

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	23644	1	1

CITY OF BISMARCK

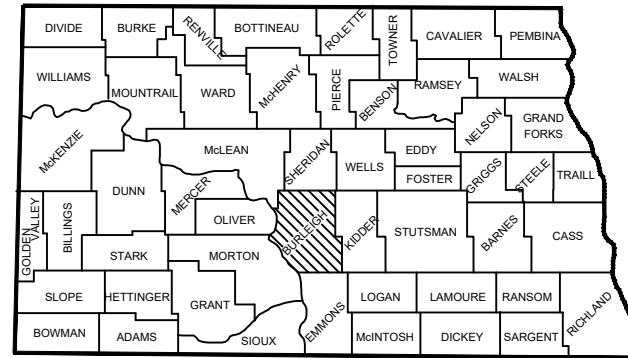
HEU-1-981(133) Centennial Road & Jericho Road City Project HC-171

Burleigh County, North Dakota

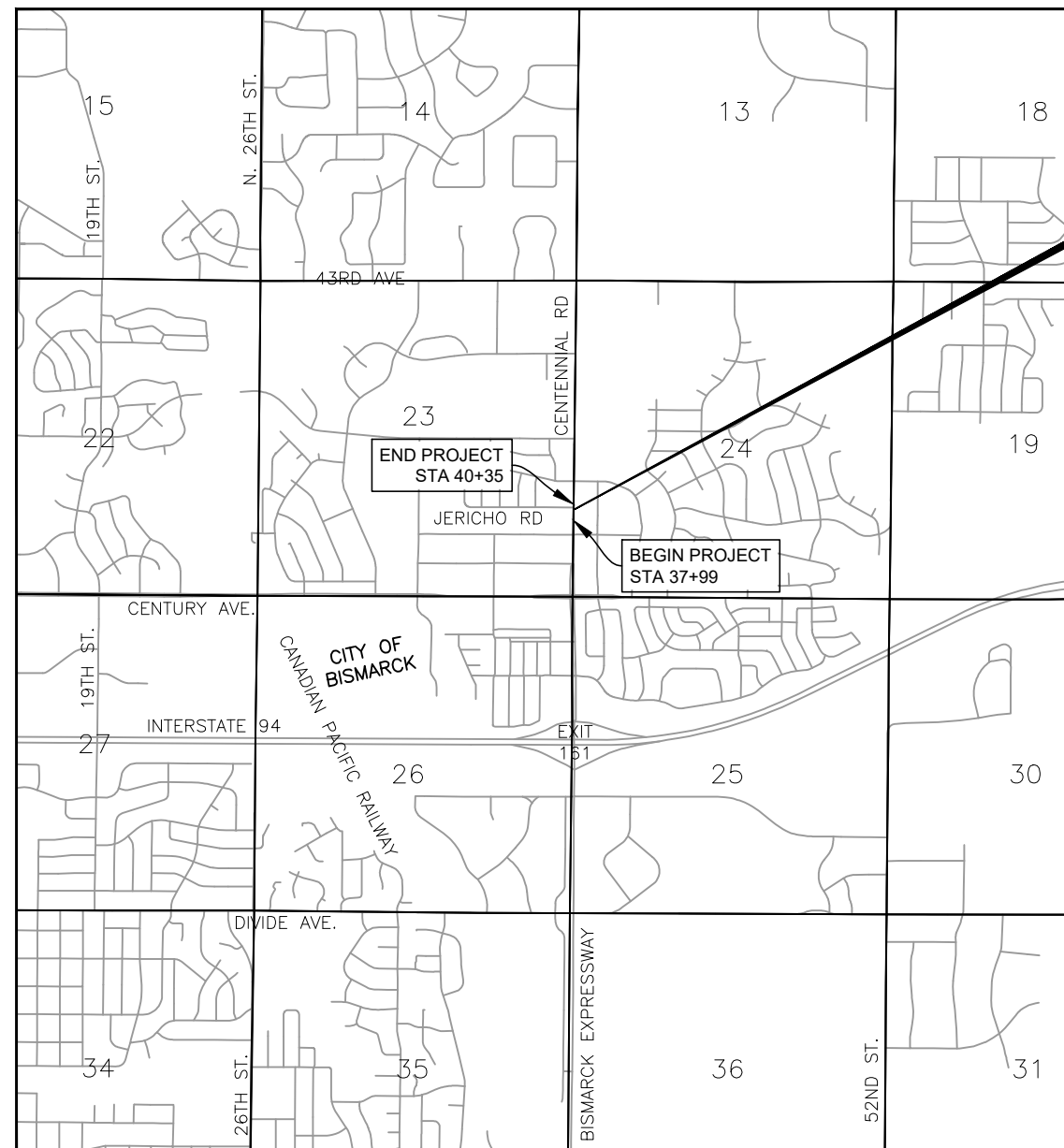
Rectangular Rapid Flashing Beacons (RRFB), Pedestrian Refuge Island,
Curb & Gutter, Curb Ramps, Sidewalk, Signing, and Pavement Marking

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

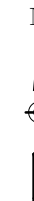
PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
CENTENNIAL RD & JERICO RD	0.05	0.05



STATE OF NORTH DAKOTA



PROJECT LOCATION



DESIGNER
Gabe Schell

DESIGNER
Aaron Schmidt

I, Gabriel J. Schell, City Engineer for the City of Bismarck, North Dakota, hereby approve these plans.

Gabe Schell

DATE: 8/21/25

CITY OF BISMARCK



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81	1	Survey Coordinate and Curve Data
90	1	Paving Layouts
100	1 - 6	Work Zone Traffic Control
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150	1 - 3	Signals

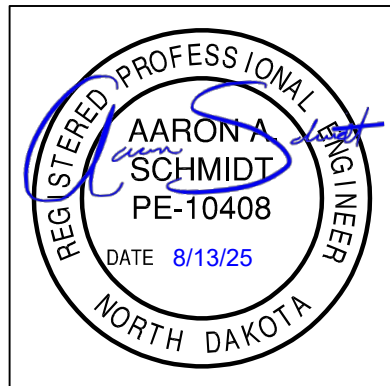
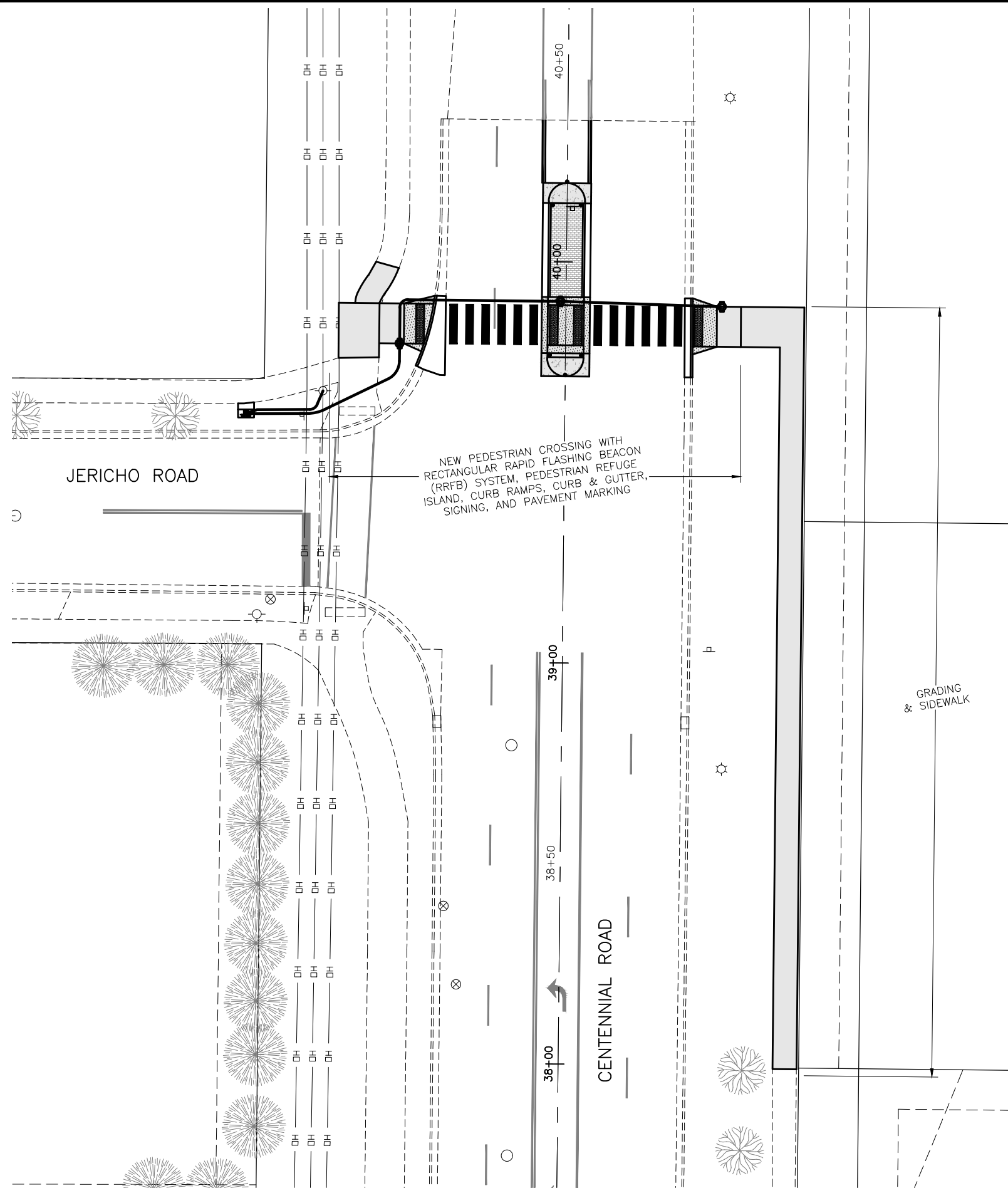
LIST OF STANDARD DRAWINGS

Number	Description
D-101-1, 2, 3, 4	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-550-2	Longitudinal Joint Details
D-550-3	Transverse Contraction Joint Details
D-550-4	Transverse Expansion Joint Detail
D-550-5	Transverse Construction Joint
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11	Construction Sign Details - Warning Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-25	Lane Closures On Urban Streets Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-27	Mobile Operation (Pavement Marking)
D-704-50	Portable Sign Support Assembly
D-748-1	Curb & Gutter And Valley Gutter
D-750-2	Sidewalk
D-750-3	Curb Ramp Retrofit Details
D-750-4	Curb Ramp Retrofit Transitional Area Details
D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube
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D-754-27, 38	Sign Punching, Stringer and Support Location Details Regulatory, Warning and Guide Signs
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-770-4	Lighting And Signal Details
D-772-2	Traffic Signal Standards
D-772-3	Traffic Signal Standards (Mast Arm Type)

SPECIAL PROVISIONS

Number	Description
SP 640(24)	Temporary Pedestrian Facilities
SSP 3	Local Agency Contracts
SSP 8	Federal Prohibition on Certain Technological Hardware

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SCOPE OF WORK

CENTENNIAL ROAD & JERICO ROAD

NOTES

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100-P01 **COMPLETION DATES:**
Substantial Completion Date: October 23rd, 2026. Complete all work required in the contract except for landscaping and surface restoration. Liquidated damages will be assessed per Section 108.07 B for each calendar day that expires after October 23rd, 2026.

Final Completion Date: November 6th, 2026. Complete all landscaping and surface restoration. Liquidated damages will be assessed per Section 108.07 B for each calendar day that expires after November 6th, 2026.

105-110 **PAVEMENT SWEEPING:** Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

Use a vacuum or pick-up type sweeper to perform this work.

105-200 **UTILITY COORDINATION:** A utility coordination meeting is required.

107-P01 **NOISE ORDINANCE:** Construction activities are not permitted between the hours of 11:00 p.m. to 7:00 a.m. unless the Contractor obtains written permission from the Engineer. Request permission a minimum of 30 days prior to the work taking place.

The Contractor is allowed to green saw the concrete without written permission from the Engineer if the following stipulations are met:

Prior to the start of construction provide one written notice to all residential dwellings within 500 feet of the project site. Include in the notice increased noise levels may be experienced at night. Use best practices to minimize the sawing of concrete pavement between the hours of 11:00 p.m. to 7:00 a.m.

107-P02 **ACCESS:** Provide access to all businesses and homeowners at all times and maintain access to driveways at all times.

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

202-P01 **REMOVAL OF CONCRETE:** Removal of concrete pavement consists of removing concrete pavements and sidewalks, the depth of which may vary in thickness. Include common excavation and removal and disposal of aggregate base in "REMOVAL OF CONCRETE PAVEMENT". There will be no additional compensation for removal of extra thickness. Include all costs for removal and disposal of existing concrete in the bid price for "Removal of Concrete pavement".

202-P02 **REMOVAL OF CURB & GUTTER:** Curb and gutter designated for removal may vary in width and thickness. There will be no additional compensation for removal of extra width or thickness. Include all costs for removal and disposal of existing curb and

gutter, aggregate, and common excavation in the bid price for "REMOVAL OF CURB & GUTTER".

251-P01 **SEEDING CLASS III:** Provide seeding in all disturbed areas, except hard surfaced areas, with the following:

Use: Boulevards and other areas requiring salt resistance		
Application Rate: 6 PLS/1000 sf		
Variety and Species of Seed	% by Weight	% Pure Live Seed
Fairway Crested	50	85
Sheep Fescue	30	85
Perennial Ryegrass	20	85

302-P01 **WATER:** Include the equipment, labor, and water used to control dust and to compact aggregate bases in the cost for "AGGREGATE BASE COURSE CL 5".

704-P01 **TRAFFIC CONTROL:** Maintain one through lane of traffic in all directions at all times. The basis of estimate is shown in Section 100. Should the Contractor elect to proceed in a manner other than as shown in Section 100, approval will be required from the Engineer and no additional compensation will be made for addition traffic control devices. Maintain access to adjacent properties and businesses at all times.

Parking of Contractor equipment and vehicles is not to be done in public parking spots unless approved by the Engineer.

708-P01 **INLET PROTECTION SPECIAL:** Place inlet protection into inlets prior to the start of construction. Inlet Protection Special to be Top Guard by ERTEC, Flexstorm, Dandy Curb Sack, or approved equivalent. Include all costs for furnishing, installing, maintaining (cleaning), and removal of a drainage inlet filter assembly to collect sediment in surface storm water runoff. The item also includes the disposal of debris or silt that has accumulated in the bag. Include periodic cleaning of the filter in the bid price.

Keep the filter in place until after the gradient surfaces are stabilized and the surrounding street is clean of debris. Include all costs related to the material, installation, maintenance, replacement and removal in the price bid for "INLET PROTECTION-SPECIAL".

748-P01 **CURB & GUTTER:** Construct curb & gutter separate from adjacent concrete pavement unless shown otherwise on the plans. Match existing curb height when connecting to existing curb & gutter. Include jointing, rebar, dowels, and sealing in the price bid for "CURB & GUTTER-TYPE 1".



NOTES

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748-P02 CONCRETE PAVEMENT AND CURB & GUTTER: Keyways will only be allowed when placing concrete forms.

Pour curb & gutter separate from adjacent concrete pavement.

Jointing, rebar, dowels, and sealing are to be included in the price bid for "CURB & GUTTER", "PIGMENTED IMPRINTED CONCRETE", and "CONCRETE MEDIAN NOSE PAVING".

750-P01 CONCRETE MEDIAN NOSE PAVING: Drill and epoxy tie bars and dowel bars where existing pavement abuts new pavement and curb & gutter. Clean the holes with compressed air before injecting the epoxy resin. Rotate bars 180 degrees to 360 degrees during insertion. Match the placement of proposed joints with the location of existing joints where possible.

Include all costs for labor, materials, and equipment necessary for drilling and installing tie bars, jointing, rebar, dowels, and joint sealing in the price bid for "CONCRETE MEDIAN NOSE PAVING".

750-P02 PIGMENTED IMPRINTED CONCRETE: Install pigmented and imprinted concrete at locations shown in the plans. Develop a mix design using any size coarse aggregate specified in Section 802.01 C.2, "Coarse Aggregate" and with a 60-40 fine aggregate coarse aggregate ratio.

Form a pattern in the concrete using platform stamping pads or rollers to obtain the brick pattern. Stamp the surface after it is troweled and floated, and while the concrete is still in the plastic state. Do not trowel the surface more than once. Provide a 6-inch by 12-inch brick pattern. Other brick dimensions require approval. Use a form release agent on the equipment used to stamp the concrete. Match sawed joints to the adjacent sidewalk.

Provide a pigment to the concrete at the ratio recommended by the manufacturer and add the pigment directly into the mixer along with the aggregate, cement, and water. Add pigment while the mixer is operating at mixing speed. Continue mixing between 50 and 100 revolutions. Cure and seal concrete using slip and fade resistant curing compound. Apply two coats per manufacturers recommendations. Provide a pigment from the list below.

- Number 413 Terra Cotta, produced by Soloman Colors, Inc.
- Number 1117 Tile Red, produced by Davis Colors

Include all labor, equipment, and materials required to complete this work in the price bid for "PIGMENTED IMPRINTED CONCRETE".

750-P03 DETECTABLE WARNING PANELS: Provide unpainted, cast iron detectable warning panels as specified in Section 885 of the Specifications manufactured by EJ Iron Works, Neenah Foundry, or approved equivalent.

750-P04 EARTHWORK: Include all costs associated with earthwork operations (common excavation, embankment, material import, topsoil removal, stockpiling, and replacing, etc.) in the price bid for "SIDEWALK CONCRETE ()IN".

754-P01 FLEXIBLE DELINEATORS-TYPE D: Provide and install yellow Omega Post High Speed Delineator from Impact Recovery Systems or approved equal, with surface mount base and 36" height.

754-P02 SIGN REMOVAL: The City of Bismarck Public Works Department will remove all existing signs and supports as identified by the Engineer in accordance with the project. Notify the Public Works Department 48 hours prior to needing the signs removed.

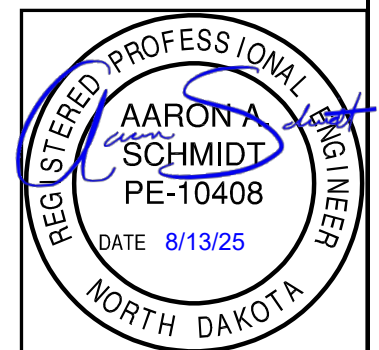
754-P03 SIGN SLEEVE: Install 3" PVC sign sleeve, at the thickness of the concrete to be placed in the sidewalk or median concrete, for the installation of permanent signs at locations shown on the plans. Include all costs for and material and labor in the bid price bid for "PIGMENTED IMPRINTED CONCRETE".

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

772-P01 FLASHING BEACON SYSTEM: Include in the price bid for "FLASHING BEACON" all labor, materials and equipment necessary for the Rectangular Rapid Flashing Beacon (RRFB) system to be fully operational as shown in the plans upon construction completion. This work includes but is not limited to, the installation of a feed point, concrete housekeeping pads, type II signal standards with transformer bases and foundations, RRFB controller, flashing RRFB lights, pedestrian push buttons, utility service and all ancillary hardware, cable, conduit, connections, signs, and appurtenance to install the flashing beacon system completely. Include all costs for sprinkler repairs, exploratory cuts/potholing, and any concrete/asphalt removal and replacement related to conduit installation and boring in the price bid for "FLASHING BEACON".

All required work is identified on the plan sheets. The control enclosure shall be installed as shown in the plans and shall not be battery powered or solar powered. Provide the smallest size control enclosure to accommodate the system. Program the flash rate and illuminated period of each flash in accordance with the most current version of the MUTCD and NDDOT standards. Provide shop drawings for the flashing beacon equipment to the Engineer prior to ordering materials.

Estimated material quantities are provided for the flashing beacon system. Material quantities shown are estimated, actual quantities required may vary based on field conditions. No payment will be made for additional materials requires unless approved by the Engineer.



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772-P02 FEED POINT-FLASHING BEACON-POST MOUNTED: Install new post-mounted feed point at the location indicated on the plans (see Section 150). See Post-Mounted Feed Point detail in Section 150 for details.

Coordinate with the electric utility company (Capital Electric) to provide new electrical service for the RRFB system. Provide 120/240V single phase electrical service from power company transformer. The cost of the utility service will be paid by the Contractor.

Provide and install a Unistrut frame and Unistrut mounting brackets with Unistrut P-1280 end caps on all Unistrut channel ends for the new feed point. Provide a concrete foundation and surround each Unistrut frame post below grade in an 8" poured concrete pier or collar. Provide non-corrosive hardware for the feed point. Do not use wire nuts for feed point. Utilize rigid steel conduit above grade and PVC/HDPE conduit below grade.

Provide and install two (2) 5/8-inch by 10-foot copper ground rods at bottom of posts as shown on the detail to ground the enclosure and service. Loop between and place the two ground rods a minimum of 6-feet apart. Bond all circuits, electrical panel, enclosures, and neutral per NEC.

Feed incoming service from below grade. Provide 1-1/2" (minimum) rigid steel conduit, two (2) RHH/RHW conductors, and one (1) THW insulated ground conductor. Provide 36" deep underground service conductors for the feed point. Route conduit entrance through meter. Seal all utilized conduits with duct seal.

Provide and install a 30A, 120/240V, 2-pole disconnect switch with a lockable enclosure rated for NEMA 3R and be ETL or UL listed in accordance with UL 50, unless otherwise indicated on the plans. Obtain a padlock for feed point from the City of Bismarck.

Include all costs associated with the materials, labor, coordination, utility fees, and equipment necessary to furnish and install the feed point and electrical service in the price bid for "FLASHING BEACON".

772-P03 TRAFFIC SIGNAL POLES: Provide galvanized steel traffic signal poles. Galvanizing to be in accordance with AASHTO Specification M111 (ASTM A123). Steel pole material to be in accordance with ASTM A36, A242, A570, A572, A607 or A595 Grade A or B. Limit A595 material to a 3/8-inch maximum thickness. Steel pole material with a thickness of 1/2 inch to 2 inches, to satisfy Charpy V-Notch toughness test requirements of 15 ft. lb. at 40 degrees F.

772-P04 TRAFFIC SIGNAL STANDARDS BASE: Provide traffic signal standards with galvanized "T" transformer base type standards. Galvanizing to be in accordance with AASHTO Specification M111 (ASTM A123). Provide Pelco base/pole collar assembly for stability. Include all costs, labor, materials and equipment necessary for furnishing and installing this item in the price bid for "FLASHING BEACON".

772-P05 TERMINAL STRIP PROTECTION: Mount the terminal strip on a 1/2" thick white plastic backing material and provide a terminal strip protection pipe within the signal transformer base. Provide a 3" to 3 1/2" PVC protection pipe with a minimum length of 12" to cover the entire terminal strip. Cap one end of the PVC pipe. Place the terminal strip within the PVC pipe with the cap side up inside the transformer base. Include all materials, labor and equipment necessary to provide and install the terminal strip protection pipe in the price bid "FLASHING BEACON".

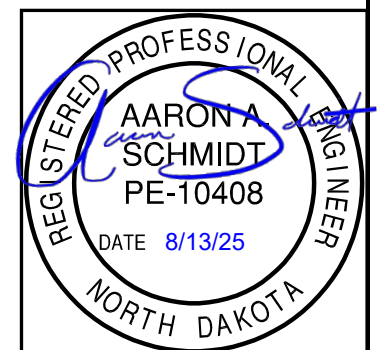
772-P06 PEDESTRIAN PUSHBUTTON AND SIGN: Provide unpainted aluminum, pedestrian pushbuttons. Include the cost for the accessible pedestrian pushbutton and sign in the bid item "FLASHING BEACON".

772-P07 CONDUIT: Install new conduit as shown on the plans. Use HDPE conduit when boring. Seal all conduit with duct seal (at the signal foundation, pull box, cabinet, etc.). Install one spare 2" conduit sweep in each signal standard base. Label direction/destination of all conduits including spare. Cap spare conduits with an oil-tight plug with wing nut and labeled as to which direction they face. Include all costs in the bid price for "FLASHING BEACON".

772-P08 TRACER WIRE: Provide tracer wire to all RRFB signal poles and ground the tracer wire in the signal bases. Splicing tracer wire is not allowed.

772-P09 LABEL ALL FIELD CABLES: Coordinate with the City of Bismarck for approved labeling materials. Provide readable labels without moving the cables. Include all costs in the price bid for "FLASHING BEACON".

772-P10 WIRE SPLICING: No splicing is allowed. Splicing may only take place at the transformer base terminal strip and flashing beacon head terminal blocks.



Estimated Quantities

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SPEC	CODE	ITEM DESCRIPTION	UNIT	Main	100% City	TOTAL
103	0100	CONTRACT BOND	L SUM	0.9	0.1	1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	80		80
202	0130	REMOVAL OF CURB & GUTTER	LF	38		38
251	0310	SEEDING CLASS III	SY	120	845	965
253	0200	HYDRAULIC MULCH	SY	120	845	965
261	0112	FIBER ROLLS 12IN	LF		210	210
302	0120	AGGREGATE BASE COURSE CL 5	TON	67	30	97
702	0100	MOBILIZATION	L SUM	0.9	0.1	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	434		434
704	1054	SIDEWALK BARRICADE	EA	3		3
704	1058	PEDESTRIAN WALKWAY	LF	62		62
704	1060	DELINEATOR DRUMS	EA	16		16
704	1067	TUBULAR MARKERS	EA	44		44
704	1085	SEQUENCING ARROW PANEL-TYPE A	EA	1		1
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	20		20
704	2108	TEMPORARY CURB RAMP	EA	1		1
708	1540	INLET PROTECTION-SPECIAL	EA	1	1	2
748	0140	CURB & GUTTER-TYPE I	LF	114		114
750	0030	PIGMENTED IMPRINTED CONCRETE	SY	21		21
750	0115	SIDEWALK CONCRETE 4IN	SY	48	127	175
750	0140	SIDEWALK CONCRETE 6IN	SY	35		35
750	0210	CONCRETE MEDIAN NOSE PAVING	SY	15		15
750	2115	DETECTABLE WARNING PANELS	SF	80		80
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	24.6		24.6
754	0193	FLEXIBLE DELINEATORS-TYPE D	EA	6		6
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	16.1		16.1
754	0593	RESET SIGN SUPPORT	EA	2		2
762	1270	PREFORMED THERMO PLASTIC PVMT MK 24IN LINE	LF	72		72
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	60		60
772	2160	FLASHING BEACON	EA	1		1

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BASIS OF ESTIMATE

AGGREGATE BASE COURSE CL 5

@ 1.875 TON/CY

TOPSOIL

Topsoil shall be removed from excavation and embankment areas at an assumed depth of 4 inches. Replace topsoil at a depth of 4 inches in all disturbed areas excluding hard surfaced areas. Removal, stockpiling, and replacing topsoil shall be included as part of "SIDEWALK CONCRETE ()IN".

SEEDING

All disturbed areas excluding hard surfaced areas.

MULCHING

All disturbed areas excluding hard surfaced areas.

EARTHWORK SUMMARY

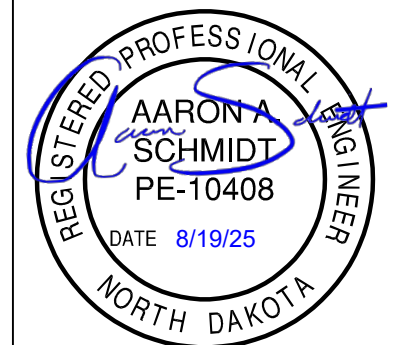
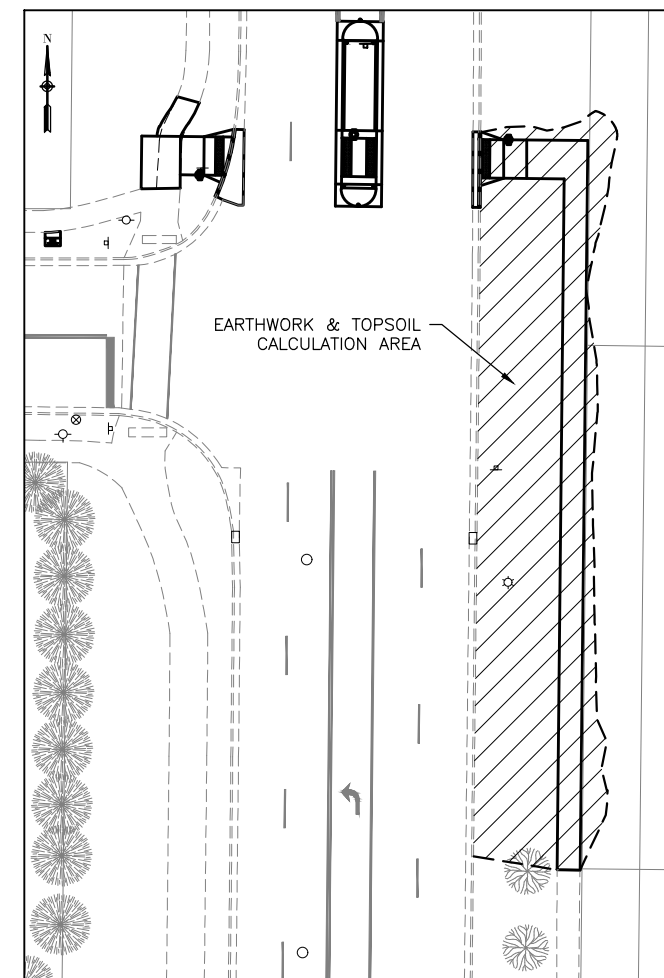
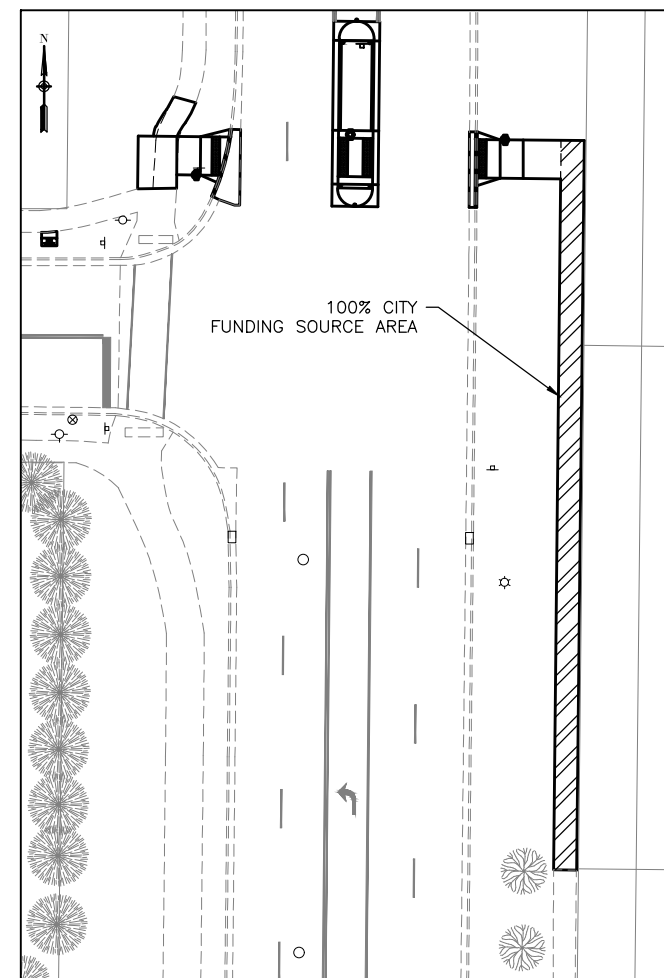
LOCATION	COMMON EXCAVATION	EMBANKMENT	NET
East side sidewalk area only (see exhibit below)	20 CY	30 CY	10 CY (EMBANKMENT)

- * This computation report is for reference only and is not a balance sheet. All earthwork shall be included as part of "SIDEWALK CONCRETE ()IN".
- * An additional volume of 25% is included in all embankment volumes to allow for shrinkage.

TOPSOIL SUMMARY

LOCATION	EXISTING TOPSOIL	PROPOSED TOPSOIL	NET
East side sidewalk area only (see exhibit below)	74 CY	59 CY	15 CY (EXCESS)

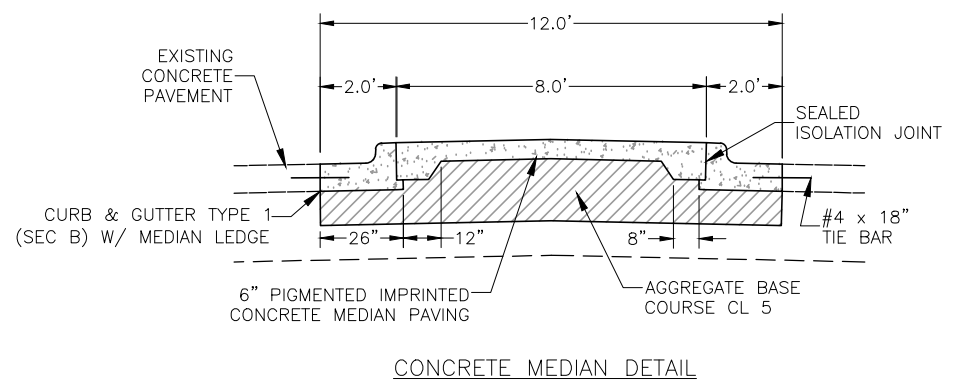
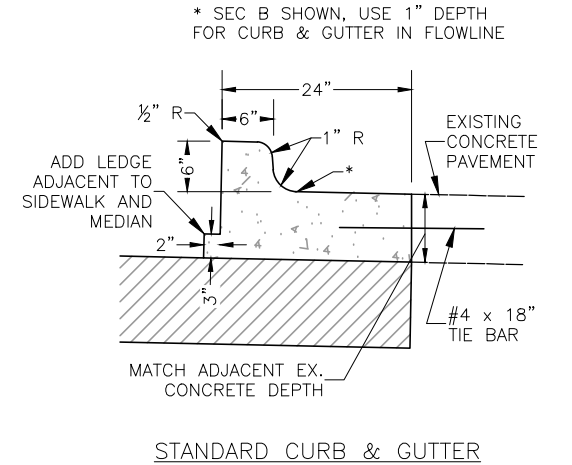
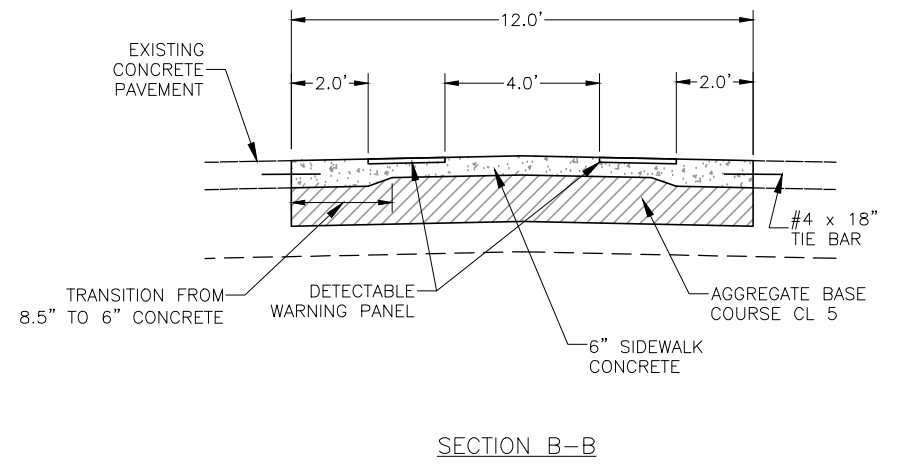
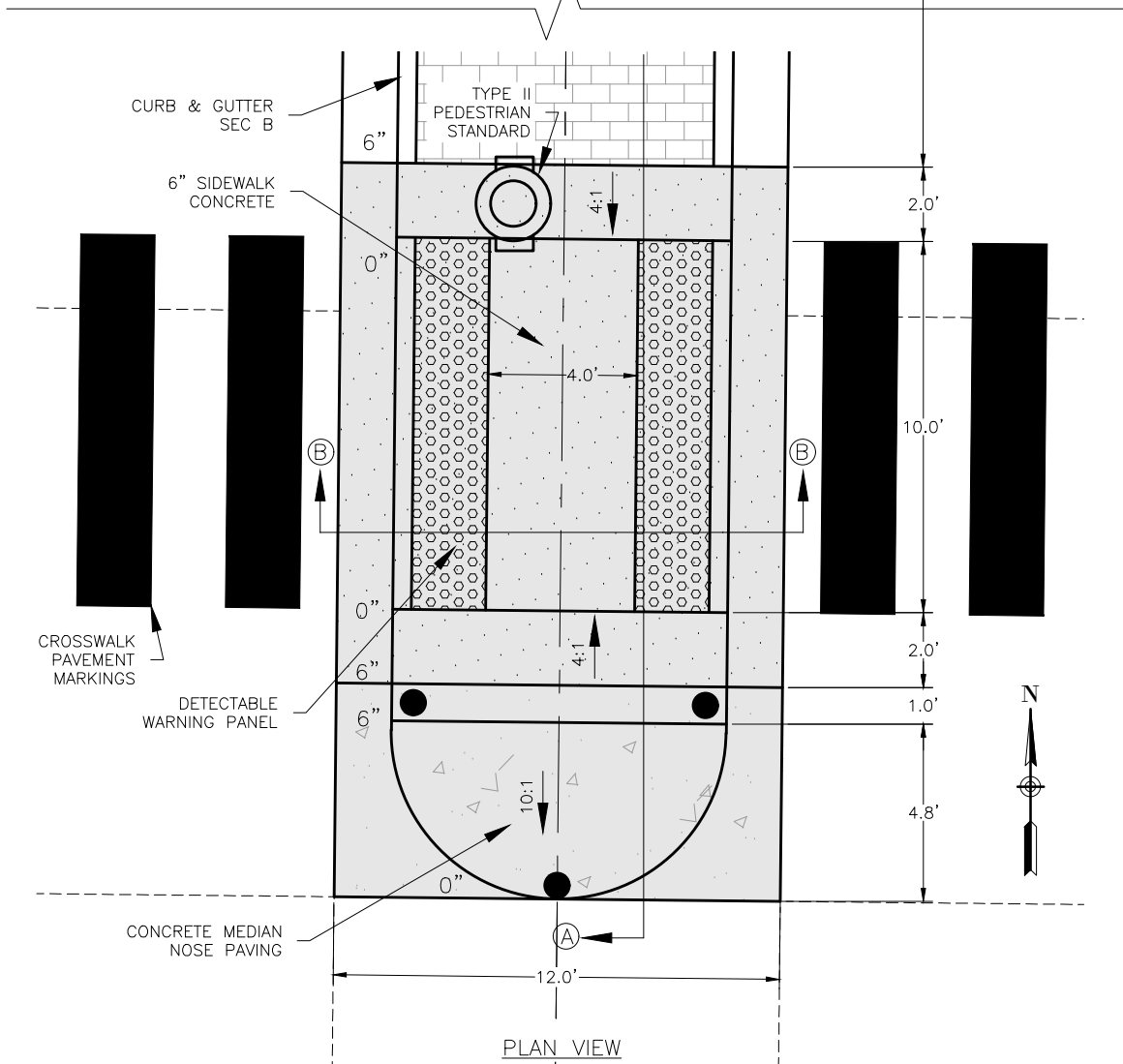
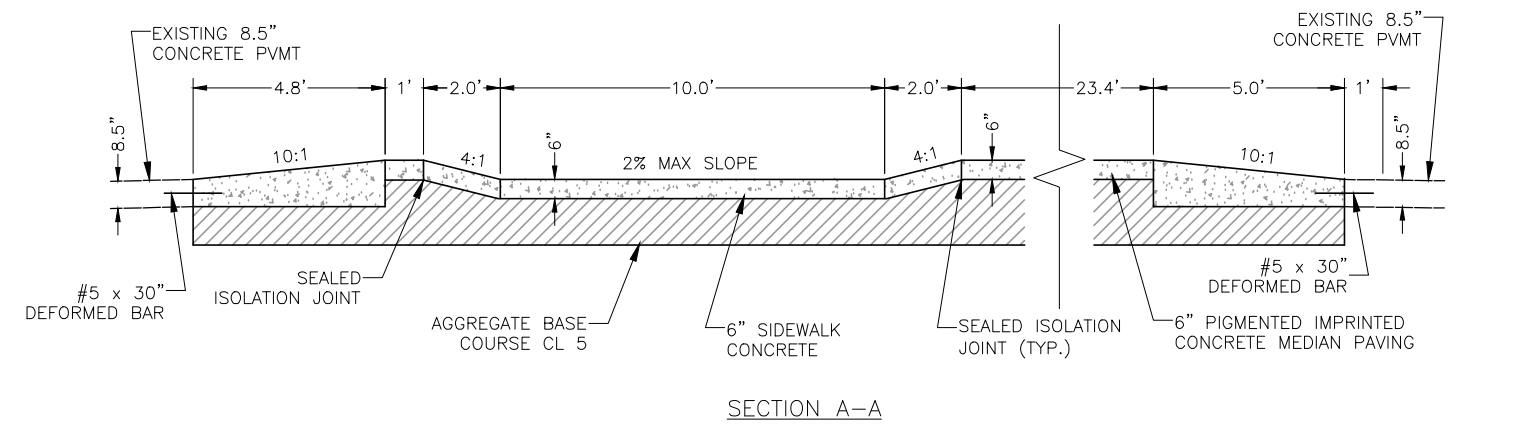
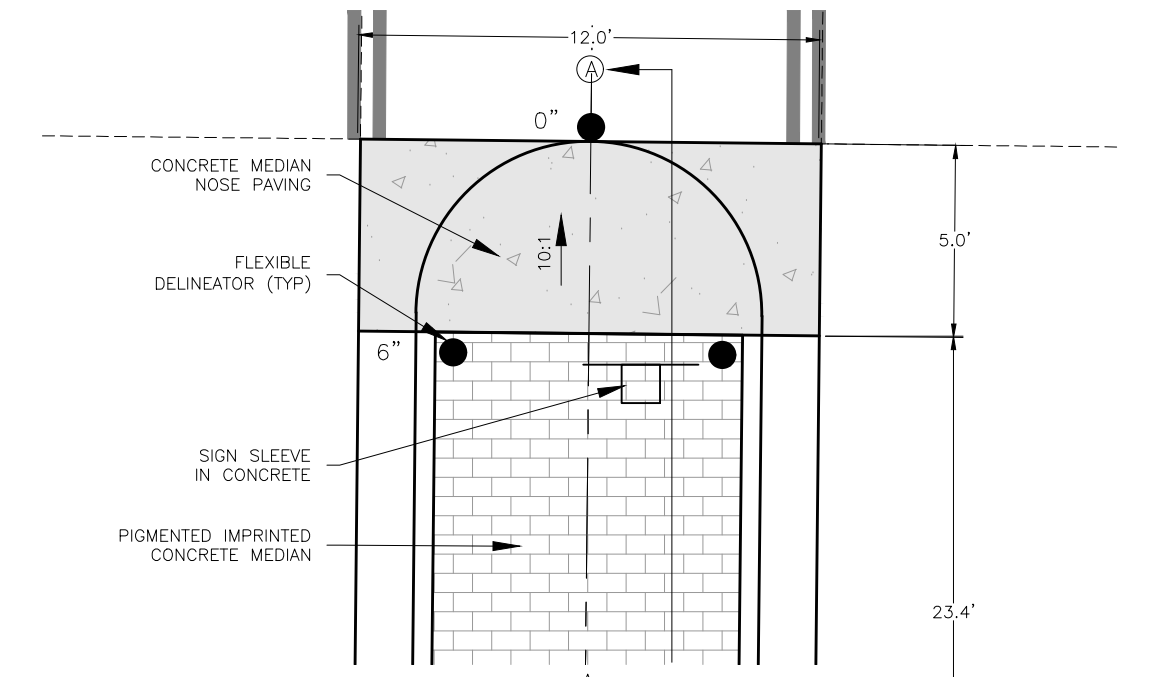
- * Assumed depth = 4 inches.
- * Excess topsoil shall be used for "embankment" in east sidewalk area.



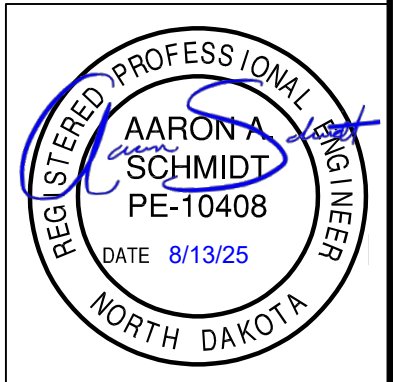
BASIS OF ESTIMATE

CENTENNIAL ROAD & JERICO ROAD

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**CENTENNIAL ROAD & JERICO ROAD
PEDESTRIAN REFUGE ISLAND DETAIL**



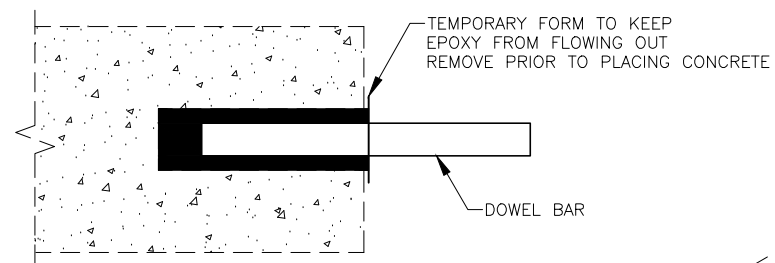
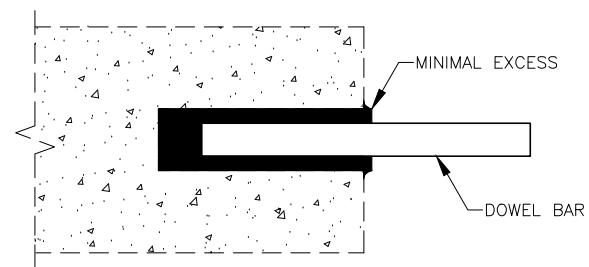
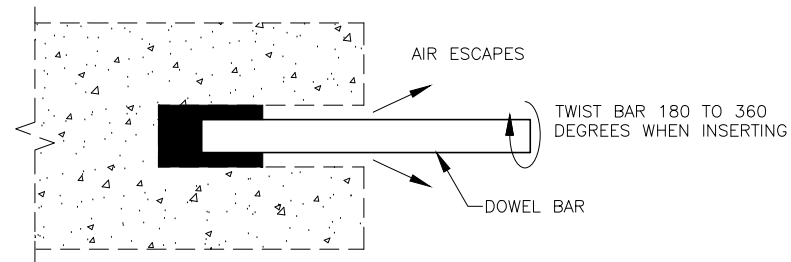
DETAILS

PEDESTRIAN REFUGE ISLAND
CENTENNIAL ROAD & JERICO ROAD

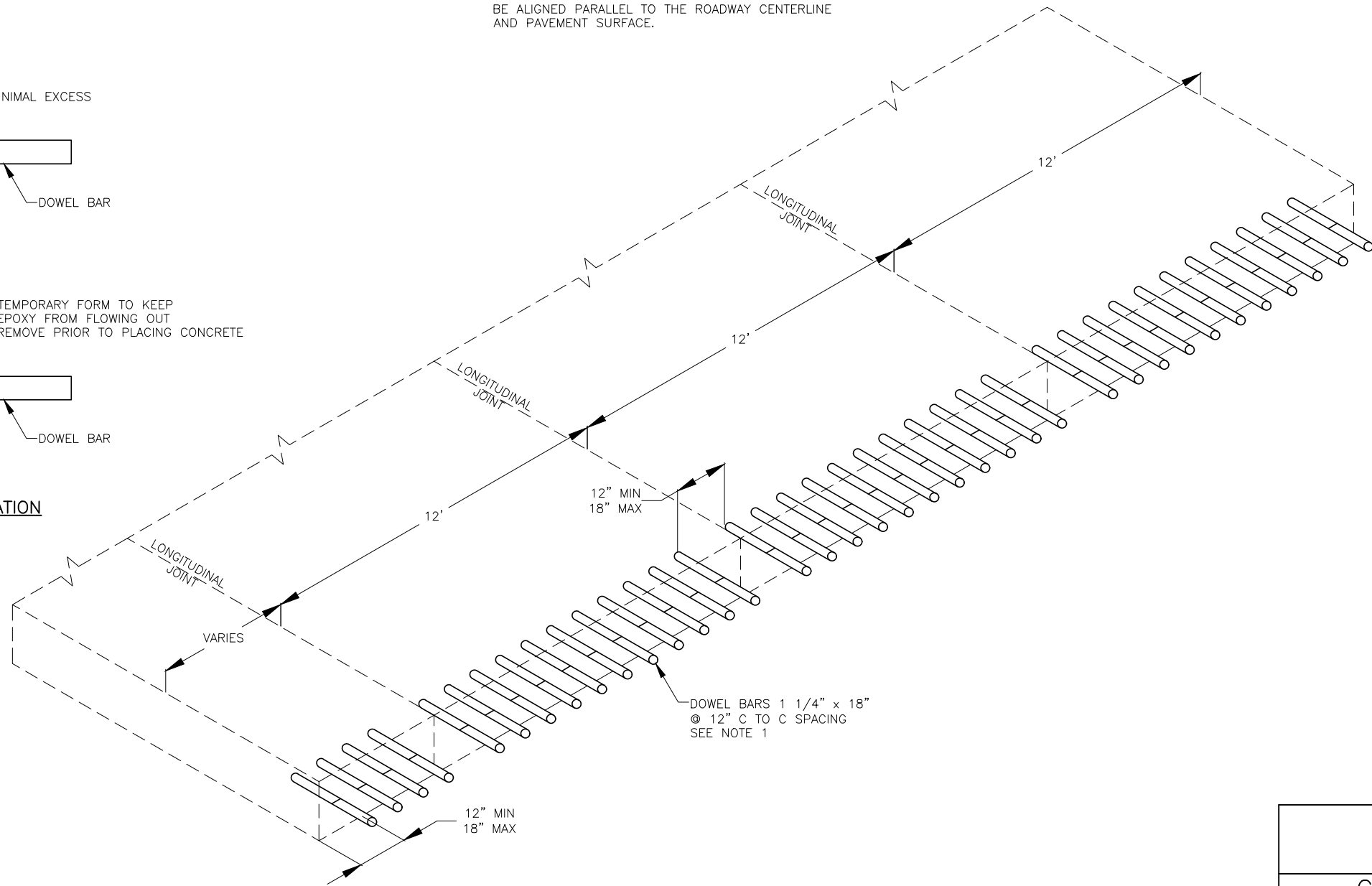
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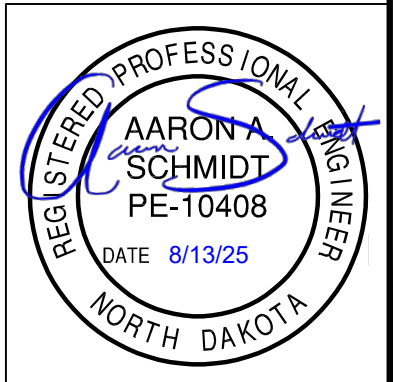
- DOWEL BARS SHALL BE SPACED AT 12" O.C.
 - DOWEL BARS SHALL BE PLACED NO LESS THAN 12" OR MORE THAN 18" FROM LONGITUDINAL JOINT.
 - IF EXISTING SAW CUT DOWEL BARS ARE PRESENT, DRILLED IN DOWEL BARS SHALL BE PLACED AT THE HORIZONTAL MIDPOINT BETWEEN EXISTING SAW CUT DOWEL BARS.
- DOWEL BARS SHALL BE PLACED AT THE VERTICAL MIDPOINT OF THE EXISTING PCC PAVEMENT.
- SMOOTH BARS AND DOWEL BAR ASSEMBLIES SHALL BE ALIGNED PARALLEL TO THE ROADWAY CENTERLINE AND PAVEMENT SURFACE.



DOWEL BAR & EPOXY INSTALLATION



DOWEL BAR PLACEMENT



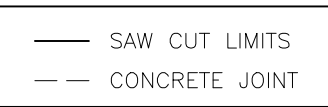
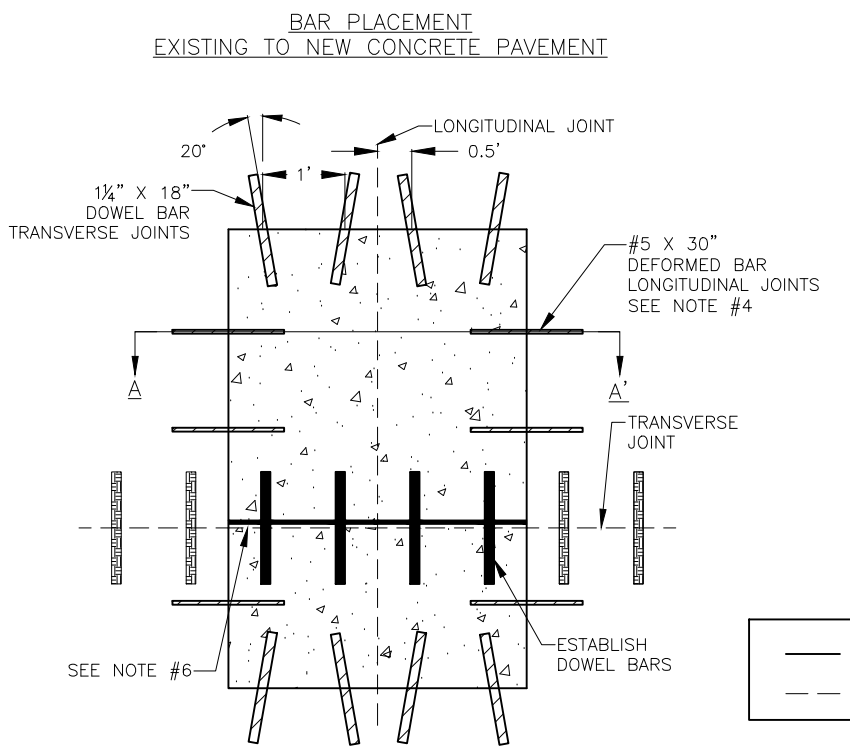
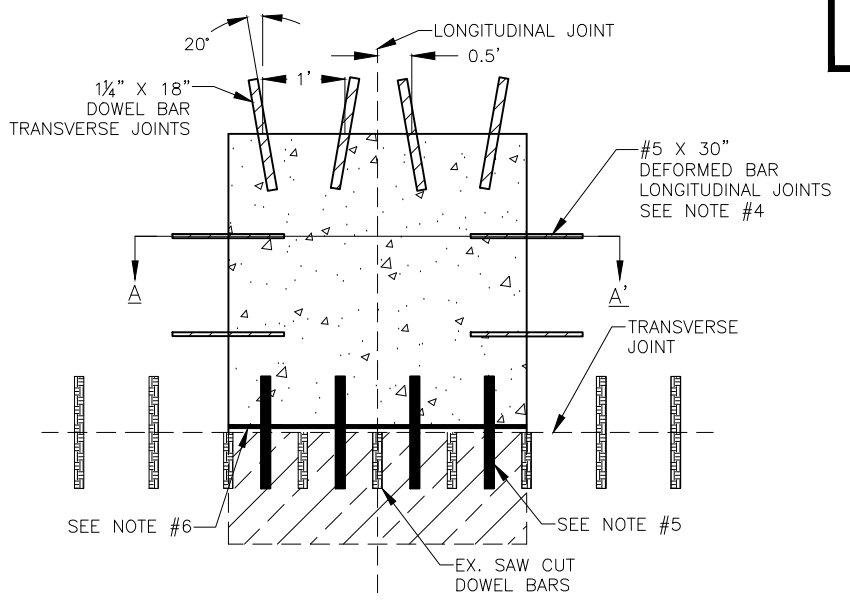
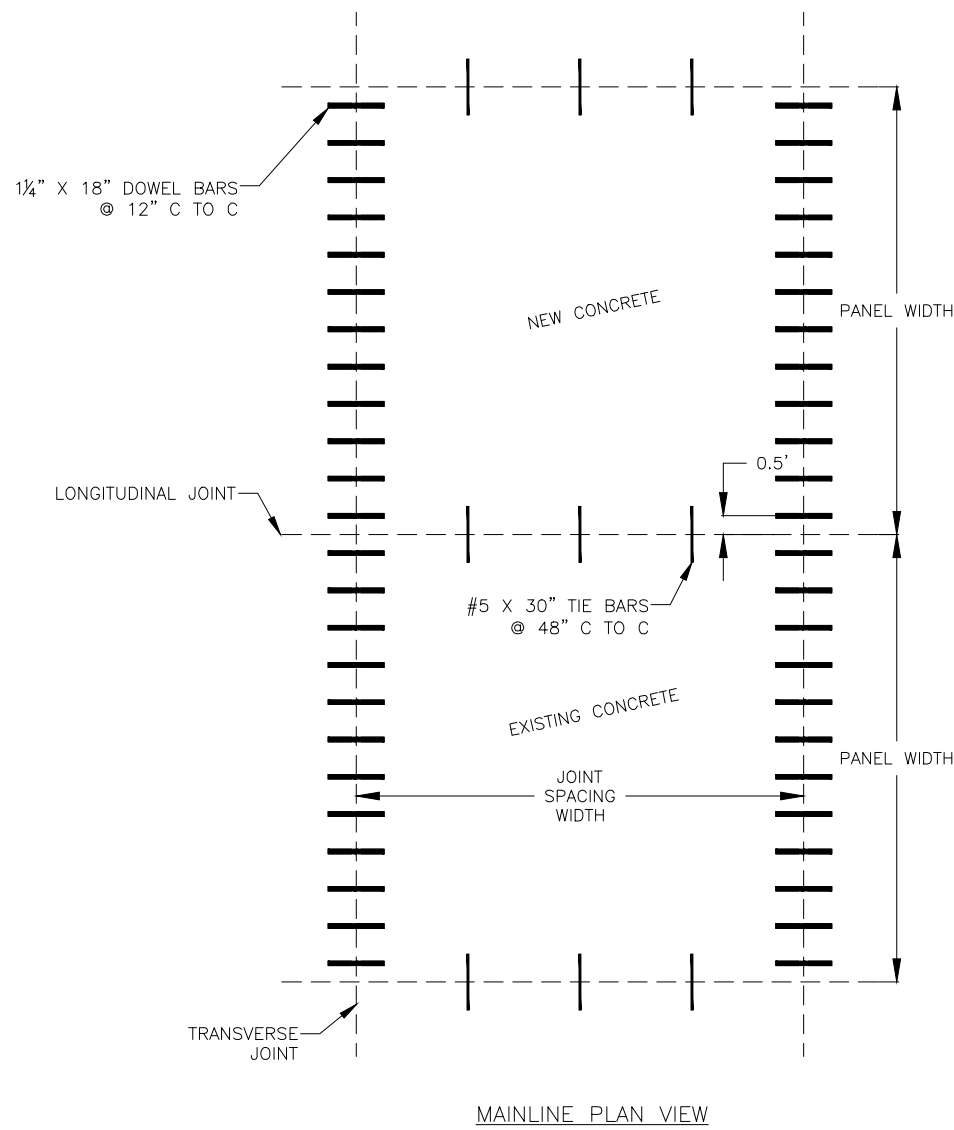
Bismarck ENGINEERING

GENERAL DETAILS

PAVEMENT JOINTING DETAILS

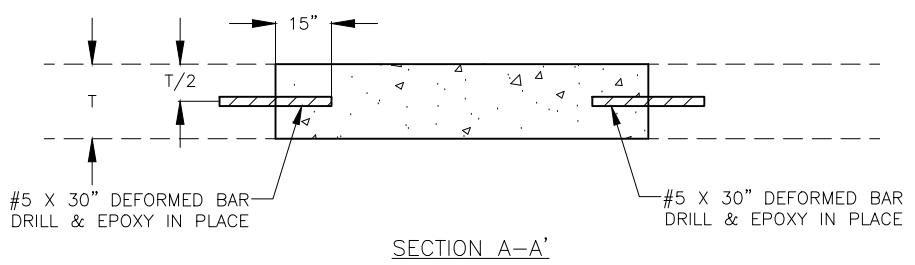
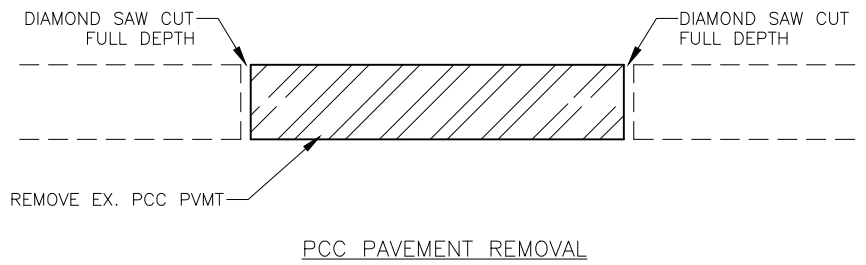
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	20	3



NOTES

- WORK TO BE PERFORMED
- FULL DEPTH SAW CUT THE MARKED REMOVAL AREA.
 - REMOVE CONCRETE FULL DEPTH, RESTORE IN PLACE BASE IF DISTURBED.
 - FURNISH AND INSTALL 18" LONG 1/4" DOWEL BARS. THE SPACING FOR TRANSVERSE EDGES SHALL BE 12" O.C. AND SKEWED 20° FROM THE FACE OF THE JOINT. TRANSVERSE BARS SHALL BE PLACED NO LESS THAT 6" FROM ANY JOINT OR REPAIR EDGE.
 - FURNISH AND INSTALL 30" LONG NO. 5 DEFORMED BARS. THE SPACING FOR LONGITUDINAL EDGES SHALL BE PARALLEL TO THE JOINT. IF JOINT IS LESS THAN 4' IN LENGTH, USE TWO BARS EVENLY SPACED, IF LONGER THAN 4' SPACE AT 48" O.C. LONGITUDINAL BARS SHALL BE PLACED NO LESS THAT 6" FROM END OF TRANSVERSE BARS.
 - RESTORE DOWEL BARS WHICH SHALL BE DRILLED MID POINT BETWEEN EXISTING SAWED DOWEL BARS, SPACED 12" O.C.
 - CLEAN EXPOSED SURFACE OF INPLACE CONCRETE. COAT EXPOSED SURFACES OF THE DOWEL BARS, IF ANY, WITH GREASE.
 - PLACE, CONSOLIDATE, FINISH, AND CURE CONCRETE.
 - IF DEEMED NECESSARY BY THE ENGINEER, PLACE 260 MIL THICKNESS OF BITUTHENE MEMBRANE OR EQUAL (APPROX. 1/4") AT TRANSVERSE JOINT.
 - RESTORE TRANSVERSE AND LONGITUDINAL JOINTS.
 - CLEAN AND SEAL RESTORED TRANSVERSE AND LONGITUDINAL JOINTS.



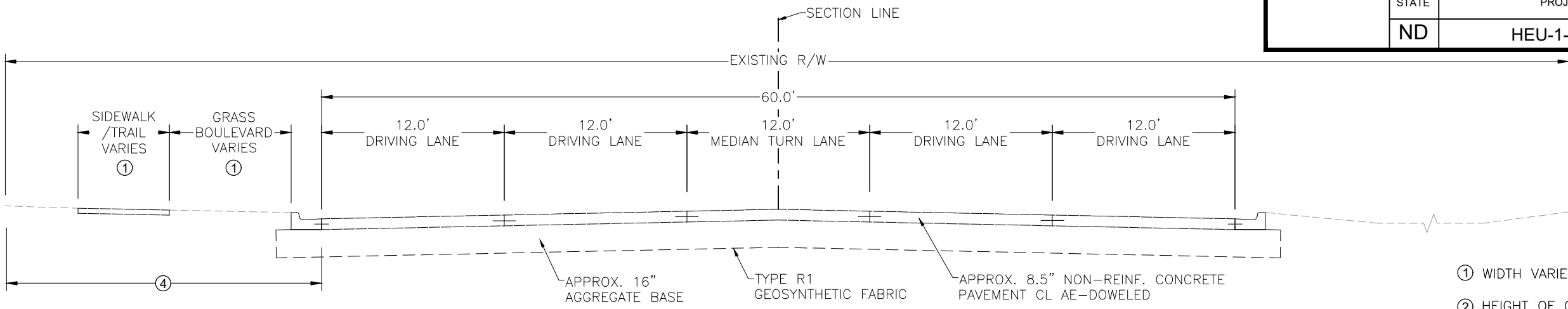
Bismarck ENGINEERING

GENERAL DETAILS

PAVEMENT JOINTING DETAILS

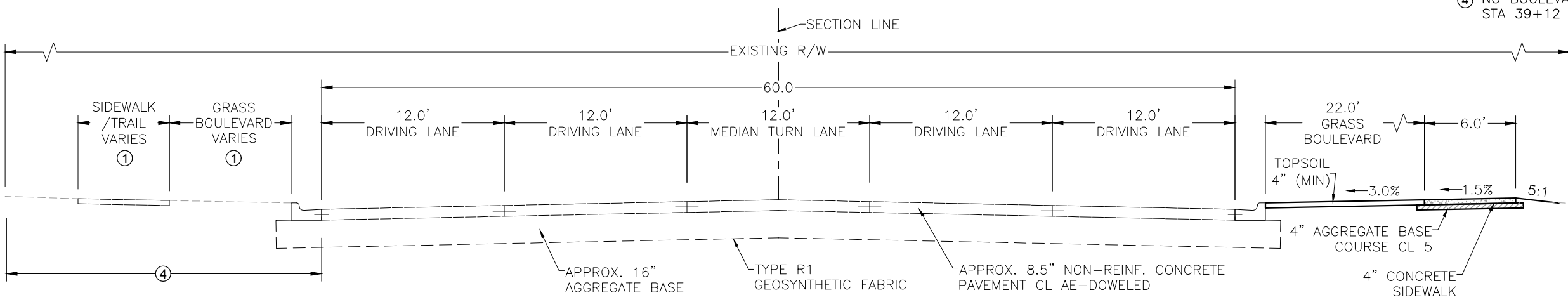
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	30	1

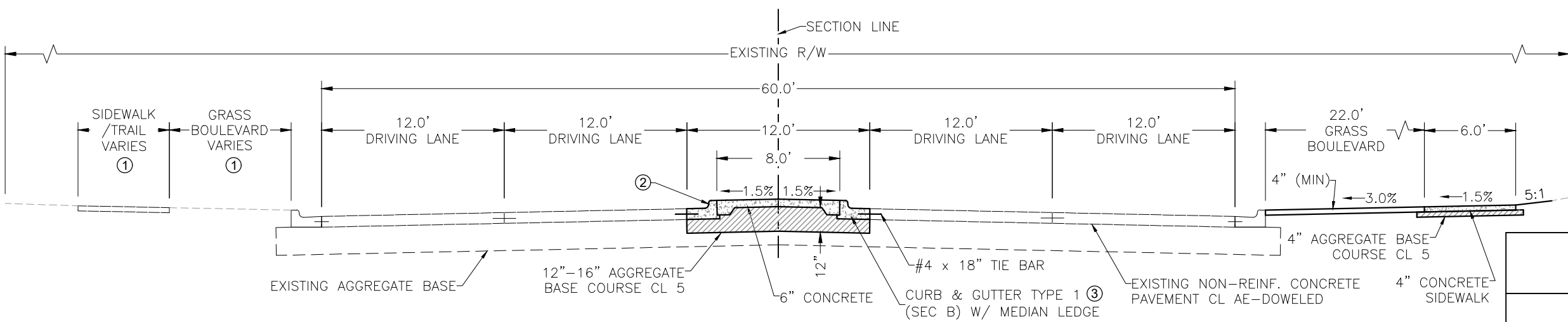


**CENTENNIAL ROAD
EXISTING TYPICAL SECTION
STA 37+99 - 40+35**

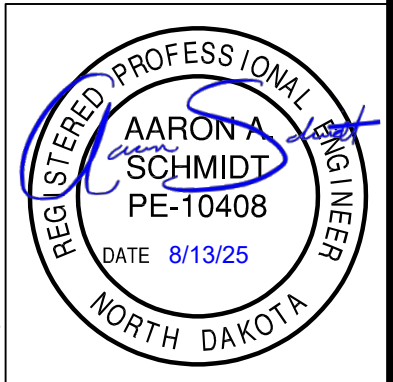
- ① WIDTH VARIES
- ② HEIGHT OF CURB/MEDIAN ISLAND VARIES.
- ③ CURB & GUTTER USED ONLY ON A PORTION OF MEDIAN ISLAND (SEE MEDIAN ISLAND DETAIL).
- ④ NO BOULEVARD, JERICO ROAD FROM STA 39+12 TO 39+62.



**CENTENNIAL ROAD
PROPOSED TYPICAL SECTION
STA 37+99 - 39+71**



**CENTENNIAL ROAD
PROPOSED TYPICAL SECTION
STA 39+71 - 40+20**

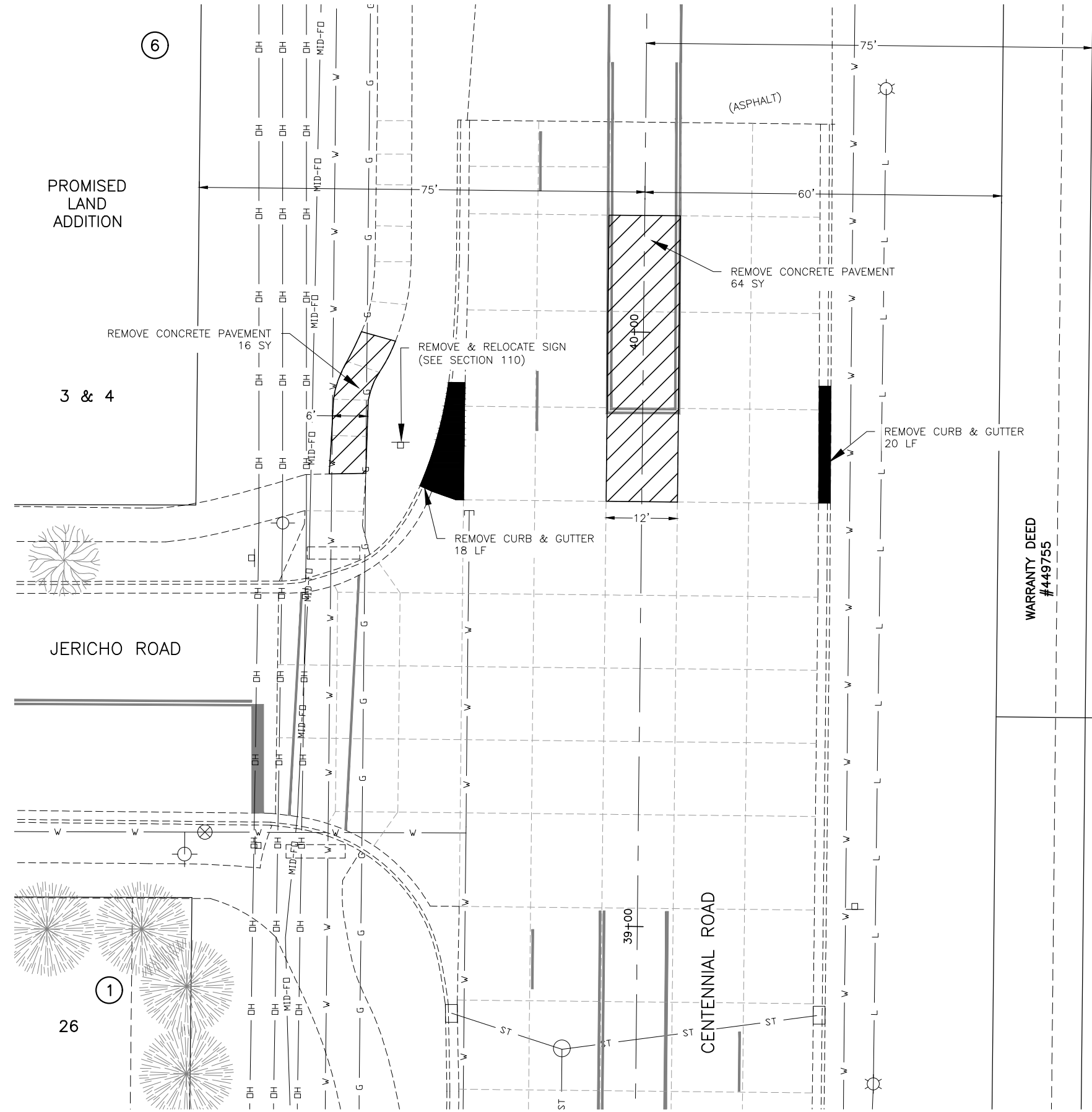


Bismarck ENGINEERING

TYPICAL SECTIONS

EXISTING & PROPOSED
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	40	1



- ② REMOVAL OF CURB AND GUTTER
- REMOVAL OF CONCRETE PAVEMENT

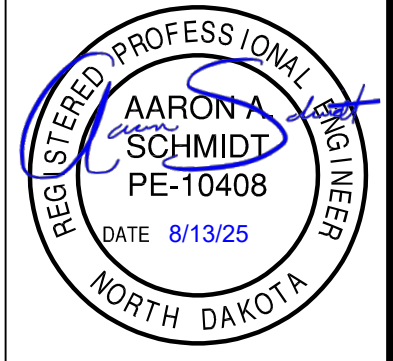
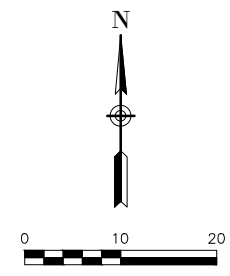
202 0114 REMOVAL OF CONCRETE PAVEMENT

WEST SIDE SIDEWALK	16 SY
MEDIAN AREA	64 SY
TOTAL	80 SY

202 0130 REMOVAL OF CURB & GUTTER

WEST SIDE	18 LF
EAST SIDE	20 LF
TOTAL	38 LF

NOTE:
 1. INCLUDE ANY CONCRETE OR PAVING REMOVALS FOR NEW RRFB, FEEDPOINT, BORING, CONDUIT, CONDUCTOR, OR EXPLORATORY CUTS AS PART OF SIGNAL WORK (SEE SECTION 150).


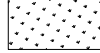



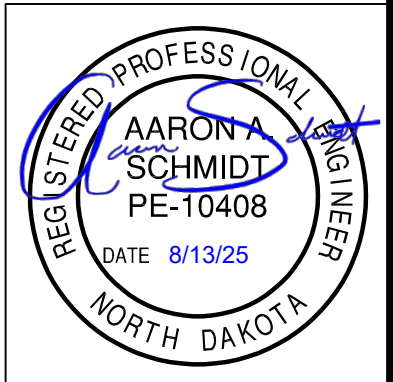
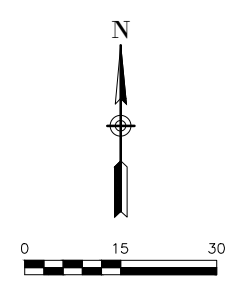
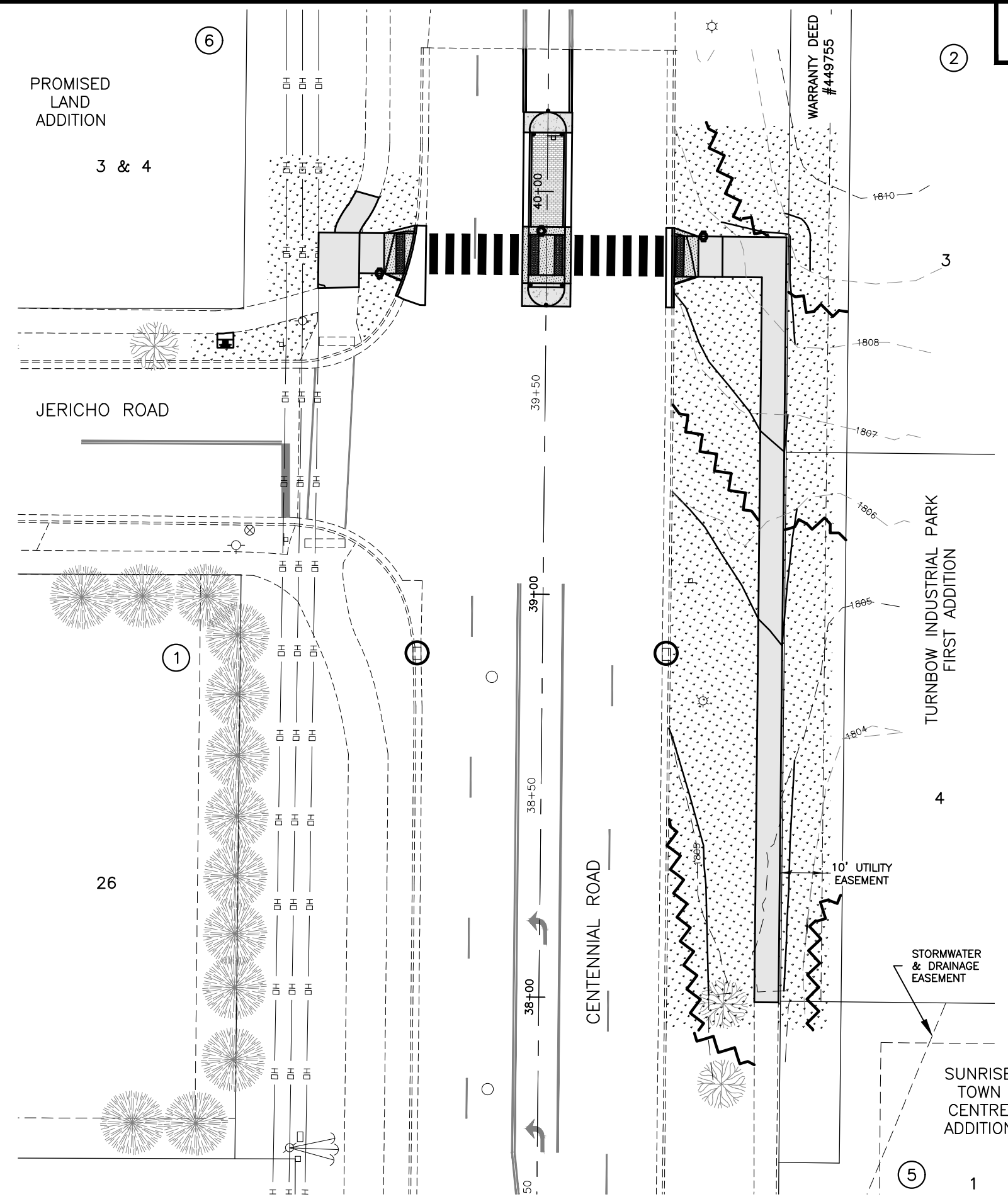
Bismarck
 ENGINEERING
REMOVALS
 CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	77	1

251_0310_SEEDING_CLASS III			
NW CORNER INTERSECTION	120	SY	
STA 37+92 TO 40+17 (RT)	845	SY	
TOTAL	965	SY	
253_0200_HYDRAULIC MULCH			
NW CORNER INTERSECTION	120	SY	
STA 37+92 TO 40+17 (RT)	845	SY	
TOTAL	965	SY	
261_0112_FIBER ROLLS 12IN			
STA 37+92 TO 40+17 (RT)	210	LF	
708_1540_INLET PROTECTION-SPECIAL			
SW CORNER INTERSECTION	1	EA	
SE CORNER INTERSECTION	1	EA	
TOTAL	2	EA	

LEGEND

-  INLET PROTECTION
-  SEEDING & HYDRO MULCH
-  FIBER ROLLS

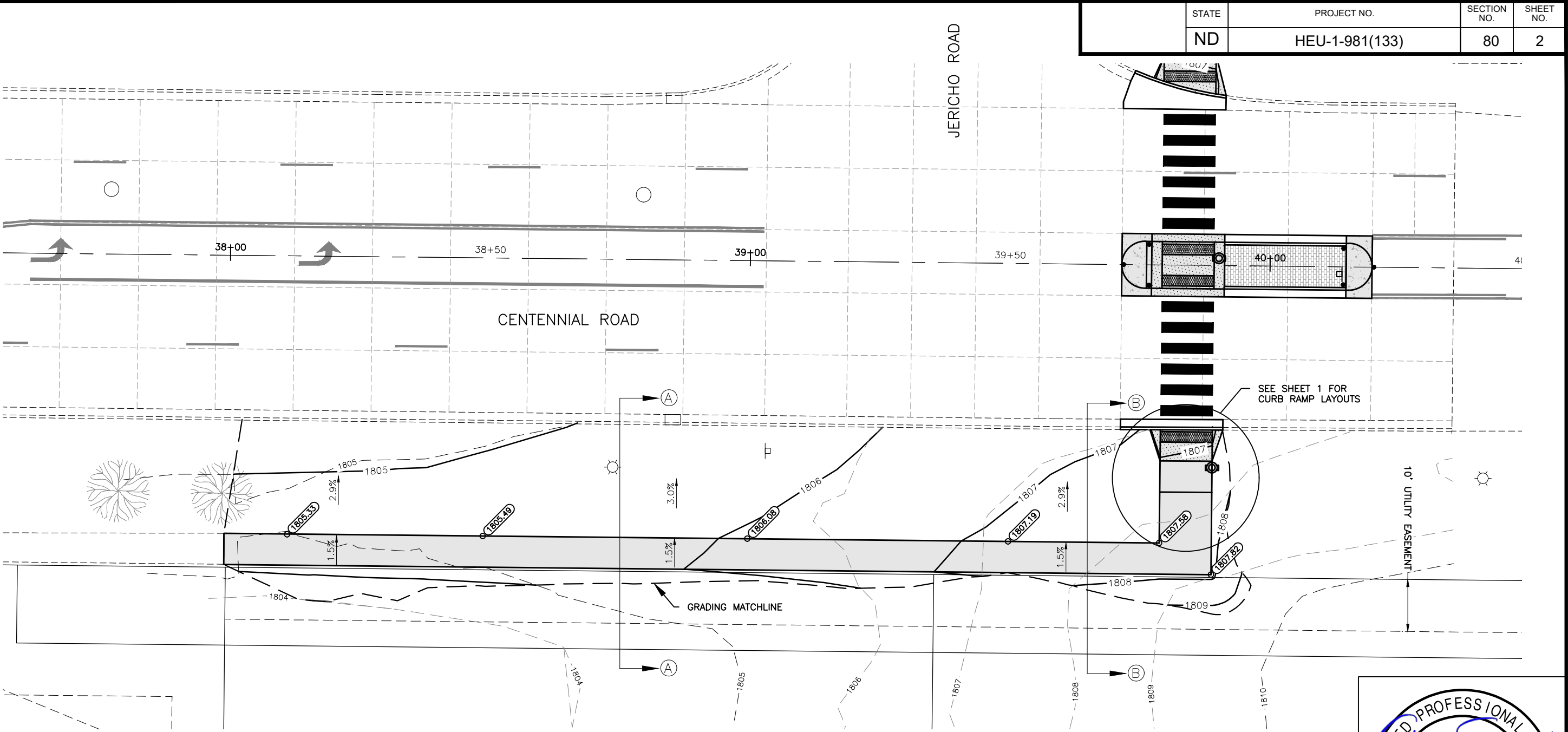


Bismarck ENGINEERING

EROSION CONTROL

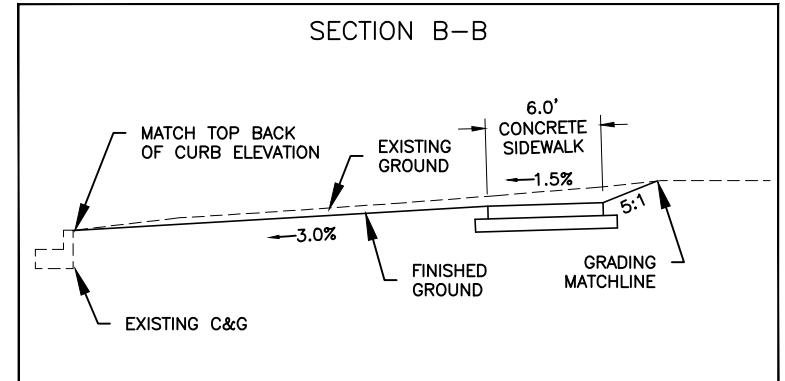
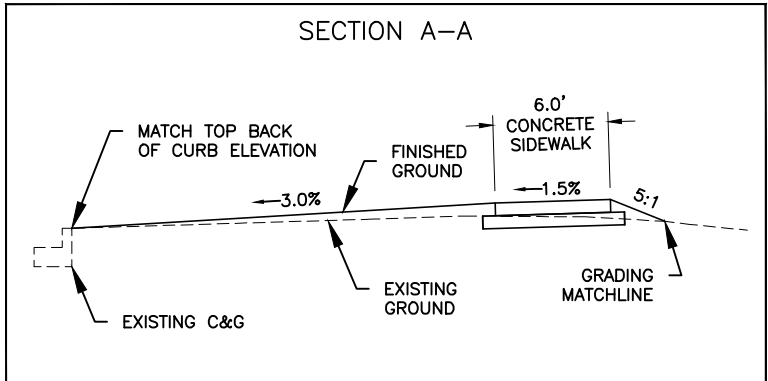
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	80	2



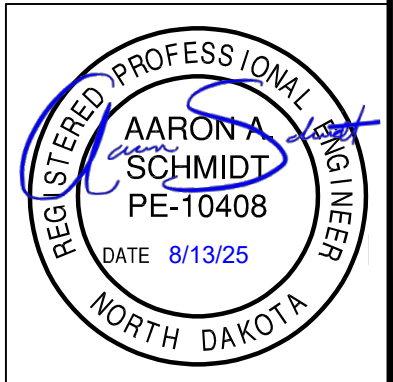
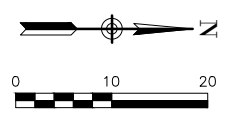
SEE SHEET 1 FOR CURB RAMP LAYOUTS

10' UTILITY EASEMENT



LEGEND

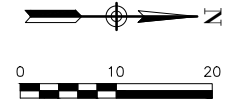
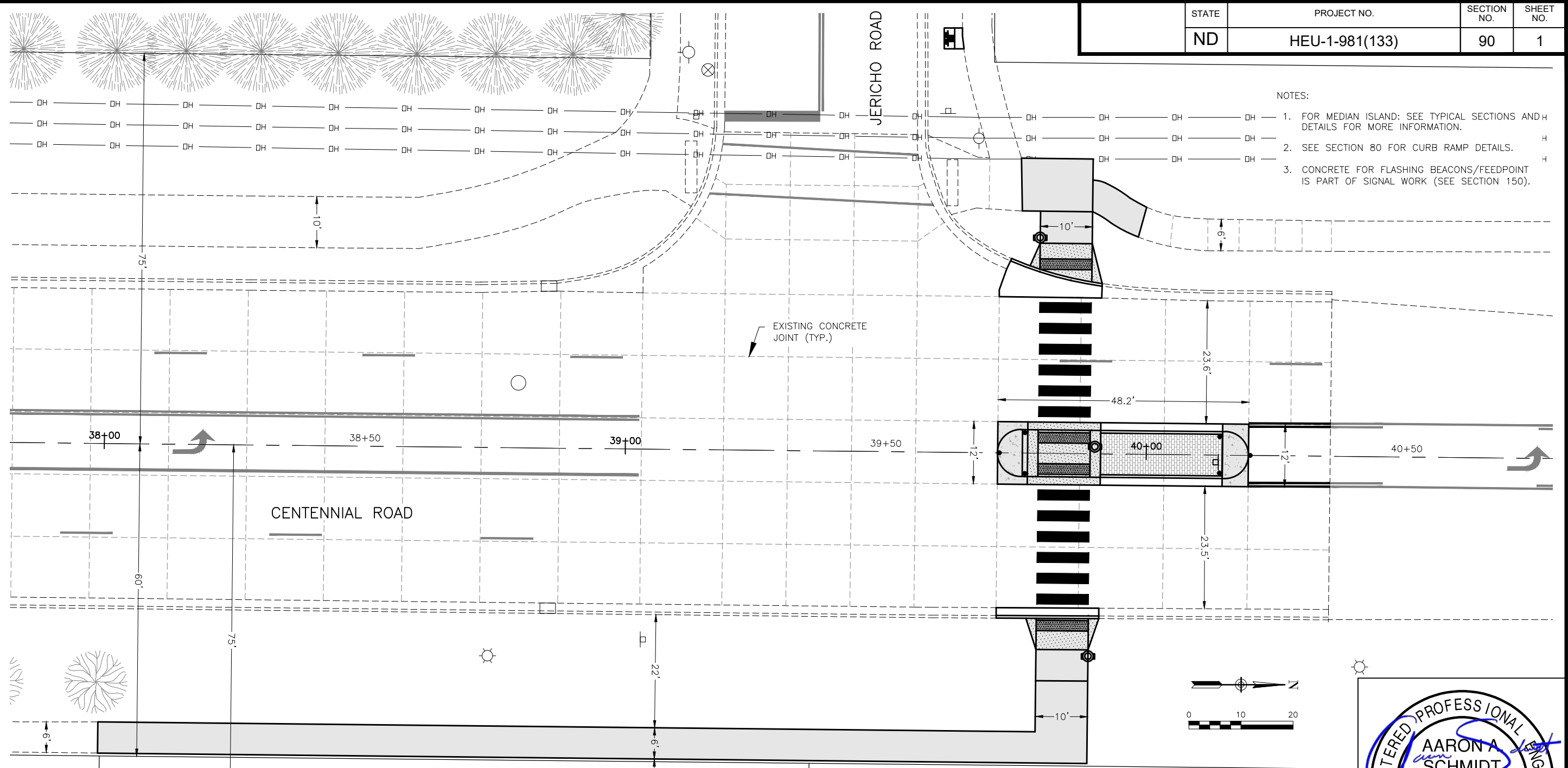
- CONCRETE SIDEWALK (4")
- CONCRETE SIDEWALK (6")
- CONCRETE MEDIAN NOSE PAVING
- PIGMENTED IMPRINTED CONCRETE MEDIAN
- DETECTABLE WARNING PANEL
- CURB AND GUTTER
- 1805.00 FINISHED CONCRETE ELEVATION
- 1805- EXISTING GROUND CONTOUR
- 1805- PROPOSED GROUND CONTOUR



Bismarck ENGINEERING
LAYOUTS
 SIDEWALK LAYOUT
 CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	90	1

- NOTES:
- FOR MEDIAN ISLAND: SEE TYPICAL SECTIONS AND DETAILS FOR MORE INFORMATION.
 - SEE SECTION 80 FOR CURB RAMP DETAILS.
 - CONCRETE FOR FLASHING BEACONS/FEEDPOINT IS PART OF SIGNAL WORK (SEE SECTION 150).



WARRANTY DEED #449755

TURNBOW INDUSTRIAL PARK FIRST ADDITION

302_0120 AGGREGATE BASE COURSE CL 5	
WEST SIDE	8 TON
MEDIAN ISLAND	53 TON
EAST SIDE (CURB RAMP ONLY)	6 TON
EAST SIDE SIDEWALK	30 TON
TOTAL	97 TON

748_0140 CURB & GUTTER--TYPE I	
WEST SIDE	18 LF
MEDIAN ISLAND	76 LF
EAST SIDE	20 LF
TOTAL	114 LF

750_0030 PIGMENTED IMPRINTED CONCRETE	
MEDIAN ISLAND	21 SY

750_0115 SIDEWALK CONCRETE 4IN	
WEST SIDE	30 SY
EAST SIDE (CURB RAMP AREA)	18 SY
EAST SIDE SIDEWALK	127 SY
TOTAL	175 SY

750_0140 SIDEWALK CONCRETE 6IN	
WEST SIDE	8.3 SY
MEDIAN ISLAND	18.7 SY
EAST SIDE	8.0 SY
TOTAL	35.0 SY

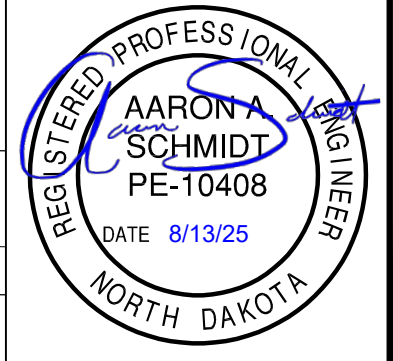
750_0210 CONCRETE MEDIAN NOSE PAVING	
SOUTH NOSE	7.7 SY
NORTH NOSE	7.0 SY
TOTAL	14.7 SY

750_2115 DETECTABLE WARNING PANELS	
WEST SIDE	20 SF
MEDIAN ISLAND (x2)	40 SF
EAST SIDE	20 SF
TOTAL	80 SF

- LEGEND
- CONCRETE SIDEWALK (4")
 - CONCRETE SIDEWALK (6")
 - CONCRETE MEDIAN NOSE PAVING
 - PIGMENTED IMPRINTED CONCRETE MEDIAN
 - DETECTABLE WARNING PANEL
 - CURB AND GUTTER

CAUTION

THE LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. NOT ALL EXISTING UTILITIES ARE SHOWN. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES OR REPAIRING ANY DAMAGE WHICH OCCURS DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.

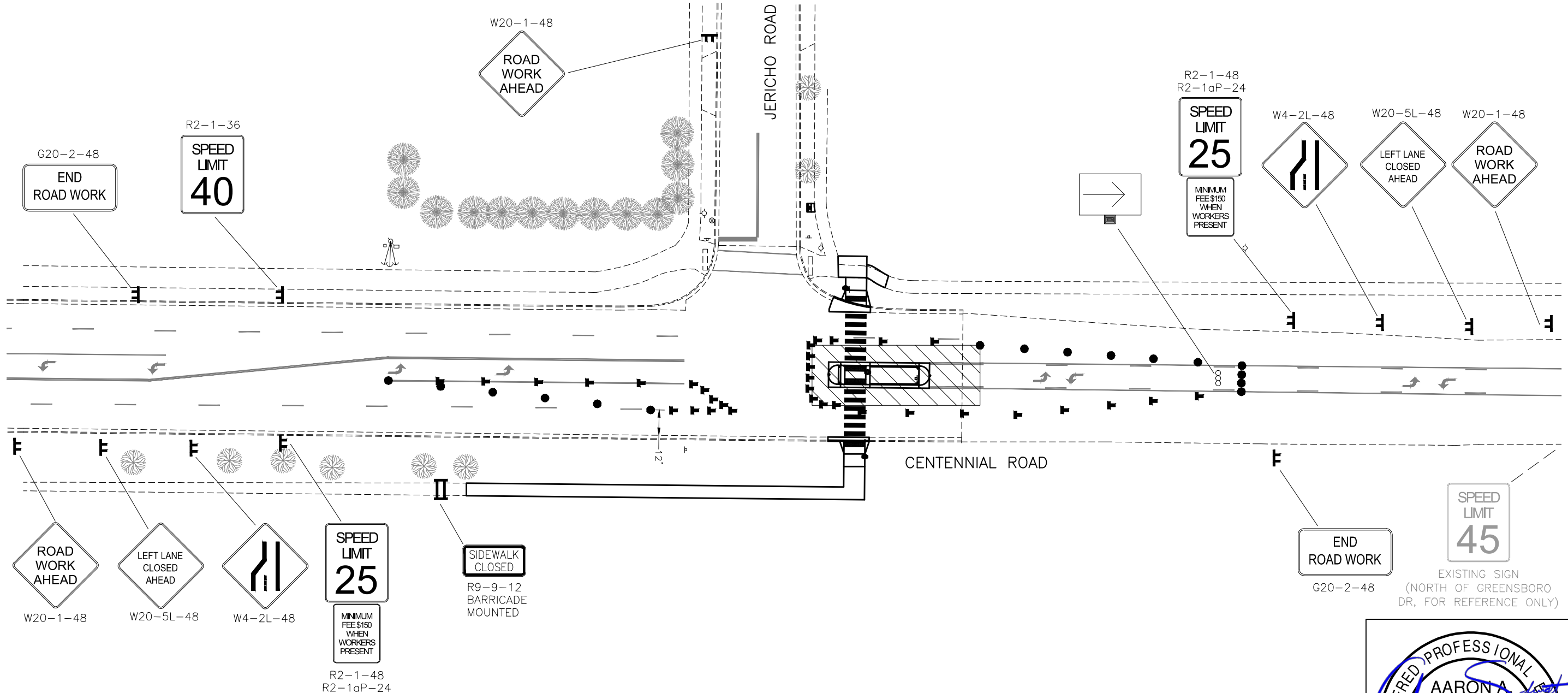


Bismarck ENGINEERING

PAVING LAYOUT

CENTENNIAL ROAD & JERICHO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	100	2



G20-2-48
END ROAD WORK

R2-1-36
SPEED LIMIT 40

W20-1-48
ROAD WORK AHEAD

R2-1-48
R2-1aP-24
SPEED LIMIT 25
MINIMUM FEE \$150 WHEN WORKERS PRESENT

W4-2L-48

W20-5L-48
LEFT LANE CLOSED AHEAD

W20-1-48
ROAD WORK AHEAD

W20-1-48
ROAD WORK AHEAD

W20-5L-48
LEFT LANE CLOSED AHEAD

W4-2L-48







R2-1-48
R2-1aP-24
SPEED LIMIT 25
MINIMUM FEE \$150 WHEN WORKERS PRESENT

R9-9-12
BARRICADE MOUNTED
SIDEWALK CLOSED

G20-2-48
END ROAD WORK

SPEED LIMIT 45
EXISTING SIGN (NORTH OF GREENSBORO DR, FOR REFERENCE ONLY)

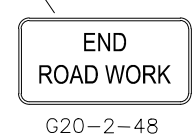
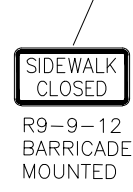
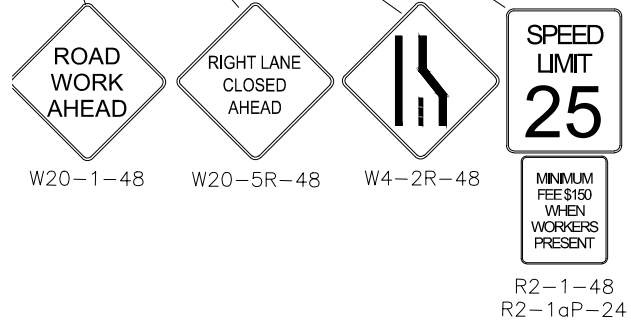
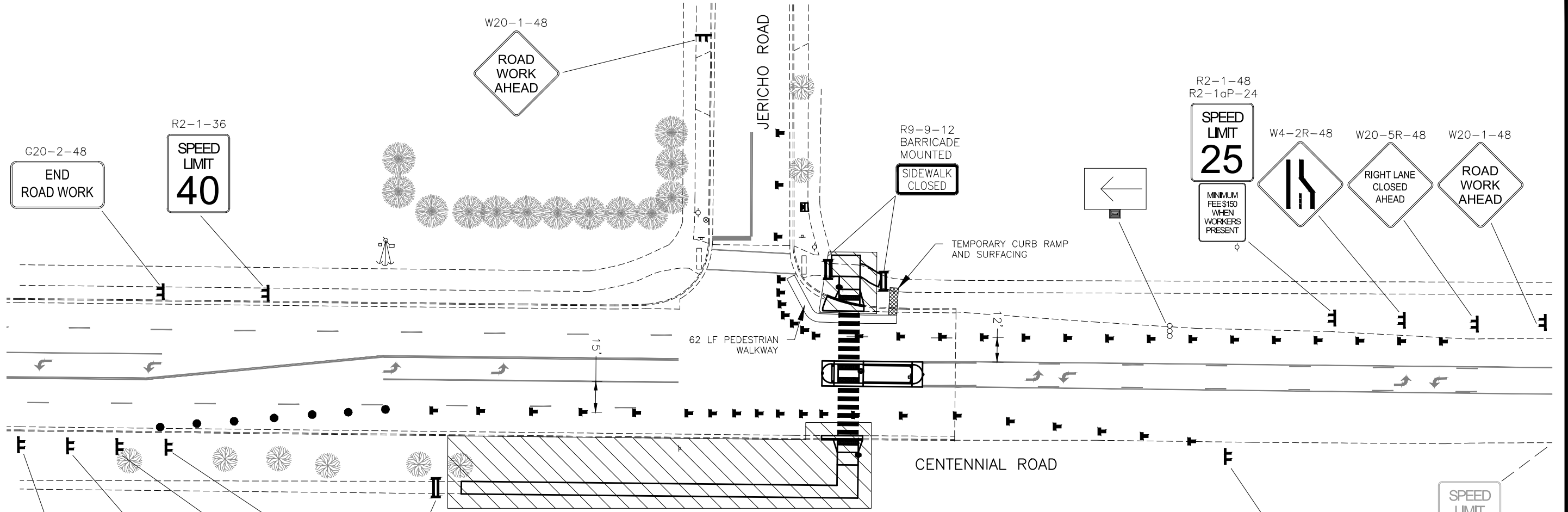
- NOTES:
1. LANE CLOSURES WILL ONLY BE ALLOWED WHILE WORK IS BEING PERFORMED.
 2. MAINTAIN SIDEWALK ACCESS.
 3. 100-FT MINIMUM SPACING BETWEEN ADVANCED WARNING SIGNS.

-  WORK ZONE
-  SIDEWALK BARRICADE
-  TYPE III BARRICADE
-  TUBULAR MARKER
-  DELINEATOR DRUM
-  SEQUENCING ARROW PANEL

REGISTERED PROFESSIONAL ENGINEER
AARON A. SCHMIDT
PE-10408
DATE 8/13/25
NORTH DAKOTA

Bismarck ENGINEERING
WORK ZONE TRAFFIC CONTROL
PHASE 1
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	100	3



- NOTES:
1. LANE CLOSURES WILL ONLY BE ALLOWED WHILE WORK IS BEING PERFORMED.
 2. MAINTAIN SIDEWALK ACCESS.
 3. 100-FT MINIMUM SPACING BETWEEN ADVANCED WARNING SIGNS.

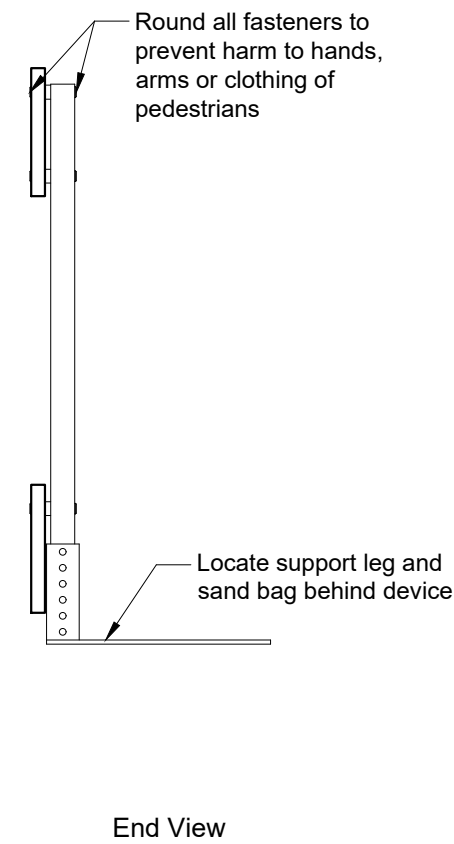
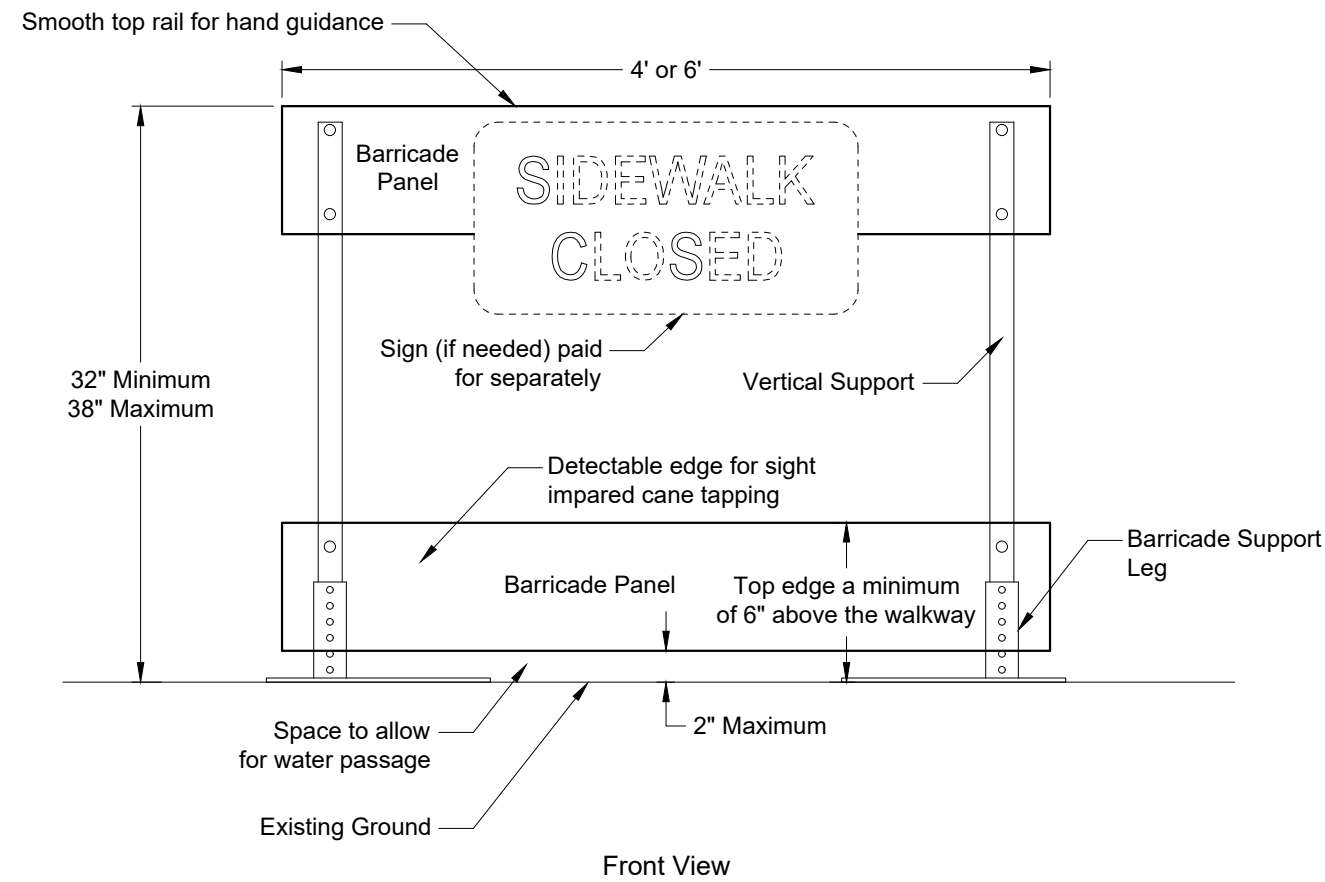
- WORK ZONE
- SIDEWALK BARRICADE
- TYPE III BARRICADE
- TUBULAR MARKER
- DELINEATOR DRUM
- SEQUENCING ARROW PANEL



REGISTERED PROFESSIONAL ENGINEER
AARON A. SCHMIDT
 PE-10408
 DATE 8/13/25
 NORTH DAKOTA

Bismarck ENGINEERING
 WORK ZONE
 TRAFFIC CONTROL
 PHASE 2
 CENTENNIAL ROAD & JERICO ROAD

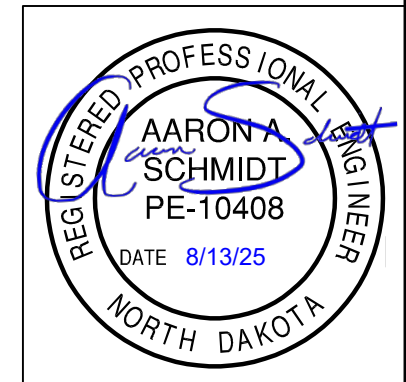
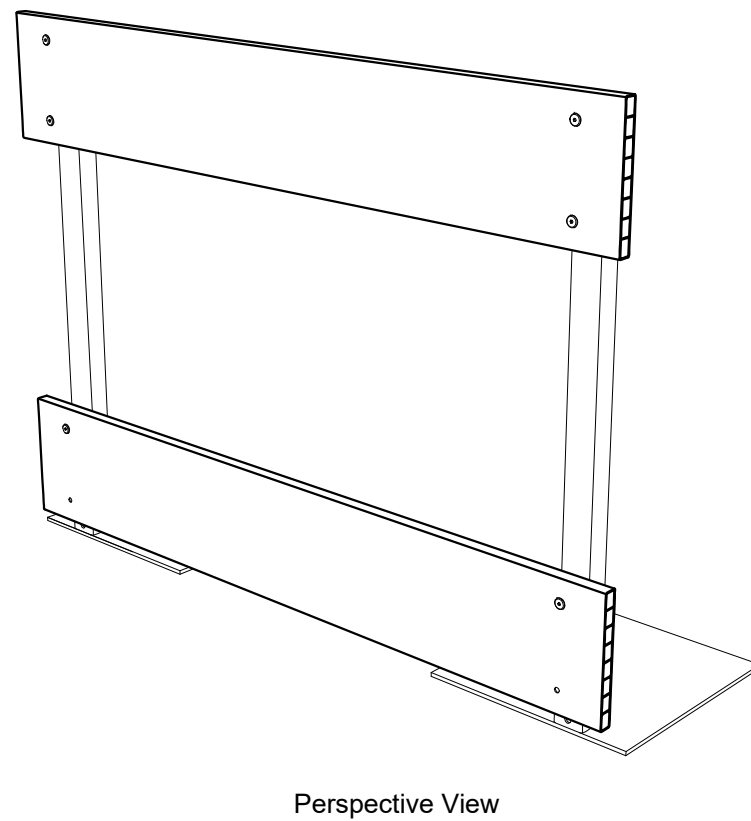
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	100	4



NOTES:

Sidewalk Barricades

1. Provide self standing sidewalk barricade with no supports extending into the pedestrians path.
2. Use orange or orange and white diagonal striped barricade panels contrasting with the walkway surface.
3. Provide ADA compliant and NCHRP 350 or Mash Test Level 3 (TL3) approved sidewalk barricades.
4. Include all costs to furnish, maintain and remove sidewalk barricades in the price bid for "Sidewalk Barricade".



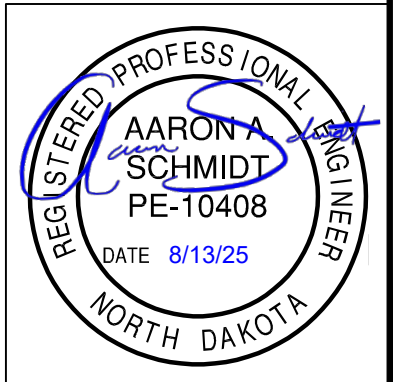
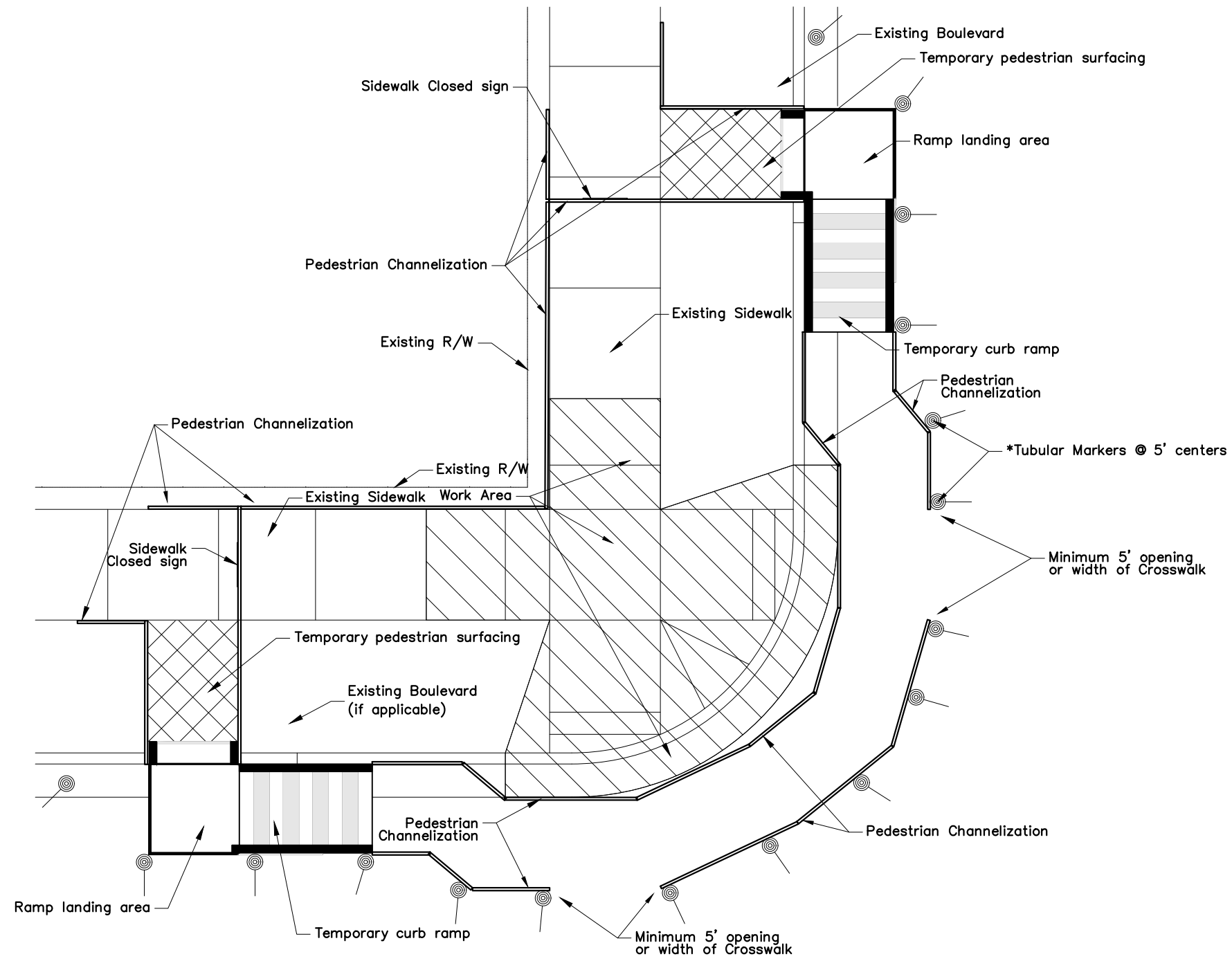
Bismarck
ENGINEERING


WORK ZONE
TRAFFIC CONTROL

SIDEWALK BARRICADE

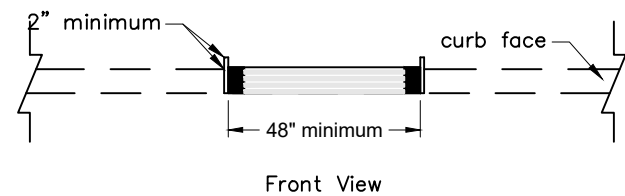
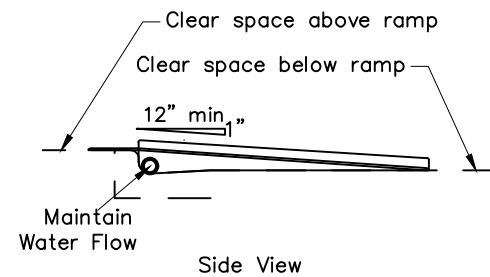
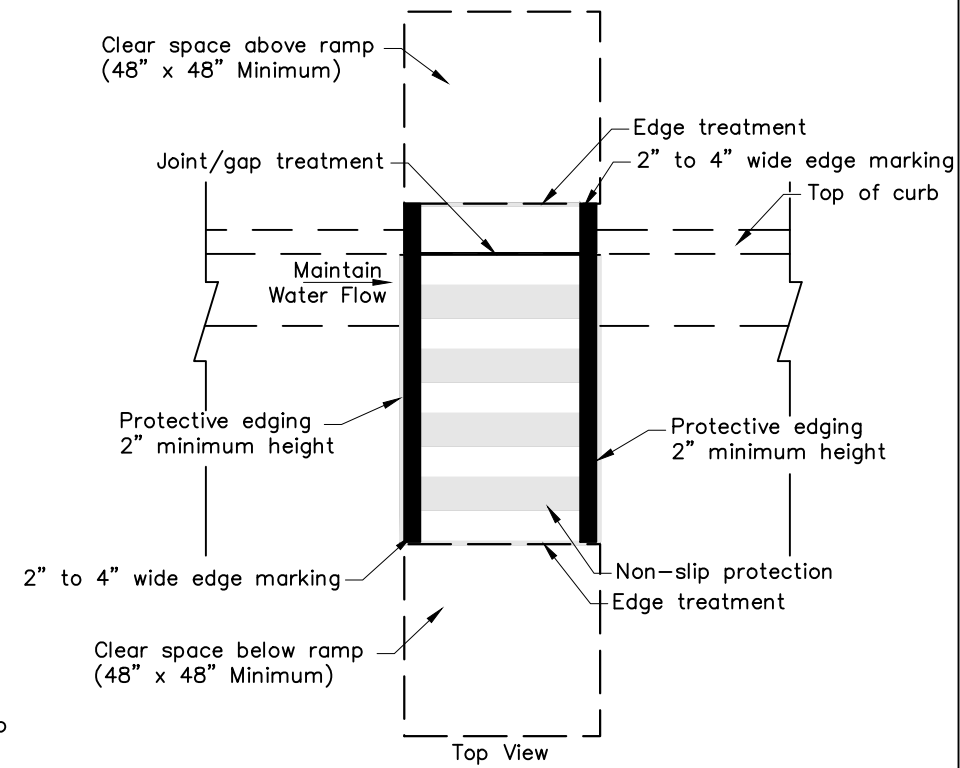
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	100	5

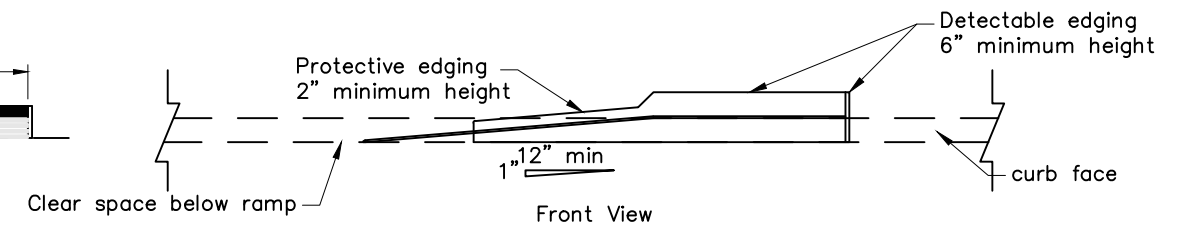
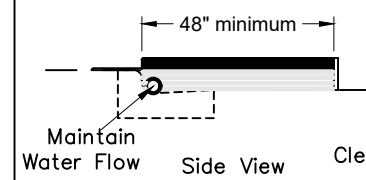
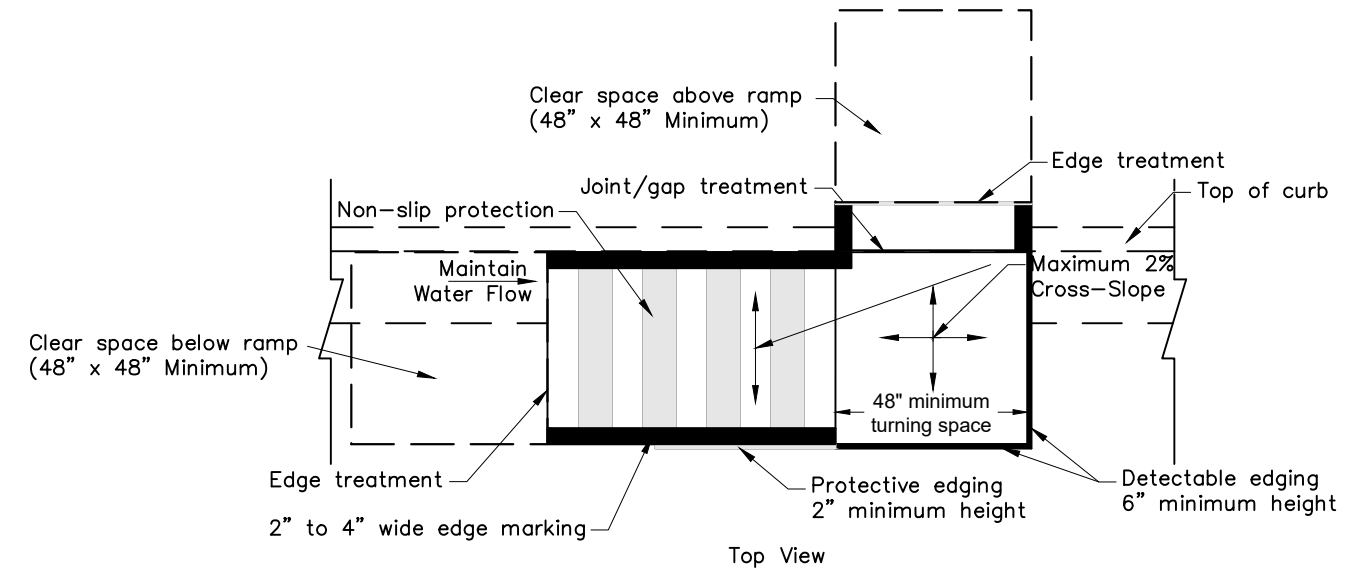



Bismarck
 ENGINEERING
WORK ZONE
TRAFFIC CONTROL
 TYPICAL TEMPORARY PEDESTRIAN
 ACCESS ROUTE DETAIL
 CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	100	6

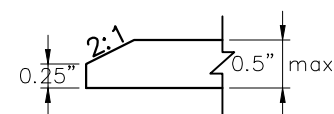


Temporary Perpendicular Curb Ramp



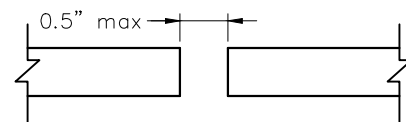
Temporary Parallel Curb Ramp

Edge Treatment



Maximum Surface Height Change Detail

Joint/Gap Treatment



Maximum Width Lateral Joints or Gaps



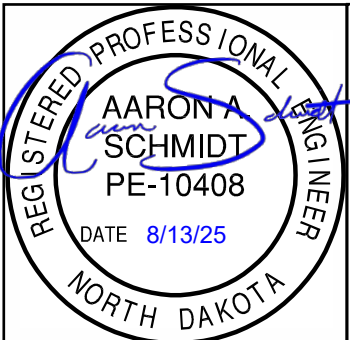
WORK ZONE
TRAFFIC CONTROL

TYPICAL TEMPORARY PEDESTRIAN
CURB RAMP DETAILS

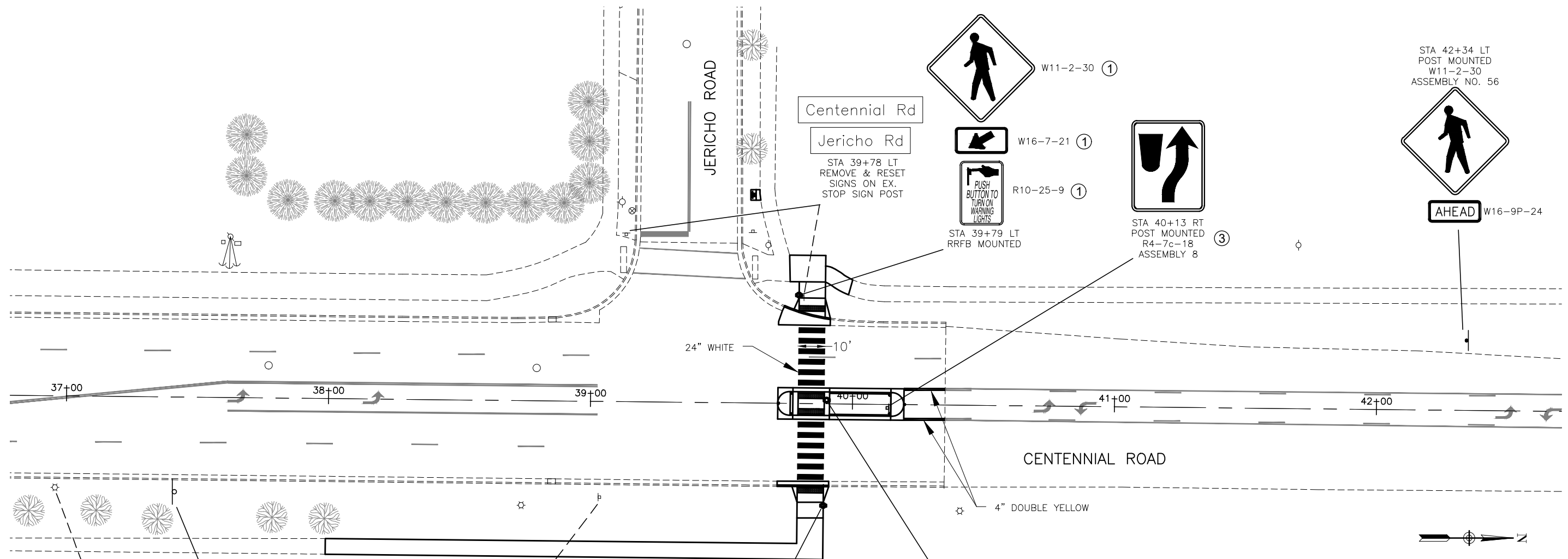
CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	HEU-1-981(133)	110	1

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Vert Clearance FT	Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF				1st LF	2nd LF	3rd LF	4th LF								
37+42 Rt	W11-2-30	56		9.3	5.3				7.0	2 x 2 12 ga	7.5					1	4	2.25 x 2.25 12 ga				Mount with W16-9P-24	
39+04 Rt	Special								7.0										2	1		Street Name	
39+78 Lt	Special								7.0										2			Street Name on Ex. Stop Sign	
39+79 Lt	W11-2-30																					Mount on RRFB w/ R10-25-9 & W16-7P-21 (See Sec. 150)	
39+89 Rt	W11-2-30																					Mount on RRFB w/ R10-25-9 & W16-7P-21 (See Sec. 150)	
39+90 Lt	W11-2-30																					x2. Mount on RRFB w/ R10-25-9 (x1) & W16-7P-21 (x2) (See Sec. 150)	
39+90 Lt	R4-7c-18			3.0					0.6													Mount on RRFB pole under W16-7	
40+13 Rt	R4-7c-18	8		3.0	2.8				7.0	2 x 2 12 ga	14.6				1	4	2.25 x 2.25 12 ga						
42+34 Lt	W11-2-30	56		9.3					7.0													Mount with W16-9P-24	
Sub Total			0.0	24.6	Total	8.1									Total	8.0			4	1	0		
Grand Total			0.0	24.6	Total	8.1									Total	8	0		4	1	0		



Sign Summary
Perforated Tube



STA 42+34 LT
POST MOUNTED
W11-2-30
ASSEMBLY NO. 56

AHEAD W16-9P-24

Centennial Rd
Jericho Rd

STA 39+78 LT
REMOVE & RESET
SIGNS ON EX.
STOP SIGN POST

W11-2-30 ①

W16-7-21 ①

R10-25-9 ①

STA 39+79 LT
RRFB MOUNTED

③

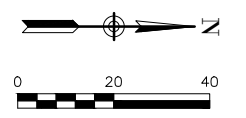
STA 40+13 RT
POST MOUNTED
R4-7c-18
ASSEMBLY 8

24" WHITE

10'

CENTENNIAL ROAD

4" DOUBLE YELLOW



② STA 36+96 RT
STREET LIGHT
MOUNTED

NO PARKING

STA 37+42 RT
POST MOUNTED
W11-2-30
ASSEMBLY NO. 56

AHEAD W16-9P-24

Centennial Rd
Jericho Rd

① W11-2-30

① W16-7-21

① R10-25-9

STA 39+89 RT
RRFB MOUNTED

① W11-2-30 (x2)

① W16-7-21 (x2)

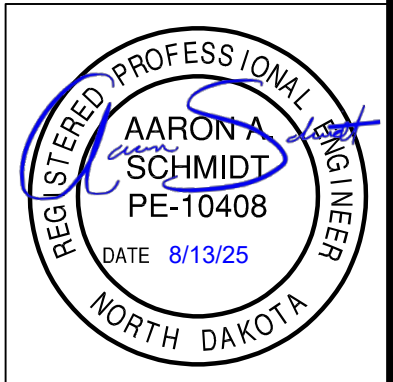
④ R4-7c-18

① R10-25-9

STA 39+90 LT
RRFB MOUNTED

754_0592 RESET SIGN PANEL	
STA 39+04, RT	2 EA
STA 39+78, LT	2 EA
754_0593 RESET SIGN SUPPORT	
STA 39+04, RT	1 EA
754_0193 FLEXIBLE DELINEATORS-TYPE D	
MEDIAN NOSE SOUTH	3 EA
MEDIAN NOSE NORTH	3 EA
762_1270 PREFORMED THERMO PLASTIC PVMT MK 24IN LINE CROSSWALK	72 LF
762_1305 PREFORMED PATTERNED PVMT MK 4IN-GROOVED	
STA 40+20 TO 40+35 (LT & RT)	60 LF

- NOTES:
- SIGNS MOUNTED ON RRFB'S ARE PART OF SIGNAL WORK (SEE SECTION 150).
 - SIGN TO REMAIN, FOR REFERENCE ONLY.
 - PVC SIGN SLEEVE IN CONCRETE.
 - FACE SIGN SOUTH.

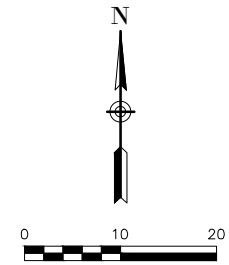


Bismarck
ENGINEERING

SIGNING &
PAVEMENT MARKING

CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	150	1



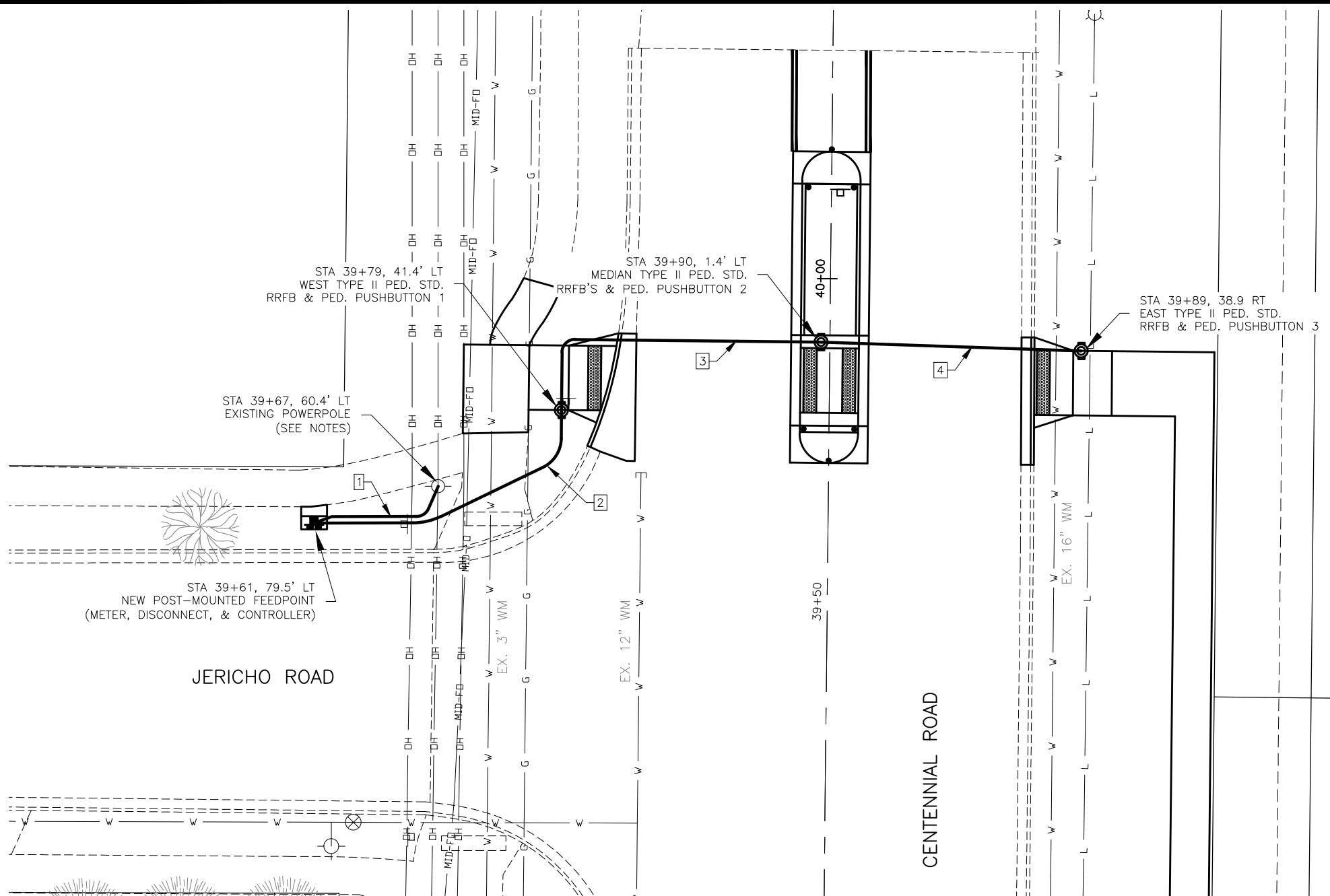
HORIZONTAL DATUM IS NAD 83 (2011 ADJUSTMENT) BASED ON CITY OF BISMARCK MONUMENTS. VERTICAL DATUM IS NAVD 88. DRAWING UNITS ARE IN INTERNATIONAL FEET.

CAUTION
 THE LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. NOT ALL EXISTING UTILITIES ARE SHOWN. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES OR REPAIRING ANY DAMAGE WHICH OCCURS DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.

NOTES:

1. PROVIDE SERVICE FOR NEW RRFB SYSTEM FROM NEARBY POWERPOLE.
2. CABLE AND CONDUIT LENGTHS SHOWN ARE APPROXIMATE. ACTUAL LENGTHS MAY VARY.
3. CABLE & CONDUIT SCHEDULE INCLUDES INTERNAL CABLE LENGTHS FOR TYPE II PEDESTRIAN STANDARDS.
4. SET FLASHER DURATION TO 32 SECONDS.

772 2160 FLASHING BEACON
 CENTENNIAL ROAD & JERICO ROAD 1 EA



CABLE & CONDUIT SCHEDULE

#	RUN		CONDUIT			CABLE						
	ITEM	STATION, OFFSET	SIZE (IN)	LF	NOTES	LF in Cond	Origin	Destination	# of Cables	SIZE/TYPE	Total LF	TITLE
1	Origin	Ex. Powerpole Service	39+67, 60.4' LT				Ex. Powerpole Service	Feedpoint		CONDUIT & CONDUCTOR BY OTHERS		Service
	Destination	Feedpoint	39+61, 79.5' LT									
N/A	Origin	Feedpoint	39+61, 79.5' LT			5	Feedpoint	RRFB Controller	2	UNDERGROUND CONDUCTOR NO6-TYPE RHW	38	Power
	Destination	RRFB Controller	39+61, 79.5' LT				Feedpoint	RRFB Controller	1	UNDERGROUND CONDUCTOR NO6-TYPE THW	19	Power
2	Origin	RRFB Controller	39+61, 79.5' LT	2	47	47	RRFB Controller	West Type II Pedestrian Std	3	14 AWG 4 CONDUCTOR CABLE	208	RRFB W, M, E
	Destination	West Type II Pedestrian Std	39+79, 41.4' LT				RRFB Controller	West Type II Pedestrian Std	3	16 AWG 3 CONDUCTOR CABLE	208	Ped. Pushbutton 1, 2, 3
3							RRFB Controller	West Type II Pedestrian Std	1	UNDERGROUND CONDUCTOR NO14-TYPE THW	65	Tracer Wire
	Origin	West Type II Pedestrian Std	39+79, 41.4' LT	2	50	50	West Type II Pedestrian Std	Median Type II Pedestrian Std	2	14 AWG 4 CONDUCTOR CABLE	165	RRFB M & E
	Destination	Median Type II Pedestrian Std	39+90, 1.4' LT				West Type II Pedestrian Std	Median Type II Pedestrian Std	2	16 AWG 3 CONDUCTOR CABLE	165	Ped. Pushbutton 2 & 3
4							West Type II Pedestrian Std	Median Type II Pedestrian Std	1	UNDERGROUND CONDUCTOR NO14-TYPE THW	76	Tracer Wire
	Origin	Median Type II Pedestrian Std	39+90, 1.4' LT	2	40	40	Median Type II Pedestrian Std	East Type II Pedestrian Std	1	14 AWG 4 CONDUCTOR CABLE	79	RRFB E
	Destination	East Type II Pedestrian Std	39+89, 38.9' RT				Median Type II Pedestrian Std	East Type II Pedestrian Std	1	16 AWG 3 CONDUCTOR CABLE	79	Ped. Pushbutton 3
							Median Type II Pedestrian Std	East Type II Pedestrian Std	1	UNDERGROUND CONDUCTOR NO14-TYPE THW	66	Tracer Wire



FLASHING BEACON LAYOUT
 CENTENNIAL ROAD & JERICO ROAD

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-1-981(133)	150	3

Items shall be included in the corresponding price bid for "FLASHING BEACON"

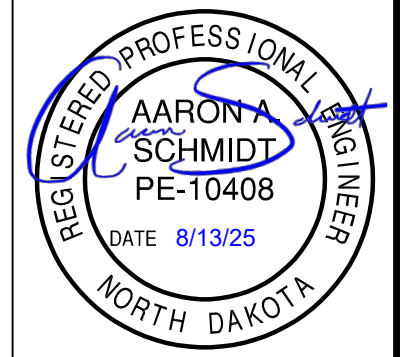
ITEM DESCRIPTION	UNIT	QUANTITY
CONCRETE FOUNDATION-TRAFFIC SIGNALS	EA	3
2-INCH CONDUIT	LF	142
UNDERGROUND CONDUCTOR NO6-TYPE RHW	LF	38
UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	19
UNDERGROUND CONDUCTOR NO14-TYPE THW	LF	207
NO16 AWG 3 CONDUCTOR CABLE	LF	452
NO14 AWG 4 CONDUCTOR CABLE	LF	452
TYPE II SIGNAL STD	EA	3
FEED POINT-FLASHING BEACON	EA	1
FEED POINT-SERVICE	EA	1
RRFB LIGHT & SIGNS	EA	4
RRFB CONTROLLER	EA	1
PEDESTRIAN PUSHBUTTON & SIGN	EA	3

All quantities are approximate and shall be verified by the contractor.

Items shown above are for informational purposes, contractor shall provide all labor and equipment necessary for the RRFB system to be fully operational as shown in the plans.

NOTES:

1. MAJOR WORK ITEMS SHOWN ONLY, NOT MEANT TO BE A FULL LIST OF WORK ITEMS. OTHER ITEMS SUCH AS CONCRETE, SEEDING, MULCHING, AND SPRINKLER REPAIR NOT SHOWN.
2. ITEMS SHOWN ARE FOR INFORMATIONAL PURPOSES, PROVIDE ALL LABOR AND EQUIPMENT NECESSARY FOR THE FLASHING BEACON SYSTEM TO BE FULLY OPERATIONAL AS SHOWN ON THE PLANS.



SIGNALS

QUANTITIES

CENTENNIAL ROAD & JERICO ROAD