

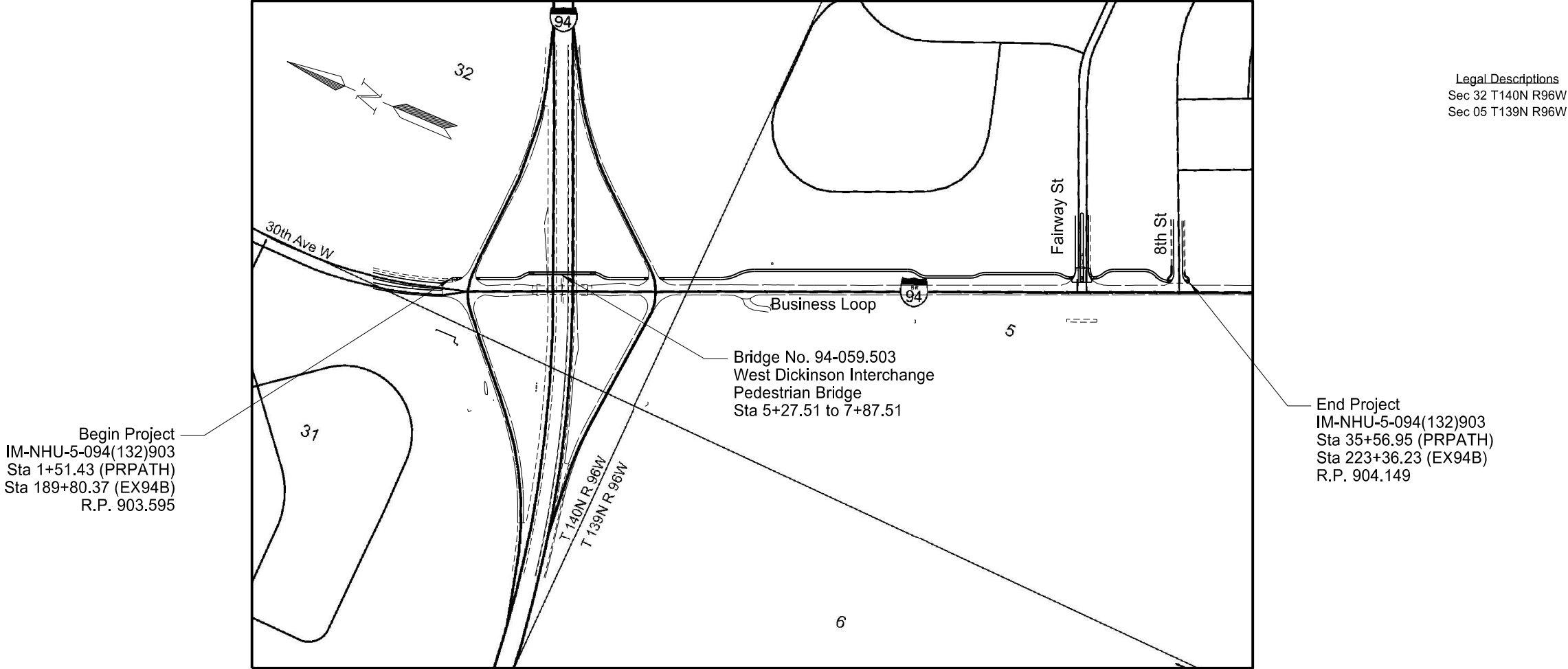
JOB # 10
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

IM-NHU-5-094(132)903
Stark County
Interstate 94 Business Loop from
Interstate 94 to 8th Street
Shared Use Path, Bridge, and Lighting

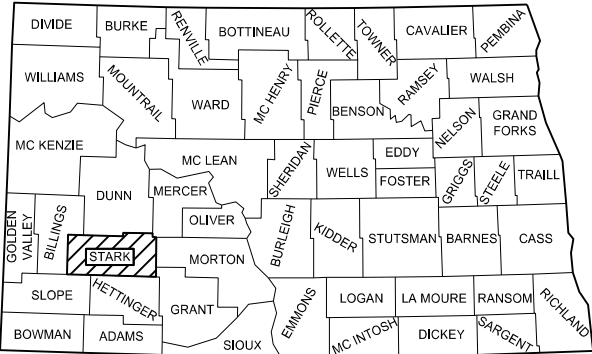
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GOVERNING SPECIFICATIONS:
2014 Standard Specifications adopted by the North Dakota
Department of Transportation and the Supplemental Specifications
effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
IM-NHU-5-094(132)903	0.554	0.554



Legal Descriptions
Sec 32 T140N R96W
Sec 05 T139N R96W



STATE COUNTY MAP

DESIGNER Steve McHenry
DESIGNER Ryan Rykowski
DESIGNER Devin Power

ND DEPARTMENT OF TRANSPORTATION
OFFICE OF PROJECT DEVELOPMENT
Chad M. Orn /s/ 1/23/2020

SRF CONSULTING GROUP INC.

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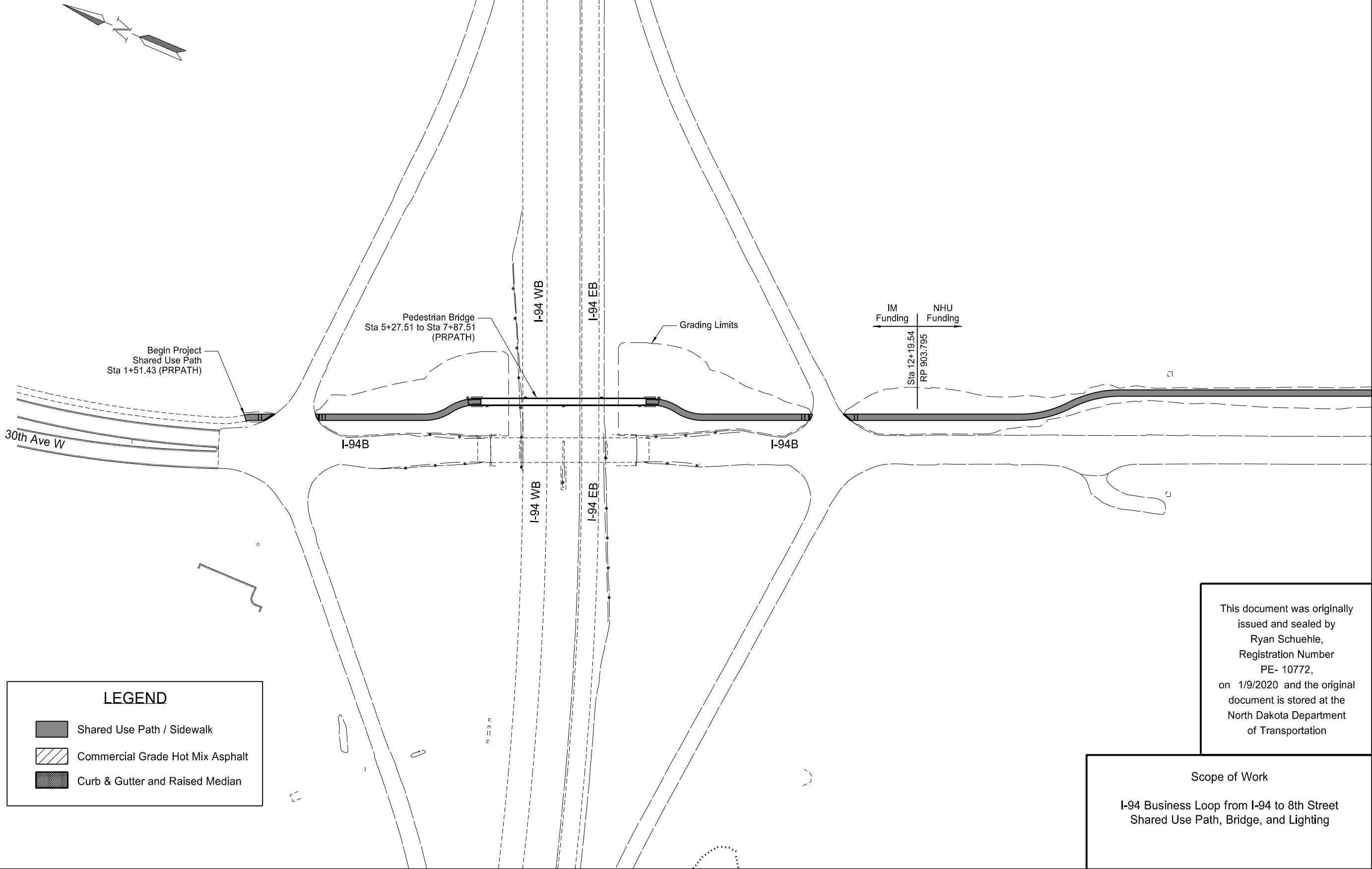
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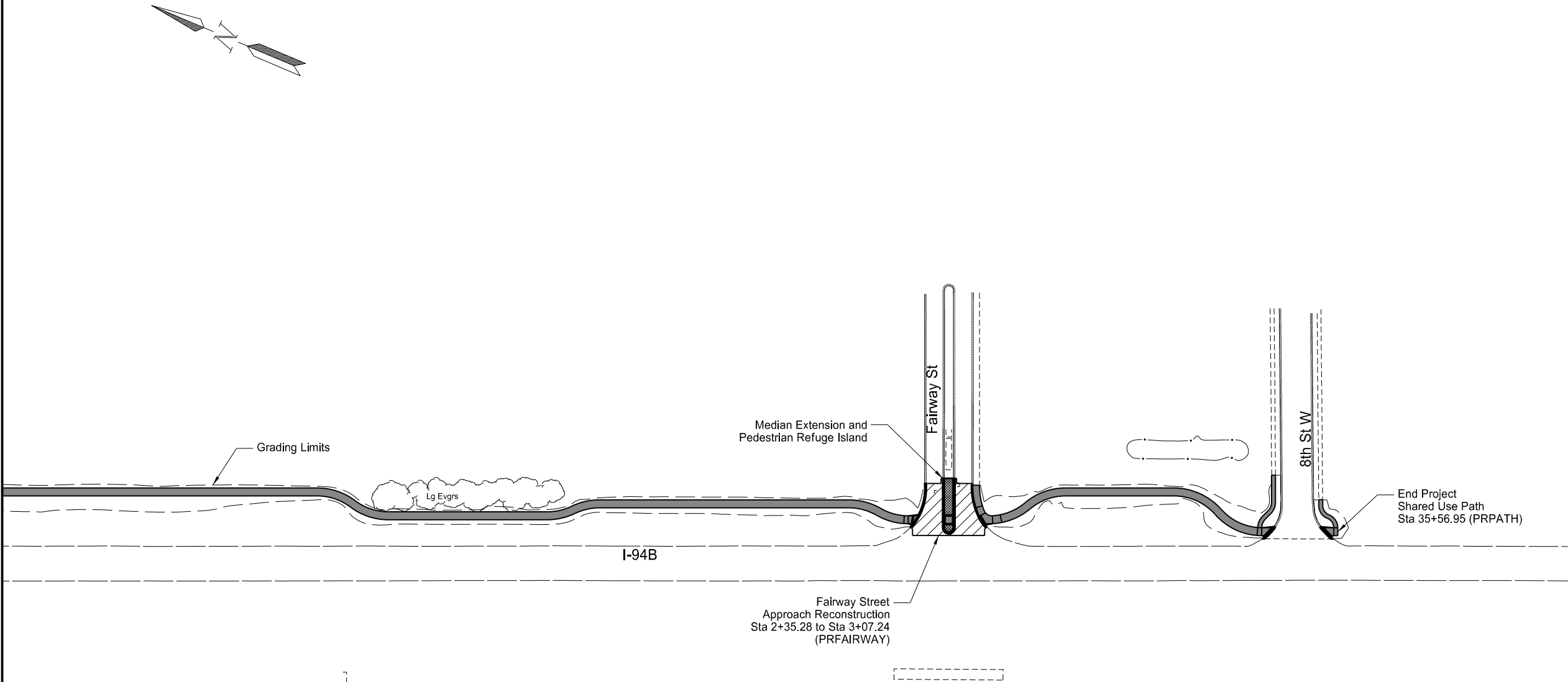
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D-101-1, 2,3	NDDOT Abbreviations
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D-101-20, 21	Line Styles
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D-255-1	Bridge Approach Slab Drainage Detail
D-258-1	Standard Slope Protection Under Bridges
D-261-1	Erosion Control - Fiber Roll Placement Details
D-622-1	Pile Splice Details
D-704-1	Attenuation Device
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-22	Construction Truck And Temporary Detour Layouts
D-704-23	Short Term Urban Detour And Lane Closure On A Divided Highway Layouts
D-704-24	Shoulder Closures And Bridge Painting Layouts
D-704-25	Lane Closures On Urban Streets Layouts
D-704-35	Sign Layout For One Lane Closure - Interstate System
D-704-51	Portable Precast Concrete Median Barrier (Temporary Usage)
D-704-52	Interstate Road Closure Using Ramps - Closure for Less Than One Day - and Crossroad is not Closed
D-704-58	Divided Highway Operation for Overhead Structure, Pier, and Footing Replacement
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection
D-714-1	Reinforced Concrete Pipe Culverts And End Sections (Round Pipe)
D-714-18	Edgedrain Details
D-714-22	Concrete Pipe, Cattle Pass, or Precast Concrete Box Culvert Ties
D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway
D-722-2	Inlet - Type 2
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D-748-1	Curb & Gutter And Valley Gutter
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D-754-6	Hinge Plate, Fuse Plate, And Foundation Details For Standard Pipe
D-754-7	Pipe Support And Sign Mounting Details
D-754-12	Breakaway Coupler System - Structural Details For W-Shape Supports
D-754-13	Breakaway System Structural Details For W-Shape Supports
D-754-14	Wind Beams And Anchor Plates For W-Shape Supports
D-754-23	Perforated Tube Assembly Details

Number	Description
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D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-25	Mounting Details Perforated Tube
D-754-28	Sign Punching, Stringer, and Support Location Details Regulatory, Warning and Guide Signs
D-754-46	Punching, Stringer, and Support Location Details for Regulatory, Warning and Guide Bike Route Signs
D-754-48	Sign Punching, Stringer And Support Location Details For Variable Length Signs
D-754-83	Object Markers - Culverts
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
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LEGEND

- Shared Use Path / Sidewalk
- Commercial Grade Hot Mix Asphalt
- Curb & Gutter and Raised Median

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Scope of Work

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

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NOTES

GENERAL NOTES

- 100-P01 COORDINATION OF PROJECTS: There are other projects in the vicinity of this project under contract during the 2020 construction season.
- Project 201914 is a City of Dickinson project and is located at Fairway Street west of the I-94 Business loop. The project will consist of the installation of water, sewer, and streets west of the business loop and will include boring to the east side of the business loop to connect to existing watermain.
- Contact:
Craig Kubas
Dickinson City Engineer
Phone: 701-456-7715
Email: Craig.Kubas@dickinsongov.com
- Project NHU-5-094(136)903 is a North Dakota Department of Transportation Project along I-94. The project will consist of Microsurfacing.
- 105-200 UTILITY COORDINATION: A utility coordination meeting is required.
- 107-P01 TREE PRECAUTIONS: Use care when working near trees. Protect the tree and the root zone during construction.
1. Minimize equipment use near trees. Use common access points when possible.
 2. Bore when possible.
 3. Roots over 4" diameter that are cut will require an inspection by a Forestry Department Arborist or other designated representative.
 4. Cut, clean, and backfill exposed tree roots as quickly as possible to avoid drying out.
 5. Avoid unnecessary grading.
 6. Provide an ISA Certified Arborist to perform pruning.
 7. Contact the City Forestry Department if there is a physical impact to any tree not designated for removal. The City Forestry Department will determine the extent of the impact. Mitigate any impacts identified to the extent detailed by the City Forestry Department at no cost to the NDDOT.
- 201-P01 CLEARING AND GRUBBING: There are approximately 11 trees to be removed as shown in section 40. The 5 trees denoted as "To Be Removed by Other" will be salvaged by the City of Dickinson. Salvage work is estimated to be completed by the City of Dickinson prior to April 30th pending weather limitations. The remaining 6 trees will be removed by the contractor. It is the Contractor's responsibility to assess the work required for removal. Include all costs for labor, equipment, removal, and disposal of trees in the unit bid price for "CLEARING AND GRUBBING".

- 202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removing median paving, sidewalks, bituminous pavement, concrete pavement, and aggregate base.
- Existing pavement thicknesses are averaged based on old sets of plans and maintenance data.
- Pavement removals: 5" pavement / 8" aggregate base (Fairway Street)
 - Sidewalk removals: 4" concrete / 4" aggregate base (I-94 Business Loop)
 - Median pavement: 4" concrete / 12" aggregate base (Fairway Street)
- 203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.
- 203-385 AVERAGE HAUL: No average haul has been computed for this project.
- 203-P01 COMMON EXCAVATION – TYPE A: Excavated material, removed within the right-of-way, to construct the proposed street and sidewalk improvements can be used as proposed embankment if the material is suitable.
- Excavated material that is suitable for embankment construction may be stockpiled within existing right-of-way. Stockpiling of material on new pavement and sidewalk is not allowed.
- Plan quantity will be used as the measurement for payment for "Common Excavation-Type A". Include all costs for excavation, haul, temporary and final placement, stockpile erosion control & stormwater management, and compaction of embankment material within the right-of-way in the contract unit price for "Common Excavation – Type A".
- 203-P02 CONTRACTOR FURNISHED BORROW: Obtain the proper clearance for contractor furnished borrow. A number of potential material sources are identified as borrow clues, these sites are:
- Clue A: Section 32, T140N, R96W, Quarter Section SW ¼ - The south backslope of the I-94 EB on-ramp within NDDOT ROW contains available borrow. Contact Dickinson District Engineer Rob Rayhorn at 701-227-6511.
 - Clue B: Section 27, T139N, R96W, Quarter Section NW ¼ - the Stark County Fairgrounds is interested in having a hill cut down. Contact Lisa Heiser at 701-290-0293.

Earth moving equipment (scraper hauled dirt) will not be allowed on the highway pavement.

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- 203-P03 EMBANKMENT MATERIAL: All embankment material must be comprised of less than 45% particles smaller than 0.02 millimeters as determined by AASHTO T88 and a Liquid Limit less than 45 as determined by AASHTO T89. When a material is found that meets the above testing requirements, a sample of the proposed material will be collected by the Engineer and sent to the NDDOT Materials & Research Division, 300 Airport Road Bismarck, ND for final acceptance. Results from the tests will be completed within 7 working days from material delivery date. Complete the above tests and final acceptance procedure each time a compaction curve is required.
- 203-P04 EMBANKMENT MATERIAL: Embankment material from Sta 3+00 to 9+50 must be in place a minimum of 95 days prior to paving the shared use path. This time may be reduced as directed by the Engineer if the settlement plates show that settlement has finished prior to the end of the estimated 95 days.
- 704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 112 barriers from the NDDOT Maintenance Yard in Belfield. Return barriers to the NDDOT Maintenance Yard in Belfield.

Install any missing markers on the barriers before traffic use. Include the cost of the markers in the contract unit price for "Precast Concrete Median Barrier – State Furnished".

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 the cost for boards in the contract unit price for "Precast Concrete Median Barrier - State Furnished".
- 704-P01 TRAFFIC CONTROL DEVICES: The traffic control devices list has been developed using the following layouts on the Standard Drawing for traffic control.

D-704-22, Type K and Type L for construction trucks hauling material.
D-704-23, Detour Layout
D-704-24, Type R, Shoulder closure on NB I-94 Business loop from 8th St W to I-94 WB off ramp.
D-704-25, Type W Work beyond the driving lane for installation of curb ramps at the I-94 On and Off ramps and 8th St W
D704-25, Type X Lane closures at intersections for crosswalk pavement markings
D-704-35, One lane closure for temporary widening of aggregate base and placing and removing precast concrete jersey barriers.
D-704-52, Interstate road closure using ramps
D-704-58, Structure median pier construction.

- 704-P02 DETOUR: The new structure at Exit 59 will require placing new beams over Interstate 94 traffic. Detour traffic in accordance with Standard Drawing D-704-52 when these activities are taking place. Use flagger control at ramp intersections during this operation. These described detours are permitted as follows:
 - One day for setting bridge beams over WB I-94 – detour WB I-94 traffic only.
 - One day for setting bridge beams over EB I-94 – detour EB I-94 traffic only.
The one day detours will only be permitted during nighttime hours from 8:00 pm to 6:00 am. Prior to closing Interstate 94, notify the Dickinson District 48 hours in advance of implementing the detour route.
- 704-P03 DETOUR: The traffic detour outlined on sheet 100-2 for the Fairway Street reconstruction will not exceed a duration of 21 calendar days. Days are counted from when detour signage and construction traffic control devices are installed until the work is completed and the signage and devices removed and traffic can return freely. All bituminous paving, median paving, curb and gutter, sidewalk, storm sewer, and other items necessary to allow normal traffic operation to resume on Fairway Street must be completed within the 21 calendar days.
- 708-P01 INLET PROTECTION: All costs associated with furnishing, preparation of inlet and protection device, installing, maintaining, disposal of sediment and removal are included in the cost for INLET PROTECTION-SPECIAL. Use Dandy Curb Sack, EconoCurb, Frye Flow, Flexstorm Catch-It, or approved equal.
- 714-P01 CONNECT TO EXISTING PIPE: Connect existing pipe to proposed structure. The existing pipe material and size shown in Section 60 of the plan set is based on record drawings and field data. No additional compensation will be paid for the pipe connection if the existing pipe encountered is different than material and size shown. Included all costs to perform this work in the contract unit price for “Manhole 54IN”.
- 722-P01 INLETS AND MANHOLES: Inlets and manholes were designed with a minimum 4-foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.

Concrete manhole at Sta 30+89 will require a concrete collar per detail on sheet 20-12. Include all costs for labor, materials, and equipment needed to install concrete collar in the contract unit price for “Manhole 54IN”.
- 750-P01 CURB RAMPS AND LANDINGS: Ensure that all curb ramps and landings meet current design standards. Curb ramps and landings cannot be placed until after concrete curb & gutter has been completed.

The concrete landings, as designated in Section 20 detail sheets and labeled “D”, must be installed first prior to adjacent curb ramps and/or sidewalks allowing for a minimum of 24 hours of cure time.

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- 764-P01 REMOVE ATTENUATING CRASH CUSHION TL-3: Removal of the existing attenuating crash cushion includes removal of the crash cushion and the underlying concrete base. Deliver the removed attenuating crash cushion to the Dickinson District Yard.
- Include all costs to remove the existing concrete bases in the contract unit price bid for the item "Remove Attenuating Crash Cushion TL-3".
- 764-P02 ATTENUATING CRASH CUSHION TL-3: Install a 24" wide QuadGuard M10 crash cushion at the end of the reinforced concrete transition wall protecting the pier of Bridge No. 94-059.503.
- Install the crash cushion on a concrete pad in accordance with the crash cushion manufacturer's recommendations, with transition panels on both sides of the unit, and a Type XI yellow retroreflective sheeting on the nose, as shown in the plans.
- Include all costs for supplying and installing the concrete slab, transition panels, and retroreflective sheeting in the contract unit price bid for "Attenuating Crash Cushion TL-3."
- 770-P01 CONCRETE FOUNDATION HIGHWAY LIGHTING: Provide light standard foundations 24" in diameter and 6' deep, and according to D-770-1. Bolt circle and projection to be verified with manufacturer specifications. Include spare conduit and cap end at all foundations located at the end of a circuit.
- 770-P02 ORNAMENTAL LIGHT STANDARD 10FT MT HT: Provide light standard, 10' extruded aluminum 5" pole with 17" round base, paint finish black. Duct seal all conduit stubs in concrete foundations. See table below in note 770-P04.
- 770-P03 ORNAMENTAL LIGHT STANDARD: Provide light standard, 30' round tapered steel pole with 8' bolt-on mast arm, 2-3/8" OD slipfitter, paint finish black. Duct seal all conduit stubs in concrete foundations. See table below in note 770-P04.
- 770-P04 LED LUMINAIRE: Provide LED luminaires along the trail as shown in the table below and according to the plans. Use the luminaire listed or approved equal.

LED Luminaire	Catalog Number	Pole
AEL American Revolution Holophane Wadsworth	247L P45 AS 40K R2 AY NR – Luminaire WDA 10 L5J SL17 P07 ABG BK - Pole	10'
AEL Autobahn ATB2 Millerbernd	ATB2 60BLEDE10 MVOLT R2 NR – Luminaire RJAC8-320 - Pole	30'

The lighting system was designed using these values:

Roadway Classification	Pedestrian and Bicycle Way
Average Maintained Illuminance	2.0 foot-candles
Illuminance Uniformity Ratio	3.0:1
Light Loss Factor	0.9

Include all cost associated with the LED lighting system in the contract unit price for "LED Luminaire".

- 902-P01 SETTLEMENT PLATE: The Engineer will establish the elevation of the settlement plates via a level loop starting from a benchmark location. The benchmark will be established prior to construction of the embankment and located in an area unaffected by construction activities.
- 902-P02 SETTLEMENT PLATE: The Engineer will survey the settlement plates and fill height (as applicable) according to the following intervals:
- i. Immediately after settlement plate installation
 - ii. After every new pipe section is placed
 - iii. Every three days during fill operations
 - iv. After completion of embankment, weekly until project completion

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ENVIRONMENTAL NOTES

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

EN-1 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

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Estimated Quantities

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SPEC	CODE	ITEM DESCRIPTION	UNIT	IM Funding	NHU Funding	TOTAL
103	0100	CONTRACT BOND	L SUM	0.78	0.22	1
201	0330	CLEARING & GRUBBING	L SUM	0.78	0.22	1
202	0101	REMOVAL OF CONCRETE	EA	1		1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	21	12	33
202	0130	REMOVAL OF CURB & GUTTER	LF		58	58
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	3	532	535
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA		1	1
203	0101	COMMON EXCAVATION-TYPE A	CY	14	137	151
203	0109	TOPSOIL	CY	1190	1206	2396
203	0140	BORROW-EXCAVATION	CY	15075	3903	18978
210	0099	CLASS 1 EXCAVATION	L SUM	1		1
210	0201	FOUNDATION PREPARATION	EA	1		1
216	0100	WATER	M GAL	169	68	237
251	0100	SEEDING CLASS I	ACRE	1.5	1.5	3
251	2000	TEMPORARY COVER CROP	ACRE	1.6	1.5	3.1
253	0201	HYDRAULIC MULCH	ACRE	3.1	3	6.1
255	0102	ECB TYPE 2	SY	4207	876	5083
258	0100	CONCRETE SLOPE PROTECTION	SY	154		154
261	0112	FIBER ROLLS 12IN	LF	5107	2522	7629
261	0113	REMOVE FIBER ROLLS 12IN	LF	3508	1532	5040
302	0120	AGGREGATE BASE COURSE CL 5	TON	180	883	1063
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON		114	114
602	0130	CLASS AAE-3 CONCRETE	CY	231.8		231.8
602	1130	CLASS AE-3 CONCRETE	CY	89.6		89.6
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	496		496
604	9920	PRESTRESSED I-BEAM-63IN	LF	512		512
612	0115	REINFORCING STEEL-GRADE 60	LBS	19947		19947
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	28916		28916
622	0060	STEEL PILING HP 14 X 73	LF	150		150
622	0070	STEEL PILING HP 14 X 102	LF	90		90
624	0123	PEDESTRIAN RAILING	LF	578.7		578.7
702	0100	MOBILIZATION	L SUM	0.78	0.22	1
704	0100	FLAGGING	MHR	328		328
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2886	936	3822
704	1045	ATTENUATION DEVICE-TYPE B-75	EA	2		2
704	1052	TYPE III BARRICADE	EA	4	12	16
704	1060	DELINEATOR DRUMS	EA	79		79
704	1065	TRAFFIC CONES	EA	44		44
704	1067	TUBULAR MARKERS	EA	64		64
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	1		1
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	162		162
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	112		112
708	1540	INLET PROTECTION - SPECIAL	EA		4	4
708	1541	REMOVE INLET PROTECTION - SPECIAL	EA		4	4
714	0310	PIPE CONC REINF 18IN CL III	LF	4		4
714	0820	PIPE CONC REINF 30IN CL III	LF		70	70
714	0905	PIPE CONC REINF 36IN CL III	LF		42	42

Estimated Quantities						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC	CODE	ITEM DESCRIPTION		UNIT	IM Funding	NHU Funding			TOTAL
714	4097	PIPE CONDUIT 15IN-STORM DRAIN		LF		26			26
714	7000	PIPE PVC 8IN DRAIN		LF		8			8
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		EA	1	4			5
722	0100	MANHOLE 48IN		EA		1			1
722	0107	MANHOLE 54IN		EA		1			1
722	1100	MANHOLE RISER 48IN		LF		4			4
722	1106	MANHOLE RISER 54IN		LF		4.8			4.8
722	3510	INLET-TYPE 2		EA		1			1
722	6140	ADJUST GATE VALVE BOX		EA	1	2			3
722	6200	ADJUST MANHOLE		EA	2	4			6
748	0140	CURB & GUTTER-TYPE I		LF		366			366
750	0100	SIDEWALK CONCRETE		SY	131	197			328
750	0200	CONCRETE MEDIAN PAVING		SY		67			67
750	0210	CONCRETE MEDIAN NOSE PAVING		SY		9			9
750	2115	DETECTABLE WARNING PANELS		SF	88	124			212
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING		SF	35.6	5.2			40.8
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE		LF	100.8	16.2			117
754	0210	GALV STEEL POST-STANDARD PIPE		LF	35.2				35.2
754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)		LF		57.5			57.5
754	0592	RESET SIGN PANEL		EA	6	3			9
754	0593	RESET SIGN SUPPORT		EA	6	1			7
754	0805	OBJECT MARKERS - CULVERTS		EA	1	5			6
754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS		CY	0.7				0.7
754	1104	REMOVE SIGN FOUNDATION		EA	3	2			5
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		LF		35			35
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED		LF	312	307			619
764	9011	ATTENUATING CRASH CUSHION TL-3		EA	1				1
764	9035	REMOVE ATTENUATING CRASH CUSHION TL-3		EA	1				1
770	0001	LIGHTING SYSTEM		EA	0.78	0.22			1
900	0100	SETTLEMENT PLATE		EA	2				2
930	3000	BRIDGE BENCH MARKS		SET	1				1
930	7012	ROADWAY CANOPY		L SUM	1				1
930	8600	ELASTOMERIC BEARING PAD		SF	16				16
930	9537	ABUTMENT UNDERDRAIN SYSTEM		EA	2				2
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	Bid Option - 1	TON	147	558			705
750	0105	SIDEWALK CONCRETE BIKEWAY	Bid Option - 2	SY	615	2349			2964

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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BASIS OF ESTIMATE

Water
25 MGal/Mile for Dust Palliative
20 Gal/Ton for Aggregates
10 Gal/CY for Embankment

Paving
Aggregate Base @ 1.875 Ton/CY
Bituminous @ 2 Ton/CY

Obliteration of Pavement Marking

WB I-94 Off Ramp					
Location - Type	Basis	Length		Quantity	
White 24 IN Line	Stop Bars 2 SF/LF	81	LF	162	SF
TOTAL				162	SF

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Roadway	Common Excavation - Type A	Embankment*	Balance
	CY	CY	CY
	A	B	C = A - B
Shared Use Path	146	16642	-16496
Fairway Steet	5	37	-32
8th Street	0	59	-59
North Bridge Inslope	0	1110	-1110
South Bridge Inslope	0	1039	-1039
I-94 Median Pier Protection Embankment	0	140	-140
Standard Drawing D-704-58 Temporary Embankment**	0	102	-102
Totals	151	19129	-18978

*25% additional volume is included for shrinkage in earth embankment.

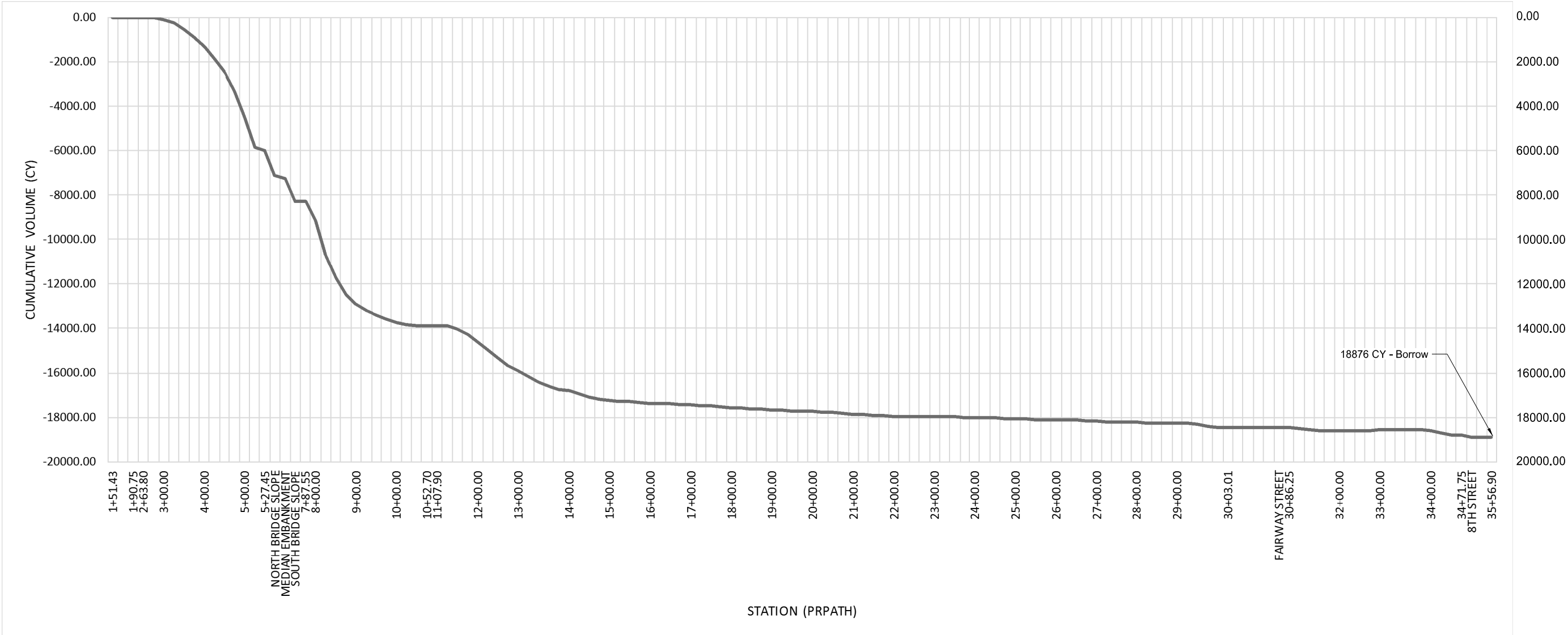
**Removal of temporary embankment incidental to "Borrow-Excavation". Temporary embankment quantity is excluded from the mass diagram.

203	0101	Common Excavation - Type A	
		(IM)	14 CY
		(NHU)	137 CY
		Total	151 CY
203	0140	Borrow-Excavation	
		(IM)	15075 CY
		(NHU)	3903 CY
		Total	18978 CY

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Earthwork Summary

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

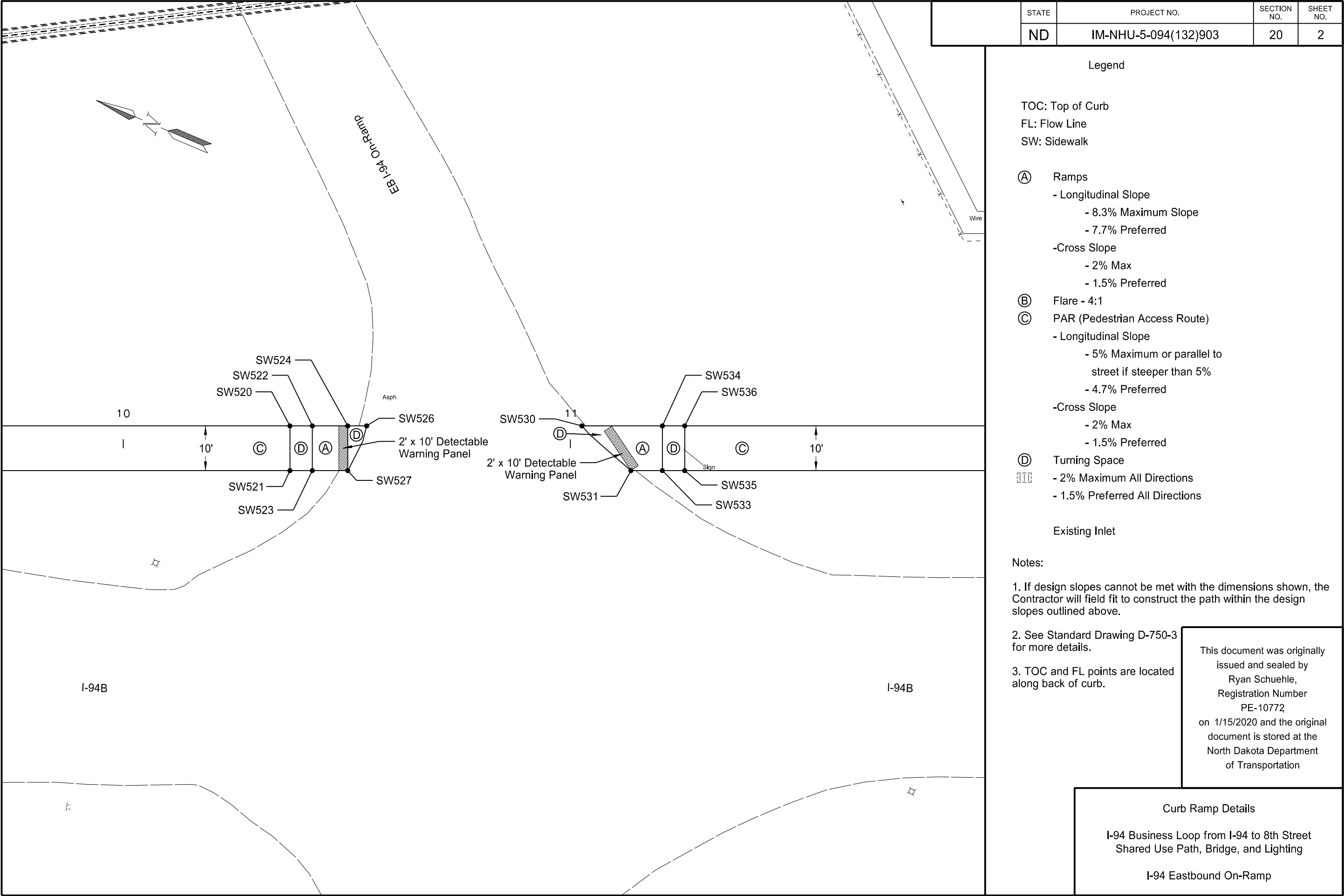


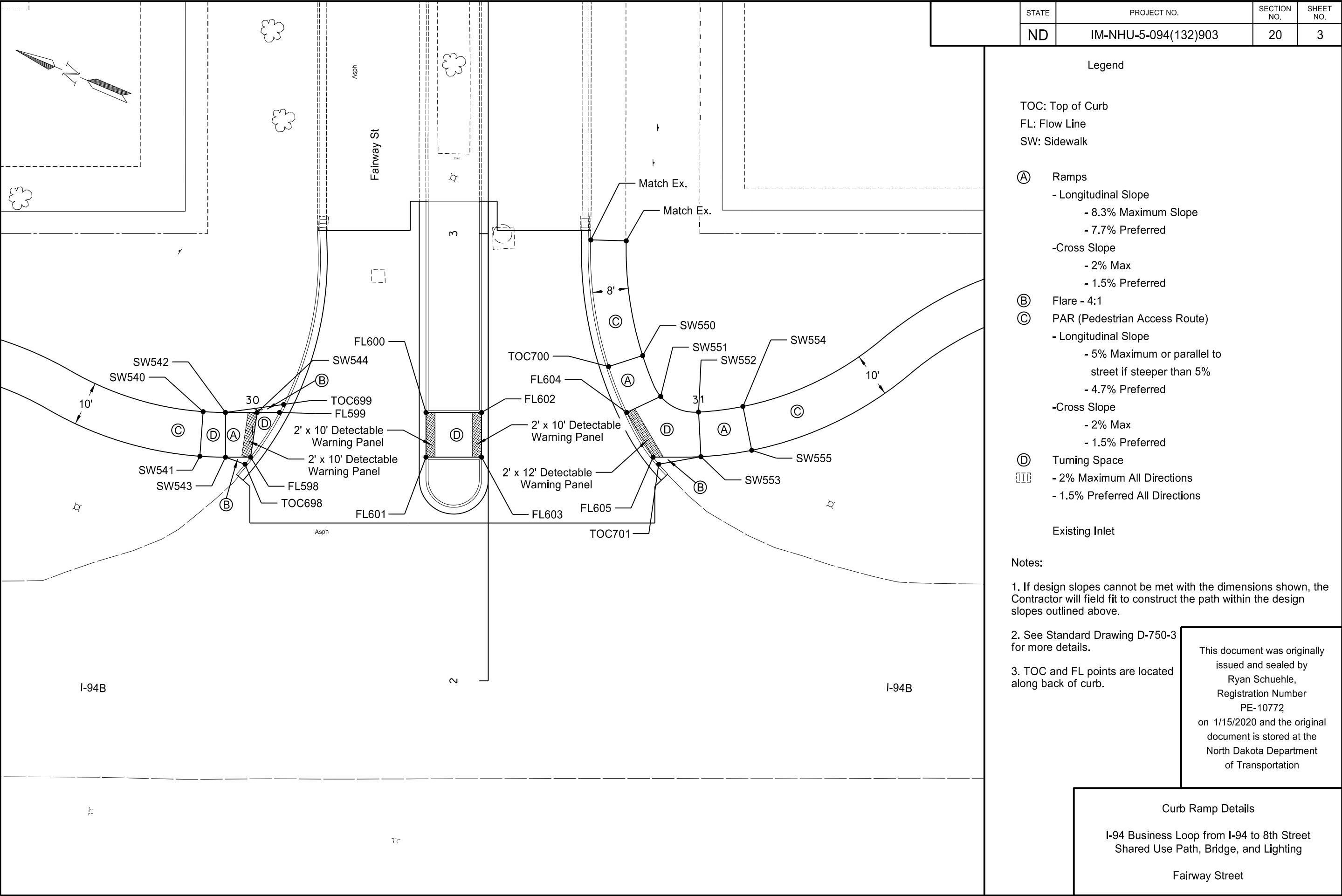
Common Excavation - Type A	Embankment	Temporary Embankment	Borrow-Excavation
CY	CY	CY	CY
A	B	CY	D = A - B -C
151	19129	102	18876

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Earthwork Mass Diagram

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Legend

- TOC: Top of Curb
FL: Flow Line
SW: Sidewalk
- Ⓐ Ramps
- Longitudinal Slope
- 8.3% Maximum Slope
- 7.7% Preferred
- Cross Slope
- 2% Max
- 1.5% Preferred
- Ⓑ Flare - 4:1
- Ⓒ PAR (Pedestrian Access Route)
- Longitudinal Slope
- 5% Maximum or parallel to street if steeper than 5%
- 4.7% Preferred
- Cross Slope
- 2% Max
- 1.5% Preferred
- Ⓓ Turning Space
- 2% Maximum All Directions
- 1.5% Preferred All Directions

Existing Inlet

Notes:

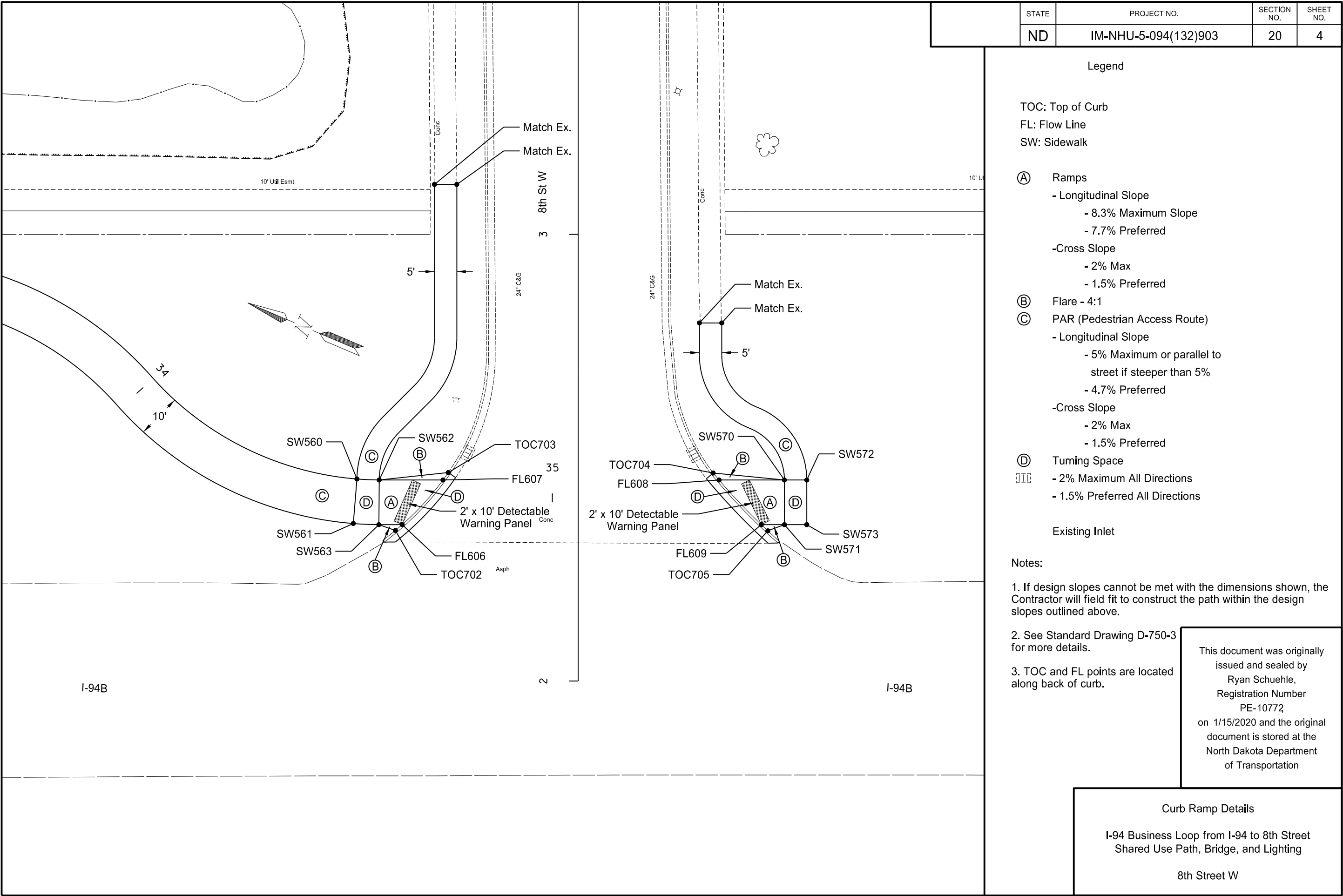
- If design slopes cannot be met with the dimensions shown, the Contractor will field fit to construct the path within the design slopes outlined above.
- See Standard Drawing D-750-3 for more details.
- TOC and FL points are located along back of curb.

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Curb Ramp Details

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

Fairway Street



Flow Line			
Point	Northing	Easting	Elevation
FL598	453458.00	1387109.49	2456.65
FL599	453455.95	1387121.22	2456.58
FL600	453425.80	1387134.01	2457.11
FL601	453421.90	1387124.80	2457.14
FL602	453414.36	1387138.86	2457.11
FL603	453410.45	1387129.66	2457.14
FL604	453384.49	1387151.54	2456.25
FL605	453375.17	1387144.62	2456.34
FL606	453043.36	1387269.06	2456.30
FL607	453038.86	1387281.83	2456.34
FL608	452981.96	1387305.97	2456.34
FL609	452969.35	1387300.45	2456.41

Sidewalk			
Point	Northing	Easting	Elevation
SW500	456033.91	1386013.67	2479.43
SW501	456037.82	1386022.88	2479.63
SW502	456029.31	1386015.63	2479.43
SW503	456033.21	1386024.83	2479.63
SW504	456023.78	1386017.97	2479.00
SW506	456013.39	1386033.24	2479.24
SW510	455955.35	1386057.86	2479.98
SW511	455947.12	1386050.49	2480.20
SW512	455951.02	1386059.69	2480.07
SW513	455941.59	1386052.83	2480.50
SW514	455945.50	1386062.04	2480.30
SW515	455936.99	1386054.78	2480.50
SW516	455940.90	1386063.99	2480.30
SW520	455250.21	1386356.94	2483.71
SW521	455246.31	1386347.73	2483.91
SW522	455245.61	1386358.89	2483.71
SW523	455241.70	1386349.68	2483.91
SW524	455238.21	1386361.98	2483.36
SW526	455234.41	1386363.64	2483.28
SW527	455234.41	1386352.78	2483.56
SW530	455190.10	1386382.43	2482.72
SW531	455176.10	1386377.51	2482.51
SW533	455169.62	1386380.26	2482.58
SW534	455173.53	1386389.46	2482.78
SW535	455165.02	1386382.21	2482.58
SW536	455168.92	1386391.41	2482.78
SW540	453471.73	1387114.73	2456.90
SW541	453468.50	1387105.26	2456.70
SW542	453467.06	1387116.51	2456.90
SW543	453463.15	1387107.30	2456.70
SW544	453460.55	1387119.27	2456.68
SW550	453386.17	1387164.64	2456.82
SW551	453378.90	1387157.80	2456.41
SW552	453369.75	1387157.89	2456.65
SW553	453365.36	1387148.90	2456.45
SW554	453361.10	1387162.92	2456.65
SW555	453355.46	1387154.66	2456.45
SW560	453056.69	1387274.52	2456.90
SW561	453053.54	1387265.03	2456.70
SW562	453052.00	1387276.26	2456.90
SW563	453048.18	1387267.02	2456.70
SW570	452968.50	1387311.68	2456.70
SW571	452964.60	1387302.47	2456.50
SW572	452963.90	1387313.63	2456.70
SW573	452959.99	1387304.42	2456.50

Top of Curb			
Point	Northing	Easting	Elevation
TOC698	453458.52	1387107.57	2456.99
TOC699	453455.79	1387123.22	2457.05
TOC700	453392.23	1387159.41	2456.66
TOC701	453373.39	1387143.68	2456.72
TOC702	453044.25	1387267.27	2456.84
TOC703	453038.43	1387283.82	2456.81
TOC704	452983.80	1387306.90	2456.78
TOC705	452967.48	1387299.76	2456.85

Points SW505, SW507-SW509, SW517-SW519, SW525, SW528, SW529, SW532, SW537-SW539, SW545-SW549, SW556-SW559, and SW564-SW569 are not used.

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Curb Ramp Points

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

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Erosion Control Blanket (ECB)					
Location to be Protected	Culvert Type	Pipe Diam (Inch)	No.	Unit Quantity	Total Quantity
				(SY)	Type 2 (SY)
14+00 <PRPATH>	CL	30	1	22	22

Note: Based on 4:1 slope.

Erosion Control Blanket (ECB)					
Location to be Protected	Culvert Type	Pipe Diam (Inch)	No.	Unit Quantity	Total Quantity
				(SY)	Type 2 (SY)
2+55 <PRFAIRWAY>	Appr	30	2	27	54
2+51 <PR8THST>	Appr	36	1	30	30

Note: Based on 8:1 slope.

255 0102 ECB Type 2
(NHU) 106 SY

APPROACH CULVERTS					
DIA	X	Y	Surface area to be protected	ECB	
In	Ft	Ft	SF	SY	
15	9.0	20.0	176.0	20	
18	9.5	20.7	190.7	22	
21	9.5	21.0	190.9	22	
24	10.5	21.6	214.1	24	
27	11.0	22.0	226.3	25	
30	11.6	22.5	241.5	27	
36	12.7	23.3	268.8	30	
42	13.3	23.3	279.7	31	
48	13.8	24.0	293.2	33	
54	14.5	23.4	300.6	34	
60	15.0	23.0	307.5	35	
66	15.6	24.0	325.6	37	
72	16.2	24.5	340.6	38	

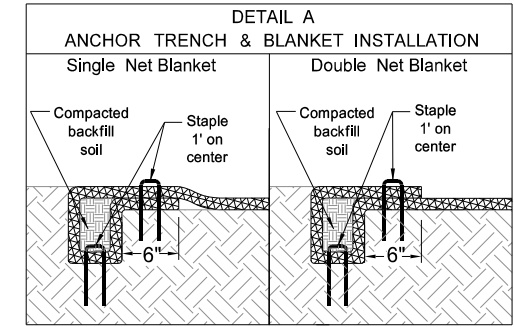
Note: Quantities based on 8:1 slope.

CENTERLINE CULVERTS					
DIA	X	Y	Surface area to be protected	ECB	
In	Ft	Ft	SF	SY	
24	10.5	19.6	193.1	22	
27	11.0	20.0	204.3	23	
30	11.6	20.5	218.3	25	
36	12.7	21.2	242.1	27	
42	13.3	21.2	251.8	28	
48	13.8	22.0	265.6	30	
54	14.5	21.5	273.7	31	
60	15.0	21.0	278.3	31	
66	15.6	22.0	295.7	33	
72	16.2	22.5	309.2	35	

Note: Quantities based on 6:1 slope.

DIA	X	Y	Surface area to be protected	ECB	
In	Ft	Ft	SF	SY	
24	10.5	17.6	172.1	20	
27	11.0	18.0	182.3	21	
30	11.6	18.5	195.1	22	
36	12.7	19.2	216.7	24	
42	13.3	19.2	225.2	25	
48	13.8	20.0	238.0	27	
54	14.5	19.5	244.7	28	
60	15.0	19.0	248.3	28	
66	15.6	20.0	264.5	30	
72	16.2	20.5	276.8	31	

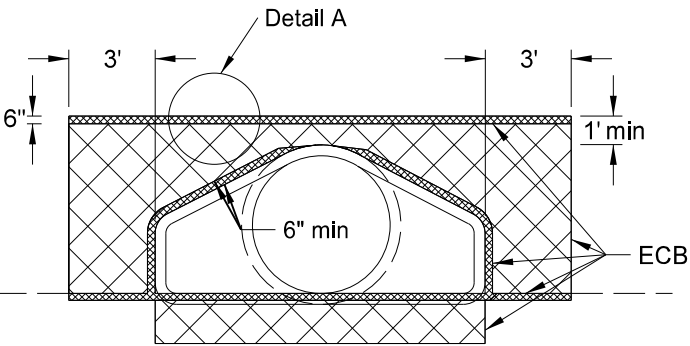
Note: Quantities based on 4:1 slope.



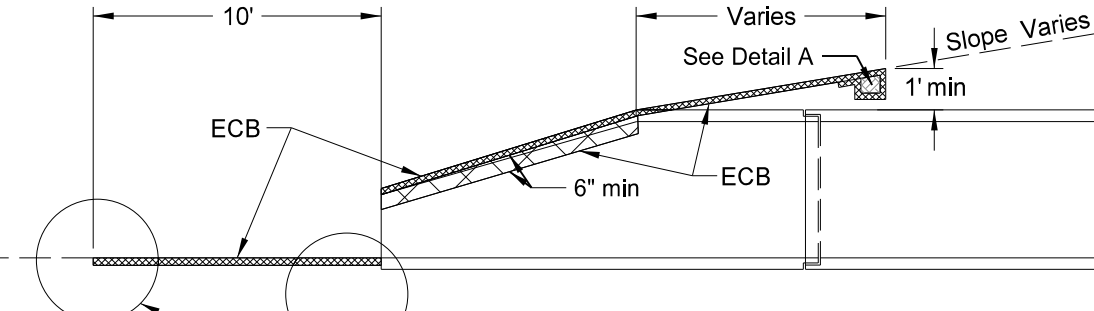
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Erosion Control at Culvert Flared End Sections

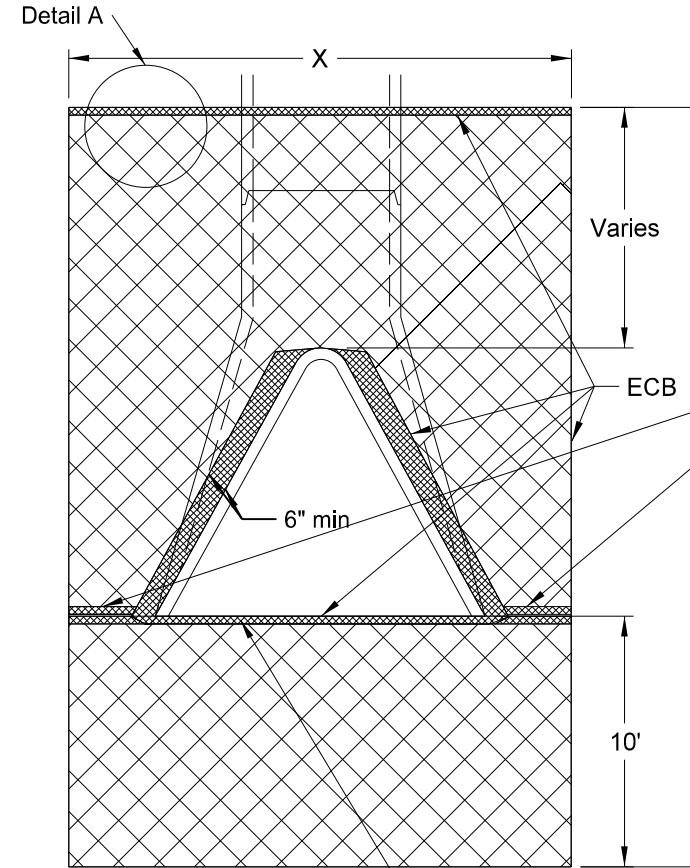
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting



FRONT VIEW

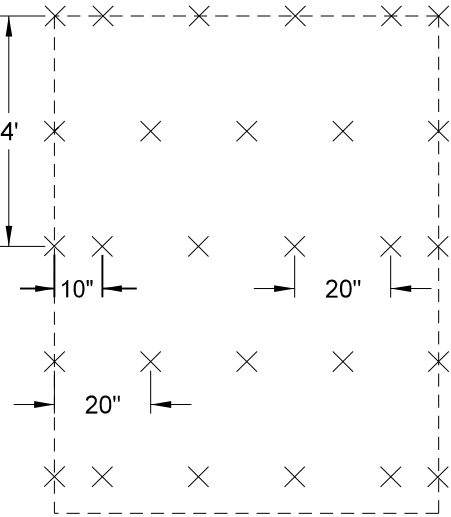


SIDE VIEW



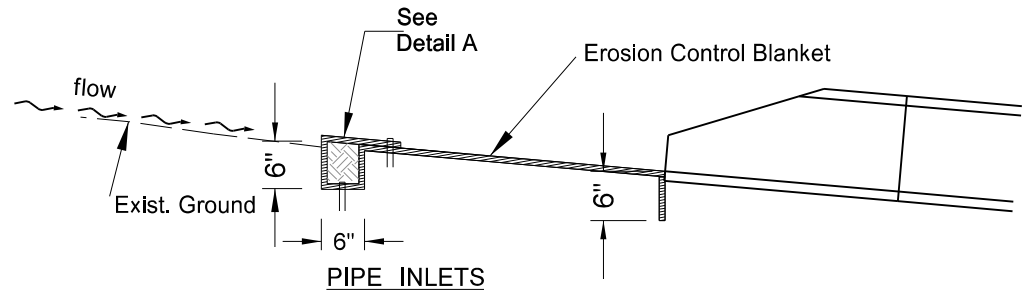
TOP VIEW

Tuck this end a minimum of 6" into the embankment.

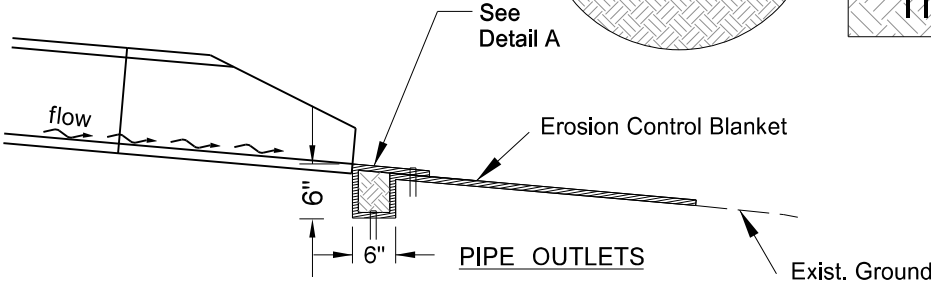


STAPLE PATTERN

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

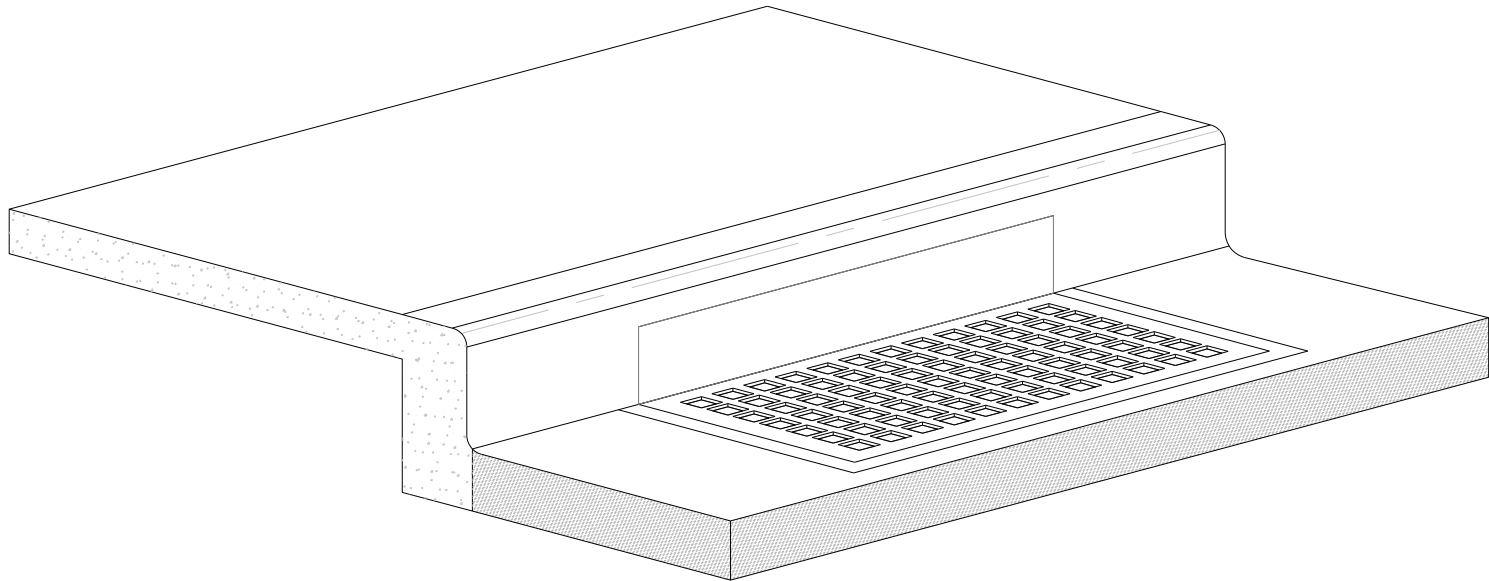


PIPE INLETS



PIPE OUTLETS

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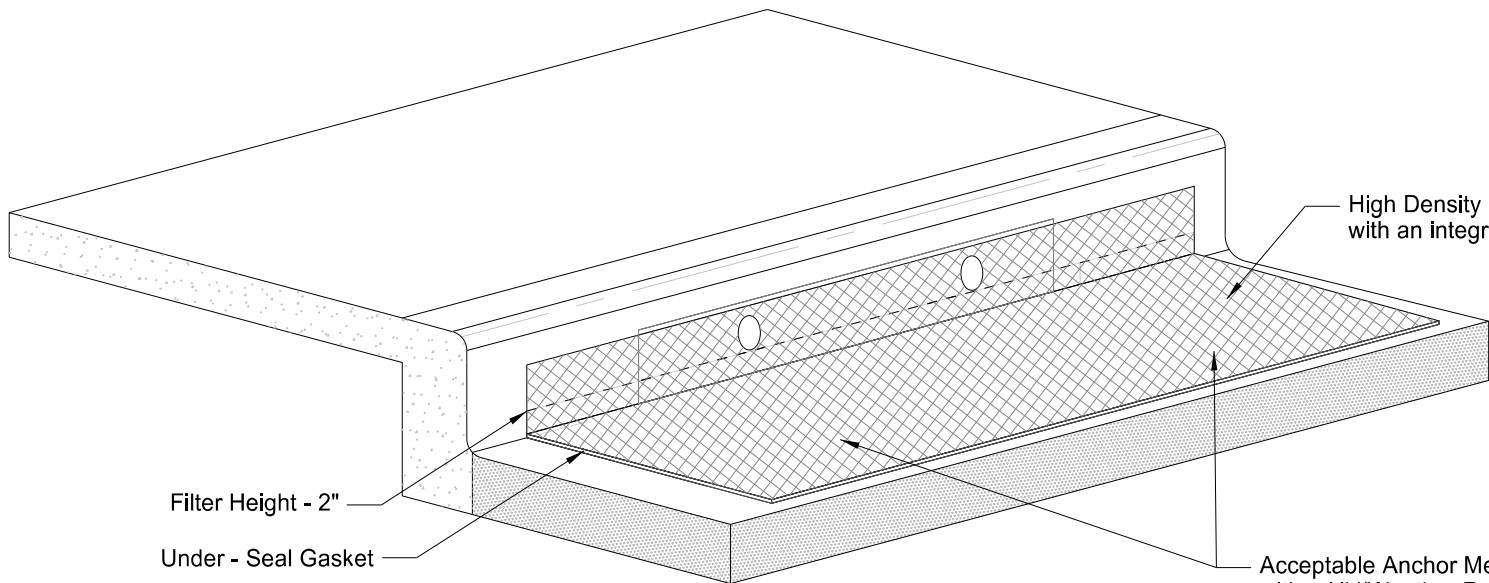
Inlet Protection Device

Installation Notes:

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

General Notes:

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



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

Filter Height - 2"
Under - Seal Gasket

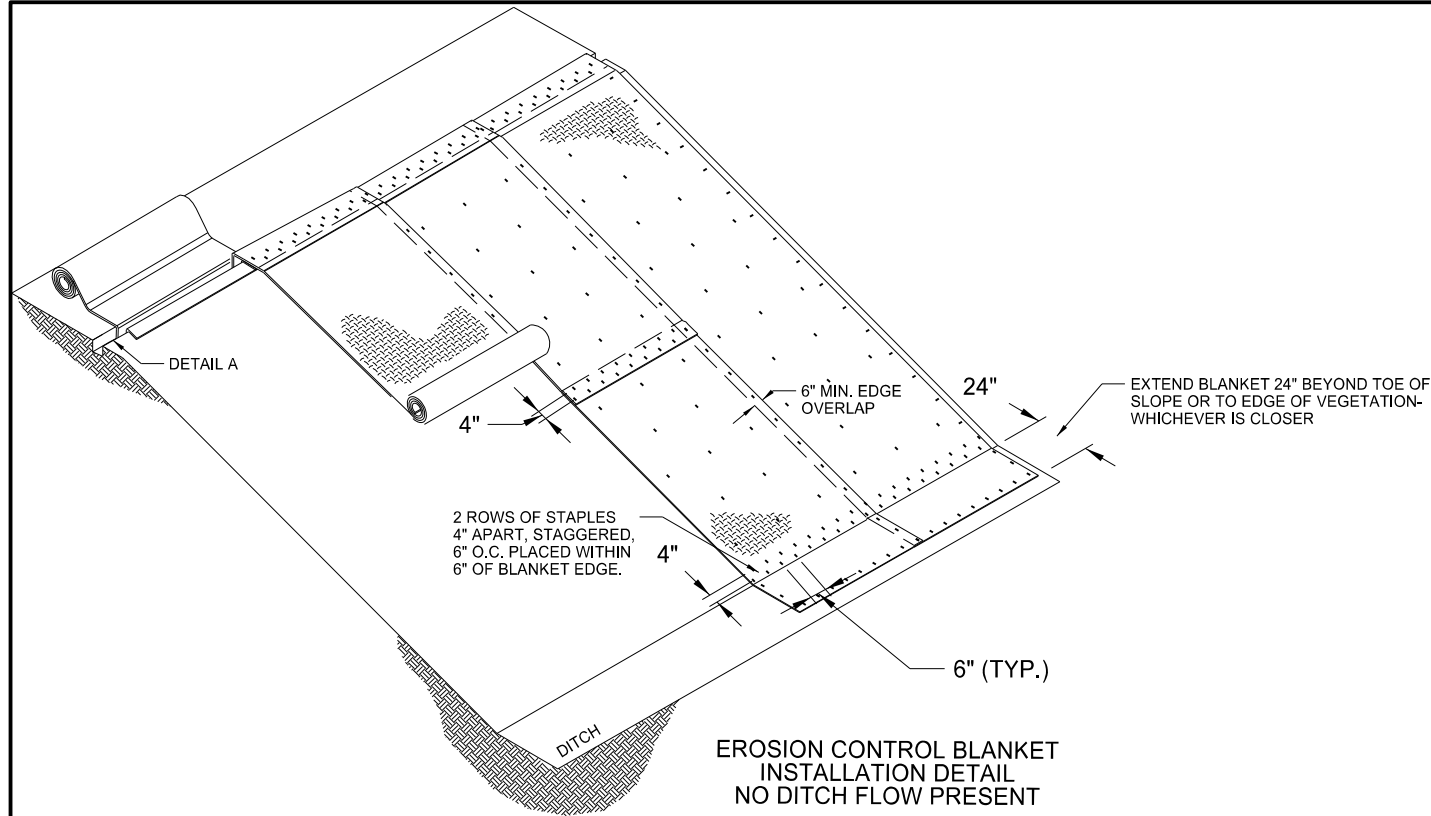
Acceptable Anchor Method: Fasten to inlet casting grate with a UV/Weather Resistant Plastic Cable Zip Ties - 16 to 24 in. Install zip ties at each corner of the inlet near the perimeter and two additional zip ties near the middle of the casting. Punch hole through filter and run cable tie downward around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

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Inlet Protection Device

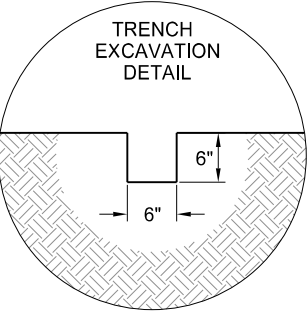
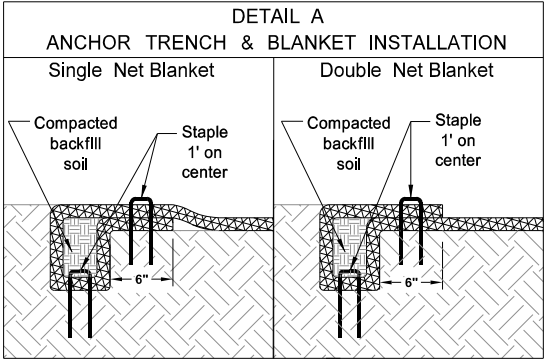
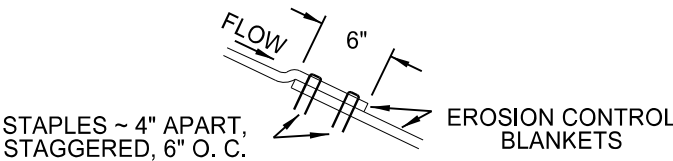
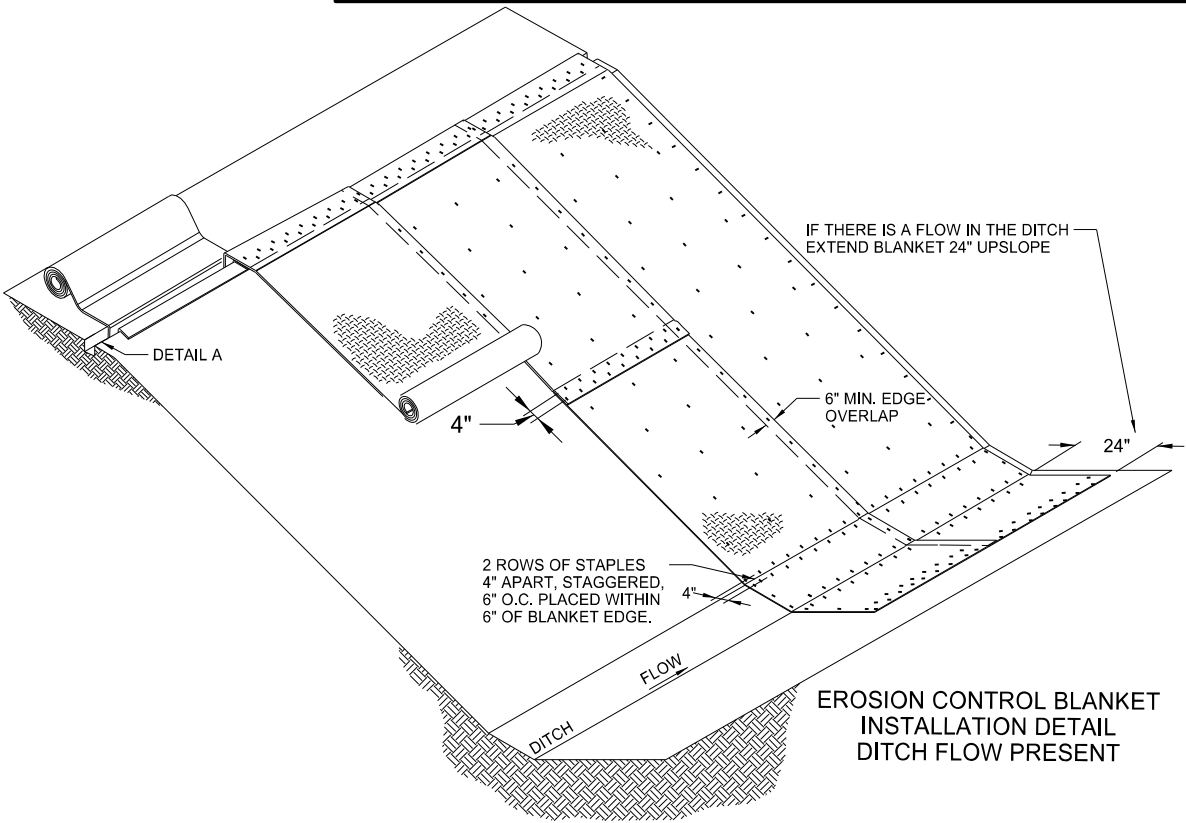
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	20	8

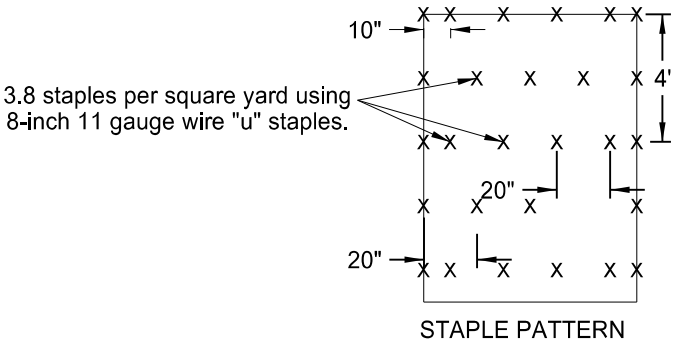


INSTALLATION STEPS:

1. Prepare smooth slope per spec. section 255
2. Amend soil and seed, as specified.
3. Dig anchor trench. Set aside native soil removed from trench.
4. Secure blanket in anchor trench, staking or stapling blanket as shown.
5. Replace native soil previously removed from trench.
6. Staple blanket as shown so there are no gaps between the blanket and the soil.
Staple while unrolling blanket to minimize walking on blanket.
7. Install splices a minimum 24 inches prior to toe of slope.



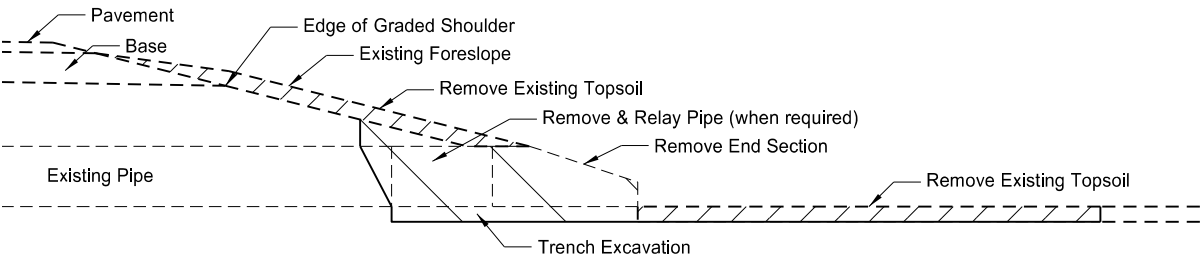
NOTE:
Install Single Net Blanket with netting on top of installed blanket.



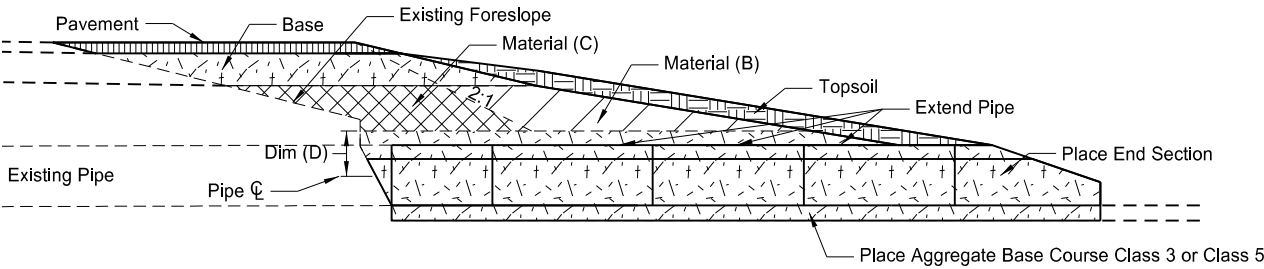
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Slope Erosion Control Blanket Installation Details

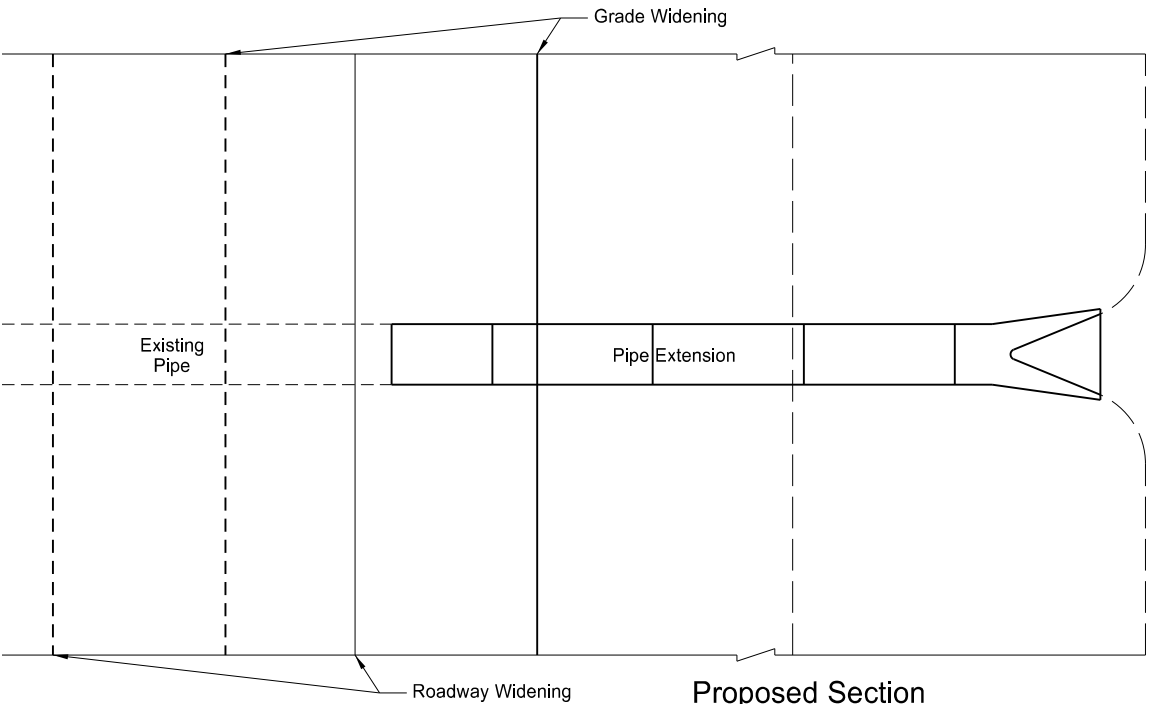
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting



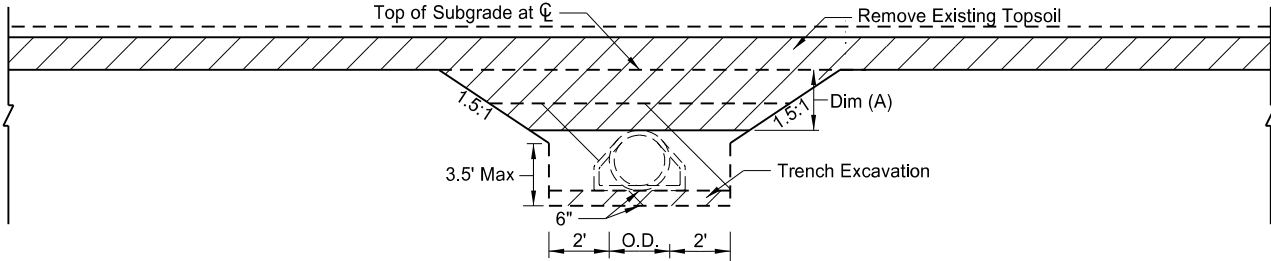
Removal Section
Cross Section View



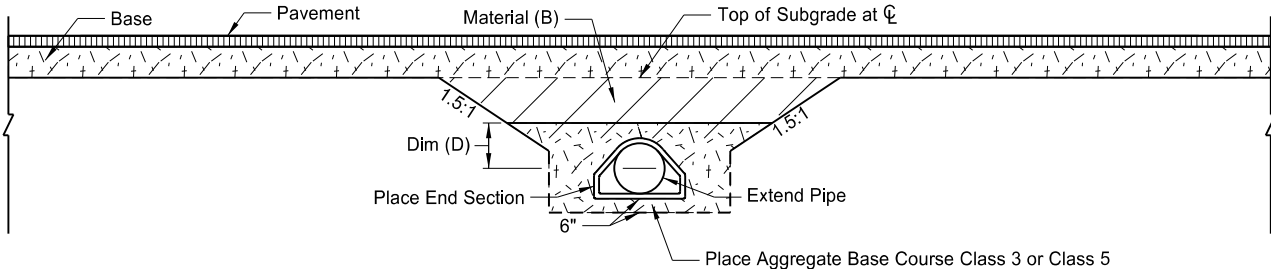
Proposed Section
Cross Section View



Proposed Section
Plan View



Removal Detail
Side View



Backfill Detail
Side View (Topsoil not shown)

Pay Items

- 1) Pipe*
- 2) Remove & Relay Pipe - All Types & Sizes (when required)
- 3) Remove & Reset End Section or
Remove End Section and Place New End Section
- 4) Borrow Excavation or Common Excavation
- 5) Topsoil
- 6) Seeding
- 7) Mulching

*Included in Pipe Pay Item

- 1) Pipe
- 2) Trench excavation
- 3) Aggregate Base Course Class 3 or Class 5

Pipe Materials	Dim (A) <= 4 Feet		Backfill Dimension
	Material (B)	Material (C)	Dim (D)
Concrete	Embank or Aggr	Aggregate	0.5 O.D.
Metal	Embank or Aggr	Aggregate	0.5 O.D. + 1 Foot

Pipe Materials	Dim (A) > 4 Feet		Backfill Dimension
	Material (B)	Material (C)	Dim (D)
Concrete	Embankment	Embankment	0.5 O.D.
Metal	Embankment	Embankment	0.5 O.D. + 1 Foot

NOTES:

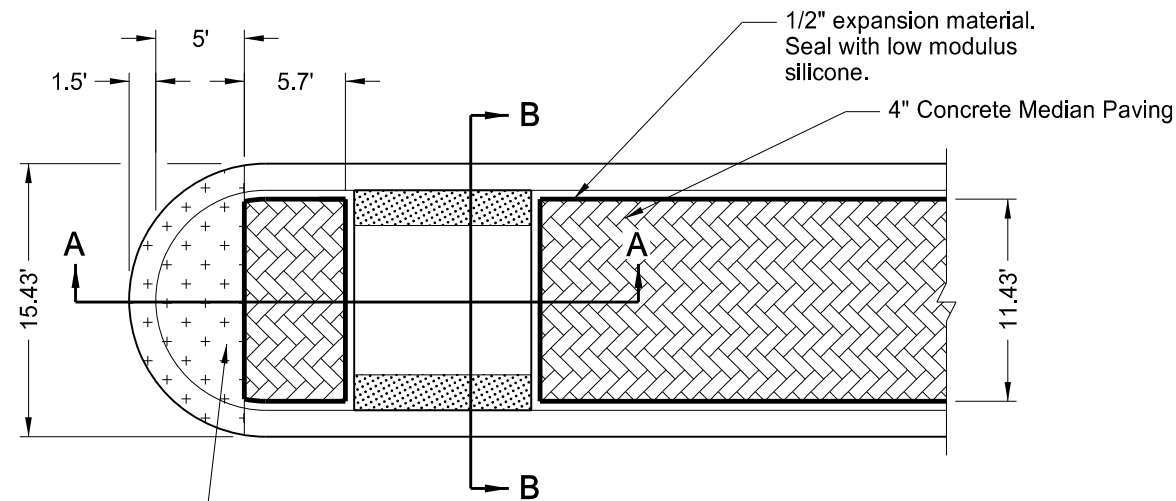
1. Embankment may be either Borrow Excavation or Common Excavation
2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.

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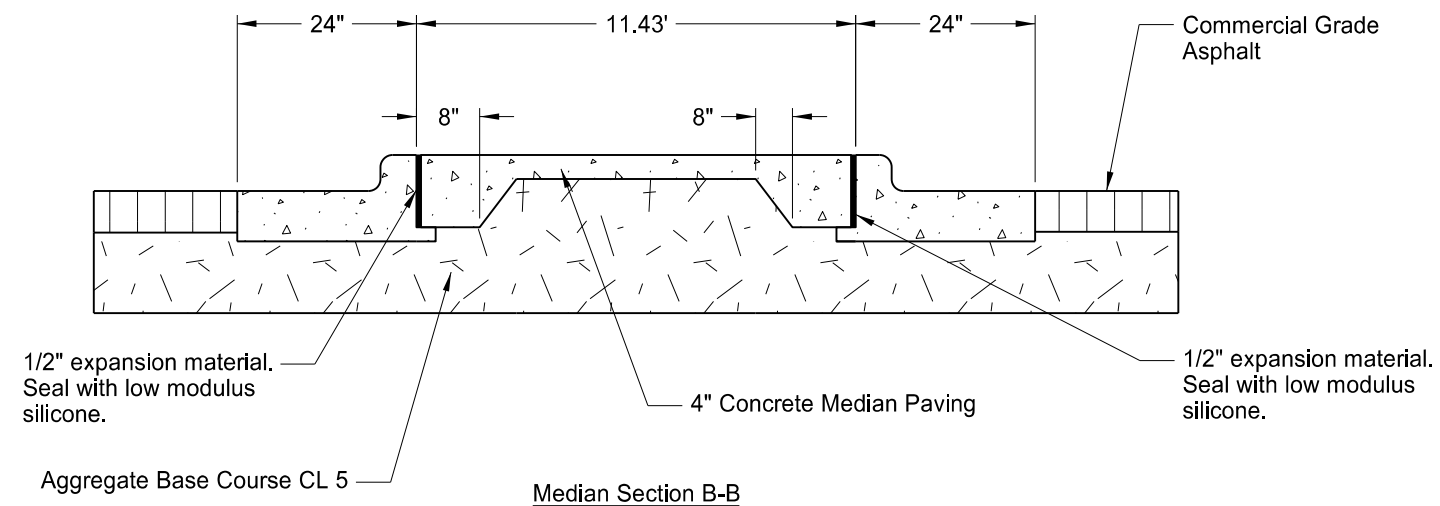
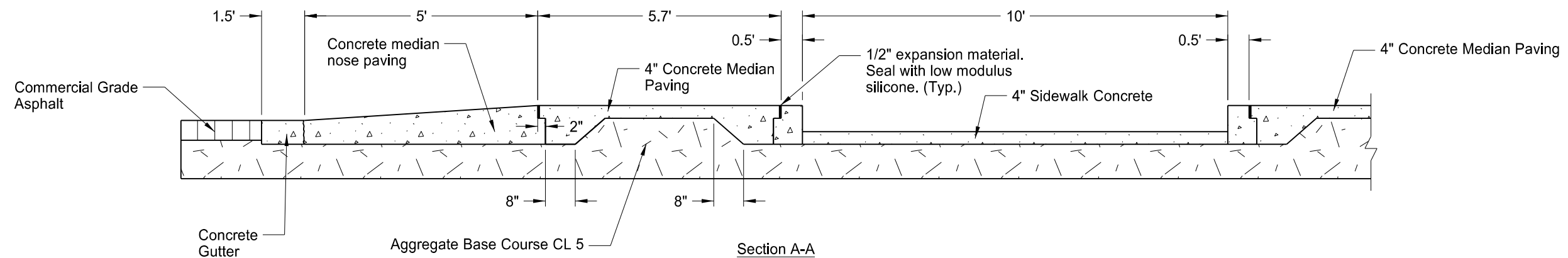
Mainline Widening CL Pipe Extension Detail

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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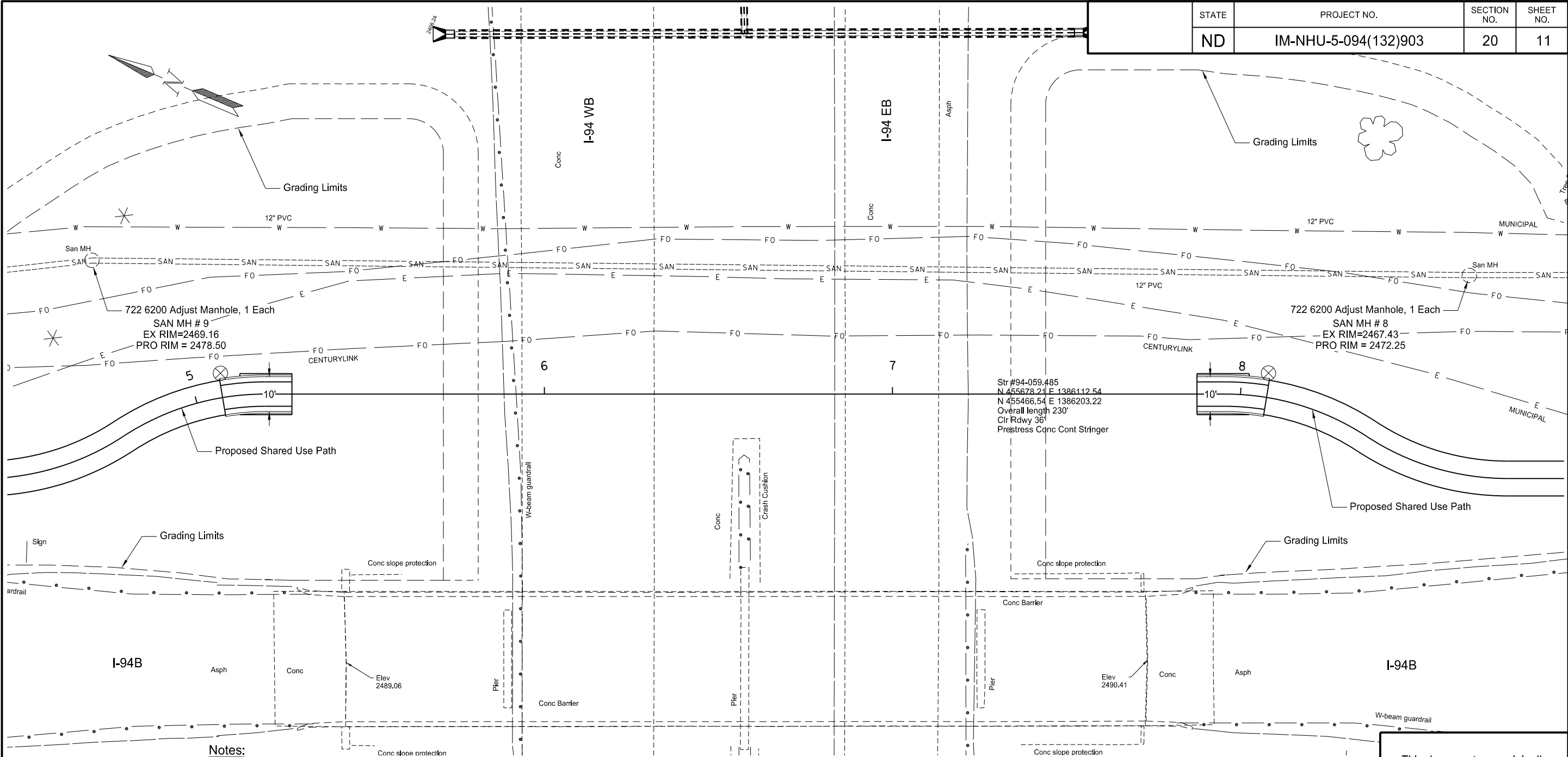
P.C.C. Pavement and standard curb & gutter at these locations (hatched area) to be paid for as "Concrete Median Nose Paving" - S.Y.



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Concrete Median Paving Details
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

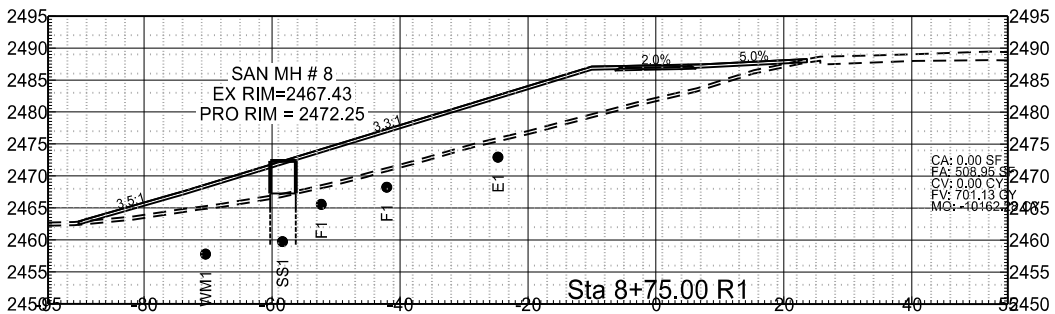
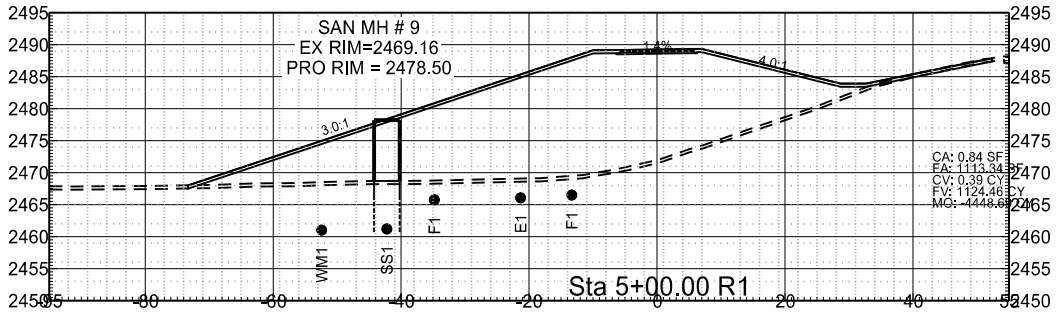
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	20	11



Notes:

Include all necessary materials, parts, labor, equipment, and incidentals to adjust the vertical height of the existing sanitary sewer manhole casting as indicated.

Additional precast concrete manhole section, manhole steps, adjustment rings, grading, and incidentals needed to raise the existing manhole to the new inslope elevation is incidental to the bid item 722 6200 Adjust Manhole, 2 EA.



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Manhole Adjustment

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

Profile view of a sewer line. The horizontal axis represents stationing, with a specific point labeled "Sta 17+75.00 R1". The vertical axis represents elevation in feet. The sewer line is shown as a solid line with a dashed line indicating the existing ground surface. Key features include:

- Manholes:** Labeled "722 6200 Adjust Manhole, 1 Each".
- Elevation Data:**
 - Existing G.W. (Ground Water) at Sta 17+75.00 R1: 2465.39
 - Manhole 1 (at Sta 17+75.00 R1): 2465.39
 - Manhole 2 (at Sta 17+75.00 R1): 2465.39
 - Manhole 3 (at Sta 17+75.00 R1): 2465.39
 - Manhole 4 (at Sta 17+75.00 R1): 2465.39
 - Manhole 5 (at Sta 17+75.00 R1): 2465.39
 - Manhole 6 (at Sta 17+75.00 R1): 2465.39
 - Manhole 7 (at Sta 17+75.00 R1): 2465.39
 - Manhole 8 (at Sta 17+75.00 R1): 2465.39
 - Manhole 9 (at Sta 17+75.00 R1): 2465.39
 - Manhole 10 (at Sta 17+75.00 R1): 2465.39
 - Manhole 11 (at Sta 17+75.00 R1): 2465.39
 - Manhole 12 (at Sta 17+75.00 R1): 2465.39
 - Manhole 13 (at Sta 17+75.00 R1): 2465.39
 - Manhole 14 (at Sta 17+75.00 R1): 2465.39
 - Manhole 15 (at Sta 17+75.00 R1): 2465.39
 - Manhole 16 (at Sta 17+75.00 R1): 2465.39
 - Manhole 17 (at Sta 17+75.00 R1): 2465.39
 - Manhole 18 (at Sta 17+75.00 R1): 2465.39
 - Manhole 19 (at Sta 17+75.00 R1): 2465.39
 - Manhole 20 (at Sta 17+75.00 R1): 2465.39
 - Manhole 21 (at Sta 17+75.00 R1): 2465.39
 - Manhole 22 (at Sta 17+75.00 R1): 2465.39
 - Manhole 23 (at Sta 17+75.00 R1): 2465.39
 - Manhole 24 (at Sta 17+75.00 R1): 2465.39
 - Manhole 25 (at Sta 17+75.00 R1): 2465.39
 - Manhole 26 (at Sta 17+75.00 R1): 2465.39
 - Manhole 27 (at Sta 17+75.00 R1): 2465.39
 - Manhole 28 (at Sta 17+75.00 R1): 2465.39
 - Manhole 29 (at Sta 17+75.00 R1): 2465.39
 - Manhole 30 (at Sta 17+75.00 R1): 2465.39
 - Manhole 31 (at Sta 17+75.00 R1): 2465.39
 - Manhole 32 (at Sta 17+75.00 R1): 2465.39
 - Manhole 33 (at Sta 17+75.00 R1): 2465.39
 - Manhole 34 (at Sta 17+75.00 R1): 2465.39
 - Manhole 35 (at Sta 17+75.00 R1): 2465.39
 - Manhole 36 (at Sta 17+75.00 R1): 2465.39
 - Manhole 37 (at Sta 17+75.00 R1): 2465.39
 - Manhole 38 (at Sta 17+75.00 R1): 2465.39
 - Manhole 39 (at Sta 17+75.00 R1): 2465.39
 - Manhole 40 (at Sta 17+75.00 R1): 2465.39
 - Manhole 41 (at Sta 17+75.00 R1): 2465.39
 - Manhole 42 (at Sta 17+75.00 R1): 2465.39
 - Manhole 43 (at Sta 17+75.00 R1): 2465.39
 - Manhole 44 (at Sta 17+75.00 R1): 2465.39
 - Manhole 45 (at Sta 17+75.00 R1): 2465.39
 - Manhole 46 (at Sta 17+75.00 R1): 2465.39
 - Manhole 47 (at Sta 17+75.00 R1): 2465.39
 - Manhole 48 (at Sta 17+75.00 R1): 2465.39
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 - Manhole 63 (at Sta 17+75.00 R1): 2465.39
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 - Manhole 68 (at Sta 17+75.00 R1): 2465.39
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 - Manhole 91 (at Sta 17+75.00 R1): 2465.39
 - Manhole 92 (at Sta 17+75.00 R1): 2465.39
 - Manhole 93 (at Sta 17+75.00 R1): 2465.39
 - Manhole 94 (at Sta 17+75.00 R1): 2465.39
 - Manhole 95 (at Sta 17+75.00 R1): 2465.39
 - Manhole 96 (at Sta 17+75.00 R1): 2465.39
 - Manhole 97 (at Sta 17+75.00 R1): 2465.39
 - Manhole 98 (at Sta 17+75.00 R1): 2465.39
 - Manhole 99 (at Sta 17+75.00 R1): 2465.39
 - Manhole 100 (at Sta 17+75.00 R1): 2465.39
- Other Labels:** "Elevation", "W.M.I.", "S.S.I.", "C.M.I.", "F.I.", "2.5'".

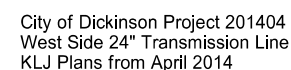
Notes:

Include all necessary materials, parts, labor, equipment, and incidentals to adjust the vertical height of the existing air release valve & manhole casting, tracer box, and surrounding concrete from rim elevation 2460.20 to 2462.70.

See plan detail from City project, shop drawings, and site photographs below for information on existing manhole.

Additional 3" rigid insulation, tracer wire, precast concrete manhole section, manhole steps, adjustment rings, grading, and incidentals needed to raise the existing manhole to the new inslope elevation is incidental to the bid item 722 6200 Adjust Manhole, 1 EA.

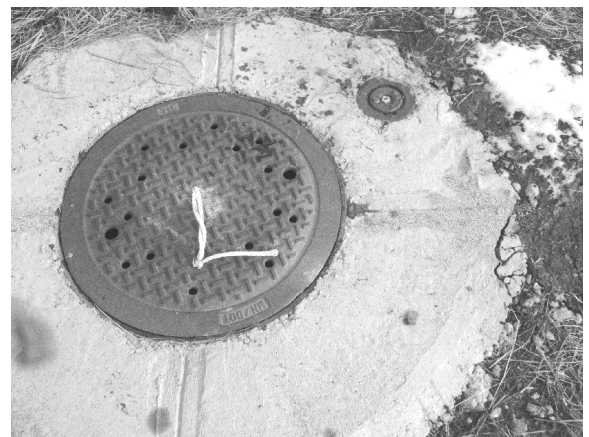
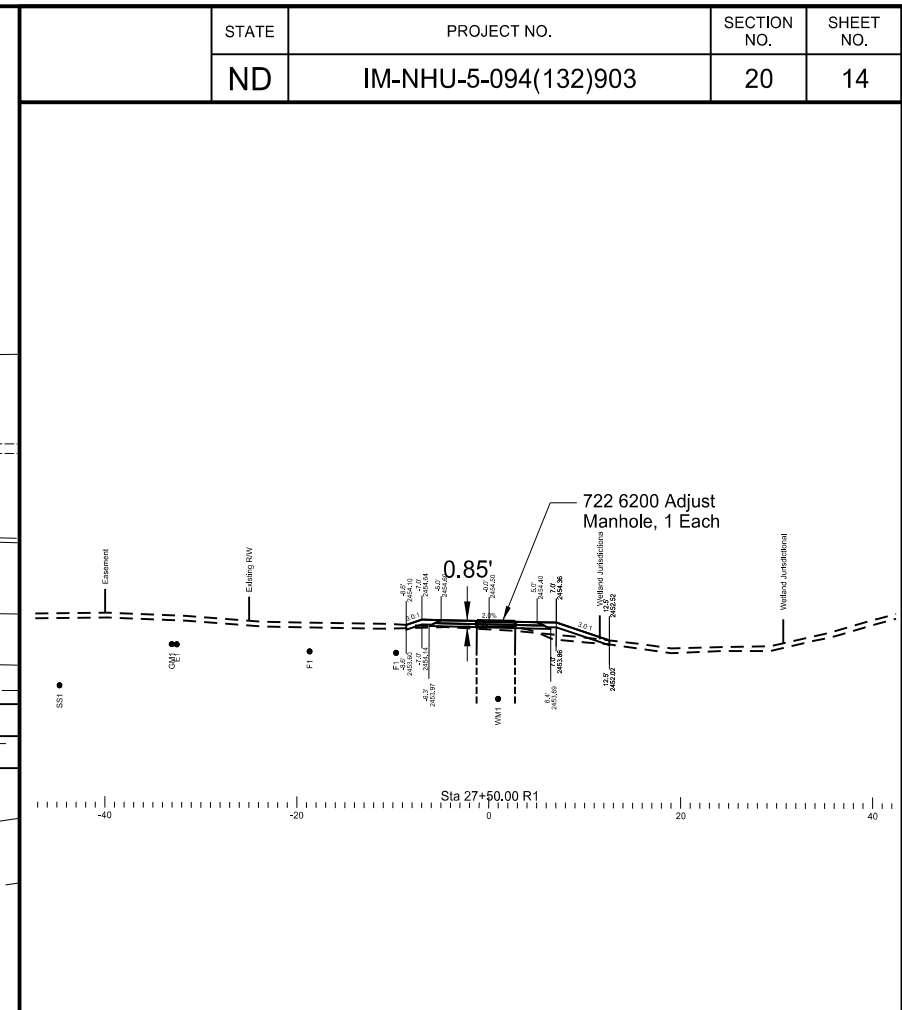
The technical drawing shows a plan view of utility infrastructure. At the top left, there is a north arrow pointing towards the upper right. A vertical line labeled 'MDU' runs through the center-left. Horizontal lines represent various utilities: 'SAN' (Sanitary) pipes at the top, followed by 'FO' (Fiber Optic) lines, and 'MUNICIPAL' water lines at the bottom. Key features include a 'San Vault' near the top center, an 'FO Locker' labeled '16' on the left, and two points labeled '17' and '18' further along the horizontal lines. A dashed line indicates the 'Proposed Shared Use Path'. Another dashed line marks the 'Grading Limits'. On the right side, a 'Water MH' (Manhole) is shown with a 'WSV' (Water Service Valve) nearby. An elevation of '8.27'' is noted near the water manhole. A label 'CENTURYLINK' is visible on the far right. A note at the bottom right specifies '722 6200 Adjust Manhole, 1 Each'. A vertical line on the left is labeled '30" PVC'. The drawing uses standard engineering symbols for pipes, valves, and structures.

v5.1.91 Page 3 06/03/2014

- ## I-94 Business Loop from I-94 to 8th Street Shared Use Path, Bridge, and Lighting

Include all necessary materials, parts, labor, equipment, and incidentals to adjust the vertical height of the existing air release valve & manhole casting, tracer box, and surrounding concrete from rim elevation 2453.65 to 2454.50.

Additional 3" rigid insulation, tracer wire, precast concrete manhole section, manhole steps, adjustment rings, grading, and incidentals needed to raise the existing manhole to the new shared use path elevation is incidental to the bid item 722 6200 Adjust Manhole, 1 EA. _____ w _____ w 12" PVC _____



494224 SUBMITTAL/VIEW 2 14003

Page 5 of 10

Cretex Concrete Products

2616 Sarnow Road, Suite 2
Riverside City, CA 92507
Phone: (951) 715-4111
Fax: (951) 715-6008
www.cretexconcreteproducts.com

Contractor: Wagner Construction, Inc.
Project: JOHNSON WEST SIDE 24"
TRANSMISSION LINE
Location: Orange, CA
Order Number: 4914224WHN
Remarks:

Waterman
60" (I.D.) Air Release Vault
AIR-4
Date: 04/18/2014 Revised: 06/03/2014
Plant: 58 MENDEN
Coordinator: CASEY BENSON

Design Build Height

Top of Casting	+ 2,454.08
Outlet Invert	= 2,443.98
Wall Top/Inv Adj	= - .79
Design Height	= 10.88
Casting/Adj. Ring	= - 1.04
Manhole Hgt	= 9.85

Stack Build Height

Casting	+ .58
Adjusting Ring	+ .46
Cover Slab	+ .67
Riser	+ 9.13
Base Thickness	+ .67
Outside Height	= 11.51

Pipe Footage

LD LF Description

Elevation

Station: 28+25.00 Center

Opening Schedule

D	Pipe Size	Invert	Invert/Pipe Up 0.0	Opening/Connector	Top of C-Line Blm of Hole Up	Blm of Hole Up
#1	24" 1505	2443.98	00+23.86	30" DOG	36.48'	37.18'
#2	24" 1505	2443.98	00+25.36	30" DOG	36.48'	37.18'

Plan View

Notes

60" AIR RELEASE VALVE MANHOLE, CASTING BY OTHERS.

Utility Order: 604671

Sheet: 5/6

Item List

ID	Description	Product No	Qty	Weight
A	Frame	(By others)	58	3
B	17.52 Adjusting Ring	620010070200	23	2.180
C	60x60 Con Top 722 4pc Nub	22260608000416	67	2.430
D	16x31 BBL PT 30A	2063011400000031	313	4.077
E	16x60.0 BBL PP 30A	2063011500000060	6101	7.980
F	78x60 Base Slab	235076080900	67	1.530
Total Weight (lbs)				17.912

Misc. Items

Description	Qty
1in x14.5ft JOINT SEAL	5.2

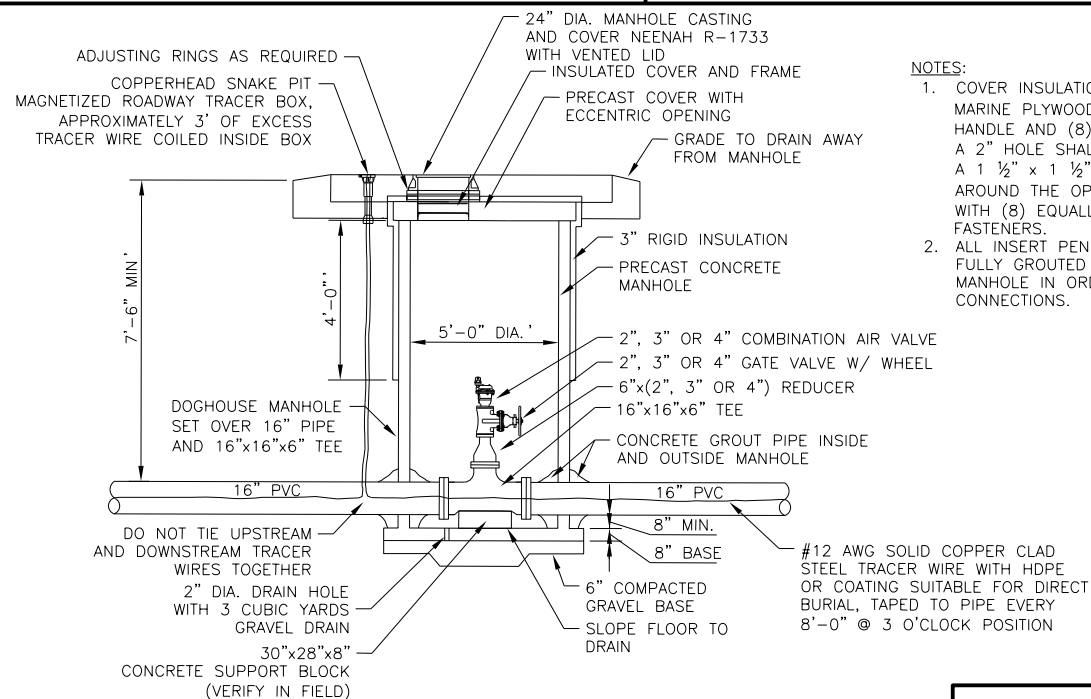
Production Use

Mfg. Date	
Ship Date	
Frame/Man	
Cover/Man	
PREPARE	
POSTPARE	

4.61.91

Page 4

06/03/2014

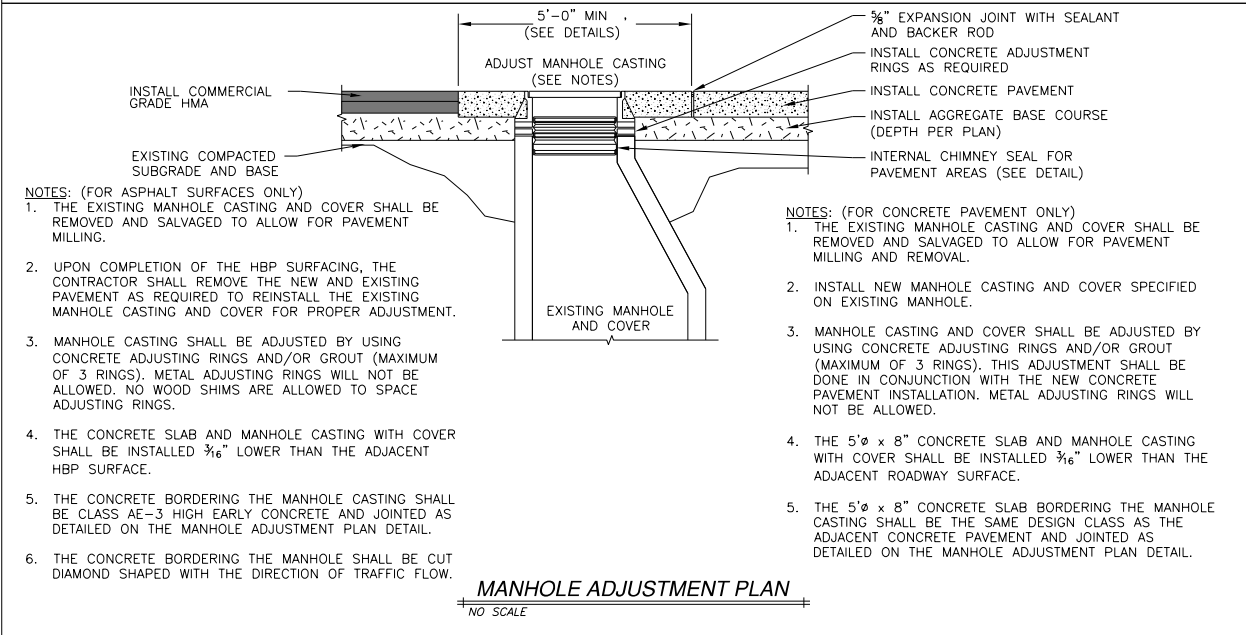
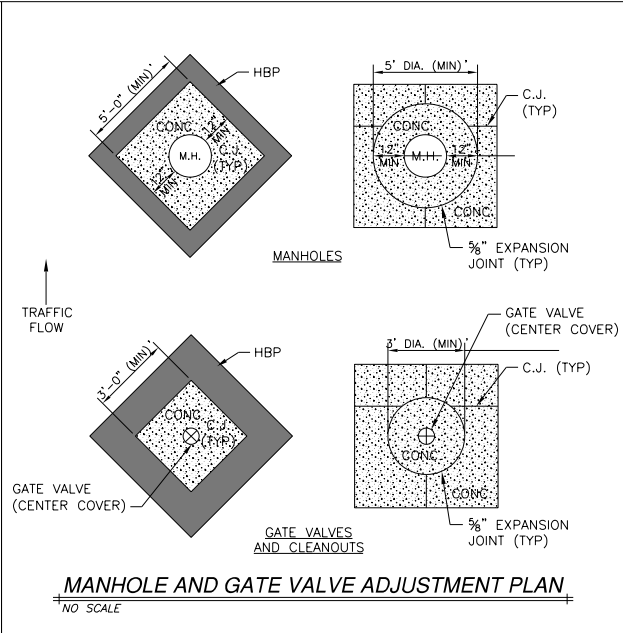
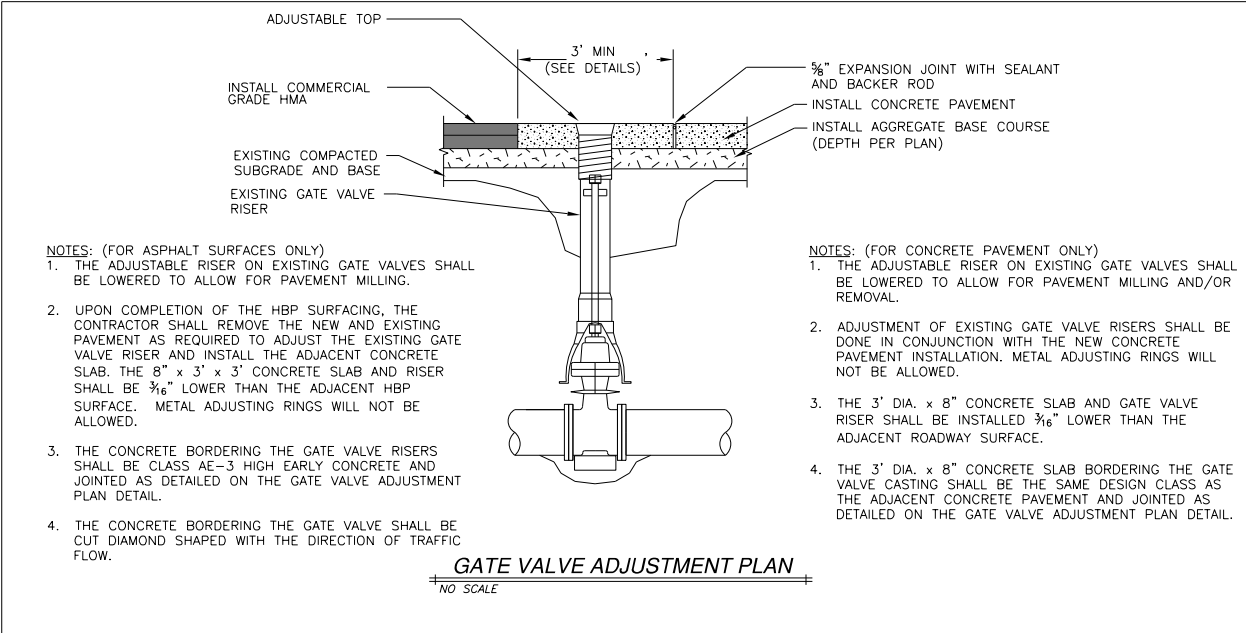


1. COVER INSULATION: 4" RIGID INSULATION COVER, 1/2" MARINE PLYWOOD EACH SIDE WITH GALVANIZED STEEL HANDLE AND (8) STAINLESS STEEL NUTS AND BOLTS. A 2" HOLE SHALL BE DRILLED THROUGH THE COVER. A 1 1/2" x 1 1/2" x 1/8" ALUMINUM ANGLE FRAME AROUND THE OPENING CIRCUMFERENCE ANCHORED WITH (8) EQUALLY SPACED STAINLESS STEEL FASTENERS.
2. ALL INSERT PENETRATIONS IN THE BASE SHALL BE FULLY GROUTED INSIDE AND OUTSIDE OF THE MANHOLE IN ORDER TO ACHIEVE WATER TIGHT CONNECTIONS.

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Manhole Adjustment

I-94 Business Loop from I-94 to 8th Street Shared Use Path, Bridge, and Lighting



Station	Offset	Funding	Feature	Existing Elevation	Proposed Elevation	Nature of Work
4+89	49' LT	IM	Sanitary Sewer Manhole	2469.16	2478.50	See detail sheet 20-11. Pay item 722 6200 Adjust Manhole, 1 EA.
8+38	55' LT	IM	Sanitary Sewer Manhole	2467.43	2472.25	See detail sheet 20-11. Pay item 722 6200 Adjust Manhole, 1 EA.
11+78	37' LT	IM	Watermain Gate Valve	2467.23	2469.50	Raise gate valve height by screwing up riser box stem. Valve is in grading area, no concrete pavement surrounding box. Pay item 722 6140 Adjust Gate Valve Box, 1 EA.
14+53	15' LT	NHU	Watermain Air Release Manhole	2463.18	2465.68	See detail sheet 20-12. Pay item 722 6200 Adjust Manhole, 1 EA.
17+78	12' RT	NHU	Watermain Air Release Manhole	2460.20	2462.70	See detail sheet 20-13. Pay item 722 6200 Adjust Manhole, 1 EA.
27+49	0' RT	NHU	Watermain Air Release Manhole	2453.65	2454.50	See detail sheet 20-14. Pay item 722 6200 Adjust Manhole, 1 EA.
29+67	20' LT	NHU	Watermain Gate Valve	2453.30	2454.50	Raise gate valve height by screwing up riser box stem. Valve is in grading area, no concrete pavement surrounding box. Pay item 722 6140 Adjust Gate Valve Box, 1 EA.
30+28	35' LT	NHU	Watermain Gate Valve	2456.37	2456.72	Raise gate valve height by screwing up riser box stem, pour new concrete collar and surrounding pavement per detail above. Pay item 722 6140 Adjust Gate Valve Box, 1 EA.
30+56	45' LT	NHU	Storm Sewer Manhole	2456.60	2456.80	Raise manhole casting elevation by adding an adjustment ring. Pour new concrete collar and surrounding pavement per detail above. Pay item 722 6200 Adjust Manhole, 1 EA.
30+56	0' LT	NHU	Storm Sewer Manhole	N/A	2456.50	New manhole, see section 60 Pay item 722 0107 Manhole 54IN, 1 EA. Adjustment is incidental to pay item.

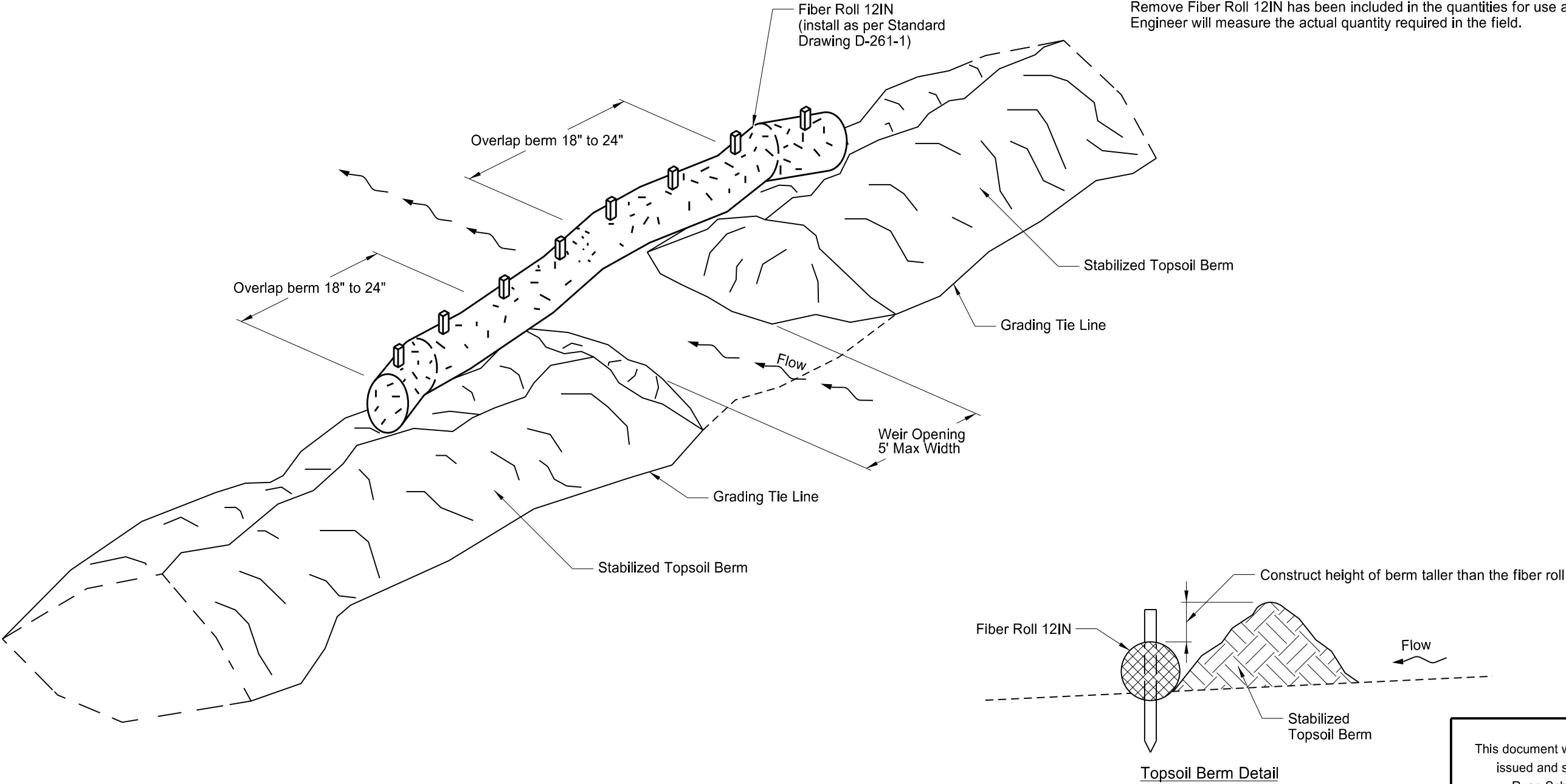
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Manhole and Gate Valve Adjustment

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	20	16

A quantity of 40 LF of IM funded and 80 LF of NHU funded Fiber Roll 12IN and Remove Fiber Roll 12IN has been included in the quantities for use at weirs. The Engineer will measure the actual quantity required in the field.

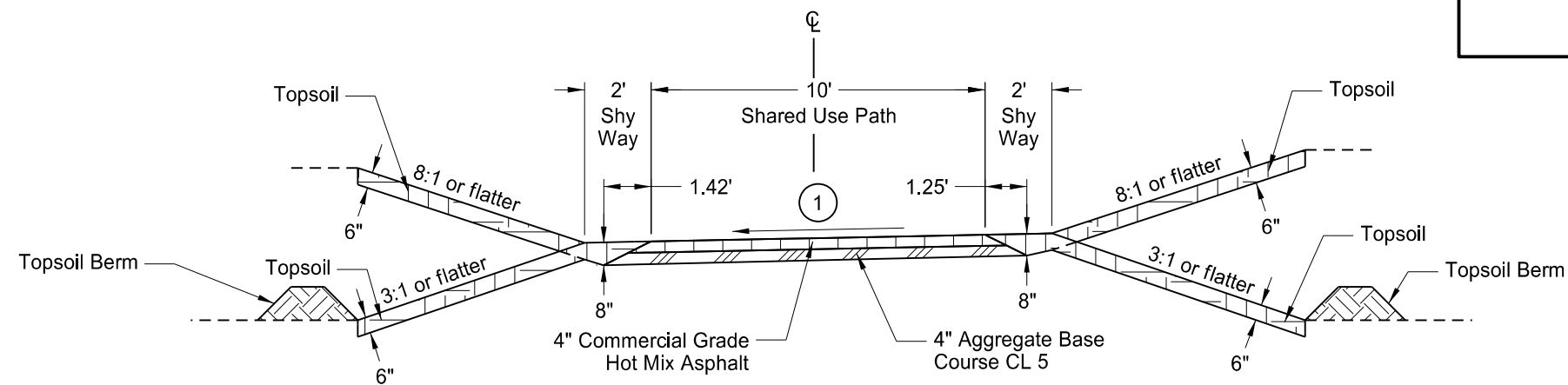


- Notes:
1. Windrow the existing topsoil from the foreslope to create a berm at the grading tie line.
 2. Stabilize berms in accordance with the Construction General Permit.
 3. Place weirs intermittently throughout the length of the berm to allow stormwater to drain through the berm.
 4. Avoid placing weirs adjacent to waterbodies.
 5. Install fiber rolls as the weirs are created in the topsoil berm.
 6. Include costs to create, stabilize, maintain, and dismantle the berm in the unit price bid for "Topsoil".
 7. Include costs for fiber rolls in the unit price bid for "Fiber Rolls 12IN".

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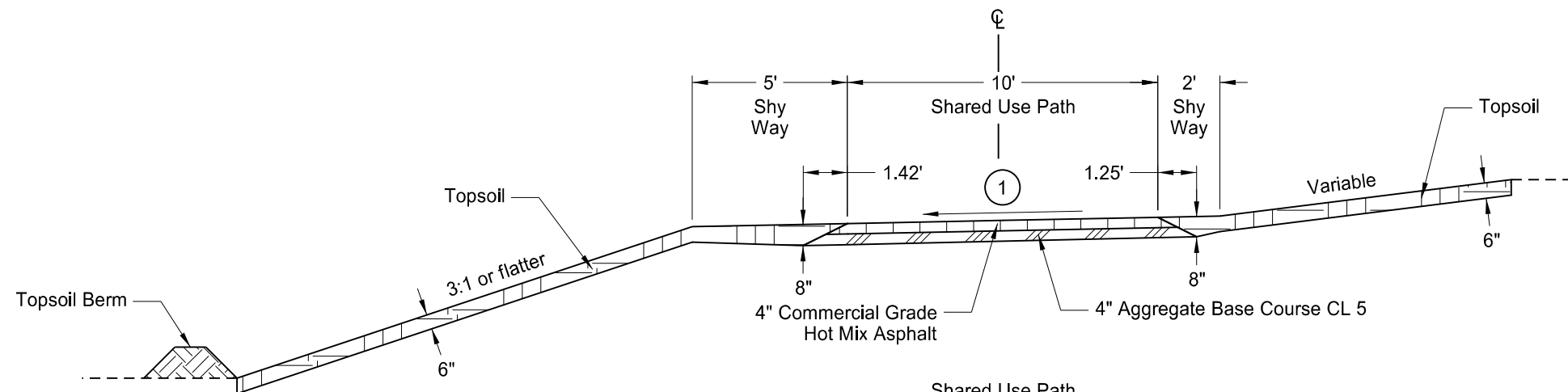
Temporary Topsoil Berm and Weir Detail
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	30	1



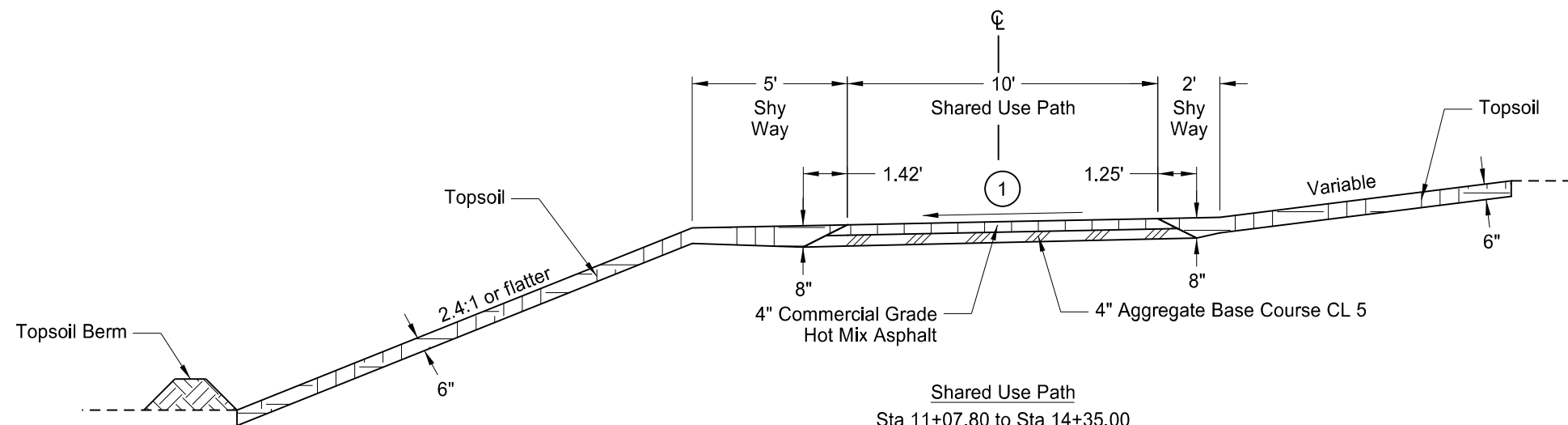
Shared Use Path

Sta 1+51.43 to Sta 1+91.54
Sta 14+35.00 to Sta 30+03.10
Sta 30+86.20 to Sta 34+71.45
Sta 35+41.83 to Sta 35+56.95



Shared Use Path

Sta 2+63.46 to Sta 5+27.51
Sta 7+87.51 to Sta 10+52.80



Shared Use Path

Sta 11+07.80 to Sta 14+35.00

Notes:

Stationing based on proposed Shared Use Path alignment.

- ① 2.0% or flatter, see cross sections or section 80 for cross slope and direction.

Place topsoil berm during construction. Location of topsoil berm varies from east to west side of shared use path. See sheet 20-16 for topsoil berm details and sections 75, 76, and 77 for designated berm locations.

Exception Areas

Sta 1+91.54 to Sta 2+63.46 (NB I-94 Off-Ramp)
Sta 5+27.51 to Sta 7+87.51 (Pedestrian Bridge)
Sta 10+52.80 to Sta 11+07.80 (SB I-94 On-Ramp)
Sta 30+03.10 to Sta 30+86.20 (Fairview St)
Sta 34+71.45 to Sta 35+41.83 (8th St W)

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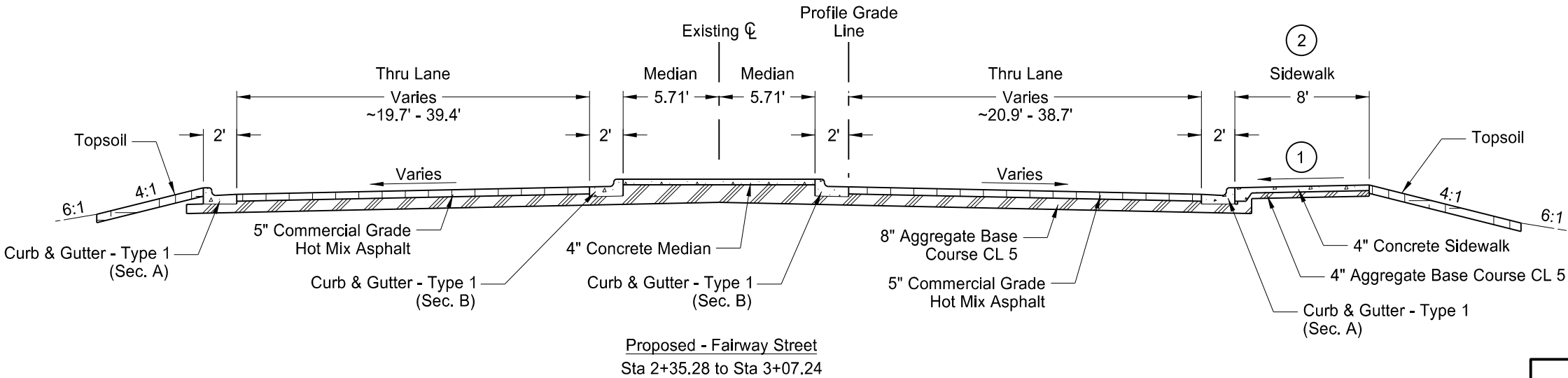
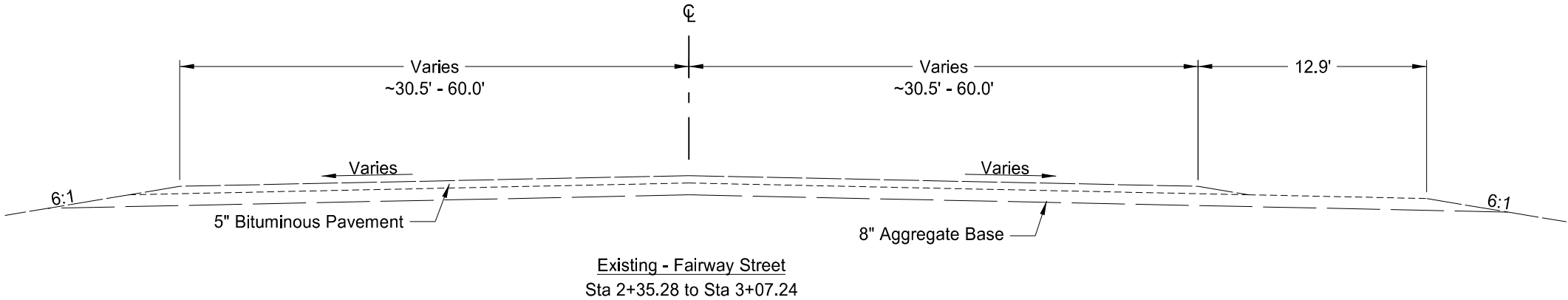
Typical Sections
Bid Option 1
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	30	3

Notes:

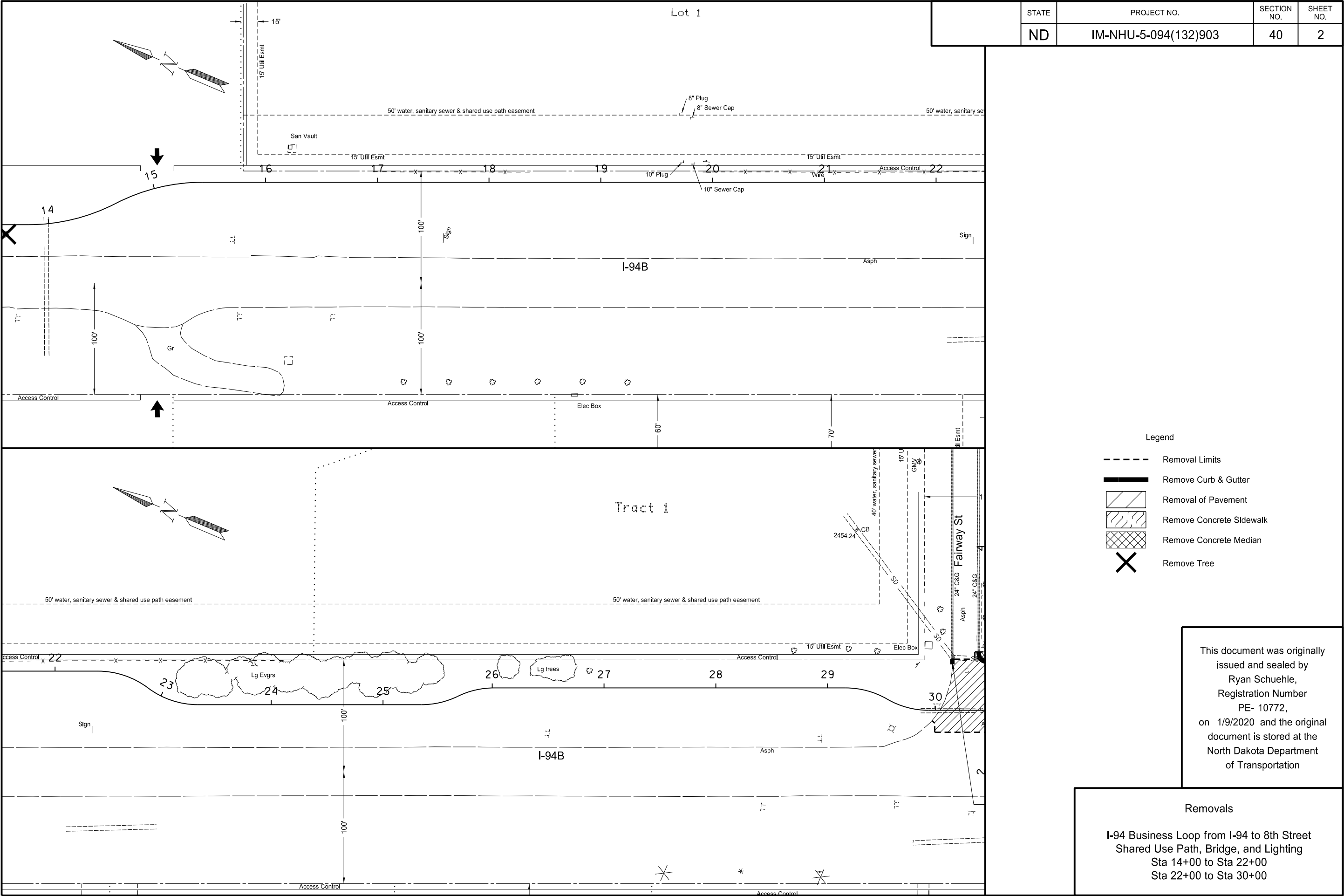
Stationing based on proposed Fairway St alignment.

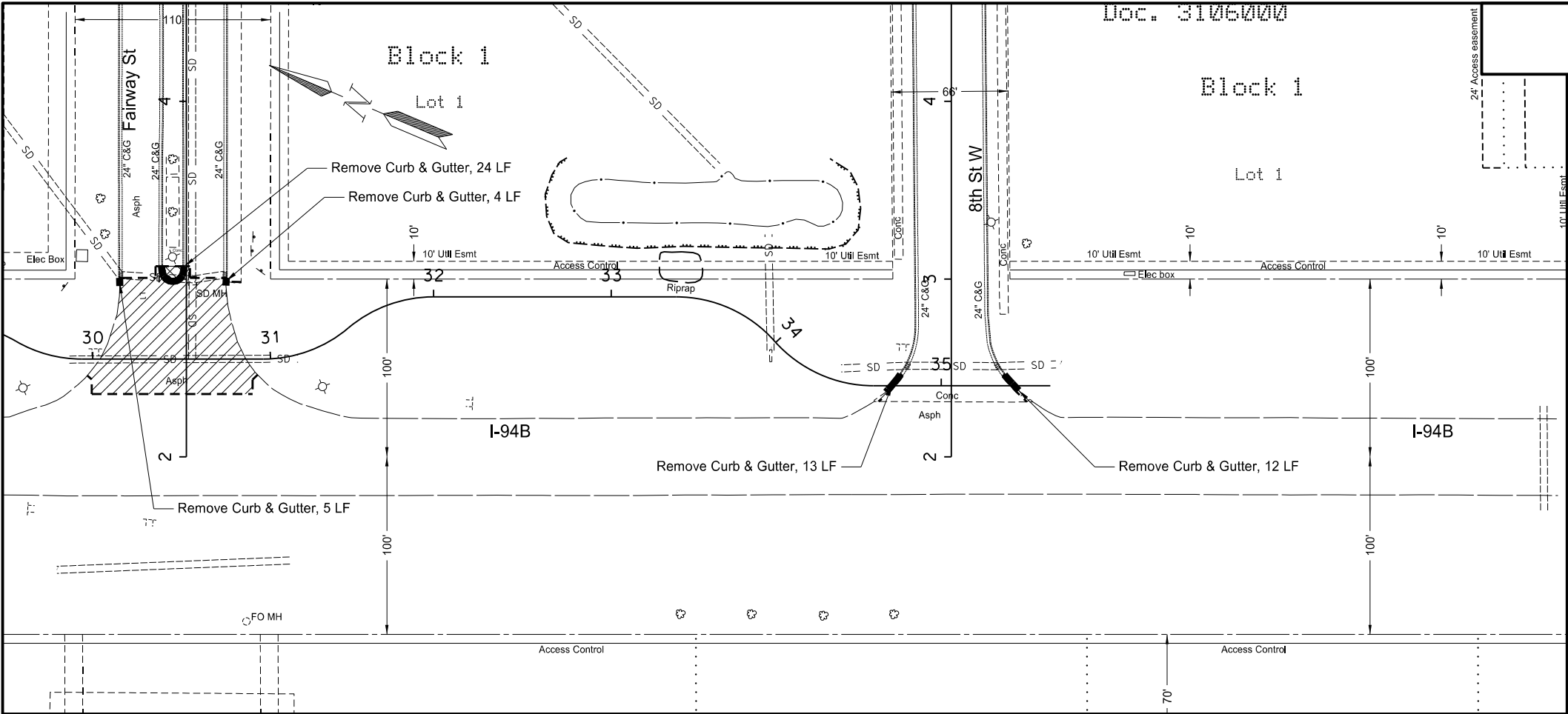
- ① 2.0% or flatter, see cross sections or section 80 for cross slope and direction.
- ② 8' sidewalk includes 2' of "concrete median paving" along the back of curb and 6' of sidewalk.



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Typical Sections
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	40	3

202	0114	Removal of Concrete Pavement			
		Concrete Median - 30+00 to 35+73.35 (NHU)		8	SY
		Concrete Pavement - 30+00 to 35+73.35 (NHU)		4	SY
		Total		12	SY
202	0130	Removal of Curb & Gutter			
		30+00 to 35+73.35 (NHU)		58	LF
202	0132	Removal of Bituminous Surfacing			
		30+00 to 35+73.35 (NHU)		532	SY

Legend

- Removal Limits
- Remove Curb & Gutter
- ▨ Removal of Pavement
- ▧ Remove Concrete Sidewalk
- ▩ Remove Concrete Median
- ✕ Remove Tree

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Removals

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting
Sta 30+00 to Sta 35+73.35

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	50	1

Manhole No. 1 Manhole - 54IN <PRPATH> - 30+77.89 - 0.0' RT Casting Type: Solid Cover Top Elev = 2456.50 Base Elev = 2450.41 Invert Elev = 2451.37 H' Dist. = 4.8' 30 In. Conduit N = 2451.37 (Existing) 30 In. Conduit S = 2451.38 (Existing) 15 In. Conduit E = 2451.63
Inlet No. 1A Inlet - Type 2 <PRPATH> - 30+77.89 - 17.5' LT Grate Type: V Grate Elev = 2456.01 Base Elev = 2450.84 Invert Elev = 2451.70 H' Dist. = 4.2' 15 In. Conduit W = 2451.70
Manhole No. 2 Manhole - 48IN <PRPATH> - 34+02.00 - 5.9' RT Casting Type: Solid Cover Top Elev = 2456.26 Base Elev = 2450.25 Invert Elev = 2451.09 H' Dist. = 4.0' 8 In. Conduit E = 2451.19 (Existing) 15 In. Conduit N = 2451.09

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Inlet and Manhole Summary

1-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

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	(*) End Treatments		Applicable Backfill
				IN	Bid Item	LF						Begin	End	
								IN	Type	IN	IN	EA	EA	
6+57	120.2' LT	6+57	115.4' LT	18	Pipe Conc. Reinf. CL III (Extension)	4	Reinforced Concrete Pipe - Class III (Barrel Length = 4 LF)	18				Remove & Relay		D-714-27
14+00	23.3' LT	13+98	5.7' LT	30	Pipe Conc. Reinf. CL III (Extension)	16	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	30				Remove & Relay		Section 20 Sheet 9
29+58	10.0' RT	29+87	0.6' RT	30	Pipe Conc. Reinf. CL III (Extension)	30	Reinforced Concrete Pipe - Class III (Barrel Length = 30 LF)	30				Remove & Relay		D-714-27
1A		1		15	Pipe Conduit - Storm Drain	14	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	15						D-714-27
							Spiral Rib Steel Pipe		P	3/4, 1	0.064			
31+15	2.3' RT	31+37	12.4' RT	30	Pipe Conc. Reinf. CL III (Extension)	24	Reinforced Concrete Pipe - Class III (Barrel Length = 24 LF)	30					Remove & Relay	D-714-27
2		33+97	18.2' RT	15	Pipe Conduit - Storm Drain	12	Reinforced Concrete Pipe - Class III (Barrel Length = 8 LF)	15					FES	D-714-27
							Spiral Rib Steel Pipe		P	3/4, 1	0.064			
34+06	17.3' RT	34+42	7.2' LT	36	Pipe Conc. Reinf. CL III (Extension)	42	Reinforced Concrete Pipe - Class III (Barrel Length = 42 LF)	36				Remove & Relay		D-714-27

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

3/4 = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

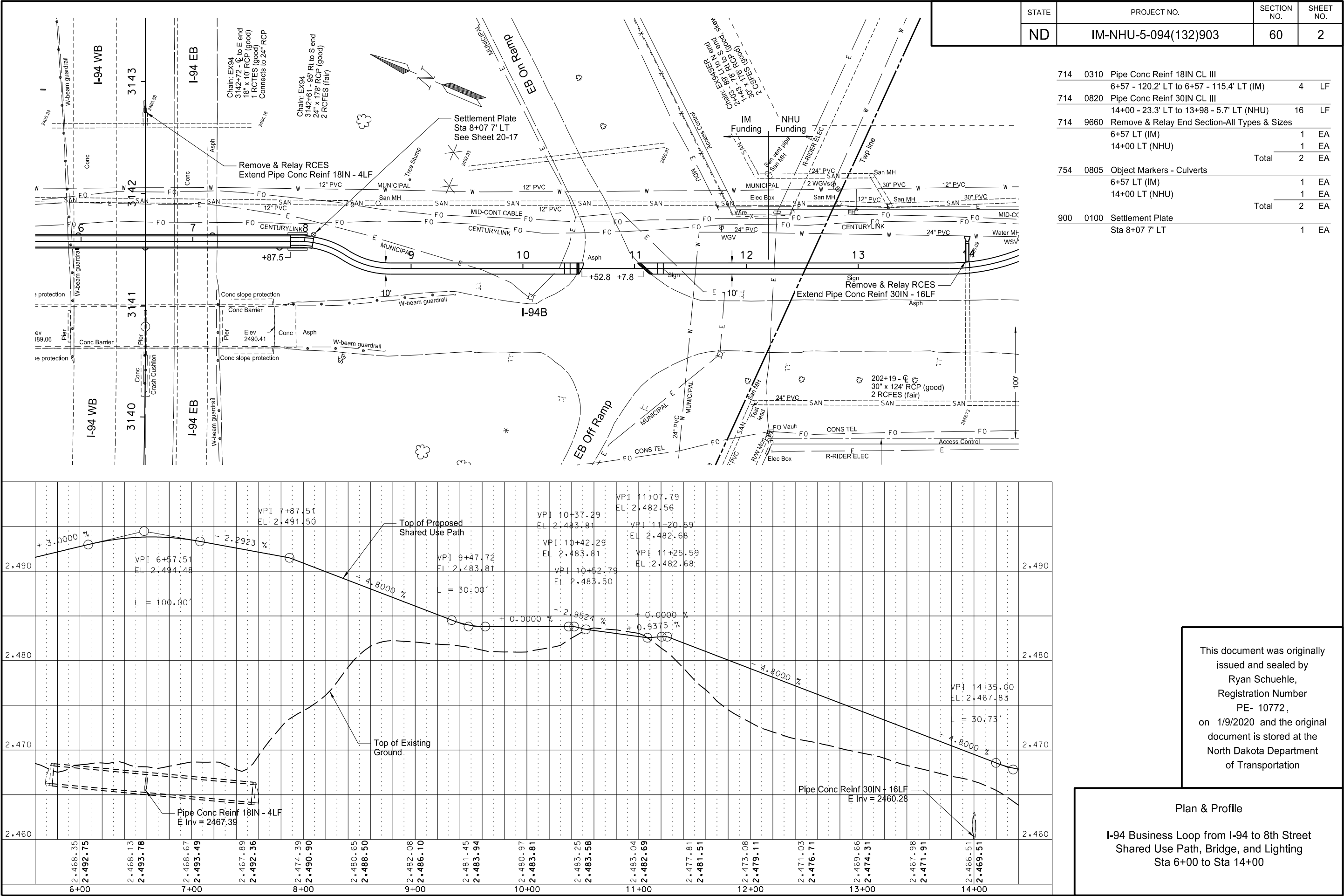
Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section
TES = Traversable End Section

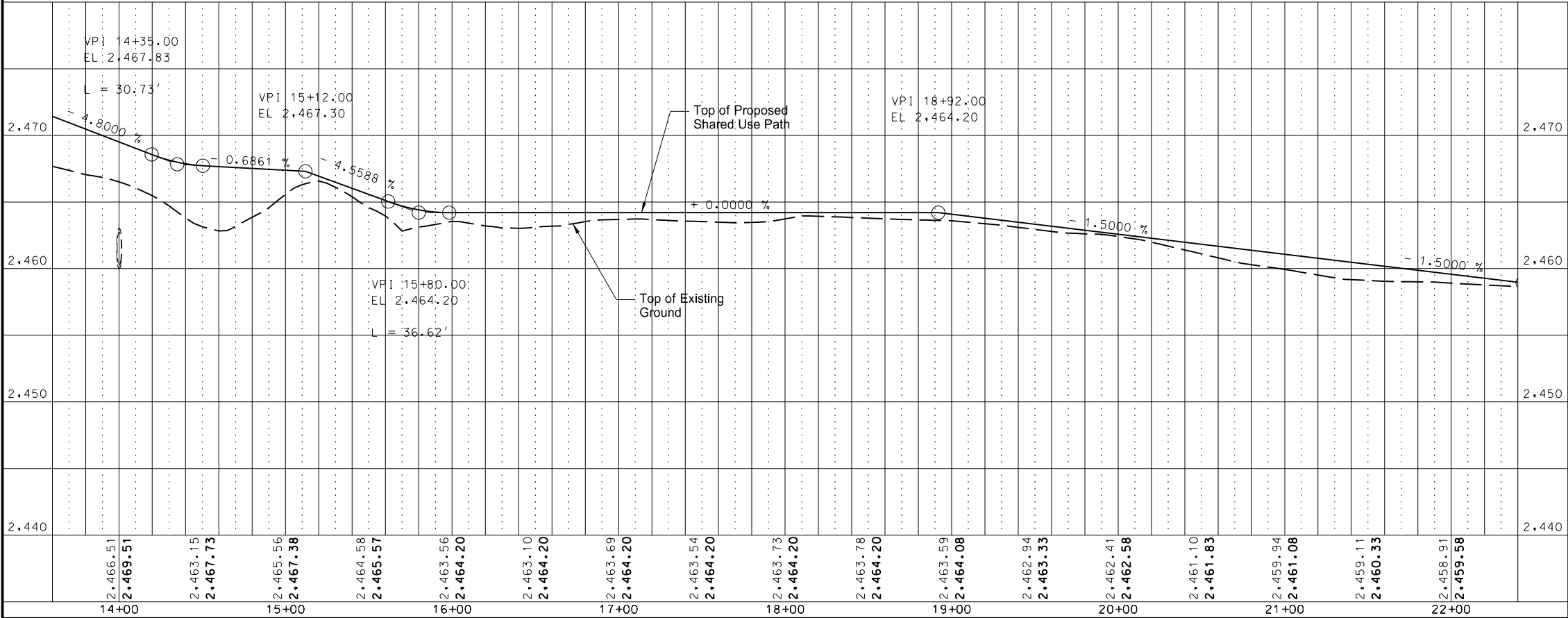
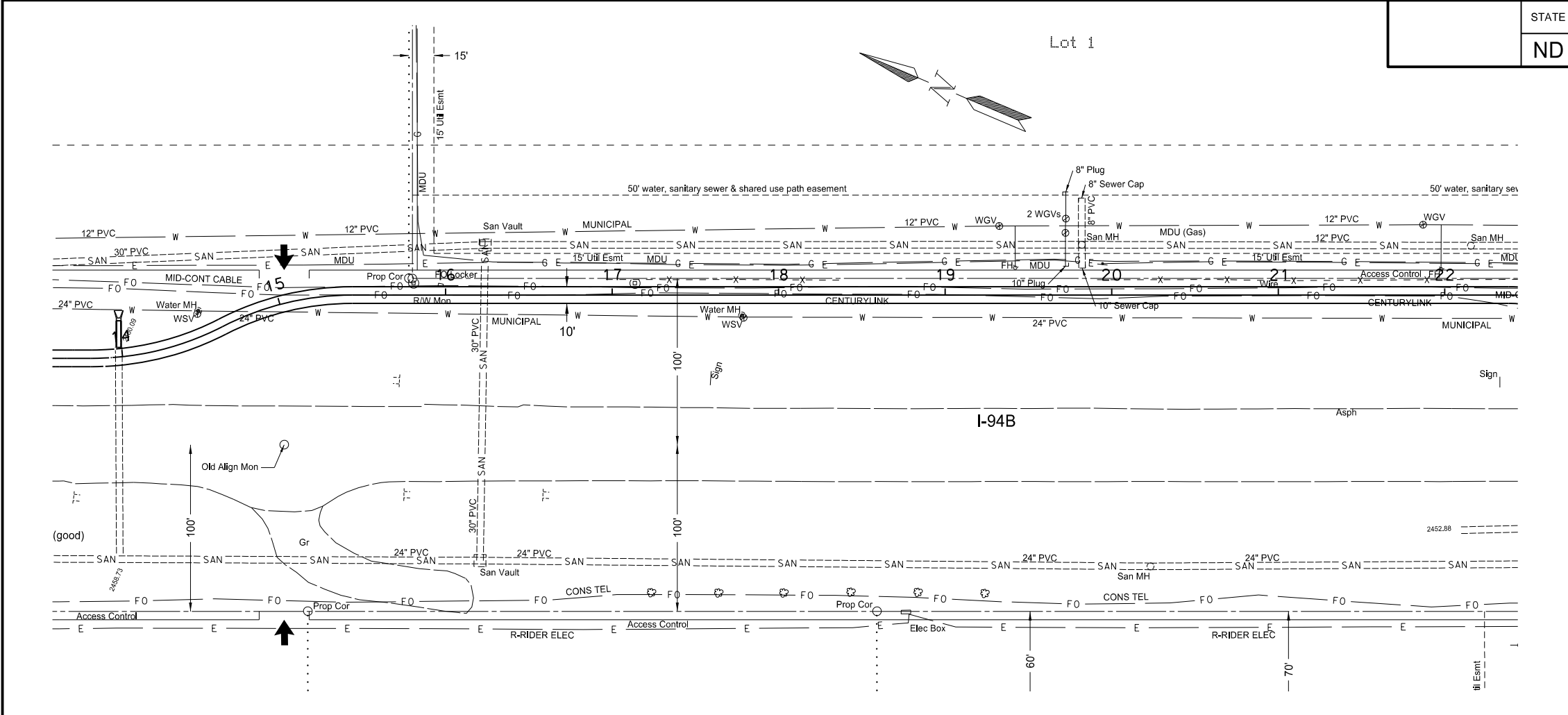
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Allowable Pipe List

1-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

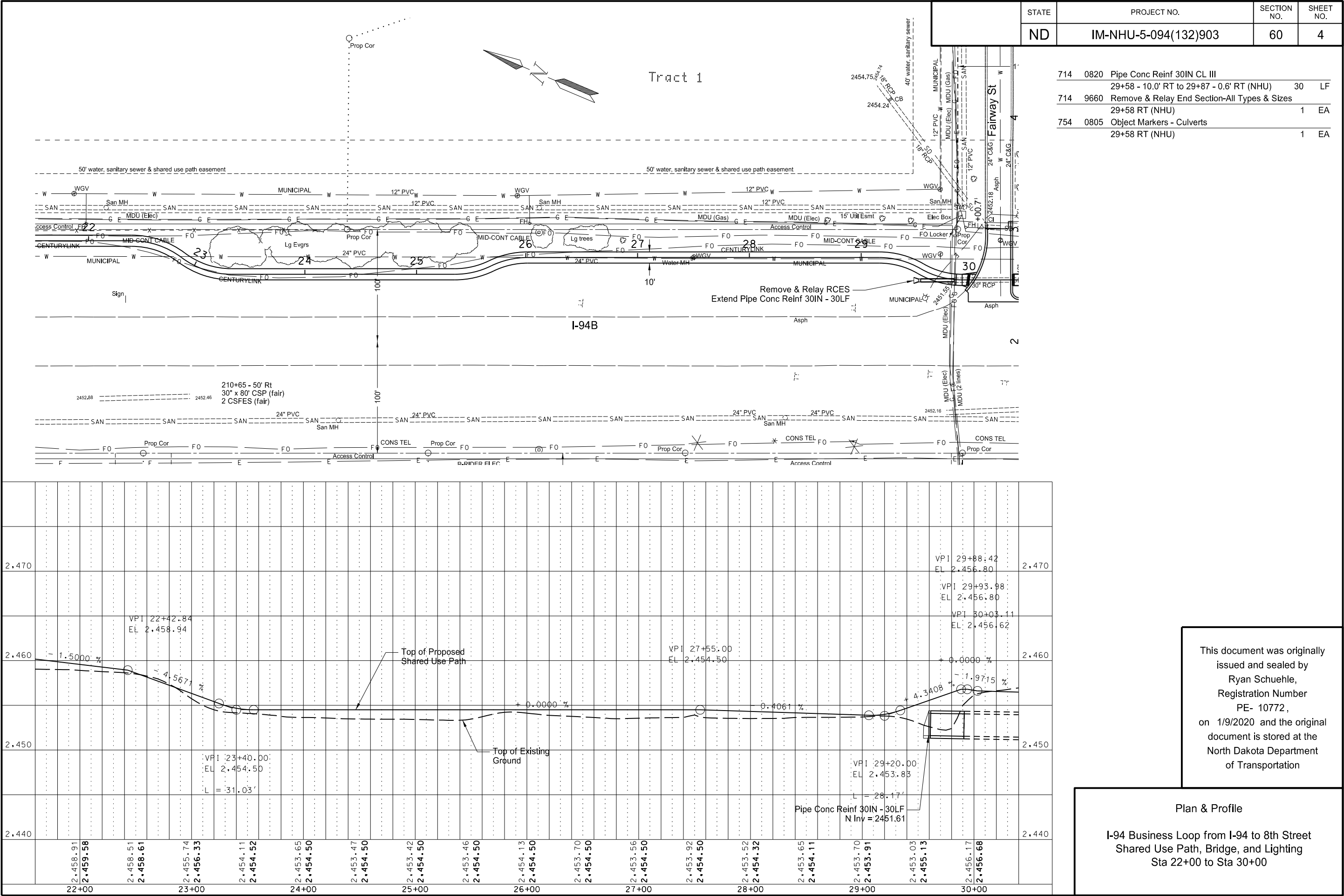


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	60	3



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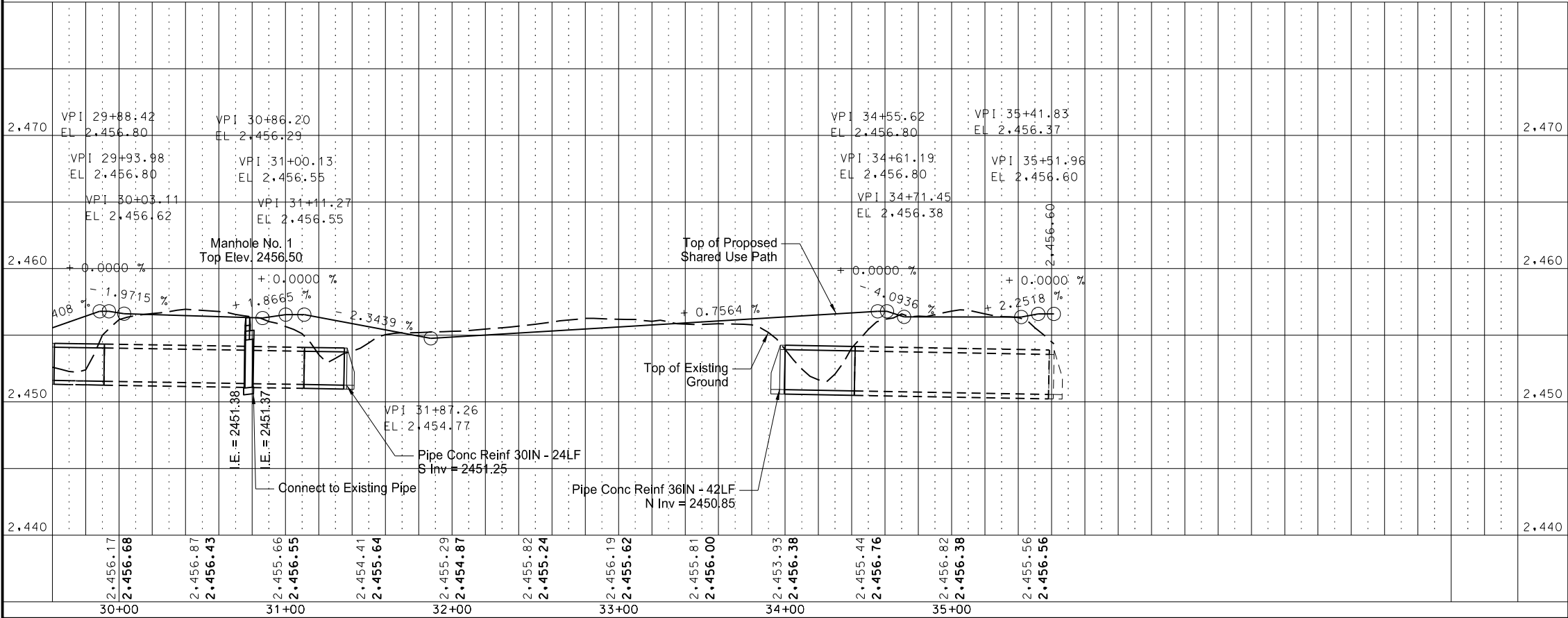
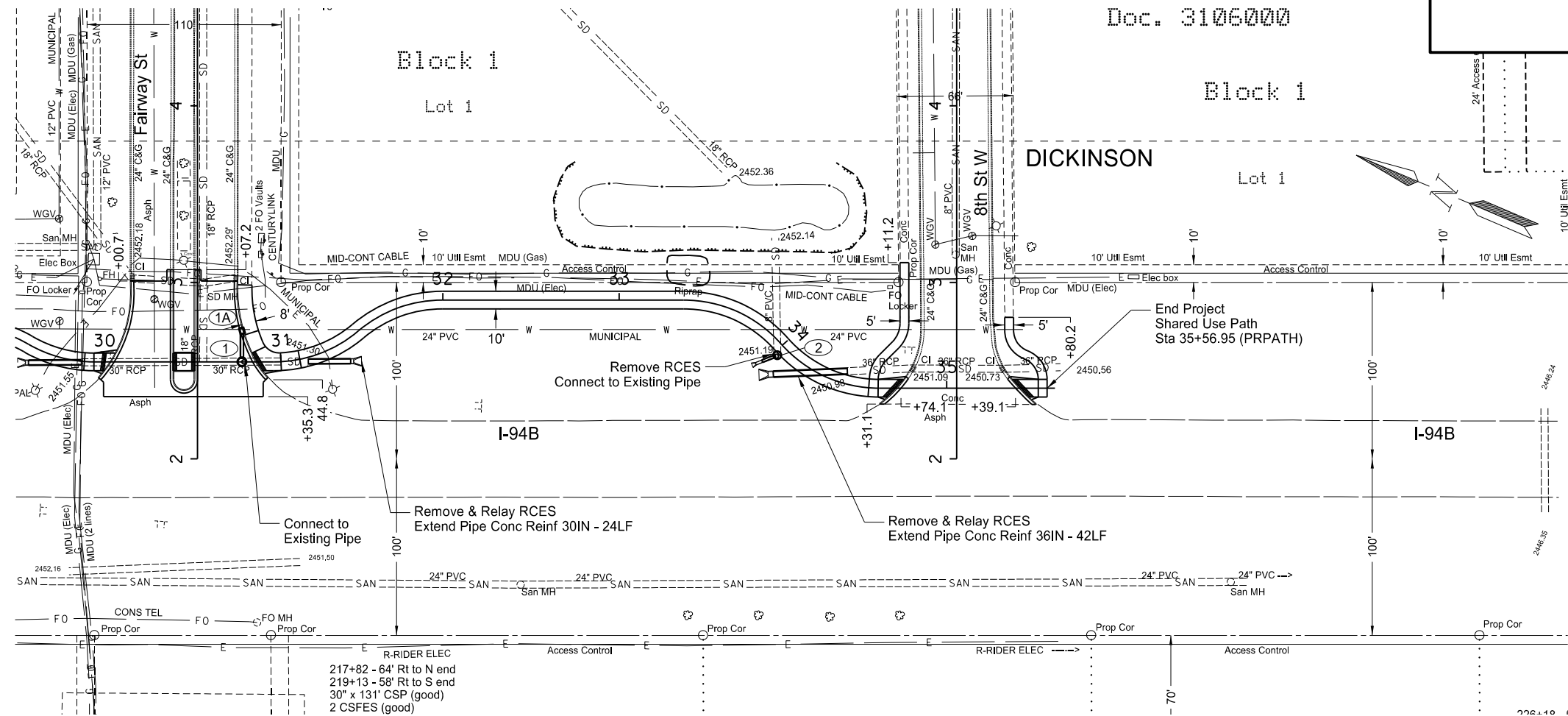
Plan & Profile
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting
Sta 14+00 to Sta 22+00



Doc. 3106000

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	60	5

202	0169	Removal of End Section-All Types & Sizes		
		34+02 RT (NHU)	1	EA
714	0820	Pipe Conc Reinf 30IN CL III		
		31+15 - 2.3' RT to 31+37 - 12.4' RT (NHU)	24	LF
714	0905	Pipe Conc Reinf 36IN CL III		
		34+06 - 17.3' RT to 34+42 - 7.2' LT (NHU)	42	LF
714	4097	Pipe Conduit 15IN-Storm Drain		
		2 to 33+97 - 18.2' RT (NHU)	12	LF
714	9660	Remove & Relay End Section-All Types & Sizes		
		31+37 RT (NHU)	1	EA
		34+06 LT (NHU)	1	EA
		Total	2	EA
722	0100	Manhole 48IN		
		2 (NHU)	1	EA
722	1100	Manhole Riser 48IN		
		2 (NHU)	4.0	LF
754	0805	Object Markers - Culverts		
		31+37 RT (NHU)	1	EA
		33+97 RT (NHU)	1	EA
		34+06 LT (NHU)	1	EA
		Total	3	EA

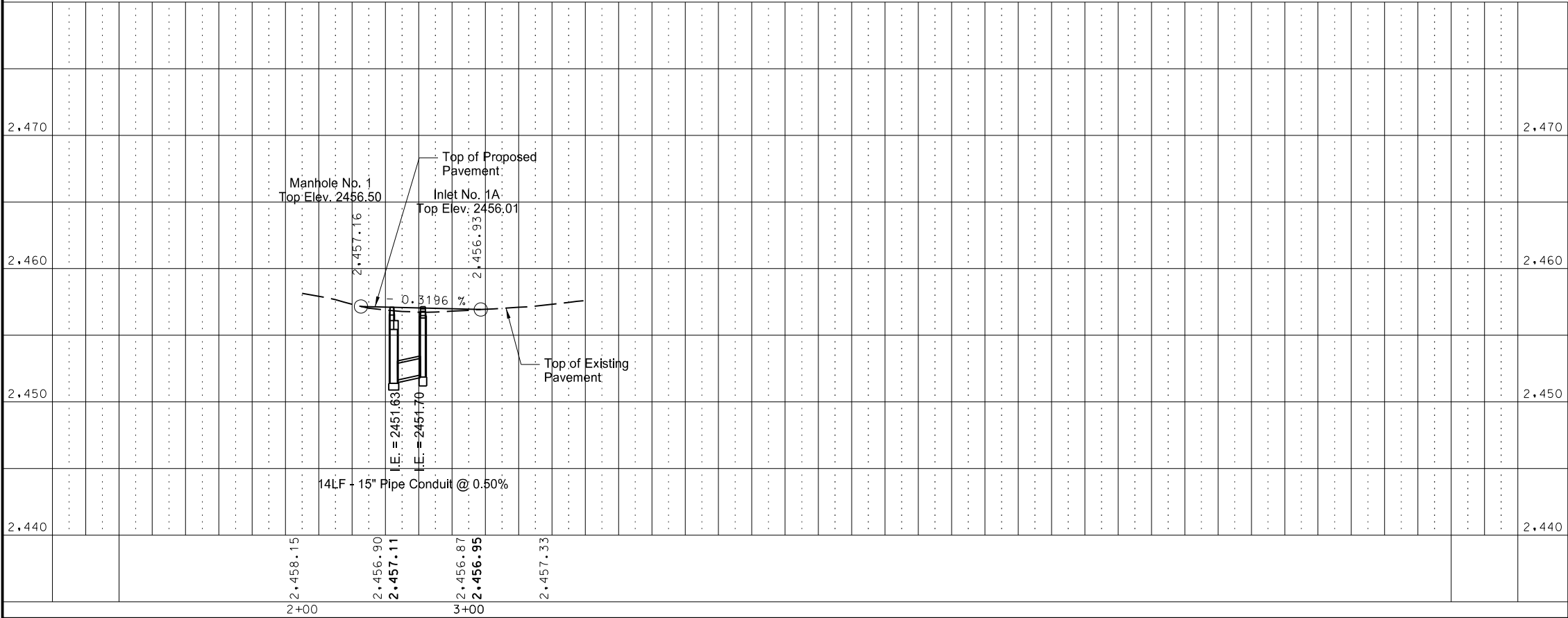
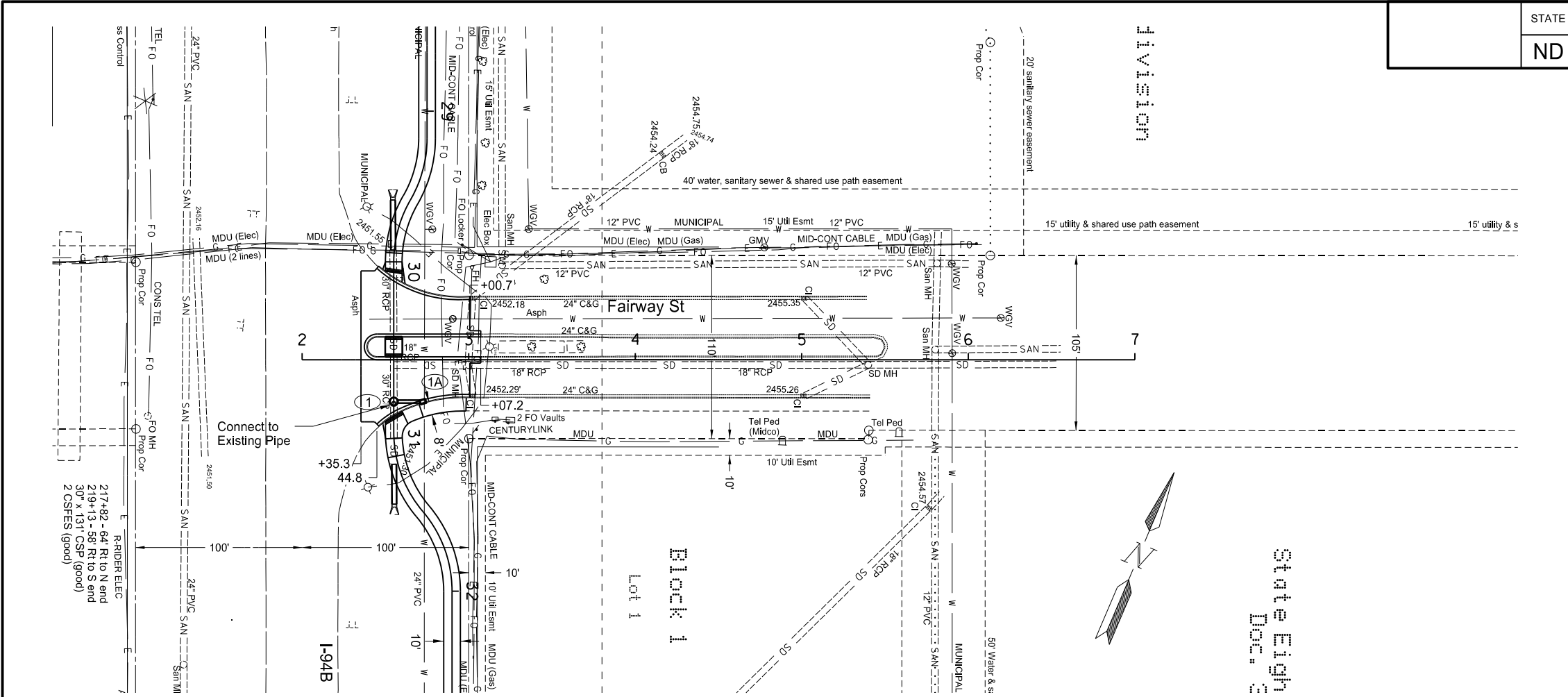


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Plan & Profile
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting
Sta 30+00 to Sta 35+73.35

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	60	6

714	4097	Pipe Conduit 15IN-Storm Drain		
		1A to 1 (NHU)	14	LF
722	0107	Manhole 54IN		
		1 (NHU)	1	EA
722	1106	Manhole Riser 54IN		
		1 (NHU)	4.8	LF
722	3510	Inlet-Type 2		
		1A (NHU)	1	EA



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Plan & Profile
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting
Fairway Street
Sta 2+35.28 to Sta 3+07.24

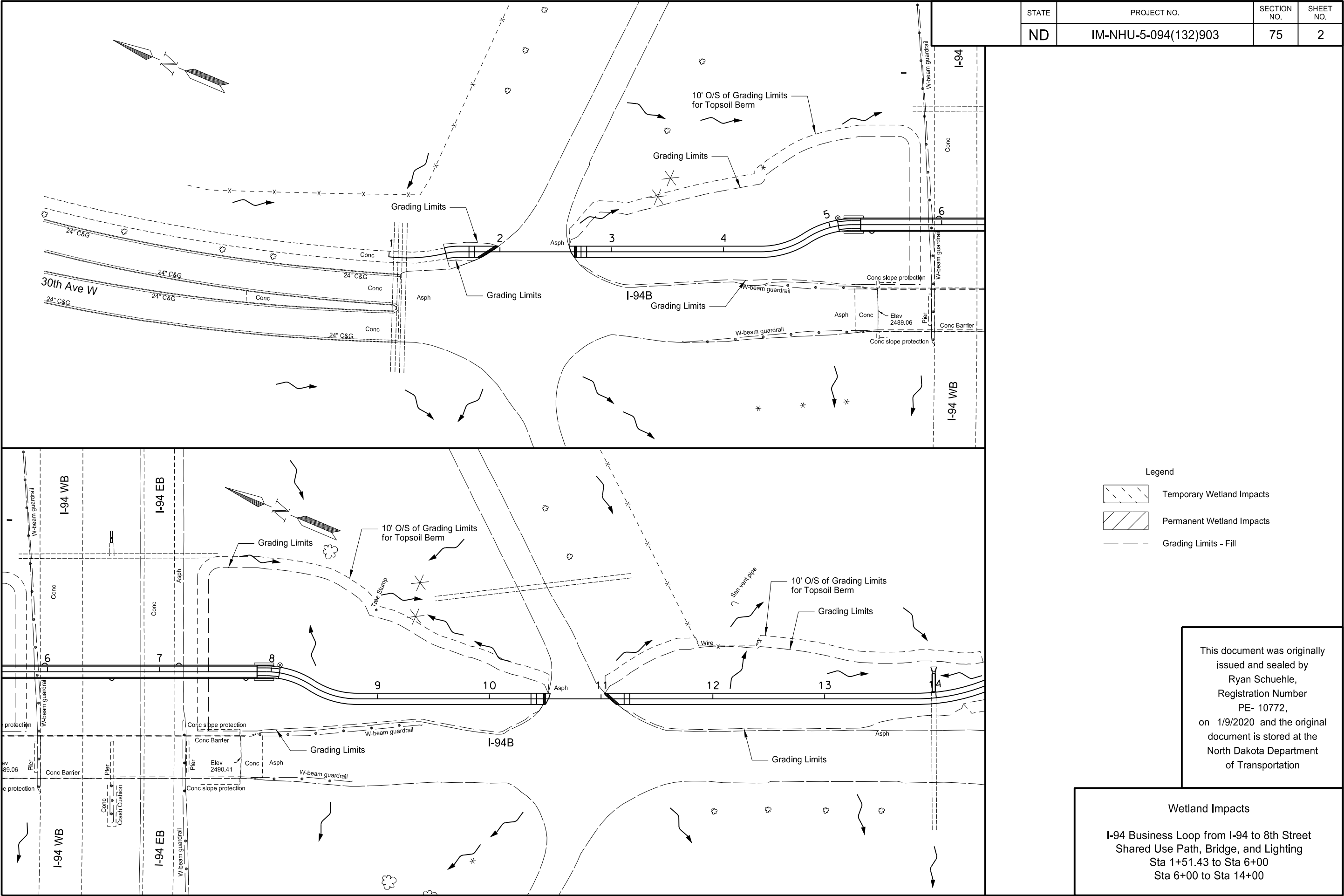
Wetland Impact Table											
Wetland Number	Location	Type	Wetland Feature	USACE Jurisdictional Wetlands ¹	Wetland Impacts Acre(s)		Wetland Mitigation				
							Mitigation Required			11990 Bank	
					Temp.	Perm.	EO 11990	USACE	USFWS	Location	Acre(s)
1a	Sec. 5, T139N, R96W	Ditch		Yes	0.01	0.01					
1b	Sec. 5, T139N, R96W	Ditch		Yes	0.08	0.02					
					0.09	0.03					0

¹ A wetland Jurisdictional Determination was issued by the USACE on 2/19/2019; NWO-2010-00282-BIS.

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	N/A	Temporary JD	0.09
Natural/Non-JD	N/A	Non-JD Temporary	N/A
Artificial/JD	0.03	Permanent JD > 0.10	N/A
Artificial /Non-JD	N/A	Permanent OW	N/A
Total	0.03	Temporary OW	N/A

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Wetlands Mitigation and Environmental
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

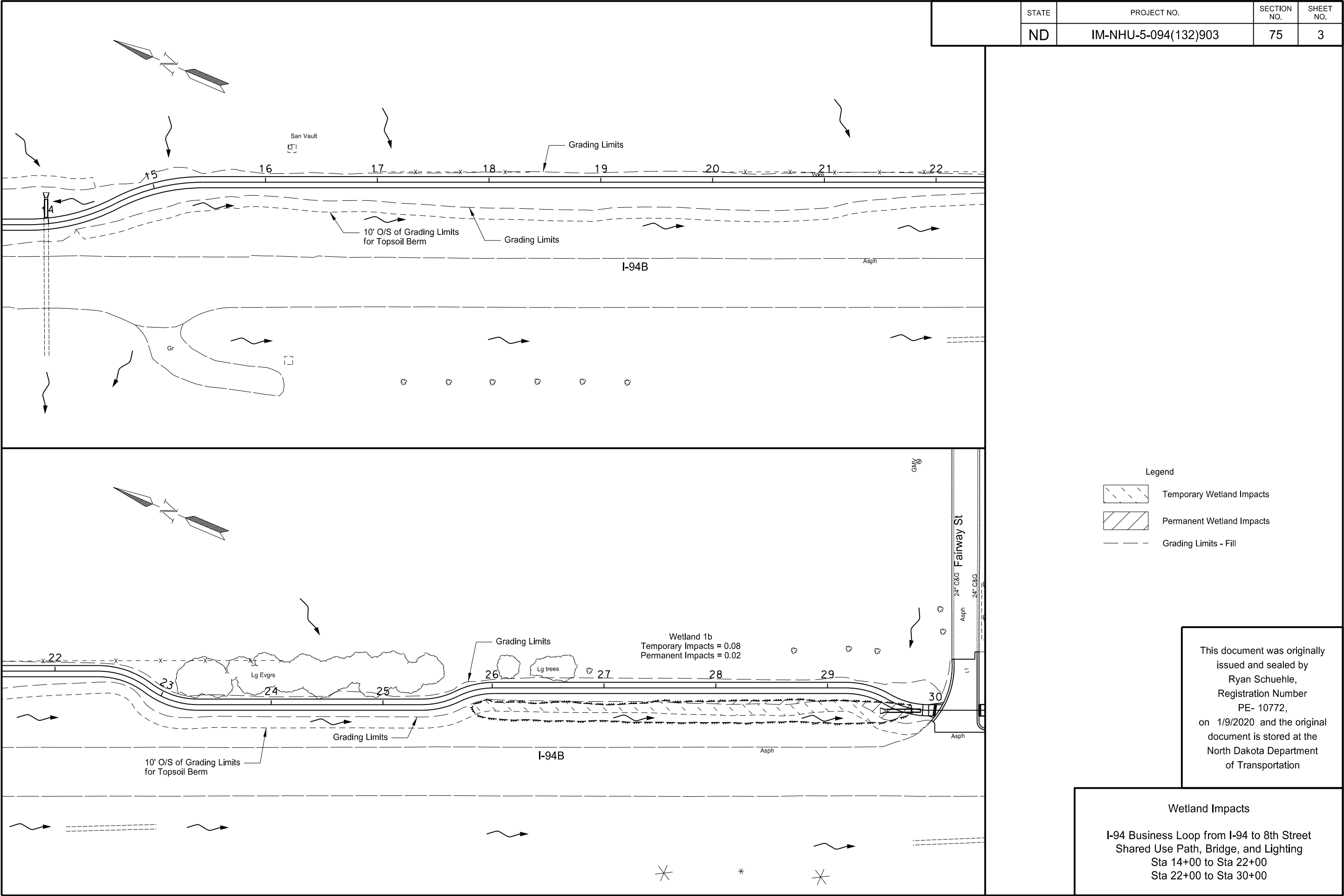


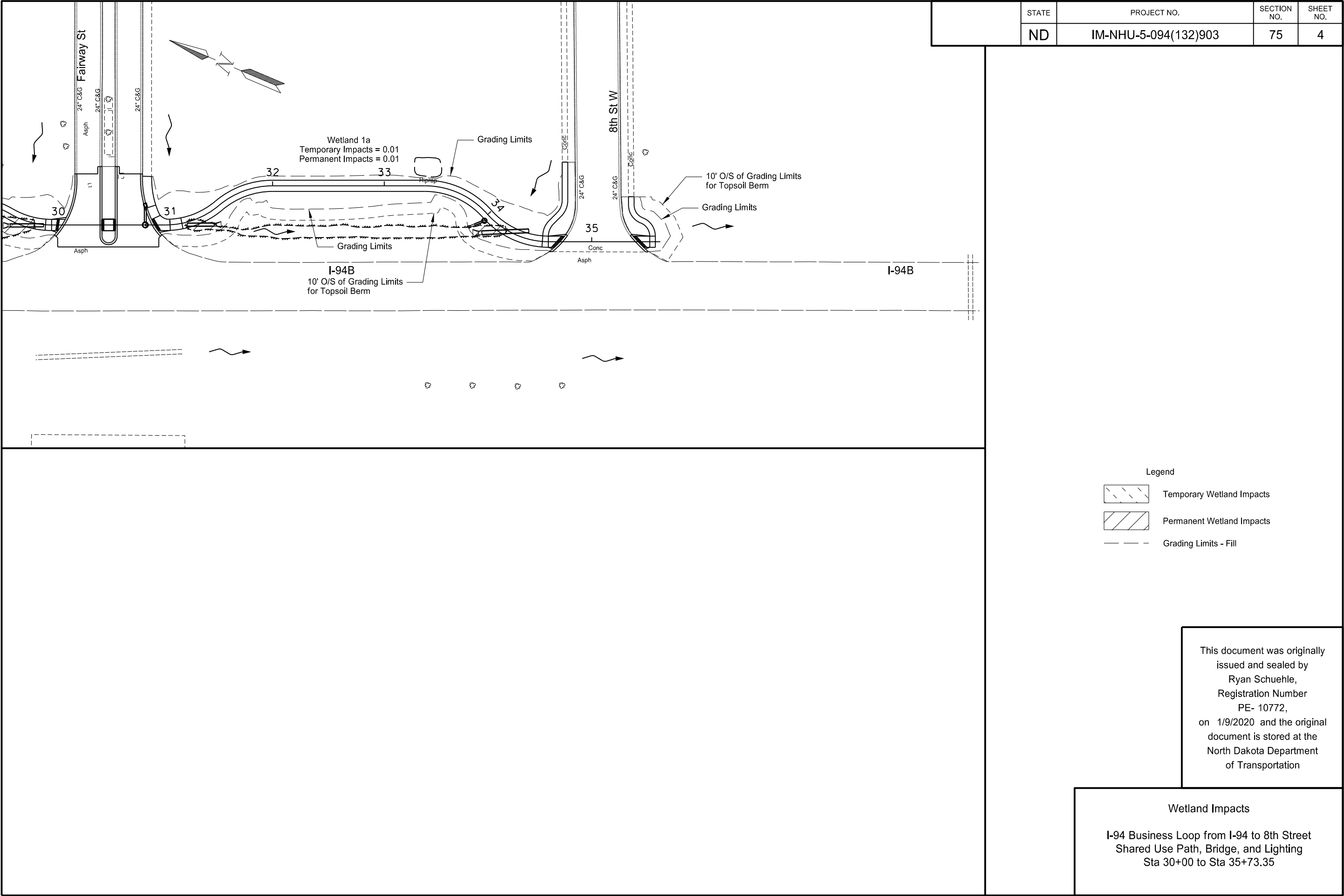
1/9/2020

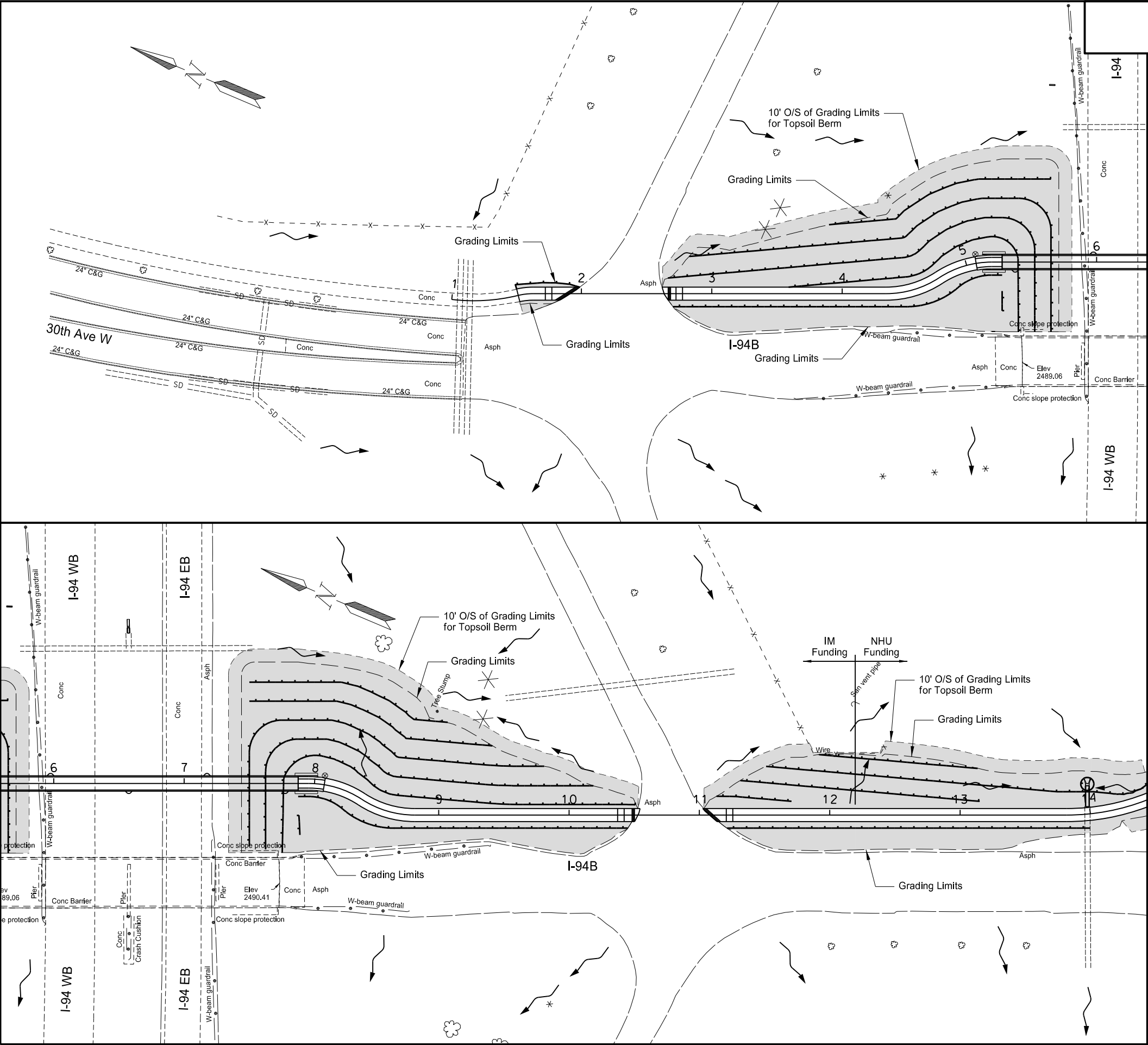
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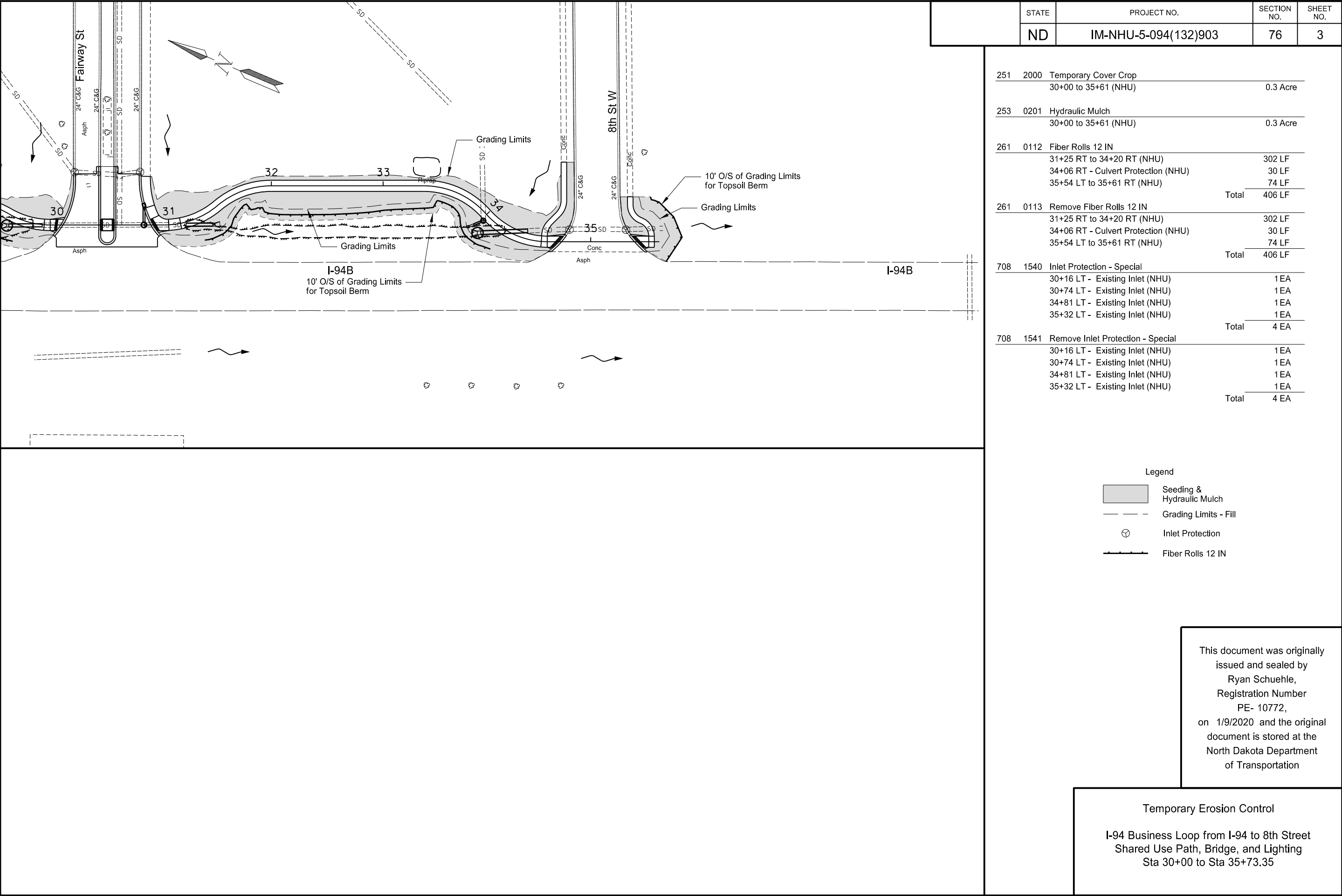
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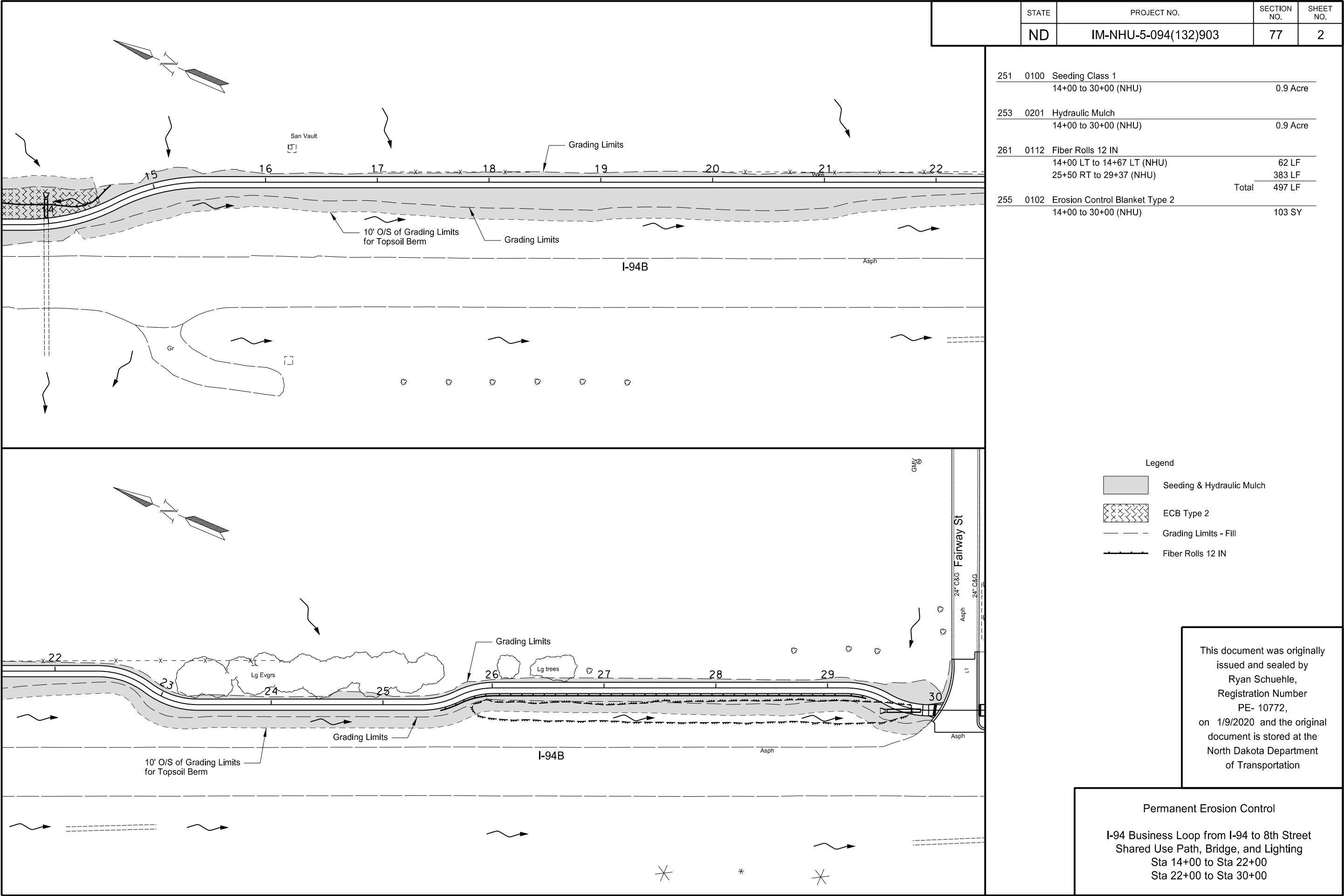


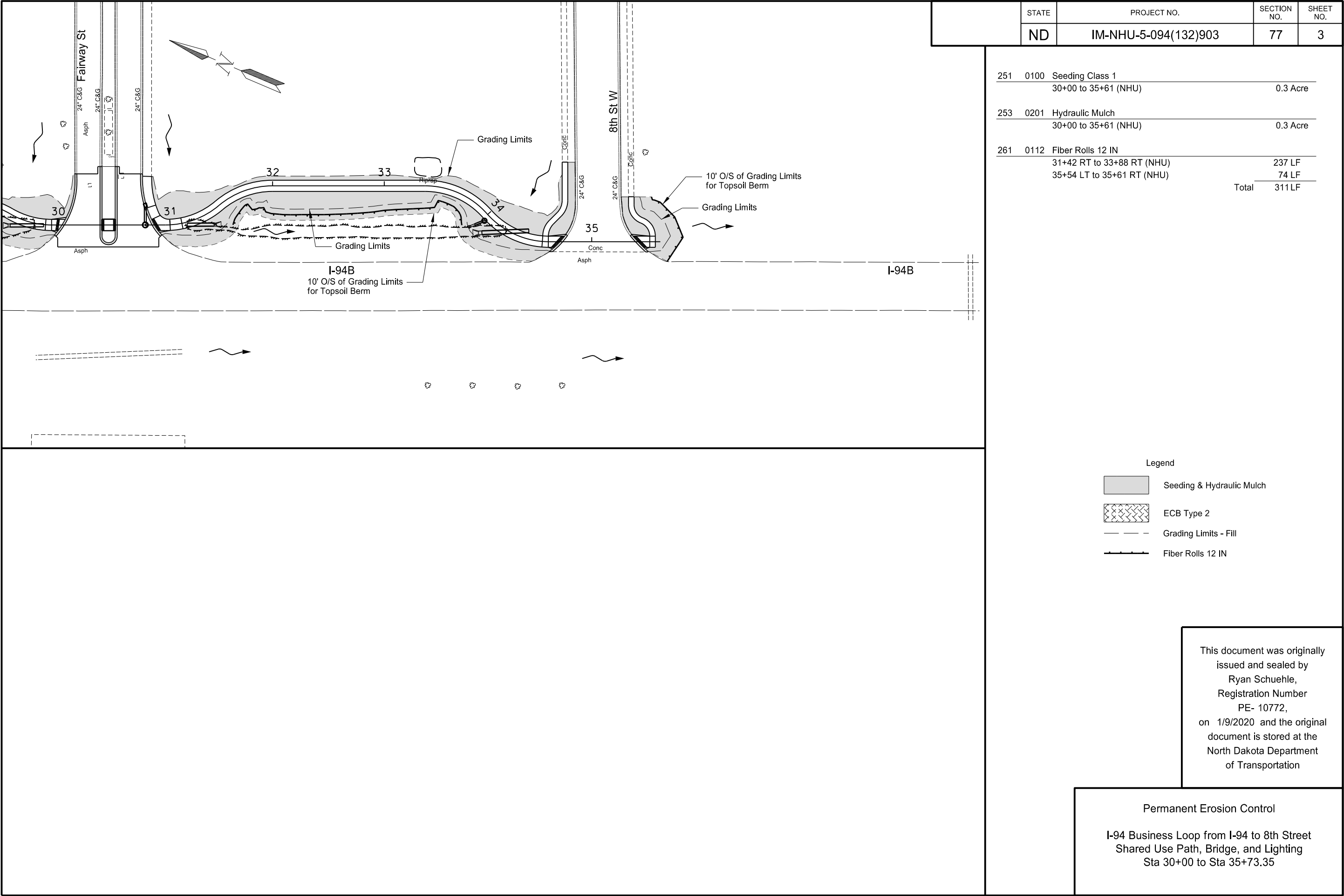


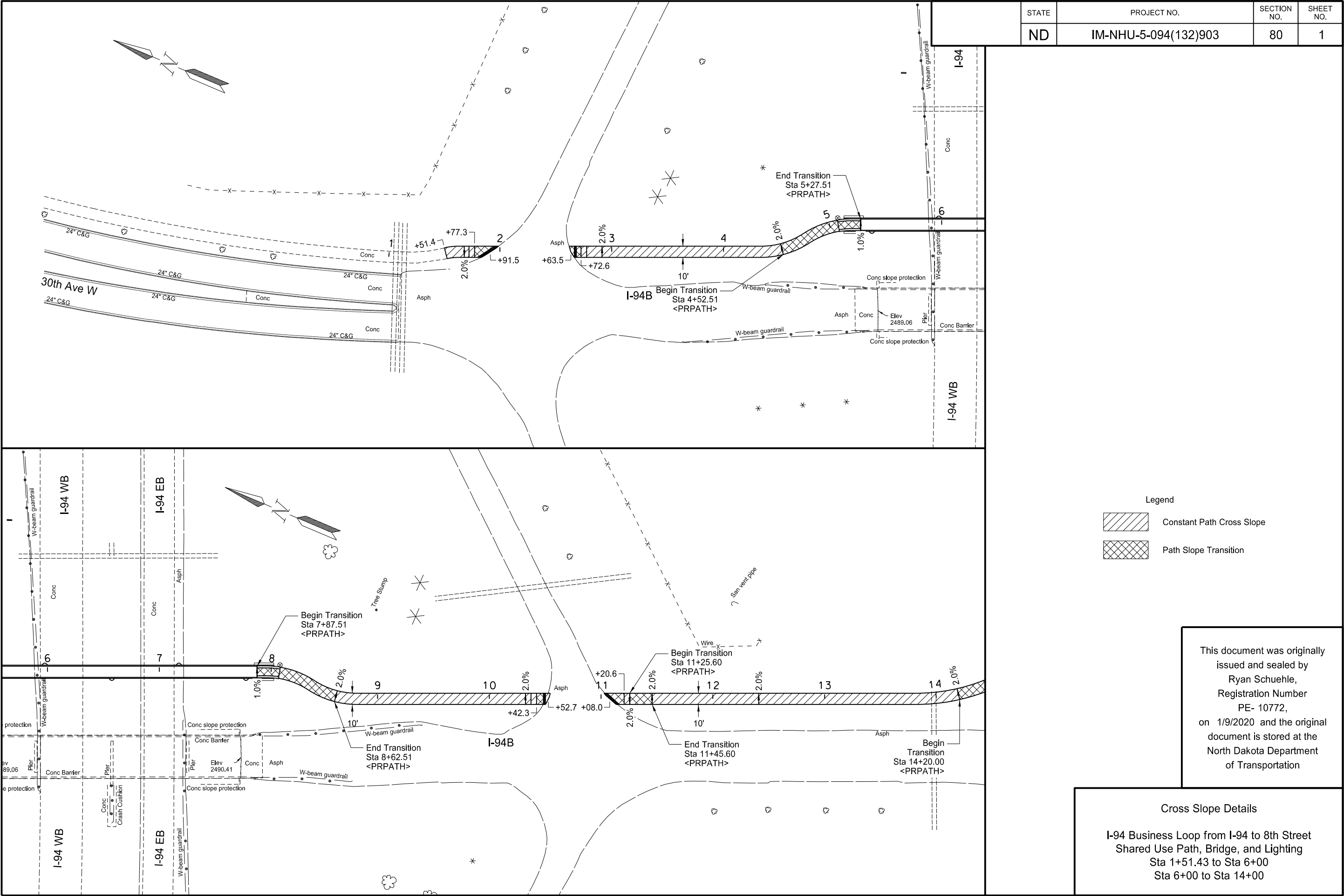


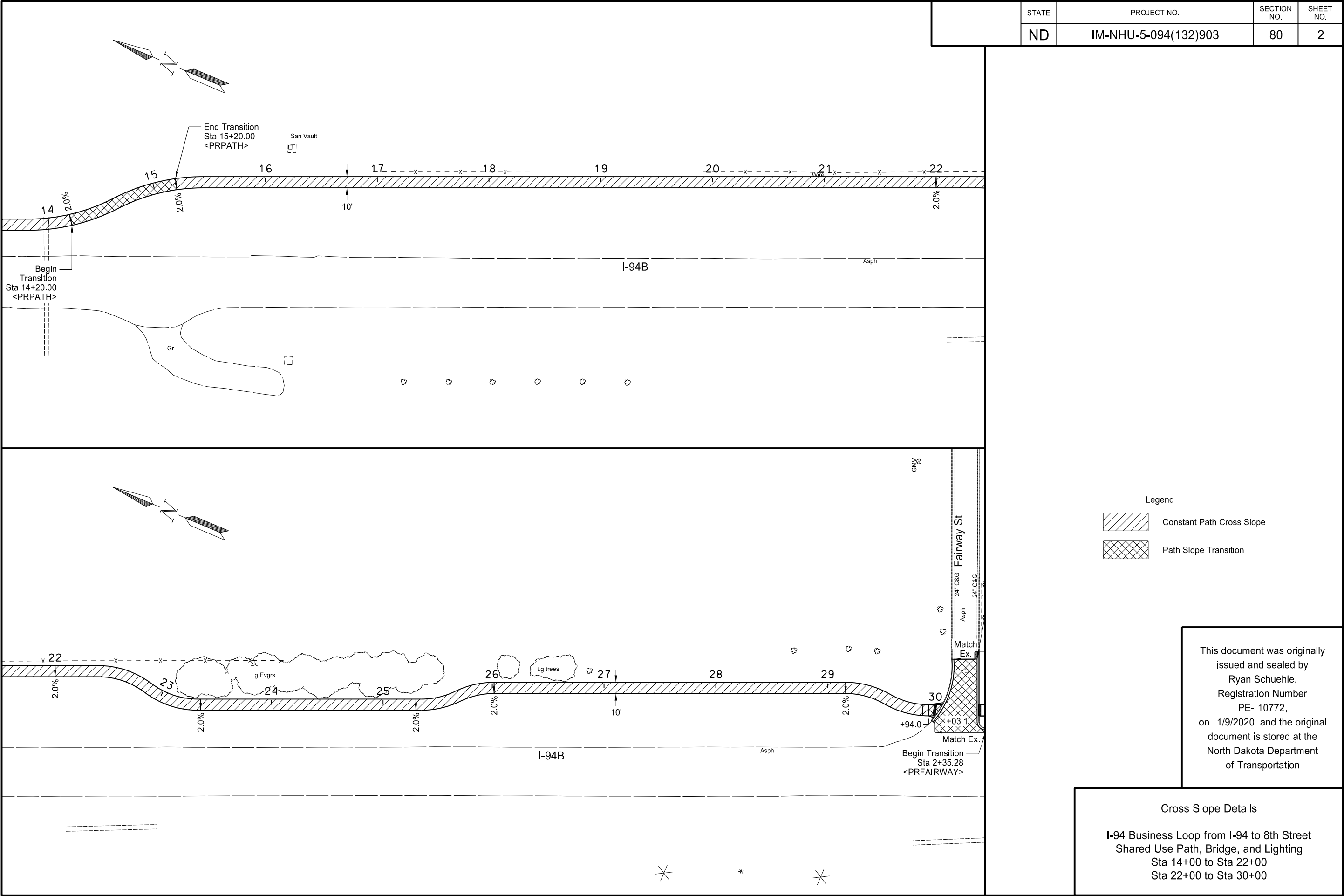
STATE		PROJECT NO.		SECTION NO.	SHEET NO.
ND		IM-NHU-5-094(132)903		76	1
251	2000	Temporary Cover Crop			
		1+51.43 to 14+00 (IM)		1.6 Acre	
		1+51.43 to 14+00 (NHU)		0.3 Acre	
		Total		1.9 Acre	
253	0201	Hydraulic Mulch			
		1+51.43 to 14+00 (IM)		1.6 Acre	
		1+51.43 to 14+00 (NHU)		0.3 Acre	
		Total		1.9 Acre	
261	0112	Fiber Rolls 12 IN			
		1+51 LT to 1+99 LT (IM)		53 LF	
		2+67 LT to 5+53 LT (IM)		367 LF	
		2+70 RT to 5+28 RT (IM)		258 LF	
		2+83 LT to 5+65 LT (IM)		378 LF	
		3+59 LT to 5+40 LT (IM)		250 LF	
		3+91 LT to 5+65 LT (IM)		179 LF	
		5+28 RT - Ditch Check (IM)		15 LF	
		7+50 LT to 9+06 LT (IM)		160 LF	
		7+50 LT to 9+41 LT (IM)		195 LF	
		7+50 LT to 9+81 LT (IM)		321 LF	
		7+63 LT to 10+19 LT (IM)		334 LF	
		7+75 LT to 10+51 LT (IM)		343 LF	
		7+89 RT - Ditch Check (IM)		15 LF	
		7+89 RT to 10+45 RT (IM)		259 LF	
		11+13 LT to 11+71 LT (IM)		58 LF	
		11+21 RT to 12+20 RT (IM)		98 LF	
		11+31 LT to 12+20 LT (IM)		88 LF	
		11+51 LT to 12+20 LT (IM)		69 LF	
		11+92 LT to 12+20 LT (IM)		28 LF	
		12+20 LT to 13+14 LT (NHU)		94 LF	
		12+20 LT to 14+00 LT (NHU)		181 LF	
		12+20 LT to 13+15 LT (NHU)		96 LF	
		12+20 RT to 14+00 RT (NHU)		180 LF	
		13+99 LT - Culvert Protection (NHU)		30 LF	
		Total		4049 LF	
261	0113	Remove Fiber Rolls 12 IN			
		1+51 LT to 1+99 LT (IM)		53 LF	
		2+67 LT to 5+53 LT (IM)		367 LF	
		2+70 RT to 5+28 RT (IM)		258 LF	
		2+83 LT to 5+65 LT (IM)		378 LF	
		3+59 LT to 5+40 LT (IM)		250 LF	
		3+91 LT to 5+65 LT (IM)		179 LF	
		5+28 RT - Ditch Check (IM)		15 LF	
		7+50 LT to 9+06 LT (IM)		160 LF	
		7+50 LT to 9+41 LT (IM)		195 LF	
		7+50 LT to 9+81 LT (IM)		321 LF	
		7+63 LT to 10+19 LT (IM)		334 LF	
		7+75 LT to 10+51 LT (IM)		343 LF	
		7+89 RT - Ditch Check (IM)		15 LF	
		7+89 RT to 10+45 RT (IM)		259 LF	
		11+13 LT to 11+71 LT (IM)		58 LF	
		11+21 RT to 12+20 RT (IM)		98 LF	
		11+31 LT to 12+20 LT (IM)		88 LF	
		11+51 LT to 12+20 LT (IM)		69 LF	
		11+92 LT to 12+20 LT (IM)		28 LF	
		12+20 LT to 13+14 LT (NHU)		94 LF	
		12+20 LT to 14+00 LT (NHU)		181 LF	
		12+20 LT to 13+15 LT (NHU)		96 LF	
		12+20 RT to 14+00 RT (NHU)		180 LF	
		13+99 LT - Culvert Protection (NHU)		30 LF	
		Total		4049 LF	
Seeding & Hydraulic Mulch Grading Limits - Fill Inlet Protection Fiber Rolls 12 IN This document was originally issued and sealed by Ryan Schuehle, Registration Number PE- 10772, on 1/9/2020 and the original document is stored at the North Dakota Department of Transportation Temporary Erosion Control I-94 Business Loop from I-94 to 8th Street Shared Use Path, Bridge, and Lighting Sta 1+51.43 to Sta 6+00 Sta 6+00 to Sta 14+00					

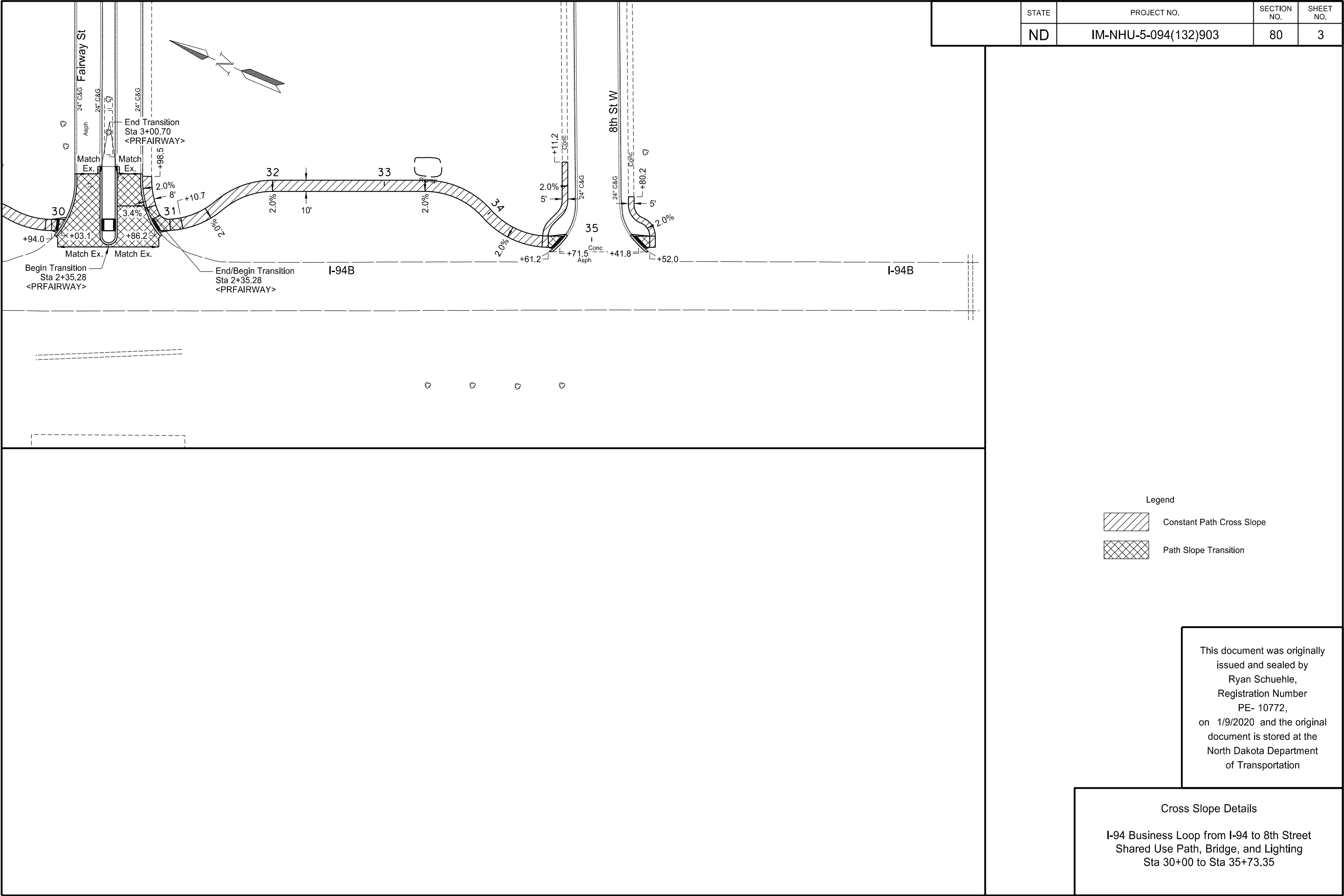




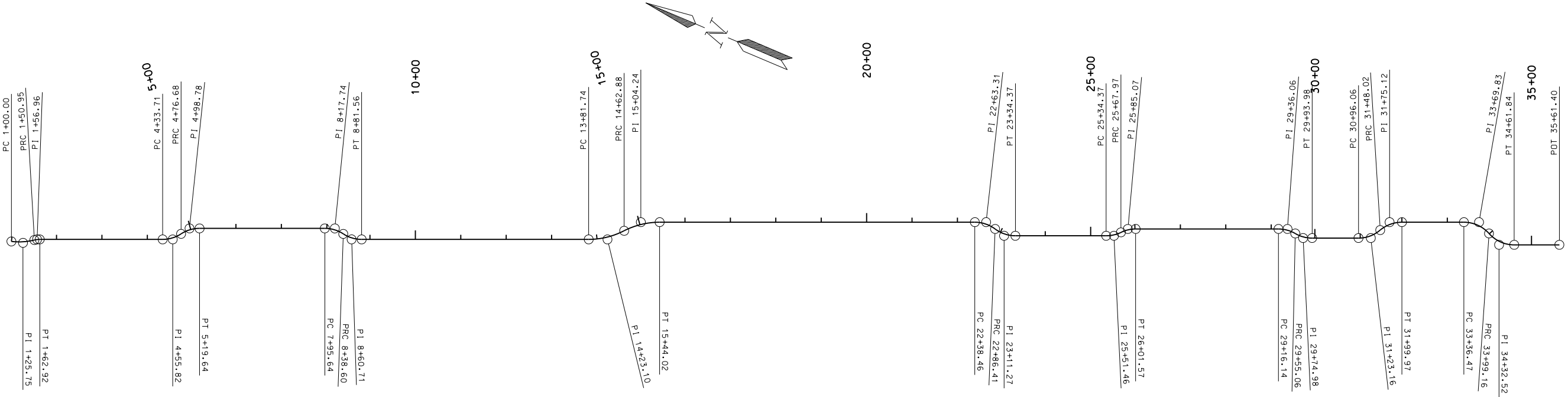








PRELIMINARY SURVEY COORDINATE AND CURVE DATA - 8TH ST W TO I-94 EXIT 59 N RAMP											STATE	PROJECT NO.		SECTION NO.	SHEET NO.		
										ND	IM-NHU-5-094(132)903		81	2			
HORIZONTAL ALIGNMENT				CURVE DATA			US PUBLIC LAND SURVEY DATA				SURVEY CONTROL POINTS						
PNT	STATION	NORTHING	EASTING	ARC DEFINITION			DESC.	SEC-TWP-RGE	INDEX	NORTHING	EASTING	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
I-94 (Chain: EX94)				CUR1		NWR_2						CONTROL POINT DESCRIPTION					
Beg/Rec Sec Cor	3086+82.63	455215.30	1380822.48	PI STA = 3128+59.91		PI STA = 12+55.89											
PC	3115+99.49	455121.65	1383737.82	Delta = 24° 49' 05" LT		Delta = 31° 38' 15" LT											
PI CUR1	3128+59.91	455081.19	1384997.60	Da = 1° 00' 01"		Da = 3° 59' 57"											
Twp Xing	25.34' (Ahd Tan)	455091.08	1385020.93	R = 5728.45'		R = 1432.69'											
Sec Xing	863.61 (Ahd Tan)	455418.33	1385792.69	T = 1260.43'		T = 405.92'											
PT	3140+80.80	455573.23	1386158.01	L = 2481.31'		L = 791.10'											
Station equation at I-94 Business Loop (EX94B)																	
PT I-94	3140+80.80	455573.23	1386158.01	CUR2													
I-94 Business Loop	194+82.80	455573.23	1386158.01	PI STA = 3177+43.66													
PC	3164+77.42	456508.83	1388364.47	Delta = 24° 55' 27" RT													
PI CUR2	3177+43.66	457003.15	1389530.24	Da = 1° 00' 00"													
PT end	3189+69.85	456960.15	1390795.76	R = 5729.58'													
				T = 1266.25'													
I-94 WB Exit Ramp (Chain: EX94NER)				L = 2492.43'													
Beg	0+00.00	455995.76	1385978.80														
Station equation at I-94 Business Loop (EX94B)				NER_1													
Beg I-94 WB Exit Ramp	0+00.00	455995.76	1385978.80	PI STA = 8+52.08													
I-94 Business Loop	190+23.84	455995.76	1385978.80	Delta = 25° 07' 37" LT													
PC	5+32.79	455962.48	1386510.56	Da = 3° 59' 57"													
PI NER_1	8+52.08	455942.54	1386829.22	R = 1432.69'													
PT	11+61.09	456059.80	1387126.19	T = 319.28'													
End	18+01.29	456294.91	1387721.65	L = 628.30'													
I-94 WB Entrance Ramp (Chain: EX94NWR)				NWR_1													
PC Beg	0+00.00	455173.52	1384018.25	PI STA = 4+25.77													
PI NWR_1	4+25.77	455189.46	1384443.73	Delta = 8° 29' 59" LT													
PCC	8+49.98	455268.11	1384862.17	Da = 1° 00' 00"													
PI NWR_2	12+55.89	455343.10	1385261.10	R = 5729.65'													
PT	16+41.08	455616.19	1385561.41	T = 425.77'													
End	22+05.25	455995.76	1385978.80	L = 849.98'													
Station equation at I-94 Business Loop (EX94B)																	
End I-94 WB Entrance Ramp	22+05.25	455995.76	1385978.80					☐ Assumed Coordinates				All coordinates and measurements on this document derived from the International Foot definition.			This document was originally issued and sealed by Thomas D. Weigel Registration Number LS-10871, on 5/7/19 and the original document is stored at the North Dakota Department of Transportation		
I-94 Business Loop	190+23.84	455995.76	1385978.80					☒ All coordinates on this sheet are Stark County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998175									
NOTES: Sheet 2 of 3				Date Survey Completed 12/7/18						INITIALIZING BENCH MARK NDGPS Stations (OPUS)							
						☒ NAVD-88 ☐ NGVD-29											
						☐ GEOID 12A ☐ _____ ☒ GEOID 12B											



Beginning chain PRPATH description

=====

Curve Data

Curve PRPATH1
P.I. Station 1+25.75 X 1,385,993.29 Y 456,075.49
Delta = 20° 35' 57.44" (LT)
Degree = 40° 25' 49.88"
Tangent = 25.75
Length = 50.95
Radius = 141.71
External = 2.32
Long Chord = 50.68
Mid. Ord. = 2.28
P.C. Station 1+00.00 X 1,385,986.14 Y 456,100.23
P.T. Station 1+50.95 X 1,386,008.68 Y 456,054.84
C.C. X 1,386,122.30 Y 456,139.54
Back = S 16° 06' 09.13" E
Ahead = S 36° 42' 06.57" E
Chord Bear = S 26° 24' 07.85" E

Curve Data

Curve PRPATH2
P.I. Station 1+56.96 X 1,386,012.27 Y 456,050.02
Delta = 13° 43' 04.32" (RT)
Degree = 114° 35' 29.61"
Tangent = 6.01
Length = 11.97
Radius = 50.00
External = 0.36
Long Chord = 11.94
Mid. Ord. = 0.36
P.C. Station 1+50.95 X 1,386,008.68 Y 456,054.84
P.T. Station 1+62.92 X 1,386,014.62 Y 456,044.48
C.C. X 1,385,968.59 Y 456,024.96
Back = S 36° 42' 06.57" E
Ahead = S 22° 59' 02.25" E
Chord Bear = S 29° 50' 34.41" E

Course from PT PRPATH2 to PC PRPATH3 S 22° 59' 02.25" E Dist 270.79

Curve Data

Curve PRPATH3
P.I. Station 4+55.82 X 1,386,128.99 Y 455,774.84
Delta = 33° 15' 51.72" (LT)
Degree = 77° 25' 36.22"
Tangent = 22.11
Length = 42.96
Radius = 74.00
External = 3.23
Long Chord = 42.36
Mid. Ord. = 3.10
P.C. Station 4+33.71 X 1,386,120.36 Y 455,795.19
P.T. Station 4+76.68 X 1,386,147.37 Y 455,762.56
C.C. X 1,386,188.48 Y 455,824.08
Back = S 22° 59' 02.25" E
Ahead = S 56° 14' 53.97" E
Chord Bear = S 39° 36' 58.11" E

Curve Data

Curve PRPATH4
P.I. Station 4+98.78 X 1,386,165.75 Y 455,750.27
Delta = 33° 15' 51.72" (RT)
Degree = 77° 25' 36.22"
Tangent = 22.11
Length = 42.96
Radius = 74.00
External = 3.23
Long Chord = 42.36
Mid. Ord. = 3.10
P.C. Station 4+76.68 X 1,386,147.37 Y 455,762.56
P.T. Station 5+19.64 X 1,386,174.38 Y 455,729.92
C.C. X 1,386,106.26 Y 455,701.03
Back = S 56° 14' 53.97" E
Ahead = S 22° 59' 02.25" E
Chord Bear = S 39° 36' 58.11" E

Course from PT PRPATH4 to PC PRPATH5 S 22° 59' 02.25" E Dist 276.00

Curve Data

Curve PRPATH5
P.I. Station 8+17.74 X 1,386,290.78 Y 455,455.48
Delta = 33° 15' 51.72" (RT)
Degree = 77° 25' 36.22"
Tangent = 22.11
Length = 42.96
Radius = 74.00
External = 3.23
Long Chord = 42.36
Mid. Ord. = 3.10
P.C. Station 7+95.64 X 1,386,282.15 Y 455,475.83
P.T. Station 8+38.60 X 1,386,286.84 Y 455,433.73
C.C. X 1,386,214.03 Y 455,446.94
Back = S 22° 59' 02.25" E
Ahead = S 10° 16' 49.47" W
Chord Bear = S 6° 21' 06.39" E

Curve Data

Curve PRPATH6
P.I. Station 8+60.71 X 1,386,282.89 Y 455,411.98
Delta = 33° 15' 51.72" (LT)
Degree = 77° 25' 36.22"
Tangent = 22.11
Length = 42.96
Radius = 74.00
External = 3.23
Long Chord = 42.36
Mid. Ord. = 3.10
P.C. Station 8+38.60 X 1,386,286.84 Y 455,433.73
P.T. Station 8+81.56 X 1,386,291.52 Y 455,391.63
C.C. X 1,386,359.65 Y 455,420.53
Back = S 10° 16' 49.47" W
Ahead = S 22° 59' 02.25" E
Chord Bear = S 6° 21' 06.39" E

Course from PT PRPATH6 to PC PRPATH7 S 22° 59' 02.25" E Dist 500.18

Curve Data

Curve PRPATH7
P.I. Station 14+23.10 X 1,386,502.98 Y 454,893.09
Delta = 27° 20' 51.63" (LT)
Degree = 33° 42' 12.24"
Tangent = 41.36
Length = 81.14
Radius = 170.00
External = 4.96
Long Chord = 80.37
Mid. Ord. = 4.82
P.C. Station 13+81.74 X 1,386,486.83 Y 454,931.16
P.T. Station 14+62.88 X 1,386,534.82 Y 454,866.68
C.C. X 1,386,643.33 Y 454,997.54
Back = S 22° 59' 02.25" E
Ahead = S 50° 19' 53.88" E
Chord Bear = S 36° 39' 28.06" E

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Survey Data Layout

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

				STATE	PROJECT NO.		SECTION NO.	SHEET NO.
				ND	IM-NHU-5-094(132)903		82	2

Curve Data *-----*			
Curve PRPATH8			
P.I. Station	15+04.24	X	1,386,566.65 Y 454,840.28
Delta	=	27° 20' 51.63" (RT)	
Degree	=	33° 42' 12.24"	
Tangent	=	41.36	
Length	=	81.14	
Radius	=	170.00	
External	=	4.96	
Long Chord	=	80.37	
Mid. Ord.	=	4.82	
P.C. Station	14+62.88	X	1,386,534.82 Y 454,866.68
P.T. Station	15+44.02	X	1,386,582.80 Y 454,802.21
C.C.	X	1,386,426.30 Y 454,735.83	
Back	= S 50° 19' 53.88"	E	
Ahead	= S 22° 59' 02.25"	E	
Chord Bear	= S 36° 39' 28.06"	E	
Course from PT PRPATH8 to PC PRPATH9 S 22° 59' 02.25" E Dist 694.44			

Curve Data *-----*			
Curve PRPATH9			
P.I. Station	22+63.31	X	1,386,863.67 Y 454,140.02
Delta	=	37° 07' 37.98" (RT)	
Degree	=	77° 25' 36.22"	
Tangent	=	24.85	
Length	=	47.95	
Radius	=	74.00	
External	=	4.06	
Long Chord	=	47.12	
Mid. Ord.	=	3.85	
P.C. Station	22+38.46	X	1,386,853.96 Y 454,162.90
P.T. Station	22+86.41	X	1,386,857.59 Y 454,115.92
C.C.	X	1,386,785.84 Y 454,134.00	
Back	= S 22° 59' 02.25"	E	
Ahead	= S 14° 08' 35.73"	W	
Chord Bear	= S 4° 25' 13.26"	E	
Course from PT PRPATH10 to PC PRPATH11 S 22° 59' 02.25" E Dist 200.00			

Curve Data *-----*			
Curve PRPATH10			
P.I. Station	23+11.27	X	1,386,851.52 Y 454,091.82
Delta	=	37° 07' 37.98" (LT)	
Degree	=	77° 25' 36.22"	
Tangent	=	24.85	
Length	=	47.95	
Radius	=	74.00	
External	=	4.06	
Long Chord	=	47.12	
Mid. Ord.	=	3.85	
P.C. Station	22+86.41	X	1,386,857.59 Y 454,115.92
P.T. Station	23+34.37	X	1,386,861.22 Y 454,068.94
C.C.	X	1,386,929.35 Y 454,097.84	
Back	= S 14° 08' 35.73"	W	
Ahead	= S 22° 59' 02.25"	E	
Chord Bear	= S 4° 25' 13.26"	E	
Course from PT PRPATH10 to PC PRPATH11 S 22° 59' 02.25" E Dist 200.00			

Curve Data *-----*			
Curve PRPATH11			
P.I. Station	25+51.46	X	1,386,946.00 Y 453,869.08
Delta	=	26° 01' 08.39" (LT)	
Degree	=	77° 25' 36.22"	
Tangent	=	17.10	
Length	=	33.60	
Radius	=	74.00	
External	=	1.95	
Long Chord	=	33.32	
Mid. Ord.	=	1.90	
P.C. Station	25+34.37	X	1,386,939.32 Y 453,884.82
P.T. Station	25+67.97	X	1,386,958.90 Y 453,857.86
C.C.	X	1,387,007.45 Y 453,913.71	
Back	= S 22° 59' 02.25"	E	
Ahead	= S 49° 00' 10.64"	E	
Chord Bear	= S 35° 59' 36.44"	E	
Course from PT PRPATH11 to PC PRPATH12 S 22° 59' 02.25" E Dist 314.57			

Curve Data *-----*			
Curve PRPATH12			
P.I. Station	25+85.07	X	1,386,971.80 Y 453,846.65
Delta	=	26° 01' 08.39" (RT)	
Degree	=	77° 25' 36.23"	
Tangent	=	17.10	
Length	=	33.60	
Radius	=	74.00	
External	=	1.95	
Long Chord	=	33.32	
Mid. Ord.	=	1.90	
P.C. Station	25+67.97	X	1,386,958.90 Y 453,857.86
P.T. Station	26+01.57	X	1,386,978.48 Y 453,830.91
C.C.	X	1,386,910.35 Y 453,802.01	
Back	= S 49° 00' 10.64"	E	
Ahead	= S 22° 59' 02.25"	E	
Chord Bear	= S 35° 59' 36.44"	E	
Course from PT PRPATH12 to PC PRPATH13 S 22° 59' 02.25" E Dist 314.57			

Curve Data *-----*			
Curve PRPATH13			
P.I. Station	29+36.06	X	1,387,109.09 Y 453,522.98
Delta	=	30° 07' 57.80" (RT)	
Degree	=	77° 25' 36.22"	
Tangent	=	19.92	
Length	=	38.92	
Radius	=	74.00	
External	=	2.63	
Long Chord	=	38.47	
Mid. Ord.	=	2.54	
P.C. Station	29+16.14	X	1,387,101.31 Y 453,541.31
P.T. Station	29+55.06	X	1,387,106.61 Y 453,503.21
C.C.	X	1,387,033.18 Y 453,512.42	
Back	= S 22° 59' 02.25"	E	
Ahead	= S 7° 08' 55.55"	W	
Chord Bear	= S 7° 55' 03.35"	E	
Course from PT PRPATH13 to PC PRPATH14 S 22° 59' 02.25" E Dist 102.09			

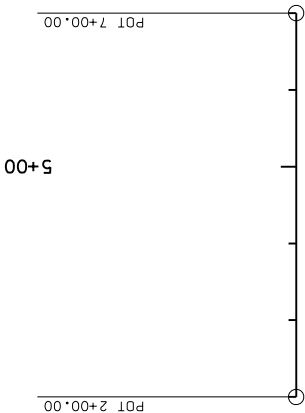
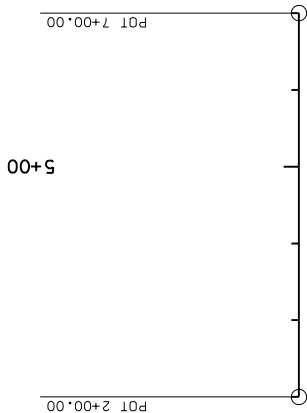
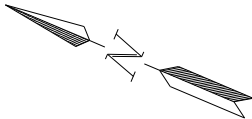
Curve Data *-----*			
Curve PRPATH14			
P.I. Station	29+74.98	X	1,387,104.13 Y 453,483.45
Delta	=	30° 07' 57.80" (LT)	
Degree	=	77° 25' 36.22"	
Tangent	=	19.92	
Length	=	38.92	
Radius	=	74.00	
External	=	2.63	
Long Chord	=	38.47	
Mid. Ord.	=	2.54	
P.C. Station	29+55.06	X	1,387,106.61 Y 453,503.21
P.T. Station	29+93.98	X	1,387,111.91 Y 453,465.11
C.C.	X	1,387,180.03 Y 453,494.00	
Back	= S 7° 08' 55.55"	W	
Ahead	= S 22° 59' 02.25"	E	
Chord Bear	= S 7° 55' 03.35"	E	
Course from PT PRPATH14 to PC PRPATH15 S 22° 59' 02.25" E Dist 102.09			

Curve Data *-----*			
Curve PRPATH15			
P.I. Station	31+23.16	X	1,387,162.35 Y 453,346.17
Delta	=	40° 13' 30.26" (LT)	
Degree	=	77° 25' 36.22"	
Tangent	=	27.10	
Length	=	51.95	
Radius	=	74.00	
External	=	4.81	
Long Chord	=	50.89	
Mid. Ord.	=	4.51	
P.C. Station	30+96.06	X	1,387,151.77 Y 453,371.12
P.T. Station	31+48.02	X	1,387,186.54 Y 453,333.96
C.C.	X	1,387,219.90 Y 453,400.02	
Back	= S 22° 59' 02.25"	E	
Ahead	= S 63° 12' 32.51"	E	
Chord Bear	= S 43° 05' 47.38"	E	
Course from PT PRPATH15 to PC PRPATH16 S 22° 59' 02.25" E Dist 136.50			

Curve Data *-----*			
Curve PRPATH16			
P.I. Station	31+75.12	X	1,387,210.73 Y 453,321.75
Delta	=	40° 13' 30.26" (RT)	
Degree	=	77° 25' 36.22"	
Tangent	=	27.10	
Length	=	51.95	
Radius	=	74.00	
External	=	4.81	
Long Chord	=	50.89	
Mid. Ord.	=	4.51	
P.C. Station	31+48.02	X	1,387,186.54 Y 453,333.96
P.T. Station	31+99.97	X	1,387,221.31 Y 453,296.80
C.C.	X	1,387,153.19 Y 453,267.90	
Back	= S 63° 12' 32.51"	E	
Ahead	= S 22° 59' 02.25"	E	
Chord Bear	= S 43° 05' 47.38"	E	
Course from PT PRPATH16 to PC PRPATH17 S 22° 59' 02.25" E Dist 136.50			

Point 8001	X	1,387,310.76 Y 452,957.86 Sta 35+61.40
=====		
Ending chain PRPATH description		

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	82	3



Beginning chain PRFAIRWAY description
=====

Point 8010	X	1,387,084.21	Y	453,389.55	Sta	2+00.00
Course from 8010 to 8011 N 67° 00' 59.15" E Dist 500.00						
Point 8011	X	1,387,544.52	Y	453,584.78	Sta	7+00.00

=====

Ending chain PRFAIRWAY description

Beginning chain PR8THST description
=====

Point 8020	X	1,387,252.21	Y	452,993.45	Sta	2+00.00
Course from 8020 to 8021 N 67° 00' 57.75" E Dist 500.00						
Point 8021	X	1,387,712.52	Y	453,188.69	Sta	7+00.00

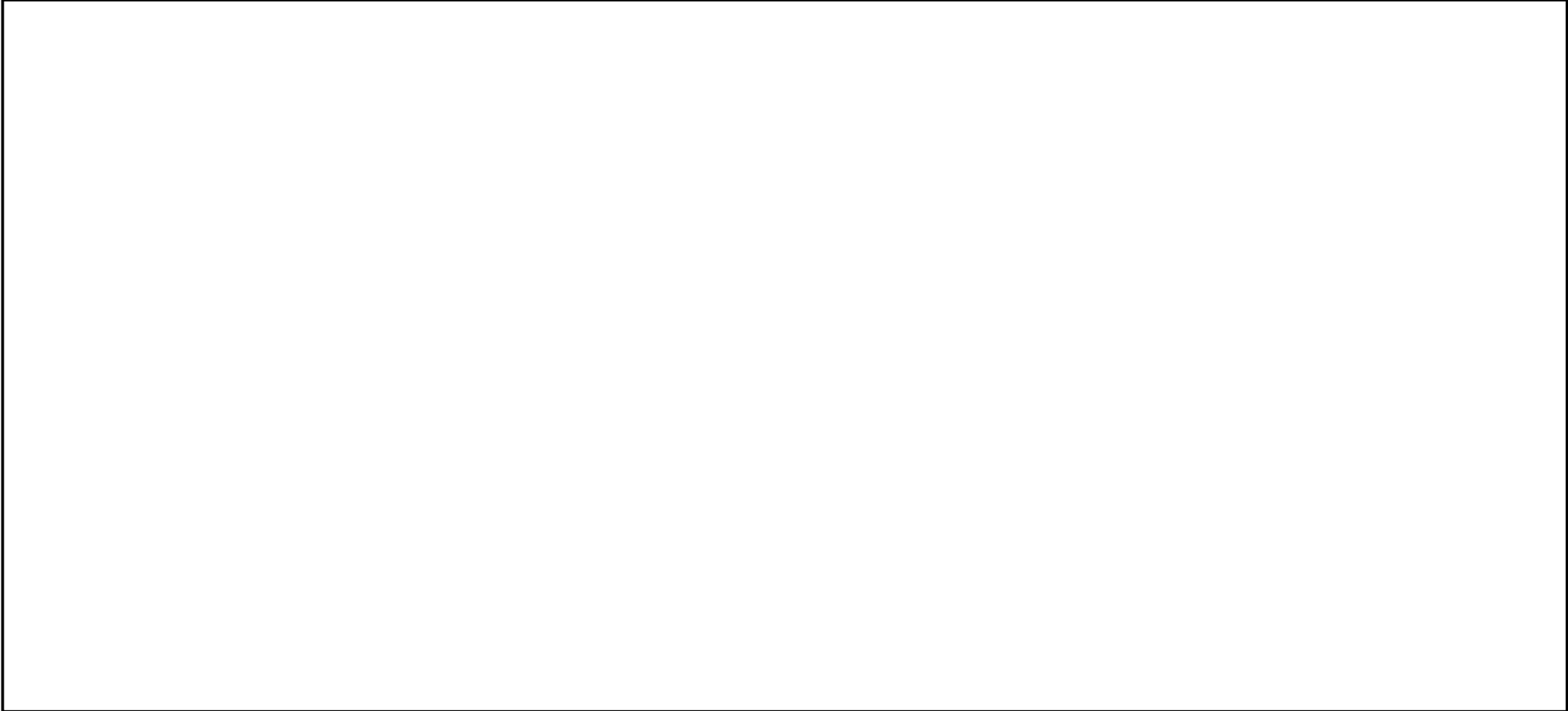
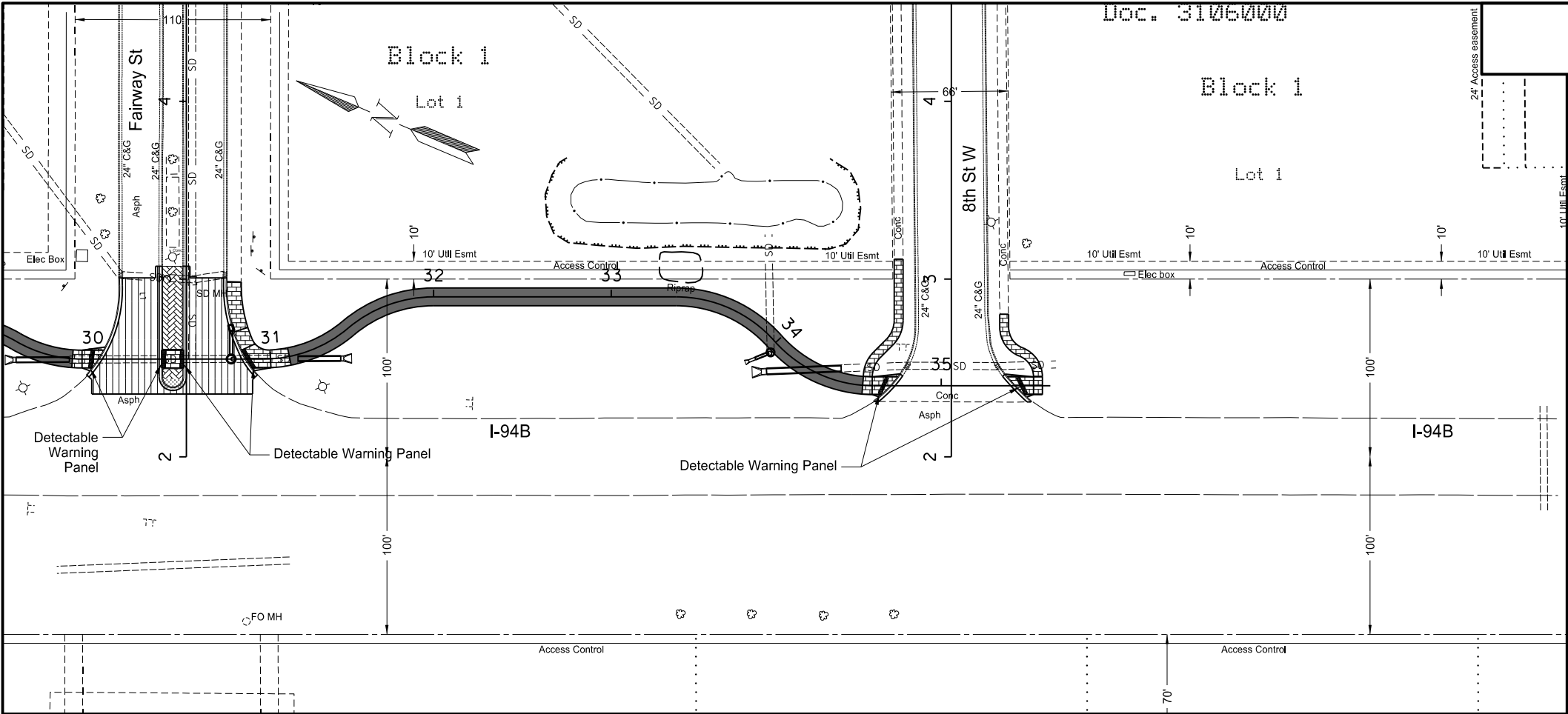
=====

Ending chain PR8THST description

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Survey Data Layout

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	90	3

302	0120	Aggregate Base Course CL 5	392	TON
30+00 to 35+56.95 (NHU)				
430	0500	Commercial Grade Hot Mix Asphalt	114	TON
30+00 to 35+56.95 (NHU)				
748	0140	Curb & Gutter - Type 1	286	LF
30+00 to 35+56.95 (NHU)				
750	0100	Sidewalk Concrete	197	SY
30+00 to 35+56.95 (NHU)				
750	0200	Concrete Median Paving	67	SY
30+00 to 35+56.95 (NHU)				
750	0200	Concrete Median Nose Paving	9	SY
30+00 to 35+56.95 (NHU)				
750	2115	Detectable Warning Panels	124	SF
30+00 to 35+56.95 (NHU)				
Bid Option 1: Bituminous Shared Use Path				
430	0500	Commercial Grade Hot Mix Asphalt	91	TON
30+00 to 35+56.95 (NHU)				
Bid Option 2: Concrete Shared Use Path				
750	0105	Sidewalk Concrete Bikeway	383	SY
30+00 to 35+56.95 (NHU)				

Legend	
	Sidewalk Concrete
	Shared Use Path
	5" Commercial Grade Hot Mix Asphalt
	Concrete Median Paving
	Concrete Median Nose Paving
	Curb & Gutter

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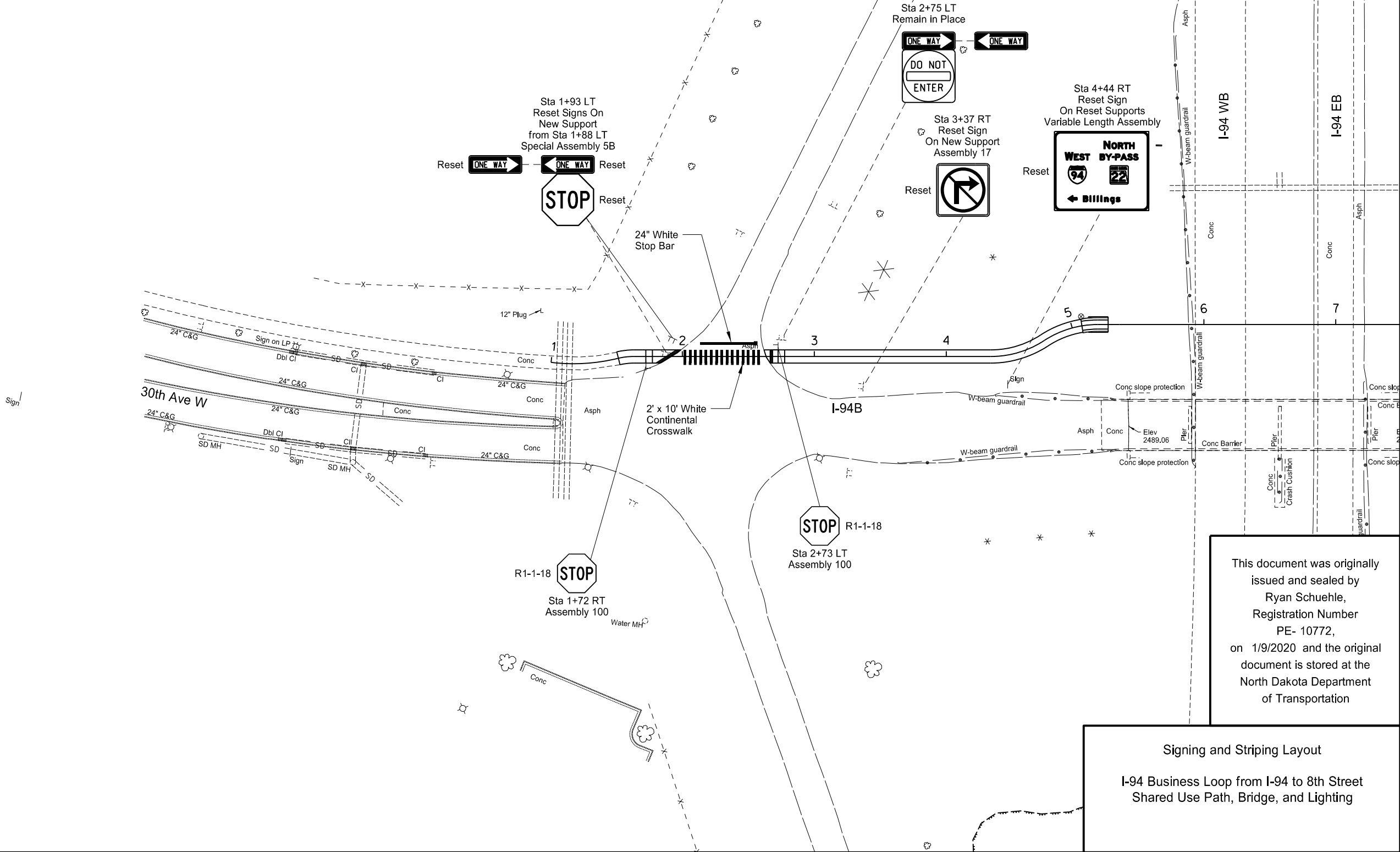
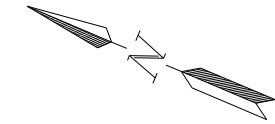
Paving Layout

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting
Sta 30+00 to Sta 35+73.35

[illegible]

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	110	3

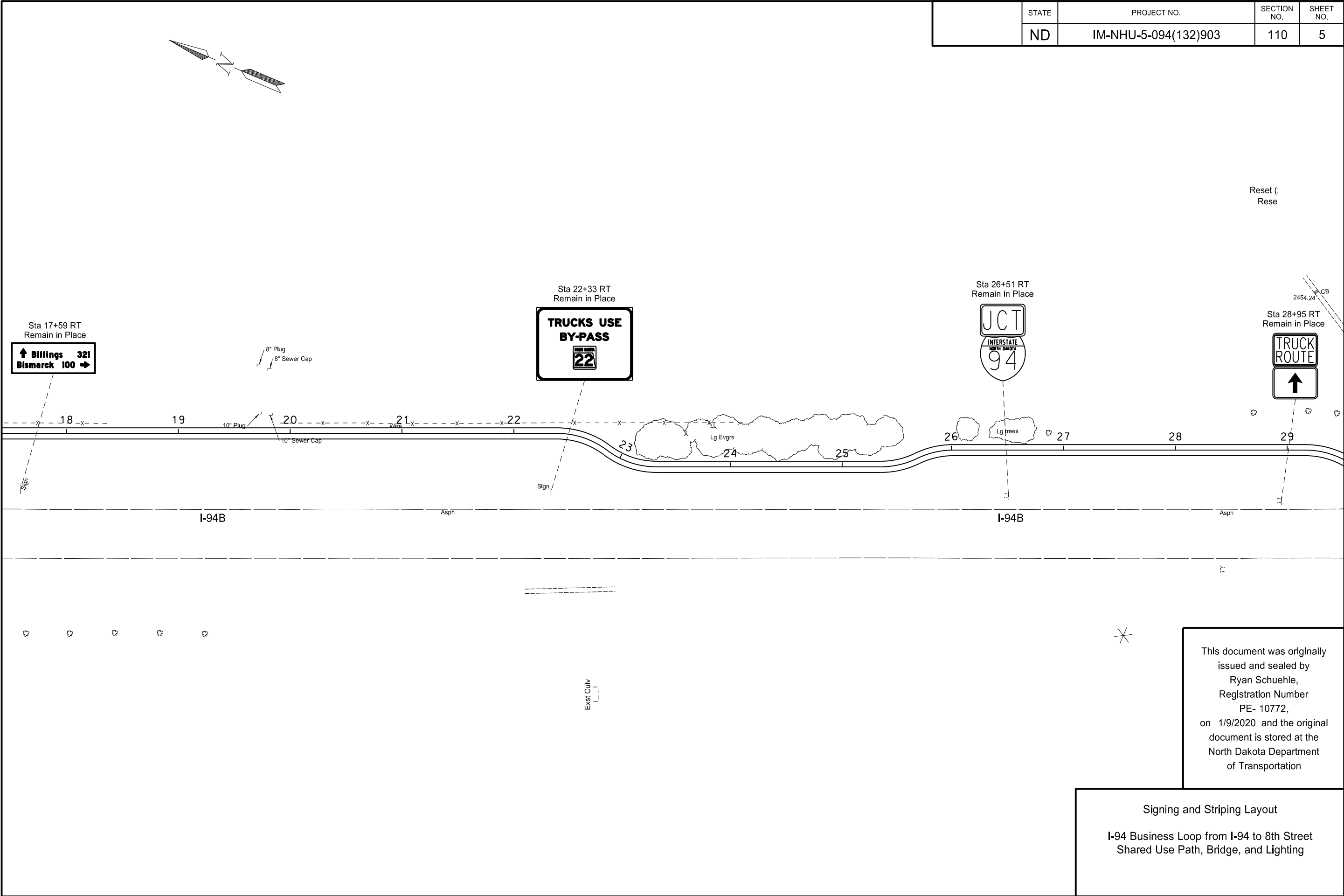
762	1325	Preformed Patterned Pvmt Mk 24IN Line-Grooved	
		Crosswalk (IM)	# of Lines x 10 = 150 LF
		White Stop Bar (IM)	42 LF
		Total =	192 LF



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Signing and Striping Layout
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	110	5

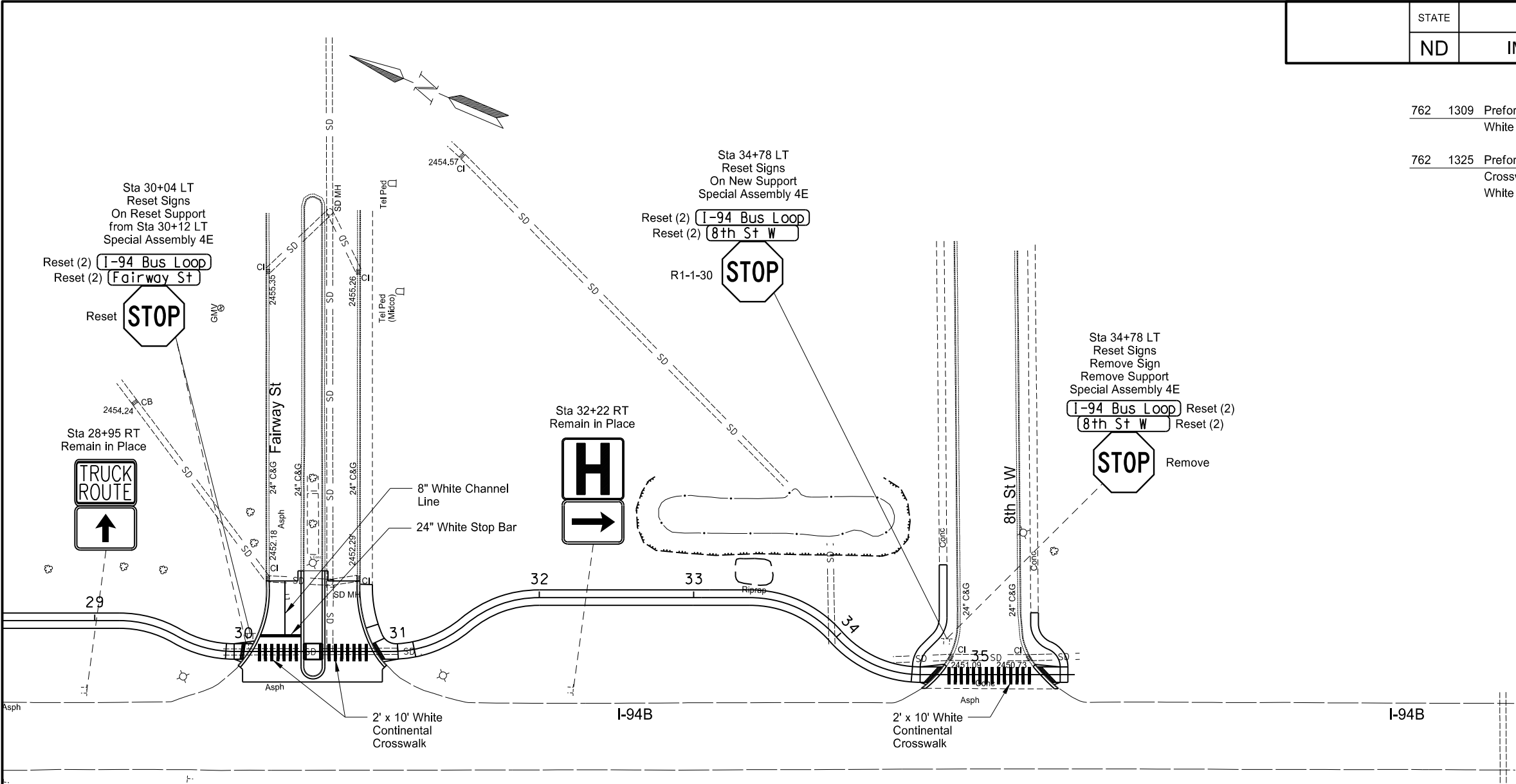


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Signing and Striping Layout
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	110	6

762	1309	Preformed Patterned Pvmt Mk 8IN Line-Grooved		
		White Channel Line (NHU)	35	LF
762	1325	Preformed Patterned Pvmt Mk 24IN Line-Grooved		
		Crosswalk (NHU)	# of Lines x 10 =	280
		White Stop Bar (NHU)		27
		Total =	307	LF

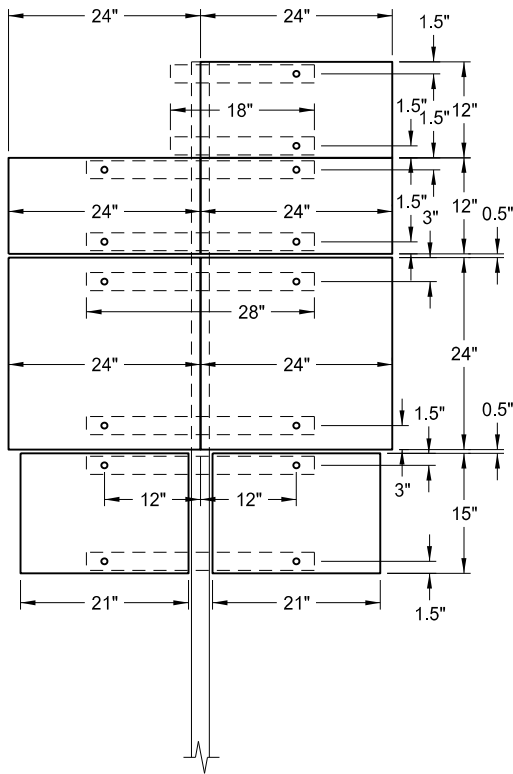


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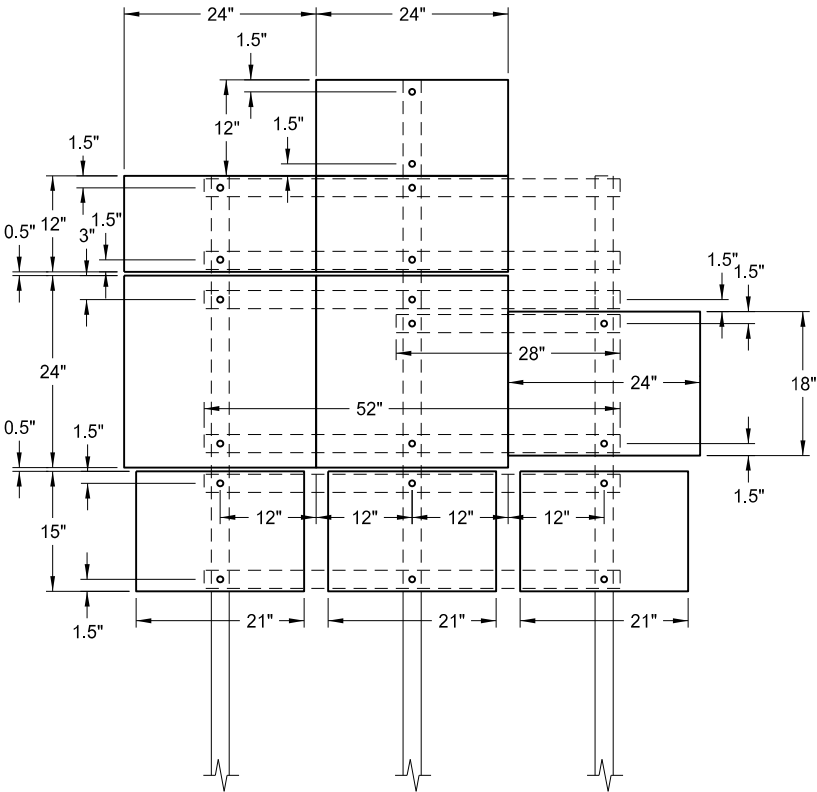
Signing and Striping Layout

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

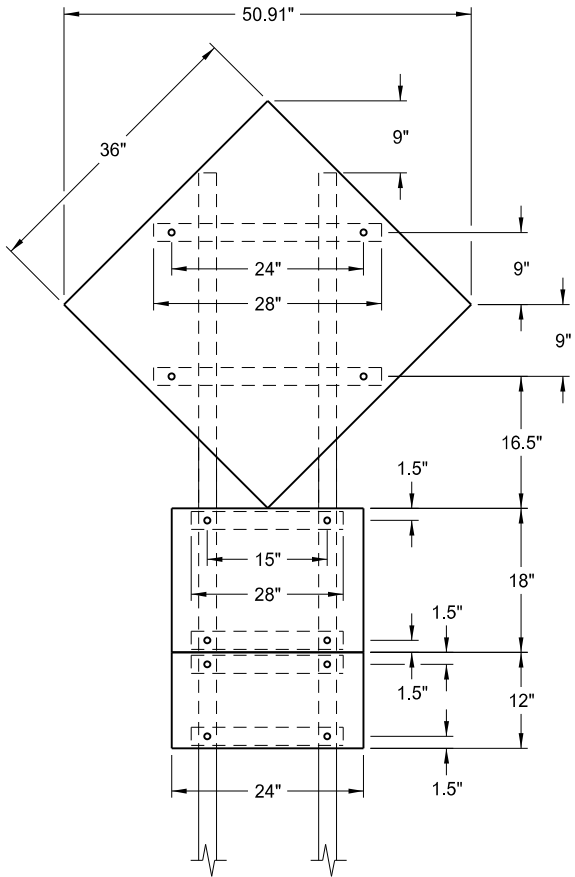
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	110	7



Special Assembly A
Sta 9+62 RT
(PRPATH)
Pay Area: 16.2 SF



Special Assembly B
Sta 11+37 RT
(PRPATH)
Pay Area: 23.6 SF



Special Assembly C
Sta 10+44 RT
Sta 11+21 RT
(PRPATH)
Pay Area: 14.0 SF

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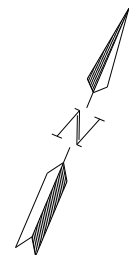
Signing Details

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting

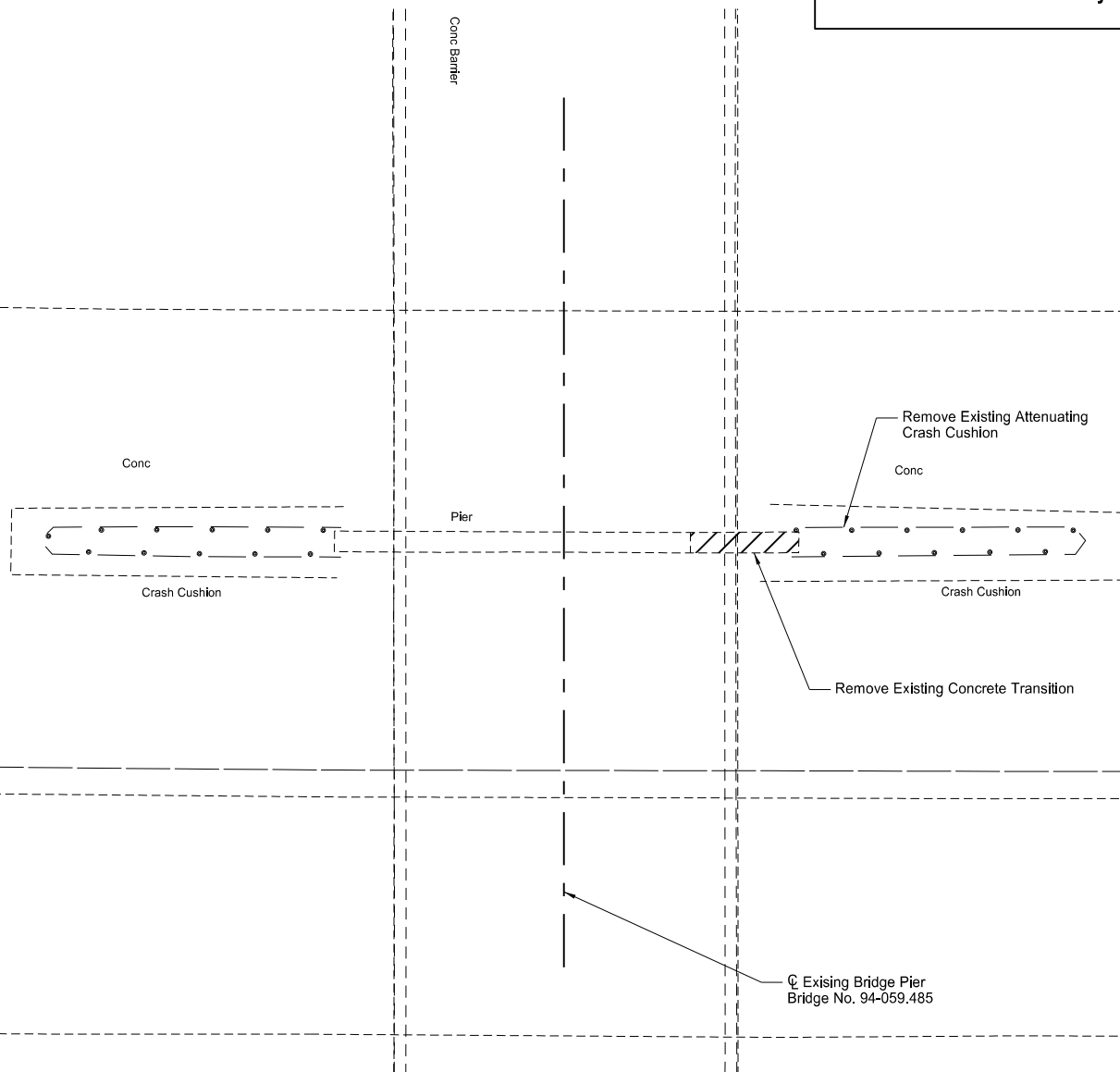
Special Assemblies

23 U.S.C. § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	130	1



I-94 WB



I-94 EB

202	101	Removal of Concrete	1	EA
764	9035	Remove Attenuating Crash Cushion TL-3	1	EA

Notes:

1. Removal of the existing attenuating crash cushion includes removal of the crash cushion and the underlying concrete base. Deliver the removed attenuating crash cushion to the Dickinson District Yard.

Include all costs to remove the existing concrete bases in the contract unit price bid for the item "Remove Attenuating Crash Cushion TL-3".
2. Removal of existing concrete transition is from existing crash cushion to existing pier wall.

Include all costs to remove the existing concrete transistions in the contract unit price bid for the item "Removal of Concrete".

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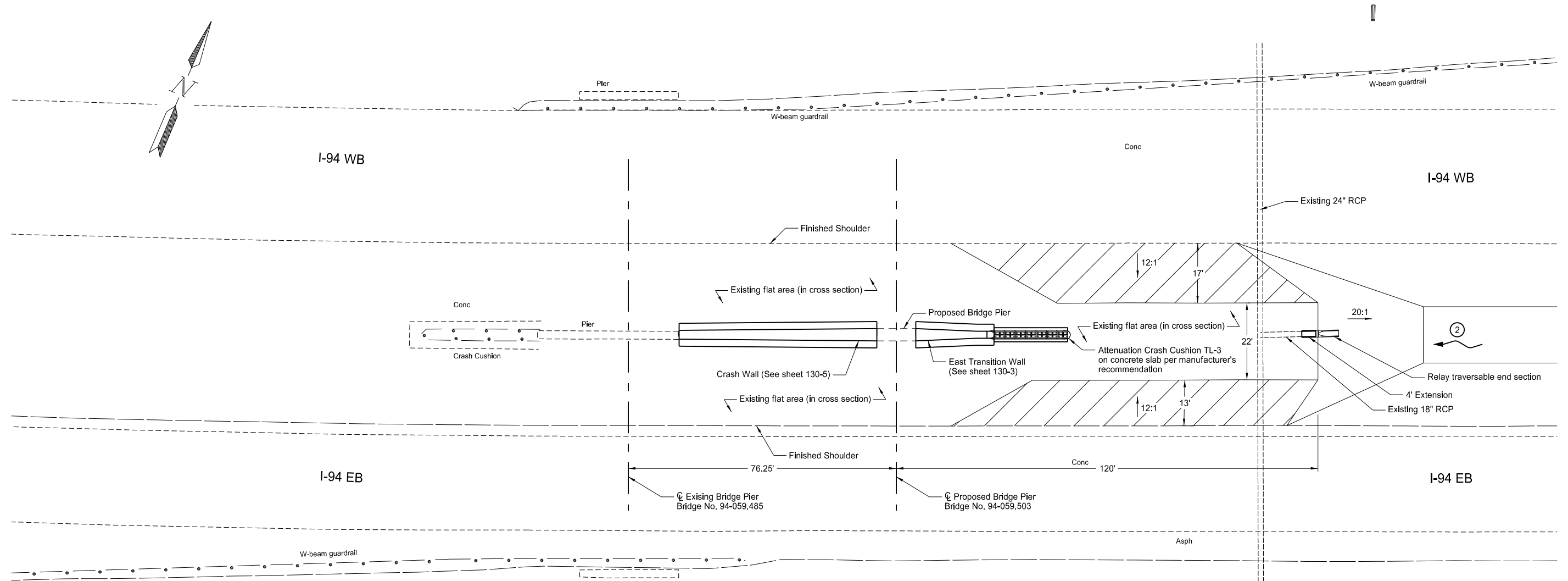
Concrete Transition and Attenuation Device
Removal

Median Pier Protection

I-94 Pedestrian Crossover
West Dickinson Interchange
RP 59.503

23 U.S.C. § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	130	2

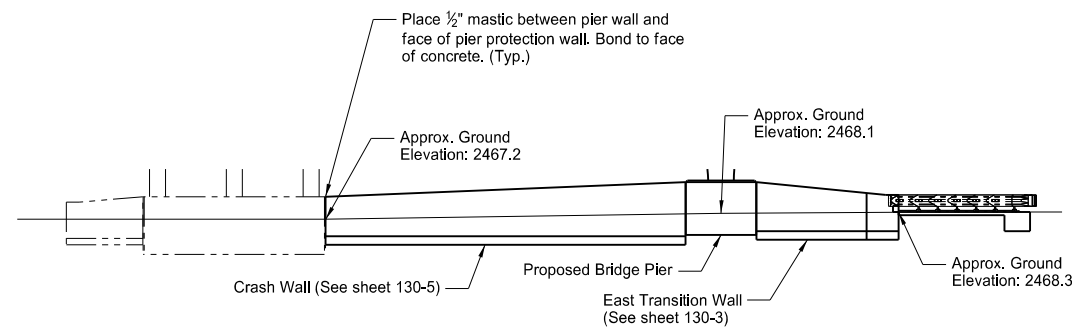


Plan View

602	130	Class AAE-3 Concrete	87.0	CY
612	115	Reinforcing Steel-Grade 60	9231	LBS
764	9011	Attenuating Crash Cushion TL-3	1	EA

Notes:

- See section 51 and section 60 for pipe information.
- ② Maintain drainage to existing culvert



Elevation View

DESIGN STRENGTHS:

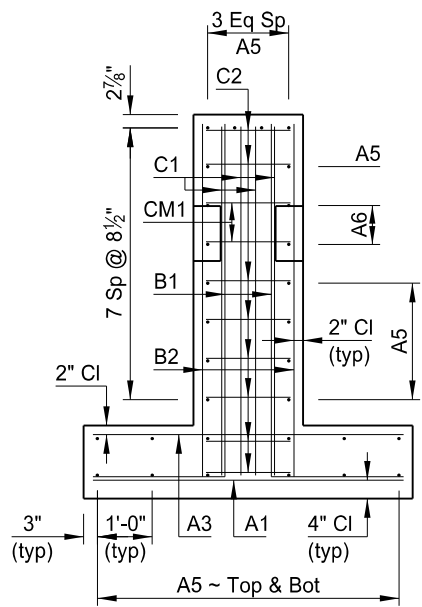
f'c = 4,000 psi ~ Class AAE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

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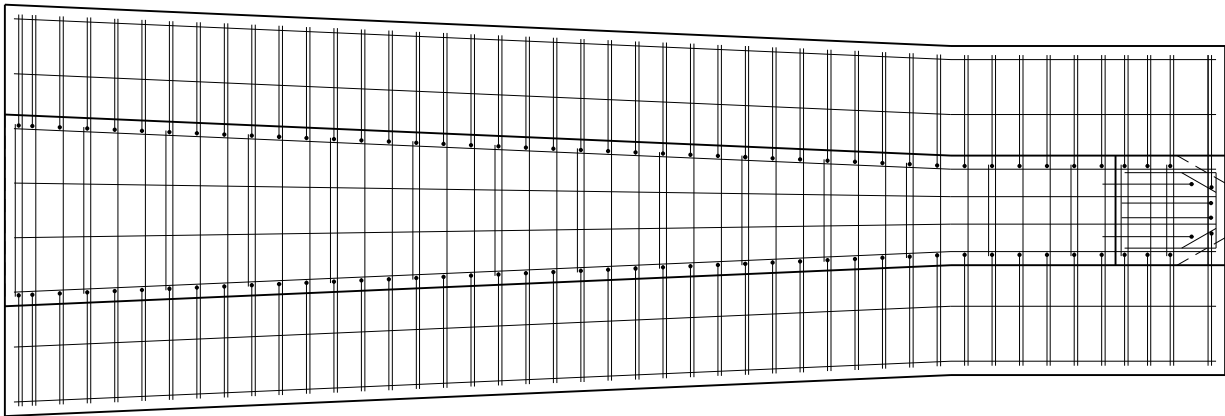
Pier Protection and Attenuation Device Layout

Median Pier Protection

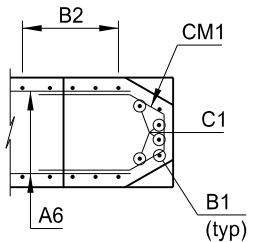
I-94 Pedestrian Crossover
West Dickinson Interchange
RP 59.503



A-A



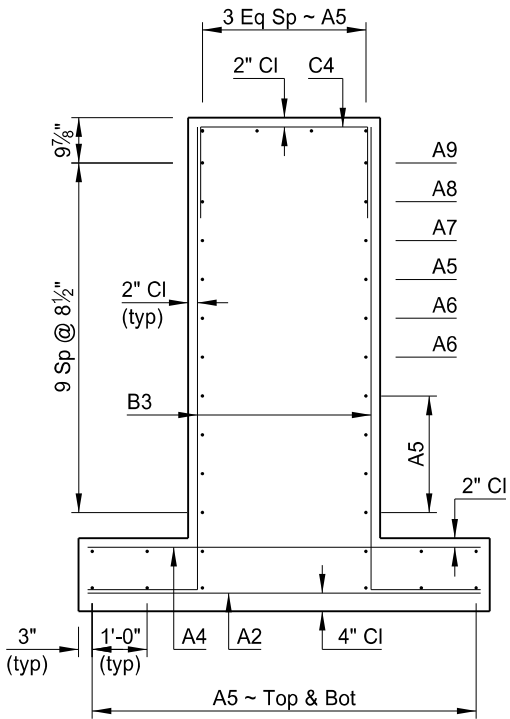
PLAN



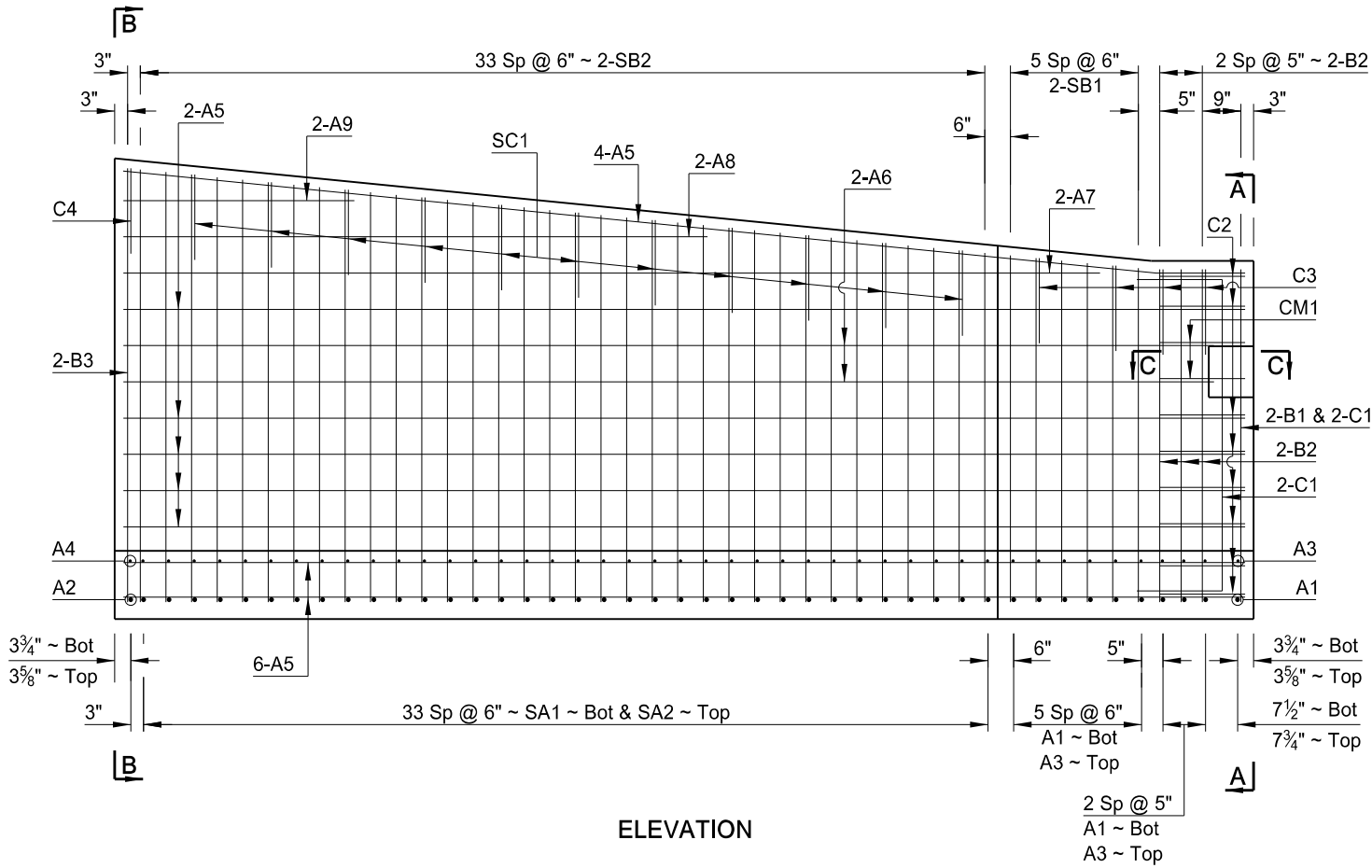
C-C

NOTE:

Field bend A5-A9 bars to fit.



B-B



ELEVATION

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QUANTITIES	
CLASS AAE-3 CONCRETE	21.5 CY
REINFORCING STEEL	2,570 LBS
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE	
RP 59.503 (SHOWING REINFORCING)	
MEDIAN PIER PROTECTION EAST TRANSITION WALL DETAILS	



**I-94 PEDESTRIAN CROSSOVER
WEST DICKINSON INTERCHANGE**

RP 59.503
(SHOWING REINFORCING)

**MEDIAN PIER PROTECTION
CRASH WALL DETAILS**

1/15/2020	1:24:05 PM	rschuehle	pw:\srf-pw.bentley.com:srf-pw\Documents\Projects\11870\5094903.132\Design\Plan\130GR_006.dgn	RAR
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23 U.S.C. § 409 Documents
NDDOT Reserves All Objections

STATE

PROJECT NO.

SECTION
NO.

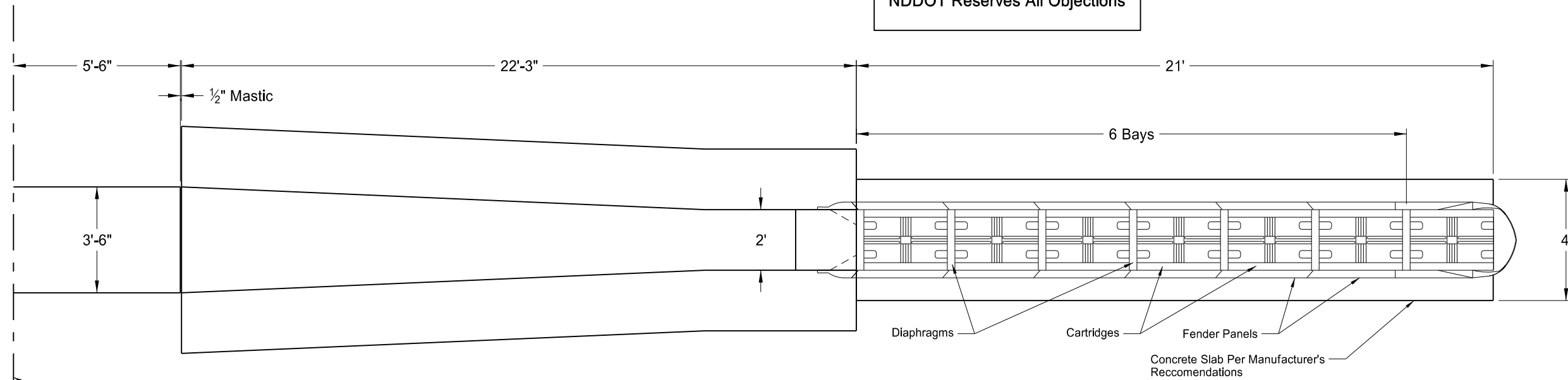
SHEET
NO.

ND

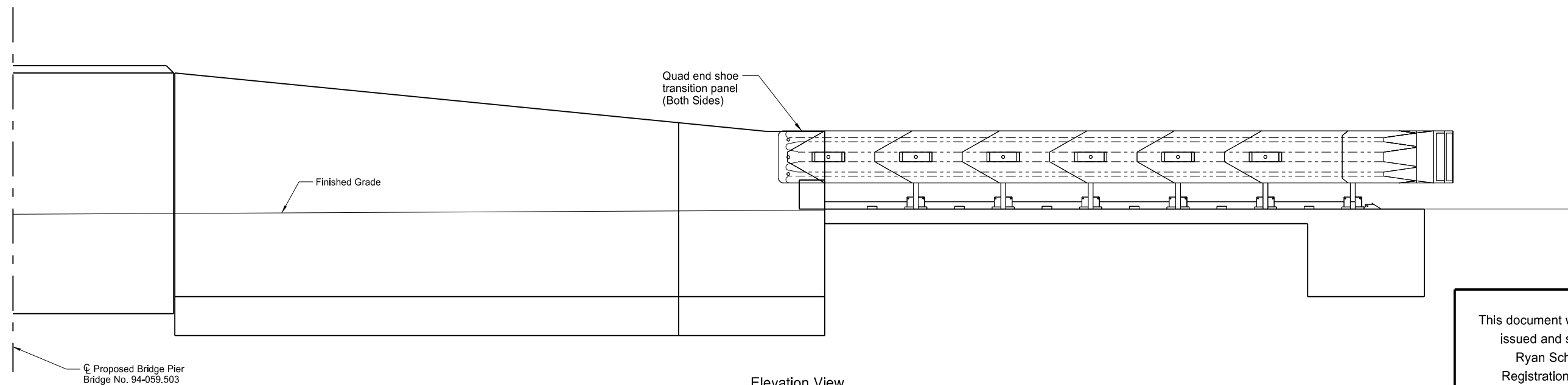
IM-NHU-5-094(132)903

130

8



Plan View



Elevation View

Notes:

Install a 24" wide QuadGuard M10 crash cushion at the end of the reinforced concrete transition wall protecting the pier of Bridge No. 94-059.503.

Install the crash cushion on a concrete pad in accordance with the crash cushion manufacturer's recommendations, with transition panels on both sides of the unit, and a Type XI yellow retroreflective sheeting on the nose, as shown in the plans.

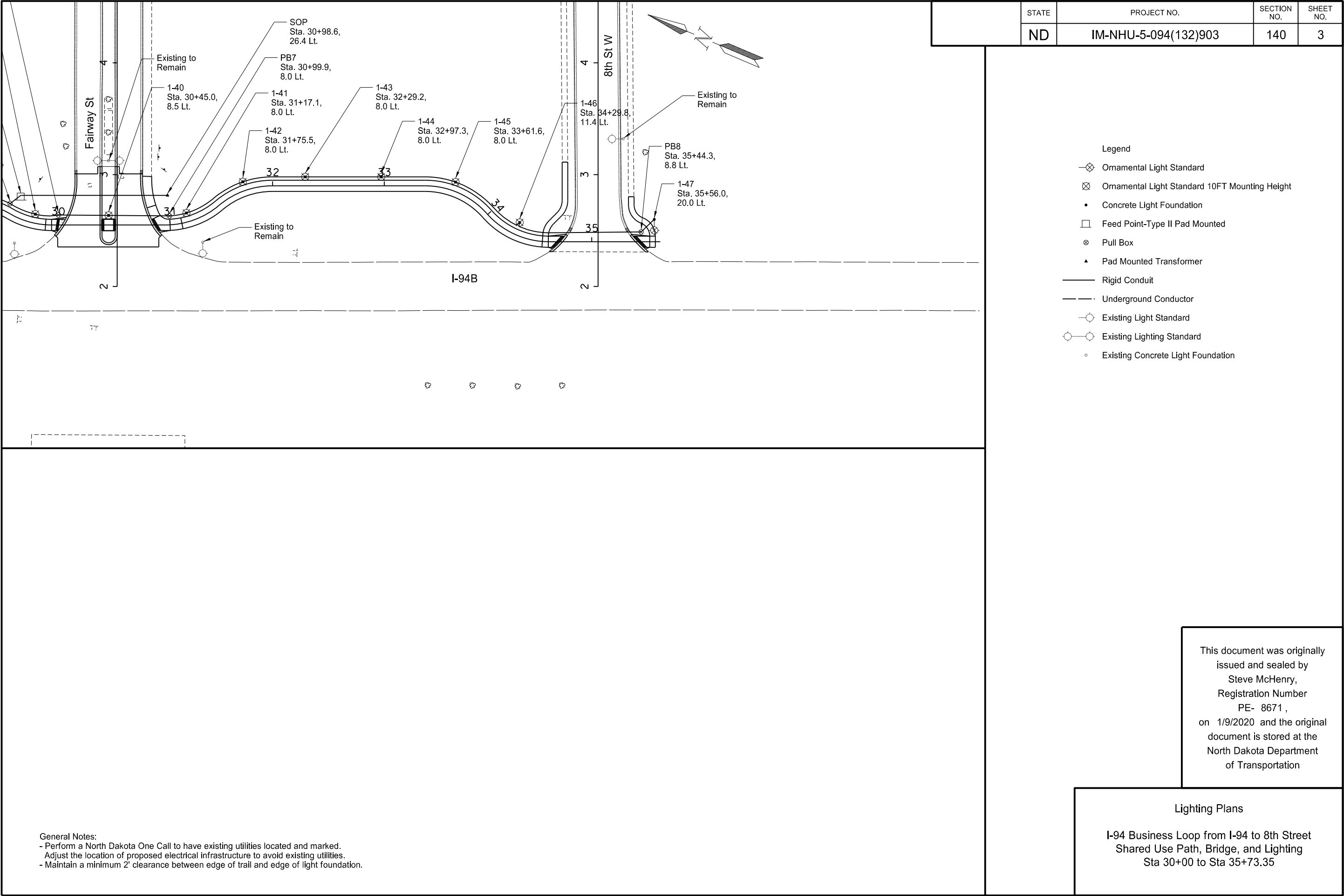
Include all costs for supplying and installing the concrete slab, transition panels, and retroreflective sheeting in the contract unit price bid for "Attenuating Crash Cushion TL-3."

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Attenuating Crash Cushion Details

Median Pier Protection

I-94 Pedestrian Crossover
West Dickinson Interchange
RP 59.503



Point	Station	Conduit Runs		Cable Trench	Cable Runs	
		Length (ft)	Size	Length (ft)	Length (ft)	Type
SOP	30+98.6, 26.4 Lt to	132	2"		304	2 - NO 2 TYPE RHW
FP1	29+55.1, 19.0 Lt				152	1 - NO 2 TYPE THW
FP1	29+55.1, 19.0 Lt to	13	1.5"		132	2 - NO 6 TYPE RHW
PB5	29+50.9, 8.0 Lt to	35	1.5"		66	1 - NO 6 TYPE THW
1-38	29+19.7, 8.0 Lt					
1-38	29+19.7, 8.0 Lt to	67	1.5"		150	2 - NO 6 TYPE RHW
1-37	28+53.3, 8.0 Lt				75	1 - NO 6 TYPE THW
1-37	28+53.3, 8.0 Lt to	67	1.5"		150	2 - NO 6 TYPE RHW
1-36	27+86.3, 8.0 Lt				75	1 - NO 6 TYPE THW
1-36	27+86.3, 8.0 Lt to	68	1.5"		152	2 - NO 6 TYPE RHW
1-35	27+18.8, 8.0 Lt				76	1 - NO 6 TYPE THW
1-35	27+18.8, 8.0 Lt to	69	1.5"		154	2 - NO 6 TYPE RHW
1-34	26+50.6, 8.0 Lt				77	1 - NO 6 TYPE THW
1-34	26+50.6, 8.0 Lt to	63	1.5"		142	2 - NO 6 TYPE RHW
1-33	25+89.8, 8.0 Lt				71	1 - NO 6 TYPE THW
1-33	25+89.8, 8.0 Lt to	65	1.5"		146	2 - NO 6 TYPE RHW
1-32	25+23.7, 8.0 Lt				73	1 - NO 6 TYPE THW
1-32	25+23.7, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-31	24+53.7, 8.0 Lt				78	1 - NO 6 TYPE THW
1-31	24+53.7, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-30	23+83.7, 8.0 Lt				78	1 - NO 6 TYPE THW
1-30	23+83.7, 8.0 Lt to	65	1.5"		146	2 - NO 6 TYPE RHW
1-29	23+16.9, 8.0 Lt				73	1 - NO 6 TYPE THW
1-29	23+16.9, 8.0 Lt to	63	1.5"		142	2 - NO 6 TYPE RHW
1-28	22+54.4, 8.0 Lt				71	1 - NO 6 TYPE THW
1-28	22+54.4, 8.0 Lt to	66	1.5"		148	2 - NO 6 TYPE RHW
1-27	21+91.1, 8.0 Lt				74	1 - NO 6 TYPE THW
1-27	21+91.1, 8.0 Lt to	66	1.5"		148	2 - NO 6 TYPE RHW
1-26	21+25.4, 8.0 Lt				74	1 - NO 6 TYPE THW
1-26	21+25.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-25	20+55.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-25	20+55.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-24	19+85.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-24	19+85.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-23	19+15.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-23	19+15.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-22	18+45.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-22	18+45.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-21	17+75.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-21	17+75.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-20	17+05.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-20	17+05.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-19	16+35.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-19	16+35.4, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-18	15+65.4, 8.0 Lt				78	1 - NO 6 TYPE THW
1-18	15+65.4, 8.0 Lt to	69	1.5"		154	2 - NO 6 TYPE RHW
1-17	14+98.5, 8.0 Lt				77	1 - NO 6 TYPE THW

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Point	Station	Conduit Runs		Cable Trench	Cable Runs	
		Length (ft)	Size	Length (ft)	Length (ft)	Type
1-17	14+98.5, 8.0 Lt to	62	1.5"		140	2 - NO 6 TYPE RHW
1-16	14+37.4, 8.0 Lt				70	1 - NO 6 TYPE THW
1-16	14+37.4, 8.0 Lt to	51	1.5"		118	2 - NO 6 TYPE RHW
1-15	13+84.3, 8.0 Lt				59	1 - NO 6 TYPE THW
1-15	13+84.3, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-14	13+14.2, 8.0 Lt				78	1 - NO 6 TYPE THW
1-14	13+14.2, 8.0 Lt to	70	1.5"		156	2 - NO 6 TYPE RHW
1-13	12+44.2, 8.0 Lt				78	1 - NO 6 TYPE THW
1-13	12+44.2, 8.0 Lt to	71	1.5"		158	2 - NO 6 TYPE RHW
1-12	11+74.2, 8.0 Lt				79	1 - NO 6 TYPE THW
1-12	11+74.2, 8.0 Lt to	65	1.5"		298	2 - NO 6 TYPE RHW
PB4	11+09.9, 8.0 Lt to	72	1.5"		149	1 - NO 6 TYPE THW
1-11	10+47.5, 20.0 Lt					
1-11	10+47.5, 20.0 Lt to	130	1.5"		276	2 - NO 6 TYPE RHW
1-10	9+26.6, 8.0 Lt				138	1 - NO 6 TYPE THW
1-10	9+26.6, 8.0 Lt to	73	1.5"		162	2 - NO 6 TYPE RHW
1-9	8+50.7, 8.0 Lt				81	1 - NO 6 TYPE THW
1-9	8+50.7, 8.0 Lt to	50	1.5"		312	2 - NO 6 TYPE RHW
PB2	8+03.8, 7.8 Lt to	Note 2	2"		156	1 - NO 6 TYPE THW
1-7	7+17.5, Lt					
1-7	7+17.5, Lt to	Note 2	2"		272	2 - NO 6 TYPE RHW
1-5	5+97.5, Lt				136	1 - NO 6 TYPE THW
1-5	5+97.5, Lt to	Note 2	2"		310	2 - NO 6 TYPE RHW
PB1	5+11.1, 7.8 Lt to	49	1.5"		155	1 - NO 6 TYPE THW
1-3	4+64.6, 8.0 Lt					
1-3	4+64.6, 8.0 Lt to	68	1.5"		152	2 - NO 6 TYPE RHW
1-2	3+94.2, 8.0 Lt				76	1 - NO 6 TYPE THW
1-2	3+94.2, 8.0 Lt to	137	1.5"		290	2 - NO 6 TYPE RHW
1-1	2+65.8, 20.0 Lt				145	1 - NO 6 TYPE THW
1-9	8+50.7, 8.0 Lt to	Note 3	1.5"		230	2 - NO 6 TYPE RHW
PB2	8+03.8, 7.8 Lt to	15	1.5"		115	1 - NO 6 TYPE THW
PB3	8+05.4, 6.2 Rt to	Note 2	2"			
1-8	7+77.5, Rt					
1-8	7+77.5, Rt to	Note 2	2"		272	2 - NO 6 TYPE RHW
1-6	6+57.5, Rt				136	1 - NO 6 TYPE THW
1-6	6+57.5, Rt to	Note 2	2"		272	2 - NO 6 TYPE RHW
1-4	5+37.5, Rt				136	1 - NO 6 TYPE THW

Note:
1 - Bridge mounted
2 - Conduit furnished and installed by bridge contractor
3 - Conduit included in a previous total

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Lighting Plans

Quantities

FP1	29+55.1, 19.0 Lt to	13	1.5"		112	2 - NO 6 TYPE RHW
PB5	29+50.9, 8.0 Lt to	25	1.5"		56	1 - NO 6 TYPE THW
1-39	29+77.6, 8.0 Lt					
1-39	29+77.6, 8.0 Lt to	21	1.5"		156	2 - NO 6 TYPE RHW
PB6	30+00.1, 8.9 Lt to	45	1.5"		78	1 - NO 6 TYPE THW
1-40	30+45.0, 8.5 Lt					
1-40	30+45.0, 8.5 Lt to	55	1.5"		166	2 - NO 6 TYPE RHW
PB7	30+99.9, 8.0 Lt to	16	1.5"		83	1 - NO 6 TYPE THW
1-41	31+17.1, 8.0 Lt					
1-41	31+17.1, 8.0 Lt to	59	1.5"		134	2 - NO 6 TYPE RHW
1-42	31+75.5, 8.0 Lt				67	1 - NO 6 TYPE THW
1-42	31+75.5, 8.0 Lt to	57	1.5"		130	2 - NO 6 TYPE RHW
1-43	32+29.2, 8.0 Lt				65	1 - NO 6 TYPE THW
1-43	32+29.2, 8.0 Lt to	69	1.5"		154	2 - NO 6 TYPE RHW
1-44	32+97.3, 8.0 Lt				77	1 - NO 6 TYPE THW
1-44	32+97.3, 8.0 Lt to	67	1.5"		150	2 - NO 6 TYPE RHW
1-45	33+61.6, 8.0 Lt				75	1 - NO 6 TYPE THW
1-45	33+61.6, 8.0 Lt to	71	1.5"		158	2 - NO 6 TYPE RHW
1-46	34+29.8, 11.4 Lt				79	1 - NO 6 TYPE THW
1-46	34+29.8, 11.4 Lt to	113	1.5"		284	2 - NO 6 TYPE RHW
PB8	35+44.3, 8.8 Lt to	17	1.5"		142	1 - NO 6 TYPE THW
1-47	35+56.0, 20.0 Lt					

Note:
1 - Bridge mounted
2 - Conduit furnished and installed by bridge contractor
3 - Conduit included in a previous total

No.	Station	Offset	Wattage	Circuit	Pole Ht.	Mast Arm	Note
1-1	2+65.8	20.0 Lt	204	1	30	8'	
1-2	3+94.2	8.0 Lt	45	1	10'		
1-3	4+64.6	8.0 Lt	45	1	10'		
1-4	5+37.5	Rt	45	1	10'		1
1-5	5+97.5	Lt	45	1	10'		1
1-6	6+57.5	Rt	45	1	10'		1
1-7	7+17.5	Lt	45	1	10'		1
1-8	7+77.5	Rt	45	1	10'		1
1-9	8+50.7	8.0 Lt	45	1	10'		
1-10	9+26.6	8.0 Lt	45	1	10'		
1-11	10+47.5	20.0 Lt	204	1	30	8'	
1-12	11+74.2	8.0 Lt	45	1	10'		
1-13	12+44.2	8.0 Lt	45	1	10'		
1-14	13+14.2	8.0 Lt	45	1	10'		
1-15	13+84.3	8.0 Lt	45	1	10'		
1-16	14+37.4	8.0 Lt	45	1	10'		
1-17	14+98.5	8.0 Lt	45	1	10'		
1-18	15+65.4	8.0 Lt	45	1	10'		
1-19	16+35.4	8.0 Lt	45	1	10'		
1-20	17+05.4	8.0 Lt	45	1	10'		
1-21	17+75.4	8.0 Lt	45	1	10'		
1-22	18+45.4	8.0 Lt	45	1	10'		
1-23	19+15.4	8.0 Lt	45	1	10'		
1-24	19+85.4	8.0 Lt	45	1	10'		
1-25	20+55.4	8.0 Lt	45	1	10'		
1-26	21+25.4	8.0 Lt	45	1	10'		
1-27	21+91.1	8.0 Lt	45	1	10'		
1-28	22+54.5	8.0 Lt	45	1	10'		
1-29	23+16.9	8.0 Lt	45	1	10'		
1-30	23+83.7	8.0 Lt	45	1	10'		
1-31	24+53.7	8.0 Lt	45	1	10'		
1-32	25+23.7	8.0 Lt	45	1	10'		
1-33	25+89.8	8.0 Lt	45	1	10'		
1-34	26+50.6	8.0 Lt	45	1	10'		
1-35	27+18.8	8.0 Lt	45	1	10'		
1-36	27+86.3	8.0 Lt	45	1	10'		
1-37	28+53.3	8.0 Lt	45	1	10'		
1-38	29+19.7	8.0 Lt	45	1	10'		
1-39	29+77.6	8.0 Lt	45	2	10'		
1-40	30+45.0	8.5 Lt	45	2	10'		
1-41	31+17.1	8.0 Lt	45	2	10'		
1-42	31+75.5	8.0 Lt	45	2	10'		
1-43	32+29.2	8.0 Lt	45	2	10'		
1-44	32+97.3	8.0 Lt	45	2	10'		
1-45	33+61.6	8.0 Lt	45	2	10'		
1-46	34+29.8	11.4 Lt	45	2	10'		
1-47	35+56.0	20.0 Lt	204	2	30	8'	

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Quantities (A)														LIGHTING SYSTEM
CONCRETE FOUNDATION-HIGHWAY LIGHTING	CONCRETE FOUNDATON-FEED POINT -TYPE B	PULL BOX	1.5IN DIAMETER RIGID CONDUIT	2IN DIAMETER RIGID CONDUIT	UNDERGROUND CONDUCTOR NO2-TYPE RHW	UNDERGROUND CONDUCTOR NO6-TYPE RHW	UNDERGROUND CONDUCTOR NO2-TYPE THW	UNDERGROUND CONDUCTOR NO6-TYPE THW	FEED POINT-TYPE II-PAD MOUNTED	ORNAMENTAL LT STD 10FT MT HT	ORNAMENTAL LIGHT STD	LED LUMINAIRE - TYPE A	LED LUMINAIRE - TYPE B	
EA	EA	EA	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	
42	1	8	3087	132	304	8342	152	4171	1	44	3	44	3	1

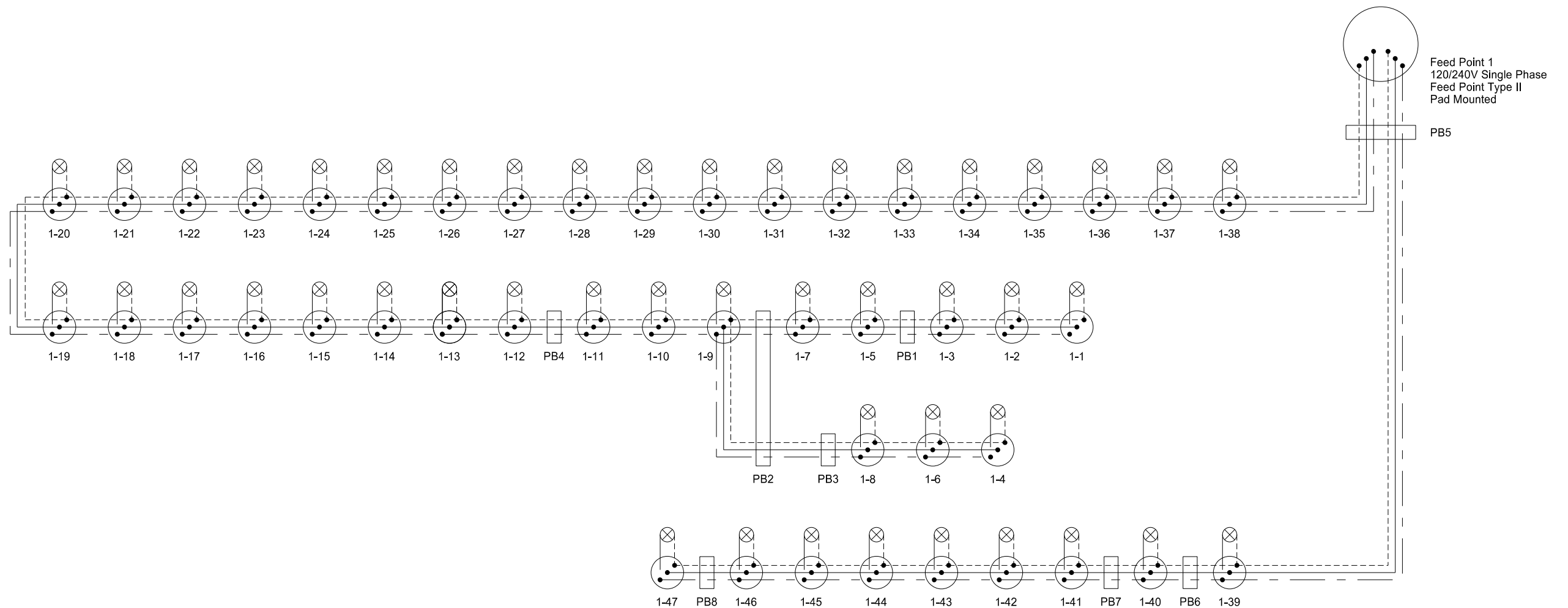
(A) - DO NOT BID SEPARATELY BUT INCLUDE IN THE ITEM "LIGHTING SYSTEM"

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Lighting Plans

Quantities

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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- ⊗ Luminaire LED
- Feed Point or Light Standard
- ▭ Pull Box
- Connection
- Conductor Phase 1
- Conductor Ground
- — Conductor Phase 2

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Lighting Plans
Wiring Diagram



DATE 01/08/20 _____ Jon Ketterling _____
BRIDGE ENGINEER



The diagram shows a cross-section of the bridge deck and its support. The total width of the bridge deck is 11'-10". The clear width of the walkway is 10'-0". The walkway is divided into two 5'-0" sections by a central vertical dashed line. The bridge deck is 8" thick. The bridge is supported by two 63" prestressed I-beams. The distance between the centerlines of the I-beams is 7'-0". The distance from the centerline of each I-beam to the edge of the bridge deck is 2'-5". The bridge deck is labeled "63" Prestressed I-Beams". The walkway is labeled "10'-0" Clear Walkway". The bridge deck is labeled "8" Bridge". The I-beams are labeled "1" and "2". The total width is labeled "11'-10" Bridge". The distance between the centerlines of the I-beams is labeled "7'-0" Bridge". The distance from the centerline of each I-beam to the edge of the bridge deck is labeled "2'-5" Bridge".

94-059.503-1

		23 U.S.C. 409 NDDOT Reserves All Objections	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
			ND	IM-NHU-5-094(132)903	170	2
100	SCOPE OF WORK: This project consists of building a new 2-span prestressed concrete I-beam pedestrian bridge with an overall bridge length of 260'-0" and a clear walkway width of 10'-0".	outside edges of the deck, the underside of the deck overhang, the exposed endwall areas outside of the beams, all surfaces of the light standard pedestals, and on all pedestrian wall surfaces. Use gray surface finish, color number 36176 meeting Aerospace Material Specification (AMS) Standard 595, for the fascia and bottom surface of the beams, the outside edges of the pier diaphragm and on the pier recessed form liner areas. Use gray surface finish, color number 36463 meeting AMS-STD-595, for all other surfaces.				
100	GENERAL: Include the cost of furnishing and placing concrete inserts, silicone sealant, waterproof membrane, conduit, and other miscellaneous items in the price bid for Class AE-3 and AAE-3 concrete.					
210	EXCAVATION: Include the excavation costs at the abutments, as shown in the "Detail at Abutment", and the excavation costs at the pier in the lump sum bid item, "Class 1 Excavation."					
602	CLASS AE-3 AND AAE-3 CONCRETE: The strength requirements of Section 802.01 A.2 "Class AE and AAE Mixes" are revised to develop a design compressive strength of 3,000 psi (AE-3) and 4,000 psi (AAE-3) at 28 days.	622	PREBORING: Bore pilot holes through the constructed embankment for the abutment piling to an elevation of 2468 before driving piling. Bore pilot holes to a diameter of 24 inches. Prior to pile driving, backfill the pilot holes with polymer free sodium bentonite slurry. Mix the slurry at a ratio of 100 gallons of water per 120 pounds of bentonite. Use powdered bentonite to mix the slurry. Do not use bentonite chips. Place the slurry in the pilot hole from the bottom up using a tremie pipe. Check the hole after 24 hours for settlement of the slurry and top off the hole with slurry mixed at the previously specified ratio. Repeat this process until no observed settlement of the slurry occurs. Include all costs associated with boring pilot holes and backfilling with bentonite slurry in the price bid for HP14 x 73 piling.			
602	FORM LINERS: Include the cost to provide and install the form liners in the price bid for the appropriate concrete items.					
602	DIAPHRAGMS AND ENDWALLS: Place the intermediate diaphragm concrete before the deck concrete and allow the diaphragms to cure at least 72 hours before deck placement. Place the pier diaphragm and endwall concrete at the same time as the deck concrete.					
602	DECK BROOMING: Do not tine the bridge deck. Transversely broom the deck to slightly roughen the surface.	622	PILE DRIVING: Do not drive piling between the hours of 10:00 p.m. and 6:00 a.m.			
602	BRIDGE DECK CURING: Do not cover the wet cure burlap with a waterproof material such as polyethylene during the curing period.	622	PILING: Drive piling with a diesel hammer with a rated energy and ram weight (minimum of 6,000 pounds) of at least 109,340 foot-pound-tons computed by the formula: W(E–30,800) + 0.710E W = Weight of the ram (tons) E = Rated hammer energy Run the hammer at an energy that produces a penetration at bearing between ½" and 3 inches in the last 10 blows. Stop driving the pile if bearing is not yet obtained at a depth approximately 10 feet beyond the estimated depth. Wait 24 hours to allow pile setup to occur. After 24 hours warm the hammer with a minimum of 20 blows by striking the ground or timber mats. Restrike the pile with 10 blows to determine if bearing has been achieved. If bearing was not achieved during restrike, continue to drive the pile until bearing is achieved.			
602	SURFACE TOLERANCE: After the concrete has cured, the Engineer will test the bridge deck for surface irregularities with 10 foot and 8 foot straightedges. The Engineer will check the profile and cross slope by performing the following: Check the profile using a 10 foot straightedge oriented in the longitudinal direction and starting at one end of the deck, move the straightedge transversely across the deck to the other edge with constant contact with the deck. Repeat this process in 5 foot intervals from one end of the deck to the other. Check the cross slope using the 8 foot straightedge oriented in the transverse direction and starting at one end of the deck, move the straightedge longitudinally from one end of the deck to the other end with constant contact with the deck.					
602	PEDESTRIAN WALLS: Construct V-grooves that are ¾ inch wide and ¾ inch deep in all faces of the pedestrian walls at the pier and at 10 foot spacing between the pier and abutments.					
602	SURFACE FINISH "D": Apply Surface Finish "D" on all exposed substructure surfaces, the fascia and bottom surface of the beams, the outside edges of the pier diaphragm, the					

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NOTES

23 U.S.C. 409
NDDOT Reserves All Objections

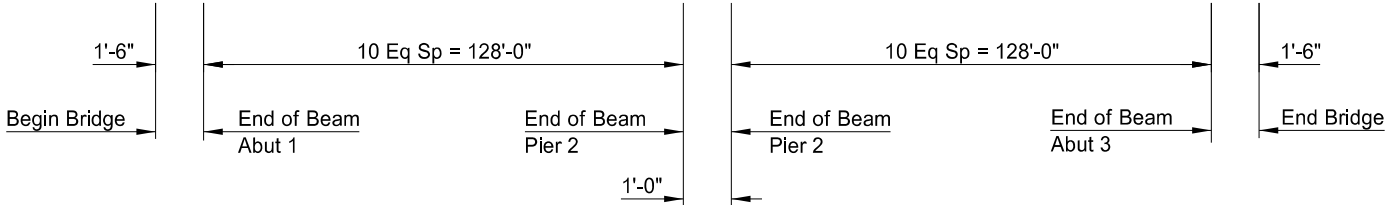
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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- 930 ROADWAY CANOPY: A canopy is required to be constructed above the traveled roadway under the structure to protect traffic from falling material. The canopy is an added safeguard and does not relieve the Contractor from any responsibility for the safety of the public.
- Submit the canopy details, including materials that will be used, to the Engineer for review. The canopy will provide a minimum vertical clearance of 15'-6" above the traveled roadway. The canopy will be extended a minimum distance of 5'-0" beyond the outside edge of deck of the structure and a minimum distance of 5'-0" beyond the edge of the driving lanes beneath the structure.
- Construct the canopy before installing forming for the deck and keep in place until after the superstructure is complete. The canopy may be supported from the ground or suspended from the beams. Complete the installation of the canopy in a minimum amount of time and with the least inconvenience to the public.
- Once the bridge superstructure is completed, remove the canopy. Roadway canopy will be paid for at the contract unit price for "Roadway Canopy." Payment for "Roadway Canopy" includes the construction, maintenance, and removal of the canopy system.

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	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
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CL BEAM 2	CL BEAM 1
2490.62	2490.54
2490.66	2490.59
2491.10	2491.02
.53	.45
2491.95	2491.88
2492.36	2492.28
2492.75	2492.67
2493.12	2493.05
.45	.38
.68	.61
.81	.74
2493.85	2493.78
2493.86	2493.78
.91	.83
.87	.79
.73	.65
.49	.42
2493.20	2493.13
2492.90	2492.83
.59	.51
2492.26	2492.18
2491.92	2491.84
2491.57	2491.50
2491.54	2491.46



Beam 1 is the east beam.
SCREED ELEVATIONS

BRIDGE BID ITEMS					
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY	
210	0099	CLASS 1 EXCAVATION	L SUM	1	
210	0201	FOUNDATION PREPARATION	EA	1	
258	0100	CONCRETE SLOPE PROTECTION	SY	154	
602	0130	CLASS AAE-3 CONCRETE	CY	144.8	
602	1130	CLASS AE-3 CONCRETE	CY	89.6	
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	496	
604	9920	PRESTRESSED I-BEAM-63IN	LF	512.0	
612	0115	REINFORCING STEEL-GRADE 60	LBS	10,716	
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	28,916	
622	0060	STEEL PILING HP 14 X 73	LF	150	
622	0070	STEEL PILING HP 14 X 102	LF	90	
624	0124	PEDESTRIAN FENCE	LF	578.7	
930	3000	BRIDGE BENCH MARKS	SET	1	
930	7012	ROADWAY CANOPY	L SUM	1	
930	8600	ELASTOMERIC BEARING PAD	SF	16.0	
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	2	

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I-94 PEDESTRIAN CROSSOVER
WEST DICKINSON INTERCHANGE

SCREED ELEVATIONS &
BID ITEM QUANTITIES

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	170	5

NOTE:

For double acting or single acting diesel hammers, calculate the safe bearing value of piles by the following formula:

$$P = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

Where:

- P = Safe bearing value, in pounds.
- W = Weight of striking parts (ram), in pounds.
- M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
- E = Energy per blow, in foot-pounds.
- S = Average penetration of pile in inches per blow for last ten blows.

For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

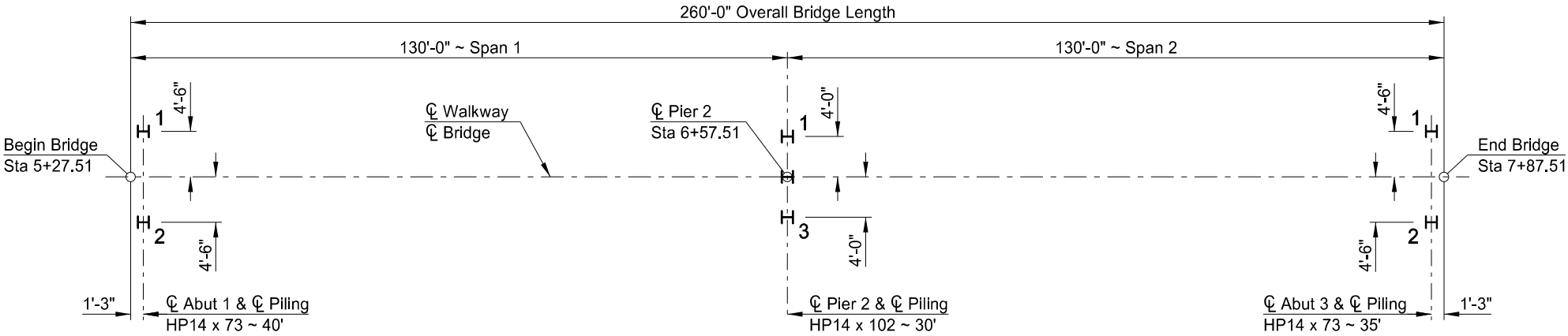
PILE COORDINATES

PILE COORDINATES			
		PILE	
		NORTHING	EASTING
ABUT 1	1	455,723.29	1,386,182.08
	2	455,719.77	1,386,173.80
PIER 2	1	455,604.56	1,386,231.90
	3	455,601.44	1,386,224.53
ABUT 3	1	455,486.23	1,386,282.63
	2	455,482.71	1,386,274.35

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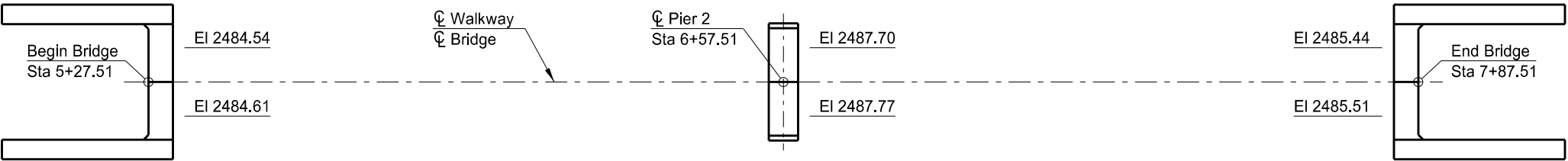
I-94 PEDESTRIAN CROSSOVER
WEST DICKINSON INTERCHANGE

PILING LAYOUT &
BEARING ELEVATIONS



Drive the HP14 x 73 Pile to 180 tons.
Drive the HP14 x 102 Pile to 250 tons.

PILING LAYOUT

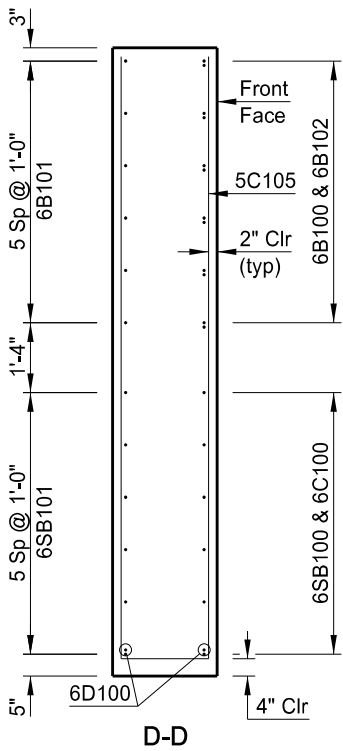
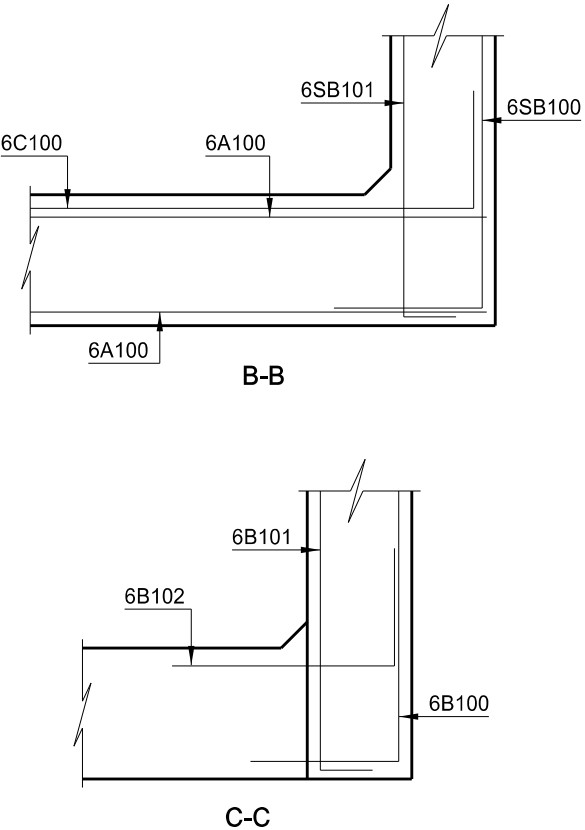
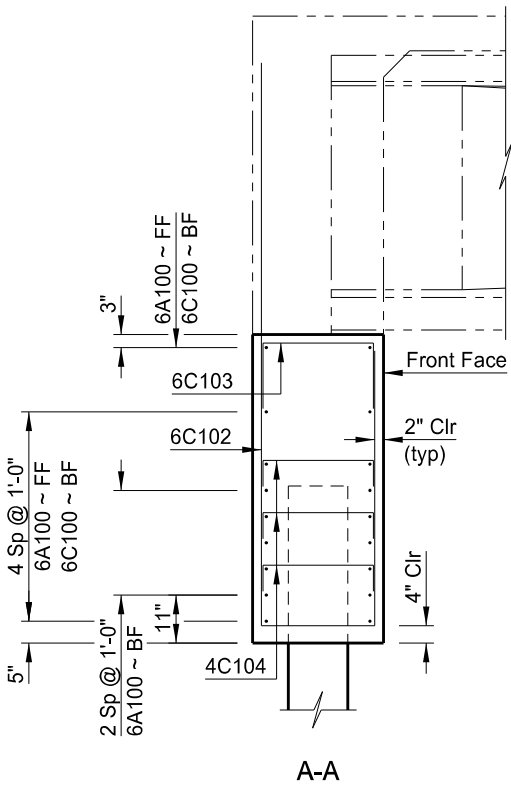
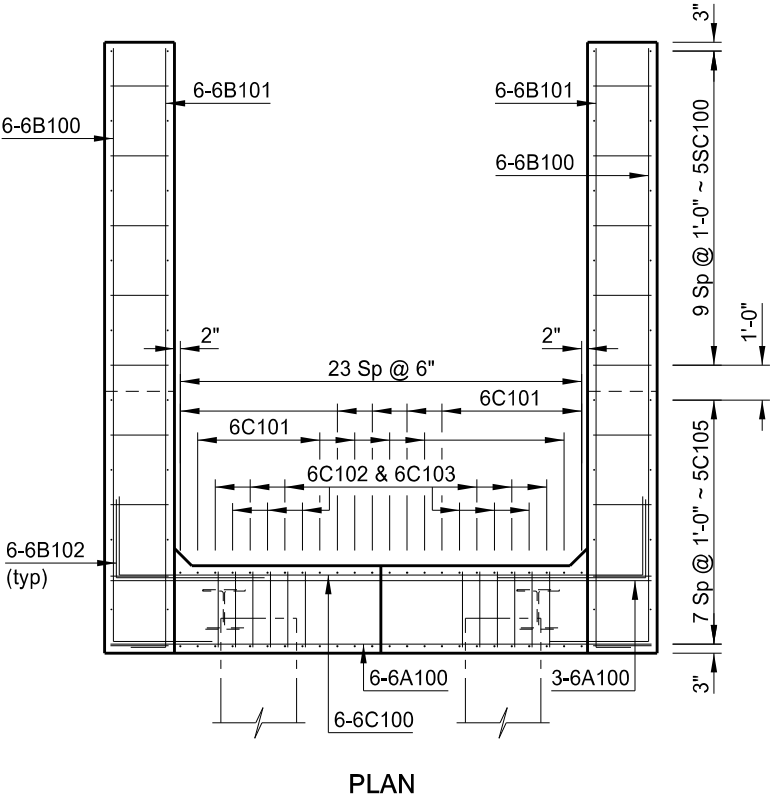


Elevations shown are to top of finished concrete.

BEARING ELEVATIONS

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	170	8

NOTE:
Position the long leg of the 6B102 bar perpendicular to abutment wing.



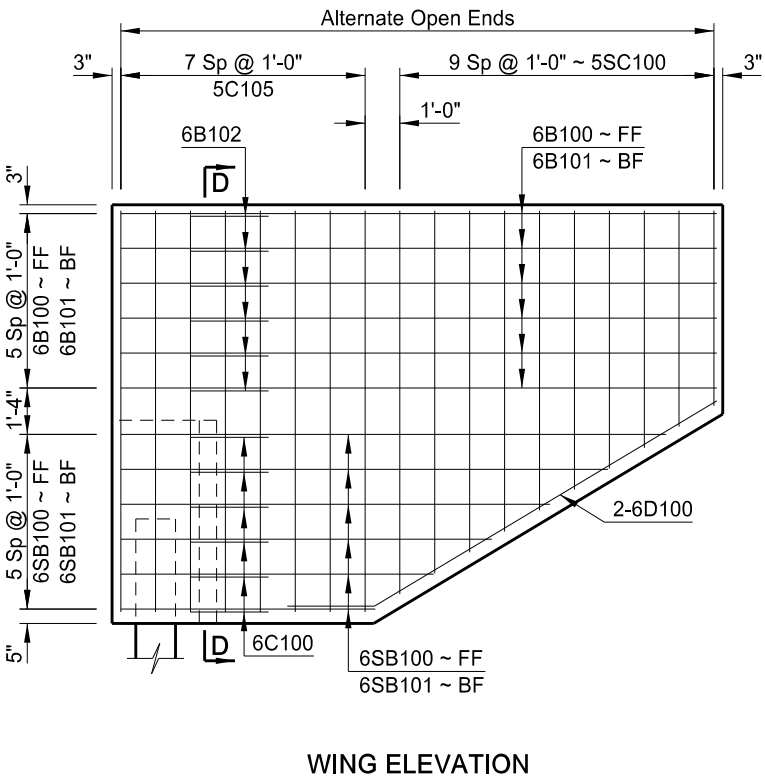
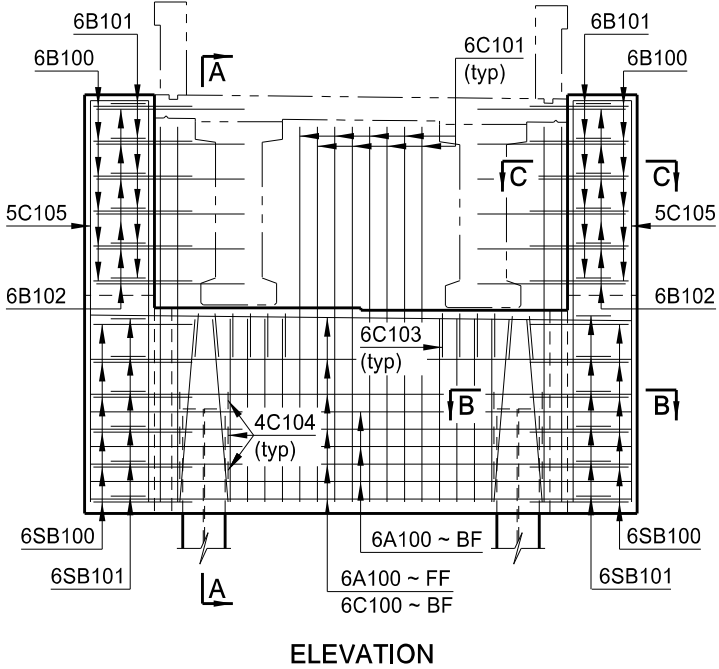
NOMENCLATURE:
FF = Front Face
BF = Back Face

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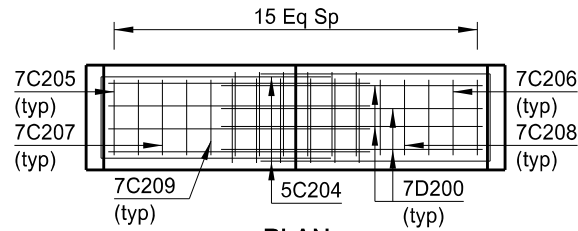
QUANTITIES	(ONE ABUTMENT)
CLASS AE-3 CONCRETE	33.1 CY
REINFORCING STEEL	3,410 LBS

I-94 PEDESTRIAN CROSSOVER
WEST DICKINSON INTERCHANGE

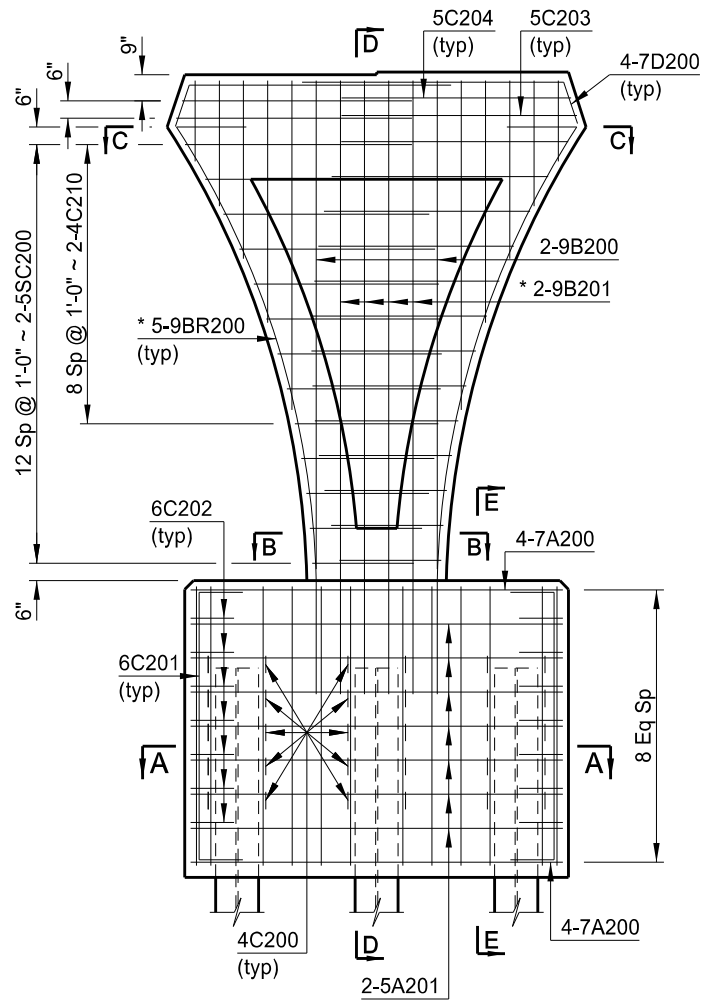
(SHOWING REINFORCING)
ABUTMENT DETAILS



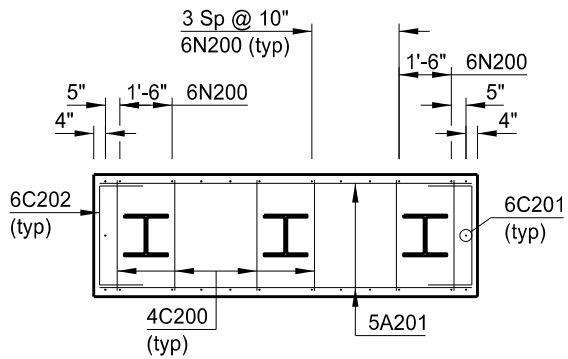
	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	170	10



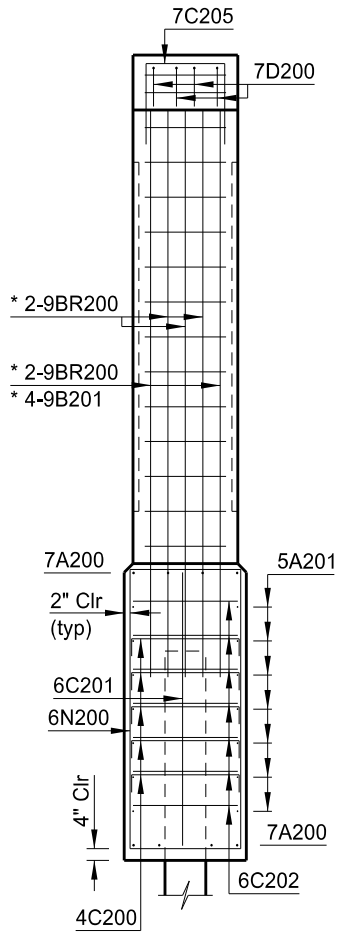
PLAN



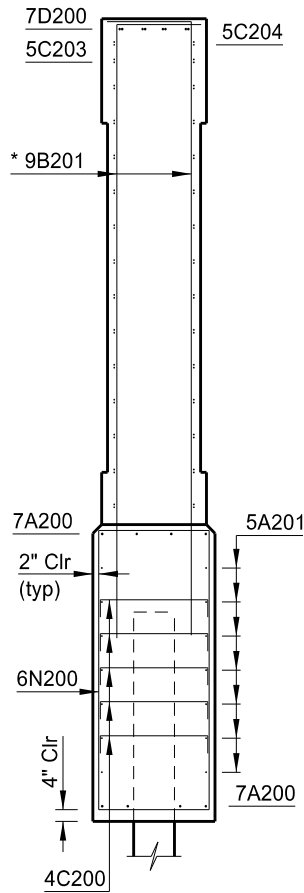
ELEVATION



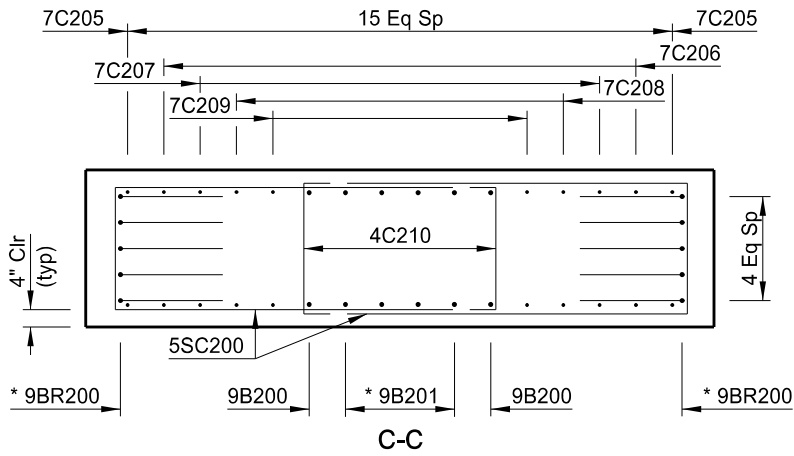
A-A



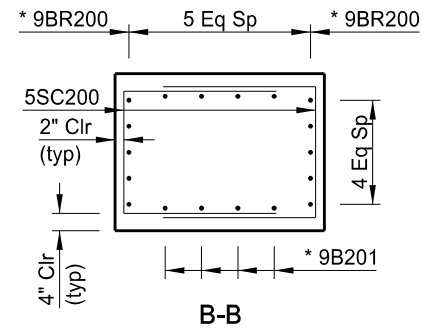
END VIEW



D-D

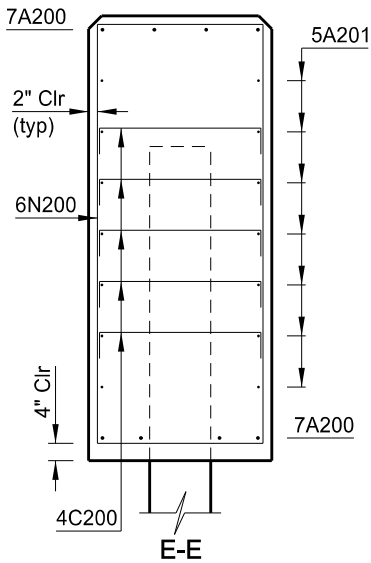


C-C



B-B

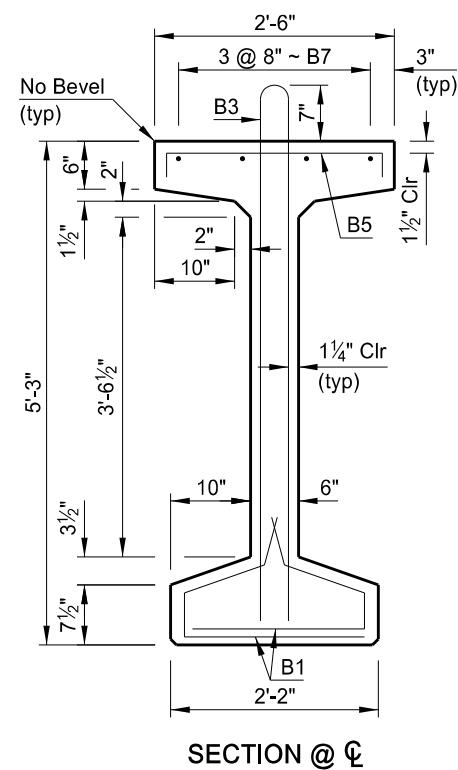
* Embed the 9B201 & 9BR200 bars 3'-3" into the pile cap wall.



E-E

QUANTITIES	
CLASS AE-3 CONCRETE	23.4 CY
REINFORCING STEEL	3,228 LBS
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE	
(SHOWING REINFORCING)	
PIER DETAILS	

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BAR LIST ~ ONE BEAM				
MARK	SIZE	NO.	LENGTH	SHAPE
B1	4	232	3'-9"	BENT
B2	5	6	2'-6"	BENT
B3	4	134	11'-6"	BENT
B4	4	16	7'-5"	BENT
B5	3	120	2'-9"	BENT
B6	5	8	6'-11"	BENT
B7	5	16	34'-2"	STR
* B8	5	24	4'-0"	STR

* Field bend as shown (Grade 40).

QUANTITIES	(ONE BEAM)
BEAM LENGTH	128.0 LF
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE PRE-TENSIONED 63" PRESTRESSED I-BEAM	

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BEAM SECTION DATA
WT = 787.9 LBS/FT + 4367 LBS FOR END BLOCKS
CROSS SECTIONAL AREA AT $\bar{C}$ SPAN = 732 IN ²
C.G. (FROM BOTTOM) = 31.17 IN
I = 392,056 IN ⁴
S _B = 12,578 IN ³
END AREA = 1182.75 IN ²

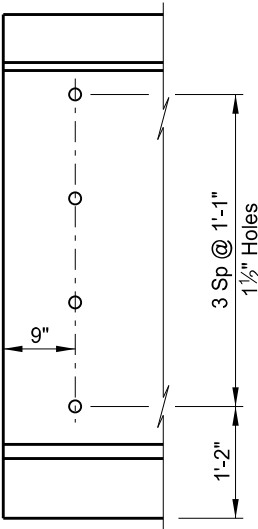
NOTES:

Select the final prestress force (remaining after all losses have been accounted for) and its corresponding center of gravity, from those on a curve determined by the three values shown in the "Prestressing Data" table.

Provide holes and inserts in the beams at locations shown to accommodate the diaphragm bars.

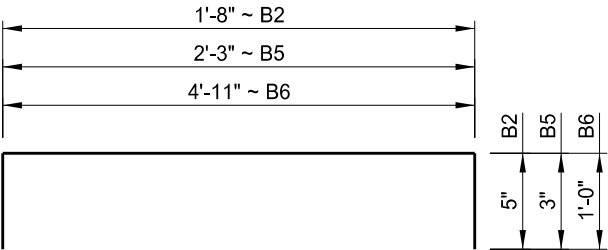
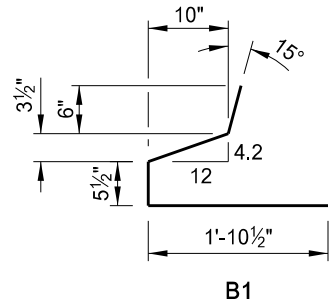
Minor changes to the shape of the beam and to reinforcing steel may be made to accommodate the forms of various contractors and their construction methods with the approval of the Engineer.

PRESTRESSING DATA					
C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	WEIGHT (TONS)	BEAM LENGTH
3.50"	1055.9 k	6000 psi (Min)	6000 psi (Min)	52.6	128'-0"
3.75"	1061.9 k				
4.00"	1067.8 k				

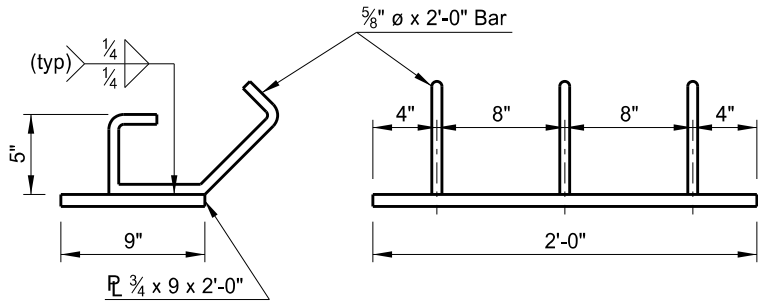


(Use holes for the beams at the Abutments. Use inserts for the beams at the Pier.)

ELEVATION
BEAM END DETAIL

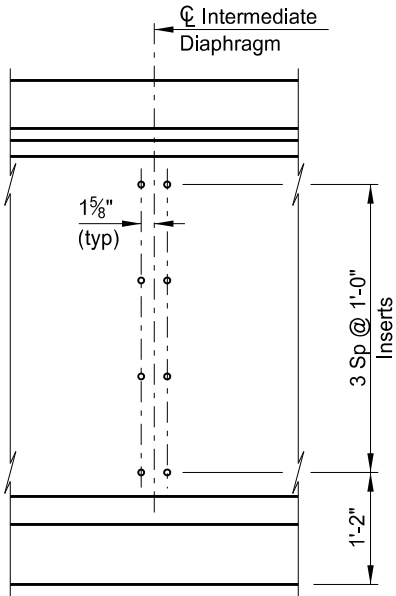


B2, B5 & B6



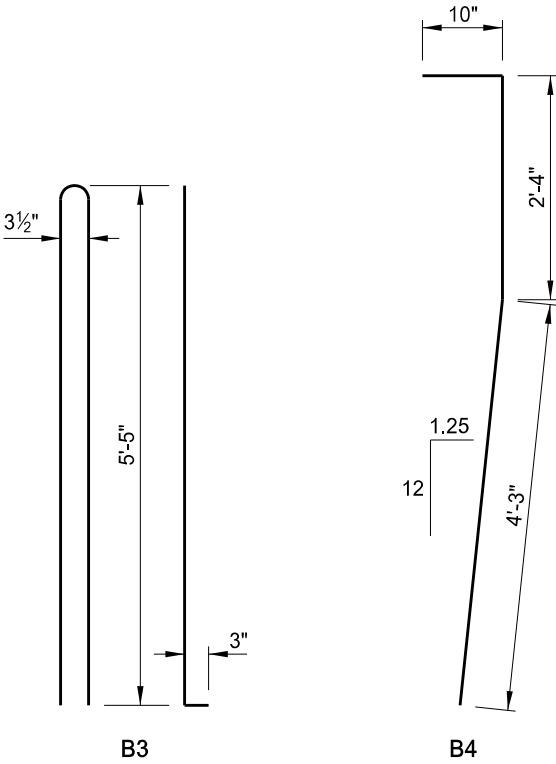
(Use ASTM A36 steel, hot dipped galvanized, for the bearing plate. Include the costs in the bid price for the beam.)

BEARING DETAIL



(See Dwg 94-059.503-13 for locations.)

ELEVATION
INTERMEDIATE DIAPHRAGM DETAIL



B3

B4

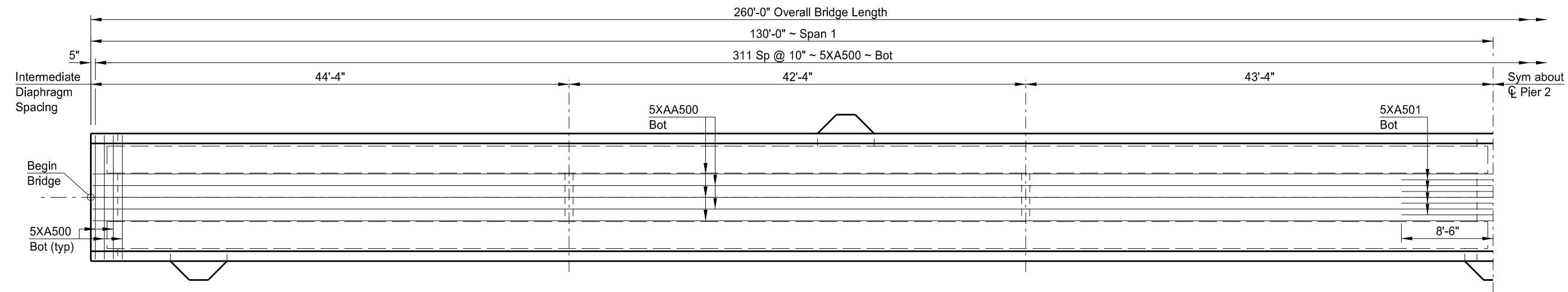
(DIMENSIONS SHOWN ARE OUT TO OUT)
BENT BAR DETAILS

I-94 PEDESTRIAN CROSSOVER
WEST DICKINSON INTERCHANGE

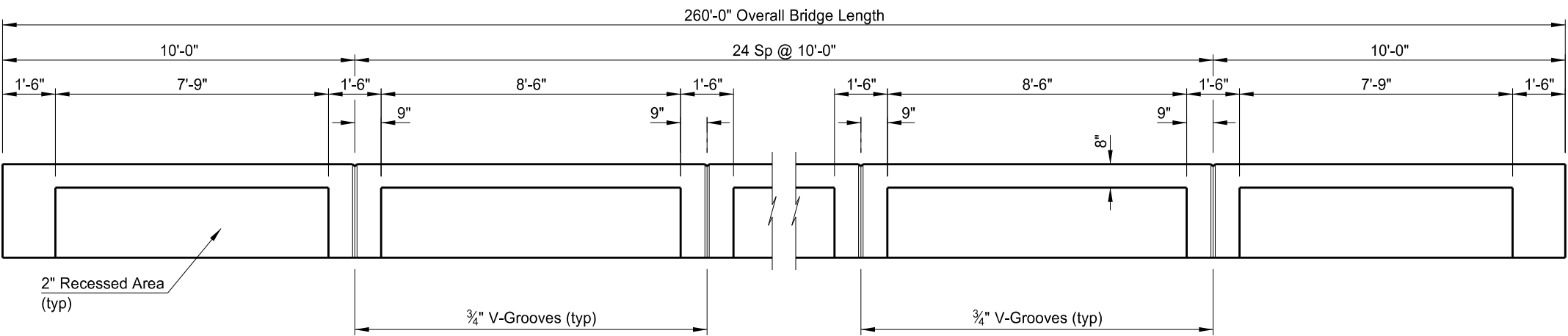
PRE-TENSIONED 63"
PRESTRESSED I-BEAM

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	170	13



HALF PLAN



(SHOWING DIMENSIONS ~ BACK FACE)
PEDESTRIAN WALL ELEVATION

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QUANTITIES
SEE DWG 94-059.503-17
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE
(SHOWING BOTTOM REINFORCING)
HALF SLAB LAYOUT



LIGHT STANDARD PEDESTAL LOCATIONS

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QUANTITIES

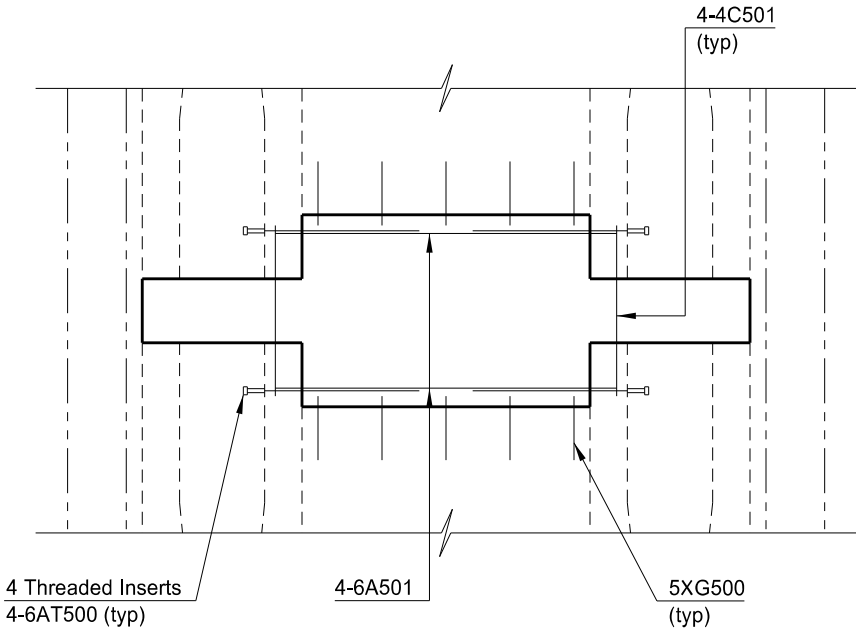
SEE DWG 94-059.503-17

I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE

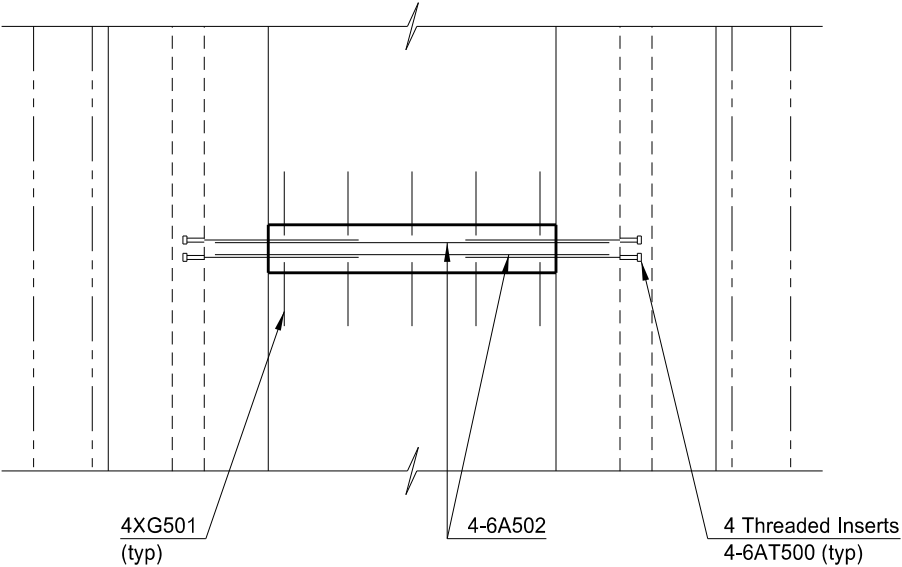
(SHOWING TOP REINFORCING)

HALF SLAB LAYOUT

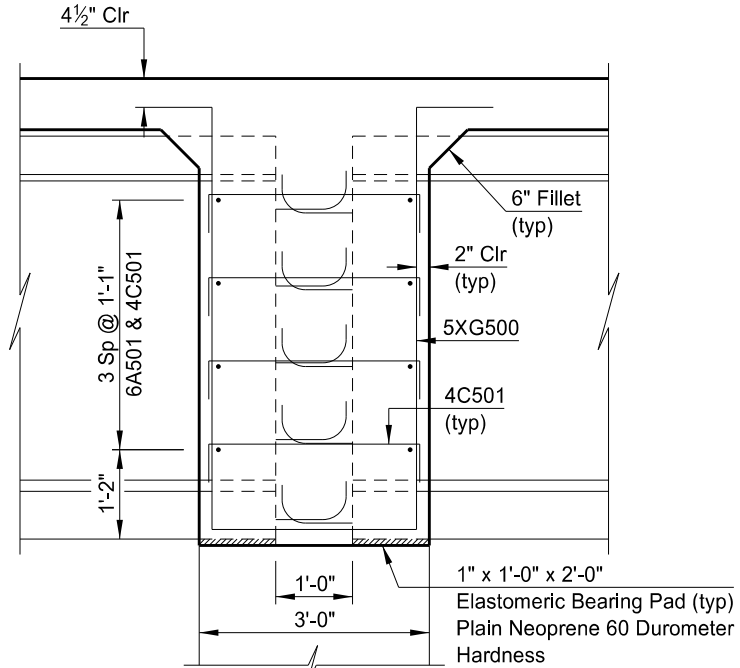
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	170	15



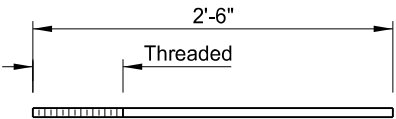
(PIER DIAPHRAGM)
PLAN



(INTERMEDIATE DIAPHRAGM)
PLAN

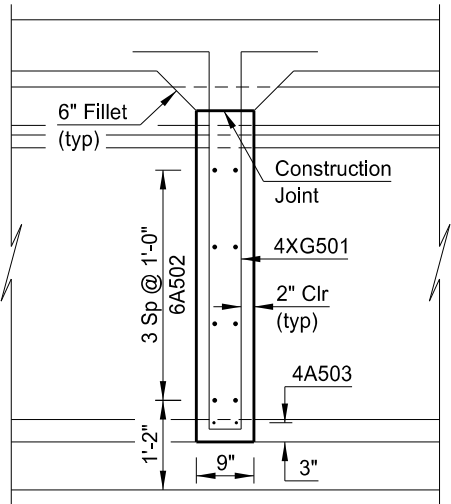


A-A

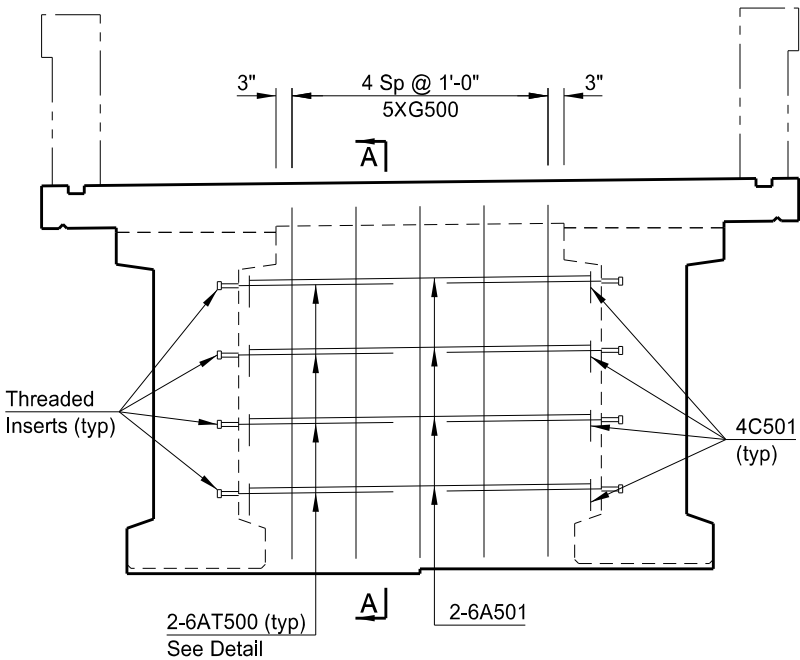


No. 6 Reinforcing Steel ~ Include
in the Prestressed Beam bid item.

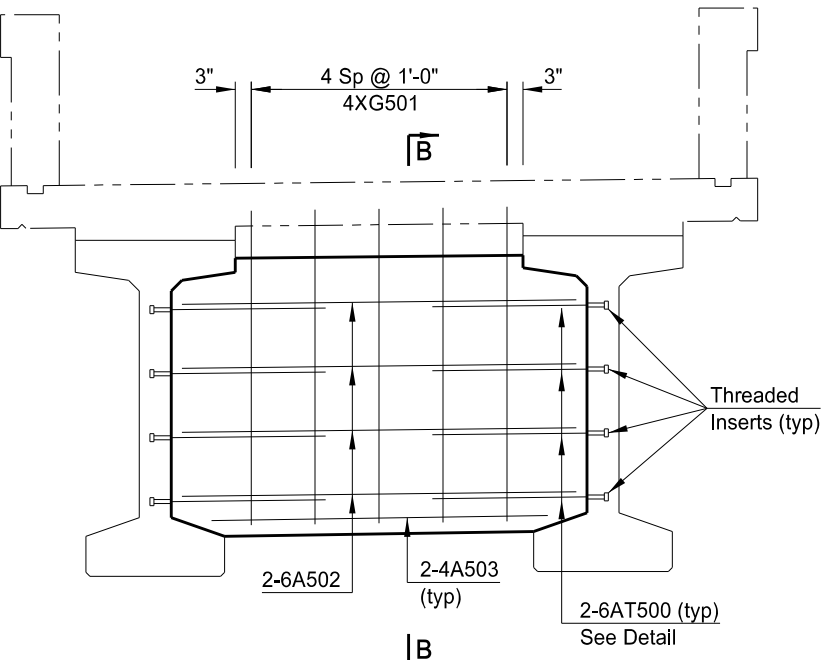
6AT500 DETAIL



B-B



(PIER DIAPHRAGM)
ELEVATION

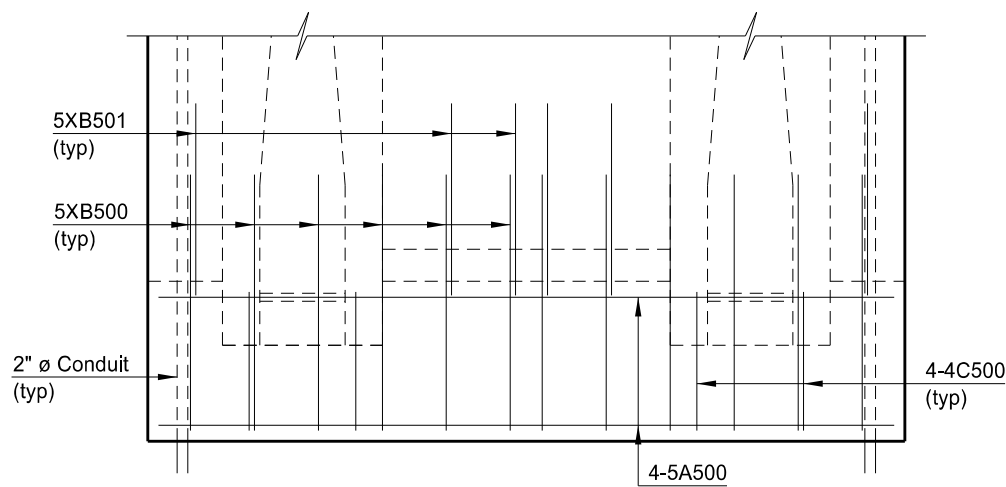


(INTERMEDIATE DIAPHRAGM)
ELEVATION

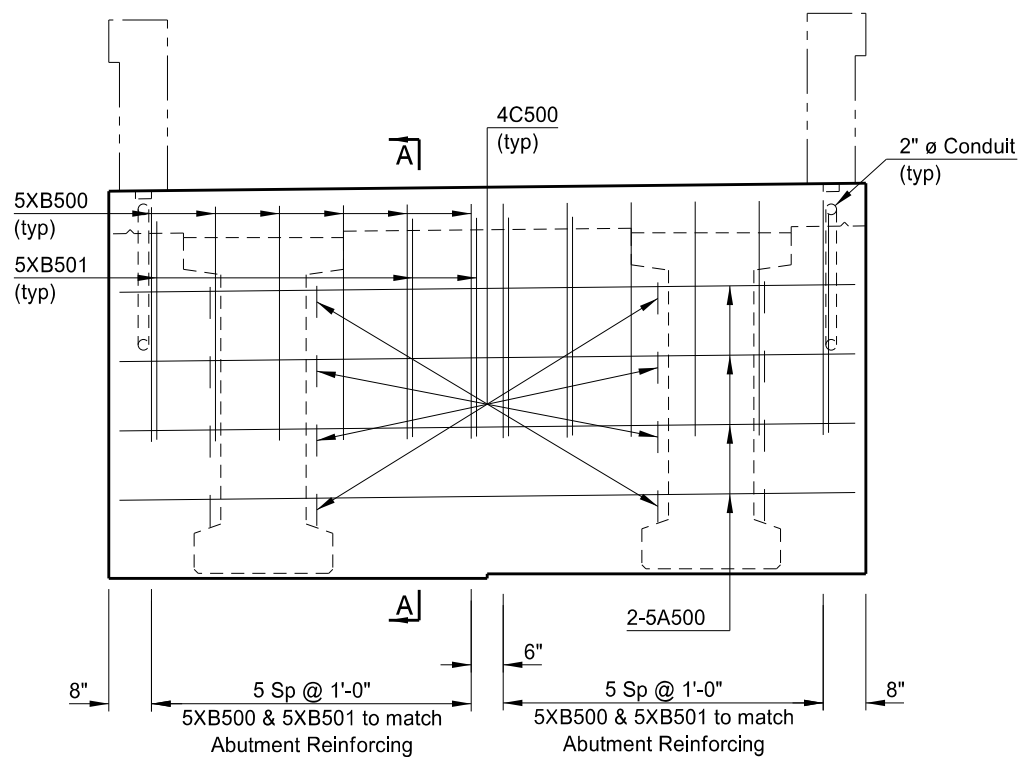
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QUANTITIES
SEE DWG 94-059.503-17
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE
PIER & INTERMEDIATE DIAPHRAGM DETAILS

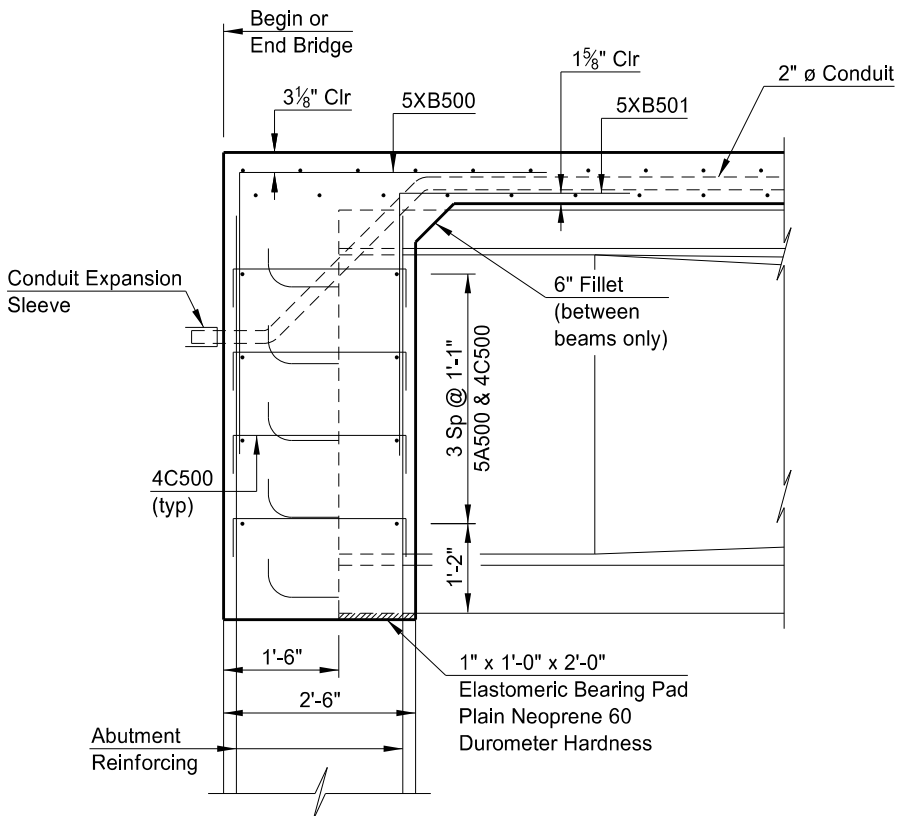
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	170	16



PLAN



ELEVATION

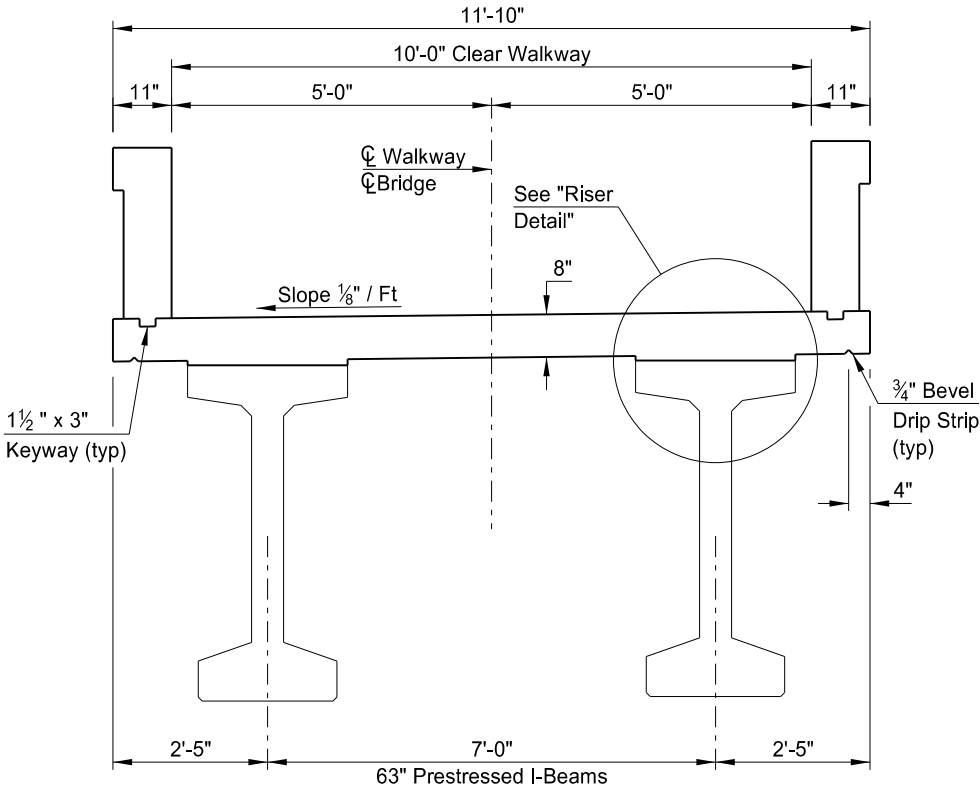


A-A

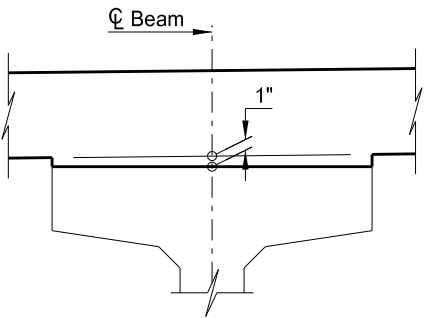
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QUANTITIES
SEE DWG 94-059.503-17
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE
ENDWALL DETAILS

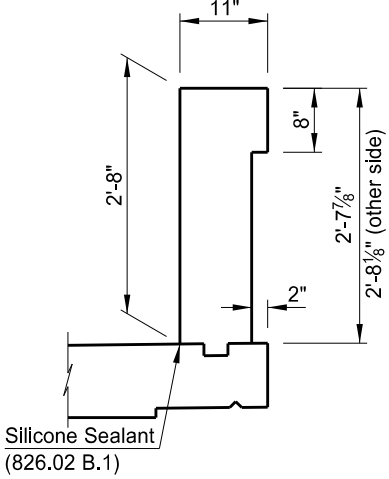
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	170	17



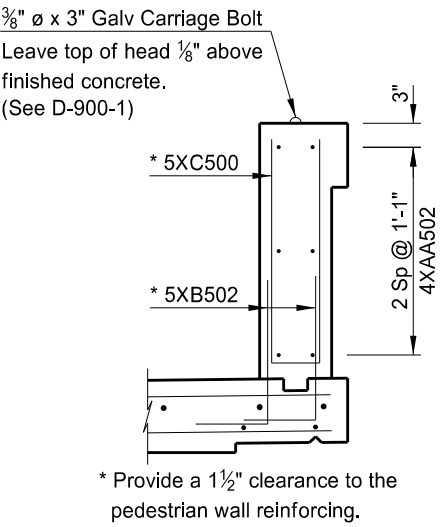
(SHOWING DIMENSIONS)
SLAB SECTION



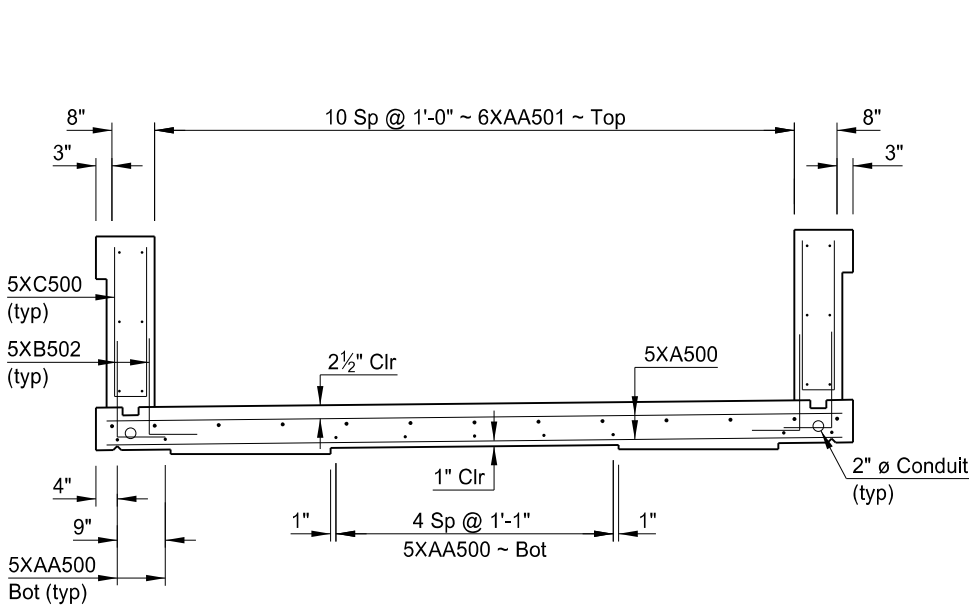
RISER DETAIL
The 1" dimension shown is located at the abutments and pier. The anticipated midspan riser is 3 1/2". Adjust the riser to maintain the 8" slab thickness.



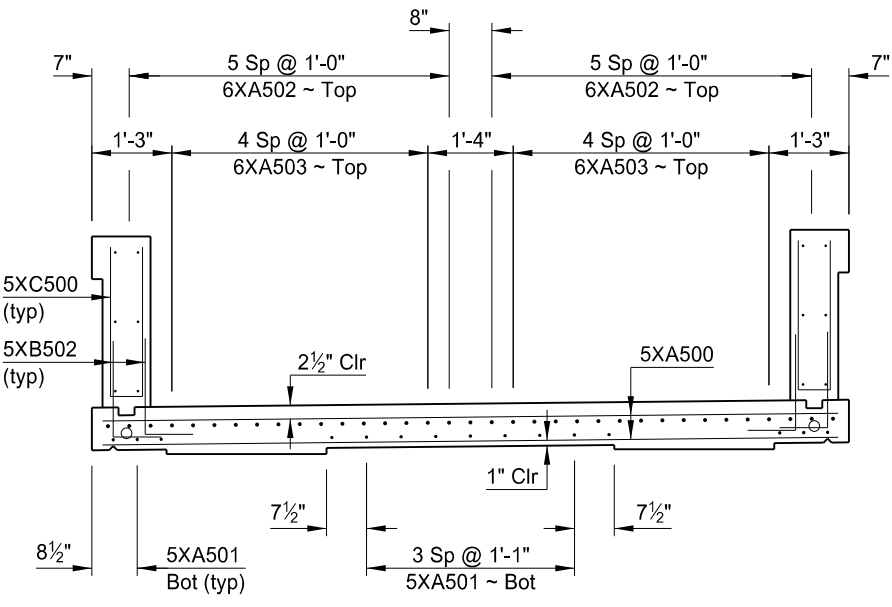
**SHOWING DIMENSIONS
PEDESTRIAN WALL DETAIL**



SHOWING REINFORCING



(SHOWING REINFORCING BETWEEN ABUTMENTS AND PIER)
SLAB SECTION



(SHOWING REINFORCING OVER PIER)
SLAB SECTION

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QUANTITIES	
CLASS AAE-3 CONCRETE	144.8 CY
REINFORCING STEEL	668 LBS
REINFORCING STEEL (EPOXY)	28,916 LBS

I-94 PEDESTRIAN CROSSOVER
WEST DICKINSON INTERCHANGE

SLAB SECTION

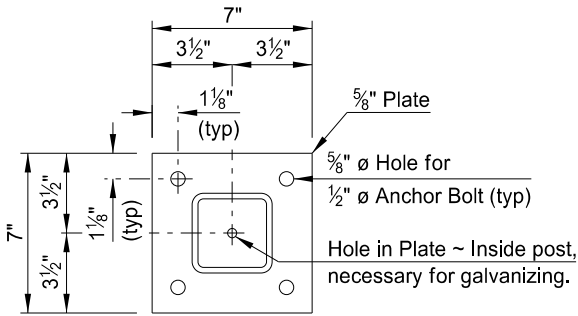
1/8/2020	5:09:24 PM	braschke	R:\project\50094903.132\bridge\94-059.503\170BR_018_REBAR.dgn	19EAJ076	BWR	94-059.503-18
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NOTES:

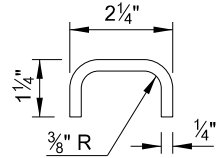
Provide anchorage, post and rail plates that meet ASTM A 36. Provide posts and rails that meet ASTM A500 Grade B. Galvanize all steel elements after fabrication according to Section 854 of the Standard Specifications and then paint according to Special Provision 124(14). Use black finish coat, color number 37038 meeting Aerospace Material Specification (AMS) Standard 595. Galvanize the anchor bolts and field paint the exposed top of bolt.

Epoxy in 1/2" Ø anchor bolts or place them in the concrete at the time of pouring. Provide a minimum pullout capacity of 8,000 pounds and a minimum embedment of 8" for each anchor bolt. Use anchor bolts meeting ASTM F1554, Grade 36.

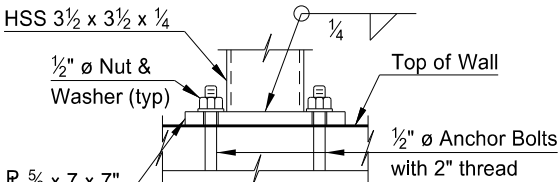
Fabricate horizontal railing to be parallel to the slope of the top of the pedestrian wall and abutment wing. Fabricate posts and pickets to be vertical.



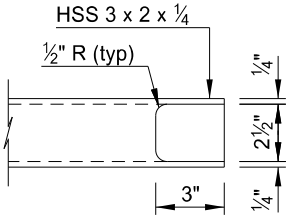
BASE PLATE PLAN



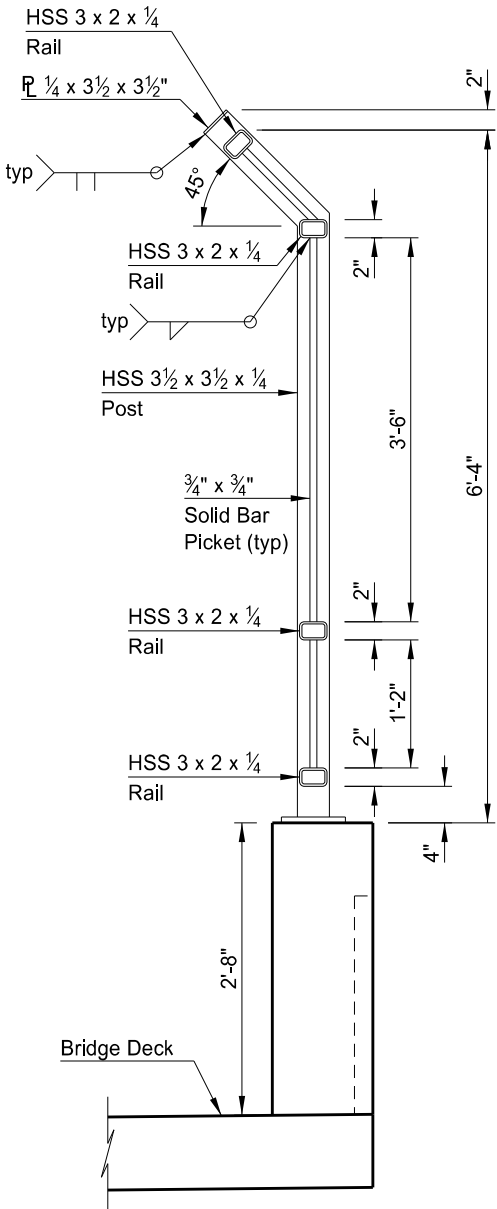
BENT PLATE DETAIL



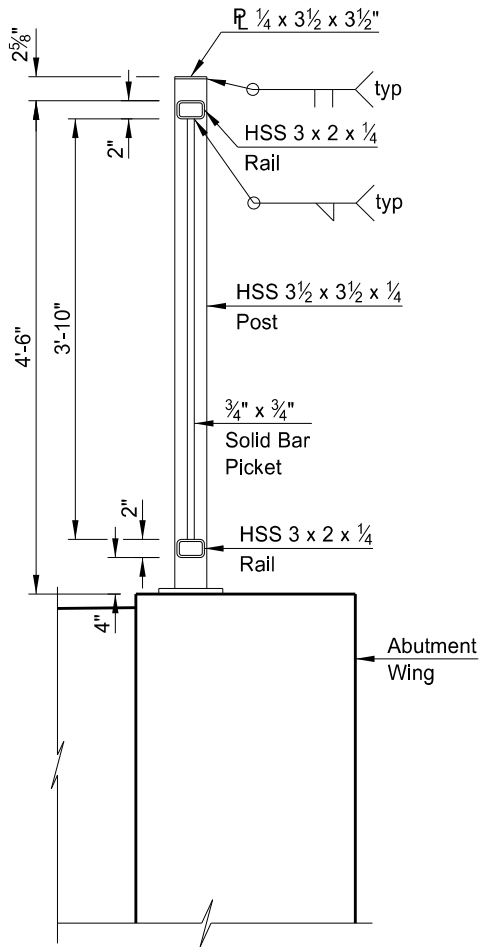
ELEVATION
POST ANCHORAGE DETAIL



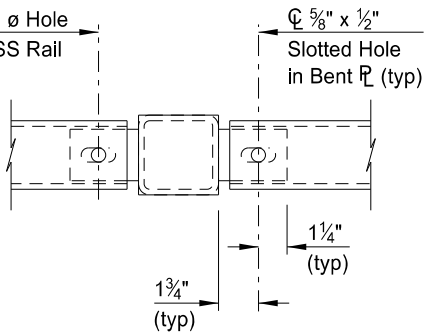
HORIZONTAL RAIL CUTOUT DETAIL



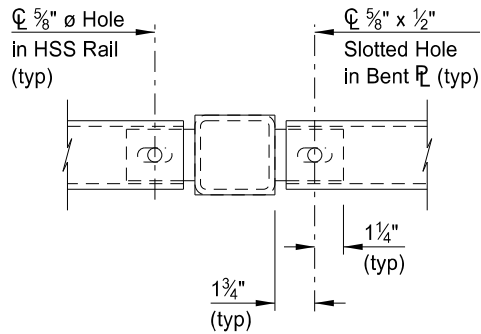
BRIDGE DECK
PEDESTRIAN FENCE DETAIL



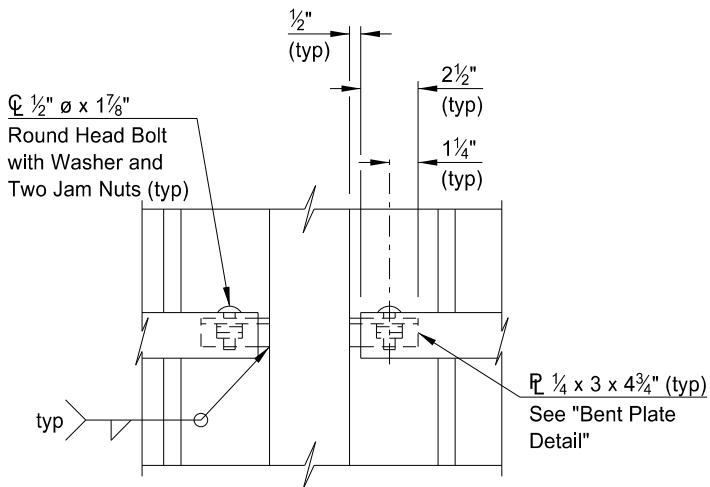
ABUTMENT WING
PEDESTRIAN FENCE DETAIL



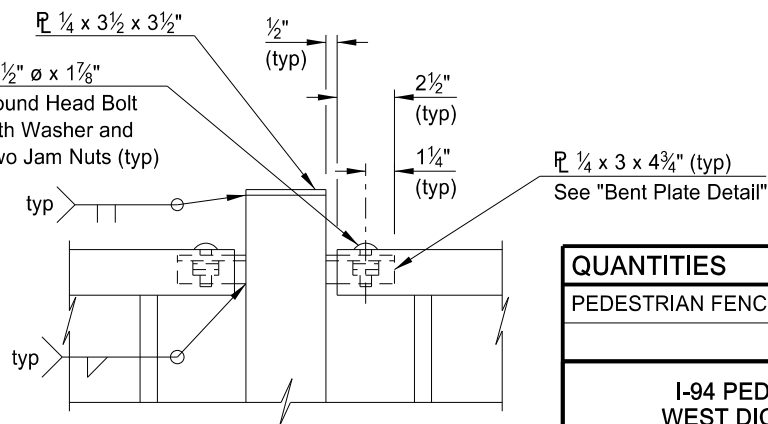
PLAN



PLAN



ELEVATION
DETAIL C



ELEVATION
DETAIL D

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QUANTITIES	
PEDESTRIAN FENCE	578.7 LF
I-94 PEDESTRIAN CROSSOVER WEST DICKINSON INTERCHANGE	
PEDESTRIAN FENCE DETAILS	



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
300 AIRPORT ROAD
BISMARCK, ND 58504

LOG OF BORING SB - 1

PAGE 1 OF 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-NHU-5-094(132)903	175	1

PROJECT NUMBER IM-NHU-5-094(132)903 DATE STARTED 7/16/19 COMPLETED 7/16/19

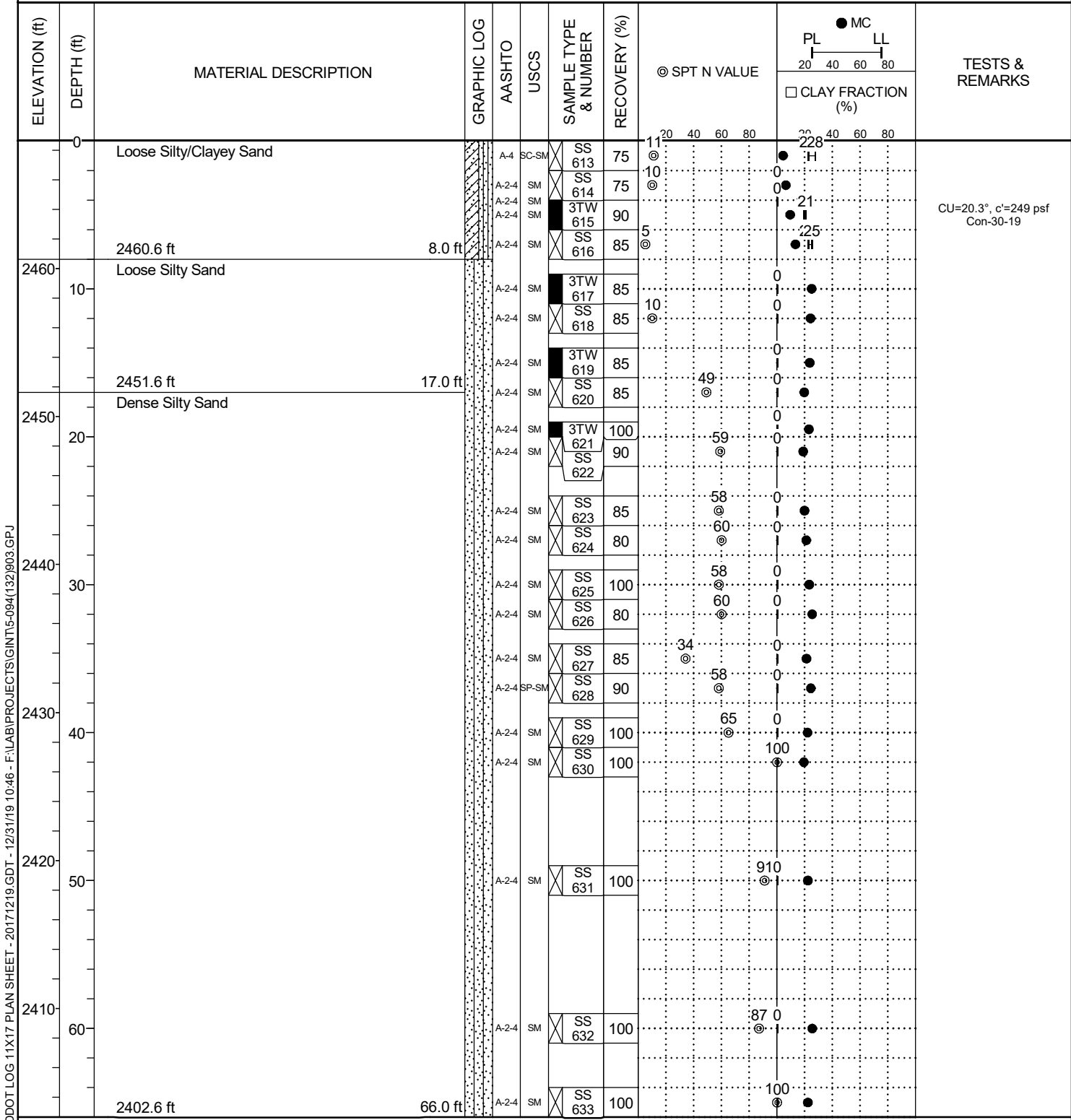
PCN 22219 ELEVATION 2468.64 ft

LOCATION Stark County Northing 5200330.50 ft Easting 208216.50 ft

DRILLED BY Dallan LOGGED BY Jamie DRILLING METHOD

ENGINEER

NOTES North Abutment Boring



Bottom of borehole at 66.0 ft

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Boring Log 1

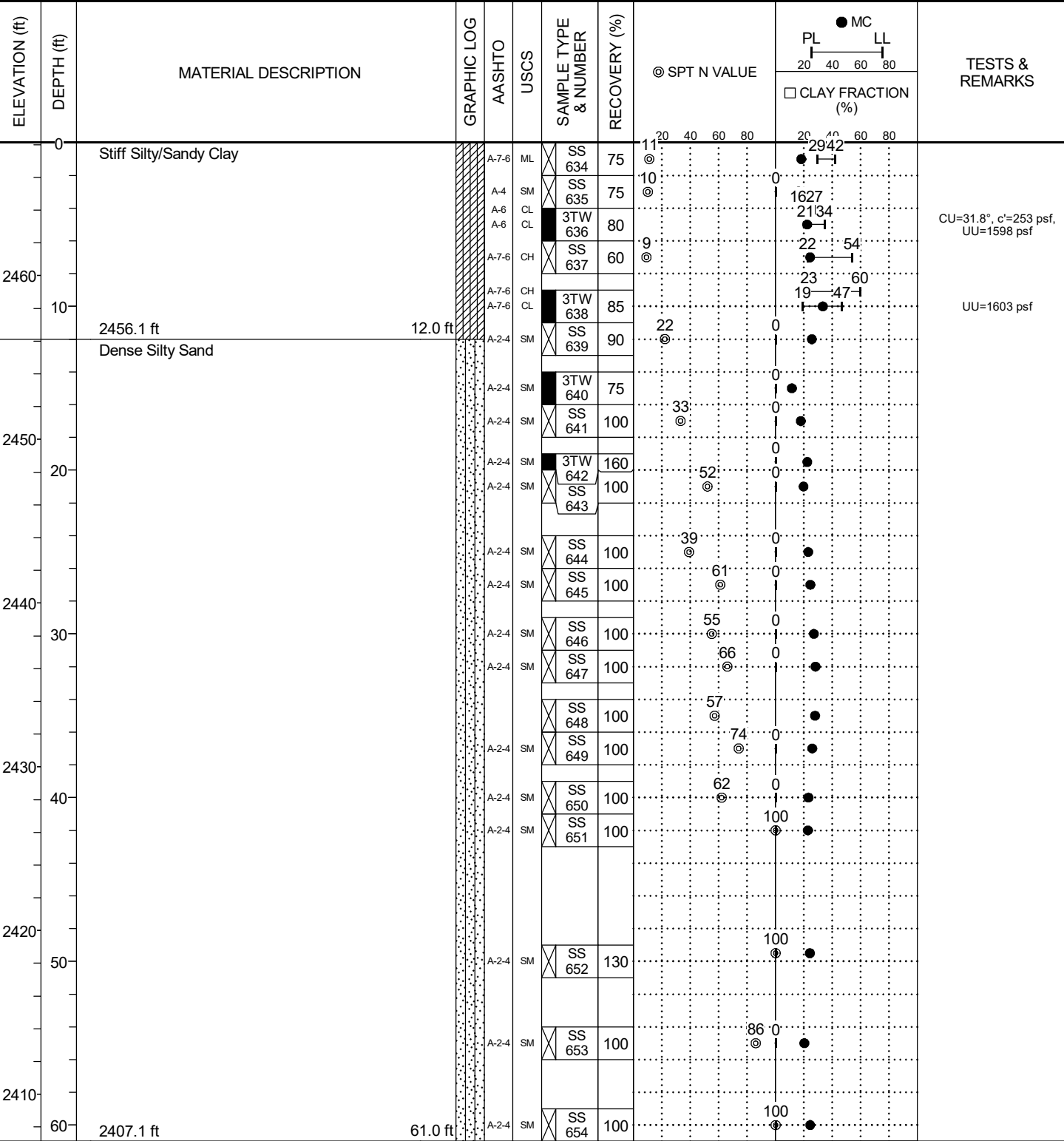
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
300 AIRPORT ROAD
BISMARCK, ND 58504

LOG OF BORING SB - 2
PAGE 1 OF 1

PROJECT NUMBER IM-NHU-5-094(132)903 DATE STARTED 7/16/19 COMPLETED 7/16/19
PCN 22219 ELEVATION 2468.12 ft
LOCATION Stark County Northing 5200288.12 ft Easting 208228.92 ft
DRILLED BY Dallan LOGGED BY Jamie DRILLING METHOD
ENGINEER
NOTES Pier Boring



Bottom of borehole at 61.0 ft

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-NHU-5-094(132)903	175	2

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Boring Log 2
I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
300 AIRPORT ROAD
BISMARCK, ND 58504

LOG OF BORING SB - 3

PAGE 1 OF 1

STATE

PROJECT NO.

SECTION NO.

SHEET NO.

ND

IM-NHU-5-094(132)903

175

3

PROJECT NUMBER

IM-NHU-5-094(132)903

DATE STARTED

7/16/19

COMPLETED

7/16/19

PCN

22219

ELEVATION

2467.86 ft

LOCATION

Stark County

Northing

5200269.90 ft

Easting

208236.85 ft

DRILLED BY

Dallan

LOGGED BY

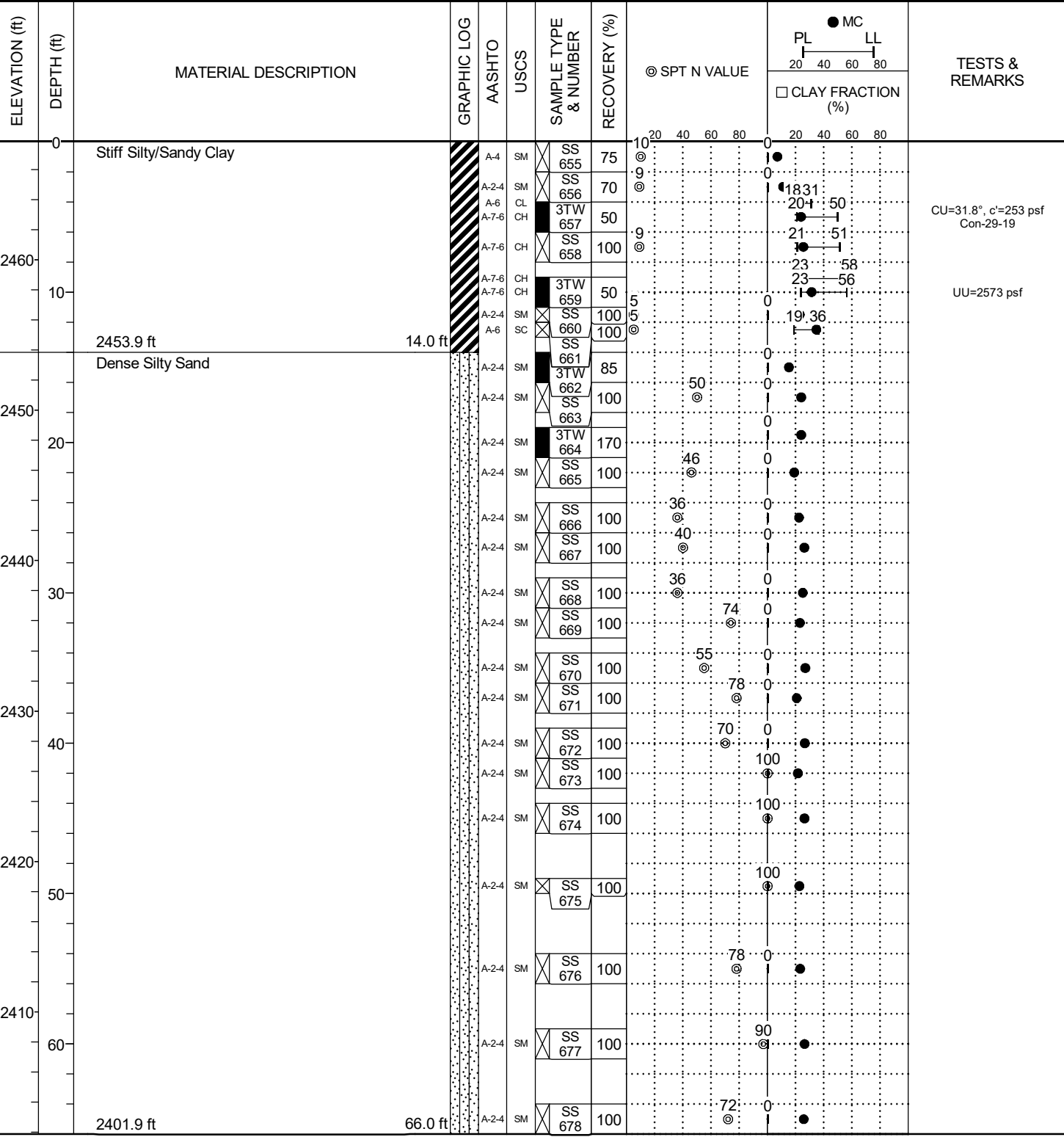
Jamie

DRILLING METHOD

ENGINEER

NOTES

South Abutment Boring



Bottom of borehole at 66.0 ft

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Boring Log 3

I-94 Business Loop from I-94 to 8th Street
Shared Use Path, Bridge, and Lighting