class III (barrel length = 74 LF)	30				52	TES (4:1)	FES	D-714-26
	2375+18	38.9' Lt	2375+18	72.0' Rt	42	Pipe Conduit	111	Reinforced Concrete Pipe - Class III (barrel length = 108 LF)	42				97 (A)		FES	D-714-25
	2385+12	26.3' Lt	2385+12	41.6' Rt	30	Pipe Conduit	68	Reinforced Concrete Pipe - Class III (barrel length = 66 LF)	30				45	TES (4:1)	TES (4:1)	D-714-26
	2394+76	42.8' Lt	2394+76	66.9' Rt	30	Pipe Conduit	110	Reinforced Concrete Pipe - Class III (barrel length = 108 LF)	30				100 (A)	Precast Conc. Plug	FES	D-714-25M
	2394+86	43.8' Lt			24	Pipe Conduit (Riser)	2.5	Reinforced Concrete Pipe - Class III (barrel length = 2.5 LF)	24							
	2394+86	46.8' Lt	2394+86	66.9' Rt	30	Pipe Conduit	114	Reinforced Concrete Pipe - Class III (barrel length = 112 LF) (Includes Tee Section)	30				103 (A)		FES	D-714-25M
	2401+88	36.3' Lt	2401+88	63.0' Rt	24	Pipe Conduit	100	Reinforced Concrete Pipe - Class III (barrel length = 96 LF)	24				64	TES (6:1)	FES	D-714-25
	2407+52	27.8' Lt	2407+52	51.6' Rt	24	Pipe Conduit	80	Reinforced Concrete Pipe - Class III (barrel length = 76 LF)	24				50	TES (6:1)	FES	D-714-26
	2413+12	43.2' Lt			24	Pipe Conduit (Riser)	4.5	Reinforced Concrete Pipe - Class III (barrel length = 4.5 LF)	24							
	2413+12	46.2' Lt	2413+12	82.7' Rt	42	Pipe Conduit	129	Reinforced Concrete Pipe - Class III (barrel length = 126 LF) (Includes Tee Section)	42				113 (A)		FES	D-714-25
	2426+12	32.1' Lt	2426+12	45.9' Rt	24	Pipe Conduit	78	Reinforced Concrete Pipe - Class III (barrel length = 76 LF)	24				48	TES (4:1)	TES (4:1)	D-714-26
	2439+11	29.8' Lt	2439+11	53.7' Rt	24	Pipe Conduit	84	Reinforced Concrete Pipe - Class III (barrel length = 80 LF)	24				52	TES (4:1)	FES	D-714-26
	2448+12	33.8' Lt	2448+12	45.6' Rt	24	Pipe Conduit	80	Reinforced Concrete Pipe - Class III (barrel length = 78 LF) (includes 4 LF 7.5° bend)	24				50	TES (4:1)	TES (4:1)	D-714-26
	2468+12	34.0' Lt	2468+12	46.0' Rt	24	Pipe Conduit	80	Reinforced Concrete Pipe - Class III (barrel length = 78 LF)	24				50	TES (4:1)	TES (4:1)	D-714-26
	2476+12	40.2' Lt	2476+12	47.8' Rt	30	Pipe Conduit	88	Reinforced Concrete Pipe - Class III (barrel length = 86 LF)	30				65 (A)	TES (4:1)	TES (4:1)	D-714-26
	2500+14	39.9' Lt	2500+14	46.1' Rt	30	Pipe Conduit	86	Reinforced Concrete Pipe - Class III (barrel length = 84 LF)	30				63 (A)	TES (4:1)	TES (4:1)	D-714-26
	2508+13	29.7' Lt	2508+13	48.3' Rt	24	Pipe Conduit	78	Reinforced Concrete Pipe - Class III (barrel length = 76 LF)	24				48	TES (4:1)	TES (4:1)	D-714-26
	2519+12	33.4' Lt	2519+12	50.5' Rt	24	Pipe Conduit	84	Reinforced Concrete Pipe - Class III (barrel length = 82 LF)	24				52	TES (4:1)	TES (4:1)	D-714-26
	2534+13	30.8' Lt	2534+13	45.2' Rt	24	Pipe Conduit	76	Reinforced Concrete Pipe - Class III (barrel length = 74 LF)	24				47	TES (4:1)	TES (4:1)	D-714-26
	2547+14	34.5' Lt	2547+14	51.0' Rt	24	Pipe Conduit	86	Reinforced Concrete Pipe - Class III (barrel length = 82 LF)	24				54	TES (4:1)	FES	D-714-26
	2566+16	30.0' Lt	2566+16	45.0' Rt	24	Pipe Conduit	76	Reinforced Concrete Pipe - Class III (barrel length = 74 LF)	24				47	TES (4:1)	TES (4:1)	D-714-26
	2576+15	29.1' Lt	2576+15	42.9' Rt	24	Pipe Conduit	72	Reinforced Concrete Pipe - Class III (barrel length = 70 LF)	24				44	TES (4:1)	TES (4:1)	D-714-26
	2586+08	33.3' Lt	2586+08	40.6' Rt	30	Pipe Conduit	74	Reinforced Concrete Pipe - Class III (barrel length = 72 LF)	30				49	TES (4:1)	TES (4:1)	D-714-26

Corrugations: 2 = 2-2/3"x1/2"
Spiral Ribs: 3/4 = 3/4" x 3/4" @ 7-1/2"
1 = 3/4" x 1" @ 11-1/2"

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

(A) Geosynthetic Material - Type G to be placed to left pipe end at the joint between the end section and first barrel section.

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

Allowable Pipe List

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

BRAD PFEIFER
REGISTERED
PROFESSIONAL
PE 5247
2024.11.07 12:31:15 -06'00'
ENGINEER
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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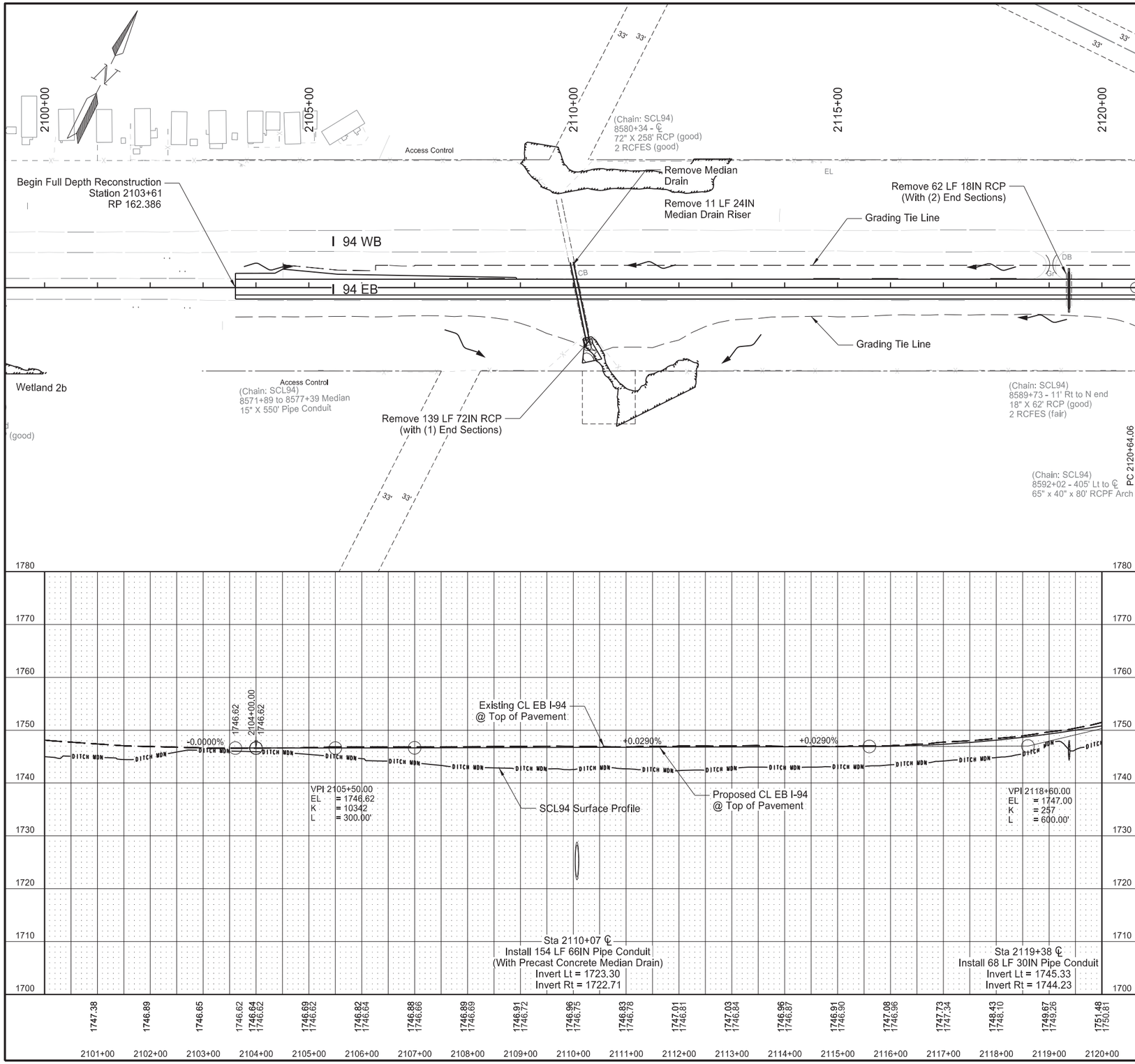

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2110+07 - 49' Lt to Sta 2110+07 - 90' Rt	139	LF
		Sta 2110+07 Lt	11	LF
		Sta 2119+38 ℄	62	LF
202	0237	REMOVAL OF MEDIAN DRAIN PRECAST CONCRETE		
		Sta 2110+07 Lt	1	EA
714	4105	PIPE CONDUIT 24IN		
		Sta 2110+07 Lt - Median Drain Riser	11	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2119+38 ℄	68	LF
714	4140	PIPE CONDUIT 66IN		
		Sta 2110+07 ℄	154	LF
722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A		
		Sta 2110+07 Lt	1	EA

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:48:32 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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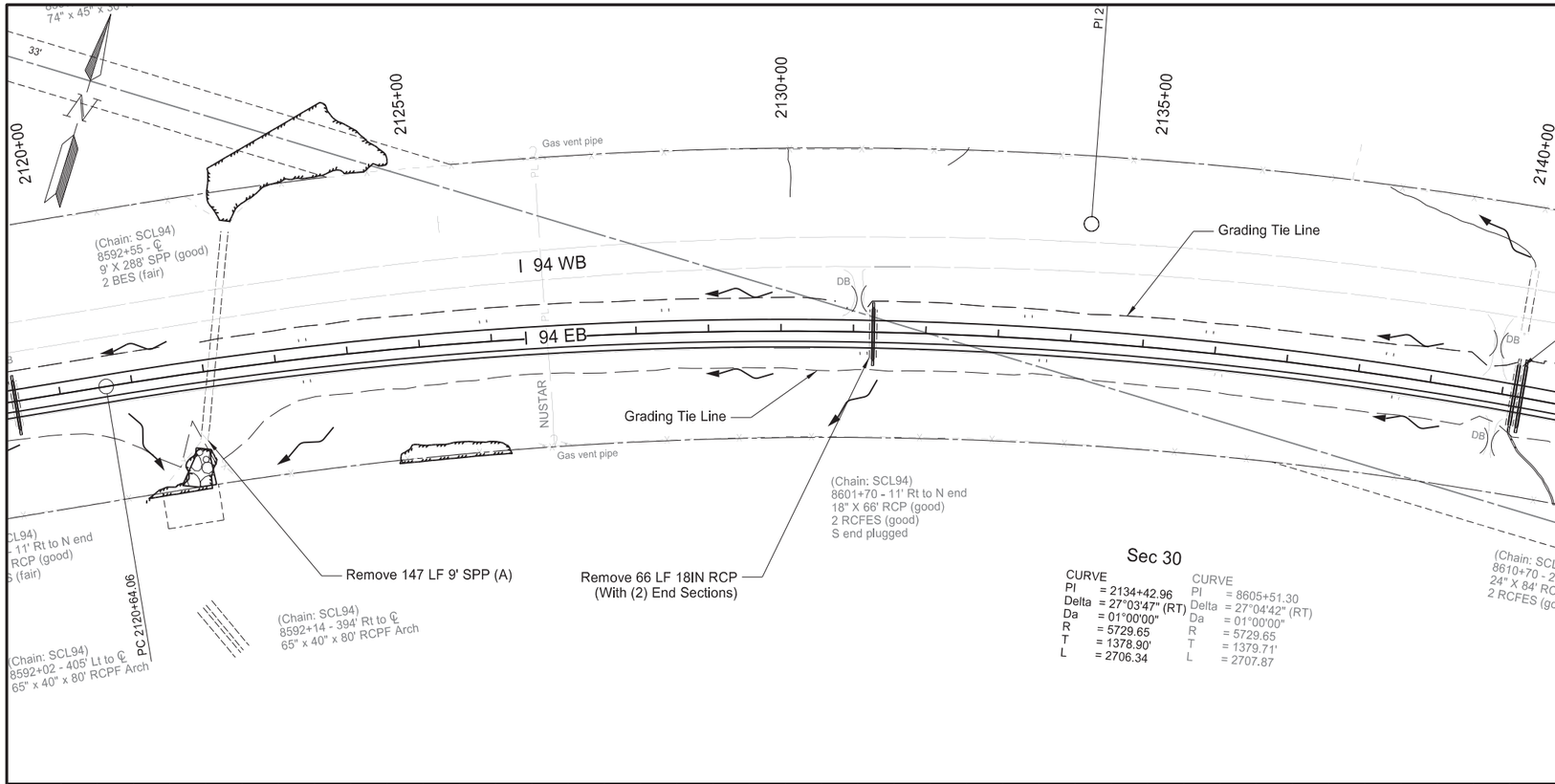
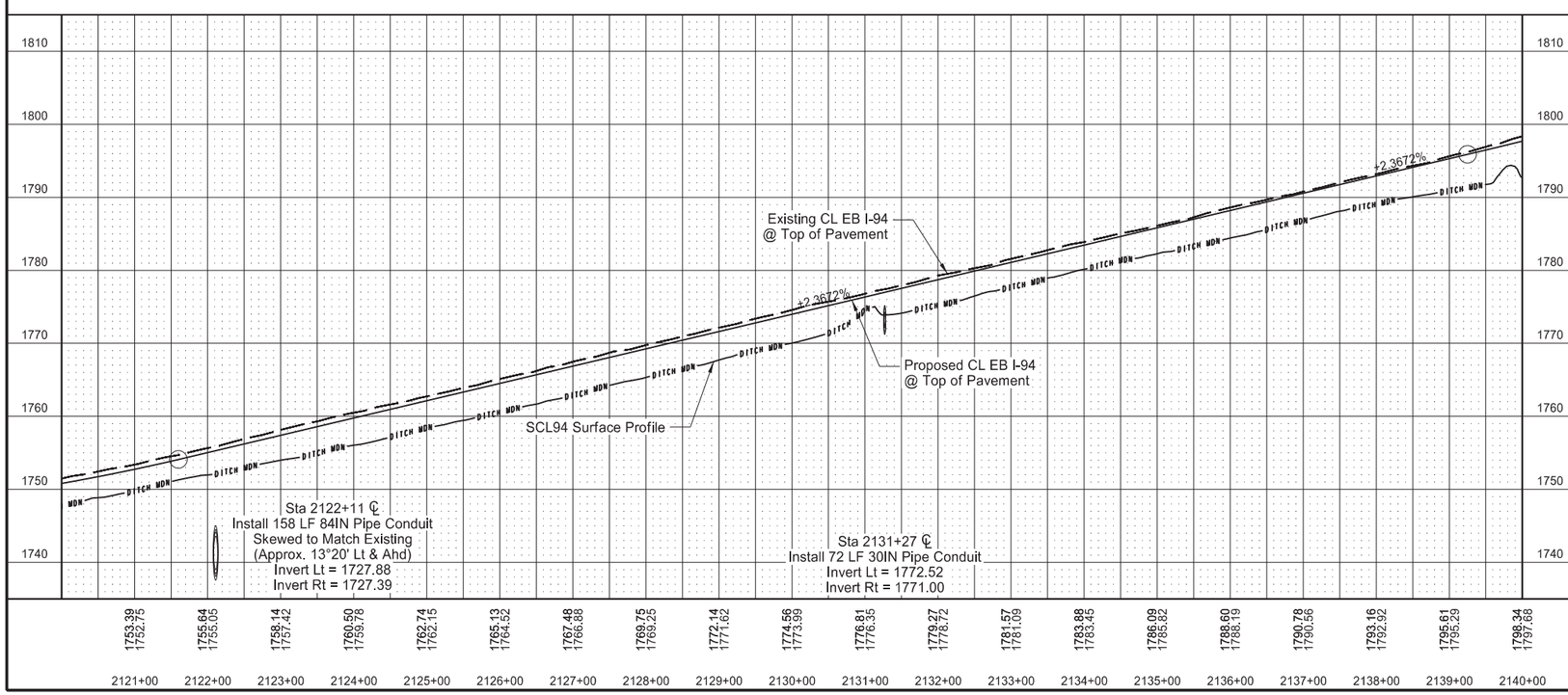


SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2131+27 ℄	66	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2131+27 ℄	72	LF
714	4155	PIPE CONDUIT 84IN		
		Sta 2122+11 ℄	158	LF
900	1000	TEMPORARY STREAM DIVERSION		
		Sta 2122+11	1	EA



(A) To Be Measured and Paid for as "Removal of Structure - Site 1"
See "Removal of Structural Plate Pipe and Culvert Installation Details" Sheet

Station Based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:48:47 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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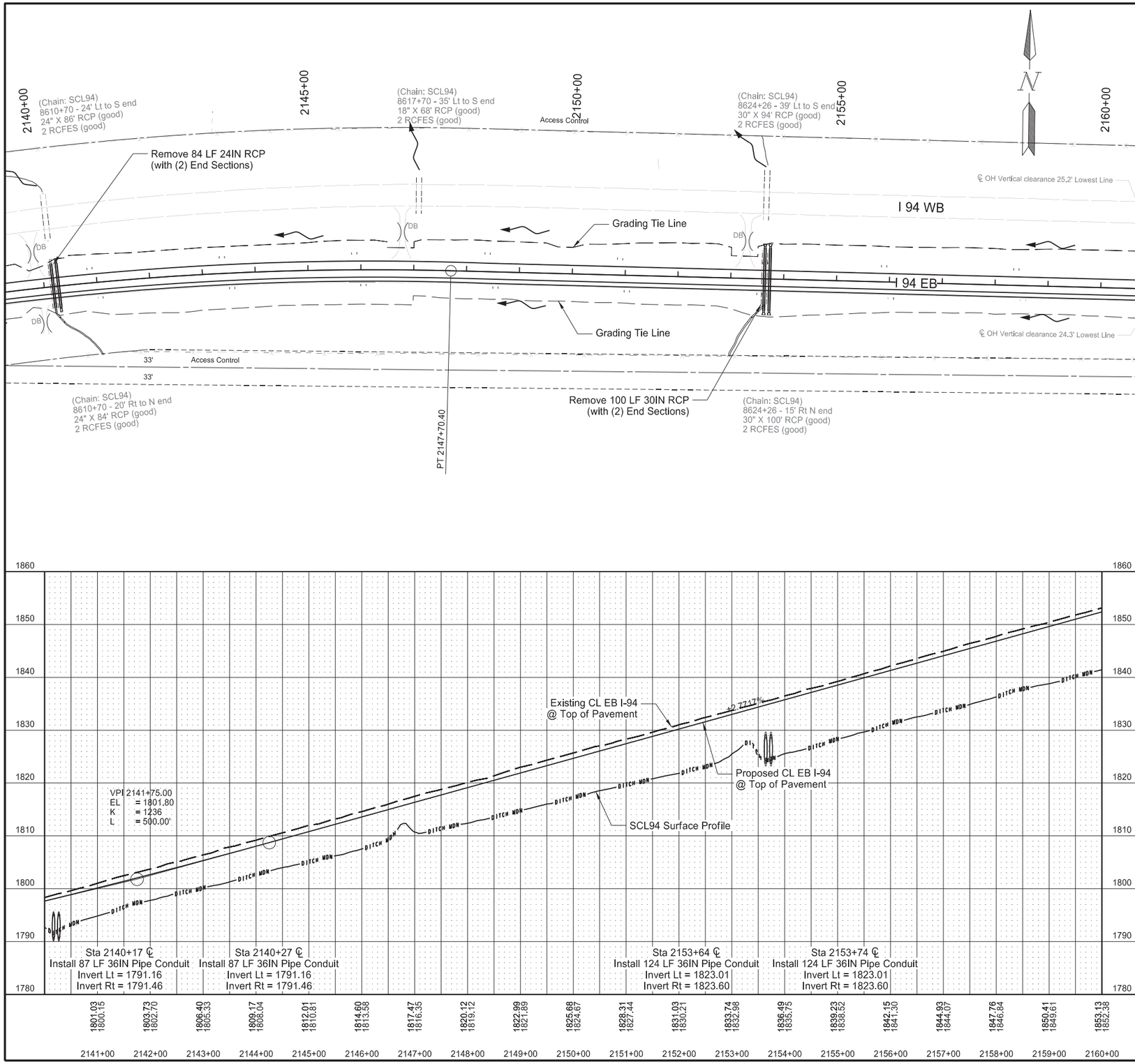

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2140+17 ℄	84	LF
		Sta 2153+64 ℄	100	LF
714	4115	PIPE CONDUIT 36IN		
		Sta 2140+17 ℄	87	LF
		Sta 2140+27 ℄	87	LF
		Sta 2153+64 ℄	124	LF
		Sta 2153+74 ℄	124	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:49:03 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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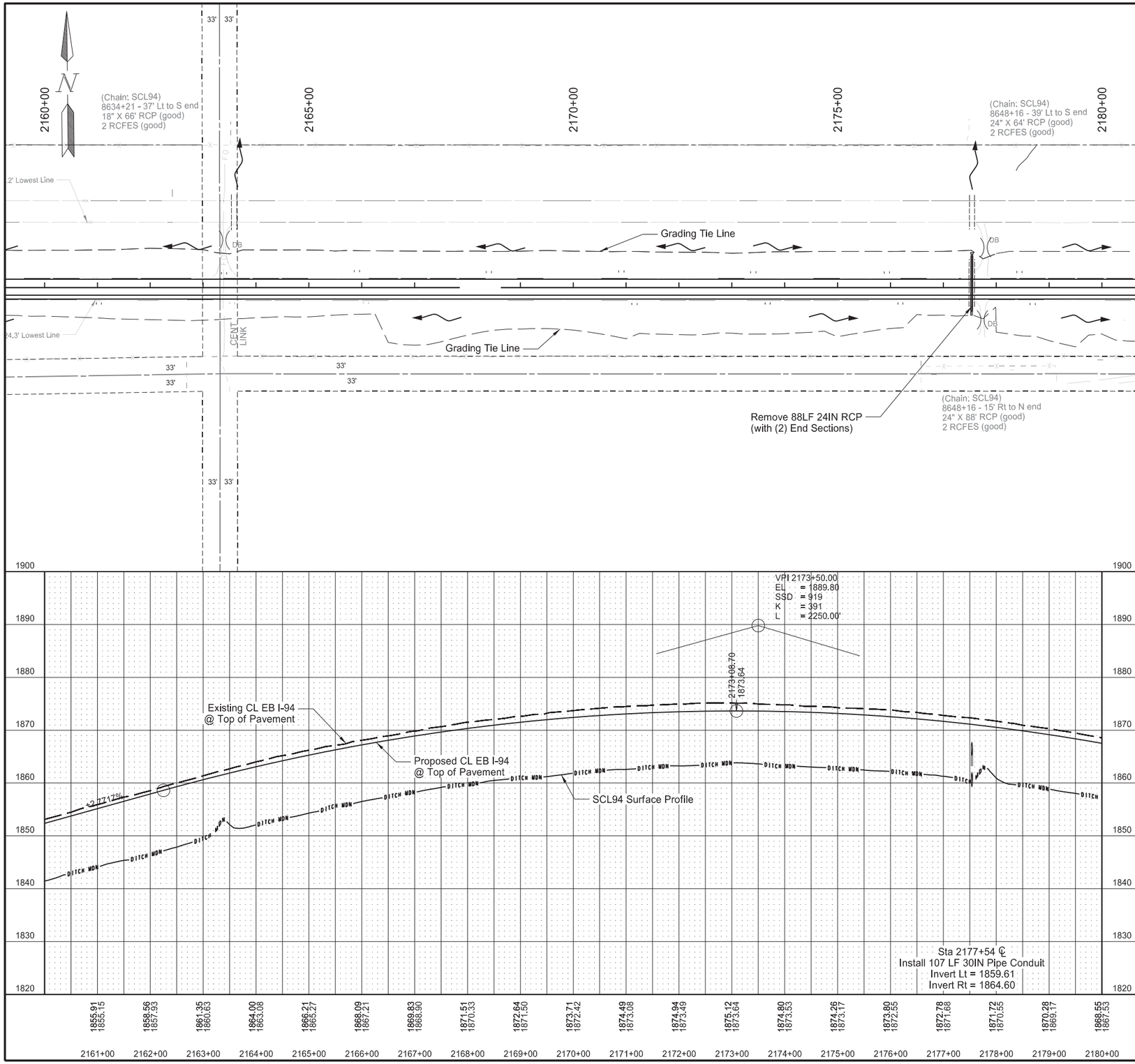

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2177+54 ℄	88	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2177+54 ℄	107	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:49:18 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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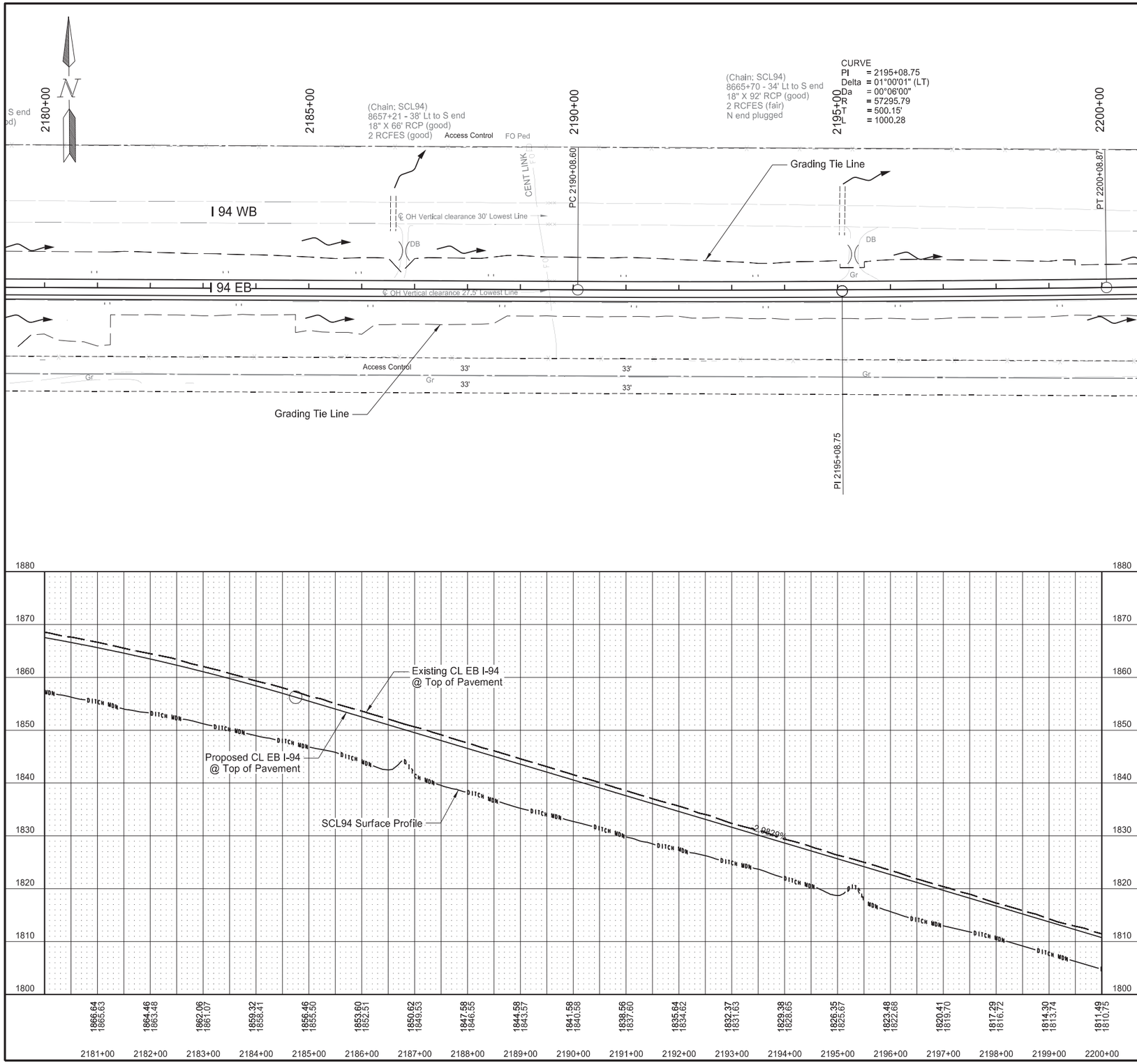

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:49:31 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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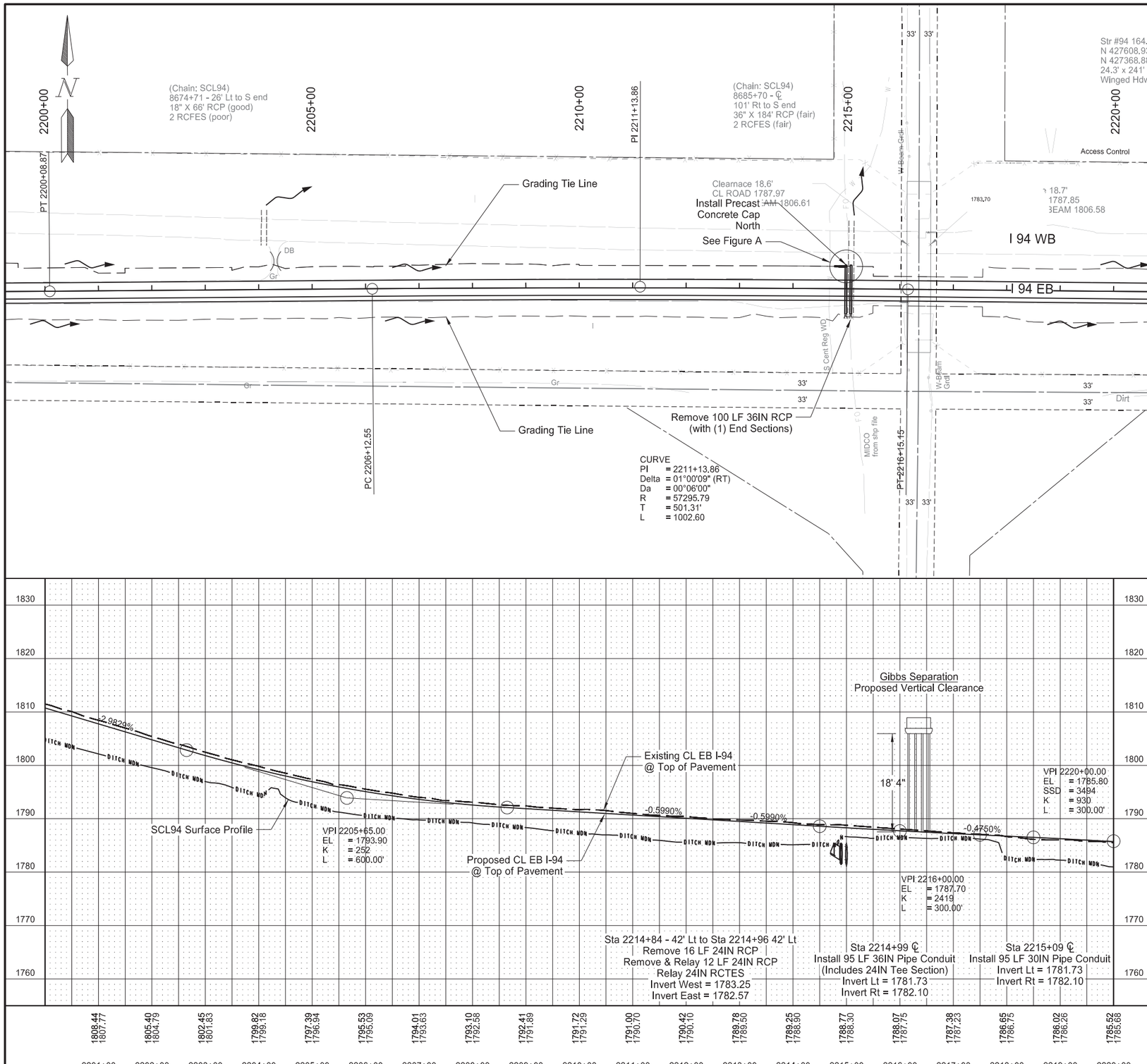

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2214+90 - 42.1' Lt to Sta 2215+06 - 42.2' Lt	16	LF
		Sta 2215+09 - 42.0' Lt to Sta 2215+09 - 58.0' Rt	100	LF
714	4115	PIPE CONDUIT 36IN		
		Sta 2214+99 ℄	95	LF
		Sta 2215+09 ℄	95	LF
714	9630	RELAY END SECTION-ALL TYPES & SIZES		
		Sta 2214+84 - 41.7' Lt	1	EA
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES		
		Sta 2214+84 - 42.0' Lt to 2214+96 - 42.0' Lt	12	LF

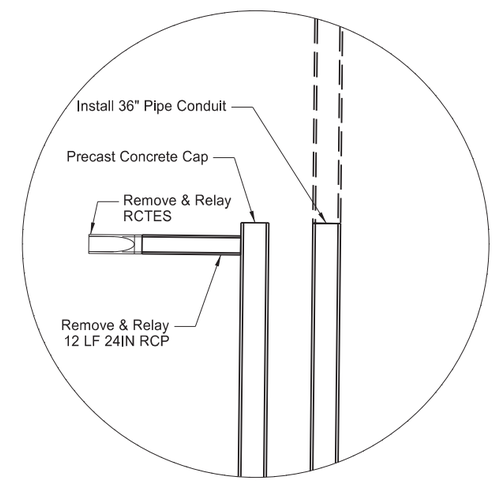

Figure A

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:49:49 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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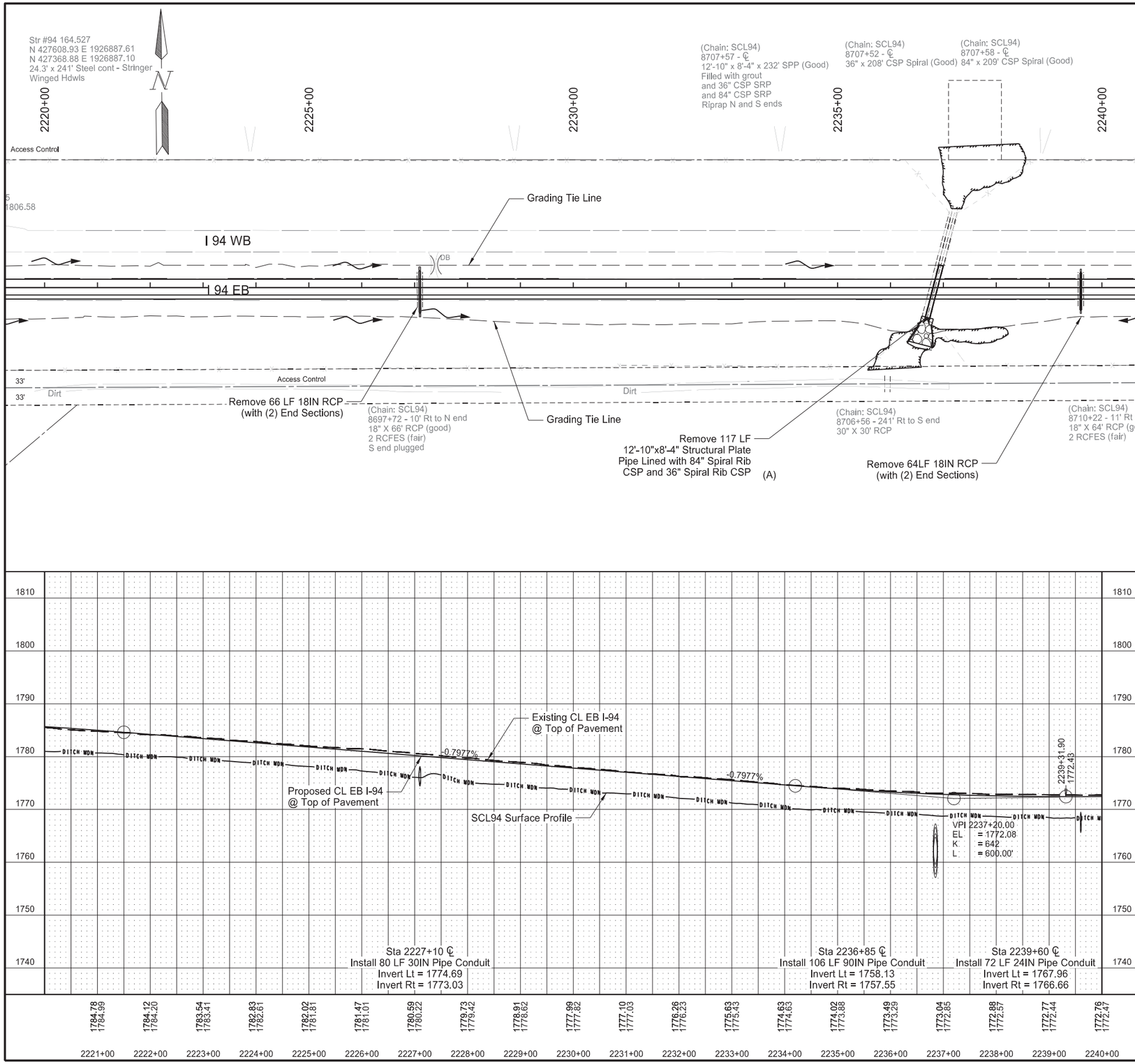

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2227+10 ℄	66	LF
		Sta 2239+60 ℄	64	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2239+60 ℄	72	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2227+10 ℄	80	LF
714	4160	PIPE CONDUIT 90IN		
		Sta 2236+85 ℄	106	LF
900	1000	TEMPORARY STREAM DIVERSION		
		Sta 2236+85	1	EA

(A) To Be Measured and Paid for as "Removal of Structure - Site 2."
See "Removal of Structural Plate Pipe and Culvert Installation Details" Sheet
Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:50:03 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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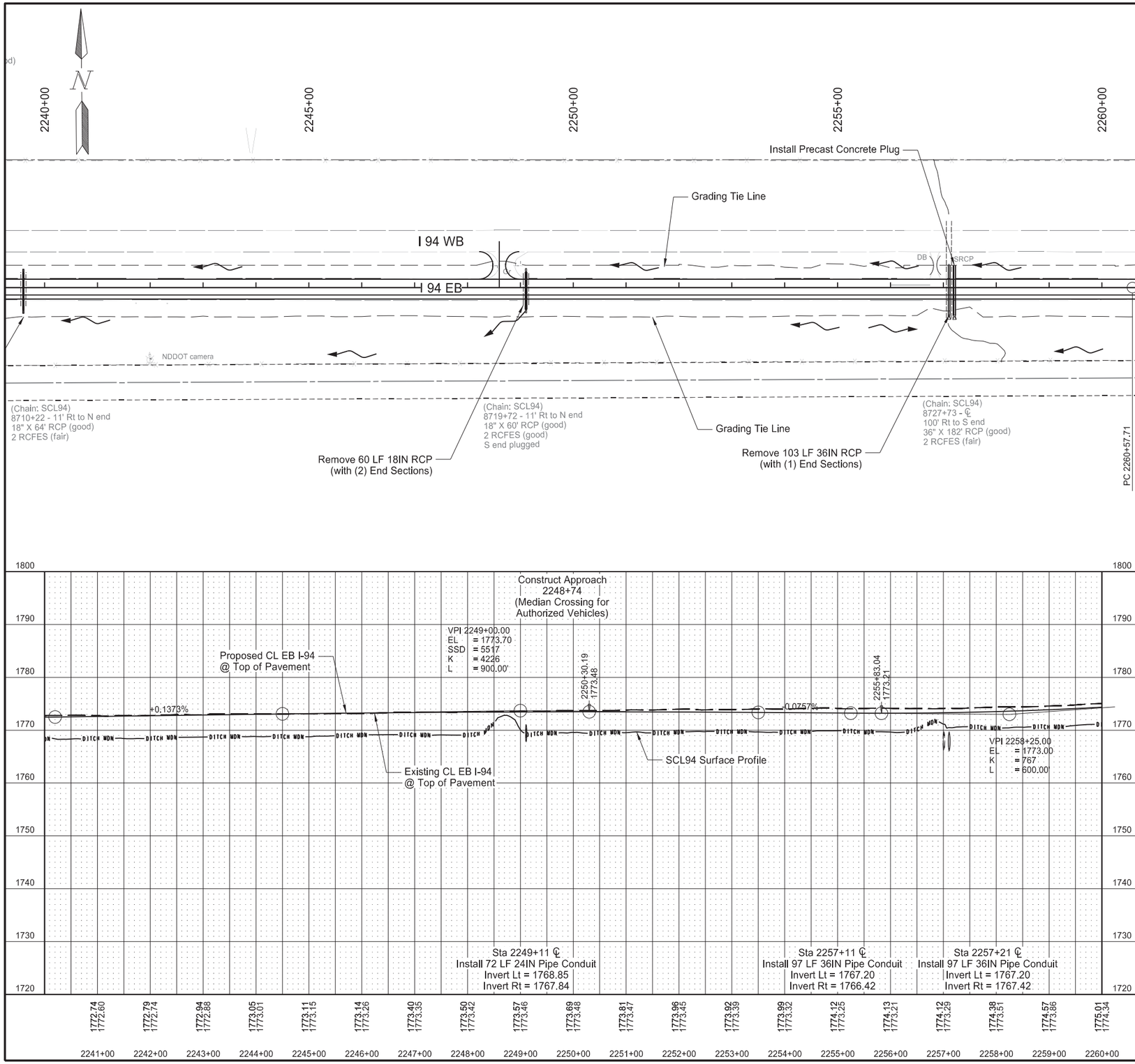

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2249+11 ℄	60	LF
		Sta 2257+11 - 42' Lt to Sta 2257+11 - 61' Rt	103	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2249+11 ℄	72	LF
714	4115	PIPE CONDUIT 36IN		
		Sta 2257+11 ℄	97	LF
		Sta 2257+21 ℄	97	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:50:18 -05'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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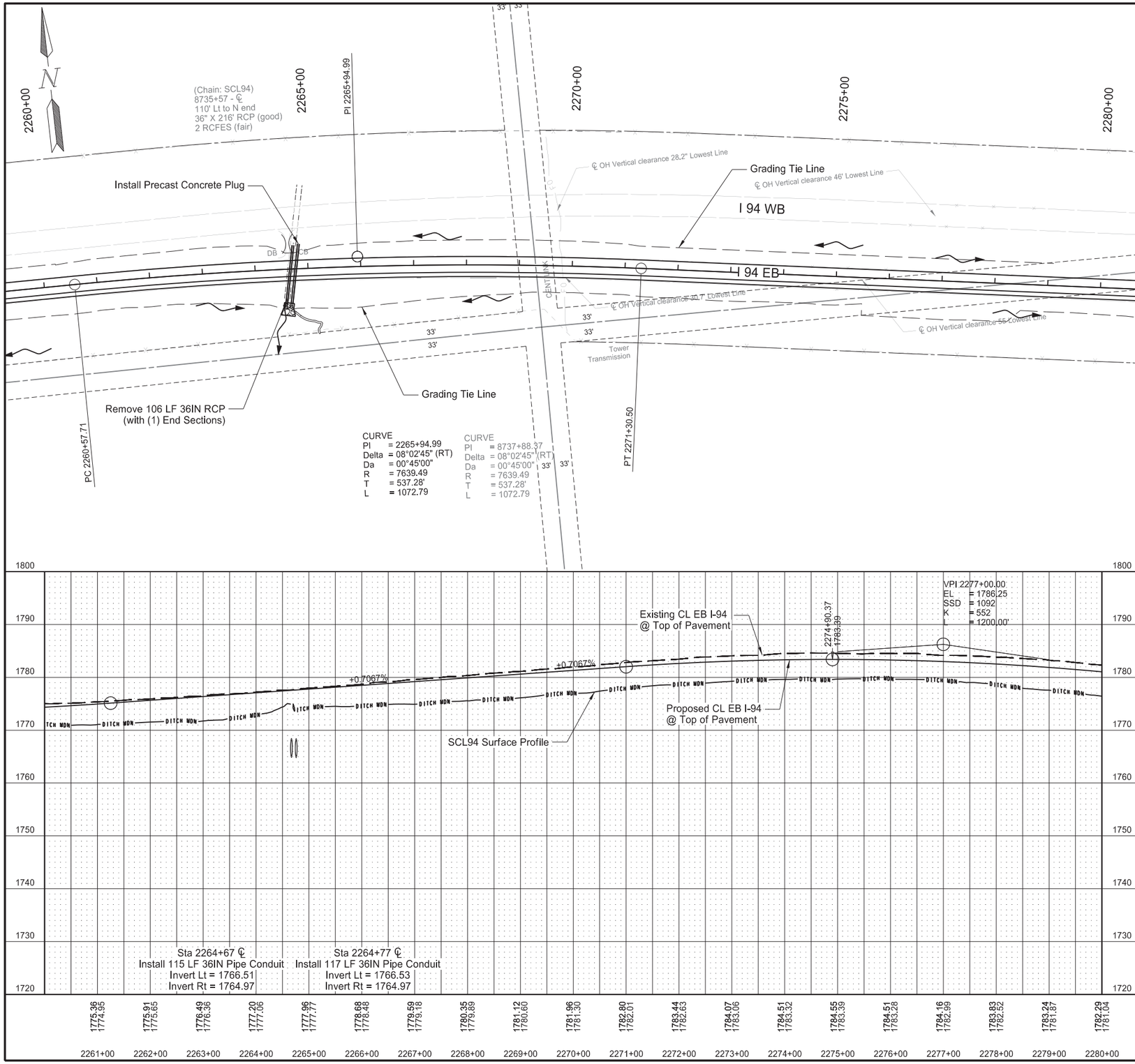

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2264+67 - 46' Lt to Sta 2264+67 - 60' Rt	106	LF
714	4115	PIPE CONDUIT 36IN		
		Sta 2264+67 ℄	115	LF
		Sta 2264+77 ℄	117	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:50:36 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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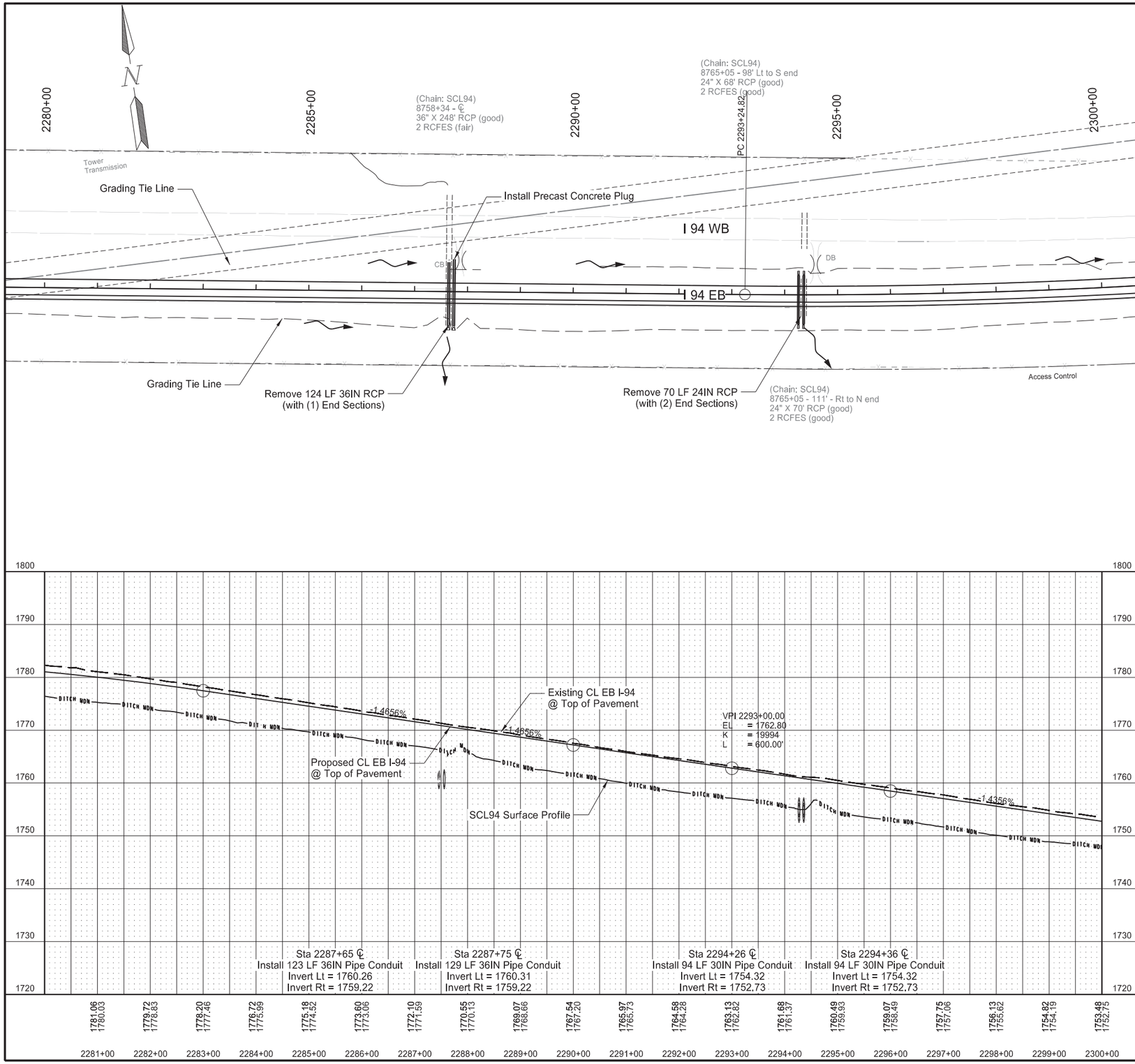

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2287+65 - 57' Lt to Sta 2287+65 - 67' Rt	124	LF
		Sta 2294+36 ℄	70	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2294+26 ℄	94	LF
		Sta 2294+36 ℄	94	LF
714	4115	PIPE CONDUIT 36IN		
		Sta 2287+65 ℄	123	LF
		Sta 2287+75 ℄	129	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:51:35 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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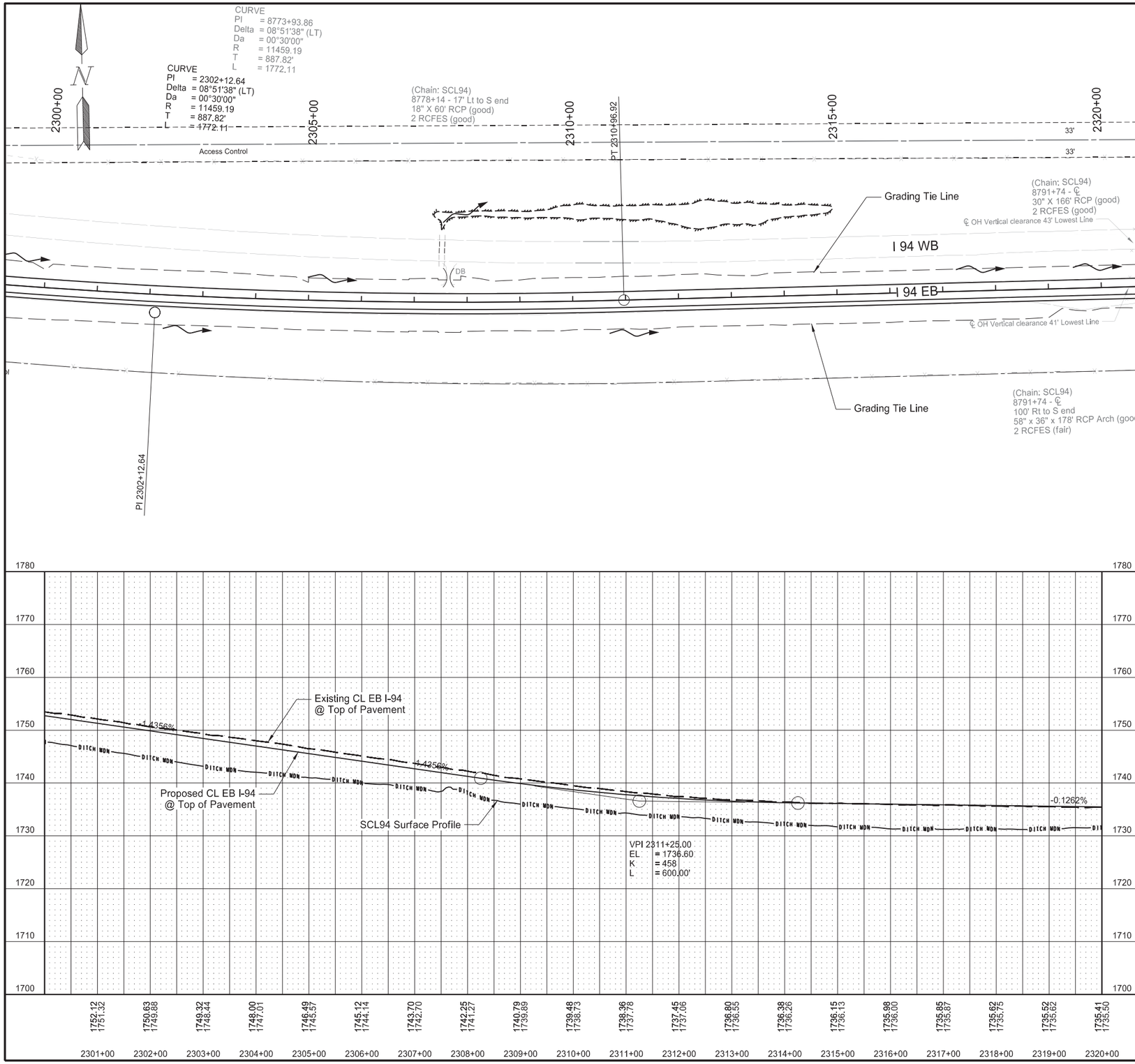

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:51:51 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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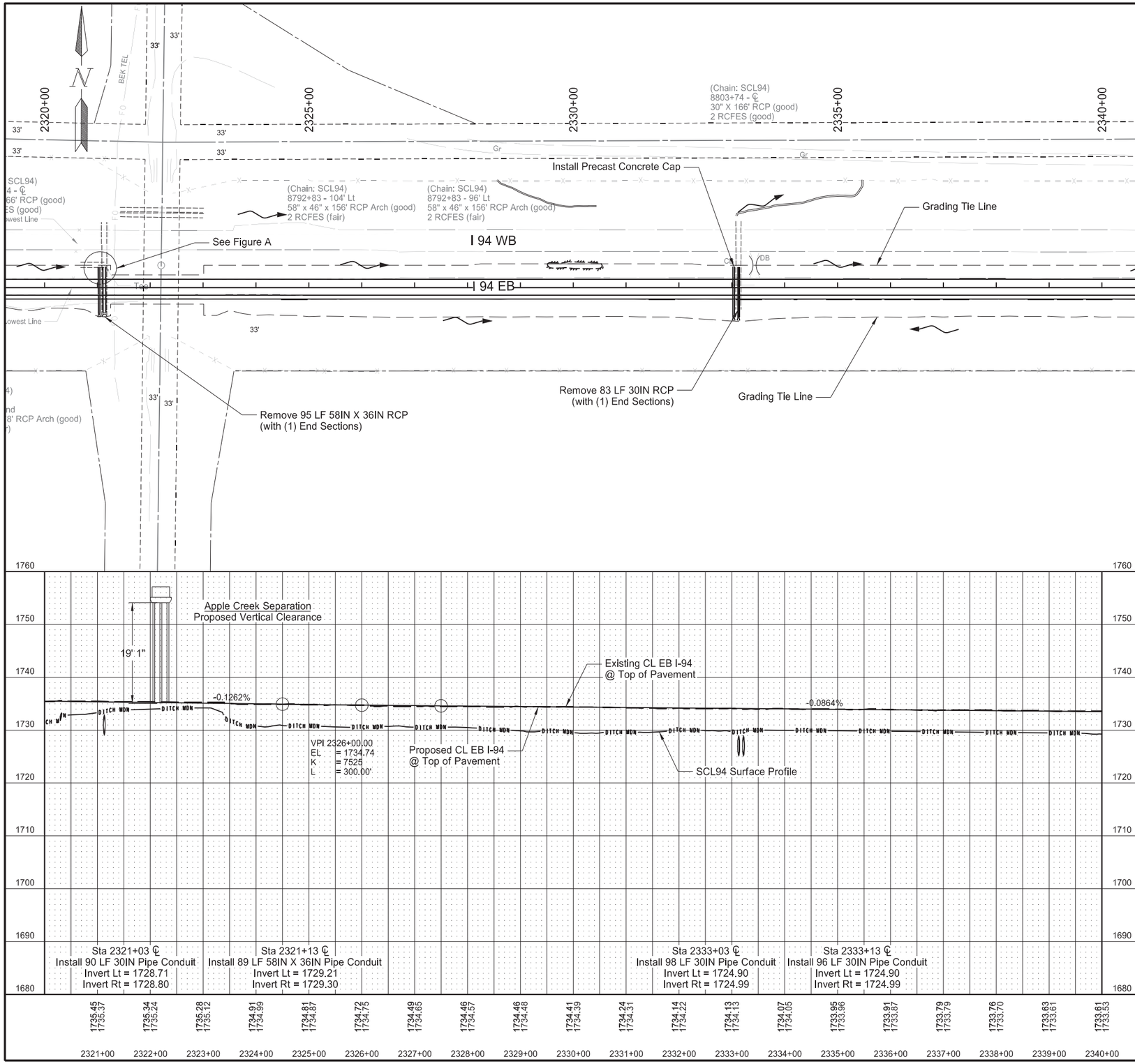

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2321+13 - 40' Lt to Sta 2321+13 - 55' Rt	95	LF
		Sta 2333+13 - 39' Lt to Sta 2333+13 - 44' Rt	83	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2321+03 ℄	90	LF
		Sta 2333+03 ℄	98	LF
		Sta 2333+13 ℄	96	LF
714	4229	PIPE CONDUIT ARCH 58IN X 36IN		
		Sta 2321+13 ℄	89	LF

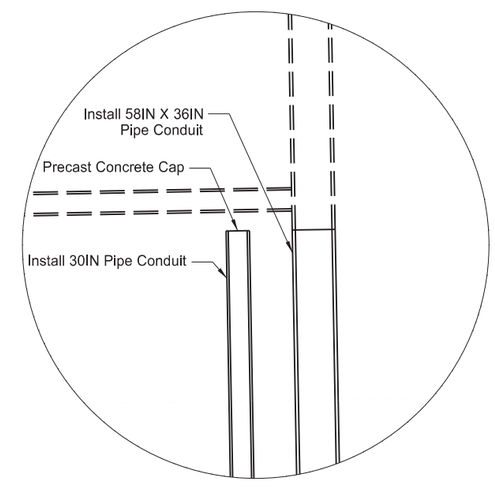

Figure A

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:52:08 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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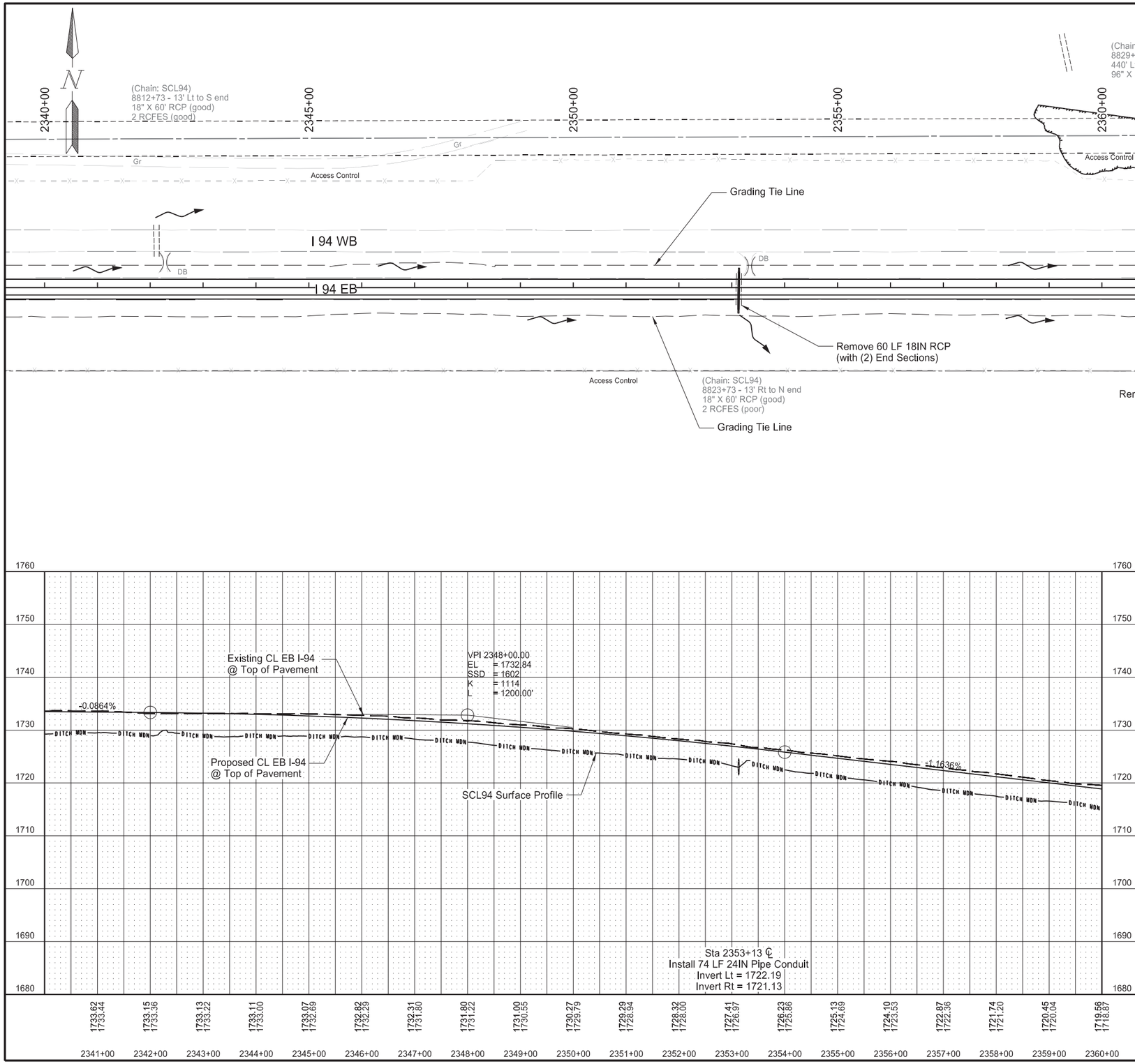

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2353+13 ℄	60	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2353+13 ℄	74	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:52:28 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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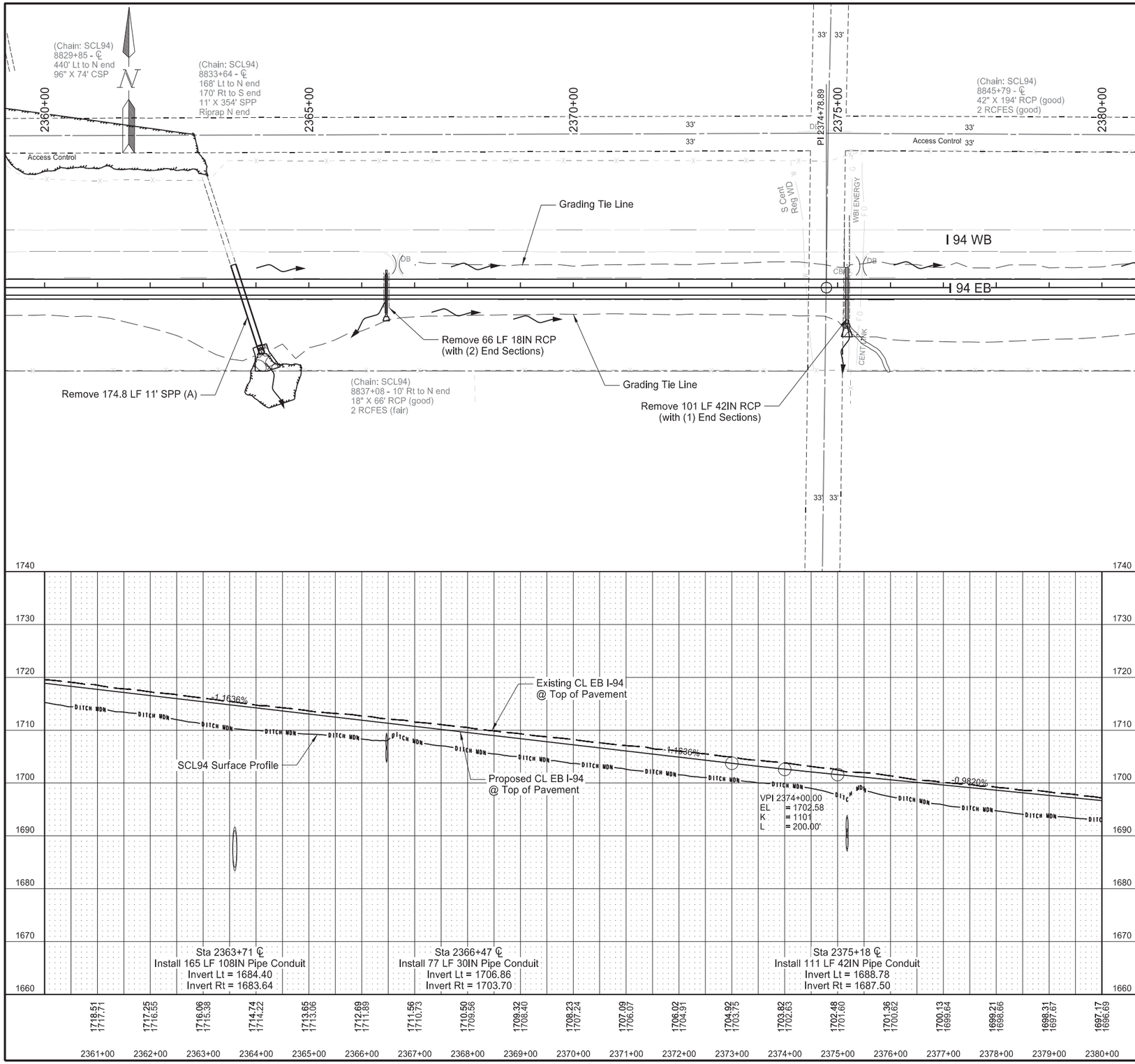

SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2366+47 ℄	66	LF
		Sta 2375+18 - 39' Lt to Sta 2375+18 - 62' Rt	101	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2366+47 ℄	77	LF
714	4120	PIPE CONDUIT 42IN		
		Sta 2375+18 ℄	111	LF
714	4172	PIPE CONDUIT 108IN		
		Sta 2363+71 ℄	165	LF
900	1000	TEMPORARY STREAM DIVERSION		
		Sta 2363+71	1	EA

(A) To Be Measured and Paid for as "Removal of Structure - Site 3"
See "Removal of Structural Plate Pipe and Culvert Installation Details" Sheet
Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:52:49 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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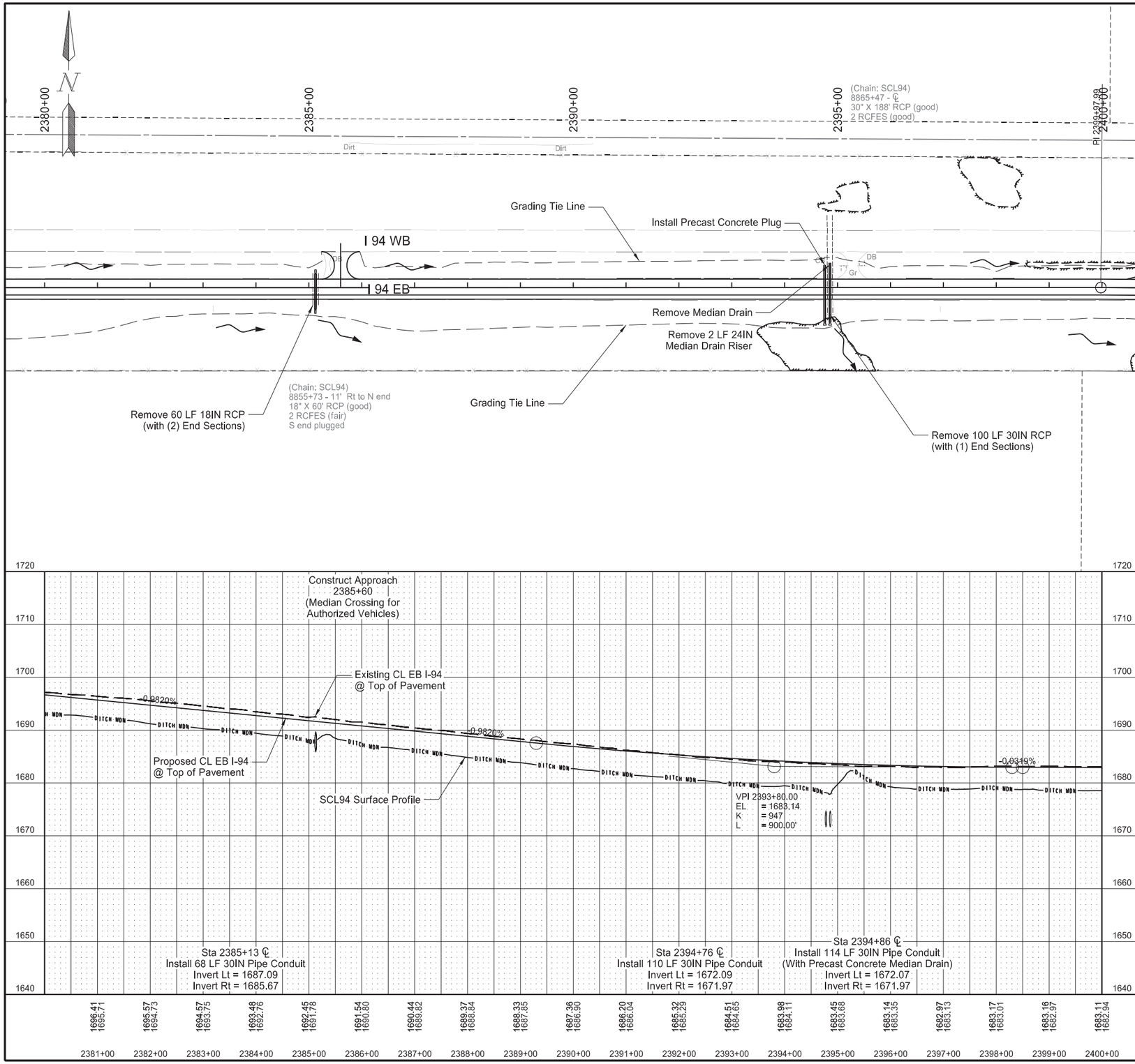


SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2385+13 ℄	60	LF
		Sta 2394+86 - 47' Lt to Sta 2394+86 - 53' Rt	100	LF
		Sta 2394+86 Lt	2	LF
202	0237	REMOVAL OF MEDIAN DRAIN PRECAST CONCRETE		
		Sta 2394+86 Lt	1	EA
714	4105	PIPE CONDUIT 24IN		
		Sta 2394+86 Lt - Median Drain Riser	2.5	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2385+13 ℄	68	LF
		Sta 2394+76 ℄	110	LF
		Sta 2394+86 ℄	114	LF
722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A		
		Sta 2394+86 Lt	1	EA

Station based on EX94EB alignment

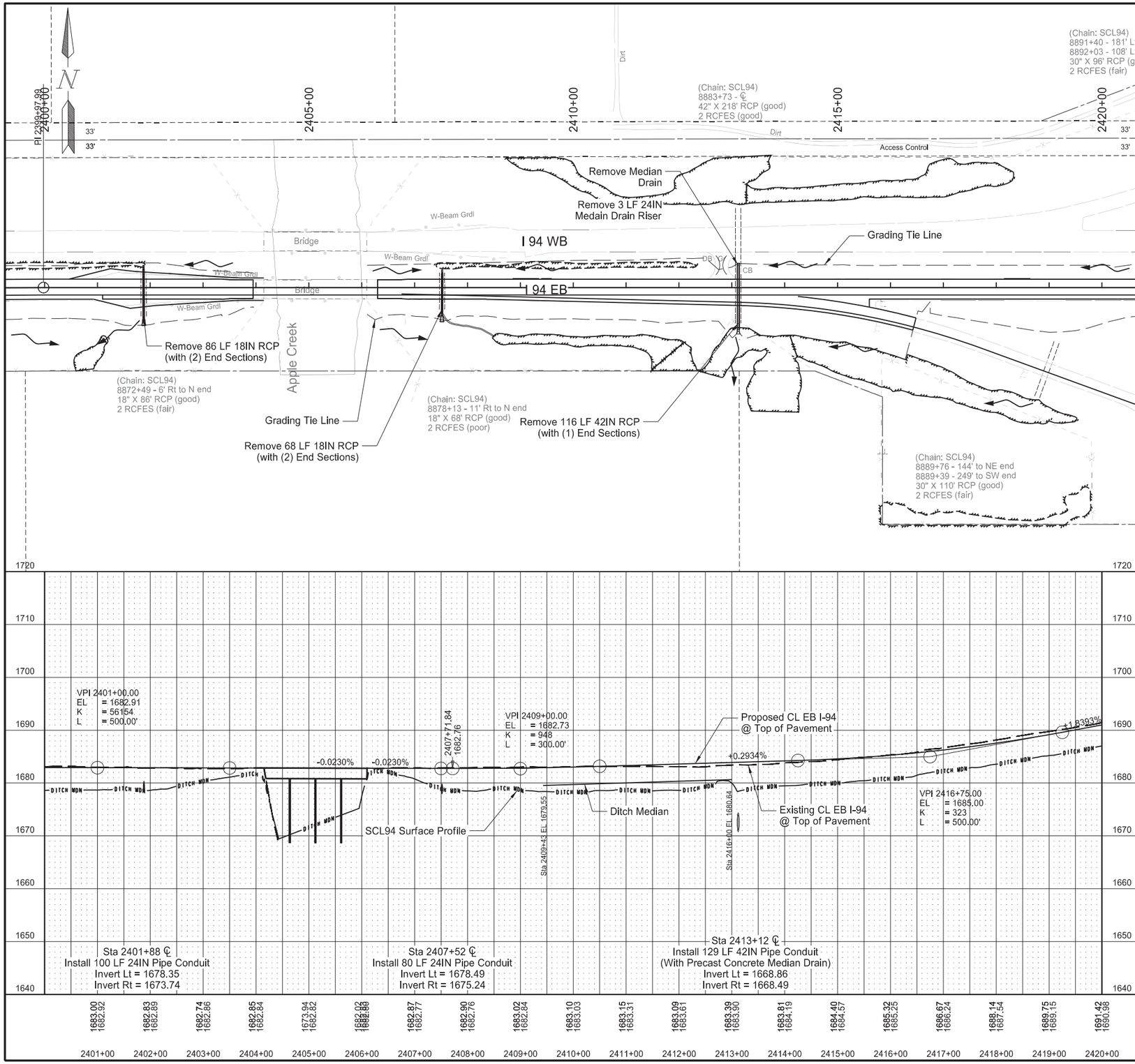
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:53:10 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	16



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2401+88 ℄	86	LF
		Sta 2407+52 ℄	68	LF
		Sta 2413+12 - 46' Lt to Sta 2413+12 - 70' Rt	116	LF
		Sta 2413+12 Lt	3	LF
202	0237	REMOVAL OF MEDIAN DRAIN PRECAST CONCRETE		
		Sta 2413+12 Lt	1	EA
714	4105	PIPE CONDUIT 24IN		
		Sta 2401+88 ℄	100	LF
		Sta 2407+52 ℄	80	LF
		Sta 2413+12 Lt - Median Drain Riser	4.5	LF
714	4120	PIPE CONDUIT 42IN		
		Sta 2413+12 ℄	129	LF
722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A		
		Sta 2413+12 Lt	1	EA

Station based on EX94EB alignment

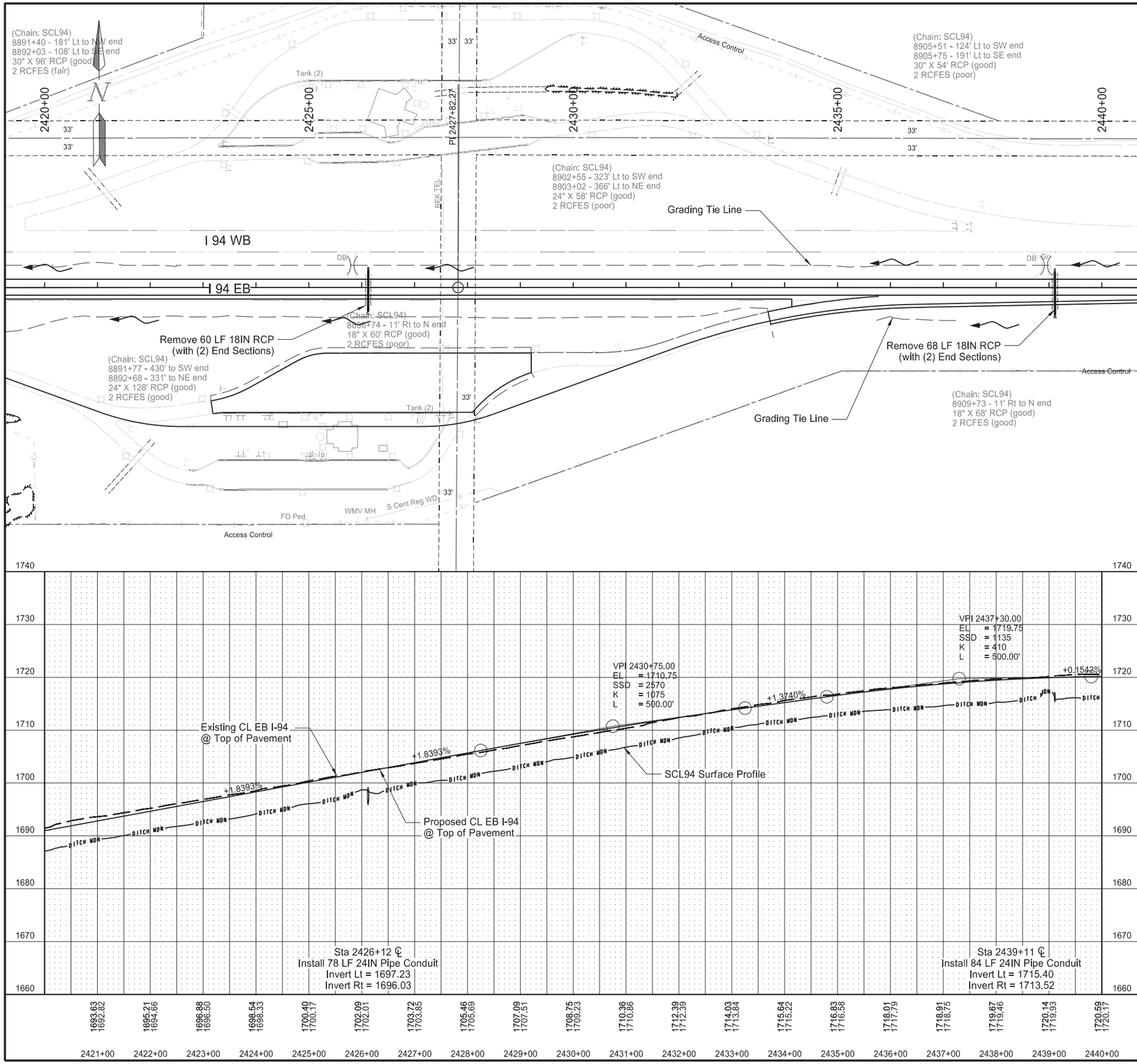
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:53:40 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	17



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2426+12 ℄	60	LF
		Sta 2439+11 ℄	68	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2426+12 ℄	78	LF
		Sta 2439+11 ℄	84	LF

Station based on EX94EB alignment

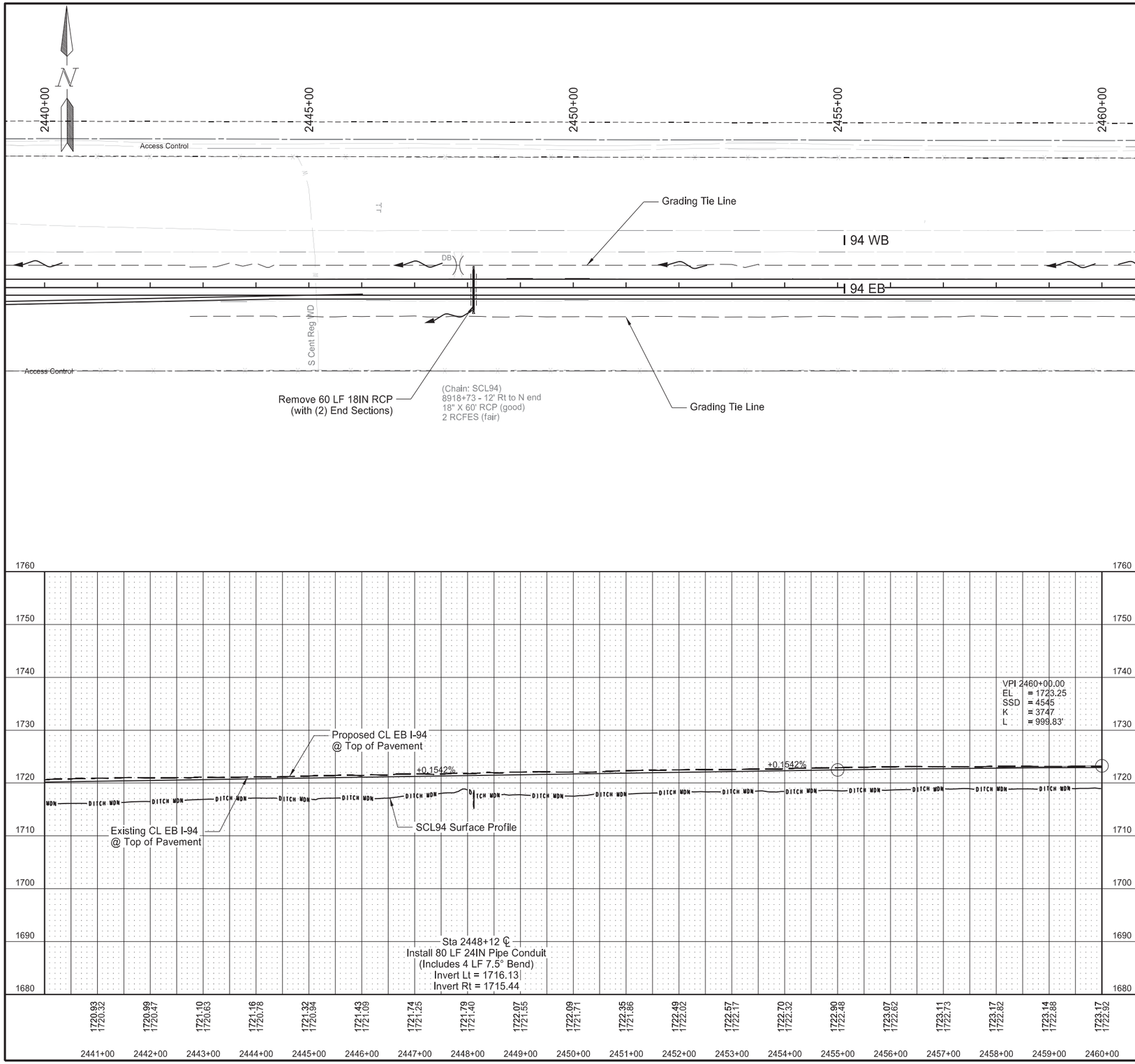
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:53:58 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	18



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2448+12 ℄	60	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2448+12 ℄	80	LF

Station based on EX94EB alignment

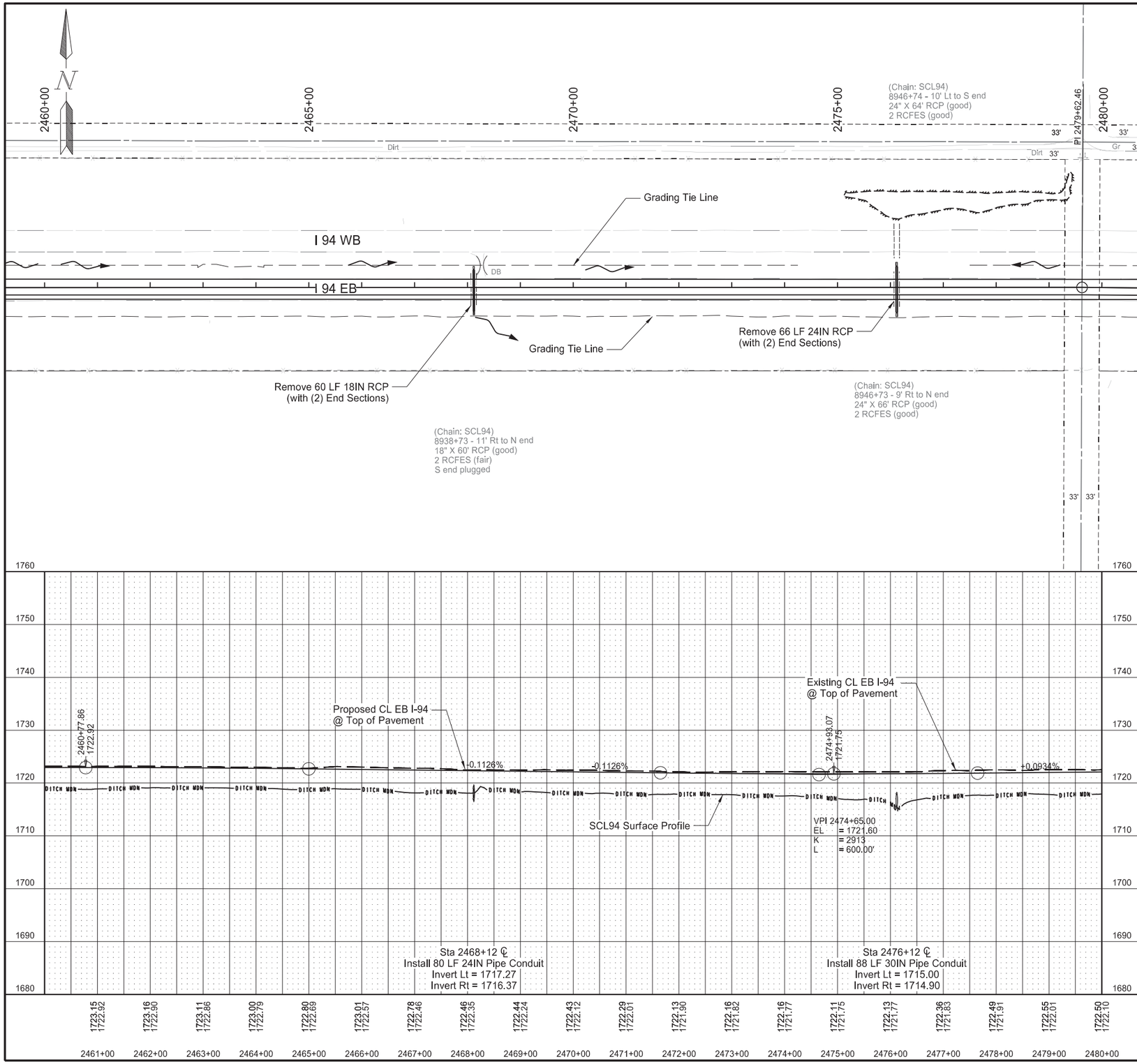
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:54:19 -05'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	19



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2468+12 ℄	60	LF
		Sta 2476+12 ℄	66	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2468+12 ℄	80	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2476+12 ℄	88	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:54:39 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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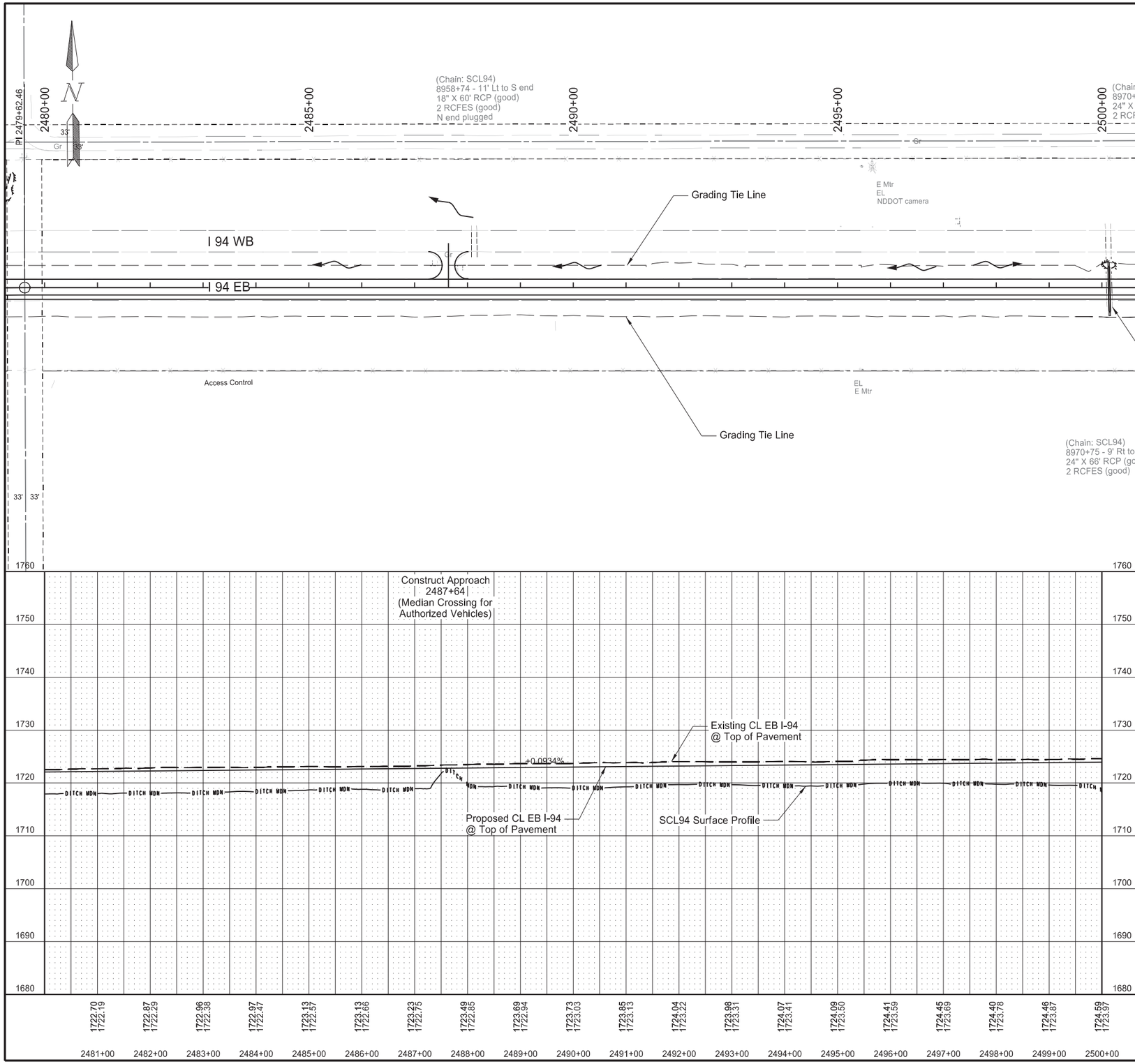


Station based on EX94EB alignment

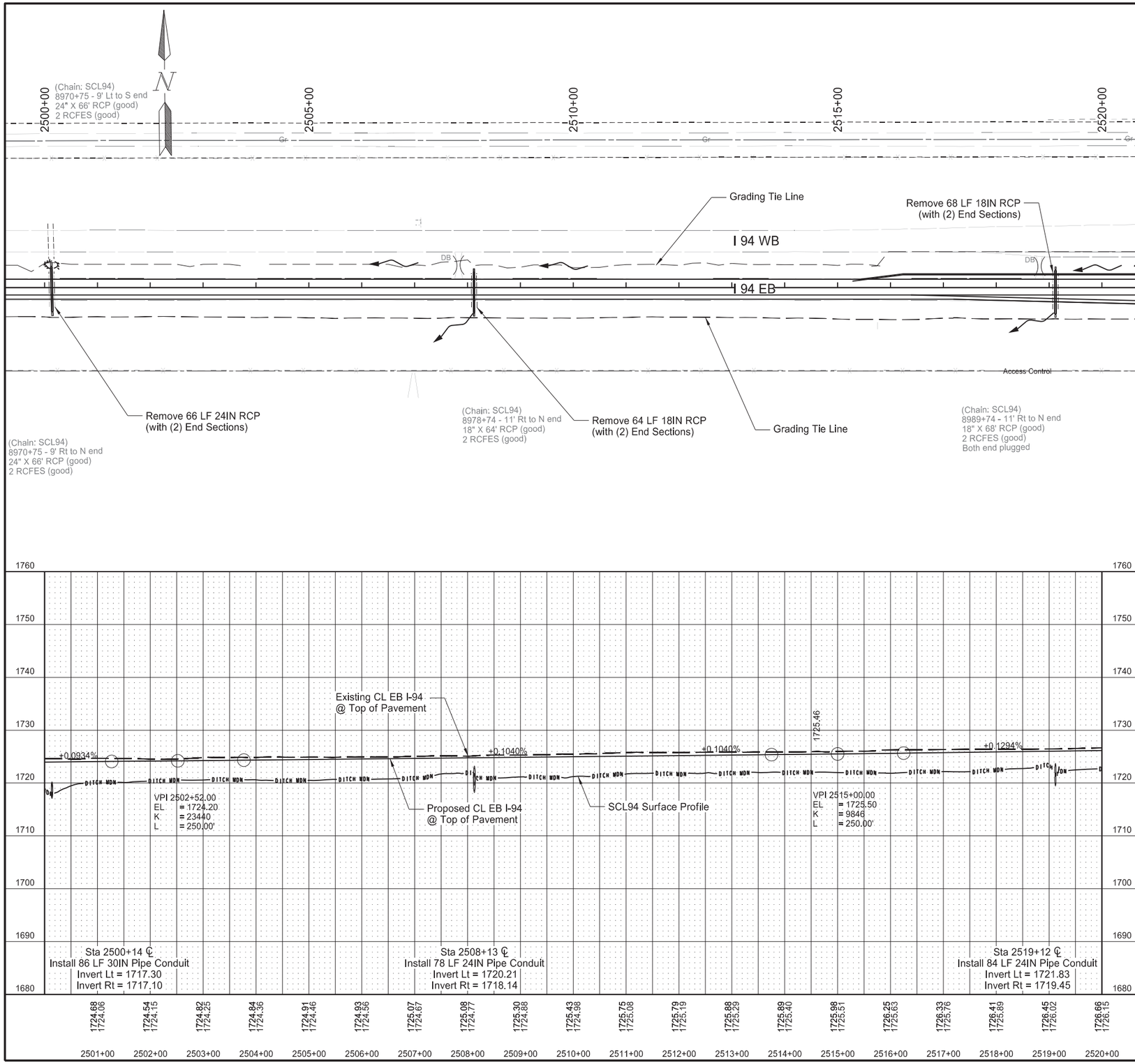
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:55:03 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	21



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2500+14 ℄	66	LF
		Sta 2508+13 ℄	64	LF
		Sta 2519+12 ℄	68	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2508+13 ℄	78	LF
		Sta 2519+12 ℄	84	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2500+14 ℄	86	LF

Station based on EX94EB alignment

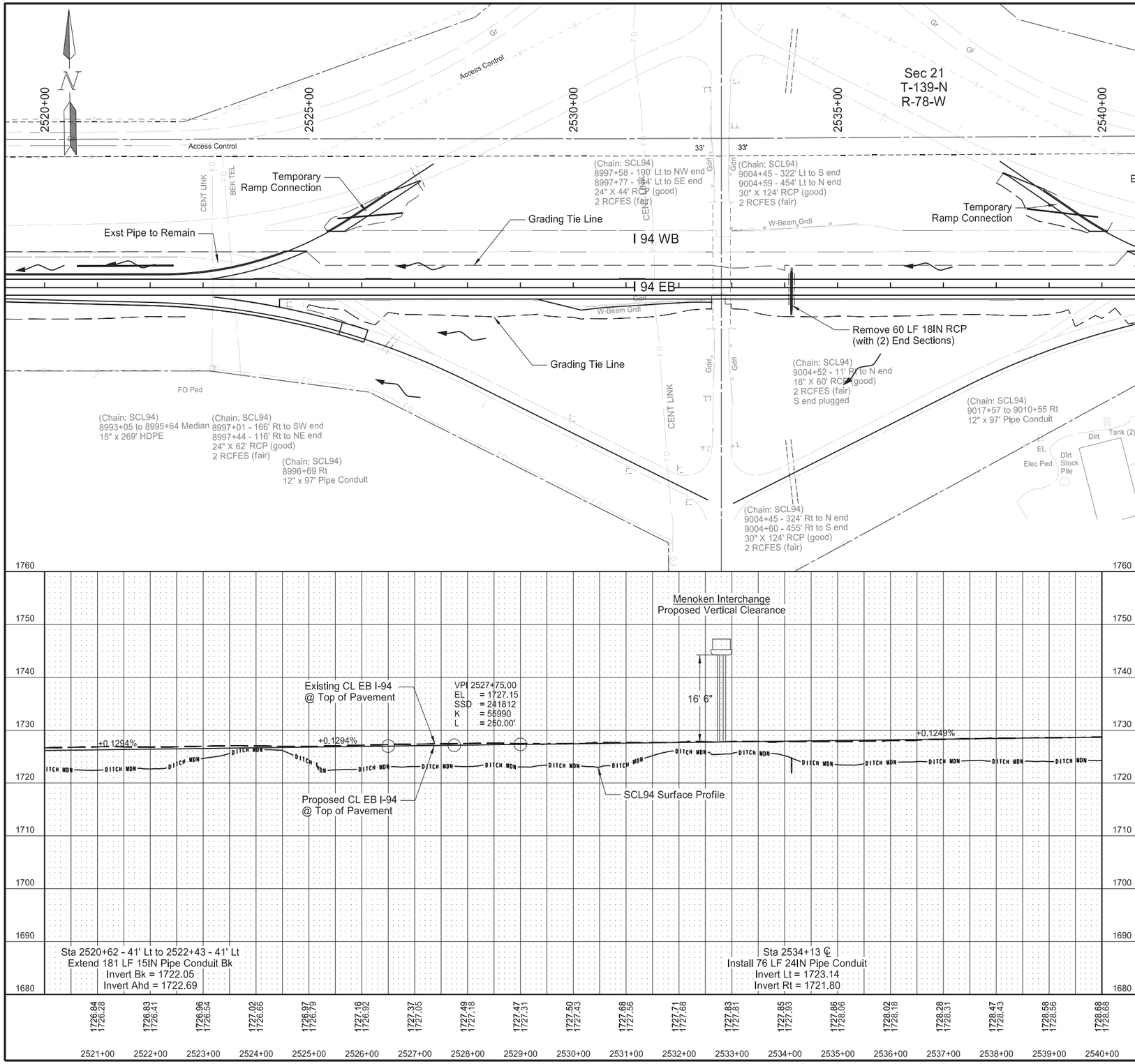
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:55:27 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	22



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2520+62 - 41' Lt to 2522+12 - 41' Lt	150	LF
		Sta 2534+13 ℄	60	LF
714	4095	PIPE CONDUIT 15IN		
		Sta 2520+62 - 41' Lt to 2522+43 - 41' Lt	181	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2534+13 ℄	76	LF

Station based on EX94EB alignment

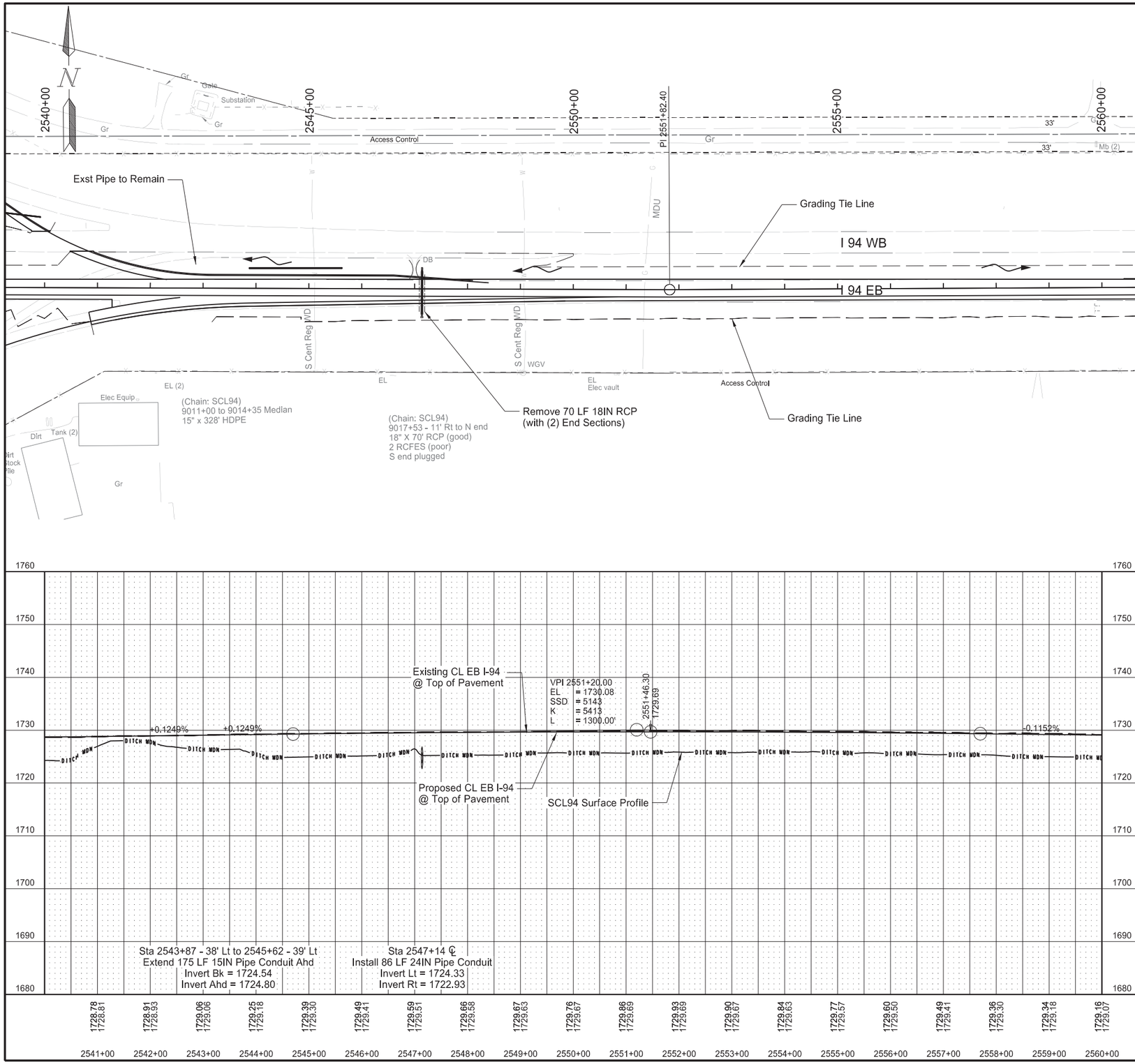
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:55:49 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	23



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2547+14 ℄	70	LF
		Sta 2544+09 - 38' Lt to 2545+62 - 39' Lt	153	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2547+14 ℄	86	LF
714	4095	PIPE CONDUIT 15IN		
		Sta 2543+87 - 38' Lt to 2545+62 - 39' Lt	175	LF

Station based on EX94EB alignment

Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:56:32 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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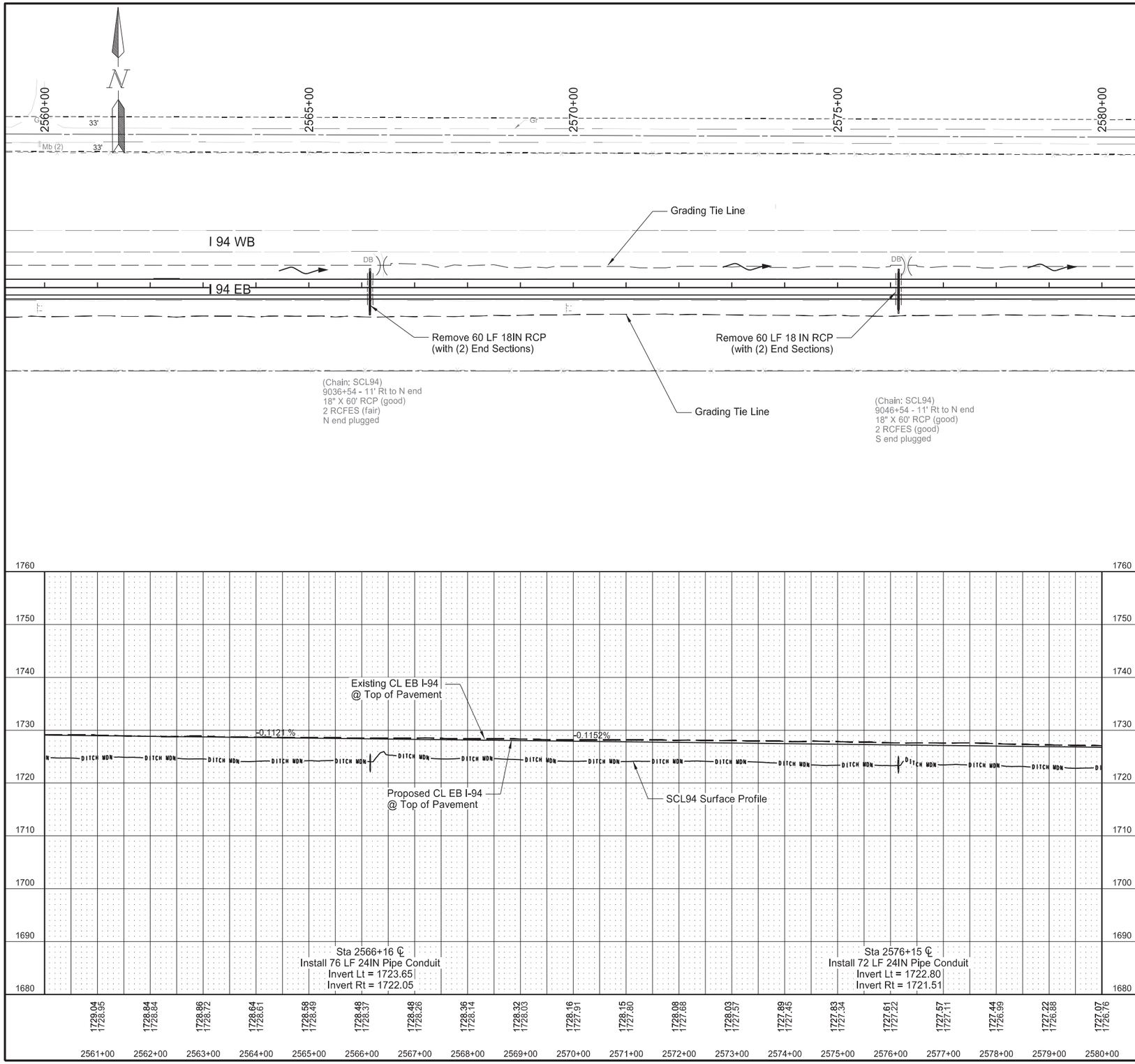


SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2566+16 ℄	60	LF
		Sta 2576+15 ℄	60	LF
714	4105	PIPE CONDUIT 24IN		
		Sta 2566+16 ℄	76	LF
		Sta 2576+15 ℄	72	LF

Station based on EX94EB alignment

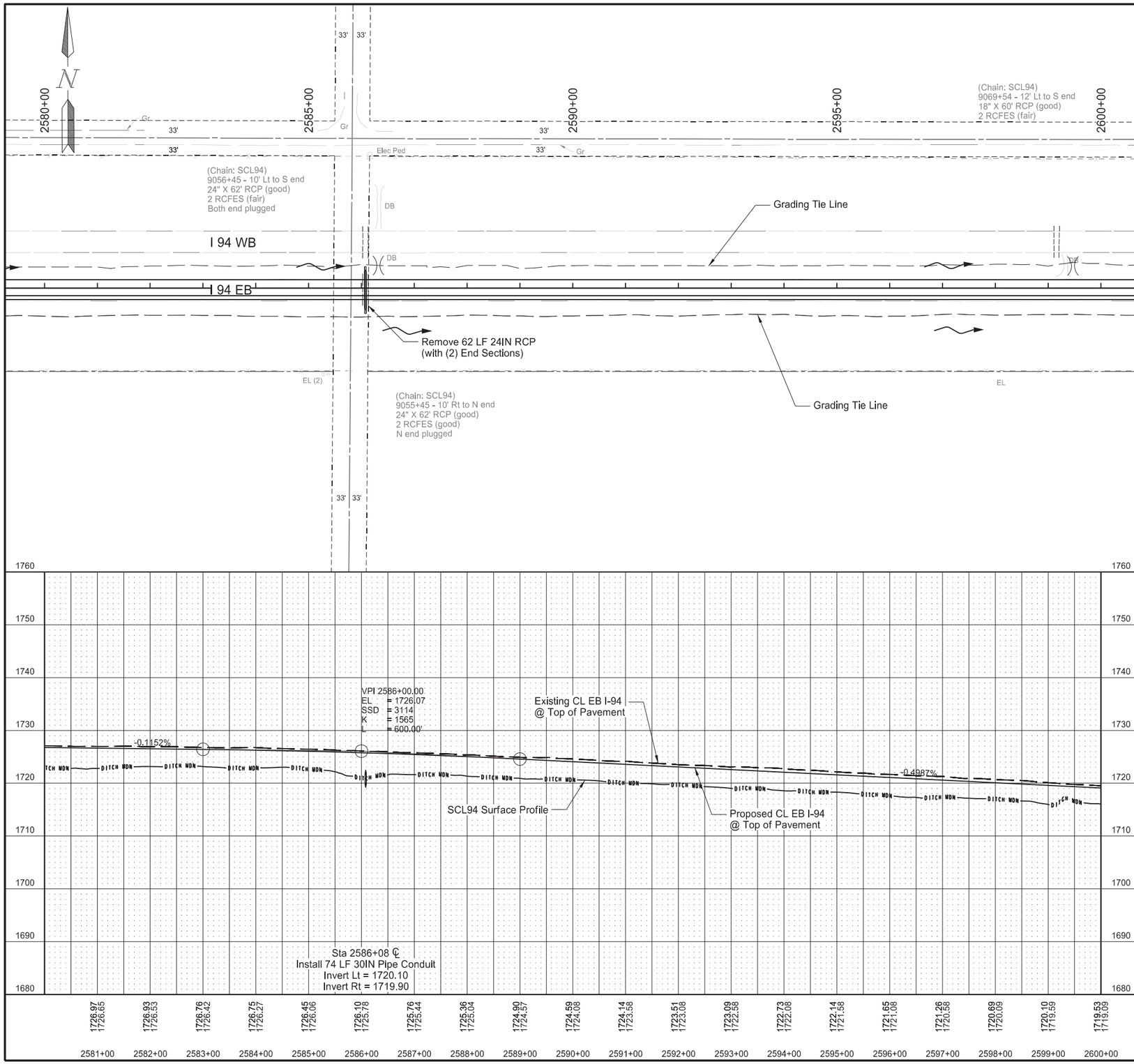
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:56:56 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	60	25



SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2586+08 ℄	62	LF
714	4110	PIPE CONDUIT 30IN		
		Sta 2586+08 ℄	74	LF

Station based on EX94EB alignment

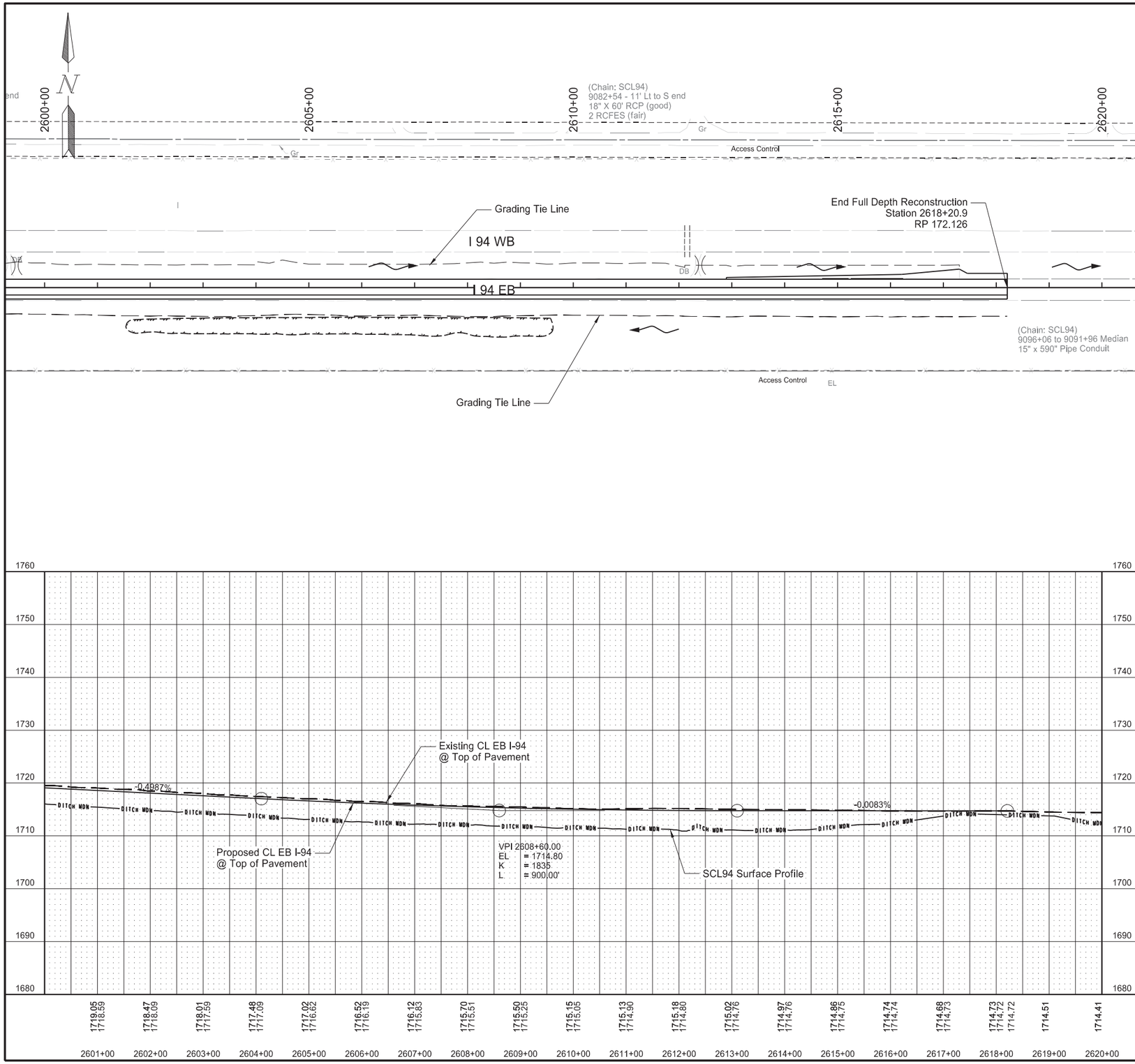
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:57:22 -05'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	26



Station based on EX94EB alignment

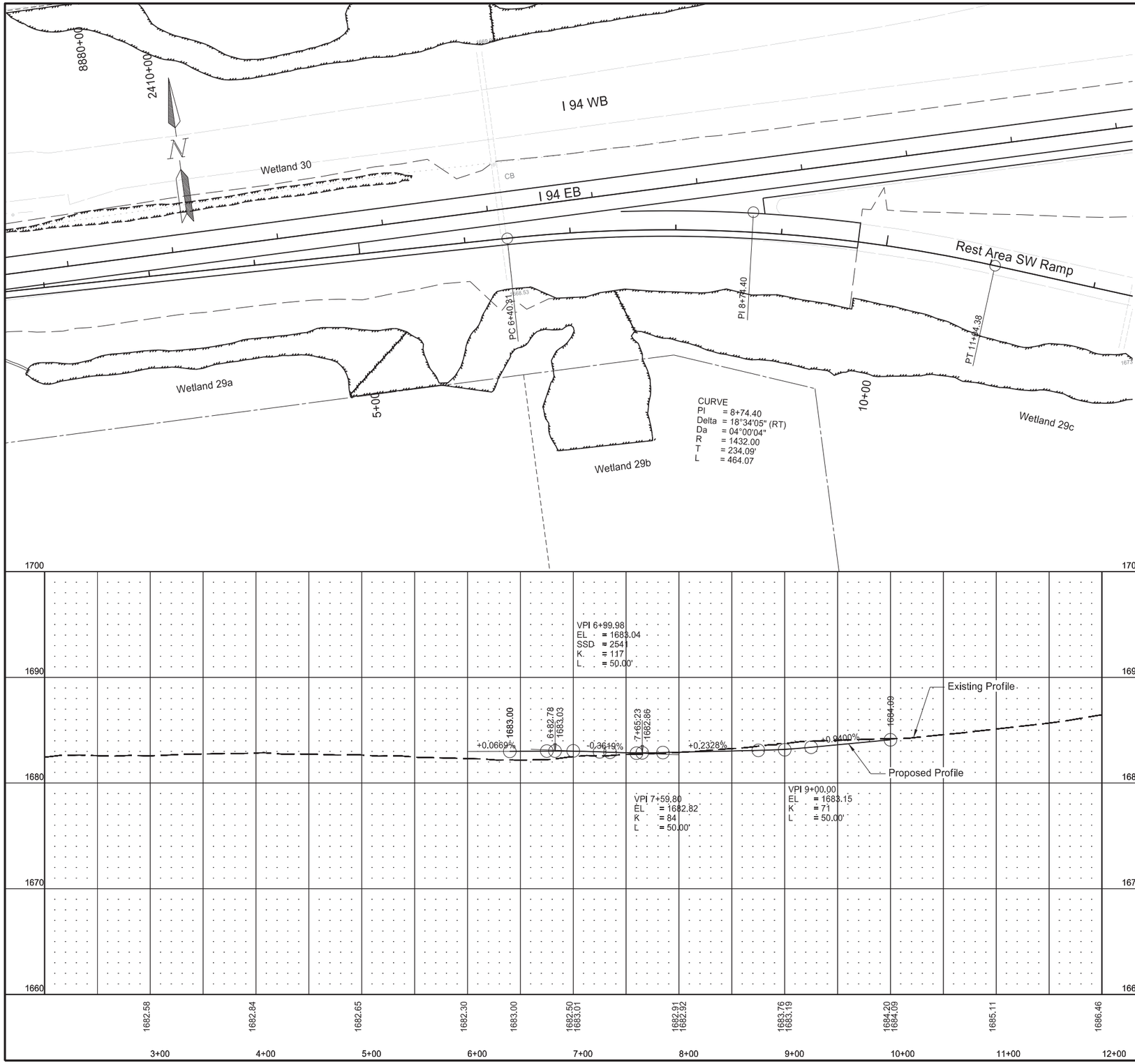
Plan & Profile

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07
11:57:53 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	27



Station based on PR_RA alignment

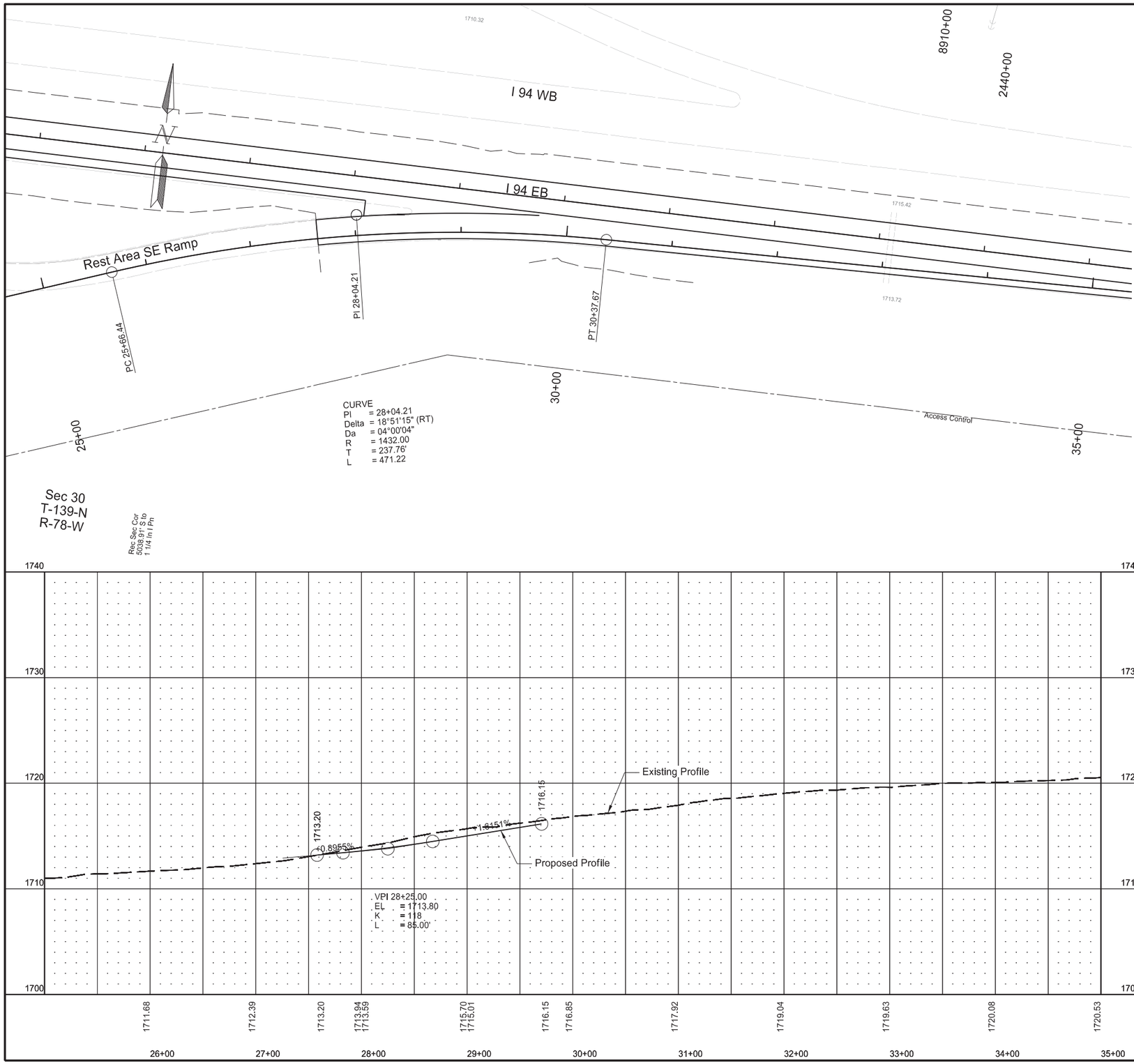
Plan & Profile Ramps
Rest Area SW Ramp

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:58:18 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	28



Station based on PR_RA alignment

Plan & Profile Ramps
Rest Area SE Ramp

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:58:52 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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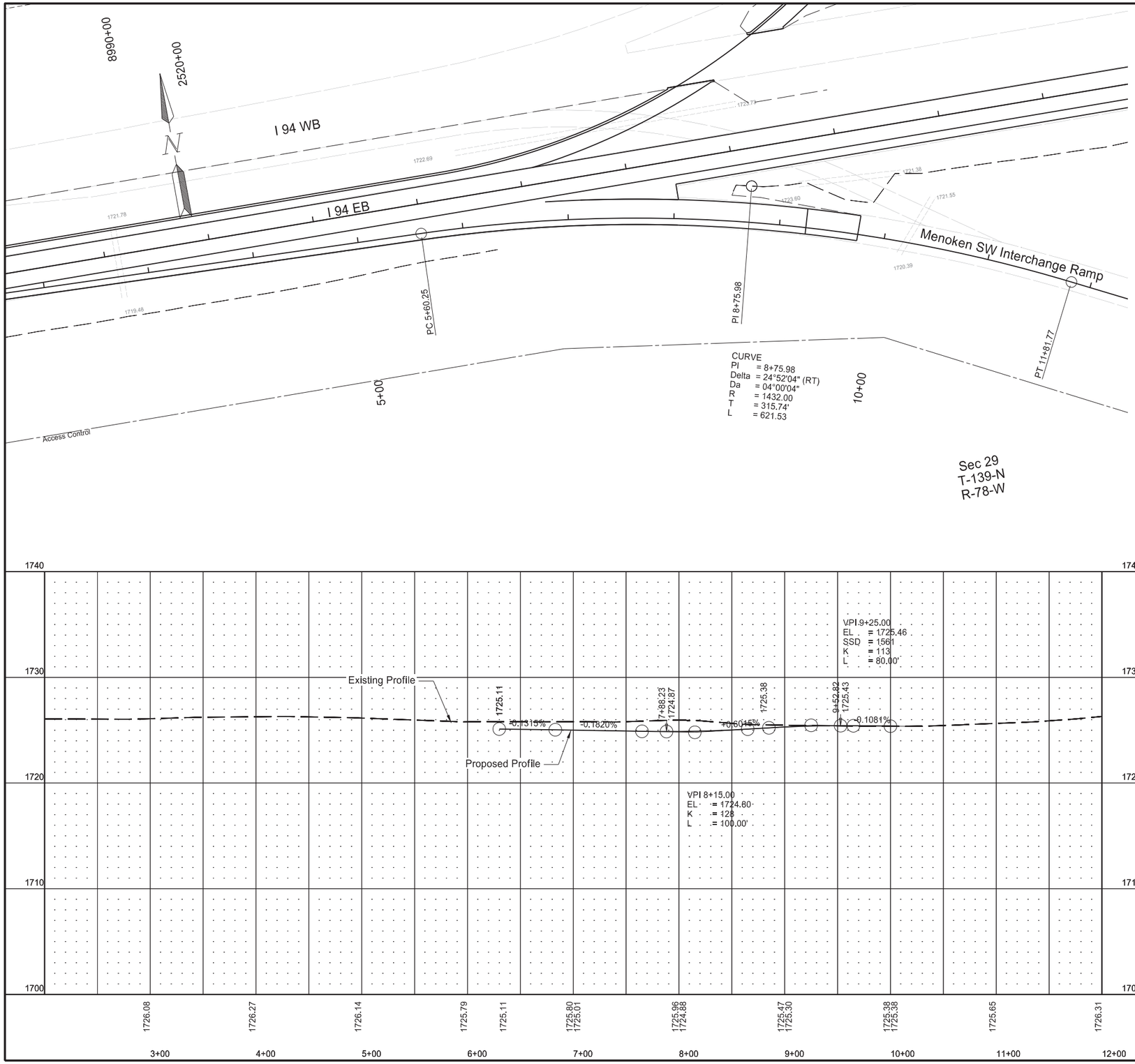


Station based on PR94SWR alignment

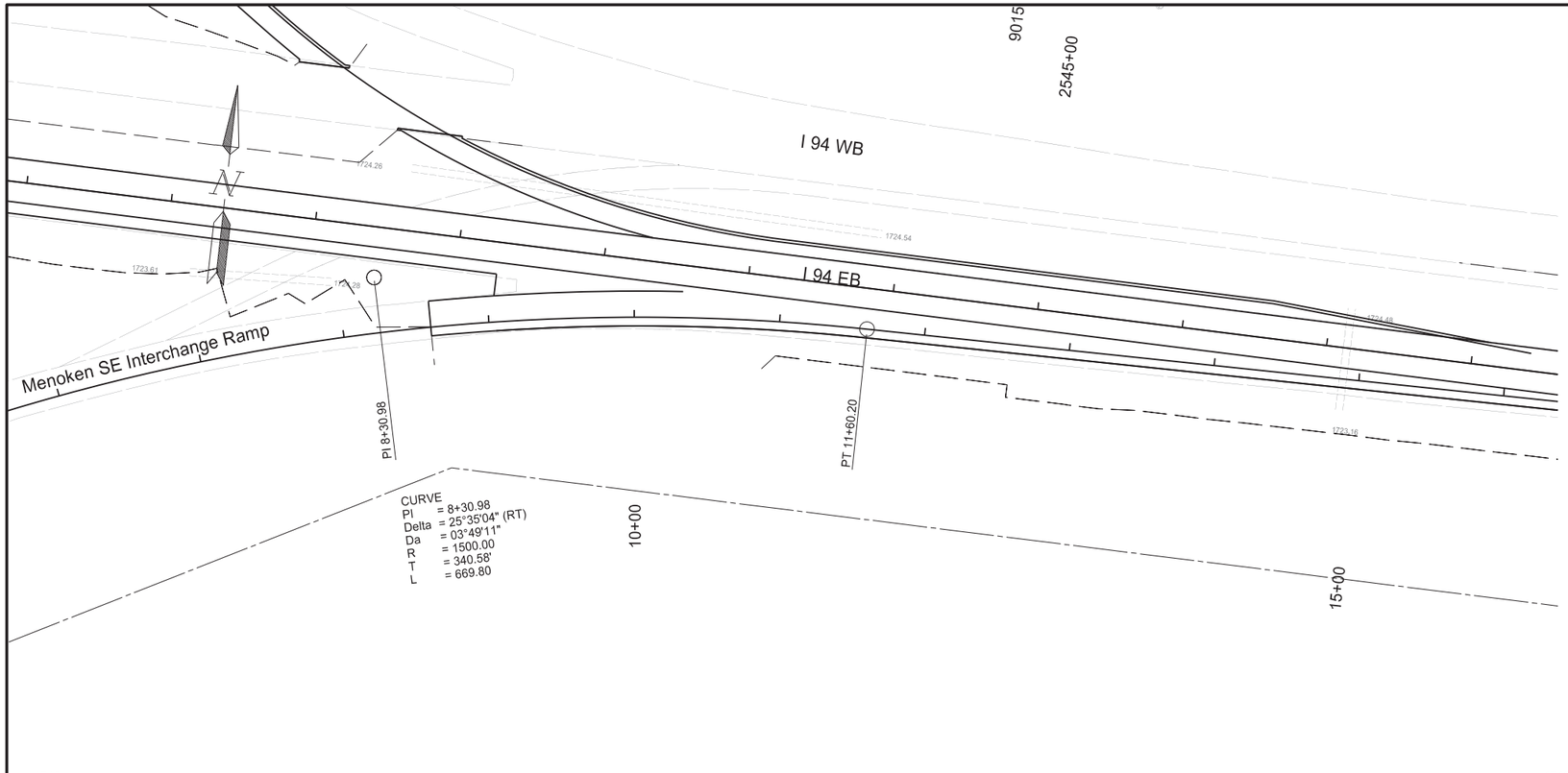
Plan & Profile Ramps
Menoken SW Interchange Ramp

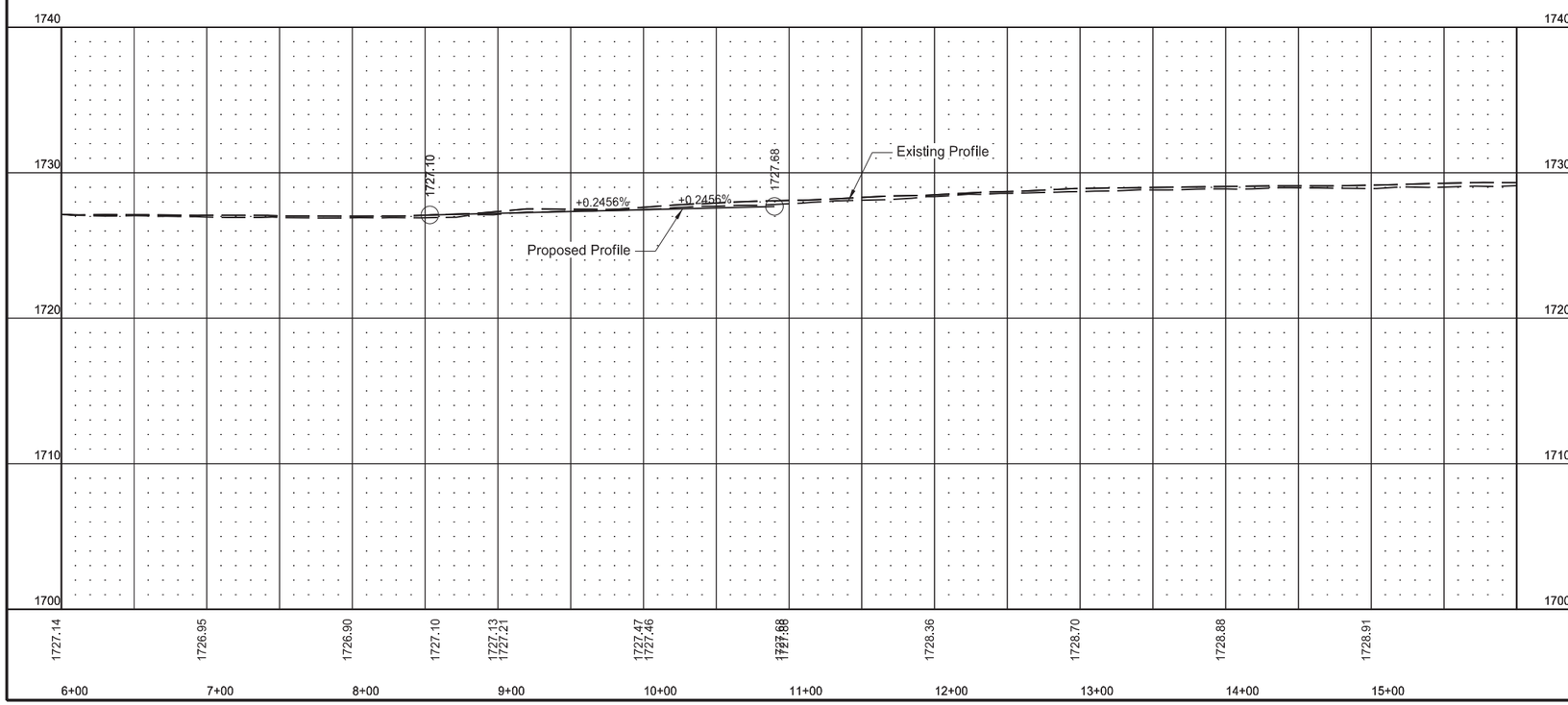
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:59:22 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	30





Station based on PR94SER alignment

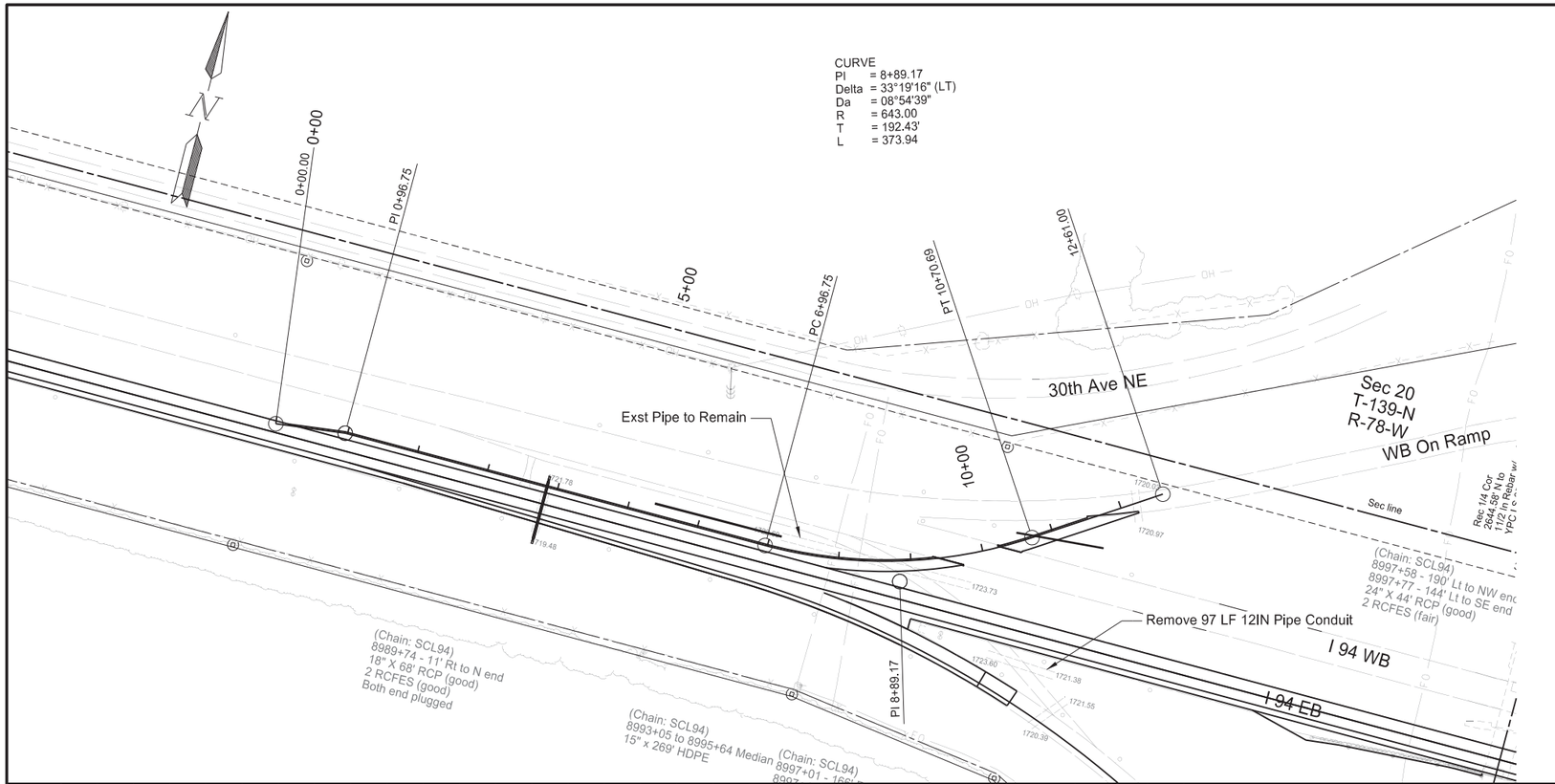
Plan & Profile Ramps
Menoken SE Interchange Ramp

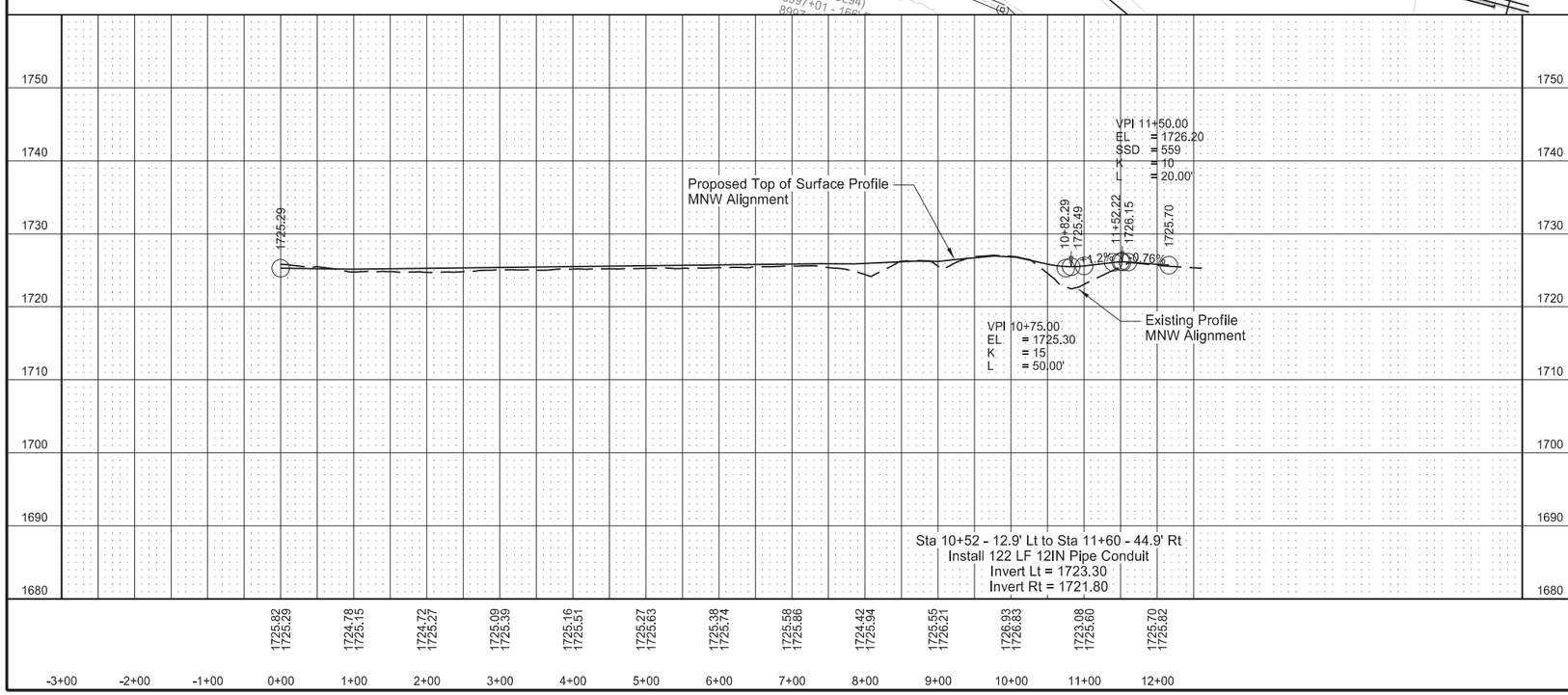
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 11:59:46 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	31





SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 9+81 - 140.7' Rt to Sta 10+47 - 191.2' Rt	97	LF
714	4090	PIPE CONDUIT 12IN		
		Sta 10+52 - 12.9' Lt to Sta 11+60 - 44.9' Rt	122	LF

Station based on MNW alignment

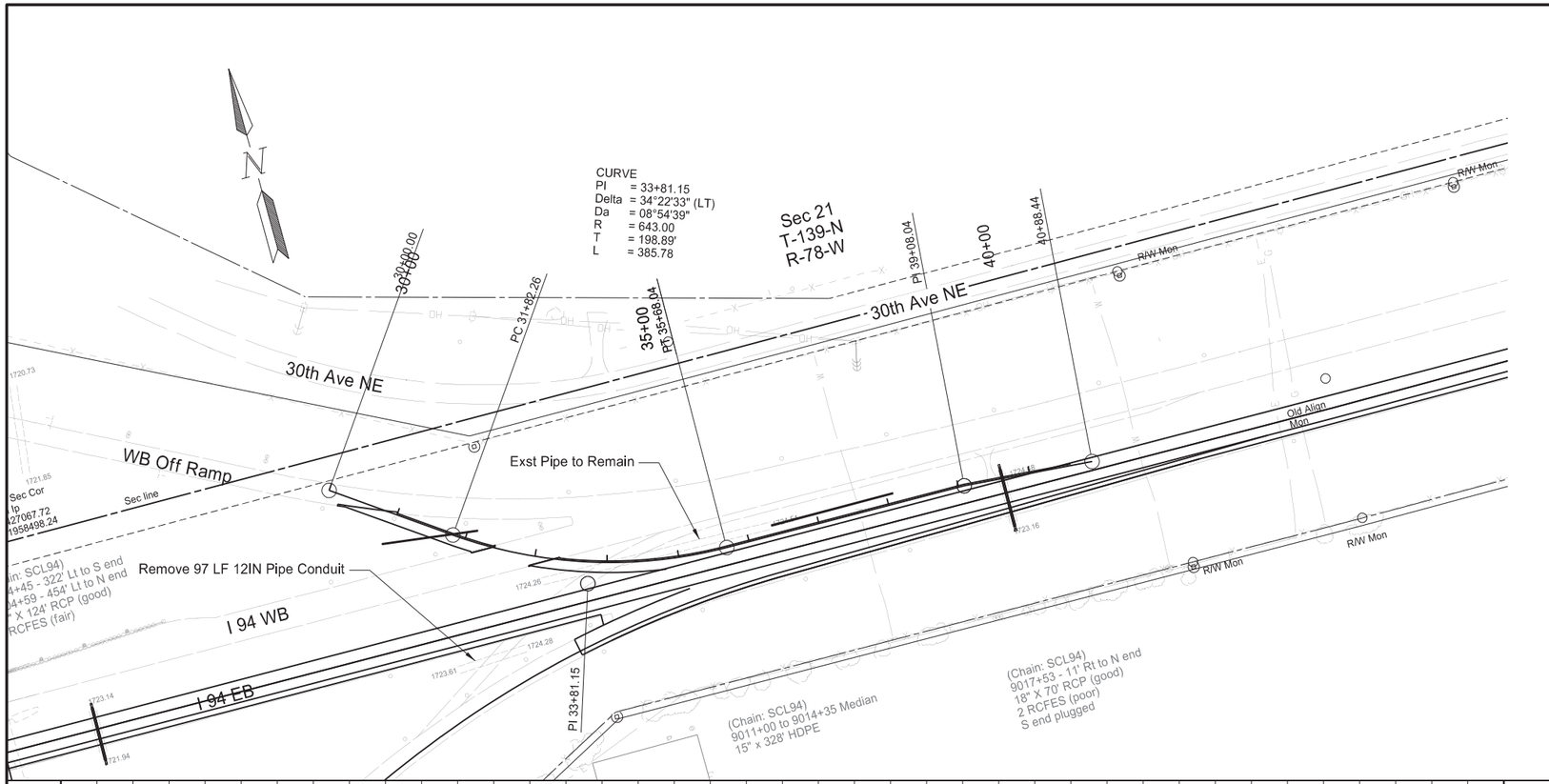
Plan & Profile Temporary Ramps

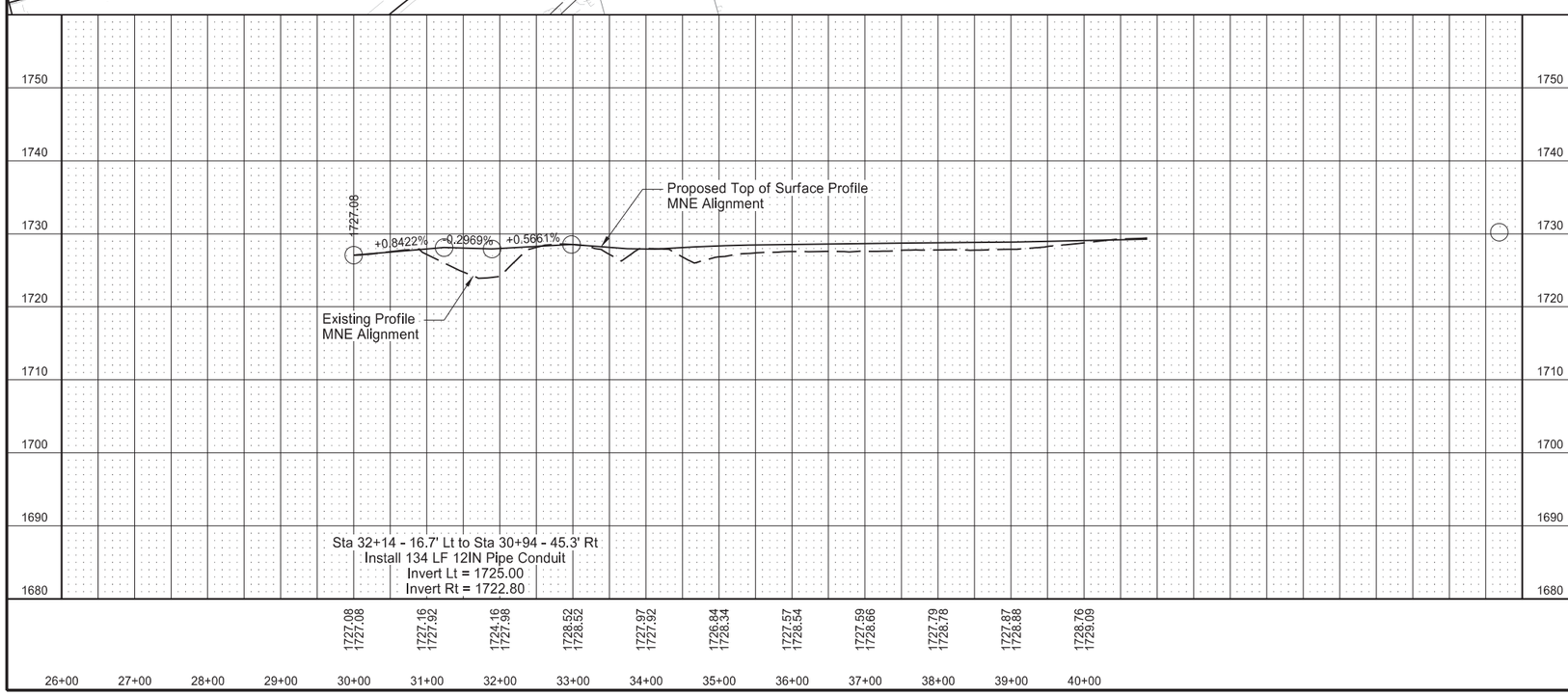
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 12:00:32 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	60	32





SPEC	CODE	BID ITEM	QTY	UNIT
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 32+39 - 176.1' Rt to Sta 33+07 - 128.0' Rt	97	LF
714	4090	PIPE CONDUIT 12IN		
		Sta 32+14 - 16.7' Lt to Sta 30+94 - 45.3' Rt	134	LF

Station based on MNE alignment

Plan & Profile Temporary Ramps

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DEREK ANDERSON
PE-7107
DATE 2024.11.07 12:01:07 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	1

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact: Wetland Impacts Acre(s)			Wetland Mitigation: Mitigation Proposed		USACE/11990 Bank	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	Location	Acre(s)
#1	Sec.25, T139N, R80W	Slope	Natural	Yes				N	N		
#2a	Sec.25, T139N, R80W	Slope	Natural	Yes				N	N		
#2b	Sec.25, T139N, R80W	Slope	Natural	Yes				N	N		
#3a	Sec.30, T139N, R79W; Sec. 25, T139N, R80W	Slope	Natural	Yes				N	N		
#3b	Sec.30, T139N, R79W	Slope	Natural	Yes	0.004	0.021		Y	Y	Anderson Bank	0.021
#4a	Sec.30, T139N, R79W	Slope	Natural	Yes	0.007	0.040		Y	Y	Anderson Bank	0.040
#4b	Sec.19 & 30, T139N, R79W	Slope	Natural	Yes				N	N		
#5	Sec.30, T139N, R79W	Slope	Natural	Yes				N	N		
#13a	Sec.21, T139N, R79W	Slope	Natural	Yes				N	N		
#13b	Sec.21, T139N, R79W	Slope	Natural	Yes	0.068	0.008		Y	Y	Anderson Bank	0.008
#18	Sec.27, T139N, R79W	Ditch	Created	No				N	N		
#20	Sec.26, T139N, R79W	Ditch	Created	No	0.006	0.020		N	N		
#22a	Sec.23 & 26, T139N, R79W	Slope	Natural	Yes				N	N		
#22b	Sec.26, T139N, R79W	Slope	Natural	Yes	0.016	0.025		N	Y	Anderson Bank	0.025
#24a	Sec.25, T139N, R79W	Ditch	Created	No				N	N		
#24b	Sec.25, T139N, R79W	Slope	Natural	Yes	0.055	0.032		Y	Y	Anderson Bank	0.032
#24c	Sec.25, T139N, R79W	Slope	Natural	Yes				N	N		
#25	Sec.25, T139N, R79W	Basin	Natural	No				N	N		
#26	Sec.25, T139N, R79W	Ditch	Created	No	0.026	0.040		N	N		
#29a	Sec.25, T139N, R79W	Ditch	Created	Yes				N	N		
#29b	Sec.25, T139N, R79W	Slope	Natural	Yes	0.049	0.018		Y	Y	Anderson Bank	0.018
#29c	Sec.25, T139N, R79W	Ditch	Created	Yes	0.085			N	Y	Anderson Bank	0.000
#29d	Sec.25, T139N, R79W	Slope	Natural	Yes				N	N		
#29e	Sec.25, T139N, R79W	Ditch	Created	Yes				N	N		
#30	Sec.25, T139N, R79W	Ditch	Created	No	0.003	0.098		N	N		
#32	Sec.25, T139N, R79W	Slope	Natural	No				N	N		
#33	Sec.19, T139N, R78W	Ditch	Created	No				N	N		
#34	Sec.30, T139N, R78W	Ditch	Created	No				N	N		
#35	Sec.29, T139N, R78W	Ditch	Created	No	0.001	0.005		N	N		
#36	Sec.27, T139N, R78W	Ditch	Created	No	0.205			N	N		
				Totals	0.525	0.307					0.144

[1] A wetland Jurisdictional Determination was received 12/13/2021 (NWO-2021-01865-BIS)

Other Waters Impact Table

Number	Location	Type	Feature	USACE Jurisdictional[1]	Impacts to Other Waters: Acres				Other Water Mitigation: Mitigation Proposed	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Perm. (Cut)	EO 11990	USFWS
#OW 27	Sec.25, T139N, R79W	Natural Straightened Stream	Natural	Y	0	0			N	N
				Totals	0	0				

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.08 09:26:08 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	2

Other Waters-d Impact Table

Number	Location	Type	Feature	USACE Jurisdictional	Impacts to Other Waters			Other Water Mitigation	
					Acres			Mitigation Proposed	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USFWS
#OW 6-D	Sec.19, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 7-D	Sec.19, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 8-D	Sec.19, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 9-D	Sec.19, T139N, R79W	Ephemeral Swale	Natural	N	0.001			N	N
#OW 10-D	Sec.19, T139N, R79W	Ephemeral Swale	Natural	N	0.001	0.002		N	N
#OW 11-D	Sec.19, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 12-D	Sec.20, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 14-D	Sec.21, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 15-D	Sec.21, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 16-D	Sec.21, T139N, R79W	Ephemeral Swale	Natural	N	0.001	0.002		N	N
#OW 17-D	Sec.22, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 19-D	Sec.26, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 21-D	Sec.26, T139N, R79W	Ephemeral Swale	Natural	N				N	N
#OW 23-D	Sec.25, T139N, R79W	Ephemeral Swale	Natural	N	0.004	0.005		N	N
#OW 28-D	Sec.25, T139N, R79W	Ephemeral Swale	Natural	N	0.001	0.001		N	N
				Totals	0.008	0.010			

Impact Summary Table

Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total Acre(s)	WaterType	Total Acre(s)
Natural/JD (Fill/Drain)	0.144	Temporary Wetland JD	0.284
Natural/Non-JD (Fill/Drain)	0	Non-JD Wetland Temporary	0.241
Created/JD (Fill/Drain)	0	Total	0.525
Created /Non-JD (Fill/Drain))	0.163	Permanent OW	
Total	0.307	Temporary OW	
JD Natural (Cut)		Permanent OW-d	0.010
JD Created (Cut)		Temporary OW-d	0.008
Non-JD Natural (Cut)			
Non-JD Created (Cut)			
Total	0		

Mitigation Summary Table

	USACE/11990 Bank
Anderson Bank	0.144
	0.144

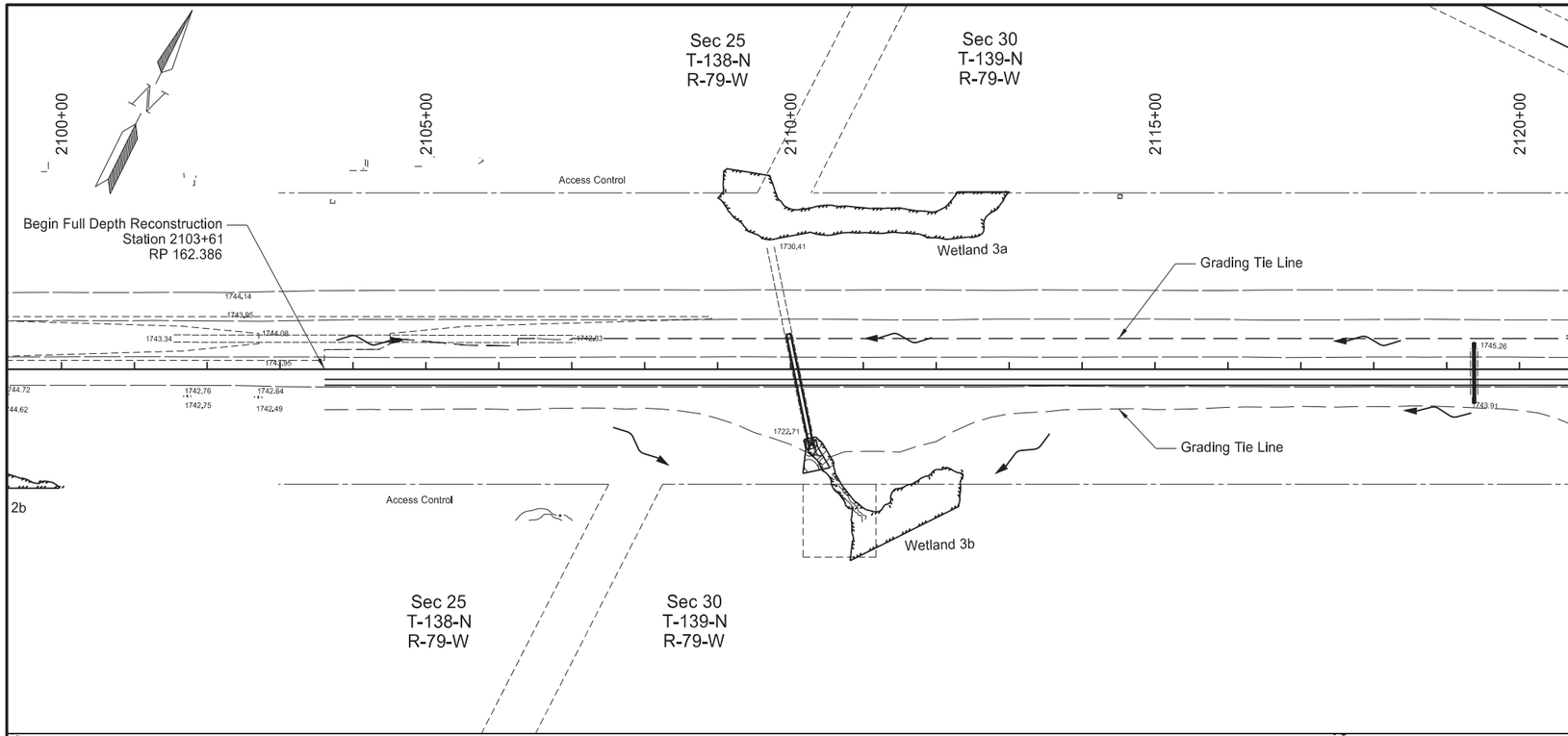
Wetlands, Mitigation, and Environmental

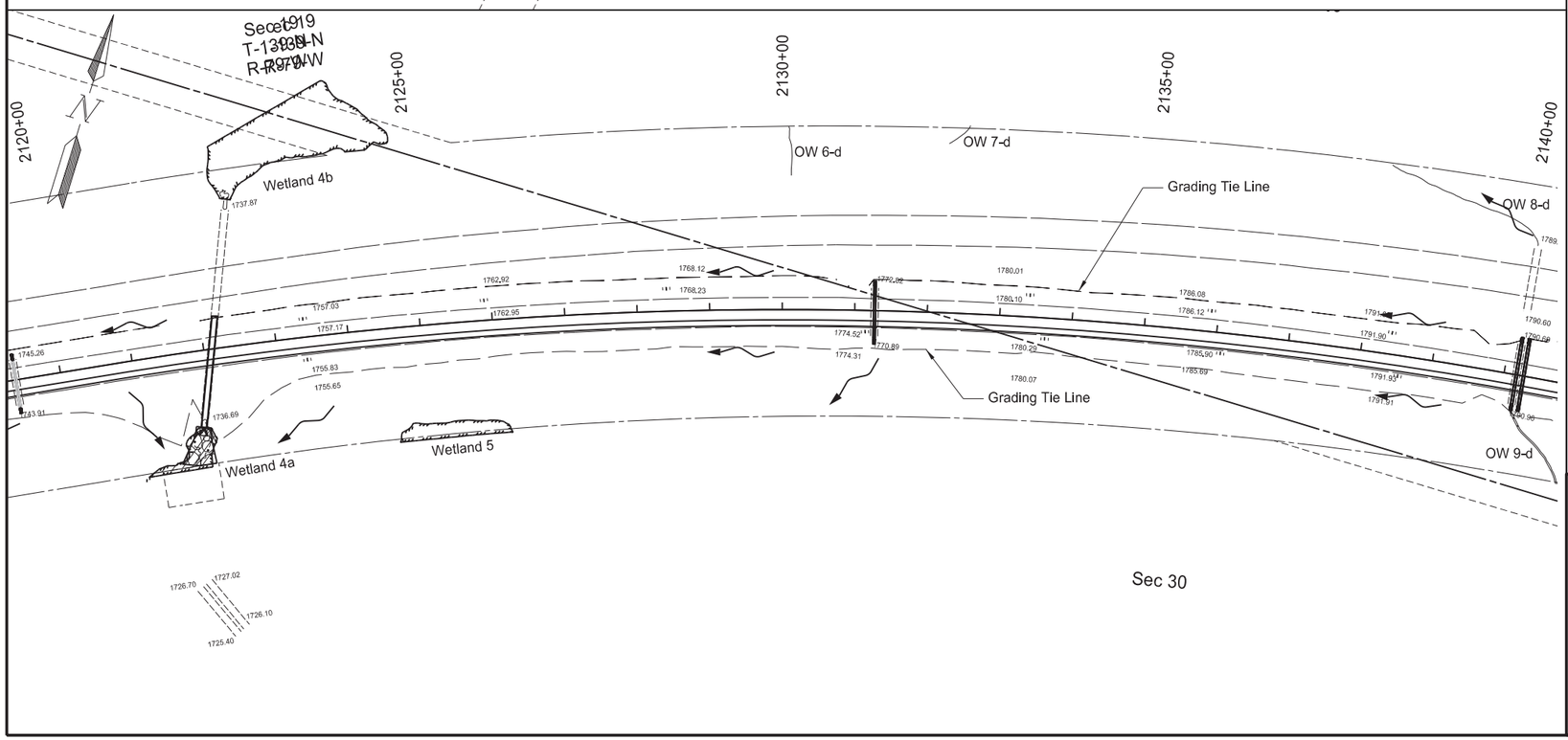
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.08 09:26:30 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	3





Wetland Impacts			
Sta 2103+61 to 2140+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#3a	0 Acre	0 Acre	0 Acre
#3b	0.004 Acre	0.021 Acre	0 Acre
#4a	0.007 Acre	0.040 Acre	0 Acre
#4b	0 Acre	0 Acre	0 Acre
#5	0 Acre	0 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:21:35 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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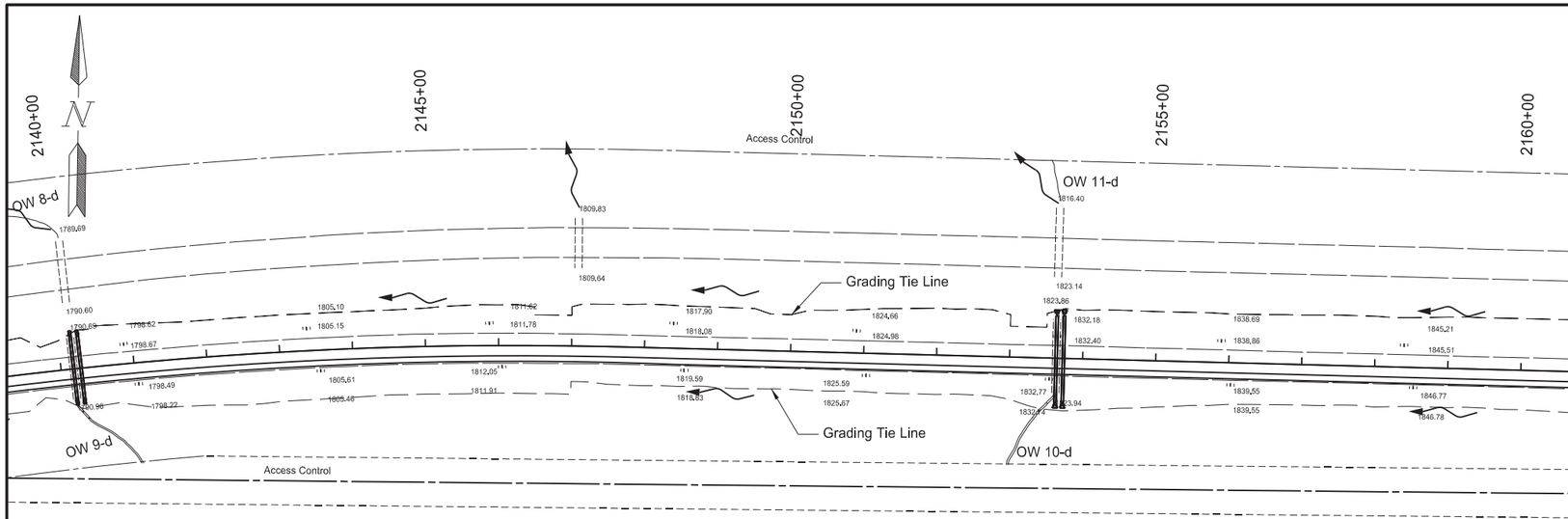

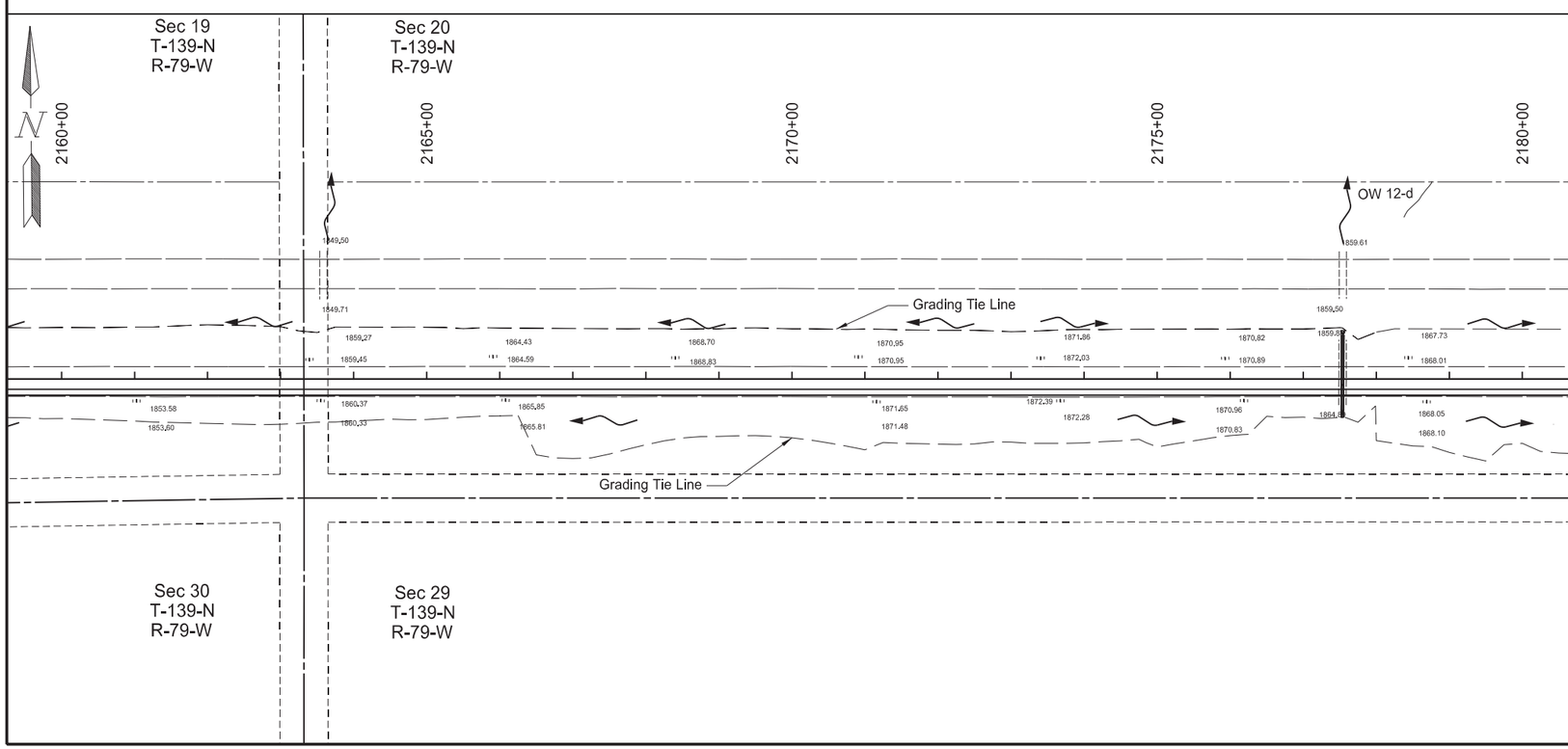

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

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DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:21:56 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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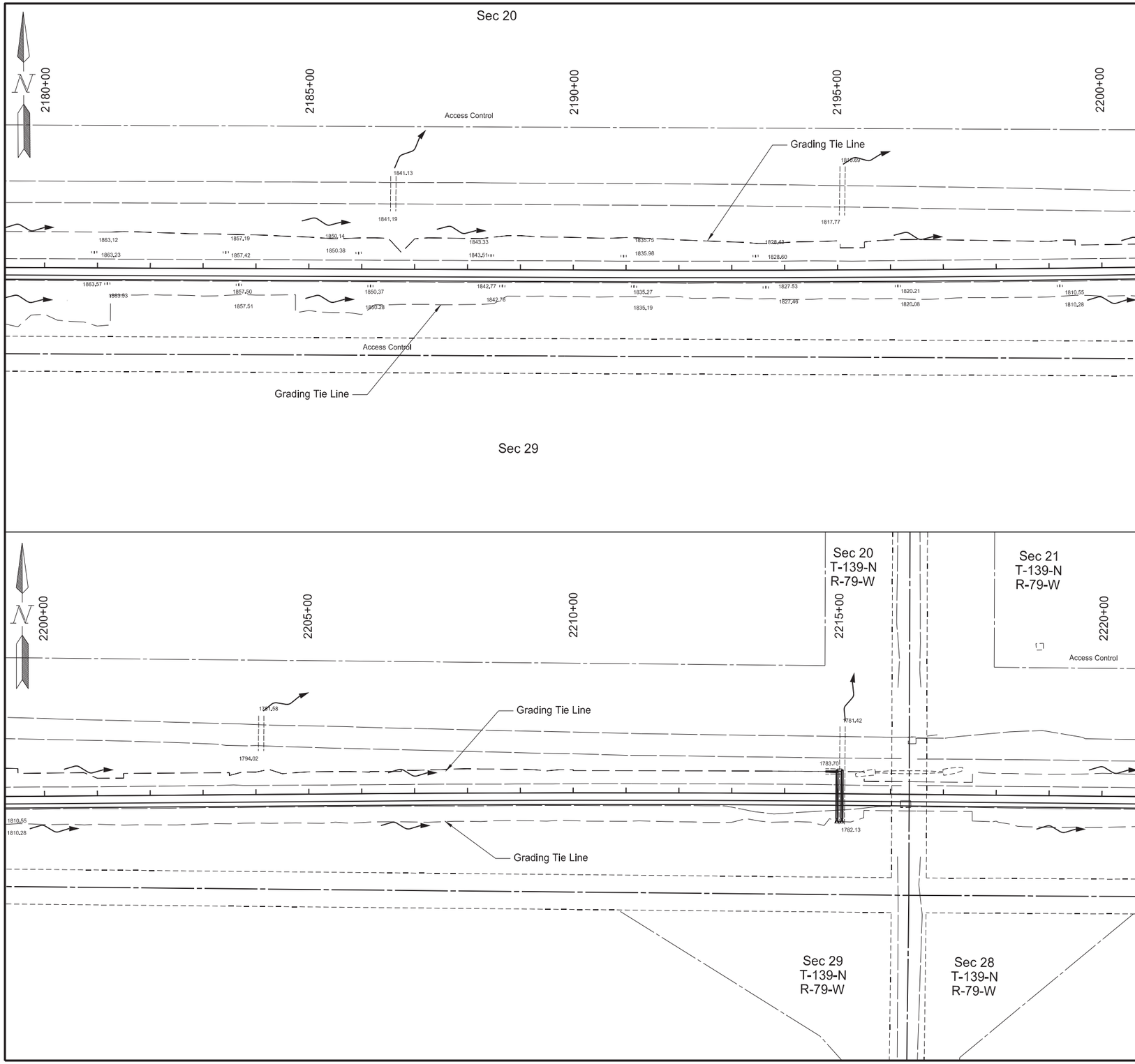

Legend

- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
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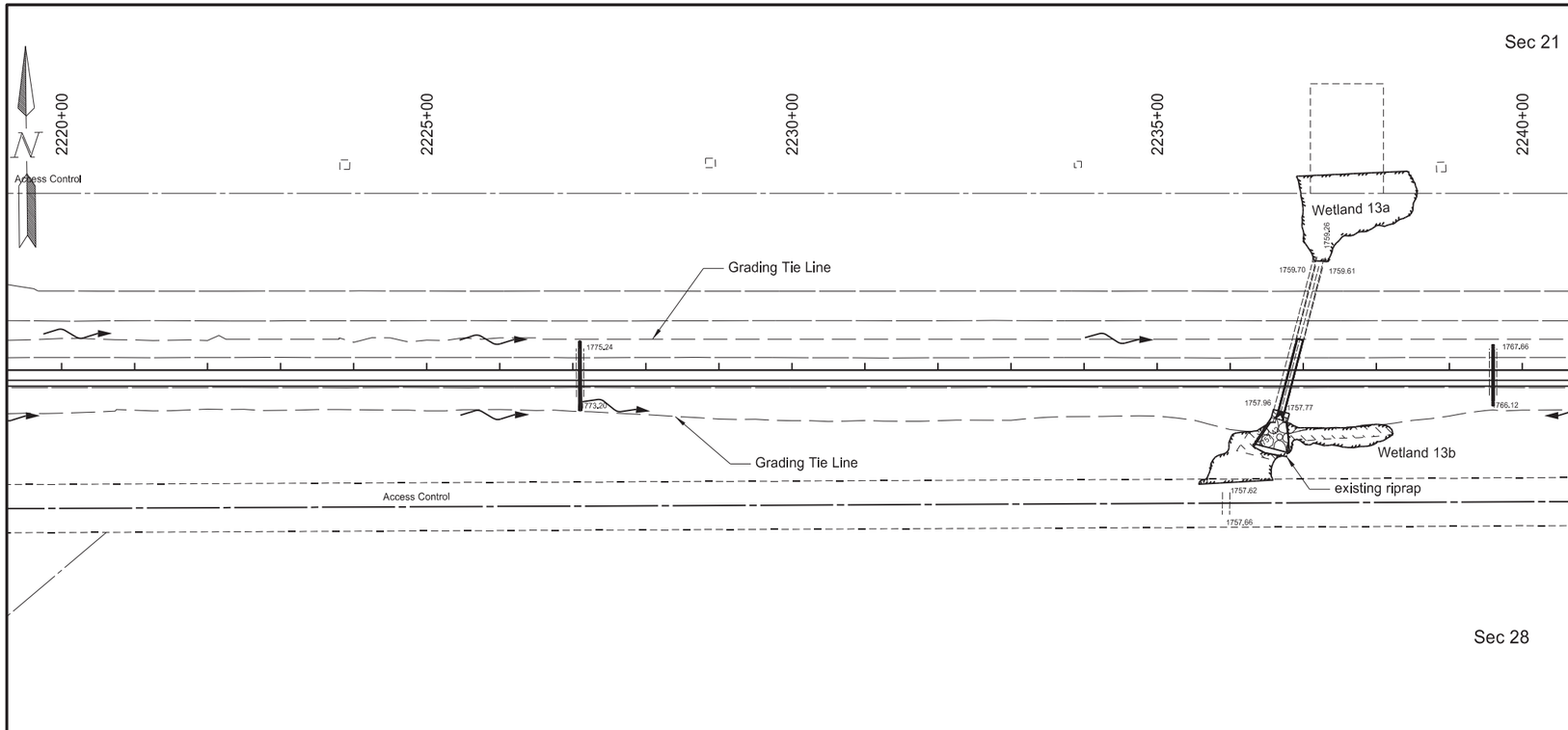
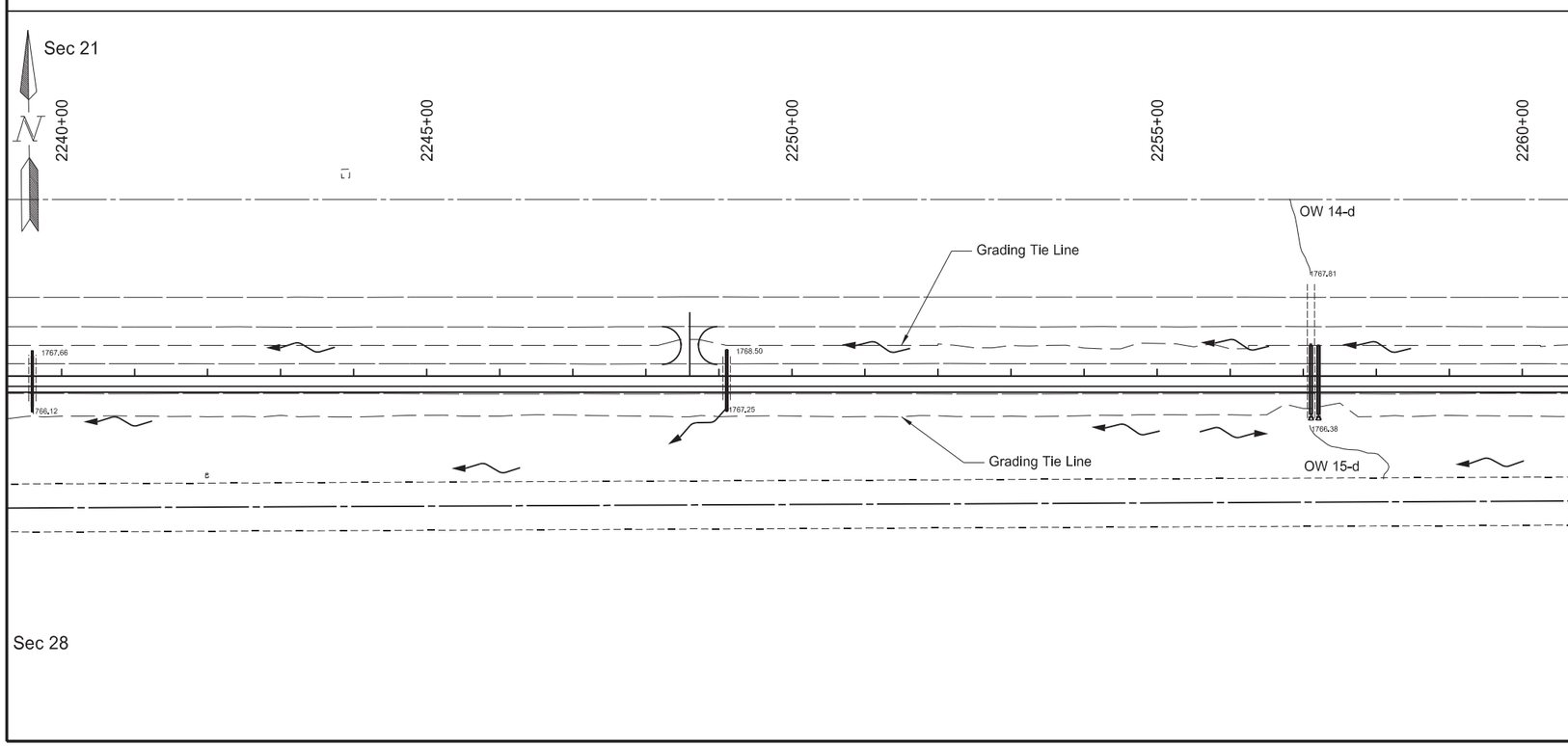
DATE 2024.11.07 13:22:15 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	6





Wetland Impacts			
Sta 2220+00 to 2260+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#13a	0 Acre	0 Acre	0 Acre
#13b	0.068 Acre	0.008 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:22:36 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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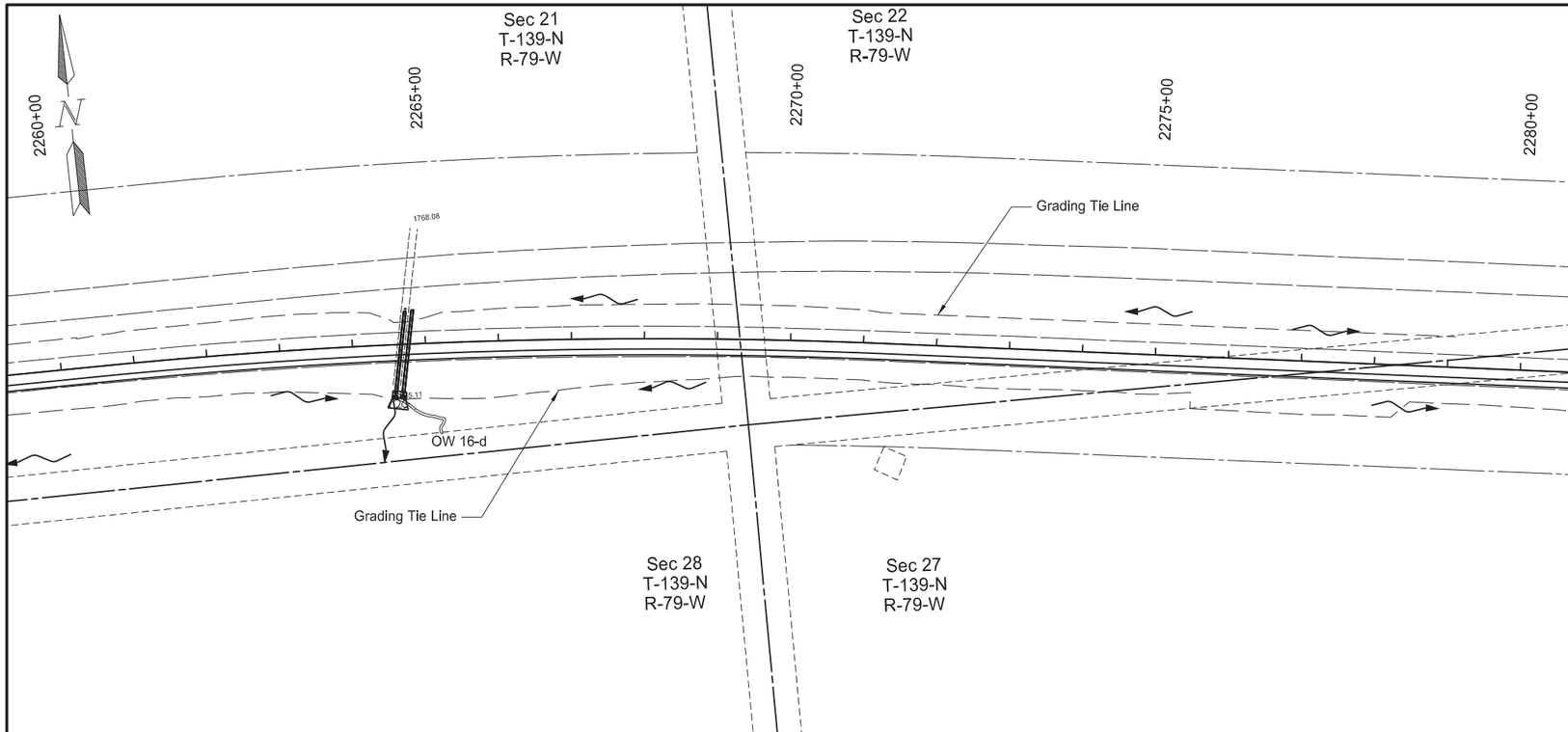
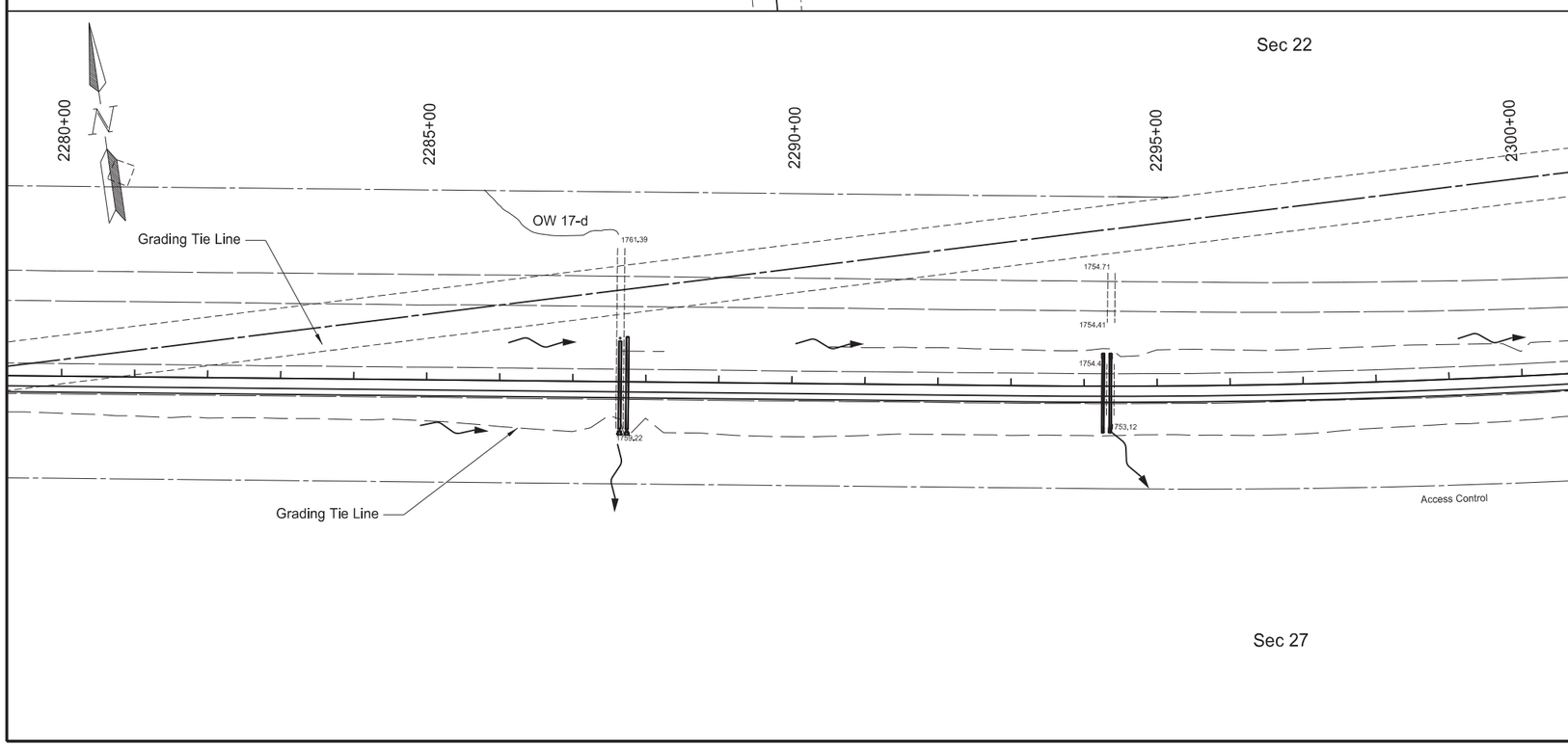




Legend

- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

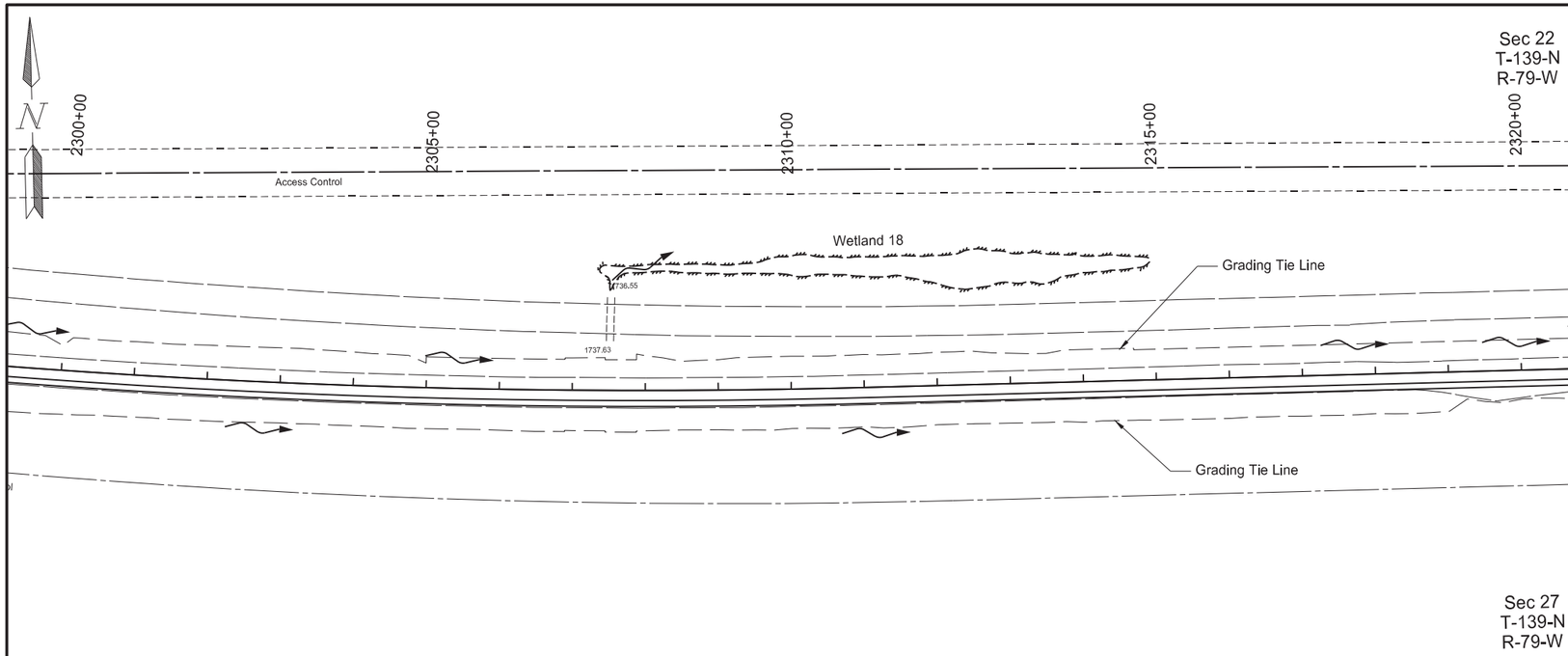
Wetlands, Mitigation, and Environmental

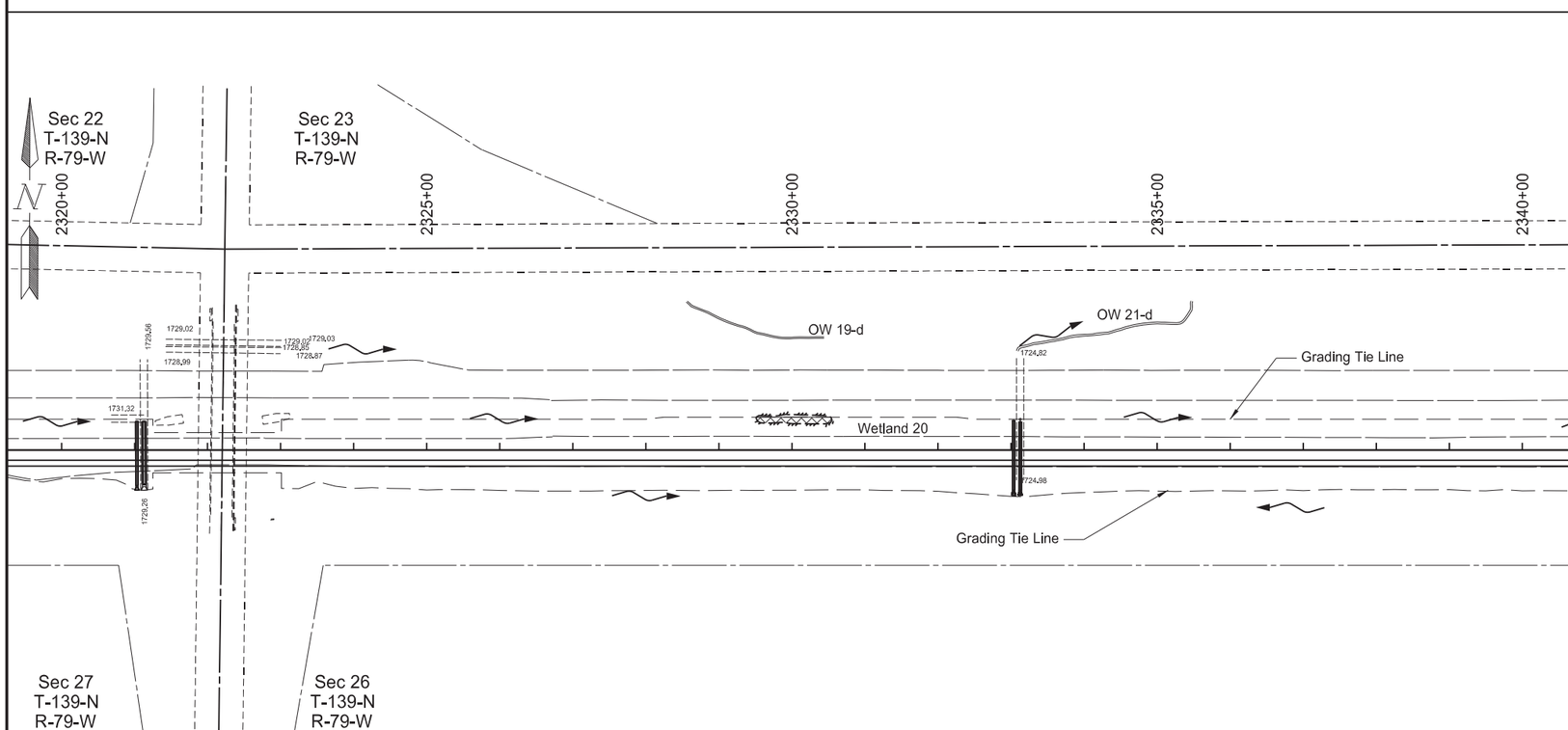
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:23:03 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	8





Wetland Impacts			
Sta 2300+00 to 2340+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#18	0 Acre	0 Acre	0 Acre
#20	0.006 Acre	0.020 Acre	0 Acre
#22a	0 Acre	0 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

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DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:23:47 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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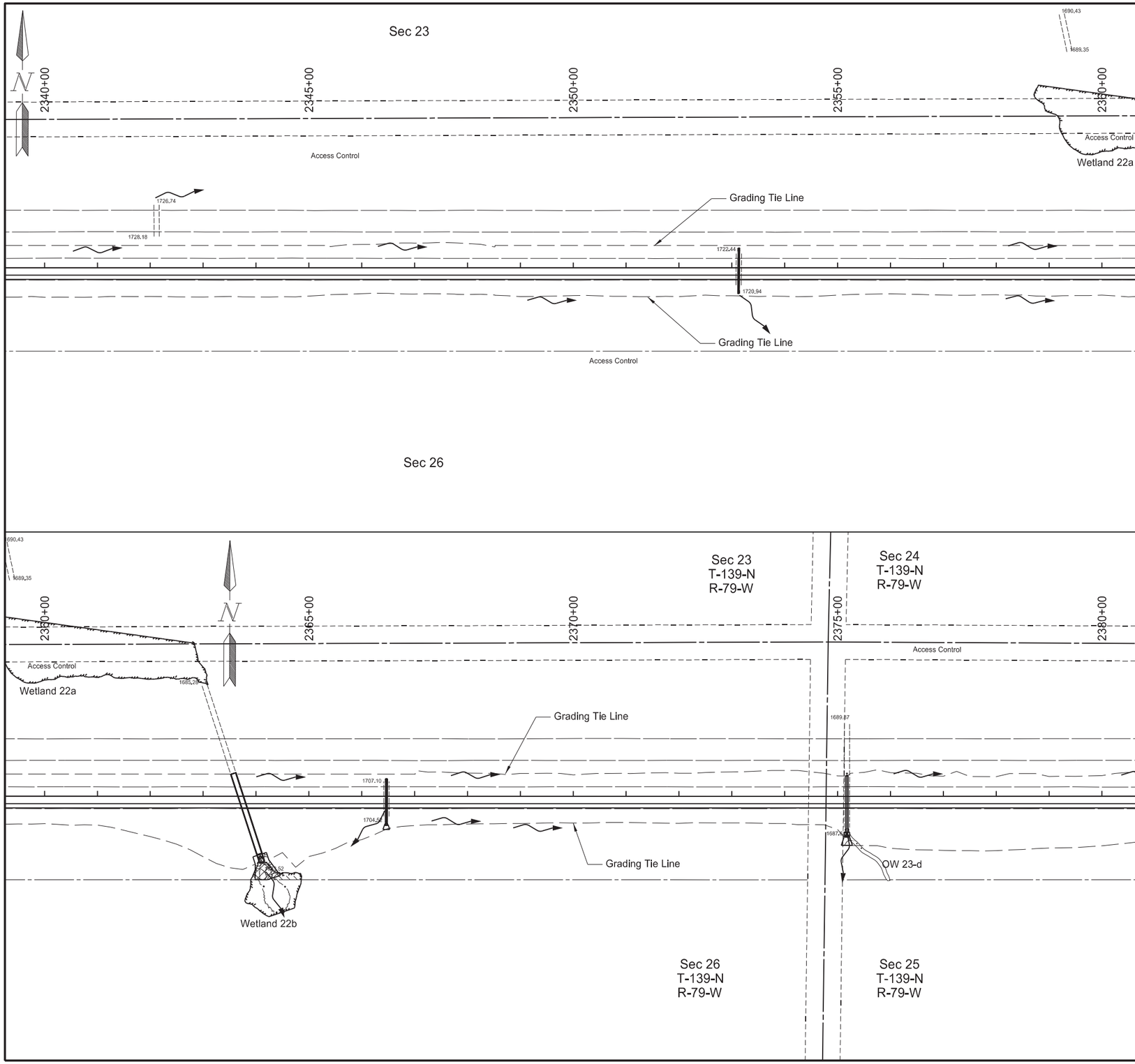

Wetland Impacts			
Sta 2340+00 to 2380+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#22b	0.016 Acre	0.025 Acre	0 Acre
#24a	0 Acre	0 Acre	0 Acre
#24b	0.055 Acre	0.032 Acre	0 Acre
#25	0 Acre	0 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:24:09 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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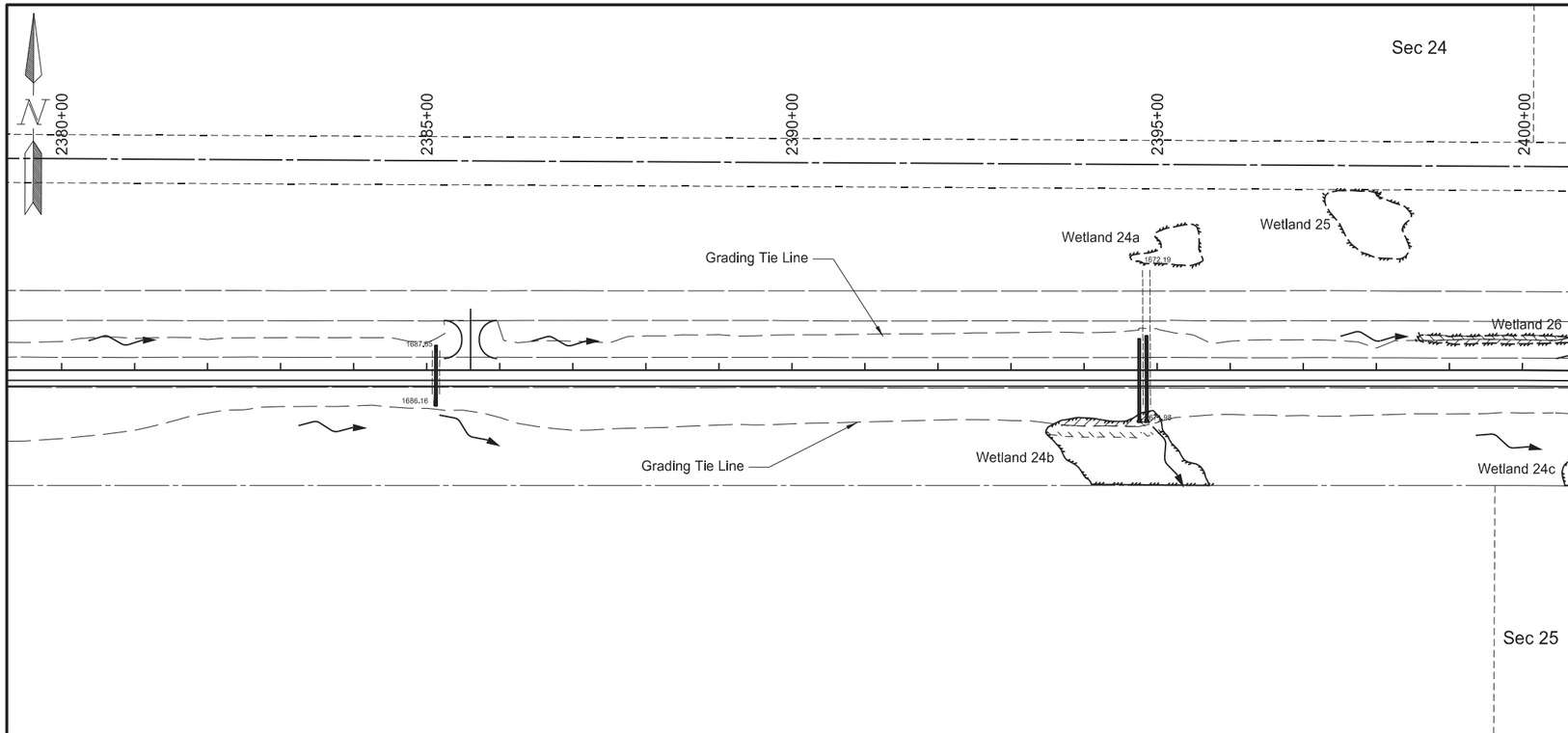

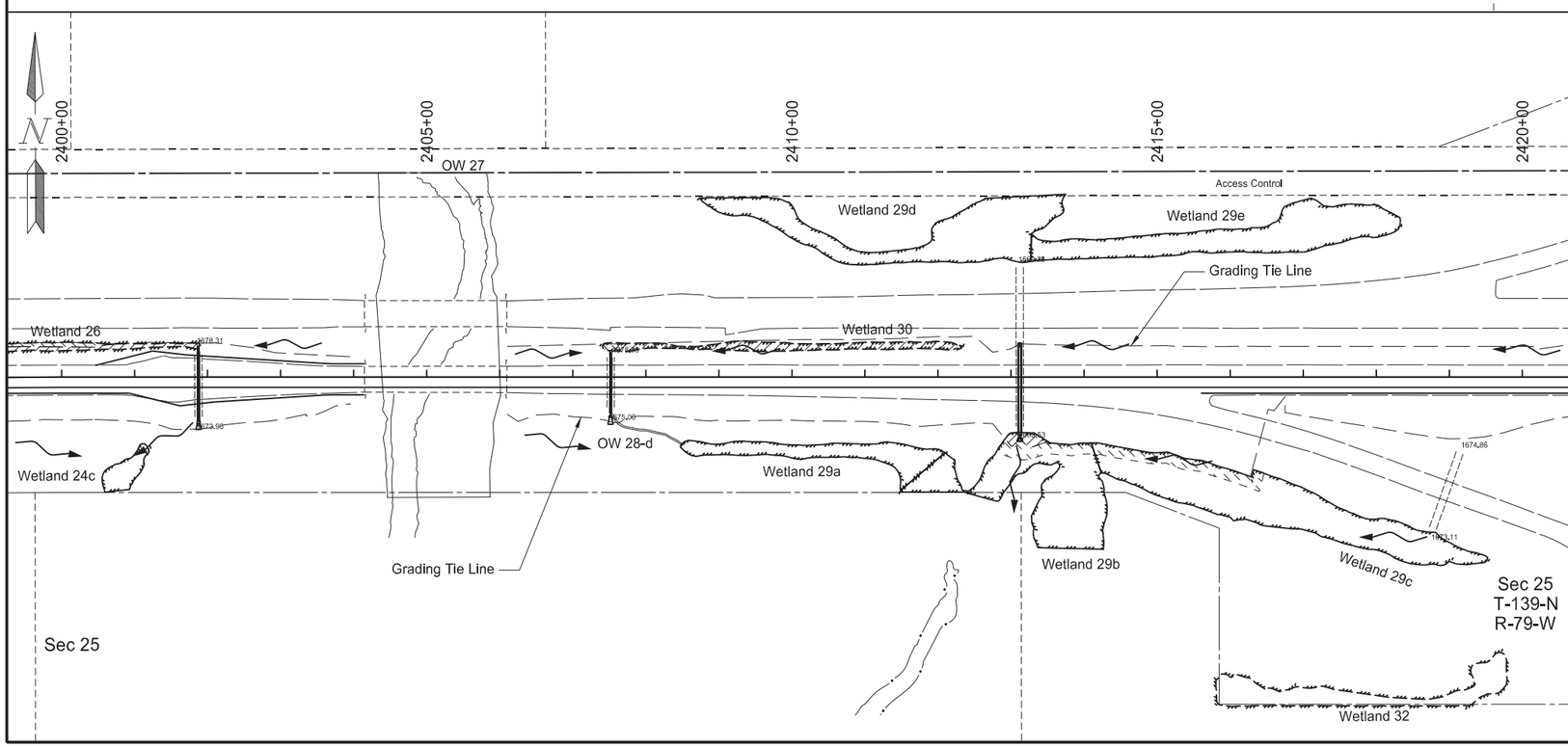

Wetland Impacts			
Sta 2380+00 to 2420+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#24c	0 Acre	0 Acre	0 Acre
#25	0 Acre	0 Acre	0 Acre
#26	0.026 Acre	0.040 Acre	0 Acre
#29a	0 Acre	0 Acre	0 Acre
#29b	0.049 Acre	0.018 Acre	0 Acre
#29c	0.085 Acre	0 Acre	0 Acre
#29d	0 Acre	0 Acre	0 Acre
#29e	0 Acre	0 Acre	0 Acre
#30	0.003 Acre	0.098 Acre	0 Acre
#32	0 Acre	0 Acre	0 Acre

Other Water Impacts			
Sta 2380+00 to 2420+00			
Other Waters #	Temporary Other Waters Impact	Permanent Other Waters Impact	
		Fill / Drain	Cut
#OW 27	0 Acre	0 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:24:28 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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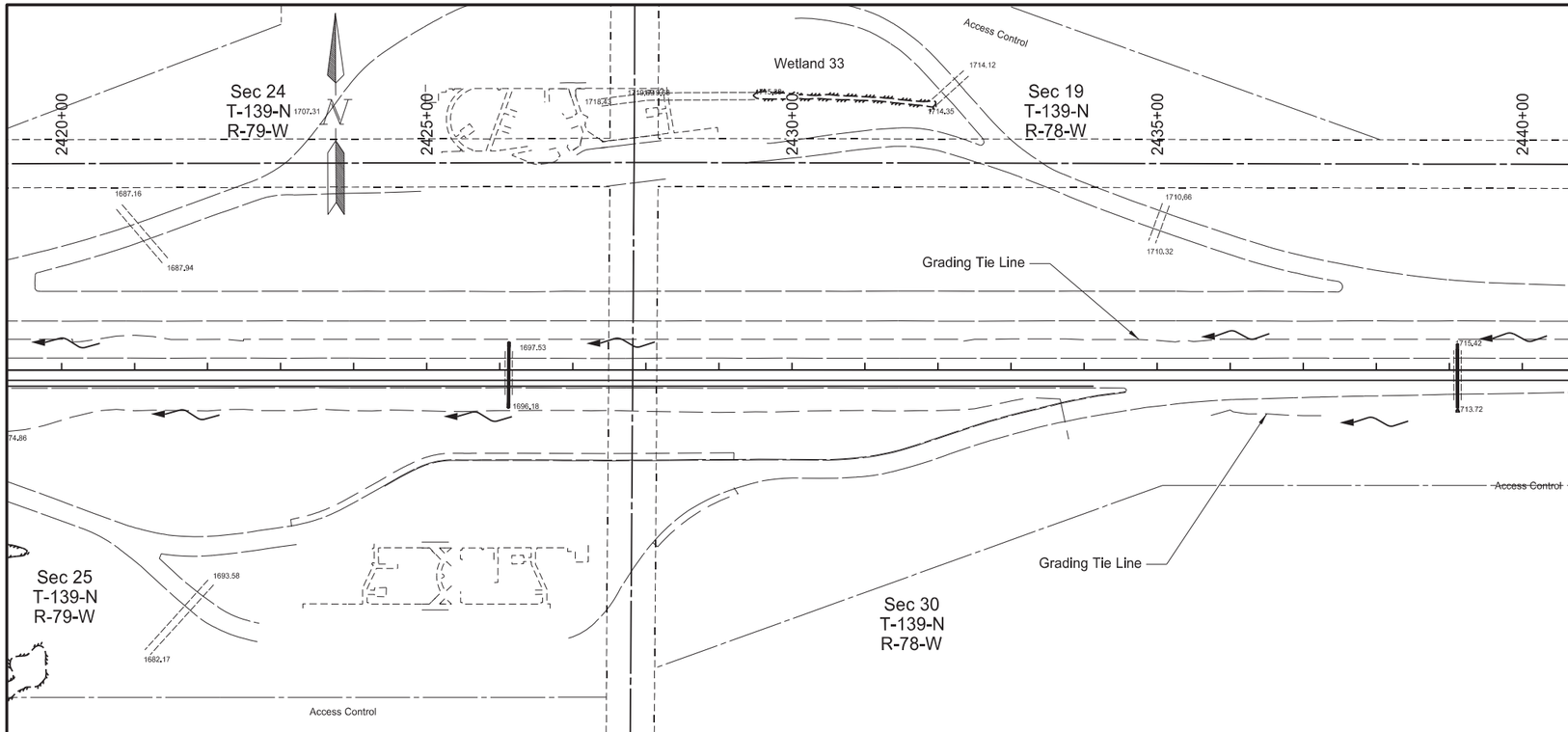

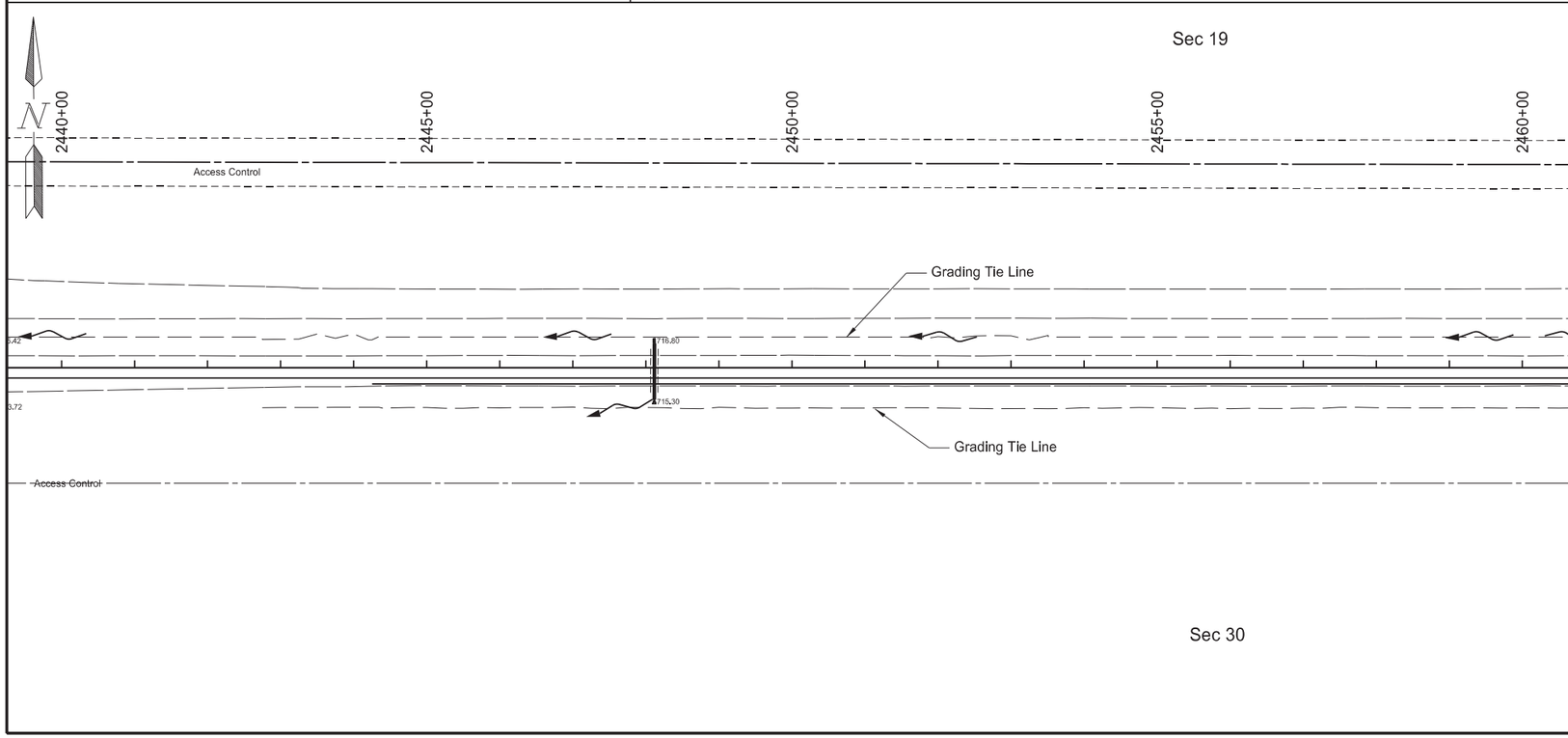

Wetland Impacts			
Sta 2420+00 to 2460+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#33	0 Acre	0 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

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DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:24:47 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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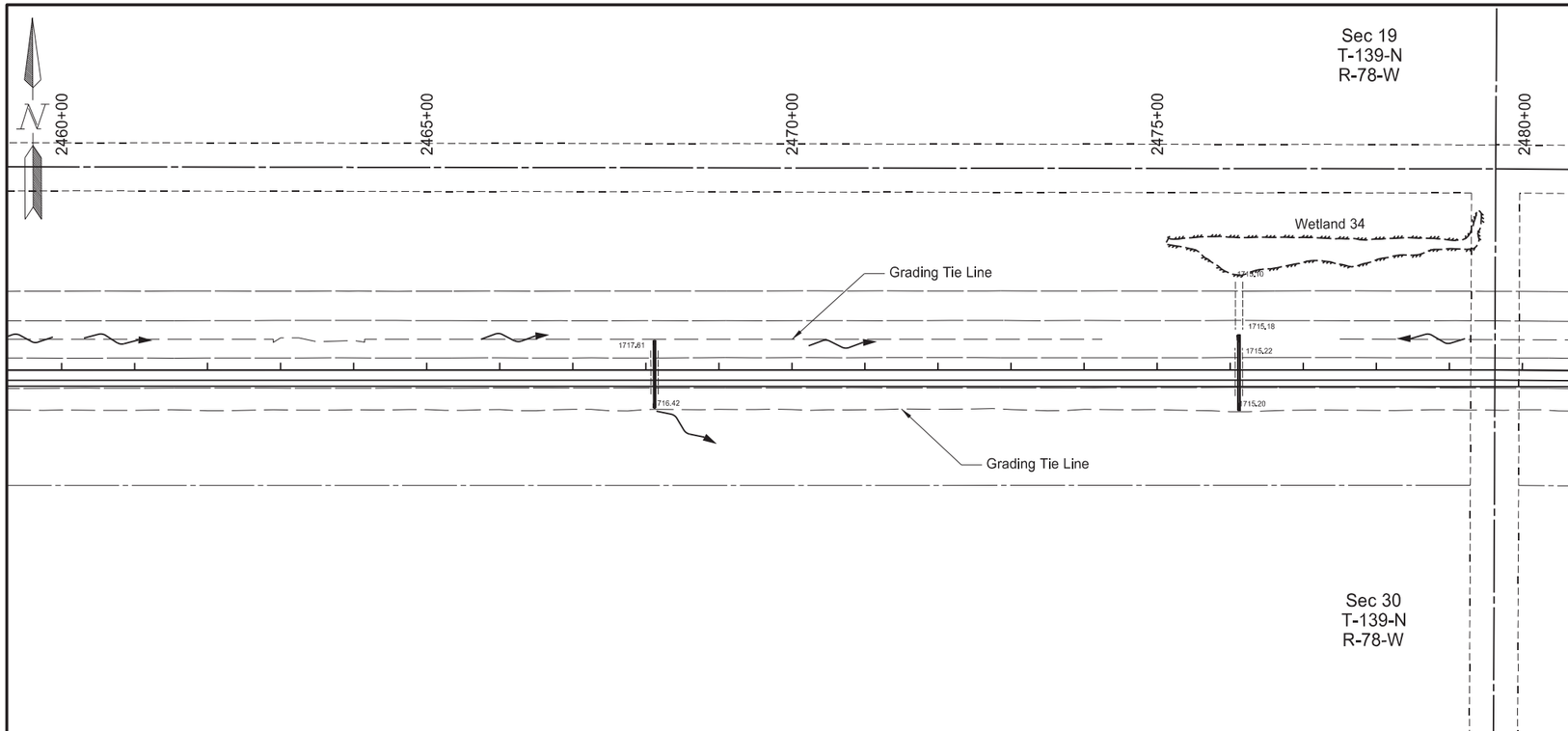

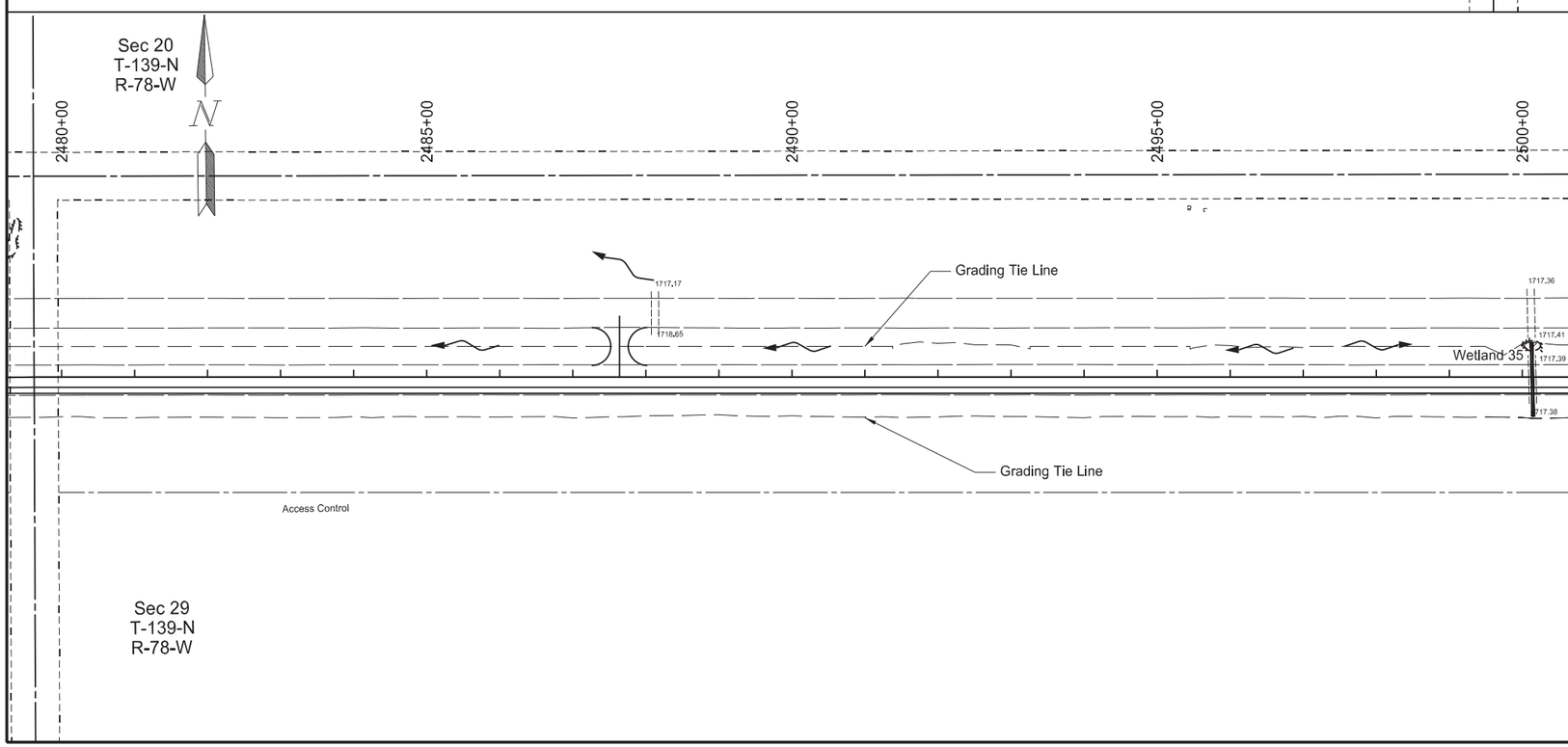

Wetland Impacts			
Sta 2460+00 to 2500+00			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#34	0 Acre	0 Acre	0 Acre
#35	0.001 Acre	0.005 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

Wetlands, Mitigation, and Environmental

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:25:05 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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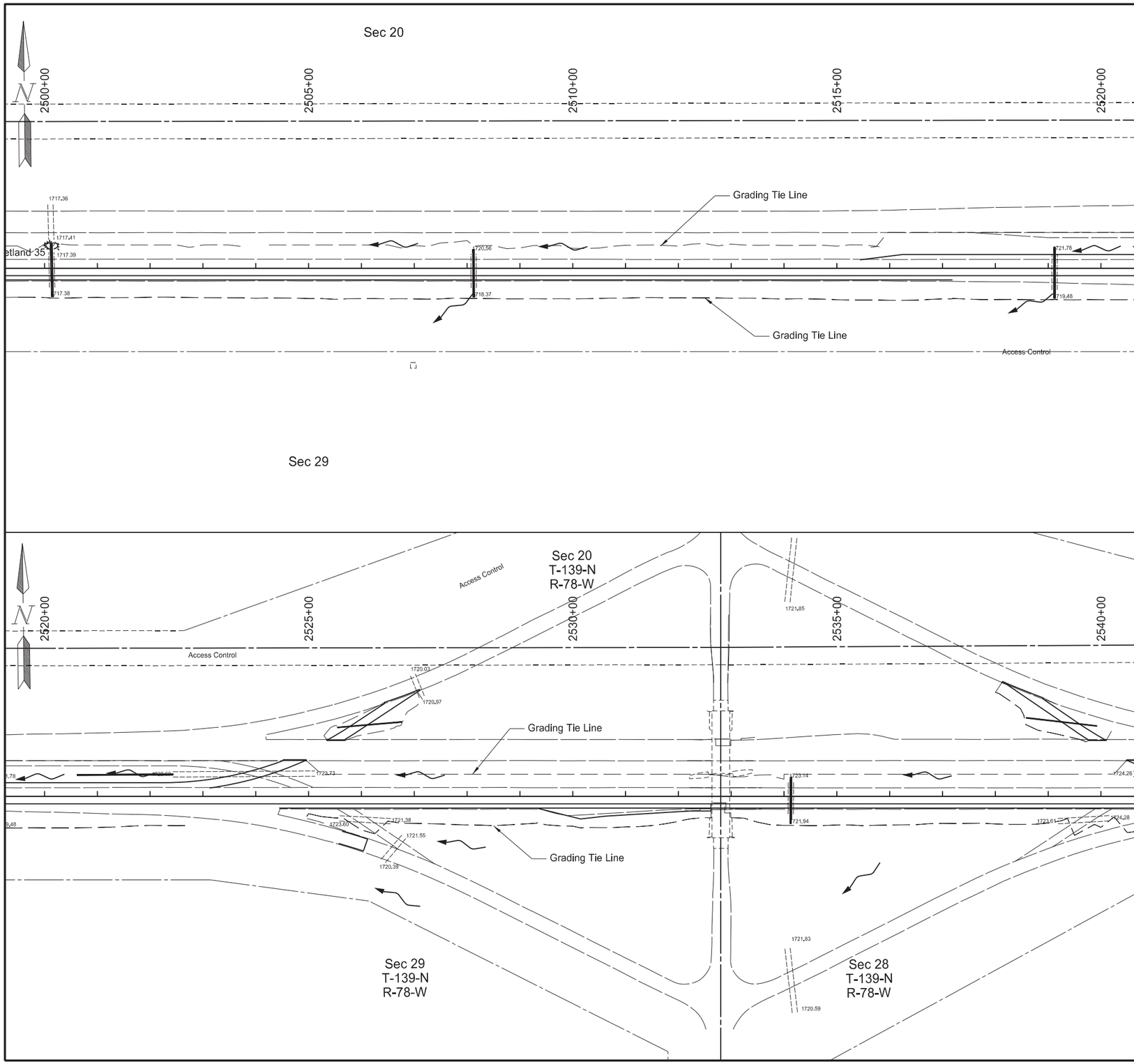


Legend

- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

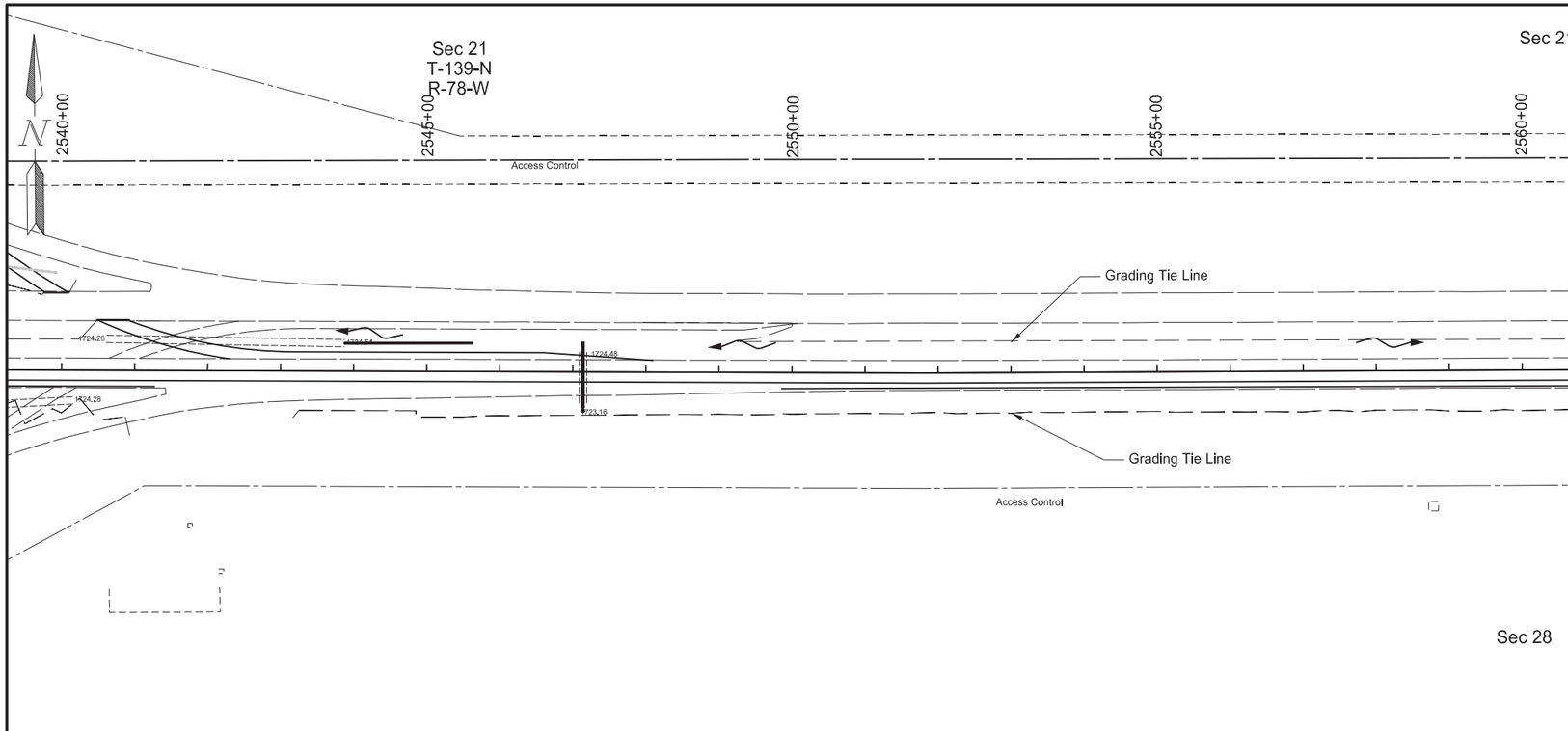
Wetlands, Mitigation, and Environmental

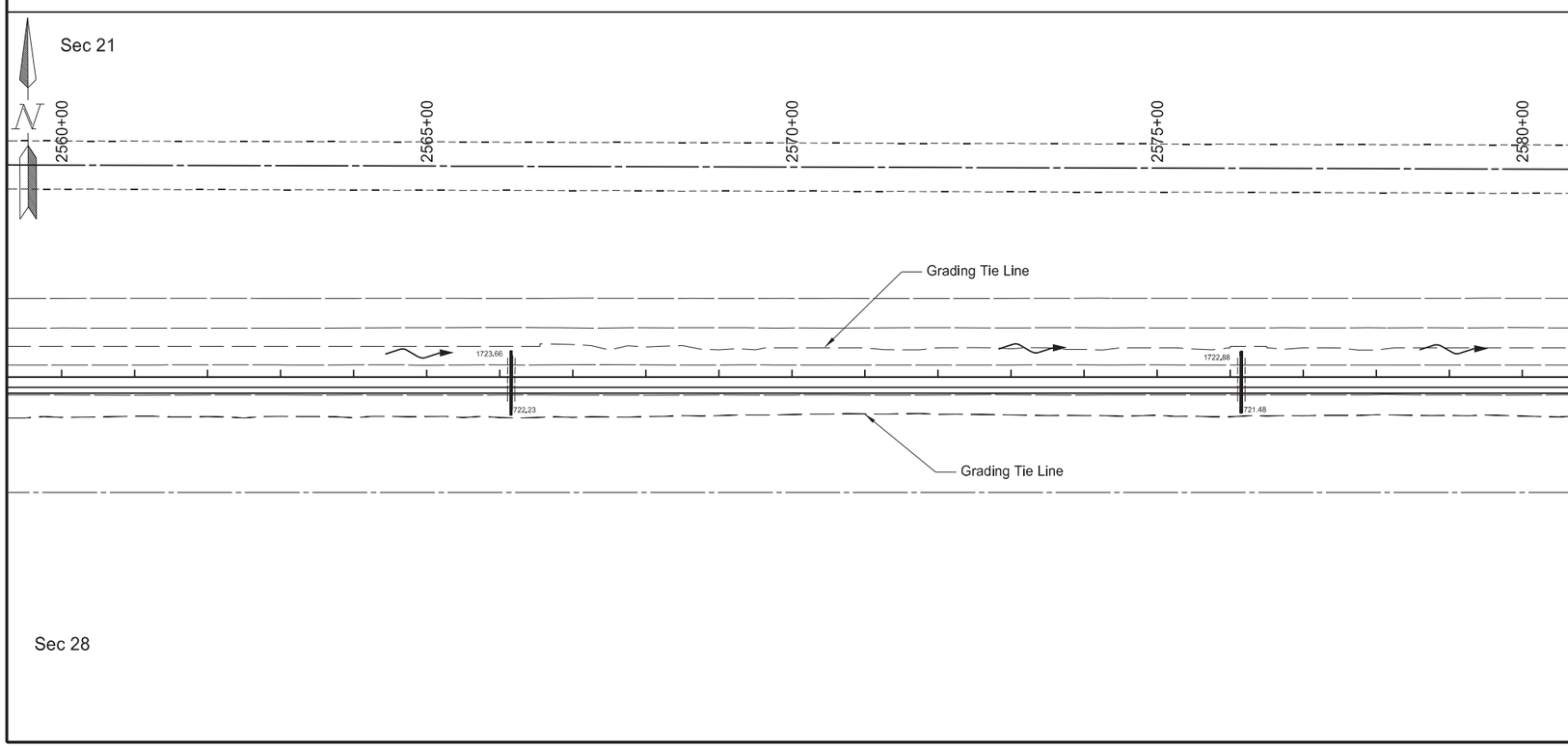
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:25:23 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	14





Legend

- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

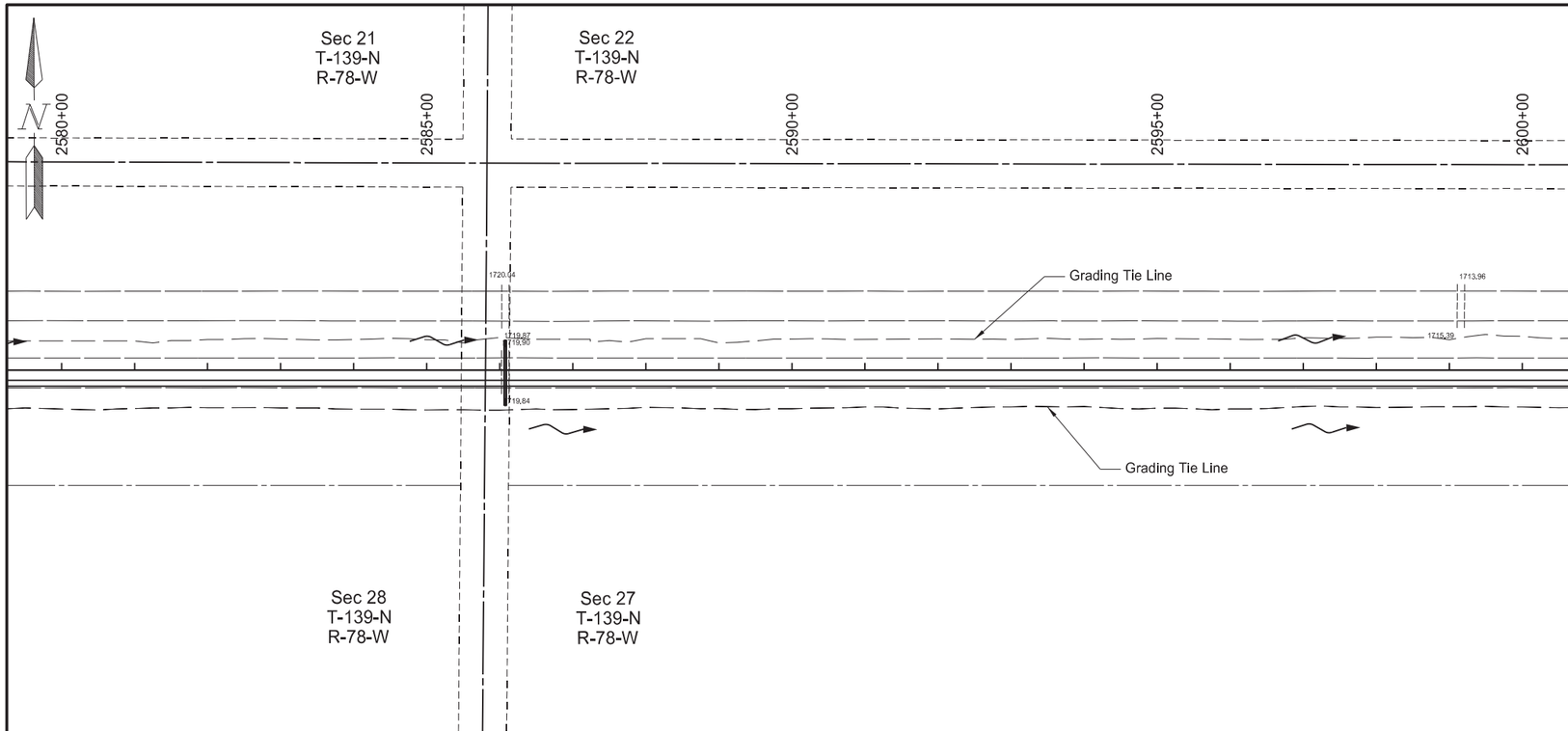
Wetlands, Mitigation, and Environmental

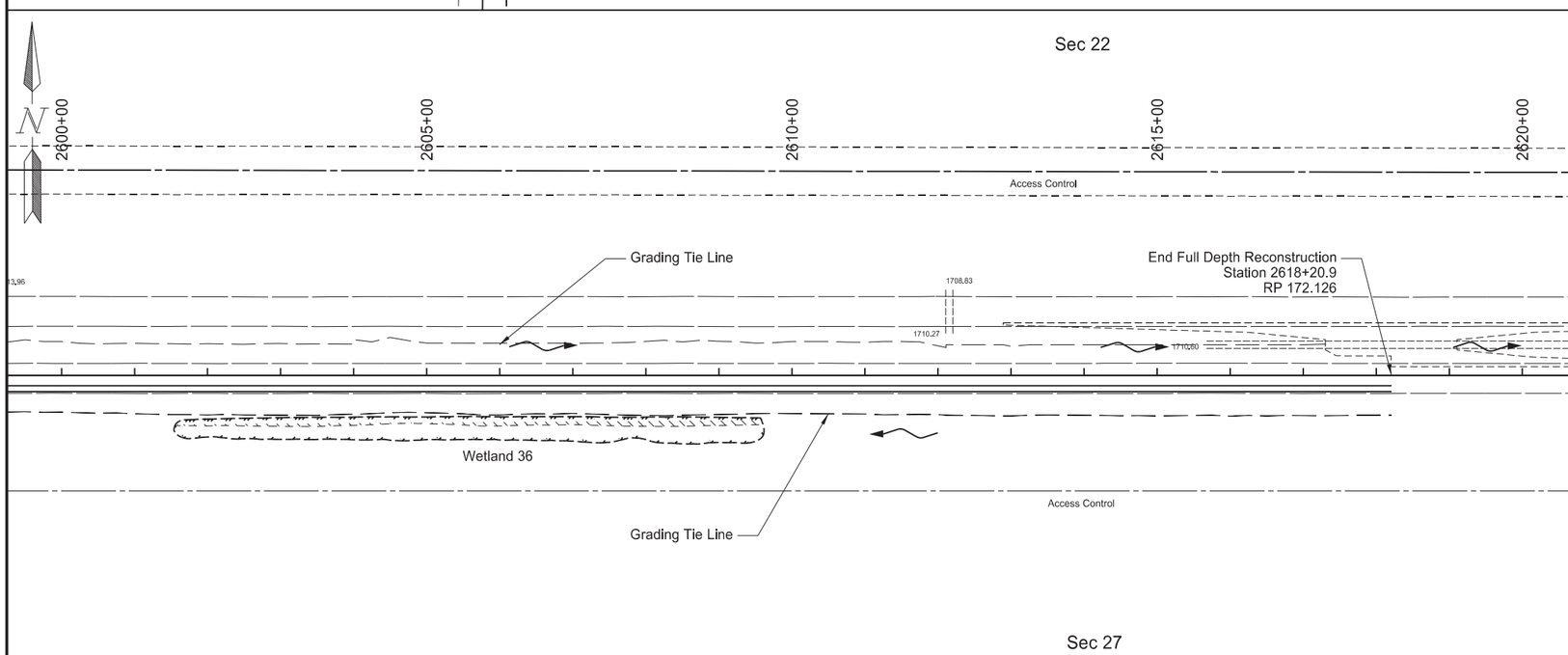
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:25:47 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	75	15





Wetland Impacts			
Sta 2580+00 to 2618+20.90			
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact	
		Fill / Drain	Cut
#36	0.205 Acre	0 Acre	0 Acre

Legend
- Temporary Impact
- Permanent Fill / Drain Impact
- Permanent Cut Impact
- Permanent Fill/Drain Impact Other Waters
- Temporary Impact Other Waters
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Other Waters/Other Waters - D
- Exst Delineated Wetland - JD
- Exst Delineated Wetland - Non-JD

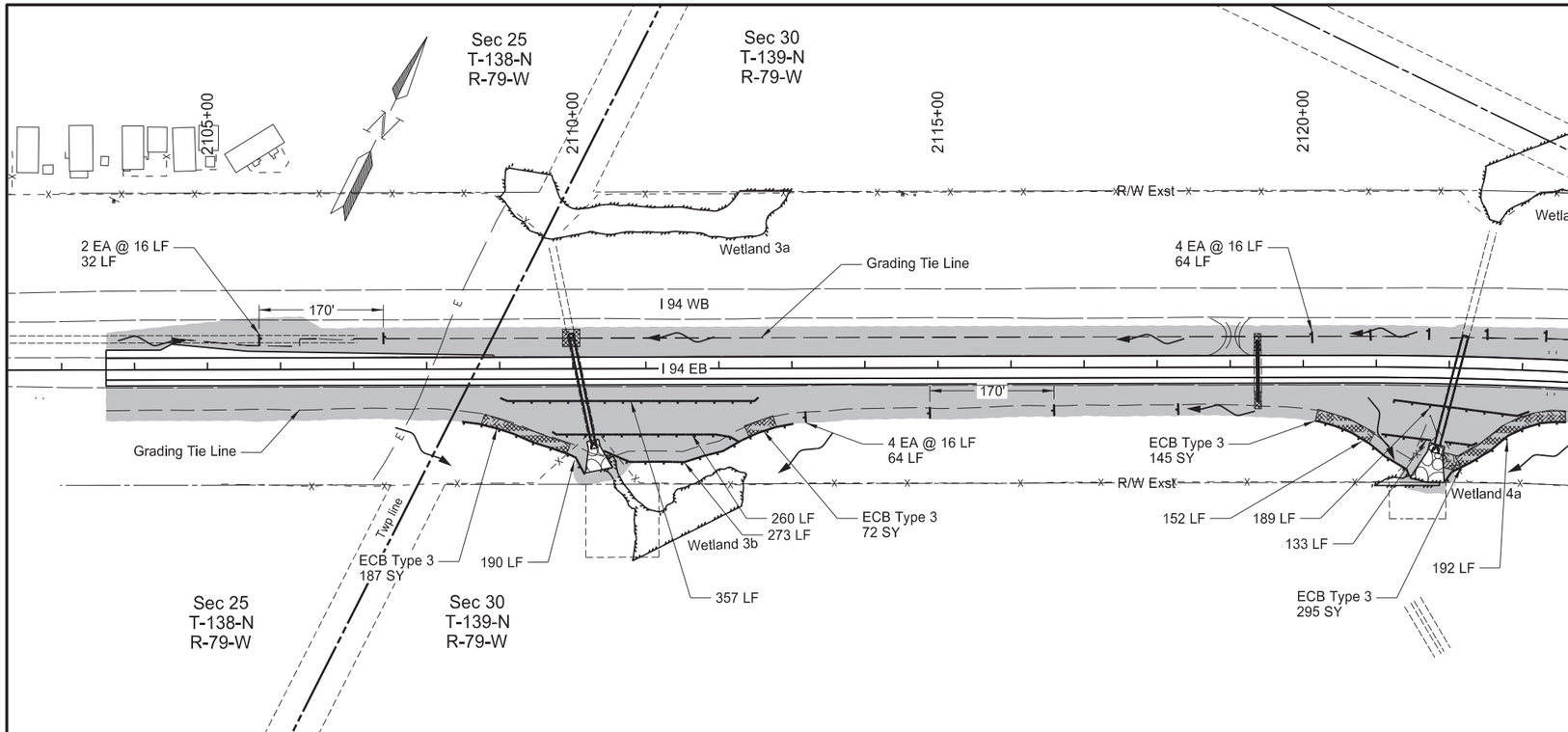
Wetlands, Mitigation, and Environmental

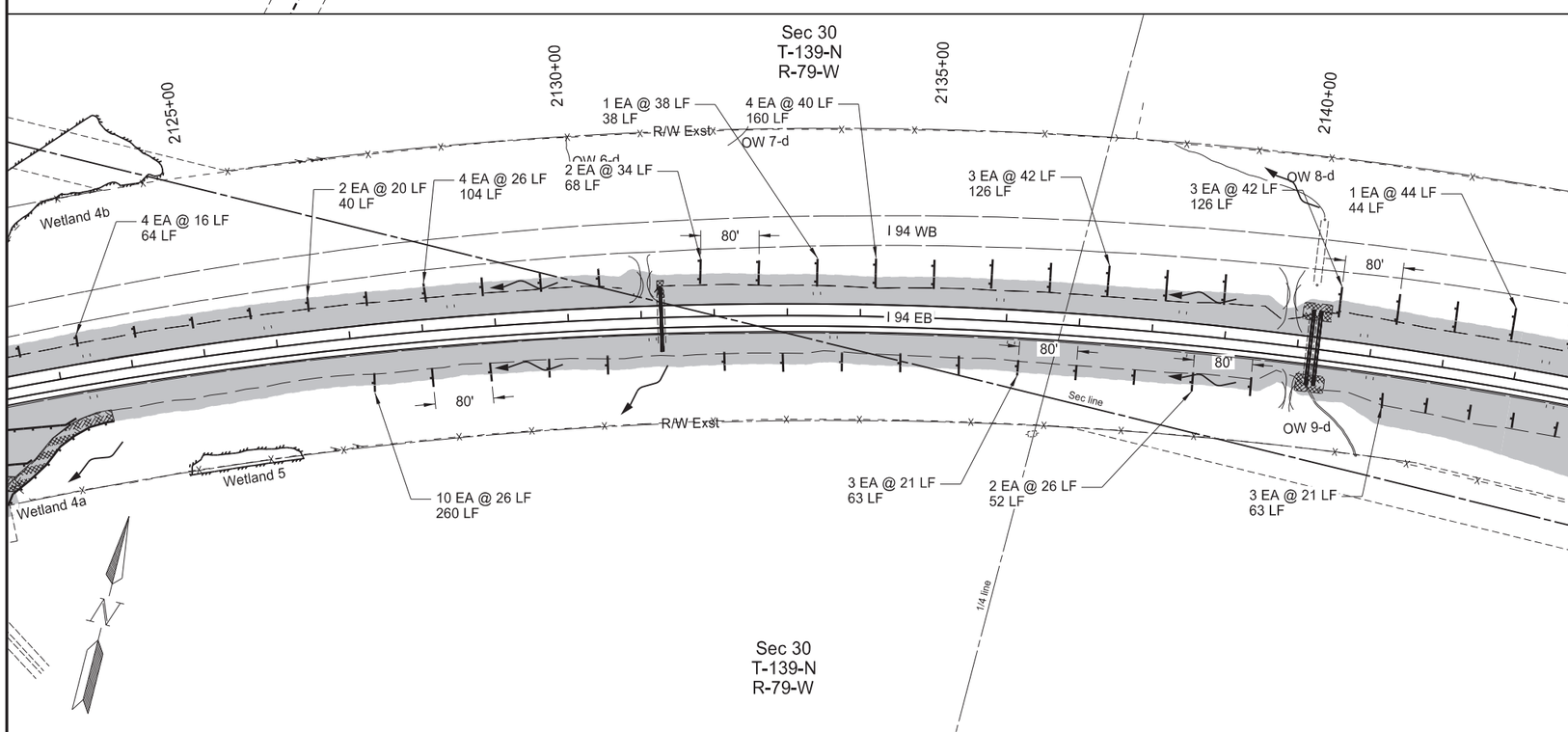
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
DAWN L.S. MICHEL
PE-8029
DATE 2024.11.07 13:26:07 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	1





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.80	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.80	ACRE
255	0103	ECB TYPE 3		
		Sta 2103+00 to Sta 2123+00 Rt	699	SY
261	0112	FIBER ROLLS 12IN		
		Sta 2103+00 to Sta 2123+00 Lt	96	LF
		Sta 2103+00 to Sta 2123+00 Rt	1810	LF
		Sta 2123+00 to Sta 2143+00 Lt	770	LF
		Sta 2123+00 to Sta 2143+00 Rt	438	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

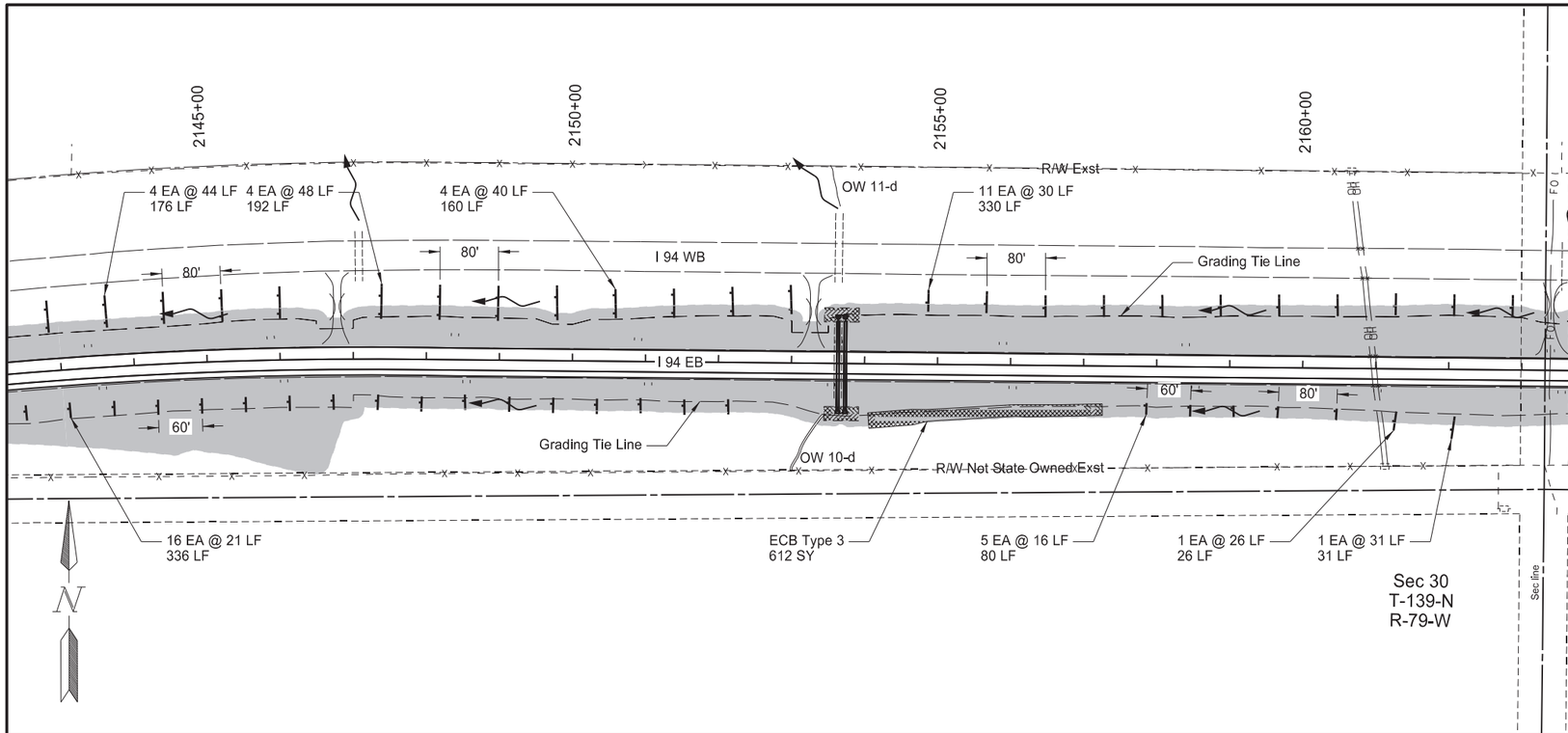
Permanent Sediment and Erosion Control

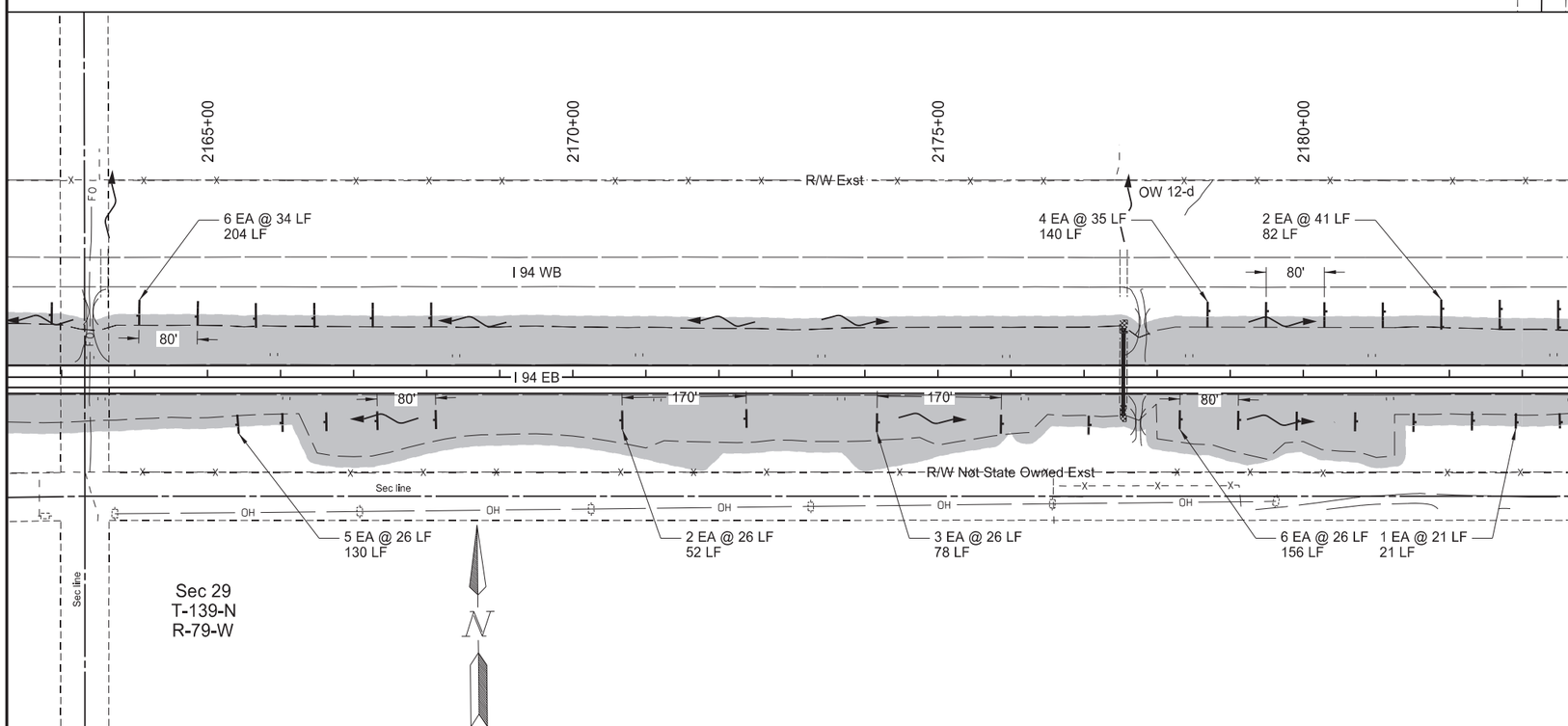
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 10:59:17 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	2





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	12.07	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	12.07	ACRE
255	0103	ECB TYPE 3		
		Sta 2143+00 to Sta 2163+00 Rt	612	SY
261	0112	FIBER ROLLS 12IN		
		Sta 2143+00 to Sta 2163+00 Lt	858	LF
		Sta 2143+00 to Sta 2163+00 Rt	473	LF
		Sta 2163+00 to Sta 2183+00 Lt	426	LF
		Sta 2163+00 to Sta 2183+00 Rt	437	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

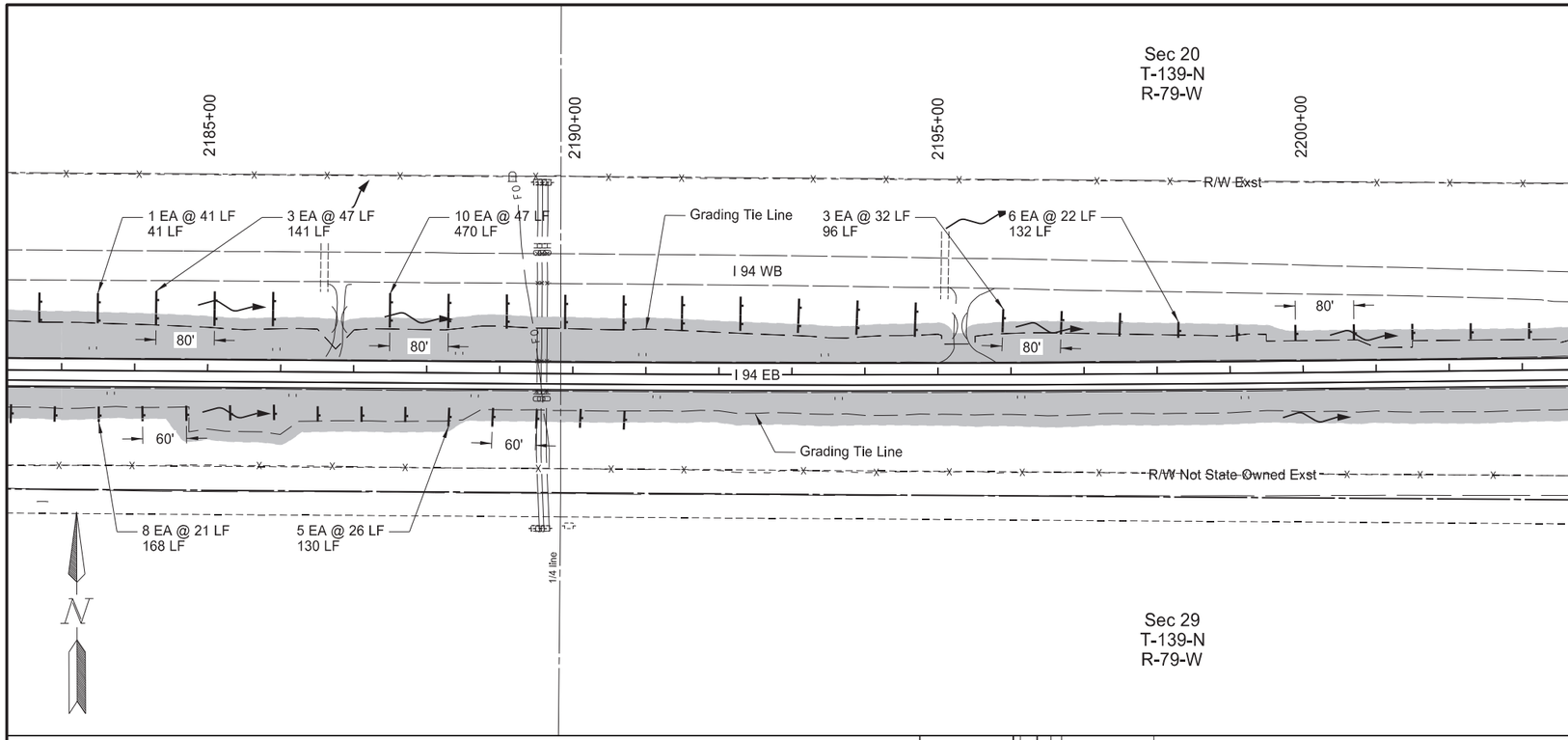
Permanent Sediment and Erosion Control

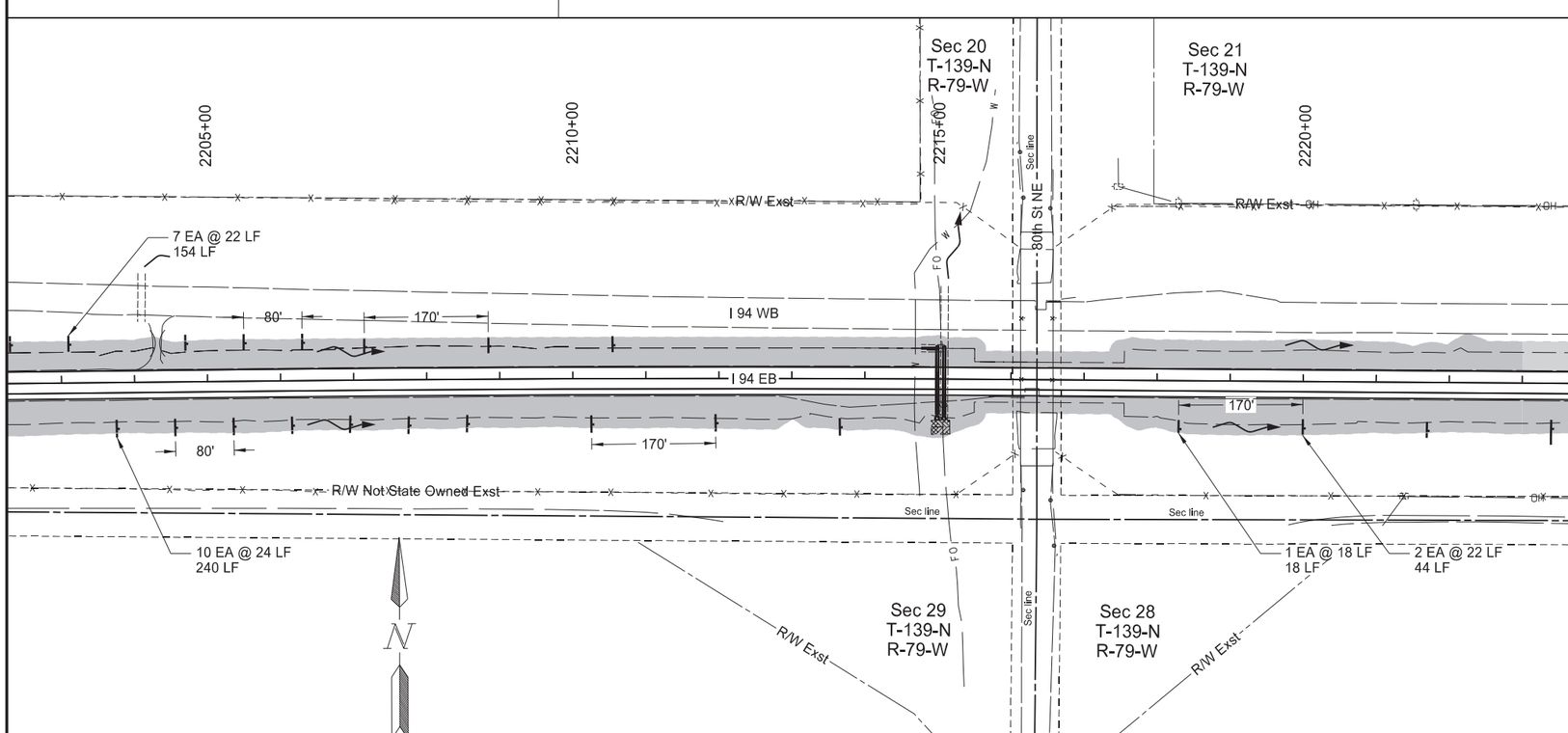
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 10:59:49 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	3





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.68	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.68	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 2183+00 to Sta 2203+00 Lt	880	LF
		Sta 2183+00 to Sta 2203+00 Rt	298	LF
		Sta 2203+00 to Sta 2223+00 Lt	154	LF
		Sta 2203+00 to Sta 2223+00 Rt	302	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

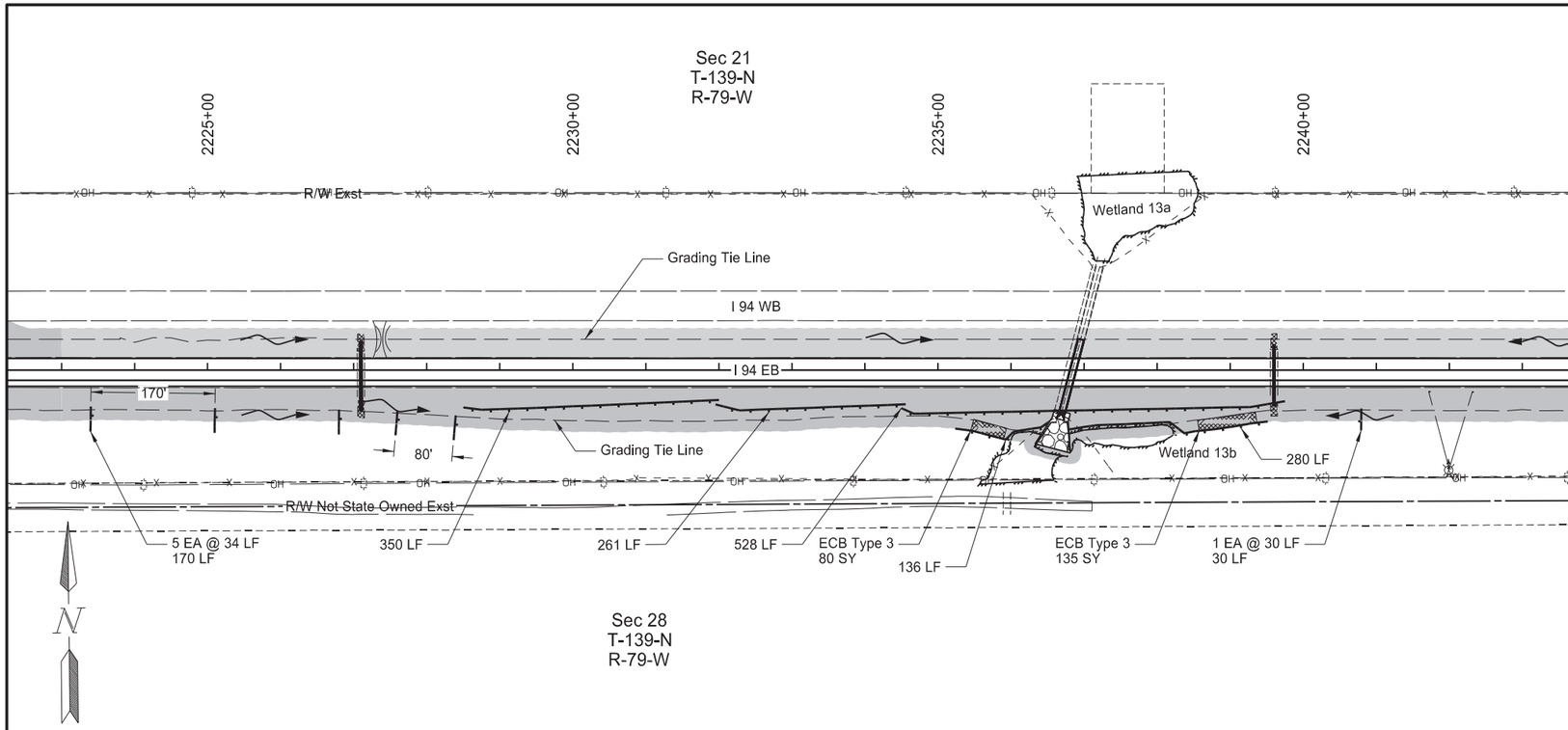
Permanent Sediment and Erosion Control

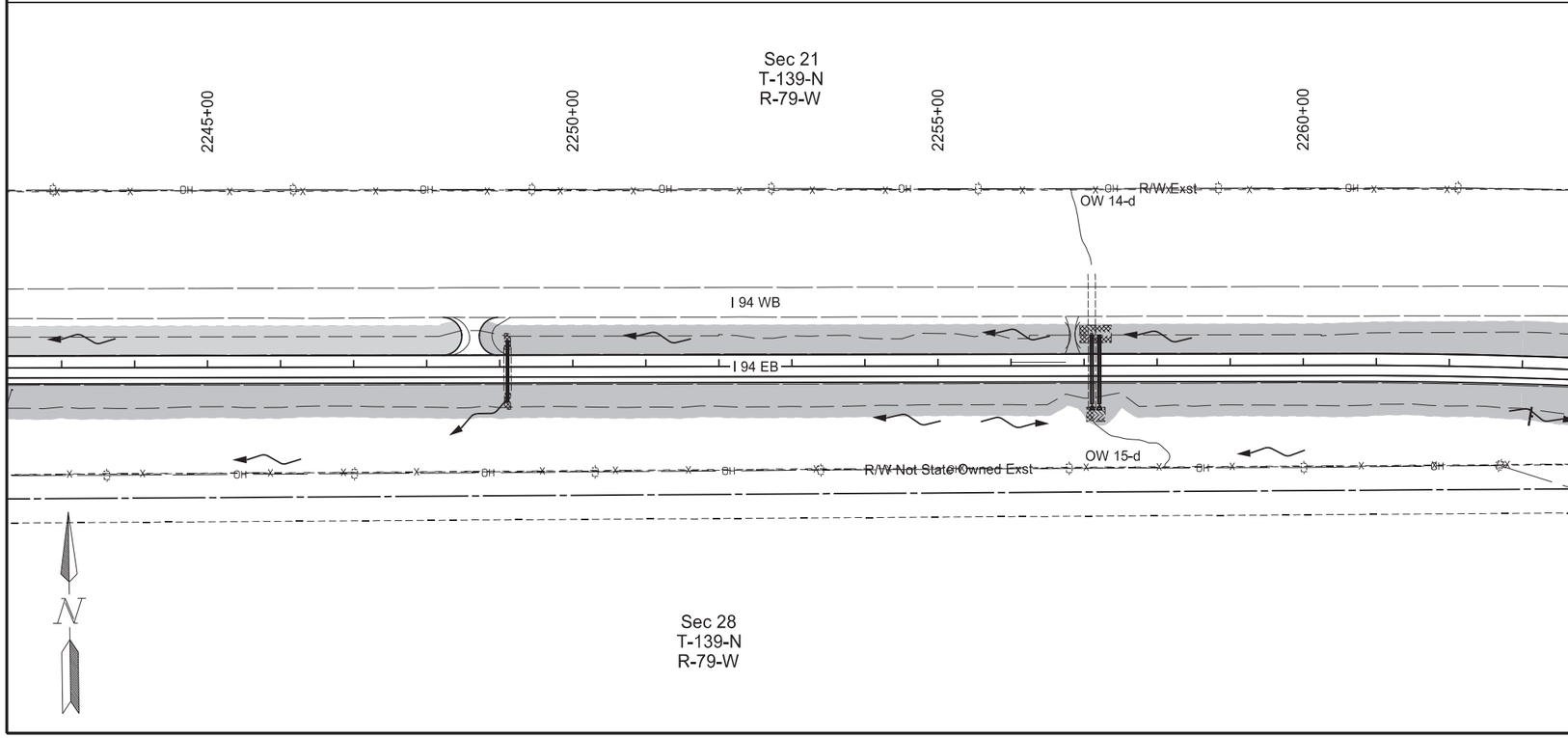
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:00:28 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	77	4





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.52	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.52	ACRE
255	0103	ECB TYPE 3		
		Sta 2223+00 to Sta 2243+00 Rt	215	SY
261	0112	FIBER ROLLS 12IN		
		Sta 2223+00 to Sta 2243+00 Rt	1755	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

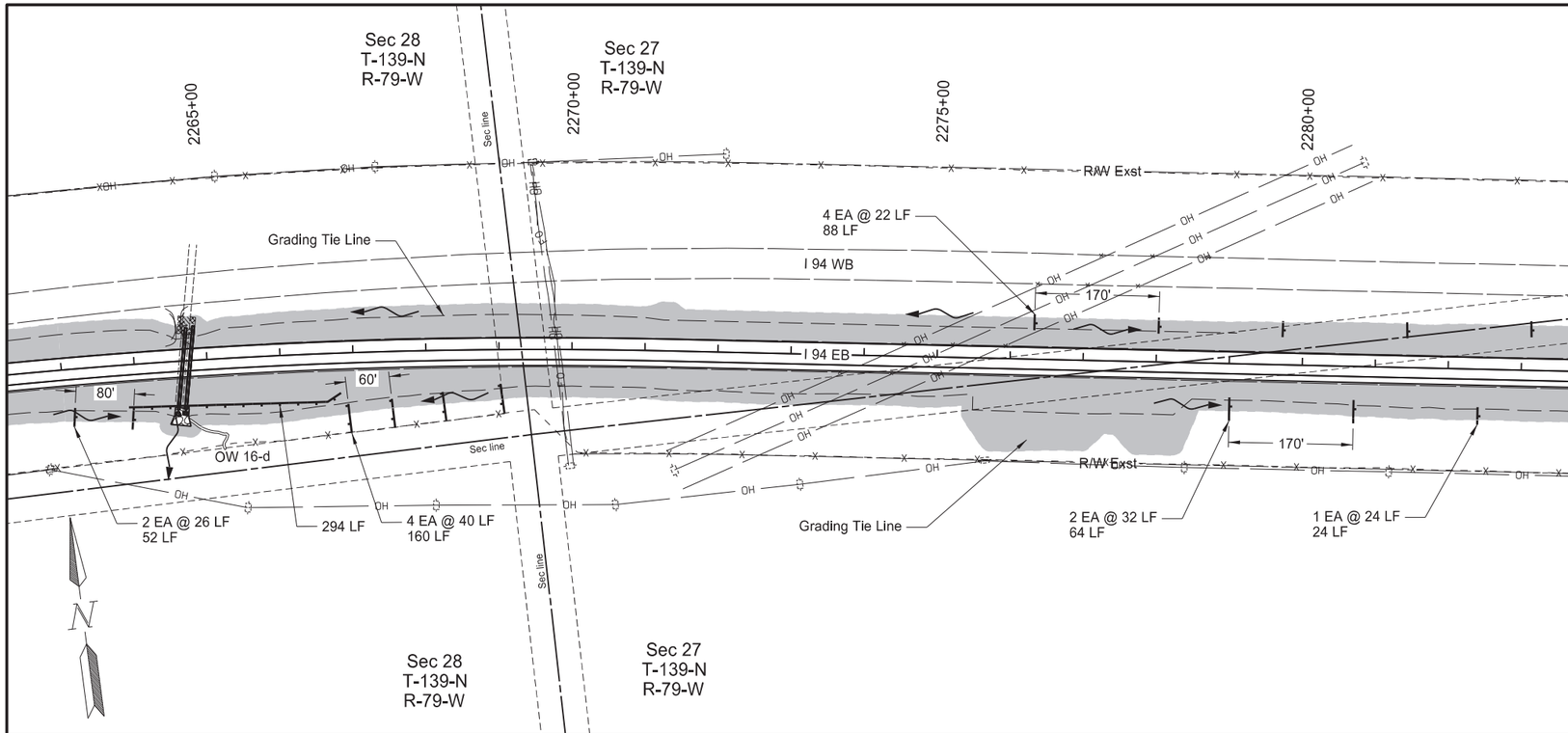
Permanent Sediment and Erosion Control

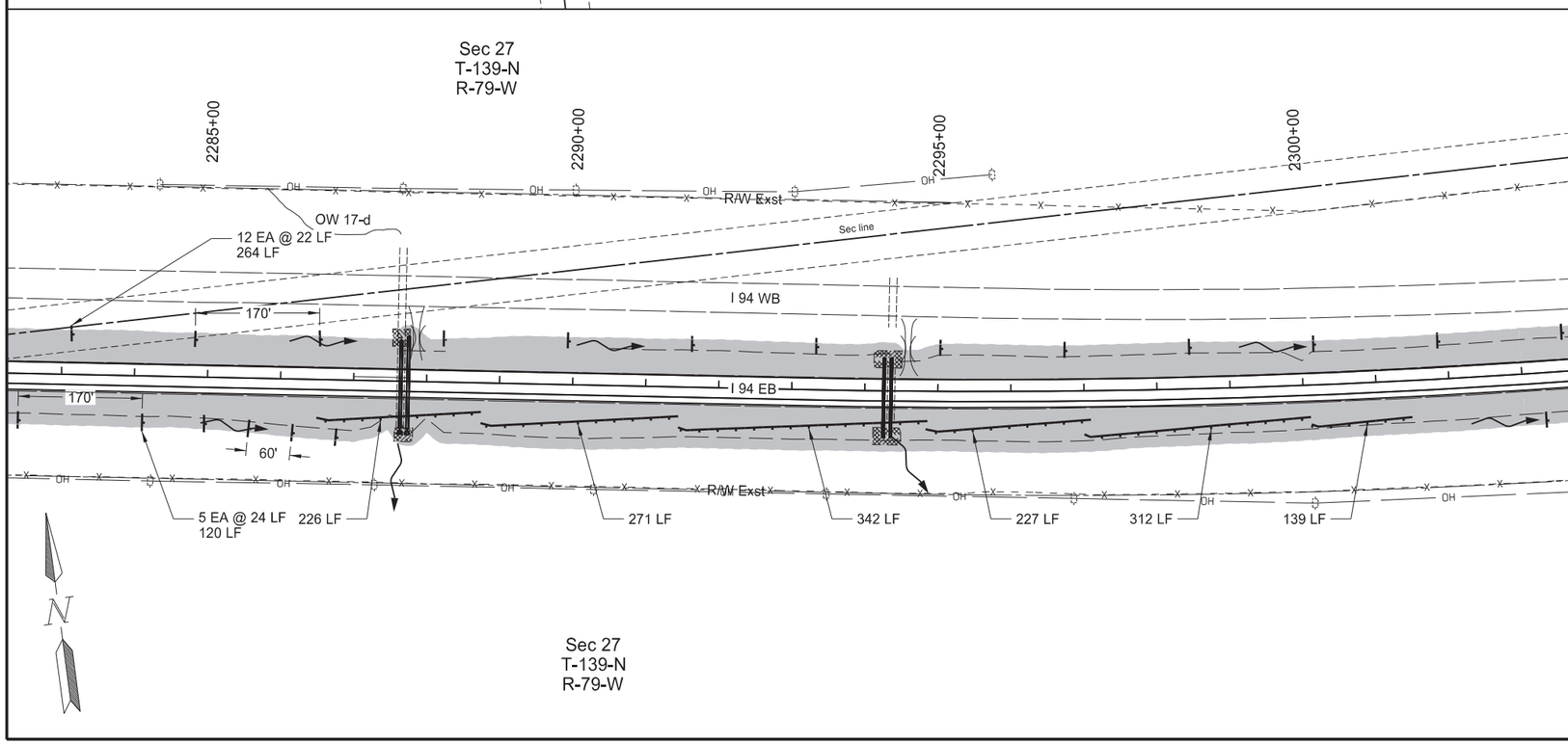
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:00:53 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	77	5





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	9.42	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	9.42	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 2263+00 to Sta 2283+00 Lt	88	LF
		Sta 2263+00 to Sta 2283+00 Rt	594	LF
		Sta 2283+00 to Sta 2303+00 Lt	264	LF
		Sta 2283+00 to Sta 2303+00 Rt	1637	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

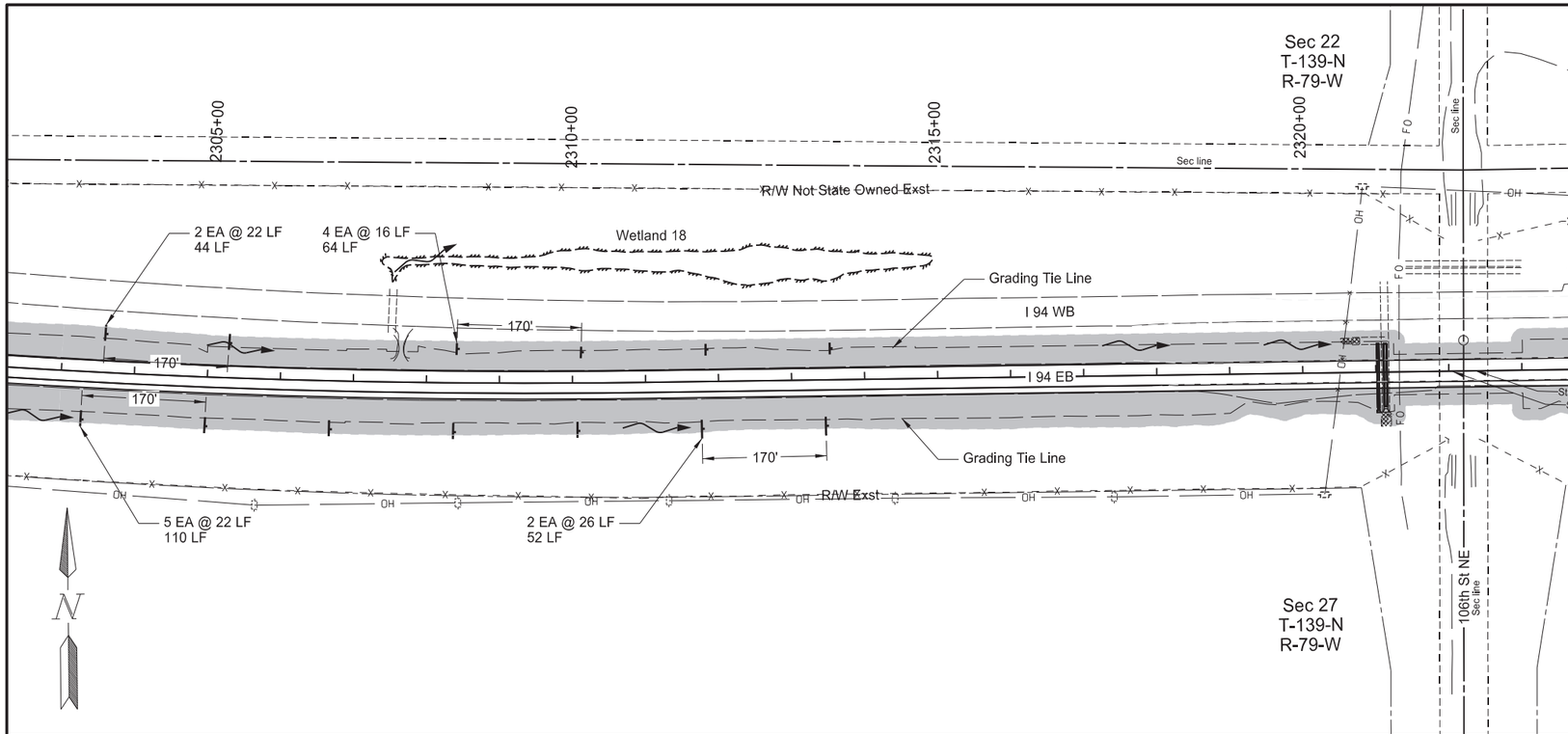
Permanent Sediment and Erosion Control

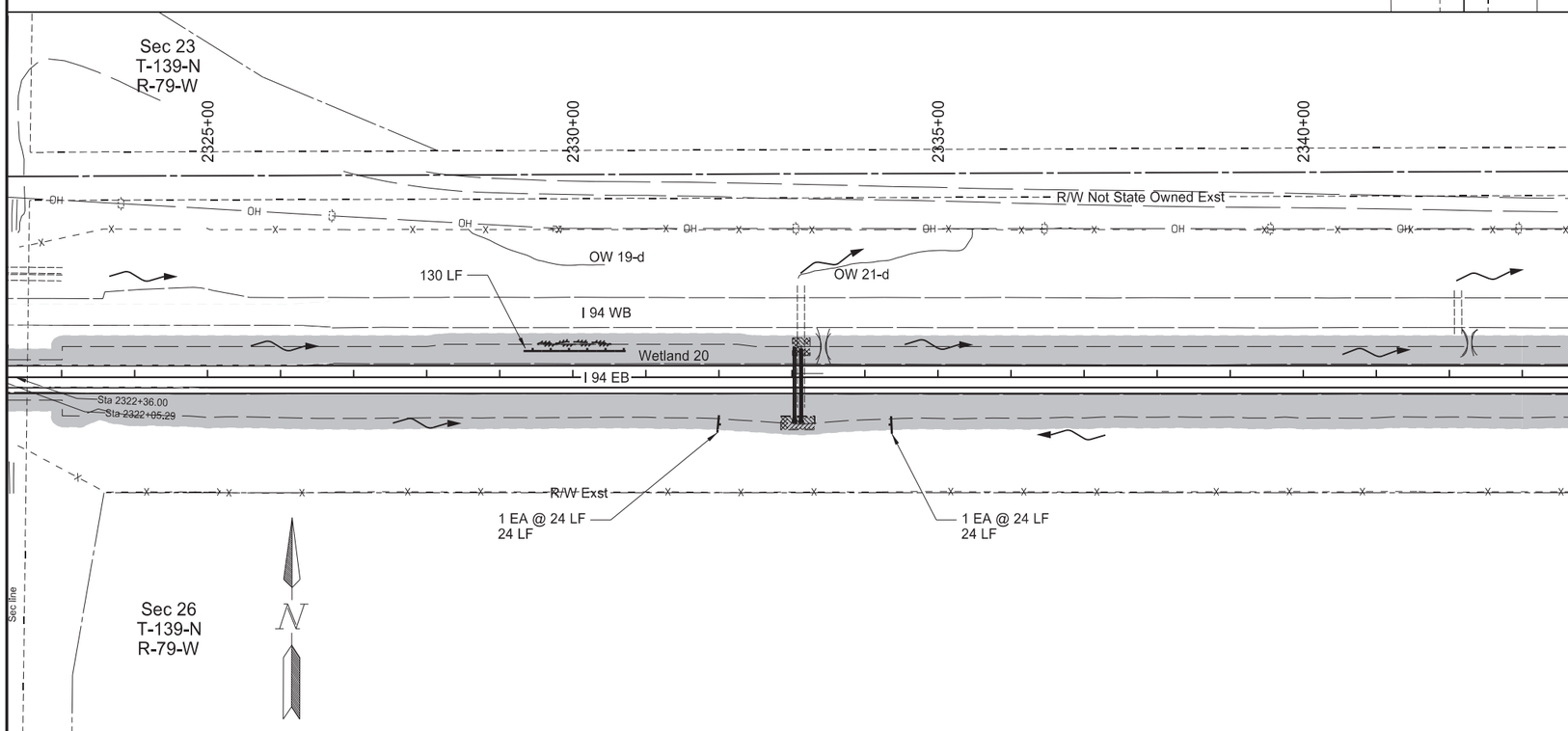
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:01:12 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	6





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.05	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.05	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 2303+00 to Sta 2323+00 Lt	108	LF
		Sta 2303+00 to Sta 2323+00 Rt	162	LF
		Sta 2323+00 to Sta 2343+00 Lt	130	LF
		Sta 2323+00 to Sta 2343+00 Rt	48	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

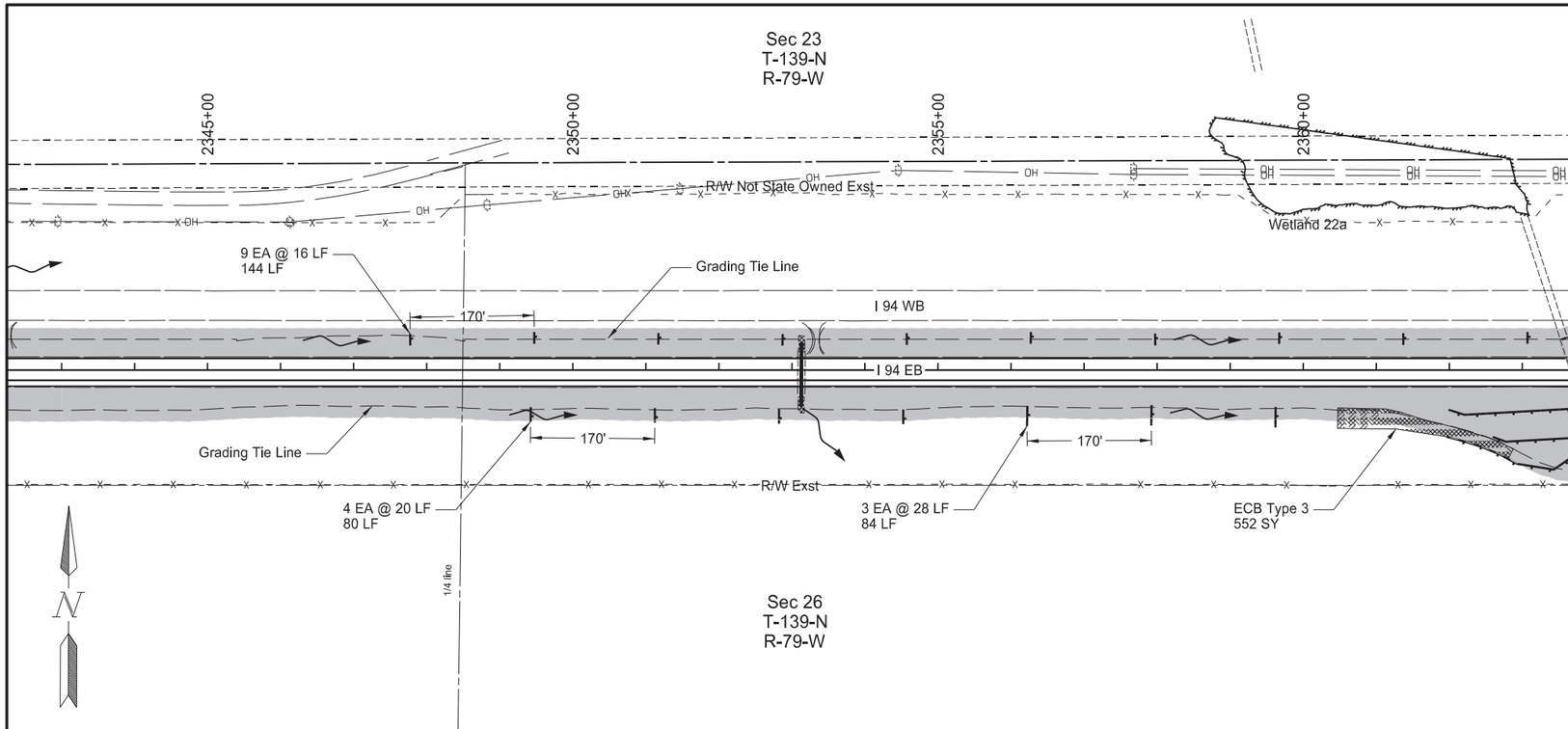
Permanent Sediment and Erosion Control

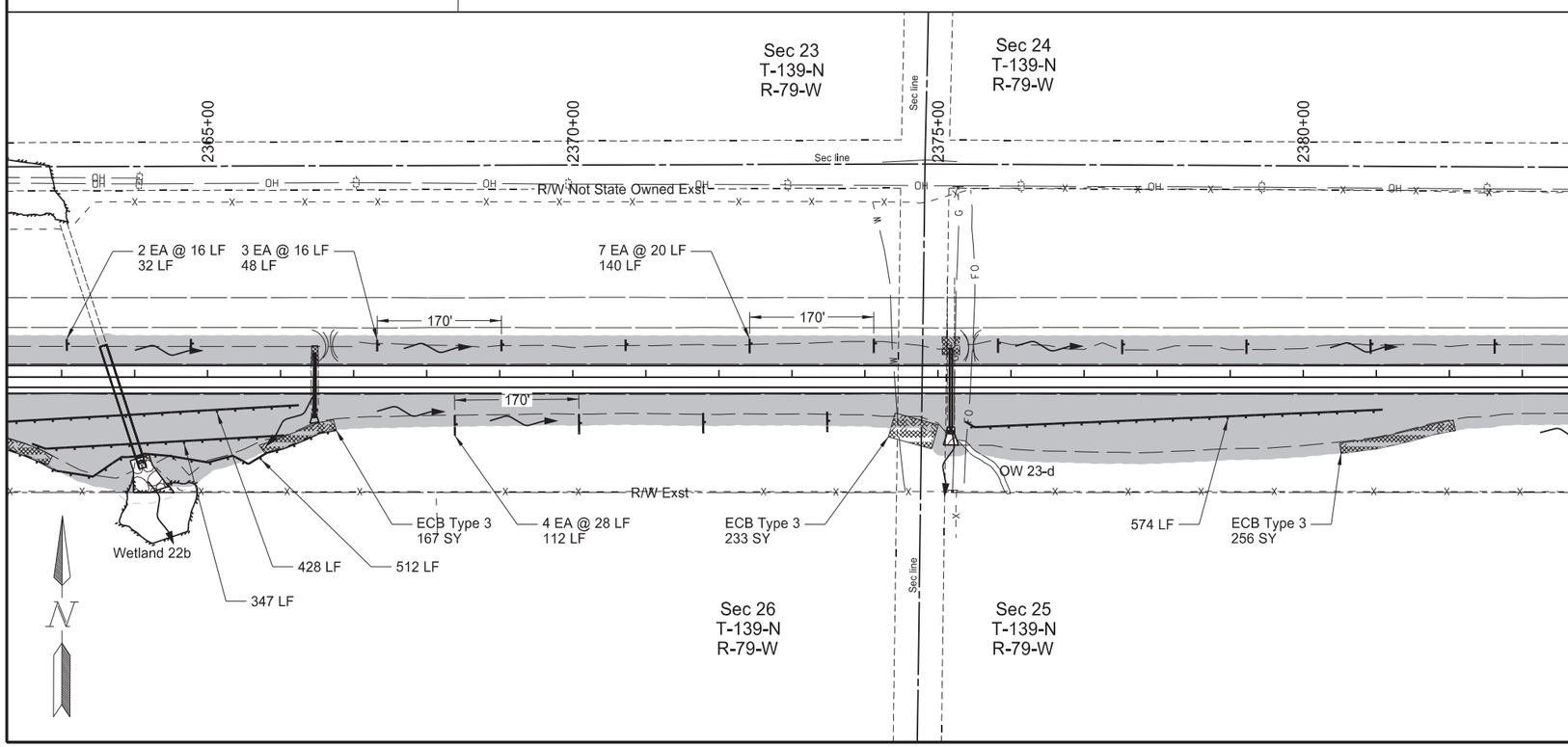
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:01:52 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	7





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	9.22	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	9.22	ACRE
255	0103	ECB TYPE 3		
		Sta 2343+00 to Sta 2363+00 Rt	552	SY
		Sta 2363+00 to Sta 2383+00 Rt	656	SY
261	0112	FIBER ROLLS 12IN		
		Sta 2343+00 to Sta 2363+00 Lt	144	LF
		Sta 2343+00 to Sta 2363+00 Rt	164	LF
		Sta 2363+00 to Sta 2383+00 Lt	220	LF
		Sta 2363+00 to Sta 2383+00 Rt	1973	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

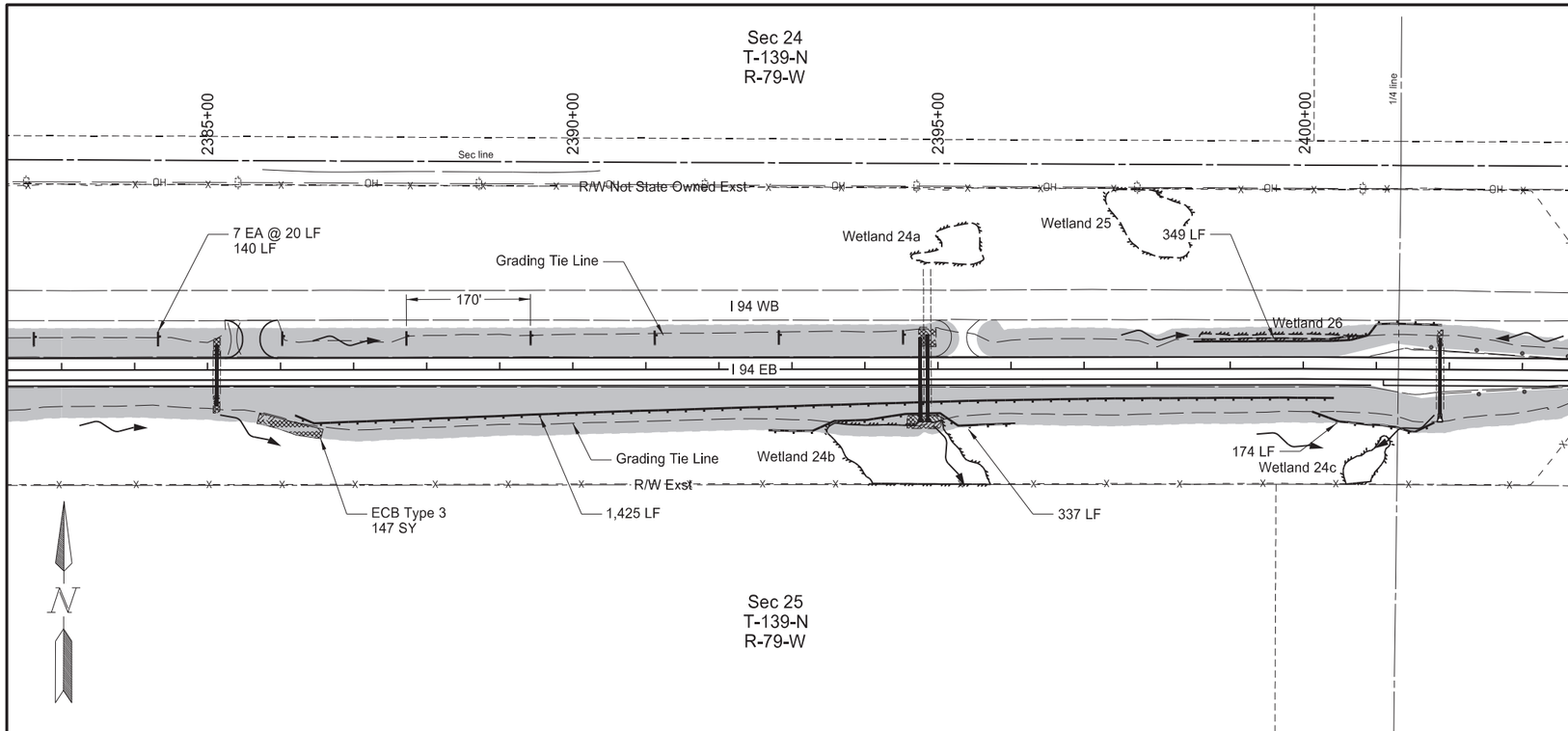
Permanent Sediment and Erosion Control

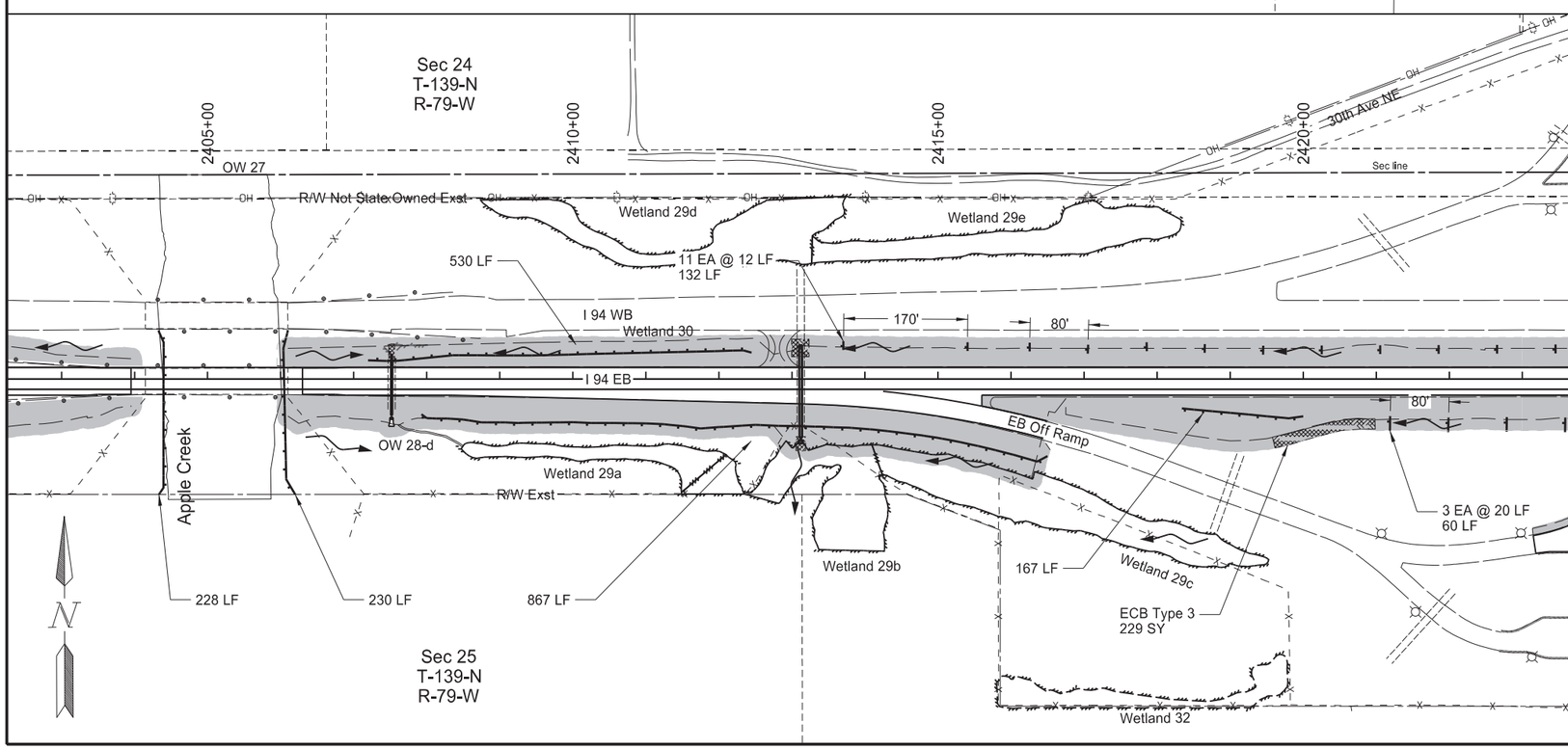
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:02:15 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	8





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.53	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.53	ACRE
255	0103	ECB TYPE 3		
		Sta 2383+00 to Sta 2403+00 Rt	147	SY
		Sta 2403+00 to Sta 2423+00 Rt	229	SY
261	0112	FIBER ROLLS 12IN		
		Sta 2383+00 to Sta 2403+00 Lt	489	LF
		Sta 2383+00 to Sta 2403+00 Rt	1936	LF
		Sta 2403+00 to Sta 2423+00 Lt	662	LF
		Sta 2403+00 to Sta 2423+00 Rt	1552	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

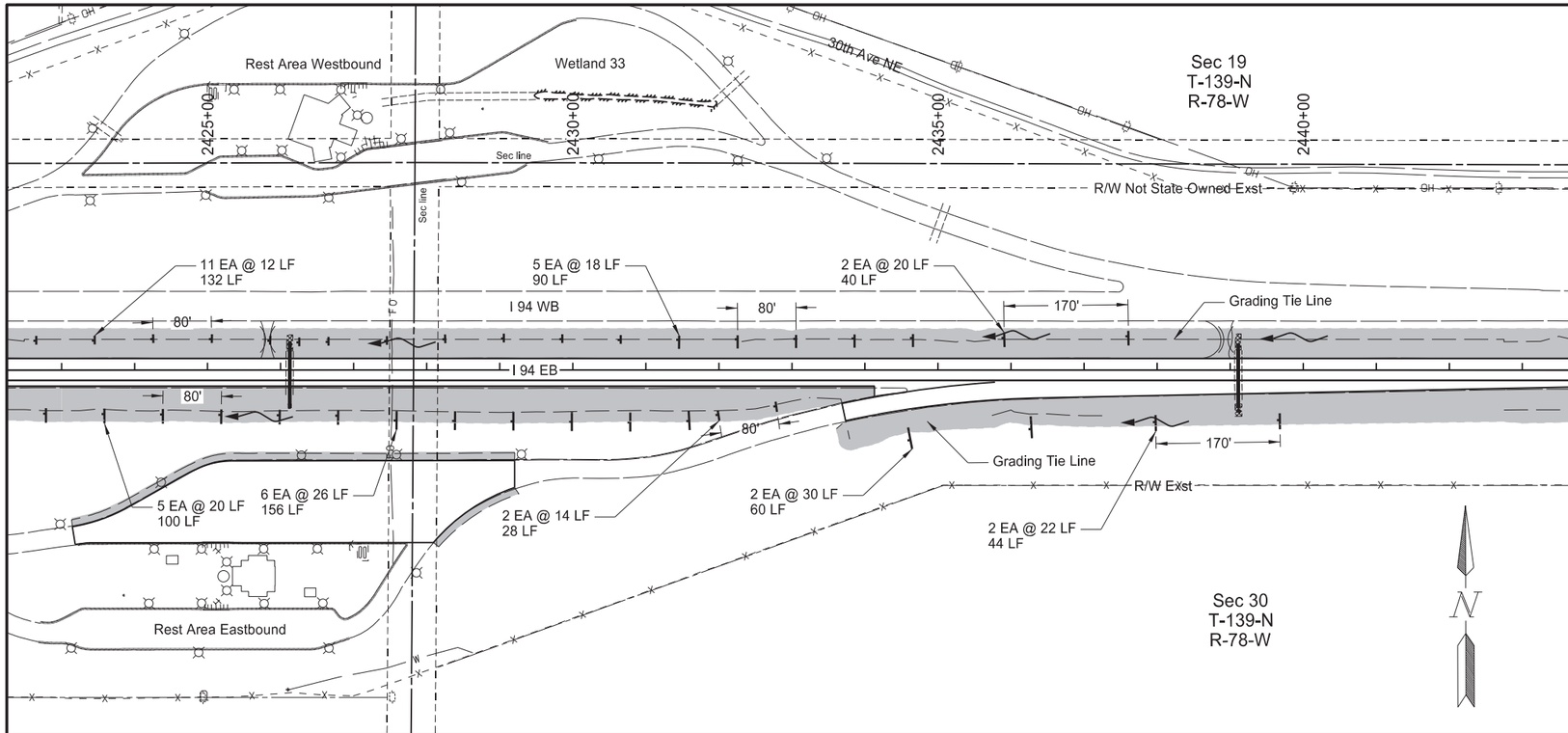
Permanent Sediment and Erosion Control

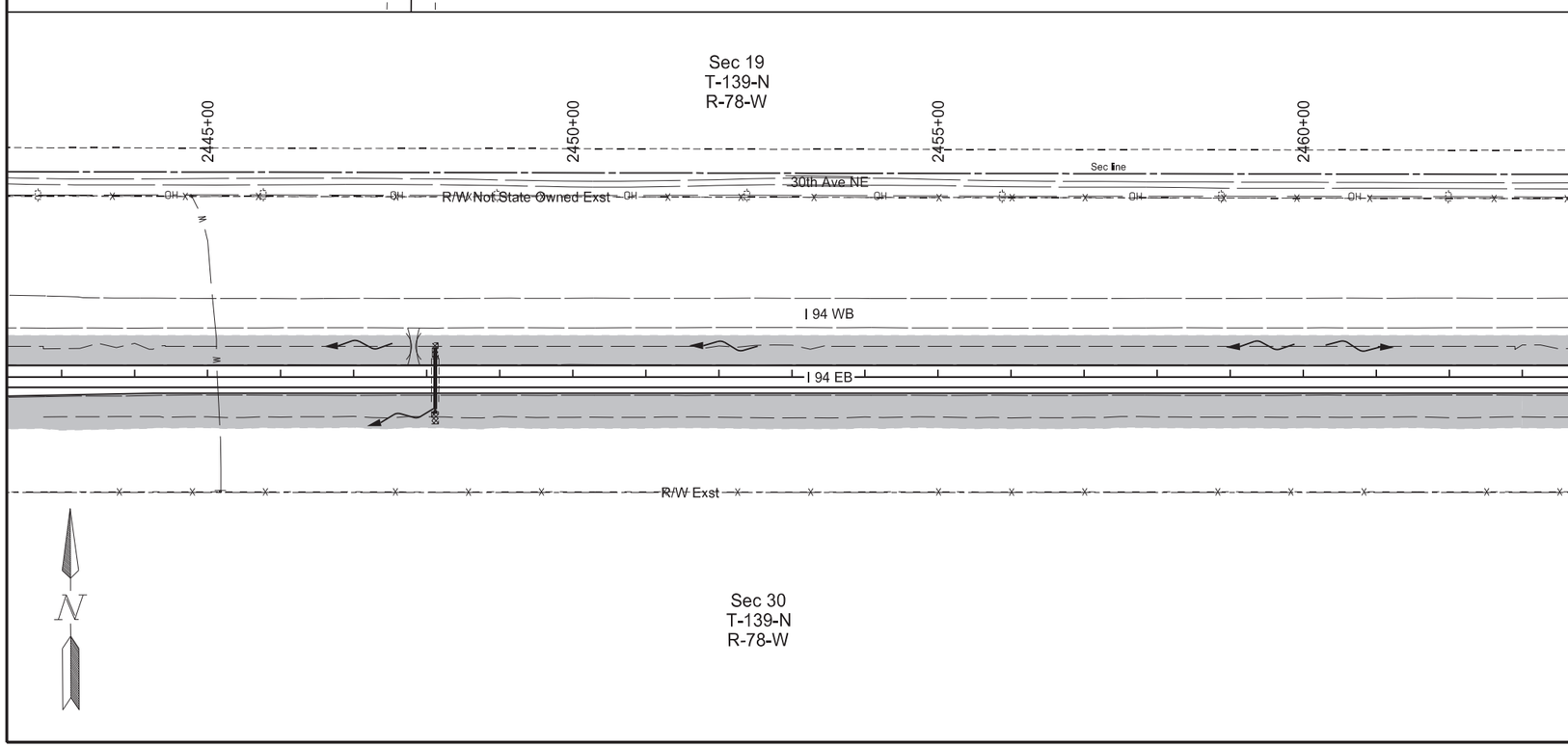
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:02:45 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	9





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.20	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.20	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 2423+00 to Sta 2443+00 Lt	262	LF
		Sta 2423+00 to Sta 2443+00 Rt	388	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

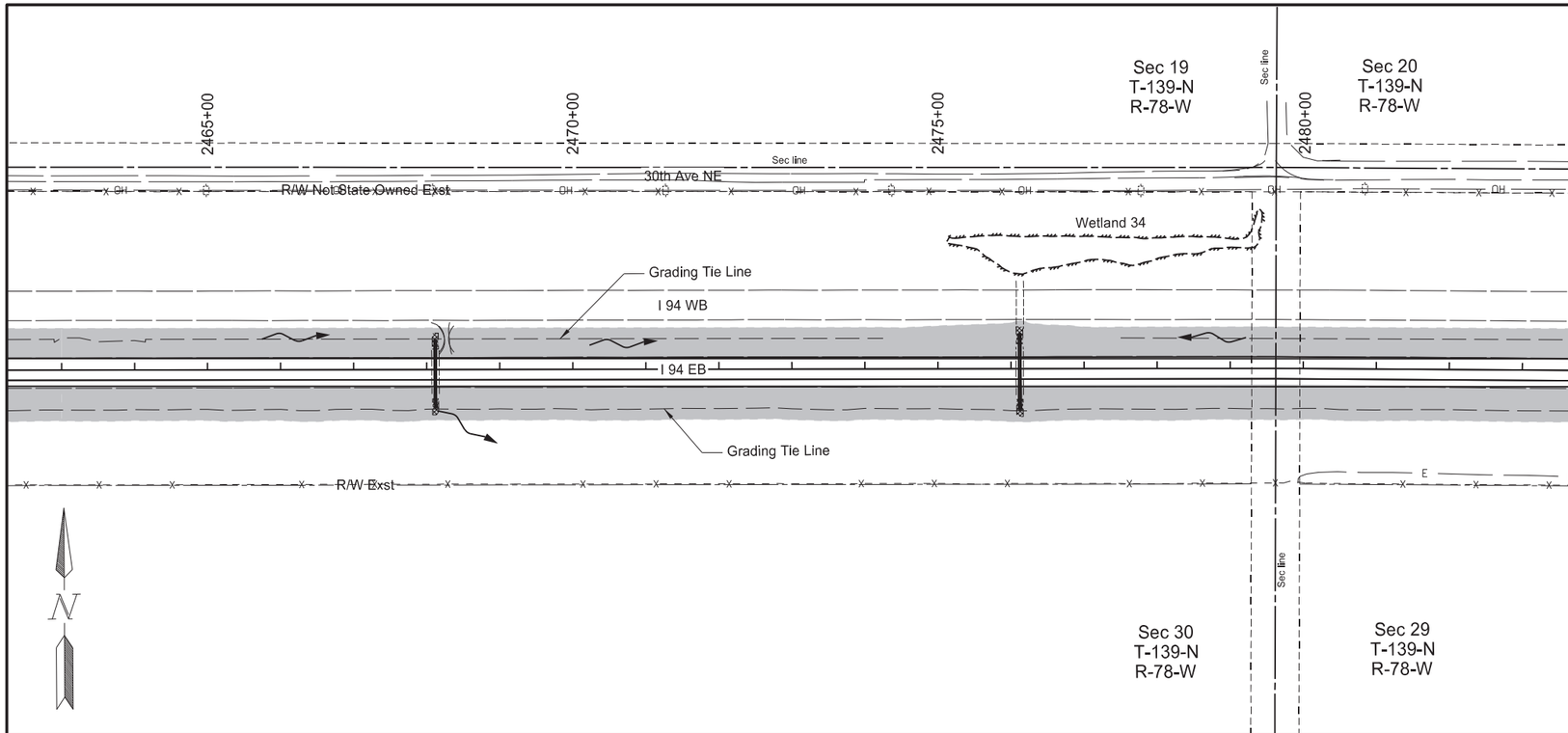
Permanent Sediment and Erosion Control

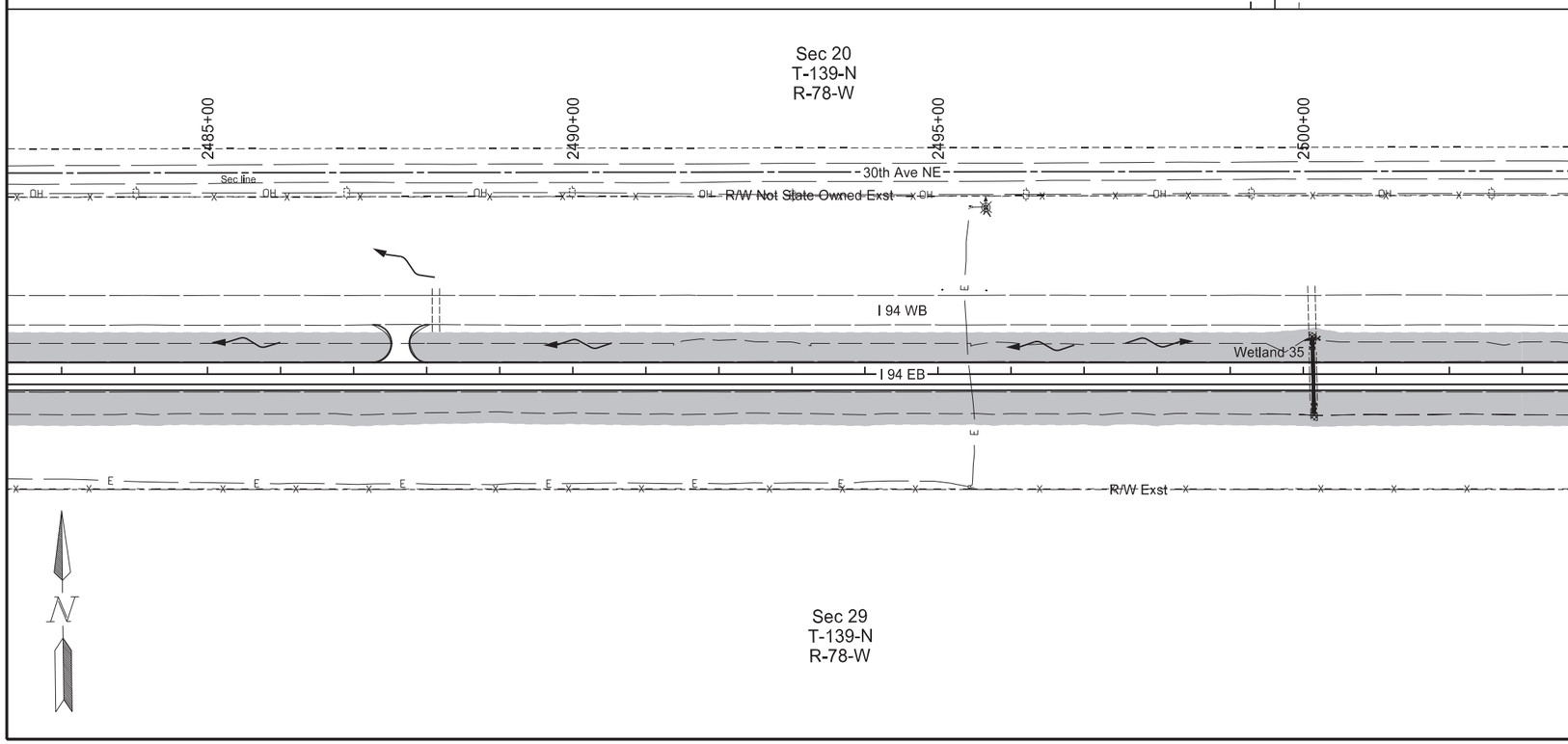
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:06:53 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	10





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.13	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.13	ACRE

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

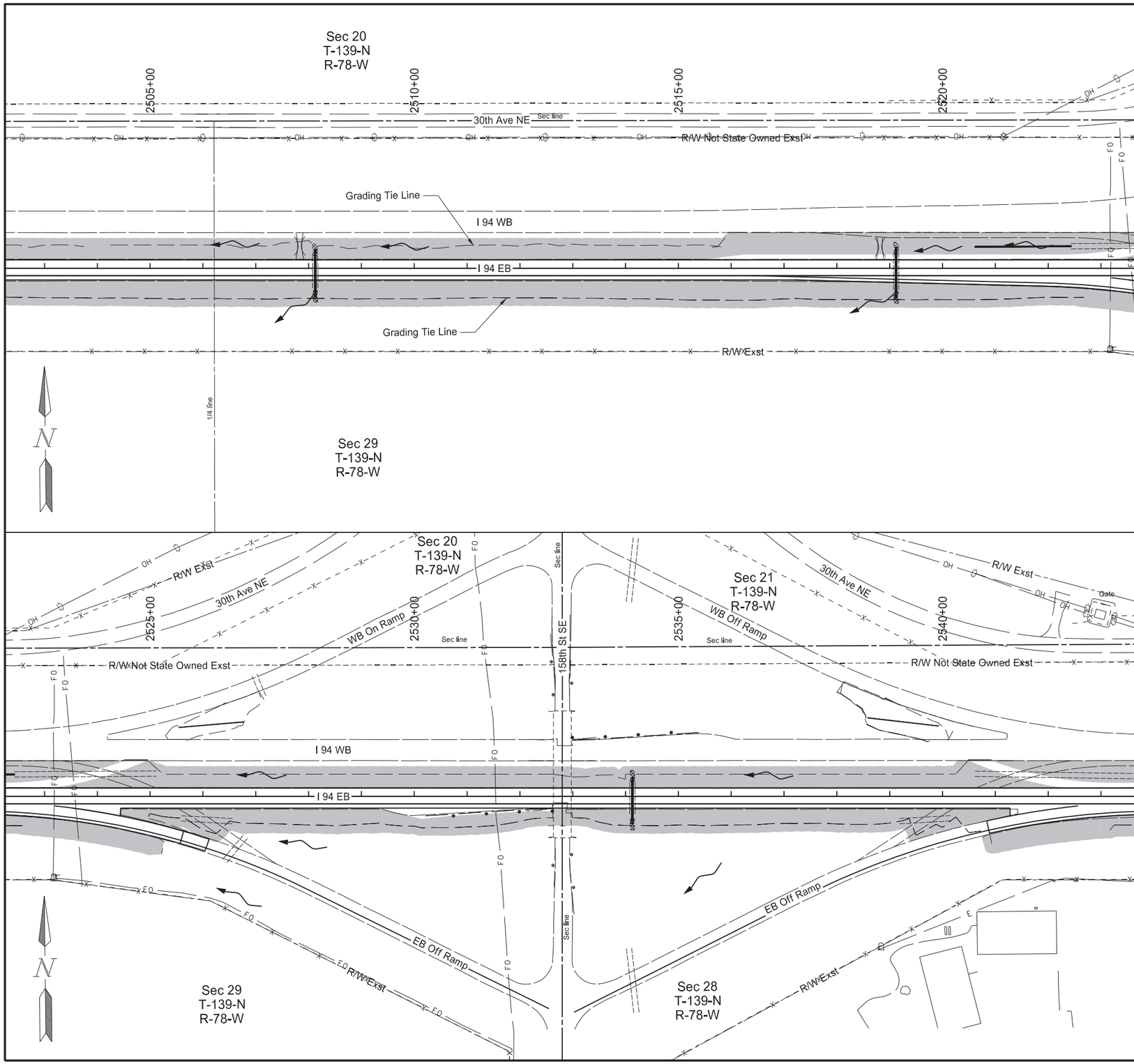
Permanent Sediment and Erosion Control

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:07:15 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	11



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	7.98	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	7.98	ACRE

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

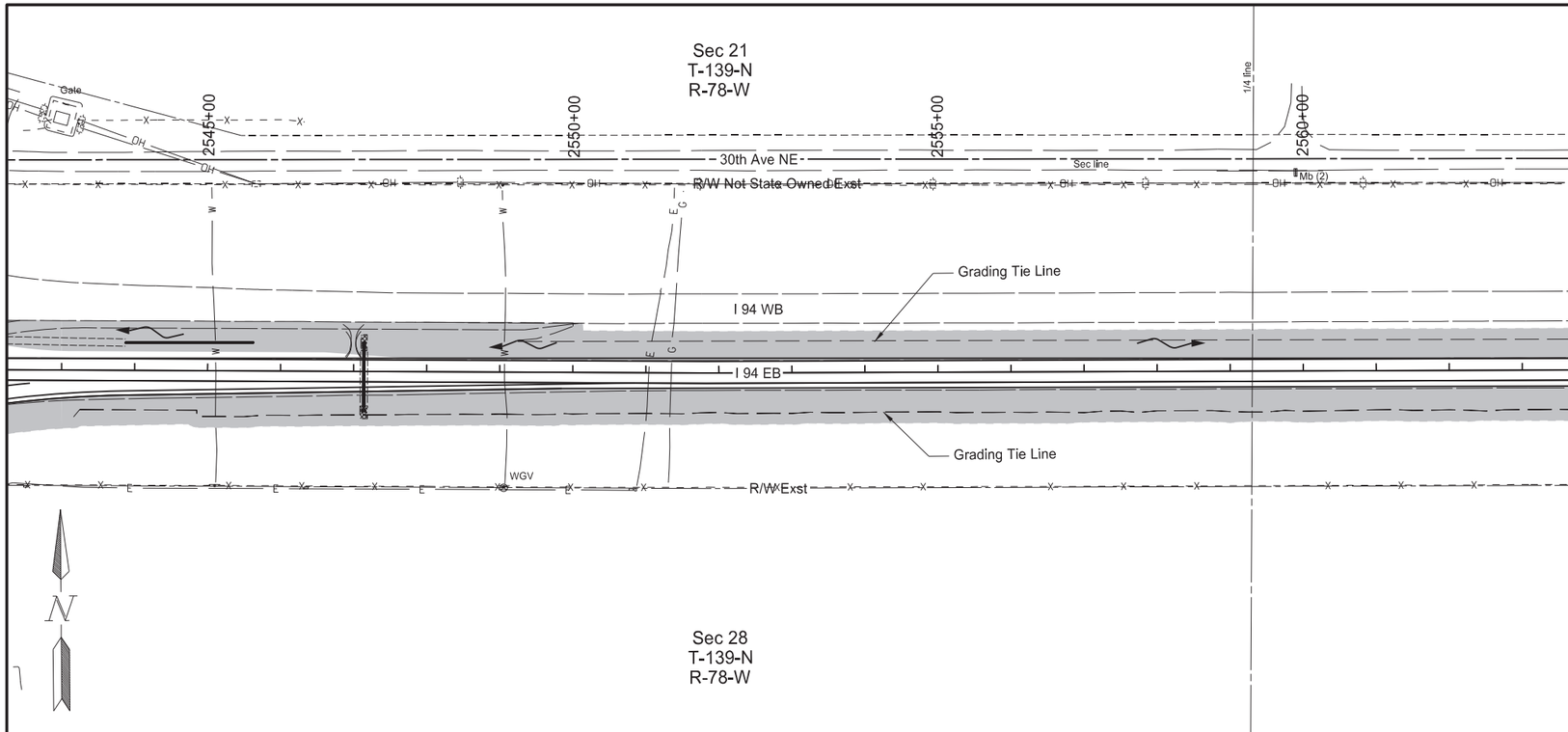
Permanent Sediment and Erosion Control

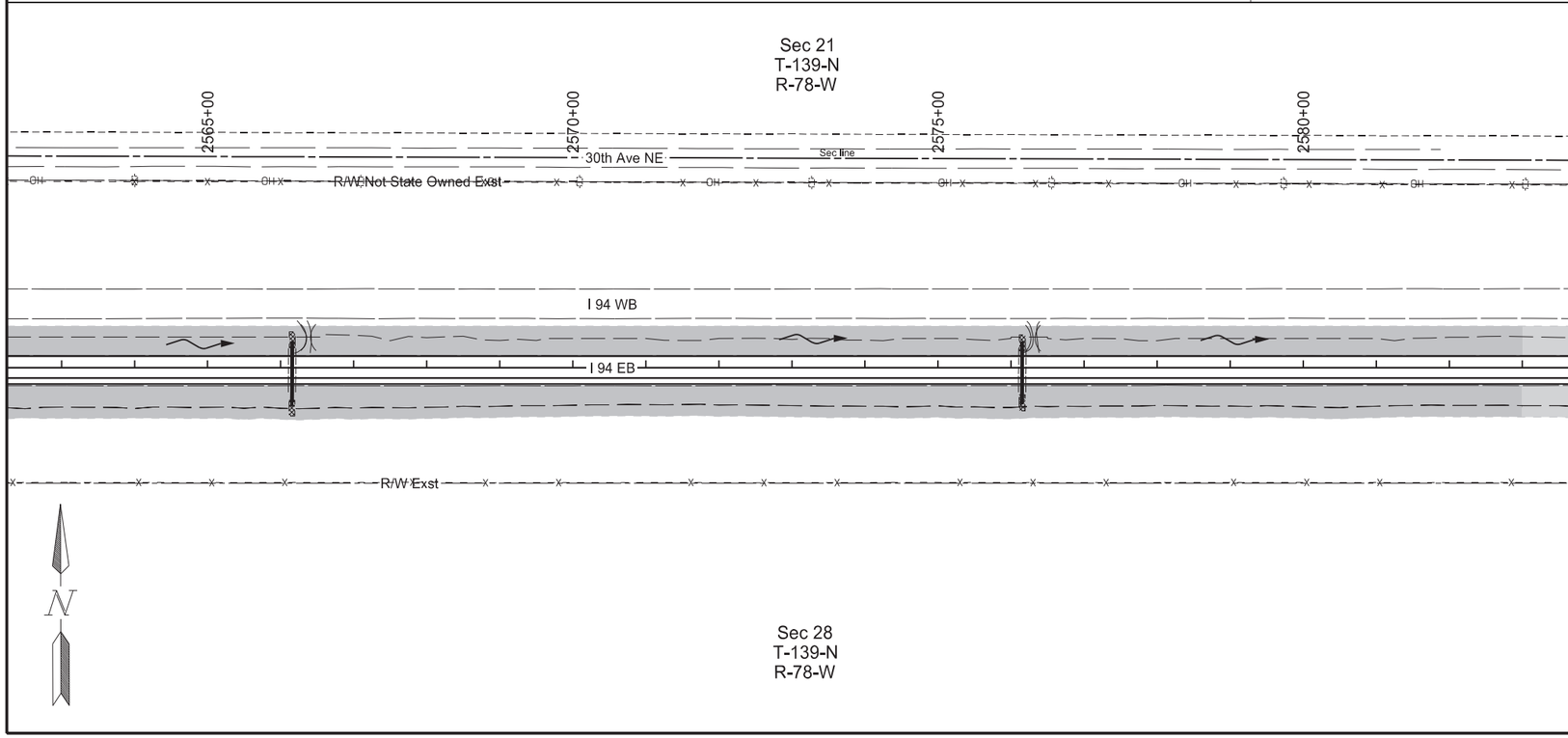
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:07:38 -06'00'
NORTH DAKOTA

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	77	12





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	8.12	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	8.12	ACRE

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

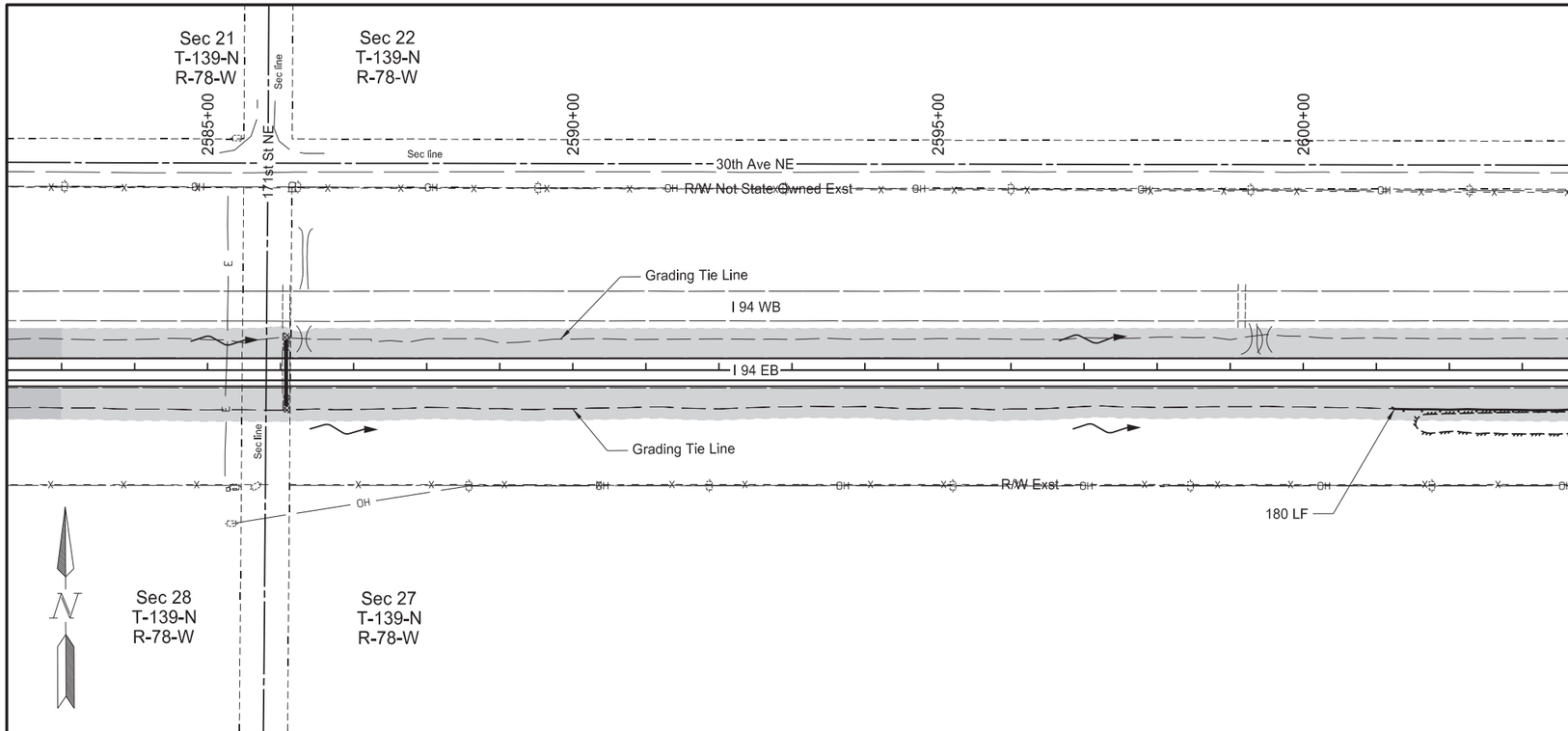
Permanent Sediment and Erosion Control

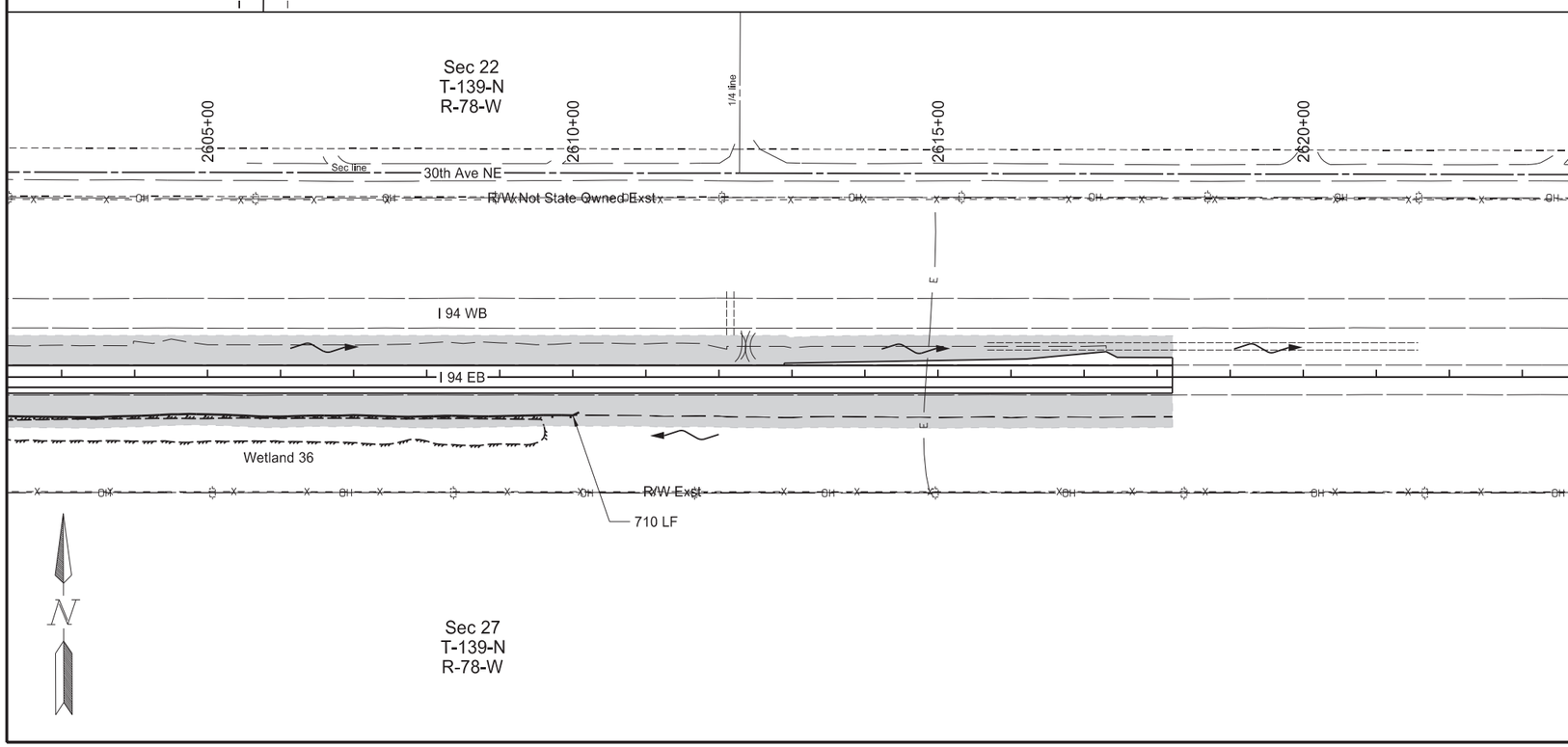
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:07:55 -06'00'
NORTH DAKOTA

Revised	11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	77	13





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sheet Quantity	6.93	ACRE
253	0061	SOIL STABILIZATION		
		Sheet Quantity	6.93	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 2583+00 to Sta 2603+00 Rt	180	LF
		Sta 2603+00 to Sta 2623+00 Rt	710	LF

Notes:
Refer to section 20 for erosion control blankets located at culvert end section

Legend

- Fiber Rolls 12IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II / Soil Stabilization
- Seeding Class II / ECB Type 3

Permanent Sediment and Erosion Control

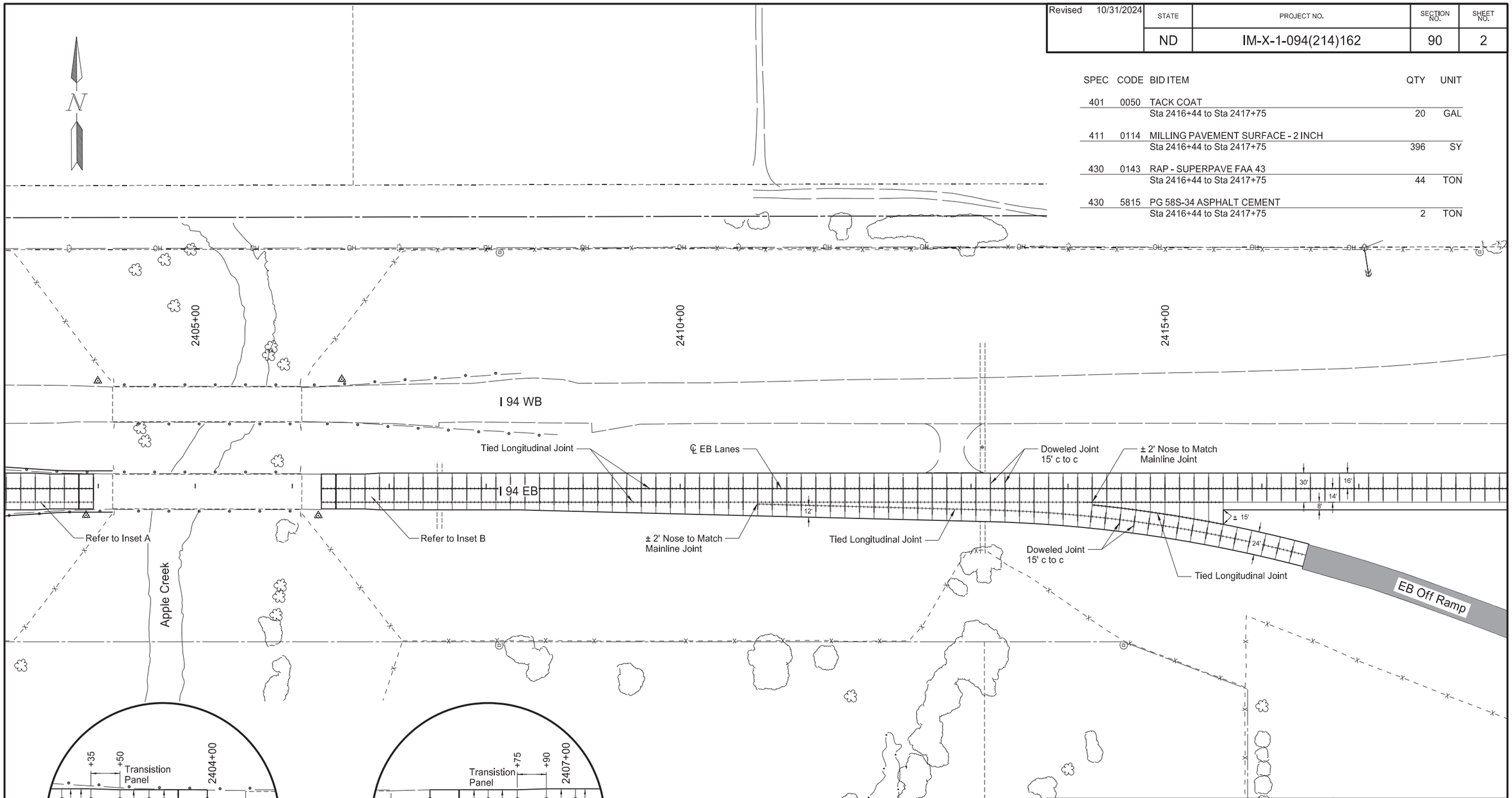
I-94 Reconstruction

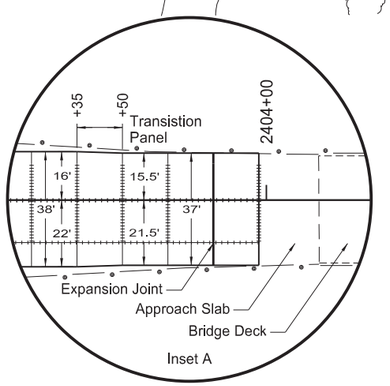
Bismarck to E of Menoken Interchange - EB

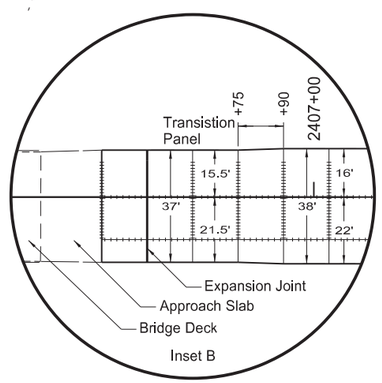
REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:08:20 -06'00'
NORTH DAKOTA

Revised 10/31/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	90	2

SPEC	CODE	BID ITEM	QTY	UNIT
401	0050	TACK COAT Sta 2416+44 to Sta 2417+75	20	GAL
411	0114	MILLING PAVEMENT SURFACE - 2 INCH Sta 2416+44 to Sta 2417+75	396	SY
430	0143	RAP - SUPERPAVE FAA 43 Sta 2416+44 to Sta 2417+75	44	TON
430	5815	PG 58S-34 ASPHALT CEMENT Sta 2416+44 to Sta 2417+75	2	TON







LEGEND

- 2" Mill and Overlay
- 3" HMA
- Doweled Joint at Transverse Joints Joint Spacing - 15' Typical

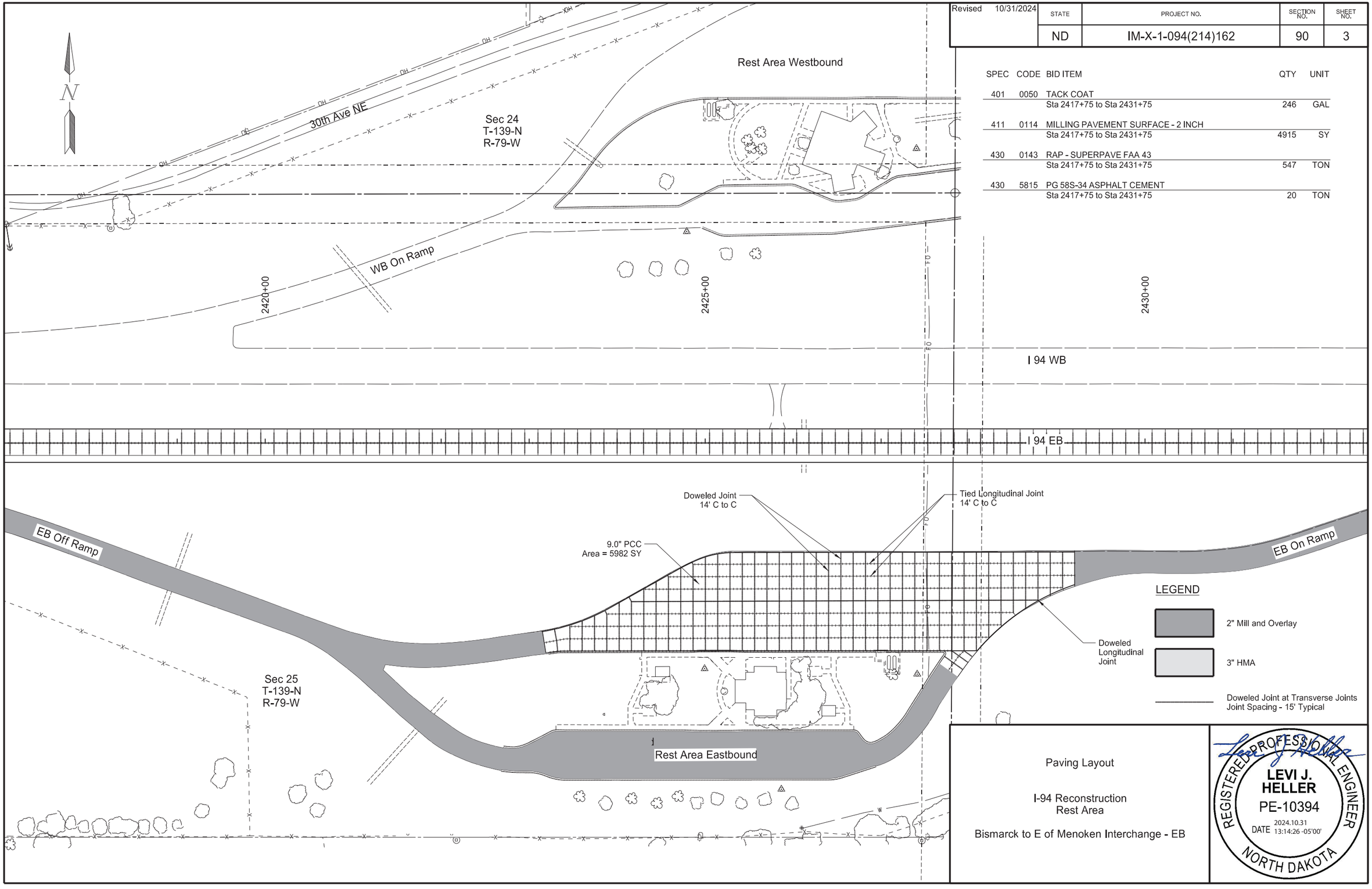
Paving Layout

I-94 Reconstruction
Rest Area Ramp

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.10.31 13:13:58 -05'00'
NORTH DAKOTA

Revised 10/31/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	90	3



SPEC	CODE	BID ITEM	QTY	UNIT
401	0050	TACK COAT		
		Sta 2417+75 to Sta 2431+75	246	GAL
411	0114	MILLING PAVEMENT SURFACE - 2 INCH		
		Sta 2417+75 to Sta 2431+75	4915	SY
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 2417+75 to Sta 2431+75	547	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 2417+75 to Sta 2431+75	20	TON

Paving Layout

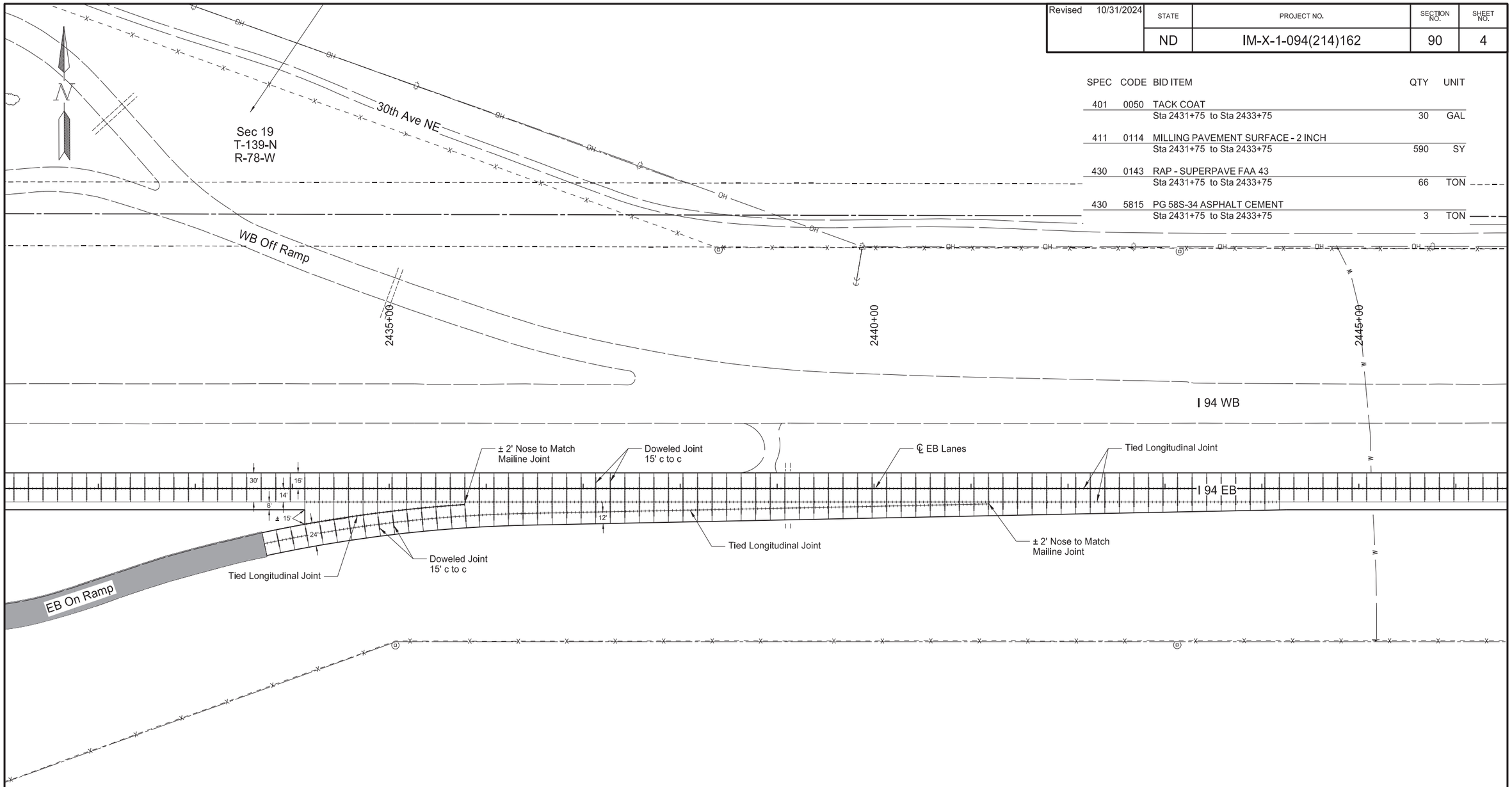
I-94 Reconstruction
Rest Area

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.10.31 13:14:26 -05'00'
NORTH DAKOTA

Revised 10/31/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	90	4

SPEC	CODE	BID ITEM	QTY	UNIT
401	0050	TACK COAT Sta 2431+75 to Sta 2433+75	30	GAL
411	0114	MILLING PAVEMENT SURFACE - 2 INCH Sta 2431+75 to Sta 2433+75	590	SY
430	0143	RAP - SUPERPAVE FAA 43 Sta 2431+75 to Sta 2433+75	66	TON
430	5815	PG 58S-34 ASPHALT CEMENT Sta 2431+75 to Sta 2433+75	3	TON



Sec 30
T-139-N
R-78-W

LEGEND

2" Mill and Overlay

3" HMA

Doweled Joint at Transverse Joints
Joint Spacing - 15' Typical

Paving Layout

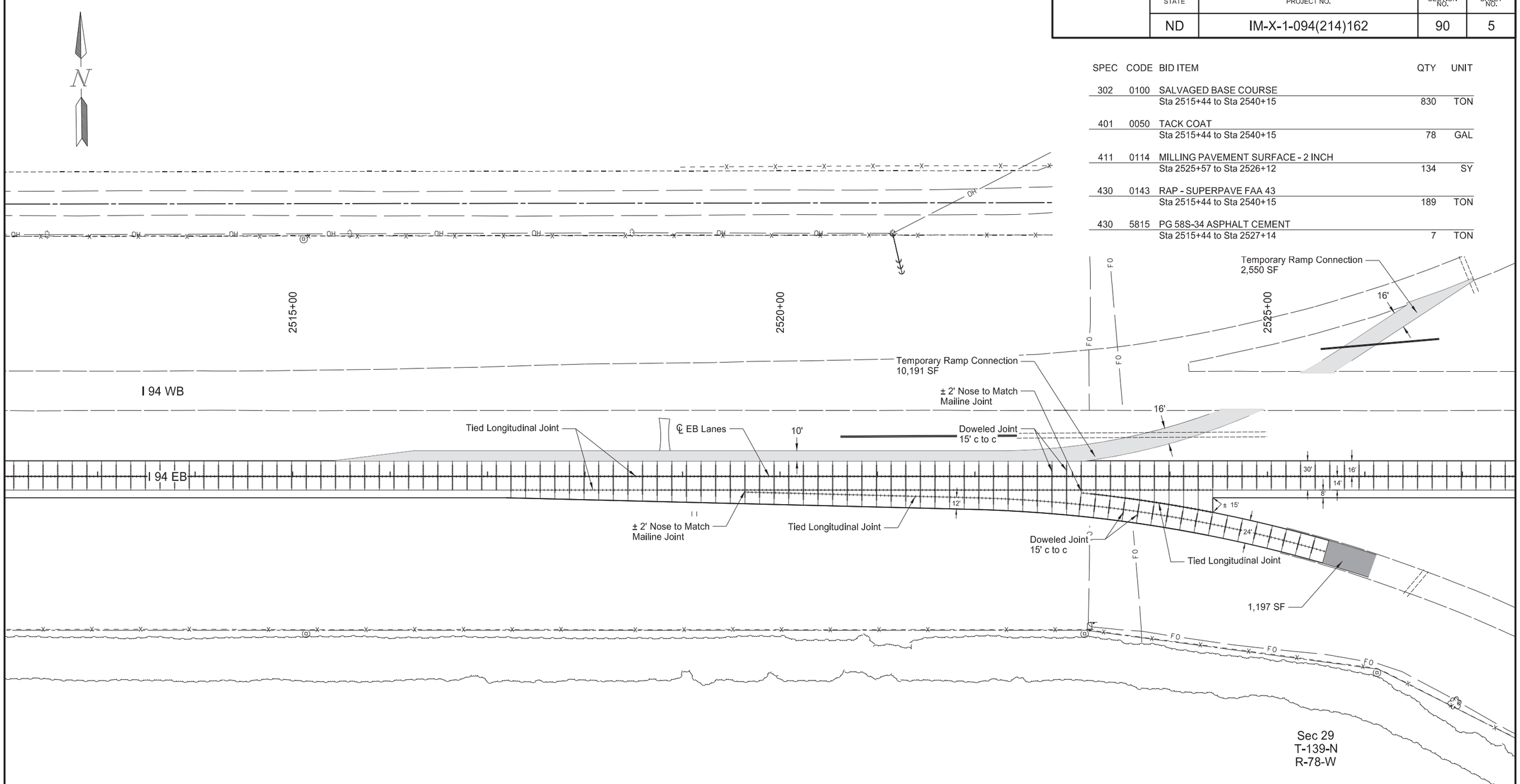
I-94 Reconstruction
Rest Area Ramp

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.10.31 13:14:48 -05'00'
NORTH DAKOTA

Revised 10/31/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	90	5

SPEC	CODE	BID ITEM	QTY	UNIT
302	0100	SALVAGED BASE COURSE Sta 2515+44 to Sta 2540+15	830	TON
401	0050	TACK COAT Sta 2515+44 to Sta 2540+15	78	GAL
411	0114	MILLING PAVEMENT SURFACE - 2 INCH Sta 2525+57 to Sta 2526+12	134	SY
430	0143	RAP - SUPERPAVE FAA 43 Sta 2515+44 to Sta 2540+15	189	TON
430	5815	PG 58S-34 ASPHALT CEMENT Sta 2515+44 to Sta 2527+14	7	TON



LEGEND

- 2" Mill and Overlay
- 3" HMA
- Doweled Joint at Transverse Joints
  Joint Spacing - 15' Typical

Paving Layout

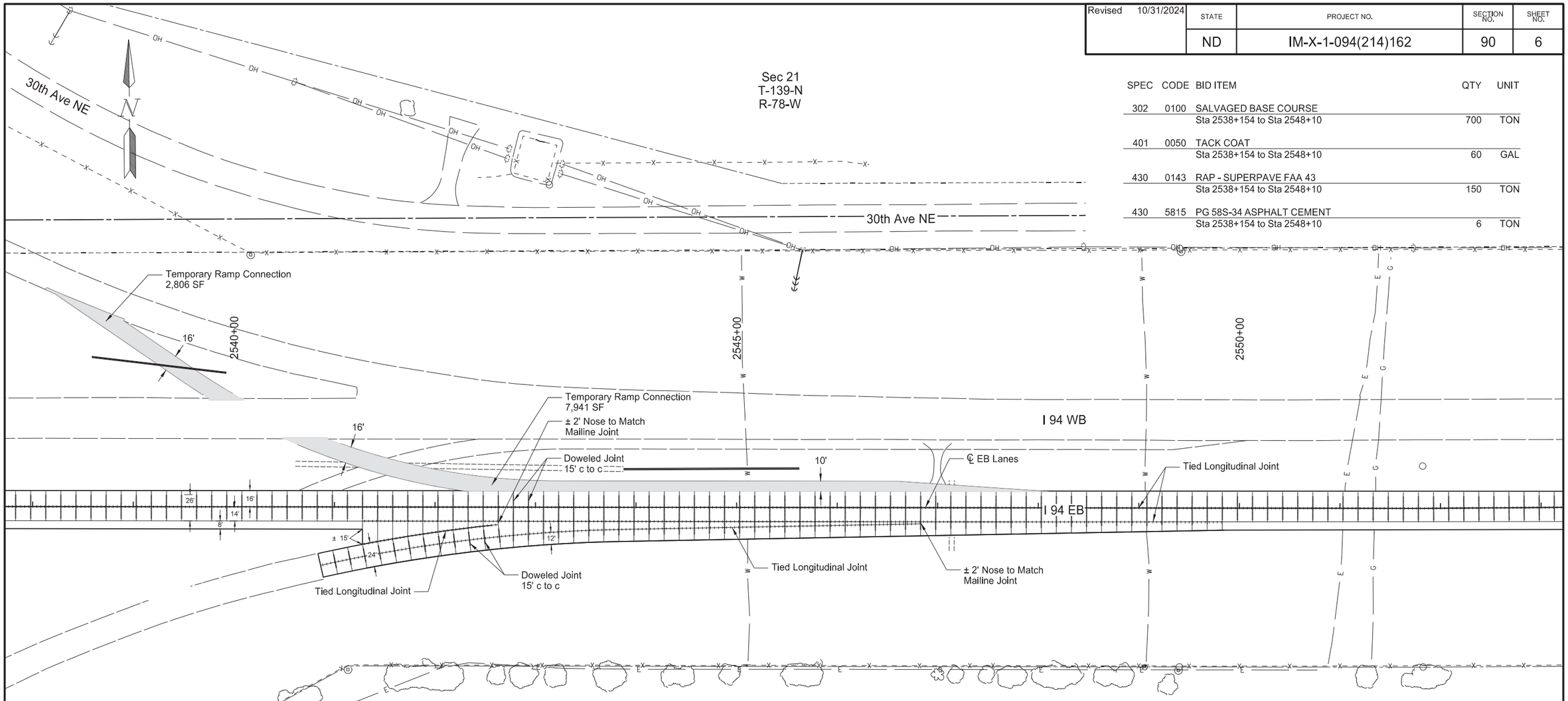
I-94 Reconstruction
Menoken Interchange Ramp

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.10.31 13:15:12 -05'00'
NORTH DAKOTA

Revised 10/31/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	90	6

SPEC	CODE	BID ITEM	QTY	UNIT
302	0100	SALVAGED BASE COURSE Sta 2538+154 to Sta 2548+10	700	TON
401	0050	TACK COAT Sta 2538+154 to Sta 2548+10	60	GAL
430	0143	RAP - SUPERPAVE FAA 43 Sta 2538+154 to Sta 2548+10	150	TON
430	5815	PG 58S-34 ASPHALT CEMENT Sta 2538+154 to Sta 2548+10	6	TON



LEGEND

- 2" Mill and Overlay
- 3" HMA
- Doweled Joint at Transverse Joints
  Joint Spacing - 15' Typical

Paving Layout

I-94 Reconstruction
Menoken Interchange Ramp

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.10.31 13:15:57 -05'00'
NORTH DAKOTA

Revised 11/6/2024

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-X-1-094(214)162	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	**48"x48"**	**EXIT GORE**	**2**				**2**	**35**	**70**
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**			**1**		**1**	**28**	**28**
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)						18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**	**2**	**2**		**2**	**26**	**52**
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**		**2**			**2**	**59**	**118**
I2-5-96	96"x48"	YOUR HIGHWAY DOLLARS AT WORK						59	
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)**		**6**			**6**	**7**	**42**
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**		**1**			**1**	**32**	**32**
R1-2-60	**60"x60"**	**YIELD**	**2**	**3**	**2**		**3**	**29**	**87**
R2-1-36	**36"x48"**	**SPEED LIMIT __ (Portable only)**	**12**		**8**		**12**	**30**	**360**
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**16**	**22**	**8**		**22**	**39**	**858**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**18**	**8**	**10**		**18**	**10**	**180**
R3-2-48	48"x48"	NO LEFT TURN						35	
R4-1-36	36"x48"	DO NOT PASS (Portable only)						30	
R4-1-48	**48"x60"**	**DO NOT PASS**		**22**			**22**	**39**	**858**
R4-7-48	**48"x60"**	**KEEP RIGHT**		**2**			**2**	**39**	**78**
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)**		**15**			**15**	**12**	**180**
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**		**2**			**2**	**35**	**70**
W1-4-48	**48"x48"**	**REVERSE CURVE RIGHT or LEFT**		**2**			**2**	**35**	**70**
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT						35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**		**2**			**2**	**26**	**52**
W1-6-60	60"x30"	ONE DIRECTION LARGE ARROW						31	
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**	**10**	**3**	**6**		**10**	**35**	**350**
W4-1-48	**48"x48"**	**MERGING TRAFFIC**		**3**	**2**		**3**	**35**	**105**
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**12**	**2**	**4**		**12**	**35**	**420**
W5-1-48	48"x48"	ROAD NARROWS						35	
W5-4-48	**48"x48"**	**RAMP NARROWS**			**3**		**3**	**35**	**105**
W5-8-48	**48"x48"**	**THRU TRAFFIC RIGHT LANE**	**1**				**1**	**35**	**35**
W5-9-48	**48"x48"**	**ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW**	**1**				**1**	**35**	**35**
W6-3-48	**48"x48"**	**TWO WAY TRAFFIC**		**22**			**22**	**35**	**770**
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**		**1**			**1**	**35**	**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**		**1**			**1**	**35**	**35**
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL						35	
W13-1P-30	**30"x30"**	**__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)**		**2**	**3**		**3**	**14**	**42**
W13-4p-36	**36"x36"**	**ON RAMP (Mounted on other sign post)**			**3**		**3**	**17**	**51**
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**	**10**	**4**	**9**		**10**	**35**	**350**
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**	**16**	**4**	**4**		**16**	**35**	**560**
W20-7-48	**48"x48"**	**FLAGGER**	**3**	**2**	**1**		**3**	**35**	**105**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**3**	**2**	**1**		**3**	**5**	**15**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**		**22**			**22**	**12**	**264**

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
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**			**2**		**2**	**35**	**70**
W21-5a-48	**48"x48"**	**RIGHT or LEFT SHOULDER CLOSED**	**2**	**1**	**2**		**2**	**35**	**70**
W21-5b-48	**48"x48"**	**RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE**	**2**		**2**		**2**	**35**	**70**
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 1	**72"x54"**	**MENOKEN EXIT GORE**		**1**			**1**	**47**	**47**
Consign 2	**90"x48"**	**MENOKEN 1 MILE**		**1**			**1**	**51**	**51**
Consign 3	**72"x54"**	**EXIT 170 GORE**		**1**			**1**	**47**	**47**
Consign 4	**84"x30"**	**EXIT 170 PLAQUE**		**1**			**1**	**36**	**36**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**6803**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3		TOTAL QUANTITY
202-0350	**REMOVAL OF TEMPORARY BYPASS**	EACH		**2**	**2**		**4**
704-0100	**FLAGGING**	MHR	**900**	**2300**	**100**		**3300**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH					
704-1045	**ATTENUATION DEVICE-TYPE B-75**	EACH	**10**	**4**	**2**		**10**
704-1048	PORTABLE RUMBLE STRIPS	EACH					
704-1050	TYPE I BARRICADES	EACH					
704-1052	**TYPE III BARRICADES**	EACH	**6**	**52**	**1**		**52**
704-1060	**DELINEATOR DRUMS**	EACH	**240**	**191**	**227**		**240**
704-1065	TRAFFIC CONES	EACH					
704-1067	**TUBULAR MARKERS**	EACH	**368**		**174**		**368**
704-1070	**DELINEATOR**	EACH		**195**			**195**
704-1072	**FLEXIBLE DELINEATORS**	EACH		**609**	**72**		**609**
704-1080	STACKABLE VERTICAL PANELS	EACH					
704-1081	**VERTICAL PANELS - BACK TO BACK**	EACH	**6**				**6**
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH					
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH					
704-1087	**SEQUENCING ARROW PANEL - TYPE C**	EACH	**4**		**2**		**4**
704-1088	**SEQUENCING ARROW PANEL - TYPE C - CROSSOVER**	EACH		**2**			**2**
704-1090	**FLASHING BEACON**	EACH		**2**			**2**
704-1500	**OBLITERATION OF PVMT MK**	SF		**7892**			**7892**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF					
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH					
704-3511	**STATE FURNISHED MEDIAN BARRIERS**	LF	**3780**	**2840**	**360**		**3780**
704-8015	**VEHICLE SPEED FEEDBACK SIGN**	EACH		**2**			**2**
710-0100	**TEMPORARY BYPASS**	EACH		**2**			**2**
762-0200	**RAISED PAVEMENT MARKERS**	EACH		**22799**			**22799**
762-0420	SHORT TERM 4IN LINE - TYPE R	LF					
762-0422	**SHORT TERM 6IN LINE-TYPE R**	LF		**7210**			**7210**
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF					
764-8080	**MODIFY BARREL ATTENUATION DEVICE**	EACH	**3**				**3**

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

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS J. GUBBELS
PE-30118
DATE 2024.11.07 14:22:11 -06'00'
NORTH DAKOTA

Traffic Control Devices List

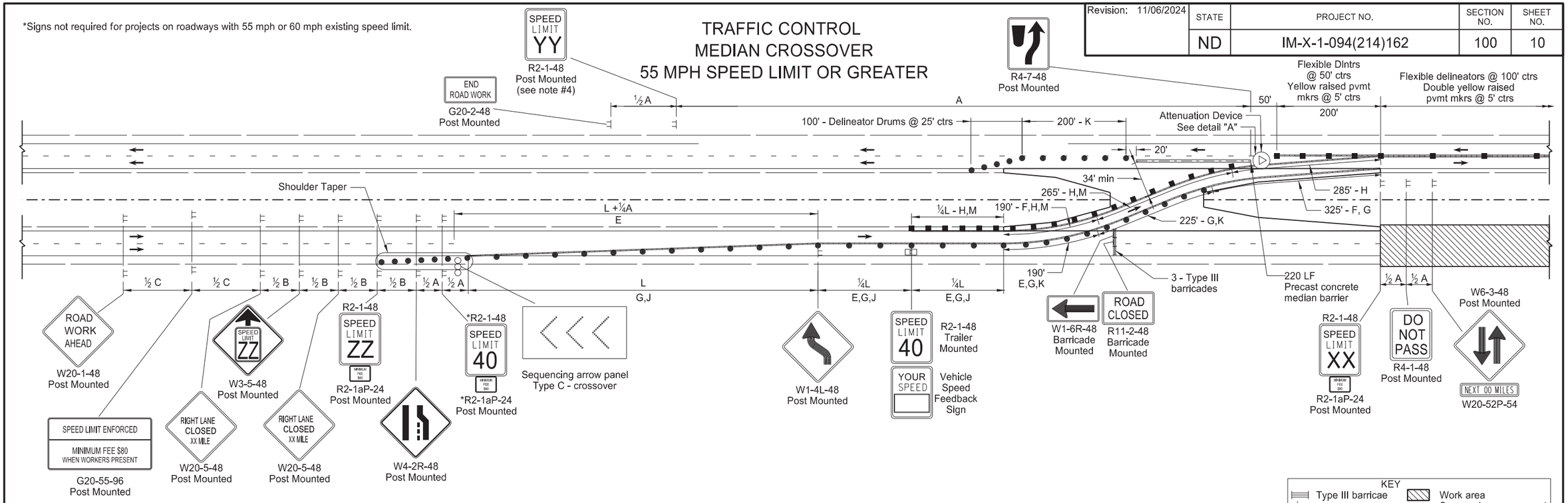
I-94 Reconstruction

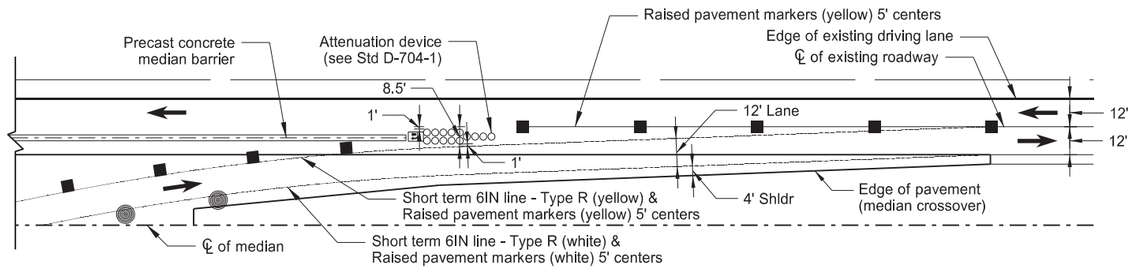
E Bis Intr - E to E of Menoken - EB

Revision: 11/06/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	100	10

*Signs not required for projects on roadways with 55 mph or 60 mph existing speed limit.

TRAFFIC CONTROL
MEDIAN CROSSOVER
55 MPH SPEED LIMIT OR GREATER





ROADWAY EXISTING SPEED LIMIT	SPEED LIMIT TO BE USED		
	XX	YY	ZZ
55	50	55	40
60	50	60	40
65	55	65	55
70	60	70	55
75	65	75	55

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	Minimum Distance Between Signs (ft)		
	A	B	C
Urban Expressway and Freeway (55 mph to 65 mph)	850	1,350	2,200
Rural Expressway and Freeway (70 mph to 75 mph)	1,000	1,500	2,640

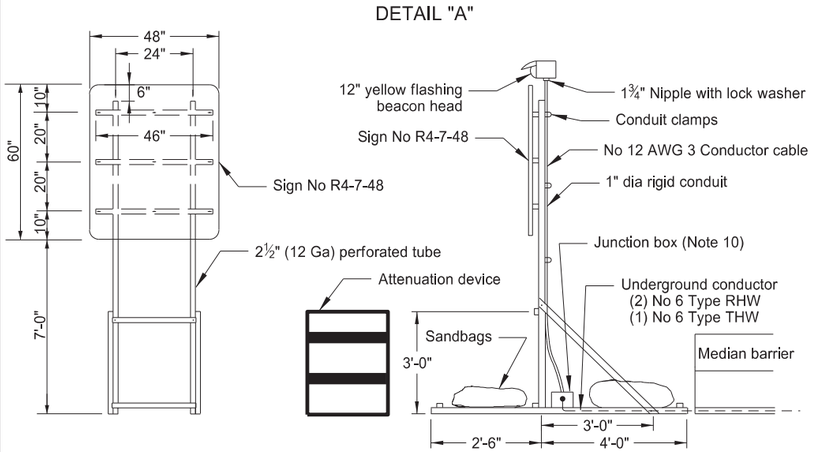
KEY

- Type III barricae
- Sign
- Flagger
- Work area
- Sequencing arrow panel
- Delineator drum
- Flexible Delineator

LEGEND

E Obliteration of pavement marking (10' line, 30' skip, ℄)
F Obliteration of pavement marking (edge lines)
G Short Term 6IN Line - Type R (white) & raised pavement markers (white) 5' centers
H Short Term 6IN Line - Type R (yellow) & raised pavement markers (yellow) 5' centers
J Drums spaced @ "S" centers
K Drums spaced @ 40' centers
M Flexible Delineators spaced @ 40' centers (O/s 2' from edge of lane line)

DETAIL "A"



Place conductor behind barricade away from traffic, tie at each barrier connection, and drape above the ground. Place conductors a minimum of 6" underground between the barrier and pole.

DETAIL "B"

Notes:

1. Variables:
   S=Numerical value of posted speed limit, off-peak 85th percentile speed prior to work starting, or anticipated operating speed in MPH.
   W=Width of offset in feet
   L=Taper length in feet. Speeds 45 mph or greater L=WS.
2. Place signs and barricades on the roadway on moveable assemblies.
   Mount signs on barricades with the sign bottom on the top of the top barricade bar.
3. Install signs R4-1-48, W6-3-48, and W20-52P-54 at one mile increments and after each interchange.
4. Place the speed limit sign only if the crossover is more than 1 mile from an interchange exit ramp.
5. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on the roadway surface. Use Type C on roadways with high traffic speeds and volumes (over 40 mph or 5000 ADT or greater)
6. Cover existing speed limit signs within a reduced speed zone.
7. Upon approval, the Engineer will measure obliterated or covered pavement marking as Obliteration of Pavement Marking.
8. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
9. Reduce speed when placing traffic control devices. Place "Minimum Fee $80" signs below speed limit signs in reduced speed areas. Place "Work Zone Speed Limit Enforced" sign in advance of the project at the time traffic control devices are installed.
10. Determine proper size, waterproof junction box, and attach to skid or vertical brace assembly.

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS J. GUBBELS
PE-30118
DATE 2024.11.07 10:21:13 -06'00'
NORTH DAKOTA

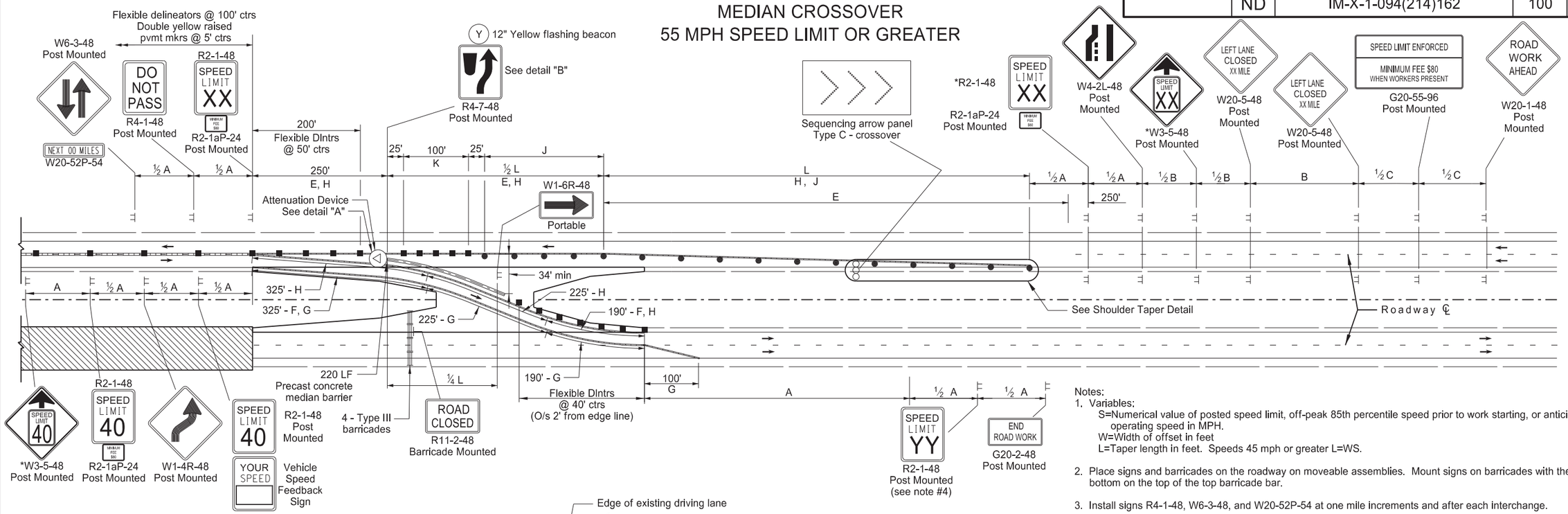
Traffic Control Layout
Temporary Median Crossover Entrance

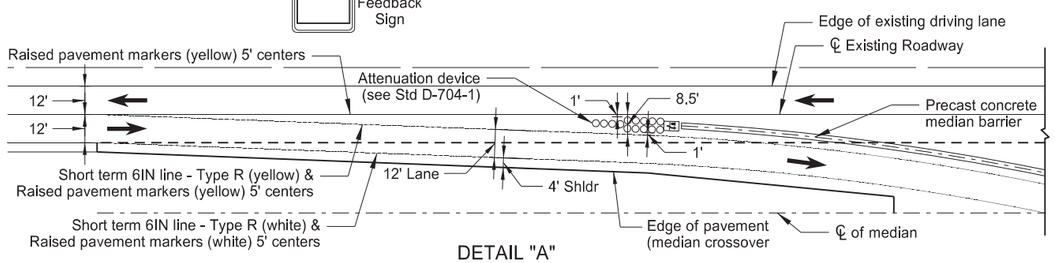
I-94 Reconstruction
Phase 2
Bismarck to E of Menoken Interchange - EB

*Not required for projects on roadways with 55 mph existing speed limit.

Revision: 11/06/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	100	11

TRAFFIC CONTROL SYSTEM
MEDIAN CROSSOVER
55 MPH SPEED LIMIT OR GREATER





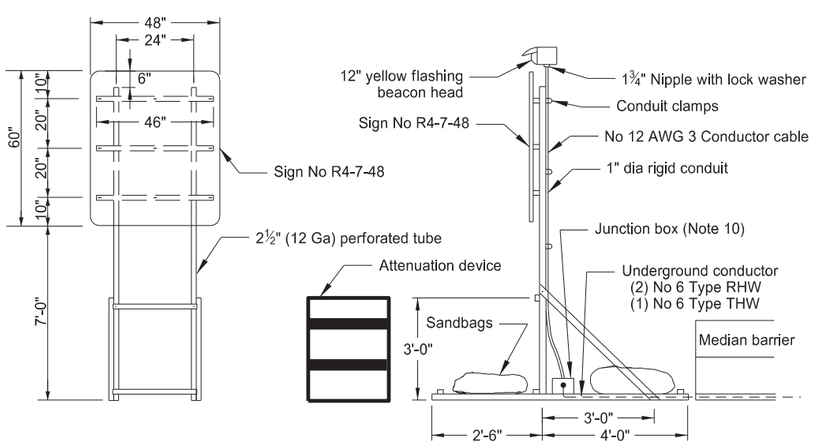
DETAIL "A"

KEY

Type III barricae	Work area
Sign	Sequencing arrow panel
Flagger	Delineator drum
	Flexible Delineator

LEGEND
E Obliteration of pavement marking (10' line, 30' skip, ℄)
F Obliteration of pavement marking (edge lines)
G Short Term 6IN Line - Type R (white) & raised pavement markers (white) 5' centers
H Short Term 6IN Line - Type R (yellow) & raised pavement markers (yellow) 5' centers
J Drums spaced @ "S" centers
K Flexible delineators-4 spaces @ 25'

Notes:
1. Variables:
   S=Numerical value of posted speed limit, off-peak 85th percentile speed prior to work starting, or anticipated operating speed in MPH.
   W=Width of offset in feet
   L=Taper length in feet. Speeds 45 mph or greater L=WS.
2. Place signs and barricades on the roadway on moveable assemblies. Mount signs on barricades with the sign bottom on the top of the top barricade bar.
3. Install signs R4-1-48, W6-3-48, and W20-52P-54 at one mile increments and after each interchange.
4. Place the speed limit sign only if the crossover is more than 1 mile from an interchange exit ramp.
5. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on the roadway surface.
   Use Type C on roadways with high traffic speeds and volumes (over 40 mph or 5000 ADT or greater)
6. Cover existing speed limit signs within a reduced speed zone.
7. Upon approval, the Engineer will measure obliterated or covered pavement marking as Obliteration of Pavement Marking.
8. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
9. Reduce speed when placing traffic control devices. Place "Minimum Fee $80" signs below speed limit signs in reduced speed areas. Place "Work Zone Speed Limit Enforced" sign in advance of the project at the time traffic control devices are installed.
10. Determine proper size, waterproof junction box, and attach to skid or vertical brace assembly.

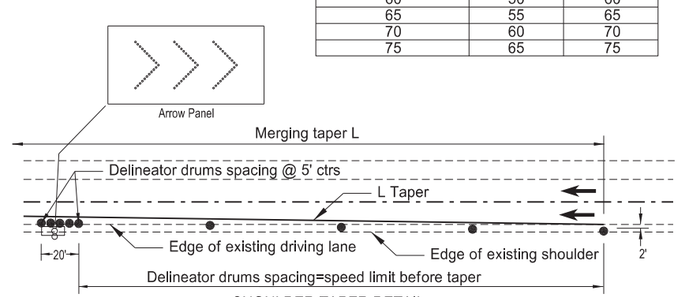


Place conductor behind barricade away from traffic, tie at each barrier connection, and drape above the ground. Place conductors a minimum of 6" underground between the barrier and pole.

DETAIL "B"

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	Minimum Distance Between Signs (ft)		
	A	B	C
Urban Expressway and Freeway (55 mph to 65 mph)	850	1,350	2,200
Rural Expressway and Freeway (70 mph to 75 mph)	1,000	1,500	2,640

ROADWAY EXISTING SPEED LIMIT	SPEED LIMIT TO BE USED	
	XX	YY
55	50	55
60	50	60
65	55	65
70	60	70
75	65	75



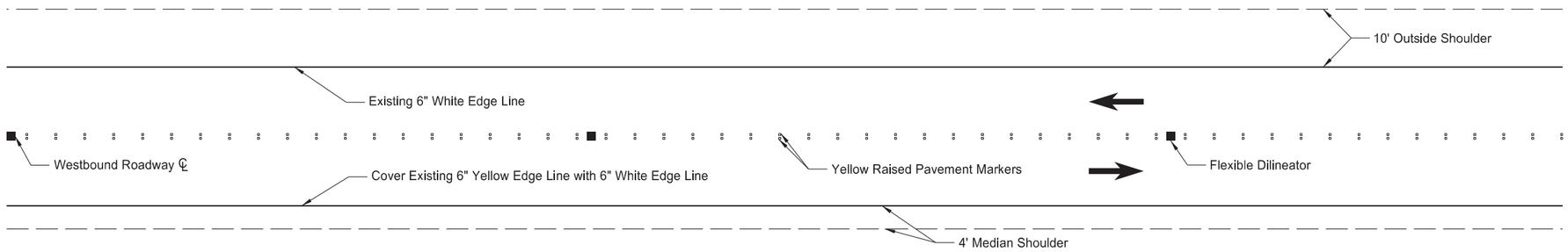
SHOULDER TAPER DETAIL

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS J. GUBBELS
PE-30118
DATE 2024.11.07 10:16:59 -06'00'
NORTH DAKOTA

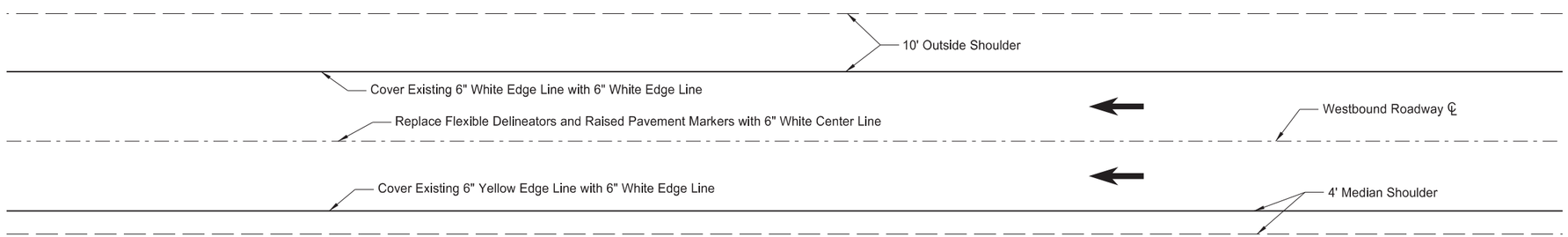
Traffic Control Layout
Temporary Median Crossover Exit

I-94 Reconstruction
Phase 2
Bismarck to E of Menoken Interchange - EB

Revised: 11/06/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	100	19



TWO-WAY TRAFFIC ON A SINGLE TWO-LANE ROADWAY
Center Line has been obliterated.
Flexible Delineators installed @ 100' ctrs.
Two rows of Yellow Raised Pvmt Mrks installed @ 5' ctrs. - 4" Between.
Median 6" Yellow Edge Line covered by placing 6" White Edge Line on top.



TO RETURN TRAFFIC TO NORMAL FOUR LANE DIVIDED OPERATION:
Remove Flexible Delineators and Raised Pvmt. Mkrs.
Place 6" White Center Line.
Place 6" Yellow Edge Line over Median 6" White Edge Line.
Place 6" White Edge Line over Outside 6" White Edge Line.

SPEC	CODE	BID ITEM	QTY	UNIT
704	1072	FLEXIBLE DELINEATORS		
		Sta 2106+22 to Sta 2616+32 (Minus Temporary Ramp Connection Areas)	510	EA
704	1500	OBLITERATION OF PAVEMENT MARKING		
		Sta 2106+22 to Sta 2616+32	6,375	SF
		(6" White Centerline Skips - centerline of north roadway for two - way traffic)		
762	0200	RAISED PAVEMENT MARKERS		
		Sta 2106+22 to Sta 2616+32	20,404	EA
762	1106	PVMT MK PAINTED 6IN LINE		
		Sta 2106+22 to Sta 2616+32	51,010	LF
		(6" White Edge Lines - median side edge line on north roadway for two - way traffic)		

Traffic Conctrol for Two-Way
Interstate Traffic on One Roadway

I-94 Reconstruction

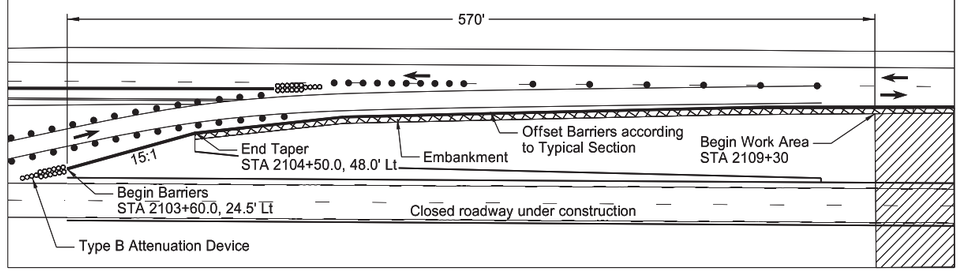
Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS J. GUBBELS
PE-30118
DATE 2024.11.07 10:17:51 -06'00'
NORTH DAKOTA

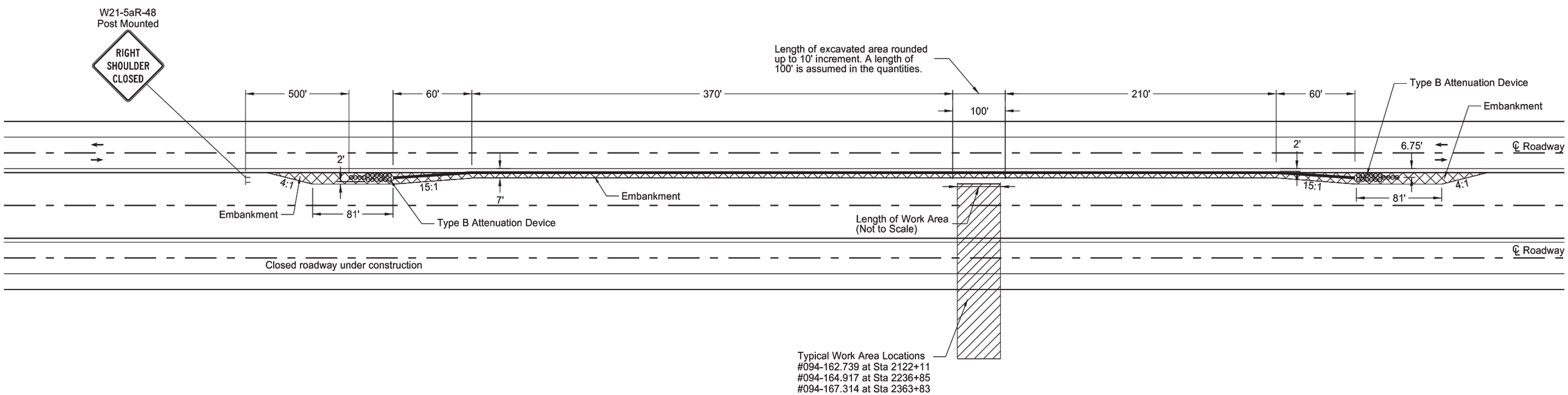
Revised: 11/06/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	100	20

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

DETAIL FOR WORK AREA AT 2110+07



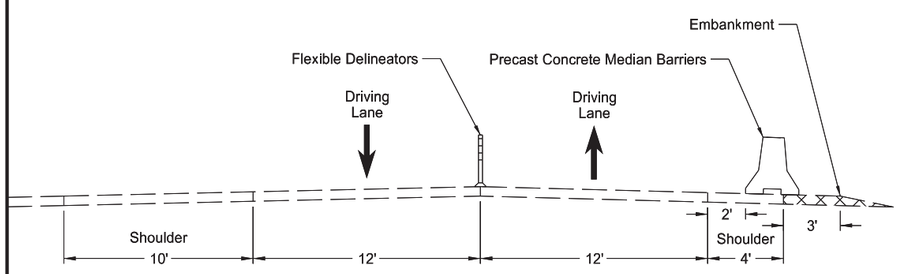
SPEC	CODE	BID ITEM	QTY	UNIT
704	1045	ATTENUATION DEVICE-TYPE B-75		
		Sta 2110+07	2	EA
		Sta 2122+11 - Str.#094-162.739	2	EA
		Sta 2236+85 - Str.#094-164.917	2	EA
		Sta 2363+83 - Str.#094-167.314	2	EA
704	3511	STATE FURNISHED MEDIAN BARRIER		
		Sta 2110+07	940	LF
		Sta 2122+11 - Str.#094-162.739	800	LF
		Sta 2236+85 - Str.#094-164.917	800	LF
		Sta 2363+83 - Str.#094-167.314	800	LF



Notes:
1. The location is within a project and the necessary traffic control is in place.
2. Install Portable Precast Concrete Median Barriers when excavation is within clear zone and 1 foot or more in depth.
3. Include the cost of embankment in the bid item "State Furnished Median Barrier."

See standard drawing D-704-57 for additional details

TYPICAL SECTION



Traffic Control - Concrete Barrier Detail

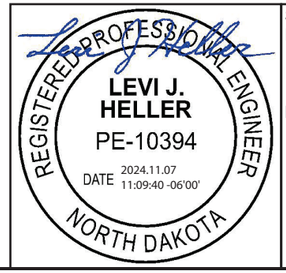
I 94 Reconstruction

Bismarck to E of Menoken - EB

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS J. GUBBELS
PE-30118
DATE 2024.11.07 10:18:32 -06'00'
NORTH DAKOTA

Revised	11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		N.D.	IM-X-1-094(214)162	110	1

Station / RP	Sign / Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Panel For Signs IV SF	Panel For Signs XI SF	Overlay Panel IV SF	Overlay Panel XI SF	Vert Clear-ance FT	Galv Steel Sheet Standard Pipe 1st LF	Galv Steel Sheet Standard Pipe 2nd LF	Size	Galv Steel Post W-Shape Posts 1st LF	Galv Steel Post W-Shape Posts 2nd LF	Galv Steel Post W-Shape Posts 3rd LF	Max Post Len LF	Post Space FT	Revise Fuse Joint EA	Std Pipe Fdn Dia FT	Std Pipe Fdn Dep FT	Std Pipe Fdn Vol CY	W-Shape Pile LF	Remove Sign Fdns Conc Fdn EA	Remove Sign Fdns W-Shape Pile EA	Reset Sign Panel EA	Reset Sign Support EA	Stub Post EA	Multi Dir Base EA	Comments
I-94 EB																												
2089+91 Rt	D12-5-66			35.8				7.0	19.0		6.0				21.7			1.8	10.0	0.9			2					
2103+37 Rt	Sign 1			132.0				7.0			W8x24	20.6	20.6		25.3	8.3					28		2					
2210+25 Rt																							2					
2353+90 Rt	Sign 2			55.0				7.0			W5x16	17.1	17.1		23.3	5.5					28		2					
2383+20 Rt	Sign 3			63.0				7.0			W5x16	17.5	17.5		21.3	5.3					28		2					
2396+94 Rt	Sign 4				61.8			7.0			W5x16	18.9	20.1		21.9	4.8					28		2					
2406+82 Rt	Sign 5			60.5				7.0			W5x16	18.0	18.2		21.6	5.5					28		2					
2463+12 Rt	Sign 7/8			105.5				7.0			W6x20	18.6	18.7		26.5	6.0					28		2					
2489+67 Rt	Sign 9			136.0				7.0			W6x20	15.2	15.2		17.2	8.5					28		2					
2515+75 Rt	Sign 7/10			123.5				7.0			W6x20	20.5	22.0		22.9	6.0					28		2					
2559+86 Rt	SA A	27.0						7.0	20.9		6.0				29.1			1.8	8.5	0.8		1						
2569+87 Rt	R2-1-48		20.0					7.0	16.5		5.0				23.7			1.8	7.0	0.6		1						
Sub Total		27.0	20.0	711.3	61.8			**Total**	56.4			**Total**	295.8							2.3	224	2	20	0	0	0	0	
Rest Area																												
2415+81 Rt	D5-2a-78			42.3				7.0	15.3	15.3	4.0				17.1	3.3		1.3	7.0	0.7		2						
Sub Total				42.3				**Total**	30.6			**Total**	0.0							0.7	0	2	0	0	0	0	0	
Exit 170																												
2524+90 Rt	Sign 11			40.0				7.0	14.4	14.4	4.0				17.1	4.0		1.3	7.0	0.7		2						
Sub Total				40.0				**Total**	28.8			**Total**	0.0							0.7	0	2	0	0	0	0	0	
Grand Total		**27.0**	**20.0**	**793.6**	**61.8**			**Total**	**115.8**			**Total**	**295.8**							**3.7**	**224**	**6**	**20**	**0**	**0**	**0**	**0**	



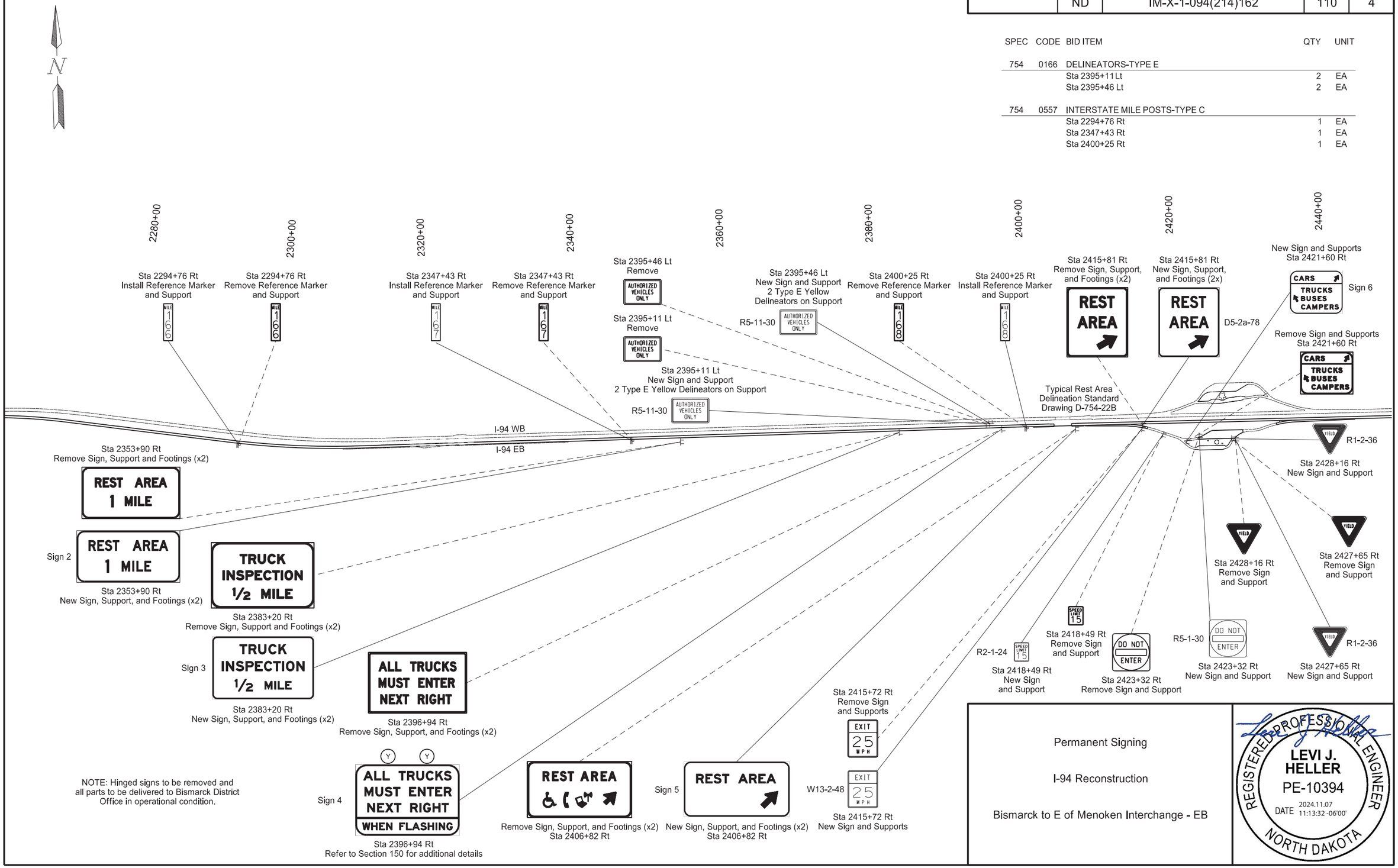
Sign Summary
Round Steel Pipe & W-Shape

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

Revised 11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	110	4

SPEC	CODE	BID ITEM	QTY	UNIT
754	0166	DELINEATORS-TYPE E		
		Sta 2395+11 Lt	2	EA
		Sta 2395+46 Lt	2	EA
754	0557	INTERSTATE MILE POSTS-TYPE C		
		Sta 2294+76 Rt	1	EA
		Sta 2347+43 Rt	1	EA
		Sta 2400+25 Rt	1	EA



NOTE: Hinged signs to be removed and all parts to be delivered to Bismarck District Office in operational condition.

Permanent Signing

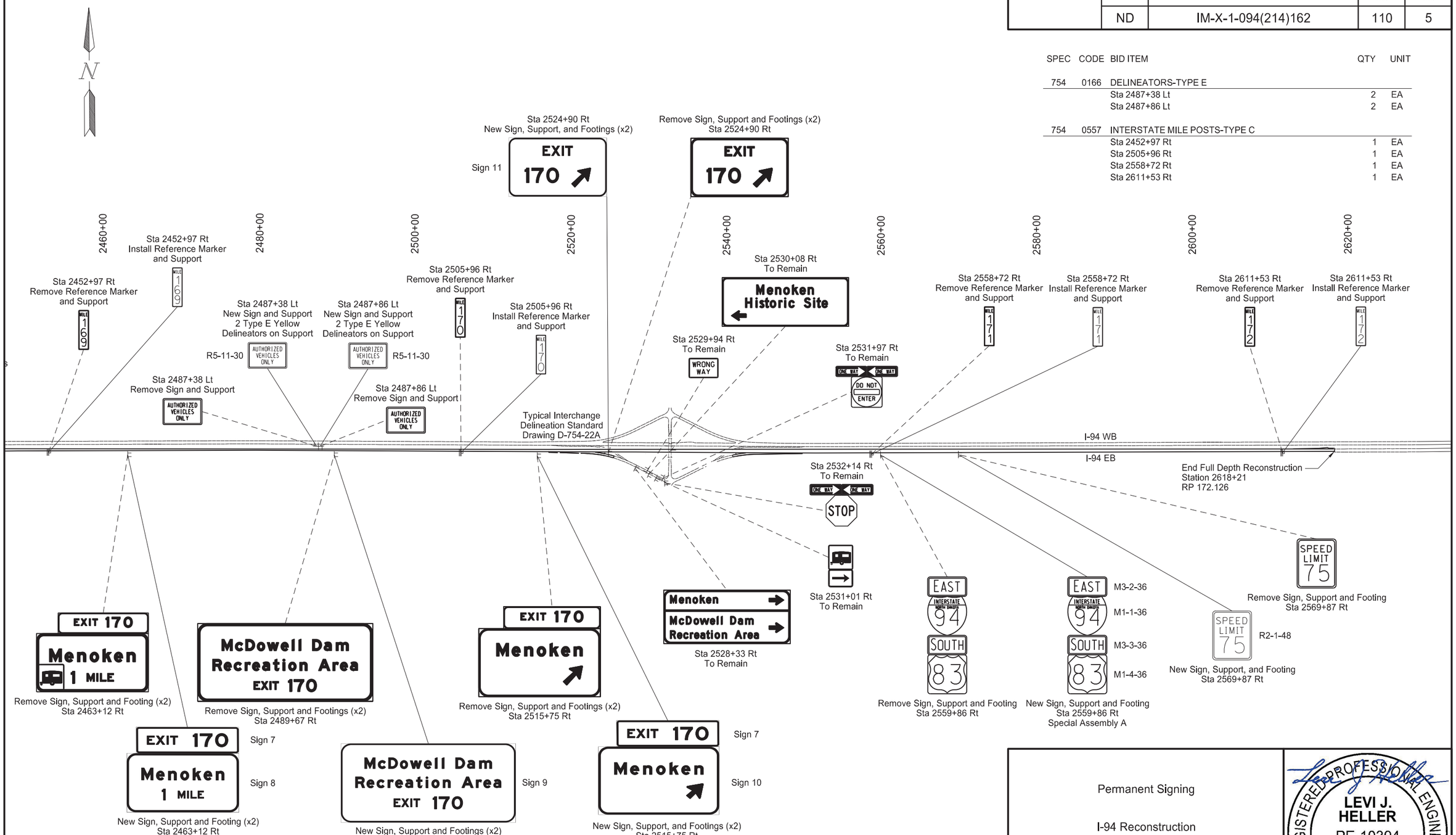
I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:13:32 -06'00'
NORTH DAKOTA

Revised 11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	110	5

SPEC	CODE	BID ITEM	QTY	UNIT
754	0166	DELINEATORS-TYPE E		
		Sta 2487+38 Lt	2	EA
		Sta 2487+86 Lt	2	EA
754	0557	INTERSTATE MILE POSTS-TYPE C		
		Sta 2452+97 Rt	1	EA
		Sta 2505+96 Rt	1	EA
		Sta 2558+72 Rt	1	EA
		Sta 2611+53 Rt	1	EA



Permanent Signing

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:13:55 -06'00'
NORTH DAKOTA

Revised 11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	110	6

SIGN NUMBER	Sign 1
WIDTH X HEIGHT	16'-6" x 8'-0"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2103+37 Rt

AREA: 132 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Distance_Post Intchg.ssl

LETTER POSITION (X)									LENGTH	SIZE	SERIES
S	t	e	r	l	i	n	g		83.92	13.3/10	EM 2000
15.38	28.95	38.93	51.83	61.67	69.65	77.63	90.53				
2	2								23.41	13.3	E 2000
159.21	171.84										
J	a	m	e	s	t	o	w	n	117.17	13.3/10	EM 2000
15.38	28.82	42.92	61.67	73.11	84.68	94.65	106.36	123.78			
9	6								23.81	13.3	E 2000
158.81	171.84										
F	a	r	g	o					56.92	13.3/10	EM 2000
15.38	27.62	41.72	50.36	63.26							
1	8	9							30.06	13.3	E 2000
152.56	159.21	171.84									

SIGN NUMBER	Sign 2
WIDTH X HEIGHT	11'-0" x 5'-0"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2353+90 Rt

AREA: 55 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Gen Serv_Rest-Roadside Area.ssl

LETTER POSITION (X)									LENGTH	SIZE	SERIES
R	E	S	T		A	R	E	A	104.76	12	E 2000
13.62	25.74	36.42	47.46	56.94	69.42	83.7	95.82	106.14			
1	M	I	L	E					52.6	15,10	E 2000
39.7	59.2	71.2	75.6	84.8							

Sign Details

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:14:11 -06'00'
NORTH DAKOTA

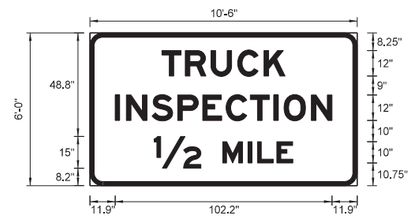
Revised 11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	110	7

SIGN NUMBER	Sign 3
WIDTH X HEIGHT	10'-6" x 6'-0"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2383+20 Rt

AREA: 63 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Weigh Station.sst

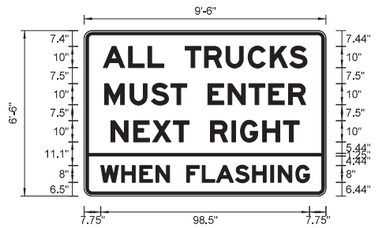
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
T	R	U	C	K																58.08	12	E 2000
33.96	45	57.12	69.6	82.08																		
I	N	S	P	E	C	T	I	O	N											102.24	12	E 2000
11.88	17.16	29.28	41.4	53.16	64.2	75.6	86.64	91.56	104.4													
1/2	M	I	L	E																65.38	15,10	E 2000
30,31	62,59	74,59	78,99	88,19																		

SIGN NUMBER	Sign 4
WIDTH X HEIGHT	9'-6" x 6'-6"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White / White
LEGEND/BORDER	TYPE: Non-reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2396+94 Rt

AREA: 61.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_60_Large.sst

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
A	L	L	T	R	U	C	K	S												96.1	10	E 2000
8.95	20.85	30.05	47.55	56.75	66.85	77.25	87.65	96.95														
M	U	S	T	E	N	T	E	R												94.9	10	E 2000
9.55	21.55	31.65	40.85	58.35	67.85	77.65	86.85	96.35														
N	E	X	T	R	I	G	H	T												88.8	10	E 2000
12.6	23.3	32.2	42	59.5	69.6	73.7	84.1	93.9														
W	H	E	N	F	L	A	S	H	I	N	G									98.48	8	E 2000
7.76	17.6	26.16	33.76	48.24	55.6	62.24	71.28	79.36	87.92	91.44	99.76											

SIGN NUMBER	Sign 5
WIDTH X HEIGHT	11'-0" x 5'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_12IN_TYPE A	94.84	8.48	18.23	29.99	315.01

STATION(S):
2406+82 Rt

AREA: 60.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Gen Serv_Rest-Roadside Area.sst

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
R	E	S	T		A	R	E	A												104.76	12	E 2000
13.62	25.74	36.42	47.46	56.94	69.42	83.7	95.82	106.14														

Sign Details

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:14:27 -06'00'
NORTH DAKOTA

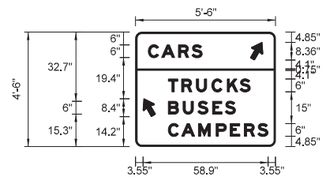
Revised	11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	IM-X-1-094(214)162	110	8

SIGN NUMBER	Sign 6
WIDTH X HEIGHT	5'-6" x 4'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green / Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	54.13	40.8	6	9	330
ND_6IN_TYPE D	3.54	14.17	6	9	30

STATION(S):
2421+60 Rt

AREA: 24.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination_Divided.dsl

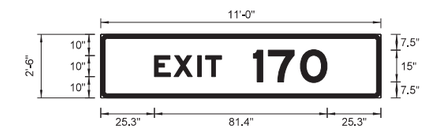
LETTER POSITION (X)							LENGTH	SIZE	SERIES
C	A	R	S				25.42	6	E 2000
6	12.33	20.24	26.57						
T	R	U	C	K	S		38.69	6	E 2000
15.42	21.7	28.66	35.94	43.21	49.24				
B	U	S	E	S			31.71	6	E 2000
15.42	22.38	29.34	36.3	42.27					
C	A	M	P	E	R	S	47.04	6	E 2000
15.42	21.75	29.65	38.02	44.67	51.27	57.6			

SIGN NUMBER	Sign 7
WIDTH X HEIGHT	11'-0" x 2'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2463+12 Rt
2515+75 Rt

AREA: 27.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Exit Panel.dsl

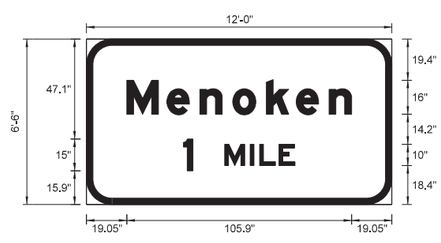
LETTER POSITION (X)				LENGTH	SIZE	SERIES
E	X	I	T	31.63	10	E 2000
25.29	34.47	45.57	49.41			
1	7	0		34.8	15	E 2000
71.91	78.96	94.11				

SIGN NUMBER	Sign 8
WIDTH X HEIGHT	12'-0" x 6'-6"
BORDER WIDTH	3" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2463+12 Rt

AREA: 78 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Advance_Int.dsl

LETTER POSITION (X)							LENGTH	SIZE	SERIES
M	e	n	o	k	e	n	105.92	16/12	EM 2000
19.04	37.92	53.44	68.96	84.8	98.88	114.4			
1	M	I	L	E			52.6	15,10	E 2000
45.7	65.2	77.2	81.6	90.8					

Sign Details

I-94 Reconstruction

Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:14:43 -06'00'
NORTH DAKOTA

Revised 11/7/24	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	110	9

SIGN NUMBER	Sign 9
WIDTH X HEIGHT	17'-0" x 8'-0"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Brown
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
2489+67 Rt

AREA: 136 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Recreation_Cultural_Supplemental.ssl

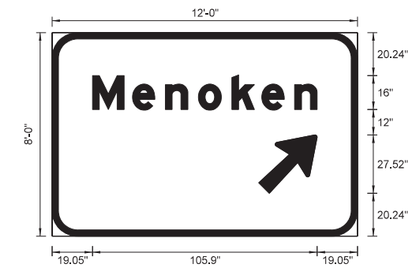
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
M	c	D	o	w	e	l	l	D	a	m									148.43	13.3/10	EM 2000
27.79	43.48	55.58	69.15	80.85	97.08	109.98	117.96	133.92	147.49	161.58											
R	e	c	r	e	a	t	i	o	n	A	r	e	a						169.84	13.3/10	EM 2000
17.08	30.25	41.95	54.85	63.5	75.2	87.97	99.14	105.92	119.09	141.17	157.79	166.44	178.14								
E	X	I	T	1	7	0													80.4	10,15	E 2000
61.8	70.7	81.4	84.9	107.4	114.45	129.6															

SIGN NUMBER	Sign 10
WIDTH X HEIGHT	12'-0" x 8'-0"
BORDER WIDTH	3" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_16IN_TYPE A	97.44	20.24	22.23	35	315

STATION(S):
2515+75 Rt

AREA: 96 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Advance_Int.ssl

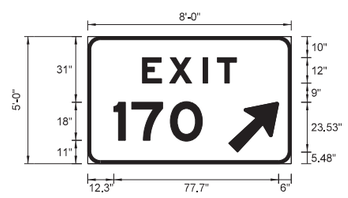
LETTER POSITION (X)							LENGTH	SIZE	SERIES
M	e	n	o	k	e	n	105.92	16/12	EM 2000
19.04	37.92	53.44	68.96	84.8	98.88	114.4			

SIGN NUMBER	Sign 11
WIDTH X HEIGHT	8'-0" x 5'-0"
BORDER WIDTH	1.5" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_12IN_TYPE A	66.46	5.48	18.23	29.99	315.01

STATION(S):
2524+90 Rt

AREA: 40 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Gore.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
E	X	I	T																44.37	12	E 2000
25.82	38.6	54.44	61.19																		
1	7	0																	41.76	18	E 2000
12.33	20.79	38.97																			

Sign Details

I-94 Reconstruction

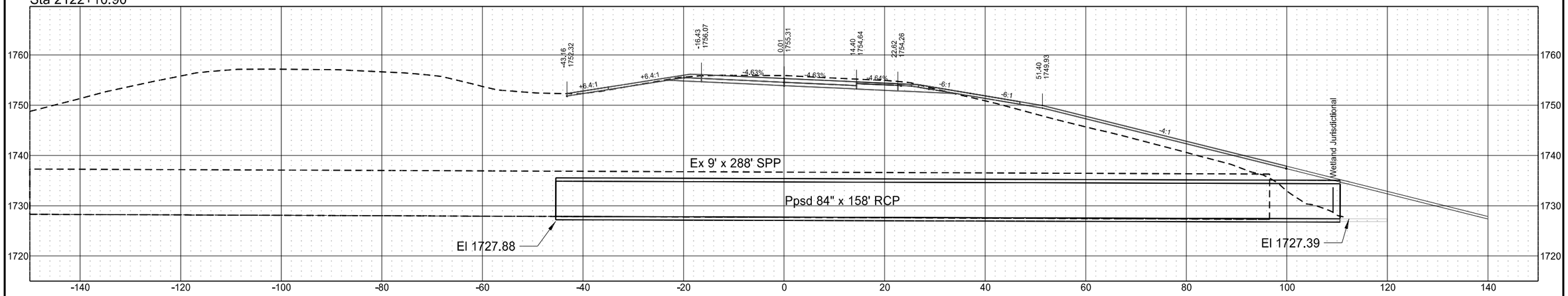
Bismarck to E of Menoken Interchange - EB

REGISTERED PROFESSIONAL ENGINEER
LEVI J. HELLER
PE-10394
DATE 2024.11.07 11:15:00 -06'00'
NORTH DAKOTA

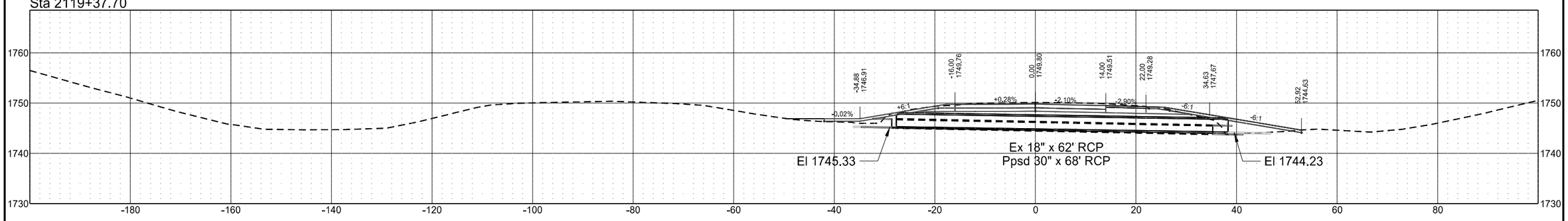
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	139

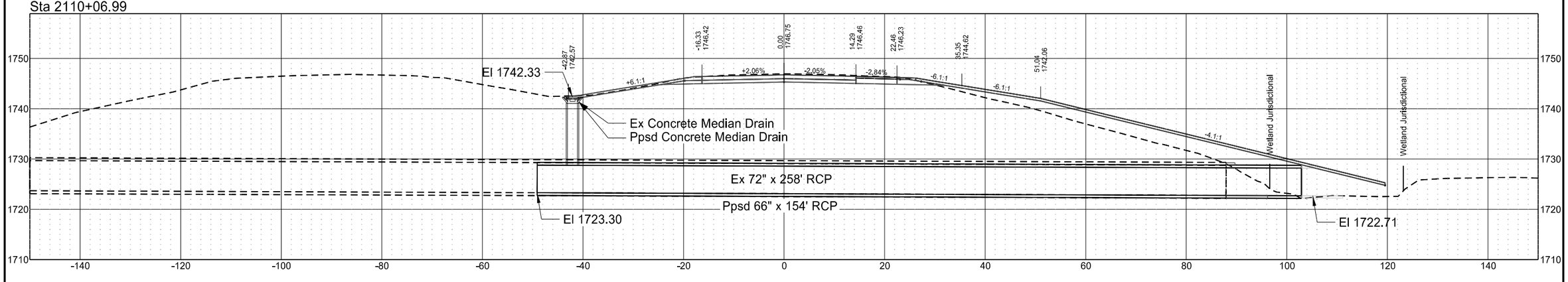
Sta 2122+10.90



Sta 2119+37.70



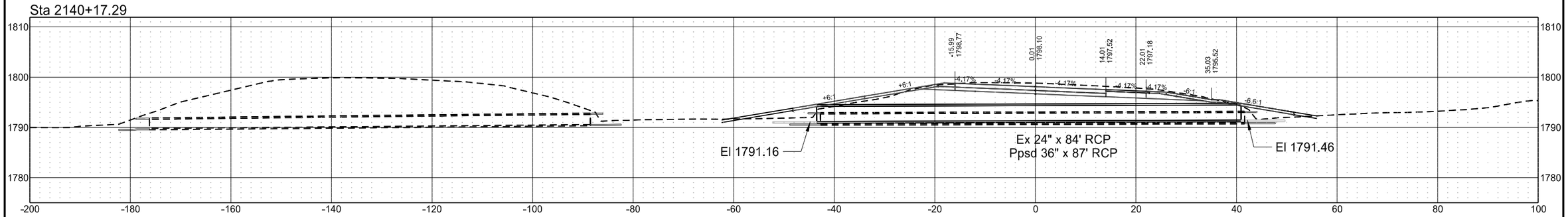
Sta 2110+06.99



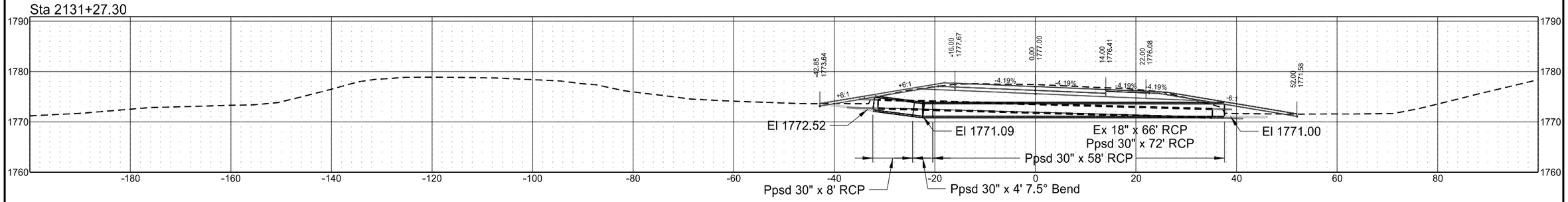
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	140

Sta 2140+17.29



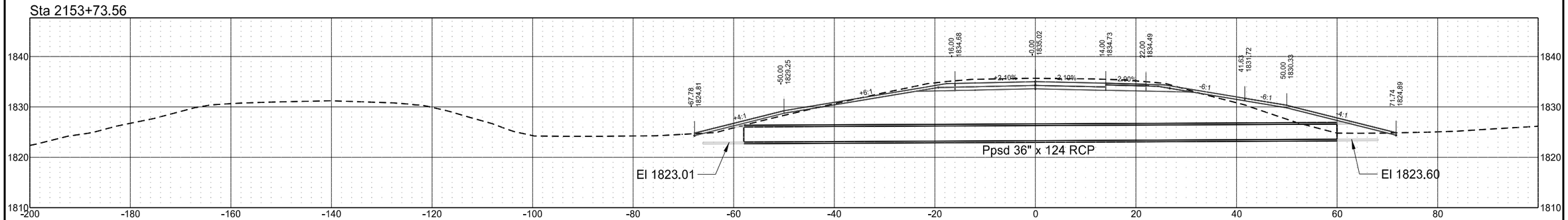
Sta 2131+27.30



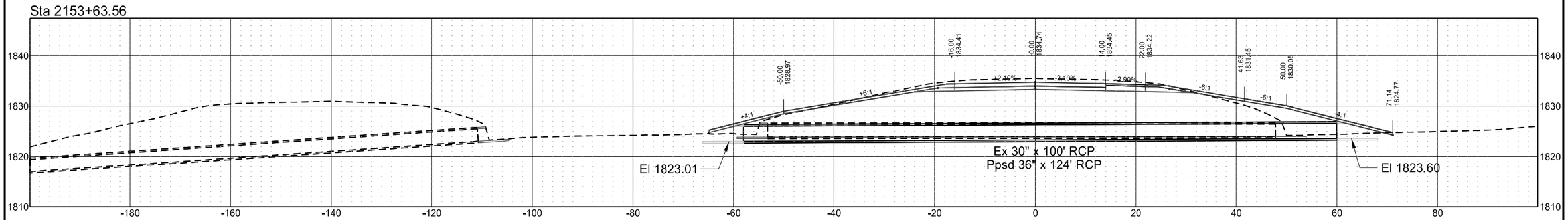
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	141

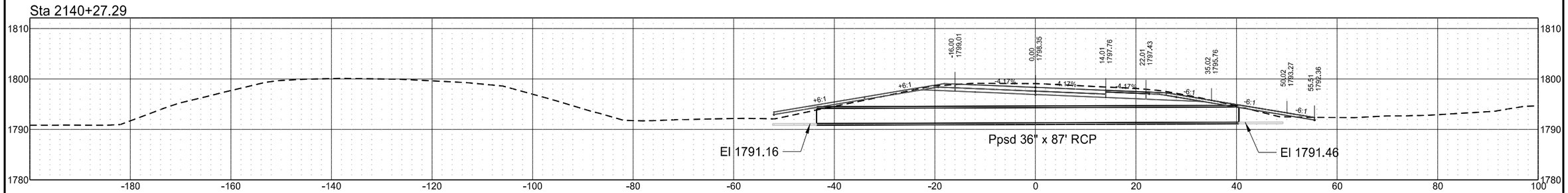
Sta 2153+73.56



Sta 2153+63.56



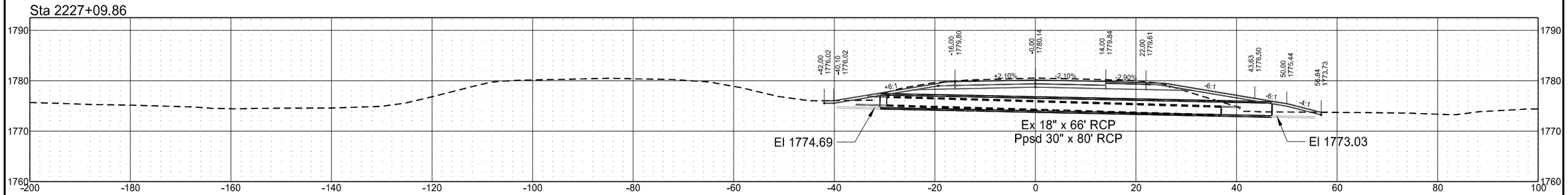
Sta 2140+27.29



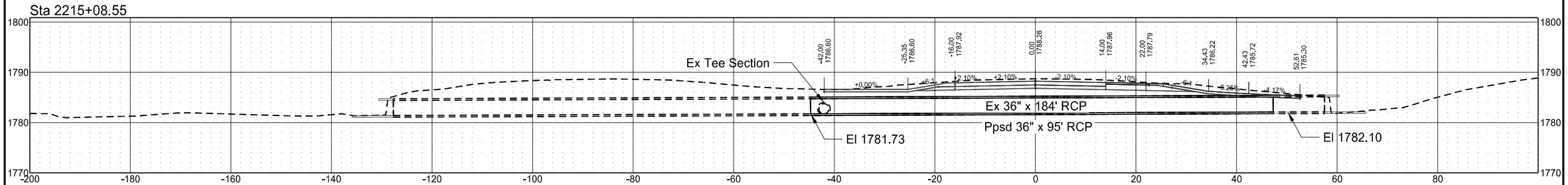
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	142

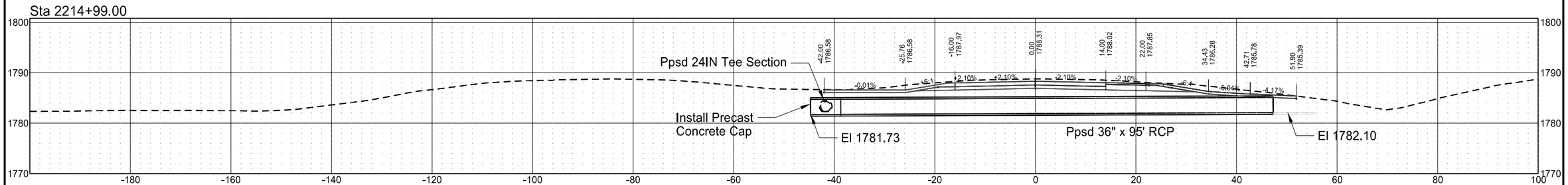
Sta 2227+09.86



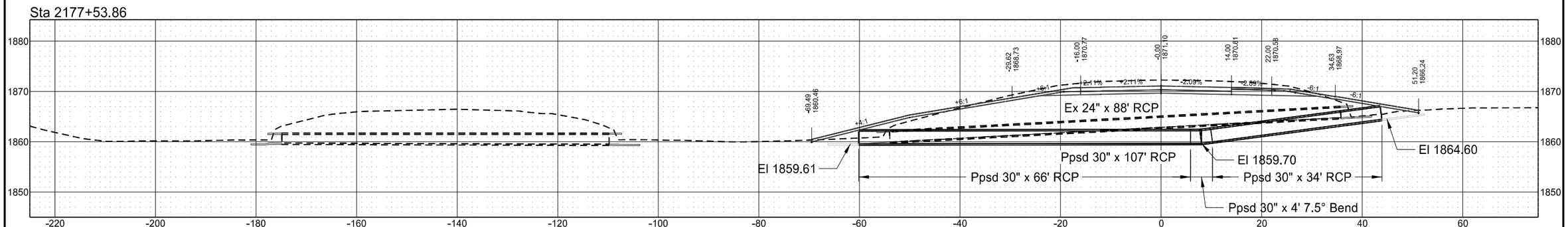
Sta 2215+08.55



Sta 2214+99.00



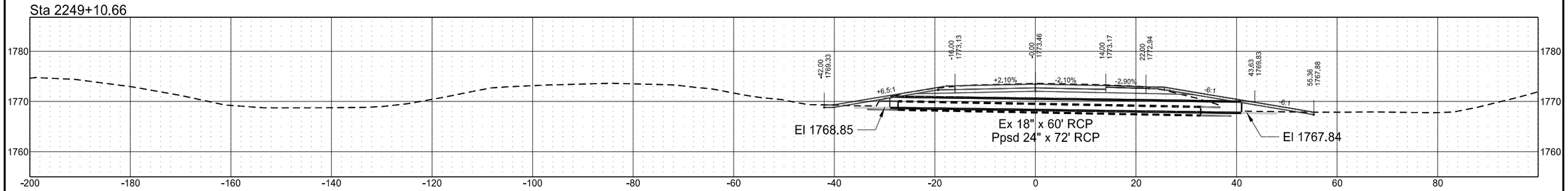
Sta 2177+53.86



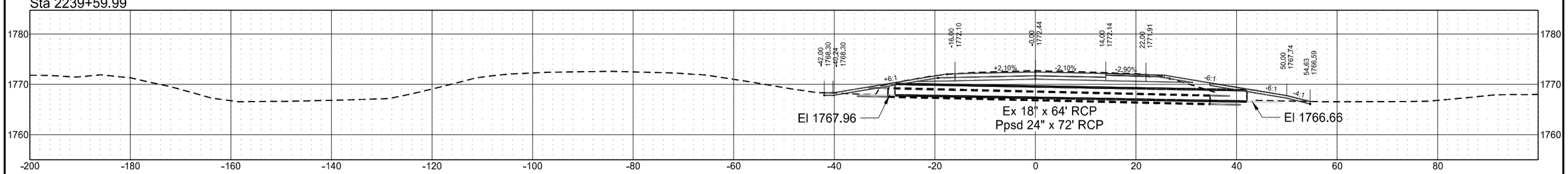
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	143

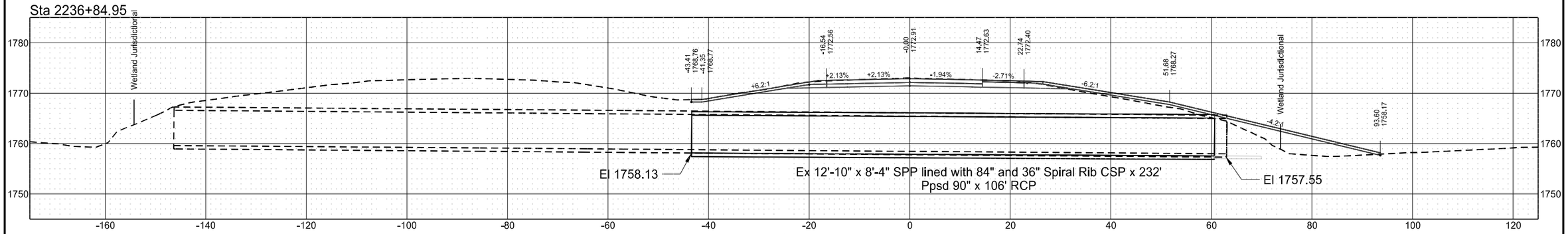
Sta 2249+10.66



Sta 2239+59.99



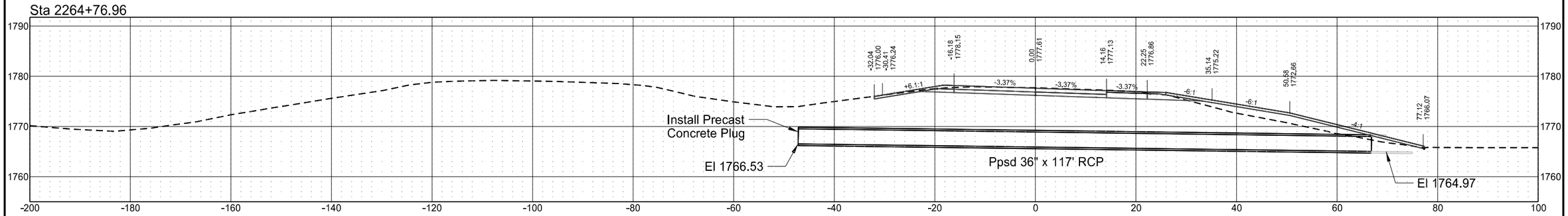
Sta 2236+84.95



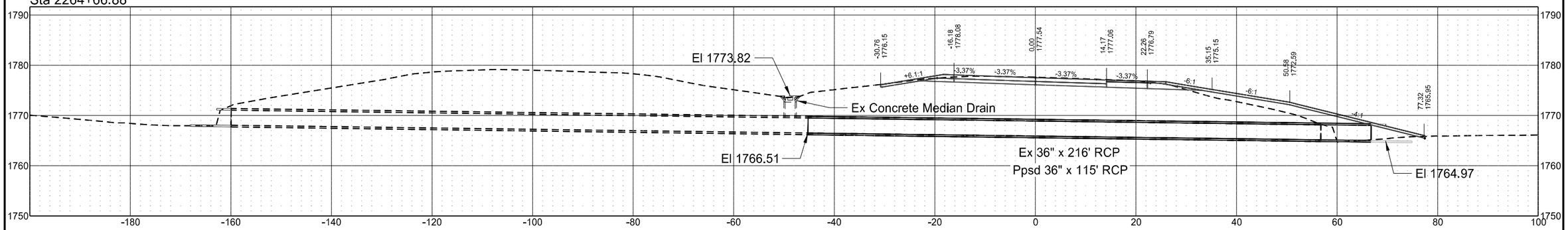
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	144

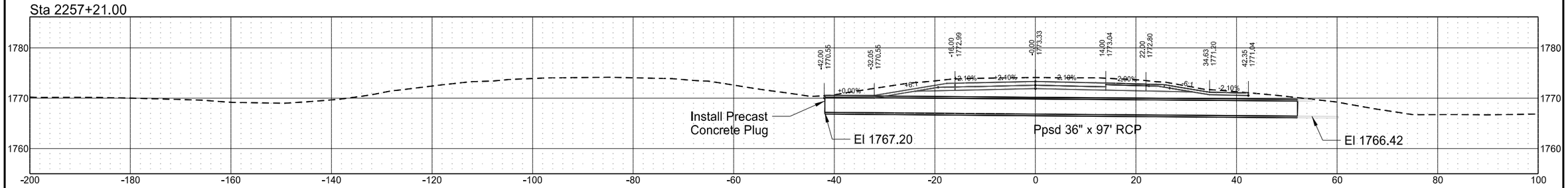
Sta 2264+76.96



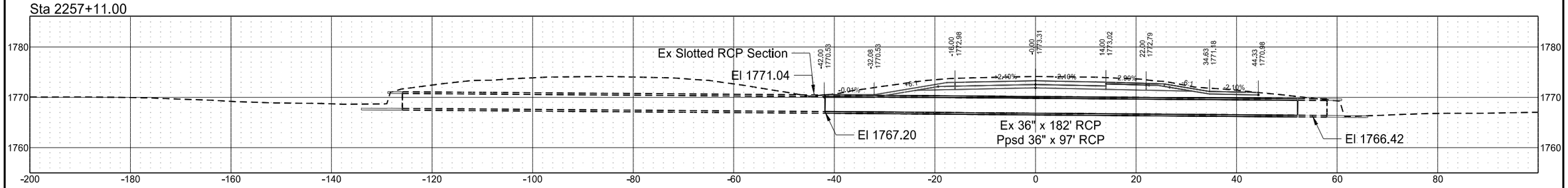
Sta 2264+66.88



Sta 2257+21.00



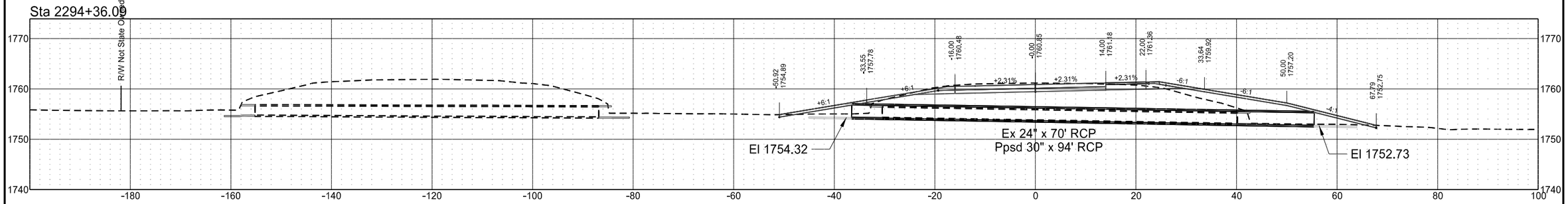
Sta 2257+11.00



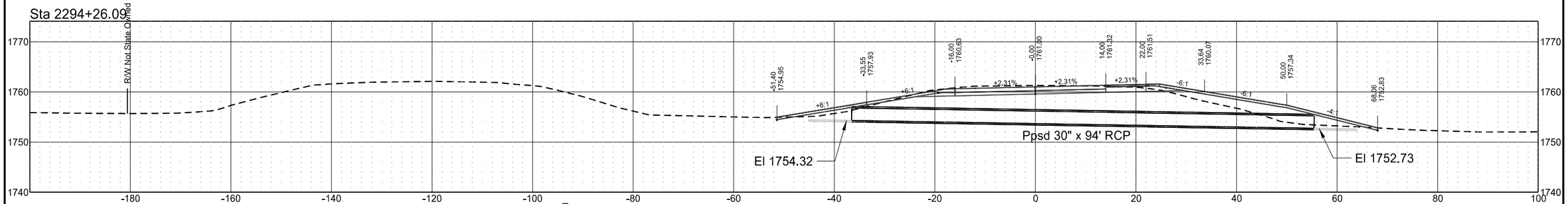
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	145

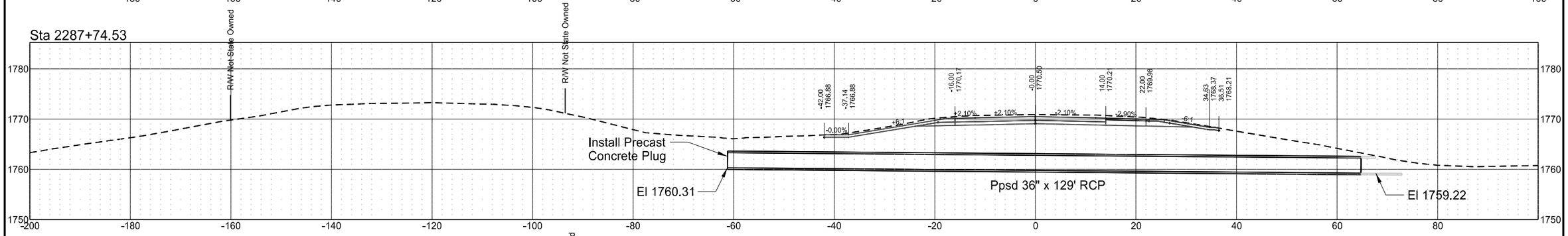
Sta 2294+36.09



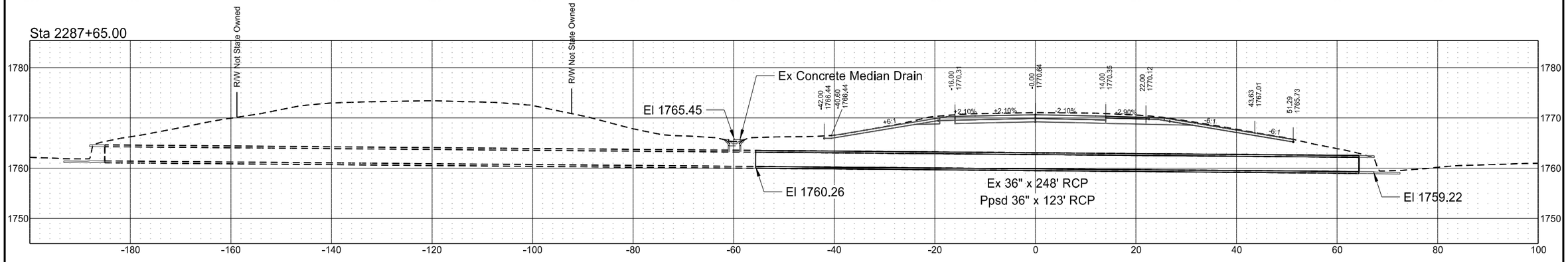
Sta 2294+26.09



Sta 2287+74.53



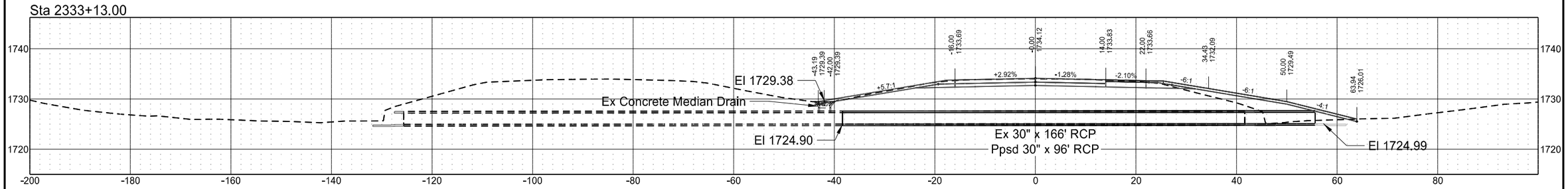
Sta 2287+65.00



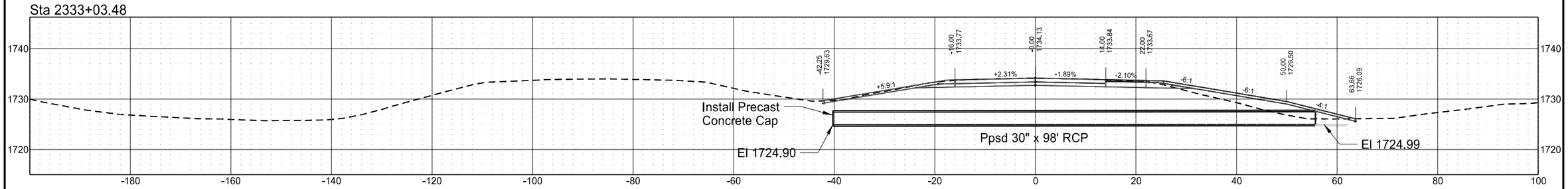
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	146

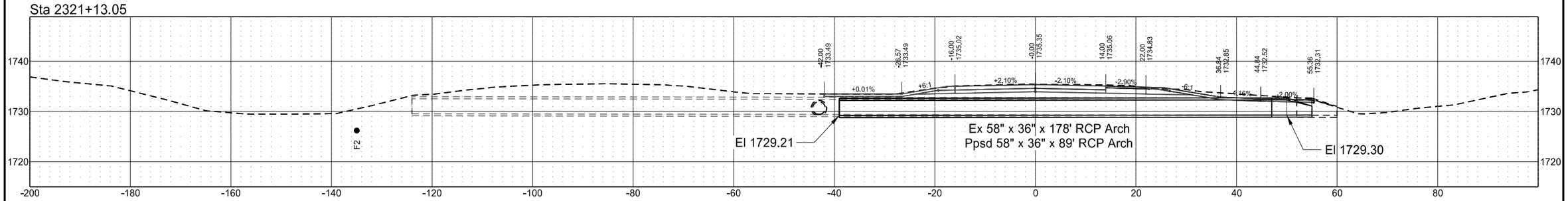
Sta 2333+13.00



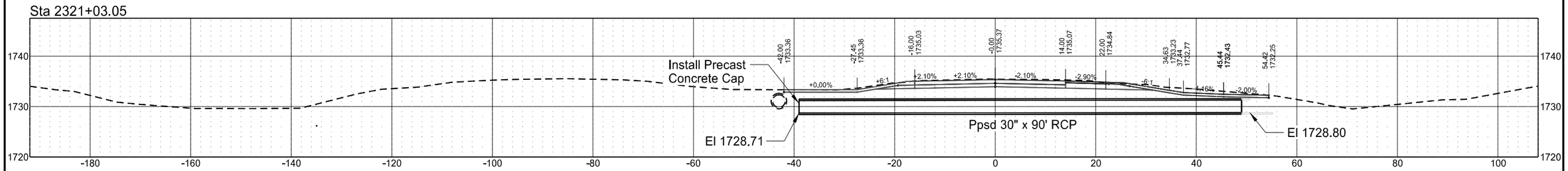
Sta 2333+03.48



Sta 2321+13.05



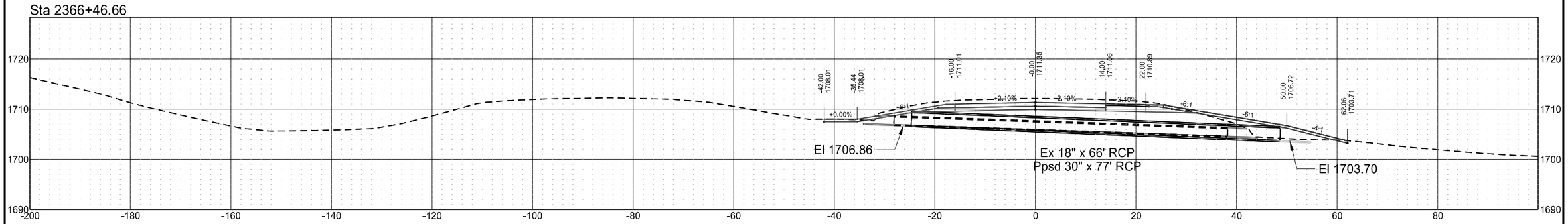
Sta 2321+03.05



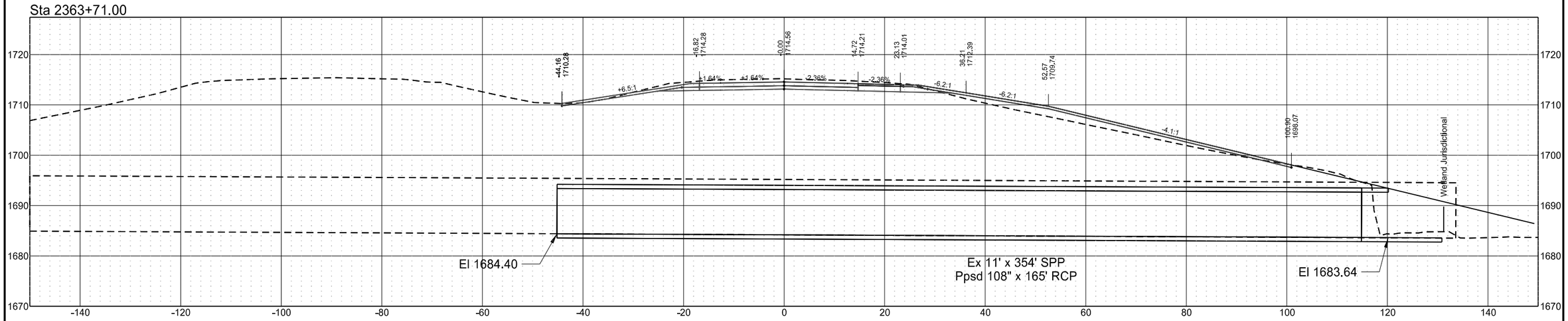
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	147

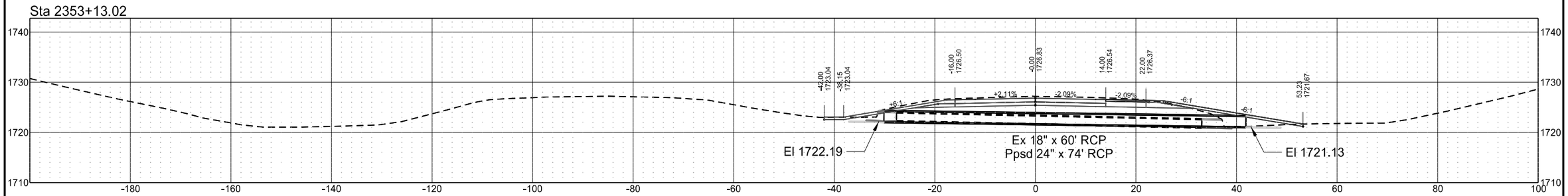
Sta 2366+46.66



Sta 2363+71.00



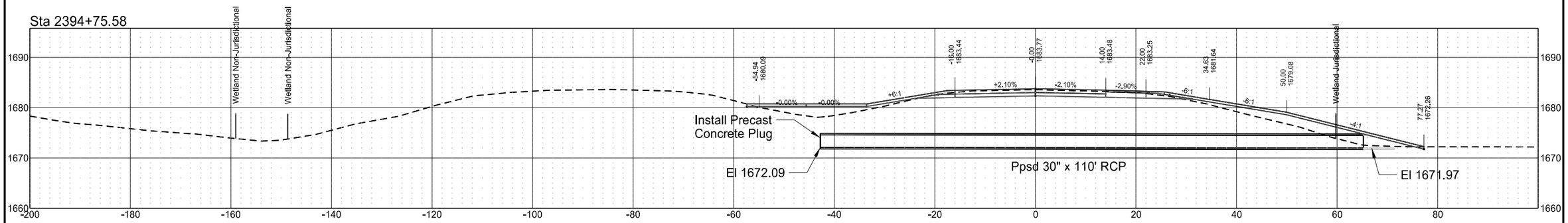
Sta 2353+13.02



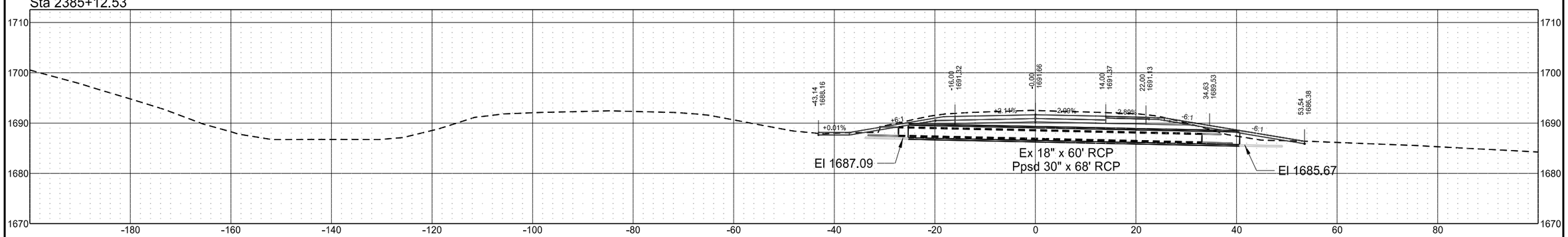
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	148

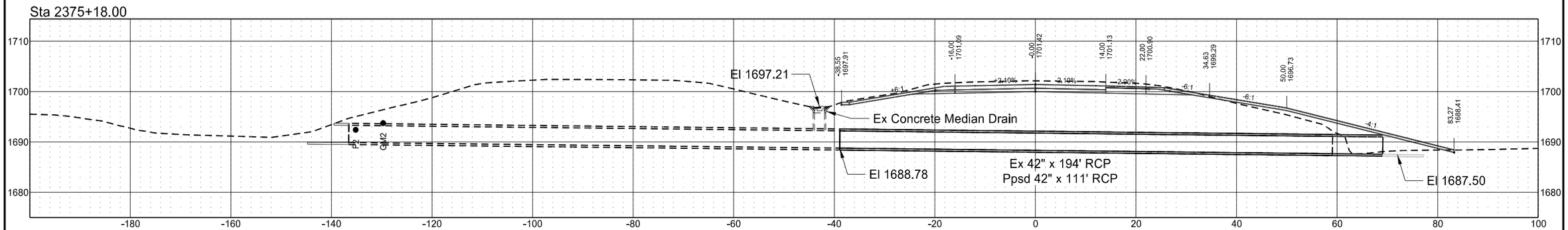
Sta 2394+75.58



Sta 2385+12.53



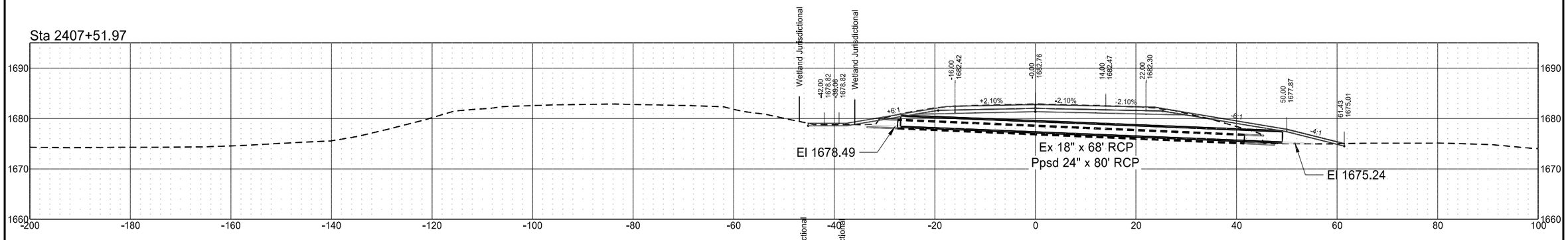
Sta 2375+18.00



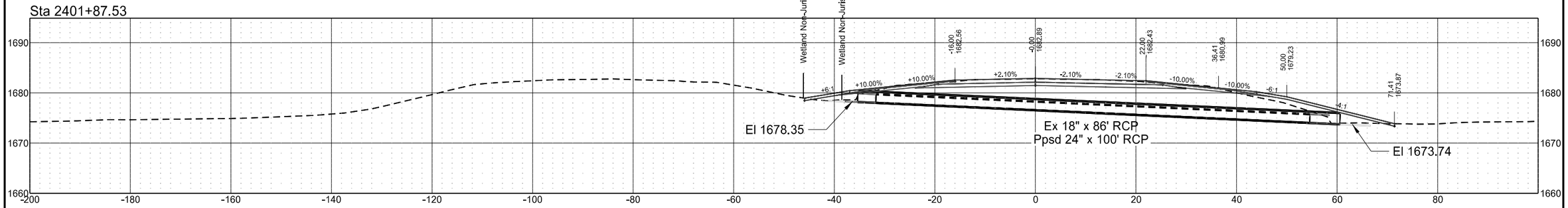
Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
Bismarck to E of Menoken Interchange - EB

Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	149

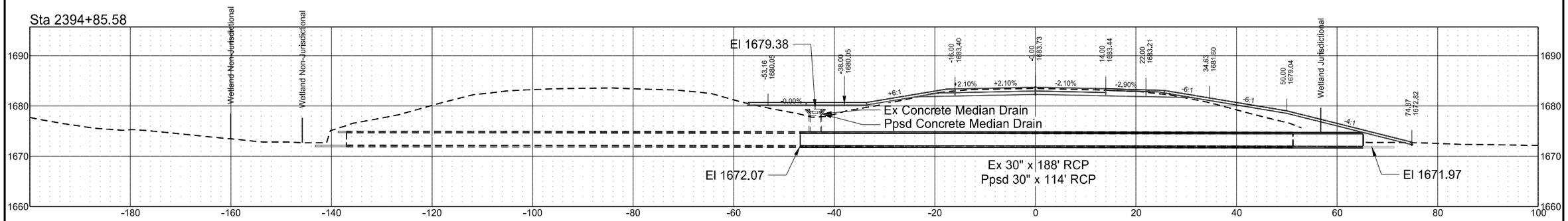
Sta 2407+51.97



Sta 2401+87.53



Sta 2394+85.58



Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
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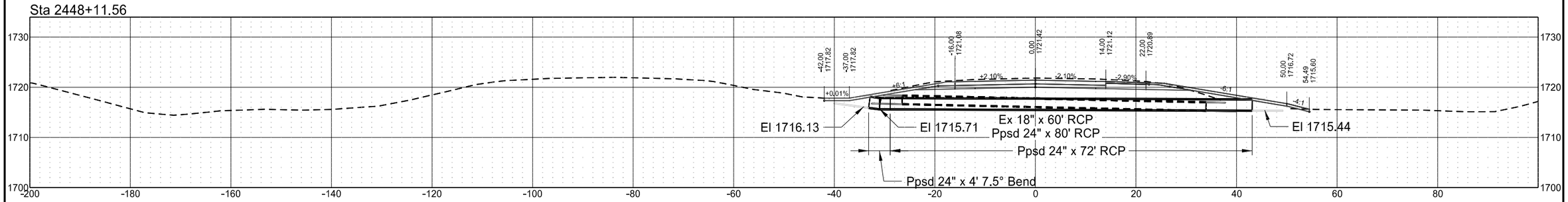
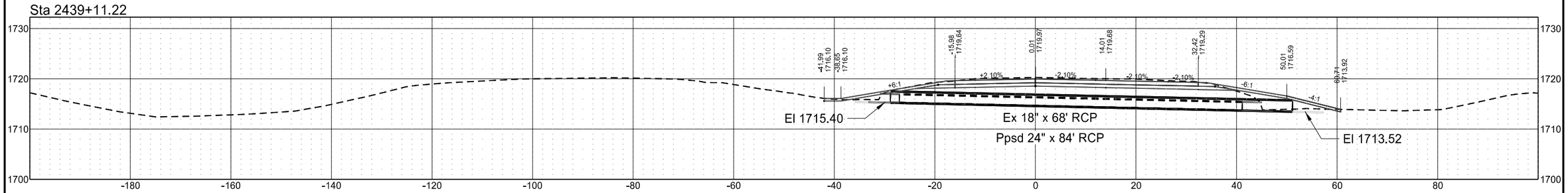
Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	150

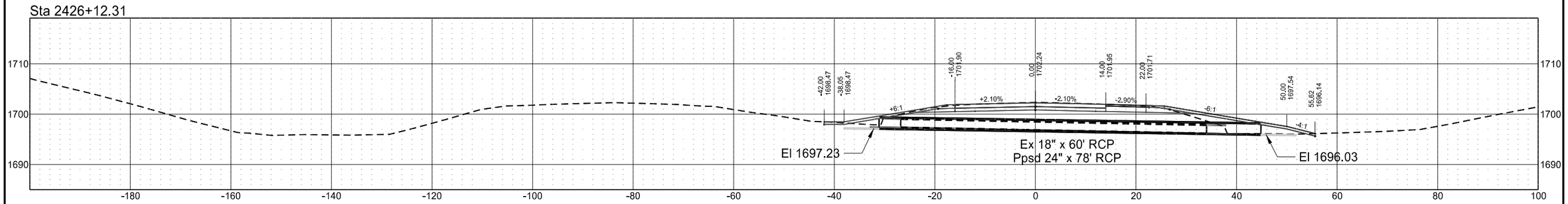
Sta 2448+11.56



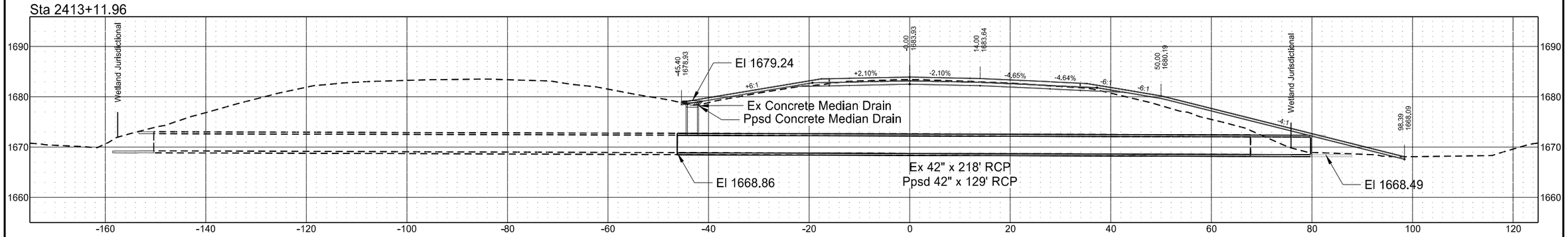
Sta 2439+11.22



Sta 2426+12.31



Sta 2413+11.96



Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
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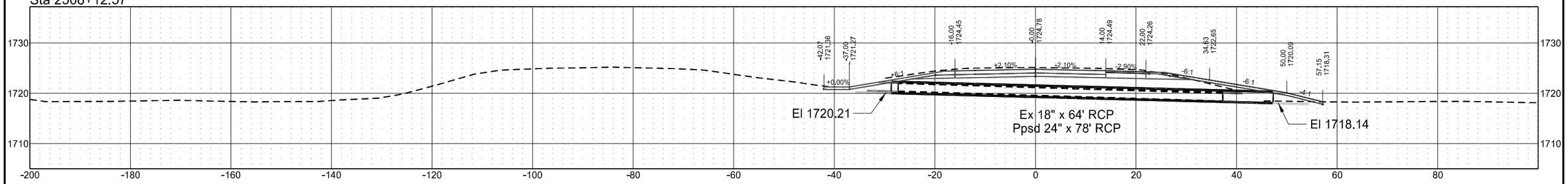
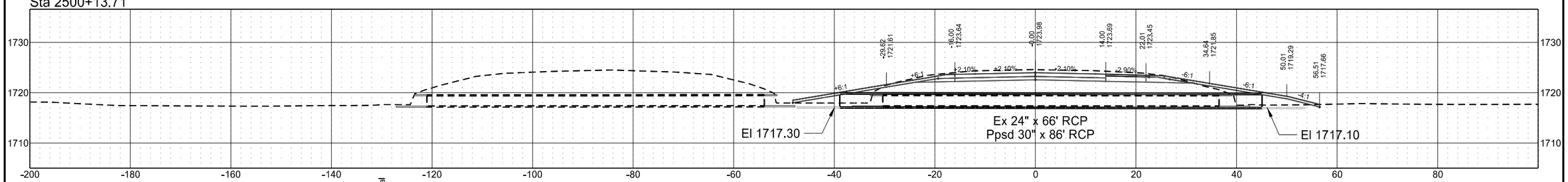
Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	151

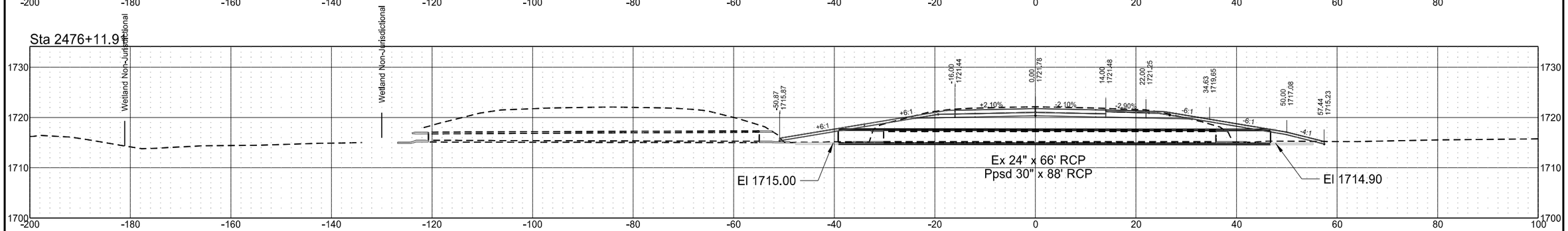
Sta 2508+12.57



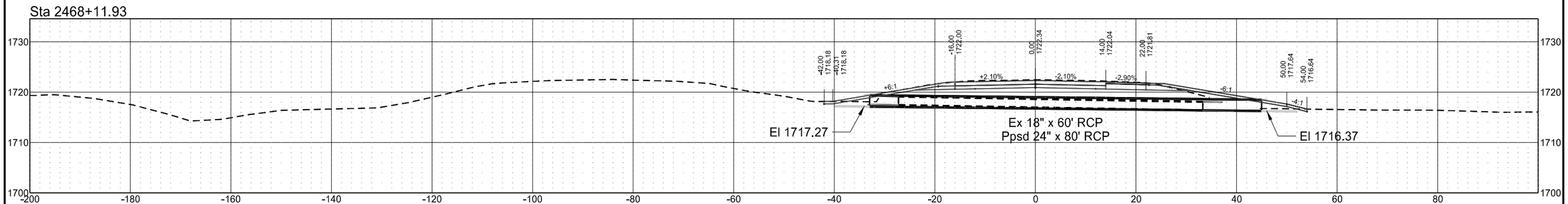
Sta 2500+13.71



Sta 2476+11.91



Sta 2468+11.93



Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
I-94 Reconstruction
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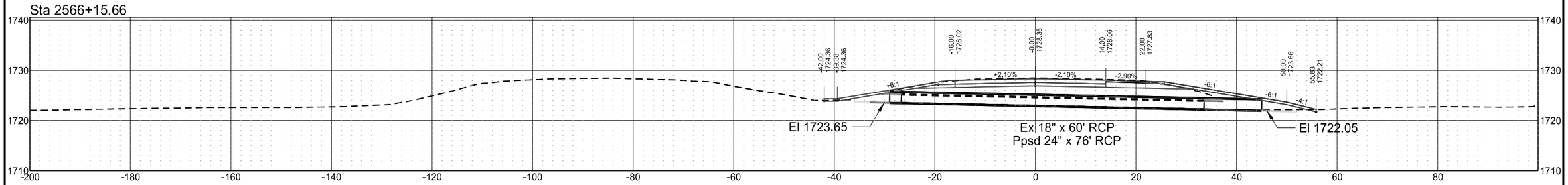
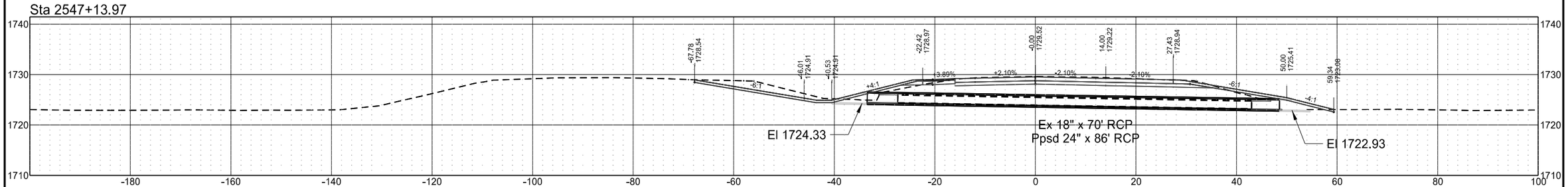
Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	152

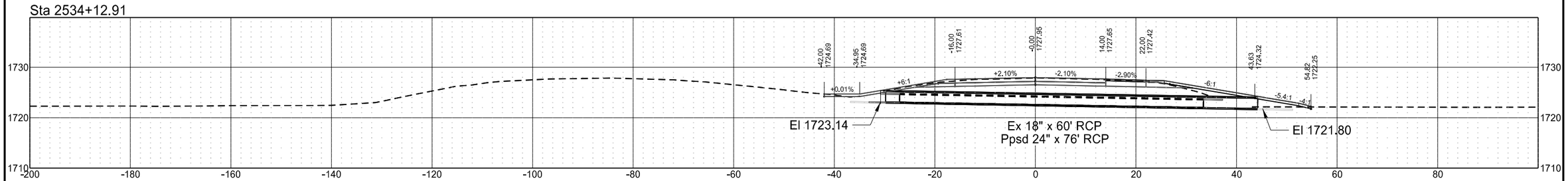
Sta 2566+15.66



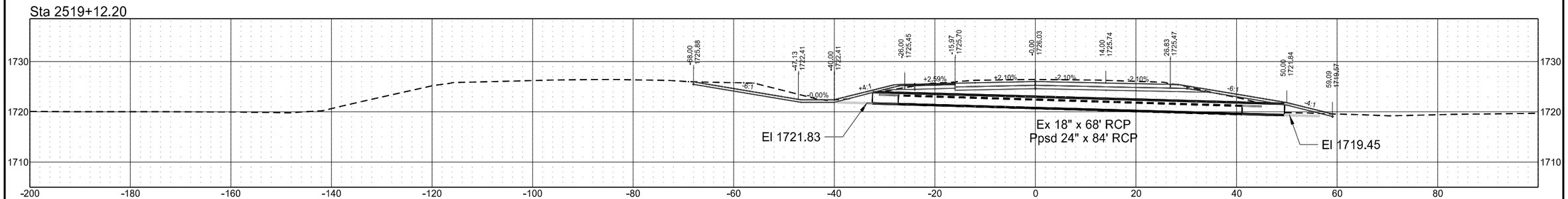
Sta 2547+13.97



Sta 2534+12.91



Sta 2519+12.20



Centerline Culvert Cross Sections - Drawn Parallel to Centerline of Pipes
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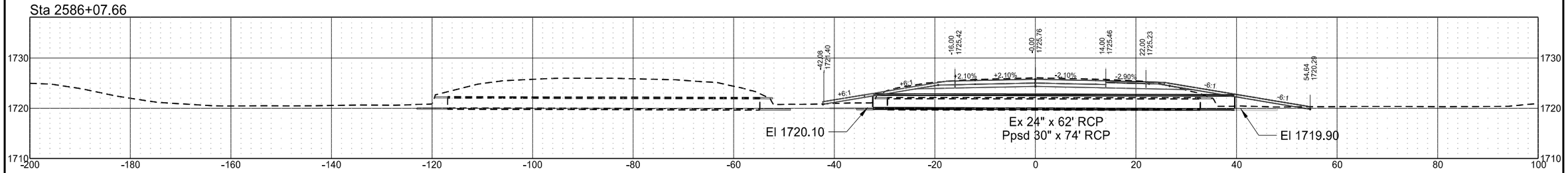
Revised 11/7/2024	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-X-1-094(214)162	200	153

Sta 2586+07.66



Sta 2576+15.37