

Plot Scale - 1:200

Plotted From - trc12808

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

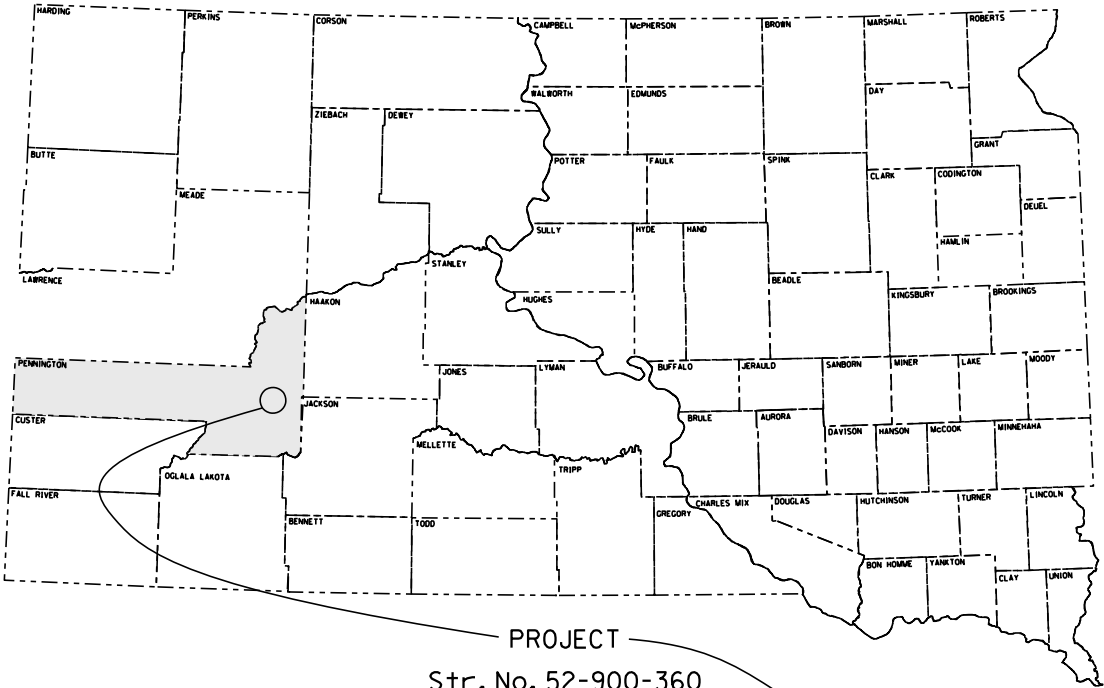
PLANS FOR PROPOSED  
**SD HIGHWAY 240**  
**PROJECT**  
**240-468**  
**PENNINGTON COUNTY**  
**BRIDGE REPAIR I-90 EXIT 109**  
**PCN i4gh**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	240-468	1	20

Plotting Date: 09/13/2017

INDEX OF SHEETS

Sheet	1:	Title Sheet
Sheets	2 - 4:	Estimate of Quantities & Plan Notes
Sheets	5 - 7:	Standard Plates
Sheets	8 -20:	Structure Design Sheets



PROJECT  
Str. No. 52-900-360  
SD 240 MRM 126.32  
I-90 EB MRM 109.81

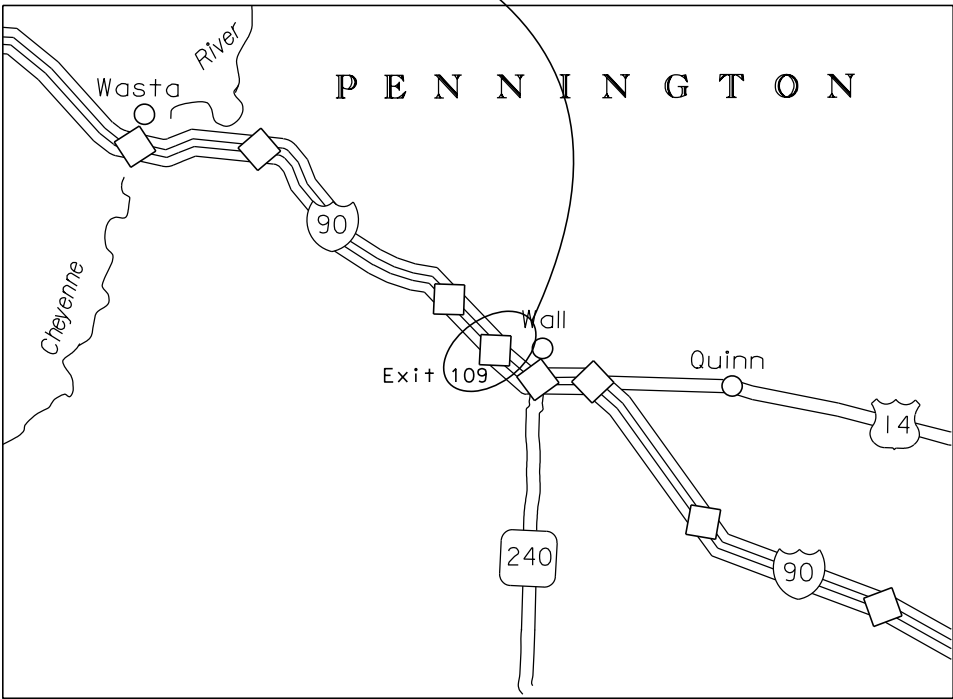
DESIGN DESIGNATION - I-90 EB

AADT (2016)	3675
AADT (2036)	5090
DHV	987
D	50%
DHV T%	10.3%
AADT T%	22.6%
V	80 MPH

DESIGN DESIGNATION - SD240

AADT (2016)	506
AADT (2036)	734
DHV	87
D	51%
DHV T%	1.9%
AADT T%	4.1%
V	35 MPH

Storm Water Permit  
No Permit Required



ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0365	Remove and Replace Transverse Stiffener	3	Each
410E0380	Remove and Replace Steel Diaphragm	3	Each
410E0508	Field Weld	30	In
410E0512	Grind Weld	30	In
410E0515	Drill Hole in Existing Steel	2	Each
410E0520	Surface Grinding of Structural Steel	120	SqIn
410E3010	Magnetic Particle Weld Inspection	438	In
410E3030	Magnetic Particle Weld Inspection, Impact Damage Repair	1,333	SqIn
412E0100	Bridge Repainting, Class I	Lump Sum	LS
634E0010	Flagging	30.0	Hour
634E0110	Traffic Control Signs	377.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	2	Each
634E0420	Type C Advance Warning Arrow Board	1	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived 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. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

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 pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall 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) shall 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 Environment and Natural Resources.

The waste disposal site(s) shall 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 Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of 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 of time not to exceed the duration of the project. Prior to project completion, the waste shall 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) shall be incidental to the various contract items.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	240-468	2	20

**COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES**

The SDDOT has obtained concurrence with the State Historical 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 review of cultural resources impacts. 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 shall arrange and pay for a cultural resource survey and/or records search. 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; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on 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 shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

**TRAFFIC CONTROL – GENERAL NOTES**

The Contractor shall submit a sequence of operations for department approval two weeks prior to the preconstruction meeting. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate 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. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.

Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

Existing guide, route, informational logo, regulatory, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.

Non-applicable traffic control devices shall be completely covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 2 calendar days.

All regulatory signs shall have a minimum mounting height of 5' in rural locations, even when mounted on portable supports.

All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

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

All construction operations shall be conducted in the general direction of traffic movement.

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

Temporary Flexible Vertical Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous,

**TRAFFIC CONTROL**

Traffic control for the Eastbound Lanes of I-90 shall use Standard Plate 634.63.

Traffic control on top of Structure Number 52-900-360 shall use Standard Plates 634.23 and 634.30.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	240-468	3	20

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	240-468	4	20

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45		24" x 30"	5.0		2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65		24" x 30"	5.0		3	36" x 48"	12.0	36.0
R2-1	SPEED LIMIT 80		24" x 30"	5.0		1	36" x 48"	12.0	12.0
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0		48" x 48"	16.0	
W3-5	SPEED REDUCTION AHEAD (65 MPH)		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0		48" x 48"	16.0	
W20-5	LEFT or RIGHT LANE CLOSED AHEAD		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0		48" x 48"	16.0	
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0	1	48" x 24"	8.0	8.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 137.0				EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT 240.0			

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	2 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

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.

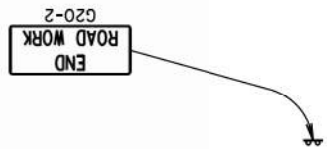
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall 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 shall 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.

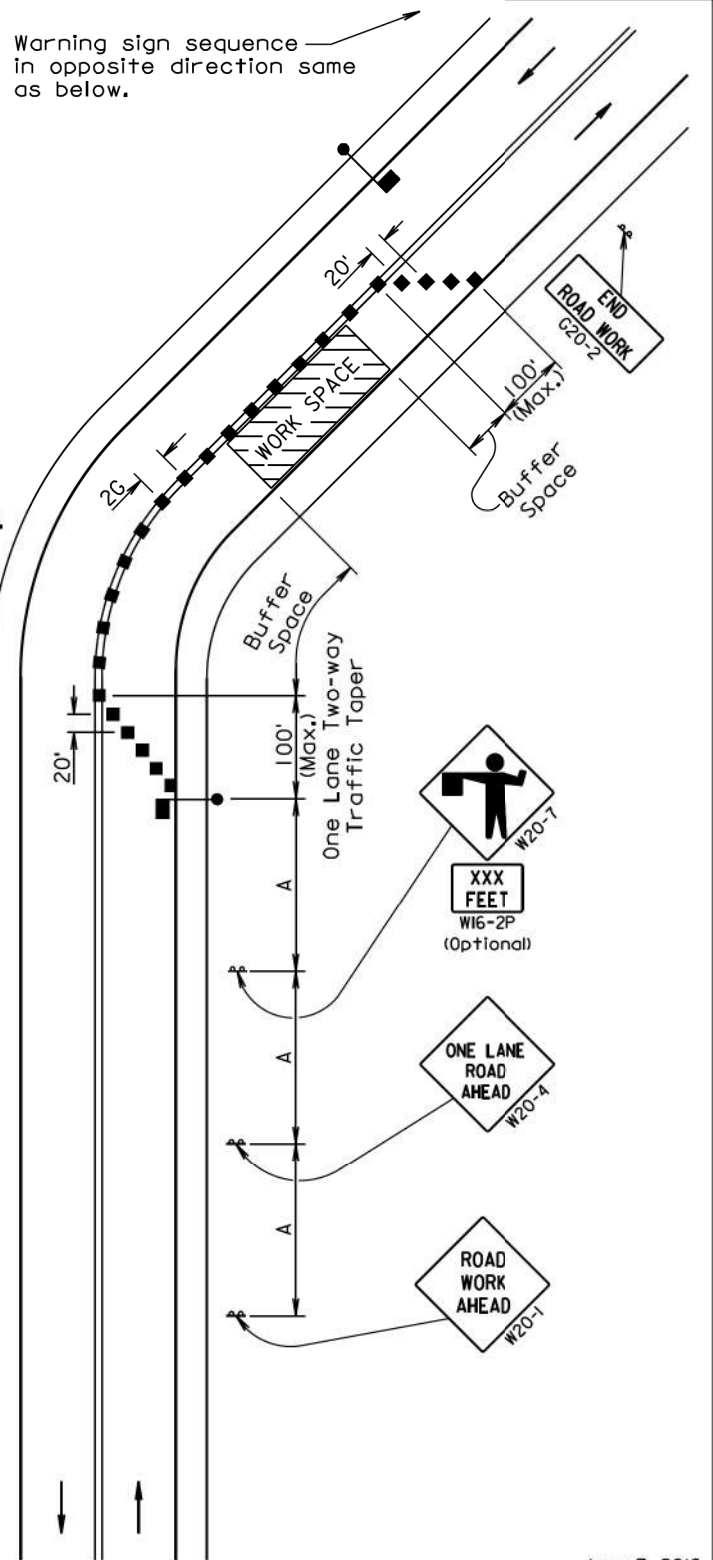


Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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.

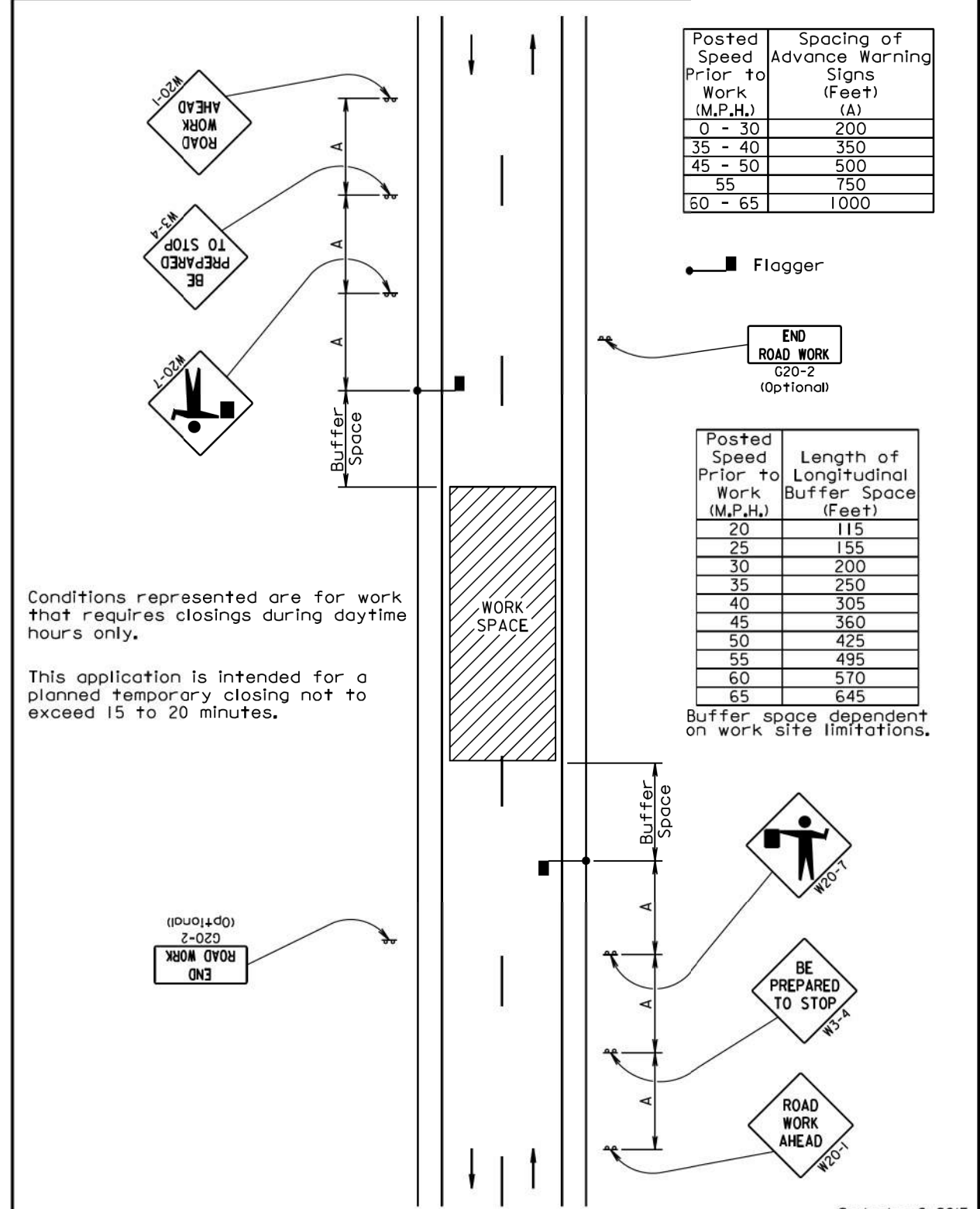
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



June 3, 2016

Published Date: 3rd Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES	PLATE NUMBER
		LANE CLOSURE WITH FLAGGER PROVIDED	634.23
			Sheet 1 of 1



Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

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

- Flagger

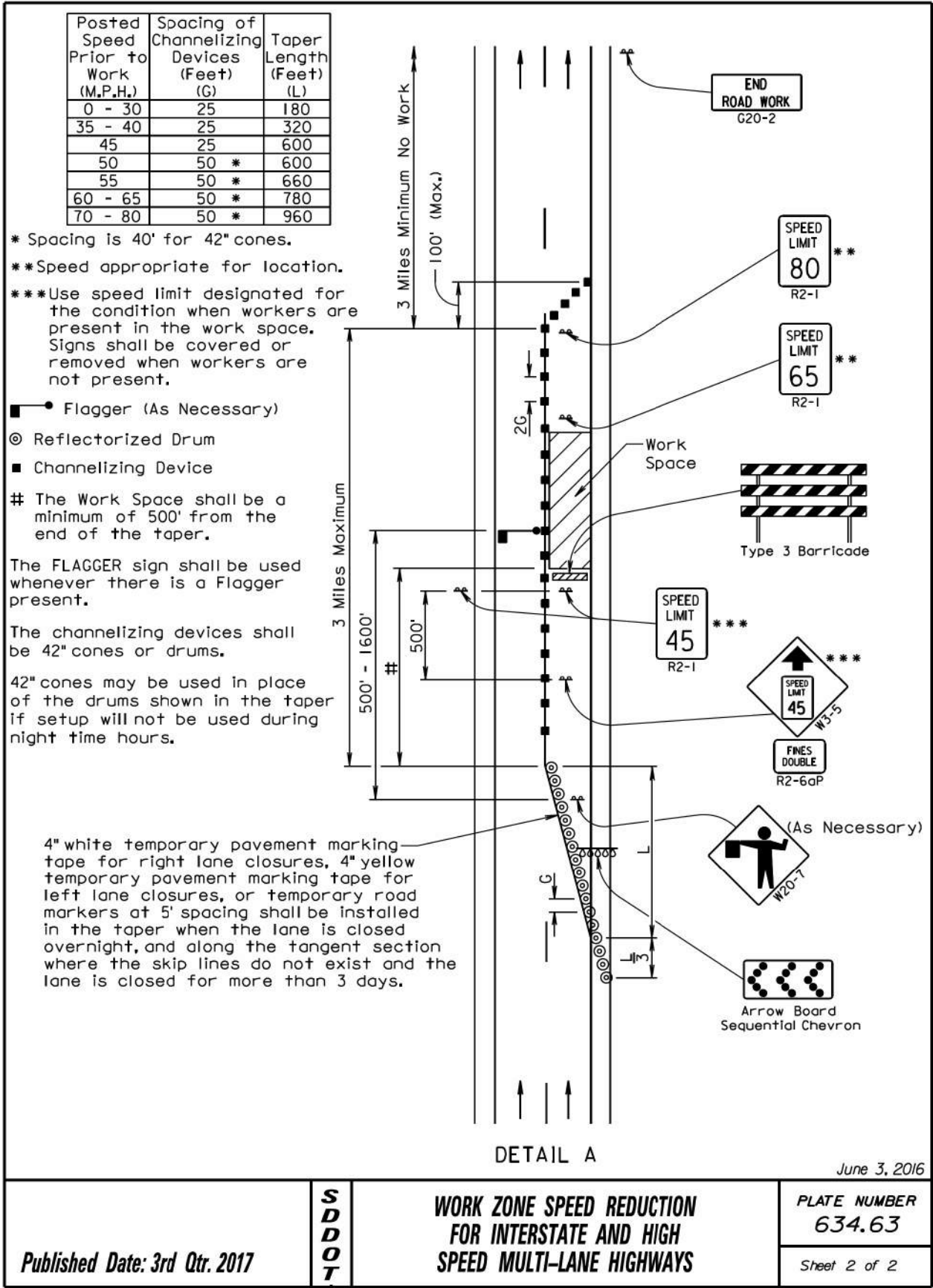
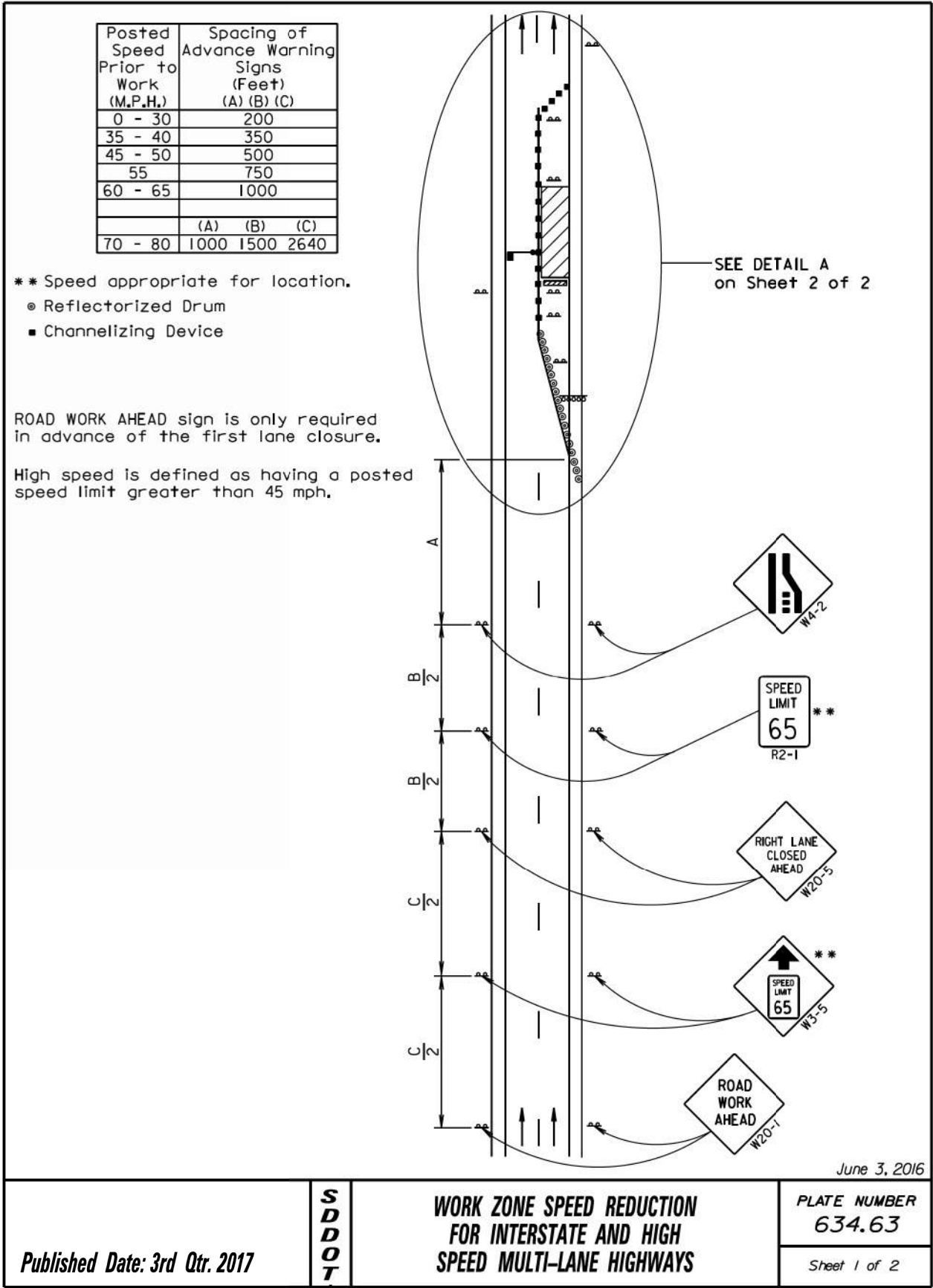
END ROAD WORK G20-2 (Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

Buffer space dependent on work site limitations.

September 6, 2015

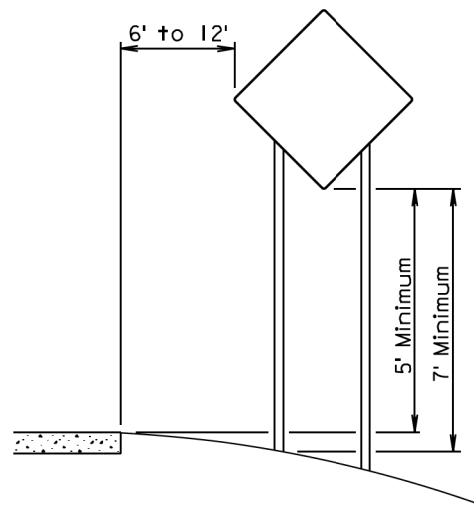
Published Date: 3rd Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES	PLATE NUMBER
		TEMPORARY ROAD WORK	634.30
			Sheet 1 of 1



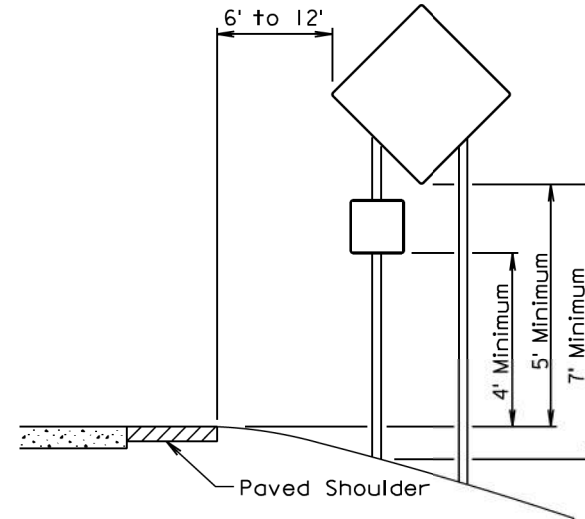


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	240-468	7	20

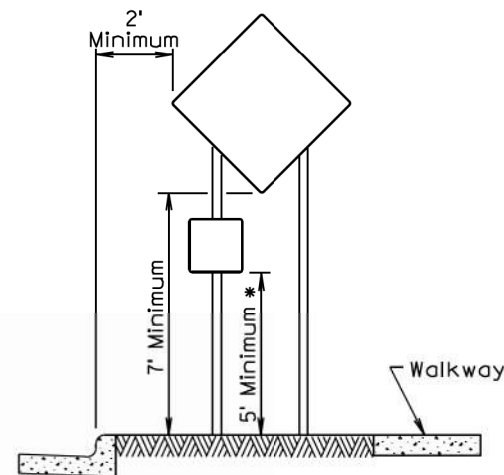
Plotting Date: 09/13/2017



RURAL DISTRICT

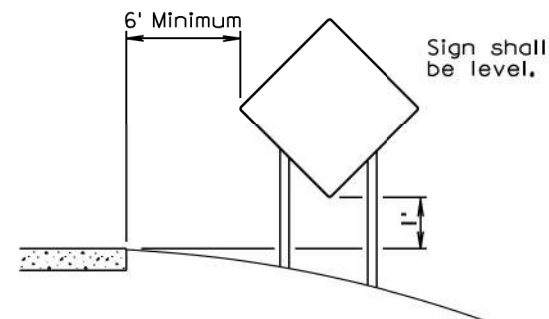


RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT

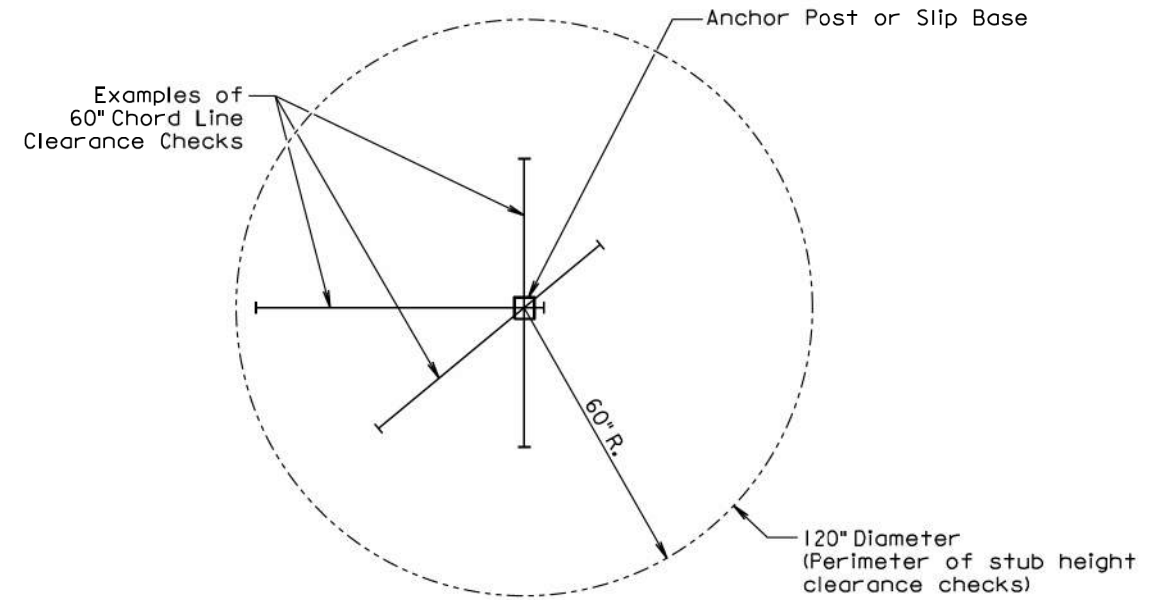
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



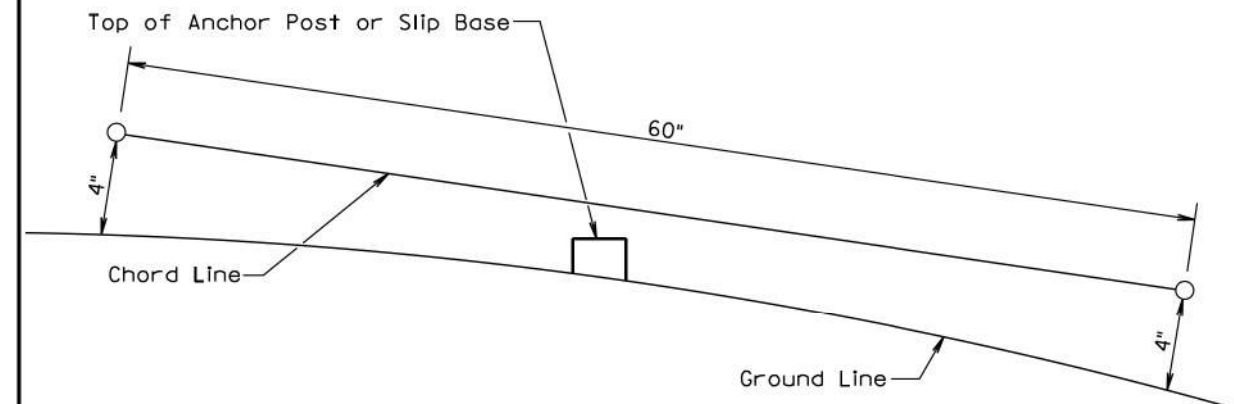
RURAL DISTRICT  
3 DAY MAXIMUM  
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 3rd Qtr. 2017	S D D O T	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:

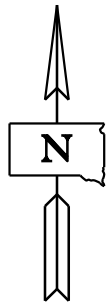
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

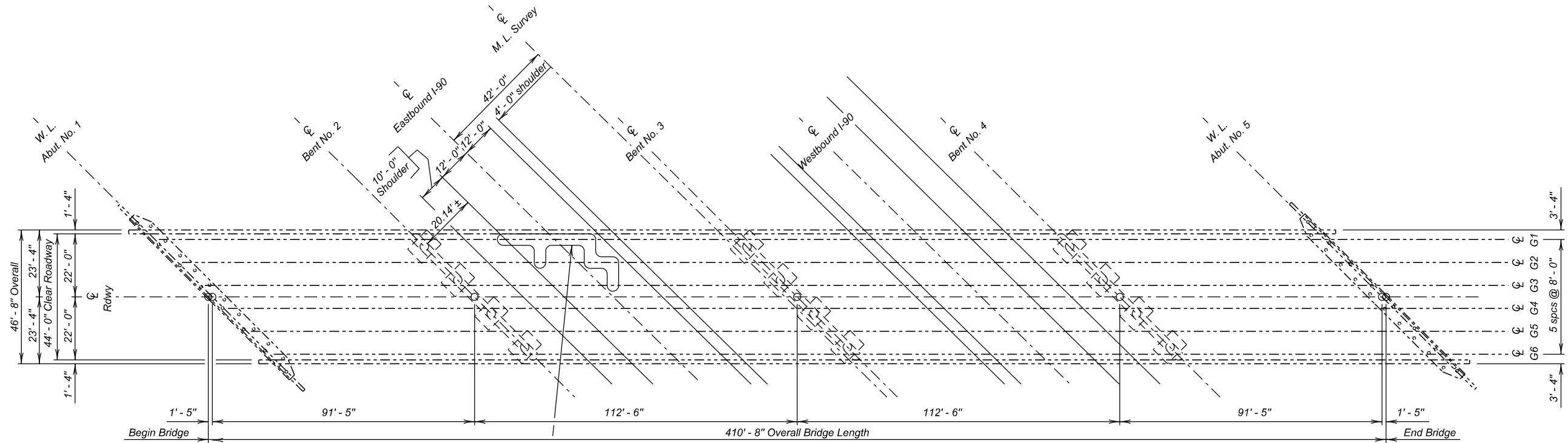
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

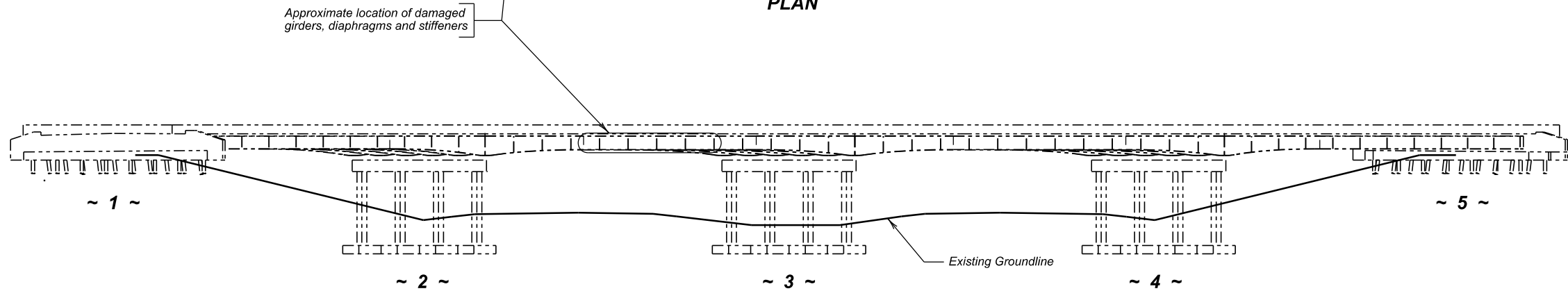
Published Date: 3rd Qtr. 2017	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	240-468	8	20



PLAN



ELEVATION

**INDEX OF BRIDGE SHEETS -**

- Sheet No. 1 - Layout for Upgrading  
Sheet Nos. 2 thru 4 - Estimate of Structure Quantities and Notes  
Sheet No. 5 - Girder No. 1 Repair Layout  
Sheet No. 6 - Girder No. 2 Repair Layout  
Sheet No. 7 - Girder No. 3 Repair Layout  
Sheet No. 8 - Girders No. 1 & 2 Repair Details  
Sheet No. 9 - Girders No. 1 & 2 Repair Details (Continued)  
Sheet No. 10 - Girders No. 2 & 3 Repair Details  
Sheet Nos. 11 thru 13 - Original Construction Plans

LAYOUT FOR UPGRADING  
FOR

**410' - 8" CONT. COMP. GIRDER BRIDGE**

OVER I-90 45° SKEW R.H.F.  
ST. NO. 52-900-360 SEC. 36 / 1 / 6 - T1N/1S - R15/16E  
PCN I4GH 240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

1 OF 13

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

DESIGNED BY RS PENNI4GH	CK. DES. BY CM I4GHR501	DRAFTED BY RS	 BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0365	Remove and Replace Transverse Stiffener	3	Each
410E0380	Remove and Replace Steel Diaphragm	3	Each
410E0508	Field Weld	30	In
410E0512	Grind Weld	30	In
410E0515	Drill Hole in Existing Steel	2	Each
410E0520	Surface Grinding of Structural Steel	120	SqIn
410E3010	Magnetic Particle Weld Inspection	438	In
410E3030	Magnetic Particle Weld Inspection, Impact Damage Repair	1333	SqIn
412E0100	Bridge Repainting, Class I	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.
- All Welding and Welding Inspection shall be in conformance with the AASHTO/AWS Bridge Welding Code D1.5M/D1.5:2015 unless otherwise noted in this plan set.

PRE-CONSTRUCTION MEETING

A pre-construction meeting is required prior to beginning the repair work. The purpose of the meeting is to review the plans and procedures because of the specialty work involved. At a minimum, a representative from the Contractor and all Subcontractors shall attend this meeting along with Department personnel from the Area Office and Bridge Office. The contractor must notify the Bridge Construction Engineer and the Area Office at least three days prior to the meeting.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary dimensions affecting the satisfactory completion of the work required for this project.

SHOP PLANS

Shop plans shall be required as specified by Section 410.3 A of the Specifications.

GENERAL CONSTRUCTION

- Welder certification shall be in accordance with section 410.3 D of the Specifications.
- The new structural steel transverse stiffener plates and diaphragms shall be ASTM A36.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK

All work on this structure shall be accomplished under traffic with the traffic control as shown elsewhere in the plans.

- Nondestructive Test impact damage areas on the web of girder G1 at the locations shown in the plans. Grind nicks and gouges in the web as necessary.
- Nondestructive Test existing diaphragm stiffener to bottom flange fillet welds at the locations shown in the plans. If cracking of existing diaphragm stiffener to bottom flange fillet welds is found, grind welds and reweld. Retest after grinding and prior to rewelding.
- Remove and replace the plan specified damaged stiffeners and diaphragms.
- Paint all work areas.

FIELD WELDING PROCEDURES

- Approved Welding Procedure Specifications (WPS) will be required for this project, using the Shielded Metal Arc Welding (SMAW) process and an approved E7018 electrode from Table 4.1 of the Bridge Welding Code. The proposed WPS's for this project shall be submitted on Form N-2, from Annex N of the Bridge Welding Code, to the Bridge Construction Engineer for approval at least 2 weeks prior to construction.
- Preparation of the base metal prior to welding shall be in accordance with Clause 3 of the Bridge Welding Code. Existing paint shall be removed a distance of 2 inches from each side of the weld.

- Preheat will be required. Preheat and interpass temperature requirements shall be in accordance with Clause 4.2 of the Bridge Welding Code. The minimum preheat and interpass temperature shall be 320 degrees F for welds to the 1" girder bottom flanges and 300 degrees F for welds to the 5/16" girder web and diaphragm to 3/8" diaphragm stiffeners and 5/16" diaphragm gusset plates as determined from Annex G of the Bridge Welding Code for high restraint conditions. Temperature indicating crayons shall be the minimum acceptable method for monitoring preheat and interpass temperatures.
- SMAW electrode atmospheric exposure requirements shall comply with Clause 4.5 of the Bridge Welding Code. Electrodes shall be purchased in hermetically sealed containers. If the container shows evidence of damage, the electrodes shall be dried in a drying oven for at least one hour at temperatures between 700 and 800 degrees F before they are used. Immediately after opening a hermetically sealed container or removal of the electrodes from a drying oven, electrodes shall be stored in ovens at a temperature of at least 250 degrees F. Electrodes exposed to the atmosphere upon removal from drying or storage ovens or hermetically sealed containers shall be used within four hours maximum or redried at 450 to 550 degrees F for two hours minimum. Electrodes exposed to the atmosphere for periods less than four hours may be returned to a storage oven and maintained at a minimum of 250 degrees F for a minimum of four hours before reissue. Electrodes shall be redried no more than one time. Electrodes which have been wet shall not be used.
- All welds shall be cleaned in accordance with Clause 3.11 of the Bridge Welding Code. Completed welds and adjacent areas shall be cleaned of all weld splatter, slag, smoke and heat affected paint. No intermittent or "stitch" welds will be allowed.
- E7018 electrodes shall be used for tack welds. The size of tack welds shall not be greater than 5/16". Tack welds shall be positioned so they will be incorporated into, and re-melted by, the final weld. This applies to run-off tabs also. Tack welds shall be thoroughly cleaned prior to any weld placement.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES  
FOR  
410' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 52-900-360  
AUGUST 2017

WELD INSPECTION & NONDESTRUCTIVE TESTING (NDT)

1.

The Contractor shall be responsible for retaining a qualified Testing Agency to perform Visual and Magnetic Particle (MT) inspection of existing and new welds and to locate existing and potential crack tips. Inspectors performing Visual and MT inspection and crack tip location shall be certified in accordance with Section 410.3 D of the Construction Specifications. The Contractor shall submit the Testing Agency to the Department at the Preconstruction meeting for approval by the Bridge Construction Engineer.
2.

All Nondestructive Testing (NDT) and inspection shall be done in accordance with Clause 6 of the Bridge Welding Code. The MT inspection shall be performed by the yoke method using half-wave rectified direct or alternating current. Existing paint shall be removed from the steel surfaces that require NDT. MT inspection results shall be reported on Form N-7 of Annex L of the Bridge Welding Code.
3.

The existing fillet welds noted below shall be 100% visually inspected and 100% magnetic particle inspected. In addition, all of the structural steel elements in the lengths of girder G1 web shown with impact damage areas on the plans shall be visually inspected and magnetic particle inspected for possible cracks. Defects shall be clearly marked on the girder in accordance with the Bridge Welding Code and a written record of the defects shall be given to the Engineer for transmittal to the Bridge Construction Engineer. Any suspected cracks shall be verified by magnetic particle inspection with the crack tips located. Crack tip locations shall be clearly marked on the girder and a written record of the crack tip location shall be given to the Engineer for transmittal to the Bridge Construction Engineer. Notify the Bridge Construction Engineer if any cracks or crack tips are located in the girder flange.

Repair options for the defects and crack tips shall be determined by the Bridge Construction Engineer—see note on REPAIRS FOR NDT DETERMINED FLAWS.

4.

Existing weld and impact damage MT testing locations:

Girder 1:

- a.

Test the areas on both sides of the web as located on the plans. The estimated area for MT inspection is 1333 square inches.
- b.

Test weld locations (Section A-A and Section C-C) of removed transverse stiffeners to girder after grinding and before new stiffeners are installed. The estimated length for MT inspection is 150 linear inches.

Diaphragm Stiffener to Girder Bottom Flange Connections:

- c.

Test the diaphragm stiffener welds to girder bottom flanges on both sides of stiffeners as located on the plans (Section A-A, Section B-B, Section D-D). If cracking is found and connection is to be re-welded, re-test after the weld is ground out and prior to re-welding. The estimated length for MT inspection is 90 linear inches.

Diaphragm Connections:

- d.

Test diaphragm to diaphragm stiffener weld locations (Section A-A, Section B-B, Section D-D) where the bottom legs of the diaphragm are removed, after grinding and before installation of new bottom legs. The estimated length for MT inspection is 93 linear inches.
5.

New fillet welds shall be 100% visually inspected and 20% magnetic particle inspected. Based on the results of the magnetic particle and visual inspection, the Bridge Construction Engineer will determine the acceptability of the completed fillet welds and any recommended repairs. Rejectable defects in new welds shall be repaired in accordance with the Bridge Welding Code. Repaired welds shall be re-inspected after all repairs are complete. The estimated length for MT inspection is 105 linear inches.
6.

All costs including labor, equipment and any incidentals necessary to perform the visual inspection, magnetic particle inspection and crack tip location shall be incidental to the contract unit price per inch for MAGNETIC PARTICLE WELD INSPECTION.
7.

All costs including labor, equipment and any incidentals necessary to perform the visual inspection, magnetic particle inspection and crack tip location shall be incidental to the contract unit price per square inch for MAGNETIC PARTICLE WELD INSPECTION, IMPACT DAMAGE REPAIR.
8.

All costs to remove the paint and clean all fillet welds to be nondestructive tested and remove the paint and clean all visible or potential crack tip locations shall be incidental to the contract unit price per inch for MAGNETIC PARTICLE WELD INSPECTION or contract unit price per square inch for MAGNETIC PARTICLE WELD INSPECTION, IMPACT DAMAGE REPAIR.
9.

The total plans quantity for MT weld inspection is only an estimate. The weld inspection will be measured and paid for as MAGNETIC PARTICLE WELD INSPECTION and MAGNETIC PARTICLE WELD INSPECTION, IMPACT DAMAGE REPAIR.

REPAIRS FOR NDT DETERMINED FLAWS

1.

Repair options for weld defects and crack tips shall be determined by the Bridge Construction Engineer. Two repair options are:

a.

Drill all crack tips in the web.

b.

Repair fillet weld defects by removing the weld with the air carbon arc process and then grinding flush. Grinding shall be in the longitudinal direction. Transverse grinding will not be allowed. The repair shall then be rewelded in accordance with the Bridge Welding Code.
2.

All labor, equipment, materials and incidentals necessary to drill 1" diameter holes in the web shall be incidental to the contract unit price per each for DRILL HOLE IN EXISTING STEEL. The estimated quantity for drilling crack tips in the web is 2 each.

3.

All labor, equipment, materials and incidentals necessary including air carbon arc removal and grinding of welds shall be incidental to the contract unit price per inch for GRIND WELD. The estimated quantity for grinding the diaphragm stiffener to girder bottom flange connections is 30 linear inches.
4.

All labor, equipment, materials and incidentals necessary to reweld the repair shall be incidental to the contract unit price per inch for FIELD WELD. The estimated quantity for rewelding the diaphragm to girder bottom flange connections is 30 linear inches.
5.

Other repair options shall be at the discretion of the Bridge Construction Engineer.

REMOVE AND REPLACE STEEL DIAPHRAGM

1.

Cut and remove the portions of the Diaphragm as shown on the plans (Section A-A, Section B-B, Section D-D) by the air carbon arc process. All cut edges shall be ground smooth to their final size in preparation for welding. Grinding shall be longitudinal. Transverse grinding will not be allowed. The removed portions of the diaphragm shall be disposed of by the Contractor.
3.

The removed portion of the diaphragm shall be replaced and welded as shown in the plans. The diaphragm shall be field fit with tight joints to exclude water after painting.
4.

During the removal and replacement procedure, additional nondestructive testing may be required. See notes regarding Weld Inspection & Nondestructive Testing (NDT).
5.

All labor, equipment, materials, welding and any incidentals necessary to remove and replace the damaged portions of the diaphragm shall be incidental to the contract unit price per each for REMOVE AND REPLACE STEEL DIAPHRAGM.

NOTES (CONTINUED)

FOR

410' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 52-900-360

AUGUST 2017

REMOVE AND REPLACE TRANSVERSE STIFFENERS

1. The damaged transverse stiffeners, as shown in the plans (Section A-A, Section C-C), shall be removed by the air carbon arc process, operated electrode positive. The cuts shall be made short and the web and flanges ground smooth to remove the remaining portion of the stiffeners and welds. Grinding shall be longitudinal. Transverse grinding will not be permitted. The Contractor shall use care during the removal process not to gouge or damage the web or flanges in any way. The damaged stiffeners shall be disposed of by the Contractor.
2. The stiffeners shall be replaced and welded as shown in the plans. The stiffeners shall be field fit with tight joints to exclude water after painting.
3. During the removal and replacement procedure, additional nondestructive testing may be required. See notes regarding Weld Inspection & Nondestructive Testing (NDT).
4. All labor, materials, equipment, welding, field drilling of holes, cutting of copes and any incidentals necessary to remove and replace the transverse stiffeners, as shown on the plans, will be incidental to the contract unit price per each for REMOVE AND REPLACE TRANSVERSE STIFFENER.

REMOVAL OF SURFACE NICKS AND GOUGES

1. Grind the web areas of girder G1 as located on the plans, as directed by the Engineer, to remove all sharp edges from surface nicks and gouges created by vehicle impact. The amount of material removed shall be kept at the absolute minimum necessary to remove the sharp edges and to minimize the section reduction of the existing structural members. Grinding shall be longitudinal. Transverse grinding will not be allowed.
2. All surface nicks and gouges shall be checked by non-destructive MT testing after grinding--see Weld Inspection & Nondestructive Testing (NDT) note. Repair options for the defects found by the non-destructive testing shall be determined by the Bridge Construction Engineer.
3. All costs associated with removing sharp edges from surface nicks and gouges including all materials, equipment and labor shall be incidental to the contract unit price per square inch for SURFACE GRINDING OF STRUCTURAL STEEL. The estimated area is 120 square inches. This quantity is included to establish bid prices. SURFACE GRINDING OF STRUCTURAL STEEL will be used and paid for only as determined by the Engineer. This item may not be needed and could be removed from the plans.

INCIDENTAL WORK, STRUCTURE

The following shall all be considered INCIDENTAL WORK, STRUCTURE:

1. The girders shall be solvent cleaned to SSPC SP-1 prior to any other work being done on the structure.
2. All power tool cleaning performed by the Contractor in preparation for Nondestructive Testing. Power tool cleaning shall be in accordance with SSPC SP-3.
3. All materials, labor, equipment, and any incidentals necessary to perform all that is described in the notes above shall be incidental to the contract lump sum price for "INCIDENTAL WORK, STRUCTURE."

AIR CARBON ARC CUTTING AND GOUGING

1. All removal of transverse stiffeners, diaphragms, and welds called for by the plans shall be accomplished using the air carbon arc process unless noted otherwise. Plasma cutting will also be allowed. If the contractor plans to use plasma cutting the Bridge Construction Engineer shall be notified and will provide the Contractor with additional requirements for this cutting method.
2. Before any air carbon arc cutting or gouging begins, lay out all cut lines on the steel surfaces using a marker that will be visible during the cutting process.
3. When grinding to a specified shape or dimension is required after air carbon arc cutting, lay out the shape on the steel surface with a visible marker and grind to the layout line. Air carbon arc gouging shall be done using DC, electrode positive.
4. Extreme care shall be exercised during the cutting or gouging process so that absolutely no damage (such as nicks, gouges, splattering) to the surrounding metal occurs. Any damage caused by the air carbon arc process shall be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department.
5. Grind all surfaces cut or gouged with the air carbon arc process to remove high carbon deposits, provide a smooth finish, and prepare metal for welding and/or to accept paint.

BRIDGE REPAINTING, CLASS I

1. All existing and new structural steel within the work affected areas shall be painted. The finished girder shall have a uniform paint appearance as approved by the Engineer. The work affected areas shall be painted for a distance of six inches outside the affected areas on all sides. For informational purposes, the approximate total area under this item of repair is 112 square feet.

2. Paint residue shall be treated as construction debris. Paint residue shall be contained, collected, and disposed of by the contractor in accordance with environmental commitments. Removal and containment will be incidental to the contract lump sum price for Bridge Repainting, Class I.
3. All work affected areas and all new structural steel shall be painted in accordance with Section 412 of the Specifications and in accordance with SSPC Standard PA1.
4. Paint color:

Top Coat - The paint color shall be an approved green color to match the existing paint. Prior to ordering the paint, a paint chip of the green color shall be submitted to the Department for color approval.

Primer or Intermediate Coats - Colors shall sharply contrast with each other and with the top coat.

NOTES (CONTINUED)

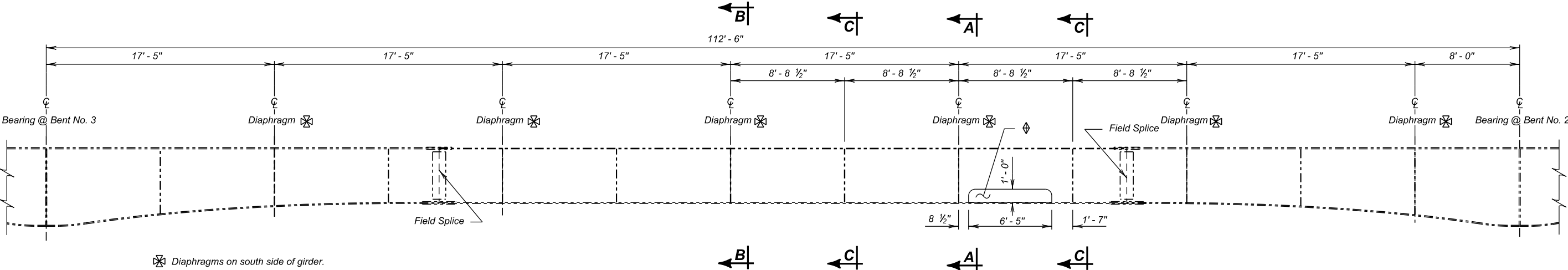
FOR

410' - 8" CONT. COMP. GIRDER BRIDGE

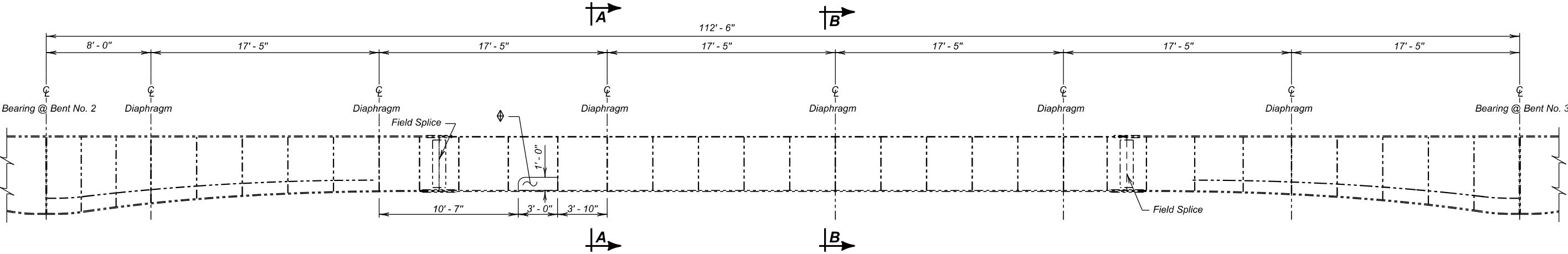
STR. NO. 52-900-360

AUGUST 2017

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	240-468	12	20



**NORTH FACE OF GIRDER NO. 1**  
(Showing Outside Face of Girder No. 1)



**SOUTH FACE OF GIRDER NO. 1**  
(Showing Inside Face of Girder No. 1)

NOTES:  
Concrete deck not shown for clarity  
Section A - A is located on Sheet No. 8  
Section B - B is located on Sheet No. 9  
Section C - C is located on Sheet No. 8  
◆ Nondestructive Test impact damage area as indicated.  
Surface grind as necessary--See Notes.

NOTE :  
This sheet is to be used in conjunction  
with Sheets 8 and 9 of 13.

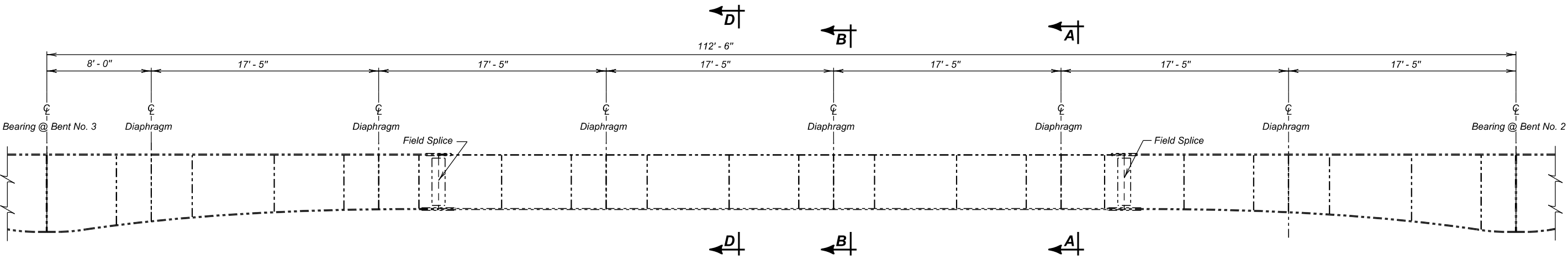
PLANS BY :  
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY RS PENNI4GH	CK. DES. BY CM I4GHR05	DRAFTED BY RS	Steve A. Johnson BRIDGE ENGINEER
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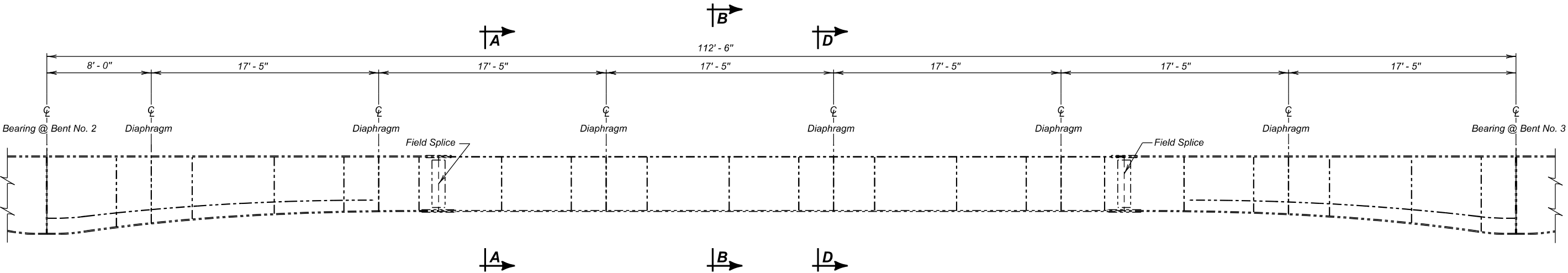
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FOR  
410' - 8" CONT. COMP. GIRDER BRIDGE  
OVER I- 90 45° SKEW R.H.F.  
STR. NO. 52-900-360 SEC. 36 / 1 / 6 - T1N/1S - R15/16E  
240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	240-468	13	20



**NORTH FACE OF GIRDER NO. 2**  
(Showing Outside Face of Girder No. 2)



**SOUTH FACE OF GIRDER NO. 2**  
(Showing Inside Face of Girder No. 2)


NOTES:  
Concrete deck not shown for clarity  
Section A - A is located on Sheet No. 8  
Section B - B is located on Sheet No. 9  
Section D - D is located on Sheet No. 10

NOTE :  
This sheet is to be used in conjunction  
with Sheets 8, 9 and 10 of 13.

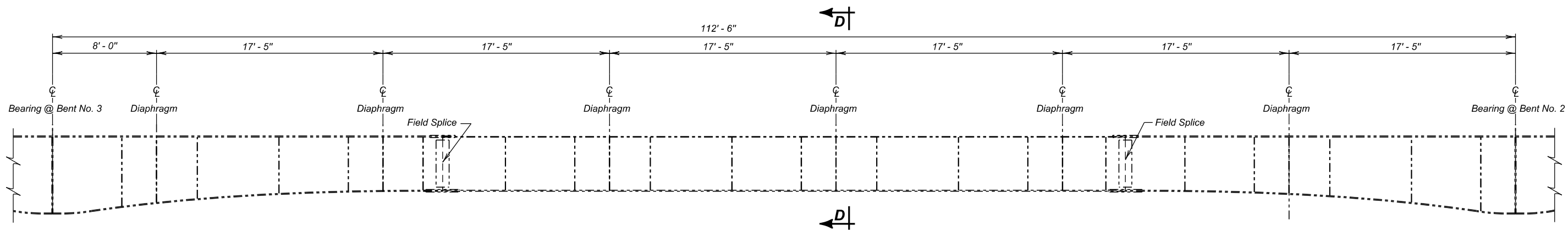
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FOR  
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STR. NO. 52-900-360 SEC. 36 / 1 / 6 -T1N/1S - R15/16E  
240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

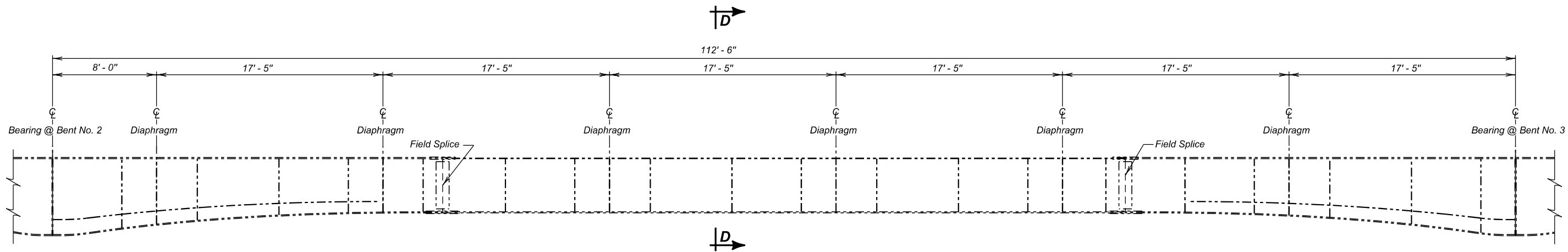
PLANS BY :  
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY RS PENNI4GH	CK. DES. BY CM I4GHR06	DRAFTED BY RS	 BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	240-468	14	20



**NORTH FACE OF GIRDER NO. 3**  
(Showing Outside Face of Girder No. 3)



**SOUTH FACE OF GIRDER NO. 3**  
(Showing Inside Face of Girder No. 3)

NOTES:  
Concrete deck not shown for clarity  
Section D - D is located on Sheet No. 10

NOTE :  
This sheet is to be used in conjunction  
with Sheet 10 of 13.

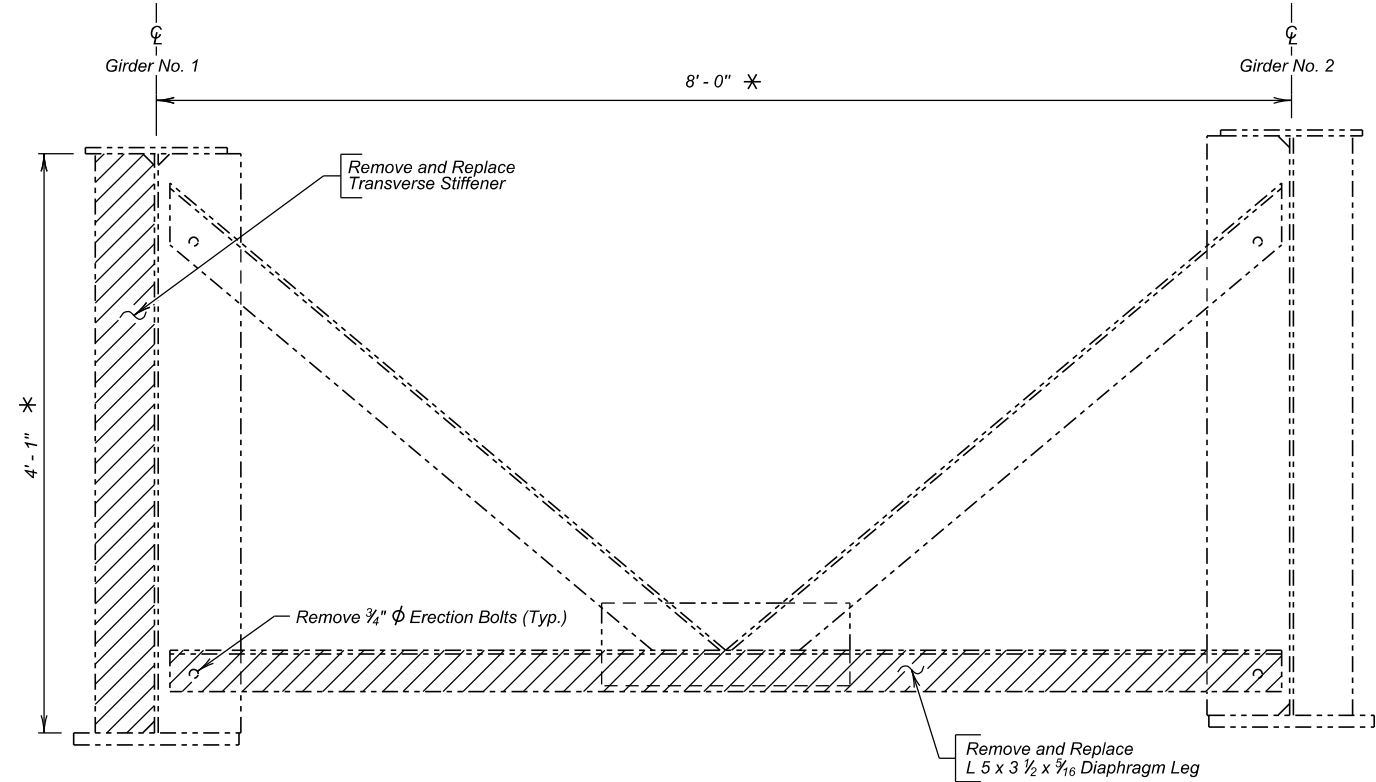
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FOR  
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OVER I- 90 45° SKEW R.H.F.  
STR. NO. 52-900-360 SEC. 36 / 1 / 6 - T1N/1S - R15/16E  
240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

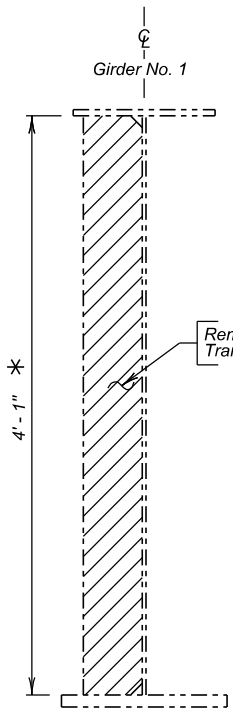
PLANS BY :  
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY RS PENN14GH	CK. DES. BY CM 14GHR507	DRAFTED BY RS	<i>Steve A. Johnson</i> BRIDGE ENGINEER
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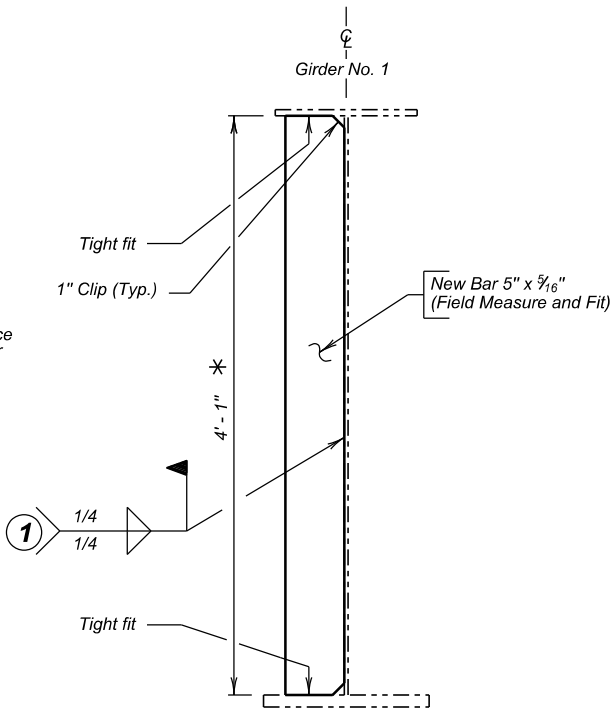
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S.D.	240-468	15	20



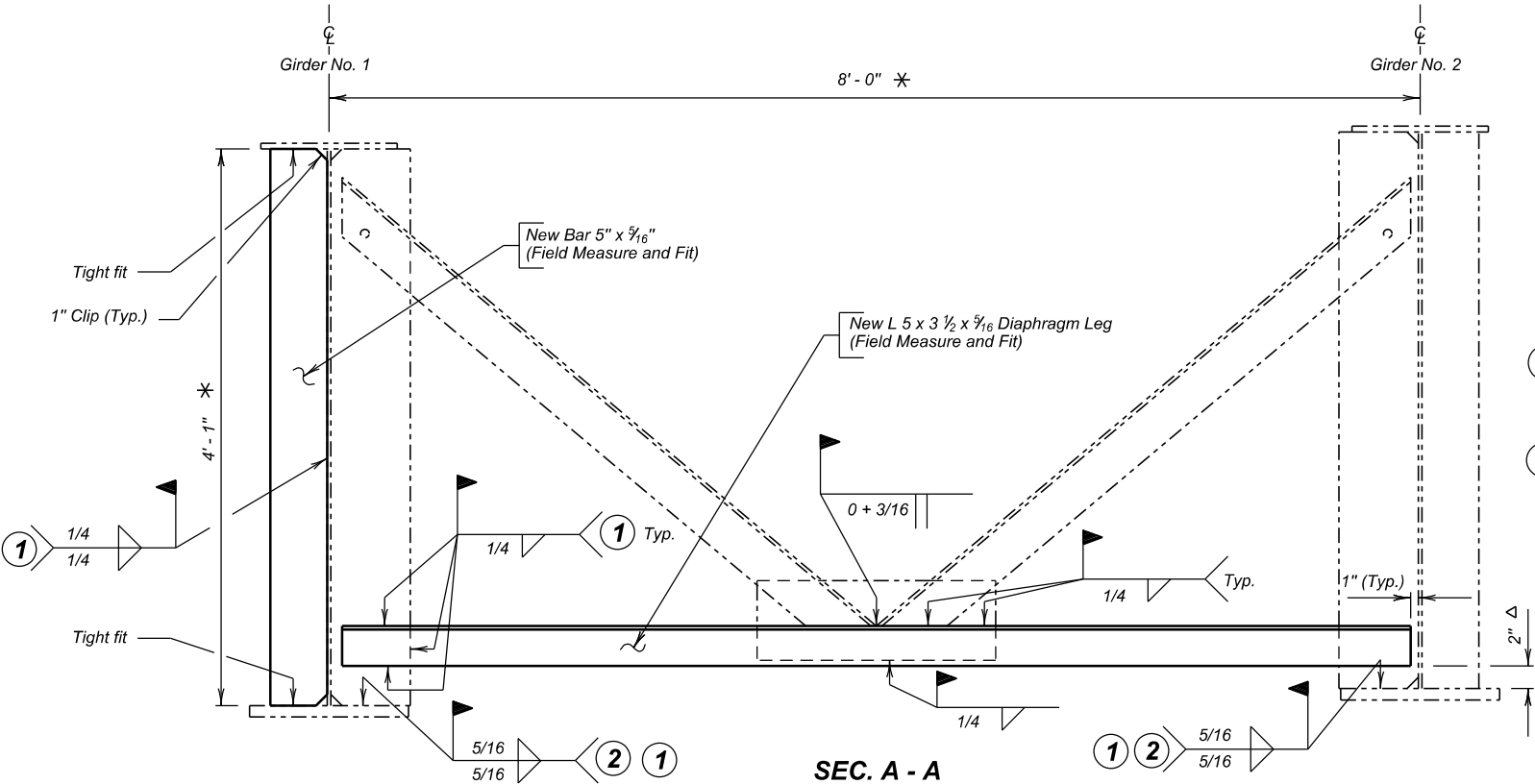
**SEC. A - A**  
Existing Diaphragm and Stiffeners



**SEC. C - C**  
Existing Stiffener



**SEC. C - C**  
New Stiffener



**SEC. A - A**  
New Diaphragm and Stiffener and Existing Stiffeners

- 1 All fillet welds attaching stiffeners to girder flanges and webs as well as diaphragm angles to stiffeners shall terminate 1/2" from edge of stiffener, flange, stiffener clip or cope, diaphragm angle, whichever is applicable.
- 2 Magnetic particle inspect existing stiffener to flange welds. If cracking is found, grind out existing weld and reweld. See Notes.

NOTE :  
This sheet is to be used in conjunction  
with Sheets 5, 6 and 9 of 13.

GIRDERS NO. 1 & 2 REPAIR DETAILS  
FOR  
**410' - 8" CONT. COMP. GIRDER BRIDGE**  
OVER I- 90 45° SKEW R.H.F.  
STR. NO. 52-900-360 SEC. 36 / 1 / 6 - T1N/1S - R15/16E  
240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

8 OF 13

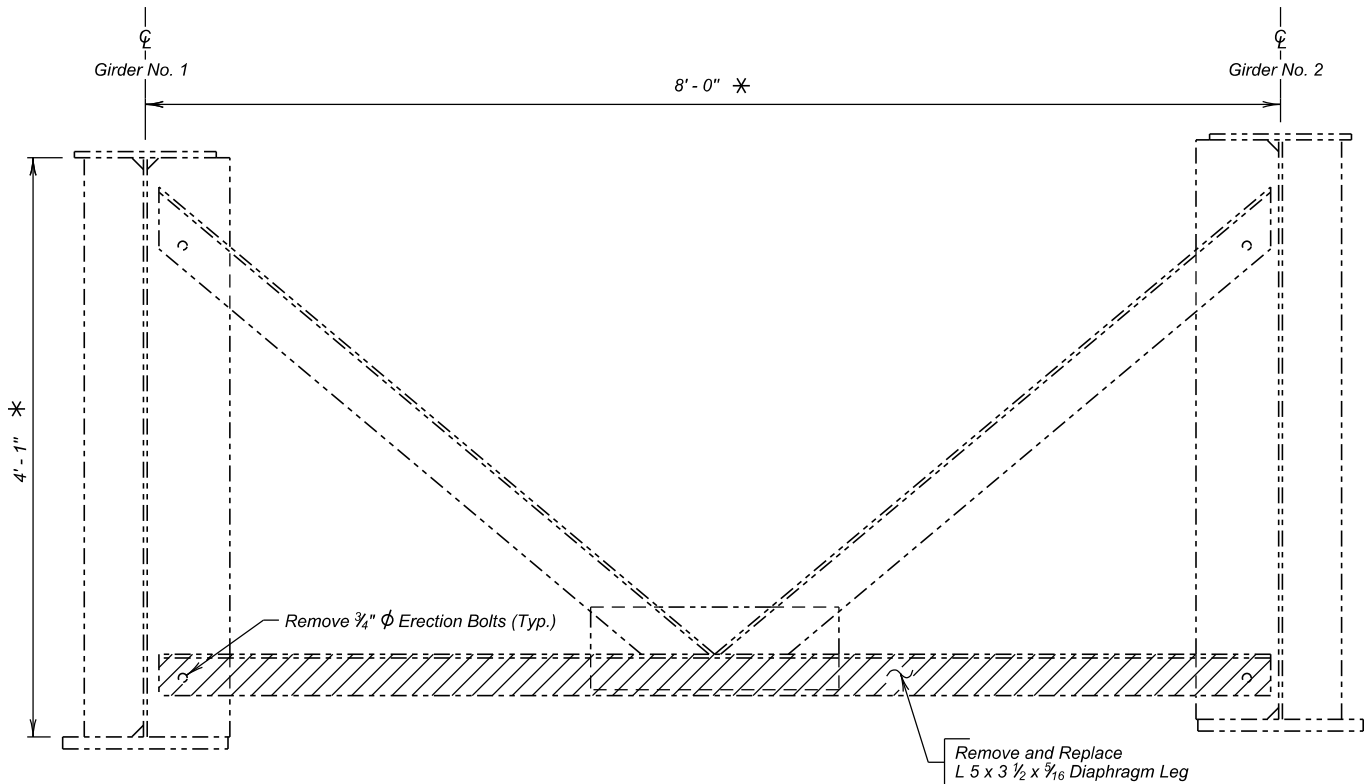
\* Match Existing  
Field Verify

Δ Place diaphragm leg 2" above bottom flange  
of highest girder in bay. Field verify.

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

DESIGNED BY RS PENI4GH	CK. DES. BY CM I4GHR08	DRAFTED BY RS	Steve A. Johnson BRIDGE ENGINEER
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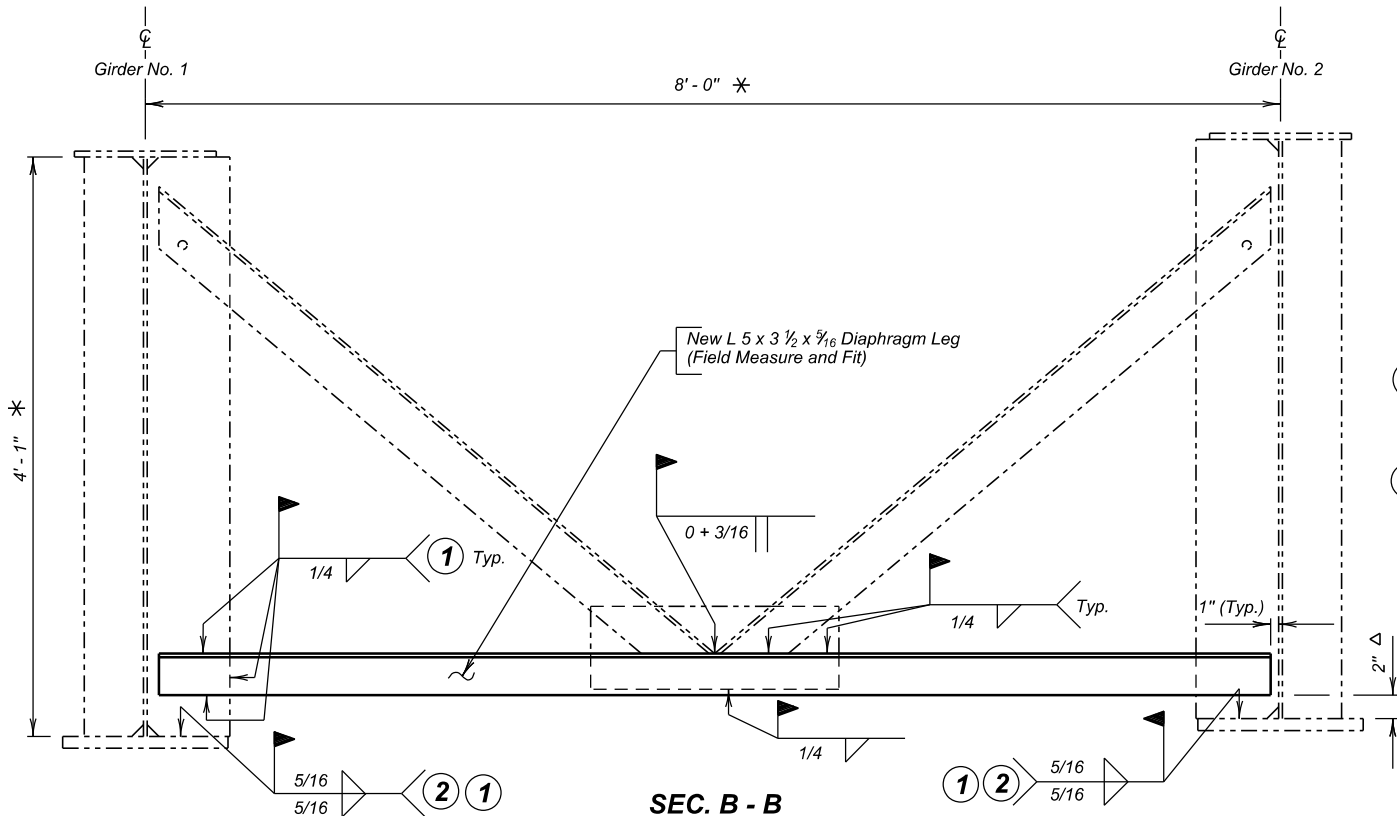




**SEC. B - B**  
Existing Diaphragm and Stiffeners

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Remove and Replace Transverse Stiffener	Each	3
Remove and Replace Steel Diaphragm	Each	2

For informational purposes only, the estimated total structural steel quantity for:  
Remove and Replace Transverse Stiffener is 65 lbs.  
Remove and Replace Steel Diaphragm is 136 lbs.



**SEC. B - B**  
New Diaphragm and Existing Stiffeners

- ① All fillet welds attaching stiffeners to girder flanges and webs as well as diaphragm angles to stiffeners shall terminate 1/2" from edge of stiffener, flange, stiffener clip or cope, diaphragm angle, whichever is applicable.
- ② Magnetic particle inspect existing stiffener to flange welds. If cracking is found, grind out existing weld and reweld. See Notes.

NOTE :  
This sheet is to be used in conjunction with Sheets 5, 6 and 8 of 13.

GIRDERS NO. 1 & 2 REPAIR DETAILS (CONTINUED)  
FOR  
410' - 8" CONT. COMP. GIRDER BRIDGE  
OVER I- 90 45° SKEW R.H.F.  
STR. NO. 52-900-360 SEC. 36 / 1 / 6 - T1N/1S - R15/16E  
240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

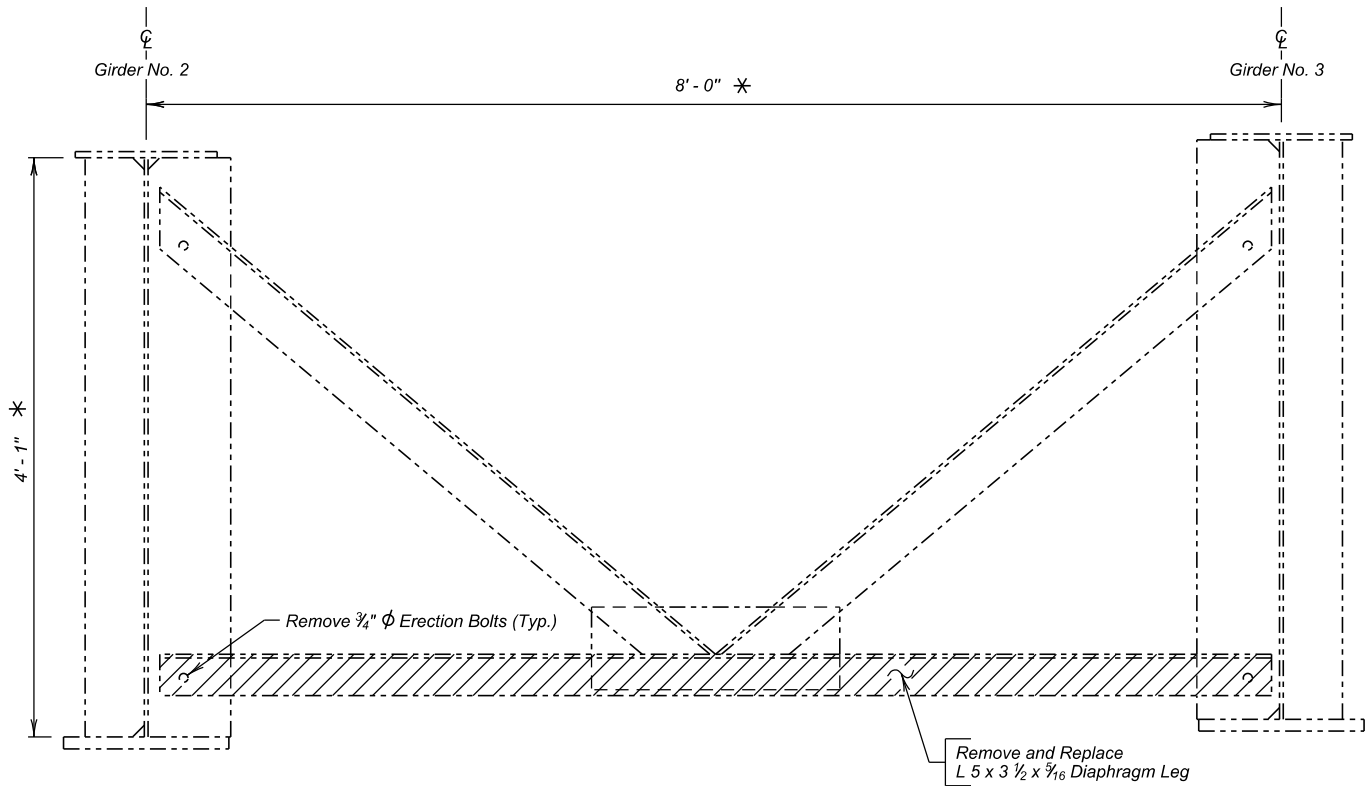
9 OF 13

\* Match Existing  
Field Verify

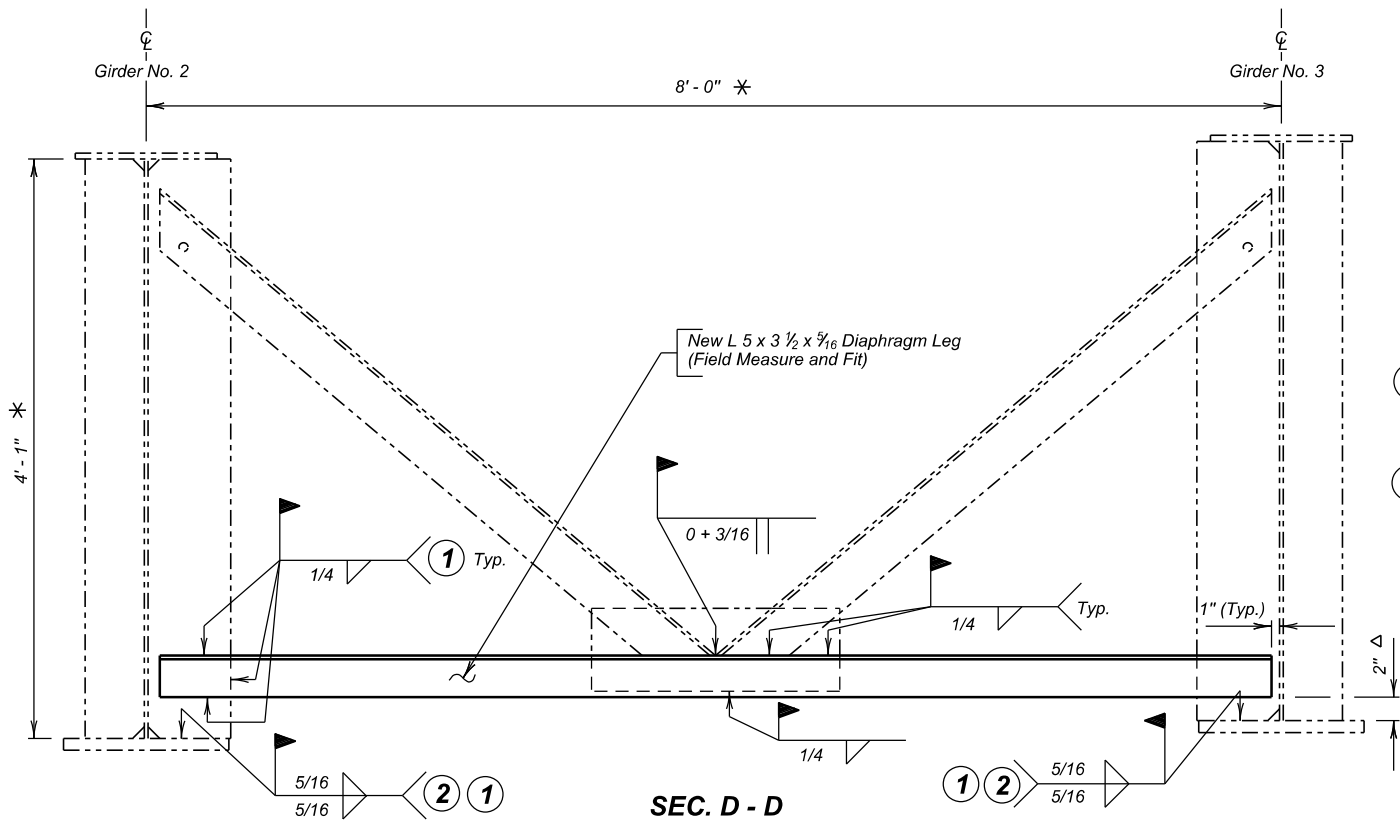
Δ Place diaphragm leg 2" above bottom flange of highest girder in bay. Field verify.

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

DESIGNED BY RS PENI4GH	CK. DES. BY CM I4GHRS09	DRAFTED BY RS	Steve A. Johnson BRIDGE ENGINEER
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**SEC. D - D**  
Existing Diaphragm and Stiffeners



**SEC. D - D**  
New Diaphragm and Existing Stiffeners

\* Match Existing  
Field Verify

△ Place diaphragm leg 2" above bottom flange  
of highest girder in bay. Field verify.

NOTE :  
This sheet is to be used in conjunction  
with Sheets 6 and 7 of 13.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Remove and Replace Steel Diaphragm	Each	1

For informational purposes only, the estimated total  
structural steel quantity for:  
Remove and Replace Steel Diaphragm is 68 lbs.

GIRDERS NO. 2 & 3 REPAIR DETAILS  
FOR  
410' - 8" CONT. COMP. GIRDER BRIDGE  
OVER I- 90 45° SKEW R.H.F.  
STR. NO. 52-900-360 SEC. 36 / 1 / 6 - T1N/1S - R15/16E  
240-468

PENNINGTON COUNTY  
S. D. DEPT. OF TRANSPORTATION  
AUGUST 2017

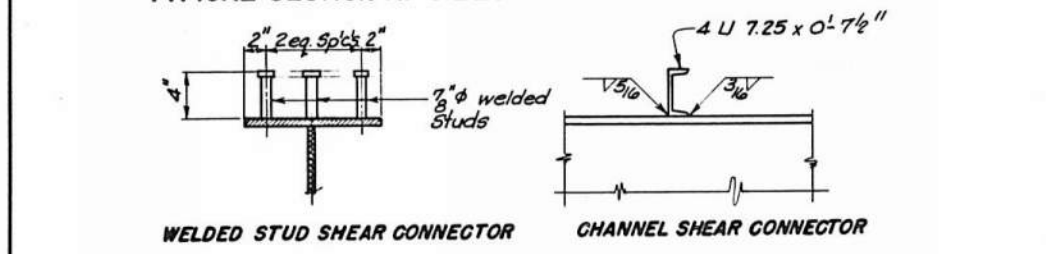
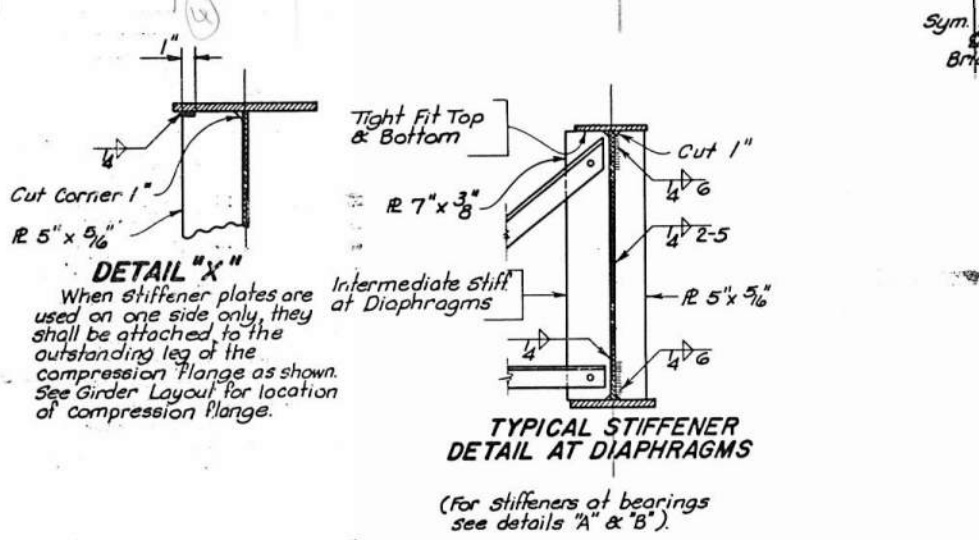
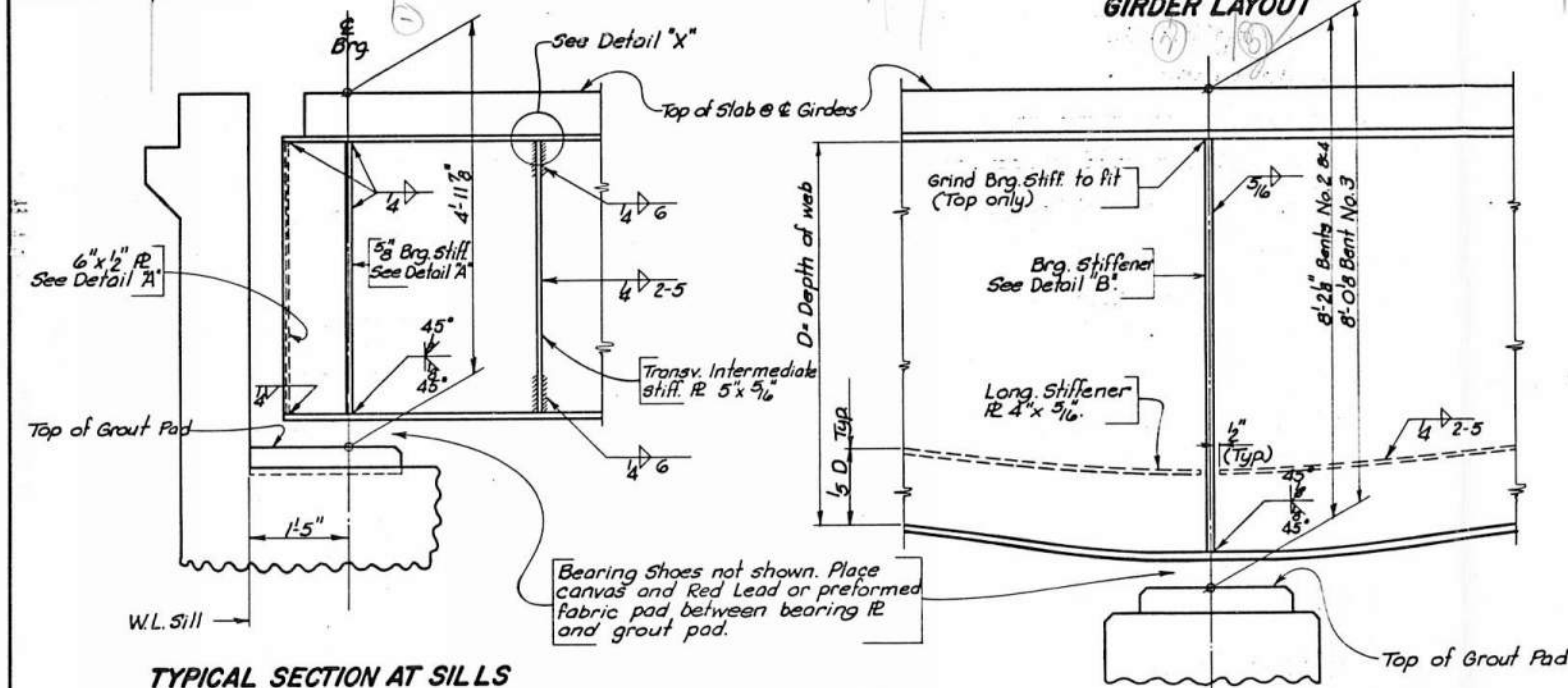
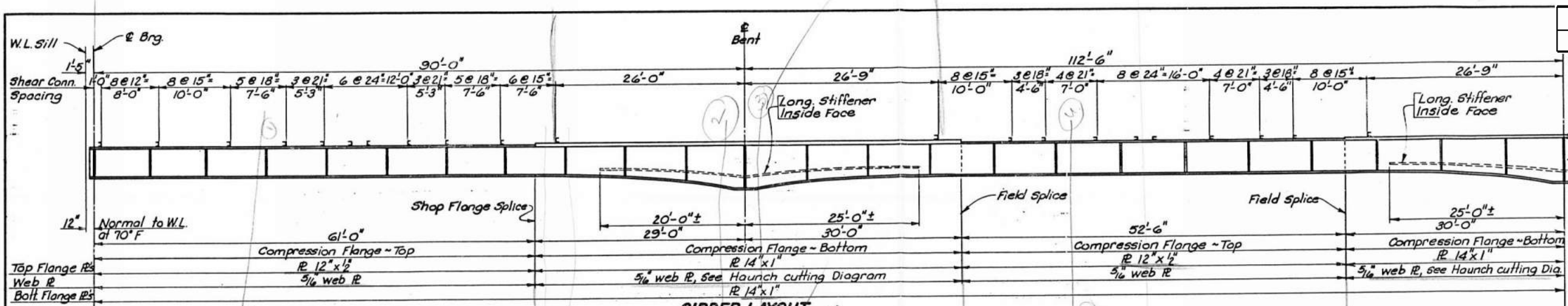
10 OF 13

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

DESIGNED BY RS PENI4GH	CK. DES. BY CM I4GHRS10	DRAFTED BY RS	Steve A. Johnson BRIDGE ENGINEER
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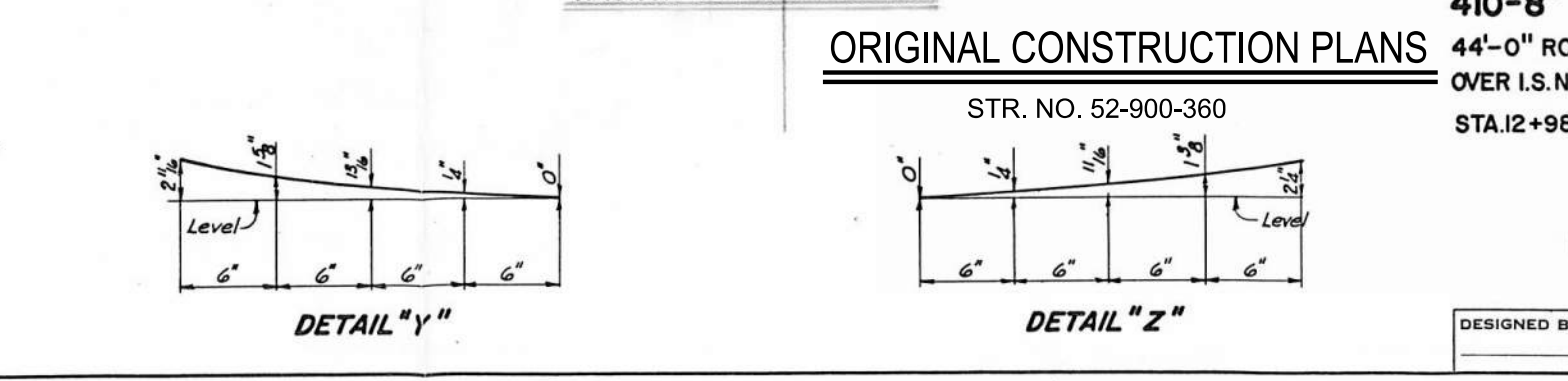
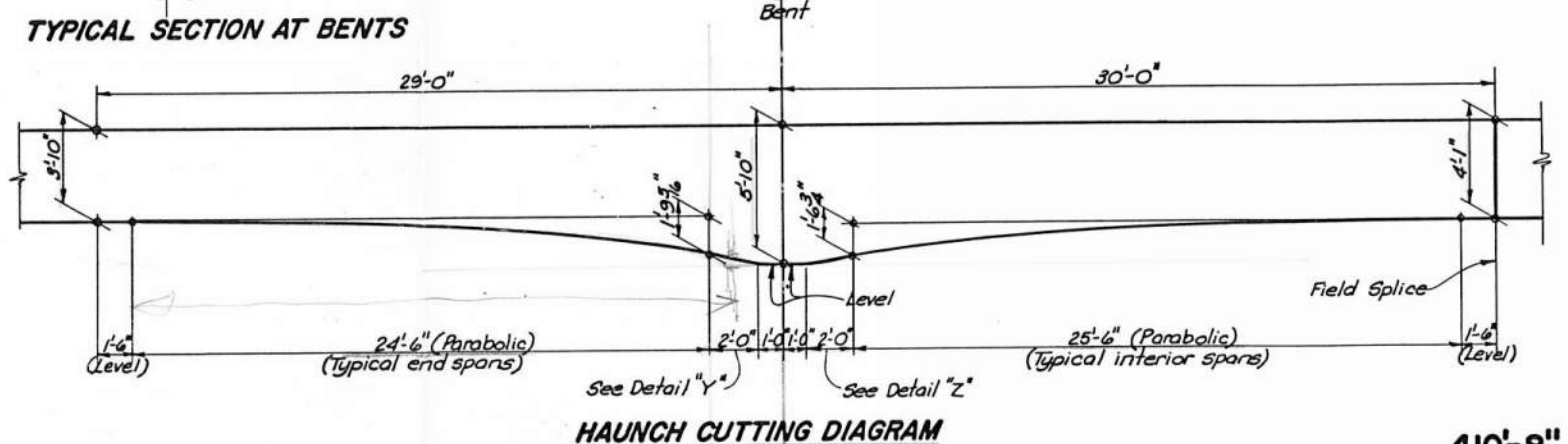
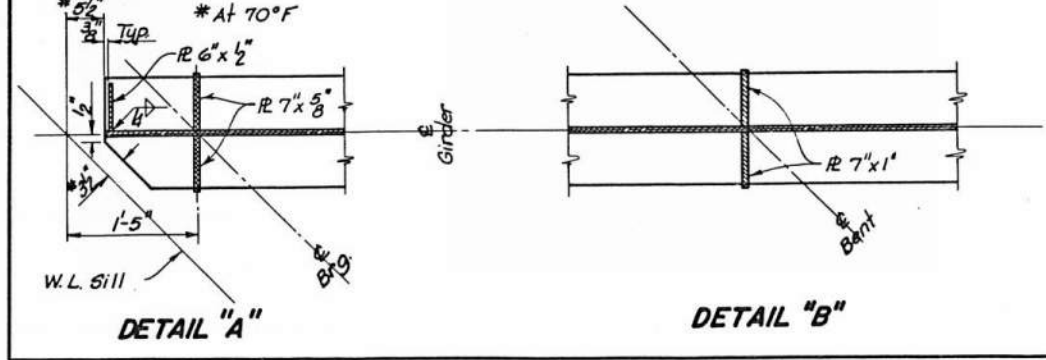






**DETAILS FOR SHEAR CONNECTORS**

1. Channel or welded stud shear connectors are spaced as shown on Girder Layout.
2. The Contractor may substitute a row of 3/8"  $\phi$  welded studs for each channel shear connector as shown.
3. Shear connectors will be paid for as structural steel based on the weight of channels, regardless of type of connector used.
4. Channels shall be placed on the girders facing in the directions as shown on the girder layout.



**SUPERSTRUCTURE NOTES—**

1. Design Specifications: AASHTO Specifications for Highway Bridges, 1965.
2. Design Loading: HS20-44 AASHTO
3. Structural steel shall conform to A.S.T.M. - A36 Steel. Steel produced under other specifications, but shown to possess the chemical and physical properties of A-36 steel will be accepted for use where the latter is specified.
4. Structural steel for bearings—see Sheet No. 8.
5. All reinforcing steel bars shall conform to A.S.T.M. Specifications A305 and A15, Intermediate Grade.
6. Copper alloy bearing shall be as specified on sheet No. 8.
7. Structural steel shall be painted with one shop coat of Red Lead Paint (A.A.S.H.O. designation M72 Type I) or Red Lead Iron Oxide Paint (A.A.S.H.O. designation M72 Type III) and shall be field painted with one coat of gray paint followed by a coat of green paint in accordance with Special Provisions.
8. The cost of canvas and red lead or preformed fabric pads, under bearing plates shall be included in the unit price bid for structural steel.
9. All exposed concrete edges shall be chamfered 1" unless otherwise noted.
10. The weight of erection bolts left in place at diaphragms shall be included in the structural steel quantity for payment.
11. But welded girder splice, shop or field, shall be radiographically inspected.
12. When the contractor elects to use the alternate bolted girder splice, the weight of necessary bolts and plates will not be measured for payment.
13. See Railing Sheet for details of Railing and Curb.
14. All Sledge Bolts shall be as shown on the substructure sheets and are listed as structural steel in superstructure quantities.
15. Fillet welds shall be subjected to magnetic particle inspection as specified in the Supplemental Specifications for Steel Structures, dated June 29, 1965.
16. For Expansion devices at sills, the 14"x3" R and the 7"x2" R shall be of weldable high-strength low alloy structural steel; A.S.T.M. A-242 having high resistance to atmospheric corrosion. All other structural steel shall be A.S.T.M. A-36.

FLANGE TO WEB WELDS	
Flange Thickness	Fillet Welds
1/2"	1/4"
1"	5/16"

**NOTES—**

1. See sheet No. 8 for details of Field Splice.
2. See sheet No. 6 for diaphragm details.
3. All dimensions shown are horizontal and vertical.
4. All stiffeners shall be made normal to flanges.
5. Girder ends shall be made vertical.

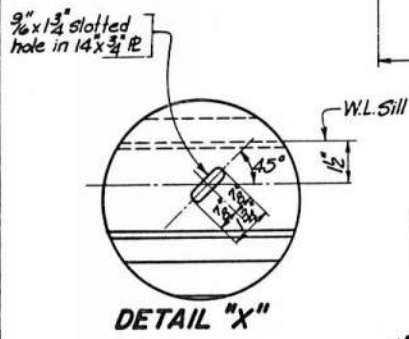
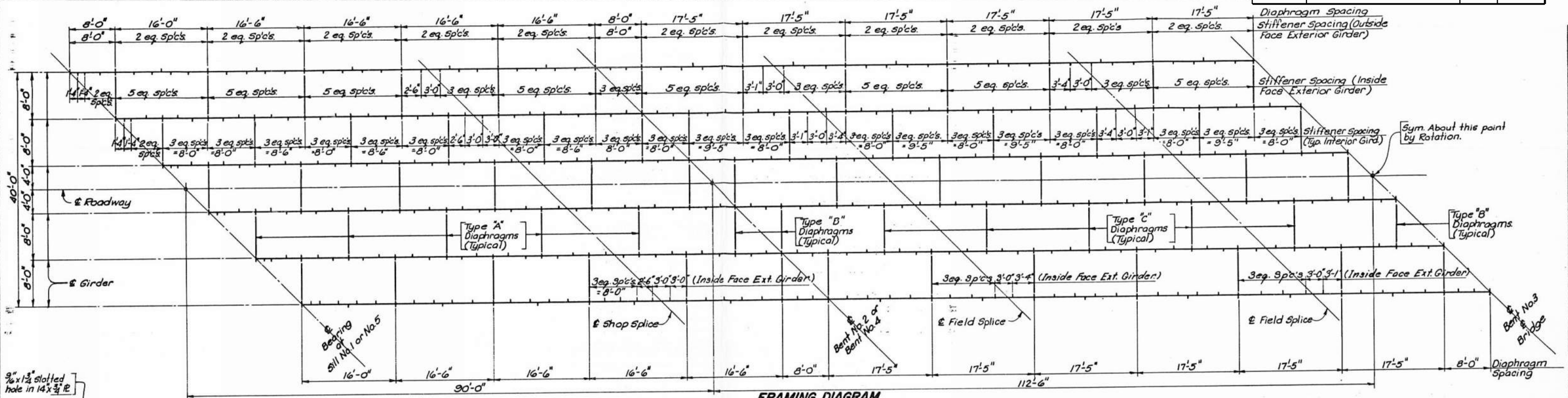
**ORIGINAL CONSTRUCTION PLANS**

STR. NO. 52-900-360

**410'-8" CONT. COMP GIRDER VIADUCT**  
 44'-0" ROADWAY SEC. 36/1/6-TIN/IS-RIE/16E  
 OVER I.S. NO. 90 STA. 410+80.41 45° SKEW R.H.E.  
 STA. 12+98.946 TO 17+09.612 F002-3(2)

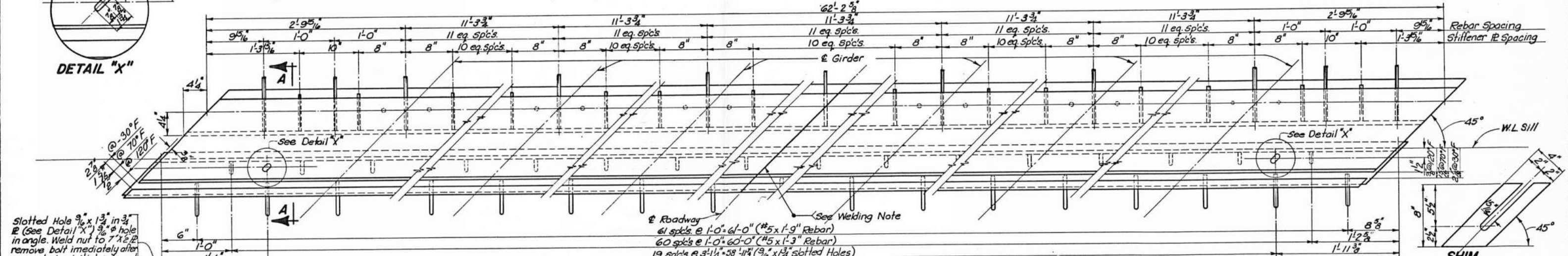
PENNINGTON COUNTY  
 SOUTH DAKOTA HS20-44  
 DEPARTMENT OF HIGHWAYS  
 OCT. 1967 12 OF 13

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	MAR	R.K.	<i>[Signature]</i> BRIDGE ENGINEER

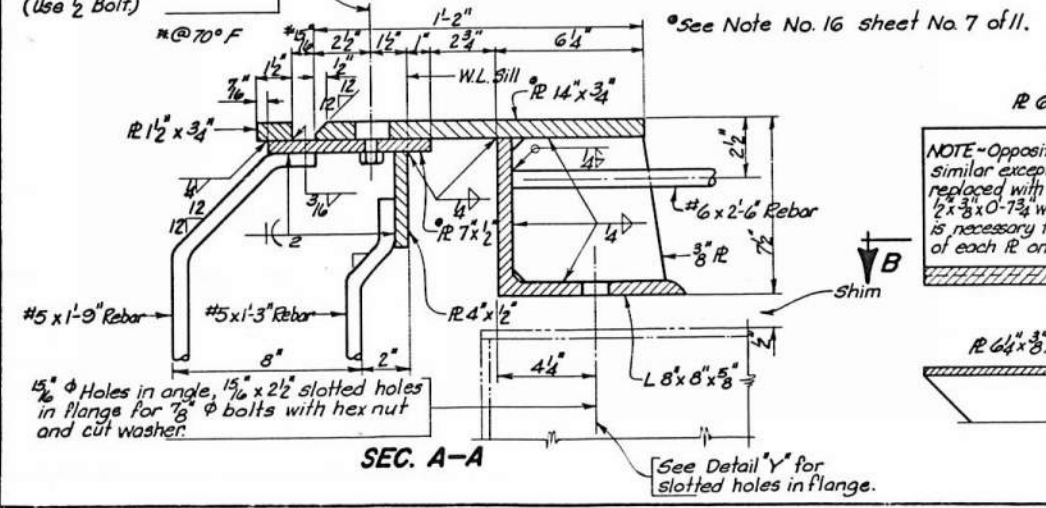


**ASSEMBLING NOTE —**  
The expansion device shall be completely shop assembled, adjusted to the position it will take in the structure, and the pieces match marked for field erection. The top surface of the expansion device shall conform to the roadway crown.

**WELDING NOTE —**  
The two shop fabricated pieces of an expansion device shall be joined in the field by butt welds in accordance with the latest specifications of the American Welding Society. Type of welds shall be shown on shop plans for approval by the BRIDGE SECTION.

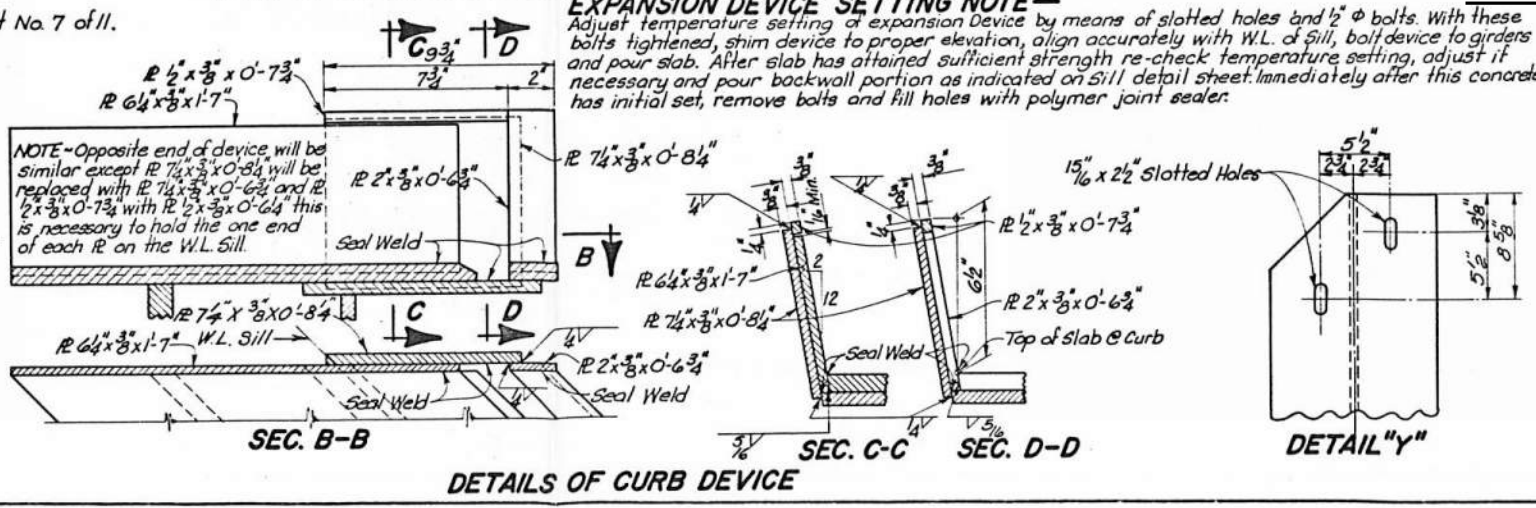


Slotted Hole 9/16 x 1 1/2 in 3/4 R (See Detail 'X') 9/16 hole in angle. Weld nut to 7/8 R remove bolt immediately after concrete has initial set, and fill with polymer jt. sealer. (Use 1/2 Bolt)



PLAN OF EXPANSION DEVICE AT SILLS NO. 1 & NO. 5

**EXPANSION DEVICE SETTING NOTE —**  
Adjust temperature setting of expansion device by means of slotted holes and 1/2 inch bolts. With these bolts tightened, shim device to proper elevation, align accurately with W.L. of sill, bolt device to girders and pour slab. After slab has attained sufficient strength re-check temperature setting, adjust if necessary and pour backwall portion as indicated on Sill detail sheet. Immediately after this concrete has initial set, remove bolts and fill holes with polymer joint sealer.



ORIGINAL CONSTRUCTION PLANS

STR. NO. 52-900-360  
FRAMING DIAGRAM AND END DEVICE DETAILS  
FOR  
**410'-8" CONT. COMP. GIRDER VIADUCT**  
44'-0" ROADWAY SEC. 36/1/6-TIN/IS-R15/16E  
OVER I.S. NO. 90 STA. 410+80.41 45° SKEW R.H.F.  
STA. 12+98.946 TO 17+09.612 F002-3(2)  
PENNINGTON COUNTY  
SOUTH DAKOTA HS20-44  
DEPARTMENT OF HIGHWAYS  
NOV. 1967 13 OF 13  
DESIGNED BY DRAWN BY CHECKED BY APPROVED  
M.E.R. R.K. [Signature]  
BRIDGE ENGINEER