DEPARTMENT OF TRANSPORTATION

Planning & Engineering
Office of Project Development
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February 13, 2025

ADDENDUM NO. 3

RE: Item #1, February 19, 2025 Letting - IM-B-CR 2292(101)3, PCN 05HN, Minnehaha County - Grading, PCC Surfacing, Structures (10x4 RCBC extension, 163' Temporary Bridge, (2) 400' Steel Girder, (2) 12x8 CIP RCBC), Retaining Walls, Curb & Gutter, Storm Sewer, Signals, Lighting

TO WHOM IT MAY CONCERN:

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

SPECIAL PROVISIONS: NO CHANGE

SDEBS BID PROPOSAL: *The electronic bid proposal for this contract has been revised to include the changes associated with this addendum. Bidders must log in to the SDEBS to retrieve and incorporate these changes into their bid.*

Bid Items were added:
Bid Item 380E0800 “PCC Shoulder Pavement”
Bid Item 670E5340 “4’ x 11’ Precast Concrete Type S Drop Inlet Lid”

Quantities for Bid Items were changed:
Bid Item 120E6200 “Water for Granular Material” changed from 1,030.5 to 1,056.4 MGal
Bid Item 260E2010 “Gravel Cushion” changed from 41,250.0 to 43,411.0 Ton
Bid Item 380E0100 “10.5” Nonreinforced PCC Pavement” changed from 32,434.2 to 37,510.1 SqYd
Bid Item 460E0150 “Concrete Approach Slab for Bridge” changed from 752.5 to 759.0 SqYd
Bid Item 632E1235 “W6x20 Steel Post” changed from 227.8 to 353.9 Ft
Bid Item 632E1340 “2.5”x2.5” Perforated Tube Post” changed from 24.0 to 51.5 Ft
Bid Item 670E5200 “Special Frame and Grate Assembly” changed from 5 to 15 Each

Bid Items were removed:
Bid Item 632E1410 “3” Diameter Steel Post, .216 Shell”
Bid Item 670E1010 “2’ x 3’ Type B Drop Inlet”
Bid Item 670E4200 “Type M Median Drain”
Bid Item 670E5200 “Special Frame and Grate Assembly”
Bid Item 670E5200 “Special Frame and Grate Assembly”
Bid Item 671E0050 “5’ x 5’ Junction Box”

PLANS: Please destroy sheets A2, A3, A4, A6, B3, B15, B51, B55, E2, E23, E49, E105, E133, F2, F3, F5, F22-F26, H2, H3, H21, H22, H24, H25, S2, S7, S15-S17, S19, S23, S69 & S70 and replace with the enclosed sheets, dated 2/7/25, 2/11/25, 2/12/25 & 2/13/25. Sheet L62A was added.

Sheets A2 & B3: Section B Estimate of Quantities

Bid Items were added:

Bid Item 670E5340 "4' x 11' Precast Concrete Type S Drop Inlet Lid"

Quantities for Bid Items were changed:

Bid Item 670E5200 "Special Frame and Grate Assembly" changed from 5 to 15 Each

Bid Items were removed:

Bid Item 670E1010 "2' x 3' Type B Drop Inlet"
Bid Item 670E4200 "Type M Median Drain"
Bid Item 670E5200 "Special Frame and Grate Assembly"
Bid Item 670E5200 "Special Frame and Grate Assembly"
Bid Item 671E0050 "5' x 5' Junction Box"

Sheets A3, E2 & E23: Section E Estimate of Quantities – Structure No. 50-210-230

Quantities for Bid Items were changed:

Bid Item 460E0150 "Concrete Approach Slab for Bridge" changed from 372.5 to 379.0 SqYd

Sheets A4 & F2: Section F Estimate of Quantities

Bid Items were added:

Bid Item 380E0800 "PCC Shoulder Pavement"

Quantities for Bid Items were changed:

Bid Item 120E6200 "Water for Granular Material" changed from 666.9 to 692.8 MGal
Bid Item 260E2010 "Gravel Cushion" changed from 41,250.0 to 43,411.0 Ton
Bid Item 380E0100 "10.5" Nonreinforced PCC Pavement" changed from 32,434.2 to 37,510.1 SqYd

Sheet A6 & Sheet S2: Section S Estimate of Quantities

Quantities for Bid Items were changed:

Bid Item 632E1235 "W6x20 Steel Post" changed from 227.8 to 353.9 Ft
Bid Item 632E1340 "2.5"x2.5" Perforated Tube Post" changed from 24.0 to 51.5 Ft

Bid Items were removed:

Bid Item 632E1410 "3" Diameter Steel Post, .216 Shell"

Sheet B15: DROP INLETS note was revised to provide clarification of the Type B Frame and Grate Assembly items.

Please note there are 45 Type Y castings included in the bid item for "Special Frame and Grate Assembly".

Sheets B51 & B55: Excavation notes were revised to change "Crossover Removal" to "Temp. Bridge Abut. Removal".

Sheet E49: Concrete Approach Slab for Bridge quantity was revised in the ESTIMATED QUANTIITES table. Informational Items 1. and 3 were revised.

Sheet E105: Informational Items 1. through 7. were revised.

Sheet E133: NOTE: was revised.

Sheet F3: TABLE OF PCC SHOULDER PAVEMENT was added.

Sheet F5: TABLE OF 13" NONREINFORCED PCC PAVEMENT and TABLE OF 10.5" NONREINFORCED PCC PAVEMENT were revised.

Sheet F22–F26: PCC Shoulder Pavement notes were added.

Sheet H2: CITY OF SIOUX FALLS PARK & RECREATION note was added and note placement was adjusted.

Sheet H3: IRRIGATION SYSTEM, ENCLOSURE, INSTALLATION, & TESTING notes were revised. IRRIGATION CONTROL WIRE note was removed. PRODUCTS, RECORD DOCUMENTS, & WARRANTY notes were added.

Sheets H21-H22: Spare irrigation sleeves were added.

Sheet H24: Pipe Sleeve: PVC Schedule 40 quantity was revised.

Sheet H25: IRRIGATION CONTROL MOUNTY detail was removed. IRRIGATION CONTROLS and CONTROLER PEDESTAL details were added.

Sheet L62A: SPECIAL DETAIL was added.

Sheet S7: SIGN INSTALLATION TABLE (Exit 3 Crossover) was revised.

Sheets S15-S17, S19 & S23: Permanent Sign Installation Table was revised.

Sheets S69-S70: Install notes were revised.

Sincerely,

Sam Weisgram
Engineering Supervisor

SW/cj

CC: Travis Dressen, Mitchell Region Engineer
Harry Johnston, Sioux Falls Area Engineer

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Revised Date: 02/11/2025
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Section B – Grading (continued)

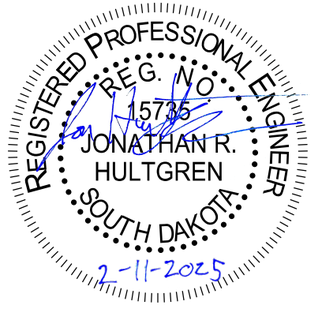
BID ITEM NUMBER	ITEM	QUANTITY	UNIT
621E0160	6' Chain Link Fence with Tension Wired Top	13,739	Ft
628E1100	Movable F Shape Concrete Barrier, Interior Section	91	Each
628E1500	Concrete Barrier End Protection	6	Each
628E1510	Concrete Barrier End Protection Module Set or Repair Kit	2	Each
629E0110	High Tension 4 Cable Guardrail	5,619	Ft
629E0290	High Tension Cable Guardrail Anchor Assembly	4	Each
629E1109	Furnish High Tension Cable Guardrail Post and Sleeve	50	Each
629E9000	Crossover Closure	178	Ft
630E0500	Type 1 MGS	4,049.0	Ft
630E0530	Type 3 MGS	150.0	Ft
630E1005	18'-9" Longspan MGS	1	Each
630E1500	Type 1 Guardrail Transition	2	Each
630E2017	MGS MASH Flared End Terminal	3	Each
630E2018	MGS MASH Tangent End Terminal	7	Each
630E2065	MGS Trailing End Terminal	6	Each
630E2200	W Beam Guardrail End Block Adapter	3	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	91	Each
650E0060	Type B66 Concrete Curb and Gutter	1,813	Ft
650E0085	Type B68.5 Concrete Curb and Gutter	3,281	Ft
650E0105	Type B610.5 Concrete Curb and Gutter	9,970	Ft
650E0120	Type B612 Concrete Curb and Gutter	60	Ft
651E0040	4" Concrete Sidewalk	1,219	SqFt
651E0060	6" Concrete Sidewalk	60,159	SqFt
651E7000	Type 1 Detectable Warnings	718	SqFt
670E0200	Type A Frame and Grate	10	Each
670E2200	Type C Frame and Grate	4	Each
670E4205	Type M Frame and Grate Assembly	8	Each
670E5200	Special Frame and Grate Assembly	45	Each
670E5200	Special Frame and Grate Assembly	15	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	5	Each
670E5400	Precast Drop Inlet Collar	4	Each
670E6000	Adjust Drop Inlet	1	Each
671E6008	Type A8 Manhole Frame and Lid	4	Each
671E6035	Special Manhole Frame and Lid	5	Each
671E6040	Manhole Frame	1	Each
671E6050	Manhole Lid	1	Each
671E7020	Connect Into Existing Manhole	1	Each
700E0210	Class B Riprap	651.0	Ton
831E0110	Type B Drainage Fabric	922	SqYd

Section C – Traffic Control

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E0040	Cold Applied Plastic Pavement Marking, Arrow	9	Each
634E0010	Flagging	500.0	Hour
634E0110	Traffic Control Signs	3,014.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0275	Type 3 Barricade	63	Each
634E0330	Temporary Raised Pavement Markers	12,673	Ft
634E0380	Tubular Marker	24	Each
634E0390	Replace Tubular Marker	2	Each
634E0420	Type C Advance Warning Arrow Board	3	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	374	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	60,593	Ft
634E0565	Remove Pavement Marking, Arrow	5	Each
634E0640	Temporary Pavement Marking	125,212	Ft
634E0700	Traffic Control Movable Concrete Barrier	521	Each
634E0705	Remove and Reset Traffic Control Movable Concrete Barrier	534	Each
634E0750	Temporary Concrete Barrier End Protection	4	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	5	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E0915	Short Term Temporary Traffic Control Signal	1	Site
634E1002	Detour and Restriction Signing	1,774.2	SqFt
634E1020	Temporary Business Signing	379.8	SqFt
634E1215	Contractor Furnished Portable Changeable Message Sign	12	Each
634E1235	Queue Detection System	18.0	Mth
634E1245	Maintenance of Queue Detection System	376	Hour
634E1255	Contractor Furnished Speed Monitoring Radar Trailer	2	Each
634E2000	Longitudinal Pedestrian Barricade	8	Ft
634E2020	Temporary Curb Ramp	2	Each
634E2025	Longitudinal Pedestrian Barrier	308	Ft
634E2050	Temporary Sidewalk	600	SqFt
635E7600	Maintenance of Traffic Signal(s)	40	Hour
900E1080	Orange Plastic Safety Fence	1,600	Ft

Section D – Erosion and Sediment Control

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1690	Remove Sediment	35.0	CuYd
110E1693	Remove Erosion Control Wattle	1,359	Ft
110E1695	Remove Sediment Filter Bag	2,516	Ft
110E1700	Remove Silt Fence	3,240	Ft
120E6300	Water for Vegetation	11,985.0	MGal
230E0010	Placing Topsoil	23,080	CuYd
730E0202	Type B Permanent Seed Mixture	133	Lb
730E0206	Type D Permanent Seed Mixture	12,585	Lb
731E0200	Fertilizing	34.31	Ton
732E0200	Fiber Mulching	14.5	Ton
732E0300	Bonded Fiber Matrix	80.5	Ton
734E0044	Soil Stabilizer	41.3	Acre
734E0102	Type 2 Erosion Control Blanket	10,567	SqYd
734E0133	Type 3 Turf Reinforcement Mat	997.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	6,059	Ft
734E0160	20" Diameter Erosion Control Wattle	216	Ft
734E0165	Remove and Reset Erosion Control Wattle	1,569	Ft
734E0180	Sediment Filter Bag	2,516	Ft
734E0325	Surface Roughening	2.0	Acre
734E0510	Shaping for Erosion Control Blanket	4,093	Ft
734E0602	Low Flow Silt Fence	14,820	Ft
734E0610	Mucking Silt Fence	900	CuYd
734E0620	Repair Silt Fence	3,240	Ft
734E0630	Floating Silt Curtain	600	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	29	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	485	Ft
734E5005	Dewatering	Lump Sum	LS
734E5010	Sweeping	80	Hour
900E1310	Concrete Washout Facility	4	Each
900E1320	Construction Entrance	8	Each



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Revised Date: 02/12/2025
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Section E – Structures

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
380E2450	Concrete Barrier and 10' Continuously Reinforced Concrete Shoulder	1,934	Ft
420E0200	Structure Excavation, Box Culvert	125	CuYd
420E0300	Structure Excavation, Retaining Wall	9,113	CuYd
420E0400	Structure Excavation, Miscellaneous	178	CuYd
420E1000	Foundation Preparation, Retaining Wall	1,343	CuYd
421E0200	Box Culvert Undercut	275	CuYd
430E0700	Precast Concrete Headwall for Drain	8	Each
460E0120	Class A45 Concrete, Box Culvert	289.3	CuYd
460E0204	Anti-Graffiti Coating	8,751.0	SqFt
460E0300	Breakout Structural Concrete	28.0	CuYd
460E0380	Install Dowel in Concrete	32	Each
460E0382	Install Dowel in Rock	8.0	Ft
462E0100	Class M6 Concrete	32.0	CuYd
465E0100	Class A45 Concrete, Drilled Shaft	15.8	CuYd
465E0200	Drilled Shaft Excavation	15.8	CuYd
480E0100	Reinforcing Steel	54,508	Lb
480E0200	Epoxy Coated Reinforcing Steel	5,268	Lb
530E0420	MSE Large Panel Wall, Furnish	19,109	SqFt
530E0422	MSE Large Panel Wall, Install	19,109	SqFt
530E0470	Gravity Large Concrete Block Wall	1,271	SqFt
530E0702	Granular Backfill for MSE Large Panel Wall	9,548.0	CuYd
530E0718	Granular Backfill for Gravity Large Concrete Block Wall	288.7	CuYd
560E0068	7'x3' Precast Concrete Box Culvert, Furnish	28.0	Ft
560E0069	7'x3' Precast Concrete Box Culvert, Install	28.0	Ft
560E0130	10'x4' Precast Concrete Box Culvert, Furnish	30.0	Ft
560E0131	10'x4' Precast Concrete Box Culvert, Install	30.0	Ft
560E1068	7'x3' Precast Concrete Box Culvert End Section, Furnish	1	Each
560E1069	7'x3' Precast Concrete Box Culvert End Section, Install	1	Each
560E1130	10'x4' Precast Concrete Box Culvert End Section, Furnish	1	Each
560E1131	10'x4' Precast Concrete Box Culvert End Section, Install	1	Each
632E0072	4' Diameter Fixed Support Concrete Footing	38.0	Ft
650E4060	Type C6 Concrete Gutter	321	Ft
680E0040	4" Underdrain Pipe	3,097	Ft
680E2500	Porous Backfill	630.0	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	143.2	SqYd
831E0110	Type B Drainage Fabric	2,771	SqYd
831E0400	Impermeable Plastic Membrane	15	SqYd

Structure No. 50-201-233T

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0060	Temporary Detour Structure	1	Each
420E0100	Structure Excavation, Bridge	57	CuYd
460E0050	Class A45 Concrete, Bridge	64.6	CuYd
480E0100	Reinforcing Steel	4,638	Lb
510E3120	HP 10 Pile Tip Reinforcement	16	Each
510E3365	HP 10x42 Steel Bearing Pile, Furnish and Drive	800	Ft

Structure No. 50-210-230

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	2,494.0	SqYd
120E7000	Select Granular Backfill	28.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0020	Structural Steel	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	128.8	Ft
420E0100	Structure Excavation, Bridge	726	CuYd
430E0200	Bridge End Embankment	2,653	CuYd
430E0300	Granular Bridge End Backfill	223.3	CuYd
430E0510	Approach Slab Underdrain Excavation	4.6	CuYd
430E0700	Precast Concrete Headwall for Drain	2	Each
460E0030	Class A45 Concrete, Bridge Deck	739.0	CuYd
460E0050	Class A45 Concrete, Bridge	641.8	CuYd
460E0150	Concrete Approach Slab for Bridge	379.0	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	93.9	SqYd
480E0100	Reinforcing Steel	141,776	Lb
480E0200	Epoxy Coated Reinforcing Steel	4,314	Lb
480E0300	Stainless Reinforcing Steel	192,357	Lb
510E0300	Preboring Pile	180	Ft
510E3140	HP 14 Pile Tip Reinforcement	138	Each
510E3521	HP 14x73 Steel Test Pile, Furnish and Drive	190	Ft
510E3525	HP 14x73 Steel Bearing Pile, Furnish and Drive	5,090	Ft
635E8020	2" Rigid Galvanized Steel Conduit	1,817	Ft
680E0040	4" Underdrain Pipe	149	Ft
680E2500	Porous Backfill	8.2	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	582.0	SqYd
831E0100	Type A Drainage Fabric	582	SqYd
831E0110	Type B Drainage Fabric	89	SqYd
831E1030	Perforated Geocell	800	SqFt

Structure No. 50-211-230

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	2,494.0	SqYd
120E7000	Select Granular Backfill	28.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0026	Structural Steel, Install	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	122.3	Ft
420E0100	Structure Excavation, Bridge	730	CuYd
430E0200	Bridge End Embankment	3,269	CuYd
430E0300	Granular Bridge End Backfill	215.7	CuYd
430E0510	Approach Slab Underdrain Excavation	4.6	CuYd
430E0700	Precast Concrete Headwall for Drain	2	Each
460E0030	Class A45 Concrete, Bridge Deck	739.0	CuYd
460E0050	Class A45 Concrete, Bridge	643.6	CuYd
460E0150	Concrete Approach Slab for Bridge	380.0	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	90.3	SqYd
480E0100	Reinforcing Steel	141,776	Lb
480E0200	Epoxy Coated Reinforcing Steel	4,314	Lb
480E0300	Stainless Reinforcing Steel	192,379	Lb
510E0300	Preboring Pile	180	Ft
510E3140	HP 14 Pile Tip Reinforcement	138	Each
510E3521	HP 14x73 Steel Test Pile, Furnish and Drive	175	Ft
510E3525	HP 14x73 Steel Bearing Pile, Furnish and Drive	4,205	Ft
635E8020	2" Rigid Galvanized Steel Conduit	1,817	Ft
680E0040	4" Underdrain Pipe	153	Ft
680E2500	Porous Backfill	8.2	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	603.3	SqYd
831E0100	Type A Drainage Fabric	604	SqYd
831E0110	Type B Drainage Fabric	89	SqYd
831E1030	Perforated Geocell	799	SqFt

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-12-2025

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	A4	A11

Revised Date: 02/07/2025
Initials: NBG

Section F – Surfacing

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	692.8	MGal
120E9000	Pit Run	1,202.3	Ton
260E1010	Base Course	13,119.8	Ton
260E2010	Gravel Cushion	43,411.0	Ton
320E1200	Asphalt Concrete Composite	8,129.3	Ton
320E5020	Saw Joint in Asphalt Concrete	175	Ft
380E0060	8.5" Nonreinforced PCC Pavement	7,080.9	SqYd
380E0100	10.5" Nonreinforced PCC Pavement	37,510.1	SqYd
380E0150	13" Nonreinforced PCC Pavement	57,137.3	SqYd
380E0800	PCC Shoulder Pavement	22,463.1	SqYd
380E3040	8" PCC Driveway Pavement	405.8	SqYd
380E3042	8" Fast Track Concrete Driveway Pavement	101.4	SqYd
380E6000	Dowel Bar	91,406	Each
380E6110	Insert Steel Bar in PCC Pavement	207	Each
380E6450	Saw Joint in PCC Pavement	2,647.3	Ft
410E2600	Membrane Sealant Expansion Joint	224.0	Ft
831E0210	Non-woven Separator Fabric	1,674	SqYd

Section H – Landscaping

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6300	Water for Vegetation	22.0	MGal
230E0020	Contractor Furnished Topsoil	2,178	CuYd
380E0200	Colored Nonreinforced PCC Pavement	1,614.0	SqYd
380E2566	6" Barrier Type Colored Median PCC Pavement	1,756.0	SqYd
530E0490	Boulder Retaining Wall	587	SqFt
680E0206	6" Perforated PVC Drain Pipe with Sleeve	576	Ft
680E0226	6" PVC Outlet Pipe	263	Ft
680E2500	Porous Backfill	121.0	Ton
731E0100	Fertilizing	600	Lb
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	1,076.0	SqYd
735E1000	Shrub, Furnish and Plant	257	Each
735E1360	6' Coniferous Evergreen, Furnish and Plant	21	Each
735E2220	2" Caliper Deciduous Tree, Furnish and Plant	48	Each
735E2225	2.5" Caliper Deciduous Tree, Furnish and Plant	94	Each
735E5010	1 Gallon Ornamental Grass, Furnish and Plant	741	Each
831E0100	Type A Drainage Fabric	1,076	SqYd
900E5150	Landscape Edging	240	Ft
900E5151	Ornamental Landscaping Boulders	33	Each
900E5152	Weed Barrier Fabric	1,088	SqYd
900E5157	4" Depth Shredded Bark Mulch	1,830.0	SqYd
900E5163	Ornamental Landscape Feature	4	Each
900E5430	Irrigation System	Lump Sum	LS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
1-7-2025

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Revised Date: 02/13/2025
Initials: NBG

Section S – Permanent Signing

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0120	Remove Sign Bridge	3	Each
110E0130	Remove Traffic Sign	62	Each
110E0135	Remove Delineator	136	Each
110E0140	Remove Extruded Panel Sign	6	Each
110E5000	Salvage Sign Bridge	2	Each
110E5020	Salvage Traffic Sign	10	Each
110E7150	Remove Sign for Reset	25	Each
632E0014	1.75' Diameter Breakaway Support Concrete Footing	126.0	Ft
632E0072	4' Diameter Fixed Support Concrete Footing	38.0	Ft
632E1235	W6x20 Steel Post	353.9	Ft
632E1320	2.0"x2.0" Perforated Tube Post	1,045.3	Ft
632E1340	2.5"x2.5" Perforated Tube Post	51.5	Ft
632E2000	4"x4" Amber Delineator with 1.12 Lb/Ft Post	12	Each
632E2004	4"x8" Amber Delineator with 1.12 Lb/Ft Post	15	Each
632E2008	4" Tubular Amber Delineator with 1.12 Lb/Ft Post	4	Each
632E2020	4"x4" White Delineator with 1.12 Lb/Ft Post	44	Each
632E2024	4"x8" White Delineator with 1.12 Lb/Ft Post	98	Each
632E2028	4" Tubular White Delineator with 1.12 Lb/Ft Post	5	Each
632E2220	Guardrail Delineator	95	Each
632E2510	Type 2 Object Marker Back to Back	63	Each
632E2520	Type 2 Object Marker	2	Each
632E3115	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity	1,270.1	SqFt
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	306.7	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	325.5	SqFt
632E3500	Reset Sign	25	Each
632E5020	Overhead Cantilever Sign Support	3	Each
634E0275	Type 3 Barricade	3	Each

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

REGISTERED PROFESSIONAL ENGINEER
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2-13-2025

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	B3	B225

Revised Date: 02/11/2025
Initials: NBG

SECTION B ESTIMATE OF QUANTITIES (CONTINUED)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
621E0160	6' Chain Link Fence with Tension Wired Top	13,739	Ft
628E1100	Movable F Shape Concrete Barrier, Interior Section	91	Each
628E1500	Concrete Barrier End Protection	6	Each
628E1510	Concrete Barrier End Protection Module Set or Repair Kit	2	Each
629E0110	High Tension 4 Cable Guardrail	5,619	Ft
629E0290	High Tension Cable Guardrail Anchor Assembly	4	Each
629E1109	Furnish High Tension Cable Guardrail Post and Sleeve	50	Each
629E9000	Crossover Closure	178	Ft
630E0500	Type 1 MGS	4,049.0	Ft
630E0530	Type 3 MGS	150.0	Ft
630E1005	18'-9" Longspan MGS	1	Each
630E1500	Type 1 Guardrail Transition	2	Each
630E2017	MGS MASH Flared End Terminal	3	Each
630E2018	MGS MASH Tangent End Terminal	7	Each
630E2065	MGS Trailing End Terminal	6	Each
630E2200	W Beam Guardrail End Block Adapter	3	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	91	Each
650E0060	Type B66 Concrete Curb and Gutter	1,813	Ft
650E0085	Type B68.5 Concrete Curb and Gutter	3,281	Ft
650E0105	Type B610.5 Concrete Curb and Gutter	9,970	Ft
650E0120	Type B612 Concrete Curb and Gutter	60	Ft
651E0040	4" Concrete Sidewalk	1,219	SqFt
651E0060	6" Concrete Sidewalk	60,159	SqFt
651E7000	Type 1 Detectable Warnings	718	SqFt
670E0200	Type A Frame and Grate	10	Each
670E2200	Type C Frame and Grate	4	Each
670E4205	Type M Frame and Grate Assembly	8	Each
670E5200	Special Frame and Grate Assembly	45	Each
670E5200	Special Frame and Grate Assembly	15	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	5	Each
670E5400	Precast Drop Inlet Collar	4	Each
670E6000	Adjust Drop Inlet	1	Each
671E6008	Type A8 Manhole Frame and Lid	4	Each
671E6035	Special Manhole Frame and Lid	5	Each
671E6040	Manhole Frame	1	Each
671E6050	Manhole Lid	1	Each
671E7020	Connect Into Existing Manhole	1	Each
700E0210	Class B Riprap	651.0	Ton
831E0110	Type B Drainage Fabric	922	SqYd

SECTION B ESTIMATE OF QUANTITIES (Exit 3 Crossover)

(Included in overall estimate of quantities table, for information only)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.214	Mile
009E3245	Final Cross Section Survey	1.214	Mile
009E3250	Miscellaneous Staking	1.214	Mile
009E3280	Slope Staking	1.214	Mile
009E3290	Structure Staking	3	Each
009E3301	Engineer Directed Surveying/Staking	40	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0700	Remove 3 Cable Guardrail	518	Ft
110E0730	Remove Beam Guardrail	78.0	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	3	Each
110E1100	Remove Concrete Pavement	3,232.3	SqYd
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	22,003	CuYd
120E0300	Borrow Unclassified Excavation	30,994	CuYd
120E1000	Muck Excavation	406	CuYd
120E2000	Undercutting	9,427	CuYd
120E6100	Water for Embankment	310.0	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
450E0143	24" RCP Class 3, Furnish	122	Ft
450E0150	24" RCP, Install	122	Ft
450E0416	24" RCP Bend, Furnish	1	Each
450E0417	24" RCP Bend, Install	1	Each
450E2016	24" RCP Flared End, Furnish	1	Each
450E2017	24" RCP Flared End, Install	1	Each
450E4748	15" CMP 14 Gauge, Furnish	286	Ft
450E4750	15" CMP, Install	286	Ft
450E4768	24" CMP 14 Gauge, Furnish	222	Ft
450E4770	24" CMP, Install	222	Ft
450E5015	24" CMP Elbow, Furnish	4	Each
450E5016	24" CMP Elbow, Install	4	Each
450E5207	15" CMP Flared End, Furnish	2	Each
450E5208	15" CMP Flared End, Install	2	Each
450E5215	24" CMP Flared End, Furnish	2	Each
450E5216	24" CMP Flared End, Install	2	Each
450E5402	15" CMP Safety End, Furnish	2	Each
450E5403	15" CMP Safety End, Install	2	Each
450E6119	15" Slotted CMP 16 Gauge, Furnish	160	Ft
450E6120	15" Slotted CMP, Install	160	Ft
450E9001	Reset Pipe End Section	1	Each
462E0100	Class M6 Concrete	13.9	CuYd

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
464E0100	Controlled Density Fill	28.9	CuYd
480E0100	Reinforcing Steel	951	Lb
628E1100	Movable F Shape Concrete Barrier, Interior Section	91	Each
628E1500	Concrete Barrier End Protection	4	Each
629E9000	Crossover Closure	178	Ft
630E0500	Type 1 MGS	1,572.4	Ft
630E0530	Type 3 MGS	150.0	Ft
630E2017	MGS MASH Flared End Terminal	3	Each
630E2065	MGS Trailing End Terminal	1	Each
630E2200	W Beam Guardrail End Block Adapter	3	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	91	Each
670E2200	Type C Frame and Grate	4	Each
670E5400	Precast Drop Inlet Collar	4	Each
670E6000	Adjust Drop Inlet	1	Each

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2-11-2025

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

Areas within the project have soils that are highly corrosive to steel. Corrugated metal pipe in these areas will be polymer coated 14 gauge steel as specific in the Table of Pipe Quantities. Any required connection bands, elbows, tees, crosses, wyes, reducers, and transitions will also be polymer coated. The Connection bands will be 24 inches wide. All polymer coated corrugated metal pipe and components will be in conformance with AASHTO M245. Riveted pipe will not be allowed.

All damage to the polymer coating will be repaired in accordance with the manufacturer's recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of polymer coating will be incidental to the corresponding CMP contract items.

Metal pipe end sections connected to polymer coated CMP will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items.

DROP INLETS

Where drop inlets are constructed within areas of curb and gutter, the Contractor will construct weep holes of at least 3 inches in diameter in the drop inlet walls. The weep holes will be constructed at the same elevation as the adjacent top of the earthen subgrade and will be maintained, clean and open at all times until the permanent surfacing is placed. The drop inlets will be covered throughout construction operations as necessary with an Engineer approved cover to provide safe travel for motorists and to prevent materials from entering the storm sewer system. After the permanent surfacing has been placed, the Contractor will seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with the coverings, weep holes, and removing debris from the drop inlets will be incidental to the contract unit prices for the components of the drop inlets.

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, Type B Frame and Grate, Type C Frame and Grate, Type D Frame and Grate, Precast Drop Inlet Collar, and Precast Concrete Type S Drop Inlet Lid will be the basis of payment for these items.

If additions or reductions to the number of drop inlets are ordered by the Engineer, payment for the components required to construct the drop inlets will be made at the contract unit prices for the components of the drop inlet.

The pipes will be attached at flat surfaces of the junction boxes and not through any of the corners

All costs for the frames and grates for the Type B inlets will be included in the contract unit price per each for each frame and grate assembly required. For each frame and grate that is bolted together for continuous inlets, each frame and grate will be paid for separately.

To assist the Contractor with the frame and grates quantities required for the single or continuous Type B Inlets, the following frame and grate quantities are shown in the estimate of quantities; with a further breakdown of these per each inlet shown in the quantity tables. The Contractor will verify these quantities prior to ordering, and will review the standard plate for a detail of each of these frame and grates.

- Type B Frame and Grate Assembly – Left Flange
- Type B Frame and Grate Assembly – No Flange
- Type B Frame and Grate Assembly – Right Flange
- Type B Frame and Grate Assembly – Right & Left Flange

ADJUSTMENT OF DROP INLETS

The Contractor will adjust drop inlets to the extent necessary on this project. Adjusting the drop inlets may consist of removing the upper course of brick or removing the concrete walls, replacing the removed materials with brick or Class M6 concrete, placing adjusting rings if necessary, and resetting the drop inlet frame and grate. The elevation of the grate will be set at the same elevation of the adjacent new pavement or surrounding ground. All drop inlet frames, grates, and rings that are cracked or broken due to carelessness of the Contractor will be replaced with new drop inlet frames, grates, and rings that conform with the Specifications at the Contractor's expense. Drop inlets will be adjusted to the satisfaction of the Engineer. All costs involved in adjusting the drop inlets will be incidental to the contract unit price per each for "Adjust Drop Inlet".

The Engineer may direct adjustment of drop inlets that were not included in these plans. Payment for adjusting drop inlets that were not included in the plans will be at the contract unit price per each for "Adjust Drop Inlet".

TABLE OF ADJUST DROP INLETS (Exit 3 Crossover)

Station	L/R	Type
I-229		
166+25-30'	L	Elevation

TABLE OF RIPRAP AND DRAINAGE FABRIC

Alignment	Station	L/R	Class B Rip-rap (Ton)	Type B Drainage Fabric (SqYd)
NB229	189+75	R	16	24
NB229	194+47	R	16	24
NB229	197+10	R	113	119
41ST	22+26	R	16	24
SB229	206+81	L	16	24
RAMPD	83+50	L	16	24
41ST	31+30	R	16	24
41ST	32+30	R	16	24
41ST	34+00	R	16	24
RAMPH	36+21	L	16	24
SBCLIFF	319+47	L	16	24
SBCLIFF	318+66	L	16	24
SBCLIFF	320+00	L	16	24
SBCLIFF	320+82	L	16	24
SBCLIFF	321+62	L	16	24
41ST	36+24	L	16	24
SBCLIFF	323+35	L	16	24
SCHOOL	42+70	R	16	24
NBCLIFF	120+62	R	16	24
NBCLIFF	120+28	R	16	24
NBCLIFF	119+75	R	16	24
NBCLIFF	119+61	R	16	24
NBCLIFF	119+36	R	23	32
TRAIL	2+23	L	16	24
RAMPA	14+95	L	16	24
SBCLIFF	310+99	L	16	24
RAMPG	26+12	R	16	24
RAMPG	25+43	R	16	24
NBCLIFF	112+38	R	16	24
RAMPF	17+51	R	16	24
RAMPA	19+56	L	16	24
NB229	230+64	R	19	27
NB229	237+50	R	16	24
RAMPD	75+46	R	16	24
		Total	**651**	**922**

TABLE OF DROP INLETS AND QUANTITIES (Exit 3 Crossover)

Alignment	Station	Inlet			M6 Concrete	Steel Reinforcement	Precast Drop Inlet Collar	Frame & Grate
		Type	Size	Height	CuYd	lb	Each	Type
I-229 NB	STA 5149+75 - 10' LT	C	3' x 4'	4.25	1.7	263	1	C
I-229 NB	STA 5152+04 - 16' LT	C	3' x 4'	3.25	1.3	223	1	C
I-229 NB	STA 5154+72 - 16' LT	C	3' x 4'	3.25	1.4	223	1	C
I-229 NB	STA 5156+51 - 10' LT	C	3' x 4'	3.75	1.5	243	1	C
				Total =	6.0	951	4	4 Each

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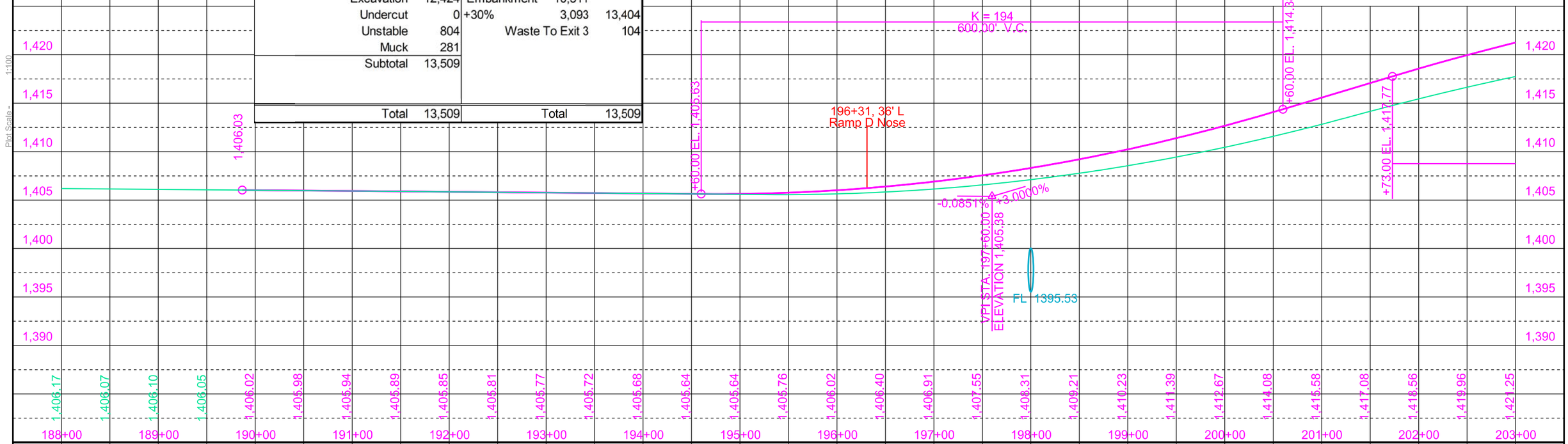
2/11/2025

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	B51	B225

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

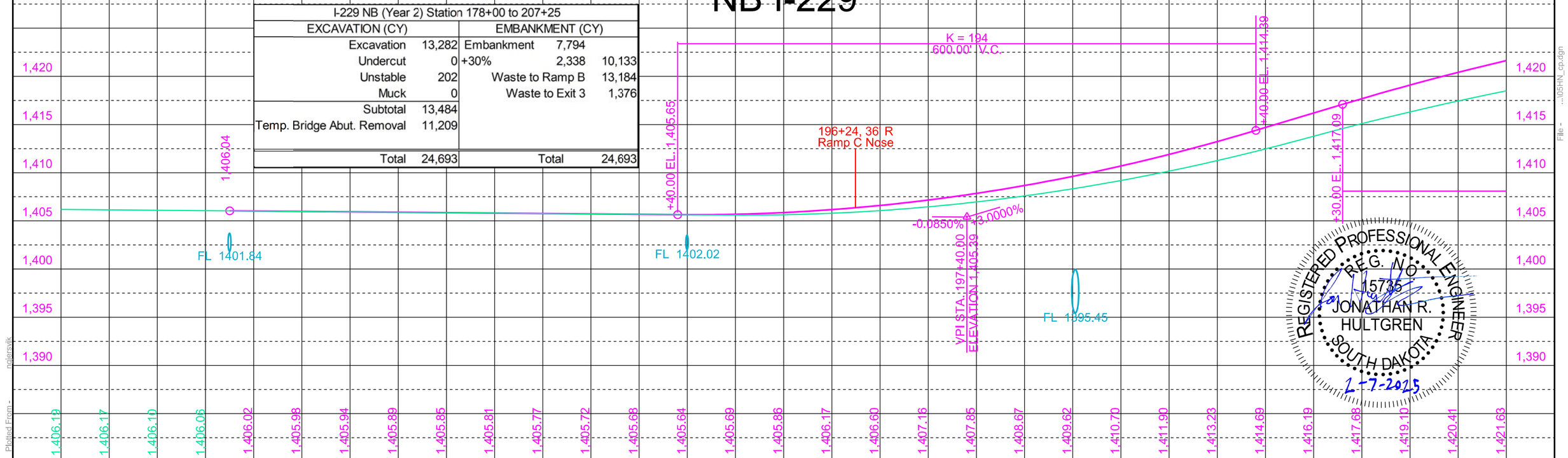
SB I-229

I-229 SB (Year 1) Station 178+00 to 207+25				
EXCAVATION (CY)		EMBANKMENT (CY)		
Excavation	12,424	Embankment	10,311	
Undercut	0	+30%	3,093	13,404
Unstable	804	Waste To Exit 3		104
Muck	281			
Subtotal	13,509			
Total	13,509	Total		13,509



NB I-229

I-229 NB (Year 2) Station 178+00 to 207+25				
EXCAVATION (CY)		EMBANKMENT (CY)		
Excavation	13,282	Embankment	7,794	
Undercut	0	+30%	2,338	10,133
Unstable	202	Waste to Ramp B		13,184
Muck	0	Waste to Exit 3		1,376
Subtotal	13,484			
Temp. Bridge Abut. Removal	11,209			
Total	24,693	Total		24,693



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SOUTH DAKOTA
1-7-2025

Plot Scale - 1:100
Plotted From - rajersvik
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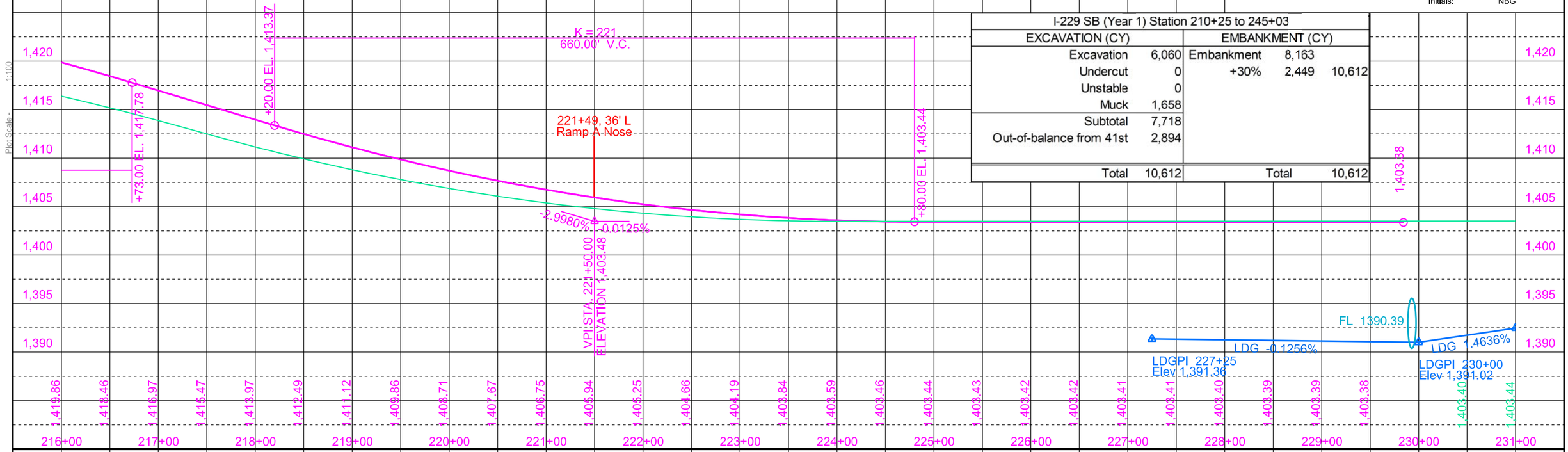
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	B55	B225

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

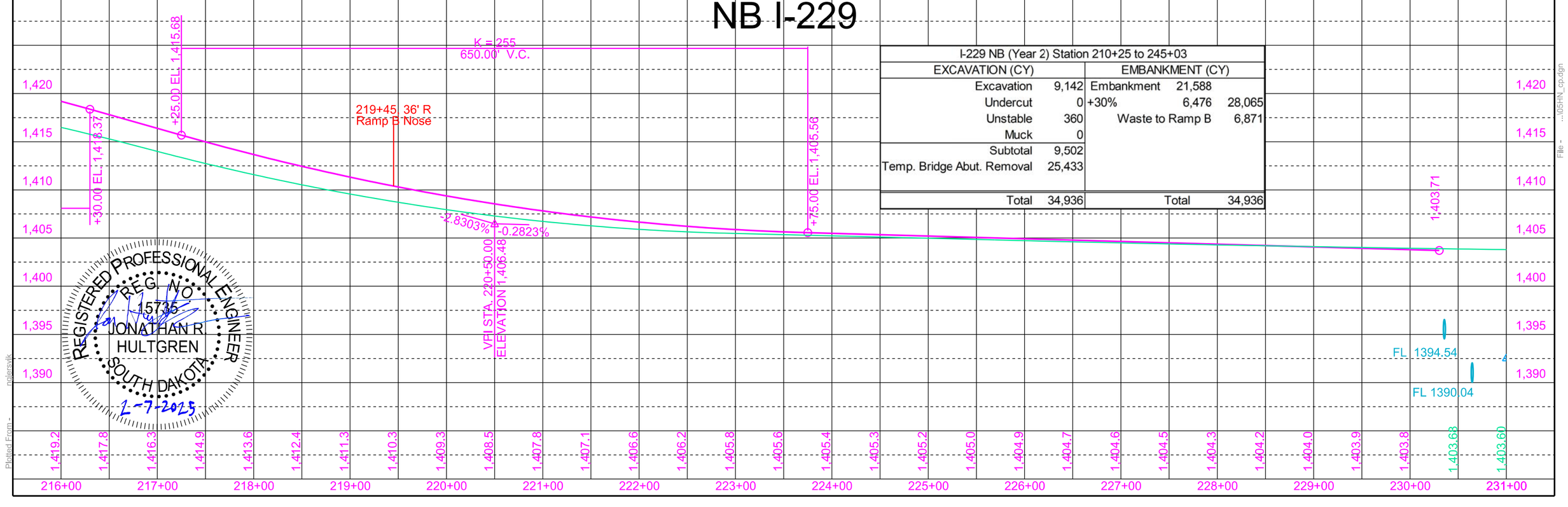
SB I-229

I-229 SB (Year 1) Station 210+25 to 245+03				
EXCAVATION (CY)		EMBANKMENT (CY)		
Excavation	6,060	Embankment	8,163	
Undercut	0	+30%	2,449	10,612
Unstable	0			
Muck	1,658			
Subtotal	7,718			
Out-of-balance from 41st	2,894			
Total	10,612	Total		10,612



NB I-229

I-229 NB (Year 2) Station 210+25 to 245+03				
EXCAVATION (CY)		EMBANKMENT (CY)		
Excavation	9,142	Embankment	21,588	
Undercut	0	+30%	6,476	28,065
Unstable	360	Waste to Ramp B		6,871
Muck	0			
Subtotal	9,502			
Temp. Bridge Abut. Removal	25,433			
Total	34,936	Total		34,936



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1-7-2025

Plot Scale - 1:100
Plotted From - ngjersvik
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SECTION E – ESTIMATE OF STRUCTURE QUANITITES

Str. No. 50-201-233T

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0060	Temporary Detour Structure	1	Each
420E0100	Structure Excavation, Bridge	57	CuYd
460E0050	Class A45 Concrete, Bridge	64.6	CuYd
480E0100	Reinforcing Steel	4,638	Lb
510E3120	HP 10 Pile Tip Reinforcement	16	Each
510E3365	HP 10x42 Steel Bearing Pile, Furnish and Drive	800	Ft

Box Culverts, Retaining Walls, & Concrete Barrier Curb & Gutter

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
380E2450	Concrete Barrier and 10' Continuously Reinforced Concrete Shoulder	1,934	Ft
420E0200	Structure Excavation, Box Culvert	125	CuYd
420E0300	Structure Excavation, Retaining Wall	9,113	CuYd
420E0400	Structure Excavation, Miscellaneous	178	CuYd
420E1000	Foundation Preparation, Retaining Wall	1,343	CuYd
421E0200	Box Culvert Undercut	275	CuYd
430E0700	Precast Concrete Headwall for Drain	8	Each
460E0120	Class A45 Concrete, Box Culvert	289.3	CuYd
460E0204	Anti-Graffiti Coating	8,751.0	SqFt
460E0300	Breakout Structural Concrete	28.0	CuYd
460E0380	Install Dowel in Concrete	32	Each
460E0382	Install Dowel in Rock	8.0	Ft
462E0100	Class M6 Concrete	32.0	CuYd
465E0100	Class A45 Concrete, Drilled Shaft	15.8	CuYd
465E0200	Drilled Shaft Excavation	15.8	CuYd
480E0100	Reinforcing Steel	54,508	Lb
480E0200	Epoxy Coated Reinforcing Steel	5,268	Lb
530E0420	MSE Large Panel Wall, Furnish	19,109	SqFt
530E0422	MSE Large Panel Wall, Install	19,109	SqFt
530E0470	Gravity Large Concrete Block Wall	1,271	SqFt
530E0702	Granular Backfill for MSE Large Panel Wall	9,548.0	CuYd
530E0718	Granular Backfill for Gravity Large Concrete Block Wall	288.7	CuYd
560E0068	7'x3' Precast Concrete Box Culvert, Furnish	28.0	Ft
560E0069	7'x3' Precast Concrete Box Culvert, Install	28.0	Ft
560E0130	10'x4' Precast Concrete Box Culvert, Furnish	30.0	Ft
560E0131	10'x4' Precast Concrete Box Culvert, Install	30.0	Ft
560E1068	7'x3' Precast Concrete Box Culvert End Section, Furnish	1	Each
560E1069	7'x3' Precast Concrete Box Culvert End Section, Install	1	Each
560E1130	10'x4' Precast Concrete Box Culvert End Section, Furnish	1	Each
560E1131	10'x4' Precast Concrete Box Culvert End Section, Install	1	Each
632E0072	4' Diameter Fixed Support Concrete Footing	38.0	Ft
650E4060	Type C6 Concrete Gutter	321	Ft
680E0040	4" Underdrain Pipe	3,097	Ft
680E2500	Porous Backfill	630.0	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	143.2	SqYd
831E0110	Type B Drainage Fabric	2,771	SqYd
831E0400	Impermeable Plastic Membrane	15	SqYd

PCN 07CY Gravity Large Block Retaining Walls

1. Incidental Work, Structure will consist of the removal of the following structures:

   Wall "A" in place adjacent to NBL I-229 Sta. 213+73.63 to Sta. 215+42.22 is a Gravity Large Concrete Block Retaining Wall.

   Wall "B" in place adjacent to NBL Cliff Ave. Sta. 113+41.05 to Sta. 114+32.20 is a Gravity Large Concrete Block Retaining Wall.

   Wall "C" in place adjacent to NBL Cliff Ave. Sta. 115+36.48 to Sta. 114+57.89 is a Gravity Large Concrete Block Retaining Wall.

2. Break down and remove the existing wall to 1' below for Wall "A" and 2' below for Walls "B" and "C" finished groundline in accordance with Section 110 of the Construction Specifications. All portions of the existing walls will be removed and disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments Notes in the plans.

3. The foregoing is a general description of the in-place walls and should not be construed to be complete in all details. Before preparing the bid, it is the responsibility of the Contractor to make a visual inspection of the walls tc verify the extent of the work and materials involved. If desired by the Contractor, a copy of the original construction plans may be obtained through the Office of Bridge Design.

Str. No. 50-210-230

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	2,494.0	SqYd
120E7000	Select Granular Backfill	28.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0020	Structural Steel	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	128.8	Ft
420E0100	Structure Excavation, Bridge	726	CuYd
430E0200	Bridge End Embankment	2,653	CuYd
430E0300	Granular Bridge End Backfill	223.3	CuYd
430E0510	Approach Slab Underdrain Excavation	4.6	CuYd
430E0700	Precast Concrete Headwall for Drain	2	Each
460E0030	Class A45 Concrete, Bridge Deck	739.0	CuYd
460E0050	Class A45 Concrete, Bridge	641.8	CuYd
460E0150	Concrete Approach Slab for Bridge	379.0	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	93.9	SqYd
480E0100	Reinforcing Steel	141,776	Lb
480E0200	Epoxy Coated Reinforcing Steel	4,314	Lb
480E0300	Stainless Reinforcing Steel	192,357	Lb
510E0300	Preboring Pile	180	Ft
510E3140	HP 14 Pile Tip Reinforcement	138	Each
510E3521	HP 14x73 Steel Test Pile, Furnish and Drive	190	Ft
510E3525	HP 14x73 Steel Bearing Pile, Furnish and Drive	5,090	Ft
635E8020	2" Rigid Galvanized Steel Conduit	1,817	Ft
680E0040	4" Underdrain Pipe	149	Ft
680E2500	Porous Backfill	8.2	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	582.0	SqYd
831E0100	Type A Drainage Fabric	582	SqYd
831E0110	Type B Drainage Fabric	89	SqYd
831E1030	Perforated Geocell	800	SqFt

Str. No. 50-211-230

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	2,494.0	SqYd
120E7000	Select Granular Backfill	28.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0026	Structural Steel, Install	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	122.3	Ft
420E0100	Structure Excavation, Bridge	730	CuYd
430E0200	Bridge End Embankment	3,269	CuYd
430E0300	Granular Bridge End Backfill	215.7	CuYd
430E0510	Approach Slab Underdrain Excavation	4.6	CuYd
430E0700	Precast Concrete Headwall for Drain	2	Each
460E0030	Class A45 Concrete, Bridge Deck	739.0	CuYd
460E0050	Class A45 Concrete, Bridge	643.6	CuYd
460E0150	Concrete Approach Slab for Bridge	380.0	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	90.3	SqYd
480E0100	Reinforcing Steel	141,776	Lb
480E0200	Epoxy Coated Reinforcing Steel	4,314	Lb
480E0300	Stainless Reinforcing Steel	192,379	Lb
510E0300	Preboring Pile	180	Ft
510E3140	HP 14 Pile Tip Reinforcement	138	Each
510E3521	HP 14x73 Steel Test Pile, Furnish and Drive	175	Ft
510E3525	HP 14x73 Steel Bearing Pile, Furnish and Drive	4,205	Ft
635E8020	2" Rigid Galvanized Steel Conduit	1,817	Ft
680E0040	4" Underdrain Pipe	153	Ft
680E2500	Porous Backfill	8.2	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	603.3	SqYd
831E0100	Type A Drainage Fabric	604	SqYd
831E0110	Type B Drainage Fabric	89	SqYd
831E1030	Perforated Geocell	799	SqFt

Temporary Retaining Structures

Temporary retaining structures will be necessary to maintain traffic on the existing northbound lanes during excavation of the existing southbound berms and construction of the new southbound bridge. The following soil parameters for the existing embankment and underlying soils will be used in the design of temporary retaining structures. See the Site Plan and Subsurface Profile in Section E for boring and testing information.

Soil Parameters for Temporary Retaining Structures

	Friction Angle, φ	Cohesion, C	Wet Unit Weight, γ_w
Brown to Gray Silt Clay (Existing Embankment)	22 degrees	100 psf	124 pcf
Brown Sand	32 degrees	0 psf	128 pcf

The design of the temporary retaining structure is the responsibility of the Contractor. Excavation slopes above temporary retaining structures will be 2:1 or flatter as required to achieve a minimum factor of safety of 1.5 for the proposed geometry and live load surcharge conditions. The Contractor will submit plans and calculations sealed by a Professional Engineer registered in South Dakota. Do not begin construction of the temporary retaining structure until the plans and calculations have been accepted by the SDDOT Bridge Construction Engineer. Allow a minimum of 15 days for review. The cost for the temporary retaining structure is incidental to the contract unit bid price for Structure Excavation, Bridge.

ESTIMATE OF STRUCTURE QUANTITIES

Description	QUANTITY	UNIT	REMARKS
Bridge Elevation Survey	Lump Sum	LS	
Concrete Penetrating Sealer	2,494.0	SqYd	
Select Granular Backfill	28.0	Ton	
Incidental Work, Structure	Lump Sum	LS	
Structural Steel	Lump Sum	LS	
Membrane Sealant Expansion Joint	128.8	Ft	
Structure Excavation, Bridge	726	CuYd	
Bridge End Embankment	2,653	CuYd	
Granular Bridge End Backfill	223.3	CuYd	
Approach Slab Underdrain Excavation	4.6	CuYd	
Precast Concrete Headwall for Drain	2	Each	
Class A45 Concrete, Bridge Deck	739.0	CuYd	
Class A45 Concrete, Bridge	641.8	CuYd	
Concrete Approach Slab for Bridge	379.0	SqYd	
Concrete Approach Sleeper Slab for Bridge	93.9	SqYd	
Reinforcing Steel	141,776	Lb	
Epoxy Coated Reinforcing Steel	4,314	Lb	
Stainless Reinforcing Steel	192,357	Lb	See Special Provisions
Preboring Pile	180	Ft	
HP 14 Pile Tip Reinforcement	138	Each	
HP 14x73 Steel Test Pile, Furnish and Drive	190	Ft	
HP 14x73 Steel Bearing Pile, Furnish and Drive	5,090	Ft	
2" Rigid Galvanized Steel Conduit	1817	Ft	
4" Underdrain Pipe	149	Ft	
Porous Backfill	8.2	Ton	
Bridge Berm Slope Protection, Quarried Aggregate	582	SqYd	
Type A Drainage Fabric	582	SqYd	
Type B Drainage Fabric	89	SqYd	
Perforated Geocell	800	SqFt	

BRIDGE SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.
3. All welding and welding inspections will be in conformance with the latest edition of AASHTO/AWS D1.5/D1.5M Bridge Welding Code unless noted otherwise in the plans.

BRIDGE DESIGN LOADING

1. AASHTO HL-93.
2. Dead Load includes 22 psf for future wearing surface on the roadway.

DESIGN MATERIAL STRENGTHS

Class A45 Concrete	f'_c = 4,500 psi
Reinforcing Steel (ASTM A615, Gr. 60)	f_y = 60,000 psi
Piling (ASTM A572 Grade 50)	f_y = 50,000 psi
Structural Steel (ASTM A709 Gr. 36T2)	f_y = 36,000 psi
Structural Steel (ASTM A709 Gr. 50T2)	f_y = 50,000 psi

GENERAL CONSTRUCTION

1. All lap splices shown are contact lap splices unless noted otherwise.
2. All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
3. Use 2-inch clear cover on all reinforcing steel except as shown otherwise on plans.
4. The Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
5. Barrier curbs, and end blocks will be built perpendicular to the roadway grade line.
6. Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.
7. Bridge berms will be constructed to the plans template prior to any pile driving or construction of abutment footings. See Standard Plate 120.10. Berm slopes will not be disturbed after construction. Any alterations to the berm or slopes after berm construction will be submitted to the Bridge Construction Engineer for approval. Allow 30 days for review of proposals.
8. The elevation of the bridge deck is 18 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

1. In place centerline Sta. 130+83.76 to centerline Sta. 132+66.92 is a 183'-2" 3 span Prestressed Girder Viaduct bridge with a 30'-0" clear roadway. The superstructure consists of a 6 inch reinforced concrete slab and concrete railing with steel W-beam continuous across the bridge. The substructure consists of 3 column reinforced concrete bents and reinforced concrete sill type abutments; all are supported on timber piling.
2. Break down and remove the existing bridge, and approach/sleeper slabs if applicable, to 1-foot below finished groundline, or as required to construct the new structure in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge will be removed and disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments Notes in the plans.
3. The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it is the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. If desired by the Contractor, a copy of the original construction plans may be obtained through the Office of Bridge Design.

DESIGN MIX OF CONCRETE

1. All structural concrete will be Class A45 Concrete unless otherwise indicated.
2. Type II cement conforming to Section 750 of the Construction Specifications is required in all concrete on the structure except in the abutments. Abutment concrete will use a Type III cement or an approved modified A45 mix. The modified mix will meet the requirements for A45 concrete specified in Section 460 of the Construction Specification with the following modifications: a high range water reducer is required at the manufactures' recommended dosage, the maximum concrete slump is 6 inches, the maximum water/cementitious material ratio will be at least 0.02 less than the A45 mix used in the rest of the substructure, and the minimum concrete temperature at time of placement will be 65 degrees Fahrenheit. If used, type III cement will contain a maximum 8% Tricalcium Aluminate (C_3A) and a maximum 0.6% Alkalis ($Na_2O + O.658K_2O$).
3. Grout design mix will be as specified in Section 460.2 K of the Construction Specifications. A compressive strength of 2000 psi will be attained by the grout prior to erection of any beams. Chamfer edges of grout pads 3/4-inch. The quantity of grout is included in and will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

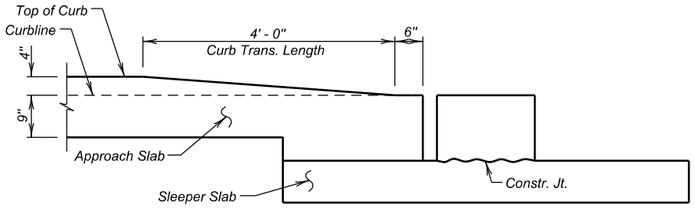
ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
NORTHBOUND LANES
FOR
400' - 9 ⅛" STEEL GIRDER BRIDGE

STR. NO. 50-210-230
OCTOBER 2023

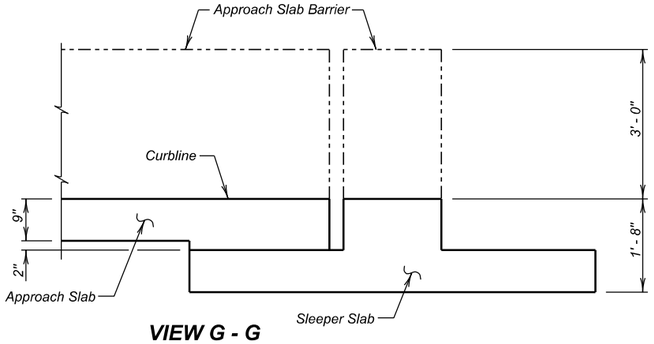
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	CL	BT	Steve A Johnson BRIDGE ENGINEER
MINN05HN	05HNGA02		

Revised February 12, 2025 CHM/CL

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM-B-CR 2292(101)3	E49	E146



VIEW D - D



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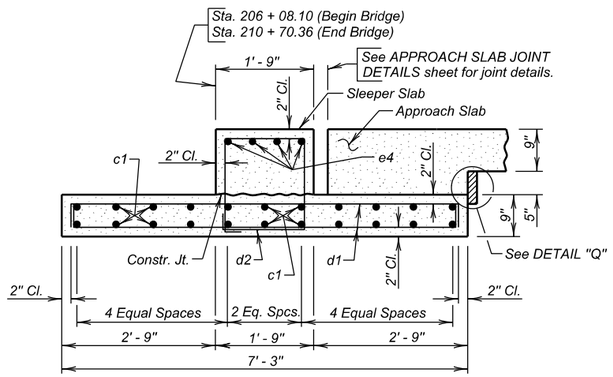
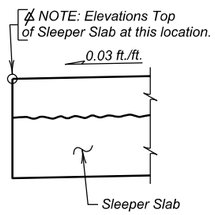
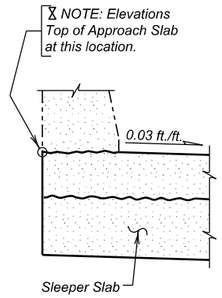


SECTION B - B
(Sleeper Slab)



VIEW C - C
(Resteel not shown)



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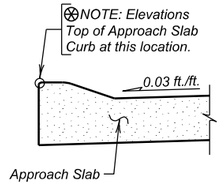

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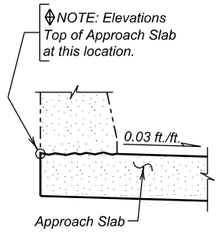

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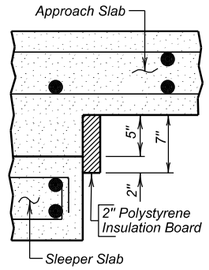
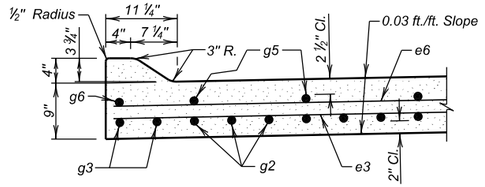
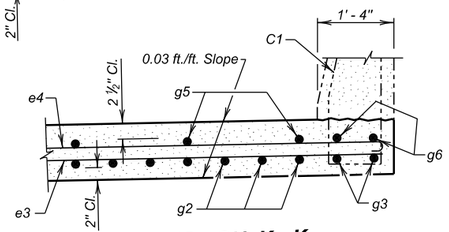


DETAIL "Q"

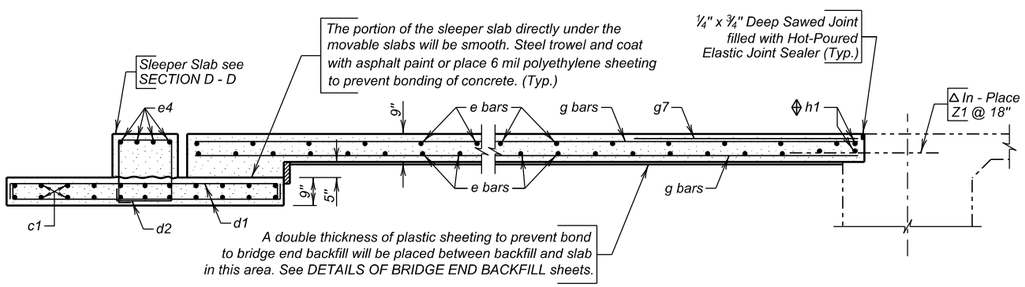


SECTION F - F

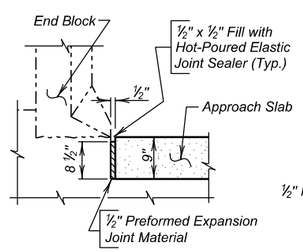


SECTION K - K

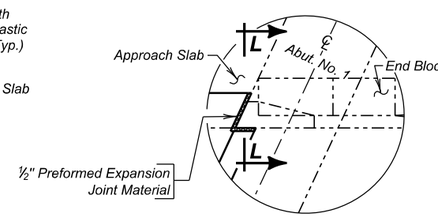
△ In-place Z1 bars are listed and included in superstructure quantities. See SUPERSTRUCTURE DETAILS (B) sheets.



SECTION A - A



SECTION L - L

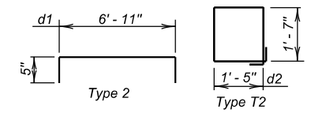


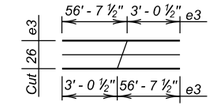
DETAIL "V"

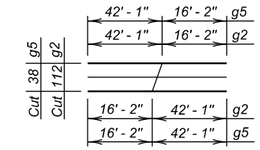
REINFORCING SCHEDULE
(For Two Approach Slabs & Two Sleeper Slabs)

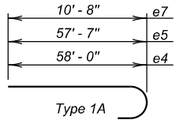
Mk.	No.	Size	Length	Type
Sleeper Slabs				
c1	44	5	58' - 0"	Str.
d1	232	4	7' - 9"	2
d2	116	4	6' - 9"	T2
e4	8	5	52' - 7"	1A
Approach Slabs				
e1	30	5	58' - 0"	Str.
e2	2	5	57' - 1"	Str.
◫ e3	26	5	59' - 8"	Str.
e4	30	5	58' - 7"	1A
e5	2	5	58' - 2"	1A
◫ e6	26	5	60' - 10"	1A
e7	52	5	11' - 3"	1A
◫ e8	2	5	15' - 10"	1A
g1	4	8	14' - 11"	Str.
◫ g2	112	8	58' - 3"	Str.
g3	4	8	41' - 6"	Str.
g4	3	4	14' - 11"	Str.
◫ g5	38	4	58' - 3"	Str.
g6	3	4	41' - 6"	Str.
g7	74	4	6' - 0"	Str.
h1	4	6	32' - 5"	Str.

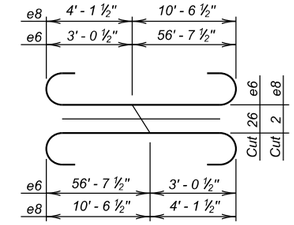
Bending Details











NOTES:
All bars to be epoxy coated.
All dimensions are out to out of bars.
◫ See cutting diagram.

ESTIMATED QUANTITIES
(For Two Approach Slabs & Two Sleeper Slabs)

ITEM	UNIT	QUANTITY
Concrete Approach Slab for Bridge	Sq. Yd.	379.0
Concrete Approach Sleeper Slab for Bridge	Sq. Yd.	93.9

1. 96.7 Cu. Yds. Concrete in Approach Slabs.
2. 27904 Lbs. Epoxy Coated Re-Steel in Approach Slabs.
3. 68.0 Sq. Ft. of Polystyrene Insulation Board.
4. 32.3 Cu. Yds. Concrete in Sleeper Slabs.
5. 4825 Lbs. Epoxy Coated Re-Steel in Sleeper Slabs.
6. 6.8 Cu. Yds. Concrete in Approach Slab Barriers and Sleeper Slab Barriers.
7. 1359 Lbs. Epoxy Coated Re-Steel in Approach Slab Barriers and Sleeper Slab Barriers.

Items 1 thru 7 are approximate quantities contained in the above bid items and are for information only.

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B)

FOR

NORTHBOUND LANES

400' - 9 ⅛" STEEL GIRDER BRIDGE

56' - 0" ROADWAY
OVER CLIFF AVE.
STA. 206 + 47.35 TO 210 + 48.11
STR. NO. 50-210-230

25° LHF SKEW
SEC. 28-T101N-R49W
IM-B-CR 2292(101)3
HL-93

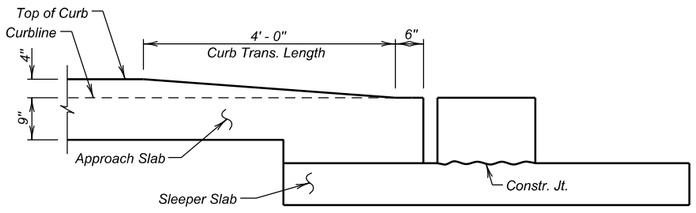
MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2023

28 OF 41

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	CL	BT	Steven A. Johnson BRIDGE ENGINEER
MINN05HN	05HNGA28		

Revised February 12, 2025 CHM/CL

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM-B-CR 2292(101)3	E105	E146



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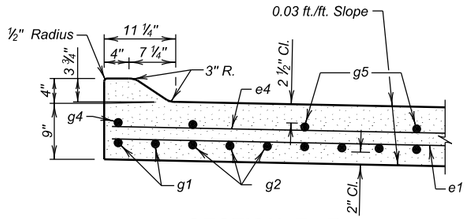
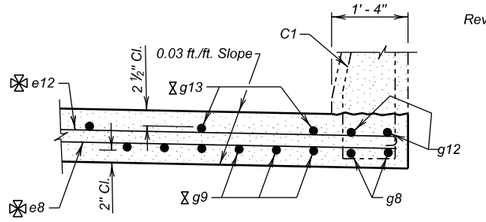


SECTION F - F



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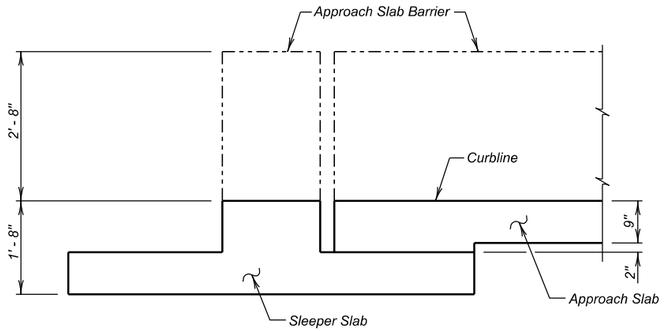
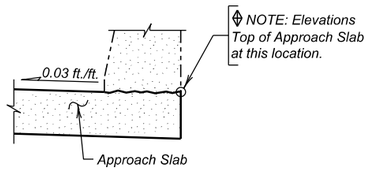
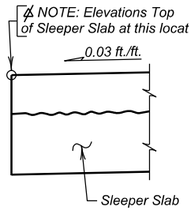


VIEW G - G
(End Bridge Left side only)



SECTION J - J
(Resteel not shown)
(End Bridge Left side only)



VIEW E - E
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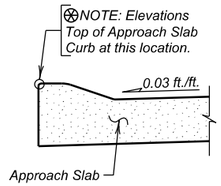
(Begin Bridge Left side only)



SECTION C - C
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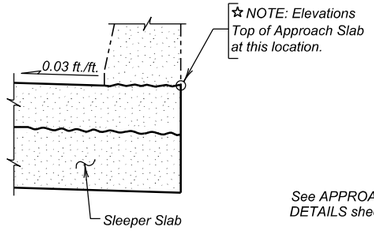
(Begin Bridge Left side only)



SECTION H - H
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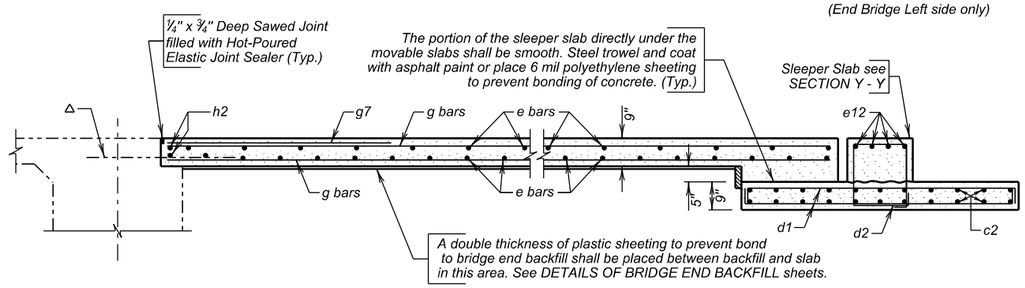
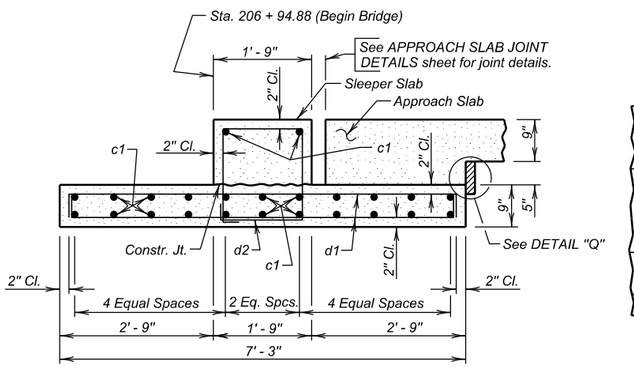
(End Bridge Left side only)

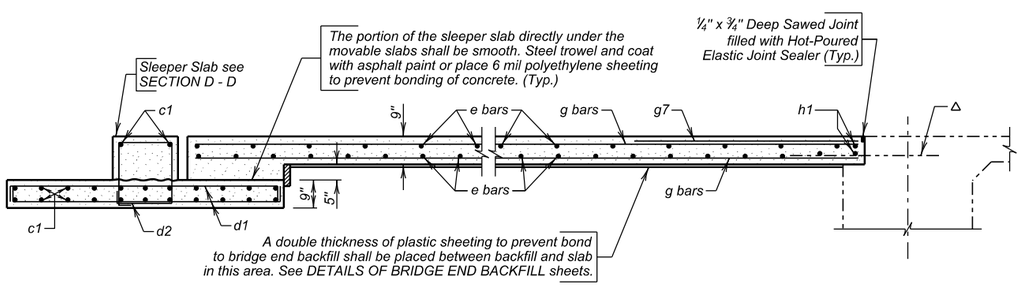
△ *In-place Z1 bars are listed and included in superstructure quantities. See SUPERSTRUCTURE DETAILS (B) sheets.*



SECTION Z - Z

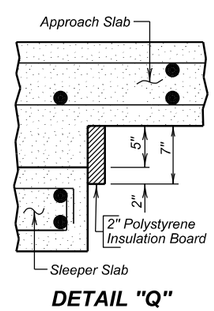


SECTION Y - Y
(Sleeper Slab)



SECTION A - A

SECTION B - B
(Sleeper Slab)

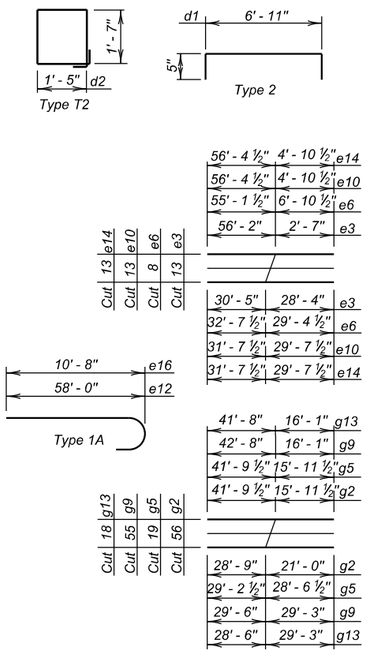


DETAIL "Q"

REINFORCING SCHEDULE
(For Two Approach Slabs and Two Sleeper Slabs)

	Mk.	No.	Size	Length	Type
	Sleeper Slabs				
	c1	24	5	57' - 6"	Str.
	c2	22	5	58' - 0"	Str.
	d1	232	4	7' - 9"	2
	d2	116	4	6' - 9"	T2
	e12	4	5	58' - 7"	1A
	Approach Slabs				
	e1	15	6	52' - 7"	Str.
	e2	2	6	57' - 1"	Str.
⌀	e3	13	6	58' - 9"	Str.
	e4	10	4	52' - 7"	Str.
	e5	2	4	57' - 1"	Str.
⌀	e6	8	4	62' - 0"	Str.
	e7	1	4	3' - 7"	Str.
	e8	15	6	58' - 0"	Str.
	e9	1	6	57' - 5"	Str.
⌀	e10	13	6	61' - 4"	Str.
	e11	1	6	2' - 10"	Str.
	e12	15	4	58' - 7"	Str.
	e13	1	4	57' - 5"	Str.
⌀	e14	13	4	61' - 3"	Str.
	e15	1	4	2' - 10"	Str.
	e16	15	4	11' - 3"	Str.
	g1	1	8	14' - 11"	Str.
⌀	g2	56	8	57' - 9"	Str.
	g3	2	8	41' - 6"	Str.
	g4	1	4	14' - 11"	Str.
⌀	g5	19	4	57' - 9"	Str.
	g6	1	4	41' - 6"	Str.
	g7	74	4	6' - 0"	Str.
	g8	2	8	14' - 10"	Str.
⌀	g9	55	8	58' - 9"	Str.
	g10	1	8	43' - 0"	Str.
	g11	3	8	42' - 8"	Str.
	g12	2	4	14' - 10"	Str.
⌀	g13	18	4	57' - 9"	Str.
	g14	1	4	42' - 6"	Str.
	g15	2	4	42' - 8"	Str.
	h1	4	6	32' - 0"	Str.
	h2	4	6	32' - 5"	Str.

Bending Details



NOTES:
All bars to be epoxy coated.
All dimensions are out to out of bars.
⌀ See cutting diagram.

ESTIMATED QUANTITIES
(For Two Approach Slabs & Two Sleeper Slabs)

ITEM	UNIT	QUANTITY
Concrete Approach Slab for Bridge	Sq. Yd.	380.0
Concrete Approach Sleeper Slab for Bridge	Sq. Yd.	90.3

1. 95.9 Cu. Yds. Concrete in Approach Slabs.
2. 27445 Lbs. Epoxy Coated Re-Steel in Approach Slabs.
3. 67.8 Sq. Ft. of Polystyrene Insulation Board.
4. 32.2 Cu. Yds. Concrete in Sleeper Slabs.
5. 4739 Lbs. Epoxy Coated Re-Steel in Sleeper Slabs.
6. 1.8 Cu. Yds. Concrete in Approach Slab Barriers and Sleeper Slab Barriers.
7. 394 Lbs. Epoxy Coated Re-Steel in Approach Slab Barriers and Sleeper Slab Barriers.

Items 1 thru 7 are approximate quantities contained in the above bid items and are for information only.

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B)

FOR

SOUTHBOUND LANES

400' - 9 ⅛" STEEL GIRDER BRIDGE

56' - 0" ROADWAY
OVER CLIFF AVE.
STA. 207 + 15.13 TO 211 + 15.89
STR. NO. 50-211-230

25° LHF SKEW
SEC. 28-T101N-R49W
IM-B-CR 2292(101)3
HL-93

MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2023

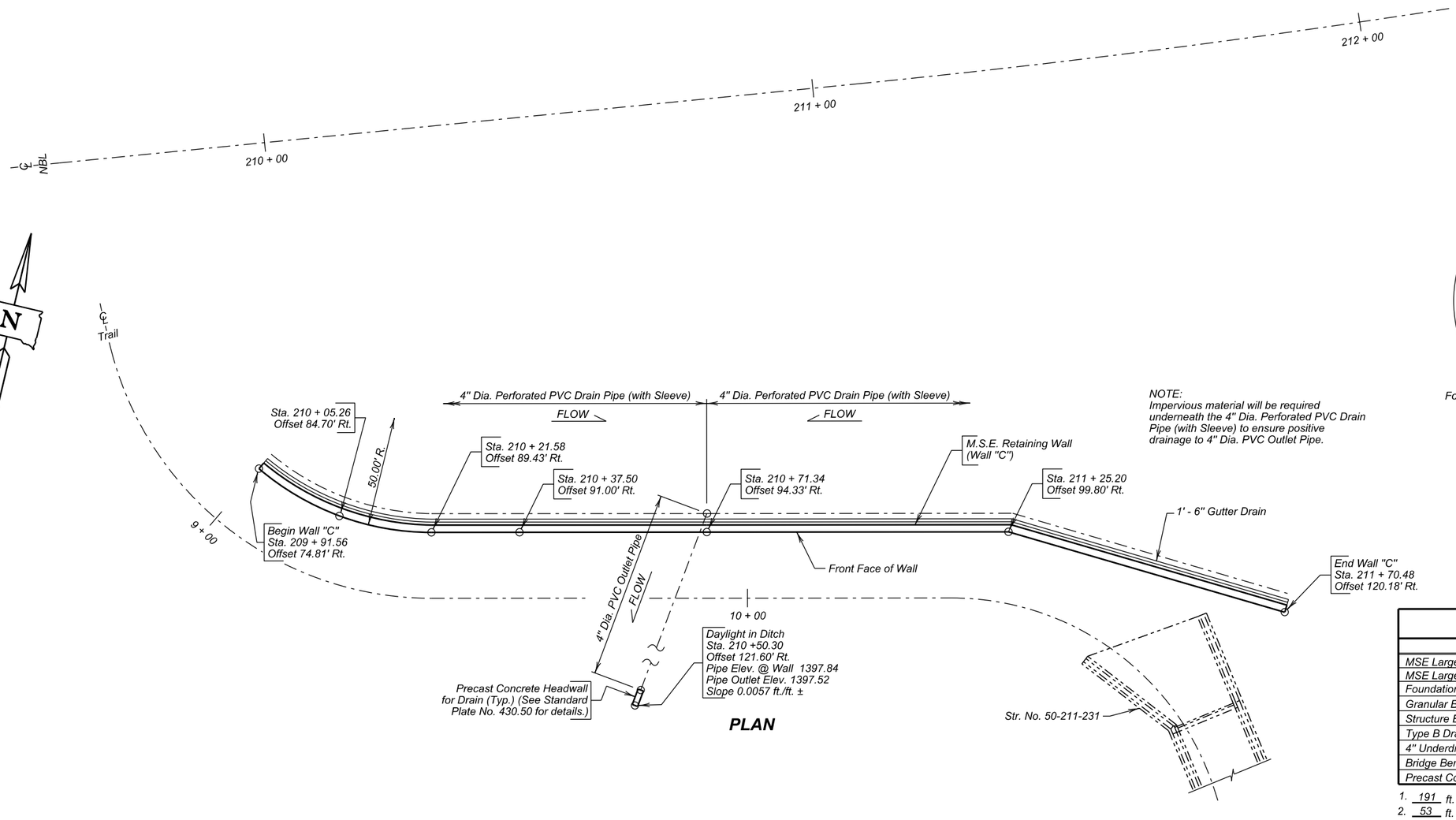
29 OF 42

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	CL	BT	Steven A Johnson BRIDGE ENGINEER
MINN05HN	05HNGB29		

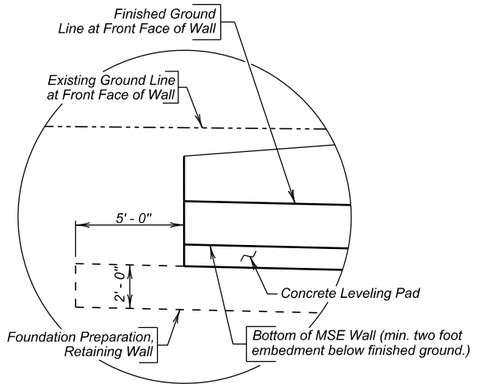
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

Revised February 12, 2025 CHM/CL

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM-B-CR 2292(101)3	E133	E146

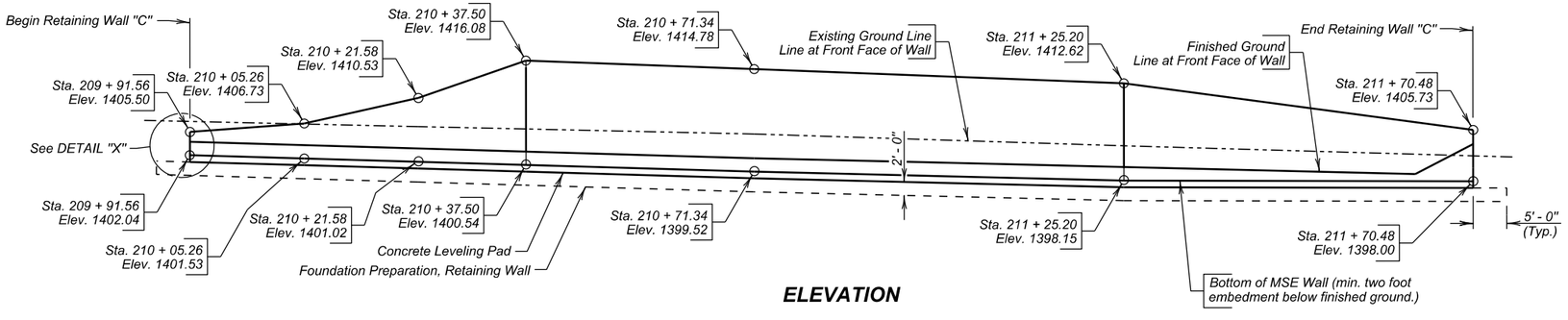


PLAN



DETAIL "X"

NOTE:
Impervious material will be required underneath the 4" Dia. Perforated PVC Drain Pipe (with Sleeve) to ensure positive drainage to 4" Dia. PVC Outlet Pipe.



ELEVATION

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
MSE Large Panel Wall, Furnish	Sq. Ft.	2315
MSE Large Panel Wall, Install	Sq. Ft.	2315
Foundation Preparation, Retaining Wall	Cu. Yd.	184
Granular Backfill for MSE Large Panel Wall	Cu. Yd.	1187
Structure Excavation, Retaining Wall	Cu. Yd.	1320
Type B Drainage Fabric	Sq. Yd.	353
4" Underdrain Pipe	Ft.	244
Bridge Berm Slope Protection, Quarried Aggregate	Sq. Yd.	32.3
Precast Concrete Headwall for Drain	Each	1

1. 191 ft. 4" Dia. Perforated PVC Drain Pipe (with Sleeve).
2. 53 ft. 4" Dia. PVC Outlet Pipe.

Items 1 and 2 are approximate quantities contained in the 4" Underdrain Pipe and are for information only.

DETAILS OF WALL "C"

FOR

M.S.E. LARGE PANEL RETAINING WALLS

ADJ. TO NBL & RAMP B — SEC. 28-T101N-R49W
STA. 209 + 91.56 TO 211 + 70.48 — IM-B-CR 2292(101)3

MINNEHAHA COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2024

7 OF 12

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CL	CHM	BT	Steve A Johnson BRIDGE ENGINEER
MINN05HN	05HNGC07		

SECTION F ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	692.8	MGal
120E9000	Pit Run	1,202.3	Ton
260E1010	Base Course	13,119.8	Ton
260E2010	Gravel Cushion	43,411.0	Ton
320E1200	Asphalt Concrete Composite	8,129.3	Ton
320E5020	Saw Joint in Asphalt Concrete	175	Ft
380E0060	8.5" Nonreinforced PCC Pavement	7,080.9	SqYd
380E0100	10.5" Nonreinforced PCC Pavement	37,510.1	SqYd
380E0150	13" Nonreinforced PCC Pavement	57,137.3	SqYd
380E0800	PCC Shoulder Pavement	22,463.1	SqYd
380E3040	8" PCC Driveway Pavement	405.8	SqYd
380E3042	8" Fast Track Concrete Driveway Pavement	101.4	SqYd
380E6000	Dowel Bar	91,406	Each
380E6110	Insert Steel Bar in PCC Pavement	207	Each
380E6450	Saw Joint in PCC Pavement	2,647.3	Ft
410E2600	Membrane Sealant Expansion Joint	224.0	Ft
831E0210	Non-woven Separator Fabric	1,674	SqYd

SECTION F ESTIMATE OF QUANTITIES (Exit 3 Crossover)

(Included in overall estimate of quantities table above, for information only)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	158.9	MGal
120E9000	Pit Run	1,202.3	Ton
260E1010	Base Course	12,041.4	Ton
320E1200	Asphalt Concrete Composite	7,333.0	Ton
380E6450	Saw Joint in PCC Pavement	2,248.3	Ft
831E0210	Non-woven Separator Fabric	1,674	SqYd

CONTROL OF ACCESS

If the Contractor's operations would require access to the interstate ROW in any location not currently designated as public access, prior approval must be obtained from the Department. All requests will be reviewed based on safety and construction sequencing. A Contractor will not assume that all requests will be granted.

The Contractor will be responsible for all safety control and signing measures.

Anytime Contractor operations have ceased for the day, any entrances approved in a control of access area will be closed by the Contractor.

The request for access will be provided in writing to the Engineer two weeks in advance of any proposed break in control of access.

BUSINESS ENTRANCE CLOSURES

It is anticipated that there may be 3 intersecting streets, and 9 driveways that will require a blockout to maintain access. The business entrances designated by the Engineer will not be closed for more than 24 consecutive hours with no alternate entrance into the business. The Contractor may use Fast Track Concrete, paving during nonbusiness hours, or any option approved by the Engineer to achieve this requirement.

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown in the plans.

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

UNCLASSIFIED EXCAVATION (Exit 3 Crossover)

See Section B for total quantity and payment of Unclassified Excavation, Removed Asphalt Mix Material, Removed Granular Material, and Waste Material. See typical sections for locations of these materials.

The Removed Granular Material and Waste Material quantities of the Unclassified Excavation quantity will be as noted in the following table. These Unclassified Excavation quantities will not be measured for payment and the basis of payment will be plans quantity.

The Unclassified Excavation waste material will be used as directed by the Engineer. It may be used as Contractor Furnished Borrow for inslope flattening and widening. The Contractor will ensure no asphalt concrete material will be used for inslope flattening and widening.

TABLE OF UNCLASSIFIED EXCAVATION (Exit 3 Crossover)

Location	Alignment	Station	Granular Material Removal	Waste Material
			CuYd	CuYd
Widening (Outside)	I-229 NB	STA 124+34 to STA 140+59		496.5
Widening (Inside)	I-229 NB	STA 157+61 to STA 175+00	219.4	531.4
Diversion (West)	NB Diversion	STA 5140+59 to STA 5152+75	146.9	282.6
Diversion (East)	NB Diversion	STA 5153+50 to STA 5160+62		224.9
Ramp C	Ramp C	STA 30+00 to STA 36+25	328.8	136.5
Median Crossover	I-229 NB	STA 125+00 to STA 130+57		1980.4
		Total =	**695.1**	**3652.3**

REMOVE ASPHALT CONCRETE PAVEMENT

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete is unknown.

An estimated 1,955 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing roadways according to the in-place surfacing typical sections and wasted as directed by the Engineer. Care will be taken not to waste the in-place granular material.

The quantity of removed asphalt material is estimated from the in-place surfacing typical sections. This estimated quantity is not included in the unclassified excavation quantities.

PREPARATION FOR PARKING LOT & DRIVEWAY PAVEMENTS

The foundation will be excavated, shaped, and compacted to a firm, uniform bearing surface. Unsuitable foundation material will be removed and replaced as directed by the Engineer. The foundation will be thoroughly moistened immediately prior to placing the PCC Pavement. Moisture will be applied without forming pools of water.

Granular material will be placed to the depth specified and satisfactorily compacted.

Payment for any foundation preparation will be incidental to the contract unit price of the surfacing material.

RECYCLED CONCRETE AGGREGATE (RCA)

PCC pavement removed from within the project limits will be crushed to a minus 2.5-inch size to be used as Recycled Concrete Aggregate (RCA). All in-place rebar will be separated and removed from the RCA.

All costs to remove the existing PCC pavement will be incidental to the contract unit price per square yard for "Remove Concrete Pavement".

The Contractor will dispose of the material (including existing rebar) not utilized on the project at a site approved by the Engineer.

Payment for crushing the PCC pavement, and incorporating it into the Processed Subgrade Topping, will be incidental to the contract unit price per cubic yard for "Processed Subgrade Topping".

Exit 3 Crossover

All in-place rebar will be separated and removed from the RCA.

There is an estimated 1400 ton of PCC Pavement for the Exit 3 Crossover that can be crushed and reused. This quantity is based on a unit weight of 118 lbs. per cubic foot for the recycled concrete aggregate.

The Contractor will dispose of the material (including existing rebar) not utilized on the project at a site approved by the Engineer.

Payment for the recycled concrete aggregate will be at the contract unit price per unit per ton for the granular material that it is replacing.

SAW JOINT IN ASPHALT CONCRETE OR PCC PAVEMENT

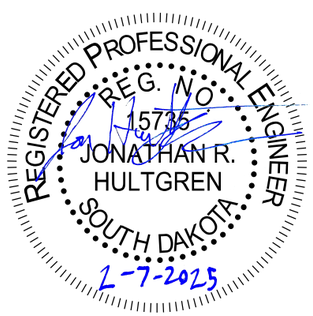
Prior to the removal of in place asphalt concrete and/or PCC Pavement, the existing pavement will be sawed full depth to a true line with a vertical face. See typical sections. If approved by the Engineer, the Contractor may elect to use a different method to create this vertical face. All costs to saw joint will be incidental to the contract unit price per foot for "Saw Joint in Asphalt Concrete" or "Saw Joint in PCC Pavement".

JOINT SAWING TABLE

Station		Station	Asphalt Concrete Joint (feet)	PCC Pavement Joint (feet)
I-229 Mainline				
178+00	to	178+00		104.0
245+04	to	245+04		104.0
Cliff Avenue				
105+41	to	105+41		50.0
127+35	to	127+35		55.0
127+51	to	127+57		36.0
127+98	to	128+21		50.0
41st Street				
21+13	to	21+13	45.0	
School Entrance				
42+77	to	43+04	130.0	
		Total	**175.0**	**399.0**

JOINT SAWING TABLE (Exit 3 Crossover)

Station		Station	PCC Pavement Joint (feet)
I-229 NB			
140+59-24' R	to	140+59-46' R	22.0
140+59-24' R	to	148+69-24' R	810.3
148+69-24' R	to	148+69-34' R	10.0
161+06	to	161+06-6' L	6.0
161+06	to	175+00	1,394.0
175+00	to	175+00-6' L	6.0
		Total	**2,248.3**



ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder. The Asphalt for Prime will be applied at the following locations:

Pam Road – Sta. 50+75.00 to Sta. 51+72.66
Lincoln High School Entrance – Sta. 40+21.77 to Sta. 42+76.58
Lincoln High School Parking Lot – entire surface

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

The asphalt binder used in the mixture shall be either a PG 64-34 or PG 58-34 Asphalt Binder. The asphalt binder content may be adjusted by the Engineer.

GRANULAR MATERIAL, FURNISH

Granular material will be furnished by the Contractor for use in this project.

The granular material will be Gravel Cushion and Base Course meeting the requirements of Section 882.

PIT RUN MATERIAL

Pit Run material will be obtained from a granular source conforming to Section 120 of the Specifications.

Minimum compaction testing requirements will be one test per crossover location.

WATER FOR GRANULAR MATERIAL

Water for granular material compaction is estimated at 12 gallons per ton and will be paid for at the contract unit price per thousand gallons for "Water for Granular Material".

EXISTING PCC PAVEMENT

The existing concrete pavement on the I229 mainline, is 10.5" continuously-reinforced P.C.C. Pavement with No. 4 Transverse Deformed Steel Bars spaced at 48" center to center and No. 6 Longitudinal Deformed Steel Bars spaced at 6" center to center.

The existing concrete pavement on Cliff Ave and the interstate ramps is 9" Plain Jointed PCC Pavement. The existing transverse joints are perpendicular and are spaced at 20 feet. The aggregate in the existing Plain Jointed PCC Pavement is quartzite.

TRANSVERSE CONTRACTION JOINTS

Unless specified otherwise in the PCC Pavement Joint Layout Sheets or elsewhere in the plans, the typical joint spacing will be as follows:

- 13" PCC Pavement (I-229) – 15'
- 10.5" PCC Pavement (I-229 Ramps & Cliff Avenue) – 15'
- 8.5" PCC Pavement (41st Street & Park Entrance) – 14'
- 8" PCC Driveway Pavement – 14'

Joint spacing in the PCC Shoulder Pavement will match adjacent mainline pavement.

See Standard Plate 380.04 for placement of Dowel Bars.

The transverse contraction joints will be perpendicular to the centerline. In multilane areas the transverse contraction joints will be perpendicular to the centerline and be in a straight line across the entire width of pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints will be removed at the Contractor's expense. Any method of placement that cannot produce these requirements will not be allowed.

TABLE OF PCC SHOULDER PAVEMENT

Station		Station	PCC Shoulder Pavement (SqYd)	Gravel Cushion (Tons)	Water (Mgal)
NB I-229					
178+00	to	191+23	2,109.4	1,107	13.3
191+23	to	196+24	557.8	293	3.5
196+24	to	206+05	2,175.2	1,142	13.7
210+73	to	219+45	1,950.5	1,024	12.3
219+45	to	221+75	255.3	134	1.6
221+75	to	245+04	4,186.1	2,198	26.4
SB I-229					
178+12	to	193+77	2,596.1	1,363	16.4
193+77	to	196+31	281.7	148	1.8
196+31	to	206+90	2,349.2	1,233	14.8
211+58	to	221+49	2,176.7	1,143	13.7
221+49	to	225+09	400.1	210	2.5
225+09	to	244+58	3,424.8	1,798	21.6
		Total	22,463.1	11,793	141.5

TABLE OF DOWEL BARS (CONTINUED)

Location	Dowel Bar (Size 1 ½") Each	Dowel Bar (Size 1 ¼") Each
Ramp A		
Sta. 10+00.0 to Sta. 11+96.4	338	---
Sta. 11+96.4 to Sta. 14+00.0	492	---
Sta. 14+00.0 to Sta. 15+19.7	202	---
Sta. 15+19.7 to Sta. 25+29.8	1,668	---
Ramp E		
Sta. 5+00.0 to Sta. 6+09.0	195	---
Ramp B		
Sta. 30+00.0 to Sta. 33+38.4	425	---
Sta. 33+38.4 to Sta. 44+21.6	1,785	---
Ramp F		
Sta. 15+00.0 to Sta. 17+73.2	358	---
Ramp C		
Sta. 51+97.4 to Sta. 61+11.5	1,481	---
Sta. 61+11.5 to Sta. 62+31.5	241	---
Sta. 62+31.5 to Sta. 64+40.1	720	---
Sta. 64+40.1 to Sta. 67+16.7	513	---
Ramp G		
Sta. 25+00.0 to Sta. 26+77.2	391	---
Ramp D		
Sta. 70+00.0 to Sta. 83+45.3	2,725	---
Sta. 83+45.3 to Sta. 85+96.2	396	---
Ramp H		
Sta. 35+00.0 to Sta. 37+74.8	355	---
41st Street		
Sta. 21+13.2 to Sta. 21+82.1	---	203
Sta. 21+82.1 to Sta. 22+97.9	---	238
Sta. 22+97.9 to Sta. 32+41.9	---	2,070
Sta. 32+41.9 to Sta. 33+31.9	---	231
Sta. 33+31.9 to Sta. 34+57.1	---	528
Sta. 34+57.1 to Sta. 37+31.0	---	1,365
Park Entrance		
Sta. 0+10.8 to Sta. 0+53.4	---	127
Subtotal	12,285	4,762
Total	86,644	4,762

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
1-7-2025

TABLE OF 13" NONREINFORCED PCC PAVEMENT

Station		Station	13" Nonreinforced PCC Pavement (SqYd)	*Gravel Cushion (Tons)	Water (MGal)
NB I-229					
178+00	to	191+23	7,054.1	1,852	22.2
191+23	to	196+24	2,267.6	595	7.1
196+24	to	206+05	3,923.4	1,030	12.4
210+73	to	219+45	3,519.0	924	11.1
219+45	to	221+75	1,051.8	276	3.3
221+75	to	245+04	11,047.5	2,900	34.8
SB I-229					
178+12	to	193+77	8,351.9	2,192	26.3
193+77	to	196+31	1,145.4	301	3.6
196+31	to	206+90	4,236.6	1,112	13.3
211+58	to	221+49	3,926.0	1,031	12.4
221+49	to	225+09	1,605.7	421	5.1
225+09	to	244+58	9,008.3	2,365	28.4
		Total	57,137.3	14,999	180.0

* Includes gravel cushion under adjacent curb and gutter

TABLE OF 8.5" NONREINFORCED PCC PAVEMENT

Station		Station	8.5" Nonreinforced PCC Pavement (SqYd)	*Gravel Cushion (Tons)	Water (MGal)
41st Street					
21+13.2	to	32+41.9	3,889.9	1,394	16.7
32+41.9	to	37+36.8	2,974.4	949	11.4
Park Entrance					
0+10.7	to	0+68.4	216.6	78	0.9
		Total	7,080.9	2,421	29.1

* Includes gravel cushion under adjacent curb and gutter

TABLE OF 8" DRIVEWAY PCC PAVEMENT

Station		Station	8" Driveway PCC Pavement (SqYd)	*Gravel Cushion (Tons)	Water (MGal)
Driveways – 9 Each			507.2	165	2.0
		Total	507.2	165	2.0
20% Fast Track Concrete			101.4		
80% Non-Fast Track Concrete			405.8		

* Includes gravel cushion under adjacent curb and gutter

TABLE OF 10.5" NONREINFORCED PCC PAVEMENT

Station		Station	10.5" Nonreinforced PCC Pavement (SqYd)	*Gravel Cushion (Tons)	Water (MGal)
Ramp A					
10+00.0	to	12+71.9	733.1	264	3.2
12+71.9	to	13+99.7	517.4	179	2.1
13+99.7	to	15+19.7	384.4	152	1.8
15+19.7	to	25+43.7	2,707.6	1,208	14.5
Ramp E					
5+00.0	to	6+54.5	335.4	124	1.5
Ramp B					
30+00.0	to	32+30.4	387.0	169	2.0
32+30.4	to	33+38.4	354.9	144	1.7
33+38.4	to	44+21.6	2,939.4	1,359	16.3
Ramp F					
15+00.0	to	16+38.6	298.8	114	1.4
16+38.6	to	17+73.2	368.1	154	1.8
Ramp C					
50+00.0	to	61+11.5	2,811.5	1,239	14.9
61+11.5	to	62+31.5	462.1	171	2.1
62+31.5	to	64+40.1	1,112.9	361	4.3
64+40.1	to	67+16.7	791.1	291	3.5
Ramp G					
25+00.0	to	26+77.1	675.0	226	2.7
Ramp D					
70+00.0	to	82+51.1	4,072.7	1,753	21.0
82+51.1	to	83+52.5	438.2	167	2.0
83+52.5	to	85+96.2	705.0	254	3.1
Ramp H					
35+00.0	to	36+21.8	275.8	111	1.3
36+21.8	to	37+74.8	314.8	123	1.5
Cliff Avenue					
105+40.8	to	109+34.6	2,445.8	774	9.3
109+34.6	to	114+42.7	2,485.5	821	9.9
109+34.6	to	114+36.4	1,305.9	517	6.2
114+36.4	to	116+24.3	1,584.2	459	5.5
116+24.3	to	121+87.2	2,569.6	863	10.4
116+24.3	to	121+91.2	2,189.8	761	9.1
121+91.2	to	123+18.3	1,263.3	354	4.3
123+18.3	to	124+98.3	1,432.7	435	5.2
124+98.3	to	126+01.9	734.3	227	2.7
126+01.9	to	127+35.4	813.7	258	3.1
		Total	37,510.1	14,033	168.4

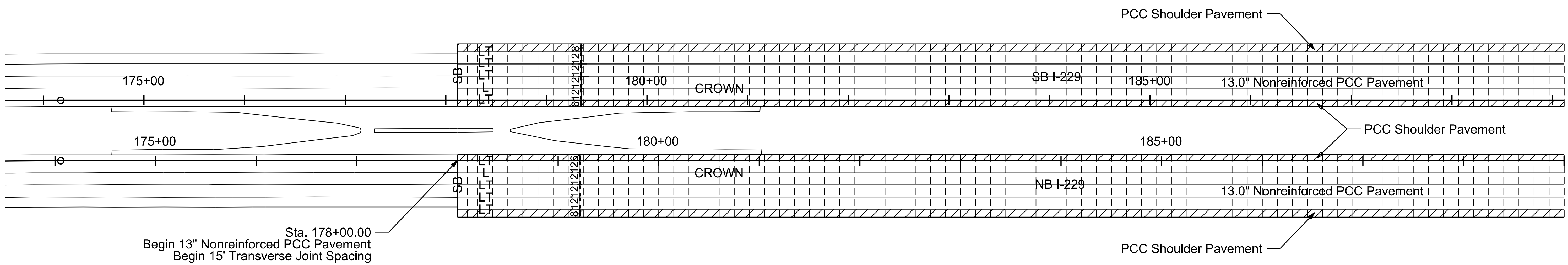
* Includes gravel cushion under adjacent curb and gutter

PCC PAVEMENT JOINT LAYOUT

I-229

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	F22	F64

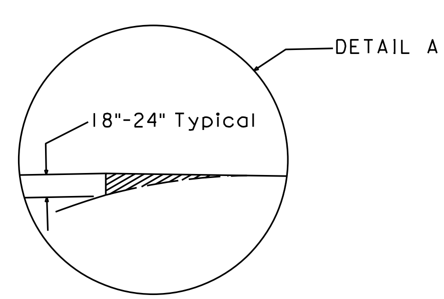
Plotting Date: 2/7/2025 Revised Date: 2/7/2025 Initials: NBG

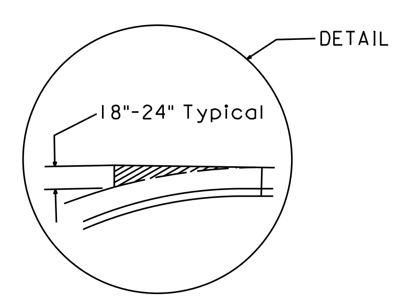


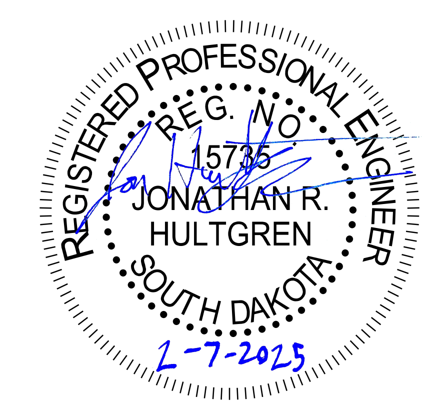
LEGEND:

Longitudinal Joint Without Tie Bars (Construction or Sawed) ——L——L——
Longitudinal Joint With Tie Bars (Construction or Sawed) ——LT——LT——
Transverse Contraction Joint – – – – – – – –
Steel Bar Installation in Longitudinal or Transverse Joint ——SB——SB——
Areas to be poured monolithically with adjacent slab ⊕ (See Detail A)
Areas to be poured monolithically with adjacent curb and gutter ⊕ (See Detail B)

Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.







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Plotted From - ngjersvik
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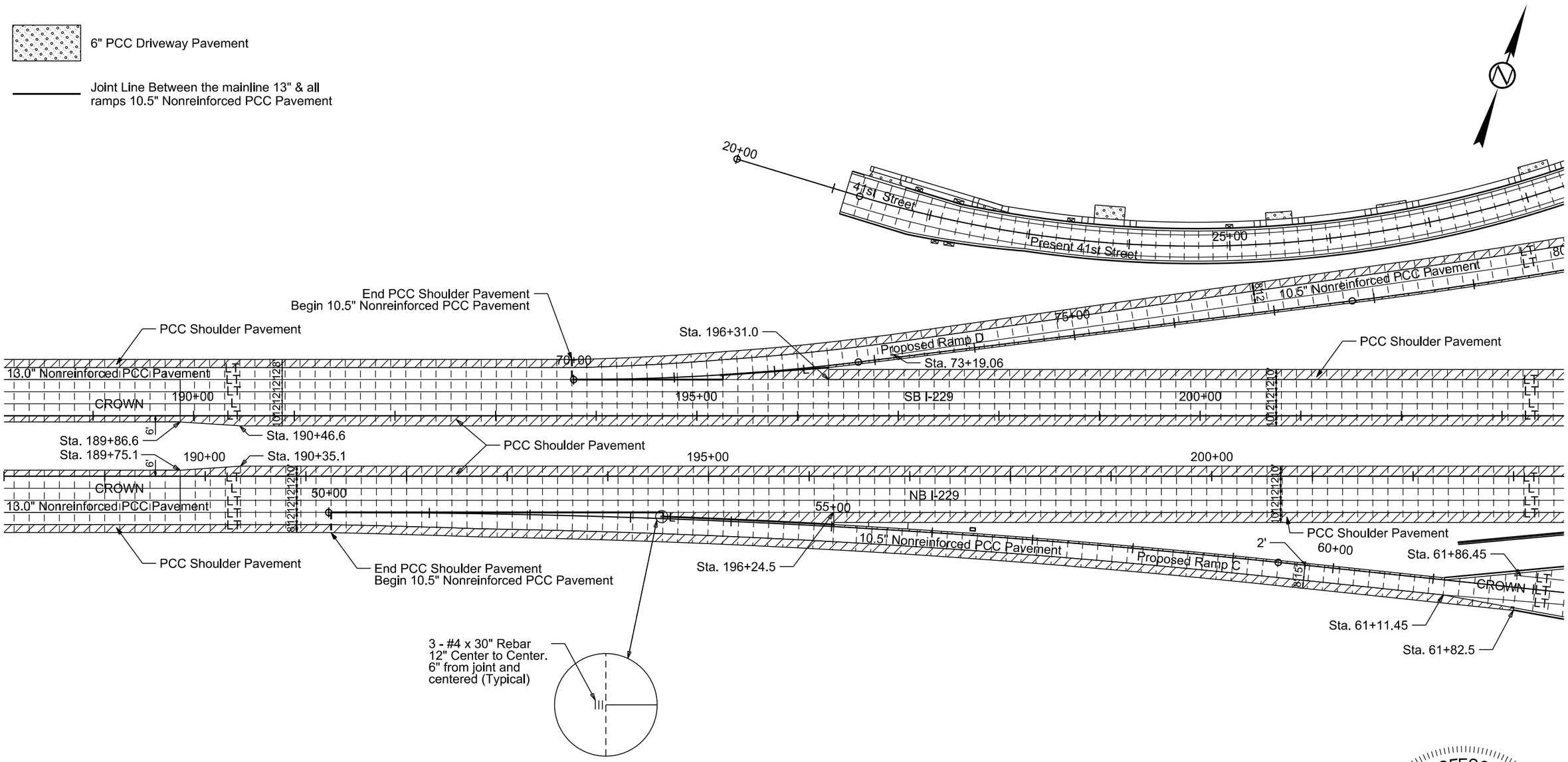
PCC PAVEMENT JOINT LAYOUT
I-229 & RAMPS C/D

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	F23	F64

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

6" PCC Driveway Pavement

Joint Line Between the mainline 13" & all ramps 10.5" Nonreinforced PCC Pavement



3 - #4 x 30" Rebar
12" Center to Center.
6" from joint and
centered (Typical)

Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-7-2025

Plot Scale - 1:100
Plotted From - ngjersvik
File - ...\05HN_PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

I-229 & RAMPS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	F24	F64

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

Plot Scale - 1:100

Median / Island Landscaping
(See Section H for Details)

3 - #4 x 30" Rebar
12" Center to Center.
6" from joint and
centered (Typical)

Sta. 83+05.73
Sta. 36+21.79
Sta. 35+20.72
Sta. 85+77.52
Sta. 206+75.13
SB Sta. 206+92.88
Install Membrane Sealant
Expansion Joint
Sta. 205+90.35
Sta. 61+86.45
Sta. 62+31.45
Sta. 64+30.73
NB Sta. 206+08.10
Install Membrane Sealant
Expansion Joint
Sta. 15+41.46
Sta. 15+09.52
Sta. 16+38.64
Sta. 32+85.93
Sta. 31+95.93
Sta. 30+19.81
Sta. 10+42.09
Sta. 210+88.11
NB Sta. 210+70.36
Install Membrane Sealant
Expansion Joint
SB Sta. 211+55.89
Install Membrane Sealant
Expansion Joint
Sta. 211+73.85
Sta. 13+99.72
Sta. 14+39.64

Proposed Ramp D
Proposed Ramp H
Proposed Ramp C
Proposed Ramp G
Proposed Ramp A
Proposed Ramp E
Proposed Ramp F
Proposed Ramp B
Proposed Trail
Wall "A"
Wall "B"
Wall "C"
Wall "D"
Proposed SB Cliff Avenue
Proposed NB Cliff Avenue

10.5" PCC PAVEMENT
13.0" Nonreinforced PCC Pavement
10.5" Nonreinforced PCC Pavement
PCC Shoulder Pavement
CROWN
SB I-229
NB I-229

Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
1-7-2025

Plotted From - ngjersvik

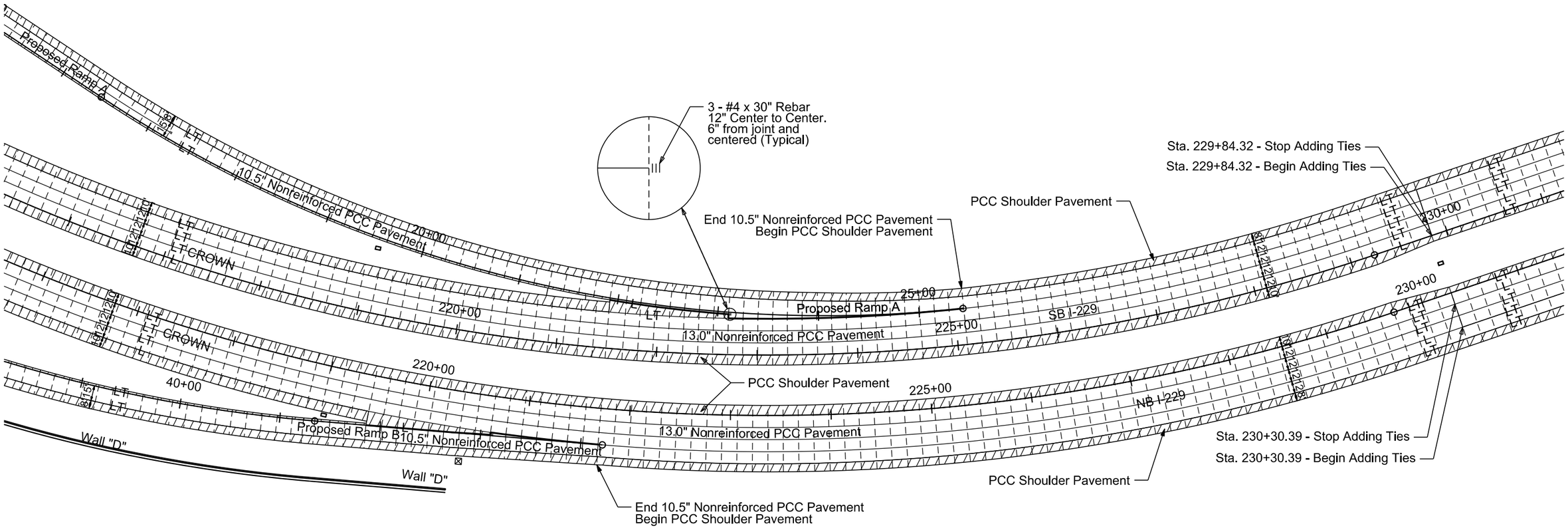
File - ...\05HN_PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT
I-229 & RAMPS A/B

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	F25	F64

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

Joint Line Between the mainline 13" & all ramps 10.5" Nonreinforced PCC Pavement



Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.

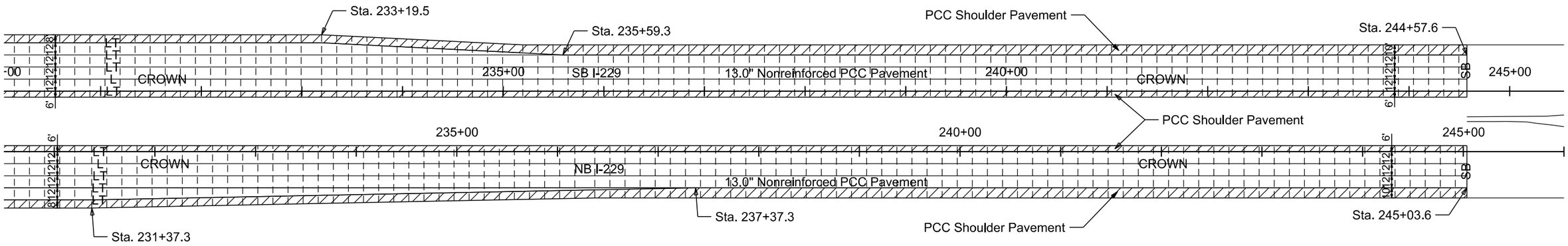
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-7-2025

Plot Scale - 1:100
Plotted From - ngjersvik
File - ...\05HN_PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT
I-229

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	F26	F64

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
1-7-2025

Plot Scale - 1:100
Plotted From - rgjersvik
File - ...\05HN_PCC Layouts.dgn

SECTION H ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6300	Water for Vegetation	22.0	MGal
230E0020	Contractor Furnished Topsoil	2,178	CuYd
380E0200	Colored Nonreinforced PCC Pavement	1,614.0	SqYd
380E2566	6" Barrier Type Colored Median PCC Pavement	1,756.0	SqYd
530E0490	Boulder Retaining Wall	587	SqFt
680E0206	6" Perforated PVC Drain Pipe with Sleeve	576	Ft
680E0226	6" PVC Outlet Pipe	263	Ft
680E2500	Porous Backfill	121.0	Ton
731E0100	Fertilizing	600	Lb
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	1,076.0	SqYd
735E1000	Shrub, Furnish and Plant	257	Each
735E1360	6' Coniferous Evergreen, Furnish and Plant	21	Each
735E2220	2" Caliper Deciduous Tree, Furnish and Plant	48	Each
735E2225	2.5" Caliper Deciduous Tree, Furnish and Plant	94	Each
735E5010	1 Gallon Ornamental Grass, Furnish and Plant	741	Each
831E0100	Type A Drainage Fabric	1,076	SqYd
900E5150	Landscape Edging	240	Ft
900E5151	Ornamental Landscaping Boulders	33	Each
900E5152	Weed Barrier Fabric	1,088	SqYd
900E5157	4" Depth Shredded Bark Mulch	1,830.0	SqYd
900E5163	Ornamental Landscape Feature	4	Each
900E5430	Irrigation System	Lump Sum	LS

GENERAL NOTES

The Contractor must notify the 811 One Call center to request the location of all utilities within the construction area prior to any construction. Contractor is responsible for locating all private utilities not covered by 811 one call. Notify the Engineer of any discrepancies.

Contractor is responsible for protection of all existing conditions, improvements, vegetation and utilities to remain. Any damage must be repaired by the Contractor to the satisfaction of the Owner at no additional cost to the project.

The Contractor will construct all items within this contract in accordance with all state and local codes, regulations and engineering standards. Contractor to coordinate all work within the public right of way or streets with the appropriate jurisdictions.

All work will be in accordance with OSHA codes and standards. Nothing indicated on these drawings will relieve the Contractor from complying with any appropriate safety regulations.

LANDSCAPE ARCHITECT

Contact Confluence with a minimum of 48 hours advance notice where notes indicate field verification or approval by Landscape Architect. 605-339-1205

CITY OF SIOUX FALLS PARKS & RECREATION

Landscape Architect and City of Sioux Falls Parks and Recreation will be contacted with a minimum of 48 hours advance notice for the following progress inspections prior to continuing with Work.

1. Topsoil and preliminary grading inspection prior to planting.
2. Water meter and backflow inspection.
3. Final tree planting, grading and irrigation inspection prior to sodding.

City of Sioux Falls Parks & Recreation Contacts:
Tim Hall - 605-201-4801 or Josh Johnson – 605-261-2775

CONTRACTOR FURNISHED TOPSOIL - LANDSCAPED MEDIANS

Contractor furnished topsoil will be free from clay lumps, stones, coarse gravel, or similar objects larger than 1/2 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, litter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

PLANTING SOIL	
Sieve Designation	Percent Passing
1/4"	100%
#10	82-100%
#30	60-100%
#80	36-68%
#200	18-44%
#400	10-30%
Organic Matter Content	5-8%
pH	6.0-7.0
Phosphorus	40-80 ppm
Potassium	80-160 ppm
Magnesium	40-80 ppm
Estimated proportions for soil mix are as follows, as measured by weight. This may vary depending on soil and sand source provided by the Contractor and will be confirmed through soil testing.	
30% Topsoil	
50% Sand	
20% Compost	

Planting soil will be placed in planting beds to the depth indicated on drawings and details. The basis of payment for the blended planting soil mix will be per cubic yard for 'Contractor Furnished Topsoil'.

Planting Soil will be manufactured by blending imported topsoil, compost and sand.

Imported Topsoil: Soil provided will be free of stones 1 inch or larger in any dimension, roots and other extraneous or undesirable material harmful to plant growth.

Topsoil will be lightly screened through a 2-inch square, or larger, opening to break up large peds (clumps/clods) and remove coarse roots and stones. Total combined volume of soil clods, stones, roots may not exceed 5% of the total topsoil volume.

The Contractor will submit to the Engineer the prospective source for the topsoil and sand at least 1 month prior to time of placement to allow adequate time for inspecting, testing, and approving the source.

Compost: Screened leaf/grass clipping compost from the Sioux Falls Regional Landfill will be made available to the Contractor at no charge for use on this project. The Contractor is responsible for transportation of the material. All costs are to be incidental to the appropriate bid items.

Contact: Ryan Bechtold (605) 367-8166.

Coarse Sand: SD DOT Section 800 Fine Aggregate.

IMPORTED TOPSOIL		
	Minimum	Maximum
Clay	15%	25%
Combined Silt & Clay Content	-	55%
Sand	10%	60%
Organic Matter (as determined by dry weight)	2%	6%
pH (ASTM 5268)	6.0	7.5
Soluble Salt Level		2 mmho/cm
Texture will be determined by USDA gradation nomenclature system.		

The Contractor will mix planting soils off site. Mix sand and compost together first then add to the topsoil. Mix with a loader to loosely incorporate the topsoil into the sand/compost mix prior to final blending with a blending machine. The mixed planting soil will be tested to verify compliance with specifications prior to installation.

WEED BARRIER FABRIC/LANDSCAPE FABRIC

Weed barrier fabric will be placed at the areas specified in the plans. Weed barrier fabric will be anchored to the ground with 6" U shaped staples. The staples will be placed at a 4' spacing along all edges, overlaps, and throughout the area of weed barrier fabric. The weed barrier fabric will be overlapped 4" between rolls.

Weed barrier fabric will be measured to the nearest square yard. Measurement of the overlaps will not be made.

All costs for furnishing, handling, and placing the weed barrier fabric including the materials, equipment, labor, and incidentals necessary will be incidental to the contract unit price per square yard for "Weed Barrier Fabric".

The weed barrier fabric will be provided from the list below or an approved alternate:

Weed Barrier Fabric/Landscape Fabric

Product	Manufacturer
SRW Pro Plus V	SRW Products 1-800-752-9326 | www.srwproducts.com
Pro 5	DeWitt Company Inc. 1-800-888-9669 | www.dewittcompany.com

MACHINE INSTALLED WEED BARRIER FABRIC

Installation is done by a weed barrier machine that is attached and pulled by a tractor with a 3-point hitch.

Fabric installation begins by placing a roll on the machine spool (figure 1). Weed barrier fabric is designed to unroll from the bottom instead of the top of the roll (shiny side up).

Before lowering the packing wheels, unroll enough fabric in a straight line to clear the rear shovels.

Carefully lower the packing wheels onto the fabric. Do not crawl under the machine. Cover the end of the fabric with 6 to 10 inches of soil. Initially someone may need to stand on the edge of the fabric to keep it from moving.

Adjust the machine so the rear shovels are 4 to 6 inches into the soil.

During installation it is important to make sure soil adequately covers the fabric edges. If the fabric is installed on slopes, water diversion bars should be formed out of soil at an angle which directs water away from the fabric.

A four-person crew is ideal for weed barrier installation. The crew includes: a tractor operator, someone riding the weed barrier machine marking planting locations with a beginning cut or paint, a person completing an X cut at areas where shrubs will be planted, and a person to shovel soil or place wire staples between the X cuts to hold the fabric down.

Tractor tires may also be run along fabric edges after installation to pack soil and further ensure that fabric will be held in place.

All costs for furnishing, handling, and placing the weed barrier fabric including the materials, equipment, labor, and incidentals necessary will be incidental to the contract unit price per square yard for "Weed Barrier Fabric".

MACHINE INSTALLED WEED BARRIER FABRIC - CONTINUED

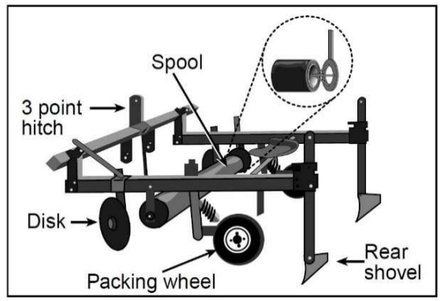


Figure 1: A Weed Barrier Machine

UNDERDRAIN PIPE

The underdrain pipe installation will be per SDDOT Standard specifications Section 680 and as shown on the section H layout plans. The underdrain pipe will be perforated PVC drain pipe that meets the requirements as set forth in SDDOT Standard Specifications Section 680. The underdrain pipe will have a sock wrap material installed around the pipe.

The porous backfill for the underdrain pipe trench will be washed natural rock meeting the gradation requirements of type “Size 1A” as specified in Section 820 – Course Aggregate for use in Portland Cement Concrete of the SDDOT Standard Specifications for Roads and Bridges, Current Edition.

All costs for furnishing, handling, and placing the porous backfill including the materials, equipment, labor, and incidentals necessary will be incidental to the contract unit price per ton for “Porous Backfill”.

The drainage fabric wrap around the underdrain pipe trench will be Type B Drainage Fabric material that meets the requirements set forth in SDDOT Standard Specifications Section 831.

The underdrain pipe will empty into the storm sewer inlets along the roadway the underdrain pipe is serving. The underdrain pipe will be cast into the storm sewer inlets with an elevation approved by the Engineer. Within the inlet, the ends of the underdrain pipe will have rodent guards installed over the pipe end, at the interface of the underdrain pipe and storm sewer inlet wall. The rodent guard will cover the entire opening in the drop inlet.

All costs for the underdrain pipe will be included in the contract unit price per linear foot for “6" Perforated PVC Drain Pipe with Sleeve” and “6" PVC Outlet Pipe”. This will include, but not be limited to, the following items:

- 6” underdrain pipe
- Sock wrap
- Drainage fabric wrap around porous backfill
- Trenching and backfilling
- Connecting to storm sewer inlets
- Rodent guards installed within storm inlets
- All other appurtenances, equipment, materials and labor to furnish and install the underdrain pipe

IRRIGATION SYSTEM

An irrigation system will be installed where indicated to irrigate landscape medians. All costs, labor and materials to furnish and install a fully functional irrigation system will be paid for at the contract lump sum price for ‘Irrigation System’. This bid item will include, but not be limited to, all costs, labor and materials to furnish and install all excavation, backfill, backflow meter and enclosure, piping, fittings, controls, irrigation equipment, and testing.

System Design: Existing water pressure is estimated at 95 PSI, information provided by City of Sioux Falls GIS website Fire hydrant flow test on 07/19/2024. Contractor to verify and notify the Engineer of any discrepancies prior to beginning work.

All work called for on the Drawings by schedules, notes or details shall be furnished and installed whether or not specifically listed in the irrigation schedule. Quantities are given for information only; verify quantities.

Do not willfully install irrigation when it is obvious in the field that unknown obstructions, grade differences, or discrepancies in area dimensions exist that might not have been considered in design. Such obstructions or differences shall immediately be brought to the attention of the Engineer. In the event this notification is not performed, the Contractor assumes full responsibility for all necessary revision.

All disturbed areas will be restored to finished grade and prepared for landscape. Hand grading and raking should be expected within the medians. All final grading will be approved by the Engineer prior to proceeding with landscape or irrigation.

WATER SOURCE

The water service line location has been determined by the Engineer and is shown on the utility plans. The utility Contractor will coordinate the tap and provide the irrigation water service to finished grade. The irrigation Contractor will furnish all above grade piping, fittings, valves, water meters, backflow preventers and all other appurtenances necessary to provide a functional irrigation water source.

WATER METERS

The City of Sioux Falls has assigned the following addresses to water meter locations:

Meter #	Station	Address	Meter Size	Backflow Size
1	114+01 87’R	3298 S Cliff Avenue	1”	1”
2	117+61 56’R	3398 S Cliff Avenue	1”	1”

The water meters will be purchased by the Contractor from the City of Sioux Falls and will be equipped by the city with the MTU system (wireless read-out system). The water meter with the MTU system will be installed by the city within the backflow and meter enclosure. Contact Steve Menholt (605-367-8814) of the City of Sioux Falls to schedule this installation. The city of Sioux Falls will verify the water meter size for the design flow. The ‘Irrigation System’ bid item will include all costs to purchase the water meter from the City of Sioux Falls, provide and install necessary fittings, and coordinate installation.

BACKFLOW PREVENTION

Backflow prevention is required as defined by the City of Sioux Falls Cross Connection Control Program. A backflow prevention assembly will be installed per standard plate 900.19. The backflow prevention assembly must be tested by an ABPA certified backflow assembly tester approved by the City of Sioux Falls prior to being put into service.

ENCLOSURE

The backflow preventer, meter and miscellaneous plumbing will be installed within a lockable top and side accessible aluminum enclosure with a fold down front panel that is easily removed to allow for unobstructed access for equipment testing and maintenance. Size the enclosure to allow 6-inch minimum clearance around all equipment when closed. Install and anchor to a concrete pad 6-inches larger than the combined enclosure and controller pedestal footprint in all directions. Enclosures shall be installed uniformly throughout the project, all facing the same direction.

PRODUCTS

Use only new materials of brands and types noted on Drawings and specified herein, or approved equals. No substitutions will be allowed without prior written approval from the Engineer. Equipment or materials installed or furnished without prior approval will be rejected and removed at the Contractor's expense.

Drip Irrigation Specialties:

- Flush Cap: manufacturer's standard barbed fitting with manually removable threaded cap located at the end of each run to assist with drip zone winterization.
- Operation Indicator: 6-inch pop up indicator with 1/2-inch bottom inlet activated when system pressure exceeds 12 PSI.
- Air Relief Valve: constructed of UV-protected and corrosion-resistant material with an operating range up to 80 PSI.

INSTALLATION

All irrigation equipment and piping to be installed per manufacturer’s written recommendations as well as all federal, state, and local laws and ordinances that may apply. Any deviation from these requirements must be documented in writing prior to changes in the work.

Excavation shall be sufficient depth and width to permit proper pipe and equipment installation at the elevations intended with ample space for joining. All lines shall have a minimum clearance of 6-inches from each other and from other utilities. Parallel lines shall not be installed directly adjacent or over one another.

Trenches for pipe lines shall provide minimum cover from finished grade as follows:

- Cover Over Installed Mainline Piping: 18-inches.
- Cover Over Installed Lateral Piping: 12-inches.
- Cover Over Installed Sleeve Piping: 18-inches.
- Maximum Cover Over Installed Piping: 24-inches.

Backfill only after piping has been tested, reviewed, and accepted. Excavated soil may be used as backfill. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, trash, and other extraneous matter. In rocky soil provide sand backfill material around and under the piping and risers by hand to a height of 6" above all piping. Backfill shall be compacted to 95% minimum density by mechanical tamping. Trench must be free of water during backfilling operation.

Pipe joints will not be located under roads or pavement. Sleeves will be a minimum diameter of 2-inch or 2 sizes larger than pipe, whichever is larger. A second, parallel, sleeve will be installed as a spare with both ends capped.

14-AWG copper wire, U.L. approved for direct burial and compatible with control system specified. Decoders will be compatible with control system and provided in single-station configurations. All connections will be made with 3M DBR/Y-6 watertight wire connectors. Install control wire/cable in same trench as irrigation piping wherever possible. Place wire/cable in trench adjacent to, or below, mainlines but not above. Install with slack to allow for thermal expansion and contraction. Install expansion coils at zone valves long enough so valve bonnet may be removed for maintenance.

Boxes for control valves and irrigation specialties will be PE or ABS and 15”x21”x12” deep for control valves and 10” diameter for quick couplers and isolation valves. Valve box lids will be PE or ABS and lettered with the text ‘IRRIGATION’. The bottom of the box will be supported by a concrete paver foundation and a minimum of 6” deep layer of clean 3/8” crushed rock or pea gravel drainage material. **Concrete pavers and drainage material must be installed prior to setting the valve box.**

Set valves and valve boxes to align with adjacent site features (curbs, mow edges, etc.). Where multiple valve boxes occur in a group, align valve and valve boxes to be parallel to the adjacent valves in the group. Adjust valve boxes to finished grade. Do not locate valve boxes within 5-feet of light poles, trees, traffic signs, mow edges, etc. **Install unions and isolation ball valves adjacent to each valve for serviceability.**

TESTING

Before testing, all piping is to be thoroughly flushed. Prior to acceptance of work, all pressure piping and fittings will be subjected to a hydrostatic pressure test of 150 psi. This test will include all mainline and lateral piping for a minimum of one hour. Leaks and/or imperfections developing under said pressure will be remedied by the Contractor before final acceptance of the work.

Pressure will be maintained while the entire installation is inspected. The Contractor will provide all work connected with the tests. Including temporary above ground piping to connect a riser from each lateral so that the entire system can be tested simultaneously.

The completed system will be adjusted and balanced to result in uniform distribution of water throughout the irrigated area. After system is 100% installed, perform a coverage test to determine whether water coverage and operation of the system is adequate for planting, without areas of excessive flooding or dry spots, . If the irrigation system is determined by City to be inadequate due to Contractor’s workmanship or materials, it will be replaced or repaired at Contractor’s expense and both pressure and coverage tests repeated until accepted.

RECORD DOCUMENTS

The Contractor is responsible for documenting changes to the design. Record work that is installed differently than shown on the construction shop drawings. Record pipe and wiring network alterations and location changes to equipment. Keep documents current. Do not permanently cover work until as-built information is recorded. Turn over the “Record Drawings” to the Engineer. Completion of the Record Drawings will be a prerequisite for irrigation system substantial completion and final payment.

WARRANTY

For a period of one year from project completion the Contractor will guarantee irrigation materials, equipment, and workmanship against defects. Fill and repair depressions, restore landscape or structural features damaged by the settlement of irrigation trenches or excavation. Repair damage to the premises caused by a defective item or poor workmanship. Make repairs within 7 days of notification from the owner’s representative.

Irrigation Contractor will review winterization procedures for irrigation system with the City’s representative. Winterization and spring start up services during the first full year of operation are considered part of this contract.

Irrigation Plan

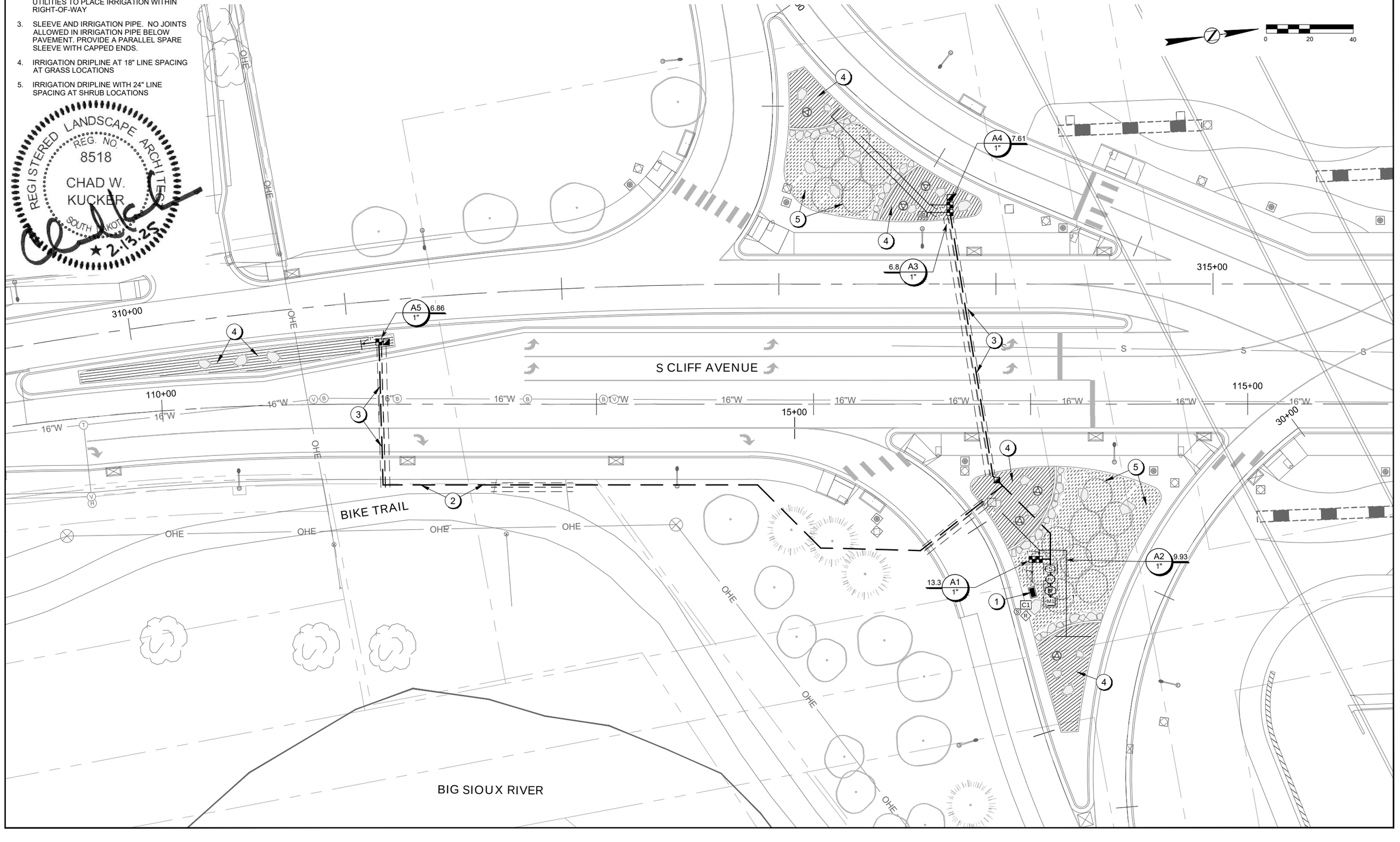
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	H21	H25

REV DATE: 02/13/2025
INITIAL: CWK

KEYNOTES

1. IRRIGATION METER, BACKFLOW AND ENCLOSURE
2. COORDINATE WITH ENGINEER AND UTILITIES TO PLACE IRRIGATION WITHIN RIGHT-OF-WAY
3. SLEEVE AND IRRIGATION PIPE. NO JOINTS ALLOWED IN IRRIGATION PIPE BELOW PAVEMENT. PROVIDE A PARALLEL SPARE SLEEVE WITH CAPPED ENDS.
4. IRRIGATION DRIPLINE AT 18" LINE SPACING AT GRASS LOCATIONS
5. IRRIGATION DRIPLINE WITH 24" LINE SPACING AT SHRUB LOCATIONS

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 8518
CHAD W. KUCKER
SOUTH DAKOTA
2.13.25



Irrigation Plan

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	H22	H25

REV DATE: 02/13/2025
INITIAL: CWK

KEYNOTES

1. IRRIGATION METER, BACKFLOW AND ENCLOSURE
2. COORDINATE WITH ENGINEER AND UTILITIES TO PLACE IRRIGATION WITHIN RIGHT-OF-WAY
3. SLEEVE AND IRRIGATION PIPE. NO JOINTS ALLOWED IN IRRIGATION PIPE BELOW PAVEMENT. PROVIDE A PARALLEL SPARE SLEEVE WITH CAPPED ENDS.
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0 20 40

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 8518
CHAD W. KUCKER
SOUTH DAKOTA
2.13.25

S CLIFF AVENUE

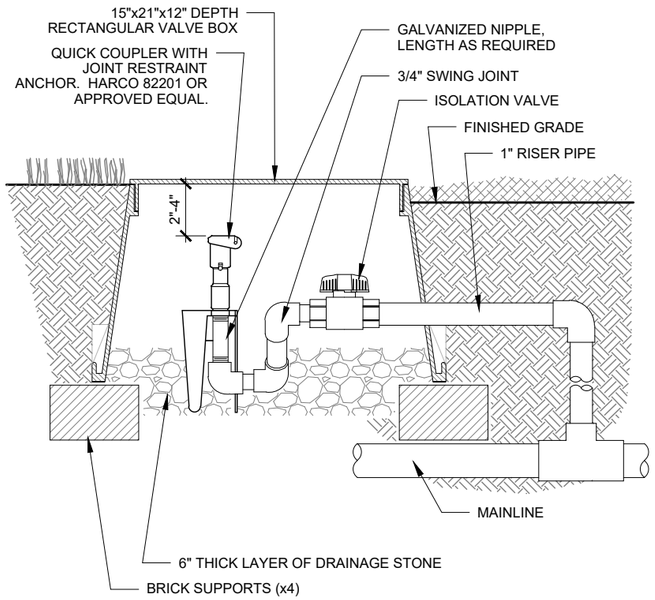
85+00
10+00
5+00
320+00
120+00

10.8 B3 1"
B4 1" 8.51
B5 1" 6.29
3.67 B2 1"
2.7 B1 1"

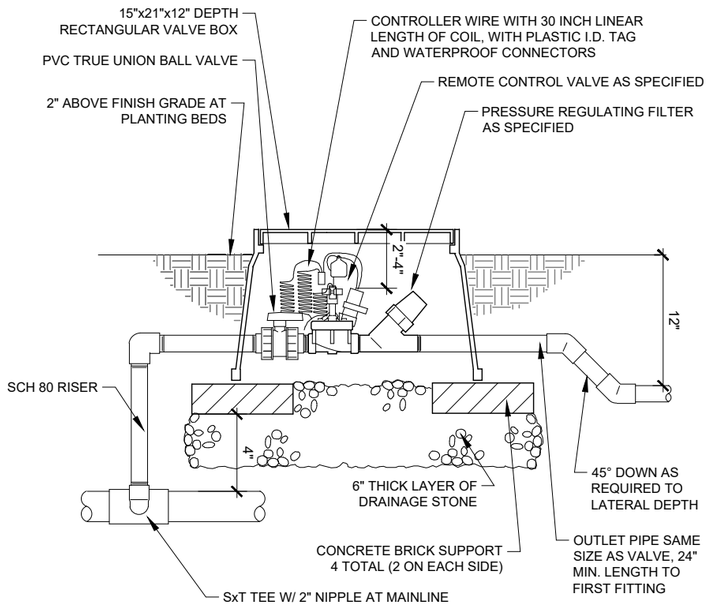
Irrigation Schedule

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	H24	H25

REV DATE: 02/13/2025
INITIAL: CWK



2 H24 **QUICK COUPLING VALVE** NOT TO SCALE

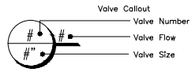


1 H24 **DRIP VALVE** NOT TO SCALE

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter ICZ-101-25 1" Drip Control Zone Kit. 1in. ICV Globe Valve with 1in. HY100 filter system. Pressure Regulation: 25psi. Flow Range: 2 GPM to 20 GPM. 150 mesh stainless steel screen.	10
	Area to Receive Dripline Hunter HDL-06-12-CV (18) HDL-06-12-CV: Hunter Dripline w/ 0.6 GPH emitters at 12" O.C. Check valve, dark brown tubing with gray striping. Dripline laterals spaced at 18" apart, with emitters offset for triangular pattern. Install with Hunter PLD barbed or PLD-LOC fittings.	4,109 lf
	Area to Receive Dripline Hunter HDL-06-12-CV (24) HDL-06-12-CV: Hunter Dripline w/ 0.6 GPH emitters at 12" O.C. Check valve, dark brown tubing with gray striping. Dripline laterals spaced at 24" apart, with emitters offset for triangular pattern. Install with Hunter PLD barbed or PLD-LOC fittings.	3,536 lf

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter HQ-44RC-AW 1" Quick coupler valve, yellow rubber cover, red brass and stainless steel, with 1" NPT inlet, 2-piece body. Acme key with Anti-Rotation wings.	6
MV	Hunter ICV-G 1" Electric Master Valve, Globe Configuration.	1
MV	Hunter ICV-G 1" Electric Master Valve, Globe Configuration.	1
BF	Zurn 375XL 1" Reduced Pressure Principle Assembly.	1
BF2	Zurn 375XL 1" Reduced Pressure Principle Assembly.	1
C1	Hunter ICC2-M-PED EZ-DM Outdoor Controller with EZ-DM decoder output module. Plug-in module converts ICC2 controller to 2-wire decoder system. Gray metal box and pedestal.	1
C2	Hunter ICC2-M-PED EZ-DM Outdoor Controller with EZ-DM decoder output module. Plug-in module converts ICC2 controller to 2-wire decoder system. Gray metal box and pedestal.	1
D	Hunter EZ-1 Single Station EZ Decoder for use with EZDM Decoder Module Only. To be installed on Universal Decoder Stake Kit (DECSTAKE10).	10
R	Hunter ROAMXL-R Receiver Only. Roam Remote allows for controller operation up to 2 miles. Remote transmitter is not required.	2
S	Hunter WR-CLIK Rain Sensor, install within 1000 ft of controller, in line of sight. 22-28 VAC/VDC 100 mA power from timer transformer. Mount to light pole.	2
FS1	Hunter HFS-100 Flow Sensor for use with ACC controller, 1" Schedule 40 Sensor Body, 24 VAC, 2 amp.	1
FS2	Hunter HFS-100 Flow Sensor for use with ACC controller, 1" Schedule 40 Sensor Body, 24 VAC, 2 amp.	1
M1	Water Meter 1"	1
M2	Water Meter 1"	1
	Irrigation Lateral Line: HDPE PE4710 DR 15 1"	441.2 lf
	Irrigation Mainline: HDPE PE4710 DR 15 1"	785.8 lf
	Pipe Sleeve: PVC Schedule 40 Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction.	733.9 lf



CRITICAL ANALYSIS

Generated:	2024-08-14 15:38
P.O.C. NUMBER: 01	
Water Source Information:	
FLOW AVAILABLE	
Water Meter Size:	1"
Flow Available	18.2 GPM
PRESSURE AVAILABLE	
Static Pressure at POC:	90 PSI
Elevation Change:	5.00 ft
Service Line Size:	1"
Length of Service Line:	20 ft
Pressure Available:	86 PSI
DESIGN ANALYSIS	
Maximum Station Flow:	13.27 GPM
Flow Available at POC:	18.2 GPM
Residual Flow Available:	4.93 GPM
Design Pressure:	30 PSI
Friction Loss:	0.11 PSI
Fittings Loss:	0.01 PSI
Elevation Loss:	0 PSI
Loss through Valve:	6.12 PSI
Pressure Req. at Critical Station:	36.2 PSI
Loss for Fittings:	0.52 PSI
Loss for Main Line:	5.2 PSI
Loss for POC to Valve Elevation:	0 PSI
Loss for Backflow:	14 PSI
Loss for Master Valve:	2.69 PSI
Loss for Water Meter:	0.39 PSI
Critical Station Pressure at POC:	59.0 PSI
Pressure Available:	86 PSI
Residual Pressure Available:	27.0 PSI

CRITICAL ANALYSIS

Generated:	2024-08-14 15:37
P.O.C. NUMBER: 02	
Water Source Information:	
FLOW AVAILABLE	
Water Meter Size:	1"
Flow Available	18.2 GPM
PRESSURE AVAILABLE	
Static Pressure at POC:	90 PSI
Elevation Change:	6.00 ft
Service Line Size:	1"
Length of Service Line:	20 ft
Pressure Available:	86 PSI
DESIGN ANALYSIS	
Maximum Station Flow:	10.82 GPM
Flow Available at POC:	18.2 GPM
Residual Flow Available:	7.38 GPM
Design Pressure:	30 PSI
Friction Loss:	0.76 PSI
Fittings Loss:	0.08 PSI
Elevation Loss:	0 PSI
Loss through Valve:	7.11 PSI
Pressure Req. at Critical Station:	37.9 PSI
Loss for Fittings:	0.35 PSI
Loss for Main Line:	3.53 PSI
Loss for POC to Valve Elevation:	0 PSI
Loss for Backflow:	14 PSI
Loss for Master Valve:	2.85 PSI
Loss for Water Meter:	0.55 PSI
Critical Station Pressure at POC:	59.2 PSI
Pressure Available:	86 PSI
Residual Pressure Available:	26.8 PSI

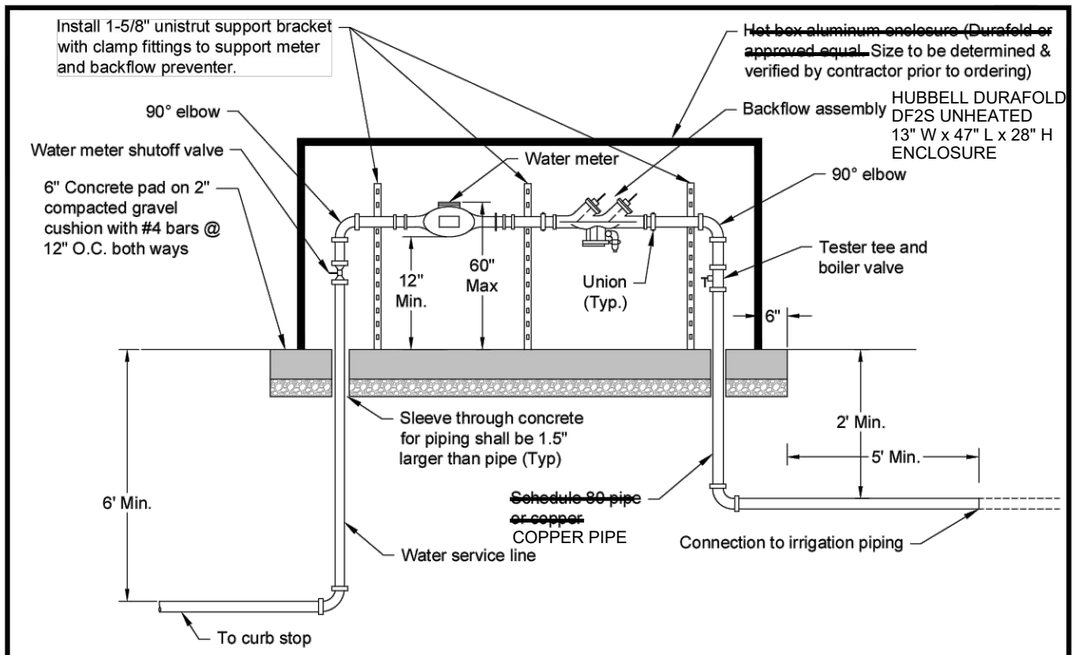
VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	PSI	PSI @ POC	PRECIP
A1	Hunter ICZ-101-25	1"	Area for Dripline	13.27	35.4	54.7	0.48 in/h
A2	Hunter ICZ-101-25	1"	Area for Dripline	9.93	38.4	56.8	0.64 in/h
A3	Hunter ICZ-101-25	1"	Area for Dripline	6.8	36.4	55.9	0.64 in/h
A4	Hunter ICZ-101-25	1"	Area for Dripline	7.61	32.4	52.8	0.48 in/h
A5	Hunter ICZ-101-25	1"	Area for Dripline	6.86	36.2	59.0	0.64 in/h
B1	Hunter ICZ-101-25	1"	Area for Dripline	2.7	33.5	50.0	0.64 in/h
B2	Hunter ICZ-101-25	1"	Area for Dripline	3.67	29.2	45.8	0.48 in/h
B3	Hunter ICZ-101-25	1"	Area for Dripline	10.82	34.7	58.5	0.48 in/h
B4	Hunter ICZ-101-25	1"	Area for Dripline	8.51	37.9	59.2	0.64 in/h
B5	Hunter ICZ-101-25	1"	Area for Dripline	6.29	35.9	54.3	0.64 in/h

Irrigation Standard Plates

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	H25	H25

REV DATE: 02/13/2025
INITIAL: CWK

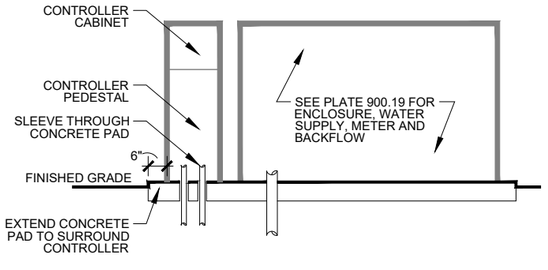


General Notes:

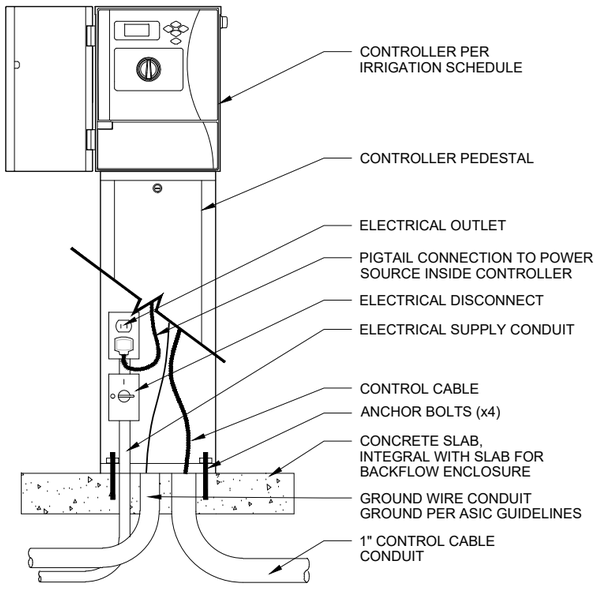
1. All enclosures are to be installed and connected onto a concrete base per manufacturer's recommendations and as detailed above. Concrete pad to be constructed with class M6 concrete and footprint shall be 6" beyond enclosure on all sides.
2. All backflow assemblies shall be tested by a Water Division approved, certified backflow technician prior to being put into service
3. Meter and backflow will be removed by owner during winterization procedures and stored. Install accordingly to allow annual removal.
4. Submit shop drawings for approval of aluminum enclosure. Contractor is responsible for providing size recommendations to ensure 12" of interior clearance around all piping and equipment.
5. All piping and fittings inside enclosure shall conform to city ordinance and engineering design standards. No galvanized or steel materials allowed upstream of the containment backflow preventer. All fittings and nipples on copper services must be brass or copper and must be flared or threaded NOT soldered, braised, or "pro pressed".
6. All piping downstream of the backflow preventer must be copper or schedule 80 PVC. This piping shall extend to a minimum of 2' below concrete slab and a minimum of 5' away from the slab before connection to irrigation piping.
8. Keep meters and backflow assemblies centered (L&R) in enclosure.
9. For assemblies 3/4" - 2", Wilkins 375XL RP ~~for high-hazard, or the Wilkins 350XL DC for low-hazard,~~ shall be used. For questions on hazard level contact Water Program Coordinator at 605-373-6971.
10. The meter, backflow preventer, and misc. pipe and fittings shall be enclosed as detailed above. Enclosure must be orientated parallel to traffic lanes, and be located at beginning or end of median. For questions on placement contact Park Central Services Supervisor at 605-367-8151
11. All costs associated with construction of the meter and backflow enclosure, including the enclosure, concrete base, rebar, and misc hardware shall be included in the ~~unit price per "Meter and Backflow Enclosure."~~ CONTRACT LUMP SUM FOR "IRRIGATION SYSTEM"
12. All costs associated with meter and backflow enclosure piping from the curb stop through meter and backflow assembly, to 5' outside the enclosure, shall be included in the ~~unit price per "Meter and Backflow Enclosure."~~ CONTRACT LUMP SUM FOR "IRRIGATION SYSTEM"
13. Must have Water Department approval of water meter and backflow assembly.

Issued: March 2024

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Roadway Irrigation Water Meter & Backflow Assembly with Enclosure**	Specification Reference No. 900	Plate Number 900.19



1 H25 IRRIGATION CONTROLS NOT TO SCALE



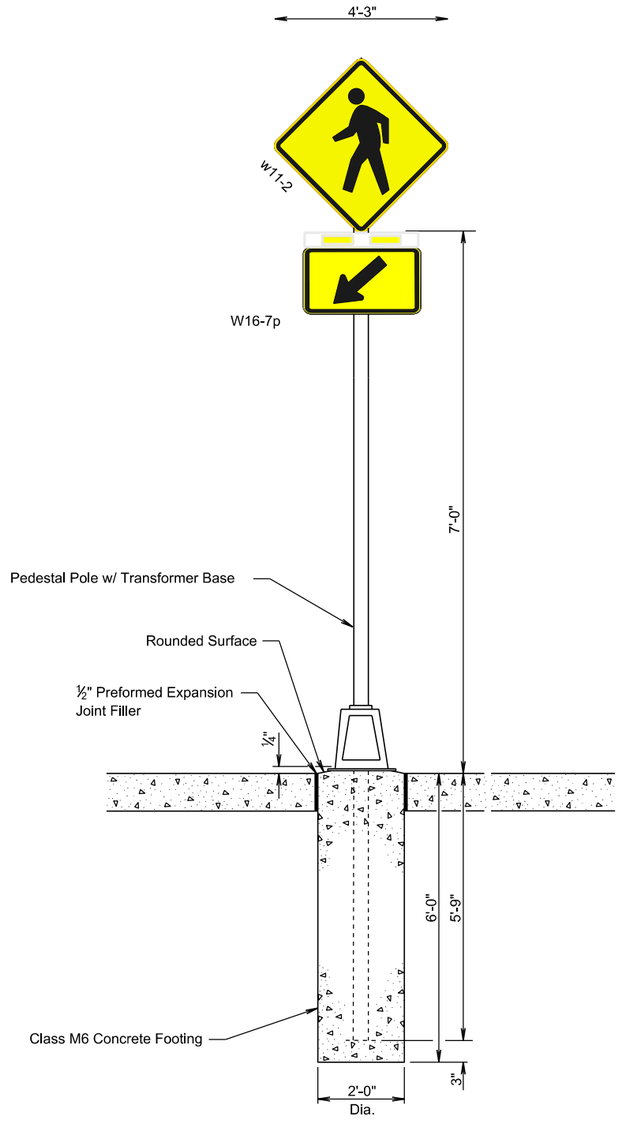
2 H25 CONTROLLER PEDESTAL NOT TO SCALE

SPECIAL DETAIL

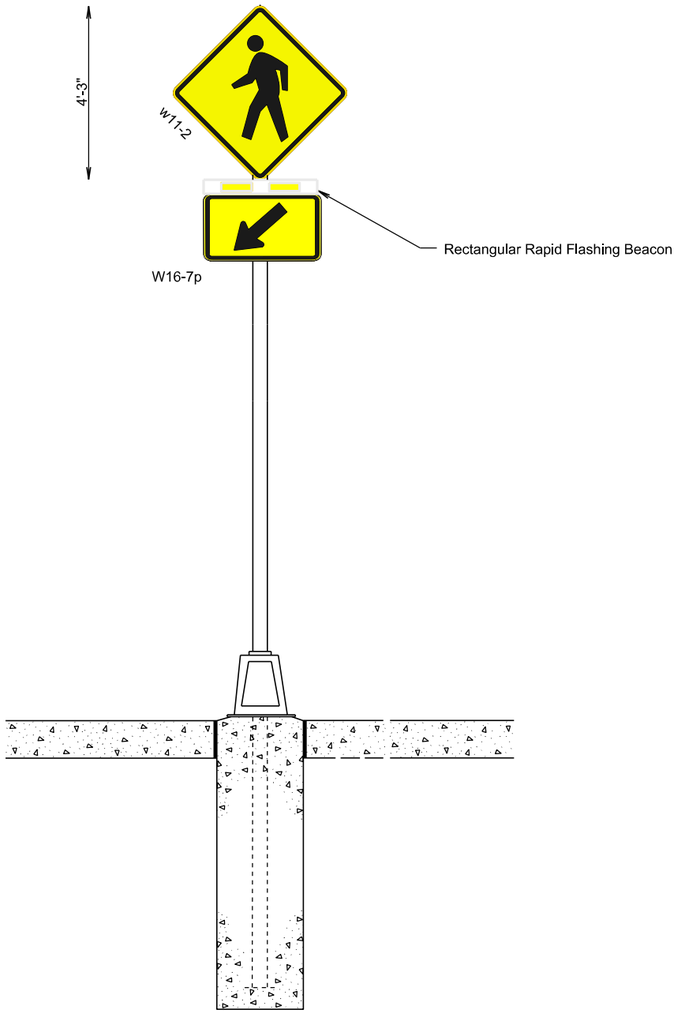
RECTANGULAR RAPID FLASHING BEACONS & SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	L62A	L73

Plotting Date: 2/13/2025 Revised Date: 2/13/2025
Initials: NBG



FRONT VIEW



BACK VIEW

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15776
JOHN M. C. GRAY
SOUTH DAKOTA
02-13-2025

Plot Scale - 1:200
Plotted From - ngjersvik
File - ...\05HN_sgl-dtl-rrfb.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	S2	S91

Revised Date: 02/13/2025
Initials: NBG

SECTION S ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0120	Remove Sign Bridge	3	Each
110E0130	Remove Traffic Sign	62	Each
110E0135	Remove Delineator	136	Each
110E0140	Remove Extruded Panel Sign	6	Each
110E5000	Salvage Sign Bridge	2	Each
110E5020	Salvage Traffic Sign	10	Each
110E7150	Remove Sign for Reset	25	Each
632E0014	1.75' Diameter Breakaway Support Concrete Footing	126.0	Ft
632E0072	4' Diameter Fixed Support Concrete Footing	38.0	Ft
632E1235	W6x20 Steel Post	353.9	Ft
632E1320	2.0"x2.0" Perforated Tube Post	1,045.3	Ft
632E1340	2.5"x2.5" Perforated Tube Post	51.5	Ft
632E2000	4"x4" Amber Delineator with 1.12 Lb/Ft Post	12	Each
632E2004	4"x8" Amber Delineator with 1.12 Lb/Ft Post	15	Each
632E2008	4" Tubular Amber Delineator with 1.12 Lb/Ft Post	4	Each
632E2020	4"x4" White Delineator with 1.12 Lb/Ft Post	44	Each
632E2024	4"x8" White Delineator with 1.12 Lb/Ft Post	98	Each
632E2028	4" Tubular White Delineator with 1.12 Lb/Ft Post	5	Each
632E2220	Guardrail Delineator	95	Each
632E2510	Type 2 Object Marker Back to Back	63	Each
632E2520	Type 2 Object Marker	2	Each
632E3115	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity	1,270.1	SqFt
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	306.7	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	325.5	SqFt
632E3500	Reset Sign	25	Each
632E5020	Overhead Cantilever Sign Support	3	Each
634E0275	Type 3 Barricade	3	Each

SECTION S ESTIMATE OF QUANTITIES (Exit 3 Crossover)

(Included in overall estimate of quantities table, for information only)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0130	Remove Traffic Sign	6	Each
110E0135	Remove Delineator	17	Each
110E5000	Salvage Sign Bridge	2	Each
110E7150	Remove Sign for Reset	2	Each
632E0014	1.75' Diameter Breakaway Support Concrete Footing	28.0	Ft
632E1235	W6x20 Steel Post	71.0	Ft
632E1340	2.5"x2.5" Perforated Tube Post	51.5	Ft
632E2000	4"x4" Amber Delineator with 1.12 Lb/Ft Post	4	Each
632E2004	4"x8" Amber Delineator with 1.12 Lb/Ft Post	5	Each
632E2008	4" Tubular Amber Delineator with 1.12 Lb/Ft Post	4	Each
632E2020	4"x4" White Delineator with 1.12 Lb/Ft Post	4	Each
632E2024	4"x8" White Delineator with 1.12 Lb/Ft Post	12	Each
632E2028	4" Tubular White Delineator with 1.12 Lb/Ft Post	5	Each
632E2220	Guardrail Delineator	39	Each
632E2520	Type 2 Object Marker	2	Each
632E3115	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity	257.0	SqFt
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	42.5	SqFt
632E3500	Reset Sign	2	Each
634E0275	Type 3 Barricade	3	Each

GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for “Remove Traffic Sign”. Quantities will be per assembly at the contract unit price per each.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	S7	S91

Revised Date: 02/13/2025
Initials: NBG

TABLE OF REMOVE DELINEATOR (Exit 3 Crossover)

STATION - OFFSET	PAYMENT QUANTITY
NB I-229: 126+68 - 53' RT	1
NB I-229: 132+11 - 52' RT	1
NB I-229: 137+62 - 50' RT	1
NB I-229: 140+50 - 49' RT	1
NB I-229: 143+32 - 36' RT	1
NB I-229: 143+58 - 35' RT	1
NB I-229: 143+58 - 40' RT	1
NB I-229: 143+74 - 36' RT	1
NB I-229: 143+74 - 42' RT	1
NB I-229: 143+94 - 45' RT	1
NB I-229: 143+95 - 37' RT	1
NB I-229: 144+87 - 94' RT	1
NB I-229: 148+79 - 50' RT	1
NB I-229: 154+18 - 41' RT	1
NB I-229: 157+45 - 112' RT	1
NB I-229: 159+00 - 61' RT	1
NB I-229: 160+37 - 37' RT	1
Total =	**17 Each**

TABLE OF SIGN REMOVAL (Exit 3 Crossover)

STATION - OFFSET	DESCRIPTION	REMOVE TRAFFIC SIGN	REMOVE SIGN FOR RESET	SALVAGE SIGN BRIDGE	TYPE OF POST	FIXED	BREAKAWAY
		110E0130	110E7150	110E5000			
NB I-229: 139+99 - 56' RT	Exit 3, Minnesota Ave (Exit Only)	2		1	Sign Bridge	1	
NB I-229: 144+25 - 43' RT	Exit 3 (Exit Gore)	1					1
NB I-229: 145+77 - 44' RT	Bridge Ices Before Road		1				1
NB I-229: 159+57 - 43' RT	Added Lane		1				1
NB I-229: 171+50 - 56' RT	Exit 4, Cliff Ave 1/2 Mile, Hospital	3		1	Sign Bridge	1	
TOTAL =		**6**	**2**	**2**		**2**	**3**

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-13-2025

SIGN INSTALLATION TABLE (Exit 3 Crossover)

STATION - OFFSET	DESCRIPTION	SIGN CODE	SIGN SIZE	SIGN Type IV (SqFt)	SIGN Type XI (SqFt)	FIXED or BREAKAWAY (S) Slip Base (A) Anchor Stub	(N)ew or (R)euse Post	POST LENGTHS: PERFORATED TUBE SINGLE (2.5")	PERFORATED TUBE DUAL (2.5") Inside	PERFORATED TUBE DUAL (2.5") Outside	STEEL POST DUAL (W6x20) Inside	STEEL POST DUAL (W6x20) Outside	FOOTING INFORMATION
			Inches	632E3203	632E3115								
NB I-229: 140+00 - 90' R	Exit 3	E1-5P	96 x 30		20.00	S	N				20.0	20.0	SEE SIGN SUPPORT TABLE
	I-229, SD 115, Minnesota Ave	SPECIAL	168 x 126		147.00								
NB I-229: 145+50 - 40' R	Road Closed	R11-2	48 x 30	10.00									
NB I-229: 146+00 - 78' R	Exit 3 (Arrow 45)	E5-1a	78 x 60	32.50		S	N		12.0	12.0			
NB I-229: 147+00 - 80' R	Bridge Ices Before Bridge	Reset				S	N	13.8					
NB I-229: 158+00 - 84' R	Added Lane	Reset				S	N	13.8					
NB I-229: 171+50 - 90' R	Exit 4	E1-5P	96 x 30		20.00	S	N				15.5	15.5	SEE SIGN SUPPORT TABLE
	Cliff Ave 1/2 Mile	SPECIAL	132 x 72		66.00								
	Hospital	D9-2	24 x 24		4.00								
		TOTAL =		**42.50**	**257.00**			**27.50**	**12.00**	**12.00**	**35.50**	**35.50**	

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	S15	S91

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

Permanent Sign Installation Table

Alignment		Sign and Delineator Install Data												Sign and Delineator Remove/Reset Data							Post Data				Footing Data			
Station	Offset	Sign Description	Sign Code	Sign Width (in)	Sign Height (in)	Sign Area HI (IV) (SqFt)	Sign Area VHI (XI) (SqFt)	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity (XI) (SqFt)	Type 2 Object Marker Back to Back (Each)	4"x4" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x4" White Delineator with 1.12 Lb/Ft Post (Each)	4"x8" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x8" White Delineator with 1.12 Lb/Ft Post (Each)	Salvage Traffic Sign (City) (Each)	Salvage Traffic Sign (SDDOT) (Each)	Remove Traffic Sign (Each)	Remove Extruded Panel Sign Each)	Remove Sign for Reset (Each)	Reset Sign (Each)	Remove Delineator (Each)	use Street Light (SL), use Power Pole (PP), use Mast Arm (MA), use 1 Post (1P), use 2 Posts (2P), or use 3 Posts (3P)	(F)ixed Base, Breakaway (S)lip Base, (A)nchor Stub Post, or (D)irect Drive	2.0"x2.0" Perforated Tube Post Height (Ft)	Post Sizes and Quantities (Ft) W6x20	Remove Concrete Footing(s)* (LS)	1'-9" Dia. Break-away (Ft)	4' Dia. Fixed (Ft)	5' - 6" Dia. Fixed (Ft)
I-229 NORTHBOUND																												
178+00	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
183+23	R	Exit 4 Logo Sign (existing)	Existing	192	144														1			D		76.4				
183+28	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
188+56	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
189+71	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1																			
189+71	Median	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1																			
190+23	R	4"x8" White Delineator (proposed	Special	4	8								1									D						
191+23	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
191+23	R	Exit 4 (proposed)	Special	114	30			23.8													MA							
	R	Cliff Avenue Exit Only R 60 Deg	Special	174	108			130.5													MA						19.0	
194+43	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
194+47	Median	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
197+00	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	8	24		1.3															D						
197+25	R	Exit 4 R 60 Deg (proposed)	E5-1A	78	60			32.5													2P	S	32.0					
197+31	R	4"x8" White Delineator (proposed	Special	4	8								1									D						
197+56	R	4"x8" White Delineator (proposed	Special	4	8								1									D						
197+81	R	4"x8" White Delineator (proposed	Special	4	8								1									D						
198+06	R	4"x8" White Delineator (proposed	Special	4	8								1									D						
198+31	R	4"x8" White Delineator (proposed	Special	4	8								1									D						
199+12	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
201+88	R	Bridge Ices Before Road (folding) (proposed)	W8-13	48	48		16.0														1P	S	15.0					
204+40	R	Mle 4 (proposed)	D10-1	12	24	2.0															1P	S	9.5					
210+82	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
212+12	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
213+42	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
214+72	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
216+02	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
217+32	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
218+62	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
219+50	R	Added Lane Right (proposed)	W4-3R	48	48		16.0														1P	S	15.0					
222+42	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
223+06	R	Cardinal Directoin North (proposed)	M3-1	36	18		4.5																					
	R	I-229 Route Sign (proposed)	M1-1P	45	36		11.3														1P	S	15.0					
226+10	R	26th Street 1/2 Mile Exit Only (proposed)	Special	186	108			139.5														MA						
	R	Exit 5 (proposed)	E1-5P	114	30			23.8														MA					19.0	
226+52	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
227+79	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
229+06	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
230+36	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
230+54	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
230+72	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
231+37	R	Lane Ends Right (proposed)	W4-2R	48	48		16.0														1P	S	15.0					
231+80	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
237+08	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
237+46	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
237+46	Median	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
242+36	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
			Subtotal	2.0	65.1	350.1	8		18		8						1				101.5	76.4		21.0	38.0			

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-7-2025

Plot Scale - 1:200
Plotted From - ngjersvik
File - ...\05HN_sgn-table.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	S16	S91

Plotting Date: 2/7/2025 Revised Date: 2/7/2025
Initials: NBG

Permanent Sign Installation Table

Alignment		Sign and Delineator Install Data												Sign and Delineator Remove/Reset Data							Post Data				Footing Data			
Station	Offset	Sign Description	Sign Code	Sign Width (in)	Sign Height (in)	Sign Area HI (IV) (SqFt)	Sign Area VHI (XI) (SqFt)	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity (XI) (SqFt)	Type 2 Object Marker Back to Back (Each)	4"x4" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x4" White Delineator with 1.12 Lb/Ft Post (Each)	4"x8" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x8" White Delineator with 1.12 Lb/Ft Post (Each)	Salvage Traffic Sign (City) (Each)	Salvage Traffic Sign (SDDOT) (Each)	Remove Traffic Sign (Each)	Remove Extruded Panel Sign Each)	Remove Sign for Reset (Each)	Reset Sign (Each)	Remove Delineator (Each)	use Street Light (SL), use Power Pole (PP), use Mast Arm (MA), use 1 Post (1P), use 2 Posts (2P), or use 3 Posts (3P)	(F)ixed Base, Breakaway (S)lip Base, (A)nchor Stub Post, or (D)irect Drive	2.0"x2.0" Perforated Tube Post Height (Ft)	Post Sizes and Quantities (Ft) W6x20	Remove Concrete Footing(s)* (LS)	1'-9" Dia. Break-away (Ft)	4' Dia. Fixed (Ft)	5' - 6" Dia. Fixed (Ft)
I-229 SOUTHBOUND																												
179+73	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
185+01	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
188+84	L	Speed Limit 65 (proposed)	R2-1	48	60	20.0															2P	S	32.0					
190+27	L	I-229 SD115 Minnesota Ave 1/2 Mile Exit Only (proposed)	Special	210	156			227.5														MA						
	L	Exit 3 (proposed)	E5-1P	114	30			23.8														MA						18.0
190+29	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
190+61	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
191+61	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
192+61	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
193+61	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
193+88	L	Cardinal Direction South (proposed)	M3-3P	36	18		4.5																					
	L	I-229 Route Sign (proposed)	M1-1	45	36		11.3														1P	S	15.5					
196+26	L	Added Lane Right (proposed)	W4-3R	48	48		16.0														1P	S	15.0					
200+86	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
206+15	L	Mile 4 (proposed)	D10-1	12	24	2.0																						
211+50	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
212+80	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
214+10	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
215+40	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
216+70	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
217+04	L	Bridge Ices Before Road (folding) (proposed)	W8-13	48	48		16.0														1P	S	15.0					
218+00	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
219+30	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
219+51	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
219+76	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
220+01	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
220+26	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
220+51	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
220+57	L	Exit 4 R 60 Deg (proposed)	E5-1A	78	60			32.5													2P	S	32.0					
220+66	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
220+82	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	8	24		1.3															D						
225+94	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
226+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
227+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
227+26	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
228+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
228+56	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
229+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
229+86	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
230+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
230+11	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
230+25	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
231+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
232+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
232+54	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
233+03	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
234+02	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
235+02	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
235+57	L	Cliff Ave R 60 Deg	Special	150	84			87.5																				
	L	Exit 4 (proposed)	E5-1A	114	30			23.8																38.8		14.0		
237+82	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
240+97	L	Exit 4 Logo Sign (existing)	Existing	192	144			192.0											1					73.3		21.0		
243+10	L	4"x4" White Delineator (proposed)	Special	4	4						1											D						
251+47	L	Cliff Ave 1/2 Mile (proposed)	Special	125	60			52.1																				
	L	Exit 4 (proposed)	E5-1A	114	30			23.8																32.0		14.0		
			Subtotal			22.0	49.1	663.0	2		19		19						1				109.5	144.1		49.0		18

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-7-2025

Plot Scale - 1:200
Plotted From - nglersvik
File - ...\05HN_sgn-table.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	S17	S91

Plotting Date: 2/7/2025 Revised Date: 2/7/2025 Initials: NBG

Permanent Sign Installation Table

Alignment		Sign and Delineator Install Data												Sign and Delineator Remove/Reset Data							Post Data				Footing Data			
Station	Offset	Sign Description	Sign Code	Sign Width (in)	Sign Height (in)	Sign Area HI (IV) (SqFt)	Sign Area VHI (XI) (SqFt)	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity (XI) (SqFt)	Type 2 Object Marker Back to Back (Each)	4"x4" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x4" White Delineator with 1.12 Lb/Ft Post (Each)	4"x8" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x8" White Delineator with 1.12 Lb/Ft Post (Each)	Salvage Traffic Sign (City) (Each)	Salvage Traffic Sign (SDDOT) (Each)	Remove Traffic Sign (Each)	Remove Extruded Panel Sign Each)	Remove Sign for Reset (Each)	Reset Sign (Each)	Remove Delineator (Each)	use Street Light (SL), use Power Pole (PP), use Mast Arm (MA), use 1 Post (1P), use 2 Posts (2P), or use 3 Posts (3P)	(F)ixed Base, Breakaway (S)lip Base, (A)nchor Stub Post, or (D)irect Drive	2.0"x2.0" Perforated Tube Post Height (Ft)	Post Sizes and Quantities (Ft) W6x20	Remove Concrete Footing(s)* (LS)	1'-9" Dia. Break-away (Ft)	4' Dia. Fixed (Ft)	5' - 6" Dia. Fixed (Ft)
I-229 SOUTHBOUND OFF-RAMP (RAMP A)																												
10+29	R	Do Not Enter (proposed)	R5-1	36	36		9.0														1P	S	14.0					
11+96	L	Double Arrow (proposed)	W12-1	36	36		9.0														1P	S	14.0					
12+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
13+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
14+03	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
14+30	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
14+30	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
14+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
14+48	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
14+48	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
14+97	L	Wrong Way (proposed)	R5-1A	42	30		8.8														1P	S	13.5					
15+20	L	Logo Sign (existing)	Existing	120	84														1					31.2		14.0		
15+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
16+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
17+21	R	Advance Intersection Lane Control (proposed)	R3-8ABLA	54	30																2P	S	13.5					
17+21	L	Advance Intersection Lane Control (proposed)	R3-8ABLA	54	30																2P	S	13.5					
17+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
18+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
19+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
19+59	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
19+97	R	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
20+22	R	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
20+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
20+47	R	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
20+72	R	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
20+97	R	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
21+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
22+33	L	4"x4" White Delineator (proposed)	Special	4	4				1													D						
22+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
23+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
23+70	L	4"x4" White Delineator (proposed)	Special	4	4				1													D						
24+39	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
25+00	L	4"x4" White Delineator (proposed)	Special	4	4				1													D						
25+38	L	4"x8" White Delineator (proposed)	Special	4	8								1									D						
					Subtotal		26.8		9			5	14						1				68.5	31.2		14.0		

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-7-2025

Plot Scale - 1:200
Plotted From - ngjersvik
File - ...\05HN_sgn-table.dgn

Permanent Sign Installation Table

Alignment		Sign and Delineator Install Data												Sign and Delineator Remove/Reset Data							Post Data				Footing Data			
Station	Offset	Sign Description	Sign Code	Sign Width (in)	Sign Height (in)	Sign Area HI (IV) (SqFt)	Sign Area VHI (XI) (SqFt)	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity (XI) (SqFt)	Type 2 Object Marker Back to Back (Each)	4"x4" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x4" White Delineator with 1.12 Lb/Ft Post (Each)	4"x8" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x8" White Delineator with 1.12 Lb/Ft Post (Each)	Salvage Traffic Sign (City) (Each)	Salvage Traffic Sign (SDDOT) (Each)	Remove Traffic Sign (Each)	Remove Extruded Panel Sign Each)	Remove Sign for Reset (Each)	Reset Sign (Each)	Remove Delineator (Each)	use Street Light (SL), use Power Pole (PP), use Mast Arm (MA), use 1 Post (1P), use 2 Posts (2P), or use 3 Posts (3P)	(F)ixed Base, Breakaway (S)lip Base, (A)nchor Stub Post, or (D)irect Drive	2.0"x2.0" Perforated Tube Post Height (Ft)	Post Sizes and Quantities (Ft) W6x20	Remove Concrete Footing(s)* (LS)	1'-9" Dia. Break-away (Ft)	4' Dia. Fixed (Ft)	5' - 6" Dia. Fixed (Ft)
I-229 NORTHBOUND OFF-RAMP (RAMP C)																												
51+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
52+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
52+62	R	4"x4" White Delineator (proposed)	Special	4	4						1											D						
53+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
53+22	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
54+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
54+19	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
55+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
55+88	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
56+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
56+08	L	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
56+33	L	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
56+38	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
56+58	L	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
56+83	L	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
57+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
57+08	L	4"x8" Amber Delineator (proposed)	Special	4	8							1										D						
58+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
58+22	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
58+33	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D						
59+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
59+13	L	Advanced Intersection Lane Control	R3-8ABLA	66	30	13.8															2P	S	13.5					
59+13	R	Advanced Intersection Lane Control	R3-8ABLA	66	30	13.8															2P	S	13.5					
60+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
61+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
61+13	R	Logo Sign (existing)	Special	120	84														1					31.2		14.0		
61+13	R	Wrong Way (proposed)	R5-1A	42	30		8.8																					
61+82	R	Bridge Ices Before Road (folding) (proposed)	W8-13	48	48		16.0														1P	S	15.0					
62+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
63+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
64+00	R	4"x8" White Delineator (proposed)	Special	4	8								1									D						
65+03	R	Double Arrow (proposed)	W12-1	36	36		9.0														1P	S	14.0					
					Subtotal	27.6	33.8		6		1	5	14						1				56.0	31.2		14.0		

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
2-7-2025

Plot Scale - 1:200
Plotted From - ngjersvik
File - ...\05HN_sgn-table.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	S23	S91

Plotting Date: 2/7/2025 Revised Date: 2/7/2025 Initials: NBG

Permanent Sign Installation Table

Alignment		Sign and Delineator Install Data												Sign and Delineator Remove/Reset Data							Post Data				Footing Data				
Station	Offset	Sign Description	Sign Code	Sign Width (in)	Sign Height (in)	Sign Area HI (IV) (SqFt)	Sign Area VHI (XI) (SqFt)	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity (XI) (SqFt)	Type 2 Object Marker Back to Back (Each)	4"x4" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x4" White Delineator with 1.12 Lb/Ft Post (Each)	4"x8" Amber Delineator with 1.12 Lb/Ft Post (Each)	4"x8" White Delineator with 1.12 Lb/Ft Post (Each)	Salvage Traffic Sign (City) (Each)	Salvage Traffic Sign (SDDOT) (Each)	Remove Traffic Sign (Each)	Remove Extruded Panel Sign Each)	Remove Sign for Reset (Each)	Reset Sign (Each)	Remove Delineator (Each)	use Street Light (SL), use Power Pole (PP), use Mast Arm (MA), use 1 Post (1P), use 2 Posts (2P), or use 3 Posts (3P)	(F)ixed Base, Breakaway (S)lip Base, (A)nchor Stub Post, or (D)irect Drive	2.0"x2.0" Perforated Tube Post Height (Ft)	Post Sizes and Quantities (Ft) W6x20	Remove Concrete Footing(s)* (LS)	1'-9" Dia. Break-away (Ft)	4' Dia. Fixed (Ft)	5' - 6" Dia. Fixed (Ft)
41ST STREET																													
21+20	L	No Parking Bus Stop (existing)	Existing																1		1P	S	13.0						
22+22	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
25+99	L	Emergency Snow Route No Parking if Over 2 Inches (existing)	Existing																1		1P	S	13.0						
29+18	R	Emergency Snow Route No Parking if Over 2 Inches (existing)	Existing																1		SL								
30+58	R	No Parking Beyond This Point (Existing)	Existing																1		SL								
30+58	L	No Parking Up To This Point	Existing																1		SL								
31+27	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
32+26	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
32+26	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
32+42	R	Right Lane Must Turn Right (proposed)	R3-7R	36	36	9.0															1P	S	14.0						
33+00	L	Bus Stop Sign (existing)	Existing																										
	L	Bus Stop Sign (existing)	Existing																1		1P	S	13.0						
33+97	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
34+02	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
34+30	L	Speed Limit 30 (proposed)	R2-1	30	36	7.5															1P	S	14.0						
35+21	L	Secondary Truck Route (existing)	Existing																										
	L	No Parking (existing)	Existing																		SL								
36+22	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
36+43	R	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
36+67	L	Right Lane Ends (proposed)	W9-1R	36	36		9.0														1P	S	14.0						
36+99	L	Type 2 Object Marker, Yellow (proposed)	OM2-2V	6	12				1													D							
SCHOOL ENTRANCE																													
40+46	L	Compact Car Parking Only (existing)	Existing																1		1P	S	12.5						
40+79	R	School Site Closed 10 PM to 5 AM (existing)	Existing																1		1P	S	12.0						
41+24	L	No Texting While Driving It's The Law (existing)	Existing																1		SL								
42+98	R	Compact Car Parking Only (existing)	Existing																1		1P	S	12.5						
PAM ROAD																													
50+94	L	2 Hr Parking 8 AM to 4 PM School Days (existing)	Existing																1										
	L	Beyond This Point (existing)	Existing																1		1P	S	14.0						
51+57	R	2 Hr Parking 8 AM to 4 PM School Days (existing)	Existing																1		1P	S	13.0						
PARK ENTRANCE																													
0+41	R	Stop (proposed)	R1-1	30	30		5.2																						
			Subtotal	16.5	14.2			9											13				145.0						
			PCN 05HN Total	264.2	325.5	1013.1	63	8	40	10	86	10		56	4	23	23	119				1045.3	282.9	26	98.0	38.0	18.0		

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15735
JONATHAN R.
HULTGREN
SOUTH DAKOTA
2-7-2025

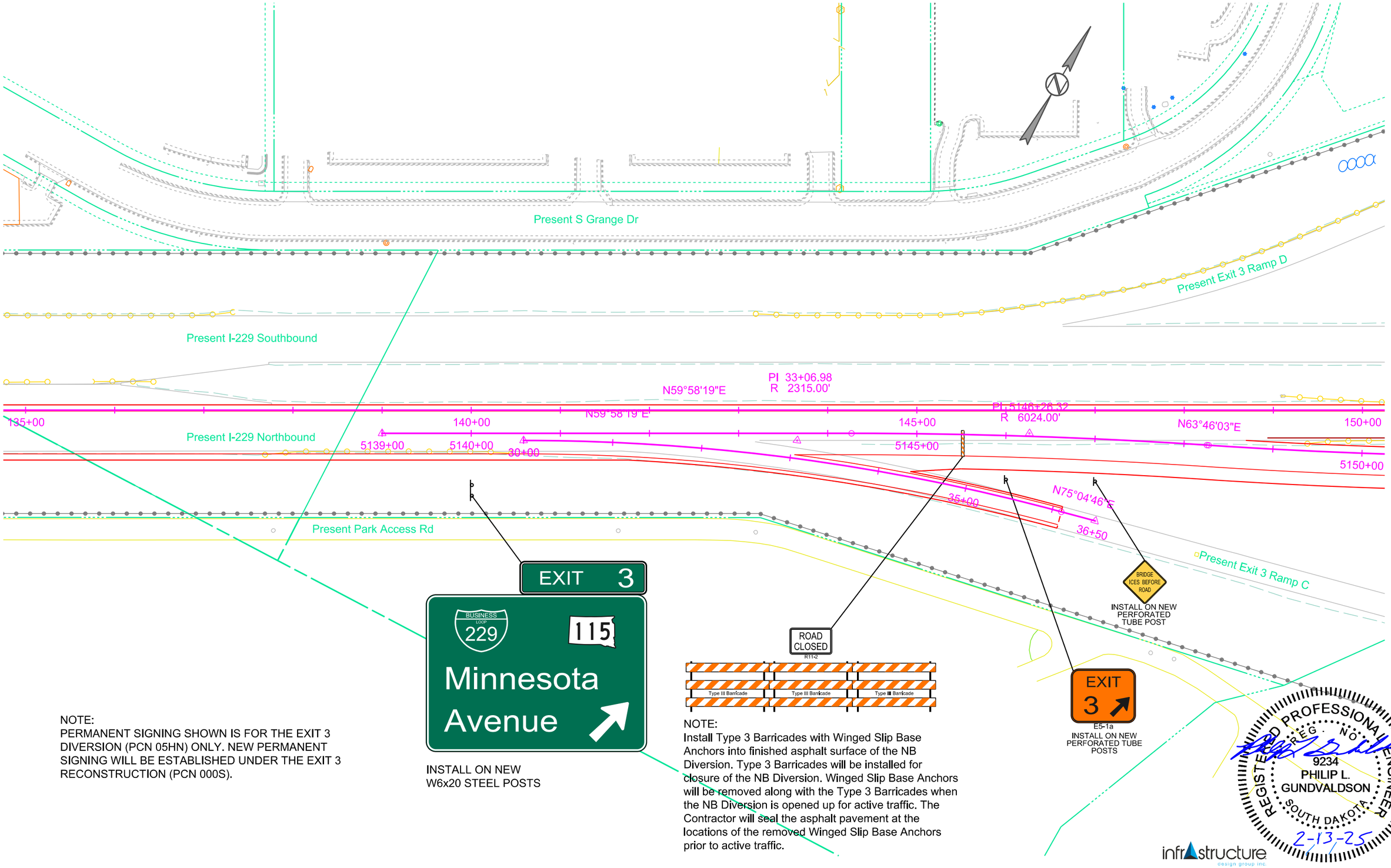
Plot Scale - 1:200
Plotted From - ngjersvik
File - ...\05HN_sgn-table.dgn

PERMANENT SIGNING

Exit 3 NB Diversion

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	IM-B-CR 2292(101)3	S69	S91

Plotting Date: 10/23/2024 Revision Date: 02/13/2025 PLG



NOTE:
PERMANENT SIGNING SHOWN IS FOR THE EXIT 3 DIVERSION (PCN 05HN) ONLY. NEW PERMANENT SIGNING WILL BE ESTABLISHED UNDER THE EXIT 3 RECONSTRUCTION (PCN 000S).

INSTALL ON NEW W6x20 STEEL POSTS

NOTE:
Install Type 3 Barricades with Winged Slip Base Anchors into finished asphalt surface of the NB Diversion. Type 3 Barricades will be installed for closure of the NB Diversion. Winged Slip Base Anchors will be removed along with the Type 3 Barricades when the NB Diversion is opened up for active traffic. The Contractor will seal the asphalt pavement at the locations of the removed Winged Slip Base Anchors prior to active traffic.

INSTALL ON NEW PERFORATED TUBE POST

INSTALL ON NEW PERFORATED TUBE POSTS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9234
PHILIP L. GUNDVALDSON
SOUTH DAKOTA
2-13-25

infrastructure design group inc

PERMANENT SIGNING

Exit 3 NB Diversion

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	IM-B-CR 2292(101)3	S70	S91

Plotting Date: 10/23/2024 Revision Date: 02/13/2025 PLG

Present Exit 3 Ramp D

Present Minnesota Ave

Present Exit 3 Ramp A

Present I-229 Southbound

N59°58'19"E

150+00

155+00

Present I-229 Northbound

N59°58'19"E

N55°27'11"E

160+00

165+00

PI 5161+12.00
R 6024.00'

5163+49

5160+00

5150+00

PI 5150+26.52
R 6000.00'

Northbound Diversion

5155+00

PI 5156+36.30
R 6000.00'

Present Exit 3 Ramp B

INSTALL ON NEW PERFORATED TUBE POST

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9234
PHILIP L.
GUNDVALDSON
SOUTH DAKOTA
2-13-25

infrastructure design group inc.