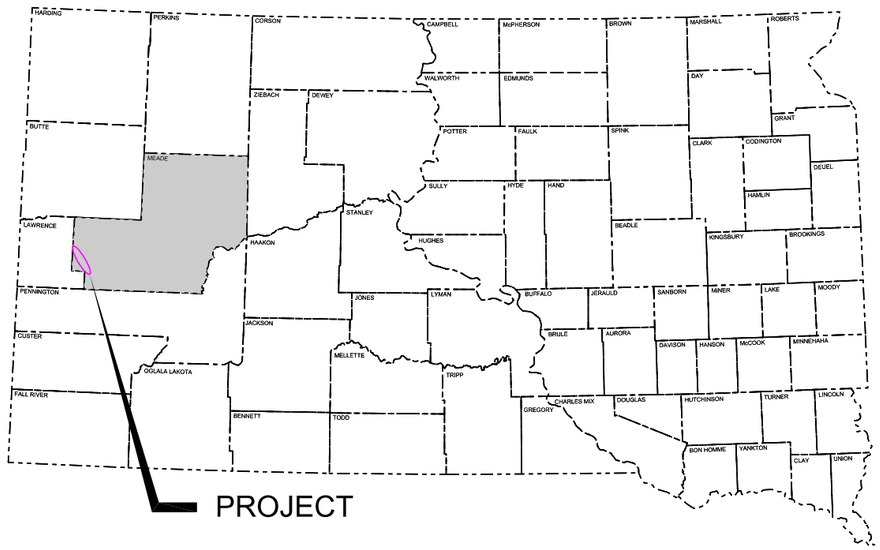


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

FOR BIDDING PURPOSES ONLY

PLANS FOR PROPOSED

PROJECT CR 0901(194)28
MEADE COUNTY

INTERSTATE 90 VARIABLE SPEED LIMIT
PCN 05W7

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	1	114

Plotting Date: 10/30/2026

INDEX OF SHEETS

Sheet 1	Title Sheet & Layout Map
Sheets 2 - 16	General Notes & SWPPP Checklist
Sheets 17 - 21	Table of Conduit and Cable Quantities
Sheets 22 - 26	Permanent Signing Table
Sheet 27	Traffic Control
Sheets 28 - 29	Horizontal Alignment Data
Sheets 30 - 32	Project Overview
Sheets 33 - 34	Topo Symbology & Legend
Sheets 35 - 51	VSL Layouts
Sheets 52 - 88	Special Details
Sheets 89 - 98	Sign Cross Sections
Sheets 99 - 103	Wire Diagrams
Sheets 104 - 114	Standard Plates

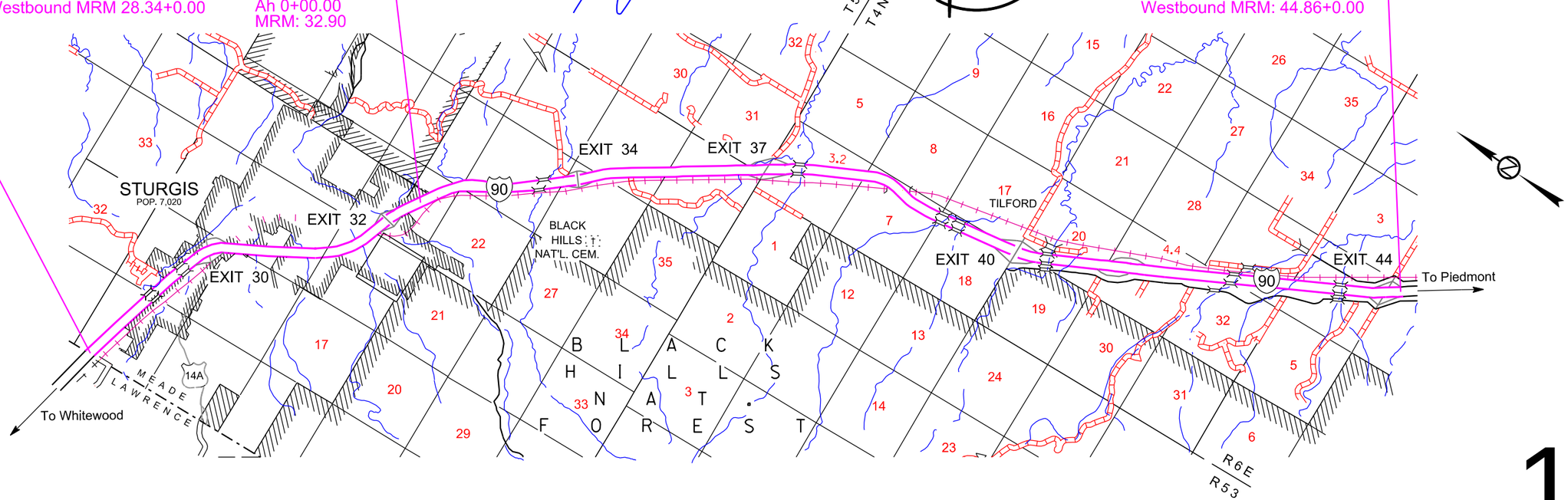
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
20276
TIMOTHY
YOUNG
10-30-26
SOUTH DAKOTA

BEGIN CR 0901(194)28
Eastbound Station 115+00.00 I-90
Eastbound MRM 28.34+0.00
Westbound MRM 28.34+0.00

EQUATION
355+28.194 Bk. =
Ah 0+00.00
MRM: 32.90

END CR 0901(194)28
Eastbound Station Ah 631+00.00 I-90
Eastbound MRM: 44.90+0.00
Westbound MRM: 44.86+0.00



DESIGN DESIGNATION

AADT (2025)	21,700
AADT (2045)	27,100
DHV	2,450
D	53%
T DHV	310
T ADT	3,550
V	75 mph

STORM WATER PERMIT

Major Receiving
Body of Water: Alkali Creek
Area Disturbed: 13 Acres
Total Project Area: 840 Acres
Approx. Begin Lat,Long: 44.4274, -103.5691

Gross Length	87,128.00 Feet	16.502 Miles
Length of Exceptions	56,533.00 Feet	10.707 Miles
Net Length	30,595.00 Feet	5.794 Miles

McLaury ENGINEERING

BOLTON & MENK

1

December 9, 2026

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ESTIMATE OF QUANTITIES (Non-Section)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3260	Miscellaneous Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3305	As-Built Survey	Lump Sum	LS
009E3450	Roadway Weather Information System	3	Each
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0130	Remove Traffic Sign	20	Each
632E0012	1.5' Diameter Breakaway Support Concrete Footing	88.0	Ft
632E0014	1.75' Diameter Breakaway Support Concrete Footing	36.0	Ft
632E0016	2' Diameter Breakaway Support Concrete Footing	54.0	Ft
632E0056	2' Diameter Fixed Support Concrete Footing	62.0	Ft
632E0093	5' Diameter DMS Footing	16.0	Ft
632E1220	S5x10 Steel Post	590.7	Ft
632E1230	W6x15 Steel Post	152.7	Ft
632E1260	W8x31 Steel Post	242.3	Ft
632E1340	2.5"x2.5" Perforated Tube Post	136.0	Ft
632E3115	Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity	773.2	SqFt
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	396.0	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	72.0	SqFt
632E3610	Variable Speed Limit Sign	22	Each
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	766.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	2	Each
635E2430	30' Hinged ITS Pole	5	Each
635E2540	Roadway Weather Information System Tower	3	Each
635E4010	1 Section Vehicle Signal Head	26	Each
635E5100	Controller Cabinet Footing	3	Each
635E5302	Type 2 Electrical Junction Box	52	Each
635E5400	Electrical Service Cabinet	7	Each
635E5461	Type 1 Communication Cabinet	10	Each
635E5590	Vehicle Radar Detector	10	Each
635E5600	Surveillance Camera	8	Each
635E6200	Miscellaneous, Electrical	Lump Sum	LS
635E6220	Pole Mounted Dynamic Message Sign	1	Each
635E8215	1.5" Rigid Conduit, Schedule 80	6,505	Ft
635E8615	1.5" Conduit, SDR 13.5	39,635	Ft
635E9012	1/C #2 AWG Copper Wire	4,830	Ft
635E9014	1/C #4 AWG Copper Wire	66,050	Ft
635E9016	1/C #6 AWG Copper Wire	28,645	Ft
635E9018	1/C #8 AWG Copper Wire	4,490	Ft
635E9020	1/C #10 AWG Copper Wire	34,460	Ft
635E9022	1/C #12 AWG Copper Wire	97,325	Ft
635E9862	Outdoor Rated Cat6 Cable	3,065	Ft
734E0010	Erosion Control	Lump Sum	LS
900E0042	Road Closure Gate Automation	4	Each
998E0100	Railroad Protective Insurance	Lump Sum	LS

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/doing-business/environmental/about-environmental/>

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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight, and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: GOLDEN EAGLE

Golden eagles, as well as Ferruginous hawks, are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.



FOR BIDDING PURPOSES ONLY

COMMITMENT C: WATER SOURCE

If a Contractor needs access to state waters for extraction, the Contractor must obtain a water right, through the application of a Temporary Permit to Use Public Waters before work begins.

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 (SDDANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Temporary permit to use public waters for highway construction purposes application can be found on the SDDANR website: https://danr.sd.gov/OfficeOfWater/WaterRights/PermitForms/default.aspx

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 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 Authorization 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_CGPAppendixCCA2023Fillable.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.

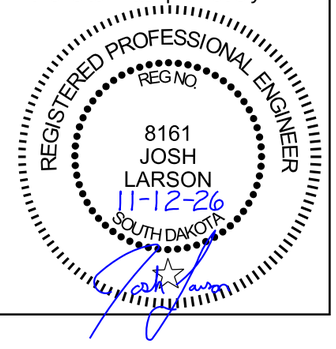
COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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.



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COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES (CONTINUED)

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, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT M: SECTION 4(f)/6(f) RESOURCES

COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) property located within the project.

Station	Section 4(f) Property
226+13 to 229+04	Historic Property

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property: Avoidance of all construction and earth disturbing activities at identified locations found within the plans.

The Contractor is not permitted to stage equipment or materials within the historic site. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

COMMITMENT Q: ARCHAEOLOGICAL COORDINATION

As a result of a Cultural Resources Survey, historically and/or archaeologically sensitive areas have been identified within and/or adjacent to the project rights-of-way.

The following historically and/or archaeologically sensitive sites have been identified that require avoidance of construction activities:

Table of Historic/Archaeological Sites

Station	Offset (Ft.)	L/R	Environmental Sensitive Site	Action
226+13 to 229+04	140	L	ESS3	Bore Under Existing Infrastructure

The locations and boundaries of the site(s) for avoidance are shown in Section K - ITS Plans.

Action Taken/Required:

If evidence for cultural resources is uncovered 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 consult with the Archaeological Research Center (ARC), SHPO, and FHWA, to determine the appropriate course of action.

All artifacts, features, or other items of interest uncovered by project construction activities will not be displaced unless the landowner and the SHPO consent to it.

SDDOT will provide monitoring for the site identified in the above table.

Prior to the pre-construction meeting, the Contractor will contact ARC (Phone: 605-394-1936) to be present at the meeting for the purposes of coordinating the monitoring schedule of the site listed in the Table of Historic/Archeological Sites. Work within vicinity of the site will not begin until monitors are present at the site(s).

All costs associated with monitoring will be submitted to the Project Engineer for reimbursement.

Before earth disturbing activities near listed site occurs, there will be seven (7) days prior notification provided to ARC for scheduling the installation of orange safety fence and/or monitoring at sensitive sites listed in the Table of Culturally Sensitive Sites. ARC and tribal monitor are to be present during earth disturbing activities to monitor the removal of topsoil, ensure avoidance of the fenced sites, and identify any culturally sensitive sites that may be uncovered.

These identified sites cannot be used for material sources, storage areas, waste sites, and/or any other project related activities outside the plan work limits.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the “Special Provision for Fire Plan”.

SCOPE OF WORK

Work on this project involves removal of existing Speed Limit Signs, construction of Variable Speed Limit (VSL) signs, Dynamic Message Sign (DMS), Roadway Weather Information Systems (RWIS), Closed Circuit Television Cameras (CCTV), Vehicle Radar Detection (VRD) systems, ITS Cabinets, permanent signing, and system testing.

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.

CONSTRUCTION STAKING

All VSL devices, junction boxes, and conduits will be adjusted in the field to minimize impacts to existing utilities and to conform to device details. Multiple conduits running in parallel will be placed in the same trench. Where possible, locate junction boxes near each other. VSL devices will be constructed as near to design location as possible. Unless otherwise noted, Junction boxes and conduits may be adjusted.

All costs to provide construction staking will be incidental to the contract lump sum price for “Miscellaneous Staking”.

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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 the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

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.

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 completion of work at the site location.

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

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers or the Interstate median to exit or enter Interstate traffic.

CONTRACTOR FURNISHED VEHICLE SPEED FEEDBACK SIGN

The Contractor will provide **2** vehicle speed feedback signs to monitor traffic speeds on designated routes at locations specified in the field by the Engineer.

The vehicle speed feedback sign assembly will include a speed limit sign mounted in conjunction with the vehicle speed feedback display. The speed display will not flash vehicle speeds exceeding the speed limit nor any other messages.

All costs associated with furnishing, maintaining, transporting, relocating if necessary, and removing the radar speed feedback trailers from locations specified by the Engineer will be incidental to the contract unit price per each for “Contractor Furnished Vehicle Speed Feedback Sign”.

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 or as shown in the plans. 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.

LANE CLOSURES

Interstate lane closures shorter than 5 miles will be used if 5 miles is greater than the length of work that can be accomplished in one day’s production. More than one lane closure may be permitted; however, there will be a minimum of a three-mile section between lane closures, excluding the tapers.

Interstate lane closures will be removed at the end of the day. Lane closures will not be allowed overnight. Activities that do not involve workers being present, such as curing time for concrete, constitute work.

EROSION CONTROL

The estimated area requiring erosion control is **13 Acres**. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for “Erosion Control”.

The limits of erosion control work will be determined by the Engineer during construction.

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.

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre.

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

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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 F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

Fiber Mulching

Fiber mulch will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

Fiber mulch will be applied at the rate of 3,000 pounds per acre.

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

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

SUPPLYING AS-BUILT PLANS

The Contractor will supply as-built plans in MicroStation (.dgn) format to the Engineer and a copy will be sent to the Region Traffic Engineer and to Dave Huft at Dave.Huft@state.sd.us. The as-built plans will include a survey that conforms to Chapter 6 Preliminary Survey of the SDDOT Survey Manual and that accurately locates the conduit and ITS devices within 0.5 foot in the x,y direction and note depth changes greater than three feet. The as-built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans. As-built plans will be completed within 3 months of the last installation of devices and conduits.

All costs to provide as-built plans will be incidental to the contract lump sum price for “As-Built Survey”.

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 for review and remarks:

JLarson@McLauryEngineering.com
JErpenbach@McLauryEngineering.com
Jacob.Folkeringa@Bolton-Menk.com
Tim.Young@Bolton-Menk.com
Dave.Huft@state.sd.us
Patrick.Brueggeman@state.sd.us

TAX LIABILITY

The SD Department of Transportation is a South Dakota sales tax-exempt government entity. Therefore, a Certificate of Exemption will be provided to the successful bidding party which excuses the party from paying sales tax on the materials being furnished to the SDDOT. It is the responsibility of bidding parties to contact the SD Department of Revenue @ 1-800-829-9188 to determine tax licensure requirements.

STATE FURNISHED MATERIALS

The Department will furnish the Gate Arm and Sign Controllers for the Contractor's use in constructing this project. The Contractor is required to use the equipment provided. These items will be available for delivery to the Contractor on or before June 30, 2027.

Item	Item Description	Unit Cost	Quantity	Total Cost
1	Gate Arm and Sign Controller: SDDOT-integrated gate arm and advance warning sign controller	$2,474	2	$4,948
			Total	$4,948

The cost of the materials for tax purposes is $4,948.00. The Contractor is responsible for paying State use tax, applicable City use tax, and excise tax on these materials.

BUY AMERICA

Some equipment listed in the ITS Special Provision is considered non-compliant in accordance with the Buy America requirements of Section 6.9 of the specifications. Specifically, the recommended Closed-Circuit Television Camera is non-compliant:

Bid Item	Assembly	Item	Component
635E5600	Surveillance Camera	1	Axis Q6355-LE CCTV with POE
		2	Axis TQ5001-E Bracket Assembly

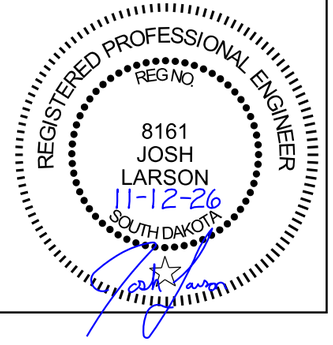
Item	Component Cost	Assembly Cost	Quantity	Total Cost
1	$2,743	$2,875	8	$23,000
2	$132			

The Contractor will account for these costs, and the Department will calculate the minor quantities of additional non-compliant items in accordance with Section 6.9 F.2.b of the specifications including the values shown above. In accordance with Section 6.9 F.2.b of the specifications, the Contractor will be required to submit documented invoiced material costs of all materials used in the project that are subject to a domestic preference requirement, including the value of any Iron or Steel, Construction Materials, Manufactured (Composite) Products, and other items within the scope of an existing Buy America waiver not including Excluded Materials. The invoices must be submitted prior to installing the item on the project.

The total value of an item includes the cost of the material plus the cost of transportation to the project site, as evidenced by delivery receipt, but does not include the labor costs to assemble and install an item at the project site.

ON-SITE INSPECTION

An on-site inspection of the VSL equipment will be conducted before acceptance of the project, once the VSL equipment is installed and operational. The on-site inspection will be conducted by Project Engineer, the Contractor, and the ITS Engineer present. See ITS Special Provisions for standalone, subsystem and system testing and acceptance.



FOR BIDDING PURPOSES ONLY

VARIABLE SPEED LIMIT SIGN

See Section 7.0 Variable Speed Limit Signs of the ITS Special Provisions for Variable Speed Limit Sign requirements. Variable Speed Limit Signs will be constructed where shown in plans and in accordance with the Plan details and ITS Special Provisions.

Costs for labor and material, including supplying, installing, and testing the variable speed limit (VSL) signs will include but not be limited to the VSL sign, the flashing beacon, the variable speed limit communication enclosure as called out on the plans and as specified in the special provisions, the cell modem antenna (provided by SDDOT), miscellaneous cabling, control cables, patch cords, and communication cables, will be included in the contract unit price per each for “Variable Speed Limit Sign”.

The Contractor will supply two spare Variable Speed Limit Signs. All costs to furnish only for the two spares will be included in the contract unit price per each for “Variable Speed Limit Sign”.

TABLE OF VARIABLE SPEED LIMIT SIGNS

Device ID	Direction	Station	Location	Quantity (Each)
VSL1-1	EB	143+00	ROW	1
VSL1-2	EB	143+00	MEDIAN	1
VSL2-1	EB	241+54	ROW	1
VSL2-2	EB	241+54	MEDIAN	1
VSL3-1	WB	293+45	ROW	1
VSL3-2	WB	293+45	MEDIAN	1
VSL4-1	EB	Ah 15+00	ROW	1
VSL4-2	EB	Ah 15+00	MEDIAN	1
VSL5-1	WB	Ah 62+92	ROW	1
VSL5-2	WB	Ah 62+92	MEDIAN	1
VSL6-1	EB	Ah 136+73	ROW	1
VSL6-2	EB	Ah 136+73	MEDIAN	1
VSL7-1	WB	Ah 186+92	ROW	1
VSL7-2	WB	Ah 186+92	MEDIAN	1
VSL8-1	EB	Ah 260+97	ROW	1
VSL8-2	EB	Ah 260+97	MEDIAN	1
VSL9-1	WB	Ah 362+34	ROW	1
VSL9-2	WB	Ah 362+34	MEDIAN	1
VSL10-1	EB	Ah 423+15	ROW	1
VSL10-2	EB	Ah 423+15	MEDIAN	1
VSL11-1	WB	Ah 596+94	ROW	1
VSL11-2	WB	Ah 596+94	MEDIAN	1
			TOTAL:	**22**

MISCELLANEOUS, ELECTRICAL

The following items will be incidental to the contract lump sum price for “Miscellaneous, Electrical”.

- Existing DMS:
  - o Move 2 existing DMS controllers from existing sign to Communications Cabinets. The Contractor will move the DMS controllers from the sign to the Communications Cabinets (CC1 and CC7), including furnishing and installing new multimode fiber optic cable between DMS controller and DMS display, and furnishing and installing a new Cat 6 Ethernet Cable between the existing CCTV camera and the cellular modem inside the Communication Cabinets. The Contractor will provide all work and materials needed to move the two DMS controllers from the sign to the Communications Cabinets.
- Reuse Existing Power – Exit 32 Road Closure Signs:
  - o At Exit 32, existing road closure sign panels and posts (RCS2, ARCS2-1, and ARCS2-2) will be removed and replaced. The conduit and flasher cables are to be salvaged and reused with new signs, posts, and footings.
  - o Prior to sign removal, disconnect existing power cables and remove from conduit mounted to sign posts. After new signs are installed, install the new flashing beacons on the signs and install salvaged conduit on the outside-most sign post. Install existing cable in new conduit and connect to flashing beacons. Provide all conduit and hardware needed to connect the existing conduit to the new signs.

POLE MOUNTED DYNAMIC MESSAGE SIGN (DMS)

See Section 2.0 Dynamic Message Signs of the ITS Special Provision for DMS requirements. The Contractor will furnish and install Pole Mounted Dynamic Message Sign (DMS) as shown on the plans. The Contractor will be responsible for the design of the pole and the pole mounting to the SDDOT designed footing to support the DMS sign. The design and installation will include all wiring conduit on or within the pole and structure. The Contractor will submit a detailed plan for the complete pole mounted structure on SDDOT designed footing. The plan must be stamped by a Professional Engineer registered in South Dakota.

All costs for labor and material, design, installing, miscellaneous cabling, the Multimode Fiber Optic Cable and the Outdoor Rated Cat6 Cable to the Communication Cabinet, and testing the Pole Mounted Dynamic Message Sign as called out on the plans and as specified in the ITS Special Provision will be incidental to the contract unit price per each for “Pole Mounted Dynamic Message Sign”.

TABLE OF POLE MOUNTED DYNAMIC MESSAGE SIGN

Device ID	Direction	Station - L/R	Quantity (Each)
DMS1	WB	Ah 590+71 - 125' L	1
		TOTAL:	**1**

ROADWAY WEATHER INFORMATION SYSTEM (RWIS) TOWER

All costs for labor and material, including supplying, and installing the roadway weather information system tower, tower hinge, side arm and lightning rod kit as called out on the plans and as specified in the special provisions, will be included in the contract unit price per each for “Roadway Weather Information System Tower”.

ROADWAY WEATHER INFORMATION SYSTEM (RWIS)

See Section 8.0 Road Weather Information System of the ITS Special Provisions for Road Weather Information System requirements. Road Weather Information Systems will be constructed where shown in plans and in accordance with the Plan details and ITS Special Provisions.

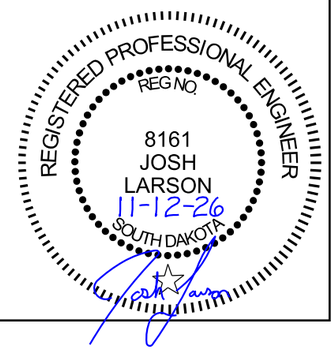
All costs for labor and material, including supplying and installing the Roadway Weather Information Systems, the cabinet, controllers, atmospheric sensors, pavement sensors, miscellaneous cabling, miscellaneous conduit, enclosure panels, power, fiber, and Ethernet cables will be included in the contract unit price per each for “Roadway Weather Information System”.

TABLE OF ROADWAY WEATHER INFORMATION SYSTEM

Device ID	Station	L/R	Roadway Weather Information System (Each)	Roadway Weather Information System Tower (Each)
RWIS1	214+89	28' L	1	1
RWIS2	Ah 62+98	227' L	1	1
RWIS3	Ah 386+48	64' R	1	1
		TOTAL:	**3**	**3**

4 pavement sensors will be installed at RWIS1 and RWIS3, one in the wheel path of each lane, as noted on the plans. RWIS2 pavement sensors will be installed with PCN 0AMF. Approximate length of sensor cable needed to lane farthest from RWIS as follows:

- RWIS1 Southbound Lanes – 100’
- RWIS3 Southbound Lanes – 150’



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SURVEILLANCE CAMERA (CCTV)

See Section 3.0 Closed Circuit Television Cameras of the ITS Special Provision for Closed Circuit Television Camera requirements. Closed Circuit Television Cameras will be installed where shown in the plans and in accordance with the plan details and ITS Special Provision.

The Contractor will be responsible for the design and installing of the mounting brackets for the CCTV to the support structure. The CCTV will be mounted as show on the plans. The Contractor will submit a detailed plan for the CCTV mounting brackets. The plan must be stamped by a Professional Engineer registered in South Dakota.

All costs for labor and material, including design, supplying, installing, and testing the surveillance cameras, the Outdoor Rated Cat6 Cable from the cabinet to the camera, the media converters, mounting brackets, and hardware will be included in the contract unit price per each for “Surveillance Camera”.

TABLE OF SURVEILLANCE CAMERA (CCTV)

Device ID	Mounted to	Station	L/R	Quantity (Each)
CCTV1	RWIS1	214+89	28' L	1
CCTV2	HP1	292+61	85' R	1
CCTV3	HP2	335+88	115' L	1
CCTV4	HP3	Ah 15+00	283' L	1
CCTV5	RWIS2	Ah 62+98	227' L	1
CCTV6	HP4	Ah 221+67	227' L	1
CCTV7	HP5	Ah 387+89	124' R	1
CCTV8	DMS1	Ah 590+71	125' L	1
		TOTAL:		**8**

VEHICLE RADAR DETECTOR (VRD)

Vehicle Radar Detector (VRD) will be installed where shown in the plans and in accordance with the plan details and Section 5.0 of the ITS Special Provision.

The Contractor will be responsible for the design and installing of the mounting brackets for the VRD to the support structure, including determining the mounting height. The VRD will be mounted as show on the plans. The Contractor will submit a detailed plan for the VRD mounting brackets. The plan must be stamped by a Professional Engineer registered in South Dakota. The ITS Engineer will be present during mounting installation of the VRD.

The following items, or an approved equal, will be used for the Vehicle Radar Detector:

VRD Type 1 - Houston Radar LLC: SpeedLane Pro KIT-SLP-0003
VRD Type 2 (Ramp Queue Detection) - Houston Radar LLC: PX150 Tracking Radar

All costs for labor and material, including design, supplying, installing, and testing the vehicle radar detector, mounting brackets, cabling, and hardware will be included in the contract unit price per each for “Vehicle Radar Detector”.

TABLE OF VEHICLE RADAR DETECTOR

Device ID	Mounted to	Station	Type	Quantity (Each)
VRD1	Existing DMS	128+85 - 34' R	Type 1	1
VRD2	Existing Pole	206+07 - 72' R	Type 2	1
VRD3	RWIS1	214+89 - 28' L	Type 1	1
VRD4	RWIS1	214+89 - 28' L	Type 1	1
VRD5	Existing Pole	221+86 - 166' L	Type 2	1
VRD6	Existing Pole	330+16 - 112' R	Type 2	1
VRD7	HP2	335+88 - 115' L	Type 1	1
VRD8	Existing Pole	342+87 - 199' L	Type 2	1
VRD9	RWIS3	Ah 386+48 - 64' R	Type 1	1
VRD10	DMS1	Ah 590+71 - 125' L	Type 1	1
			TOTAL:	**10**

30’ HINGED ITS POLE

The Hinged ITS Pole supports, including anchor bolts, will be designed for fatigue in accordance with Fatigue Importance Category II without galloping and truck induced gusts. All costs for furnishing and installing, the 30’ hinged ITS pole, the mounted cabinet and cabinet components, as called out on the plans and as specified in the special provisions, will be included in the contract unit price per each for “30’ Hinged ITS Pole”. Hinged poles will be installed to fold in the direction indicated in the following table.

TABLE OF 30' HINGED ITS POLE

Device ID	Station	L/R	Quantity (Each)
HP1	292+61	85' R	1
HP2	335+88	115' L	1
HP3	Ah 15+00	283' L	1
HP4	Ah 221+67	227' L	1
HP5	Ah 387+89	124' R	1
		TOTAL:	**5**

ROAD CLOSURE GATE AUTOMATION

See Section 6.0 Mainline and Ramp Gate Management Systems of the ITS Special Provisions for Road Closure Gate Automation requirements. The Contractor will furnish and install road closure gate automation systems where shown on the plans.

All costs for labor and material, including supplying, installing, and testing the road closure gate automation system, including but not be limited to the controller (Supplied by the State), road closure gate splice enclosure, actuator, miscellaneous cables, patch cords, and Ethernet cables as called out on the plans and as specified in the special provisions will be included in the contract unit price per each for “Road Closure Gate Automation”.

TABLE OF ROAD CLOSURE GATE AUTOMATION

Device ID	Station	L/R	Quantity (Each)
RCGA1	216+52	307' L	1
RCGA2	223+10	107' L	1
RCGA3	328+30	24' R	1
RCGA4	338+02	219' R	1
		TOTAL:	**4**

1 SECTION VEHICLE SIGNAL HEAD

See Section 6.0 Mainline and Ramp Gate Management Systems of the ITS Special Provisions for Mainline and Ramp Gate Management System requirements. Mainline and Ramp Gate Management Systems will be constructed where shown in plans and in accordance with the plan details and ITS Special Provisions.

Each road closure sign (RCS), advanced road closure sign (ARCS), and ramp road closure sign (RRCS) will be fitted with two 12” yellow 120-volt alternating current (VAC) signal heads as shown in the plans. The flashing beacons on each sign will alternate as they flash. The Contractor will make all necessary connections to make the flashing beacon system operational. The closure and advance closure sign beacons will operate on 120 VAC provided from the uninterruptible power supply in the nearest communications cabinet.

Each variable speed limit ahead (VSLA) sign will be fitted with one 12” yellow 120 VAC signal head as shown in the plans.

The sign beacons will be flashed by a 120 VAC cap flasher Traffic Sensor Corporation Model CF or equivalent. Equivalent models must be approved by the SDDOT ITS Program.

All costs for the yellow beacons, conduit, and wire to be installed on the signs to make the yellow beacons fully functional will be incidental to the contract unit price per each for “1 Section Vehicle Signal Head”. See Special Details for the conduit to be installed on the warning signs.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
11-12-26
SOUTH DAKOTA

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TABLE OF 1 SECTION VEHICLE SIGNAL HEADS

Device ID	Station	Location	Quantity (Each)
VSLA1	121+76	I-90 Eastbound	1
RCS1	238+61	I-90 Westbound	2
ARCS1-1	264+29	I-90 Westbound	2
ARCS1-2	264+29	I-90 Westbound	2
ARCS2-1	292+62	I-90 Eastbound	2
ARCS2-2	292+62	I-90 Eastbound	2
RCS2	319+54	I-90 Eastbound	2
RRCS1	Ah 221+25	I-90 Westbound	2
RRCS2	Ah 221+91	I-90 Eastbound	2
RRCS3	Ah 388+19	I-90 Westbound	2
RRCS4	Ah 388+60	I-90 Eastbound	2
RRCS5	Ah 621+68	I-90 Westbound	2
RRCS6	Ah 621+00	I-90 Eastbound	2
VSLA2	Ah 628+48	I-90 Westbound	1
		TOTAL:	**26**

TABLE OF 2' DIAMETER FIXED SUPPORT CONCRETE FOOTING

Device ID	Station	L/R	Quantity (Ft)
RWIS1	214+89	28' L	10
HP1	292+61	85' R	8
HP2	335+88	115' L	6
HP3	Ah 15+00	283' L	6
RWIS2	Ah 62+98	227' L	8
HP4	Ah 221+67	227' L	8
RWIS3	Ah 386+48	64' R	8
HP5	Ah 387+89	124' R	8
		TOTAL:	**62**

TABLE OF CONTROLLER CABINET FOOTING

Device ID	Location	Station	L/R	Quantity (Each)
CC1	Existing DMS	129+09	27' R	1
CC7	Existing DMS	Ah 146+98	100' L	1
CC10	DMS1	Ah 590+62	125' L	1
			TOTAL:	**3**

COMMUNICATION CABINETS

See Section 4.0 Communication Cabinets of the ITS Special Provision for Communication Cabinet requirements. Communication Cabinets will be installed where shown in the plans and in accordance with the plan details and ITS Special Provision.

The Contractor will install Communications Cabinets at locations as shown on the plans. Communication Cabinets will be defined as follows (Length x Width x Height):

- Type 1 Communication Cabinet – 30”x24”x66”

All costs for furnishing, installing, and configuring the Communications Cabinet, including all components within and attached to the cabinet, and spare conduits as specified in the plans will be incidental to the contract unit price per each for “Type 1 Communication Cabinet”. Type 1 Communication Cabinets will be installed on the footing listed below and as detailed in these plans.

TABLE OF TYPE 1 COMMUNICATION CABINETS

Device ID	Station	L/R	Footing Base	Quantity (Each)
CC1	129+09	27' R	Controller Cabinet Footing	1
CC2	241+95	28' L	Weather Tower Footing	1
CC3	292+67	85' R	HP Footing	1
CC4	335+81	115' L	HP Footing	1
CC5	Ah 14+94	283' L	HP Footing	1
CC6	Ah 62+91	227' L	Weather Tower Footing	1
CC7	Ah 146+98	100' L	Controller Cabinet Footing	1
CC8	Ah 221+69	233' L	HP Footing	1
CC9	Ah 386+55	64' R	Weather Tower Footing	1
CC10	Ah 590+62	125' L	Controller Cabinet Footing	1
			TOTAL:	**10**

ELECTRICAL SERVICE CABINET

The Contractor will contact and coordinate work with the Utility Companies regarding hookup requirements, fees, materials, and equipment necessary.

To better assist the Contractor during construction, each Utility Company has been previously notified of the project. The following utility company contact information for each Electrical Service Cabinet site is as follows:

Device ID	Utility Company	Name	Number
ESC 1	Butte Electric	Brett Fosheim	800-928-8839
ESC 2-7	Black Hills Power	Cody Goodrich	605-646-5188

All costs for furnishing and installing 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, conduit and incidentals will be incidental to the contract unit price per each for "Electrical Service Cabinet".

TABLE OF ELECTRICAL SERVICE CABINETS

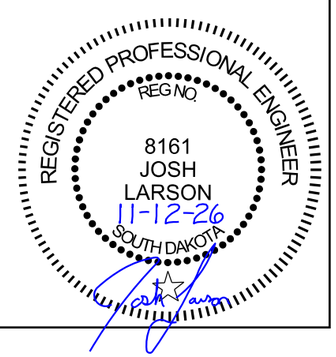
Device ID	Station	L/R	Electrical Service Cabinet (Each)
ESC1	203+49	88' R	1
ESC2	296+65	99' R	1
ESC3	331+66	614' L	1
ESC4	Ah 11+52	81' R	1
ESC5	Ah 64+58	219' L	1
ESC6	Ah 387+37	520' L	1
ESC7	Ah 600+07	173' L	1
		TOTAL:	**7**

UTILITY APPROVED METER SOCKETS FOR ELECTRIC SERVICE

The meter sockets will be provided where shown on the drawings and will be a utility approved meter socket appropriate for the electrical service it is connected to. All costs for coordinating and installation of meter sockets will be incidental to the contract unit price per each for "Electrical Service Cabinet".

GROUNDING RODS

The Contractor will furnish and install grounding rods at locations as shown on the plans and as specified in the special provisions. The payment for supplying and installing ground rods will be incidental to the contract unit price per each for the device the ground rods are installed on.



FOR BIDDING PURPOSES ONLY

MULTIMODE FIBER OPTIC CABLE

Multimode Fiber Optic Cable will meet the following requirements:

- Micro pigtail shall be designed for outdoor use.
- Storage Temperature -40 °C to 70 °C (-40 °F to 158 °F)
- Installation Temperature -30 °C to 70 °C (-22 °F to 158 °F)
- Operation Temperature -40 °C to 70 °C (-40 °F to 158 °F)
- Minimum Static Bend Radius 4.95” (12.5 cm)
- Outer Diameter 0.227” (4.9 mm)
- Fiber Count Six (6)
- Outer Jacket Material: Flame retardant PVC
- 50/125 µm MM graded index, OM3 standard compliant laser optimized
- Attenuation: 3db/KM
- 850/1310 nm wave length
- Tight buffer plenum cable
- UL Listed Type OFNP, CSA FT-6
- Meets NEC sections 770-51 (a) and 770-53 (a)

RS 422 SERIAL CABLE

RS 422 Serial Cable will meet the following requirements:

- Outdoor rated jacket (UV-resistant)
- Outer diameter of less than .33 inches
- 4-conductors – two twisted pairs
- 24-AWG conductors
- 100 Ohm
- Foil shield
- Tinned copper drain wire

2-WIRE DC POWER CABLE

2-wire DC Power Cable will meet the following requirements:

- 2/C #14 AWG stranded copper
- Unshielded
- 600V rated
- Sunlight resistant
- Wet-location rated
- Suitable for outdoor industrial control circuits

OUTDOOR RATED CAT6 CABLE

Outdoor Rated Cat6 Cable will meet the following requirements:

- Use UL listed Cables.
- Outdoor rated
- Maximum diameter less than or equal to 0.40” (10.0 mm)
- Contains four balanced twisted pair conductors with a characteristic impedance of 100 ohms, +/- 15
- Conductors are 22 to 24 AWG solid annealed bare copper, held in place by a cross web separator and surrounded by a water blocking material
- The outer jacket material is a sunlight and weather resistant black polyethylene.
- Tested and verified as being compliant with the ANSI/TIA 568-C.2 CAT 6 performance specification.

CONDUIT INSTALLATION

Each end of each conduit will be marked with a ½-inch dia. x 12-inch long reinforcing bar driven flush with the finished grade, except when the conduit end terminates inside a junction box. The ends of each conduit run will be capped to prevent water and soil from entering.

SDR 13.5 CONDUIT (HDPE)

Conduit will meet the following requirements:

- Compliant with NFPA70, National Electric Code
- UL listed
- Meets NEMA TC-7
- Have smooth interior & exterior walls

TRACER WIRE

The Contractor will furnish and install tracer wire with all conduits. The payment for supplying, installing, and testing will be incidental to the contract unit price per foot for “(Size)” Conduit, SDR 13.5” or “(Size)” Rigid Conduit, Schedule 80”.

GROUNDING WIRES

Grounding wires from individual devices combine to share a common ground back from the devices back to the communication cabinets.

JUNCTION BOXES

The Contractor will furnish and install junction boxes as specified in the plans. Cabling and splices will be high quality and waterproof. If cable splices are necessary, they will be located in a junction box and meet SDDOT specifications.

The cover of the junction box will be labeled with “SDDOT” and their phone number “(605)773-3265” instead of the logo as specified on the standard plate 635.65.

All costs to furnish and install junction boxes will be incidental to the contract unit price per each for “Type 2 Electrical Junction Box”. See standard plate 635.65.

TESTING

See Section 9.0 Testing of the ITS Special Provisions for Testing requirements.

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.

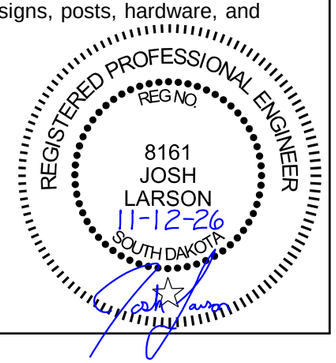
Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

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.



FOR BIDDING PURPOSES ONLY

REMOVE CONCRETE FOOTING

Concrete footings that are to be removed will be removed by the Contractor to a minimum of 2' below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

All costs for removing the concrete footings will be incidental to the contract lump sum price for "Remove Concrete Footing(s)".

TABLE OF REMOVE CONCRETE FOOTING

Device	Station	Quantity* (Each)
Existing Road Closure Sign	238+61 - Lt	2
Existing Advanced Road Closure Sign	243+92 - Lt	2
Existing Advanced Road Closure Sign	243+92 - Lt	2
Existing Advanced Road Closure Sign	292+62 - Rt	2
Existing Advanced Road Closure Sign	292+62 - Lt	2
Existing Road Closure Sign	319+54 - Rt	2
	TOTAL:	**10**

* For information only

NEW PERMANENT SIGNING

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 "Extruded Aluminum Sign, Nonremovable Copy Super/Very High Intensity", "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.

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

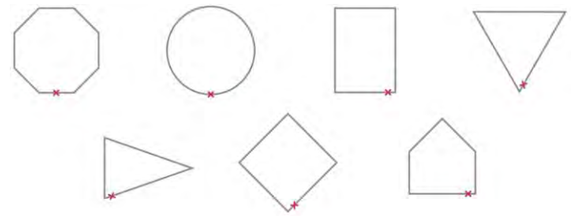
Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.

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.



SQUARE TUBE POST SLEEVE

All 2.5" x 2.5", 10 Gauge perforated tube post will be sleeved with a 2-3/16" x 2-3/16" x 4', 10 Gauge perforated tube post.

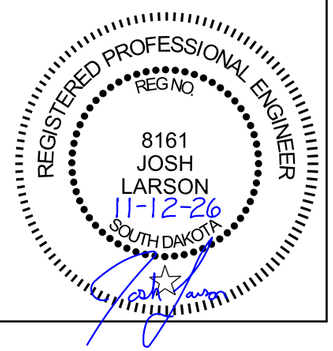
WINGED SLIP BASE ANCHOR

The Contractor will furnish and install new winged slip base anchors for 2.5" x 2.5" perforated tube posts as required in the Permanent Signing Table. Winged slip base anchors will be installed using the direct drive method. Winged slip base anchors will consist of a slip base (upper), a 48-inch long winged anchor (lower), and a hardware kit.

CONCRETE FOOTINGS

The exposed portion of fixed base concrete footings will be formed to provide a uniform diameter section and half-inch chamfer on the grout pad as shown on the footing details. The height of exposed concrete footings, anchor bolts, or slip bases on the up-slope side of the footing will not be greater than 4 inches as shown on the footing details.

Excavation for footings will be accomplished from off the roadway and shoulders where feasible. The excavation areas will be covered if not filled by nightfall. Concrete will be placed within 24 hours of excavation.



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0901(194)28	12	114

FOR BIDDING PURPOSES ONLY

Plotting Date: 10/30/2026

TABLE OF BREAKAWAY SUPPORT CONCRETE FOOTINGS

Station	Sign Description	Site Location	Post Size	Footing Dimensions (ft)		Number of Posts	One-Direction (I) vs Two-Direction (II)	Stub Post Length (ft)	Longitudinal Steel Quantities			# Spiral Steel Quantities*	
				Diameter	Depth				No.	Size	Length	Diameter	Length
143+00 - Rt	VARIABLE SPEED LIMIT (VSL1-1)	I-90 ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
143+00 - Lt	VARIABLE SPEED LIMIT (VSL1-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
238+61 - Lt	I-90 CLOSED WHEN FLASHING (RCS1)	I-90 Rt ROW	W 8x31	2	9	2	I	2.75	8	#7 Bars	8' - 8"	1' - 8"	60'
241+54 - Rt	VARIABLE SPEED LIMIT (VSL2-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
241+54 - Lt	VARIABLE SPEED LIMIT (VSL2-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
264+29 - Lt	I-90 CLOSED WHEN FLASHING - 1/2 MILE AHEAD (ARCS1-1)	I-90 Rt ROW	W 8x31	2	9	2	I	2.75	8	#7 Bars	8' - 8"	1' - 8"	60'
264+29 - Lt	I-90 CLOSED WHEN FLASHING - 1/2 MILE AHEAD (ARCS1-2)	I-90 Median	W 8x31	2	9	2	I	2.75	8	#7 Bars	8' - 8"	1' - 8"	60'
292+62 - Rt	I-90 CLOSED WHEN FLASHING - 1/2 MILE AHEAD (ARCS2-1)	I-90 Rt ROW	W 8x31	2	9	2	I	2.75	8	#7 Bars	8' - 8"	1' - 8"	60'
292+62 - Lt	I-90 CLOSED WHEN FLASHING - 1/2 MILE AHEAD (ARCS2-2)	I-90 Median	W 8x31	2	9	2	I	2.75	8	#7 Bars	8' - 8"	1' - 8"	60'
293+45 - Lt	VARIABLE SPEED LIMIT (VSL3-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
293+45 - Lt	VARIABLE SPEED LIMIT (VSL3-2)	I-90 Median	S 5x10	1.5	4	2	I	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
319+54 - Rt	I-90 CLOSED WHEN FLASHING (RCS2)	I-90 Rt ROW	W 8x31	2	9	2	I	2.75	8	#7 Bars	8' - 8"	1' - 8"	60'
Ah 15+00 - Rt	VARIABLE SPEED LIMIT (VSL4-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 15+00 - Lt	VARIABLE SPEED LIMIT (VSL4-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 62+92 - Lt	VARIABLE SPEED LIMIT (VSL5-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 62+92 - Lt	VARIABLE SPEED LIMIT (VSL5-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 136+73 - Rt	VARIABLE SPEED LIMIT (VSL6-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 136+73 - Lt	VARIABLE SPEED LIMIT (VSL6-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 186+92 - Lt	VARIABLE SPEED LIMIT (VSL7-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 186+92 - Lt	VARIABLE SPEED LIMIT (VSL7-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 221+25 - Lt	WEST I-90 CLOSED WHEN FLASHING (RRCS1)	Exit 37 WB On Ramp	W 6x15	1.75	6	2	I	2	8	#6 Bars	5' - 8"	1' - 5"	37' - 9"
Ah 221+91 - Rt	EAST I-90 CLOSED WHEN FLASHING (RRCS2)	Exit 37 EB On Ramp	W 6x15	1.75	6	2	I	2	8	#6 Bars	5' - 8"	1' - 5"	37' - 9"
Ah 260+97 - Rt	VARIABLE SPEED LIMIT (VSL8-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 260+97 - Lt	VARIABLE SPEED LIMIT (VSL8-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 362+34 - Lt	VARIABLE SPEED LIMIT (VSL9-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 362+34 - Lt	VARIABLE SPEED LIMIT (VSL9-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 388+19 - Lt	WEST I-90 CLOSED WHEN FLASHING (RRCS3)	Exit 40 WB On Ramp	W 6x15	1.75	6	2	I	2	8	#6 Bars	5' - 8"	1' - 5"	37' - 9"
Ah 388+60 - Rt	EAST I-90 CLOSED WHEN FLASHING (RRCS4)	Exit 40 EB On Ramp	W 6x15	1.75	6	2	I	2	8	#6 Bars	5' - 8"	1' - 5"	37' - 9"
Ah 423+15 - Rt	VARIABLE SPEED LIMIT (VSL10-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 423+15 - Lt	VARIABLE SPEED LIMIT (VSL10-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 596+94 - Lt	VARIABLE SPEED LIMIT (VSL11-1)	I-90 Rt ROW	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 596+94 - Lt	VARIABLE SPEED LIMIT (VSL11-2)	I-90 Median	S 5x10	1.5	4	2	II	1.75	6	#6 Bars	3' - 8"	1' - 2"	23' - 9"
Ah 621+68 - Lt	WEST I-90 CLOSED WHEN FLASHING (RRCS5)	Exit 44 WB On Ramp	W 6x15	1.75	6	2	I	2	8	#6 Bars	5' - 8"	1' - 5"	37' - 9"
Ah 621+00 - Rt	EAST I-90 CLOSED WHEN FLASHING (RRCS6)	Exit 44 EB On Ramp	W 6x15	1.75	6	2	I	2	8	#6 Bars	5' - 8"	1' - 5"	37' - 9"

TOTAL 1.5 Diameter:	88
TOTAL 1.75 Diameter:	36
TOTAL 2 Diameter:	54

* Spiral steel is size #3

REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0901(194)28	13	114

Plotting Date: 10/30/2026

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): Installation of ITS equipment
- **5.3 (3b): Total Project Area** 840 Acres
- **5.3 (3b): Total Area to be Disturbed** 13 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 5 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 85%
- **5.3 (3d): Description of Vegetative Cover** Typical West River Cover Grasses (native & introduced)
- **5.3 (3e): Soil Properties:** AASHTO Soil - Various silt loams and cobbly sandy loams.
- **5.3 (3f): Name of Receiving Water Body/Bodies** Alkali Creek
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

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.	
Stabilize disturbed areas.	
Install utilities.	
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	
☐ 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.

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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.

➢ **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.

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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.

FOR BIDDING PURPOSES ONLY

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

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 Form.

CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	17	114

Plotting Date: 10/30/2026

Location to Location		HDPE	Rigid Conduit Schedule 80	Multimode Fiber Optic Cable***	Communication Cable	Serial Cable***	Low-Voltage Power Cable***	Copper Wire						Junction Boxes	Pole and Bracket
		1.5" SDR 13.5 Ft	1.5" Ft	Ft	Cat6 Ft	RS 422 Ft	2-Wire DC	1/C #2 AWG FT	1/C #4 AWG FT	1/C #6 AWG FT	1/C #8 AWG Ft	1/C #10 AWG Ft	1/C #12 AWG Ft	Type 2 Each	
MRM 29															
Existing ESC	JA1	40							290					1	
JA1	CC1	35							270	205			205		
CC1	Existing DMS*	25		130	260										
CC1	Existing DMS	25							415						
JA1	VSLA1	735											2320		
JA1	JA2	1430								4450				1	
JA2	VSL1-1	55								220			220		
JA2	VSL1-1	55		75			75								
JA2	JA3		115										390	1	
JA2	JA3		115	130			130								
JA3	VSL1-2	40											170		
JA3	VSL1-2	40		60			60								
Exit 30															
ESC1	JA4	290								1320				1	
JA4	VRD2	30				65									
JA4	CC2	875	65							4000					
JA4	CC2	875	65			1000									
CC2	RWIS1**	10			220										
CC2	RWIS1	10											220		
RWIS1	JA5	25												1	
RWIS1	JA6	35												1	
CC2	JA7	365	55						1395			5100	6490	1	
CC2	JA7	365	55			465									
JA7	RCGA1	20										210	365		
JA7	JA8	440	170						1920			4475	4475	1	
JA7	JA8	440	170			640									
JA8	VRD5	20				55									
JA8	JA9	125							420			975	975	1	
JA9	Existing Jbox		50									250	435		
JA10	RCGA2	20										210	365	1	
JA9	JA11	1335	235						4885			4885		1	
JA11	RCS1	15										95	95		
JA11	JA12	330							1055				1055	1	
JA12	JA13		95						325					1	
JA13	VSL2-2	40											170		
JA13	VSL2-2	40		60			60								
JA13	JA14		105						360				360	1	
JA13	JA14		105	120			120								
JA14	VSL2-1	40							170				170		
JA14	VSL2-1	40		60			60								
JA12	JA15	2215											6880	1	
JA15	ARCS1-1	40											340		
JA15	JA14		105										360		
JA16	ARCS1-2	40											170	1	
*Existing DMS/Existing CCTV/VRD1															
**RWIS1/VRD3/CCTV1/VRD4															
Totals This Sheet:		10,560	1,505	635	480	2,225	505	0	11,505	10,195	0	16,200	26,230	16	

***For information purposes only. RS-422 Cable, Multimode Fiber, and DC Power Cable are incidental as specified in the plans.

REGISTERED PROFESSIONAL ENGINEER
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LARSON
10-30-26
SOUTH DAKOTA

CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	18	114

Plotting Date: 10/30/2026

Location to Location		HDPE 1.5" SDR 13.5 Ft	Rigid Conduit Schedule 80 1.5" Ft	Multimode Fiber Optic Cable*** Ft	Communication Cable Cat6 Ft	Serial Cable*** RS 422 Ft	Low-Voltage Power Cable*** 2-Wire DC	Copper Wire 1/C #2 AWG FT	1/C #4 AWG FT	1/C #6 AWG FT	1/C #8 AWG Ft	1/C #10 AWG Ft	1/C #12 AWG Ft	Junction Boxes Type 2 Each	Pole and Bracket
MRM 32															
Transformer*	ESC2	670	425						3540						
ESC2	JA17	55								355				1	
JA17	VSL3-1	40											340		
JA17	VSL3-1	40		60	60		60								
JA17	JA18		105							475			715	1	
JA17	JA18		105	120	120		120								
JA18	VSL3-2	40											170		
JA18	VSL3-2	40		60			60								
JA18	CC3	75	80							765			575		
JA18	CC3	75	80		195										
CC3	HP1/CCTV2	10			75										
Exit 32															
RCGA3	JA19	20										365	880	1	
JA19	JA20	180	60									1805	1805	1	
JA20	VRD6	35				70									
JA20	JA21	780	105									6455	6455	1	
JA20	JA21	780	105			925									
JA21	RCGA4	20										210	365		
JA21	JA122	520	55									6630	8440	1	
JA21	JA24	520	55			605									
JA22	CC4	10								165		455	580		
JA22	CC4	10				85									
CC4	HP2**	15			155										
ESC3	JA22	565	130							2990					
JA22	JA23	745	80			865								1	
JA23	VRD8	30				65									
MRM 33															
ESC4	CC5	530	170							3010					
CC5	HP3/CCTV4	15			155										
CC5	JA24	110											435	1	
CC5	JA24	110			145										
JA24	JA25	65	80										480	1	
JA24	JA25	65	80		160										
JA25	VSL4-2	40		60			60								
JA25	VSL4-2	40											170		
JA25	JA26	75	90	185	185		185							1	
JA25	JA26	75	90										1085		
JA26	VSL4-1	85		105	105		105								
JA26	VSL4-1	85											620		
Totals This Sheet:		6,570	1,895	590	1,355	2,615	590	0	3,540	7,760	0	15,920	23,115	10	

*Existing Transformer by Black Hills Energy

**HP2/CCTV3/VRD7

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CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	19	114

Plotting Date: 10/30/2026

Location to Location		HDPE 1.5" SDR 13.5 Ft	Rigid Conduit Schedule 80 1.5" Ft	Multimode Fiber Optic Cable*** Ft	Communication Cable Cat6 Ft	Serial Cable*** RS 422 Ft	Low-Voltage Power Cable*** 2-Wire DC	Copper Wire 1/C #2 AWG FT	1/C #4 AWG FT	1/C #6 AWG FT	1/C #8 AWG Ft	1/C #10 AWG Ft	1/C #12 AWG Ft	Junction Boxes Type 2 Each	Pole and Bracket
MRM 34															
ESC5	CC6	175								930					
CC6	RWIS2/CCTV5	10			145										
CC6	RWIS2	10											220		
CC6	JA25	75											325	1	
CC6	JA25	75			110										
JA27	JA28	35											140	1	
JA27	JA28	35			50										
JA28	VSL5-1	30											280		
JA28	VSL5-1	30		50	50		50								
JA28	JA29		65										235	1	
JA28	JA29		65	80			80								
JA29	VSL5-2	30											140		
JA29	VSL5-2	30		50			50								
MRM 35															
Exist. ESC	CC7	100							620						
CC7	Existing DMS	20							395						
CC7	Existing DMS*	20		125	125										
CC7	JA30	1070									3400			1	
JA30	JA31	80	70								495			1	
JA31	VSL6-2	25											125		
JA31	VSL6-2	25		45			45								
JA31	JA32	55	60								390		390	1	
JA31	JA32	55	60	130			130								
JA32	VSL6-1	50									205		205		
JA32	VSL6-1	50		70			70								
Exit 37															
Exist. ESC	JA36	60								375				1	
JA36	JA35	1165	140						4065	5420				1	
JA35	RRCS1	45											190		
JA35	JA34	3565							11050					1	
JA34	VSL7-1	50							205				205		
JA34	VSL7-1	50		70			70								
JA34	JA33		120										405	1	
JA34	JA33		120	135			135								
JA33	VSL7-2	40											170		
JA33	VSL7-2	40		60			60								
JA35	CC8	150	75						1580	1055			790		
CC8	HP4/CCTV6	10			75										
CC8	RRCS2	400	300										2275		
JA36	JA37	2770	95						8885					1	
JA37	VSL8-2	40											170		
JA37	VSL8-2	40		60			60								
JA37	JA38		105						360				360	1	
JA37	JA38		105	120			120								
JA38	VSL8-1	40							170				170		
JA38	VSL8-1	40		60			60								
Totals This Sheet:		10,590	1,380	1,055	555	0	930	0	27,330	7,780	4,490	0	6,795	12	

*Existing DMS/Existing CCTV ***For information purposes only. RS-422 Cable, Multimode Fiber, and DC Power Cable are incidental as specified in the plans.

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SOUTH DAKOTA

CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	20	114

Plotting Date: 10/30/2026

Location to Location		HDPE 1.5" SDR 13.5 Ft	Rigid Conduit Schedule 80 1.5" Ft	Multimode Fiber Optic Cable*** Ft	Communication Cable Cat6 Ft	Serial Cable*** RS 422 Ft	Low-Voltage Power Cable*** 2-Wire DC	Copper Wire 1/C #2 AWG FT	1/C #4 AWG FT	1/C #6 AWG FT	1/C #8 AWG Ft	1/C #10 AWG Ft	1/C #12 AWG Ft	Junction Boxes Type 2 Each	Pole and Bracket
Exit 40															
ESC6	JA41	75								435				1	
JA41	RRCS3	20											110		
JA41	JA40	2605							8085					1	
JA40	VSL9-1	50							205				205		
JA40	VSL9-1	50		70			70								
JA40	JA39		120										405	1	
JA40	JA39		120	135			135								
JA39	VSL9-2	40											170		
JA39	VSL9-2	40		60			60								
JA41	CC9	310	260						1855	2475			1855		
CC9	RWIS3/VRD9	10			145										
CC9	RWIS3	10											220		
RWIS3	JA42	50												1	
JA42	JA43		90											1	
CC9	JA44	175							635				635	1	
CC9	JA44	175			215										
JA44	HP5/CCTV7	40			85										
JA44	JA45	285	130						1315				1315	1	
JA45	RRCS4	30											140		
JA45	JA46	3465	95						11035					1	
JA46	VSL10-1	45							190				190		
JA46	VSL10-1	45		65			65								
JA46	JA47		120										405	1	
JA46	JA47		120	135			135								
JA47	VSL10-2	40											170		
JA47	VSL10-2	40		60			60								
Totals This Sheet:		7,600	1,055	525	445	0	525	0	23,320	2,910	0	0	5,820	9	

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CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	21	114

Plotting Date: 10/30/2026

Location to Location		HDPE	Rigid Conduit Schedule 80	Multimode Fiber Optic Cable***	Communication Cable	Serial Cable***	Low-Voltage Power Cable***	Copper Wire						Junction Boxes	Pole and Bracket
		1.5" SDR 13.5 Ft	1.5" Ft	Ft	Cat6 Ft	RS 422 Ft	2-Wire DC	1/C #2 AWG FT	1/C #4 AWG FT	1/C #6 AWG FT	1/C #8 AWG Ft	1/C #10 AWG Ft	1/C #12 AWG Ft	Type 2 Each	
Exit 44															
ESC7	JA50	60						375						1	
JA50	JA48	385						1630					3665	1	
JA48	VSL11-1	55										220	220		
JA48	VSL11-1	55		75			75								
JA48	JA49		120										405	1	
JA48	JA49		120	135			135								
JA49	VSL11-2	40											170		
JA49	VSL11-2	40		60			60								
JA48	CC10	490	165					2825				2120	6350		
CC10	DMS1	10							355						
CC10	DMS1*	10		115	230										
JA50	JA51	2080											19375	1	
JA51	RRCS5	25											125		
JA51	JA52	70	185										1640	1	
JA52	RRCS6	460	80										1715		
JA52	VSLA2	535											1700		
*DMS1/VRD10/CCTV8															
Totals This Sheet:		4,315	670	385	230	0	270	4,830	355	0	0	2,340	35,365	5	
Totals All Sheets:		**39,635**	**6,505**	**3,190**	**3,065**	**4,840**	**2,820**	**4,830**	**66,050**	**28,645**	**4,490**	**34,460**	**97,325**	**52**	

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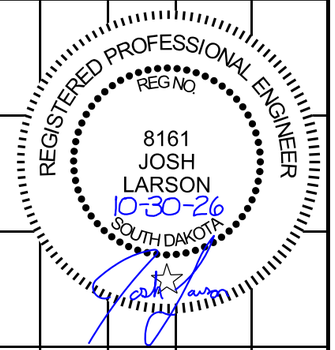
SIGN INSTALLATION TABLE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	22	114

Plotting Date: 10/30/2026

SIGN DATA										NEW POST DATA										
						FLAT ALUMINUM		EXTR. ALUM.										SIZE/QUANTITY (FT)			
STATION	ALIGNMENT	DESCRIPTION	SIGN NUMBER	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SqFt) TYPE IV	SIGN AREA (SqFt) TYPE XI	SIGN AREA (SqFt) TYPE XI	SIGN FACES	LOCATION	NEW SIGN	NUMBER OF POSTS	1 Section Vehicle Signal Head (Each)	Remove Traffic Sign (Each)	COMMENTS	POST LENGTHS INSIDE	POST LENGTHS OUTSIDE	(F)IXED OR (B)REAKAWAY BASE	S5x10	W6x15	W8x31	2.5" x 2.5" TUBE POST
						632E3203	632E3205	632E3115					635E4010	110E0130					632E1220	632E1230	632E1260	632E1340
121+76 - Rt	I-90 Eastbound		W3-5b (VSLA1)	48	48		16.0		West	I-90 Rt ROW	Yes	2	1		Install Variable Speed Zone Ahead Sign	17.0	17.0	B				34.0
143+00 - Rt	I-90 Eastbound		VSL1-1	48	60				West	I-90 ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
143+00 - Lt	I-90 Eastbound		VSL1-2	48	60				West	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
211+86 - Lt	I-90 Westbound		R2-13 (EVSL1)	48	60		20.0		East	I-90 Rt ROW	Yes	2			Install End Variable Speed Limit Sign	17.0	17.0	B				34.0
238+61 - Lt	I-90 Westbound		RCS1	156	120			130.0	East	I-90 Rt ROW	Yes	2	2	1	Remove existing sign and beacons and install new sign; see details for installation information	21.3	21.8	B			43.1	
241+54 - Rt	I-90 Eastbound		VSL2-1	48	60				West	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
241+54 - Lt	I-90 Eastbound		VSL2-2	48	60				West	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
241+55 - Rt	I-90 Eastbound		R2-1	48	60				West	I-90 Rt ROW	No	2		1								
243+92 - Lt	I-90 Westbound	Existing Advanced Road Closed	SPECIAL	162	114				East	I-90 Median	No	2		1	Remove Traffic Sign and Beacons							
243+92 - Lt	I-90 Westbound	Existing Advanced Road Closed	SPECIAL	162	114				East	I-90 Rt ROW	No	2		1	Remove Traffic Sign and Beacons							
264+29 - Lt	I-90 Westbound		ARCS1-1	162	114			128.3	East	I-90 Rt ROW	Yes	2	2		See Details for more information	20.6	21.6	B			42.2	
SUB-TOTALS :						**0.0**	**36.0**	**258.3**					**5.0**	**4.0**					**107.4**	**0.0**	**85.3**	**68.0**



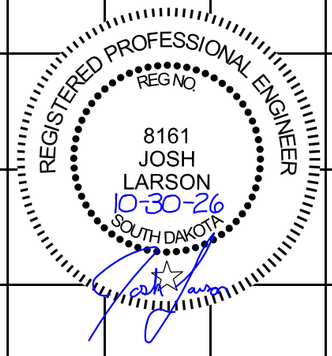
SIGN INSTALLATION TABLE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	23	114

Plotting Date: 10/30/2026

SIGN DATA										NEW POST DATA									
						FLAT ALUMINUM		EXTR. ALUM.										SIZE/QUANTITY (FT)			
STATION	ALIGNMENT	DESCRIPTION	SIGN NUMBER	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SqFt) TYPE IV	SIGN AREA (SqFt) TYPE XI	SIGN AREA (SqFt) TYPE XI	SIGN FACES	LOCATION	NEW SIGN	NUMBER OF POSTS	1 Section Vehicle Signal Head (Each)	Remove Traffic Sign (Each)	COMMENTS	POST LENGTHS INSIDE	POST LENGTHS OUTSIDE	(F)IXED OR (B)REAKAWAY BASE	S5x10	W6x15	W8x31	2.5" x 2.5" TUBE POST
						632E3203	632E3205	632E3115					635E4010	110E0130					632E1220	632E1230	632E1260	632E1340
264+29 - Lt	I-90 Westbound		ARCS1-2	162	114			128.3	East	I-90 Median	Yes	2	2		See Details for more information	19.0	19.1	B			38.1	
292+62 - Rt	I-90 Eastbound		ARCS2-1	162	114			128.3	West	I-90 Rt ROW	Yes	2	2	1	Remove existing sign and beacons and install new sign; see details for installation information	20.1	18.9	B			39.0	
292+62 - Lt	I-90 Eastbound		ARCS2-2	162	114			128.3	West	I-90 Median	Yes	2	2	1	Remove existing sign and beacons and install new sign; see details for installation information	19.5	19.9	B			39.4	
293+45 - Lt	I-90 Westbound		VSL3-1	48	60				East	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
293+45 - Lt	I-90 Westbound		VSL3-2	48	60				East	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
304+44 - Lt	I-90 Westbound		R2-1	48	60				North	I-90 Rt ROW	No	2		1								
319+54 - Rt	I-90 Eastbound		RCS2	156	120			130.0	West	I-90 Rt ROW	No	2	2	1	Remove existing sign and beacons and install new sign; see details for installation information	18.9	21.6	B			40.5	
Ah 15+00 - Rt	I-90 Eastbound		VSL4-1	48	60				West	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 15+00 - Lt	I-90 Eastbound		VSL4-2	48	60				West	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 23+68 - Rt	I-90 Eastbound		R2-1	48	60				West	I-90 Rt ROW	No	1		1								
Ah 23+68 - Lt	I-90 Eastbound		R2-1	48	60				West	I-90 Median	No	2		1								
SUB-TOTALS :						**0.0**	**0.0**	**514.9**				**8.0**		**6.0**					**107.4**	**0.0**	**157.0**	**0.0**

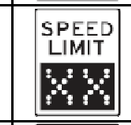


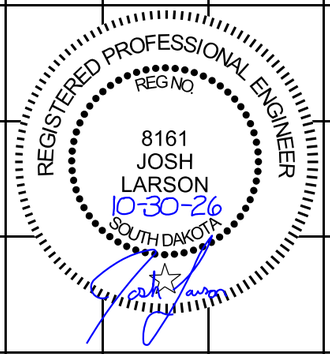
SIGN INSTALLATION TABLE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	24	114

Plotting Date: 10/30/2026

SIGN DATA										NEW POST DATA											
						FLAT ALUMINUM		EXTR. ALUM.								POST LENGTHS		(F)IXED OR (B)REAKAWAY BASE	SIZE/QUANTITY (FT)			
STATION	ALIGNMENT	DESCRIPTION	SIGN NUMBER	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SqFt) TYPE IV	SIGN AREA (SqFt) TYPE XI	SIGN AREA (SqFt) TYPE XI	SIGN FACES	LOCATION	NEW SIGN	NUMBER OF POSTS	1 Section Vehicle Signal Head (Each)	Remove Traffic Sign (Each)	COMMENTS	INSIDE	OUTSIDE		S5x10	W6x15	W8x31	2.5" x 2.5" TUBE POST
						632E3203	632E3205	632E3115					635E4010	110E0130					632E1220	632E1230	632E1260	632E1340
Ah 23+68 - Lt	I-90 Westbound		R2-1	48	60				East	I-90 ROW	No	2		1								
Ah 62+92 - Lt	I-90 Westbound		VSL5-1	48	60				East	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 62+92 - Lt	I-90 Westbound		VSL5-2	48	60				East	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 130+42 - Rt	I-90 Eastbound		R2-1	48	60				West	I-90 Rt ROW	Yes	2		1								
Ah 136+73 - Rt	I-90 Eastbound		VSL6-1	48	60				West	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 136+73 - Lt	I-90 Eastbound		VSL6-2	48	60				West	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 186+92 - Lt	I-90 Westbound		VSL7-1	48	60				East	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 186+92 - Lt	I-90 Westbound		VSL7-2	48	60				East	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 189+39 - Lt	I-90 Westbound		R2-1	48	60				East	I-90 Rt ROW	No	2		1								
Ah 221+25 - Lt	I-90 Westbound		RRCS1	132	72	66.0			East	Exit 37 WB On Ramp	Yes	2	2		See Details for more information	12.3	13.5	B		25.8		
Ah 221+91 - Rt	I-90 Eastbound		RRCS2	132	72	66.0			West	Exit 37 EB On Ramp	Yes	2	2		See Details for more information	12.3	13.1	B		25.4		
SUB-TOTALS :						**132.0**	**0.0**	**0.0**					**4.0**	**3.0**					**161.1**	**51.2**	**0.0**	**0.0**



SIGN INSTALLATION TABLE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	25	114

Plotting Date: 10/30/2026

SIGN DATA										NEW POST DATA											
						FLAT ALUMINUM		EXTR. ALUM.										SIZE/QUANTITY (FT)			
STATION	ALIGNMENT	DESCRIPTION	SIGN NUMBER	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SqFt) TYPE IV	SIGN AREA (SqFt) TYPE XI	SIGN AREA (SqFt) TYPE XI	SIGN FACES	LOCATION	NEW SIGN	NUMBER OF POSTS	1 Section Vehicle Signal Head (Each)	Remove Traffic Sign (Each)	COMMENTS	POST LENGTHS INSIDE	POST LENGTHS OUTSIDE	(F)IXED OR (B)REAKAWAY BASE	S5x10	W6x15	W8x31	2.5" x 2.5" TUBE POST
						632E3203	632E3205	632E3115					635E4010	110E0130					632E1220	632E1230	632E1260	632E1340
Ah 260+40 - Rt	I-90 Eastbound	SPEED LIMIT 75	R2-1	48	60				West	I-90 Rt ROW	No	2		1								
Ah 260+97 - Rt	I-90 Eastbound	SPEED LIMIT XX	VSL8-1	48	60				West	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 260+97 - Lt	I-90 Eastbound	SPEED LIMIT XX	VSL8-2	48	60				West	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 354+63 - Rt	I-90 Eastbound	SPEED LIMIT 75	R2-1	48	60				West	I-90 Rt ROW	No	2		1								
Ah 355+83 - Lt	I-90 Westbound	SPEED LIMIT 75	R2-1	48	60				East	I-90 Rt ROW	No	2		1								
Ah 362+34 - Lt	I-90 Westbound	SPEED LIMIT XX	VSL9-1	48	60				East	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 362+34 - Lt	I-90 Westbound	SPEED LIMIT XX	VSL9-2	48	60				East	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 388+19 - Lt	I-90 Westbound	WEST I-90 CLOSED WHEN FLASHING	RRCS3	132	72	66.0			East	Exit 40 WB On Ramp	Yes	2	2		See Details for more information	12.5	13.5	B		26.0		
Ah 388+60 - Rt	I-90 Eastbound	EAST I-90 CLOSED WHEN FLASHING	RRCS4	132	72	66.0			West	Exit 40 EB On Ramp	Yes	2	2		See Details for more information	12.0	12.6	B		24.6		
Ah 423+15 - Rt	I-90 Eastbound	SPEED LIMIT XX	VSL10-1	48	60				West	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 423+15 - Lt	I-90 Eastbound	SPEED LIMIT XX	VSL10-2	48	60				West	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
SUB-TOTALS :						**132.0**	**0.0**	**0.0**					**4.0**	**3.0**					**161.1**	**50.6**	**0.0**	**0.0**

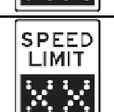
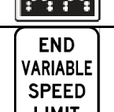
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

SIGN INSTALLATION TABLE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	26	114

Plotting Date: 10/30/2026

SIGN DATA										NEW POST DATA											
						FLAT ALUMINUM		EXTR. ALUM.											SIZE/QUANTITY (FT)			
STATION	ALIGNMENT	DESCRIPTION	SIGN NUMBER	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SqFt) TYPE IV	SIGN AREA (SqFt) TYPE XI	SIGN AREA (SqFt) TYPE XI	SIGN FACES	LOCATION	NEW SIGN	NUMBER OF POSTS	1 Section Vehicle Signal Head (Each)	Remove Traffic Sign (Each)	COMMENTS	POST LENGTHS INSIDE	POST LENGTHS OUTSIDE	(F)IXED OR (B)REAKAWAY BASE	S5x10	W6x15	W8x31	2.5" x 2.5" TUBE POST
						632E3203	632E3205	632E3115					635E4010	110E0130					632E1220	632E1230	632E1260	632E1340
Ah 423+89 - Rt	I-90 Eastbound		R2-1	48	60				West	I-90 Rt ROW	No	2		1								
Ah 430+97 - Lt	I-90 Westbound		R2-1	48	60				East	I-90 Rt ROW	No	2		1								
Ah 481+94 - Rt	I-90 Eastbound		R2-1	48	60				West	I-90 Rt ROW	No	2		1								
Ah 590+71 - Lt	I-90 Westbound		DMS1	259	95				East	I-90 Rt ROW	Yes**	1			Install Pole Mounted Dynamic Message Sign - See Details for more information			F				
Ah 593+41 - Lt	I-90 Westbound		R2-1	48	60				East	I-90 Rt ROW	No	2		1								
Ah 596+94 - Lt	I-90 Westbound		VSL11-1	48	60				East	I-90 Rt ROW	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 596+94 - Lt	I-90 Westbound		VSL11-2	48	60				East	I-90 Median	Yes*	2			Install Variable Speed Limit Sign - See Details for more information	13.1	13.8	B	26.9			
Ah 614+04 - Rt	I-90 Eastbound		R2-13 (EVSL2)	48	60		20.0		West	I-90 Rt ROW	Yes	2			Install End Variable Speed Limit Sign	17.0	17.0	B				34.0
Ah 621+68 - Lt	I-90 Westbound		RRCS5	132	72	66.0			East	Exit 44 WB On Ramp	Yes	2	2		See Details for more information	12.3	13.1	B		25.4		
Ah 621+00 - Rt	I-90 Eastbound		RRCS6	132	72	66.0			West	Exit 44 EB On Ramp	Yes	2	2		See Details for more information	12.2	13.3	B		25.5		
Ah 628+48 - Lt	I-90 Westbound		W3-5b (VSLA2)	48	48		16.0		East	I-90 Rt ROW	Yes	2	1		Install Variable Speed Zone Ahead Sign	17.0	17.0	B				34.0
SUB-TOTALS :						**132.0**	**36.0**	**0.0**					**5.0**	**4.0**					**53.7**	**50.9**	**0.0**	**68.0**
TOTALS :						**396.0**	**72.0**	**773.2**					**26.0**	**20.0**					**590.7**	**152.7**	**242.3**	**136.0**

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA

***Variable Speed Limit (VSL) sign will be paid for using the Standard Bid Item (632E3610) Variable Speed Limit Sign per Each.**

****Dynamic Message Sign (DMS) will be paid for using the Standard Bid Item (635E6220) Pole Mounted Dynamic Message Sign per Each.**

TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	27	114

Plotting Date: 10/30/2026

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		EXPRESSWAY / INTERSTATE			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	4	36" x 48"	12.0	48.0
R2-1	SPEED LIMIT 65	6	36" x 48"	12.0	72.0
R2-1	SPEED LIMIT 75	2	36" x 48"	12.0	24.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	2	48" x 48"	16.0	32.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	4	48" x 48"	16.0	64.0
W4-2	LEFT LANE ENDS (symbol)	4	48" x 48"	16.0	64.0
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W13-4P	ON RAMP (plaque)	2	36" x 36"	9.0	18.0
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-5	RIGHT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-1	WORKERS (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-1	ROAD WORK NEXT 1 MILE	2	48" x 24"	8.0	16.0
G20-2	END ROAD WORK	4	48" x 24"	8.0	32.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			766.0

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
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LARSON
10-30-26
SOUTH DAKOTA

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	28	114

Plotting Date: 10/30/2026

05W7 Mainline EB

Type	Station			Northing	Easting
POB	115+00			237125.380	1036378.486
		TL= 6024.59	S 71°40'30" E		
PC	175+24.59			235231.196	1042097.553
PI	183+20.98	R= 20000.00	Delta = 4°33'38" R	234980.804	1042853.555
PT	191+16.53			234671.093	1043587.254
		TL= 1667.61	S 67°06'51" E		
PC	207+84.13			234022.571	1045123.591
PI	216+63.59	R= 2200.00	Delta = 43°34'43" R	233680.553	1045933.823
PT	224+57.43			232874.252	1046285.010
		TL= 1031.06	S 23°32'08" E		
PC	234+88.49			231928.968	1046696.731
PI	235+80.04	R= 5000.00	Delta = 2°05'53" L	231845.030	1046733.290
PT	236+71.58			231762.486	1046772.898
		TL= 408.23	S 25°38'01" E		
PC	240+79.81			231394.435	1046949.505
PI	245+36.45	R= 30000.00	Delta = 1°44'39" R	230982.736	1047147.056
PT	249+93.02			230565.215	1047331.985
		TL= 1834.21	S 23°53'22" E		
PC	268+27.24			228888.142	1048074.796
PI	273+16.55	R= 9000.00	Delta = 6°13'27" L	228440.747	1048272.957
PT	278+04.90			228017.473	1048518.455
		TL= 293.25	S 30°06'49" E		
PC	280+98.16			227763.798	1048665.585
PI	287+09.23	R= 8000.00	Delta = 8°44'10" L	227235.202	1048972.169
PT	293+17.93			226759.303	1049355.481
		TL= 390.35	S 38°50'59" E		
PC	297+08.28			226455.303	1049600.337
PI	306+91.02	R= 3600.00	Delta = 30°32'15" L	225689.952	1050216.786
PT	316+27.00			225343.976	1051136.607
		TL= 1262.65	S 69°23'13" E		
PC	328+89.65			224899.457	1052318.420
PI	336+78.07	R= 5700.00	Delta = 15°45'01" R	224621.891	1053056.365
PT	344+56.55			224154.436	1053691.258
		TL= 1071.65	S 53°38'12" E		

05W7 Mainline EB (Continued)

Type	Station			Northing	Easting
PI	AH 0+00.00			223519.054	1054554.228
		TL= 1593.94	S 53°41'08" E		
PC	AH 15+93.94			222575.095	1055838.591
PI	AH 21+30.57	R= 2341.38	Delta = 25°49'03" R	222257.299	1056270.989
PT	AH 26+48.97			221782.911	1056521.827
		TL= 2687.50	S 27°52'05" E		
PC	AH 53+36.47			219407.088	1057778.069
PI	AH 58+07.25	R= 8120.56	Delta = 6°38'09" L	218990.904	1057998.131
PT	AH 62+76.98			218602.939	1058264.812
		TL= 1336.09	S 34°30'15" E		
PC	AH 76+13.08			217501.884	1059021.661
PI	AH 80+40.60	R= 11309.44	Delta = 4°19'47" L	217149.564	1059263.841
PT	AH 84+67.72			216816.534	1059531.928
		TL= 3481.22	S 38°50'02" E		
PC	AH 119+48.94			214104.777	1061714.877
PI	AH 124+03.27	R= 5741.37	Delta = 9°02'56" R	213750.871	1061999.769
PT	AH 128+55.71			213356.562	1062225.453
		TL= 2644.30	S 29°47'05" E		
PI	AH 155+00.00			211061.586	1063538.992
PI	AH 155+00.00			211061.483	1063539.051
		TL= 126.00	S 29°47'05" E		
PI	AH 156+26.00			210952.128	1063601.641
		TL= 1424.14	S 28°15'28" E		
PI	AH 170+50.14			209697.708	1064275.883
		TL= 6014.21	S 29°47'08" E		
PC	AH 230+64.36			204478.027	1067263.475
PI	AH 238+44.98	R= 11700.00	Delta = 7°38'03" R	203800.530	1067651.254
PT	AH 246+23.30			203077.521	1067945.592
		TL= 3869.25	S 22°09'05" E		
PC	AH 284+92.54			199493.858	1069404.507
PI	AH 294+73.52	R= 3100.00	Delta = 35°07'10" R	198585.284	1069774.389
PT	AH 303+92.69			197629.324	1069554.248
		TL= 752.14	S 12°58'05" W		
PI	AH 320+21.46	R= 5761.7	Delta = 17°18'08" L	196042.094	1069188.737
PT	AH 328+84.75			195167.969	1069254.985
		TL= 5925.06	S 4°20'03" E		

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	29	114

Plotting Date: 10/30/2026

05W7 Mainline EB (Continued)

Type	Station			Northing	Easting
PC	AH 388+09.80			189259.855	1069702.75
PI	AH 397+52.71	R= 5750.12	Delta = 18°37'30" L	188319.651	1069774.006
PT	AH 406+78.97			187451.443	1070141.805
		TL= 4133.35	S 22°57'32" E		
PI	AH 448+12.32			183645.517	1071754.108
		TL= 859.5	S 22°56'53" E		
PC	AH 456+71.82			182854.043	1072089.221
PI	AH 458+45.40	R= 15700	Delta = 1°16'01" R	182694.198	1072156.9
PT	AH 460+18.97			182532.897	1072221.028
		TL= 2823.48	S 21°40'52" E		
PC	AH 488+42.45			179909.161	1073264.138
PI	AH 490+17.37	R= 15700	Delta = 1°16'36" L	179746.62	1073328.758
PT	AH 491+92.27			179585.56	1073396.984
		TL= 12384.13	S 22°57'28" E		
PI	AH 615+76.40			168182.342	1078227.439
		TL= 1523.6	S 31°01'41" E		
POE	AH 631+00.00			166876.745	1079012.794

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	30	114

Plotting Date: 10/30/2026

LEGEND - PROJECT OVERVIEW

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Existing Dynamic Messaging Sign (DMS)
Exisitng Camera (CCTV)



Proposed Roadway Weather Information System (RWIS)
Proposed Vehicle Detection (VRD)



Proposed Camera (CCTV)
Proposed Vehicle Detection (VRD)



Proposed Camera (CCTV)
Proposed Roadway Weather Information System (RWIS)



Proposed Camera (CCTV)
Proposed Dynamic Message Sign (DMS)



Proposed Camera (CCTV)
Proposed Roadway Weather Information System (RWIS)
Proposed Vehicle Detection (VRD)



Proposed Camera (CCTV)
Proposed Dynamic Messaging Sign (DMS)
Proposed Vehicle Detection (VRD)



Existing Camera (CCTV)
Existing Dynamic Messaging Sign (DMS)
Proposed Vehicle Detection (VRD)



Proposed Camera (CCTV)



Exisitng Camera (CCTV)



Existing Vehicle Detection (VRD)



Existing Road Closure Gate (retrofit with automation) (RCGA)



Proposed Ramp Queue Vehicle Detection (VRD)



Proposed Interstate Road Closed Sign with Flashing Beacons (RCS)



Proposed Advanced Road Closed Sign with Flashing Beacons (ARCS)



Proposed Ramp Closed Sign with Flashing Beacons (RRCS)



Proposed Variable Speed Limit Sign (VSL)



Proposed Variable Speed Limit Zone Sign with Flashing Beacon (VSLA)



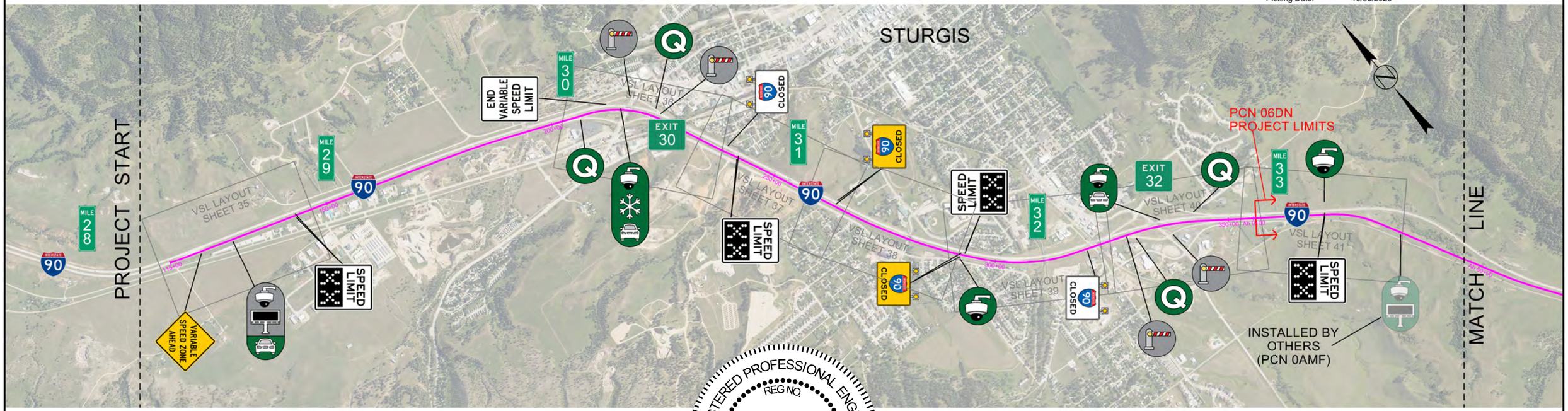
Proposed End Variable Speed Limit Sign (EVSL)

PROJECT OVERVIEW

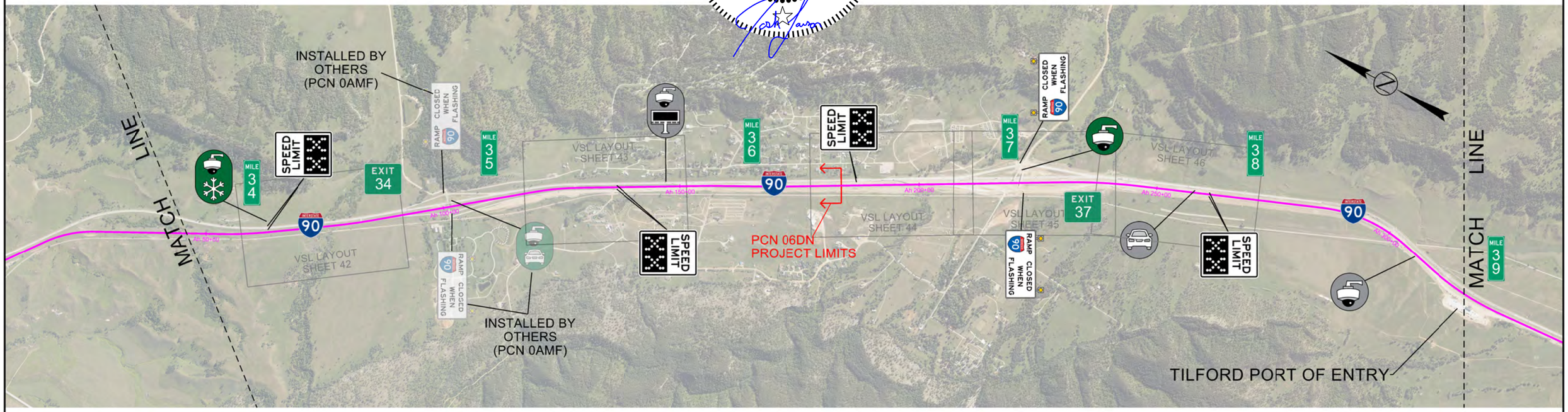
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	31	114

Plotting Date: 10/30/2026



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PROJECT OVERVIEW

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	32	114

Plotting Date: 10/30/2026



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LEGEND EXISTING

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	33	114

Plotting Date: 10/30/2026

- 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
- 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 R.O.W. Marker
- 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
- Large Tower Light Pole
- 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
- R. O. W. Line
- New R. O. W. Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

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LEGEND VSL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	34	114

Plotting Date: 10/30/2026

Identified Wetland

Environmental Sensitive Site

30' Hinged ITS Pole

Camera

Existing Camera

Pole Mounted Dynamic Message Sign

Existing Pole Mounted Dynamic Message Sign

Roadway Weather Information System & Tower

Existing Roadway Weather Information System & Tower

Roadway Weather Information System Pavement Sensor (Incidental to RWIS)

Vehicle Radar Detector

Interstate Road Closed Sign with Beacons — RCS

Advanced Road Closed Sign with Beacons — ARCS

Ramp Road Closed Sign with Beacons — RRCS

Variable Speed Limit Ahead Sign with Beacon — VSLA

Variable Speed Limit Sign — VSL

End Variable Speed Limit Sign — EVSL

Road Closure Gate Automation

Type 2 Electrical Junction Box

Existing Type 2 Electrical Junction Box

Communication Cabinet

Existing Communication Cabinet

Electrical Service Cabinet

Existing Electrical Service Cabinet

Galvanized Steel Utility Pole

Existing Galvanized Steel Utility Pole

Meter Socket

Existing Meter Socket

Conduit

Rigid Conduit

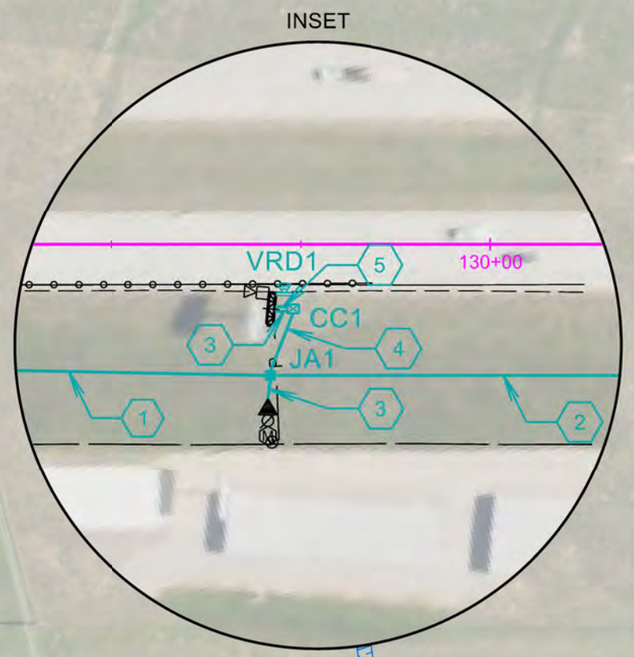
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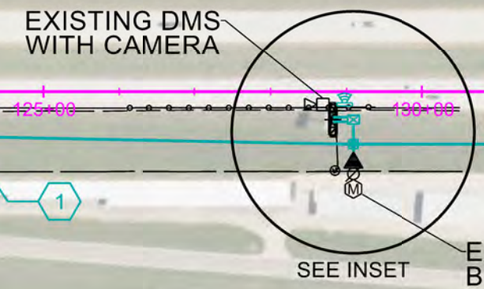
VSL CORRIDOR LAYOUT
MRM 29

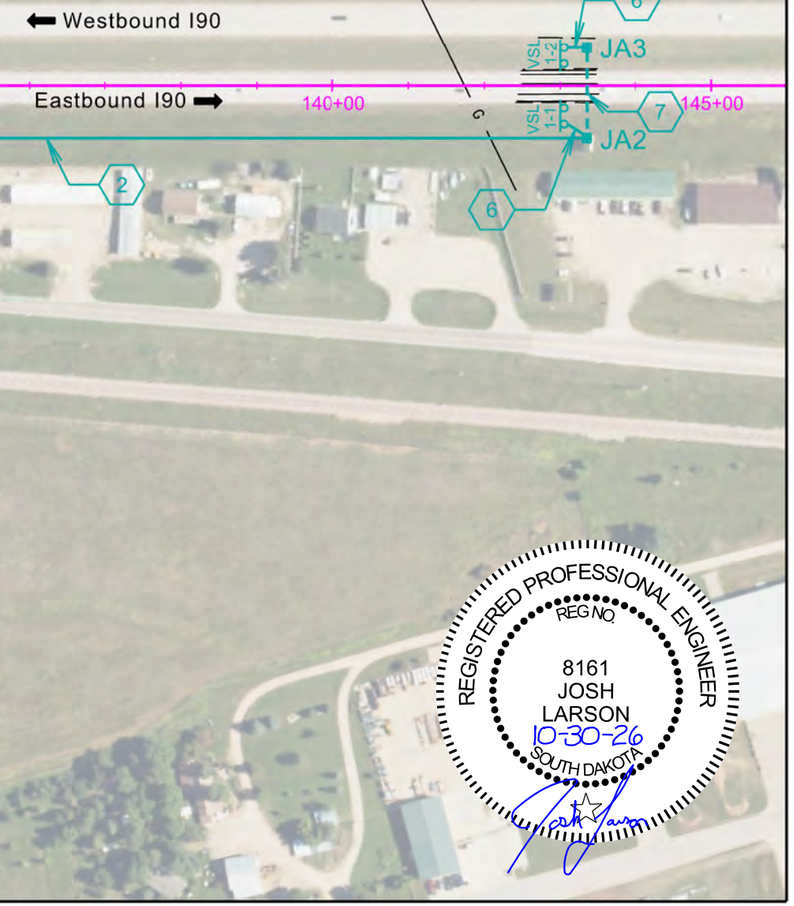
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	35	114

Plotting Date: 10/30/2026







ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
M	Existing Meter Socket	Not a Bid Item	
	Existing Pole Mounted Dynamic Message Sign	Not a Bid Item	
	Existing Camera	Not a Bid Item	
VSLAx	Variable Speed Limit Ahead Sign with Beacon (VSLA1)	See Sign Install Table for Details	
VSLx	Variable Speed Limit Sign (VSL1-1, VSL1-2)	See Sign Install Table for Details	
	Communication Cabinet (CC1)	1	EACH
	Type 2 Electrical Junction Box (JA1-JA3)	3	EACH
	Vehicle Radar Detector (VRD1)	1	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   3-1/C #6 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   4-1/C #4 AWG Copper Wire
4. 1.5" Conduit, SDR 13.5
   4-1/C #4 AWG Copper Wire
   3-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
5. 1.5" Conduit, SDR 13.5
   2-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)

CONDUIT AND CABLES

6. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
7. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

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VSL CORRIDOR LAYOUT
EXIT 30

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	36	114

Plotting Date: 10/30/2026

226+13-140' L to 229+04-140' L
Bore Under Existing Infrastructure
ESS3

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   1-RS-422 Cable (Not A Bid Item)
3. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-RS-422 Cable (Not A Bid Item)
4. 1.5" Conduit, Sch 80
   4-1/C #6 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-RS-422 Cable (Not A Bid Item)
5. 1.5" Conduit, SDR 13.5
   3-Outdoor Rated Cat6 Cable
6. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
7. 1.5" Conduit, SDR 13.5
   2-RWIS Pavement Sensors
   (Not A Bid Item)
8. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   11-1/C #10 AWG Copper Wire
   14-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-RS-422 Cable (Not A Bid Item)

POWER SOURCE
120/240 VAC, 60Hz,
1 Phase, 3 Wire Service
By Butte Electric Coop

RCGA1 JA7 RCGA2 JA8 JA9 JA10 VRD5 EXIT 30 Westbound I90 Eastbound I90 Lazelle Street SEE INSET INSET ESS3 EVSL1 VRD2 JA4 ESC1 JA6 VRD4 CCTV1 VRD3 RWIS1 CC2 JA5 205+00 210+00 215+00 220+00 225+00 230+00 235+00

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Road Closure Gate Automation (RCGA1-RCGA2)	2	EACH
EVSLx	End Variable Speed Limit Sign (EVSL1)	See Sign Install Table for Details	
	Communication Cabinet (CC2)	1	EACH
	Camera (CCTV1)	1	EACH
	Roadway Weather Information System Tower (RWIS1)	1	EACH
	Type 2 Electrical Junction Box (JA4-JA10)	7	EACH
	Electrical Service Cabinet (ESC1)	1	EACH

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH
	Vehicle Radar Detector (VRD2-VRD5)	4	EACH

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CONDUIT AND CABLES

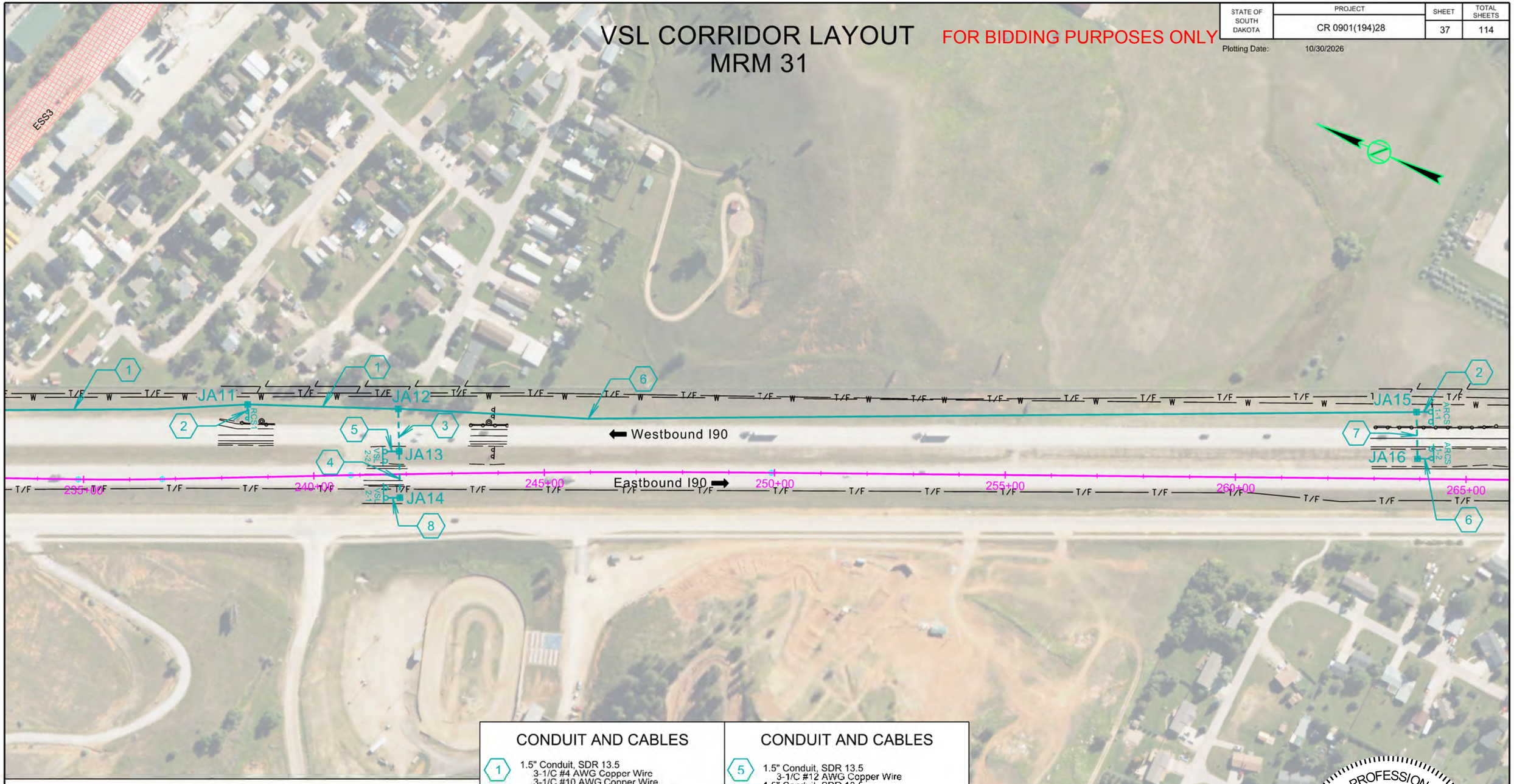
9. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   11-1/C #10 AWG Copper Wire
   14-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-RS-422 Cable (Not A Bid Item)
10. 1.5" Conduit, Sch 80
    3-1/C #4 AWG Copper Wire
    7-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
    1.5" Conduit, Sch 80
    1-RS-422 Cable (Not A Bid Item)
11. 1.5" Conduit, SDR 13.5
    3-1/C #4 AWG Copper Wire
    7-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
    1.5" Conduit, SDR 13.5
    1-RS-422 Cable (Not A Bid Item)
12. 1.5" Conduit, SDR 13.5
    3-1/C #4 AWG Copper Wire
    7-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
13. 1.5" Conduit, Sch 80
    4-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
14. 1.5" Conduit, SDR 13.5
    3-1/C #4 AWG Copper Wire
    3-1/C #10 AWG Copper Wire
15. 1.5" Conduit, Sch 80
    3-1/C #4 AWG Copper Wire
    3-1/C #10 AWG Copper Wire
16. 1.5" Conduit, SDR 13.5
    4-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
17. 1.5" Conduit, SDR 13.5
    4-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire

VSL CORRIDOR LAYOUT
MRM 31

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	37	114

Plotting Date: 10/30/2026



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
ARCSx	Advanced Road Closed Sign with Beacons (ARCS1-1, ARCS1-2)	See Sign Install Table for Details	
RCSx	Road Closed Sign with Beacons (RCS1)	See Sign Install Table for Details	
VSLx	Variable Speed Limit Sign (VSL2-1, VSL2-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA11-JA16)	6	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #10 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   3-1/C #10 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
3. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
4. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

CONDUIT AND CABLES

5. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
6. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
7. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
8. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

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VSL CORRIDOR LAYOUT
MRM 32

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	38	114

Plotting Date: 10/30/2026

INSET

EXISTING TRANSFORMER
BLACK HILLS ENERGY

Ballpark Road

Dolan Creek Road

Westbound I90

Eastbound I90

260+00 265+00 270+00 275+00 280+00 285+00 290+00

JA15

JA16

ARCS 1-1

ARCS 1-2

T/F W OH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   6-1/C #12 AWG Copper Wire
3. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire

CONDUIT AND CABLES

4. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
5. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire

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VSL CORRIDOR LAYOUT
MRM 32

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	39	114

Plotting Date: 10/30/2026

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SOUTH DAKOTA

INSET

POWER SOURCE
120/240 VAC, 60Hz,
1 Phase, 3 Wire Service
By Black Hills Energy

ESC2
JA17
JA18
CCTV2
HP1
CC3
VSL3-1
VSL3-2
ARCS 2-2
ARCS 2-1
RCS2

SEE INSET

Ballpark Road
Moose Drive
Fox Road

295+00
300+00
305+00
310+00
315+00
320+00

ESS4
ESS5

Westbound I90
Eastbound I90

EXISTING DOT CONDUIT AND POWER
TO BE USED FOR RCS2, ARCS2-1, AND ARCS 2-1

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	30' Hinged ITS Pole (HP1)	1	EACH
	Camera (CCTV2)	1	EACH
RCSx	Road Closed Sign with Beacons (RCS2)	See Sign Install Table for Details	
ARCSx	Advanced Road Closed Sign with Beacons (ARCS2-1, ARCS2-2)	See Sign Install Table for Details	
VSLx	Variable Speed Limit Sign (VSL3-1, VSL3-2)	See Sign Install Table for Details	

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Communication Cabinet (CC3)	1	EACH
	Type 2 Electrical Junction Box (JA17-JA18)	2	EACH
	Electrical Service Cabinet (ESC2)	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   6-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
4. 1.5" Conduit, Sch 80
   4-1/C #6 AWG Copper Wire
   6-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

CONDUIT AND CABLES

5. 1.5" Conduit, Sch 80
   4-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Outdoor Rated Cat6 Cable
6. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
7. 1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
8. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

VSL CORRIDOR LAYOUT
EXIT 32

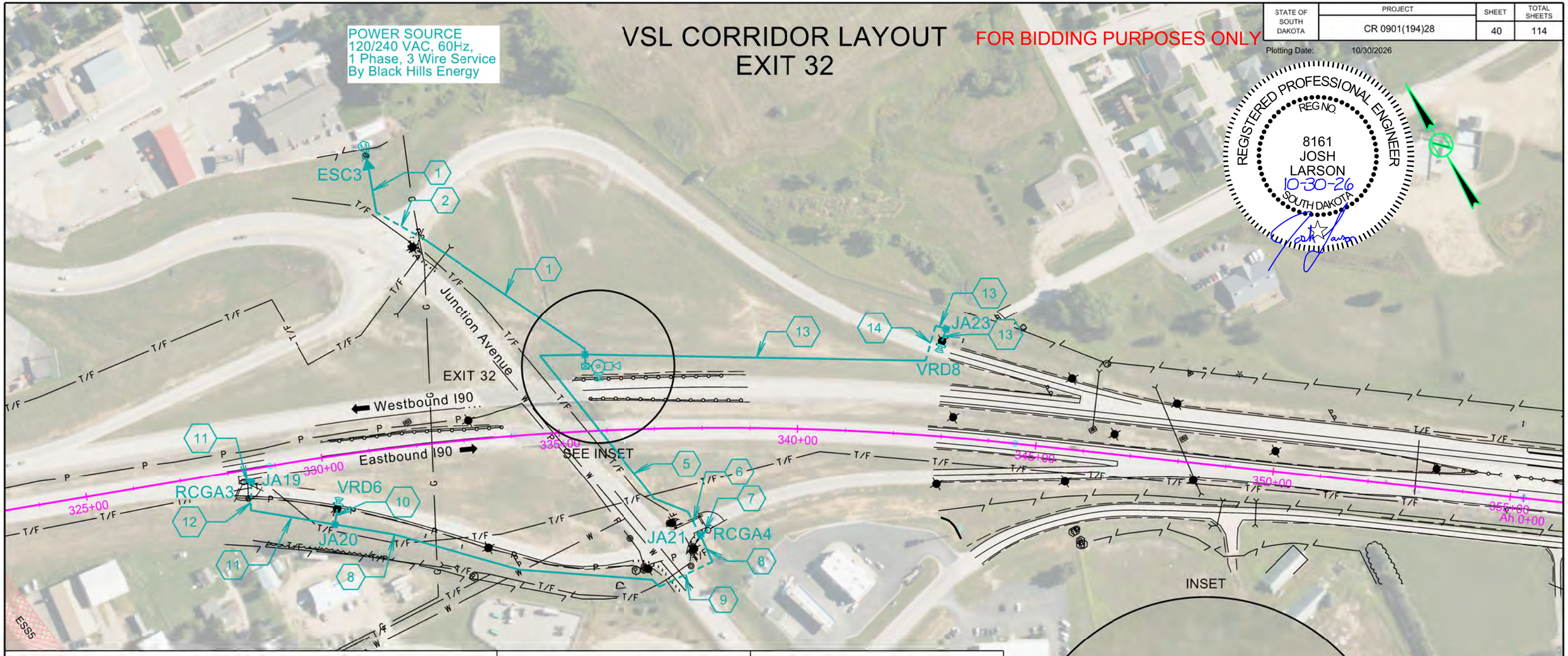
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	40	114

Plotting Date: 10/30/2026

POWER SOURCE
120/240 VAC, 60Hz,
1 Phase, 3 Wire Service
By Black Hills Energy

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Road Closure Gate Automation (RCGA3-RCGA4)	2	EACH
	30' Hinged ITS Pole (HP2)	1	EACH
	Communication Cabinet (CC4)	1	EACH
	Camera (CCTV3)	1	EACH
	Type 2 Electrical Junction Box (JA19-JA23)	5	EACH
	Electrical Service Cabinet (ESC3)	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH
	Vehicle Radar Detector (VRD6-VRD8)	3	EACH

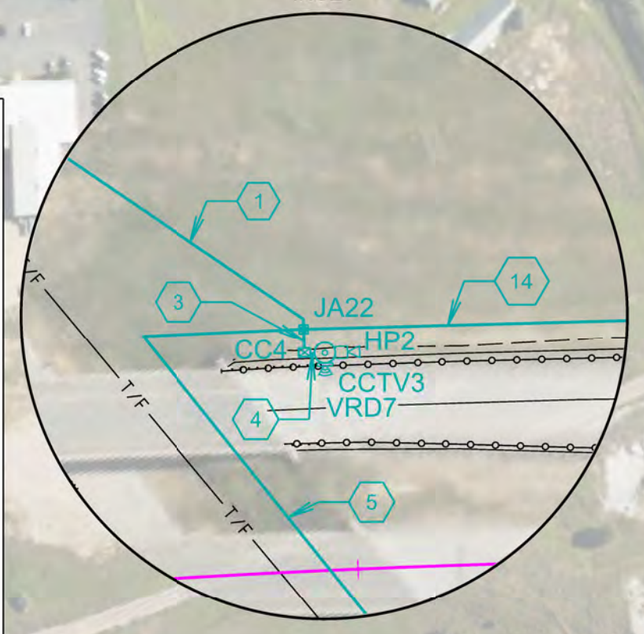
CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
2. 1.5" Conduit, Sch 80
   4-1/C #6 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
   11-1/C #10 AWG Copper Wire
   14-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   2-RS-422 Cable (Not A Bid Item)
4. 1.5" Conduit, SDR 13.5
   2-Outdoor Rated Cat6 Cable
5. 1.5" Conduit, SDR 13.5
   11-1/C #10 AWG Copper Wire
   14-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-RS-422 Cable (Not A Bid Item)
6. 1.5" Conduit, Sch 80
   8-1/C #10 AWG Copper Wire
   17-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-RS-422 Cable (Not A Bid Item)
7. 1.5" Conduit, SDR 13.5
   4-1/C #10 AWG Copper Wire
   7-1/C #12 AWG Copper Wire

CONDUIT AND CABLES

8. 1.5" Conduit, SDR 13.5
   7-1/C #10 AWG Copper Wire
   7-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-RS-422 Cable (Not A Bid Item)
9. 1.5" Conduit, Sch 80
   7-1/C #10 AWG Copper Wire
   7-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-RS-422 Cable (Not A Bid Item)
10. 1.5" Conduit, SDR 13.5
    1-RS-422 Cable (Not A Bid Item)
11. 1.5" Conduit, SDR 13.5
    7-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
12. 1.5" Conduit, Sch 80
    7-1/C #10 AWG Copper Wire
    7-1/C #12 AWG Copper Wire
13. 1.5" Conduit, SDR 13.5
    1-RS-422 Cable (Not A Bid Item)
14. 1.5" Conduit, Sch 80
    1-RS-422 Cable (Not A Bid Item)

INSET

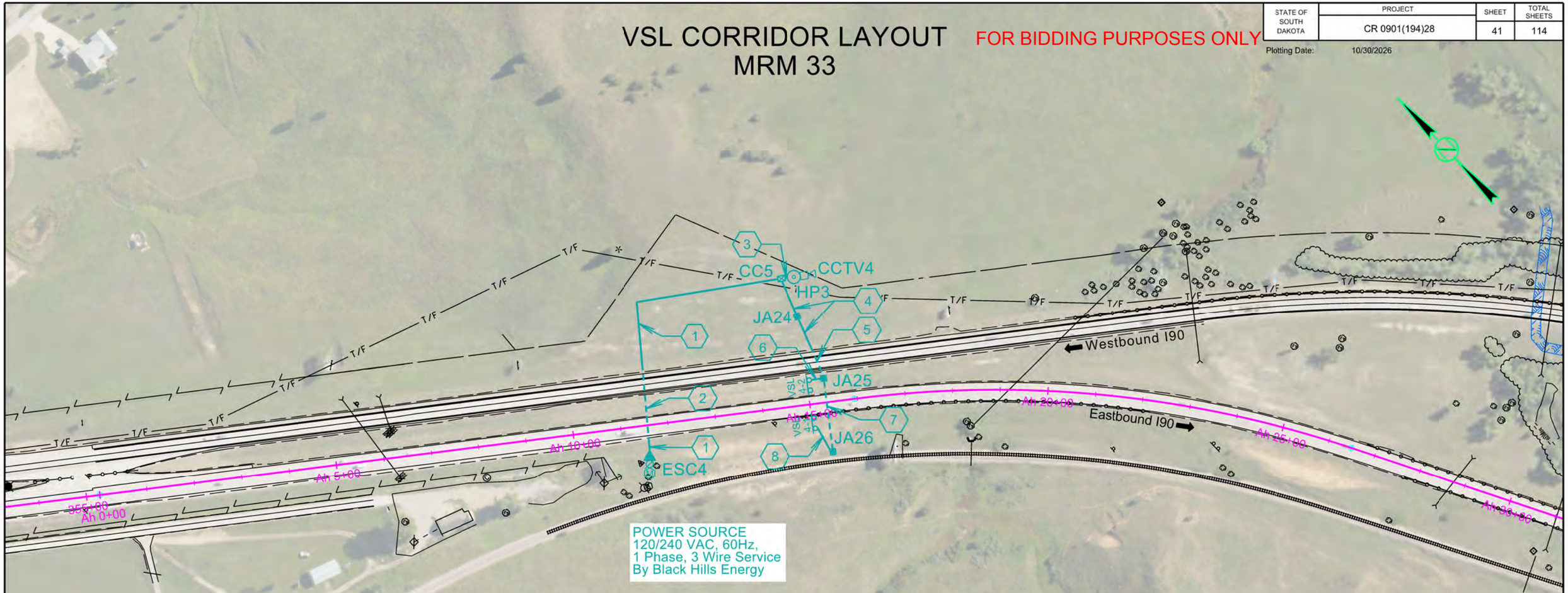


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	41	114

Plotting Date: 10/30/2026

VSL CORRIDOR LAYOUT
MRM 33

FOR BIDDING PURPOSES ONLY



NOTES:

1. Install JA24 at Station Ah 14+97.0 - 186.0' Lt and JA26 at Station Ah 15+35.0 - 104.0' Rt for PCN 0AMF project accommodations.
2. Install conduit from ESC4 to CC5 and from JA24 to JA 26 at a depth no less than 10' below existing grade to accommodate PCN 0AMF.

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	30' Hinged ITS Pole (HP3)	1	EACH
	Camera (CCTV4)	1	EACH
VSLx	Variable Speed Limit Sign (VSL4-1, VSL4-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA24-JA26)	3	EACH
	Communication Cabinet (CC5)	1	EACH
	Electrical Service Cabinet (ESC4)	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
2. 1.5" Conduit, Sch 80
   4-1/C #6 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
4. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Outdoor Rated Cat6 Cable
5. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Outdoor Rated Cat6 Cable

CONDUIT AND CABLES

6. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
7. 1.5" Conduit, Sch 80
   6-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
8. 1.5" Conduit, SDR 13.5
   6-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

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VSL CORRIDOR LAYOUT
MRM 34

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	42	114

Plotting Date: 10/30/2026

POWER SOURCE
120/240 VAC, 60Hz,
1 Phase, 3 Wire Service
By Black Hills Energy

Westbound I90

Eastbound I90

SEE INSET

Ah 60+00 Ah 65+00 Ah 70+00 Ah 75+00 Ah 80+00 Ah 85+00 Ah 90+00

ESS6

OH

T/F

NOTES:
1. Install JA27 at Station Ah 62+94.0 - 155.0' Lt for PCN 0AMF project accommodations.
2. RWIS2 pavement sensors will be installed as part of PCN 0AMF.

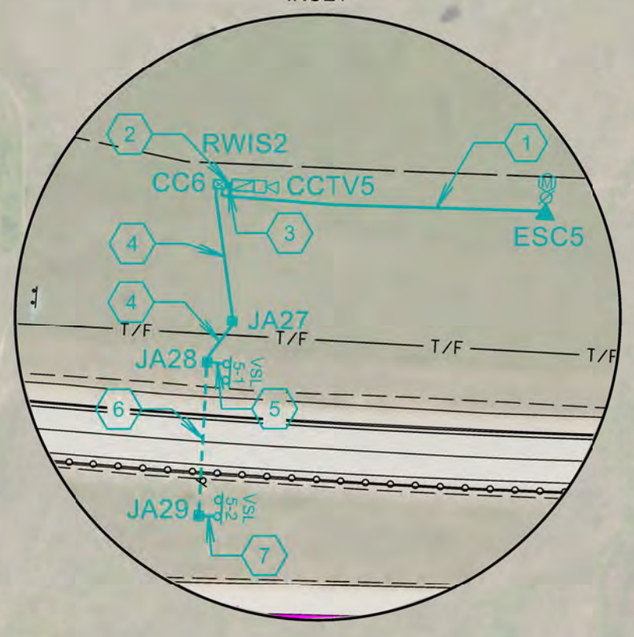
ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Roadway Weather Information System Tower (RWIS2)	1	EACH
	Camera (CCTV5)	1	EACH
VSLx	Variable Speed Limit Sign (VSL5-1, VSL5-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA27-JA29)	3	EACH
	Communication Cabinet (CC6)	1	EACH
	Electrical Service Cabinet (ESC5)	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   2-Outdoor Rated Cat6 Cable
4. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
5. 1.5" Conduit, SDR 13.5
   6-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
6. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
7. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

INSET



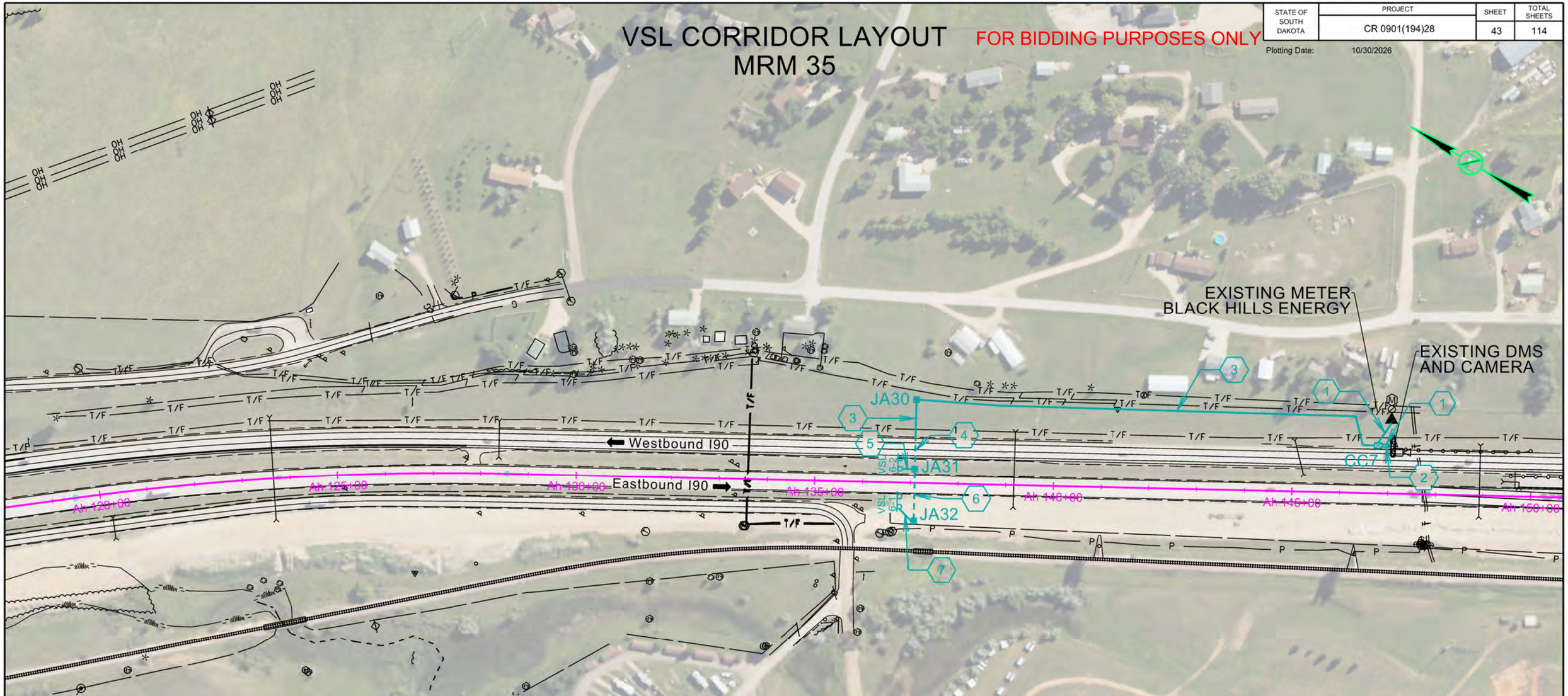
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10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	43	114

Plotting Date: 10/30/2026

VSL CORRIDOR LAYOUT
MRM 35

FOR BIDDING PURPOSES ONLY



NOTES:
1. Install JA30 at Station Ah 136+78.0 - 175.0' Lt and JA32 at Station Ah 136+78.0 - 80.0' Rt for PCN 0AMF accommodations.

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
Ⓜ	Existing Meter Socket	Not a Bid Item	
	Existing Pole Mounted Dynamic Message Sign	Not a Bid Item	
	Existing Camera	Not a Bid Item	
VSLx	Variable Speed Limit Sign (VSL6-1, VSL6-2)	See Sign Install Table for Details	
	Communication Cabinet (CC7)	1	EACH
	Type 2 Electrical Junction Box (JA30-JA32)	3	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   4-1/C #4 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   2-Outdoor Rated Cat6 Cable
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
3. 1.5" Conduit, SDR 13.5
   3-1/C #8 AWG Copper Wire
4. 1.5" Conduit, Sch 80
   3-1/C #8 AWG Copper Wire

CONDUIT AND CABLES

5. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
6. 1.5" Conduit, Sch 80
   3-1/C #8 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
7. 1.5" Conduit, SDR 13.5
   3-1/C #8 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

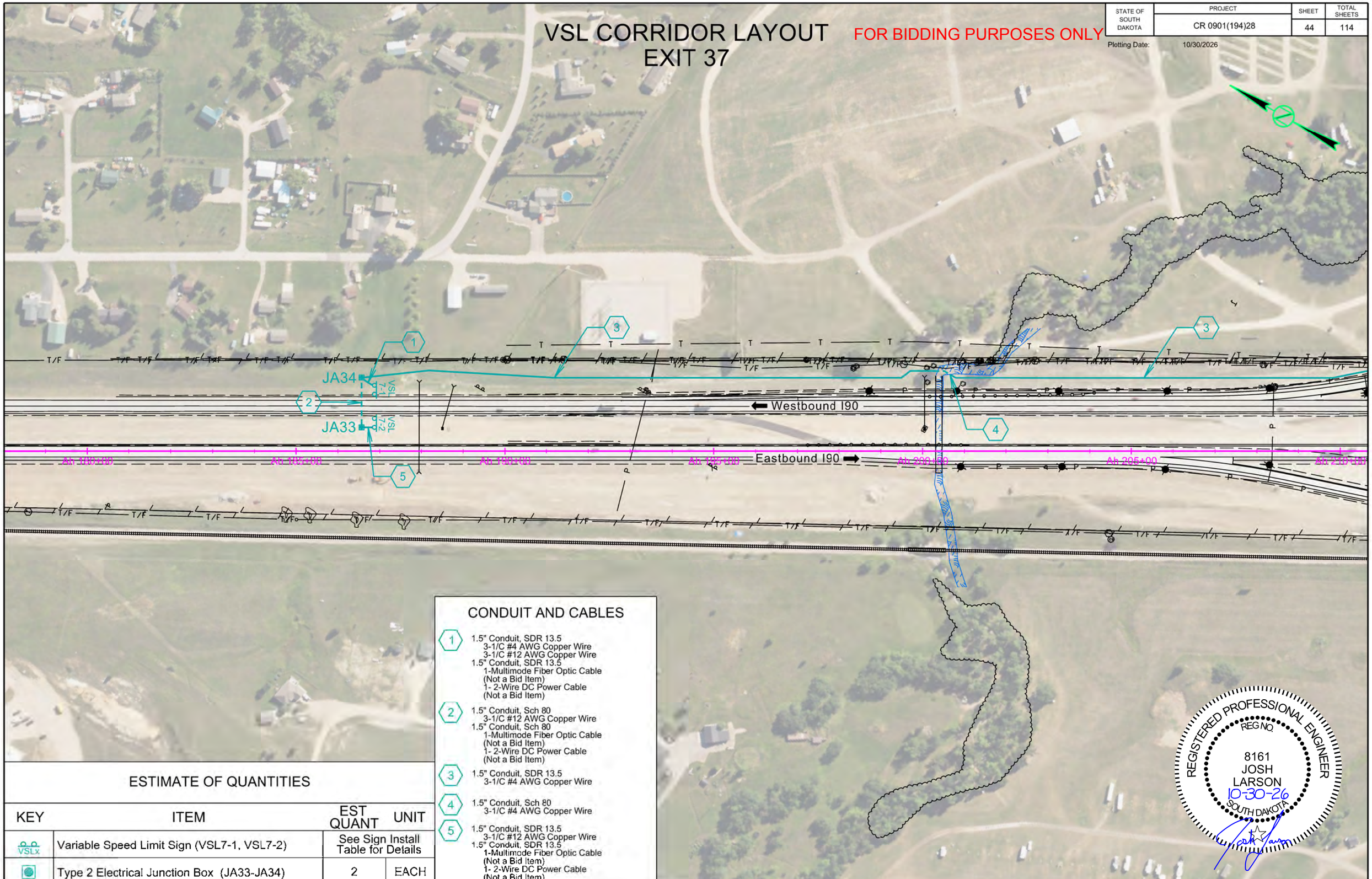
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VSL CORRIDOR LAYOUT
EXIT 37

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	44	114

Plotting Date: 10/30/2026



CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
2. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
3. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
4. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
5. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
VSLx	Variable Speed Limit Sign (VSL7-1, VSL7-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA33-JA34)	2	EACH

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SOUTH DAKOTA

VSL CORRIDOR LAYOUT
EXIT 37

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	45	114

Plotting Date: 10/30/2026

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
3. 1.5" Conduit, Sch 80
   6-1/C #4 AWG Copper Wire
   4-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
4. 1.5" Conduit, SDR 13.5
   6-1/C #4 AWG Copper Wire
   4-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
5. 1.5" Conduit, SDR 13.5
   1-Outdoor Rated Cat6 Cable
6. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire

CONDUIT AND CABLES

7. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
8. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   4-1/C #6 AWG Copper Wire
9. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   4-1/C #6 AWG Copper Wire
10. 1.5" Conduit, SDR 13.5
    4-1/C #6 AWG Copper Wire
11. 1.5" Conduit, Sch 80
    3-1/C #4 AWG Copper Wire

EXISTING METER
BLACK HILLS ENERGY

JA36

SEE INSET

Westbound I90

EXIT 37

Eastbound I90

Pleasant Valley Rd

RRCS2

INSET

JA35

CC8
HP4
CCTV6

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
M	Existing Meter Socket	Not a Bid Item	
	30' Hinged ITS Pole (HP4)	1	EACH
	Camera (CCTV6)	1	EACH
ARCSx	Ramp Road Closed Sign with Beacons (RRCS1-RRCS2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA35-JA36)	2	EACH
	Communication Cabinet (CC8)	1	EACH

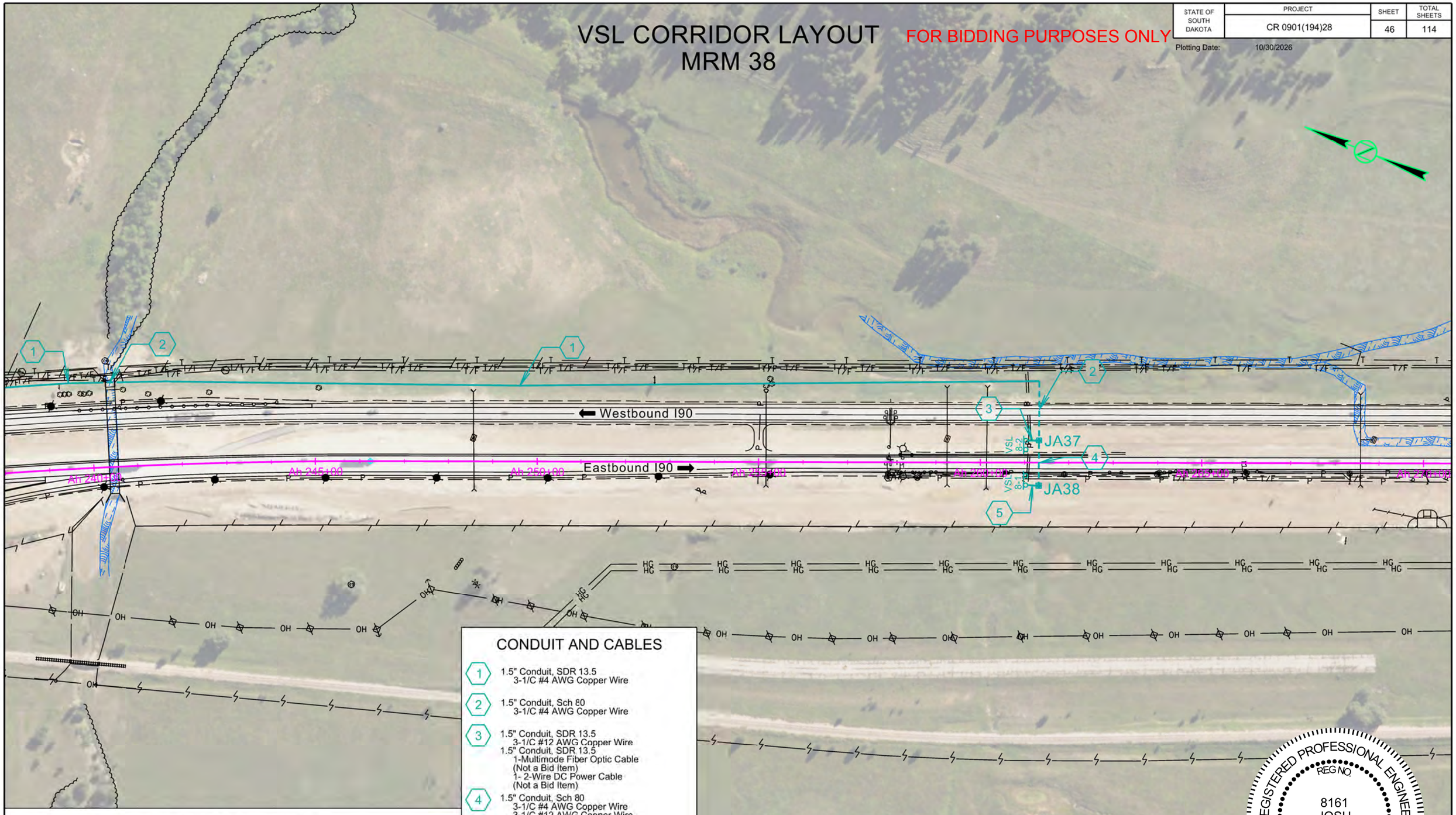
REGISTERED PROFESSIONAL ENGINEER
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8161
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10-30-26
SOUTH DAKOTA

VSL CORRIDOR LAYOUT
MRM 38

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	46	114

Plotting Date: 10/30/2026



CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
2. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
4. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
5. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
VSLx	Variable Speed Limit Sign (VSL8-1, VSL8-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA37-JA38)	2	EACH

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	47	114

Plotting Date: 10/30/2026

VSL CORRIDOR LAYOUT
EXIT 40

FOR BIDDING PURPOSES ONLY

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
2. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
3. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
4. 1.5" Conduit, SDR 13.5
   4-1/C #6 AWG Copper Wire
5. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
6. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   4-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
7. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   4-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
8. 1.5" Conduit, Sch 80
   2-RWIS Pavement Sensors
   (Not A Bid Item)

CONDUIT AND CABLES

9. 1.5" Conduit, SDR 13.5
   4-RWIS Pavement Sensors
   (Not A Bid Item)
10. 1.5" Conduit, SDR 13.5
    3-1/C #12 AWG Copper Wire
11. 1.5" Conduit, SDR 13.5
    2-Outdoor Rated Cat6 Cable
12. 1.5" Conduit, SDR 13.5
    3-1/C #4 AWG Copper Wire
    3-1/C #12 AWG Copper Wire
    1.5" Conduit, SDR 13.5
    1-Outdoor Rated Cat6 Cable
13. 1.5" Conduit, SDR 13.5
    1-Outdoor Rated Cat6 Cable
14. 1.5" Conduit, SDR 13.5
    3-1/C #4 AWG Copper Wire
    3-1/C #12 AWG Copper Wire
15. 1.5" Conduit, Sch 80
    3-1/C #4 AWG Copper Wire
    3-1/C #12 AWG Copper Wire
16. 1.5" Conduit, SDR 13.5
    3-1/C #12 AWG Copper Wire
    1.5" Conduit, SDR 13.5
    1-Multimode Fiber Optic Cable
    (Not a Bid Item)
    1- 2-Wire DC Power Cable
    (Not a Bid Item)

POWER SOURCE
120/240 VAC, 60Hz,
1 Phase, 3 Wire Service
By Black Hills Energy

Ah 377+51-262' L to Ah 378+40-255' L
Do Not Disturb
ESS2

JA40 JA39 JA41 JA42 JA43 JA44 JA45

ESC6 ESS2 CC9 VRD9 RWIS3 CCTV7 HP5

Westbound I90 Eastbound I90

EXIT 40

Ah 360+00 Ah 365+00 Ah 370+00 Ah 375+00 Ah 380+00 Ah 385+00 Ah 390+0

INSET SEE INSET

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	30' Hinged ITS Pole (HP5)	1	EACH
	Roadway Weather Information System Tower (RWIS3)	1	EACH
	Camera (CCTV7)	1	EACH
	Vehicle Radar Detector (VRD9)	1	EACH
RRCSx	Ramp Road Closed Sign with Beacons (RRCS3-RRCS4)	See Sign Install Table for Details	
VSLx	Variable Speed Limit Sign (VSL9-1, VSL9-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA39-JA45)	7	EACH
	Communication Cabinet (CC9)	1	EACH
	Electrical Service Cabinet (ESC6)	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA

VSL CORRIDOR LAYOUT
EXIT 40

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	48	114

Plotting Date: 10/30/2026

Tilford Rd

EXIT 40

ESC6

JA41

JA45

Ah 390+00

Ah 395+00

Ah 400+00

Ah 405+00

Ah 410+00

Ah 415+00

Ah 420+00

Westbound I90

Eastbound I90

T/F

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   3-1/C #6 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
4. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   3-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
5. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #6 AWG Copper Wire
   3-1/C #12 AWG Copper Wire

CONDUIT AND CABLES

6. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
7. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire

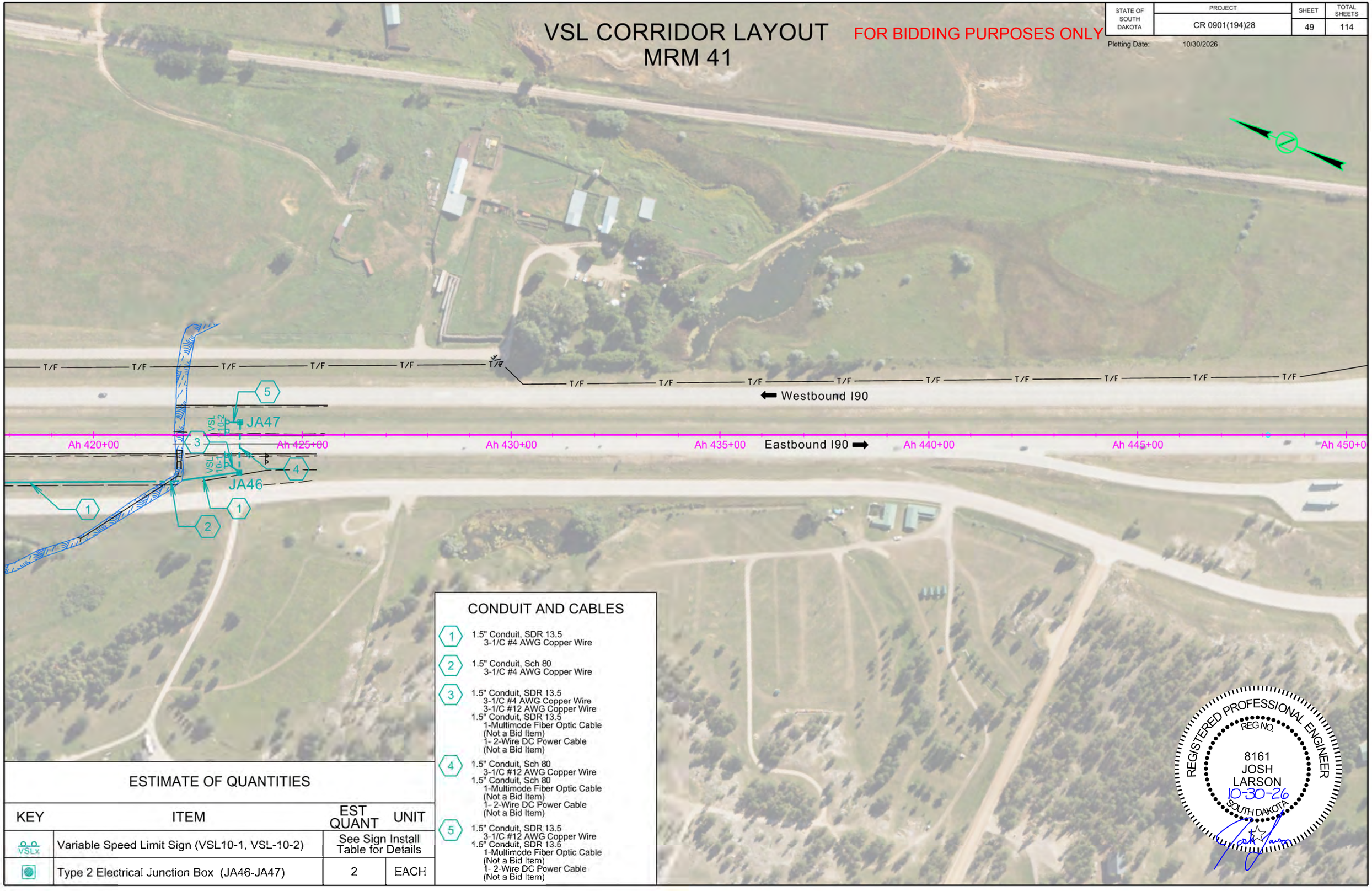
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

VSL CORRIDOR LAYOUT
MRM 41

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	49	114

Plotting Date: 10/30/2026



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
VSLx	Variable Speed Limit Sign (VSL10-1, VSL-10-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA46-JA47)	2	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
2. 1.5" Conduit, Sch 80
   3-1/C #4 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   3-1/C #4 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
4. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
5. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)

REGISTERED PROFESSIONAL ENGINEER
REG NO
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SOUTH DAKOTA

VSL CORRIDOR LAYOUT
EXIT 44

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	50	114

Plotting Date: 10/30/2026

INSET

POWER SOURCE
120/240 VAC, 60Hz,
1 Phase, 3 Wire Service
By Black Hills Energy

EXISTING TRANSFORMER
BLACK HILLS ENERGY

OH

ESC7

JA48

JA49

JA50

CC10

DMS1

CCTV8

VRD10

VSL 11-1

VSL 11-2

EVSL2

Sidney Stage Road

Sturgis Road

⬅ Westbound I90

Eastbound I90 ➡

Ah 590+00

Ah 595+00

Ah 600+00

Ah 605+00

Ah 610+00

Ah 615+00

SEE INSET

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Camera (CCTV8)	1	EACH
	Pole Mounted Dynamic Message Sign (DMS1)	1	EACH
	Vehicle Radar Detector (VRD10)	1	EACH
EVSLx	End Variable Speed Limit Sign (EVSL2)	See Sign Install Table for Details	
VSLx	Variable Speed Limit Sign (VSL11-1, VSL11-2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA48-JA50)	3	EACH
	Communication Cabinet (CC10)	1	EACH
	Electrical Service Cabinet (ESC7)	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   4-1/C #2 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   4-1/C #2 AWG Copper Wire
   9-1/C #12 AWG Copper Wire
3. 1.5" Conduit, SDR 13.5
   3-1/C #10 AWG Copper Wire
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, SDR 13.5
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
4. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire
   1.5" Conduit, Sch 80
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
   1- 2-Wire DC Power Cable
   (Not a Bid Item)
5. 1.5" Conduit, SDR 13.5
   4-1/C #2 AWG Copper Wire
   3-1/C #10 AWG Copper Wire
   9-1/C #12 AWG Copper Wire

CONDUIT AND CABLES

6. 1.5" Conduit, Sch 80
   4-1/C #2 AWG Copper Wire
   3-1/C #10 AWG Copper Wire
   9-1/C #12 AWG Copper Wire
7. 1.5" Conduit, SDR 13.5
   4-1/C #4 AWG Copper Wire
8. 1.5" Conduit, SDR 13.5
   2-Outdoor Rated Cat6 Cable
   1-Multimode Fiber Optic Cable
   (Not a Bid Item)
9. 1.5" Conduit, SDR 13.5
   9-1/C #12 AWG Copper Wire
10. 1.5" Conduit, SDR 13.5
    3-1/C #12 AWG Copper Wire
    1.5" Conduit, SDR 13.5
    1-Multimode Fiber Optic Cable
    (Not a Bid Item)
    1- 2-Wire DC Power Cable
    (Not a Bid Item)

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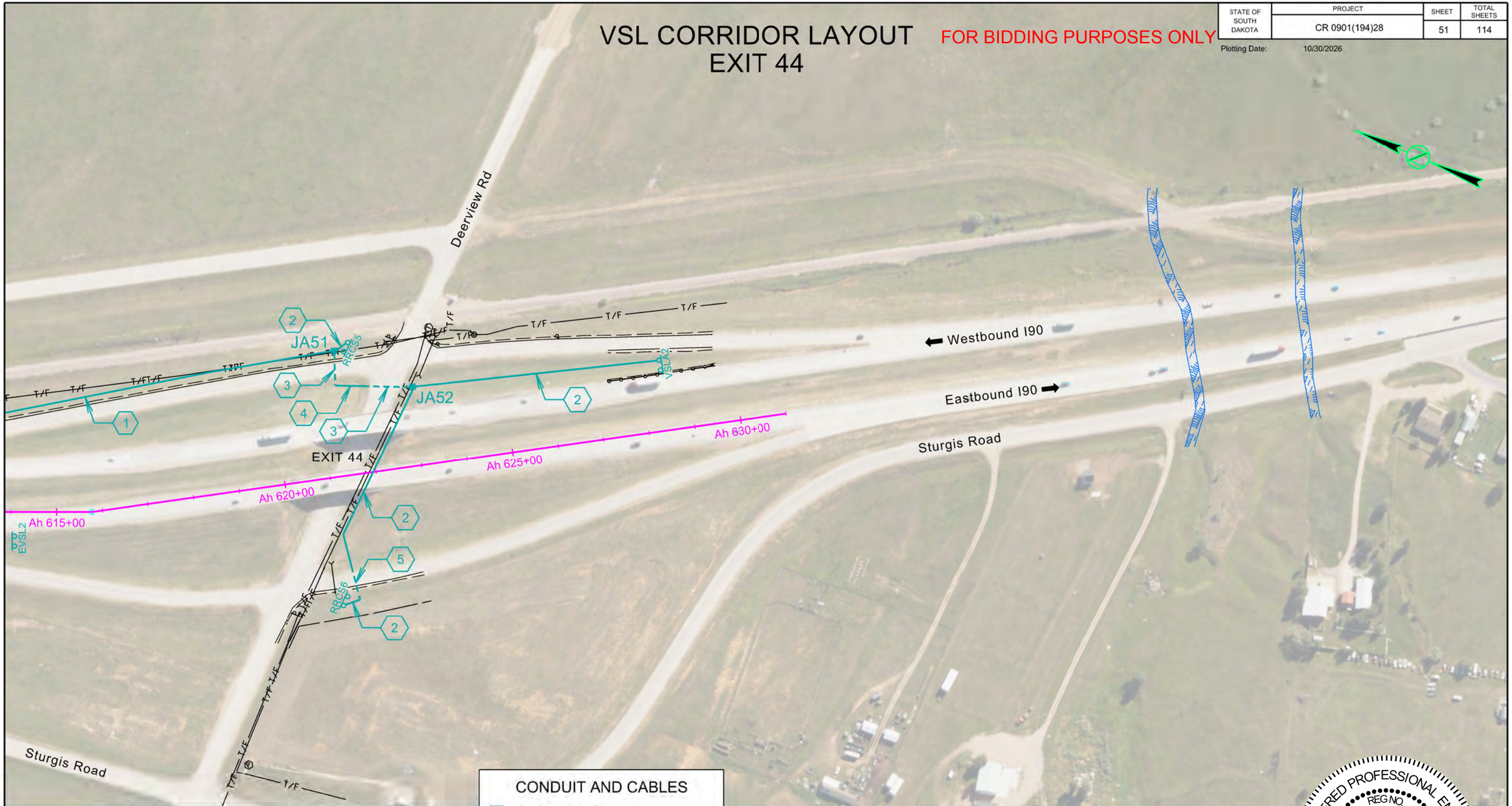
Chimney Rock

VSL CORRIDOR LAYOUT
EXIT 44

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	51	114

Plotting Date: 10/30/2026



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
RRCSx	Ramp Road Closed Sign with Beacons (RRCS5-RRCS6)	See Sign Install Table for Details	
VSLAx	Variable Speed Limit Ahead Sign with Beacon (VSLA2)	See Sign Install Table for Details	
	Type 2 Electrical Junction Box (JA51-JA52)	2	EACH

CONDUIT AND CABLES

1. 1.5" Conduit, SDR 13.5
   9-1/C #12 AWG Copper Wire
2. 1.5" Conduit, SDR 13.5
   3-1/C #12 AWG Copper Wire
3. 1.5" Conduit, Sch 80
   6-1/C #12 AWG Copper Wire
4. 1.5" Conduit, SDR 13.5
   6-1/C #12 AWG Copper Wire
5. 1.5" Conduit, Sch 80
   3-1/C #12 AWG Copper Wire

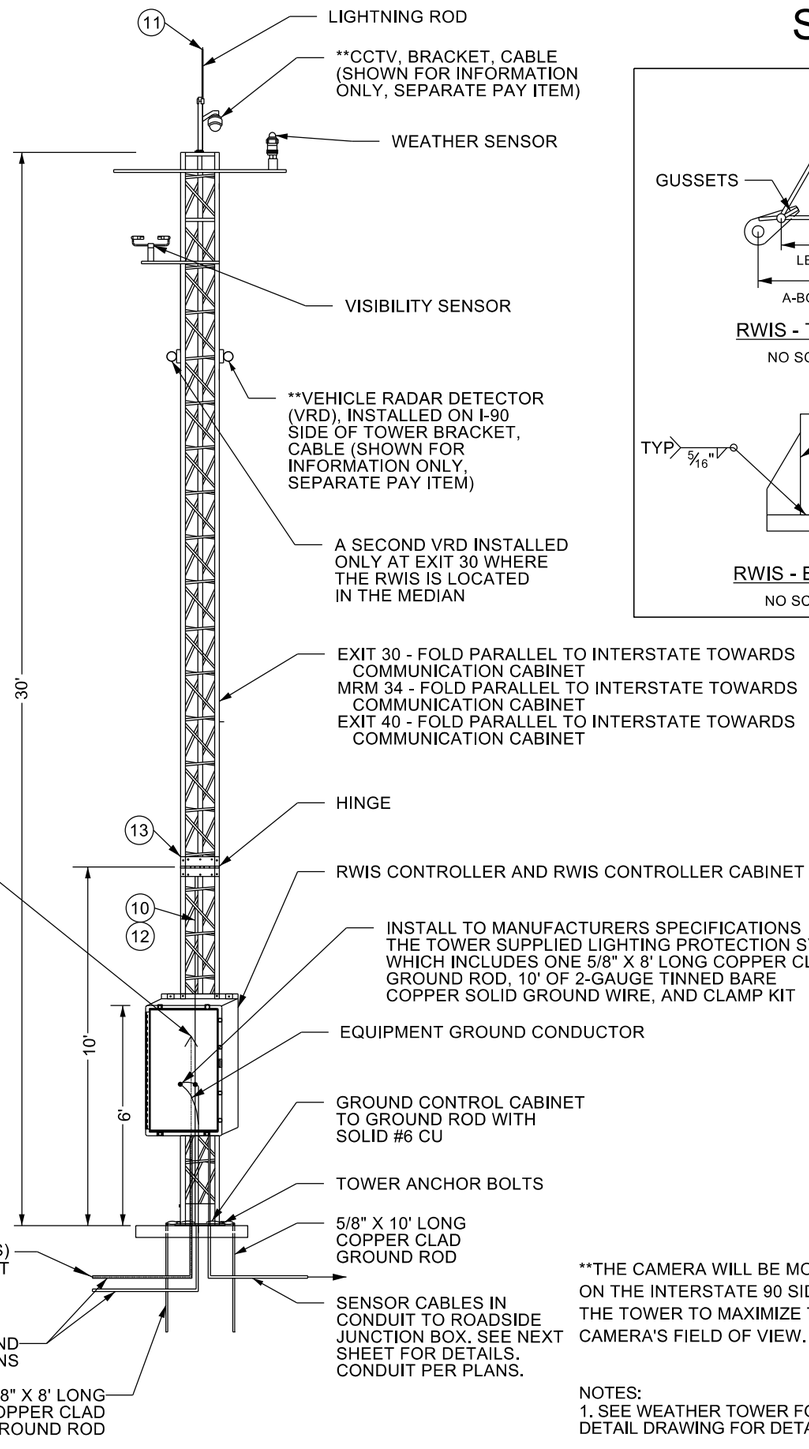
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
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LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	52	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

ROADWAY WEATHER INFORMATION SYSTEM (RWIS) DETAILS



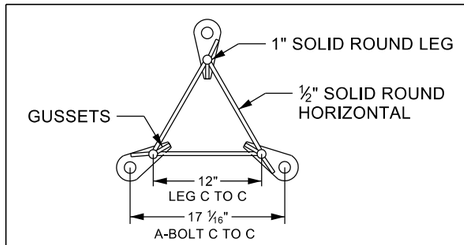
ROADWAY WEATHER INFORMATION SYSTEM (RWIS)

NO SCALE

**THE CAMERA WILL BE MOUNTED ON THE INTERSTATE 90 SIDE OF THE TOWER TO MAXIMIZE THE CAMERA'S FIELD OF VIEW.

NOTES:
1. SEE WEATHER TOWER FOOTING DETAIL DRAWING FOR DETAILS.

2. SEE PAVEMENT SENSOR DETAIL DRAWING FOR DETAILS

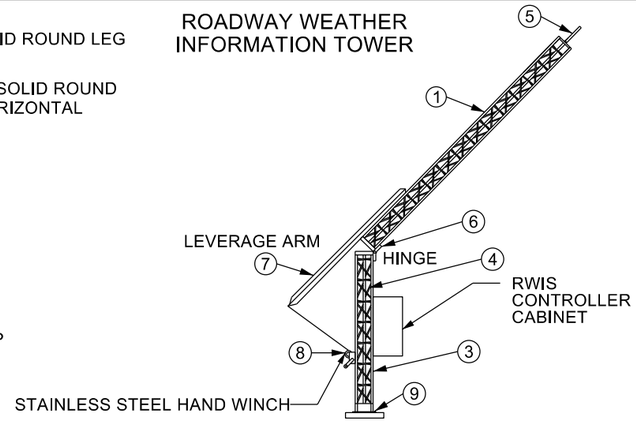


RWIS - TOWER BASE

NO SCALE

RWIS - BASE FLANGE

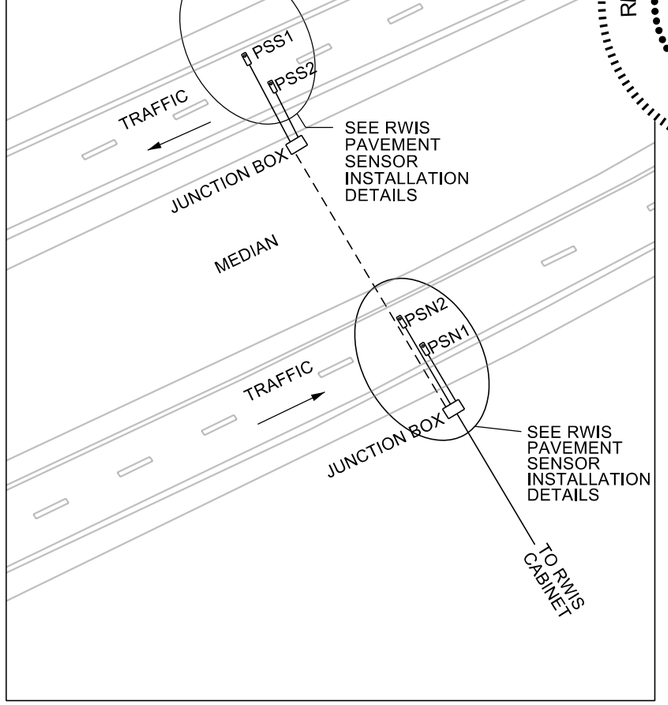
NO SCALE



RWIS - HINGED LATTICE TOWER

NO SCALE

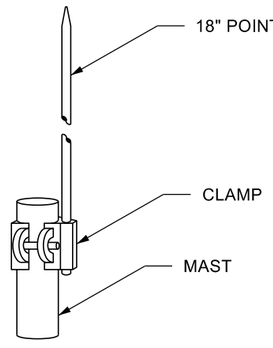
ITEM	QTY	DESCRIPTION
1	1	6061 T6 1" ALUMINUM ROUND PIPE LEGS
2	N/A	6061 T6 5/8" ALUMINUM SOLID RODS WELDED WITH USING 5356 GRADE WELDING WIRE
3	3	1018 GRADE (50 KSI MINIMUM STRENGTH) 1" SOLID RODS HOT DIPPED GALVANIZED STEEL LEGS
4	N/A	1018 GRADE (50 KSI MINIMUM STRENGTH) 1/2" SOLID RODS HOT DIPPED GALVANIZED STEEL DIAGNOALS WELDED WITH ER-70S-6 GRADE WELDING WIRE
5	1	6061 T6 2-3/8" OD X 8' ALUMINUM TOP MAST PIPE (CENTERED & BOLTED)
6	1	HINGE ASSEMBLY WITH TWO AST, F593D STAINLESS STEEL 7/8" BOLTS WITH NYLOCK NUTS
7	1	HOT DIPPED GALVANIZED STEEL RAISING/LOWERING ARM
8	1	CABLE AUTO BRAKING SECURED WINCH (HAND OPERATED)
9	1	WELDED ANCHOR BASE BOLT CLUSTER WITH LEVELING NUTS
10	2	U-BOLT LEG TO LOWERING ARM CLAMP
11	1	12"L X 1/2" ALUMINUM LIGHTNING ROD WITH STAINLESS STEEL HARDWARE
12	3	THREE 10' ANTI-CLIMB PANELS (NOT SHOWN FOR CLARITY)
13	1	3"W X 18"L FLEXIBLE ENERGY CHAIN TO ROUTE CABLING THROUGH THE HINGING ACTION AREA



RWIS - PAVEMENT SENSOR LAYOUT

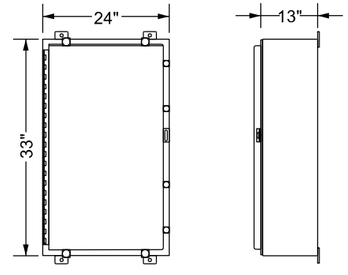
NO SCALE

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SOUTH DAKOTA



RWIS - LIGHTNING ROD

NO SCALE



RWIS - CABINET

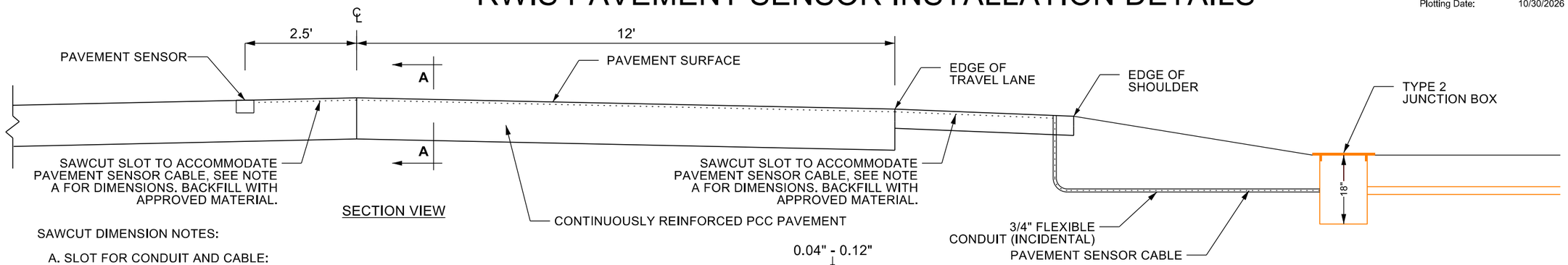
NO SCALE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	53	114

Plotting Date: 10/30/2026

RWIS PAVEMENT SENSOR INSTALLATION DETAILS

FOR BIDDING PURPOSES ONLY

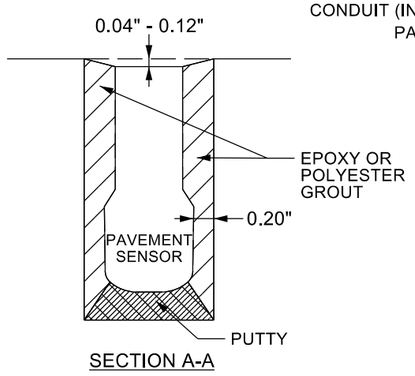


SECTION VIEW

SAWCUT DIMENSION NOTES:

A. SLOT FOR CONDUIT AND CABLE:
DEPTH: 3.15"
WIDTH: 0.79"

B. SLOT FOR PAVEMENT SENSOR:
DEPTH: 3.15" TO 3.45"
WIDTH: 2.56" IF FILLING WITH FABICK EPOXY RESIN;
1.77"-1.96" IF FILLING WITH OTHER MATERIAL.
SEE NOTE 6.
LENGTH: 5.51"



SECTION A-A

NOTE:
1. INSTALL PAVEMENT SENSOR PER MANUFACTURER RECOMMENDATION.

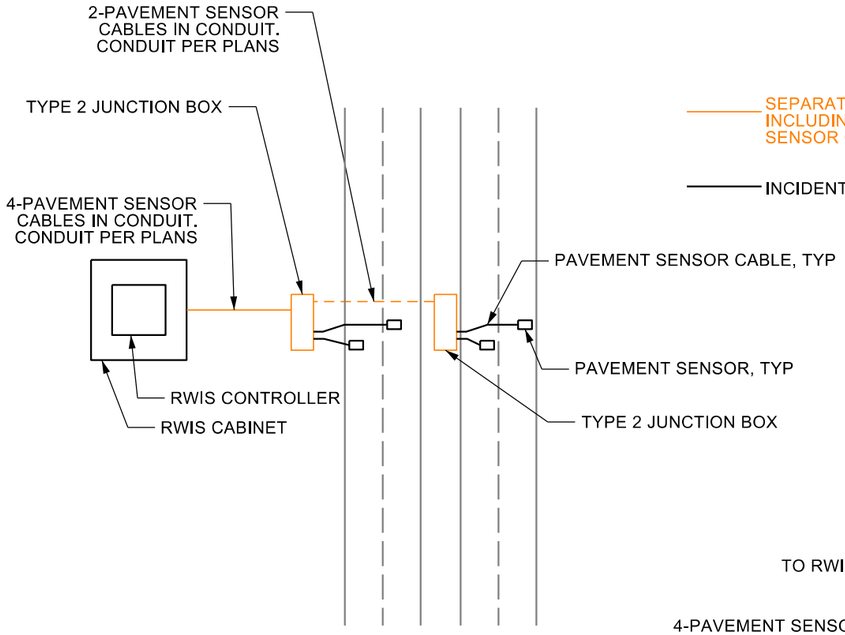
2. PAVEMENT SENSOR CABLES SHALL NOT BE SPLICED.

3. PLACE PAVEMENT SENSORS APPROXIMATELY HALFWAY BETWEEN TRANSVERSE EXPANSION JOINTS.

4. PLACE PAVEMENT SENSORS IN THE APPROXIMATE CENTER OF THE RIGHT (PASSENGER SIDE) WHEEL PATH.

5. FILL PAVEMENT SENSOR SLOT WITH MATERIAL IN ACCORDANCE WITH THESE SPECS AND MANUFACTURER INSTRUCTIONS.

6. EACH RWIS WILL BE INSTALLED WITH THE ON-SITE SUPERVISION OF A QUALIFIED REPRESENTATIVE OF THE RWIS MANUFACTURER AND SDDOT INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM STAFF



SEPARATE PAY ITEM (NOT INCLUDING PAVEMENT SENSOR CABLE)

INCIDENTAL TO RWIS ITEM

1. PAVEMENT SENSORS AND PAVEMENT SENSOR CABLES ARE INCIDENTAL TO ROADWAY WEATHER INFORMATION SYSTEM ITEM.

2. CONDUIT BETWEEN ROADSIDE JUNCTION BOX AND PAVEMENT SENSOR IS INCIDENTAL TO ROADWAY WEATHER INFORMATION SYSTEM ITEM.

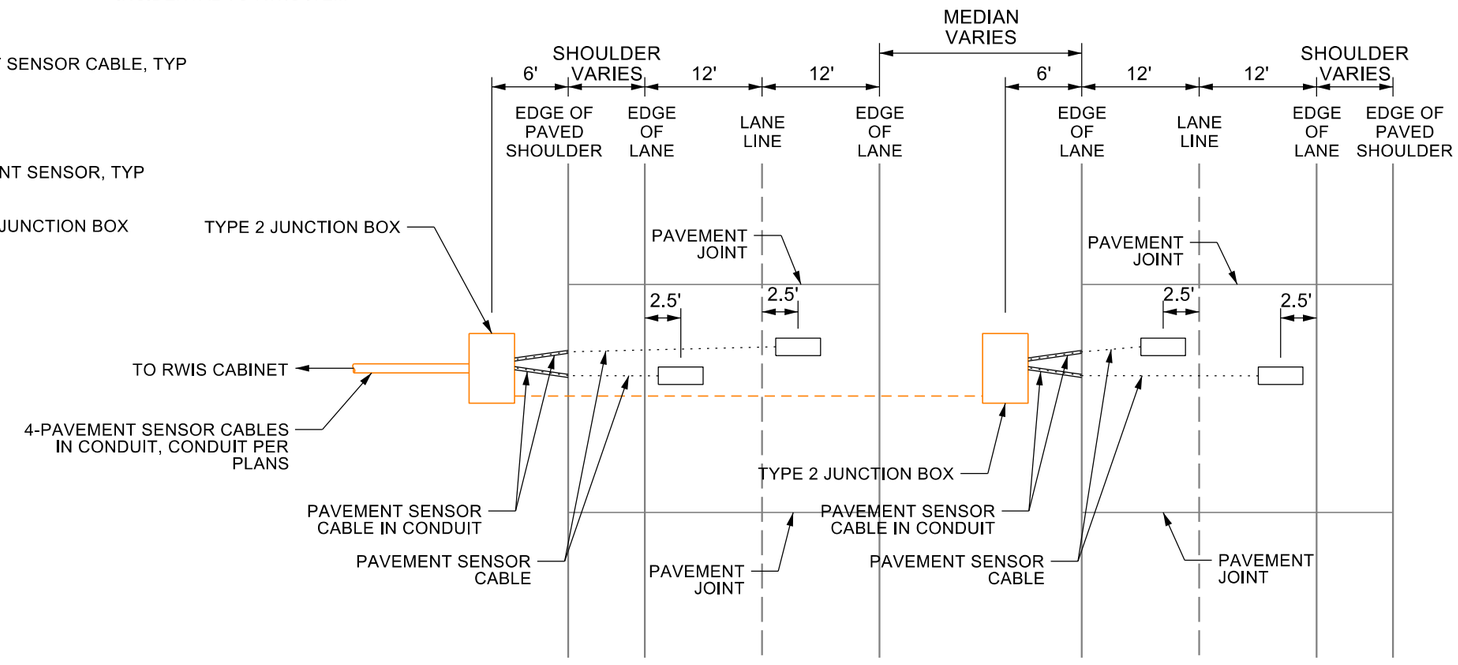
3. CONDUIT BETWEEN RWIS CABINET AND ROADSIDE JUNCTION BOXES IS PAID FOR SEPARATELY.

4. JUNCTION BOXES ARE PAID FOR SEPARATELY.

5. NO SPLICING OF PAVEMENT SENSOR CABLES IS ALLOWED.

RWIS - PAVEMENT SENSOR LAYOUT

NO SCALE



NOTE: RWIS2 PAVEMENT SENSORS WILL BE INSTALLED BY OTHERS (PCN 0AMF)

PLAN VIEW

NO SCALE

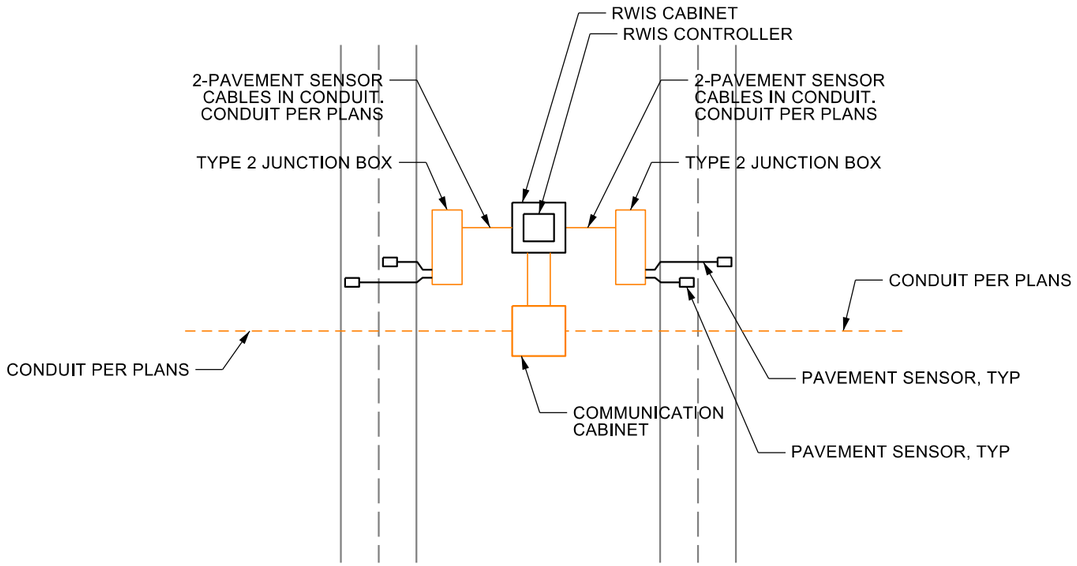


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	54	114

Plotting Date: 10/30/2026

RWIS PAVEMENT SENSOR INSTALLATION DETAILS

FOR BIDDING PURPOSES ONLY



RWIS - PAVEMENT SENSOR LAYOUT - RWIS LOCATED IN MEDIAN

NO SCALE

1. PAVEMENT SENSORS AND PAVEMENT SENSOR CABLES ARE INCIDENTAL TO ROADWAY WEATHER INFORMATION SYSTEM ITEM.

2. CONDUIT BETWEEN ROADSIDE JUNCTION BOX AND PAVEMENT SENSOR IS INCIDENTAL TO ROADWAY WEATHER INFORMATION SYSTEM ITEM.

3. CONDUIT BETWEEN RWIS CABINET AND ROADSIDE JUNCTION BOXES IS PAID FOR SEPARATELY.

4. JUNCTION BOXES ARE PAID FOR SEPARATELY.

5. NO SPLICING OF PAVEMENT SENSOR CABLES IS ALLOWED.

SEPARATE PAY ITEM (NOT INCLUDING PAVEMENT SENSOR CABLE)

INCIDENTAL TO RWIS ITEM

NOTE:
1. INSTALL PAVEMENT SENSOR PER MANUFACTURER RECOMMENDATION.

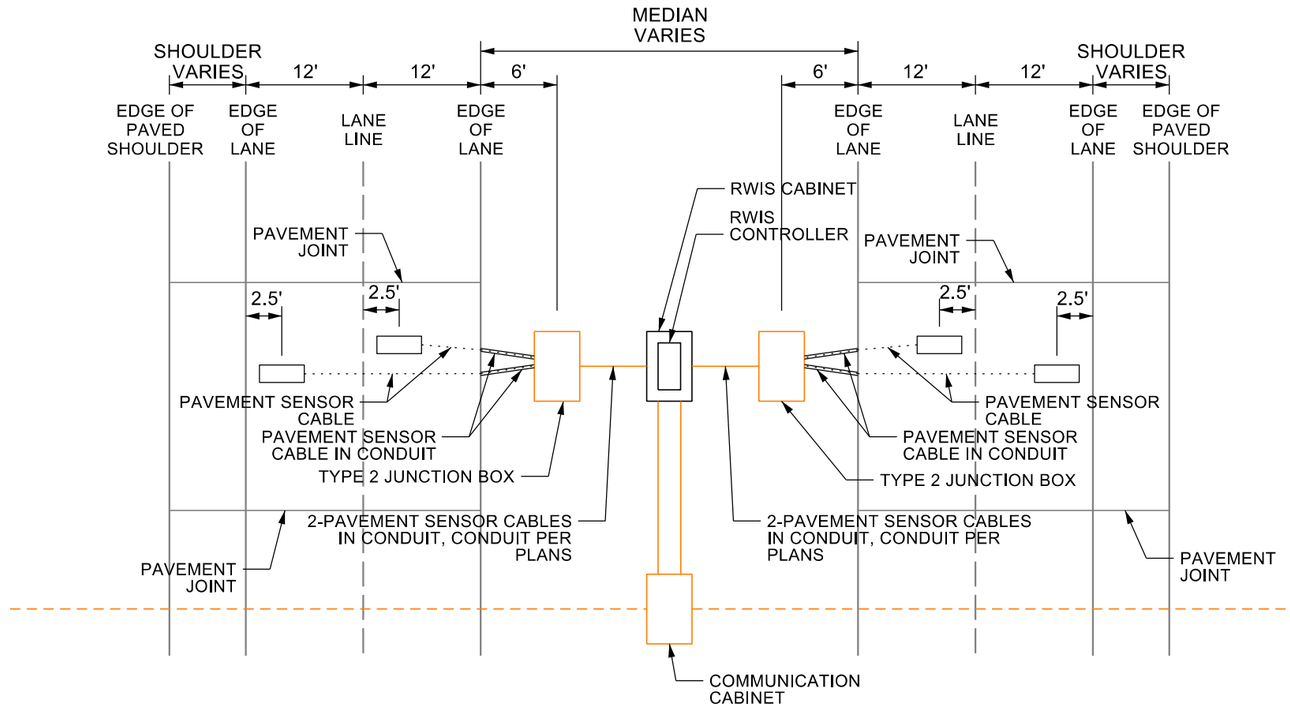
2. PAVEMENT SENSOR CABLES SHALL NOT BE SPLICED.

3. PLACE PAVEMENT SENSORS APPROXIMATELY HALFWAY BETWEEN TRANSVERSE EXPANSION JOINTS.

4. PLACE PAVEMENT SENSORS IN THE APPROXIMATE CENTER OF THE RIGHT (PASSENGER SIDE) WHEEL PATH.

5. FILL PAVEMENT SENSOR SLOT WITH MATERIAL IN ACCORDANCE WITH THESE SPECS AND MANUFACTURER INSTRUCTIONS.

6. EACH RWIS WILL BE INSTALLED WITH THE ON-SITE SUPERVISION OF A QUALIFIED REPRESENTATIVE OF THE RWIS MANUFACTURER AND SDDOT INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM STAFF



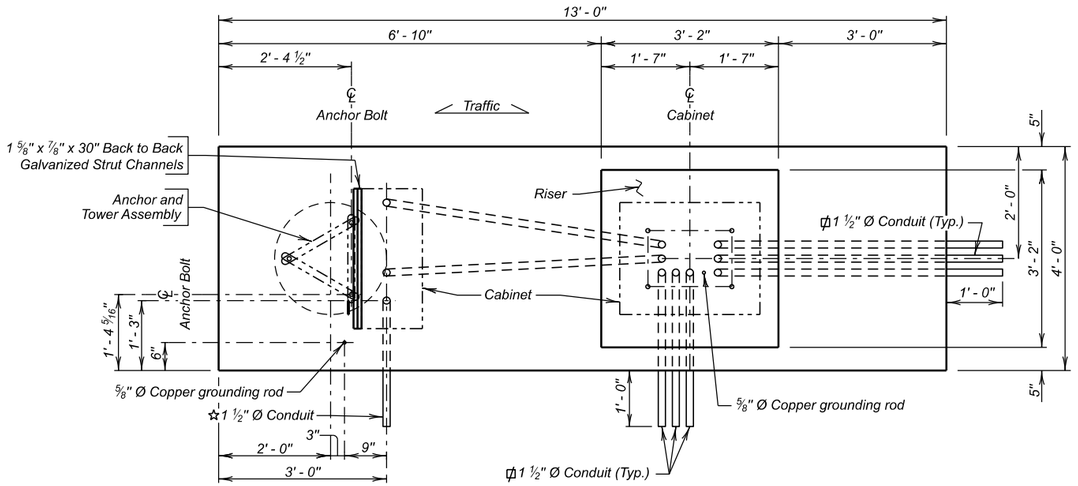
PLAN VIEW - RWIS LOCATED IN MEDIAN

NO SCALE

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10-30-26
SOUTH DAKOTA

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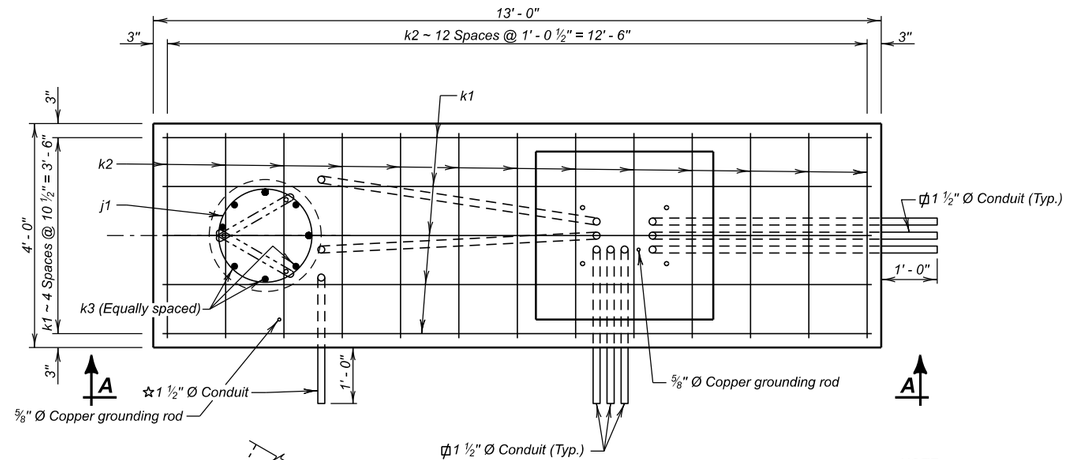
Plotting Date: 10/30/2026



LAYOUT

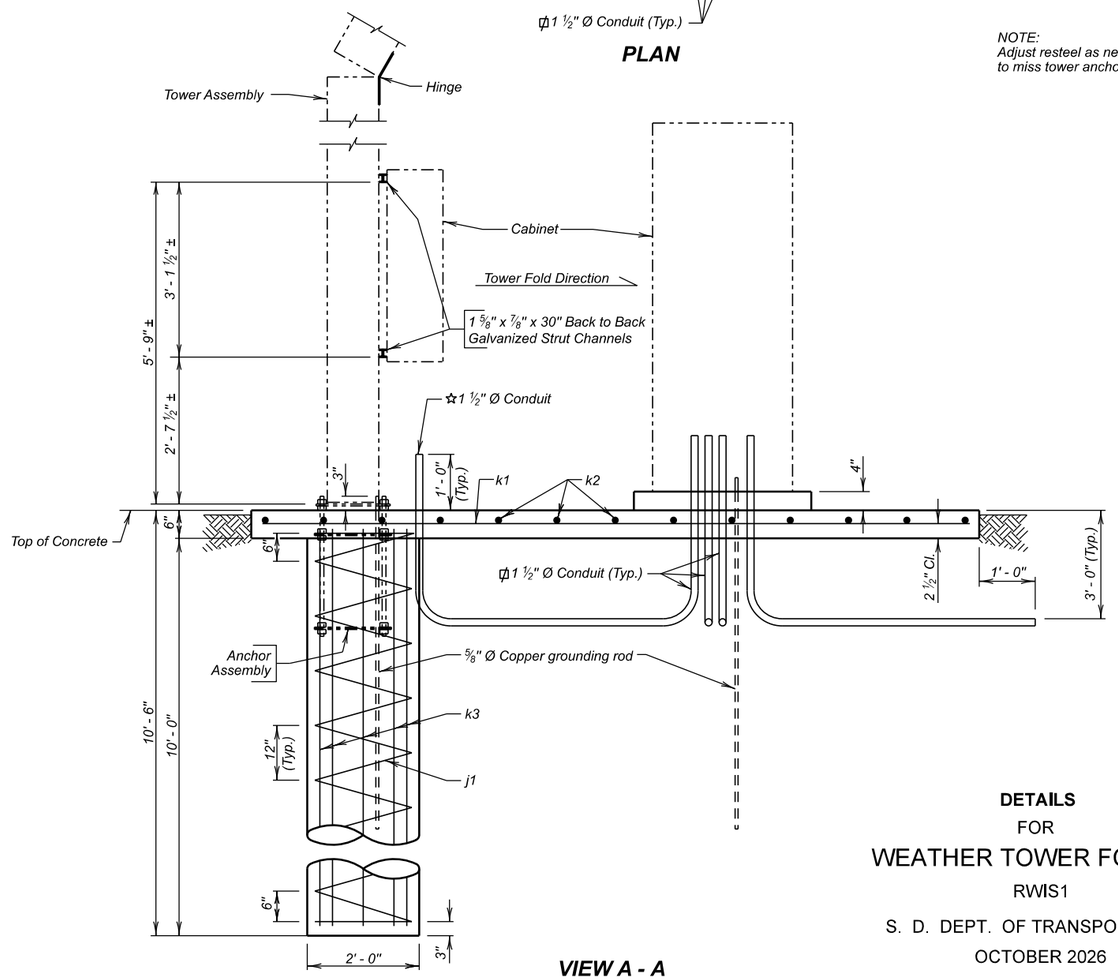
☆NOTE:
Conduit will be allowed to be mirrored about the centerline of the footing to accommodate power source.

℄ NOTE:
Number and location of conduits may vary. See details elsewhere in plans.



PLAN

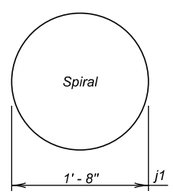
NOTE:
Adjust resteel as necessary to miss tower anchor assembly.



VIEW A - A

REINFORCING SCHEDULE
(For One Footing)

Mk.	No.	Size	Length	Type	Bending Details
k1	5	4	12' - 8"	Str.	
k2	13	4	3' - 8"	Str.	
k3	8	7	10' - 0"	Str.	
j1	1	3	65' - 3"	Spiral	



NOTE:
All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(For One Footing)

ITEM	UNIT	QUANTITY
2' Diameter Fixed Support Concrete Footing	Ft.	10

Items 1 thru 3 are approximate quantities contained in the above bid item and are for information only.

1. 2.3 Cu. Yds. of Structure Excavation
2. 2.3 Cu. Yds. of Class A45 Concrete
3. 262 Lbs. of Reinforcing Steel

SPECIFICATIONS-

1. *Pole Design Specifications: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2015 Edition with 2022 interims.*
   Footing Design Specifications: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2013 Edition with 2015 interims.
2. *Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-7-26 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at: https://dot.sd.gov/doing-business/contractors/standard-specifications*

GENERAL NOTES-

1. *Weather Tower Footings will be drilled shafts constructed in conformance with Section 465 of the Specifications except Sections 465.3A and 465.3B will not be required. No CSL access tubes will be required.*
2. *All exposed edges will be chamfered ¾". A suitable form will be used above the existing ground line and all exposed portions will be formed to present a neat appearance.*
3. *All reinforcing steel will conform to ASTM A615 Grade 60.*
4. *All concrete will be Class A45.*
5. *Unit Design Stresses: Concrete fc = 1800 psi*
   Reinforcing Steel fy = 24000 psi
6. *During construction of the cylindrical footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open, the more likely caving may occur.*
7. *Footing locations contain sand and/or gravel or have high water tables are potential candidates for caving soils. If caving soils are encountered, it may be necessary to use casing or drilling fluids to maintain an open excavation. Casing will be 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.*
8. *If caving is not an issue, but water is present, the water will be removed prior to concrete palcement or the concrete will be tremied.*
9. *Payment for 2' Diameter Fixed Support Concrete Footing will be full compensation for all Excavation, Concrete, and Reinforcing Steel; for disposal of all excavated material and surplus materials; and for labor, tools, equipment and any incidentals necessary to complete this item of work.*

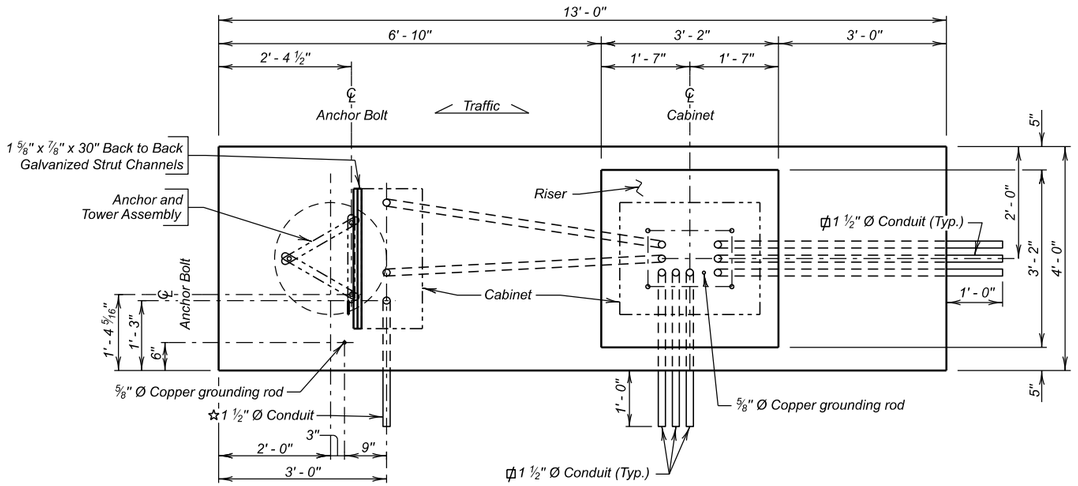
DETAILS
FOR
WEATHER TOWER FOOTING
RWIS1
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2026

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
RP	HS/AU/CHM	AU	BRIDGE ENGINEER
MEAD05W7	05W7UA01		

FOR BIDDING PURPOSES ONLY

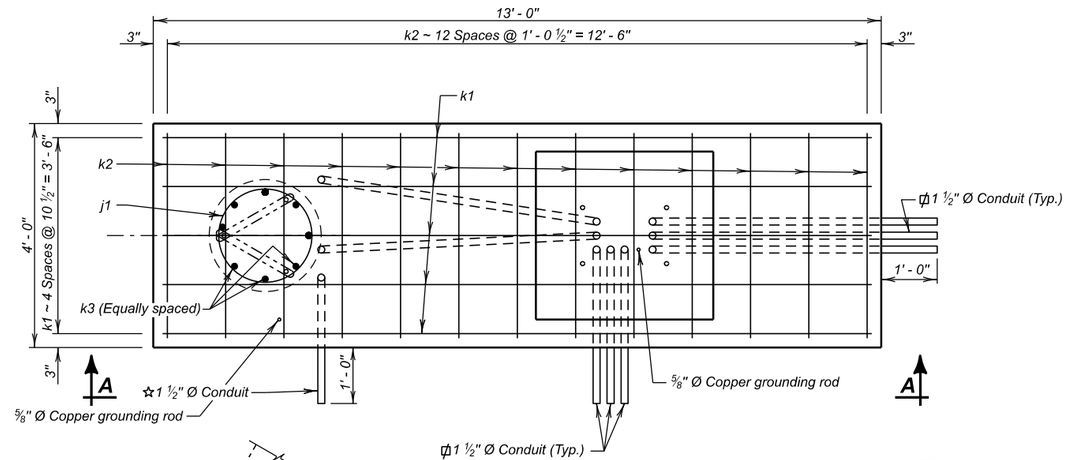
Plotting Date: 10/30/2026



LAYOUT

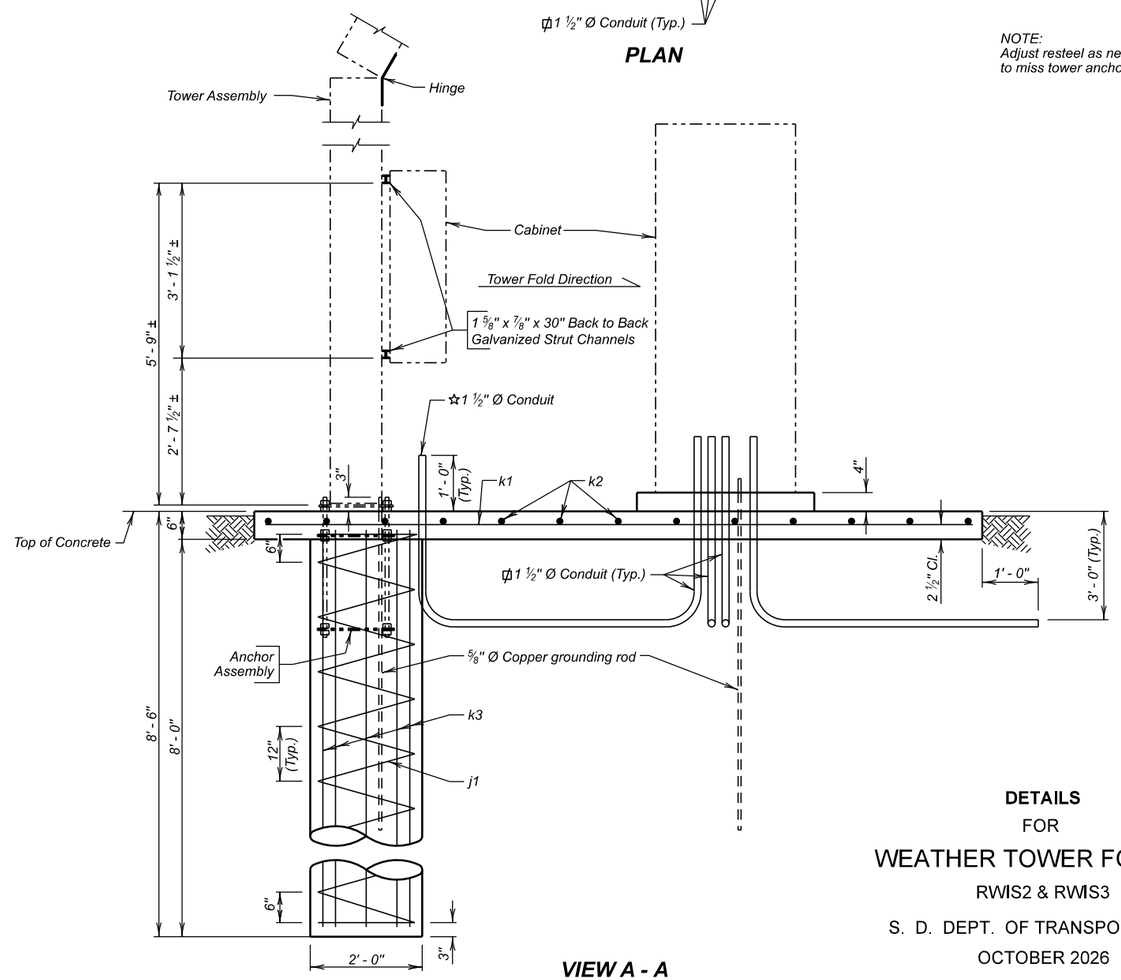
☆NOTE:
Conduit will be allowed to be mirrored about the centerline of the footing to accommodate power source.

℄ NOTE:
Number and location of conduits may vary. See details elsewhere in plans.



PLAN

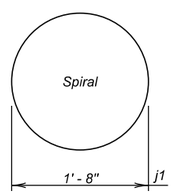
NOTE:
Adjust resteel as necessary to miss tower anchor assembly.



VIEW A - A

REINFORCING SCHEDULE
(For One Footing)

Mk.	No.	Size	Length	Type	Bending Details
k1	5	4	12' - 8"	Str.	
k2	13	4	3' - 8"	Str.	
k3	8	7	8' - 0"	Str.	
j1	1	3	54' - 9"	Spiral	



NOTE:
All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(For One Footing)

ITEM	UNIT	QUANTITY
2' Diameter Fixed Support Concrete Footing	Ft.	8

Items 1 thru 3 are approximate quantities contained in the above bid item and are for information only.

1. 2.1 Cu. Yds. of Structure Excavation
2. 2.1 Cu. Yds. of Class A45 Concrete
3. 226 Lbs. of Reinforcing Steel

SPECIFICATIONS-

1. *Pole Design Specifications: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2015 Edition with 2022 interims.*
   Footing Design Specifications: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2013 Edition with 2015 interims.
2. *Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-7-26 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at: https://dot.sd.gov/doing-business/contractors/standard-specifications*

GENERAL NOTES-

1. *Weather Tower Footings will be drilled shafts constructed in conformance with Section 465 of the Specifications except Sections 465.3A and 465.3B will not be required. No CSL access tubes will be required.*
2. *All exposed edges will be chamfered ¾". A suitable form will be used above the existing ground line and all exposed portions will be formed to present a neat appearance.*
3. *All reinforcing steel will conform to ASTM A615 Grade 60.*
4. *All concrete will be Class A45.*
5. *Unit Design Stresses: Concrete fc = 1800 psi*
   Reinforcing Steel fy = 24000 psi
6. *During construction of the cylindrical footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open, the more likely caving may occur.*
7. *Footing locations contain sand and/or gravel or have high water tables are potential candidates for caving soils. If caving soils are encountered, it may be necessary to use casing or drilling fluids to maintain an open excavation. Casing will be 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.*
8. *If caving is not an issue, but water is present, the water will be removed prior to concrete palcement or the concrete will be tremied.*
9. *Payment for 2' Diameter Fixed Support Concrete Footing will be full compensation for all Excavation, Concrete, and Reinforcing Steel; for disposal of all excavated material and surplus materials; and for labor, tools, equipment and any incidentals necessary to complete this item of work.*

DETAILS
FOR
WEATHER TOWER FOOTING
RWIS2 & RWIS3
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2026

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

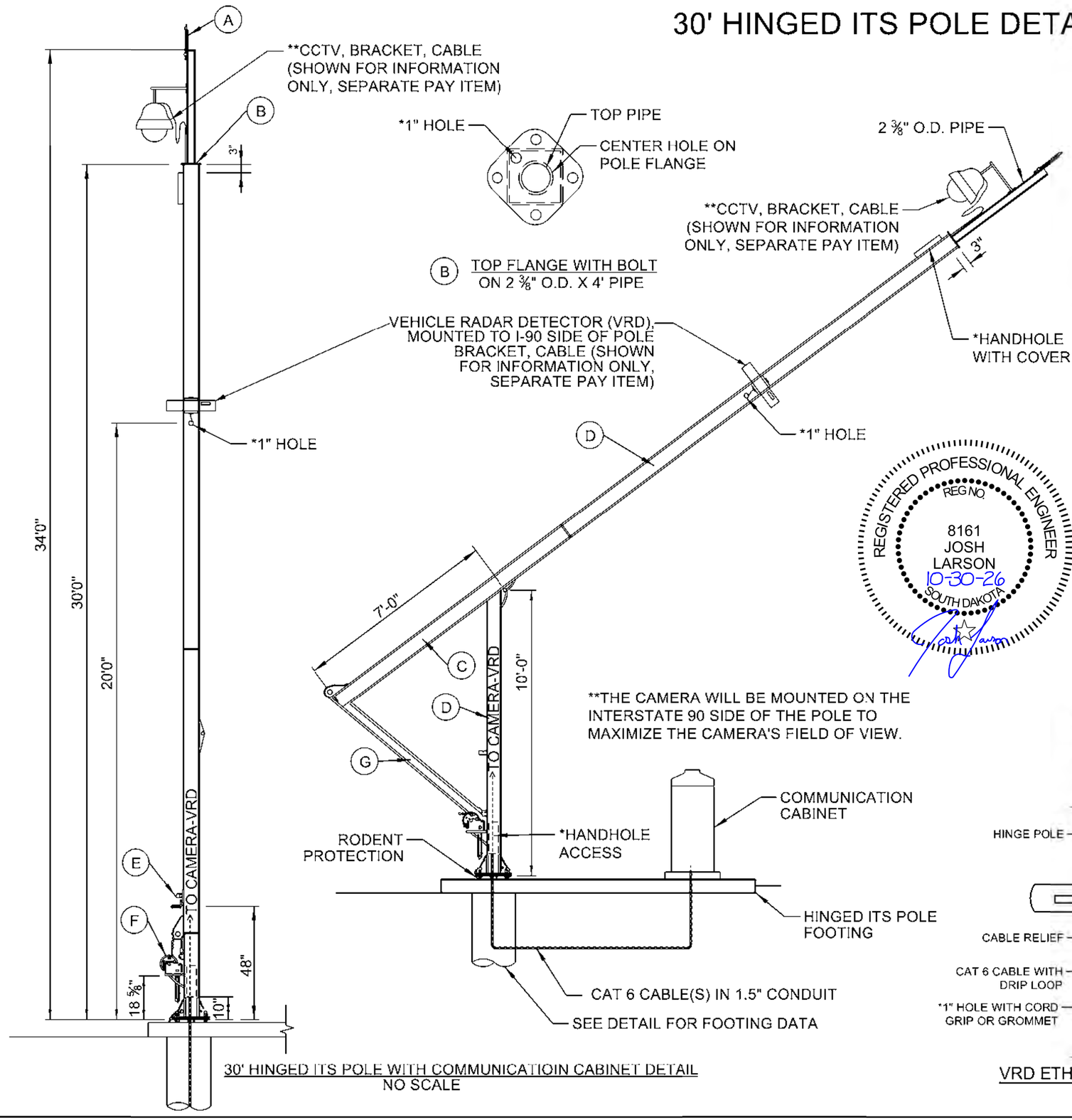
DESIGNED BY	CK. DES. BY	DRAFTED BY	
RP/AU	HS/CHM	AU	BRIDGE ENGINEER
MEAD05W7	05W7UA02		

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	57	114

Plotting Date: 10/30/2026

30' HINGED ITS POLE DETAILS

FOR BIDDING PURPOSES ONLY



30' HINGED ITS POLE WITH COMMUNICATIOIN CABINET DETAIL
NO SCALE

**THE CAMERA WILL BE MOUNTED ON THE INTERSTATE 90 SIDE OF THE POLE TO MAXIMIZE THE CAMERA'S FIELD OF VIEW.

ITEM	QTY	DISCRIPTIOIN
A	1	5/8" X 12' LIGHTNING ROD
B	1	TOP FLANGE WITH BOLT ON 2-3/8" O.D. X 4' PIPE
C	1	WELDED U-SHAPED STEEL SKIRT
D	2	6" SQUARE TUBING (A500B)
E	1	PADLOCK NUT ANTI-HINGE SYSTEM
F	1	1800 LB MANUAL AUTO BREAK STAINLESS STEEL CABLE WINCH
G	1	1/4" WINCH CABLE
		ENTIRE POLE ASSEMBLY IS HOT DIPPED GALVANIZED
		ESTIMATED WEIGHT IS 850 LBS
		2 YEARS OF WORKMANSHIP WARRANTY

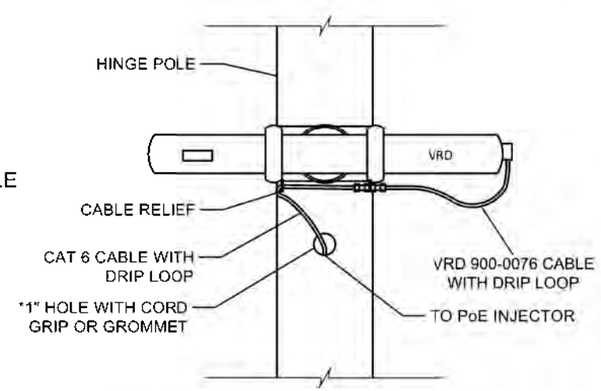
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

MID HINGED POLE PACKAGE INCLUDES:

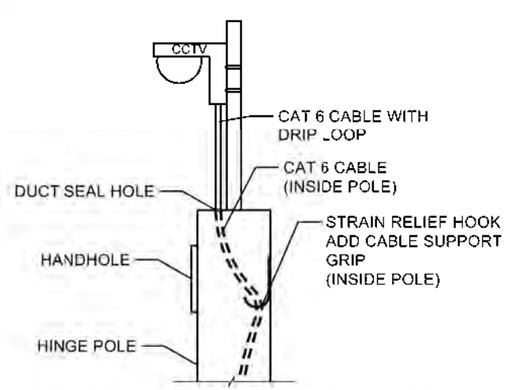
1 - 3/8" STAINLESS STEEL GROUNDING BOLT WITH LOCKNUTS
1- 7/8" HINGE BOLT WITH LOCKNUT
1 - 7/8" TWO PART BOLT WITH LOCKNUT
1 - 1800 LB MANUAL STAINLESS STEEL CABLE WINCH ASSEMBLY
1 - 2-3/8" O.D. X 4' LONG TOP PIPE
1- 1/4" WINCH CABLE
1 - 1/2" SHACKLE
1 - 4" SLEEVE
1 - VINYL WINCH WEATHER PROTECTION COVER WITH VELCRO STRAPS
1 - CABLE ROUTING ENERGY CHAIN INSIDE THE POLE ACROSS THE HINGE AREA
1 - COLD GALVANIZING ASTM A780 COMPLIANT SPRAY PAINT
1 - LIGHTNING ROD
1 - WELDED ANCHOR BASE BOLT CLUSTER ABBC-3 WITH 4 BOLTS AND 12 NUTS
1 - 5/8" GROUND ROD CLAMP
1 - GROUND WIRE CLAMP
1 - 5/8" X 8' COPPER COATED GROUNDING ROD
1 - 4' OF #2 TIN PLATED COPPER GROUND WIRE
1 - STRAIN RELIEF HOOK

ITEMS THAT DO NOT COME ON STANDARD ORDER INCLUDE:

*2 - HAND HOLES FABRICATED WITH 2" x 6" RECTANGLE TUBE WITH COVER PLATE
*1 - 1" HOLE ON TOP FLANGE
* Items do not come on standard order.



VRD ETHERNET CONNECTION DETAIL
NO SCALE



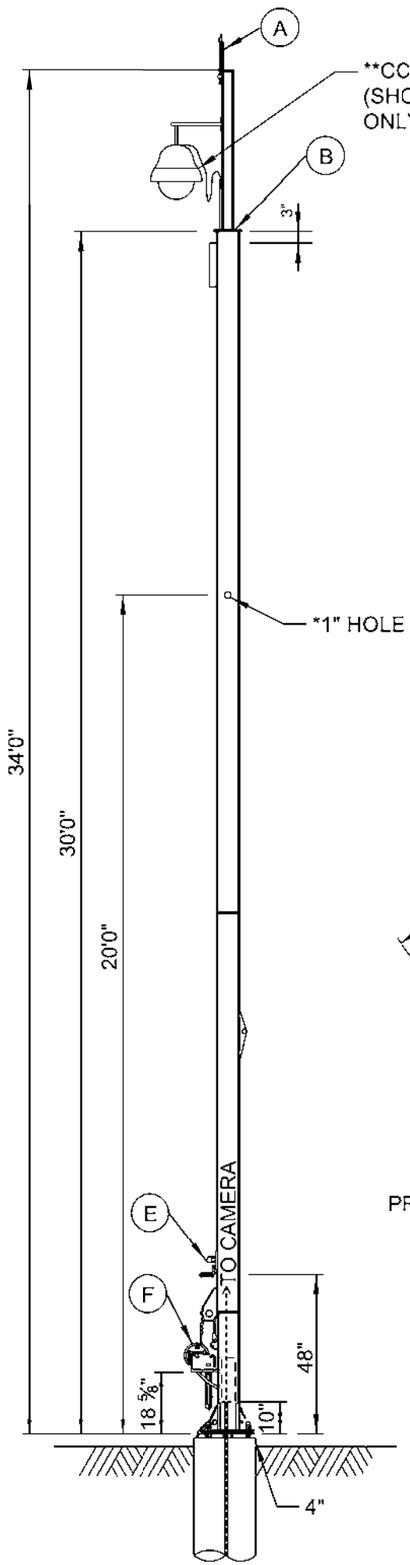
CCTV ETHERNET CONNECTION DETAIL
NO SCALE

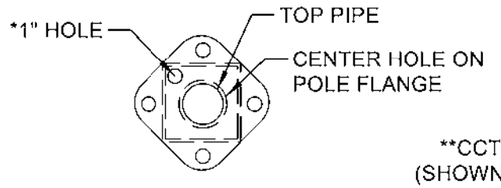
30' HINGED ITS POLE DETAILS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	58	114

Plotting Date: 10/30/2026





B TOP FLANGE WITH BOLT ON 2 ⅜" O.D. X 4' PIPE

**THE CAMERA WILL BE MOUNTED ON THE INTERSTATE 90 SIDE OF THE POLE TO MAXIMIZE THE CAMERA'S FIELD OF VIEW.

30' HINGED ITS POLE WITHOUT COMMUNICATIOIN CABINET DETAIL
NO SCALE

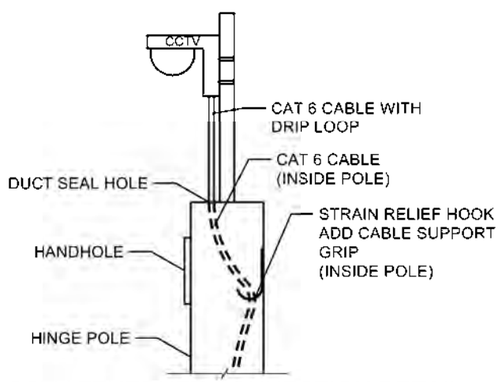
ITEM	QTY	DISCRIPTIOIN
A	1	5/8" X 12' LIGHTNING ROD
B	1	TOP FLANGE WITH BOLT ON 2-3/8" O.D. X 4' PIPE
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F	1	1800 LB MANUAL AUTO BREAK STAINLESS STEEL CABLE WINCH
G	1	1/4" WINCH CABLE
		ENTIRE POLE ASSEMBLY IS HOT DIPPED GALVANIZED
		ESTIMATED WEIGHT IS 850 LBS
		2 YEARS OF WORKMANSHIP WARRANTY

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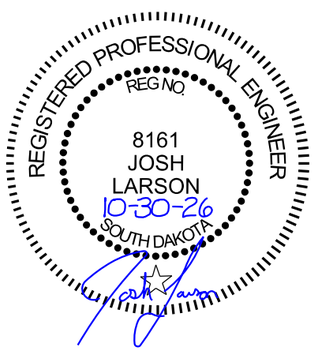
1 - 3/8" STAINLESS STEEL GROUNDING BOLT WITH LOCKNUTS
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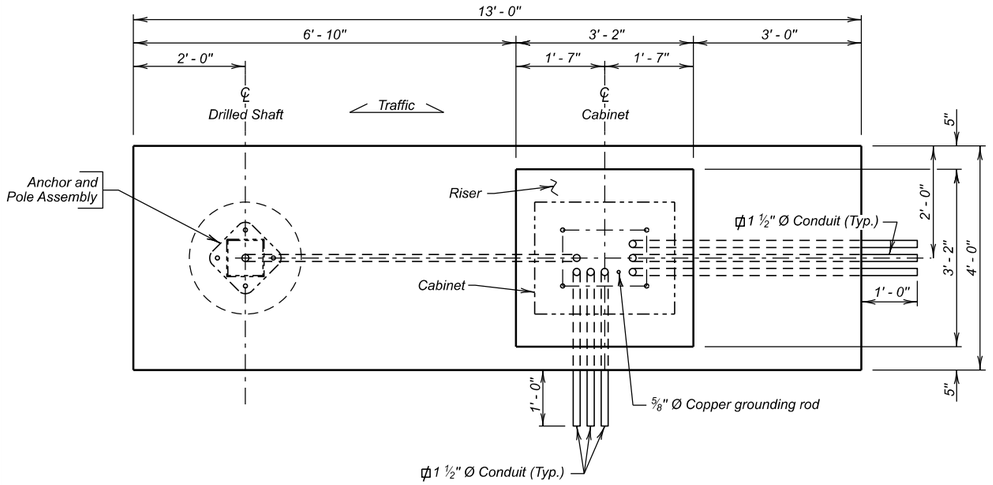


CCTV ETHERNET CONNECTION DETAIL
NO SCALE



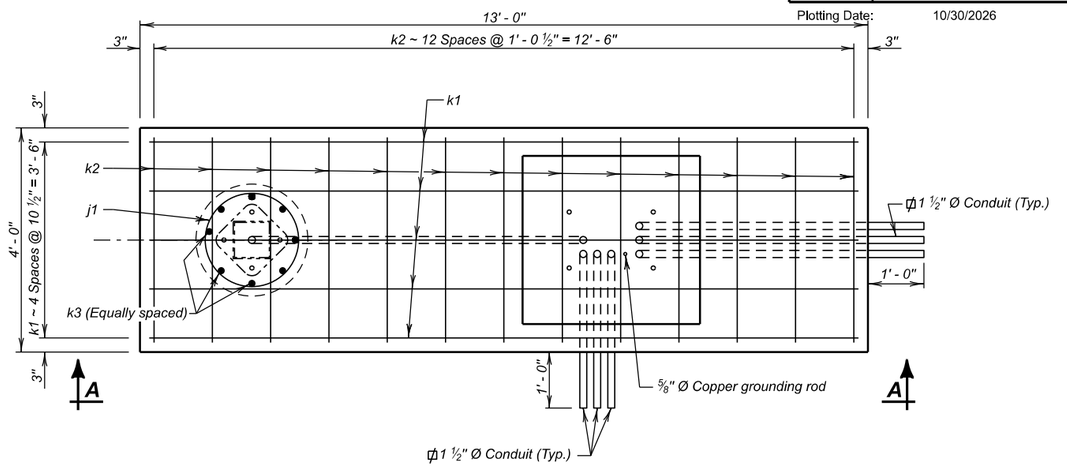
FOR BIDDING PURPOSES ONLY

Plotting Date: 10/30/2026



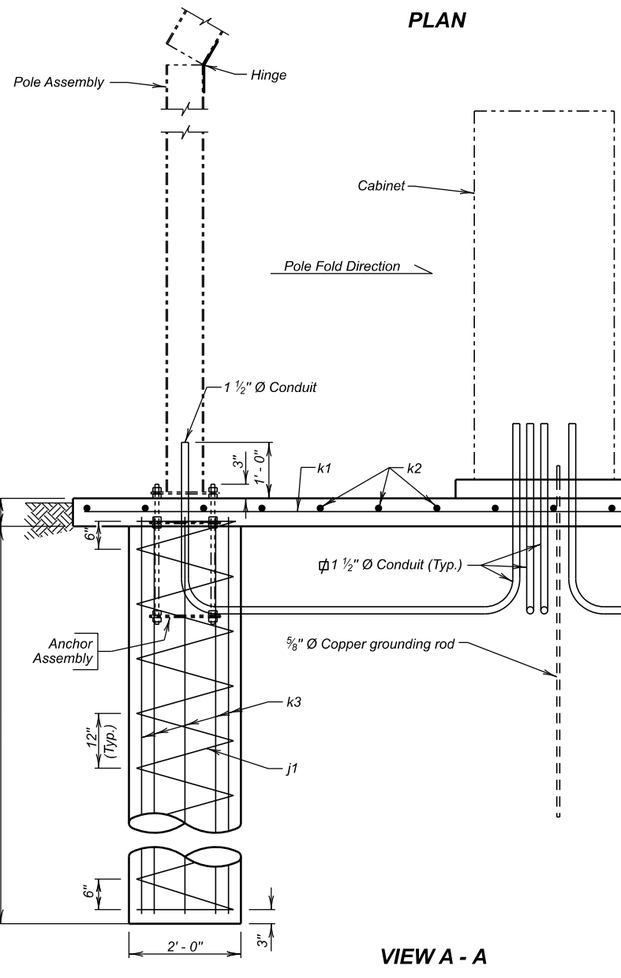
LAYOUT

ϕ NOTE:
Number and location of conduits may vary. See details elsewhere in plans.



PLAN

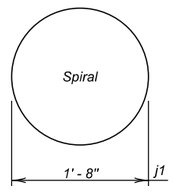
NOTE:
Adjust resteel as necessary to miss pole anchor assembly.



VIEW A - A

REINFORCING SCHEDULE
(For One Footing)

Mk.	No.	Size	Length	Type	Bending Details
k1	5	4	12' - 8"	Str.	
k2	13	4	3' - 8"	Str.	
k3	8	7	8' - 0"	Str.	
j1	1	3	54' - 9"	Spiral	



NOTE:
All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(For One Footing)

ITEM	UNIT	QUANTITY
2' Diameter Fixed Support Concrete Footing	Ft.	8

Items 1 thru 3 are approximate quantities contained in the above bid item and are for information only.

1. 2.1 Cu. Yds. of Structure Excavation
2. 2.1 Cu. Yds. of Class A45 Concrete
3. 226 Lbs. of Reinforcing Steel

SPECIFICATIONS-

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   Footing Design Specifications: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2013 Edition with 2015 interims.
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GENERAL NOTES-

1. Weather Tower Footings will be drilled shafts constructed in conformance with Section 465 of the Specifications except Sections 465.3A and 465.3B will not be required. No CSL access tubes will be required.
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4. All concrete will be Class A45.
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6. During construction of the cylindrical footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open, the more likely caving may occur.
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9. Payment for 2' Diameter Fixed Support Concrete Footing will be full compensation for all Excavation, Concrete, and Reinforcing Steel; for disposal of all excavated material and surplus materials; and for labor, tools, equipment and any incidentals necessary to complete this item of work.

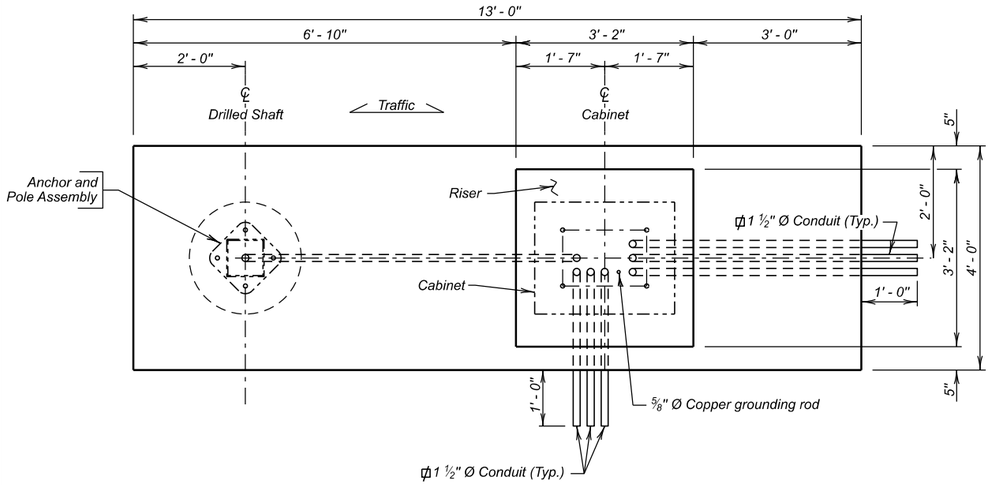
DETAILS
FOR
HINGED ITS POLE
HP1 & HP4
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2026

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
RP/AU	HS/CHM	AU	BRIDGE ENGINEER
MEAD05W7	05W7UA03		

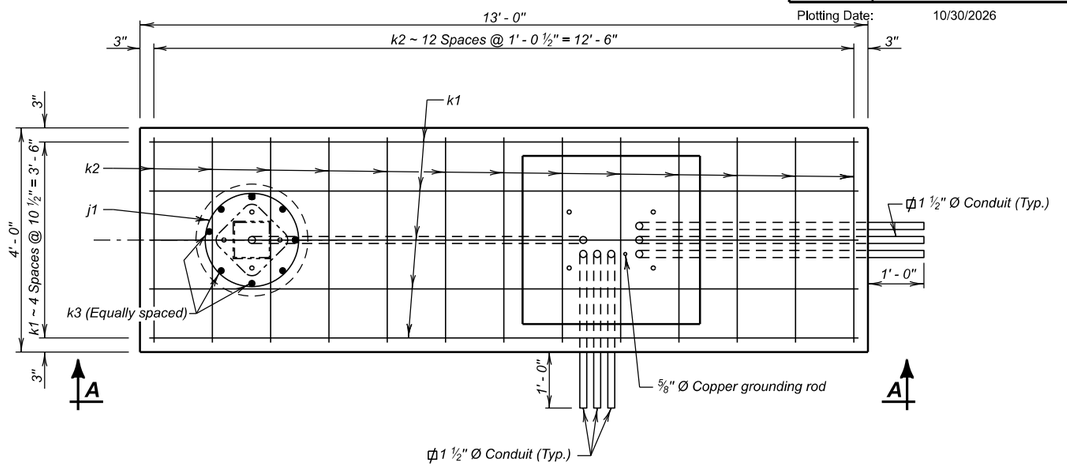
FOR BIDDING PURPOSES ONLY

Plotting Date: 10/30/2026



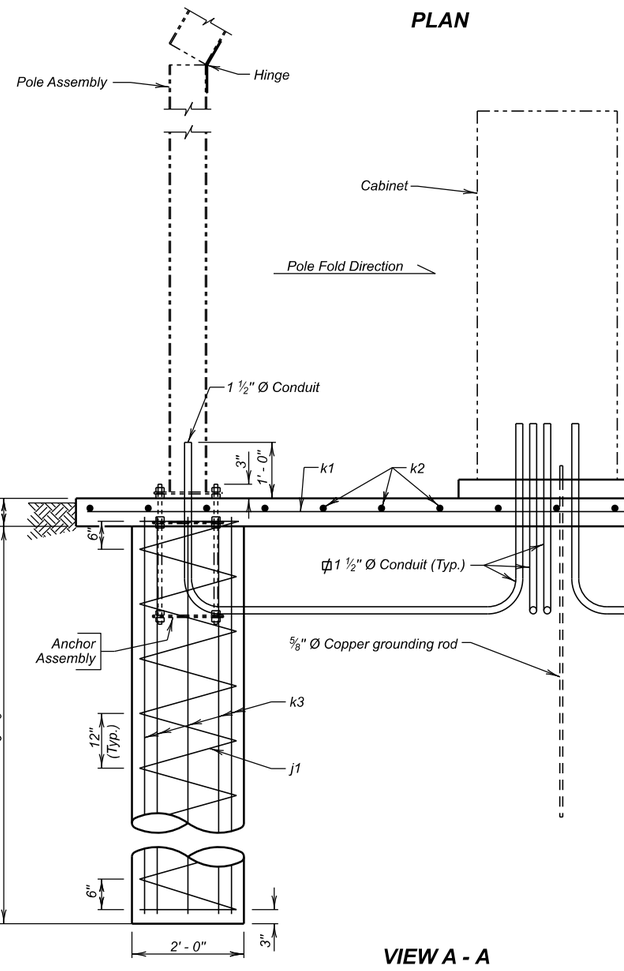
LAYOUT

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PLAN

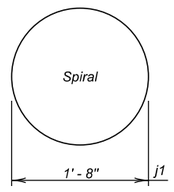
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VIEW A - A

REINFORCING SCHEDULE
(For One Footing)

Mk.	No.	Size	Length	Type	Bending Details
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k3	8	7	6' - 0"	Str.	
j1	1	3	42' - 3"	Spiral	



NOTE:
All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(For One Footing)

ITEM	UNIT	QUANTITY
2' Diameter Fixed Support Concrete Footing	Ft.	6

Items 1 thru 3 are approximate quantities contained in the above bid item and are for information only.

1. 1.8 Cu. Yds. of Structure Excavation
2. 1.8 Cu. Yds. of Class A45 Concrete
3. 188 Lbs. of Reinforcing Steel

SPECIFICATIONS-

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GENERAL NOTES-

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DETAILS
FOR
HINGED ITS POLE
HP2 & HP3
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2026

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
RP/AU	HS/CHM	AU	BRIDGE ENGINEER
MEAD05W7	05W7UA04		

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	61	114

Plotting Date: 10/30/2026

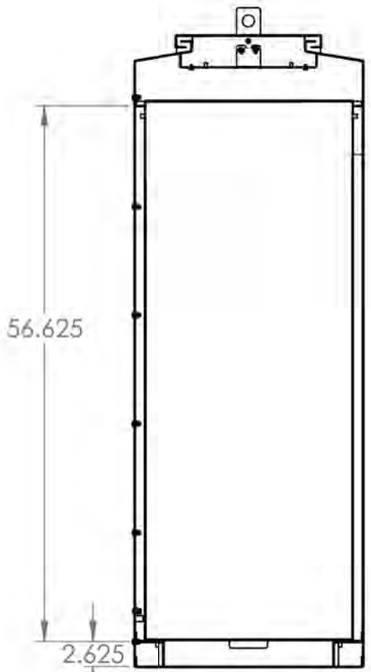
COMMUNICATION CABINET DETAIL

FOR BIDDING PURPOSES ONLY

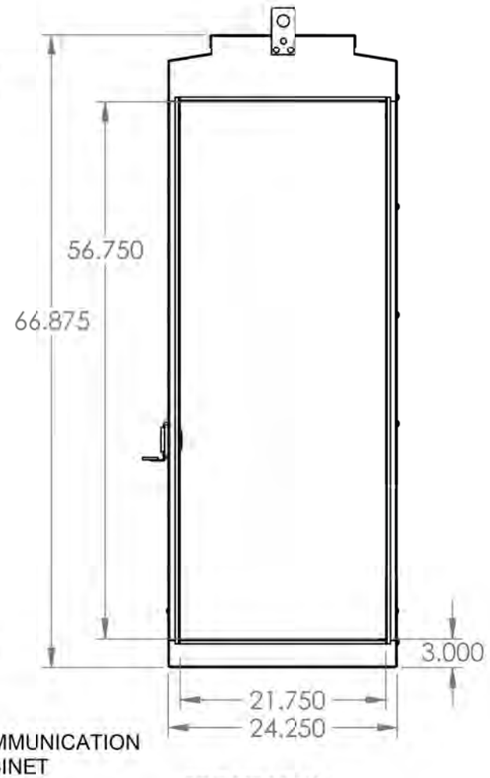
NOTE: ALL DIMENSIONS ON THIS SHEET ARE IN UNITS OF INCHES

ALL BOLTS, CLAMPS, FASTENERS, HINGES, LATCHES, NUTS AND SCREWS ARE TO BE STAINLESS STEEL
ALL EXTERIOR SEAMS ARE CONTINOUSLY WELDED WITH A RADIUS OF .03 OR GREATER

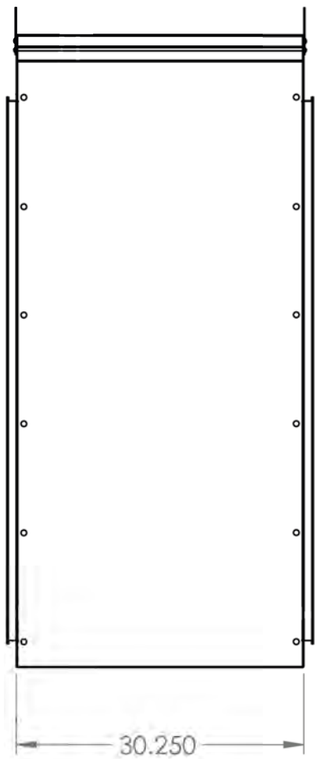
THE COMMUNICATION CABINETS WILL BE ENCLOSE MANUFACTURING ENC-2025I OR EQUIVALENT



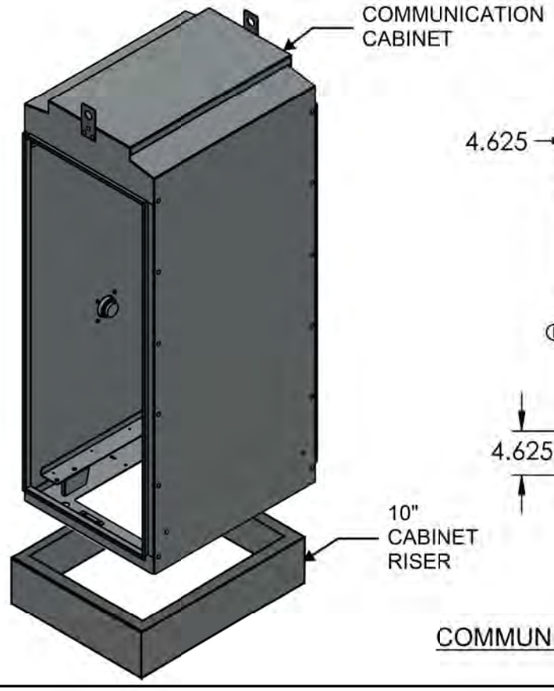
REAR VIEW

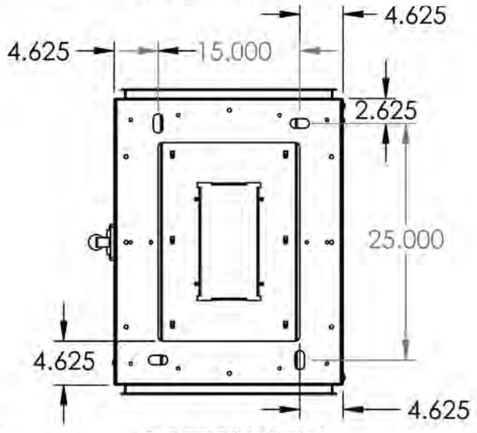


FRONT VIEW



SIDE VIEW

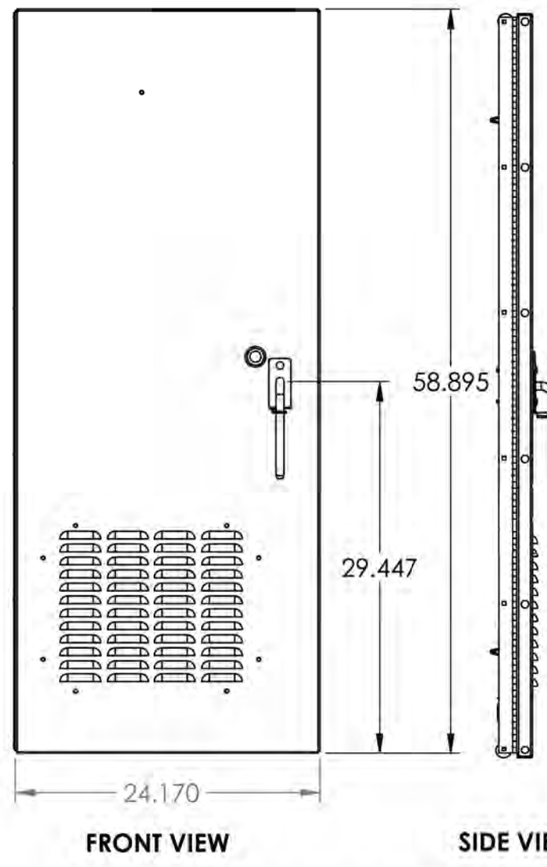




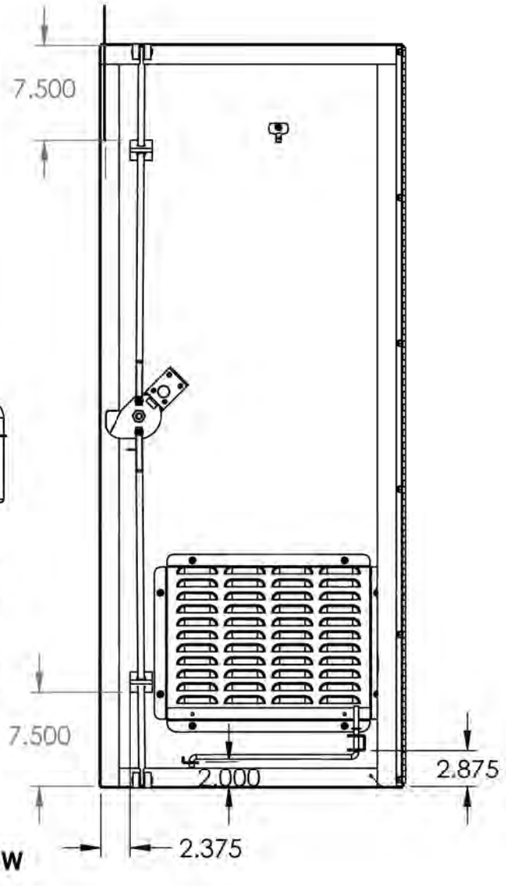
BOTTOM VIEW

COMMUNICATION CABINET DETAIL

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
20276
TIMOTHY
YOUNG
10-30-26
SOUTH DAKOTA



FRONT VIEW



SIDE VIEW

MOUNT CABINET ON 10" RISER

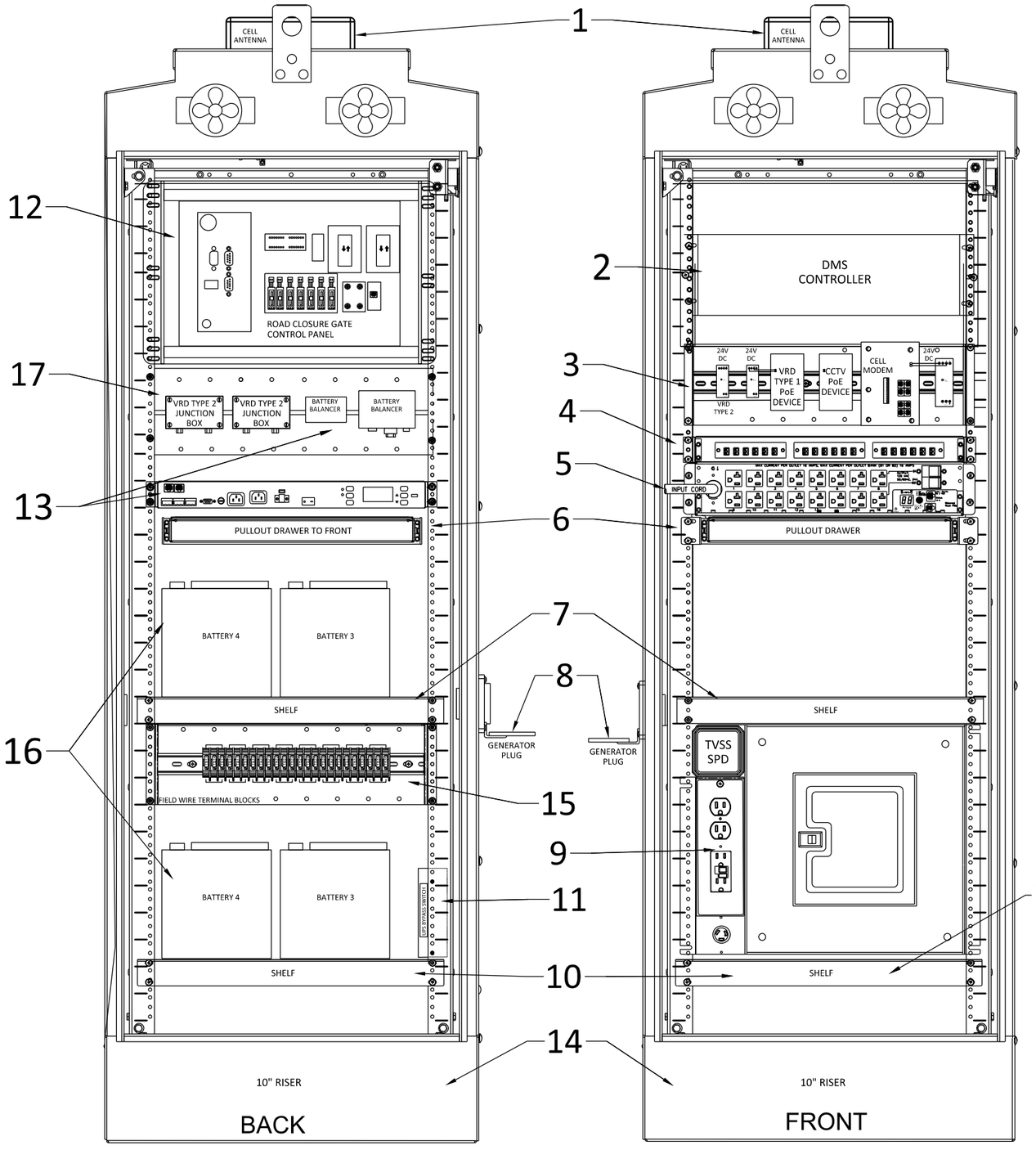
COMMUNICATION CABINET DOOR DETAIL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	62	114

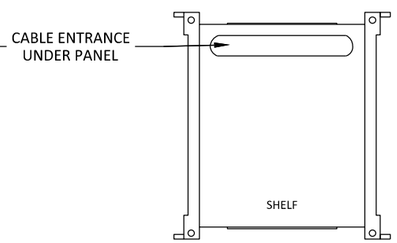
Plotting Date: 10/30/2026 Rev 11/12/2026 TCY

COMMUNICATION CABINET - EQUIPMENT LAYOUT

FOR BIDDING PURPOSES ONLY



Cabinet Layout Schedule	
Note Number	**Device**
1	OMNIDIRECTIONAL CELL MODEM ANTENNA
2	DMS CONTROLLER
3	DIN RAIL WITH VRD PoE DEVICE WITH 24V DC PS, VRD PS, CELL MODEM W/24VDC PS, CCTV PoE DEVICE
4	PATCH PANEL
5	SWITCHED PDU (POWER STRIP)
6	PULL OUT DRAWER
7	BATTERY SHELF
8	GENERATOR PLUG IN RECEPTACLE
9	POWER DISTRIBUTION PANEL (2) GENERAL PURPOSE OUTLETS (1) GFCI, TVSS / SPD (SURGE PROTECTION DEVICE), & 30A PDU RECPT
10	BATTERY SHELF
11	BYPASS SWITCH FOR UPS SYSTEM
12	SNOW GATE CONTROL PANEL
13	UNIVERSAL GENERATOR TRANSFER SWITCH (UGTS) W/GENERATOR CONNECTIONS, AND BATTERY BALANCER
14	10" CABINET RISER
15	FIELD WIRE TERMINATION PANEL FOR PDU
16	(4) AGM 100AH BATTERIES
17	VRD TYPE 2 JUNCTION BOXES



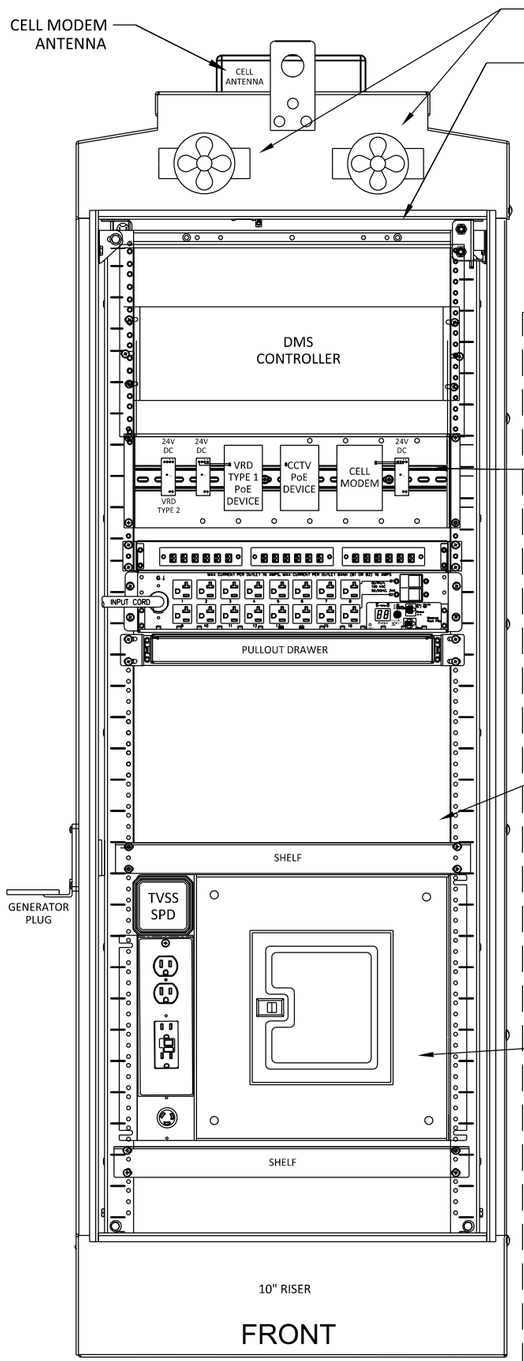
REGISTERED PROFESSIONAL ENGINEER
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20276
TIMOTHY
YOUNG
11-12-26
SOUTH DAKOTA

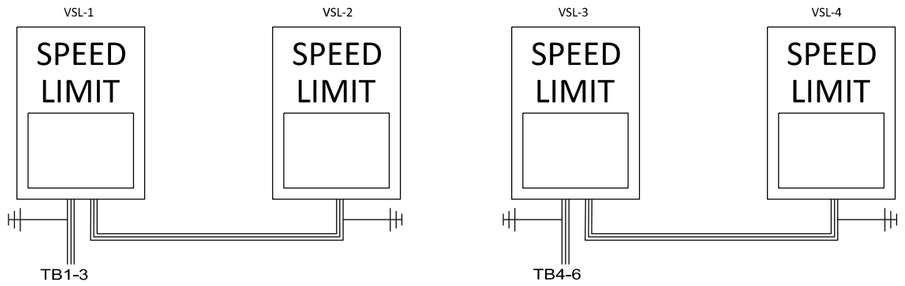
COMMUNICATION CABINET - WIRING DIAGRAM

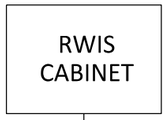
FOR BIDDING PURPOSES ONLY

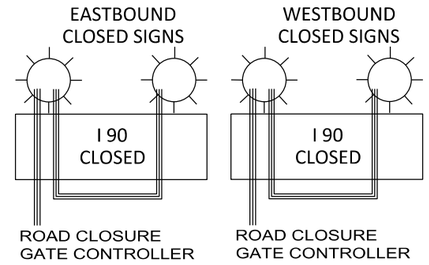
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	63	114

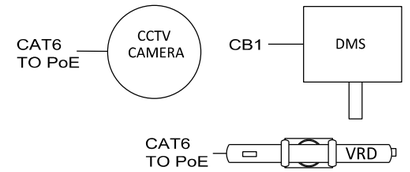
Plotting Date: 10/30/2026 Rev 11/12/2026 TCY

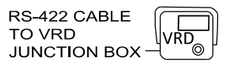


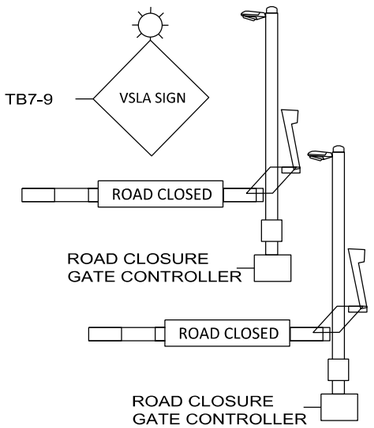


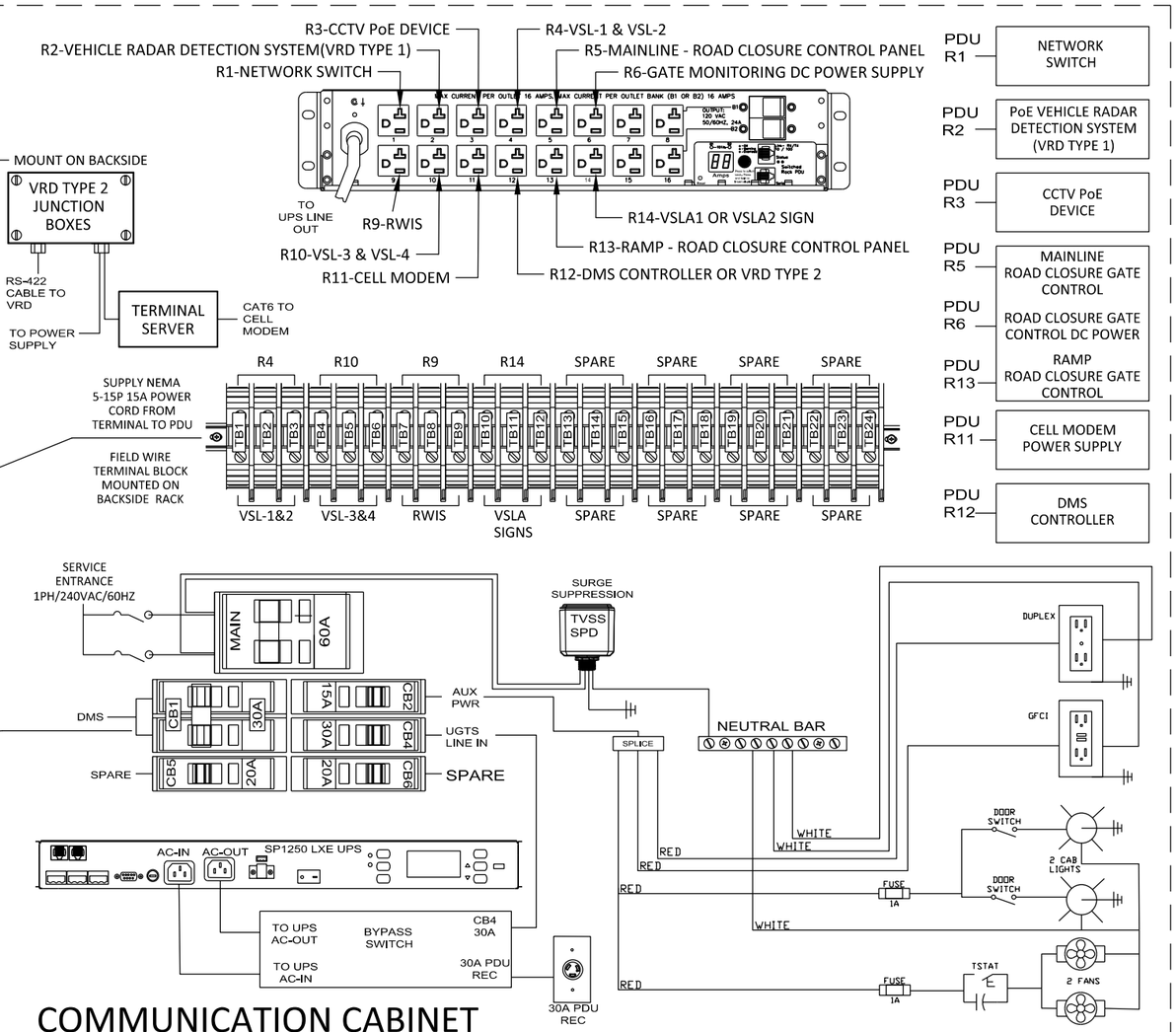












PDU R1	NETWORK SWITCH
PDU R2	PoE VEHICLE RADAR DETECTION SYSTEM (VRD TYPE 1)
PDU R3	CCTV PoE DEVICE
PDU R5	MAINLINE ROAD CLOSURE GATE CONTROL
PDU R6	ROAD CLOSURE GATE CONTROL DC POWER
PDU R13	RAMP ROAD CLOSURE GATE CONTROL
PDU R11	CELL MODEM POWER SUPPLY
PDU R12	DMS CONTROLLER

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WIRELESS COMMUNICATION - CELL MODEM PORT ASSIGNMENTS

CC1 — Cell Modem — MRM 29

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	Existing Camera
4	VRD1
6	Existing DMS Controller

VSL1-1 — Cell Modem — MRM 29

Port Number	Device Description
4	VSL1-1

CC2 — Cell Modem — Exit 30

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV1
4	VRD2 (Ramp Queue Detector)
5	RWIS1
6	Ethernet Switch

CC2 — Ethernet Switch

Port Number	Device Description
WAN	Cell Modem
1	VRD3
2	VRD4
3	VRD5 (Ramp Queue Detector)
4	RCGA-1/RCGA-2

VSL2-1 — Cell Modem — Exit 30 (MRM 31)

Port Number	Device Description
4	VSL2-1

CC3 — Cell Modem — MRM 32

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV2
4	VSL3-1

CC4 — Cell Modem — EXIT 32

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV3
4	VRD7
5	RCGA-3/RCGA-4
6	VRD6 (Ramp Queue Detector)
7*	VRD8 (Ramp Queue Detector)

CC5 — Cell Modem — EXIT 32 (MRM 33)

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV4
4	VSL4-1

CC6 — Cell Modem — MRM 34

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV5
4	VSL5-1
5	RWIS2

VSL6-1 — Cell Modem — MRM 35

Port Number	Device Description
4	VSL6-1

CC7 — Cell Modem — MRM 35

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	Existing Camera
6	Existing DMS Controller

VSL7-1 — Cell Modem — EXIT 37

Port Number	Device Description
4	VSL7-1

CC8 — Cell Modem — EXIT 37

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV6

VSL8-1 — Cell Modem — EXIT 37

Port Number	Device Description
4	VSL8-1

VSL9-1 — Cell Modem — EXIT 40

Port Number	Device Description
4	VSL9-1

CC9 — Cell Modem — EXIT 40

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV7
4	VRD9
5	RWIS3

VSL10-1 — Cell Modem — EXIT 40 (MRM 41)

Port Number	Device Description
4	VSL10-1

CC10 — Cell Modem — EXIT 44

Port Number	Device Description
1	Switched PDU (Power Strip)
2	Battery Backup (UPS)
3	CCTV8
4	VRD10
6	DMS1

VSL11-1 — Cell Modem — EXIT 44

Port Number	Device Description
1	VSL11-1

*** Install Additional RJ45 port in modem's extra SFP slot**

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ROAD CLOSURE GATE CONTROL - WIRING DIAGRAM

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	65	114

Plotting Date: 10/30/2026

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GROUNDS NOT SHOWN
ALL CIRCUITS REQUIRE
GROUND WIRE

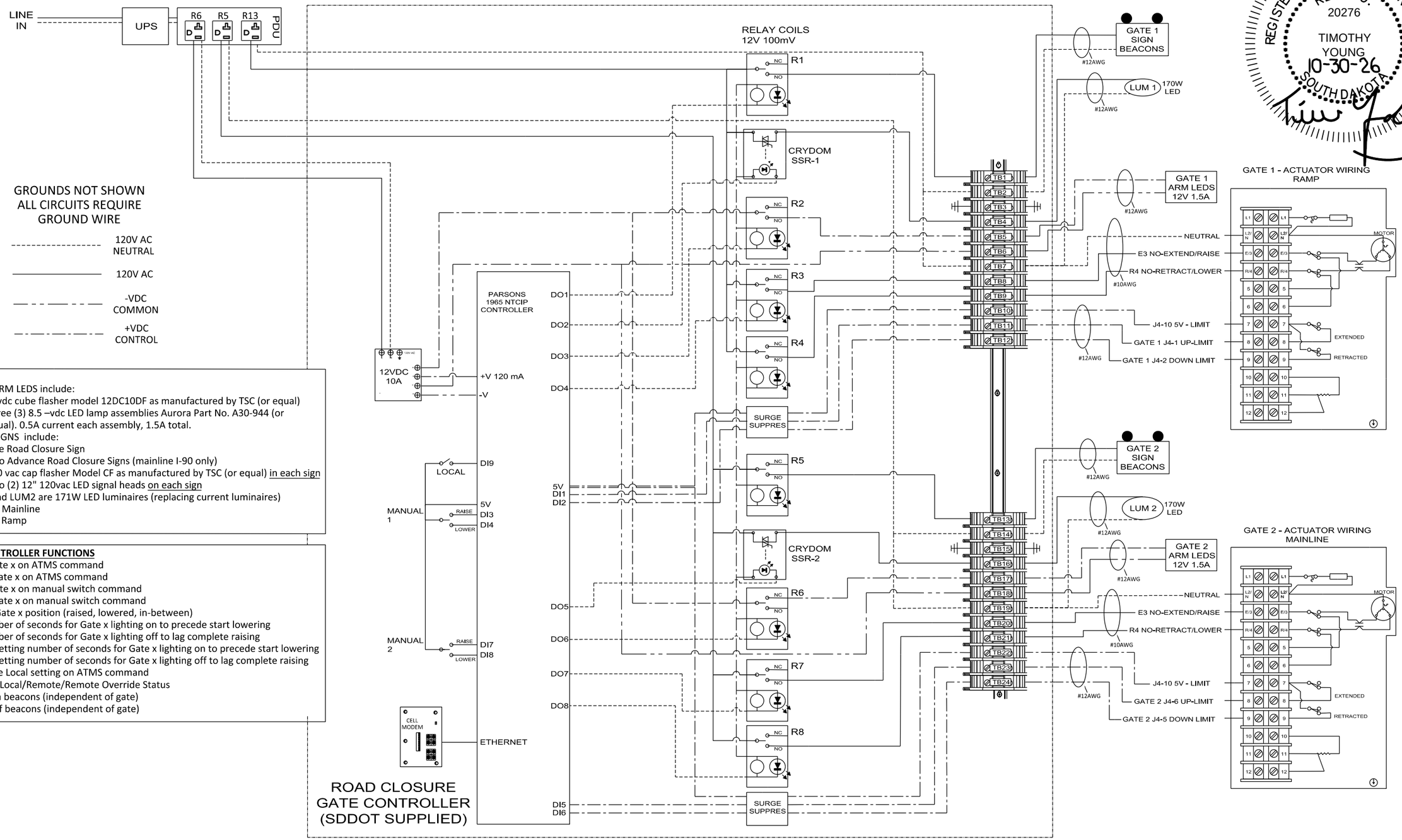
- 120V AC NEUTRAL
- 120V AC
- -VDC COMMON
- +VDC CONTROL

NOTES

1. GATEx ARM LEDS include:
   - 12 vdc cube flasher model 12DC10DF as manufactured by TSC (or equal)
   - Three (3) 8.5 –vdc LED lamp assemblies Aurora Part No. A30-944 (or equal). 0.5A current each assembly, 1.5A total.
2. GATEx SIGNS include:
   - One Road Closure Sign
   - Two Advance Road Closure Signs (mainline I-90 only)
   - 120 vac cap flasher Model CF as manufactured by TSC (or equal) in each sign
   - Two (2) 12" 120vac LED signal heads on each sign
3. LUM1 and LUM2 are 171W LED luminaires (replacing current luminaires)
4. GATE1 = Mainline
5. GATE2 = Ramp

NTCIP CONTROLLER FUNCTIONS

1. Raise Gate x on ATMS command
2. Lower Gate x on ATMS command
3. Raise Gate x on manual switch command
4. Lower Gate x on manual switch command
5. Report Gate x position (raised, lowered, in-between)
6. Set number of seconds for Gate x lighting on to precede start lowering
7. Set number of seconds for Gate x lighting off to lag complete raising
8. Report setting number of seconds for Gate x lighting on to precede start lowering
9. Report setting number of seconds for Gate x lighting off to lag complete raising
10. Override Local setting on ATMS command
11. Report Local/Remote/Remote Override Status
12. Turn on beacons (independent of gate)
13. Turn off beacons (independent of gate)

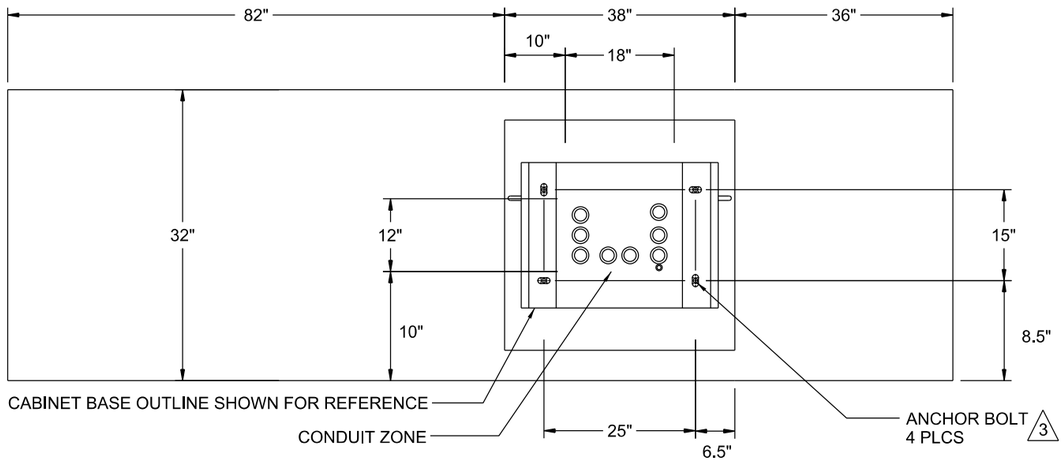


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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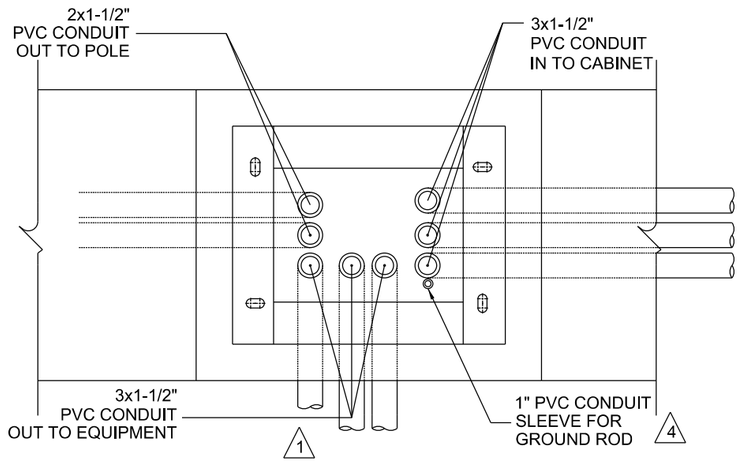
Plotting Date: 10/30/2026

COMMUNICATION CABINET MOUNTING DETAILS

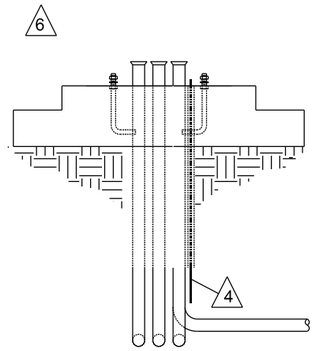
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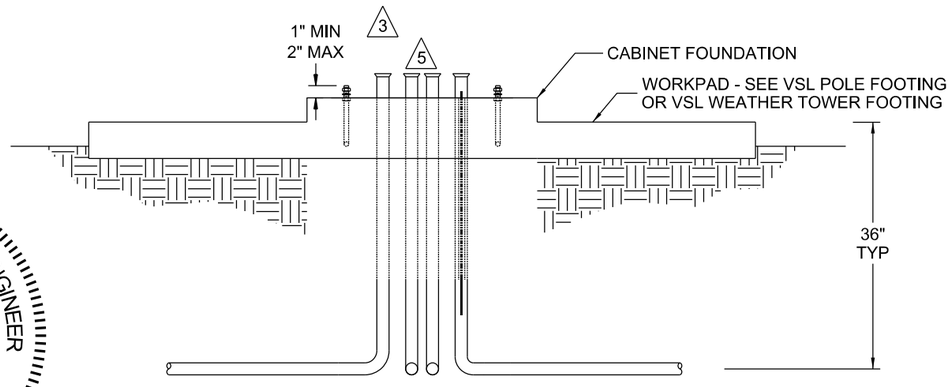
TOP VIEW - CABINET MOUNTING



DETAIL A - MINIMUM CONDUITS 2



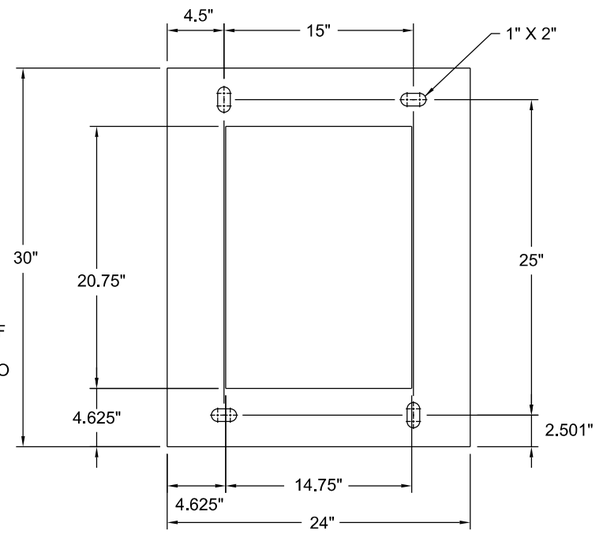
FRONT VIEW



SIDE VIEW

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PAD MOUNTING PAD



NOTES:

1. SPARE CONDUIT MUST BE CAPPED, STUBBED 24" PAST FOUNDATION, AND LABELED.
2. ALL CONDUITS SHOWN WILL BE FURNISHED AND INSTALLED IN FOUNDATION IN ACCORDANCE WITH LOCAL CODES. CAP IF NOT USED. ADDITIONAL CONDUITS MAY BE REQUIRED. CONDUITS WILL EXIT FOUNDATION IN DIRECTION APPROPRIATE FOR SITE GEOMETRY.
3. CABINET ANCHORS MUST BE GALVANIZED OR STAINLESS STEEL AND MAY BE CAST IN PLACE, CHEMICAL OR EXPANSION TYPE DRILLED INTO BASE. TYPICAL SIZE IS 3/4" NC x 12" x 4".
4. GROUND ROD MUST BE PROVIDED TO MEET LOCAL ELECTRICAL CODE.
5. SEAL ALL CONDUIT ENDS WITH COPPER WOOL AND DUCT SEAL TO REDUCE RODENT OR INSECT INTRUSION AND MOISTURE. DO NOT USE PERMANENT SEALANT AS CONDUITS MAY NEED TO BE REENTERED IN THE FUTURE FOR CABLE REPLACEMENT OR ADDITIONS.

NOTES: (CONTINUED)

6. THE CABINET BASE CONDUIT MUST BE HIGHER THAN SURROUNDING PULL BOXES. THE HEIGHT OF CONDUITS ENDING IN THE CABINET MUST BE HIGHER THAN THE OTHER END TO PREVENT WATER ENTRY DUE TO HYDROSTATIC PRESSURE. ALL CONDUITS WILL HAVE END BELLS INSTALLED OR NO SHARP EDGES.

ALL COSTS TO FURNISH AND INSTALL THE COMMUNICATION CABINET WILL BE INCIDENTAL TO THE CONTRACT UNIT PRICE PER EACH FOR "TYPE 1 COMMUNICATION CABINET"

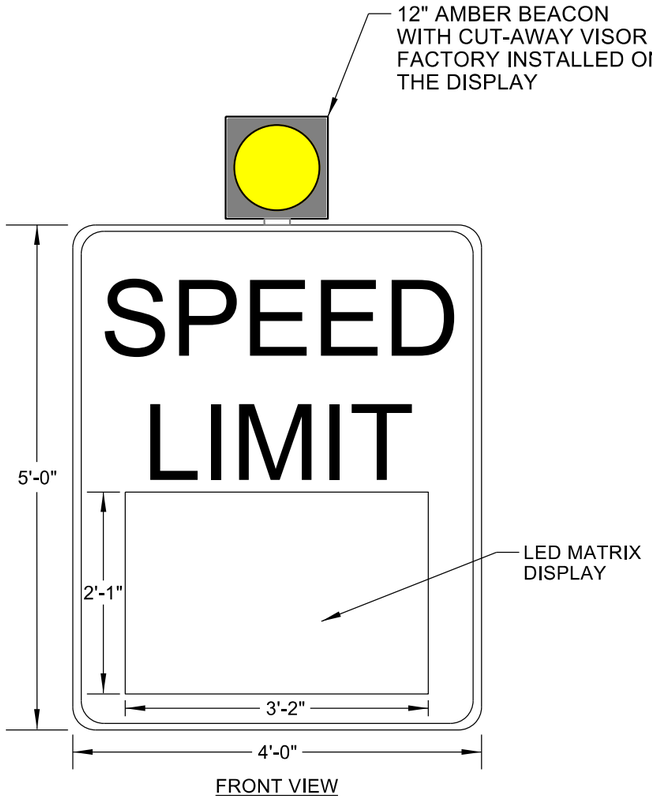
SEE STANDARD PLATE 635.60 FOR PAD AND FOOTING INSTALLATION DETAILS

VARIABLE SPEED LIMIT SIGN DETAILS

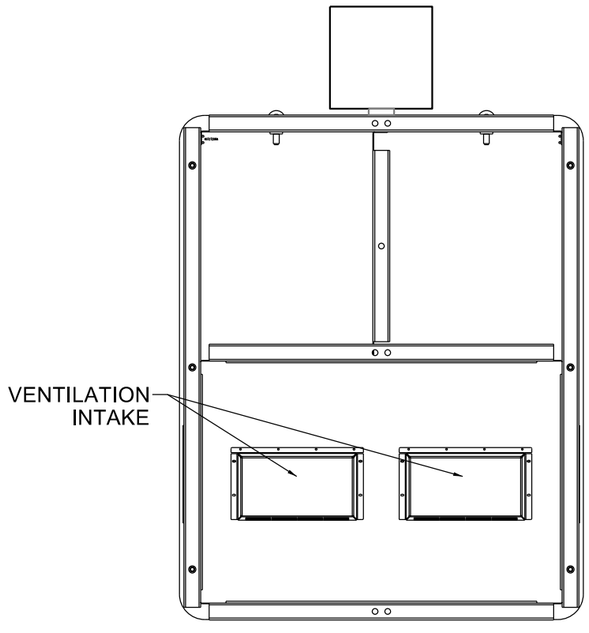
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	67	114

Plotting Date: 10/30/2026



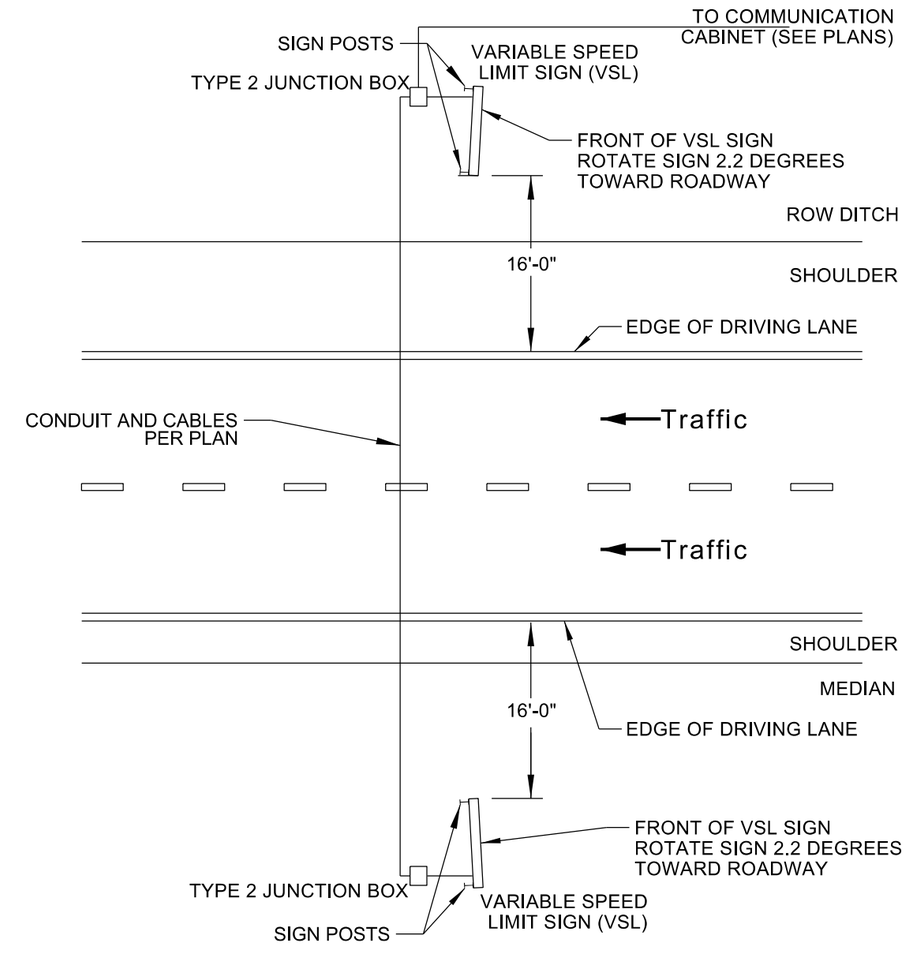
FRONT VIEW



REAR VIEW

VARIABLE SPEED LIMIT SIGN (VSL) - DETAILS

NO SCALE



VARIABLE SPEED LIMIT SIGN (VSL) - ELECTRICAL PLAN

NO SCALE

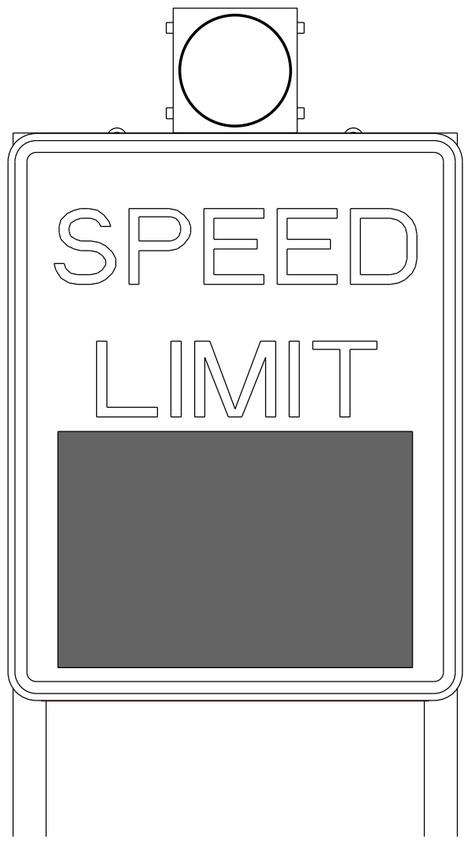
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VARIABLE SPEED LIMIT SIGN MOUNTING DETAILS

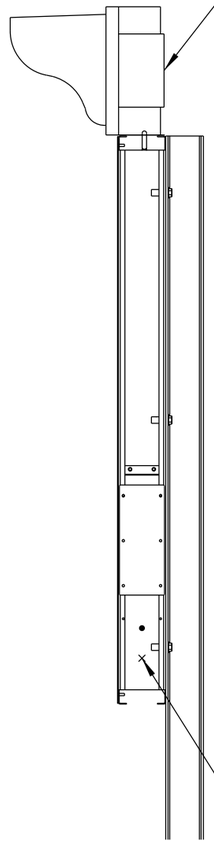
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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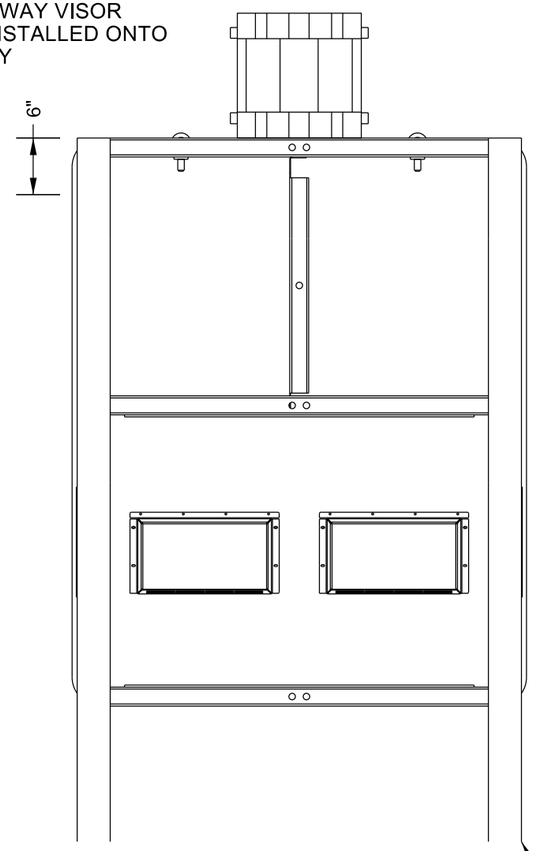
Plotting Date: 10/30/2026



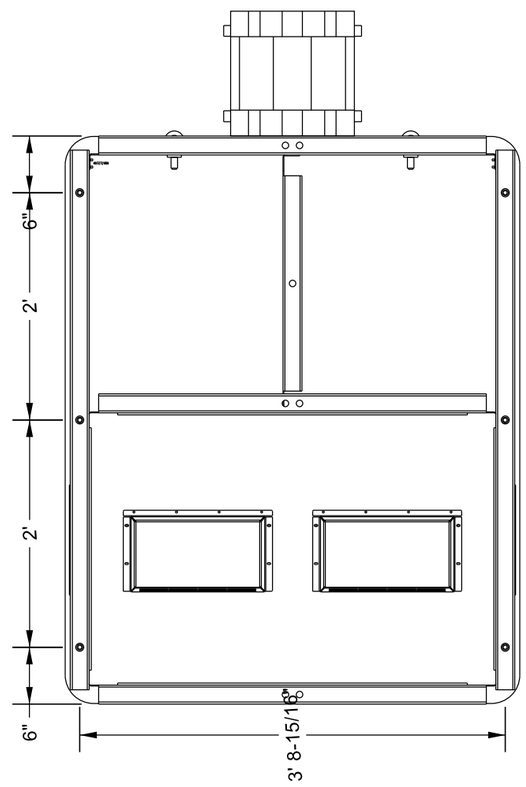
FRONT VIEW



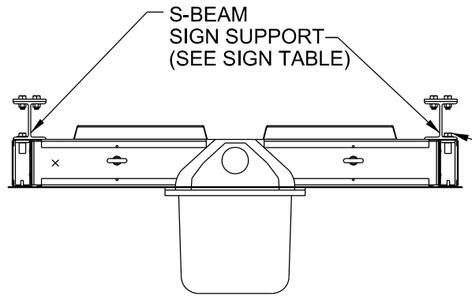
RIGHT VIEW



REAR VIEW



REAR VIEW
NO MOUNTING SHOWN



TOP VIEW

NOTES:

1. MOUNT SIGN TO POSTS VIA MANUFACTURER GUIDELINES AND RECOMMENDATIONS.

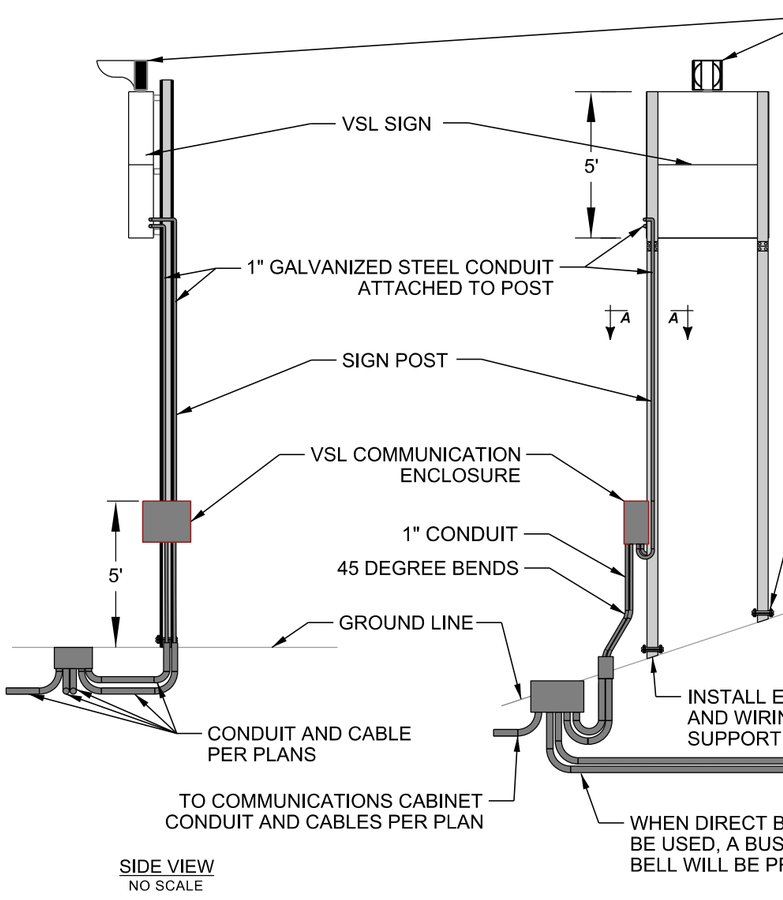
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VSL COMMUNICATION ENCLOSURE DETAILS

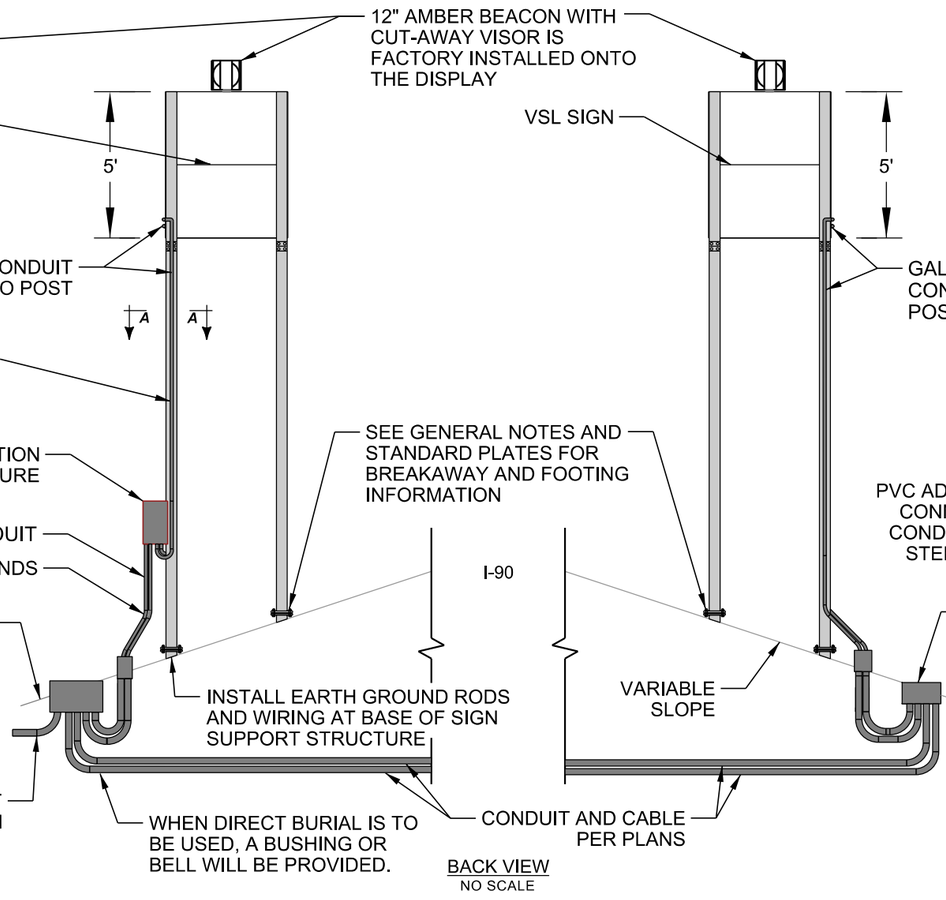
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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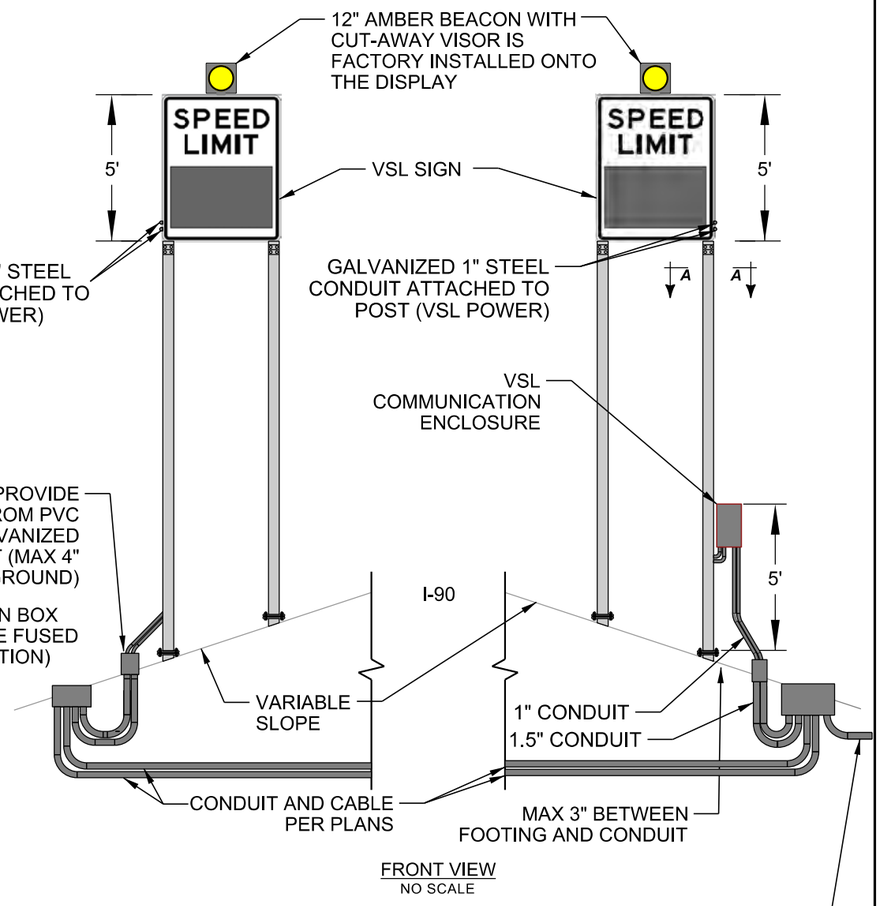
Plotting Date: 10/30/2026



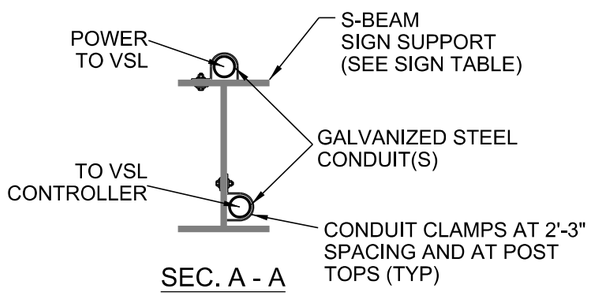
SIDE VIEW
NO SCALE



BACK VIEW
NO SCALE



FRONT VIEW
NO SCALE



SEC. A - A

NOTE: INSTALL COMMUNICATION ENCLOSURE ON THE OUTSIDE POST OF THE VARIABLE SPEED LIMIT SIGN.

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 10/30/2026

VSL COMMUNICATION ENCLOSURE DETAILS

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ENCLOSURE IS MADE OF 0.125" ALUMINUM .

DOOR WITH 3 POINT LOCKING HANDLE (PADLOCKABLE)

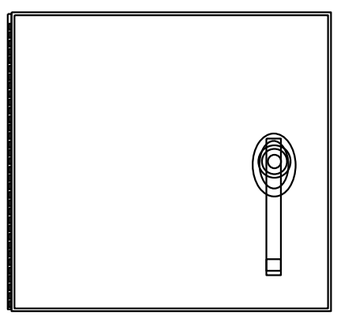
NEMA/EEMAC TYPE 4, 4X, 12, 13 ENCLOSURE.

DOOR WILL HAVE CONTINUOUS HINGE AND GASKET RETAINERS.

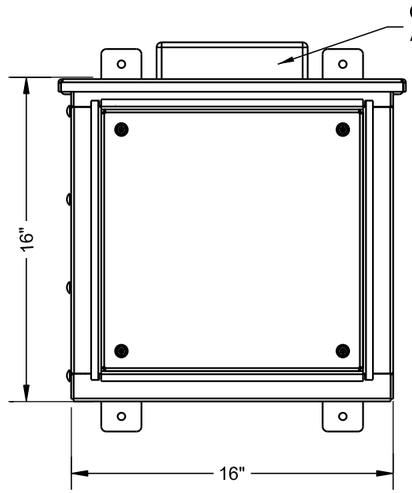
SDDOT TO SUPPLY CELL MODEM, ANTENNA, AND DC POWER SUPPLY. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT.

DIMENSIONS SHOWN: INCHES.

*** CELL MODEM ANTENNA NOT INCLUDED AT VSL3-1, VSL4-1, AND VSL5-1**

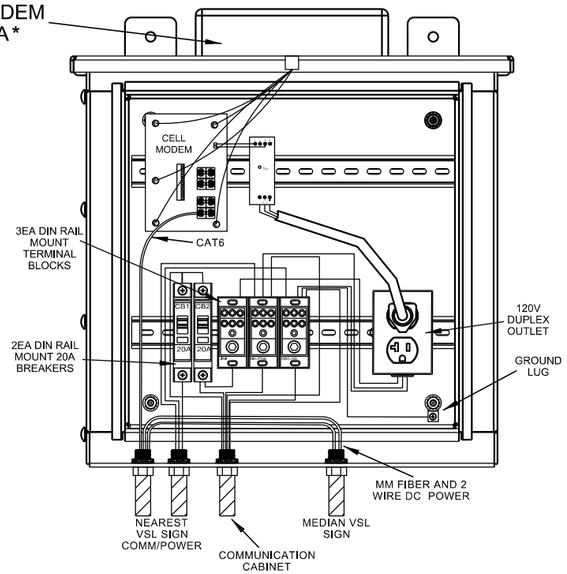


DOOR VIEW
NO SCALE

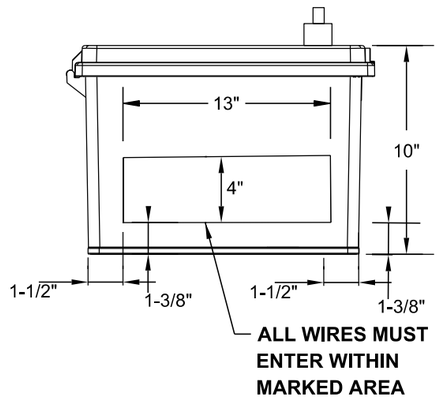


NO SCALE

FRONT VIEW



INTERIOR VIEW
NO SCALE



BOTTOM VIEW
NO SCALE

VSL COMMUNICATION ENCLOSURE

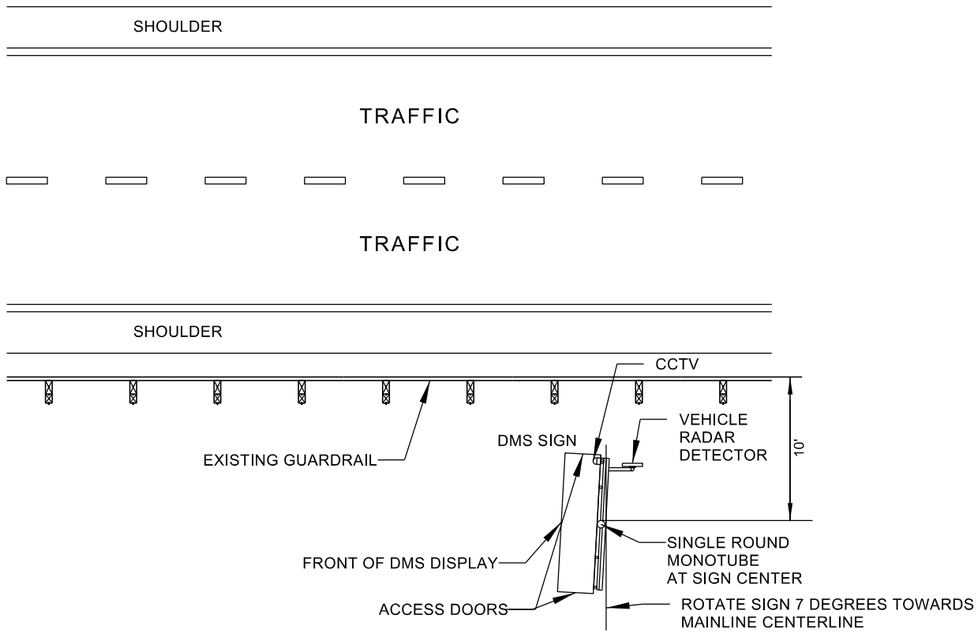
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SOUTH DAKOTA

POLE MOUNTED DYNAMIC MESSAGE SIGN

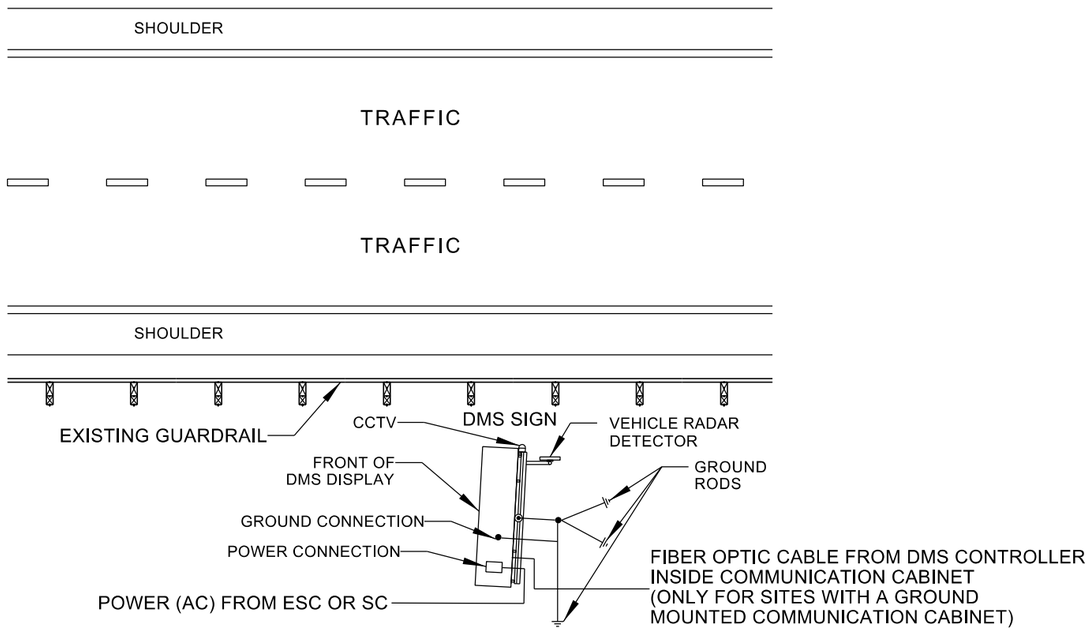
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	71	114

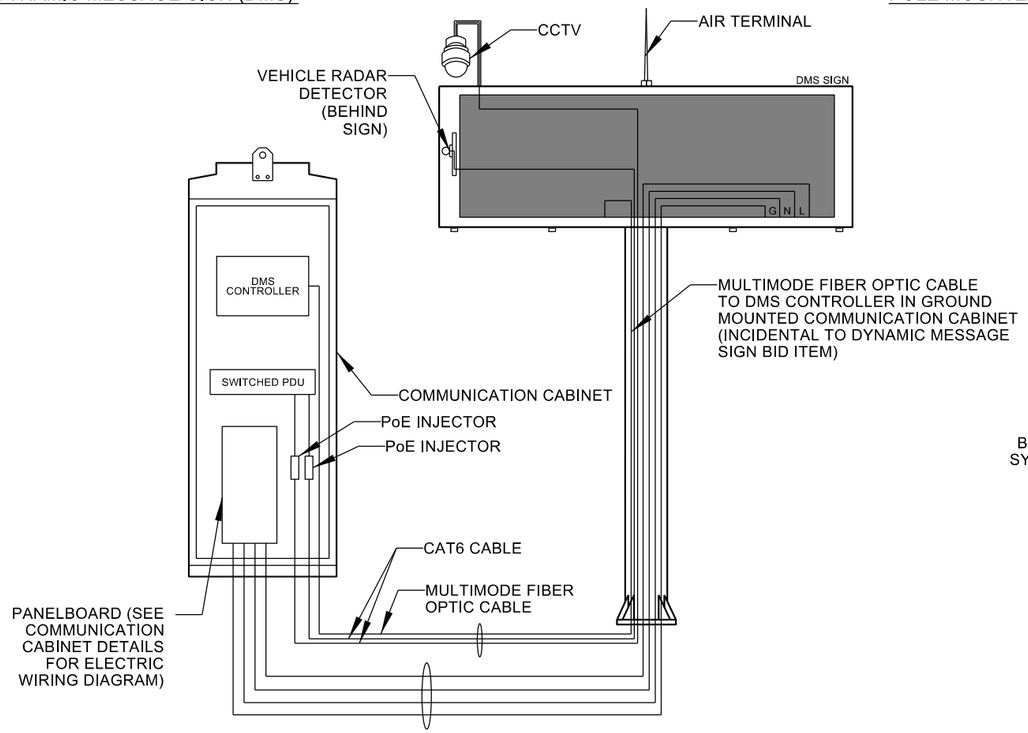
Plotting Date: 10/30/2026



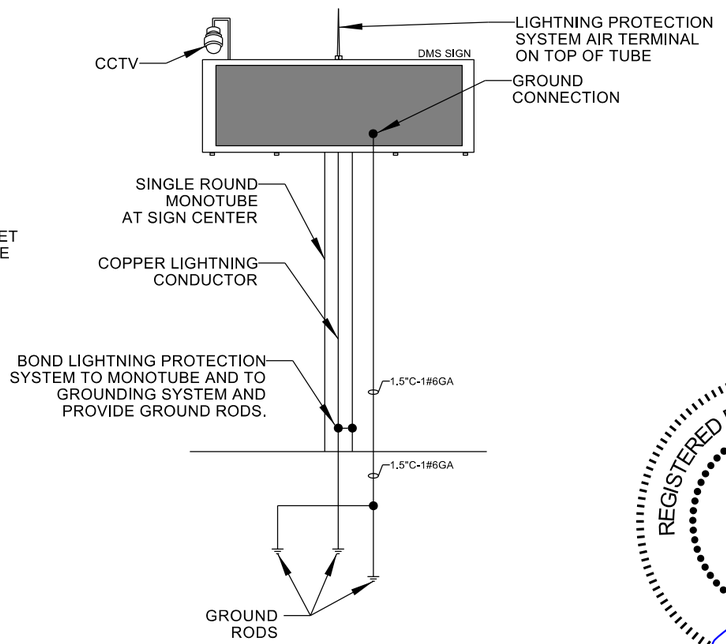
POLE MOUNTED DYNAMIC MESSAGE SIGN (DMS)
NO SCALE



POLE MOUNTED DYNAMIC MESSAGE SIGN (DMS) - ELECTRICAL PLAN
NO SCALE



POLE MOUNTED DYNAMIC MESSAGE SIGN (DMS) WITH COMM. CABINET - WIRING DIAGRAM
NO SCALE



POLE MOUNTED DYNAMIC MESSAGE SIGN (DMS) - GROUNDING DETAIL
NO SCALE

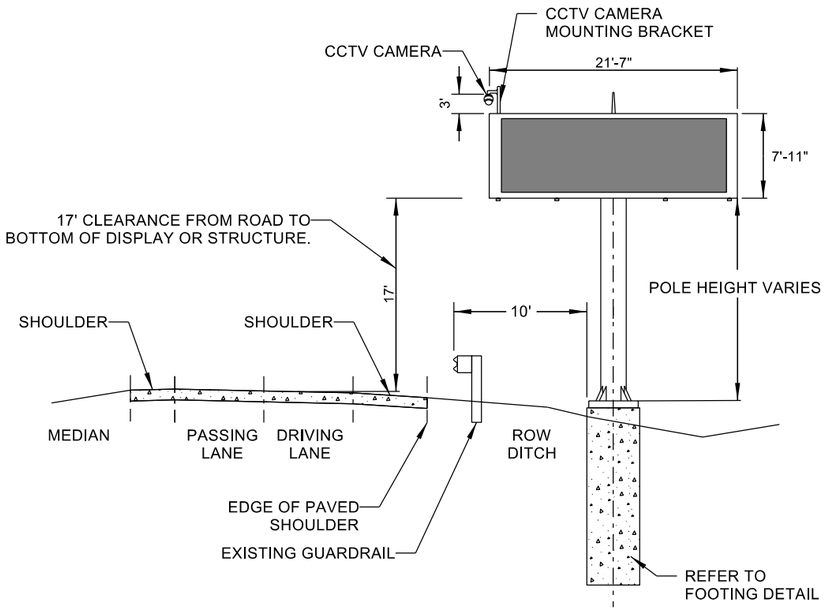
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

POLE MOUNTED DYNAMIC MESSAGE SIGN

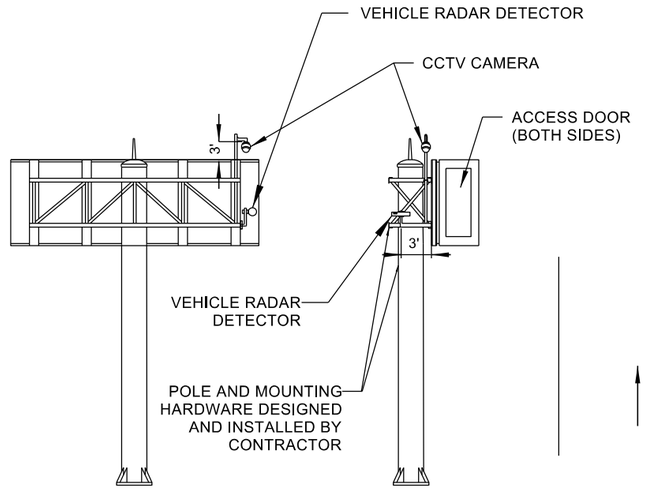
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	72	114

Plotting Date: 10/30/2026

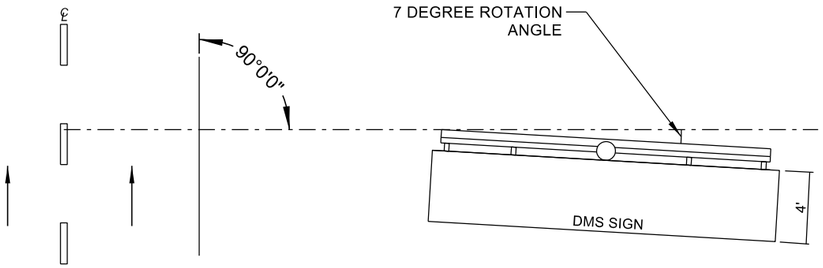


FRONT VIEW
NO SCALE

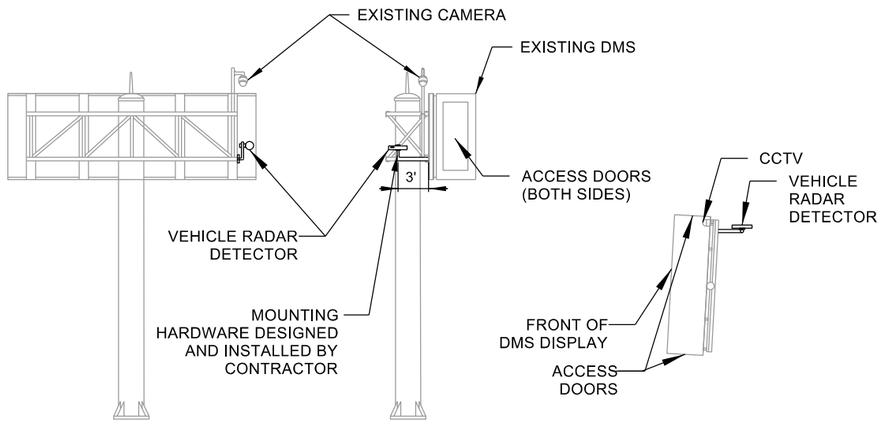


REAR VIEW
NO SCALE

SIDE VIEW
NO SCALE



TOP VIEW
NO SCALE

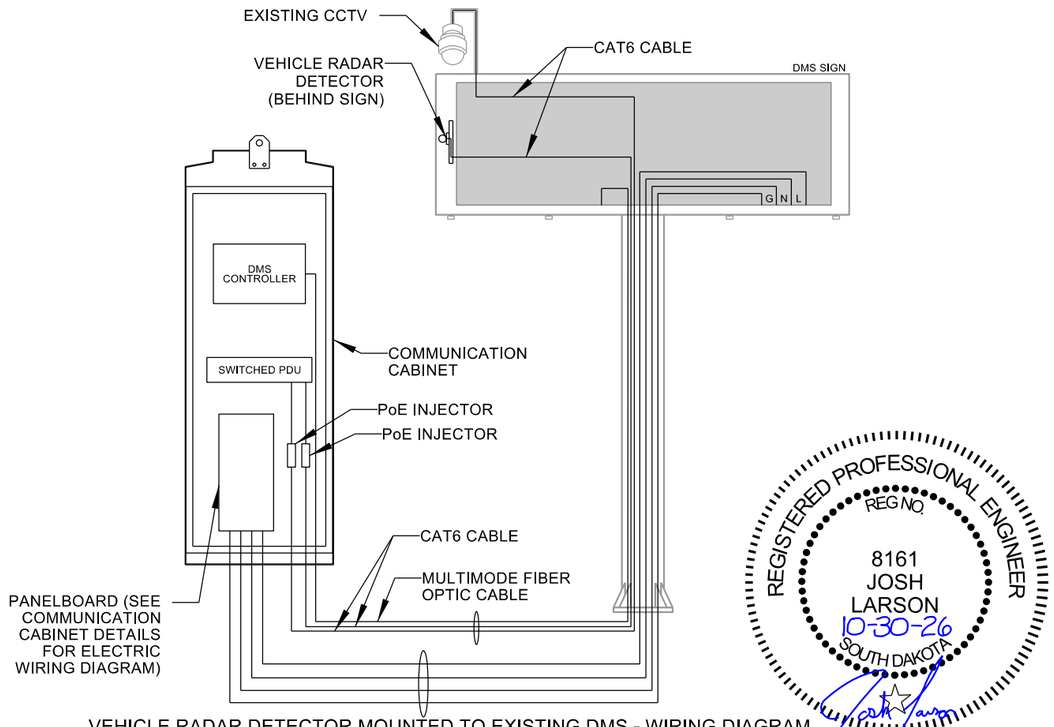


REAR VIEW
NO SCALE

SIDE VIEW
NO SCALE

TOP VIEW
NO SCALE

VEHICLE RADAR DETECTOR MOUNTED TO EXISTING DMS
NO SCALE



VEHICLE RADAR DETECTOR MOUNTED TO EXISTING DMS - WIRING DIAGRAM
NO SCALE

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	73	114

Plotting Date: 10/30/2026

SPECIFICATIONS-

1. Pole Design Specifications: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2015 Edition with 2022 interims.
   Footing Design Specifications: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Sixth Edition 2013 with 2019 interims.

2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-7-26 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at: https://dot.sd.gov/doing-business/contractors/standard-specifications

GENERAL NOTES-

1. The Dynamic Message Sign Footings will be drilled shafts constructed in accordance with the Special Provision for Cylindrical Concrete Footings.

2. Footing locations that contain sand and/or gravel or have high water tables are potential candidates for caving soils. If caving soils are encountered during excavation procedures it may be necessary to use temporary casing or drilling fluids to maintain an open excavation during concrete placement. The Contractor will be prepared to utilize the Temporary Casing Construction Method.

3. All exposed edges will be chamfered ¾". A suitable form will be used above the existing ground line and all exposed portions will be formed to present a neat appearance

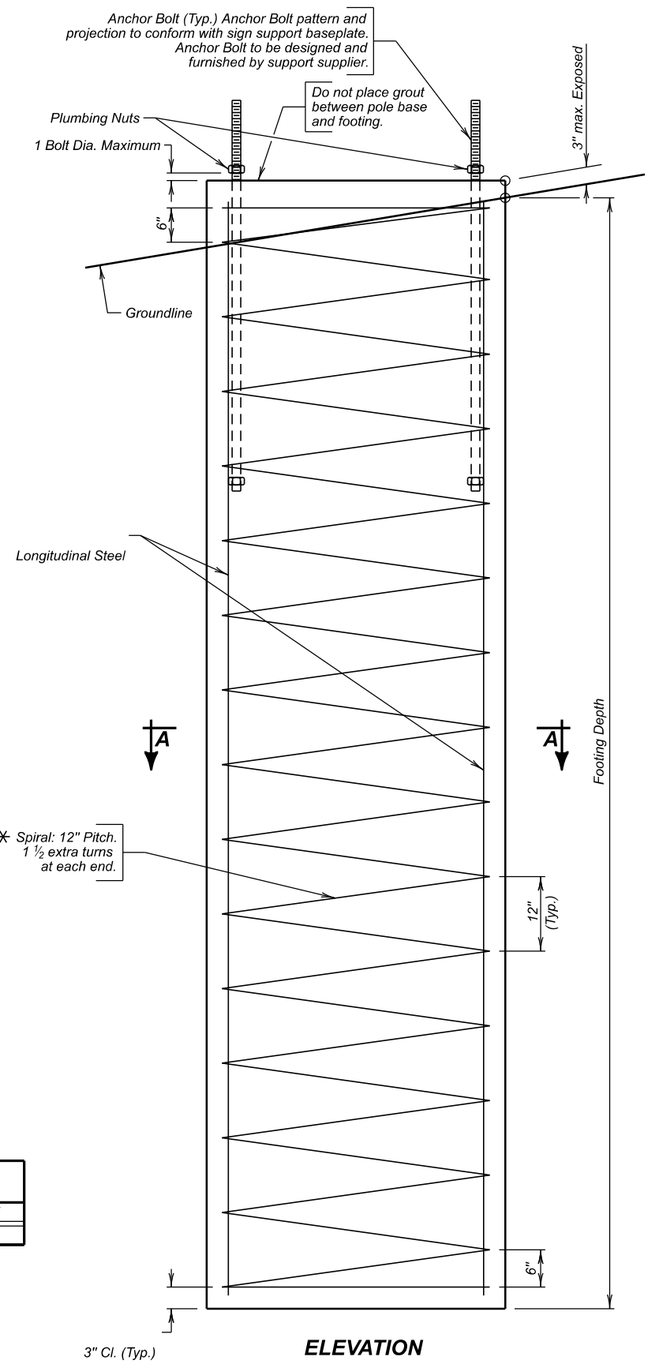
4. All reinforcing steel will conform to ASTM A615 Grade 60.

5. All concrete will be Class A45, Drilled Shaft.

6. Design Material Strengths: Concrete f 'c = 4500 psi
   Reinforcing Steel fy = 60000 psi

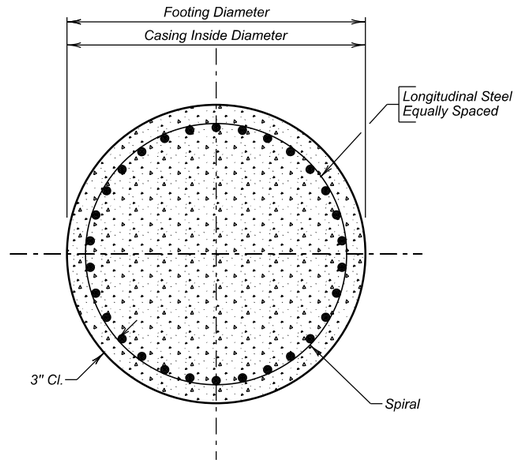
7. Payment for 5' Diameter DMS Footing will be full compensation for all Drilled Shaft Excavation; Class A45 Concrete, Drilled Shaft; Reinforcing Steel; disposal of all excavated material and surplus materials; and for labor, tools, equipment, and any incidentals necessary to complete this item of work.

8. A drilled shaft preconstruction meeting is required to be held prior to beginning construction of the Dynamic Message Sign cylindrical footings.

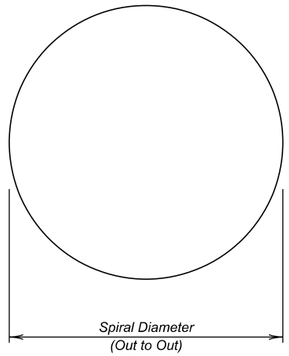


ELEVATION

SIGN NUMBER	SITE LOCATION	SUPPORT DESCRIPTION	FOOTING DIMENSIONS		LONGITUDINAL STEEL			ϕ SPIRAL STEEL			CONCRETE QUANTITY
			DIA.	DEPTH	NO.	SIZE	LENGTH	DIA.	SIZE	LENGTH	CU. YD.
DMS	I-90 EB -- Ah 590+71 - Lt.	Dyn. Message Sign	5' - 0"	16' - 0"	30	#9	15' - 6"	4' - 6"	#3	260' - 6"	11.6



SECTION A-A
(anchor bolts not shown)



ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
5' Diameter DMS Footing	Ft.	16

1. 11.6 Cu. Yds. Class A45 Concrete, Drilled Shaft in DMS Footings.
2. 1725 Lbs. Re-Steel in Sign Footings (including 47 lbs. for spacer bars.).
3. 11.4 Cu. Yds. Drilled Shaft Excavation for DMS Footings.

Items 1 thru 3 are approximate quantities contained in the above bid item and are for information only.

✳ Circular Ties may be used in lieu of Spiral Ties. The ties will be spaced 12" apart except for the top two which will be spaced 6" apart. The ties shall be lapped 20" which will be staggered around the cage.

ϕ Spirals - Use a 12" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design. Use 4 vertical spacer bars per footing. Spirals may be smooth bars. Bar length shown does not include splices.

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DETAILS
FOR
DMS FOOTING
CR 0901(194)28
PCN 05W7
MEADE COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AU	CHM	AU	Steve A. Johnson BRIDGE ENGINEER
MEAD05W7	05W7UA05		

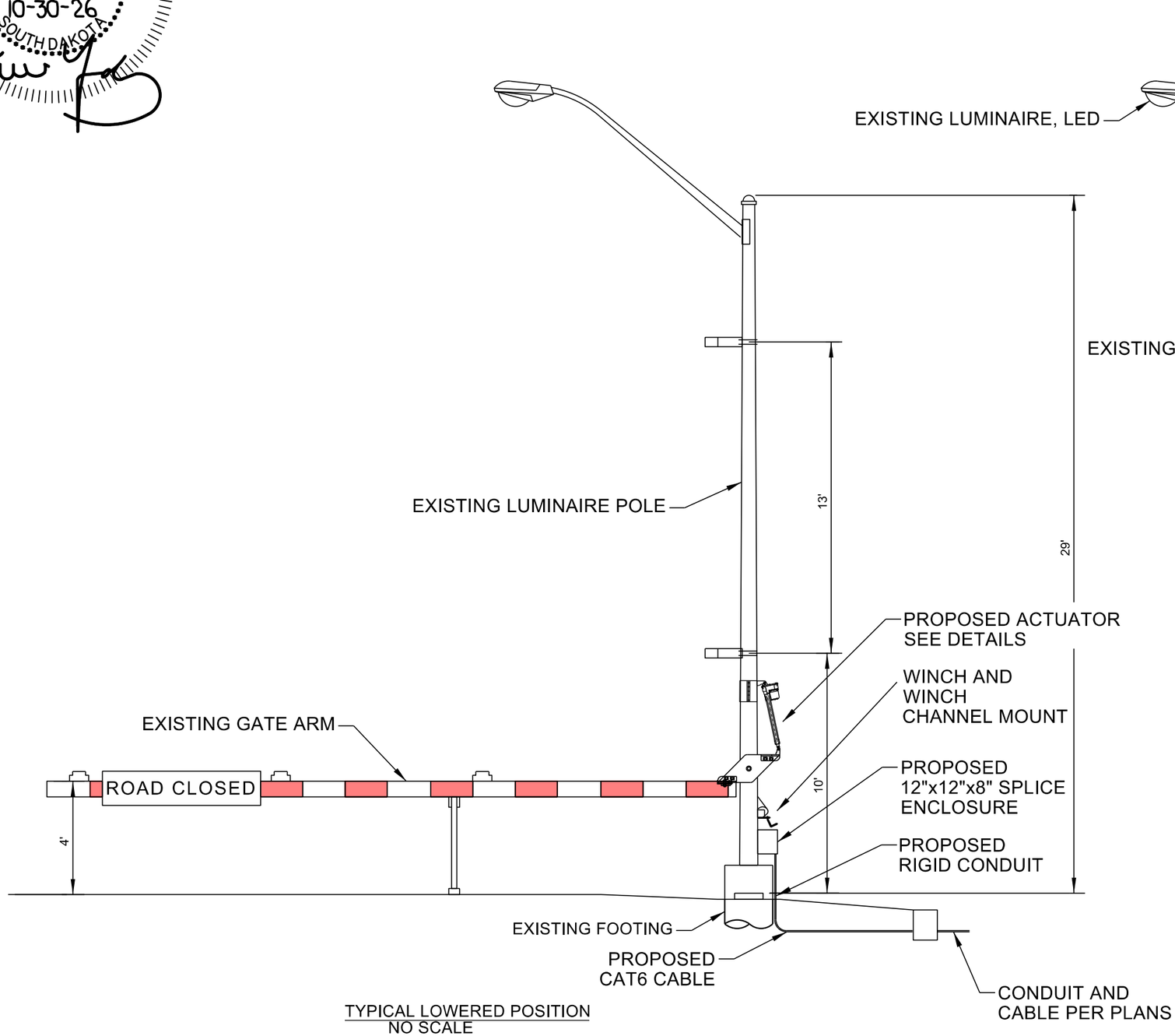
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
20276
TIMOTHY
YOUNG
10-30-26
SOUTH DAKOTA

ROAD CLOSURE GATE AUTOMATION DETAILS

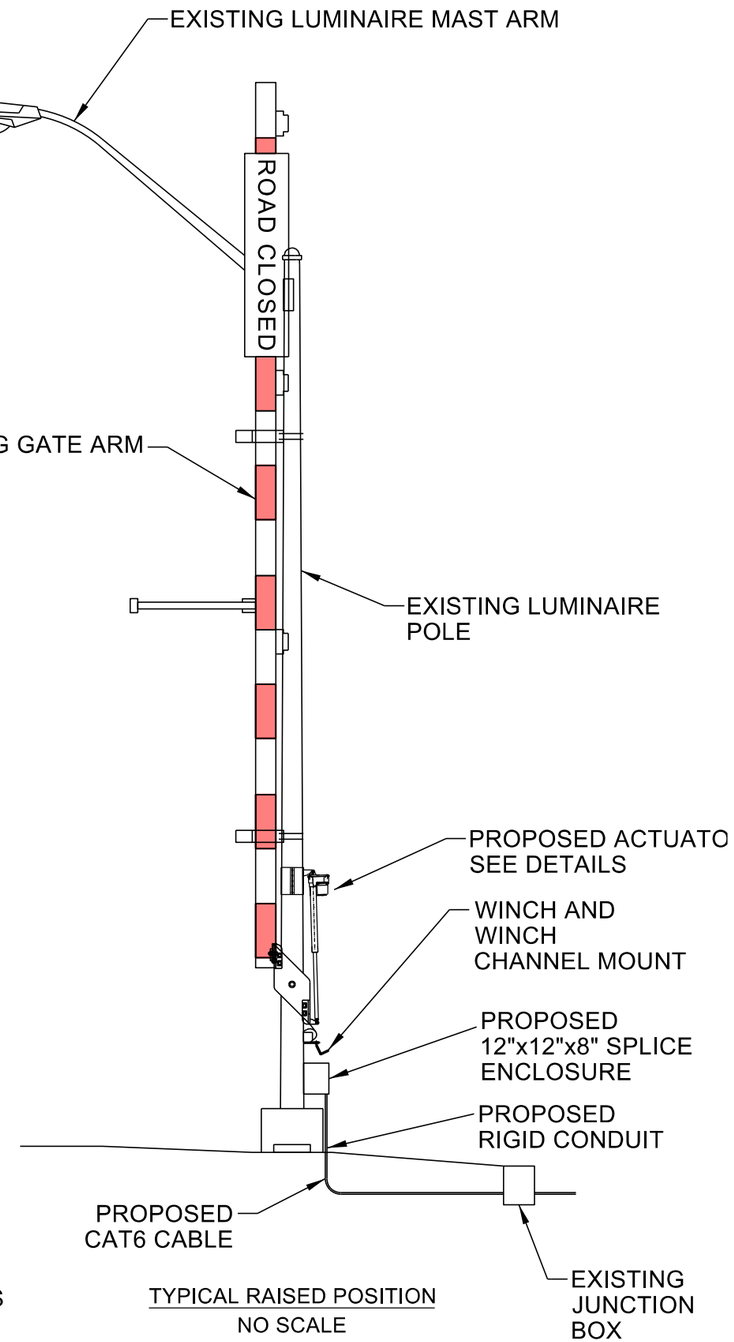
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	74	114

Plotting Date: 10/30/2026



TYPICAL LOWERED POSITION
NO SCALE



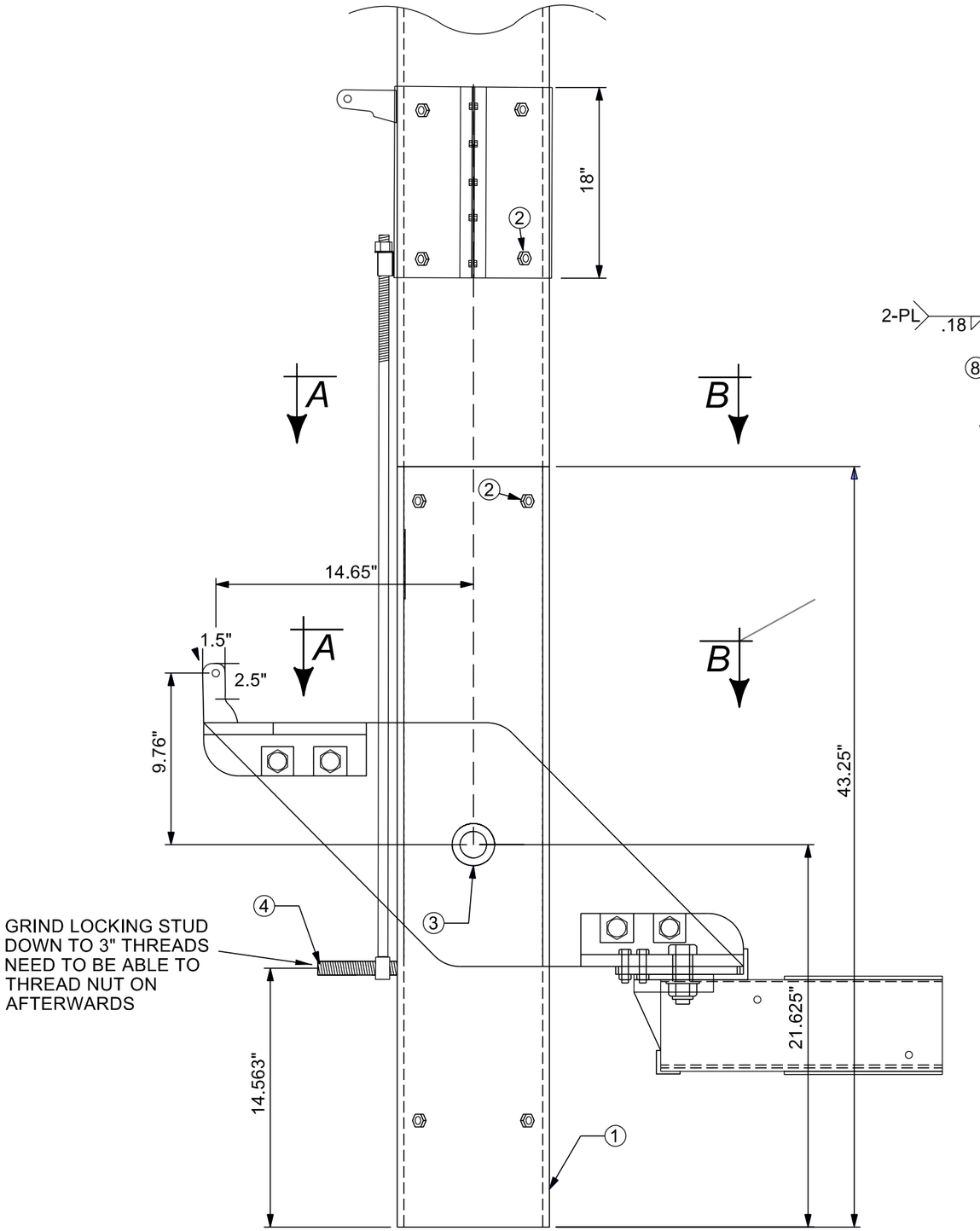
TYPICAL RAISED POSITION
NO SCALE

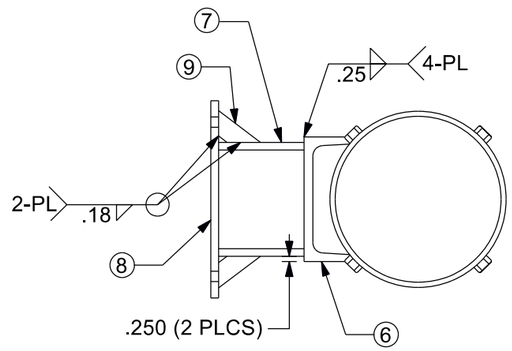
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	75	114

Plotting Date: 10/30/2026

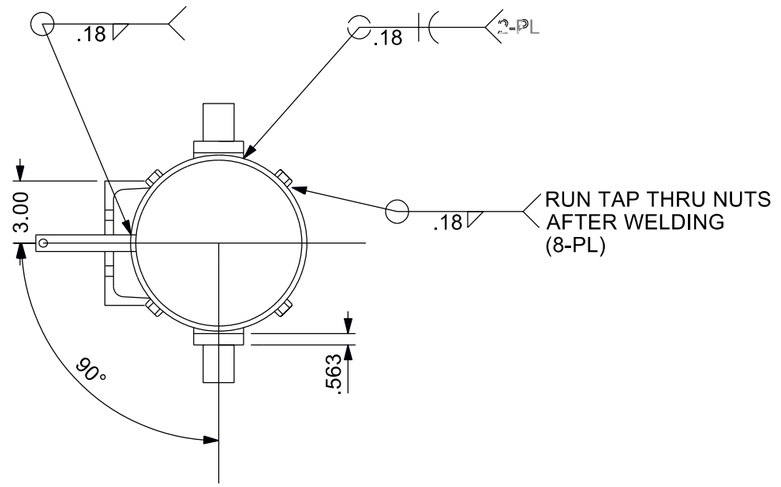
ROAD CLOSURE GATE PIVOT ASSEMBLY

FOR BIDDING PURPOSES ONLY





SECTION B-B



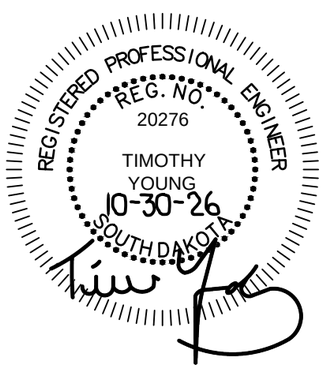
SECTION A-A

CHAMFER AND DEBURR ALL HOLES
BREAK ALL EDGES
STANDARD DECIMAL TOLERANCE = ±.030
STANDARD ANGLE TOLERANCE = ±2°

NOTES:

HOT DIP GALVANIZE AFTER FABRICATION.
ALL THREADS TO BE CLEANED AFTER GAVANIZING.

PARTS LIST		
ITEM NO.	QTY	DESCRIPTION
9	2	FLAT BAR, 3/8 X 2
8	1	FLAT BAR, 3/8 X 4
7	2	FLAT BAR, 3/8 X 4
6	1	CHANNEL, C6 X 13LB
5	1	WINCH MOUNT, CHANNEL
4	1	ALL THREAD BOLT
3	2	PIN
2	8	NUT, HEX 1/2-13, 2H-A194
1	1	PIPE SLEEVE



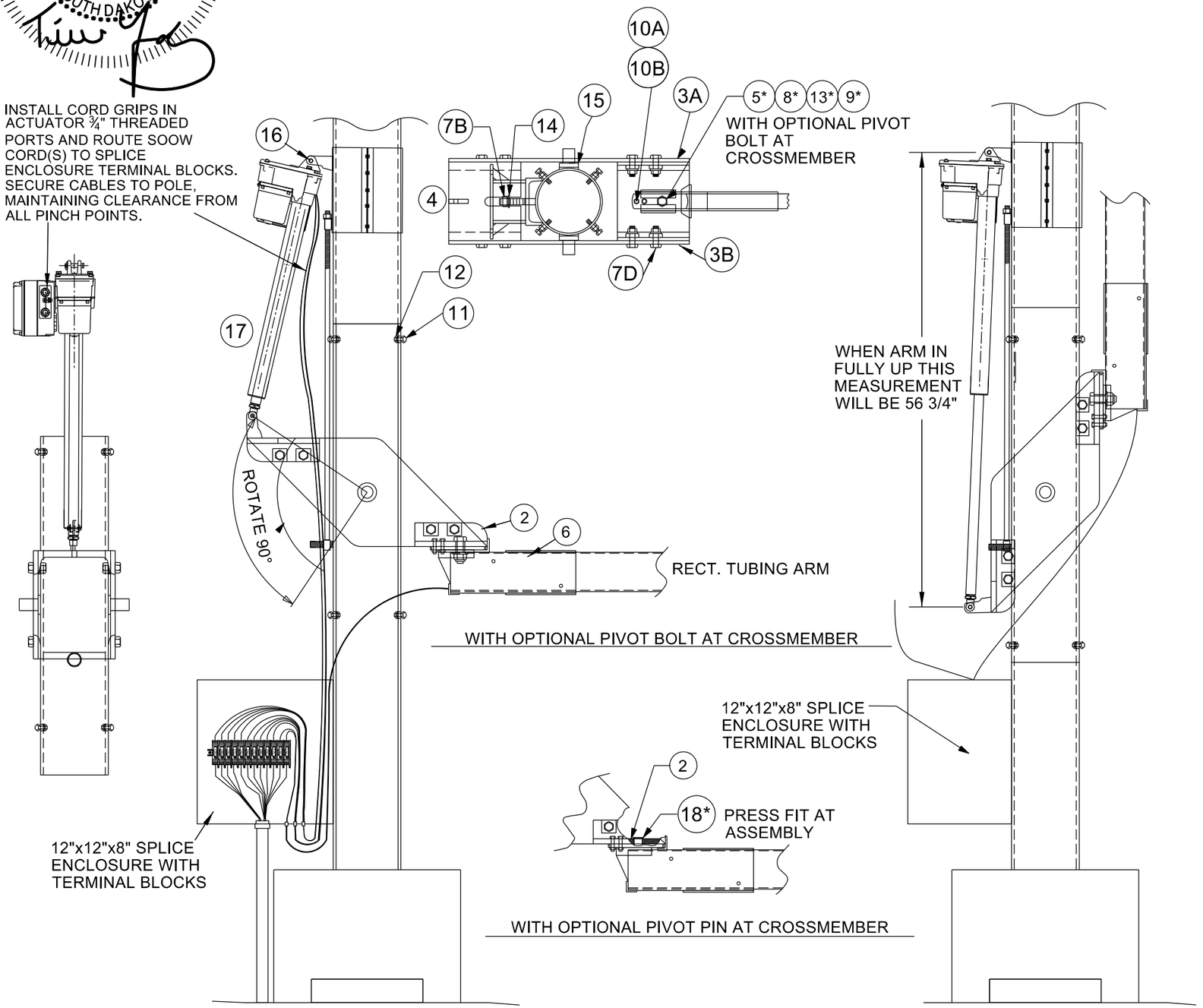
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	76	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

ROAD CLOSURE GATE PIVOT ASSEMBLY WITH ACTUATOR

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 20276
TIMOTHY YOUNG
10-30-26
SOUTH DAKOTA



PARTS LIST			
ITEM NO.	QTY	PART OR IDENTIFYING NO.	DESCRIPTION
1	1	0605-0553	PIVOT SLEEVE ASY, ACTUATOR
2	1	0605-0004-2	FRONT CROSSMEMBER
3A/3B	2	0605-004-1	SIDE ARM PLATES
4	1	0605-0530	BACK CROSSMEMBER
5*	1	0605-0531	ARM PIVOT BUSHING (OPTIONAL)
6	0	0160-0502	SHEAR PIN ARM BASE (FOR REFERENCE)
7A	8	BLTGA.75-10X2.2	BOLT, 3/4-10X2.5, A325, HD-GALV.
7B	9	NUTGA.75-10-H	NUT, 3/4-10, HEAVY HEX, HD GALV.
7C	8	LKWGA.75	WASHER, 3/4 ID, LOCK, HD-GALV.
7D	8	BVLWGA.75	WASHER, 3/4 ID, BEVEL, HD-GALV.
8*	1	BLTSS.75-10X2.7	BOLT, 3/4-10X2.75, SS NYLON (OPTIONAL)
9*	1	NUTSS.75-10-NY	NUT, 3/4-10, LOCK, SS NYLON (OPTIONAL)
10A	VAR**	BLT.38-16X1.75 SS	BOLT, 3/8-16X1.5, SS (SHEAR BOLT)
10B	VAR**	NUTSS.37-16	NUT, 3/8-16, LOCK, SS NYLON (FOR SHEAR BOLT)
11	8	BLTSS.5-13X2-FT	BOLT, 1/2-13X2, SS FULLY THREAD
12	8	NUTSS.5-13	NUT, HEX 1/2-13, 18-8SS
13*	1	FLWSS.075	FLATWASHER, 3/4 ID, SS (OPTIONAL)
14	1	FLW2GA.75	FLATWASHER, 3/4 ID HD-GALV.
15	4	FLWSS1.5X2.5	FLATWASHER, 1-1/2 ID X 2-1/2 OD, SS (SHIMS)
16	4	NUTGA.5-13	NUT, 1/2 GALVANIZED OVERSIZE
-	4	LKWGA.-5	LOCK WASHER, GALV. 1/2
-	4	BLTGA.5-13X1.75	BOLT, GALVANIZED A325, 1/2-13X1-3/4
17	1	XACT-24-EAGLE	LINEAR ACTUATOR, 750# 115V, 24 INCH STROKE, 1,500# BREAKWAY
18*	1	0605-004-4	PIN, PIVOT SHEAR PIN BASE (REPLACES PARTS #5, #8, #9, #13)

*OPTIONAL TO USE PIVOT PIN AT CROSSMEMBER IN LIEU OF PIVOT BOLT.
** VAR = VARIES PER ARM REQUIREMENTS

GENERAL NOTES:

1. ALL ROUGH EDGES AND BURRS WILL BE GROUND SMOOTH PRIOR TO GALVANIZING.
2. AFTER ASSEMBLY, ALL EXPOSED BOLT THREADS WILL BE PAINTED WITH TWO COATS OF ZINC PAINT CONFORMING WITH ASTM A780.
3. ALL BOLTS WILL BE ASTM F58, CLASS 4.6, UNLESS DESIGNATED AS HS, WHICH WILL CONFORM TO A325M.
4. TOP BOLT 5" LOWER THAN TOP BACK BOLTS.
5. CHANGED LOCATION FOR FRONT CROSSMEMBER TO CLEAR BOLT HEAD.

ASSEMBLY NOTES:

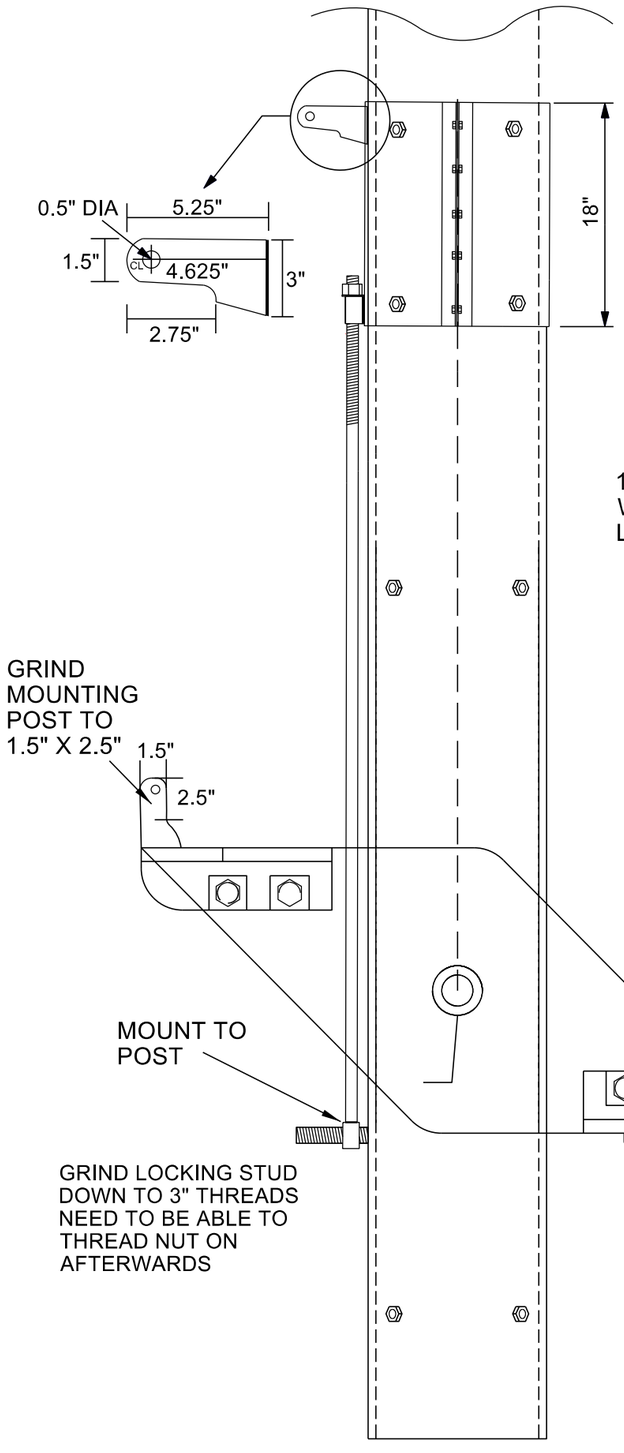
1. IN ORDER TO REMOVE EXCESS SLACK FROM PIVOT SLEEVE ASSEMBLY, PLACE THE NECESSARY QUANTITY OF SHIMS (#108) ON EACH PIVOT PIN OF THE PIVOT SLEEVE WELDMENT (#1).
2. TO ASSEMBLE PIVOT SLEEVE ASSEMBLY, PLACE (1)-SIDEARM PLATE (#3A) ON THE LEFT SIDE AND (1)-SIDEARM PLATE ON THE RIGHT SIDE OVER THE SHIMMED PIVOT PINS OF THE PIVOT SLEEVE (#1).
3. BOLT THE FRONT CROSSMEMBER (#2) AND THE BACK CROSSMEMBER (#4) TO THE SIDEARM PIVOT PLATES WITH FASTENERS (#7A, 7B, 7C, 7D) AS SHOWN IN THE DETAILS.
4. THREAD ON (1)-HEAVY HEX NUT, 10-$\frac{3}{4}$, GALV. (#7B) ALONG WITH (1)-FLATWASHER, $\frac{3}{4}$ ID, GALV. (#14) OVER THREADED STUD ON THE PIVOT SLEEVW. HAND TIGHTEN.
5. THREAD INTO 13-$\frac{1}{2}$ NUTS WELDED ON PIVOT SLEEVE (6)-BOLTS, 13-$\frac{1}{2}$ X 2 INCHES LONG, FULLY THREADED, GALV. (#11) HAND TIGHTEN.
6. ATTACHED THE SHEARPIN BASE COMPONENT (#6) OF THE ARM ASSEMBLY TO FRONT CROSSMEMBER WITH REQUIRED ALUMINUM SHEAR BOLTS, 16-$\frac{3}{8}$ (#10A) & 6-$\frac{3}{8}$ LOCK NUTS (#10B) ALONG WITH BUSHING, BOLT, NUT & WASHERS (#5) (#8) (#9) (#13).
7. ARMS 24'-0" OR LONGER REQUIRE (2)-SHEAR BOLTS WITH LOCKING NUTS. ARMS LESS THAN 24'-0" REQUIRE (1)-SHEAR BOLT WITH A LOCKING NUT.

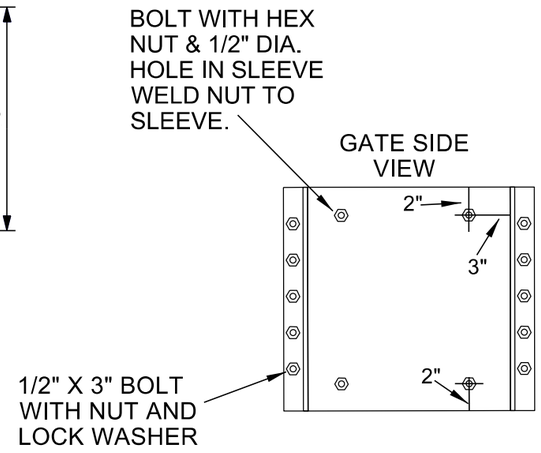
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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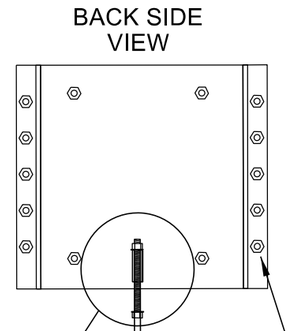
Plotting Date: 10/30/2026

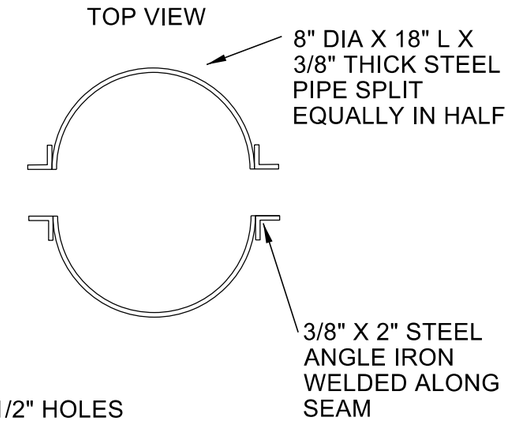
FOR BIDDING PURPOSES ONLY

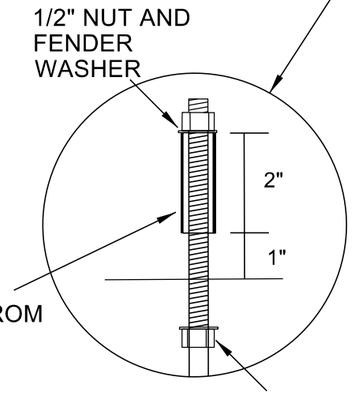
ROAD CLOSURE GATE ACTUATOR TOP MOUNTING BRACKET DETAIL

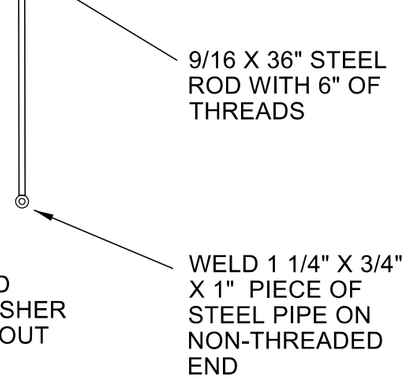






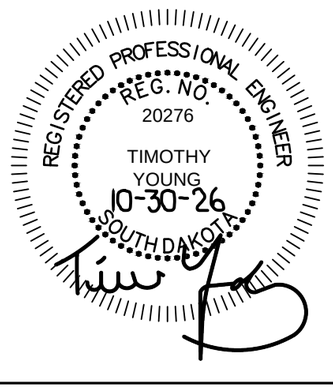






NOTES

- ALL STEEL SHALL BE PAINTED OR GALVANIZED
- SDDOT REPRESENTATIVE NEEDS TO PRESENT DURING INSTALLATION AND TESTING
- ALL MOUNTING HARDWARE SHALL BE GRADE 5 GALVANIZED



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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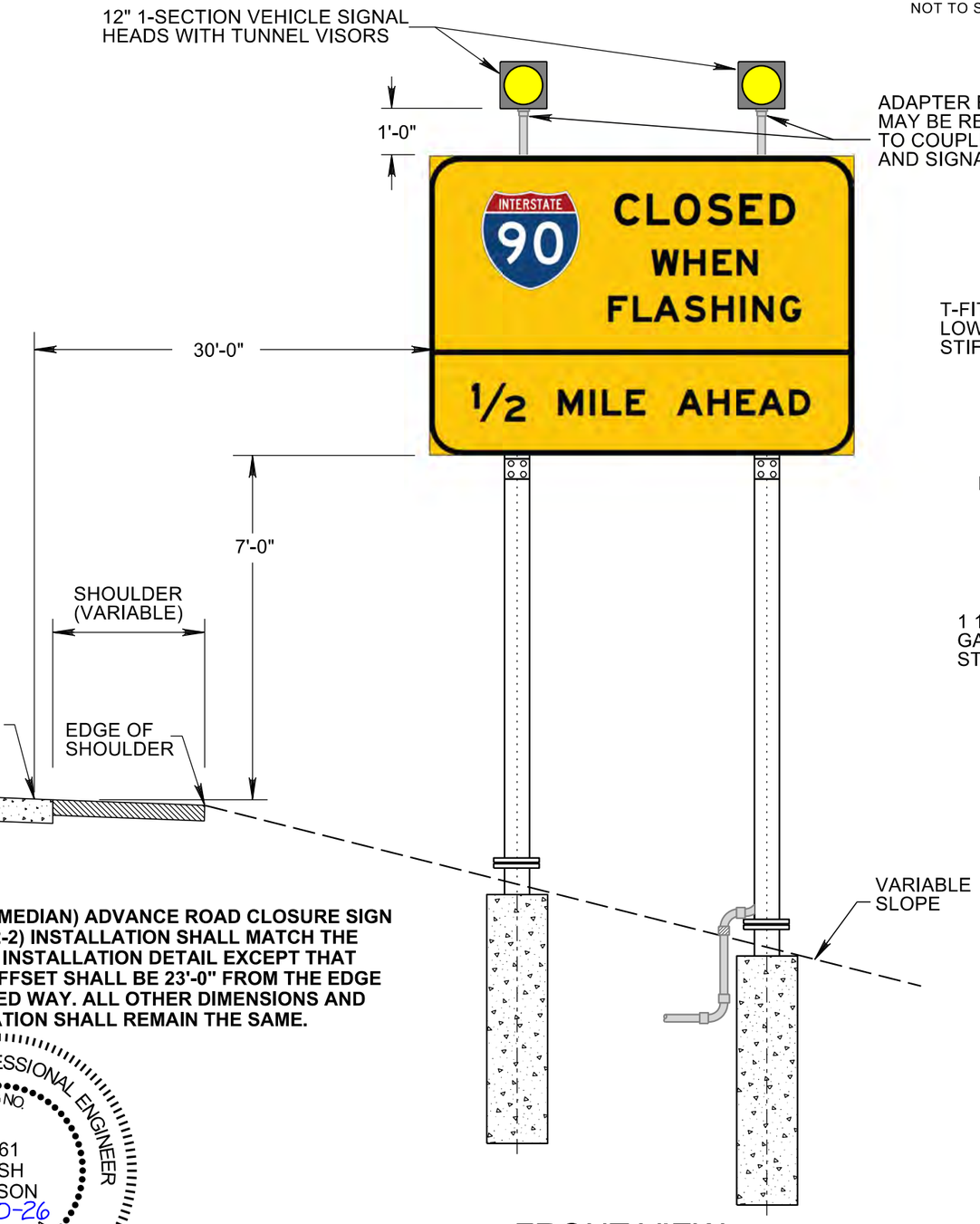
Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

ERECTION DETAILS FOR INTERSTATE HIGHWAY SIGNS

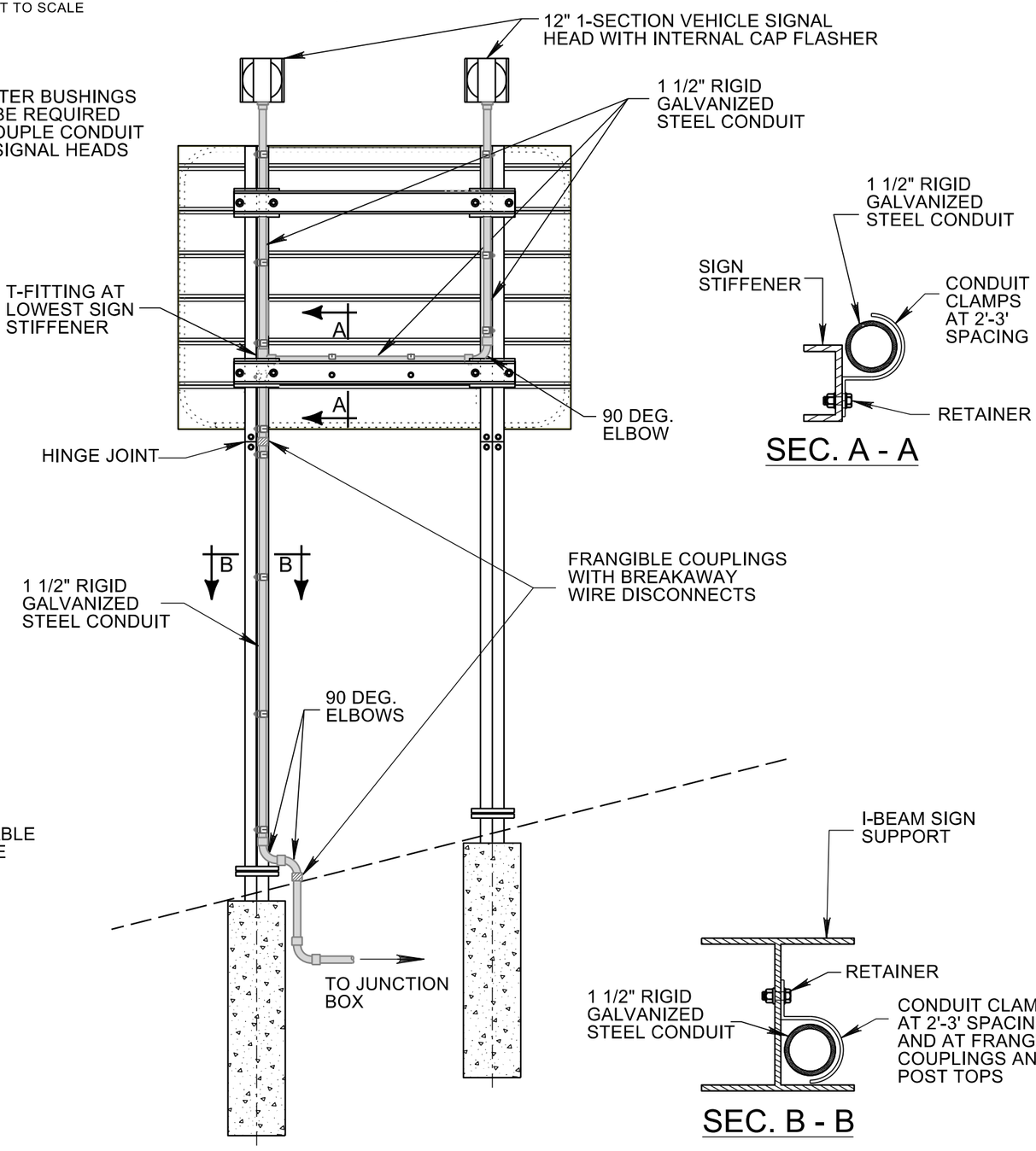
ADVANCE AND EXIT INTERSTATE CLOSURE SIGNING (TYPICAL)

NOT TO SCALE



FRONT VIEW

NO SCALE



REAR VIEW

NO SCALE

(REAR I-BEAM FLANGES NOT SHOWN)

SEC. A - A

SEC. B - B

NOTE:
LEFT-SIDE (MEDIAN) ADVANCE ROAD CLOSURE SIGN (ARCS 1-2, 2-2) INSTALLATION SHALL MATCH THE RIGHT-SIDE INSTALLATION DETAIL EXCEPT THAT THE SIGN OFFSET SHALL BE 23'-0" FROM THE EDGE OF TRAVELED WAY. ALL OTHER DIMENSIONS AND CONFIGURATION SHALL REMAIN THE SAME.

REGISTERED PROFESSIONAL ENGINEER
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10-30-26
SOUTH DAKOTA

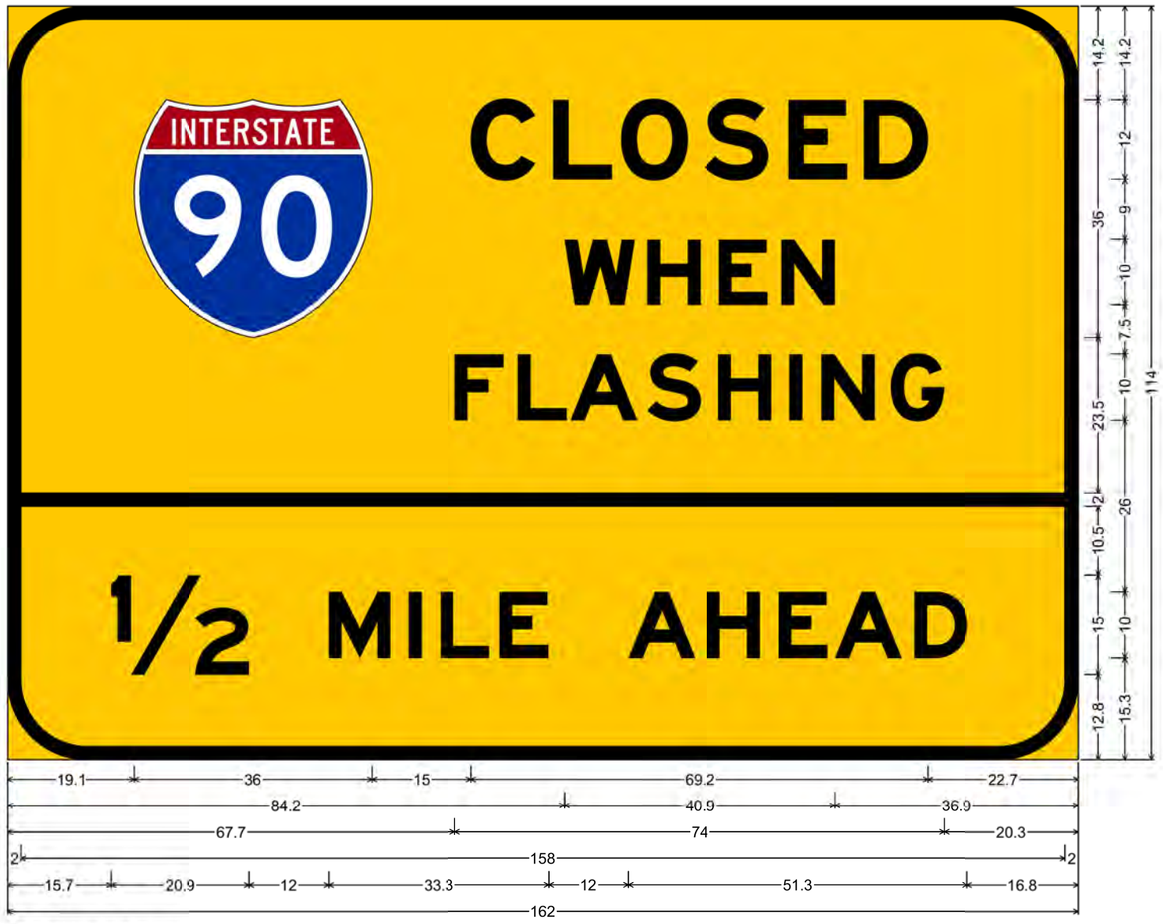
SPECIAL SIGN DETAILS

FOR BIDDING PURPOSES ONLY

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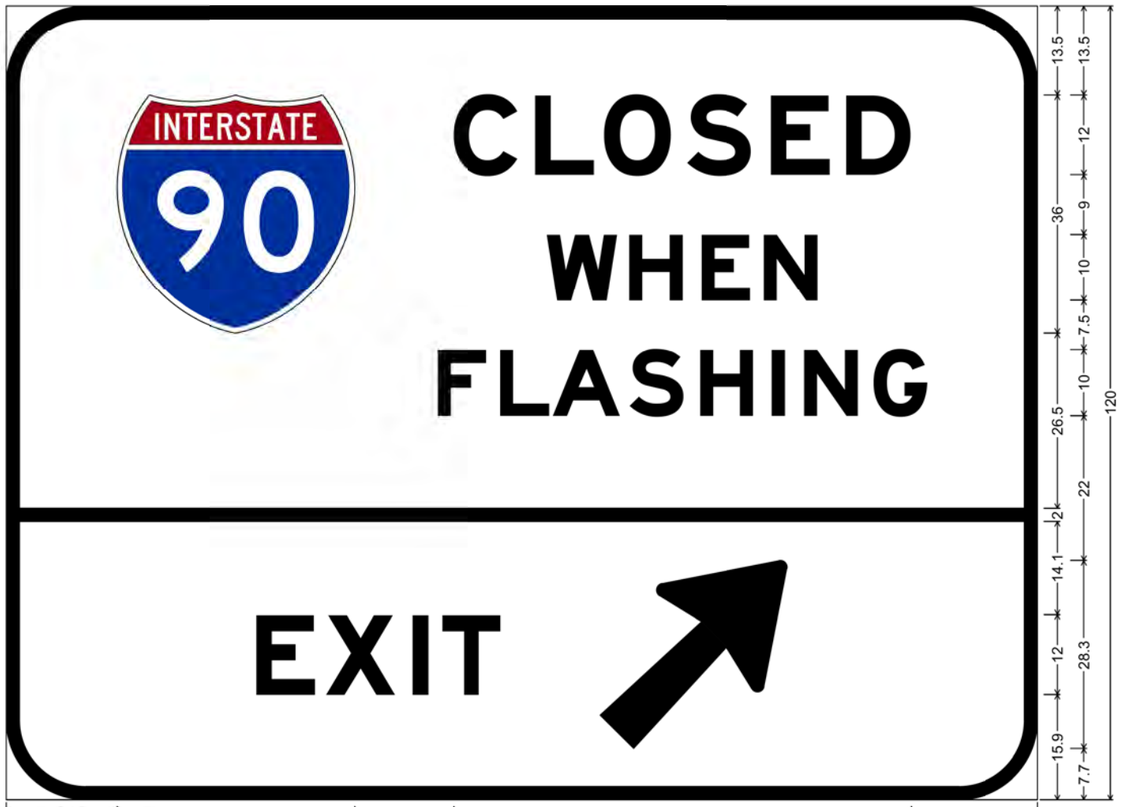
ARCS 1-1, 1-2, 2-1 & 2-2



12.0" Radius, 2.0" Border, Black on Yellow;
"CLOSED", E Mod 2K; "WHEN", E Mod 2K; "FLASHING", E Mod 2K; "½", E Mod 2K; "MILE AHEAD", E Mod 2K;
Table of letter and object lefts

19.1	C 70.1	L 82.5	O 92.8	S 105.4	E 118.1	D 129.5
W 84.2	H 96.6	E 107.5	N 117.0			
F 67.7	L 77.2	A 85.2	S 96.8	H 107.4	I 118.3	N 123.1	G 133.6
— 2.0						
½ 15.7	M 48.6	I 60.7	L 65.5	E 74.5	A 93.9	H 105.8	E 116.7	A 125.2	D 137.1

RCS 1 & 2



12.0" Radius, 2.0" Border, Black on White;
"CLOSED", E Mod 2K; "WHEN", E Mod 2K; "FLASHING", E Mod 2K; "EXIT", E Mod 2K; Arrow Custom - 36.0" 45°;
Table of letter and object lefts

16.7	C 67.7	L 80.1	O 90.4	S 103.0	E 115.7	D 127.1	
W 81.8	H 94.2	E 105.1	N 114.6				
F 65.3	L 74.8	A 82.8	S 94.4	H 105.0	I 115.9	N 120.7	G 131.2
E 37.9	X 48.4	I 61.4	T 65.9	↗ 89.8			
— 2.0							

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	80	114

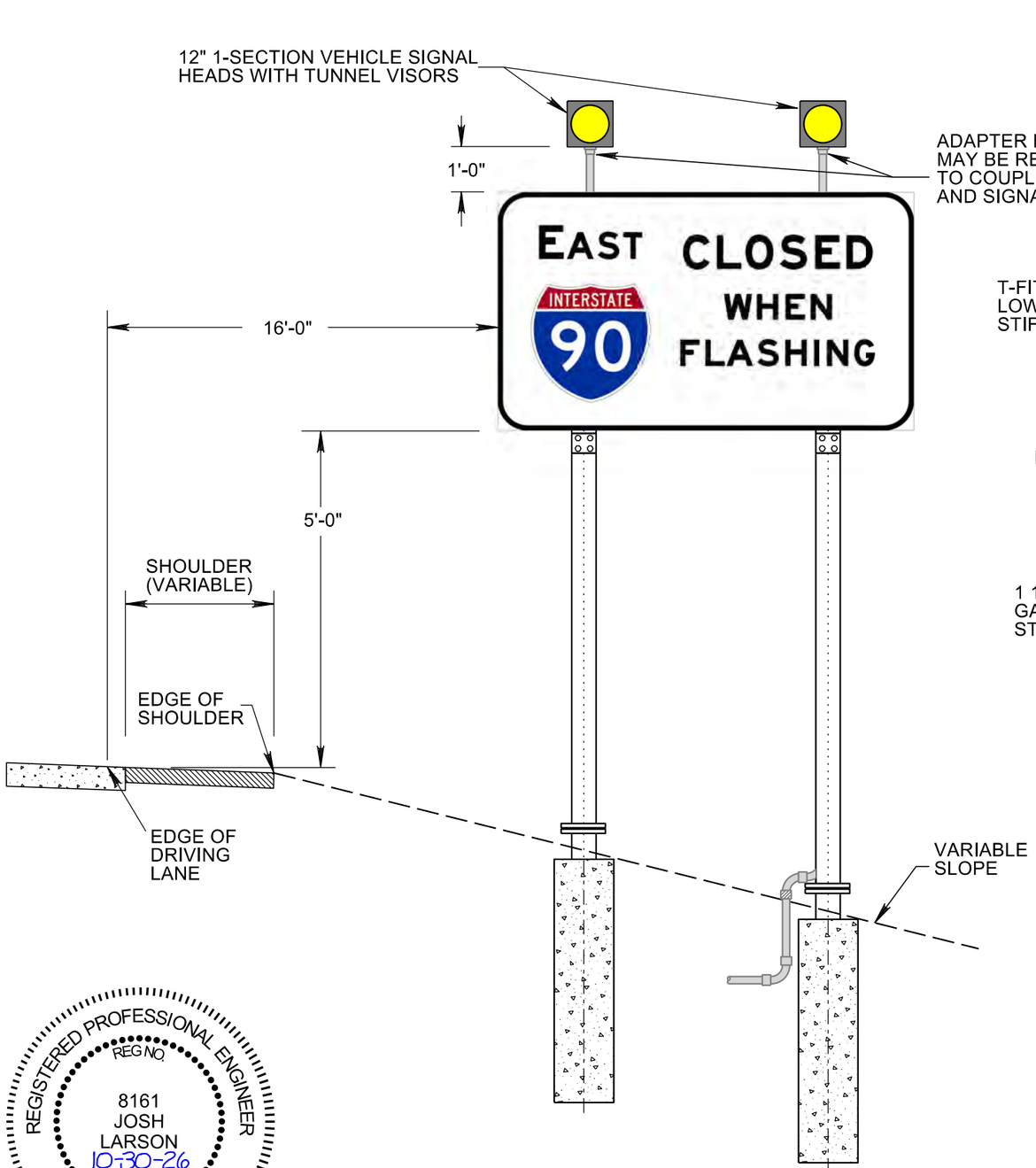
Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

ERECTION DETAILS FOR INTERSTATE HIGHWAY SIGNS

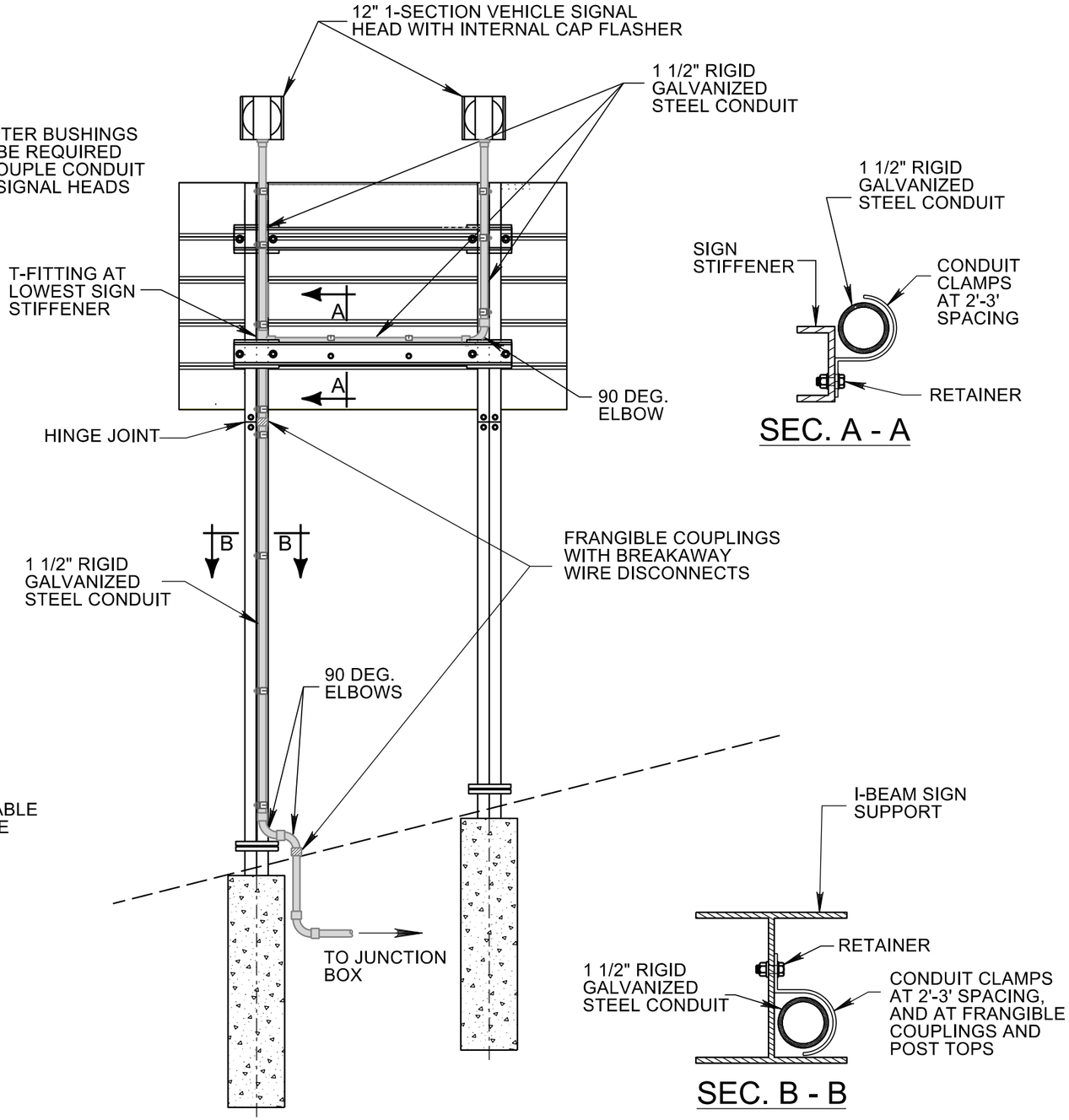
RAMP INTERSTATE CLOSURE SIGNING (TYPICAL)

NOT TO SCALE



FRONT VIEW

NO SCALE



REAR VIEW

NO SCALE

(REAR I-BEAM FLANGES NOT SHOWN)

SEC. A - A

SEC. B - B

REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

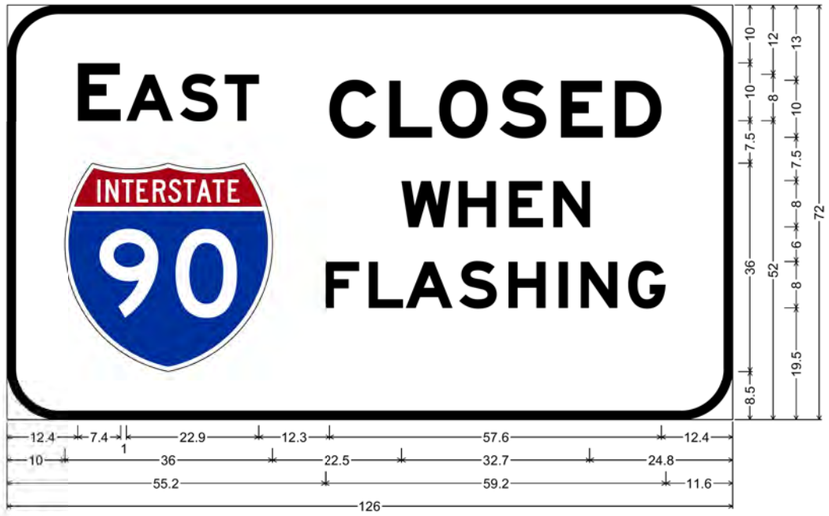
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	81	114

Plotting Date: 10/30/2026

SPECIAL SIGN DETAILS

FOR BIDDING PURPOSES ONLY

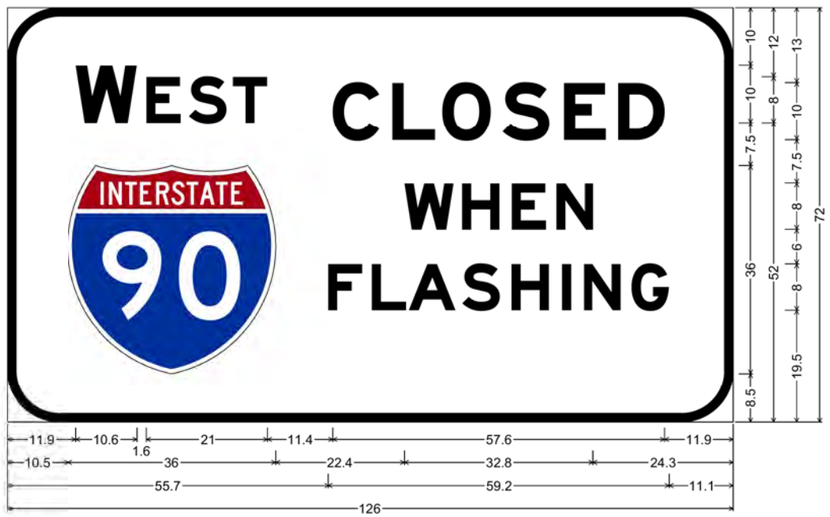
RRCS 2,RRCS 4,RRCS 6



9.0" Radius, 1.5" Border, Black on White;
"EAST", E Mod 2K; "CLOSED", E Mod 2K; "WHEN", E Mod 2K; "FLASHING", E Mod 2K;
Table of letter and object lefts

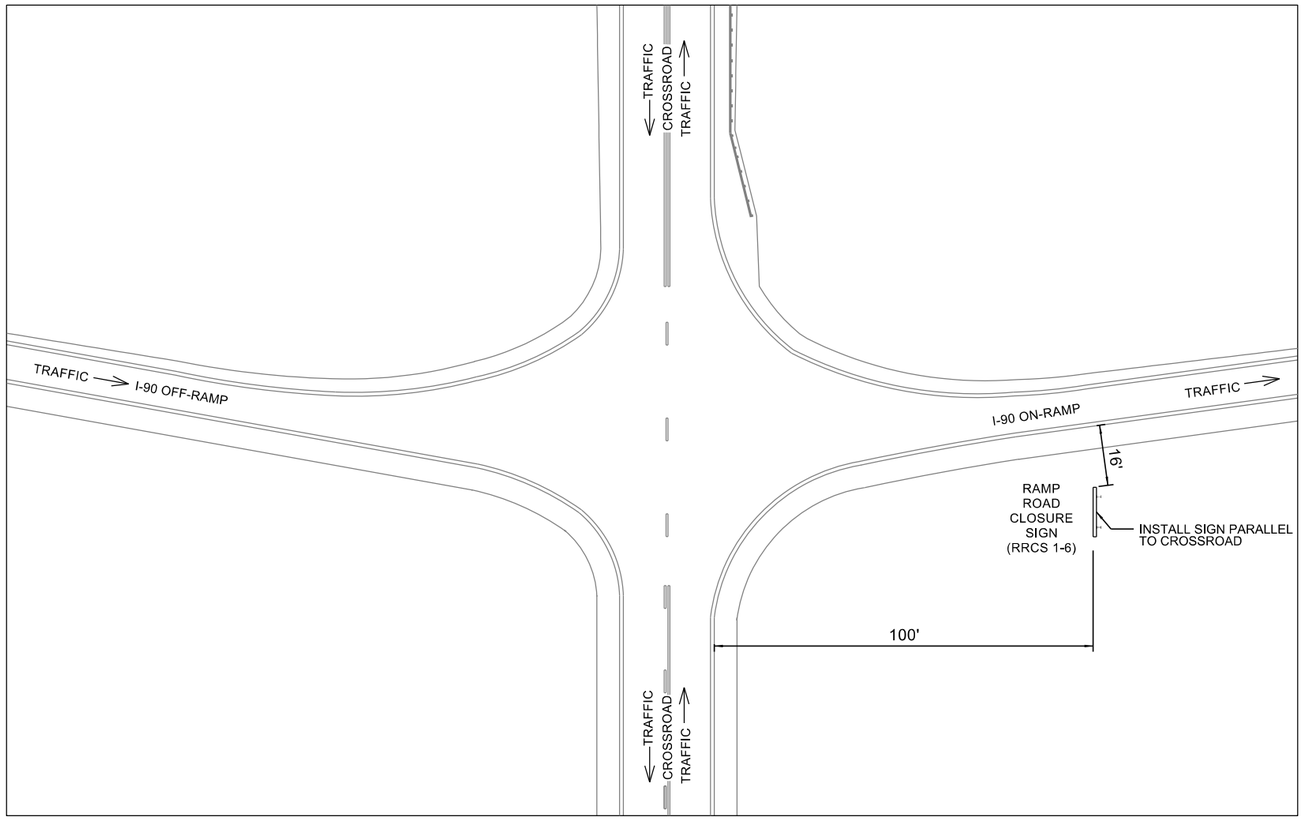
E	A	S	T	C	L	O	S	E	D	
12.4	20.8	30.1	37.7	56.0	66.3	74.9	85.4	96.0	105.5	
	W	H	E	N						
10.0	68.5	78.4	87.1	94.7						
F	L	A	S	H	I	N	G			
55.2	62.8	69.2	78.5	87.0	95.7	99.5	107.9			

RRCS1,RRCS 3,RRCS 5



9.0" Radius, 1.5" Border, Black on White;
"WEST", E Mod 2K; "CLOSED", E Mod 2K; "WHEN", E Mod 2K; "FLASHING", E Mod 2K;
Table of letter and object lefts

W	E	S	T	C	L	O	S	E	D	
11.9	24.1	31.5	39.2	56.5	66.8	75.4	85.9	96.5	106.0	
	W	H	E	N						
10.5	68.9	78.9	87.6	95.2						
F	L	A	S	H	I	N	G			
55.7	63.3	69.7	79.0	87.5	96.2	100.0	108.4			



RAMP ROAD CLOSURE SIGN (RRCS 1-6) - TYPICAL SITE LAYOUT
EASTBOUND AND WESTBOUND ON-RAMP DETAIL



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	82	114

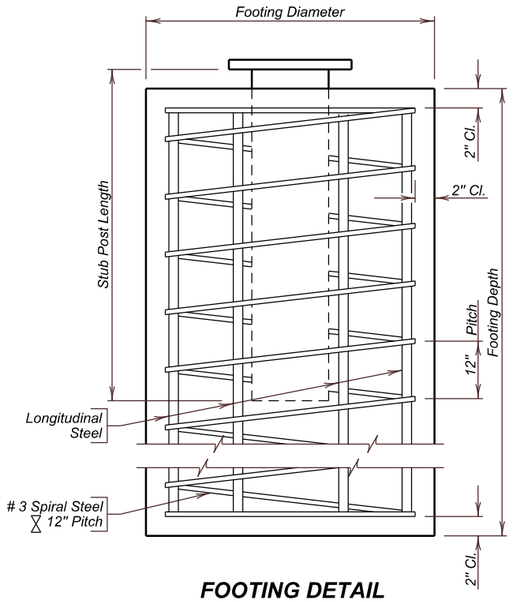
Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

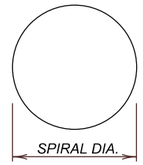
SITE LOCATION	POST SIZE	FOOTING DIMENSIONS		STUB POST LENGTH	LONGITUDINAL STEEL QUANTITIES			# SPIRAL STEEL QUANTITIES	
		DIA.	DEPTH		NO.	SIZE	LENGTH	DIA.	LENGTH
SEE GENERAL NOTES FOR FOOTING INFORMATION									

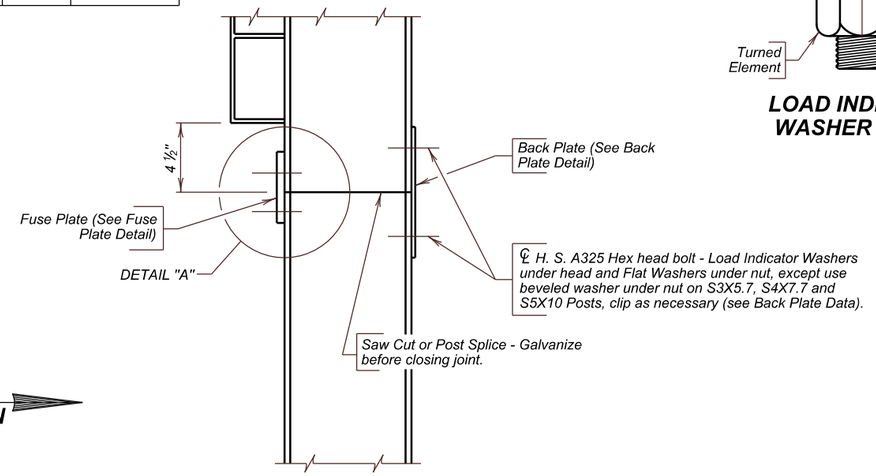
⧖ # Spirals - Use 12" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design, Spirals may be smooth bars, Bar length shown does not include Splices. Dimensions are out to out of bars.

NOTE:
The above is a Site Specific data entry table and the inserted information is the responsibility of the Region Traffic Engineer.



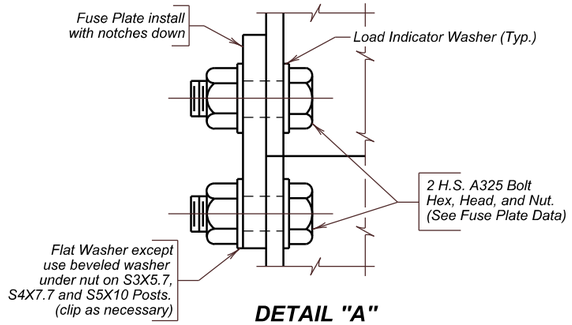
FOOTING DETAIL



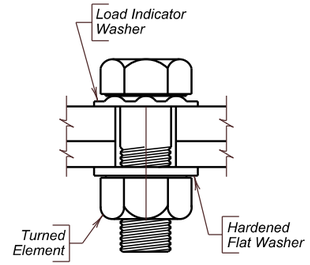


TRAFFIC DIRECTION

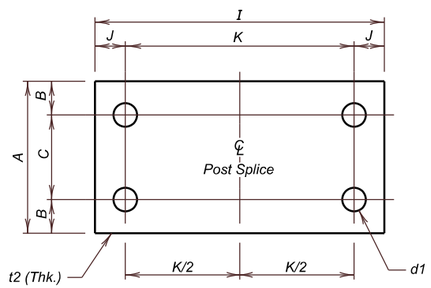
FUSE & BACK PLATE INSTALLATION



DETAIL "A"



LOAD INDICATOR WASHER DETAIL



BACK PLATE DETAIL

NOTES

1. Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2013 Edition with Interims through 2022.
2. Concrete Footings will be Class M6 - fc = 4000 p. s. i.
3. Structural Steel will comform to ASTM A36.
4. All Reinforcing Steel, except spirals, will conform to ASTM 615 Grade 60.
5. Spiral Reinforcing Steel may be fabricated from cold drawn wire ASTM A1064, or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.
6. All Bolts and Nuts will conform to ASTM A325 except that ½" diameter bolts may conform to either ASTM A325 or ASTM A449. Washers will conform to ASTM F436. All hardware will be galvanized in accordance with ASTM F2329.
7. All structural steel including Posts and Post Stubs will be galvanized in accordance with ASTM A123.
8. All Bolt Holes will be drilled. All plate cuts will preferably be saw cuts. However, Flame Cutting will be permitted providing all edges are ground smooth (metal projecting beyond the plane of the plate face will NOT be allowed).
9. All welding and weld inspection will be in accordance with the latest edition of AWS D 1.5 Structural Welding Code.

PROCEDURE FOR ASSEMBLING SLIP BASE

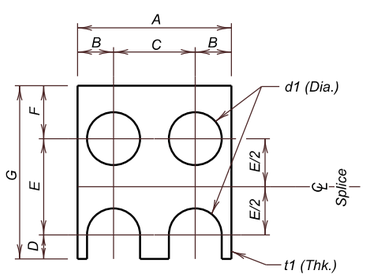
1. Place galvanized Sheet Metal Diaphrams on top of the lower slip plate.
2. Connect main post to Stub Post with clean unlubricated bolts and nuts with one Hardened Washer on each bolt between slip plates.
3. Plumb post by adding shims between slip plates.
4. Tighten bolts to a practical maximum, using a 12" - 15" wrench in order to bed surfaces and clean threads. DO NOT TIGHTEN TO PROOF LOAD.
5. Loosen all bolts and retighten in increments, using a systematic order, until each bolt has been tightened to the specified torque corresponding to the post size used (See Slip Base Plate Data). Tighten bolts only to the torque specified. DO NOT OVERTIGHTEN. Check torque on each bolt after entire sign has been erected.

ASSEMBLY OF FRICTION FUSE PLATES, BACK PLATES AND STIFFENERS

High strength bolts will be tightened so as to obtain a residual tension by the use of load indicator washers.

SHOP PLANS

The fabricator will submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals will be sent to the Office of Bridge Design. Include design and check design, if applicable, with initial submittal.



FUSE PLATE DETAIL

TABLE 1 - FUSE PLATE DATA

Post Size	A	B	C	D	E	F	G	d1	t1	Bolt Size
S3X5.7	2 5/8"	9/16"	1 1/2"	1/2"	1 1/2"	1 1/8"	3 1/8"	5/8" Ø	1/4"	1/2" Ø
S4X7.7	2 5/8"	9/16"	1 1/2"	1/2"	1 1/2"	1 1/8"	3 1/8"	5/8" Ø	1/4"	1/2" Ø
S5X10	3"	11/16"	1 5/8"	5/8"	2 1/4"	1 1/8"	4"	3/4" Ø	3/8"	5/8" Ø
W6X12	4"	15/16"	2 1/8"	3/8"	2 1/2"	1 3/8"	4 1/2"	3/4" Ø	3/8"	3/8" Ø
W6X15	6"	1 3/8"	3 1/4"	5/8"	2 1/2"	1 3/8"	4 1/2"	3/4" Ø	3/8"	5/8" Ø
W6X20	6"	1 3/8"	3 1/4"	5/8"	2 1/2"	1 3/8"	4 1/2"	3/4" Ø	3/8"	5/8" Ø
W8X18	5 1/4"	1 5/16"	2 5/8"	3/4"	2 1/2"	1 3/8"	4 5/8"	7/8" Ø	1/2"	3/4" Ø
W8X21	5 1/4"	1 5/16"	2 5/8"	3/4"	2 1/2"	1 3/8"	4 5/8"	7/8" Ø	1/2"	3/4" Ø
W8X24	6 1/2"	1 1/2"	3 1/2"	7/8"	3"	1 5/8"	5 1/2"	1" Ø	9/16"	7/8" Ø
W8X28	6 1/2"	1 9/16"	3 3/8"	7/8"	3"	1 3/4"	5 5/8"	1" Ø	1/2"	7/8" Ø
W8X31	8"	1 7/8"	4 3/4"	1"	3 1/2"	2"	6 1/2"	1 1/8" Ø	5/8"	1" Ø
W10X33	8"	1 7/8"	4 1/4"	1 1/8"	4 1/2"	2 1/4"	7 7/8"	1 1/4" Ø	3/4"	1 1/8" Ø

TABLE 5 - BACK PLATE DATA

Post Size	A	B	C	J	K	I	d1	t2	Bolt Size
S3X5.7	2 5/8"	9/16"	1 1/2"	1 1/4"	4 1/2"	7"	5/8" Ø	1/4"	1/2" Ø
S4X7.7	2 5/8"	9/16"	1 1/2"	1 1/4"	4 1/2"	7"	5/8" Ø	1/4"	1/2" Ø
S5X10	3"	11/16"	1 5/8"	1 1/4"	4 3/4"	7 1/4"	3/4" Ø	1/4"	5/8" Ø
W6X12	4"	15/16"	2 1/8"	1 1/4"	4 3/4"	7 1/4"	3/4" Ø	1/4"	3/8" Ø
W6X15	6"	1 3/8"	3 1/4"	1 1/4"	5 1/4"	7 3/4"	3/4" Ø	1/4"	5/8" Ø
W6X20	6"	1 3/8"	3 1/4"	1 1/4"	5 1/4"	7 3/4"	3/4" Ø	1/4"	5/8" Ø
W8X18	5 1/4"	1 5/16"	2 5/8"	1 3/8"	5 3/4"	8 1/2"	7/8" Ø	1/4"	3/4" Ø
W8X21	5 1/4"	1 5/16"	2 5/8"	1 3/8"	5 3/4"	8 1/2"	7/8" Ø	1/4"	3/4" Ø
W8X24	6 1/2"	1 1/2"	3 1/2"	1 5/8"	6"	9 1/4"	1" Ø	5/16"	7/8" Ø
W8X28	6 1/2"	1 9/16"	3 3/8"	1 3/4"	6"	9 1/2"	1" Ø	3/8"	7/8" Ø
W8X31	8"	1 7/8"	4 3/4"	2"	6 1/2"	10 1/2"	1 1/8" Ø	3/8"	1" Ø
W10X33	8"	1 7/8"	4 1/4"	2 1/2"	7"	1'- 0"	1 1/4" Ø	7/16"	1 1/8" Ø

ERECTION DETAILS
FOR
TWO-POST ONE-DIRECTION BREAKAWAY SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	83	114

FOR BIDDING PURPOSES ONLY

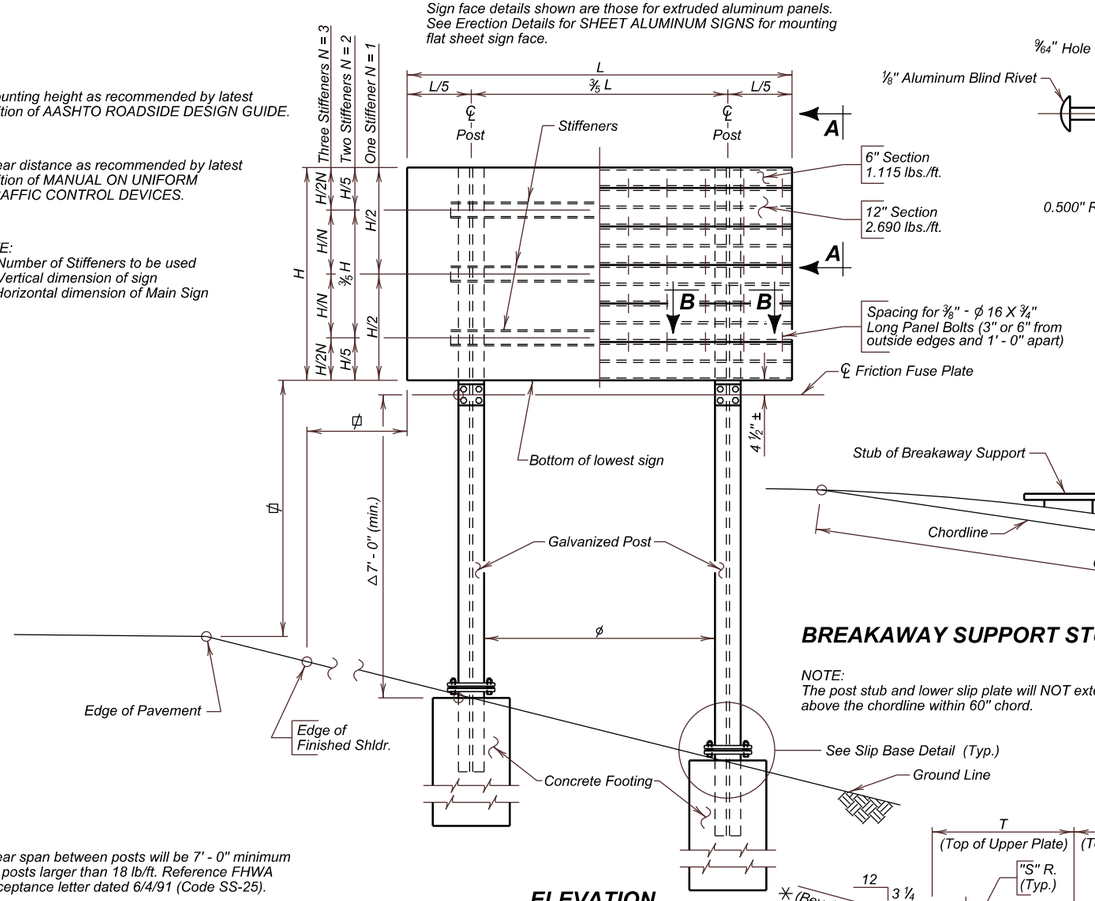
Plotting Date: 10/30/2026

NOTE:
Sign face details shown are those for extruded aluminum panels. See Erection Details for SHEET ALUMINUM SIGNS for mounting flat sheet sign face.

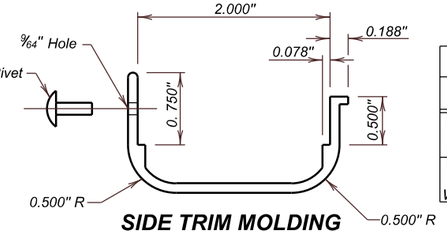
△ *Mounting height as recommended by latest edition of AASHTO ROADSIDE DESIGN GUIDE.*

ϕ *Clear distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.*

NOTE:
N = Number of Stiffeners to be used
H = Vertical dimension of sign
L = Horizontal dimension of Main Sign

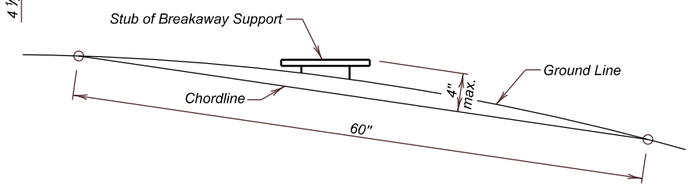


ELEVATION



SIDE TRIM MOLDING

Side Trim Molding is required on all vertical edges of extruded panels. They will be fastened at a minimum of one (1) rivet per panel.



BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

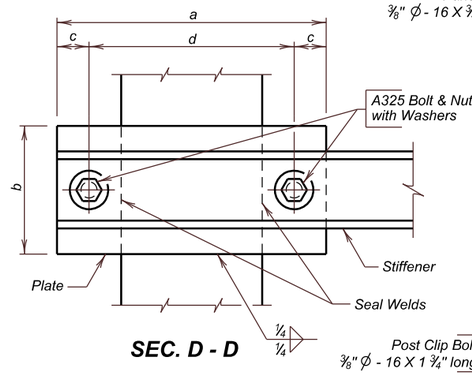
NOTE:
The post stub and lower slip plate will NOT extend more than 4" max. above the chordline within 60" chord.

STIFFENER DATA

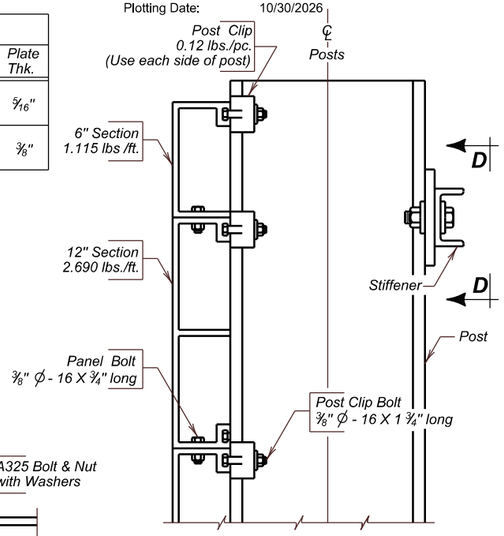
Post	Stiffener	a	b	c	d	Bolt (A325)	Plate Thk.
S3X5.7 thru W8X21	C3X5	10 1/2"	5"	1 1/4"	8"	5/8" ϕ	5/16"
W8X24 thru W10X45	C5X6.7	13 1/2"	6"	1 1/2"	10 1/2"	7/8" ϕ	3/8"

STIFFENER NOTES

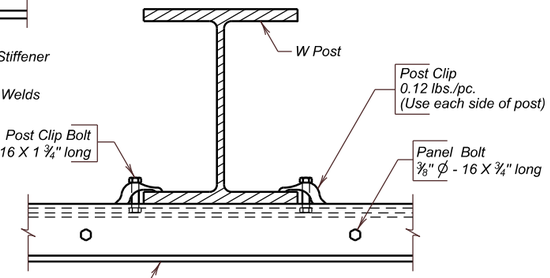
1. *Stiffeners must always be used on Two Post Breakaway signs regardless of type of sign face employed.*
2. *Number of stiffeners used, N, will be as follows:*
   if H < = 2' - 0" then N = 1
   if 2' - 0" < H < = 8' - 0" then N = 2
   if 8' - 0" < H < = 15' - 0" then N = 3



SEC. D - D

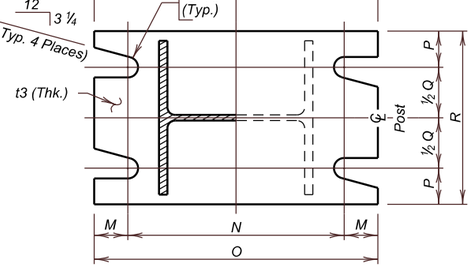


SEC. A - A



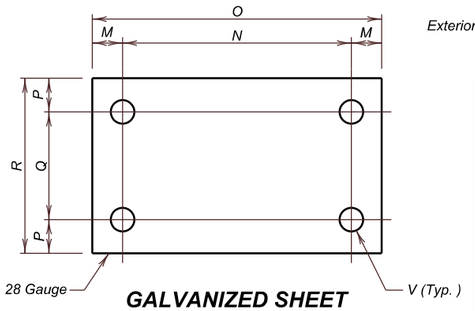
SEC. B - B

(Stiffener not shown)



SEC. C - C

NOTE:
Above Bevel is for Sign on Right Shoulder. Plate Bevels are Opposite hand for Sign on Left Shoulder.

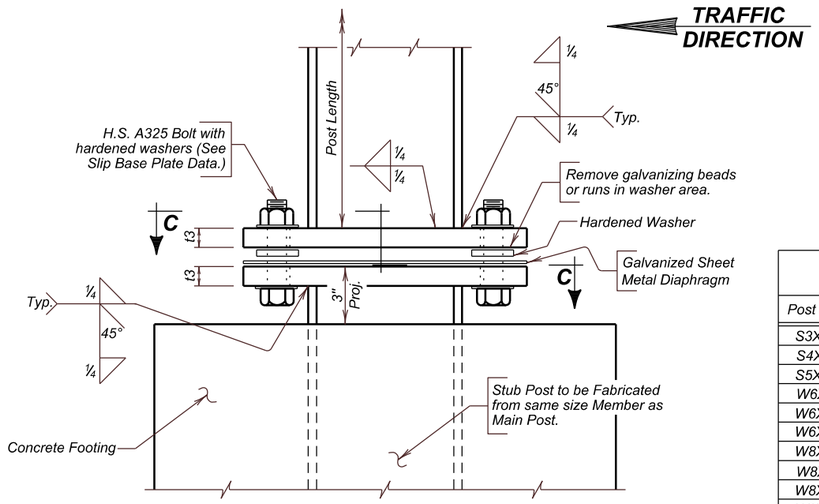


GALVANIZED SHEET METAL DIAPHRAGM

TABLE 3 - SHEET METAL DIAPHRAGM DATA

Post Size	M	N	O	P	Q	R	V
S3X5.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	5/8"
S4X7.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	5/8"
S5X10	7/8"	7 1/4"	9"	3/4"	2"	3 1/2"	3/4"
W6X12	7/8"	8 1/4"	10"	7/8"	2 3/4"	4 1/2"	3/4"
W6X15	1 1/8"	8 1/2"	10 3/4"	1 1/4"	4"	6 1/2"	7/8"
W6X20	1 1/8"	10"	1'- 0 1/4"	1 1/4"	4"	6 1/2"	7/8"
W8X18	1 1/8"	10 1/2"	1' - 0 3/4"	1 1/4"	3 1/2"	6"	7/8"
W8X21	1 1/4"	11 1/4"	1' - 1 3/4"	1 1/4"	3 1/2"	6"	1"
W8X24	1 1/2"	11"	1' - 2"	1 5/8"	4 1/4"	7 1/2"	1"
W8X28	1 5/8"	11 1/4"	1' - 2 1/2"	1 5/8"	4 1/4"	7 1/2"	1 1/8"
W8X31	1 3/4"	11 1/4"	1' - 2 3/4"	1 7/8"	5 1/4"	9"	1 1/8"
W10X33	1 3/4"	1' - 2"	1' - 5 1/2"	1 7/8"	5 1/4"	9"	1 1/8"

NOTE:
Diaphragm need not be regalvanized after cutting to size and drilling of holes.



SLIP BASE DETAIL

TABLE 4 - SLIP BASE PLATE DATA

Post Size	M	N	O	P	Q	R	S	T	U	t3	Bolt Size	Bolt Torque
S3X5.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	9/32"	3 3/4"	3 3/4"	5/8"	1/2" ϕ	142" - #
S4X7.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	9/32"	3 3/4"	3 3/4"	5/8"	1/2" ϕ	142" - #
S5X10	7/8"	7 1/4"	9"	3/4"	2"	3 1/2"	11/32"	4 1/2"	4 1/2"	7/8"	5/8" ϕ	345" - #
W6X12	7/8"	8 1/4"	10"	7/8"	2 3/4"	4 1/2"	11/32"	5"	5"	7/8"	5/8" ϕ	345" - #
W6X15	1 1/8"	8 1/2"	10 3/4"	1 1/4"	4"	6 1/2"	13/32"	5 3/8"	5 3/8"	1"	3/4" ϕ	554" - #
W6X20	1 1/8"	10"	1' - 0 1/4"	1 1/4"	4"	6 1/2"	13/32"	6 1/8"	6 1/8"	1"	3/4" ϕ	554" - #
W8X18	1 1/8"	10 1/2"	1' - 0 3/4"	1 1/4"	3 1/2"	6"	13/32"	6 3/8"	6 3/8"	1"	3/4" ϕ	554" - #
W8X21	1 1/4"	11 1/4"	1' - 1 3/4"	1 1/4"	3 1/2"	6"	15/32"	6 7/8"	6 7/8"	1"	7/8" ϕ	645" - #
W8X24	1 1/2"	11"	1' - 2"	1 5/8"	4 1/4"	7 1/2"	15/32"	7"	7"	1"	7/8" ϕ	645" - #
W8X28	1 5/8"	11 1/4"	1' - 2 1/2"	1 5/8"	4 1/4"	7 1/2"	17/32"	7 1/4"	7 1/4"	1 1/8"	1" ϕ	735" - #
W8X31	1 3/4"	11 1/4"	1' - 2 3/4"	1 7/8"	5 1/4"	9"	17/32"	7 3/8"	7 3/8"	1 1/8"	1" ϕ	735" - #
W10X33	1 3/4"	1' - 2"	1' - 5 1/2"	1 7/8"	5 1/4"	9"	17/32"	8 3/4"	8 3/4"	1 1/4"	1" ϕ	735" - #

ERECTION DETAILS
FOR
TWO-POST ONE-DIRECTION BREAKAWAY SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	84	114

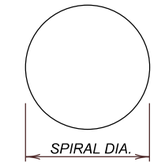
Plotting Date: 10/30/2026

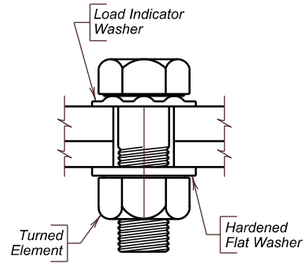
FOR BIDDING PURPOSES ONLY

SITE LOCATION	POST SIZE	FOOTING DIMENSIONS		STUB POST LENGTH	LONGITUDINAL STEEL QUANTITIES			# SPIRAL STEEL QUANTITIES	
		DIA.	DEPTH		NO.	SIZE	LENGTH	DIA.	LENGTH
SEE GENERAL NOTES FOR FOOTING INFORMATION									

⧖ # Spirals - Use 12" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design, Spirals may be smooth bars, Bar length shown does not include Splices. Dimensions are out to out of bars.

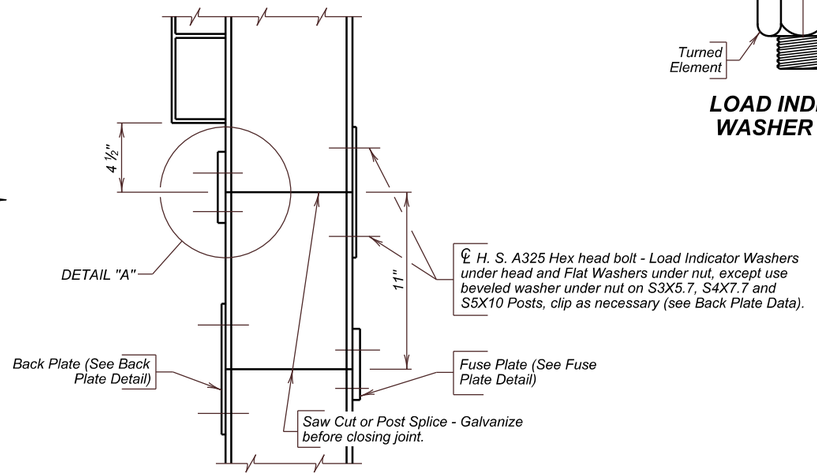
NOTE:
The above is a Site Specific data entry table and the inserted information is the responsibility of the Region Traffic Engineer.



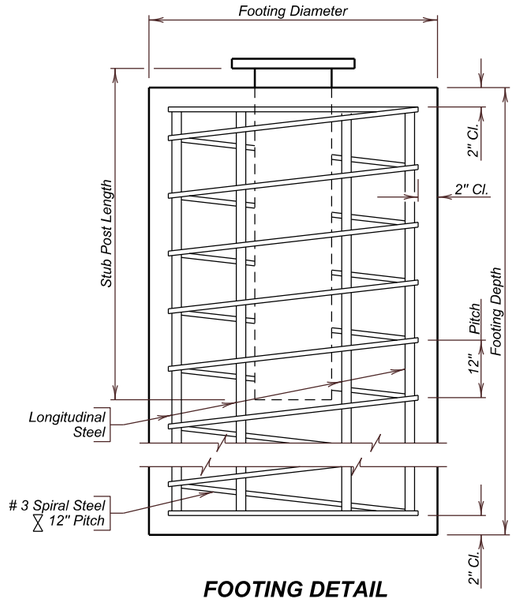


LOAD INDICATOR WASHER DETAIL

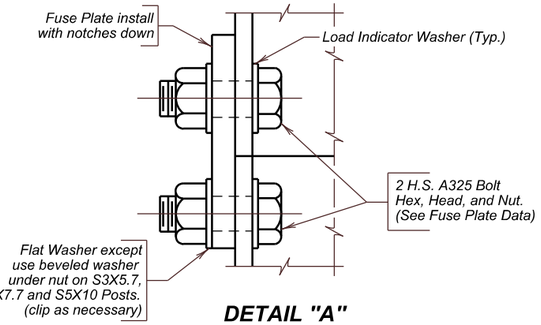
TRAFFIC DIRECTION



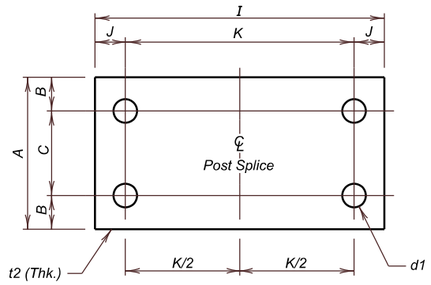
FUSE & BACK PLATE INSTALLATION



FOOTING DETAIL



DETAIL "A"



BACK PLATE DETAIL

NOTES

1. Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2013 Edition with Interims through 2022.
2. Concrete Footings will be Class M6 - fc = 4000 p. s. i.
3. Structural Steel will comform to ASTM A36.
4. All Reinforcing Steel, except spirals, will conform to ASTM 615 Grade 60.
5. Spiral Reinforcing Steel may be fabricated from cold drawn wire ASTM A1064, or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.
6. All Bolts and Nuts will conform to ASTM A325 except that ½" diameter bolts may conform to either ASTM A325 or ASTM A449. Washers will conform to ASTM F436. All hardware will be galvanized in accordance with ASTM F2329.
7. All structural steel including Posts and Post Stubs will be galvanized in accordance with ASTM A123.
8. All Bolt Holes will be drilled. All plate cuts will preferably be saw cuts. However, Flame Cutting will be permitted providing all edges are ground smooth (metal projecting beyond the plane of the plate face will NOT be allowed).
9. All welding and weld inspection will be in accordance with the latest edition of AWS D 1.5 Structural Welding Code.

PROCEDURE FOR ASSEMBLING SLIP BASE

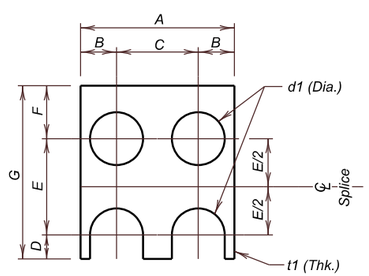
1. Place galvanized Sheet Metal Diaphrams on top of the lower slip plate.
2. Connect main post to Stub Post with clean unlubricated bolts and nuts with one Hardened Washer on each bolt between slip plates.
3. Plumb post by adding shims between slip plates.
4. Tighten bolts to a practical maximum, using a 12" - 15" wrench in order to bed surfaces and clean threads. DO NOT TIGHTEN TO PROOF LOAD.
5. Loosen all bolts and retighten in increments, using a systematic order, until each bolt has been tightened to the specified torque corresponding to the post size used (See Slip Base Plate Data). Tighten bolts only to the torque specified. DO NOT OVERTIGHTEN. Check torque on each bolt after entire sign has been erected.

ASSEMBLY OF FRICTION FUSE PLATES, BACK PLATES AND STIFFENERS

High strength bolts will be tightened so as to obtain a residual tension by the use of load indicator washers.

SHOP PLANS

The fabricator will submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals will be sent to the Office of Bridge Design. Include design and check design, if applicable, with initial submittal.



FUSE PLATE DETAIL

TABLE 1 - FUSE PLATE DATA

Post Size	A	B	C	D	E	F	G	d1	t1	Bolt Size
S3X5.7	2 5/8"	9/16"	1 ½"	½"	1 ½"	1 ⅛"	3 ⅛"	5/8" Ø	¼"	½" Ø
S4X7.7	2 5/8"	9/16"	1 ½"	½"	1 ½"	1 ⅛"	3 ⅛"	5/8" Ø	¼"	½" Ø
S5X10	3"	11/16"	1 5/8"	5/8"	2 ¼"	1 ⅛"	4"	¾" Ø	⅜"	5/8" Ø
W6X12	4"	15/16"	2 ⅛"	⅜"	2 ½"	1 ⅜"	4 ½"	¾" Ø	⅜"	⅜" Ø
W6X15	6"	1 ⅜"	3 ¼"	5/8"	2 ½"	1 ⅜"	4 ½"	¾" Ø	⅜"	5/8" Ø
W6X20	6"	1 ⅜"	3 ¼"	5/8"	2 ½"	1 ⅜"	4 ½"	¾" Ø	⅜"	5/8" Ø
W8X18	5 ¼"	1 5/16"	2 5/8"	¾"	2 ½"	1 ⅜"	4 5/8"	⅞" Ø	½"	¾" Ø
W8X21	5 ¼"	1 5/16"	2 5/8"	¾"	2 ½"	1 ⅜"	4 5/8"	⅞" Ø	½"	¾" Ø
W8X24	6 ½"	1 ½"	3 ½"	⅞"	3"	1 ⅝"	5 ½"	1" Ø	9/16"	⅞" Ø
W8X28	6 ½"	1 9/16"	3 ⅜"	⅞"	3"	1 ¾"	5 5/8"	1" Ø	½"	⅞" Ø
W8X31	8"	1 ⅝"	4 ¾"	1"	3 ½"	2"	6 ½"	1 ⅛" Ø	⅝"	1" Ø
W10X33	8"	1 ⅞"	4 ¼"	1 ⅛"	4 ½"	2 ¼"	7 ⅞"	1 ¼" Ø	¾"	1 ⅛" Ø

TABLE 5 - BACK PLATE DATA

Post Size	A	B	C	J	K	I	d1	t2	Bolt Size
S3X5.7	2 5/8"	9/16"	1 ½"	1 ¼"	4 ½"	7"	5/8" Ø	¼"	½" Ø
S4X7.7	2 5/8"	9/16"	1 ½"	1 ¼"	4 ½"	7"	5/8" Ø	¼"	½" Ø
S5X10	3"	11/16"	1 5/8"	1 ¼"	4 ¾"	7 ¼"	¾" Ø	¼"	5/8" Ø
W6X12	4"	19/16"	2 ½"	1 ¼"	4 ¾"	7 ¼"	¾" Ø	¼"	⅜" Ø
W6X15	6"	1 ⅜"	3 ¼"	1 ¼"	5 ¼"	7 ¾"	¾" Ø	¼"	5/8" Ø
W6X20	6"	1 ⅜"	3 ¼"	1 ¼"	5 ¼"	7 ¾"	¾" Ø	¼"	5/8" Ø
W8X18	5 ¼"	1 5/16"	2 ⅜"	1 ⅜"	5 ¾"	8 ½"	⅞" Ø	¼"	¾" Ø
W8X21	5 ¼"	1 5/16"	2 5/8"	1 ⅜"	5 ¾"	8 ½"	⅞" Ø	¼"	¾" Ø
W8X24	6 ½"	1 ½"	3 ½"	1 ⅜"	6"	9 ¼"	1" Ø	9/16"	⅞" Ø
W8X28	6 ½"	1 9/16"	3 ⅜"	1 ¾"	6"	9 ½"	1" Ø	⅜"	⅞" Ø
W8X31	8"	1 5/8"	4 ¾"	2"	6 ½"	10 ½"	1 ⅛" Ø	⅜"	1" Ø
W10X33	8"	1 ⅞"	4 ¼"	2 ½"	7"	1' - 0"	1 ¼" Ø	7/16"	1 ⅛" Ø

ERECTION DETAILS
FOR
TWO-POST TWO-DIRECTION BREAKAWAY SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	85	114

FOR BIDDING PURPOSES ONLY

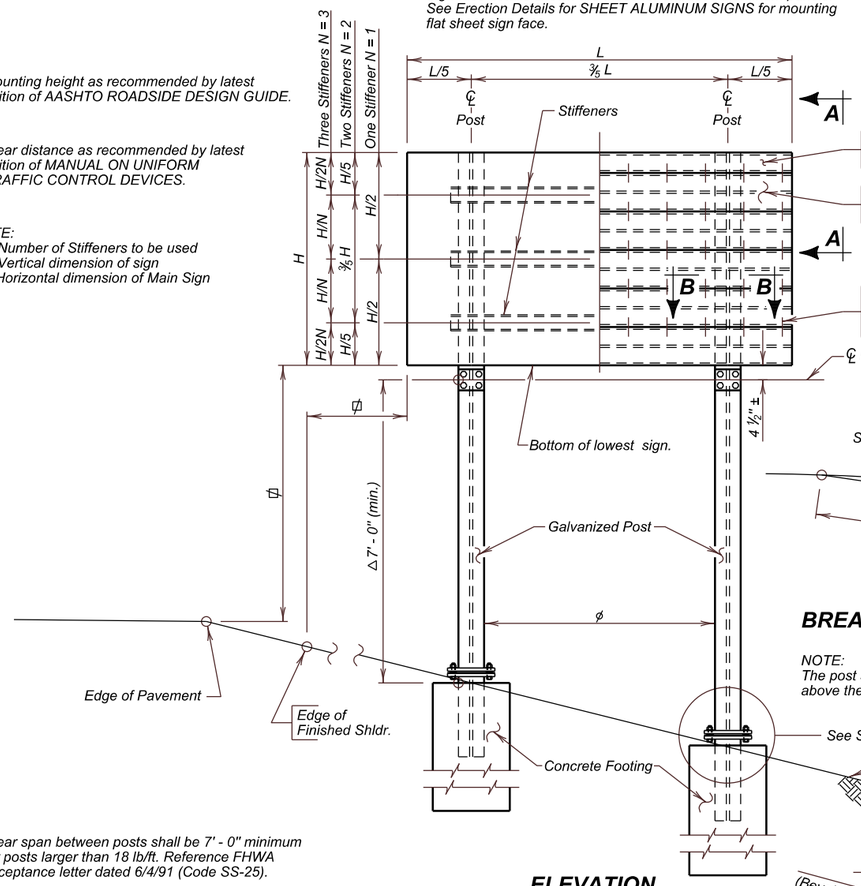
Plotting Date: 10/30/2026

NOTE:
Sign face details shown are those for extruded aluminum panels. See Erection Details for SHEET ALUMINUM SIGNS for mounting flat sheet sign face.

△ Mounting height as recommended by latest edition of AASHTO ROADSIDE DESIGN GUIDE.

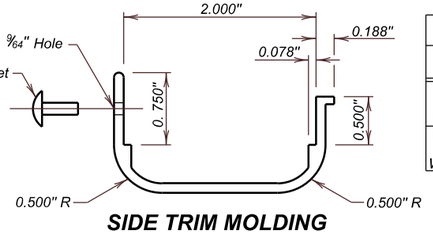
ϕ Clear distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

NOTE:
N = Number of Stiffeners to be used
H = Vertical dimension of sign
L = Horizontal dimension of Main Sign



ϕ Clear span between posts shall be 7' - 0" minimum for posts larger than 18 lb/ft. Reference FHWA acceptance letter dated 6/4/91 (Code SS-25).

ELEVATION



SIDE TRIM MOLDING

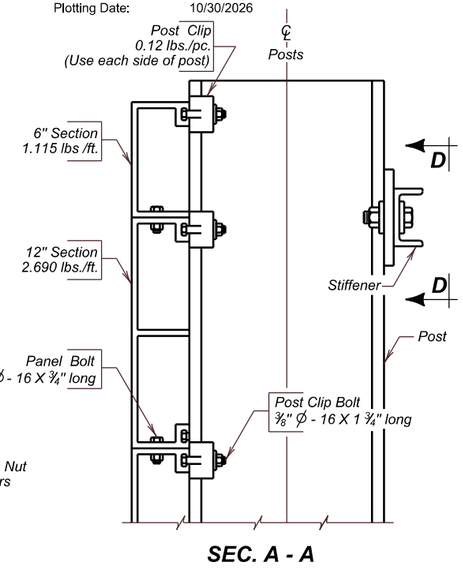
Side Trim Molding is required on all vertical edges of extruded panels. They will be fastened at a minimum of one (1) rivet per panel.

STIFFENER DATA

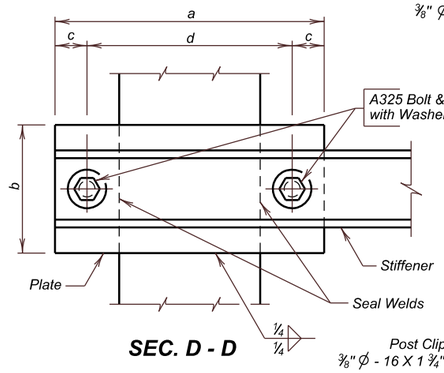
Post	Stiffener	a	b	c	d	Bolt (A325)	Plate Thk.
S3X5.7 thru W8X21	C3X5	10 1/2"	5"	1 1/4"	8"	3/8" ϕ	5/16"
W8X24 thru W10X45	C5X6.7	13 1/2"	6"	1 1/2"	10 1/2"	7/8" ϕ	3/8"

STIFFENER NOTES

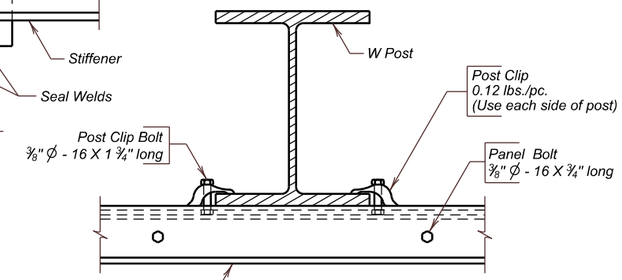
1. Stiffeners must always be used on Two Post Breakaway signs regardless of type of sign face employed.
2. Number of stiffeners used, N, will be as follows:
   if H < = 2' - 0" then N = 1
   if 2' - 0" < H < = 8' - 0" then N = 2
   if 8' - 0" < H < = 15' - 0" then N = 3



SEC. A - A



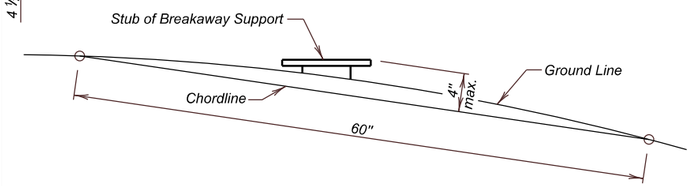
SEC. D - D



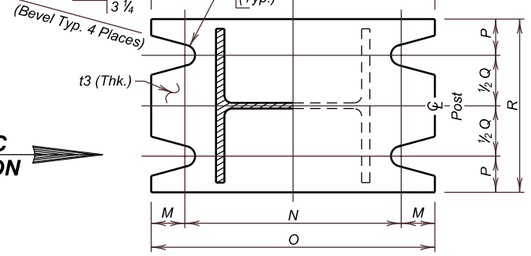
SEC. B - B

(Stiffener not shown)

BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

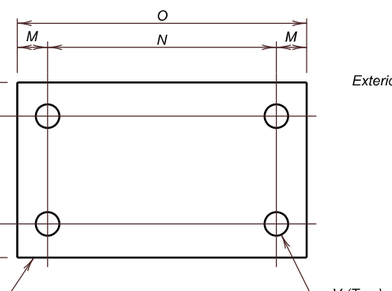


NOTE:
The post stub and lower slip plate will NOT extend more than4" max. above the chordline within 60" chord.

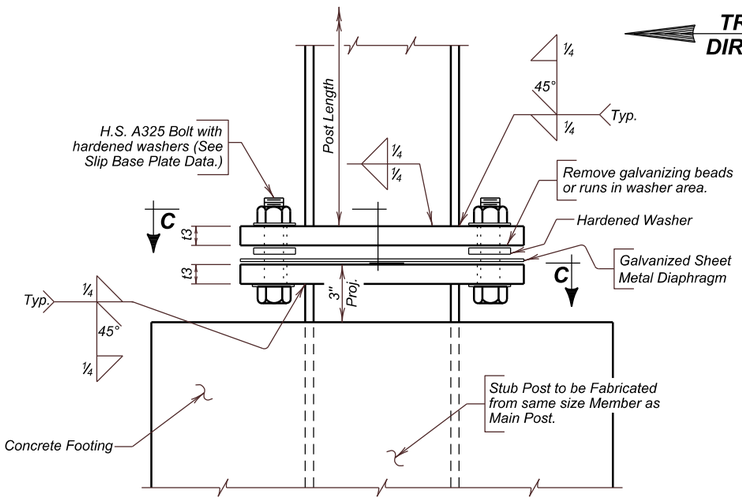


SEC. C - C

TRAFFIC DIRECTION



GALVANIZED SHEET METAL DIAPHRAGM



SLIP BASE DETAIL

TABLE 3 - SHEET METAL DIAPHRAGM DATA

Post Size	M	N	O	P	Q	R	V
S3X5.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	5/8"
S4X7.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	5/8"
S5X10	7/8"	7 1/4"	9"	3/4"	2"	3 1/2"	3/4"
W6X12	7/8"	8 1/4"	10"	7/8"	2 3/4"	4 1/2"	3/4"
W6X15	1 1/8"	8 1/2"	10 3/4"	1 1/4"	4"	6 1/2"	7/8"
W6X20	1 1/8"	10"	1' - 0 1/4"	1 1/4"	4"	6 1/2"	7/8"
W8X18	1 1/8"	10 1/2"	1' - 0 3/4"	1 1/4"	3 1/2"	6"	7/8"
W8X21	1 1/4"	11 1/4"	1' - 1 3/4"	1 1/4"	3 1/2"	6"	1"
W8X24	1 1/2"	11"	1' - 2"	1 5/8"	4 1/4"	7 1/2"	1"
W8X28	1 5/8"	11 1/4"	1' - 2 1/2"	1 5/8"	4 1/4"	7 1/2"	1 1/8"
W8X31	1 3/4"	11 1/4"	1' - 2 3/4"	1 7/8"	5 1/4"	9"	1 1/8"
W10X33	1 3/4"	1' - 2"	1' - 5 1/2"	1 7/8"	5 1/4"	9"	1 1/8"

TABLE 4 - SLIP BASE PLATE DATA

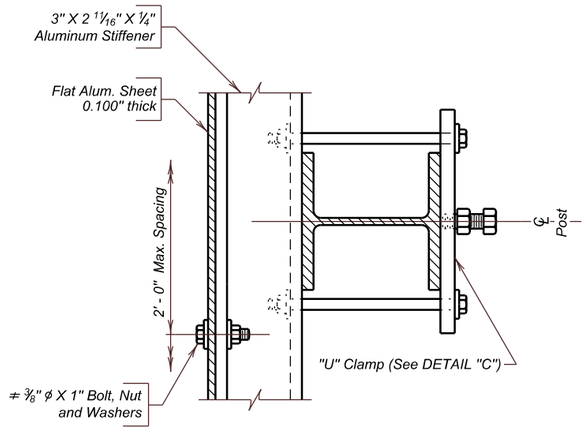
Post Size	M	N	O	P	Q	R	S	T	U	t3	Bolt Size	Bolt Torque
S3X5.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	9/32"	3 3/4"	3 3/4"	5/8"	1/2" ϕ	142" - #
S4X7.7	3/4"	6"	7 1/2"	3/4"	1 1/2"	3"	9/32"	3 3/4"	3 3/4"	5/8"	1/2" ϕ	142" - #
S5X10	7/8"	7 1/4"	9"	3/4"	2"	3 1/2"	11/32"	4 1/2"	4 1/2"	7/8"	5/8" ϕ	345" - #
W6X12	7/8"	8 1/4"	10"	7/8"	2 3/4"	4 1/2"	11/32"	5"	5"	7/8"	5/8" ϕ	345" - #
W6X15	1 1/8"	8 1/2"	10 3/4"	1 1/4"	4"	6 1/2"	13/32"	5 3/8"	5 3/8"	1"	3/4" ϕ	554" - #
W6X20	1 1/8"	10"	1' - 0 1/4"	1 1/4"	4"	6 1/2"	13/32"	6 1/8"	6 1/8"	1"	3/4" ϕ	554" - #
W8X18	1 1/8"	10 1/2"	1' - 0 3/4"	1 1/4"	3 1/2"	6"	13/32"	6 3/8"	6 3/8"	1"	3/4" ϕ	554" - #
W8X21	1 1/4"	11 1/4"	1' - 1 3/4"	1 1/4"	3 1/2"	6"	15/32"	6 7/8"	6 7/8"	1"	7/8" ϕ	645" - #
W8X24	1 1/2"	11"	1' - 2"	1 5/8"	4 1/4"	7 1/2"	15/32"	7"	7"	1"	7/8" ϕ	645" - #
W8X28	1 5/8"	11 1/4"	1' - 2 1/2"	1 5/8"	4 1/4"	7 1/2"	17/32"	7 1/4"	7 1/4"	1 1/8"	1" ϕ	735" - #
W8X31	1 3/4"	11 1/4"	1' - 2 3/4"	1 7/8"	5 1/4"	9"	17/32"	7 3/8"	7 3/8"	1 1/8"	1" ϕ	735" - #
W10X33	1 3/4"	1' - 2"	1' - 5 1/2"	1 7/8"	5 1/4"	9"	17/32"	8 3/4"	8 3/4"	1 1/4"	1" ϕ	735" - #

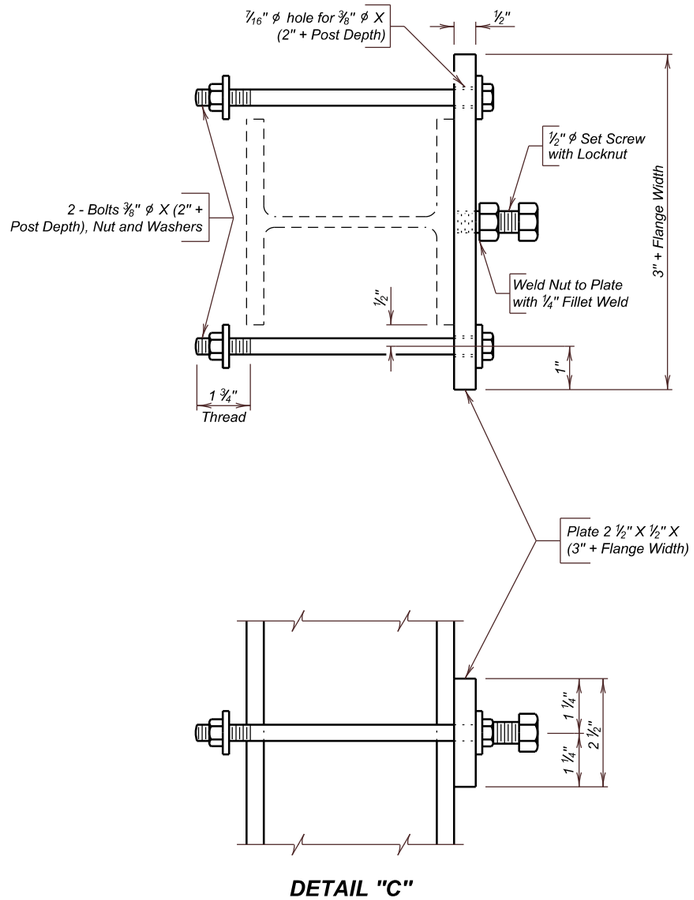
NOTE:
Diaphragm need not be regalvanized after cutting to size and drilling of holes.

ERECTION DETAILS
FOR
TWO-POST TWO-DIRECTION BREAKAWAY SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

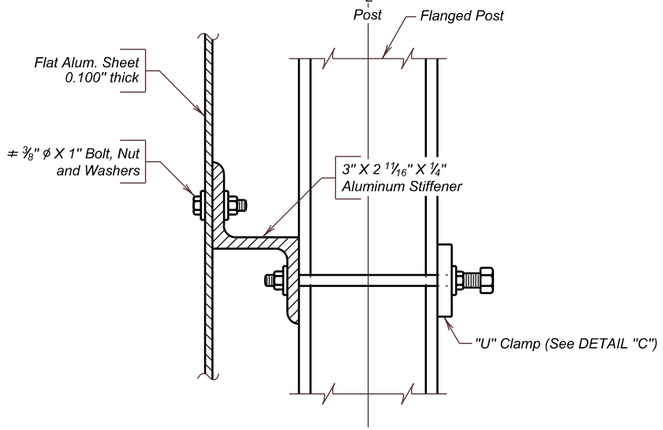
FOR BIDDING PURPOSES ONLY

≠ A plastic washer, as recommended by the sheeting manufacturer, will be installed between the sign face and the metal washer shown.

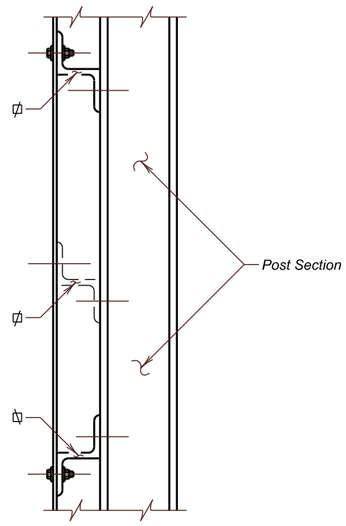




DETAIL "C"



DETAILS FOR MOUNTING SHEET ALUMINUM SIGNS ON STEEL FLANGED POSTS



POSITIONING OF TOP AND BOTTOM STIFFENERS

STIFFENER NOTES

1. Stiffeners must always be used on multiple post breakaway signs regardless of type of sign face employed.
2. ℄ Number of stiffeners used, N, will be as follows:
   If H < = 2' - 0" then N = 1
   if 2' - 0" < H < = 8' - 0" then N = 2
   if 8' - 0" < H < = 15' - 0" then N = 3
   where H equals the vertical dimension of the sign panel of sign cluster.
3. All stiffener Bolts and Nuts will conform to ASTM A307. Washers will conform to ASTM F436. All hardware will be galvanized in accordance with ASTM F2329.

ERECTION DETAILS
FOR
SHEET ALUMINUM SIGNS
(ON FLANGED AND PIPE POSTS)
S. D. DEPT. OF TRANSPORTATION
MARCH 2022

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	87	114

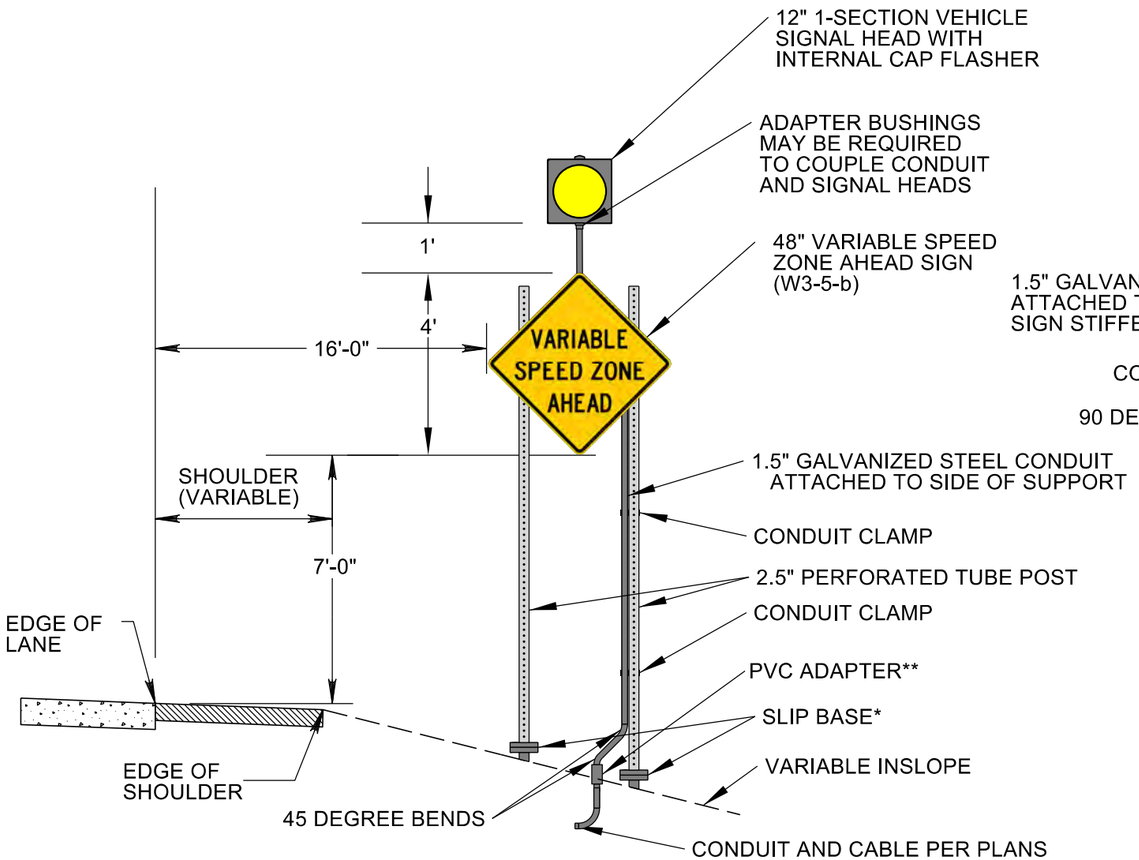
Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

BEACON INSTALLATION ON PERFORATED TUBE POST SIGN

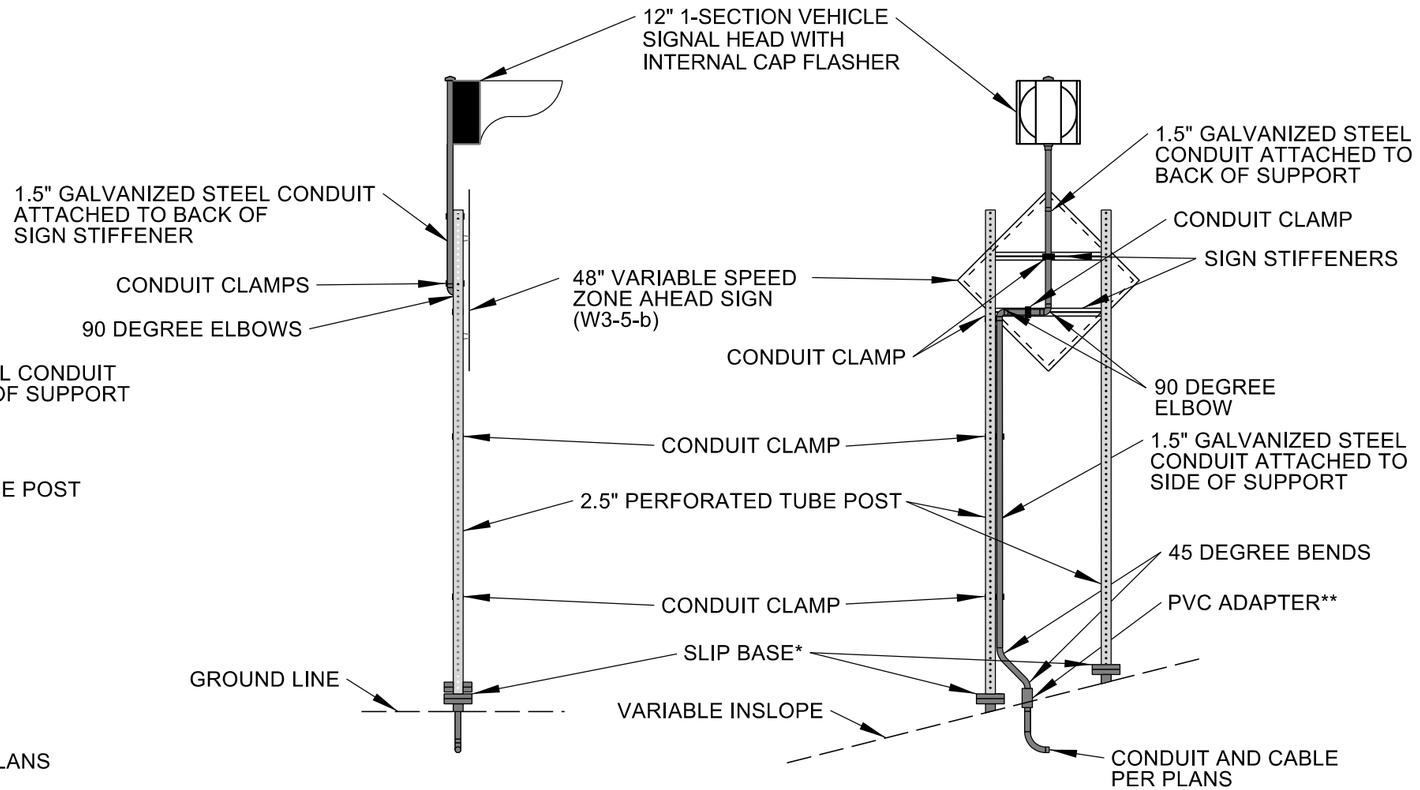
VARIABLE SPEED LIMIT AHEAD SIGN (VSLA)

NOT TO SCALE



FRONT VIEW

NO SCALE



SIDE VIEW

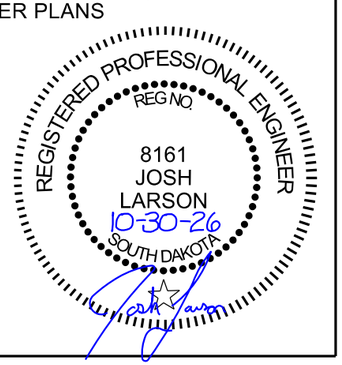
NO SCALE

REAR VIEW

NO SCALE

*MAX 3" BETWEEN SLIP BASE AND CONDUIT

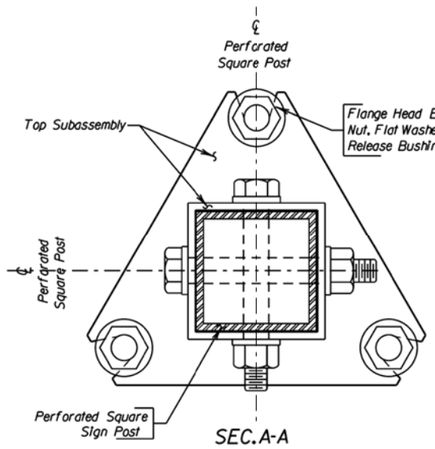
**PVC ADAPTER TO PROVIDE CONNECTION FROM PVC CONDUIT TO GALVANIZED STEEL CONDUIT (MAX 4" ABOVE GROUND)



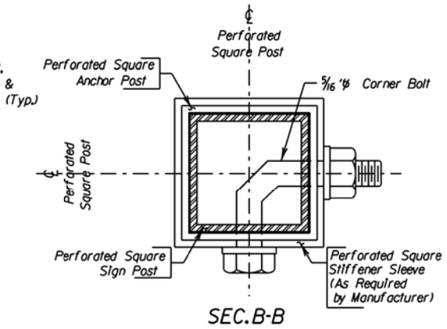
SPECIAL SIGN DETAILS

FOR BIDDING PURPOSES ONLY

BREAKAWAY SIGN SUPPORTS – 2 1/2" SIGN POST



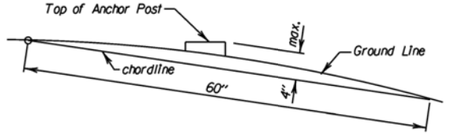
SEC. A-A



SEC. B-B

GENERAL NOTES-

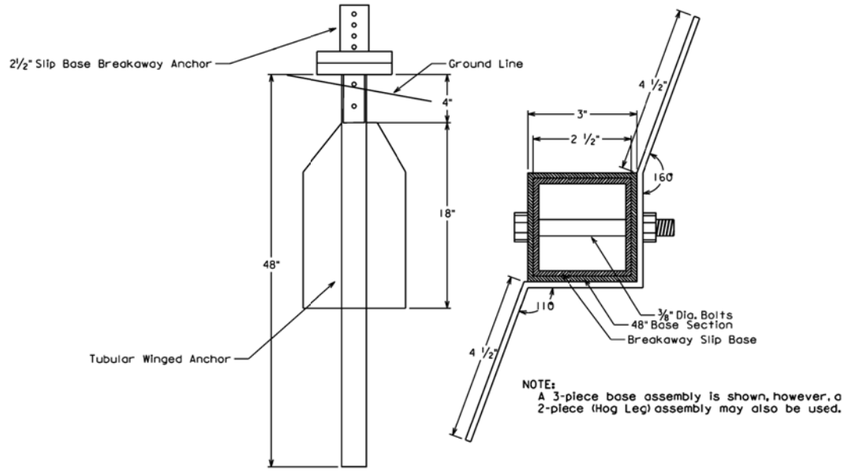
1. Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Latest Edition.
2. The manufacturer will provide certification that the posts and hardware furnished have essentially the same chemistry, mechanical properties and geometry as that used in the FHWA tests, and that it will meet the FHWA change in velocity requirements.
3. The manufacturer will also provide certification that the breakaway system furnished will develop the full shear and bending yield strength of the sign post section being spliced.
4. All posts will be galvanized in accordance with ASTM A653, Des. G-90.
5. All hardware will be galvanized in accordance with ASTM A153.



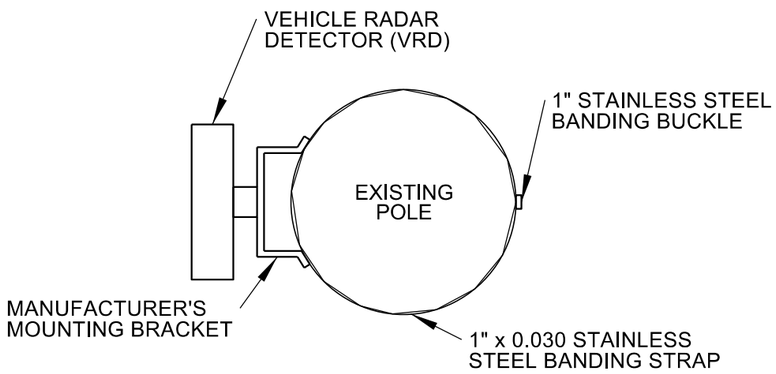
BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

NOTE: The top of anchor post will NOT extend more than 4" max. above the chordline within a 60" chord.

SIGN BASE DETAILS FOR A 2½" SIGN POST

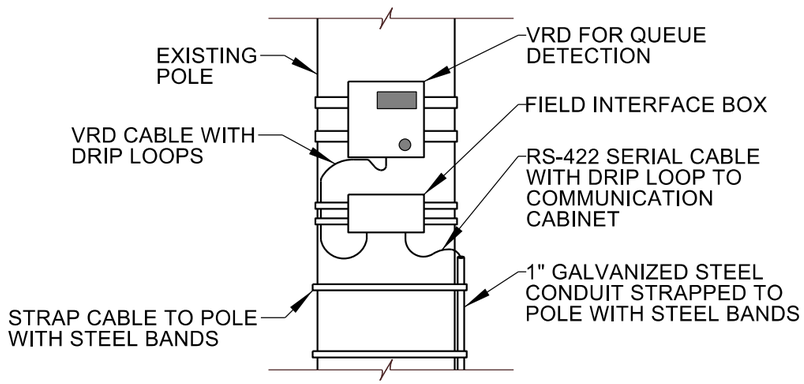


VEHICLE RADAR DETECTOR TYPE 2 (RAMP QUEUE DETECTION) MOUNTING DETAILS



TOP VIEW
NO SCALE

NOTE: MOUNT VRD PER MANUFACTURER'S RECOMMENDATION



FRONT VIEW
NO SCALE

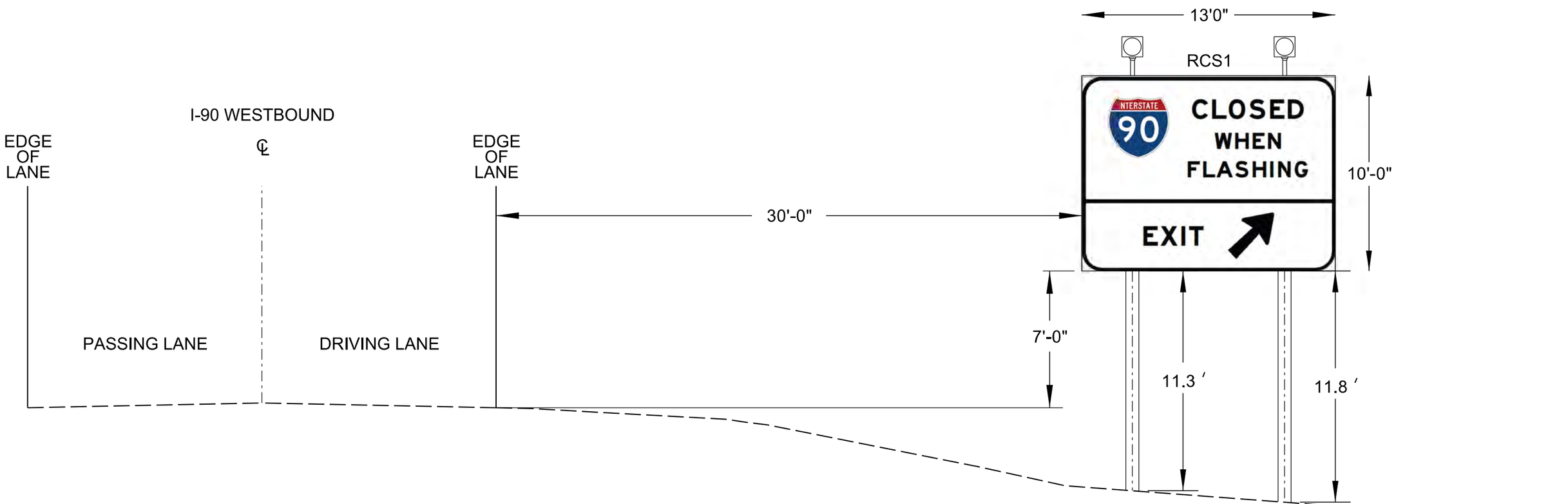
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	89	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RCS1



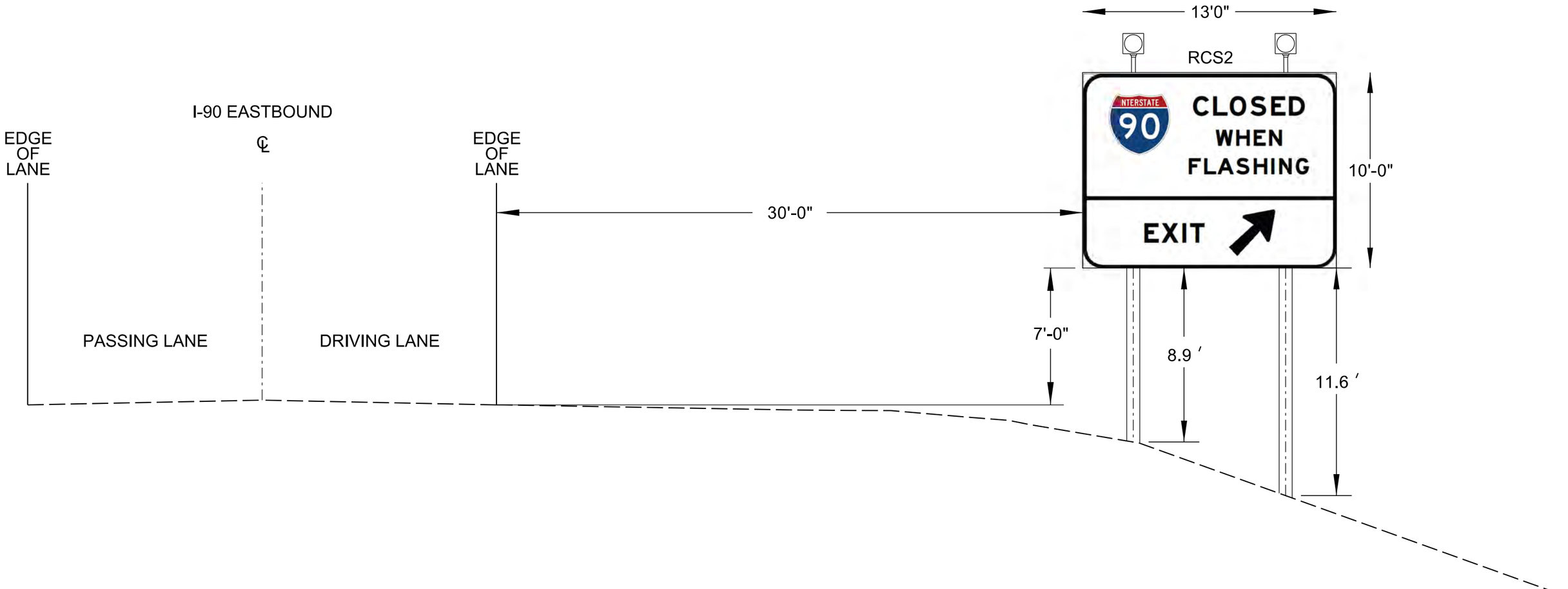
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	90	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RCS2



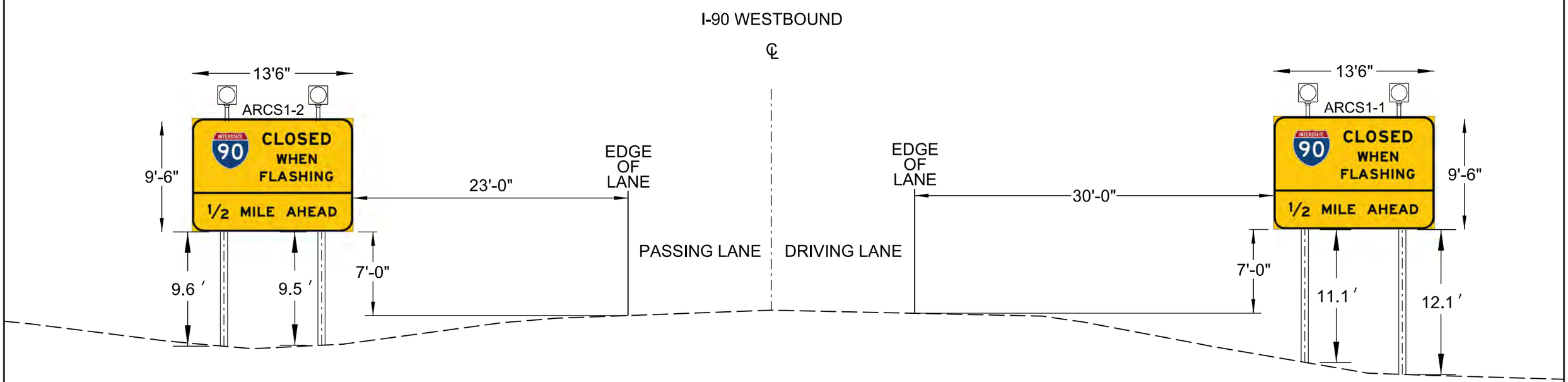
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	91	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
ARCS1-1 AND ARCS1-2



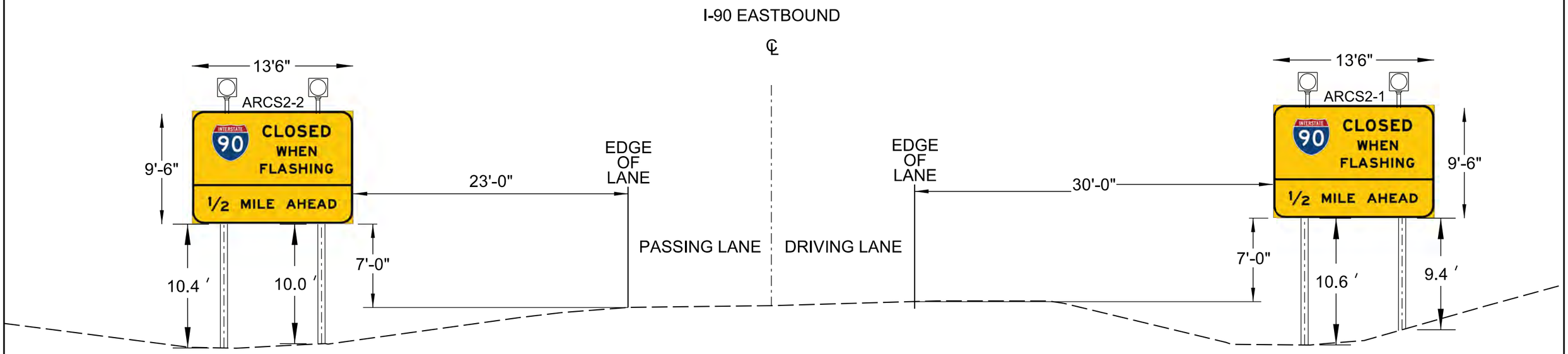
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
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SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	92	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
ARCS2-1 AND ARCS2-2



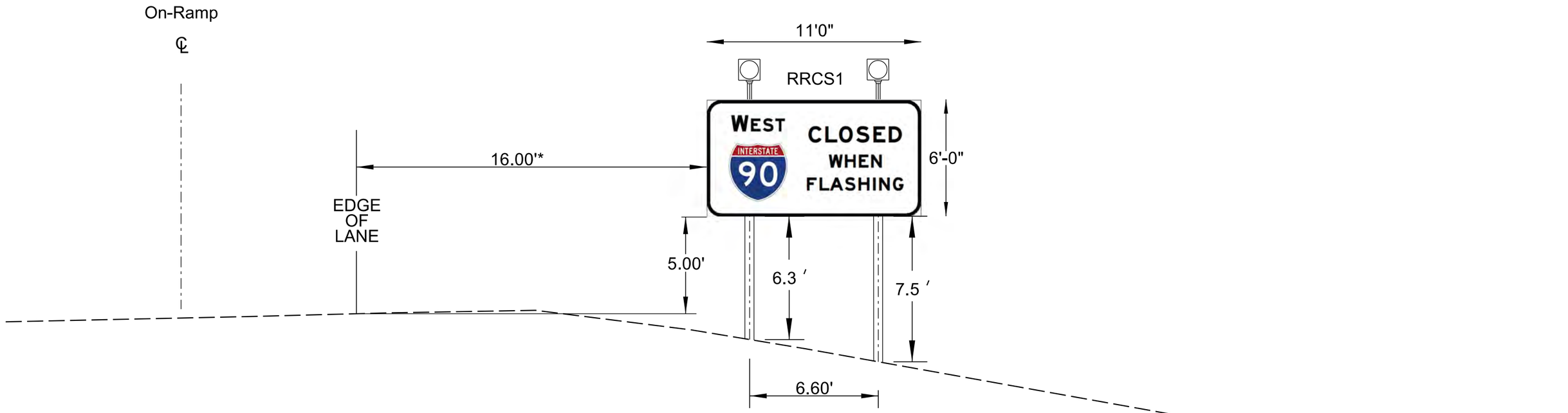
REGISTERED PROFESSIONAL ENGINEER
REG NO.
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SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	93	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RRCS1



*Distance measured perpendicular to the on-ramp.

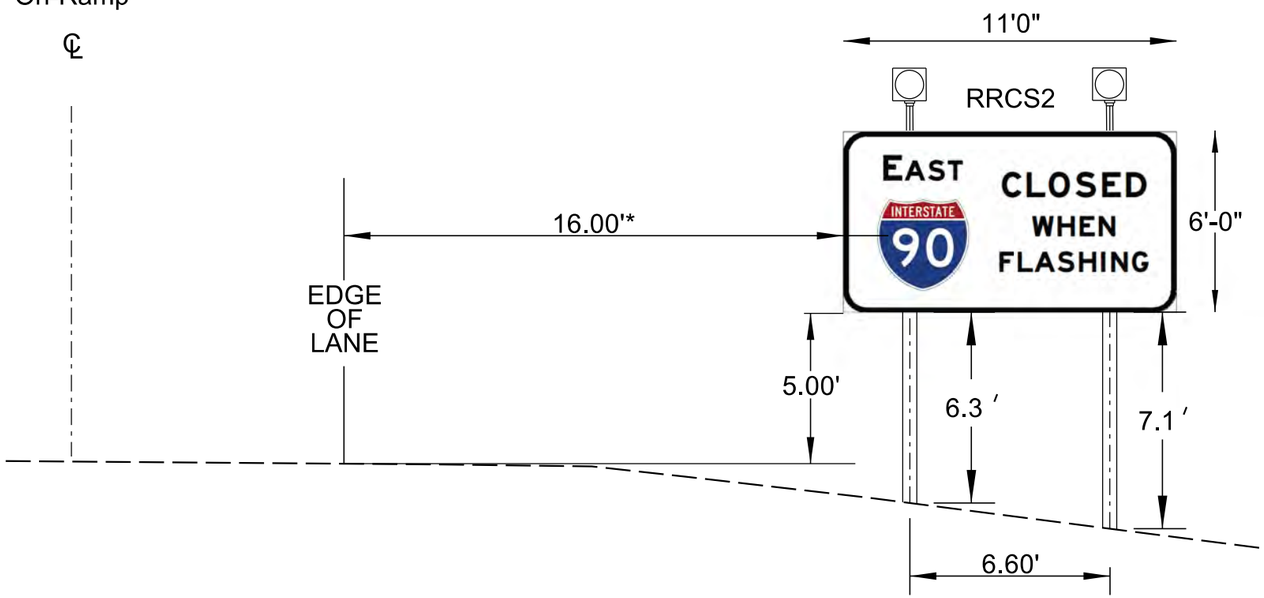
REGISTERED PROFESSIONAL ENGINEER
REG NO.
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SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	94	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RRCS2



*Distance measured perpendicular to the on-ramp.

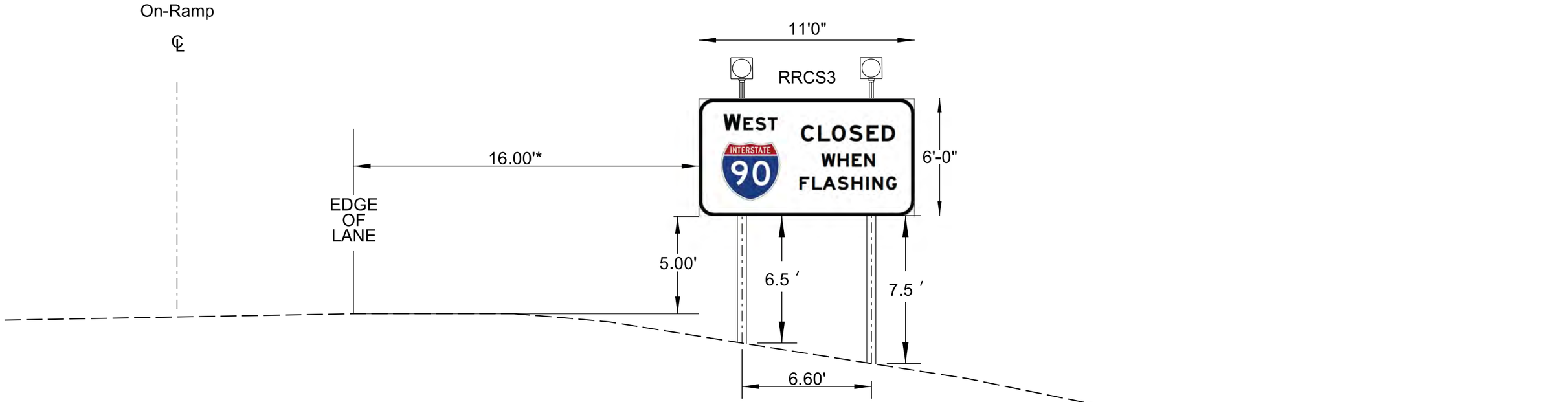
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	95	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RRCS3



*Distance measured perpendicular to the on-ramp.

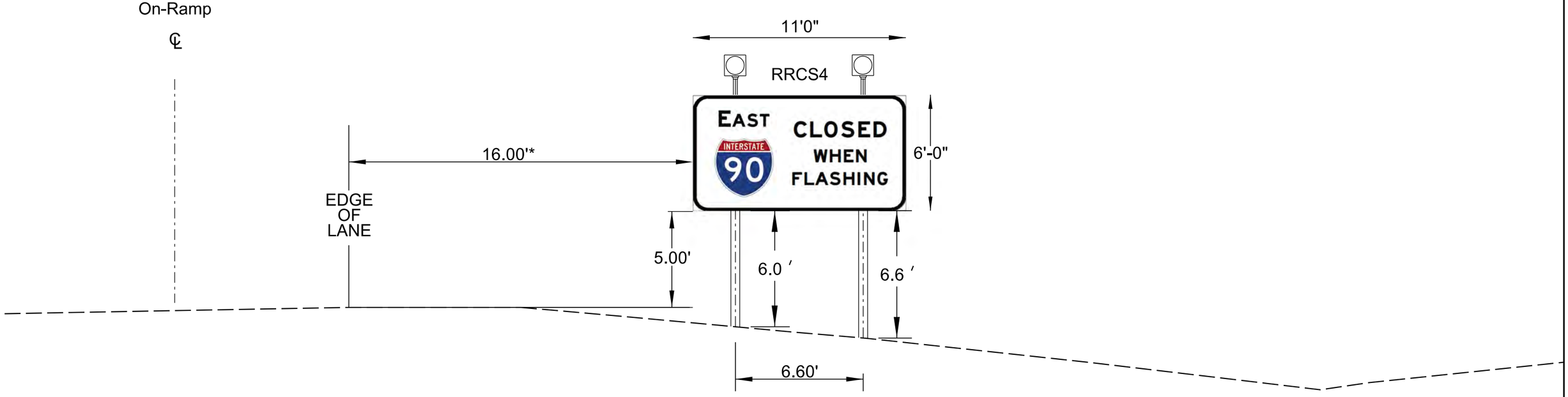
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	96	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RRCS4



*Distance measured perpendicular to the on-ramp.

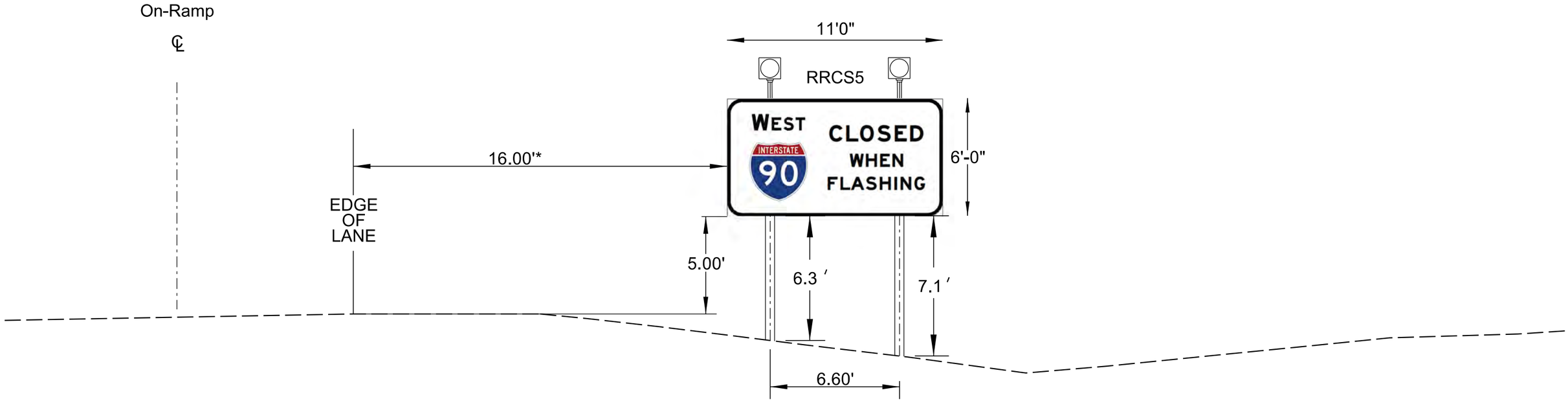
REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	97	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RRCS5



*Distance measured perpendicular to the on-ramp.

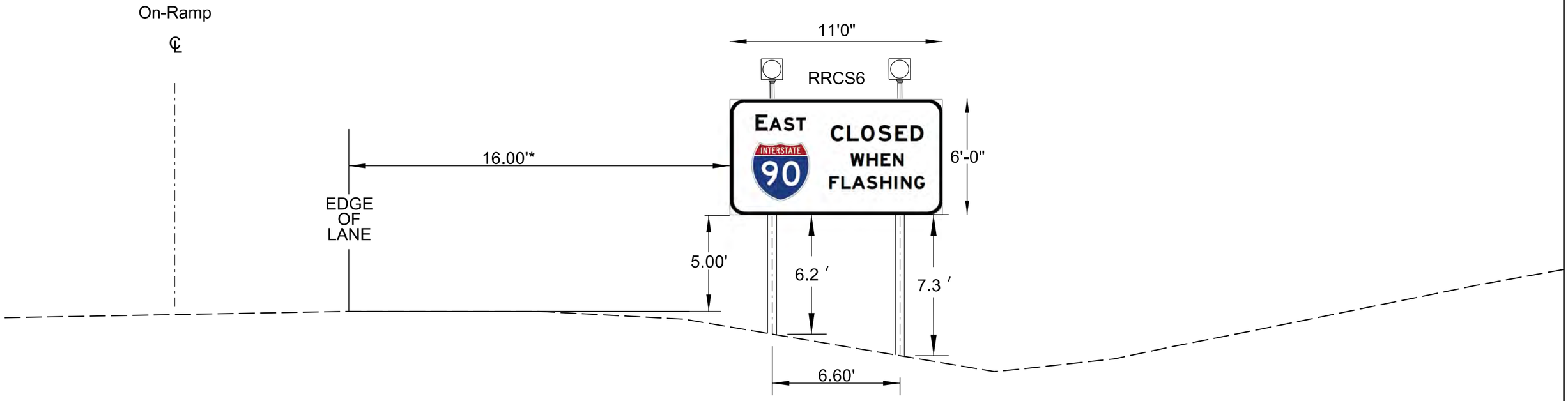
REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	98	114

Plotting Date: 10/30/2026

FOR BIDDING PURPOSES ONLY

SPECIAL SIGN SUPPORT DETAILS
RRCS6



*Distance measured perpendicular to the on-ramp.

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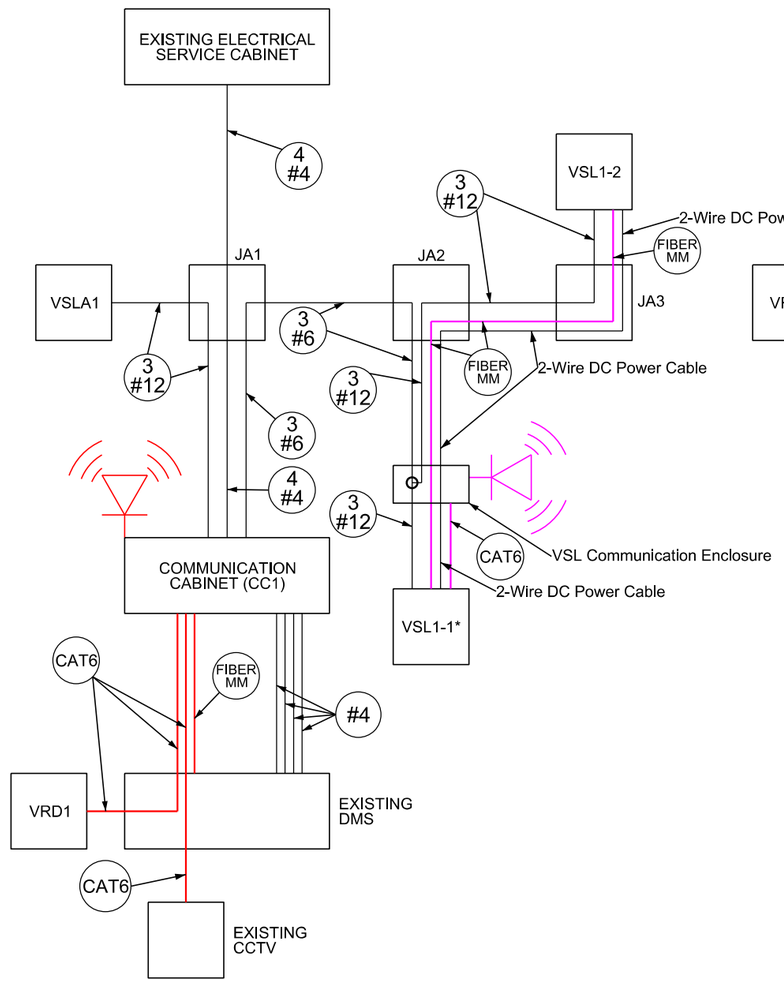
WIRING DIAGRAM

FOR BIDDING PURPOSES ONLY

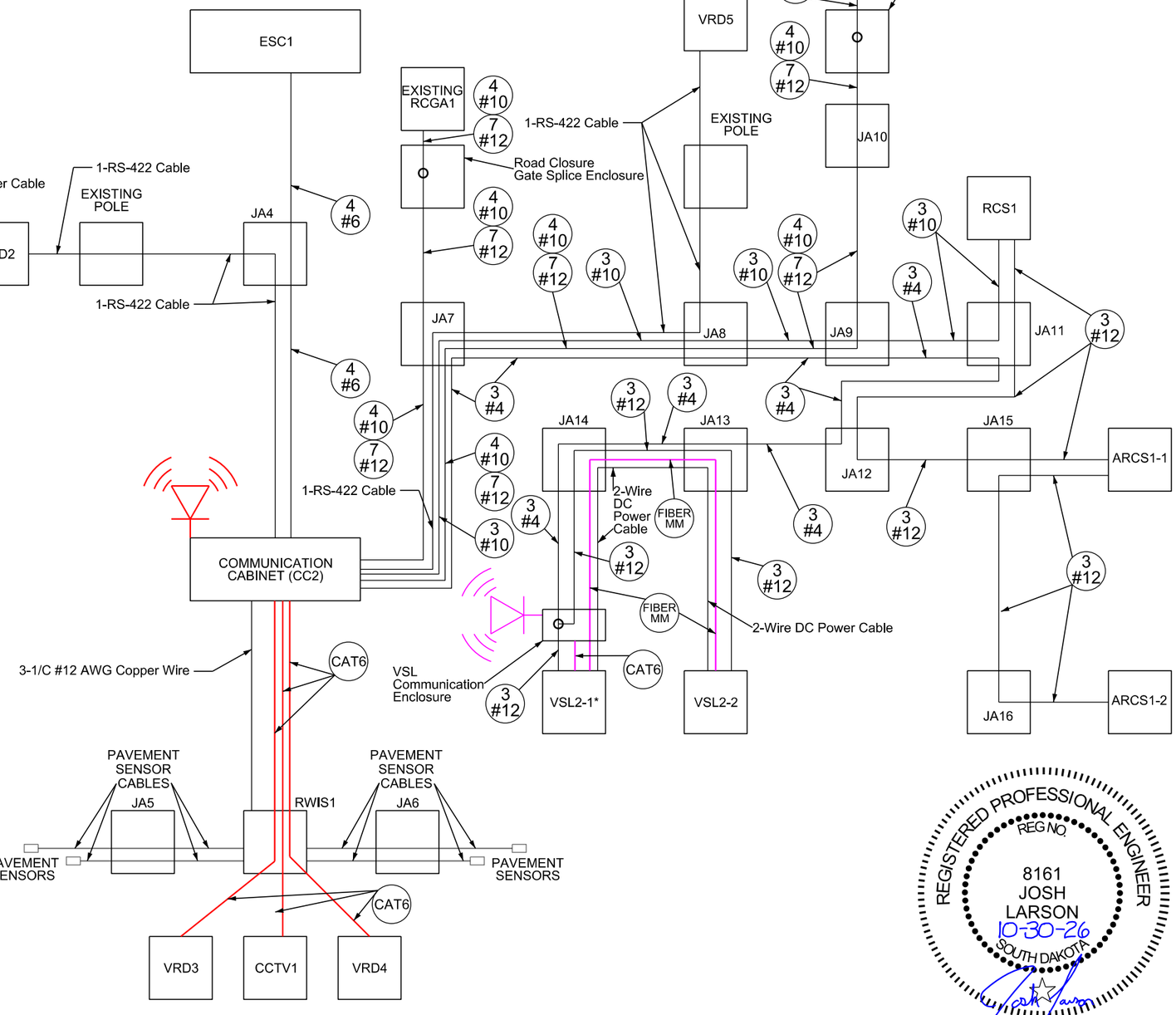
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	99	114

Plotting Date: 10/30/2026

MRM 29



EXIT 30 & MRM 31



Cellular Modem - Line colors indicate equipment connections associated with each modem. (See port assignment sheet)

Make all required conductor splices in terminal blocks within the VSL Communication Enclosure

*VSL Communication Enclosure with Cellular Modem at this location

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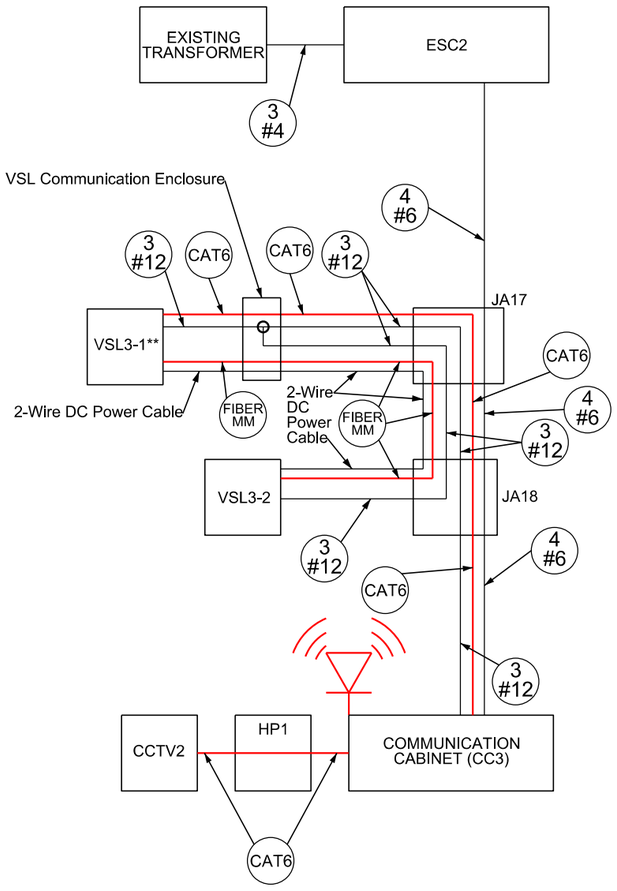
WIRING DIAGRAM

FOR BIDDING PURPOSES ONLY

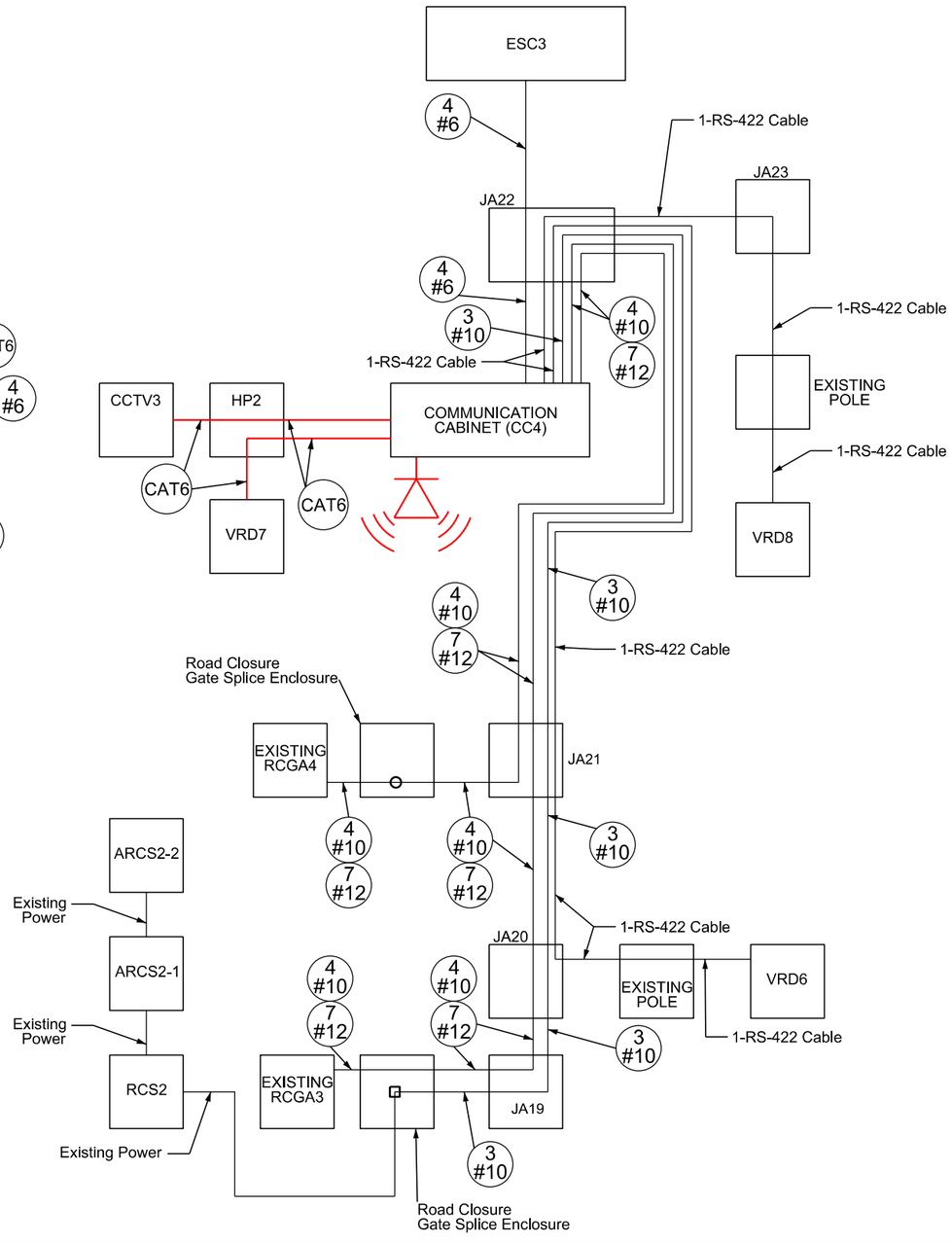
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	100	114

Plotting Date: 10/30/2026

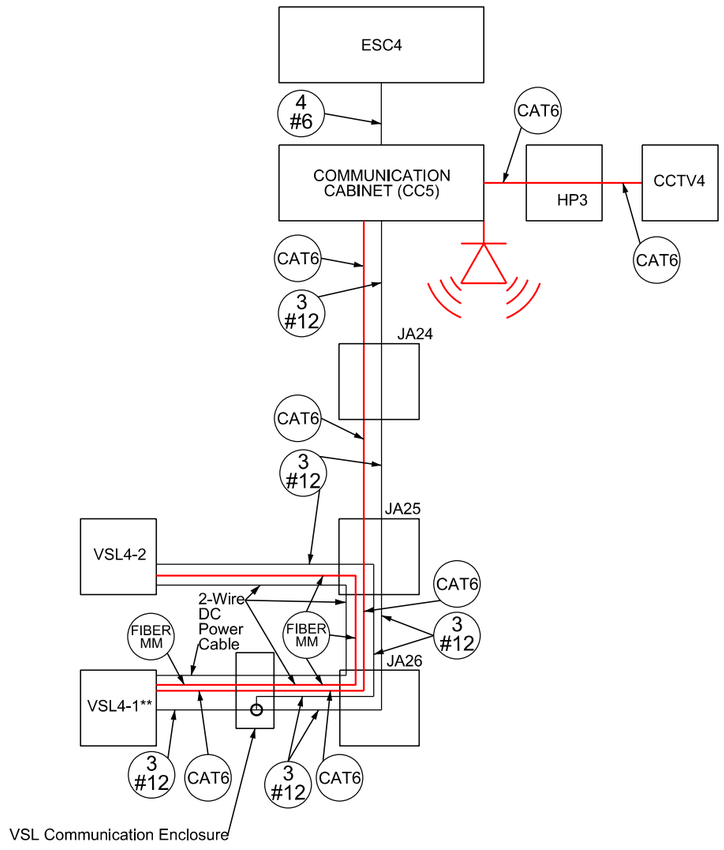
MRM 32



EXIT 32



MRM 33



Cellular Modem - Line colors indicate equipment connections associated with each modem. (See port assignment sheet)

Make all required conductor splices in terminal blocks within the VSL Communication Enclosure

Splice new #12 AWG conductors to existing conductors in splice enclosure using terminal blocks

**VSL Communication Enclosure without Cellular Modem at this location



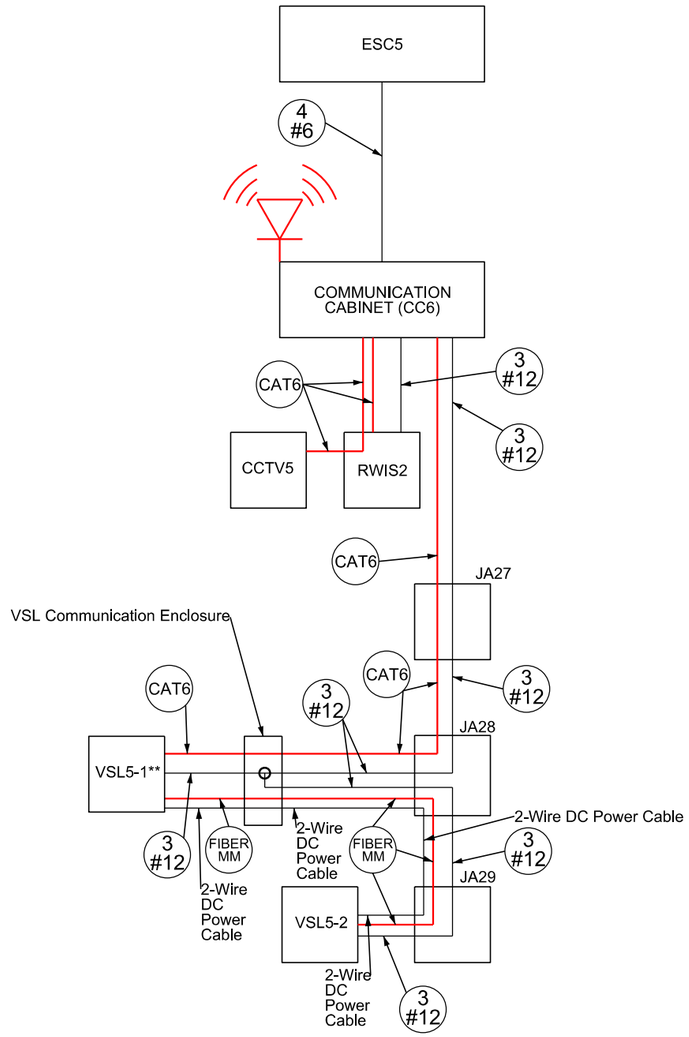
WIRING DIAGRAM

FOR BIDDING PURPOSES ONLY

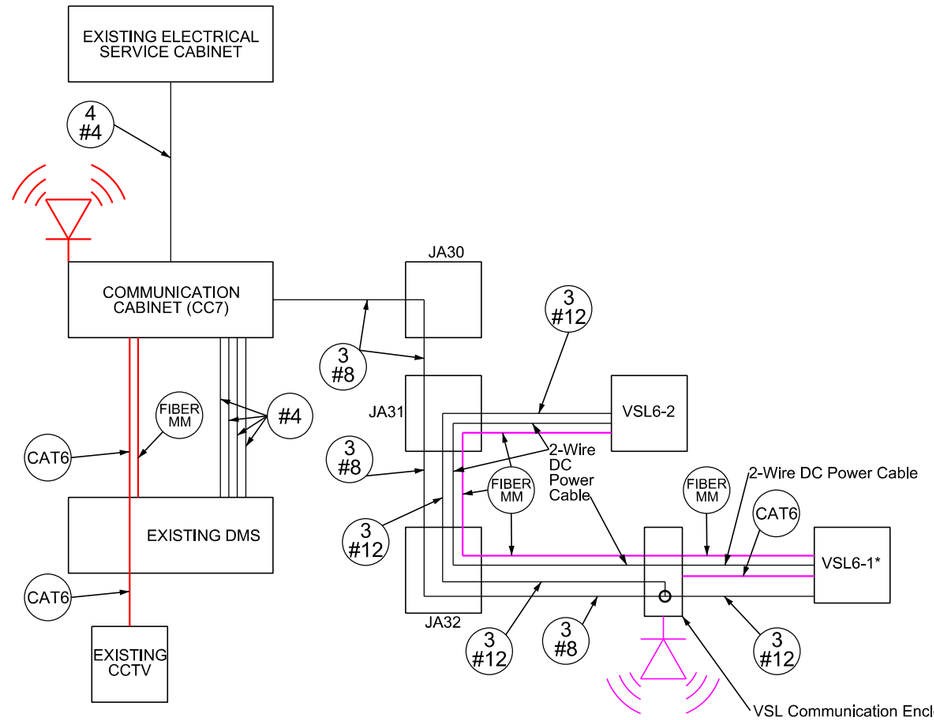
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	101	114

Plotting Date: 10/30/2026

MRM 34



MRM 35

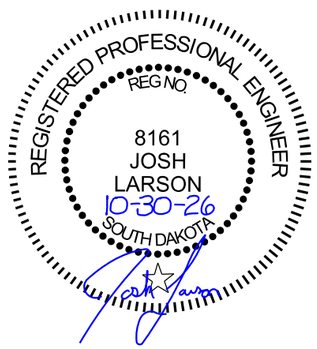


Cellular Modem - Line colors indicate equipment connections associated with each modem. (See port assignment sheet)

Make all required conductor splices in terminal blocks within the VSL Communication Enclosure

*VSL Communication Enclosure with Cellular Modem at this location

**VSL Communication Enclosure without Cellular Modem at this location



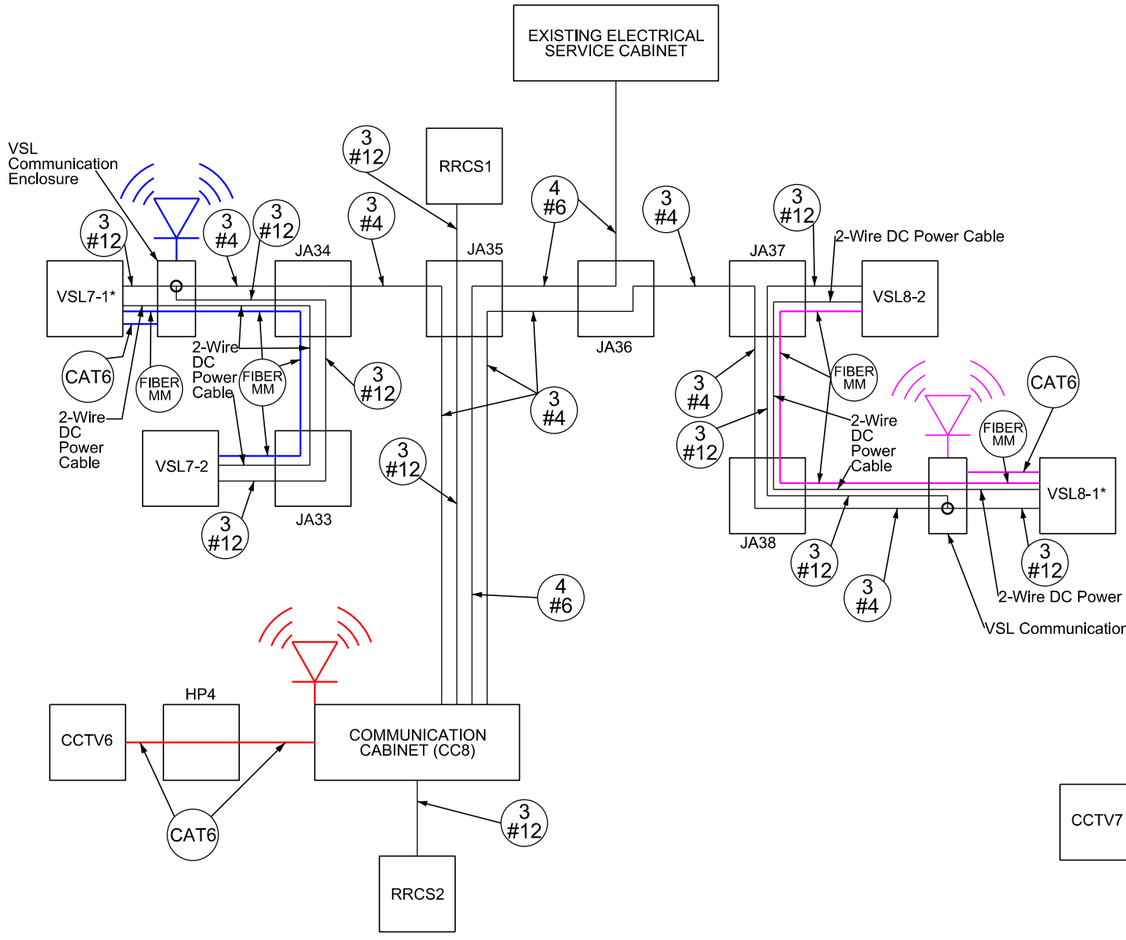
WIRING DIAGRAM

FOR BIDDING PURPOSES ONLY

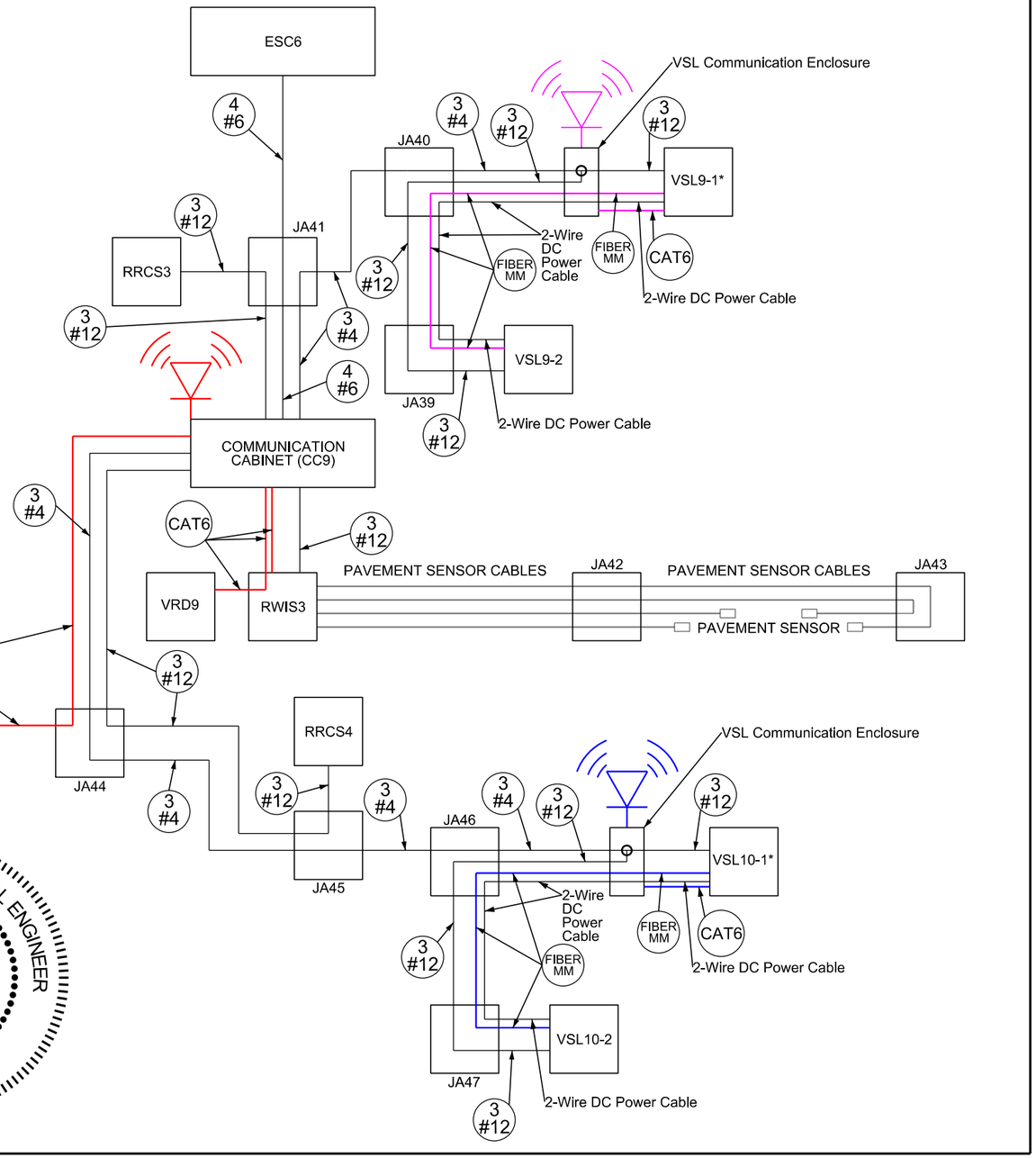
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	102	114

Plotting Date: 10/30/2026

EXIT 37 & MRM 38



EXIT 40 & MRM 41



Cellular Modem - Line colors indicate equipment connections associated with each modem. (See port assignment sheet)

Make all required conductor splices in terminal blocks within the VSL Communication Enclosure

*VSL Communication Enclosure with Cellular Modem at this location

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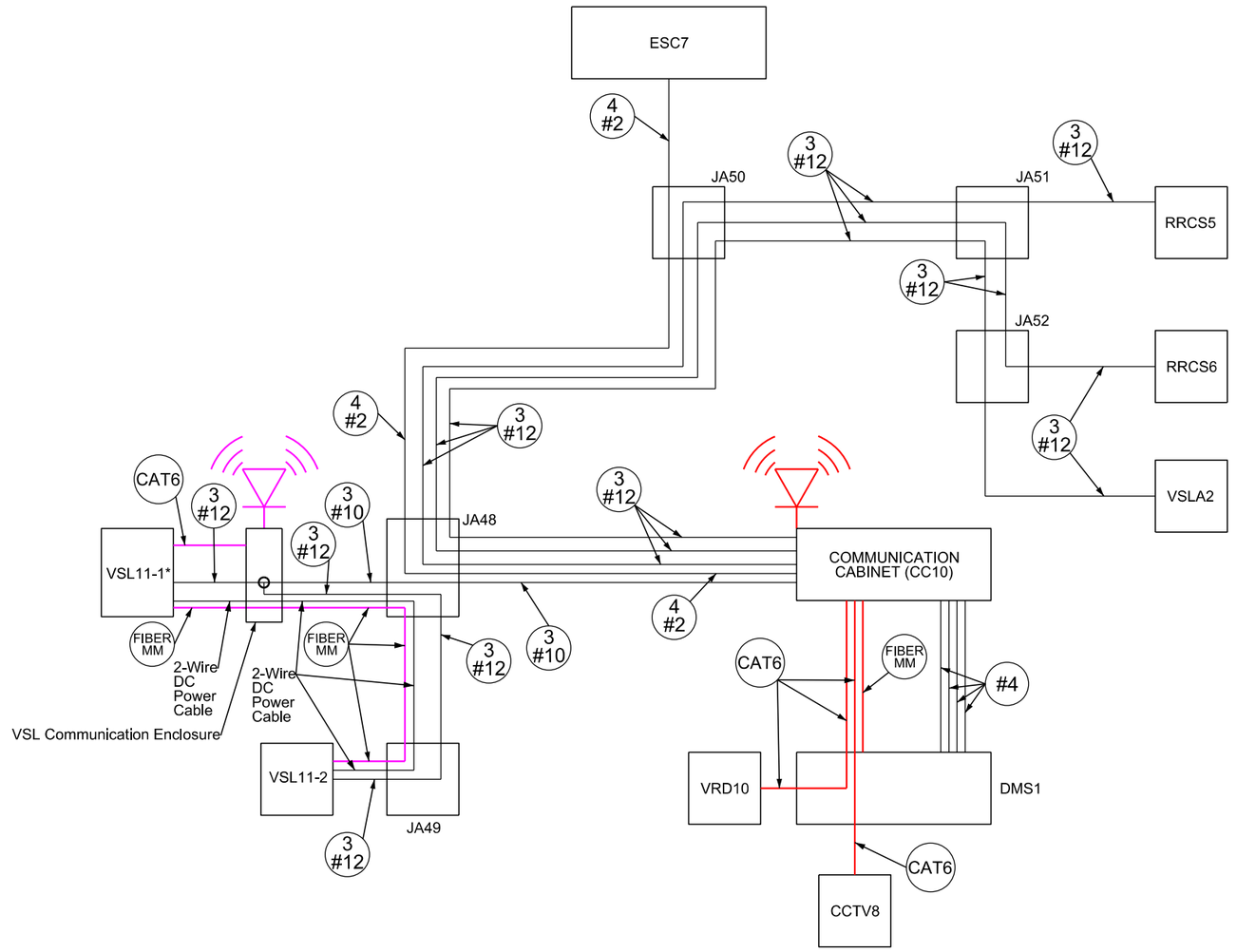
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	103	114

Plotting Date: 10/30/2026

WIRING DIAGRAM

FOR BIDDING PURPOSES ONLY

EXIT 44



Cellular Modem - Line colors indicate equipment connections associated with each modem. (See port assignment sheet)

Make all required conductor splices in terminal blocks within the VSL Communication Enclosure

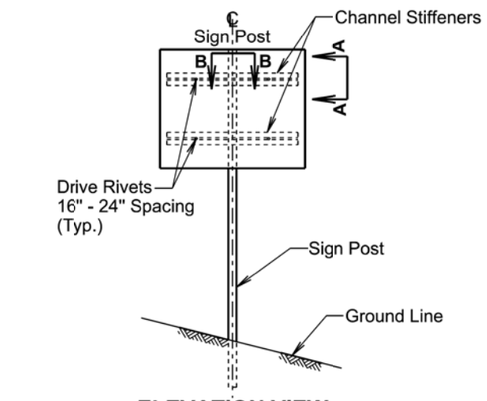
*VSL Communication Enclosure with Cellular Modem at this location

REGISTERED PROFESSIONAL ENGINEER
REG NO
8161
JOSH
LARSON
10-30-26
SOUTH DAKOTA

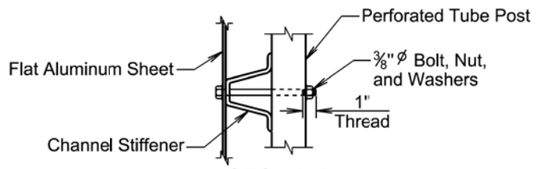
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	104	114

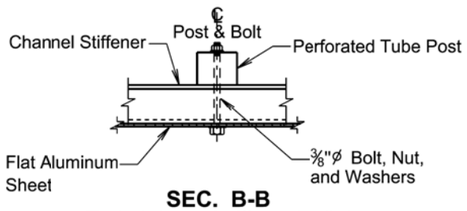
Plotting Date: 10/30/2026



ELEVATION VIEW
(One post breakaway sign supports.)



SEC. A-A

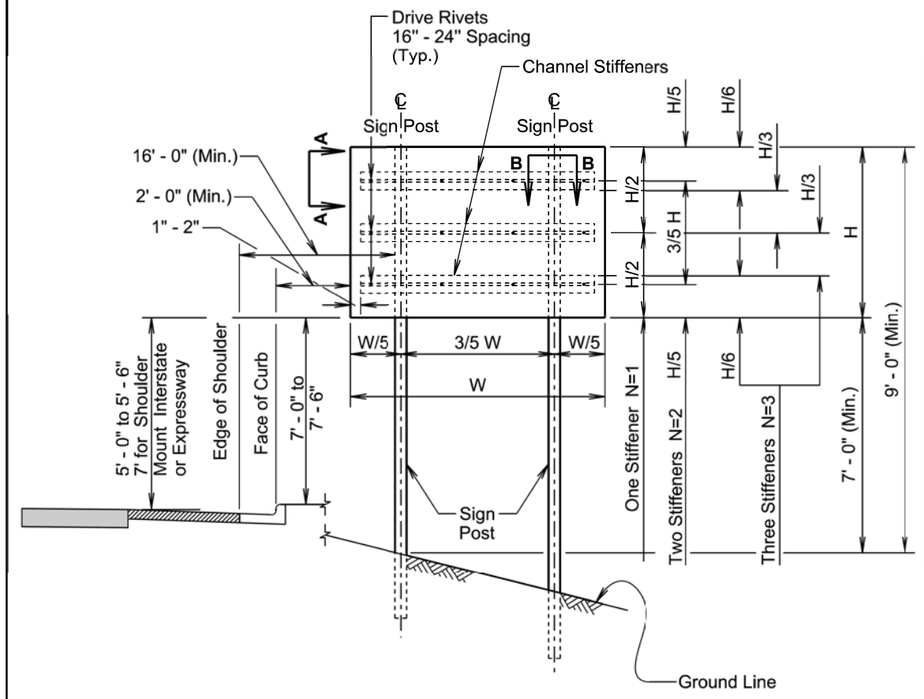


SEC. B-B
(Typical sign and stiffener details.)

ø A plastic washer, as recommended by the sheeting manufacturer, will be installed between the sign face and the metal washer shown.

November 19, 2020

Published Date: 2027	SDDOT	SIGN STIFFENER DETAILS	PLATE NUMBER 632.60
			Sheet 1 of 2



TWO POST BREAKAWAY SIGN SUPPORTS

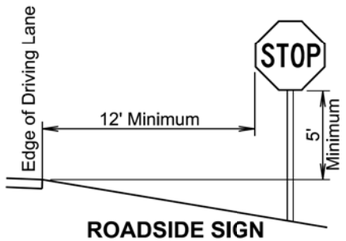
GENERAL NOTES:

The number of stiffeners used (N) will be as follows:
If H < = 2' - 0" then N = 1
if 2' - 0" < H < = 8' - 0" then N = 2
if 8' - 0" < H < = 15' - 0" then N = 3
where H is the vertical dimension of the sign.

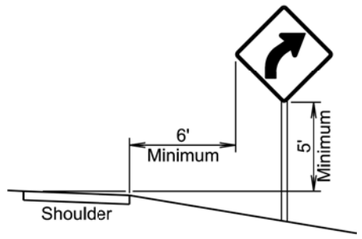
A minimum of two bolts will be required to fasten the sign to each post.

November 19, 2020

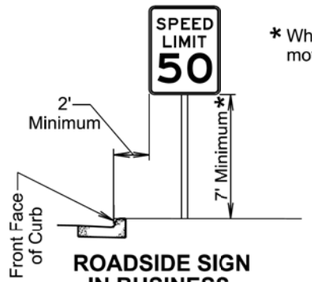
Published Date: 2027	SDDOT	SIGN STIFFENER DETAILS	PLATE NUMBER 632.60
			Sheet 2 of 2



ROADSIDE SIGN IN RURAL AREA

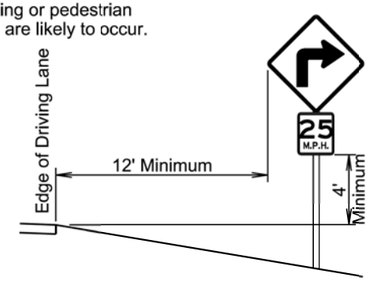


ROADSIDE SIGN IN RURAL AREA
(If shoulder width is greater than 6 foot)

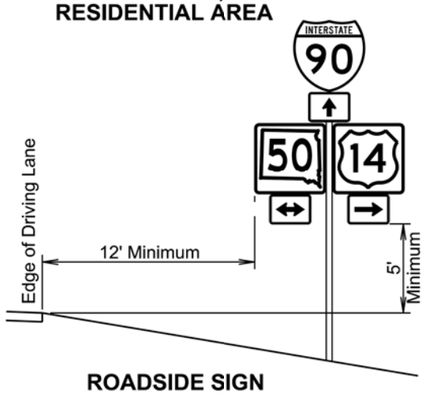


ROADSIDE SIGN IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

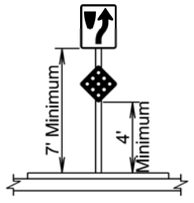
* Where parking or pedestrian movements are likely to occur.



WARNING SIGN ADVISORY SPEED PLAQUE IN RURAL AREA



ROADSIDE SIGN IN RURAL AREA



SIGN ON NOSE OF MEDIAN

April 8, 2025

Published Date: 2027	SDDOT	OFFSETS FOR SIGN INSTALLATION	PLATE NUMBER 632.90
			Sheet 1 of 1

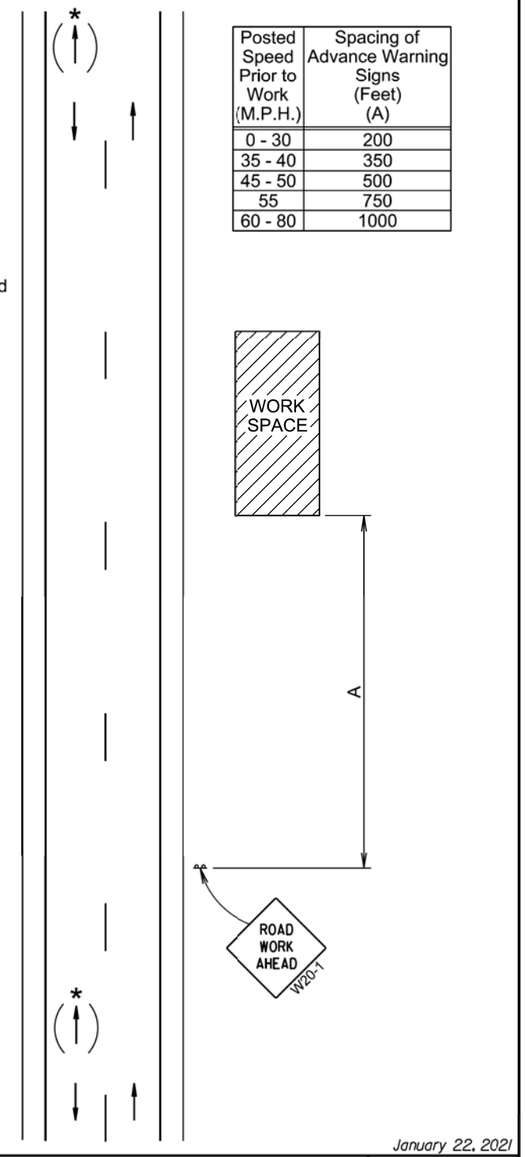
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

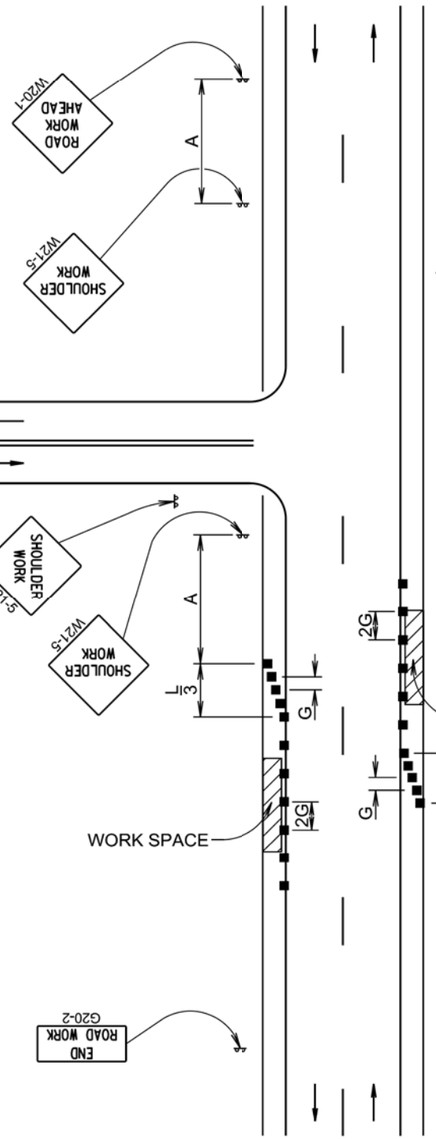
January 22, 2021

Published Date: 2027	SDDOT	WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	106	114

Plotting Date: 10/30/2026



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: 2027	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03 Sheet 1 of 1

*In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

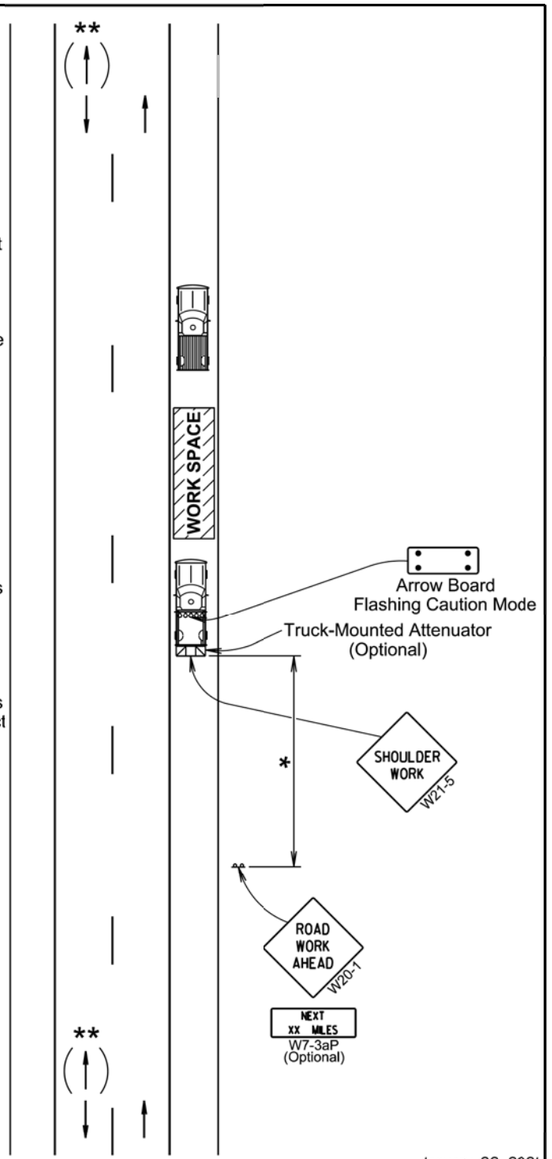
The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

Arrow board is required for intermittently and continuously moving mobile operations when work exceeds 1 hour.

**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.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign.

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: 2027	SDDOT	MOBILE OPERATIONS ON SHOULDERS	PLATE NUMBER 634.04 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.

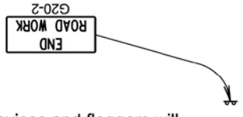
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

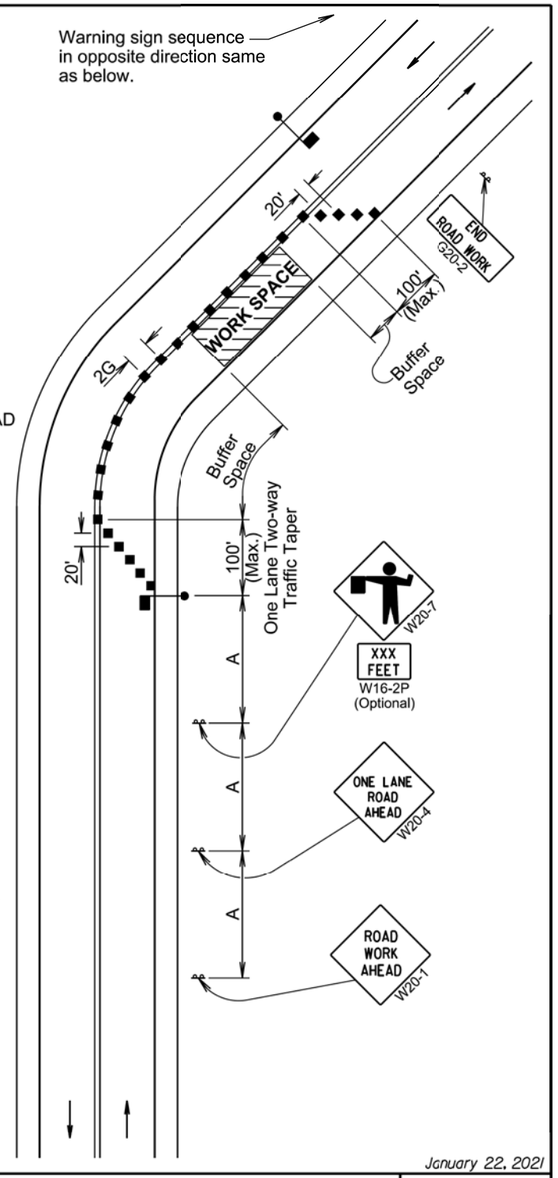
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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: 2027

SDDOT

LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER 634.23

Sheet 1 of 1

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

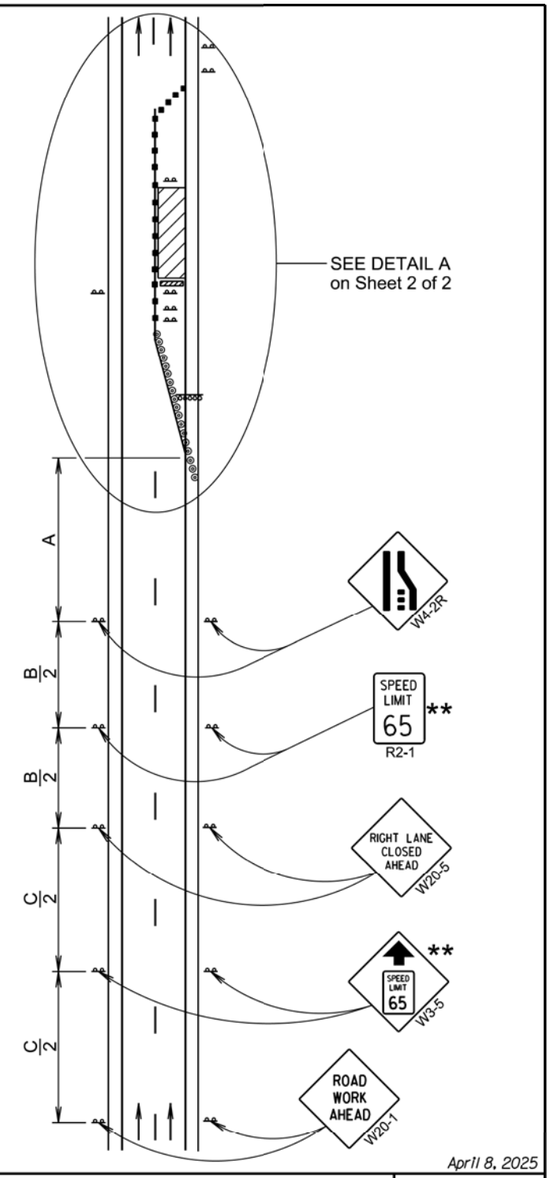
** Speed appropriate for location.

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: 2027

SDDOT

WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS

PLATE NUMBER 634.63

Sheet 1 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	108	114

Plotting Date: 10/30/2026

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

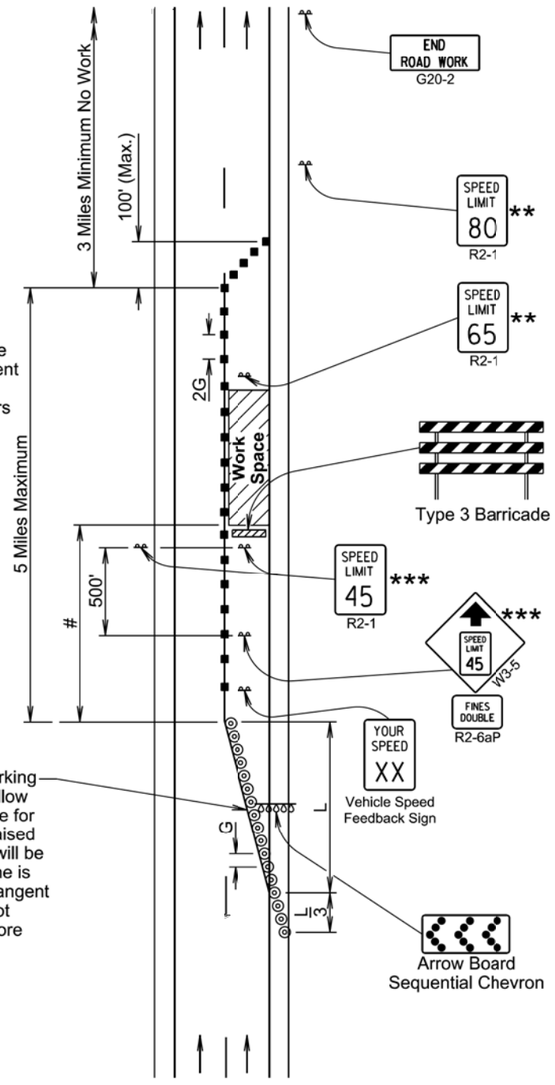
■ Channelizing Device

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: 2027	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63 Sheet 2 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B)	Taper Length (Feet) (L)
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B)	
70 - 80	1000 1500	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

■ Channelizing Device

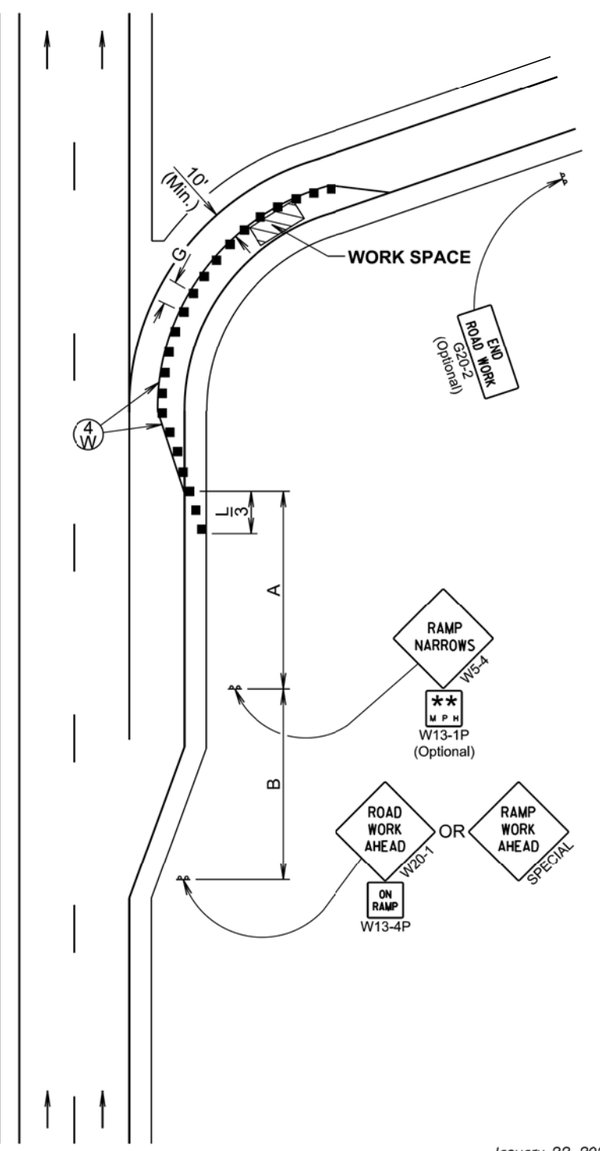
(4W) 4" White Temporary Pavement Marking

** Need and safe speed to be determined by the Engineer.

Temporary pavement markings will be used if traffic control must remain overnight.

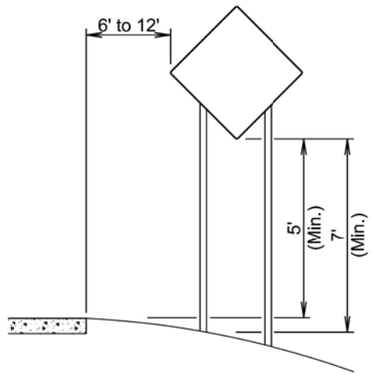
The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

Truck off-tracking should be considered when determining whether the 10-foot minimum lane width is adequate.

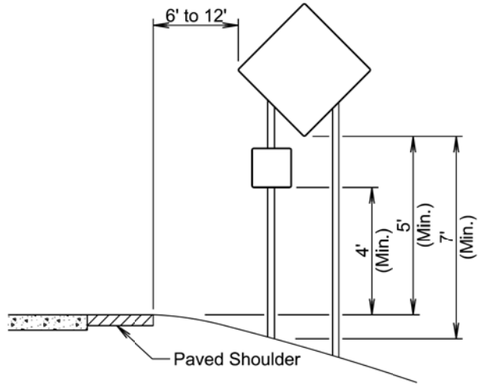


January 22, 2021

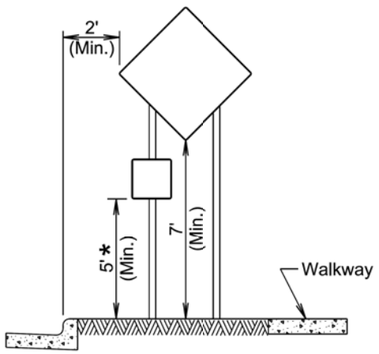
Published Date: 2027	SDDOT	PARTIAL EXIT RAMP CLOSURE	PLATE NUMBER 634.69 Sheet 1 of 1



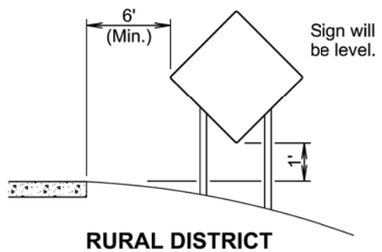
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

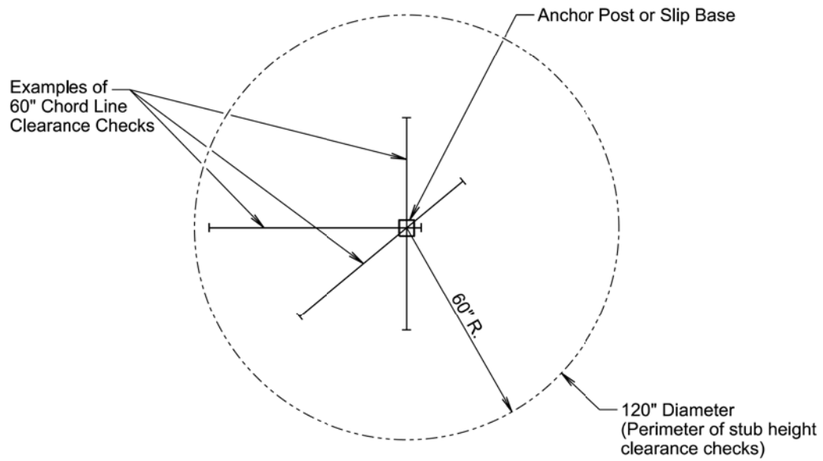


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

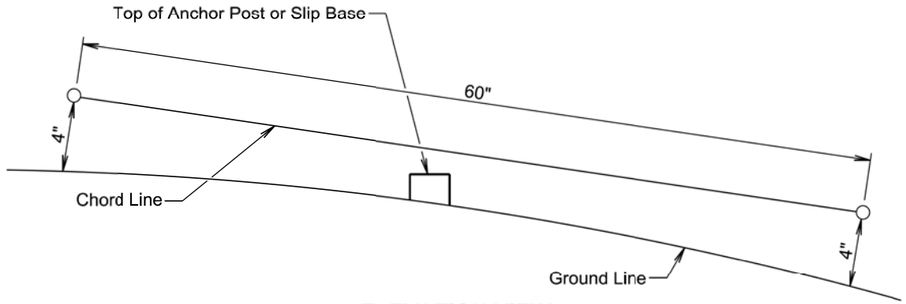
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2027	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.

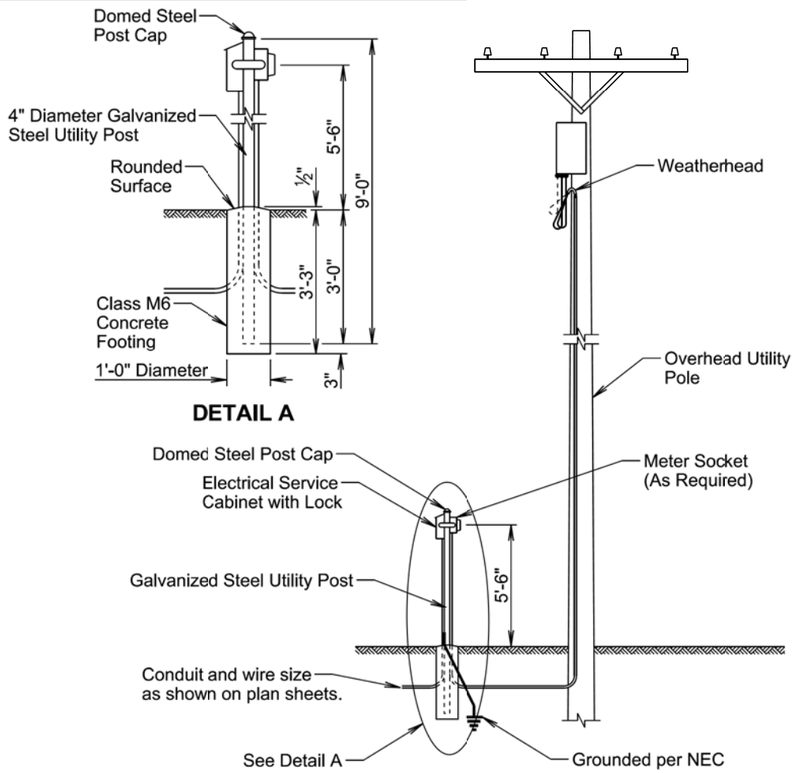
January 22, 2021

Published Date: 2027	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	110	114

Plotting Date: 10/30/2026



DETAIL A

ELEVATION VIEW

GENERAL NOTES:

The concrete for the post footing will be class M6 concrete.

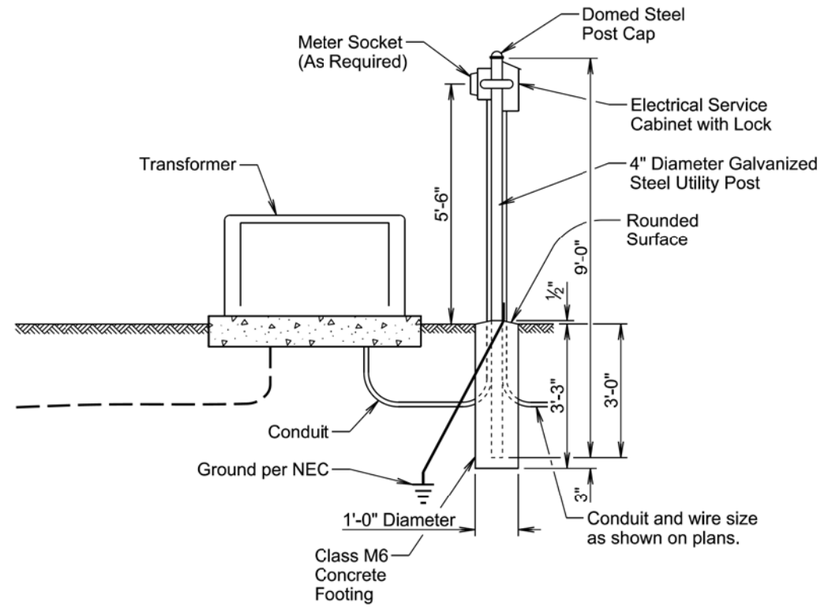
The 4" diameter galvanized steel utility post will be 9' long and will be in conformance with AASHTO Standard Specifications M181. The post will be Type 1 and either Grade 1 or Grade 2. The domed steel post cap will be in conformance with AASHTO Standard Specifications M181 and will be Type 1.

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: 2027	SDDOT	GALVANIZED STEEL UTILITY POST WITH OVERHEAD UTILITY POLE	PLATE NUMBER 635.35
			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".

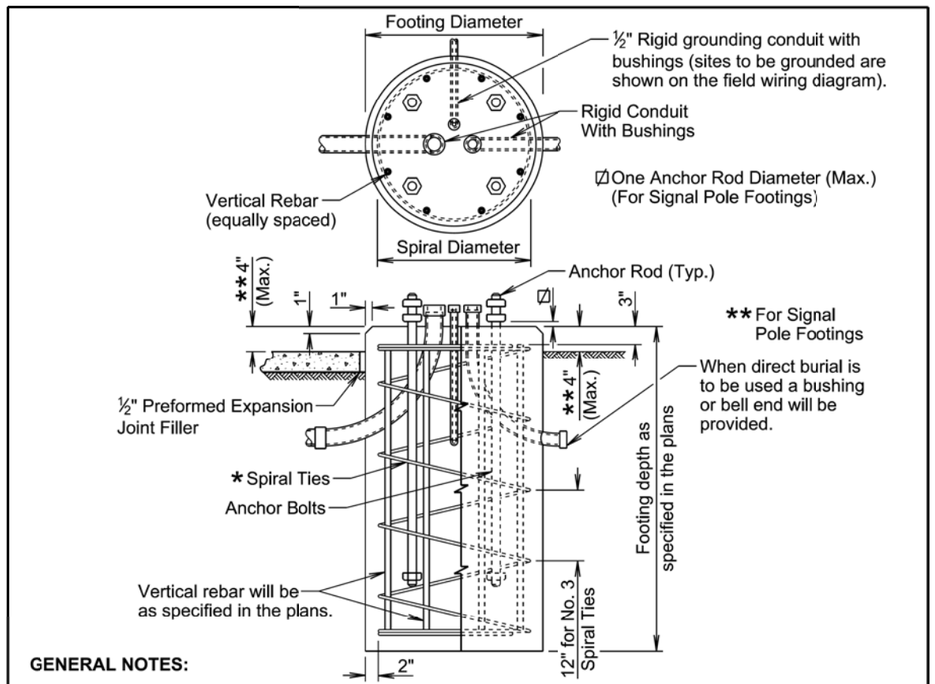
March 31, 2024

Published Date: 2027	SDDOT	SERVICE FROM PAD MOUNTED TRANSFORMER WITH METER ON A GALVANIZED STEEL UTILITY POST	PLATE NUMBER 635.41
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	111	114

Plotting Date: 10/30/2026



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.

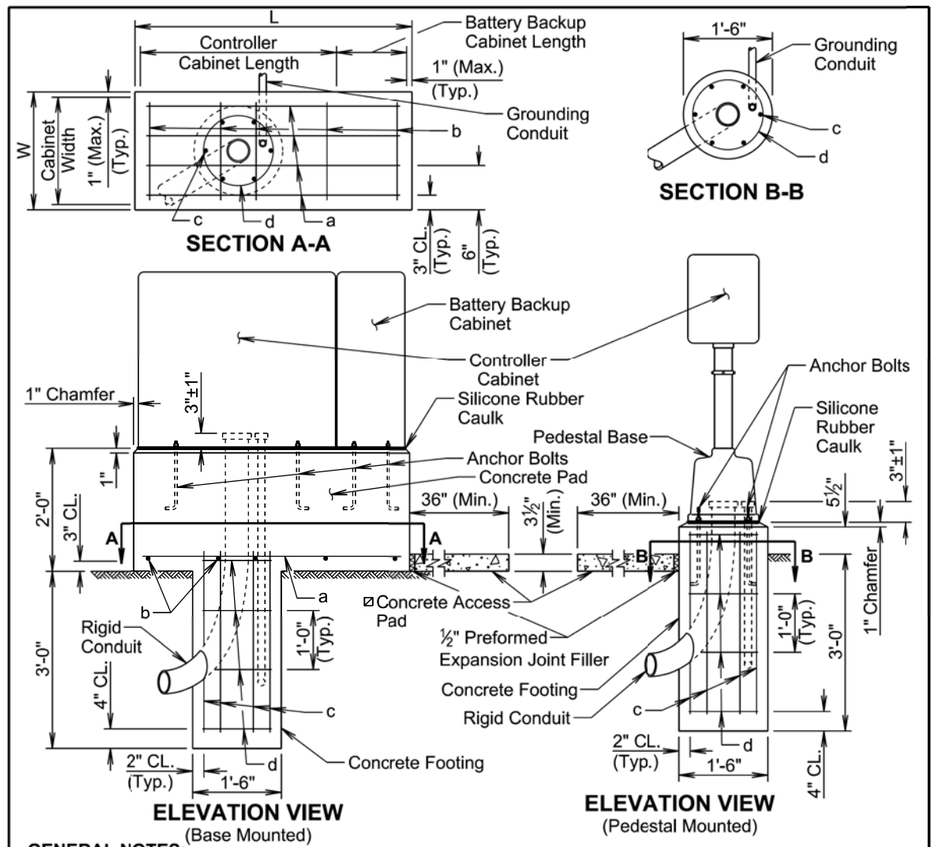
Costs of conduit and conduit bushings shown on footing detail will be incidental to the footing bid item(s).

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: 2027	SDDOT	POLE FOOTING	PLATE NUMBER 635.55
			Sheet 1 of 1



ELEVATION VIEW
(Base Mounted)

ELEVATION VIEW
(Pedestal Mounted)

GENERAL NOTES:

The concrete pad will conform to the base of the controller and battery backup cabinets to the satisfaction of the Engineer.

Conduits will be sealed water-tight until the conductor cables are installed.

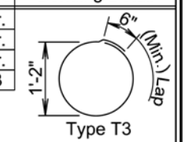
Ø If the controller and battery backup concrete pad and footing is not located within or adjacent to an existing sidewalk, the Contractor will provide a concrete access pad as directed by the Engineer.

Anchor bolts and related hardware will conform to the controller and battery backup cabinets manufacturer's specifications.

A continuous bead of silicone rubber caulk will provide a weather-tight seal between the concrete pad or footing, and the cabinet or base.

REINFORCING SCHEDULE
(for one footing)

Mk.	No.	Size	Length	Type	Bending Detail
a	*	3	L-4"	Str.	
b	*	3	W-4"	Str.	
c	6	6	3'-0"	Str.	
d	4	3	4'-0"	T3	

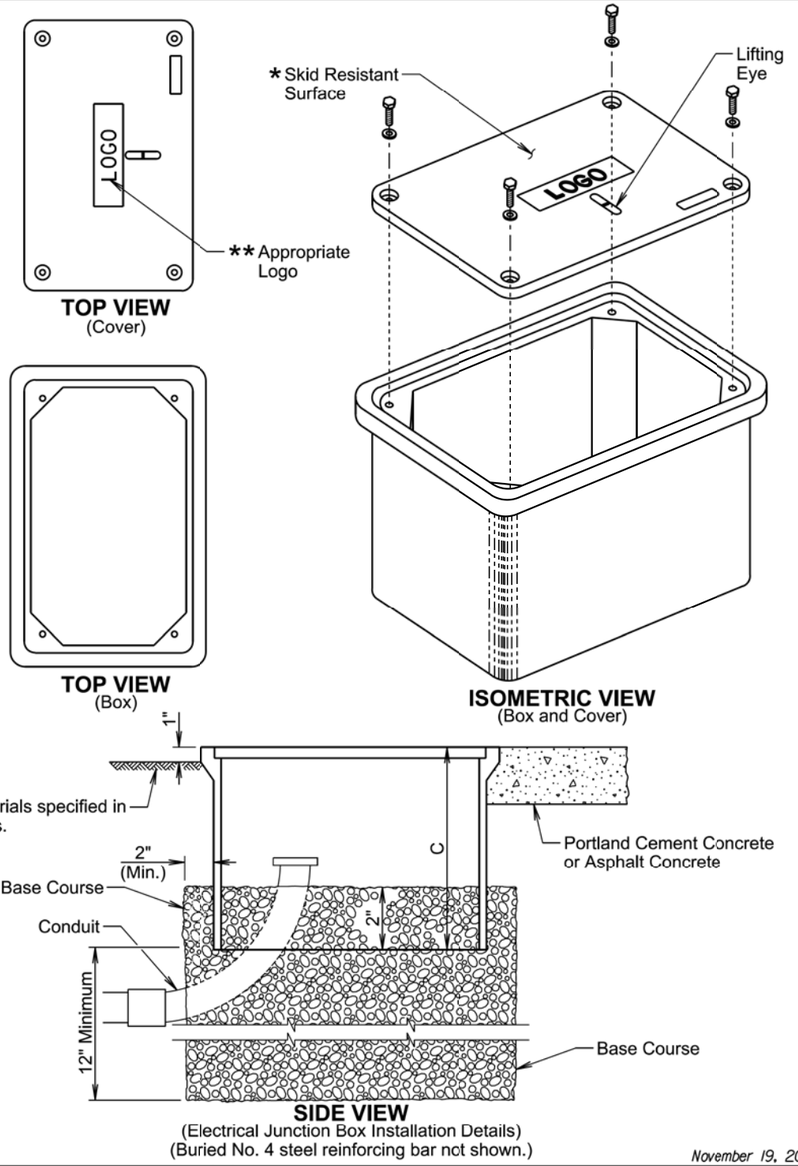


Type T3

Note: Dimensions are out to out of bar
* Vary number of bars as required by footing size.

November 19, 2022

Published Date: 2027	SDDOT	CONTROLLER CABINET AND FOOTING	PLATE NUMBER 635.60
			Sheet 1 of 1



November 19, 2020

Published Date: 2027	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 1 of 2

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".

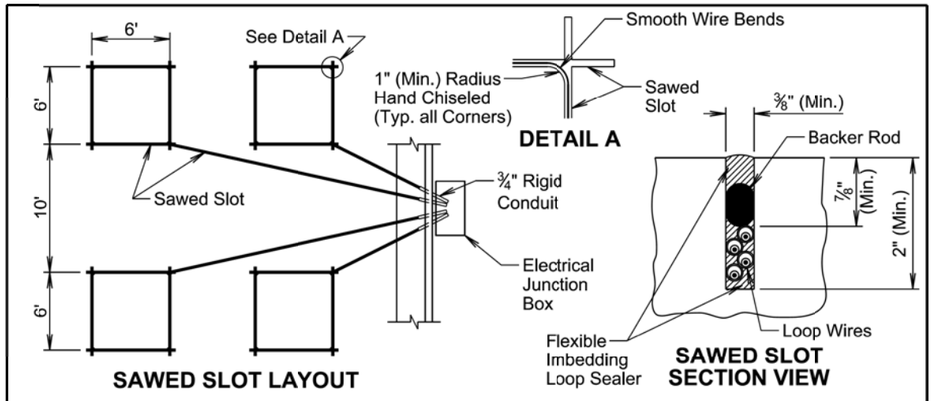
November 19, 2020

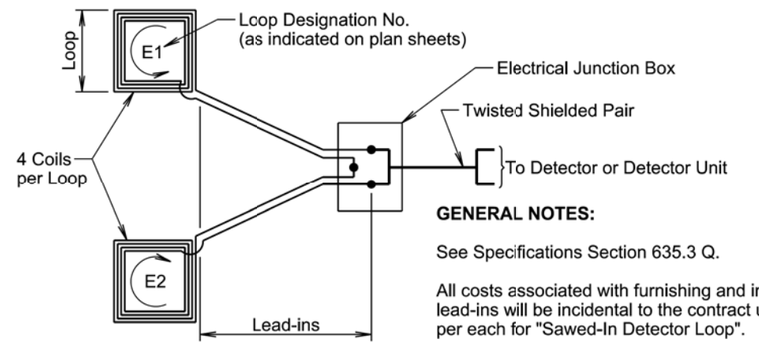
Published Date: 2027	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	113	114

Plotting Date: 10/30/2026



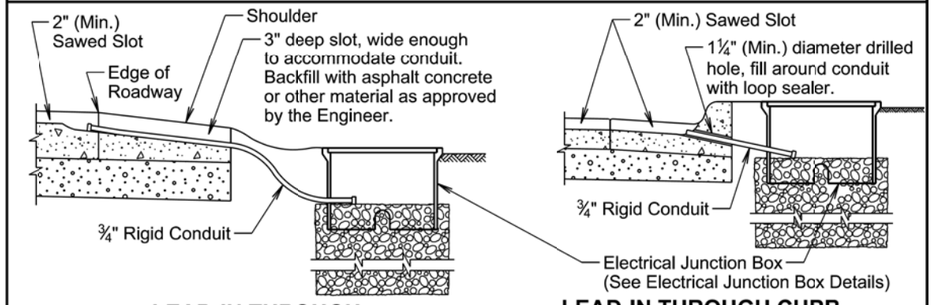


GENERAL NOTES:

See Specifications Section 635.3 Q.

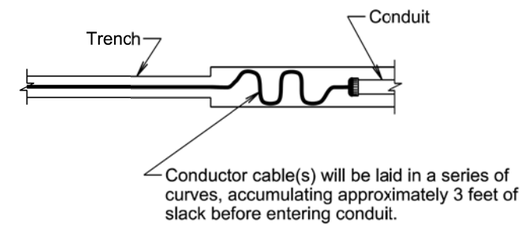
All costs associated with furnishing and installing the lead-ins will be incidental to the contract unit price per each for "Sawed-In Detector Loop".

WIRING DIAGRAM

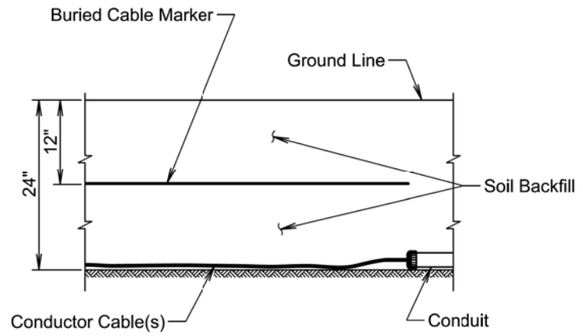


November 19, 2022

Published Date: 2027	SDDOT	SAWED–IN DETECTOR LOOP	PLATE NUMBER 635.71
			Sheet 1 of 1



PLAN 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.

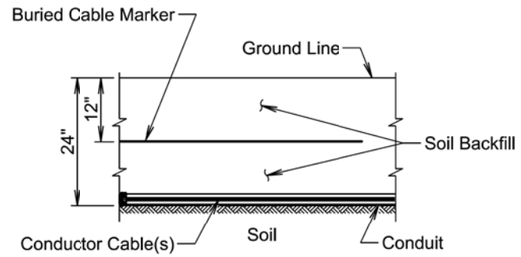
November 19, 2022

Published Date: 2027	SDDOT	DIRECT BURIAL INSTALLATION OF CONDUCTOR CABLE(S)	PLATE NUMBER 635.75
			Sheet 1 of 1

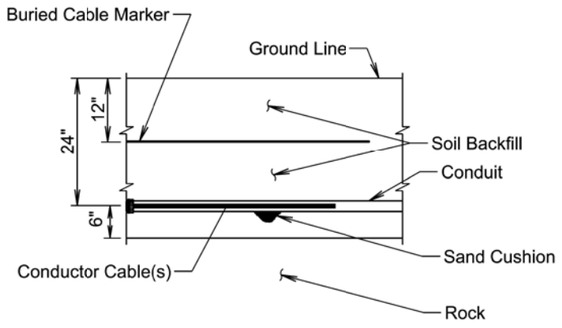
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	CR 0901(194)28	114	114

Plotting Date: 10/30/2026



SECTION VIEW



SECTION VIEW

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November 19, 2022

Published Date: 2027	SDDOT	CONDUIT INSTALLATION	PLATE NUMBER 635.76 Sheet 1 of 1