

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
PROJECT 029S-288
INTERSTATE 29 SBL
MINNEHAHA COUNTY

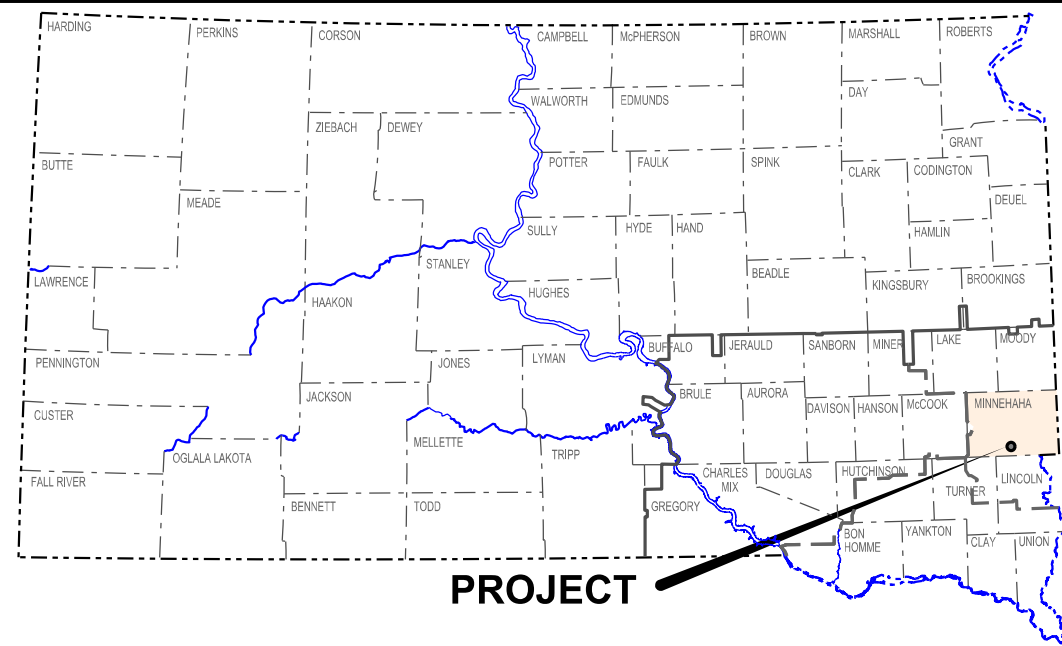
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	029S-288	1	15

Plotting Date: 08/22/2017

INDEX OF SHEETS

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Sheets 3-8	Traffic Control
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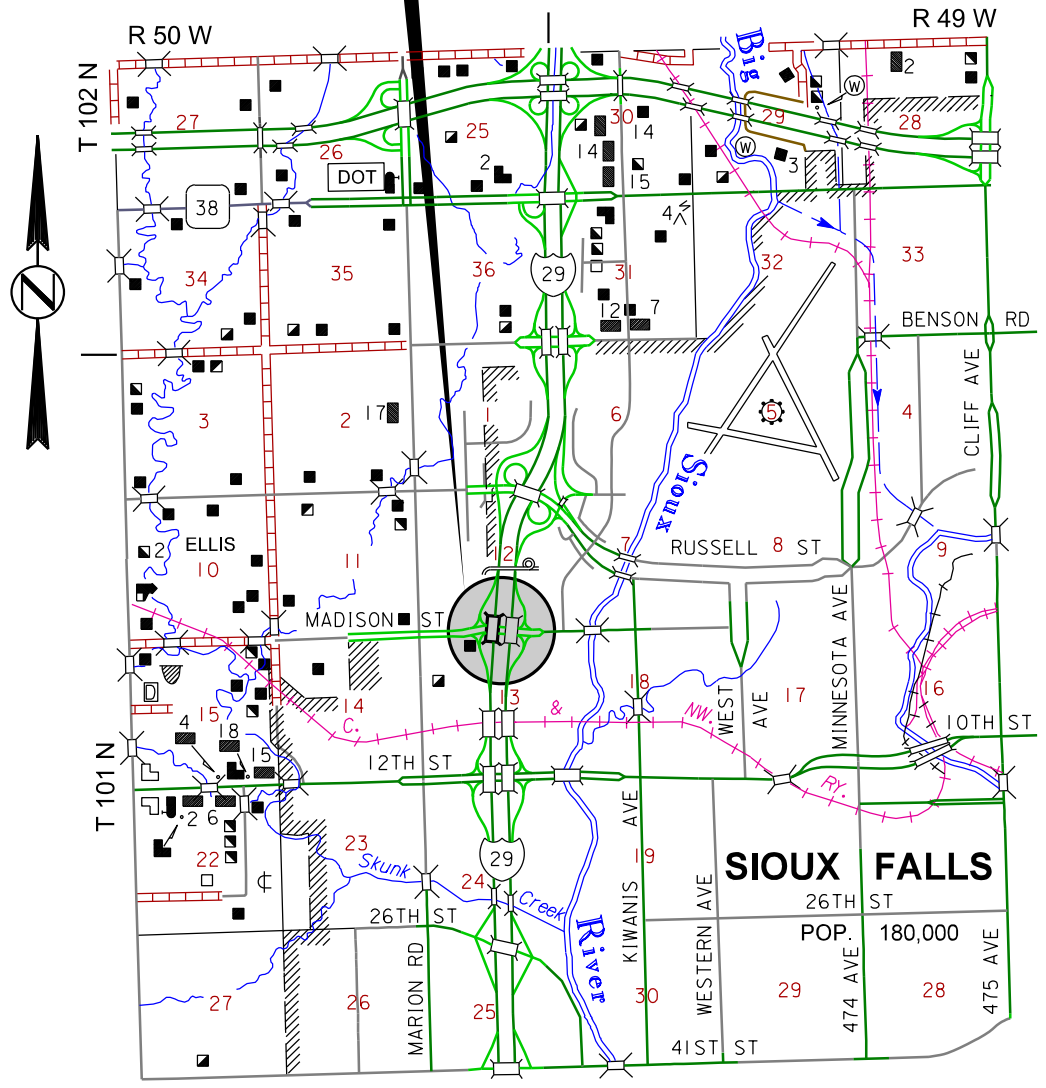
PLOT SCALE - 1" = 7000'



PROJECT

BRIDGE REPAIR
 PCN I4G6

STRUCTURE 50-177-199
 Cont. Comp. Girder Bridge
 374'-0"=0.071 Mile
 MRM 80.29 (SBL)



STORM WATER PERMIT
 (None required)

I29N ADT (2016) 23,070
I29S ADT (2016) 22,967
MADISON ST ADT (2016) 10,300

PLOTTED FROM - TRM11INT15

FILE - ... \MINN1466\TTL1466.DGN

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
410E0380	Remove and Replace Steel Diaphragm	1	Each
412E0100	Bridge Repainting, Class I	Lump Sum	LS
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	130.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	2	Each

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 C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

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.

Cost 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.

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	029S-288	3	15

SEQUENCE OF OPERATIONS

The following Sequence of Operations is to be followed unless an alternative is submitted a minimum of two weeks prior to the preconstruction meeting and approved.

Exit 80 crossroad (structure number 50-177-199):

Traffic shall be controlled with eastbound Madison Street thru lane and the adjacent left turn lane (right most left turn lane) closures to provide work space below the structure. The westbound outside (right) left turn lane is to be closed. The northbound exit ramp inside (left) left turn lane is to be closed. Closures on the Interstate mainline are not anticipated to be necessary.

Work to be completed during daylight hours between 8:15 AM to 4:30 PM, and from 6:00 PM until dark unless otherwise approved by the Engineer.

No work to be completed between the peak traffic volume hours of 7:00 AM to 8:15 AM, and 4:30 PM to 6:00 PM. All equipment and traffic control devices to be removed from the Madison Street lanes during these peak traffic volume hours.

1. Install traffic control devices to close the eastbound thru and adjacent left turn lane (right most left turn lane), the westbound outside left turn lane and the northbound exit ramp inside left turn lane.
2. Complete bridge repair work and painting.
3. Remove traffic control devices to open all roadways to traffic.

MAINTENANCE OF TRAFFIC

Traffic shall be returned to normal travel lanes at the end of each work day.

Sufficient traffic control devices have been included in these plans to sign three sets of lane closures. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per square foot for Traffic Control, Signs.

Channelizing device spacing shall be equal in feet to the posted speed limit.

Flaggers are to be used when necessary or when directed by the Engineer.

TRAFFIC SIGNAL TIMING ADJUSTMENT

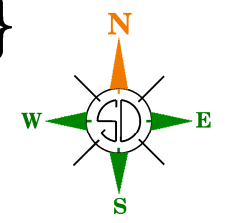
The retiming of traffic signals due to the repair work is not anticipated. Should the need for retiming of the traffic signals become apparent during the work, the Engineer shall contact the Region Traffic Engineer for assistance, 605-995-3313. The City of Sioux Falls Traffic Engineer shall also be notified, 605-367-8601.

STATE OF SOUTH DAKOTA	PROJECT 029S-288	SHEET 4	TOTAL SHEETS 15
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Plotting Date: 08/09/2017

W MADISON STREET TRAFFIC CONTROL

{TYPICAL}



(NEW INSTALLATION)



(EXISTING)



775±' IN ADVANCE
OF TURN LANE
MERGE TAPER



N Terry Ave

W Madison Street

W Madison Street

PLOT SCALE - 1:39,37

PLOTTED FROM - TRMLINT17

FILE - ... \MINNI466\1466 TC CONTAINER.DGN

PLOT NAME - 1

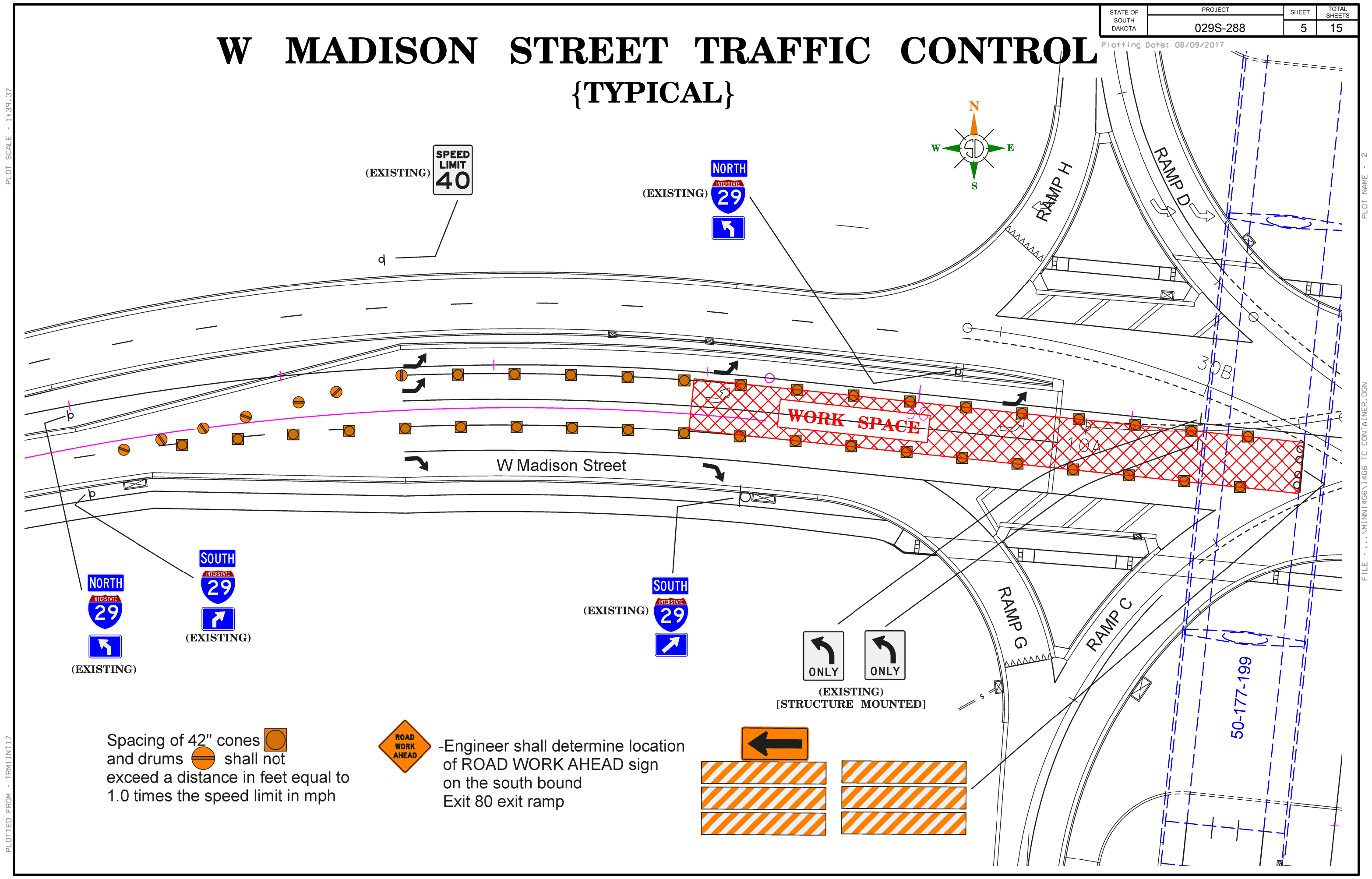
W MADISON STREET TRAFFIC CONTROL

{TYPICAL}

Plotting Date: 08/09/2017

PLOT SCALE - 1:39.37

PLOT NAME - 2

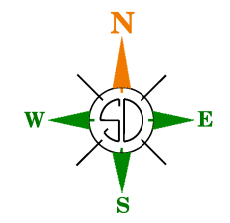


PLOTTED FROM - IRMLINI17

FILE - ... \MINNI466\1466 TC CONTAINER.DGN

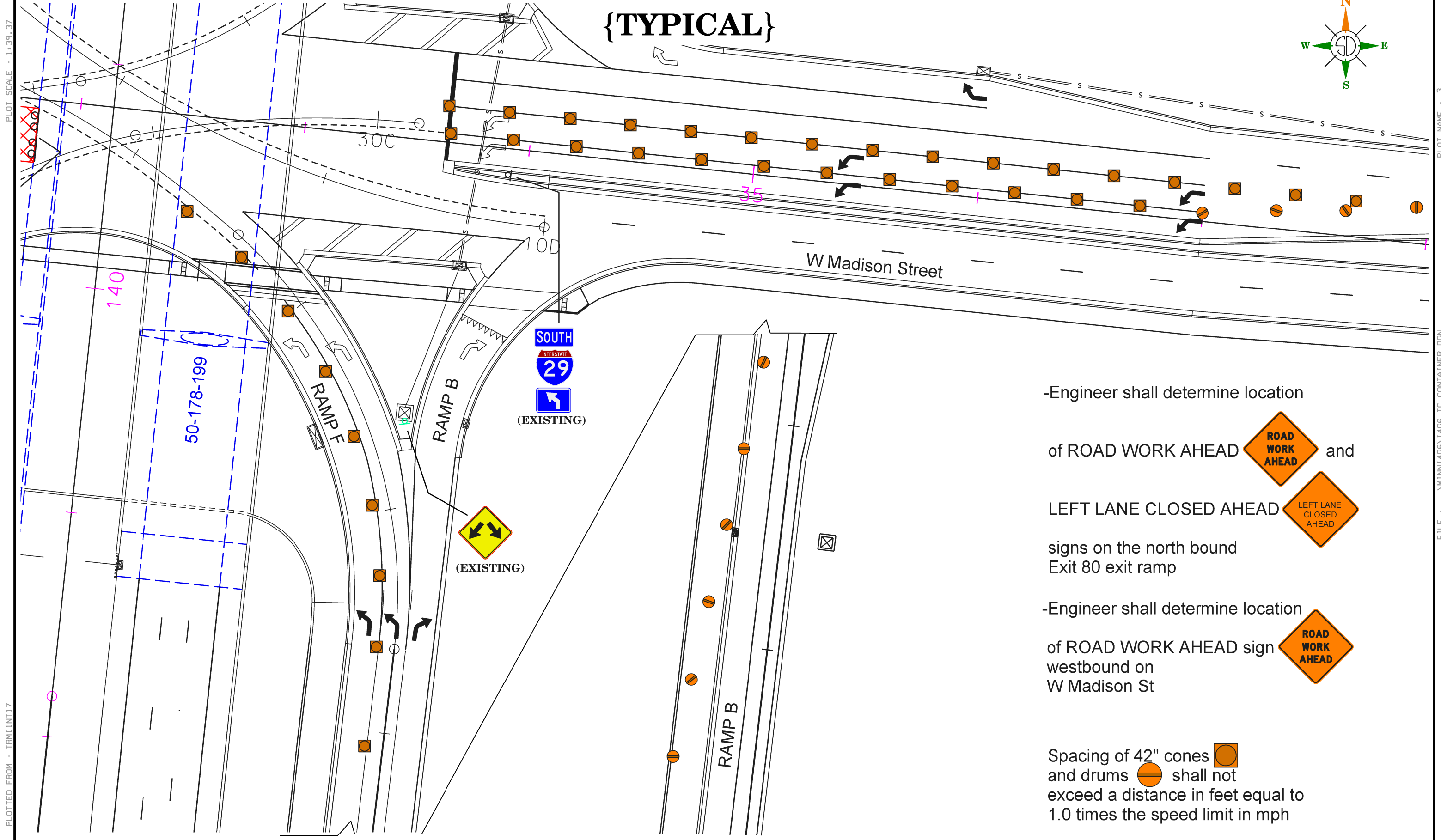
W MADISON STREET TRAFFIC CONTROL

{TYPICAL}

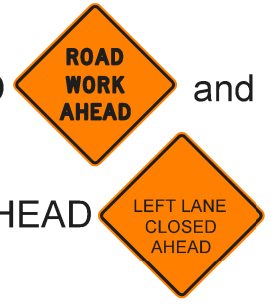


PLOT SCALE - 1:39.37

PLOT NAME - 3



-Engineer shall determine location of ROAD WORK AHEAD and LEFT LANE CLOSED AHEAD signs on the north bound Exit 80 exit ramp



-Engineer shall determine location of ROAD WORK AHEAD sign westbound on W Madison St



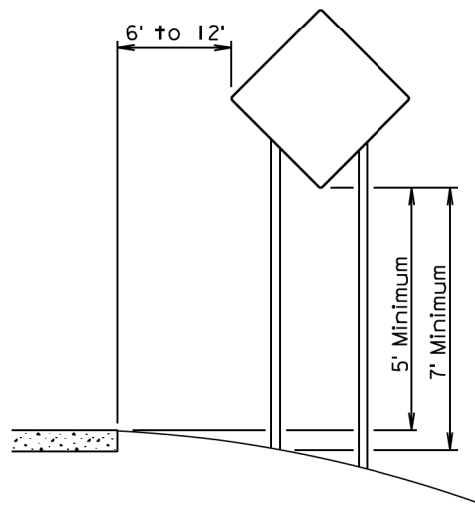
Spacing of 42" cones and drums shall not exceed a distance in feet equal to 1.0 times the speed limit in mph



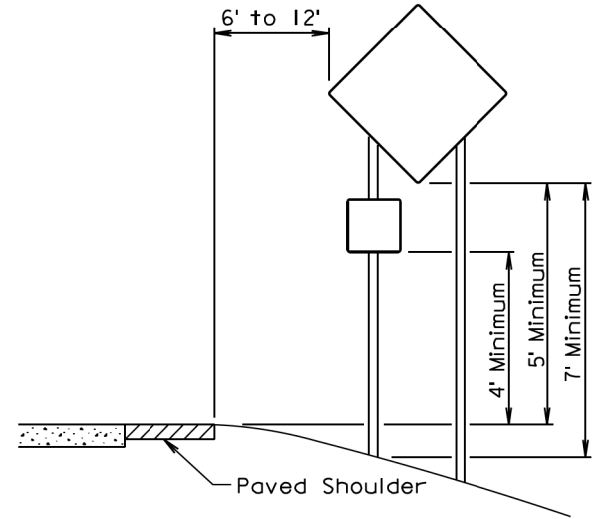
PLOTTED FROM - IRMLINT17

FILE - ... \MINNI466\1466 TC CONTAINER.DGN

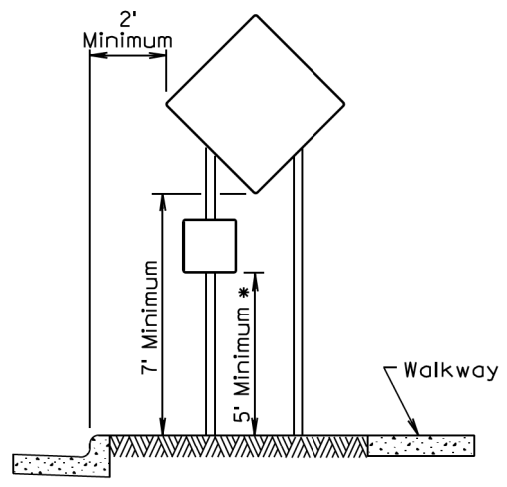
Plotting Date: 08/09/2017



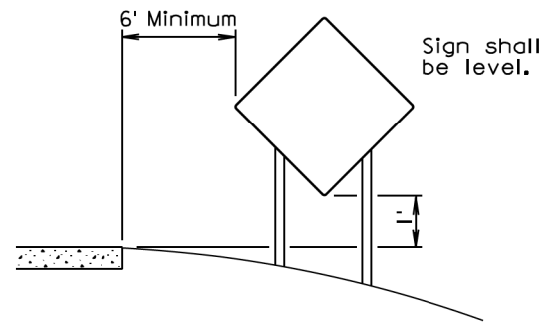
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

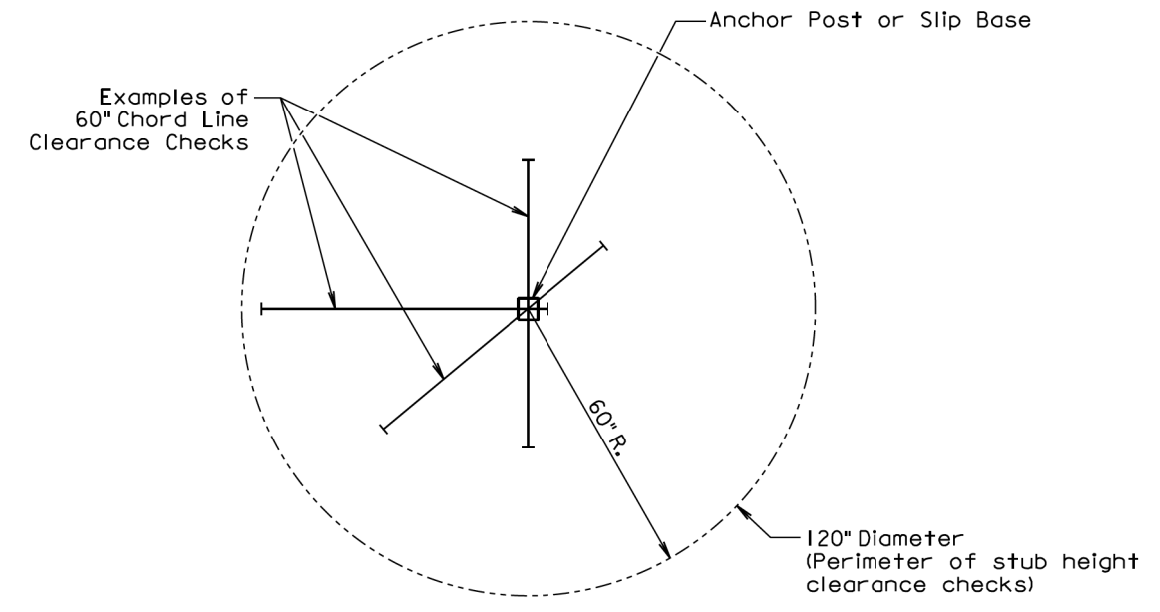


RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

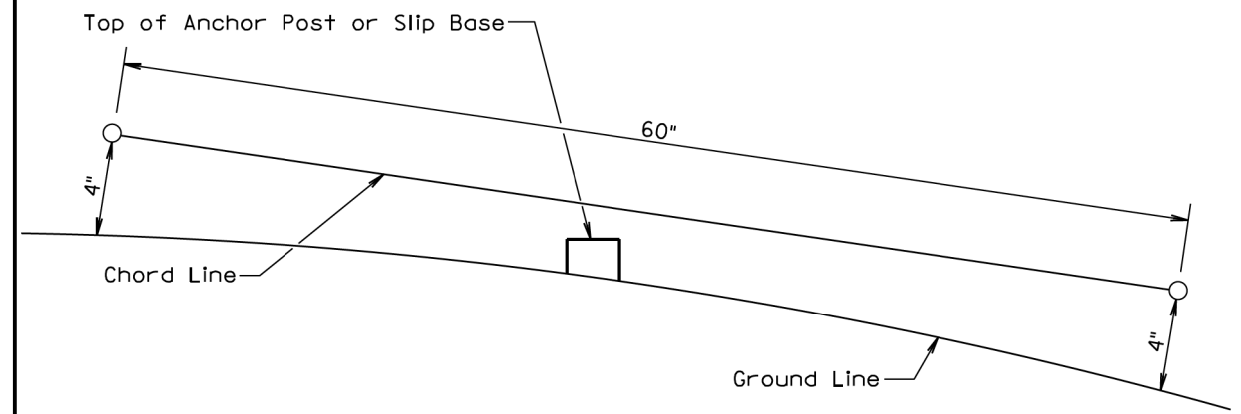
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

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

PLOT SCALE - 1:200.64

PLOTTED FROM - IRMLINT17

PLOT NAME - 4

FILE - ... \MINNI466\1466 TC CONTAINER.DGN

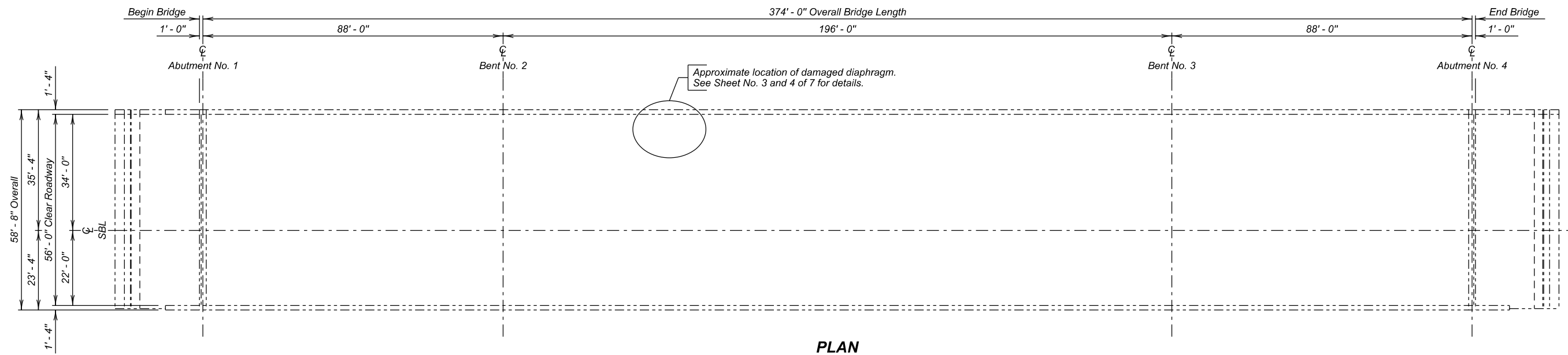
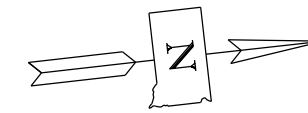
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W1-6	LARGE ARROW (one direction)	1	48" x 24"	8.0	8.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
M1-1	INTERSTATE ROUTE MARKER (2 digits)	1	24" x 24"	4.0	4.0
M3-1	DIRECTION MARKER - NORTH (INT)	1	24" x 12"	2.0	2.0
SPECIAL	LEFT THRU LANE ENDS	1	48" x 48"	16.0	16.0
SPECIAL	THRU TRAFFIC MERGE RIGHT	1	48" x 48"	16.0	16.0
SPECIAL	LEFT LANE	1	24" x 24"	4.0	4.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS					130.0
SQFT					

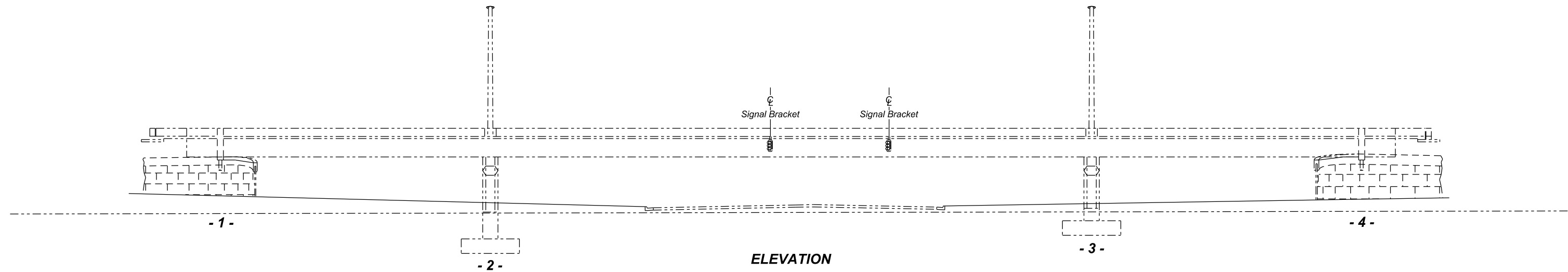
TYPE 3 BARRICADES

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	029 S-288	9	15



PLAN



ELEVATION

(SOUTHBOUND LANES)
LAYOUT FOR UPGRADING

FOR

374' - 0" CONTINUOUS COMP. GIRDER BRIDGE
56' - 0" ROADWAY 0° SKEW
OVER MADISON STREET SEC. 12/13-T101N-R50W
STR. NO. 50-177-199 029 S-288
PCN I4G6

MINNEHAHA COUNTY

S. D. DEPT. OF TRANSPORTATION

JULY 2017

1 OF 7

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Details of Diaphragm
- Sheet No. 4 - Details of Framing Diagram
- Sheet No. 5 thru 7 - Original Construction Plans

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

DESIGNED BY TJM	DRAWN BY KR	CHECKED BY MM
MINNI4G6	I4G6RA01	

Steve A. Johnson
BRIDGE ENGINEER

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
410E0380	Remove and Replace Steel Diaphragm	1	each
412E0100	Bridge Repainting, Class I	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 2002 Edition using Load Factor Design Method.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or 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/D1.5:2010 unless otherwise noted in this plan set.

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 Standard Specifications.

GENERAL CONSTRUCTION

- Welder certification shall be in accordance with section 410.3 of the Standard Specifications.
- The new steel plates and structural steel shall be ASTM A709 Gr. 50W.

SCOPE OF BRIDGE WORK

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

- Provide traffic control per the plans.
- Remove and replace damaged diaphragm angle, brace plate, end plates, and replace bolts.
- Paint all work affected areas.

BOLT REPLACEMENT

- This work shall consist of replacing bolts connected to the replaced angle.
- Bolts shall be 7/8" diameter ASTM F3125 Grade A325. Each bolt shall be supplied with a heavy hex nut, 1 hardened washer and 1 direct tension indicator.
- High strength bolts, nuts, washers and direct tension indicators shall be stored in such a manner that they will be kept clean and free from any rust or foreign material.
- All costs associated with replacing the diaphragm bolts, including all materials, labor, equipment and incidentals shall be incidental to the contract lump sum price for "Structural Steel, Miscellaneous."

DIRECT TENSION INDICATORS

All high strength bolts shall require the use of Direct Tension Indicators. Direct Tension Indicators shall be galvanized and shall conform to ASTM F959 Type 490. Direct Tension Indicators shall be installed under the bolt head only. The nut shall be the turned element. The average load indicator gap shall be reduced to 0.005 inch while tightening. The appropriate 0.005-inch feeler gage shall be supplied with the Direct Tension Indicator.

BOLT TESTING

The certified mill test reports for all bolts used on the project shall include the test results for all of the testing specified in section 972.2D of the South Dakota Standard Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolt supplier of these requirements.

BRIDGE REPAINTING, CLASS I

- Damaged area on the existing girder flange shall be painted. For informational purposes, the approximate total area under this item of repair is 20 square feet. This informational quantity assumes minor damage to the bottom flange of the first girder.
- 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 Bridge Repainting, Class I.
- All work affected areas and all new structural steel shall be painted in accordance with Section 412 of the Standard Specifications and in accordance with SSPC Standard PA1.

4. Paint color

Top Coat - The paint color shall be an approved brown color to match the existing paint. Prior to ordering the paint, a paint chip of the brown 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.

(SOUTHBOUND LANES)

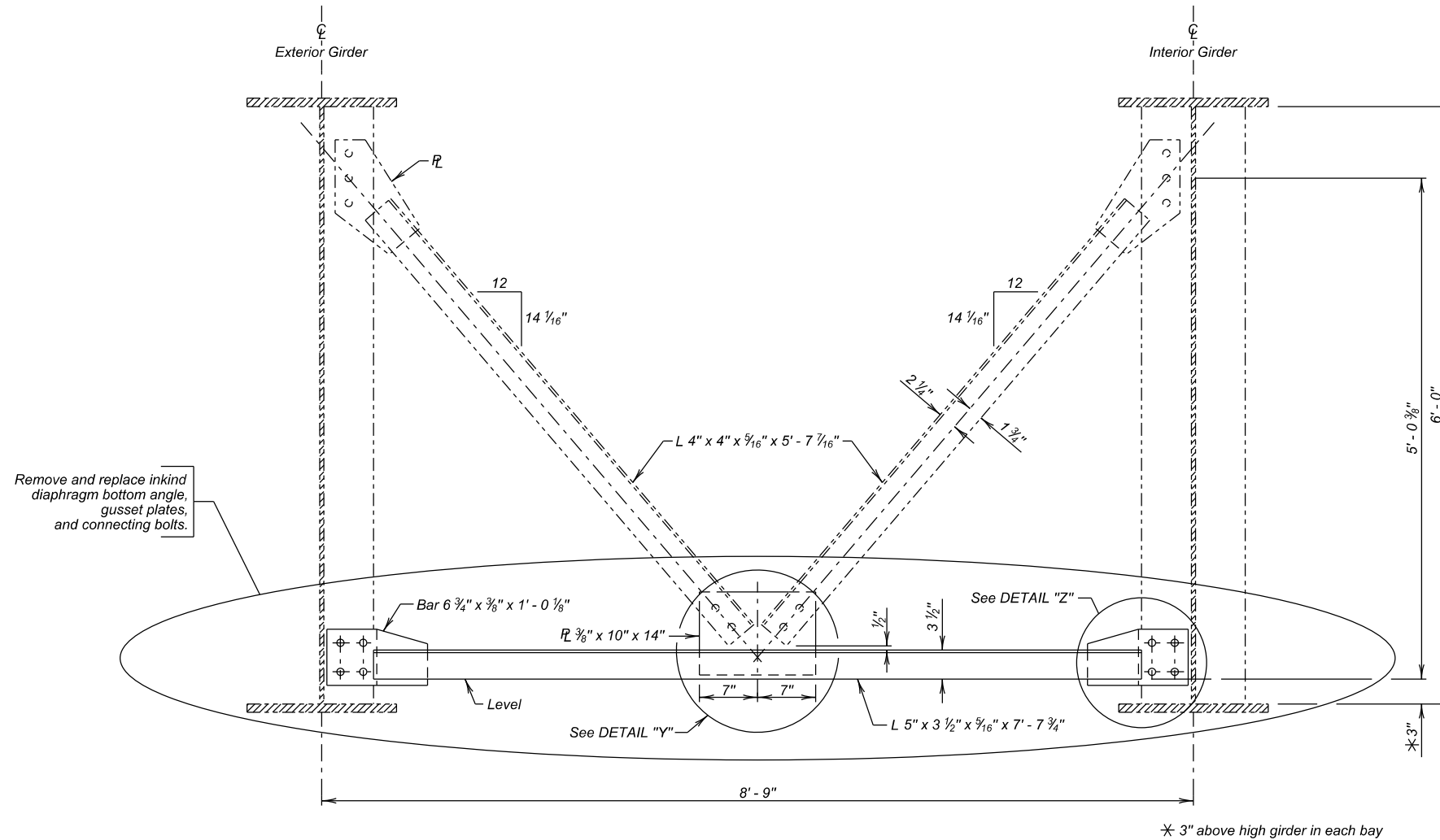
ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
374' - 0" CONT. COMP. GIRDER BRIDGE

STR. NO. 50-177-199

NOVEMBER 2016

2 OF 7

DESIGNED BY TJM MINN14G6	CK. DES. BY MM 14G6RA02	DRAFTED BY KR	 BRIDGE ENGINEER
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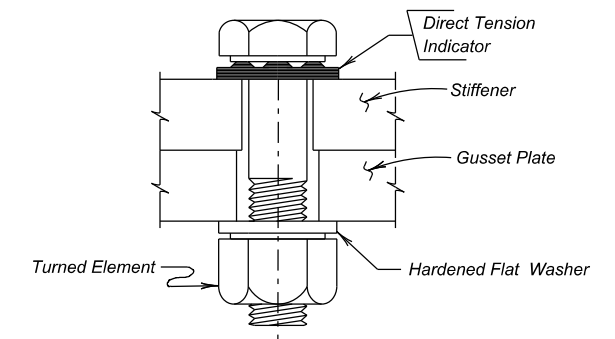


DIAPHRAGM DETAIL

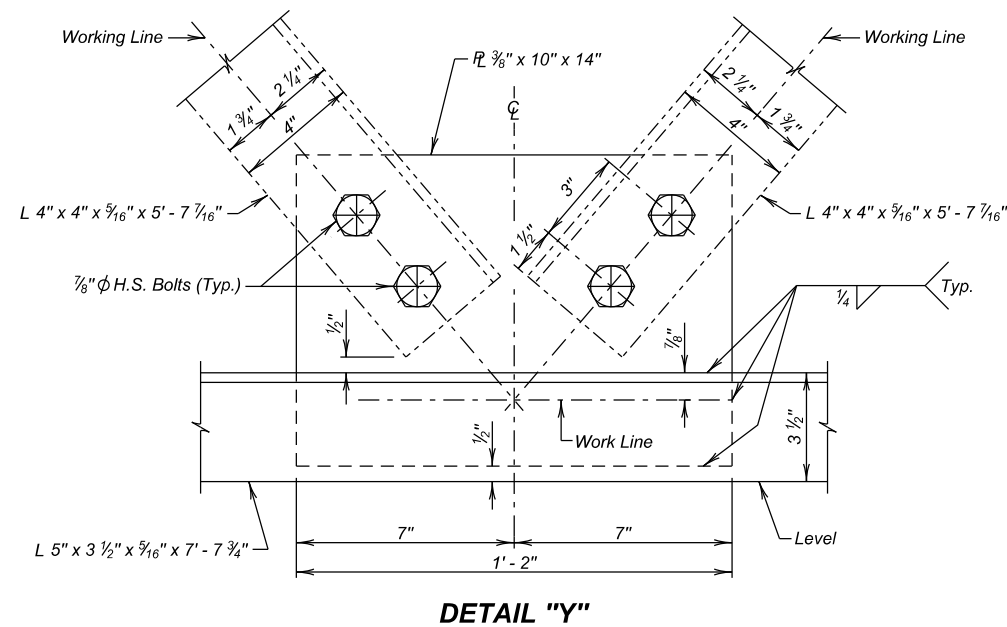
GENERAL NOTES

1. The $\frac{7}{8}$ " ϕ High Strength bolts, nuts and washers shall conform to ASTM F3125 Grade A325. The bolts shall be the heavy hexagon head structural type with heavy semi-finished hexagon nut and hardened washer.
2. Use $1\frac{1}{16}$ " ϕ bolt holes in the $\frac{3}{8}$ " gusset plates and $1\frac{5}{16}$ " ϕ bolt holes in the other members.
3. Direct Tension Indicators shall be adjacent to the $1\frac{5}{16}$ " ϕ holes in stiffener plates and angles.
4. Due to damage that occurred, bolt layout may not be exact and will need field verified. It optional to field drill or match mark holes in end plates to allow for field fit up or shop drill holes and field weld gusset plates.

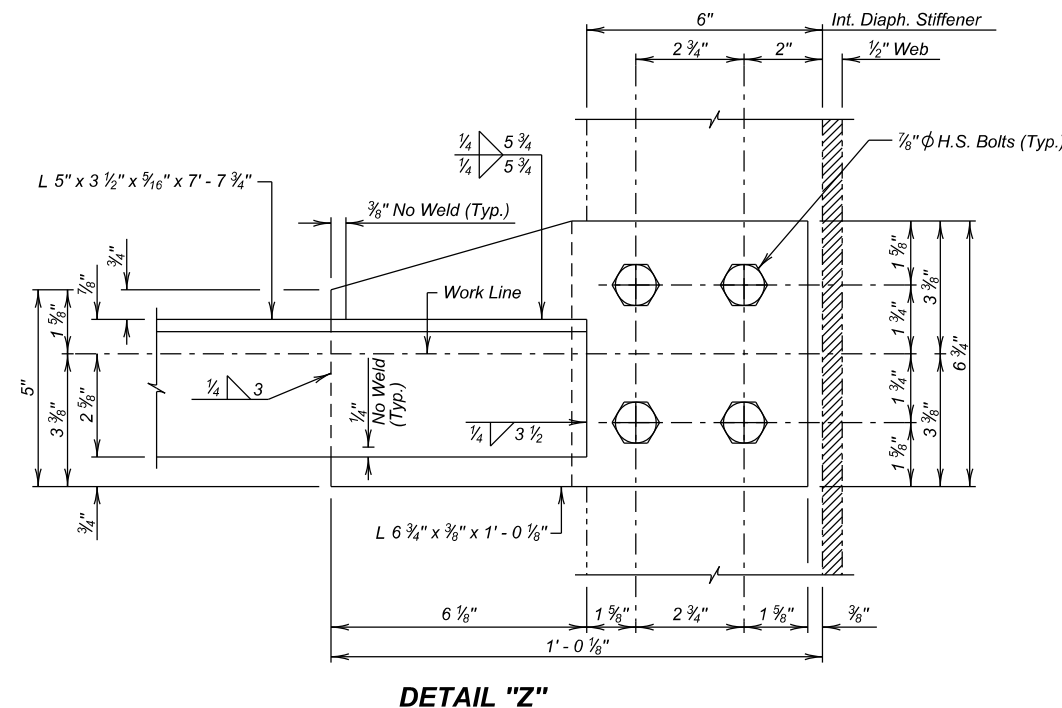
The estimated weight of structural steel is 100 pounds. This quantity is provided for informational purposes only.



DIRECT TENSION INDICATOR DETAIL



DETAIL "Y"



DETAIL "Z"

**(SOUTHBOUND LANES)
DETAILS OF DIAPHRAGM**

FOR

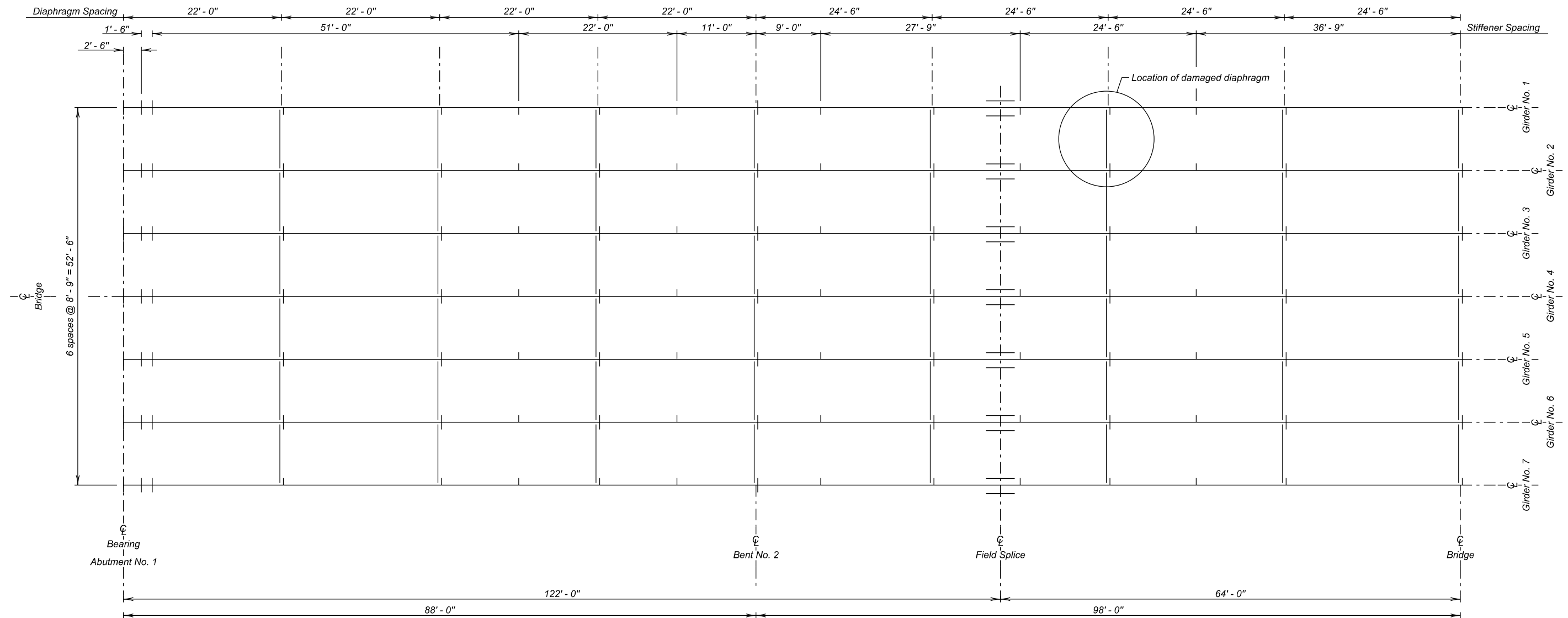
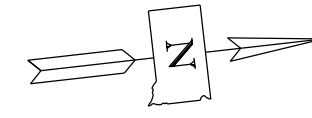
374' - 0" CONTINUOUS COMP. GIRDER BRIDGE
56' - 0" ROADWAY
OVER MADISON STREET
STR. NO. 50-177-199

0° SKEW
SEC. 12/13-T101N-R50W
029 S-288

MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION

JULY 2017

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
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FRAMING DIAGRAM

(SOUTHBOUND LANES)
DETAILS OF FRAMING DIAGRAM
 FOR
374' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 56' - 0" ROADWAY 0° SKEW
 OVER MADISON STREET SEC. 12/13-T101N-R50W
 STR. NO. 50-177-199 029 S-288

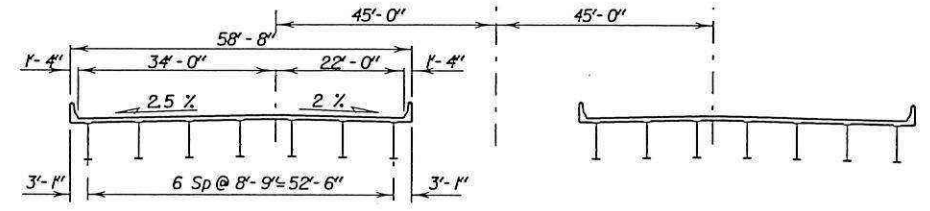
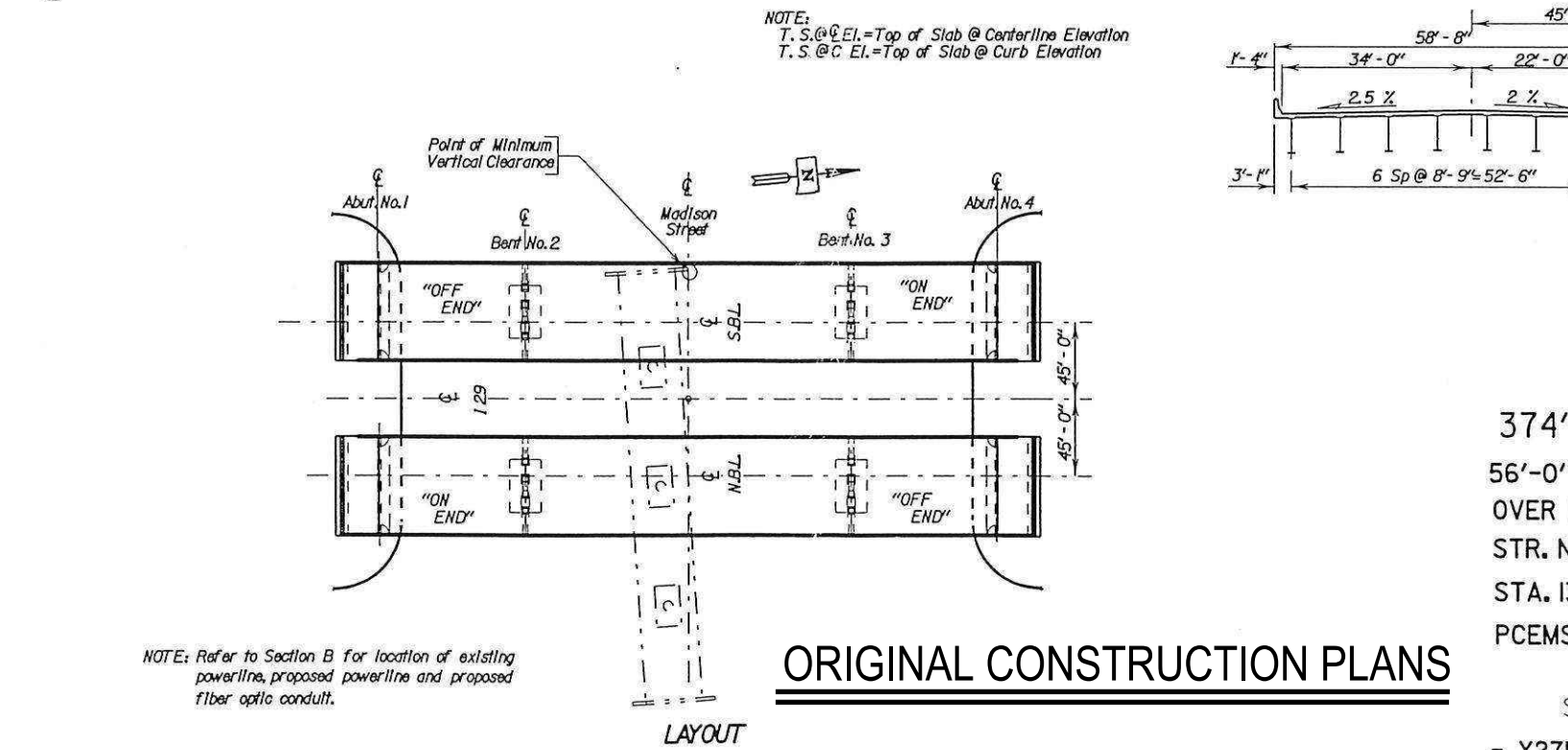
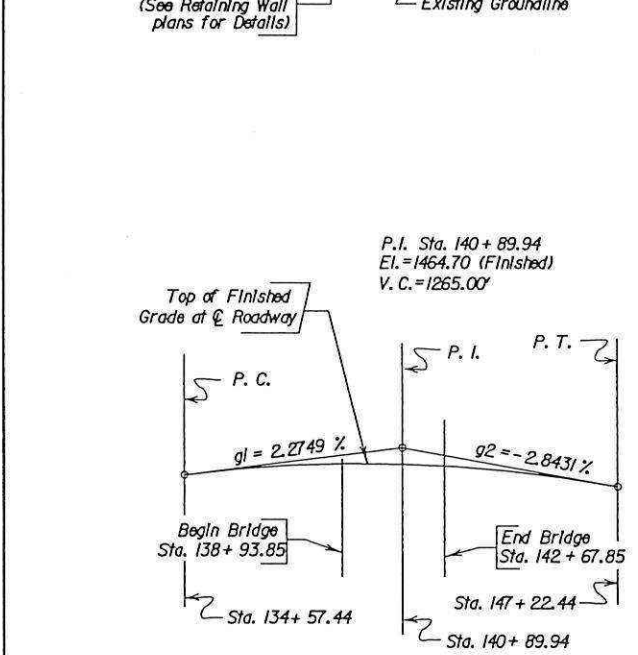
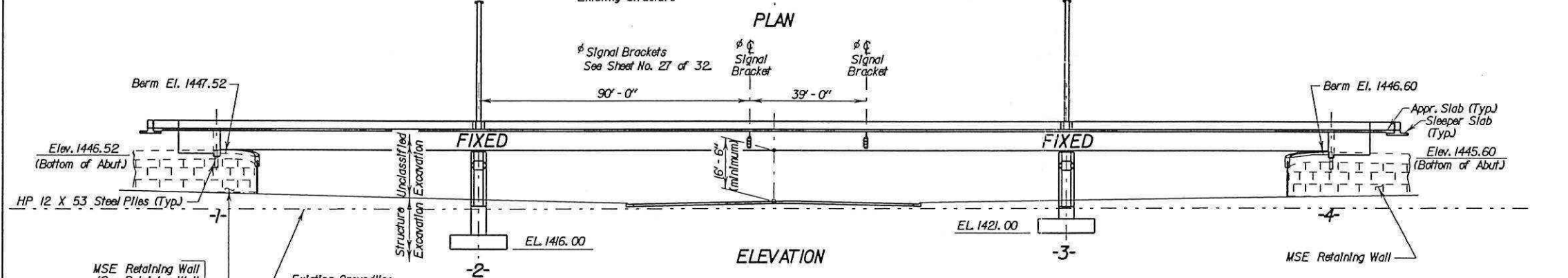
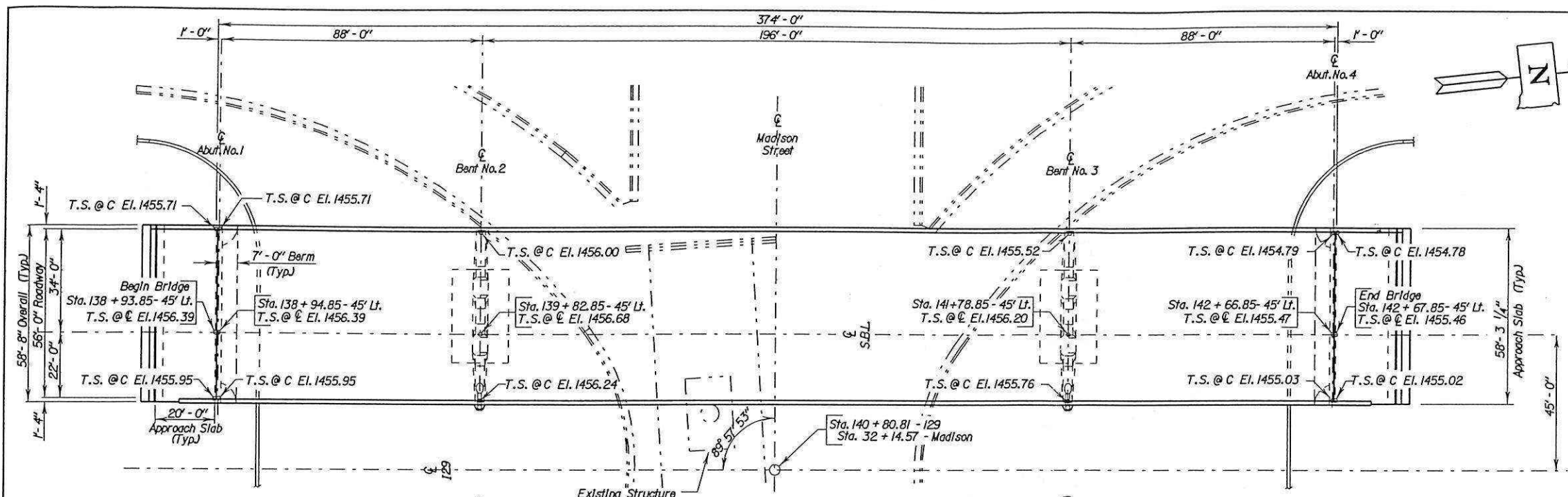
MINNEHAHA COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2017

DESIGNED BY TJM MINN4G6	DRAWN BY KR I4G6RA04	CHECKED BY MM	<i>Steve A. Johnson</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	029 S-288	13	15

**-X271-
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- Sheet No. 1 - General Drawing
- Sheet No. 2 - Estimate of Structure Quantities & Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Notes (Continued)
- Sheet No. 5 - Notes (Continued)
- Sheet No. 6 - Notes (Continued)
- Sheet No. 7 - Notes (Continued)
- Sheet No. 8 - Subsurface Investigation, Piling & Footing Layout
- Sheet No. 9 - Abutment No. 1 Details
- Sheet No. 10 - Abutment No. 4 Details
- Sheet No. 11 - Abutment Details (Continued)
- Sheet No. 12 - Bent No. 2 & No. 3 Details
- Sheet No. 13 - Bent No. 2 & No. 3 Details (Continued)
- Sheet No. 14 - Bent No. 2 & No. 3 Details (Continued)
- Sheet No. 15 - Superstructure Details
- Sheet No. 16 - End Block and Barrier Curb Details
- Sheet No. 17 - Girder Layout and Details
- Sheet No. 18 - Diaphragm Details
- Sheet No. 19 - Framing Diagram, Camber & Erection Data
- Sheet No. 20 - Slab Form Elevations
- Sheet No. 21 - Details of Bolted Field Splices and Bearings
- Sheet No. 22 - Details of Bridge End Backfill
- Sheet No. 23 - Details of Approach Slab Adj. to Bridge
- Sheet No. 24 - Details of Approach Slab Adj. to Bridge (Continued)
- Sheet No. 25 - Shoulder Barrier Expansion Device Details
- Sheet No. 26 - Approach Slab Joint Details
- Sheet No. 27 - Signal Bracket Details
- Sheet No. 28 - Slope Protection Details
- Sheet No. 29 - As-Built Elevation Survey
- Sheet No. 30 - Details of Standard Plate No. 460.02 & 510.40
- Sheet No. 31 - Details of Standard Plate No. 460.05 & 630.92
- Sheet No. 32 - Details of Standard Plate No. 510.30



**GENERAL DRAWING
FOR
(SOUTHBOUND LANES)
374'-0" CONT. COMP. GIRDER BRIDGE
56'-0" ROADWAY
OVER MADISON STREET
STR. NO. 50-177-199
STA. 138+93.85 TO STA. 142+67.85
PCEMS NO. A443**

**SEC. 12/13-TIOIN-R50W
0° SKEW
1M 29-3(38) 79
HS25-44
(& ALT.)**

**MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
- X271- MARCH 2003 (5) OF (7)**

ORIGINAL CONSTRUCTION PLANS

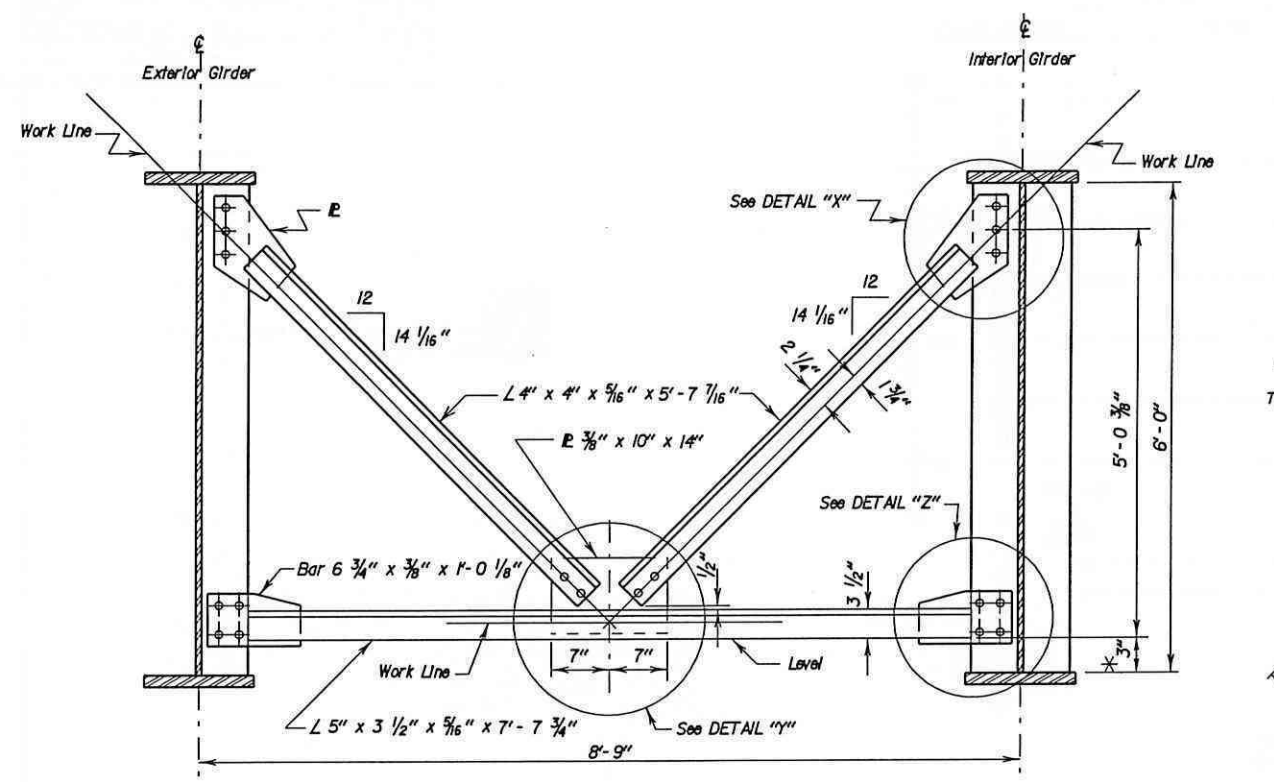
DESIGNED BY HE	DRAWN BY DII	CHECKED BY HE	APPROVED <i>John C. Cole</i>
MINNA443	A443LCOI		BRIDGE ENGINEER

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	029 S-288	14	15

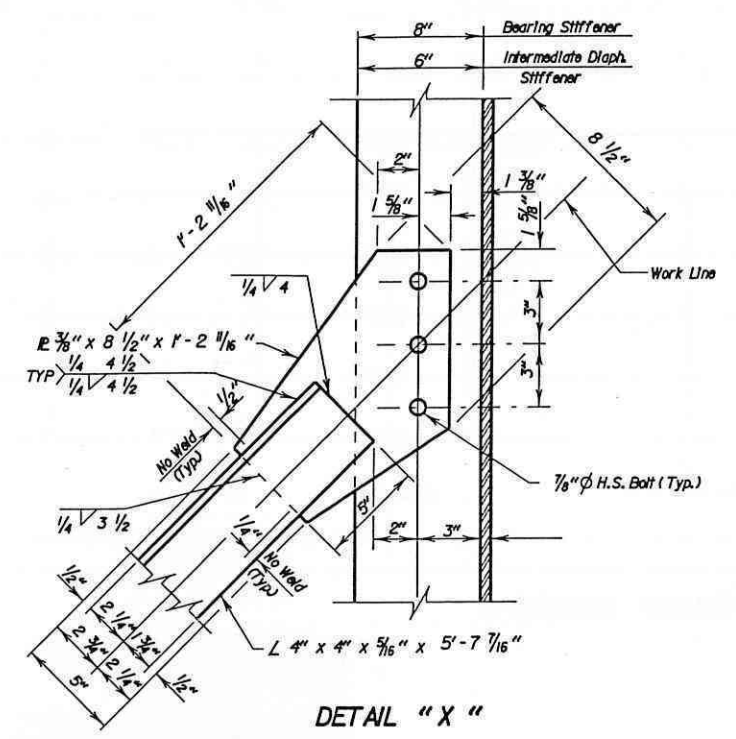
GENERAL NOTES

1. The estimated weight of the Steel Diaphragms is included in the quantity for Structural Steel shown for informational purposes on sheet no. 15 of 32.
2. The 7/8" φ High Strength bolts, nuts and washers shall conform to ASTM Specifications A-325 Type 3. The bolts shall be the heavy hexagon head structural type with heavy semi-finished hexagon nut and hardened washer.
3. Use 1/16" φ bolt holes in the 3/8" gusset plates and 15/16" φ bolt holes in the other members.
4. Direct Tension Indicators shall be adjacent to the 15/16" φ holes in stiffener plates and angles.

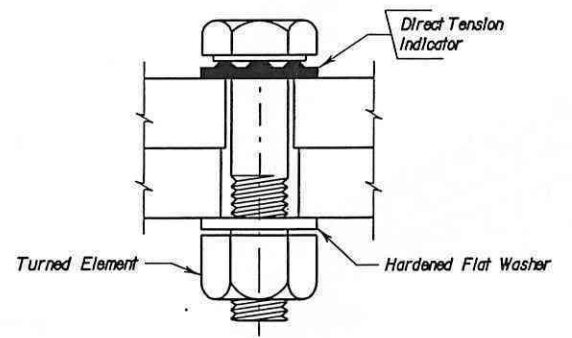


DIAPHRAGM DETAIL
(Weight of One Unit = 237 lbs.)

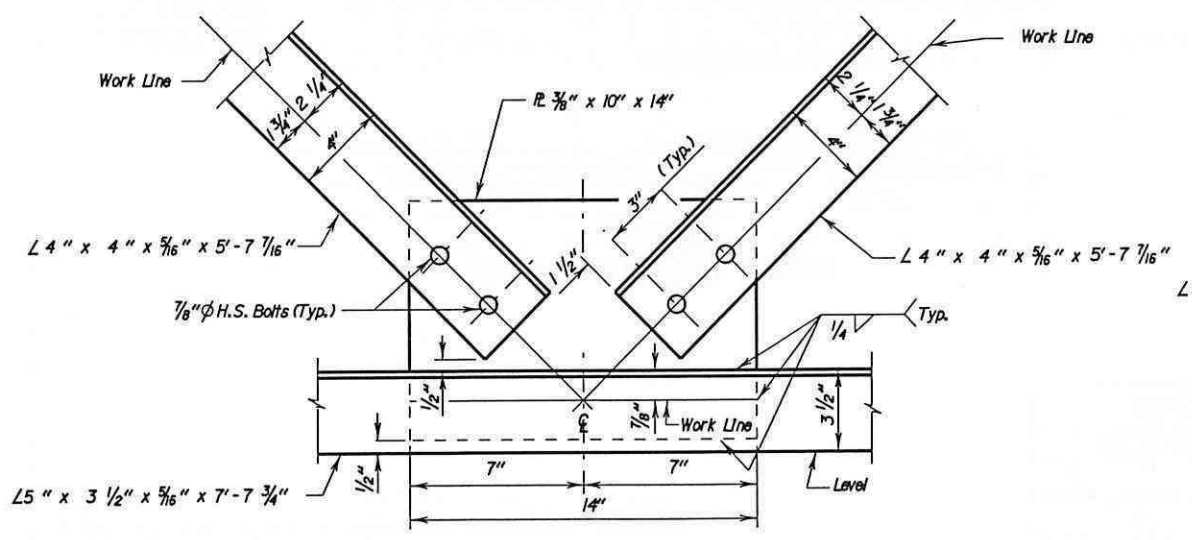
* 3" above high girder in each bay



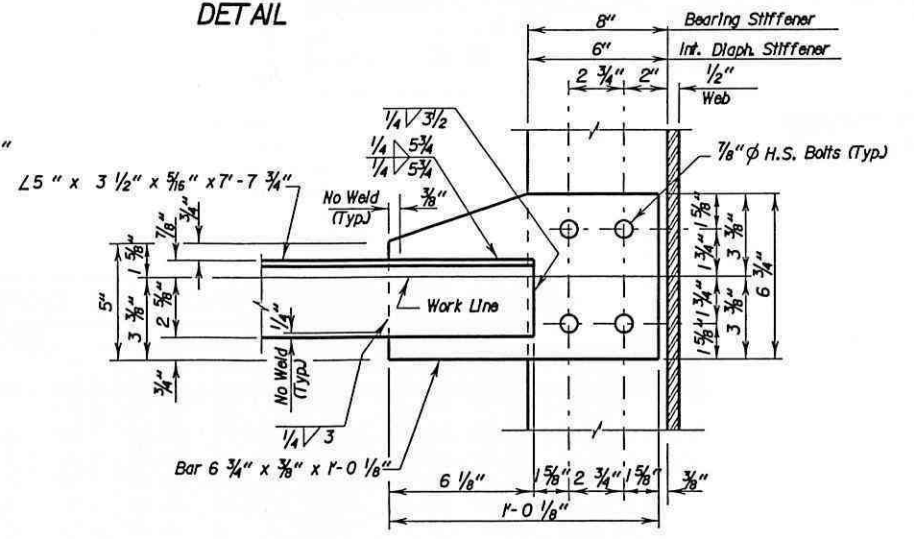
DETAIL "X"



DIRECT TENSION INDICATOR DETAIL



DETAIL "Y"



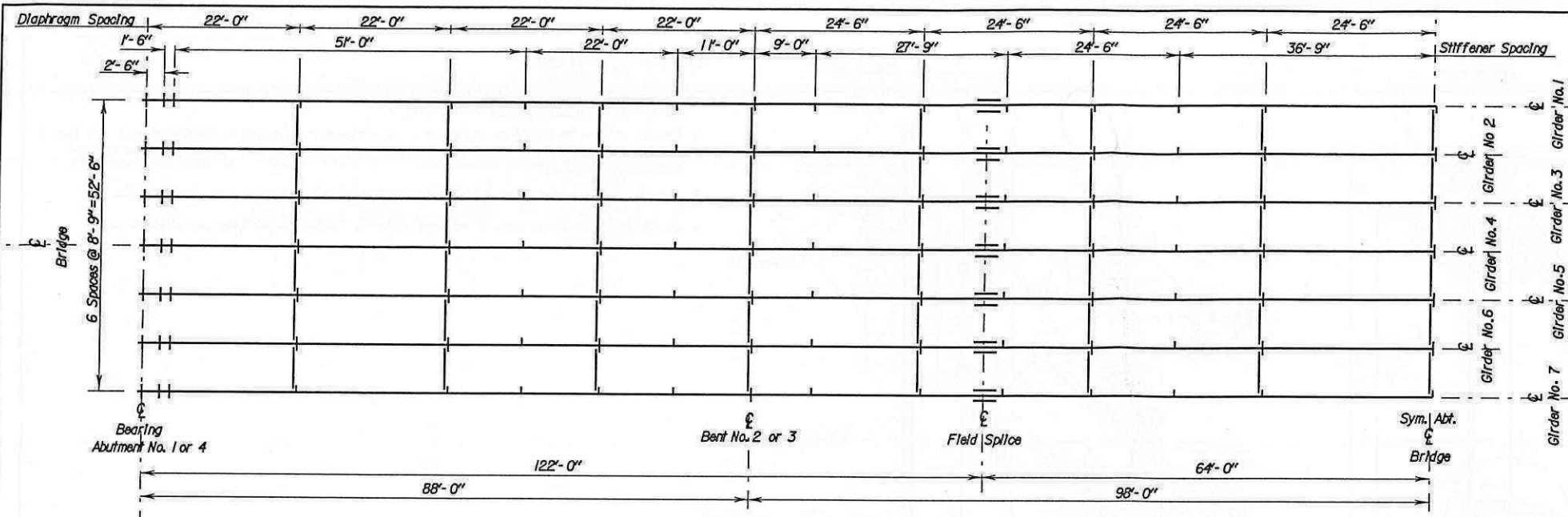
DETAIL "Z"

ORIGINAL CONSTRUCTION PLANS

DIAPHRAGM DETAILS
FOR
(SOUTHBOUND LANES)
374'-0" CONT. COMP. GIRDER BRIDGE
STR. NO. 50-177-199
MINNEHAHA COUNTY

DESIGNED BY HE/TJD MINNA443	DRAWN BY LJM A443LCB	CHECKED BY HE/TJD	APPROVED <i>John C. Cole</i> BRIDGE ENGINEER
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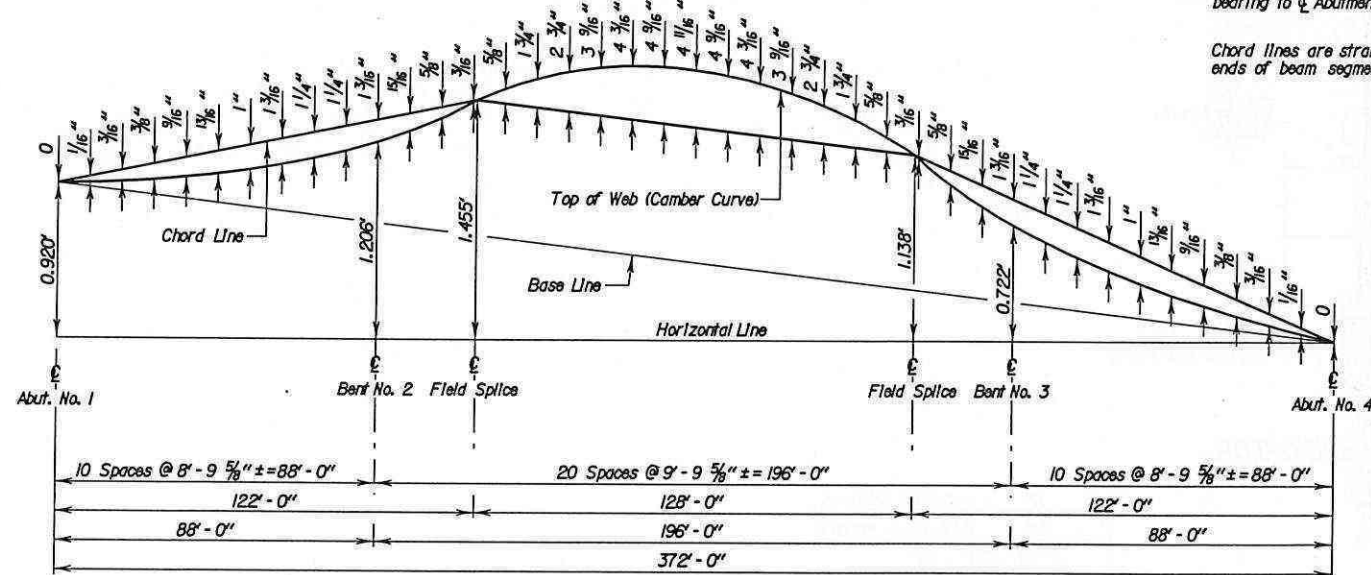
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	029 S-288	15	15



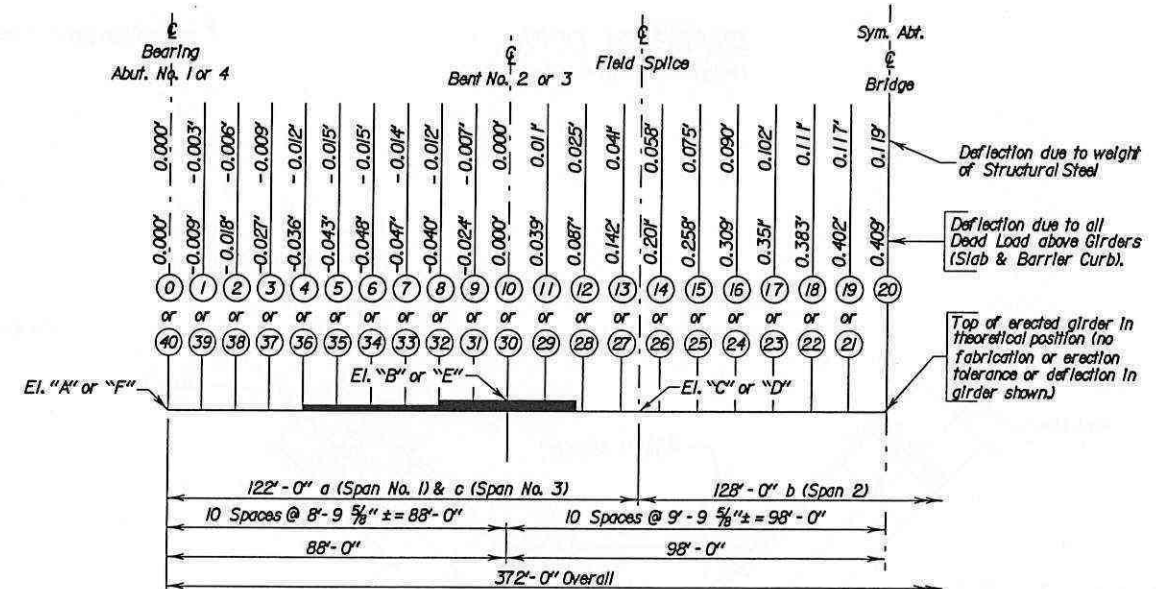
FRAMING DIAGRAM

NOTE-
This sheet is to be used in conjunction with Sheet No. 20 of 32.

Camber Diagram shown is for beams in unloaded position and provides for all dead load deflections.
Baseline is a straight line from center of abutment bearing to center of abutment bearing at top of web.
Chord lines are straight lines between ends of beam segments at top of web.



CAMBER CUTTING DIAGRAM
(Cut camber into webs of all girders as shown)



GIRDER ERECTION DIAGRAM

Girder No.	ELEVATIONS (Top of Girder)						SLOPES (%)		
	"A"	"B"	"C"	"D"	"E"	"F"	a	b	c
1	1454.731	1455.102	1455.237	1454.921	1454.618	1453.811	0.398	-0.247	-0.892
2	1454.950	1455.321	1455.456	1455.139	1454.836	1454.030	0.398	-0.247	-0.892
3	1455.169	1455.540	1455.675	1455.358	1455.055	1454.249	0.398	-0.247	-0.892
4	1455.387	1455.759	1455.893	1455.577	1455.274	1454.467	0.398	-0.247	-0.892
5	1455.482	1455.854	1455.988	1455.672	1455.369	1454.562	0.398	-0.247	-0.892
6	1455.307	1455.679	1455.813	1455.497	1455.194	1454.387	0.398	-0.247	-0.892
7	1455.132	1455.504	1455.638	1455.322	1455.019	1454.212	0.398	-0.247	-0.892

NOTE-
These elevations and slopes occur at a time after girder erection is completed but prior to any placement of concrete. Slopes shown are an imaginary straight line between points at beam ends and are (+) towards increasing stations.

ORIGINAL CONSTRUCTION PLANS

FRAMING DIAGRAM, CAMBER & ERECTION DETAILS
FOR
(SOUTHBOUND LANES)
374'-0" CONT. COMP. GIRDER BRIDGE
STR. NO. 50-177-199
MINNEHAHA COUNTY

(7) OF (7)

DESIGNED BY HE/TJD MINNA443	DRAWN BY LIII A443LC19	CHECKED BY HE/TJD	APPROVED John C. Cole BRIDGE ENGINEER
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