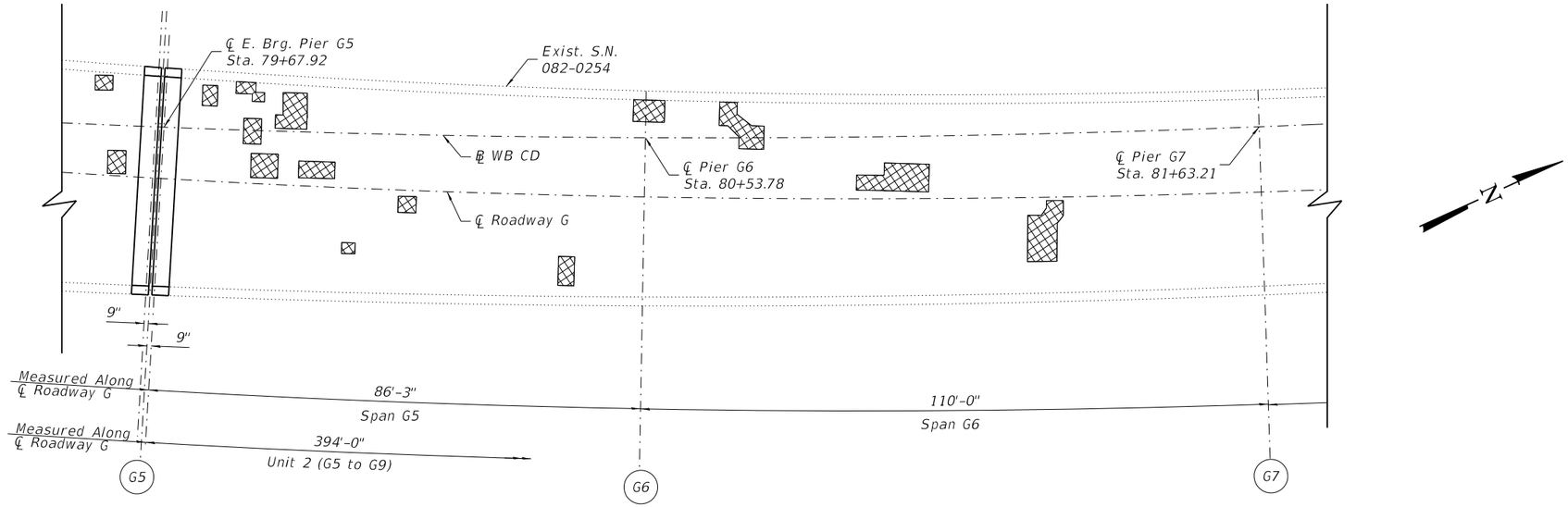
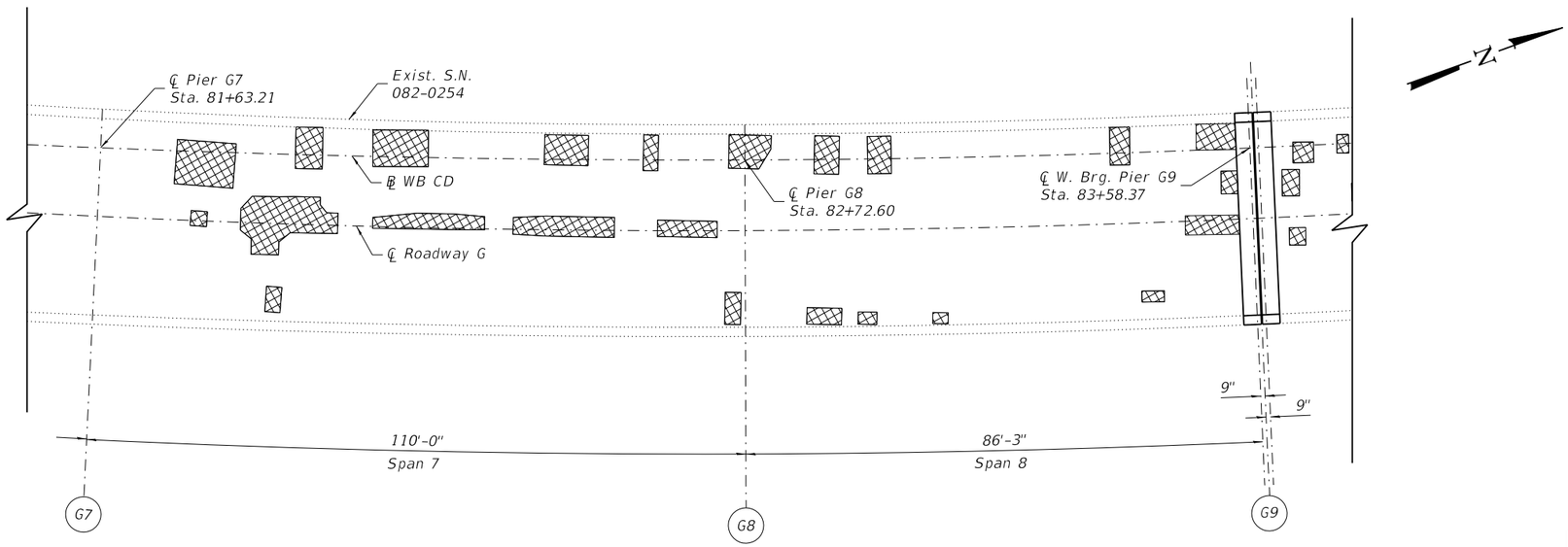


PLAN (SPANS G5 & G6)



PLAN (SPANS G7 & G8)

SPAN	PARTIAL DEPTH REPAIRS (Sq Yd)	FULL DEPTH REPAIRS (Sq Yd)	TOTAL (Sq Yd)
G5	17	1	18
G6	19	1	20
G7	60	4	64
G8	24	2	26

Deck Slab Repair

Note:
Deck sounding was performed in April 2017, 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 30 of 43.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Slab Repair (Full Depth, Type I)	Sq Yd	8
Deck Slab Repair (Partial)	Sq Yd	120

PRINT DATE: 9/28/2018 11:31:37 AM Z:\15052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Roadway G\006_Rdwy_G_Deck_Plan2 (G5-G8).dgn

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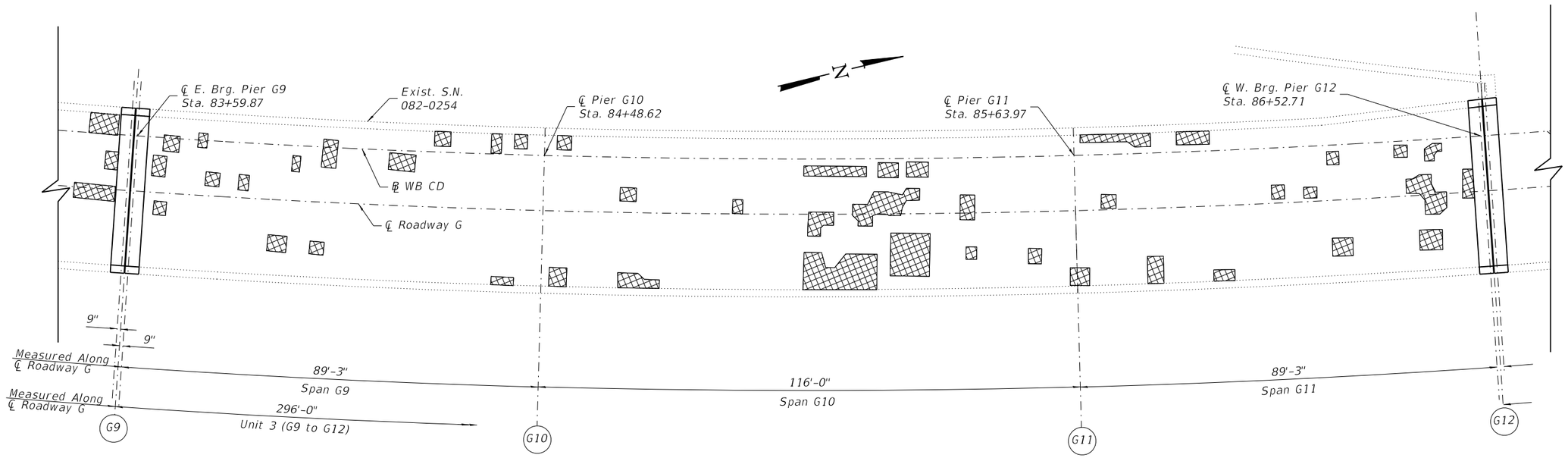
USER NAME = acb	DESIGNED - SMG	REVISED -	
	CHECKED - ARB/RW	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - ACB	REVISED -	
PLOT DATE = 9/28/2018	DATE - 09/28/2018	REVISED -	

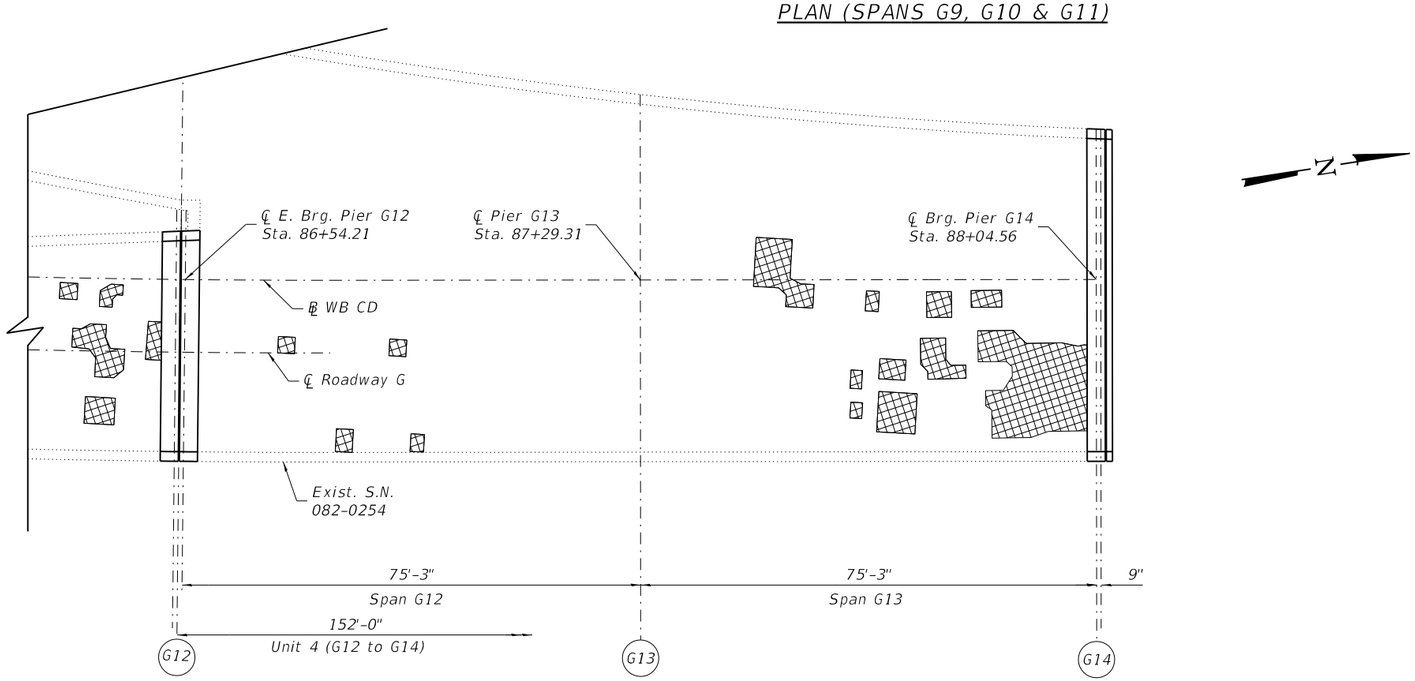
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK PATCHING REPAIRS (SPANS G5 THRU G8)
S.N. 082-0254
SHEET NO. 6 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	201
		CONTRACT NO. 76945		
	ILLINOIS	FED. AID PROJECT		



PLAN (SPANS G9, G10 & G11)



PLAN (SPANS G12 & G13)

SPAN	PARTIAL DEPTH REPAIRS (Sq Yd)	FULL DEPTH REPAIRS (Sq Yd)	TOTAL (Sq Yd)
G9	20	2	22
G10	52	3	55
G11	29	2	31
G12	4	1	5
G13	53	3	56

Deck Slab Repair

Note:
Deck sounding was performed in April 2017, 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 30 of 43.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Slab Repair (Full Depth, Type I)	Sq Yd	11
Deck Slab Repair (Partial)	Sq Yd	158

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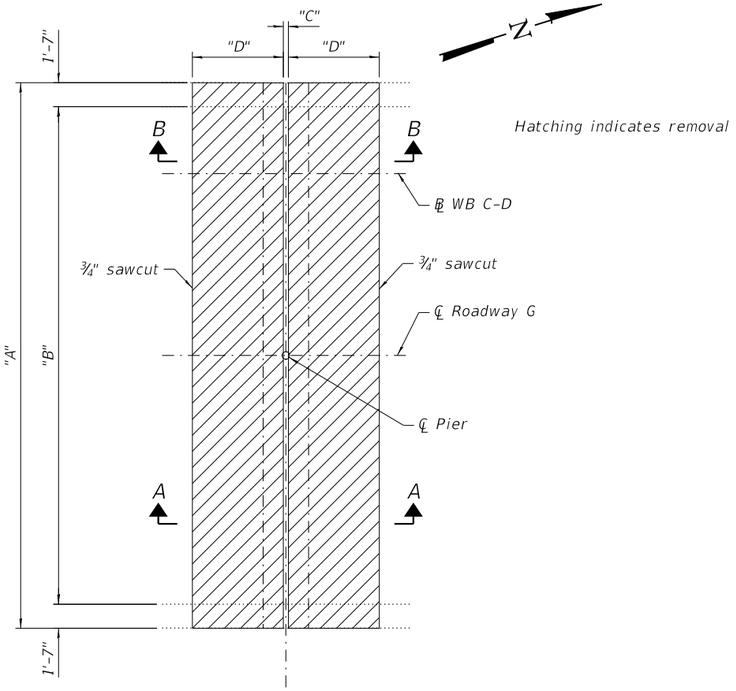
USER NAME = acb	DESIGNED - SMG	REVISED -	
	CHECKED - ARB/RW	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - ACB	REVISED -	
PLOT DATE = 9/28/2018	DATE - 09/28/2018	REVISED -	

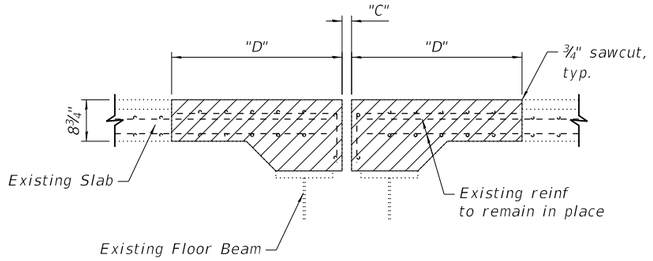
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK PATCHING REPAIRS (SPANS G9 THRU G13)
S.N. 082-0254
SHEET NO. 7 OF 43 SHEETS

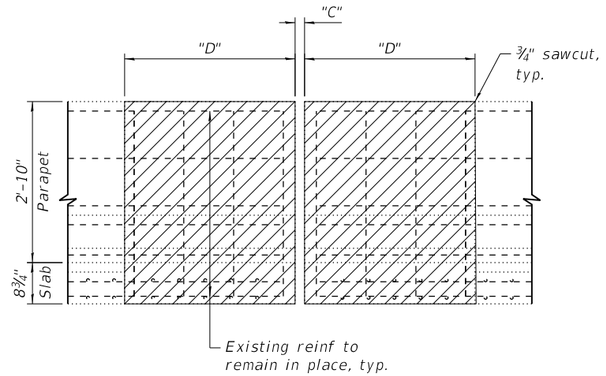
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	202
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PLAN SHOWING REMOVAL



SECTION A-A



VIEW B-B
(Showing Reinforcement)

CONCRETE REMOVAL

Location	Dimension "A"	Dimension "B"	Dimension "C"	Dimension "D"	Concrete Removal (Cu Yd)
Pier G1	56'-11¼"	53'-9¼"	2½"	3'-0"	13.8
Pier G5	40'-8⅛"	37'-6⅛"	4¼"	5'-0"	14.1
Pier G9	36'-0"	31'-10"	2½"	3'-0"	9.1
Pier G12	37'-11¾"	34'-9¾"	3"	3'-0"	11.0

Notes:
See Sheet 9 of 43 for additional removal details at Pier G12.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	48.0

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USER NAME = acb	DESIGNED - SMG	REVISED -
	CHECKED - RW	REVISED -
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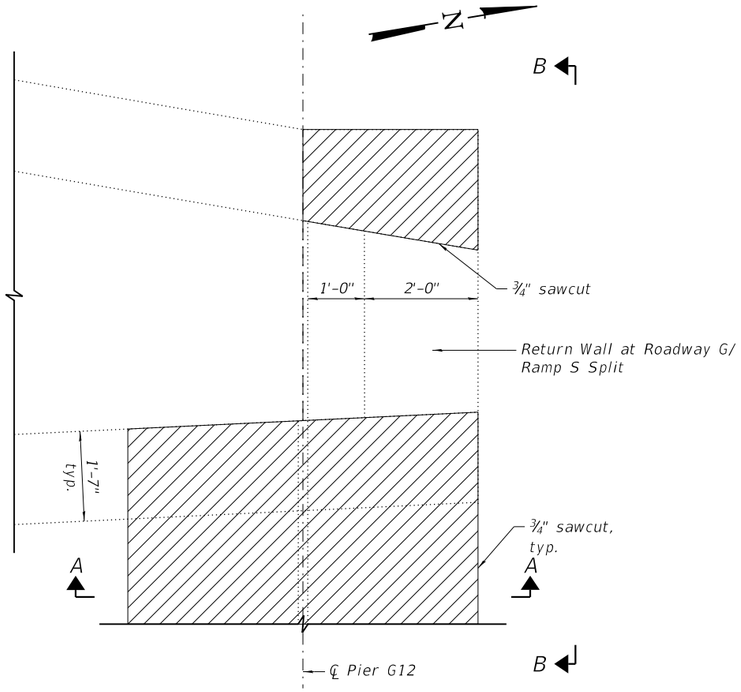
PLOT DATE = 9/28/2018	DATE - 09/28/2018	REVISED -

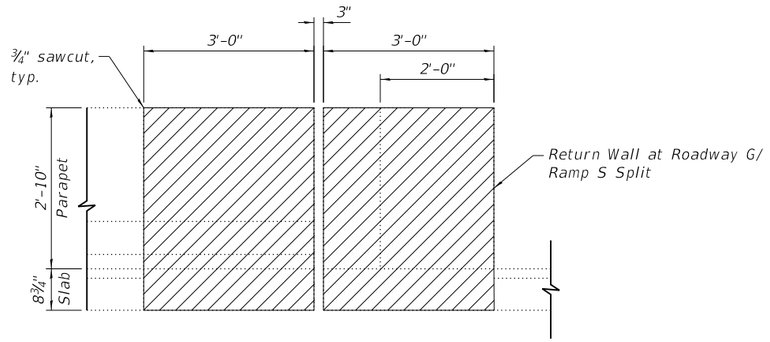
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REMOVAL DETAILS
S.N. 082-0254
SHEET NO. 8 OF 43 SHEETS

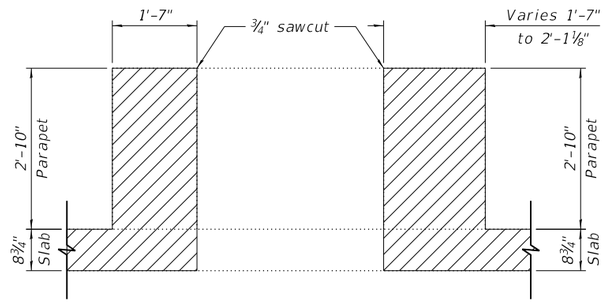
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	203
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PIER G12 RETURN WALL PLAN VIEW



VIEW A-A



VIEW B-B

Notes:
See Sheet 8 of 43 for additional removal details at Pier G12.

PRINT DATE: 9/28/2018 11:31:39 AM Z:\15052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Roadway G\009_Rdwy_G_Exp_Joint_RemovalDetails.dgn

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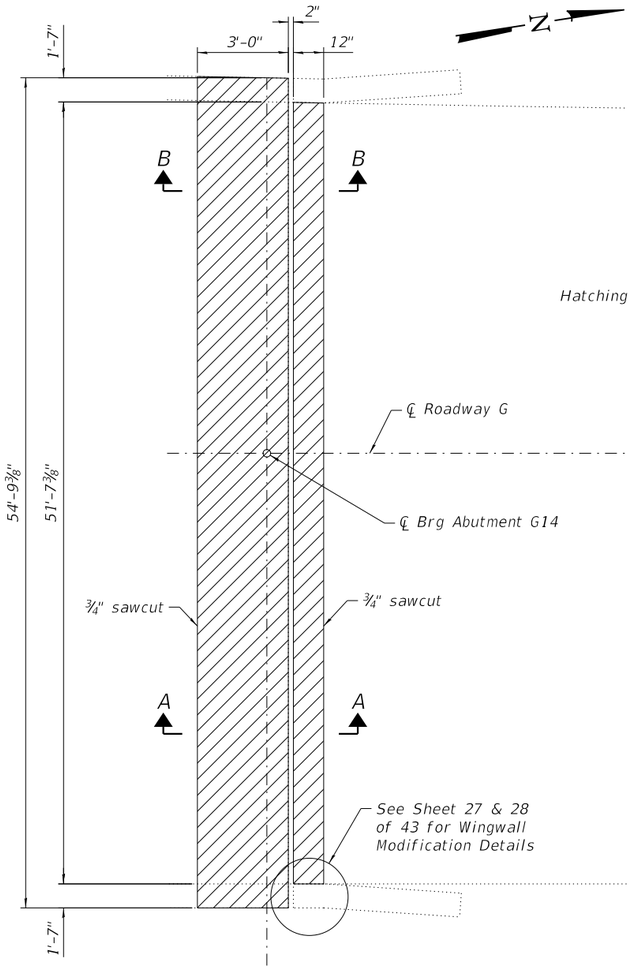
PLOT DATE = 9/28/2018	DATE - 09/28/2018	REVISED -

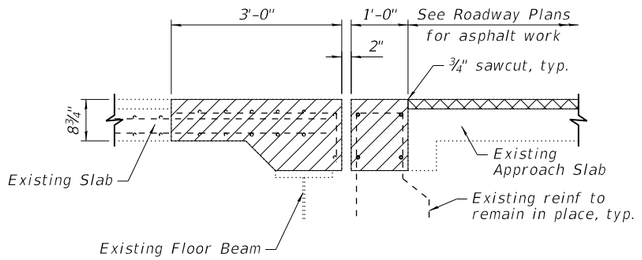
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REMOVAL DETAILS (PIER G12)
S.N. 082-0254
SHEET NO. 9 OF 43 SHEETS

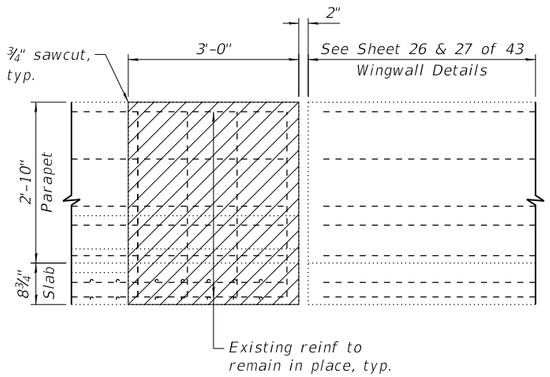
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	204
		CONTRACT NO. 76945		
		ILLINOIS FED. AID PROJECT		



PLAN SHOWING REMOVAL



SECTION A-A



VIEW B-B
(Showing Reinforcement)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	10.0

PRINT DATE: 9/28/2018 11:31:39 AM Z:\15052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Roadway G\010_Rdwy_G_Exp_Joint_Removal(Abutment G14).dgn

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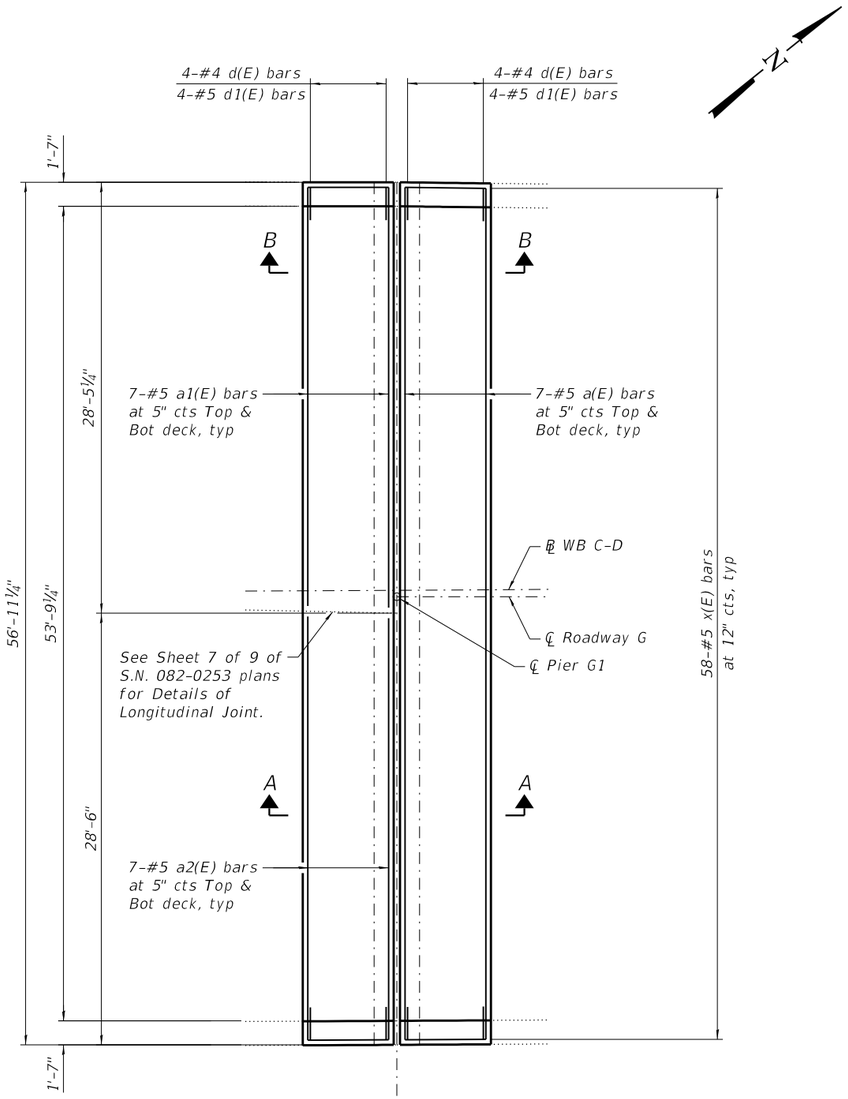
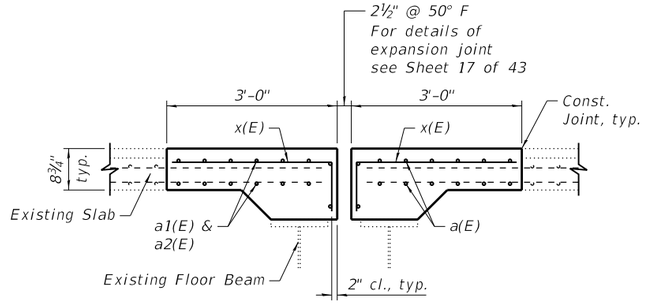
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REMOVAL DETAILS
S.N. 082-0254
SHEET NO. 10 OF 43 SHEETS

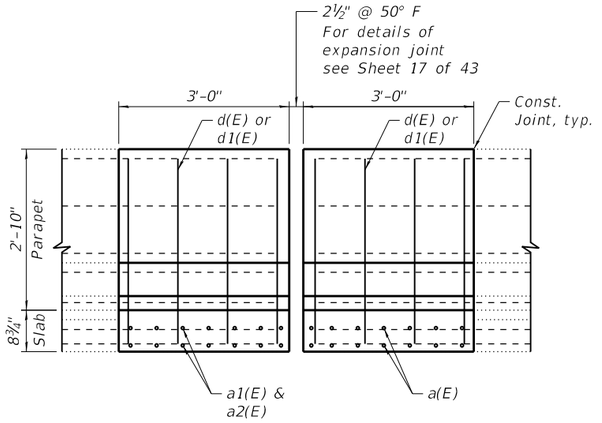
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	205
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PIER G1 PLAN SHOWING REPLACEMENT

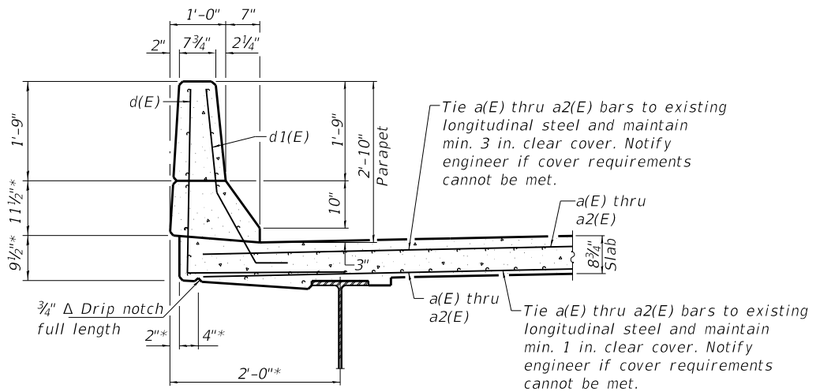


SECTION A-A



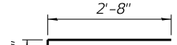
VIEW B-B

(Showing Reinforcement)

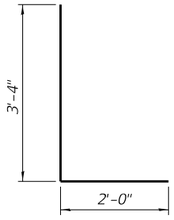


SECTION THRU PARAPET

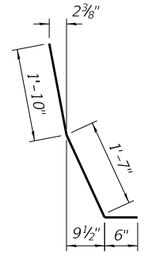
* Adjust to match existing dimensions



BAR x(E)



BAR d(E)



BAR d1(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	14	#5	56'-6"	
a1(E)	14	#5	28'-0"	
a2(E)	14	#5	28'-4"	
d(E)	16	#4	5'-4"	
d1(E)	16	#5	3'-11"	
x(E)	116	#5	3'-3"	
Reinforcement Bars, Epoxy Coated			Lbs.	2160
Concrete Superstructure			Cu. Yds.	13.8

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USER NAME = acb	DESIGNED - SMG	REVISED -	
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PLOT SCALE = 0.1667 ' / in.	DRAWN - ACB	REVISED -	
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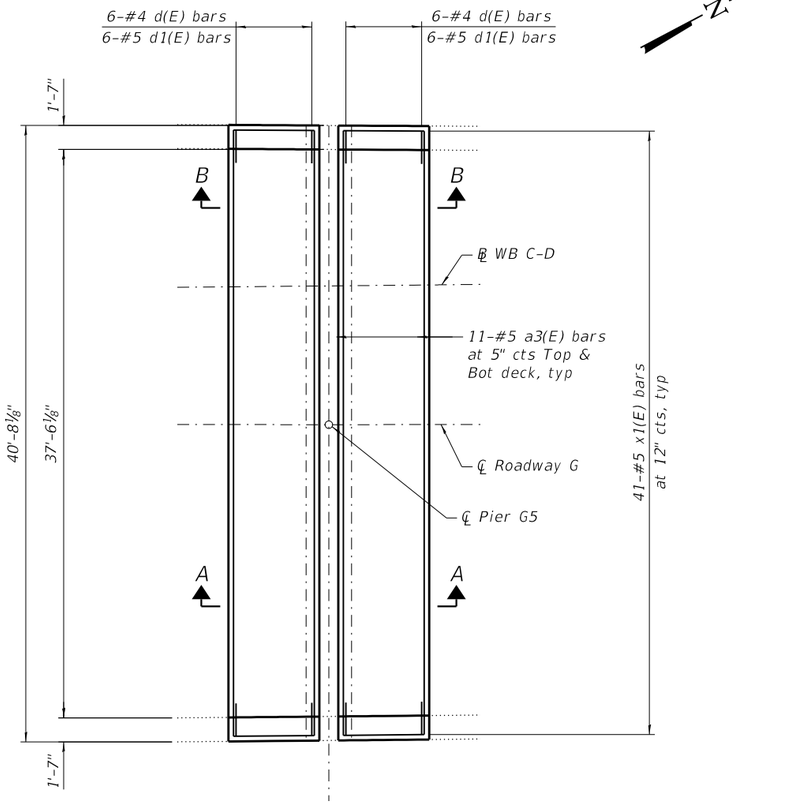
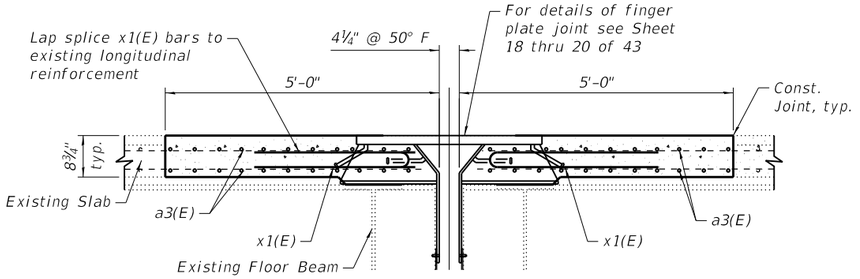
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS (PIER G1)
S.N. 082-0254
SHEET NO. 11 OF 43 SHEETS

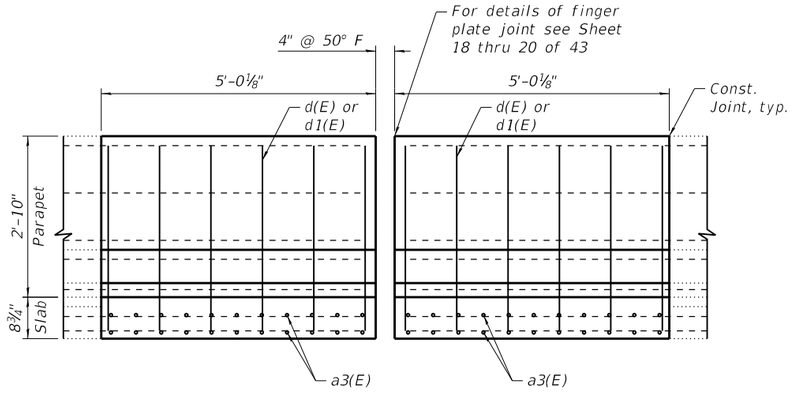
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	206
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PIER G5 PLAN SHOWING REPLACEMENT

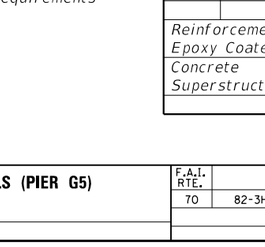


SECTION A-A



VIEW B-B

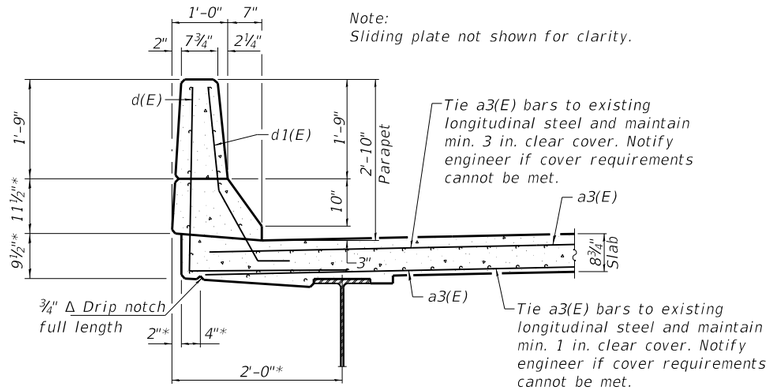
(Showing Reinforcement)



BAR x1(E)

BAR d(E)

BAR d1(E)



Note:
Sliding plate not shown for clarity.

SECTION THRU PARAPET

* Adjust to match existing dimensions

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a3(E)	44	#5	40'-4"	
d(E)	24	#4	5'-4"	
d1(E)	24	#5	3'-11"	
x1(E)	82	#4	6'-7"	
Reinforcement Bars, Epoxy Coated			Lbs.	2400
Concrete Superstructure			Cu. Yds.	14.1

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USER NAME = acb	DESIGNED - SMG	REVISED -	
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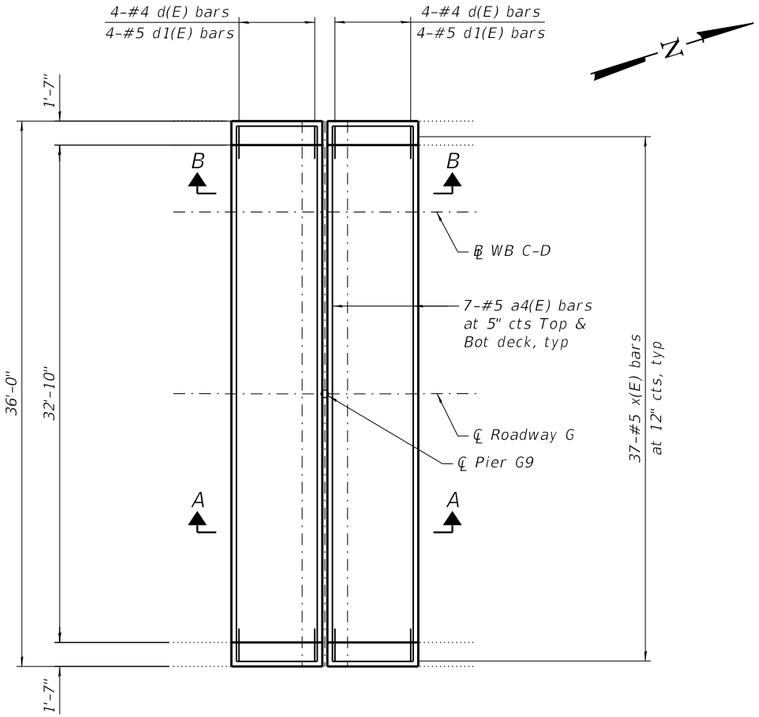
PLOT SCALE = 0.1667 ' / in.	DRAWN - ACB	REVISED -	
PLOT DATE = 9/28/2018	DATE - 09/28/2018	REVISED -	

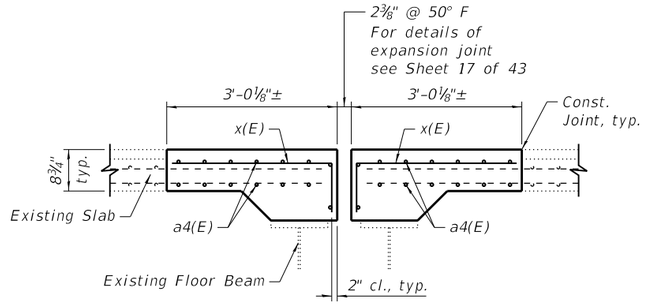
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS (PIER G5)
S.N. 082-0254
SHEET NO. 12 OF 43 SHEETS

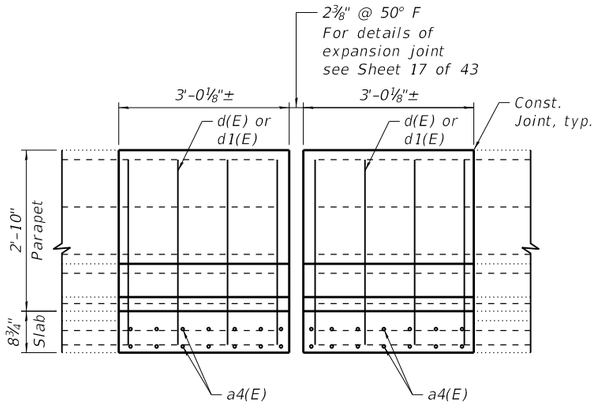
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	207
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PIER G9 PLAN SHOWING REPLACEMENT

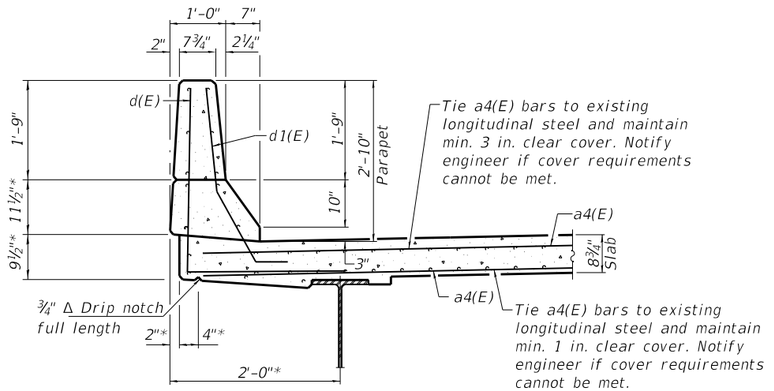


SECTION A-A



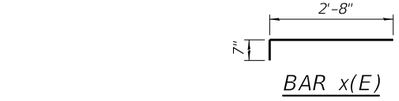
VIEW B-B

(Showing Reinforcement)

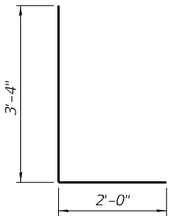


SECTION THRU PARAPET

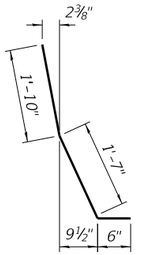
* Adjust to match existing dimensions



BAR x(E)



BAR d(E)



BAR d1(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a4(E)	28	#5	35'-8"	
d(E)	16	#4	5'-4"	
d1(E)	16	#5	3'-11"	
x(E)	74	#5	3'-3"	
Reinforcement Bars, Epoxy Coated			Lbs.	1380
Concrete Superstructure			Cu. Yds.	9.1

PRINT DATE: 9/28/2018 11:31:42 AM Z:\5052 Poplar Street Complex\DGN\Bridge final\Plotsheets\Roadway G\013_Rdwy_G_Pier_G9_Exp_Joint_Details.dgn

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PLOT SCALE = 0.1667 ' / in.	DRAWN - ACB	REVISED -	
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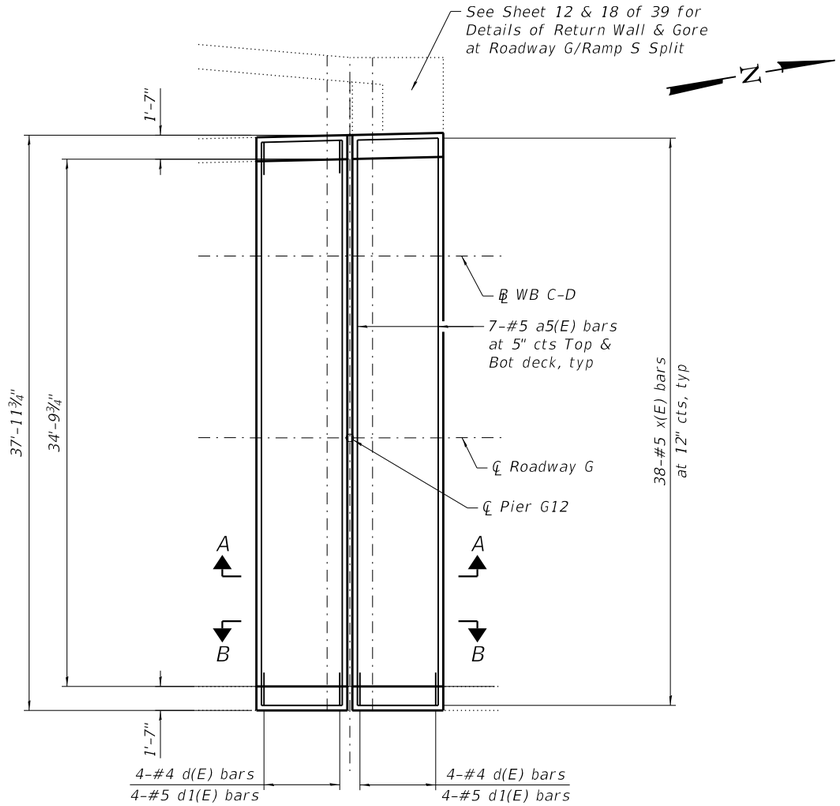
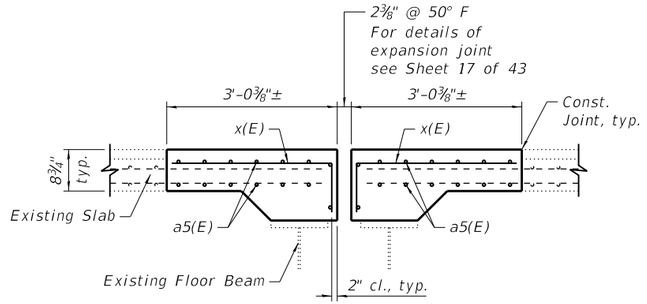
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS (PIER G9)
S.N. 082-0254
SHEET NO. 13 OF 43 SHEETS

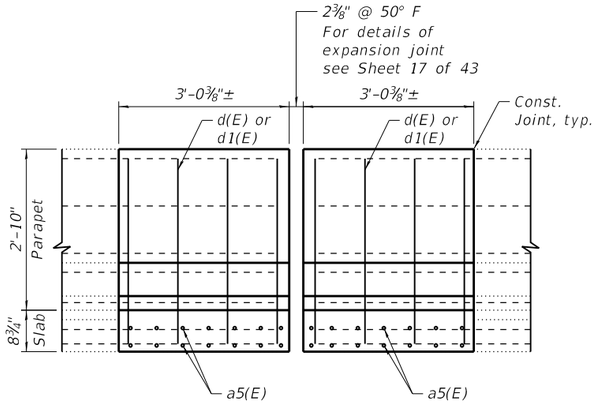
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	208
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PIER G12 PLAN SHOWING REPLACEMENT

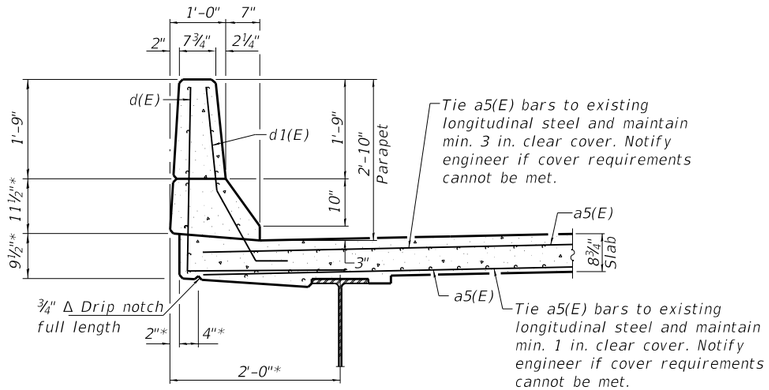


SECTION A-A



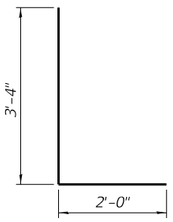
VIEW B-B

(Showing Reinforcement)

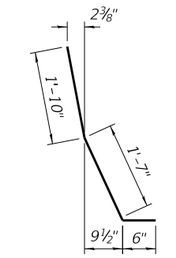


SECTION THRU PARAPET

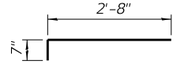
* Adjust to match existing dimensions



BAR d(E)



BAR d1(E)



BAR x(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a5(E)	28	#5	37'-7"	
d(E)	12	#4	5'-4"	
d1(E)	12	#5	3'-11"	
d2(E)	4	#5	9'-8"	
e(E)	10	#5	2'-10"	
x(E)	76	#5	3'-3"	
Reinforcement Bars, Epoxy Coated			Lbs.	1550
Concrete Superstructure			Cu. Yds.	11.0
Bar Splicer			Each	10

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS (PIER G12)
S.N. 082-0254
SHEET NO. 14 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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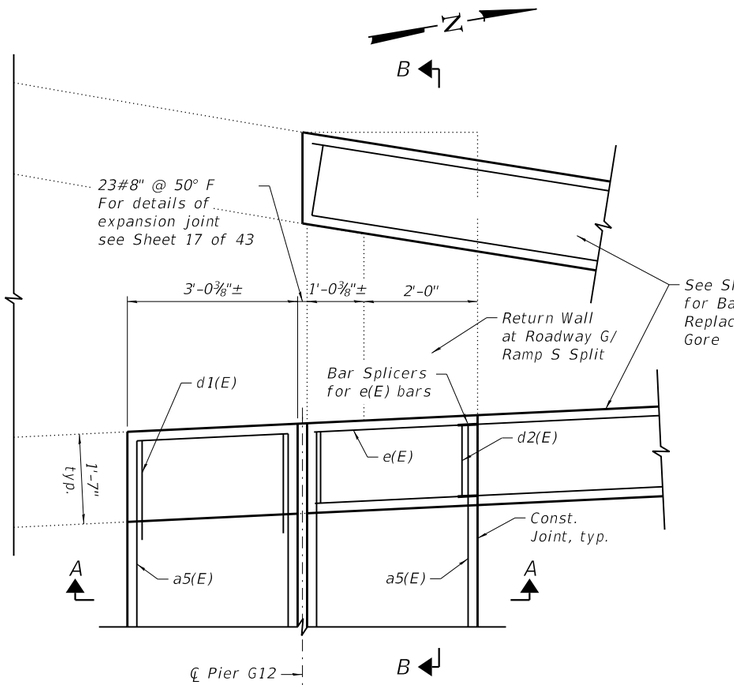
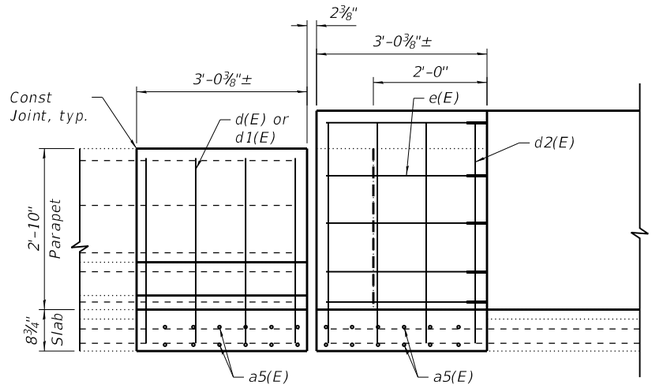
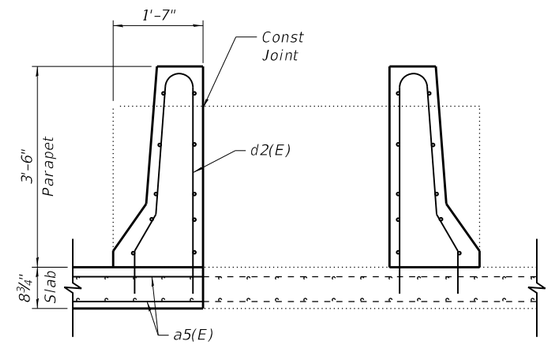
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



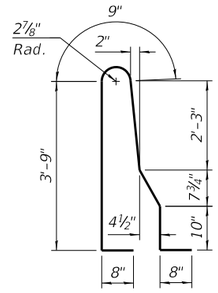
PIER G12 RETURN WALL PLAN VIEW



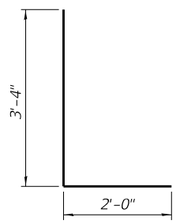
VIEW A-A



SECTION B-B



BAR d2(E)



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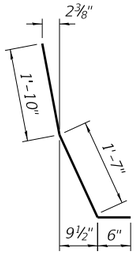

BAR d1(E)

Notes:
See Sheet 14 of 43 for additional details and quantities.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS (PIER G12)
S.N. 082-0254
SHEET NO. 15 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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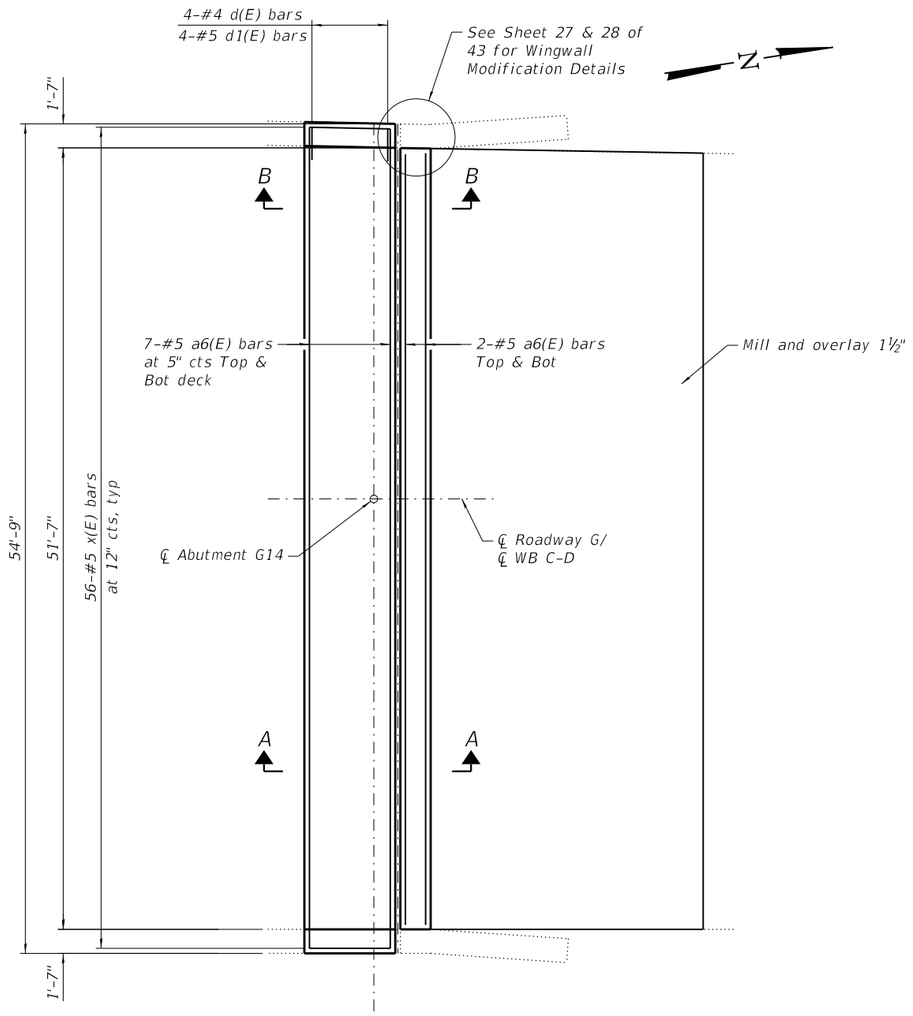
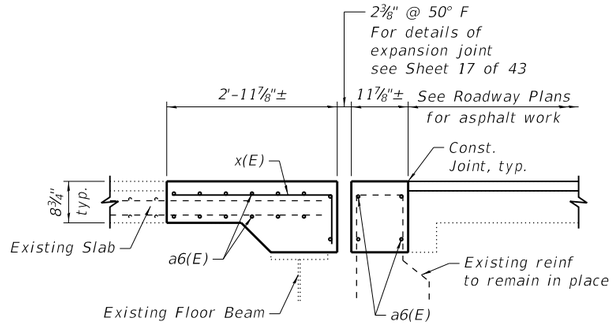
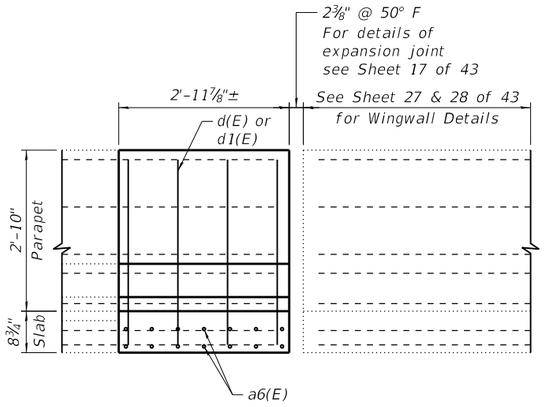
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



ABUTMENT G14 PLAN SHOWING REPLACEMENT

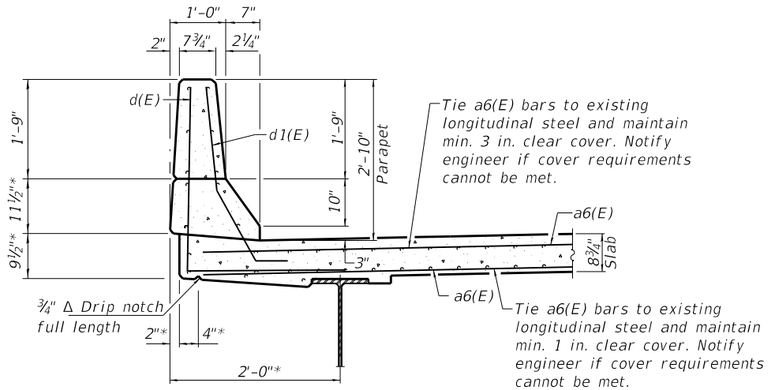


SECTION A-A



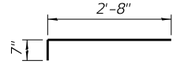
VIEW B-B

(Showing Reinforcement)

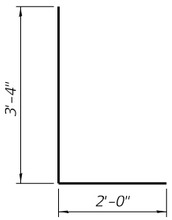


SECTION THRU PARAPET

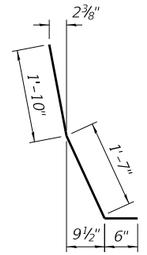
* Adjust to match existing dimensions



BAR x(E)



BAR d(E)



BAR d1(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a6(E)	18	#5	54'-5"	
d(E)	8	#4	5'-4"	
d1(E)	8	#5	3'-11"	
x(E)	56	#5	3'-3"	
Reinforcement Bars, Epoxy Coated			Lbs.	1270
Concrete Superstructure			Cu. Yds.	10.0
Relocating Name Plates			Each	1

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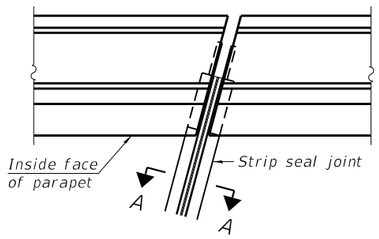
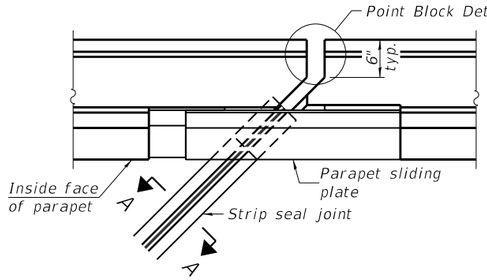
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS (ABUTMENT G14)
S.N. 082-0254
SHEET NO. 16 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	211
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

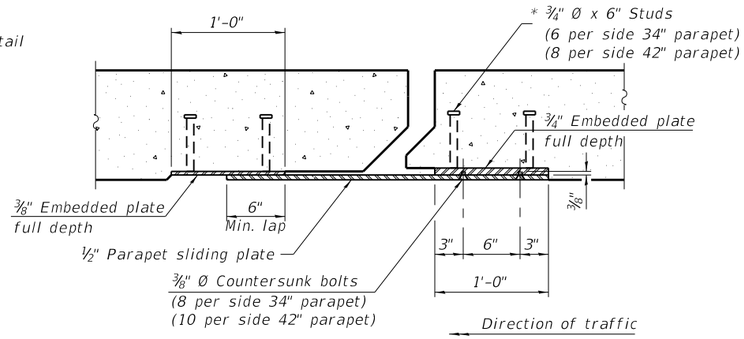


FOR SKEWS ≤ 30°

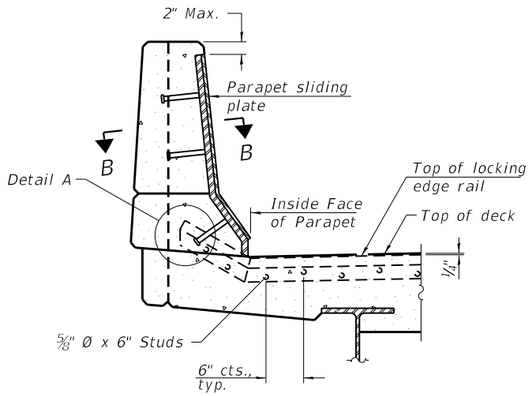


FOR SKEWS > 30°

PLAN AT PARAPET

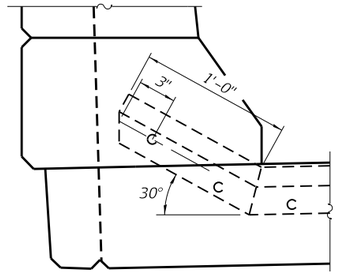


SECTION B-B

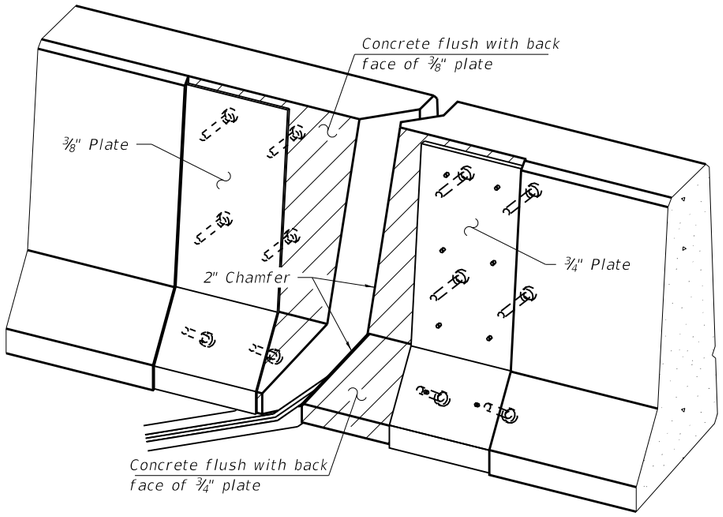


ELEVATION AT PARAPET

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



DETAIL A

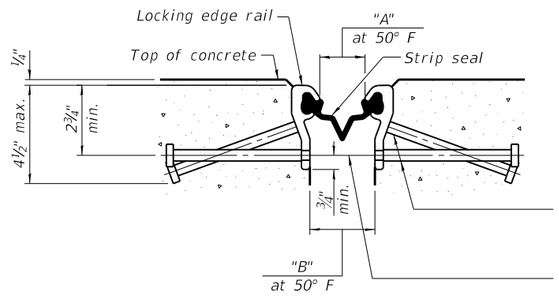


TRIMETRIC VIEW

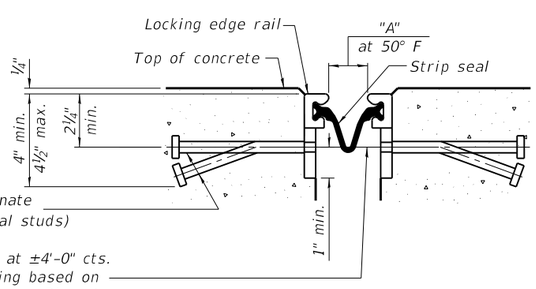
(Showing embedded plates only)

EXPANSION OPENINGS

Pier	"A"	"B"
G1	1⅝"	2½"
G9	1½"	2⅜"
G12	1½"	2⅜"
G14	1½"	2⅜"



SHOWING ROLLED RAIL JOINT



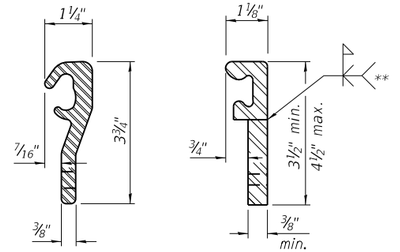
SHOWING WELDED RAIL JOINT

* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

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.

SECTION A-A

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

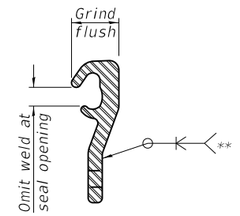


ROLLED (EXTRUDED) RAIL

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. Locking edge rails may exceed the 4½" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

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	186

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STATE OF ILLINOIS
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PREFORMED JOINT STRIP SEAL
S.N. 082-0254
SHEET NO. 17 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	212
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

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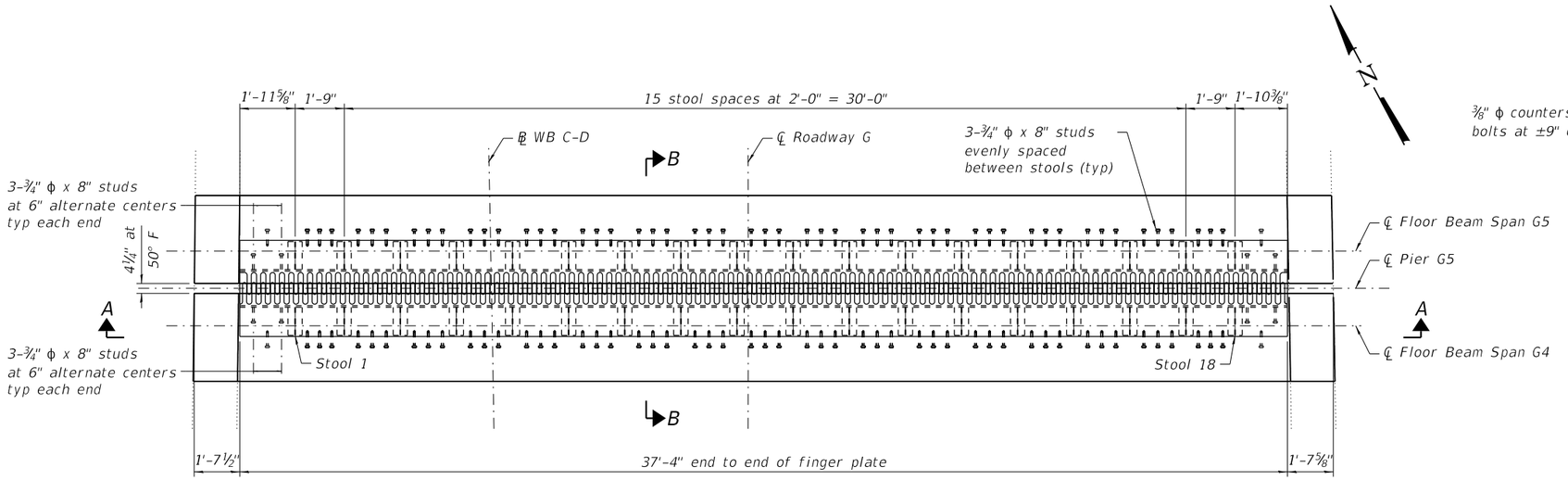
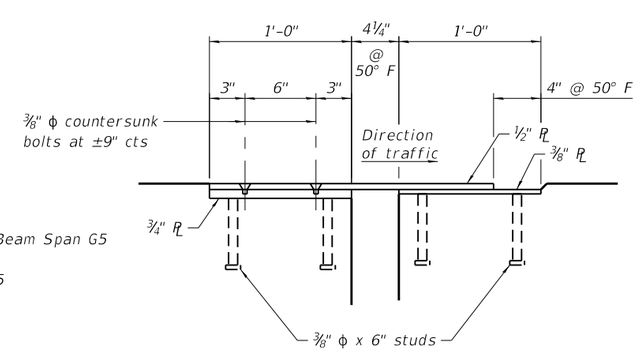
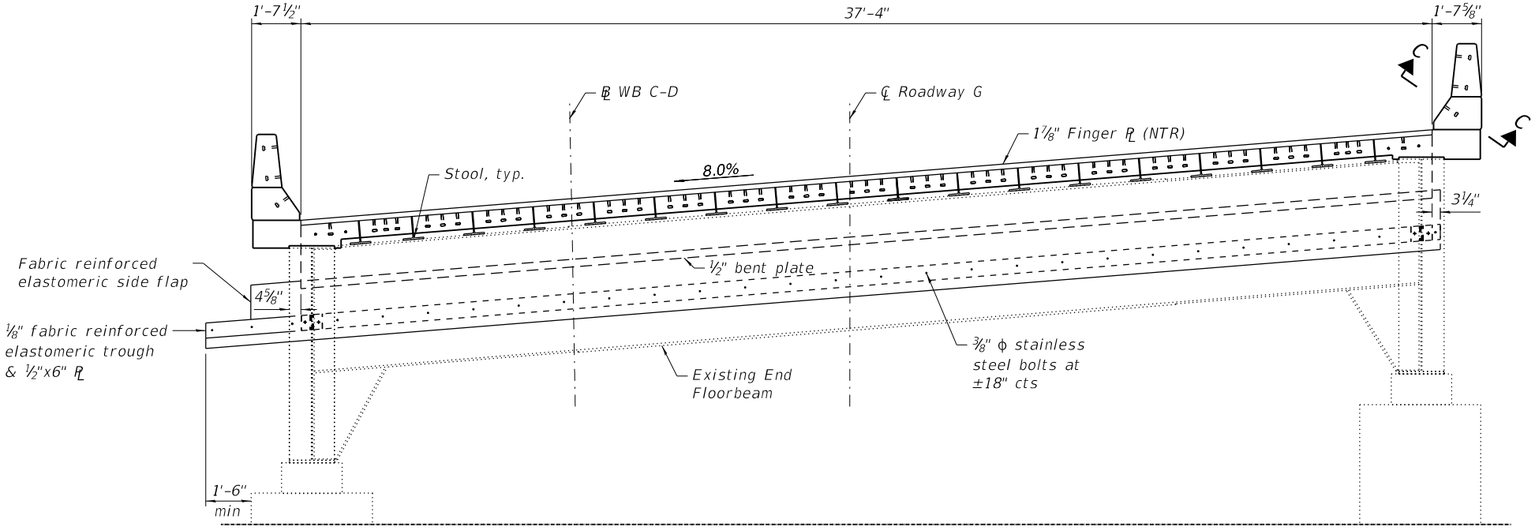


PLAN OF FINGER PLATE EXPANSION JOINT AT PIER G5



SECTION C-C

See Sheet 17 of 43 for typical sliding plate detail.
See Sheet 12 of 43 for parapet dimensions.



SECTION A-A

Span G4 shown. Span G5 similar.

NOTES:

See Sheet 19 of 43 for Section B-B.
See Sheet 20 of 43 for details of stools.

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	CHECKED - RW	REVISED -
PLOT SCALE = 0.1667 ' / in.	DRAWN - ACB	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER PLATE REPLACEMENT DETAILS (PIER G5)
S.N. 082-0254
SHEET NO. 18 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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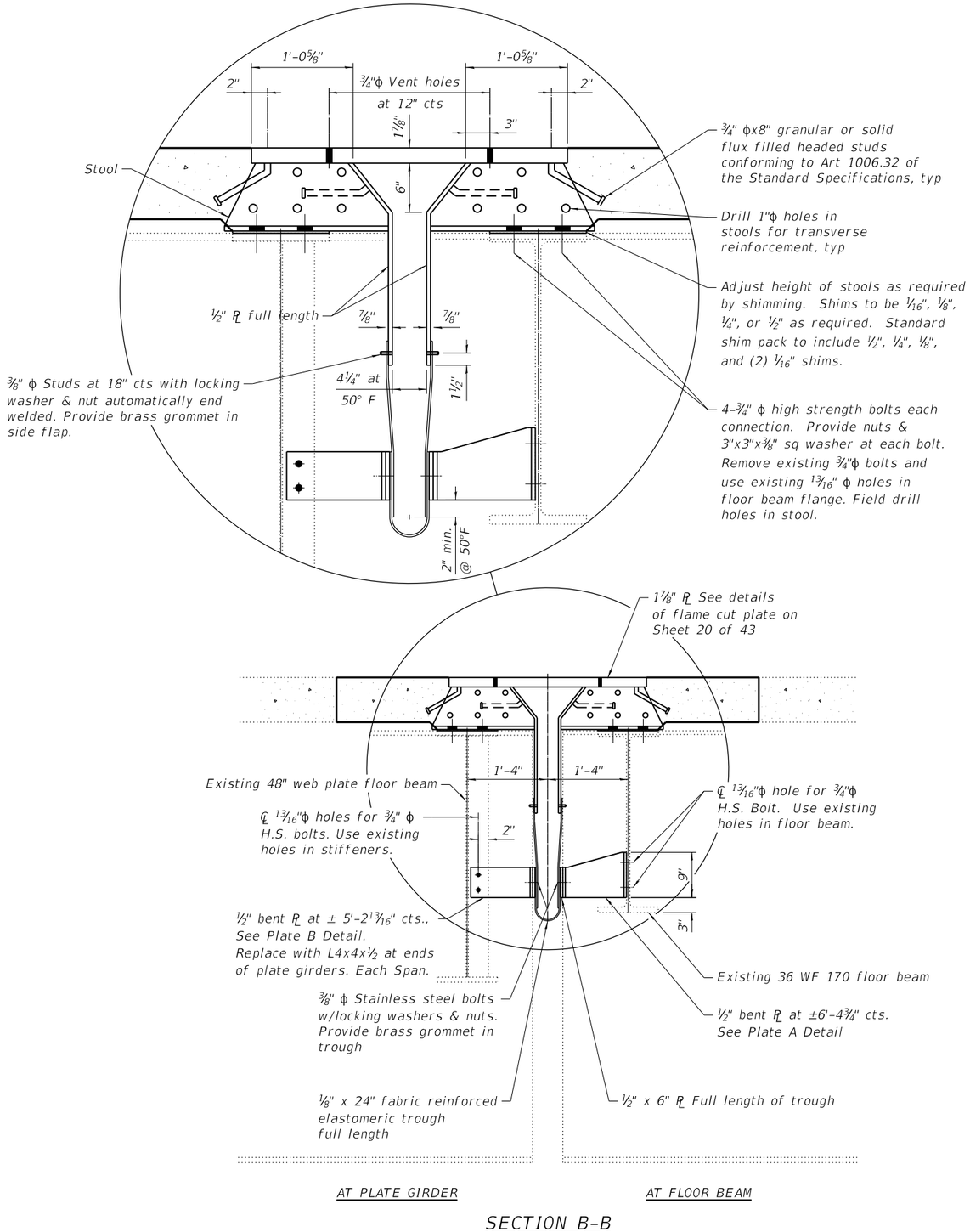
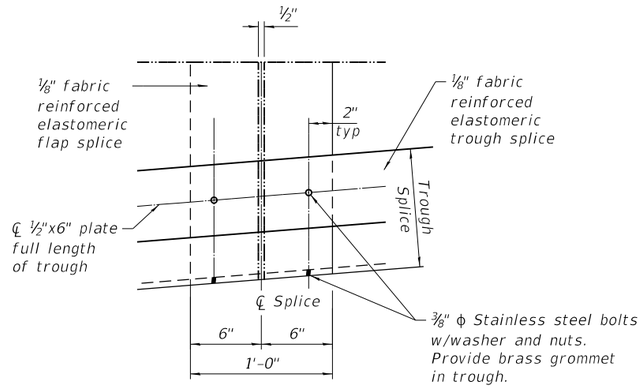
		CONTRACT NO. 76945		
ILLINOIS	FED. AID PROJECT			

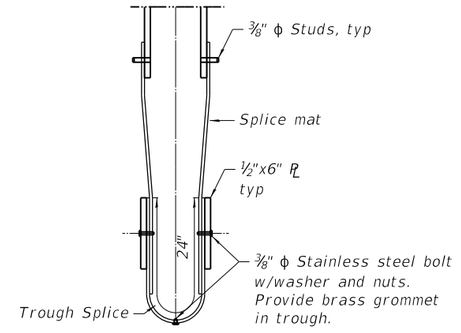


AT PLATE GIRDER AT FLOOR BEAM

SECTION B-B



TROUGH SPLICE DETAIL



SECTION THRU TROUGH SPLICE

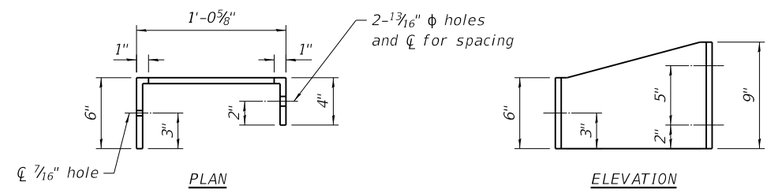


PLATE A DETAIL

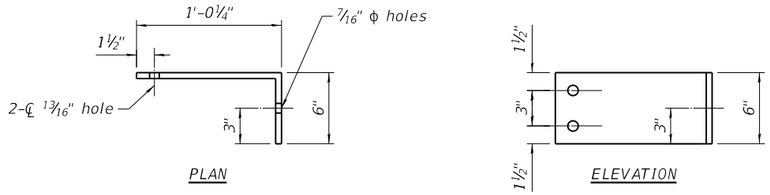


PLATE B DETAIL

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER PLATE REPLACEMENT DETAILS (PIER G5)
S.N. 082-0254
SHEET NO. 19 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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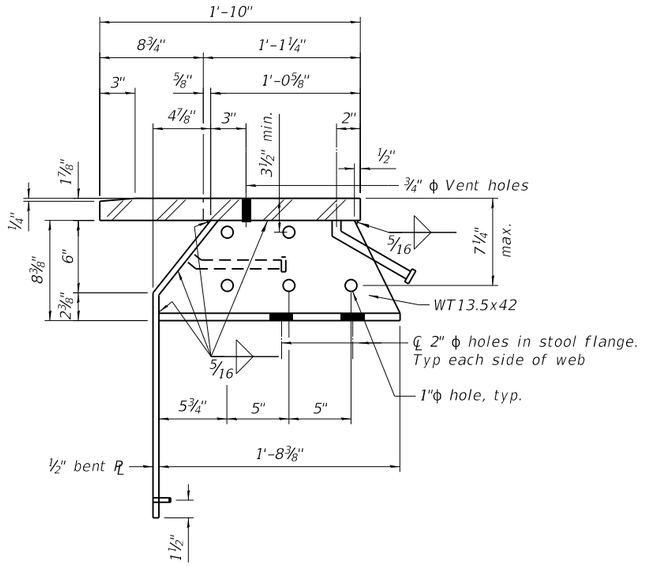
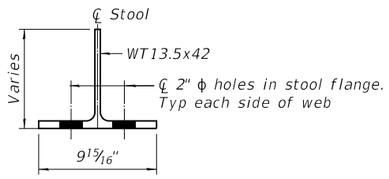
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



STOOL DETAILS AT FINGER PLATE JOINT

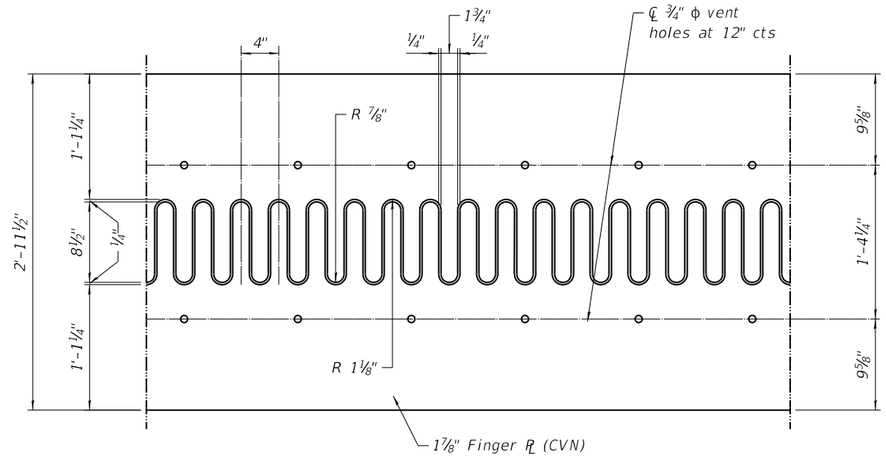


SECTION THRU STOOL

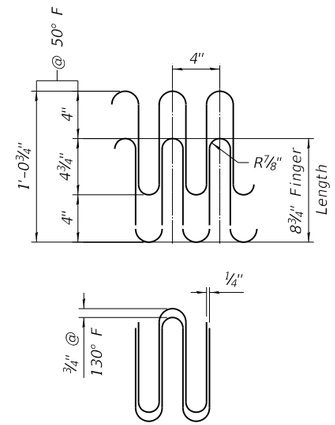
Cut stool from WT13.5x42, typ. See table below for stool heights

STOOL HEIGHTS

SPAN	STOOL NUMBER	HEIGHT
G4	1-4 & 15-18	9¾"
G4	10-16	9½"
G5	1-18	10¼"



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	38
Fabric Reinforced Elastomeric Trough	Foot	41

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER PLATE REPLACEMENT DETAILS (PIER G5)
S.N. 082-0254
SHEET NO. 20 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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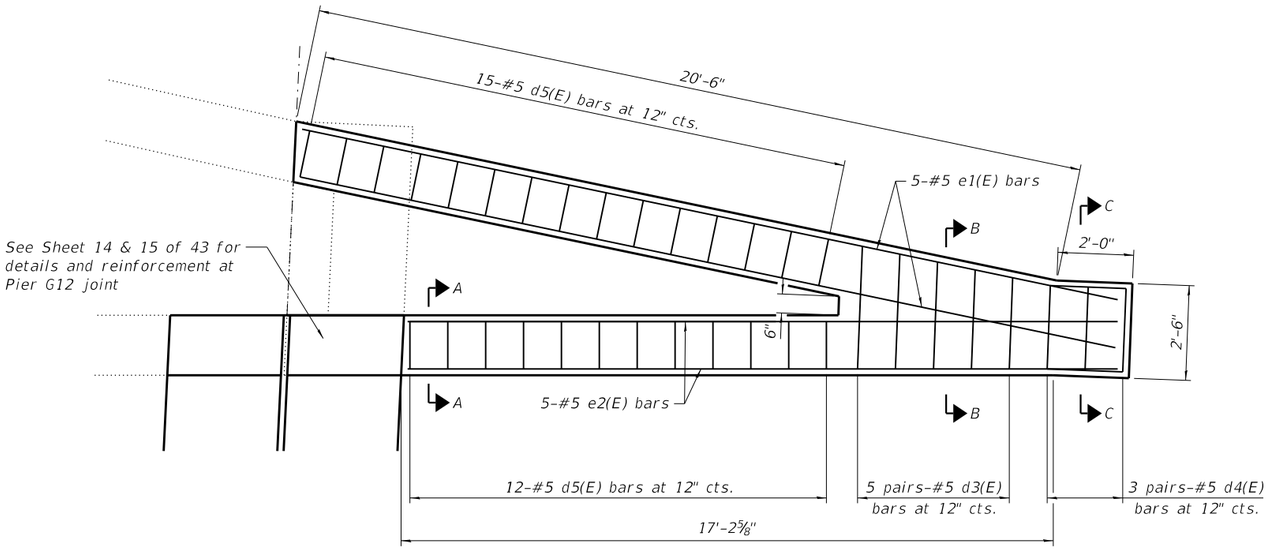
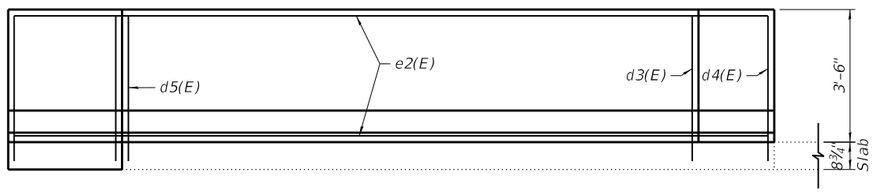
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



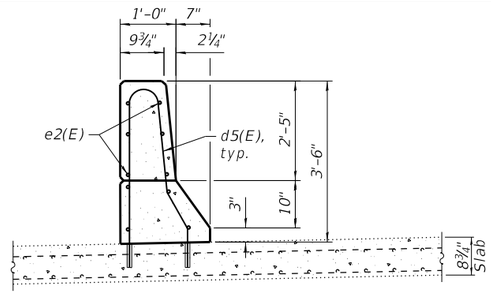
PLAN



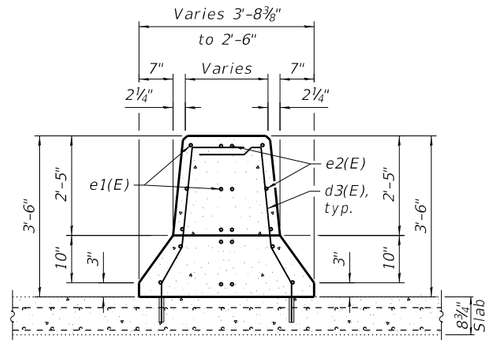
ELEVATION

(south barrier shown, north barrier similiar)

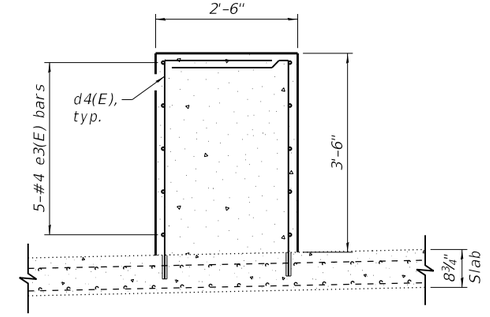
*Drill and epoxy #5 d3(E), d4(E), and d5(E) bars according to epoxy manufacturer's recommendations. Maximum depth of hole shall not exceed 6". Anchoring epoxy shall be approved by engineer.



SECTION A-A

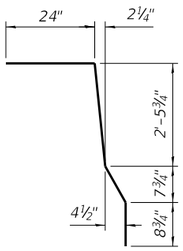


SECTION B-B

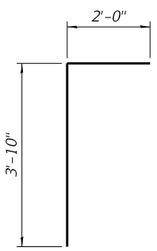


SECTION C-C

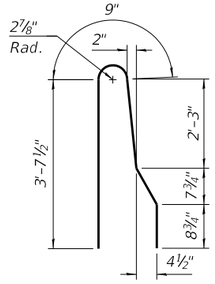
Note:
Trim or bend existing return wall reinfocement as necessary to maintain 1½" cover.



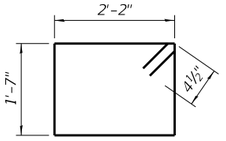
BAR d3(E)



BAR d4(E)



BAR d5(E)



BAR e3(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d3(E)	10	#5	6'-0"	
d4(E)	6	#5	5'-10"	
d5(E)	27	#5	8'-2"	
e1(E)	10	#5	21'-10"	
e2(E)	10	#5	18'-0"	
e3(E)	5	#4	8'-3"	
Reinforcement Bars, Epoxy Coated			Lbs.	770
Concrete Superstructure			Cu. Yds.	8.3

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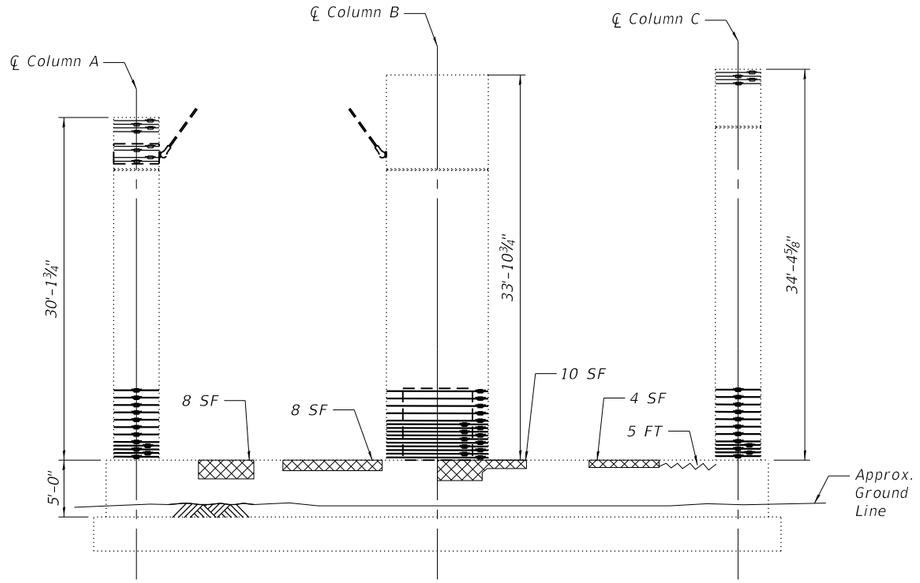
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

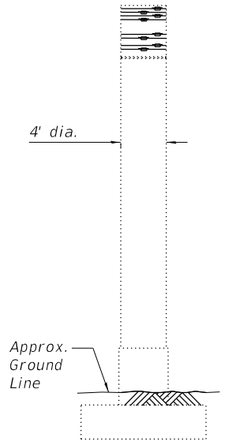
BARRIER WALL REPLACEMENT AT RAMP S GORE
S.N. 082-0254

SHEET NO. 21 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	216
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

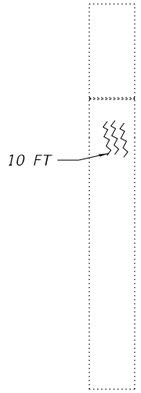


ELEVATION
(Looking Upstation)



COLUMN A
(End View)

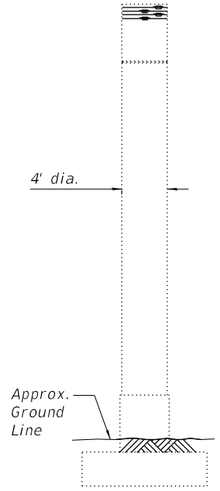
COLUMN A
(Interior View)



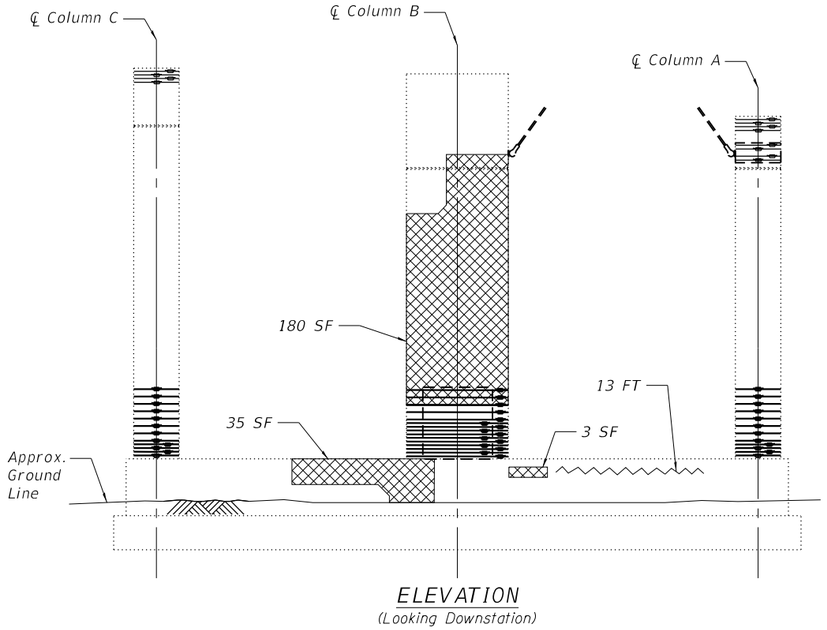
COLUMN B
(Column A Side)

COLUMN B
(Column C Side)

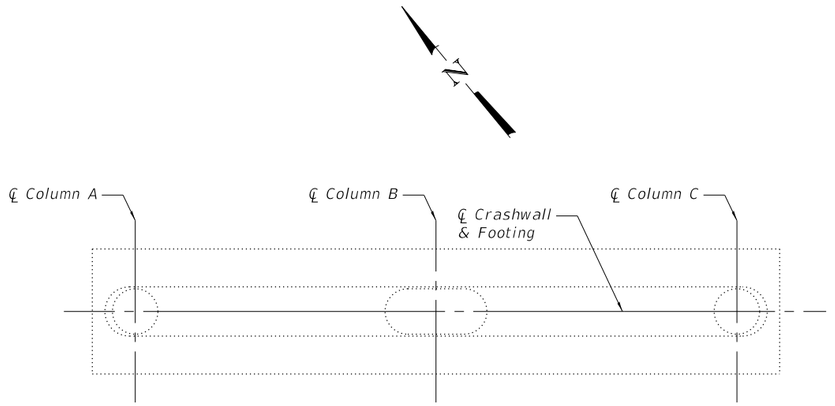
COLUMN C
(Interior View)



COLUMN C
(End 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 31 of 43 for related details and notes.

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

PIER G1
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	300
Epoxy Crack Injection	Foot	40
Galvanic Anode	Each	195
Column Tensioned Strands	Each	4

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER G1
S.N. 082-0254
SHEET NO. 22 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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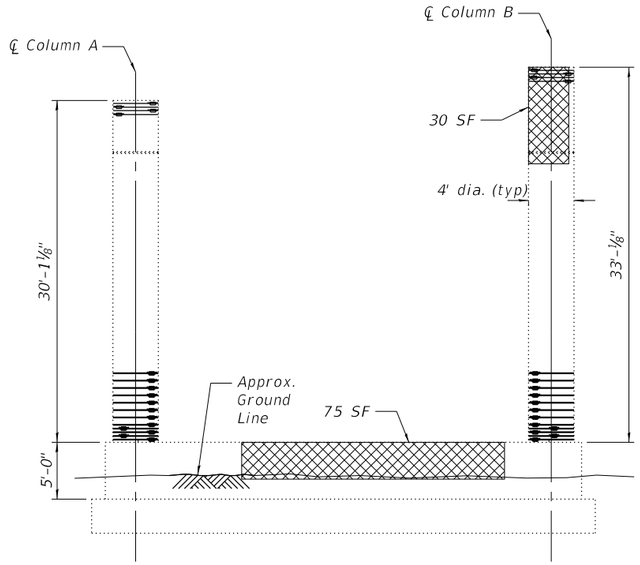
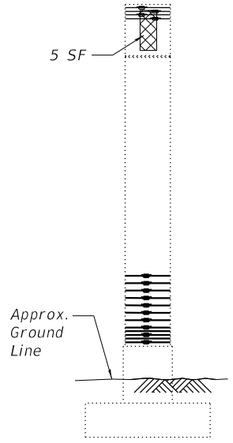
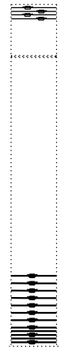
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



ELEVATION
(Looking Upstation)

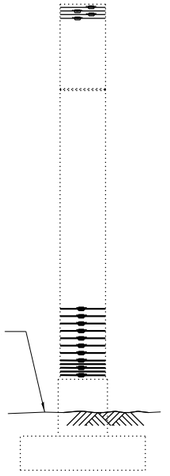


COLUMN A
(End View)

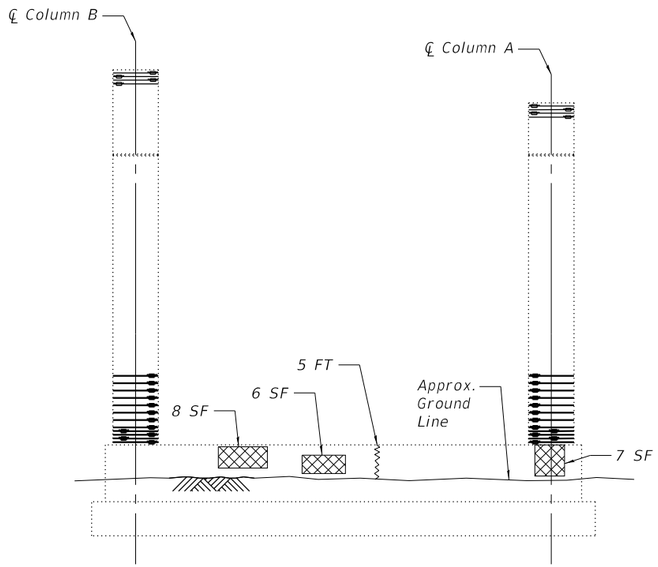


COLUMN A
(Interior View)

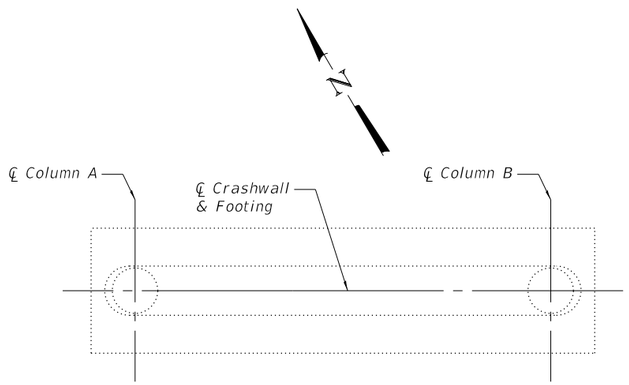
COLUMN B
(Interior View)



COLUMN B
(End 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 31 of 43 for related details and notes.

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

PIER G5
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	131
Epoxy Crack Injection	Foot	5
Column Tensioned Strands	Each	8
Galvanic Anode	Each	114

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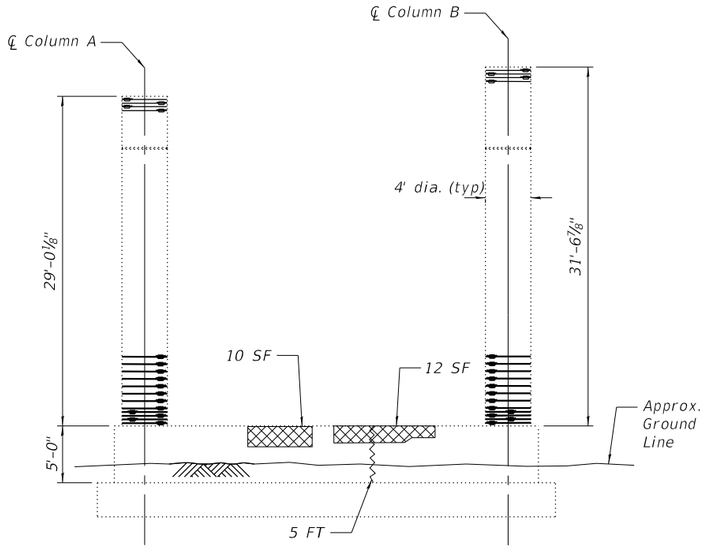
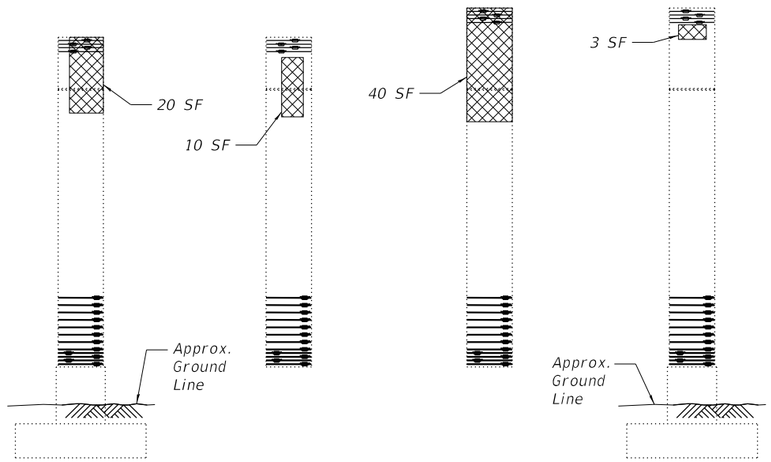
DEPARTMENT OF TRANSPORTATION

PIER G5
S.N. 082-0254
SHEET NO. 23 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	218
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



ELEVATION
(Looking Upstation)

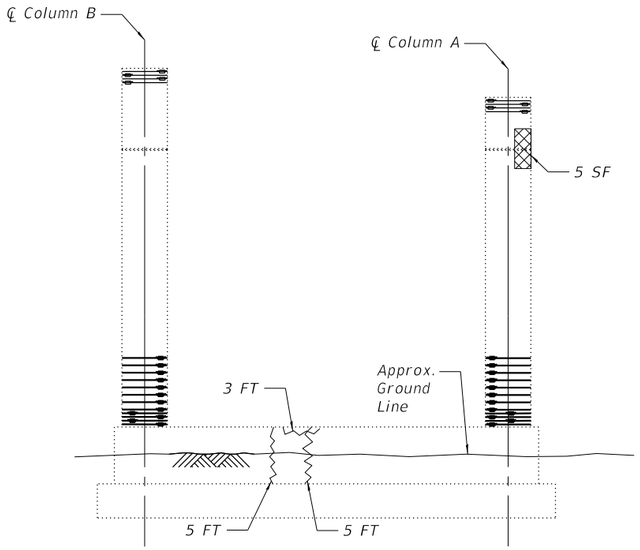


COLUMN A
(End View)

COLUMN A
(Interior View)

COLUMN B
(Interior View)

COLUMN B
(End View)



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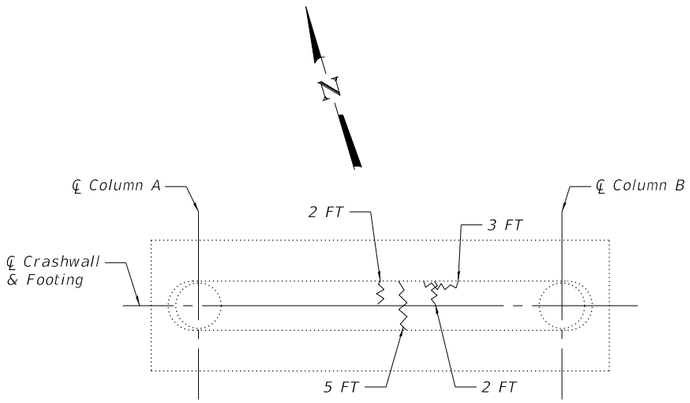

PLAN VIEW

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 31 of 43 for related details and notes.

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

PIER G9
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	100
Epoxy Crack Injection	Foot	30
Column Tensioned Strands	Each	8
Galvanic Anode	Each	97

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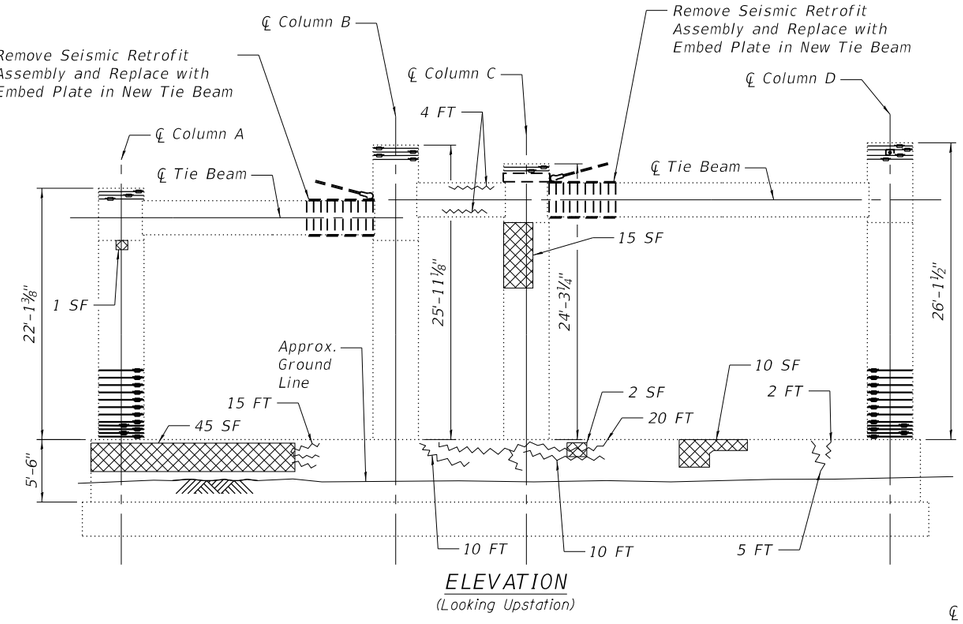
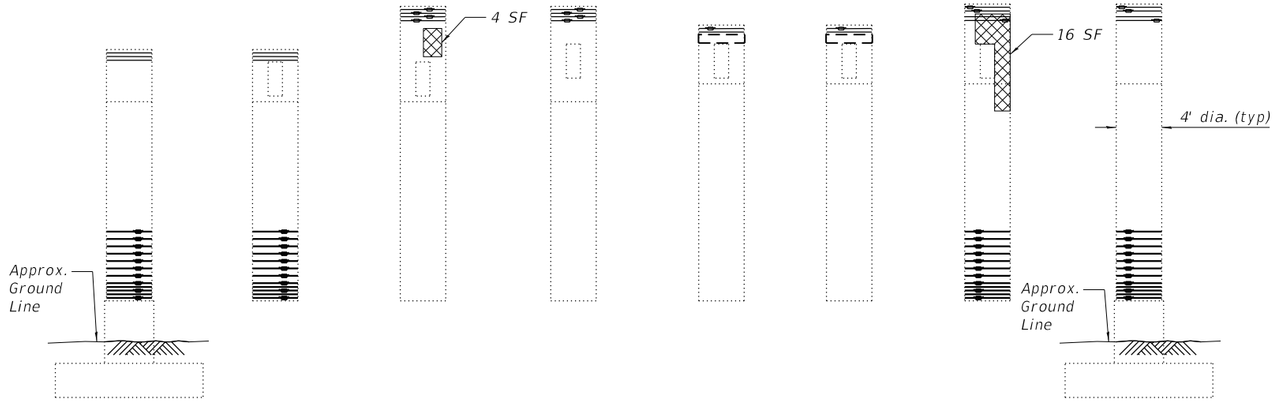
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER G9
S.N. 082-0254
SHEET NO. 24 OF 43 SHEETS

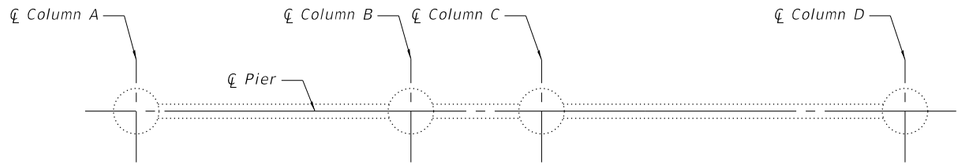
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	219
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



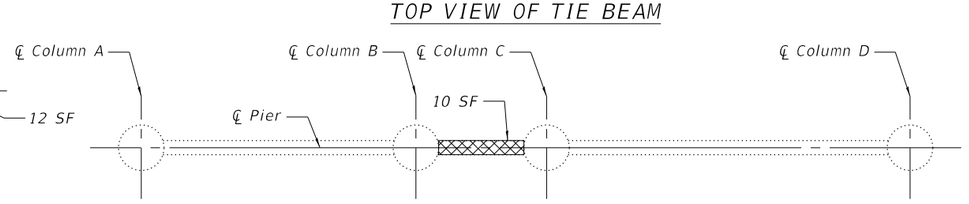
ELEVATION
(Looking Upstation)



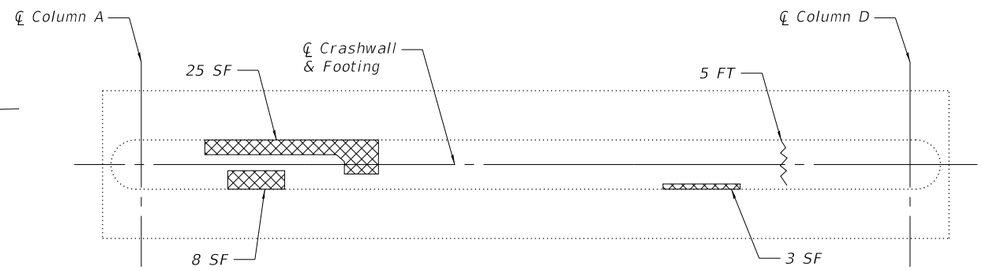
COLUMN A (End View) | COLUMN A (Interior View) | COLUMN B (Column A Side) | COLUMN B (Column C Side) | COLUMN C (Column B Side) | COLUMN C (Column D Side) | COLUMN D (Interior View) | COLUMN D (End View)



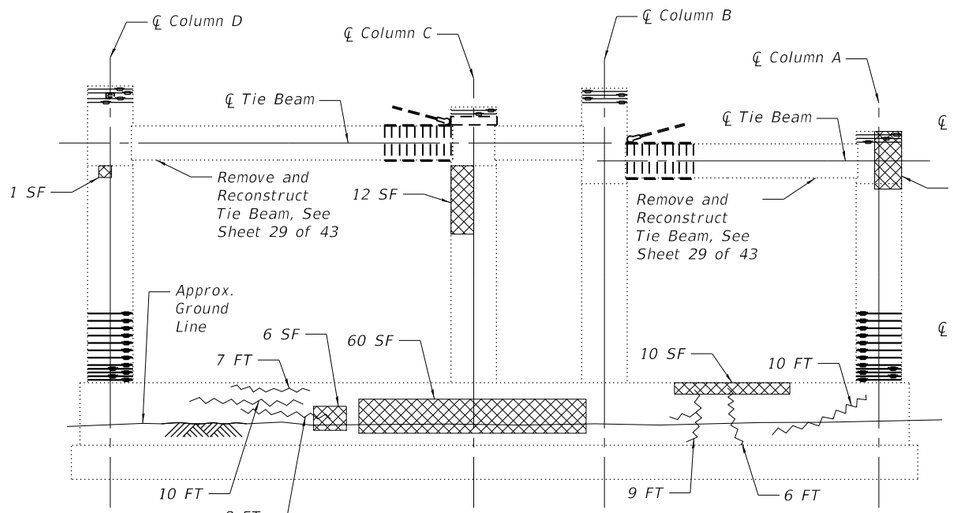
TOP VIEW OF TIE BEAM



UNDERSIDE OF TIE BEAM



TOP OF CRASHWALL



ELEVATION
(Looking Downstation)

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 31 of 43 for related details and notes.

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

Tie Beams to be removed prior to any patching.

Existing Tie Beam reinforcement will be preserved. See project specification for details.

At the contractor's option, Type 2 bar splicers capable of resisting earthquake induced forces can be used with new reinforcement as opposed to preserving existing longitudinal beam reinforcement. At most, 50% of the longitudinal steel can be spliced in one cross-section. The distance between cross-sections with splices shall be 7'-7". Product data must be submitted to Engineer. Cost of splicers and steel to be included with concrete removal.

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

Epoxy Crack Injection

PIER G12
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	240
Column Tensioned Strands	Each	4
Epoxy Crack Injection	Foot	135
Galvanic Anode	Each	314

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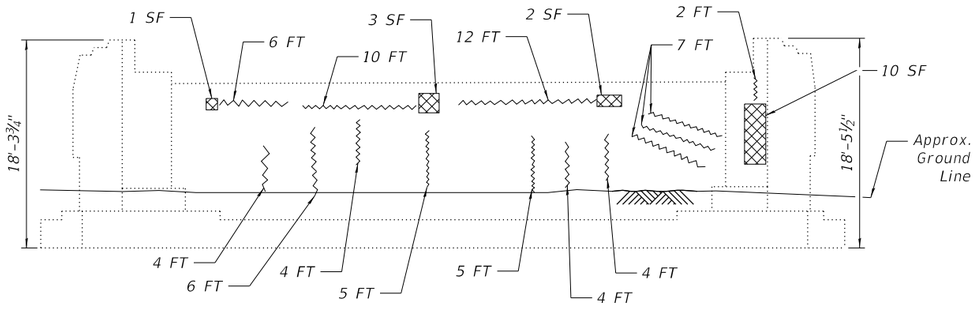
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER G12
S.N. 082-0254
SHEET NO. 25 OF 43 SHEETS

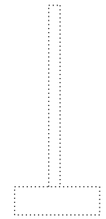
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	220
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

PRINT DATE: 9/28/2018 11:31:51 AM Z:\5052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Piers\025_Pier_G12.dgn

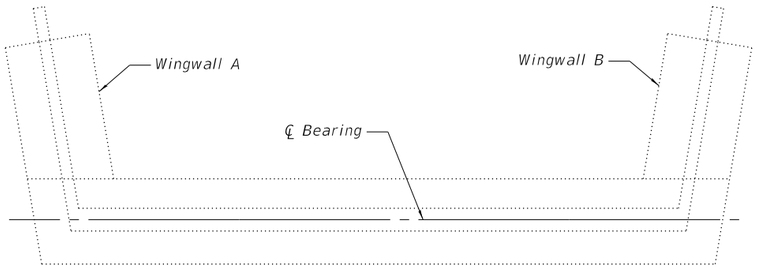


ELEVATION
(Looking Upstation)

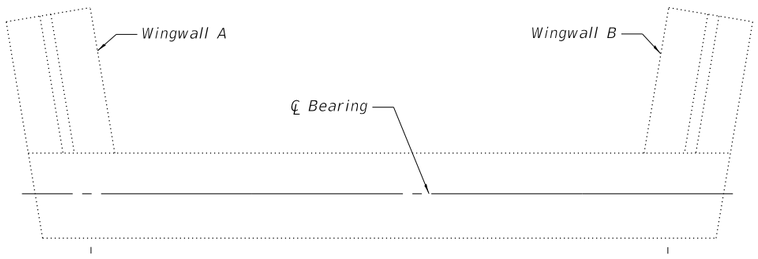
WINGWALL A
(End View)



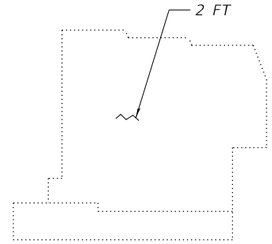
WINGWALL B
(End View)



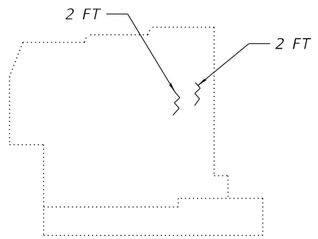
TOP VIEW



FOOTING



ELEVATION-WINGWALL B



ELEVATION-WINGWALL A

Epoxy Crack Injection

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

PIER G14
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	20
Epoxy Crack Injection	Ft	75
Galvanic Anode	Each	37

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT G14
S.N. 082-0254
SHEET NO. 26 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	221
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

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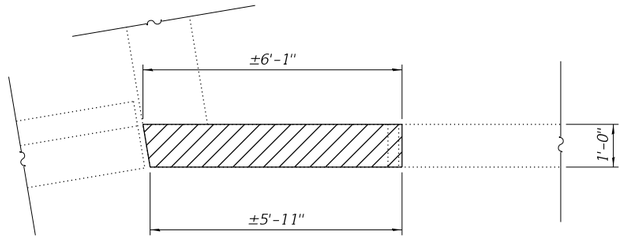
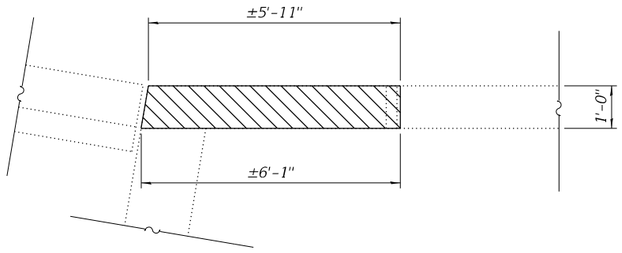
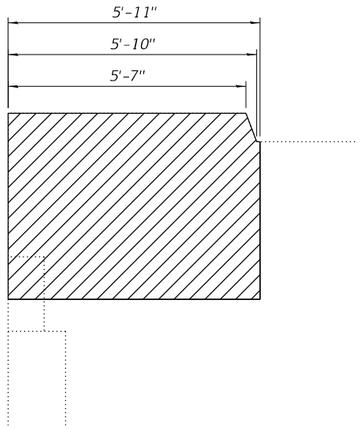


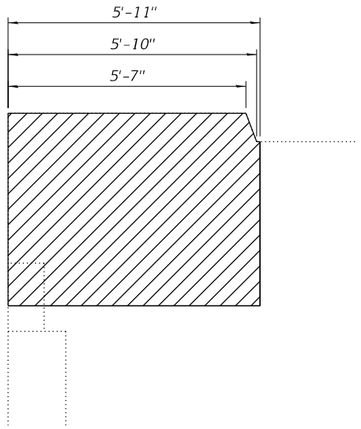
EAST WINGWALL
REMOVAL PLAN



WEST WINGWALL
REMOVAL PLAN



EAST WINGWALL
REMOVAL SECTION



WEST WINGWALL
REMOVAL SECTION

LEGEND

Concrete Removal

Notes:

Existing wingwall reinforcement to remain. Trim and field coat existing bars with epoxy as needed to ensure 1-1/2" clear cover in the rebuilt wing wall.

Construction of wing wall modifications will require excavation and removal/replacement of roadway and curb. See Sheet 15 of 235 for additional information associated with this work.

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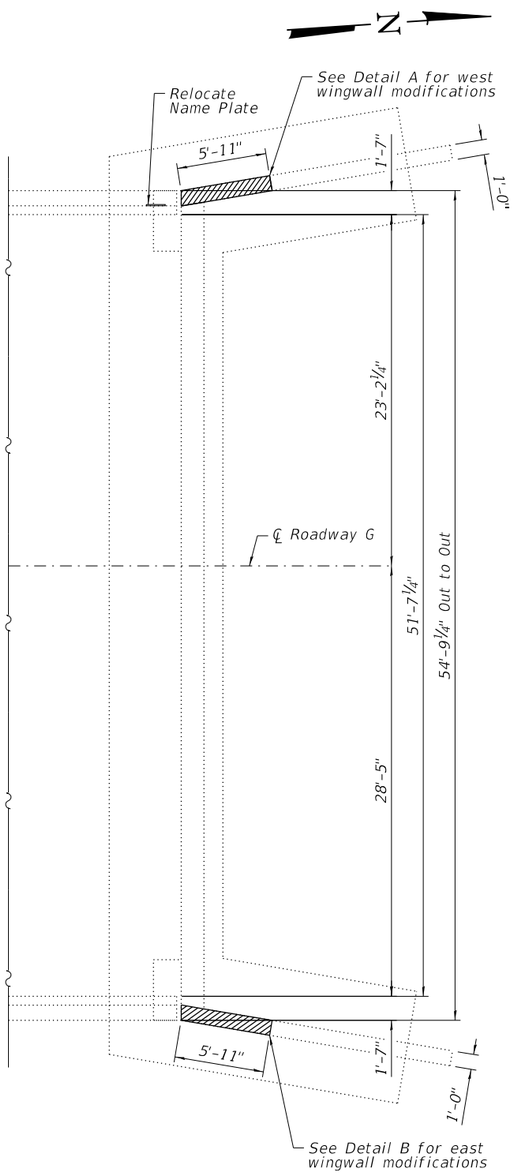
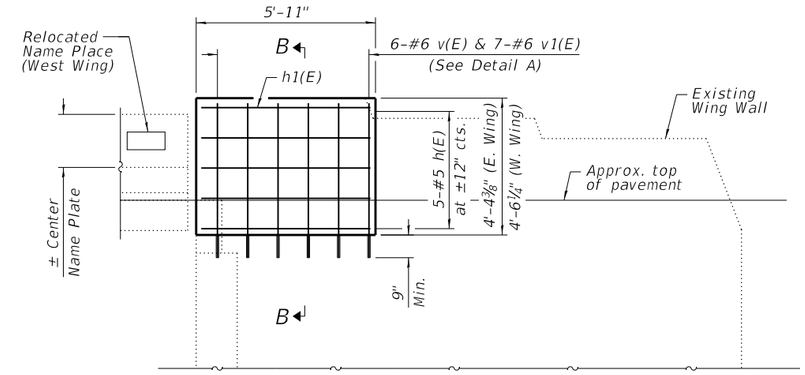
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WINGWALL MODIFICATION
S.N. 082-0254
SHEET NO. 27 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	222
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

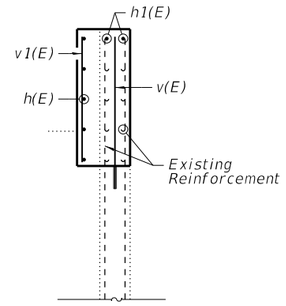


REMOVAL PLAN (ABUTMENT G14)



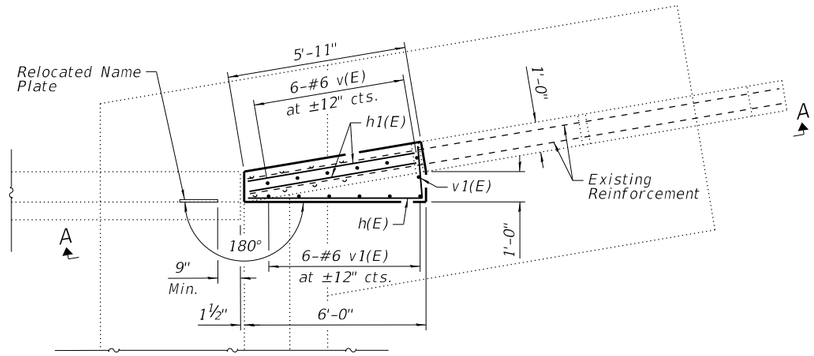
SECTION A-A

(West wall shown, east wall similar)

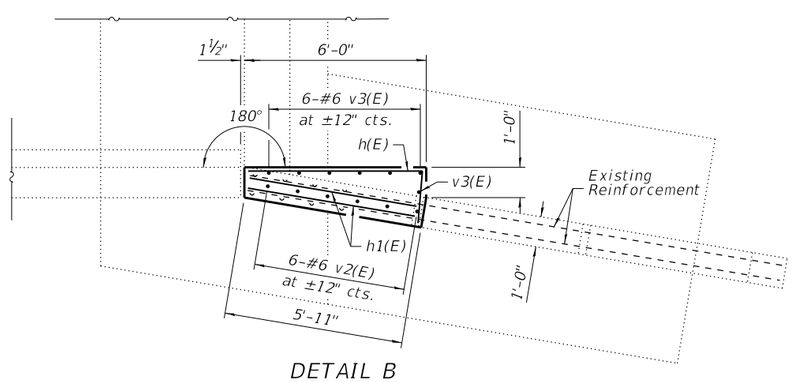


SECTION B-B

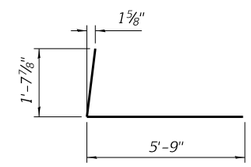
(West wall shown, east wall similar)



DETAIL A



DETAIL B



BAR h(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	10	#5	7'-5"	L
h1(E)	4	#5	5'-8"	—
v(E)	6	#6	5'-0"	—
v1(E)	7	#6	4'-1"	—
v2(E)	6	#6	5'-2"	—
v3(E)	7	#6	4'-2"	—
Concrete Removal		Cu. Yd.	1.6	
Concrete Superstructure		Cu. Yd.	3.0	
Reinforcement Bars, Epoxy Coated		Pound	280	

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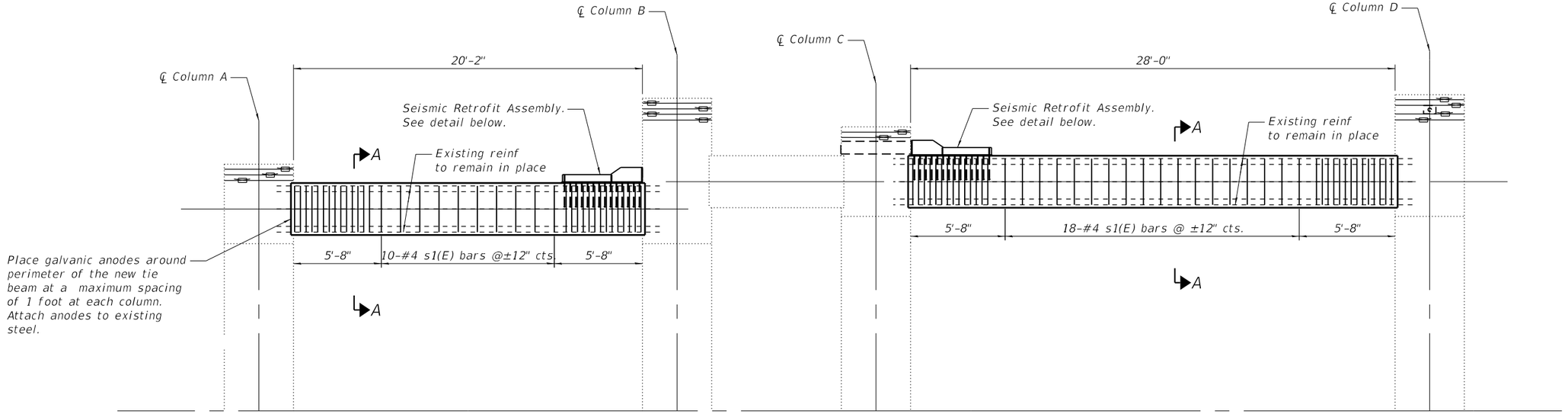
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

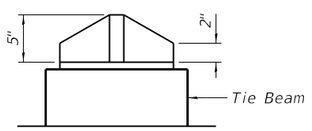
WINGWALL MODIFICATION
S.N. 082-0254
SHEET NO. 28 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	223
		CONTRACT NO. 76945		
	ILLINOIS	FED. AID PROJECT		

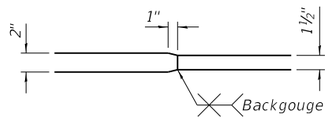


ELEVATION
(Pier G12)

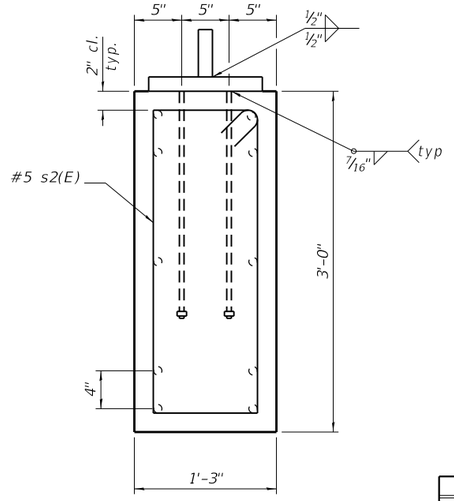
PARTIAL ELEVATION



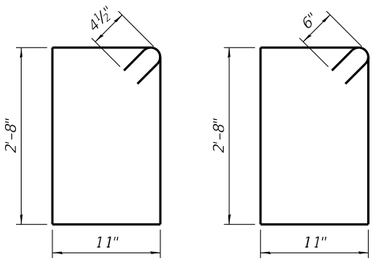
TYPICAL STIFFENER DETAIL



SECTION B-B



SECTION A-A



BAR s1(E)

BAR s2(E)

Note:
All nuts shall be AASHTO M291 Grade DH.
All rods shall be ASTM A1554 Grade 55.
Existing Tie Beam reinforcement will be preserved. See project specification for details.
Concrete strength for the tie beam concrete shall be f'c=4000psi, but otherwise conform to the provisions of Section 503 of the standard specifications.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
s1(E)	33	#4	7'-11"	□
s2(E)	56	#5	8'-2"	□
Galvanic Anode			Each	34
Concrete Removal			Cu. Yds.	7
Reinforcement Bars, Epoxy Coated			Lbs.	660
Concrete Structures			Cu. Yds.	7
Remove and Replace Seismic Retrofit Assembly			Each	2

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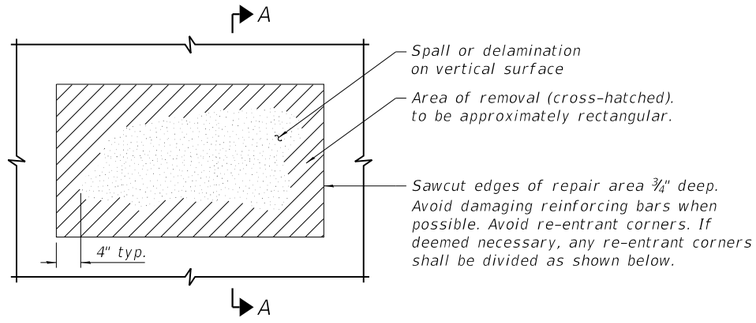
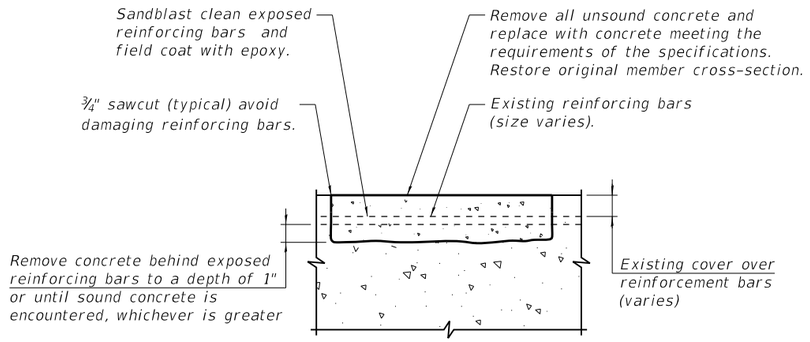
TIE BEAM REPAIRS
S.N. 082-0254
SHEET NO. 29 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	224
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



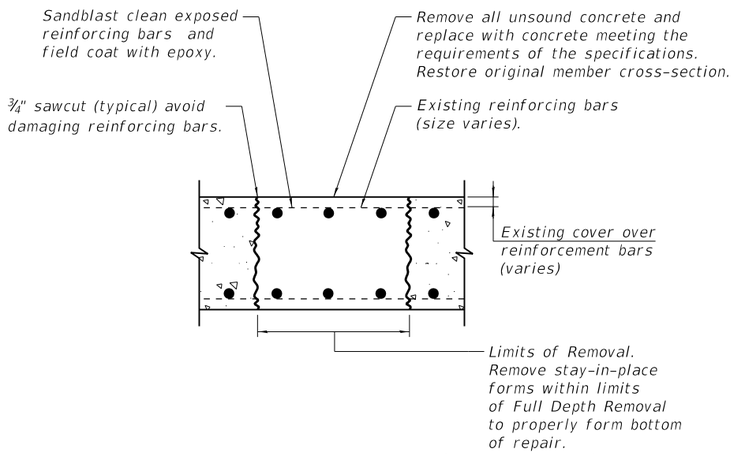
VERTICAL SURFACE REPAIR DETAIL

At Substructure



HORIZONTAL SURFACE REPAIR (PARTIAL DEPTH)

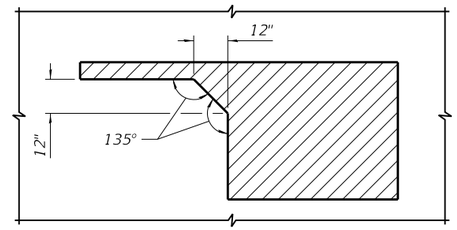
At bridge deck and substructure.



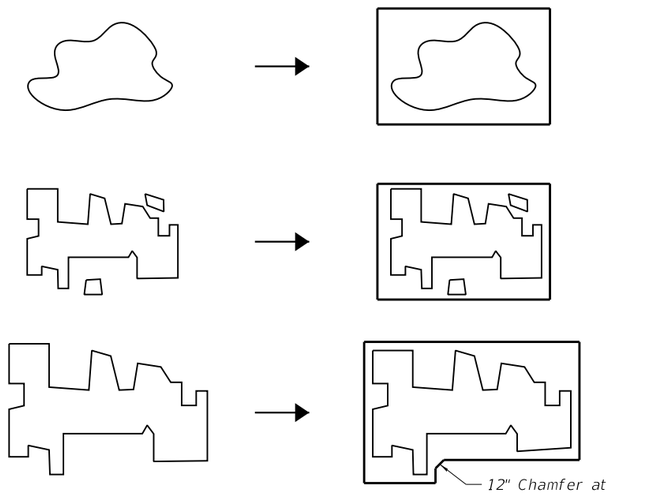
HORIZONTAL SURFACE REPAIR (FULL DEPTH)

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.



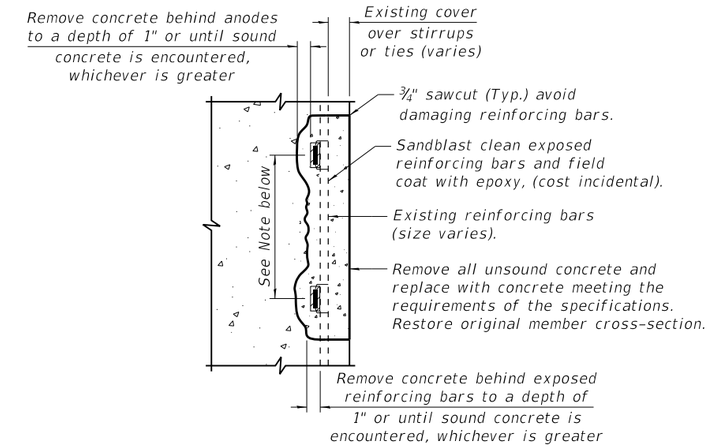
RE-ENTRANT CORNER MODIFICATIONS



GENERAL SHAPE OF DETERIORATION

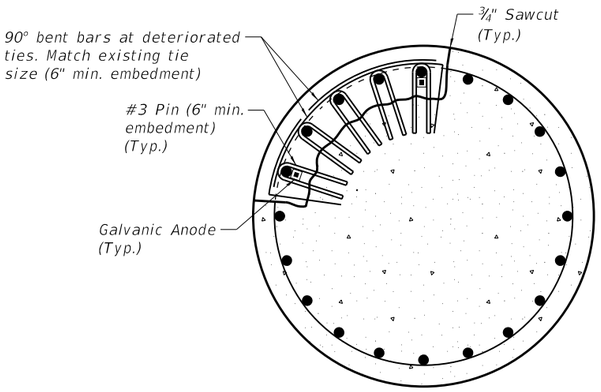
REMOVAL GEOMETRY

TYPICAL CONCRETE REPAIR GEOMETRY



SECTION A-A

Anodes shall be installed around the perimeter of the patch. No more than 2" from the edge of the patch, anode shall be spaced at 12" on center max. on all crashwall faces and the top and bottom faces of the tie beams. Anodes shall be spaced at 16" on center max. on column faces and vertical faces of the tie beams. No anodes specified in deck slab repairs.



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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CONCRETE REPAIR DETAILS
S.N. 082-0254
SHEET NO. 30 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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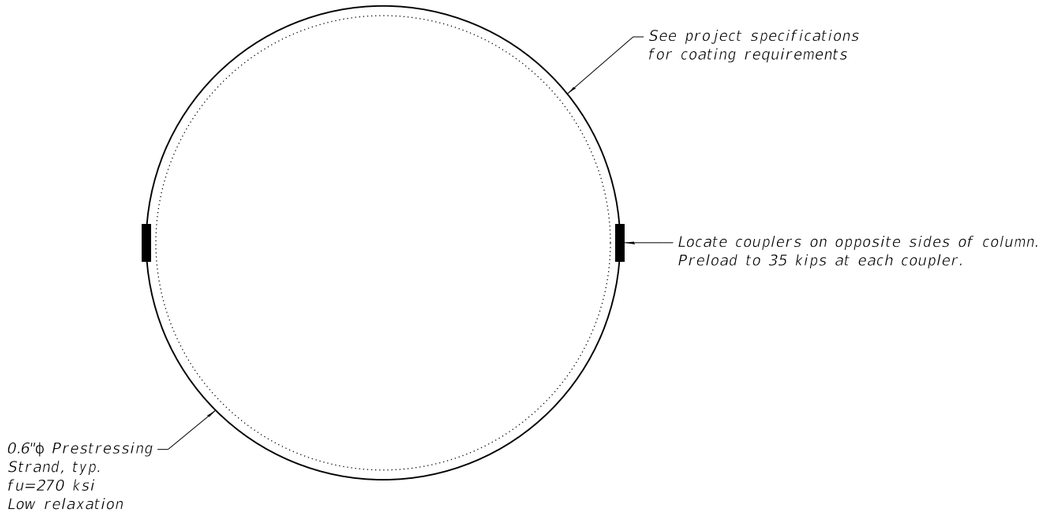
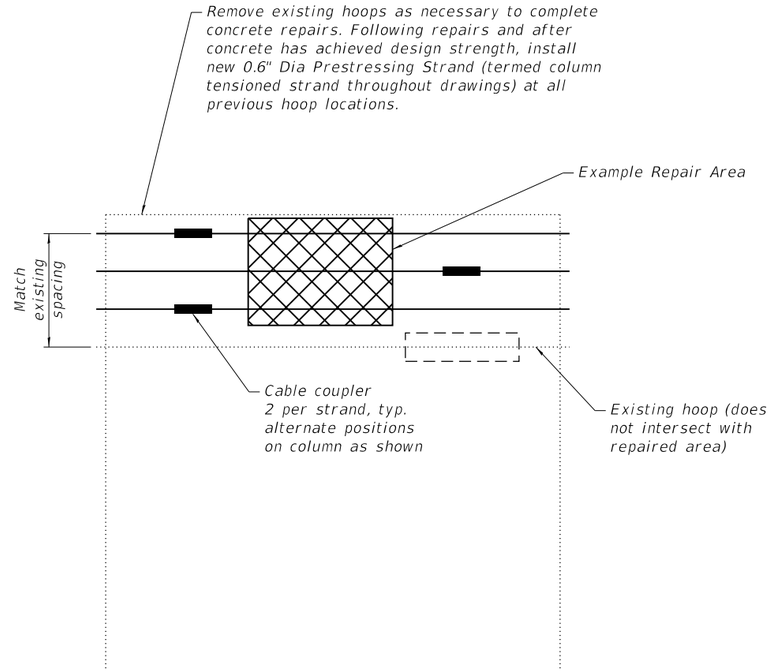
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PLAN



ELEVATION

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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

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CABLE TENSIONED STRANDS
S.N. 082-0254
SHEET NO. 31 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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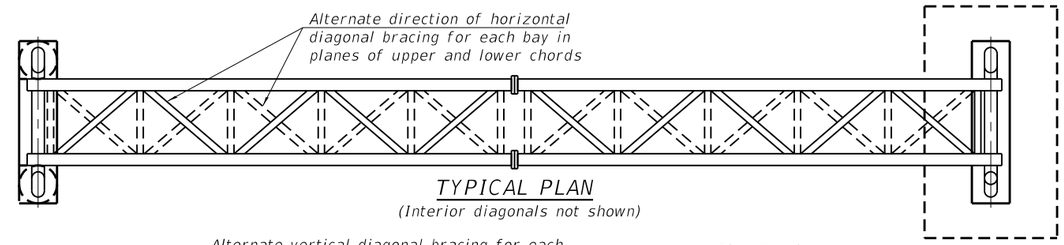
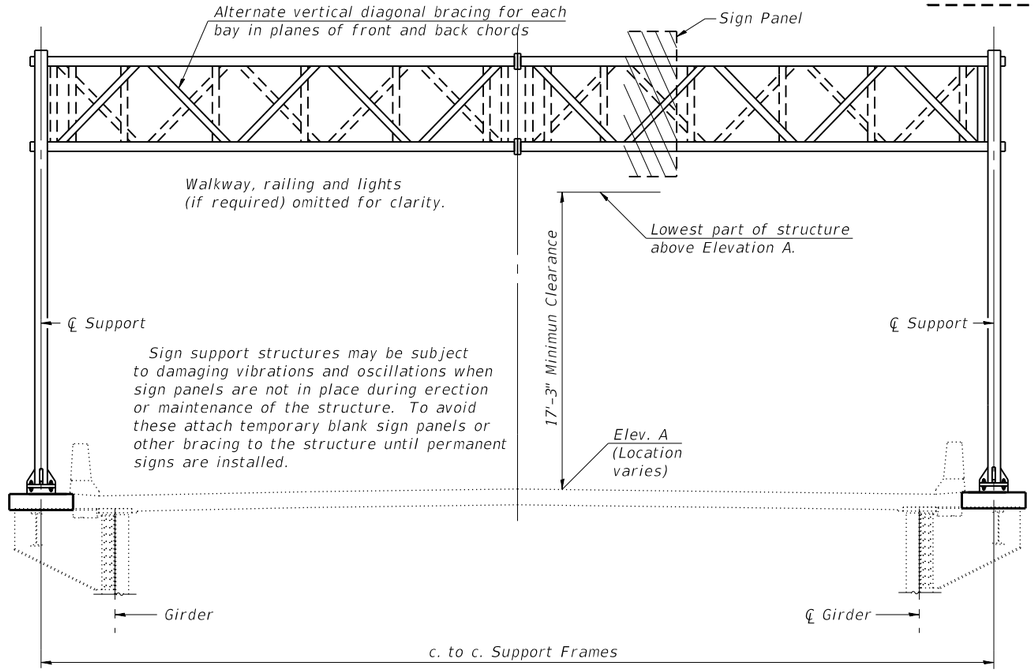
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



TYPICAL PLAN
(Interior diagonals not shown)



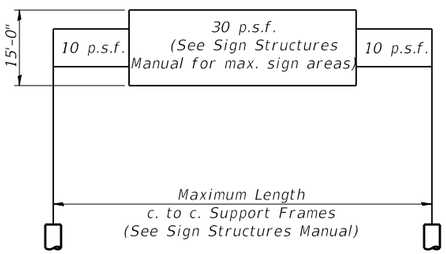
TYPICAL ELEVATION
(Looking at Face of Signs**)

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

Location	Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign	Total Sign Area
G3	8S082I055R001.2	77+68	I-A	50'-11½"	461.58	---	15'-0"	380
G13	8S082I055R001.3	87+35	I-A	64'-3½"	447.29	---	14'-6"	496

**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.



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.

SCOPE OF WORK AT EACH OVERHEAD SIGN STRUCTURE

1. Remove Overhead Sign Structure including supports.
2. Remove Concrete Pad.
3. Clean Rebar and top of bracket assembly.
4. Install Stud Shear Connectors, Anchor Rods, and Rebar.
5. Install Concrete Pad.
6. Install new Overhead Sign Structure.
7. Install Signs.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
REMOVE OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	Each	2
CONCRETE REMOVAL	Cu. Yd.	2.7
STUD SHEAR CONNECTORS	Each	40
REINFORCEMENT BARS, EPOXY COATED	Pound	390
CONCRETE SUPERSTRUCTURE	Cu. Yd.	2.7
OVERHEAD SIGN STRUCTURE - SPAN, TYPE I-A (4'-0" x 4'-6")	Foot	116
OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	Foot	108
SIGN PANEL - TYPE 3	Sq. Ft.	876

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 = 3,500 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 concrete.

Existing reinforcement shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.

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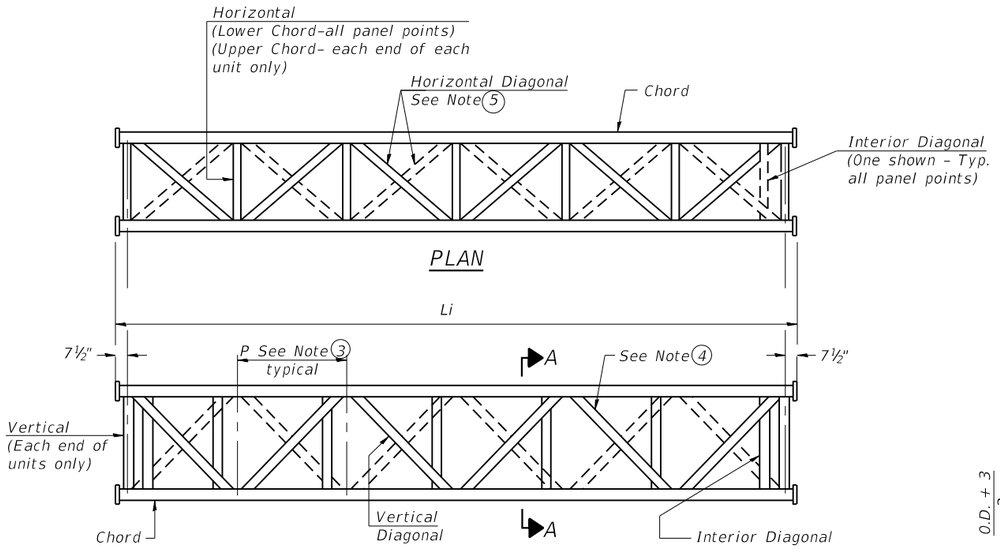
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES - GENERAL PLAN & ELEVATION - ALUMINUM TRUSS & STEEL SUPPORTS

SHEET NO. 32 OF 43 SHEETS

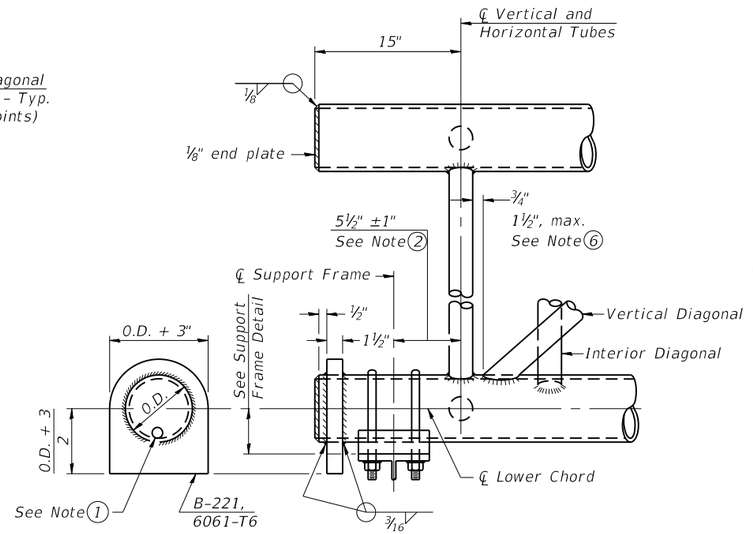
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	227
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



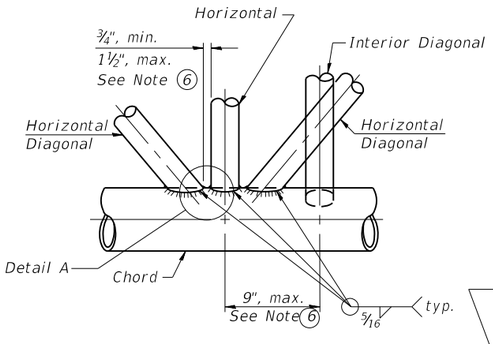
ELEVATION

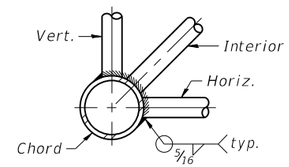
TYPICAL INTERIOR UNIT

Even number of panels/interior unit required.

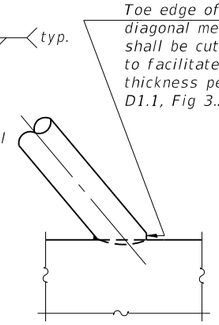


SUPPORT END DETAIL FOR EXTERIOR UNIT

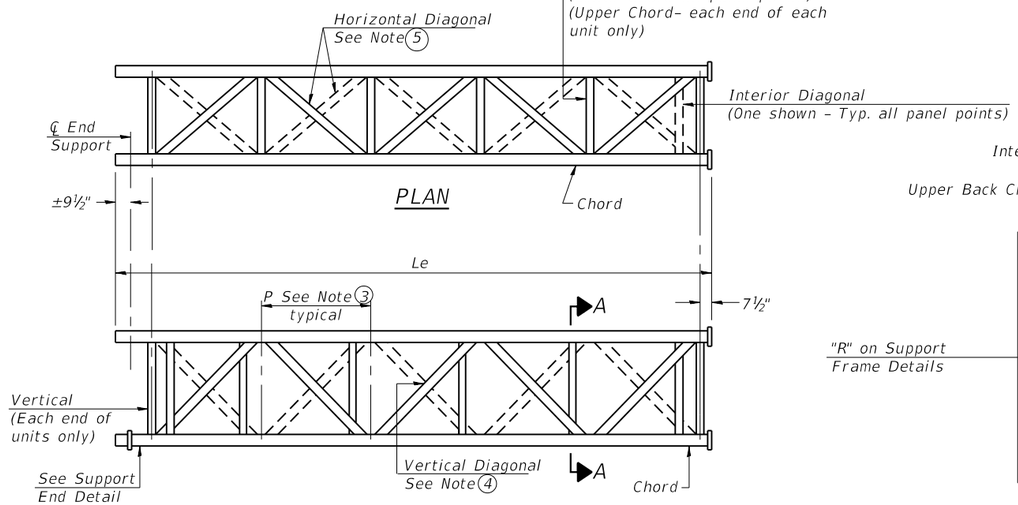




TYPICAL JOINT DETAILS



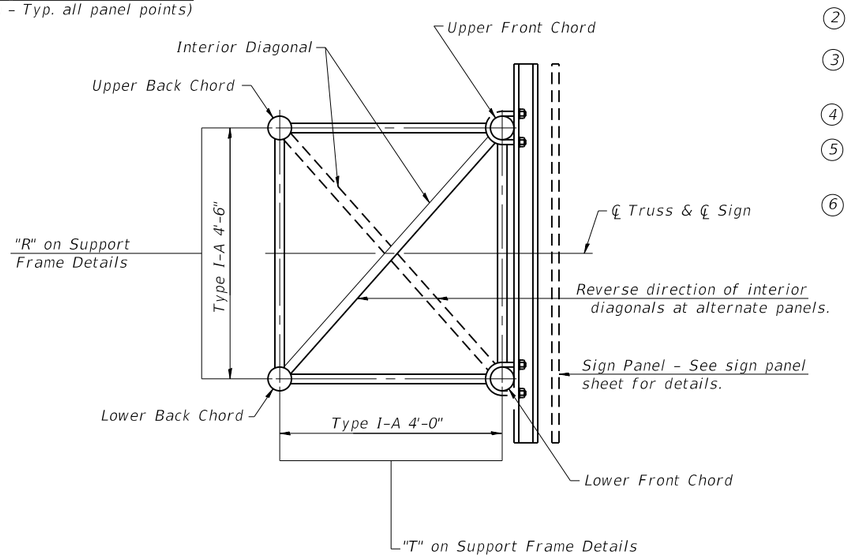
DETAIL A



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'-0" for Type I-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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OVERHEAD SIGN STRUCTURES – ALUMINUM TRUSS
DETAILS FOR TRUSS TYPE I-A

SHEET NO. 33 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	228
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

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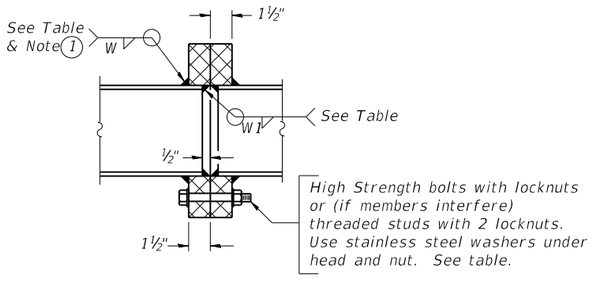
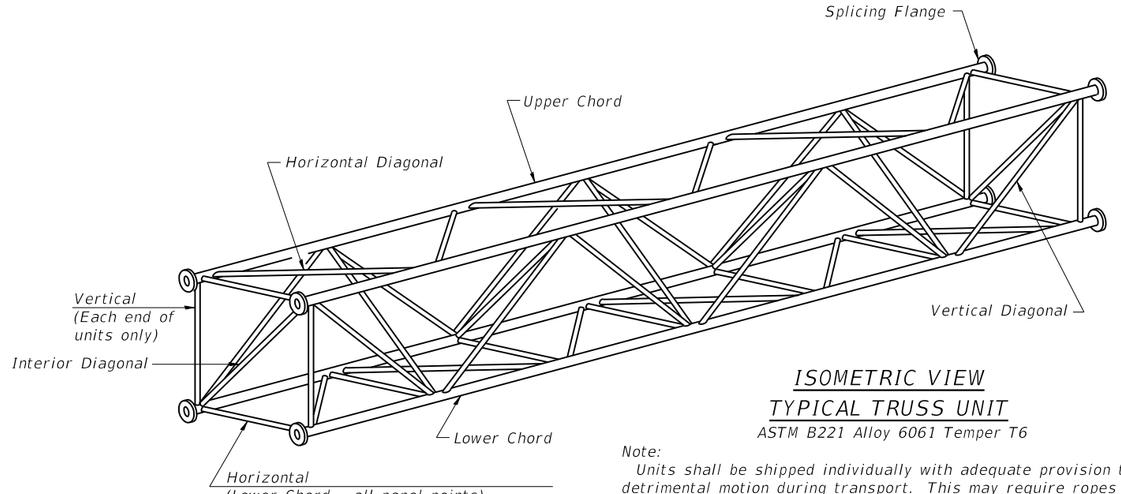
TRUSS UNIT TABLE

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		
8S082I055R001.2	77+68	I-A	5	26'-3"	4'-10½"	---	---	---	---	5	5/16	2½	5/16	¾	6	⅞	5/16	¼	8¾	11¾
8S082I055R001.3	87+35	I-A	7	33'-1"	4'-5½"	---	---	---	---	5	5/16	2½	5/16	1½	6	⅞	5/16	¼	8¾	11¾



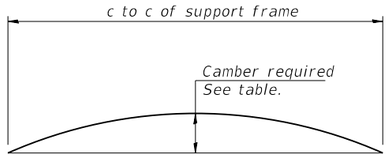
SECTION B-B

(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.



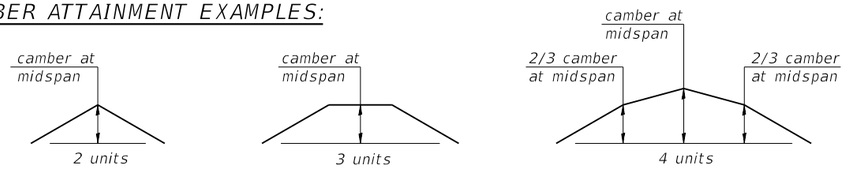
ISOMETRIC VIEW
TYPICAL TRUSS UNIT
ASTM B221 Alloy 6061 Temper T6

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.

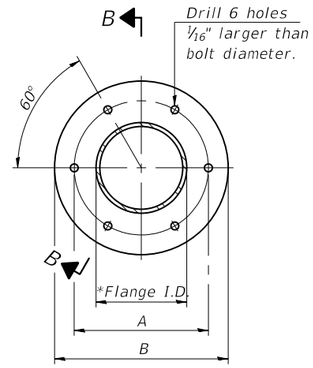


CAMBER DIAGRAM
Camber curve shown is theoretical. Actual camber attained by slope changes at splices between units.

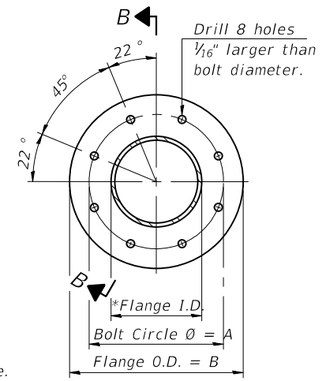
CAMBER ATTAINMENT EXAMPLES:



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".

OS4-A-2 2-17-2017

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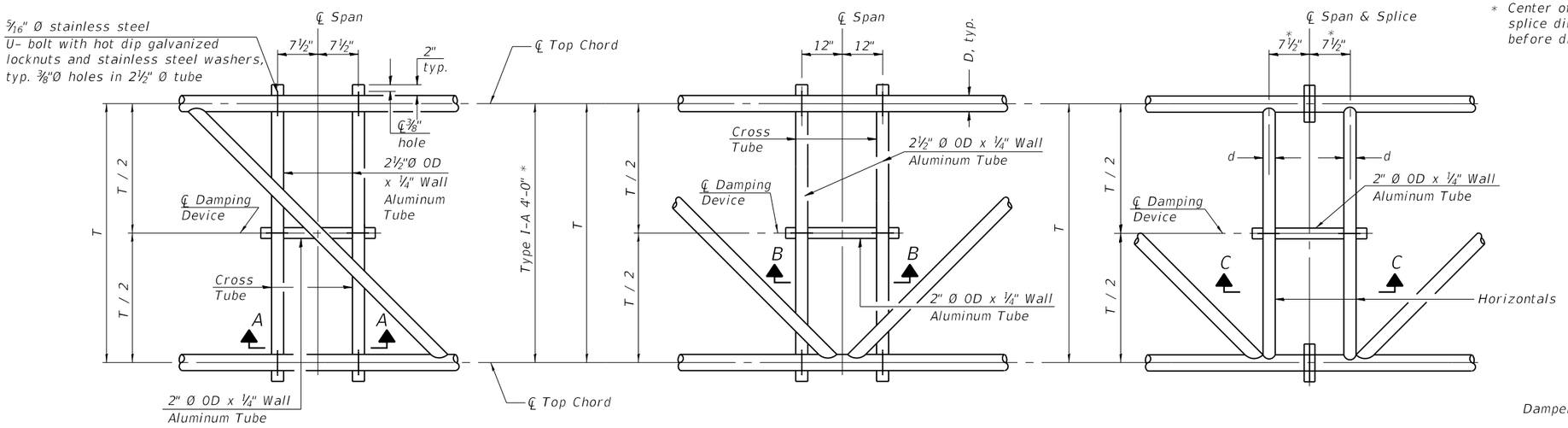
OVERHEAD SIGN STRUCTURES - ALUMINUM TRUSS DETAILS FOR TRUSS TYPE I-A

SHEET NO. 34 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	229
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



PLAN DETAIL "A"
℄ Span between Panel Points

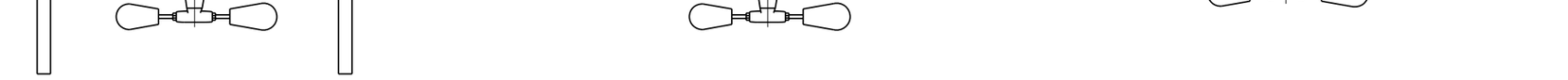
PLAN DETAIL "B"
℄ Span at Panel Point

PLAN DETAIL "C"
℄ Span at ℄ Chord Splice

NOTES

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

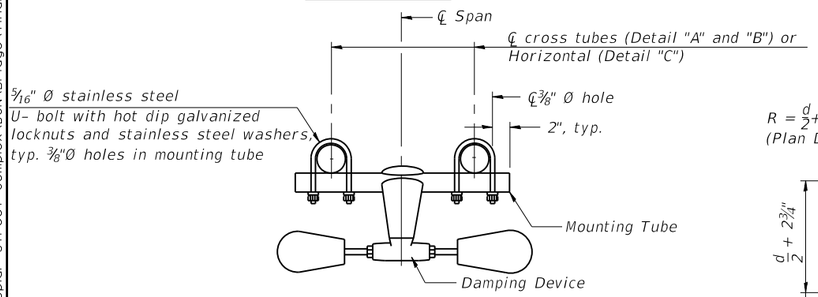
Materials: Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...



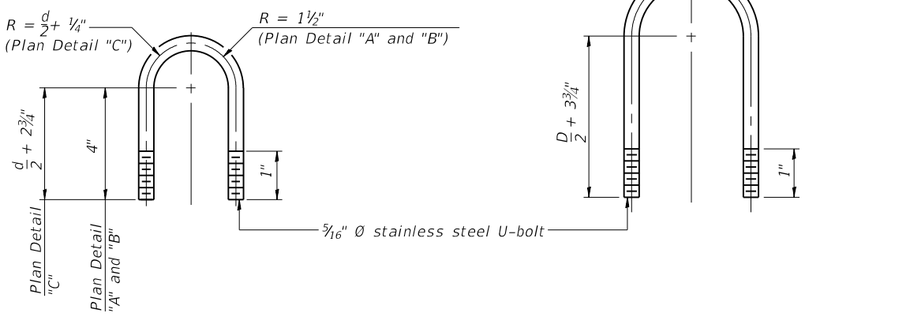
SECTION A-A

SECTION B-B

SECTION C-C

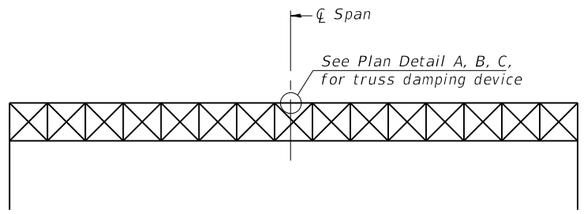


TRUSS DAMPING DEVICE CONNECTION DETAIL
(Typical)



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

OS-A-D 2-17-2017

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OVERHEAD SIGN STRUCTURE
DAMPING DEVICE
SHEET NO. 35 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	230
		CONTRACT NO. 76945		
		ILLINOIS FED. AID PROJECT		

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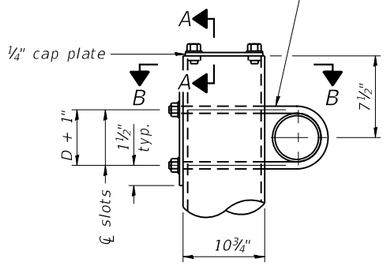
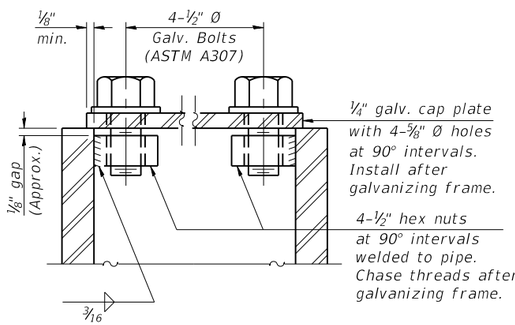
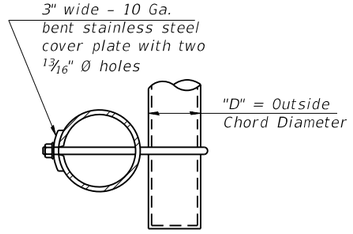


DETAIL A

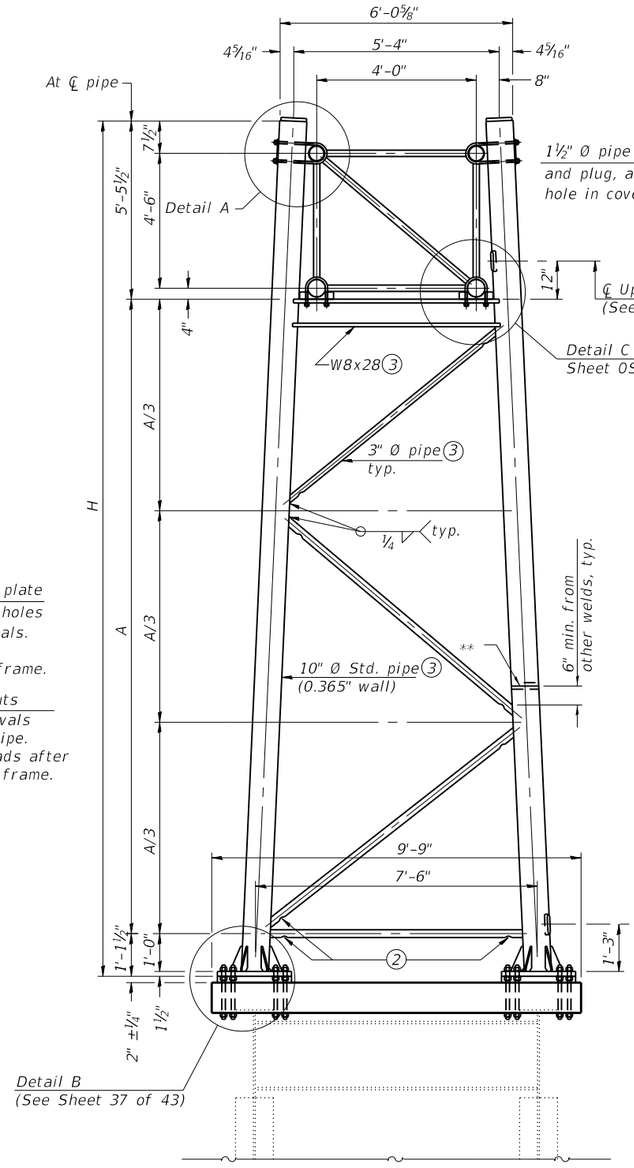


SECTION A-A

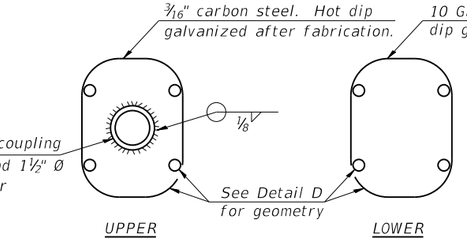
As an alternate to bolts, may use galvanized drive-fit caps installed after galvanizing frame.



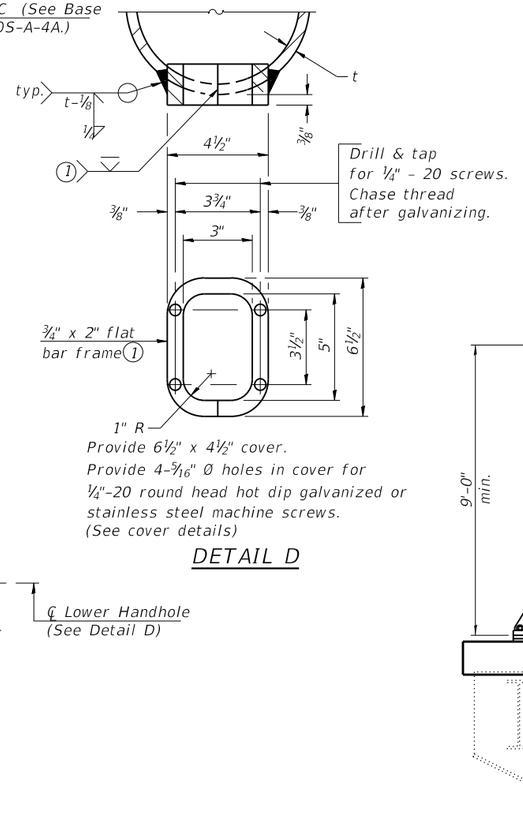
SECTION B-B



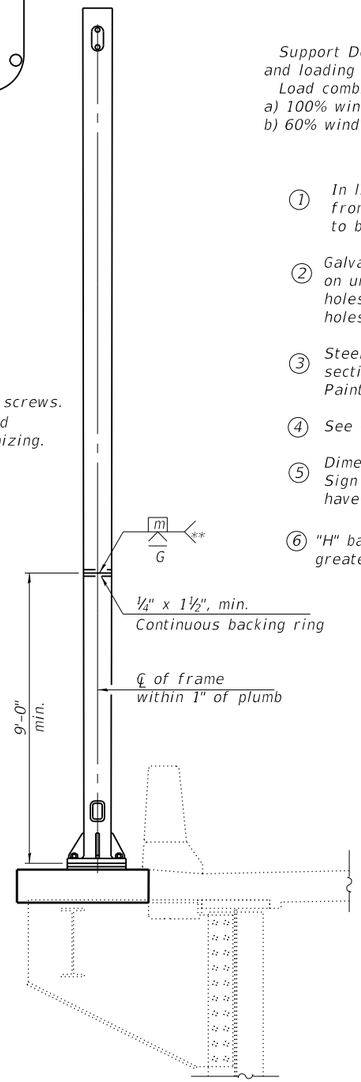
SIDE ELEVATION



HANDHOLE COVERS



DETAIL D



END ELEVATION

Support Design Loads: See Sheet 32 of 43 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.

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 Left	Support Right	H (6)	A
8S082I055R001.2	77+68	X		32.45	25.87
8S082I055R001.2	77+68		X	29.04	22.46
8S082I055R001.3	87+35	X		30.74	24.16
8S082I055R001.3	87+35		X	29.04	22.46

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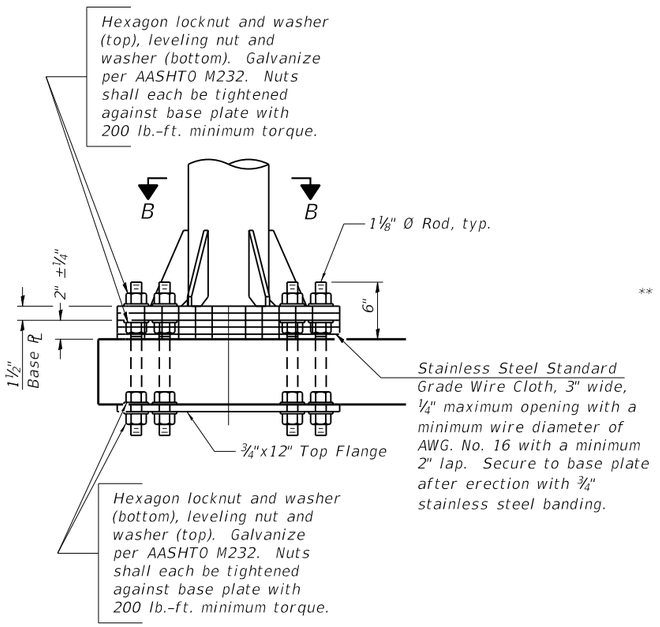
PLOT DATE = 9/28/2018 | DATE - 9/28/2018 | REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

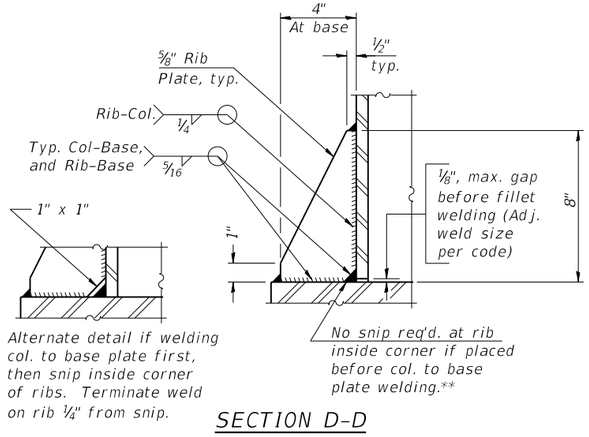
OVERHEAD SIGN STRUCTURES
SUPPORT FRAME FOR TYPE I-A ALUMINUM TRUSS
SHEET NO. 36 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	231
		CONTRACT NO. 76945		
		ILLINOIS FED. AID PROJECT		



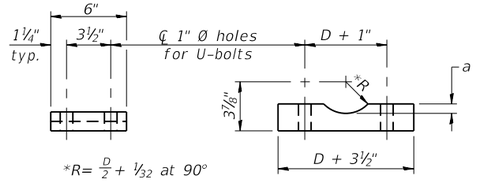
DETAIL B

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



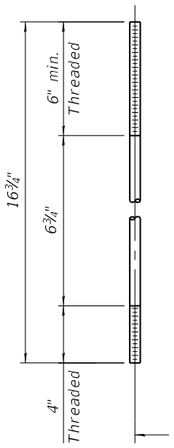
*R= $\frac{D}{2}$ + 1/32 at 90°

D = Outside Diameter of Chord.

SADDLE SHIM DETAIL

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

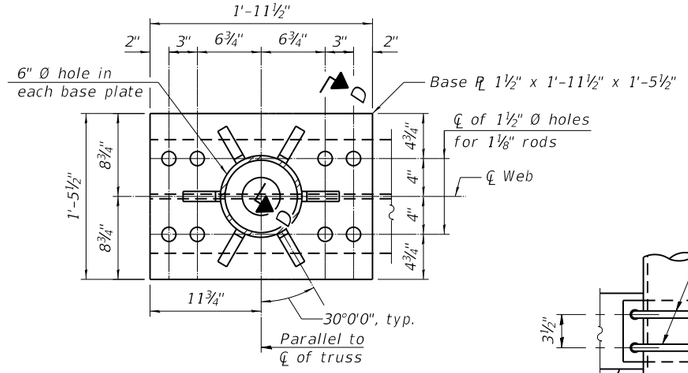
Truss Chord Nominal Dia.	a
5"	¾"
5½"	13/16"
6"	⅞"
6½"	15/16"



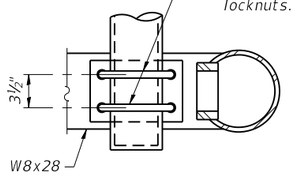
ANCHOR ROD DETAIL

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 I-A (4'-0"x4'-6")

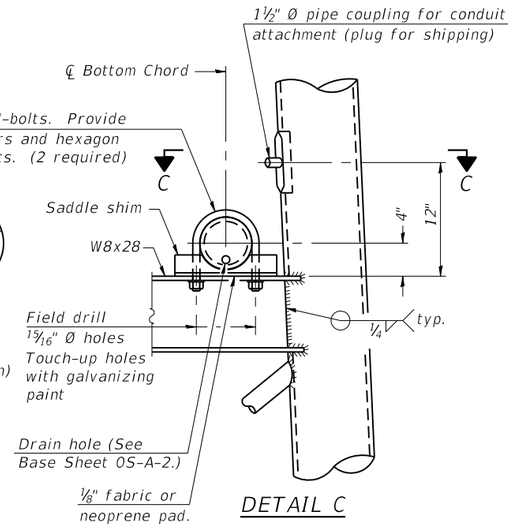


SECTION B-B



SECTION C-C

(Handhole cover not shown)



DETAIL C

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

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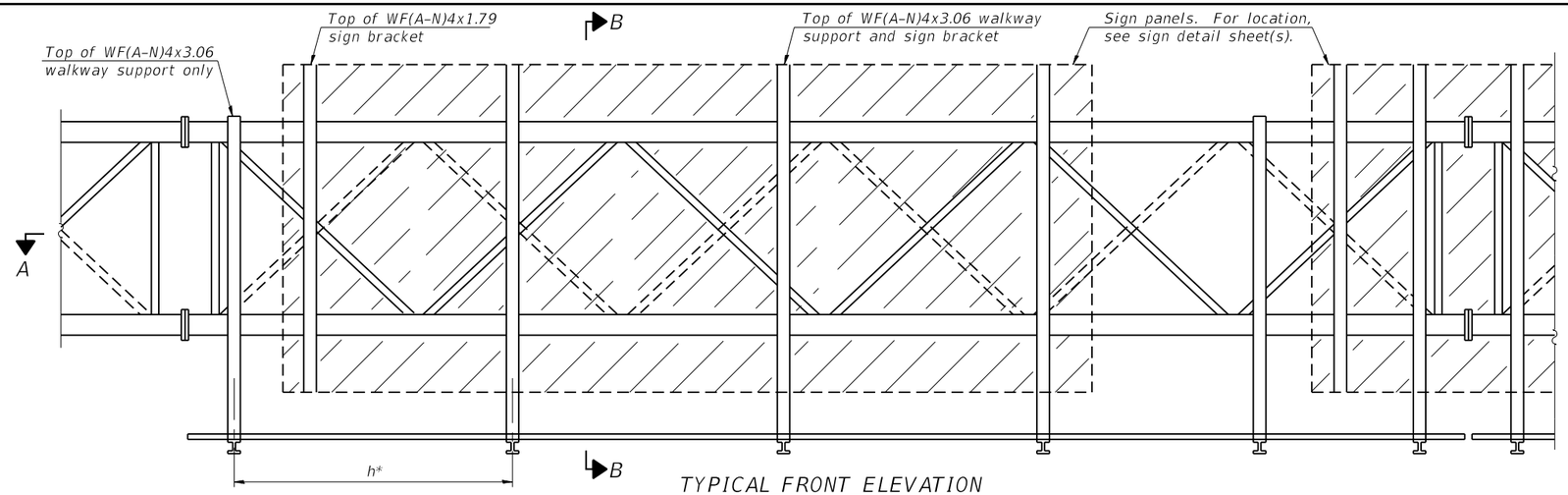
PLOT DATE = 9/28/2018	DATE - 9/28/2018	REVISED -	

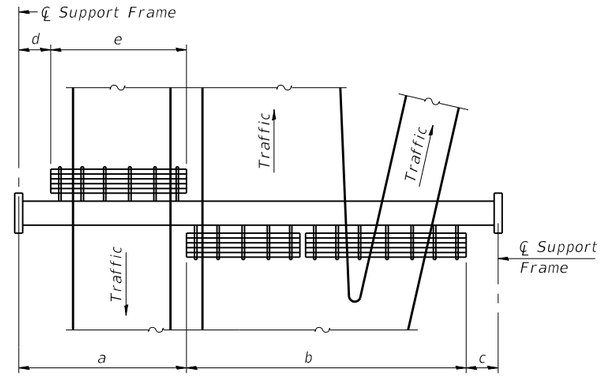
OVERHEAD SIGN STRUCTURES
SUPPORT FRAME DETAILS - ALUMINUM TRUSS
SHEET NO. 37 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	232
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



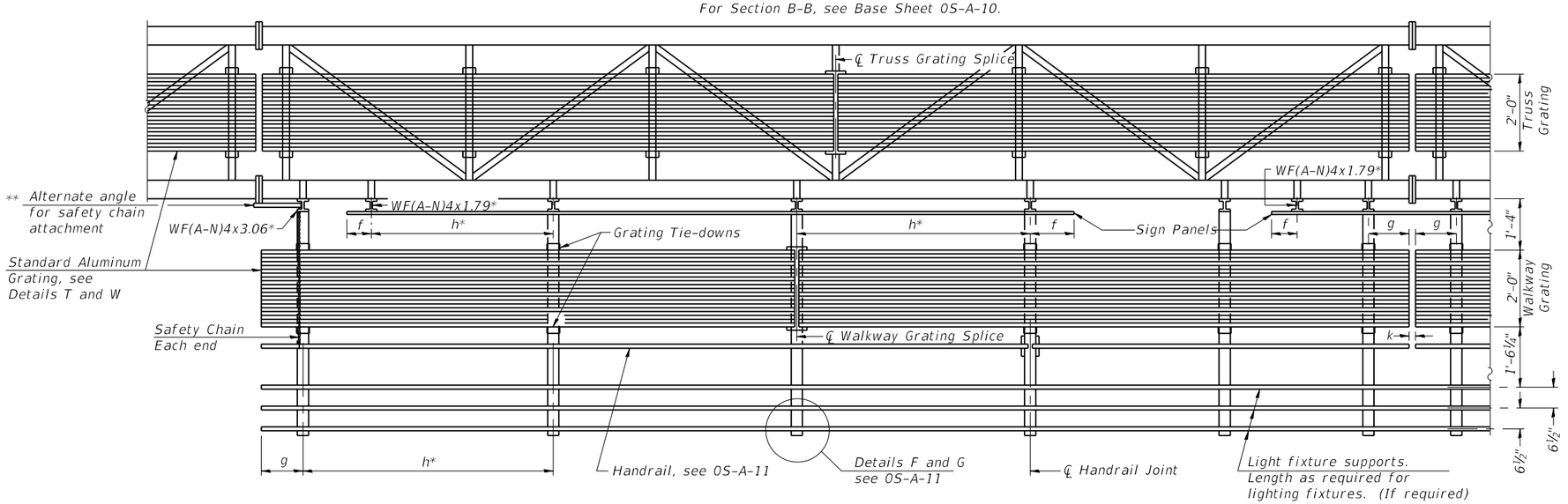
TYPICAL FRONT ELEVATION

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



PLAN
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath truss varies)



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.

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 37 of 38.

For Details T and W, Section B-B and Grating Splice Details see Sheet 36 of 38.
For Handrail Details see Sheet 37 of 38.

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
8S082I055R001.2	77+68	6'-6"	43'-6"	0'-11½"	---	---	43'-6"
8S082I055R001.3	87+35	0'-6"	64'-0"	0'-9"	---	---	64'-0"

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

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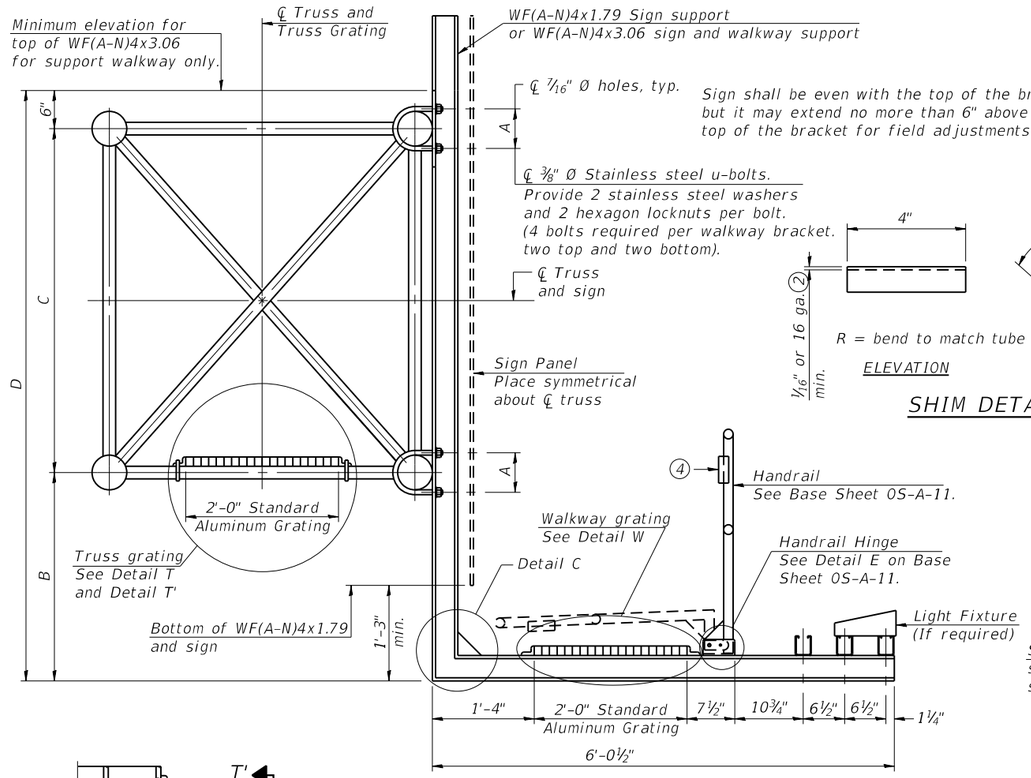
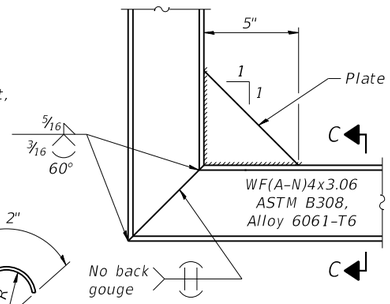
OVERHEAD SIGN STRUCTURES
ALUMINUM WALKWAY DETAILS
SHEET NO. 38 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	233
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

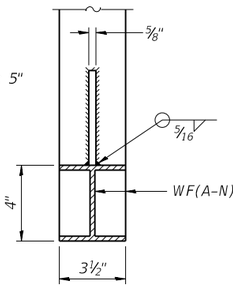


SECTION B-B

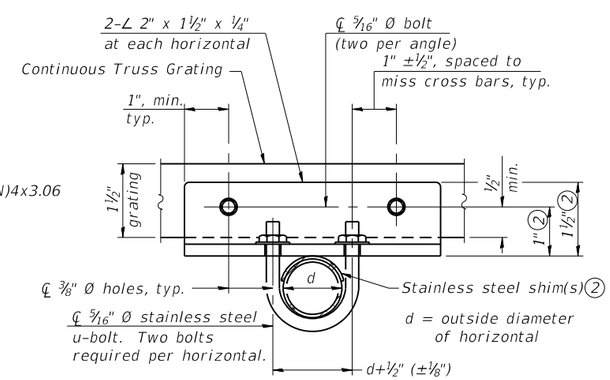
SHIM DETAIL



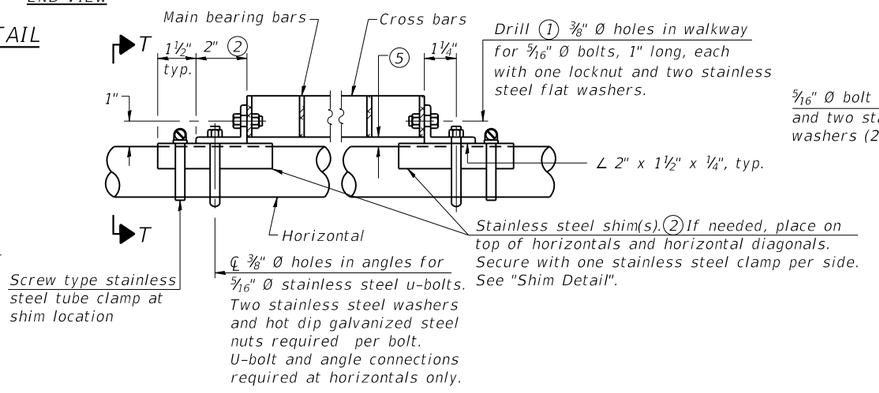
DETAIL C



SECTION C-C

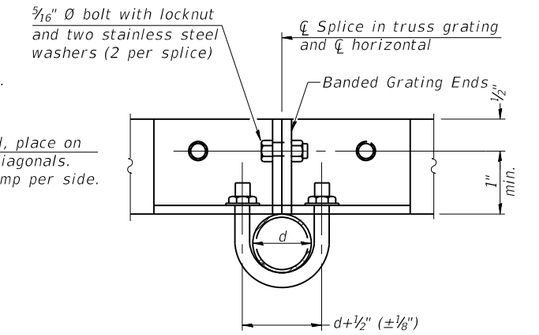


SECTION T-T

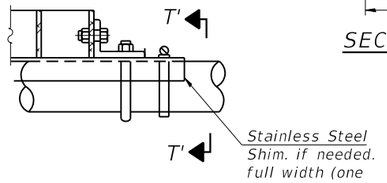


DETAIL T

(Continuous Truss grating)



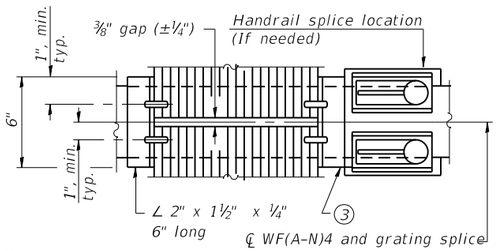
SECTION T'-T'



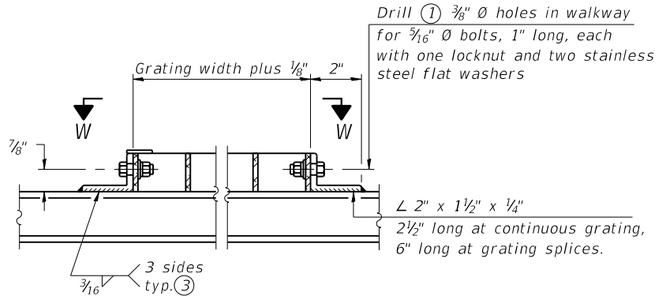
DETAIL T'

(Truss grating splice)

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

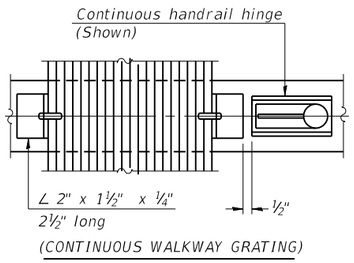


(AT WALKWAY GRATING SPLICE)



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
8S082I055R001.2	77+68	6"	6'-6"	4'-6"	11'-6"
8S082I055R001.3	87+35	6"	6'-6"	4'-6"	11'-6"

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.

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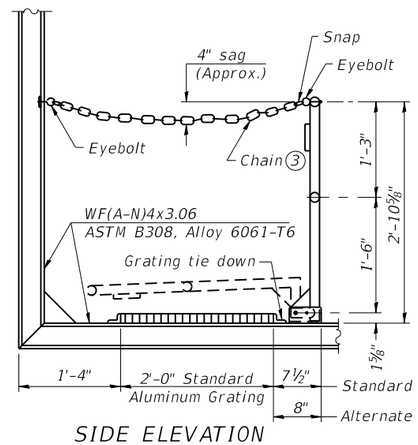
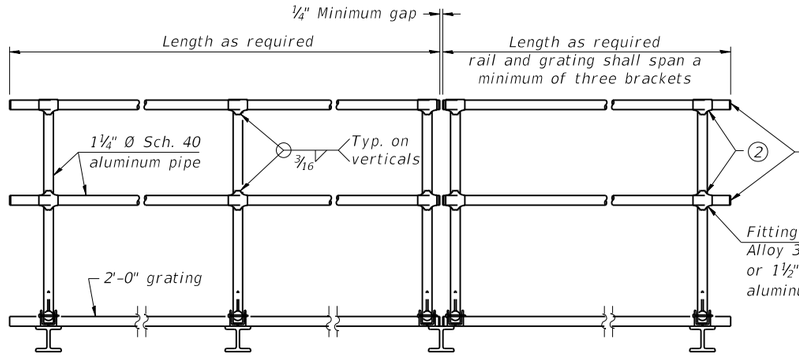
OVERHEAD SIGN STRUCTURES
ALUMINUM WALKWAY DETAILS
SHEET NO. 39 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	234
		CONTRACT NO. 76945		
	ILLINOIS	FED. AID PROJECT		



SIDE ELEVATION

(Showing safety chain w/o sign)



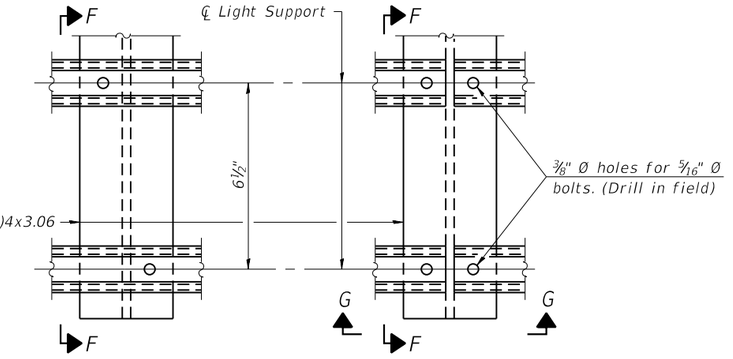
FRONT ELEVATION

HANDRAIL DETAILS

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

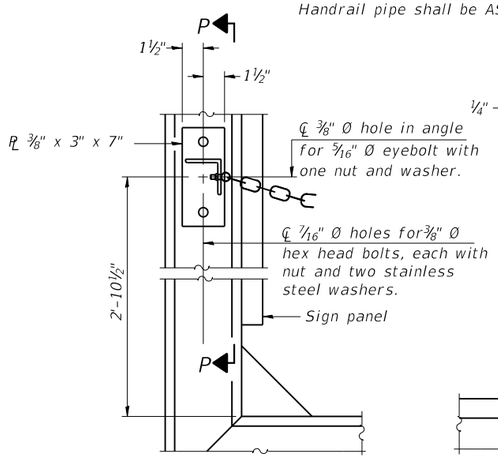
① Install standard force-fit end caps or weld ⅛" end plates with ⅛" c.f.w. and grind smooth. (All rail ends)

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

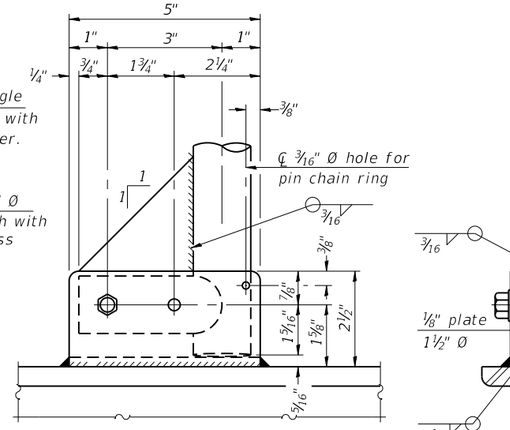
DETAIL G



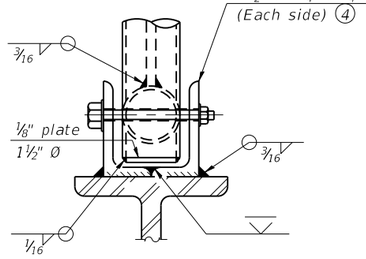
ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

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

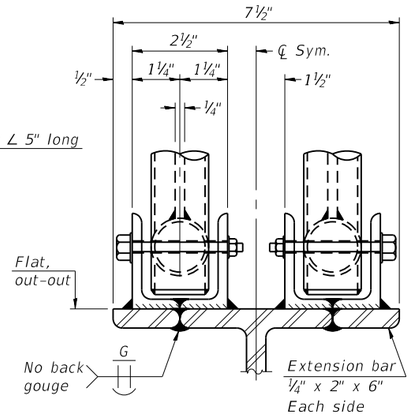


SIDE ELEVATION

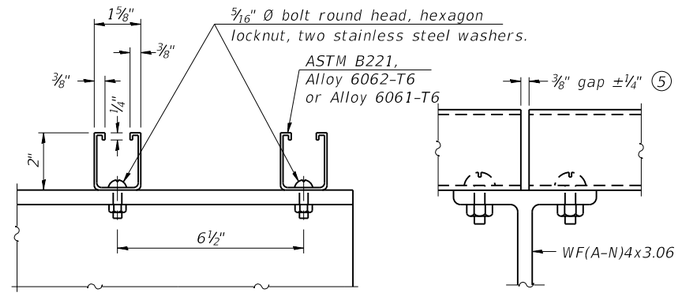


FRONT ELEVATION

See "Elevation" at right for dimensions.



ELEVATION AT HANDRAIL JOINT (4)

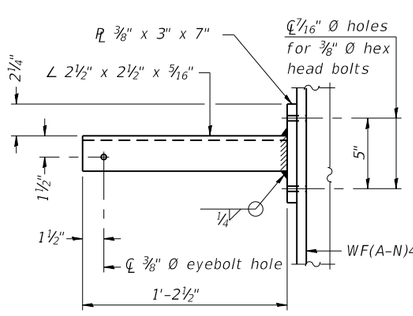


SECTION F-F

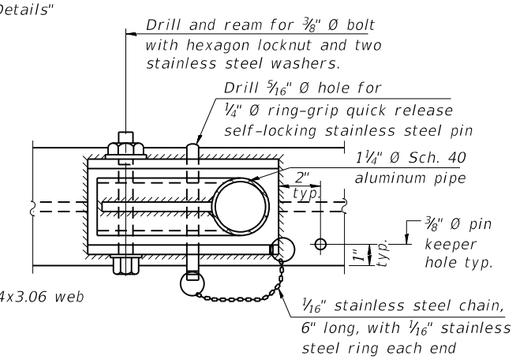
SECTION G-G

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.

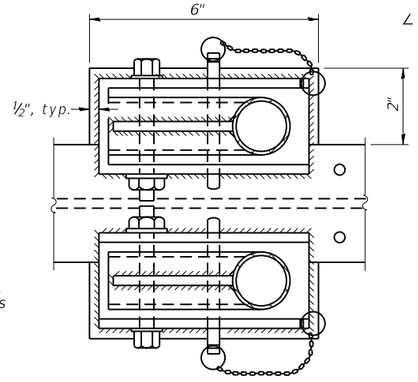


SECTION P-P



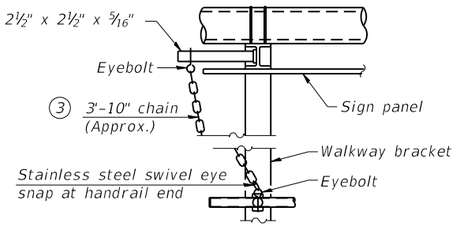
PLAN

DETAIL E HANDRAIL HINGE



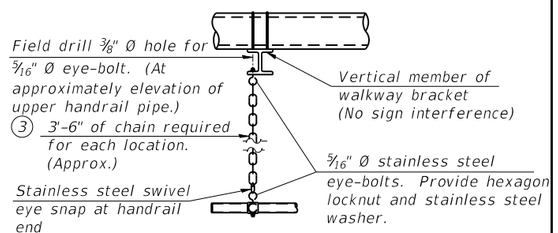
PLAN AT HANDRAIL JOINT

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.

OS-A-11 2-17-2017

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PLOT DATE = 9/28/2018	DATE - 9/28/2018	REVISED -	

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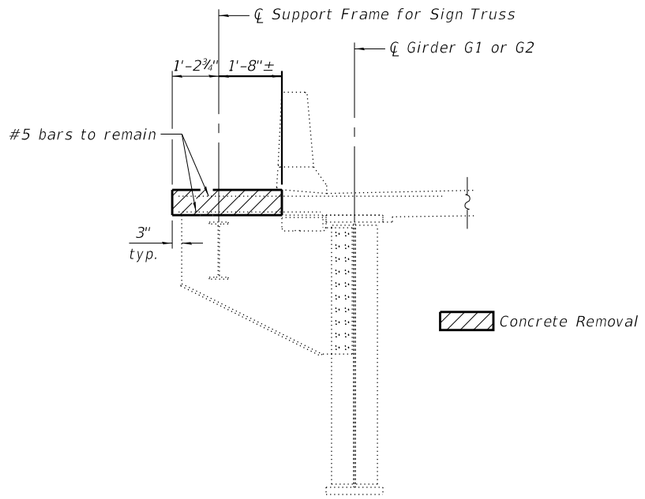
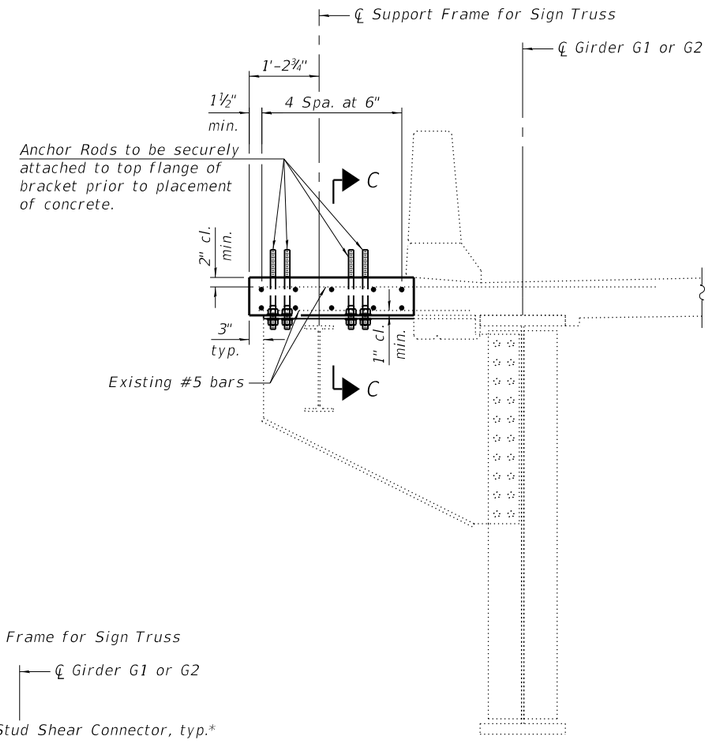
OVERHEAD SIGN STRUCTURES
ALUMINUM HANDRAIL DETAILS
SHEET NO. 40 OF 43 SHEETS

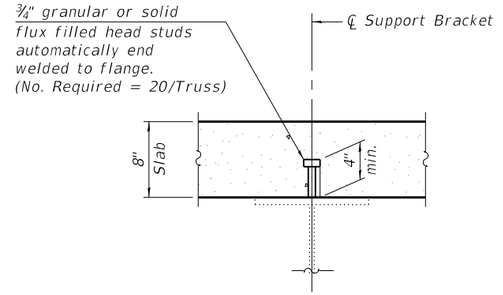
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	235
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			

PRINT DATE: 9/28/2018 9:21:54 AM Z:\15052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Sign Truss - Truss - Transystems\Ramp G dgns\0820254-76945-009-OSAll.dgn



SECTION A-A





SECTION B-B

(Stud Shear Connectors not shown for clarity)

SECTION C-C

PLAN

PLAN

* Install 5 Each ¾" Ø x 4" Stud Shear Connector along ℄ of Beam.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
b11(E)	40	#5	9'-3"	———
Reinforcement Bars, Epoxy Coated			Pound	390

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Concrete Removal	Cu. Yd.	2.7
Concrete Superstructure	Cu. Yd.	2.7
Stud Shear Connectors	Each	40

TYPICAL REMOVAL DETAILS

TYPICAL SLAB CONSTRUCTION DETAILS

Note:
#5 rebar protruding from bridge deck to remain. Clean concrete from rebar.

PRINT DATE: 9/28/2018 9:21:55 AM Z:\5052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Sign Truss - Transystems\Ramp G dgns\0820254-76945-010-DETAILS.dgn

TranSystems

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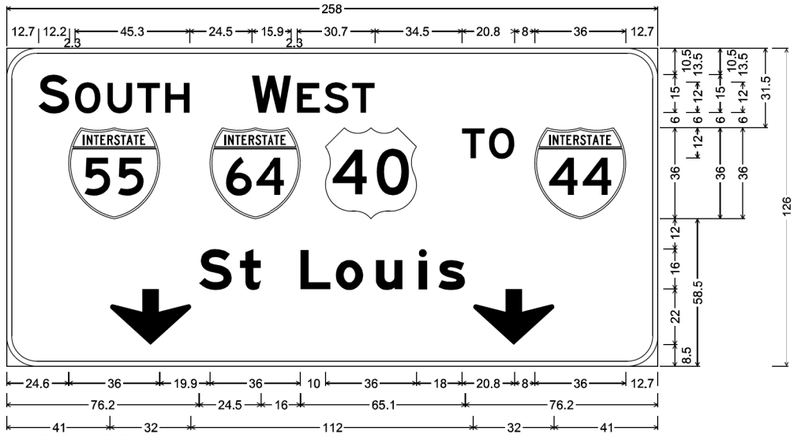
	CHECKED - JPC	REVISED -
PLOT SCALE = 0.1667 ' / in.	DRAWN - MJR	REVISED -
PLOT DATE = 9/28/2018	DATE - 9/28/2018	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
SLAB REMOVAL/REPLACEMENT DETAILS
SHEET NO. 41 OF 43 SHEETS

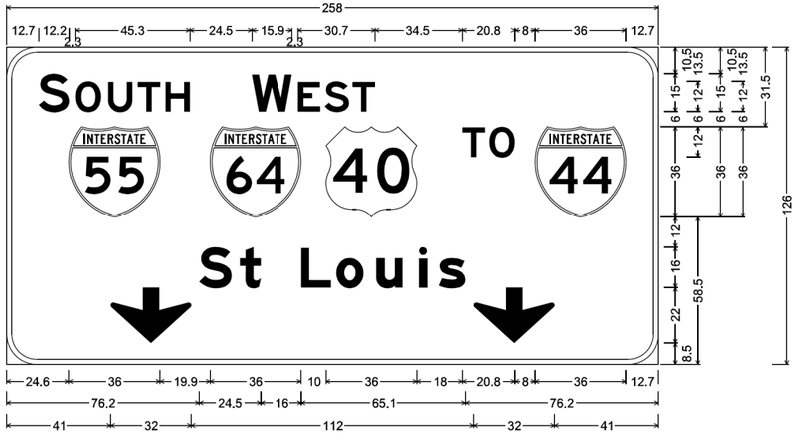
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-1-2	ST. CLAIR	238	236
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



12.0" Radius, 2.0" Border, White on Green;
[SOUTH] E 2K; [WEST] E 2K;
[TO] E 2K;
[St Louis] E Mod 2K; Down Arrow 22.0" 270°; Down Arrow 22.0" 270°;
TYPE ZZ SHEETING
Table of letter and object lefts.

S 12.7	O 27.2	U 40.0	T 51.7	H 62.8	W 97.1	E 115.3	S 125.9	T 137.0
55 24.6	80.5	64 126.5	T 180.5	O 191.2	44 209.3			
S 76.2	t 92.4	L 116.7	o 130.6	u 146.4	i 163.4	s 171.2		
41.0	185.0							

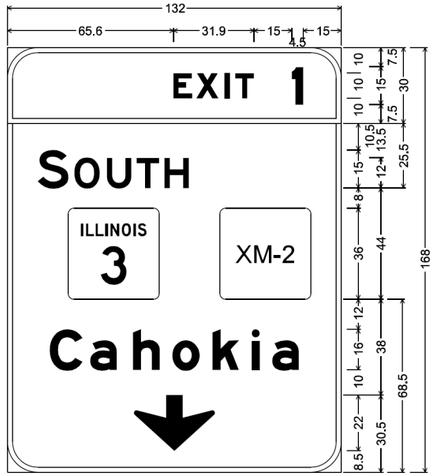
SE3



12.0" Radius, 2.0" Border, White on Green;
[SOUTH] E 2K; [WEST] E 2K;
[TO] E 2K;
[St Louis] E Mod 2K; Down Arrow 22.0" 270°; Down Arrow 22.0" 270°;
TYPE ZZ SHEETING
Table of letter and object lefts.

S 12.7	O 27.2	U 40.0	T 51.7	H 62.8	W 97.1	E 115.3	S 125.9	T 137.0
55 24.6	80.5	64 126.5	T 180.5	O 191.2	44 209.3			
S 76.2	t 92.4	L 116.7	o 130.6	u 146.4	i 163.4	s 171.2		
41.0	185.0							

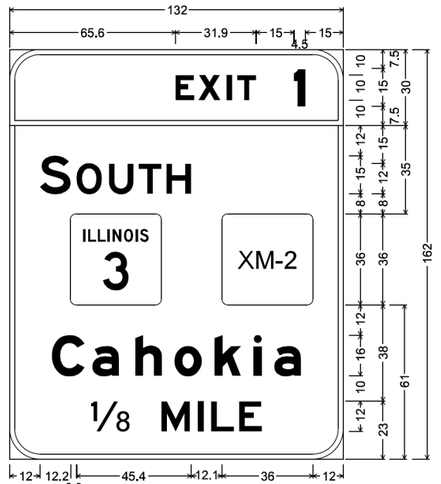
SE5



12.0" Radius, 2.0" Border, White on Green;
[EXIT] E Mod 2K 120% spacing; [1] E Mod 2K;
[SOUTH] E 2K;
[Cahokia] E Mod 2K;
Down Arrow 22.0" 270°;
TYPE ZZ SHEETING
Table of letter and object lefts.

E 65.5	X 74.7	I 85.9	T 90.1	1 112.5
S 12.0	O 26.5	U 39.3	T 51.1	H 62.1
3 24.0	□ 84.0			
C 16.7	a 32.7	h 49.7	o 65.2	k 81.0	i 96.6	a 104.7
50.0						

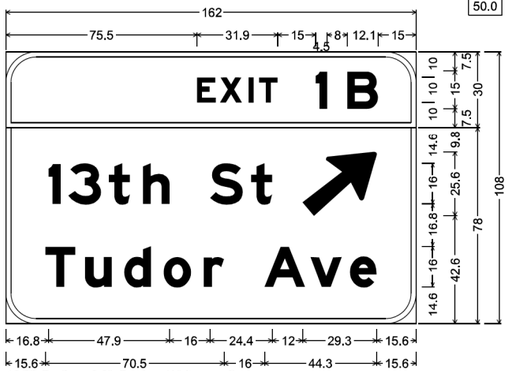
SE4



12.0" Radius, 2.0" Border, White on Green;
[EXIT] E Mod 2K 120% spacing; [1] E Mod 2K;
[SOUTH] E 2K;
[Cahokia] E Mod 2K;
[1/8 MILE] E 2K;
TYPE ZZ SHEETING
Table of letter and object lefts.

E 65.5	X 74.7	I 85.9	T 90.1	1 112.5
S 12.0	O 26.5	U 39.3	T 51.1	H 62.1
3 24.0	□ 84.0			
C 16.7	a 32.7	h 49.7	o 65.2	k 81.0	i 96.6	a 104.7
1/8 32.2	M 60.1	I 74.5	L 79.8	E 90.8		

SE6



12.0" Radius, 2.0" Border, White on Green;
[EXIT] E Mod 2K 120% spacing; [1] E Mod 2K; [B] E Mod 2K;
[13th St] E Mod 2K; Arrow 160 - 35.0" 40°;
[Tudor Ave] E Mod 2K;
TYPE ZZ SHEETING
Table of letter and object lefts.

E 75.5	X 84.6	I 95.8	T 99.9	1 122.3	B 134.9	
1 16.8	3 24.7	t 40.7	h 54.1	S 80.7	t 96.8	117.1
T 15.6	u 31.2	d 46.8	o 62.3	r 78.1	A 102.1	v 120.4	e 135.9

SE7

TranSystems

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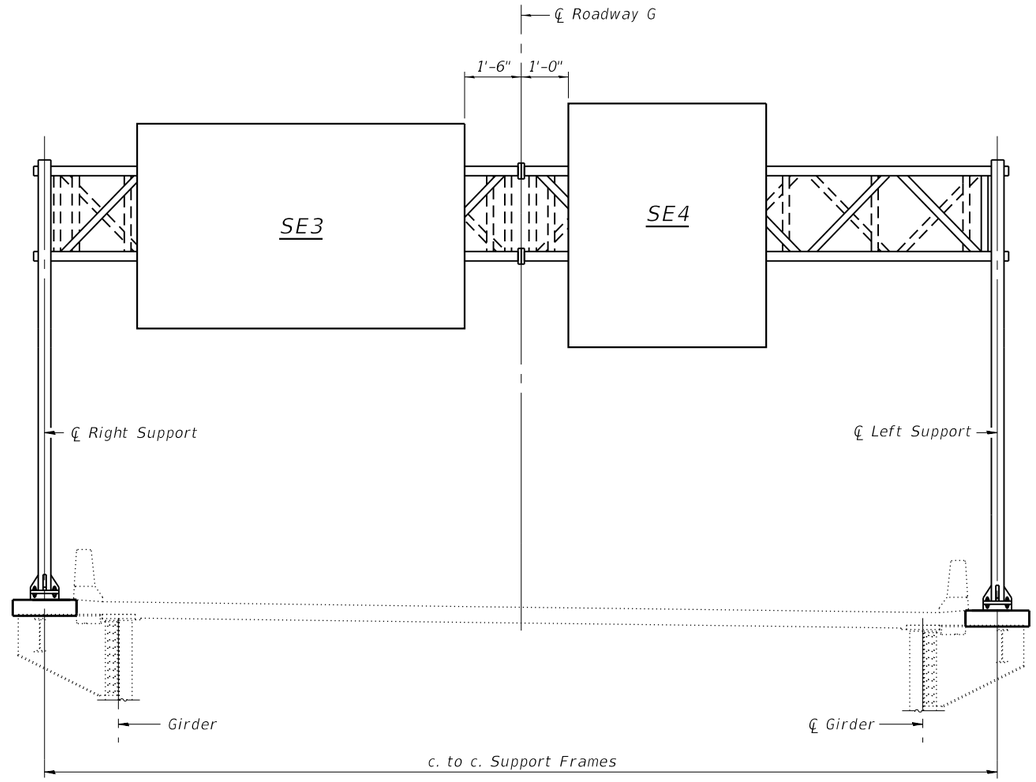
	CHECKED - JPC	REVISED -	
PLOT SCALE = 0:2.0000 ':' / in.	DRAWN - MJR	REVISED -	
PLOT DATE = 9/28/2018	DATE - 9/28/2018	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

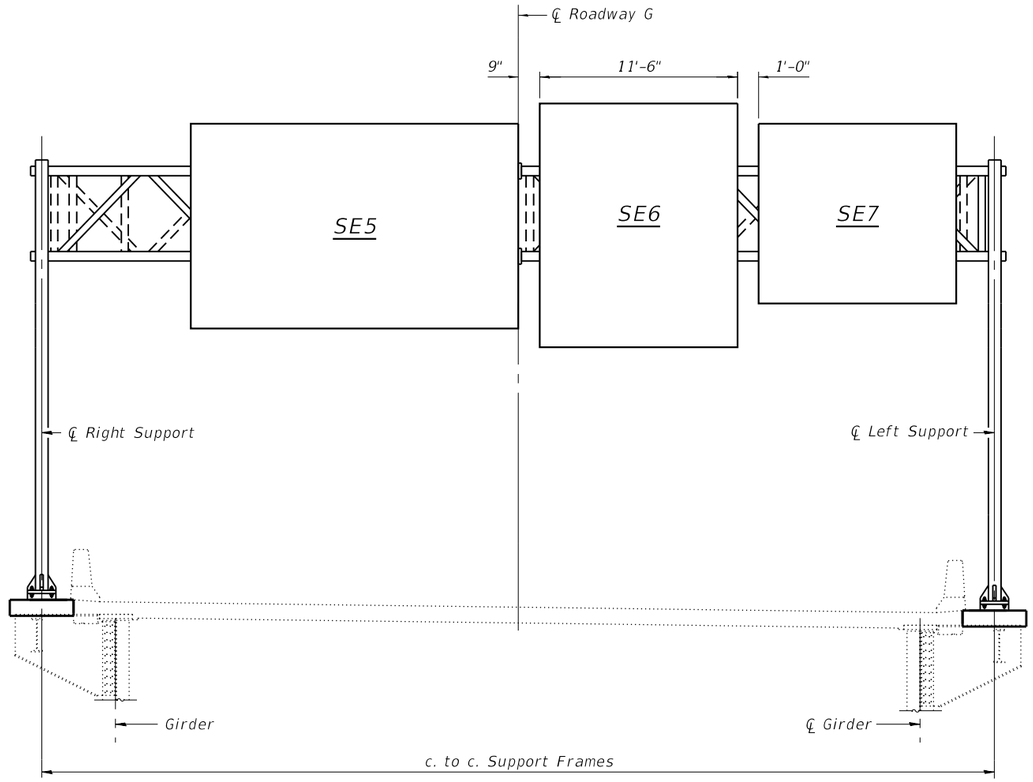
OVERHEAD SIGN STRUCTURES
SPECIAL SIGN DETAILS
SHEET NO. 42 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	237
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			



ELEVATION - G3

(Looking at Face of Signs)
(Station 77+68)



ELEVATION - G13

(Looking at Face of Signs)
(Station 87+35)

PRINT DATE: 9/28/2018 9:22:09 AM Z:\15052 Poplar Street Complex\DGN\Bridge\final\Plotsheets\Sign Truss - Transystems\Ramp G dgns\0820254-76945-012-LOCI.dgn

TranSystems

USER NAME = acb	DESIGNED - FAS	REVISED -
	CHECKED - JPC	REVISED -
PLOT SCALE = 0:2.0000 ':' / in.	DRAWN - MJR	REVISED -
PLOT DATE = 9/28/2018	DATE - 9/28/2018	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
LOCATION OF SIGNS ON OVERHEAD TRUSS

SHEET NO. 43 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55/64	82-3HVB-2R-(2,1)-I-2	ST. CLAIR	238	238
		CONTRACT NO. 76945		
	ILLINOIS FED. AID PROJECT			