DEPARTMENT OF TRANSPORTATION

Planning & Engineering
Office of Project Development
700 East Broadway Avenue
Pierre, South Dakota 57501-2586
O: 605.773.3275
dot.sd.gov

September 11, 2026

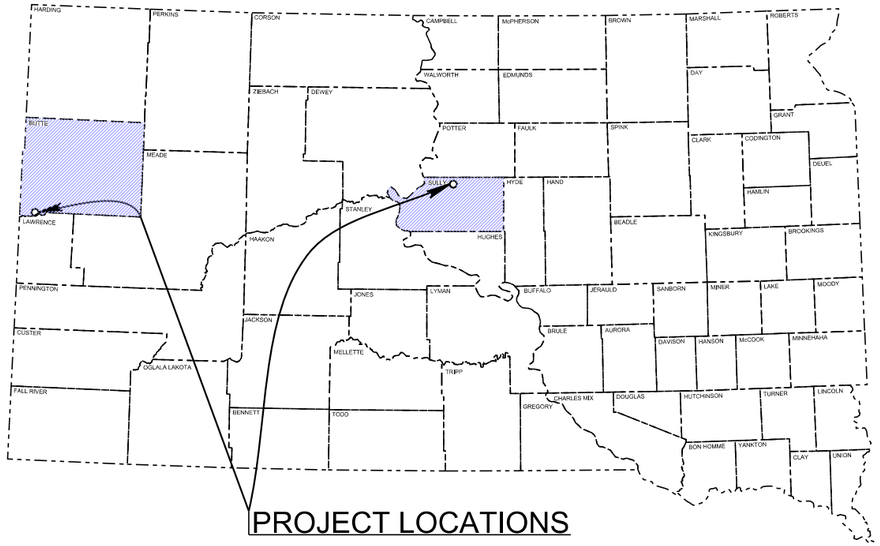
To Whom it May Concern,

Beginning with the 10/7/2026 letting, the SDDOT will be using the new Electronic Standard Specifications for Roads and Bridges, 10-7-26 Version. The Standard Specifications for Roads and Bridges is available for download and viewing at https://dot.sd.gov/doing-business/contractors/standard-specifications . A printed version of the Standard Specifications for Roads and Bridges will not be provided.

A revised Buy America specification is in effect beginning with the 10/7/26 letting, which aligns with the expiration of the Federal Manufactured Products General Waiver. Contractors should be aware that new provisions for manufactured products, along with updates to material classifications, documentation requirements, and compliance procedures, are included in Section 6.9 of the Standard Specifications (10/07/2026 version). All contractors and suppliers are strongly encouraged to review the updated specification in full. Contractors are encouraged to attend the Buy America Informational Webinar being put on by the SDDOT and AGC. Information on the webinar can be found at:
https://dot.sd.gov/doing-business/contractors/webinars/

FHWA has updated the FHWA-1273 commonly known as the “Pink Sheets”. The new FHWA-1273 will be incorporated into all contracts awarded after 10/7/26. Additional information regarding the updated FHWA-1273 can be found at:
https://www.fhwa.dot.gov/construction/cqit/form1273.cfm

Sincerely,
SDDOT – Bid Letting Office



PROJECT LOCATIONS

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT NH 000S(100)

US HIGHWAYS 83 & 85 N&S
BUTTE & SULLY COUNTIES

WIM REPAIR

PCN 0AC6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 000S(100)	1	20

Plotting Date: 04/27/2022

INDEX OF SHEETS

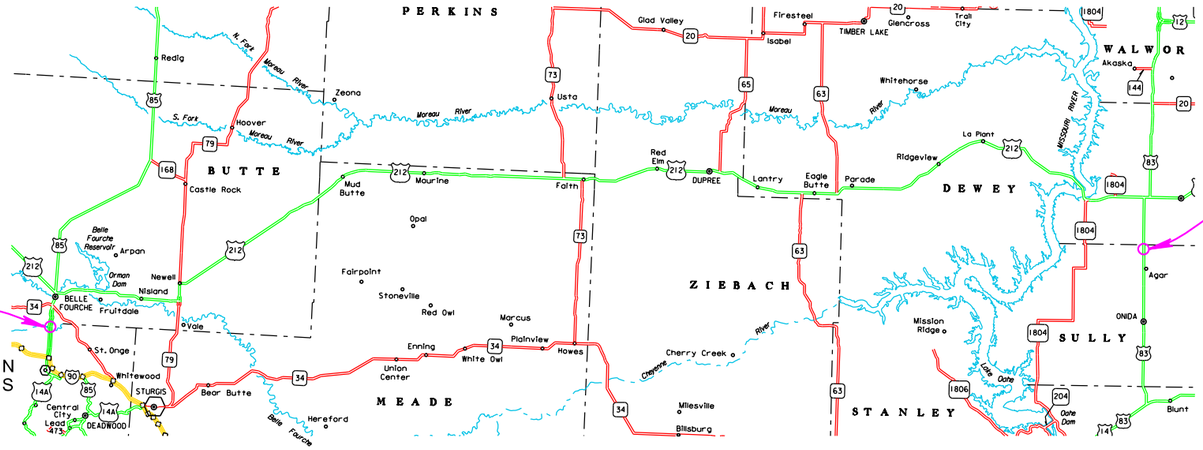
Sheets 1	Title Sheet
Sheets 2-4	Estimates with General Notes
Sheet 5-6	Site Layouts
Sheet 7-14	Bending Plate Installation Details
Shhets 15-16	Typical 2-Lane WIM Layout
Sheets 17	Typical 4-Lane Divided WIM Layout
Sheets 18-20	Standard Plates

DESIGN DESIGNATION
(US83 - SITE 804) WIM

ADT (2025)	1116
ADT (2045)	1949
DHV	252
D	50%
T DHV	11.8%
T ADT	25.9%
V	65 MPH

DESIGN DESIGNATION
(US85 N&S - SITE 811) WIM

ADT (2025)	948
ADT (2045)	1497
DHV	199
D	51%
T DHV	16.7%
T ADT	36.7%
V	65 MPH



SITE 811(WIM):
US 85 - MRM 50.15+0.817 N
US 85 - MRM 50.15+0.816 S
(REPAIR)

SITE 804(WIM):
US 83 - MRM 165 (REPAIR)

STORM WATER PERMIT

(No Permit Required)

7

October 21, 2026

Plot Scale - 1:200

Plotted From - trp25289

File - ...\Butte\0AC6\0AC6_Title.dgn

ESTIMATE OF QUANTITIES

PCN 0AC6:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3500	Weigh-In-Motion System	2	Each
009E4100	Construction Schedule, Category I	Lump Sum	LS
634E0010	Flagging	80.0	Hour
634E0110	Traffic Control Signs	637.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
634E0640	Temporary Pavement Marking	4,688	Ft
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	1	Each

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 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 or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

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

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

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

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

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

SHPO/THPO 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.

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.

UTILITIES

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.

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

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

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

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

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

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

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

TRAFFIC CONTROL SIGNS

Traffic control signs have been included in a table for each site. Payment will only be for those signs used on each site.

TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Temporary pavement marking for stop lines will consist of 4" Temporary Pavement Marking Tape Type I. Placement of each 24" white stop line will be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop lines which is an equivalent of approximately 144' of 4" tape (2 workspaces at 144' = 288'). Temporary pavement marking on centerline will consist of temporary flexible vertical markers (tabs) or temporary raised pavement markers and will be used as depicted on standard plate 634.25 when the stop condition must remain in place during nighttime hours, 9:00 pm to 6:00 am (Estimate 2 workspaces remaining during nighttime hours x 2,200' per workspace = 4,400'). Temporary tape will be removed upon completion of the project.

All costs to furnish, install, replace if necessary, and remove the Temporary Pavement Marking Tape, Type I will be incidental to the contract unit price per foot for "Temporary Pavement Marking".

AGAR WEIGH-IN-MOTION SITE (WIM)

The Contractor will retrofit the existing Weigh-In-Motion (WIM) site near Agar, SD on US 83 at approximately MRM 165.00. The Weigh-In-Motion retrofit will include replacing the bending plate frame, bending plate, temperature sensor, and replacing sawn-in loops. The original/in-place electronics cabinet, pull box, and conduit will be utilized and will not be disturbed. Any disturbance or damage to the existing electronics cabinet, pull box, or conduit will be replaced by the Contractor at the Contractor's expense.

A representative from International Road Dynamics (IRD) will be on site for the installation of the sawn-in loops, bending plates, and frames. The Contractor will contact IRD (phone number (306)-653-6627) a minimum of two weeks before beginning work at the WIM installation site to set up times for their representative to be on site.

The WIM will conform to ASTM E1318-09, Type I "Standard Specification for Highway Weigh-in-Motion System with User Requirements and Test Method". The WIM scale will be weather sealed and watertight. There will be no intrusion of water, ice, snow, salt, debris, dirt, moisture, or sand into the bending plate, the bending plate wiring compartment, the weighing mechanism, or the entire WIM scale in general.

A. Sawn-in loops will be replaced in the existing saw cuts and ran through the existing conduit to the existing electronics cabinet. Existing loops are 6'x6'. A representative of IRD or South Dakota Department of Transportation will be on site to direct installation of the sawn-in loops. The loop wire must have 4 turns of jacketed loop wire meeting the requirements of IMSA Specification No 51-5 (1 conductor, PVC/Nylon with Tube Jacket 14 AWG). Home run shielded wire will be stranded 14AWG with DC resistance < 3.0 ohms per 1000 feet and has cross-link polyethylene insulation (XHHW)

B. The Contractor will install 4 (2 per lane) IRD 1.75 meter bending plate load frames following the steps and requirements of IRD installation manual and drawings {IRD part number 69045001 Revision E (9/22/2017)} in the existing PCC concrete surface. A representative of IRD will aid in the installation of the new IRD 1.75 meter bending plate load frames. The Contractor will supply all necessary equipment including hardware, manpower, and materials to complete this installation. The final installation of the 4 new IRD 1.75 meter bending plate load frames must be approved by a representative of the SDDOT Office of Inventory Management & Research Traffic Section and Project Engineer.

C. After new load frames have been installed, the Contractor will install 4 (2 per lane) new IRD Model 100568 1.75 meter Bending Plates following the steps and requirements of IRD installation manual and drawings {IRD part number 69045001 Revision E (9/22/2017)}. The Contractor will supply all necessary equipment including hardware, manpower and materials to complete this installation. A representative of IRD will aid in the installation of the new IRD Model 100568 1.75meter Bending Plates. The final installation of the 4 new Bending Plates must be approved by a representative of the SDDOT Office of Inventory Management & Research Traffic Section.

D. The wiring from each lane's sensors will exit the pavement through conduit to an existing pull box in the nearest shoulder in-slope. The wiring will then be pulled through conduit from the pull boxes to the electronics cabinet. All loop wire and sensor wire will be clearly labeled in the respective junction box.

E. After the Contractor completes all the work above and before payment the WIM system will be calibrated by personnel from IRD Corporation and must meet ASTM E 1318-09 Level I accuracy requirements. The Contractor will supply a 5 axle semi-truck with operator for the calibration process. The 5 axle semi-truck will have a gross weight between 75,000 and 80,000 pounds. A static weight of the semi-truck (including each axle weight) will be recorded at a certified static scale and a copy of the certified weights supplied to the SDDOT Engineer at the beginning of calibration. The tandem axles on the tractor and trailer will not be spaced more than 55" apart and the semi will carry a non-shifting load.

   The system must properly classify a minimum of 90% of all vehicles and 95% of all 5-axle tractor-semitrailers. The classification scheme will be FHWA Scheme F. The test which SDDOT may conduct at the site will be to visually classify vehicles to verify proper classification.

F. A two-year warranty is required on all components of the new IRD load frames, IRD Model 100568 1.75 meter bending plates, and loops.

G. All costs to install bending plate frames, bending plates, inductive loops, and have a fully calibrated and operational WIM system including labor, equipment, software, hardware, tools, materials, and all other items will be incidental to the contract unit price per each for "Weigh-In-Motion System".

Belle Fourche WEIGH-IN-MOTION SITE (WIM)

The Contractor will retrofit the existing Weigh-In-Motion (WIM) site South of Belle Fourche, SD on US 85 N & S at approximately MRM 50.15 + 0.817 N & MRM 50.15+0.816S. The Weigh-In-Motion retrofit will include replacing the bending plate frame, bending plate, and temperature sensor. The original/in-place electronics cabinet, preformed loops, pull box, and conduit will be utilized and will not be disturbed. Any disturbance or damage to the existing electronics cabinet, preformed loops, pull box, or conduit will be replaced by the Contractor at the Contractors expense.

A representative from International Road Dynamics (IRD) will be on site for the installation of the bending plates and frames. The Contractor will contact IRD (phone number (306)-653-6627) a minimum of two weeks before beginning work at the WIM installation site to set up times for their representative to be on site.

The WIM will conform to ASTM E1318-09, Type I "Standard Specification for Highway Weigh-in-Motion System with User Requirements and Test Method". The WIM scale will be weather sealed and watertight. There will be no intrusion of water, ice, snow, salt, debris, dirt, moisture, or sand into the bending plate, the bending plate wiring compartment, the weighing mechanism, or the entire WIM scale in general.

A. The Contractor will install 8 (2 per lane) IRD 1.75 meter bending plate load frames following the steps and requirements of IRD installation manual and drawings {IRD part number 69045001 Revision E (9/22/2017)} in the existing PCC concrete surface. A representative of IRD will aid in the installation of the new IRD 1.75 meter bending plate load frames. The Contractor will supply all necessary equipment including hardware, manpower, and materials to complete this installation. The final installation of the 8 new IRD 1.75 meter bending plate load frames must be approved by a representative of the SDDOT Office of Inventory Management & Research Traffic Section and Project Engineer.

B. After new load frames have been installed, the Contractor will install 8 (2 per lane) new IRD Model 100568 1.75 meter Bending Plates following the steps and requirements of IRD installation manual and drawings {IRD part number 69045001 Revision E (9/22/2017)}. The Contractor will supply all necessary equipment including hardware, manpower and materials to complete this installation. A representative of IRD will aid in the installation of the new IRD Model 100568 1.75meter Bending Plates. The final installation of the 8 new Bending Plates must be approved by a representative of the SDDOT Office of Inventory Management & Research Traffic Section.

C. The wiring from each lane's sensors will exit the pavement through conduit to an existing pull box in the nearest shoulders in-slope. The wiring will then be pulled through conduit from the pull boxes to the electronics cabinet. All loop wire and sensor wire will be clearly labeled in the respective junction box.

D. After the Contractor completes all the work above and before payment the WIM system will be calibrated by personnel from IRD Corporation and must meet ASTM E 1318-09 Level I accuracy requirements. The Contractor will supply a 5 axle semi-truck with operator for the calibration process. The 5 axle semi-truck will have a gross weight between 75,000 and 80,000 pounds. A static weight of the semi-truck (including each axle weight) will be recorded at a certified static scale and a copy of the certified weights supplied to the SDDOT Engineer at the beginning of calibration. The tandem axles on the tractor and trailer will not be spaced more than 55" apart and the semi will carry a non-shifting load.

   The system must properly classify a minimum of 90% of all vehicles and 95% of all 5-axle tractor-semitrailers. The classification scheme will be FHWA Scheme F. The test which SDDOT may conduct at the site will be to visually classify vehicles to verify proper classification.

E. A two-year warranty is required on all components of the new IRD load frames and IRD Model 100568 1.75meter bending plates.

F. All costs to install bending plate frames, bending plates, temperature sensors, and have a fully calibrated and operational WIM system including labor, equipment, software, hardware, tools, materials, and all other items will be incidental to the contract unit price per each for "Weigh-In-Motion System".

US 83: MRM 165.00

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30" x 30"	6.3	12.6
W1-3	REVERSE TURN (L or R)	1	48" x 48"	16.0	16.0
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			210.2

US 85 N & S: MRM 50.15 + 0.817 N & MRM 50.15+0.816S

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 65	8	24" x 30"	5.0	40.0
R2-1	SPEED LIMIT 45	4	24" x 30"	5.0	20.0
R2-6aP	FINES DOUBLE (plaque)	2	24" x 18"	3.0	6.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	4	48" x 48"	16.0	64.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			427.0

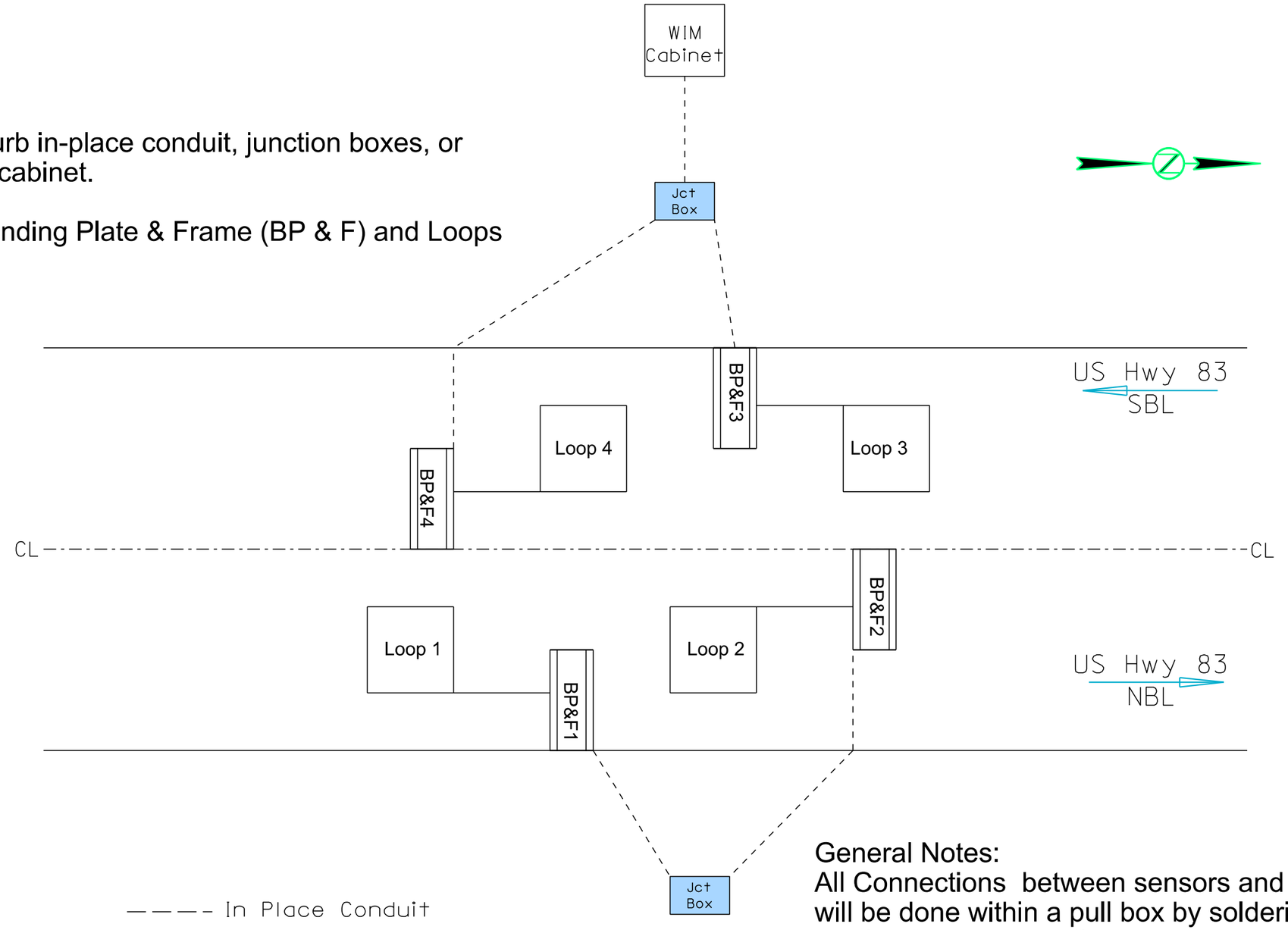
AGAR WIM – US 83

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 000S(100)	5	20

Plotting Date: 06/23/2026

Do not disturb in-place conduit, junction boxes, or electronics cabinet.

Replace Bending Plate & Frame (BP & F) and Loops



——— In Place Conduit

Bending Plate & Frame

Jct Box — Junction Box

General Notes:
All Connections between sensors and lead cables will be done within a pull box by soldering then sealing for waterproofing.

AC Power Cables must be run in separate conduit & pullboxes from signal cables.

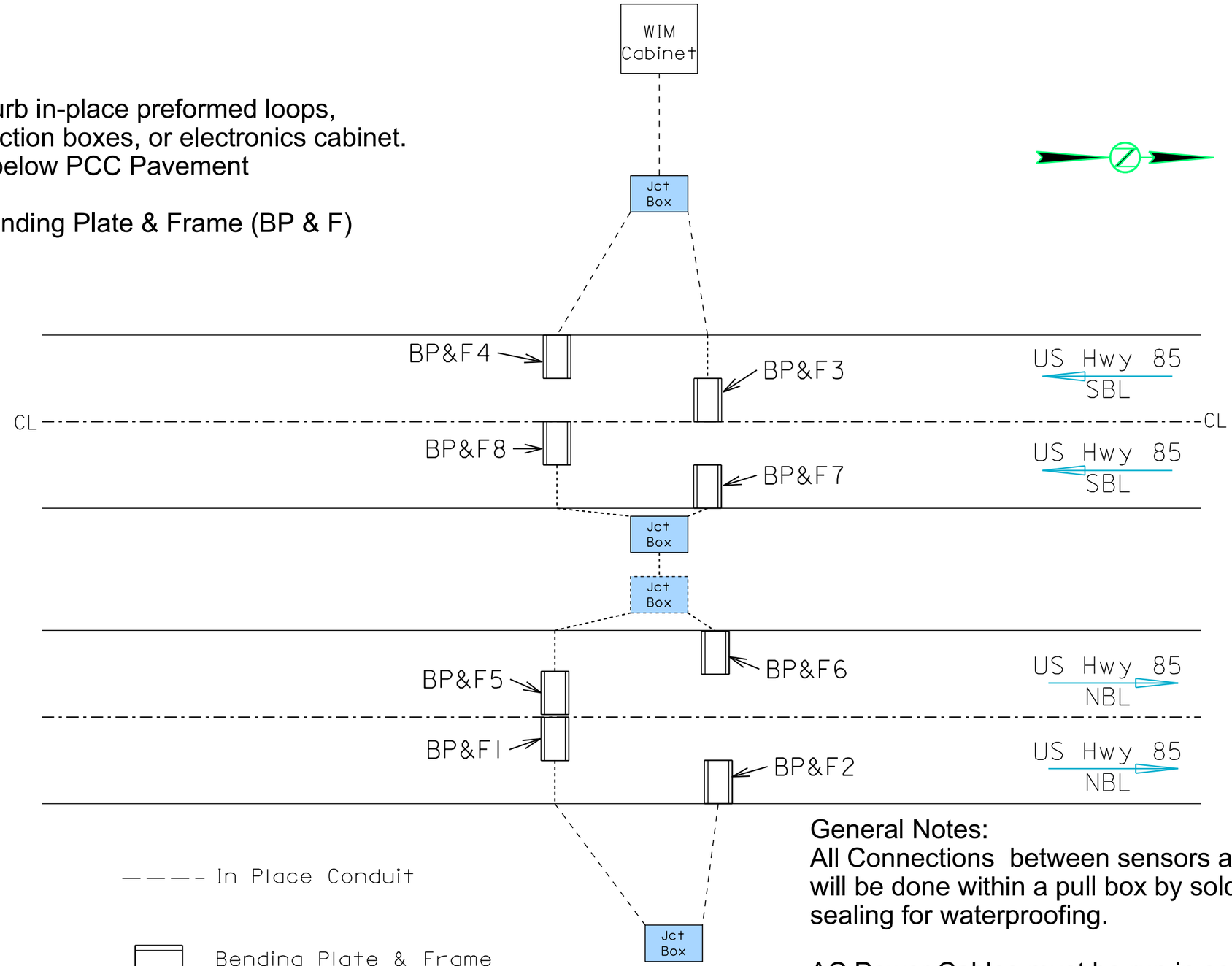
BELLE FOURCHE WIM – US 85 N & S

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 000S(100)	6	20

Plotting Date: 06/23/2026

Do not disturb in-place preformed loops, conduit, junction boxes, or electronics cabinet. Loops are below PCC Pavement

Replace Bending Plate & Frame (BP & F)



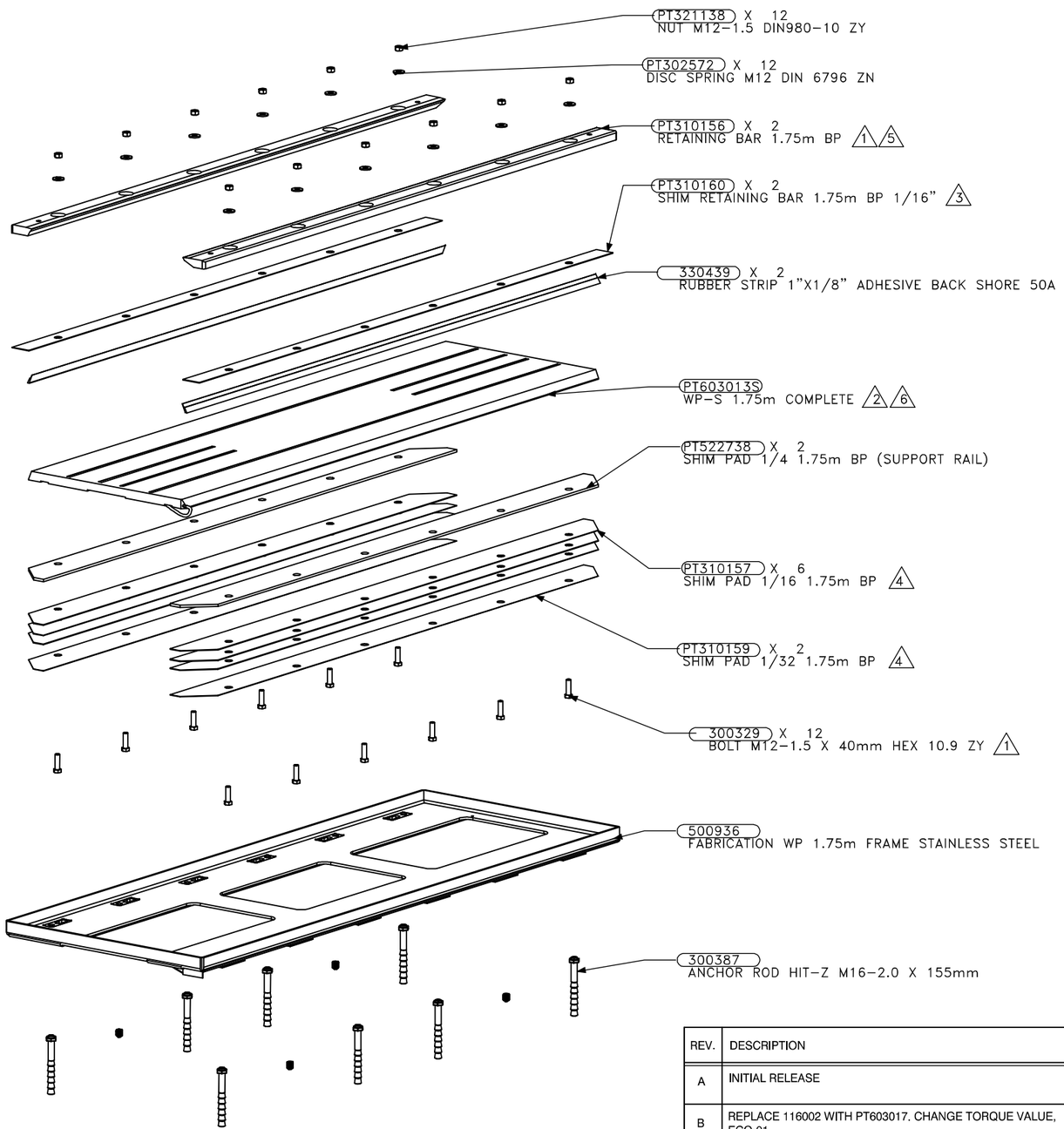
General Notes:
All Connections between sensors and lead cables will be done within a pull box by soldering then sealing for waterproofing.

AC Power Cables must be run in separate conduit & pullboxes from signal cables.

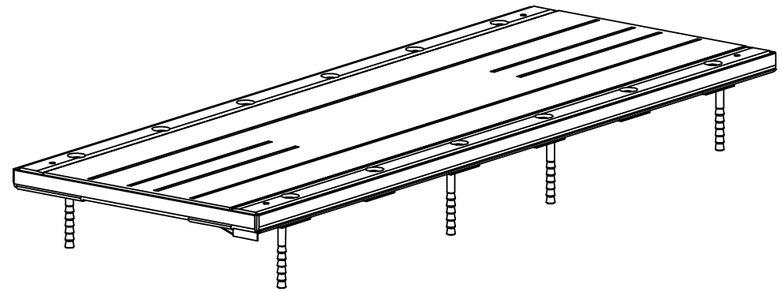
BENDING PLATE INSTALLATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	7	20

ISOMETRIC VIEW – ASSEMBLY PARTS



ISOMETRIC VIEW – ASSEMBLED



NOTES:

1. COAT FRAME, BOLT, AND INSIDE OF COUNTER BORE WITH ANTI–SEIZE AND TORQUE NUT TO 65ft–lbs [88Nm]
2. CLEAN ANGLED SURFACE OF PAD WITH EHTYL ALCOHOL AND ATTACH SILICONE RUBBER STRIP
3. SHIMS USED TO ADJUST RETAINING BAR HEIGHT
4. SHIMS USED TO ADJUST WEIGHPAD HEIGHT. QUANTITY USED TO BE DETERMINED ON SIDE
5. COAT ANGLED PAD CONTACT EDGE OF RETAINING BARS WITH ANTI–SEIZE PRIOR TO ASSEMBLY
6. WEIGHPAD IS ORDERED SEPARATELY FROM FRAME

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE: **INSTALLATION 1.75m EPOXY PAT BENDING PLATE**

DWG. No. **813005-0302** REV.: E

CAD FILE: 116008.SLDASM

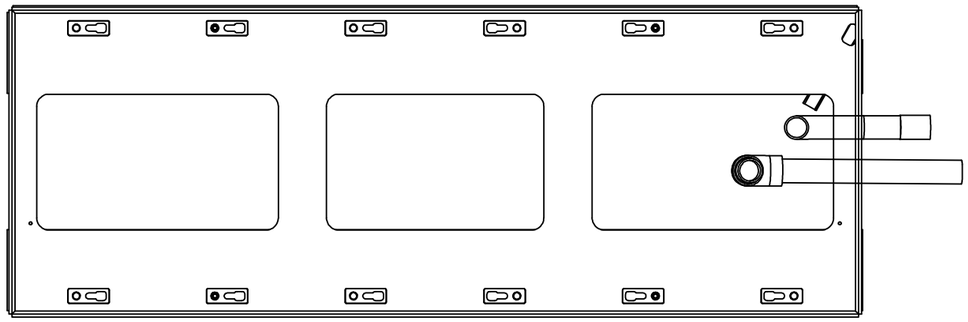
SHEET 1 OF 8

PLOTTED FROM - TRAB12222

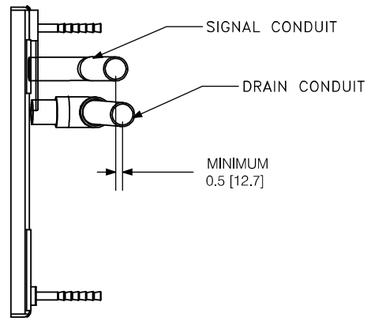
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	8	20

CONDUIT INSTALLATION

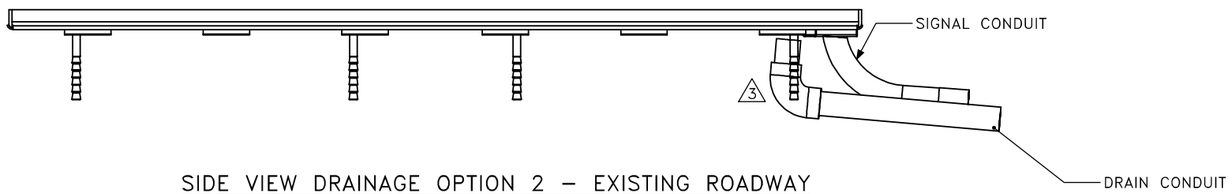
PLAN VIEW



END VIEW – CONDUIT ENTRANCE

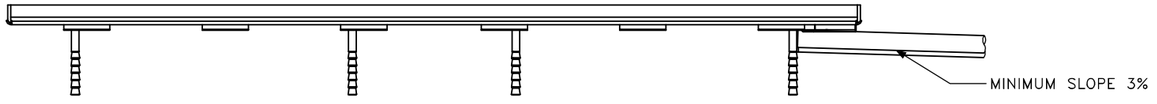


SIDE VIEW DRAINAGE OPTION 1 – NEW ROADWAYS



SIDE VIEW DRAINAGE OPTION 2 – EXISTING ROADWAY

INSTALLATION DRAWINGS FROM THIS POINT ON ASSUMES EXISTING ROADWAY



NOTES:

1. DRAIN CAN BE ROUTED TO EITHER SIDE OF ROADWAY, REGARDLESS OF CABLE ROUTING OR ELECTRONICS LOCATION.
2. DRAINAGE MUST ALLOW FREE FLOW AWAY FROM THE DRAIN OUTLET. THE OUTLET MUST BE WELL ABOVE THE HIGH WATER LEVEL OF THE DITCH OR MANHOLE. THE FLOW ALONG THE DRAIN AND AWAY FROM THE OUTLET MUST BE MAINTAINED AT ALL TIMES.
3. POSITION DRAIN ENTRY AT LOWEST POINT IN FRAME CHANNEL
4. SEE DRAINAGE OPTIONS ON SHEET 8 FOR DRAINAGE DETAILS

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE: **INSTALLATION 1.75m EPOXY PAT BENDING PLATE**

SIZE:	DWG. No.	REV.:
B	**813005-0302**	E

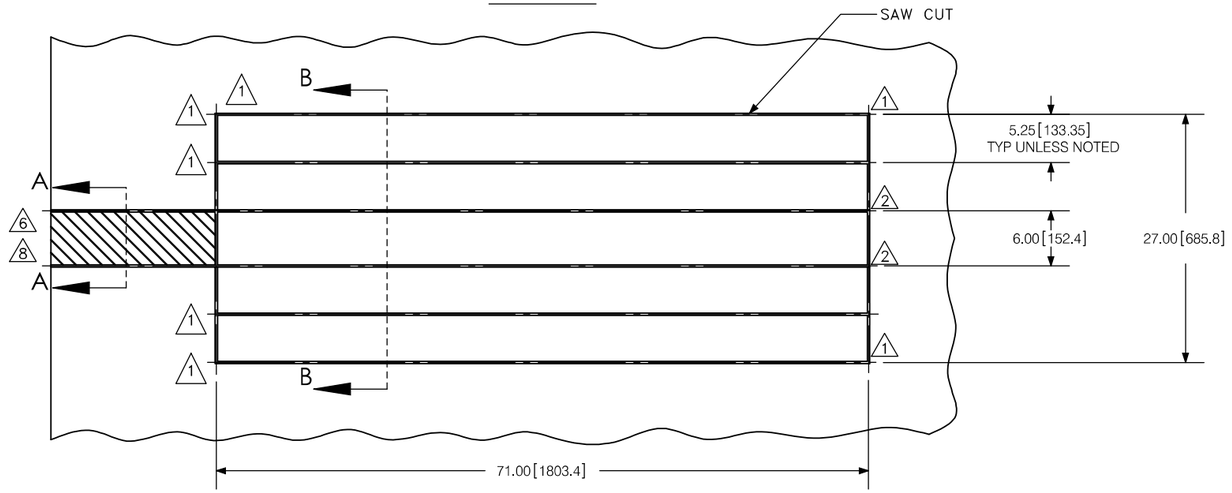
DIMENSIONS IN: in [mm]	CAD FILE:	SHEET
	116008.SLDASM	2 OF 8

PLOTTED FROM - TRAB12222

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	9	20

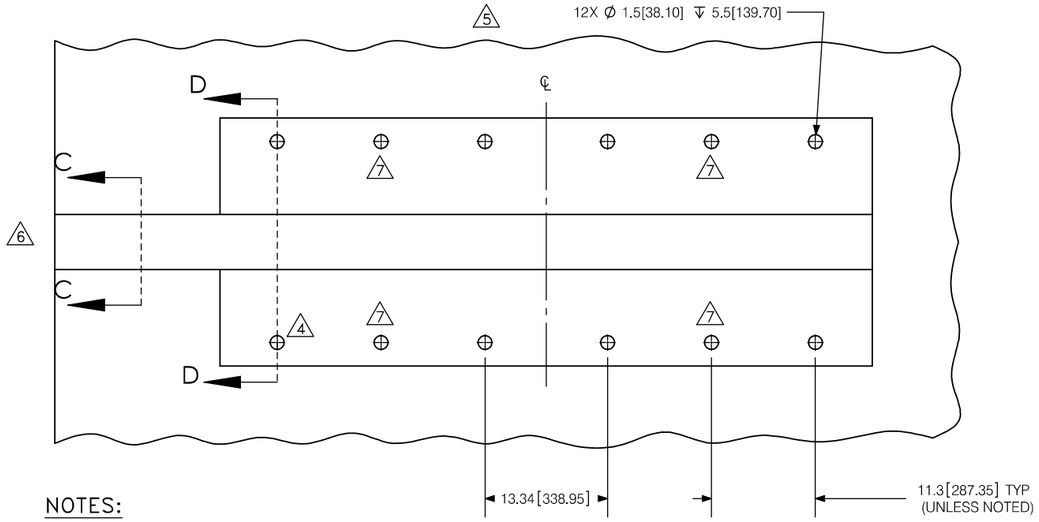
STEP 1 – SAWCUT AND EXCAVATION

TOP VIEW



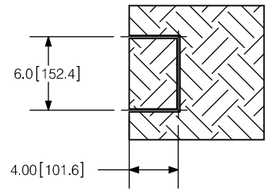
STEP 2 – DRILL ANCHOR HOLES

TOP VIEW



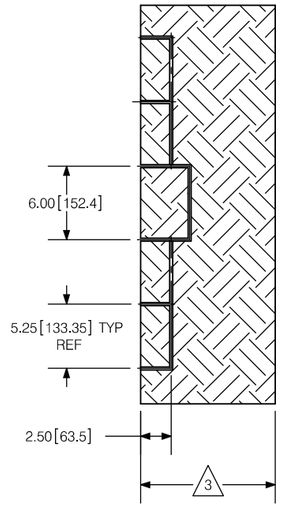
SECTION A–A

SCALE 1 : 12

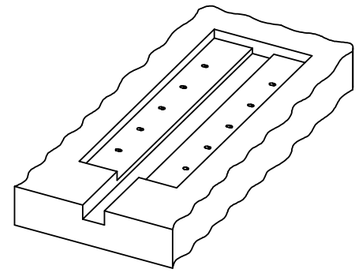


SECTION B–B

SCALE 1 : 12

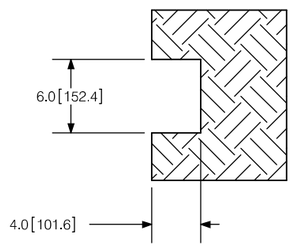


ISOMETRIC VIEW OF EXCAVATION



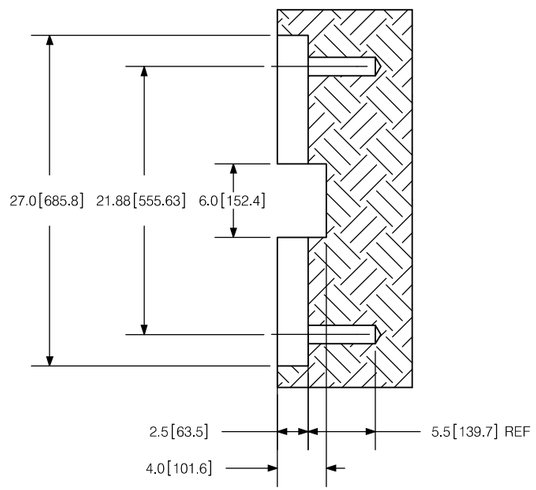
SECTION C–C

SCALE 1 : 12



SECTION D–D

SCALE 1 : 12



NOTES:

1. DEPTH CUT IS 2.5" [64mm]. DO NOT CROSS CUT PASSED RECESS CORNER TO AVOID RISK OF FUTURE BREAKING.
2. DEPTH CUT IS 4" [102mm]. DO NOT CROSS CUT PASSED END CUT TO AVOID RISK OF FUTURE BREAKING.
3. THE PAVEMENT MUST BE AT LEAST 10" [254mm] THICK.
4. PLACEMENT OF ANCHOR HOLES MAY VARY DUE TO PLACEMENT OF FRAME. USE FRAME AS TEMPLATE TO MARK HOLES.
5. ø1.125 [ø28.6] DIAMETER IS A MINIMUM AND THIS VALUE MAY VARY UP TO ø1.500 [ø38.1]. FLEXIBILITY IS GIVEN FOR OPTION OF TOOL SIZE AND PREFERENCE OF INSTALLATION.
6. CONDUIT RUN CONTINUED UNTIL EDGE OF THE PAVEMENT.
7. MINIMUM OF 8 ANCHORS REQUIRED – UP TO 12 ANCHORS IS OPTIONAL AND REQUIRES EXTRA ANCHOR HOLES
8. ONLY CUT AND EXCAVATE CONDUIT RUN FOR EXISTING ROAD INSTALLATIONS. INSTALLATIONS INTO NEW ROADS HAVE CONDUITS PRECAST INTO PAVEMENT

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
INSTALLATION
1.75m EPOXY
PAT BENDING PLATE

DWG. No. **813005-0302**

REV.: E

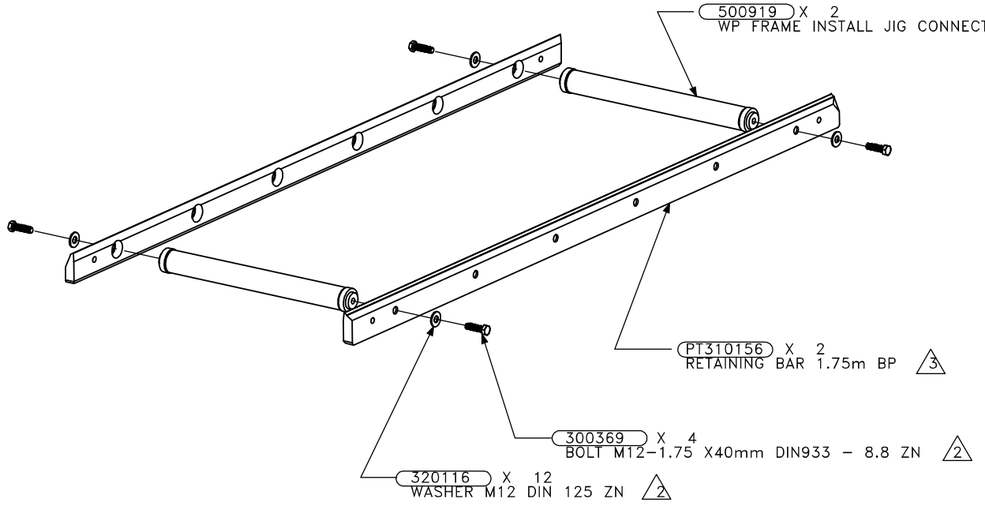
CAD FILE: 116008.SLDASM

SHEET 3 OF 8

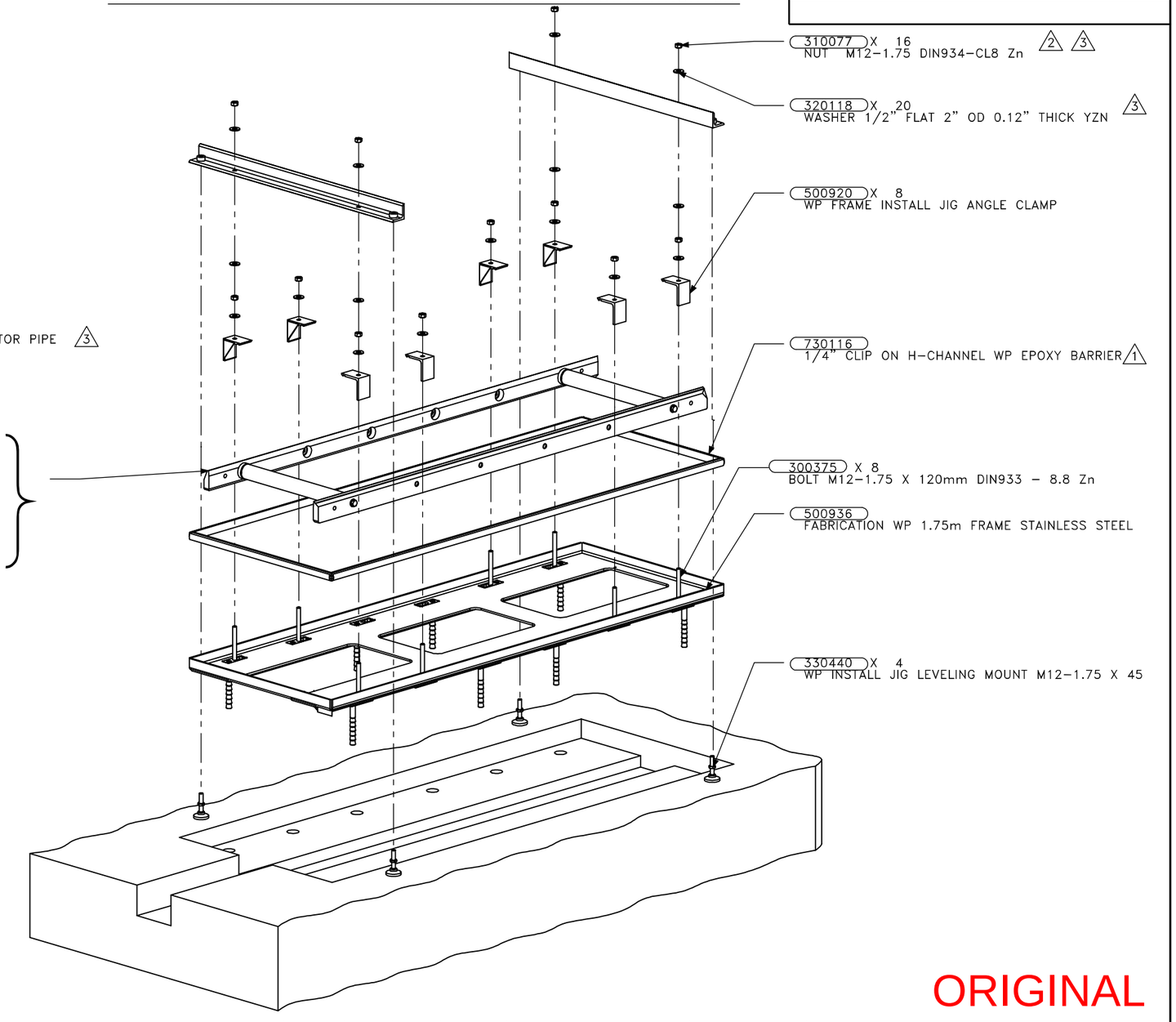
PLOTTED FROM - TRAB12222

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	10	20

STEP 3 – ASSEMBLY INSTALLATION JIG



STEP 4 – POSITION FRAME IN EXCAVATION WITH INSTALLATION JIG



NOTES:

1. BEAM TO BE MOUNTED ON THREADED ROD ON BOTH ENDS OF FRAME TO SUPPORT AND LEVEL FRAME AT CORRECT HEIGHT
2. INSTALLATION HARDWARE REUSED FROM SHIPPING HARDWARE
3. INCLUDED WITH WEIGHPAD FRAME IRD P/N 116009
4. INSTALLATION JIGS AND HARDWARE (UNLESS OTHERWISE SPECIFIED) ARE PART OF INSTALLATION KIT IRD P/N 190674

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
INSTALLATION
1.75m EPOXY
PAT BENDING PLATE

DWG. No. **813005-0302** REV.: E

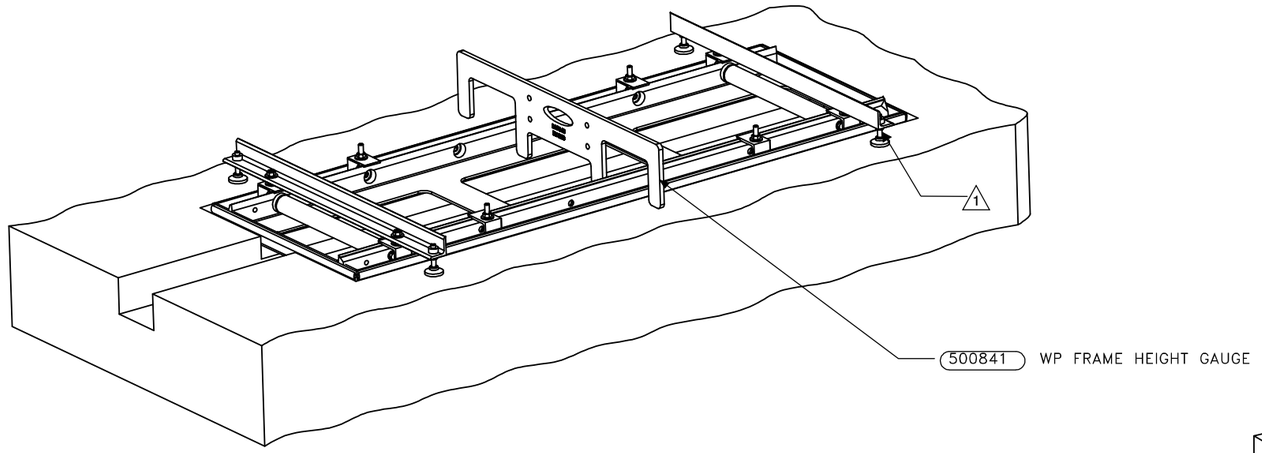
CAD FILE: 116008.SLDASM

SHEET 4 OF 8

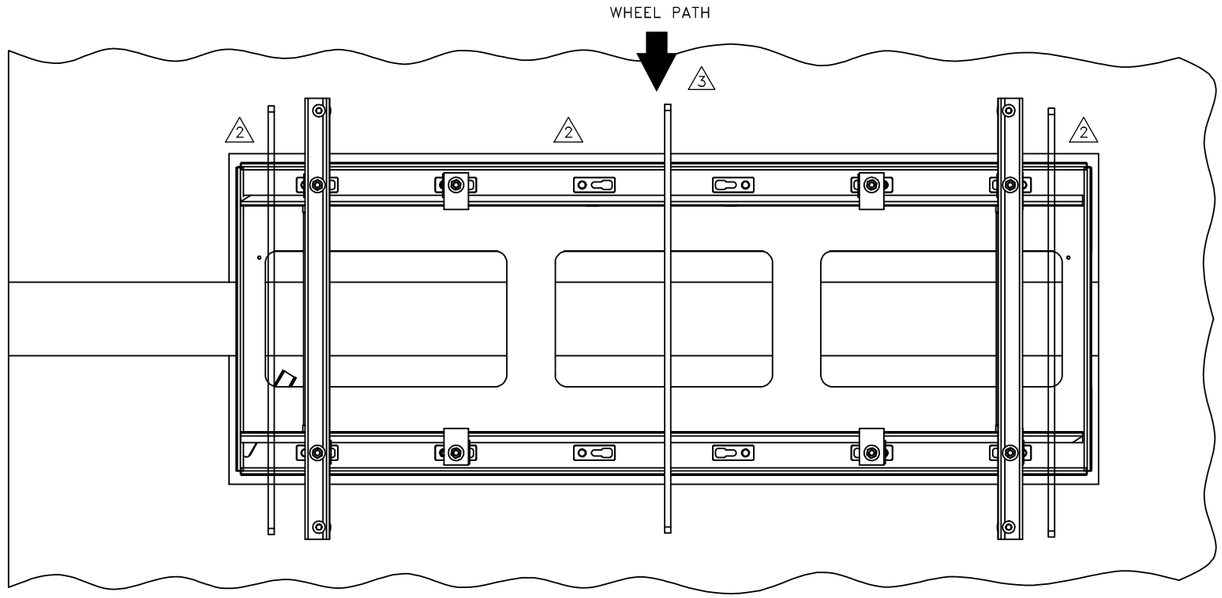
PLOTTED FROM - TRAB12222

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	11	20

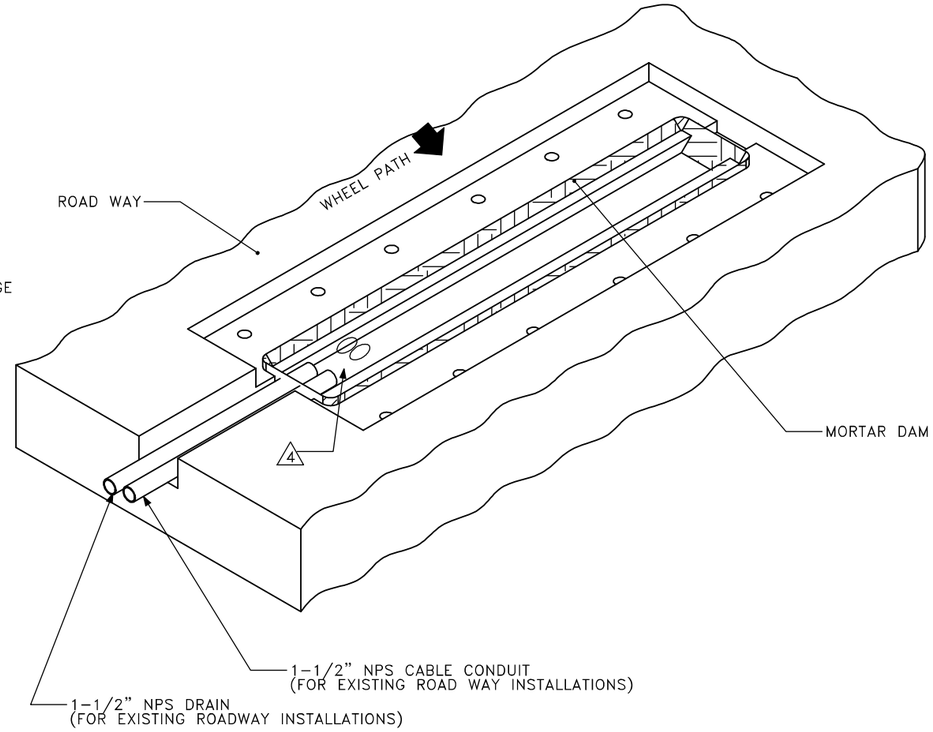
STEP 5 – FRAME HEIGHT ADJUSTMENT



TOP VIEW OF FRAME WITH ASSEMBLED INSTALL JIG



STEP 6 – BUILD MORTAR DAM AND PLACE PIPES 4



NOTES:

1. HEIGHT ADJUSTMENT NUT
2. FRAME HEIGHT SHALL BE ADJUSTED UNTIL ALL LEGS ON THE HEIGHT GAUGE ARE CONTACTING THE ROAD SURFACE AND FRAME AT THE CENTER LOCATION. THEN THE FRAME CAN BE ADJUSTED SO THAT THE CLEARANCE BETWEEN THE HEIGHT GAUGE AND FRAME ON EACH END IS AS CLOSE TO THE SAME AS POSSIBLE.
3. FRAME HEIGHT IS MOST CRITICAL IN THE WHEEL PATH.
4. CONDUIT IS CAST IN ROAD BEFORE HAND (DURING PAVING) FOR NEW ROAD INSTALLATIONS

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
INSTALLATION
1.75m EPOXY
PAT BENDING PLATE

DWG. No. **813005-0302**

REV.: E

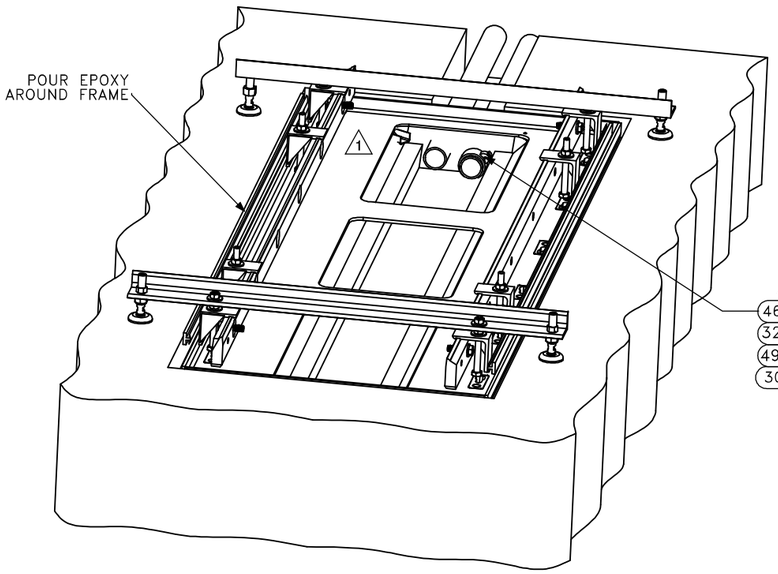
CAD FILE: 116008.SLDASM

SHEET 5 OF 8

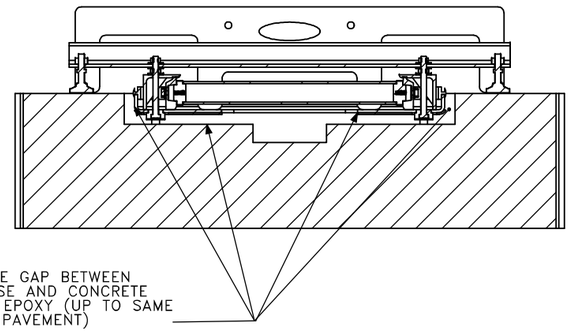
PLOTTED FROM - TRAB12222

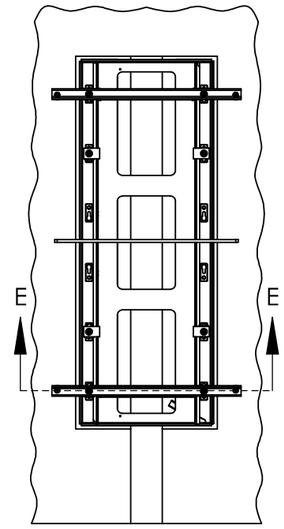
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	12	20

STEP 7 – EPOXY POUR AROUND FRAME



SECTION E-E
SCALE 1 : 12

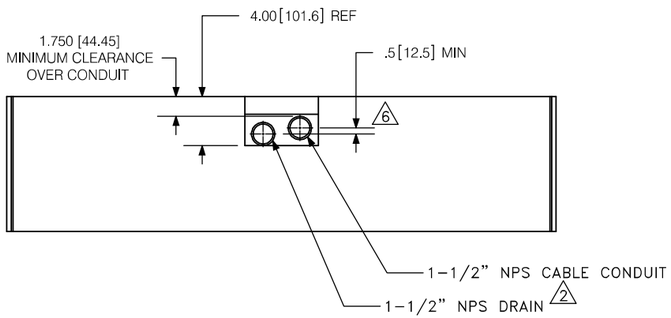


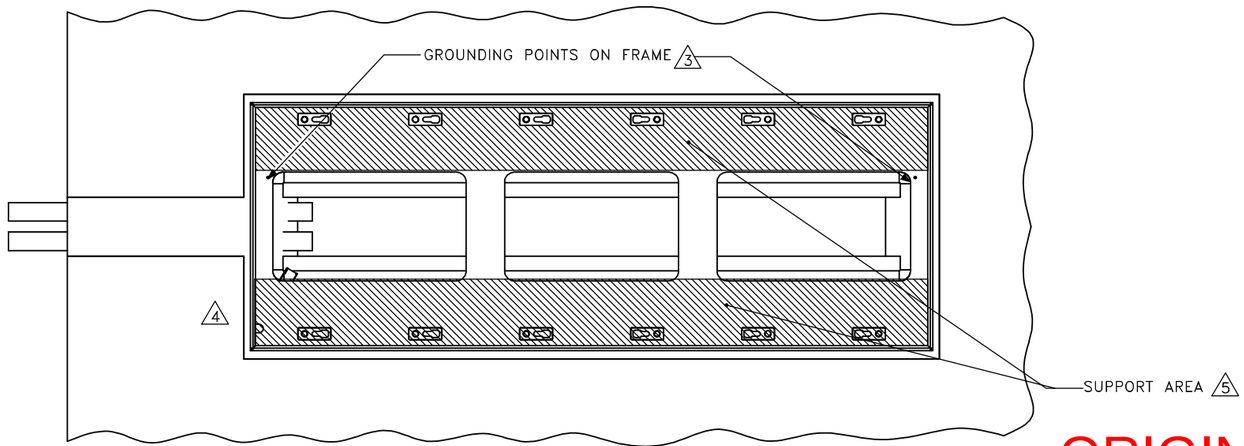


STEP 8 – REMOVE INSTALL JIG AND CLEAN UP FRAME

DETAIL A

DRAIN AND CONDUIT DETAIL





ORIGINAL

NOTES:

1. THE MORTAR DAM IS CONSTRUCTED WITH THE FRAME LEVELED IN PLACE AND IS MADE OF PARTLY DRIED PORTLAND CEMENT. DAM IS POSITIONED USING THE INSIDE PERIMETERS OF THE FRAME AND ANGLING DOWN AT AN APPROXIMATELY 45° ANGLE.
2. SEE DRAINAGE OUTLET DETAILS SHEET 8
3. GROUND FRAME TO RIGID STEEL CONDUIT OR GROUND ROD BEFORE EPOXY POUR.
4. FRAME MUST HAVE CONTINUOUS SUPPORT ALONG THE UNDERSIDE OF THE FRAME. THERE CAN BE NO VOIDS.
5. SUPPORT AREA FOR WEIGHPAD AND RETAINING BAR MUST BE FLAT. CLEAN AREA AS REQUIRED. REMOVE BOLTS FROM SOCKETS WHILE GRINDING!
6. DRAIN MUST BE INSTALLED A MINIMUM OF 1/2" [12.7Mmm] LOWER THAN ELECTRICAL CONDUIT

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
INSTALLATION
1.75m EPOXY
PAT BENDING PLATE

DWG. No. **813005-0302**

REV.: E

CAD FILE: 116008.SLDASM

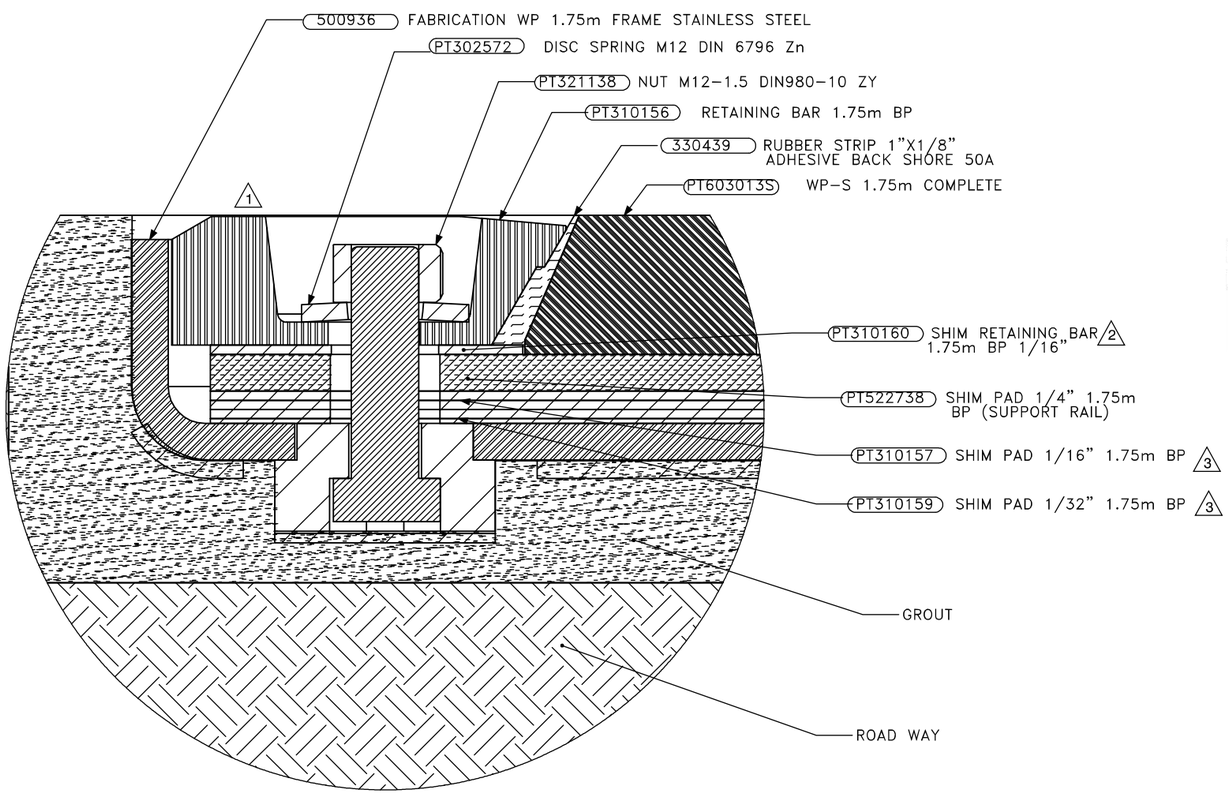
SHEET 6 OF 8

PLOTTED FROM - TRAB12222

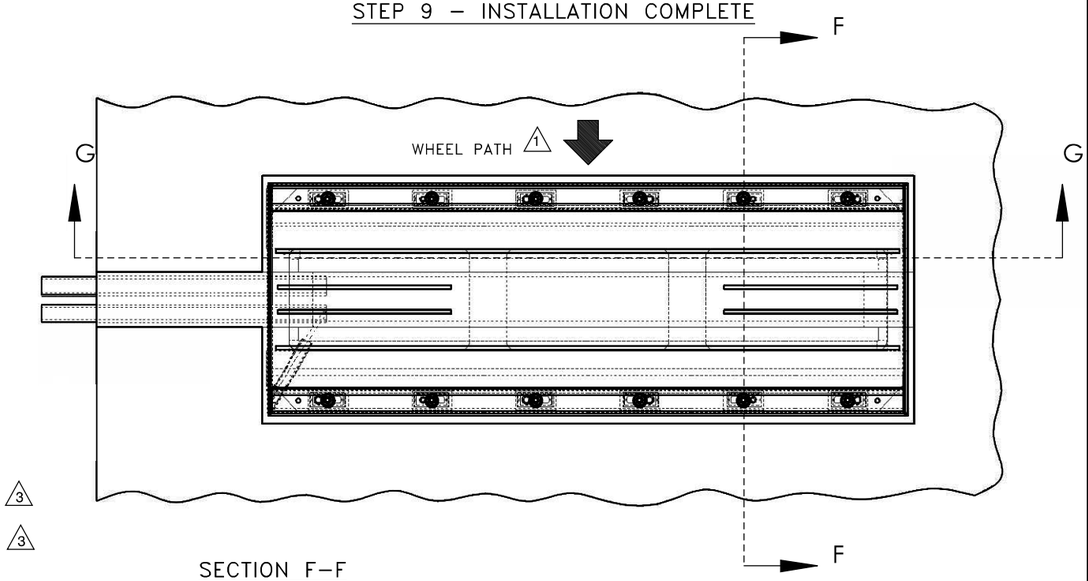
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	13	20

DETAIL B

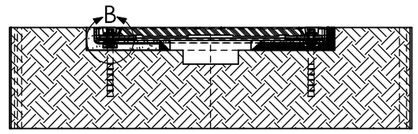
SHIM STACK AND HARDWARE ASSEMBLY DETAILS



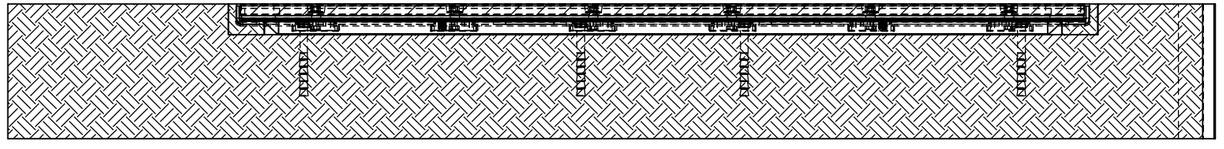
STEP 9 – INSTALLATION COMPLETE



SECTION F–F



SECTION G–G



NOTES:

1. USE SHIMS TO ADJUST HEIGHT OF PAD SUCH THAT THE TOP SURFACE OF THE WEIGHPAD MATCHES THE ROAD SURFACE AND THE TOP OF THE RETAINING BAR IN THE WHEEL PATH OR CENTER OF THE WEIGHPAD.
   NOTE: IF THE ROAD WAY HAS RUTTING OR IS WORN DOWN THEN THE PAD WILL NOT MATCH FOR THE FULL LENGTH OF THE WEIGH PAD.
2. SHIMS USED TO ADJUST WEIGHPAD.
3. SHIMS USED TO ADJUST RETAINING BAR.
4. TEMPERATURE SENSOR IS AN OPTIONAL INSTALLATION ITEM AND ONLY INSTALLED WHEN SPECIFIED. REFER TO IN ROAD TEMPERATURE SENSOR INSTALLATION DRAWING 81302201 FOR DETAILS.

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE: **INSTALLATION 1.75m EPOXY PAT BENDING PLATE**

DWG. No. **813005-0302** REV.: E

CAD FILE: 116008.SLDASM

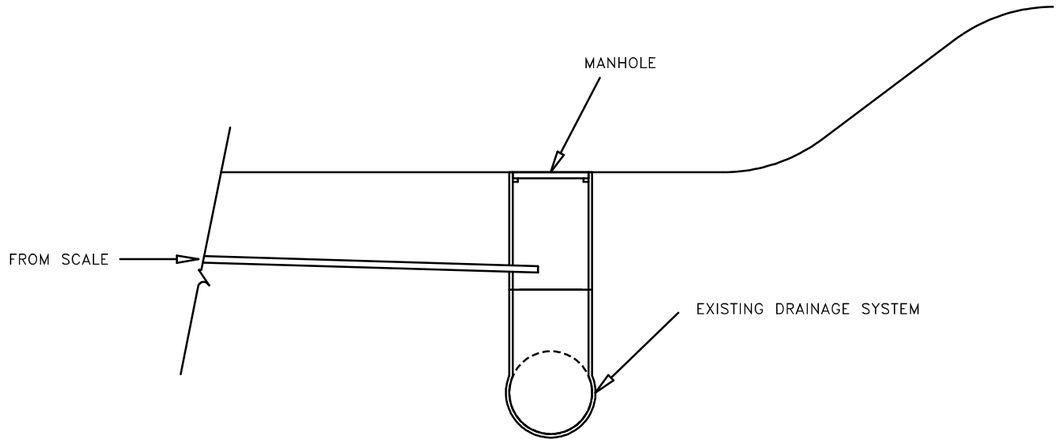
SHEET 7 OF 8

PLOTTED FROM - TRAB12222

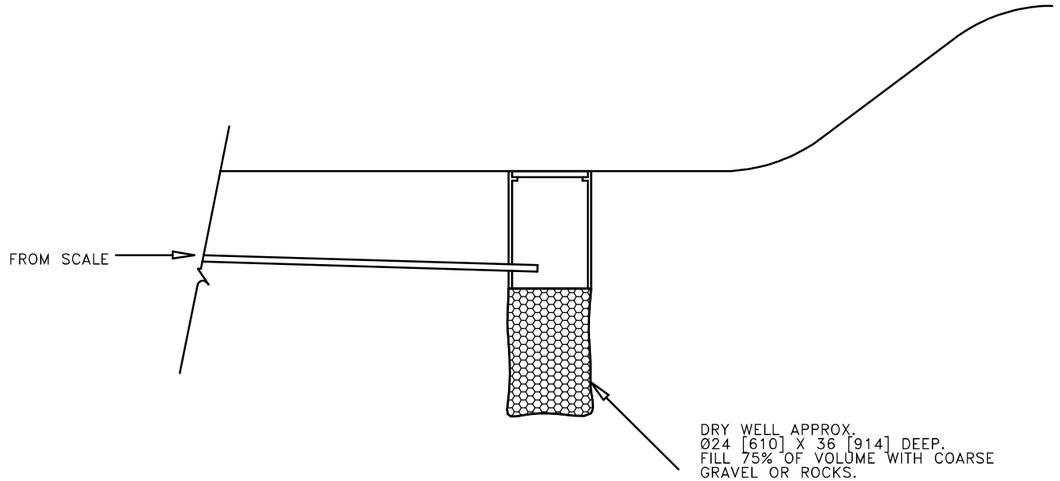
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 000S(100)	14	20

DRAIN EXIT OPTIONS

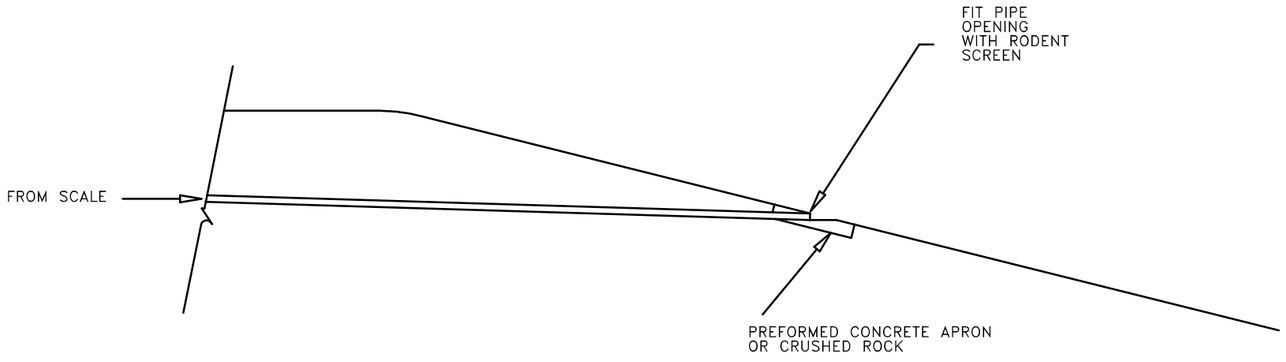
DETAIL C – EXISTING DRAINAGE SYSTEM



DETAIL D – FRENCH DRAIN



DETAIL E – DAYLIGHT DRAIN



ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JGi/THa	DPr	THa	OCT2/08
B	REPLACE 116002 WITH PT603017. CHANGE TORQUE VALUE, ECO-01	JGi/THa	DPr	THa	NOV 3/08
C	ON SHEET 3, REPLACE PT321138 WITH 310072 - ECO-02	JGi/THa	DPr	THa	MAY 15/09
D	UPDATE FRAME AND INSTALLATION JIG ECO-5628	LLa/THa	LLa	THa	JAN 10/14
E	CHANGE FRAME TO STAINLESS STEEL, CHANGE ANCHOR BOLTS TO EPOXY ANCHORS	LLa/THa	LLa	THa	MAY 4/15

NOT TO SCALE

SIZE: B

DIMENSIONS IN: in [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
INSTALLATION
1.75m EPOXY
PAT BENDING PLATE

DWG. No. **813005-0302**

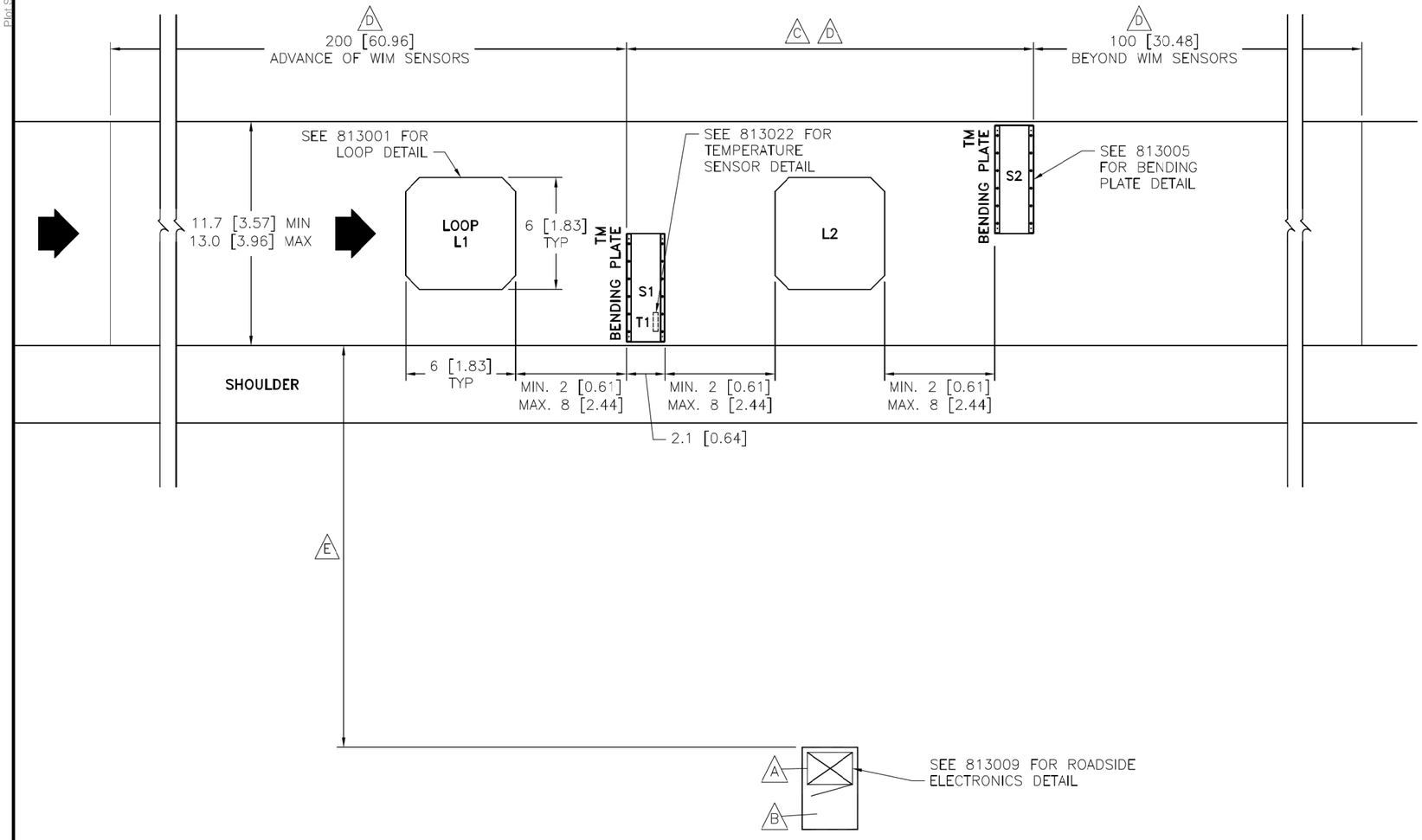
REV.: E

CAD FILE: 116008.SLDASM

SHEET 8 OF 8

PLOTTED FROM - TRAB12222

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 000S(100)	15	20



LEGEND:

L – INDUCTIVE LOOP
S – BP SCALE
T – TEMPERATURE SENSOR

NOTES: (THIS SHEET ONLY)

A. CABINET WITH WIM ELECTRONICS.

B. CABINET BASE.

C. PAVEMENT ON EITHER SIDE OF EACH SCALE MUST BE FREE OF JOINTS AND CRACKS FOR 2' [0.61m].

D. SITE CONDITIONS AS PER ASTM E1318.

E. 200 [60.96] MAXIMUM LEAD LENGTH OF SENSOR TO ELECTRONICS. LONGER DISTANCES MUST BE APPROVED BY IRD.

GENERAL NOTES:

TYPICAL LAYOUT IS SHOWN. OTHER SENSORS MAY BE REQUIRED AND ARE SHOWN IN PROJECT DOCUMENTATION.

SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS BY THE IRD FIELD REPRESENTATIVE.

ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES ARE DONE IN PULL BOX AND ARE SOLDERED THEN SEALED FOR WATERPROOFING. NUMBER AND PLACEMENT OF PULL BOXES NOT SHOWN.

ROAD SURFACE PAVEMENT CONDITIONS MUST MEET CURRENT ASTM E1318 REQUIREMENTS TO ACHIEVE OPTIMAL SYSTEM PERFORMANCE.

JOINTS, SAWCUTS AND SENSORS MUST BE SEPARATED FROM EACH OTHER BY A MINIMUM OF 2' [0.61m].

CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.

ADDITIONAL DRAINAGE MAY BE REQUIRED DEPENDING ON SLOPE OF ROADWAY.

IRD RECOMMENDS THAT PULL BOXES BE NO FURTHER THAN 200' [61m] APART. IRD RECOMMENDS THE MINIMUM SIZE FOR PULL BOXES IS 18" [45.7cm] X 18" [45.7cm] X 12" [30.5cm].

EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE.

DRAWING NOT TO SCALE.

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	YMa/HFe	MLo	HFe	July 16/09

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
SENSOR CONFIGURATION
WIM BP SCALE-1-LSLS-STAGGERED

NOT TO SCALE

SIZE: B

DWG. No. **811011-1201**

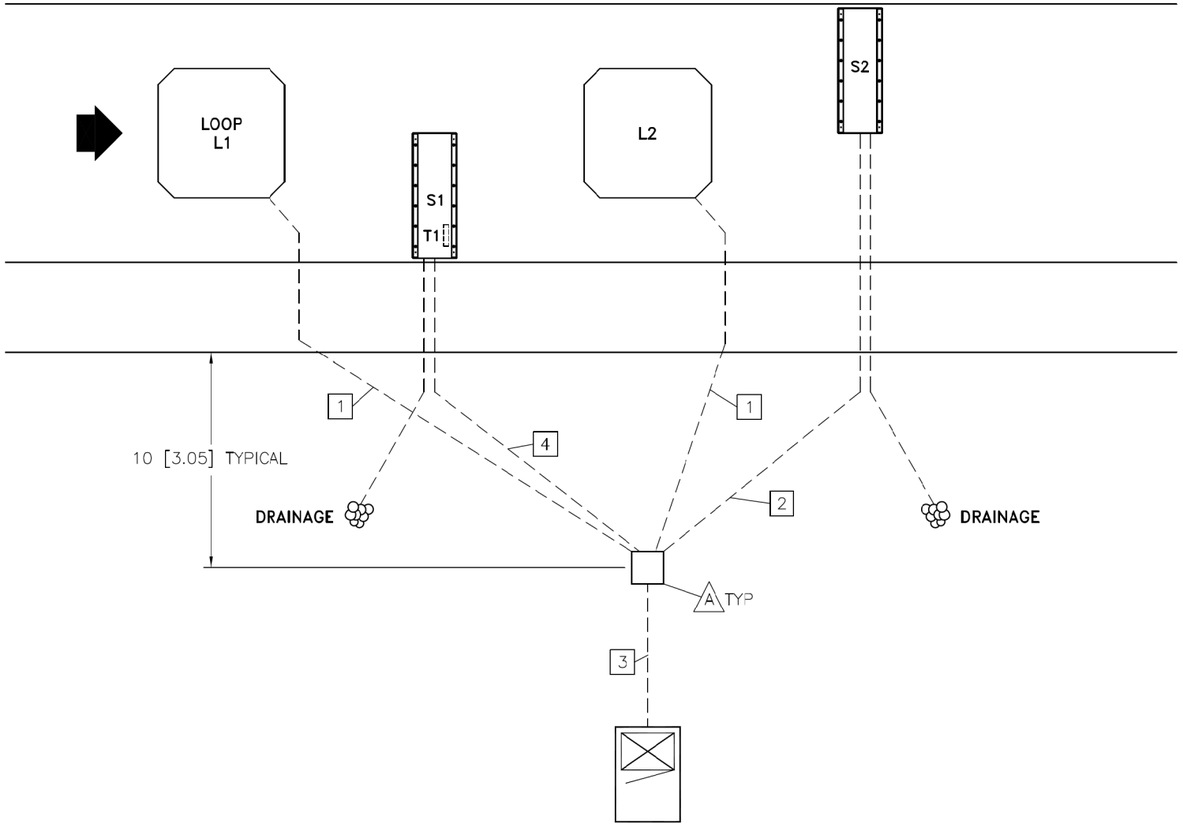
REV.: A

DIMENSIONS IN: FEET[m]

CAD FILE: 811011-1201.DWG

SHEET 1 OF 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 000S(100)	16	20



NOTES: (THIS SHEET ONLY)

A PULL BOX.

SIGNAL CONDUITS:

1 1" [25mm] CONDUIT
1 – LOOP WIRE (INCLUDED IN 813001)

2 2" [50mm] CONDUIT
1 – BP LEADS (INCLUDED IN 813005)

3 2" [50mm] CONDUIT
2 – LOOP LEADS L1–L2 (INCLUDED IN 813001)
2 – BP LEADS S1–S2 (INCLUDED IN 813005)
1 – TEMPERATURE SENSOR LEAD T1

4 2" [50mm] CONDUIT
1 – TEMPERATURE SENSOR LEAD T1
1 – BP LEADS (INCLUDED IN 813005)

ORIGINAL

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	YMa/HFe	MLo	HFe	July 16/09

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
SENSOR CONFIGURATION
WIM BP SCALE-1-LSLS-STAGGERED

NOT TO SCALE

SIZE: B

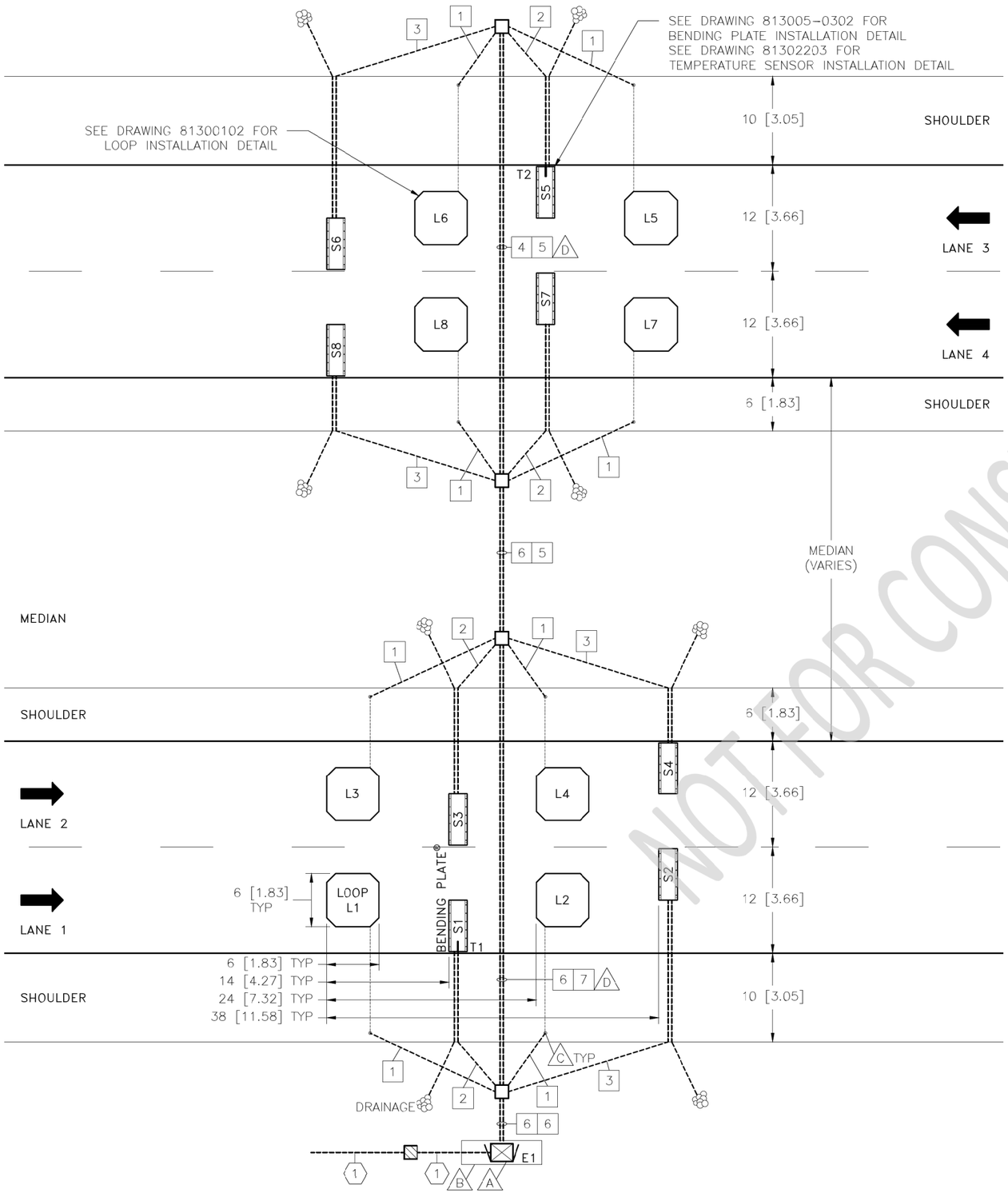
DWG. No. **811011-1201**

REV.: A

DIMENSIONS IN: FEET[m]

CAD FILE: 811011-1201.DWG

SHEET 2 OF 2



LEGEND:

- E – ELECTRONICS ENCLOSURE
- L – INDUCTIVE LOOP
- S – BENDING PLATE® SCALE
- T – TEMPERATURE SENSOR
- ⊠ – CABINET
- □ – LOW VOLTAGE SIGNAL PULL BOX
- ▨ – POWER PULL BOX
- [1] – SIGNAL CONDUIT
- ⟨1⟩ – POWER CONDUIT
- (A) – NOTE

LOOP DETAILS:

LOOP No.	SIZE	NUMBER OF TURNS
L1–L8	6' X 6'	4

NOTES:

(A) 334 PAD-MOUNT ROADSIDE ELECTRONICS CABINET.

(B) CABINET BASE.

(C) DRILL THROUGH SHOULDER FOR CONDUIT.

(D) UNDERBORE.

STANDARD DRAWINGS:

DRAWING No.	REV	DESCRIPTION
81300102	H	VEHICLE DETECTION LOOPS
813005-0302	F	BENDING PLATE® INSTALLATION
81300907	H	ROADSIDE ELECTRONICS CABINET
81302203	C	TEMPERATURE SENSOR INSTALLATION – BENDING PLATE®

GENERAL NOTES:

ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES SHALL BE DONE WITHIN A PULL BOX BY SOLDERING THEN SEALING FOR WATERPROOFING. NUMBER AND PLACEMENT OF PULL BOXES MAY BE DIFFERENT FROM THAT SHOWN TO MEET REQUIREMENTS.

AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULL BOXES FROM SIGNAL CABLES OR SEPARATED INSIDE PULL BOXES WITH A DIVIDER.

SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS BY THE IRD/QUARTERHILL FIELD REPRESENTATIVE.

SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.

A CONCRETE SECTION IS RECOMMENDED FOR WIM LANES, FROM 200' [60m] BEFORE THE SENSORS UP TO 100' [30m] AFTER THE SENSORS, TO IMPROVE LONG TERM PERFORMANCE AND REDUCE MAINTENANCE.

SENSORS MUST BE A MINIMUM OF 2' [0.61m] AWAY FROM CRACKS, JOINTS OR SAWCUTS WHEN POSSIBLE.

CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.

ADDITIONAL DRAINAGE MAY BE REQUIRED DEPENDING ON SLOPE OF ROADWAY.

IRD/QUARTERHILL RECOMMENDS THE MINIMUM SIZE FOR PULL BOXES IS 18" [45.7cm] X 18" [45.7cm] X 12" [30.5cm].

EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE. NUMBER AND PLACEMENT OF PULL BOXES NOT SHOWN.

SEE 81300907 FOR POWER REQUIREMENTS.

DRAWING NOT TO SCALE.

PRELIMINARY

SIGNAL CONDUITS:

[1] 1" [25mm] CONDUIT
- 2 – 1C 14AWG (LOOP WIRE)

[2] 2" [50mm] CONDUIT
- 1 – 2PR 24AWG (BENDING PLATE LEAD)
- 1 – 6AWG GROUND WIRE (BENDING PLATE)
- 1 – 2PR 24AWG (TEMPERATURE SENSOR LEAD)

[3] 2" [50mm] CONDUIT
- 1 – 2PR 24AWG (BENDING PLATE LEAD)
- 1 – 6AWG GROUND WIRE (BENDING PLATE)

[4] 3" [75mm] CONDUIT
- 2 – 1PR 14AWG (LOOP LEAD)
- 2 – 2PR 24AWG (BENDING PLATE LEAD)
- 2 – 6AWG GROUND WIRE (BENDING PLATE)
- 1 – 2PR 24AWG (TEMPERATURE SENSOR LEAD)

[5] 3" [75mm] CONDUIT
- SPARE

[6] 3" [75mm] CONDUIT
- 4 – 1PR 14AWG (LOOP LEAD)
- 4 – 2PR 24AWG (BENDING PLATE LEAD)
- 4 – 6AWG GROUND WIRE (BENDING PLATE)
- 1 – 2PR 24AWG (TEMPERATURE SENSOR LEAD)

[7] 3" [75mm] CONDUIT
- 2 – 1PR 14AWG (LOOP LEAD)
- 2 – 2PR 24AWG (BENDING PLATE LEAD)
- 2 – 6AWG GROUND WIRE (BENDING PLATE)

POWER CONDUITS:

⟨1⟩ 2" [50mm] CONDUIT
ELECTRONICS CABINET POWER

FOR INFORMATION ONLY
This layout for 4-lane WIM may not match layout encountered in the field.

Quarterhill IRD ETC A QUARTERHILL COMPANY

SITE LAYOUT
WIM BP SCALE - 4 LANE - LSLS - STAGGERED
SOUTH DAKOTA

DRAWING NO.: MSDWIM03			
DESIGNED BY: MKa		REVISION: 1	
CHECKED BY:		PROJECT: N/A	
APPROVED BY:		CAD FILE: MSDWIM03_1.DWG	

REV.	DESCRIPTION	DATE
1	PRELIMINARY RELEASE	2026-05-05

DIMENSIONS IN: FT [m]	SCALE: N.T.S.	SHEET 1 OF 1	

Plot Scale - 1:200
Plotted From - tmp25289
File - ...\Butt0AC6\0AC8_Title.dgn

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.

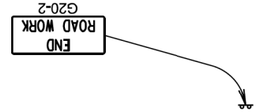
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

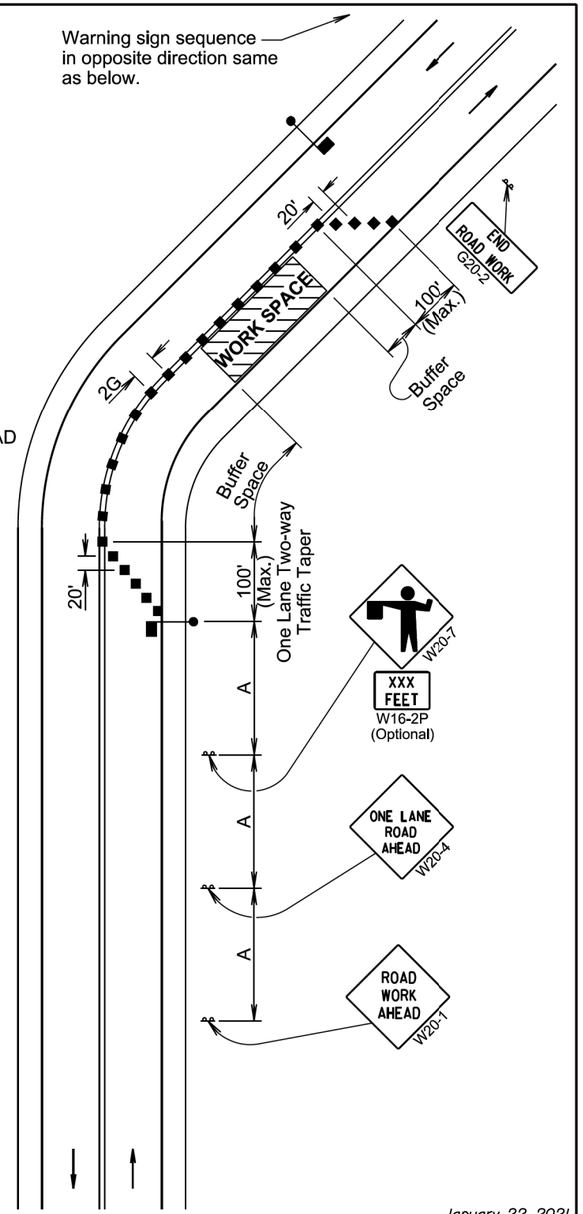
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.

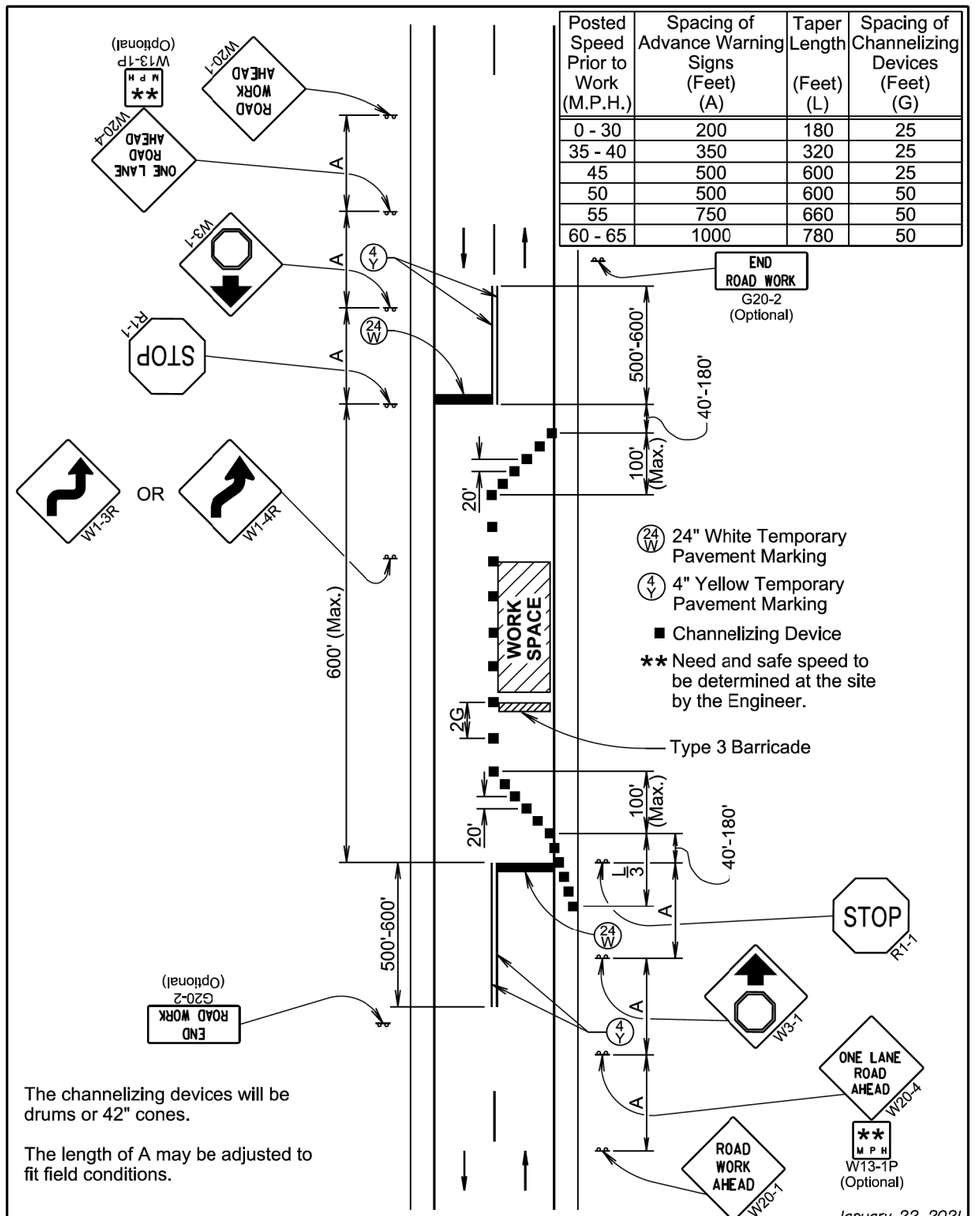
The length of A may be adjusted to fit field conditions.



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)	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



The channelizing devices will be drums or 42" cones.

The length of A may be adjusted to fit field conditions.

January 22, 2021

Published Date: 2027	SDDOT	LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
	(A) (B) (C)
70 - 80	1000 1500 2640

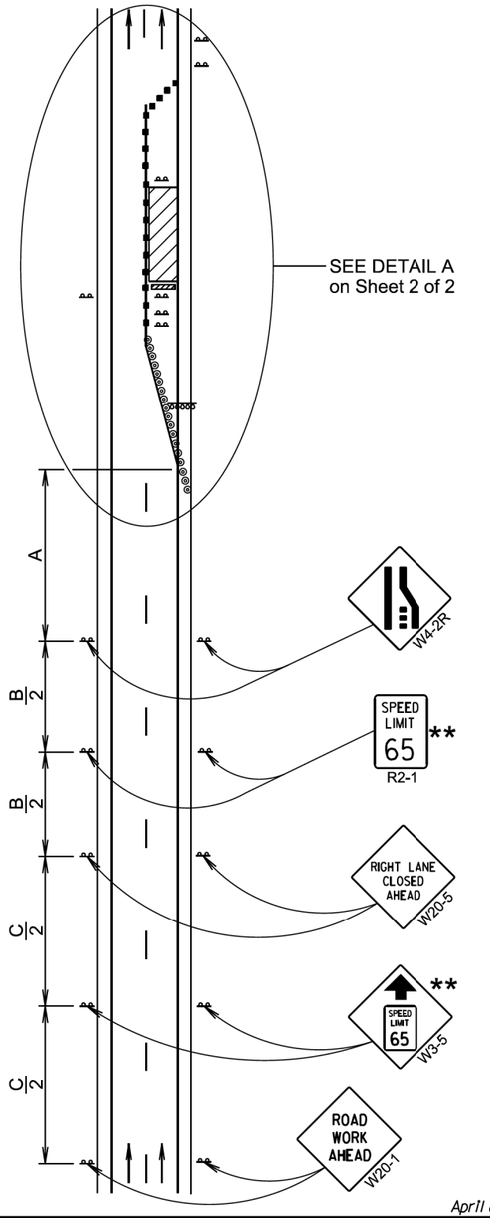
** Speed appropriate for location.

◎ 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

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

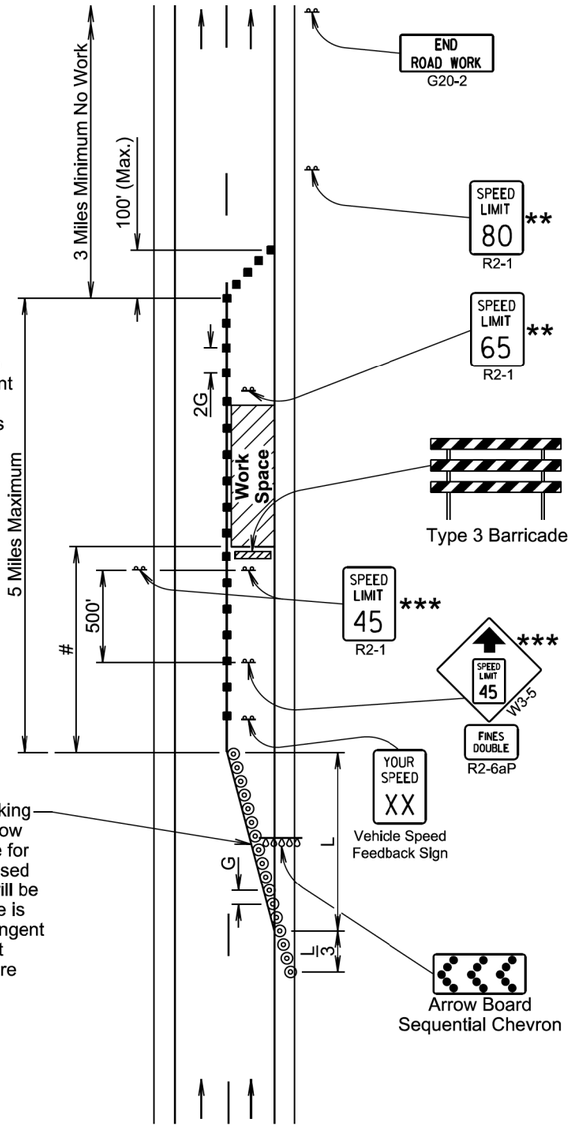
■ Channelizing Device

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.

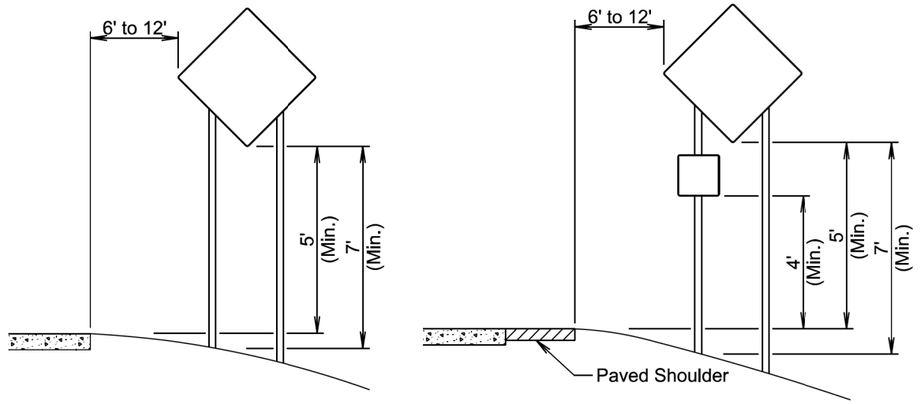
4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

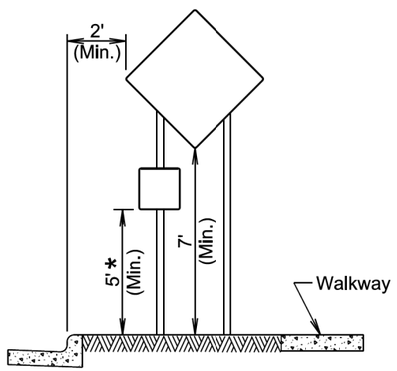
April 8, 2025

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

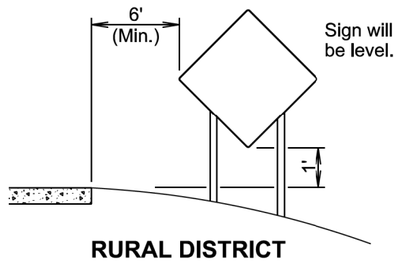


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

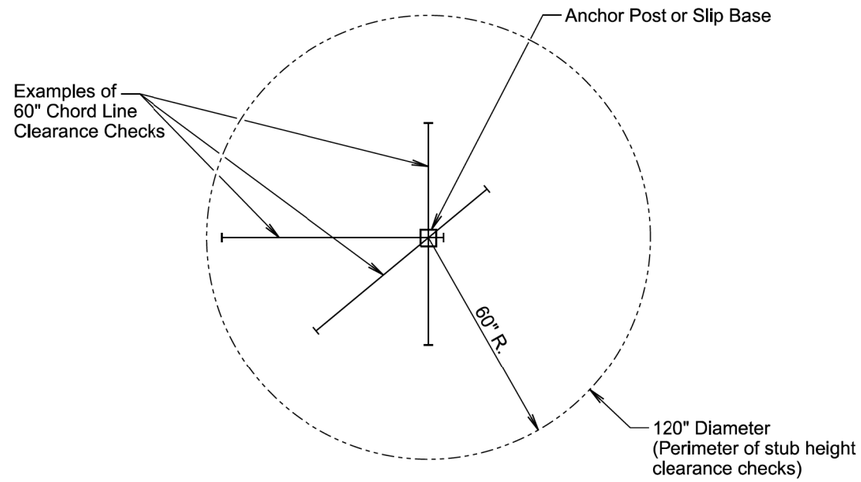


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

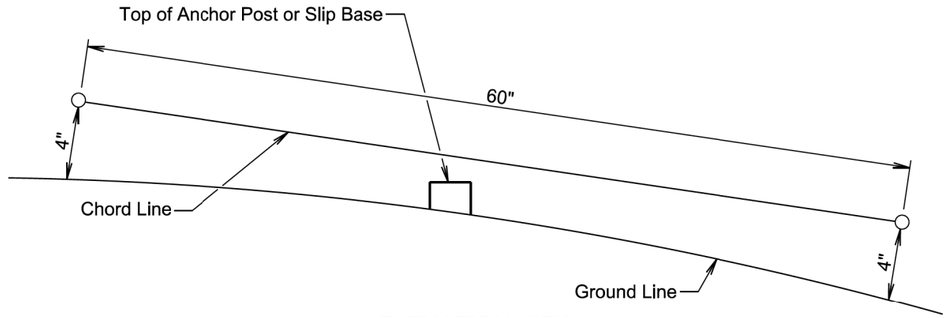
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

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