

FRAMING PLAN

LEGEND:

- SP1: Shear Plate 1 Detail
- SP2: Shear Plate 2 Detail
- T: Crack at top of diaphragm
- B: Crack at bottom of diaphragm
- RTI: Repair Type I only, located in web

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL
509-08201	RETROFIT/REPAIR TYPE I	EA	22
509-08201	RETROFIT/REPAIR TYPE II	EA	20

NOTES:

1. Reference Sta. 594+00=M.P. 312.796 on US 50. See Structure Location Map.
2. Estimated repair locations are shown on this sheet. The Contractor shall be responsible for field verifying all locations and dimensions prior to starting work and before ordering or fabricating any materials.
3. Install Repair Type I and II at all locations noted SP1 or SP2. Repair Type I shall be complete before Repair Type II. See "Diaphragm Repairs" sheet.
4. One diaphragm is permitted to be repaired at a time. The intent is that no more than one diaphragm shall be detached at a time.
5. Traffic shall not be allowed below the repair location. Coordination with CDDT is required for lane closures.
6. The Contractor shall be responsible for the stability of the structure, during repair work.
7. See Project Special Provision Revision of Section 509-Structural Steel Repair.
8. The anticipated weight of structural steel is estimated to be 1550 lbs and includes 10% over-run. This is provided for information only. The Contractor shall determine actual structural steel weight based on field measurements, conditions and number of locations.

ken.soellner 11:09:10 AM J:\112407-01\00 - 20344\Bridge\Drawings\Plot_Set\20344BRDG_K-18-BL_Repairs01.dgn
 Design: Initial Date 06/16 07/16
 Detail: Initial Date 06/16 07/16
 Quantities: Initial Date 07/16 08/16
 Designed By: SCR
 Checked By: CAD
 Detailed By: SCR
 Checked By: KJS

Print Date: 1/19/2017
 File Name: 20344BRDG_K-18-BL_Repairs01.dgn
 Horiz. Scale: 1:1 Vert. Scale:
 Staff Bridge Branch - Unit 0226 Unit Leader: DDG

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-562-5509 FAX: 719-546-5702
 Region 2 DTD

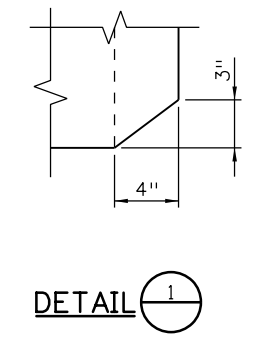
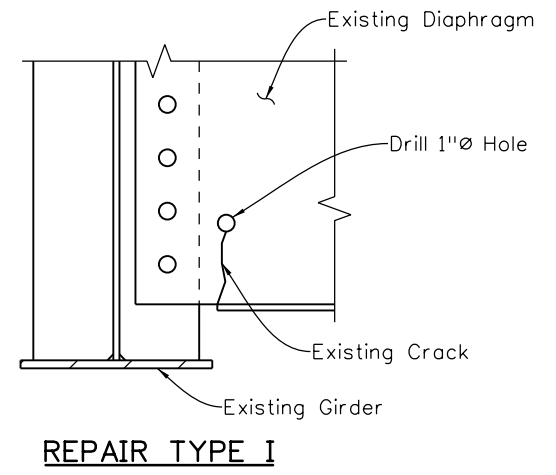
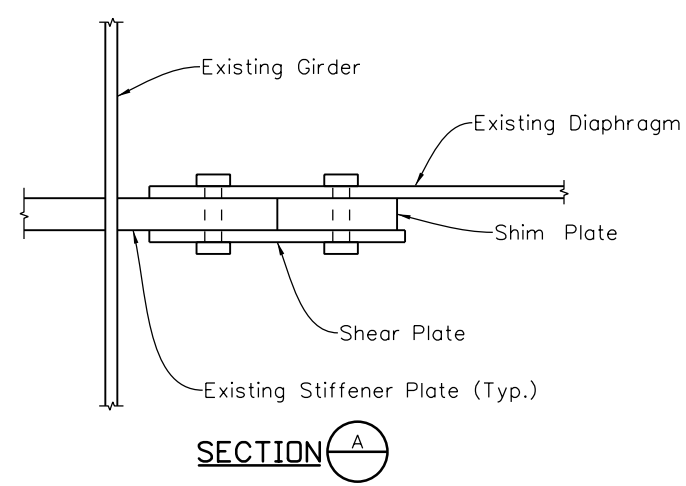
As Constructed
No Revisions:
Revised:
Void:

**US 50 WEST WESTBOUND
 BNSF RR BRIDGE REPAIRS
 FRAMING PLAN**

Designer: S. Redd
 Detailer: C. Miyamoto
 Sheet Subset: Bridge

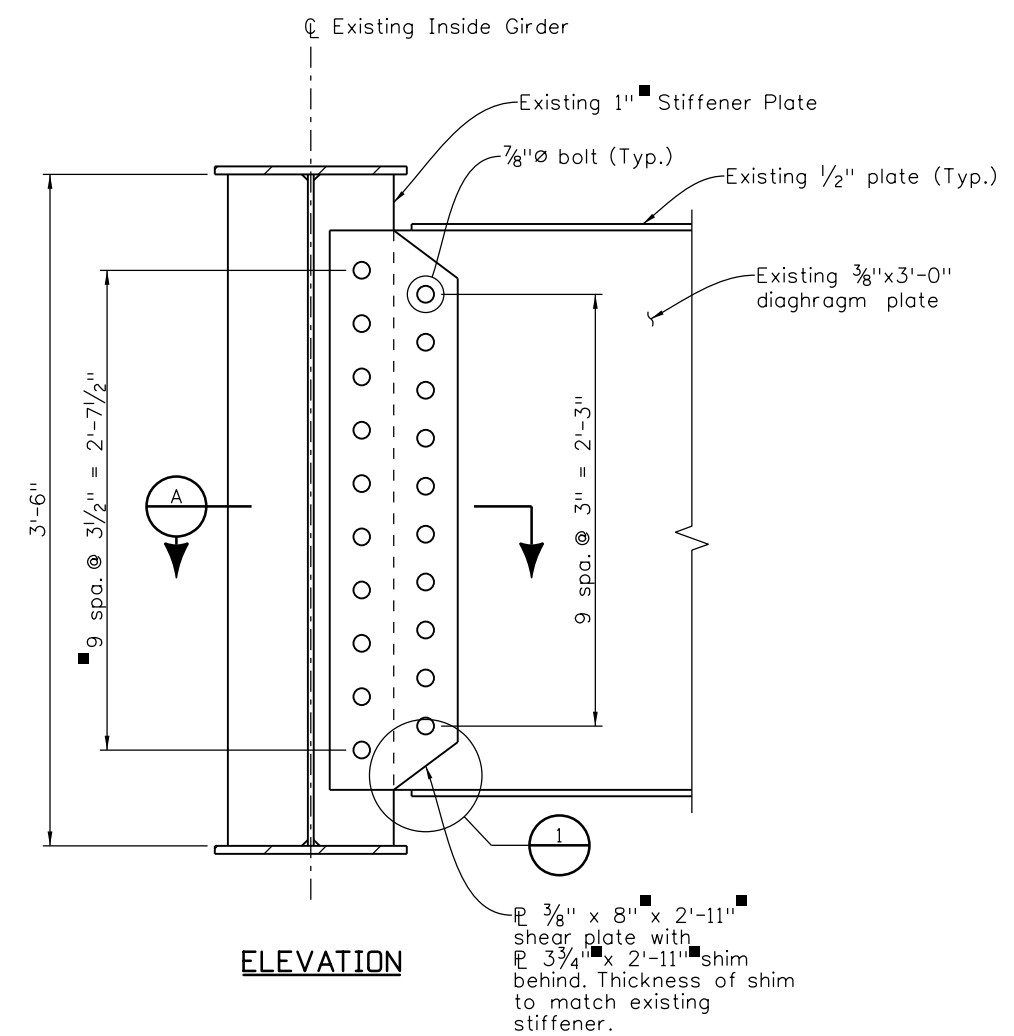
Project No./Code	STA 0503-085
	20344
Sheet Number	136



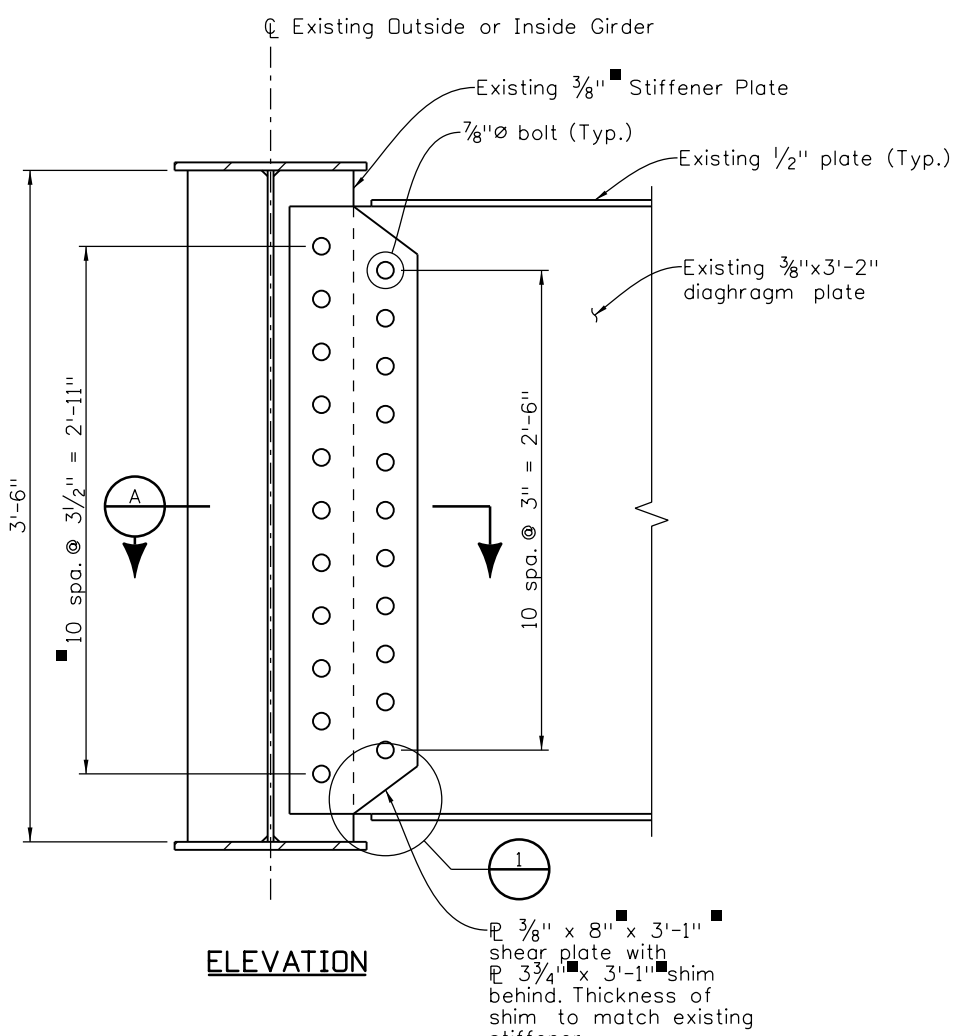


WORK DESCRIPTION - REPAIR TYPE I

1. Identify fracture tips and determine limits of fracture/defects using magnetic particle testing (MPT) or dye penetrant testing per CDOT Section 509.18 of the Standard Specifications.
2. Clean surface of paint and debris to bright metal.
3. Drill 1" hole such that the trailing edge of the bit removes the crack tip.
4. Remove burrs and grind the hole smooth to ANSI roughness standard of 500 or less.
5. Prime and paint any bare surfaces. See Note 4.



SHEAR PLATE 1 (SP1) DETAIL
(opposite diaphragm not shown for clarity)



SHEAR PLATE 2 (SP2) DETAIL
(opposite diaphragm not shown for clarity)

WORK DESCRIPTION - REPAIR TYPE II

1. Measure and verify bolt locations on girder stiffener. As-built plans do not specify. Verify dimensions for shear and shim plates.
2. Bolt holes in shear plate for shear plate/stiffener connection shall match existing bolt hole locations on stiffener.
3. Loosen and remove bolts on girder stiffener as needed for templating and plate installation. Diaphragm shall be supported.
4. Holes shall be cut, without torn or ragged edges. All burrs shall be removed, as well as oil and other debris.
5. Holes for plate installation shall not intersect existing crack in diaphragm.
6. Install new 7/8" bolts, washers and nuts at all locations.

NOTES:

1. Design, fabrication and erection per the AREMA Manual for Railway Engineering, Chapter 15, Steel Structures, current edition.
2. Steel plates shall be AASHTO M270, Grade 50 (ASTM A709).
3. Hole to shear and shim plate edge distance is 1 1/2" minimum.
4. All bolts shall be high strength in accordance with Section 509 of CDOT Standard Specifications.
5. All structural steel shall be painted in accordance with Section 509 of CDOT Standard Specifications.

Verify dimensions in field prior to ordering or fabricating materials.

Design		Detail		Quantities	
DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
06/16	SCR	06/16	CDM	06/16	SCR
07/16	CAD	07/16	SCR	07/16	KJS
Designed By	Checked By	Detailed By	Checked By	Quantities By	Checked By

Print Date: 1/19/2017	Sheet Revisions			Colorado Department of Transportation 902 Erie Avenue Pueblo, CO 81001 Phone: 719-562-5509 FAX: 719-546-5702 Region 2	As Constructed		US 50 WEST WESTBOUND BNSF RR BRIDGE REPAIRS DIAPHRAGM REPAIRS		Project No./Code
File Name: 20344BRDG_K-18-BL_Repairs02.dgn	Date:	Comments:	Init.		No Revisions:	Designer: S. Redd Detailer: C. Miyamoto		Structure: K-18-BL Numbers:	
Horiz. Scale: 1:1				CDOT Region 2	Revised:	Sheet Subset: Bridge		20344	
Staff Bridge Branch - Unit 0226					Void:	Subset Sheets: BB2 of 2		Sheet Number	
FELSBERG HOLT & ULLEVIG 6300 South Syracuse Way Suite 600 Centennial, CO 80111 (303) 721-1440					DTD				

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