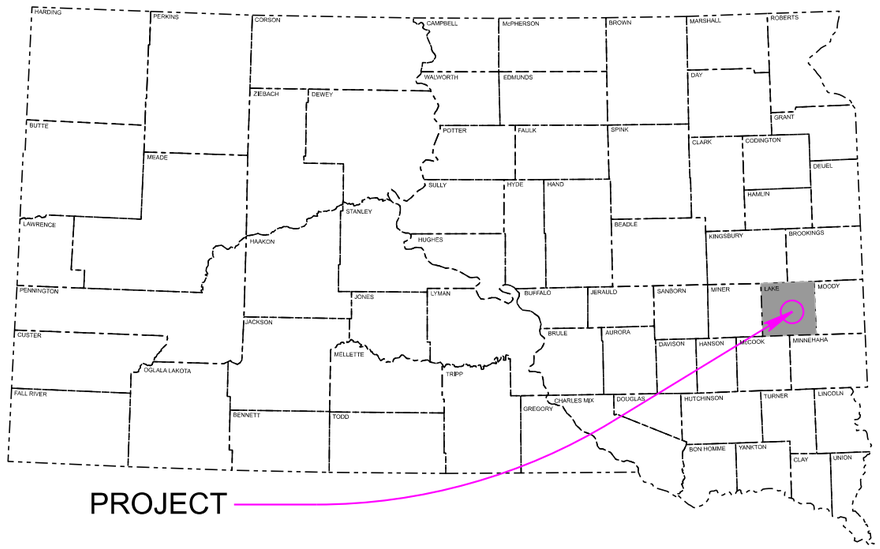

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	1	170

Plotting Date: 12/10/2025
Rev 8/14/2025 BRA

PLANS FOR PROPOSED

PROJECT NH 0034(212)388
SD HIGHWAY 34, 34 E, 34 W
LAKE COUNTY

COLD MILLING ASPHALT CONCRETE,
ASPHALT CONCRETE SURFACING & RESURFACING,
APPROACH GRADING, RESET GUARDRAIL, GRADING,
PIPE WORK, PAVEMENT MARKING & LIGHTING

PCN 06PR

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138-153	Structure No. 40-142-145 Sheets
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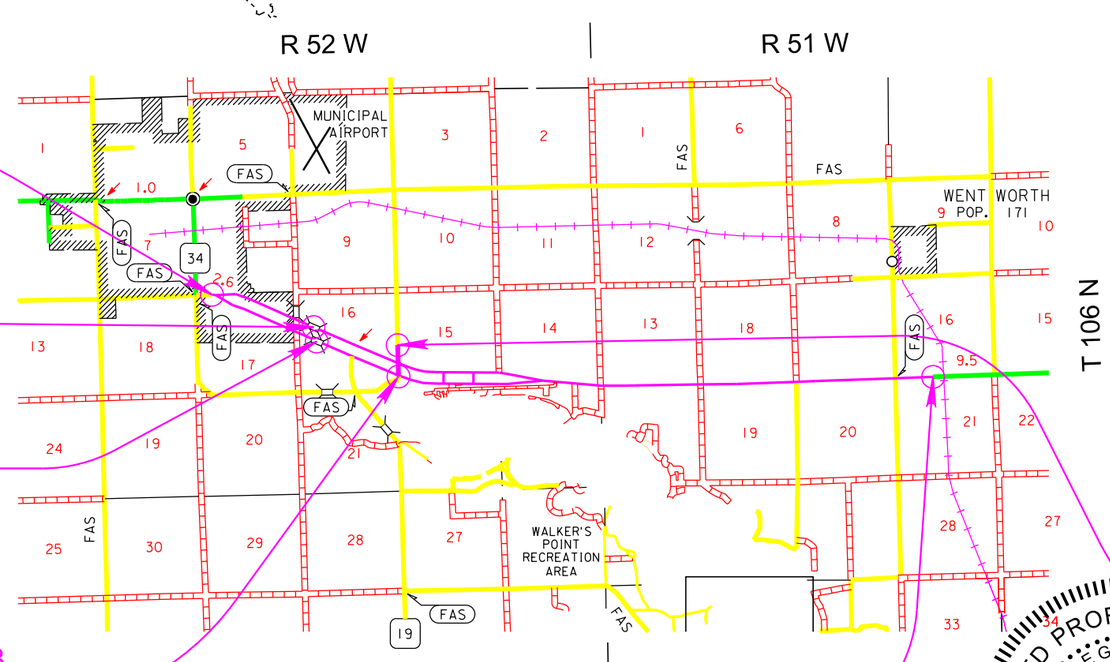
162-169	457th Ave Cross Sections
170	457th Ave Pipe Section

HRGreen



BEGIN NH 0034(212)388
BEGIN PROJECT
STA. 10+54.00 on SD 34
Approximately 78.5' South and
4199.4' West of The Northwest corner of
Section 16 - Township 106 North - Range 52 West
MRM 388.05 + 0.172

Exception
Str. No 40-142-144
MRM 389.35

Exception
Str. No 40-142-145
MRM 389.35

BEGIN NH 0034(212)388
BEGIN PROJECT
STA. 1+89.30 on 457th Ave
Approximately 4,372.2' South and 187.9' East of
The Northwest corner of Section 15 - Township
106 North - Range 52 West

END NH 0034(212)388
END PROJECT
STA. 394+83.87 on SD 34
Approximately 1663.9' East of The Northwest corner of
Section 21 - Township 106 North - Range 51 West
MRM 396.00 + 0.135

END NH 0034(212)388
END PROJECT
STA. 12+84.37 on 457th Ave
Approximately 3,323.2' South and 143.5' East
of The Northwest corner of Section 15 - Township
106 North - Range 52 West

DESIGN DESIGNATION

ROUTE	SD 34
ADT (2019)	3,949
ADT (2039)	4,917
DHV	661
D	50.0%
T DHV	661.0%
T ADT	13.0%
V	65 MPH

ROUTE	SD 34W
ADT (2019)	2,290
ADT (2039)	2,772
DHV	373
D	50.0%
T DHV	4.9%
T ADT	10.8%
V	65 MPH

ROUTE	SD 34E
ADT (2019)	2,290
ADT (2039)	2,772
DHV	373
D	50.0%
T DHV	4.9%
T ADT	10.8%
V	65 MPH

STORM WATER PERMIT

Major Stream:	Silver Creek & Lake Madison
Area Disturbed:	6 Acres
Total Project Area:	98 Acres
Latitude:	43° 59' 35.32" N
Longitude:	-97° 06' 20.76" W

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

NH 0034(212)388 SD 34 - 4 Lane Divided		
Gross Length	17,833.34 Feet	3.378 Miles
Length of Exceptions	150.00 Feet	0.029 Miles
Net Length	17,683.34 Feet	3.349 Miles

NH 0034(212)388 SD 34 - 2 Lane		
Gross Length	20,596.53 Feet	3.901 Miles
Length of Exceptions	0.0 Feet	0.0 Miles
Net Length	20,596.53 Feet	3.901 Miles

NH 0034(212)388 SD 34 - 457th Ave		
Gross Length	1,095.07 Feet	0.208 Miles
Length of Exceptions	0.0 Feet	0.0 Miles
Net Length	1,095.07 Feet	0.208 Miles

3

January 21, 2026

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ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	2	170

REV. 12-3-2025 BRA

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	13	Each
009E3225	Reestablish Public Land Survey System Corner	1	Each
009E3230	Grade Staking	0.552	Mile
009E3250	Miscellaneous Staking	7.830	Mile
009E3280	Slope Staking	0.552	Mile
009E3301	Engineer Directed Surveying/Staking	20.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0130	Remove Traffic Sign	2	Each
110E0600	Remove Fence	1,035	Ft
110E0700	Remove 3 Cable Guardrail	245	Ft
110E0730	Remove Beam Guardrail	460.0	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	2	Each
110E0745	Remove 3 Cable Guardrail Slip Base Anchor Assembly	2	Each
110E1010	Remove Asphalt Concrete Pavement	5,352.0	SqYd
110E1100	Remove Concrete Pavement	268.0	SqYd
110E1690	Remove Sediment	0.7	CuYd
110E1700	Remove Silt Fence	544	Ft
110E7150	Remove Sign for Reset	10	Each
120E0010	Unclassified Excavation	9,192	CuYd
120E0100	Unclassified Excavation, Digouts	270	CuYd
120E0600	Contractor Furnished Borrow Excavation	7,813	CuYd
120E1000	Muck Excavation	1,283	CuYd
120E2000	Undercutting	1,467	CuYd
210E0100	Shoulder Clearing	21.4	Mile
230E0010	Placing Topsoil	1,829	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	1,281.5	Ton
260E1030	Base Course, Salvaged	1,984.7	Ton
260E6010	Granular Material	183.0	Ton
270E0110	Salvage and Stockpile Granular Material	2,030.4	Ton
270E0230	Haul and Stockpile Asphalt Mix Material	6,454.1	Ton
320E0032	PG 58H-34 Asphalt Binder	1,253.9	Ton
320E1200	Asphalt Concrete Composite	159.3	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	24,301.7	Ton
320E1800	Asphalt Concrete Blade Laid	1,677.2	Ton
320E4000	Hydrated Lime	258.5	Ton
320E7040	Grind 6" Transverse Rumble Strip in Asphalt Concrete	180.0	Ft
330E0100	SS-1h or CSS-1h Asphalt for Tack	153.7	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	60.6	Ton
330E2000	Sand for Flush Seal	787.2	Ton

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
332E0010	Cold Milling Asphalt Concrete	188,849	SqYd
421E0100	Pipe Culvert Undercut	108	CuYd
450E0222	60" RCP Class 2, Furnish	54	Ft
450E0230	60" RCP, Install	54	Ft
450E2028	36" RCP Flared End, Furnish	2	Each
450E2029	36" RCP Flared End, Install	2	Each
450E2032	42" RCP Flared End, Furnish	1	Each
450E2033	42" RCP Flared End, Install	1	Each
450E2044	60" RCP Flared End, Furnish	2	Each
450E2045	60" RCP Flared End, Install	2	Each
450E3112	108" RCP Arch Class 2, Furnish	128	Ft
450E3120	108" RCP Arch, Install	128	Ft
450E4605	30" RCP Arch Sloped End, Install	1	Each
450E4621	30" RCP Arch Sloped End with Bars, Furnish	1	Each
450E4639	108" RCP Arch Sectional End, Furnish	1	Each
450E4640	108" RCP Arch Sectional End, Install	1	Each
450E4767	24" CMP 12 Gauge, Furnish	70	Ft
450E4770	24" CMP, Install	70	Ft
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	948	Ft
620E0510	Type 1 Temporary Fence	140	Ft
620E1020	2 Post Panel	11	Each
620E1030	3 Post Panel	2	Each
630E0500	Type 1 MGS	525.0	Ft
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2018	MGS MASH Tangent End Terminal	4	Each
632E1320	2.0"x2.0" Perforated Tube Post	57.6	Ft
632E2220	Guardrail Delineator	20	Each
632E2510	Type 2 Object Marker Back to Back	8	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	18.0	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	12.0	SqFt
632E3500	Reset Sign	10	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	586	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	421	Gal
634E0010	Flagging	560.0	Hour
634E0020	Pilot Car	240.0	Hour
634E0110	Traffic Control Signs	3,737.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	25	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0630	Temporary Pavement Marking	37.3	Mile
634E0750	Temporary Concrete Barrier End Protection	2	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	2	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	3	Each
634E2000	Longitudinal Pedestrian Barricade	40	Ft
634E2015	Temporary Pedestrian Access Route	Lump Sum	LS
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	4	Each
635E0150	Breakaway Base Luminaire Pole with Twin Arms, 50' Mounting Height	7	Each
635E3700	Roadway Luminaire, LED with Photoelectric Cell	18	Each
635E5020	2' Diameter Footing	95.0	Ft
635E5301	Type 1 Electrical Junction Box	3	Each
635E5400	Electrical Service Cabinet	1	Each
635E8120	2" Rigid Conduit, Schedule 40	2,915	Ft
635E8220	2" Rigid Conduit, Schedule 80	300	Ft
635E9014	1/C #4 AWG Copper Wire	11,120	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	840	Ft
720E1010	PVC Coated Bank and Channel Protection Gabion	10.0	CuYd
730E0204	Type C Permanent Seed Mixture	65	Lb
731E0100	Fertilizing	5,454	Lb
732E0100	Mulching	10.0	Ton
734E0103	Type 3 Erosion Control Blanket	5,650	SqYd
734E0132	Type 2 Turf Reinforcement Mat	1,096.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	300	Ft
734E0165	Remove and Reset Erosion Control Wattle	75	Ft
734E0325	Surface Roughening	1.0	Acre
734E0510	Shaping for Erosion Control Blanket	1,100	Ft
734E0602	Low Flow Silt Fence	1,750	Ft
734E0604	High Flow Silt Fence	425	Ft
734E0610	Mucking Silt Fence	151	CuYd
734E0620	Repair Silt Fence	544	Ft
831E0110	Type B Drainage Fabric	29	SqYd
900E0010	Refurbish Single Mailbox	8	Each
900E1310	Concrete Washout Facility	1	Each
900E1320	Construction Entrance	2	Each
900E1980	Storage Unit	1	Each

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

FOR BIDDING PURPOSES ONLY

REV. 12-3-2025 BRA

Structure No. 40-142-144

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0010	Remove Concrete Bridge Approach Slab	232.5	SqYd
120E3120	Bridge Berm Repair	2	Each
120E7000	Select Granular Backfill	17.9	Ton
260E1010	Base Course	28.7	Ton
410E2600	Membrane Sealant Expansion Joint	83.8	Ft
460E0150	Concrete Approach Slab for Bridge	190.6	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	41.8	SqYd
491E0005	Two Coat Bridge Deck Polymer Chip Seal	466.7	SqYd
491E0110	Abrasive Blasting of Bridge Deck	466.7	SqYd
491E0120	Bridge Deck Grinding	466.7	SqYd
491E0130	Concrete Removal, Class A	4.0	SqYd
491E0140	Concrete Removal, Class B	4.0	SqYd
491E0172	Concrete Patching Material, Bridge Deck	40.6	CuFt
700E0210	Class B Riprap	223.8	Ton
831E0110	Type B Drainage Fabric	294	SqYd
831E1030	Perforated Geocell	427	SqFt

Structure No. 40-142-145

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0010	Remove Concrete Bridge Approach Slab	232.5	SqYd
120E3120	Bridge Berm Repair	2	Each
120E7000	Select Granular Backfill	17.9	Ton
260E1010	Base Course	28.7	Ton
410E2600	Membrane Sealant Expansion Joint	83.8	Ft
460E0150	Concrete Approach Slab for Bridge	190.6	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	41.8	SqYd
491E0005	Two Coat Bridge Deck Polymer Chip Seal	466.7	SqYd
491E0110	Abrasive Blasting of Bridge Deck	466.7	SqYd
491E0120	Bridge Deck Grinding	466.7	SqYd
491E0130	Concrete Removal, Class A	5.1	SqYd
491E0140	Concrete Removal, Class B	5.1	SqYd
491E0172	Concrete Patching Material, Bridge Deck	51.8	CuFt
700E0210	Class B Riprap	264.1	Ton
831E0110	Type B Drainage Fabric	345	SqYd
831E1030	Perforated Geocell	427	SqFt

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

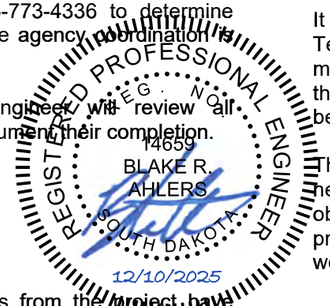
ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.



COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.28 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
W2	114+00 to 116+25	0.24	0.00	0.03	0.00	0.27
W14	309+60	0.00	0.00	0.01	0.01	0.01

Action Taken/Required:

SDDOT will acquire 1.29 credits from the Ducks Unlimited wetland mitigation bank site to mitigate permanent impacts.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in Section B – Grading Plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands beyond the work limits and easements shown in the plans.

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.22 acres of stream (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Permanent Impact (Acres)	Temporary Impact (Acres)	Total Impact (Acres)
Park Creek	65+50	0.00	0.22	0.22

Action Taken/Required:

It has been determined that project impacts do not require mitigation. Temporary impacts identified in the Table of Impacted Streams will not be mitigated as the finished ground under the bridge will be shaped to match the upstream channel and flood plain and the existing low water channel will be maintained as near as practical to the existing location.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any stream. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any streams beyond the work limits and easements shown in the plans.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

Station	NLEB Seasonal Work Restriction
10+54.00 – 394+83.87	April 1 to October 31

COMMITMENT C: WATER SOURCE

REV. 12-10-2025 BRA

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< https://sdleastwanted.sd.gov/maps/default.aspx >

< South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species:
https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04 >

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Park Creek is classified as warm water, marginal fishery with a total suspended solids standard of less than 150 mg/L 30-day average, less than 263 mg/L daily maximum.

Bourne Slough is classified as warm water, marginal fishery with a total suspended solids standard of less than 150 mg/L 30-day average, less than 263 mg/L daily maximum.

Madison Lake is a warm water permanent fish life propagation water with a total suspended solids standard of less than or equal to 90 mg/L daily maximum.

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold-water 0permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold-water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTempInfoFillable.pdf >

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx >

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

The Contractor must adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State."

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf >

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: < https://dot.sd.gov/doing-business/environmental/stormwater >

DANR:< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx >

EPA: < https://www.epa.gov/npdes >

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.
Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water for Embankment is 79 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical sections will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

TYPE III FIELD LABORATORY

The Contractor will provide high-speed broadband internet connection to the field lab. The multiport internet connection may be hardwired, through a cellular method, or other approved service that allows Wi-Fi connection. Prior to obtaining the internet connection, the Contractor will submit the internet connection's technical data to the Area Office to check for compatibility with the state's computer equipment. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. The internet service will be incidental to the contract unit price per each for "Type III Field Laboratory".

UTILITIES

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

INSLOPE TRANSITIONS

Inslope transitions will be required at various pipe locations. Refer to Standard Plate 120.05 for details.

TABLE OF INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

Station	L/R	Type
254+09 (SD 34)	L/R	1
300+92 (SD 34)	R	1
309+60 (SD 34)	R	1
5+82 (457 Ave)	L	2
6+50 (457 Ave)	L/R	1

SHRINKAGE FACTOR: SD 34 Bridges Embankment +20% & 457th Avenue Embankment +35%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to Station	Excavation (CuYd)	* Undercut (CuYd)	* Muck Exc. (CuYd)	* Contractor Furnished Borrow Exc. (CuYd)	** Waste (CuYd)
SD 34 EB Bridge					
20+28 25+27				300	
SD 34 WB Bridge					
13+80 18+38				350	
457th Avenue					
1+89 12+84	3550	1467	1283	7163	1283
Totals:	3550	1467	1283	7813	1283

* The quantities for these items are in the Estimate of Quantities under their respective contract items.
** The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	3550
Undercut	1467
Topsoil	1829
Unstable Excavation	1271
Salvaged Granular Base Material	1075
Total	9192

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity will be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil will be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed and/or salvaged.

UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 2 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2-foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with high humus content will be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4-foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil wand soil obtained from adjacent excavation (excluding the upper 6 inches) will then be replaced and compacted to the density specified to the section being constructed.

TABLE OF UNDERCUTTING LOCATIONS

Station	to	Station
1+89		2+50
12+00		12+84

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 1271 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
8+50		12+00	L/R	2	1271
				Total:	1271

MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 1283 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for “Muck Excavation”.

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material will be measured and paid for as “Unclassified Excavation”.

TABLE OF MUCK EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
4+75		5+75	L/R	3	979
7+25		8+00	L/R	3	304
				Total:	1283

GENERAL GEOLOGY

The project alignment traverses glacial terrain typical of eastern South Dakota. Included within this terrain may be areas of loess, shale, sand, gravel, glacial till and boulder till. As is the case with most glacial terrain, the materials throughout the project can vary greatly in a short distance.

CLASSIFICATION OF EXCAVATION

Large glacial boulders may be encountered sporadically within the project limits. Very large boulders could require more effort to excavate. Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation. Muck Excavation will be required at the areas shown in the plans or as directed by the Engineer.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

PIPE CULVERT UNDERCUT

Pipe culvert undercut will be required for this project.

The table includes undercut for 36 inch and larger pipe culverts. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. Pipes listed may or may not require undercutting and pipes not listed may require undercutting. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

Station	Undercut Depth (Ft)	Pipe Culvert Undercut (CuYd)	Granular Material (Ton)
4+69	2	34	58
6+50	2	74	125
	Total:	108	183

The table specifies locations where granular material is required for backfilling the pipe culvert area. Other locations of pipe culverts may require granular material backfill where site conditions warrant. Granular material will conform to the gradation requirements in Section 421.2.A of the Specifications and will be paid for at the contract unit price per ton for “Granular Material”.

The table below describes the material types and groundwater elevations at the pipe locations based on the subsurface investigation conducted in August 2024. Groundwater elevations indicate dewatering will be required during pipe culvert undercutting at these locations.

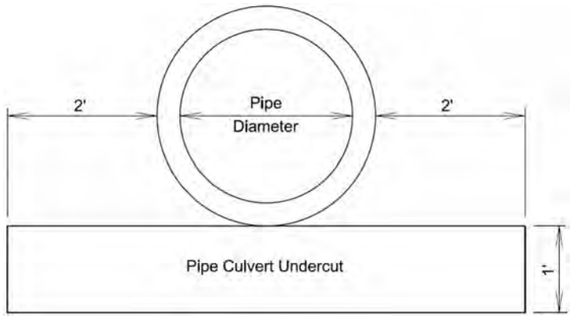
Station	Soil Below Flowline	Groundwater Elevation (ft.)	Flowline of Pipe	
			Inlet Elevation (ft.)	Outlet Elevation (ft.)
4+69	Black sandy silt	1622.2	1621.0	1620.6
6+50	Black sandy silt	1622.2	1622.5	1622.0

The pipe culverts at Stations 4+69 and 6+50 will be undercut to a minimum depth of 24 inches. The depth of undercut is an estimate, and the actual depth necessary will be determined during construction. The Engineer will determine how much undercut will be done in accordance with Section 421 of the Specifications but will not reduce the undercut to less than the depth stated above.

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1’ Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1’ Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



PIPE COVER

The earthen subgrade cover for some pipe installations is less than one foot. The Contractor will take the necessary precautions to ensure the structural properties of the pipes are not damaged after installation and prior to the placement of final surfacing. Any additional costs for preventing damage to these pipes will be incidental to the contract unit price per foot for the corresponding pipe installation contract item.

MAILBOXES

The Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for “Refurbish Single Mailbox”.

TABLE OF REFURBISH MAILBOX

Station (SD 34)	L/R	Single (Each)
36+42	L	1
80+89	L	1
88+45	L	1
142+58	L	1
150+57	L	1
156+06	L	1
289+11	L	1
291+43	L	1
	Total:	8

STORM SEWER

Reinforced concrete pipe may be bell and spigot. The pipe sections will be adjoined such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Lift holes in the reinforced concrete pipe will be plugged with grout.

Watertight joints are required for reinforced concrete pipe, drop inlets, manholes, and junction boxes where storm sewers run parallel to and within 10 feet horizontally from existing or proposed water mains.

Watertight joints are required where reinforced concrete pipes, drop inlets, manholes, or junction boxes cross water mains and are separated a distance of 18 inches or less, above or below, the water main.

If watertight joints are required then the watertight joints will extend for a distance of 10 feet beyond the water main. This measurement will be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals will conform to the following requirements:

1. Reinforced Concrete Pipe (Circular): Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe will be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

2. Reinforced Concrete Pipe (Arch): Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe joints will be sealed with a hydrophilic flexible water stop seal and wrapped with a 1-foot wide strip of fabric above the cradle. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

3. Drop Inlets, Manholes, and Junction Boxes: Joints will be sealed with one of the following methods:

   A. A flexible strip seal placed in the joints conforming to the requirements of ASTM C990 and the perimeter encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

   B. A hydrophilic flexible water stop seal placed in the joints and a 1-foot wide strip of fabric wrapped around the perimeter of the pipe. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

   C. A self-adhesive external joint seal wrap. The seal wrap will be from the list below.

Approved List of Self-adhesive Joint Wrap

Product	Manufacturer
Mar Mac Seal Wrap	Mar Mac Construction Products McBee, SC 843-335-5909 http://www.marmac.com
ConWrap CS-212	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com

Approved List of Hydrophilic Flexible Water Stop Seal:

Product	Manufacturer
Waterstop RX	Cetco Hoffman Estates, IL 800-527-9948 http://www.cetco.com
Conseal CS-231	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com

Gaskets and seals (mastic, waterstop, and seal wraps) will be installed in accordance with the Manufacturer's recommendations.

The cost for furnishing and installing all gaskets, mastic joint seal, water stop seal, seal wrap, concrete collars, and for plugging the lift holes will be incidental to the contract unit price per foot for the corresponding pipe contract item.

INCIDENTAL WORK, GRADING

Station	L/R	Remarks
150+90 (SD 34)	R	Eliminate Entrance
254+09 (SD 34)	L	Remove 36" RCP End Section
254+09 (SD 34)	R	Remove 36" RCP End Section
300+92 (SD 34)	R	Remove 30" Arch RCP End Section
309+60 (SD 34)	R	Remove 42" RCP End Section
4+47 (457 Ave)	R	Remove 108" Arch RCP End Section
8+13 (457 Ave)	L	Remove 24"-71' CMP

TABLE OF PVC COATED BANK AND CHANNEL PROTECTION GABIONS AND DRAINAGE FABRIC

Station	L/R	PVC Coated Bank and Channel Protection Gabion (CuYd)	Type B Drainage Fabric (SqYd)
309+60 (SD 34)	R	10.0	29
	Total:	10.0	29

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

TABLE OF GUARDRAIL

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

FOR BIDDING PURPOSES ONLY

Location	Remove 3 Cable Guardrail (Ft)	Remove 3 Cable Guardrail Anchor Assembly (Each)	Remove 3 Cable Guardrail Slip Base Anchor Assembly (Each)	Remove Beam Guardrail (Ft)	Type 1 MGS (Ft)	Type 1 Retrofit Guardrail Transition (Each)	MGS MASH Tangent End Terminal (Each)
Structure No. 40-142-144 (SD 34 WB Bridge)							
Begin Bridge Lt.					125.0	1	1
Begin Bridge Rt.					137.5	1	1
Structure No. 40-142-145 (SD 34 EB Bridge)							
Begin Bridge Lt.					137.5	1	1
Begin Bridge Rt.					125.0	1	1
22+20.57-26' L to 23+51.63-19' L (SD 34 EB Bridge)	130	1	1				
15+06.23-18' R to 15+98.07- 26' R (SD 34 WB Bridge)				92			
22+32.00-27' R to 24+01.08-23' R (SD 34 EB Bridge)				166			
15+06.23-22' L to 16+12.64- 28' L (SD 34 WB Bridge)				110			
23+09.29-24' L to 24+01.08-19' L (SD 34 EB Bridge)				92			
15+70.38-19' R to 16+85.35- 26' R (SD 34 WB Bridge)	115	1	1				
Totals:	245	2	2	460	525.0	4	4

TABLE OF CONSTRUCTION STAKING (See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking Length (Mile)	Grade Staking Lane Factor	Grade Staking *Sets of Stakes	Grade Staking **Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)
SD HWY 34 (4 Lanes Asphalt)	10+54	178+25	4	16771	3.176	2	1	-	3.176	-
SD HWY 34 (Transition from 4 Lanes to 2 Lanes Asphalt)	178+25	189+00	4/2	1075	0.204	1.5	1	-	0.204	-
SD HWY 34 (2 Lanes Asphalt)	189+00	394+84	2	20584	3.898	1.0	1	-	3.898	-
Westbound SD HWY 34 (2 Lanes Asphalt)	10+00	19+10	2	910	0.172	1.0	1	0.172	0.172	0.172
Eastbound SD HWY 34 (2 Lanes Asphalt)	20+00	29+06	2	906	0.172	1.0	1	0.172	0.172	0.172
457th AVE (2 Lanes Apshalt)	1+89	12+85	2	1096	0.208	1.0	1	0.208	0.208	0.208
							Totals:	0.552	7.830	0.552

* 1 = Blue Top Stakes Only (Asphalt Concrete Pavement)

** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

FOR BIDDING PURPOSES ONLY

REV. 8/14/2025 BRA

PUBLIC LANDS SURVEY SYSTEM, RIGHT OF WAY, AND PROPERTY CORNERS

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 1 PLSS corner and 13 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

< https://dot.sd.gov/doing-business/engineering/design-services/surveyors >

All costs associated with furnishing and installing PLSS caps, rebar, and all other materials associated with setting, reestablishing, or verifying PLSS, ROW corners, and property corners in accordance with the SDDOT Survey Manual will be incidental to the contract unit price per each for "Reestablish Public Land Survey System Corner" and/or "Reestablish Right-of-Way and Property Corner".

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

Phase 1 (4 lane section)

1. Remove and salvage any permanent signing that will interfere with work.

2. Use single lane closures to set up temporary concrete barrier end protection on westbound structure and place fixed location construction signing for westbound lanes.

3. Set up traffic control for two-way traffic and crossover locations.

4. Divert eastbound traffic through crossovers at MRM 388.05 and MRM 391.80 and maintain two-way traffic in the westbound lanes of HWY 34.

5. Install sediment and erosion control along with perimeter control needed prior to grading operations.

6. Complete all work in eastbound lanes.

7. Complete all work for 457th Avenue south of HWY 34 and shared use path.

8. Begin construction work at 457th Avenue north of HWY 34. Any work can be done that doesn't impede traffic on the westbound lanes.

9. Begin work in 457th Avenue median. Complete as much pavement removal, grading and surfacing without impeding traffic.

10. Complete eastbound structure 40-142-144 work.

11. Install eastbound permanent guardrail.

12. Install eastbound and 457th Avenue permanent seeding and erosion control.

13. Eastbound lanes: Set up traffic control for two-way traffic, place fixed location construction signing, and set up temporary concrete barrier end protection.

Phase 2 (4 lane section)

1. Divert westbound traffic through crossovers near MRM 388.05 and MRM 391.80 and maintain two-way traffic in the eastbound lanes of HWY 34.

2. Install sediment and erosion control along with perimeter control needed prior to grading operations.

3. Complete all work in westbound lanes.

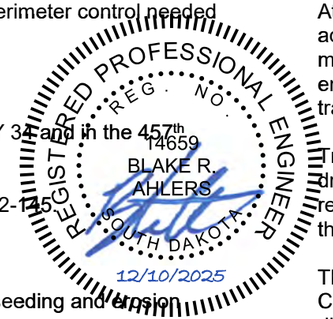
4. Complete all work for 457th Avenue north of HWY 34 and in the 457th Avenue median.

5. Complete all work for westbound structure 40-142-145.

6. Install westbound permanent guardrail.

7. Install westbound and 457th Avenue permanent seeding and erosion control.

8. Install permanent signing and pavement markings for 457th Avenue and westbound lanes.



GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing.

GENERAL TRAFFIC CONTROL (CONTINUED)

Pavement marking removals will be incidental to the contract unit price per foot for “Remove Pavement Marking, 4” or equivalent”. Temporary pavement marking will be paid for at the contract unit price per mile/foot for “Temporary Pavement Marking”. The additional channelizing devices will be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.

It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for “Flagging”.

WORK ZONE SPEED REDUCTION

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown on standard plate 634.63. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

TEMPORARY PAVEMENT MARKING

Temporary Pavement Marking Paint will be used on milled and leveling surfaces for centerlines, lane lines, skips, and as directed by the Engineer. The Temporary Pavement Marking Paint will be placed at the location of the existing pavement markings except that centerline will be double yellow the entire project length and will be offset 6-inches from centerline of the roadway. It will be the Contractor’s responsibility to determine which direction to offset so that the markings do not get covered up when the first half of the roadway is paved. Any markings that get covered by the paving operation will be reestablished as directed by the Engineer at the Contractor’s expense. The Contractor will be responsible for marking out those exact locations.

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5’ the entire project length.

Temporary flexible vertical markers (tabs) may be used as detailed in the specifications.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

Quantities of Temporary Pavement Markings consist of:

- One pass on top of the milled surface
- One pass on the first lift of asphalt concrete
- One pass on top of the final lift of asphalt concrete
- One pass prior to the flush seal, length as determined by the Engineer
- One pass after the flush seal

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for “Temporary Pavement Marking” will be made because of a variation in quantities.

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

The Contractor will need to install LOOSE GRAVEL (W8-7) signs with advisory speed plaques (W13-1P) in areas where loose sand is present during the flush seal operation. LOOSE GRAVEL signs have been included in these plans for this.

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

One week prior to starting work affecting the traveling public, portable changeable message signs (PCMS) will be installed at both ends of the project and at MRM 391.80 to notify drivers of the upcoming construction. Crossover locations are detailed in Standard Plate 634.66. The Contractor will program the portable changeable message signs with the following message:

ROAD WORK
STARTS
(DATE)

CONSIDER
ALTERNATE
ROUTE

When work begins, that will affect traffic patterns, the Contractor will re-program the MRM 388.05 and MRM 391.80 PCMS with the following message:

REDUCED SPEED
TWO WAY TRAFFIC

During incident management:

TRAFFIC CONG AHEAD
BE PREPARED TO STOP

The Engineer shall approve alternate messages to fit projects plans.

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Lake County Sheriff and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for “Flagging”.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a press release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor will provide the Engineer with pertinent information 7 days prior to any phase change or any other major change that affects traffic flow.

TEMPORARY CONCRETE BARRIER END PROTECTION

Crash attenuators meeting the requirements of NCHRP 350 or MASH TL-3 will be furnished and installed by the Contractor. Attachment of the attenuators to the concrete barriers will be by approved methods.

All costs associated with furnishing, transporting, initial setup, connecting, maintaining, and removing the crash attenuators will be incidental to the contract unit price per each for Temporary Concrete Barrier End Protection.

All costs associated with moving and resetting crash attenuators to accommodate traffic flows after initial set-up will be paid for at the contract unit price per each for Remove & Reset Temporary Concrete Barrier End Protection. All costs associated with removing from initial placement and resetting at a new location will be incidental to the contract unit price per each. No additional payment will be made for crash attenuators that are not immediately reset at a new location on the project and stored on-site until they are either reset or removed from the project as determined by the Engineer. No additional payment will be made for minor adjustments.

The Contractor will have replacement hardware available so that in the event the crash attenuator is hit and made unusable, the crash attenuator can be made functional within 24 hours. The cost of replacement will be incidental to the contract unit price per each for Temporary Concrete Barrier Module Set or Repair Kit. No payment will be made for the Temporary Concrete Barrier Module Set or Repair Kit if no repairs are necessary. Upon completion of the project, crash attenuators will remain the property of the Contractor.

TEMPORARY PEDESTRIAN ACCESS ROUTE

A Temporary Pedestrian Access Route (TPAR) will be provided when crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated. A TPAR may consist of a combination of existing and/or temporary pedestrian facilities. The TPAR will be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor will notify the Engineer at least 72 hours prior to start of any construction operation that will necessitate a change in pedestrian access. The method of Temporary Pedestrian Access Route used by the Contractor for this work must be approved by the Engineer.

Mill and Overlay locations where TPAR will be provided include the intersections at the following SD 34 Stations: 56+50, 89+25, 142+50, 156+25, and 168+75. Grade and Pave location where TPAR will be provided is at the intersection at SD 34 Station 115+50.

All costs associated with installing and maintaining a temporary pedestrian access route, including all surfacing materials, labor, and incidental work, will be incidental to the contract lump sum price for “Temporary Pedestrian Access Route”.

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

Plans quantity is used for final payment for placing topsoil. The estimated amount of topsoil to be placed is as follows:

Station	to	Station	Topsoil (CuYd)
20+28		25+27 (SD 34 EB Bridge)	126
13+80		18+38 (SD 34 WB Bridge)	223
1+89		12+84 (457 Ave)	1480
		Total:	1829

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

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All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The Mycorrhizal Inoculum provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer’s recommended method of application.

The Fertilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways, temporary easements under cultivation.

Type C Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	16
Canada Wildrye	Mandan	2
	Total:	18

SURFACE ROUGHENING

Surface roughening will be done after topsoil placement and before permanent seeding and mulching applications. Refer to Standard Plate 734.25 for details.

TABLE OF SURFACE ROUGHENING

Station	Location	Area (Acre)
62+16 to 65+92 R (SD 34)	Inslope	0.2
63+46 to 65+92 L (SD 34)	Inslope	0.2
66+98 to 70+27 R (SD 34)	Inslope	0.2
66+98 to 70+25 L (SD 34)	Inslope	0.4
	Total:	1.0

MULCHING (GRASS HAY OR STRAW) FOR TEMPORARY STABILIZATION

Grass Hay or Straw Mulch for temporary stabilization is to be used on this project at locations noted in the table and at locations determined by the Engineer during construction. Two applications of Grass Hay or Straw Mulch on areas that receive temporary Grass Hay or Straw Mulch will not be required if the Engineer determines that there is sufficient Mulch remaining at the time permanent seeding takes place.

An additional 0.5 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

TABLE OF MULCHING (GRASS HAY OR STRAW) FOR TEMPORARY STABILIZATION APPLIED AT 2 TONS/ACRE

Station	Location	Quantity (Ton)
SD 34		
62+16 to 65+92 R	Inslope	0.4
63+46 to 65+92 L	Inslope	0.4
66+98 to 70+27 R	Inslope	0.4
66+98 to 70+25 L	Inslope	0.8
457th Ave		
1+89 to 3+12 R	Inslope/Backslope/Ditch	0.2
1+89 to 3+11 L	Inslope/Backslope/Ditch	0.2
3+48 to 4+00 R	Inslope/Backslope/Ditch	0.2
3+48 to 4+00 L	Inslope/Backslope/Ditch	0.2
4+35 to 12+57 R	Inslope/Backslope/Ditch	2.1
4+37 to 12+84 L	Inslope/Backslope/Ditch	2.7
	Additional Quantity:	0.5
	Total Quantity for Temporary Stabilization:	9.5
	Total Quantity:	10.0

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

An additional quantity of 12” Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

The erosion control wattle provided will be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
457th Ave			
5+54 R	Ditch	12	30
6+38 R	Ditch	12	30
6+65 R	Ditch	12	30
7+57 R	Ditch	12	30
8+66 R	Ditch	12	30
9+54 R	Ditch	12	30
10+54 R	Ditch	12	30
11+45 R	Ditch	12	30
12+30 R	Ditch	12	30
	Additional Quantity:	12	30
		Total:	300

LOW FLOW SILT FENCE

The low flow silt fence fabric provided will be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

Low flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An additional quantity of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

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TABLE OF LOW FLOW SILT FENCE

Station	Location	Quantity (Ft)
SD 34		
62+16 to 65+92 R	Perimeter Control	380
63+46 to 65+92 L	Perimeter Control	250
66+98 to 70+27 R	Perimeter Control	335
66+98 to 70+25 L	Perimeter Control	335
457th Ave		
1+89 to 2+92 R	Perimeter Control	120
1+89 to 2+91 L	Perimeter Control	140
4+35 to 5+65 R	Perimeter Control	150
	Additional Quantity:	40
	Total:	1,750

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

High flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
457th Ave		
2+76 R	End of Pipe	100
5+83 L	End of Pipe	100
6+50 R	End of Pipe	100
6+51 L	End of Pipe	100
8+45 R	Inlet End of Pipe	18
	Additional Quantity:	7
	Total:	425

EROSION CONTROL BLANKET

Erosion control blanket will be installed 20 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

The erosion control blanket provided will be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
SD 34			
62+16 to 65+92 R	Inslope	3	983
63+46 to 65+92 L	Inslope	3	915
66+98 to 70+27 R	Inslope	3	726
66+98 to 70+25 L	Inslope	3	1,641
457th Ave			
5+48 to 7+73 R	Ditch Channel	3	543
8+48 to 12+27 R	Ditch Channel	3	812
	Additional Quantity:	3	30
	Total Type 3 Erosion Control Blanket:		5,650

SHAPING FOR EROSION CONTROL BLANKET

The ditches will be shaped for the erosion control blanket as specified on Standard Plate 734.01.

TURF REINFORCEMENT MAT

Turf Reinforcement Mat will be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor will use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

Turf Reinforcement Mat will be installed in accordance with the manufacturer's installation instructions.

TABLE OF TURF REINFORCEMENT MAT

Station	Location	Width (Ft)	Type	Quantity (SqYd)
457th Ave				
5+60 to 7+77 L	Ditch Channel	60	2	1096
	Total Type 2 Turf Reinforcement Mat:			1096

CONSTRUCTION ENTRANCE

The Contractor will install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor will install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance will be routinely inspected, and the Contractor will repair or replace material as deemed necessary by the Engineer.

The Construction Entrance provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor will install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material will be obtained from a granular source and will conform to the following gradation:

Sieve Size	Percent Passing
6"	100%
#4	0-60%
#200	0-20%

The pit run material will be compacted to the satisfaction of the Engineer.

The aggregate for the granular material will conform to the following gradation requirements:

Sieve Size	Percent Passing
3"	100%
2 ½"	90-100%
1 ½"	25-60%
¾"	0-10%
½"	0-5%

The granular material will be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The Reinforcement Fabric (MSE) will be in conformance with Section 831 of the Specifications. The Reinforcement Fabric (MSE) will be on the Approved

Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The Reinforcement Fabric (MSE) should be kept as taut as possible prior to placing.

Equipment will not be allowed on the Reinforcement Fabric (MSE) until the first lift of granular material is in place.

All seams in the Reinforcement Fabric (MSE) will be overlapped at least 2' and shingled.

CONCRETE WASHOUT

A concrete washout will be installed on the project site at a location approved by the Engineer if concrete trucks deliver concrete to the site. No washout area is necessary if all concrete trucks are going to wash out at approved site constructed by the concrete supplier.

The Concrete Washout provided will be from the approved products list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

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FOR BIDDING PURPOSES ONLY

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers left of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (Stormwater Permit))*

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 98 acres
- **5.3 (3b): Total Area to be Disturbed** 6 acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 6 acres
- **5.3 (3d): Existing Vegetative Cover (%)** 80
- **5.3 (3d): Description of Vegetative Cover** Mix of native grasses
- **5.3 (3e): Soil Properties:** AASHTO Soil A-1, A-2, A-2-4, A-4, A-6
- **5.3 (3f): Name of Receiving Water Body/Bodies** Silver Creek & Lake Madison
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

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5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements (**see sheet).

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install stabilized construction entrance(s).	
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Install utilities, storm sewers, curb and gutter.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
☐ Natural Buffers (within 50 ft of Waters of State)	
☒ Silt Fence	
☒ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☒ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
☐ Other:	

Structural Erosion and Sediment Controls

Description	Estimated Start Date
☒ Silt Fence	
☐ Temporary Berm/Windrow	
☒ Erosion Control Wattles	
☐ Temporary Sediment Barriers	
☐ Erosion Bales	
☐ Temporary Slope Drain	
☒ Turf Reinforcement Mat	
☐ Riprap	
☒ PVC Coated Gabions	
☐ Rock Check Dams	
☐ Sediment Traps/Basins	
☐ Culvert Inlet Protection	
☐ Transition Mats	
☐ Median/Area Drain Inlet Protection	
☐ Curb Inlet Protection	
☐ Interceptor Ditch	
☒ Concrete Washout Facility	
☐ Work Platform	
☐ Temporary Water Barrier	
☐ Temporary Water Crossing	
☐ Permanent Stormwater Ponds	
☐ Permanent Open Vegetated Swales	
☐ Natural Depressions to allow for Infiltration	
☐ Sequential Systems that combine several practices	
☐ Other:	

Dust Controls

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
☐ Watering	
☐ Stockpile location/orientation	
☐ Dust Control Chlorides	
☐ Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
☐ Other:	

Stabilization Practices (See Detail Plan Sheets)

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (**3.18**))

Description	Estimated Start Date
☐ Vegetation Buffer Strips	
☐ Temporary Seeding (Cover Crop Seeding)	
☒ Permanent Seeding	
☐ Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☒ Mulching (Grass Hay or Straw)	
☐ Fiber Mulching (Wood Fiber Mulch)	
☐ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☐ Fiber Reinforced Matrix	
☒ Erosion Control Blankets	
☒ Surface Roughening (e.g. tracking)	
☐ Other:	

Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

Stormwater management will be handled by temporary controls outlined in "DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES" above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➢ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the Contractor.
  - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off-site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➢ **Spill Control Practices**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.

The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

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➢ **Spill Response**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➢ **Waste Disposal**

- All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

➢ **Hazardous Waste**

- All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

➢ **Sanitary Waste**

- Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading "POLLUTION PREVENTION PROCEDURES" (check all that apply).

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☐ Petroleum Based Products
- ☐ Diesel Exhaust Fluid
- ☐ Cleaning Solvents
- ☐ Wood
- ☒ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

Product Specific Practices

- **Petroleum Products**
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

- **Fertilizers**
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

- **Paints**
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

- **Concrete Trucks**
  Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

7.0: SPILL NOTIFICATION

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to SDDANR immediately **if any one of the following** conditions exists:
  - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
  - The release or spill causes an immediate danger to human health or safety
  - The release or spill exceeds 25 gallons
  - The release or spill causes a sheen on surface water
  - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
  - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
  - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
  - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.

- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.

5.4: SWPPP CERTIFICATIONS

- **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

- **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature (See the General Permit, Section 7.4 (1))

- **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

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CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

- **Contractor Information**:
  - Prime Contractor Name: _____
  - Contractor Contact Name: _____
  - Address: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **Erosion Control Supervisor**
  - Name: _____
  - Address: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **SDDOT Project Engineer**
  - Name: _____
  - Business Address: _____
  - Job Office Location: _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **SDDANR Contact Spill Reporting**
  - Business Hours Monday-Friday (605) 773-3296
  - Nights and Weekends (605) 773-3231
- **SDDANR Contact for Hazardous Materials.**
  - (605) 773-3153
- **National Response Center Hotline**
  - (800) 424-8802.
- **SDDANR Stormwater Contact Information**
  - SDDANR Stormwater (800) 737-8676
  - Surface Water Quality Program (605) 773-3351

5.5: REQUIRED SWPPP MODIFICATIONS

- **5.5 (1): Conditions Requiring SWPPP Modification**
  The SWPPP must be modified, including the site map(s), in response to any of the following conditions:
  - When a new operator responsible for implementation of any part the SWPPP begins work on the site.
  - When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
  - To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
  - If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
  - To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
  - If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.
- **5.5 (2): Deadlines for SWPPP Modification**
  Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.
- **5.5 (3): Documentation of Modifications to the Plan**
  All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.
- **5.5 (4): Certification Requirements**
  All modifications made to the SWPPP must be signed and certified as required in Section 7.4.
- **5.5 (5): Required Notice to Other Operators**
  If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Fo

CHECKING SPREAD RATES

The Contractor will be responsible for checking the asphalt concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the "Checker". No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

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.

STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyratory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for "Storage Unit".

INTERSECTING ROADS AND ENTRANCES

In areas where granular material has been placed adjacent to the existing asphalt concrete, the Contractor will be required to remove the granular material to a depth below the existing asphalt concrete to allow for the placement of the new asphalt concrete. New asphalt concrete will be placed flush with the existing asphalt concrete. The existing granular material removed will be placed on the entrances, intersecting roads or other locations as directed by the Engineer.

All costs to remove and place the granular material including labor, equipment and incidentals will be incidental to the various related contract items.

REMOVE ASPHALT CONCRETE PAVEMENT

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

An estimated 3568 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing highway according to the in-place surfacing typical sections and become the property of the Contractor for disposal. Care will be taken not to waste the in-place granular material. The remaining in-place granular material will be salvaged and stockpiled.

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.

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 25 cubic yards of Unclassified Excavation, Digouts and 38 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 50 tons of Base Course and 13 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts.

The digouts will be extended through the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

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EXISTING PCC PAVEMENT

The existing concrete is 7.5" Plain Jointed PCC Pavement that has been cracked and seated. The existing transverse joints are perpendicular and are spaced at 16 feet. The aggregate in the existing Plain Jointed PCC Pavement is quartzite.

SHOULDER CLEARING

Prior to cold milling or asphalt concrete resurfacing, SDDOT personnel will mow and/or spray the shoulders to kill existing vegetation.

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer, prior to cold milling. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

The Contractor will notify the Sioux Falls Area Office at (605) 367-5680 at least four weeks prior to beginning work on this project so SDDOT personnel can mow and/or spray along the shoulder and inslopes. The Department will not be responsible for the effectiveness of the mowing or spraying.

Each shoulder will be measured for payment. Costs associated with this work will be included in the contract unit price per mile for Shoulder Clearing.

WATER FOR COMPACTION

The cost of water for compaction of the granular material will be incidental to the various other contract items. A minimum of 6% moisture will be required at the time of compaction unless otherwise directed by the Engineer.

STOCKPILE GRANULAR MATERIAL

An estimated 2030.4 tons of granular material will be salvaged from 457th Ave and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

Salvaged material will be processed to meet the requirements of Section 884.2 D.8 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular material.

The salvaged material not used on the project will be stockpiled or disposed of as directed by the Engineer.

The quantity of granular material may vary from the plans.

The estimated quantity of salvageable material in-place is based on granular surfacing depth of 8". This estimated quantity was included in the unclassified excavation quantities.

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HAUL AND STOCKPILE ASPHALT MIX MATERIAL

Excess salvaged asphalt concrete material produced by cold milling estimated at 6454.1 tons (for informational purposes only) will be hauled and stockpiled in the SE ¼ of Section 16, Township 106 North, Range 52 West of the 5th P.M, Lake County, South Dakota at the Madison SDDOT Maintenance Yard. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to stockpiling.

The salvaged asphalt concrete material produced from cold milling will be crushed to meet the requirements of Section 884.2 D.6 prior to stockpiling.

No further gradation testing of the material will be required.

All other costs for crushing, hauling, and stockpiling the salvaged asphalt material will be incidental to the contract unit price per ton for "Haul and Stockpile Asphalt Mix Material".

BASE COURSE, SALVAGED

The Base Course, Salvaged will be obtained from the stockpile site(s) provided by the Contractor from the material produced on this project and may be used without further gradation testing.

All other requirements for Base Course, Salvaged will apply.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 22. This value was obtained from testing during construction of the in-place asphalt concrete.

Cold milling asphalt concrete will be done according to the typical section(s). In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".

The initial/final lift of asphalt paving will be completed within 14 days after the pavement has been cold milled. The blade laid asphalt will be considered the initial lift of asphalt. If any pavement repairs or digouts are required by the Engineer after that time frame they will be repaired by the Contractor at their own expense.

Cold milling asphalt is estimated to produce 10835.0 tons of cold milled asphalt concrete material. An estimated 4380.9 tons of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

The remainder of the salvaged asphalt concrete material will be stockpiled according to the Haul and Stockpile Asphalt Mix Material plan note.

RAP achieved for project use and/or other uses is based on the dimensions given in the typical section(s). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans, if approved by the Engineer.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 58H-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay of Sections 1 and 4. Included in the Estimate of Surfacing Quantities are 225 tons of Asphalt Concrete Blade Laid, 2.3 tons of Hydrated Lime, and 16.7 tons of PG 58H-34 Asphalt Binder per mile and will be tight bladed on the existing surface 36 feet wide prior to the overlay of Sections 2, 3, 5, and 6. Gaps at centerline will not be permitted.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q3R Hot Mixed Asphalt Concrete mix. Mineral Aggregate for tight bladed material will meet the gradation requirements of the Job Mix Formula. Fine Aggregate Angularity and Sand Equivalent requirements will be the same as the Class

Q3R Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

The Asphalt Concrete Blade Laid Lift will be designed using an N_{design} Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

Included in the Estimate of Surfacing Quantities are 59.4 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.09 Gal./SqYd)

FLEXIBLE PAVEMENT SMOOTHNESS PROVISION

All sections, not excluded by the Special Provision for Flexible Pavement Smoothness will be evaluated as two opportunities.

PERFORMANCE GRADED ASPHALT BINDER

Performance Graded Asphalt Binder will conform to Section 890, AASHTO M 332, and the Combined State Binder Group Method of Acceptance for Asphalt Binders, available from the Department's Bituminous Engineer.

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Asphalt concrete aggregates will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3.

The Class Q3R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture. RAP will be obtained from the material produced by cold milling on this project. An estimated 4380.9 tons will be required for use as RAP.

Mix Design Criteria:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3 except as modified by the following:

Gyratory Compactive Effort:

	$N_{initial}$	N_{design}	$N_{maximum}$
Class Q3R	6	50	75

All remaining requirements for Class Q3 will apply.

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q3R Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Asphalt Concrete Composite will be paid for at the contract unit price per ton for “Asphalt Concrete Composite” regardless of the class of asphalt concrete used at such locations.

The asphalt binder used in the mixture can be PG 58H-34 or PG 58V-34 Asphalt Binder.

FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

SAND FOR FLUSH SEAL

The sand application will be placed 11' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

RATES OF MATERIALS

SECTION 1 – RURAL TWO LANE

EASTBOUND (SD 34)
Sta. 10+54 to Sta. 51+26
Sta. 56+10 to Sta. 83+97
Sta. 88+59 to Sta. 189+08

WESTBOUND (SD 34)
Sta. 10+54 to Sta. 27+04
Sta. 13+91 to Sta. 37+00
Sta. 42+01 to Sta. 56+42
Sta. 61+97 to Sta. 89+29
Sta. 94+66 to Sta. 143+11
Sta. 144+63 to Sta. 189+08

The Estimate of Quantities is based on the following quantities of materials per mile.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 5.7 tons applied 25 feet wide prior to Asphalt Concrete Blade Laid (Rate = 0.09 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 5.6 tons applied 37 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1.5” LIFT

Crushed Aggregate	1381 tons
Salvaged Asphalt Concrete	345 tons
PG 58H-34 Asphalt Binder	85 tons
Total Mix without Hydrated Lime	1811 tons
Hydrated Lime	18 tons
Total Mix with Hydrated Lime	1829 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 4.5 tons/mile applied 36 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56.4 tons/mile applied 24 feet wide (Rate = 8 pounds per square yard).

SECTION 2 – RURAL THREE LANE

EASTBOUND (SD 34)
Sta. 51+26 to Sta. 56+10
Sta. 83+97 to Sta. 88+59

The Estimate of Quantities is based on the following quantities of materials per station.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 37 feet wide prior to Asphalt Concrete Blade Laid (Rate = 0.09 gallon per square yard).
SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 45 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1.5” LIFT

Crushed Aggregate	29.41 tons
Salvaged Asphalt Concrete	7.35 tons
PG 58H-34 Asphalt Binder	1.81 tons
Total Mix without Hydrated Lime	38.57 tons
Hydrated Lime	0.39 tons
Total Mix with Hydrated Lime	38.96 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.1 tons/sta. applied 44 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.6 tons/sta. applied 36 feet wide (Rate = 8 pounds per square yard).

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RATES OF MATERIALS (CONTINUED)

SECTION 3 – RURAL THREE LANE

WESTBOUND (SD 34)
Sta. 27+04 to Sta. 31+91
Sta. 37+00 to Sta. 42+01
Sta. 56+42 to Sta. 61+97
Sta. 89+29 to Sta. 94+66
Sta. 143+11 to Sta. 144+63

The Estimate of Quantities is based on the following quantities of materials per station.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 37 feet wide prior to Asphalt Concrete Blade Laid (Rate = 0.09 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 47 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1.5” LIFT

Crushed Aggregate	32.12 tons
Salvaged Asphalt Concrete	8.03 tons
PG 58H-34 Asphalt Binder	1.98 tons
Total Mix without Hydrated Lime	42.13 tons
Hydrated Lime	0.42 tons
Total Mix with Hydrated Lime	42.55 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.2 tons/sta. applied 46 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.6 tons/sta. applied 36 feet wide (Rate = 8 pounds per square yard).

SECTION 4 – RURAL TWO LANE

Sta. 189+08 to Sta. 319+21 (SD 34)
Sta. 333+93 to Sta. 371+77 (SD 34)
Sta. 386+37 to Sta. 394+84 (SD 34)

The Estimate of Quantities is based on the following quantities of materials per mile.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 5.7 tons applied 25 feet wide prior to Asphalt Concrete Blade Laid (6 feet wide each shoulder) (Rate = 0.09 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 6.2 tons applied 41 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1.5” LIFT

Crushed Aggregate	1492 tons
Salvaged Asphalt Concrete	373 tons
PG 58H-34 Asphalt Binder	92 tons
Total Mix without Hydrated Lime	1957 tons
Hydrated Lime	20 tons
Total Mix with Hydrated Lime	1977 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 5.0 tons/mile applied 40 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56.4 tons/mile applied 24 feet wide (Rate = 8 pounds per square yard).

SECTION 5 – RURAL THREE LANE

Sta. 319+21 to Sta. 333+93 (SD 34)

The Estimate of Quantities is based on the following quantities of materials per station.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 37 feet wide prior to Asphalt Concrete Blade Laid (Rate = 0.09 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 57 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1.5” LIFT

Crushed Aggregate	38.96 tons
Salvaged Asphalt Concrete	9.74 tons
PG 58H-34 Asphalt Binder	2.40 tons
Total Mix without Hydrated Lime	51.10 tons
Hydrated Lime	0.51 tons
Total Mix with Hydrated Lime	51.61 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.2 tons/sta. applied 56 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.6 tons/sta. applied 36 feet wide (Rate = 8 pounds per square yard).

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RATES OF MATERIALS (CONTINUED)

SECTION 6 – RURAL THREE LANE

Sta. 371+77 to Sta. 386+37 (SD 34)

The Estimate of Quantities is based on the following quantities of materials per station.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 37 feet wide prior to Asphalt Concrete Blade Laid (Rate = 0.09 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 55 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1.5" LIFT

Crushed Aggregate	37.76 tons
Salvaged Asphalt Concrete	9.44 tons
PG 58H-34 Asphalt Binder	2.33 tons
Total Mix without Hydrated Lime	49.53 tons
Hydrated Lime	0.50 tons
Total Mix with Hydrated Lime	50.03 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.2 tons/sta. applied 54 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.6 tons/sta. applied 36 feet wide (Rate = 8 pounds per square yard).

SECTION 7 – RURAL TWO LANE

Sta. 1+89 to Sta. 3+19 (457 Ave)
Sta. 4+26 to Sta. 12+84 (457 Ave)

The Estimate of Quantities is based on the following quantities of materials per station.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 34 feet wide prior to Q3R lift (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1ST LIFT

Crushed Aggregate	35.85 tons
Salvaged Asphalt Concrete	8.96 tons
PG 58H-34 Asphalt Binder	2.21 tons
Total Mix without Hydrated Lime	47.02 tons
Hydrated Lime	0.47 tons
Total Mix with Hydrated Lime	47.49 tons

The exact proportions of these materials will be determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.2 tons applied 34 feet wide (Rate = 0.06 gallon per square yard).

CLASS S HOT MIXED ASPHALT CONCRETE – 2ND LIFT

Crushed Aggregate	35.85 tons
Salvaged Asphalt Concrete	8.96 tons
PG 58H-34 Asphalt Binder	2.21 tons
Total Mix without Hydrated Lime	47.02 tons
Hydrated Lime	0.47 tons
Total Mix with Hydrated Lime	47.49 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.1 tons/sta. applied 33 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.1 tons/sta. applied 24 feet wide (Rate = 8 pounds per square yard).

GRIND 6" TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE

Advance intersection warning transverse rumble strips will be constructed on the mainline pavement, as detailed in the plan set. Transverse rumble strips will be paid for at the contract unit price per foot for "Grind 6" Transverse Rumble Strip in Asphalt Concrete". It is estimated that 180 feet of transverse rumble strips will be required.

Transverse rumble strip installation will be completed prior to application of the flush seal and permanent pavement markings. A flush seal will be applied to the newly installed transverse rumble strips at a width that extends 3" beyond the perimeter of the total area of the transverse rumble strips and at a rate of 0.10 Gal/SqYd All costs associated with placing the flush seal will be incidental to the contract unit price per ton for "SS-1h or CSS-1h Asphalt for Flush Seal".

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SUPPLYING AS BUILT PLANS

If the roadway lighting system is constructed differently than what is stated in the plans, the Contractor will supply as built plans to the Engineer and a copy will be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor will submit shop drawings and catalog cuts in accordance with Section 985 of the Specifications.

PDF submittals will be sent to the following email addresses:

Stacy.Bartlett@state.sd.us
Joseph.Updike@state.sd.us

LUMINAIRE POLES

Luminaire poles L7-L10 will have a mounting height of 50 feet with a single 8 feet arm. Luminaire poles L1-L6, L11 will have a mounting height of 50 feet with a twin 8 feet arms.

The pole fabricator will be responsible for determining the diameter, length, and number of anchor bolts.

LUMINAIRES

The lighting design used the following parameters to provide 1.6 and greater average maintained foot-candles and uniformity ratios of 3:1 (average maintained to minimum maintained foot-candles) and 5:1 (maximum to minimum maintained foot candles):

Pole Setback:	See Plans
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	30 feet
Luminaire Cycle Length:	275 feet
Configuration:	Median Dual Head
Configuration:	Intersection Single Head
Mounting Height:	50 feet
Arm Length	8 feet

The following luminaires, or an approved equal, will be used for this project:

a.) Eaton - Streetworks: NVN-SA6D-740-U-T3R

b.) General Electric ATB2-P904-MVOLT-R3L-4K-P7-SH

TABLE OF FOOTING DATA

Site Designation	Footing Diameter	* Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
L7-L10	2’ - 0”	8’ - 0”	1’ - 8”	54’ - 9”	8-#7 x 7’ - 6”
L1-L6, L11	2’ - 0”	9’ - 0”	1’ - 8”	60’ - 0”	8-#7 x 8’ - 6”

* Footing depth will be below ground level.
** The size of all spirals will be #3.

During installation of footings, groundwater and caving soils are likely to be encountered below ditch grade elevation.

Concrete placement operations should closely follow excavation procedures. The longer the excavations are left open, the more likely that caving will occur.

If caving soils are encountered, it may be necessary to use casing or drilling fluids to maintain an open excavation. Casing will be of sufficient strength to withstand handling and installation procedures. Casing material may consist of Sonotube, corrugated metal pipe, PVC, smooth metal pipe or any other material as approved by the Engineer. Drilling fluids can be water or other slurries as approved by the Engineer. Concrete placed through drilling fluids will be tremied. If caving is not an issue but water is present, it will be removed prior to concrete placement, or the concrete will be tremied.

ELECTRIC SERVICE

The Contractor will coordinate with Sioux Valley Energy to activate the new electric services two weeks prior to needing the power.

The contact for Sioux Valley Energy is Michele Nielson at (605)-256-1671. All costs associated with coordinating with Sioux Valley Energy and activating the new electric services, will be incidental to the contract lump sum price for “Electrical Service Cabinet”.

WIRE SPLICING FOR LIGHTING

All wire splices for lighting will be made using TE Connectivity GTAP connectors, NSI Industries Polaris Blue connectors, or an approved equal.

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PAVEMENT MARKING PAINT

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of the flush seal. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

Marking 8-inch edge lines and gore areas will require the use of 2 spray nozzles to achieve the required width.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

4" line = 22.5 Gals/Mile
Dashed 4" line = 6.2 Gal/Mile
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m2/lux for white and 170 mc/m2/lux for yellow.

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.

REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for "Remove Sign for Reset". All costs for resetting the existing signs will be incidental to the contract unit price per each for "Reset Sign". All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

NEW PERMANENT SIGNING

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All signs will be manufactured in accordance with the sheeting manufacturer's recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films.

All Flat Aluminum Signs, Nonremovable Copy High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type IV. All Flat Aluminum Signs, Nonremovable Copy Super/Very High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type XI.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware will be incidental to the contract unit price per square foot for "Flat Aluminum Sign, Nonremovable Copy High Intensity" or "Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity".

DIGITALLY PRINTED SIGNS

Digitally printed signs will be allowed on this project. If the Contractor elects to provide digitally printed signs, such signs will adhere to the following specifications.

PROTECTIVE OVERLAY FILM

Permanent traffic signs printed with digital ink systems will be fabricated with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. The overlaminate will comply with the retroreflective sheeting manufacturer's recommendations to ensure proper adhesion and transparency and will also meet the reflective film durability as identified in Table 1.

Table 1: Retroreflective Film Minimum Durability Requirements

ASTM D4956 Type	Full Sign Replacement Term (years)	Sheeting Replacement Term (years)
I	0	7
III	7	10
IV	7	10
VIII	7	10
IX	7	12
XI	7	12

FABRICATION

Retroreflective sheeting will be applied to a properly cleaned and prepared aluminum sign blank in accordance with the retroreflective sheeting manufacturer's recommendations. Sign legend will be applied using digital print technologies and systems in accordance with the retroreflective sheeting manufacturer's recommendations and the requirements of these plans.

Finished signs will be free of ragged edges and must be supplied clean and free of scratches, grease, oil, lubricants or other contaminants. Minor blemishes (dirt speck, dust, etc.) may settle on the fresh ink surface or become entrapped between the sheeting surface and transparent overlay film due to static charge within the sign shop environment. Any blemish must be minor and not interfere with the communication of the sign message to the motorist. The blemish must not be visible to the naked eye when viewed from 30 feet or greater.

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DIGITALLY PRINTED SIGNS (CONTINUED)

After application of the retroreflective sheeting, sign blanks will be stacked and packaged face to face, back to back, and protected in accordance with the sheeting manufacturer's recommendations. Finished signs will be securely packaged to prevent damage during transit or storage according to the sheeting manufacturer's recommendations.

TRAFFIC SIGN PERFORMANCE WARRANTY PROVISIONS

Based on the ASTM Type of sheeting specified, traffic control signs will be warranted for the duration shown in Table 1. Full product terms and conditions are as established by each sheeting manufacturer and may contain certain limitations based on sheeting and ink colors, and geographic exposure of the sign. A copy of the warranty document with complete details of terms and conditions will be supplied if requested by the Engineer.

CERTIFIED DIGITAL SIGN FABRICATOR

Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.

DATE TAGGING SIGNS WITH PERTINENT INFORMATION

All digitally printed signs are required to be date-tagged with the following 2 components:

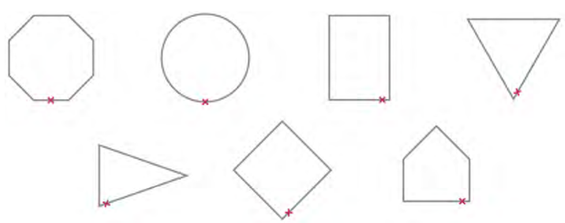
1. Date tags on the back of signs

Tags will have the following information and be fabricated with material and printing system that are as durable as the warranted sign.

- Name of Sign Fabricator
- Date the sign was fabricated (month and year)
- Process that was used for sign fabrication (digitally printed)
- Supplier of sheeting that was used for fabricating the sign.

2. Border date

The month and year (mm/yyyy) of sign fabrication will be printed in the border of the sign in 3/8" sans serif font. Border date will be printed with the same warranted printed system as the sign face. The date should be printed in the locations indicated below.



OBJECT MARKER TABLE

OBJECT MARKERS AT PIPE			
632E2510 Back-to-Back			
Station (SD34)	QUANTITY	Station (SD46)	QUANTITY
254+09 L&R	2	309+60 L&R	2
300+92 L&R	2	114+80 L	2
	TOTAL AT PIPES		8

PAVEMENT MARKING

Typical pavement marking as shown on this sheet will be applied throughout the entire length of divided roadway.

Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights and advance warning arrow board.

Application rates will be as follows:

DIVIDED ROADWAY (Rates for one line)
Solid Yellow Edgeline Rate = 22.5 Gals./Pass-Mile
Dashed White Centerline Rate = 6.2 Gals./Pass-Mile
Solid White Edgeline Rate = 22.5 Gals./Pass-Mile

ESTIMATED QUANTITIES (BASED ON ONE APPLICATION)	
HIGH BUILD	QUANTITY
WHITE	586 GALLONS
YELLOW	421 GALLONS

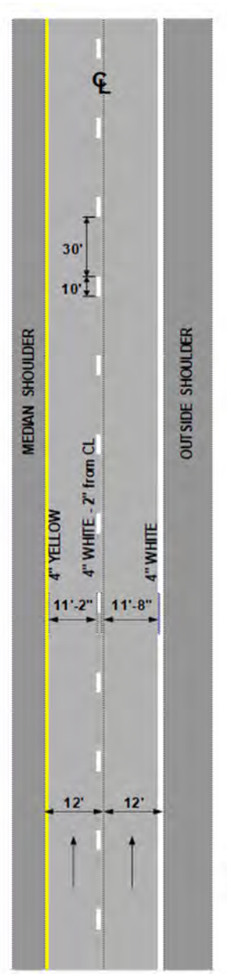
Included in the above quantities are:

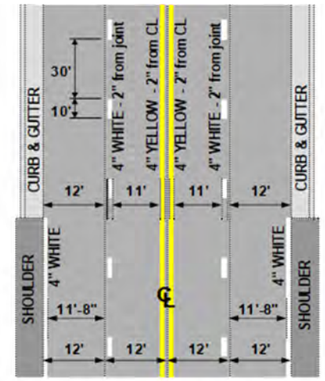
Additional White (1 Application)			Additional Yellow (1 Application)		
Description		Gallons	Description		Gallons
4" Lines	4823'	26	Transitions	4 Ea 6840'	38
8" Lines	-	-	4" Skip Lines	-	-
12" Gore Lines	-	-	8" Lines	1724'	19
Crosswalks	- -	-	12" Lines	-	-
24" Stop Lines	-	-	24" Hatches	209'	10
24" Hatches	-	-	Solid Areas	39sf	2
Solid Areas	-	-	Additional Yellow:		69
Arrows					
Left Arrows	25 Ea	16			
Right Arrows	6 Ea	4			
Straight Arrows	-	-			
Combo Arrows	-	-			
Lane Drop Arrows	-	-			
Messages					
STOP	-	-			
STOP AHEAD	-	-			
R X R w/ Stop Lines	-	-			
SCHOOL X-ING	-	-			
Additional White:		46			

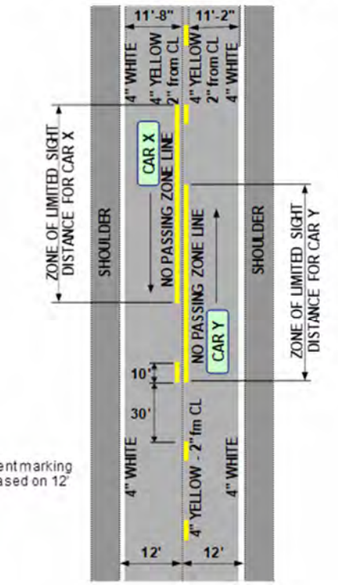
Additional Quantities

Rates of Coverage:	SqFt/Gal
4", 8" & 12" Lines -	60
24" Lines & Hatches -	40
Arrows, Messages and Solid Areas -	25

All pavement marking dimensions are based on 12' driving lanes.







NOTE: All pavement marking dimensions are based on 12' driving lanes.

TABLE OF PROJECT STATIONING

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	29	170

Section	Station to	Station	Description	Length	Gross Section Lengths	Bridge Lengths	Net Section Lengths
1	10+54.00	51+26.00	Rural Two Lane - Eastbound	4072.00'	32530.00'	150.00'	32230.00' 6.104 mi.
	56+10.00	83+97.00		2787.00'			
	88+59.00	189+08.00		10049.00'			
	10+54.00	27+04.00	Rural Two Lane - Westbound	1650.00'		150.00'	
	31+91.00	37+00.00		509.00'			
	42+01.00	56+42.00		1441.00'			
	61+97.00	89+29.00		2732.00'			
	94+66.00	143+11.00		4845.00'			
	144+63.00	189+08.00		4445.00'			
2	51+26.00	56+10.00	Rural Three Lane - Eastbound	484.00'	946.00'		946.00' 0.179 mi.
	83+97.00	88+59.00		462.00'			
3	27+04.00	31+91.00	Rural Three Lane - Westbound	487.00'	2232.00'		2232.00' 0.423 mi.
	37+00.00	42+01.00		501.00'			
	56+42.00	61+97.00		555.00'			
	89+29.00	94+66.00		537.00'			
	143+11.00	144+63.00		152.00'			
4	189+08.00	319+21.00	Rural Two Lane	13013.00'	17644.00'		17644.00' 3.342 mi.
	333+93.00	371+77.00		3784.00'			
	386+37.00	394+84.00		847.00'			
5	319+21.00	333+93.00	Rural Three Lane	1472.00'	1472.00'		1472.00' 0.279 mi.
6	371+77.00	386+37.00	Rural Three Lane	1460.00'	1460.00'		1460.00' 0.277 mi.
7	1+89.00	3+19.00	Rural Two Lane (457th Ave)	130.00'	988.00'		988.00' 0.187 mi.
	4+26.00	12+84.00		858.00'			
			Totals		57272.00' 10.847 mi.		300.00' 0.057 mi. 56972.00' 10.790 mi.

REGISTERED PROFESSIONAL ENGINEER
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TABLE OF MATERIALS QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	30	170

N.A.B.I. = Not A Bid Item

Section	UNCL. EXC. DIG-OUTS	REMOVE CONCRETE PAVEMENT	REMOVE ASPHALT CONCRETE PAVEMENT	SALVAGE AND STOCKPILE GRANULAR MATERIAL	BASE COURSE	BASE COURSE, SALVAGED	COLD MILLING ASPHALT CONCRETE	HAUL AND STOCK PILE ASPHALT MIX MATERIAL	CLASS Q3R HOT MIXED ASPHALT CONCRETE	PG 58H-34 ASPHALT BINDER	HYDRATED LIME	VIRG. AGGR. N.A.B.I.	SALV. MAT'L N.A.B.I.	ASPHALT CONCRETE COMPOSITE	ASPHALT CONCRETE BLADE LAID	SS-1h/ CSS-1h ASPH. FOR TACK	SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL	SAND FOR FLUSH SEAL
	CuYd	SqYd	SqYd	Ton	Ton	Ton	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
1	-	-	-	-	-	-	95866.3	3285.7	11164.5	518.9	109.9	8429.9	2105.9	-	-	68.0	27.4	343.8
2	-	-	-	-	-	-	4186.6	146.9	368.6	17.1	3.7	278.2	69.5	-	-	2.7	1.0	15.1
3	-	-	-	-	-	-	10168.0	385.1	949.7	44.2	9.4	716.9	179.2	-	-	6.5	2.4	35.7
4	-	-	-	-	-	-	50971.6	1582.5	6606.5	307.4	66.8	4985.8	1246.4	-	-	39.2	16.7	188.2
5	-	-	-	-	-	-	7441.8	269.6	759.7	35.3	7.5	573.5	143.4	-	-	4.7	1.9	23.6
6	-	-	-	-	-	-	7097.2	256.1	730.4	34.0	7.3	551.3	137.8	-	-	4.6	1.9	23.4
7 (457th Ave)	-	-	3247.0	1660.5	-	1614.9	-	-	938.4	43.7	9.3	708.4	177.0	-	-	1.9	1.5	10.5
Subtotals:	-	-	3247.0	1660.5	-	1614.9	175731.5	5925.9	21517.8	1000.6	213.9	16243.9	4059.4	-	-	127.6	52.8	640.3
Add. Quantities from Notes:	270	-	411.0	-	539.5	-	-	-	-	124.2	16.8	-	-	140.3	1677.2	-	-	-
Table of Add. Quantities:	-	268.0	1694.0	369.8	742.0	369.8	13117.4	528.2	2783.9	129.1	27.8	1350.7	321.5	19.0	-	26.1	7.8	146.9
Totals:	270	268.0	5352.0	2030.4	1281.5	1984.7	188849	6454.1	24301.7	1253.9	258.5	17594.6	4380.9	159.3	1677.2	153.7	60.6	787.2

* Denotes Nonparticipating

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TABLE OF ADDITIONAL QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	31	170

N.A.B.I. = Not A Bid Item

	LOCATION	Width	REMOVE CONCRETE PAVEMENT SqYd	REMOVE ASPHALT CONCRETE PAVEMENT SqYd	SALVAGE AND STOCKPILE GRANULAR MATERIAL Ton	BASE COURSE Ton	BASE COURSE SALVAGED Ton	COLD MILLING ASPHALT CONCRETE SqYd	HAUL AND STOCK PILE ASPHALT MIX MATERIAL Ton	CLASS Q3R HOT MIXED ASPHALT CONCRETE Ton	PG 58-34 ASPHALT BINDER Ton	HYDRATED LIME Ton	VIRG. AGGR. N.A.B.I. Ton	SALV. MAT'L N.A.B.I. Ton	SS-1h/ CSS-1h ASPH. FOR TACK Ton	SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL Ton	SAND FOR FLUSH SEAL Ton	ASPHALT CONCRETE COMPOSITE Ton
Mainline Transitions (SD 34)																		
Sec.1 (EB)	10+54 to 13+45	7' to 11'	-	-	-	-	-	43.6	2.6	24.2	1.1	0.24	18.3	4.6	1.67	0.56	10.48	-
Sec.1 (EB)	50+28 to 51+26	0' to 8'	-	-	-	-	-	43.6	1.7	3.6	0.2	0.04	2.7	0.7	0.25	0.08	1.57	-
Sec.1 (EB)	56+10 to 56+82	8' to 0'	-	-	-	-	-	32.0	1.3	2.7	0.1	0.03	2.0	0.5	0.18	0.06	1.15	-
Sec.1 (EB)	82+93 to 83+97	0' to 8'	-	-	-	-	-	46.2	1.8	3.8	0.2	0.04	2.9	0.7	0.27	0.09	1.66	-
Sec.1 (EB)	88+59 to 89+63	8' to 0'	-	-	-	-	-	46.2	1.8	3.8	0.2	0.04	2.9	0.7	0.27	0.09	1.66	-
Sec.1 (WB)	10+54 to 13+45	7' to 11'	-	-	-	-	-	35.6	2.6	24.2	1.1	0.24	18.3	4.6	1.67	0.56	10.48	-
Sec.1 (WB)	26+24 to 27+04	0' to 12'	-	-	-	-	-	35.6	2.1	4.4	0.2	0.04	3.4	0.8	0.31	0.10	1.92	-
Sec.1 (WB)	31+91 to 33+20	12' to 0'	-	-	-	-	-	57.3	3.4	7.2	0.3	0.07	5.4	1.4	0.49	0.16	3.10	-
Sec.1 (WB)	36+20 to 37+00	0' to 12'	-	-	-	-	-	35.6	2.1	4.4	0.2	0.04	3.4	0.8	0.31	0.10	1.92	-
Sec.1 (WB)	42+01 to 43+21	12' to 0'	-	-	-	-	-	53.3	3.2	6.7	0.3	0.07	5.0	1.3	0.46	0.15	2.88	-
Sec.1 (WB)	55+51 to 56+42	0' to 12'	-	-	-	-	-	55.6	2.4	5.1	0.2	0.05	3.8	1.0	0.35	0.12	2.18	-
Sec.1 (WB)	61+97 to 63+15	12' to 0'	-	-	-	-	-	72.1	3.1	6.5	0.3	0.07	4.9	1.2	0.45	0.15	2.83	-
Sec.1 (WB)	88+48 to 89+29	0' to 12'	-	-	-	-	-	49.5	2.1	4.5	0.2	0.04	3.4	0.8	0.31	0.10	1.94	-
Sec.1 (WB)	94+66 to 95+76	12' to 0'	-	-	-	-	-	67.2	2.9	6.1	0.3	0.06	4.6	1.2	0.42	0.14	2.64	-
Sec.1 (WB)	142+20 to 143+11	0' to 12'	-	-	-	-	-	55.6	2.4	5.1	0.2	0.05	3.8	1.0	0.35	0.12	2.18	-
Sec.1 (WB)	144+63 to 145+66	12' to 0'	-	-	-	-	-	62.9	2.7	5.7	0.3	0.06	4.3	1.1	0.39	0.13	2.47	-
Sec.4	314+97 to 319+21	0' to 16'	-	-	-	-	-	376.9	15.0	31.4	1.4	0.31	23.7	5.9	2.16	0.72	13.57	-
Sec.4	333+93 to 338+29	16' to 0'	-	-	-	-	-	387.6	15.4	32.3	1.5	0.32	24.4	6.1	2.22	0.74	13.95	-
Sec.4	363+24 to 371+77	0' to 14'	-	-	-	-	-	663.4	26.4	55.2	2.5	0.55	41.7	10.4	3.81	1.27	23.88	-
Sec.4	386+37 to 394+84	14' to 0'	-	-	-	-	-	658.8	26.2	54.8	2.5	0.55	41.4	10.3	3.78	1.26	23.72	-
EB Mainline Guardrail Embankment			134.0	434.0	-	273.0	-	-	-	168.4	7.7	1.68	158.9	31.8	2.49	0.83	15.60	-
WB Mainline Guardrail Embankment			134.0	434.0	-	252.0	-	-	-	168.4	7.7	1.68	158.9	31.8	2.49	0.83	15.60	-
457th Median Crossover			-	669.0	369.8	-	369.8	-	-	244.5	11.2	2.45	184.6	46.1	-	-	-	-
Spot Leveling & Repair			-	-	-	-	-	-	-	1079.0	50.7	10.79	-	-	2.7	-	-	-
Trail				157		49.0												19.0
Resurface to ROW																		
Private Entrance			-	-	-	-	-	524.2	20.9	43.6	2.0	0.44	32.9	8.2	-	-	-	
Resurface to End of radius																		
Intersection Roads			-	-	-	-	-	8388.0	333.8	698.3	32.1	6.98	527.2	131.7	-	-	-	
Private Entrance			-	-	-	-	-	1370.2	54.5	114.1	5.2	1.14	86.1	21.5	-	-	-	
457th Private Entrances			-	-	-	168.0	-	-	-	-	-	-	-	-	-	-	-	
Totals:			268.0	1694.0	369.8	742.0	369.8	13117.4	528.2	2783.9	129.1	27.8	1350.7	321.5	26.1	7.8	146.9	19.0

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NOTES:
100 tons of Class Q3R Hot Mix Asphalt Concrete, 1.0 tons of Hydrated Lime, and 4.7 tons of PG 58H-34 Asphalt Binder per mile for spot leveling, strengthening, and repair of the existing surface throughout the project.
2.7 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for repair and leveling areas throughout the project.
The tonnage shown above for the median crossover at 457th Ave is based on 5" of Class Q3R Asphalt Concrete and 8" of Base Course.
The tonnage shown above for entrances and intersection roads are based on 5" of Class Q3R Asphalt Concrete and 8" of Base Course.
The tonnage shown above for Remove Asphalt Concrete Pavement is based on a depth of 5 inches.
The tonnage shown above for Base Course, Salvaged is based on a compacted depth of 8 inches.
The tonnage shown above for 457th Private Entrances, Base Course, is based on a compacted depth of 8 inches.
The above quantities are included in the Estimate of Quantities

SUMMARY OF ASPHALT CONCRETE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	32	170

All Sections	CLASS QR3 ASPHALT CONCRETE 1ST LIFT COMPACTION WITH SPECIFIED DENSITY (TONS)	CLASS QR3 ASPHALT CONCRETE 1ST LIFT COMPACTION WITHOUT SPECIFIED DENSITY (TONS)	CLASS QR3 ASPHALT CONCRETE 2ND LIFT COMPACTION WITH SPECIFIED DENSITY (TONS)	CLASS QR3 ASPHALT CONCRETE 2ND LIFT COMPACTION WITHOUT SPECIFIED DENSITY (TONS)	ASPHALT CONCRETE COMPSOSITE COMPACTION WITHOUT SPECIFIED DENSITY (TONS)
Section 1					
28' Finished roadway Surface	8516.2				
Shoulders		2648.3			
Section 2					
39' Finished Roadway Surface	350.2				
Shoulders		18.3			
Section 3					
39' Finished Roadway Surface	824.2				
Shoulders		125.5			
Section 4					
28' Finished Roadway Surface	4621.0				
Shoulders		1985.5			
Section 5					
40' Finished Roadway Surface	550.2				
Shoulders		209.5			
Section 6					
43' Finished Roadway Surface	586.7				
Shoulders		143.7			
Section 7					
28' Finished Roadway Surface	430.8		430.8		
Shoulders		38.4		38.4	
Table of Additional Quantities					
Mainline Transitions		267.6			
457th Median Crossover		122.3		122.3	
Misc. Nondensity Locations		1415.7			
Int. Roads & Entrances		856.0			
Additional Quantities from Notes					140.3
Totals:	15879.3	7830.9	430.8	160.7	140.3

16310.1	**TONS ASPHALT CONCRETE COMPACTION WITH SPECIFIED DENSITY**
8131.9	**TONS ASPHALT CONCRETE COMPACTION WITHOUT SPECIFIED DENSITY**
24442.0	**TONS TOTAL**

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PIPE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	33	170

Station	Offset (L/R)	Reinforced Concrete										Corrugated Metal		
		Circular		Arch	Circular Flared End			Arch Sloped End		Arch Sloped Sectional End		Circular Pipe		
			* 60" Class 2 Ft	* 108" Class 2 Ft		36" Each	42" Each	60" Each	30" Each		108" Each		24" 12 Ga Ft	
SD HWY 34														
254+09-89.0' R to 254+09-62.0' L						2								
300+92-68.0' R									1					
309+60-60.0' R							1							
457th AVE														
4+47-13.0' R to 5+82-49.0' L				128							1			
6+50-46.0' L to 6+50-44.0' R			54					2						
7+75-47.9' R to 8+45-47.9' R													70	
TOTALS:			54	128		2	1	2	1		1		70	

Pipes denoted with an asterisk(*) indicate that the entire length or a portion of the pipe requires watertight joints in accordance with the STORM SEWER plan note.

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FENCE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	34	170

Station to Station	Side (L/R)	Right-of-Way Fence Type 2 (Ft)					Post Panels 2 Post (Each)	Post Panels 3 Post (Each)					Fence Remove (Ft)		Fence Type 1 Temporary (Ft)				
SD HWY 34																			
65+84.00-136' to 65+93.00-65'	L	72					1	1					72		72				
65+93.00-25' to 65+94.00-23'	L/R	45					2						45						
67+02.00-136' to 66+99.00-65'	L	68					1	1					68		68				
66+98.00-25' to 66+98.00-24'	L/R	45					2						45						
457TH AVE																			
5+20.17-59' to 7+87.37-51'	R	310					3												
8+33.37-51' to 12+53.78-51'	R	408					2												
5+20.17-59' to 12+41.16-47'	R												805						
TOTALS:		948					11	2					1035		140				

REGISTERED PROFESSIONAL ENGINEER
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12/10/2025

ITEMIZED LIST FOR TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	35	170

		CONVENTIONAL ROAD (457th Ave)				EXPRESSWAY / INTERSTATE (SD 34)			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
G20-1	ROAD WORK NEXT 2 MILES					1	48" x 24"	8.0	8.0
G20-1	ROAD WORK NEXT 6 MILES					1	48" x 24"	8.0	8.0
G20-1	ROAD WORK NEXT 8 MILES					6	48" x 24"	8.0	48.0
G20-2	END ROAD WORK	8	36" x 18"	4.5	36.0	18	48" X 24"	8.0	144.0
R1-1	STOP					2	48" x 48"	16.0	32.0
R2-1	SPEED LIMIT (65 MPH)					5	48" x 60"	20.0	100.0
R2-1	SPEED LIMIT (55 MPH)					10	48" x 60"	20.0	200.0
R2-1	SPEED LIMIT (45 MPH)					10	36" x 48"	12.0	120.0
R2-6aP	FINES DOUBLE (PLAQUE)					18	36" x 24"	6.0	108.0
R4-1	DO NOT PASS					4	48" x 60"	20.0	80.0
R4-7	KEEP RIGHT (SYMBOL)					2	48" x 60"	20.0	40.0
R5-1	DO NOT ENTER					4	36" x 36"	9.0	36.0
R9-9	SIDEWALK CLOSED					2	24" x 12"	2.0	4.0
R11-2	ROAD CLOSED	2	48" x 30"	10.0	20.0	2	48" x 30"	10.0	20.0
R11-4	ROAD CLOSED TO THRU TRAFFIC	3	60" x 30"	12.5	37.5				
W1-4L	REVERSE CURVE	2	48" x 48"	16.0	32.0	1	48" x 48"	16.0	16.0
W1-4R	REVERSE CURVE	2	48" x 48"	16.0	32.0	1	48" x 48"	16.0	16.0
W1-6	LARGE ARROW					4	60" x 30"	12.5	50.0
W3-1	STOP AHEAD (SYMBOL)					2	48" x 48"	16.0	32.0
W3-4	BE PREPARED TO STOP					2	48" x 48"	16.0	32.0
W3-5	SPEED REDUCTION AHEAD (55 MPH)					2	48" x 48"	16.0	32.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)					10	48" x 48"	16.0	160.0
W4-2	LEFT or RIGHT LANE ENDS (SYMBOL)					16	48" x 48"	16.0	256.0
W6-3	TWO WAY TRAFFIC (SYMBOL)					16	48" x 48"	16.0	256.0
W7-3aP	NEXT XX MILES (PLAQUE)					16	36" x 30"	7.5	120.0
W8-1	BUMP					8	48" x 48"	16.0	128.0
W8-6	TRUCK CROSSING					2	48" x 48"	8.0	16.0
W8-11	UNEVEN LANES					8	48" x 48"	16.0	128.0
W8-15	GROOVED PAVEMENT					2	48" x 48"	16.0	32.0
W8-15P	MOTORCYCLE (PLAQUE)					2	36" x 30"	7.5	15.0
W13-1P	ADVISORY SPEED (35 MPH) (PLAQUE)					4	30" x 30"	6.3	25.2
W13-1P	ADVISORY SPEED (15 MPH) (PLAQUE)	8	24" x 24"	4.0	32.0				
W16-2P	XX FEET (PLAQUE)					2	30" x 24"	5.0	10.0
W20-1	ROAD WORK AHEAD	8	36" x 36"	9.0	72.0	30	48" x 48"	16.0	480.0
W20-3	ROAD CLOSED 500 FT	2	36" x 36"	9.0	18.0				
W20-3	ROAD CLOSED 1000 FT	2	36" x 36"	9.0	18.0				
W20-4	ONE LANE ROAD AHEAD					6	48" x 48"	16.0	96.0
W20-5	RIGHT LANE CLOSED AHEAD					10	48" x 48"	16.0	160.0
W20-5	LEFT LANE CLOSED AHEAD					10	48" x 48"	16.0	160.0
W20-7	FLAGGER (SYMBOL)	8	36" x 36"	9.0	72.0	10	48" x 48"	16.0	160.0
W21-5	SHOULDER WORK					2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR					2	30" x 18"	3.8	7.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			369.5	EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			3367.7

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	25 Each

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
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BLAKE R. AHLERS
SOUTH DAKOTA
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CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	36	170

Location to Location		Rigid Conduit					Copper Wire			Pole and Bracket Cable																					
		Schedule 40			Schedule 80																										
		2" FT			2" FT			1/C #4 AWG Ft			2/C #10 AWG																				
SERVICE CABINET	JL1	90						810																							
JL1	JL2				80			720																							
JL2	L6	460						1,610																							
L6	L5	300						1,050																							
L5	L4	300						1,050																							
L4	L3	300						1,050																							
L3	L2	300						1,050																							
L2	L1	300						1,050																							
JL1	L8	30						105																							
JL1	L10	240						840																							
JL2	JL3				80			280																							
JL3	L7	70						245																							
JL3	L9	220						770																							
JL2	L11	305			140			490																							
Luminaire Poles																															
L1											80																				
L2											80																				
L3											80																				
L4											80																				
L5											80																				
L6											80																				
L7											70																				
L8											70																				
L9											70																				
L10											70																				
L11											80																				
Totals:		2,915			300			11,120			840																				

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12/10/2025

SIGN TABLE

SD34						632E3203	632E3205	632E1320	N.A.	N.A.	110E0130	110E7150	632E3500				DOT USE	
Station Centerline	Distance from Center-line to Left Edge of Sign	Description	Sign Code	Width (Inches)	Height (Inches)	Flat Aluminum sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	(N.A.B.I.) 48" Winged Slip Base Anchor (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks		
114+03	11' R	DO NOT ENTER	R5-1									1	1	SOUTH EAST	Perforated Tube Post	Remove and Reset existing sign assembly at 114+31 R.		
114+03	67' R	DO NOT ENTER	R5-1	36	36		9.0	10.1	1					NORTH EAST	None	Install new sign and post.		
114+78	12' R	ONE WAY (RIGHT)	R6-1 R	36	12	3.0		10.2	1			1	1	SOUTH	Perforated Tube Post	Remove and Reset existing sign assembly at 114+61 R.		
		ONE WAY (LEFT)	R6-1 L	36	12	3.0								NORTH		Install "ONE WAY" signs back-to-back.		
		YIELD	R1-2											NORTH				
114+78	73' L	ONE WAY (RIGHT)	R6-1 R									1	1	SOUTH	Perforated Tube Post	Remove and reset existing sign assembly at 114+62 L.		
		ONE WAY (LEFT)	R6-1 L											NORTH		Install "ONE WAY" signs back-to-back.		
		STOP	R1-1											NORTH				
		Divided Highway Crossing	R6-3											NORTH				
114+82	73' R	ONE WAY (RIGHT)	R6-1 R								1			NORTH	Perforated Tube Post	Remove existing sign assembly. Install "ONE WAY" signs back-to-back.		
		ONE WAY (LEFT)	R6-1 L											SOUTH				
114+82	88' L	ONE WAY (RIGHT)	R6-1 R								1			NORTH	Perforated Tube Post	Remove existing sign assembly. Install "ONE WAY" signs back-to-back.		
		ONE WAY (LEFT)	R6-1 L											SOUTH				
115+02	87' R	STOP	R1-1					5.5	1			1	1	WEST	4" x 6" Wood Post	Remove and reset existing sign at 115+02 R.		
115+04	87' R	NO WINTER MAINTENANCE	SPECIAL					5.5	1			1	1	EAST	4" x 6" Wood Post	Remove and reset existing sign at 115+02 R.		
115+65	71' R	NO MOTOR VEHICLES	R5-3					6.0	1			1	1	EAST	4" x 6" Wood Post	Remove and Reset existing sign assembly at 114+62 R.		
115+94	88' R	ONE WAY (RIGHT)	R6-1 R									1	1	SOUTH	Perforated Tube Post	Remove and reset existing sign assembly at 115+70 R.		
		ONE WAY (LEFT)	R6-1 L											NORTH		Install "ONE WAY" signs back-to-back.		
		STOP	R1-1											SOUTH				
		Divided Highway Crossing	R6-3											SOUTH				
116+02	12' L	ONE WAY (RIGHT)	R6-1 R	36	12	3.0		10.2	1			1	1	SOUTH	Perforated Tube Post	Remove and Reset existing sign assembly at 115+33 L.		
		ONE WAY (LEFT)	R6-1 L	36	12	3.0								NORTH		Install "ONE WAY" signs back-to-back.		
		YIELD	R1-2											NORTH				
116+03	84' L	457TH AVE	D3-1									1	1	WEST	Perforated Tube Post	Remove and Reset existing sign assembly at 115+87 L.		
		457TH AVE	D3-1											EAST				
		SD 34	D3-1											NORTH				
		SD 34	D3-1											SOUTH				
116+73	20' L	DO NOT ENTER	R3-5									1	1	NORTH WEST	Perforated Tube Post	Remove and Reset existing sign assembly at 115+68 L.		
116+73	67' L	DO NOT ENTER	R3-5	36	36		9.0	10.1	1					WEST	None	Install new sign.		
					TOTAL	**12.0**	**18.0**	**57.6**			**2**	**10**	**10**					

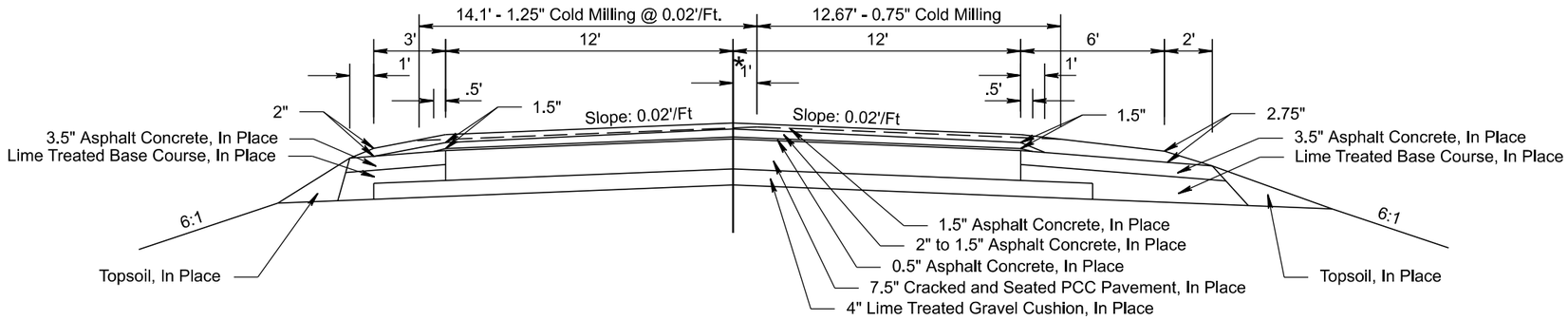
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	38	170

Plotting Date: 12/10/2025

Section 1 Eastbound (In Place & Cold Milling Section)

Sta. 10+54 to Sta. 51+26
Sta. 56+10 to Sta. 83+97
Sta. 88+59 to Sta. 189+08



Transition from Four Lane Divided to Two Lane Undivided:
Sta. 178+25 to Sta. 189+08

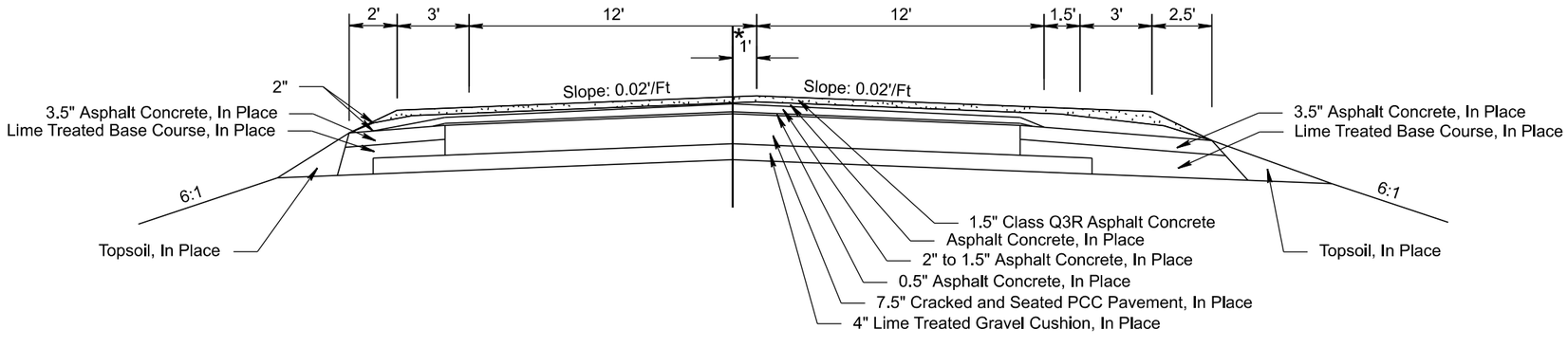
See Table of Additional Quantities for Transition Locations and Widths

Transition from 1' to 0' : Sta. 65+02 to Sta. 65+72
Transition from 0' to 1' : Sta. 67+18 to Sta. 67+88

Surfacing Exception (Bridges):
Sta. 65+70.67 to Sta. 67+20.67

Section 1 Eastbound (Resurfacing Section)

Sta. 10+54 to Sta. 51+26
Sta. 56+10 to Sta. 83+97
Sta. 88+59 to Sta. 189+08



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
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SOUTH DAKOTA
12/10/2025

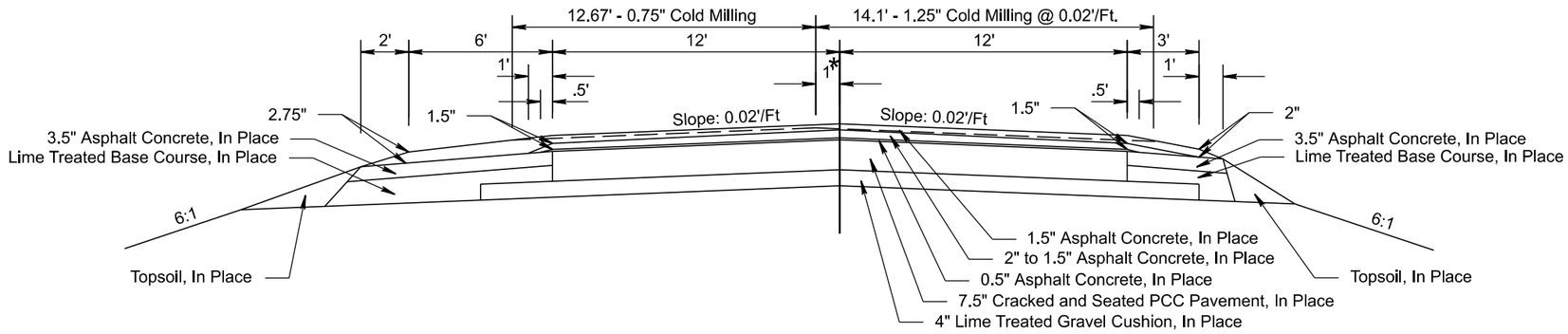
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	39	170

Plotting Date: 12/10/2025

Section 1 Westbound (In Place & Cold Milling Section)

Sta. 10+54 to Sta. 27+04
Sta. 31+91 to Sta. 37+00
Sta. 42+01 to Sta. 56+42
Sta. 61+97 to Sta. 89+29
Sta. 94+66 to Sta. 143+11
Sta. 144+63 to Sta. 189+08



Transition from Four Lane Divided to Two Lane Undivided:
Sta. 178+25 to Sta. 189+08

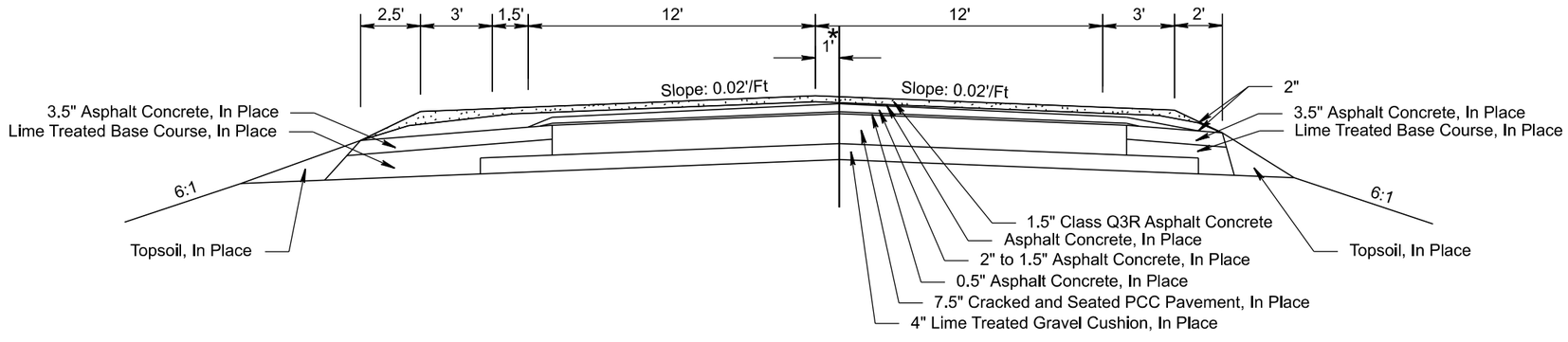
See Table of Additional Quantities for Transition Locations and Widths

Surfacing Exception (Bridges):
Sta. 65+70.67 to Sta. 67+20.67

Transition from 1' to 0' : Sta. 65+02 to Sta. 65+72
Transition from 0' to 1' : Sta. 67+18 to Sta. 67+88

Section 1 Westbound (Resurfacing Section)

Sta. 10+54 to Sta. 27+04
Sta. 31+91 to Sta. 37+00
Sta. 42+01 to Sta. 56+42
Sta. 61+97 to Sta. 89+29
Sta. 94+66 to Sta. 143+11
Sta. 144+63 to Sta. 189+08



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SOUTH DAKOTA
12/10/2025

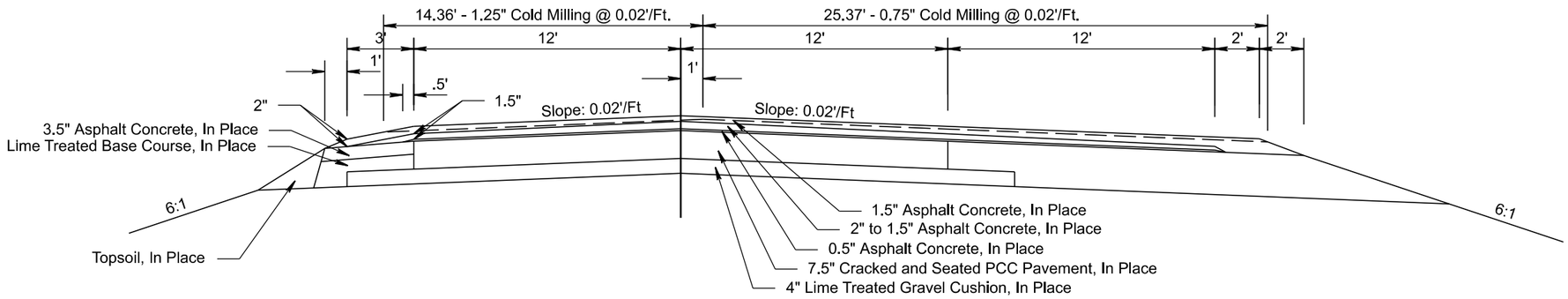
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	40	170

Plotting Date: 12/10/2025

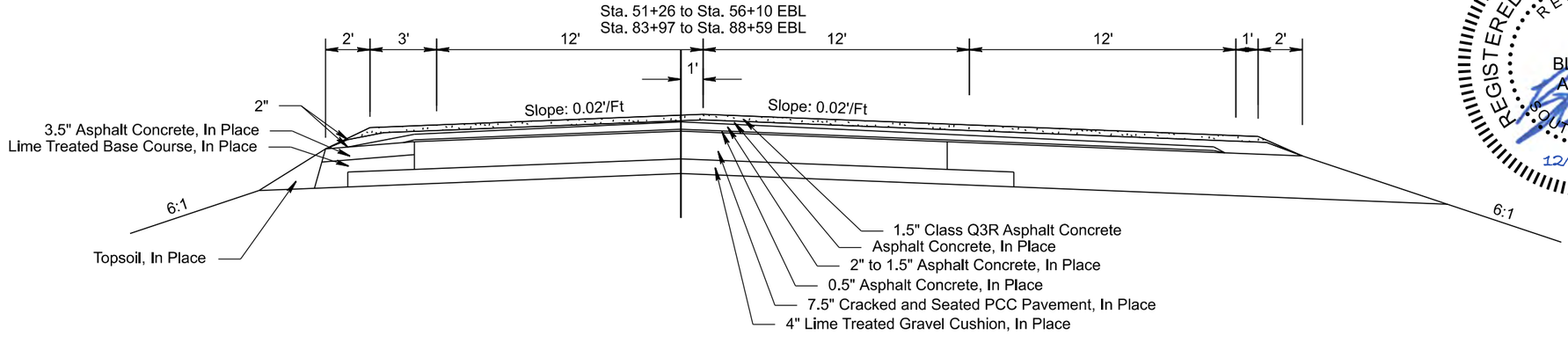
Section 2 (In Place & Cold Milling Section)

Sta. 51+26 to Sta. 56+10 EBL
Sta. 83+97 to Sta. 88+59 EBL



Section 2 (Resurfacing Section)

Sta. 51+26 to Sta. 56+10 EBL
Sta. 83+97 to Sta. 88+59 EBL



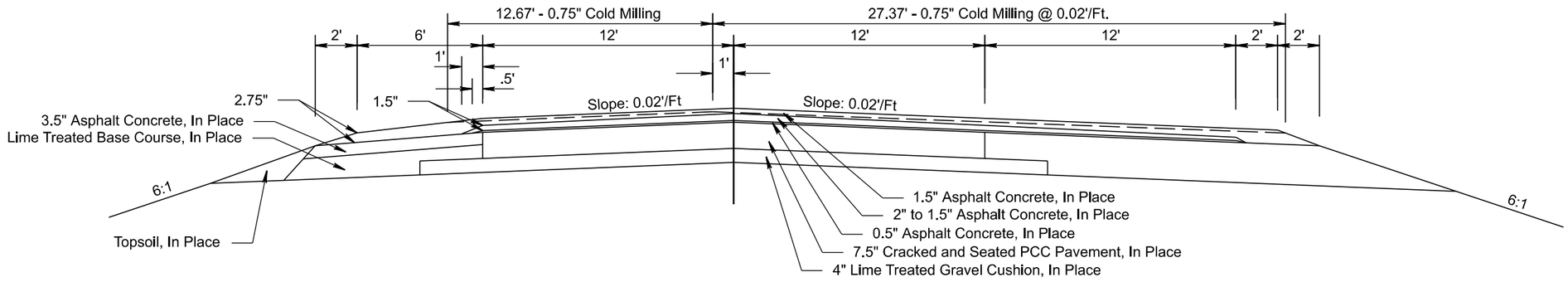
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	41	170

Plotting Date: 12/10/2025

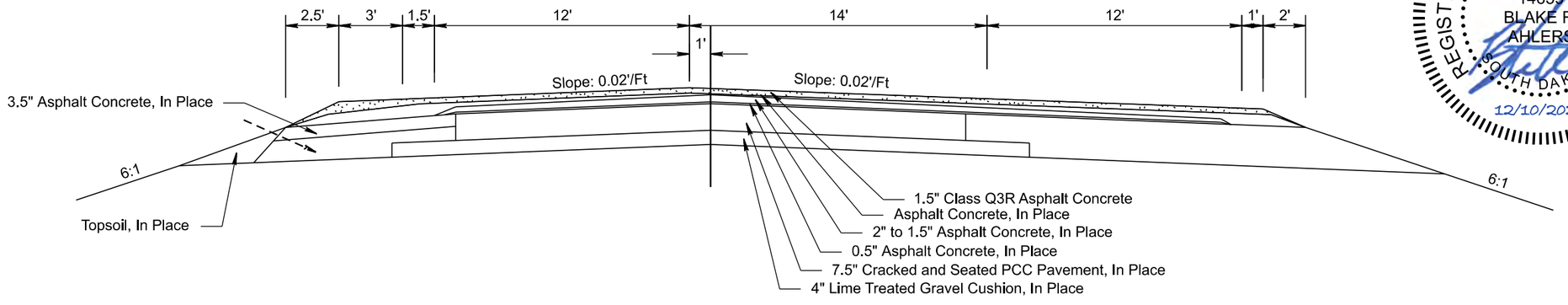
Section 3 (In Place & Cold Milling Section)

Sta. 27+04 to Sta. 31+91
Sta. 37+00 to Sta. 42+01
Sta. 56+42 to Sta. 61+97
Sta. 89+29 to Sta. 94+66
Sta. 143+11 to Sta. 144+63



Section 3 (Resurfacing Section)

Sta. 27+04 to Sta. 31+91
Sta. 37+00 to Sta. 42+01
Sta. 56+42 to Sta. 61+97
Sta. 89+29 to Sta. 94+66
Sta. 143+11 to Sta. 144+63



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SOUTH DAKOTA
12/10/2025

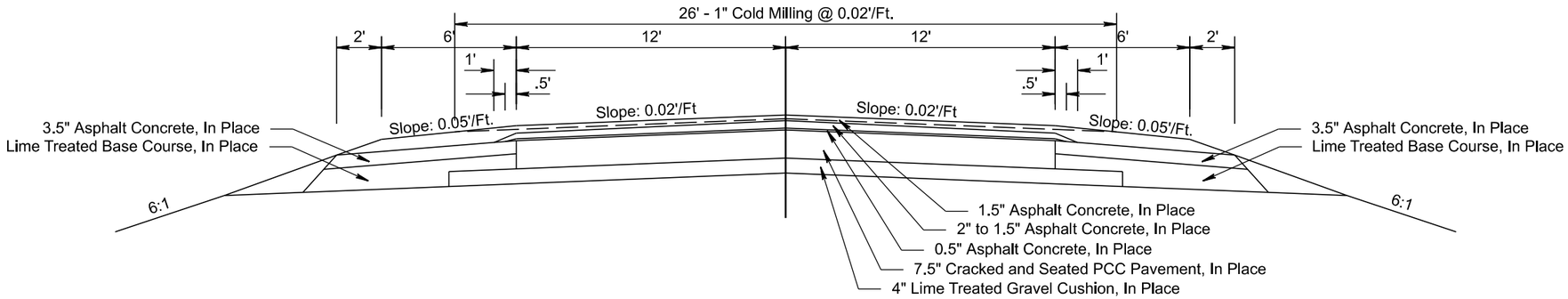
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	42	170

Plotting Date: 12/10/2025

Section 4 (In Place & Cold Milling Section)

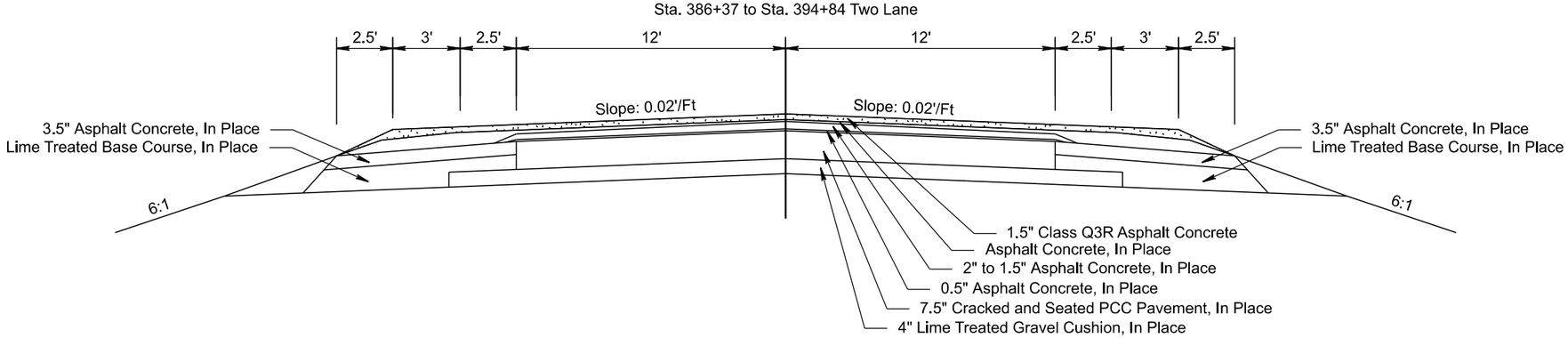
Sta. 189+08 to Sta. 319+21 Two Lane
Sta. 333+93 to Sta. 371+77 Two Lane
Sta. 386+37 to Sta. 394+84 Two Lane



See Table of Additional Quantities for Transition Locations and Widths

Section 4 (Resurfacing Section)

Sta. 189+08 to Sta. 319+21 Two Lane
Sta. 333+93 to Sta. 371+77 Two Lane
Sta. 386+37 to Sta. 394+84 Two Lane



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SOUTH DAKOTA
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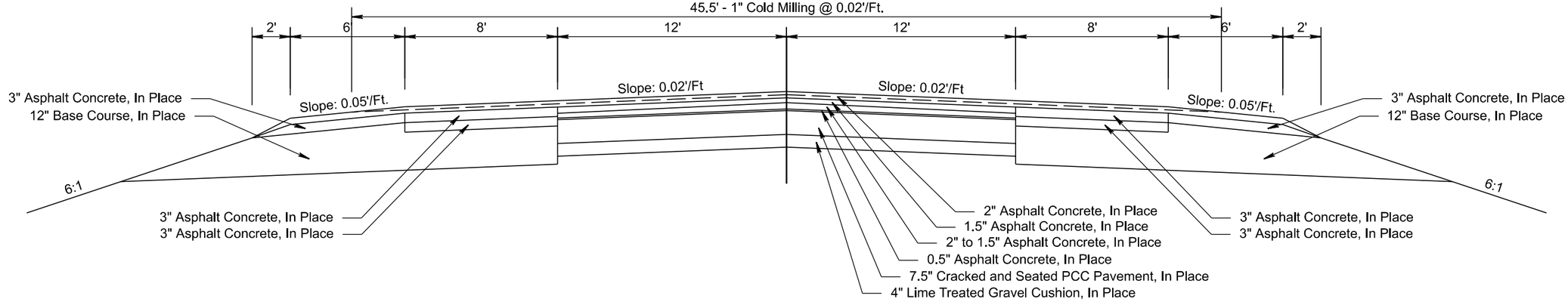
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	43	170

Plotting Date: 12/10/2025

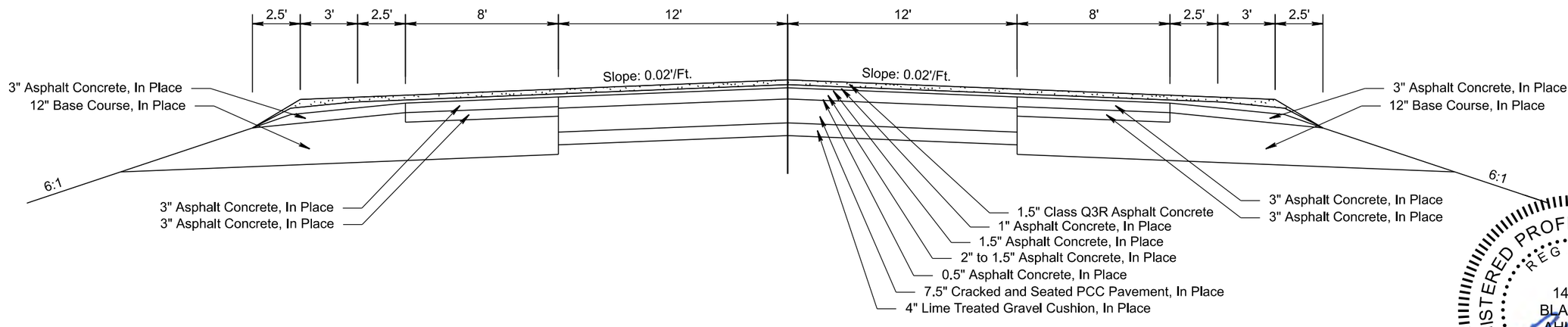
Section 5 (In Place & Cold Milling Section)

Sta. 319+21 to Sta. 333+93 Three Lane



Section 5 (Resurfacing Section)

Sta. 319+21 to Sta. 333+93 Three Lane



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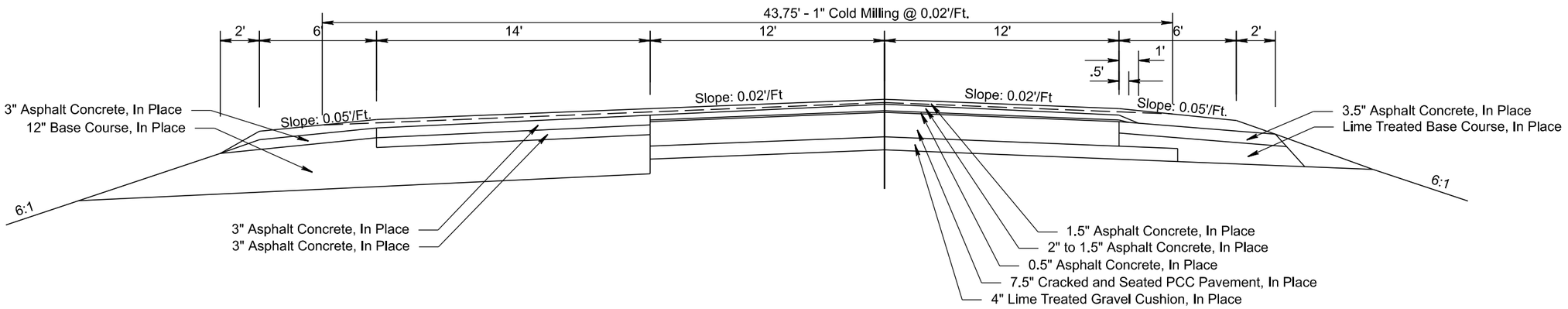
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	44	170

Plotting Date: 12/10/2025

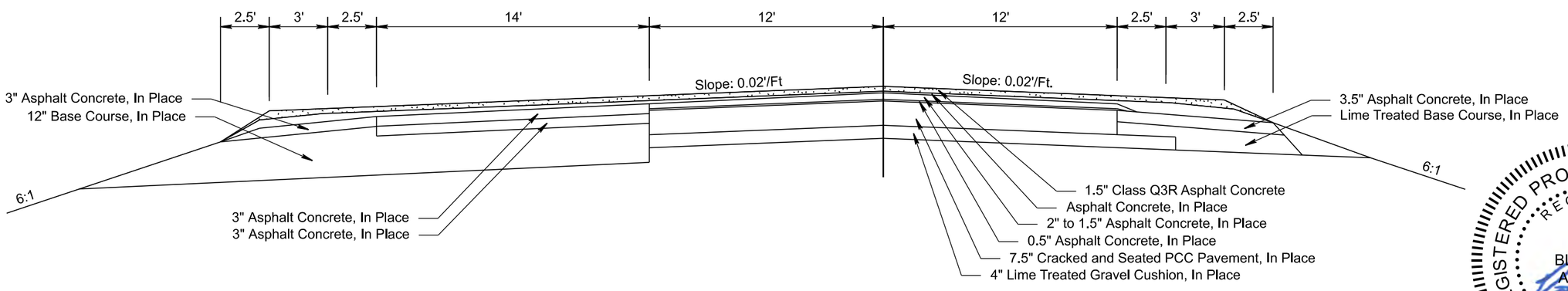
Section 6 (In Place & Cold Milling Section)

Sta. 371+77 to Sta. 386+37



Section 6 (Resurfacing Section)

Sta. 371+77 to Sta. 386+37



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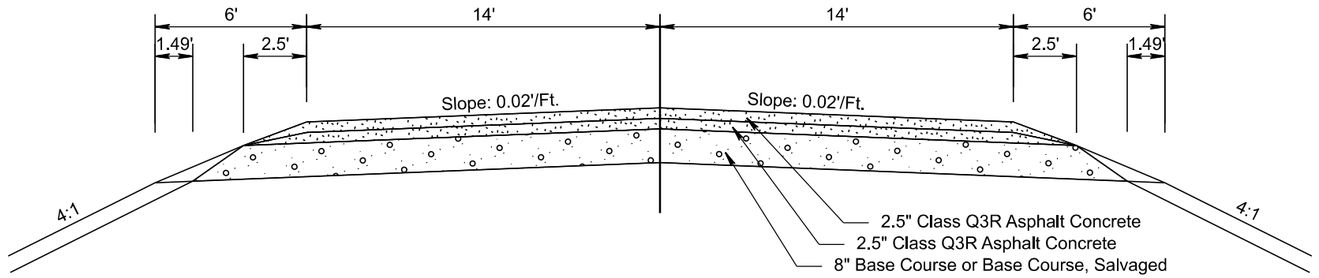
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	45	170

Plotting Date: 12/10/2025

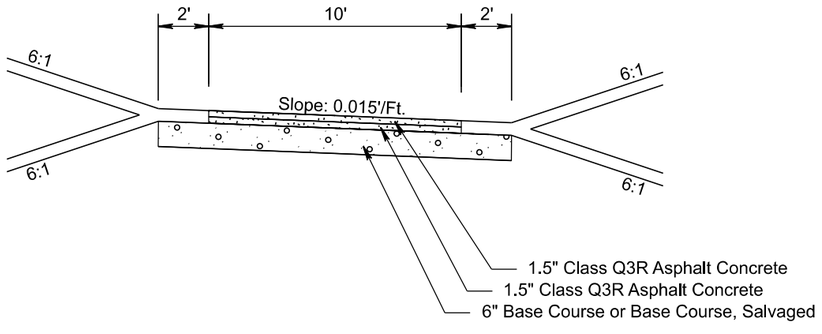
Section 7 (457th Ave Surfacing Section)

Sta. 1+89 to Sta. 3+19
Sta. 4+26 to Sta. 12+48



Section 8 (Shared Use Path)

Sta. 114+50 to Sta. 115+06
Sta. 115+78 to Sta. 116+31



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12/10/2025

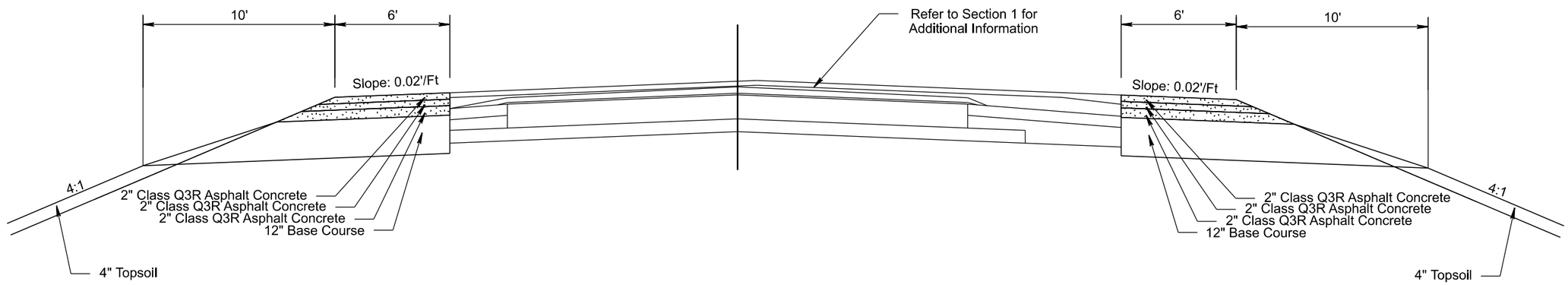
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	46	170

Plotting Date: 12/10/2025

Section 9 (Shoulder Reconstruction at Guardrail)

Sta. 22+38 to Sta. 23+81 (SD 34 Eastbound Bridge)
Sta. 15+26 to Sta. 16+69 (SD 34 Westbound Bridge)



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SOUTH DAKOTA
12/10/2025

ULTIMATE SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	47	170

Plotting Date: 12/10/2025

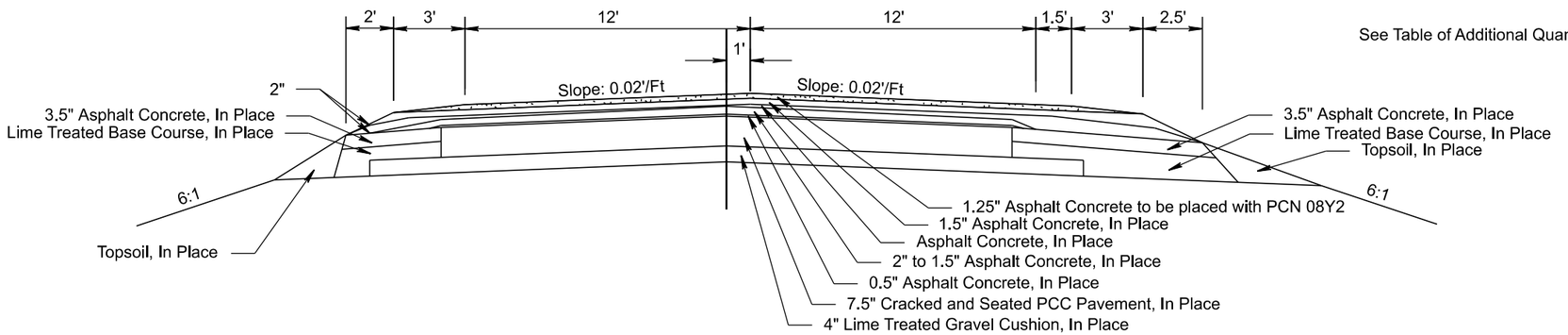
Section 1u (Ultimate Surfacing Section)
(for informational purposes only)

Sta. 10+54 to Sta. 51+26 EBL
Sta. 56+10 to Sta. 83+97 EBL
Sta. 88+59 to Sta. 189+08 EBL
Sta. 10+54 to Sta. 27+04 WBL
Sta. 13+91 to Sta. 37+00 WBL
Sta. 42+01 to Sta. 56+42 WBL
Sta. 61+97 to Sta. 89+29 WBL
Sta. 94+66 to Sta. 143+11 WBL
Sta. 144+63 to Sta. 189+08 WBL

Surfacing Exception (Bridge):
EBL and WBL - Sta. 13+80.31 to Sta. 15+26.14
EBL and WBL - Sta. 23+81.11 to Sta. 25+27.05

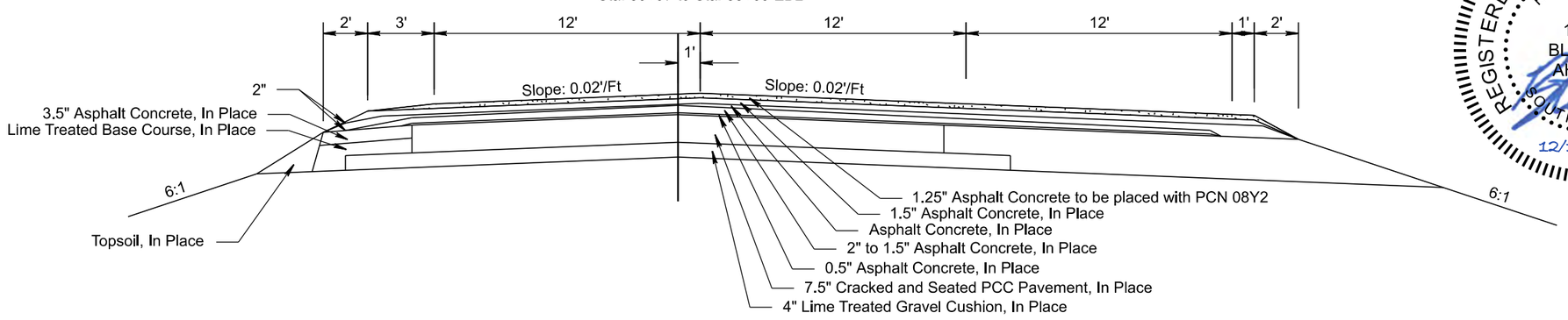
Transition from Four Lane Divided to Two Lane Undivided:
Sta. 180+46 to Sta. 189+08

See Table of Additional Quantities for Transition Locations and Widths



Section 2u (Ultimate Surfacing Section)
(for informational purposes only)

Sta. 51+26 to Sta. 56+10 EBL
Sta. 83+97 to Sta. 88+59 EBL



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SOUTH DAKOTA
12/10/2025

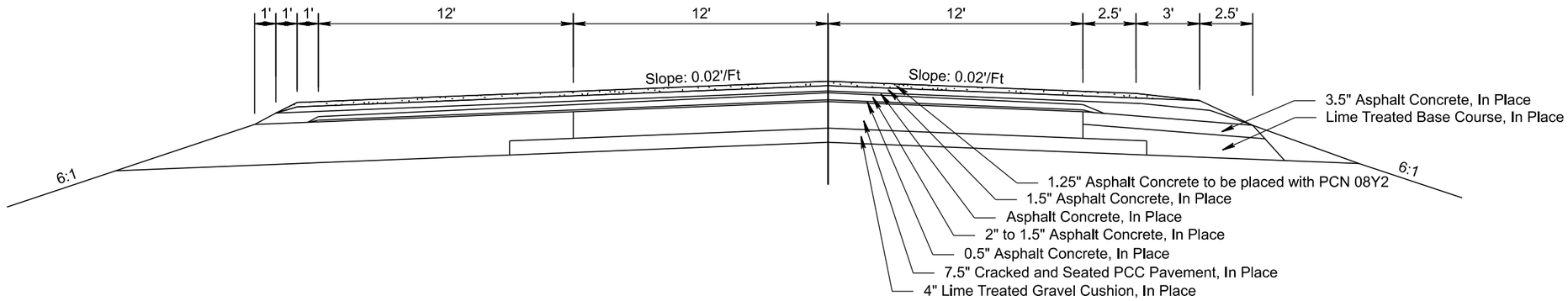
ULTIMATE SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	48	170

Plotting Date: 12/10/2025

Section 3u (Ultimate Surfacing Section)
(for informational purposes only)

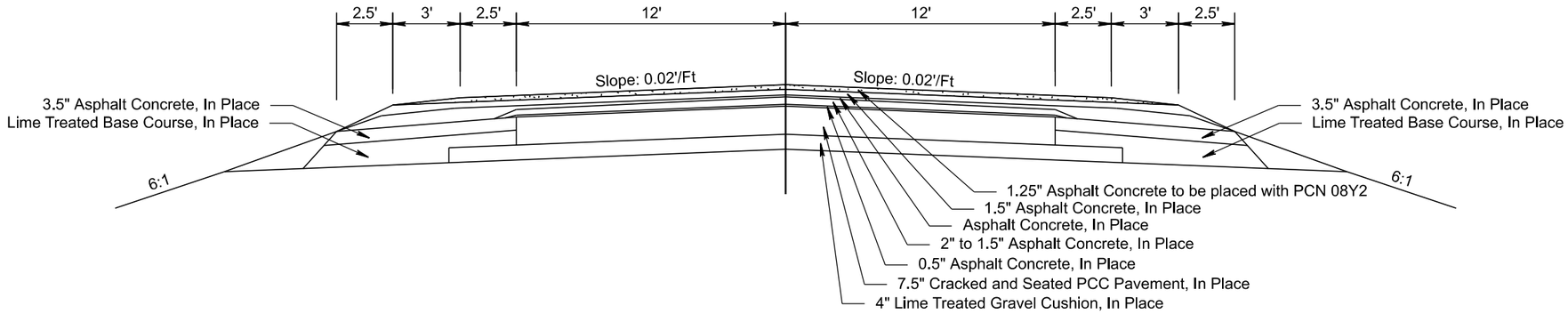
Sta. 27+04 to Sta. 31+91 WBL
Sta. 37+00 to Sta. 42+01 WBL
Sta. 56+42 to Sta. 61+97 WBL
Sta. 89+29 to Sta. 94+66 WBL
Sta. 143+11 to Sta. 144+63 WBL



Section 4u (Ultimate Surfacing Section)
(for informational purposes only)

Sta. 189+08 to Sta. 319+21 Two Lane
Sta. 333+93 to Sta. 371+77 Two Lane
Sta. 386+37 to Sta. 394+84 Two Lane

See Table of Additional Quantities for Transition Locations and Widths



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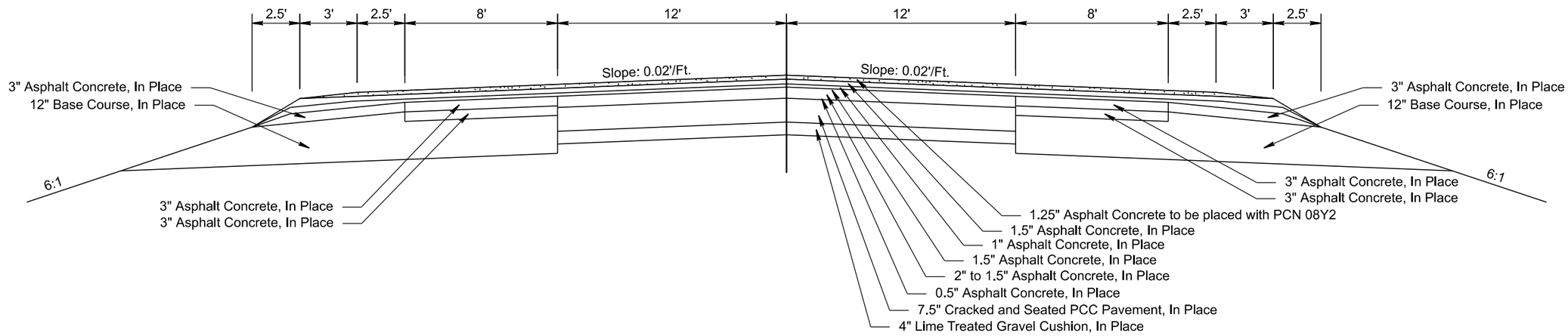
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

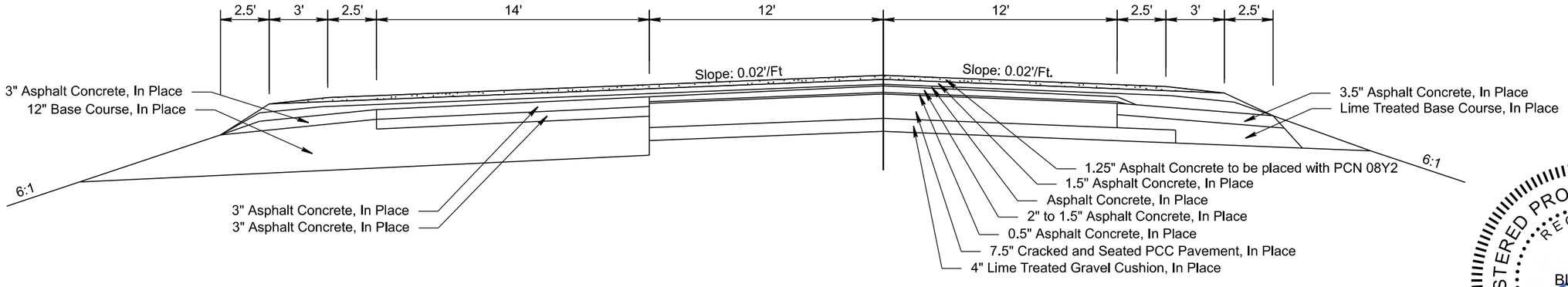
Section 5u (Ultimate Surfacing Section)
(for informational purposes only)

Sta. 319+21 to Sta. 333+93 Three Lane



Section 6u (Ultimate Surfacing Section)
(for informational purposes only)

Sta. 371+77 to Sta. 386+37



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

PLOT SCALE - 1:6.00001

PLOTTED FROM - BRYCE.STEFFEN

PLOT NAME - $$PLOTNAME$$

FILE - ...\06PR_TYPSECT_TJ02.DGN

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	50	170

Plotting Date: 12/10/2025

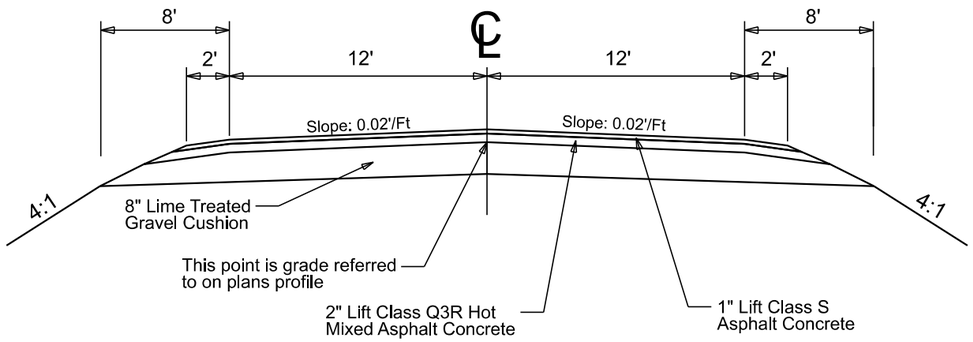
FOR BIDDING PURPOSES ONLY

SECTION 7

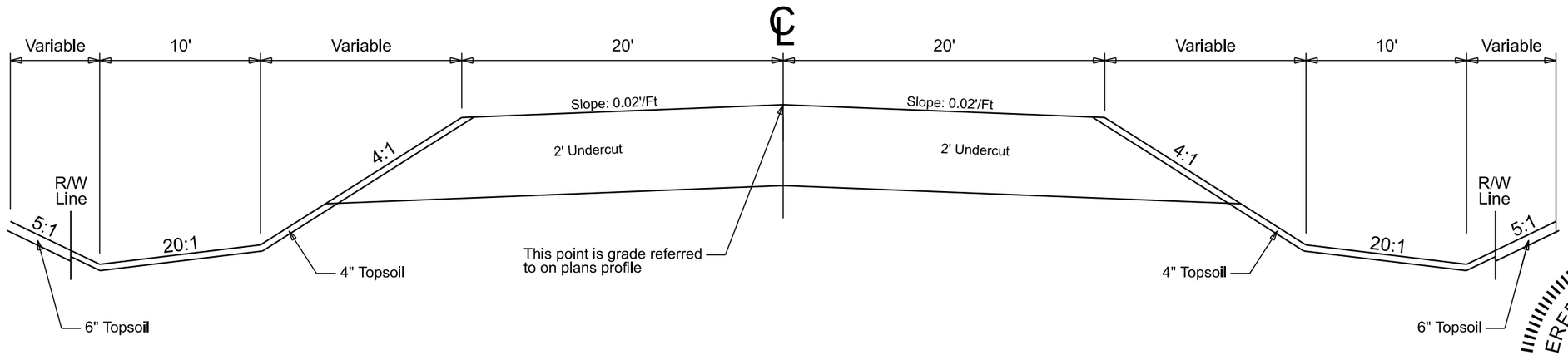
RURAL TWO LANE

Sta. 1+89 to Sta. 3+19
Sta. 4+26 to Sta. 12+84

TYPICAL SURFACING SECTION



TYPICAL GRADING SECTION



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

HRGreen

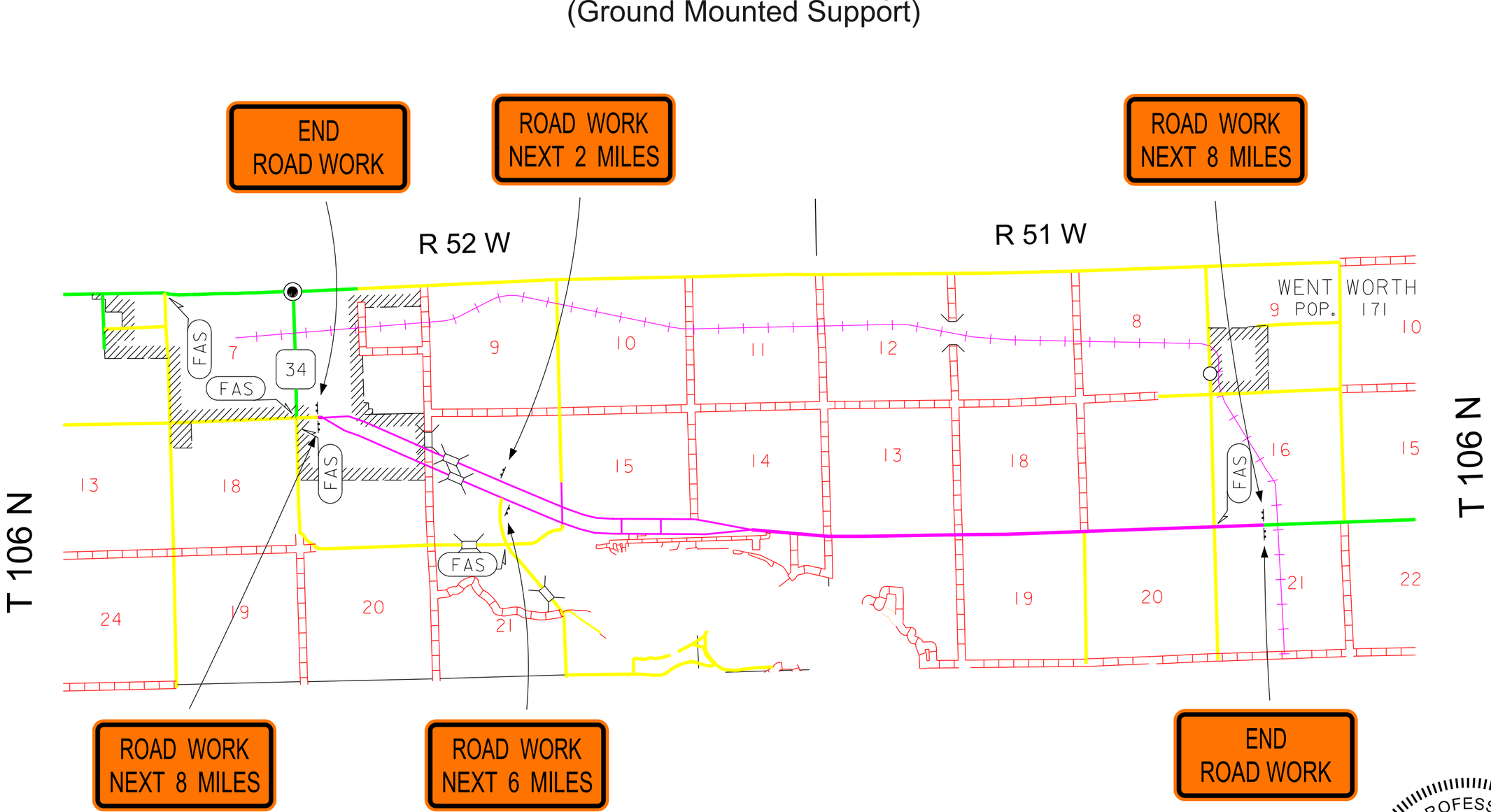
Plotted From - bryce.steffen File - ...\Archive\06PR_Typicals.dgn

TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
Plotting Date: 12/10/2025	NH 0034(212)388	51	170

SD 34 Fixed Location Signs
(Ground Mounted Support)



NOTES:

All fixed location signs will remain inplace until permanent pavement marking is complete.
Signs will be placed 200' to 300' from intersections. Exact location to be determined by the Engineer.
Construction signs cannot obscure existing signs and must be installed a minimum of 200' from existing sign.
Construction signs will not be installed on the same post as an existing highway sign or light pole.
Refer to standard plates for construction sign and device location.

REGISTERED PROFESSIONAL ENGINEER
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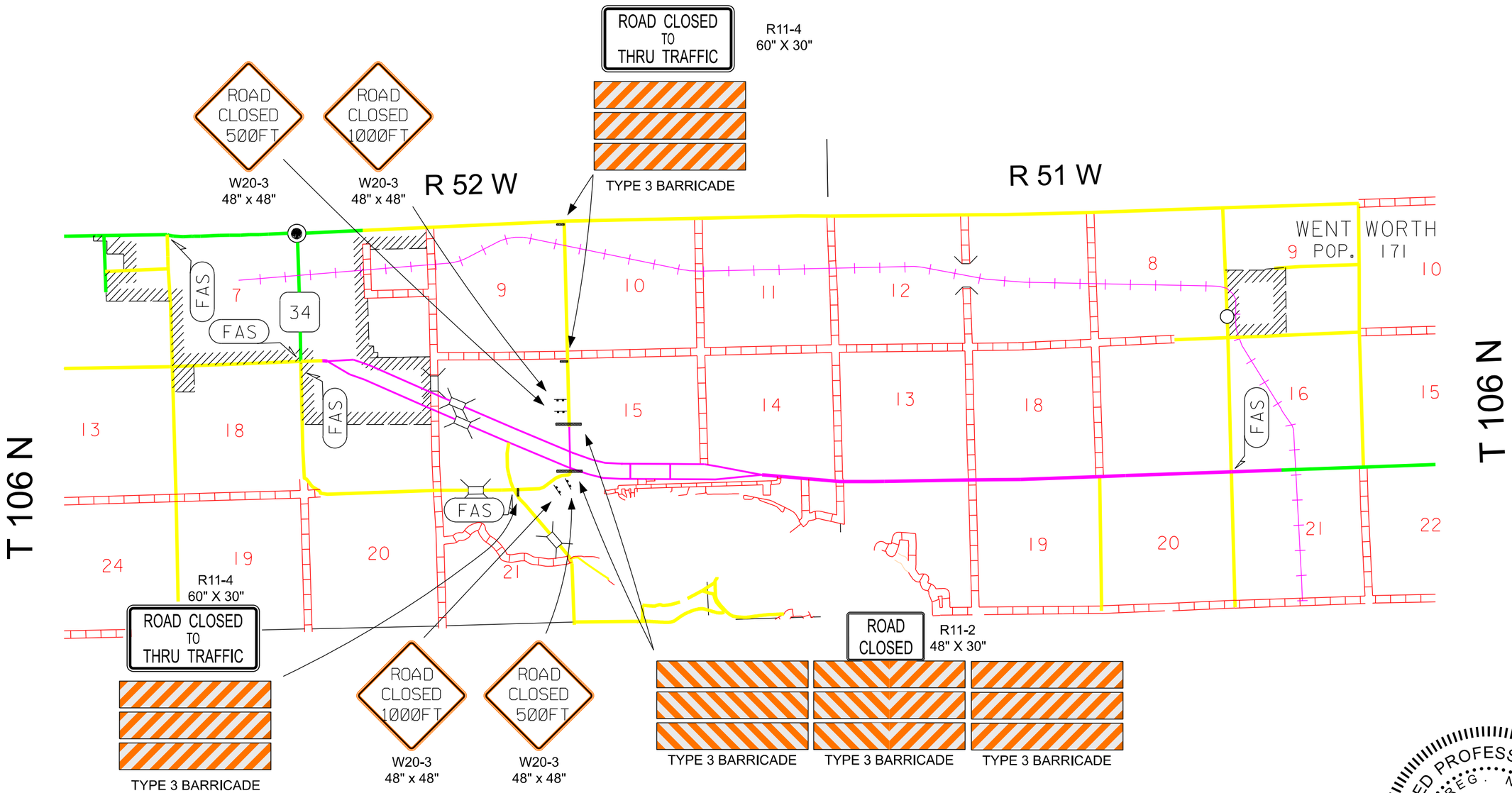
TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	52	170

Plotting Date: 12/10/2025

457th Ave Fixed Location Signs
(Ground Mounted Support)



NOTES:

All fixed location signs will remain inplace until permanent pavement marking is complete.
Signs will be placed 200' to 300' from intersections. Exact location to be determined by the Engineer.
Construction signs cannot obscure existing signs and must be installed a minimum of 200' from existing sign.
Construction signs will not be installed on the same post as an existing highway sign or light pole.
Refer to standard plates for construction sign and device location.

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SOUTH DAKOTA
12/10/2025

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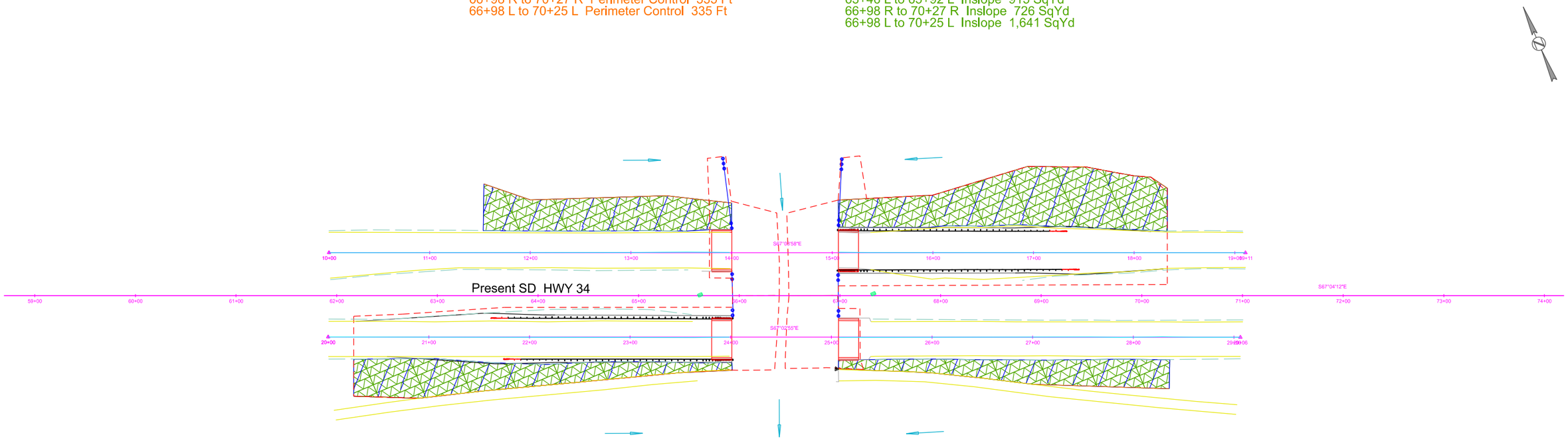
Plotted From - bryce.steffen File - ...\06PR_457_TrafficControl.dgn

Install Low Flow Silt Fence at the following locations:
62+16 R to 65+92 R Perimeter Control 380 Ft
63+46 L to 65+92 L Perimeter Control 250 Ft
66+98 R to 70+27 R Perimeter Control 335 Ft
66+98 L to 70+25 L Perimeter Control 335 Ft

Install Type 3 Erosion Control Blanket
at the following locations:
62+16 R to 65+92 R Inslope 983 SqYd
63+46 L to 65+92 L Inslope 915 SqYd
66+98 R to 70+27 R Inslope 726 SqYd
66+98 L to 70+25 L Inslope 1,641 SqYd



Utilize Surface Roughening at the following locations:
62+16 R to 65+92 R Inslope 0.2 Acres
63+46 L to 65+92 L Inslope 0.2 Acres
66+98 R to 70+27 R Inslope 0.2 Acres
66+98 L to 70+25 L Inslope 0.4 Acres

Low Flow Silt Fence

Type 3 Erosion Control Blanket

Surface Roughening

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SOUTH DAKOTA
12/10/2025

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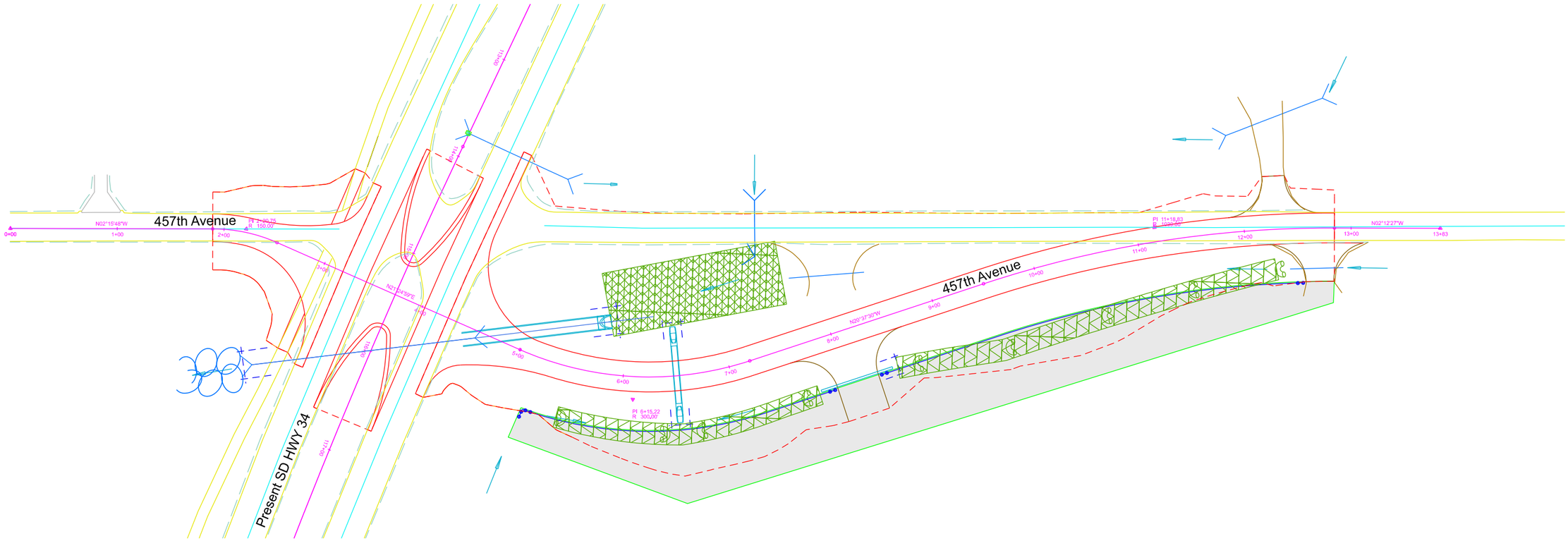
Install Low Flow Silt Fence at the following locations:
1+89 R to 2+92 R Perimeter Control 120 Ft
1+89 L to 2+91 L Perimeter Control 140 Ft
4+35 R to 5+65 R Perimeter Control 150 Ft

Install Type 2 Turf Reinforcement Mat
at the following locations:
5+60 L to 7+77 L Ditch Channel 1,096 SqYd



Install Type 3 Erosion Control Blanket
at the following locations:
5+48 R to 7+73 R Ditch Channel 543 SqYd
8+48 R to 12+27 R Ditch Channel 812 SqYd

Install 12" Diameter Erosion Control Wattles
across the Highway Ditch Channel Bottom
at the following locations:

5+54 R 30 Ft	9+54 R 30 Ft
6+38 R 30 Ft	10+54 R 30 Ft
6+65 R 30 Ft	11+45 R 30 Ft
7+57 R 30 Ft	12+30 R 30 Ft
8+66 R 30 Ft	

Install High Flow Silt Fence
at the following locations:
2+76 R End of Pipe 100 Ft
5+83 L End of Pipe 100 Ft
6+50 R End of Pipe 100 Ft
6+51 L End of Pipe 100 Ft
8+45 R Inlet End of Pipe 18 Ft

High Flow Silt Fence at Pipe

12" Erosion Control Wattle

Low Flow Silt Fence

Type 3 Erosion Control Blanket

Type 2 Turf Reinforcement Mat

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12/10/2025

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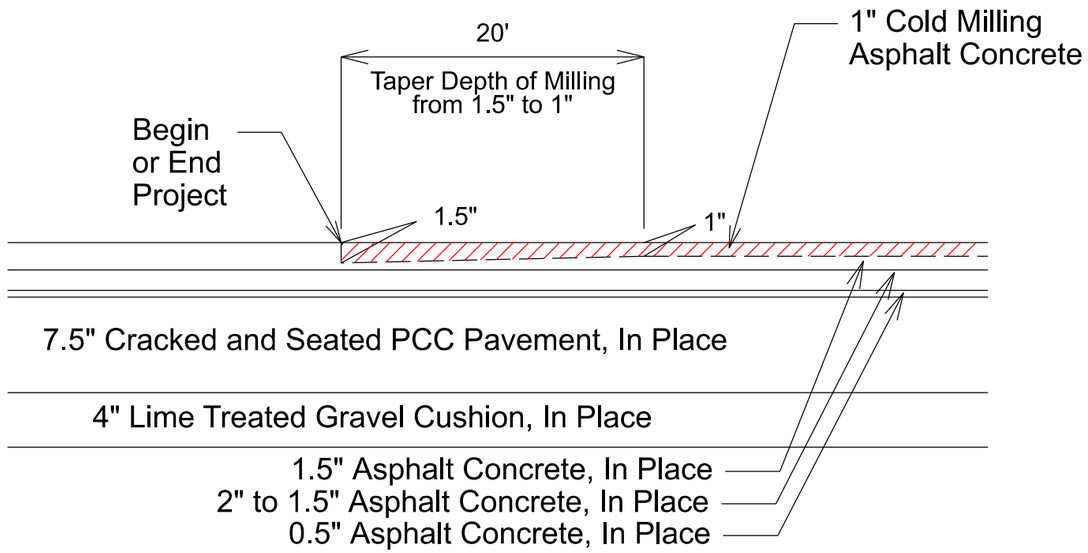
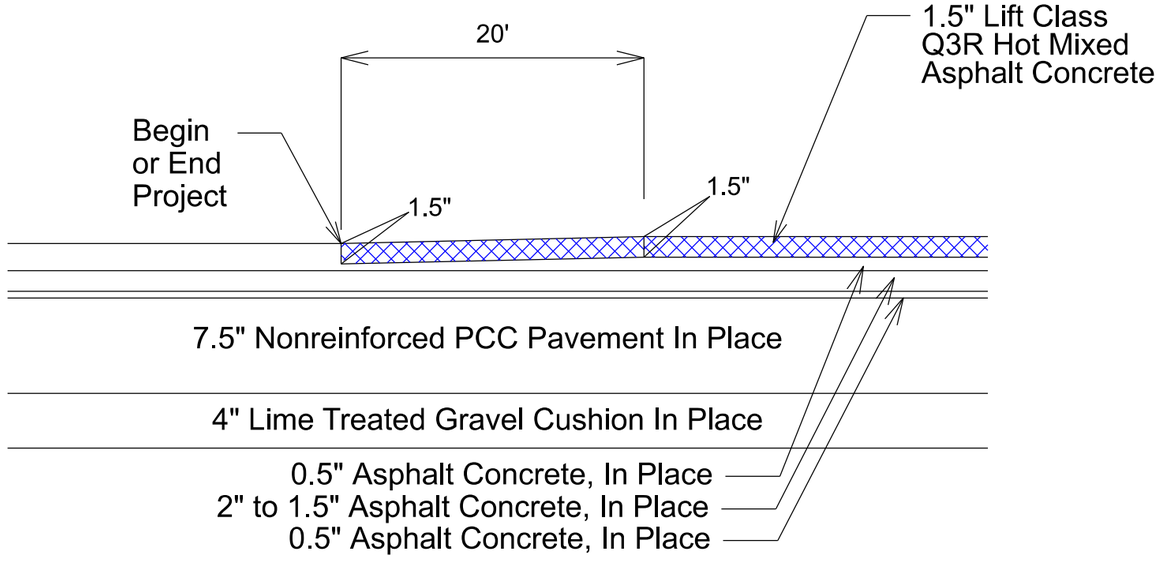
DETAIL FOR COLD MILLING TAPER

AT BEGIN & END PROJECT



DETAIL FOR RESURFACING TAPER

AT BEGIN & END PROJECT



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SOUTH DAKOTA
12/10/2025

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HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
Plotting Date: 12/10/2025	NH 0034(212)388	56	170

SD 34

Type	Station			Northing	Easting
POB/PC	8+22.69			621476.787	2817405.276
PI	19+18.48	R = 5729.58	Delta = 21°39'14.4" L	621434.142	2818500.232
PT	29+88.11			620990.464	2819502.178
		TL = 8401.34	S 67°04'12" E		
PC	113+89.46			617717.241	2827239.655
PI	126+70.42	R = 5748.52	Delta = 25°07'26.4" L	617217.986	2828419.830
PT	139+10.20			617267.033	2829699.856
		TL = 1796.83	N 87°48'21.6" E		
PC	156+91.37			617335.832	2831495.364
PI	169+87.36	R = 32195.94	Delta = 04°36'36.0" R	617363.087	2832791.074
PCC	182+96.01			617286.109	2834084.781
PI	196+01.84	R = 176160.59	Delta = 00°50'56.4" R	617212.609	2835388.541
PRC	209+07.62			617119.789	2836691.068
PI	222+45.17	R = 23210.39	Delta = 06°35'45.6" L	617012.735	2838052.450
PT	235+79.76			617062.001	2839389.091
		TL = 5324.82	N 88°42'7.2" E		
PC	289+04.85			617182.645	2844712.542
PI	299+40.38	R = 69830.48	Delta = 01°42'00.0" L	617198.577	2845748.220
PT	309+76.03			617245.220	2846782.970
		TL = 8589.29	N 86°51'21.6" E		
POE	395+66.58			617716.329	2855359.326

SD 34 Eastbound Bridge

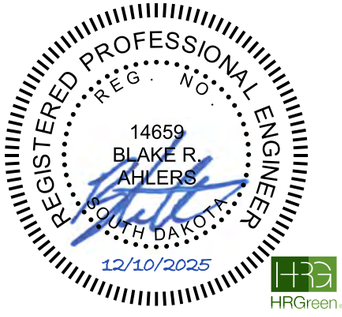
Type	Station		Northing	Easting
POB	20+00.00 (SD 34 Sta. 61+91.52)		619704.899	2822436.013
	TL = 906.37	S 67°2'56.4" E		
POE	29+06.37 (SD 34 Sta. 70+97.89)		619351.459	2823270.631

SD 34 Westbound Bridge

Type	Station		Northing	Easting
POB	10+00.00 (SD 34 Sta. 61+92.34)		619781.561	2822469.336
	TL = 910.61	S 67°3'57.6" E		
POE	19+10.61 (SD 34 Sta. 72+02.95)		619426.724	2823307.968

457 Ave

Type	Station			Northing	Easting
POB/PC	1+89.30			617486.451	2827326.299
PI	2+20.75	R = 150.00	Delta = 23°40'48.0" R	617517.872	2827325.057
PT	2+51.29			617547.146	2827336.540
		TL = 248.64	N 21°25'1.2" E		
PC	4+99.93			617778.616	2827427.328
PI	6+15.22	R = 300.00	Delta = 42°02'27.6" L	617885.939	2827469.424
PT	7+20.06			617993.834	2827428.815
		TL = 230.33	N 20°37'30.0" W		
PC	9+50.39			618209.401	2827347.682
PI	11+18.83	R = 1039.00	Delta = 18°25'1.2" R	618367.049	2827288.348
PT	12+84.37			618535.367	2827281.859
		TL = 99.11	N 2°12'25.2" W		
POE	13+83.48			618634.397	2827278.042



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CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	57	170

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	-	-	PK NAIL IN ASPHALT	619607.999	2822614.970	1644.53
CP2	-	-	PK NAIL IN ASPHALT	619428.226	2823047.628	1645.52
CP3	-	-	PK NAIL IN ASPHALT	619484.453	2823222.320	1646.13
CP4	-	-	PK NAIL IN ASPHALT	619727.586	2822646.684	1644.65
CP5	-	-	REBAR WITH CAP STAMPED CONTROL POINT	618418.796	2825089.731	1664.81
CP6	-	-	REBAR WITH CAP STAMPED CONTROL POINT	617983.333	2826993.890	1636.55
1100	5+31	-79’	SW CORNER TRACT 3 (BARCAP)	617829.212	2827360.913	-
1101	5+68	-187’	BARCAP BANNER (RLS 2846)	617871.839	2827259.219	-
1102	8+67	-30’	NW CORNER TRACT 3 (BARCAP)	618120.787	2827348.892	-
1103	11+37	-40’	BARCAP RLS 10141	618396.595	2827337.449	-
1202	108+14	-1396’	W1/4 SEC.15-106-52(FOUND BARCAP)	619227.231	2827253.153	-
1104	136+87	-150’	SE CORNER TRACT 3 (BARCAP RLS 2711)	617412.426	2829476.253	-
1105	137+63	150’	NE CORNER LOT 24	617113.058	2829553.312	-
1106	128+45	150’	SE CORNER TRACT 4 (BARCAP RLS 10141)	617175.997	2828614.514	-
1107	2+08	48’	NW CORNER TRACT 4 (BARCAP RLS 10141)	617501.156	2827374.375	1626.19
1108	117+31	502’	SW CORNER TRACT 4 (BARCAP RLS 10141)	617121	2827390.101	-
1110	142+36	-110’	BARCAP RLS HEYER	617389.362	2830020.091	-
1111	142+36	-150’	BARCAP RLS HEYER	617429.389	2830018.211	-
1113	139+12	-148’	T-BAR WITH CAP AT PT OF CURVE (STA. 139+37.36) 149' LT.	617415.427	2829695.12	-
1114	145+90	-110’	BARCAP RLS HEYER	617403.42	2830374.022	-
1115	146+15	-150’	SW CORNER LOT 2A	617443.691	2830397.319	-
1116	120+04	-670’	SE CORNER TRACT 2 (FOUND BARCAP)	618149.384	2828011.067	-
1117	136+37	-947’	NE CORNER TRACT 3 (FOUND BARCAP)	618209.799	2829434.263	-

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone NAD 1983(2011); epoch 2010 Geoid18 (Conus)
The elevations shown on this sheet are based on NAVD 88.

LEGEND

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET	TOTAL SHEETS
NH 0034(212)388	58	170

Plotting Date: 12/10/2025

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Control Point
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Elec. Trans./Power Jct. Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad R.O.W. Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Warning Sign One Post
- Warning Sign Two Post
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
12/10/2025

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SD 34

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	59	170

Plotting Date: 12/10/2025

Remove 3 Cable Guardrail
at following locations:
15+70.38-19' R to 16+85.35- 26' R

Remove Beam Guardrail
at following locations:
15+06.23-22' L to 16+12.64-28' L
15+06.23-19' R to 15+98.07-26' R

15+06.03 to 17+37.00 L
Install Type 1 Retrofit Guardrail Transition
& 137.5' Type 1 MGS Guardrail
& MGS Tangent End Terminal

15+06.03 to 17+49.00 R
Install Type 1 Retrofit Guardrail Transition
& 125' Type 1 MGS Guardrail
& MGS Tangent End Terminal

65+84.00 - 136' L
Begin Type 2 Fence
Tie Into Existing Fence

65+93.00- 65' L
End Type 2 Fence
Tie Into Bridge

65+93.00- 25' L
Tie Into Bridge
Begin Type 2 Fence

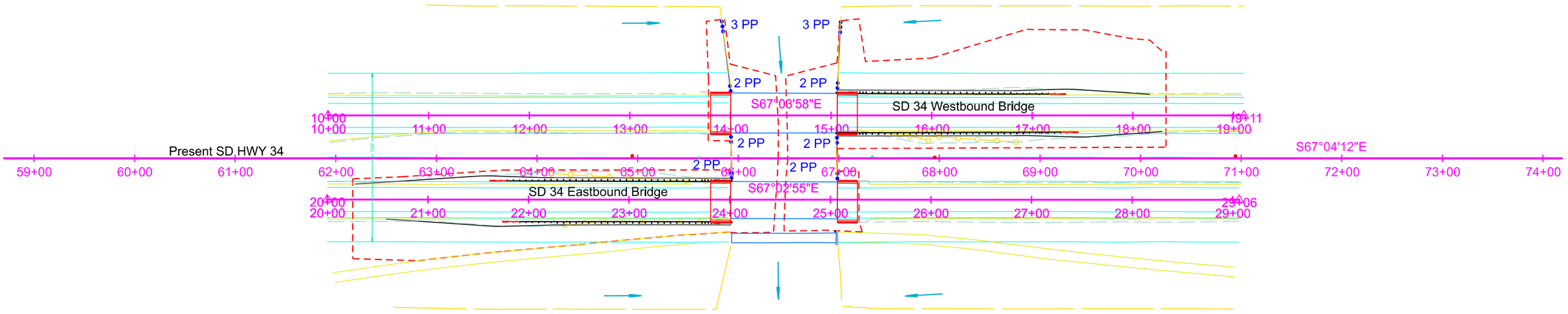
65+94.00- 23' R
End Type 2 Fence
Tie Into Bridge

67+02.00- 136' L
Begin Type 2 Fence
Tie Into Bridge

66+99.00- 65' L
Begin Type 2 Fence
Tie Into Existing Fence

66+98.00-25' L
Tie Into Bridge
Begin Type 2 Fence

66+98.00-24' R
End Type 2 Fence
Tie Into Bridge



Sec 16 - T106N - R52W

21+58.00 to 24+01.08 L
Install Type 1 Retrofit Guardrail Transition
& 137.5' Type 1 MGS Guardrail
& MGS Tangent End Terminal

21+71.00 to 24+01.08' R
Install Type 1 Retrofit Guardrail Transition
& 125' Type 1 MGS Guardrail
& MGS Tangent End Terminal

Remove Beam Guardrail
at following locations:
23+09.29-24' L to 24+01.08-19' L
22+32.00-27' R to 24+01.08-23' R

Remove 3 Cable Guardrail
at following locations:
22+20.57-26' L to 23+51.63-19' L

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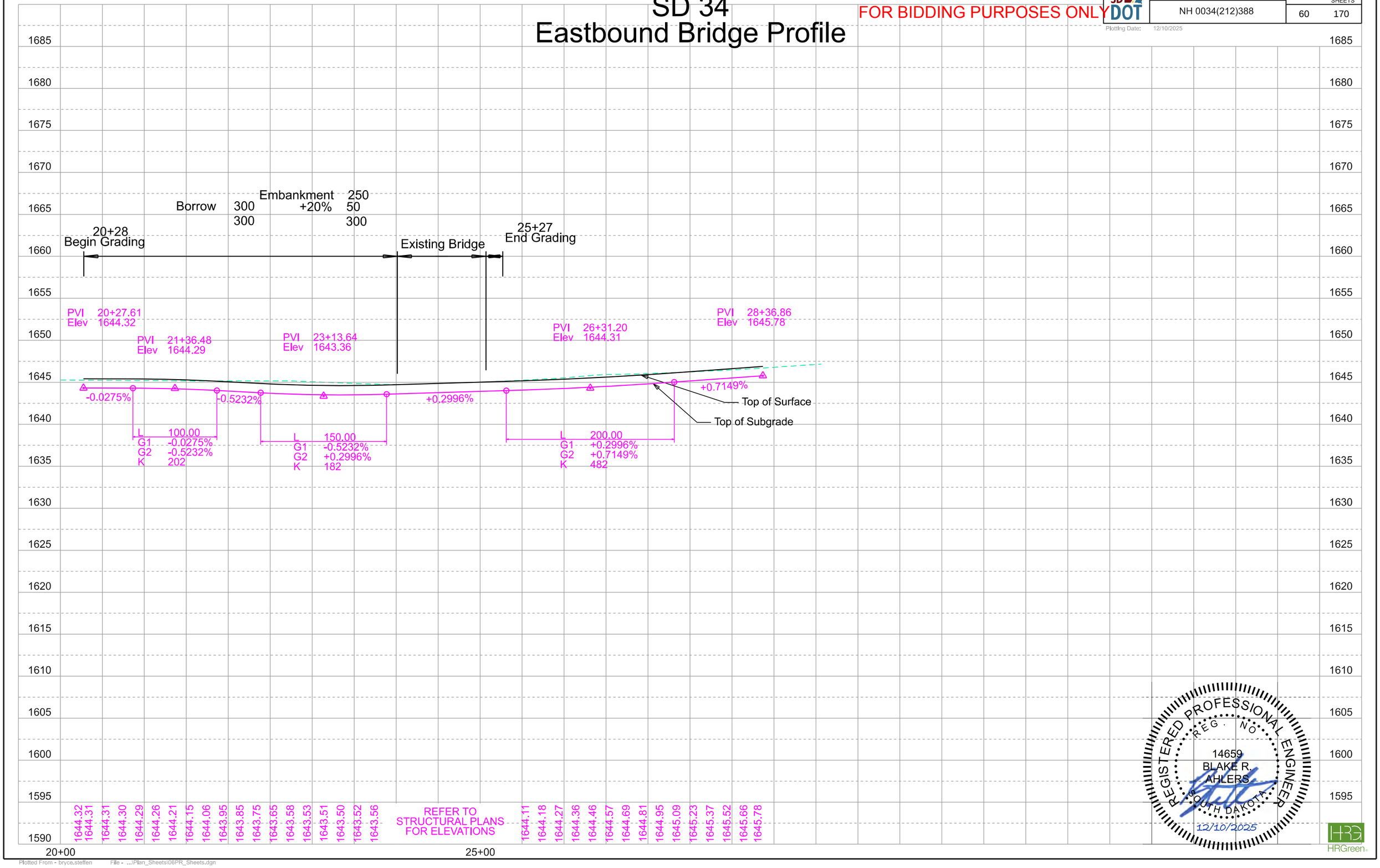
SD 34
Eastbound Bridge Profile

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET	TOTAL SHEETS
NH 0034(212)388	60	170

Plotting Date: 12/10/2025



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SD 34
Westbound Bridge Profile

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET	TOTAL SHEETS
NH 0034(212)388	61	170

Plotting Date: 12/10/2025

Borrow 350 350
Embankment 292
+20% 58
350

13+80 Begin Grading
14+00 Existing Bridge
18+38 End Grading

PVI 11+53.90
Elev 1644.13

PVI 12+00.26
Elev 1644.04

PVI 13+38.25
Elev 1643.56

PVI 15+61.22
Elev 1643.98

PVI 17+30.05
Elev 1645.22

PVI 18+37.62
Elev 1645.80

-0.2093%
-0.3451%
+0.1895%
+0.7307%
+0.5475%

Top of Surface
Top of Subgrade

L 75.00
G1 -0.2093%
G2 -0.3451%
K 552

L 100.00
G1 -0.3451%
G2 +0.1895%
K 187

L 100.00
G1 +0.1895%
G2 +0.7307%
K 185

L 100.00
G1 +0.7307%
G2 +0.5475%
K 546

1644.13 1644.12 1644.08 1644.02 1643.96 1643.90 1643.83 1643.76 1643.70 1643.65 1643.63 1643.62

REFER TO STRUCTURAL PLANS FOR ELEVATIONS

1643.96 1644.04 1644.15 1644.27 1644.41 1644.56 1644.70 1644.85 1644.99 1645.13 1645.26 1645.38 1645.49 1645.60 1645.71 1645.80

1685 1680 1675 1670 1665 1660 1655 1650 1645 1640 1635 1630 1625 1620 1615 1610 1605 1600 1595 1590

10+00 15+00

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12/10/2025

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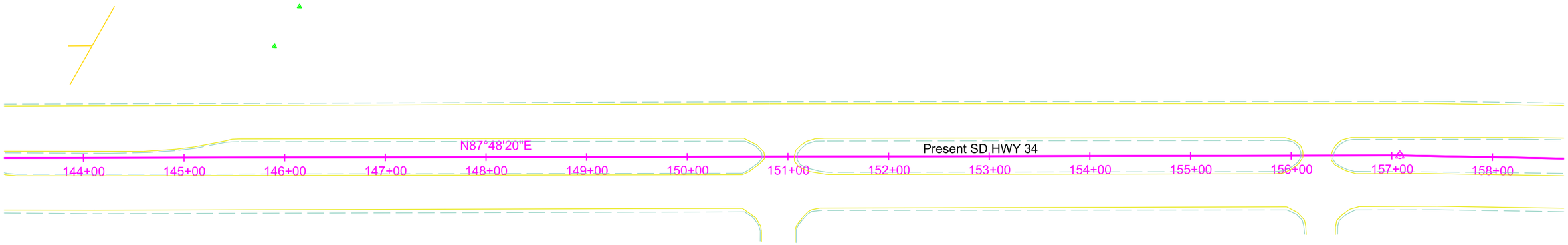
SD 34

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	62	170

Plotting Date: 12/10/2025

150+90 R
Eliminate Entrance
(Incidental Work, Grading)



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12/10/2025

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Plotted From - bryce.steffen File - ...\Plan_Sheets\06PR_Sheets.dgn

SD 34

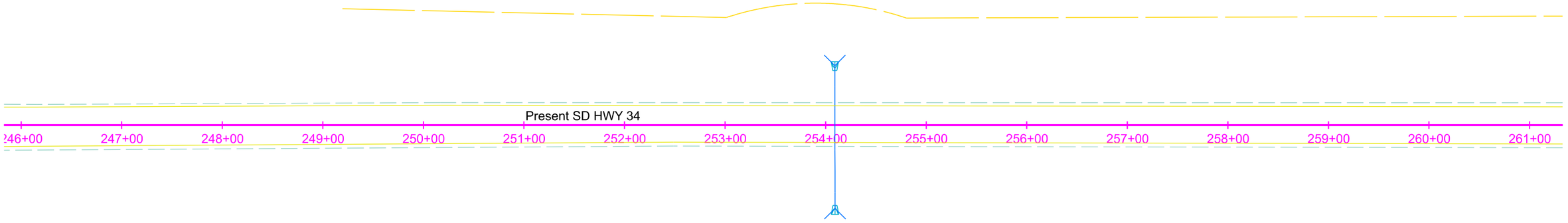
FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	63	170

Plotting Date: 12/10/2025

254+09 R & L
Take Out 2 End Sections
(Incidental Work, Grading)

254+09-89' R to 254+09-62' L
Install 2 36" RCP Flared End Sections



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

HRGreen

SD 34

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	64	170

Plotting Date: 12/10/2025

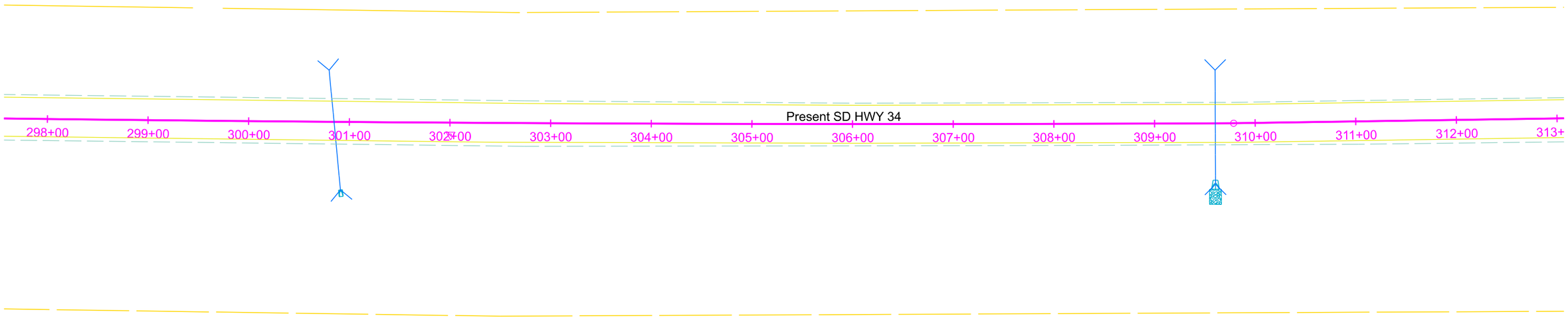
300+92 R
Take Out 1 End Section
(Incidental Work, Grading)

300+92-68' R
Install 1 30" RCP Arch Sloped Safety
End Section w/ Bars

309+60 R
Take Out 1 End Section
(Incidental Work, Grading)

309+60-60' R
Install 1 42" RCP Flared End Section

309+60-60' R
Install PVC Coated Bank and Channel
Protection Gabions (10 CuYd)
and Type B Drainage Fabric (29 SqYd)



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SOUTH DAKOTA
12/10/2025

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457th Ave

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	65	170

Plotting Date: 12/10/2025

2+76 R
Retain 96"-211' RCP
& 1 End Section

4+76 L
Retain 18"-101' RCP
& 1 End Section

4+47 R
Take Out 1 End Section
(Incidental Work, Grading)

4+47-13' R to 5+82-49' L
Install 108"-128' RCP Arch
& 1 End Section

6+50-46' L to 6+50-44' R
Install 60"-54' RCP
& 2 End Sections

Present 457th Avenue
Retain Berm
Remove Asphalt and Base
Place Topsoil
Place Type C Permanent Seed

7+55 L
Retain 56"-53' RCP
& 2 End Sections

Sec 16 - T106N - R52W

Lake Madison Sanitary District (Information Only)

Match Existing

114+50.8-82.5'R
114+50.5-72.5' R

114+99.5-71.5' R
115+06.7-81.4' R

10' Shared Use Path

Present SD HWY 34

114+00

115+00

116+00

PI 2+20.75
R 150.00'

457th Avenue

2+00

3+00

4+00

5+00

6+00

7+00

N21°24'59"E

Present 457th Avenue

100'

50'

Lake Madison Sanitary District (Information Only)

115+78.7-80.8' R
115+92.0-70.8' R

116+31.2-81.0' R
Match Existing
116+31.3-71.0' R

300'

Lake Madison Sanitary District (Information Only)

PI 6+15.22
R 300.00'

Type 2 Fence

2-2 PP

Sec 15 - T106N - R52W

Albert and Karen Yager Living Trust

Tract 3 of B. Brice Addition in the West 1/2 of of Section 15 - Township 106 North - Range 52 West of the 5th P.M.

Parcel 1
0.91 ac. Permanent Easement
(39428 sq ft) more or less.

Parcel 1
5+18.00 to 8+40.77 R
Temporary Easement containing
0.45 ac, more or less

5+20.17'- 59' R
Begin Type 2 Fence
Tie Into Existing Fence

5+18.00-80.03'
5+19.38-50.00'
5+19.38-50.00'

6+50.00-120.00'

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SOUTH DAKOTA
12/10/2025

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457th Ave

FOR BIDDING PURPOSES ONLY

SD DOT

PROJECT	SHEET	TOTAL SHEETS
NH 0034(212)388	66	170

Plotting Date: 12/10/2025

Excavation	3550	Embankment	8497
Undercut	1467	+35%	2974
Unstable	1271	Undercut	1467
Muck	1283	+35%	513
Borrow	7163	Waste	1283
	14734		14734

1+89.30
Begin Grading

PVI 1+96.11
Elev 1633.08

L 240.00
G1 +5.0037%
G2 +0.5000%
K 53

PVI 3+19.24
Elev 1633.70

PVI 3+45.40
Elev 1633.00

PVI 4+14.42
Elev 1632.86

PVI 3+30.72
Elev 1633.56

PVI 4+02.59
Elev 1633.06

PVI 4+25.11
Elev 1632.39

1631.54

+5.0037%

+0.5000%

-1.2585%

-3.7522%

+0.1026%

-1.7364%

-4.3865%

-2.0000%

Top of Surface

Top of Subgrade

PVI 6+91.58
Elev 1627.06

RDGPI 5+50
Elev 1624.10

RDGPI 6+50
Elev 1622.50

RDG -1.60%

RDG 2.56%

LDG 2.40%

LDG 0.50%

LDGPI 5+75
Elev 1621.00

FL 1622.50
FL 1622.00

LDGPI 6+50
Elev 1622.00

L 450.00
G1 -2.0000%
G2 +4.6977%
K 67

REGISTERED PROFESSIONAL ENGINEER
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BLAKE R.
AHLERS
SOUTH DAKOTA
12/10/2025

1631.84 1632.34 1632.76 1633.11 1633.38 1633.58 1633.69 1633.21 1633.02 1633.04 1633.06 1632.61 1632.09 1631.69 1631.30 1630.97 1630.70 1630.49 1630.34 1630.25 1630.22 1630.24 1630.33 1630.47 1630.68 1630.95

1675 1670 1665 1660 1655 1650 1645 1640 1635 1630 1625 1620 1615 1610 1605 1600 1595 1590 1585

2+00 3+00 4+00 5+00 6+00 7+00

HRGreen

457th Ave

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	67	170

Plotting Date: 12/10/2025
Rev 8/14/2025 BRA

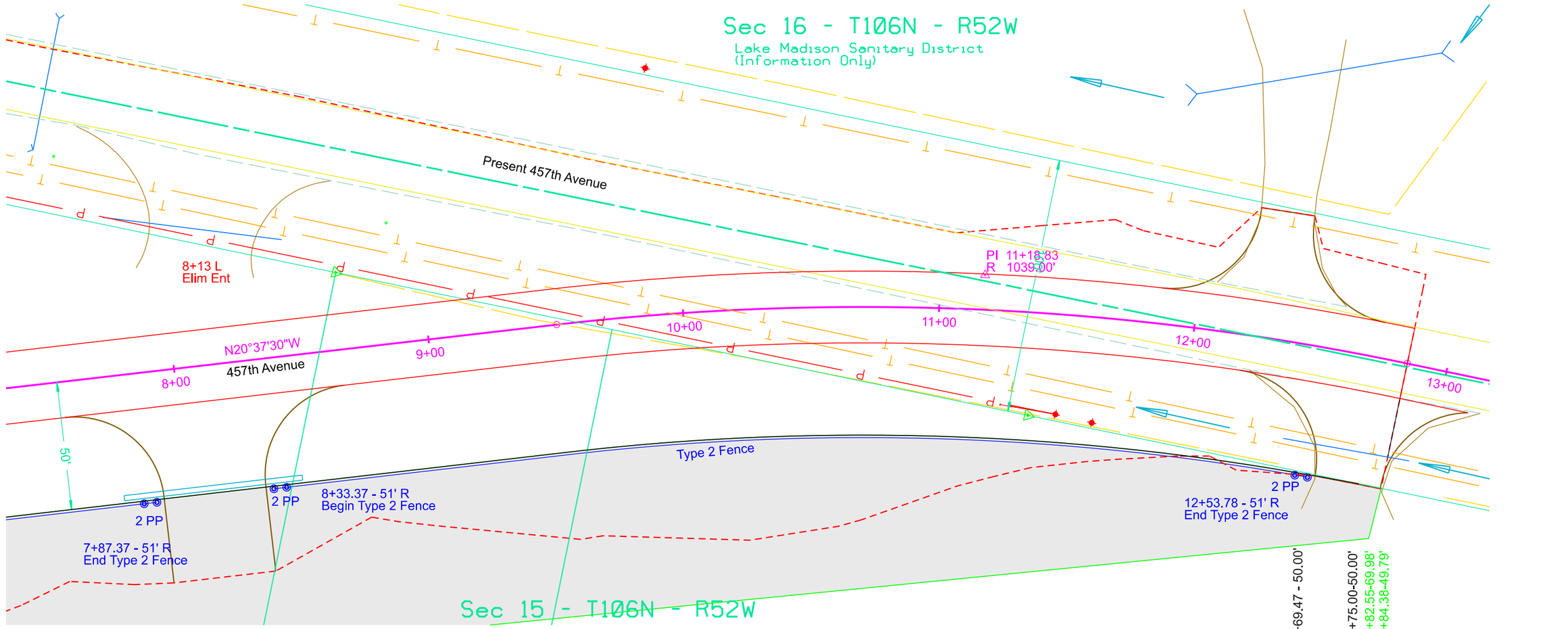
8+13-53' L
Remove 24"-71' CMP
(Incidental Work, Grading)

7+75-48' R to 8+45-48' R
Install 24"-70' CMP

Present 457th Avenue
Retain Berm
Remove Asphalt and Base
Place Topsoil
Place Type C Permanent Seed

11+91 L
Retain 36"-97' RCP
& 2 End Sections

12+41 R
Retain 18"-50' CMP



Albert and Karen Yager Living Trust

Tract 3 of B. Brice Addition in the West 1/2 of of Section 15 - Township 106 North -Range 52 West of the 5th P.M.

Parcel 1
0.91 ac. Permanent Easement
(39428 sq ft) more or less.

8+20.46- 111.97'
8+40.77-50.00'
8+40.77 - 50.00'

Albert and Karen Yager Living Trust

Tract 2B of B. Brice Addition in the West 1/2 of of Section 15 - Township 106 North -Range 52 West of the 5th P.M.

Parcel 2
0.17 ac. Permanent Easement
(7337 sq ft) more or less.

9+35.73-113.93'
9+57.00 - 50.00'
9+57.00 - 50.00'

Albert and Karen Yager Living Trust

Lot 7, Block 1 of Lee's Addition in the West 1/2 of of Section 15 - Township 106 North - Range 52 West of the 5th P.M.

Parcel 3
0.11 ac. Permanent Easement
(4821 sq ft) more or less.

12+69.47 - 50.00'
12+75.00-50.00'
12+82.55-69.98'
12+84.38-49.79'

Parcel 1
5+18.00 to 8+40.77 R
Temporary Easement containing
0.45 ac, more or less

Parcel 2
8+20.46 to 9+57.00 R
Temporary Easement containing
0.17 ac, more or less

Parcel 3
9+35.73 to 12+84.38 R
Temporary Easement containing
0.37 ac, more or less

REGISTERED PROFESSIONAL ENGINEER
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BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

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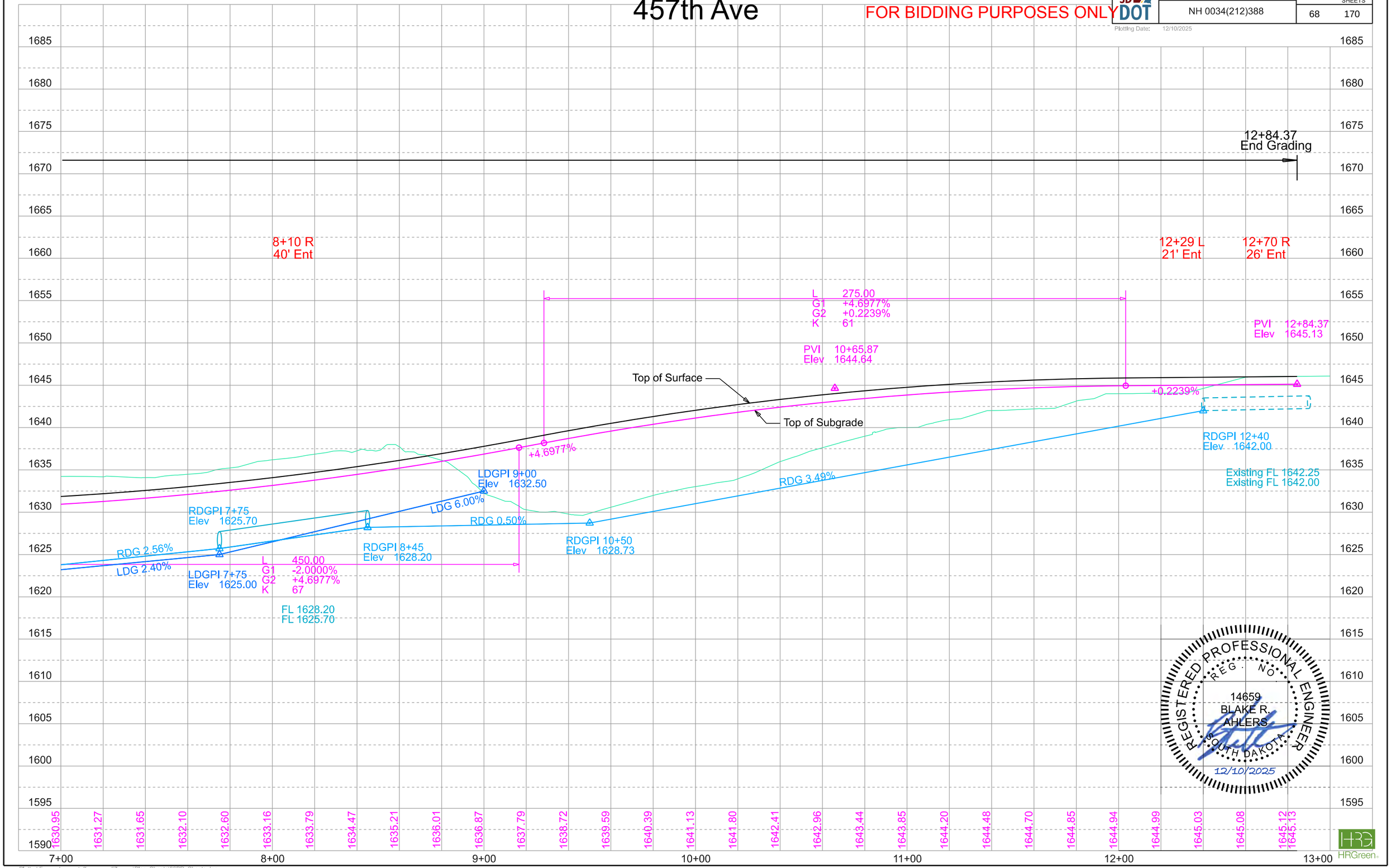
457th Ave

FOR BIDDING PURPOSES ONLY

SD DOT

PROJECT	SHEET	TOTAL SHEETS
NH 0034(212)388	68	170

Plotting Date: 12/10/2025



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R.
AHLERS
SOUTH DAKOTA
12/10/2025

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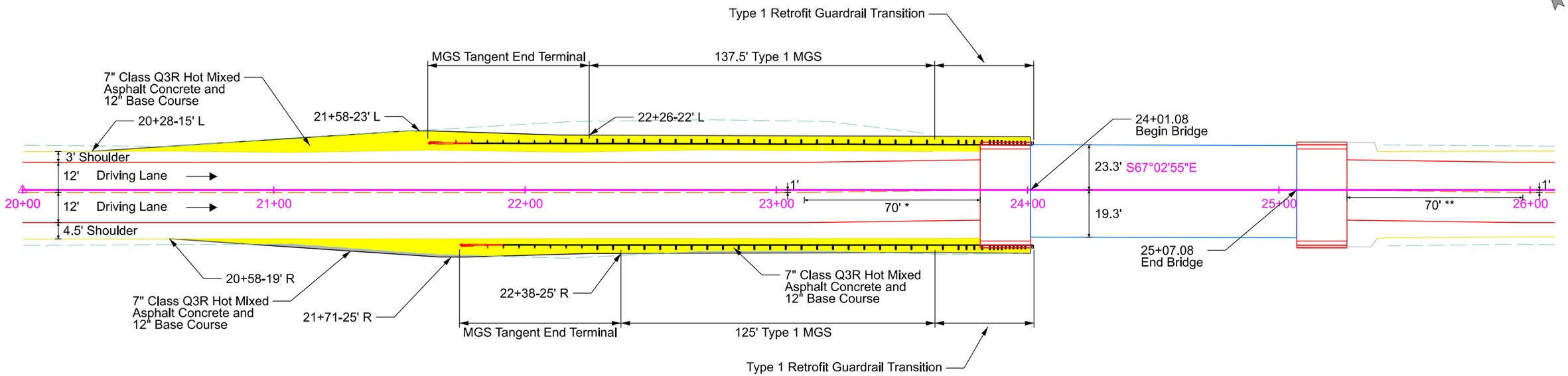
GUARDRAIL LAYOUT
Structure No. 40-142-145

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	69	170

Plotting Date: 12/10/2025



Remove Existing Pavement and Base Course, Place 12" Base Course and 7" Class Q3R Hot Mixed Asphalt Concrete. (1st Lift: 3", 2nd Lift: 2", 3rd Lift: 2")

Place Contractor Furnished Borrow Excavation, 12" Base Course, and 7" Class Q3R Hot Mixed Asphalt Concrete. (1st Lift: 3", 2nd Lift: 2", 3rd Lift: 2")

* Transition 1' offset crown to centerline over 70'

** Transition 1' offset crown from centerline over 70'

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

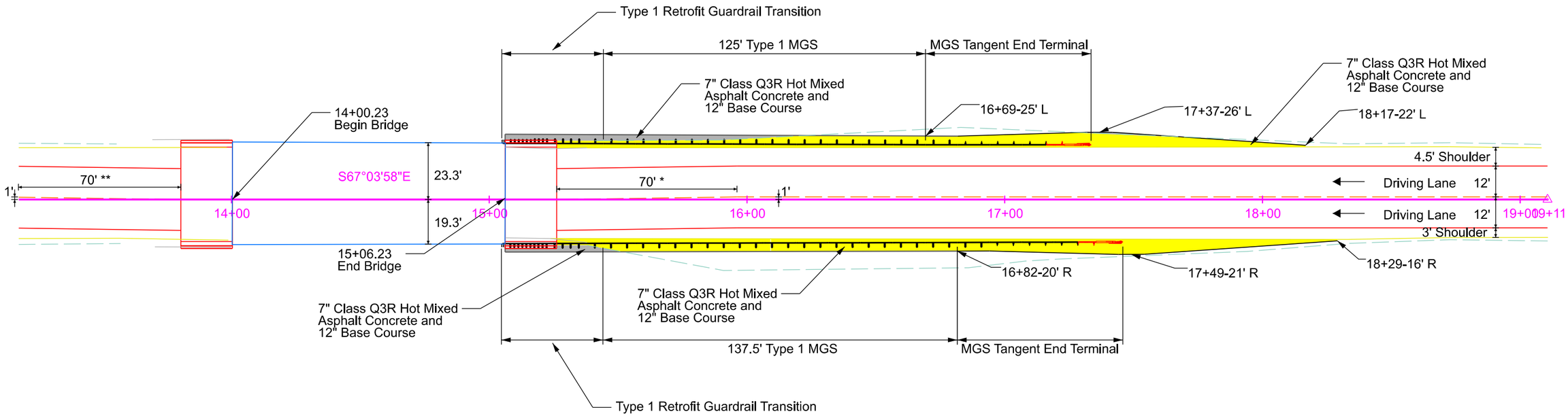
HRGreen

GUARDRAIL LAYOUT
Structure No. 40-142-144

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	70	170

Plotting Date: 12/10/2025



Remove Existing Pavement and Base Course, Place 12" Base Course and 7" Class Q3R Hot Mixed Asphalt Concrete. (1st Lift: 3", 2nd Lift: 2", 3rd Lift: 2")

Place Contractor Furnished Borrow Excavation, 12" Base Course, and 7" Class Q3R Hot Mixed Asphalt Concrete. (1st Lift: 3", 2nd Lift: 2", 3rd Lift: 2")

* Transition 1' offset crown to centerline over 70'

** Transition 1' offset crown from centerline over 70'

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

HRGreen

Plotted From - bryce.steffen File - ...\Plan_Sheets\06PR_GR.dgn

CONDUIT LAYOUT
SD 34

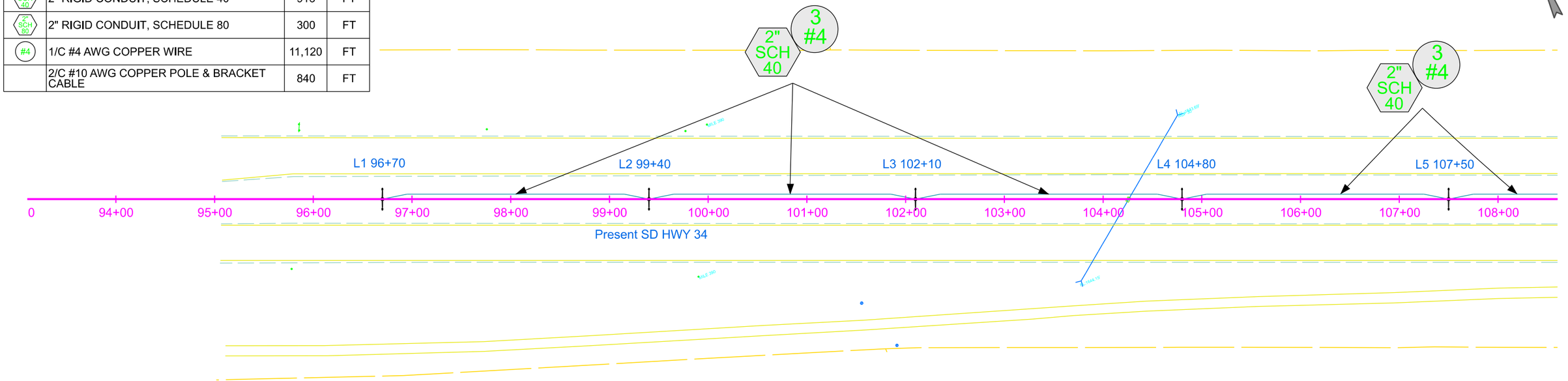
FOR BIDDING PURPOSES ONLY

PROJECT	SHEET	TOTAL SHEETS
NH 0034(212)388	71	170

Plotting Date: 12/10/2025

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QTY	UNIT
	BREAKAWAY BASE LUMINAIRE POLE W/8' ARM 50' MT HT (L7-L10)	4	EACH
	BREAKAWAY BASE LUMINAIRE POLE W/8' TWIN ARMS 50' MT HT (L1-L6, L11)	7	EACH
	ROADWAY LUMINAIRE, LED W/P.E. (L1-L13)	18	EACH
	2' DIAMETER FOOTING (L1-L13)	95	FT
	TYPE 1 ELECTRICAL JUNCTION BOX (JL1-JL3)	3	EACH
	ELECTRICAL SERVICE CABINET	1	EACH
	GALVANIZED STEEL UTILITY POLE NOT A BID ITEM	1	EACH
M	METER SOCKET NOT A BID ITEM	1	EACH
2 SCH 40	2" RIGID CONDUIT, SCHEDULE 40	915	FT
2 SCH 80	2" RIGID CONDUIT, SCHEDULE 80	300	FT
#4	1/C #4 AWG COPPER WIRE	11,120	FT
	2/C #10 AWG COPPER POLE & BRACKET CABLE	840	FT



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SOUTH DAKOTA
12/10/2025

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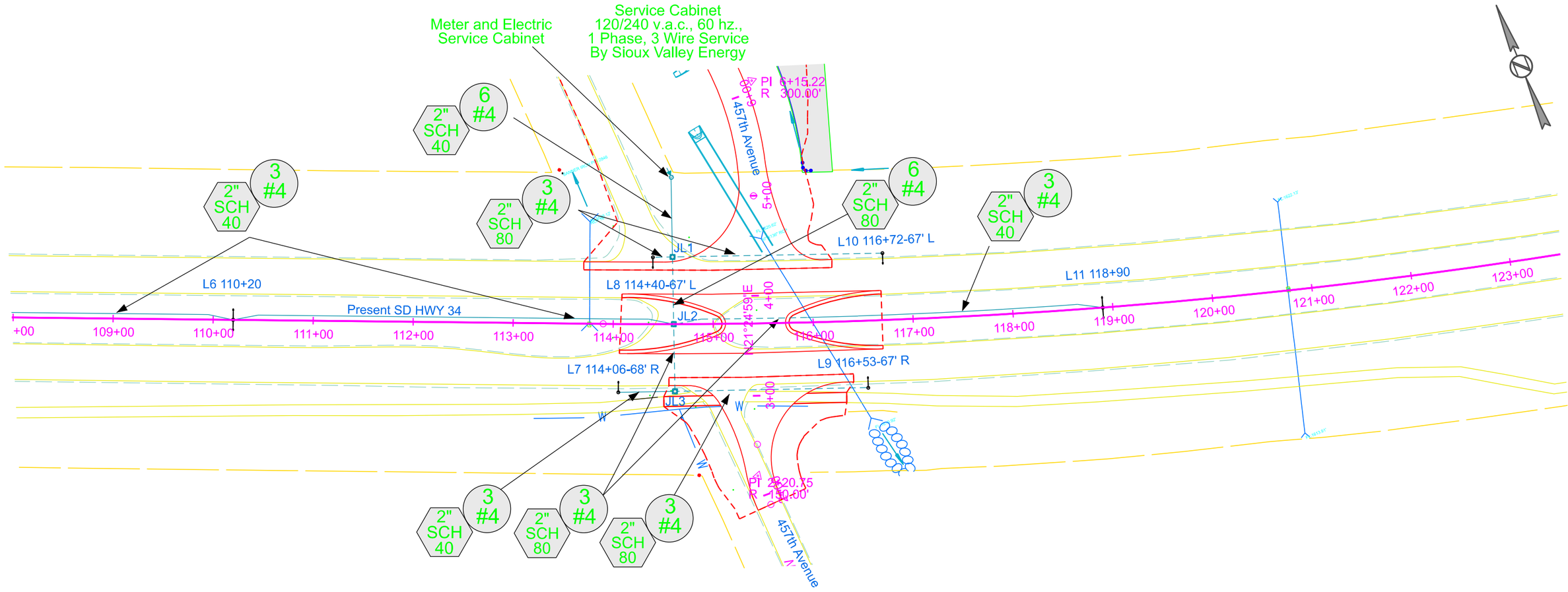
Plotted From - bryce.steffen File - ...\06PR_Lighting.dgn

CONDUIT LAYOUT
SD 34

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	72	170

Plotting Date: 12/10/2025



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REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

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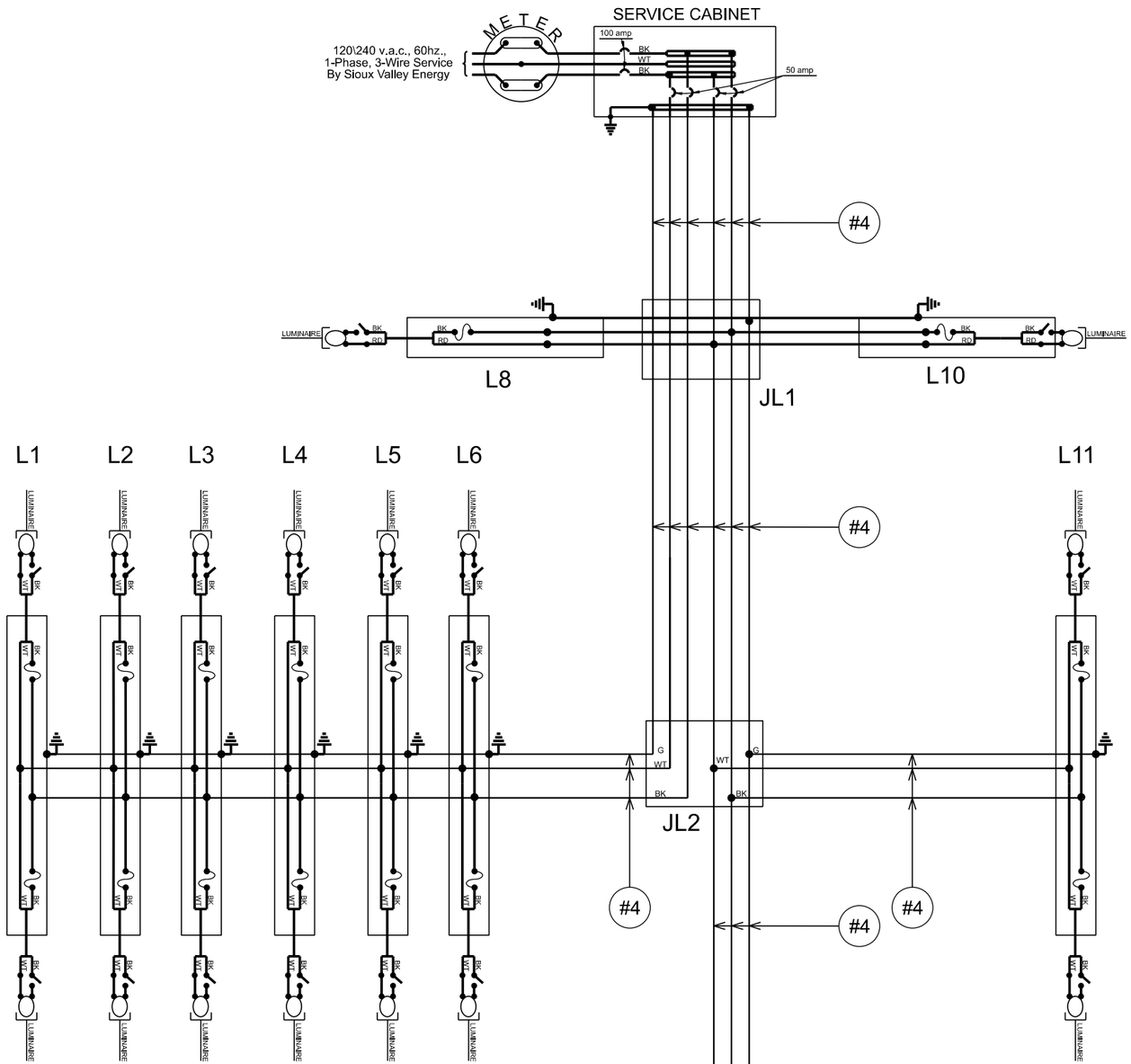
WIRING DIAGRAM

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	73	170

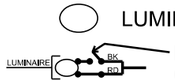
Plotting Date: 12/10/2025



LEGEND:

FUSE: For Luminaires with Receptacle Connected, Use 15 A. Non-Time Delay or, 5-6/10 A Dual-Element
For Luminaires without Receptacle Connected, Use 4 A. Non-Time Delay or, 1-8/10 A Dual-Element

LUMINAIRE: LED



PHOTOCELL (Typical of all)

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REG. NO.
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BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

NOTE:
All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE. Quantities for bonding conductors are not included in these plans.

HRGreen

Plotted From - bryce.steffen File - ...\06PR_Lighting_Details.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	74	170

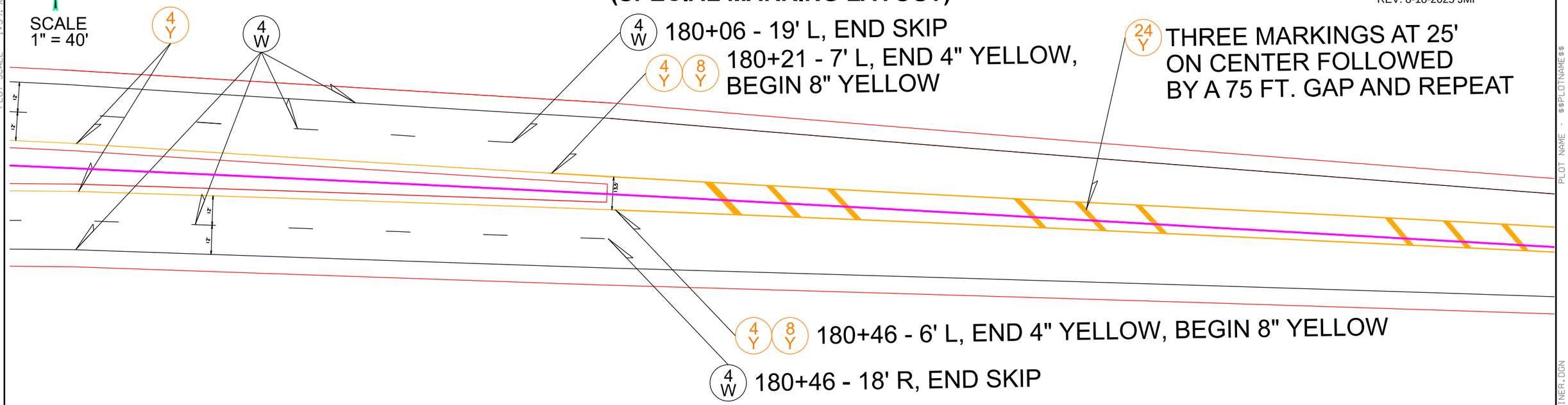
FOR BIDDING PURPOSES ONLY

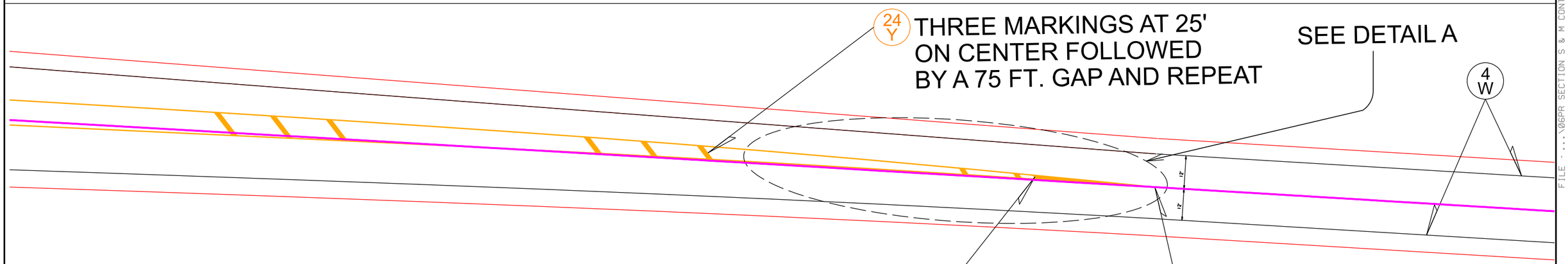
Plotting Date: 8/18/2025

REV. 8-18-2025 JMP

SD34
(SPECIAL MARKING LAYOUT)

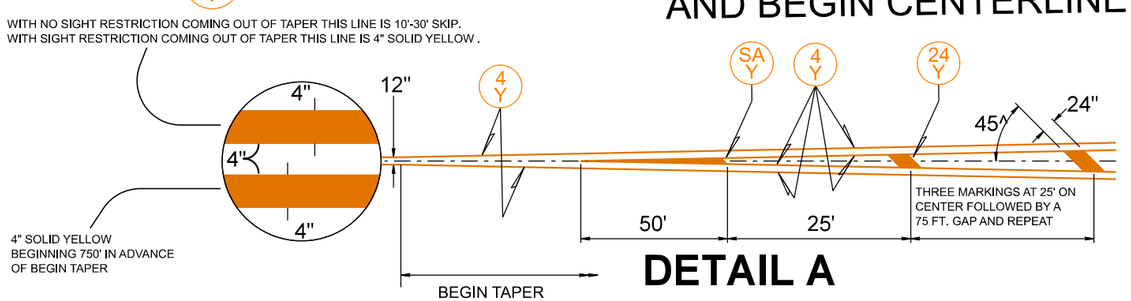
SCALE
1" = 40'





LEGEND

- 4 Y — HIGH BUILD PAVEMENT MARKING, 4" YELLOW
- 4 W — HIGH BUILD PAVEMENT MARKING, 4" WHITE
- 8 Y — HIGH BUILD PAVEMENT MARKING, 8" YELLOW
- 24 Y — HIGH BUILD PAVEMENT MARKING, 24" YELLOW
- SA Y — HIGH BUILD PAVEMENT MARKING, SOLID AREA YELLOW



DETAIL A

PLOT SCALE - 1:39.9658

PLOT NAME - $$PLOTNAME$$

FILE - ...\06PR SECTION S & M CONTAINER.DGN

PLOTTED FROM - TRM113314

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	75	170

FOR BIDDING PURPOSES ONLY

Plotting Date: 2/11/2025

SD34
SPECIAL SIGNING LAYOUT

SCALE
1" = 40'

SD 34 Westbound

SD 34 Eastbound

457th Avenue

113+00

114+00

115+00

116+00

117+00

118+00

5+00

4+00

3+00

2+00

114+78 - 73' L
R6-IL ONE WAY
BACK TO BACK
R6-IR ONE WAY
RI-I STOP
R6-3 DIVIDED HIGHWAY

116+03 - 84' L
457 Ave
SD 34

457 Ave
SD 34

116+73 - 67' L
DO NOT ENTER

116+73 - 20' L
DO NOT ENTER

116+02 - 12' L
R6-IR ONE WAY
BACK TO BACK
R6-IL ONE WAY
RI-2 YIELD

R6-IR ONE WAY
BACK TO BACK
R6-IL ONE WAY
RI-2 YIELD
114+78 - 12' R

DO NOT ENTER
114+03 - 11' R

DO NOT ENTER
114+03 - 67' R

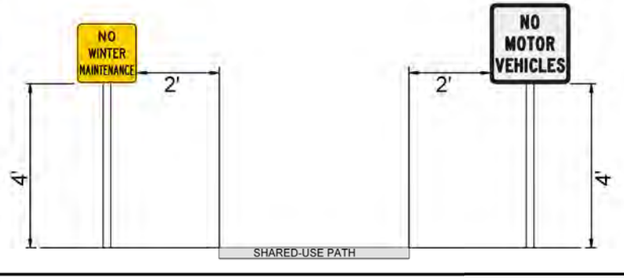
SHARED-USE PATH
NO MOTOR VEHICLES
115+65
71' R

STOP
115+02
87' R

NO WINTER MAINTENANCE
115+04
87' R

SHARED-USE PATH
R6-IL ONE WAY
BACK TO BACK
R6-IR ONE WAY
RI-I STOP
115+94 - 88' R
R6-3 DIVIDED HIGHWAY

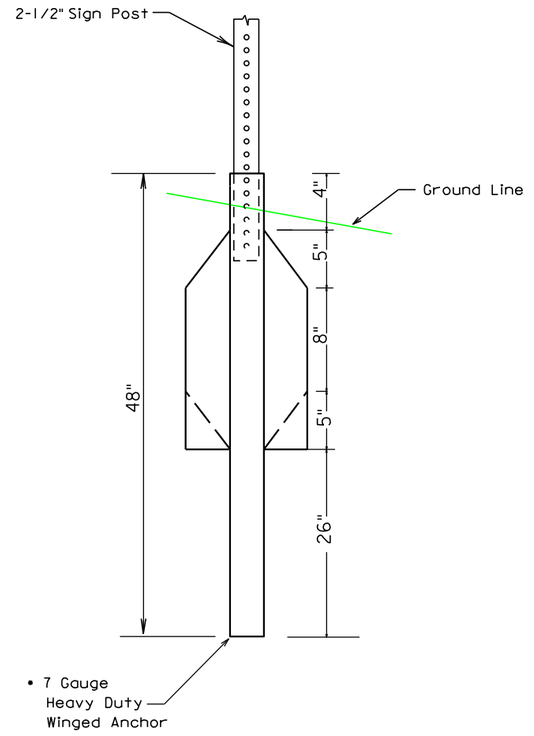
Remove and Reset Bicycle Signs
4 ft. above the ground.

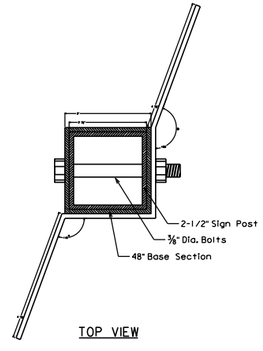


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	76	170

Plotting Date: 02/10/2025

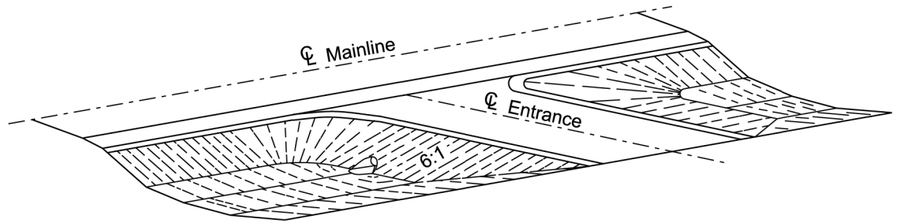
2 1/2" SQUARE STEEL PERFORATED TUBE POST WINGED BREAKAWAY NON-SLIP BASE ANCHOR DETAILS FOR SOIL INSTALLATIONS (Typical)



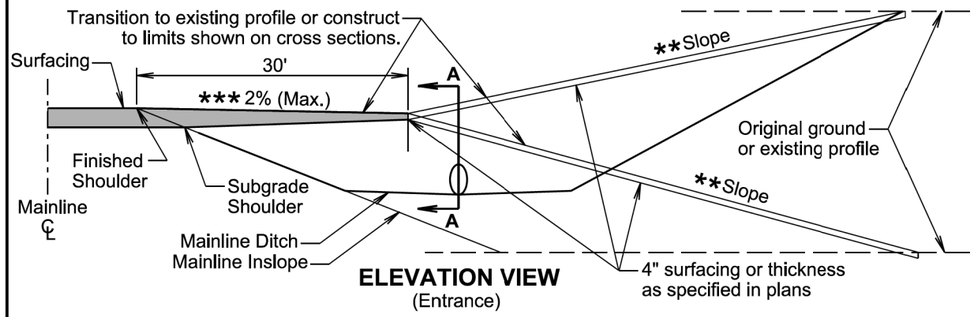


TOP VIEW

Dimensions shown may vary by Manufacturer. The Contractor shall use Manufacturer recommended assembly parts and procedures. Sign installations must meet MASH NCHRP 350 breakaway requirements.



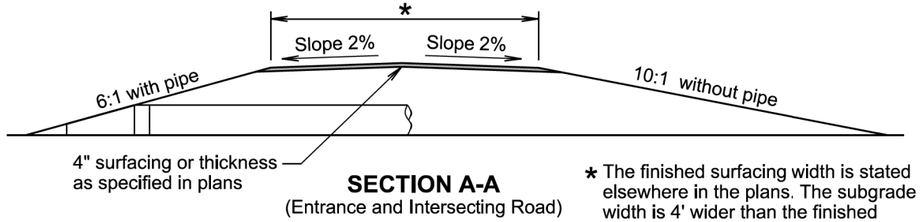
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

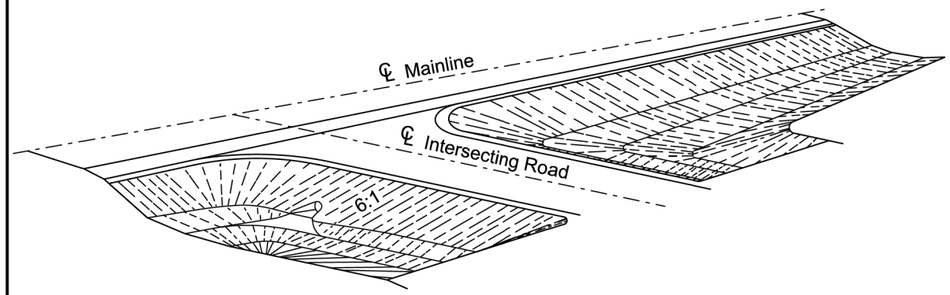
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

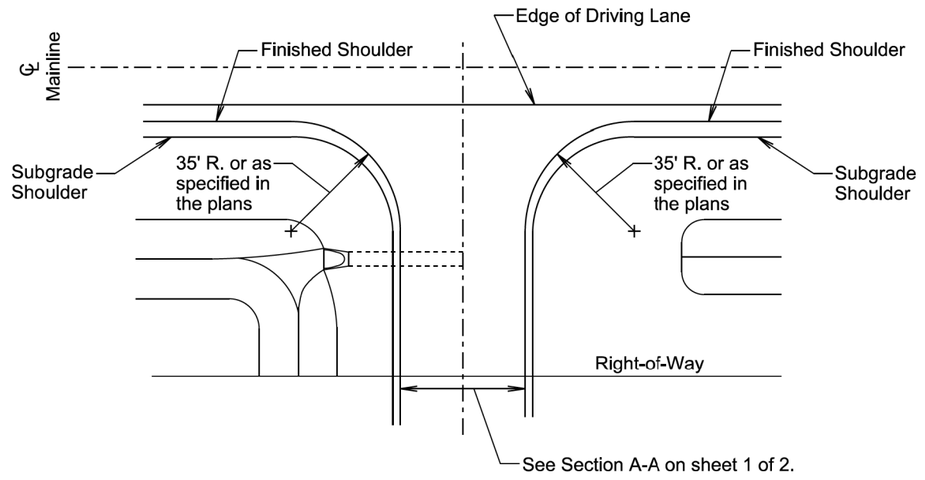
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

GENERAL NOTES:

The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

HRGreen

Published Date: 2026

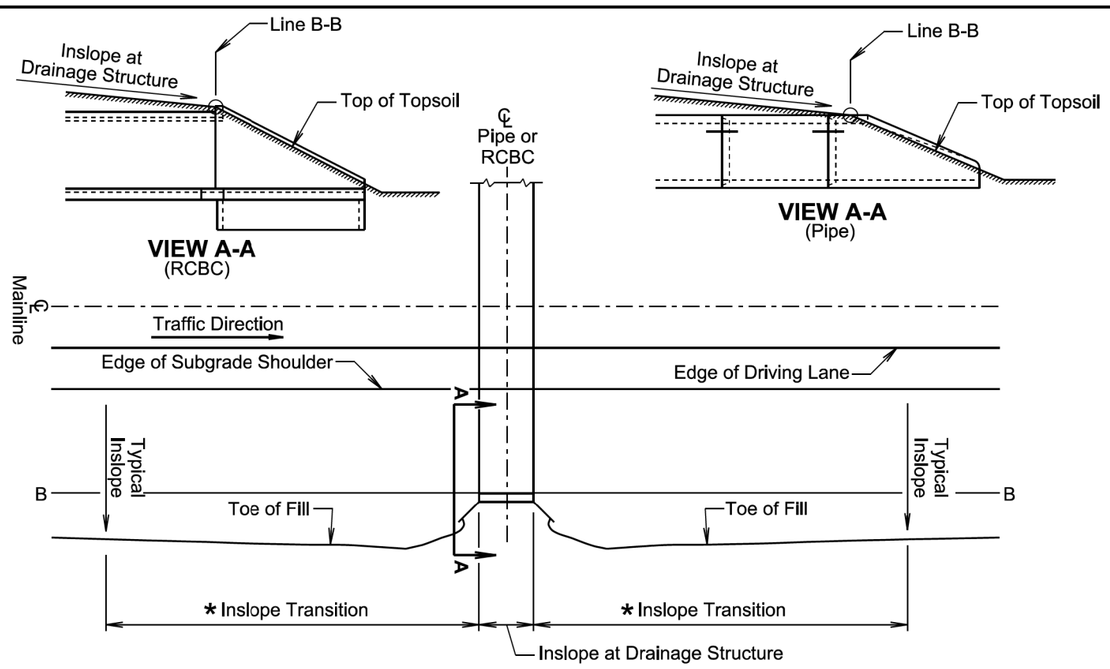
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 1 of 2

September 14, 2018



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone will be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

Published Date: 2026

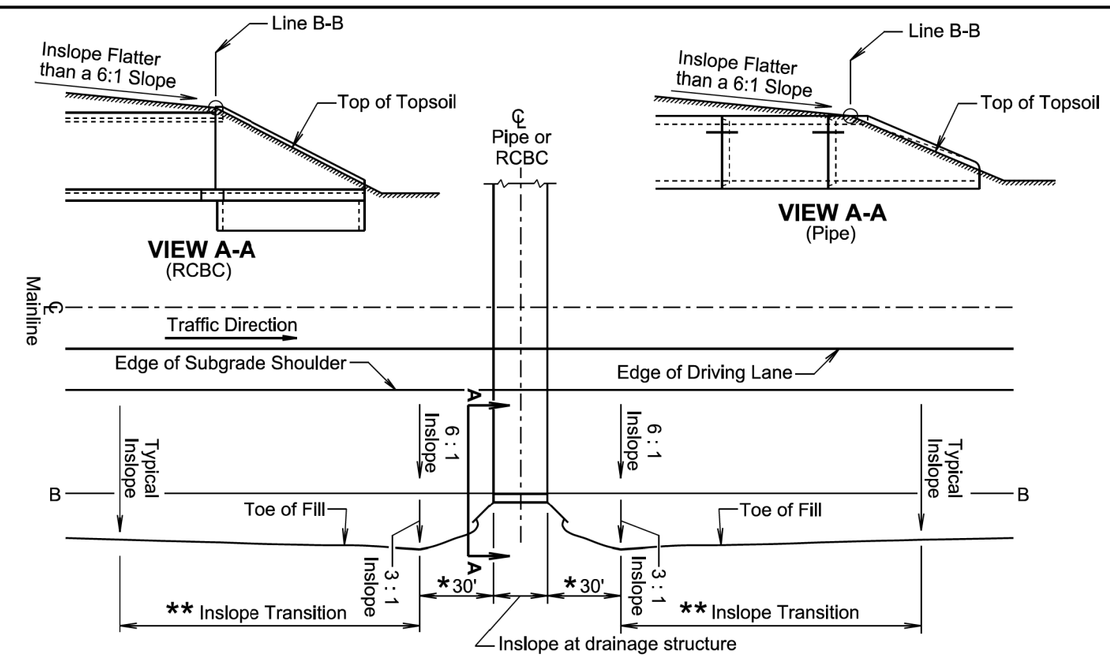
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 2 of 2

September 14, 2018



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from Inslope at drainage structure to a 6 : 1 inslope and 3:1 inslope.

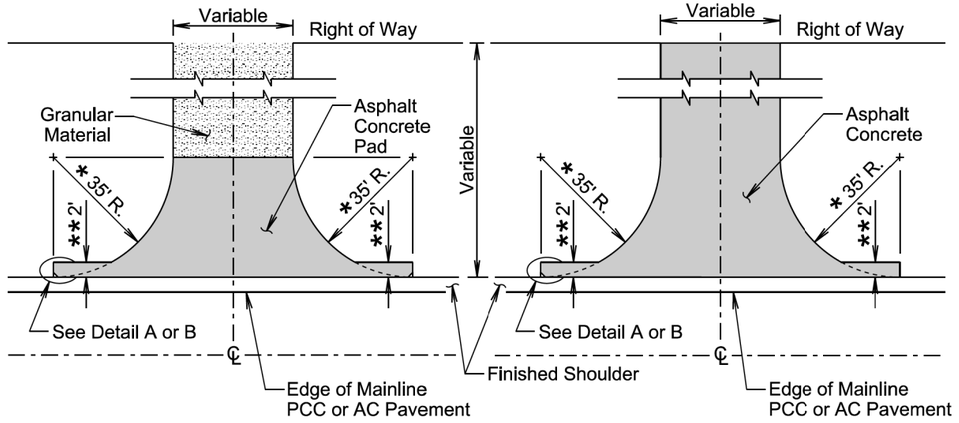
** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone will be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

PROJECT NH 0034(212)388

SHEET 78

TOTAL SHEETS 170

HRGreen



PLAN VIEW
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)

PLAN VIEW
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)

GENERAL NOTES:

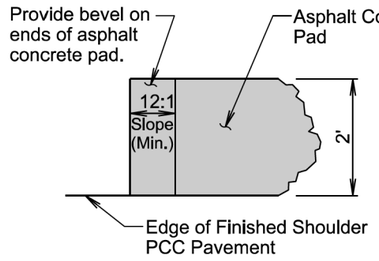
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

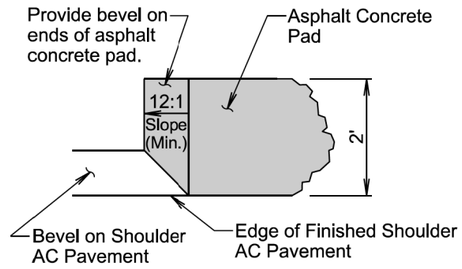
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

August 27, 2020

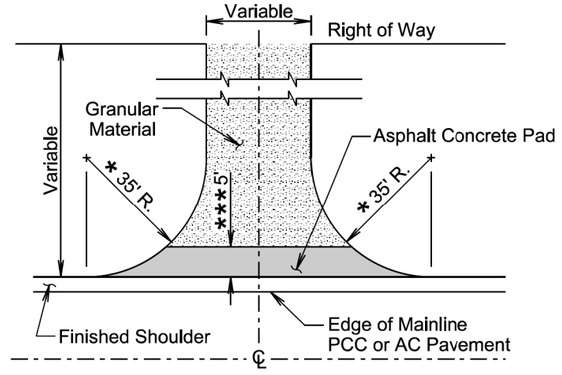
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
			Sheet 1 of 2



DETAIL A
(Typ. for Projects with PCC Pavement on Shoulder)



DETAIL B
(Typ. for Projects with AC Pavement on Shoulder)



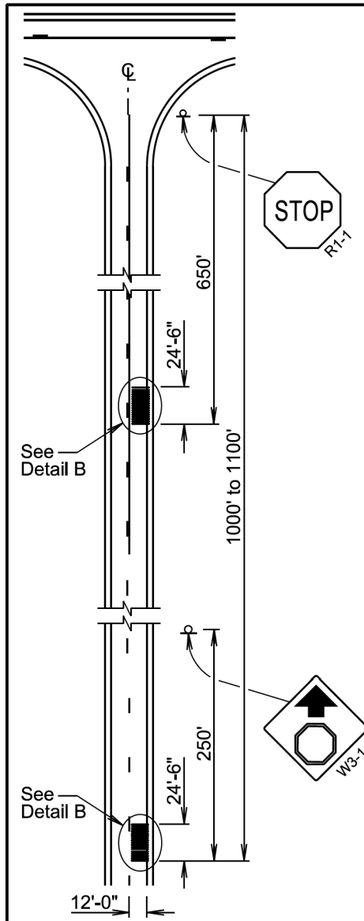
PLAN VIEW
(Entrance)

*** Not required if finished shoulder width is 4' or greater.

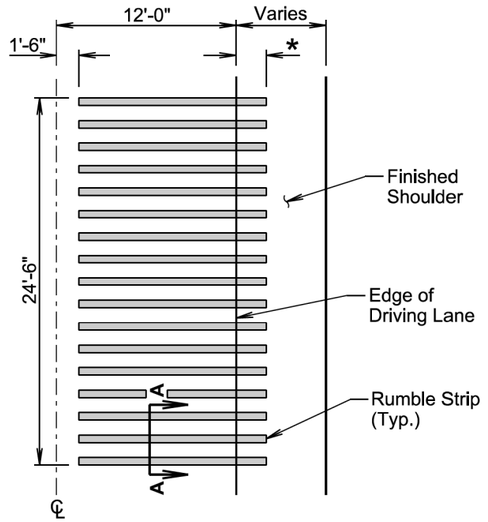
August 27, 2020

Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
			Sheet 2 of 2

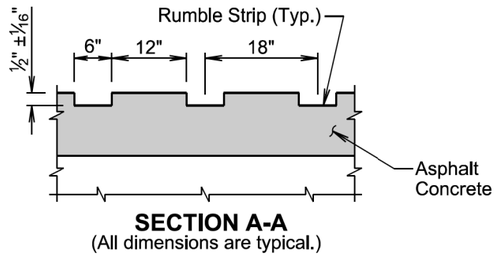
HRGreen



PLAN VIEW



DETAIL B
PLAN VIEW



SECTION A-A
(All dimensions are typical.)

GENERAL NOTES:

Transverse rumble strips will be constructed by grinding, routing, or cutting recessed indentations into the asphalt concrete as approved by the Engineer. The transverse rumble strips will receive a flush seal or fog seal as specified in the plans.

* The transverse rumble strips will extend into the finished shoulder as approved by the Engineer.

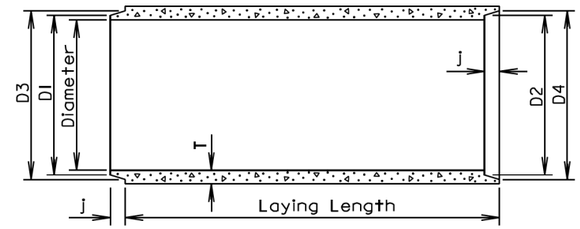
Measurement of the recessed transverse rumble strips will be to the nearest foot. Payment for constructing the recessed transverse rumble strips will be at the contract unit price per foot for "Grind 6" Transverse Rumble Strip in Asphalt Concrete".

January 22, 2021

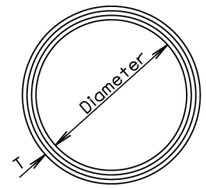
Published Date: 2026	SDDOT	**TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE HIGHWAY ADJACENT TO STOP CONTROLLED INTERSECTION**	PLATE NUMBER 320.45 Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or ⅜" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± ¼" for 36" or greater.
Length of joint (j): ± ¼".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than ½".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

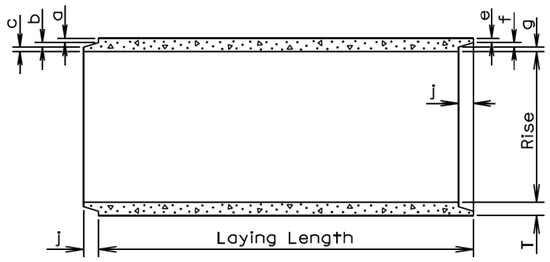
Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1¾	13¼	13⅝	13⅞	14¼
15	127	2¼	2	16½	16⅞	17¼	17⅝
18	168	2½	2¼	19⅝	20	20⅜	20¾
21	214	2¾	2½	22⅞	23¼	23¾	24⅛
24	265	3	2¾	26	26⅜	27	27⅜
27	322	3¼	3	29¼	29⅝	30¼	30⅝
30	384	3½	3¼	32⅜	32¾	33½	33⅞
36	524	4	3¾	38¾	39¼	40	40½
42	685	4½	4	45⅛	45⅝	46½	47
48	867	5	4½	51½	52	53	53½
54	1070	5½	4½	57⅞	58⅜	59⅜	59⅞
60	1296	6	5	64¼	64¾	66	66½
66	1542	6½	5½	70⅝	71⅛	72½	73
72	1810	7	6	77	77½	79	79½
78	2098	7½	6½	83⅜	83⅞	85⅝	86⅛
84	2410	8	7	89¾	90¼	92⅛	92⅝
90	2740	8½	7	95¾	96¼	98⅛	98⅝
96	2950	9	7	102⅛	102⅝	104½	105
102	3075	9½	7½	109	109½	111½	112
108	3870	10	7½	115½	116	118	118½

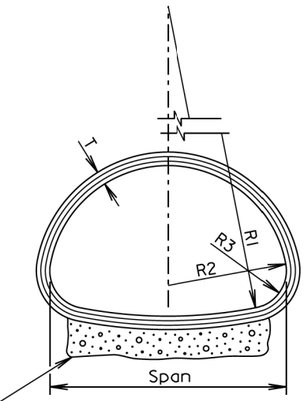
June 26, 2015

Published Date: 2026	SDDOT	**REINFORCED CONCRETE PIPE**	PLATE NUMBER 450.01 Sheet 1 of 1

HRGreen



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: ± 1/8" for 65" span or less and ± 1/4" for longer spans.
Rise and Span: ±2% of tabular values.
Length of Joint (J): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".

Gravel Bedding Material shall be supplied for 102" to 169" spans. It shall be placed to a thickness of 6" (Min.) x 85% of the Span x Length of culvert and shall conform to the gradation requirements for gravel surfacing except material may be screened or may be plan provided material.

* Size (in.)	Approx. Wt./Ft. (lb.)	Rise (in.)	Span (in.)	T (in.)	a (in.)	b (in.)	c (in.)	j (in.)	e (in.)	f (in.)	g (in.)	R1 (in.)	R2 (in.)	R3 (in.)
18	170	13 1/2	22	2 1/2	1 3/8	3/8	3/4	2	1 1/8	3/8	1	27 1/2	13 3/4	5 1/4
24	320	18	28 1/2	3 1/2	1 5/8	1/2	1 3/8	3	1 3/8	1/2	1 5/8	40 11/16	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 13/16	5/8	1 9/16	3 1/2	1 9/16	5/8	1 13/16	51	18 3/4	6 1/8
36	600	26 5/8	43 3/4	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	62	22 1/2	6 1/2
42	740	31 5/16	51 1/8	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	73	26 1/4	7 3/4
48	890	36	58 1/2	5	2 1/4	3/4	2	5	2	3/4	2 1/4	84	30	8 1/8
54	1100	40	65	5 1/2	2 1/2	3/4	2 1/4	5	2 1/4	3/4	2 1/2	92 1/2	33 3/8	10
60	1400	45	73 1/2	6	3 5/16	3/4	1 15/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 3/16	6	3 1/4	1	2 3/4	126	45	13 5/16
84	2500	62	102	8	4 1/8	1	2 7/8	6	3 1/2	1	3 1/2	162 1/2	52	14 1/2
96	3300	78	122 3/8	9	4 1/2	1	3 1/2	7	4	1	4	218	62	20
108	4200	88	138 1/2	10	5	1	4	7	4 1/2	1	4 1/2	269	70	22
120	5100	96 7/8	154	11	5 1/2	1	4 1/2	7	5	1	5	301 3/8	78	24
132	5100	106 1/2	168 3/4	10		1	4	7	4 1/2	1	4 1/2	329	85 5/8	26 7/8

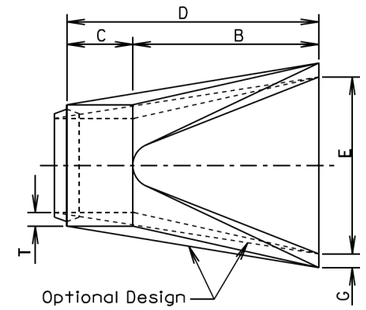
* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

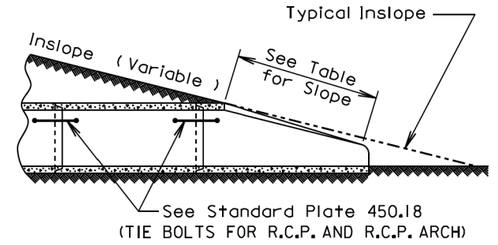
Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Specifications. Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

June 26, 2015

Published Date: 2026	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1



TOP VIEW

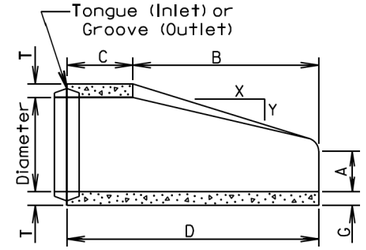


SLOPE DETAIL

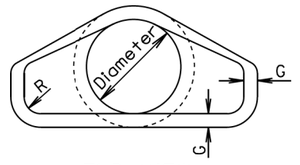
GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



LONGITUDINAL SECTION



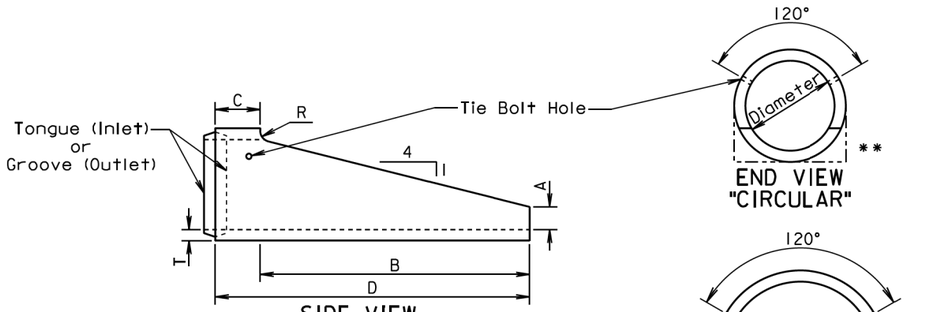
END VIEW

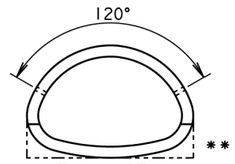
Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

Published Date: 2026	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

HRGreen





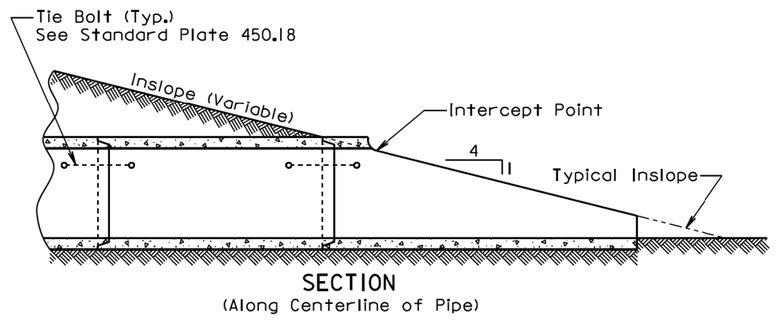
Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3½	7½	90	12	102	3½
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3½	7½	60	12	72	3½
* 36	4½	8⅝	66	30	96	0
* 42	4½	10	77¼	18¾	96	0

ALTERNATE

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3½	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3½	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.

** Acceptable Flat Bottom Alternate.

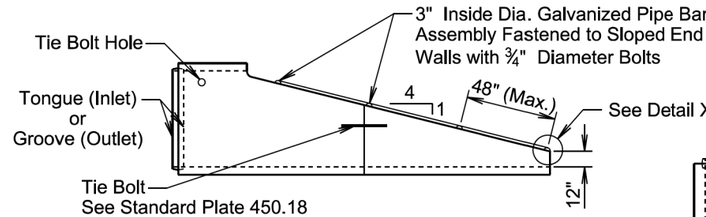


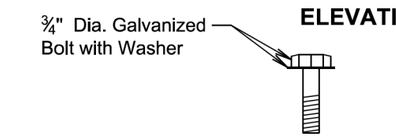
GENERAL NOTE:

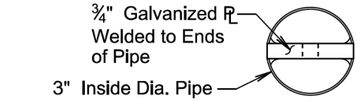
The length of concrete pipe shown in the construction plans is between sloped ends.

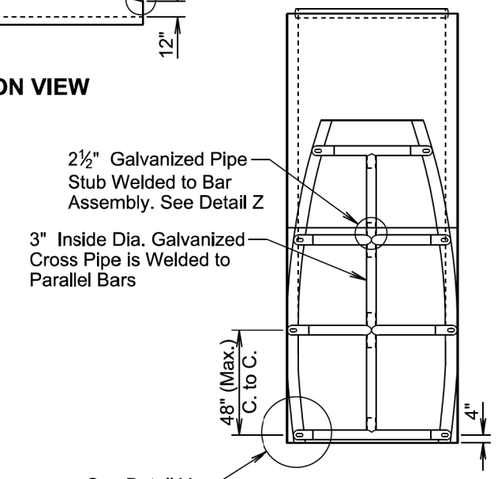
September 22, 2006

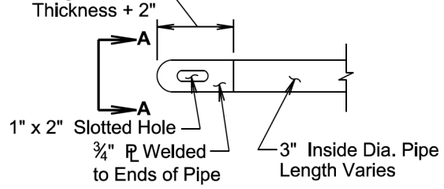
Published Date: 2026	SDDOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13 Sheet 1 of 1

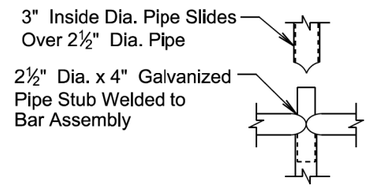












GENERAL NOTES:

The bar assembly will be fabricated from steel in accordance with ASTM A53, Grade B or ASTM A500, Grade B or C.

The schedule 40 pipe sizes on the bar assembly drawings indicate sizes in regards to specification ASTM A53, Grade B. The allowable ASTM A500, Grade B or C sizes are HSS 3.5X.216 (for 3" schedule 40 pipe) and HSS 3X.25 (for 2.5" schedule 40 pipe).

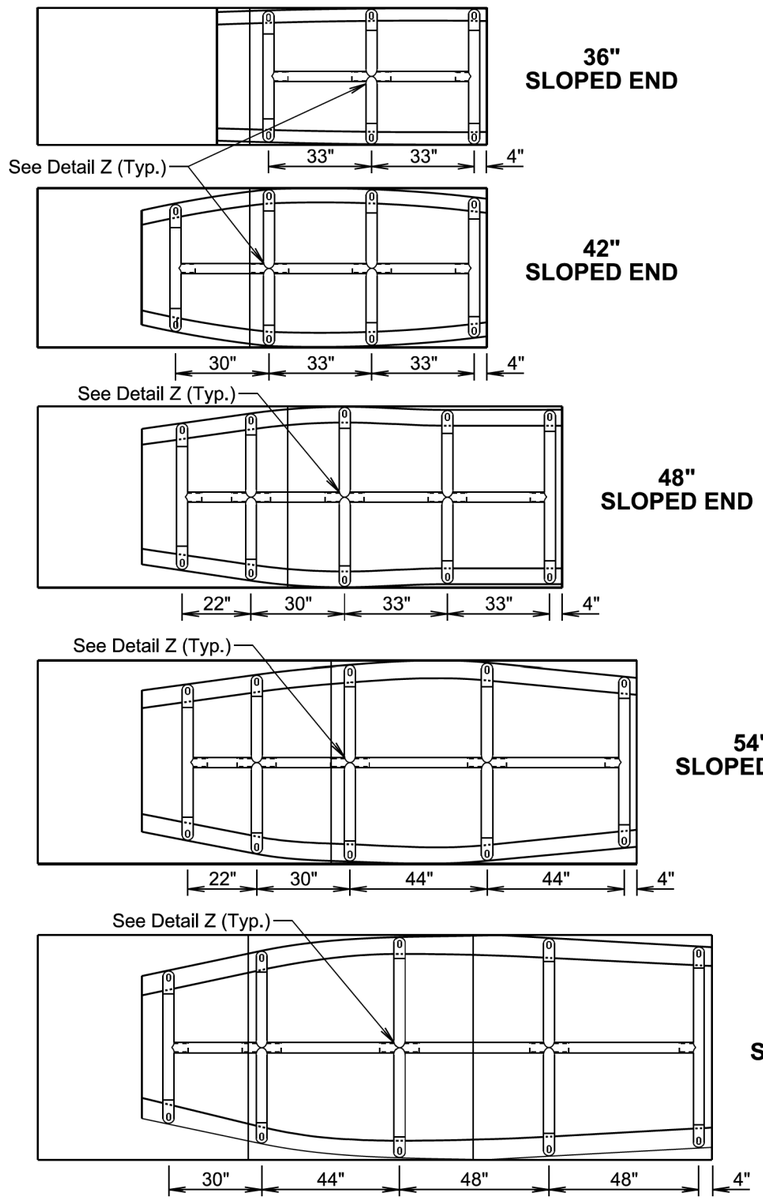
Welding will be accomplished by a certified welder. Installation will be performed in accordance with the Specifications.

The bar assembly will be galvanized after fabrication in accordance with ASTM A123.

Cost for all work and materials required for fabrication and installation of the bar assembly will be incidental to the bid items for the various sizes of sloped ends.

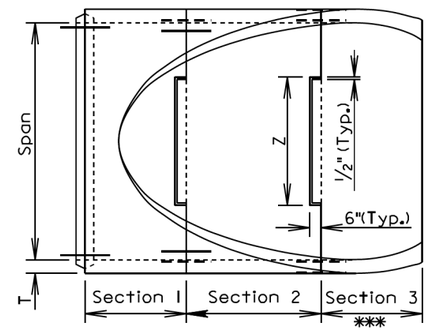
April 8, 2025

Published Date: 2026	SDDOT	R.C.P. SLOPED END BAR ASSEMBLIES	PLATE NUMBER 450.15 Sheet 1 of 2

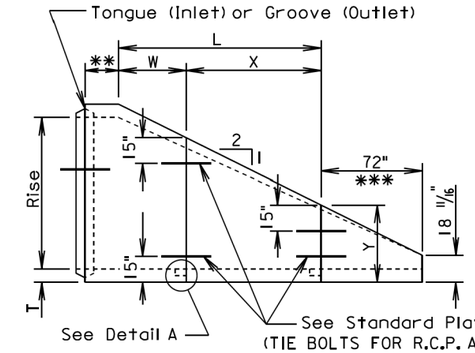


April 8, 2025

Published Date: 2026	SDDOT	R.C.P. SLOPED END BAR ASSEMBLIES	PLATE NUMBER 450.15
			Sheet 2 of 2



TOP VIEW

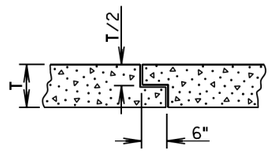


SIDE VIEW

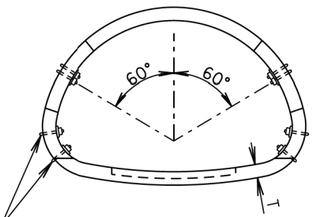
GENERAL NOTES:

Construction of R.C.P. Arch Sectional Ends shall conform to the requirements of Section 990 of the Specifications.

Lengths of concrete pipe shown on plan sheets are between sectional ends only.



DETAIL A



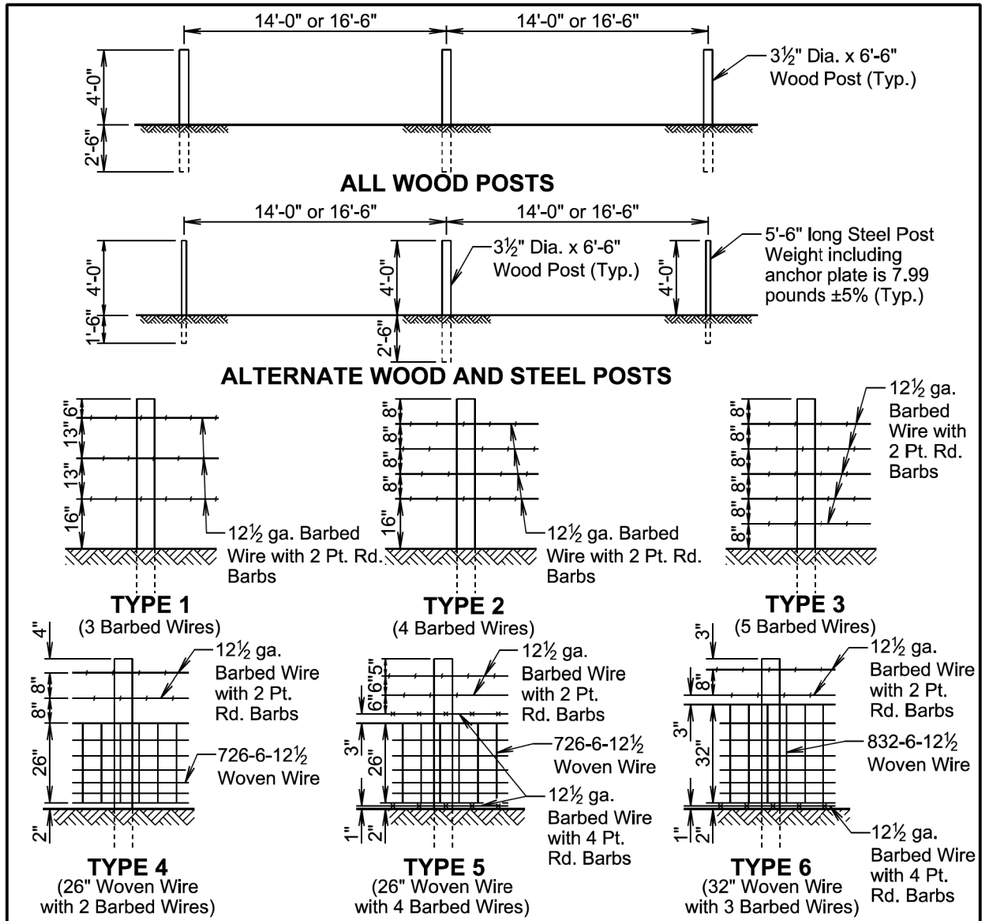
END VIEW

* Size (in.)	Approx. Weight Sect. 1 (lbs.)	Approx. Weight Sect. 2 (lbs.)	Approx. Weight Sect. 3 (lbs.)	Rise (in.)	Span (in.)	T (in.)	L (in.)	W (in.)	X (in.)	Y (in.)	Z (in.)
90	19100	3950		72	115 1/2	8 1/2	102 1/4	72	30 1/4	37 7/8	48
96	22000	6050		78	122 3/8	9	112 1/2	72	40 1/2	39	54
108	23000	15800		88	138 1/2	10	129 1/2	48	81 1/2	42 3/8	66
120	27000	24600		96 7/8	154	11	144	48	96	46 7/8	78
132	27950	25260	13640	106 1/2	168 3/4	10	144	48	96		90

*Equivalent Diameter of Circular R. C. P.
**2'-0" for Groove End and 2'-7" for Tongue End.
***Section 3 available for 132" size only.

June 26, 2015

Published Date: 2026	SDDOT	R. C. P. ARCH SECTIONAL ENDS	PLATE NUMBER 450.17
			Sheet 1 of 1



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

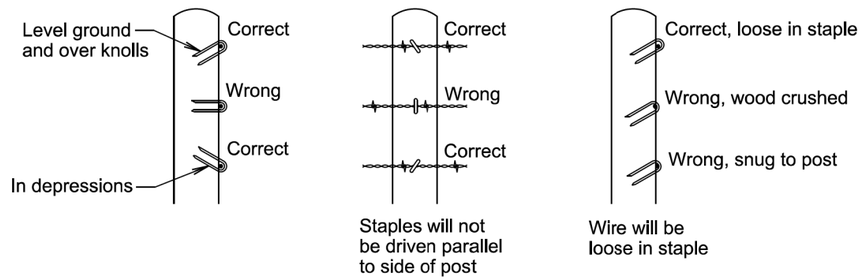
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All radius of curvature stated for fence are at centerline of roadway.

April 8, 2025

Published Date: 2026	SDDOT	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
			Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

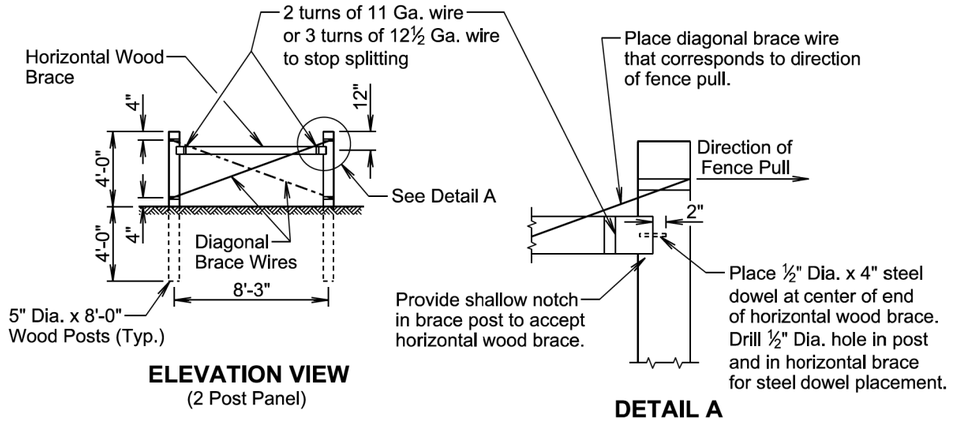
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

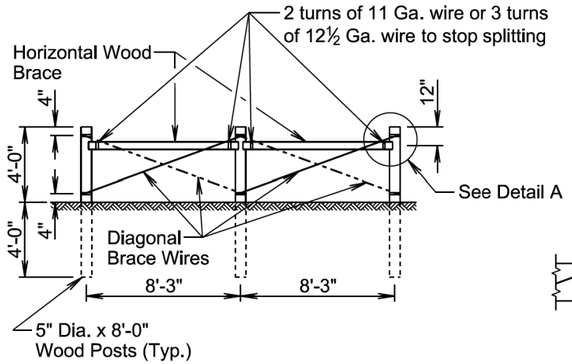
June 26, 2019

Published Date: 2026	SDDOT	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
			Sheet 1 of 1

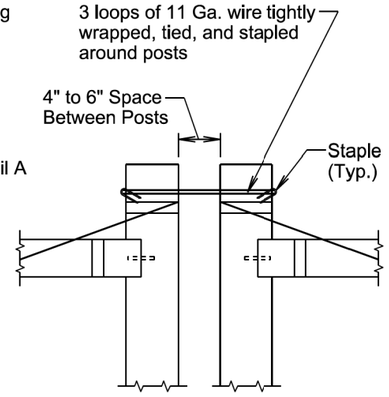


ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

March 31, 2024

Published Date: 2026	SDDOT	***BRACE PANELS AND APPLICATIONS OF BRACE PANELS***	*PLATE NUMBER* 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	**At P.C., P.T., and at every 1320' between P.C. and P.T.

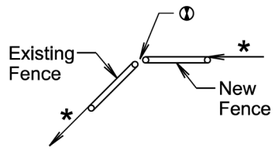
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

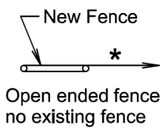
GENERAL NOTE:

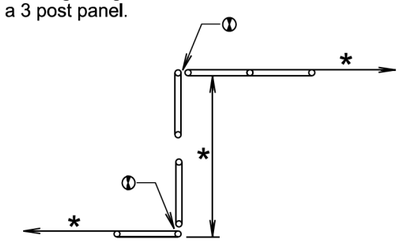
All radius of curvature stated for fence are at centerline of roadway.

If fence length is less than 600' to next corner use a 2 post panel.
* If fence length is greater than 600' to next corner use a 3 post panel.

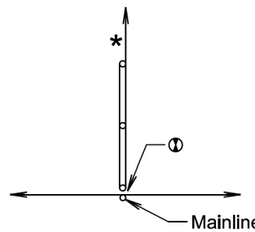


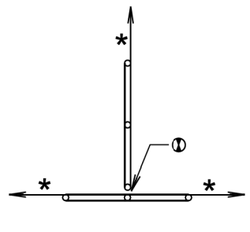
BEGIN OR END FENCE
(Where new fence ties into existing fence)



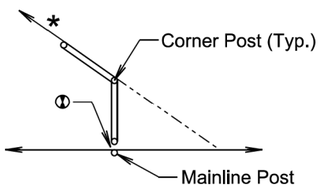


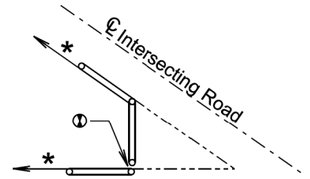
SHORT JOGS IN FENCE

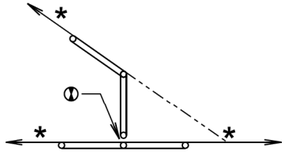




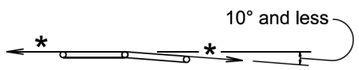
CROSS FENCE



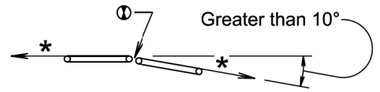




SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.



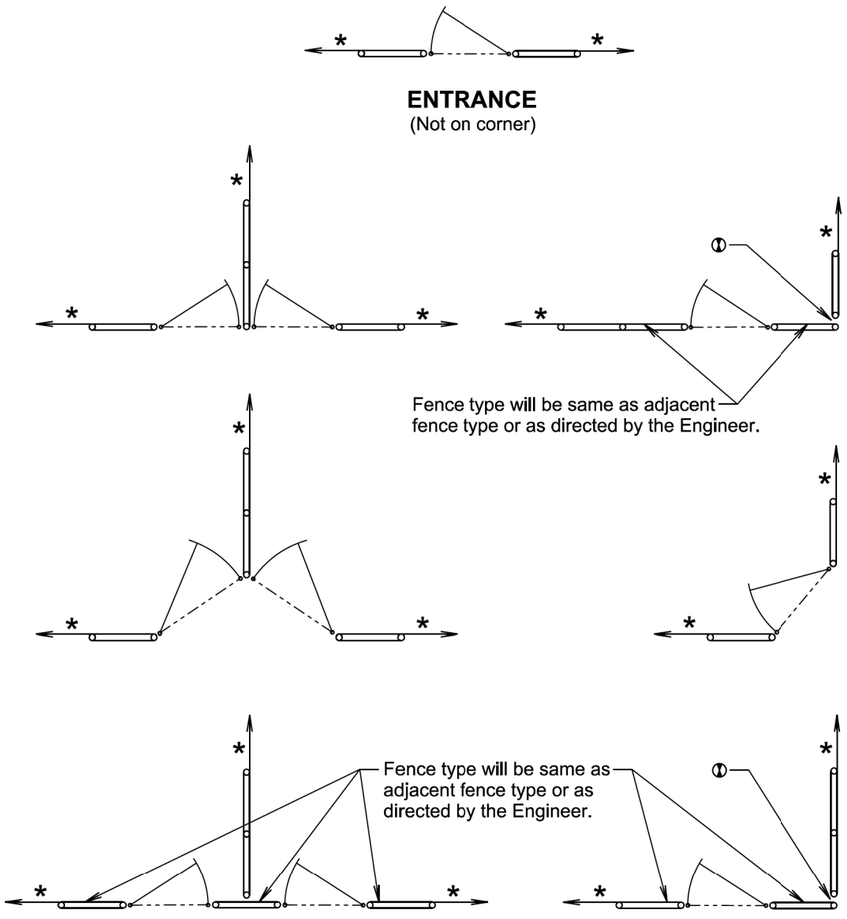
Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

March 31, 2024

Published Date: 2026	SDDOT	***BRACE PANELS AND APPLICATIONS OF BRACE PANELS***	*PLATE NUMBER* 620.03
			Sheet 2 of 3

HRGreen

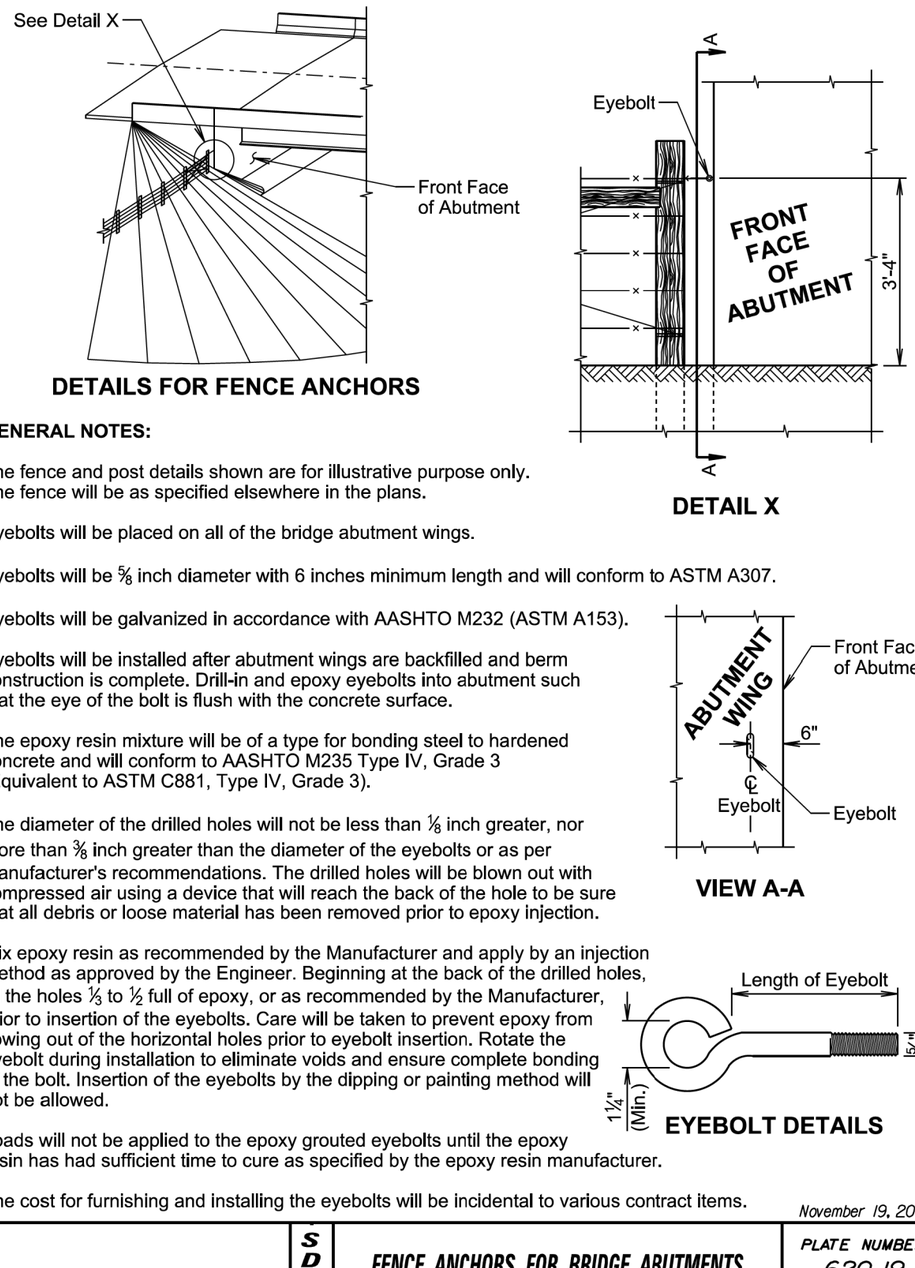


* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



GENERAL NOTES:

The fence and post details shown are for illustrative purpose only. The fence will be as specified elsewhere in the plans.

Eyebolts will be placed on all of the bridge abutment wings.

Eyebolts will be ⅝ inch diameter with 6 inches minimum length and will conform to ASTM A307.

Eyebolts will be galvanized in accordance with AASHTO M232 (ASTM A153).

Eyebolts will be installed after abutment wings are backfilled and berm construction is complete. Drill-in and epoxy eyebolts into abutment such that the eye of the bolt is flush with the concrete surface.

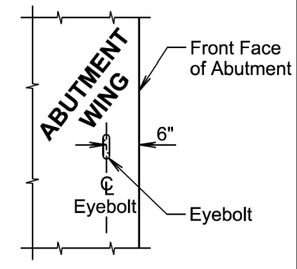
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

The diameter of the drilled holes will not be less than ⅛ inch greater, nor more than ⅜ inch greater than the diameter of the eyebolts or as per Manufacturer's recommendations. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to be sure that all debris or loose material has been removed prior to epoxy injection.

Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the eyebolts. Care will be taken to prevent epoxy from flowing out of the horizontal holes prior to eyebolt insertion. Rotate the eyebolt during installation to eliminate voids and ensure complete bonding of the bolt. Insertion of the eyebolts by the dipping or painting method will not be allowed.

Loads will not be applied to the epoxy grouted eyebolts until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.

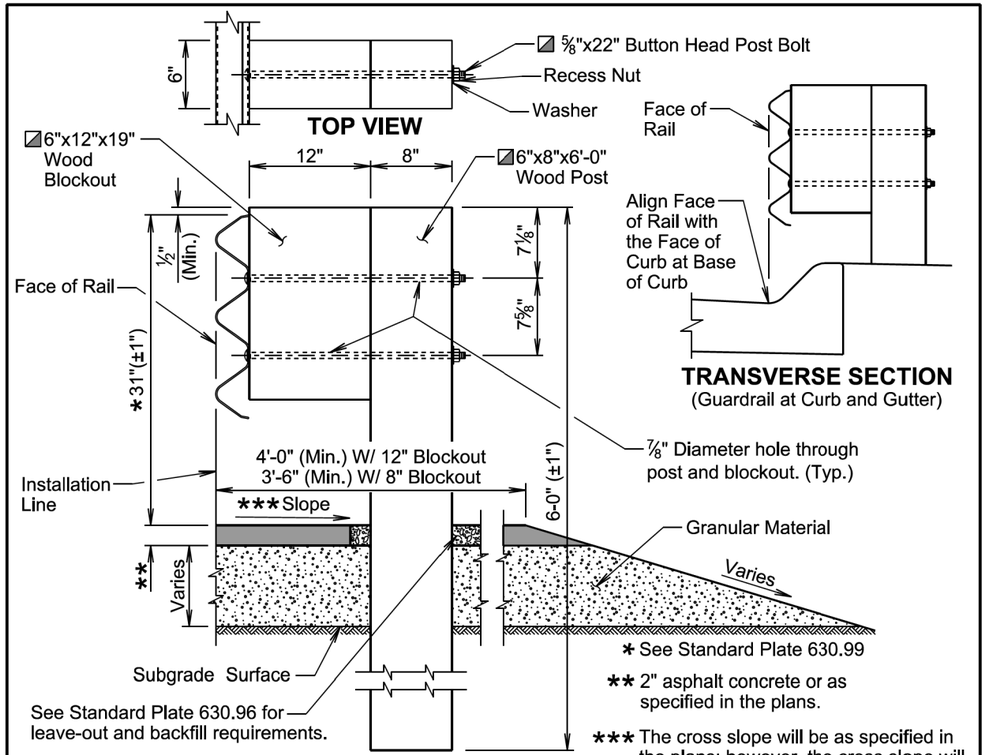
The cost for furnishing and installing the eyebolts will be incidental to various contract items.



November 19, 2020

Published Date: 2026	SDDOT	FENCE ANCHORS FOR BRIDGE ABUTMENTS (SWEPT BACK WINGS)	PLATE NUMBER 620.19
			Sheet 1 of 1

HRGreen



GENERAL NOTES:

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

Topsoil is not shown in the transverse section drawing.

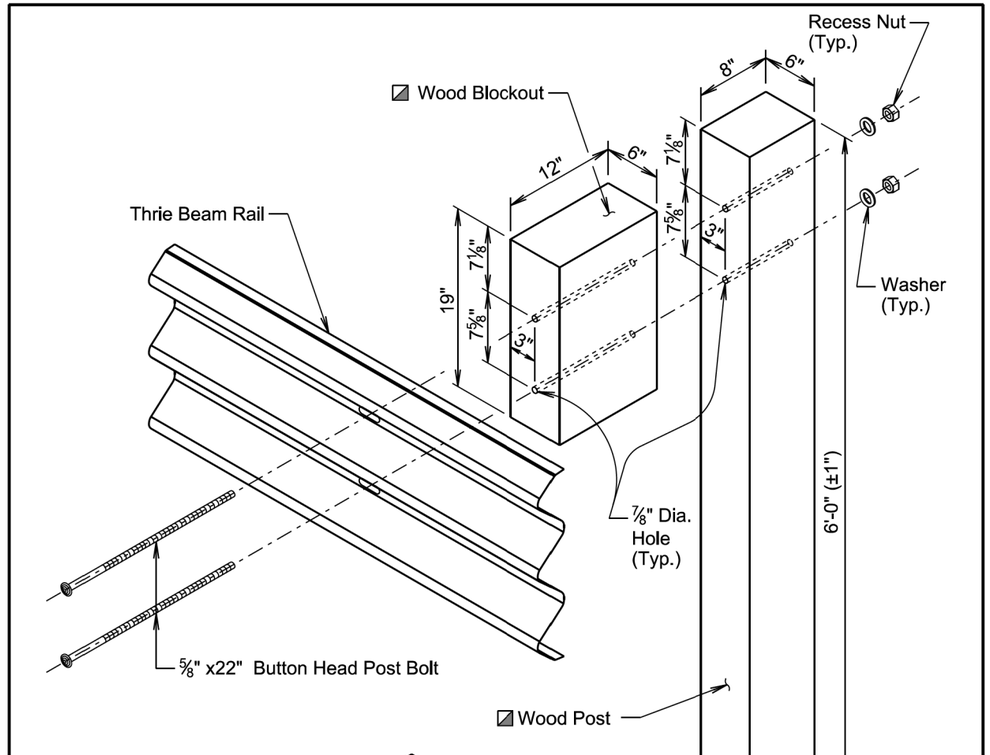
☑ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

The top of post and top of block will have a true square cut. The top of block will be a maximum of ±½ inch from the top of the post.

April 8, 2025

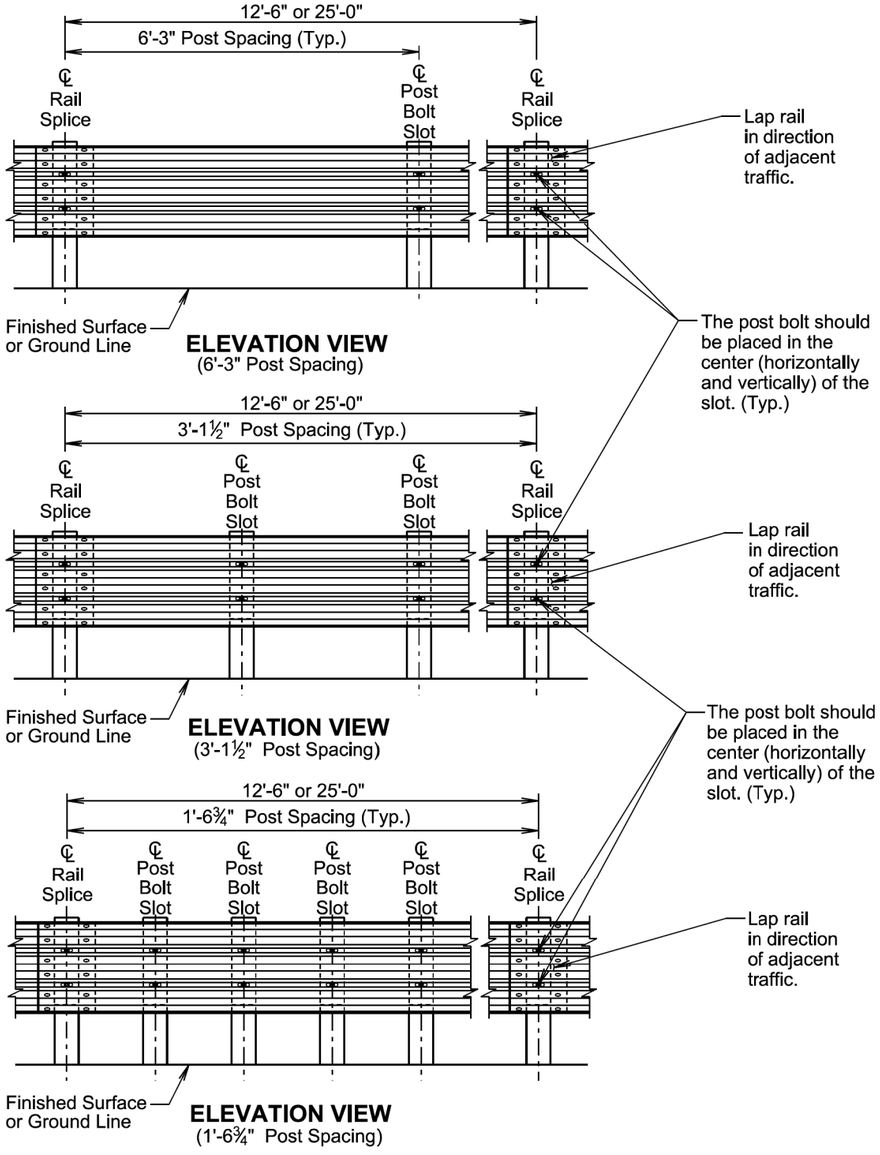
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 1 of 5



☑ For single thrie beam guardrail use 6"x12"x19" wood blockout, ⅝"x22" button head post bolt, and 6"x8"x6'-0" wood post. For double (nested) thrie beam guardrail use 6"x8"x19" wood blockout, ⅝"x18" button head post bolt, and 6"x8"x7'-0" wood post.

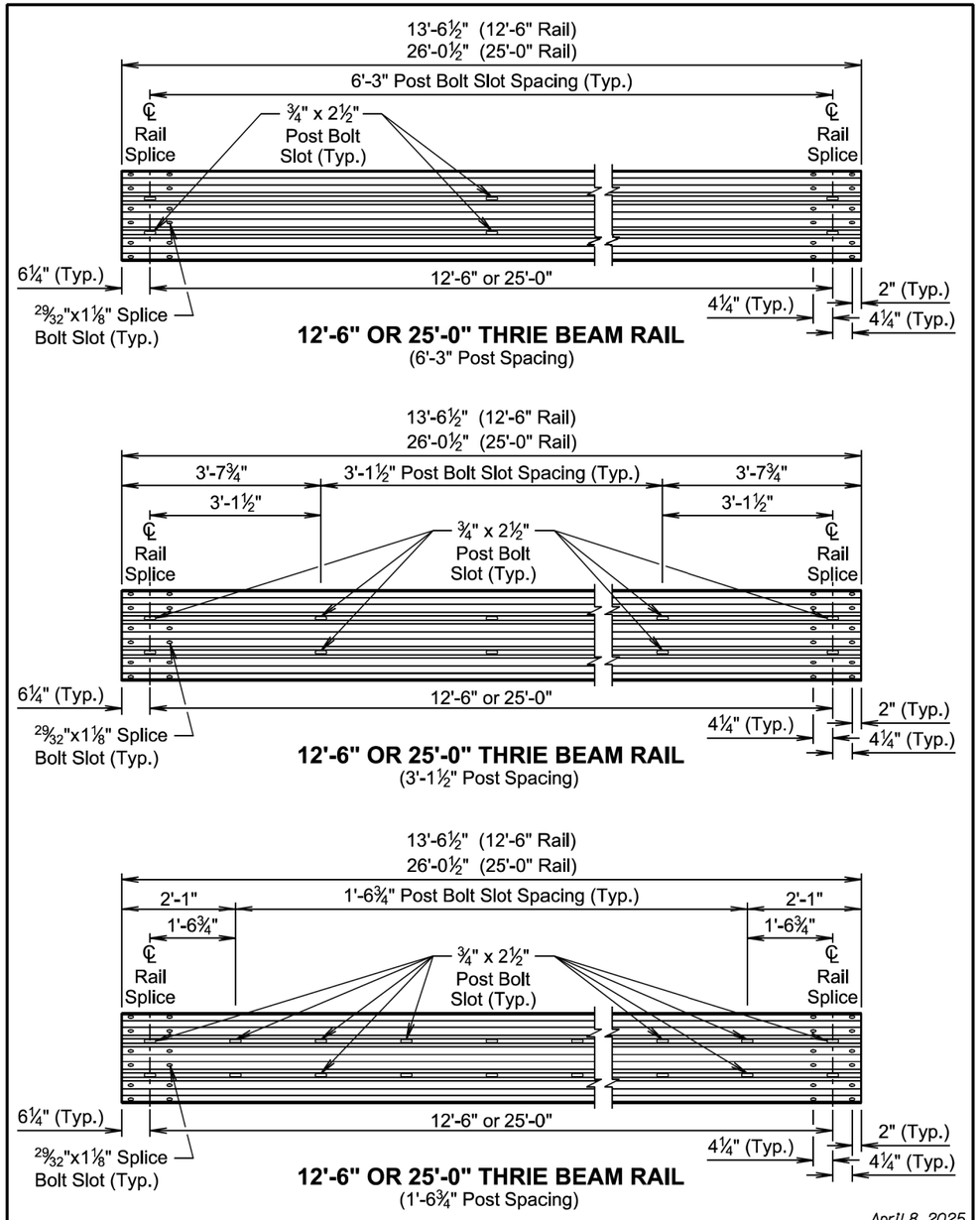
April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 2 of 5



April 8, 2025

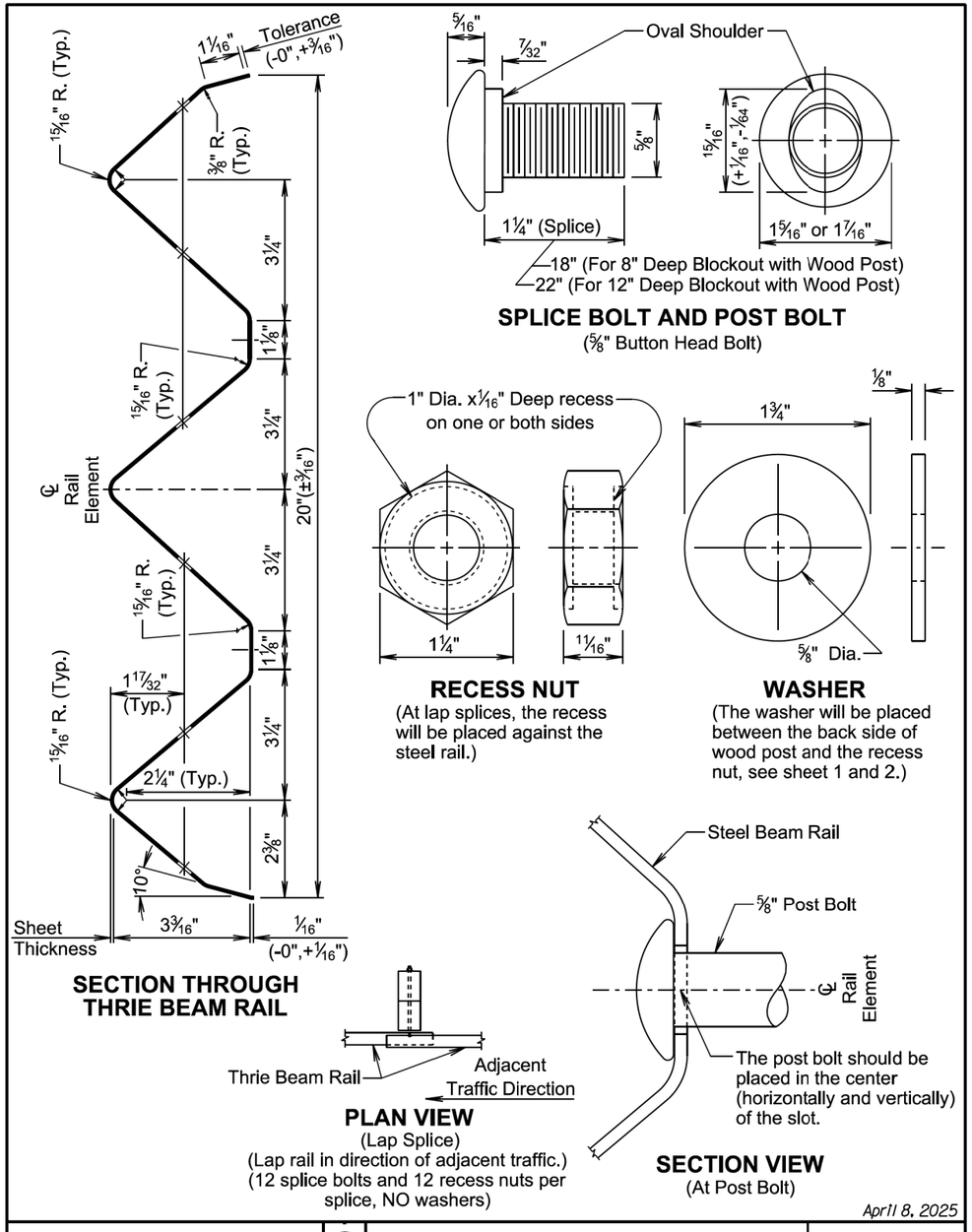
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 3 of 5



April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 4 of 5

HRGreen



SPLICE BOLT AND POST BOLT
(5/8" Button Head Bolt)

RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)

WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 1 and 2.)

SECTION THROUGH THRIE BEAM RAIL

PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(12 splice bolts and 12 recess nuts per splice, NO washers)

SECTION VIEW
(At Post Bolt)

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 5 of 5

TYPE AND DETAILS OF MGS

Type of MGS	W Beam Rail Single or Double (Nested)	Blockout Size	Blockout Material	Post Size	Post Material	Post Spacing
1	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"
1C	Single	6"x12"x14"	Wood	6"x8"x7'-6"	Wood	6'-3"
2	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	3'-1 1/2"
3	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	1'-6 3/4"
4	Double	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"

STANDARD PLATE REFERENCE

Type of MGS	See Standard Plate(s)
1	630.20, 630.22
1C	630.20, 630.25
2	630.20
3	630.20
4	630.20

GENERAL NOTES:

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite".

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

Topsoil is not shown in the transverse section drawing on sheet 2 of 6.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

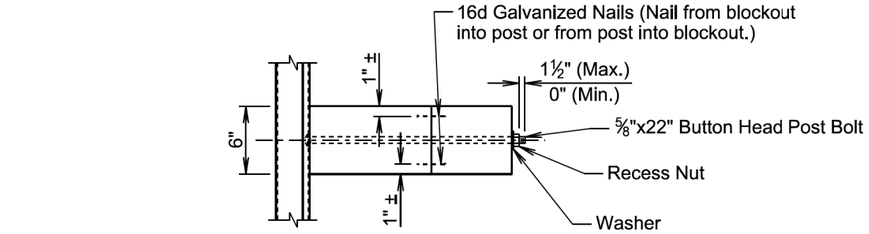
Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

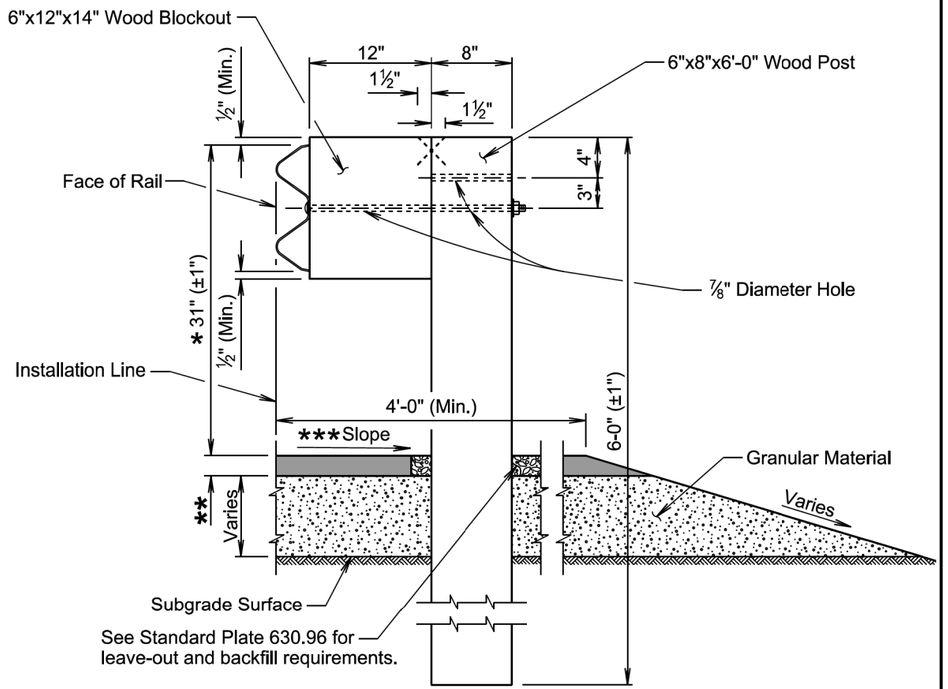
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6

HRGreen



TOP VIEW
(Type 1, 2, or 3 MGS Installation)



TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

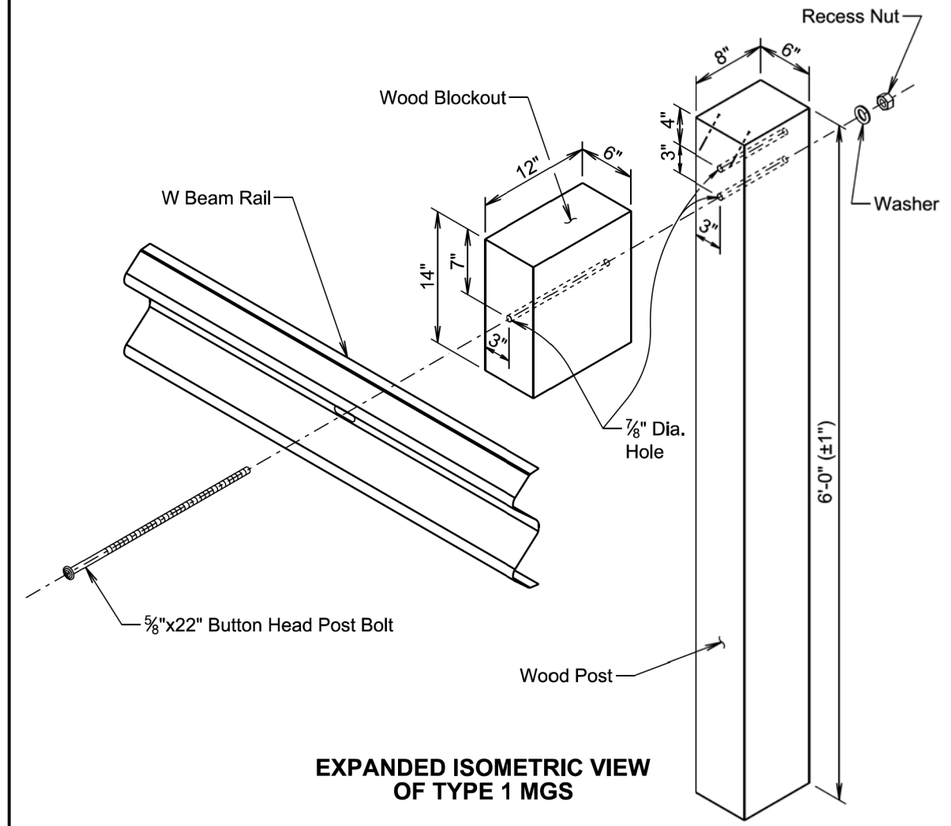
* See Standard Plate 630.99

** 2" asphalt concrete or as specified in the plans.

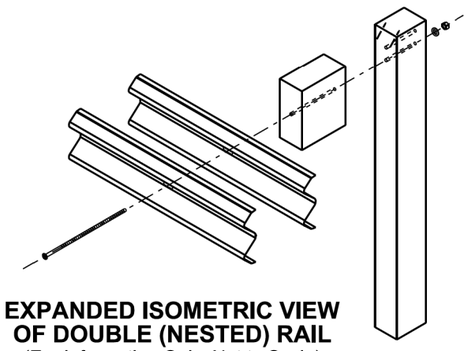
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6



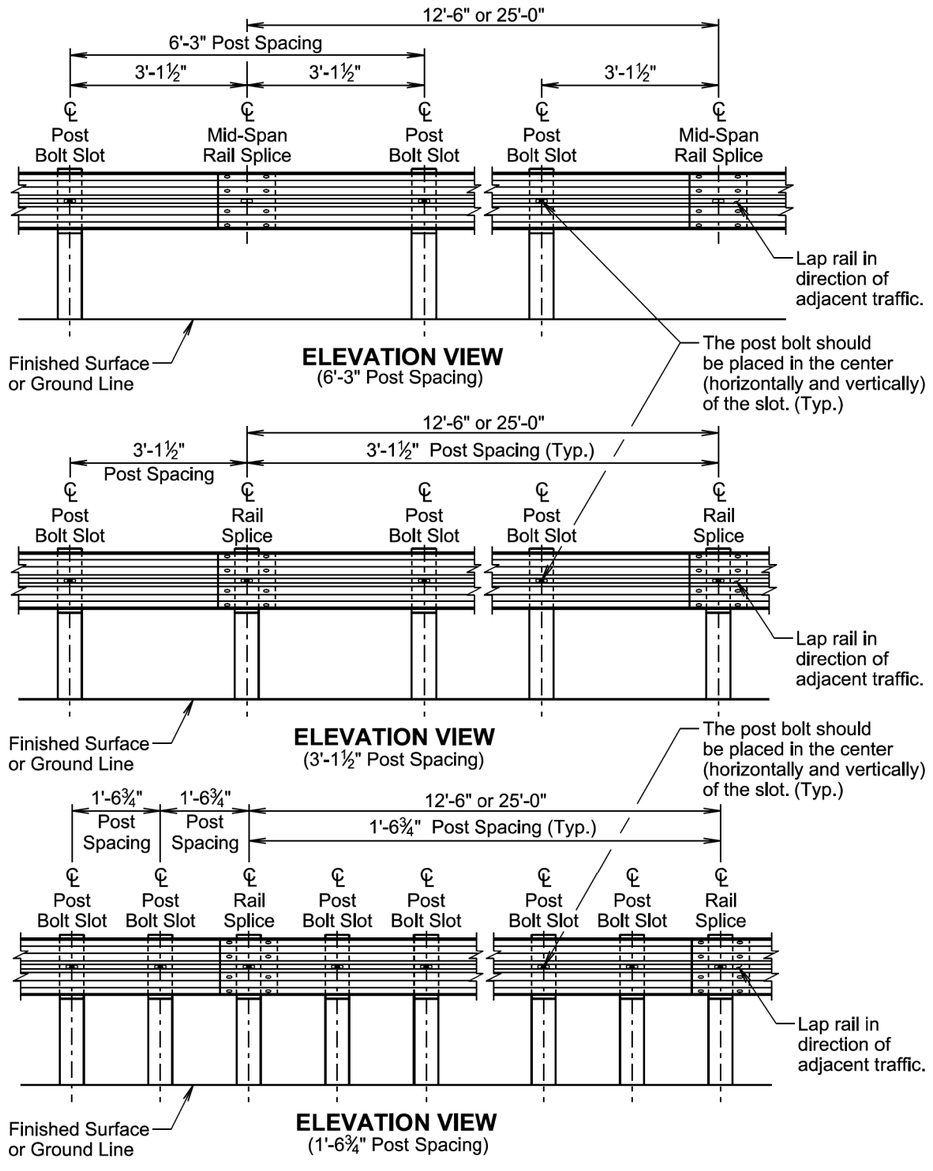
EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS



EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) RAIL
(For Information Only, Not to Scale)

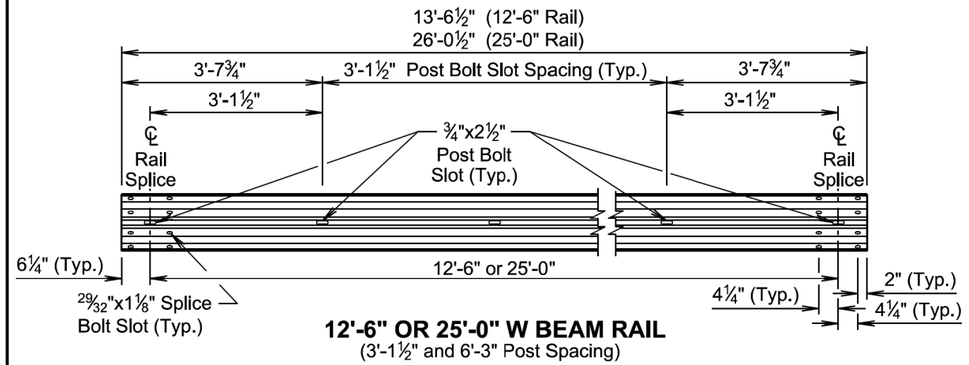
April 8, 2025

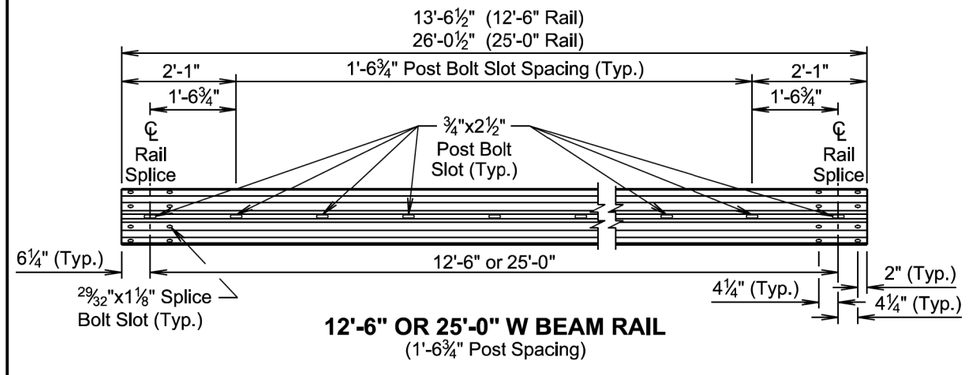
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6



April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6

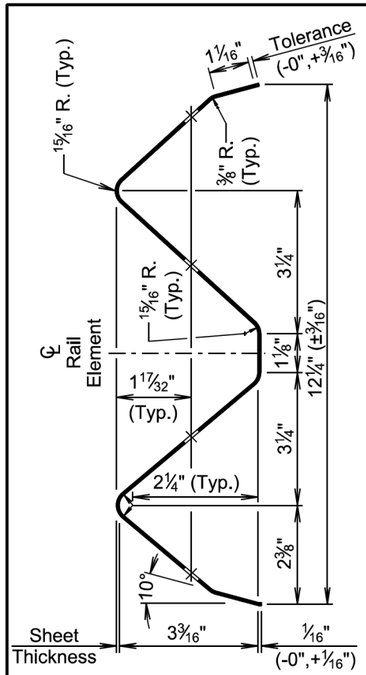




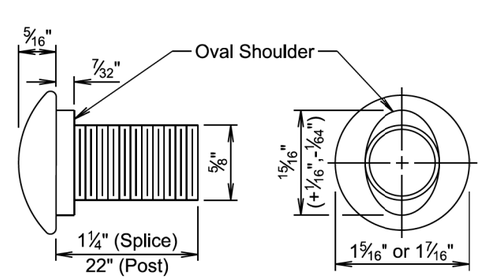
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6

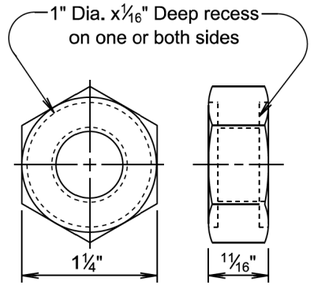
HRGreen



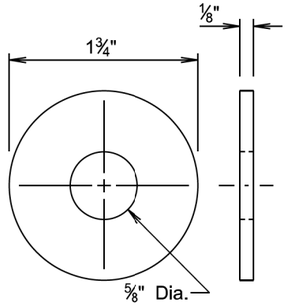
SECTION THROUGH W BEAM RAIL



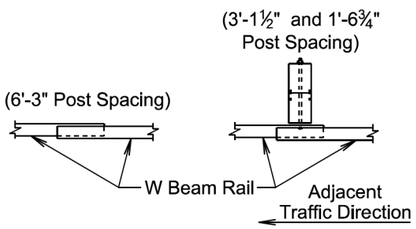
SPLICE BOLT AND POST BOLT
(5/8" Button Head Bolt)



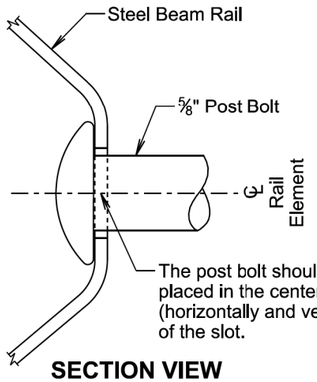
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 2 and 3.)



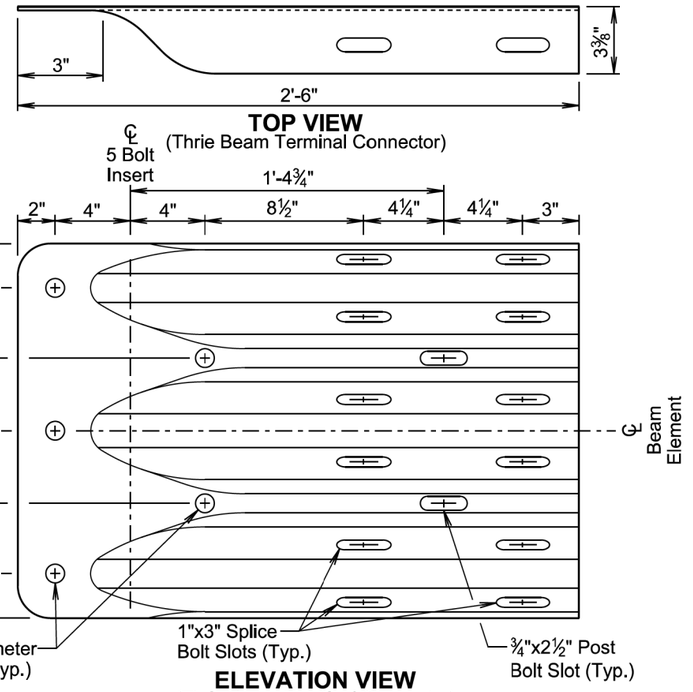
PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(8 splice bolts and 8 recess nuts per splice, NO washers)



SECTION VIEW
(At Post Bolt)

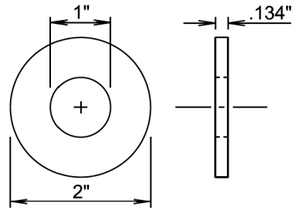
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6

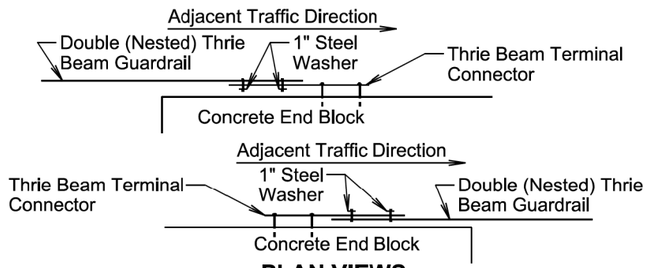


TOP VIEW
(Thrie Beam Terminal Connector)

ELEVATION VIEW
(Thrie Beam Terminal Connector)



1" STEEL WASHER
(12 washers required)



PLAN VIEWS
(Typical Locations of 1" Steel Washers)
(Washers are required at these lap splices)

GENERAL NOTES:

Thrie Beam Terminal Connectors will be 10 gauge.

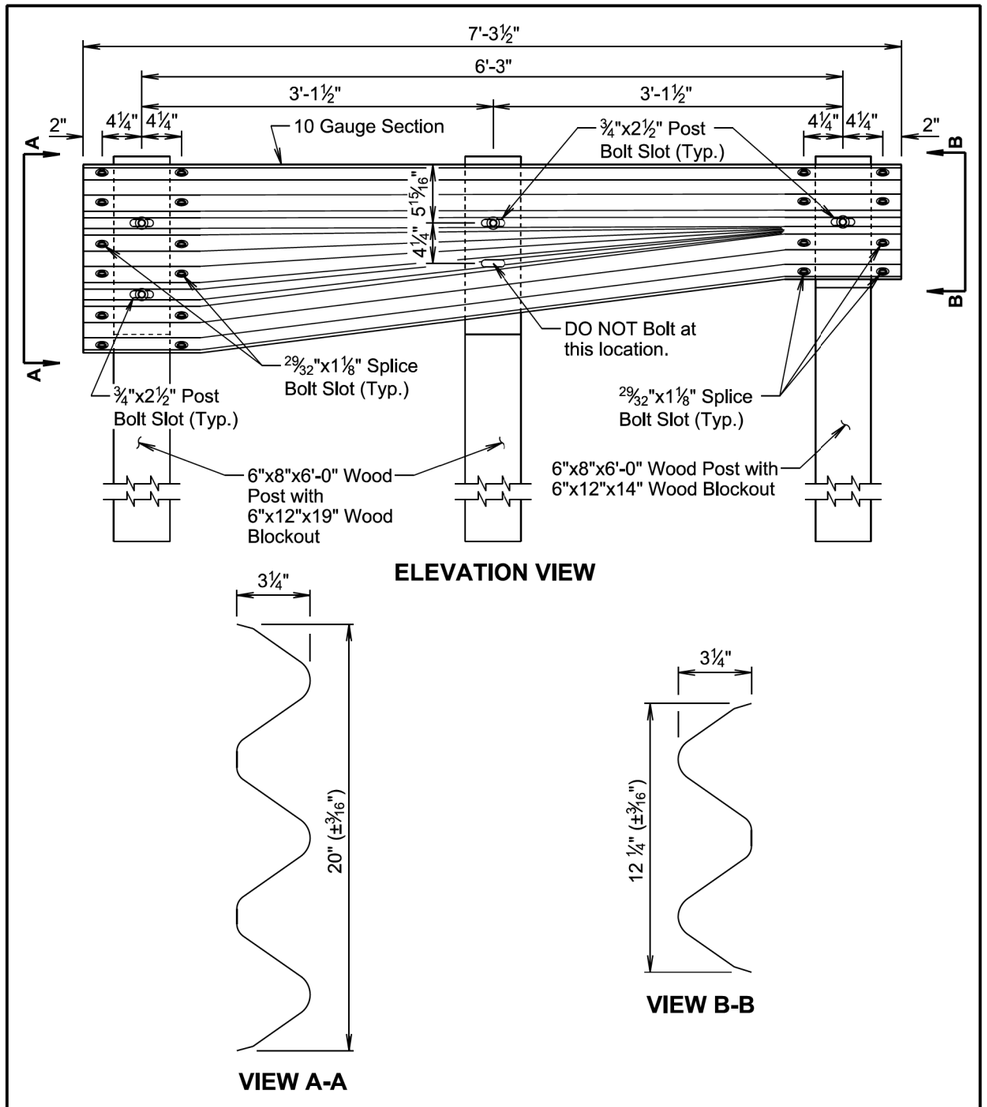
When the thrie beam terminal connector is used to connect the rail to the bridge or concrete end block, 1" steel washers will be used at the lap splice and the washers will be in direct contact with the 3" slots of the thrie beam terminal connector. See the drawings above for the typical locations of the 1" steel washers.

There will be no separate payment for furnishing and installing the thrie beam terminal connector. All costs for furnishing and installing the thrie beam terminal connector will be incidental to the contract unit price of the respective guardrail item it is attached to.

September 14, 2019

Published Date: 2026	SDDOT	THRIE BEAM TERMINAL CONNECTOR	PLATE NUMBER 630.47
			Sheet 1 of 1

HRGreen



ELEVATION VIEW

VIEW A-A

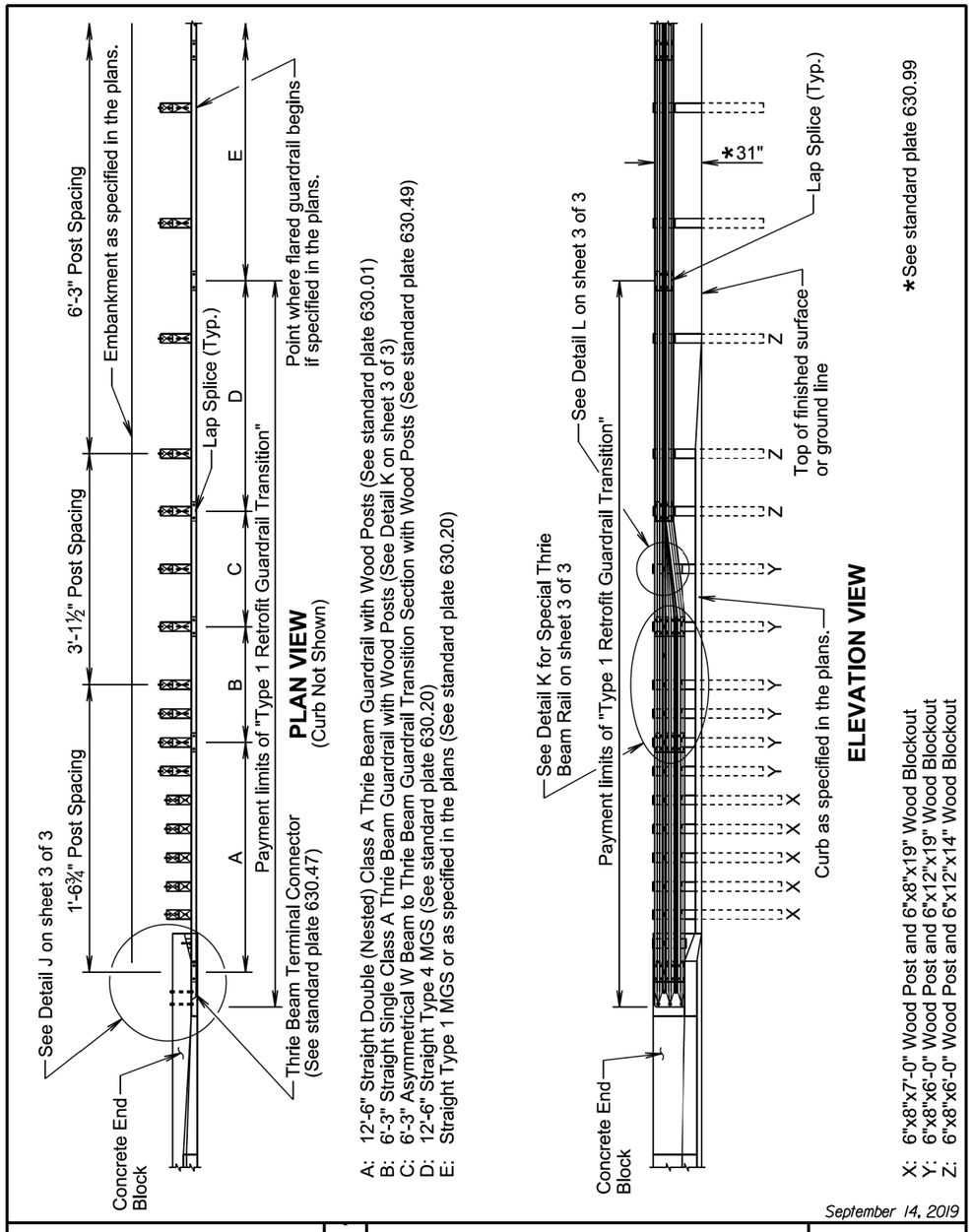
VIEW B-B

GENERAL NOTES:

All costs for furnishing and installing the asymmetrical W beam to thrie beam guardrail transition including labor, equipment, and materials including two posts, two blocks, asymmetrical W beam to thrie beam transition section, and hardware will be incidental to the contract unit price per each for the corresponding guardrail transition contract item.

September 14, 2019

Published Date: 2026	SDDOT	*ASYMMETRICAL W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION*	*PLATE NUMBER* 630.49
			Sheet 1 of 1



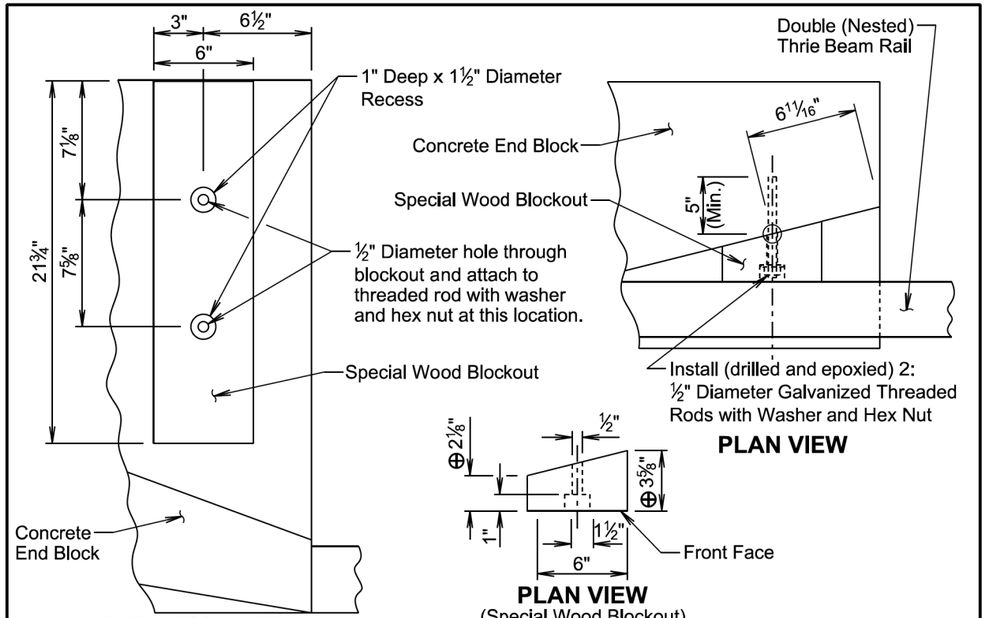
PLAN VIEW
(Curb Not Shown)

ELEVATION VIEW

September 14, 2019

Published Date: 2026	SDDOT	*TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))*	*PLATE NUMBER* 630.51
			Sheet 1 of 3

HRGreen



GENERAL NOTES FOR INSTALLING THREADED RODS INTO CONCRETE:

⊕ The dimensions shown are estimated based on original construction plans of the concrete end block. The special wood blockout will be cut as necessary such that the front face of the special wood blockout will align with the vertical front face of the concrete end block ±½".

The threaded rods will be ½" diameter and conform to ASTM F1554, Grade 55. The threaded rods will be embedded a minimum of 5" into the concrete.

The diameter of the drilled holes will not be less than ⅛" greater or more than ⅜" greater than the diameter of the threaded rods or as per the Manufacturer's recommendations. The holes will not be drilled using core bits. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to the epoxy injection.

The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation to eliminate voids and ensure complete bonding of the rod. Insertion of the rods by the dipping or painting methods will not be allowed.

Loads will not be applied to the epoxy grouted threaded rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin Manufacturer.

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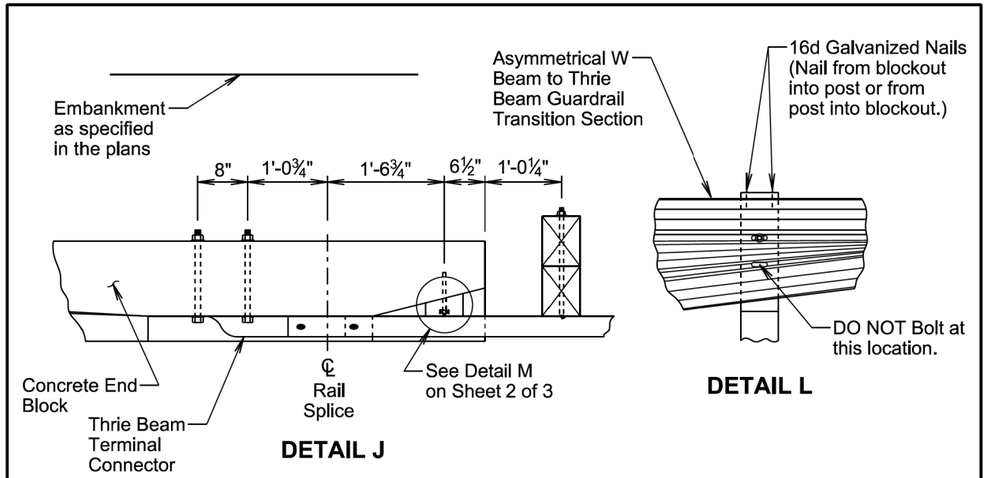
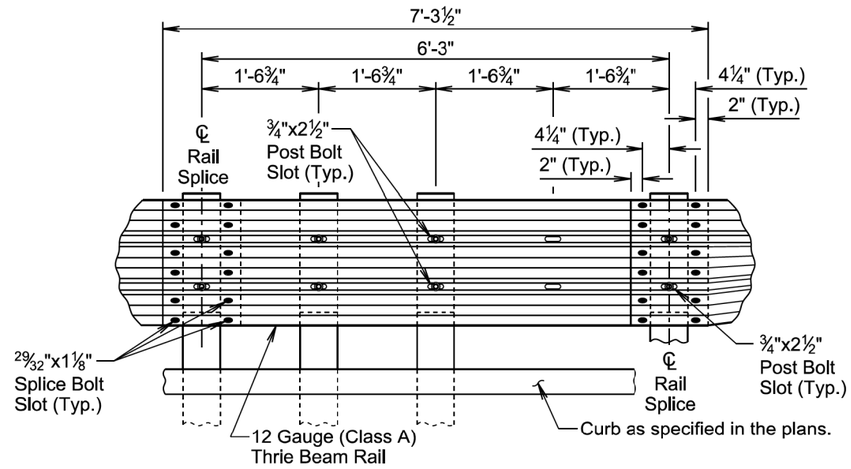
Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 2 of 3





DETAIL K
(Special Thrie Beam Rail)

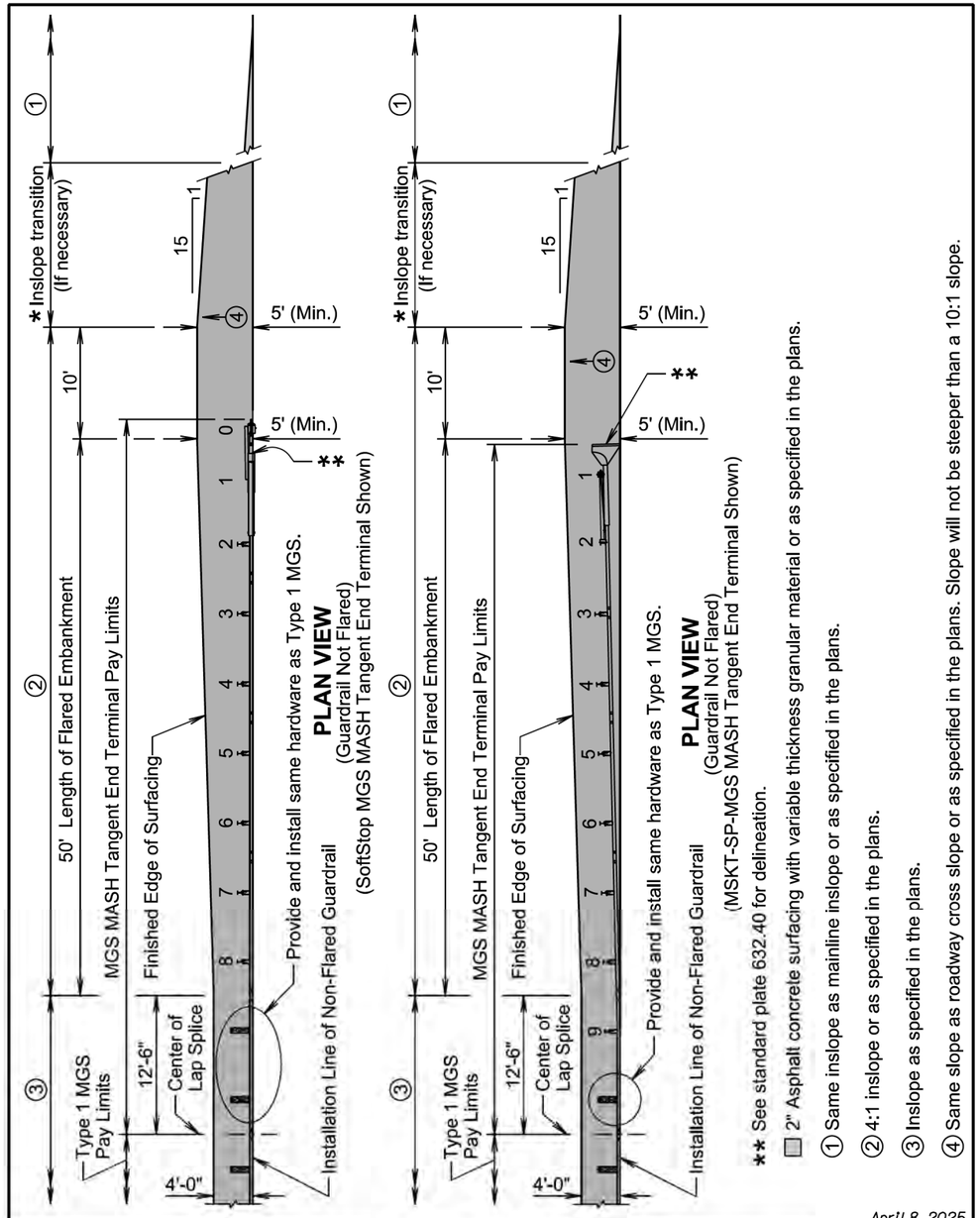
GENERAL NOTES:

Throughout the type 1 retrofit guardrail transition, slots in the rails will be provided as specified in the plans and by the Manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for furnishing and installing the type 1 retrofit guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, special blockout, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Retrofit Guardrail Transition".

September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 3 of 3



** See standard plate 632.40 for delineation.

2" Asphalt concrete surfacing with variable thickness granular material or as specified in the plans.

① Same inslope as mainline inslope or as specified in the plans.

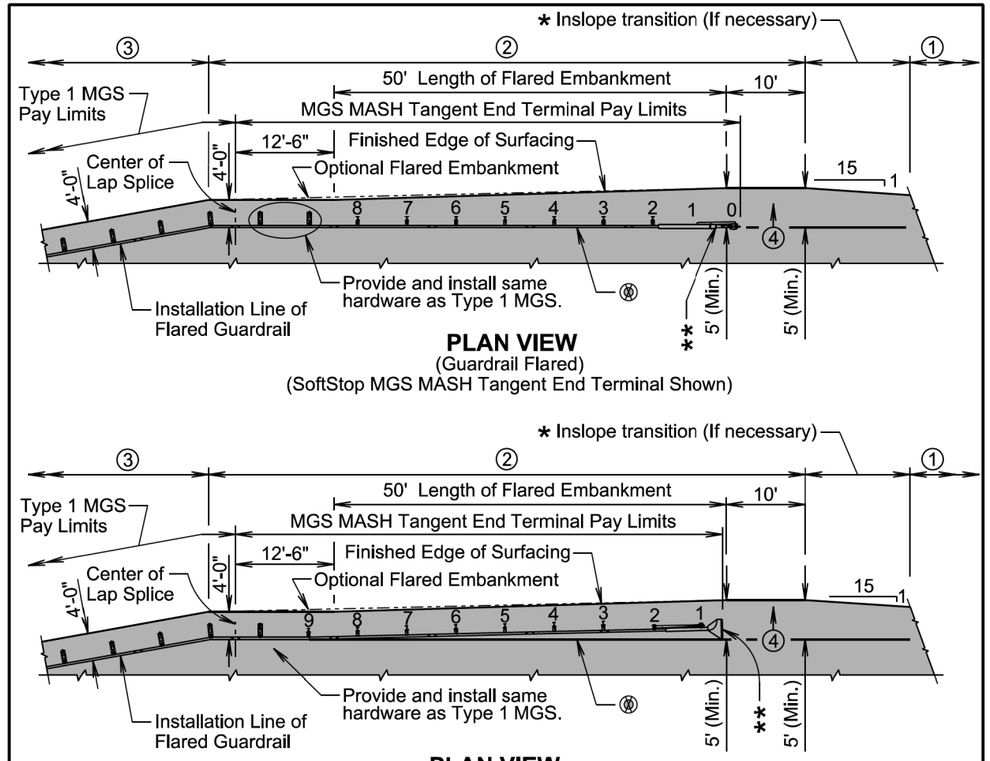
② 4:1 inslope or as specified in the plans.

③ Inslope as specified in the plans.

④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89	Sheet 1 of 3



GENERAL NOTES:

The MGS MASH tangent end terminals above are for illustrative purpose only. Pay limit length of the MGS MASH tangent end terminal is 62'-6".

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100' for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

Ⓚ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

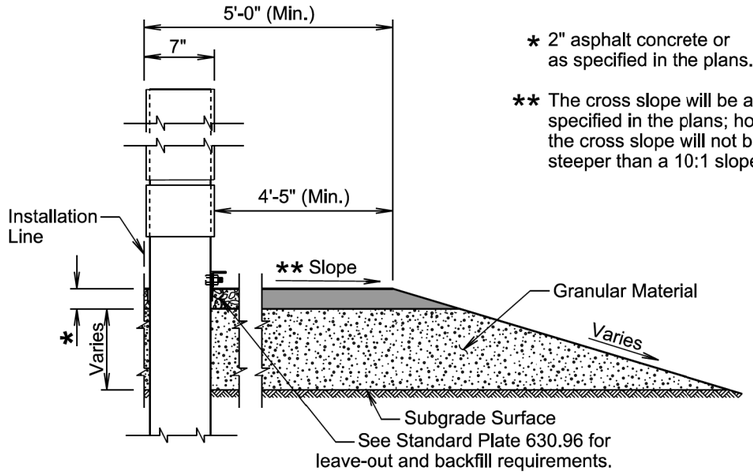
Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89	Sheet 2 of 3

HRGreen

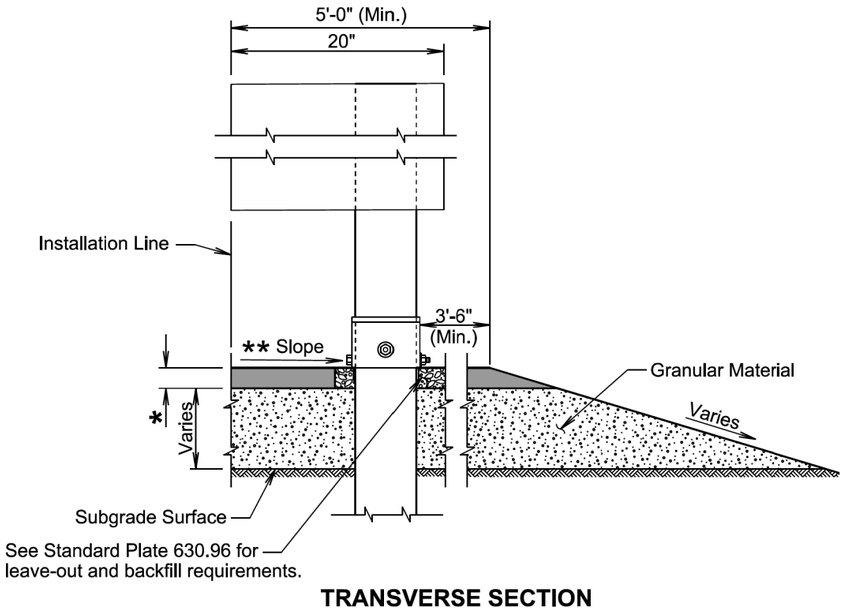


* 2" asphalt concrete or as specified in the plans.

** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

TRANSVERSE SECTION

(SoftStop MGS MASH Tangent End Terminal Shown)

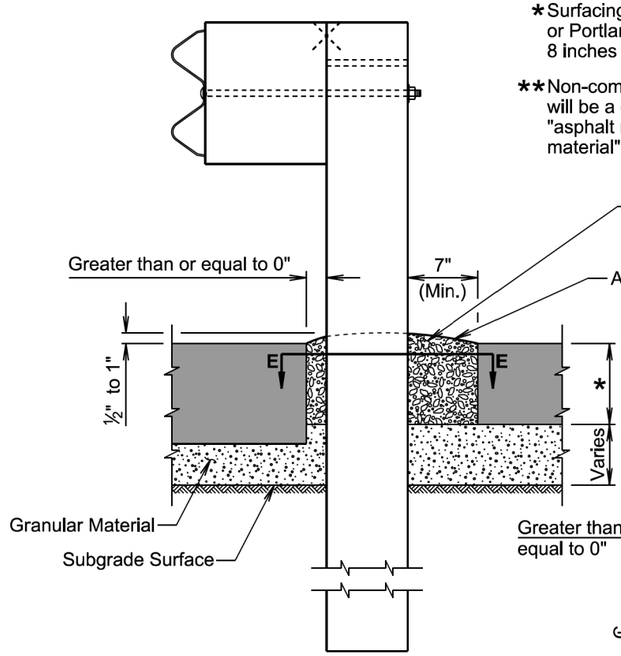


TRANSVERSE SECTION

(MSKT-SP-MGS MASH Tangent End Terminal Shown)

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89 Sheet 3 of 3

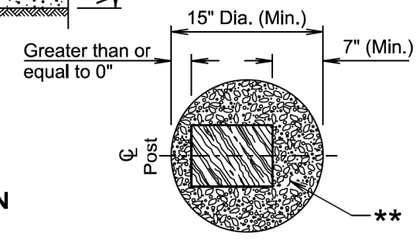


* Surfacing Material (Asphalt Concrete or Portland Cement Concrete) 8 inches maximum

** Non-compacted backfill material will be a granular material or "asphalt mix and granular base material".

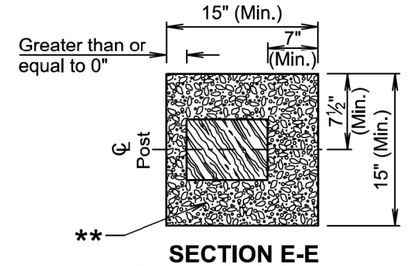
TRANSVERSE SECTION

(Wood post shown for illustrative purpose only)



SECTION E-E

(Round option for leave-out and backfill limits)
(Wood post shown for illustrative purpose only)



SECTION E-E

(Square option for leave-out and backfill limits)
(Wood post shown for illustrative purpose only)

GENERAL NOTES:

The leave-out limits may be increased to accommodate construction equipment and tolerances.

When posts are installed in augured or dug holes, the backfill material will be compacted to the bottom of the pavement surfacing material to the satisfaction of the Engineer. The backfill material for the thickness of the pavement surfacing material will be non-compacted.

The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

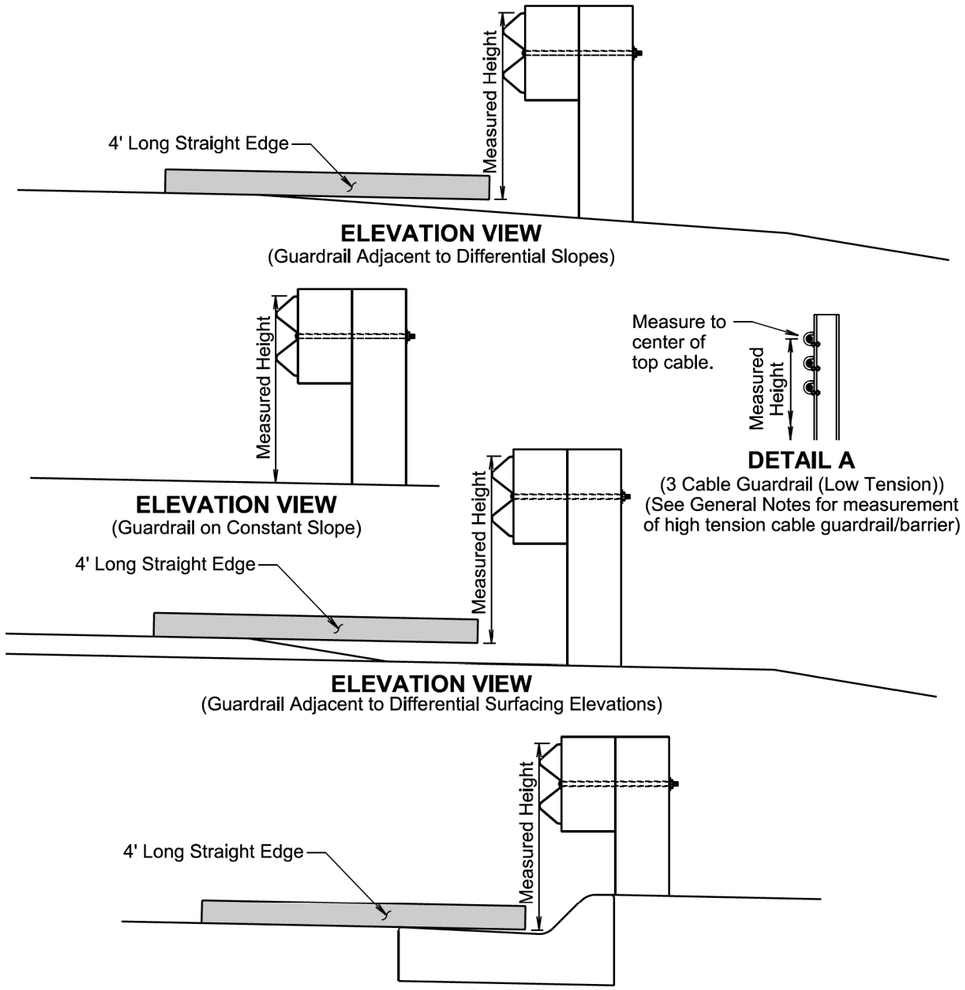
Asphalt for tack will be applied to the surface of the backfill material at the rate of 0.15 to 0.20 gallons per square yard.

All costs for constructing the leave-out including labor, equipment, and materials which includes the backfill material and tack coat will be incidental to the contract unit price for the respective guardrail contract item.

November 19, 2021

Published Date: 2026	SDDOT	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96 Sheet 1 of 1

HRGreen



GENERAL NOTES:

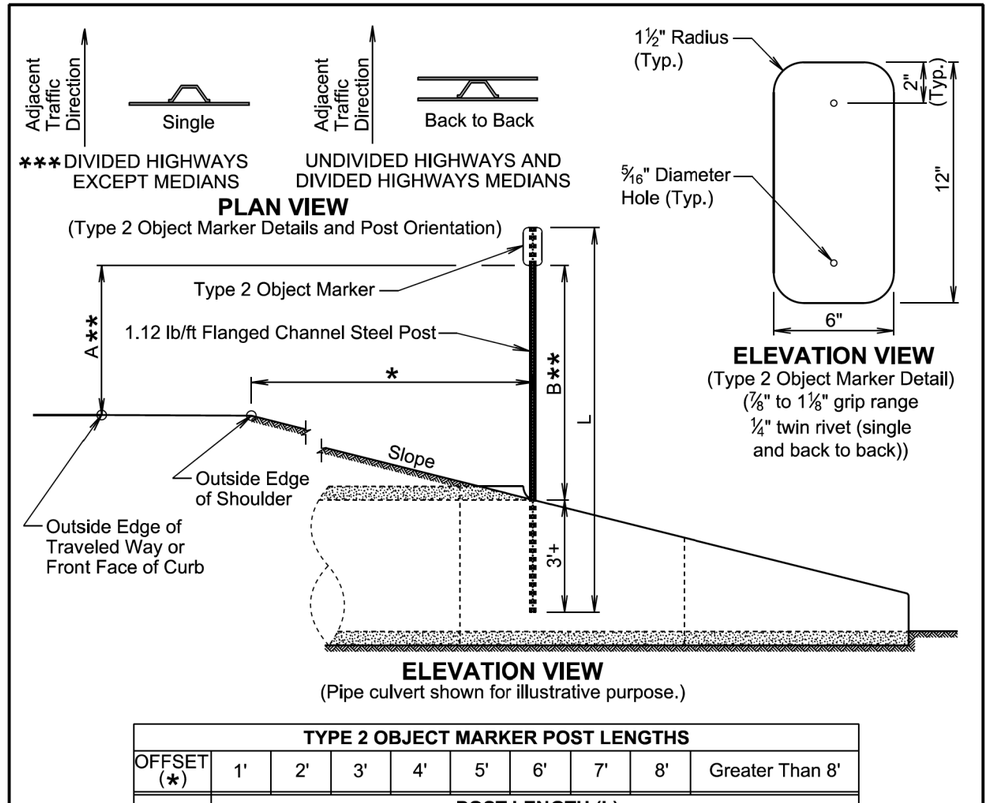
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

September 14, 2019

Published Date: 2026	SDDOT	***MEASURING GUARDRAIL HEIGHT***	PLATE NUMBER 630.99 Sheet 1 of 1



TYPE 2 OBJECT MARKER POST LENGTHS									
OFFSET (*)		1'	2'	3'	4'	5'	6'	7'	8'	Greater Than 8'
		POST LENGTH (L)								
SLOPE	3:1	8'-6"	8'-9"	9'-3"	9'-6"	9'-9"	10'-3"	10'-6"	10'-9"	8'-0"
	4:1	8'-6"	8'-9"	9'-0"	9'-3"	9'-9"	9'-9"	10'-0"	10'-3"	8'-0"
	5:1	8'-3"	8'-6"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	9'-9"	8'-0"
	6:1	8'-3"	8'-6"	8'-9"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	8'-0"

GENERAL NOTES:

*** The type 2 object marker may be installed back to back when specified in the plans.

Post Length L was calculated based on a shoulder width of 6 feet at a crosslope of 4 percent and L was rounded up to the nearest 3 inches.

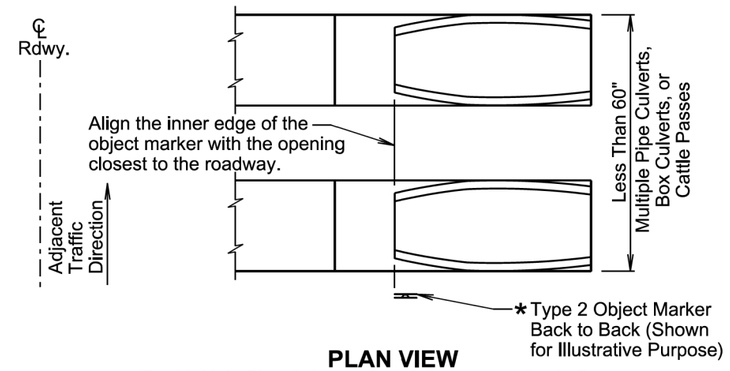
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.

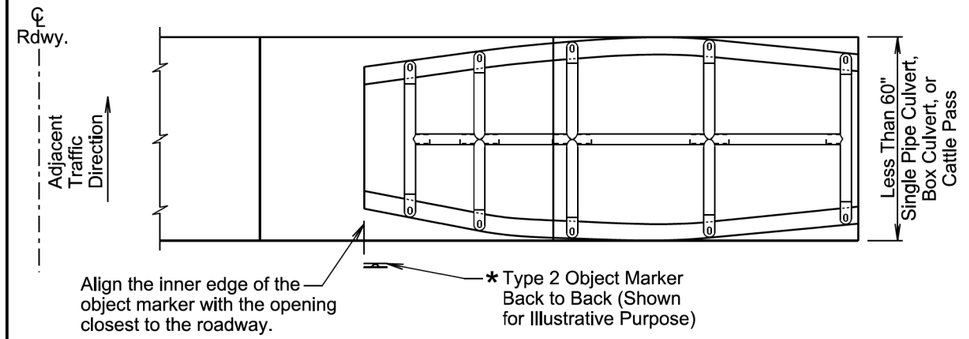
Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

Published Date: 2026	SDDOT	***TYPE 2 OBJECT MARKER (DIRECT DRIVE)***	PLATE NUMBER 632.01 Sheet 1 of 1



PLAN VIEW
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)
(Pipe culverts shown for illustrative purpose.)
(Embankment is not shown.)



PLAN VIEW
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)
(Pipe culvert shown for illustrative purpose.)
(Embankment is not shown.)

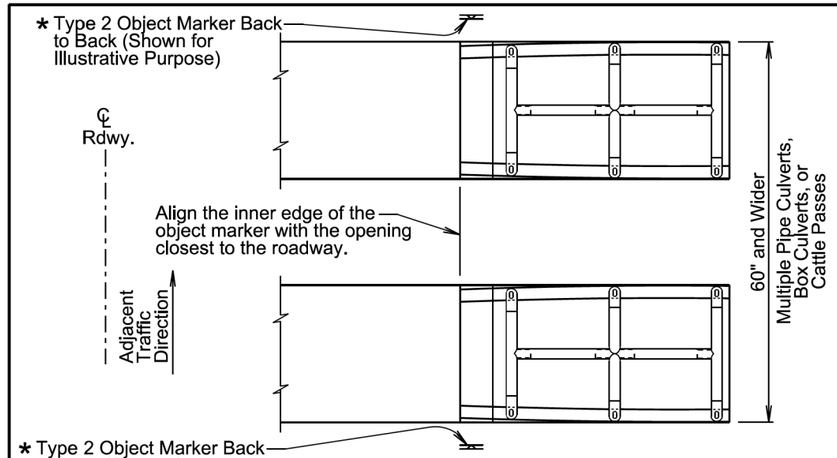
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

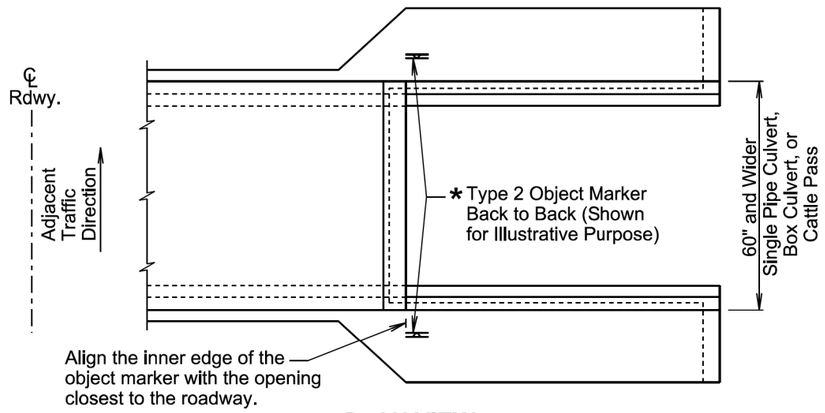
* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (Less than 60" Overall Width)	PLATE NUMBER 632.03
			Sheet 1 of 1



PLAN VIEW
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)
(Pipe culverts shown for illustrative purpose.)
(Embankment is not shown.)



PLAN VIEW
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)
(Box culvert shown for illustrative purpose.)
(Embankment is not shown.)

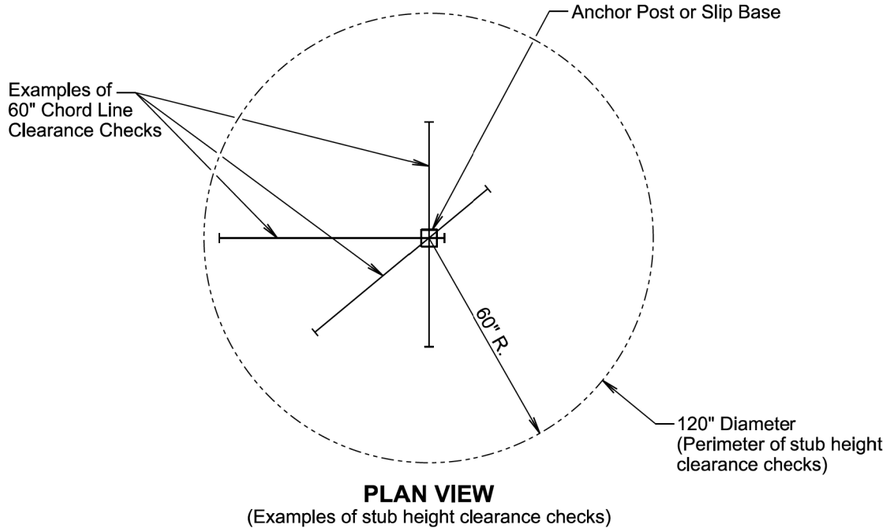
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

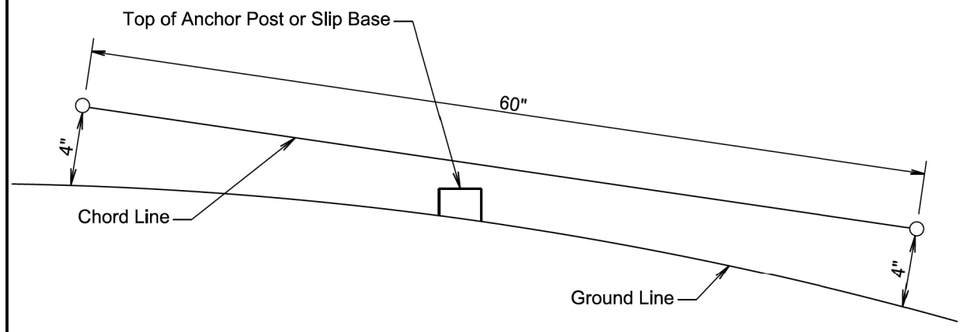
* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (60" and Greater Overall Width)	PLATE NUMBER 632.04
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

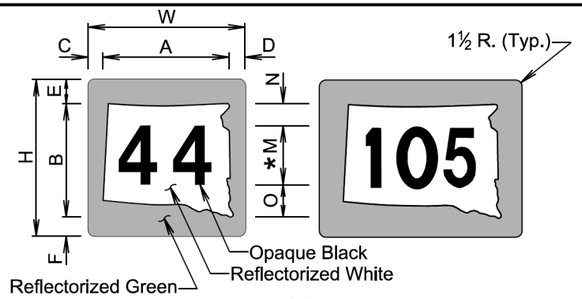
GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

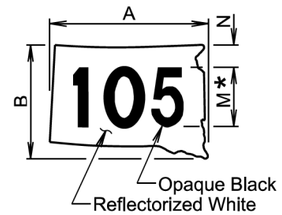
January 22, 2021

Published Date: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 632.18
			Sheet 1 of 1



M1-5

SIGN CODE	WxH	A	B	C	D	E	F	M*	N	O
M1-5	24x24	20½	18	2	1½	3½	2½	12D	2	4
M1-5 **	30x24	24	18	2¼	1¾	3½	2½	12D	2	4
M1-5	30x30	25⅝	22½	2½	1⅞	4⅜	3⅛	15D	2½	5
M1-5	36x36	30¾	27	3	2¼	5¼	3¾	18D	3	6

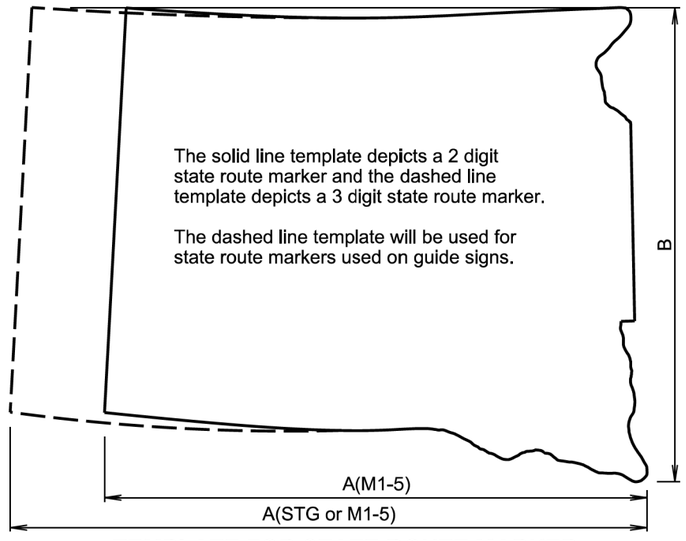


STG

SIGN CODE	AxB	M*	N
STG-24	24x18	10D	4
STG-32	32x24	12D	4¾
STG-48	48x36	18D	7
STG-64	64x48	24D	9½

* In the few cases where there is not enough space for the numerals, the standard D series font may be replaced with C series font if approved by the Engineer.

** 3 Digits



TEMPLATE FOR STATE ROUTE MARKER

GENERAL NOTES:

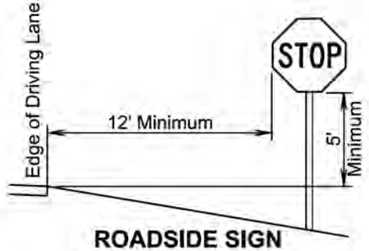
The unit for all dimensions shown is inches.

Numerals will be D series font for all state route markers except as noted above.

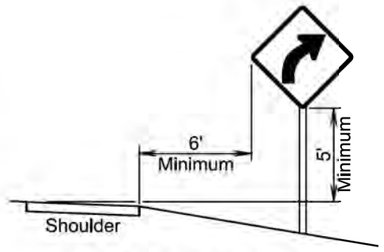
December 23, 2019

Published Date: 2026	SDDOT	STATE ROUTE MARKERS	PLATE NUMBER 632.20
			Sheet 1 of 1

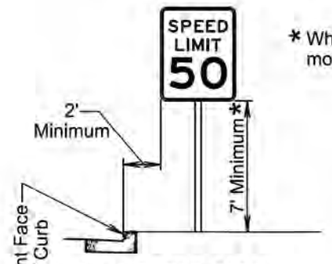
HRGreen



ROADSIDE SIGN IN RURAL AREA

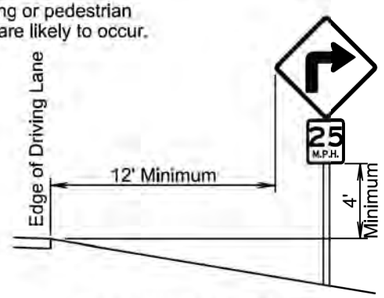


ROADSIDE SIGN IN RURAL AREA
(If shoulder width is greater than 6 foot)

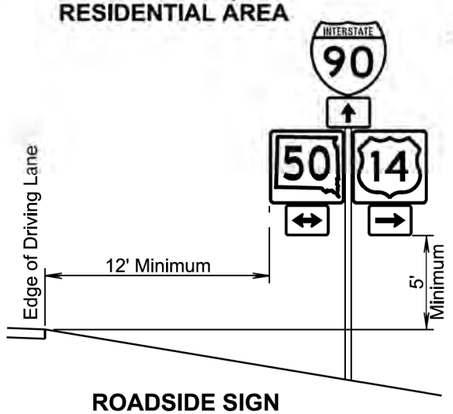


ROADSIDE SIGN IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

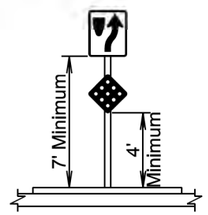
* Where parking or pedestrian movements are likely to occur.



WARNING SIGN ADVISORY SPEED PLAQUE IN RURAL AREA



ROADSIDE SIGN IN RURAL AREA



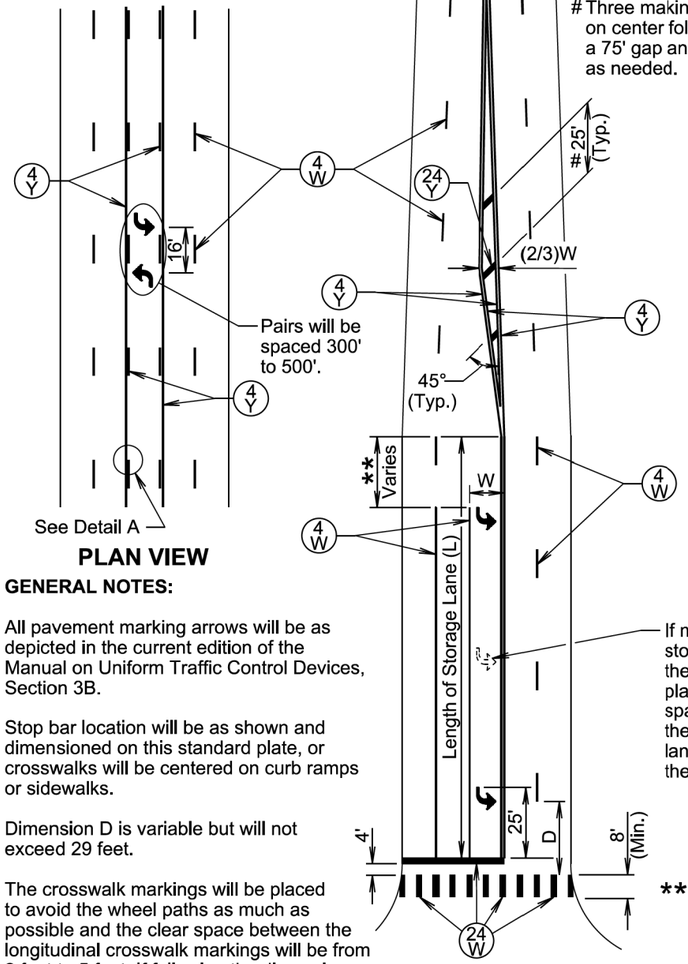
SIGN ON NOSE OF MEDIAN

April 8, 2025

Published Date: 2026	SDDOT	*OFFSETS FOR SIGN INSTALLATION*	*PLATE NUMBER 632.90* *Sheet 1 of 1*

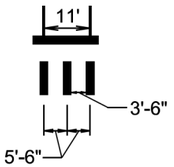
DETAIL A

Typical limits of pavement marking at an intersection, unless otherwise specified in the plans.

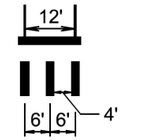


PLAN VIEW

KEY	ITEM
4W	4" White
4Y	4" Yellow
12W	12" White
24W	24" White
24Y	24" Yellow
↱	Arrow



***CROSSWALK MARKING**
(11' Lane Width)



***CROSSWALK MARKING**
(12' Lane Width)

GENERAL NOTES:

All pavement marking arrows will be as depicted in the current edition of the Manual on Uniform Traffic Control Devices, Section 3B.

Stop bar location will be as shown and dimensioned on this standard plate, or crosswalks will be centered on curb ramps or sidewalks.

Dimension D is variable but will not exceed 29 feet.

* The crosswalk markings will be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings will be from 2 feet to 5 feet. If following the dimensions shown, crosswalk markings will begin on a lane line or centerline.

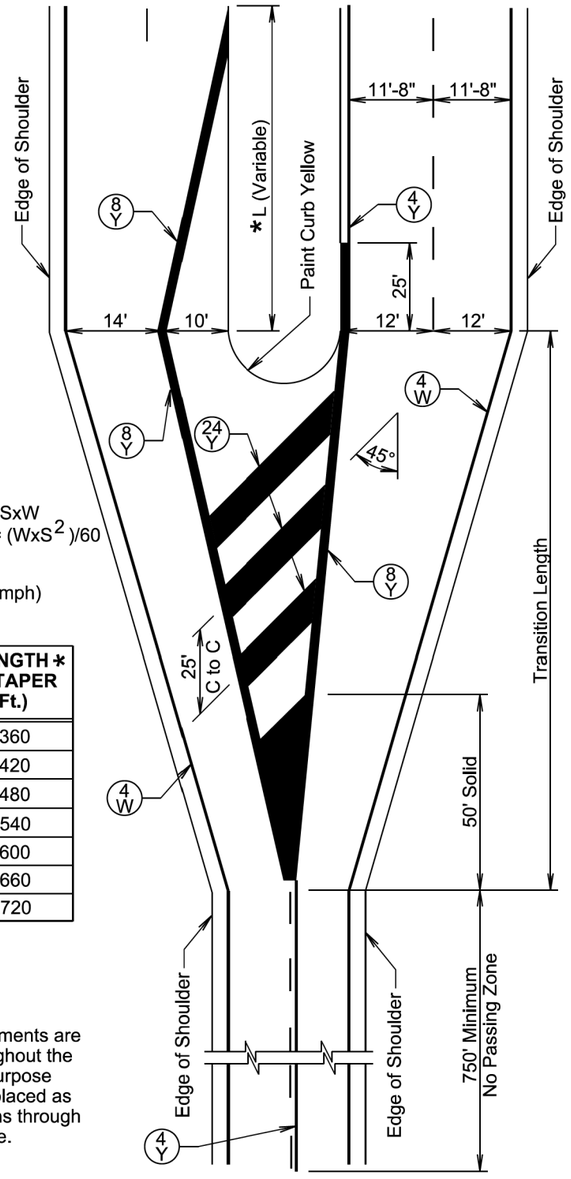
If more than 2 arrows per storage lane are shown, then the additional arrows will be placed at approximately equal spaces between the arrow at the beginning of the storage lane and the arrow nearest the stop bar.

** The length of the gap will be as shown elsewhere in the plans.

March 31, 2024

Published Date: 2026	SDDOT	*PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE*	*PLATE NUMBER 633.01* *Sheet 1 of 1*

KEY	ITEM
4 W	4" White
4 Y	4" Yellow
8 Y	8" Yellow
24 Y	24" Yellow



For 45 MPH and faster $L = SxW$

For 40 MPH and slower $L = (WxS^2)/60$

L = Length of Taper (Ft.)
S = 85th Percentile Speed (mph)
W = Width of Offset (Ft.)

85th PERCENTILE SPEED (mph)	LENGTH * OF TAPER (Ft.)
30	360
35	420
40	480
45	540
50	600
55	660
60	720

GENERAL NOTE:

Straight line angular alignments are shown on this plate throughout the transition for illustration purpose only. The striping will be placed as rounded/smooth transitions through areas of alignment change.

PLAN VIEW

June 26, 2019

Published Date: 2026	SDDOT	APPROACH PAVEMENT MARKINGS FOR TWO-LANE TO FOUR-LANE DIVIDED HIGHWAYS	PLATE NUMBER 633.03	Sheet 1 of 1

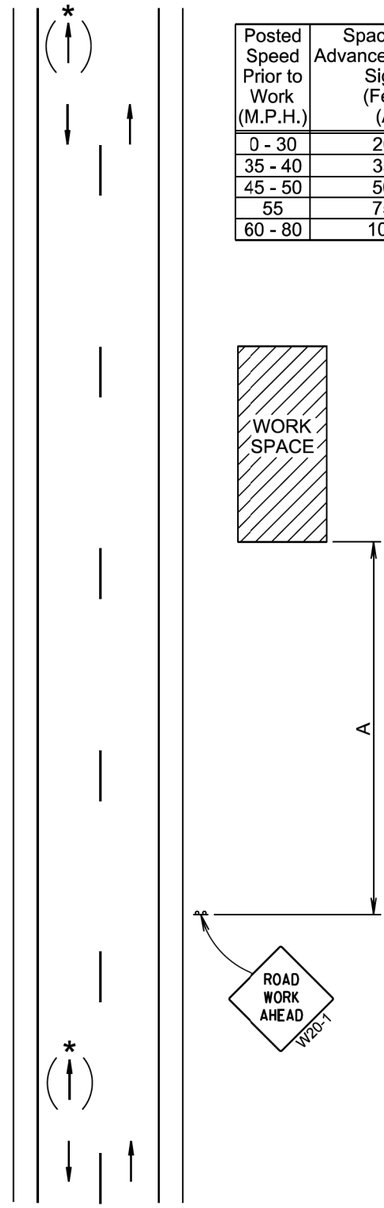
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

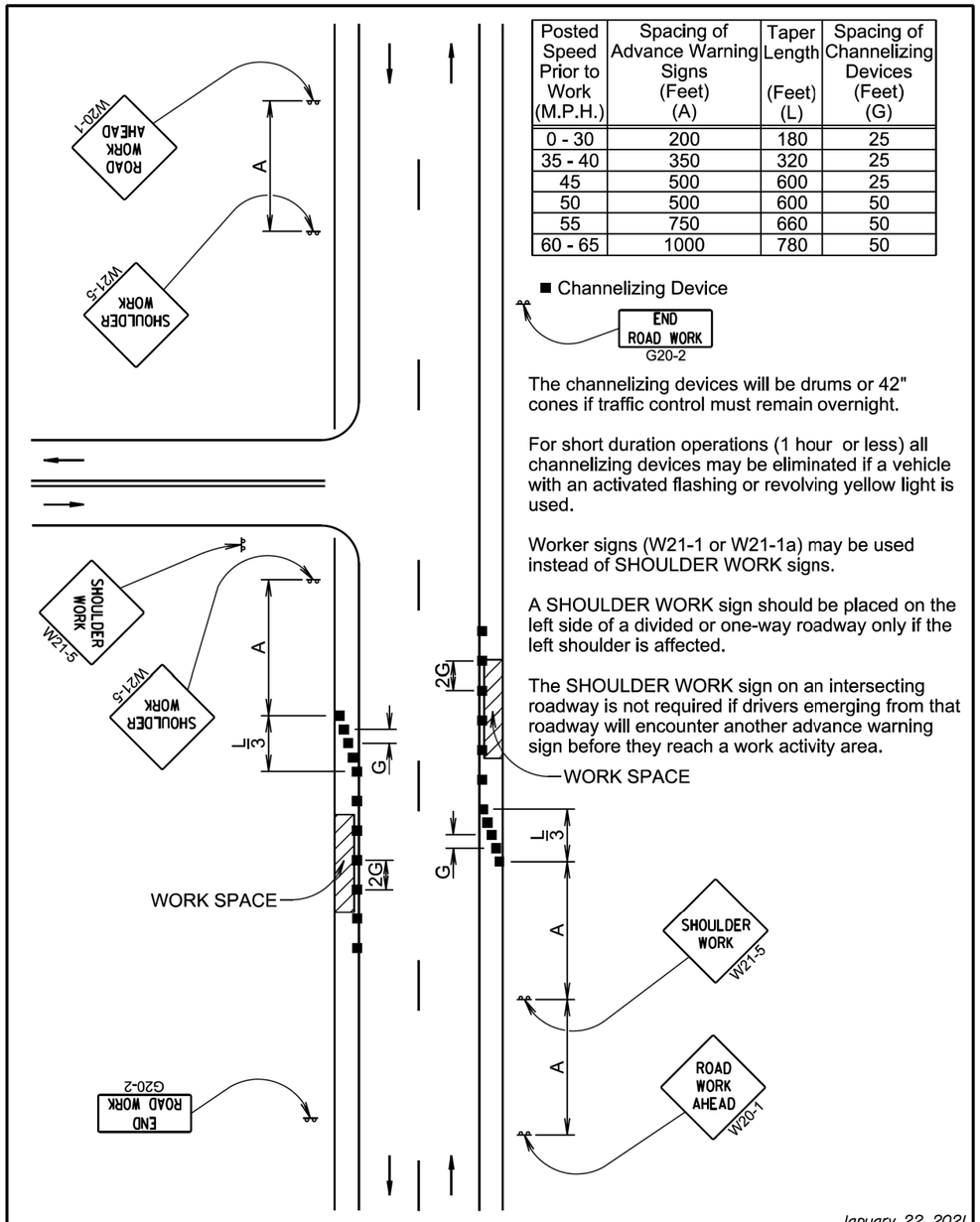
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

January 22, 2021

Published Date: 2026	SDDOT	WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01	Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

January 22, 2021

Published Date: 2026	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

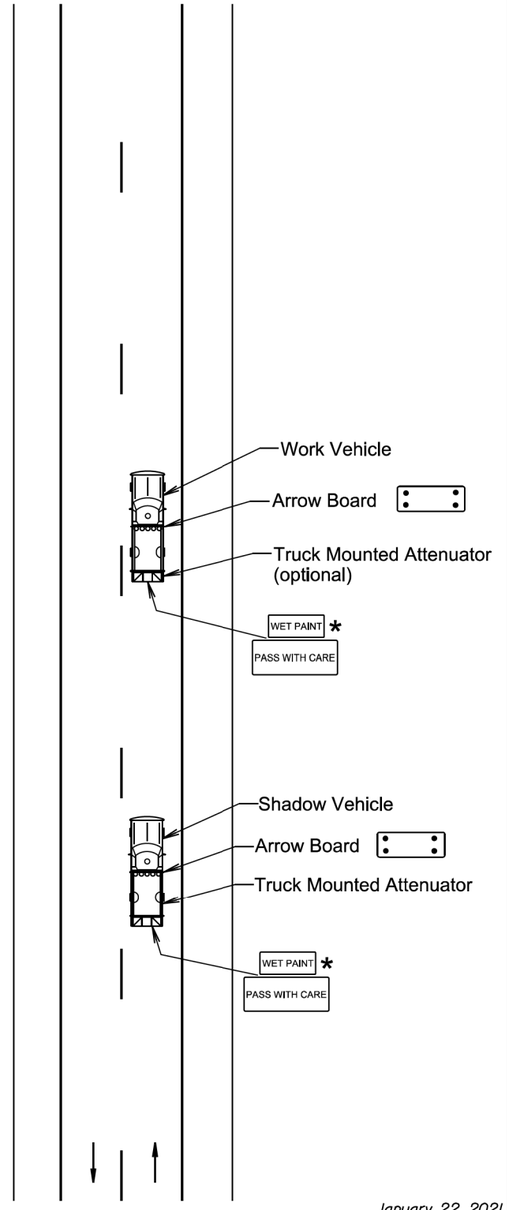
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

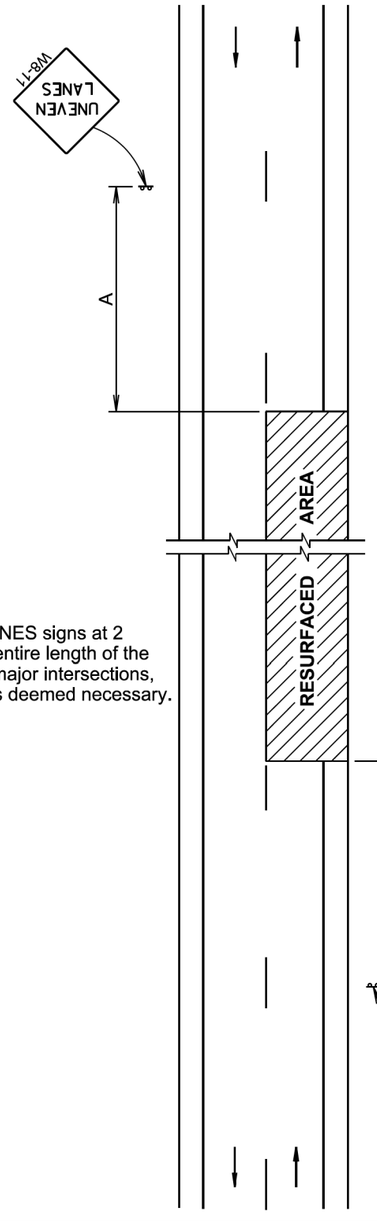
All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.



January 22, 2021

Published Date: 2026	SDDOT	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER 634.06
			Sheet 1 of 1

HRGreen



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000

Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

January 22, 2021

Published Date: 2026	SDDOT	UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

Flagger

Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

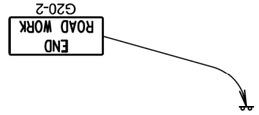
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices will be drums or 42" cones.

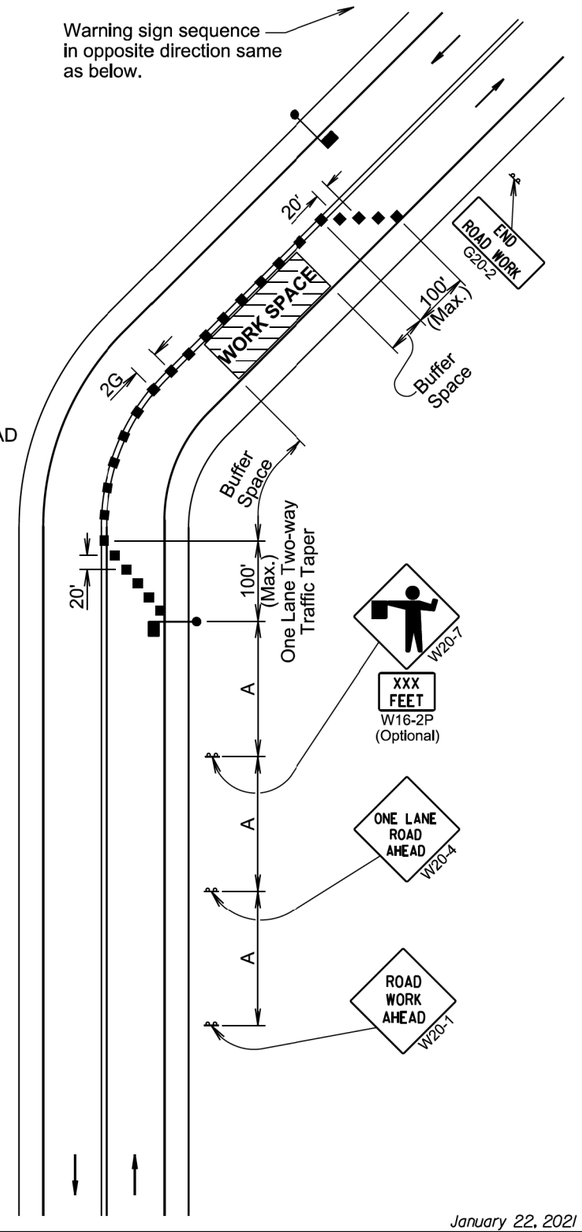
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

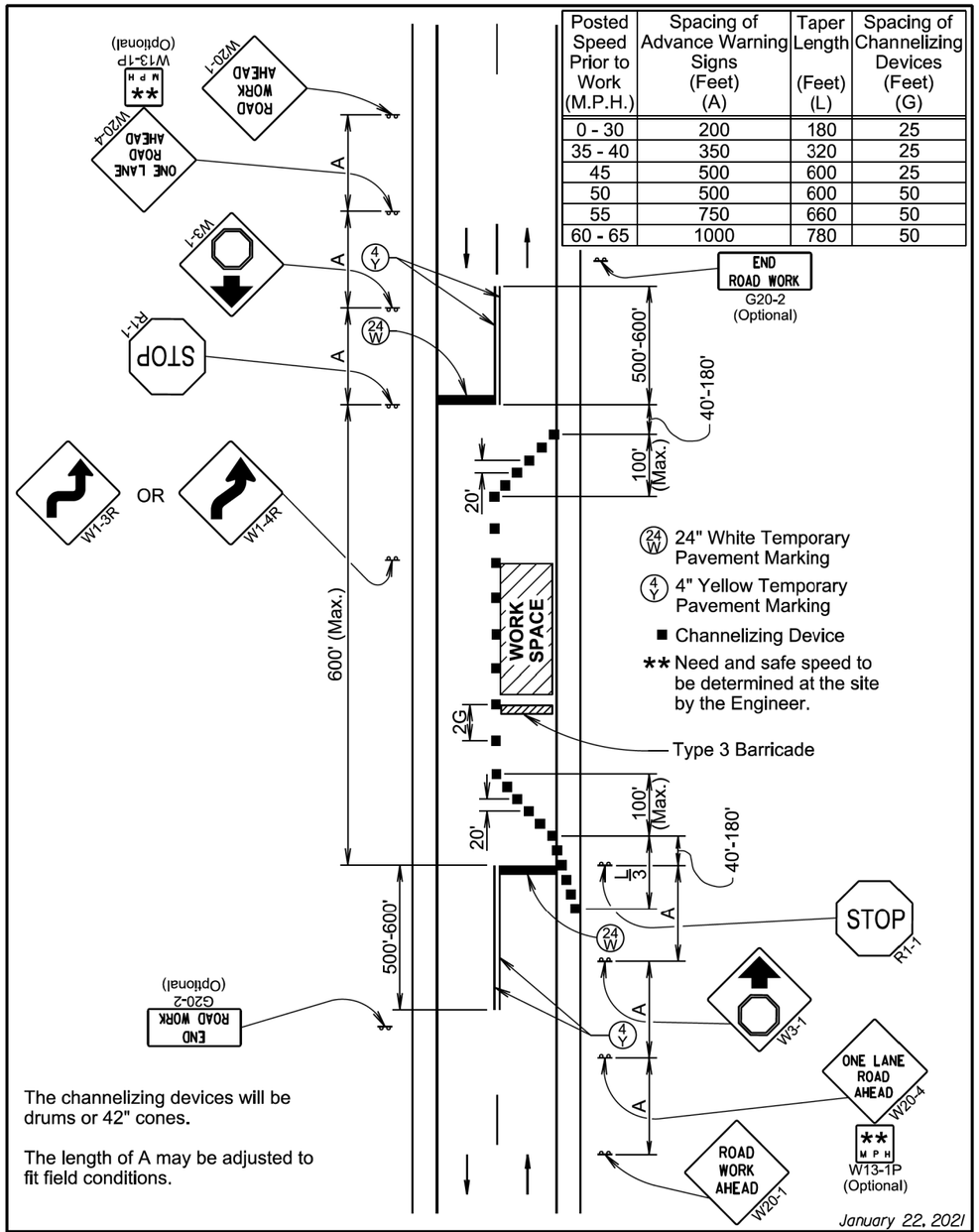
The length of A may be adjusted to fit field conditions.



January 22, 2021

Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

HRGreen



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

24 W 24" White Temporary Pavement Marking

4 Y 4" Yellow Temporary Pavement Marking

■ Channelizing Device

** Need and safe speed to be determined at the site by the Engineer.

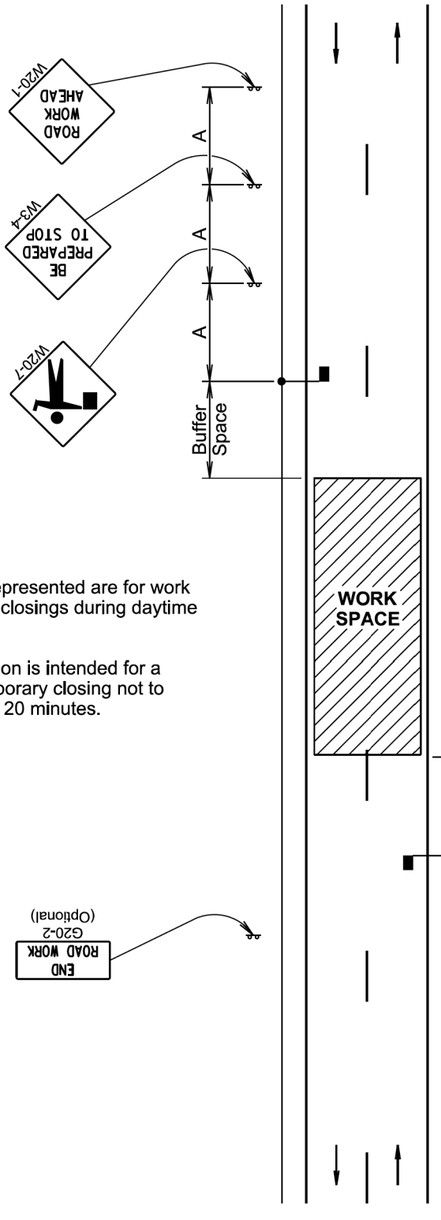
Type 3 Barricade

The channelizing devices will be drums or 42" cones.

The length of A may be adjusted to fit field conditions.

January 22, 2021

Published Date: 2026	SDDOT	LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Flagger

END ROAD WORK G20-2 (Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

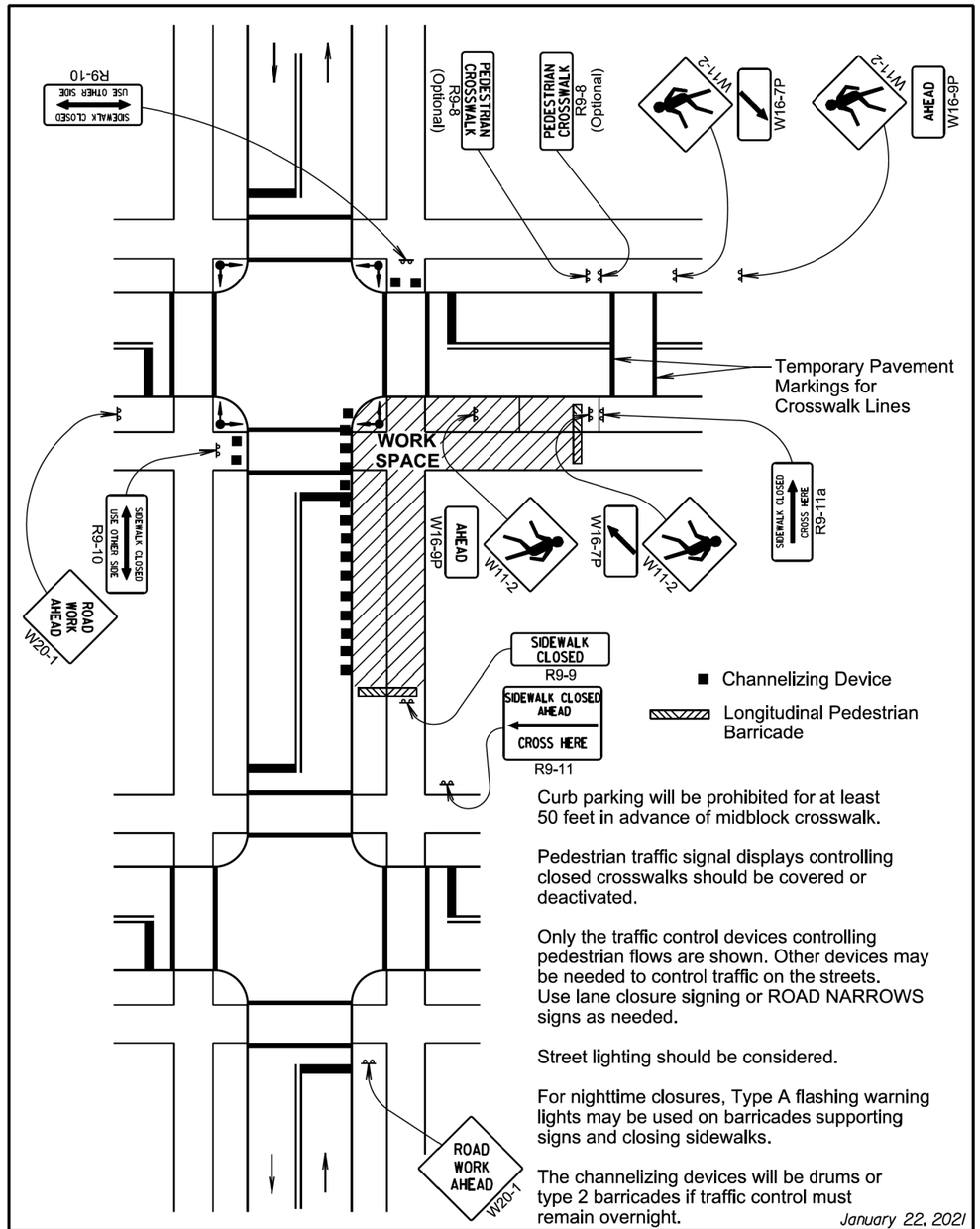
Buffer space dependent on work site limitations.

Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

January 22, 2021

Published Date: 2026	SDDOT	TEMPORARY ROAD WORK	PLATE NUMBER 634.30
			Sheet 1 of 1



Curb parking will be prohibited for at least 50 feet in advance of midblock crosswalk.

Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.

Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs as needed.

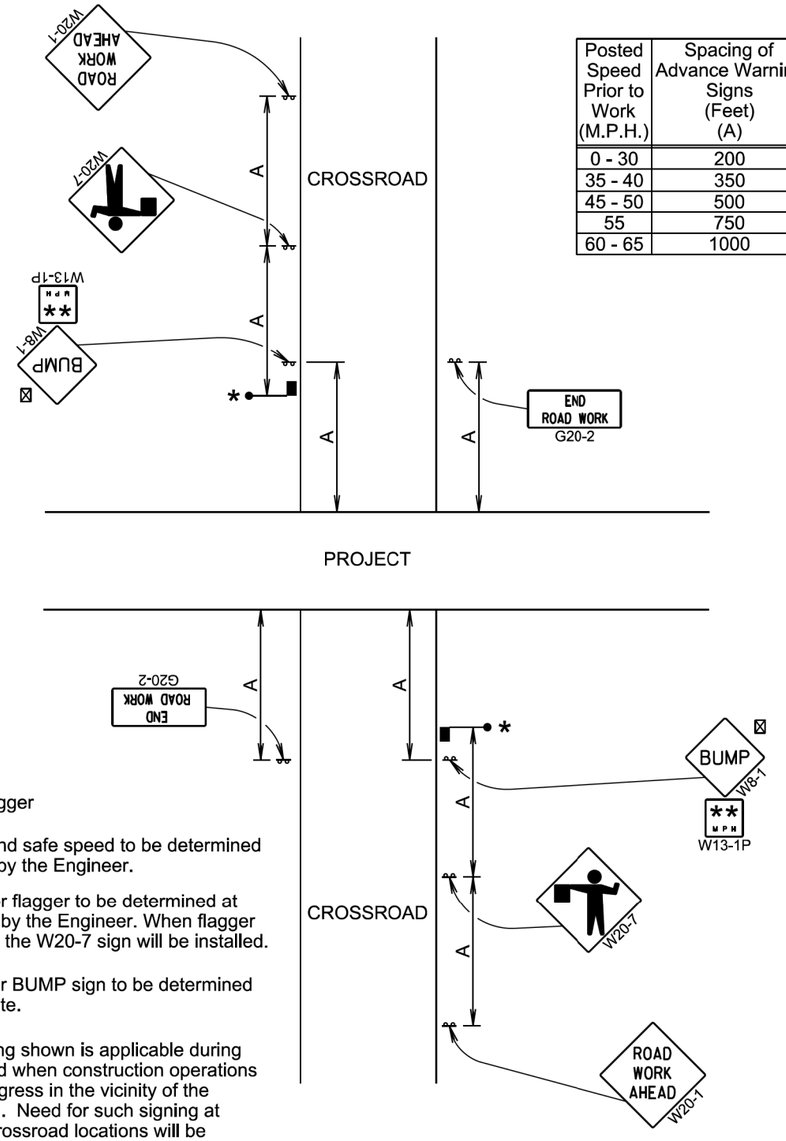
Street lighting should be considered.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks.

The channelizing devices will be drums or type 2 barricades if traffic control must remain overnight.

January 22, 2021

Published Date: 2026	SDDOT	SIDEWALK CLOSURES AND PEDESTRIAN DETOURS	PLATE NUMBER 634.33
			Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Flagger

** Need and safe speed to be determined on site by the Engineer.

* Need for flagger to be determined at the site by the Engineer. When flagger is used, the W20-7 sign will be installed.

☒ Need for BUMP sign to be determined at the site.

The signing shown is applicable during that period when construction operations are in progress in the vicinity of the crossroad. Need for such signing at specific crossroad locations will be determined at the site by the Engineer.

January 22, 2021

Published Date: 2026	SDDOT	PROJECT OPEN TO TRAFFIC FROM CROSSROAD	PLATE NUMBER 634.38
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

■ Channelizing Device

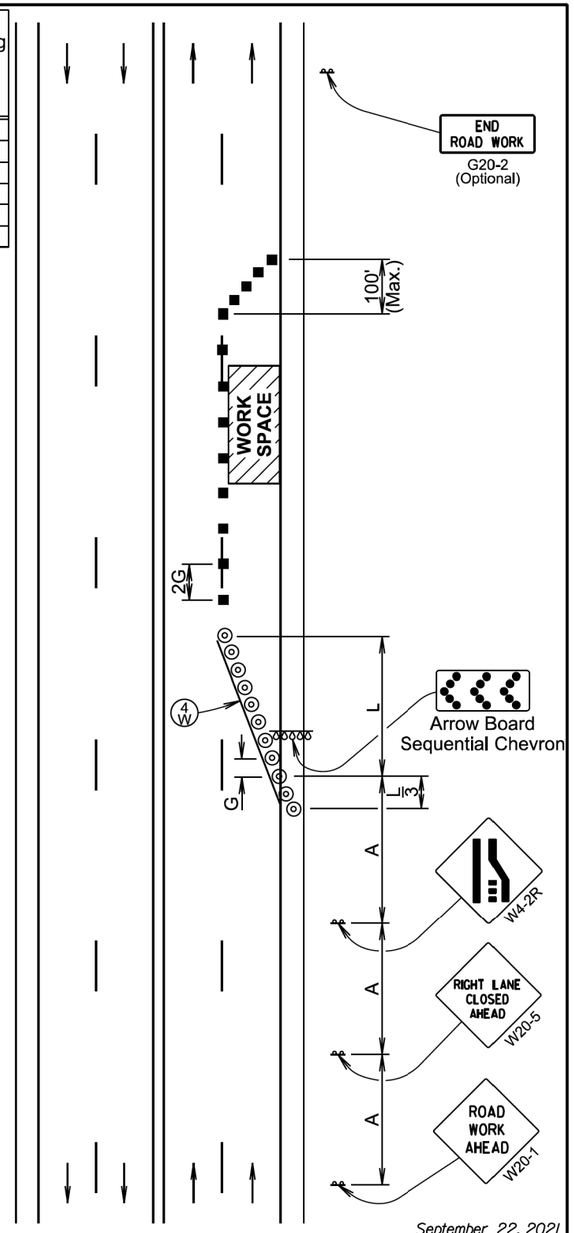
(4W) 4" White Temporary Pavement Marking

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Temporary pavement markings will be used if traffic control must remain overnight.

The length of A and L may be adjusted to fit field conditions.



September 22, 2021

Published Date: 2026

SDDOT

4–LANE UNDIVIDED, RIGHT LANE CLOSED

PLATE NUMBER 634.47

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

■ Channelizing Device

(4Y) 4" Yellow Temporary Pavement Marking

Pavement markings no longer applicable will be removed or obliterated as soon as practical.

Temporary pavement markings will be used if traffic control must remain overnight.

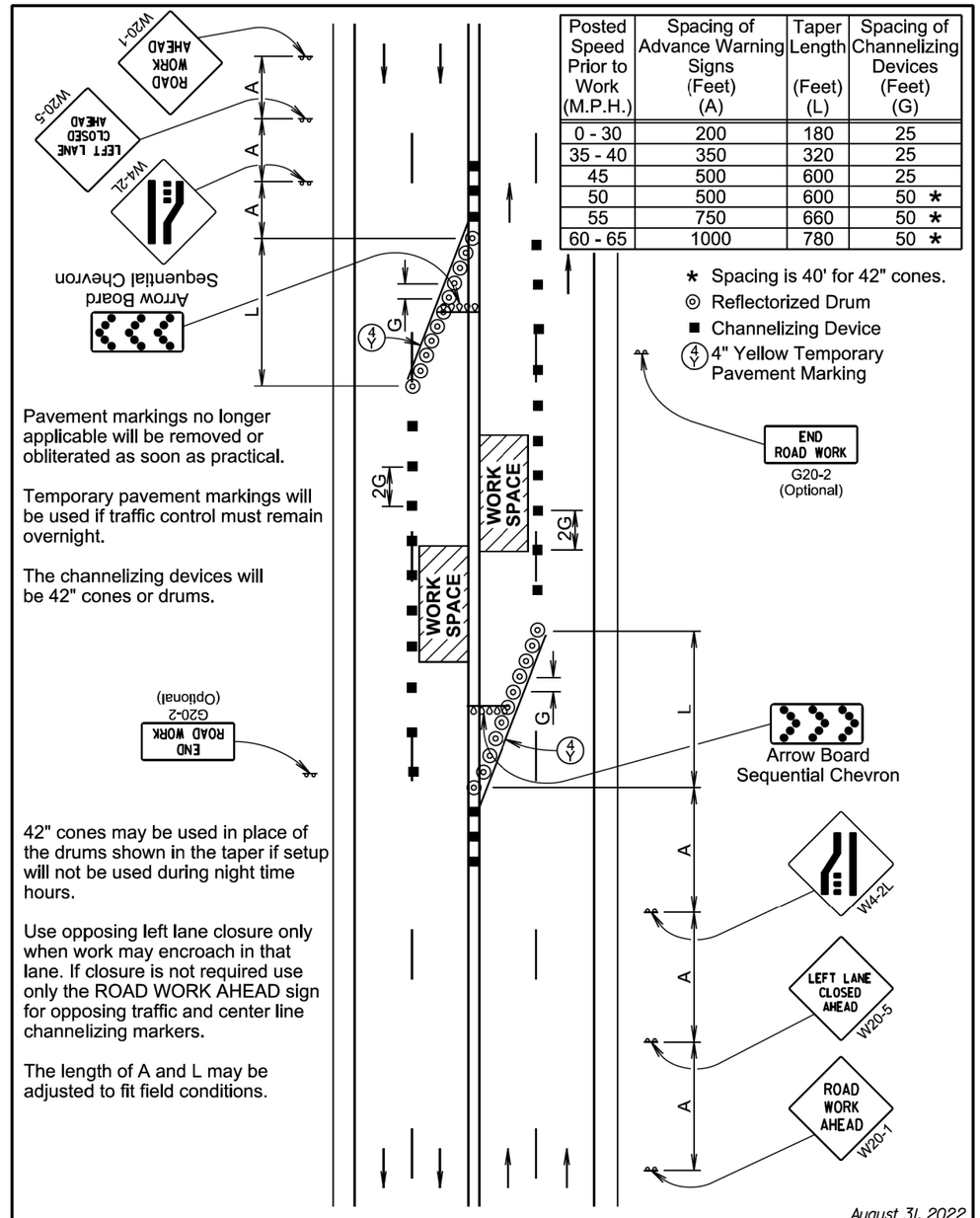
The channelizing devices will be 42" cones or drums.

(Optional) G20-2 END ROAD WORK

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and center line channelizing markers.

The length of A and L may be adjusted to fit field conditions.



August 31, 2022

Published Date: 2026

SDDOT

4–LANE UNDIVIDED, LEFT LANE CLOSED

PLATE NUMBER 634.48

Sheet 1 of 1

HRGreen

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
	(A) (B) (C)
70 - 80	1000 1500 2640

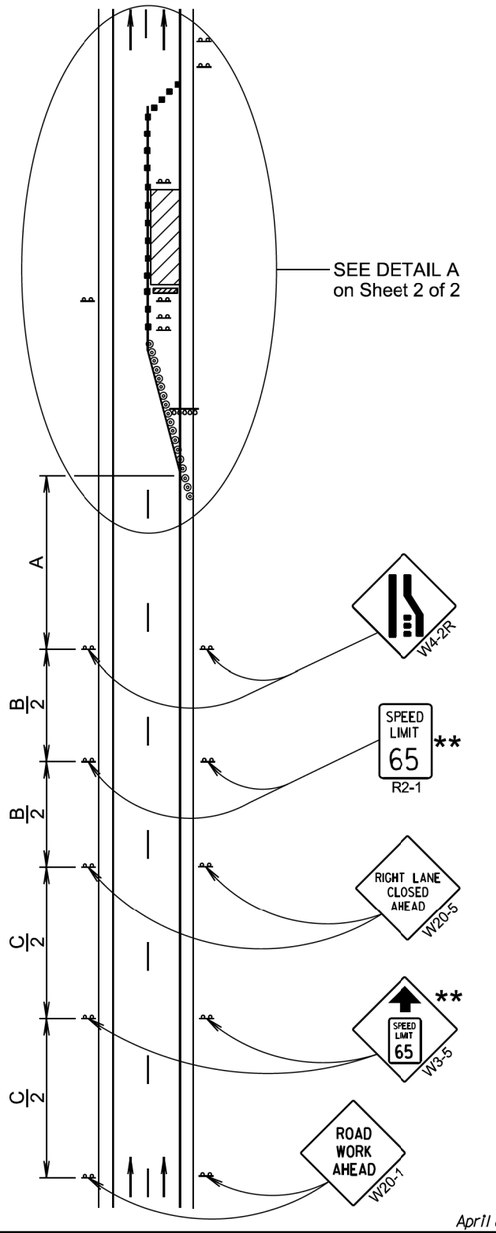
** Speed appropriate for location.

◎ Reflectorized Drum

▪ Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



April 8, 2025

Published Date: 2026	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
			Sheet 1 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 -30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs will be covered or removed when workers are not present.

◎ Reflectorized Drum

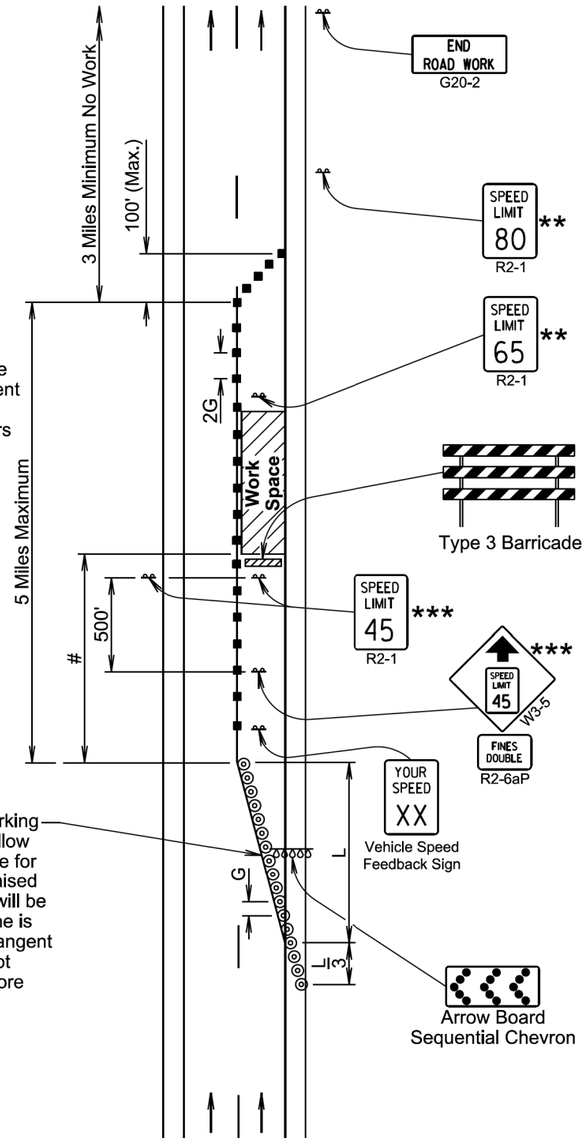
■ Channelizing Device

The Work Space will be a minimum of 500' from the end of the taper.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



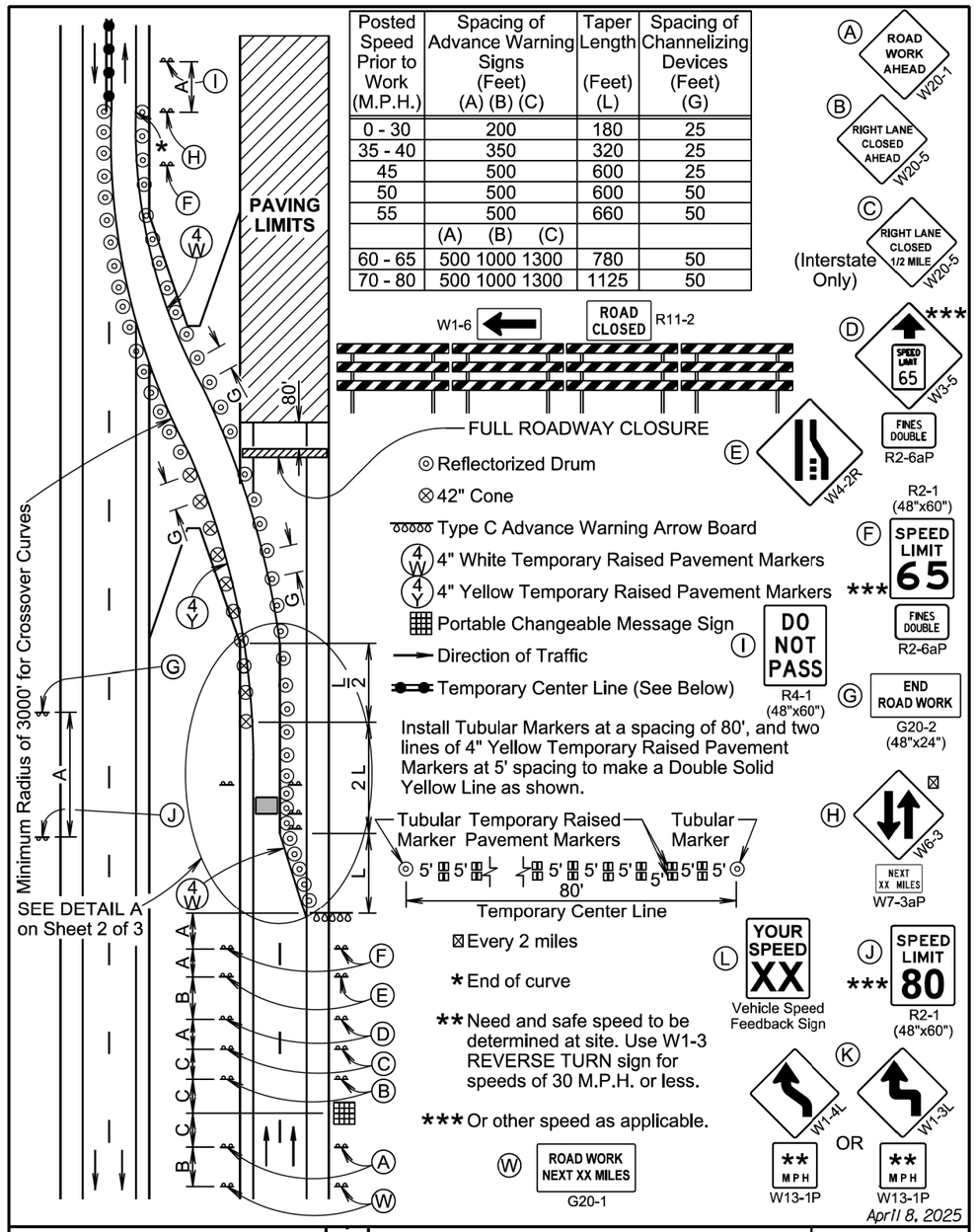
DETAIL A

April 8, 2025

Published Date: 2026	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
			Sheet 2 of 2

HRGreen

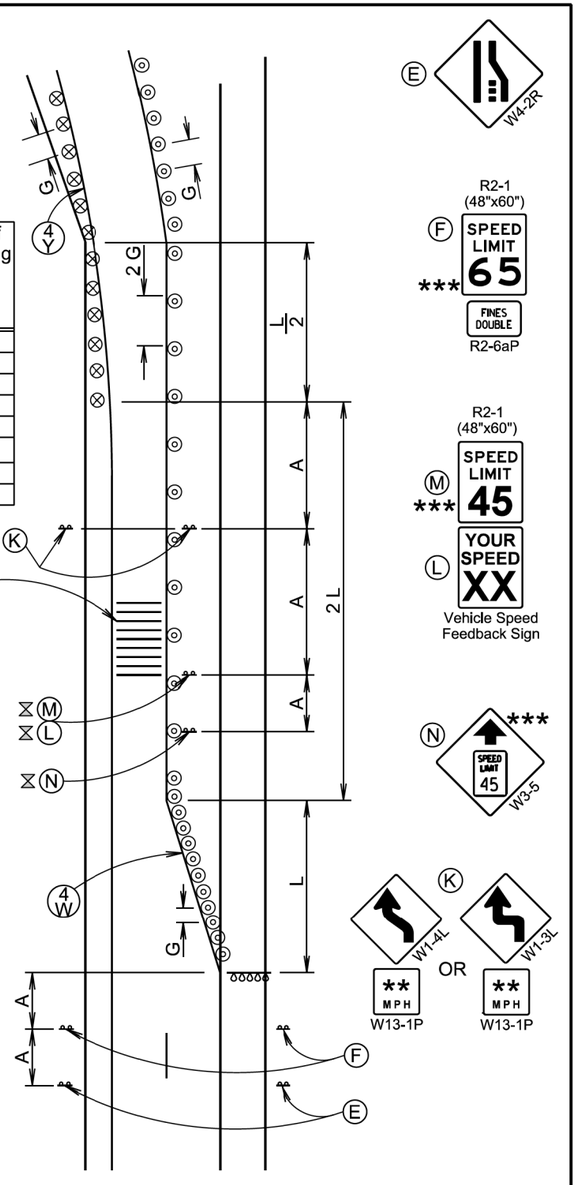
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	500	660	50
	(A) (B) (C)		
60 - 65	500 1000 1300	780	50
70 - 80	500 1000 1300	1125	50



April 8, 2025

Published Date: 2026	SDDOT	MEDIAN CROSSOVER ON DIVIDED HIGHWAY	PLATE NUMBER 634.66
			Sheet 1 of 3

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	500	660	50
	(A) (B) (C)		
60 - 65	500 1000 1300	780	50
70 - 80	500 1000 1300	1125	50



** Need and safe speed to be determined at site. Use W1-3 REVERSE TURN sign for speeds of 30 M.P.H. or less.

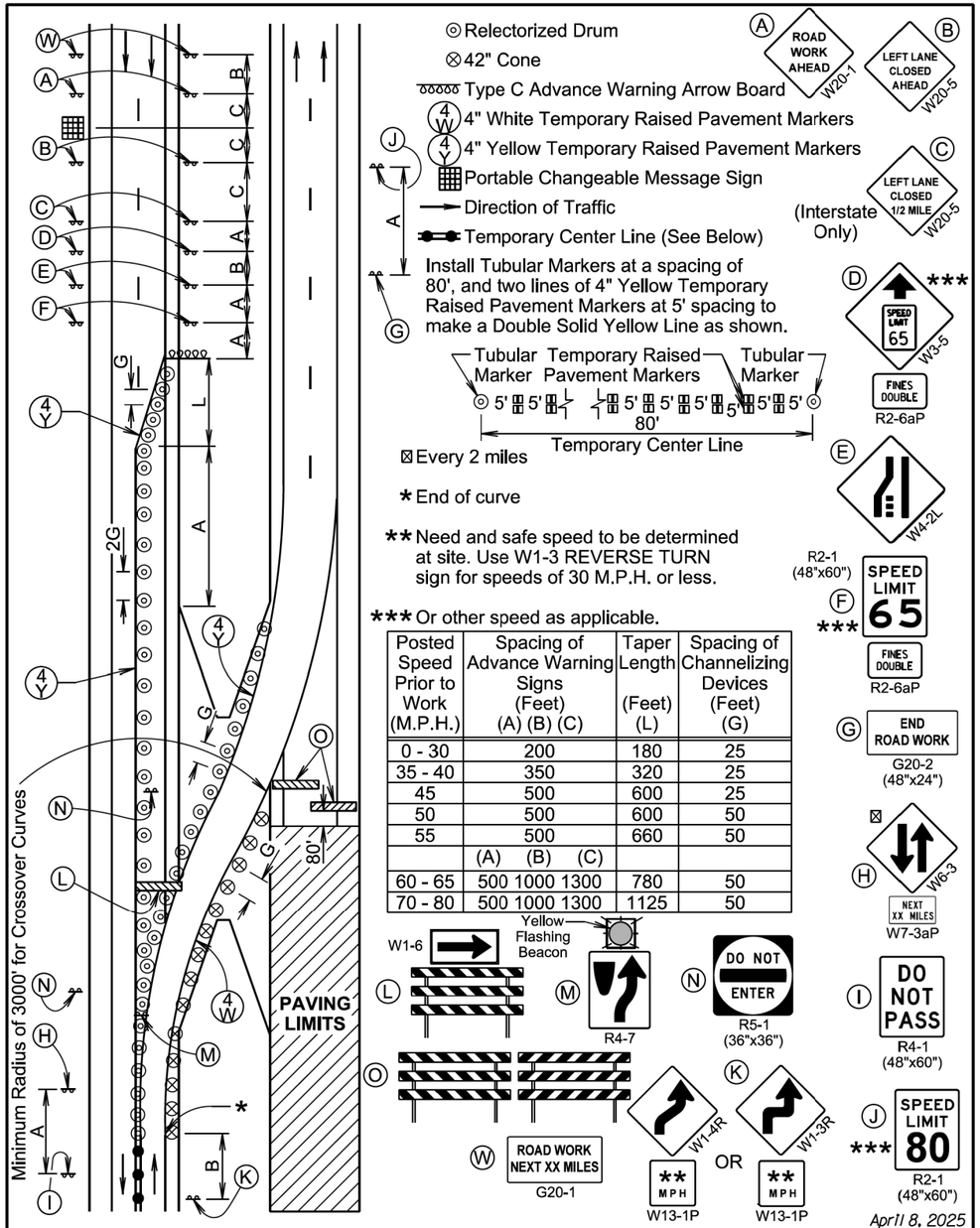
*** Or other speed as applicable.

⧖ Only to be used when paving immediately adjacent to crossover.

DETAIL A

April 8, 2025

Published Date: 2026	SDDOT	MEDIAN CROSSOVER ON DIVIDED HIGHWAY	PLATE NUMBER 634.66
			Sheet 2 of 3



⊙ Relectorized Drum

⊗ 42" Cone

Type C Advance Warning Arrow Board

4 W 4" White Temporary Raised Pavement Markers

4 Y 4" Yellow Temporary Raised Pavement Markers

Portable Changeable Message Sign

Direction of Traffic

Temporary Center Line (See Below)

Install Tubular Markers at a spacing of 80', and two lines of 4" Yellow Temporary Raised Pavement Markers at 5' spacing to make a Double Solid Yellow Line as shown.

⊠ Every 2 miles

* End of curve

** Need and safe speed to be determined at site. Use W1-3 REVERSE TURN sign for speeds of 30 M.P.H. or less.

*** Or other speed as applicable.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	500	660	50
	(A) (B) (C)		
60 - 65	500 1000 1300	780	50
70 - 80	500 1000 1300	1125	50

A ROAD WORK AHEAD W20-1

B LEFT LANE CLOSED AHEAD W20-5

C LEFT LANE CLOSED 1/2 MILE W20-5 (Interstate Only)

D *** SPEED LIMIT 65 W3-5; FINES DOUBLE R2-6aP

E W4-2L

F *** SPEED LIMIT 65 R2-1 (48"x60"); FINES DOUBLE R2-6aP

G END ROAD WORK G20-2 (48"x24")

H ⊠ W6-3; NEXT XX MILES W7-3aP

I DO NOT PASS R4-1 (48"x60")

J *** SPEED LIMIT 80 R2-1 (48"x60")

K W1-4R OR W1-3R; ** MPH W13-1P

L W1-6 Yellow Flashing Beacon

M R4-7

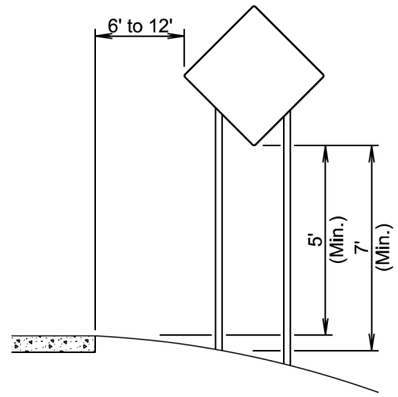
N DO NOT ENTER R5-1 (36"x36")

O

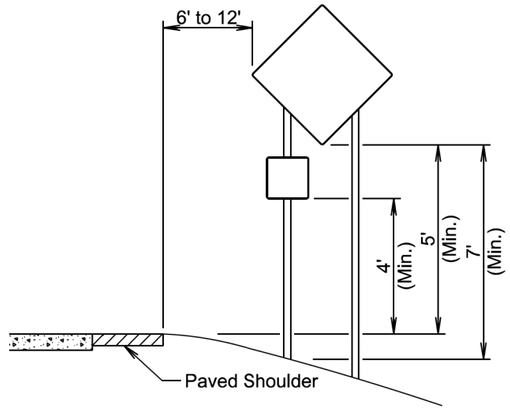
W ROAD WORK NEXT XX MILES G20-1

April 8, 2025

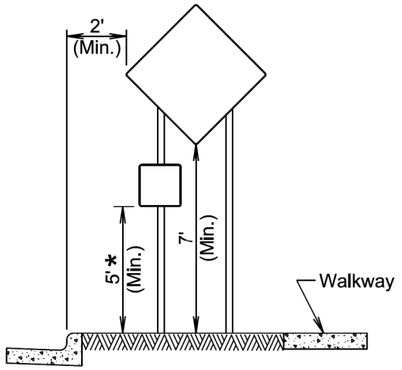
Published Date: 2026	SDDOT	MEDIAN CROSSOVER ON DIVIDED HIGHWAY	PLATE NUMBER 634.66
			Sheet 3 of 3



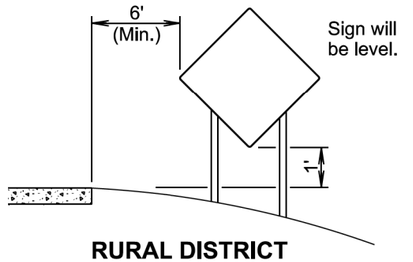
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

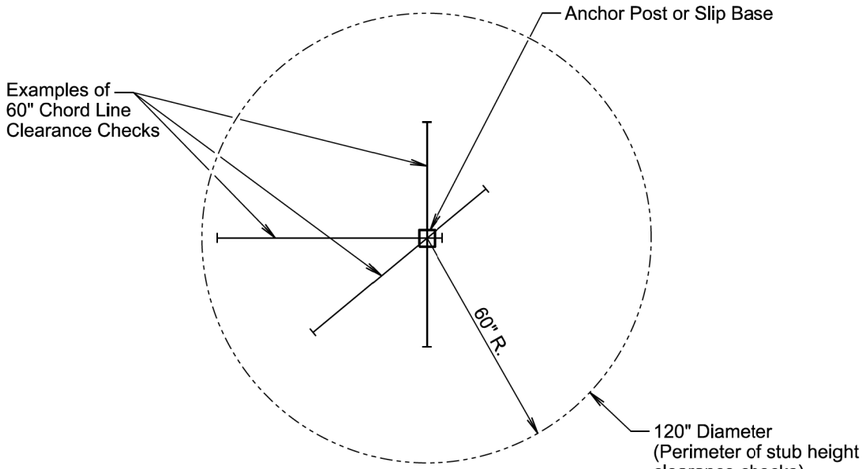


RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)

ELEVATION VIEW

GENERAL NOTES:

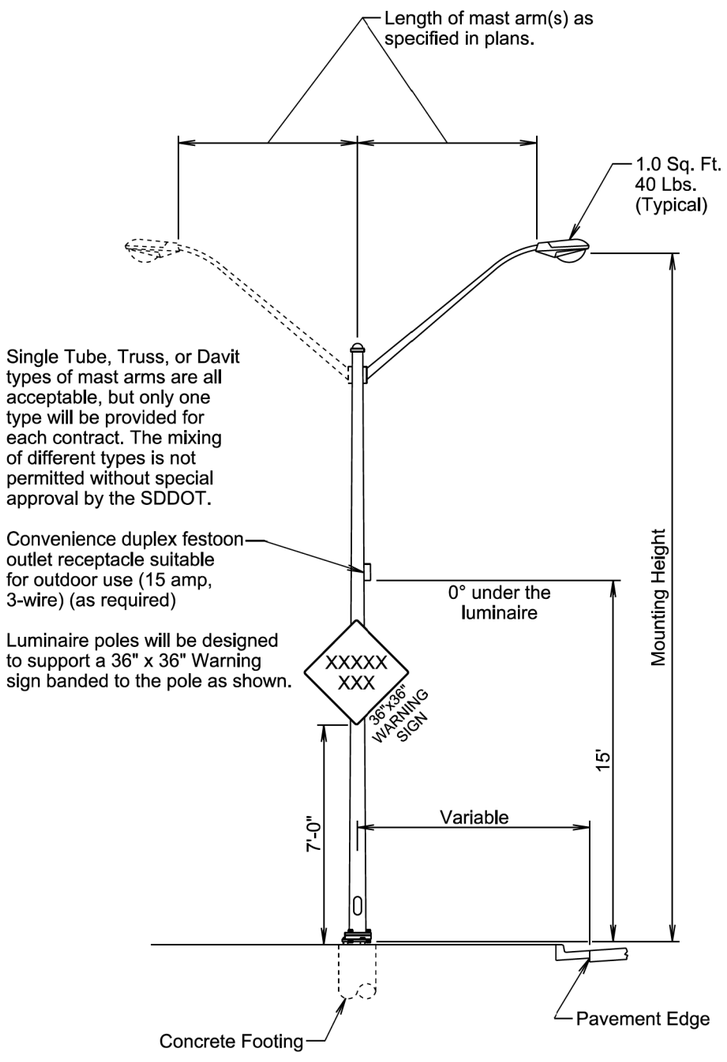
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

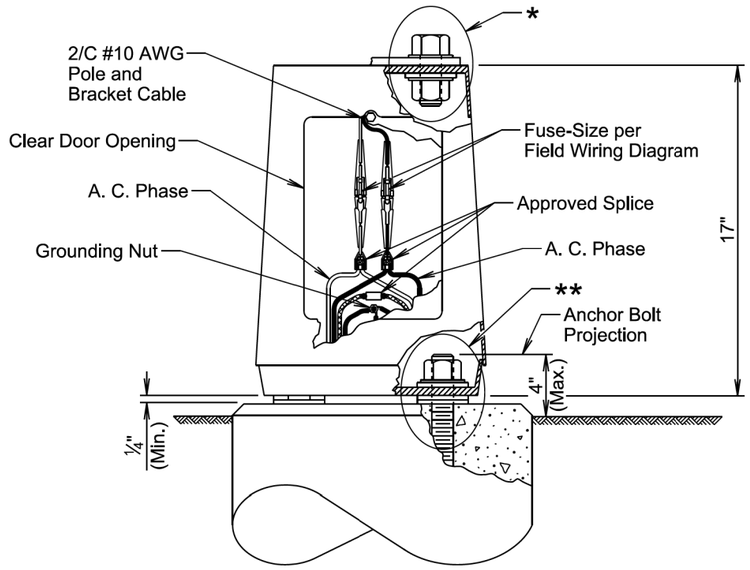
January 22, 2021

Published Date: 2026	SDDOT	*BREAKAWAY SUPPORT STUB CLEARANCE*	*PLATE NUMBER* 634.99 *Sheet 1 of 1*



November 19, 2022

Published Date: 2026	SDDOT	*STEEL ROADWAY LUMINAIRE POLE WITH MAST ARM(S)*	*PLATE NUMBER* 635.01 *Sheet 1 of 1*



GENERAL NOTES:

Base details are provided for example only and are not intended to be a complete design.

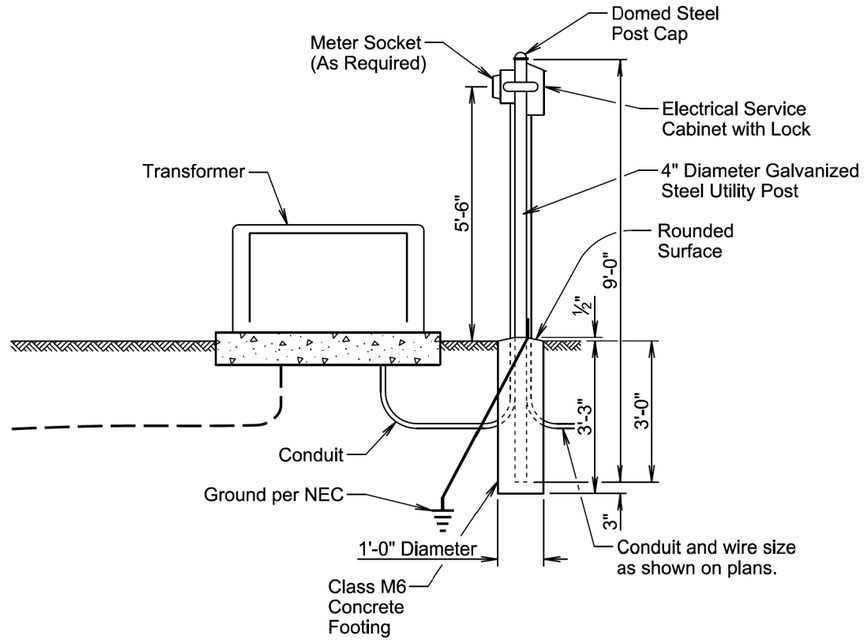
Fused connectors will be breakaway type.

* Hardware connecting the pole to the base will be installed in accordance with the manufacturer's recommendation.

** Hardware connecting the base to the footing will be installed in accordance with the manufacturer's recommendation. The Contractor will install leveling devices in accordance with the manufacturer's recommendation if shimming is necessary to install the light poles plumb and level. The washers and shims will be installed around the anchor bolts.

November 19, 2022

Published Date: 2026	SDDOT	ROADWAY LUMINAIRE POLE BREAKAWAY TRANSFORMER BASE	PLATE NUMBER 635.21 Sheet 1 of 1



ELEVATION VIEW

GENERAL NOTES:

The concrete for the post footing will be class M6 concrete.

The 4" diameter galvanized steel utility post will be 9' long and will be in conformance with AASHTO Standard Specifications M181. The post will be Type 1 and either Grade 1 or Grade 2. The domed steel post cap will be in conformance with AASHTO Standard Specifications M181 and will be Type 1.

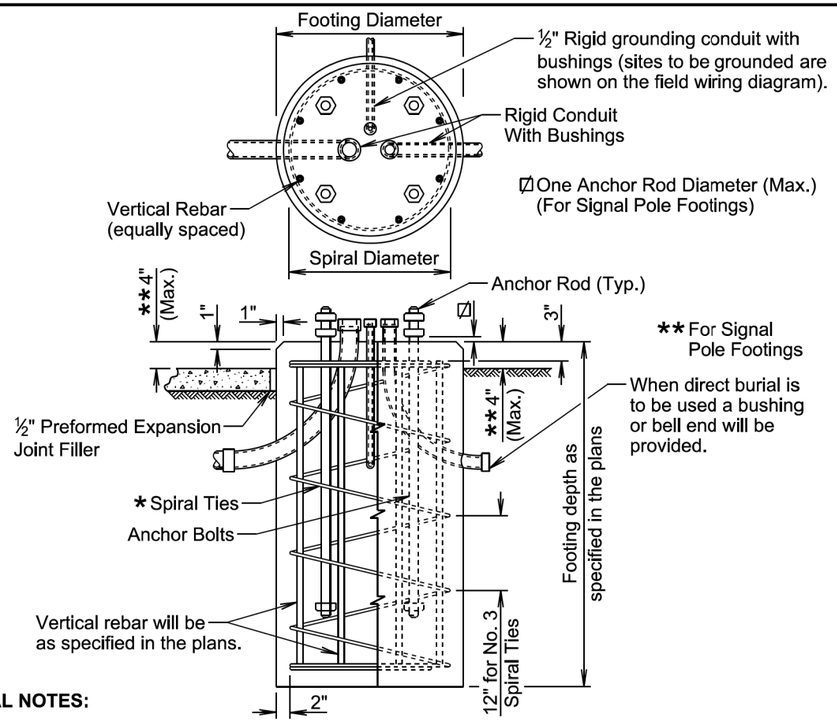
The Contractor will contact and coordinate his/her work with the Utility Companies regarding hookup requirements, fees, materials, and equipment necessary.

All costs for furnishing and installing all materials from the electrical service cabinet to the transformer including labor, equipment, hookup fees, all items within the cabinet, lockable enclosure with receptacle outlet, lock and keys, post, concrete footing, post cap, meter socket if required, conduit, and incidentals will be incidental to the contract unit price per each for "Electrical Service Cabinet".

March 31, 2024

Published Date: 2026	SDDOT	SERVICE FROM PAD MOUNTED TRANSFORMER WITH METER ON A GALVANIZED STEEL UTILITY POST	PLATE NUMBER 635.41 Sheet 1 of 1

HRGreen



GENERAL NOTES:

* Circular ties may be used in lieu of the spiral ties. The No. 3 ties will be spaced 12 inches apart except for the top two which will be spaced 6 inches apart. The ties will be lapped 18 inches and the laps will be staggered around the cage.

Spiral ties will have 1-1/2 extra turns at each end.

See Section 985 of the Specifications for footing materials.

Conduits and bushings may project 2½ inches to 6 inches above footing for fixed base poles but will not project above the slip plane or fracture plane for breakaway poles.

Conduits will be sealed water-tight during all phases of construction until poles are in place.

The anchor rods will fit inside the reinforcing steel cage. If the anchor rods designed by the Pole Manufacturer do not fit, contact the Office of Bridge Design for footing redesign. No additional payment will be made for the redesigned footing.

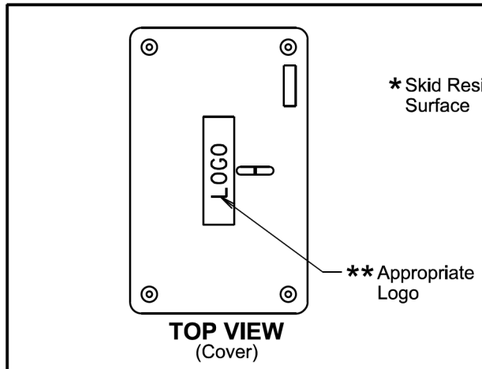
Costs of conduit and conduit bushings shown on footing detail will be incidental to the footing bid item(s).

The pole will not be installed until the concrete has attained design strength (4000 psi).

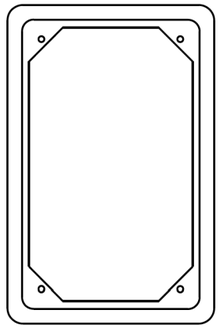
The contour of the area surrounding the breakaway pole will be flat, though not necessarily level for a distance of 5 feet in all directions. The Contractor may be required to provide finish grading at some breakaway pole locations.

November 19, 2022

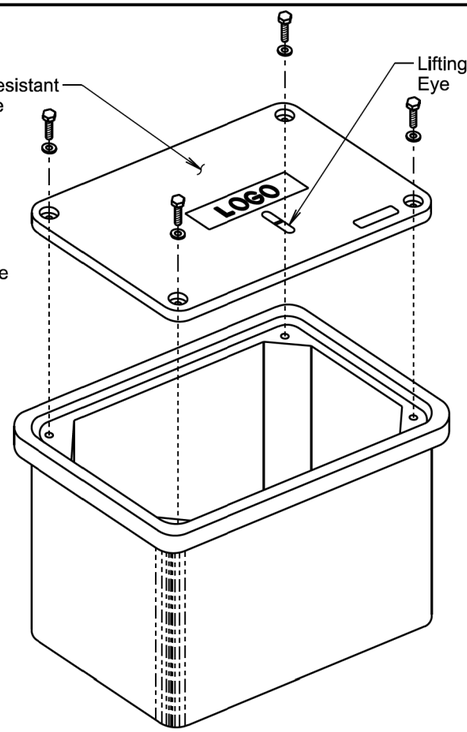
Published Date: 2026	SDDOT	POLE FOOTING	PLATE NUMBER 635.55
			Sheet 1 of 1



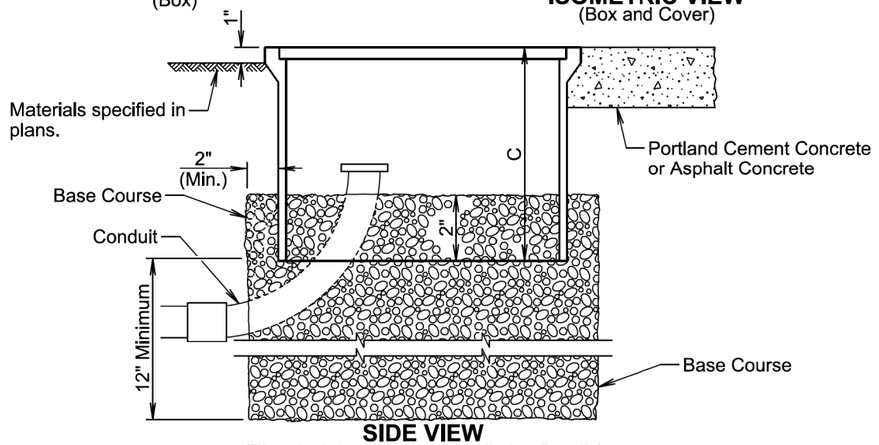
TOP VIEW
(Cover)



TOP VIEW
(Box)



ISOMETRIC VIEW
(Box and Cover)



SIDE VIEW
(Electrical Junction Box Installation Details)
(Buried No. 4 steel reinforcing bar not shown.)

November 19, 2020

Published Date: 2026	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 1 of 2

HRGreen

ELECTRICAL JUNCTION BOX			
TYPE	DESCRIPTION	APPROXIMATE COVER SIZE	MINIMUM DEPTH (C)
1	Open Bottom with Gasket	11"x18"	18"
2	Open Bottom with Gasket	13"x24"	18"
3	Open Bottom with Gasket	17"x30"	18"
3A	Open Bottom with Gasket	24"x36"***	24"
4	Open Bottom with Gasket	30"x48"***	24"

GENERAL NOTES:

The cover will be gasketed with a minimum of two stainless steel bolts and washers.

The cover will have a lifting eye.

* The surface of the cover will have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F609.

** The cover of the junction box will have the appropriate logo in one inch size letters and will be recessed. When the junction box contains cables or wires for a traffic signal then the logo will be "Signal". When the junction box contains lighting conductors then the logo will be "Lighting".

*** Two piece covers will be used for Type 3A and Type 4 junction boxes.

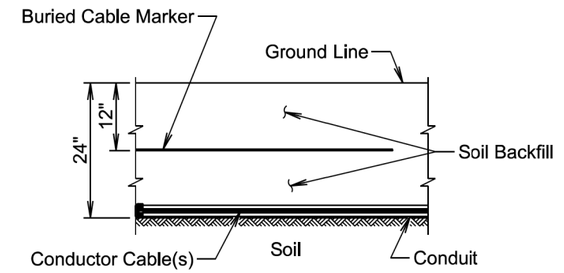
The electrical junction boxes will comply with the American National Standards Institute (ANSI)/Society of Cable Telecommunications Engineers (SCTE) 77 2007 Specification for Underground Enclosure Integrity. The loading requirement for all electrical junction boxes and covers will be Tier 22 of ANSI/SCTE 77 2007.

The electrical junction boxes will be UL listed.

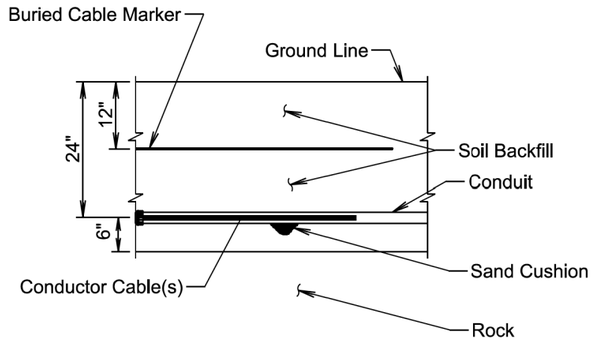
For junction boxes located outside of pavement, a No. 4 steel reinforcing bar with a minimum length of 18" will be buried adjacent to the long side of the junction box. All costs associated with furnishing and placing the steel reinforcing bar will be incidental to the contract unit price per each for "Type _ Electrical Junction Box".

November 19, 2020

Published Date: 2026	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 2 of 2



SECTION VIEW



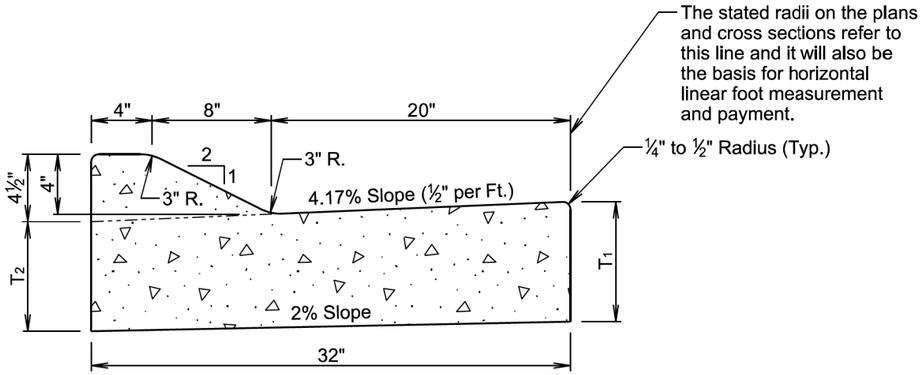
SECTION VIEW

GENERAL NOTE:

The Buried Cable Marker will be plastic, approximately 6" wide, and will be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker will have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below will be printed in a contrasting color on the cable marker. The Buried Cable Marker will be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker will be incidental to the contract unit price per foot for the bid item used for the electrical conductor.

November 19, 2022

Published Date: 2026	SDDOT	CONDUIT INSTALLATION	PLATE NUMBER 635.76
			Sheet 1 of 1



TYPE D CONCRETE CURB AND GUTTER				
Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
D46	6	5 5/16	0.056	18.0
D47	7	6 5/16	0.064	15.7
D48	8	7 5/16	0.072	13.9
D48.5	8.5	7 13/16	0.076	13.1
D49	9	8 5/16	0.080	12.5
D49.5	9.5	8 13/16	0.084	11.9
D410	10	9 5/16	0.088	11.3
D410.5	10.5	9 13/16	0.093	10.8
D411	11	10 5/16	0.097	10.3
D411.5	11.5	10 13/16	0.101	9.9
D412	12	11 5/16	0.105	9.5

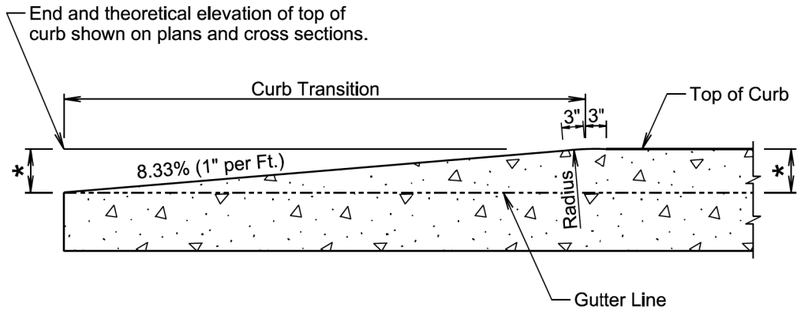
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

Published Date: 2026	SDDOT	TYPE D CONCRETE CURB AND GUTTER	PLATE NUMBER 650.15
			Sheet 1 of 1



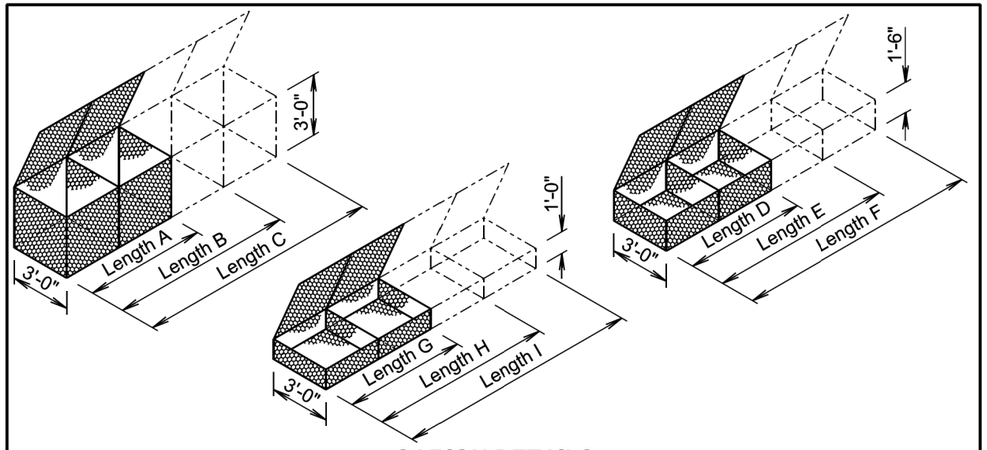
* Height of Curb

LONGITUDINAL SECTION
(Concrete Curb Taper)

December 23, 2019

Published Date: 2026	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

HRGreen



GABION DETAILS

STANDARD SIZES					
SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY (Cu. Yd.)
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

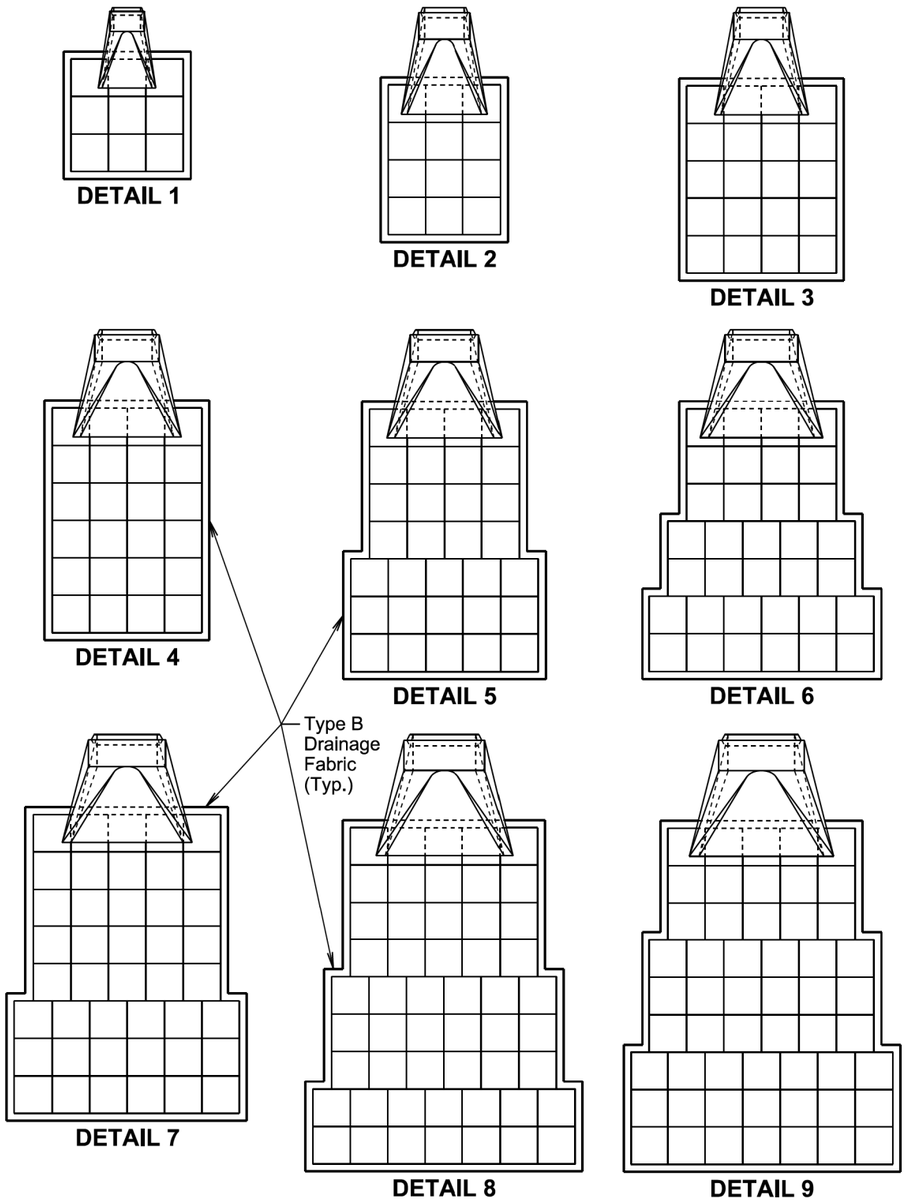
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92, Class 3 coating. Fasteners will also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 2

	* ESTIMATED QUANTITIES			
	Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
RCP, RCP Arch, CMP, and CMP Arch	1	12, 18, and 24	4.5	15
	2	30 and 36	6.0	19
	3	42	10.0	29
	4	48 and 54	12.0	34
	5	60	15.5	43
	6	66	17.0	47
	7	72	21.5	57
	8	78	26.0	68
	9	84	27.0	70

GENERAL NOTES:

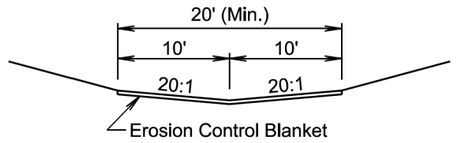
Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

* Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

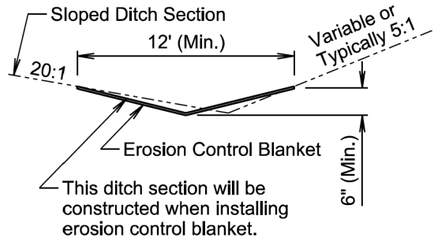
Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

February 14, 2020

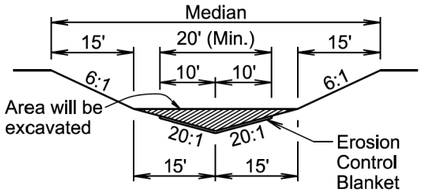
Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03	Sheet 2 of 2



STANDARD DITCH SECTION

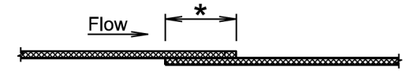


SLOPED DITCH SECTION



The median will be shaped to the limits shown in this detail where the erosion control blanket will be placed.

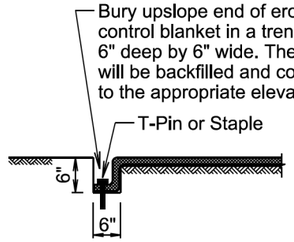
MEDIAN SECTION



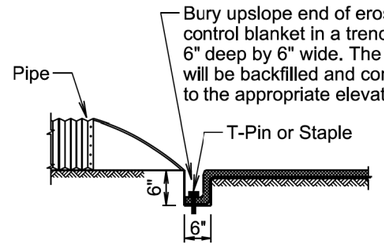
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

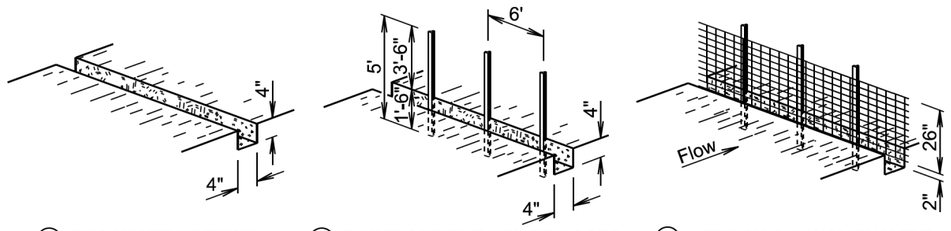
After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

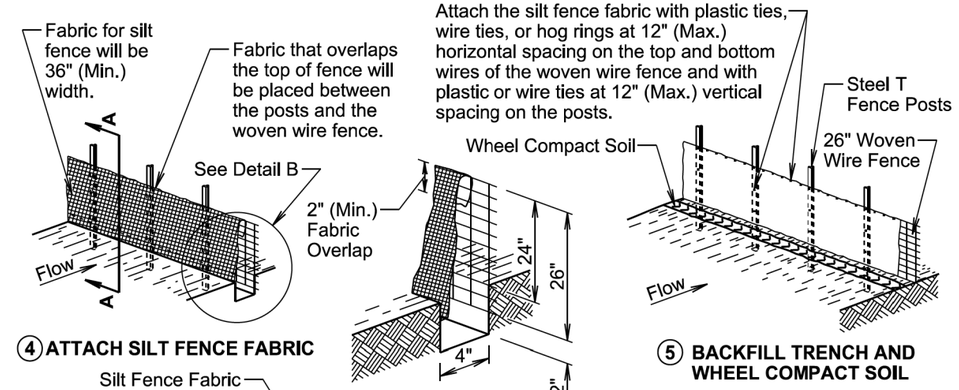
February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01	Sheet 1 of 1

MANUAL LOW FLOW SILT FENCE INSTALLATION

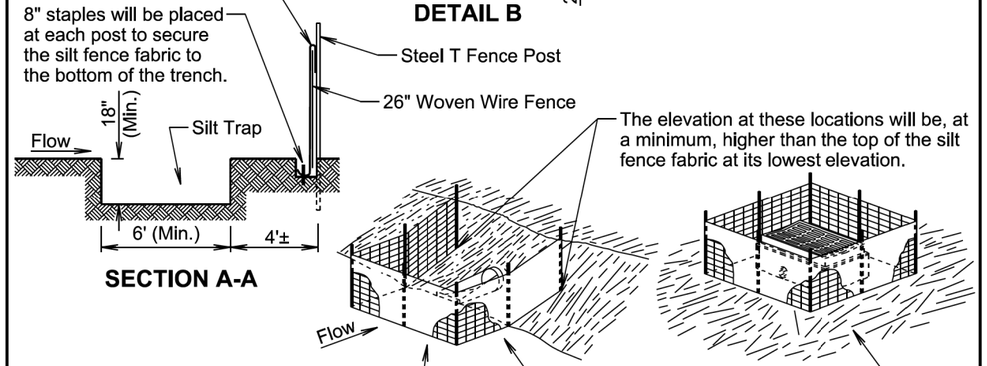


① EXCAVATE TRENCH ② DRIVE STEEL T FENCE POSTS ③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



④ ATTACH SILT FENCE FABRIC ⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL

DETAIL B

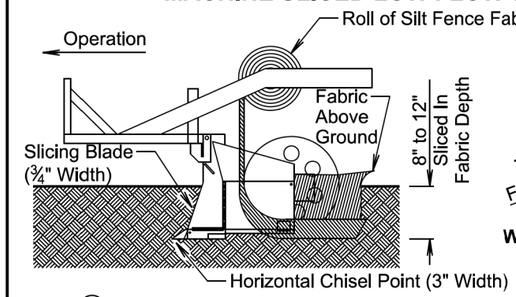


SECTION A-A

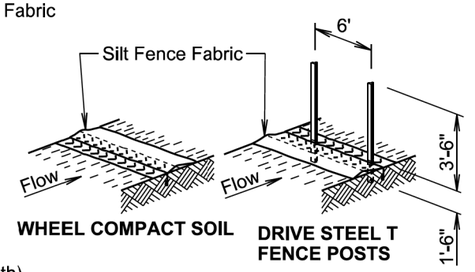
February 14, 2020

Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04	Sheet 1 of 2

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

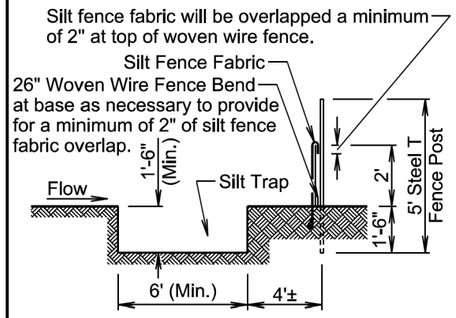


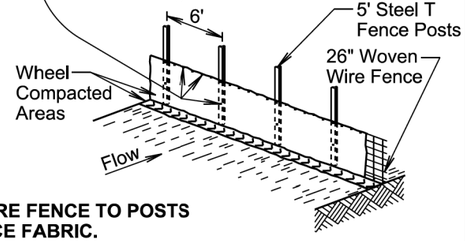
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



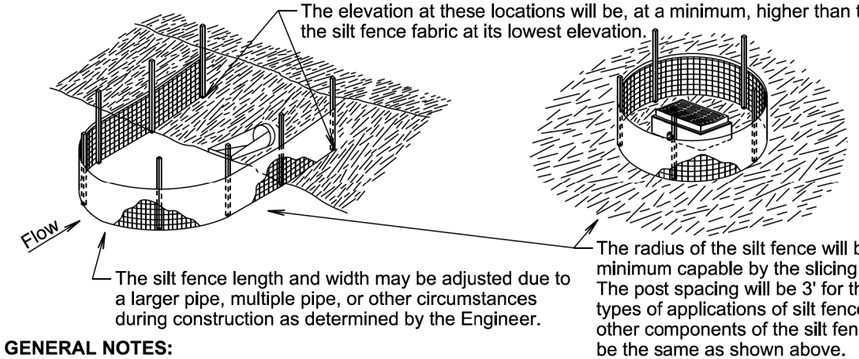
WHEEL COMPACT SOIL DRIVE STEEL T FENCE POSTS

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.





③ ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



GENERAL NOTES:

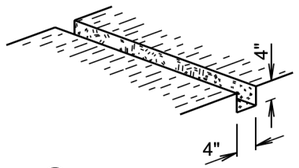
A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

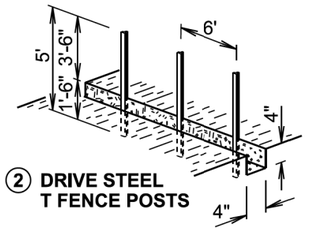
February 14, 2020

Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04	Sheet 2 of 2

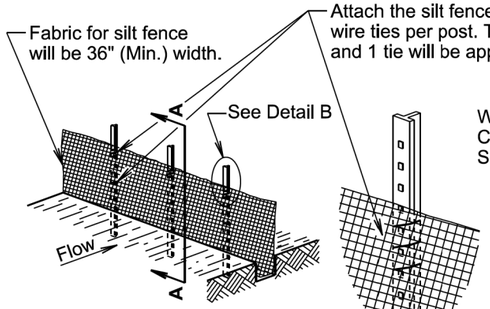
MANUAL HIGH FLOW SILT FENCE INSTALLATION



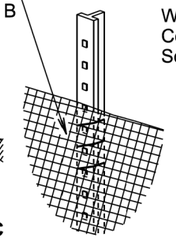
① EXCAVATE TRENCH



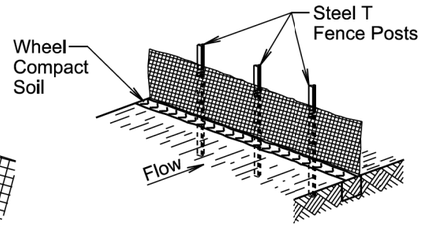
② DRIVE STEEL T FENCE POSTS



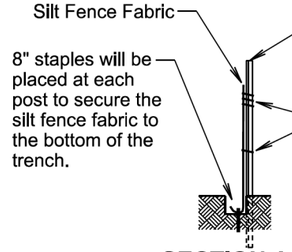
③ ATTACH SILT FENCE FABRIC



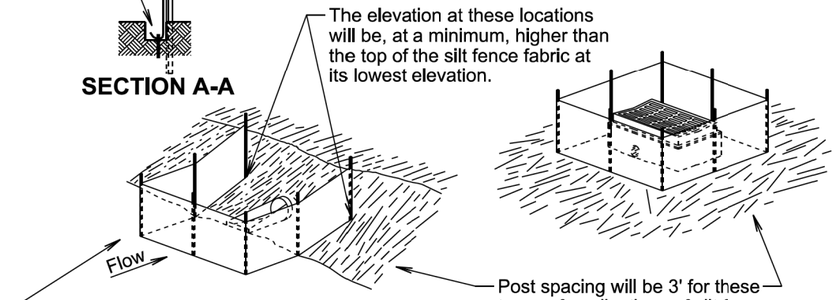
DETAIL B



④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A



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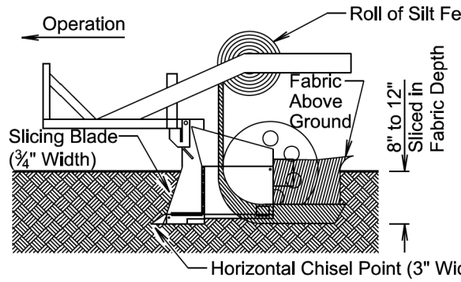
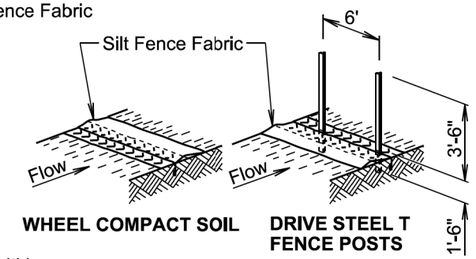
Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05	Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

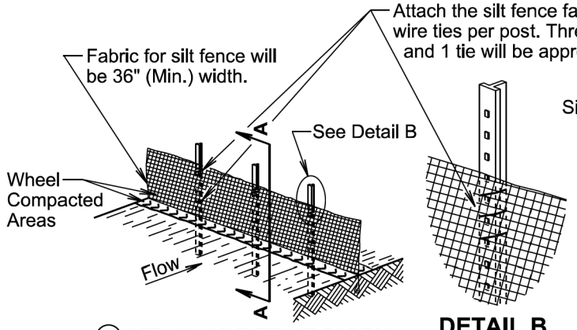


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



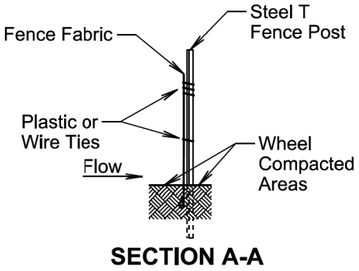
WHEEL COMPACT SOIL — DRIVE STEEL T FENCE POSTS

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

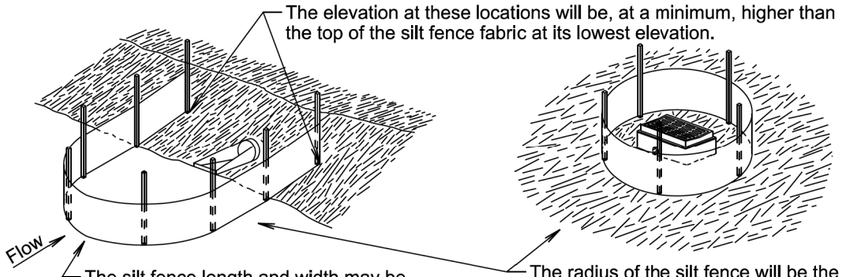


③ ATTACH SILT FENCE FABRIC

DETAIL B



SECTION A-A



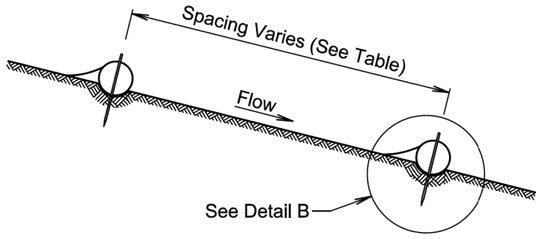
GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

February 14, 2020

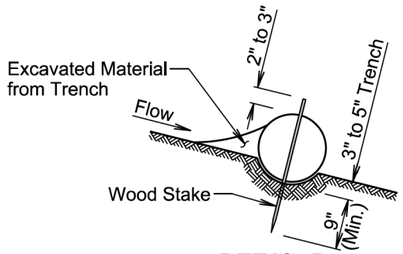
Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05	Sheet 2 of 2

HRGreen

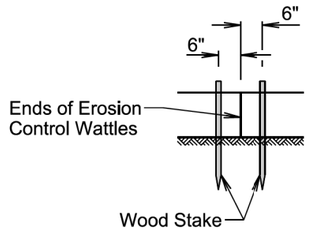


ELEVATION VIEW
(Cut or Fill Slope Installation)

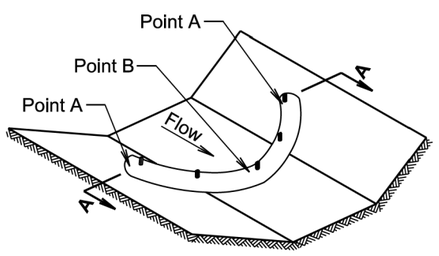
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



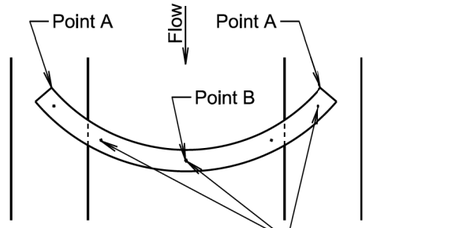
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

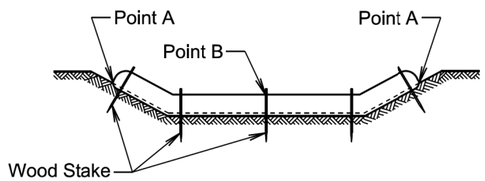


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

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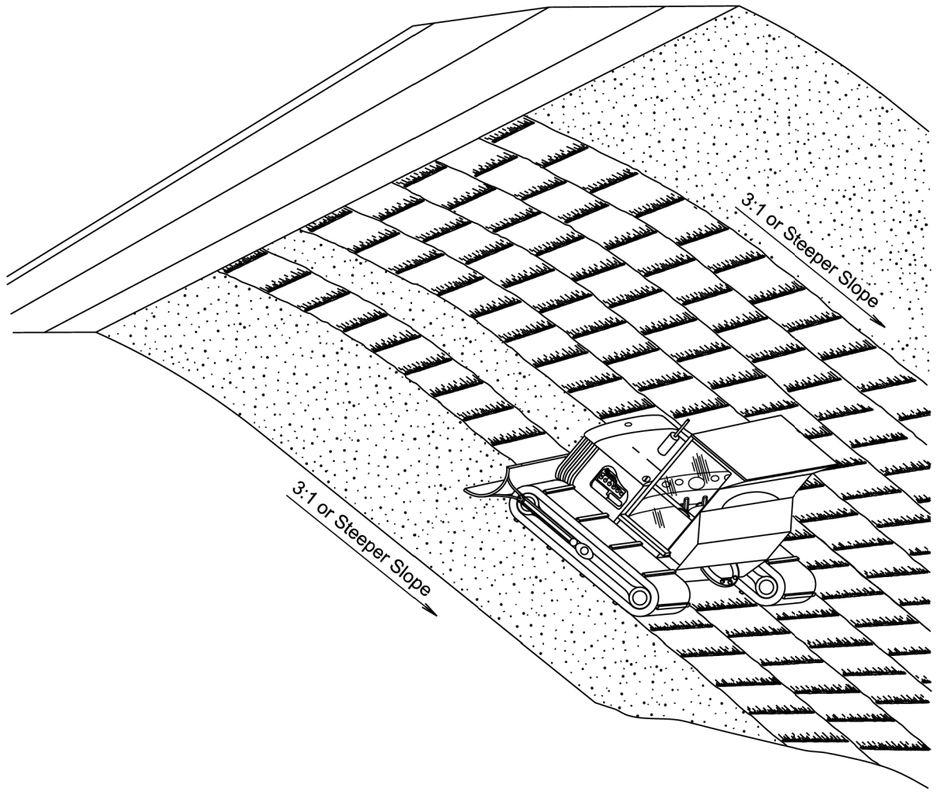


GENERAL NOTES:

Where practical, surface roughening will be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

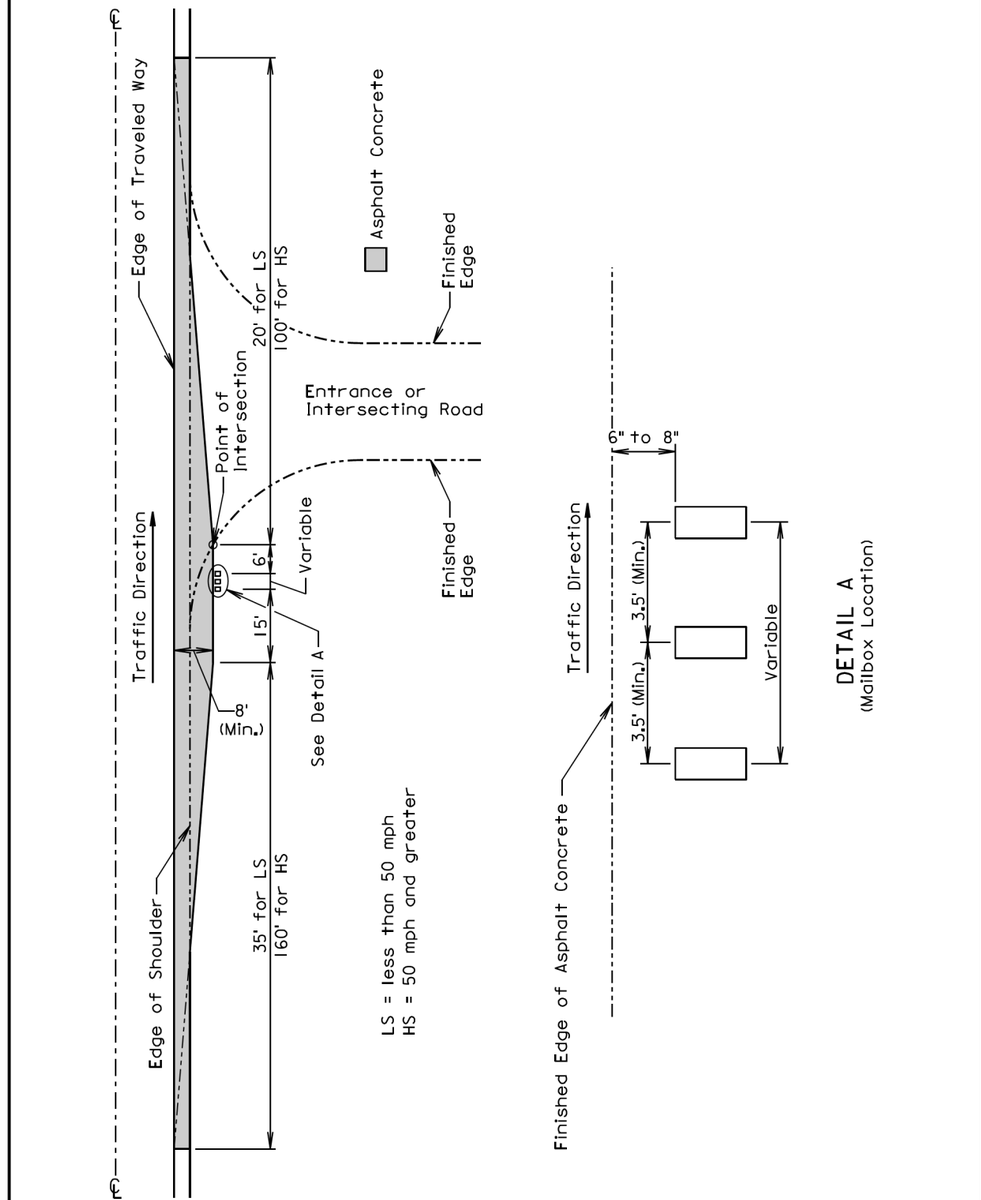
The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.

Measurement for surface roughening will be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials will be incidental to the contract unit price per acre for "Surface Roughening".

February 14, 2020

Published Date: 2026	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25 Sheet 1 of 1



September 6, 2015

Published Date: 2026	SDDOT	MAILBOX TURNOUT	PLATE NUMBER 900.01 Sheet 1 of 1

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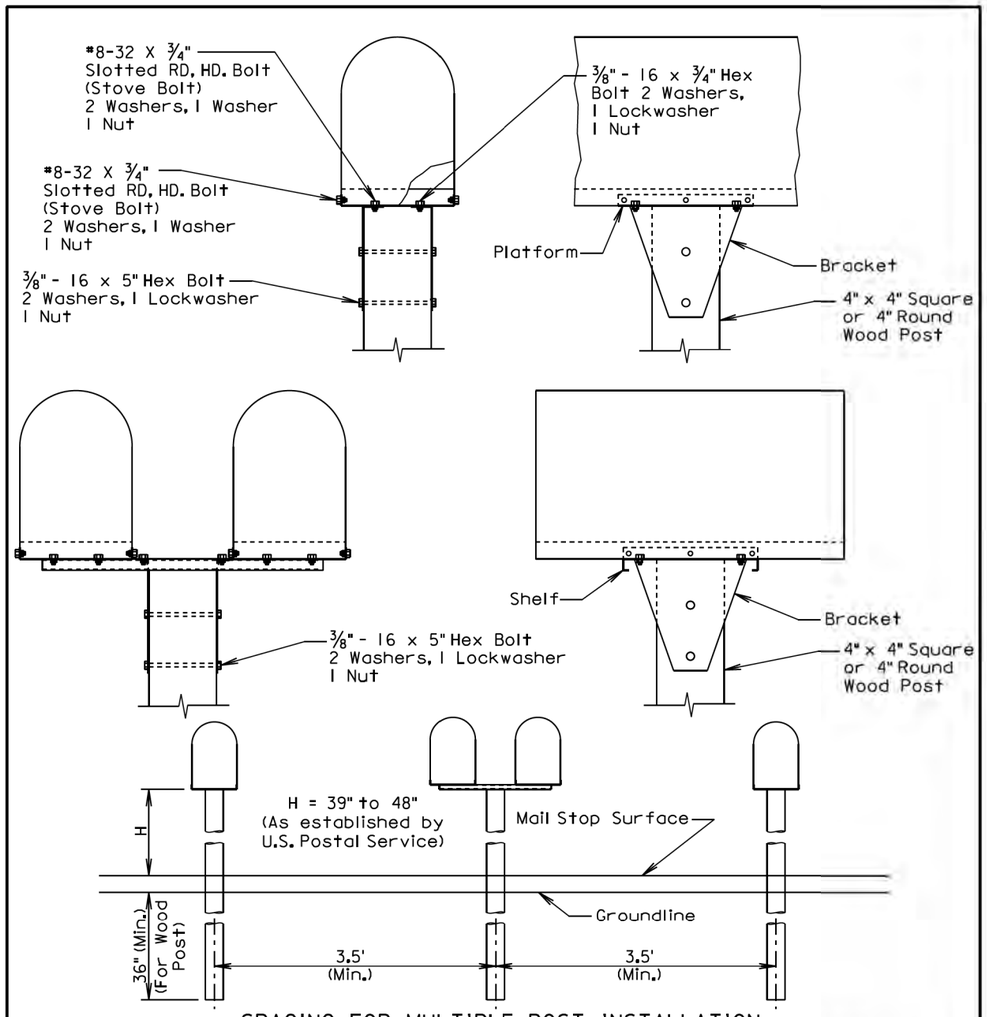


SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

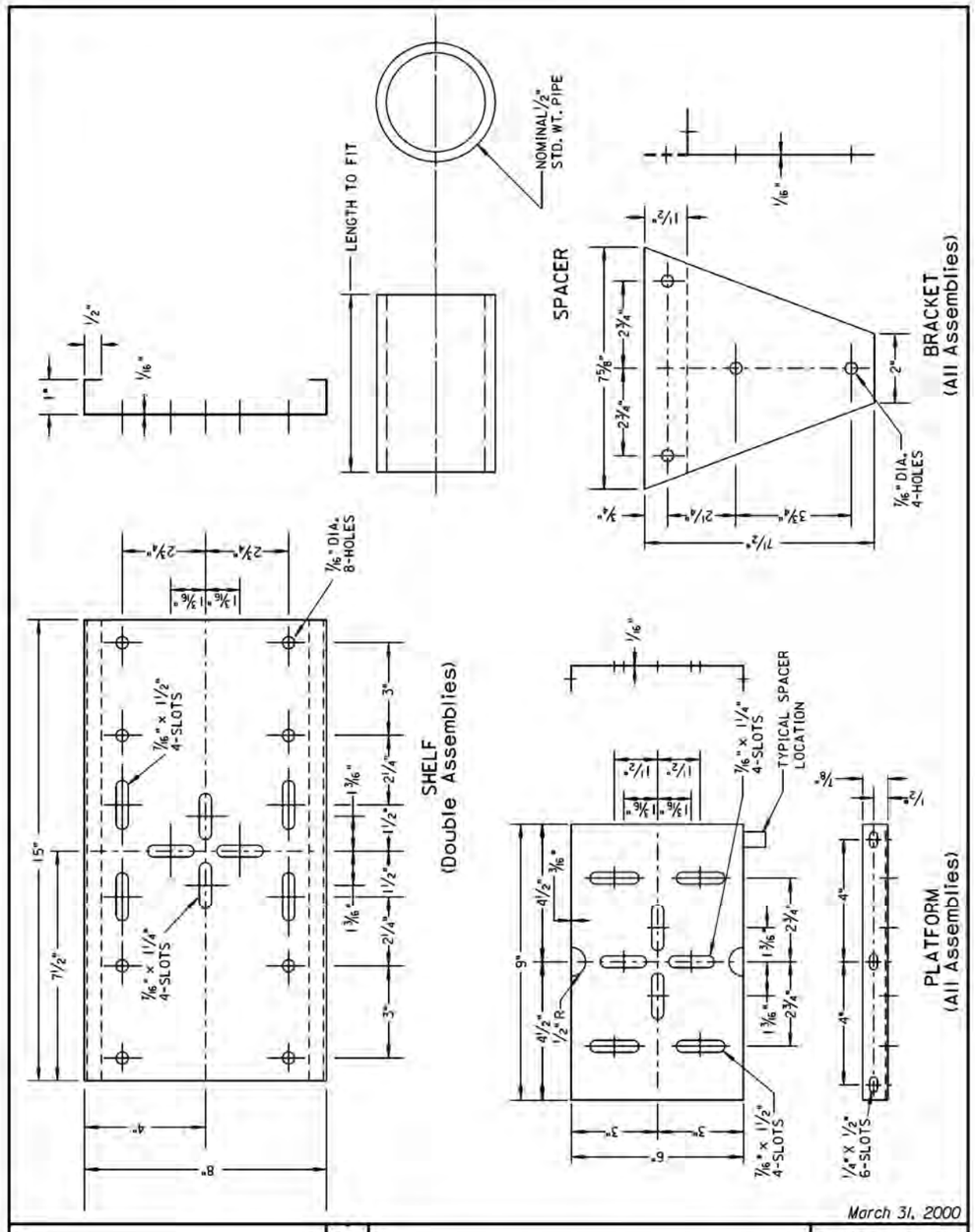
The post support assemblies provided should be consistant throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 2026	SDDOT	***SINGLE AND DOUBLE MAILBOX ASSEMBLIES***	*PLATE NUMBER* 900.02 *Sheet 1 of 1*



March 31, 2000

Published Date: 2026	SDDOT	***MAILBOX SUPPORT HARDWARE***	*PLATE NUMBER* 900.03 *Sheet 1 of 1*

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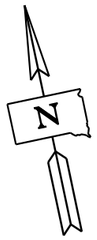
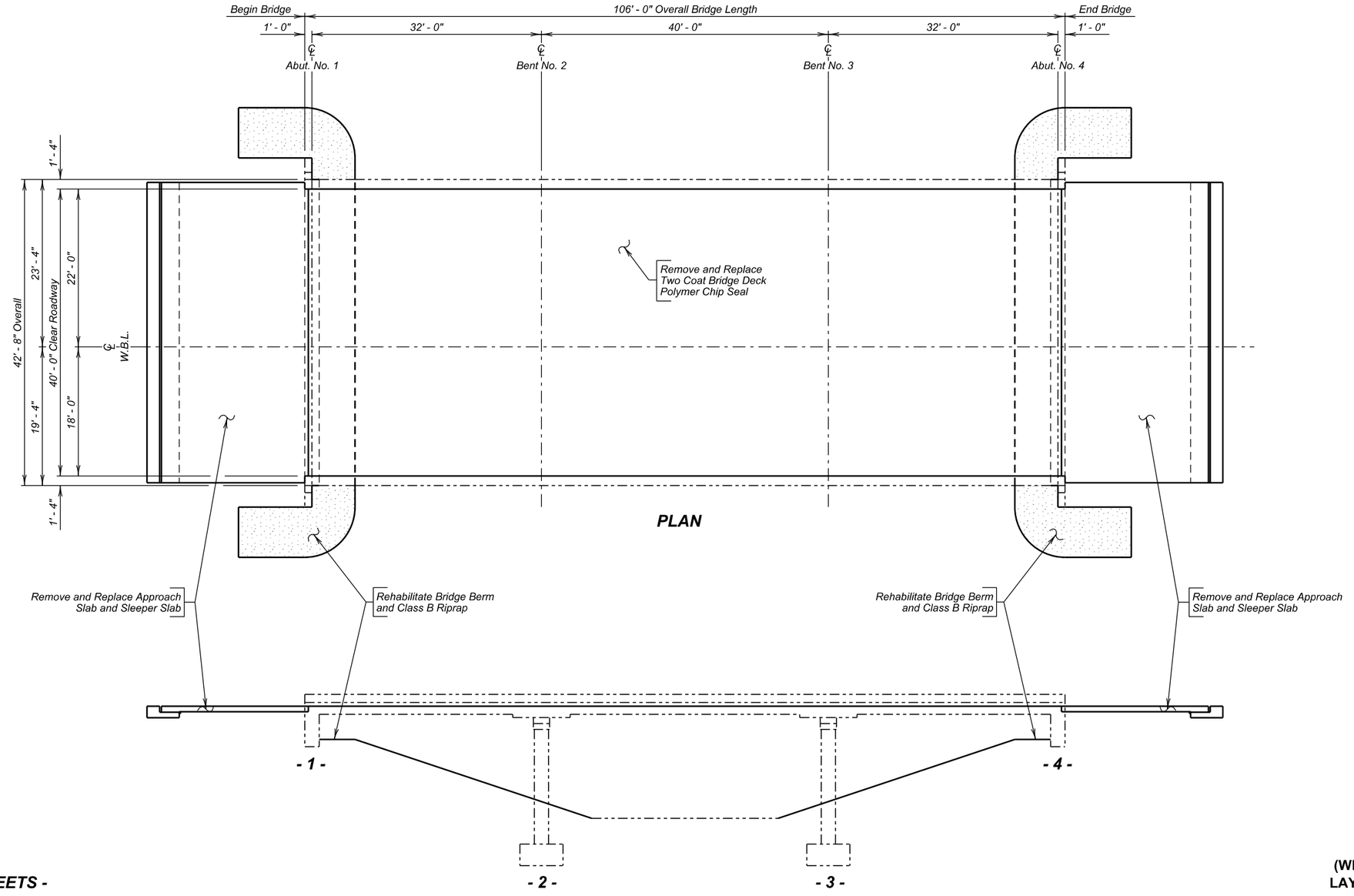
FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	122	170





-X020-

INDEX OF BRIDGE SHEETS -

Sheet No. 1 - Layout for Upgrade
Sheet No. 2 - Estimate of Structure Quantities and Notes
Sheet No. 3 - Notes (Continued)
Sheet No. 4 - Notes (Continued)
Sheet No. 5 - Berm Repair Details
Sheet No. 6 - Approach Slab Details (A)
Sheet No. 7 - Approach Slab Details (B)
Sheet No. 8 - Approach Slab Details (C)
Sheet No. 9 - Approach Slab Joint Details
Sheet No. 10 - Two Coat Bridge Deck Polymer Chip Seal Layout
Sheet No. 11 - As-Built Elevation Survey Request
Sheet No. 12 thru 16 - Original Construction Plans

(WEST BOUND LANES)
LAYOUT FOR UPGRADE
FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388
PCN 06PR

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA01		

Revised 12/18/2025 T.J.M.

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0010	Remove Concrete Bridge Approach Slab	232.5	SqYd
120E3120	Bridge Berm Repair	2	Each
120E7000	Select Granular Backfill	17.9	Ton
260E1010	Base Course	28.7	Ton
410E2600	Membrane Sealant Expansion Joint	83.8	Ft
460E0150	Concrete Approach Slab for Bridge	190.6	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	41.8	SqYd
491E0005	Two Coat Bridge Deck Polymer Chip Seal	466.7	SqYd
491E0110	Abrasive Blasting of Bridge Deck	466.7	SqYd
491E0120	Bridge Deck Grinding	466.7	SqYd
491E0130	Concrete Removal, Class A	4.0	SqYd
491E0140	Concrete Removal, Class B	4.0	SqYd
491E0172	Concrete Patching Material, Bridge Deck	40.6	CuFt
700E0210	Class B Riprap	223.8	Ton
831E0110	Type B Drainage Fabric	294	SqYd
831E1030	Perforated Geocell	427	SqFt

SPECIFICATIONS

Construction Specifications: Standard Specifications for Roads and Bridges, 10-1-25 Version; Required Provisions; and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges is available for download and viewing at https://dot.sd.gov/doing-business/contractors/standard-specifications.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown elsewhere in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer a minimum of two weeks prior to the preconstruction meeting.

1. Repair Bridge Berm and inslopes at the abutments.
2. Place Type B drainage fabric and Class B Riprap.
3. Place Perforated Geocell filled with Select Granular Backfill on the berm top.
4. Remove the existing approach and sleeper slabs.
5. Place base course material to the correct grade.
6. Replace approach slabs and sleeper slabs to the correct grade.
7. Replace sleeper slab joints with Membrane Sealant Expansion Joint.
8. Perform Bridge Deck Grinding.
9. Where necessary, repair the bridge deck by removing and patching all loose and delaminated concrete from the bridge deck surface.
10. Clean the bridge deck surface with abrasive blasting.
11. Place the Two Coat Bridge Deck Polymer Chip Seal.

GENERAL CONSTRUCTION – BRIDGE

1. All mild reinforcing steel will conform to ASTM A615, Grade 60.
2. All exposed concrete corners and edges will be chamfered ¾-inch unless noted otherwise in the plans. Match existing chamfer if the existing chamfer differs.
3. Use 2-inch clear cover on all reinforcing steel except as shown otherwise.
4. Request 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.
5. All lap splices are contact lap splices unless noted otherwise.

BRIDGE BERM REPAIR

1. The bridge berms have significant material loss due to a flood event and will need rebuilt and shaped to their original template with Class B Riprap incorporated into the berm slope.
2. The bridge berms have significant material loss due to a flood event and will need rebuilt and shaped as shown in the plans and Class B Riprap placed on the berm slope.
3. Due to material loss at the site, borrow is to be provided to rebuild the berm and fill any erosion features on the berm slope. Reconstruct the berms to at least 1-foot above the bottom of the abutment backwall. The berm slope will be benched into stable embankment during reshaping and reconstruction. The soil will be placed in horizontal lifts perpendicular to the centerline of the abutment. For informational purposes the estimated borrow material required is 21 cubic yards.
4. Shape the fill in front of the wing walls to divert runoff from the inslopes away from the face of the berm slope. Reshape the inslopes near the wing walls to approximately 20 feet out from the bridge.
5. At the upper part of the berm slope, clearance between the structure and berm will prohibit the use of large compaction equipment. The soil in this area will be compacted using hand operated compaction equipment. Berm material will be placed in reduced lift thicknesses with adequate moisture to obtain density requirements.
6. Soil used to reconstruct the berm slope will be furnished by the Contractor and approved by the Engineer. The soil will have 100% passing the 1 ½ inch sieve, a maximum of 70% passing the #4 sieve, have a maximum Liquid Limit (LL) of 45 and a Plastic Index (PI) greater than 10 but less than 25. The Contractor will be responsible for one gradation, LL and PI test for each borrow source for berm reconstruction. The test results will be supplied to the Engineer in writing.
7. Compaction of the reconstructed berm and inslopes will be governed by the Ordinary Compaction Method.
8. Quantities provided are an estimate for this work. It is the responsibility of the Contractor to visit the site prior to starting construction to determine quantities needed.
9. The cost of the berm reconstruction will be incidental to the contract unit price per each for Bridge Berm Repair. This payment will be full compensation for furnishing all materials, labor, tools, and equipment necessary or incidental to the reconstruction of the bridge berm.

RIPRAP

1. The cross section shown in this plan set is provided as a guide for riprap placement and is based on the existing ground locations at the time of inspection. The location of the toe of the riprap may vary to suit local site conditions provided the following items are adhered to:
   a. The opening provided under the structure for water flow is not reduced from what is shown on the cross section.
   b. Any changes in the riprap configuration are approved by the Engineer.
2. Prior to placement of the drainage fabric, the surface to be covered will be smooth, free of obstructions, and conform to the plan configuration.
3. As the riprap is placed on a repaired berm, it is not anticipated that excavation will be required for riprap placement, However, some excavation may be required where the riprap transitions back to the existing profile as directed by the Engineer. All material excavated to allow for riprap placement will be disposed of by the Contractor.
4. A factor of 1.4 tons/CuYd was used to convert the riprap quantity from CuYd to Tons.
5. The Class B Riprap will be constructed to the configuration, limits and elevations shown. All costs associated with placement of the riprap including all material, excavation, labor and equipment will be included in the contract unit price per ton for Class B Riprap.

ESTIMATE OF STRUCTURE QUANTITIES & NOTES

FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 40-142-144

AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	PII	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA02		

PERFORATED GEOCELL

1. Perforated Geocell will be from the following company or equivalent:

   Company: Agtec
   Phone: 1-818-724-7657
   Website: http://www.agtec.com

2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the manufacturer's recommendation.

3. Perforated Geocell will be filled with the Select Granular Backfill.

4. Payment will be full compensation for labor, tools, materials, and any incidentals necessary to for the installation of the Perforated Geocell and will be included in the contract unit price per square foot for the Perforated Geocell.

5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

REMOVAL OF CONCRETE BRIDGE APPROACH SLAB

1. The existing concrete approach and sleeper slabs adjacent to the structure will be completely removed by the Contractor.

2. The concrete and reinforcing steel from the removal will be disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments.

3. The quantity provided for Remove Concrete Bridge Approach Slab is computed using the plan area for the sleeper slab and the plan area for the approach slab determined separately.

4. All labor, tools, equipment, and any incidentals necessary for removal and disposal of the existing approach slabs and sleeper slabs will be incidental to the contract unit price per square yard for Remove Concrete Bridge Approach Slab.

DESIGN MIX OF CONCRETE

1. Class A45 Concrete will be used for the contract items Concrete Approach Slab for Bridge and Concrete Approach Sleeper Slab for Bridge.

2. The type of cement, concrete strength requirements, aggregate requirements, slump, and air requirements for the contract items Concrete Approach Sleeper Slab for Bridge and Concrete Approach Slab for Bridge will conform to the requirements of Section 460 of the Construction Specifications.

APPROACH SLABS

1. Base Course will be constructed in accordance with Section 430 of the Construction Specifications.

2. Excavation for placement of new approach slabs, sleeper slabs, and Base Course will be done with minimal disturbance to the underlying material.

3. Prior to the placement of the approach and sleeper slabs, the existing Select Granular Backfill material will be compacted using at least four complete passes of a smooth face vibratory roller or vibratory plate compactor. Base Course will be placed as required to fill any low spots and to achieve the elevation needed for installation of the new approach and sleeper slabs. The existing and fill material will be thoroughly watered prior to and during compaction. Base Course will be in accordance with Section 882 of the Construction Specifications.

4. The top of approach slab elevations will be as provided and subject to the approval of the Engineer. Care will be taken to provide a smooth transition from the bridge deck elevations to the new pavement elevations to prevent any dips or bumps in the areas of the bridge ends or ends of the new approach slabs. The maximum rate of grade transition through the approach slab will be 1/8-inch per 10 feet.

5. Sleeper slab riser will be cast with or later than the approach slab. Care will be taken to ensure the correct grade is maintained across the joint.

6. The portion of the sleeper slab below the construction joint may be precast. If the bottom portion of the sleeper slab is precast, the Contractor will submit proposed lifting and setting plans to the Bridge Construction Engineer for approval. In addition, if reinforcing or other details differ from those shown in the plans, the Contractor will submit proposed alternate details for approval.

7. The use of a vibratory screed will be required during placement of Class A45 Concrete for the approach slabs. Concrete placement in front of the screed will be kept parallel to the screed.

8. The concrete in the approach slab will be tined perpendicular to the centerline of the roadway.

9. The new approach slabs and sleeper slabs will have a surface finish as specified in Section 460.3 L.4 of the Construction Specifications.

10. The concrete approach slabs will be cured in accordance with Section 460.3 M of the Construction Specifications. The minimum 7-day cure time requirement will be waived. The approach slabs will be cured until a minimum compressive strength of 4,000 psi is reached.

11. The quantity Base Course required to fill any low spots or voids is based on a 2-inch layer under the area of the approach slab. The actual quantity may vary.

12. Concrete Approach Sleeper Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for excavation; furnishing, hauling, and placing all materials including: concrete, and reinforcing steel; for disposal of all excavated material and surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

13. Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for excavation; furnishing, hauling, and placing all materials including: concrete, asphalt paint or 6 mil polyethylene sheeting, elastic joint sealer, and reinforcing steel; for disposal of all excavated material and surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

14. Any Base Course and compaction required to fill any low spots or voids will be paid for at the contract unit price per cubic per yard for Base Course. This payment will be full compensation for furnishing, hauling, and placing all materials including disposal of all surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

BRIDGE DECK GRINDING

The existing bridge deck has a polymer chip seal and pavement marking that will be removed.

CONCRETE PATCHING MATERIAL, BRIDGE DECK

1. In lieu of the 48-hour wet cure, the Contractor may use a wax-based curing compound after 4 hours of wet cure. The wax-based curing compound will be white pigmented and will be applied to the patch until the entire surface is white. After the 48-hour cure period, the curing compound will be completely sand blasted off and the surface of the patch will be allowed to air dry for a minimum of 48 hours before application of the polymer chip seal.

2. A thicker layer of the Two Coat Bridge Deck Polymer Chip Seal will not be used in place of Concrete Patching Material, Bridge Deck. Joint Nosing Material from the Department's Approved Products List may be used in limited amounts for Concrete Patching Material, Bridge Deck provided it is compatible with the polymer used for the chip seal and is approved by the manufacturer's representative. Patching with nosing material will not be allowed if the patch area is more than 9 square feet or goes below the top mat of reinforcing steel. Joint Nosing Material will be fully cured before application of the chip seal. If Joint Nosing Material is substituted for Concrete Patching Material it will be paid for at the contract unit price per cubic foot for Concrete Patching Material, Bridge Deck.

NOTES (CONTINUED)
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 40-142-144
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	PII	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA03		

AS-BUILT ELEVATION SURVEY

The Contractor will be responsible for producing an as-built elevation survey soon after construction is complete and before the bridge is completely opened to traffic. The Contractor will be responsible for recording the as-built deck elevations at the locations shown by the table of as-built elevations shown in the plans. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The benchmark shown in the plans has not been tied to the NAVD88. The Contractor will be responsible for establishing a NAVD88 elevations for the benchmark provided in the plans. All costs associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.

NOTES (CONTINUED)

FOR

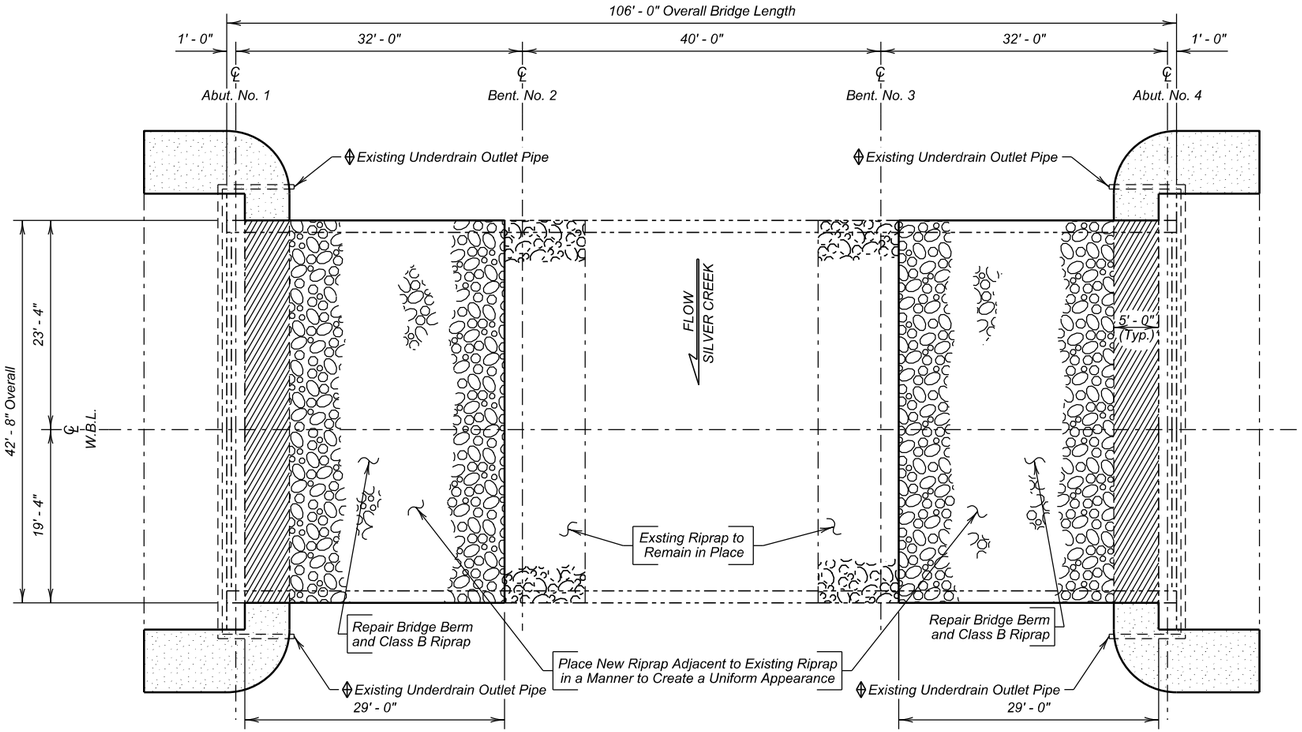
106' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 40-142-144

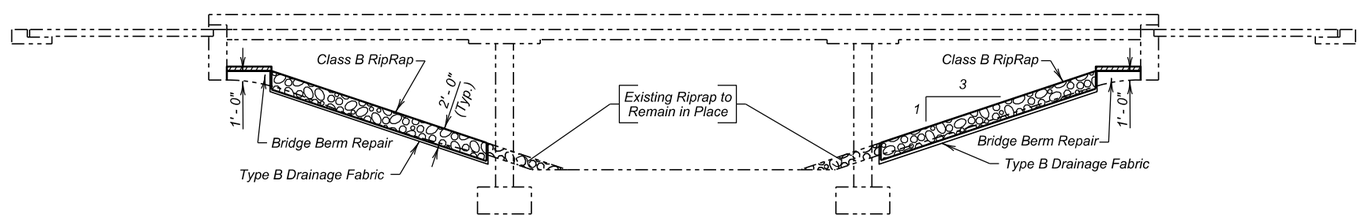
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	PII	Steve A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA04		

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	126	170



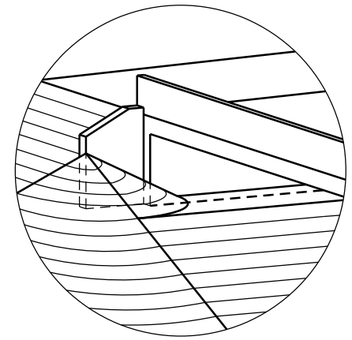
PLAN



ELEVATION

LEGEND:

- Class B Riprap
- Perforated Geocell
- Spill Cone



✠SPILL CONE DETAIL AT EMBANKMENT

GENERAL NOTES:

✠ *Perform excavation in a manner that limits disturbance to the existing bridge berm. Where disturbance can not be minimized or if the existing spill cone has eroded, rebuild as shown.*

☆ *The berms and slope protection are to be repaired to match the original templates. The swale below the outlet pipe is also to be filled and reconstructed.*

⧫ *Underdrain Outlets are not to be disturbed, damaged, or buried during construction. Any damage will be repaired at the expense of the Contractor.*

⊛ *For estimating purposes only, a factor of 1.4 Tons/Cu. Yd. was used to convert Cu. Yds. to Tons.*

⧖ *For estimating purposes only, a factor of 1.89 Tons/Cu. Yd. was used to convert Cu. Yds. to Tons.*

ESTIMATED QUANTITIES
(For Both Abutments)

	ITEM	UNIT	QUANTITY
☆	Bridge Berm Repair	Each	2
⧖	Select Granular Backfill	Ton	17.9
⊛	Class B Riprap	Ton	223.8
	Type B Drainage Fabric	SqYd	294
	Perforated Geocell	SqFt	427

(WEST BOUND LANES)
BERM REPAIR DETAILS
FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388

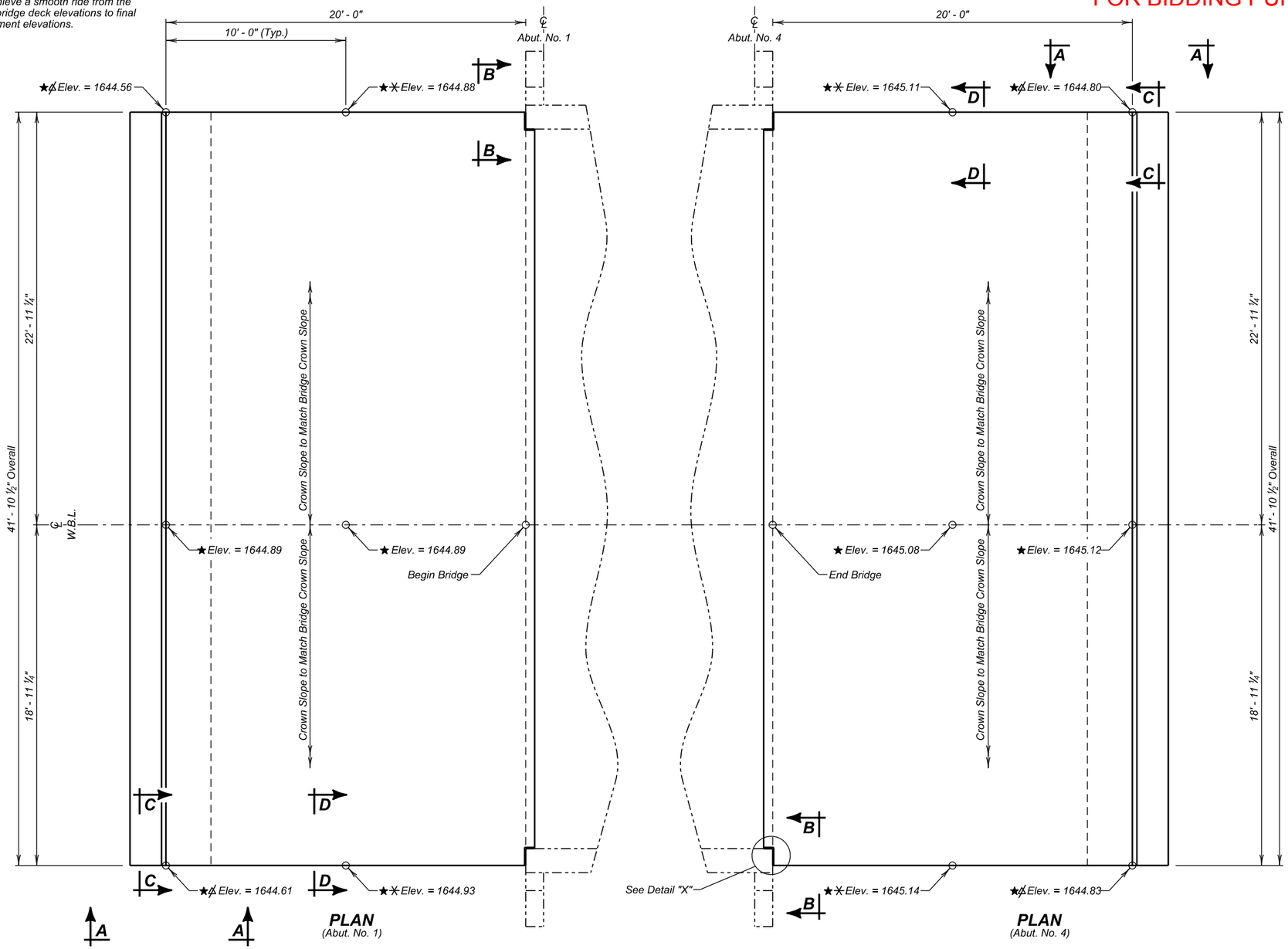
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson
LAKE06PR	06PRRA05		BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

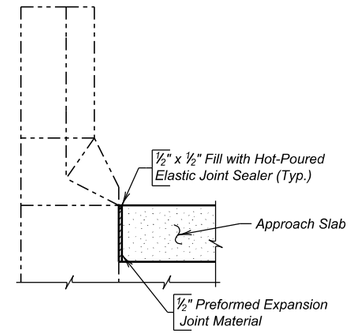
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	127	170

★ *Elevations may need to be adjusted to achieve a smooth ride from the final bridge deck elevations to final pavement elevations.*

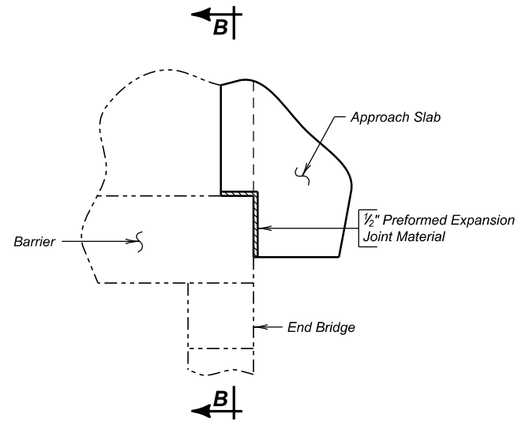


PLAN
(Abut. No. 1)

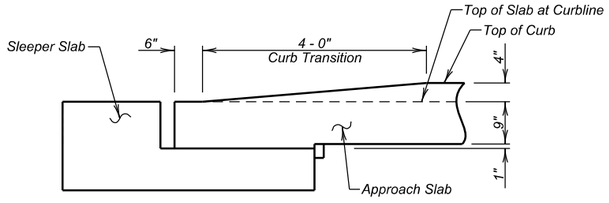
PLAN
(Abut. No. 4)



SECTION B - B



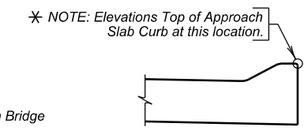
DETAIL "X"



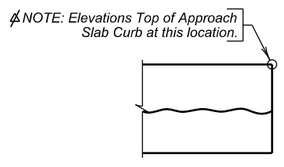
VIEW A - A

Survey Reference:

Metal Benchmark on Abutment of Adjacent Pedestrian Bridge
Elevation 1645.93



SECTION D - D



SECTION C - C

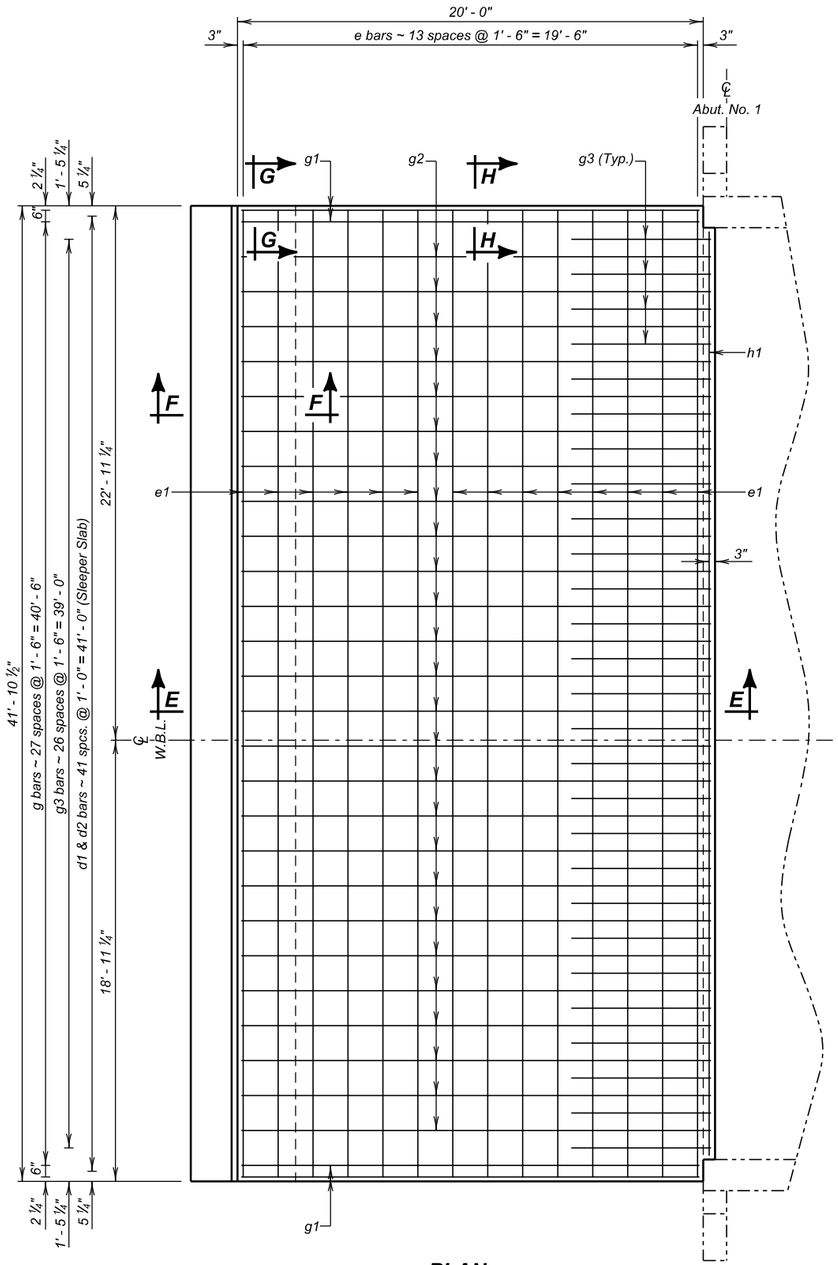
(WEST BOUND LANES)
APPROACH SLAB DETAILS (A)
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE
40' - 0" ROADWAY
OVER SILVER CREEK
STR. NO. 40-142-144
0° SKEW
SEC. 15-T106N-R52W
NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

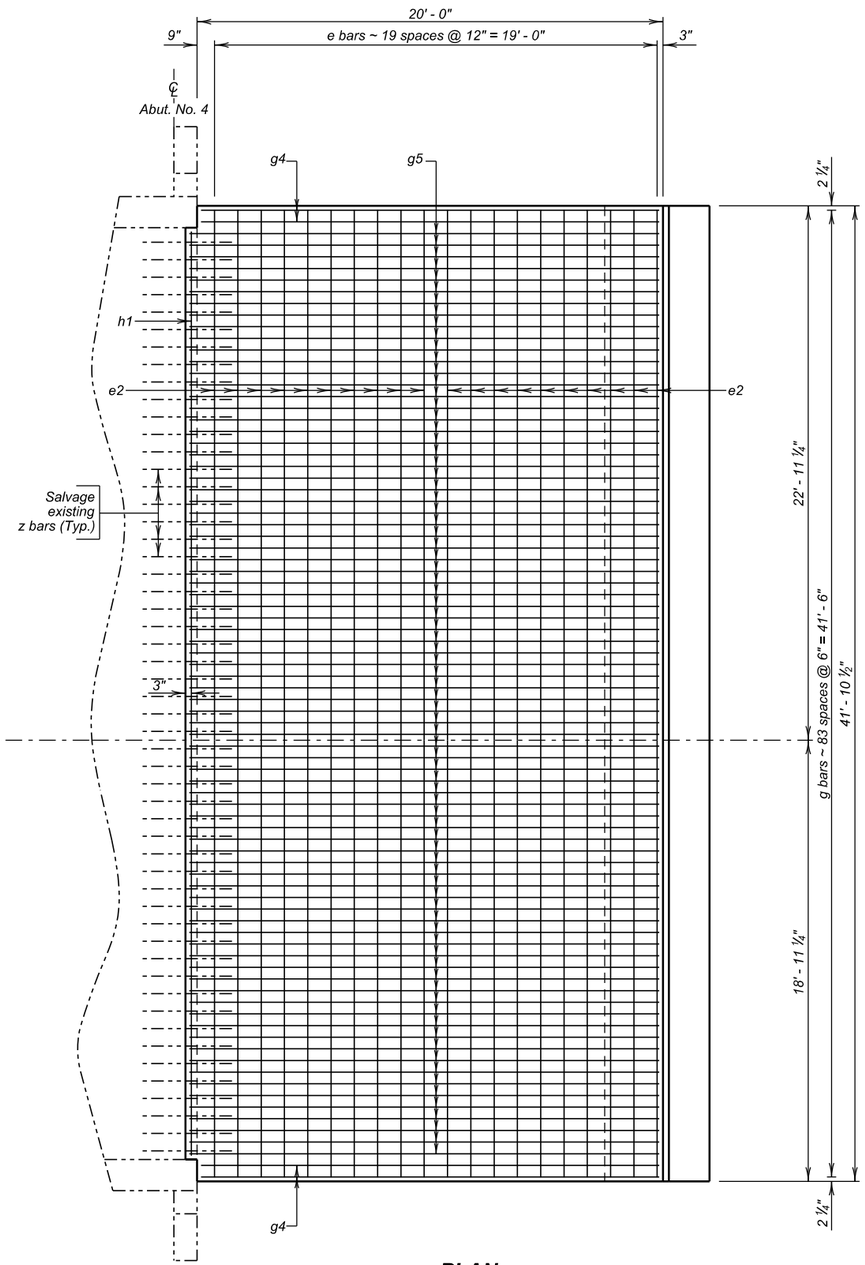
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA06		

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	128	170



PLAN
(TOP STEEL)
(Adjacent to Abut. No. 1 Shown, Abut. No. 4 similar by rotation)



PLAN
(BOTTOM STEEL)
(Adjacent to Abut. No. 4 Shown, Abut. No. 1 similar by rotation)

(WEST BOUND LANES)
APPROACH SLAB DETAILS (B)
FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388

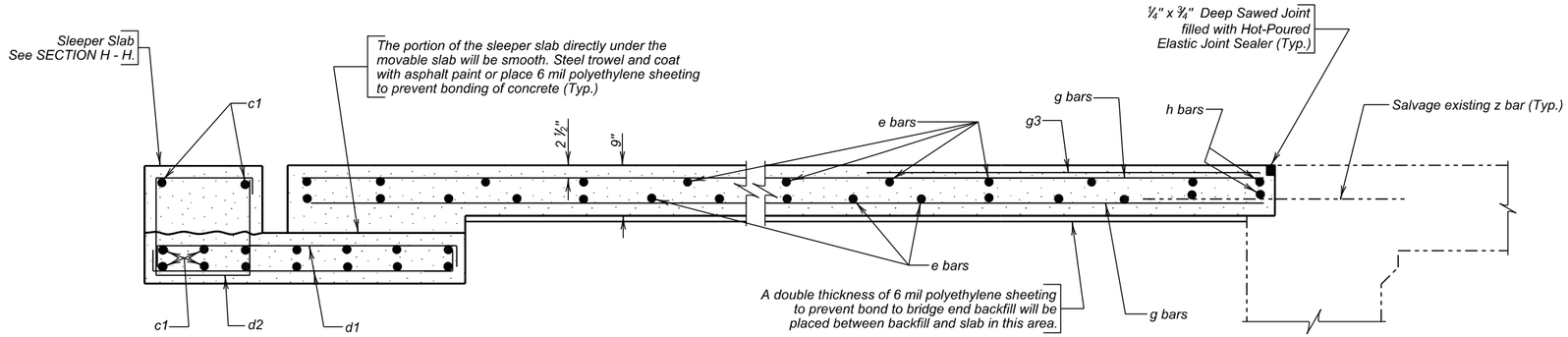
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

7 OF 16

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA07		

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	129	170

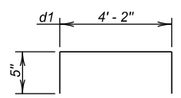


SECTION E - E

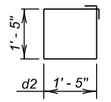
REINFORCING SCHEDULE
(For Two Approach and Two Sleeper Slabs)

Mk.	No.	Size	Length	Type
c1	32	5	41' - 6"	Str.
d1	168	4	5' - 0"	2
d2	84	4	6' - 5"	T2
e1	28	4	41' - 6"	Str.
e2	40	6	41' - 6"	Str.
g1	8	4	19' - 8"	Str.
g2	52	4	20' - 2"	Str.
g3	54	4	6' - 0"	Str.
g4	8	8	19' - 8"	Str.
g5	160	8	20' - 2"	Str.
h1	4	6	39' - 8"	Str.

Bending Details

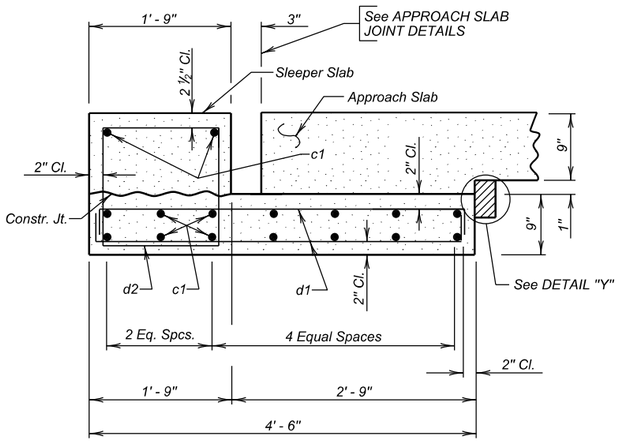


Type 2

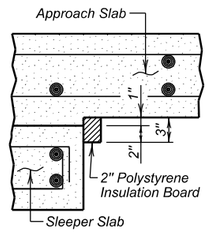


Type T2

Note -
All Dimensions are out to out of bars.
All bars to be epoxy coated.



SECTION F - F
(Sleeper Slab)



DETAIL "Y"

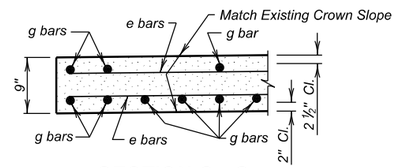
ESTIMATED QUANTITIES
(For Two Approach and Two Sleeper Slabs)

ITEM	UNIT	QUANTITY
Remove Concrete Bridge Approach Slab	SqYd	232.5
Concrete Approach Slab for Bridge	SqYd	190.6
Concrete Approach Sleeper Slab for Bridge	SqYd	41.8
✳ Base Course	Ton	28.7

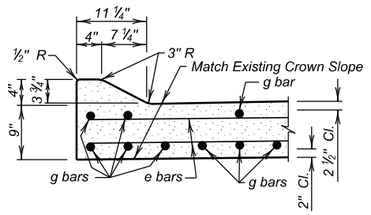
✳ For estimating purposes only, a factor of 1.89 Tons/CuYd was used to convert CuYd to Tons. Base Course for Approach Sidewalk Slab included in quantity.

1. Concrete in Approach Slabs — 48.2 CuYd
2. Epoxy Coated Reinforcing Steel in Approach Slabs — 13,573 Lbs
3. Concrete in Sleeper Slabs — 14.8 CuYd
4. Epoxy Coated Reinforcing Steel in Sleeper Slabs — 2,307 Lbs
5. 2" Polystyrene Insulation Board — 21 SqFt

Items 1 thru 5 are approximate quantities contained in the above contract items and are for information only.



SECTION G - G



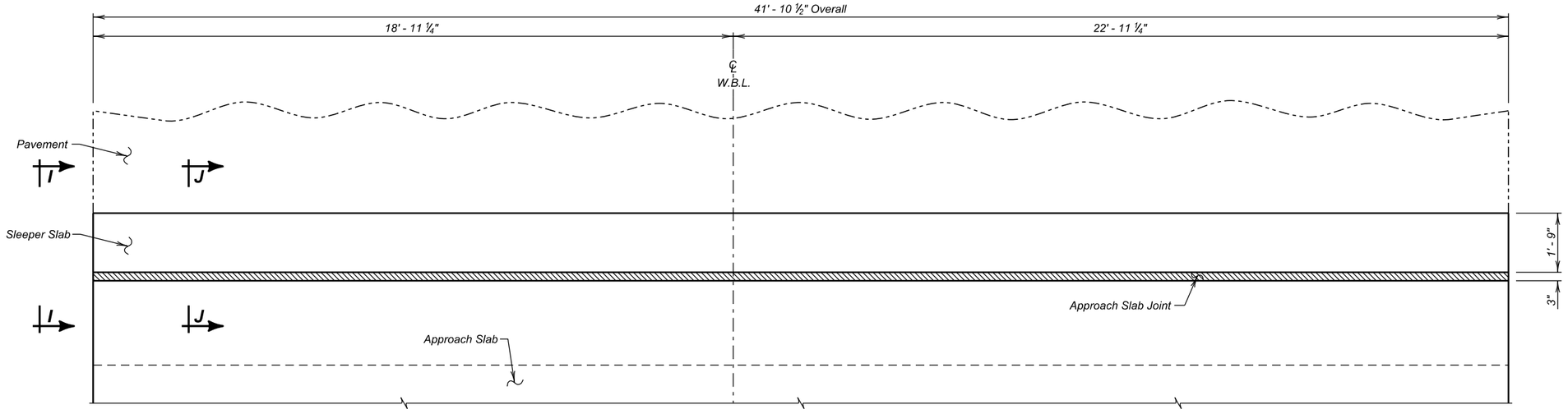
SECTION H - H

(WEST BOUND LANES)
APPROACH SLAB DETAILS (C)
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE
40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA08		

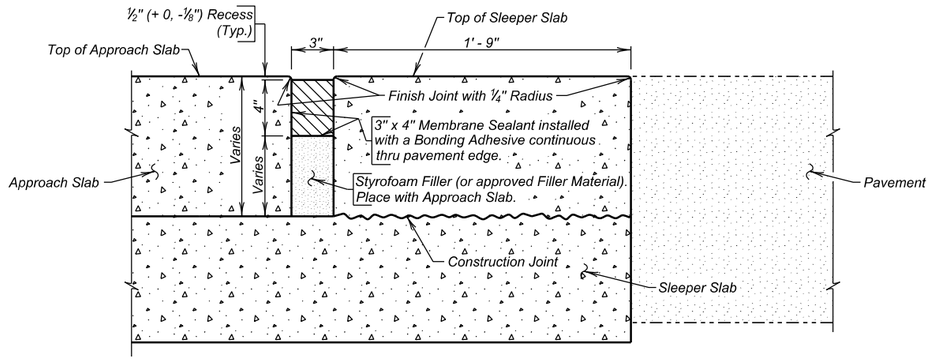
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	130	170



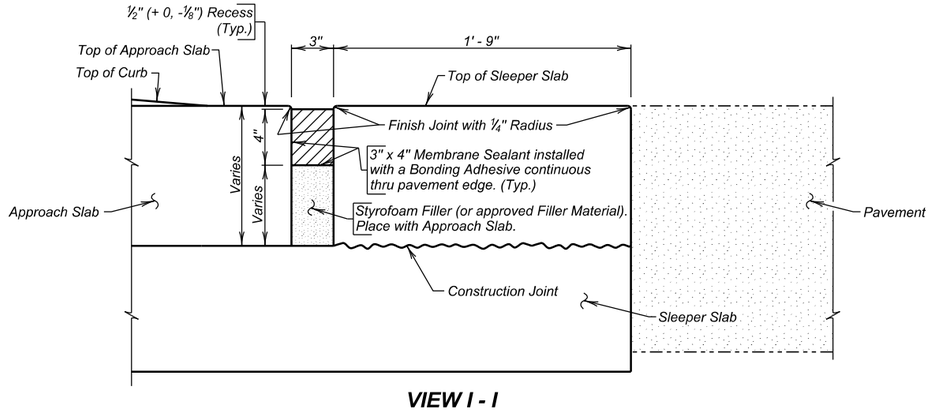
PLAN

GENERAL NOTES

1. The membrane sealant will be on the approved product list for membrane sealant expansion joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer to provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension. In no case will the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will be supplied in pieces 5 feet in length or longer. The foam sealant will be ultra-violet and ozone resistant.
4. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
5. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
6. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
7. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
8. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to insure the Contractor installs the joint to the Manufacturers recommendations.
9. Concrete surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the concrete surface. At a minimum two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the concrete surface will be required. Cleaning of the concrete surfaces with solvents, wire brushing, or grinding will not be permitted.
10. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent concrete surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
11. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
12. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
13. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
14. The membrane sealant expansion joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The membrane sealant expansion joint will be paid for at the contract unit price per foot complete in place. Payment for this item will be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.



SECTION J - J



VIEW I - I

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Membrane Sealant Expansion Joint	Ft	83.8

(WEST BOUND LANES)
APPROACH SLAB JOINT DETAILS
FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

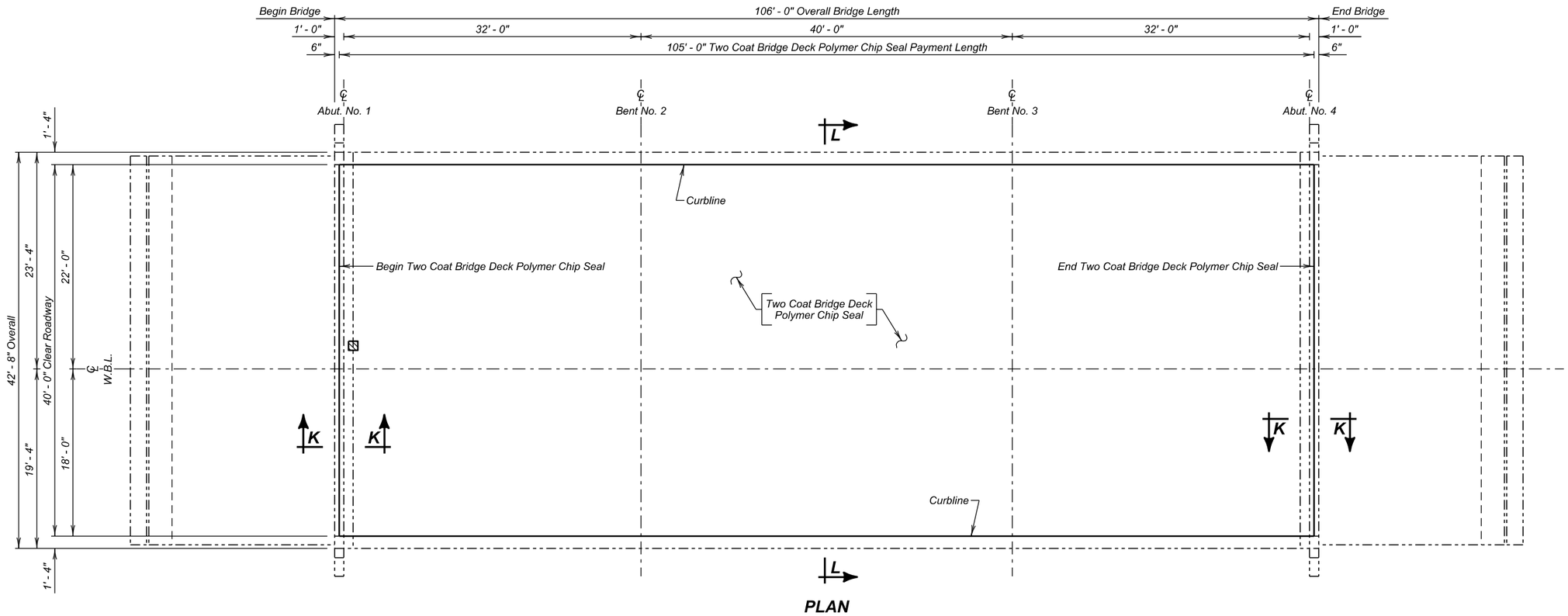
40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

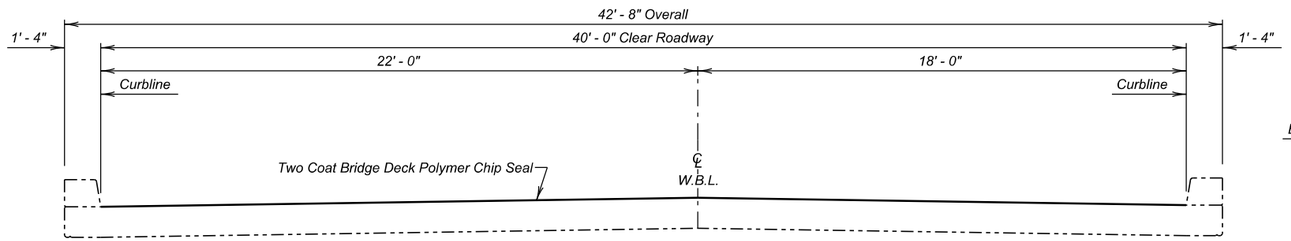
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steven A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA09		

FOR BIDDING PURPOSES ONLY

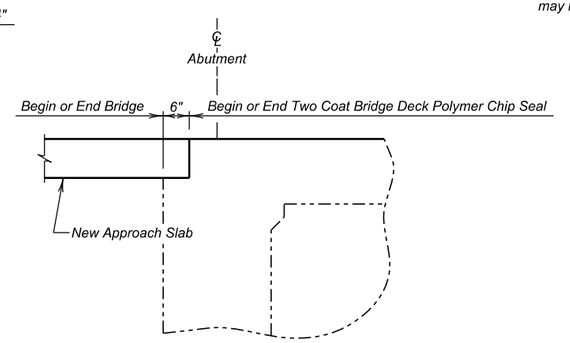
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	131	170



PLAN



SECTION L - L



SECTION K - K

ESTIMATED QUANTITIES			
	ITEM	UNIT	QUANTITY
	Two Coat Bridge Deck Polymer Chip Seal	SqYd	466.7
	Abrasive Blasting of Bridge Deck	SqYd	466.7
	Bridge Deck Grinding	SqYd	466.7
✳	Concrete Removal, Class A	SqYd	4.0
✳	Concrete Removal, Class B	SqYd	4.0
✳	Concrete Patching Material, Bridge Deck	CuFt	40.6

✳ Concrete Removal, Class A; Concrete Removal, Class B; and Concrete Patching Material may not be encountered and may be removed from the project at the direction of the Engineer.

LEGEND:

Repair Delaminated Concrete

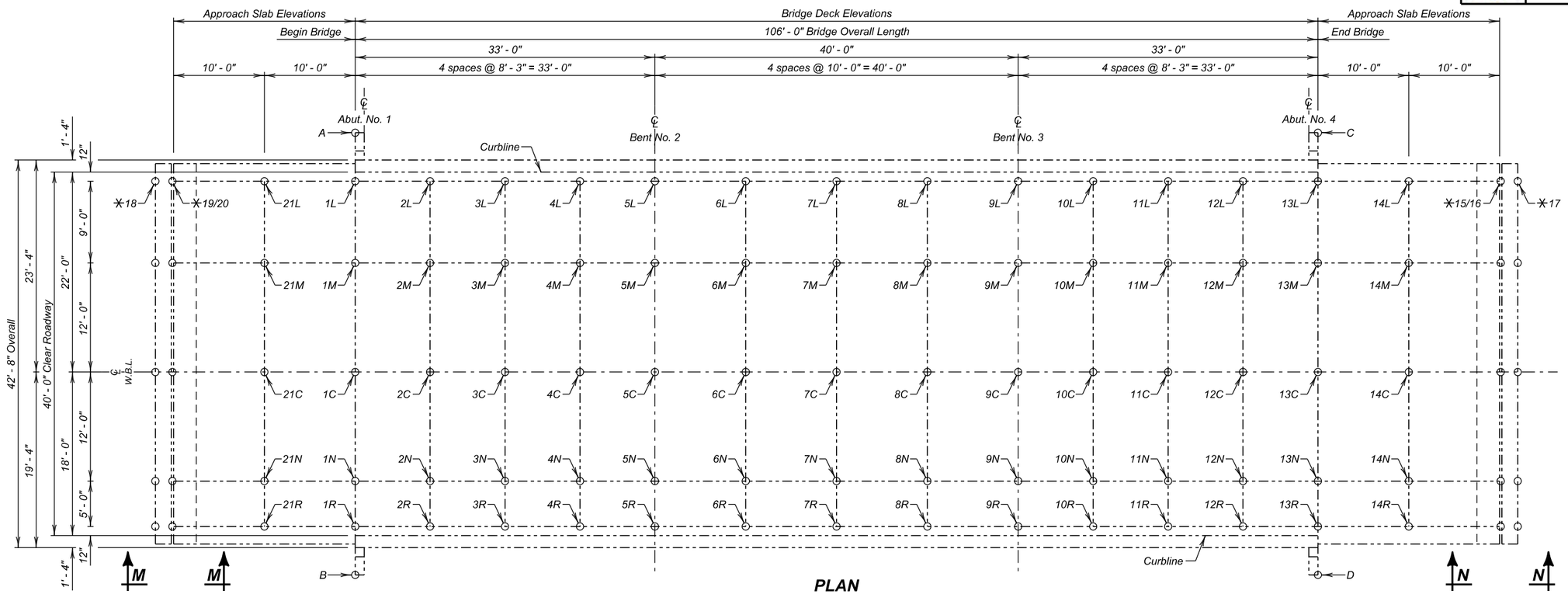
(WEST BOUND LANES)
TWO COAT BRIDGE DECK POLYMER CHIP SEAL LAYOUT
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388

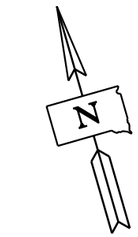
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

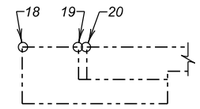
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA10		

FOR BIDDING PURPOSES ONLY

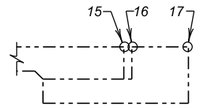


PLAN





VIEW M - M



VIEW N - N

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
1L		1M		1C		1N		1R	
2L		2M		2C		2N		2R	
3L		3M		3C		3N		3R	
4L		4M		4C		4N		4R	
5L		5M		5C		5N		5R	
6L		6M		6C		6N		6R	
7L		7M		7C		7N		7R	
8L		8M		8C		8N		8R	
9L		9M		9C		9N		9R	
10L		10M		10C		10N		10R	
11L		11M		11C		11N		11R	
12L		12M		12C		12N		12R	
13L		13M		13C		13N		13R	

Table of Elevations - Approach Slab Joints (See VIEW N - N) and Approach Slab									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
14L		14M		14C		14N		14R	
15L		15M		15C		15N		15R	
16L		16M		16C		16N		16R	
17L		17M		17C		17N		17R	

Table of Elevations - Approach Slab Joints (See VIEW M - M) and Approach Slab									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
18L		18M		18C		18N		18R	
19L		19M		19C		19N		19R	
20L		20M		20C		20N		20R	
21L		21M		21C		21N		21R	

Bridge Ends	
Location	Elevation
A	
B	

Bridge Ends	
Location	Elevation
C	
D	

NOTE:

The elevations shall be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

Survey Reference:

Metal Benchmark on Abutment of Adjacent Pedestrian Bridge
Elevation 1645.93

✳ *Labels for all the points at the joints are not shown for clarity. These points follow the same labeling sequence as the adjacent points. Details for these point locations are also shown in VIEW M - M & VIEW N - N.*

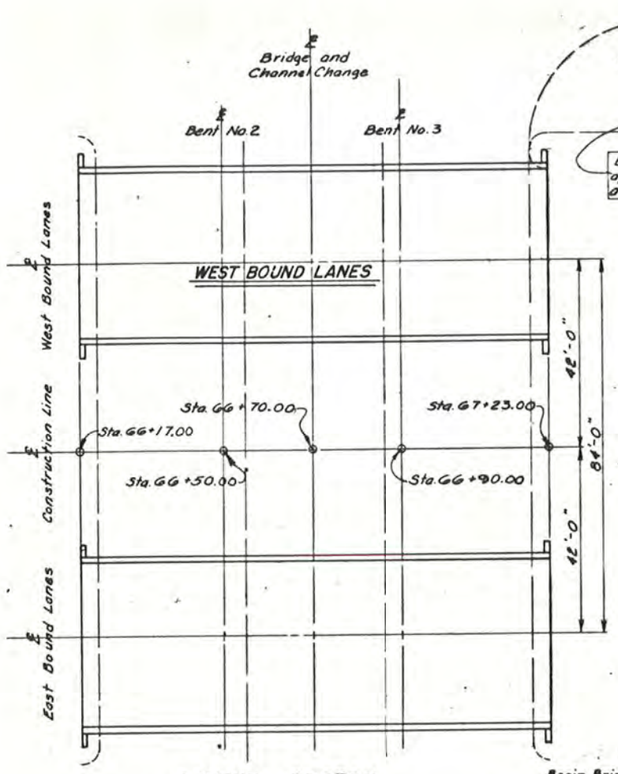
(WEST BOUND LANES)
AS-BUILT ELEVATION SURVEY REQUEST
FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

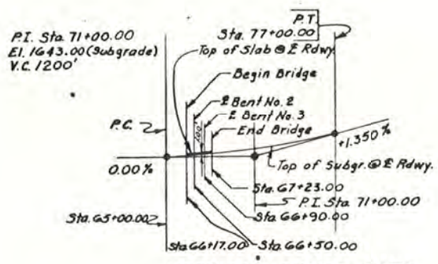
40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-144 — NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

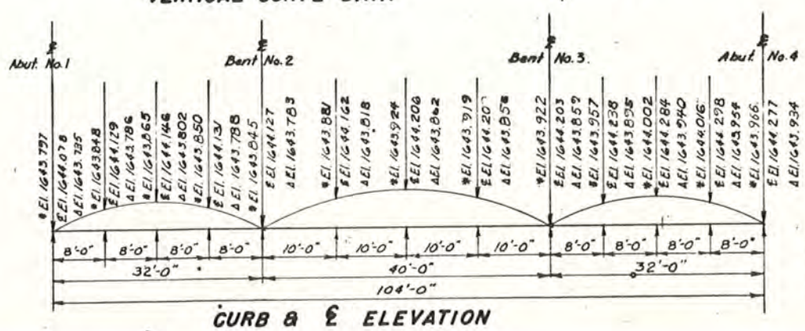
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRA11		



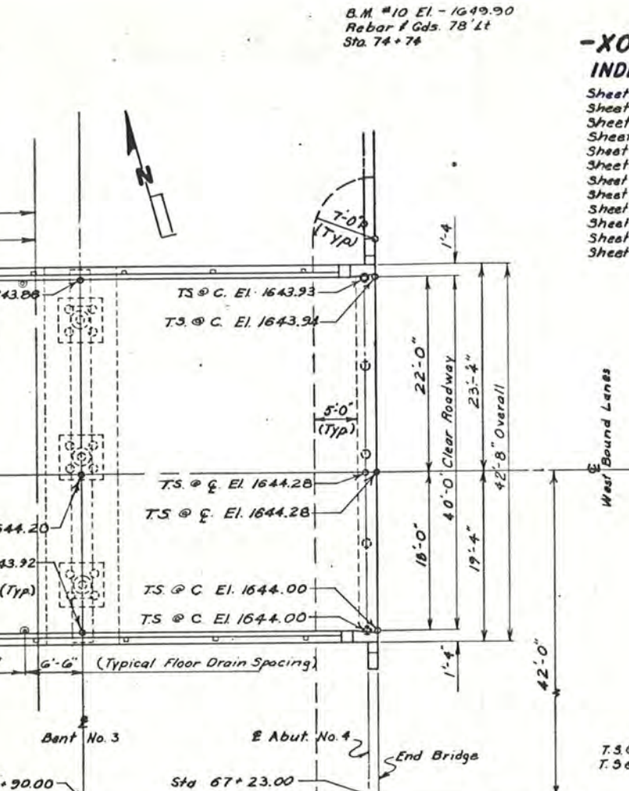
LAYOUT SKETCH



VERTICAL CURVE DATA



CURB & ℄ ELEVATION



ELEVATION

T.S. @ C. El. = Top of Slab at Curb Elevation.
T.S. @ ℄ El. = Top of Slab at Centerline Roadway Elevation.

Elevations indicated with * are Top of Finished Slab at Right Curb, with ℄ are Top of Finished Slab at ℄ Roadway, and with Δ are Top of Finished Slab at Left Curb. Camber for Dead Load Deflection PLUS Plastic Flow shown on Sheet No. 4 of Bridge Plans have been included in the elevations shown.

STR. NO. 40-142-144

-X020-

INDEX OF BRIDGE SHEETS

Sheet No. 1 – General Drawing
Sheet No. 2 – Estimated Quantities and Notes
Sheet No. 3 – Subsurface Investigations
Sheet No. 4 – Superstructure Details
Sheet No. 5 – Abutment Details
Sheet No. 6 – Joint Details
Sheet No. 7 – Type RT-4 Steel Railing, Curb and Drain Details
Sheet No. 8 – End Block Details
Sheet No. 9 – Details of Bridge End Backfill (Plan "A")
Sheet No. 10 – Details of Approach Slab Adjacent to Bridge
Sheet No. 11 – Approach Slab Joint Details
Sheet No. 12 – Standard Plates No. 303.1 and 305

Q 50	2973 C.f.s.
A	464.5 Sq. Ft.
V	6.4 f.p.s.
Q 100	5017 c.f.s.
A	678 Sq. Ft.
V	7.4 f.p.s.

ORIGINAL CONSTRUCTION PLANS

(WEST BOUND LANES)
GENERAL DRAWING
FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T106N-R52W
STA. 66+17.00 TO 67+23.00 — RF020-7(3)
LAKE COUNTY — HS20-44

PIERCE & HARRIS ENGINEERING CO. INC.
15 MASONIC BLDG. HURON, S.D. 57350

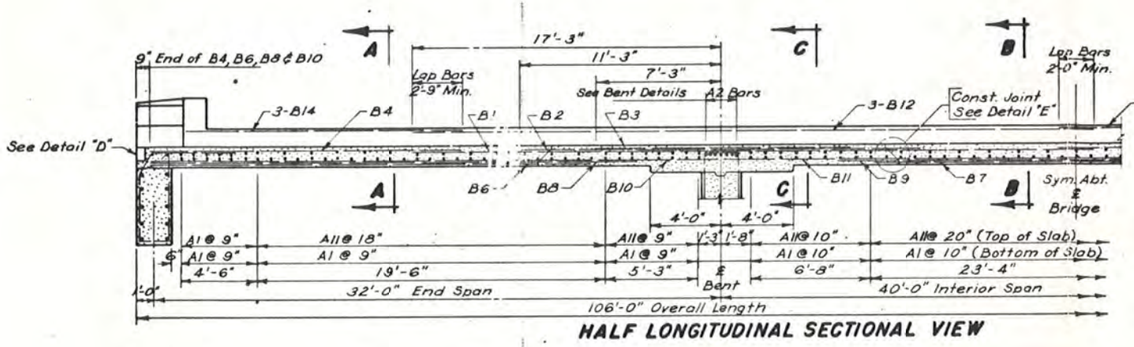
STR. NO. 40-142-144
-X020-
MARCH 1974

12 OF 16

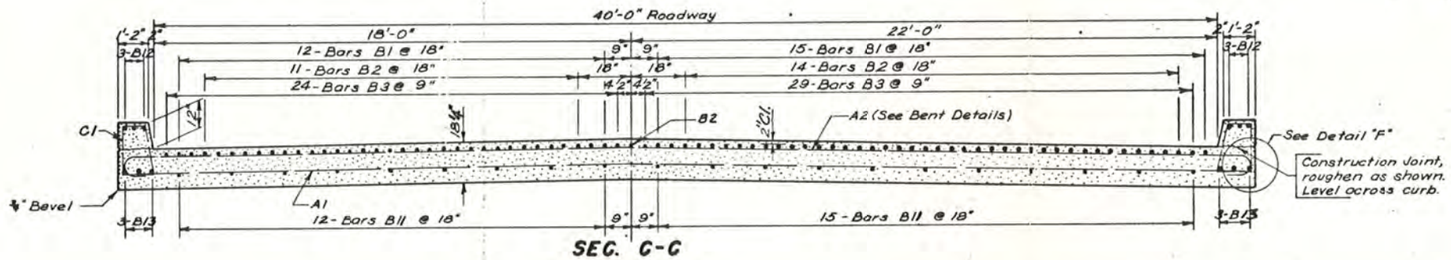
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
BWM	RBS	BWM	BRIDGE ENGINEER

NOTE:
Place Bars B2 & B3 symmetrically over Bents No. 2 & No. 3. Place Bars B1 & B12 over Bents No. 2 & No. 3 so as to achieve equal laps.

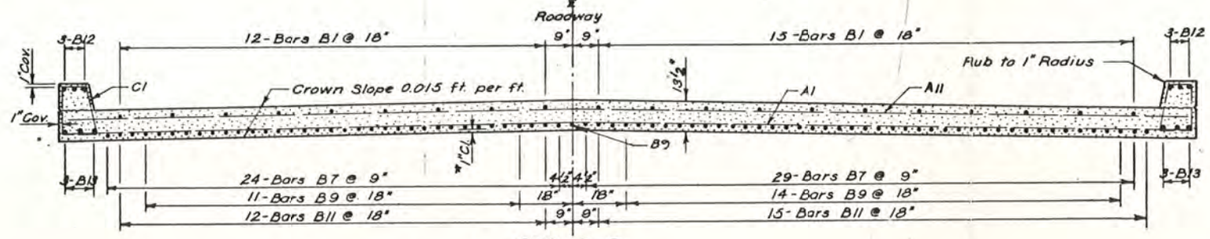
NOTE:
Bars B7 & B9 are to be placed symmetrically about the ℄ of interior span.



HALF LONGITUDINAL SECTIONAL VIEW

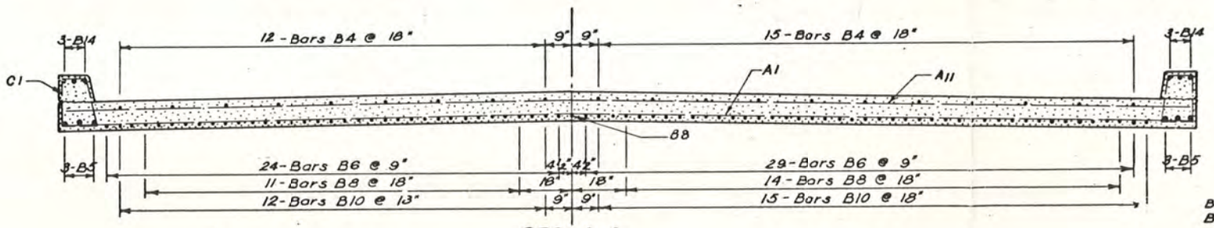


SEC. C-C

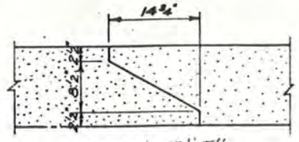


SEC. B-B

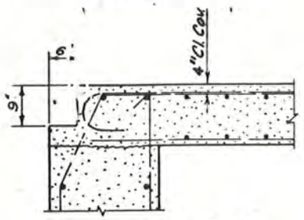
*Min. clear cover



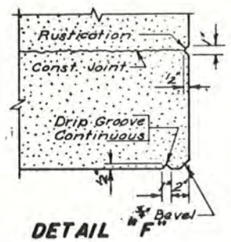
SEC A-A



DETAIL "E"



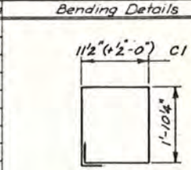
DETAIL "D"



DETAIL "F"

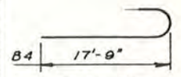
REINFORCING SCHEDULE

	Mk	No.	Size	Length	Type	Bending Details
	A1	125	5	42'-4"	Str.	
*	B1	54	8	38'-3"		
*	B2	52	8	22'-6"		
*	B3	106	8	14'-6"	Str.	
*	B4	54	8	19'-0"	1A	
	B5	12	9	32'-9"	Str.	
	B6	106	8	25'-6"		
	B7	53	8	25'-0"		
	B8	52	8	27'-9"		
	B9	26	8	28'-0"		
	B10	54	7	32'-3"		
	B11	27	7	40'-0"		
	B12	12	10	38'-3"		
	B13	6	9	40'-0"		
	B14	12	8	18'-3"	Str.	
	C1	196	4	7'-0"	T2	
*	Z1	106	7	4'-0"	Str.	
*	A11	85	5	42'-4"	Str.	



Type T2

Inside Dia. of bends for T2 shall be 2"

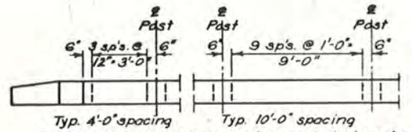


Type 1A

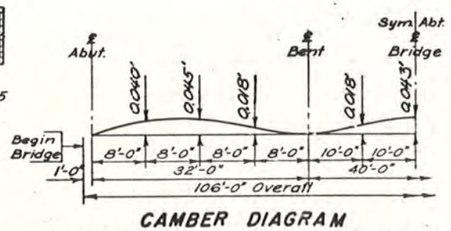
*See sheet 10 of 12 for location of Z1 bars.
NOTE - All dimensions are out to out of bars.
* All A11, B1, B2, B3 + B4 Bars are to be Epoxy Coated.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class 'A' Concrete - Bridge	Cu. Yds.	207.8
Reinforcement Conc. Masonry	Lbs.	34,333
Structural Steel	Lbs.	899.1
Type RT-4 Steel Railing	Lin. Ft.	156
Oil Treatment - Bridge	Gal.	20
Epoxy Coated Reinforcing Steel	Lbs.	19,275
Δ Weight of Roadway Drains		



CI BAR SPACING



CAMBER DIAGRAM

Camber is calculated for dead load plus plastic flow and shall be added to the proposed grade elevations at the respective stations to establish the elevation of the top of the finished roadway slab

ORIGINAL CONSTRUCTION PLANS

(WEST BOUND LANES)

SUPERSTUCTURE DETAILS

FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T106N-R52W

STA. 66+17.00 TO 67+23.00 — RF020-7(3)

LAKE COUNTY — HS20-44

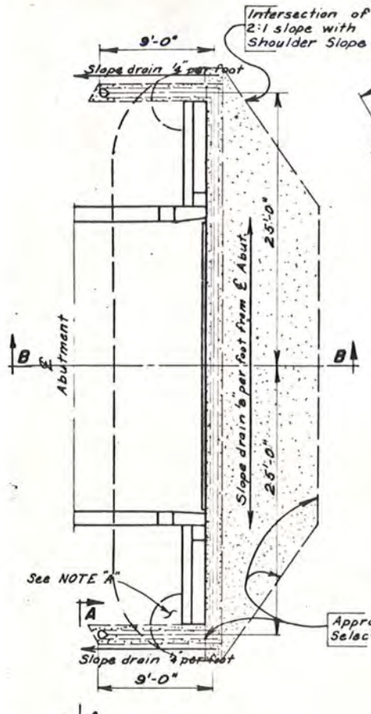
PIERCE & HARRIS ENGINEERING CO. INC.

15 MASONIC BLDG. HURON, S.D. 57350

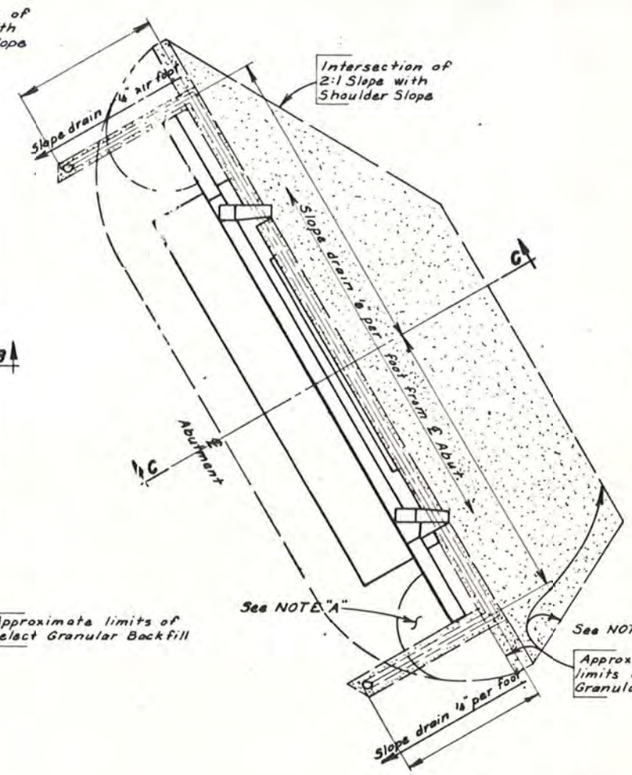
STR. NO. 40-142-144 MARCH 1974

13 OF 16

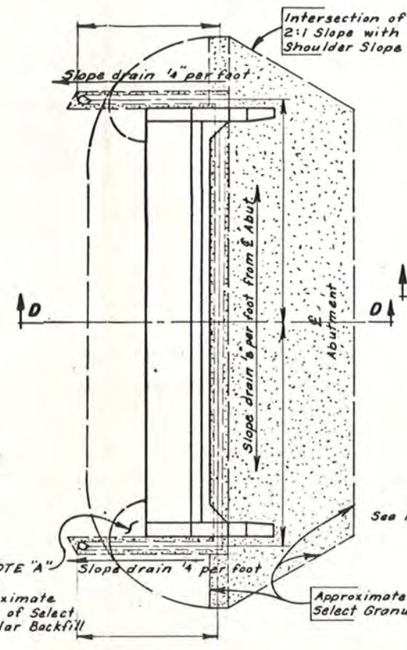
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	KBM	RAS	BRIDGE ENGINEER



PLAN "A"



PLAN "B"



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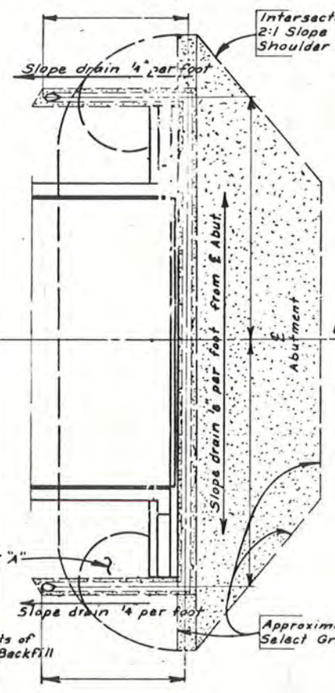

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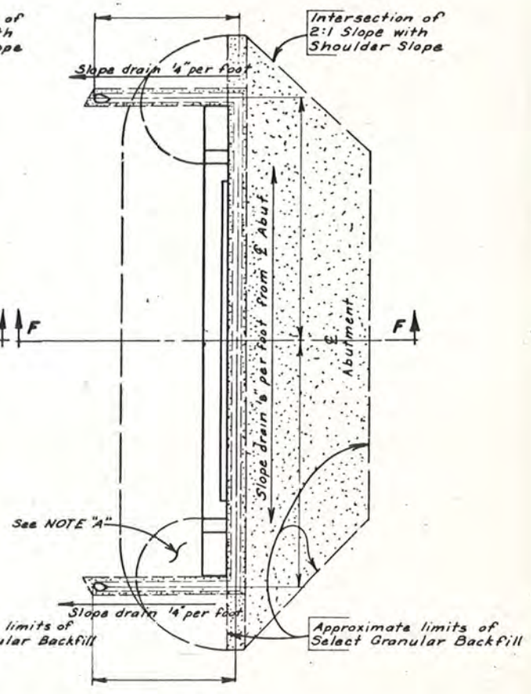

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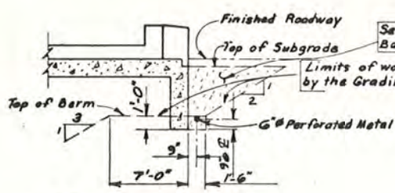
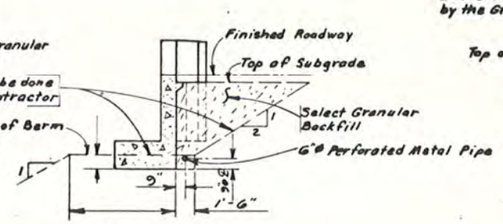
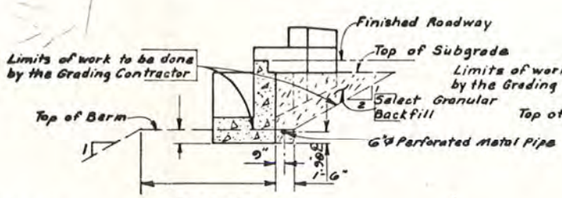


SEC. B–B



SEC. C–C



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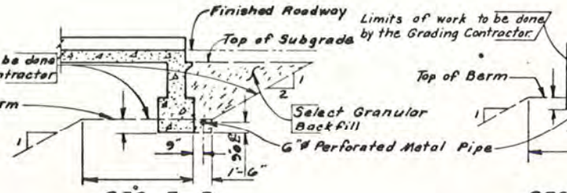
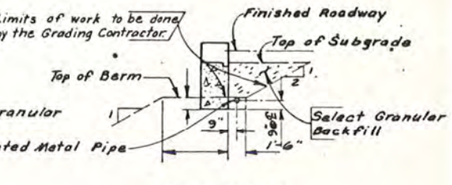
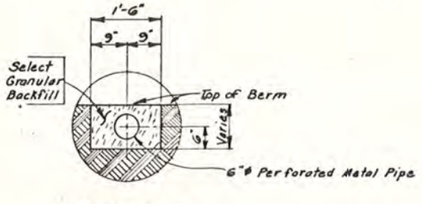


SEC. E–E



SEC. F–F



SEC. A–A
(Typical trench for 6"ϕ pipe)

NOTE "A"–

Excavated material not used for backfill of Abutments, supplemented with Select Granular Backfill, if required, shall be used to build these spill cones as directed by the ENGINEER.

ORIGINAL CONSTRUCTION PLANS

GRANULAR BACKFILL NOTES–

1. The Bridge Contractor shall place Select Granular Backfill and install 6"ϕ perforated metal pipe according to the Special Provision for Bridge End Backfill, dated Jan. 10, 1975.
2. Suitable screen or grating shall be provided at pipe outlets as approved by the ENGINEER.
3. Pipe shall be placed with perforations down.
4. Structure Excavation will not be computed for the outlet portions of the pipe drains beyond normal excavation limits.
5. Granular Bridge End Backfill shall not be placed until at least 24 hours after the completion of the deck pour.
6. The total estimated theoretical embankment volume of Granular Bridge End Backfill for two abutments is 110 Cubic Yards.
7. The total estimated length of the 6" perforated underdrain pipe for two abutments is 136 feet. The cost of screen or grating in place is to be absorbed in the unit price bid for Bridge End Backfill Underdrain Pipe.

(WEST BOUND LANES)

DETAILS OF BRIDGE END BACKFILL (PLAN "A")

FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15–T.106N.–R.52 W.

STA. 66+17.00 TO 67+23.00 — HS20–44

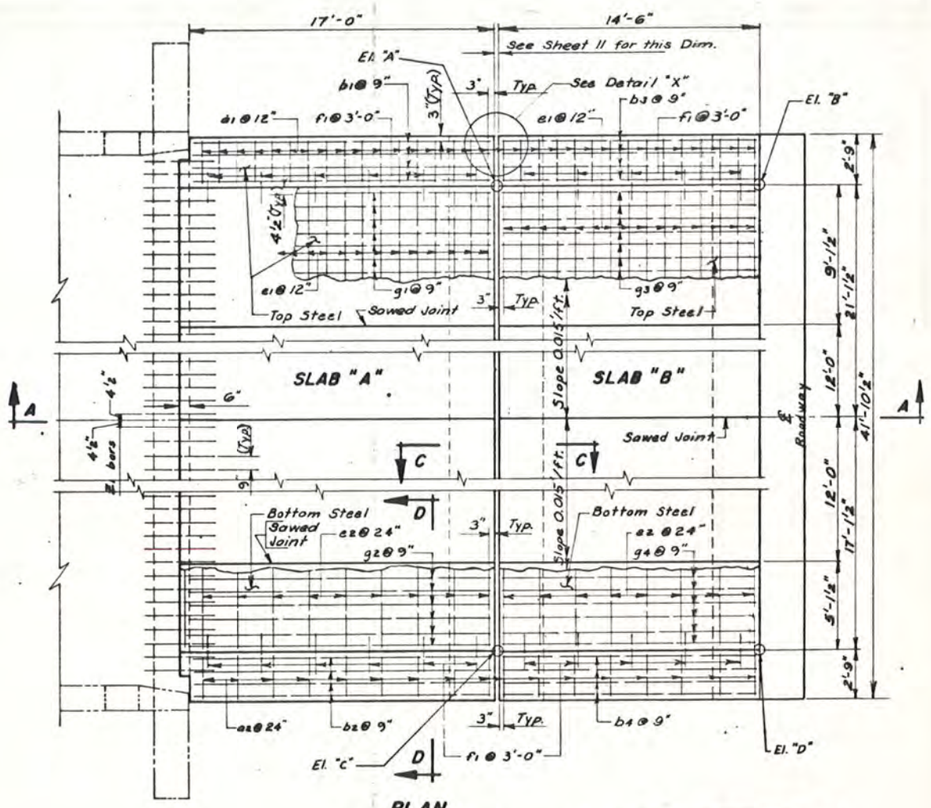
LAKE COUNTY — RFO20–7(3)

PIERCE & HARRIS ENGINEERING CO. INC.

15 MASONIC BLDG. HURON, S.D. 57350

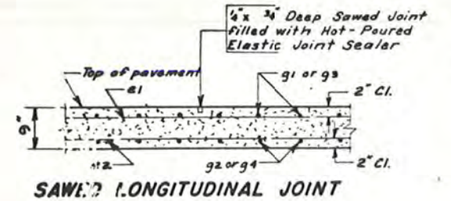
STR. NO. 40-142-144 MARCH 1974

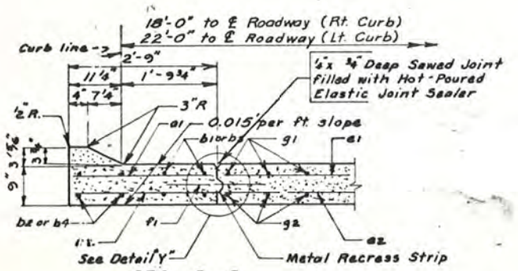
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	RAS	BKM	BRIDGE ENGINEER

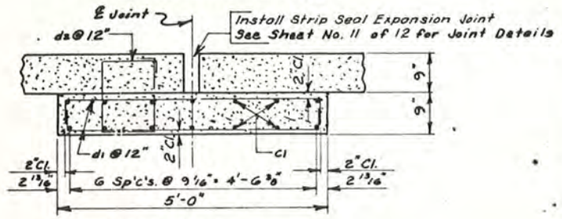


PLAN

TOP OF SLAB ELEVATION		
Point	Abut. No. 1	Abut. No. 4
A	1643.733	1644.007
B	1643.724	1644.047
C	1643.739	1644.067
D	1643.784	1644.107



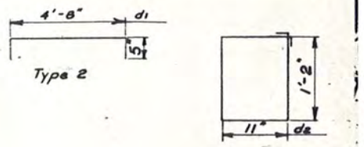




REINFORCING SCHEDULE
(FOR two approach slabs)

MK.	NO.	SIZE	LENGTH	TYPE
a1	128	3	2'-5"	Str.
a2	68	5	2'-5"	Str.
b1	16	3	16'-6"	Str.
b2	16	7	16'-6"	Str.
c1	56	5	41'-6"	Str.
d1	336	4	5'-6"	2
d2	168	4	4'-11"	T2
g1	68	3	38'-0"	Str.
g2	34	5	38'-0"	Str.
f1	44	4	2'-0"	Str.
g1	102	3	17'-2"	Str.
g2	102	7	17'-2"	Str.
g3	102	3	14'-2"	Str.
g4	102	7	14'-2"	Str.
b3	16	3	14'-0"	Str.
b4	16	7	14'-0	Str.

Bending Details



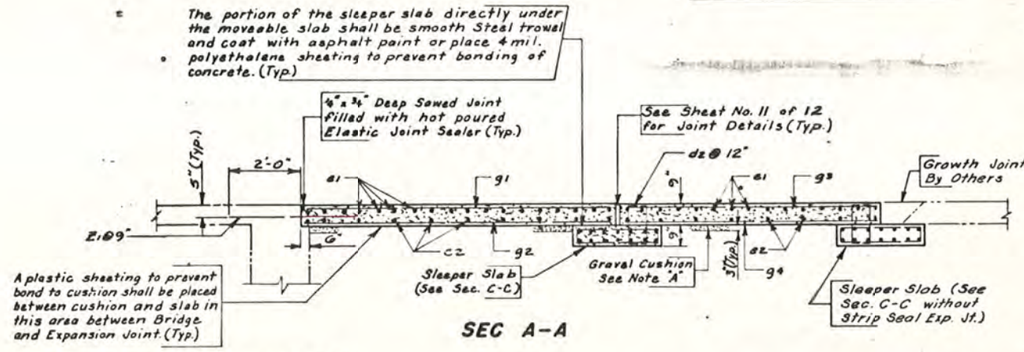
NOTE-Z1 bars are listed and included in Superstr. Quantities.
NOTE-All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(FOR two approach slabs)

ITEM	UNIT	QUANTITY
Gravel Cushion	Sq. Yds.	223.6
Conc. Appr Slab Adj. to Bridge	Sq. Yds.	272
Bridge Approach Sleeper Slab	Sq. Yds.	93.1
Conc. Gutter Type D"-Straight	Lin. Ft.	136.0
Oil Treatment-Bridge	Gal.	11

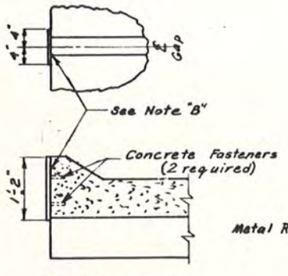
For info. only: The above contain the following Approx. quantities.
- 68 Cu. Yds. concrete in Approach Slabs
- 10,035 Lbs. re-steel in Approach Slabs (including dowels)
- 83.3 Cu. Yds. concrete in Sleeper Slabs
- 5099 Lbs. re-steel in Sleeper Slabs
- 10.5 Cu. Yds. concrete in gutter
- 1,408 Lbs. re-steel in gutter
- 37.3 Tons gravel cushion

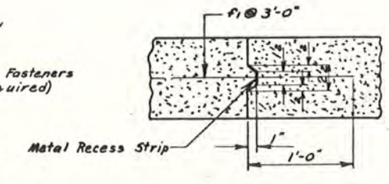
NOTE—
Slab "A" plus slab "B" at each end of Bridge constitutes one slab in above schedule and estimated quantities.



NOTE "A"
Material for Gravel Cushion shall be as specified for Bridge End Backfill. Gravel Cushion shall be constructed to a depth of three inches under the Concrete Approach Pavement and Gutters. The quantity of Gravel shown in the Estimate of Quantities is based on a rate of 0.167 ton per square yard. Gravel cushion shall be watered and compacted to the satisfaction of the ENGINEER. The cost of water for compaction shall be absorbed in the various pay items of the contract.

NOTE "B"—
18 gauge galv. sheet metal. Attach to one side of joint only, after slabs "A" and "B" are poured. Use fasteners that will not spall the concrete as approved by the ENGINEER.





NOTE—
If proposed, approval of alternate designs of Metal Strips will be considered by the ENGINEER.

GENERAL NOTES—
1. All concrete shall be Class "A".
2. Bridge Approach Sleeper Slab will be paid for at the Contract unit price bid per square yard. This payment shall be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete and resteel; for disposal of all excavated and surplus materials; and for furnishing all labor, tools, equipment and incidentals necessary to complete the item of work.
3. The cost of furnishing and installing asphalt paint or 4 mil. polyethalene sheeting, plastic sheeting, elastic joint sealer, metal recess strips, 18 gauge galvanized sheet metal shields attached to gutters at ends of strip seal joints, and sawing of all joints shall be included in the price bid for Concrete Approach Slab Adjacent to Bridge.
4. Re-steel shall conform to ASTM.-A615, Grade 40.

(WEST BOUND LANES)

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE

FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15–T. 106 N.– R. 52W.

STA. 66+17.00 TO 67+23.00 — HS20–44

LAKE COUNTY — RFO20–7(3)

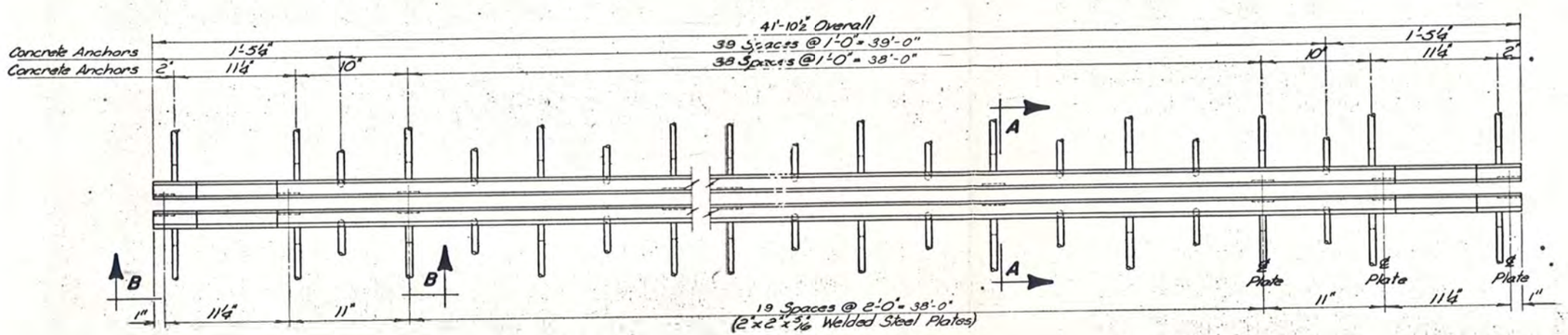
PIERCE & HARRIS ENGINEERING CO. INC.

15 MASONIC BLDG. HURON, S.D. 57350

STR. NO. 40-142-144 MARCH 1974

15 OF 16

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	RBS.	BRM	BRIDGE ENGINEER

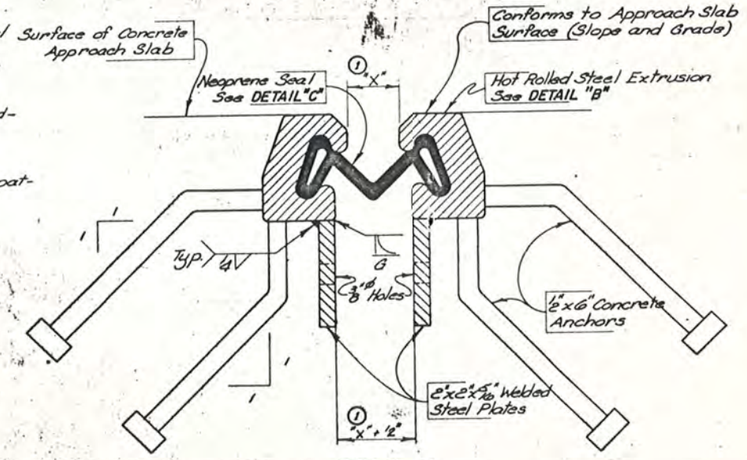


PLAN OF STRIP SEAL

① TEMP	DIMENSION "X"
30°	2"
40°	
50°	1⅞"
60°	
70°	1¾"
80°	
90°	1⅝"

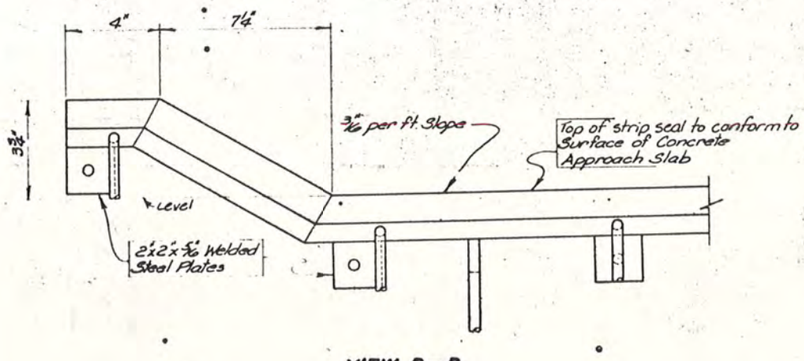
GENERAL NOTES—

1. Material for Steel Extrusion shall conform to A.S.T.M.-A-36.
2. Material for Neoprene Extrusion shall conform to that specified in Section 870 of the S. Dak. Standard Specifications. No Splices will be permitted in the Neoprene Strip.
3. The installation of the Strip Seal shall be as recommended by its manufacturer and approved by the Engineer, but in general shall be as follows:
   The Neoprene Extrusion shall be installed and bonded to the Steel Extrusion with a high-solids lubricant-adhesive. The portion of the Steel Extrusion in Contact with the Neoprene Extrusion shall be sand blasted to a white finish prior to the installation of the Neoprene Strip. The Neoprene Surfaces shall be roughened with a wire brush before the application of the lubricant-adhesive. The Neoprene Strip may be installed either prior to or after the time the Steel Extrusions are concreted in the Approach slabs. The sand blasting may be done at the Shop provided the sand blasted surfaces are dry, clean, free from dirt, grease and contaminants at the time the Neoprene Strip is installed. The surface of the Steel Extrusions, except the portions in contact with the Neoprene Strip, and the surfaces of the 2"x 2"x ⅜" Steel plated welded to the Steel Extrusions shall be painted with an approved Galvanizing Paint.
4. Due to the length of the Steel Extrusions, Shop Welds are permitted. No welds shall be permitted in internal section of extrusion where Neoprene Strip is located. Weld details shall be shown on the Shop Plans for approval by the Engineer.
5. The thickness and shape of the Neoprene Extrusion may vary from the sketch shown (Detail 'C' on this Sheet) according to the manufacturer's design; however, the wedge lugs must properly fit the groove in the Steel Extrusion. Before installation, shop plans of the proposed strip seal showing, in addition to fixed dimensions, thickness of Neoprene Extrusion and dimensions pertinent to the fit of the Neoprene Extrusion in the Steel Extrusion shall be submitted to and approved by the Engineer.
6. Strip Seal will be measured in linear feet, to the nearest one-tenth foot, complete in place; measurments will be made of the overall horizontal length.
   Strip Seal will be paid for at the Contract unit price per linear foot complete in place. Payment for this item shall be full compensation for furnishing all the required materials in place, inclusive of labor, equipment and incidentals necessary to complete the work in accordance with plans and the foregoing Specifications.
7. The lubricant-adhesive may be one or two component at the supplier's option. The Neoprene Strip seal and lubricant-adhesive should be supplied or recommended by the same source as they must be compatible. The lubricant-adhesive must have a solids content by weight of at least 65 percent and 250 percent minimum elongation. It may not contain solvents with a Flash point below 80°F.

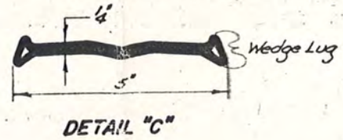


SEC. A—A

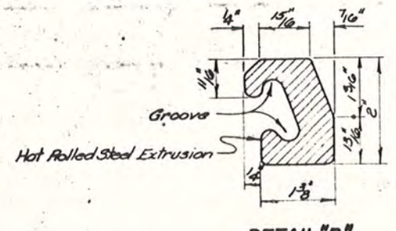
*ESTIMATED QUANTITY		
ITEM	UNIT	QUANTITY
Strip Seal Expansion Joint	Lin. Ft.	* 93.0
* For two Approach slabs		



VIEW B—B



DETAIL "C"



DETAIL "B"

① Rev. 8-1-74

ORIGINAL CONSTRUCTION PLANS

(WEST BOUND LANES)
APPROACH SLAB JOINT DETAILS
FOR
106'-0" CONT. CONCRETE BRIDGE
40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T106N-R52W
STA. 66+17.00 TO 67+23.00 — HS 20-44
LAKE COUNTY — RF020-7(3)

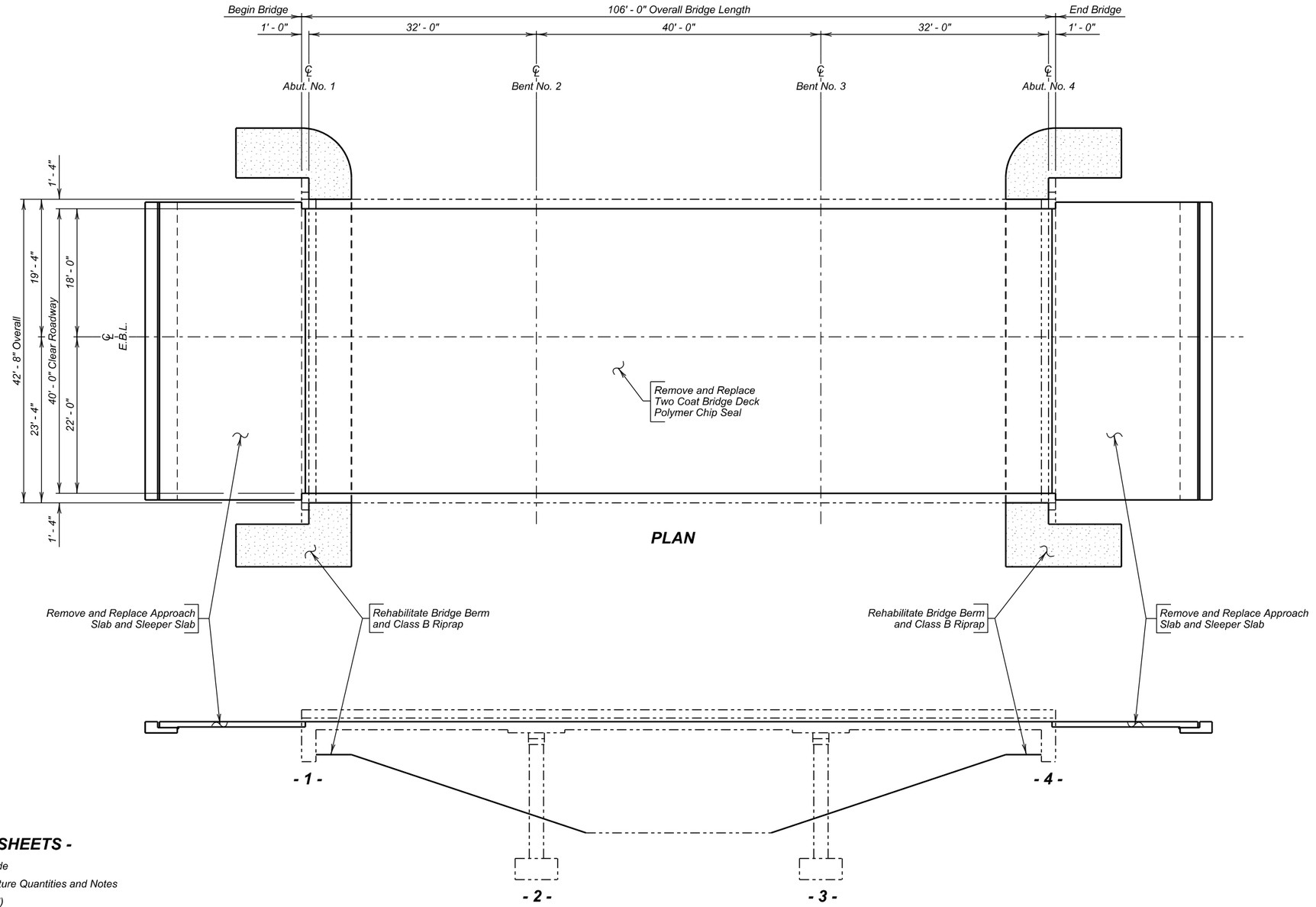
SOUTH DAKOTA
DEPARTMENT OF HIGHWAYS

STR. NO. 40-142-144 MARCH 1974 — 16 OF 16

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	G.W.J.	M.V.W.	K.C. Wilson, BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	138	170



-X020-

INDEX OF BRIDGE SHEETS -

Sheet No. 1 - Layout for Upgrade
Sheet No. 2 - Estimate of Structure Quantities and Notes
Sheet No. 3 - Notes (Continued)
Sheet No. 4 - Notes (Continued)
Sheet No. 5 - Berm Repair Details
Sheet No. 6 - Approach Slab Details (A)
Sheet No. 7 - Approach Slab Details (B)
Sheet No. 8 - Approach Slab Details (C)
Sheet No. 9 - Approach Slab Joint Details
Sheet No. 10 - Two Coat Bridge Deck Polymer Chip Seal Layout
Sheet No. 11 - As-Built Elevation Survey Request
Sheet No. 12 thru 16 - Original Construction Plans

(EAST BOUND LANES)
LAYOUT FOR UPGRADE
FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY
OVER SILVER CREEK
STR. NO. 40-142-145
PCN 06PR

0° SKEW
SEC. 15-T106N-R52W
NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

-X020-

1 OF 16

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB01		

Revised 12/18/2025 T.J.M.

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0010	Remove Concrete Bridge Approach Slab	232.5	SqYd
120E3120	Bridge Berm Repair	2	Each
120E7000	Select Granular Backfill	17.9	Ton
260E1010	Base Course	28.7	Ton
410E2600	Membrane Sealant Expansion Joint	83.8	Ft
460E0150	Concrete Approach Slab for Bridge	190.6	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	41.8	SqYd
491E0005	Two Coat Bridge Deck Polymer Chip Seal	466.7	SqYd
491E0110	Abrasive Blasting of Bridge Deck	466.7	SqYd
491E0120	Bridge Deck Grinding	466.7	SqYd
491E0130	Concrete Removal, Class A	5.1	SqYd
491E0140	Concrete Removal, Class B	5.1	SqYd
491E0172	Concrete Patching Material, Bridge Deck	51.8	CuFt
700E0210	Class B Riprap	264.1	Ton
831E0110	Type B Drainage Fabric	345	SqYd
831E1030	Perforated Geocell	427	SqFt

SPECIFICATIONS

Construction Specifications: Standard Specifications for Roads and Bridges, 10-1-25 Version; Required Provisions; and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges is available for download and viewing at https://dot.sd.gov/doing-business/contractors/standard-specifications.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown elsewhere in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer a minimum of two weeks prior to the preconstruction meeting.

1. Repair Bridge Berm and inslopes at the abutments.
2. Place Type B drainage fabric and Class B Riprap.
3. Place Perforated Geocell filled with Select Granular Backfill on the berm top.
4. Remove the existing approach and sleeper slabs.
5. Place base course material to the correct grade.
6. Replace approach slabs and sleeper slabs to the correct grade.
7. Replace sleeper slab joints with Membrane Sealant Expansion Joint.
8. Perform Bridge Deck Grinding.
9. Where necessary, repair the bridge deck by removing and patching all loose and delaminated concrete from the bridge deck surface.
10. Clean the bridge deck surface with abrasive blasting.
11. Place the Two Coat Bridge Deck Polymer Chip Seal.

GENERAL CONSTRUCTION – BRIDGE

1. All mild reinforcing steel will conform to ASTM A615, Grade 60.
2. All exposed concrete corners and edges will be chamfered ¾-inch unless noted otherwise in the plans. Match existing chamfer if the existing chamfer differs.
3. Use 2-inch clear cover on all reinforcing steel except as shown otherwise.
4. Request 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.
5. All lap splices are contact lap splices unless noted otherwise.

BRIDGE BERM REPAIR

1. The bridge berms have significant material loss due to a flood event and will need rebuilt and shaped to their original template with Class B Riprap incorporated into the berm slope.
2. The bridge berms have significant material loss due to a flood event and will need rebuilt and shaped as shown in the plans and Class B Riprap placed on the berm slope.
3. Due to material loss at the site, borrow is to be provided to rebuild the berm and fill any erosion features on the berm slope. Reconstruct the berms to at least 1-foot above the bottom of the abutment backwall. The berm slope will be benched into stable embankment during reshaping and reconstruction. The soil will be placed in horizontal lifts perpendicular to the centerline of the abutment. For informational purposes the estimated borrow material required is 21 cubic yards.
4. Shape the fill in front of the wing walls to divert runoff from the inslopes away from the face of the berm slope. Reshape the inslopes near the wing walls to approximately 20 feet out from the bridge.
5. At the upper part of the berm slope, clearance between the structure and berm will prohibit the use of large compaction equipment. The soil in this area will be compacted using hand operated compaction equipment. Berm material will be placed in reduced lift thicknesses with adequate moisture to obtain density requirements.
6. Soil used to reconstruct the berm slope will be furnished by the Contractor and approved by the Engineer. The soil will have 100% passing the 1 ½ inch sieve, a maximum of 70% passing the #4 sieve, have a maximum Liquid Limit (LL) of 45 and a Plastic Index (PI) greater than 10 but less than 25. The Contractor will be responsible for one gradation, LL and PI test for each borrow source for berm reconstruction. The test results will be supplied to the Engineer in writing.
7. Compaction of the reconstructed berm and inslopes will be governed by the Ordinary Compaction Method.
8. Quantities provided are an estimate for this work. It is the responsibility of the Contractor to visit the site prior to starting construction to determine quantities needed.
9. The cost of the berm reconstruction will be incidental to the contract unit price per each for Bridge Berm Repair. This payment will be full compensation for furnishing all materials, labor, tools, and equipment necessary or incidental to the reconstruction of the bridge berm.

RIPRAP

1. The cross section shown in this plan set is provided as a guide for riprap placement and is based on the existing ground locations at the time of inspection. The location of the toe of the riprap may vary to suit local site conditions provided the following items are adhered to:
   a. The opening provided under the structure for water flow is not reduced from what is shown on the cross section.
   b. Any changes in the riprap configuration are approved by the Engineer.
2. Prior to placement of the drainage fabric, the surface to be covered will be smooth, free of obstructions, and conform to the plan configuration.
3. As the riprap is placed on a repaired berm, it is not anticipated that excavation will be required for riprap placement, However, some excavation may be required where the riprap transitions back to the existing profile as directed by the Engineer. All material excavated to allow for riprap placement will be disposed of by the Contractor.
4. A factor of 1.4 tons/CuYd was used to convert the riprap quantity from CuYd to Tons.
5. The Class B Riprap will be constructed to the configuration, limits and elevations shown. All costs associated with placement of the riprap including all material, excavation, labor and equipment will be included in the contract unit price per ton for Class B Riprap.

ESTIMATE OF STRUCTURE QUANTITIES & NOTES

FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 40-142-145

AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	PII	Steve A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB02		

PERFORATED GEOCELL

1. Perforated Geocell will be from the following company or equivalent:

   Company: Agtec
   Phone: 1-818-724-7657
   Website: http://www.agtec.com

2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the manufacturer's recommendation.

3. Perforated Geocell will be filled with the Select Granular Backfill.

4. Payment will be full compensation for labor, tools, materials, and any incidentals necessary to for the installation of the Perforated Geocell and will be included in the contract unit price per square foot for the Perforated Geocell.

5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

REMOVAL OF CONCRETE BRIDGE APPROACH SLAB

1. The existing concrete approach and sleeper slabs adjacent to the structure will be completely removed by the Contractor.

2. The concrete and reinforcing steel from the removal will be disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments.

3. The quantity provided for Remove Concrete Bridge Approach Slab is computed using the plan area for the sleeper slab and the plan area for the approach slab determined separately.

4. All labor, tools, equipment, and any incidentals necessary for removal and disposal of the existing approach slabs and sleeper slabs will be incidental to the contract unit price per square yard for Remove Concrete Bridge Approach Slab.

DESIGN MIX OF CONCRETE

1. Class A45 Concrete will be used for the contract items Concrete Approach Slab for Bridge and Concrete Approach Sleeper Slab for Bridge.

2. The type of cement, concrete strength requirements, aggregate requirements, slump, and air requirements for the contract items Concrete Approach Sleeper Slab for Bridge and Concrete Approach Slab for Bridge will conform to the requirements of Section 460 of the Construction Specifications.

APPROACH SLABS

1. Base Course will be constructed in accordance with Section 430 of the Construction Specifications.

2. Excavation for placement of new approach slabs, sleeper slabs, and Base Course will be done with minimal disturbance to the underlying material.

3. Prior to the placement of the approach and sleeper slabs, the existing Select Granular Backfill material will be compacted using at least four complete passes of a smooth face vibratory roller or vibratory plate compactor. Base Course will be placed as required to fill any low spots and to achieve the elevation needed for installation of the new approach and sleeper slabs. The existing and fill material will be thoroughly watered prior to and during compaction. Base Course will be in accordance with Section 882 of the Construction Specifications.

4. The top of approach slab elevations will be as provided and subject to the approval of the Engineer. Care will be taken to provide a smooth transition from the bridge deck elevations to the new pavement elevations to prevent any dips or bumps in the areas of the bridge ends or ends of the new approach slabs. The maximum rate of grade transition through the approach slab will be 1/8-inch per 10 feet.

5. Sleeper slab riser will be cast with or later than the approach slab. Care will be taken to ensure the correct grade is maintained across the joint.

6. The portion of the sleeper slab below the construction joint may be precast. If the bottom portion of the sleeper slab is precast, the Contractor will submit proposed lifting and setting plans to the Bridge Construction Engineer for approval. In addition, if reinforcing or other details differ from those shown in the plans, the Contractor will submit proposed alternate details for approval.

7. The use of a vibratory screed will be required during placement of Class A45 Concrete for the approach slabs. Concrete placement in front of the screed will be kept parallel to the screed.

8. The concrete in the approach slab will be tined perpendicular to the centerline of the roadway.

9. The new approach slabs and sleeper slabs will have a surface finish as specified in Section 460.3 L.4 of the Construction Specifications.

10. The concrete approach slabs will be cured in accordance with Section 460.3 M of the Construction Specifications. The minimum 7-day cure time requirement will be waived. The approach slabs will be cured until a minimum compressive strength of 4,000 psi is reached.

11. The quantity Base Course required to fill any low spots or voids is based on a 2-inch layer under the area of the approach slab. The actual quantity may vary.

12. Concrete Approach Sleeper Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for excavation; furnishing, hauling, and placing all materials including: concrete, and reinforcing steel; for disposal of all excavated material and surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

13. Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for excavation; furnishing, hauling, and placing all materials including: concrete, asphalt paint or 6 mil polyethylene sheeting, elastic joint sealer, and reinforcing steel; for disposal of all excavated material and surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

14. Any Base Course and compaction required to fill any low spots or voids will be paid for at the contract unit price per cubic per yard for Base Course. This payment will be full compensation for furnishing, hauling, and placing all materials including disposal of all surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

BRIDGE DECK GRINDING

The existing bridge deck has a polymer chip seal and pavement marking that will be removed.

CONCRETE PATCHING MATERIAL, BRIDGE DECK

1. In lieu of the 48-hour wet cure, the Contractor may use a wax-based curing compound after 4 hours of wet cure. The wax-based curing compound will be white pigmented and will be applied to the patch until the entire surface is white. After the 48-hour cure period, the curing compound will be completely sand blasted off and the surface of the patch will be allowed to air dry for a minimum of 48 hours before application of the polymer chip seal.

2. A thicker layer of the Two Coat Bridge Deck Polymer Chip Seal will not be used in place of Concrete Patching Material, Bridge Deck. Joint Nosing Material from the Department's Approved Products List may be used in limited amounts for Concrete Patching Material, Bridge Deck provided it is compatible with the polymer used for the chip seal and is approved by the manufacturer's representative. Patching with nosing material will not be allowed if the patch area is more than 9 square feet or goes below the top mat of reinforcing steel. Joint Nosing Material will be fully cured before application of the chip seal. If Joint Nosing Material is substituted for Concrete Patching Material it will be paid for at the contract unit price per cubic foot for Concrete Patching Material, Bridge Deck.

NOTES (CONTINUED)

FOR

106' - 0" CONTINUOUS CONCRETE BRIDGE

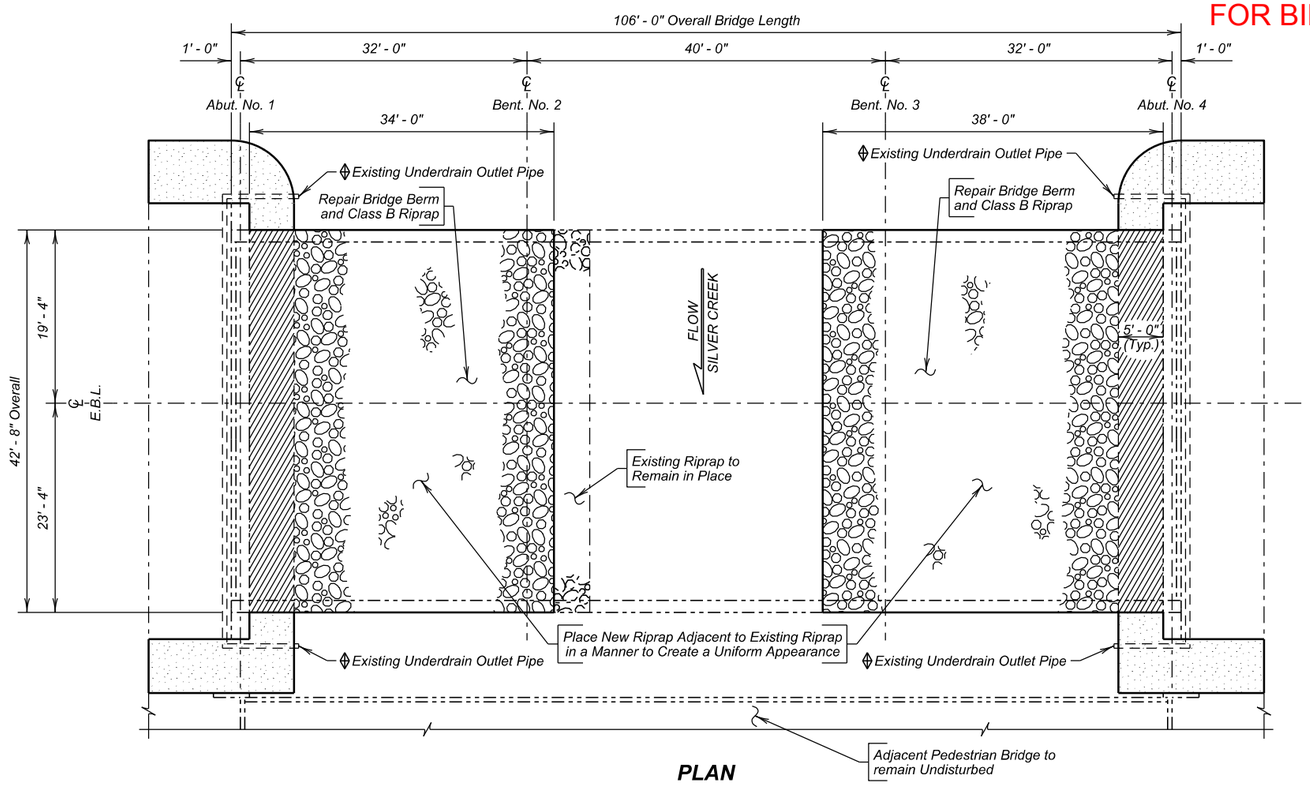
STR. NO. 40-142-145

AUGUST 2025

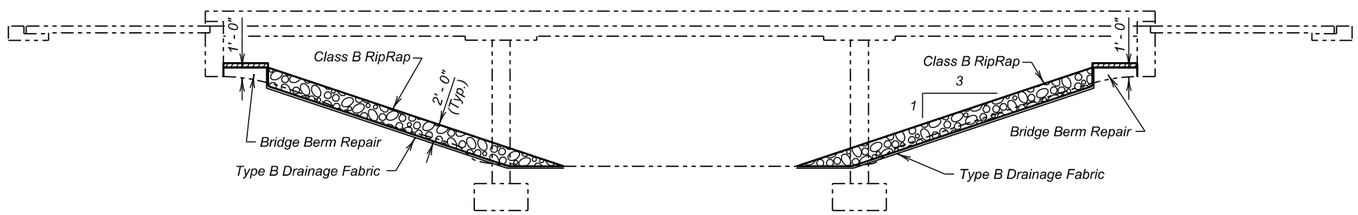
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	PII	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB03		

AS-BUILT ELEVATION SURVEY

The Contractor will be responsible for producing an as-built elevation survey soon after construction is complete and before the bridge is completely opened to traffic. The Contractor will be responsible for recording the as-built deck elevations at the locations shown by the table of as-built elevations shown in the plans. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The benchmark shown in the plans has not been tied to the NAVD88. The Contractor will be responsible for establishing a NAVD88 elevations for the benchmark provided in the plans. All costs associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.



PLAN



ELEVATION

GENERAL NOTES:

- Perform excavation in a manner that limits disturbance to the existing bridge berm. Where disturbance can not be minimized or if the existing spill cone has eroded, rebuild as shown.
- ☆ The berms and slope protection are to be repaired to match the original templates. The swale below the outlet pipe is also to be filled and reconstructed.
- ⧫ Underdrain Outlets are not to be disturbed, damaged, or buried during construction. Any damage will be repaired at the expense of the Contractor.
- ⊛ For estimating purposes only, a factor of 1.4 Tons/Cu. Yd. was used to convert Cu. Yds. to Tons.
- ⧖ For estimating purposes only, a factor of 1.89 Tons/Cu. Yd. was used to convert Cu. Yds. to Tons.

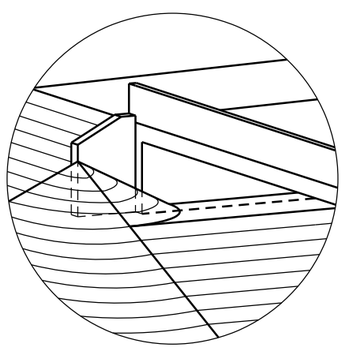
ESTIMATED QUANTITIES

(For Both Abutments)

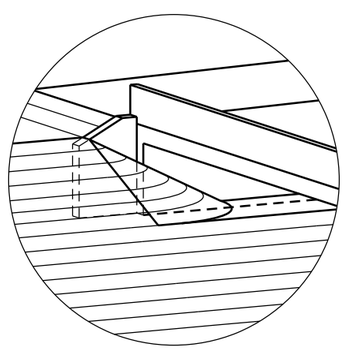
	ITEM	UNIT	QUANTITY
☆	Bridge Berm Repair	Each	2
⧖	Select Granular Backfill	Ton	17.9
⊛	Class B Riprap	Ton	264.1
	Type B Drainage Fabric	SqYd	345
	Perforated Geocell	SqFt	427

LEGEND:

- Class B Riprap
- Perforated Geocell
- Spill Cone



✠SPILL CONE DETAIL AT EMBANKMENT



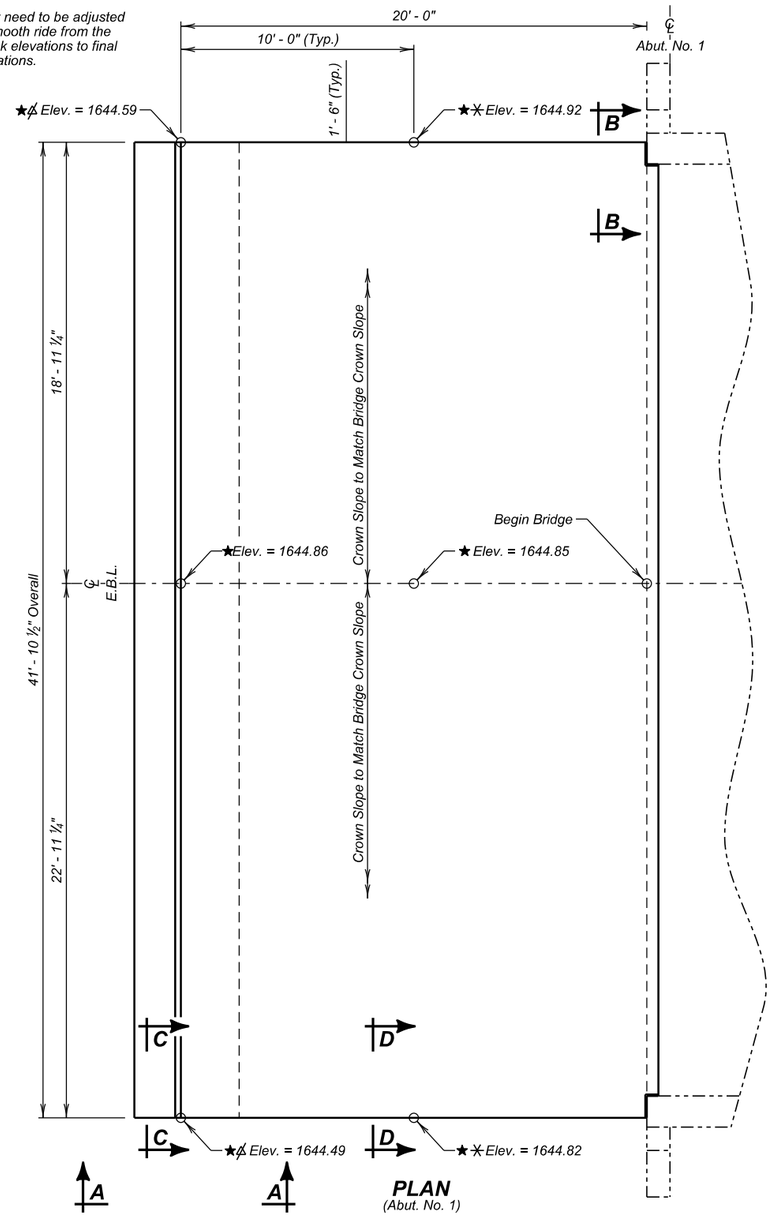
✠SPILL CONE DETAIL ADJACENT PEDESTRIAN BRIDGE

(EAST BOUND LANES)
BERM REPAIR DETAILS
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE
40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-145 — NH 0034(212)388

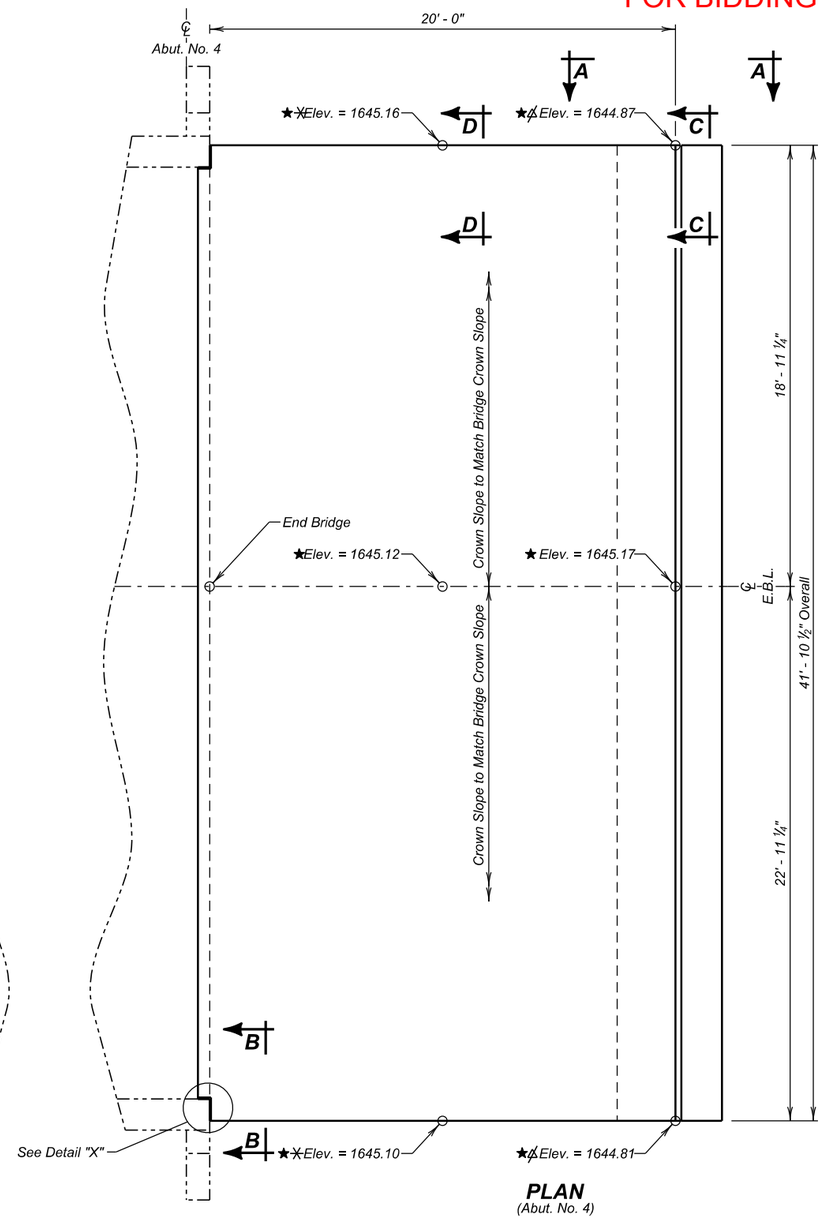
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB05		

★ Elevations may need to be adjusted to achieve a smooth ride from the final bridge deck elevations to final pavement elevations.



PLAN
(Abut. No. 1)



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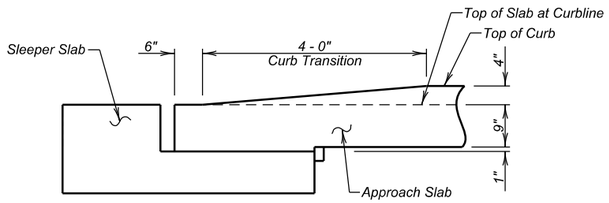
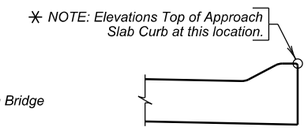


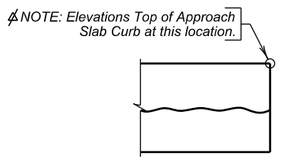
VIEW A - A

Survey Reference:

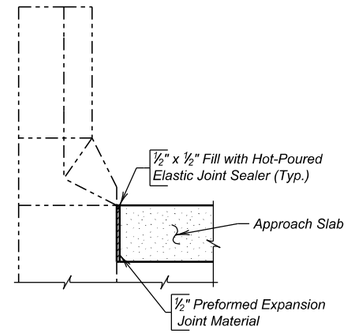
Metal Benchmark on Abutment of Adjacent Pedestrian Bridge
Elevation 1645.93



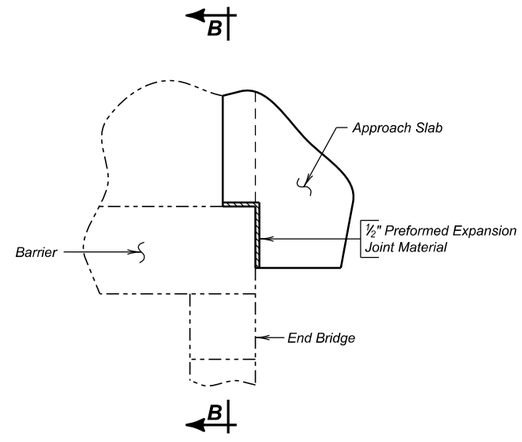
SECTION D - D



SECTION C - C



SECTION B - B



DETAIL "X"

(EAST BOUND LANES)
APPROACH SLAB DETAILS (A)
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY
OVER SILVER CREEK
STR. NO. 40-142-145

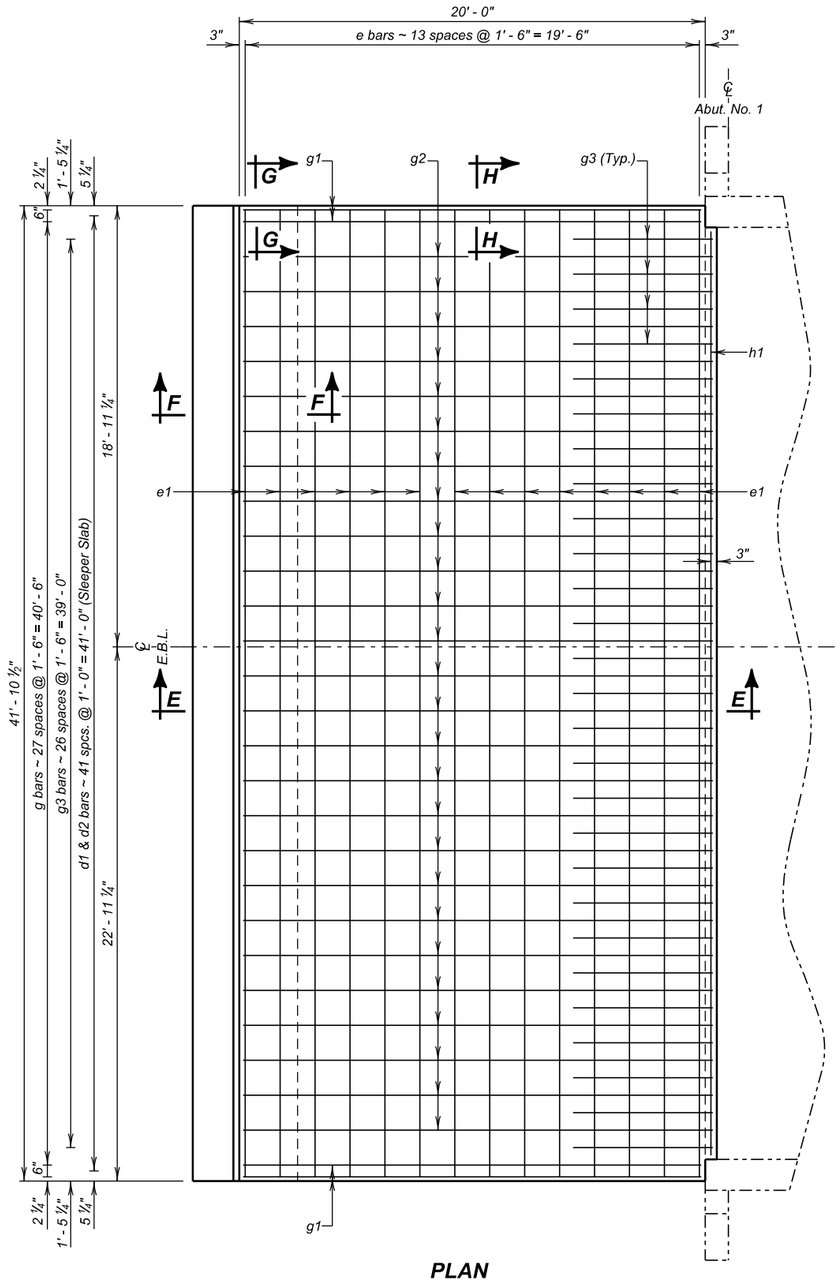
0° SKEW
SEC. 15-T106N-R52W
NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

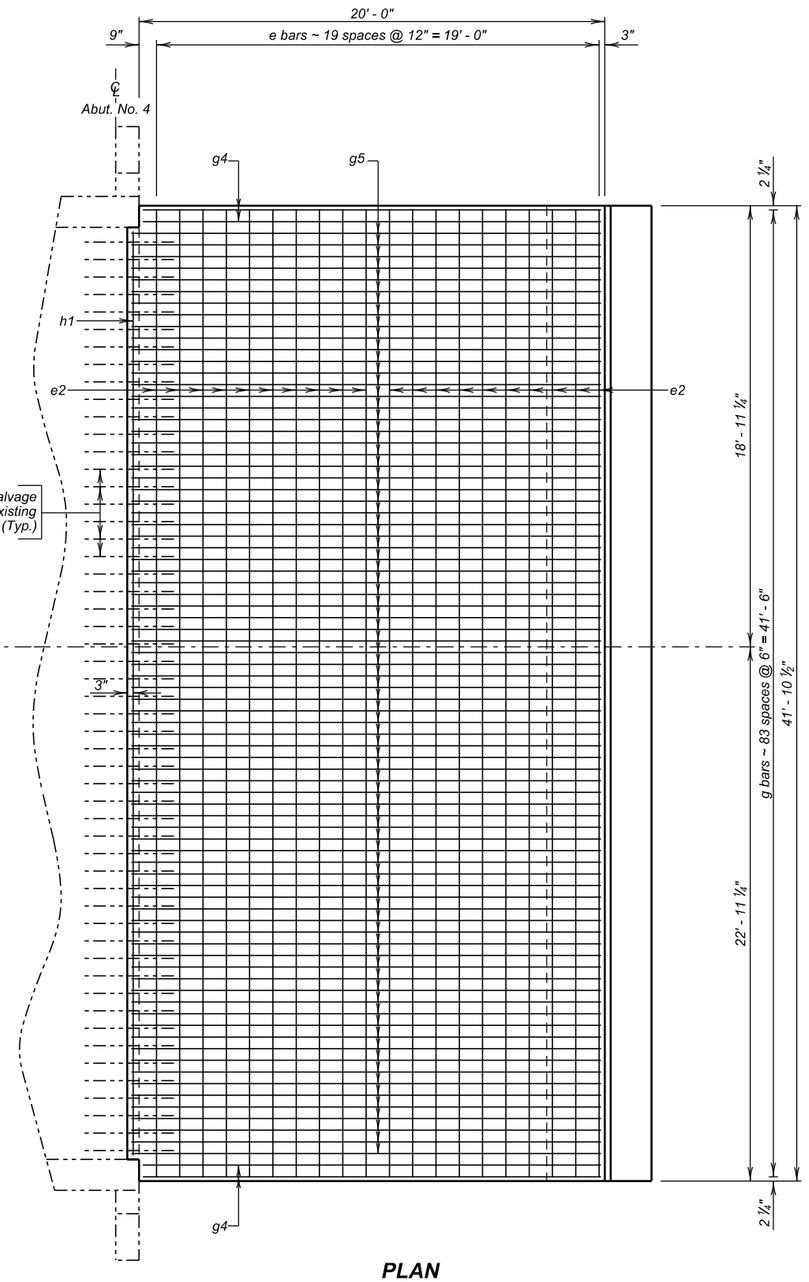
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB06		

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	144	170



PLAN
(TOP STEEL)
(Adjacent to Abut. No. 1 Shown, Abut. No. 4 similar by rotation)



PLAN
(BOTTOM STEEL)
(Adjacent to Abut. No. 4 Shown, Abut. No. 1 similar by rotation)

(EAST BOUND LANES)
APPROACH SLAB DETAILS (B)
FOR

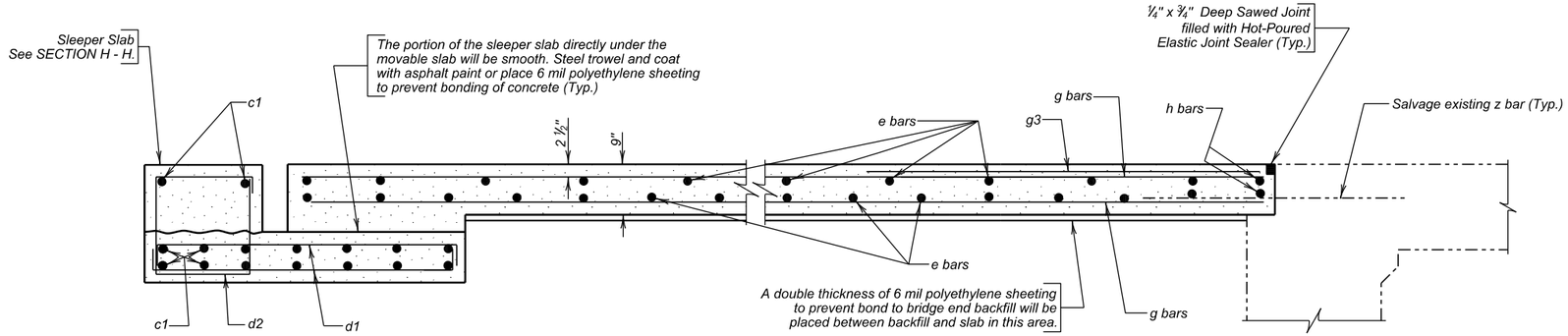
106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY
OVER SILVER CREEK
STR. NO. 40-142-145

0° SKEW
SEC. 15-T106N-R52W
NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB07		

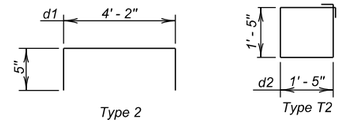


SECTION E - E

REINFORCING SCHEDULE
(For Two Approach and Two Sleeper Slabs)

Mk.	No.	Size	Length	Type
c1	32	5	41' - 6"	Str.
d1	168	4	5' - 0"	2
d2	84	4	6' - 5"	T2
e1	28	4	41' - 6"	Str.
e2	40	6	41' - 6"	Str.
g1	8	4	19' - 8"	Str.
g2	52	4	20' - 2"	Str.
g3	54	4	6' - 0"	Str.
g4	8	8	19' - 8"	Str.
g5	160	8	20' - 2"	Str.
h1	4	6	39' - 8"	Str.

Bending Details



Note -
All Dimensions are out to out of bars.
All Bars to be Epoxy Coated.

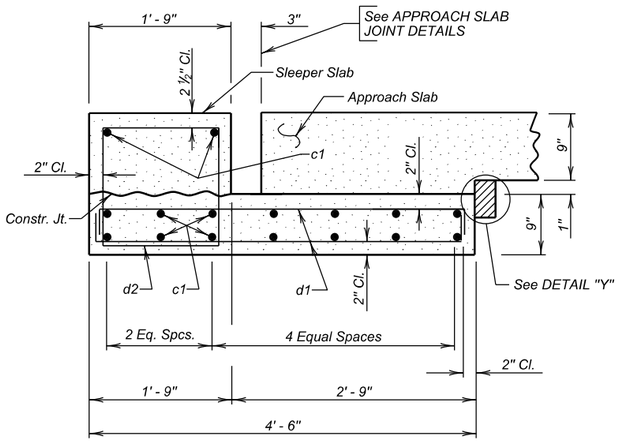
ESTIMATED QUANTITIES
(For Two Approach and Two Sleeper Slabs)

	ITEM	UNIT	QUANTITY
	Remove Concrete Bridge Approach Slab	SqYd	232.5
	Concrete Approach Slab for Bridge	SqYd	190.6
	Concrete Approach Sleeper Slab for Bridge	SqYd	41.8
✳	Base Course	Ton	28.7

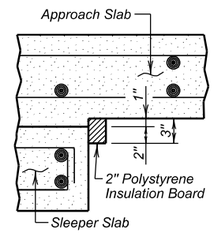
✳ For estimating purposes only, a factor of 1.89 Tons/CuYd was used to convert CuYd to Tons. Base Course for Approach Sidewalk Slab included in quantity.

1. Concrete in Approach Slabs — 48.2 CuYd
2. Epoxy Coated Reinforcing Steel in Approach Slabs — 13,573 Lbs
3. Concrete in Sleeper Slabs — 14.8 CuYd
4. Epoxy Coated Reinforcing Steel in Sleeper Slabs — 2,307 Lbs
5. 2" Polystyrene Insulation Board — 21 SqFt

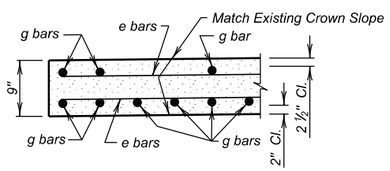
Items 1 thru 5 are approximate quantities contained in the above contract items and are for information only.



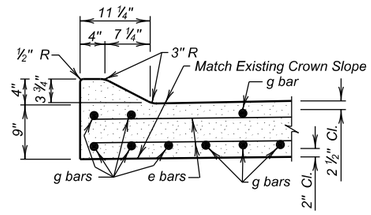
SECTION F - F
(Sleeper Slab)



DETAIL "Y"



SECTION G - G



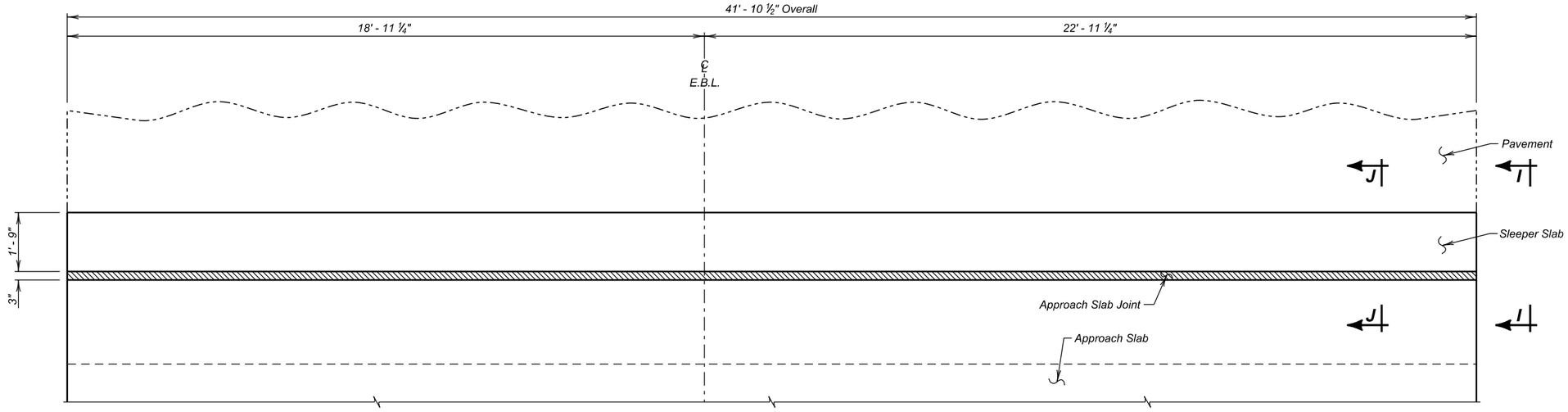
SECTION H - H

(EAST BOUND LANES)
APPROACH SLAB DETAILS (C)
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE
40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-145 — NH 0034(212)388

LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB08		

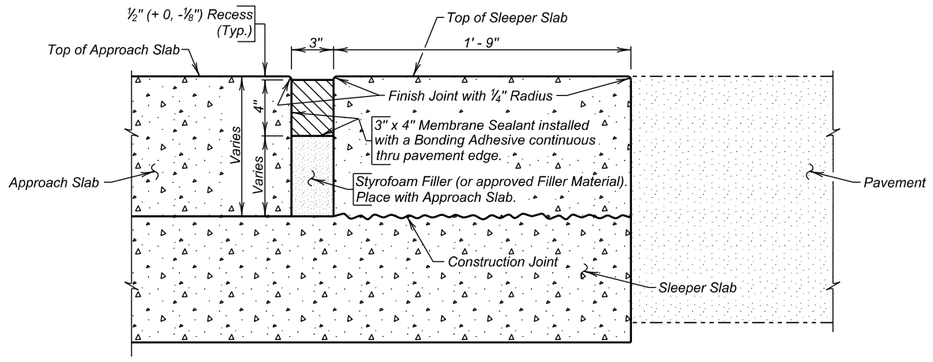
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	146	170



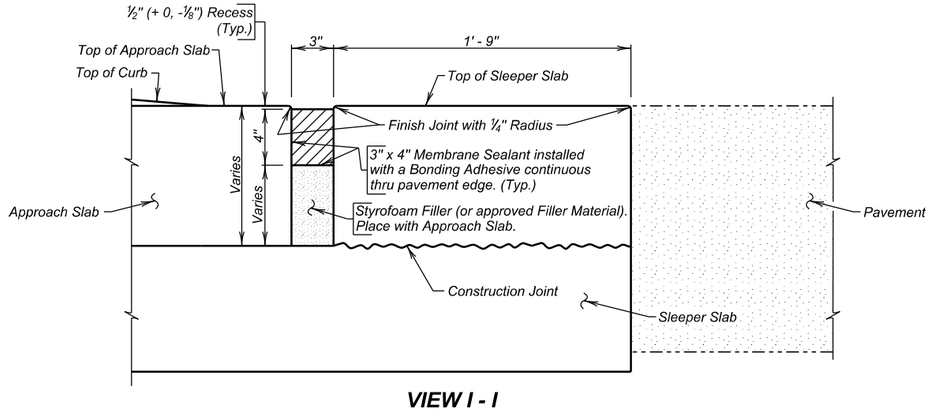
PLAN

GENERAL NOTES

1. The membrane sealant will be on the approved product list for membrane sealant expansion joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer to provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension. In no case will the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will be supplied in pieces 5 feet in length or longer. The foam sealant will be ultra-violet and ozone resistant.
4. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
5. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
6. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
7. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
8. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to insure the Contractor installs the joint to the Manufacturers recommendations.
9. Concrete surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the concrete surface. At a minimum two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the concrete surface will be required. Cleaning of the concrete surfaces with solvents, wire brushing, or grinding will not be permitted.
10. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent concrete surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
11. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
12. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
13. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
14. The membrane sealant expansion joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The membrane sealant expansion joint will be paid for at the contract unit price per foot complete in place. Payment for this item will be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.



SECTION J - J



VIEW I - I

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Membrane Sealant Expansion Joint	Ft	83.8

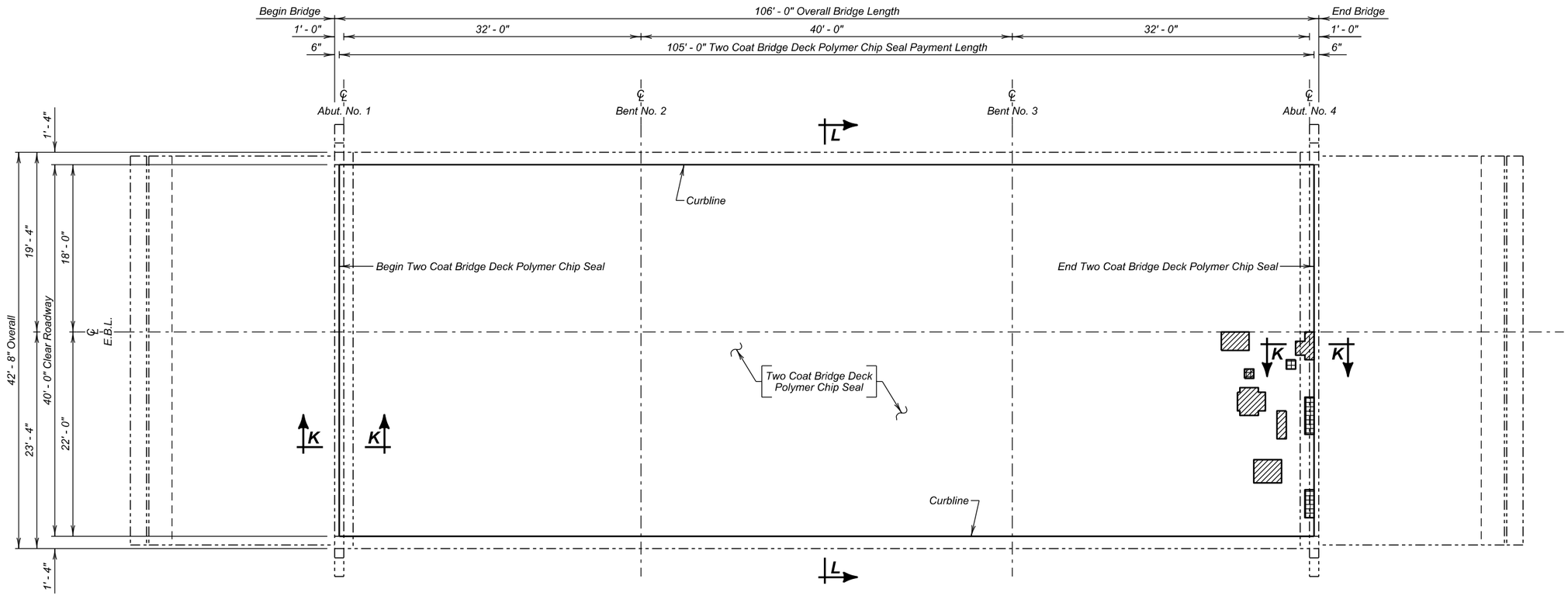
(EAST BOUND LANES)
APPROACH SLAB JOINT DETAILS
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-145 — NH 0034(212)388

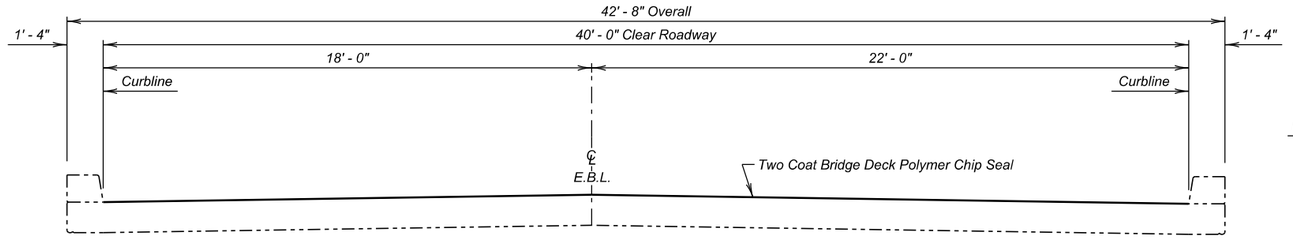
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steven A. Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB09		

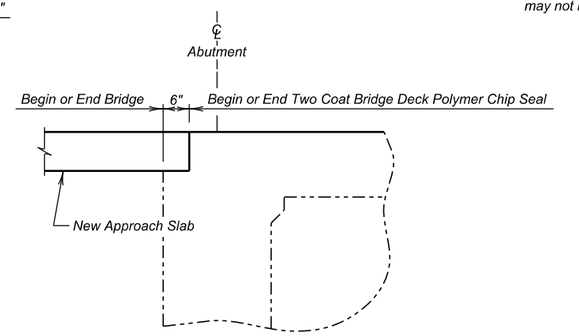
FOR BIDDING PURPOSES ONLY



PLAN



SECTION L - L



SECTION K - K

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Two Coat Bridge Deck Polymer Chip Seal	SqYd	466.7
Abrasive Blasting of Bridge Deck	SqYd	466.7
Bridge Deck Grinding	SqYd	466.7
✳ Concrete Removal, Class A	SqYd	5.1
✳ Concrete Removal, Class B	SqYd	5.1
✳ Concrete Patching Material, Bridge Deck	CuFt	51.8

✳ *Concrete Removal, Class A; Concrete Removal, Class B; and Concrete Patching Material may not be encountered and may be removed from the project at the direction of the Engineer.*

LEGEND:

- Repair Delaminated Concrete
- Repair Spalled Concrete

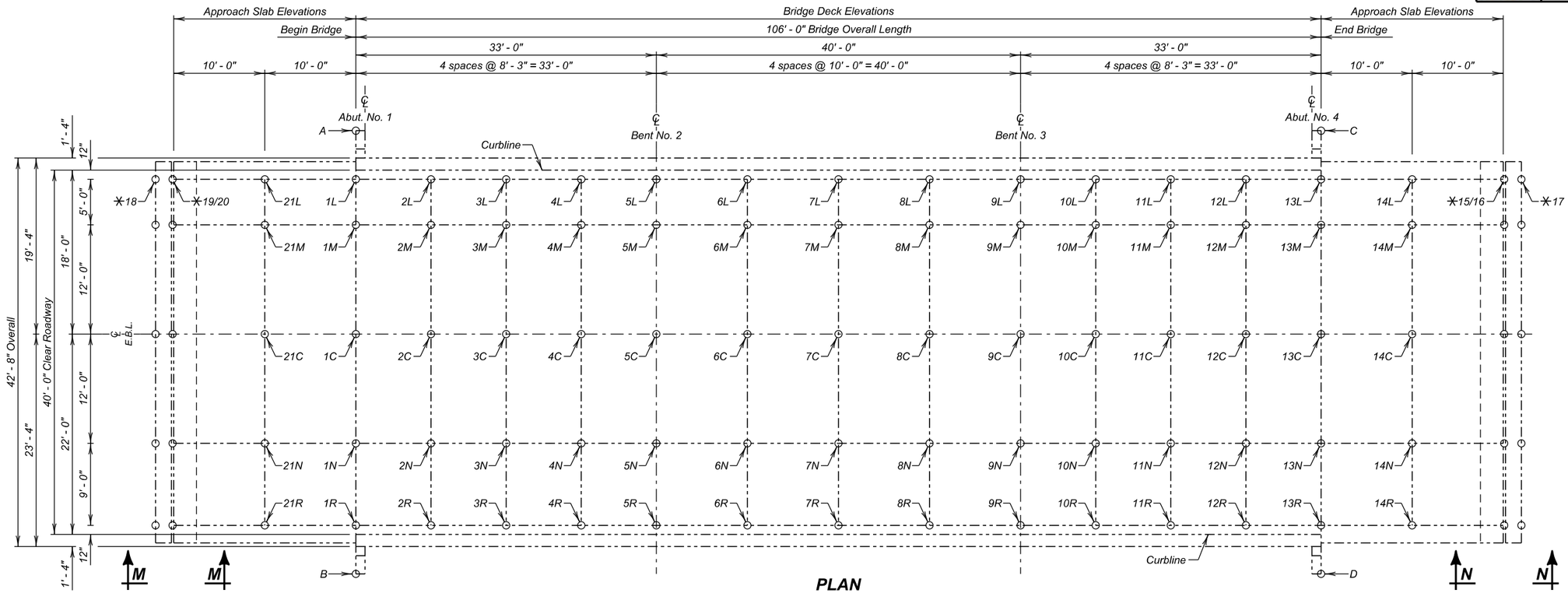
(EAST BOUND LANES)
TWO COAT BRIDGE DECK POLYMER CHIP SEAL LAYOUT
FOR
106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER SILVER CREEK — SEC. 15-T106N-R52W
STR. NO. 40-142-145 — NH 0034(212)388

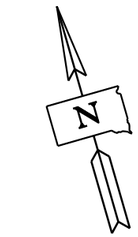
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

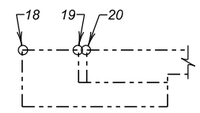
DESIGNED BY	CK. DES. BY	DRAFTED BY	
PII	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB10		

FOR BIDDING PURPOSES ONLY

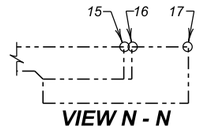


PLAN





VIEW M - M



VIEW N - N

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
1L		1M		1C		1N		1R	
2L		2M		2C		2N		2R	
3L		3M		3C		3N		3R	
4L		4M		4C		4N		4R	
5L		5M		5C		5N		5R	
6L		6M		6C		6N		6R	
7L		7M		7C		7N		7R	
8L		8M		8C		8N		8R	
9L		9M		9C		9N		9R	
10L		10M		10C		10N		10R	
11L		11M		11C		11N		11R	
12L		12M		12C		12N		12R	
13L		13M		13C		13N		13R	

Table of Elevations - Approach Slab Joints (See VIEW N - N) and Approach Slab									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
14L		14M		14C		14N		14R	
15L		15M		15C		15N		15R	
16L		16M		16C		16N		16R	
17L		17M		17C		17N		17R	

Table of Elevations - Approach Slab Joints (See VIEW M - M) and Approach Slab									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
18L		18M		18C		18N		18R	
19L		19M		19C		19N		19R	
20L		20M		20C		20N		20R	
21L		21M		21C		21N		21R	

Bridge Ends	
Location	Elevation
A	
B	

Bridge Ends	
Location	Elevation
C	
D	

NOTE:

The elevations shall be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

Survey Reference:

Metal Benchmark on Abutment of Adjacent Pedestrian Bridge
Elevation 1645.93

✳ *Labels for all the points at the joints are not shown for clarity. These points follow the same labeling sequence as the adjacent points. Details for these point locations are also shown in VIEW M - M & VIEW N - N.*

(EAST BOUND LANES)
AS-BUILT ELEVATION SURVEY REQUEST
FOR

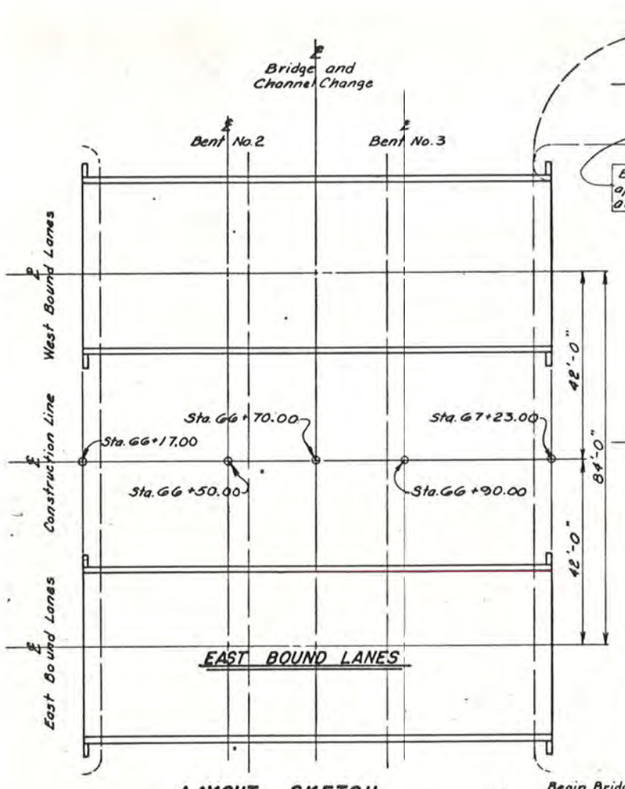
106' - 0" CONTINUOUS CONCRETE BRIDGE

40' - 0" ROADWAY
OVER SILVER CREEK
STR. NO. 40-142-145

0° SKEW
SEC. 15-T106N-R52W
NH 0034(212)388

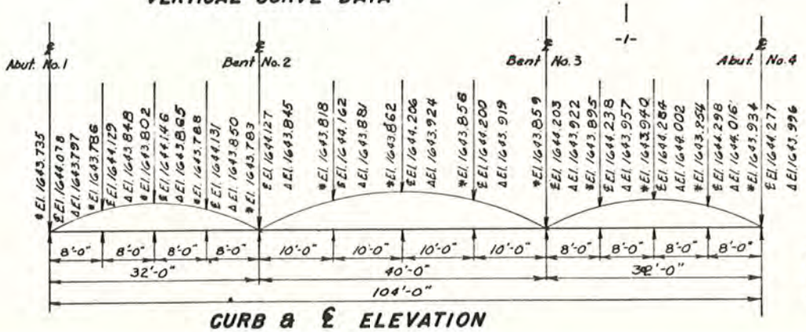
LAKE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KR	CM	KR	Steve A Johnson BRIDGE ENGINEER
LAKE06PR	06PRRB11		



LAYOUT SKETCH

VERTICAL CURVE DATA



CURB & ℄ ELEVATION

B.M. #9 El. 1634.80
Rebar & Gds. 282' Rt.
Sta. 63+45

B.M. #10 El. 1649.90
Rebar & Gds. 78' Lt
Sta. 74+74

Sta. 66+17.00
Sta. 66+18.00
Sta. 66+50.00
Sta. 66+70.00
Sta. 66+90.00
Sta. 67+23.00
Sta. 67+22.00

Bench at Berm Elev. Typ. on approaches adjacent to upstream abutment wings. (See Grading Plans).

30'-0"
15'-0"
15'-0"

TS@C El. 1643.80
TS@C El. 1643.80
TS@C El. 1643.92
TS@C El. 1643.85
TS@C El. 1644.00
TS@C El. 1644.00
FLOW CREEK
TS@℄ El. 1644.08
TS@℄ El. 1644.08
TS@℄ El. 1644.13
TS@℄ El. 1644.20
TS@℄ El. 1644.28
TS@℄ El. 1644.28
5'-0" (Typ.)
TS@C El. 1643.86
TS@C El. 1643.78
Floor Drain (Typ.)
TS@C El. 1643.73
TS@C El. 1643.73
TS@C El. 1643.94
TS@C El. 1643.93
1'-4"
18'-0" Clear Roadway
19'-4" Overall
42'-0"
22'-0"
23'-4"
42'-8"
1'-4"
East Bound Lanes
T.O.R. (Typ.)
6'-6"
3 Sp'c's @ 9'-0" = 27'-0"
6'-6"
(Typical Floor Drain Spacing)
℄ Abut. No.1
Begin Bridge
℄ Bent No.2
℄ Bent No.3
℄ Abut. No.4
End Bridge

PLAN

106'-0" Overall
1'-0"
32'-0"
40'-0"
32'-0"
1'-0"
T.S.@ ℄ El. 1644.08
T.S.@ C El. 1643.73
T.S.@ ℄ El. 1644.28
T.S.@ C El. 1643.93
El. 1638.23
Berm El. 1639.23
D.H.W. El. 1639.5 ± (100 Yr.)
D.H.W. El. 1637.1 ± (50 Yr.)
Berm El. 1639.43
El. 1638.43
Treated Timber Piles
3'-0"
16'-0"
22'-2½"
℄ Profile
F.L. El. 1628.5 ±
El. 1630.6 ±
Natural Ground
Struct. Incloss Exc.
El. 1628.5 ±
El. 1621.37
El. 1621.65
Treated Timber Piles
-1-
-2-
-3-
-4-

ELEVATION

Elevations indicated with * are Top of Finished Slab at Right Curb, with ℄ are Top of Finished Slab at ℄ Roadway, and with Δ are Top of Finished Slab at Left Curb. Camber for Dead Load Deflection PLUS Plastic Flow shown on Sheet No. 4 of Bridge Plans have been included in the elevations shown.

-X020-

INDEX OF BRIDGE SHEETS

Sheet No. 1 – General Drawing
Sheet No. 2 – Estimated Quantities and Notes
Sheet No. 3 – Subsurface Investigations
Sheet No. 4 – Superstructure Details
Sheet No. 5 – Abutment Details
Sheet No. 6 – Bent Details
Sheet No. 7 – Type RT-4 Steel Railing, Curb and Drain Detail
Sheet No. 8 – End Block Details
Sheet No. 9 – Details of Bridge End Backfill (Plan "A")
Sheet No. 10 – Details of Approach Slab Adjacent to Bridge
Sheet No. 11 – Approach Slab Joint Details
Sheet No. 12 – Standard Plates No. 303.1 and 305

T.S.@C. El. = Top of Slab at Curb Elevation.
T.S.@ ℄ El. = Top of Slab at Centerline Roadway Elevation.

ORIGINAL CONSTRUCTION PLANS

Q 50	2973 C.f.s.
A	464.5 Sq. Ft.
V	6.4 f.p.s.
Q 100	3017 c.f.s.
A	678 sq. ft.
V	7.4 f.p.s.

(EAST BOUND LANES)

GENERAL DRAWING

FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T106N-R52W

STA. 66+17.00 TO 67+23.00 — RF020-7(3)

STR. NO. 40-142-145 LAKE COUNTY — HS20-44

PIERCE & HARRIS ENGINEERING CO. INC.

15 MASONIC BLDG. HURON, S.D. 57350

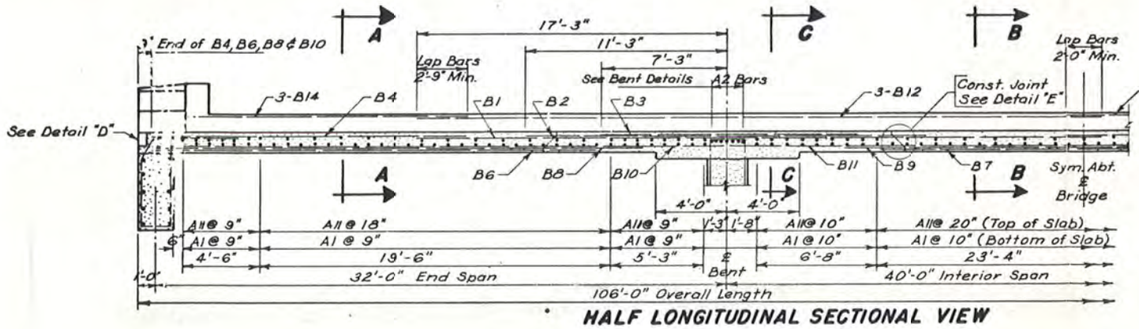
-X020- MARCH 1974

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
BWM	GBS	BWM	BRIDGE ENGINEER

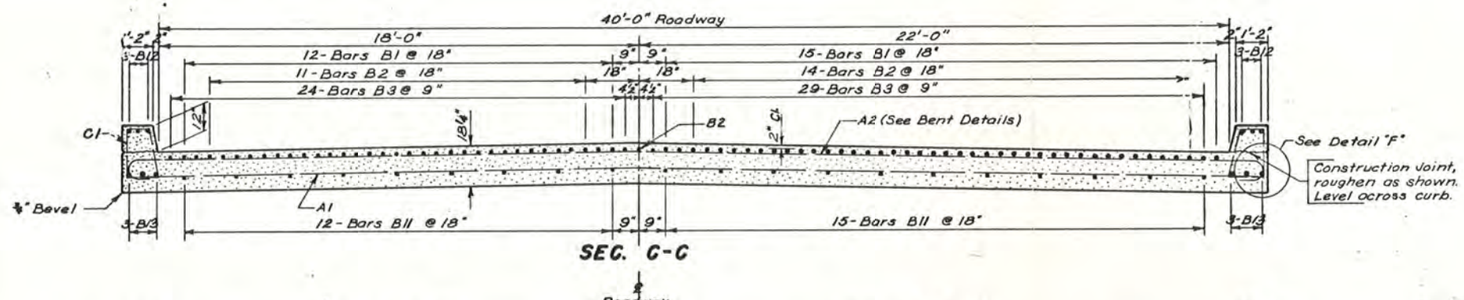
STR. NO. 40-142-145

NOTE:
Place Bars B2 & B3 symmetrically over Bents No. 2 & No. 3. Place Bars B1 & B12 over Bents No. 2 & No. 3 so as to achieve equal laps.

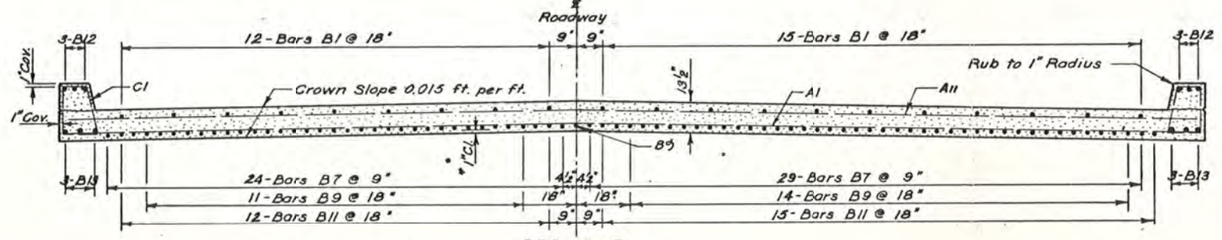
NOTE:
Bars B7 & B9 are to be placed symmetrically about the ℄ of interior span.



HALF LONGITUDINAL SECTIONAL VIEW

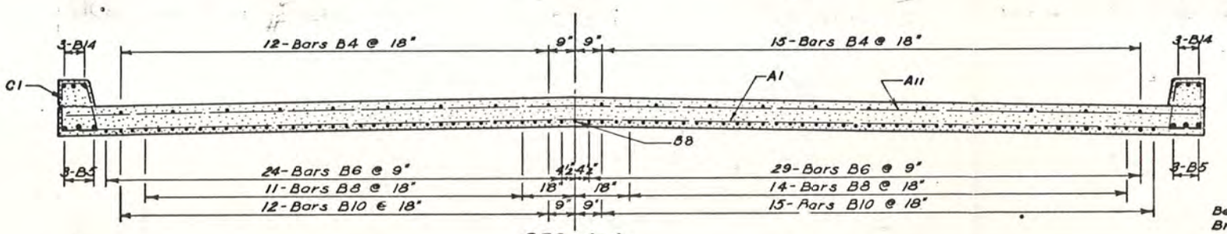


SEC. C-C

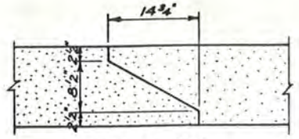


* Min. clear cover

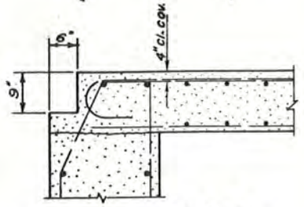
SEC. B-B



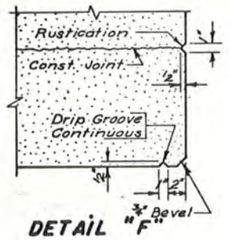
SEC A-A



DETAIL "E"



DETAIL "D"

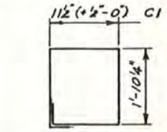


DETAIL "F"

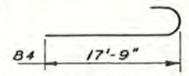
REINFORCING SCHEDULE

MK	No.	Size	Length	Type
A1	125	5	42'-4"	Str.
B1	54	8	38'-3"	
B2	52	8	22'-6"	
B3	106	8	14'-6"	Str.
B4	54	8	10'-0"	1A
B5	12	9	32'-9"	Str.
B6	106	8	25'-6"	
B7	53	8	25'-0"	
B8	52	8	27'-9"	
B9	26	8	28'-0"	
B10	54	7	32'-3"	
B11	27	7	40'-0"	
B12	12	10	38'-3"	
B13	6	9	40'-0"	
B14	12	8	18'-3"	Str.
C1	196	4	7'-0"	T2
*Z1	106	7	4'-0"	Str.
# A11	85	5	42'-4"	Str.

Bending Details



Type T2
Inside Dia. of bends for T2 shall be 2"

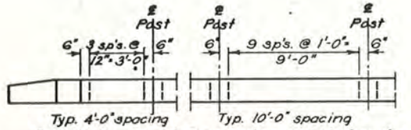


Type 1A

* See sheet 10 of 12 for location of Z1 bars.
NOTE - All dimensions are out to out of bars.
All A11, B1, B2, B3 & B4 Bars are to be Epoxy Coated.

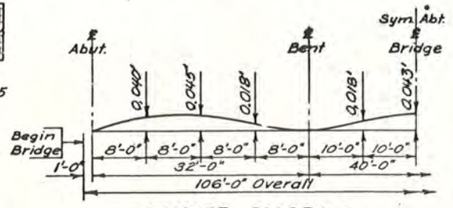
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class 'A' Concrete - Bridge	Cu. Yds.	207.8
Reinforcement Conc. Masonry	Lbs.	34,333
Structural Steel	Lbs.	6997
Type RT-4 Steel Railing	Lin. Ft.	79.0
Oil Treatment - Bridge	Gal.	22
Epoxy Coated Reinforcing Steel	Lbs.	19,235
△ Weight of Roadway Drains.		



See Railing Sheet for number and placing of posts.

CI BAR SPACING



CAMBER DIAGRAM

Camber is calculated for dead load plus plastic flow and shall be added to the proposed grade elevations at the respective stations to establish the elevation of the top of the finished roadway slab.

ORIGINAL CONSTRUCTION PLANS

(EAST BOUND LANES)

SUPERSTUCTURE DETAILS

FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T106N-R52W

STA. 66+17.00 TO 67+23.00 — RF020-7(3

STR. NO. 40-142-145 LAKE COUNTY — HS20-44

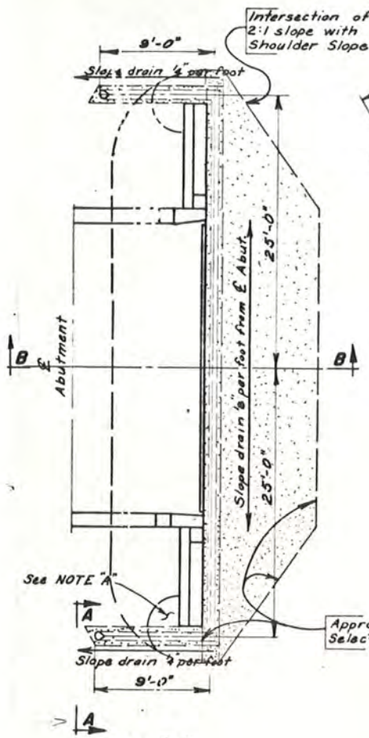
PIERCE & HARRIS ENGINEERING CO. INC.

15 MASONIC BLDG. HURON, S.D. 57350

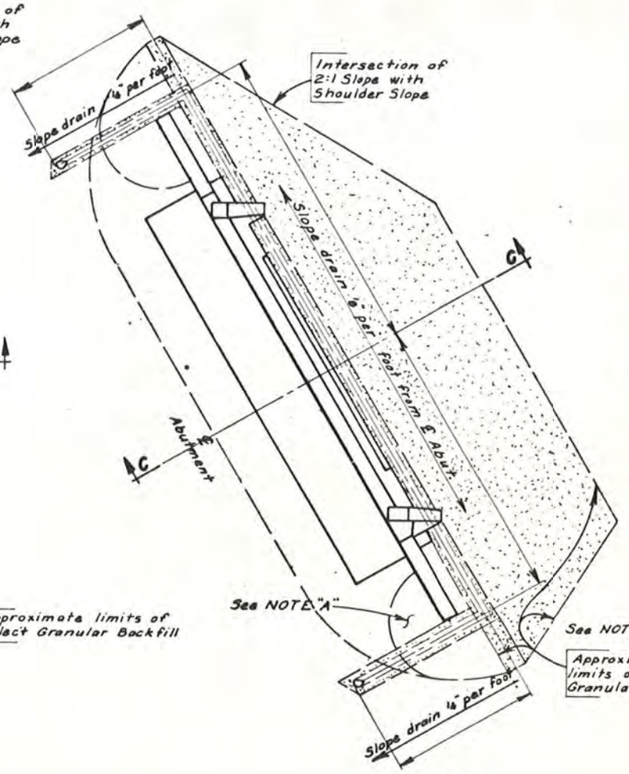
MARCH 1974

13 OF 16

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	BDM	RAS	BRIDGE ENGINEER



PLAN "A"



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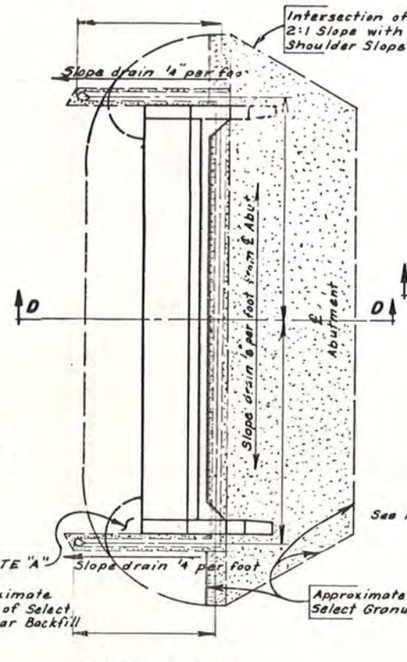

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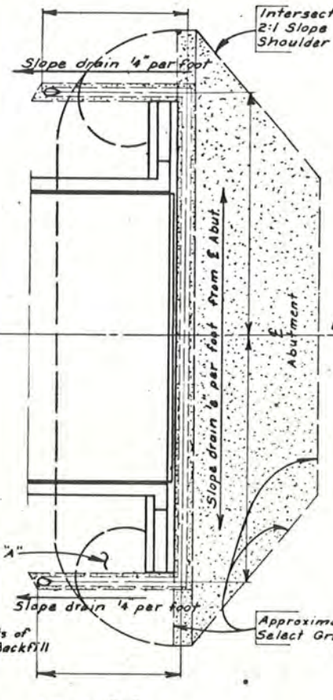

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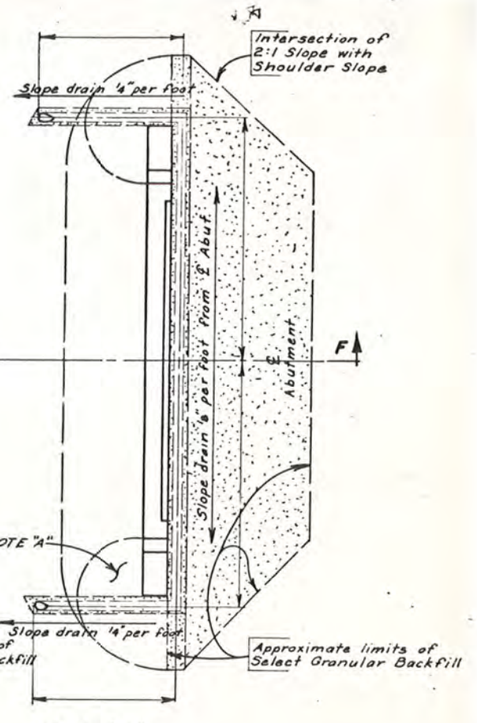

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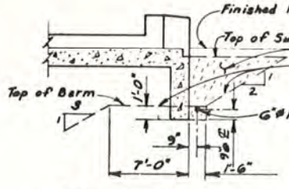
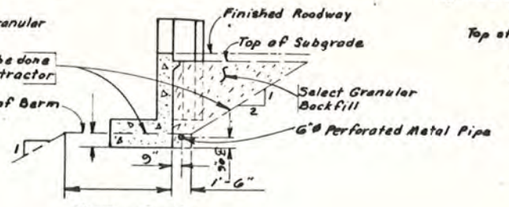


SEC. B–B



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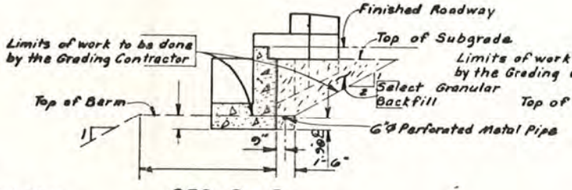
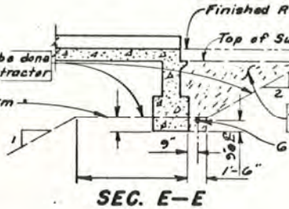
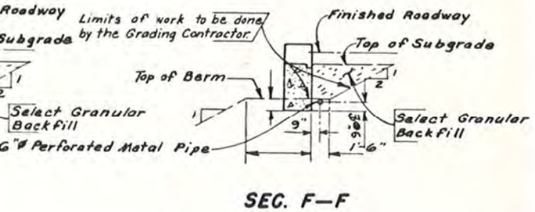


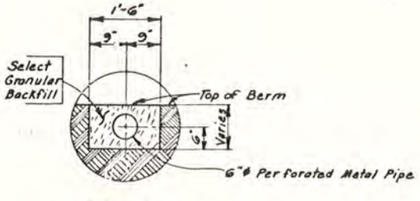
SEC. D–D



SEC. E–E



SEC. F–F



SEC. A–A
(Typical trench for 6"ø pipe)

NOTE "A"–

Excavated material not used for backfill of Abutments, supplemented with Select Granular Backfill, if required, shall be used to build these spill cones as directed by the ENGINEER.

ORIGINAL CONSTRUCTION PLANS

GRANULAR BACKFILL NOTES–

1. The Bridge Contractor shall place Select Granular Backfill and install 6"ø perforated metal pipe according to the Special Provision for Bridge End Backfill, dated Jan. 10, 1975.
2. Suitable screen or grating shall be provided at pipe outlets as approved by the ENGINEER.
3. Pipe shall be placed with perforations down.
4. Structura Excavation will not be computed for the outlet portions of the pipe drains beyond normal excavation limits.
5. Granular Bridge End Backfill shall not be placed until at least 24 hours after the completion of the deck pour.
6. The total estimated theoretical embankment volume of Granular Bridge End Backfill for two abutments is 110 Cubic Yards.
7. The total estimated length of the 6" perforated underdrain pipe for two abutments is 136 feet. The cost of screen or grating in place is to be absorbed in the unit price bid for Bridge End Backfill Underdrain Pipe.

(EAST BOUND LANES)

DETAILS OF BRIDGE END BACKFILL (PLAN "A")

FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15–T.106N.–R. 52 W.

STA. 66+17.00 TO 67+23.00 — HS20–44

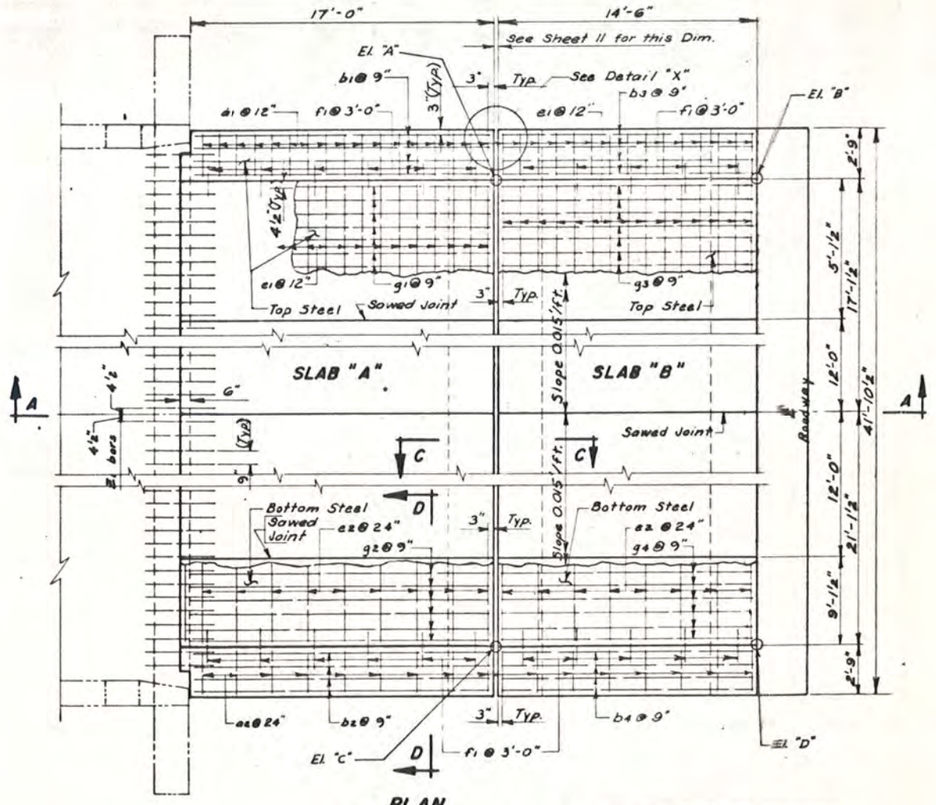
LAKE COUNTY — RF020–7 (3)

PIERCE & HARRIS ENGINEERING CO. INC.

15 MASONIC BLDG. HURON, S.D. 57350

STR. NO. 40-142-145 **MARCH 1974** (14) OF (16)

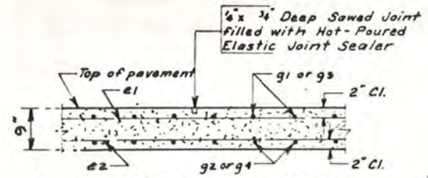
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	R.D.S.	B.M.	BRIDGE ENGINEER



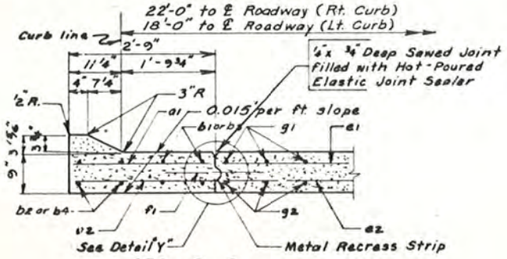
PLAN

Abut. No. 4 Shown
Abut. No. 1 Opposite Hand

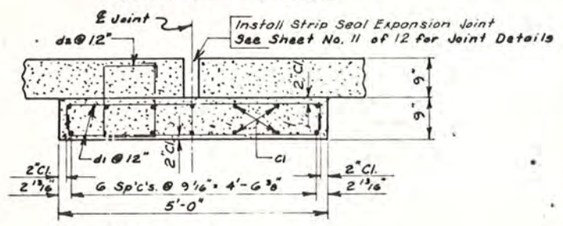
TOP OF SLAB ELEVATION		
Point	Abut. No. 1	Abut. No. 4
A	1643.739	1644.067
B	1643.784	1644.101
C	1643.739	1644.007
D	1643.724	1644.047



SAWED LONGITUDINAL JOINT



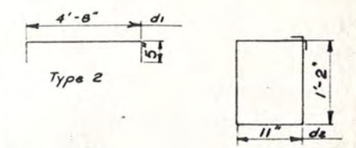
SEC. D—D
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS



SEC. C-C

REINFORCING SCHEDULE
(FOR two approach slabs)

MK.	NO.	SIZE	LENGTH	TYPE	Bending Details
a1	128	3	2'-5"	Str.	
a2	68	5	2'-5"	Str.	
b1	16	3	16'-6"	Str.	
b2	16	7	16'-6"	Str.	
c1	56	5	41'-6"	Str.	
d1	336	4	5'-6"	2	
d2	168	4	4'-11"	T2	
e1	68	3	38'-0"	Str.	
e2	34	5	38'-0"	Str.	
f1	44	4	2'-0"	Str.	
g1	102	3	17'-2"	Str.	
g2	102	7	17'-2"	Str.	
g3	102	3	14'-2"	Str.	
g4	102	7	14'-2"	Str.	
b3	16	3	14'-0"	Str.	
b4	16	7	14'-0	Str.	



NOTE-Z1 bars are listed and included in Superstr. Quantities.
NOTE-All dimensions are out to out of bars.

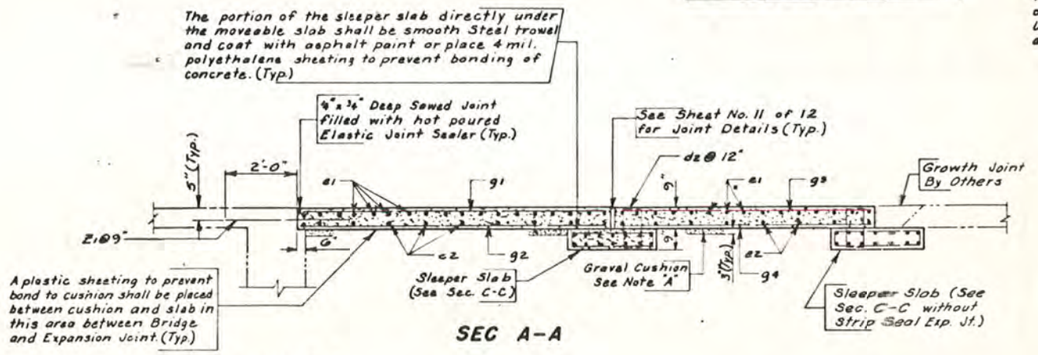
ESTIMATED QUANTITIES
(FOR two approach slabs)

ITEM	UNIT	QUANTITY
Gravel Cushion	Sq. Yds	223.5
Conc. Appr. Slab Adj. to Bridge	Sq. Yds	272
Bridge Approach Sleeper Slab	Sq. Yds	93.1
Conc. Gutter Type DR Straight	Lin. Ft.	128.0
Oil Treatment - Straw	Gal.	10

For Info only: The above contains the following Approx. quantities.
68 Cu Yds concrete in Approach Slabs
10,085 Lbs re-steel in Approach Slabs (including dowels)
93.3 Cu Yds concrete in Sleeper Slabs
5,099 Lbs re-steel in Sleeper Slabs
10.5 Cu Yds concrete in Gutter
1,469 Lbs re-steel in Gutter
37.3 Tons gravel cushion

NOTE—
Slab 'A' plus slab 'B' at each end of Bridge constitutes one slab in above schedule and estimated quantities.

ORIGINAL CONSTRUCTION PLANS



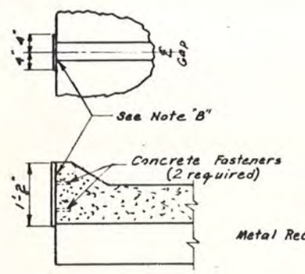
SEC A-A

NOTE "A"

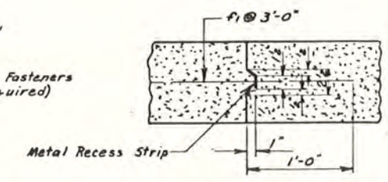
Material for Gravel Cushion shall be as specified for Bridge End Backfill. Gravel Cushion shall be constructed to a depth of three inches under the Concrete Approach Pavement and Gutters. The quantity of Gravel shown in the Estimate of Quantities is based on a rate of 0.167 ton per square yard. Gravel cushion shall be watered and compacted to the satisfaction of the ENGINEER. The cost of water for compaction shall be absorbed in the various pay items of the contract.

NOTE "B"

18 gauge galv. sheet metal. Attach to one side of joint only, after slabs 'A' and 'B' are poured. Use fasteners that will not spall the concrete as approved by the ENGINEER.



DETAIL "X"



DETAIL "Y"

NOTE—
If proposed, approval of alternate designs of Metal Strips will be considered by the ENGINEER.

GENERAL NOTES—

1. All concrete shall be Class 'A'.
2. Bridge Approach Sleeper Slab will be paid for at the Contract unit price bid per square yard. This payment shall be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete and re-steel; for disposal of all excavated and surplus materials; and for furnishing all labor, tools, equipment and incidentals necessary to complete the item of work.
3. The cost of furnishing and installing asphalt paint or 4 mil. polyethalene sheeting, plastic sheeting, elastic joint sealer, metal recess strips, 18 gauge galvanized sheet metal shields attached to gutters at ends of strip seal joints, and sawing of all joints shall be included in the price bid for Concrete Approach Slab Adjacent to Bridge.
4. Re-steel shall conform to A.S.T.M. - A615, Grade 40.

(EAST BOUND LANES)

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE FOR

106'-0" CONTINUOUS CONCRETE BRIDGE

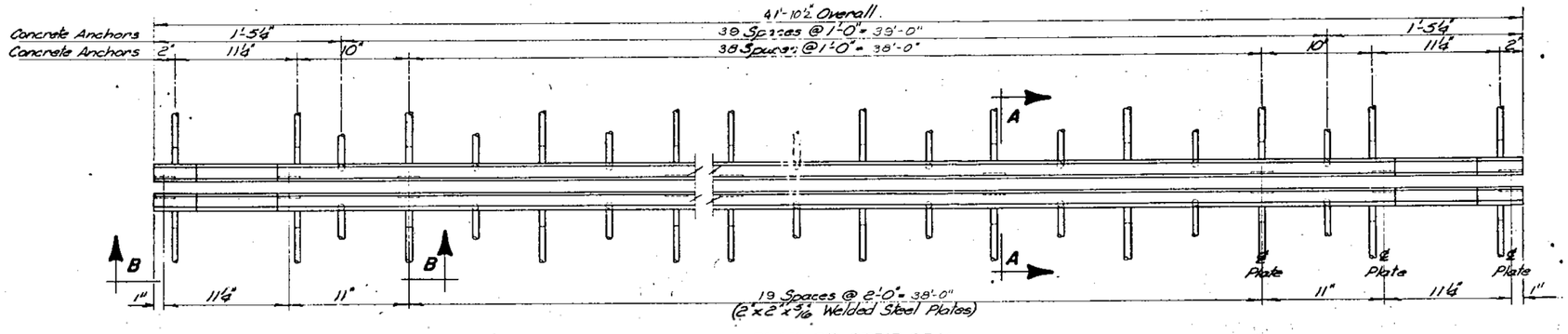
40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T.106 N.- R.52W.
STA. 66+17.00 TO 67+23.00 — HS20- 44
LAKE COUNTY — RF020-7(3)

PIERCE & HARRIS ENGINEERING CO. INC.
15 MASONIC BLDG. HURON, S.D. 57350

STR. NO. 40-142-145 **MARCH 1974**

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	QRS.	BFM	BRIDGE ENGINEER

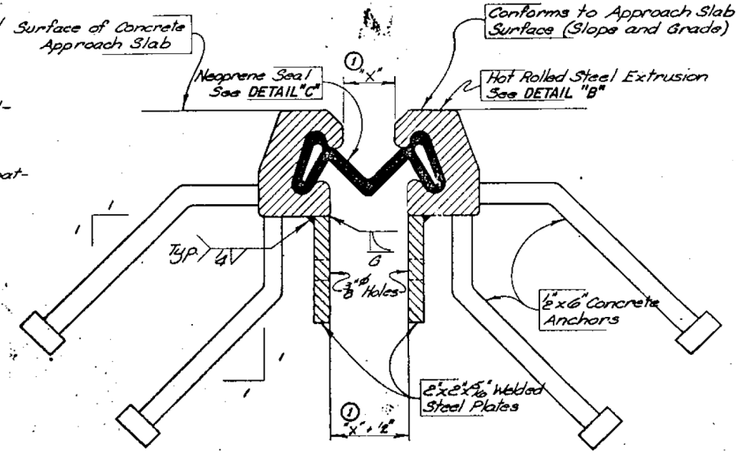


PLAN OF STRIP SEAL

① TEMP.	DIMENSION "X"
30°	2"
40°	
50°	1⅞"
60°	
70°	1¾"
80°	
90°	1⅝"

GENERAL NOTES—

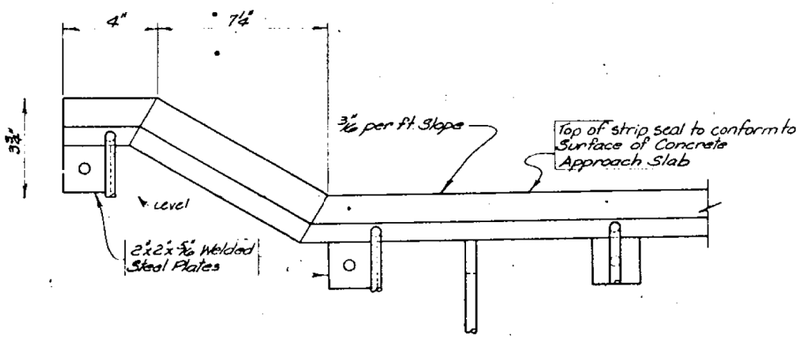
1. Material for Steel Extrusion shall conform to A.S.T.M.-A-36.
2. Material for Neoprene Extrusion shall conform to that specified in Section 870 of the S. Dak. Standard Specifications. No Splices will be permitted in the Neoprene Strip.
3. The installation of the Strip Seal shall be as recommended by its manufacturer and approved by the Engineer, but in general shall be as follows: The Neoprene Extrusion shall be installed and bonded to the Steel Extrusion with a high-solids lubricant-adhesive. The portion of the Steel Extrusion in contact with the Neoprene Extrusion shall be sand blasted to a white finish prior to the installation of the Neoprene Strip. The Neoprene Surfaces shall be roughened with a wire brush before the application of the lubricant-adhesive. The Neoprene Strip may be installed either prior to or after the time the Steel Extrusions are concreted in the Approach slabs. The sand blasting may be done at the Shop provided the sand blasted surfaces are dry, clean, free from dirt, grease and contaminants at the time the Neoprene Strip is installed. The surfaces of the Steel Extrusions, except the portions in contact with the Neoprene Strip, and the surfaces of the 2"x 2"x ⅜" steel plated welded to the Steel Extrusions shall be painted with an approved Galvanizing Paint.
4. Due to the length of the Steel Extrusions, Shop Welds are permitted. No welds shall be permitted in internal section of extrusion where Neoprene Strip is located. Weld details shall be shown on the Shop Plans for approval by the Engineer.
5. The thickness and shape of the Neoprene Extrusion may vary from the sketch shown (Detail 'C' on this Sheet) according to the manufacturer's design; however, the wedge lugs must properly fit the groove in the Steel Extrusion. Before installation, shop plans of the proposed strip seal showing, in addition to fixed dimensions, thickness of Neoprene Extrusion and dimensions pertinent to the fit of the Neoprene Extrusion in the Steel Extrusion shall be submitted to and approved by the Engineer.
6. Strip Seal will be measured in linear feet, to the nearest one-tenth foot, complete in place; measurments will be made of the overall horizontal length.
   Strip Seal will be paid for at the Contract unit price per linear foot complete in place. Payment for this item shall be full compensation for furnishing all the required materials in place, inclusive of labor, equipment and incidentals necessary to complete the work in accordance with plans and the foregoing Specifications.
7. The lubricant-adhesive may be one or two component at the supplier's option. The Neoprene Strip Seal and lubricant-adhesive should be supplied or recommended by the same source as they must be compatible. The lubricant-adhesive must have a solids content by weight of at least 65 percent and 250 percent minimum elongation. It may not contain solvents with a Flash point below 80°F.



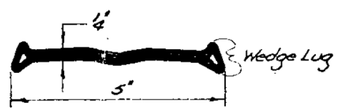
SEC. A—A

*ESTIMATED QUANTITY			
ITEM	UNIT	QUANTITY	
Strip Seal Expansion Joint	Lin.Ft.	# 83.3	
# For two approach slab			

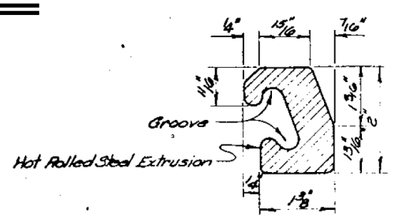
ORIGINAL CONSTRUCTION PLANS



VIEW B—B



DETAIL "C"



DETAIL "B"

① Rev. 8-1-74

(EAST BOUND LANES)
APPROACH SLAB JOINT DETAILS
FOR
106'-0" CONT. CONCRETE BRIDGE
40'-0" ROADWAY

OVER SILVER CREEK — SEC. 15-T106N-R52W
STA. 66+17.00 TO 67+23.00 — HS20-44
LAKE COUNTY — RF020-7(3)

SOUTH DAKOTA
DEPARTMENT OF HIGHWAYS

STR. NO. 40-142-145 MARCH 1974 — 16 OF 16

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	A.W.W.	M.V.W.	B.C. Wilson BRIDGE ENGINEER

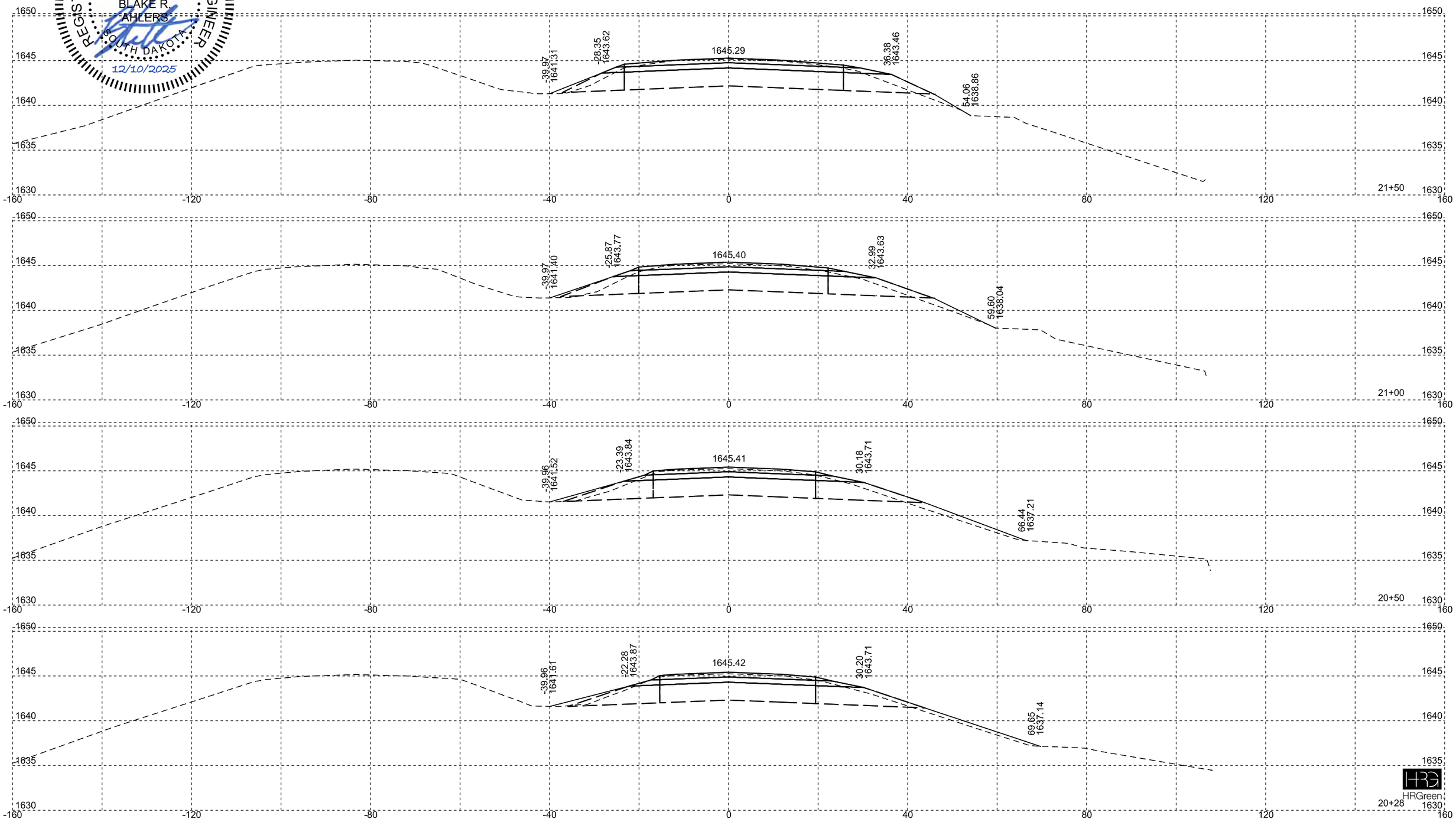
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

SD 34
Eastbound

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	154	170

Plotting Date: 12/10/2025



HRGreen

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REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

SD 34
Eastbound

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
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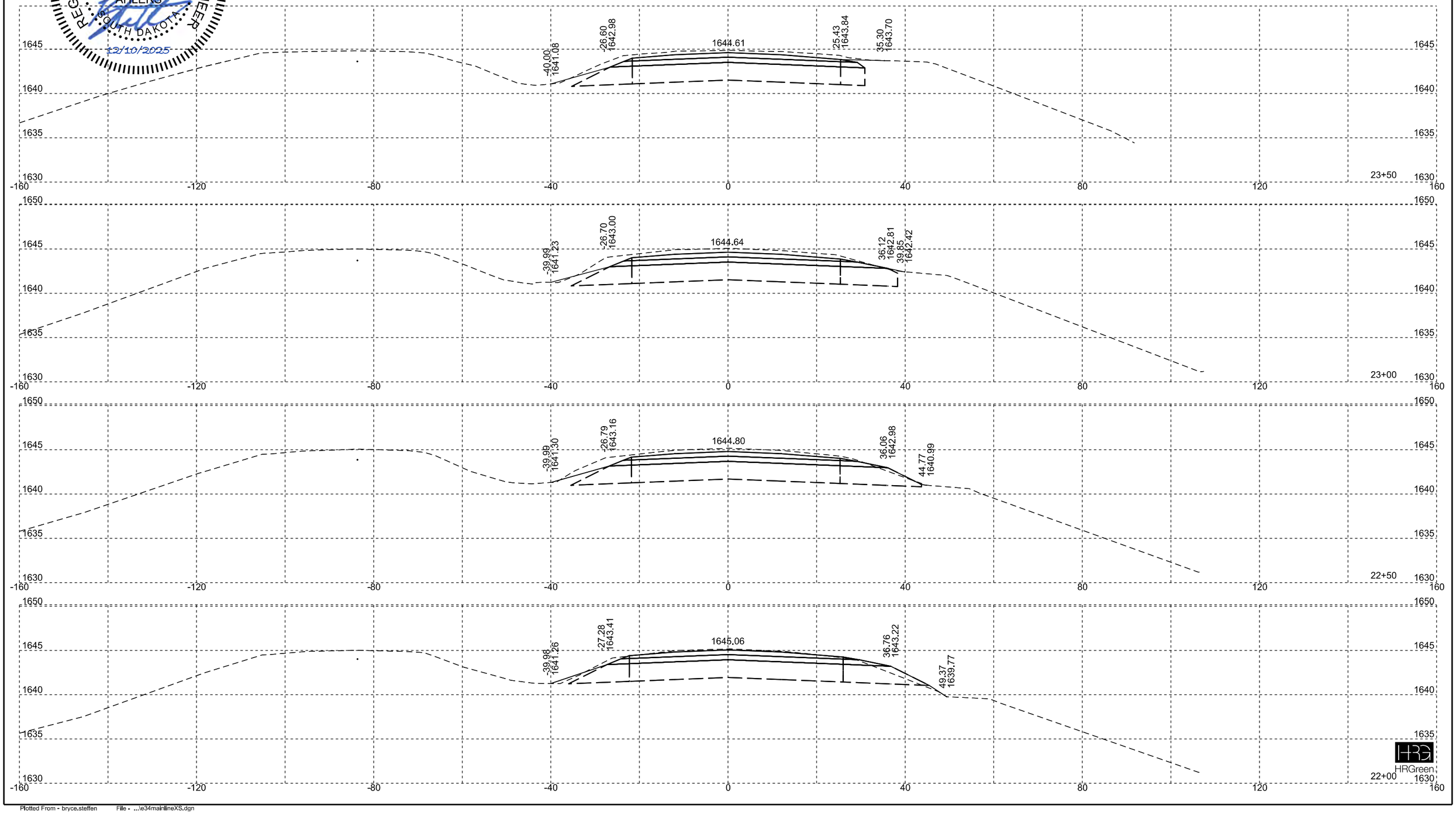
Plotting Date: 12/10/2025



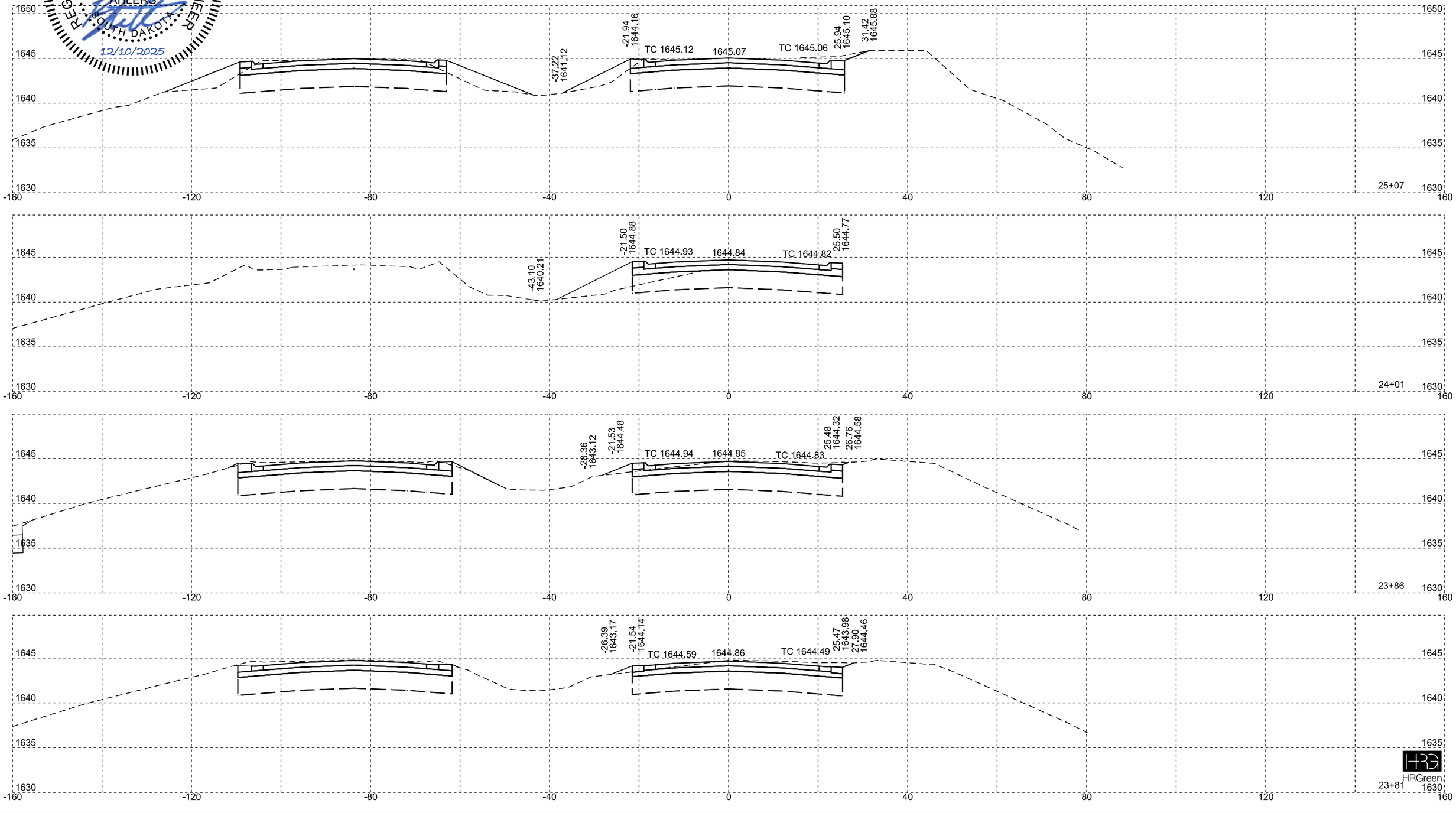
HRGreen

SD 34
Eastbound

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
Plotting Date: 12/10/2025	NH 0034(212)388	156	170

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025



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BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025

SD 34
Eastbound

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SD DOT	PROJECT	SHEET	TOTAL SHEETS
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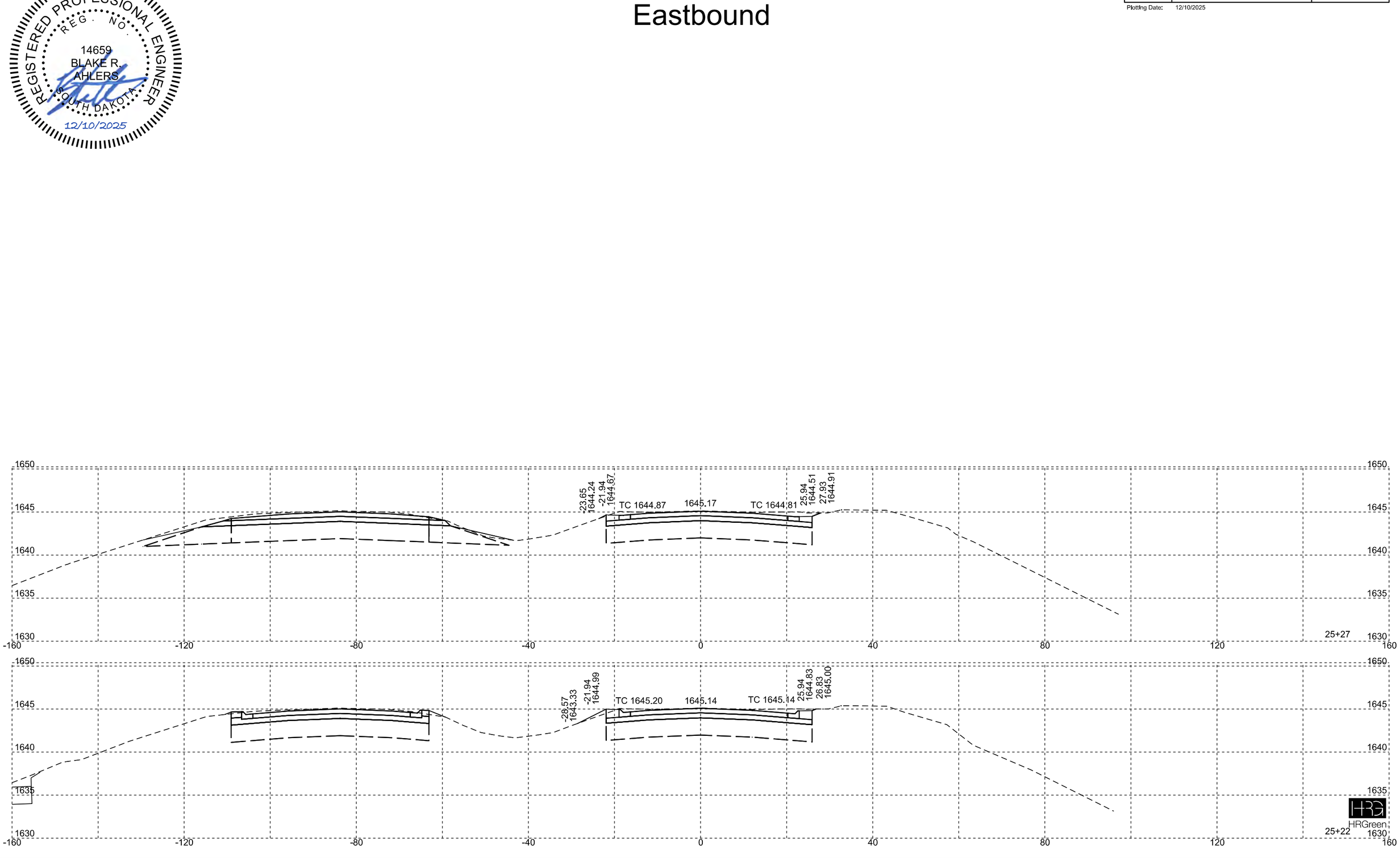
Plotting Date: 12/10/2025



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REG. NO.
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SOUTH DAKOTA
12/10/2025

SD 34
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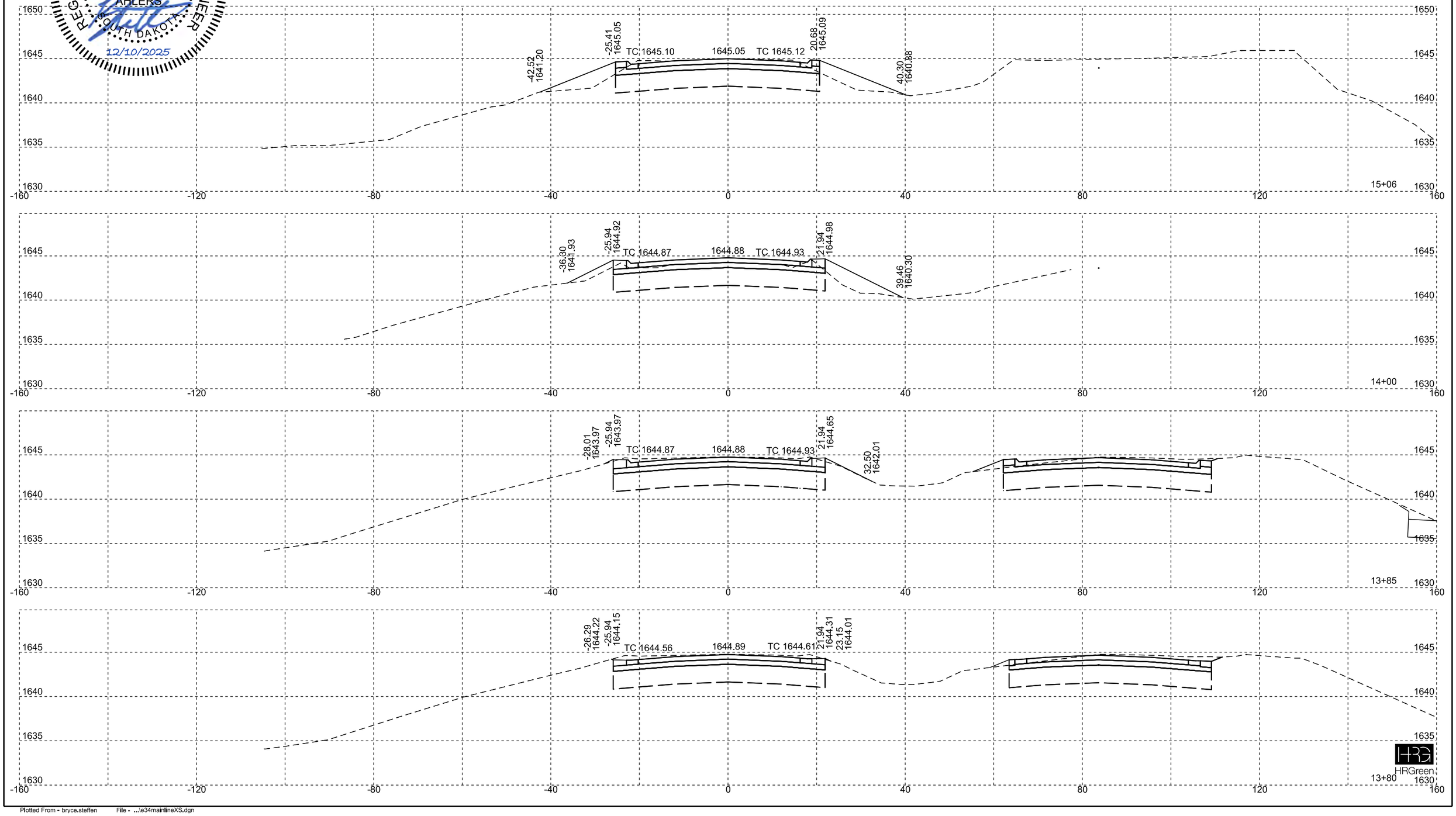
SD DOT	PROJECT	SHEET	TOTAL SHEETS
Plotting Date: 12/10/2025	NH 0034(212)388	158	170



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12/10/2025

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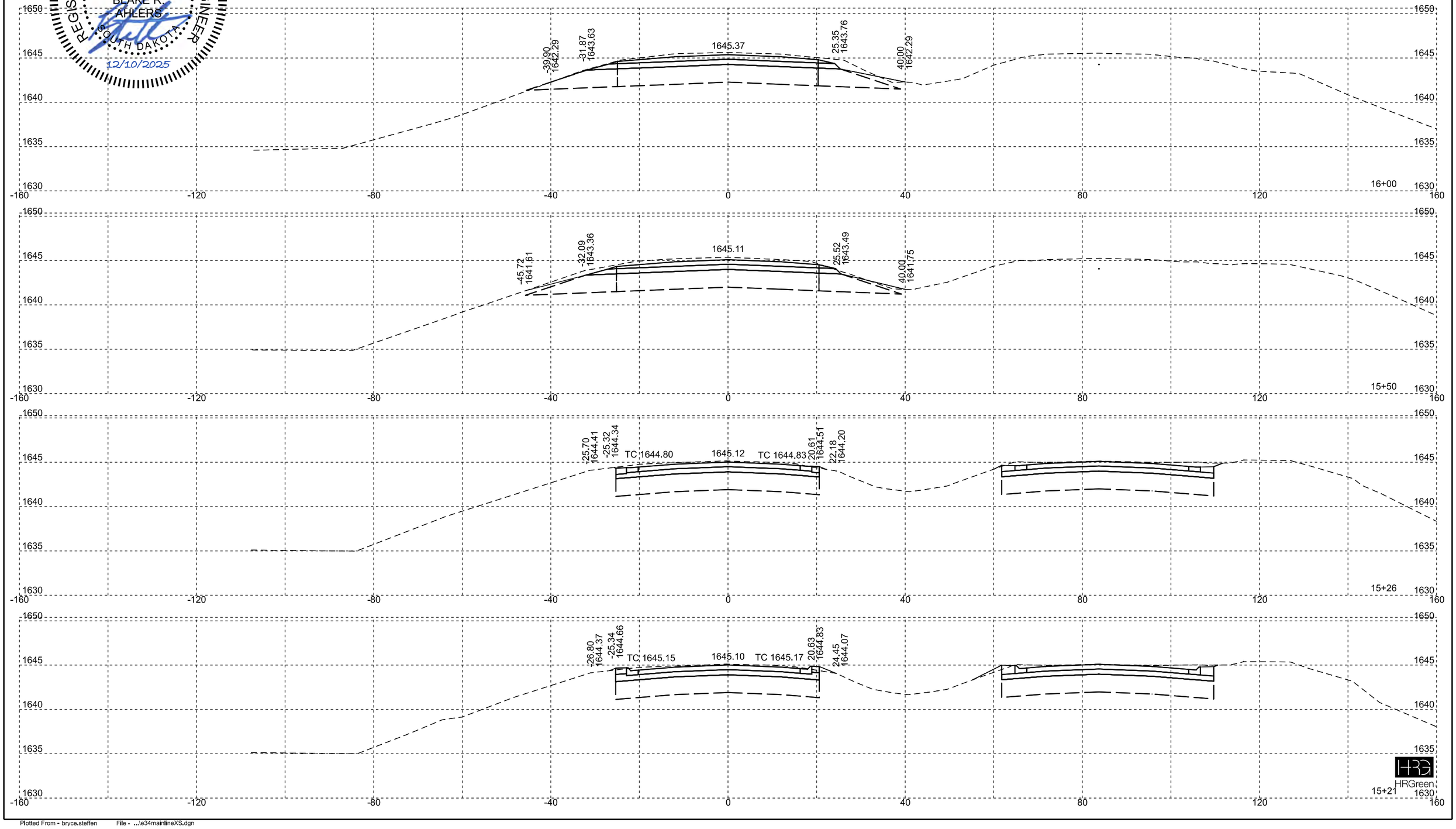

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12/10/2025

SD 34
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SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	160	170

Plotting Date: 12/10/2025

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SD DOT	PROJECT	SHEET	TOTAL SHEETS
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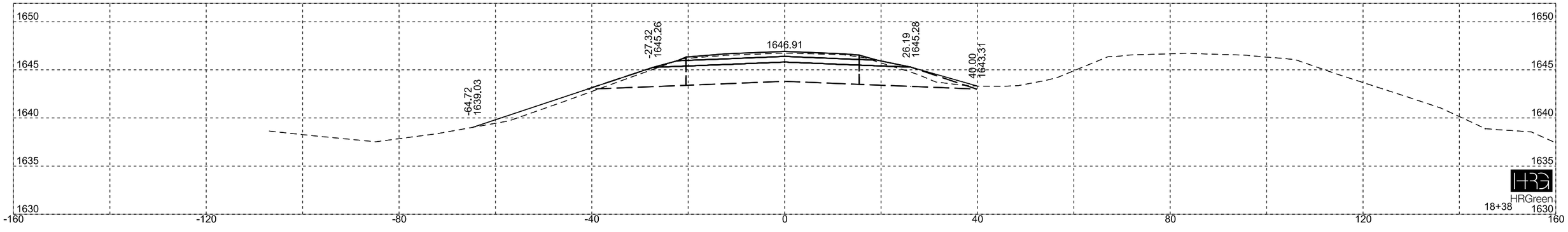
Plotting Date: 12/10/2025



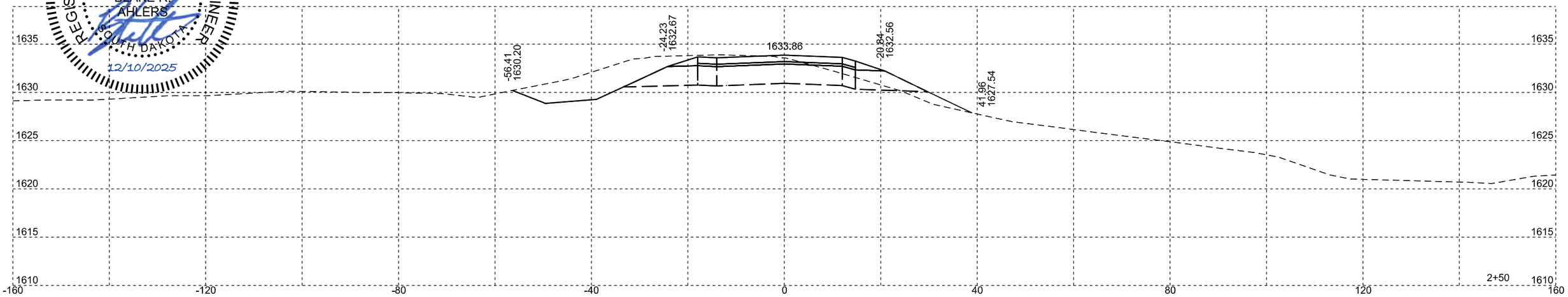
457th Ave

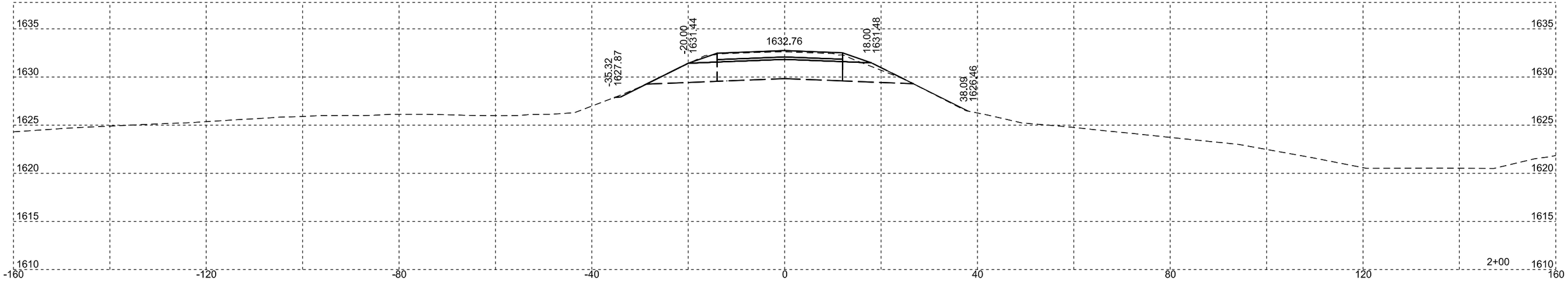
FOR BIDDING PURPOSES ONLY

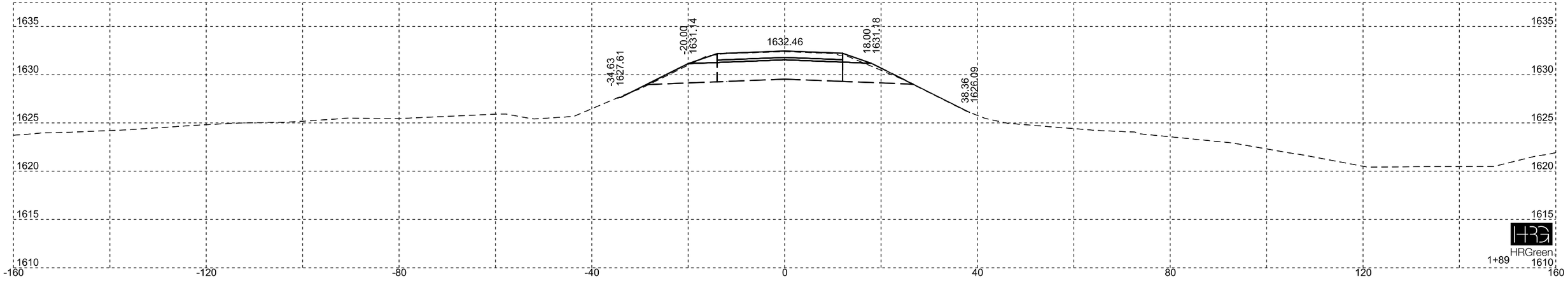
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	162	170

Plotting Date: 12/10/2025

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025







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457th Ave

FOR BIDDING PURPOSES ONLY

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	NH 0034(212)388	163	170

Plotting Date: 12/10/2025

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14659
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SOUTH DAKOTA
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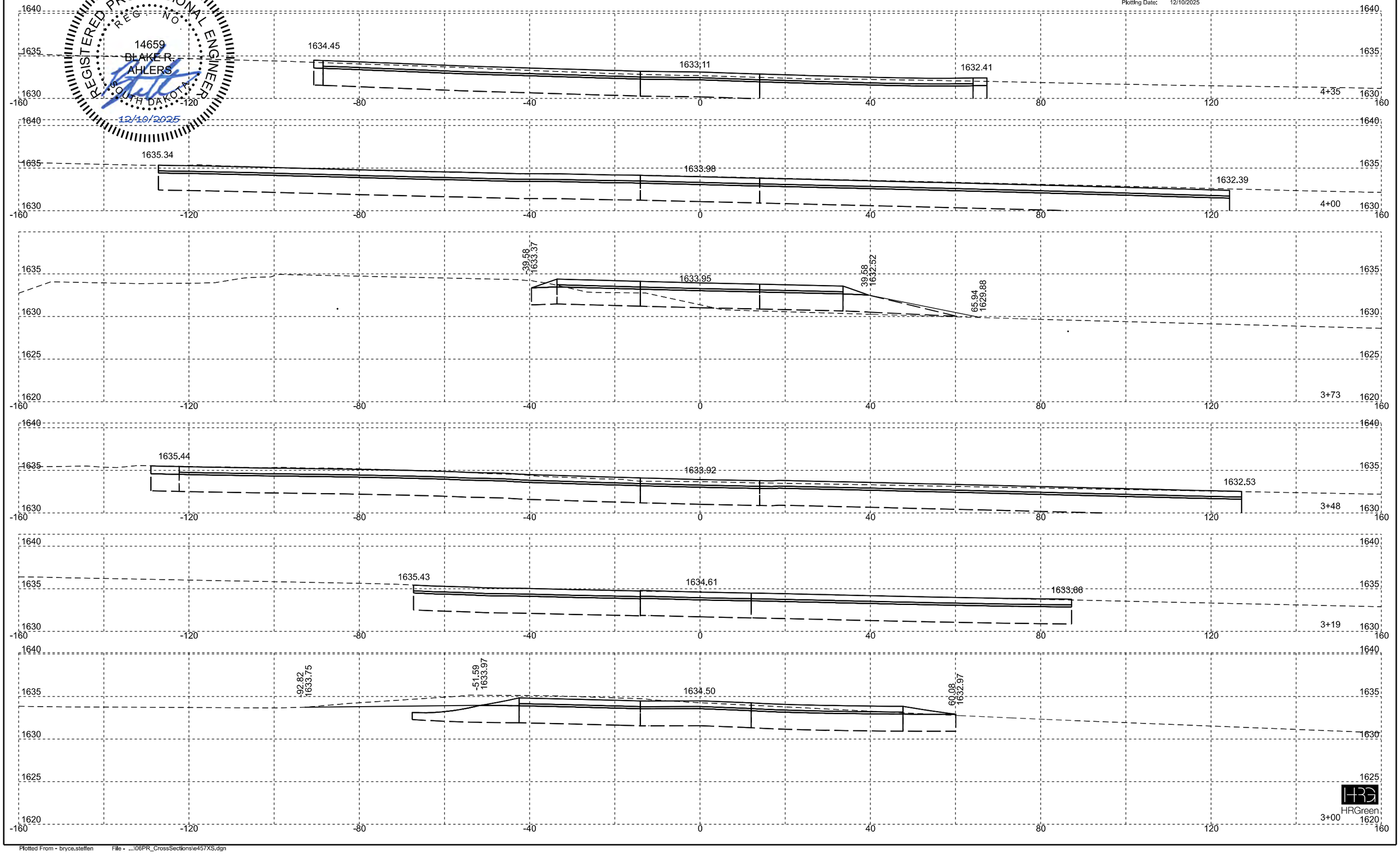

HRGreen

457th Ave

FOR BIDDING PURPOSES ONLY

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	NH 0034(212)388	164	170

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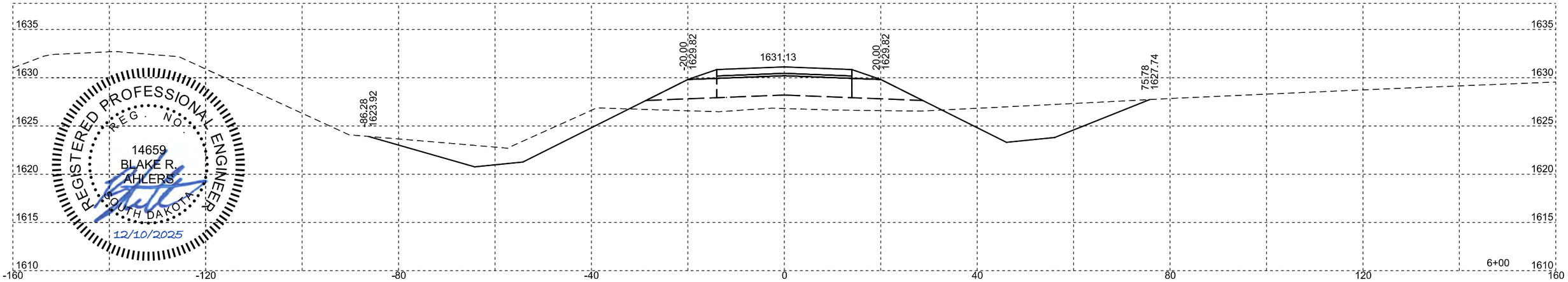
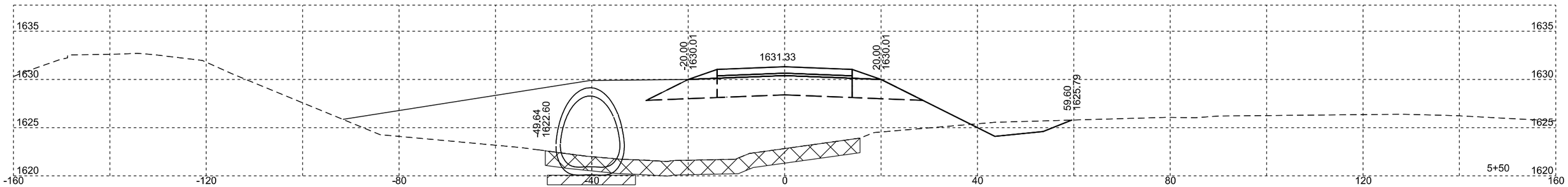
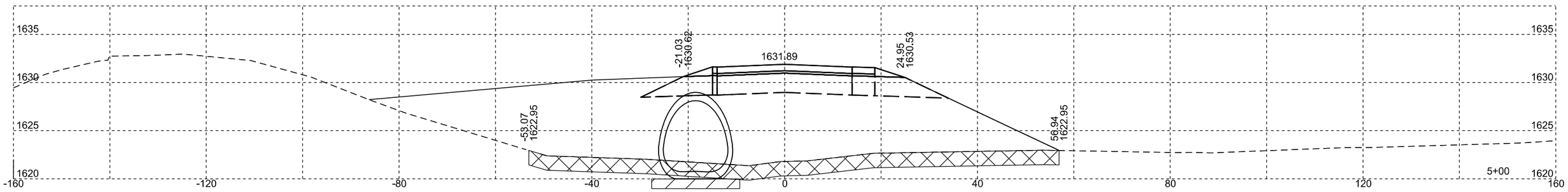
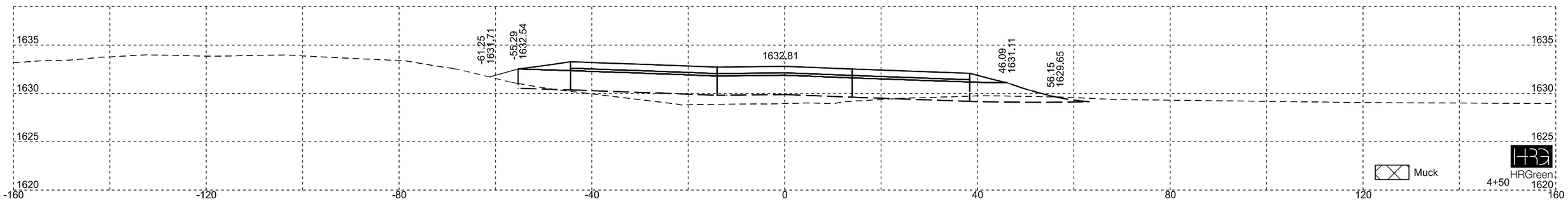
SOUTH DAKOTA
12/10/2025









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12/10/2025

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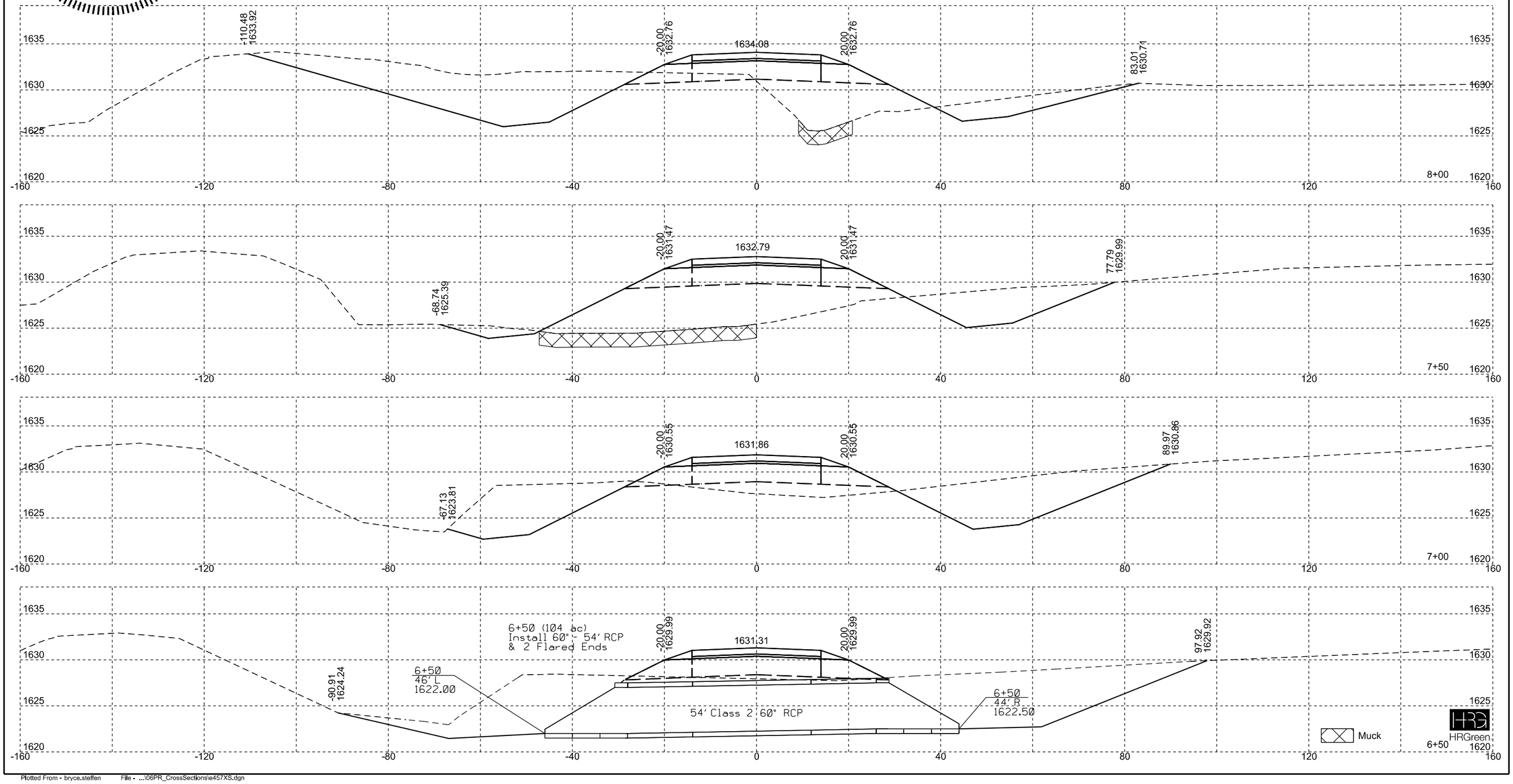
Plotting Date: 12/10/2025



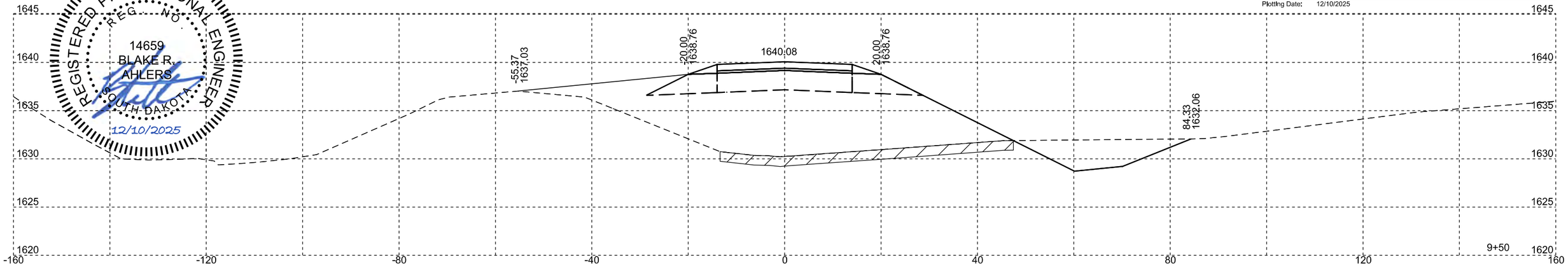
457th Ave

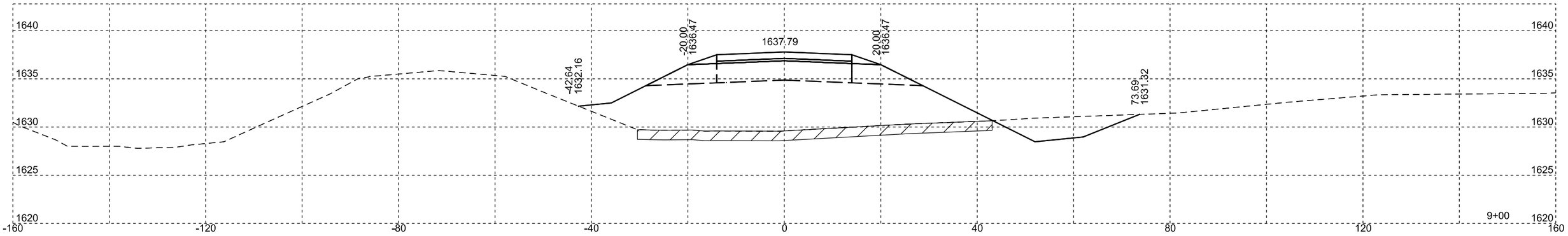
FOR BIDDING PURPOSES ONLY

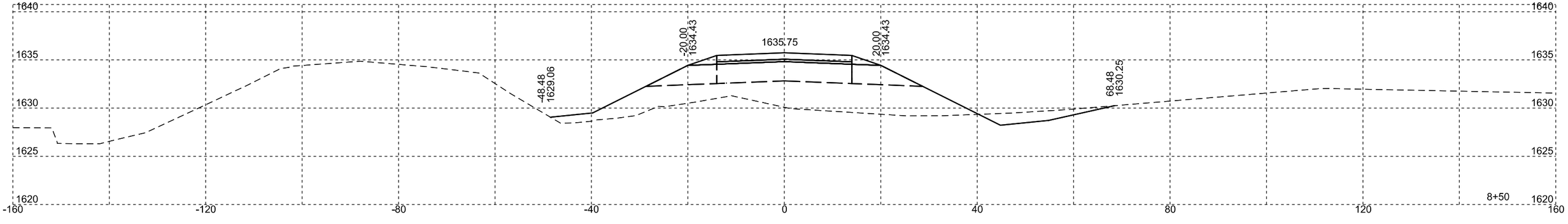
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	166	170

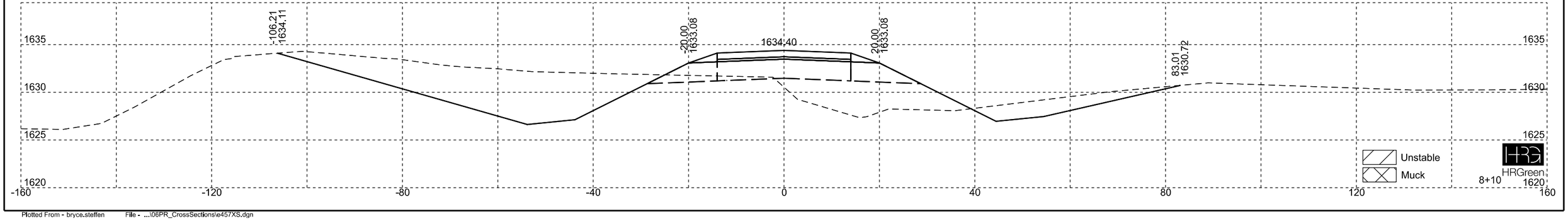
Plotting Date: 12/10/2025

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
14659
BLAKE R. AHLERS
SOUTH DAKOTA
12/10/2025









457th Ave

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	167	170

Plotting Date: 12/10/2025

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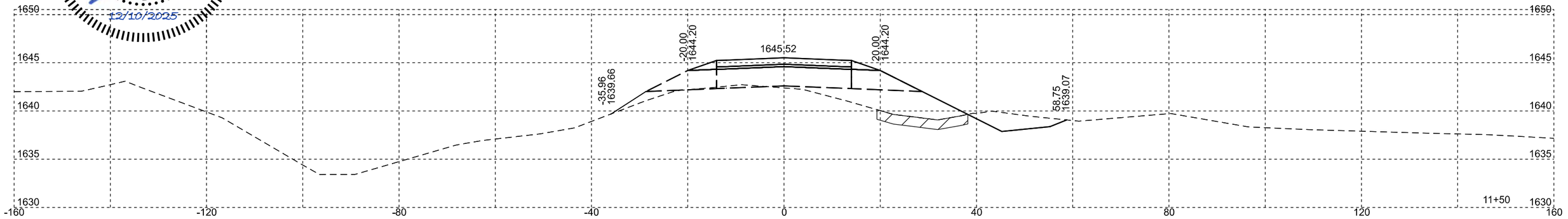

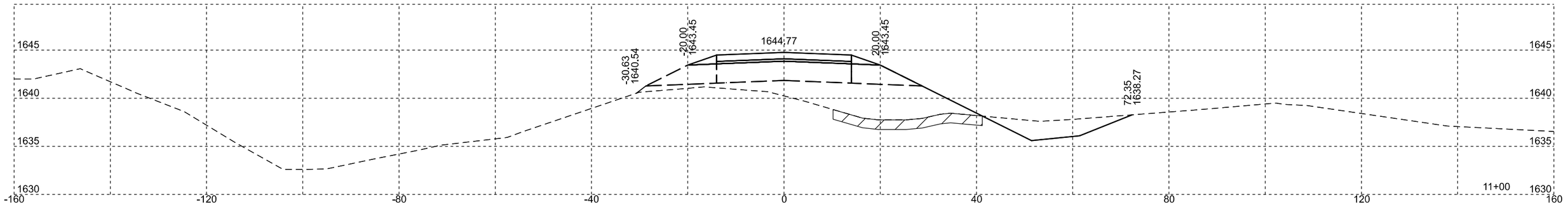

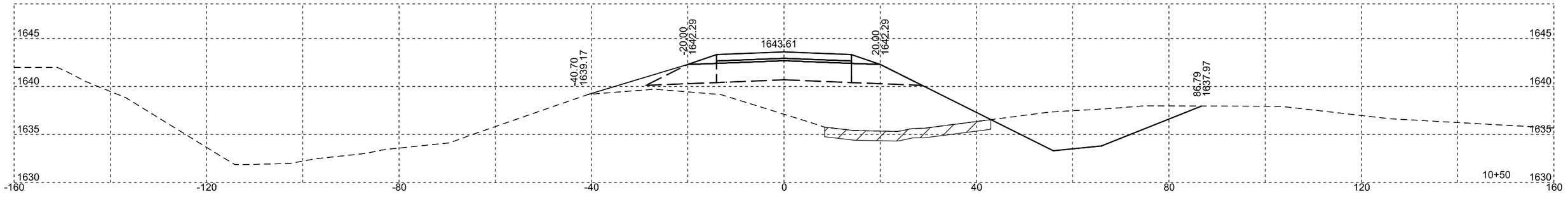

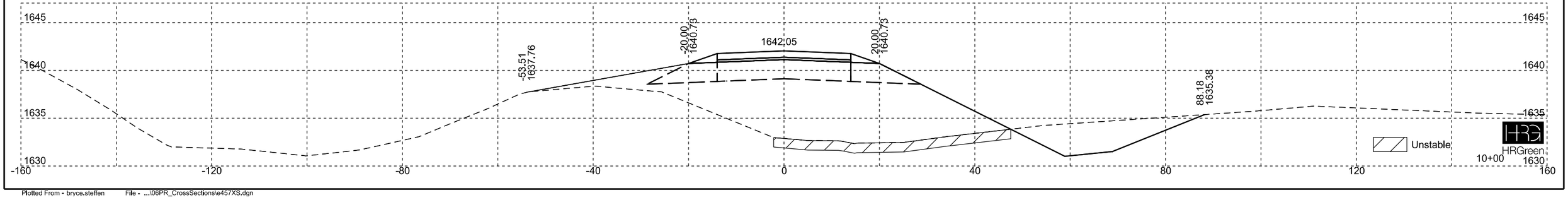

Plotted From - bryce.steffen File - ...\06PR_CrossSections\e457XS.dgn

457th Ave

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(212)388	168	170

Plotting Date: 12/10/2025

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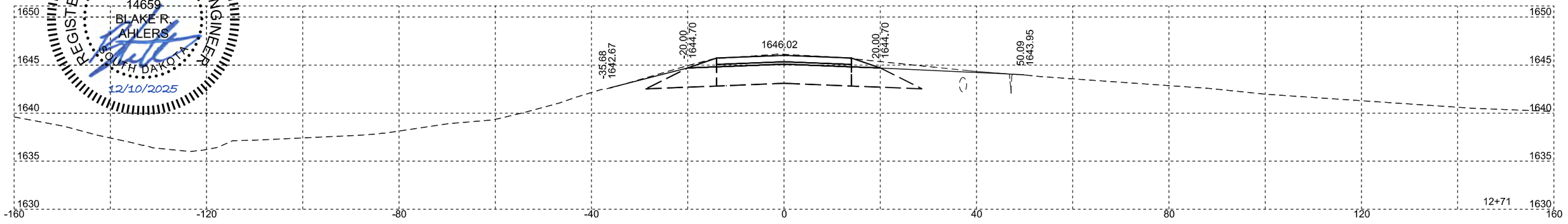

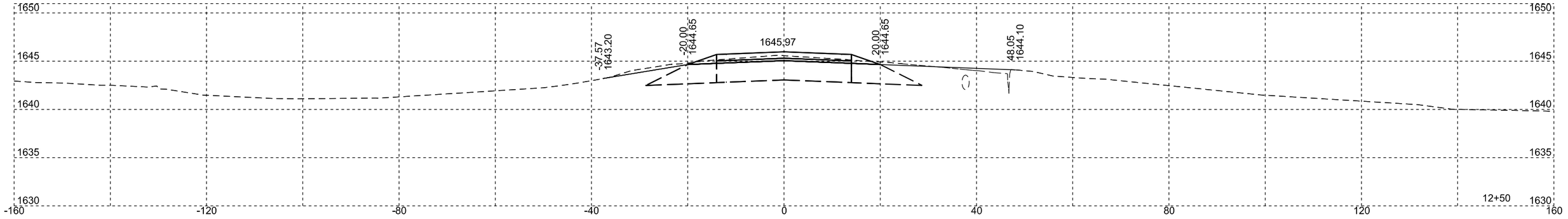

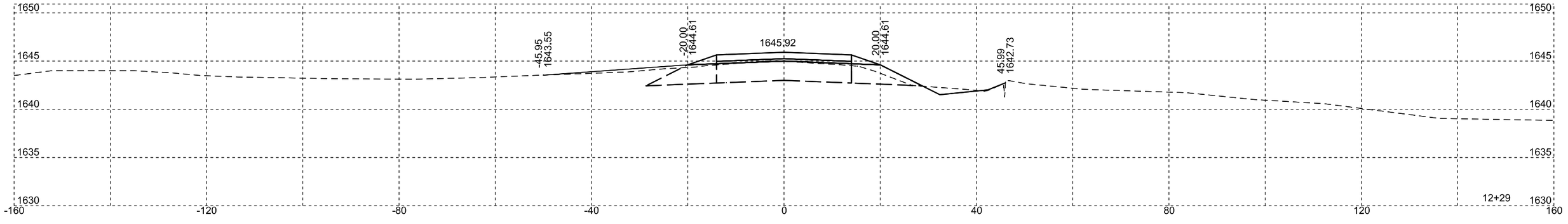

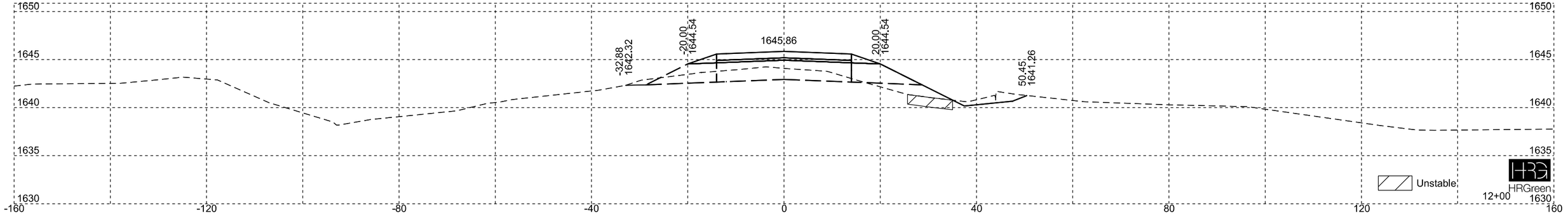

HRGreen

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	NH 0034(212)388	169	170

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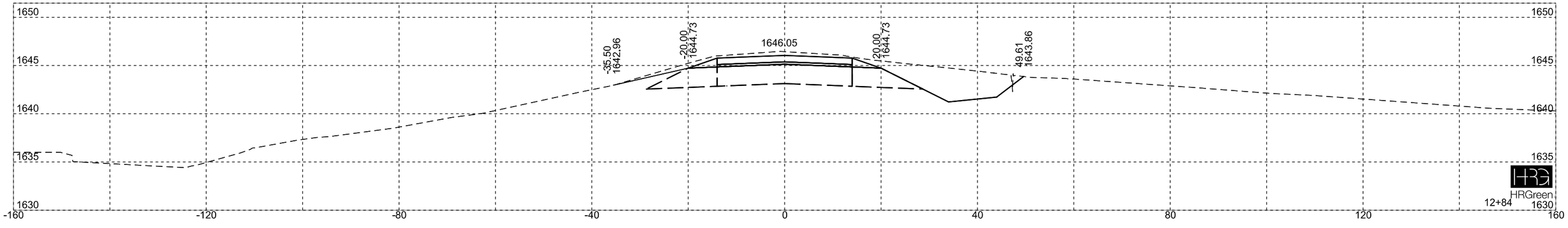

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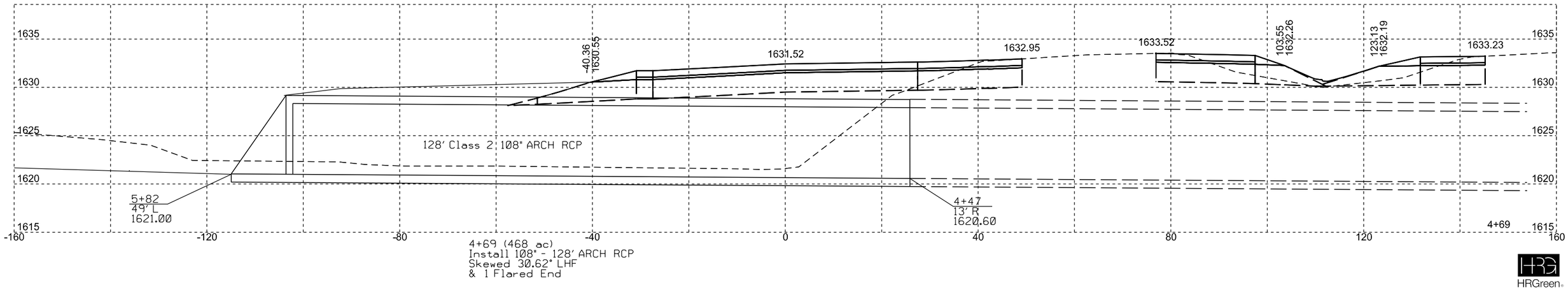

HRGreen