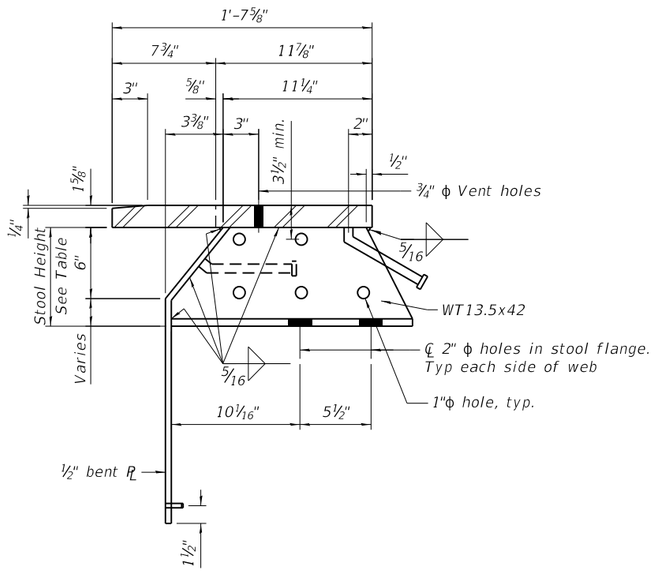
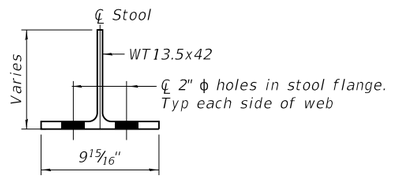


STOOL DETAILS AT FINGER PLATE JOINT

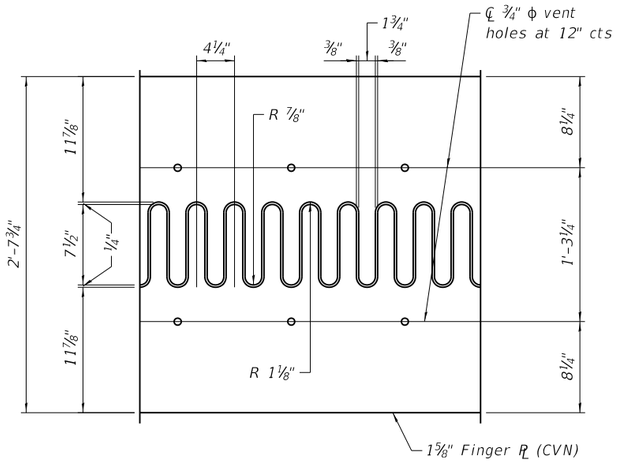


SECTION THRU STOOL

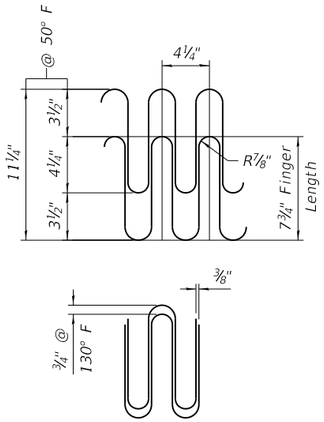
Cut stool from WT13.5x42, typ. See table for stool heights

STOOL HEIGHTS

Stool	Span D21	Span D22
1	1'-0 3/16"	10 13/16"
2	1'-1"	10⅞"
3	1'-1⅛"	10 13/16"
4	1'-1 3/16"	10 13/16"
5	1'-1 3/16"	10⅞"
6	1'-1 1/16"	10 13/16"
7	1'-1½"	10¾"
8	1'-1⅜"	10¾"
9	1'-1 1/16"	10 13/16"
10	1'-1 3/16"	10⅞"
11	1'-1⅛"	10 13/16"
12	1'-2"	10 13/16"
13	1'-2 1/16"	11"
14	1'-2 1/16"	11 1/16"
15	1'-2¼"	11 1/16"
16	1'-2⅜"	11⅛"
17	1'-2½"	11 1/16"
18	1'-2 9/16"	11½"
19	1'-2 11/16"	11½"
20	1'-2¾"	11 9/16"



FLAME CUTTING DIAGRAM



JOINT OPENING AND GEOMETRY DETAIL

NOTES:

"CVN" denotes Charpy V Notch impact energy requirements, zone 2.

Finger plate expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.

Finger plates and sliding plates shall conform to the requirements of AASHTO M270, Grade 50.

The cost of all material for finger plates and trough support brackets shall be included in the cost of Finger Plate Expansion Joint, 4".

All steel components of the expansion joint including hardware associated with the trough system and sliding plates shall be galvanized after fabrication according to Section 520.03 of the Standard Specifications.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Finger Plate Expansion Joint, 4"	Foot	41
Fabric Reinforced Elastomeric Trough	Foot	44

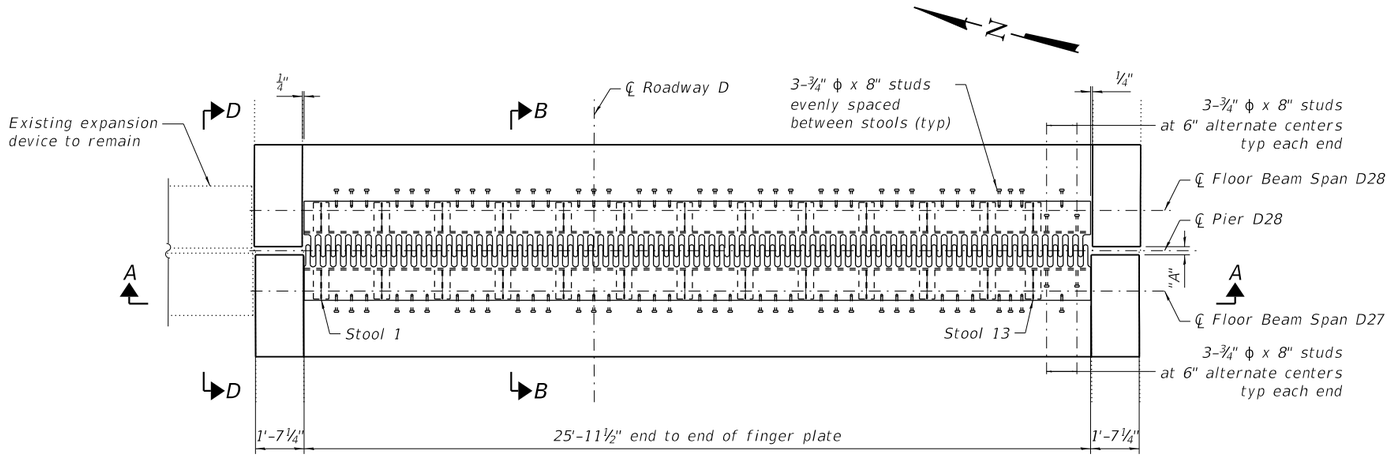
TranSystems

USER NAME = jmpattison	DESIGNED - AMD	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - JTF	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

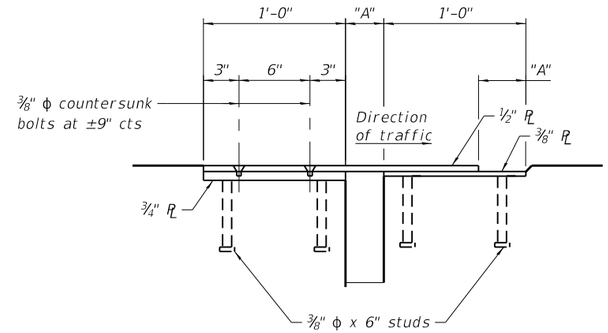
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER PLATE REPLACEMENT DETAILS - PIER D22 (3 OF 3)
S.N. 082-0144
SHEET S-122 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	201
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



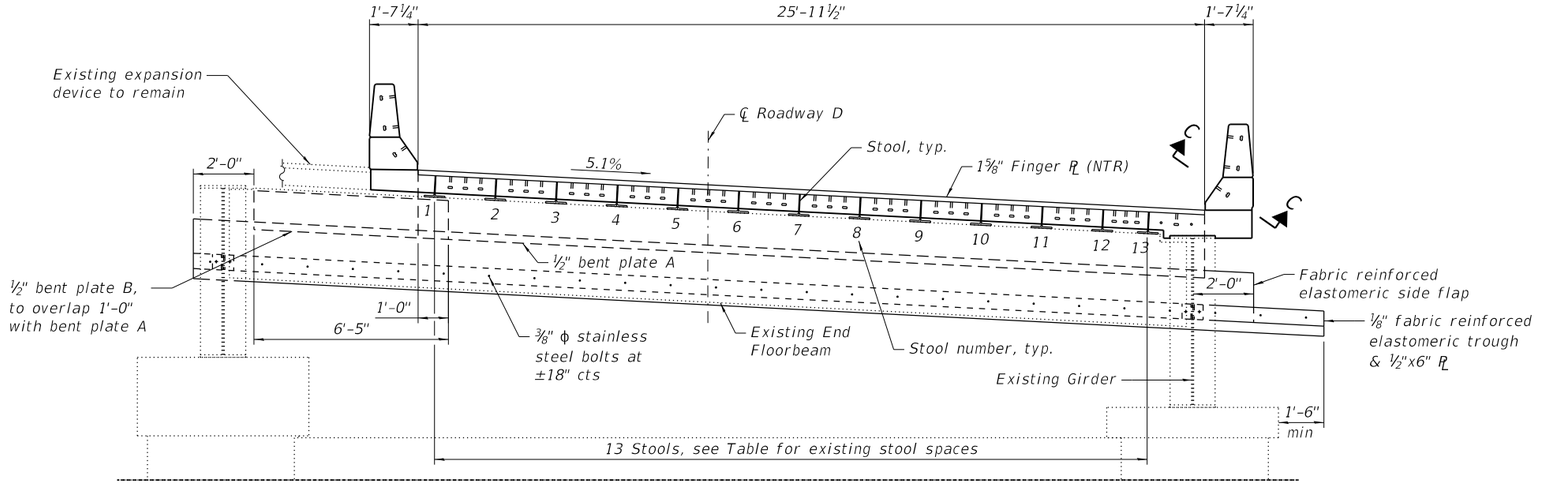
PLAN OF FINGER PLATE EXPANSION JOINT AT PIER D28



SECTION C-C

See Sheet S-109 of S-101 for typical sliding plate detail.
See Sheet S-109 of S-101 for parapet dimensions.

Dimension "A"		
@ -20°F	@ 50°F	@ 120°F
6"	3 3/8"	3/4"



SECTION A-A

Span D27 shown. Span D28 similar.

NOTES:

See Sheet S-124 of S-183 for Section B-B.
See Sheet S-124 of S-183 for Section D-D.
See Sheet S-124 of S-183 for details of stools.

Existing stool spaces measured through bolts connecting stools to top of flange of floor beam (inches)														
Stool	1*	2	3	4	5	6	7	8	9	10	11	12	13	Girder*
Span D27	83 5/8	24	24	24	24	23 7/8	24	24 1/8	24	24	24 1/2	24	18	18 3/4
Span D28	83 3/4	24	24	24	23 7/8	24	24	24	24	22 7/8	24	24	19 1/4	18 7/8

Note:
Dimensions based on field survey performed April 2020. Field verify locations of existing holes prior to fabrication.
* - From centerline of stools 1 and 13 to interior face of web of girder.

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
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www.wje.com

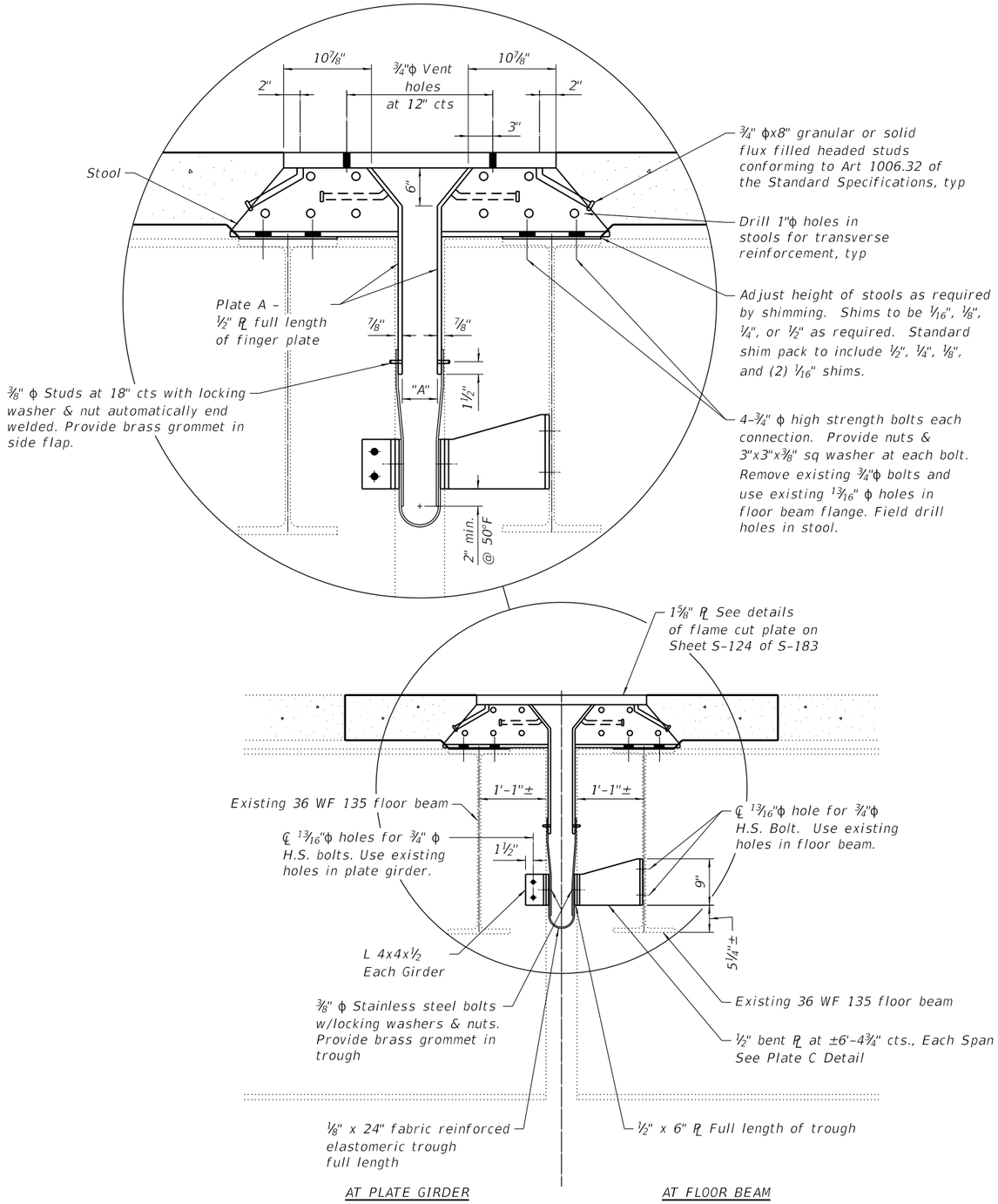
USER NAME = lsalas	DESIGNED - LP	REVISED -	
	CHECKED -	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

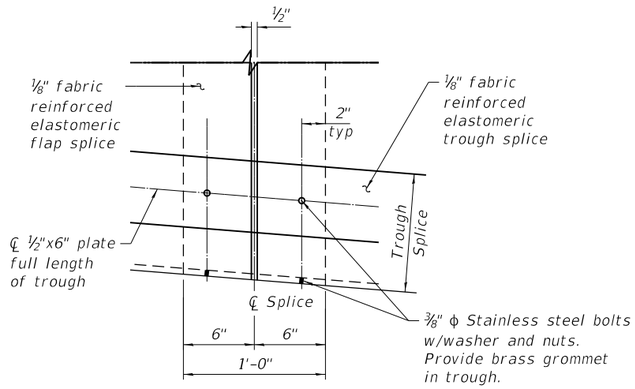
FINGER PLATE REPLACEMENT DETAILS - PIER D28 (1 OF 4)
S.N. 082-0144
SHEET S-123 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	202
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - W026 PSE FOR CONTRACT 76B55-WJE (RW)\09 Drawings\Joints\Rdwy D\0820144-76B55-019_Rdwy_D_Finger Plate Replacement Details - Pier D28 (1 of 4).dgn
7/15/2020 3:37:46 PM

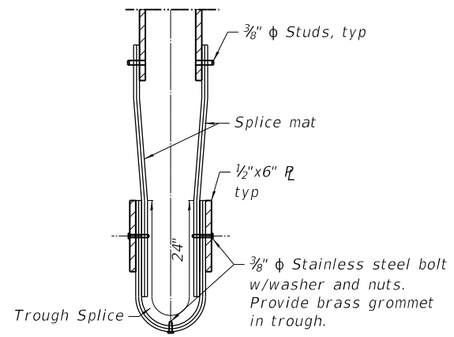


SECTION B-B



TROUGH SPLICE DETAIL

Dimension "A"		
@ -20°F	@ 50°F	@ 120°F
6⅞"	4¼"	1⅝"



SECTION THRU TROUGH SPLICE

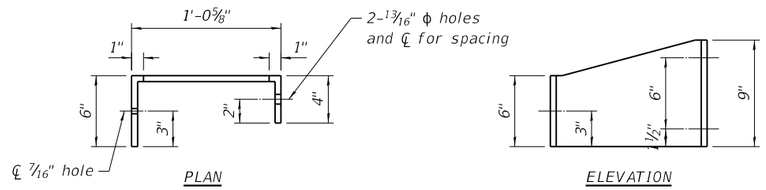


PLATE C DETAIL

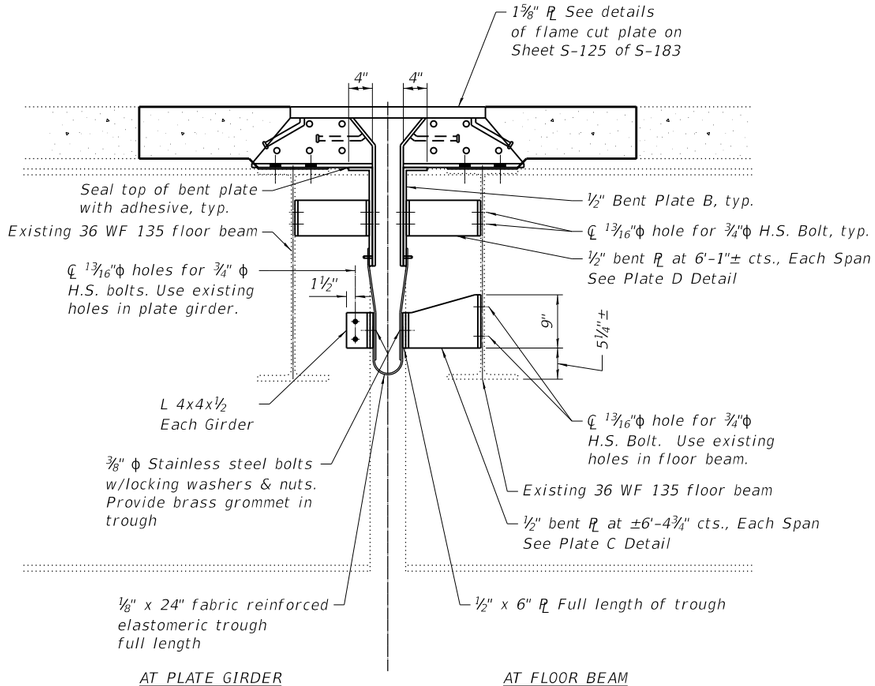
WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - LP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER PLATE REPLACEMENT DETAILS - PIER D28 (2 OF 4)
S.N. 082-0144
SHEET S-124 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	203
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



SECTION D-D

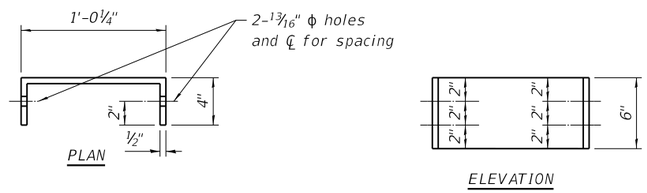


PLATE D DETAIL

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS Wiss, Janney, Elstner Associates, Inc. 330 Pfingsten Road Northbrook, Illinois 60062 847.272.7400 tel | 847.291.9595 fax www.wje.com	USER NAME = lsalas	DESIGNED - LP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FINGER PLATE REPLACEMENT DETAILS - PIER D28 (3 0F 4) S.N. 082-0144 SHEET S-125 OF S-183 SHEETS
		CHECKED - SMG	REVISED -		
	PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -		
	PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	204
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

MODEL: Default
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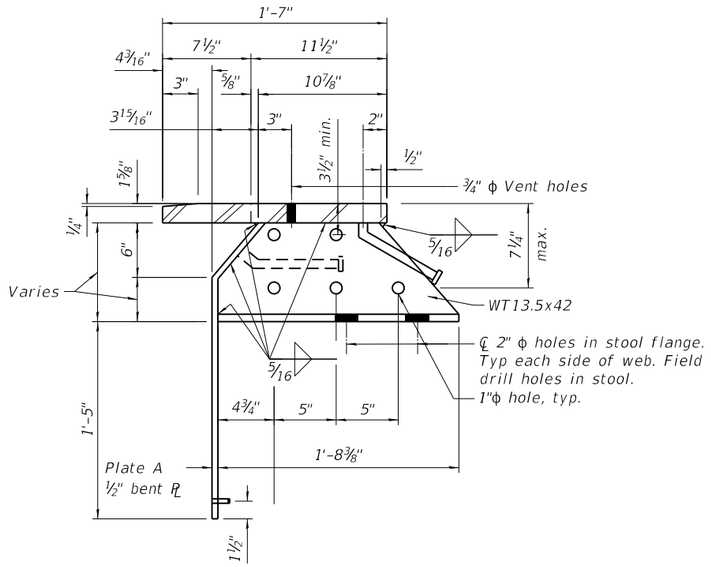
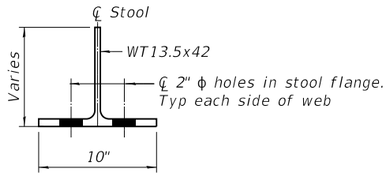


STOOL DETAILS AT FINGER PLATE JOINT

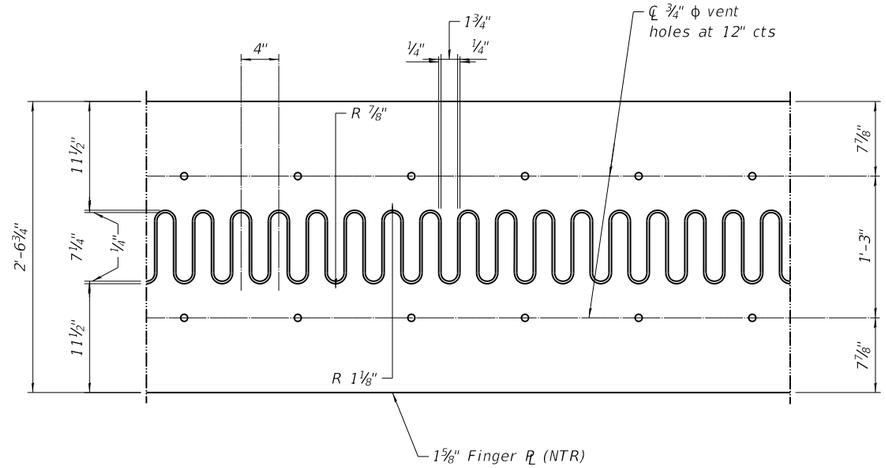


SECTION THRU STOOL

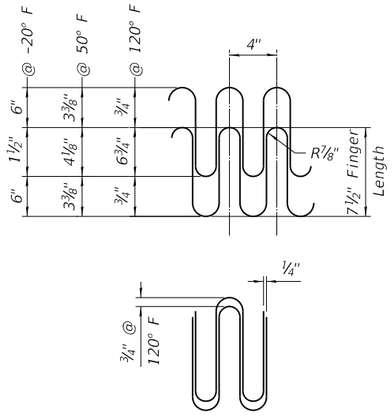
Cut stool from WT13.5x42, typ. See table below for stool heights

STOOL HEIGHTS

SPAN	STOOL NUMBER	HEIGHT
D27	1-13	9 1/2"
D28	1-13	9 1/2"



FLAME CUTTING DIAGRAM



JOINT OPENING AND GEOMETRY DETAIL

NOTES:

"NTR" denotes Notch Toughness Requirements conforming to the Supplemental Requirements for Notch Toughness (Zone 2).

Finger plate expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.

Finger plates and sliding plates shall conform to the requirements of AASHTO M270, Grade 50.

The cost of all material for finger plates and trough support brackets shall be included in the cost of Finger Plate Expansion Joint, 4".

All steel components of the expansion joint including hardware associated with the trough system and sliding plates shall be galvanized after fabrication according to Section 520.03 of the Standard Specifications.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Finger Plate Expansion Joint, 4"	Foot	26
Fabric Reinforced Elastomeric Trough	Foot	36

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Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
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847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - LP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FINGER PLATE REPLACEMENT DETAILS - PIER D28 (4 OF 4) S.N. 082-0144	
	CHECKED - SMG	REVISED -			
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -			
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -		SHEET S-126 OF S-183 SHEETS	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	205
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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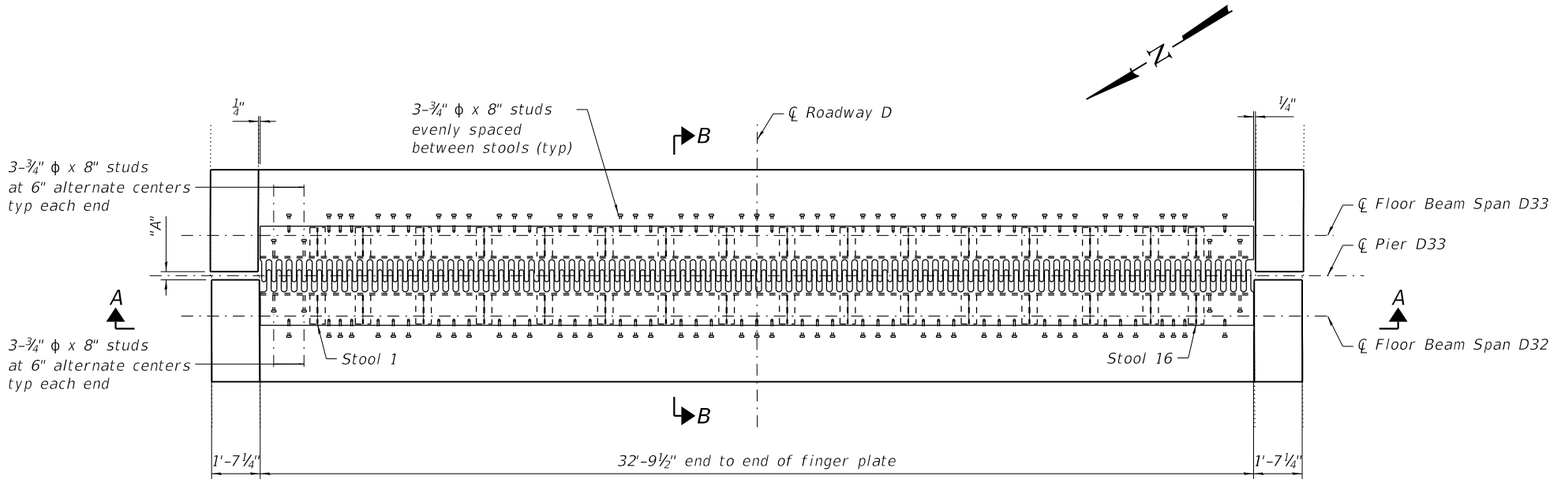
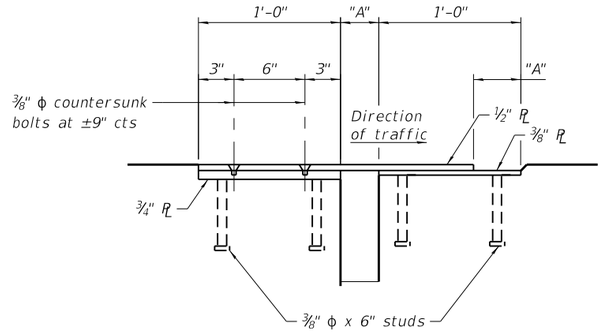


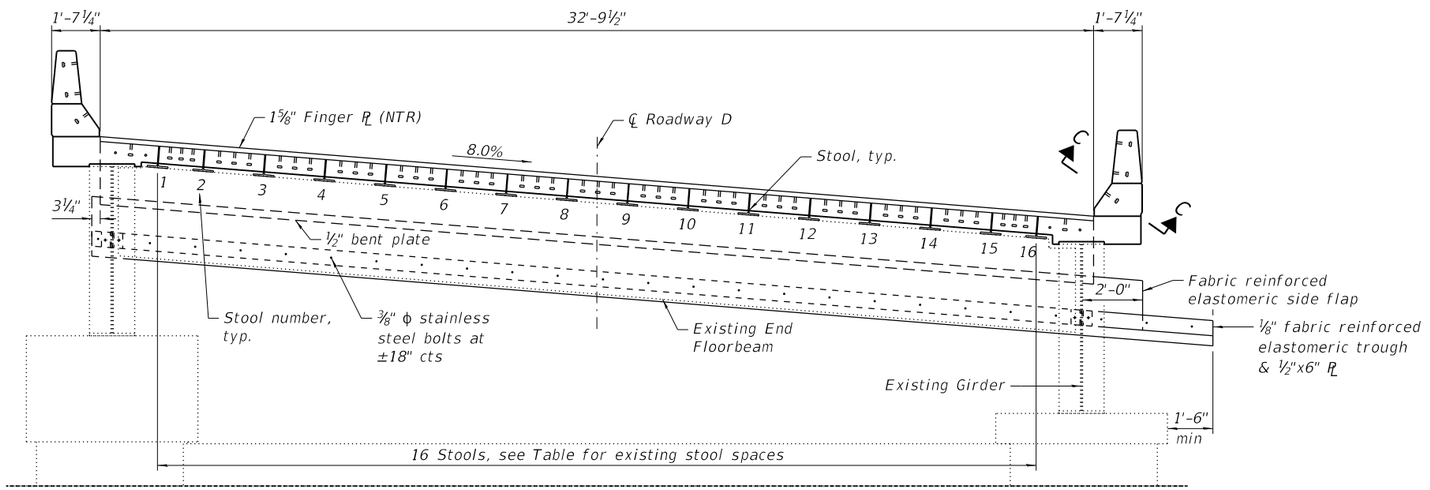
PLAN OF FINGER PLATE EXPANSION JOINT AT PIER D33



SECTION C-C

See Sheet S-109 of S-183 for typical sliding plate detail.
See Sheet S-102 of S-183 for parapet dimensions.

Dimension "A"		
@ -20°F	@ 50°F	@ 120°F
5 3/4"	3 1/4"	3/4"



SECTION A-A

Span D32 shown. Span D33 similar.

NOTES:

See Sheet S-128 of S-183 for Section B-B.
See Sheet S-129 of S-183 for details of stools.

Existing stool spaces measured through bolts connecting stools to top of flange of floor beam (inches)																	
Stool	1*	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Girder*
Span D32	17	18 1/2	24	23 7/8	24 1/8	24 1/8	24	24	23 3/4	24 1/8	24	24	23 3/4	24	24	19 1/4	18 3/4
Span D33	17	18 3/8	24	24 1/8	24 1/2	24	24	24	24 1/4	24	24 1/4	24	24 1/8	24 1/4	24 1/8	18 1/2	18 7/8

Note:
Dimensions based on field survey performed April 2020. Field verify locations of existing holes prior to fabrication.
* - From centerline of stools 1 and 16 to interior face of web of girder.

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
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www.wje.com

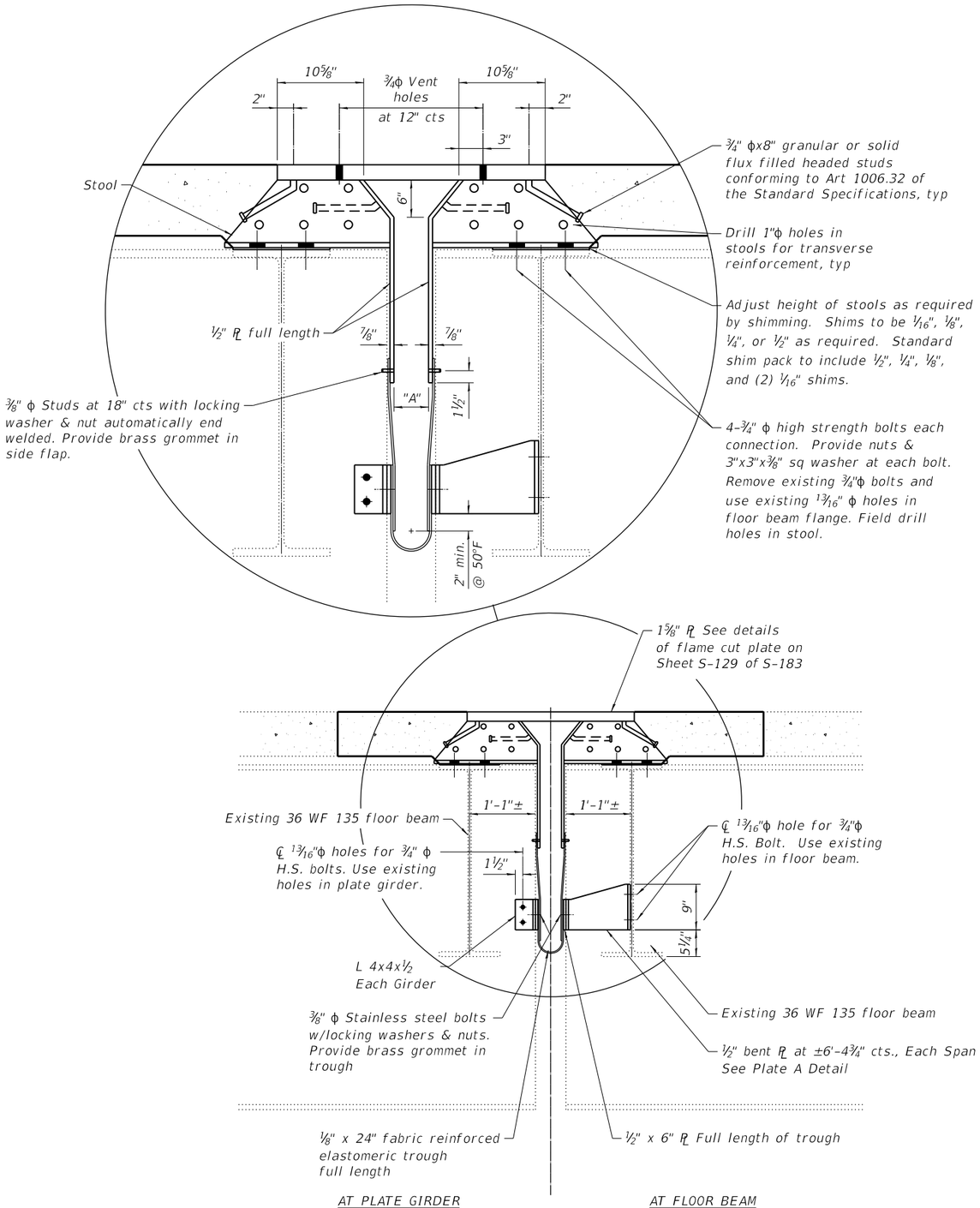
USER NAME = lsalas	DESIGNED - LP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

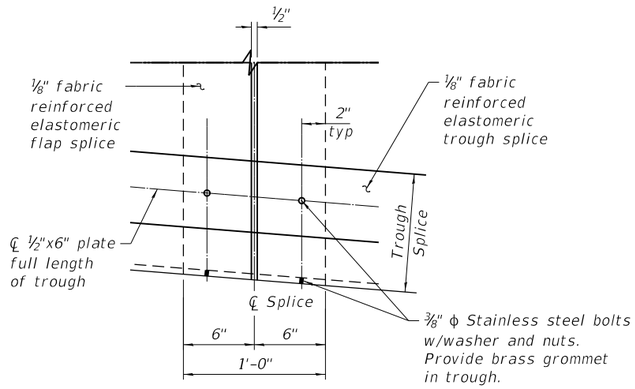
FINGER PLATE REPLACEMENT DETAILS - PIER D33 (1 OF 3)
S.N. 082-0144
SHEET S-127 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	206
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76B55-WJE (RW)\09 Drawings\Joints\Roadway D\0820144-76B55-023_Rdwy_D_Pier_D33_Finger_Joint Deatails 1 of 3.dgn
7/15/2020 3:37:54 PM

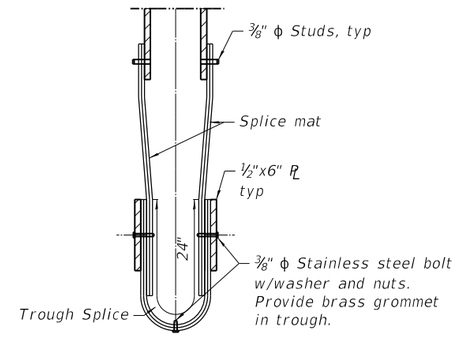


SECTION B-B



TROUGH SPLICE DETAIL

Dimension "A"		
@ -20°F	@ 50°F	@ 120°F
6¾"	4¼"	1¾"



SECTION THRU TROUGH SPLICE

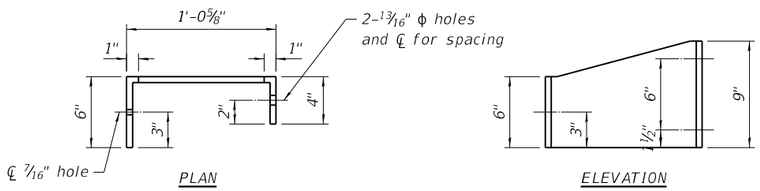


PLATE A DETAIL

MODEL: Default
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7/15/2020 3:37:56 PM

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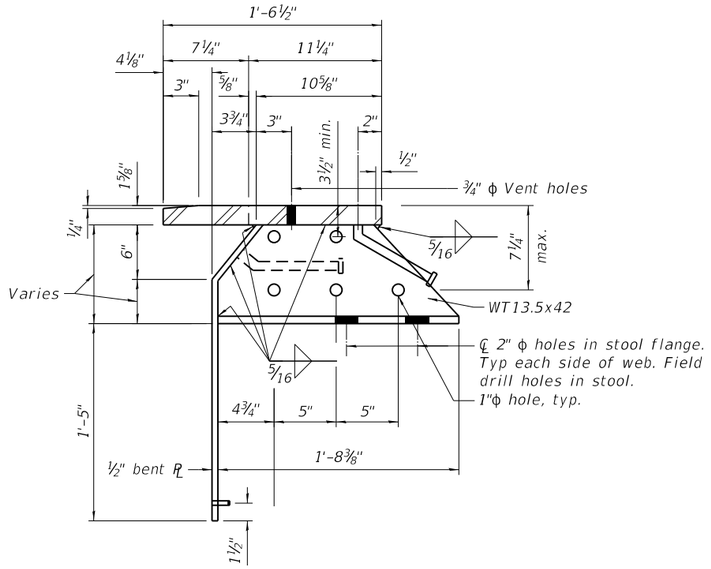
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - LP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

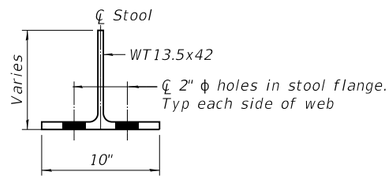
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER PLATE REPLACEMENT DETAILS - PIER D33 (2 OF 3)
S.N. 082-0144
SHEET S-128 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	207
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



STOOL DETAILS AT FINGER PLATE JOINT

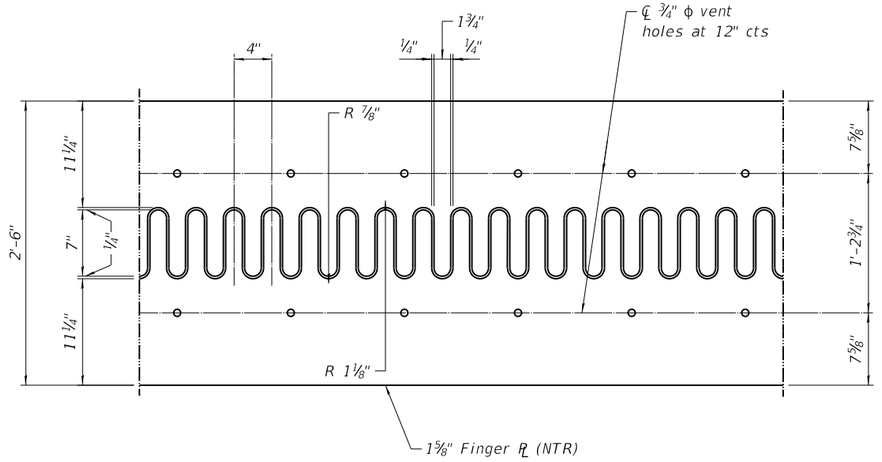


SECTION THRU STOOL

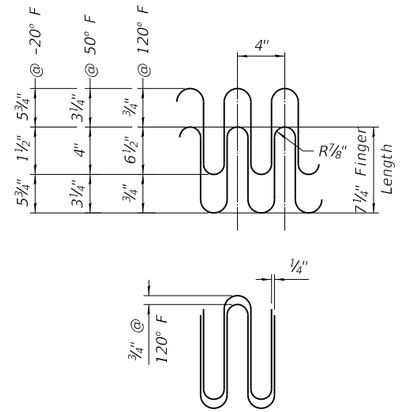
Cut stool from WT13.5x42, typ. See table below for stool heights

STOOL HEIGHTS

SPAN	STOOL NUMBER	HEIGHT
D32	1-16	9 1/2"
D33	1-16	9 1/2"



FLAME CUTTING DIAGRAM



JOINT OPENING AND GEOMETRY DETAIL

NOTES:

"NTR" denotes Notch Toughness Requirements conforming to the Supplemental Requirements for Notch Toughness (Zone 2).

Finger plate expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.

Finger plates and sliding plates shall conform to the requirements of AASHTO M270, Grade 50.

The cost of all material for finger plates and trough support brackets shall be included in the cost of Finger Plate Expansion Joint, 4".

All steel components of the expansion joint including hardware associated with the trough system and sliding plates shall be galvanized after fabrication according to Section 520.03 of the Standard Specifications.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Finger Plate Expansion Joint, 4"	Foot	33
Fabric Reinforced Elastomeric Trough	Foot	36

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - LP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

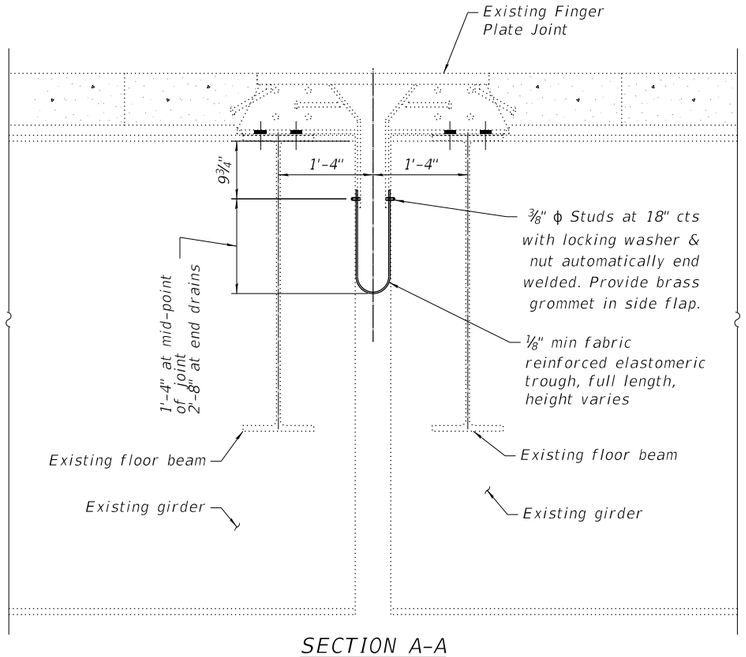
FINGER PLATE REPLACEMENT DETAILS - PIER D33 (3 OF 3)
S.N. 082-0144

SHEET S-129 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	208
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

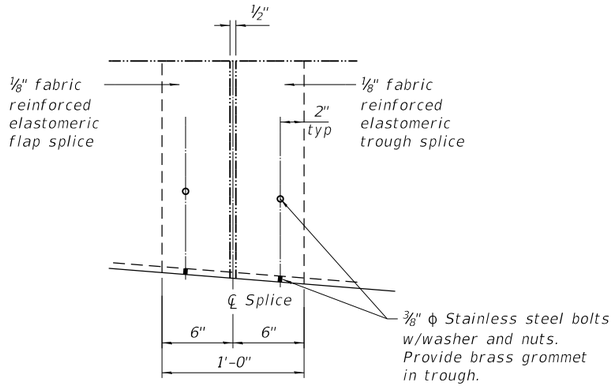
MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76B55-WJE (RW)\09 Drawings\details\Roadway D\08201144-76B55-025_Rdwy_D_Pier_D33_Finger_Joint_Details 3 of 3.dgn

7/15/2020 3:37:58 PM

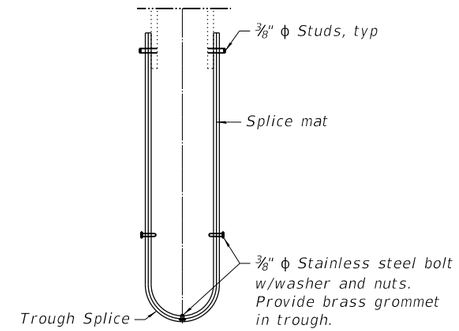


SECTION A-A

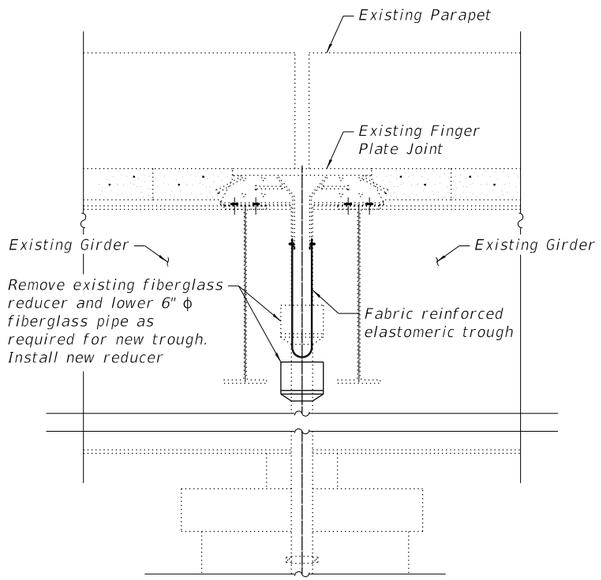
Pier D40



TROUGH SPLICE DETAIL



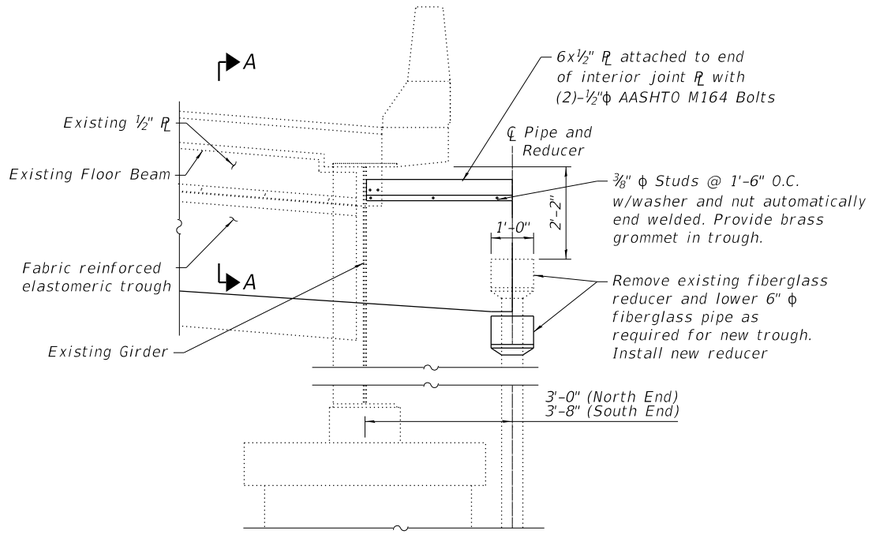
SECTION THRU TROUGH SPLICE



FINGER JOINT MAT DRAINAGE DETAIL - END VIEW

Pier D40

Note: Downspot pipe modification and new reducer included with elastomeric trough replacement.



FINGER JOINT MAT DRAINAGE DETAIL - ELEVATION

Pier D40

Note: Downspot pipe modification and new reducer included with elastomeric trough replacement.

BILL OF MATERIAL

Item	Unit	Total
Fabric Reinforced Elastomeric Trough	Foot	54

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - LP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TROUGH REPLACEMENT DETAIL - PIER D40
S.N. 082-0144

SHEET S-130 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	209
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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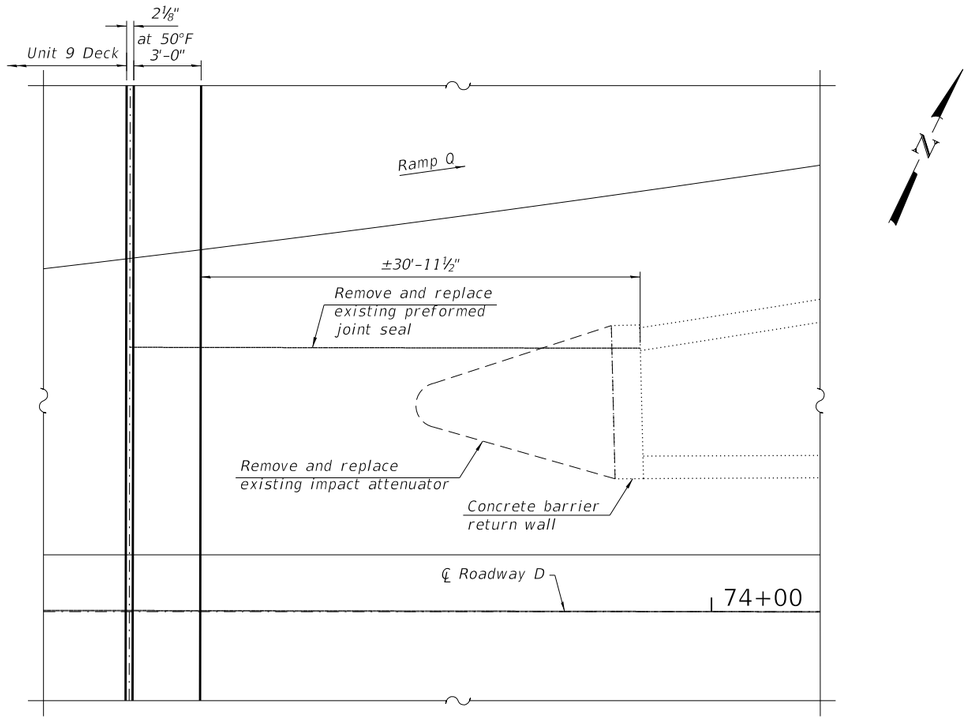
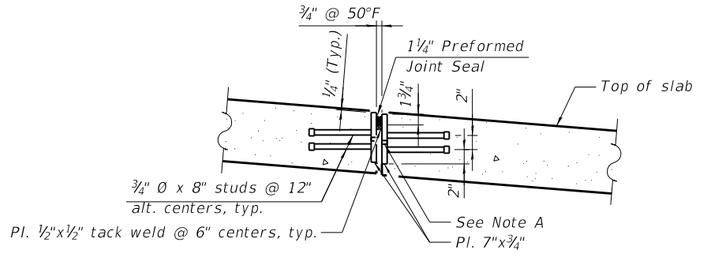
7/15/2020 3:38:01 PM



PLAN



TYPICAL SECTION OF
LONGITUDINAL JOINT

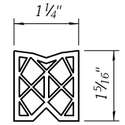
Longitudinal joint seal replacement procedure

Remove existing Preformed Joint Seals.

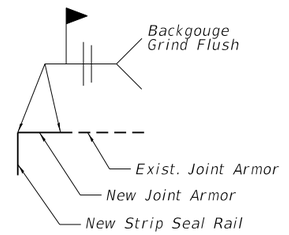
Clean all exposed surfaces of steel plates and apply one field coat of paint as specified for existing structural steel.

Install new Preformed Joint Seals after joint work at Pier D25 has been completed and new rails have been set.

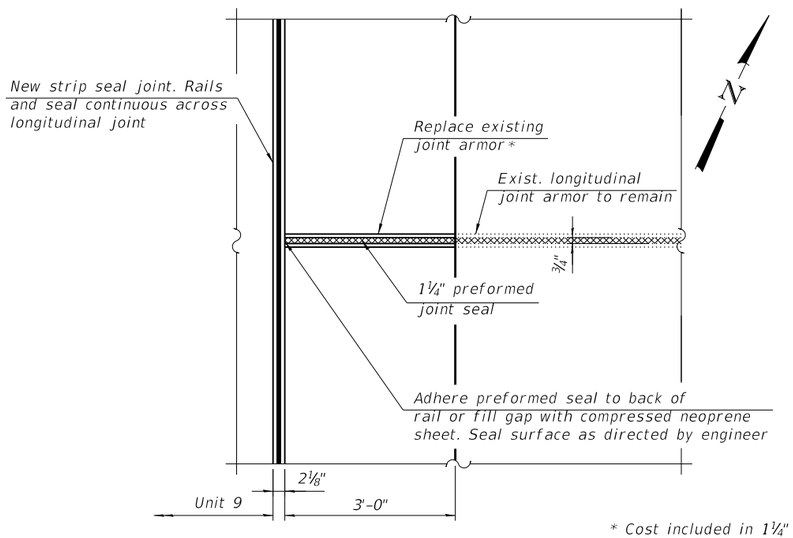
Note A: *Provide 7/16" Ø holes @ 12" centers for ⅜" threaded rods for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.*



PREFORMED
JOINT SEAL



TYPICAL WELD DETAIL



* Cost included in 1¼" Preformed Joint Seal

PART PLAN OF PROPOSED STRIP SEAL JOINT

Notes:

Studs shall be granular or solif flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Std. Specs.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Seal, 1¼"	Foot	34

TranSystems

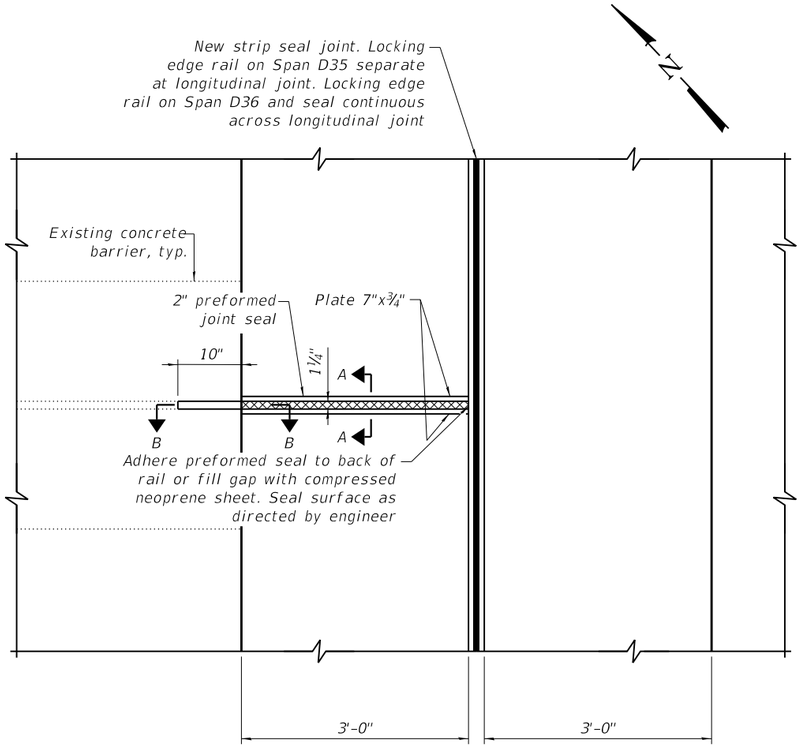
USER NAME = jmpattison	DESIGNED - AMD	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 10.6667 ' / in.	DRAWN - JTF	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPAN D26 REPAIRS
S.N. 082-0144

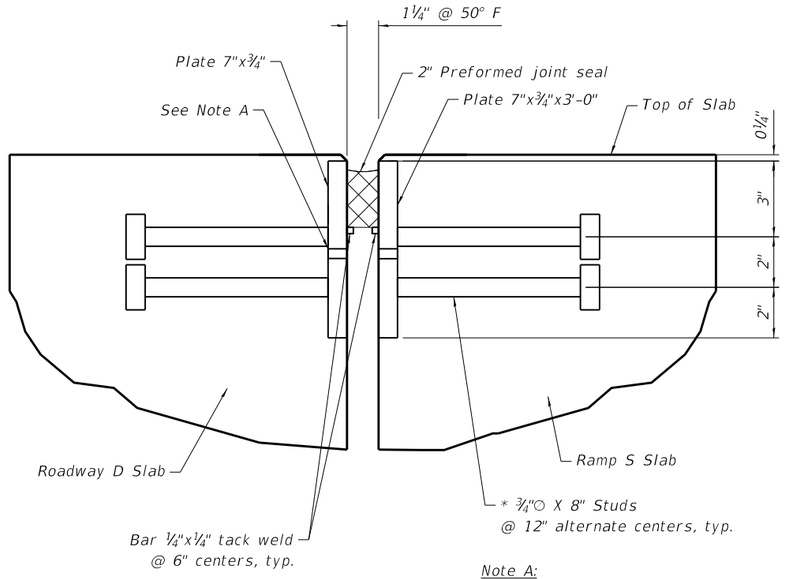
SHEET S-131 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	210
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



PLAN VIEW OF LONGITUDINAL JOINT AT PIER D36

Note: Incorporate longitudinal joint repairs into strip seal repairs at Pier D36

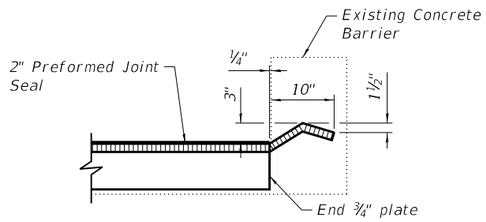


Note A:

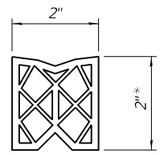
Provide 7/16"Ø holes @ 12" centers for ⅜" Bolts. All Bolts Shall be burned, sawed or chipped off flush with the Plates after forms are removed, t

SECTION A-A

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



SECTION B-B



*Dimensions may vary with manufacturer

PREFORMED JOINT SEAL

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Seal, 2"	Foot	4

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas | DESIGNED - LP | REVISED -
CHECKED - SMG | REVISED -
PLOT SCALE = 2.0000 ' / In. | DRAWN - LS | REVISED -
PLOT DATE = 7/15/2020 | CHECKED - RW | REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LONGITUDINAL JOINT REHABILITATION - PIER D36
S.N. 082-0144
SHEET S-132 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	211
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

MODEL: Default
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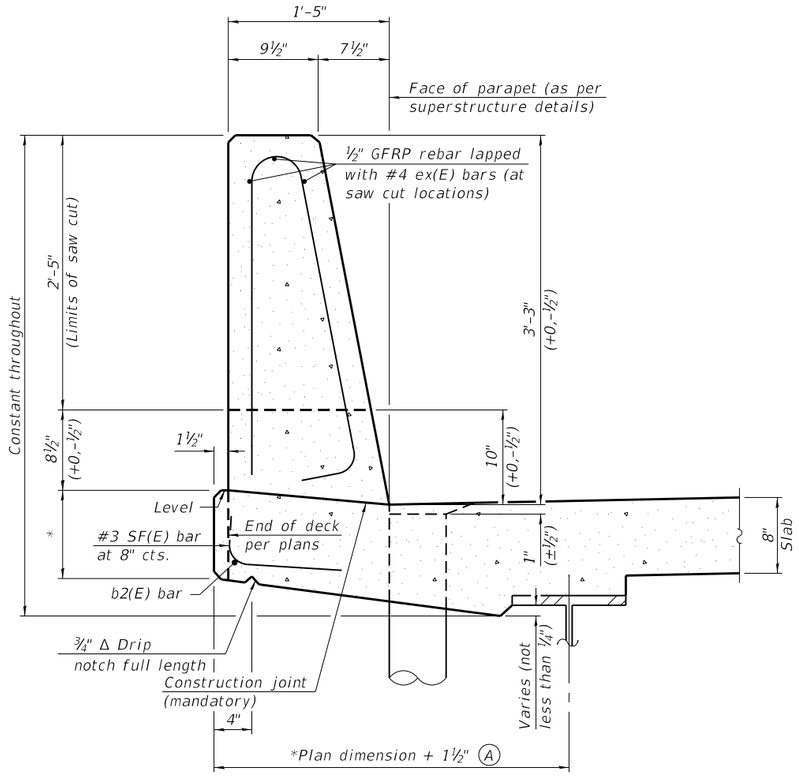
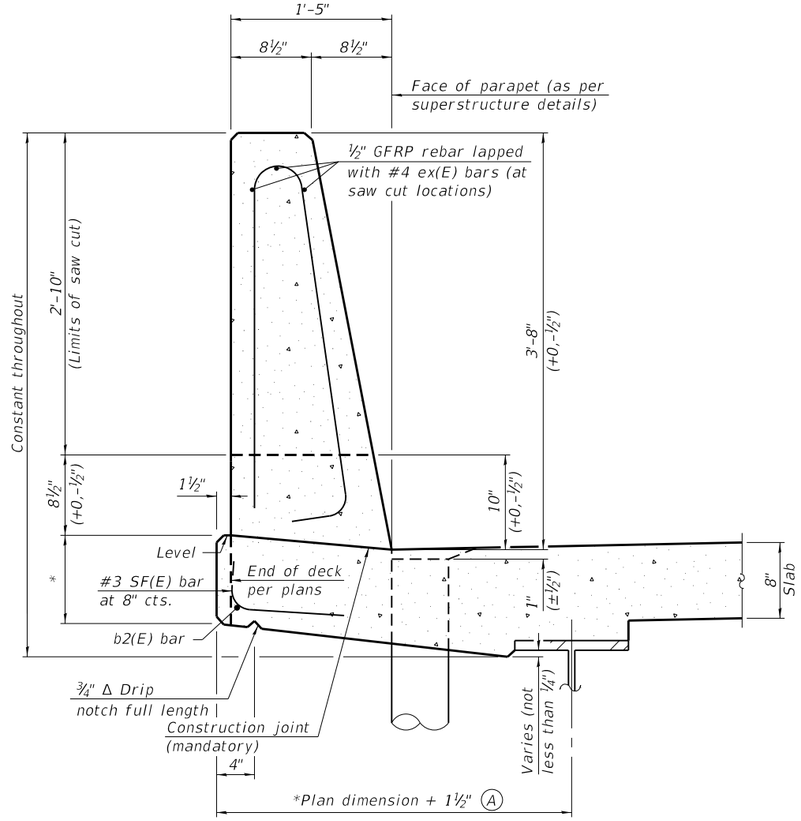


39" CONSTANT-SLOPE PARAPET SECTION

(Showing dimensions, d(E), and ½" Ø GFRP rebar)



44" CONSTANT-SLOPE PARAPET SECTION

(Showing dimensions, d(E), and ½" Ø GFRP rebar)

*See Superstructure Details.

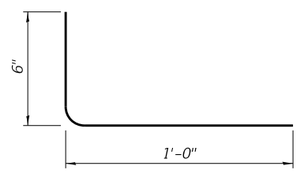
Notes:

All dimensions shall remain the same as shown on superstructure details, except dimension A which is to be revised as shown. Additional concrete needed to revise dimension A = 0.00348 cu. yds./ft. for 39" and 44" parapets.

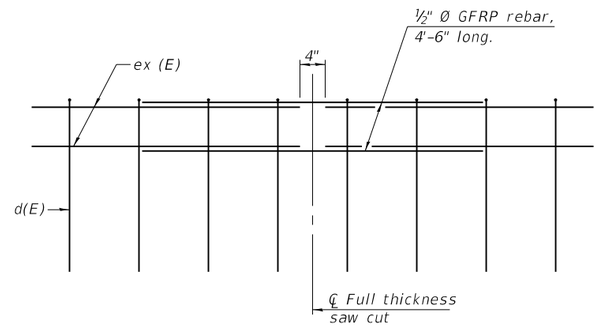
Place full depth aluminum sheets as shown on superstructure details.

Replace all cork joint filler locations with a full thickness saw cut.

Steel superstructure shown. Other superstructure types similar.



#3 (E) BAR



GFRP REBAR STIFFENING DETAIL

(Place as shown in parapet section at each parapet joint location.)

SFP 39-44 1-1-2020

TranSystems	USER NAME = jmpattison	DESIGNED - JRF	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CONCRETE PARAPET SLIPFORMING OPTION S.N. 082-0144
		CHECKED - JMP	REVISED -		
	PLOT SCALE = 0.1667 ' / in.	DRAWN - JRF	REVISED -		SHEET S-133 OF S-183 SHEETS
	PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	212
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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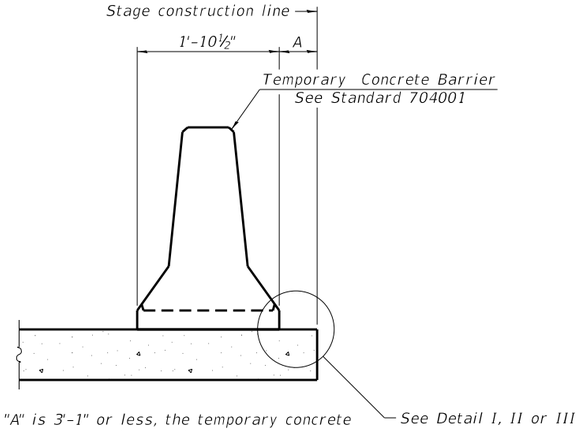
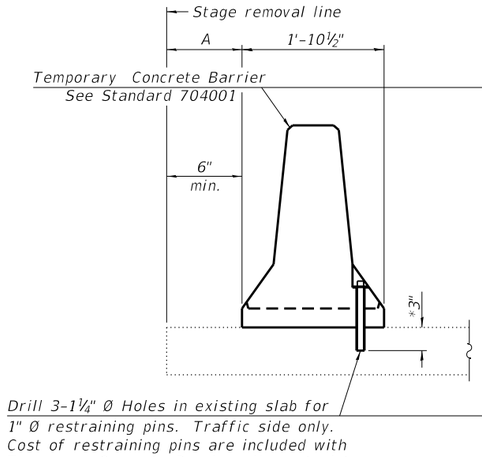
7/15/2020 2:58:04 PM



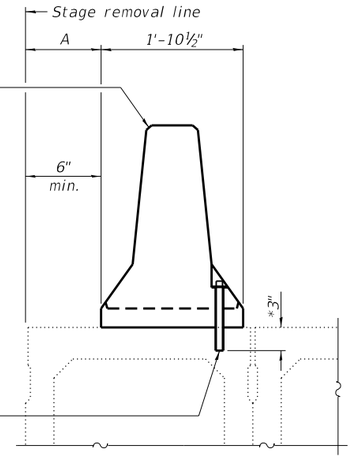
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM



Drill 3-1¼" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

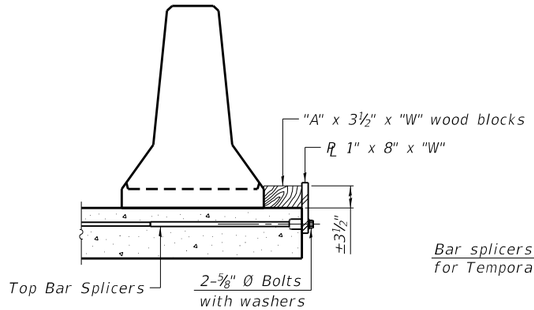
EXISTING SLAB



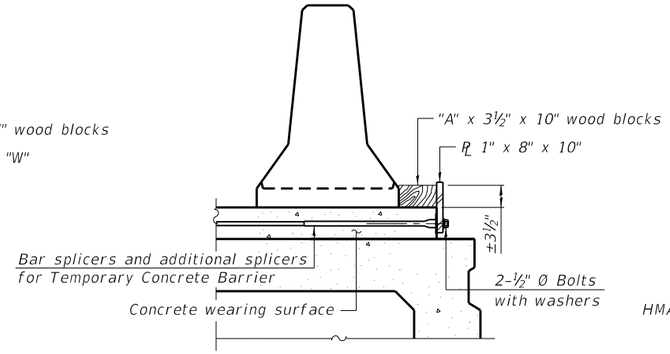
* When hot-mix asphalt wearng surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

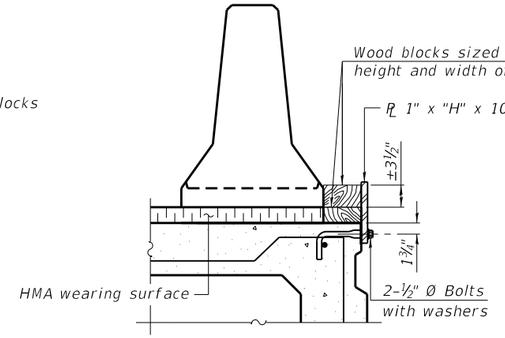
SECTIONS THRU SLAB OR DECK BEAM



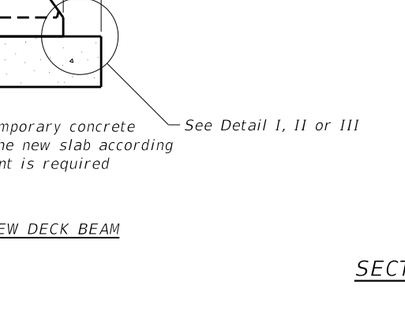
DETAIL I



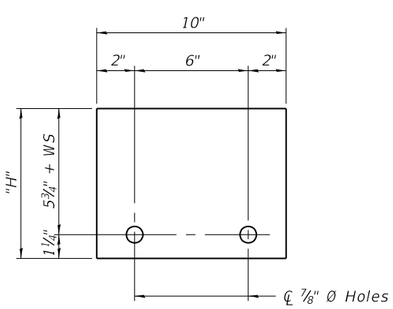
DETAIL II



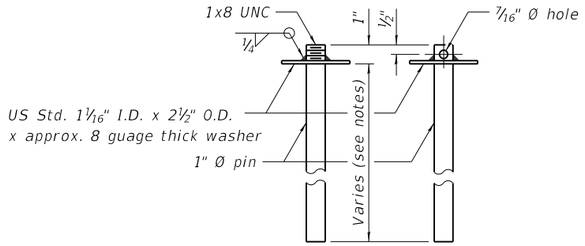
DETAIL III



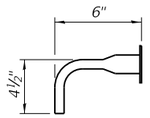
STEEL RETAINER ℄ 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER ℄ 1" x "H" x 10"
(Detail III)



RESTRAINING PIN



BAR SPLICER FOR #4 BAR - DETAIL III

Notes:

Cost of retainer assembly is included with Temporary Concrete Barrier.

A retainer assembly shall be located at the approximate ℄ of each temporary concrete barrier.

The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.

When the 'A' dimension is less than 1½", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.

Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.

Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

R-27

2-17-2017

TranSystems

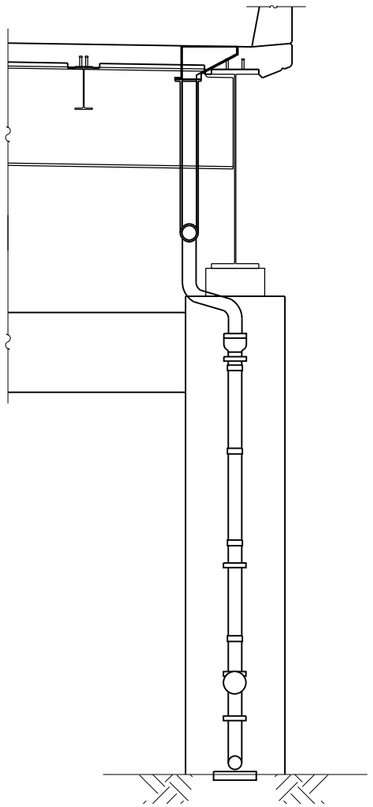
USER NAME = jmpattison	DESIGNED - XXX	REVISED -	
	CHECKED - XXX	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - XXX	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - XXX	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
S.N. 082-0144

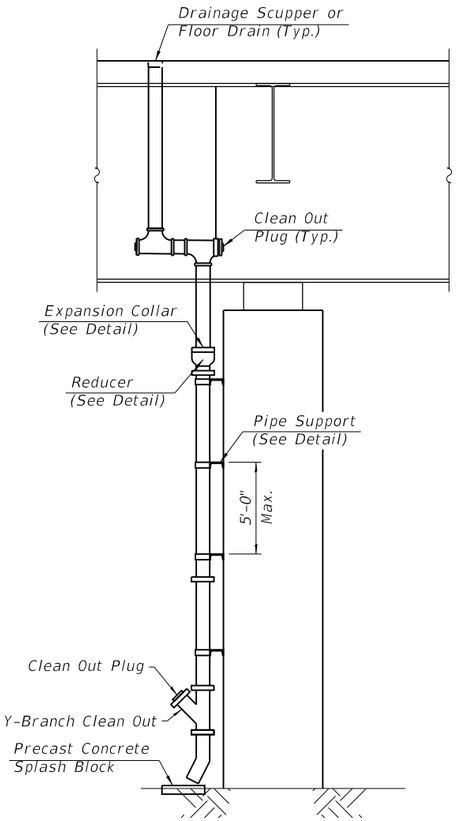
SHEET S-134 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	213
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



ELEVATION VIEW

(Looking East at Piers D3 thru D7)
(Looking West at Pier D8, D14 thru D16, and D24)

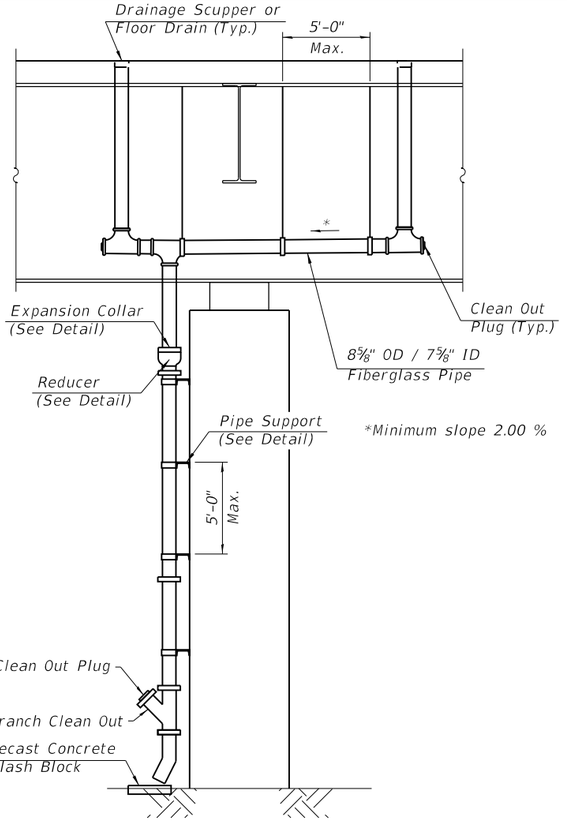


END VIEW AT PIERS D3 THRU D6

(Looking North)

END VIEW AT PIER D24

(Looking South)

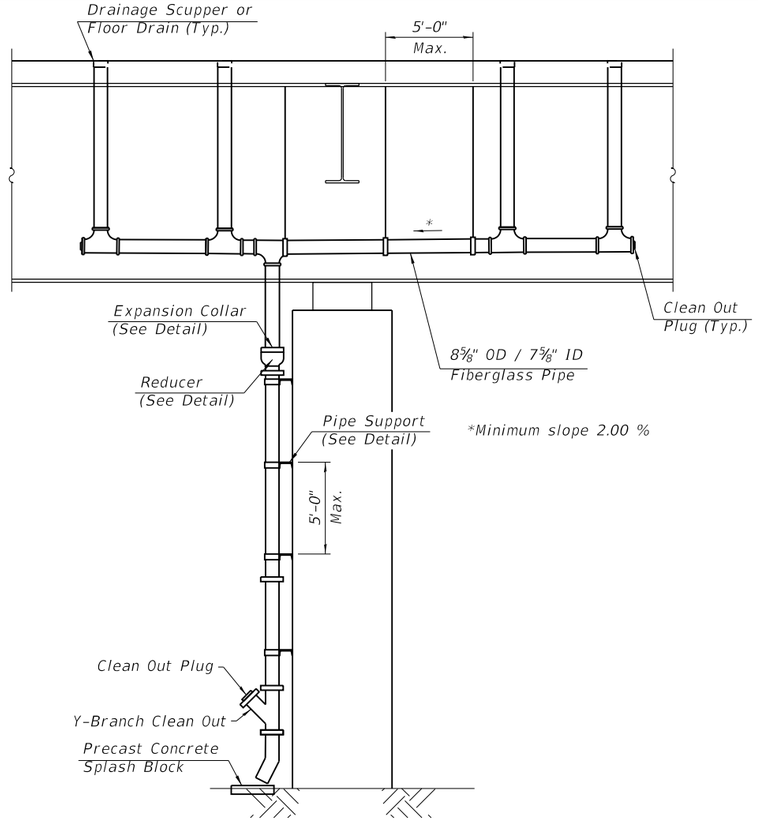


END VIEW AT PIER D7

(Looking North)

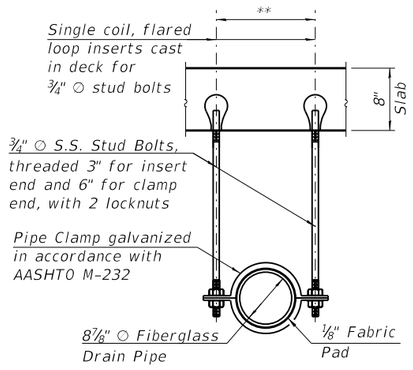
END VIEW AT PIERS D14 AND D15

(Looking South)



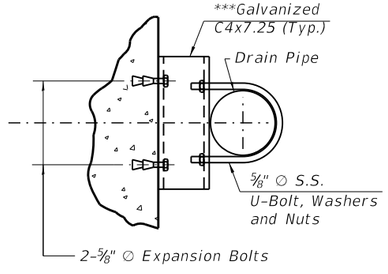
END VIEW AT PIER D8 AND D16

(Looking South)
(Pier D8 shown, Pier D16 similar)

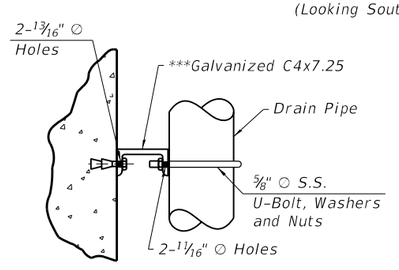


PIPE SUPPORT DETAIL

** Dimension as required by Pipe Clamp



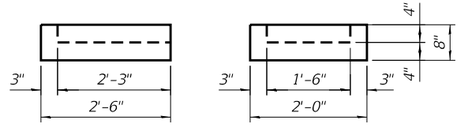
PLAN



ELEVATION

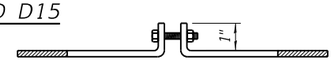
PIPE SUPPORT DETAIL

***Provide curved C6x8.2 to fit Round Pier Columns where needed

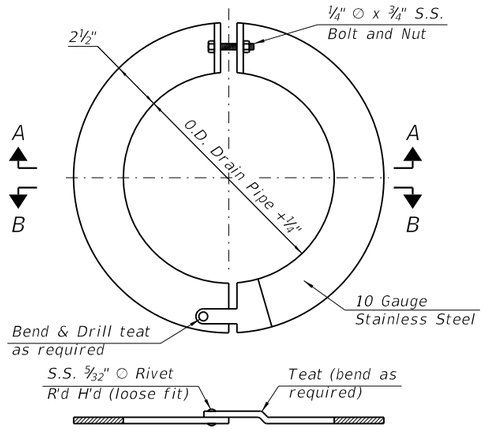


SPLASH BLOCK DETAIL

Cost included with Drainage System

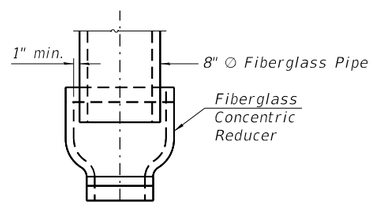


SECTION A-A



SECTION B-B

DETAIL OF EXPANSION COLLAR



REDUCER DETAIL

Notes:

Pipe supports shall be provided on all horizontal pipes at each tee, elbow, or change in direction and at intermediate points not more than 5'-0" on centers.

Collector pipe hangers shall have a load capacity of not less than 2,000 lbs. and shall be designed so as not to apply excessive compressive stress on the pipe.

Pipe supports shall be provided on all vertical drain pipes not more than 12'-0" on centers.

Reducer shall be sized to accomodate a longitudinal movement of 3" in each direction.

S.S. denotes Stainless Steel.

BILL OF MATERIAL

Item	Unit	Total
Drainage System	L Sum	1

TranSystems

USER NAME = jmpattison	DESIGNED - WJC	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - JTF	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS
S.N. 082-0144
SHEET S-135 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	214
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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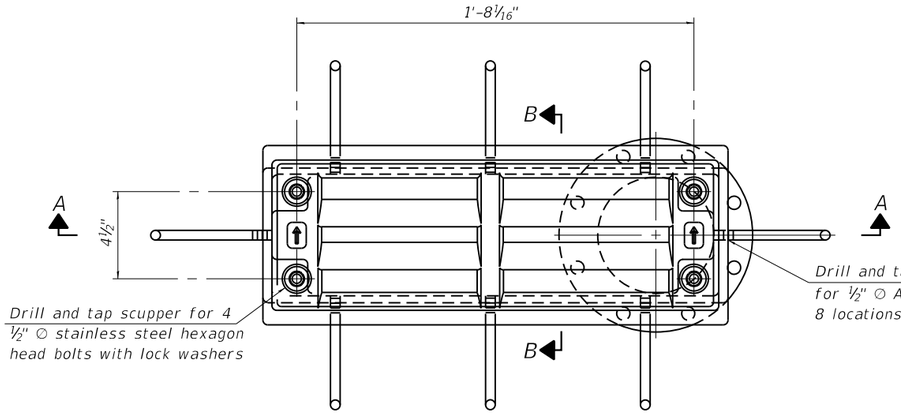
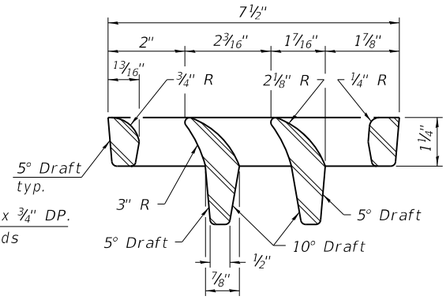
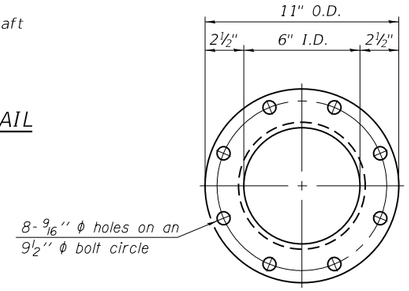
7/15/2020 2:58:08 PM



PLAN



VANE GRATE DETAIL



Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

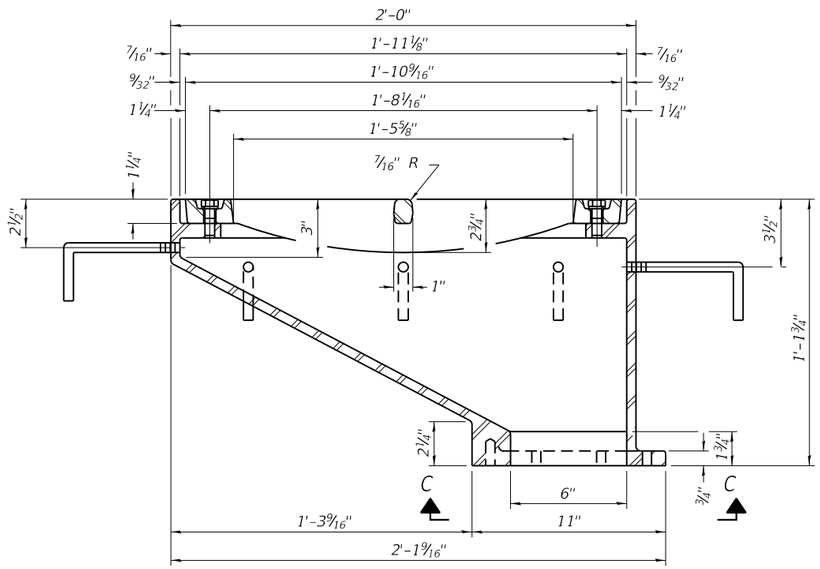
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

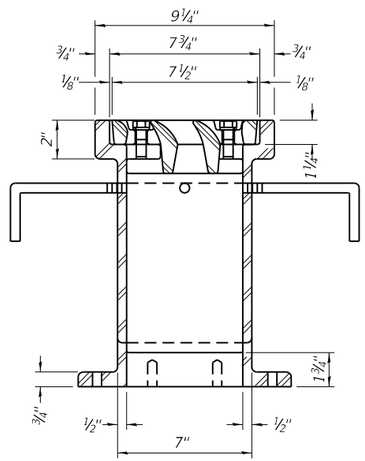
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-12.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

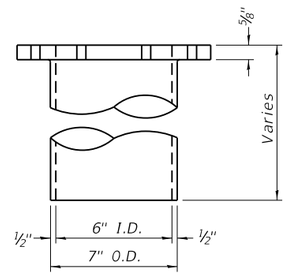


SECTION A-A

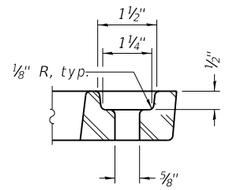
See Sheets S-46 thru S-91 for scupper location relative to parapet.



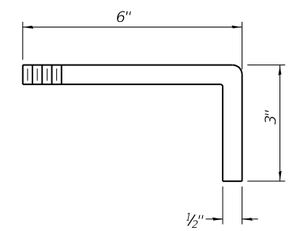
SECTION B-B



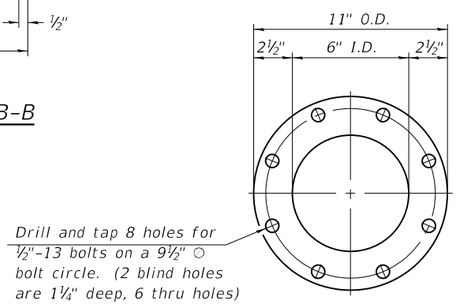
DOWNSPOUT



BOLT HOLE DETAIL



ANCHOR STUD DETAIL



VIEW C-C

BILL OF MATERIAL

Item	Unit	Quantity
Drainage Scuppers, DS-12	Each	53

TranSystems

USER NAME = jmpattison	DESIGNED - WJC	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - JTF	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-12
S.N. 082-0144
SHEET S-136 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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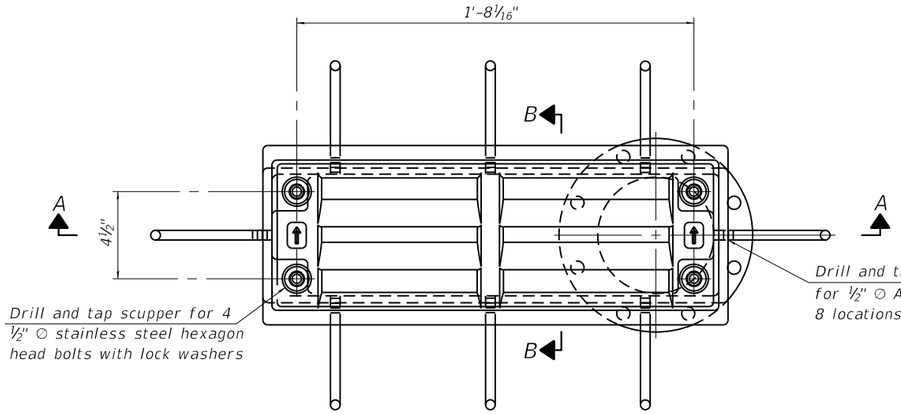
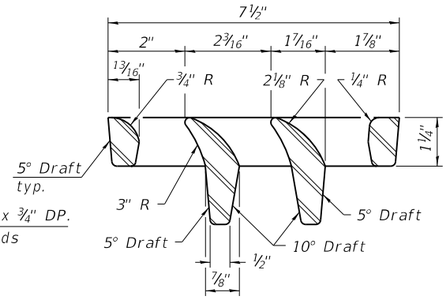
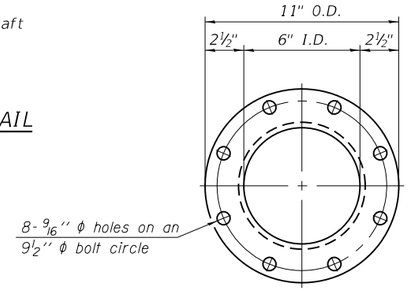
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



PLAN



VANE GRATE DETAIL



Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

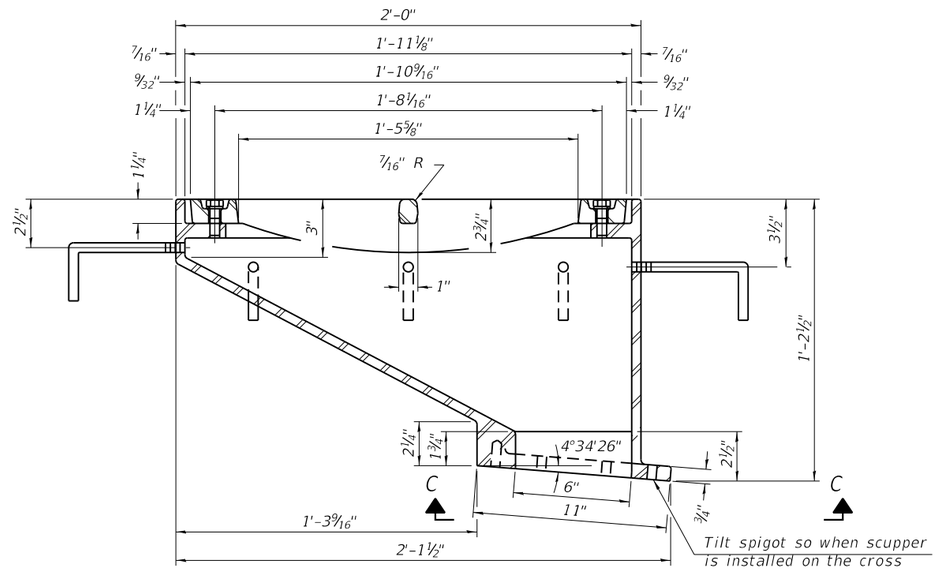
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

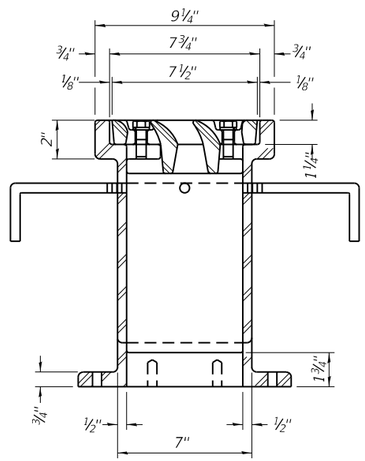
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scuppers (Special).

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

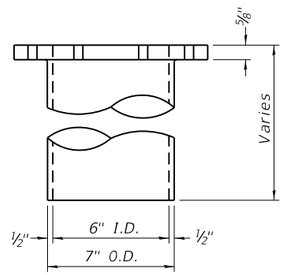


SECTION A-A

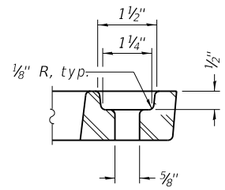
See Sheets S-46 thru S-91 for scupper location relative to parapet.



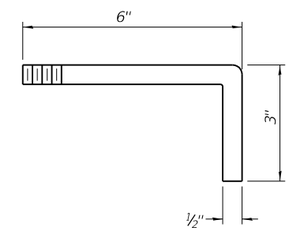
SECTION B-B



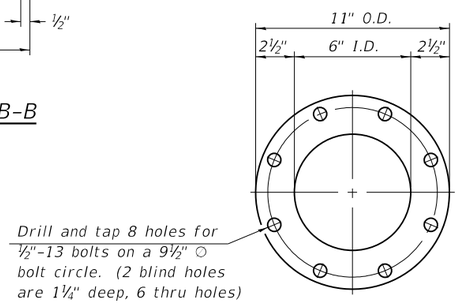
DOWNSPOUT



BOLT HOLE DETAIL



ANCHOR STUD DETAIL



VIEW C-C

BILL OF MATERIAL

Item	Unit	Quantity
Drainage Scuppers (Special)	Each	3

TranSystems

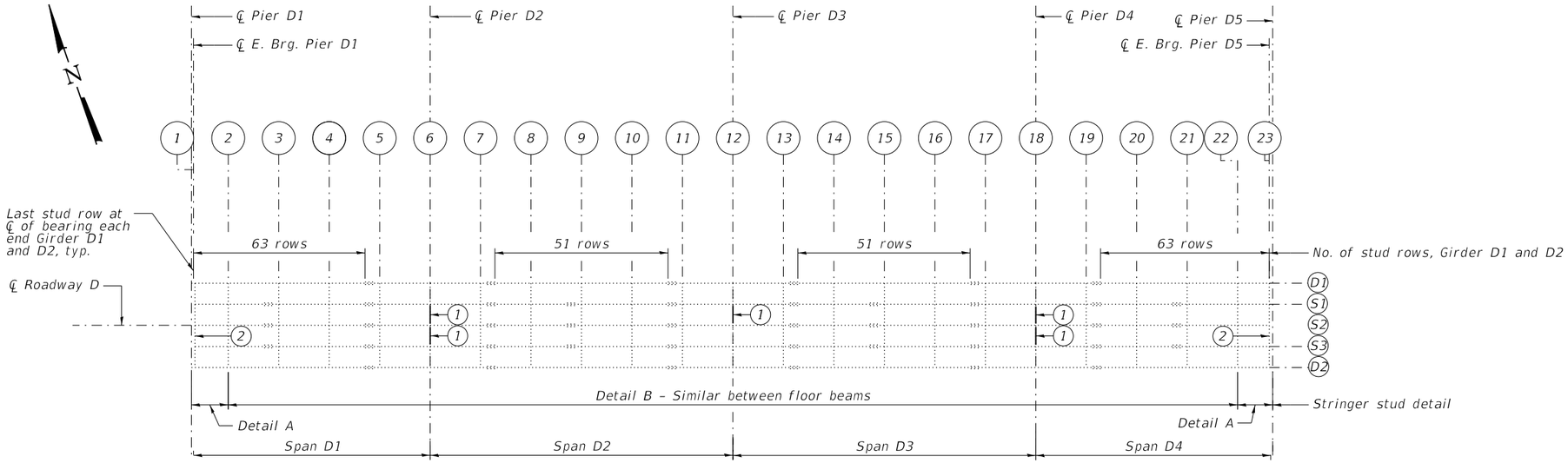
USER NAME = jmpattison	DESIGNED - WJC	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - JTF	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER (SPECIAL)
S.N. 082-0144

SHEET S-137 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	216
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



(1) Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket

(2) Provide 32 rows of studs at FB 1 and FB 23. See Sheet S-142 for detail.

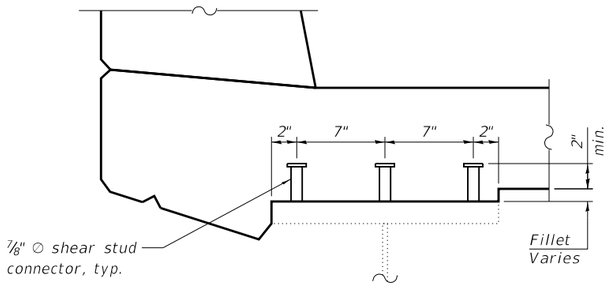
PLAN (SPANS D1 – D4)

Notes:
See Sheet S-139 for typical details at Girder field splices.

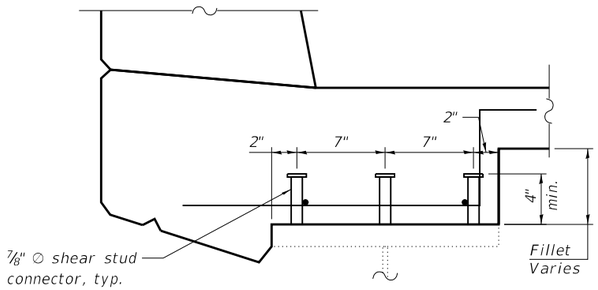
The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the Girder between the field splices or between the center of bearing and the field splice for end spans.

Adjust shear stud spacing as required to avoid large pits or other obstructions on the flange. Maintain at least 1" between the edge of the flange and center of shear stud.

Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.

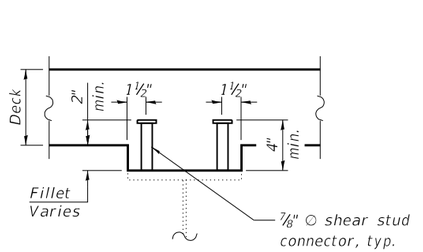


HEADED STUD DETAIL AT GIRDER D1 AND D2

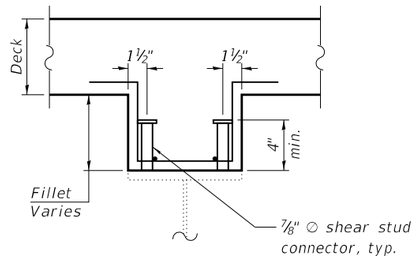


HEADED STUD DETAIL AT GIRDER D1 AND D2

Locations where fillet exceeds 6"

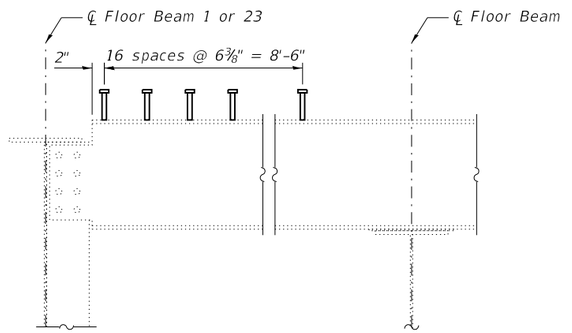


HEADED STUD DETAIL AT STRINGERS



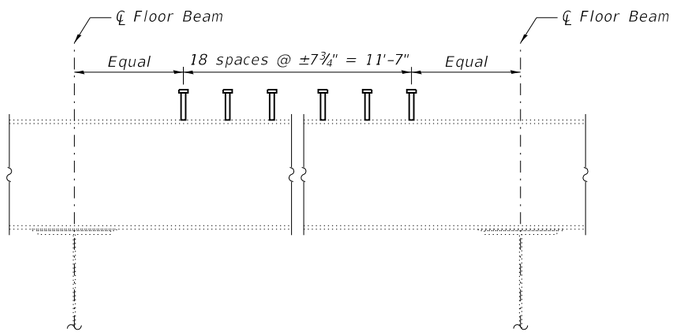
HEADED STUD DETAIL AT STRINGERS

Locations where fillet exceeds 6"



DETAIL A – STRINGER ELEVATION

In end spans



DETAIL B – STRINGER ELEVATION

Between FB 2 and FB 22

SPANS D1 THRU D4
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	4044

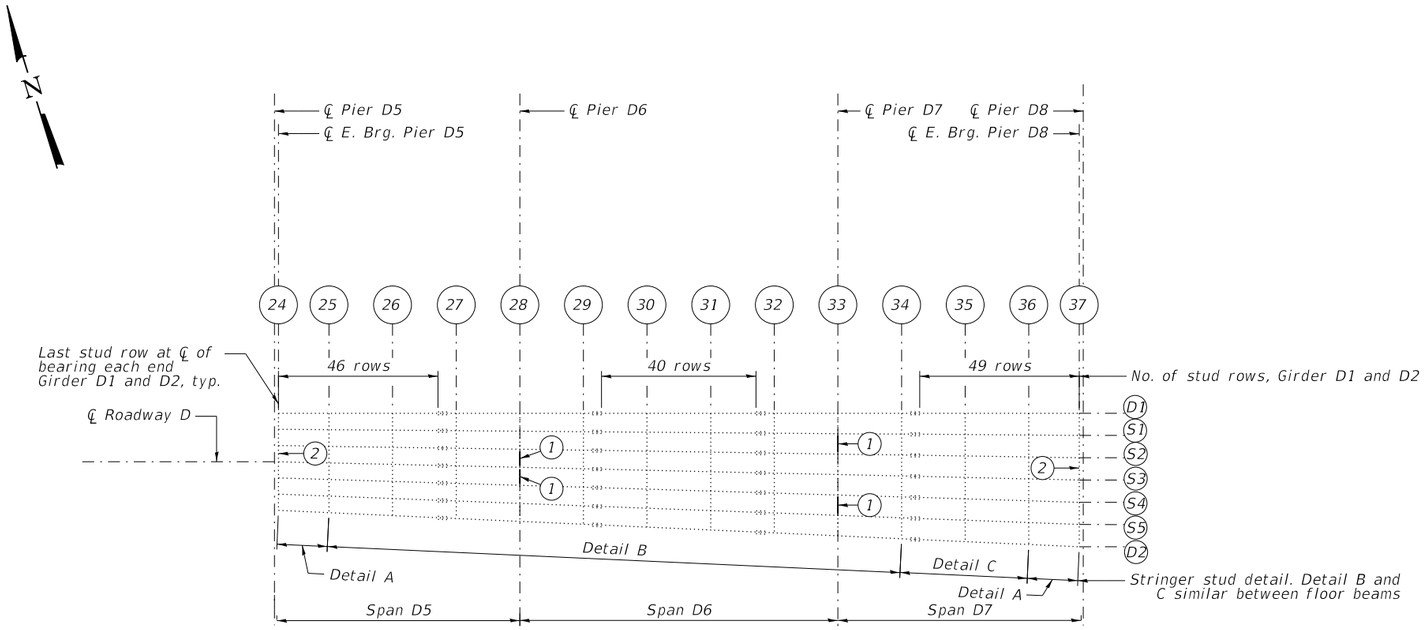
WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
	CHECKED - RW	REVISED -	
PLOT SCALE = 50.0000 '/ In.	DRAWN - LS/TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPANS D1 THRU D4
S.N. 082-0144
SHEET S-138 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	217
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



(1) Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket

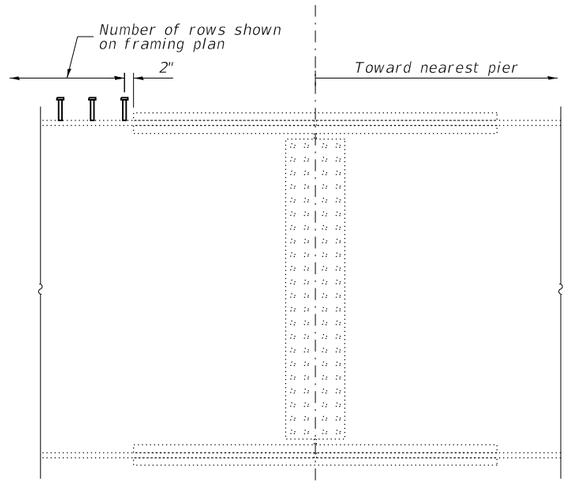
(2) Provide 34 rows of studs at FB 24 and 38 rows at FB 37. See Sheet S-142 for detail.

PLAN (SPANS D5 - D7)

Notes:
See Sheet S-138 for headed stud details.

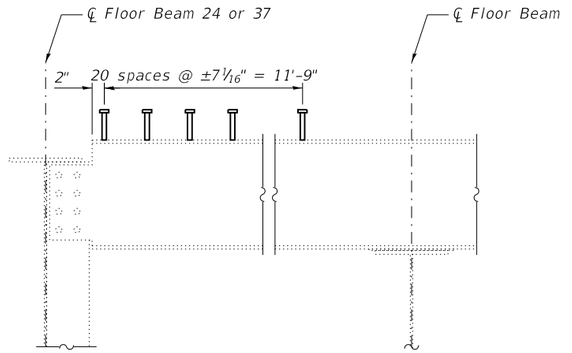
The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the Girder between the field splices or between the center of bearing and the field splice for end spans.

Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.



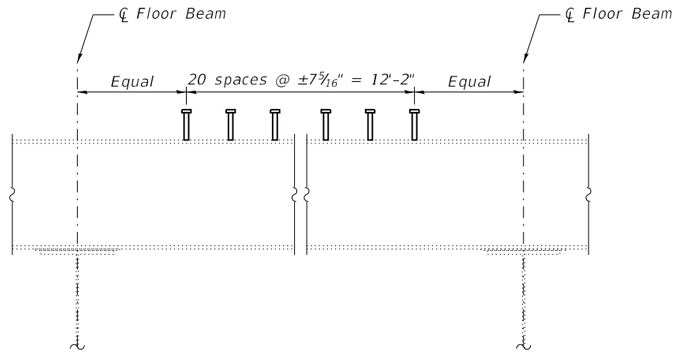
GIRDER ELEVATION

At Field Splice



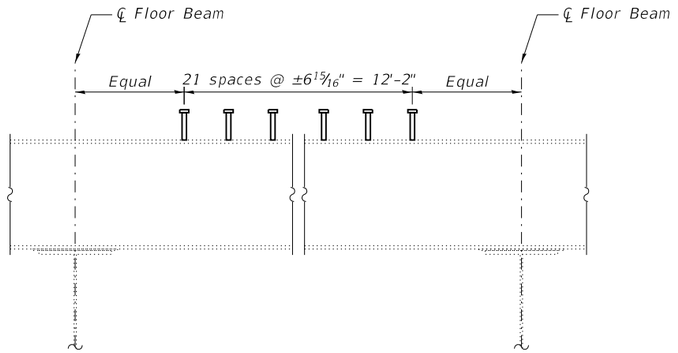
DETAIL A - STRINGER ELEVATION

In end spans



DETAIL B - STRINGER ELEVATION

Between FB 25 and FB 34



DETAIL C - STRINGER ELEVATION

Between FB 34 and FB 36

SPANS D5 THRU D7
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	3776

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
	CHECKED - RW	REVISED -	
PLOT SCALE = 50.0000 '/ In.	DRAWN - LS/TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPANS D5 THRU D7
S.N. 082-0144

SHEET S-139 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	218
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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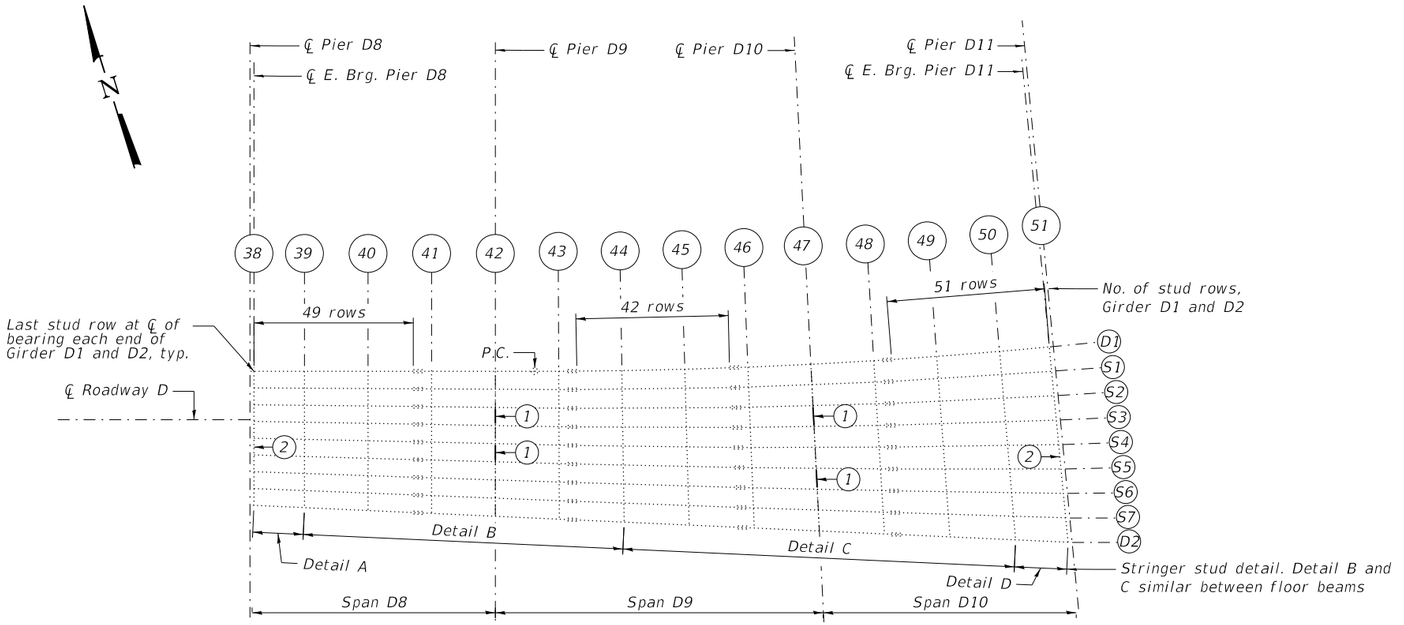


(1) *Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket*

(2) *Provide 38 rows of studs at FB 38 and 50 rows at FB 51. See Sheet S-142 for detail.*

PLAN (SPANS D8 - D10)

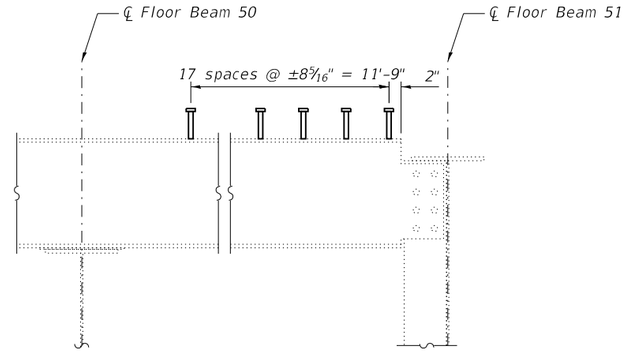
Notes:

See Sheet S-138 for headed stud details.

See Sheet S-139 for typical details at Girder field splices.

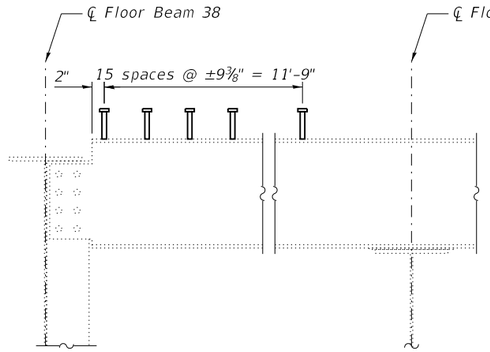
The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the Girder between the field splices or between the center of bearing and the field splice for end spans.

Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.



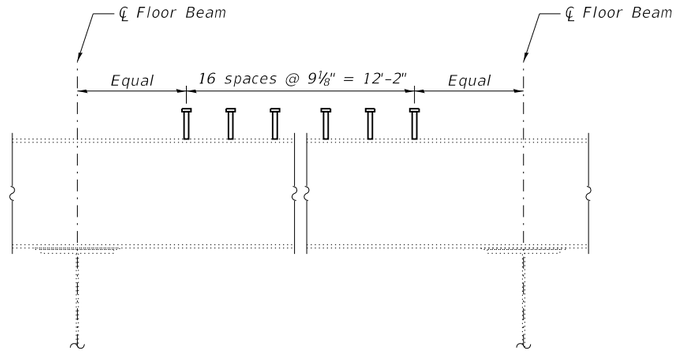
DETAIL D - STRINGER ELEVATION

Between FB 50 and FB 51



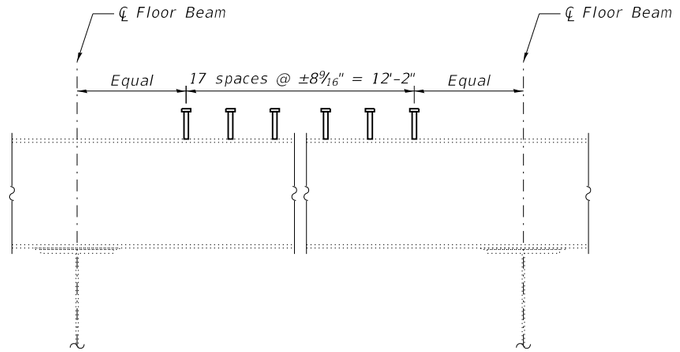
DETAIL A - STRINGER ELEVATION

Between FB 38 and FB 39



DETAIL B - STRINGER ELEVATION

Between FB 39 and FB 44



DETAIL C - STRINGER ELEVATION

Between FB 44 and FB 50

SPANS D8 THRU D10
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	4294

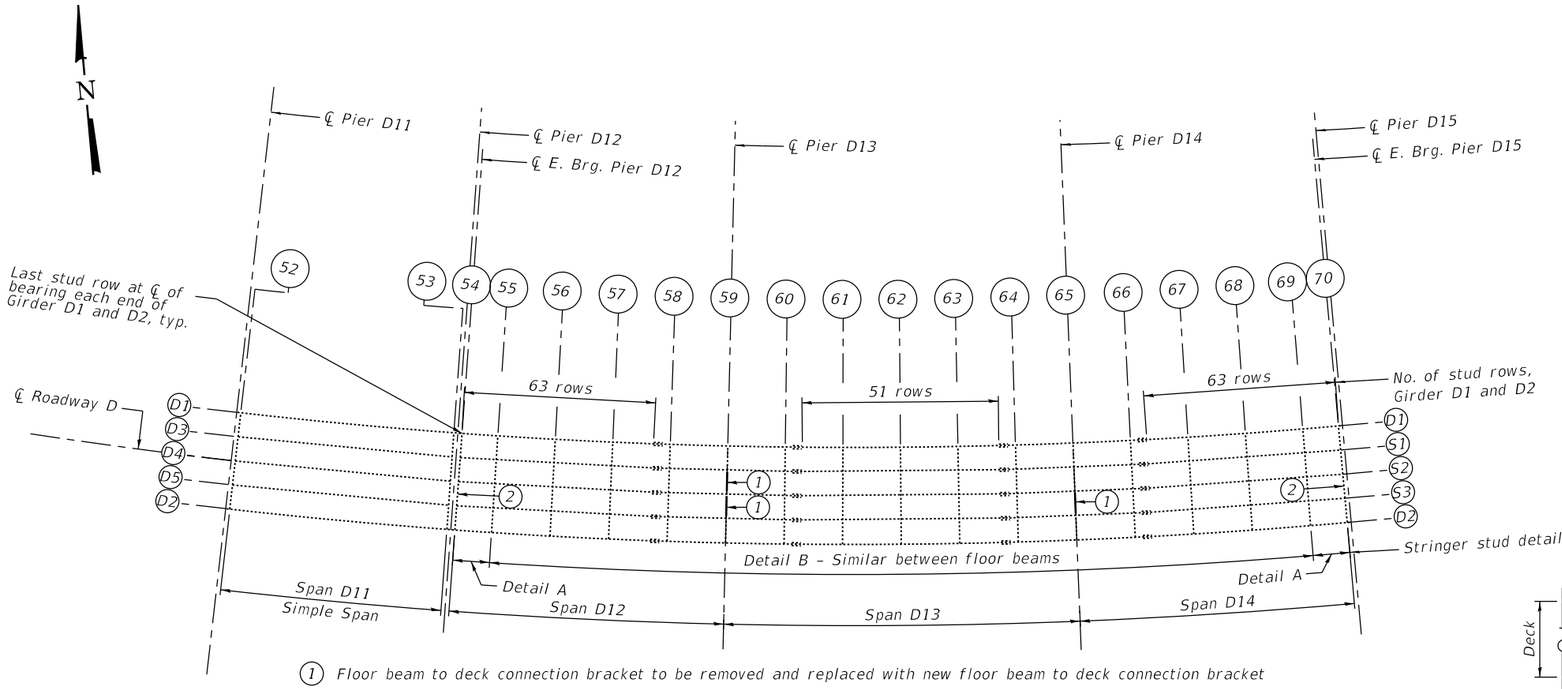
WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
	CHECKED - RW	REVISED -	
PLOT SCALE = 50.0000 '/ In.	DRAWN - LS/TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPANS D8 THRU D10
S.N. 082-0144
SHEET S-140 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	219
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



(1) Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket

(2) Provide 32 rows of studs at FB 54 and FB 70. See Sheet S-142 for detail.

PLAN (SPANS D11 – D14)

Notes:

See Sheet S-138 for headed stud details.

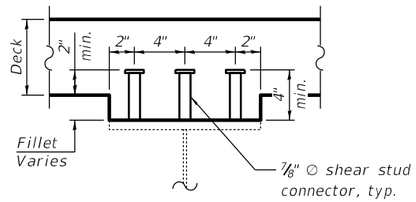
See Sheet S-139 for typical details at Girder field splices.

The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the Girder between the field splices or between the center of bearing and the field splice for end spans.

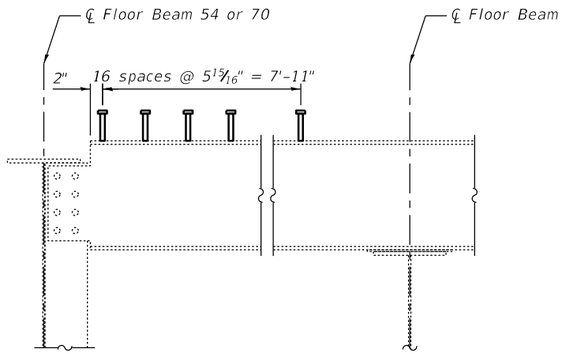
Adjust shear stud spacing as required to avoid large pits or other obstructions on the flange. Maintain at least 1" between the edge of the flange and center of shear stud.

Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.

Stud shear connectors on simple span girders damaged during deck removal shall be replaced or straightened. The cost of these studs is included in cost of concrete structure removal.

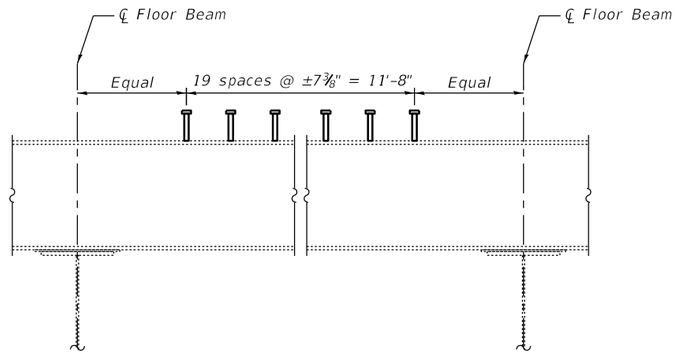


HEADED STUD DETAIL AT SIMPLE SPAN GIRDERS



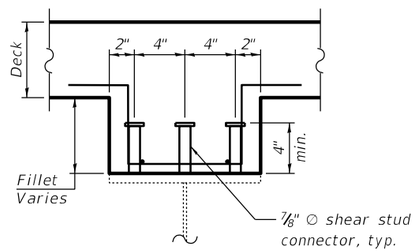
DETAIL A – STRINGER ELEVATION

In end spans



DETAIL B – STRINGER ELEVATION

Between FB 55 and FB 69



HEADED STUD DETAIL AT SIMPLE SPAN GIRDERS

Locations where fillet exceeds 6"

SPAN D11 & SPANS D12 THRU D14 BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	3138

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76B55-WIE (RW)\09 Drawings\Superstructure\Roadway D\082014-76B55-037_Spans D11 thru D14.dgn
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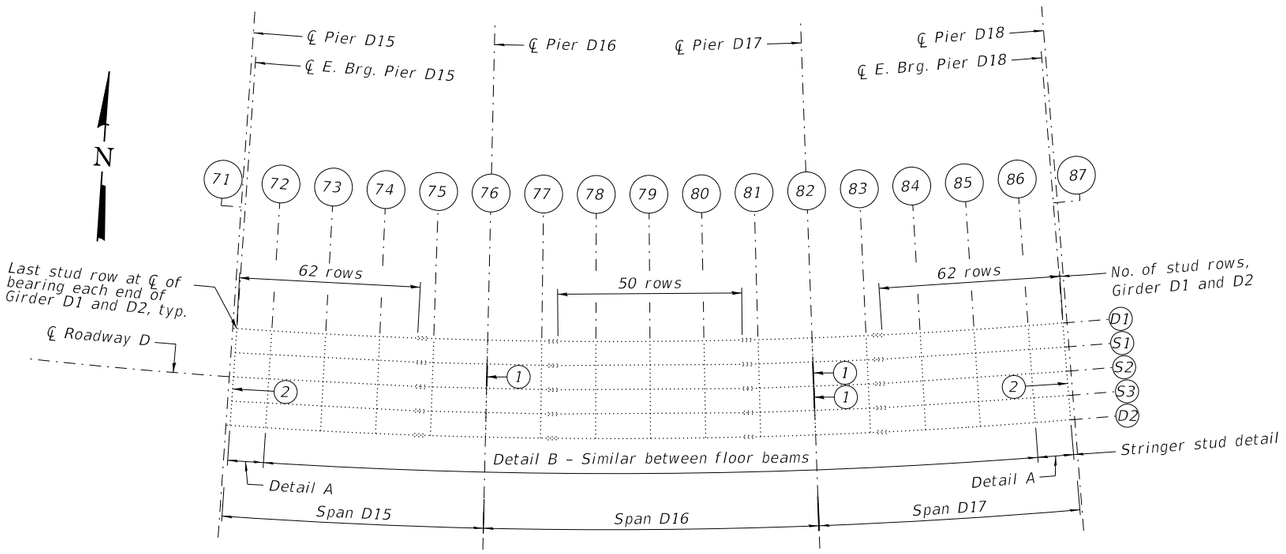
WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
	CHECKED - RW	REVISED -	
PLOT SCALE = 50.0000 '' / In.	DRAWN - LS/TWS	REVISED -	
PLOT DATE = 8/20/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPAN D11 & SPANS D12 THRU D14
S.N. 082-0144
SHEET S-141 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	220
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



(1) Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket

(2) Provide 32 rows of studs at FB 71 and 33 rows at FB 87. See Sheet S-142 for detail.

PLAN (SPANS D15 – D17)

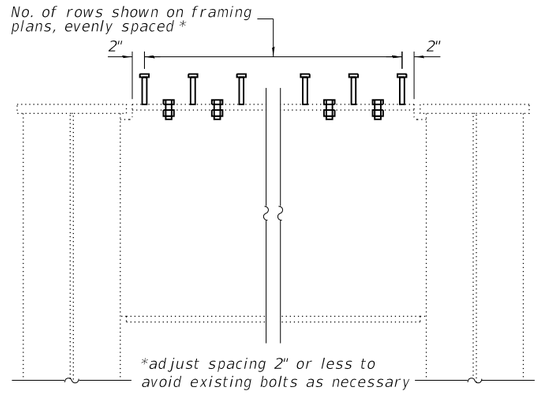
Notes:

See Sheet S-138 for headed stud details.

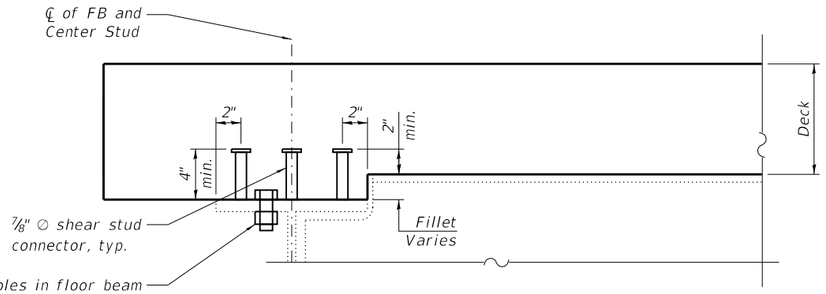
See Sheet S-139 for typical details at Girder field splices.

The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the Girder between the field splices or between the center of bearing and the field splice for end spans.

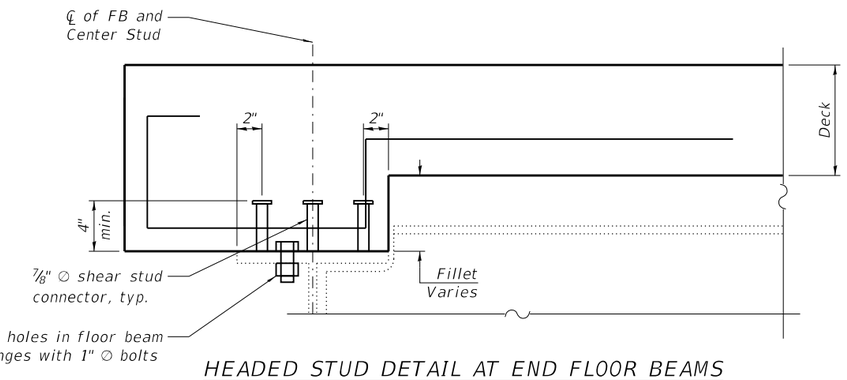
Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.



TYPICAL END FLOOR BEAM ELEVATION

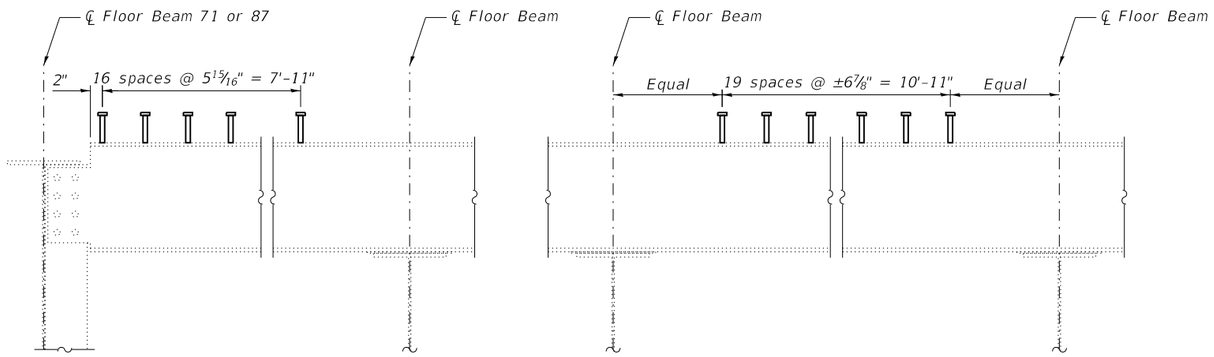


HEADED STUD DETAIL AT END FLOOR BEAMS



HEADED STUD DETAIL AT END FLOOR BEAMS

Locations where fillet exceeds 6"



DETAIL A – STRINGER ELEVATION

In end spans

DETAIL B – STRINGER ELEVATION

Between FB 72 and FB 86

SPANS D15 THRU D17 BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	3123

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330 Pfingsten Road
Northbrook, Illinois 60062
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USER NAME = lsalas	DESIGNED - ARB	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPANS D15 THRU D17
S.N. 082-0144
SHEET S-142 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	221
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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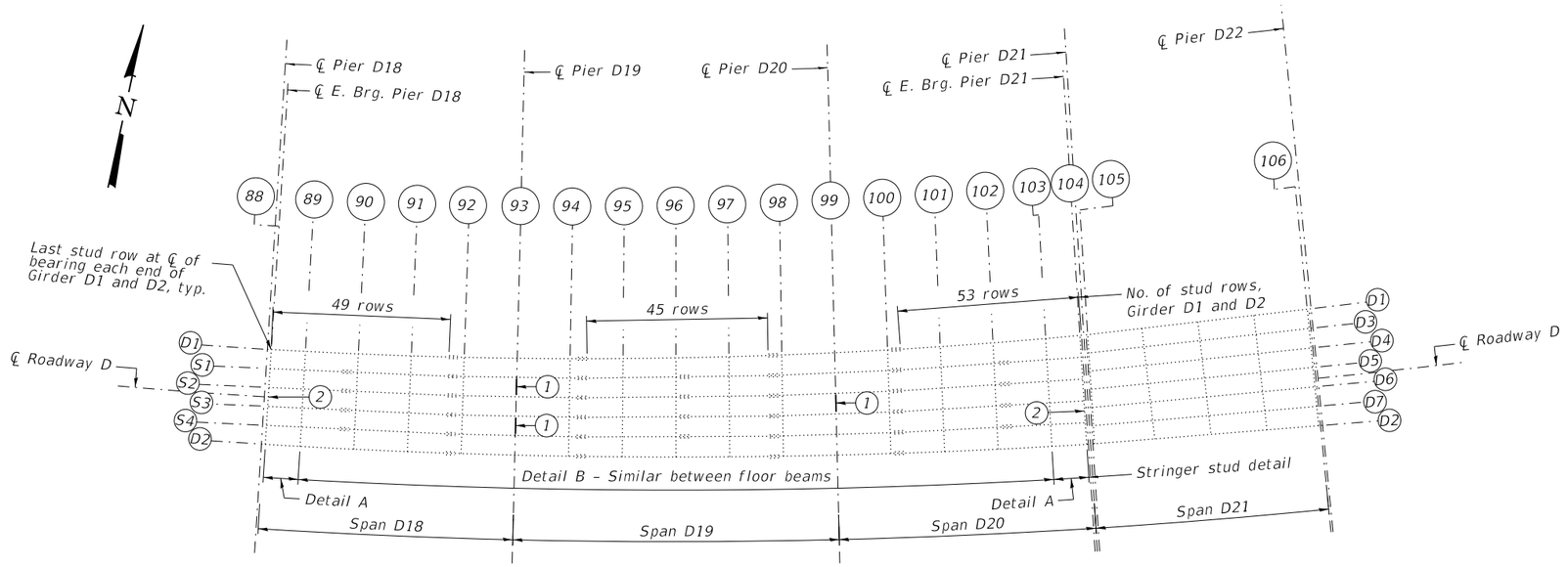
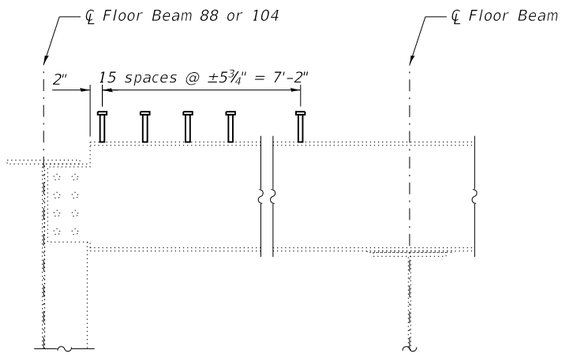


(1) Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket

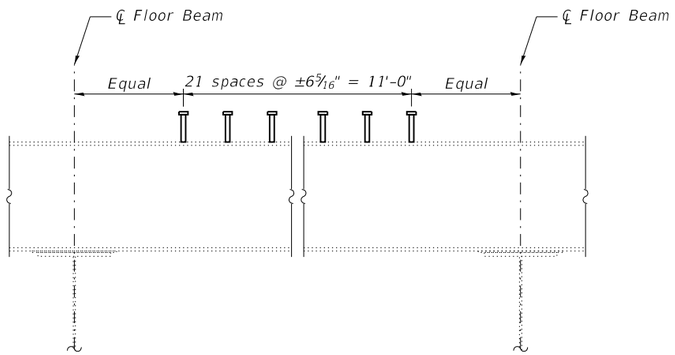
(2) Provide 33 rows of studs at FB 88 and 38 rows at FB 104. See Sheet S-142 for detail.

PLAN (SPANS D18 - D21)



DETAIL A - STRINGER ELEVATION

In end spans



DETAIL B - STRINGER ELEVATION

Between FB 89 and FB 103

Notes:

See Sheet S-138 for headed stud details.

See Sheet S-139 for typical details at Girder field splices.

See Sheet S-141 for headed stud details for simple span Girders with ~12" wide flanges.

The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the Girder between the field splices or between the center of bearing and the field splice for end spans.

Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.

Stud shear connectors on simple span girders damaged during deck removal shall be replaced or straightened. The cost of these studs is included in cost of concrete structure removal.

SPANS D18 THRU D20 & SPAN D21 BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	3815

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76B55-WIE (RW)\09 Drawings\Superstructure\Roadway D\082014 4-76B55-039_Spans D18 thru D21.dgn

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PLOT SCALE = 50±0.0000 '=' In.	DRAWN - LS/TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPANS D18 THRU D20 & SPAN D21
S.N. 082-0144
SHEET S-143 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	222
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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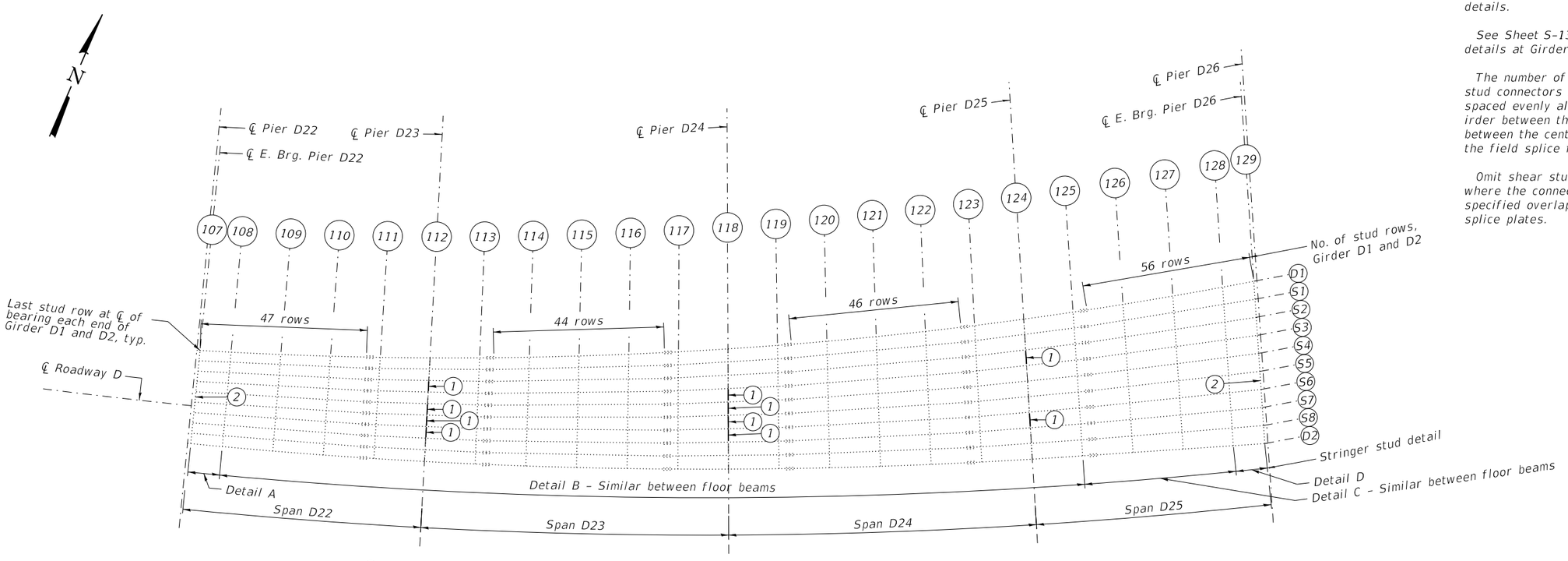
Notes:
See Sheet S-138 for headed stud details.

See Sheet S-139 for typical details at Girder field splices.

The number of rows of shear stud connectors shown shall be spaced evenly along the ℄ of the G irder between the field splices or between the center of bearing and the field splice for end spans.

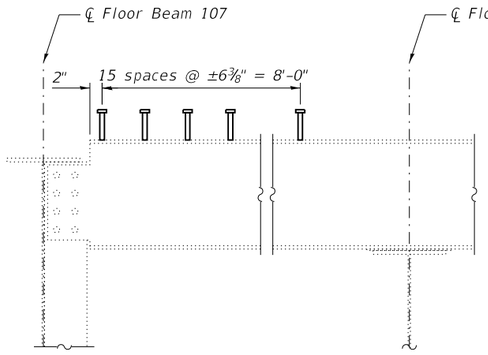
Omit shear stud connectors where the connector ranges specified overlap with stringer splice plates.



(1) Floor beam to deck connection bracket to be removed and replaced with new floor beam to deck connection bracket

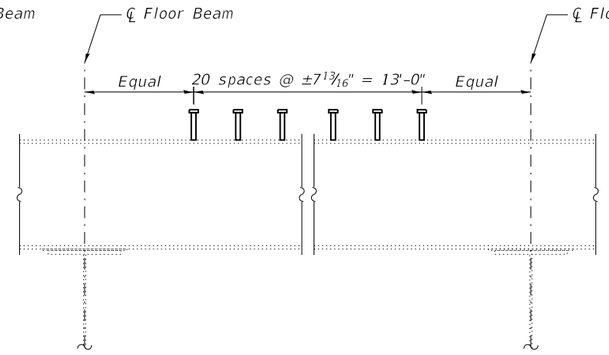
(2) Provide 34 rows of studs at FB 107 and 50 rows at FB 128. See Sheet S-142 for detail.

PLAN (SPANS D22 - D25)



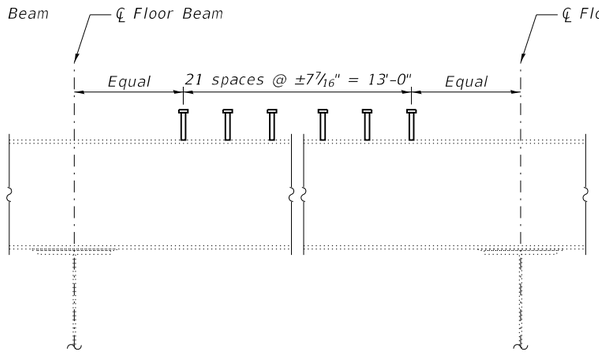
DETAIL A - STRINGER ELEVATION

Between FB 107 and FB 108



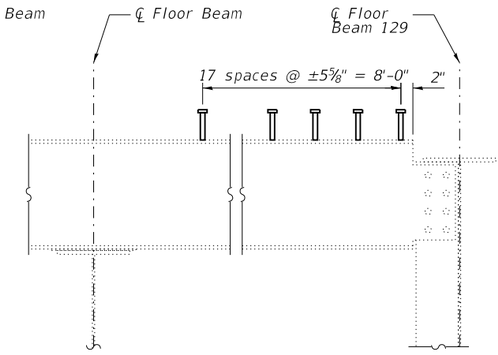
DETAIL B - STRINGER ELEVATION

Between FB 108 and FB 125



DETAIL C - STRINGER ELEVATION

Between FB 125 and FB 128



DETAIL D - STRINGER ELEVATION

Between FB 128 and FB 129

SPANS D22 THRU D25 BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	8722

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PLOT SCALE = 50.0000 '/ In.	DRAWN - LS/TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN SPANS D22 THRU D25
S.N. 082-0144
SHEET S-144 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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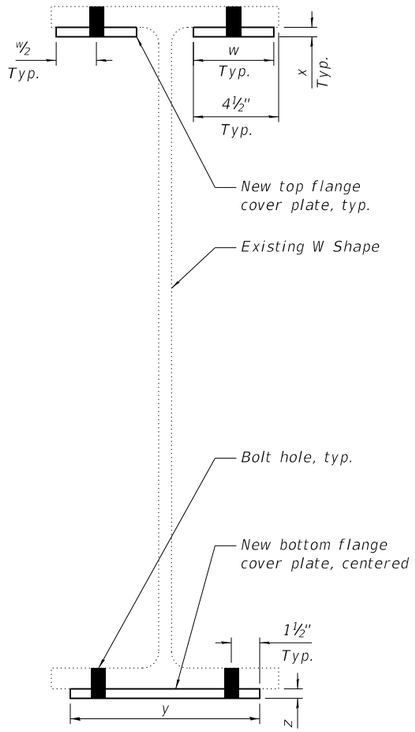
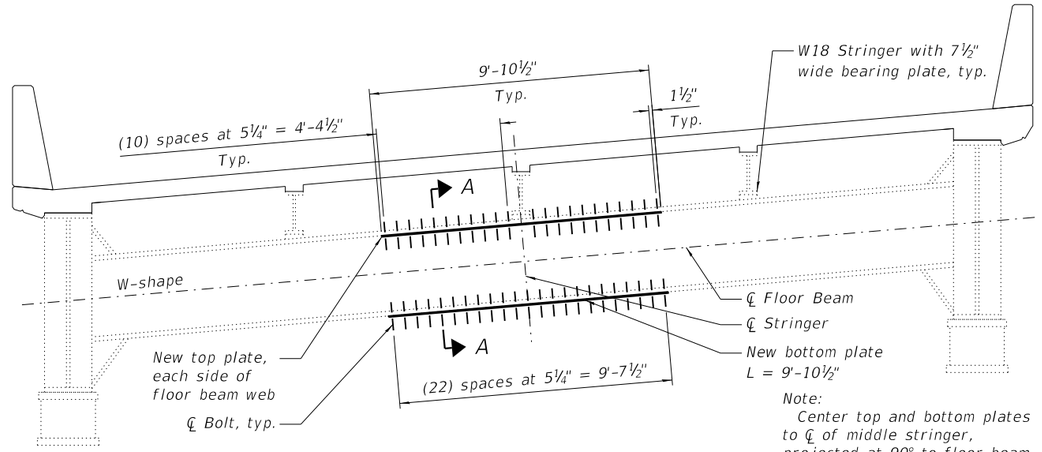
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

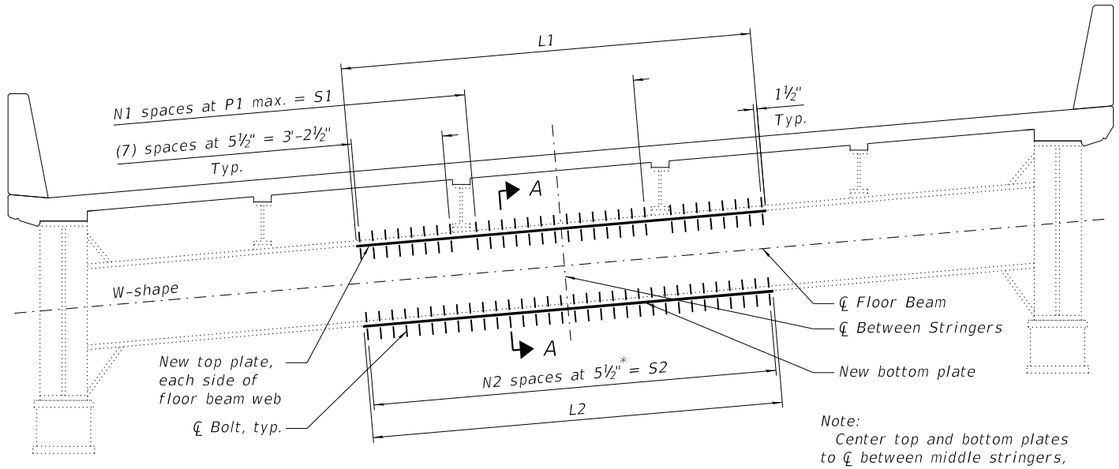


Section A-A



Floor Beam Elevation

Details A and B



Floor Beam Elevation

Details C through Q

Rolled Shape Floor Beam Cover Plate Schedule

Detail ID	FB ID	W Shape	Quantity	L1	N1	P1	S1	L2	N2	S2	w	x	y	z
A	FB 2 - FB 22 FB 55 - FB 69	W36x170	36	-	-	5½"	-	-	-	-	4"	⅜"	10"	⅜"
B	FB 72 - FB 86	W36x160	15	-	-	5½"	-	-	-	-	4½"	⅜"	10"	⅜"
C	FB 89	W36x160	1	13'-11⅞"	13	5½"	5'-6⅜"	14'-0"	30	13'-9"	4½"	⅜"	10"	⅜"
D	FB 90	W36x160	1	14'-0 1/16"	13	6"	5'-6 9/16"	14'-5½"	31	14'-2½"	4¼"	½"	10"	½"
E	FB 91	W36x160	1	14'-0 7/16"	13	6"	5'-6 15/16"	14'-5½"	31	14'-2½"	4¼"	½"	10"	½"
F	FB 92	W36x160	1	14'-0 13/16"	13	6"	5'-7 5/16"	14'-5½"	31	14'-2½"	4¼"	½"	10"	½"
G	FB 93	W36x160	1	14'-1 3/16"	13	6"	5'-7 13/16"	14'-5½"	31	14'-2½"	4¼"	½"	10"	½"
H	FB 94	W36x170	1	14'-1⅞"	13	6"	5'-8⅜"	14'-5½"	31	14'-2½"	4¼"	½"	10"	½"
I	FB 95	W36x170	1	14'-2½"	13	6"	5'-9"	14'-5½"	31	14'-2½"	3¾"	⅝"	11"	½"
J	FB 96	W36x170	1	14'-3 3/16"	13	6"	5'-9 1/16"	14'-5½"	31	14'-2½"	3¾"	⅝"	11"	½"
K	FB 97	W36x170	1	14'-4"	13	6"	5'-10½"	14'-5½"	31	14'-2½"	3¾"	⅝"	11"	½"
L	FB 98	W36x170	1	14'-4 13/16"	13	6"	5'-11 5/16"	14'-5½"	31	14'-2½"	3¾"	⅝"	11"	½"
M	FB 99	W36x182	1	14'-5 3/16"	13	6"	6'-0 5/16"	14'-11"	32	14'-8"	4½"	½"	10"	½"
N	FB 100	W36x182	1	14'-6 13/16"	13	6"	6'-1 5/16"	14'-11"	32	14'-8"	4½"	½"	10"	½"
O	FB 101	W36x182	1	14'-7 15/16"	13	6"	6'-2 7/16"	14'-11"	32	14'-8"	4½"	½"	10"	½"
P	FB 102	W36x194	1	14'-9 1/16"	14	6"	6'-3 9/16"	14'-11"	32	14'-8"	3½"	½"	11"	⅜"
Q	FB 103	W36x194	1	14'-10 5/16"	15	6"	6'-4 3/16"	14'-11"	32	14'-8"	3½"	½"	11"	⅜"

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	22,500

Note:

All bolts shall be ¾" except where match drilling to existing holes. Use 1" Ø bolts in existing top flange holes and 1¼" Ø bolts in exsiting bottom flange holes.

Clean and prepare surface in accordance with the specifications for a Class A faying surface.

Contractor means and methods shall ensure that all work is completed outside of railroad clearance envelope.

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USER NAME = lsalas	DESIGNED - CJS	REVISED -	
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PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FLOOR BEAM STRENGTHENING DETAILS (ROLLED SHAPES 1 OF 2)
S.N. 082-0144
SHEET S-145 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	224
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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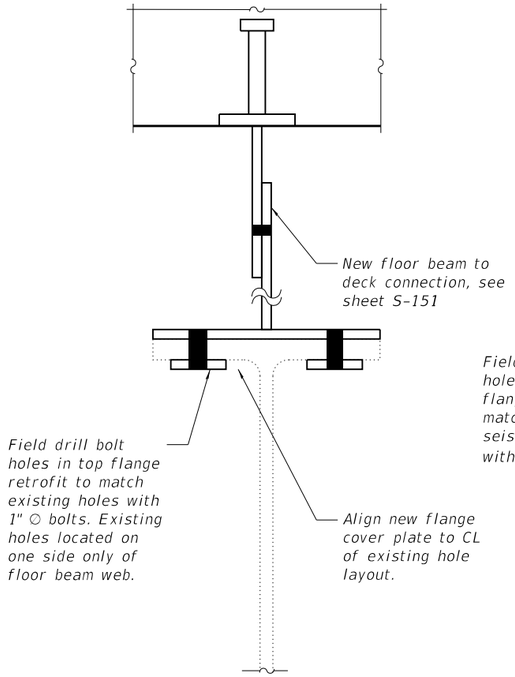
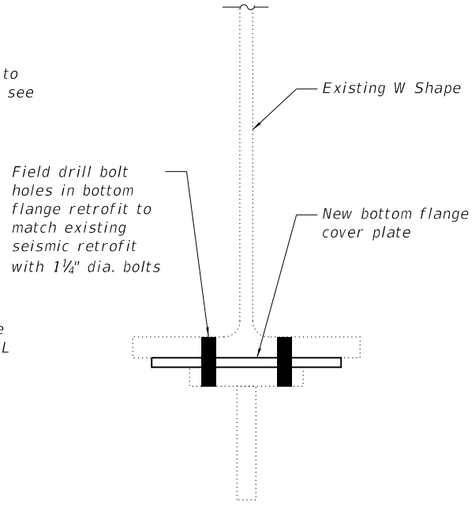
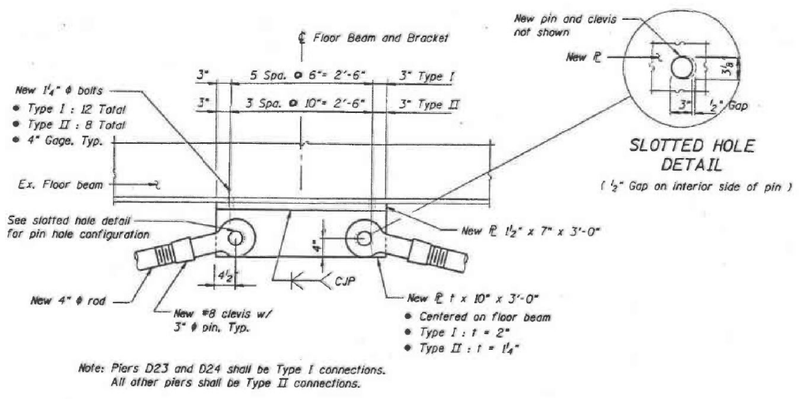


Section B-B



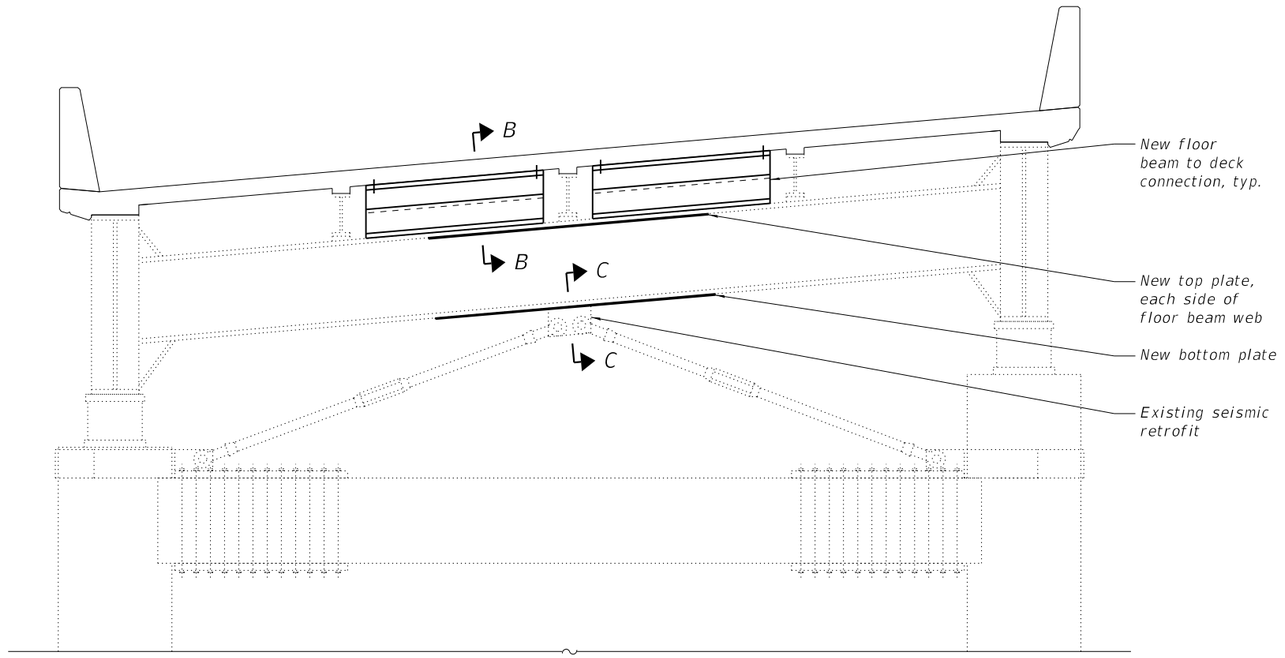
Section C-C



1 / S15 TIE ROD CONNECTION PLATE DETAIL

TIE ROD CONNECTION PLATE DETAIL

For Information Only



Top Flange Installation Notes

Installation of top flange cover plate and floor beam to deck connection will require field adjustment of hole locations to ensure existing holes are utilized to the fullest extent possible. See Sheet S-151 for suggested installation procedure.

See Framing Plans for location of new floor beam to deck connection brackets.

Bottom Flange Installation Notes

Installation of bottom flange cover plate at locations where seismic retrofit exists will require field adjustment of hole locations to ensure existing holes are utilized.

Seismic retrofits are present at Floor Beams 6, 59, and 82.

Suggested procedure:

1. Disassemble existing seismic retrofit and detach from bottom flange.
2. Position new bottom flange plate (or template) per Sheet S-145, and mark existing hole locations for 1½" ∅ bolts.
3. Temporarily re-install seismic retrofit assembly and locate first row of ¾" bolts at 1½" from the end of the seismic retrofit plate.
4. Layout remainder of bolt holes maintaining a maximum spacing of 5½" and edge distances of 1½"
5. Drill holes to required diameters.
6. Remove all cutting lubricants and burrs and prepare surfaces in accordance with the specifications for a Class A faying surface.
7. Install cover plate and re-install seismic retrofit.
8. Adjust turnbuckle to provide required ½" gap per original detail 1/S15 shown on this sheet.

Floor Beam Elevation Showing Existing Seismic Retrofits

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
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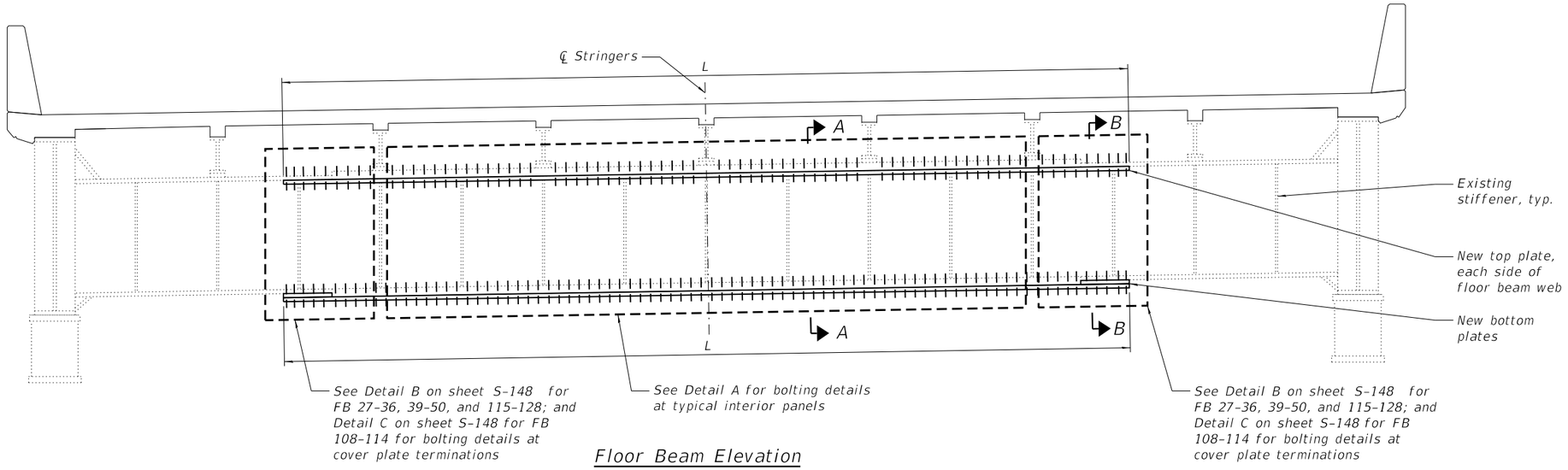
USER NAME = lsalas	DESIGNED - CJS	REVISED -	
	CHECKED - ARB	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

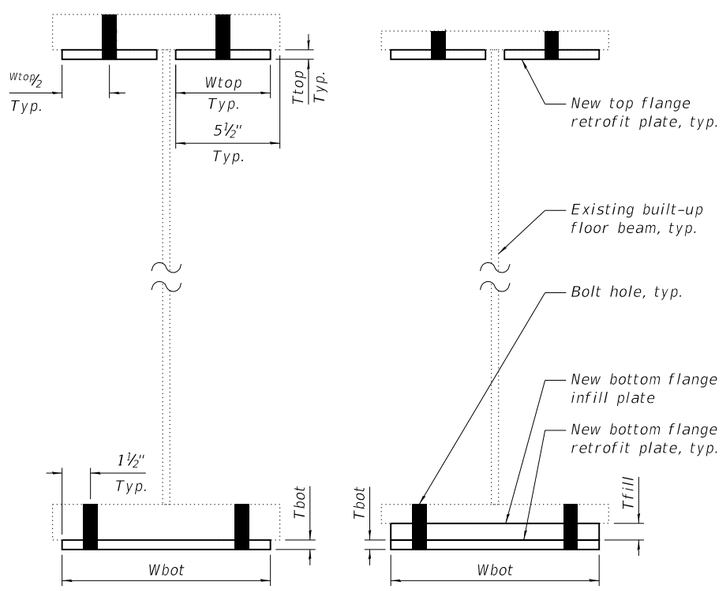
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FLOOR BEAM STRENGTHENING DETAILS (ROLLED SHAPES 2 OF 2)
S.N. 082-0144
SHEET S-146 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	225
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

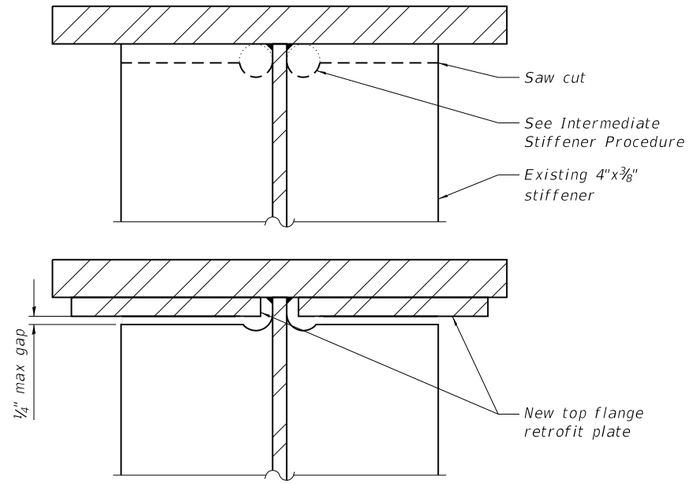


Floor Beam Elevation



Section A-A

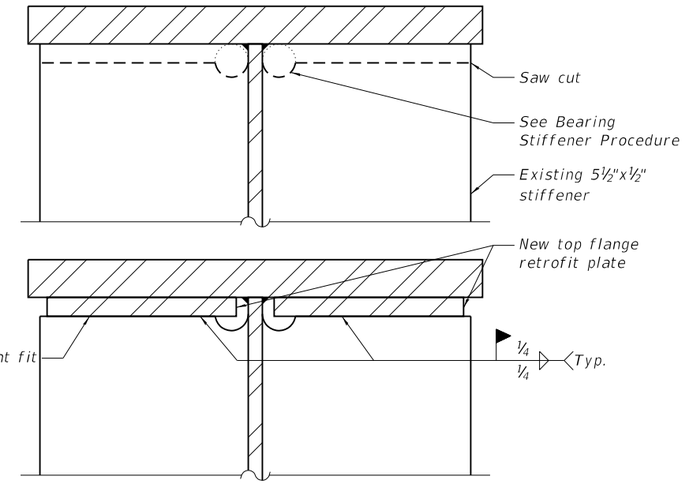
Section B-B



Trimming of Intermediate Stiffeners

Intermediate Stiffener Procedure:

1. *Core a hole tight against the girder web and flange. Do not notch or gouge web or flange plates. See below for hole diameters:*
   a. *⅞" diameter for FB 27-36, FB 39-47, & FB 108-122*
   b. *1½" diameter for FB 48-50 & FB 123-128*
2. *Saw cut horizontal cut stiffener horizontally, leaving a gap for top flange retrofit plate.*
3. *Remove any remaining stiffener remnants near web-to-flange weld. Flange and web plate surface shall have a Roughness Average (RA) of 250 or less.*
4. *Install top flange retrofit plates.*



Trimming of Bearing Stiffeners

Bearing Stiffener Procedure:

1. *Perform Intermediate Stiffener Procedure.*
2. *Place ¼" fillet welds between retrofit plate and bearing stiffener. See field welding notes.*

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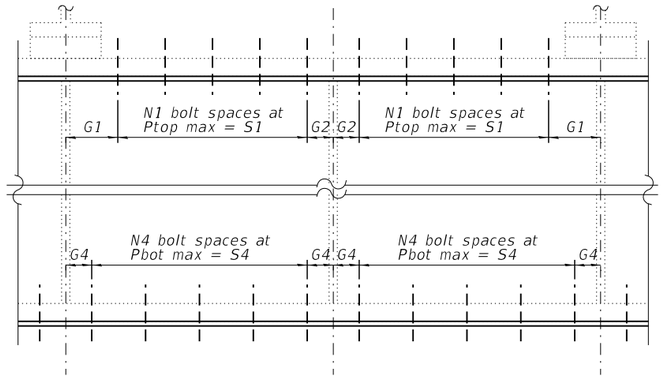
USER NAME = lsalas	DESIGNED - CJS	REVISED -	
	CHECKED - ARB	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -	
PLOT DATE = 8/7/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

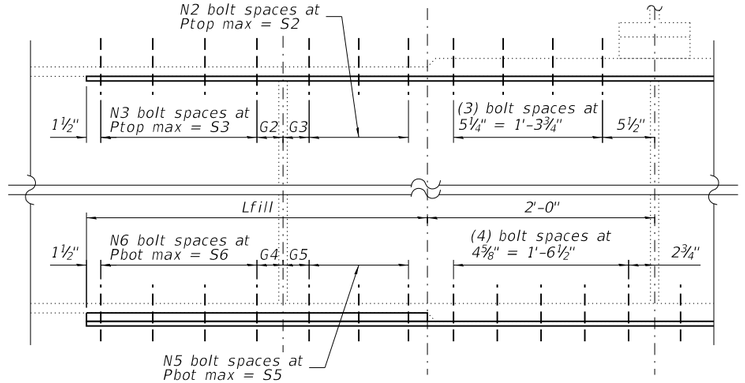
FLOOR BEAM STRENGTHENING DETAILS (BUILT-UP 1 OF 3)
S.N. 082-0144
SHEET S-147 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	226
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



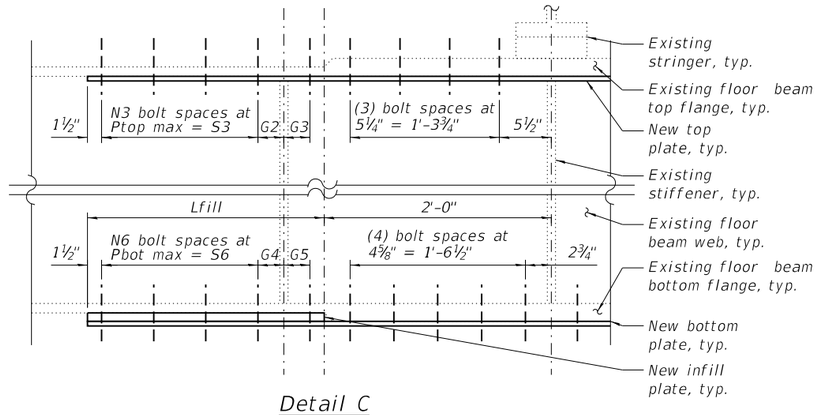
Detail A

Typical interior panel



Detail B

Cover plate termination for FB 27-36, 39-50, & 115-128



Detail C

Cover plate termination for FB 108-114

Built-up Floor Beam Top Flange Cover Plate Schedule

FB ID	L	Wtop	Ttop	○bolt	G1	G2	G3	Ptop	N1	S1	N2	S2	N3	S3
FB 27	19'-7"	3½"	⅜"	¾"	5⅜"	2¾"	2¾"	5½"	5	2'-2⅝"	2	6½"	2	9"
FB 28	19'-10¾"	3½"	⅜"	¾"	5⅜"	2¾"	2¾"	5½"	6	2'-3⁹/₁₆"	2	7⁷/₁₆"	2	8¹/₁₆"
FB 29	20'-2⅝"	3½"	⅜"	¾"	5⅜"	2¾"	2¾"	5½"	6	2'-4⁹/₁₆"	2	8⁷/₁₆"	2	7⅛"
FB 30	20'-6⅜"	3½"	⅜"	¾"	5⅜"	2¾"	2¾"	5½"	6	2'-5½"	2	9⅜"	2	6³/₁₆"
FB 31	20'-10¼"	3½"	⅜"	¾"	5⅜"	2¾"	2¾"	5½"	6	2'-6⁷/₁₆"	2	10⁵/₁₆"	1	5³/₁₆"
FB 32	21'-2⅛"	3½"	⅜"	¾"	5⅜"	2¾"	2¾"	5½"	6	2'-7¹/₁₆"	3	11⅞"	1	4¹/₁₆"
FB 33	22'-11⅞"	5"	½"	¾"	5⅜"	3"	3"	6"	6	2'-8⅛"	2	1'-0"	3	1'-0"
FB 34	23'-3¾"	5"	½"	¾"	5⅜"	3"	3"	6"	6	2'-9¹/₁₆"	3	1'-0¹⁵/₁₆"	2	11¹/₁₆"
FB 35	23'-7½"	5"	½"	¾"	5⅜"	3"	3"	6"	6	2'-10"	3	1'-1⅞"	2	10⅛"
FB 36	23'-11⅜"	5"	½"	¾"	5⅜"	3"	3"	6"	6	2'-11"	3	1'-2⅞"	2	9³/₁₆"
FB 39	32'-0½"	5½"	⅜"	¾"	5½"	2¾"	2¼"	5½"	5	2'-1⁹/₁₆"	2	6¹/₁₆"	4	1'-7"
FB 40	32'-6"	5½"	⅜"	¾"	5½"	2¾"	2¾"	5½"	5	2'-2¼"	2	6¼"	4	1'-6⁵/₁₆"
FB 41	33'-0"	5½"	⅜"	¾"	5½"	2¾"	2¾"	5½"	5	2'-3"	2	7"	4	1'-5⁹/₁₆"
FB 42	33'-5¾"	4½"	½"	¾"	5½"	3"	3"	6"	5	2'-3⁷/₁₆"	2	7⁷/₁₆"	3	1'-4⅞"
FB 43	33'-11½"	4½"	½"	¾"	5½"	3"	3"	6"	5	2'-4³/₁₆"	2	8³/₁₆"	3	1'-3⅞"
FB 44	34'-7¾"	4½"	⅝"	¾"	5½"	3¼"	3¼"	6½"	5	2'-4¹⁵/₁₆"	2	8¹⁵/₁₆"	3	1'-2⅝"
FB 45	35'-4¼"	4½"	⅝"	¾"	5½"	3¼"	3¼"	6½"	5	2'-6"	2	10"	3	1'-1⁹/₁₆"
FB 46	36'-7¾"	5"	⅞"	⅞"	5½"	3½"	3½"	7"	5	2'-6¹⁵/₁₆"	2	10¹⁵/₁₆"	3	1'-3⅛"
FB 47	37'-8¼"	5"	⅞"	⅞"	5½"	3½"	3½"	7"	5	2'-8½"	2	1'-0½"	2	1'-1⁹/₁₆"
FB 48	38'-8¾"	5¼"	1¼"	⅞"	5½"	3½"	3½"	7"	5	2'-10¹/₁₆"	3	1'-2¹/₁₆"	2	1'-0"
FB 49	40'-0"	5¼"	1¼"	⅞"	5½"	3½"	3½"	7"	6	3'-0"	3	1'-4"	2	10¹/₁₆"
FB 50	41'-4¼"	5¼"	1¼"	⅞"	5½"	3½"	3½"	7"	6	3'-2"	3	1'-6"	2	8¹/₁₆"
FB 108	30'-4¹¹/₁₆"	4½"	⅜"	¾"	5½"	2¾"	1⅜"	5½"	4	1'-6⅜"	-	-	4	1'-5"
FB 109	30'-10⅜"	4½"	⅜"	¾"	5½"	2¾"	1¹⁵/₁₆"	5½"	4	1'-7³/₁₆"	-	-	3	1'-4⁷/₁₆"
FB 110	31'-4⅞"	5¼"	⅜"	¾"	5½"	2¾"	2⁹/₁₆"	5½"	4	1'-7¹³/₁₆"	-	-	3	1'-3¹³/₁₆"
FB 111	31'-11⅛"	5¼"	⅜"	¾"	5½"	2¾"	2¾"	5½"	4	1'-8⁷/₁₆"	-	-	3	1'-3³/₁₆"
FB 112	32'-6"	5"	½"	¾"	5½"	3"	3"	6"	4	1'-8⅛"	-	-	3	1'-2¼"
FB 113	33'-0⅞"	5"	½"	¾"	5½"	3"	3"	6"	4	1'-9⁹/₁₆"	-	-	3	1'-1⁹/₁₆"
FB 114	33'-8⅜"	5¼"	⅜"	¾"	5½"	3¼"	3¼"	6½"	4	1'-10¹/₁₆"	-	-	2	1'-0⁹/₁₆"
FB 115	34'-3⅛"	5¼"	⅜"	¾"	5½"	3¼"	3¹¹/₁₆"	6½"	4	1'-10¹³/₁₆"	1	3"	2	11¹³/₁₆"
FB 116	35'-0"	5½"	¾"	⅞"	5½"	3½"	3½"	7"	4	1'-11⅞"	1	3⅜"	2	10¾"
FB 117	35'-8⅛"	5½"	¾"	⅞"	5½"	3½"	3½"	7"	4	2'-0³/₁₆"	1	4⅜"	2	9⅞"
FB 118	37'-10⁹/₁₆"	4¾"	¾"	⅞"	5½"	3½"	3½"	7"	4	2'-1¹/₁₆"	1	5¼"	3	1'-6¹/₁₆"
FB 119	38'-7⁵/₁₆"	4¾"	¾"	⅞"	5½"	3½"	3½"	7"	4	2'-1¹³/₁₆"	1	5¹³/₁₆"	3	1'-5³/₁₆"
FB 120	39'-10⅜"	5½"	¾"	⅞"	5½"	3½"	3½"	7"	4	2'-2¹³/₁₆"	1	6¹³/₁₆"	3	1'-7⁵/₁₆"
FB 121	40'-7⁷/₁₆"	5½"	¾"	⅞"	5½"	3½"	3½"	7"	4	2'-3¾"	2	7¾"	3	1'-6⅜"
FB 122	41'-5⅛"	5½"	¾"	⅞"	5½"	3½"	3½"	7"	5	2'-4¹/₁₆"	2	8¹/₁₆"	3	1'-5¹/₁₆"
FB 123	42'-9⅛"	5½"	1"	⅞"	5½"	3½"	3½"	7"	5	2'-5¹¹/₁₆"	2	9¹¹/₁₆"	4	1'-7¹/₁₆"
FB 124	43'-7⁷/₁₆"	5½"	1"	⅞"	5½"	3½"	3½"	7"	5	2'-6¾"	2	10¾"	4	1'-6⅜"
FB 125	44'-0¹/₁₆"	5½"	1"	⅞"	5½"	3½"	3½"	7"	5	2'-7¹³/₁₆"	2	11¹³/₁₆"	3	1'-2⁵/₁₆"
FB 126	44'-6⅞"	5¼"	1⅛"	⅞"	5½"	3½"	3½"	7"	5	2'-9¹/₁₆"	2	1'-1¹/₁₆"	2	10"
FB 127	45'-8⁵/₁₆"	5½"	1¼"	⅞"	5½"	3½"	3½"	7"	5	2'-10⁷/₁₆"	3	1'-2¹/₁₆"	2	8¹¹/₁₆"
FB 128	46'-11¹³/₁₆"	5½"	1¼"	⅞"	5½"	3½"	3½"	7"	6	3'-0"	3	1'-4"	2	7⅛"

Built-up Floor Beam Bottom Flange Cover Plate Schedule

FB ID	L	Lfill	Wbot	Tbot	Tfill	○bolt	G4	G5	Pbot	N4	S4	N5	S5	N6	S6
FB 27	19'-7"	2'-0"	9"	⅜"	¼"	¾"	2¾"	2¾"	5½"	6	2'-5¼"	2	6½"	2	9"
FB 28	19'-10¾"	2'-0"	9"	⅜"	¼"	¾"	2¾"	2¾"	5½"	6	2'-6³/₁₆"	2	7⁷/₁₆"	2	8¹/₁₆"
FB 29	20'-2⅝"	2'-0"	9"	⅜"	¼"	¾"	2¾"	2¾"	5½"	6	2'-7³/₁₆"	2	8¹/₁₆"	2	7⅛"
FB 30	20'-6⅜"	2'-0"	9"	⅜"	¼"	¾"	2¾"	2¾"	5½"	6	2'-8⅛"	2	9⅜"	2	6³/₁₆"
FB 31	20'-10¼"	2'-0"	9"	⅜"	¼"	¾"	2¾"	2¾"	5½"	7	2'-9¹/₁₆"	2	10⁵/₁₆"	1	5³/₁₆"
FB 32	21'-2⅛"	2'-0"	9"	⅜"	½"	¾"	2¾"	2¾"	5½"	7	2'-10¹/₁₆"	3	11³/₁₆"	1	4¹/₁₆"
FB 33	22'-11⅞"	2'-9"	10"	½"	¼"	¾"	3"	3"	6"	6	2'-10½"	2	1'-0"	3	1'-0"
FB 34	23'-3¾"	2'-9"	10"	½"	¼"	¾"	3"	3"	6"	6	2'-11⁷/₁₆"	3	1'-0¹⁵/₁₆"	2	11¹/₁₆"
FB 35	23'-7½"	2'-9"	10"	½"	¼"	¾"	3"	3"	6"	7	3'-0⅜"	3	1'-1⅞"	2	10⅛"
FB 36	23'-11⅜"	2'-9"	10"	½"	¼"	¾"	3"	3"	6"	7	3'-1⅜"	3	1'-2⅞"	2	9³/₁₆"
FB 39	32'-0½"	2'-9"	1'-0"	⅜"	⅝"	¾"	2¾"	2¼"	5½"	6	2'-4⁵/₁₆"	2	6¹/₁₆"	4	1'-7"
FB 40	32'-6"	2'-9"	1'-0"	⅜"	⅝"	¾"	2¾"	2¾"	5½"	6	2'-5"	2	6¼"	4	1'-6⁵/₁₆"
FB 41	33'-0"	2'-9"	1'-0"	⅜"	⅝"	¾"	2¾"	2¾"	5½"	6	2'-5¾"	2	7"	4	1'-5⁹/₁₆"
FB 42	33'-5¾"	2'-9"	1'-0"	⅜"	⅝"	¾"	2¾"	2¾"	5½"	6	2'-6⁷/₁₆"	2	7¹¹/₁₆"	3	1'-4⅛"
FB 43	33'-11½"	2'-9"	1'-0"	⅜"	⅝"	¾"	2¾"	2¾"	5½"	6	2'-7³/₁₆"	2	8¹/₁₆"	3	1'-4⅛"
FB 44	34'-7¾"	2'-9"	1'-0"	½"	⅝"	¾"	3"	3"	6"	6	2'-7¹¹/₁₆"	2	9³/₁₆"	3	1'-2⅞"
FB 45	35'-4¼"	2'-9"	1'-0"	½"	⅝"	¾"	3"	3"	6"	6	2'-8¾"	2	10¼"	3	1'-1⁹/₁₆"
FB 46	36'-7¾"	3'-0"	1'-0"	¾"	⅝"	⅞"	3½"	3½"	7"	5	2'-8¹⁵/₁₆"	2	10¹⁵/₁₆"	3	1'-3⅛"
FB 47	37'-8¼"	3'-0"	1'-0"	¾"	⅝"	⅞"	3½"	3½"	7"	5	2'-10½"	2	1'-0½"	2	1'-1⁹/₁₆"
FB 48	38'-8¾"	3'-0"	1'-0"	1⅛"	⅝"	⅞"	3½"	3½"	7"	6	3'-0⅛"	3	1'-2¹/₁₆"	2	1'-0"
FB 49	40'-0"	3'-0"	1'-0"	1⅛"	⅝"	⅞"	3½"	3½"	7"	6	3'-2"	3	1'-4"	2	10¹/₁₆"
FB 50	41'-4¼"	3'-0"	1'-0"	1⅛"	⅝"	⅞"	3½"	3½"	7"	6	3'-4"	3	1'-6	2	8¹/₁₆"
FB 108	30'-4¹¹/₁₆"	2'-0"	10"	⅜"	¾"	¾"	2¾"	1⅜"	5½"	4	1'-9⅜"	-	-	4	1'-5"
FB 109	30'-10⅜"	2'-0"	10"	⅜"	¾"	¾"	2¾"	1¹⁵/₁₆"	5½"	4	1'-9¹⁵/₁₆"	-	-	3	1'-4⁷/₁₆"
FB 110	31'-4⅞"	2'-0"	11"	⅜"	¾"	¾"	2¾"	2⁹/₁₆"	5½"	5	1'-10⁹/₁₆"	-	-	3	1'-3¹³/₁₆"
FB 111	31'-11⅛"	2'-0"	11"	⅜"	¾"	¾"	2¾"	2¾"	5½"	5	1'-11³/₁₆"	-	-	3	1'-3³/₁₆"
FB 112	32'-6"	2'-0"	11"	½"	¾"	¾"	3"	3"	6"	4	1'-11⅜"	-	-	3	1'-2¼"
FB 113	33'-0⅞"	2'-0"	11"	½"	¾"	¾"	3"	3"	6"	5	2'-0¹/₁₆"	-	-	3	1'-1⁹/₁₆"
FB 114	33'-8⅜"	2'-0"	11"	⅝"	¾"	¾"	3¼"	3¼"	6½"	4	2'-0⁹/₁₆"	-	-	2	1'-0⁹/₁₆"
FB 115	34'-3⅛"	2'-0"	11"	⅝"	¾"	¾"	3¼"	3¹¹/₁₆"	6½"	4	2'-1¹/₁₆"	1	3"	2	11¹³/₁₆"
FB 116	35'-0"	2'-0"	1'-0"	¾"	¾"	⅞"	3½"	3½"	7"	4	2'-1⅞"	1	3⅜"	2	10¾"
FB 117	35'-8⅛"	2'-0"	1'-0"	¾"	¾"	⅞"	3½"	3½"	7"	4	2'-2³/₁₆"	1	4³/₁₆"	2	9⅞"
FB 118	37'-10⁹/₁₆"	2'-9"	1'-0"	⅝"	¾"	⅞"	3¼"	3¼"	6½"	5	2'-3⁹/₁₆"	1	5⁹/₁₆"	3	1'-6⁵/₁₆"
FB 119	38'-7⁵/₁₆"	2'-9"	1'-0"	⅝"	¾"	⅞"	3¼"	3¼"	6½"	5	2'-4¹/₁₆"	1	6¹/₁₆"	3	1'-5¹/₁₆"
FB 120	39'-10⅜"	3'-0"	1'-0"	¾"	⅞"	⅞"	3½"	3½"	7"	5	2'-4¹³/₁₆"	1	6¹³/₁₆"	3	1'-7⁵/₁₆"
FB 121	40'-7⁷/₁₆"	3'-0"	1'-0"	¾"	⅞"	⅞"	3½"	3½"	7"	5	2'-5¾"	2	7¾"	3	1'-6⅜"
FB 122	41'-5⅛"	3'-0"	1'-0"	¾"	⅞"	⅞"	3½"	3½"	7"	5	2'-6¹/₁₆"	2	8¹/₁₆"	3	1'-5¹/₁₆"
FB 123	42'-9⅛"	3'-3"	11"	1"	⅞"	⅞"	3½"	3½"	7"	5	2'-7¹¹/₁₆"	2	9¹¹/₁₆"	4	1'-7¹/₁₆"
FB 124	43'-7⁷/₁₆"	3'-3"	11"	1"	⅞"	⅞"	3½"	3½"	7"	5	2'-8¾"	2	10¾"	4	1'-6⅜"
FB 125	44'-0¹/₁₆"	3'-0"	1'-0"	1"	⅞"	⅞"	3½"	3½"	7"	5	2'-9¹/₁₆"	2	11¹³/₁₆"	3	1'-2⁵/₁₆"
FB 126	44'-6⅞"	2'-9"	1'-0"	1"	⅞"	⅞"	3½"	3½"	7"	6	2'-11¹/₁₆"	2	1'-1¹/₁₆"	2	10"
FB 127	45'-8⁵/₁₆"	2'-9"	1'-0"	1¼"	⅞"	⅞"	3½"	3½"	7"	6	3'-0⁷/₁₆"	3	1'-2¹/₁₆"	2	8¹¹/₁₆"
FB 128	46'-11¹³/₁₆"	2'-9"	1'-0"	1¼"	⅞"	⅞"	3½"	3½"	7"	6	3'-2"	3	1'-4"	2	7⅛"

Note:

All bolts shall be as noted in the tables except where match drilling to existing holes. Use 1" bolts in existing top flange holes and 1¼" Ø bolts in existing bottom flange holes.

Clean and prepare surface in accordance with the specifications for a Class A faying surface.

Contractor means and methods shall ensure that all work is completed outside of railroad clearance envelope.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	88,470

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - CJS	REVISED -		
	CHECKED - ARB	REVISED -		
PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -		
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FLOOR BEAM STRENGTHENING DETAILS (BUILT-UP 2 OF 3)
S.N. 082-0144
SHEET S-148 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	227
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
FILE NAME: P:\2014\20144.6xxx\20144.6410.N - WO26 PSE FOR CONTRACT 76B55-WIE (RW)\09 Drawings\Superstructure\Roadway D\082014476B55-044_Rdwy_D_Floor Beam Strengthening Details (Special - 2 of 3).dgn
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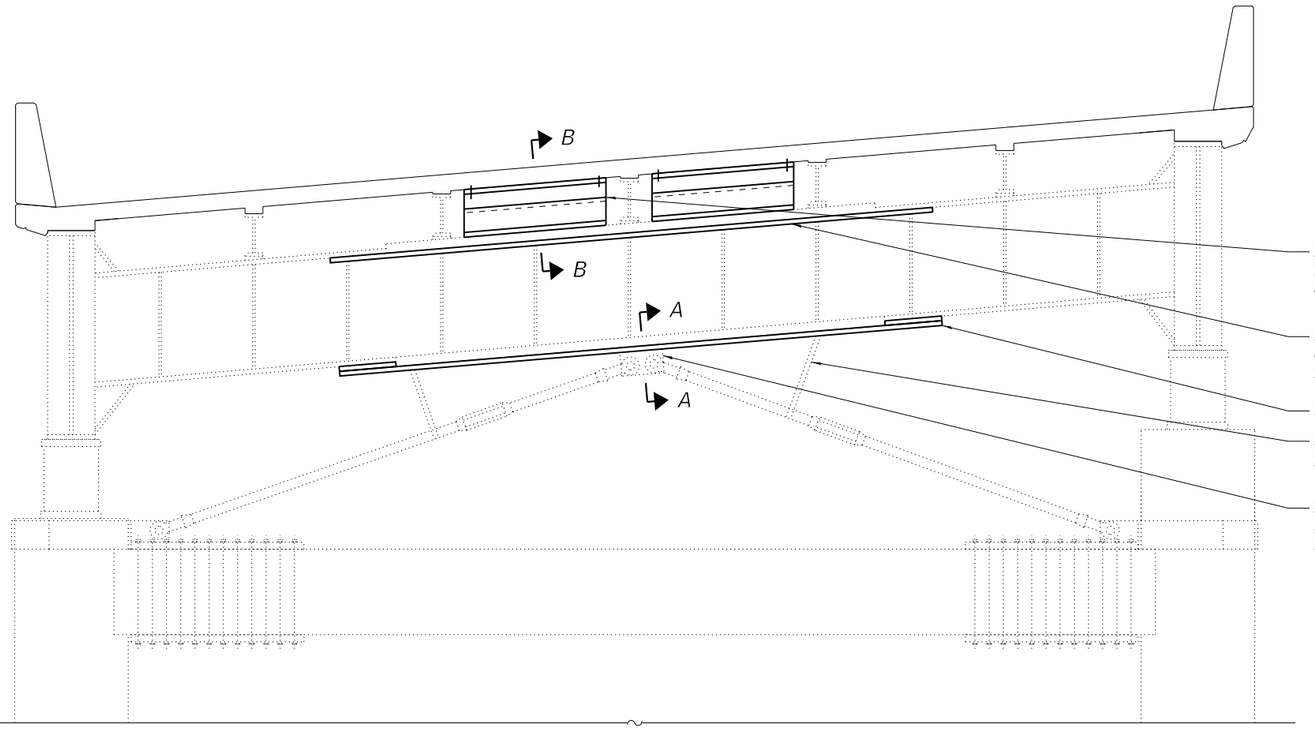


Top Flange Retrofit Installation Procedure

- *For installation procedures, see sheet S-151*

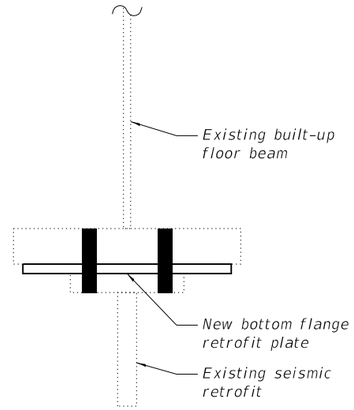
Bottom Flange Retrofit Installation Procedure

1. *Do not shop drill holes in stiffener bays that have existing seismic retrofit components attached to the bottom flange.*
2. *Disassemble existing seismic retrofit and detach it from bottom flange of floor beam.*
3. *Attach new bottom flange plate and field drill to match existing holes for existing seismic retrofit plate.*
4. *Reattach existing seismic retrofit with new 1¼" ○ bolts and adjust rods using existing turnbuckle.*
5. *Field drill and install a bolt through the bottom flange of the floor beam and the strengthening plate 1½" from the ends of the seismic retrofit plate and the support strut plates.*
6. *Place bolts along the remainder of the strengthening plate to maintain a maximum spacing of 5½" and edge distances of G4.*

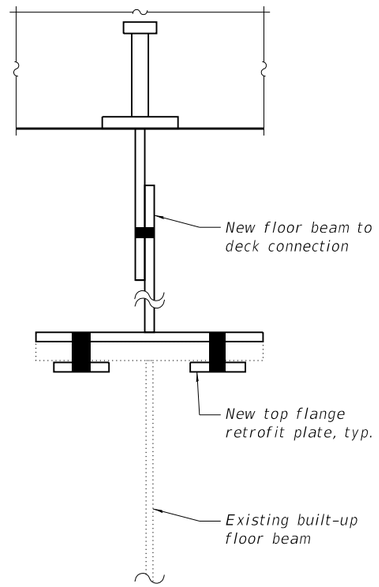
Floor Beam Elevation Showing Existing Seismic Retrofits

FB 28, 33, 42, 47, 112, 118, and 124

Bottom flange retrofits present on FB 42, 112, and 118 only



Section A-A



Section B-B

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WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - CJS	REVISED -	
	CHECKED - ARB	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FLOOR BEAM STRENGTHENING DETAILS (BUILT-UP 3 OF 3)
S.N. 082-0144
SHEET S-149 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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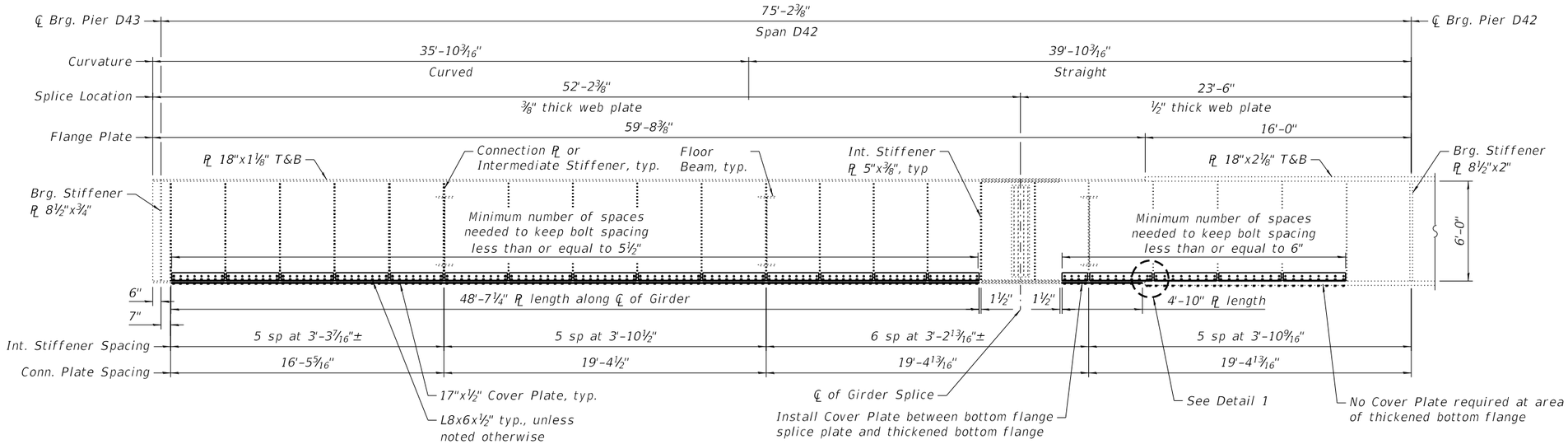
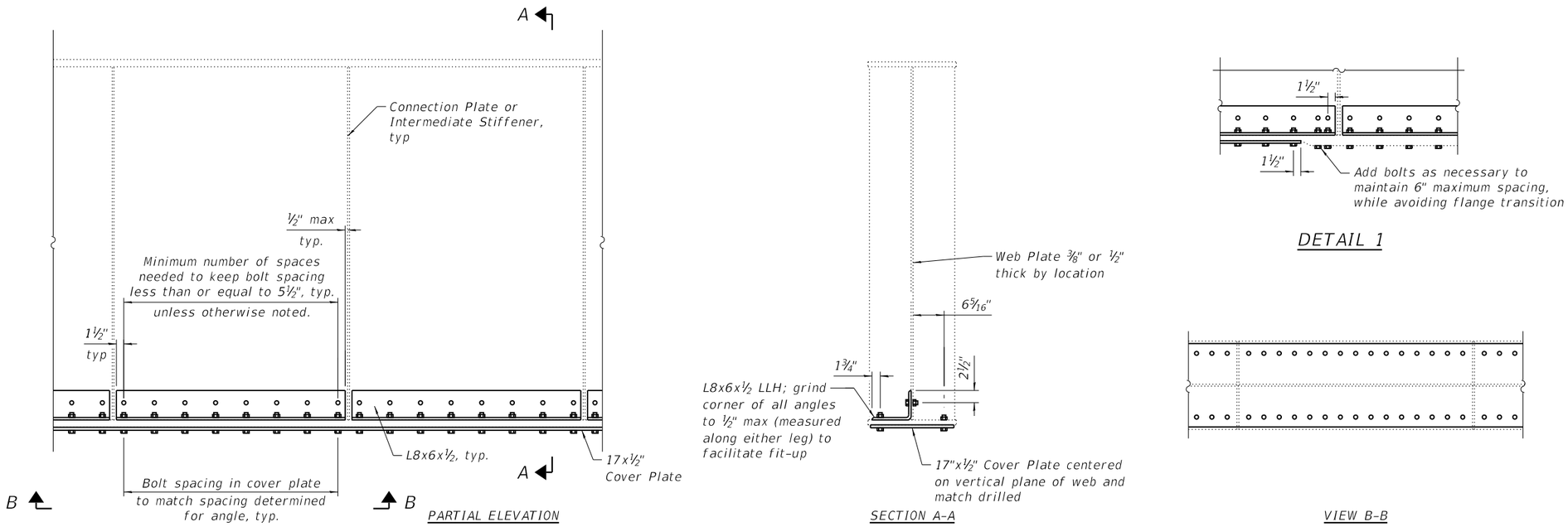
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



GIRDER D2 SPAN D42 ELEVATION



GIRDER FLANGE REPAIR DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	3820

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - KJ	REVISED -	
	CHECKED - ARB	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER REPAIR - SPAN D42
S.N. 082-0144
SHEET S-150 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	229
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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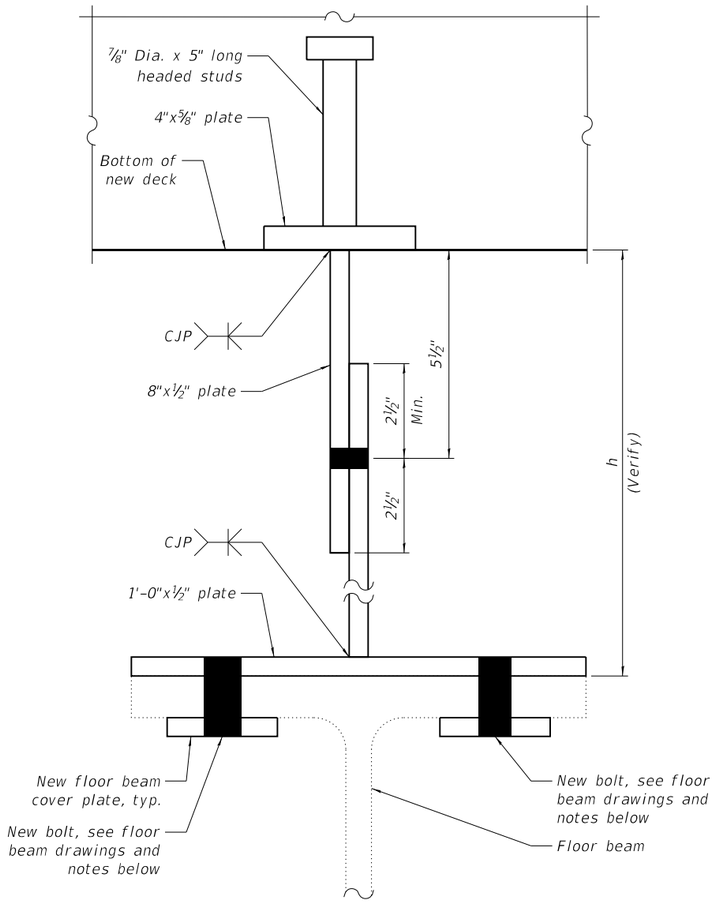
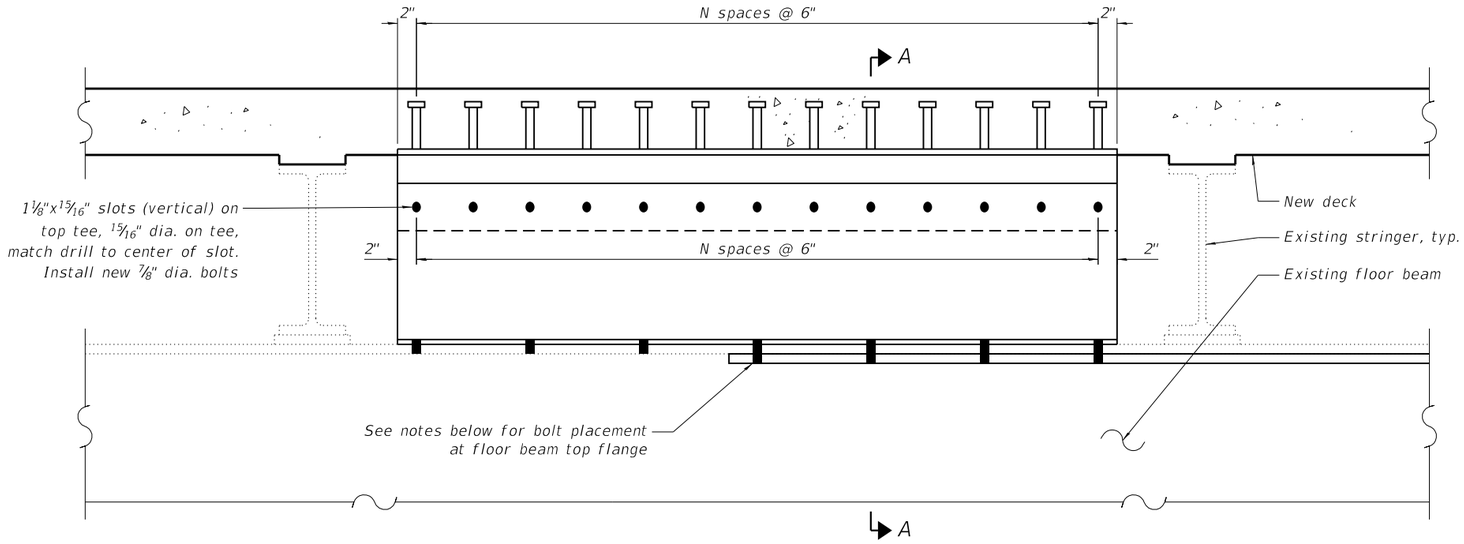


SECTION A-A



FLOOR BEAM TO DECK CONNECTION BRACKET ELEVATION

PIER	NO. UNITS	N PER UNIT	h
D2	2	9	20 1/2"
D3	1	5	20 1/2"
D4	2	8	20 1/2"
D6	2	8	20 1/2"
D7	2	5	20 1/2"
D9	2	7	24"
D10	2	7	29"
D13	2	8	20"
D14	1	8	20"
D16	1	9	20 1/2"
D17	2	7	20 1/2"
D19	2	9	19 1/2"
D20	1	10	19 1/2"
D23	4	7	21 1/2"
D24	4	7	21"
D25	2	8	24 1/2"

Bolt Placement Notes:

Do not shop drill floor beam top flange strengthening plates in the vicinity of existing floor beam to deck connections. For built-up members, strengthening plates may be shop drilled in stiffener bays that do not contain floor beam to deck connections.

In order to avoid edge distances less than 1½", where floor beam top flange strengthening plates end within the length of the floor beam to connection plate, the top flange plates shall be fabricated up to 6" longer than shown in the tables on Sheet S-145 or Sheet S-148 . The required length shall be determined based on the placement of bolts as described in the procedure below:

1. Prepare stiffeners as shown on Sheet S-147 if present.
2. Remove existing floor beam to deck connection.
3. Adjust the location of the floor beam top flange strengthening plate such that its width is centered on existing holes in the top flange where present, or as close to centered as possible while avoiding the floor beam web-to-flange fillet. When floor beam to deck connections are present in multiple stringer bays, with bolts on the same side of the floor beam web, locate the strengthening plate so as to maximize the minimum edge distance at these existing holes.
4. Place the bottom tee of the new floor beam to deck connection such that there is a minimum end distance of 2" to center of existing floor beam top flange holes at both ends of the tee.
5. Match drill floor beam top flange strengthening plate and the bottom tee of the new floor beam to deck connection to the existing holes. Install 1" ∅ bolts in holes.
6. Install bolts of the size indicated on Sheet S-145 or Sheet S-148 midway between match drilled holes.
7. On the opposite side of the web, install bolts of the size indicated on Sheet S-145 or Sheet S-148 at 6" spacing with 2" end distance at each end of the plate.
8. If there are no bolts within 3" of the end of the floor beam strengthening plates, install another bolt of the size indicated on Sheet S-145 or Sheet S-148 1½" from the end of the strengthening plate.
9. Outside of the floor beam to deck connection tee, install bolts at the maximum spacing required by Sheet S-145 or Sheet S-148 .

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	272

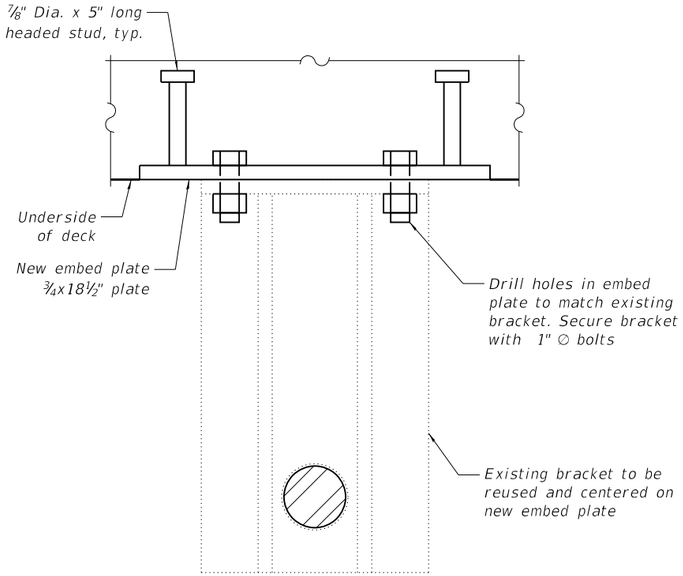
WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - AEB	REVISED -	
	CHECKED - RW	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

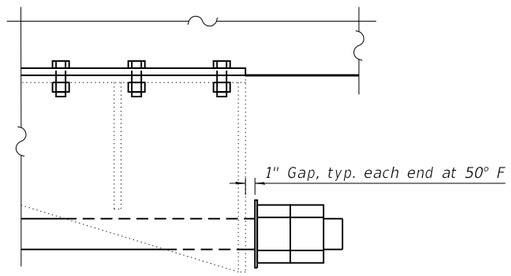
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FLOOR BEAM TO DECK CONNECTION REPLACEMENT
S.N. 082-0144
SHEET S-151 OF S-183 SHEETS

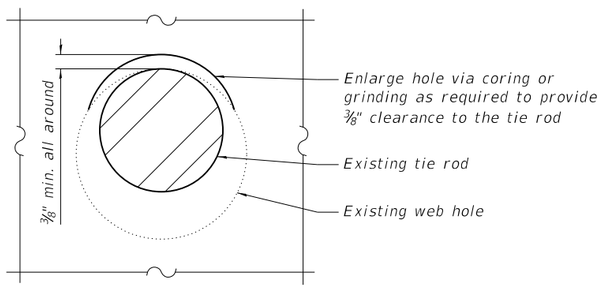
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	230
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



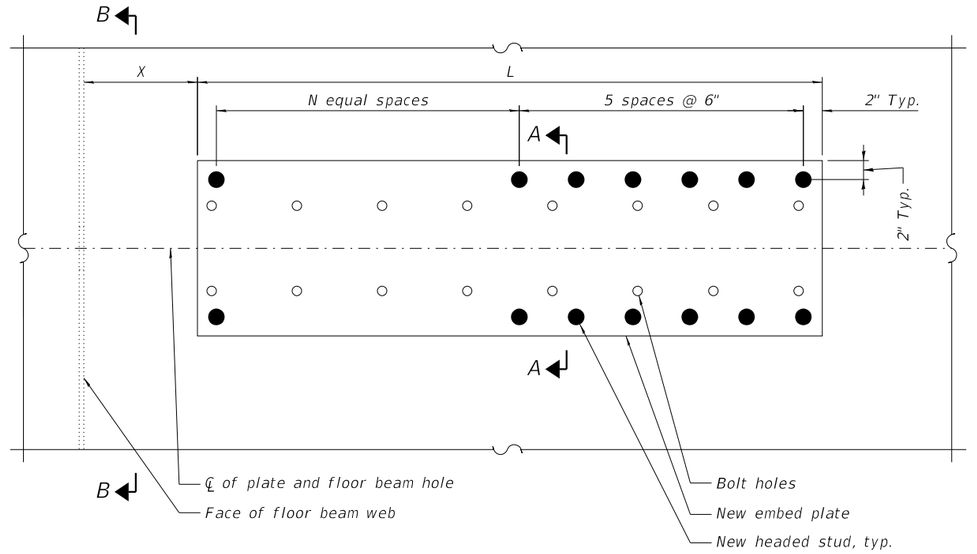
SECTION A-A



TIE ROD GAP DETAIL



SECTION B-B



EMBED PLATE PLAN

PIER	SPAN	L	X	N	NO. STUDS
D11 (D)	D10	6'-0"	6 3/4"	2	16
D11 (D)	D11	6'-0"	8"	2	16
D11 (NN)	D10	5'-6"	3'-1"	1	14
D11 (NN)	D11N	5'-6"	2'-11 1/2"	1	14
D11 (NS)	D10	5'-6"	2'-10 3/4"	1	14
D11 (NS)	D11N	5'-6"	2'-11"	1	14
D26	D25	7'-6"	1'-6"	3	18

Notes:

D11 (D) refers to the furthest north of the roadway ties, which is between span D10 to D11

D11 (NN) refers to the north tie between span D10 and N1

D11 (NS) refers to the south tie between span D10 and N1

At contractor's option, a 5/16" fillet weld on all four sides can be used to connect the embed plate to the existing bracket instead of a 1" bolt.

Field measure exact locations of existing brackets prior to removal. Reinstall each bracket in its existing location.

Tie rods are to be removed, stored, and then reinstalled with the gap shown on this sheet. If it is not possible to remove and reuse the rods, new rods with a maximum yield stress of 45 ksi shall be provided to match the existing rods.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Stud Shear Connectors	Each	106

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
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PLOT SCALE = 0.1667 ' / In.	DRAWN - TWS	REVISED -	
PLOT DATE = 7/17/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SEISMIC CONTINUITY TIE RECONSTRUCTION
S.N. 082-0144
SHEET S-152 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	231
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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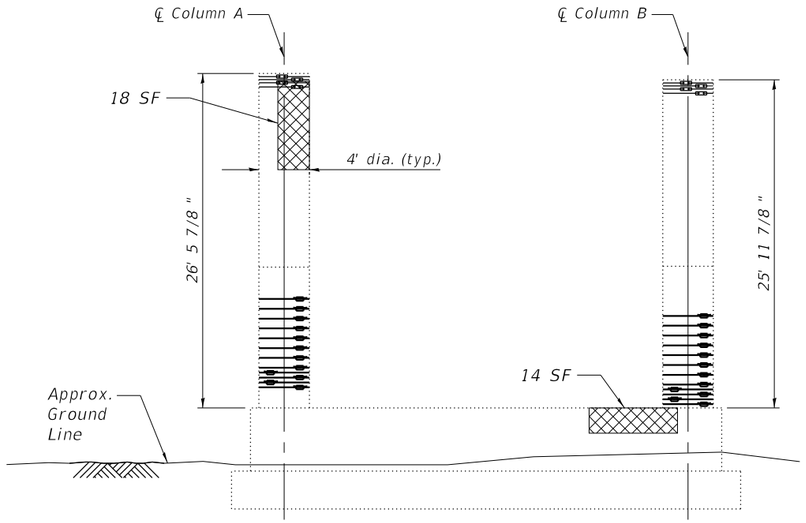
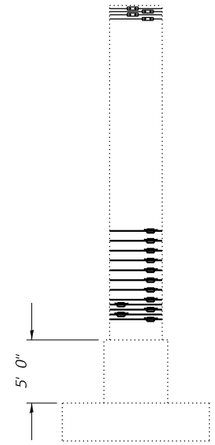
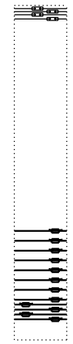


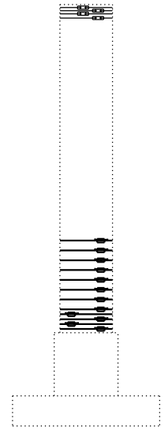
ELEVATION
(Looking Upstation)



COLUMN A
(End View)

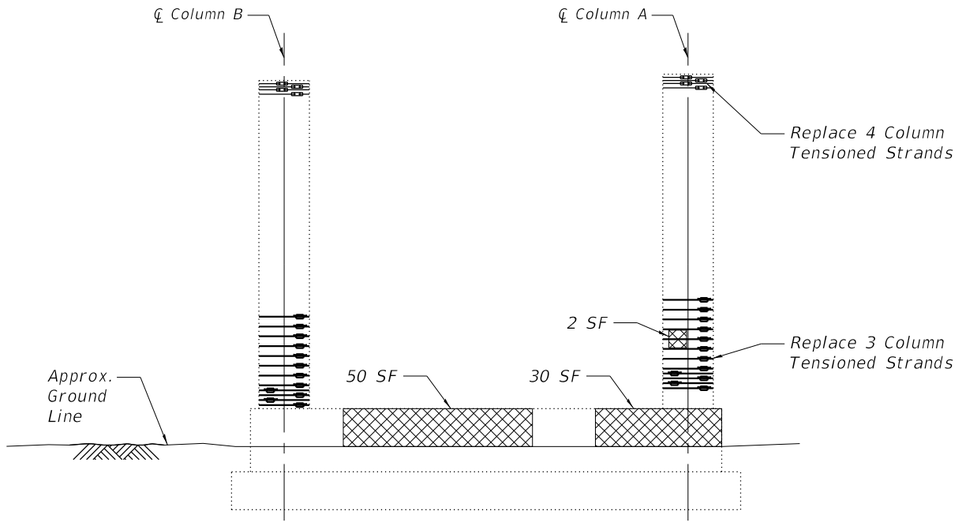


COLUMN A
(Interior View)



COLUMN B
(End View)

COLUMN B
(Interior View)



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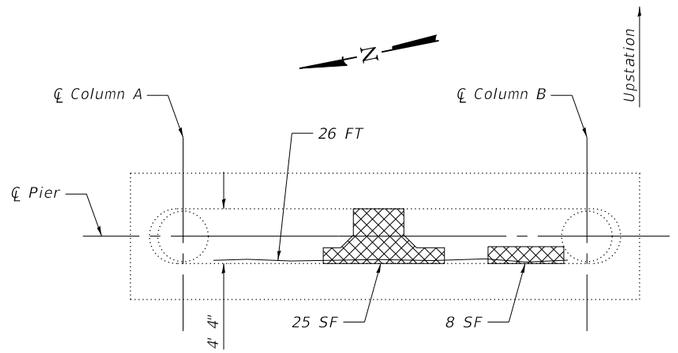
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D5
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	147
Epoxy Crack Injection	Foot	26
Column Tensioned Strands	Each	7
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - AW	REVISED -	
	CHECKED - ARB	REVISED -	
PLOT SCALE = 12±0.0000 '±' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D5
S.N. 082-0144
SHEET S-153 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	232
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
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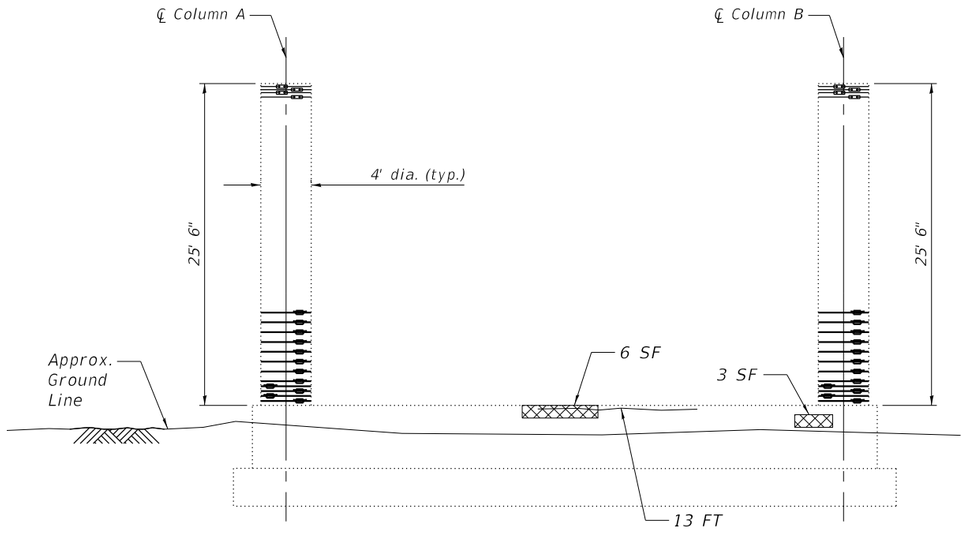

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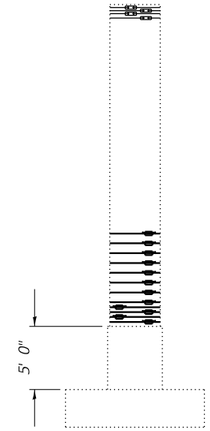
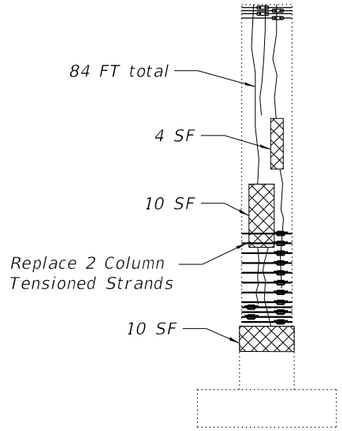


COLUMN A

(End View)

COLUMN A

(Interior View)

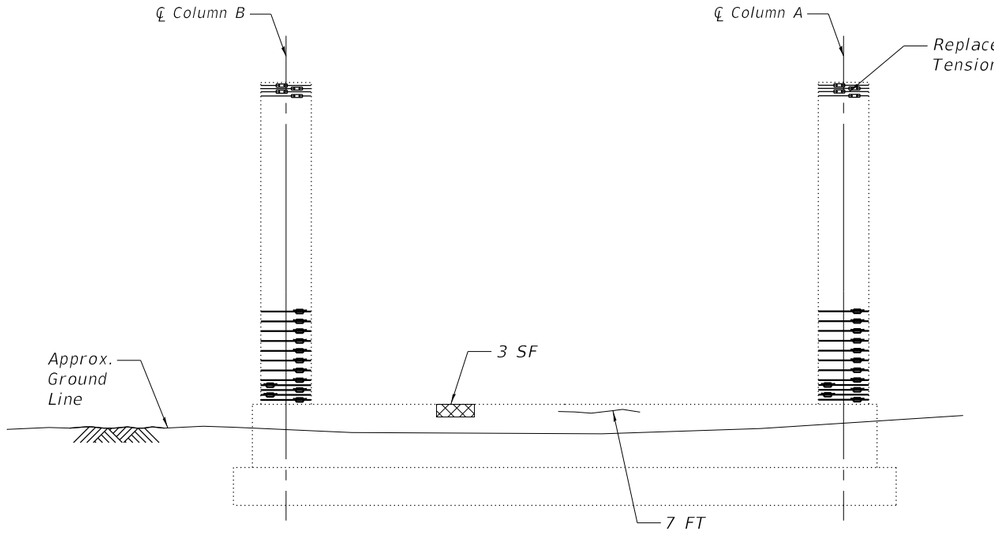


COLUMN B

(End View)

COLUMN B

(Interior View)



ELEVATION

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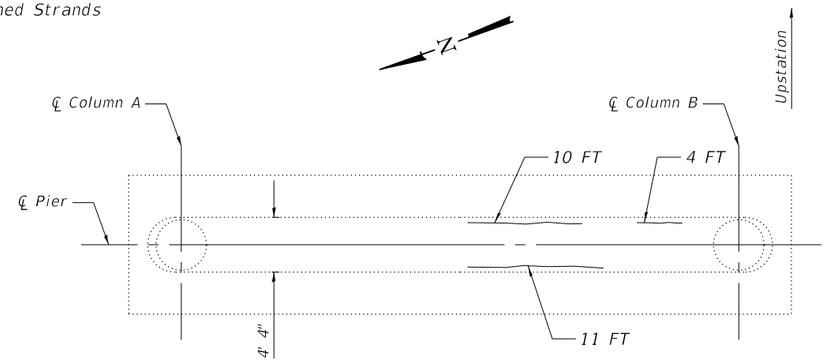

PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D8
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	36
Epoxy Crack Injection	Foot	129
Column Tensioned Strands	Each	2
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - AW	REVISED -	
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PLOT SCALE = 12±0.0000 '=' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D8
S.N. 082-0144

SHEET S-154 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	233
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
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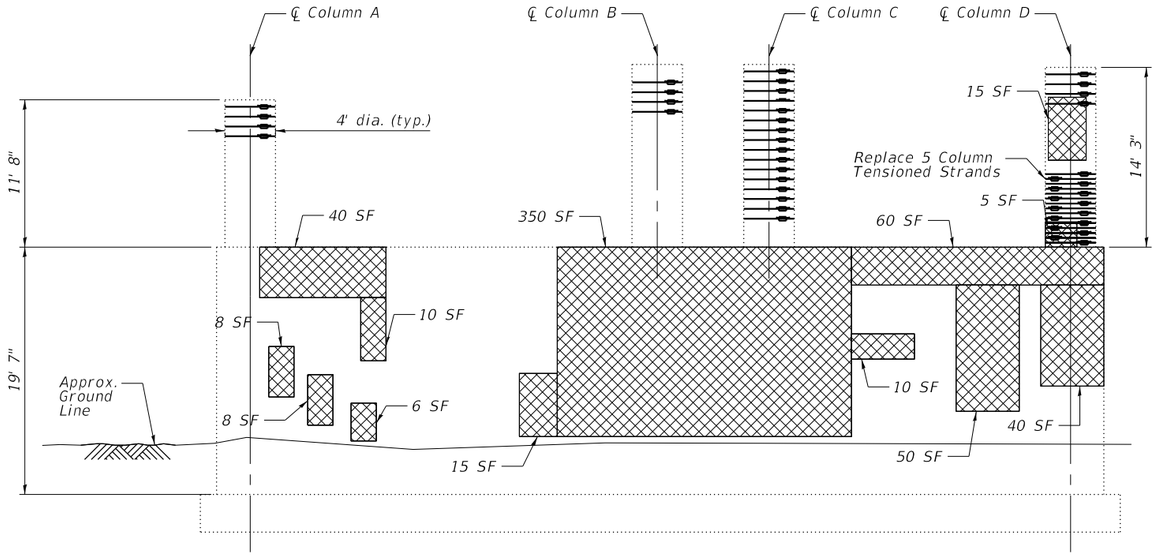
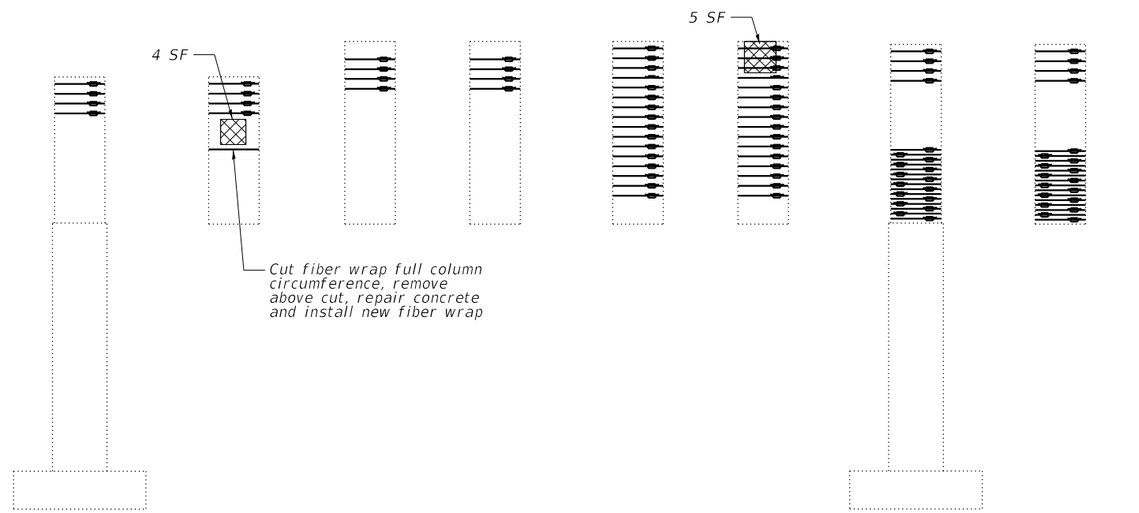
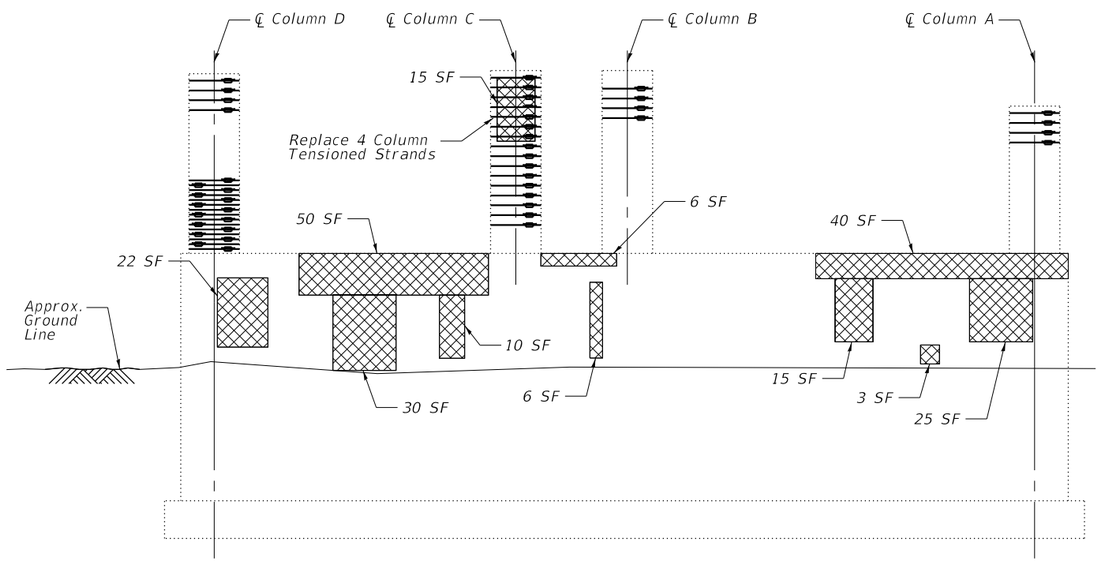


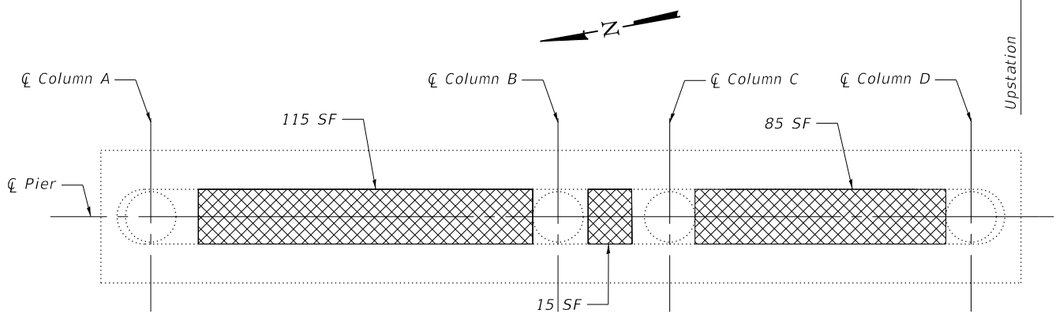
ELEVATION
(Looking Upstation)



COLUMN A (End View) | COLUMN A (Interior View) | COLUMN B (End View) | COLUMN B (Interior View) | COLUMN C (End View) | COLUMN C (Interior View) | COLUMN D (End View) | COLUMN D (Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of Railroads.

PIER D11
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	1063
Epoxy Crack Injection	Foot	0
Column Tensioned Strands	Each	9
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	40

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www.wje.com

USER NAME = lsalas	DESIGNED - AW	REVISED -	
	CHECKED - ARB	REVISED -	
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PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D11
S.N. 082-0144
SHEET S-155 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	234
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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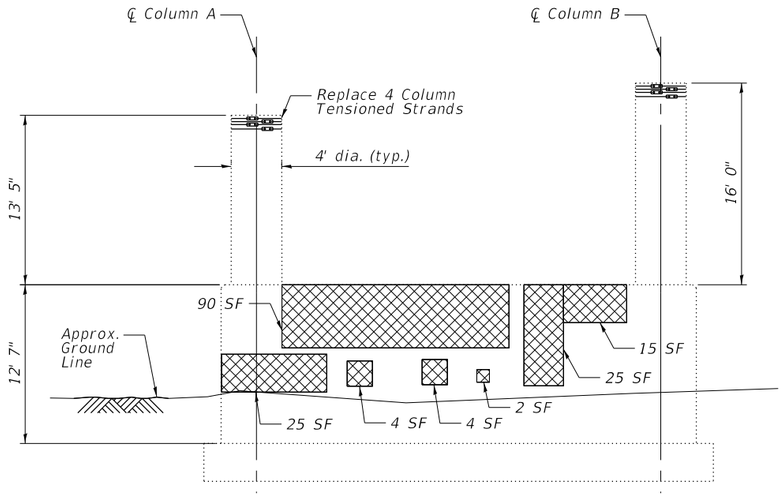
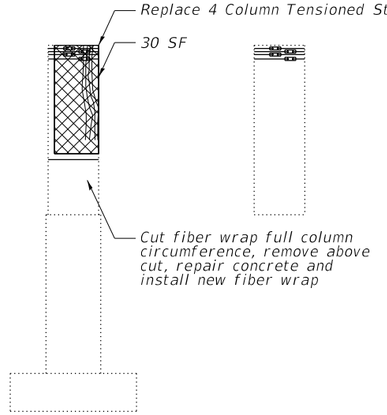
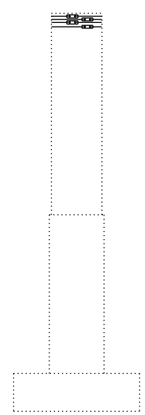


ELEVATION
(Looking Upstation)



COLUMN A
(End View)

COLUMN A
(Interior View)

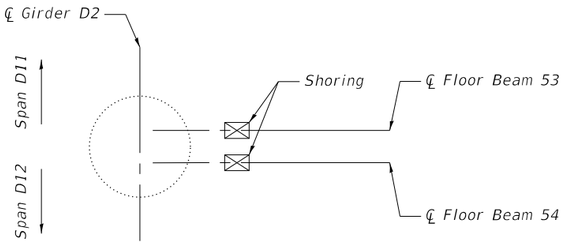


COLUMN B
(End View)

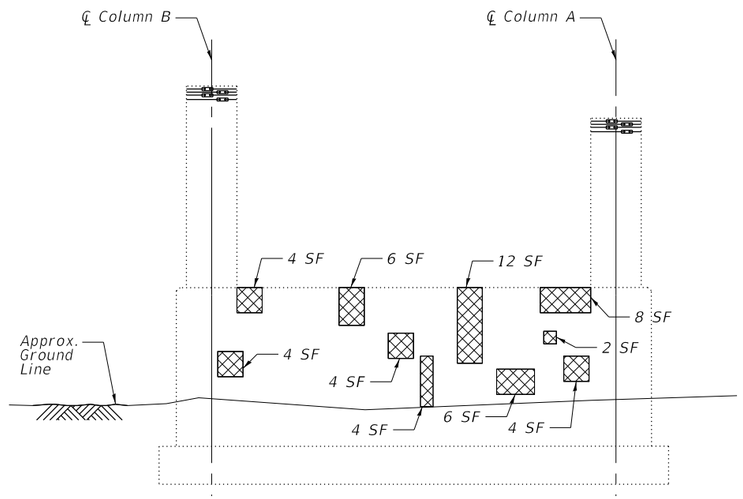
COLUMN B
(Interior View)

REACTION TABLE AT TEMPORARY SHORING

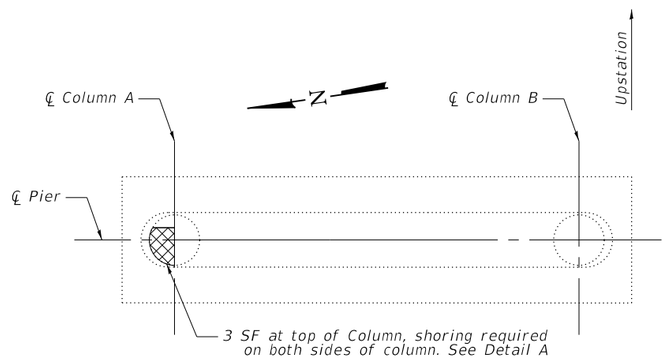
DL (k)	144
LL (k)	105
Total (k)	249



DETAIL A



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER D12
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	252
Epoxy Crack Injection	Foot	0
Column Tensioned Strands	Each	4
Temporary Shoring and Cribbing	Each	1
Fiber Wrap	Sq Ft	170

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	CHECKED - ARB	REVISED -			
PLOT SCALE = 12p0.0000 '/ In.	DRAWN - LS	REVISED -			
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -		SHEET S-156 OF S-183 SHEETS	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	235
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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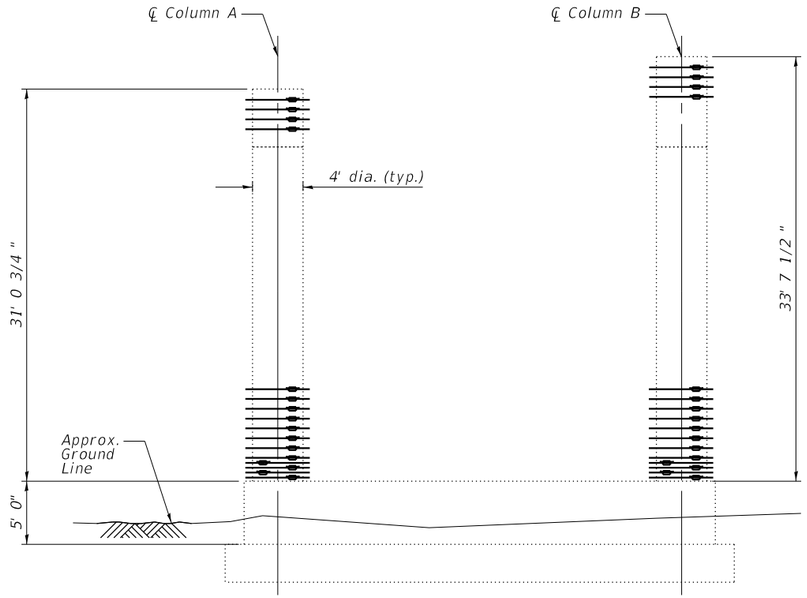
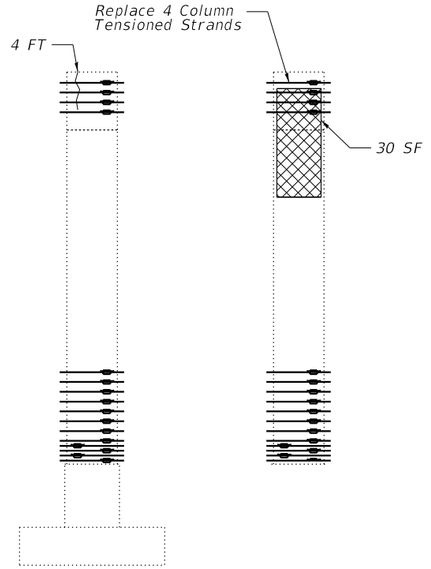
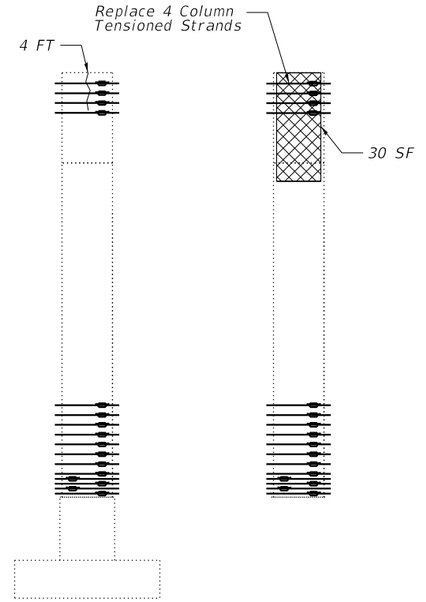


ELEVATION
(Looking Upstation)



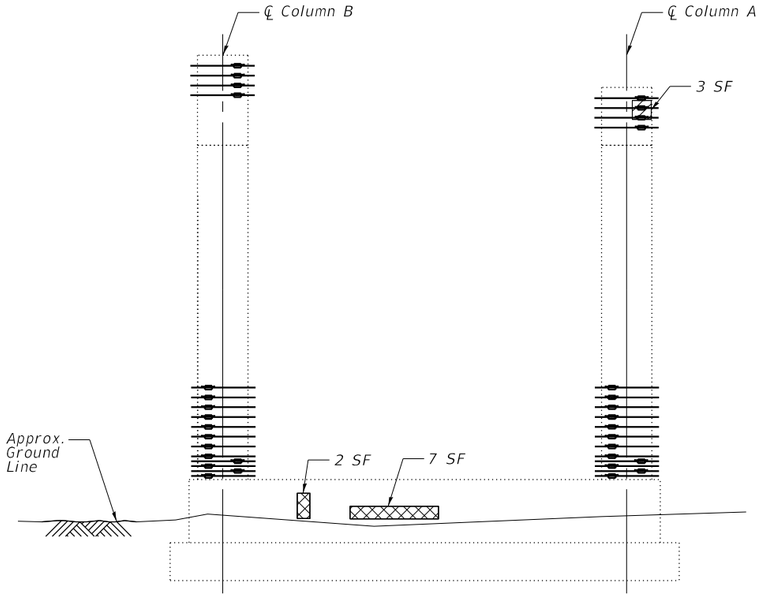
COLUMN A
(End View)

COLUMN A
(Interior View)

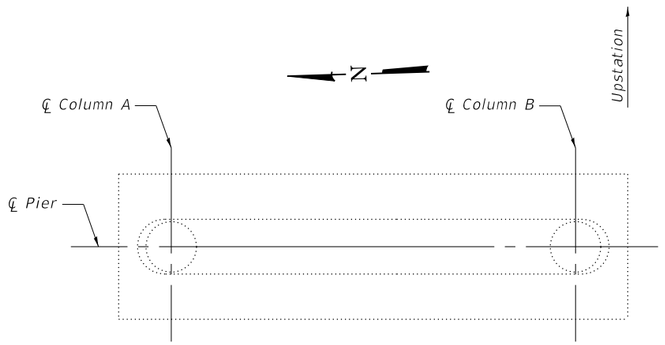


COLUMN B
(End View)

COLUMN B
(Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D15
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	72
Epoxy Crack Injection	Foot	8
Column Tensioned Strands	Each	8
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D15
S.N. 082-0144
SHEET S-157 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	236
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

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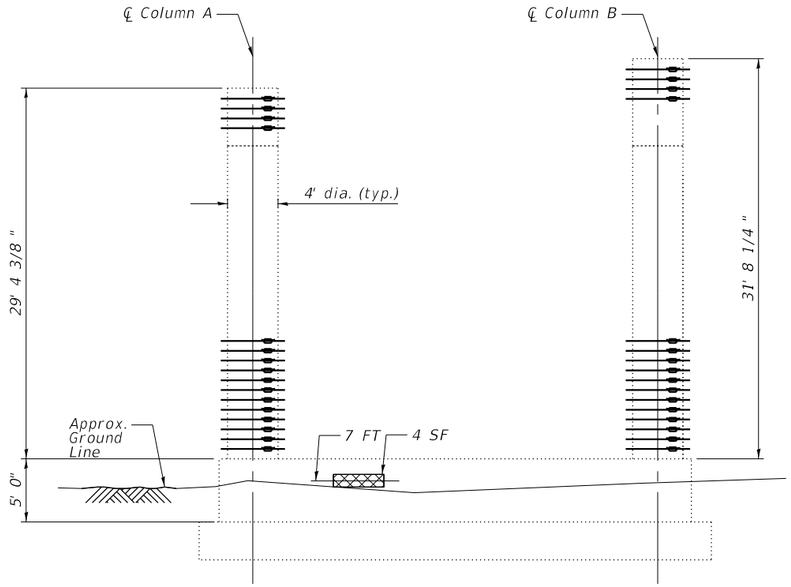
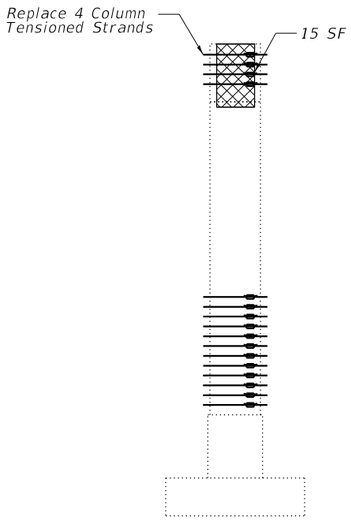
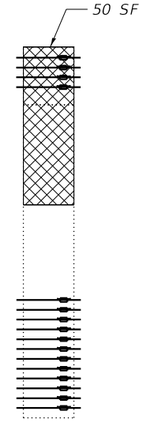


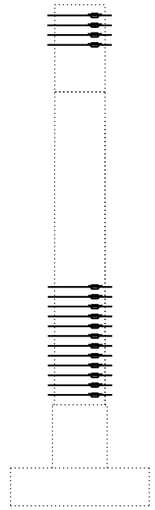
ELEVATION
(Looking Upstation)



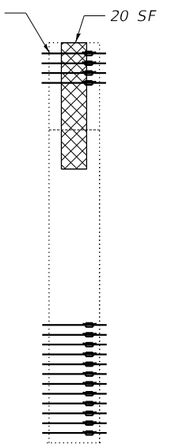
COLUMN A
(End View)



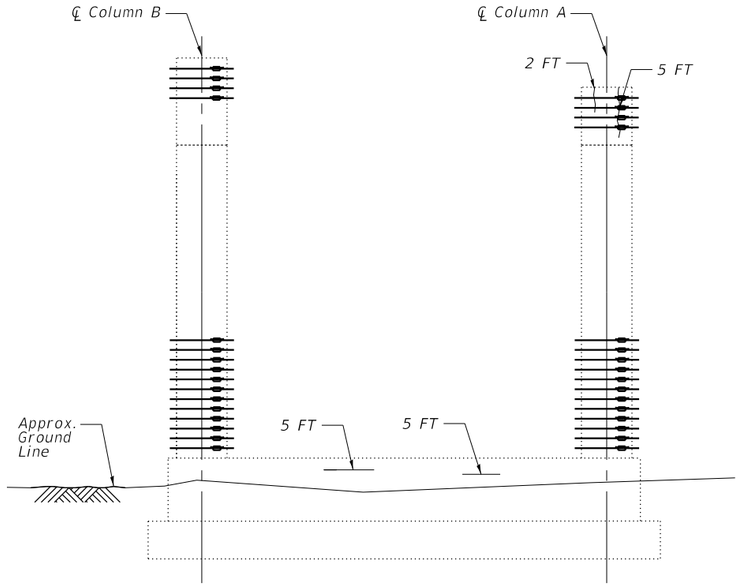
COLUMN A
(Interior View)



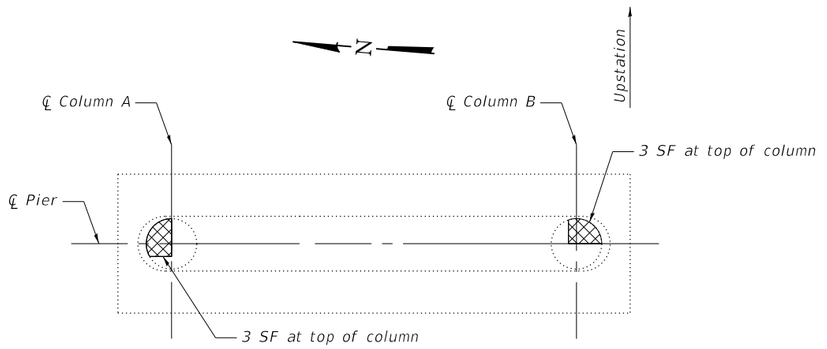
COLUMN B
(End View)



COLUMN B
(Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D18
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	95
Epoxy Crack Injection	Foot	24
Column Tensioned Strands	Each	8
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D18
S.N. 082-0144
SHEET S-158 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	237
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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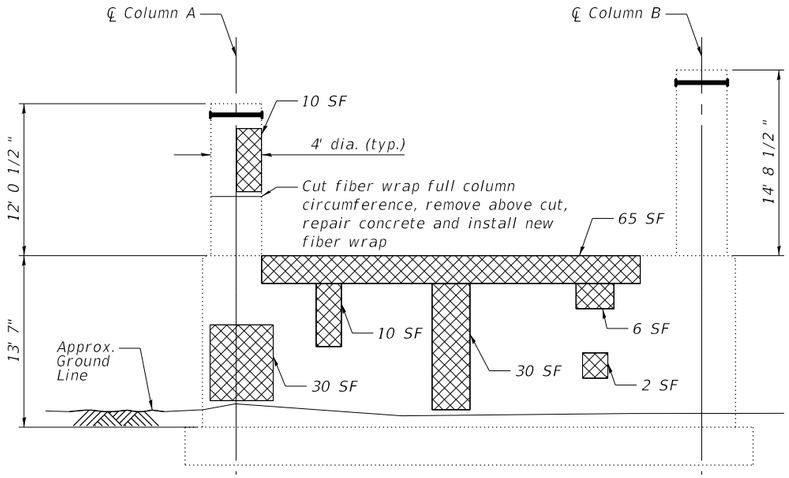
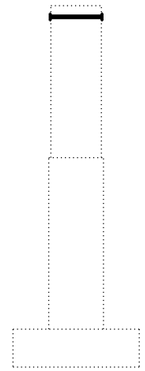
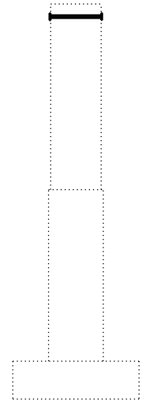


ELEVATION
(Looking Upstation)



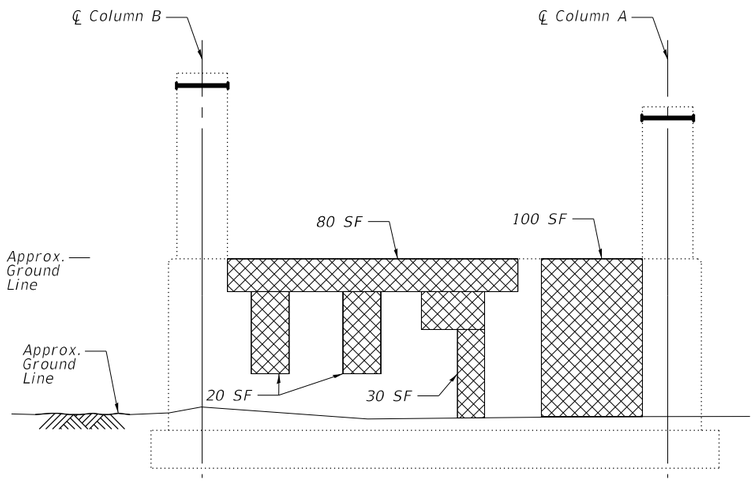
COLUMN A
(End View)

COLUMN A
(Interior View)

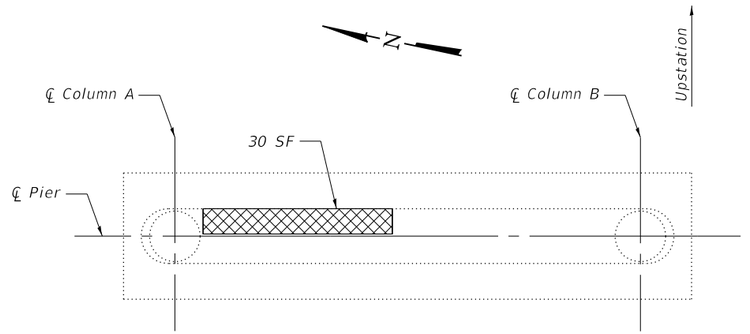


COLUMN B
(End View)

COLUMN B
(Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER D21
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	433
Epoxy Crack Injection	Foot	0
Column Tensioned Strands	Each	0
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	95

MODEL: Default
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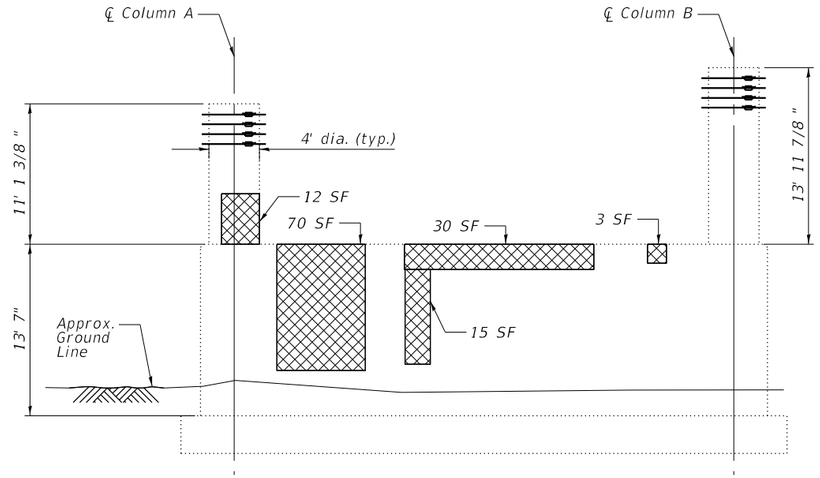
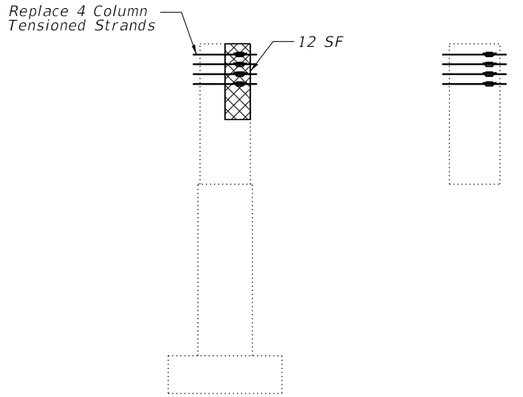
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D21
S.N. 082-0144
SHEET S-159 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	238
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

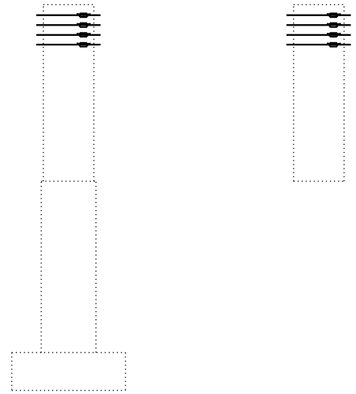


ELEVATION
(Looking Upstation)



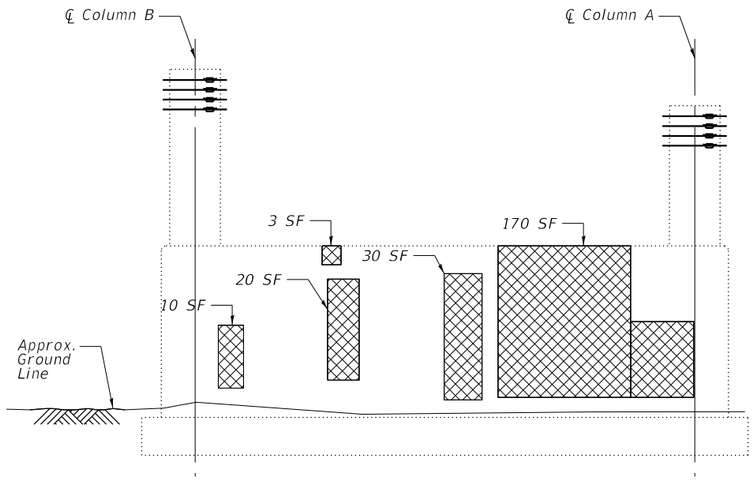
COLUMN A
(End View)

COLUMN A
(Interior View)

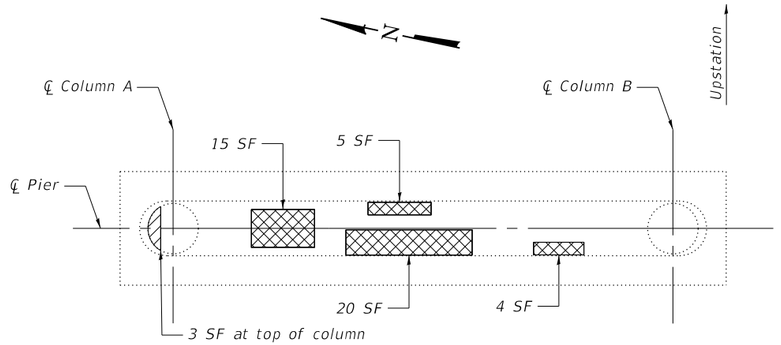


COLUMN B
(End View)

COLUMN B
(Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER D22
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	422
Epoxy Crack Injection	Foot	0
Column Tensioned Strands	Each	4
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

MODEL: Default
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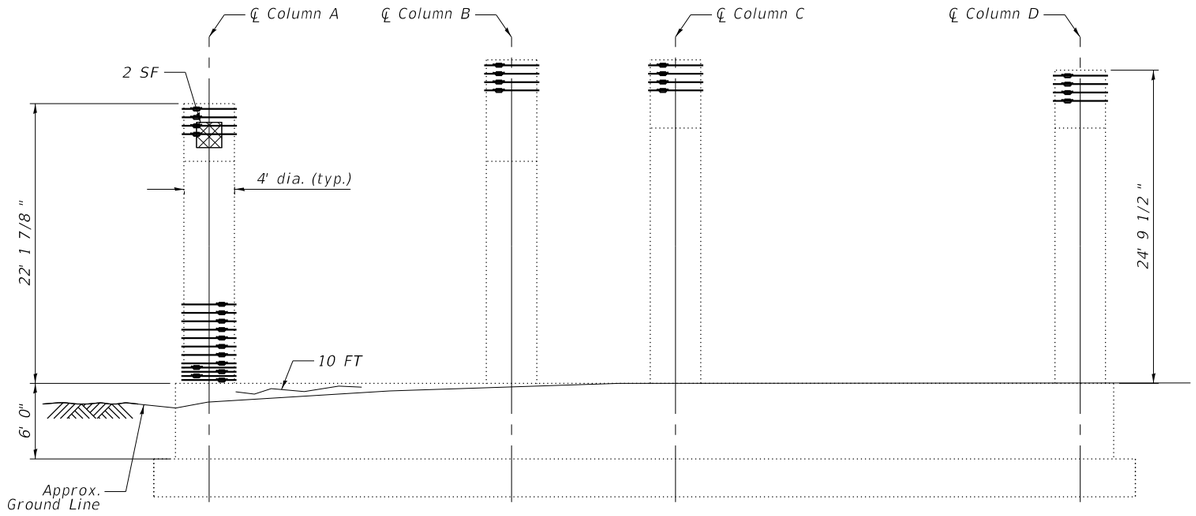
PLOT SCALE = 12±0.0000 '=' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

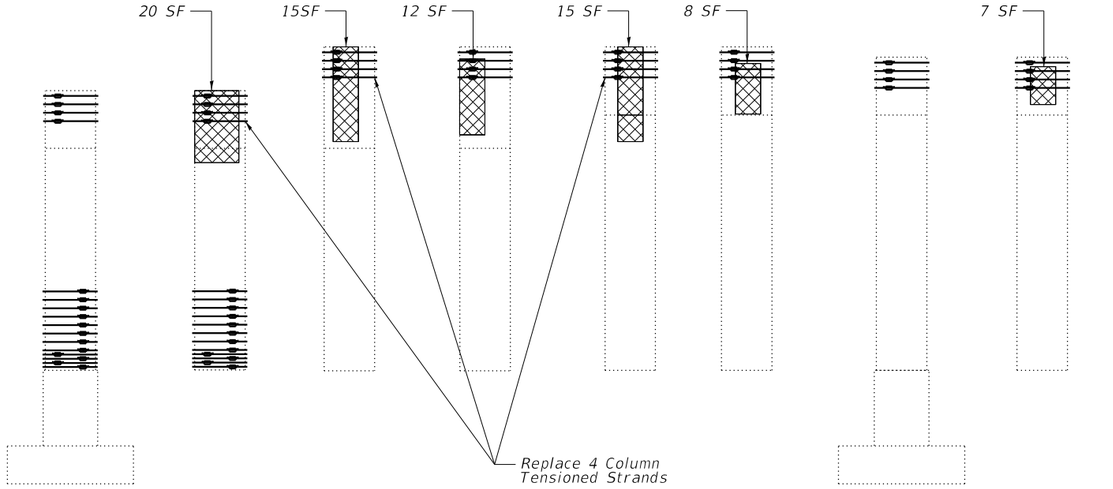
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D22
S.N. 082-0144
SHEET S-160 OF S-183 SHEETS

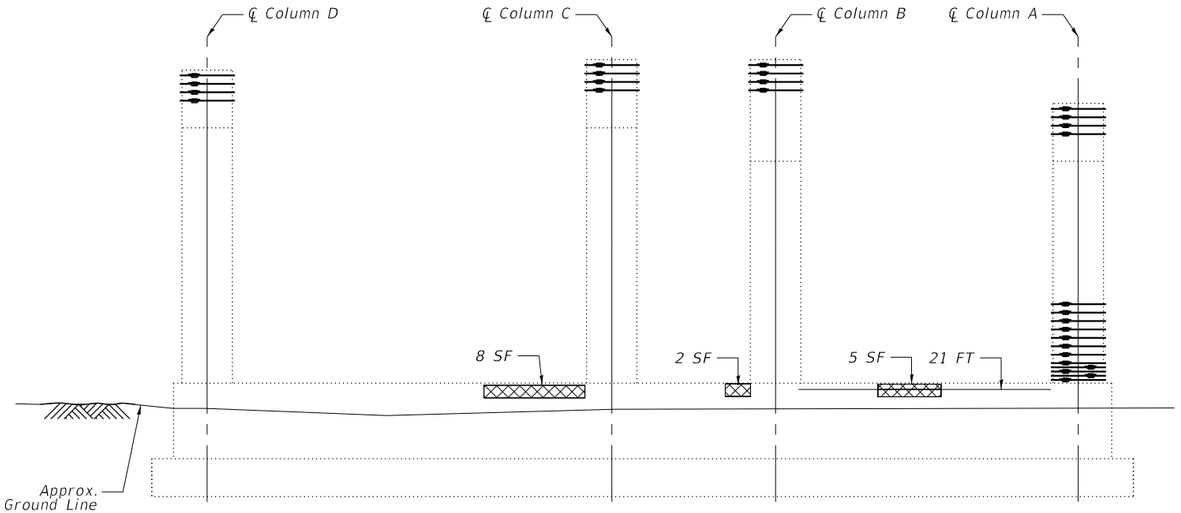
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	239
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



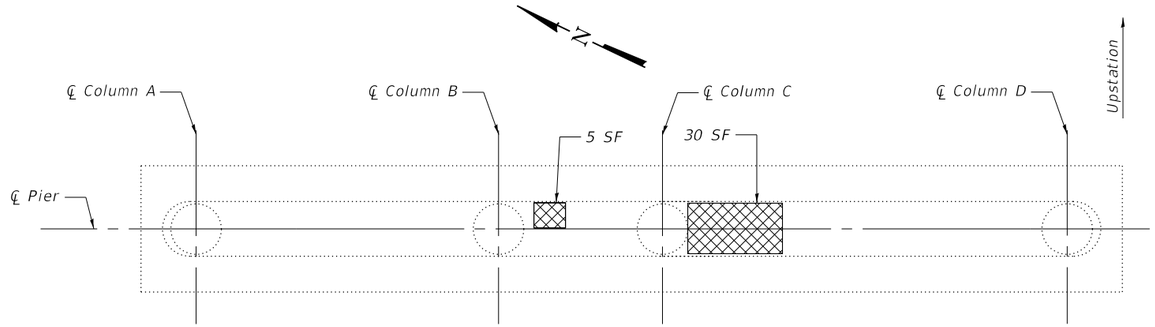
ELEVATION
(Looking Upstation)



COLUMN A (End View) | COLUMN A (Interior View) | COLUMN B (End View) | COLUMN B (Interior View) | COLUMN C (End View) | COLUMN C (Interior View) | COLUMN D (Interior View) | COLUMN D (Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D26
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	129
Epoxy Crack Injection	Foot	31
Column Tensioned Strands	Each	12
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D26
S.N. 082-0144
SHEET S-161 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	240
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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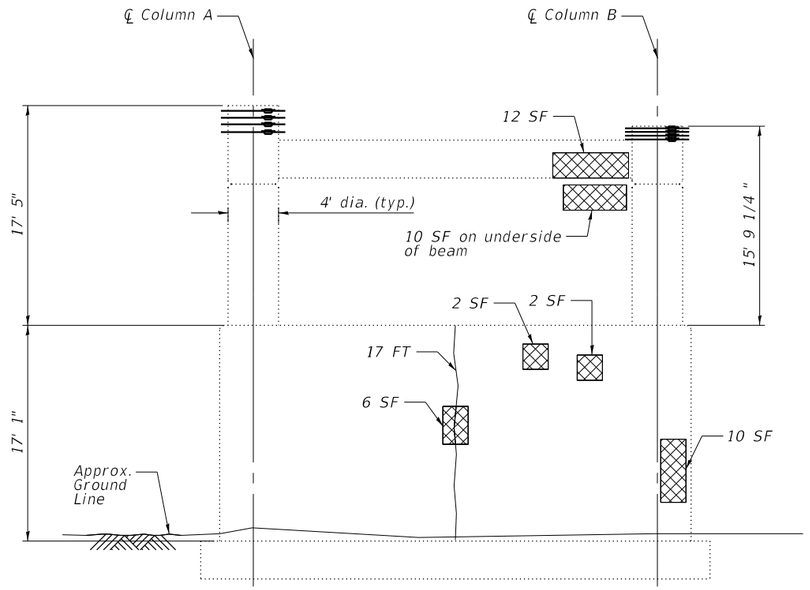
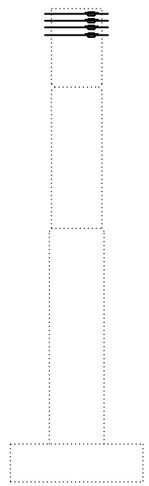
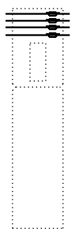


ELEVATION
(Looking Upstation)



COLUMN A
(End View)



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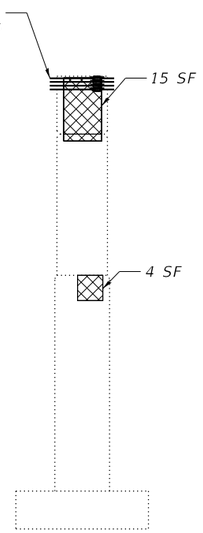
(Interior View)



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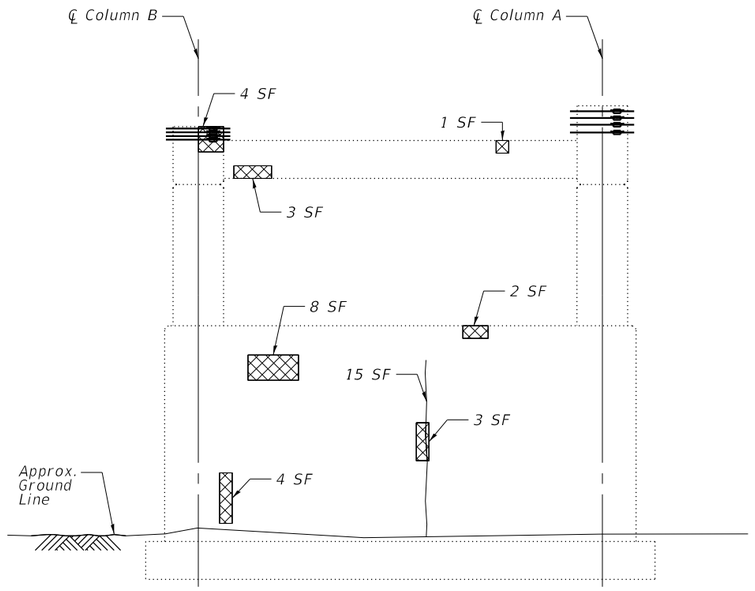
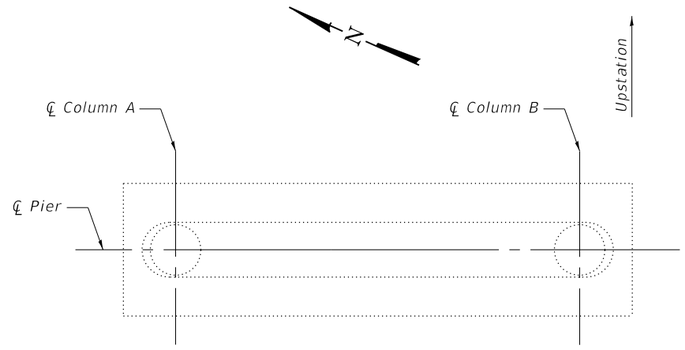
COLUMN B
(Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER D28
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	86
Epoxy Crack Injection	Foot	32
Column Tensioned Strands	Each	4
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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CONCRETE SUBSTRUCTURE REPAIRS - PIER D28
S.N. 082-0144
SHEET S-162 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	241
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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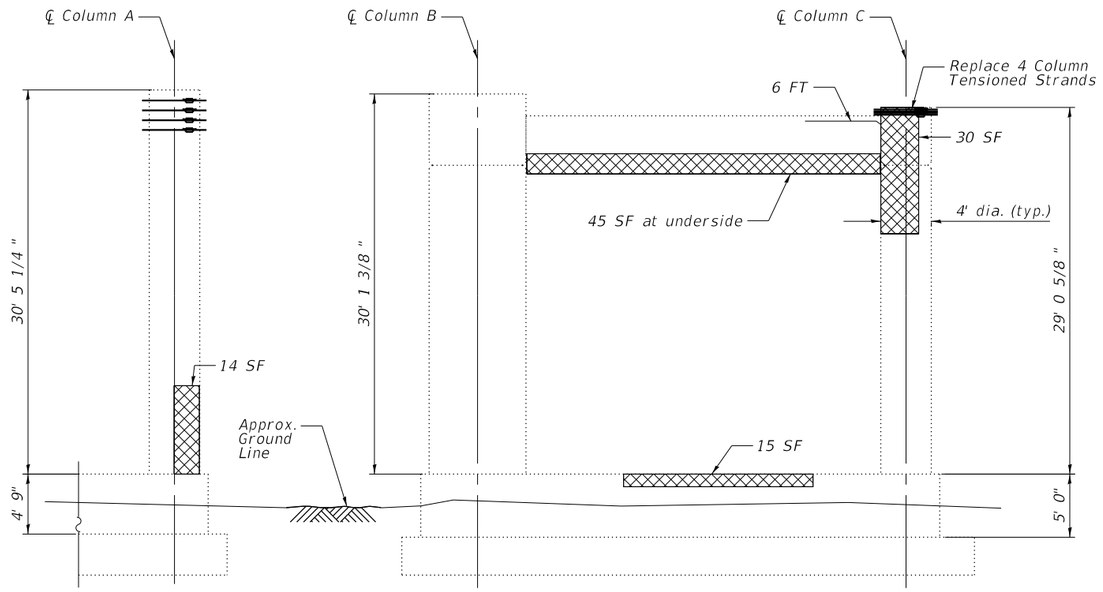
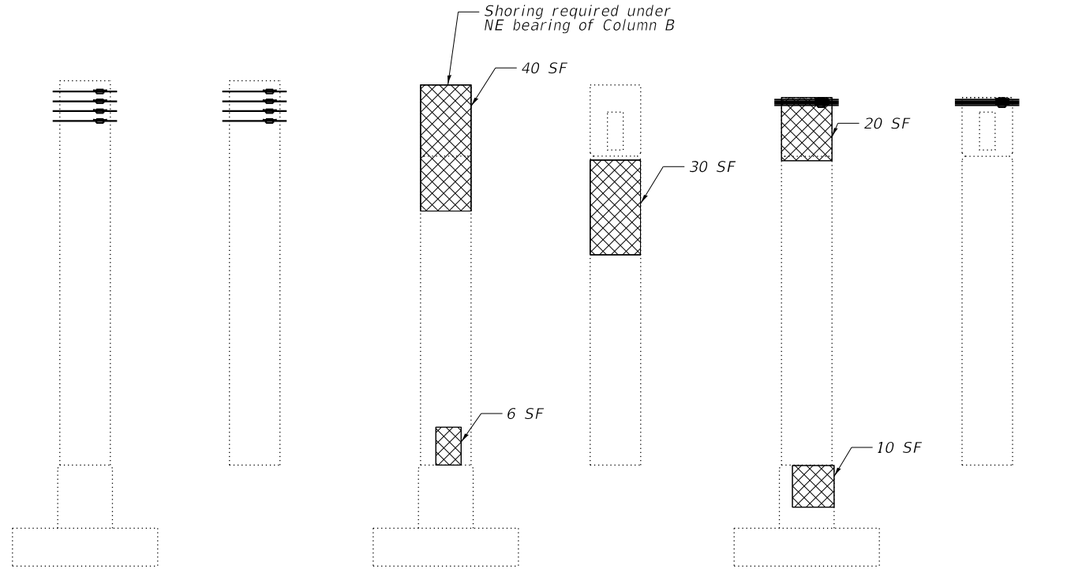
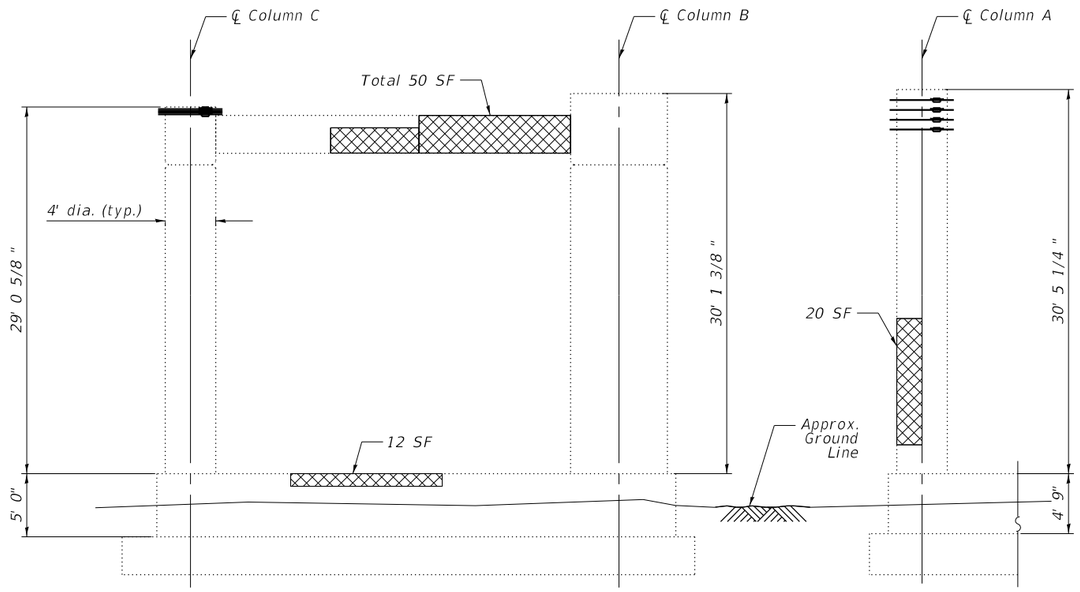


ELEVATION

(Looking Upstation)

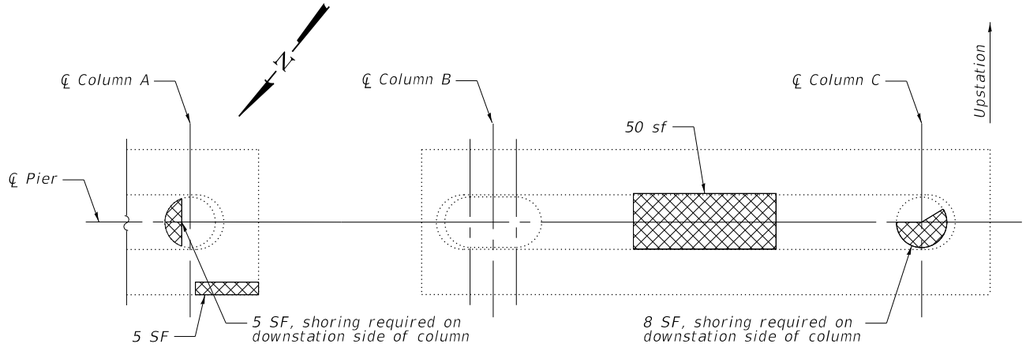


COLUMN A (End View) | COLUMN A (Interior View) | COLUMN B (End View) | COLUMN B (Interior View) | COLUMN C (End View) | COLUMN C (Interior View)



ELEVATION

(Looking Downstation)



PLAN VIEW

REACTION TABLE AT TEMPORARY SHORING

(Max shown-use for all bearings)

DL (k)	187
LL (k)	152
Total (k)	339

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D36
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	355
Epoxy Crack Injection	Foot	6
Column Tensioned Strands	Each	4
Temporary Shoring and Cribbing	Each	2
Fiber Wrap	Sq Ft	0

MODEL: Default
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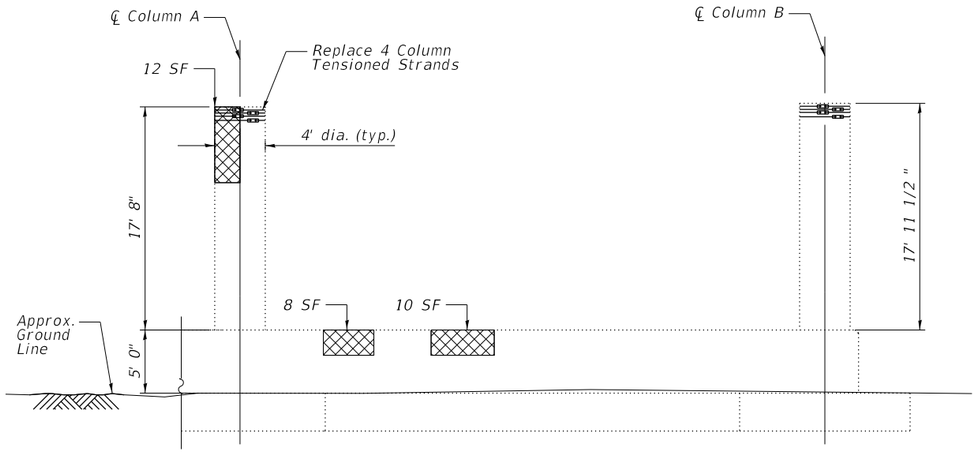
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

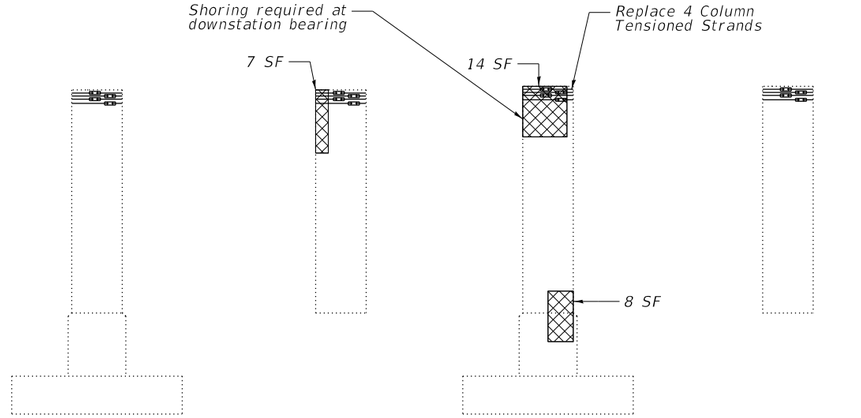
CONCRETE SUBSTRUCTURE REPAIRS - PIER D36
S.N. 082-0144

SHEET S-163 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	242
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



ELEVATION
(Looking Upstation)

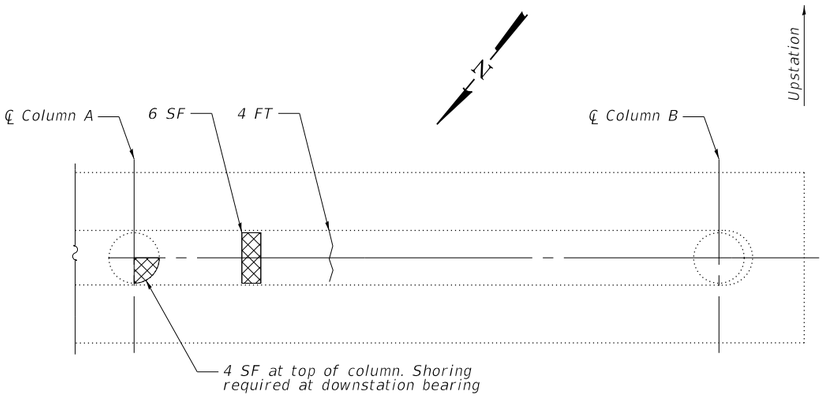


COLUMN A
(End View)

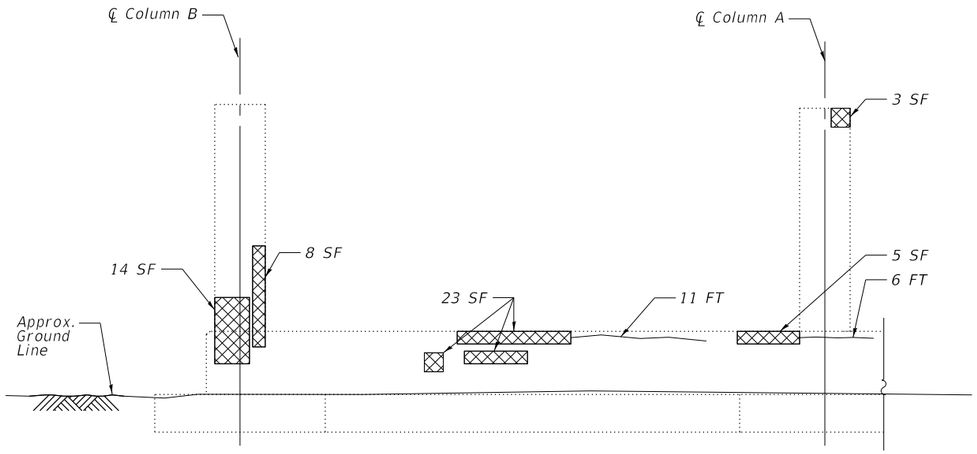
COLUMN A
(Interior View)

COLUMN B
(End View)

COLUMN B
(Interior View)



PLAN VIEW



ELEVATION
(Looking Downstation)

REACTION TABLE AT TEMPORARY SHORING

DL (k)	154
LL (k)	134
Total (k)	288

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D40 BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	122
Epoxy Crack Injection	Foot	21
Column Tensioned Strands	Each	8
Temporary Shoring and Cribbing	Each	2
Fiber Wrap	Sq Ft	0

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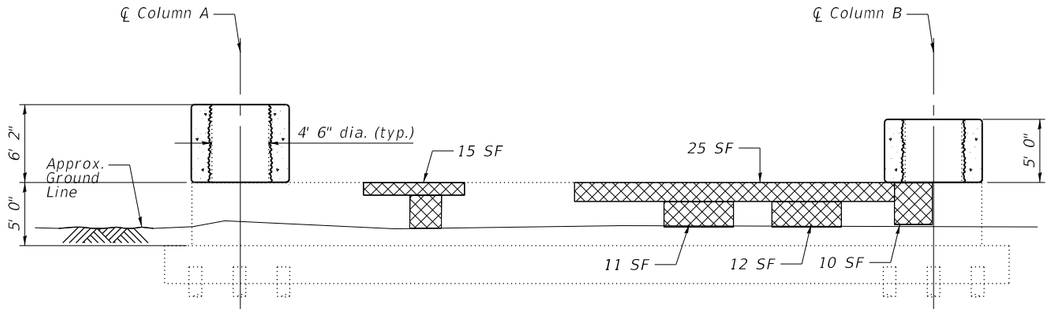
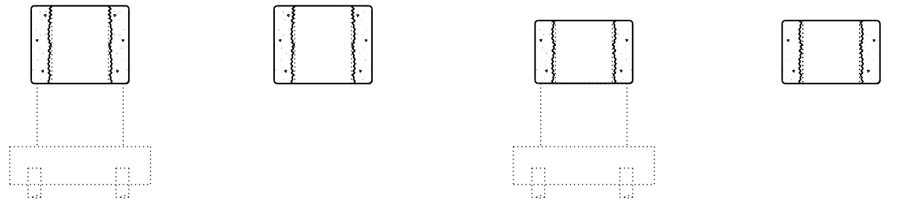
CONCRETE SUBSTRUCTURE REPAIRS - PIER D40
S.N. 082-0144
SHEET S-164 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	243
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



ELEVATION
(Looking Upstation)

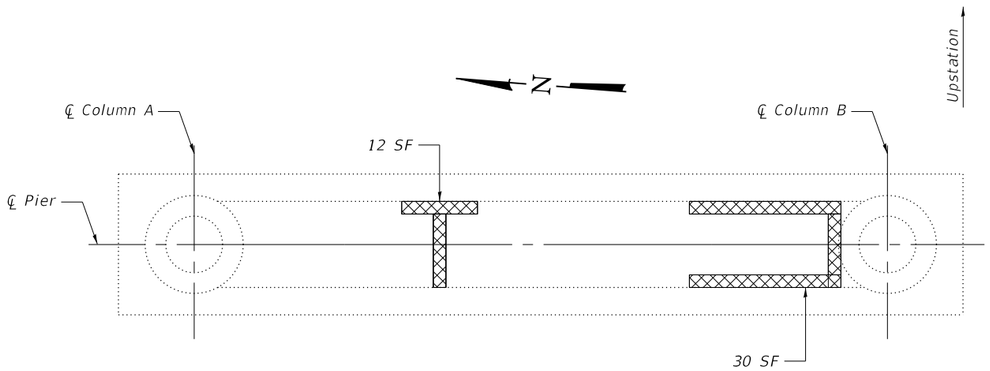


COLUMN A
(End View)

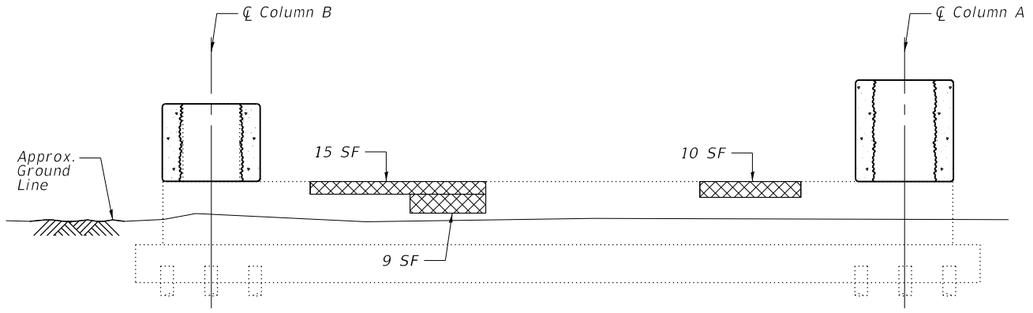
COLUMN A
(Interior View)

COLUMN B
(End View)

COLUMN B
(Interior View)



PLAN VIEW



ELEVATION
(Looking Downstation)

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-166 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER D44
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	149
Epoxy Crack Injection	Foot	0
Column Tensioned Strands	Each	0
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER D44
S.N. 082-0144

SHEET S-165 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	244
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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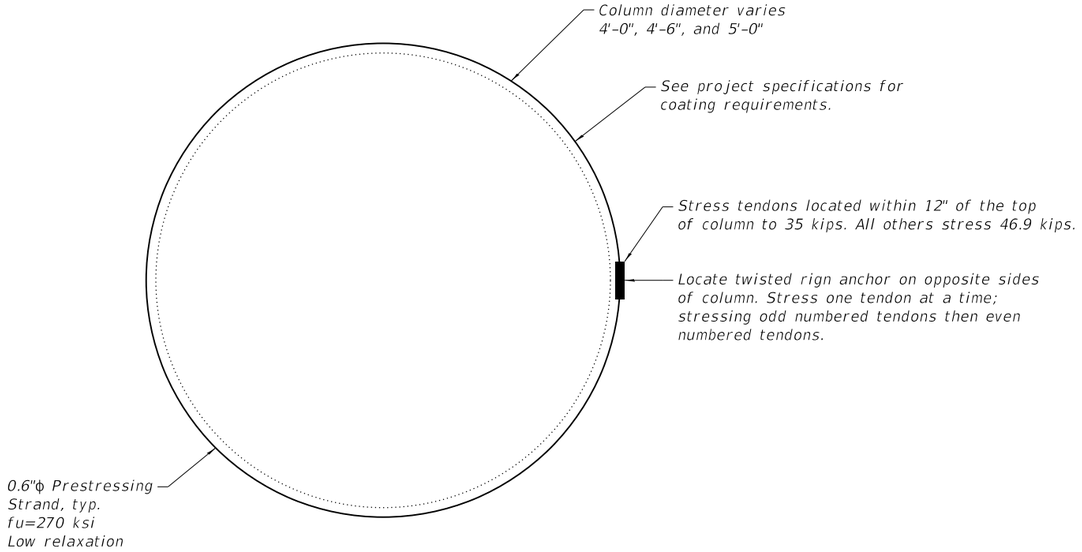
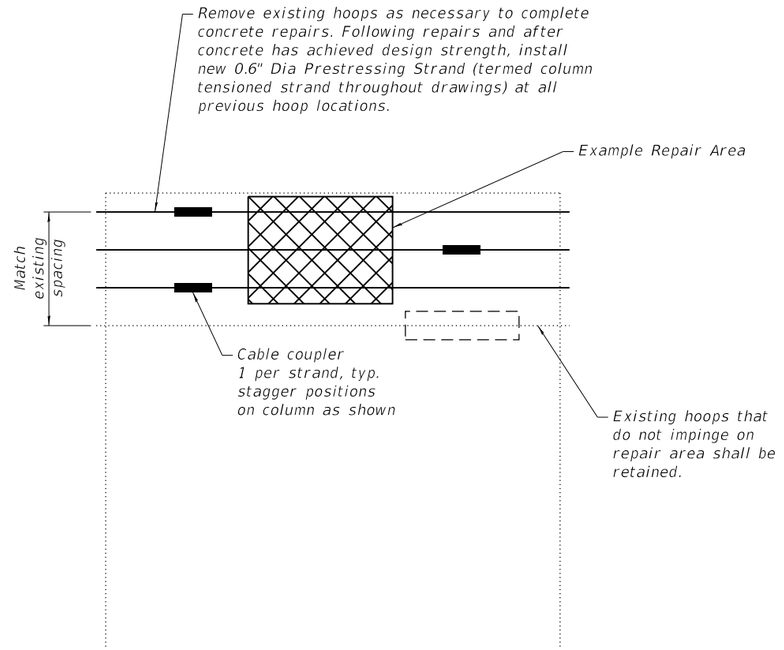
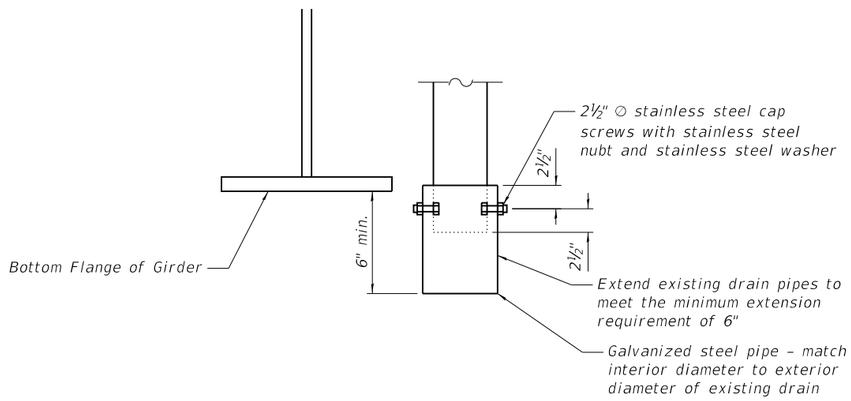


PLAN TENSIONED STRAND



ELEVATION TENSIONED STRAND



DECK DRAIN EXTENSION DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Drain Extensions	Each	13

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TENSIONED STRANDS AND PIPE EXTENSION DETAILS
S.N. 082-0144
SHEET S-166 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 76B55		
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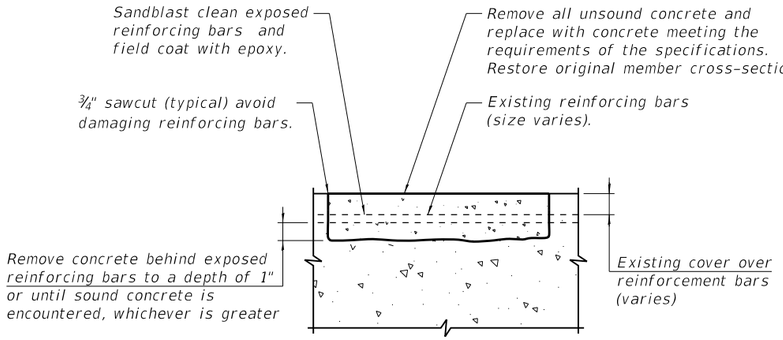
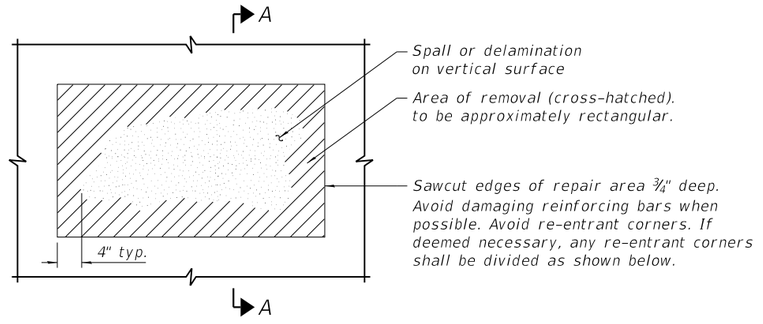


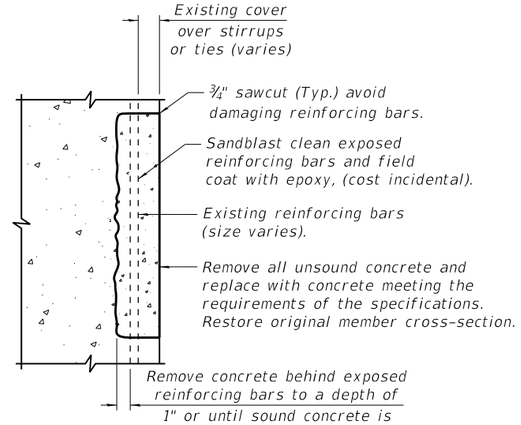
HORIZONTAL SURFACE REPAIR (PARTIAL DEPTH)

At bridge deck and substructure.



VERTICAL SURFACE REPAIR DETAIL

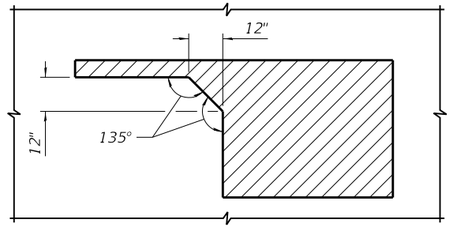
At Substructure



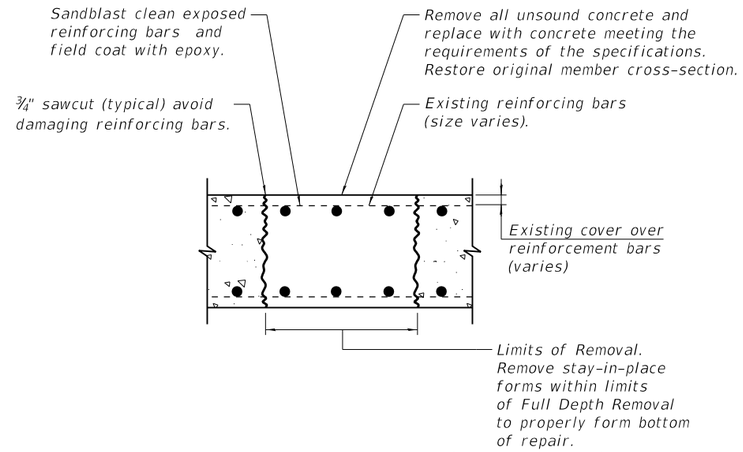
SECTION A-A

Note:
Construction history of deck as follows:

1. Original slab construction – 7" with 1 ½" clear cover to top mat.
2. 1989 repair of slabs in Spans D1 thru D32 – Removal of ¼" of deck surface and addition of 2" concrete overlay for a new deck thickness of 8 ¾"
3. 2006 repair of slabs in Spans D33 thru D41 – Removal of ½" of deck surface and addition of 2 ½" concrete overlay for a new deck thickness of 9"
4. 2006 repair of spans D42 thru D45 – Removal of 2" deck surface and addition of 4" concrete overlay for a new deck thickness of 9". A new top mat of reinforcing (E) was added within the overlay having a clear cover of 1 ½". Contractor shall assume that any delaminations in these spans extend to the original mat or reinforcement.



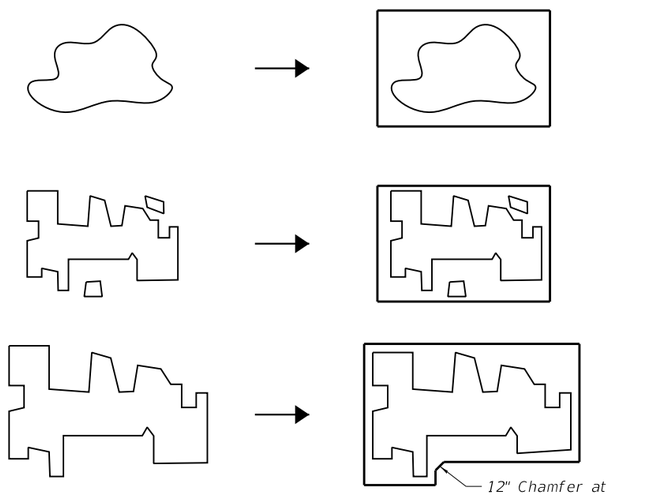
RE-ENTRANT CORNER MODIFICATIONS



HORIZONTAL SURFACE REPAIR (FULL DEPTH)

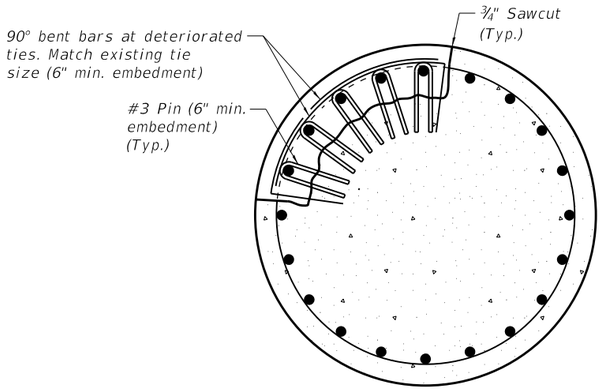
At bridge deck

Note:
Where construction joints occur within patches due to staging requirements, concrete removal shall extend 1 inch into previously repaired regions such that all existing steel is cleaned and coated. See Roadway Plans for traffic control staging requirements.



GENERAL SHAPE OF DETERIORATION — REMOVAL GEOMETRY

TYPICAL CONCRETE REPAIR GEOMETRY



COLUMN REPAIR AT DETERIORATED TIE

Notes:
Patch shall extend 4" past tie deterioration or to the extents of unsound concrete, whichever is greater.
The instanding leg of the 90 degree bent bars will be installed 1" to 3" from the edge of the patch.
Stagger #3 pins 3" vertically (alternate sides of deteriorated existing tie)

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
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www.wje.com

USER NAME = lsalas	DESIGNED - LP	REVISED -
	CHECKED - SMG	REVISED -
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PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE REPAIR DETAILS
S.N. 082-0144
SHEET S-167 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	246
		CONTRACT NO. 76B55		
		ILLINOIS FED. AID PROJECT		

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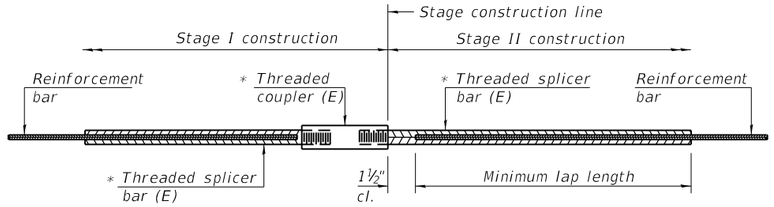
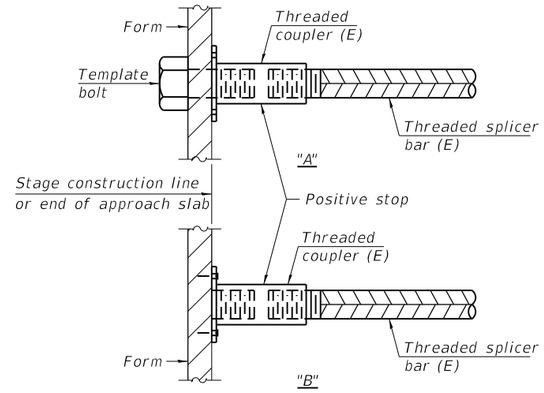


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1½" + thread length

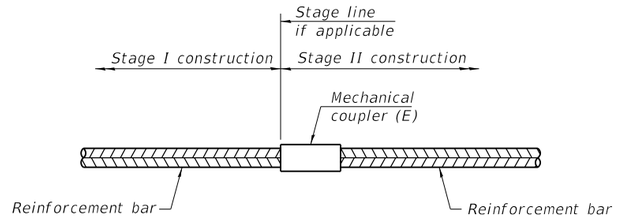
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Pier D36	#5	14	3'-6"
Pier D43	#5	28	3'-6"
Pier D44	#5	28	3'-6"
Pier D45	#5	28	3'-6"
Abutment D46	#5	14	3'-6"
Abutment D46	#6	4	4'-10"

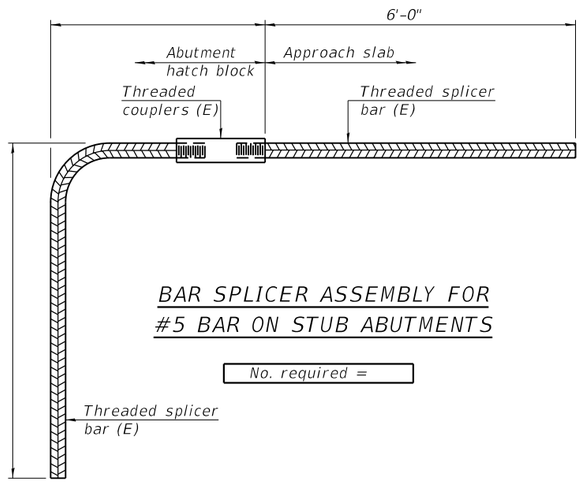


INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

Bar splicer assemblies shall develop in tension at least 125 percent of the yield strengh of the lapped reinforcement bars.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
S.N. 082-0144
SHEET S-168 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	247
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
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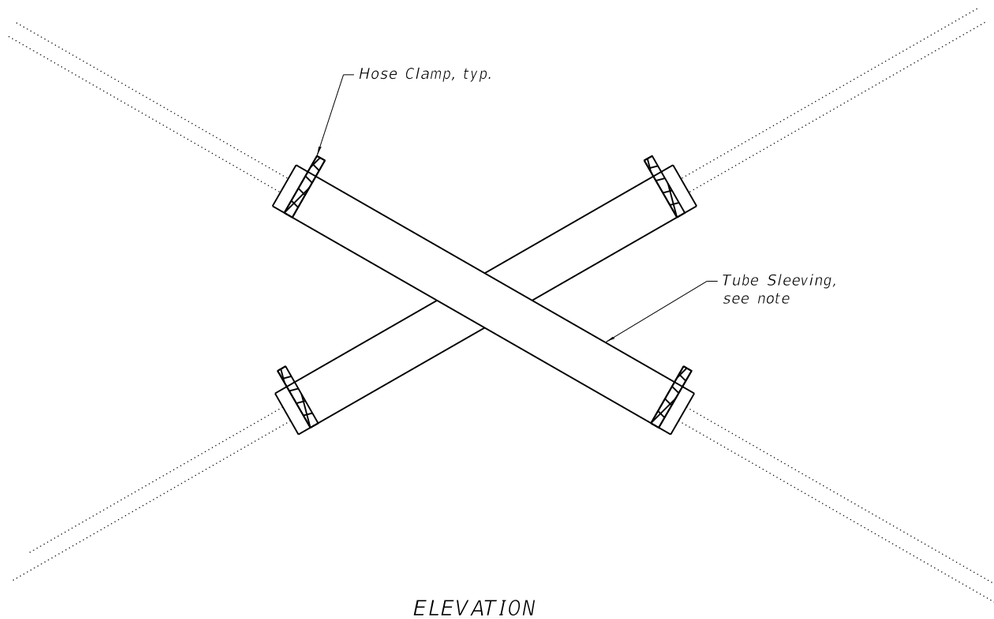

ELEVATION

Note:
Tube sleeving is to be ¾" I.D. PVC plastic tube sleeving (McMaster-Carr product number 1508T37 or approved equal). Tubes will be slit longitudinally and placed around each cable and secured in place by hose clamps. Care shall be taken to ensure that the sheathing laps correctly as the hose clamps are tightened and does not crush.

Cable protection required at 2 locations – over Pier D11 and Pier D22.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Cable Protection	Each	2

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330 Pfingsten Road
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STATE OF ILLINOIS
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CABLE PROTECTION SLEEVE
S.N. 082-0144
SHEET S-169 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	248
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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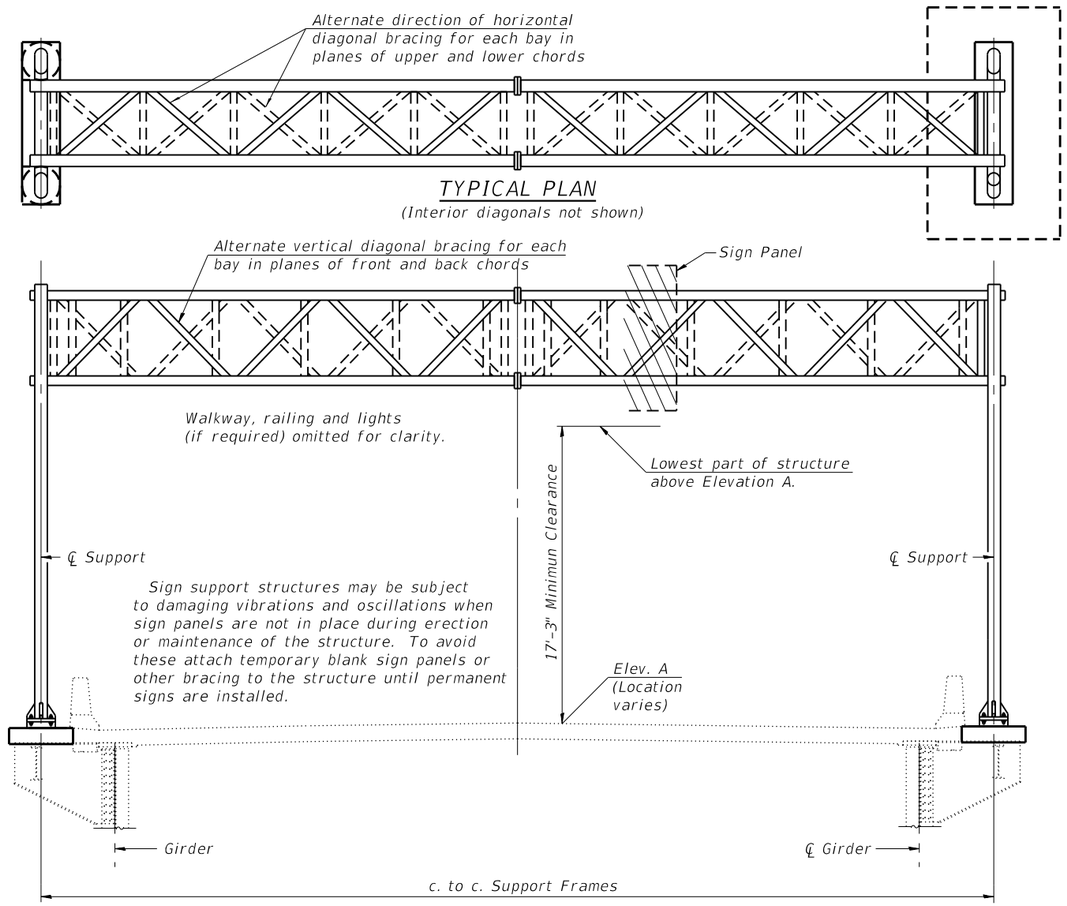
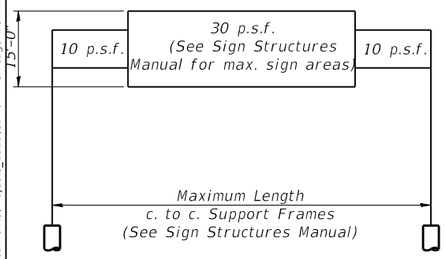


TYPICAL ELEVATION

(Looking at Face of Signs**)

Elev. A = Elevation at point of minimum clearance to sign, walkway support or truss.



DESIGN WIND LOADING DIAGRAM

Parameters shown are basis for I.D.O.T. Standards and Sign Manual Tables. Installations not within dimensional limits shown require special analysis for all components.

Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign	Total Sign Area
8S082I055R000.7	58+19	II-A	61'-5¼"	450.52	---	13'-6"	560
8S082I055R001.0	72+59	II-A	65'-9⅜"	448.94	---	13'-6"	688

**Looking upstation for structures with signs both sides.

* If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding.

SCOPE OF WORK AT EACH OVERHEAD SIGN STRUCTURE

1. Remove Overhead Sign Structure including supports.
2. Install new Overhead Sign Structure.
3. Install Signs.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
REMOVE OVERHEAD SIGN STRUCTURE - SPAN	Each	2
OVERHEAD SIGN STRUCTURE - SPAN, TYPE II-A (4'-6" x 5'-3")	Foot	127
OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	Foot	119
SIGN PANEL - TYPE 1	Sq. Ft.	6
SIGN PANEL - TYPE 2	Sq. Ft.	16
SIGN PANEL - TYPE 3	Sq. Ft.	1203

GENERAL NOTES

DESIGN: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications")

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

DESIGN STRESSES:
Field Units
f'c = 4,000 p.s.i.
fy = 60,000 p.s.i. (reinforcement)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 and D1.2 Structural Welding Codes (Steel and Aluminum) and the Standard Specifications. No field welding is permitted except as specified in contract documents.

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B or A500 Grade B or C. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53. All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W*. Stainless steel for shims, sleeves and handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer.
The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

FASTENERS FOR ALUMINUM TRUSSES: All bolts noted as "high strength" must satisfy the requirements of AASHTO M164 (ASTM A325), or approved alternate, and must have matching lock nuts. Threaded studs for splices (if Members interfere) must satisfy the requirements of ASTM A449, ASTM A193, Grade B7, or approved alternate, and must have matching lock nuts. Bolts and lock nuts not required to be high strength must satisfy the requirements of ASTM A307. All bolts and lock nuts must be hot dip galvanized per AASHTO M232. The lock nuts must have nylon or steel inserts. A stainless steel flat washer conforming to ASTM A240 Type 302 or 304, is required under both head and nut or under both nuts where threaded studs are used. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the IDOT Standard Specifications for Road and Bridge Construction. Rotational capacity ("ROCAP") testing of bolts will not be required.

U-BOLTS AND EYEBOLTS: U-Bolts and Eyebolts must be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finished stainless steel, or an equivalent material acceptable to the Engineer. All nuts for U-Bolts and Eyebolts must be lock nuts equivalent to ASTM A307 with nylon or steel inserts and hot dip galvanized per AASHTO M232. A stainless steel flat washer conforming to ASTM A240, Type 302 or 304, is required under each U-Bolt and Eyebolt lock nut.

GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: Shall conform to ASTM F1554 Gr. 105.

CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Concrete Sealer in accordance with the Standard Specifications.

REINFORCEMENT BARS: Reinforcement Bars designated (E) shall be epoxy coated in accordance with the Standard Specifications.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing deck.

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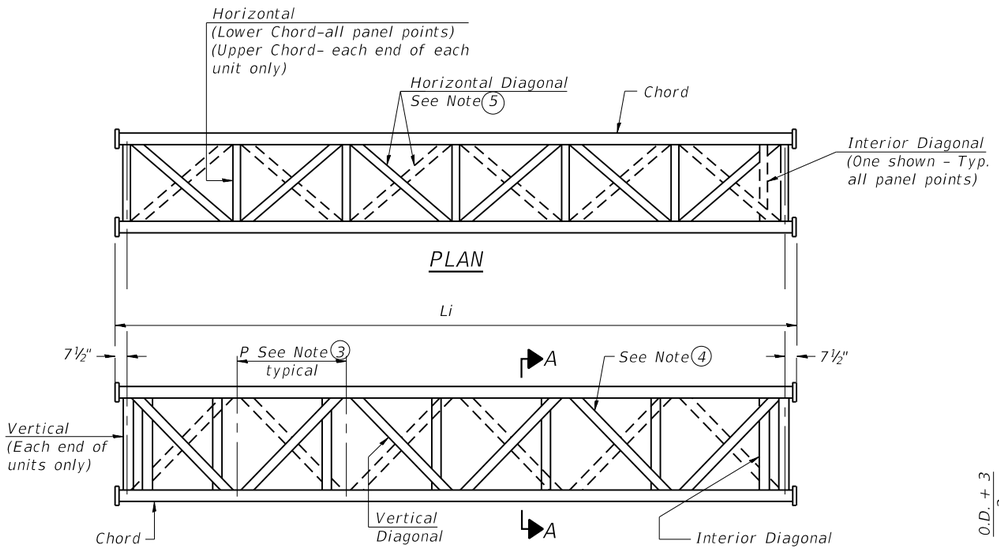
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURE - GENERAL PLAN & ELEVATION
S.N. 082-0144
SHEET S-170 OF S-183 SHEETS

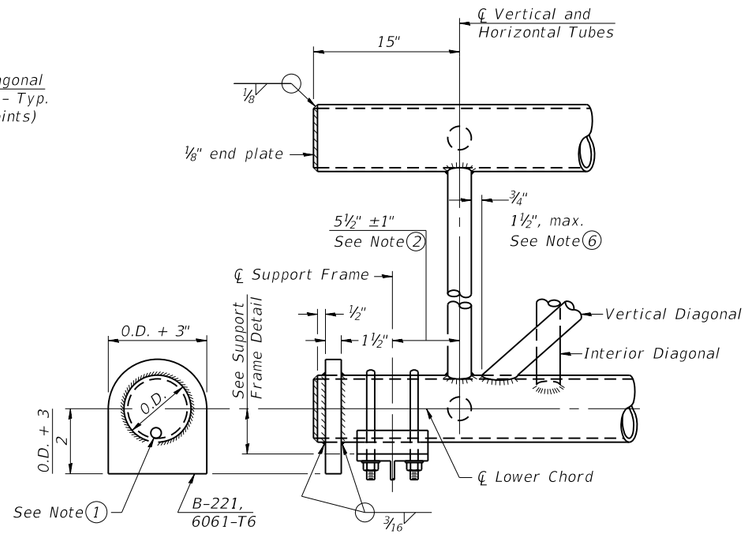
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	249
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



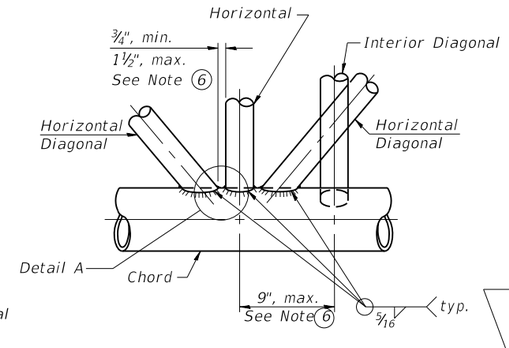
ELEVATION

TYPICAL INTERIOR UNIT

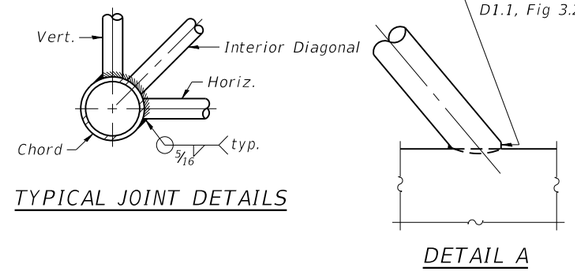
Even number of panels/interior unit required.



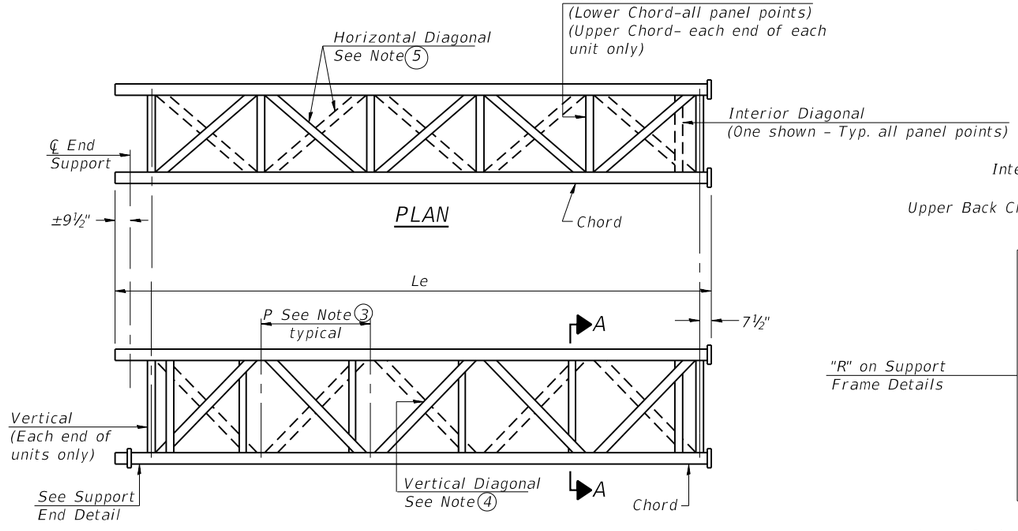
SUPPORT END DETAIL FOR EXTERIOR UNIT



TYPICAL JOINT DETAILS



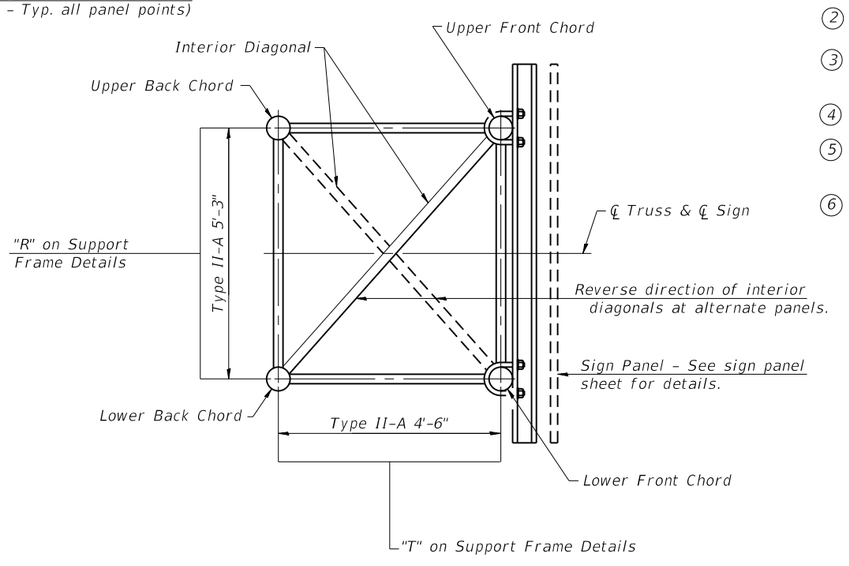
DETAIL A



ELEVATION

TYPICAL EXTERIOR UNIT

Even or odd number of panels/exterior units allowed.



SECTION A-A

1. Contractor may alternatively use standard aluminum drive-fit cap to close end. ½" Ø drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
2. 5½" end dimension may vary by ±1" to provide uniform panel spacing (P).
3. Panel spacing (P) shall be uniform for entire truss and between 4'-0" and 5'-6" for Type II-A.
4. Vertical Diagonals in front and back face shall alternate.
5. Hidden lines show wind bracing alternates direction between planes of top and bottom chords.
6. All diagonals shall be detailed for minimum offset from the panel point based on the following: Offset shall be such as to provide a ¾" minimum to 1½" maximum clearance between any diagonal and any horizontal or vertical member, and to provide clearance for U-bolt connections of signs or walkway brackets.

OS-A-2

2-17-2017

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STATE OF ILLINOIS
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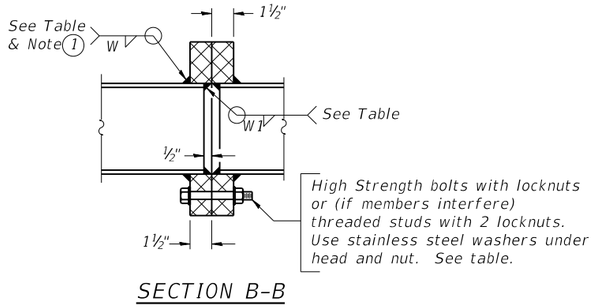
OVERHEAD SIGN STRUCTURE - DETAILS (1 OF 2)
S.N. 082-0144
SHEET S-171 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	250
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

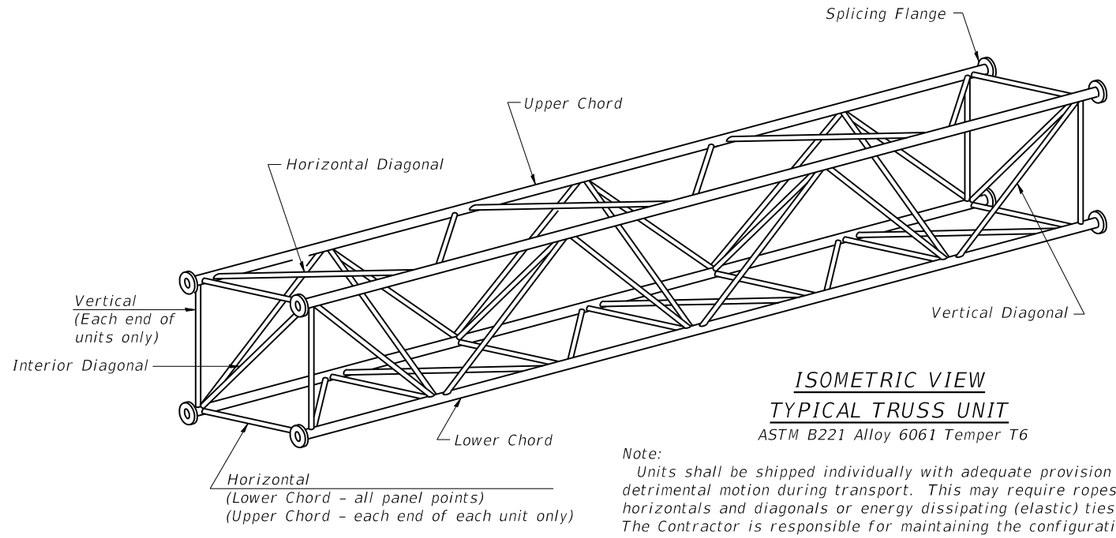
TRUSS UNIT TABLE

Structure Number	Station	Design Truss Type	Exterior Units (2)			Interior Unit				Upper & Lower Chord		Verticals; Horizontals; Vertical,Horizontal, and Interior Diagonals		Camber at Midspan	Splicing Flange					
			No. Panels per Unit	Unit Lgth.(Le)	Panel Lgth.(P)	No. Req'd.	No. Panels per Unit	Unit Lgth.(Li)	Panel Lgth.(P)	O.D.	Wall	O.D.	Wall		Bolts		Weld Sizes		A	B
															No./Splice	Dia.	W	W1		
8S082I055R000.7	58+19	II-A	6	30'-3"	4'-8¾"	---	---	---	---	5½"	⅜16	3	⅝16	1⅜8"	6	⅞	⅜	¼	9¼"	12¼"
8S082I055R001.0	72+59	II-A	7	32'-6"	4'-4½"	---	---	---	---	5½"	⅜16	3	⅝16	1⅜16"	6	⅞	⅜	¼	9¼"	12¼"



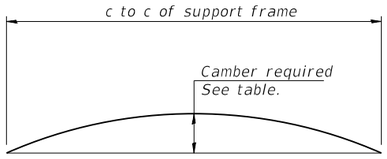
SECTION B-B

(1) Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining welds are made after disassembly. Adjacent flanges shall be "match marked" to insure proper field assembly.



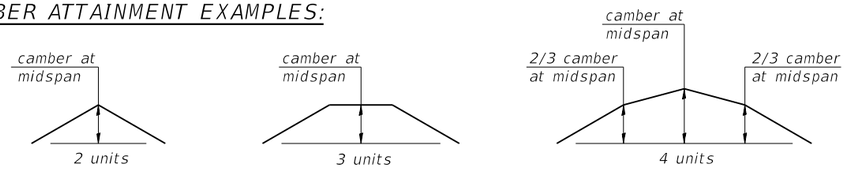
ISOMETRIC VIEW
TYPICAL TRUSS UNIT
ASTM B221 Alloy 6061 Temper T6

Note:
Units shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The Contractor is responsible for maintaining the configuration and protection of the units.

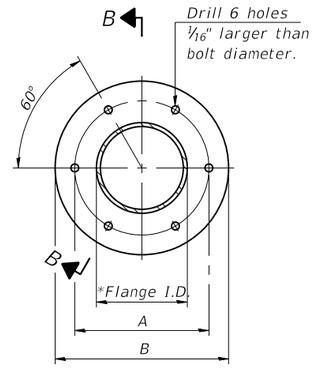


CAMBER DIAGRAM
Camber curve shown is theoretical. Actual camber attained by slope changes at splices between units.

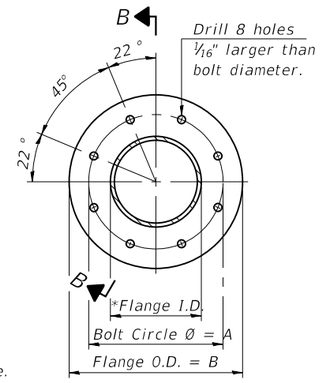
CAMBER ATTAINMENT EXAMPLES:



Camber shown is for fabrication only, measured with truss fully supported. (No-load condition)

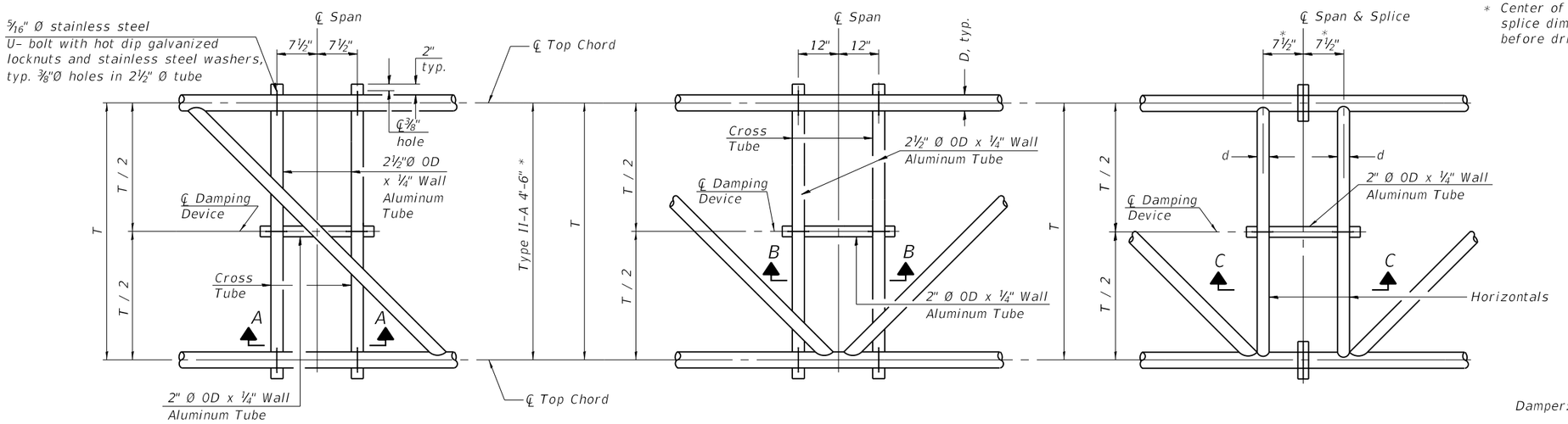


TRUSS TYPES I-A, II-A, & III-A



TRUSS TYPES II-A & III-A

SPLICING FLANGES
ASTM B221, Alloy 6061-T6
or ASTM B209, Alloy 6061-T651
*To fit O.D. of Chord with maximum gap of 1/16".

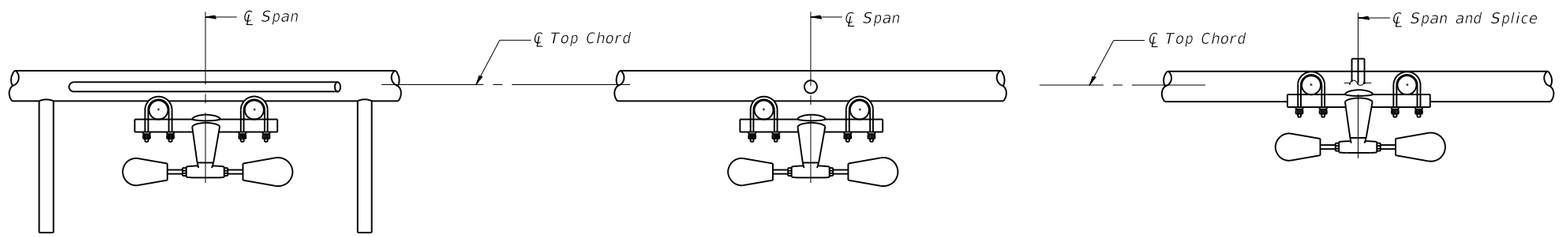


* Center of horizontal to center of splice dimension may vary. Verify before drilling holes in mounting tube.

PLAN DETAIL "A"
℄ Span between Panel Points

PLAN DETAIL "B"
℄ Span at Panel Point

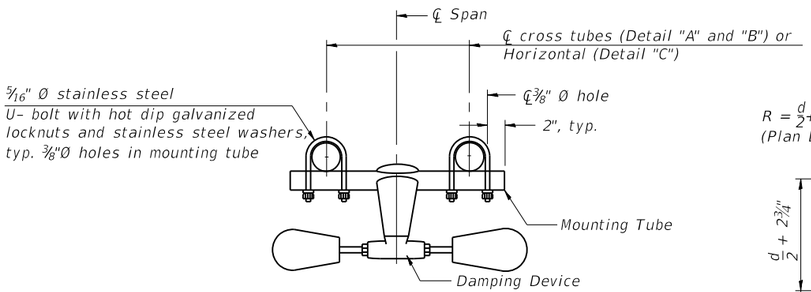
PLAN DETAIL "C"
℄ Span at ℄ Chord Splice



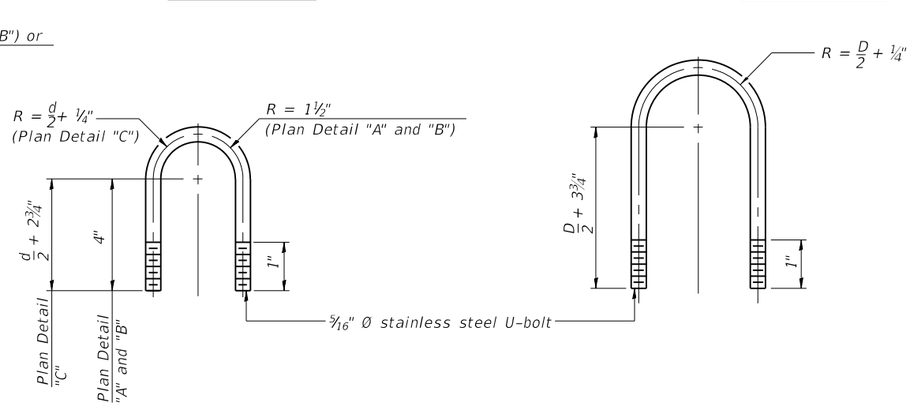
SECTION A-A

SECTION B-B

SECTION C-C

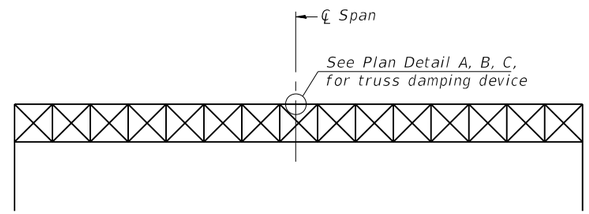


TRUSS DAMPING DEVICE CONNECTION DETAIL
(Typical)



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL
(Typical)

TOP CHORD TO CROSS TUBE U-BOLT DETAIL
(Typical - Detail "A" and "B")



ELEVATION
Aluminum Overhead Sign Truss

NOTES

Damper: One damper per truss. (31 lbs. minimum Stockbridge-Type Aluminum - 29" minimum between ends of weights) Cost included in Overhead Sign Structure...

Materials: Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...

OS-A-D

2-17-2017

TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURE - DAMPING DEVICE
S.N. 082-0144
SHEET S-173 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	252
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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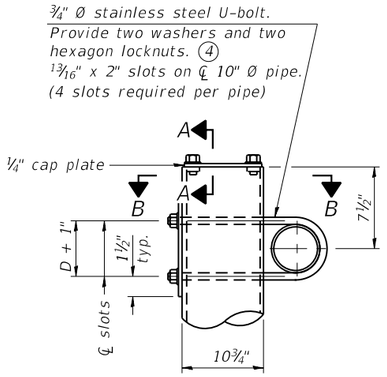
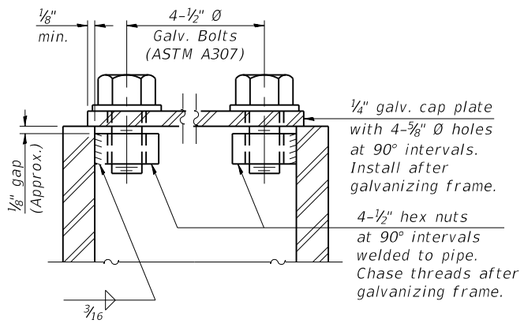
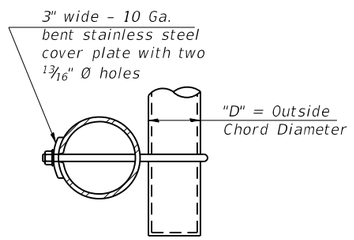


DETAIL A

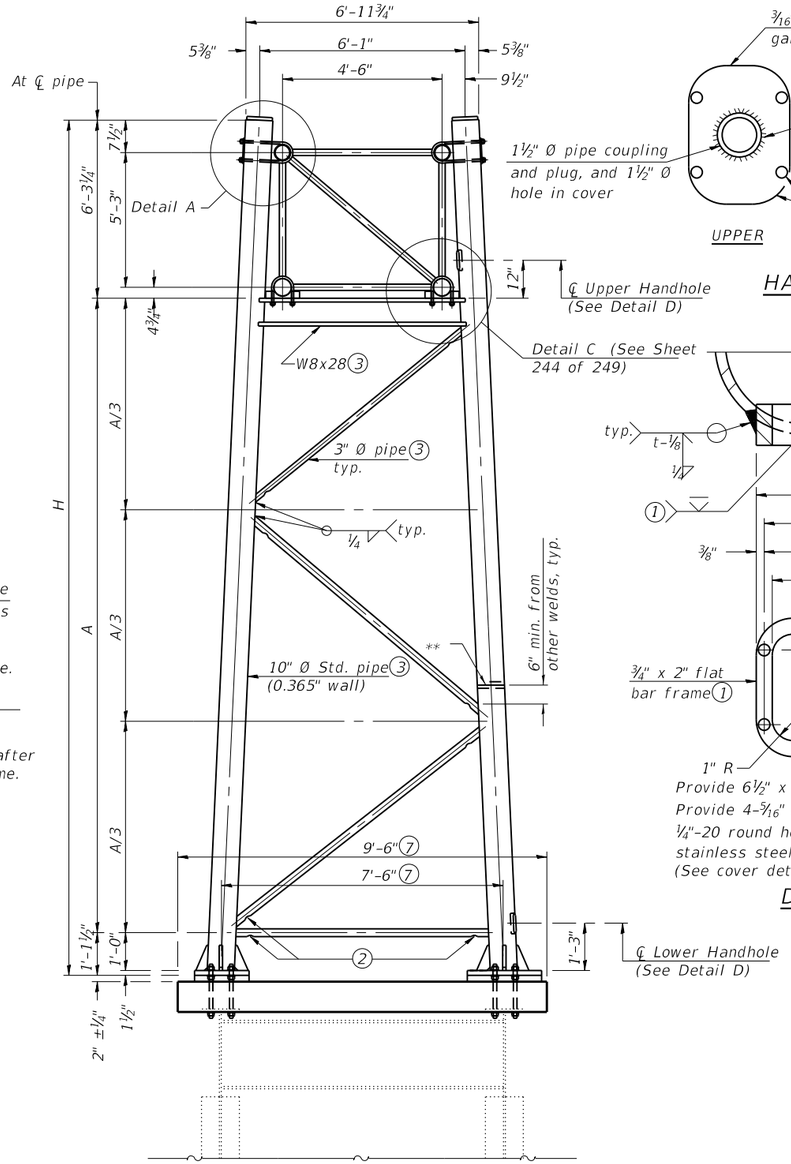


SECTION A-A

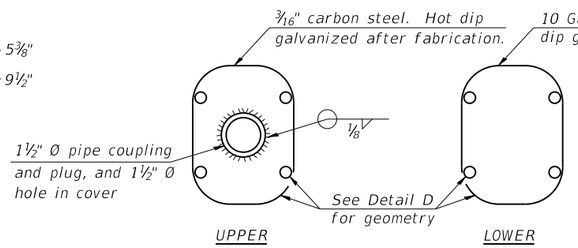
As an alternate to bolts, may use galvanized drive-fit caps installed after galvanizing frame.



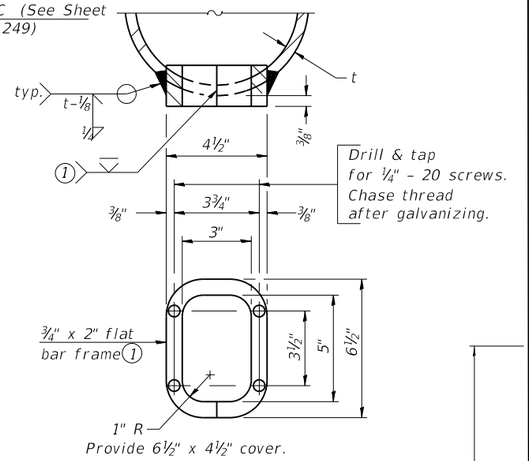
SECTION B-B



SIDE ELEVATION

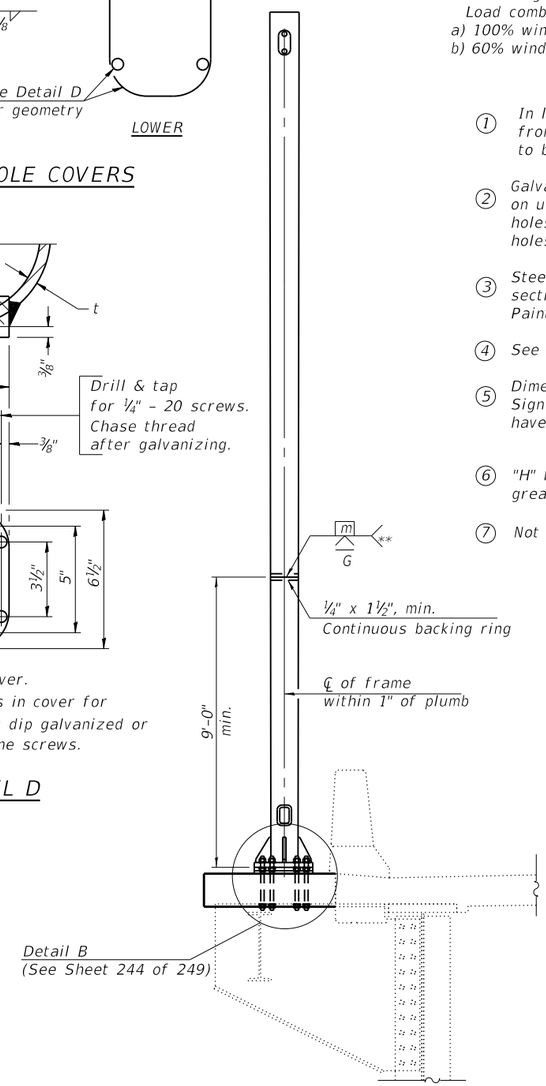


HANDHOLE COVERS



Provide 6½" x 4½" cover.
Provide 4-5/16" Ø holes in cover for ¼"-20 round head hot dip galvanized or stainless steel machine screws.
(See cover details)

DETAIL D



END ELEVATION

Support Design Loads: See Sheet 79 of 90 for design and loading criteria.
Load combinations checked include deadload plus:
a) 100% wind normal to sign, 20% parallel to sign
b) 60% wind normal to sign, 30% parallel to sign

1. *In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500μ in or less.*
2. *Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.*
3. *Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet 0S-A-1.*
4. *See General Notes for fasteners.*
5. *Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.*
6. *"H" based on 15'-0" or actual sign height, whichever is greater.*
7. *Not a standard dimension. Match existing connection spacing*

10" Ø PIPE TRUSS SUPPORT FRAME

** *One butt welded joint is allowed only on one post per support frame. If used, weld procedure must be pre-approved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.*

Structure Number	Station	Support		H	A
		Left	Right	(6)	
8S082I055R000.7	58+19	X		32.64	25.24
8S082I055R000.7	58+19		X	29.59	22.19
8S082I055R001.0	72+59	X		33.39	25.99
8S082I055R001.0	72+59		X	29.59	22.19

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7/15/2020 2:58:21 PM

TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURE - SUPPORT FRAME
S.N. 082-0144
SHEET S-174 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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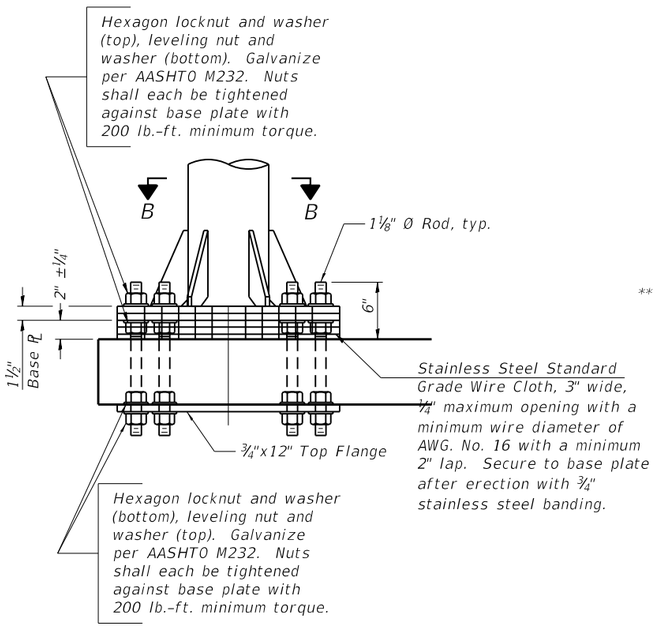
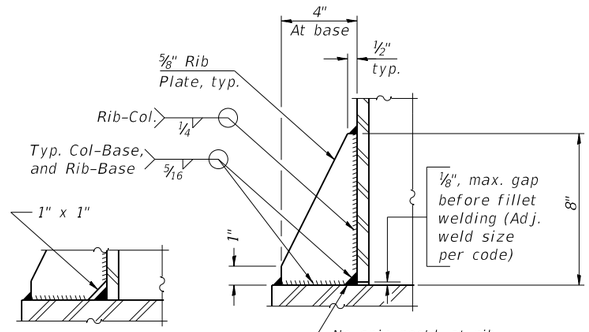
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



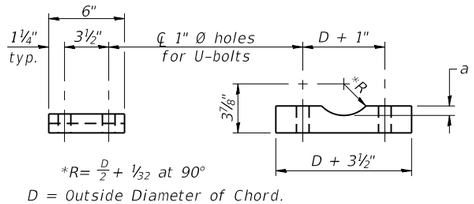
DETAIL B

Ribs shall be cut to fit slope of pipe.



** Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib ¼" from snip.

SECTION D-D



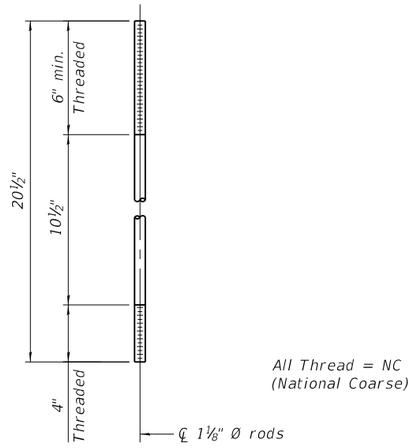
*R= $\frac{D}{2}$ + 1/32 at 90°

D = Outside Diameter of Chord.

SADDLE SHIM DETAIL

ASTM B26 Alloy 356-F
or
ASTM B209 Alloy 6061-T651
(4 required per sign truss)

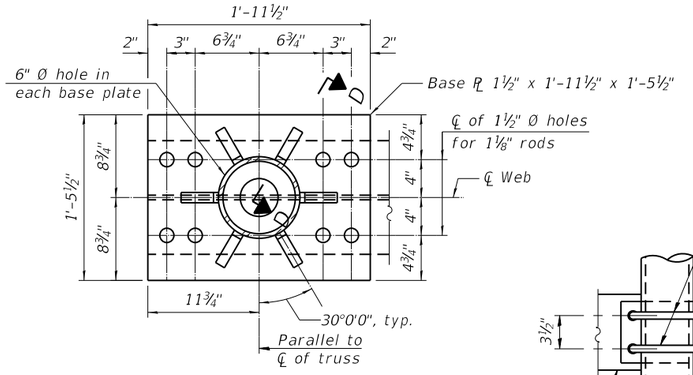
Truss Chord Nominal Dia.	a
5"	¾"
5½"	13/16"
6"	⅞"
6½"	15/16"
7"	1"



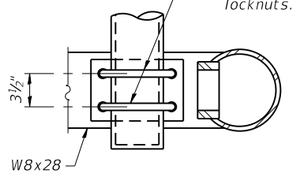
ANCHOR ROD DETAIL

Anchor Rods shall conform to ASTM F1554 and shall be fully galvanized per AASHTO M232. No welding shall be permitted on rods.

Note:
Anchor Rods are included in the cost of Overhead Sign Structure - Span, Type II-A (4'-6"x5'-3")

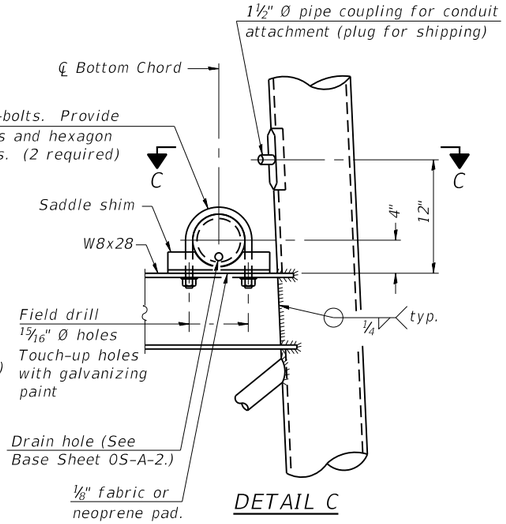


SECTION B-B



SECTION C-C

(Handhole cover not shown)



DETAIL C

TYPE II-A TRUSS
10" Ø PIPE SUPPORT FRAME DETAILS

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TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
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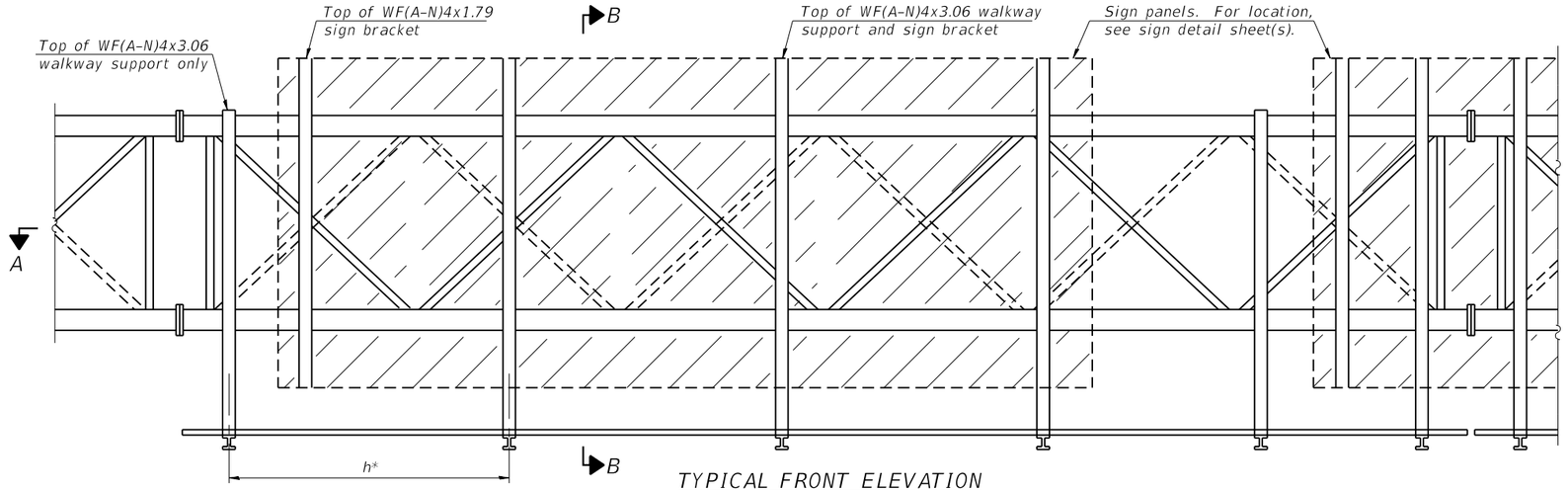
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

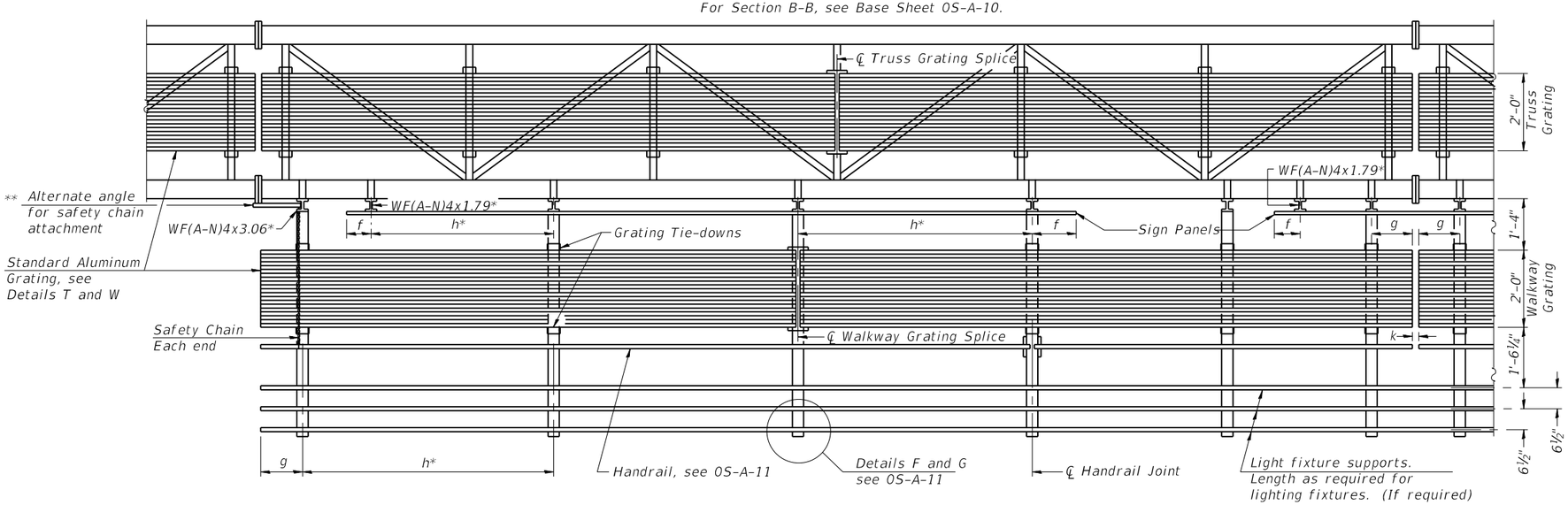
OVERHEAD SIGN STRUCTURE - SUPPORT FRAME DETAILS
S.N. 082-0144
SHEET S-175 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	254
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



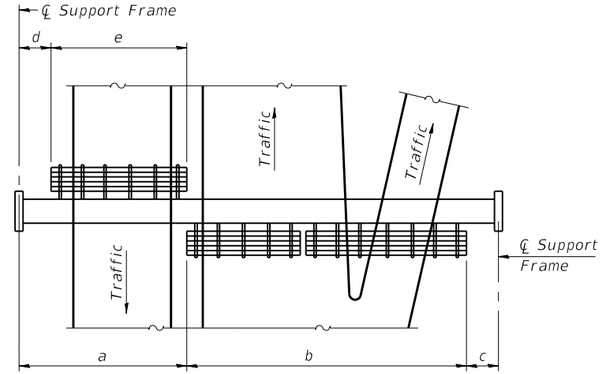
TYPICAL FRONT ELEVATION

With lights and handrail omitted for clarity.
For Section B-B, see Base Sheet 0S-A-10.



SECTION A-A

Handrail and walkway shall span a minimum of three brackets between splices and/or gap joints.
Place all sign and walkway brackets as close to panel points as practical.
Handrail joints, grating, and light support splices placed as needed.



PLAN
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath truss varies)

BRACKET TABLE

WF(A-N)4x1.79 or WF(A-N)4x3.06 ASTM B308, Alloy 6061-T6		
Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
	8'-0"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

Notes:

* *Space walkway brackets WF(A-N)4x3.06 and sign brackets WF(A-N)4x1.79 for efficiency and within limits shown:*

f = 12" maximum, 4" minimum (End of sign to ℄ of nearest bracket)
g = 12" maximum, 4" minimum (End of walkway grating to ℄ of nearest support bracket)
h = 6'-0" maximum (℄ to ℄ sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)
k = 2" maximum gap between adjacent walkway grating sections and handrail ends

** *If walkway bracket at safety chain location is behind sign, add angle to bracket, see Alternate Safety Chain Attachment on Sheet 247 of 249.*

For Details T and W, Section B-B and Grating Splice Details see Sheet 246 of 249.
For Handrail Details see Sheet 247 of 249.

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
8S082I055R000.7	58+19	2'-0⅛"	57'-5"	2'-0⅛"	---	---	57'-5"
8S082I055R001.0	72+59	2'-0³⁄₁₆"	61'-9"	2'-0³⁄₁₆"	---	---	61'-9"

Truss grating to facilitate inspection shall run full length (center to center of support frames) ±12" on overhead trusses. Cost of truss grating is included in "Overhead Sign Structure".

Walkway and Truss Grating width dimensions are nominal and may vary ±½" based on available standard widths.

0S-A-9 2-17-2017

TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
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PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURE - WALKWAY DETAILS (1 OF 2)
S.N. 082-0144
SHEET S-176 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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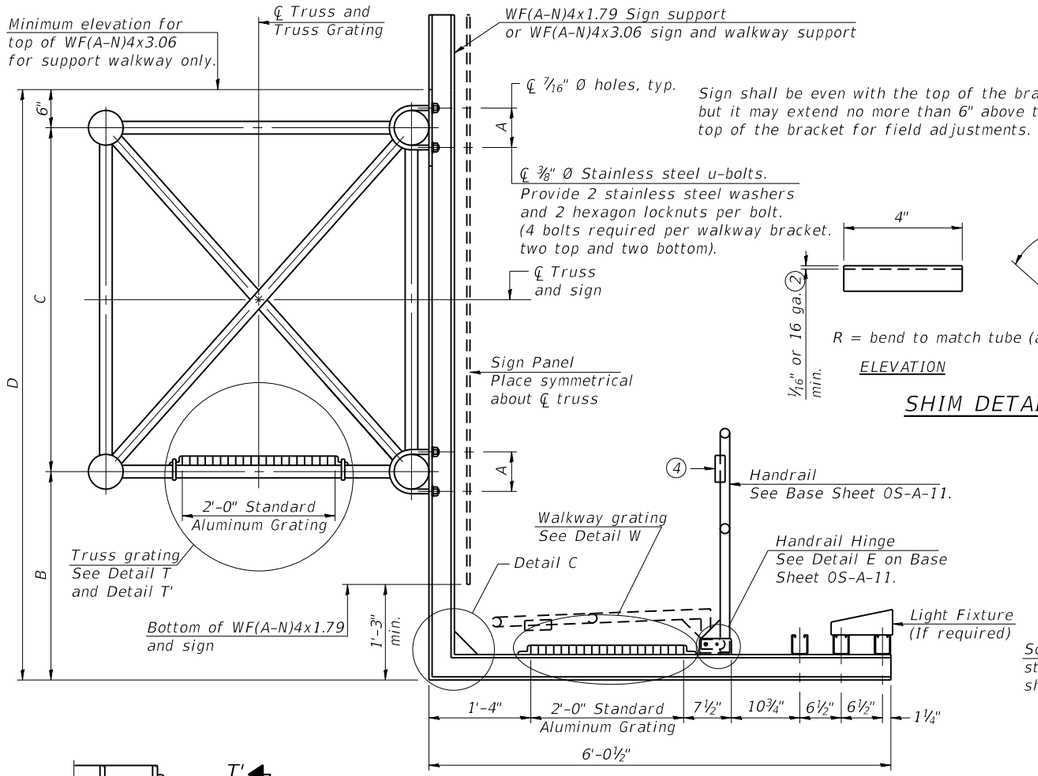
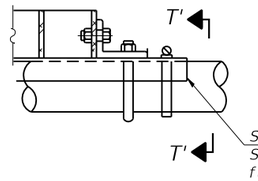
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



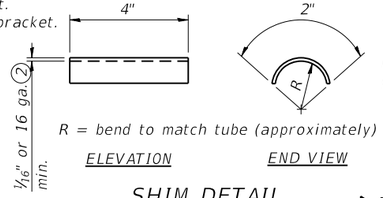
SECTION B–B



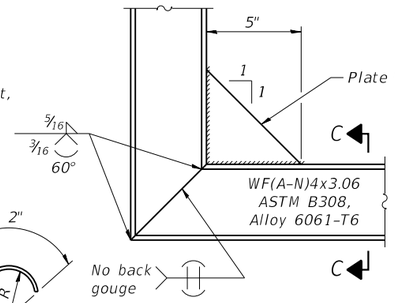
DETAIL T'

(Truss grating splice)

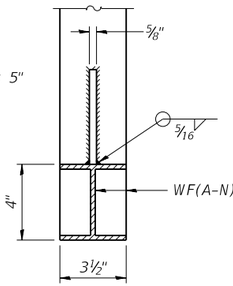
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.



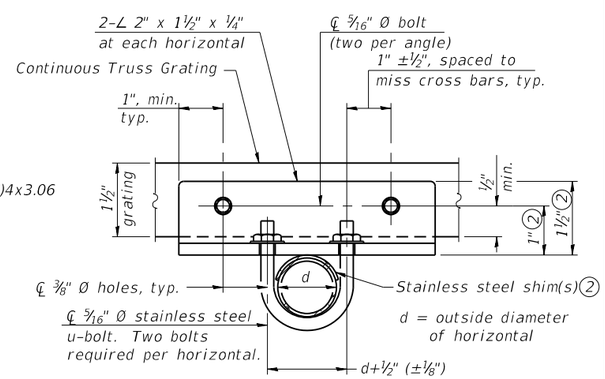
SHIM DETAIL



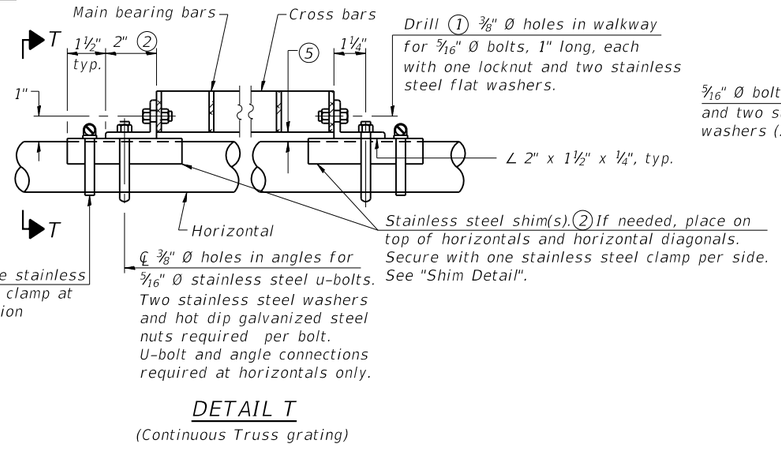
DETAIL C



SECTION C–C

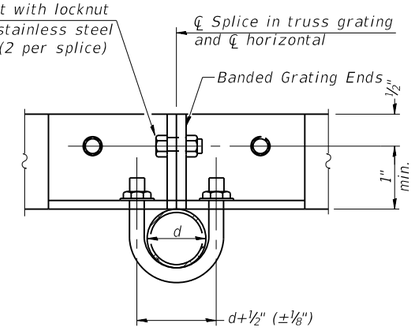


SECTION T–T

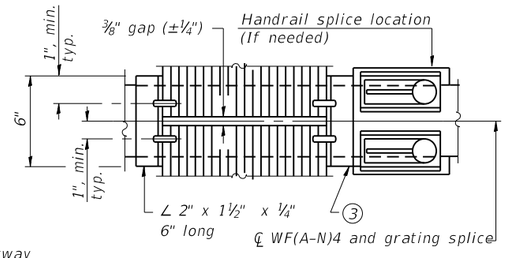


DETAIL T

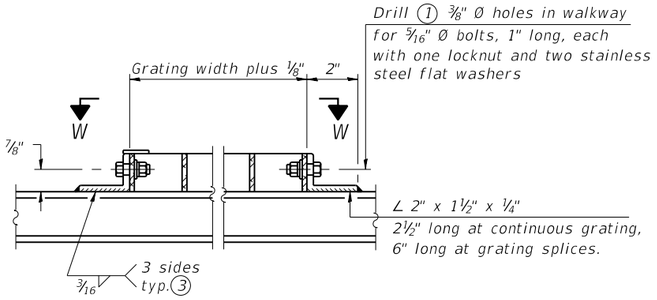
(Continuous Truss grating)



SECTION T'–T'

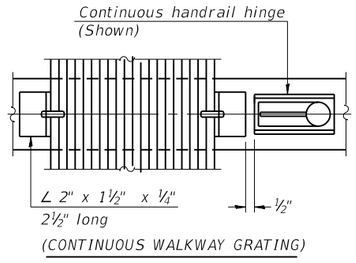


(AT WALKWAY GRATING SPLICE)



DETAIL W

(Walkway grating)



(CONTINUOUS WALKWAY GRATING)

SECTION W–W

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

Main Bearing Bars shall be 3⁄16" x 1½" on 1 3⁄16" centers and conform to ASTM B221 Alloy 6061–T6.

Cross bars shall be 3⁄16" x 1½" on 4" centers and conform to ASTM B221 Alloy 6063–T5 or 6061–T6.

OR

Aluminum Grating with modified "t" sections for main bearing bars shall meet the following requirements:

Main bars shall conform to ASTM B221 Alloy 6061–T6 and have a minimum section modulus equal to 0.0705 $in.^3$ per bar, a depth of 1½", spaced on 1 3⁄16" centers.

Cross bars shall conform to ASTM B221 Alloy 6063–T5 or T–42 and spaced on 4" centers.

Structure Number	Station	A	⑥ B	C	⑥ D
8S0821055R000.7	58+19	6½"	6'–1½"	5'–3"	11'–10½"
8S0821055R001.0	72+59	6½"	6'–1½"	5'–3"	11'–10½"

① Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment

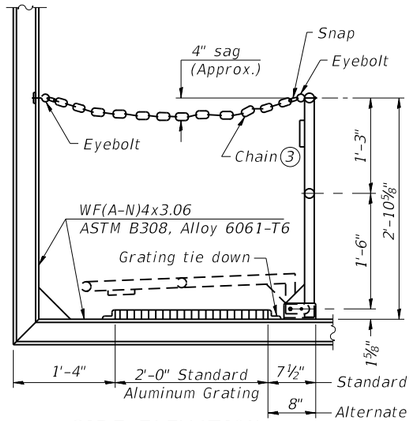
② Stainless steel shims shall be placed as shown in Detail T if needed to compensate for alignment variations between horizontal and diagonal pipes beyond adjustment provided by angles. Thicker shims may be used subject to shims performing properly.

③ If Handrail Joint present, weld angle to WF(A–N)4 and ¼" extension bars. (See Base Sheet 0S–A–11.)

④ PL ⅛" x ½" x 2" welded to handrail posts to protect locations that contact grating.

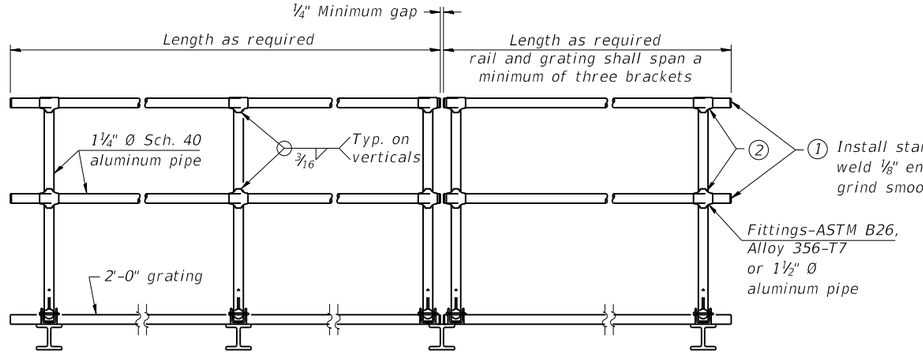
⑤ Tube to grating gap may vary from 0 to ½", max. to align walkway, allow for camber, etc.

⑥ Based on actual height of tallest sign given on 0S–A–1.



SIDE ELEVATION

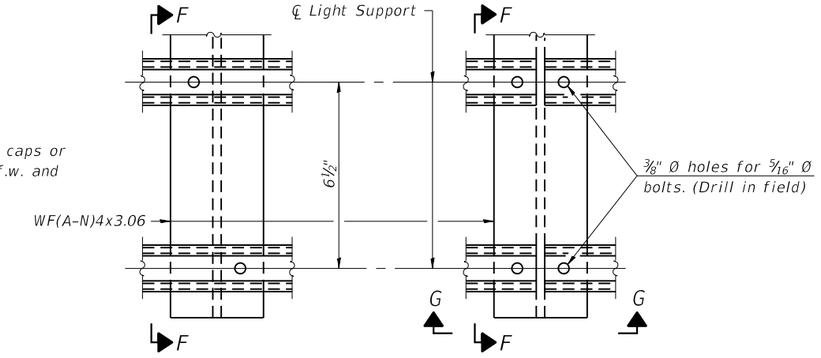
(Showing safety chain w/o sign)



① Install standard force-fit end caps or weld ⅛" end plates with ⅛" c.f.w. and grind smooth. (All rail ends)

FRONT ELEVATION

② Horizontal handrail member shall be continuous thru fitting. Provide 7/16" Ø hole in fitting for ⅜" Ø bolt. Field drill 7/16" Ø hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 7/16"Ø holes on top rail at ends only.)

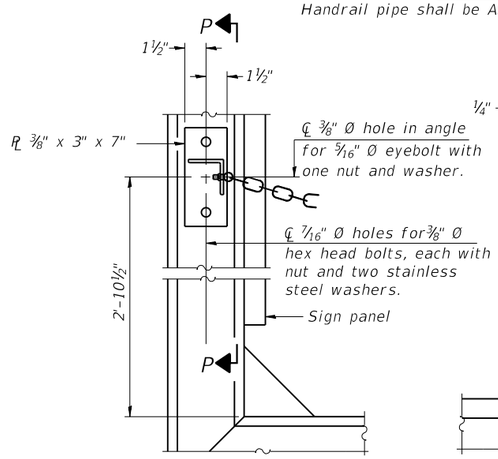


DETAIL F

DETAIL G

HANDRAIL DETAILS

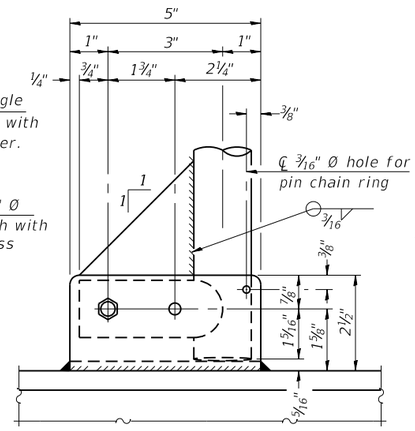
Handrail pipe shall be ASTM B241 or B429, Alloy 6063-T6 or Alloy 6061-T6.



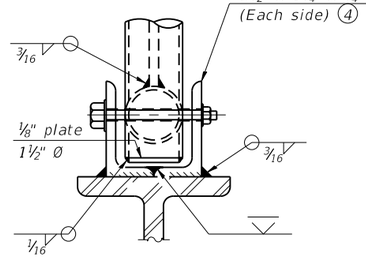
ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

Items not shown same as "Side Elevation" of "Handrail Details"

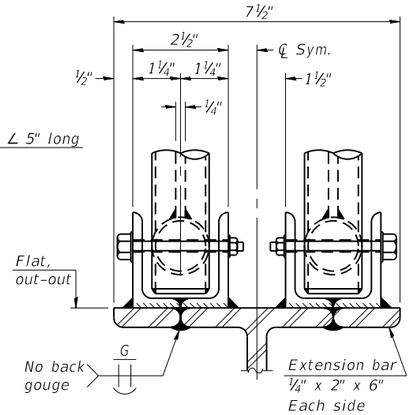


SIDE ELEVATION

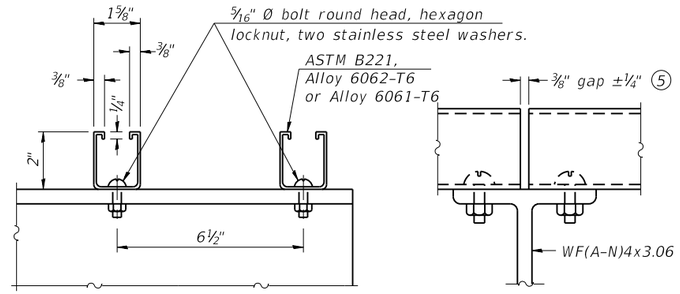


FRONT ELEVATION

See "Elevation" at right for dimensions.



ELEVATION AT HANDRAIL JOINT ④

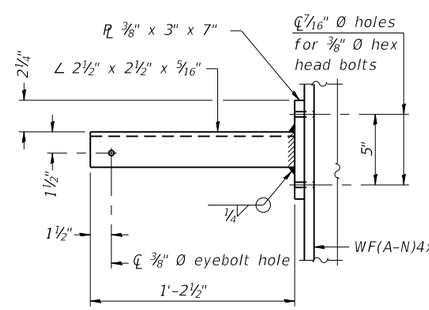


SECTION F-F

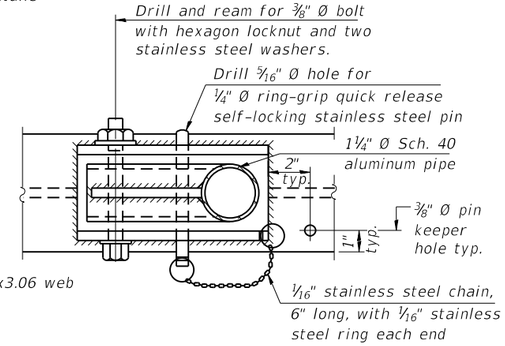
SECTION G-G

LIGHTING FIXTURE MOUNTS (IF REQUIRED)

⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

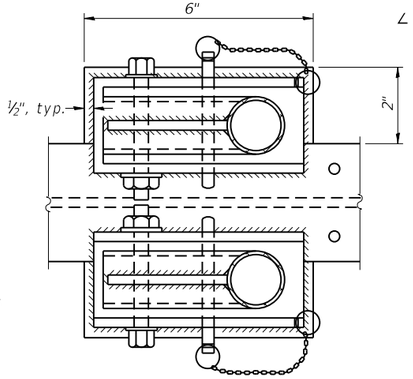


SECTION P-P



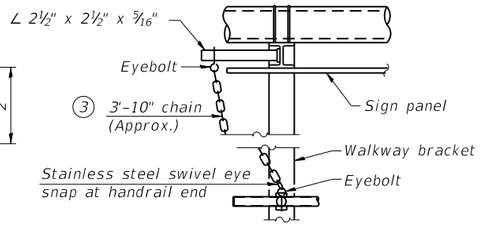
PLAN

DETAIL E HANDRAIL HINGE



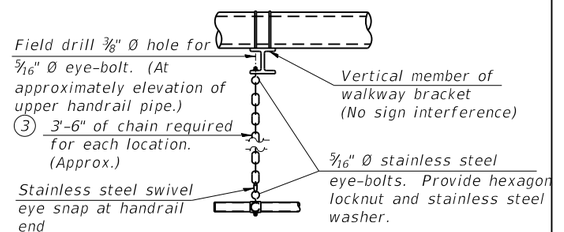
PLAN AT HANDRAIL JOINT

Details not shown same as "PLAN"



ALTERNATE SAFETY CHAIN ATTACHMENT

Details not shown similar to "Safety Chain" Details
(Walkway omitted for clarity)



SAFETY CHAIN

One required for each end of each walkway.

③ 3/16" Type 304L stainless steel chain, approximately 12 links per foot.

④ Extrusions may be used in lieu of the details shown, with approval of the Engineer.

MODEL: Default
FILE NAME: pw:\\hq-pwint01.a-e.transystems.com:transystems-pw1\Documents\Projects_2020\CD404 - Chicago Downtown\P404200017 - Poplar Complex Roadway\304.00 - Bridge\304.02 -CADD\Sheets\OSS-SSD1 - OVERHEAD SIGN STRUCTURE - SPECIAL SIGN DETAILS (1 OF 3)
7/15/2020 2:58:28 PM

OS-A-11 2-17-2017

TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURE - HANDRAIL DETAILS
S.N. 082-0144
SHEET S-178 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	257
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

SIGN NUMBER	EB–01–OH, EB–04–OH
WIDTH x HEIGHT	19'–0" x 13'–0"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective – ZZ
	COLOR: Green
LEGEND/BORDER	TYPE: Reflective – ZZ
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT
M1_1	0	–	–	36	36
M1_1	0	–	–	36	36
M1_4	0	–	–	36	36
M1_1	0	–	–	36	36

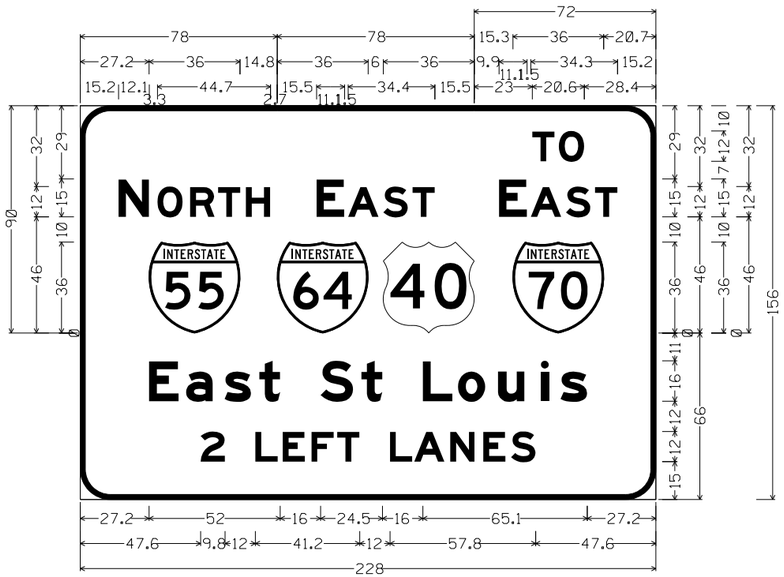
SIGN NUMBER	EB–02–OH
WIDTH x HEIGHT	14'–6" x 8'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective – ZZ
	COLOR: Green
LEGEND/BORDER	TYPE: Reflective – ZZ
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT

SIGN NUMBER	EB–03–OH
WIDTH x HEIGHT	14'–0" x 13'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective – ZZ
	COLOR: Green, Yellow
LEGEND/BORDER	TYPE: Reflective – ZZ
	COLOR: White, Black

SYMBOL	ROT	X	Y	WID	HT
M1_5	0	–	–	36	36
AR_Type A	315	–	–	22.3	35.6

NOTE: ALL ARROWS (DOWN OR 45 DEGREE) USED ON OVERHEAD SIGNS SHALL BE DEMOUNTABLE AND INCLUDED IN THE COST OF THE SIGN PANEL.



55 64 40 70;

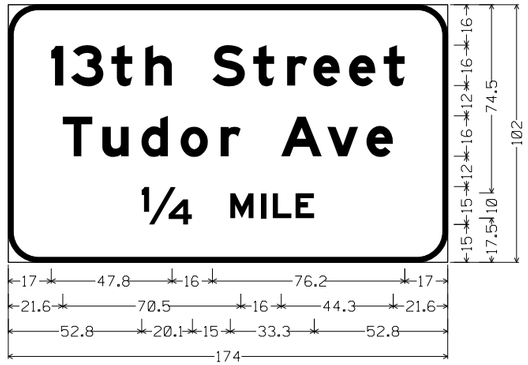
12.0" Radius, 2.0" Border, White on, Green;
"NORTH", E Mod 2K;

12.0" Radius, 2.0" Border, White on, Green;
"EAST", E Mod 2K;

12.0" Radius, 2.0" Border, White on, Green;
"TO", E Mod 2K; "EAST", E Mod 2K;

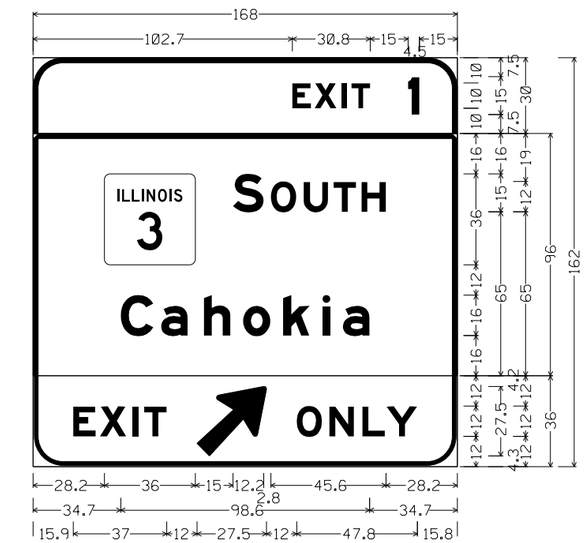
12.0" Radius, 2.0" Border, White on, Green;
"East St Louis", E Mod 2K; "2 LEFT LANES", E Mod 2K;
Table of letter and object lefts

T 179.0	O 189.6													
N 15.2	O 30.6	R 43.5	T 54.6	H 65.6	E 93.5	A 106.1	S 120.1	T 131.6	E 165.9	A 178.5	S 192.4	T 203.9		
55 27.2	64 78.0	40 120.0	70 171.3											
E 27.2	a 41.9	s 57.1	t 70.9	S 95.2	t 111.4	L 135.7	o 149.6	u 165.4	i 182.4	s 190.2				
2 47.6	L 69.4	E 80.2	F 91.6	T 101.8	L 122.6	A 132.2	N 146.5	E 159.6	S 170.6					



12.0" Radius, 2.0" Border, White on, Green;
"13th Street", E Mod 2K; "Tudor Ave", E Mod 2K;
"57/64 MILE", E Mod 2K;
Table of letter and object lefts

1 17.0	3 24.8	t 40.8	h 54.3	S 80.8	t 97.0	r 110.4	e 120.8	e 134.9	t 148.7					
T 21.6	u 37.2	d 52.8	o 68.3	r 84.1	A 108.1	v 126.4	e 141.9							
57/64 52.8	M 87.9	I 100.0	L 104.8	E 113.8										



Cahokia Exit;

12.0" Radius, 2.0" Border, White on, Green;
"EXIT 1", E Mod 2K;

R0.7-Cahokia Exit;
Job Number : P404200017;
State : IL;
12.0" Radius, 2.0" Border, White on, Green;
"SOUTH", E Mod 2K; "Cahokia", E Mod 2K;

12.0" Radius, 1.5" Border, 0.5" Indent, Black on, Yellow;
"EXIT", E Mod 2K; Arrow 160 - 35.0" 45';
"ONLY", E Mod 2K;
Table of letter and object lefts

E 102.7	X 111.5	I 122.3	T 126.1	1 148.5					
3 28.2	S 79.2	O 94.2	U 107.2	T 119.0	H 130.1				
C 34.7	a 50.7	h 67.7	o 83.2	k 99.0	i 114.6	a 122.7			
E 15.9	X 26.5	I 39.5	T 44.0	64.9	O 104.4	N 117.4	L 130.4	Y 140.0	

TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

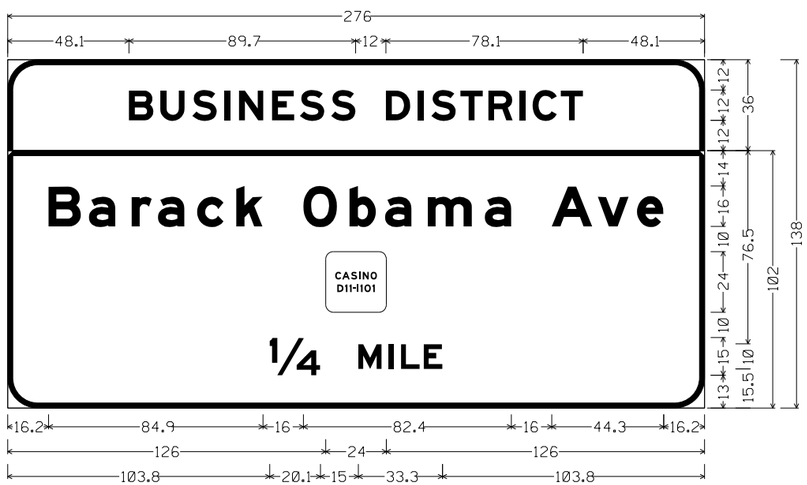
OVERHEAD SIGN STRUCTURE - SPECIAL SIGN DETAILS (1 OF 2)
S.N. 082-0144

SHEET S-179 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	258
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

SIGN NUMBER	EB–05–OH
WIDTH x HEIGHT	23'–0" x 11'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective – ZZ
	COLOR: Green
LEGEND/BORDER	TYPE: Reflective – ZZ
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT
D11–I101	0	–	–	24	24



barack obama ave;

12.0" Radius, 2.0" Border, White on, Green;
"BUSINESS DISTRICT", E Mod 2K;

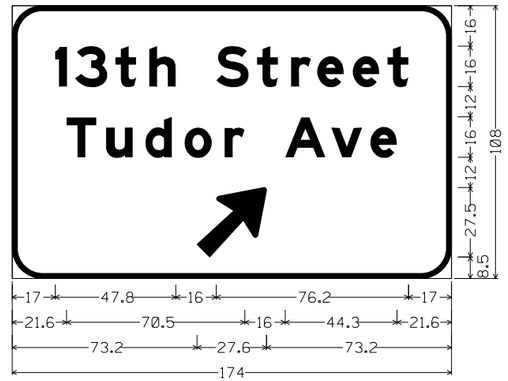
12.0" Radius, 2.0" Border, White on, Green;
"Barack Obama Ave", E Mod 2K; Rounded Rectangle 3.0" Radius;
"5/64 MILE", E Mod 2K;
Table of letter and object lefts

B 48.1	U 60.4	S 73.1	I 85.9	N 91.6	E 104.7	S 115.7	S 128.1	D 149.8	I 162.4	S 167.8	T 179.3	R 190.4	I 202.6	C 207.9	T 219.1	
B 16.2	a 32.2	r 49.1	a 59.5	c 75.0	k 90.6	O 117.1	b 135.4	a 149.4	m 166.4	a 189.0	A 215.5	v 233.8	e 249.3			
□ 126.0																
5/64 103.8	M 138.9	I 151.0	L 155.8	E 164.8												

SIGN NUMBER	EB–06–OH
WIDTH x HEIGHT	14'–0" x 13'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective – ZZ
	COLOR: Green, Yellow
LEGEND/BORDER	TYPE: Reflective – ZZ
	COLOR: White, Black

SYMBOL	ROT	X	Y	WID	HT
M1_5	0	–	–	36	36
AR_Type A	315	–	–	22.3	35.6

NOTE: ALL ARROWS (DOWN OR 45 DEGREE) USED ON OVERHEAD SIGNS SHALL BE DEMOUNTABLE AND INCLUDED IN THE COST OF THE SIGN PANEL.



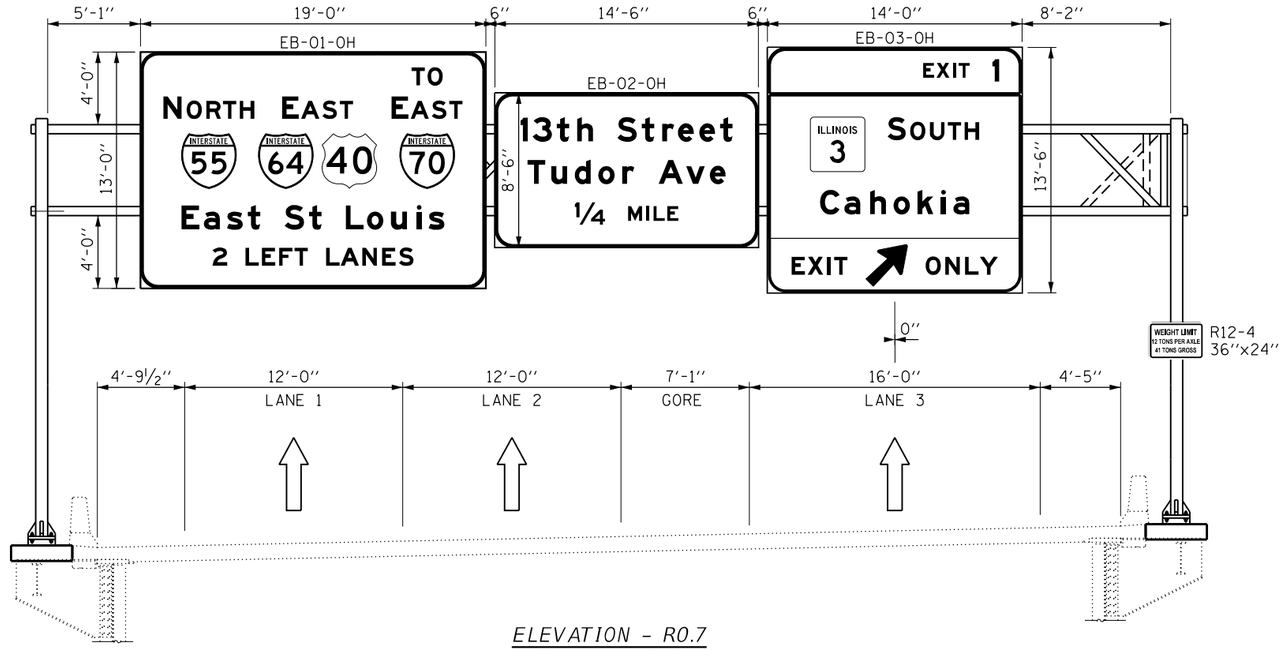
12.0" Radius, 2.0" Border, White on, Green;
"13th Street", E Mod 2K; "Tudor Ave", E Mod 2K;
Arrow 160 - 35.0" 45';
Table of letter and object lefts

1 17.0	3 24.8	t 40.8	h 54.3	S 80.8	t 97.0	r 110.4	e 120.8	e 134.9	t 148.7
T 21.6	u 37.2	d 52.8	o 68.3	r 84.1	A 108.1	v 126.4	e 141.9		
⇗ 73.2									

TranSystems

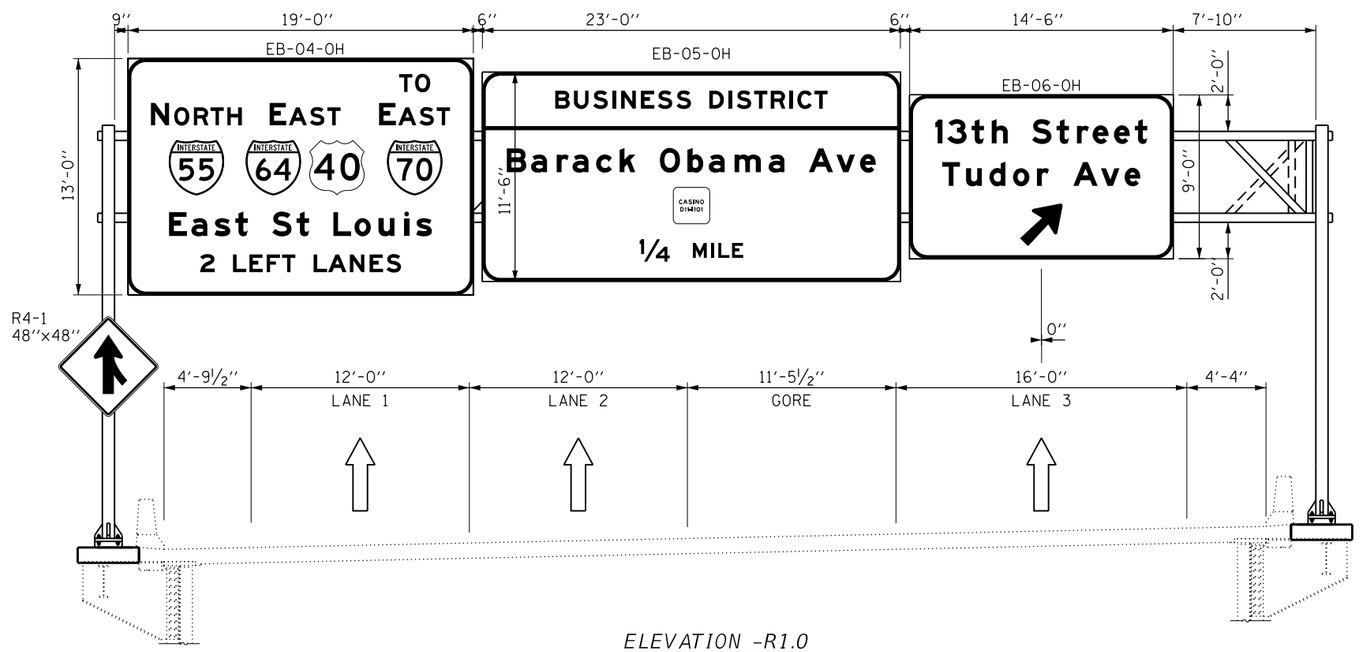
USER NAME = jmpattison	DESIGNED - KRS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	OVERHEAD SIGN STRUCTURE - SPECIAL SIGN DETAILS (2 OF 2) S.N. 082-0144
	CHECKED - JMP	REVISED -		
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -		SHEET S-180 OF S-183 SHEETS
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	259
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



ELEVATION - R0.7

(Looking at Face of Signs)



ELEVATION -R1.0

(Looking at Face of Signs)

TranSystems

USER NAME = jmpattison	DESIGNED - KRS	REVISED -	
	CHECKED - JMP	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - HC	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - JMP	REVISED -	

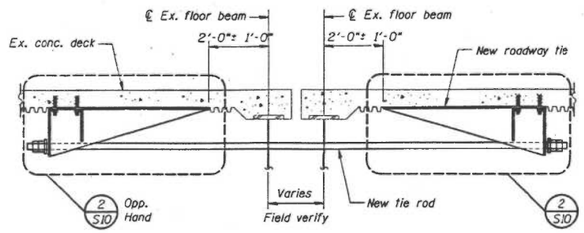
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURE - LOCATION OF SIGNS ON TRUSS
S.N. 082-0144

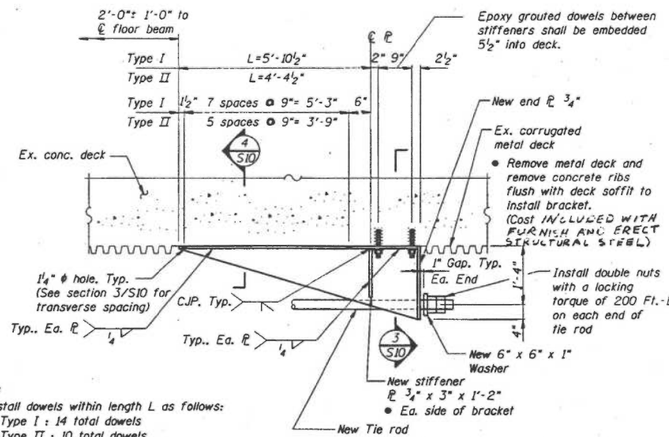
SHEET S-181 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	260
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

FOR INFORMATION ONLY



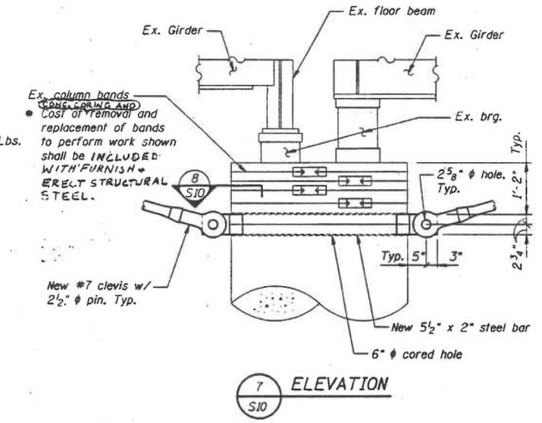
1 S10 ELEVATION - ROADWAY TIE



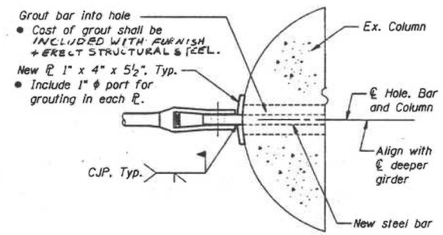
Notes:

1. Install dowels within length L as follows:
   Type I : 14 total dowels
   Type II : 10 total dowels
   Any hole within length L may be used provided dowels are evenly distributed about longitudinal axis of bracket.
2. Unless noted otherwise, all dowels shall consist of 1" ϕ epoxy grouted dowels, embedded 4½" into deck.
3. Core drill 4" ϕ holes in floor beam webs to permit passage of rod.
4. Gap at end of tie rod was developed for an installation temperature of 50° F. For other installation temperatures decrease the gap by 0.05" for every 5° F below 50° F and increase the gap by 0.05" for every 5° F above 50° F.
5. Epoxy grouted dowel embedment shall be measured from the embedded end of the dowel to the smooth surface on the bottom of the concrete deck created by removing the concrete ribs.

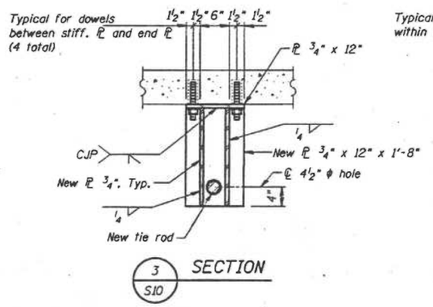
2 S10 ELEVATION - ROADWAY TIE



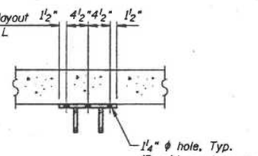
7 S10 ELEVATION



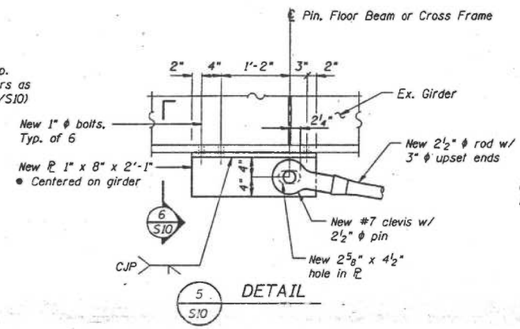
8 S10 SECTION



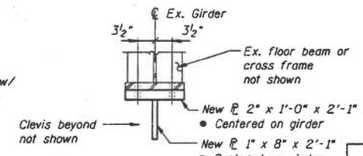
3 S10 SECTION



4 S10 SECTION



5 S10 DETAIL



5 S10

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 70	*	ST. CLAIR	91	52
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT:		

* 82-3HVB-2R-1-1

SHEET NO. S-10
SHEETS

SEISMIC RETROFIT DETAILS
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SEISMIC AND REDUNDANCY RETROFIT REPAIRS
FAI ROUTE 70
POPLAR STREET BRIDGE APPROACHES
ST. CLAIR COUNTY
STRUCTURE NO. 082-0144 (ROADWAY D) STRUCTURE NO.
STRUCTURE NO. 082-0256 (ROADWAY H) STRUCTURE NO.
SCALE: NONE
DATE 1-23-98 CHECKED BY ret

TranSystems	USER NAME = jmpattison	DESIGNED -	REVISED -	
		CHECKED -	REVISED -	
	PLOT SCALE = 0:2.0000 '=' / in.	DRAWN -	REVISED -	
	PLOT DATE = 7/15/2020	CHECKED -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING ROADWAY D BRIDGE PLANS S.N. 082-0144

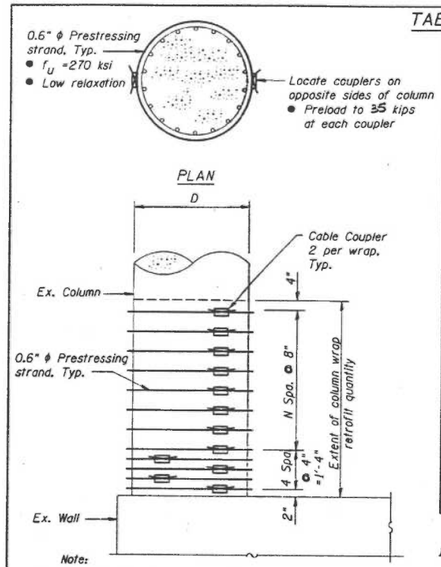
SHEET S-182 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	261
			CONTRACT NO. 76B55	
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY

TABLE OF COLUMN WRAP AND TIE BEAM WRAP PARAMETERS

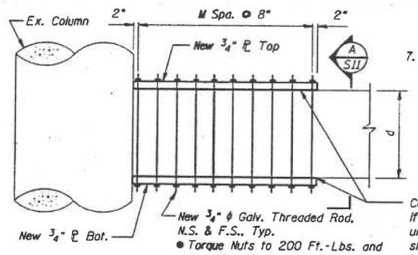
Pier	No. Cols.	D (in.)	N	M	b (in.)	d (in.)	Comments
D2	2	48	7	9	15	36	See Note 5
D4	2	54	8	9	15	36	
D5	2	48	7	—	—	—	
D6	2	48	7	9	18	36	
D7	2	48	7	9	21	36	
D8	2	48	7	—	—	—	
D9	2	48	7	9	24	36	See Note 5
D10	2	54	8	9	27	36	See Note 7
D12	2	48	—	—	—	—	See Note 4
D13	2	48	7	9	15	36	See Note 5
D14	2	48	7	—	—	—	See Note 6
D15	2	48	7	—	—	—	
D16	2	48	7	9	15	36	
D17	2	54	8	9	15	36	See Note 5
D18	2	48	7	—	—	—	
D19	2	48	7	9	15	36	
D20	2	48	7	—	—	—	
D21	2	48	—	—	—	—	See Note 4
D23	2	54	8	9	21	36	See Note 5
D24	2	54	8	9	24	36	See Note 5, 6 and 7
D25	2	54	8	—	—	—	See Note 7
D26	1	48	7	—	—	—	Wrap North Col. only
01-1	2	48	7	—	—	—	
02-1	2	48	7	—	—	—	
P14	2	48	7	—	—	—	Wrap Outside Cols. only
P15	2	54	—	—	—	—	See Note 4
H1	2	48	7	—	—	—	
H3	2	48	7	9	21	36	See Note 5
H4	2	48	7	9	18	36	See Note 5



Note:
1. See table for dimensions not shown and additional notes.
2. Alternative column wraps may be used. See Special Provisions.

1/S11 ELEVATION - TYPICAL COLUMN WRAP

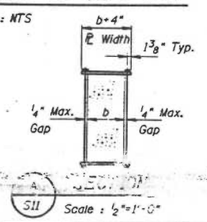
Scale : NTS



Notes: 1. See table for dimensions not shown and additional notes.
2. Wrap each end as shown.

2/S11 ELEVATION - TYPICAL TIE BEAM WRAP

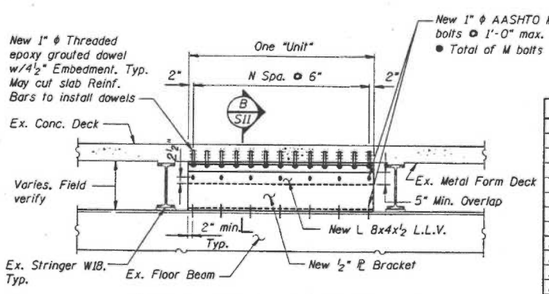
Scale : NTS



A S11 Scale : ½"=1'-0"

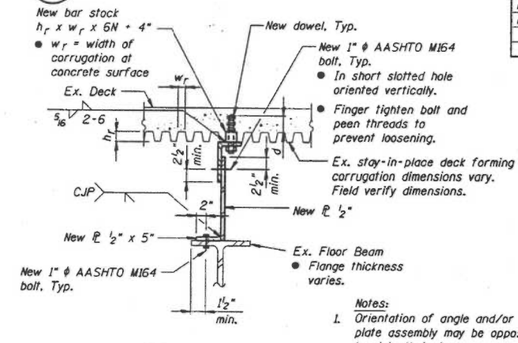
Concrete grinding cost, if required to provide uniform ℄ bearing, shall be INCLUDED WITH FURNISH + ERECT STRUCTURAL STEEL.

Notes:
1. Complete all specified dowel bar modifications and concrete repairs at least 3 days before wrapping any member.
2. See detail 1/S11 for column wrap U.N.O.
3. See detail 2/S11 for tie beam wrap U.N.O.
4. See detail 6/S12 for column wrap.
5. See detail 2/S13 for modifications to the tie beam wrap.
6. Existing dead conduit along face of column interferes with installation of column wrap. Remove conduit (approximate length of 30'). Removal cost shall be incidental to column wrap installation.
7. Existing live conduit along face of column interferes with installation of column wrap. Conduit shall be rerouted over the length of the wrap by a qualified electrician such that column wrap may be installed (approximate length of 6'-2"). Note that electrical service may only be interrupted between the hours of 8:00 AM and 4:00 PM. Relocation cost shall be incidental to column wrap installation.



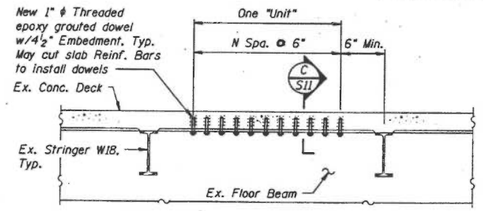
Notes: 1. See table for number of "units", per pier.
2. See table for N.

3/S11 ELEVATION - SLAB FLOOR BEAM CONNECTION



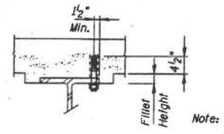
Notes:
1. Orientation of angle and/or plate assembly may be opposite hand to that shown.
2. Epoxy grouted dowel embedment length (d) shall be measured from the embedded end of the dowel to the bottom of the corrugation (excludes rib height).

B/S11 SECTION



Notes: 1. See table for number of "units" per pier.
2. See table for N.

4/S11 ELEVATION - SLAB FLOOR BEAM CONNECTION



Note: Epoxy grouted dowel embedment length shall be measured from the bottom of the concrete slab to the end of the dowel excluding the fillet height.

C/S11 SECTION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 70	*	ST. CLAIR	91	53
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

* 82-3HVB-2R-1-1

SHEET NO. S-11
SHEETS

TABLE OF SLAB/FLOOR BEAM CONNECTION

Pier	No. of Units	N Per Unit	M Per Unit	Ref. Detail	Comments
D2	2	9	5	3/S-11	
D3	1	5	3	3/S-11	
D4	2	8	5	3/S-11	
D6	2	8	5	3/S-11	
D7	2	5	3	3/S-11	
D9	2	7	4	3/S-11	
D10	2	7	4	3/S-11	
D11	1	7	4	4/S-11	See Note 1
D13	2	8	5	3/S-11	
D14	1	8	5	3/S-11	
D16	1	9	5	3/S-11	
D17	2	7	4	3/S-11	
D19	2	9	5	3/S-11	
D20	1	10	6	3/S-11	
D22	1	7	4	4/S-11	See Note 2
D23	4	7	4	3/S-11	
D24	4	7	4	3/S-11	
D25	2	8	5	3/S-11	
H3	2	8	5	3/S-11	
H4	2	10	6	3/S-11	

Notes:
1. West side expansion joint only.
2. East side expansion joint only.

SEISMIC RETROFIT DETAILS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SEISMIC AND REDUNDANCY RETROFIT REPAIRS
FAI ROUTE 70
POPLAR STRE[illegible] APPROACHES

SCALE: AS NOTED
DATE 1-23-98
DRAWN BY
CHECKED BY HH

TranSystems	USER NAME = jmpattison	DESIGNED -	REVISED -
		CHECKED -	REVISED -
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	PLOT DATE = 7/15/2020	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING ROADWAY D BRIDGE PLANS S.N. 082-0144

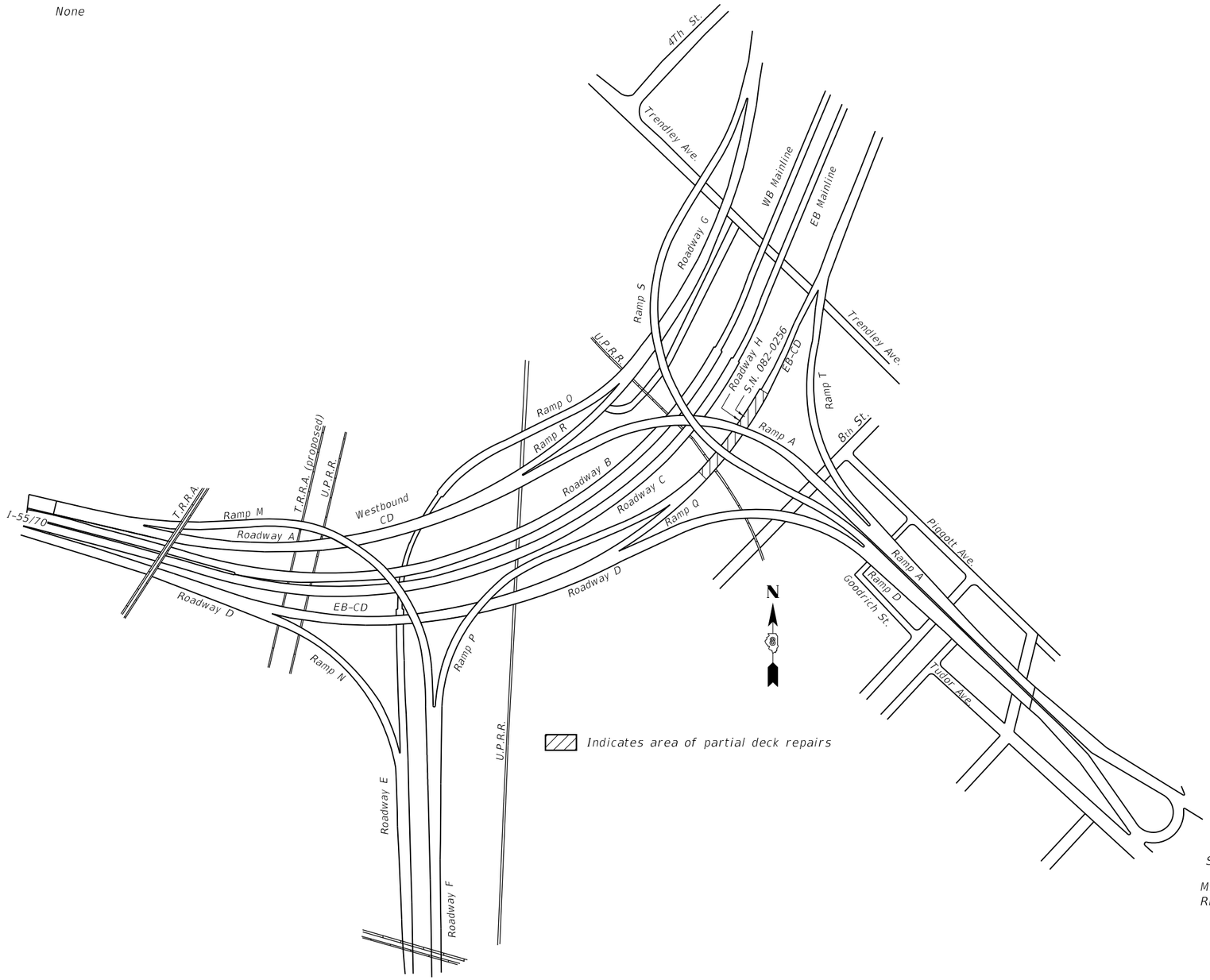
SHEET S-183 OF S-183 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	262
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

Bench Mark: *Cut "X" on top northwest hex bolt on hydrant, 23' southeast of the intersection of Bond Avenue and South 4th Street. Elev. 414.63.*

Existing Structure: *S.N. 082-0256 was originally built in 1969 as FAI- 70, Sections 82-3HV(B,D,F&E)-1. The existing structure consists of a 4-span superstructure supported on multi-column piers, which are founded on pile supported footings, and a stub wall abutment at the east end. The structure width is variable and the total bridge length is 406' from Pier H1 to Abutment H5. The superstructure framing is arranged in a single and a three span unit between expansion joints, and is noncomposite with the deck except Span H1, the single span unit.*

Salvage: *None*



GENERAL PLAN

SCOPE OF WORK

1. *Partial depth concrete deck repairs, overlay and parapet repairs.*
3. *Joint replacement at Piers H1 and H2 and Abutment H5.*
4. *Crack arrest holes*
5. *Bearing replacement*
6. *Substructure repairs at Pier H1, Pier H2, and Abutment H5*

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition
2003 AASHTO Guide Specifications for Horizontally Curved Steel Girder Highway Bridges
1995 FHWA Seismic Retrofitting Manual

DESIGN STRESSES

FIELD UNITS

NEW CONSTRUCTION

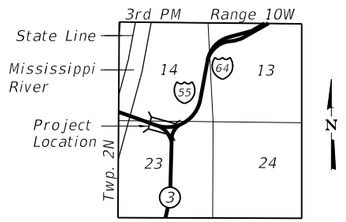
fy = 60,000 psi (Reinforcement)
fy = 36,000 psi (Structural Steel)

EXISTING CONSTRUCTION

f'c = 3,500 psi (1989+ Rehabs)
fc = 1,400 psi (1967 Construction)
fs = 20,000 psi (Reinforcement)
fs = 20,000 psi (Structural Steel 1967 Construction)
fy = 36,000 psi & 50,000 psi (Structural Steel 1989+ Rehabs)

LICENSED STRUCTURAL ENGINEER
RICHARD A. WALTHER
081.005127
STATE OF ILLINOIS

Signature: Richard A. Walther
Date Signed: 07-16-2020
License Expires: 11/30/2020



LOCATION SKETCH

GENERAL PLAN
F.A.I. 70 (I-55/I-64) EB CD "H"
OVER RR, IL 3, 8TH ST
SEC. 82-3HVB-2R-1-I-1
ST. CLAIR COUNTY
STATION 77+59.00
STRUCTURE NO. 082-0256

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
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Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
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PLOT SCALE = 0.2 '' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/16/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & SCOPE OF WORK
S.N. 082-0256
SHEET S-1 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	263
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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GENERAL NOTES

1. Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
2. The Contractor shall exercise extreme caution with demolition activities to prevent damage to the existing structure. Any damage from the construction activities shall be repaired at the Contractor's expense.
3. The Contractor shall field verify all proposed structural plate and angle dimensions and spacing of holes prior to ordering steel.
4. All structural steel shall be AASHTO M-270 Grade 36, unless noted otherwise.
5. No field welding is permitted, except as specified in the contract documents.
6. Fasteners shall be ASTM A325, Type 1, mechanically galvanized bolts. Bolts shall be 7/8 in. diameter and placed in 15/16 in. diameter holes, unless noted otherwise.
7. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
8. Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provision, "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
9. All new structural steel and bearing assembly shall be hot-dip galvanized and painted. See Special Provisions for "Hot Dip Galvanizing For Structural Steel"
10. As directed by the Engineer, existing construction accessories, including existing metal deck accessories and shear studs, welded to the top flange of beams, stringers, and girders shall be removed at locations of deck replacement or full thickness patching. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding 1/4 in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding, and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
11. Reinforcing bars designated (E) shall be epoxy-coated.
12. Work at Pier H2 will infringe on railroad clearance envelope, and will require special coordination with the U.P.R.R. This includes bearing replacement, substructure repairs, and joint replacement work at this location. Contractor shall submit a Rubble Management Plan and Reconstruction Plan in accordance with the Special Provisions to the railroad and receive approval before starting any work.
13. The Contractor shall grind all cracked welds parallel to the direction of the existing weld and not perpendicular to the weld.
14. Joint openings shall be adjusted accordingly to Article 520.04 of the Standard Specifications when the deck is poured at ambient temperature other than 50°F.
15. Synthetic fibers shall be added to the Bridge Deck Microsilica Concrete Overlay, see Special Provisions.

CONCRETE REPAIR NOTES

1. Concrete deck repair areas as shown in the drawings are based on a chain drag survey conducted in April 2020. Substructure repair areas are based on a September 2017 survey.
2. It is expected that actual repair areas may be different in shape, size, and location than shown on the drawings. The exact locations shall be determined by the Engineer. The Engineer shall show actual repair areas and their dimensions on as-built plans.
3. Only partial depth deck repairs are anticipated in spans without full deck replacement and at locations away from joints; however, a nominal quantity of full depth repair quantities have been included for use in case removal operations extend to the bottom mat of reinforcement. Only partial depth repairs are expected along the parapets.
4. For partial depth superstructure and substructure repairs, saw cut perimeter of repair area and remove all unsound concrete and sufficient sound concrete to create minimum gaps around reinforcing bars.
5. For full depth deck repairs near joints, saw cut perimeter of repair area and remove all concrete 3 ft from each side of the joint. Extreme caution shall be exercised while removing concrete adjacent to beams. Any damage to beams shall be repaired at the Contractor's expense. Removal of existing expansion joints and stay-in-place metal pans shall be included in the cost of concrete removal.
6. Any reinforcing bars damaged during concrete removal shall be repaired or replaced using an approved bar splicer or anchorage system. Cost included with concrete removal.
7. The Contractor shall take all measures necessary to ensure that no debris or other construction materials or equipment infringe on the railroad construction envelope, per Railroad General Notes and Railroad Clearance Envelope sheets.
8. Surface preparation and application of a concrete sealer shall extend across the entire top surface of the deck and the tops and inside vertical faces of the parapets.
9. Up to ¼ Inch may be ground off the bridge deck. Elevations provided are after grinding.

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A3	Sq Yd		240	240
Filter Fabric	Sq Yd		240	240
Concrete Removal	Cu Yd	38.7		38.7
Slope Wall Removal	Sq Yd		240	240
Concrete Superstructure	Cu Yd	31.2		31.2
Reinforcement Bars, Epoxy Coated	Pound	4560		4560
Preformed Joint Strip Seal	Foot	126		126
Elastomeric Bearing Assembly, Type I	Each	2		2
Epoxy Crack Injection	Foot	109		109
Column Tensioned Strands	Each		12	12
Crack Arrest Holes	Each	11		11
Polyurethane Sealant	Foot	100		100
Bridge Deck Grooving (Longitudinal)	Sq Yd	1526		1526
Diamond Grinding (Bridge Section)	Sq Yd	1594		1594
Bridge Deck Concrete Sealer	Sq Ft	15034		15034
Jack And Remove Existing Bearings	Each	2		2
Structural Steel Repair	Pound	130		130
Bridge Deck Microsilica Concrete Overlay, 2¾"	Sq Yd	1774		1774
Cleaning Drainage System	L Sum	0.13		0.13
Bridge Deck Scarification 2 1/2"	Sq Yd	1774		1774
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft		706	706
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft		100	100
Deck Drain Extensions	Each	6		6
Relocating Name Plates	Each	1		1

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
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330 Pfingsten Road
Northbrook, Illinois 60062
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www.wje.com

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PLOT DATE = 10/1/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
S.N. 082-0256

SHEET S-2 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	264
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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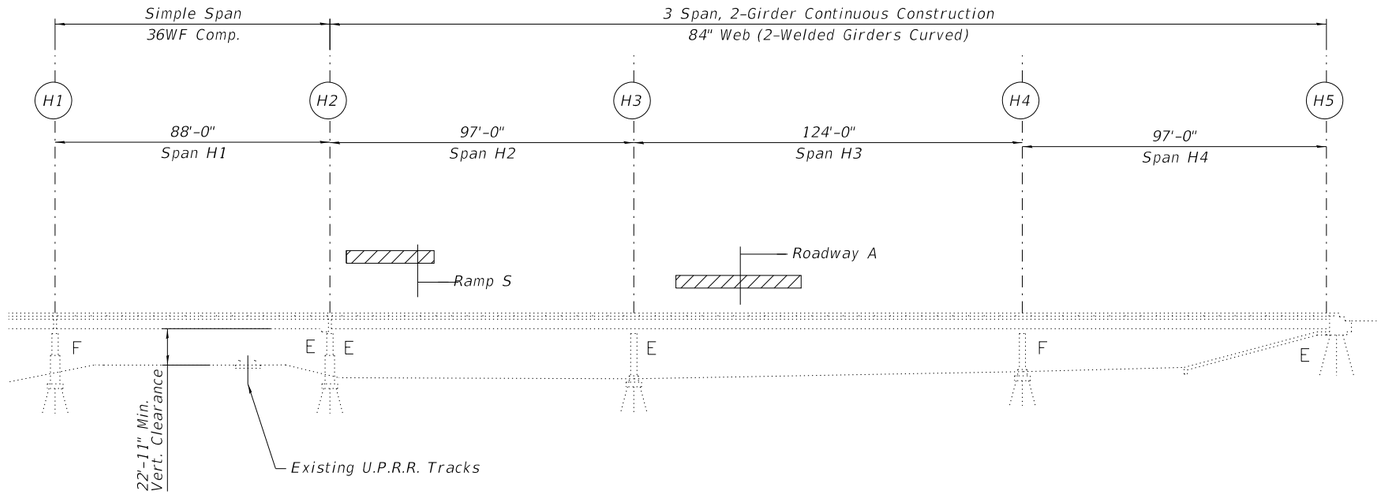
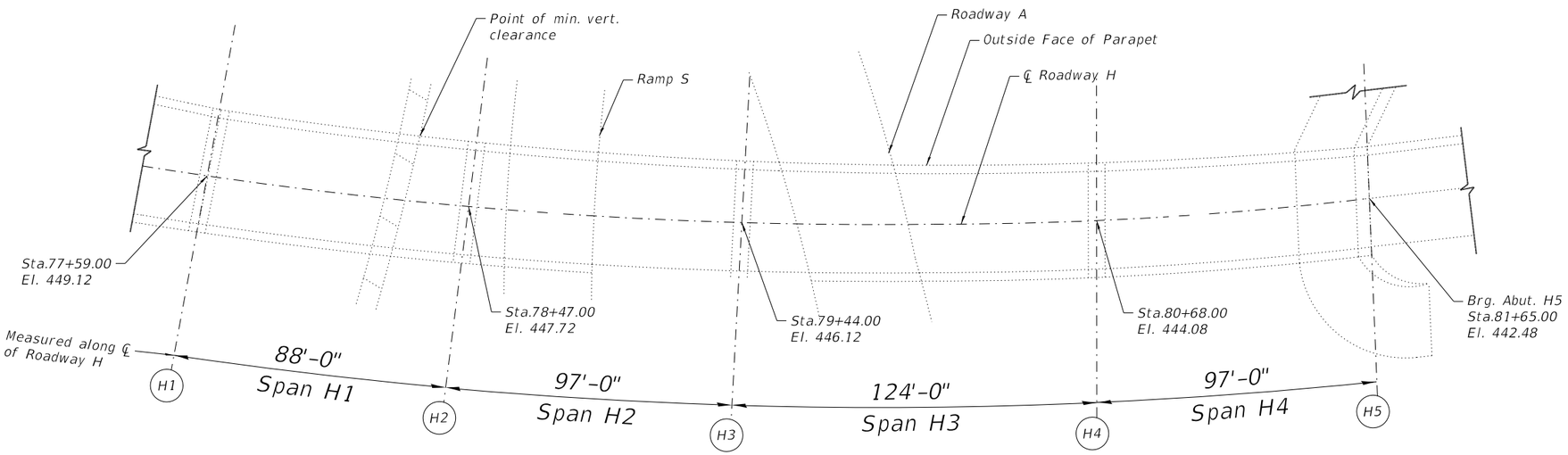


ELEVATION

LEGEND

Ramp/Roadway above Structure



PLAN (SPANS H1 – H4)

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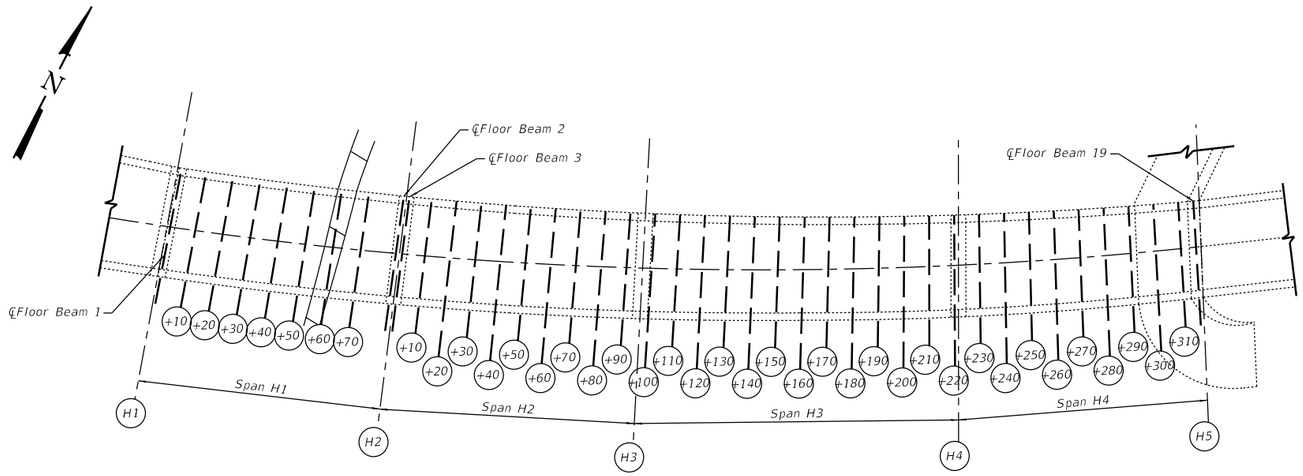
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION (SPANS H1 THRU H4)
S.N. 082-0256

SHEET S-3 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	265
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			



OVERLAY PLAN

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Bridge Deck Scarification, 2½"	Sq Yd	1774
Bridge Deck Microsilica Concrete Overlay, 2¾"	Sq Yd	1774
Diamond Grinding (Bridge Section)	Sq Yd	1594
Bridge Deck Grooving (Longitudinal)	Sq Yd	1526
Bridge Deck Concrete Sealer	Sq Ft	15034

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PLOT DATE = 9/30/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERLAY ELEVATIONS (1 OF 2)
S.N. 082-0256

SHEET S-4 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	266
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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	LEFT				CENTER				RIGHT			
LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
FB 1	77+60.349	-21.316	447.122	447.122	77+60.333	0.309	448.825	448.842	77+60.318	21.285	450.589	450.589
FB1+10	77+70.468	-21.391	446.897	446.978	77+70.331	0.234	448.679	448.722	77+70.204	20.948	450.414	450.505
FB1+20	77+80.582	-21.410	446.774	446.924	77+80.330	0.213	448.585	448.653	77+80.093	20.666	450.191	450.357
FB1+30	77+90.692	-21.374	446.648	446.846	77+90.329	0.248	448.466	448.551	77+89.985	20.438	449.987	450.205
FB1+40	78+00.803	-21.281	446.548	446.766	78+00.327	0.338	448.341	448.434	77+99.879	20.264	449.802	450.044
FB1+50	78+10.925	-21.134	446.405	446.617	78+10.323	0.483	448.137	448.227	78+09.775	20.145	449.637	449.874
FB1+60	78+21.044	-20.930	446.256	446.430	78+20.318	0.682	447.939	448.017	78+19.671	20.080	449.470	449.671
FB1+70	78+31.147	-20.671	446.102	446.216	78+30.311	0.937	447.818	447.874	78+29.568	20.070	449.265	449.406
FB2	78+45.653	-20.203	445.907	445.907	78+45.368	1.435	447.589	447.604	78+45.681	20.170	449.073	449.073

OVERLAY ELEVATIONS SPAN H1

		LEFT			CENTER			RIGHT		
LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
FB3	78+48.349	L Gutter	445.880	445.880	0.000	447.405	447.412	R Gutter	449.054	449.054
FB3+10	78+58.349	L Gutter	445.817	445.833	0.000	447.184	447.217	R Gutter	448.864	448.880
FB3+20	78+68.349	L Gutter	445.639	445.668	0.000	446.981	447.031	R Gutter	448.718	448.747
FB3+30	78+78.349	L Gutter	445.460	445.498	0.000	446.812	446.871	R Gutter	448.550	448.587
FB3+40	78+88.349	L Gutter	445.204	445.243	0.000	446.648	446.709	R Gutter	448.296	448.336
FB3+50	78+98.349	L Gutter	444.932	444.967	0.000	446.476	446.533	R Gutter	448.055	448.091
FB3+60	79+08.349	L Gutter	444.824	444.851	0.000	446.319	446.367	R Gutter	447.910	447.937
FB3+70	79+18.349	L Gutter	444.707	444.724	0.000	446.136	446.174	R Gutter	447.716	447.733
FB3+80	79+28.349	L Gutter	444.587	444.595	0.000	445.960	445.988	R Gutter	447.487	447.495
FB3+90	79+38.349	L Gutter	444.495	444.497	0.000	445.822	445.843	R Gutter	447.324	447.326
FB3+100	79+48.349	L Gutter	444.417	444.419	0.000	445.685	445.707	R Gutter	447.172	447.174
FB3+110	79+58.349	L Gutter	444.179	444.189	0.000	445.543	445.572	R Gutter	447.043	447.052
FB3+120	79+68.349	L Gutter	443.958	443.979	0.000	445.383	445.423	R Gutter	446.906	446.927
FB3+130	79+78.349	L Gutter	443.767	443.801	0.000	445.172	445.225	R Gutter	446.761	446.795
FB3+140	79+88.349	L Gutter	443.609	443.654	0.000	445.005	445.069	R Gutter	446.531	446.577
FB3+150	79+98.349	L Gutter	443.474	443.526	0.000	444.829	444.900	R Gutter	446.320	446.373
FB3+160	80+08.349	L Gutter	443.280	443.334	0.000	444.674	444.747	R Gutter	446.166	446.221
FB3+170	80+18.349	L Gutter	443.127	443.177	0.000	444.527	444.596	R Gutter	445.993	446.044
FB3+180	80+28.349	L Gutter	443.037	443.079	0.000	444.414	444.474	R Gutter	445.810	445.851
FB3+190	80+38.349	L Gutter	442.792	442.821	0.000	444.235	444.283	R Gutter	445.614	445.643
FB3+200	80+48.349	L Gutter	442.613	442.628	0.000	444.072	444.106	R Gutter	445.461	445.476
FB3+210	80+58.349	L Gutter	442.503	442.508	0.000	443.858	443.882	R Gutter	445.330	445.335
FB3+220	80+68.349	L Gutter	442.400	442.400	0.000	443.694	443.712	R Gutter	445.171	445.171
FB3+230	80+78.349	L Gutter	442.273	442.276	0.000	443.546	443.566	R Gutter	444.938	444.940
FB3+240	80+88.349	L Gutter	442.034	442.044	0.000	443.408	443.436	R Gutter	444.765	444.775
FB3+250	80+98.349	L Gutter	441.839	441.859	0.000	443.232	443.270	R Gutter	444.575	444.595
FB3+260	81+08.349	L Gutter	441.697	441.726	0.000	443.098	443.145	R Gutter	444.413	444.443
FB3+270	81+18.349	L Gutter	441.555	441.590	0.000	442.874	442.927	R Gutter	444.221	444.256
FB3+280	81+28.349	L Gutter	441.413	441.450	0.000	442.667	442.722	R Gutter	444.023	444.060
FB3+290	81+38.349	L Gutter	441.219	441.252	0.000	442.516	442.566	R Gutter	443.864	443.897
FB3+300	81+48.349	L Gutter	441.019	441.042	0.000	442.300	442.339	R Gutter	443.726	443.749
FB3+310	81+58.349	L Gutter	440.827	440.837	0.000	442.096	442.115	R Gutter	443.602	443.612
FB19	81+64.410	L Gutter	440.635	440.635	0.000	441.892	441.897	R Gutter	443.478	443.478

OVERLAY ELEVATIONS SPANS H2-H4

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330 Pfingsten Road
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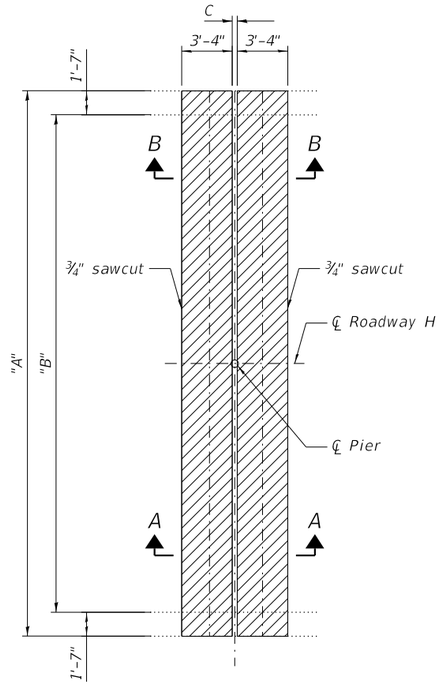
www.wje.com

USER NAME = lsalas	DESIGNED - SB	REVISED -	
	CHECKED - ARB	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

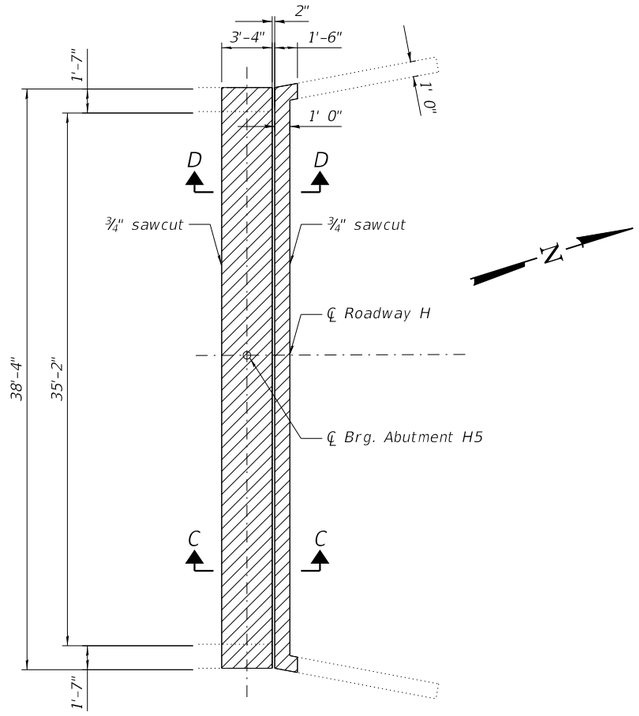
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERLAY ELEVATIONS (2 OF 2)
S.N. 082-0256
SHEET S-5 OF S-20 SHEETS

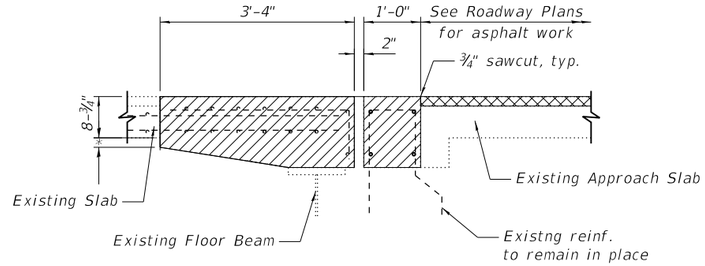
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	267
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



PLAN SHOWING REMOVAL AT PIERS H1 AND H2

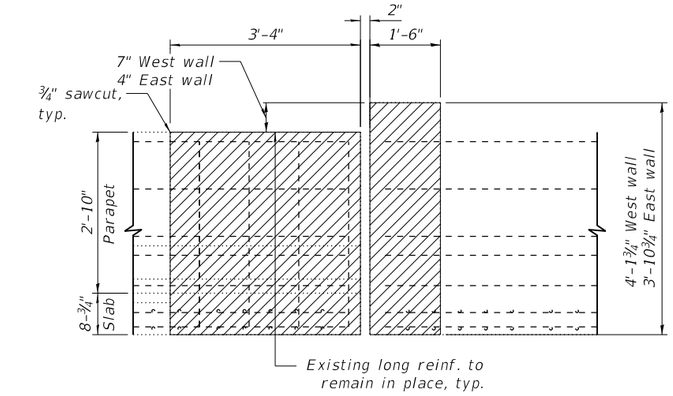


PLAN SHOWING REMOVAL AT ABUTMENT H5



* Existing dimension varies.
Conservative value was
assumed for quantity estimate.

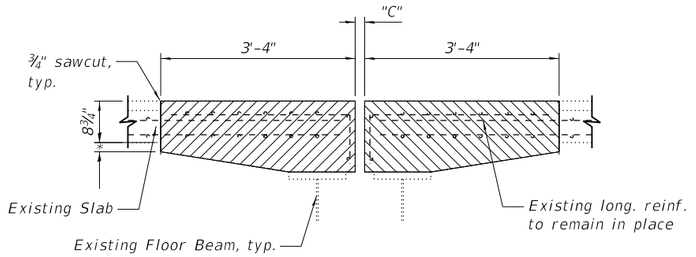
SECTION C-C



VIEW D-D

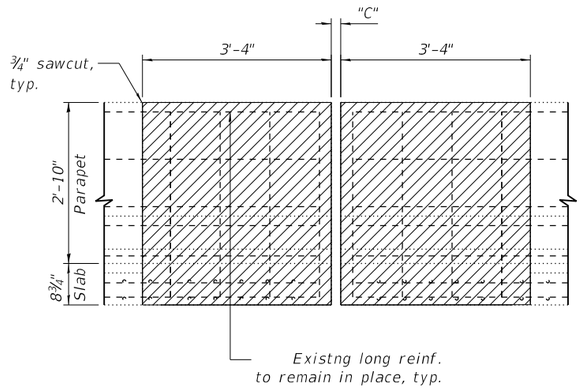
(Showing Reinforcement. West wall shown
east wall similar)

Note: Hatching indicates removal



* Existing dimension varies.
Conservative value was
assumed for quantity estimate.

SECTION A-A



VIEW B-B

(Showing Reinforcement)

CONCRETE REMOVAL

Location	Dimension "A"	Dimension "B"	Dimension "C"	Concrete Removal (Cu Yd)
Pier H1	46'-7 5/8"	43'-5 7/8"	1 3/4"	15.5
Pier H2	44'-4"	41'-2"	3"	14.8
Abutment H5	-	-	-	8.6

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	38.7

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www.wje.com

USER NAME = lsalas	DESIGNED - LTP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

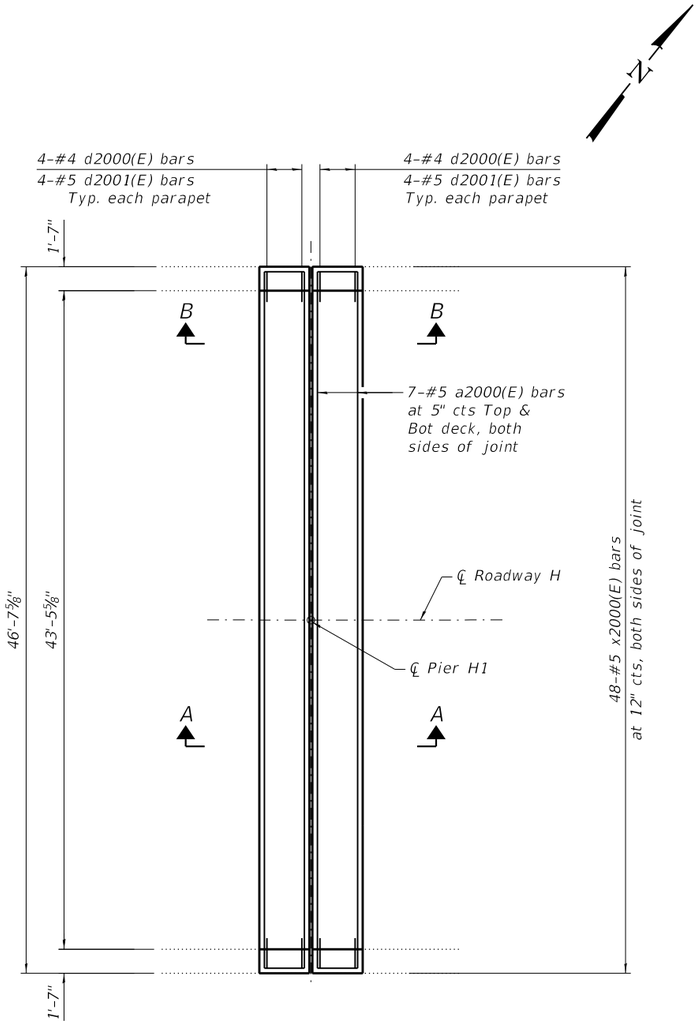
EXPANSION JOINT REMOVAL DETAILS
S.N. 082-0256

SHEET S-6 OF S-20 SHEETS

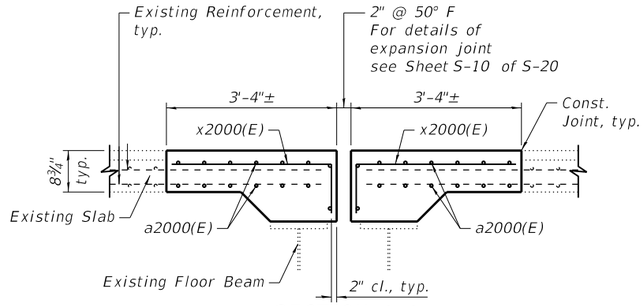
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	268
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76B55-WIE (RW)\09 Drawings\Substructure\Roadway H\082256-76B820256-76B55-072_Rdwy_H_Exp_Joint_Removal.dgn

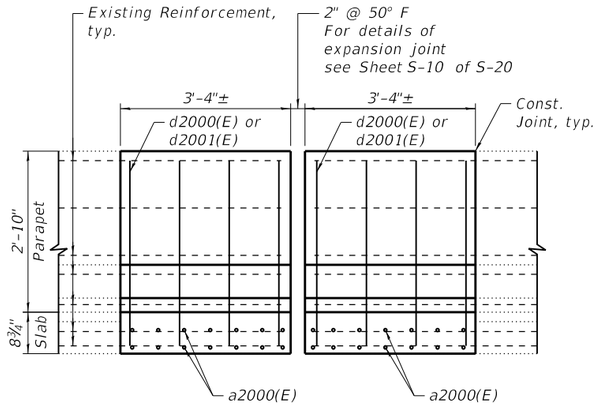
7/15/2020 3:39:32 PM



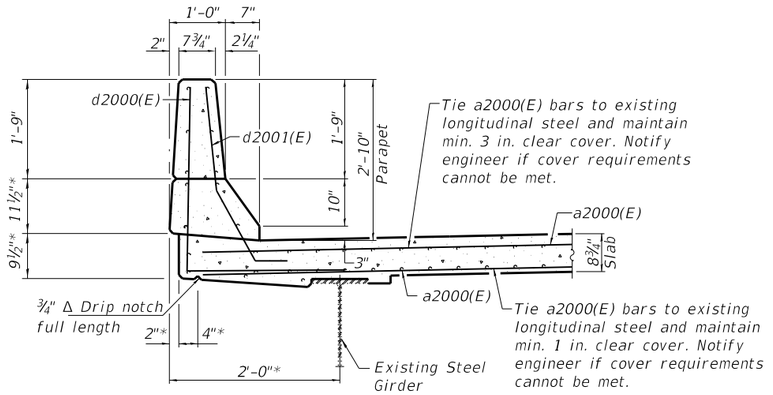
PIER H1 PLAN SHOWING REPLACEMENT



SECTION A-A



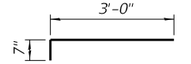
VIEW B-B
(Showing Reinforcement)



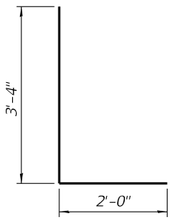
SECTION THRU PARAPET

* Adjust to match existing dimensions

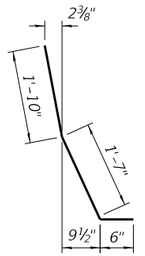
** Dimensions shown are after overlay installation and Diamond Grinding.



BAR x2000(E)



BAR d2000(E)



BAR d2001(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2001(E)	28	#5	46'-0"	
d2000(E)	16	#4	5'-4"	
d2001(E)	16	#5	3'-11"	
x2000(E)	96	#5	3'-7"	
Reinforcement Bars, Epoxy Coated			Lbs.	1840
Concrete Superstructure			Cu. Yds.	12.3

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www.wje.com

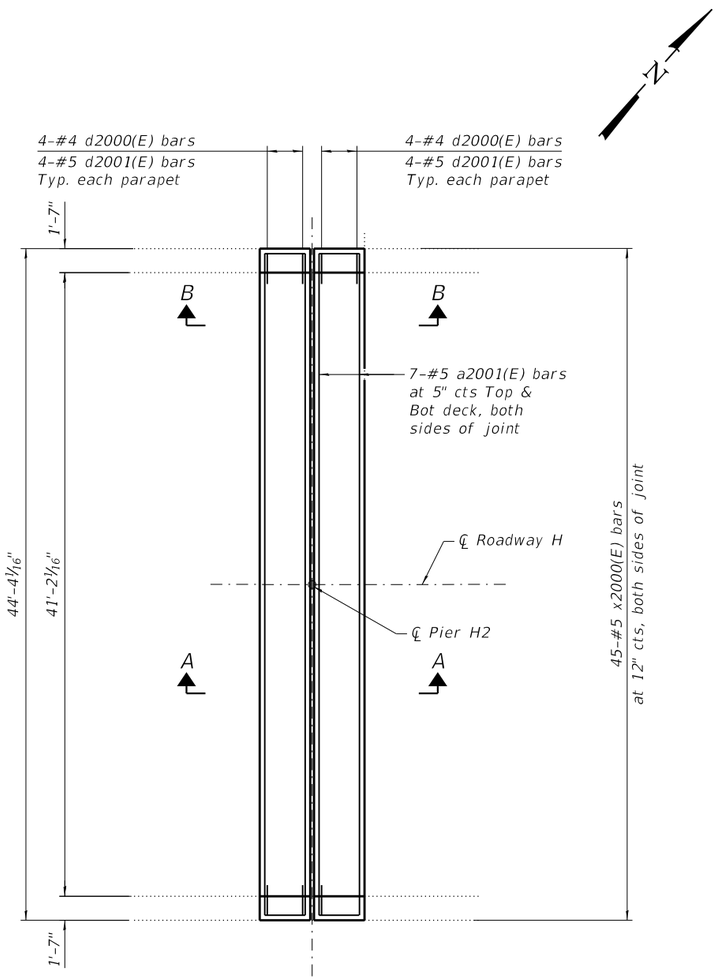
USER NAME = lsalas	DESIGNED - LTP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

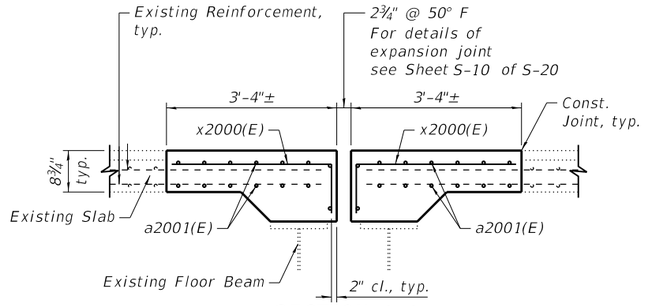
EXPANSION JOINT REPLACEMENT DETAILS - PIER H1
S.N. 082-0256

SHEET S-7 OF S-20 SHEETS

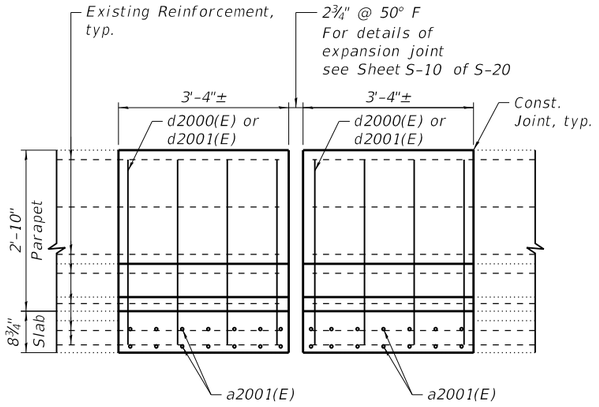
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	269
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



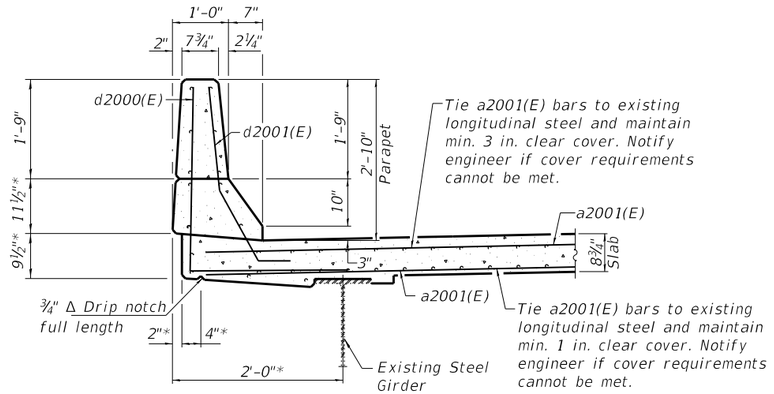
PIER H2 PLAN SHOWING REPLACEMENT



SECTION A-A



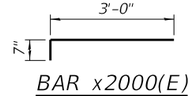
VIEW B-B
(Showing Reinforcement)



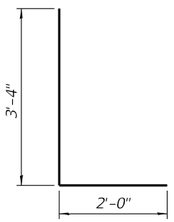
SECTION THRU PARAPET

* Adjust to match existing dimensions

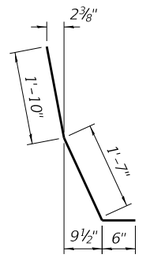
** Dimensions shown are after overlay installation and Diamond Grinding.



BAR x2000(E)



BAR d2000(E)



BAR d2001(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2001(E)	28	#5	43'-8"	
d2000(E)	16	#4	5'-4"	
d2001(E)	16	#5	3'-11"	
x2000(E)	74	#5	3'-7"	
Reinforcement Bars, Epoxy Coated			Lbs.	1740
Concrete Superstructure			Cu. Yds.	11.8

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USER NAME = lsalas	DESIGNED - LTP	REVISED -	
	CHECKED - SGM	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

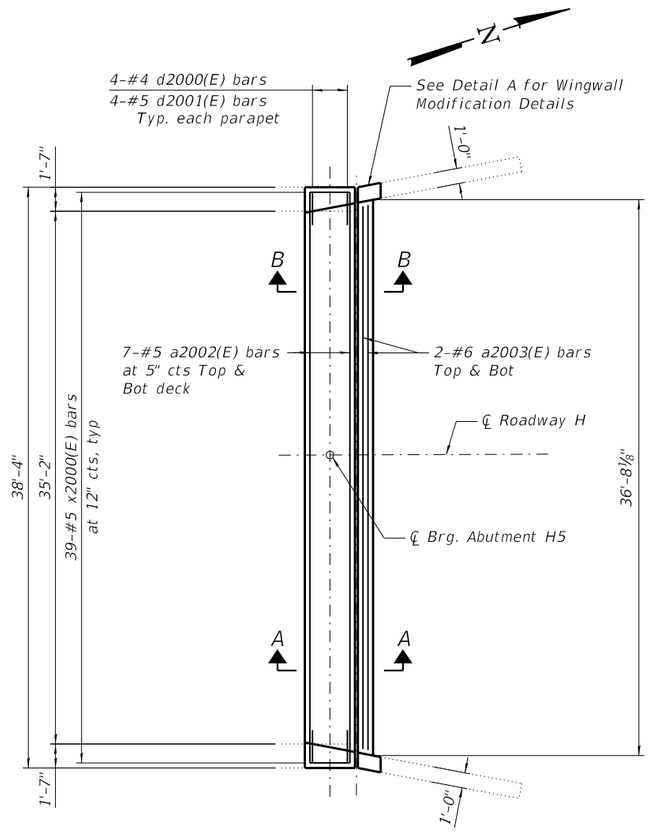
EXPANSION JOINT REPLACEMENT DETAILS - PIER H2
S.N. 082-0256

SHEET S-8 OF S-20 SHEETS

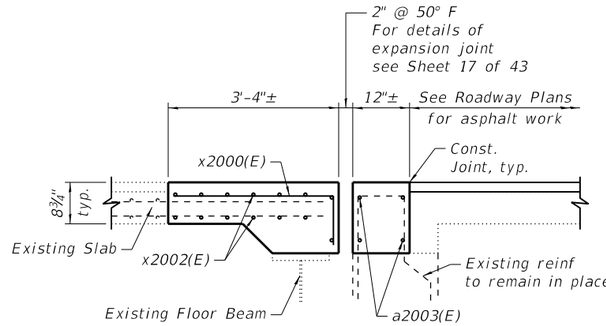
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	270
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76855-WJE (RW)\09 Drawings\Joints\Roadway H\0820256-76855-076_Ramp_H_Expansion Joint Replacement Details - Pier H2.dgn

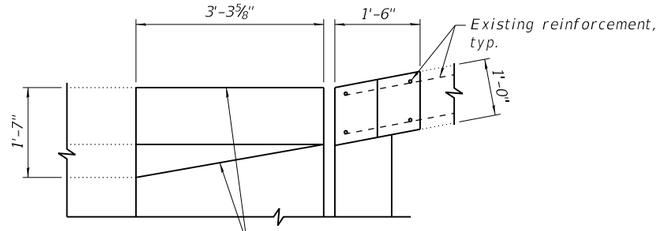
7/15/2020 3:39:35 PM



ABUTMENT H5 PLAN SHOWING REPLACEMENT

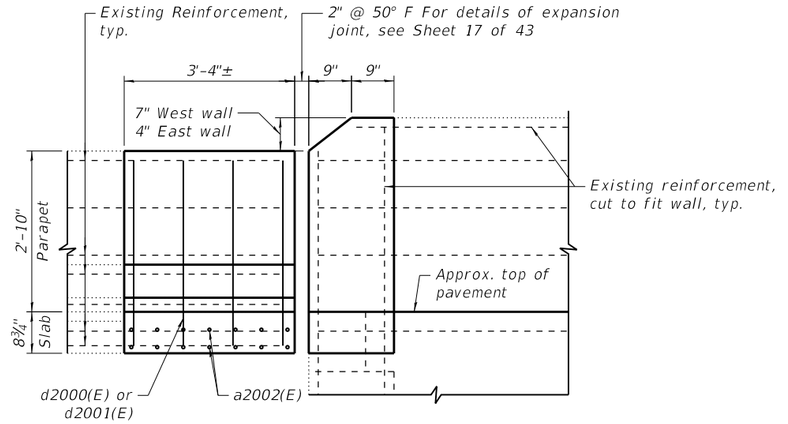


SECTION A-A



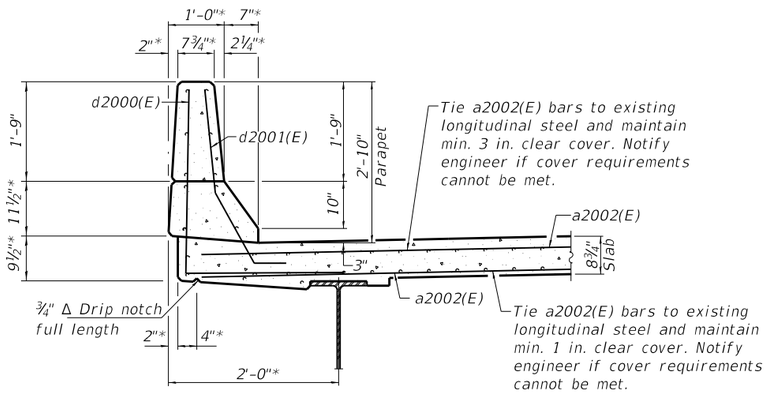
DETAIL A

(West wall shown, East wall similar)



VIEW B-B

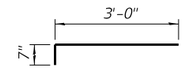
(Showing Reinforcement. West wall shown, East wall similar)



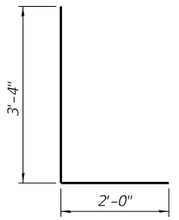
SECTION THRU PARAPET

* Adjust to match existing dimensions

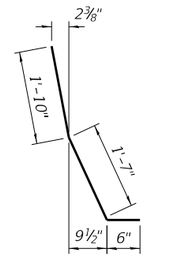
** Dimensions shown are after overlay installation and Diamond Grinding.



BAR x2000(E)



BAR d2000(E)



BAR d2001(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2002(E)	14	#5	37'-8"	
a2003(E)	4	#6	36'-0"	
d2000(E)	8	#4	5'-4"	
d2001(E)	8	#5	3'-11"	
x2000(E)	39	#5	3'-7"	
Reinforcement Bars, Epoxy Coated			Lbs.	980
Concrete Superstructure			Cu. Yds.	7.1
Relocating Name Plates			Each	1

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USER NAME = lsalas	DESIGNED - LTP	REVISED -	
	CHECKED - SMG	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

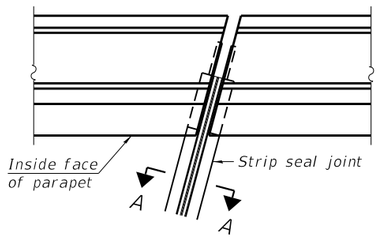
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS - ABUTMENT H5
S.N. 082-0256

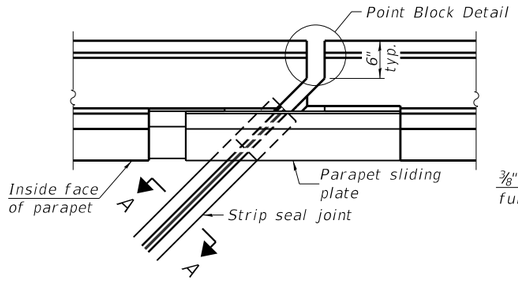
SHEET S-9 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	271
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
FILE NAME: P:\2014\2014.6xxx\2014.6410.N - WO26 PSE FOR CONTRACT 76855-WIE (RVW)\09 Drawings\Jobnts\Roadway H\0820256-76855-077_Ramp_H_Expansion Joint Replacement Details - Abut H5.dgn
7/15/2020 3:39:37 PM

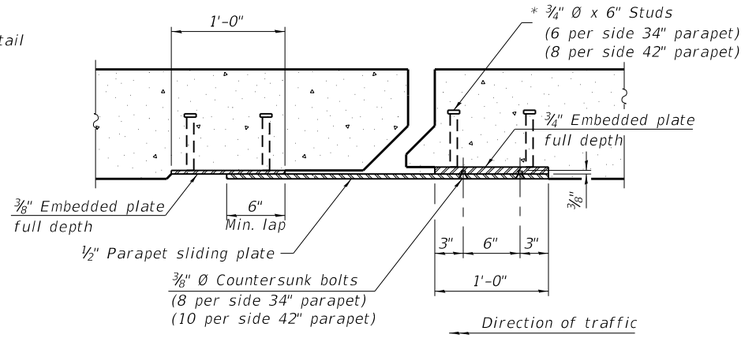


FOR SKEWS ≤ 30°

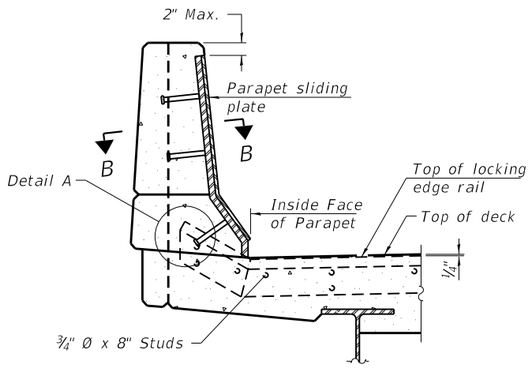


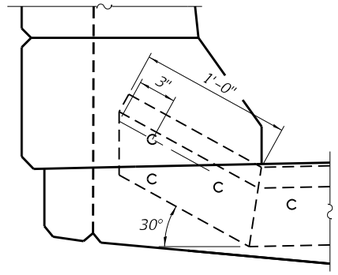
FOR SKEWS > 30°

PLAN AT PARAPET

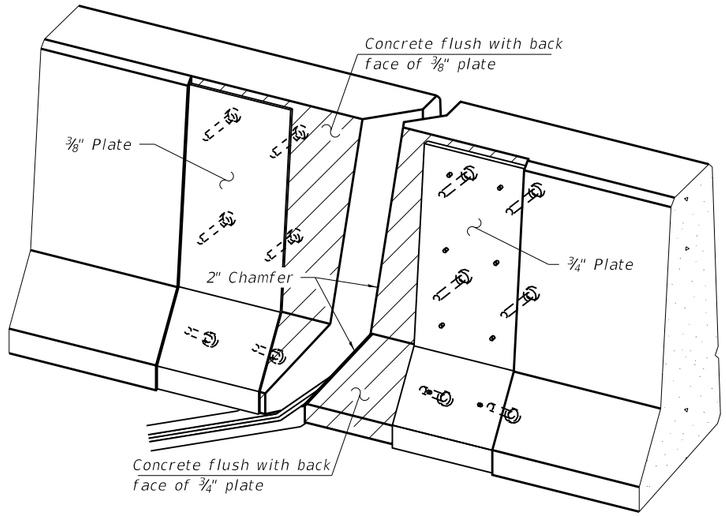


SECTION B-B





DETAIL A



TRIMETRIC VIEW

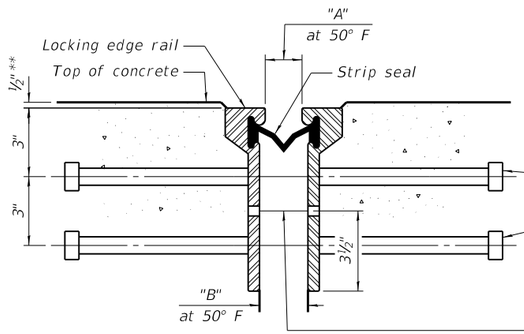
(Showing embedded plates only)

EXPANSION OPENINGS

Location	Dimension "A"			Dimension "B"		
	@ -20°F	@ 50°F	@ 120°F	@ -20°F	@ 50°F	@ 120°F
H1	2"	1½"	1"	2½"	2"	1½"
H2	4"	2¼"	½"	4½"	2¾"	1"
H5	2⅛"	1½"	⅞"	2⅝"	2"	1⅜"

ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)



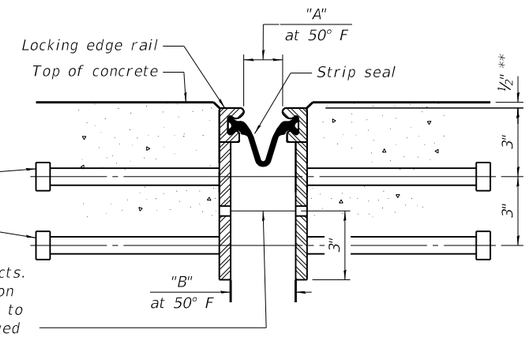
SHOWING ROLLED RAIL JOINT

Note: For deck temperatures between those shown, width of joint opening can be interpolated.

* ¾" Ø x 8" studs @ 1'-0" cts.

* ¾" Ø x 8" studs @ 2'-0" cts.

⅜" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

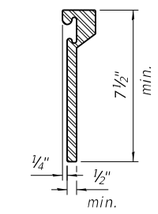


SHOWING WELDED RAIL JOINT

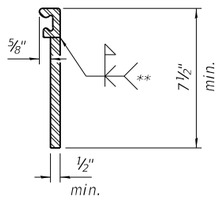
SECTION A-A

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

** Prior to ¼" Diamond Grinding.



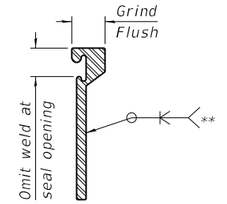
ROLLED (EXTRUDED) RAIL



WELDED RAIL

LOCKING EDGE RAILS

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed.

The manufacturer's recommended installation methods shall be followed.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.

34" F-shape barrier shown, 42" F-shape similar as noted.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	126

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
www.wje.com

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PREFORMED JOINT STRIP SEAL
S.N. 082-0256

SHEET S-10 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	272
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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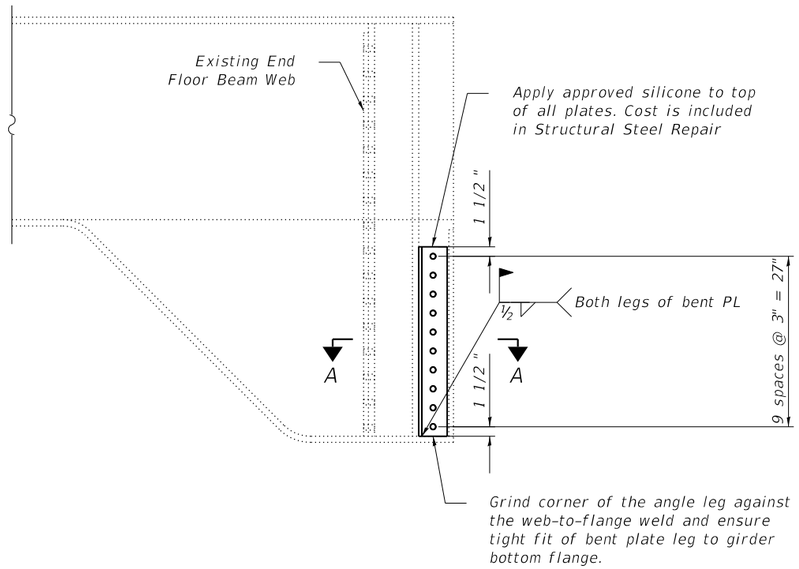

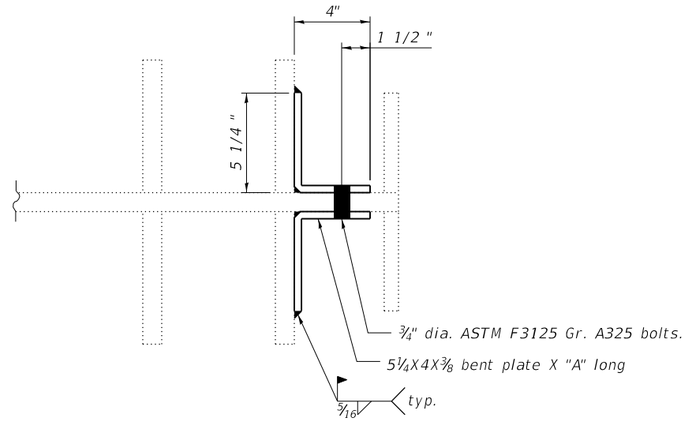

SECTION A-A

RETROFIT DIMENSIONS

Girder	"A"
P1	2'-6"
H1	2'-6"

BEARING STIFFENER REPAIR AT PIER H-1

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	130

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BEARING STIFFENER REPAIRS
S.N. 082-0256
SHEET S-11 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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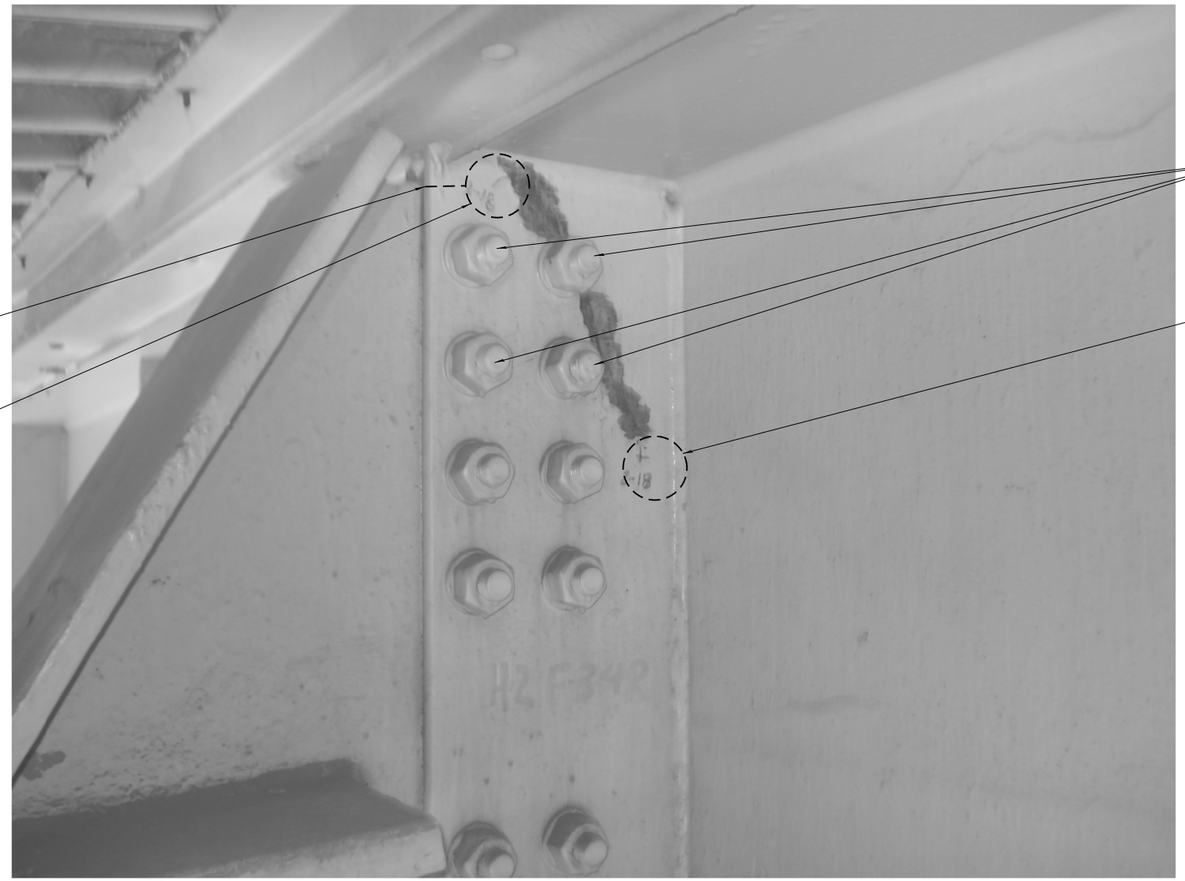
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



FLOOR BEAM STIFFENER REPAIR

Floor Beam 6 at Girder H2

Crack Arrest Procedure:

1. Locate crack tips using magnetic particle inspection methods.
2. Drill 2-inch minimum diameter crack arrest holes at each end of crack. Position hole to be flush with the girder web or flange and to ensure that crack tip falls within the diameter.
3. Saw cut from the edge of the arrest hole at the flanges through the end of the stiffener as shown. Do not cut the existing floor beam.
4. All newly exposed surfaces shall have a Roughness Average (RA) of 500 or less.
5. Verify removal of crack tip with magnetic particle testing.
6. Attain approval of Engineer.
7. Clean and paint the exposed steel surfaces and any surfaces marred during the work with a zinc-rich primer as described in GBSP 21 – Cleaning and Painting Existing Steel Structures.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Crack Arrest Holes	Each	2

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9595 fax
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FLOOR BEAM 6 STIFFENER REPAIR
S.N. 082-0256
SHEET S-12 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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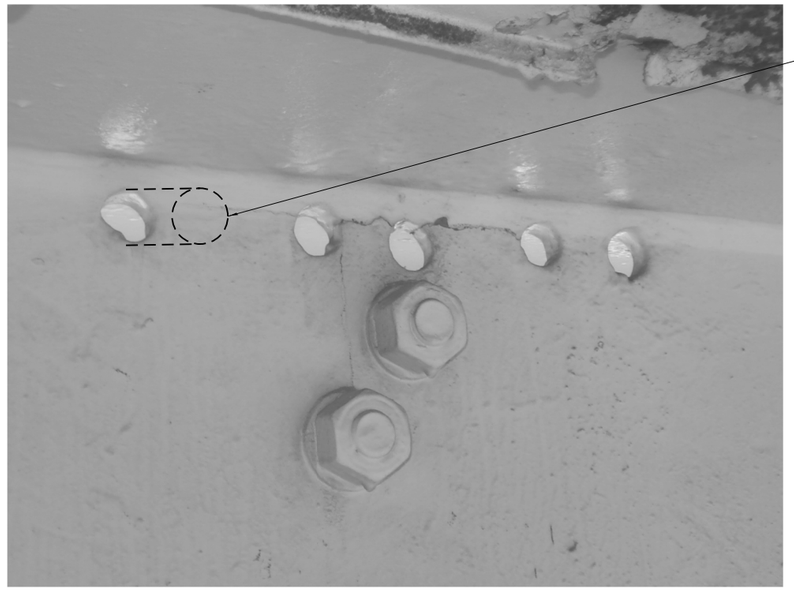
		ILLINOIS FED. AID PROJECT		



TYPE A – GIRDER CRACK REPAIR DETAIL

(Span H2 shown, other locations similar)

TYPE B – FLOOR BEAM CRACK REPAIR DETAIL

(Span H2 shown, other locations similar)

Type A – Girder Crack Arrest Hole Procedure:

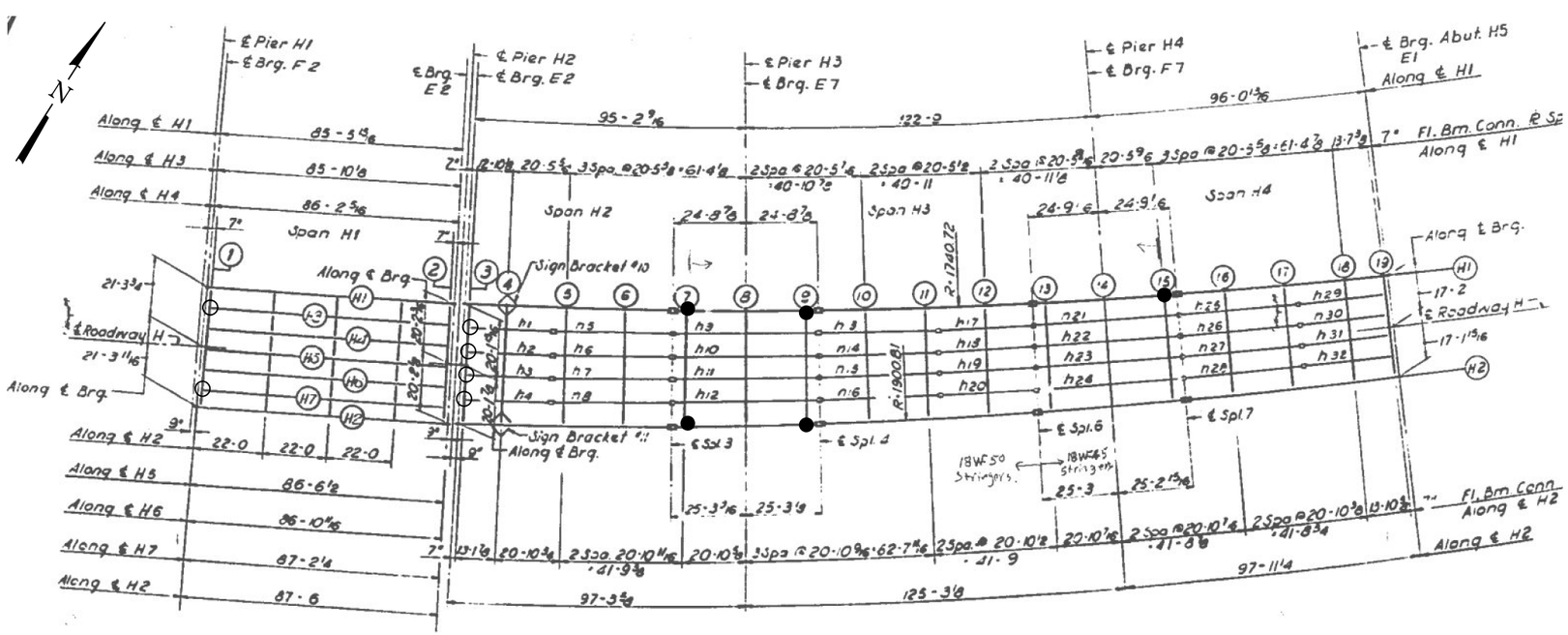
1. Locate crack tips using magnetic particle inspection methods. Test from both sides of web.
2. Drill 1–inch minimum diameter crack arrest hole. The crack tip shall fall within the diameter of the hole. If the edge of the new hole is within 1/4" of an existing hole, material between the holes shall be removed as shown in the detail to achieve an oval profile.
3. All newly exposed surfaces shall have a Roughness Average (RA) of 500 or less.
4. Verify removal of crack tip with magnetic particle testing.
5. Attain approval of Engineer.
6. Clean and paint the exposed steel surfaces and any surfaces marred during the work with a zinc–rich primer as described in GBSP 21 – Cleaning and Painting Existing Steel Structures.

Type B – Floor Beam Crack Arrest Hole Procedure:

1. Locate crack tip using magnetic particle inspection methods. Test from both sides of web.
2. Drill 1–inch minimum diameter crack arrest hole as near to the crack tip as possible, while avoiding bolt heads and other interferences. If the crack tip does not fall within the retrofit hole, use grinding to enlarge the retrofit hole to encompass the crack tip as shown.
3. All newly exposed surfaces shall have a Roughness Average (RA) of 500 or less.
4. Verify removal of crack tip with magnetic particle testing.
5. Attain approval of Engineer.
6. Clean and paint the exposed steel surfaces and any surfaces marred during the work with a zinc–rich primer as described in GBSP 21 – Cleaning and Painting Existing Steel Structures.

Legend

- ● Type A Arrest Hole
- ○ Type B Arrest Hole



REPAIR LOCATION PLAN

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Crack Arrest Holes	Each	9

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CRACK ARREST HOLE DETAILS
S.N. 082-0256
SHEET S-13 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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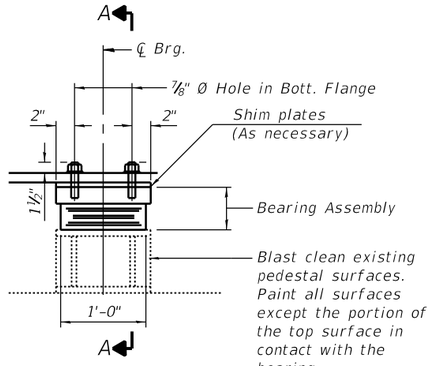
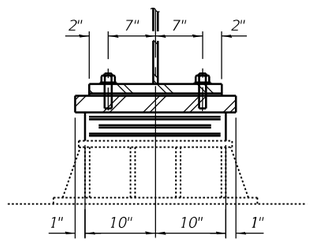
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



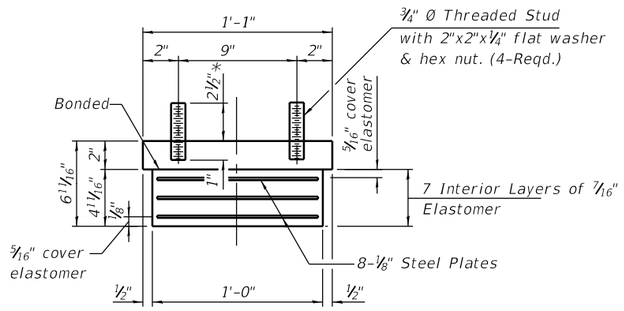
ELEVATION



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

Pier H2, Span H2, each column



BEARING ASSEMBLY

*2½" min. Add thickness of shim plates if required.

REACTION TABLE AT BEARINGS

(Max shown-use for both bearings)

DL (k)	130
LL (k)	101
Total (k)	231

Notes:

Steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

The bearing shall be installed at an ambient temperature of 50 ±10 Degrees Fahrenheit.

Shim plates shall not be placed under Bearing Assembly.

Minimum plate thickness is 1/16".

Use no more than 2 shim plates at each bearing.

For locations and reaction see Sheet 55 of 90.

2" top plate shall be AASHTO M270 Gr. 50.

ITEM	UNIT	QUANTITY
Elastomeric Bearing Assembly Type I	Each	2

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Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
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BEARING REPLACEMENT
S.N. 082-0256

SHEET S-14 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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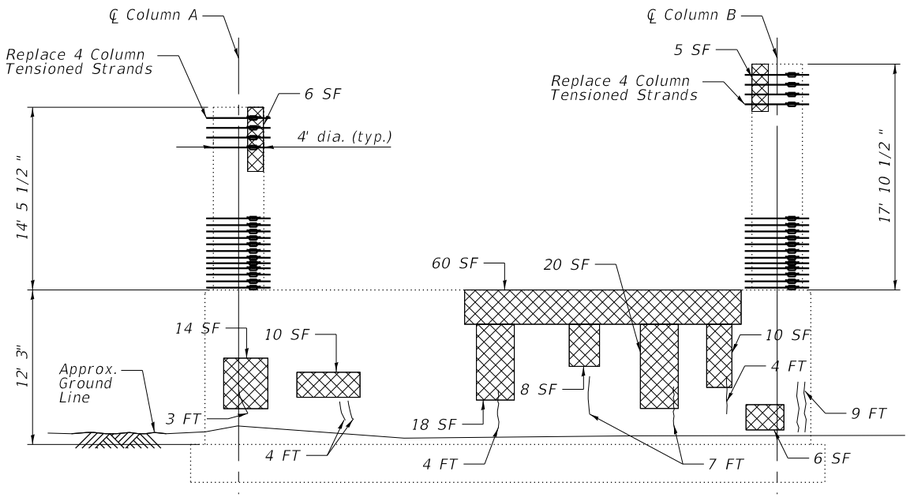

ELEVATION

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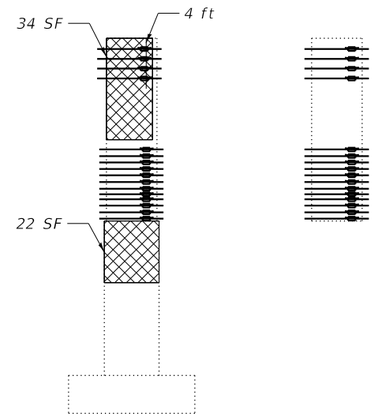
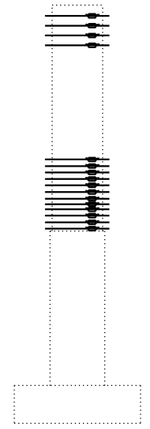


COLUMN A

(End View)

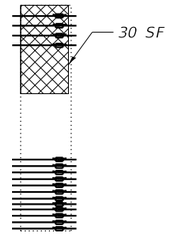
COLUMN A

(Interior View)



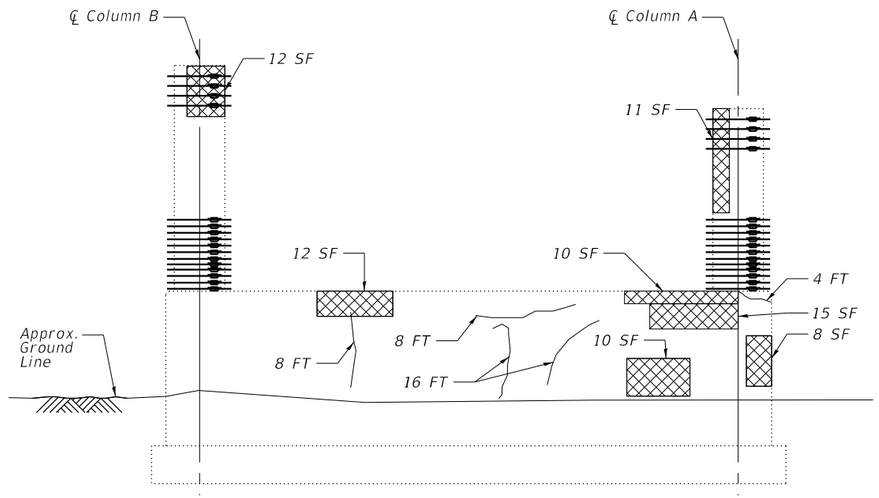
COLUMN B

(End View)



COLUMN B

(Interior View)



ELEVATION

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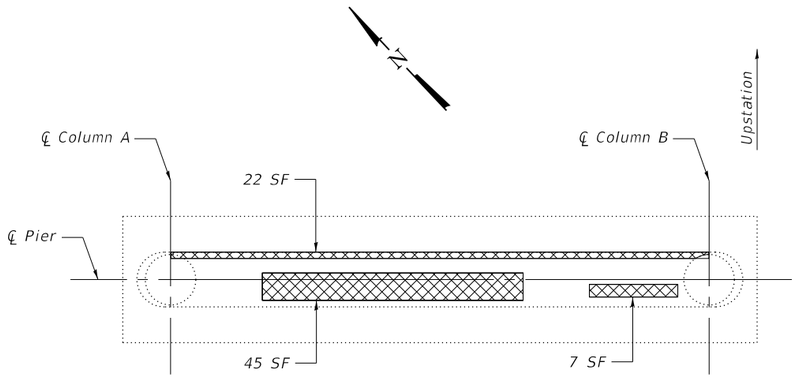

PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:

Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-17 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER H1
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	395
Epoxy Crack Injection	Foot	67
Column Tensioned Strands	Each	8
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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330 Pfingsten Road
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CONCRETE SUBSTRUCTURE REPAIRS - PIER H1
S.N. 082-0256

SHEET S-15 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	277
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

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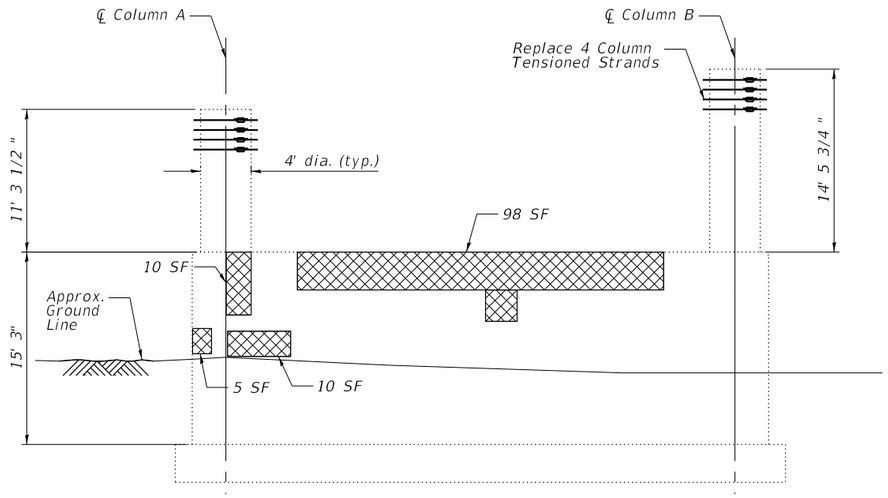

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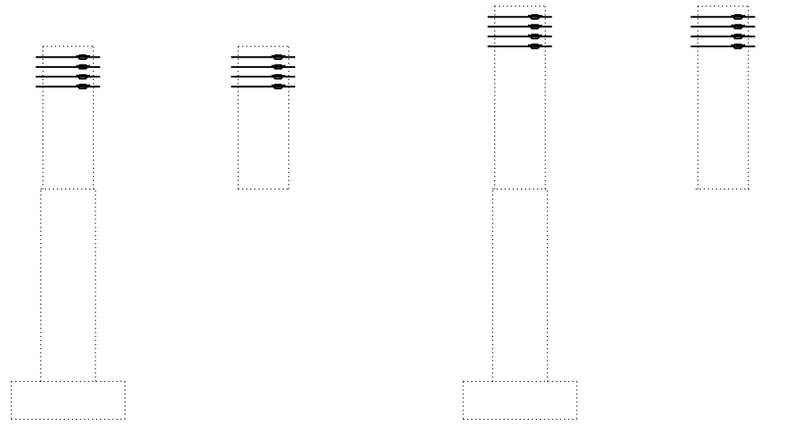
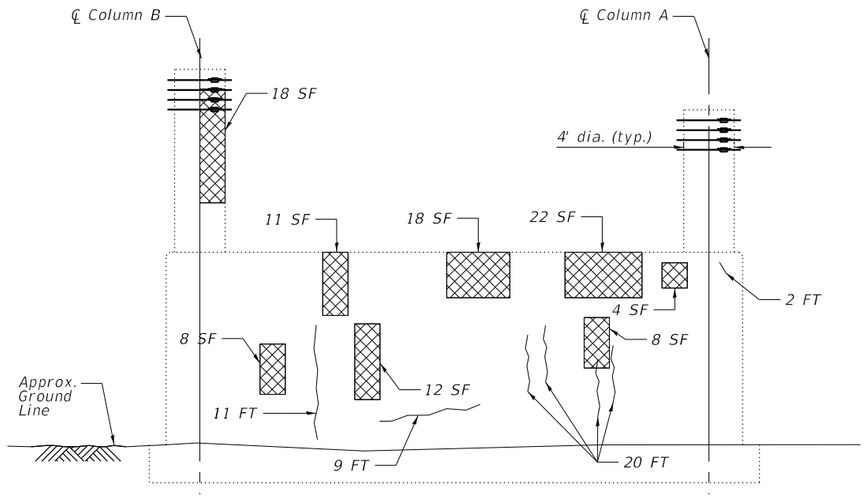


COLUMN A
(End View)

COLUMN A
(Interior View)

COLUMN B
(End View)

COLUMN B
(Interior View)



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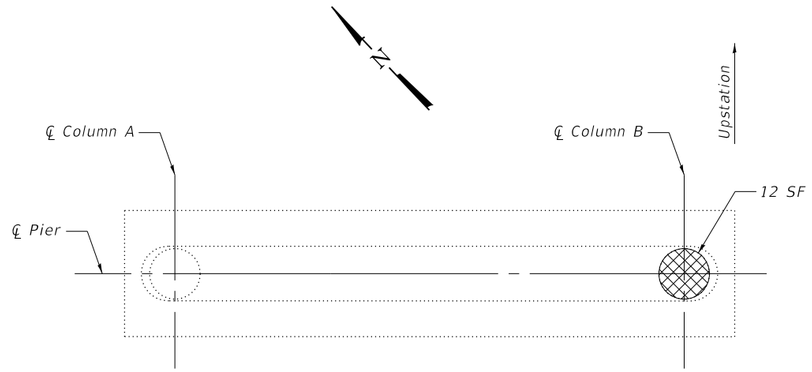

PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-17 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER H2
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	236
Epoxy Crack Injection	Foot	42
Column Tensioned Strands	Each	4
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER H2
S.N. 082-0256
SHEET S-16 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		ILLINOIS	FED. AID PROJECT	

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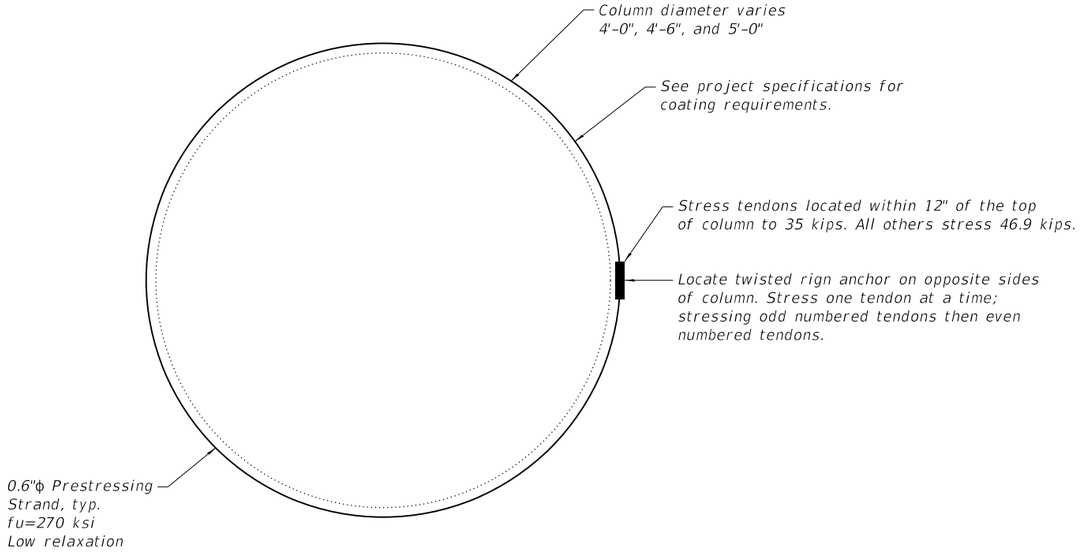
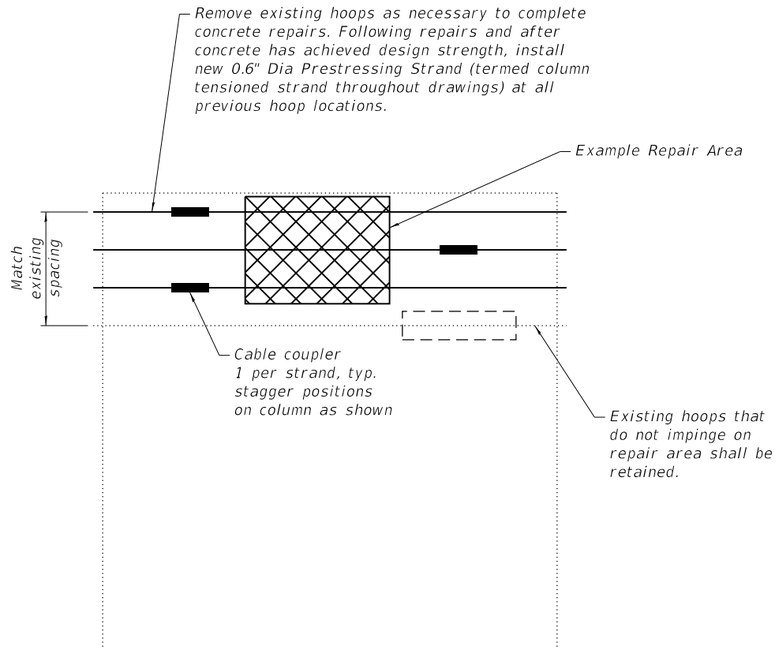
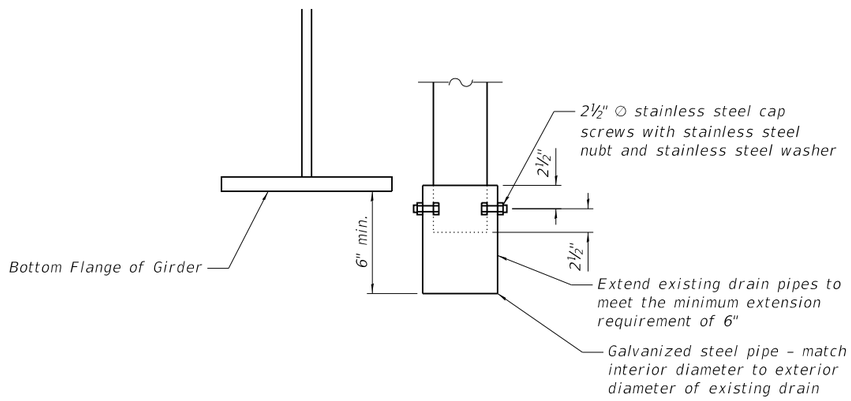


PLAN TENSIONED STRAND



ELEVATION TENSIONED STRAND



DECK DRAIN EXTENSION DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Drain Extensions	Each	6

WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS
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330 Pfingsten Road
Northbrook, Illinois 60062
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www.wje.com

USER NAME = lsalas	DESIGNED - ARB	REVISED -	
	CHECKED - RW	REVISED -	
PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TENSIONED STRANDS AND PIPE EXTENSION DETAILS
S.N. 082-0256
SHEET S-17 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	279
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
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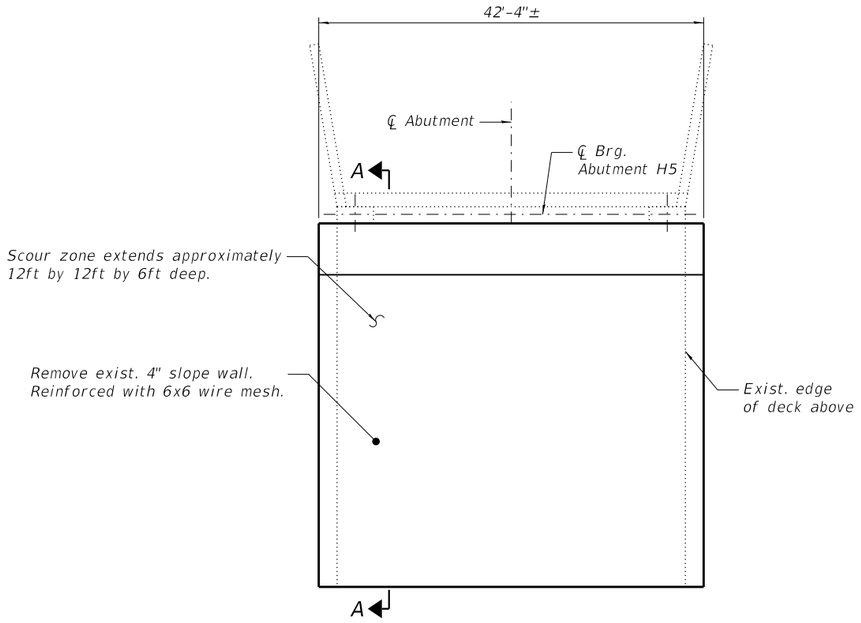
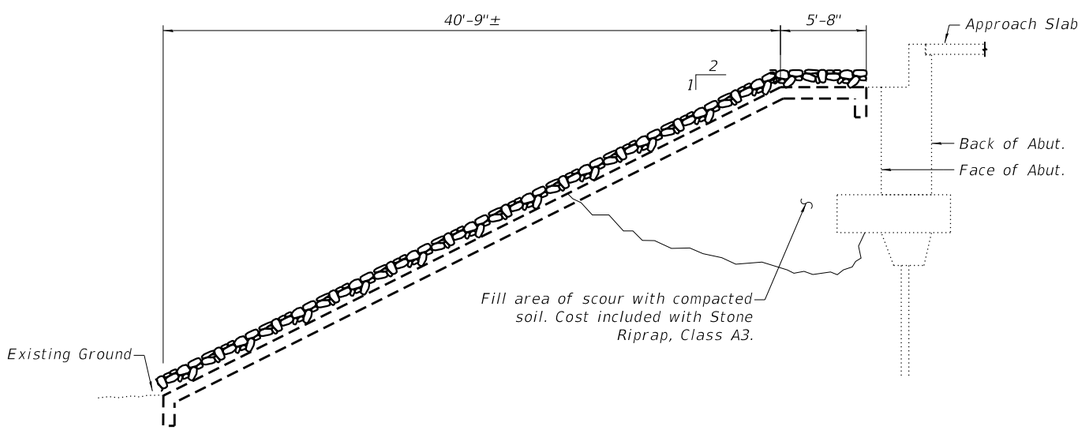
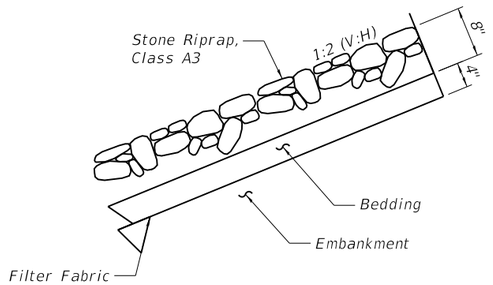


PLAN

EXISTING CONDITIONS



SECTION A-A



RIPRAP PLACEMENT DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Slope Wall Removal	Sq. Yd.	240
Stone Riprap, Class A3	Sq. Yd.	240
Filter Fabric	Sq. Yd.	240

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PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SLOPE WALL REPAIR - ABUTMENT H5
S.N. 082-0256
SHEET S-18 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		ILLINOIS	FED. AID PROJECT	

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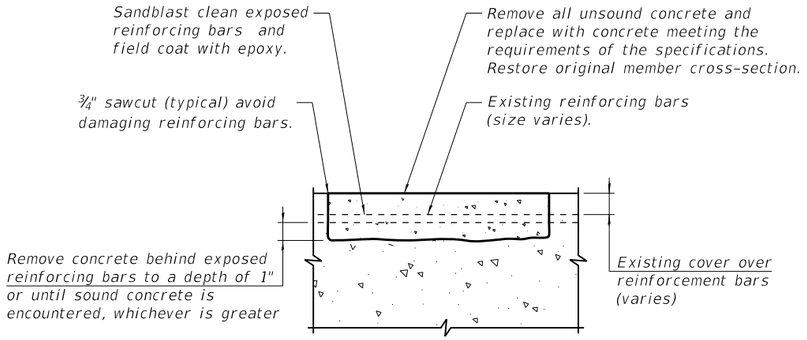
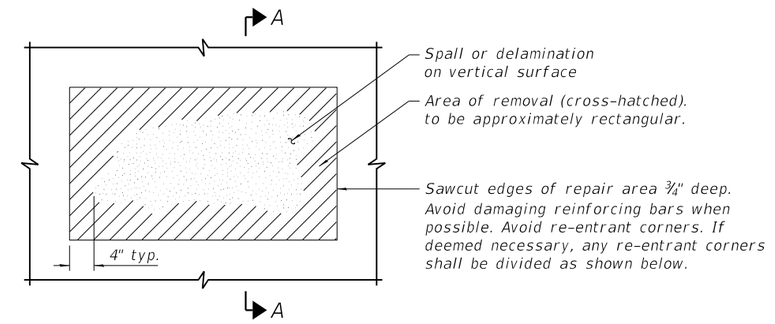


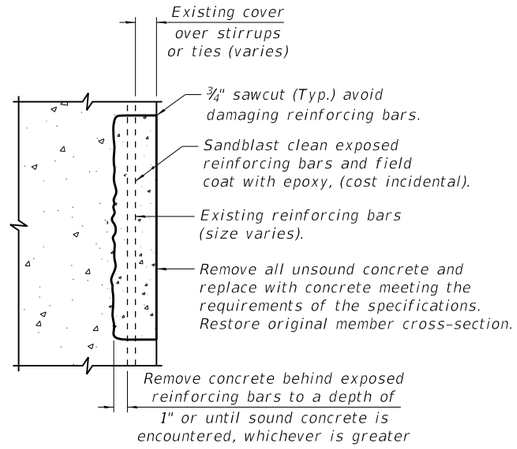
HORIZONTAL SURFACE REPAIR (PARTIAL DEPTH)

At bridge deck and substructure.



VERTICAL SURFACE REPAIR DETAIL

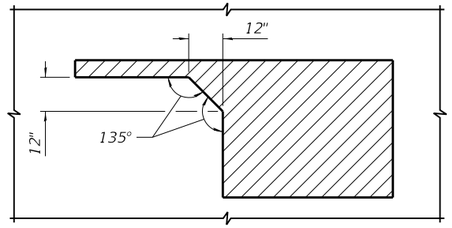
At Substructure



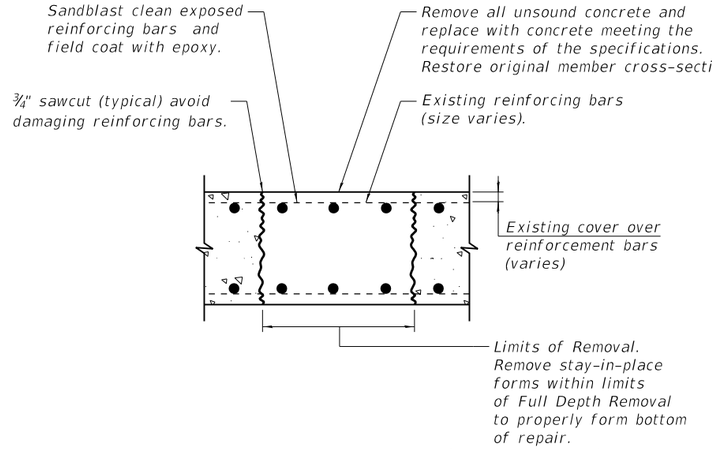
SECTION A-A

Note:
Construction history of deck as follows:

1. *Original slab construction – 7" with 1 ½" clear cover to top mat.*
2. *1989 repair – Removal of ¼" of deck surface and addition of 2" concrete overlay for a new deck thickness of 8 ¾"*

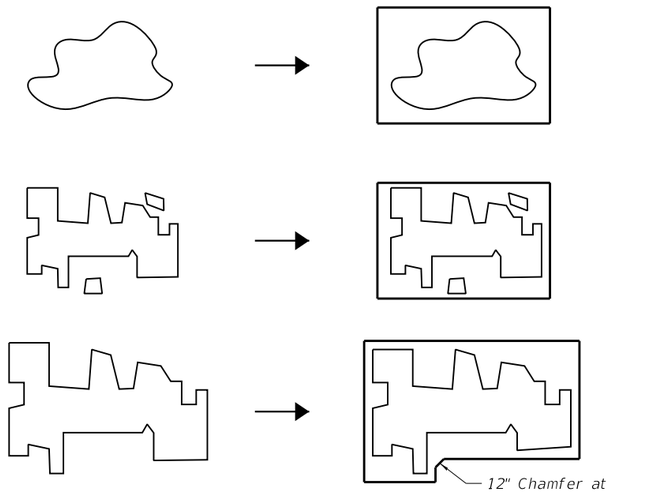


RE-ENTRANT CORNER MODIFICATIONS



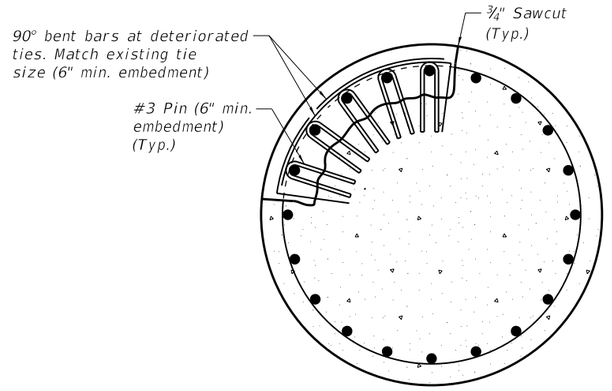
HORIZONTAL SURFACE REPAIR (FULL DEPTH)

At bridge deck



GENERAL SHAPE OF DETERIORATION — REMOVAL GEOMETRY

TYPICAL CONCRETE REPAIR GEOMETRY



COLUMN REPAIR AT DETERIORATED TIE

Notes:

Patch shall extend 4" past tie deterioration or to the extents of unsound concrete, whichever is greater.

The instanding leg of the 90 degree bent bars will be installed 1" to 3" from the edge of the patch.

Stagger #3 pins 3" vertically (alternate sides of deteriorated existing tie)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE REPAIR DETAILS
S.N. 082-0256

SHEET S-19 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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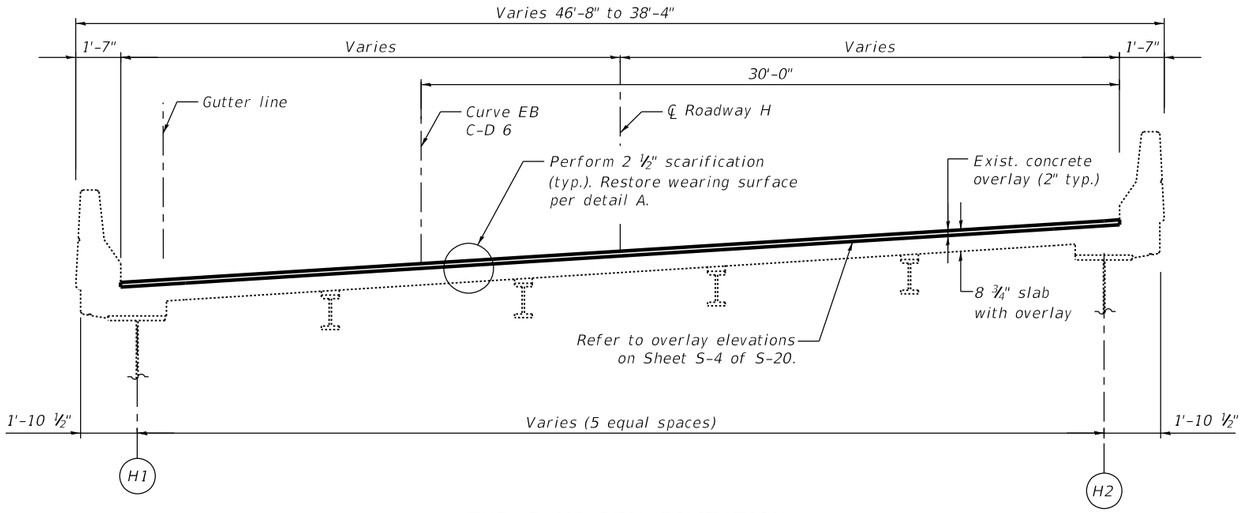
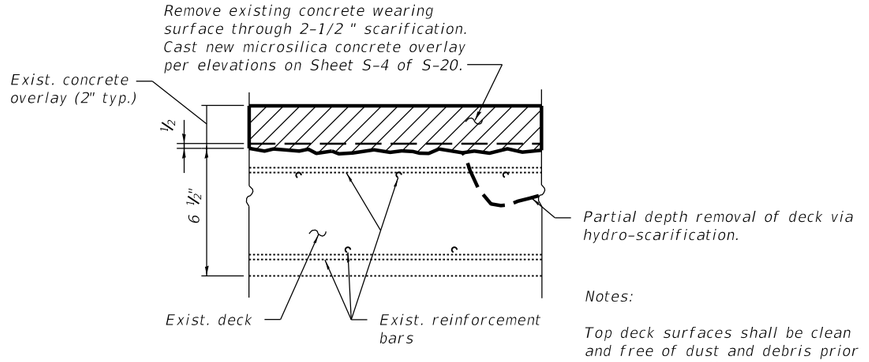
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



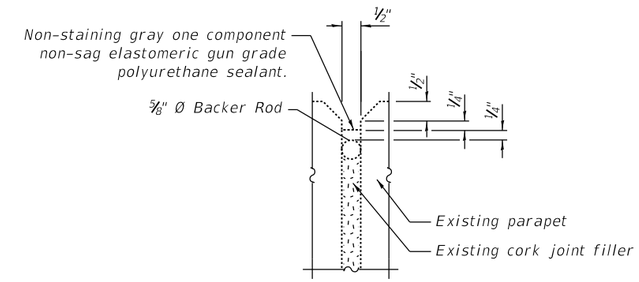
TYP. RAMP REHABILITATION

(Looking toward higher numbered H pier)

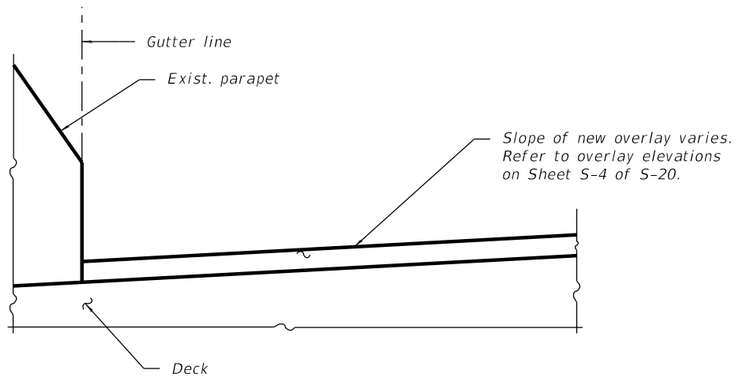
Note:
1. Existing drainage scuppers note shown.
2. Design overlay thickness is 2 inches. The six core samples collected by WJE in 2018 identified an existing overlay thickness between 1.8 and 3.4 inches. Scarification to be performed to 2- 1/2", to a sound substrate.
3. Drainage system replaced during previous rehabilitation and no further modification is proposed. Overlay installation shall not damage drainage grates.



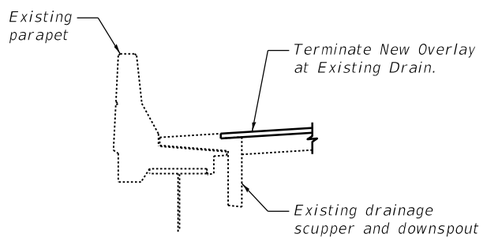
DETAIL A-SCHEMATIC DIAGRAM OF REPAIR



PARAPET JOINT DETAILS



OVERLAY SLOPE AT GUTTER LINE



SECTION THROUGH DRAINAGE SCUPPER

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Polyurethane Sealant	Foot	100

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PLOT SCALE = 0.1667 ' / In.	DRAWN - LS	REVISED -	
PLOT DATE = 9/30/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

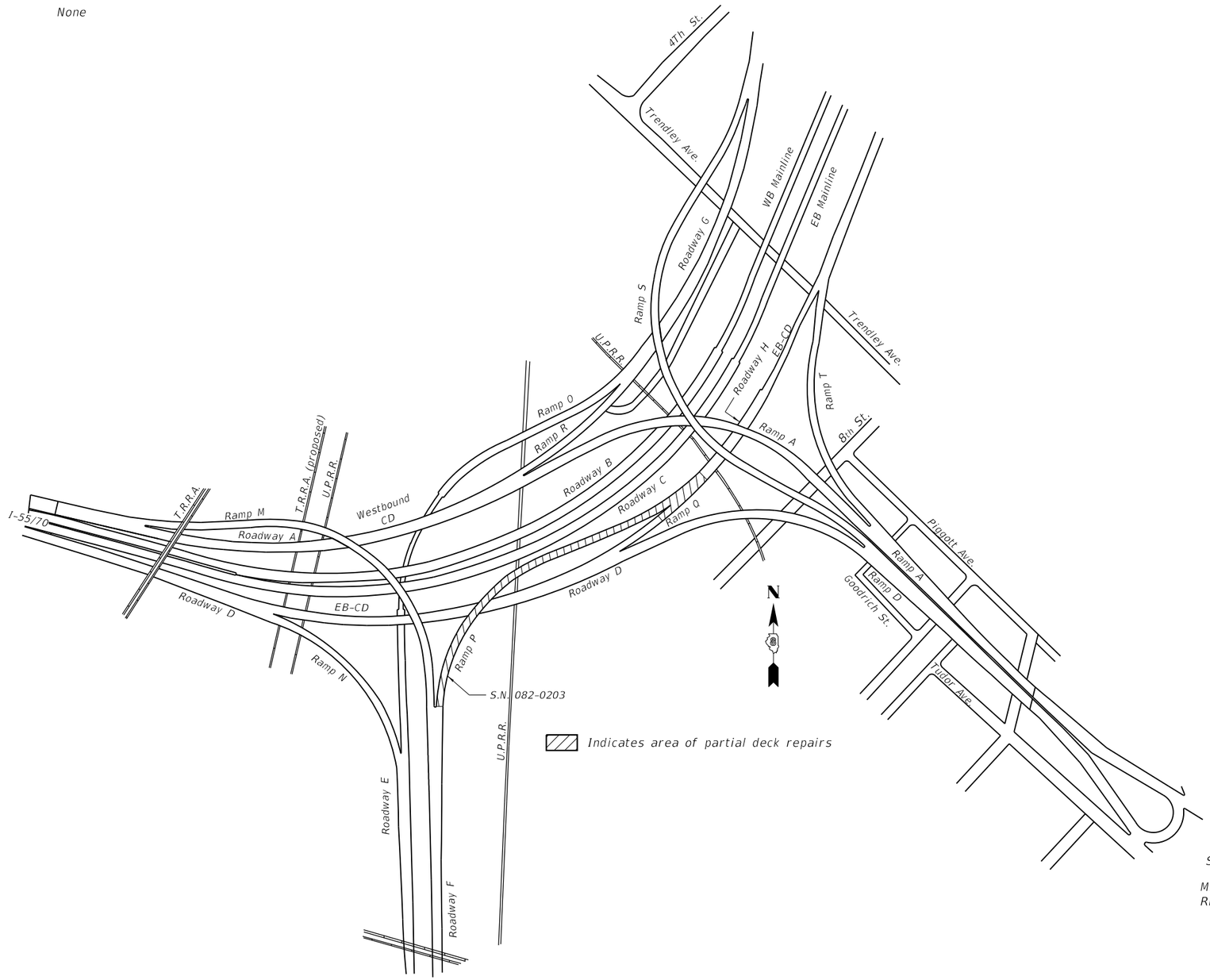
DECK REHABILITATION DETAILS
S.N. 082-0256
SHEET S-20 OF S-20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	282
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

Bench Mark: *Cut "X" on top northwest hex bolt on hydrant, 23' southeast of the intersection of Bond Avenue and South 4th Street. Elev. 414.63.*

Existing Structure: *S.N. 082-0203 was originally built in 1972 as FAI- 70, Sections 82-3HV(B,D,F&E)-1. The existing structure consists of a 15-span superstructure supported on multi-column piers, which are founded on pile supported footings. The structure width is variable and the total bridge length is 1,462.31 from Pier P1 to Pier H1. The superstructure framing is arranged in single, three, and four span units between expansion joints, and is noncomposite with the deck except in the single span units.*

Salvage: *None*



GENERAL PLAN

SCOPE OF WORK

1. *Deck Patching Repairs in Spans P1 thru P15, with new overlay in Span P15.*
2. *Longitudinal joint repair at merge with Q ramp.*
3. *Substructure repair at Piers P7, Pier P14, and Pier P15.*
4. *Enlarge hole in floor beam at Pier P14*

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition
2003 AASHTO Guide Specifications for Horizontally Curved Steel Girder Highway Bridges
1995 FHWA Seismic Retrofitting Manual

DESIGN STRESSES

FIELD UNITS

NEW CONSTRUCTION

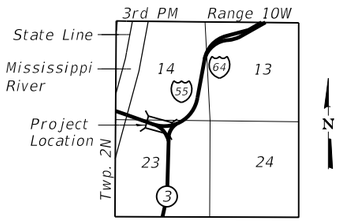
fy = 60,000 psi (Reinforcement)
fy = 36,000 psi (Structural Steel)

EXISTING CONSTRUCTION

f'c = 3,500 psi (1989+ Rehabs)
fc = 1,400 psi (1967 Construction)
fs = 20,000 psi (Reinforcement)
fs = 20,000 psi (Structural Steel 1967 Construction)
fy = 36,000 psi & 50,000 psi (Structural Steel 1989+ Rehabs)

LICENSED STRUCTURAL ENGINEER
RICHARD A. WALTHER
081.005127
STATE OF ILLINOIS

Signature: Richard A. Walther
Date Signed: 07-16-2020
License Expires: 11/30/2020



LOCATION SKETCH

GENERAL PLAN
F.A.I. 70 (I-55/I-64) EB CD "P"
OVER RR, IL 3, 8TH ST
SEC. 82-3HVB-2R-1-I-1
ST. CLAIR COUNTY
STATION 70+54.07
STRUCTURE NO. 082-0203

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & SCOPE OF WORK
S.N. 082-0203
SHEET S-1 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	283
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

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GENERAL NOTES

1. Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
2. The Contractor shall exercise extreme caution with demolition activities to prevent damage to the existing structure. Any damage from the construction activities shall be repaired at the Contractor's expense.
3. No field welding is permitted, except as specified in the contract documents.
4. Fasteners shall be ASTM A325, Type 1, mechanically galvanized bolts. Bolts shall be 7/8 in. diameter and placed in 15/16 in. diameter holes, unless noted otherwise.
5. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
6. As directed by the Engineer, existing construction accessories, including existing metal deck accessories and shear studs, welded to the top flange of beams, stringers, and girders shall be removed at locations of deck replacement or full thickness patching. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding 1/4 in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding, and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
7. Synthetic fibers shall be added to the Bridge Deck Microsilica Concrete Overlay, see Special Provisions

CONCRETE REPAIR NOTES

1. Concrete deck repair areas as shown in the drawings are based on a chain drag survey conducted in April 2020. Substructure repair areas are based on a September 2017 survey.
2. It is expected that actual repair areas may be different in shape, size, and location than shown on the drawings. The exact locations shall be determined by the Engineer. The Engineer shall show actual repair areas and their dimensions on as-built plans.
3. Only partial depth deck repairs are anticipated in spans without full deck replacement and at locations away from joints; however, a nominal quantity of full depth repair quantities have been included for use in case removal operations extend to the bottom mat of reinforcement.
4. For partial depth substructure repairs, saw cut perimeter of repair area and remove all unsound concrete and sufficient sound concrete to create minimum gaps around reinforcing bars.
5. For full depth deck repairs near joints, saw cut perimeter of repair area and remove all concrete 3 ft from each side of the joint. If a finger joint is to be constructed, remove all concrete 5 ft from each side of the joint. Extreme caution shall be exercised while removing concrete adjacent to beams. Any damage to beams shall be repaired at the Contractor's expense. Removal of existing expansion joints and stay-in-place metal pans shall be included in the cost of concrete removal.
6. Any reinforcing bars damaged during concrete removal shall be repaired or replaced using an approved bar splicer or anchorage system. Cost included with concrete removal.
7. The Contractor shall take all measures necessary to ensure that no debris or other construction materials or equipment infringe on the railroad construction envelope, per Railroad General Notes and Railroad Clearance Envelope sheets.
8. Surface preparation and application of a concrete sealer shall extend across the entire top surface of the deck and the tops and inside vertical faces of the parapets.
9. Up to ¼ Inch may be ground off the bridge deck. Elevations provided are after grinding

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Preformed Joint Seal 1 1/4"	Foot	47		47
Epoxy Crack Injection	Foot		74	74
Column Tensioned Strands	Each		40	40
Bridge Deck Grooving (Longitudinal)	Sq Yd	350		350
Diamond Grinding (Bridge Section)	Sq Yd	362		362
Bridge Deck Concrete Sealer	Sq Ft	51869		51869
Bridge Deck Microsilica Concrete Overlay, 2¾"	Sq Yd	393		393
Cleaning Drainage System	L Sum	0.15		0.15
Bridge Deck Scarification 2 1/2"	Sq Yd	393		393
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft		1881	1881
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft		200	200
Deck Drain Extensions	Each	7		7
Deck Slab Repair (Full Depth, Type I)	Sq Yd	20		20
Deck Slab Repair (Full Depth, Type II)	Sq Yd	20		20
Deck Slab Repair (Partial)	Sq Yd	211		211
Temporary Shoring And Cribbing	Each	1		1

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PLOT DATE = 9/30/2020	CHECKED - RW	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
S.N. 082-0203
SHEET S-2 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	284
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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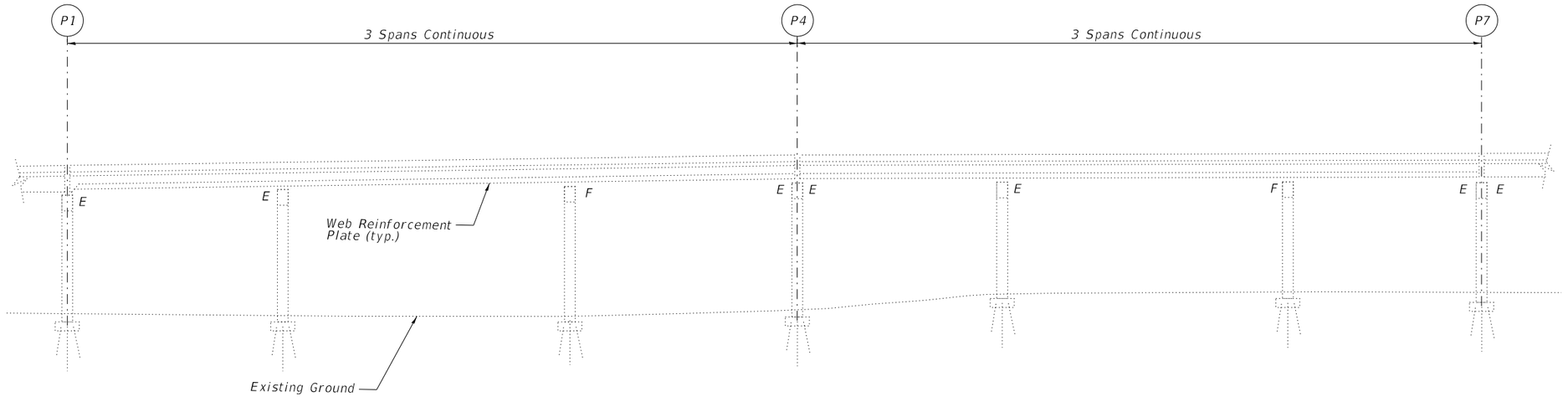
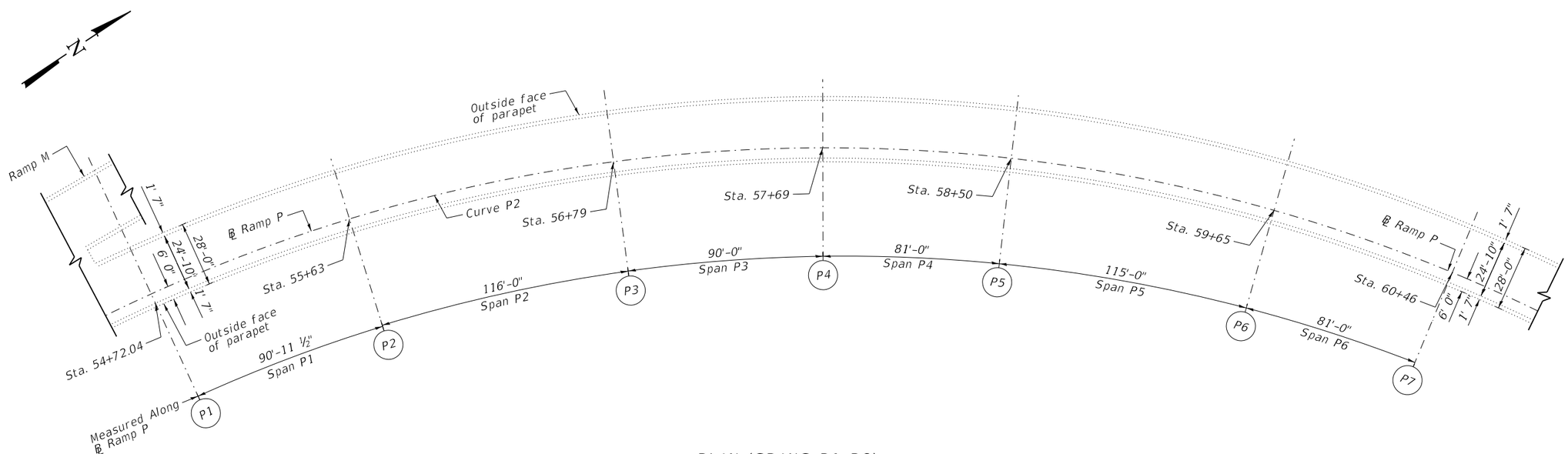


ELEVATION



PLAN (SPANS P1-P6)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATIONS (SPANS P1 THRU P6)
S.N. 082-0203
SHEET S-3 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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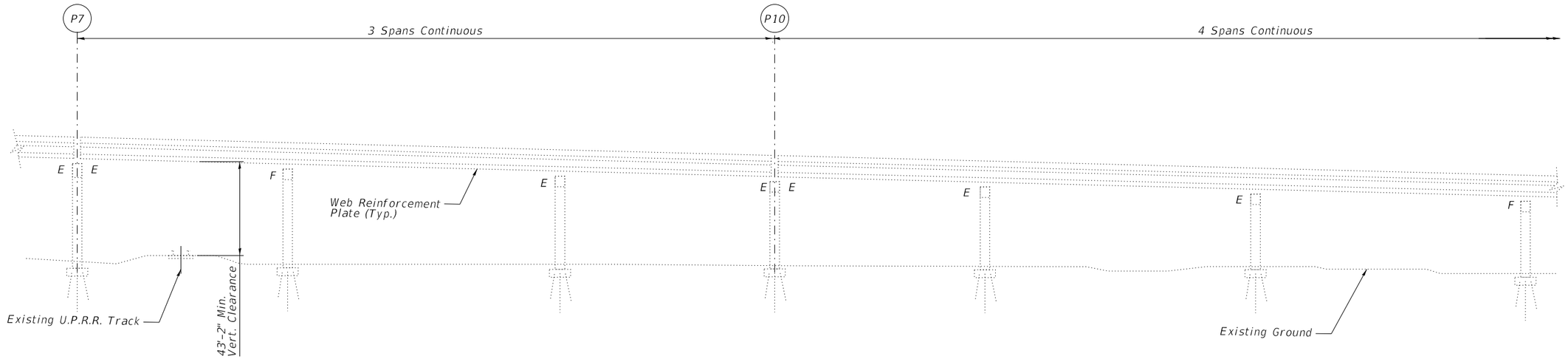
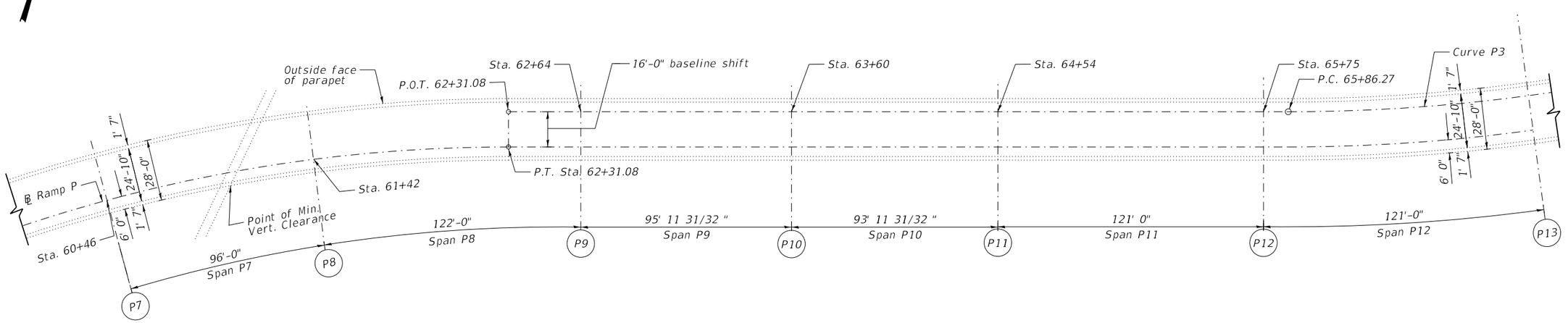
	ILLINOIS FED. AID PROJECT			





PLAN (SPANS P7 – P12)

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Wiss, Janney, Elstner Associates, Inc.
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Northbrook, Illinois 60062
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PLOT DATE = 7/15/2020	CHECKED - RW	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATIONS (SPANS P7 THRU P12)
S.N. 082-0203
SHEET S-4 OF S-18 SHEETS

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	ILLINOIS	FED. AID PROJECT		

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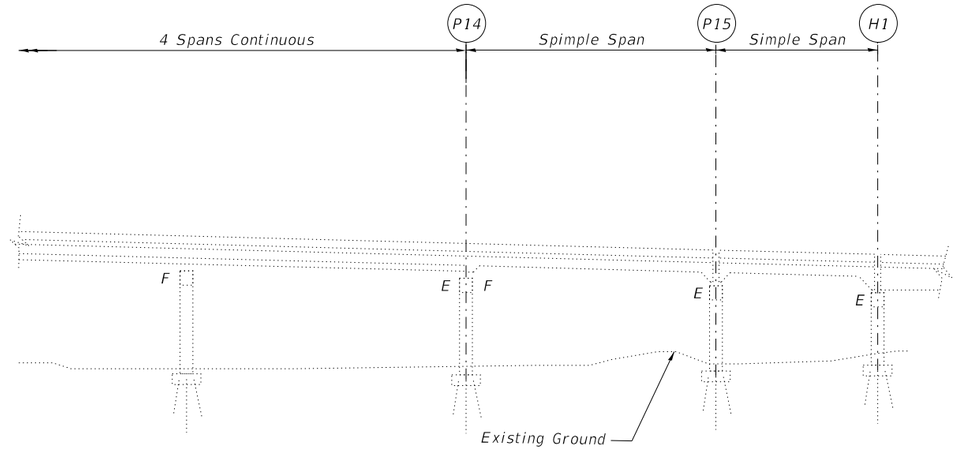

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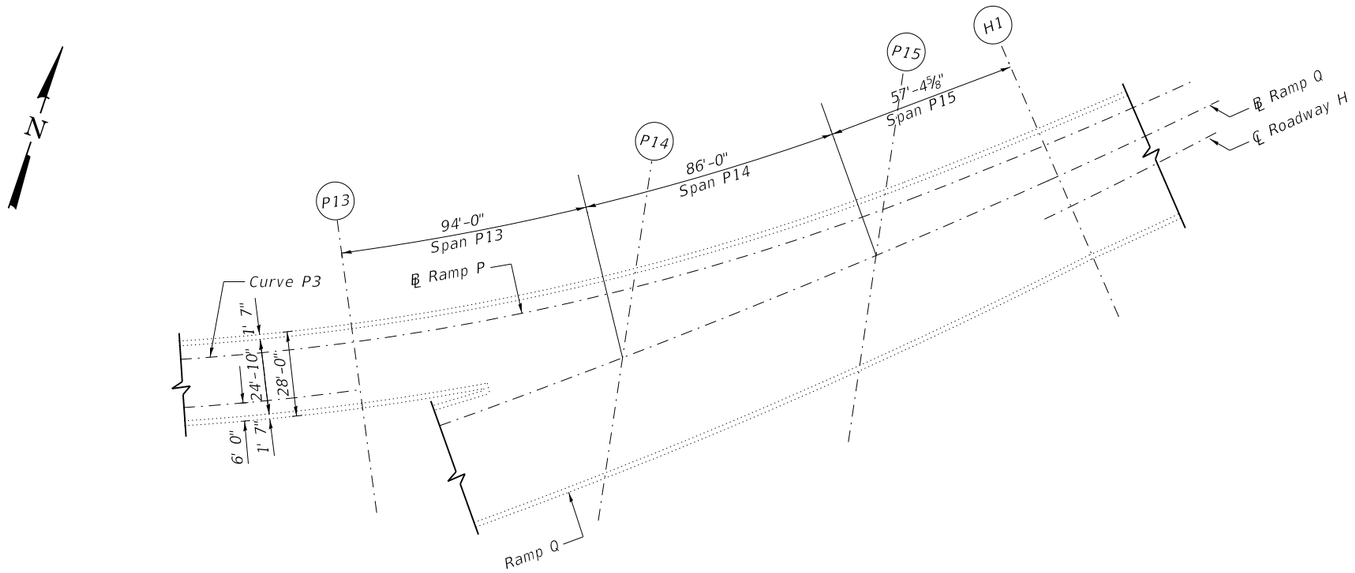

PLAN (SPANS P13 – P15)

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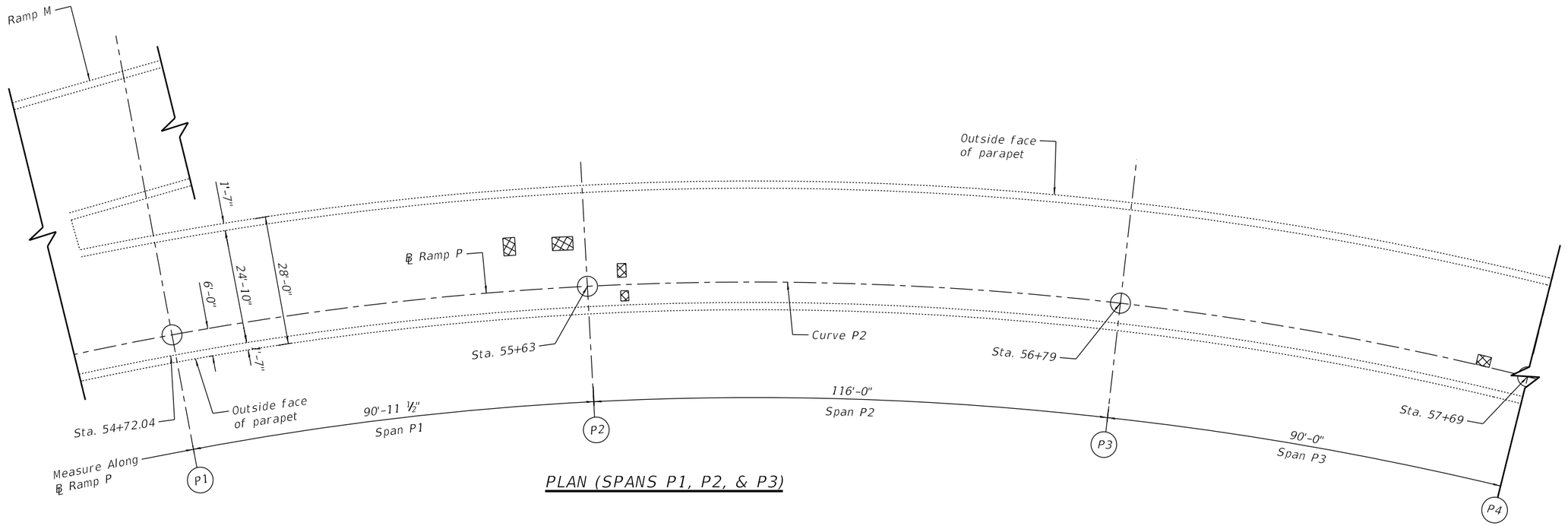
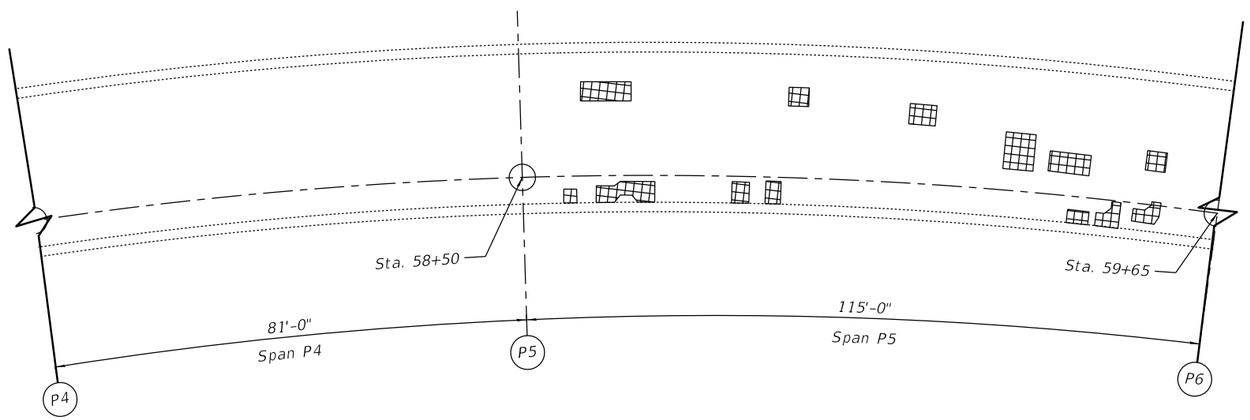
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATIONS (SPANS P13 THRU P15)
S.N. 082-0203
SHEET S-5 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	287
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



PLAN (SPANS P1, P2, & P3)



PLAN (SPANS P4 & P5)

SPAN	PARTIAL DEPTH REPAIRS (Sq Yd)	FULL DEPTH REPAIRS (Sq Yd)	TOTAL (Sq Yd)
P1	3	2	5
P2	2	2	4
P3	1	2	3
P4	0	0	0
P5	25	4	29

Deck Slab Repair

Note:
Deck sounding was performed in September 2017 and April 2020, with quantities increased to account for anticipated growth.
The Resident Engineer will determine final patch locations and quantities in the field before bridge deck patching operations begin.
For details of full depth or partial depth patching, see Sheet S-18 of S-18.
Surface preparation and application of a concrete sealer shall extend across the entire top surface of the deck and the tops and inside vertical faces of the parapets.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Slab Repair (Full Depth, Type I)	Sq Yd	5
Deck Slab Repair (Full Depth, Type II)	Sq Yd	5
Deck Slab Repair (Partial)	Sq Yd	31
Bridge Deck Concrete Sealer	Sq Ft	16038

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STATE OF ILLINOIS
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DECK PATCHING REPAIRS SPANS P1 THRU P5
S.N. 082-0203
SHEET S-6 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	288
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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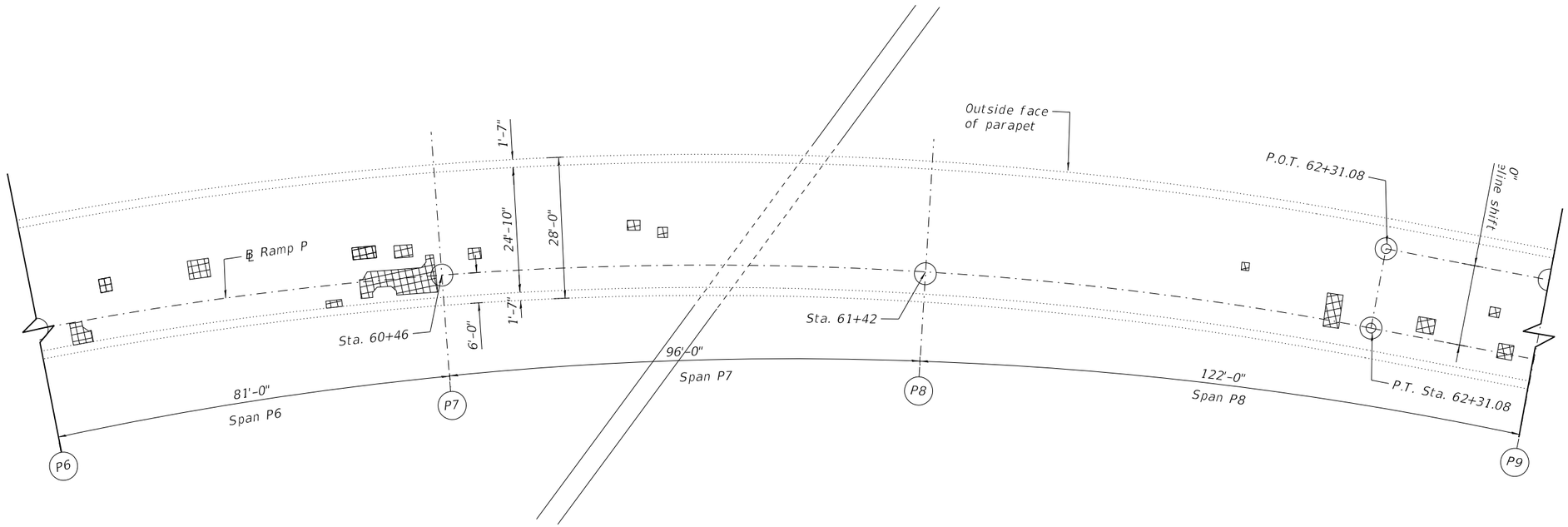
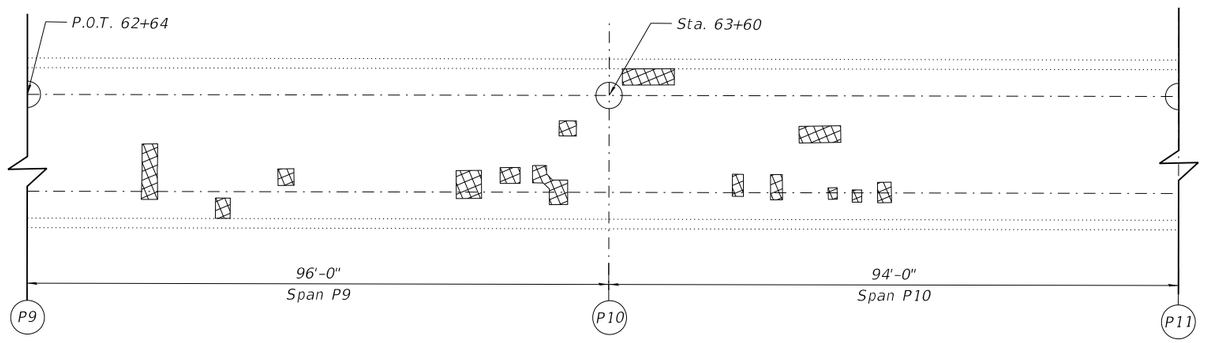


PLAN (SPANS P6, P7 & P8)



PLAN (SPANS 9 & P10)

SPAN	PARTIAL DEPTH REPAIRS (Sq Yd)	FULL DEPTH REPAIRS (Sq Yd)	TOTAL (Sq Yd)
P6	17	2	19
P7	2	2	4
P8	6	2	8
P9	12	2	14
P10	9	2	11

Deck Slab Repair

Note:
Deck sounding was performed in September 2017 and April 2020, with quantities increased to account for anticipated growth.
The Resident Engineer will determine final patch locations and quantities in the field before bridge deck patching operations begin.
For details of full depth or partial depth patching, see Sheet S-18 of S-18.
Surface preparation and application of a concrete sealer shall extend across the entire top surface of the deck and the tops and inside vertical faces of the parapets.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Slab Repair (Full Depth, Type I)	Sq Yd	5
Deck Slab Repair (Full Depth, Type II)	Sq Yd	5
Deck Slab Repair (Partial)	Sq Yd	46
Bridge Deck Concrete Sealer	Sq Yd	15938

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK PATCHING REPAIRS SPANS P6 THRU P10
S.N. 082-0203
SHEET S-7 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	289
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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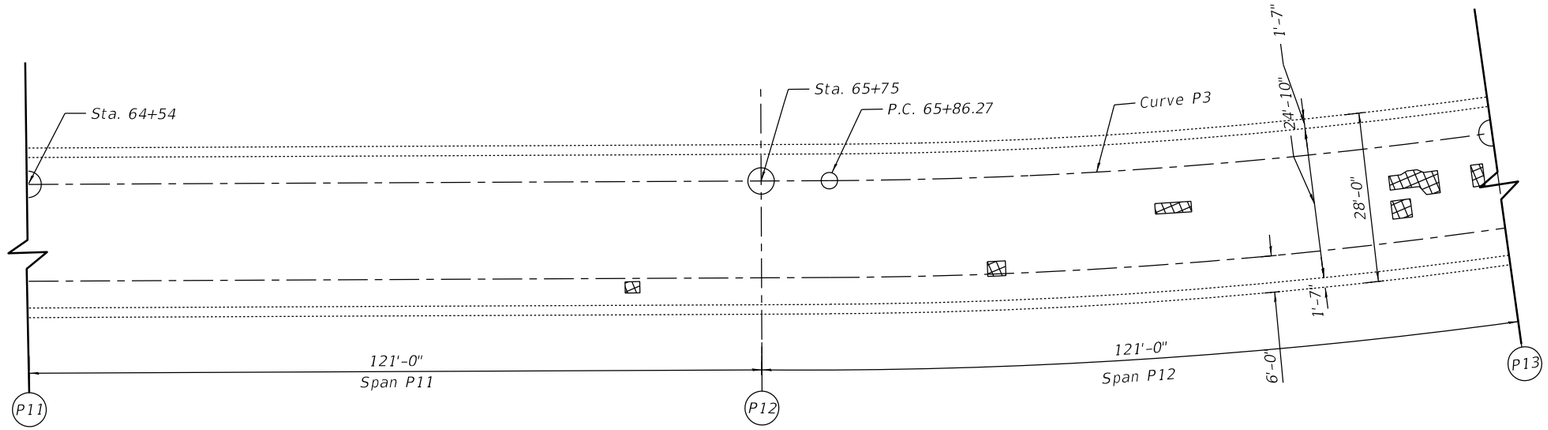
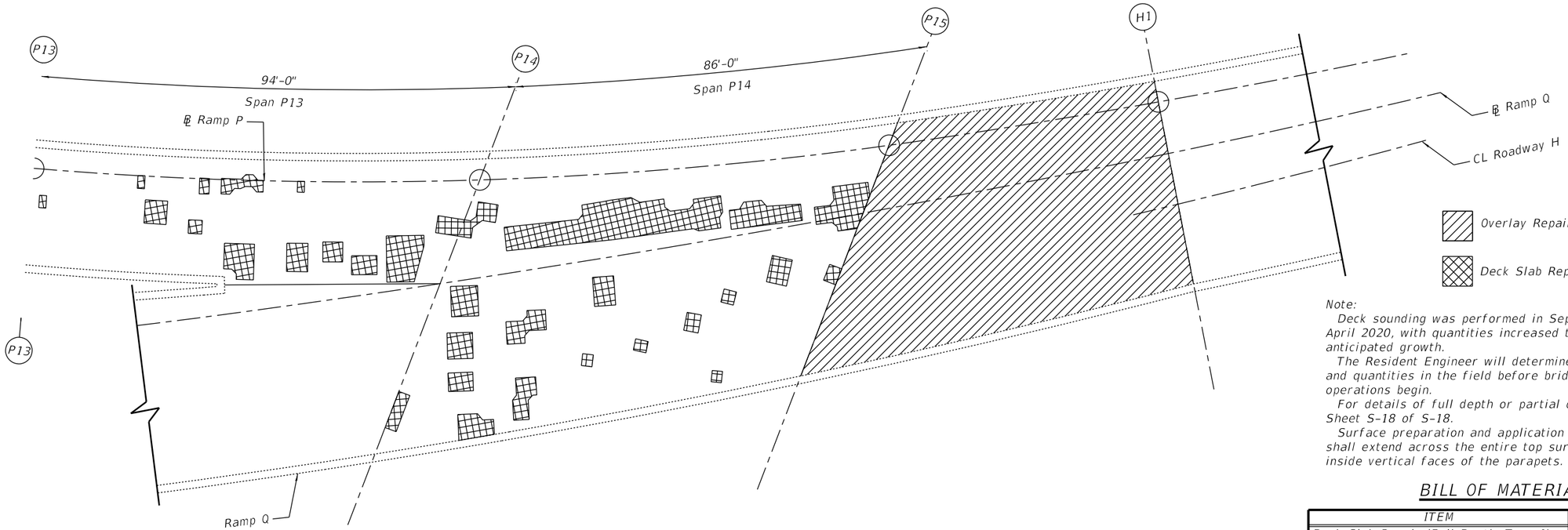


PLAN (SPANS P11 & P12)

SPAN	PARTIAL DEPTH REPAIRS (Sq Yd)	FULL DEPTH REPAIRS (Sq Yd)	TOTAL (Sq Yd)
P11	1	2	3
P12	8	2	10
P13	33	4	37
P14	92	12	104



PLAN (SPANS P13 & P14)

Note:
Deck sounding was performed in September 2017 and April 2020, with quantities increased to account for anticipated growth.

The Resident Engineer will determine final patch locations and quantities in the field before bridge deck patching operations begin.

For details of full depth or partial depth patching, see Sheet S-18 of S-18.

Surface preparation and application of a concrete sealer shall extend across the entire top surface of the deck and inside vertical faces of the parapets.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Slab Repair (Full Depth, Type I)	Sq Yd	10
Deck Slab Repair (Full Depth, Type II)	Sq Yd	10
Deck Slab Repair (Partial)	Sq Yd	134
Bridge Deck Concrete Sealer	Sq Ft	16226

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DEPARTMENT OF TRANSPORTATION

DECK PATCHING REPAIRS SPANS P11 THRU P15
S.N. 082-0203
SHEET S-8 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	290
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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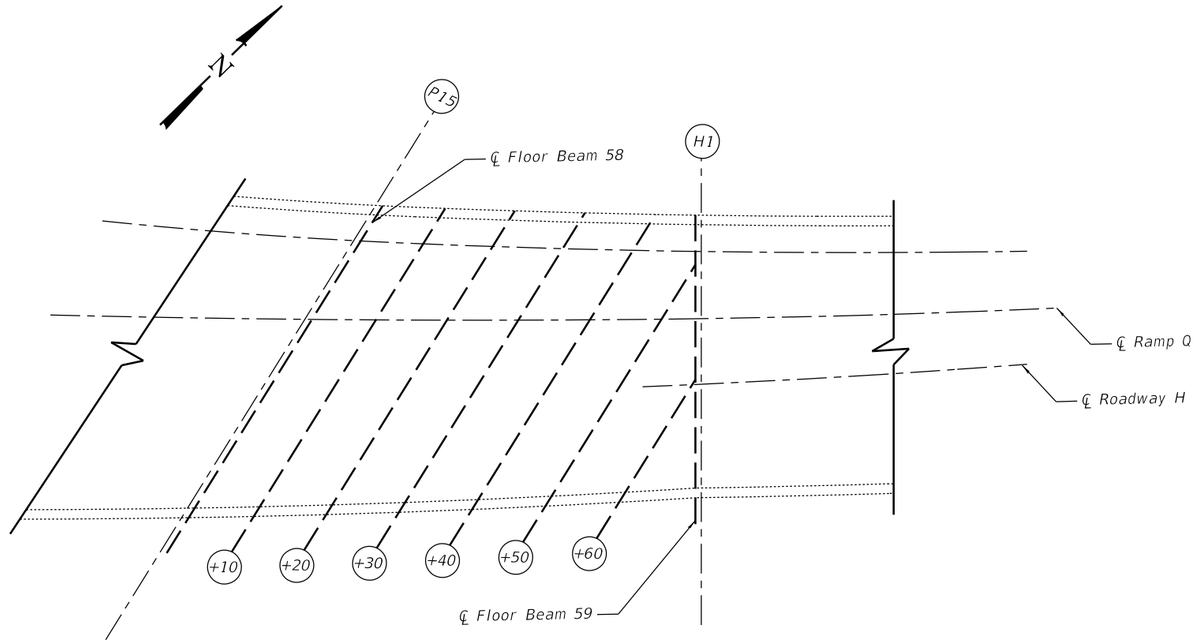

OVERLAY PLAN PIER P15 TO PIER H1

	LEFT				CENTER				RIGHT			
LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
FB58	68+79.314	-3.058	447.902	447.902	68+60.489	41.571	451.518	451.518	68+69.366	19.874	449.751	449.773
FB58+10	68+89.342	-3.372	447.729	447.776	68+70.049	40.891	451.389	451.478	68+79.122	19.440	449.674	449.713
FB58+20	68+99.379	-3.613	447.602	447.678	68+79.641	40.328	451.280	451.441	68+88.937	19.122	449.596	449.651
FB58+30	69+09.449	-3.797	447.542	447.621	68+89.349	39.880	451.170	451.374	68+98.877	18.878	449.486	449.547
FB58+40	69+19.555	-3.923	447.481	447.538	68+99.266	39.503	451.042	451.253	69+08.851	18.690	449.341	449.398
FB58+50	69+29.696	-3.991	447.246	447.258	69+09.222	39.182	450.887	451.070	69+18.862	18.560	449.189	449.233
FB58+60					69+19.217	38.919	450.775	450.894	69+28.911	18.487	449.006	449.029
FB59	69+32.236	-3.999	447.171	447.171	69+32.851	38.653	447.683	447.683	69+32.564	18.475	447.298	447.314

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Bridge Deck Scarification, 2½"	Sq Yd	393
Bridge Deck Microsilica Concrete Overlay, 2¾"	Sq Yd	393
Bridge Deck Grooving (Longitudinal)	Sq Yd	350
Diamond Grinding (Bridge Section)	Sq Yd	362
Bridge Deck Concrete Sealer	Sq Ft	3667

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OVERLAY ELEVATIONS (SPAN P15)
S.N. 082-0203

SHEET S-9 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	291
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	

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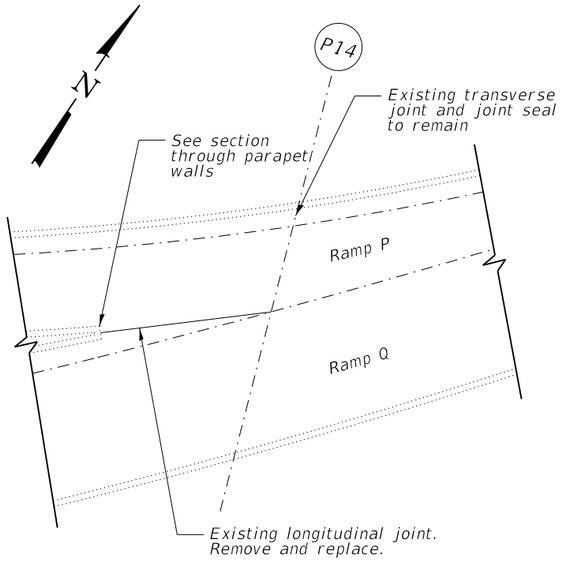
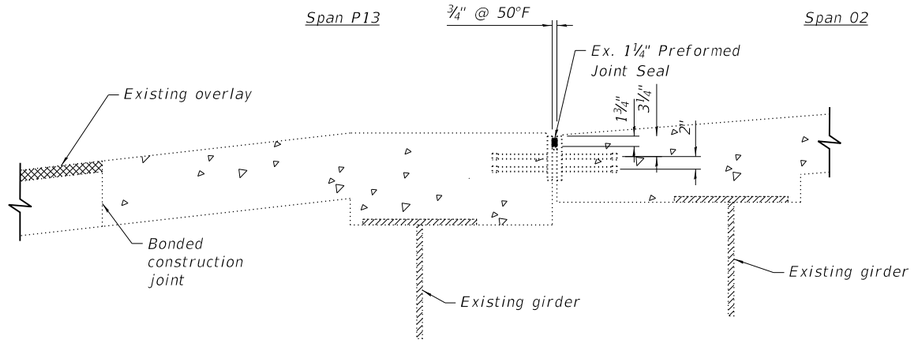
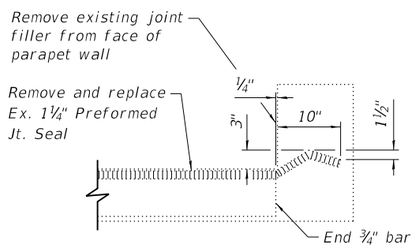


PLAN OF LONGITUDINAL JOINT REPAIR REHABILITATION

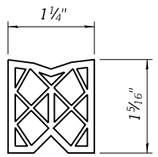
Note: Transverse joint seal at P14 to remain



TYPICIAL SECTION OF EXISTING CONSTRUCTION



SECTION THRU 1-1/4" PREFORMED JOINT SEAL IN PARAPET WALL



PREFORMED JOINT SEAL

Longitudinal joint seal replacement procedure:
Remove existing Preformed Joint Seals.
Clean all exposed surfaces of steel plates and apply one field coat of paint as specified for existing structural steel.
Install new Preformed Joint Seals after deck patching in adjacent spans.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Seal, 1-1/4"	Foot	47

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LONGITUDINAL JOINT REPLACEMENT DETAILS
S.N. 082-0203
SHEET S-10 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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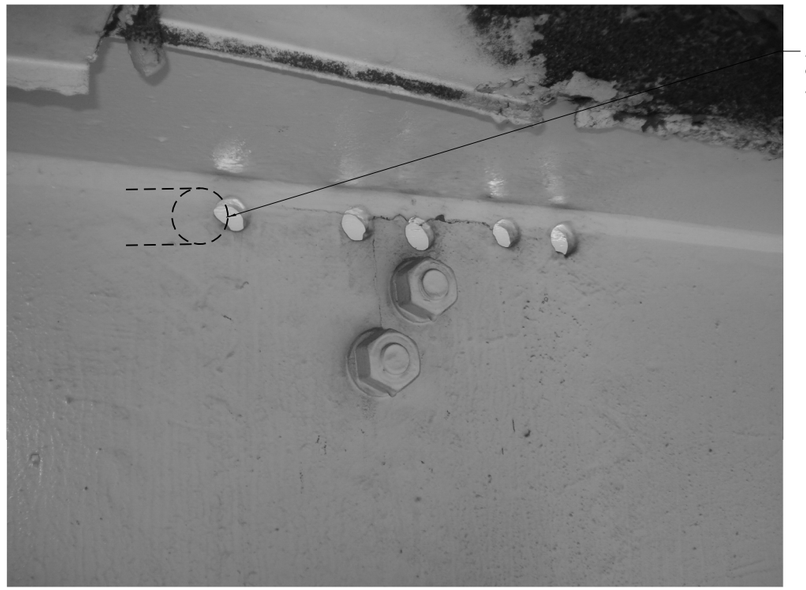
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



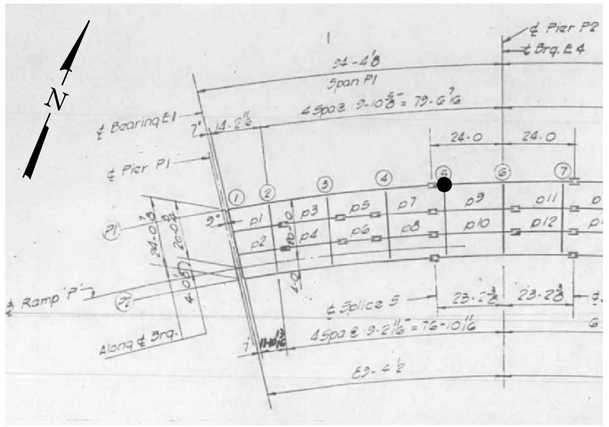
GIRDER CRACK REPAIR DETAIL

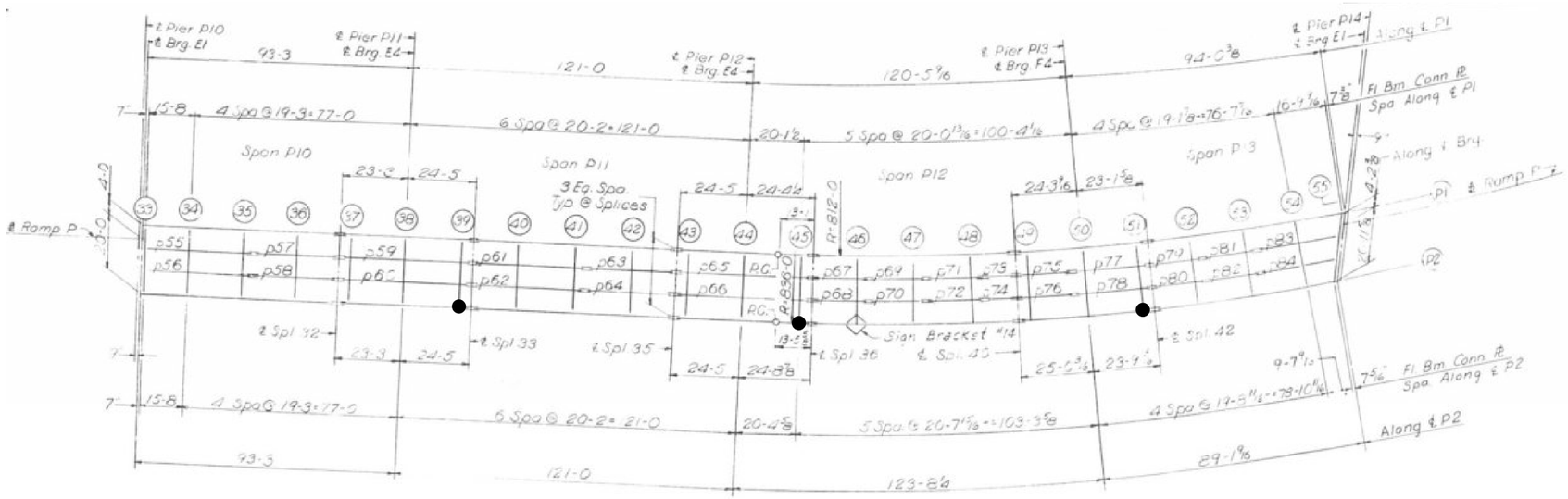
Girder Crack Arrest Hole Procedure:

1. Locate crack tips using magnetic particle inspection methods. Test from both sides of web.
2. Drill 1-inch minimum diameter crack arrest hole. The crack tip shall fall within the diameter of the hole. If the edge of the new hole is within 1/4" of the existing hole, material between the holes shall be removed as shown in the detail to achieve an oval profile.
3. All newly exposed surfaces shall have a Roughness Average (RA) of 500 or less.
4. Verify removal of crack tip with magnetic particle testing.
5. Attain approval of Engineer.
6. Clean and paint the exposed steel surfaces and any surfaces marred during the work with a zinc-rich primer as described in GBSP 21 – Cleaning and Painting Existing Steel Structures.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Crack Arrest Holes	Each	4





Legend

● Type A Arrest Hole

REPAIR LOCATION PLAN

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CRACK ARREST HOLE DETAILS
S.N. 082-0203
SHEET S-11 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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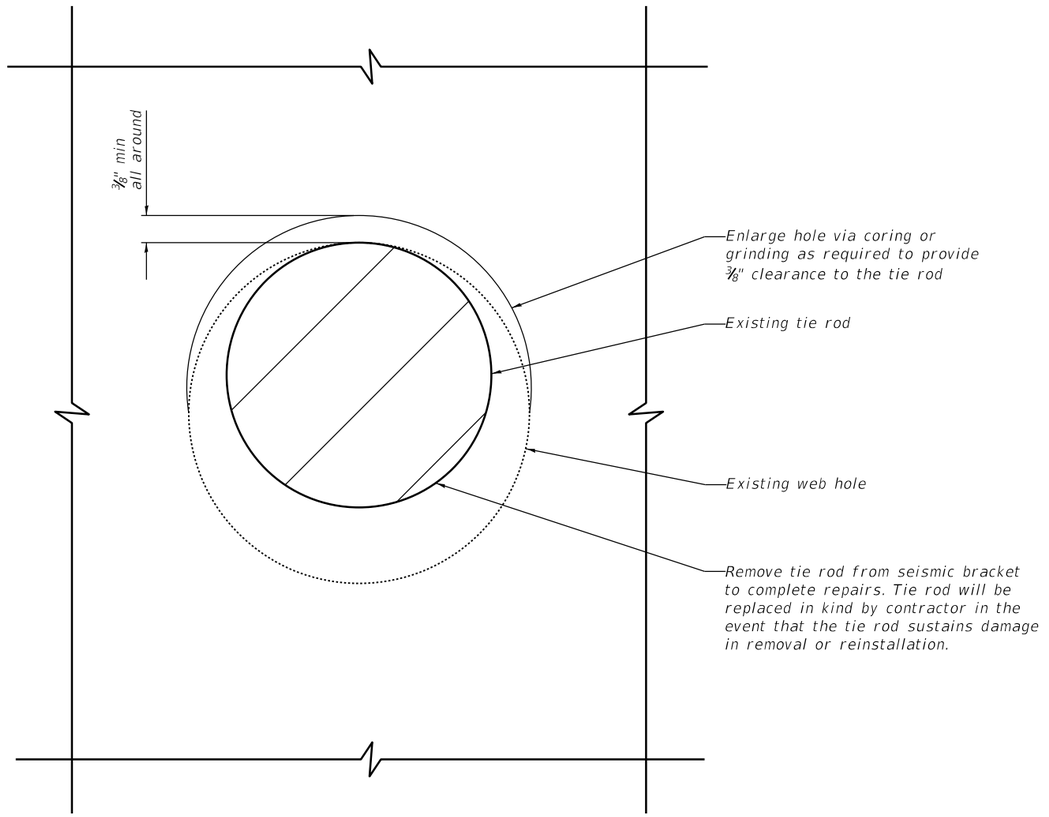
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



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ENLARGE FB HOLE AT PIER P14
S.N. 082-0203

SHEET S-12 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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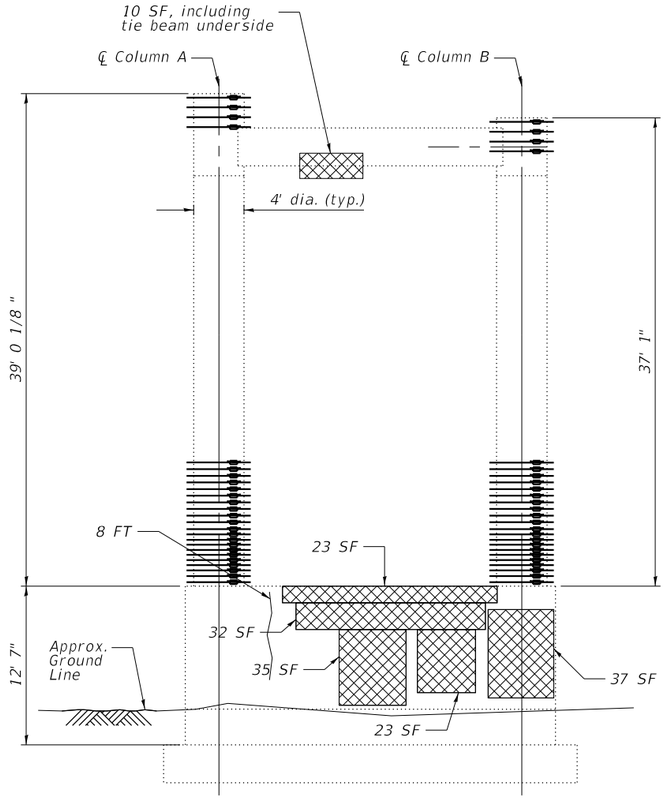
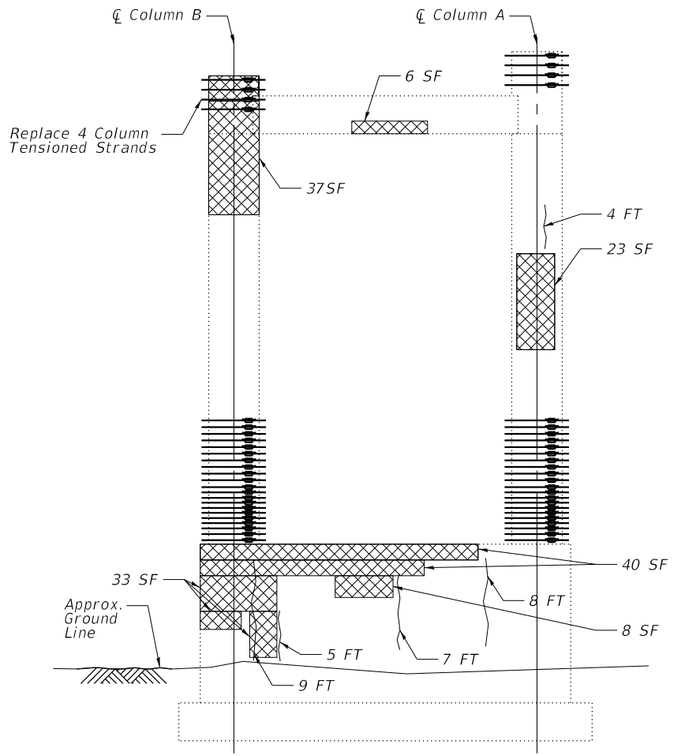
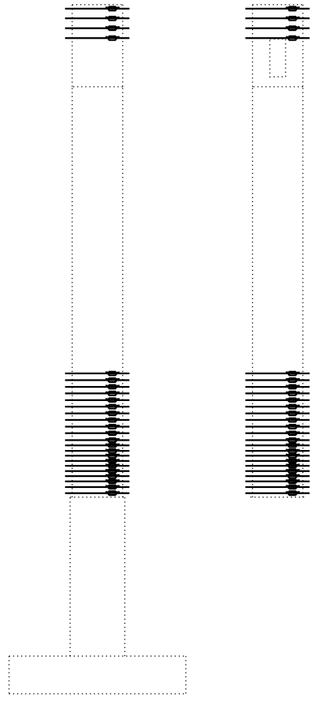
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		



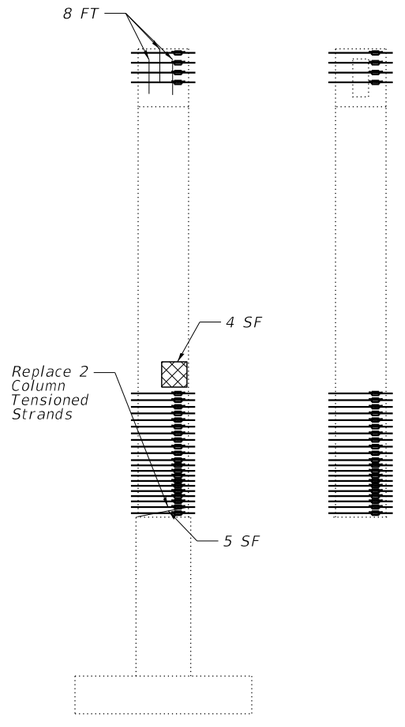
ELEVATION
(Looking Upstation)



ELEVATION
(Looking Downstation)



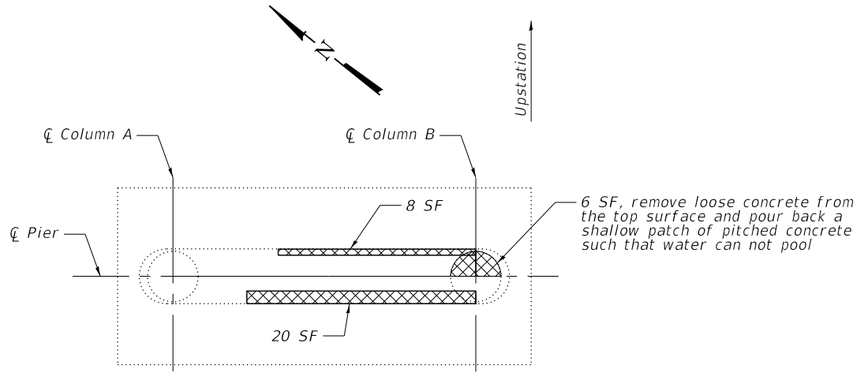
COLUMN A
(End View)



COLUMN A
(Interior View)

COLUMN B
(End View)

COLUMN B
(Interior View)



PLAN VIEW

Structural Repair of Concrete
(Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas.
Replace each removed hoop with a column tensioned strand after the repair area has reached design strength.
See sheet S-16 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

Provide Rubble Management Plan for Protection of railroads.

PIER P7
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	345
Epoxy Crack Injection	Foot	54
Column Tensioned Strands	Each	6
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

MODEL: Default
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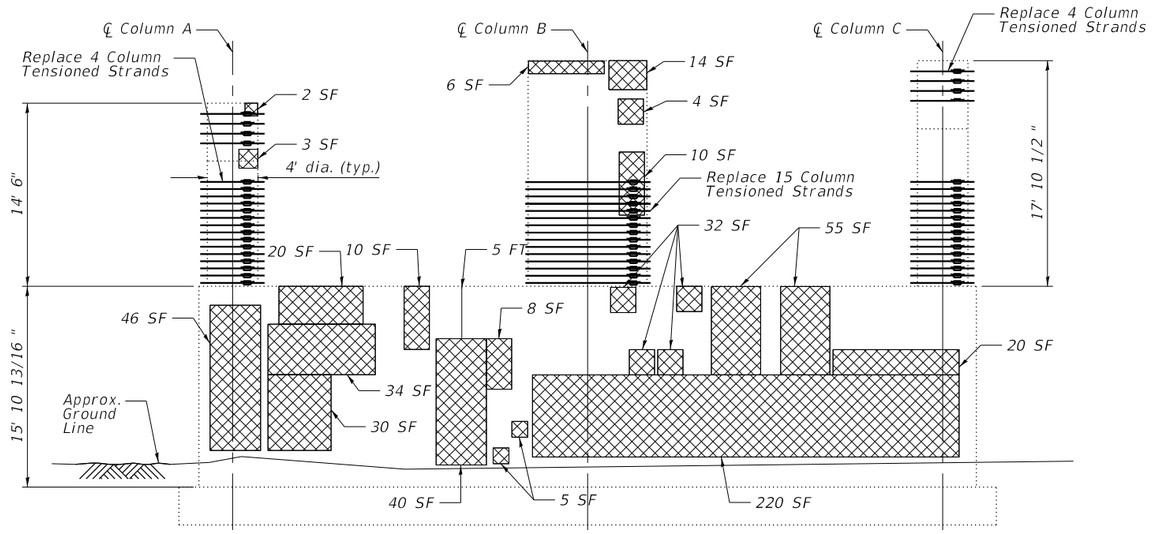
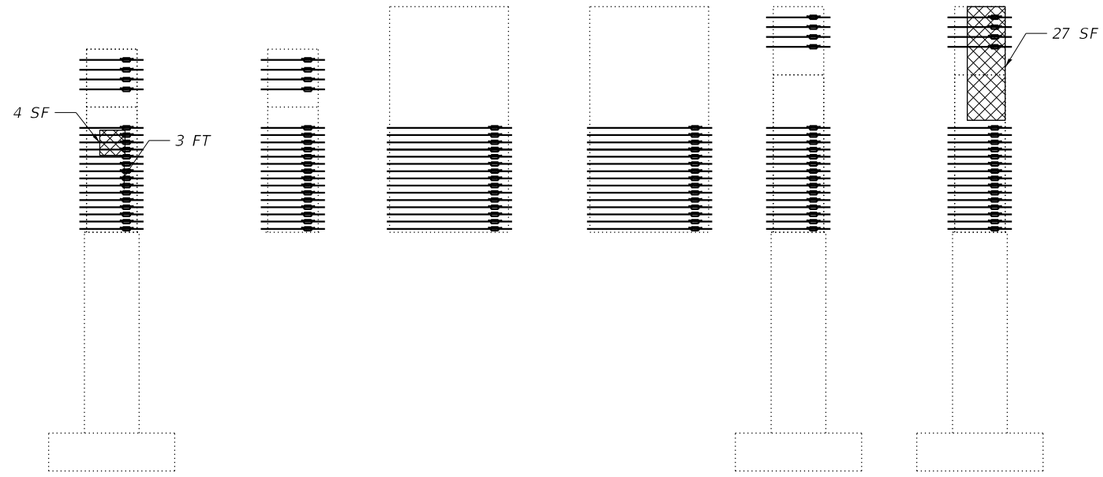
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER P7
S.N. 082-0203
SHEET S-13 OF S-18 SHEETS

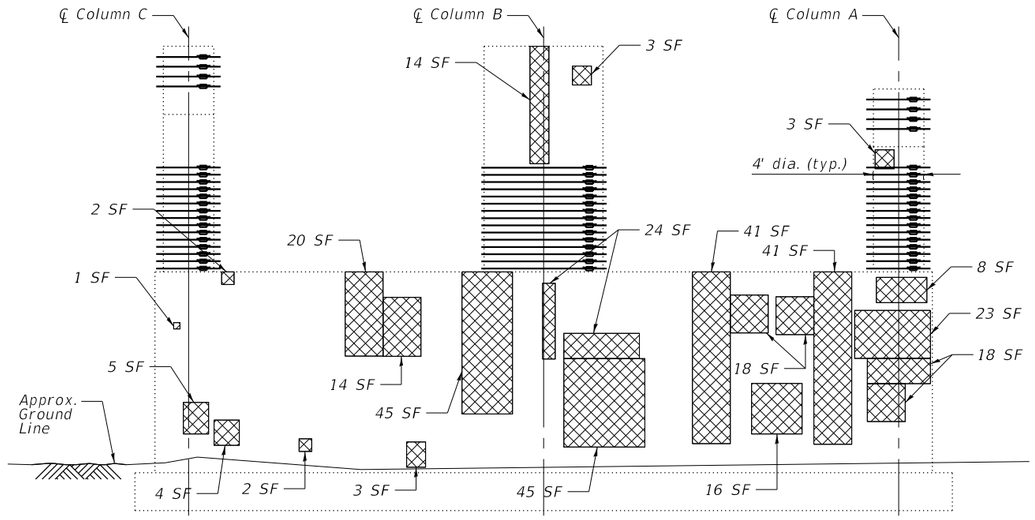
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	295
		CONTRACT NO. 76B55		
		ILLINOIS	FED. AID PROJECT	



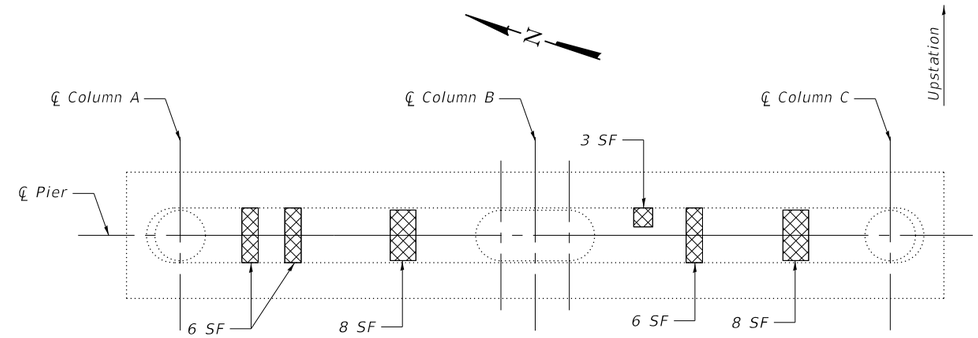
ELEVATION
(Looking Upstation)



COLUMN A (End View) | COLUMN A (Interior View) | COLUMN B (End View) | COLUMN B (Interior View) | COLUMN C (End View) | COLUMN C (Interior View)



ELEVATION
(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas. Replace each removed hoop with a column tensioned strand after the repair area has reached design strength. See sheet S-16 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER P14
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	977
Epoxy Crack Injection	Foot	8
Column Tensioned Strands	Each	23
Temporary Shoring and Cribbing	Each	0
Fiber Wrap	Sq Ft	0

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PLOT DATE = 8/7/2020	CHECKED - RW	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	296
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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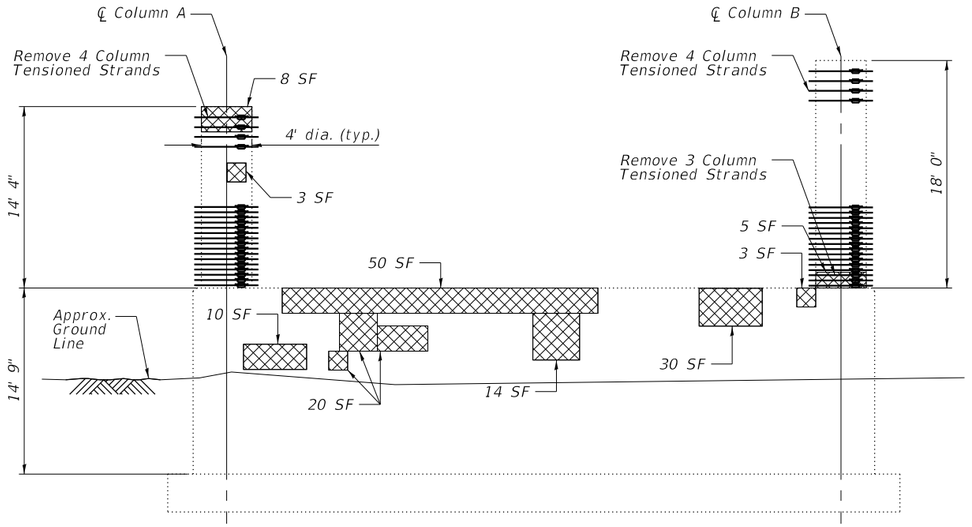
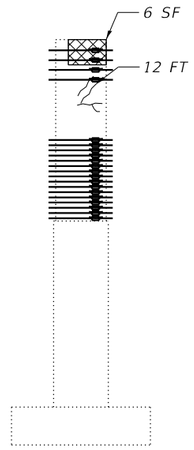


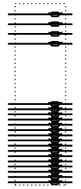
ELEVATION

(Looking Upstation)



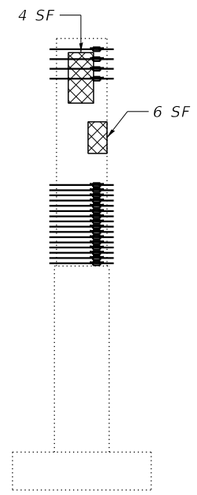
COLUMN A

(End View)



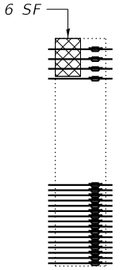
COLUMN A

(Interior View)



COLUMN B

(End View)

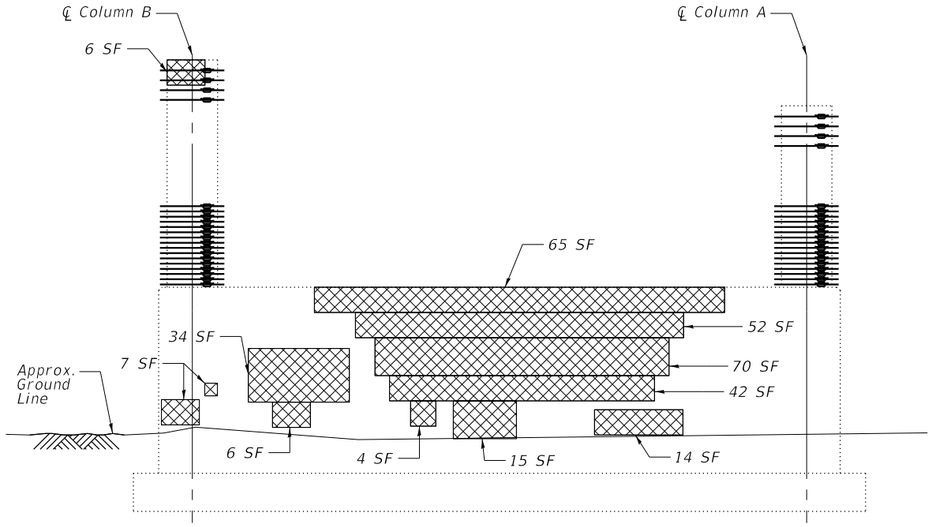


COLUMN B

(Interior View)

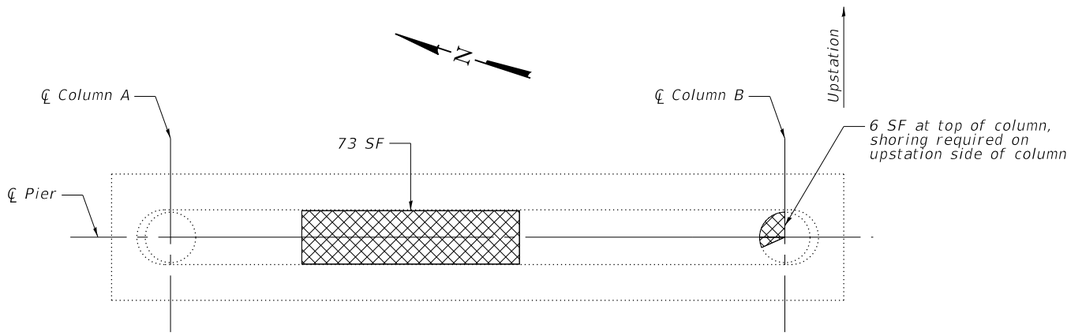
REACTION TABLE AT TEMPORARY SHORING

DL (k)	239
LL (k)	86
Total (k)	325



ELEVATION

(Looking Downstation)



PLAN VIEW

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

Epoxy Crack Injection

Note:
Remove existing hoops that intersect repair areas.
Replace each removed hoop with a column tensioned strand after the repair area has reached design strength.
See sheet S-16 for related details and notes.

See project specifications for fiber wrap replacement requirements.

Repairs may be visible in multiple views on circular elements, however, the repair is only shown in the most descriptive view.

PIER P15
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	559
Epoxy Crack Injection	Foot	12
Column Tensioned Strands	Each	11
Temporary Shoring and Cribbing	Each	1
Fiber Wrap	Sq Ft	0

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE SUBSTRUCTURE REPAIRS - PIER P15
S.N. 082-0203

SHEET S-15 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	297
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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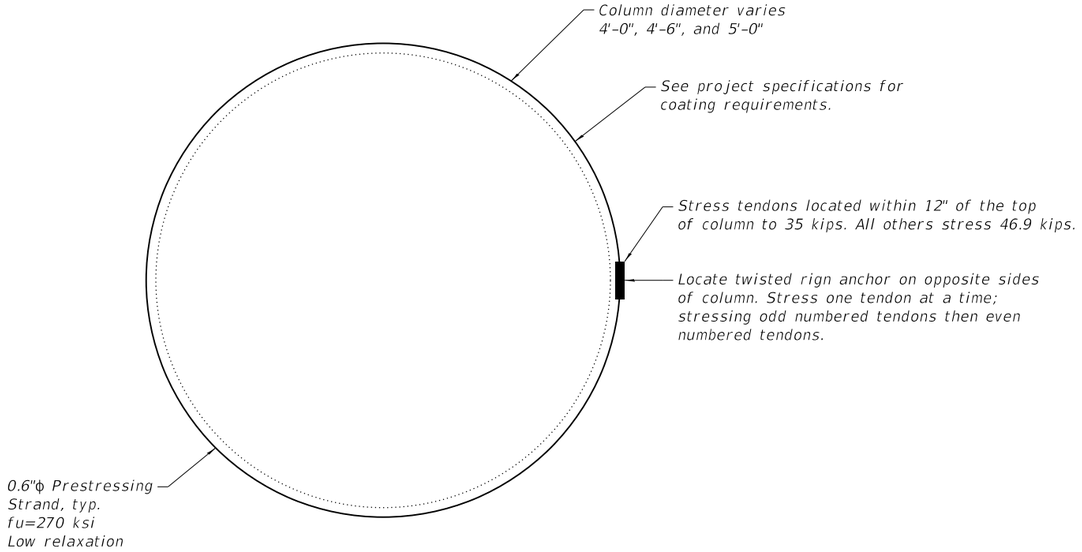
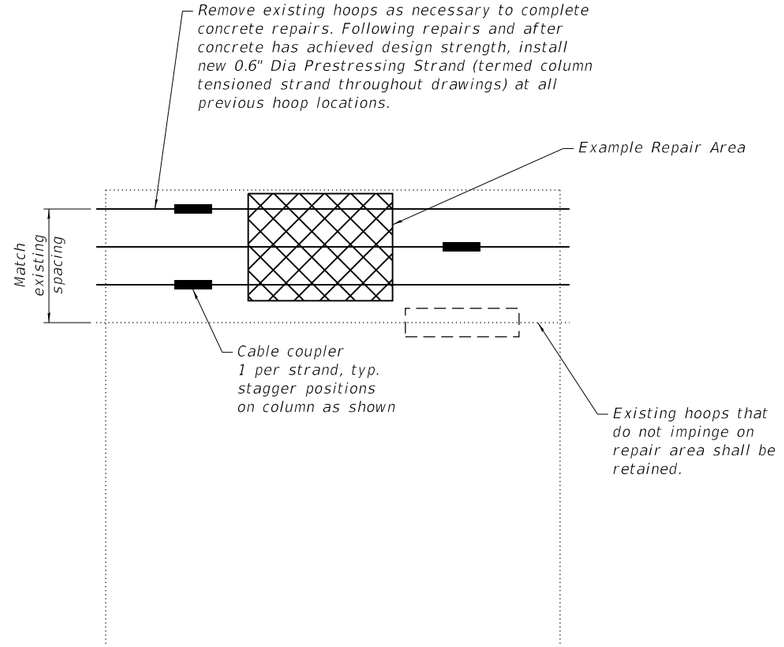
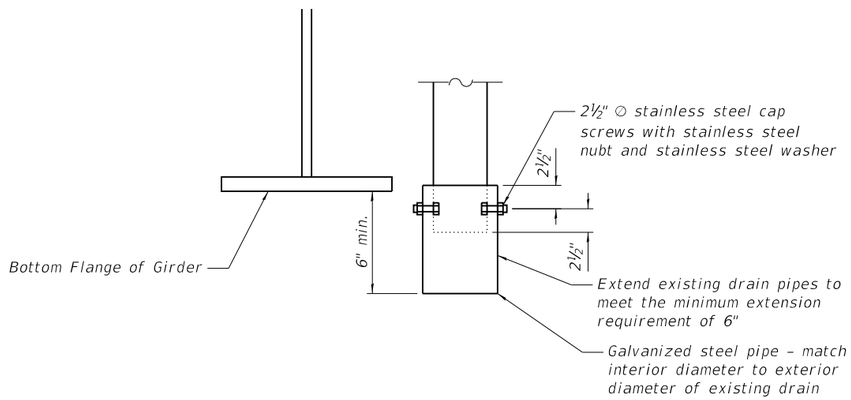


PLAN TENSIONED STRAND



ELEVATION TENSIONED STRAND



DECK DRAIN EXTENSION DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Drain Extensions	Each	7

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TENSIONED STRANDS AND PIPE EXTENSION DETAILS
S.N. 082-0203

SHEET S-16 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	298
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		

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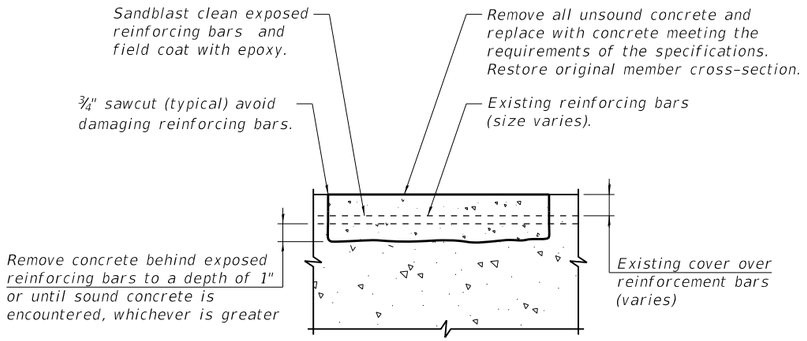
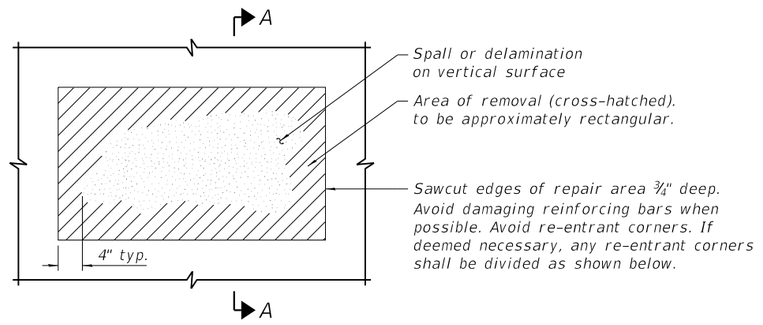


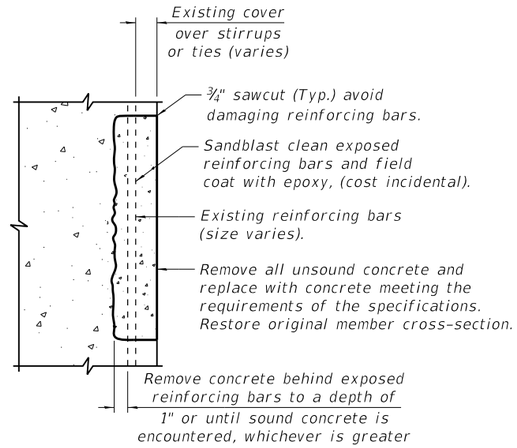
HORIZONTAL SURFACE REPAIR (PARTIAL DEPTH)

At bridge deck and substructure.

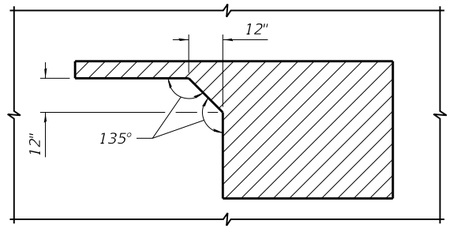


VERTICAL SURFACE REPAIR DETAIL

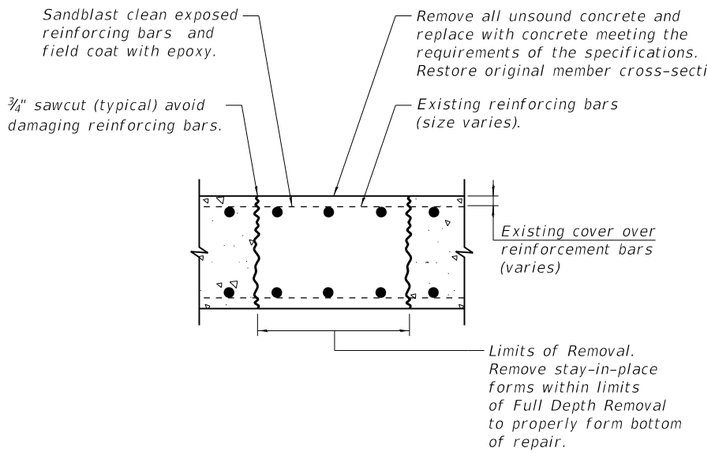
At Substructure



SECTION A-A

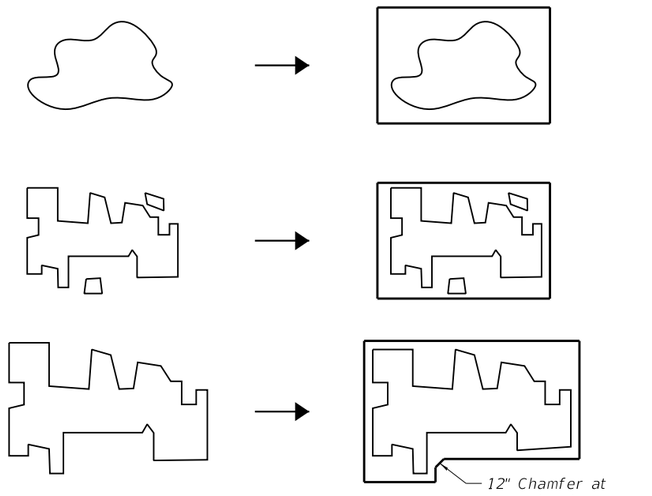


RE-ENTRANT CORNER MODIFICATIONS



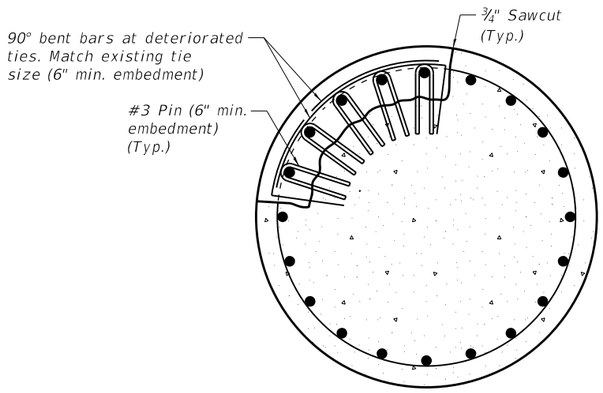
HORIZONTAL SURFACE REPAIR (FULL DEPTH)

At bridge deck



GENERAL SHAPE OF DETERIORATION — REMOVAL GEOMETRY

TYPICAL CONCRETE REPAIR GEOMETRY



COLUMN REPAIR AT DETERIORATED TIE

Notes:

Patch shall extend 4" past tie deterioration or to the extents of unsound concrete, whichever is greater.

The instanding leg of the 90 degree bent bars will be installed 1" to 3" from the edge of the patch.

Stagger #3 pins 3" vertically (alternate sides of deteriorated existing tie)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE REPAIR DETAILS
S.N. 082-0203
SHEET S-17 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-I-1	ST. CLAIR	361	299
		CONTRACT NO. 76B55		
	ILLINOIS FED. AID PROJECT			

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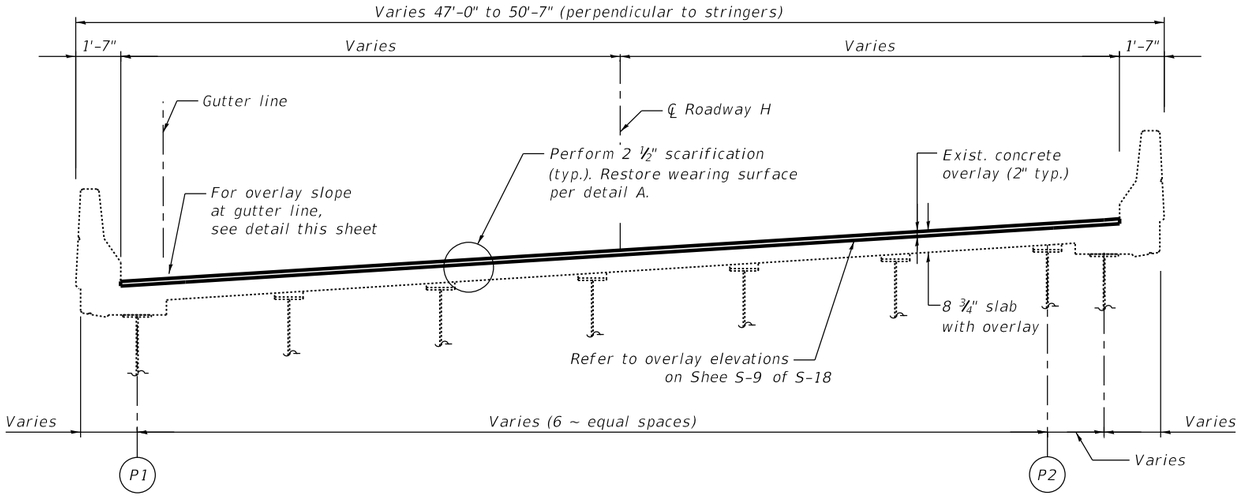
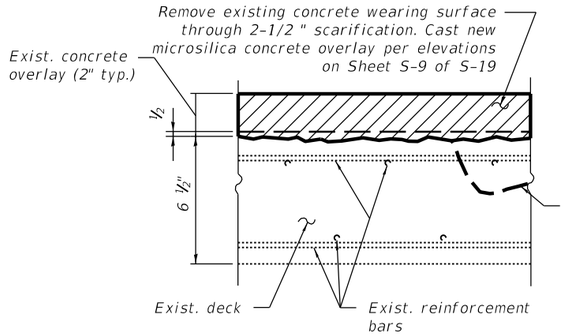


TYP. RAMP REHABILITATION

(Looking toward Pier H1)

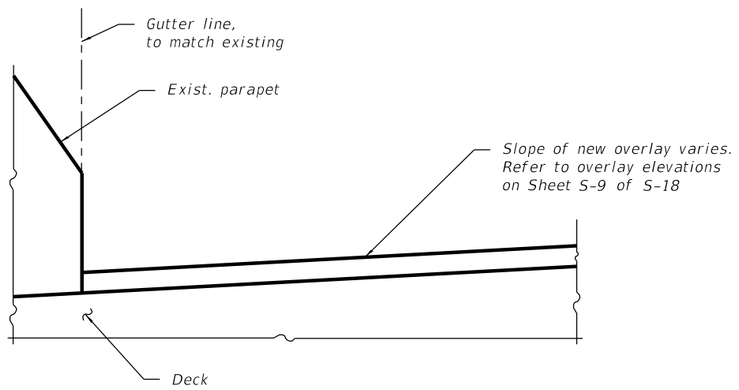
Note:
1. Existing drainage scuppers note shown.
2. Design overlay thickness is 2 inches. The six core samples collected bye WJE in 2017 (Roadway H) identified an existing overlay thickness between 1.8 and 3.4 inches. Scarification to be performed to 2½", to a sound substrate.
3. Overlay installation shall not damage existing transverse expansion joint armor at P15.



Notes:

Top deck surfaces shall be clean and free of dust and debris prior to placing new microsilica concrete overlay.
Engineer to verify locations of partial and full depth repairs.

DETAIL A-SCHEMATIC DIAGRAM OF REPAIR



OVERLAY SLOPE AT GUTTER LINE

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REHABILITATION DETAILS
S.N. 082-0203
SHEET S-18 OF S-18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-1-1-1	ST. CLAIR	361	300
		CONTRACT NO. 76B55		
	ILLINOIS	FED. AID PROJECT		