03-11-11 LETTING ITEM 001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FAI ROUTE 74
D-5 OVD SIN STR REPL 2011-17
Vermilion County
Sheet 1 of 39
Contract Number 46140

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

FAI ROUTE 74
D-5 OVD SIN STR REPL 2011-17
VERMILION COUNTY
C-60-017-11

INDEX OF SHEETS

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Nov. 9 20 10
PASSED
ENGINEER OF OPERATIONS
February 4 20 11
acting Scott E. Stitt, P.E. /s
ENGINEER OF DESIGN AND ENVIRONMENT
APPROVED February 4 20 11
Christine M. Reed /s
DIRECTOR DIVISION OF HIGHWAYS

JOINT UTILITY LOCATING INFORMATION FOR EXCAVATIONS PHONE: 800-892-0123

CONTRACT NO. 46140

SUMMARY OF QUANTITIES

CODE NUMBER	PAY ITEM	UNIT	100% STATE TOTAL QUANTITY		RURAL 0040
63200310	GUARDRAIL REMOVAL	FOOT	116.00		116.00
67100100	MOBILIZATION	L SUM	1.00		1.00
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	3.00		3.00
72000300	SIGN PANEL - TYPE 3	SQFT	1140.50		1140.50
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	841.50		841.50
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	2666.00		2666.00
73300100	OVERHEAD SIGN STRUCTURE - SPAN, TYPE I-A (4'-0" X 4'-6")	FOOT	70.00		70.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	84.00		84.00
73400100	CONCRETE FOUNDATIONS	CUYD	6.70		6.70
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	48.50		48.50
73600100	REMOVE OVERHEAD SIGN STRUCTURE - SPAN	EACH	1.00		1.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	4.00		4.00
73700300	REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	6.00		6.00
73800100	STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE - SPAN	EACH	2.00		2.00
81603035	UNIT DUCT, 600V, 2-1C NO.6, 1/C NO.6 (GROUND, (XLP-TYPE USE), 1" DIA. POLYETHYLENE	FOOT	240.00		240.00
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	L SUM	1.00		1.00
70100825	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	L SUM	1.00		1.00
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	1.00		1.00
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	43.00		43.00
73301810	OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	FOOT	40.00		40.00
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	72.00		72.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	4.00		4.00

•D-5 OVD SIN STR REPL 2011-17

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		DRAWN -	REVISED -
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	PLOT DATE = 10/28/2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	2
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			

SCHEDULE OF QUANTITIES

CODE NUMBER	PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	5-01 5S092 I074 R213.03	5-02 5C092 I074 R214.21	5-03 5C092 I074 L214.50	5-04 5C092 I074 R215.85	5-05 5C092 I074 R022.24	5-06 Grnd Mnt S. leg Lynch Rd. & I-74
				VERMILION COUNTY - I-74					
63200310	GUARDRAIL REMOVAL	FOOT	116.00	-	-	-	-	116.00	-
67100100	MOBILIZATION	L SUM	1.00	0.20	0.20	0.20	0.20	0.10	0.10
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	3.00	-	1.00	1.00	1.00	-	-
72000300	SIGN PANEL - TYPE 3	SQFT	1140.50	358.50	161.50	145.00	178.50	148.50	148.50
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	841.50	287.00	118.00	116.00	161.25	159.25	-
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	2666.00	-	-	-	-	1196.00	1470.00
73300100	OVERHEAD SIGN STRUCTURE - SPAN, TYPE I-A (4'-0" X 4'-6")	FOOT	70.00	70.00	-	-	-	-	-
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	84.00	-	28.00	28.00	28.00	-	-
73400100	CONCRETE FOUNDATIONS	CUYD	6.70	-	-	-	-	2.82	3.80
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	48.50	21.50	9.00	9.00	9.00	-	-
73600100	REMOVE OVERHEAD SIGN STRUCTURE - SPAN	EACH	1.00	1.00	-	-	-	-	-
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	4.00	-	1.00	1.00	1.00	1.00	-
73700300	REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	6.00	2.00	1.00	1.00	1.00	1.00	-
73800100	STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE - SPAN	EACH	2.00	2.00	-	-	-	-	-
81603035	UNIT DUCT, 600V, 2-1C NO.6, 1/C NO.6 GRND, (XLP-TYPE USE), 1" DIA. POLY	FOOT	240.00	-	-	-	240.00	-	-
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	L SUM	1.00	0.50	-	-	0.50	-	-
70100825	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	L SUM	1.00	-	0.50	0.50	-	-	-
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	1.00	-	-	-	-	1.00	-
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	43.00	14.00	5.00	5.00	14.00	5.00	-
X7330105	OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	FOOT	40.00	40.00	-	-	-	-	-
X7330110	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	72.00	-	24.00	24.00	24.00	-	-
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	4.00	-	1.00	1.00	1.00	1.00	-

•D-5 OVD SIN STR REPL 2011-17

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	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/28/2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	3
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

SCHEDULE OF QUANTITIES
INDIVIDUAL TRUSS LOCATIONS

Location No.	5-01		
Structure No.	5 S 092 I074 R213.03		
County / Route	VERMILION CO. - I-74 EB - 0.5 mi. West of G-Street in Tilton		
Scope of Work	This overhead sign structure is being replaced on new drilled shaft foundations.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
72000300	SIGN PANEL - TYPE 3	SQFT	358.50
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	287.00
73300100	OVERHEAD SIGN STRUCTURE - SPAN, TYPE I-A (4'-0" X 4'-6")	FOOT	70.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	21.50
73600100	REMOVE OVERHEAD SIGN STRUCTURE - SPAN	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	2.00
73800100	STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE - SPAN	EACH	2.00
X7012615	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	EACH	1.00
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	14.00
X7330105	OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	FOOT	40.00
There is no electrical service or lighting at this sign structure.			
Pay Item for Changeable Message Signs is for the advanced interstate notice only. CMS shown on Standards are included in the cost of the Std.			

Location No.	5-02		
Structure No.	5 C 092 I074 R214.21		
County / Route	VERMILION CO. - I-74 EB - at Exit Ramp for IL 1 Southbound		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
72000300	SIGN PANEL - TYPE 3	SQFT	161.50
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	118.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	28.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	9.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	1.00
X7012617	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	EACH	1.00
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	5.00
X7330110	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	24.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	1.00

Location No.	5-03		
Structure No.	5 C 092 I074 L214.50		
County / Route	VERMILION CO. - I-74 WB - at Exit Ramp for IL 1 Northbound		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
72000300	SIGN PANEL - TYPE 3	SQFT	145.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	116.00
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	28.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	9.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	1.00
X7012617	TRAFFIC CONTROL AND PROTECTION, STANDARD 701456	EACH	1.00
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	5.00
X7330110	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	24.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	1.00

Location No.	5-04		
Structure No.	5 C 092 I074 R215.65		
County / Route	VERMILION CO. - I-74 EB - at Bowman Ave / Perrysville Rd		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
72000300	SIGN PANEL - TYPE 3	SQFT	178.50
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	161.25
73302170	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE II-C-A (36" X 5'-6")	FOOT	28.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	9.00
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	1.00
81603035	UNIT DUCT, 600V, 2-1C NO.6, 1/C NO.6 GRND, (XLP-TYPE USE), 1" DIA. POLY	FOOT	240.00
X7012615	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406	EACH	1.00
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	14.00
X7330110	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	24.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	1.00
Pay Item for Changeable Message Signs is for the advanced interstate notice only. CMS shown on Standards are included in the cost of the Std.			

*D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/26/2010	CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES
INDIVIDUAL TRUSS LOCATIONS

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	4
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

SCHEDULE OF QUANTITIES
INDIVIDUAL TRUSS LOCATIONS

Location No.	5-05		
Structure No.	5 C 092 I074 R022.24		
County / Route	VERMILION CO. - Exit 220 - Lynch Rd. Southbound - just North of I-74		
Scope of Work	This overhead cantilever is to be removed and & replaced with a breakaway ground mount.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
63200310	GUARDRAIL REMOVAL	FOOT	116.00
72000300	SIGN PANEL - TYPE 3	SQFT	148.50
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	159.25
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	1196.00
73400100	CONCRETE FOUNDATIONS	CUYD	2.82
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION OVERHEAD	EACH	1.00
X7012620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	EACH	1.00
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	5.00
X8040310	ELECTRICAL SERVICE DISCONNECT	EACH	1.00

Location No.	5-06		
Structure No.	No Exisitng Structure		
County / Route	VERMILION CO. - Exit 220 - Lynch Rd. Northbound - just South of I-74		
Scope of Work	A breakaway ground mount shall be installed on Lynch Rd. at Sta. 1362+73		
	for NB drivers. (Sta. 1362+73 is near the beginning of the I-74 EB turn lane taper)		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
72000300	SIGN PANEL - TYPE 3	SQFT	148.50
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	1470.00
73400100	CONCRETE FOUNDATIONS	CUYD	3.80

X8040310 - ELECTRIC SERVICE DISCONNECT

LOCATION NO.	STRUCTURE NO.	UNIT	QUANTITY	DESCRIPTION
5-01	5 S 092 I074 R213.03	EACH	0.0	There is no Electrical Service or Lighting at this Sign Structure
5-02	5 C 092 I074 R214.21	EACH	1.0	Truss lighting # 66/602 is end of run stubbed from nearby light pole # 66/103. Disconnect electrical connection per "ELECTRIC SERVICE DISCONNECT". Unit Duct between light poles # 66/104 and # 66/103 must be located prior to construction. Contractor shall use caution during drilled shaft construction and foundation removal.
5-03	5 C 092 I074 L214.50	EACH	1.0	Truss lighting # 65/602 is end of run stubbed from nearby light pole # 65/104. Disconnect electrical connection per "ELECTRIC SERVICE DISCONNECT". Unit Duct between light poles # 65/104 and # 65/103 must be located prior to construction. Contractor shall use caution during drilled shaft construction and foundation removal.
5-04	5 C 092 I074 R215.65	EACH	1.0	Truss lighting # 67/601 is wired in series between light pole # 67/105 and the junction box on the SE corner of the bridge. Disconnect electrical connection at the light pole, the truss, and the junction box. 240' of new Unit Duct (UD 2#6 #6G XLPUSE 1") will be paid for between #67/105 and the junction box on the SE corner of the bridge to maintain the lighting circuit.
5-05	5 C 092 I074 R022.24	EACH	1.0	Truss lighting # 68/601 is end of run stubbed from nearby light pole # 68/102. Disconnect electrical connection per "ELECTRIC SERVICE DISCONNECT". Unit Duct between light poles # 68/102 and # 68/103 must be located prior to construction of the drilled shafts for the breakaway ground mount. Contractor shall use caution during drilled shaft construction and foundation removal.

The information provided in this chart is the best guess based on "As-Built" plans and by looking in each foundation for the number of unit ducts.
Contractor shall verify the existing path of the electrical circuit and adjust work as needed. The pay items X8040310 ELECTRICAL SERVICE DISCONNECT and 81603035 UD 2#6 #6G XLPUSE 1" shall cover all work needed to comply with "ELECTRICAL SERVICE DISCONNECT".

*D-5 OVD SIN STR REPL 2011-17

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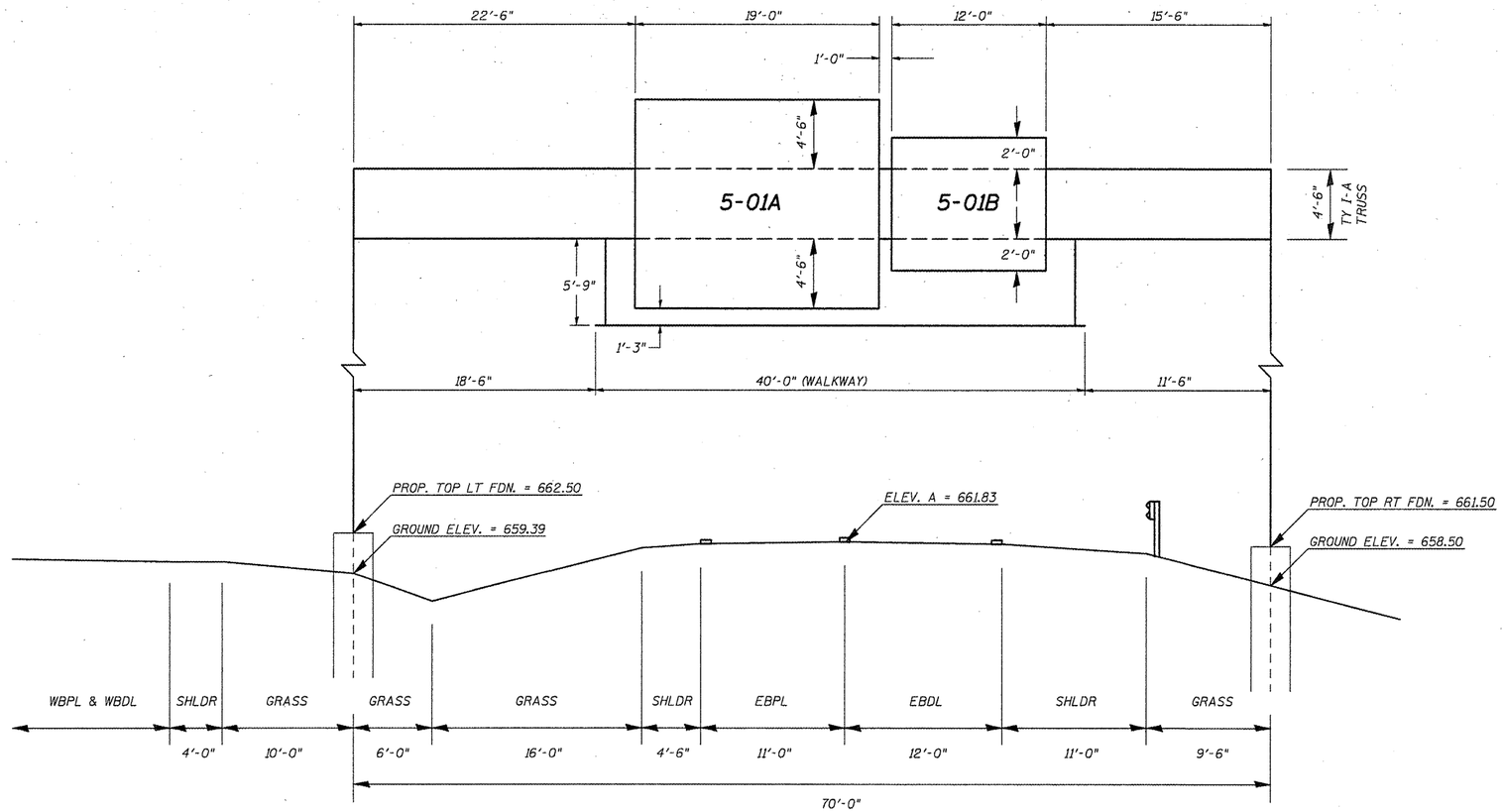
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES
INDIVIDUAL TRUSS LOCATIONS

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	5
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			

SIGN TRUSS MOUNTING DETAIL
5 S 092 1074 R213.03



TEMP. BENCHMARK = CHIS. SQUARE ON CENTER OF SOUTH (RT) FDN. = 659.73 (FROM 1972 PLANS)

DRAWING NOT TO SCALE

*D-5 OVD SIN STR REPL 2011-17

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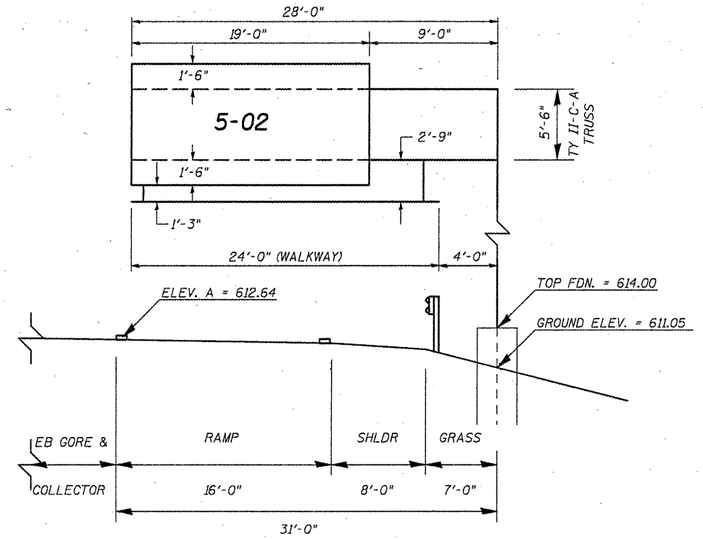
		DRAWN - BBP	REVISED -				74	*	VERMILION	39	6
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -						CONTRACT NO. 46140		
	PLOT DATE = 10/28/2010	DATE - 09/23/10	REVISED -		SCALE:	SHEET NO. OF SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		

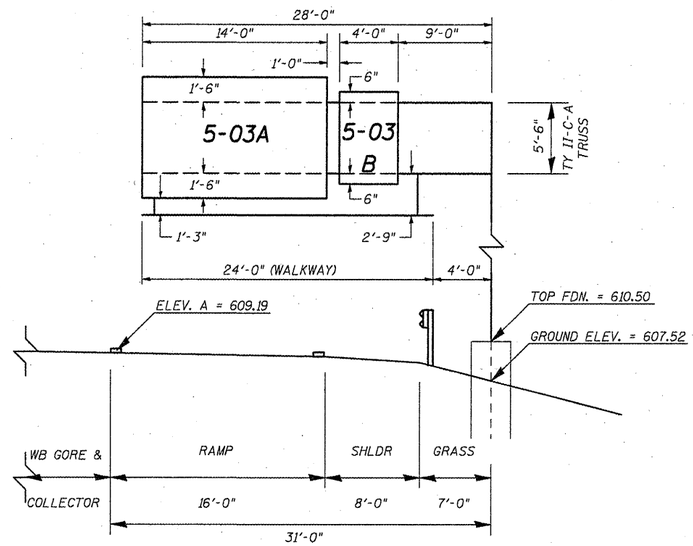
SIGN TRUSS MOUNTING DETAIL
5 C 092 I074 R214.21



TEMP. BENCHMARK = CHIS. " X " ON NE ANCHOR BOLT = 615.24 (FROM 1972 PLANS)

DRAWING NOT TO SCALE

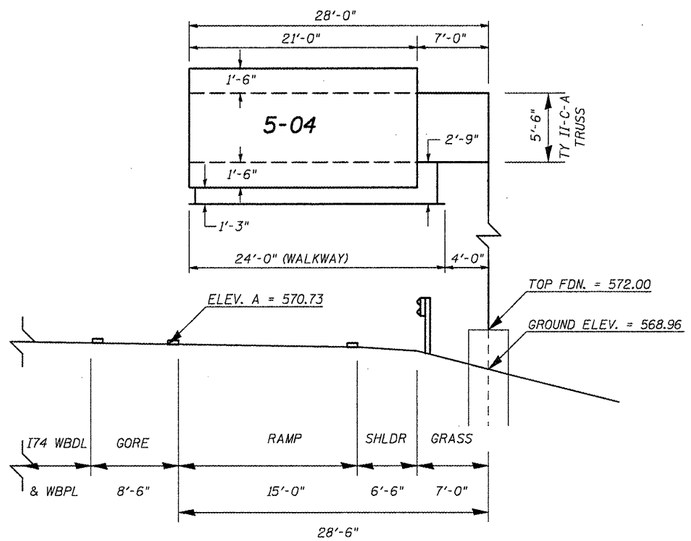
SIGN TRUSS MOUNTING DETAIL
5 C 092 I074 L214.50



TEMP. BENCHMARK = CHIS. " X " ON SW ANCHOR BOLT = 611.66 (FROM 1972 PLANS)

DRAWING NOT TO SCALE

SIGN TRUSS MOUNTING DETAIL
5 C 092 I074 R215.65



TEMP. BENCHMARK = CHIS. SQUARE ON NE CORNER OF EXISTING FDN. = 569.96 (FROM 1991 PLANS)

DRAWING NOT TO SCALE

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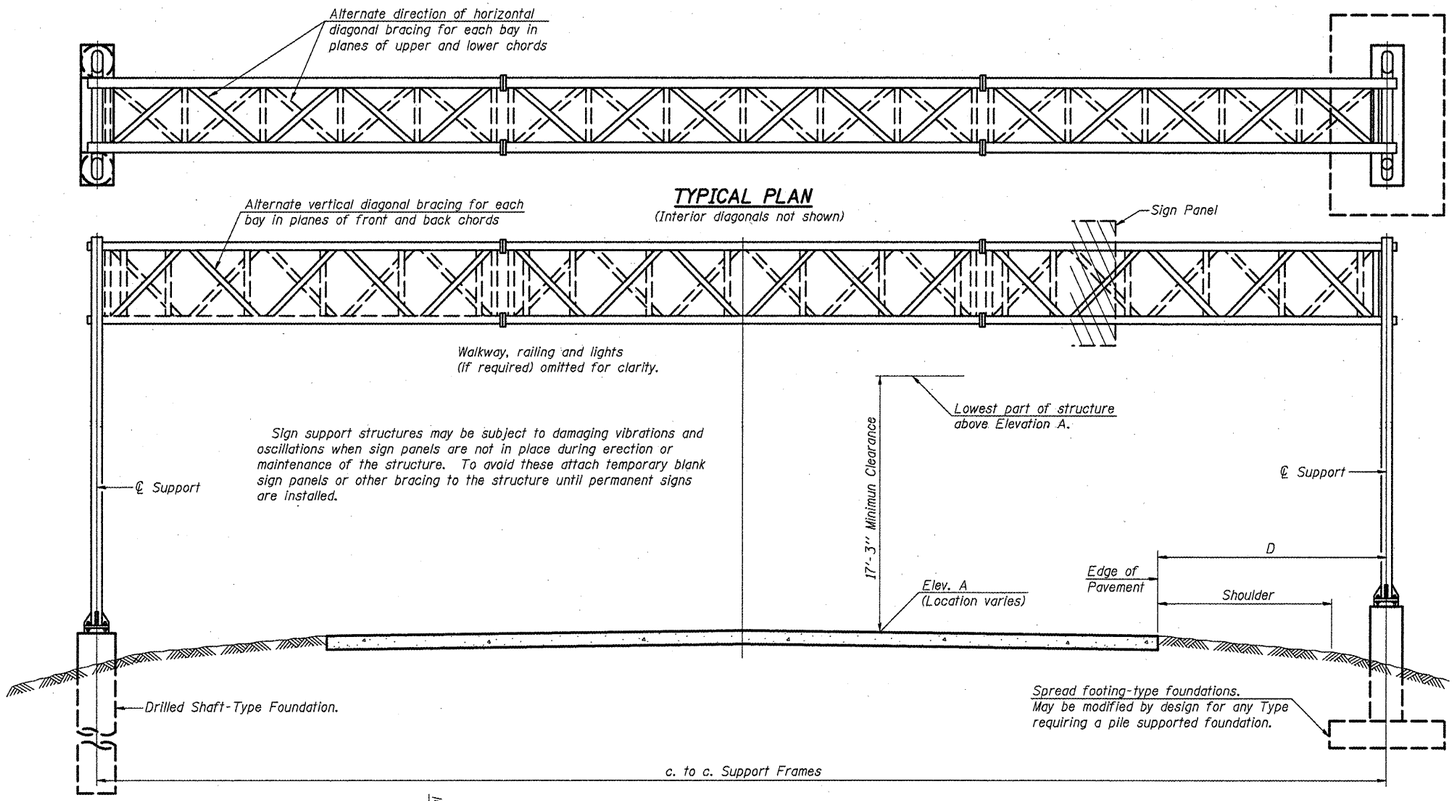
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIGN TRUSS MOUNTING DETAIL

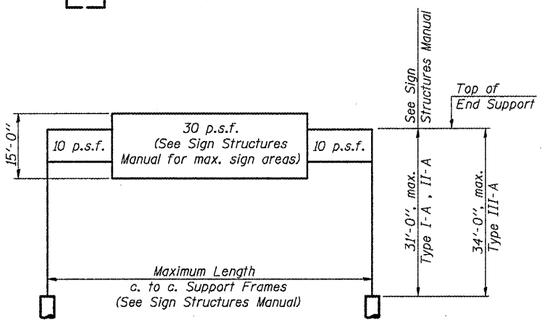
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	7
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			



TYPICAL PLAN

(Interior diagonals not shown)



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.

TYPICAL ELEVATION

(Looking at Face of Signs**)

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

Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign ****	Total Sign Area
5 S 092 1074 R213.03	1860+02	I-A	70'-0"	661.83	***	13'-6"	358.5

*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.

**Looking upstation for structures with signs both sides.

***See sign truss mounting details

****End support height based on 15'-0" sign height or tallest sign which ever is greater per OS-A-6.

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.

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 AASHTO M314 Gr. 36, 55 or 105 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F.

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

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

FOUNDATIONS: The contract unit price for Concrete Foundations and Drilled Shaft Concrete Foundations shall include reinforcement bars complete in place.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE SPAN TYPE I-A	Foot	70.0
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	40.0
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	21.5

*D-5 OVD SIN STR REPL 2011-17

OS-A-1 7-1-10

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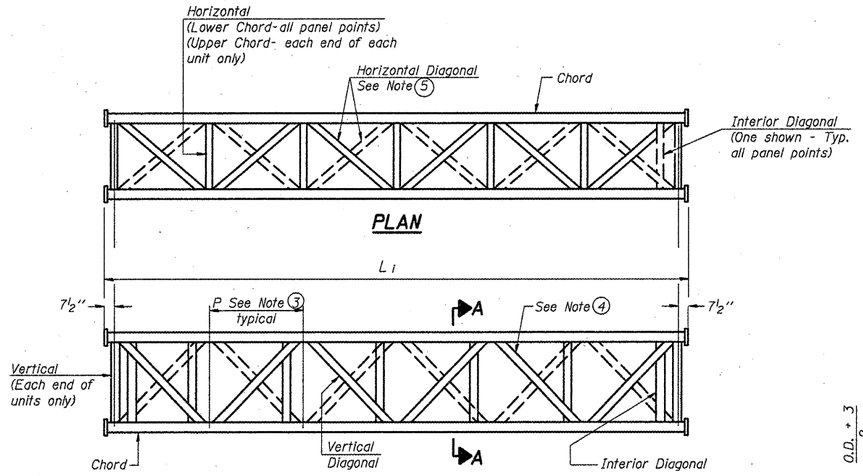
	PLOT DATE = 10/28/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

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

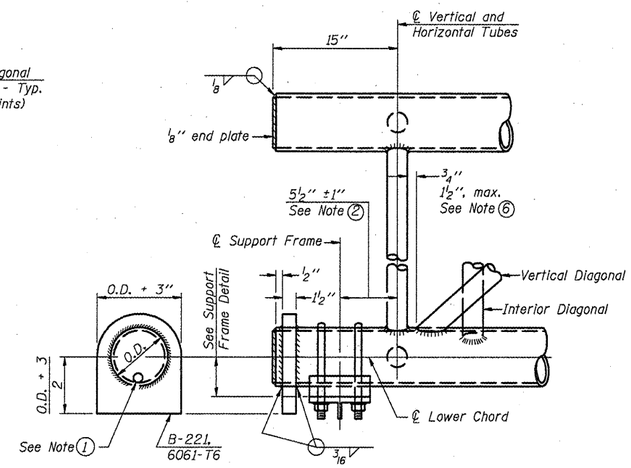
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	8
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

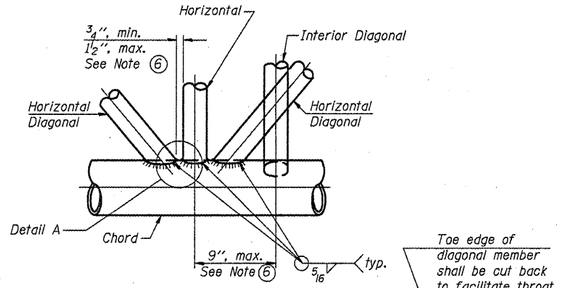


ELEVATION
TYPICAL INTERIOR UNIT

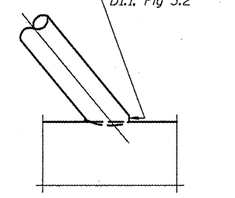
Even number of panels/interior unit required.



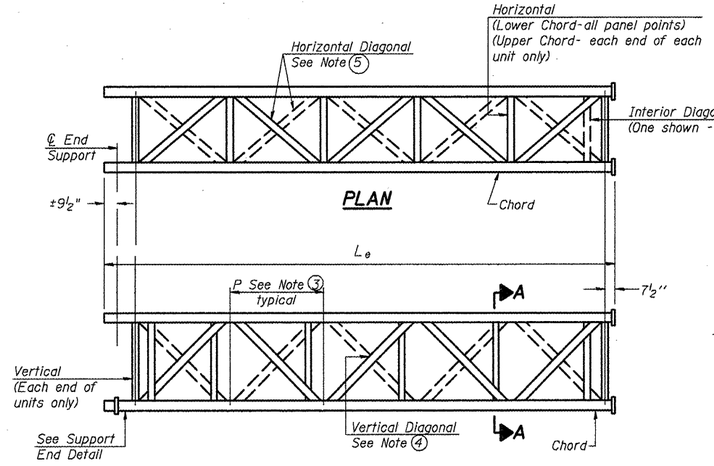
SUPPORT END DETAIL FOR EXTERIOR UNIT



TYPICAL JOINT DETAILS

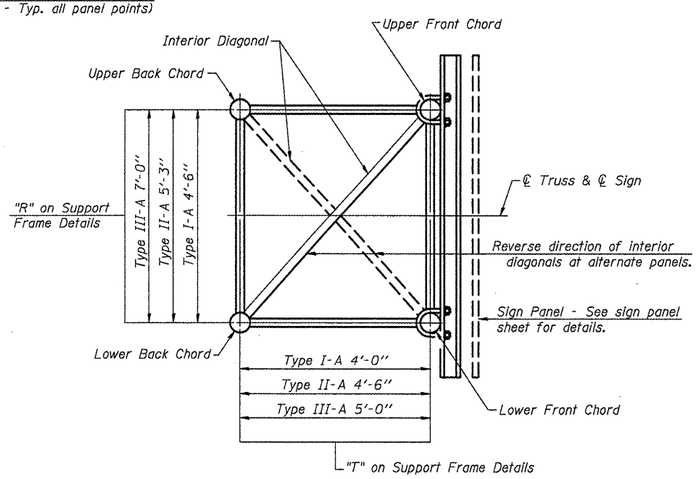


DETAIL A



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" ϕ 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 or 4'-0" and 5'-6" for Types II-A and III-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 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/26/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

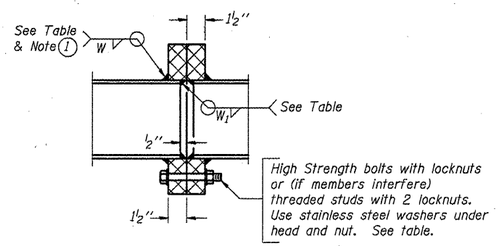
OVERHEAD SIGN STRUCTURES – ALUMINUM TRUSS
DETAILS FOR TRUSS TYPES I-A, II-A AND III-A

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	9
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

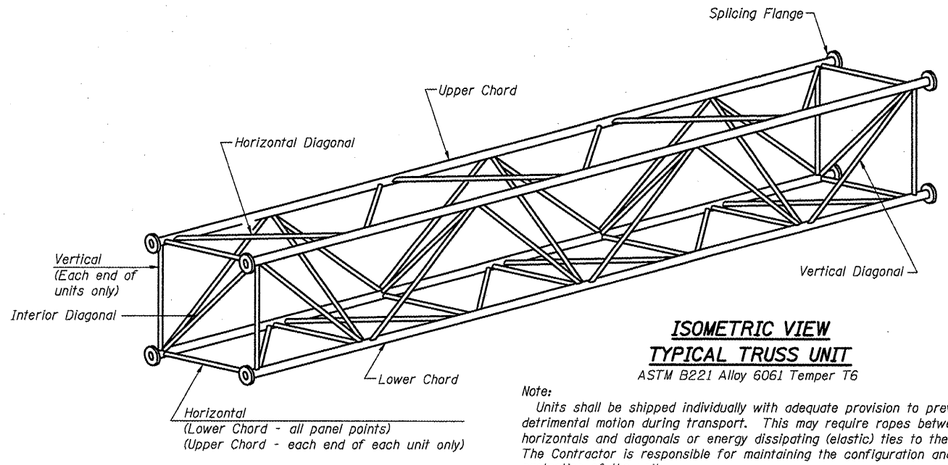
TRUSS UNIT TABLE

Structure Number	Station	Design Truss Type	Exterior Units (2)			Interior Unit				Upper & Lower Chord		Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals		Camber at Midspan	Splicing Flange					
			No. Panels per Unit	Unit Lgth.(L_e)	Panel Lgth.(P)	No. Req'd.	No. Panels per Unit	Unit Lgth.(L_i)	Panel Lgth.(P)	O.D.	Wall	O.D.	Wall		Bolts		Weld Sizes		A	B
															No./Splice	Dia.	W	W_1		
5 S 092 1074 R213.03	1860+02	I-A	7	35'-8½"	4'-10"	——	——	——	——	5"	$\frac{5}{16}$"	2½"	$\frac{5}{16}$"	1¾"	6	⅞"	$\frac{5}{16}$"	¼"	8¾"	11¾"



SECTION B-B

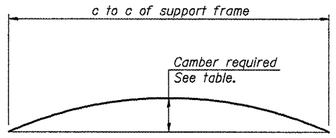
(1) Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining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

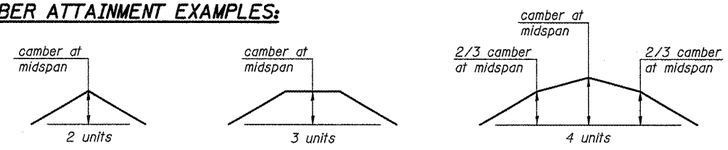
Note:
Units shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The Contractor is responsible for maintaining the configuration and protection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



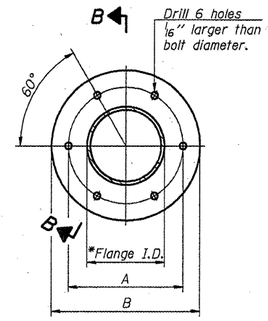
CAMBER DIAGRAM

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

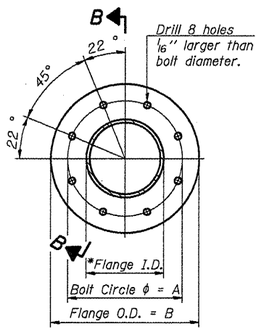
CAMBER ATTAINMENT EXAMPLES:



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 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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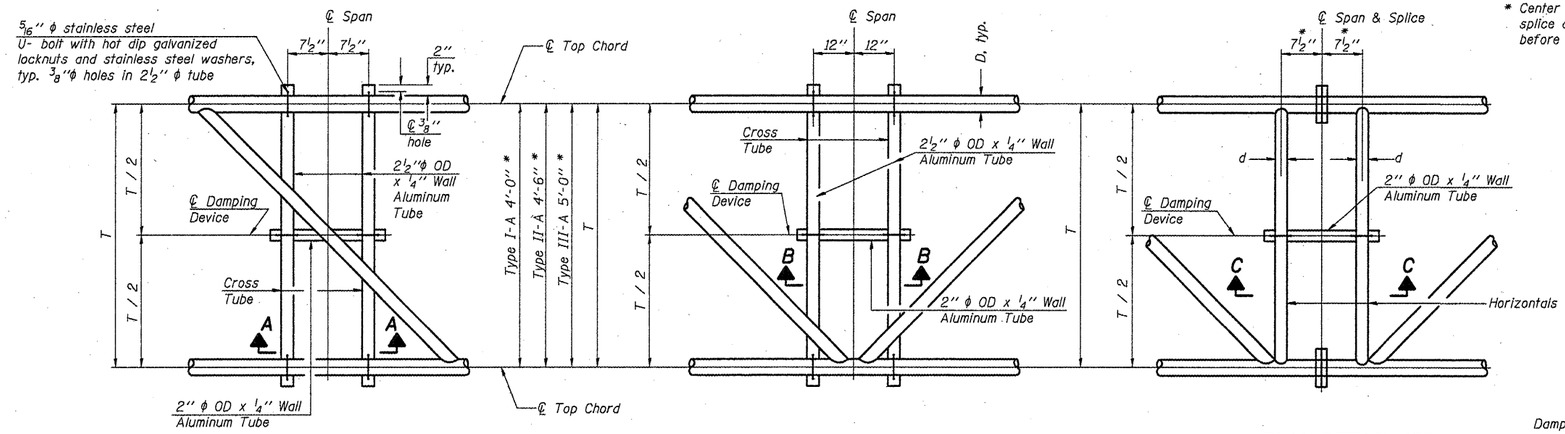
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES – ALUMINUM TRUSS DETAILS FOR TRUSS TYPES I-A, II-A AND III-A

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	10
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			



PLAN DETAIL "A"
℄ Span between Panel Points

PLAN DETAIL "B"
℄ Span at Panel Point

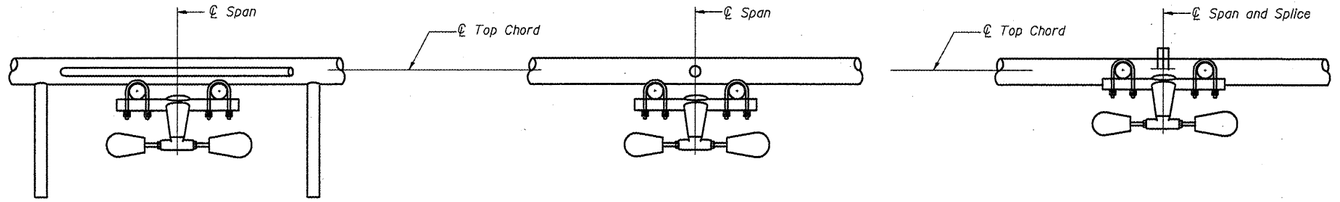
PLAN DETAIL "C"
℄ Span at ℄ Chord Splice

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

NOTES

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

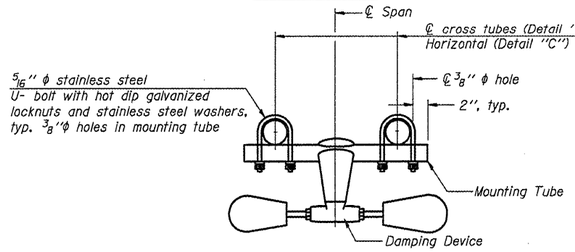
Materials: Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...



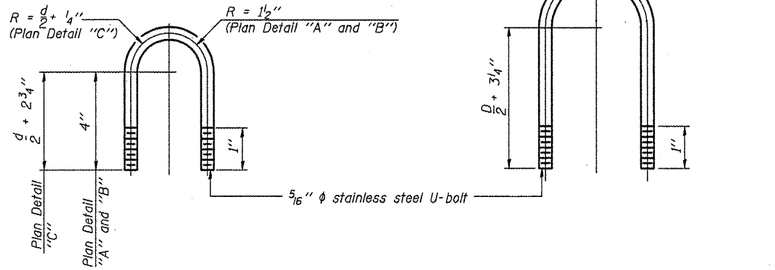
SECTION A-A

SECTION B-B

SECTION C-C

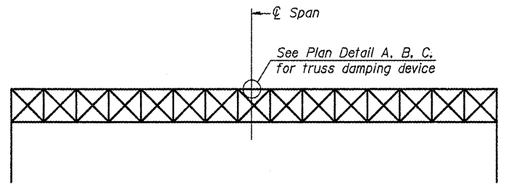


TRUSS DAMPING DEVICE CONNECTION DETAIL
(Typical)



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 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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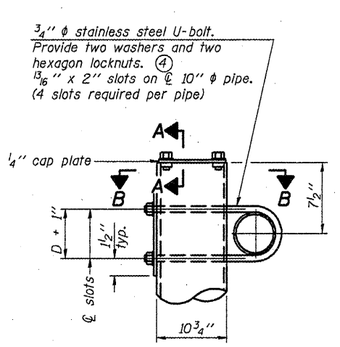
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

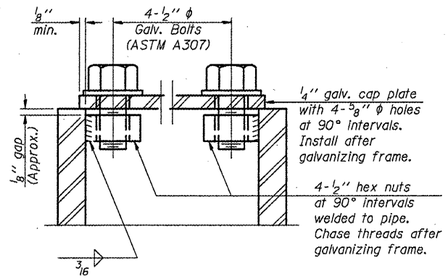
OVERHEAD SIGN STRUCTURE
DAMPING DEVICE

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	11
		CONTRACT NO. 46140		
ILLINOIS	FED. AID PROJECT			

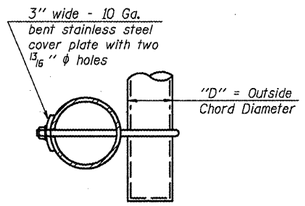


DETAIL A

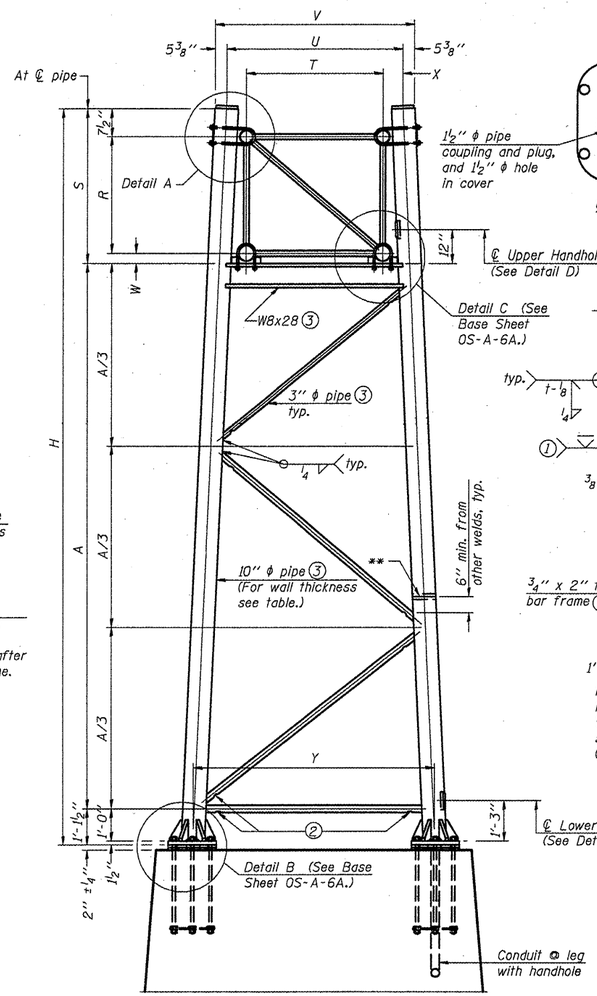


SECTION A-A

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

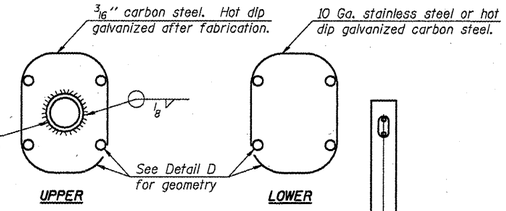


SECTION B-B

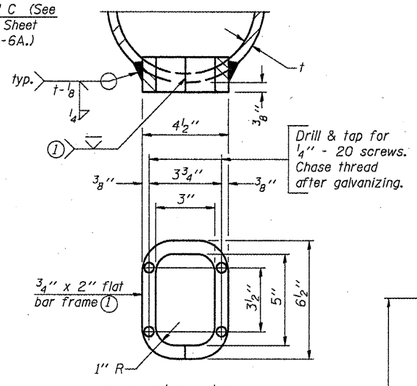


For Foundation Details, see base sheet OS-F3 (Spread Footing) or OS4-F3 (Drilled Shaft).

SIDE ELEVATION



HANDHOLE COVERS



Provide 6½" x 4½" cover.
Provide 4-5/16" ϕ holes in cover for 1/4"-20 round head hot dip galvanized or stainless steel machine screws.
(See cover details)

DETAIL D

END ELEVATION

Support Design Loads: See Base Sheet OS-A-1 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 500 min 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 OS-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.

Truss Type	Dimensions							
	R	S	T	U	V	W	X	Y
I-A	4'-6"	5'-5½"	4'-0"	5'-6"	6'-4¾"	4"	9"	8'-3"
II-A (5)	5'-3"	6'-3¼"	4'-6"	6'-1"	6'-11¾"	4¾"	9½"	8'-3"

10" ϕ 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	Truss Type	Pipe Wall Thickness	H (6)	A
5	S 092 1074 R213.03	1860+02	X		I-A	0.279	28'-7"	22'-0"
				X	I-A	0.279	29'-7"	23'-0"

•D-5 OVD SIN STR REPL 2011-17

OS-A-6 7-1-10

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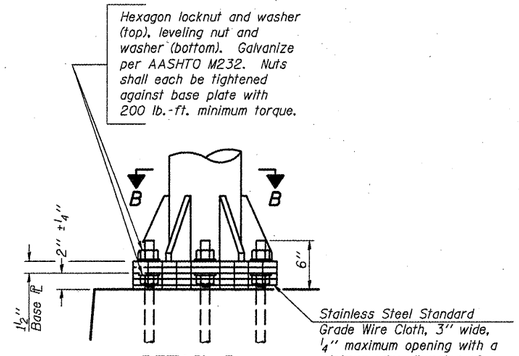
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
SUPPORT FRAME FOR ALUMINUM TRUSS

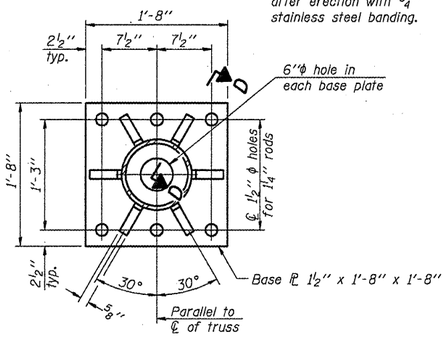
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	12
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			

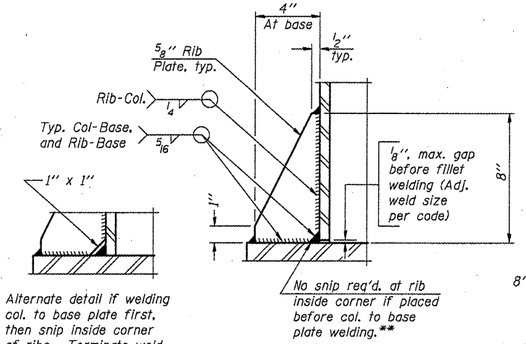


DETAIL B

Ribs shall be cut to fit slope of pipe.

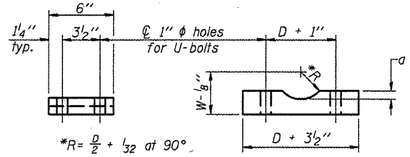


SECTION B-B



** Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.

SECTION D-D



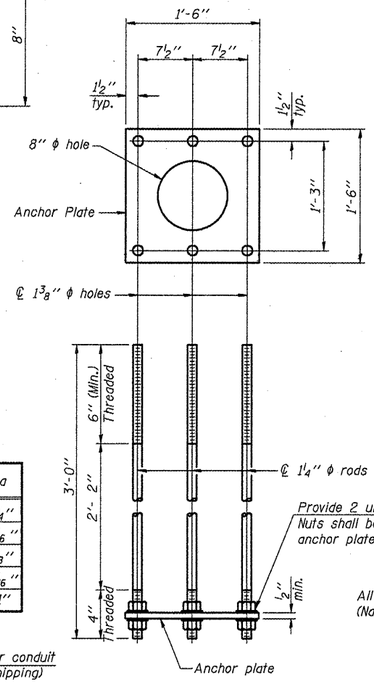
*R = D/2 + 1/32 at 90°

D = Outside Diameter of Chord.
For W, see Base Sheet OS-A-6.

SADDLE SHIM DETAIL

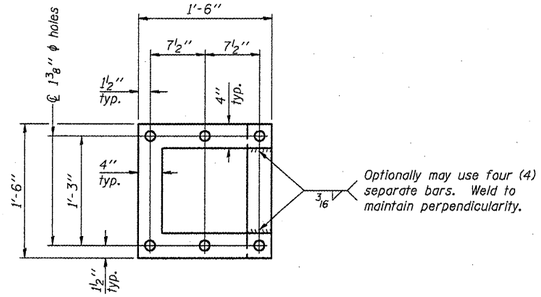
ASTM B26 Alloy 356-F
or
ASTM B209 Alloy 6061-T651
(4 required per sign truss)

Truss Chord Nominal Dia.	d
5"	3/4"
5 1/2"	13/16"
6"	7/8"
6 1/2"	15/16"
7"	1"

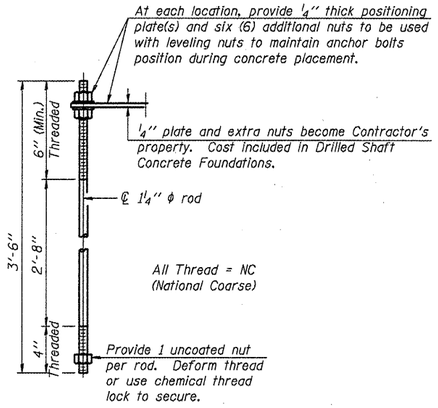


ANCHOR ROD DETAIL

Spread Footing Foundation



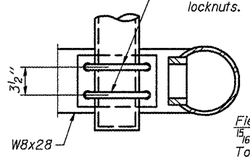
POSITIONING PLATE(S)



ANCHOR ROD DETAIL

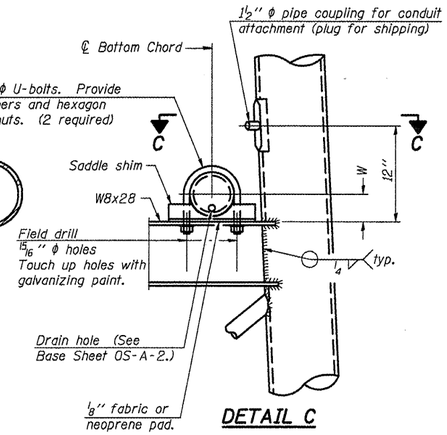
Drilled Shaft Foundation

Anchor rods shall conform to AASHTO M314 Grade 36 or 50 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. Galvanize upper 12" per AASHTO M232. No welding shall be permitted on rods.



SECTION C-C

(Handhole cover not shown)



DETAIL C

10" ϕ PIPE SUPPORT FRAME DETAILS

OS-A-6A 7-1-10

*D-5 OVD SIN STR REPL 2011-17

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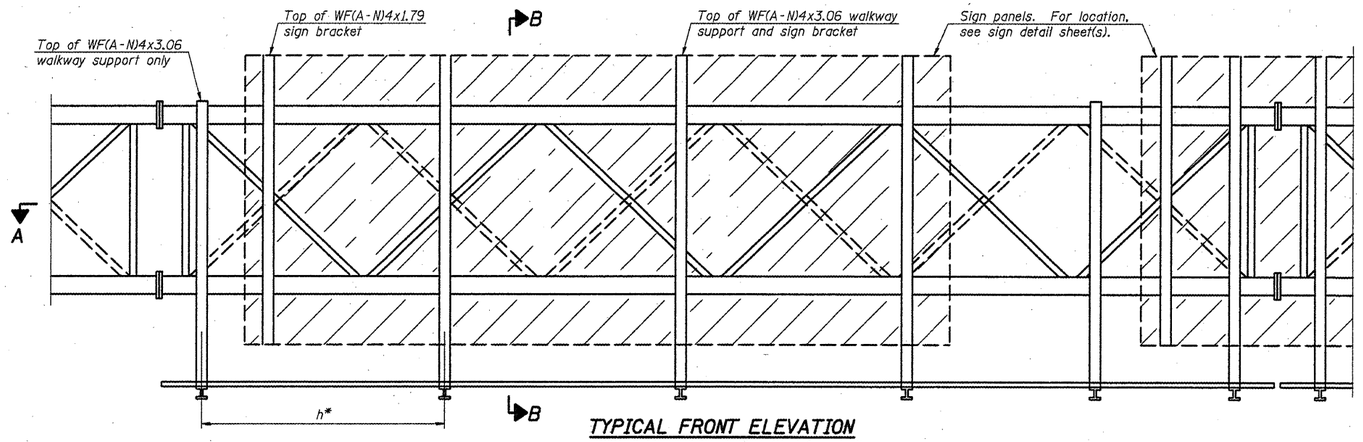
		DRAWN - BBP	REVISED -
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
SUPPORT FRAME DETAILS - ALUMINUM TRUSS

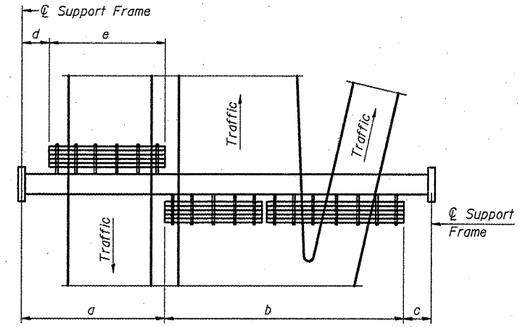
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	13
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		



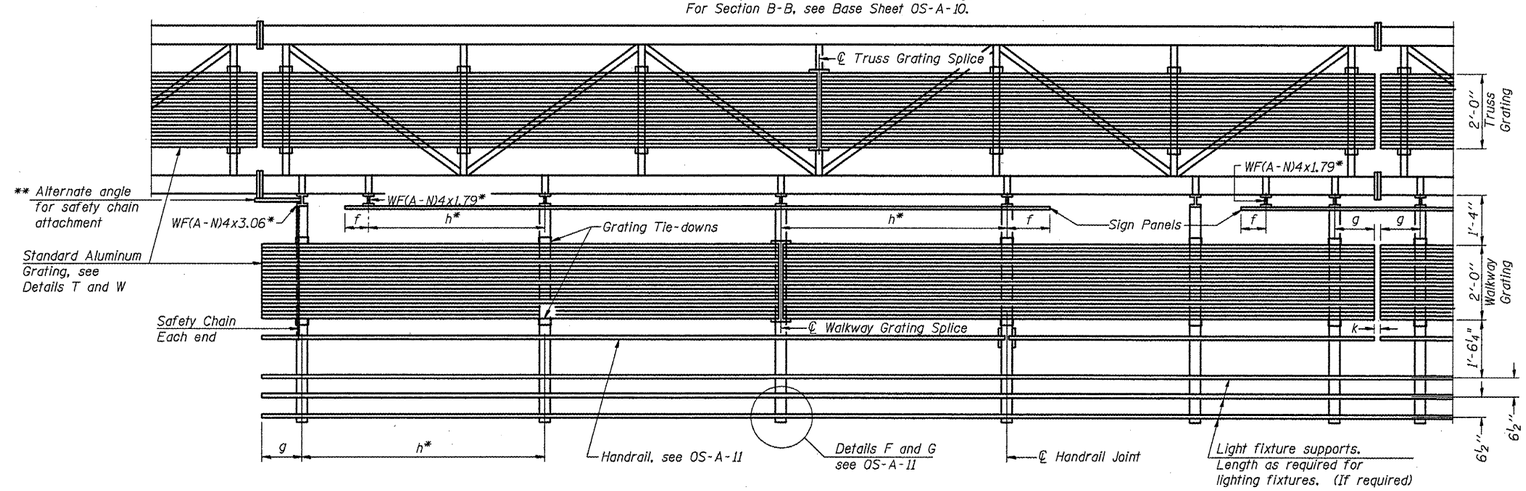
TYPICAL FRONT ELEVATION

With lights and handrail omitted for clarity.
For Section B-B, see Base Sheet OS-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 Base Sheet OS-A-11.

For Details T and W, Section B-B and Grating Splice Details see Base Sheet OS-A-10.
For Handrail Details see Base Sheet OS-A-11.

Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
5 S 092 1074 R213.03	1860+02	18'-6"	40'-0"	11'-6"	—	—	40'-0"
	SEE ALSO " SIGN TRUSS MOUNTING DETAILS " - SHEET #6						

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.

OS-A-9 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
ALUMINUM WALKWAY DETAILS

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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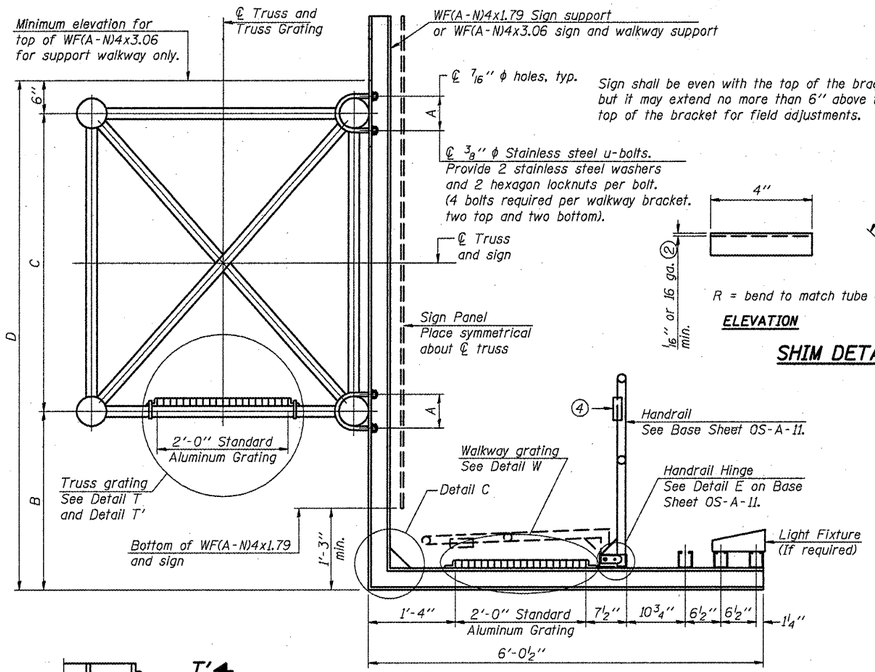
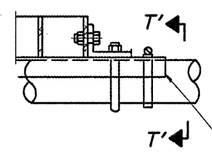
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		



SECTION B-B

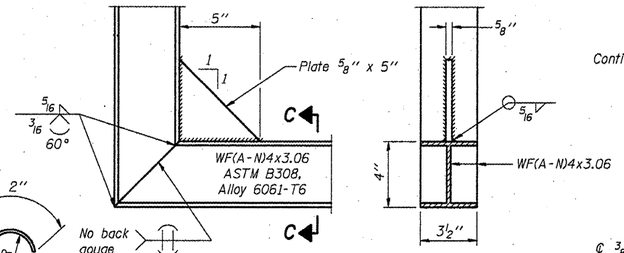


DETAIL T'

(Truss grating splice)

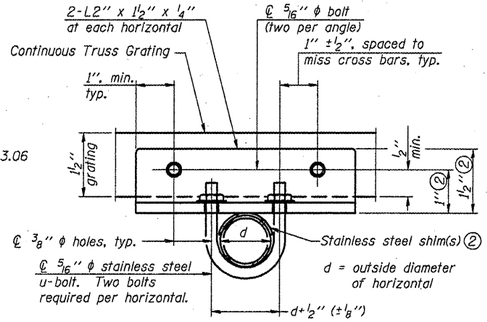
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.

SHIM DETAIL

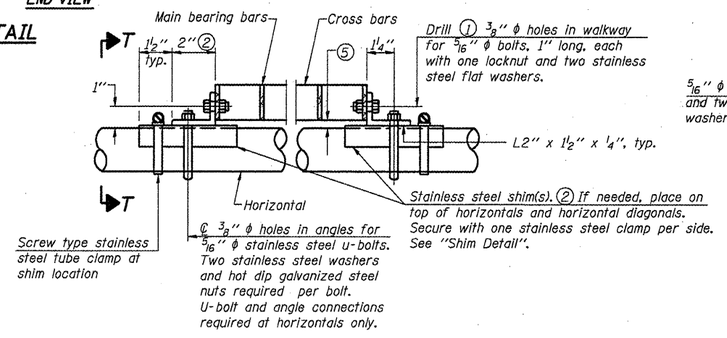


DETAIL C

SECTION C-C

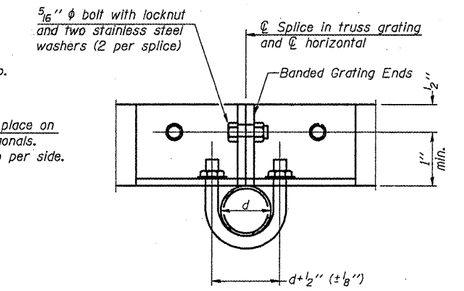


SECTION T-T

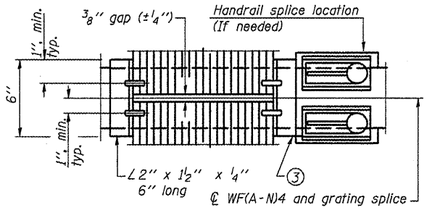


DETAIL T

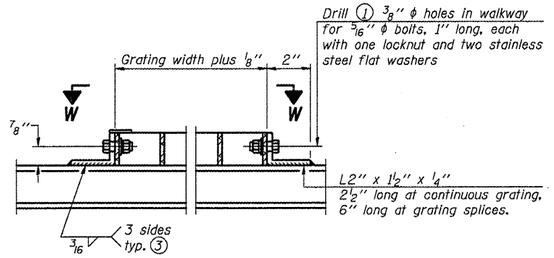
(Continuous Truss grating)



SECTION T'-T'

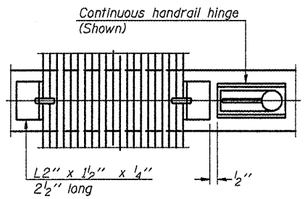


(AT WALKWAY GRATING SPLICE)



DETAIL W

(Walkway grating)



(CONTINUOUS WALKWAY GRATING)

SECTION W-W

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

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

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

OR

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

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

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

Structure Number	Station	A	⑥ B	C	⑥ D*
5 S 092 1074 R213.03	1860+02	5 7/16"	5'-9"	4'-6"	10'-9" & VAR.
* SEE ALSO " SIGN TRUSS MOUNTING DETAILS " - SHEET #6 FOR INFORMATION NEEDED TO DETERMINE THE VARIABLE WALKWAY SUPPORT & SIGN SUPPORT LENGTHS.					

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 OS-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 OS-A-1.

OS-A-10 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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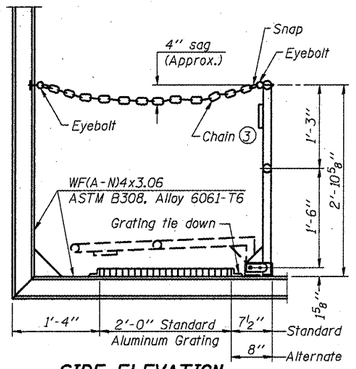
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
ALUMINUM WALKWAY DETAILS

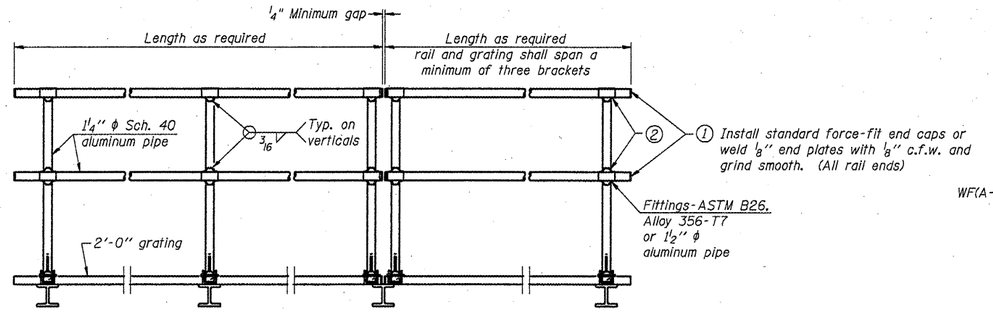
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	15
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		



SIDE ELEVATION

(Showing safety chain w/o sign)



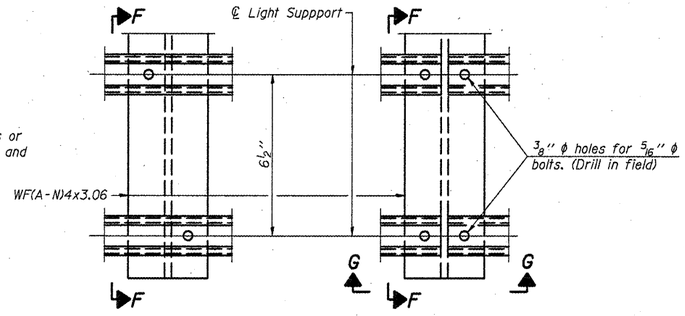
FRONT ELEVATION

(2) Horizontal handrail member shall be continuous thru fitting. Provide 7/16" ϕ hole in fitting for 3/8" ϕ bolt. Field drill 7/16" ϕ hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 1/16"ϕ holes on top rail at ends only.)

HANDRAIL DETAILS

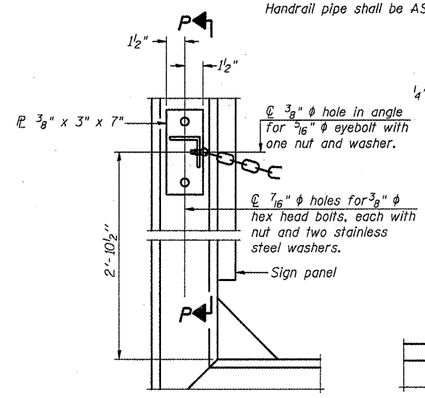
Handrail pipe shall be ASTM B241 or B429, Alloy 6063-T6 or Alloy 6061-T6.

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



DETAIL F

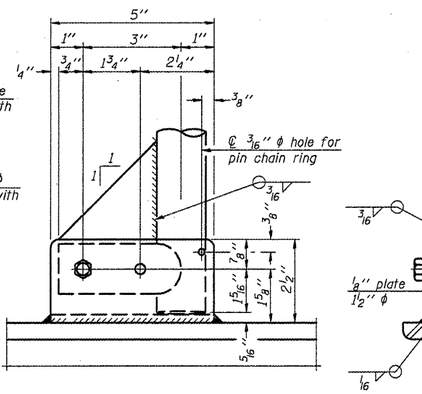
DETAIL G



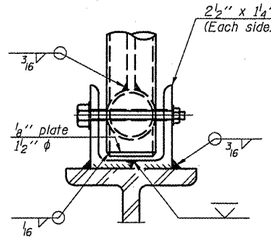
ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

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

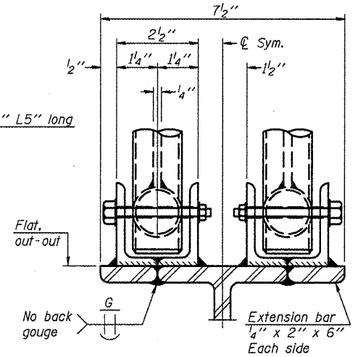


SIDE ELEVATION

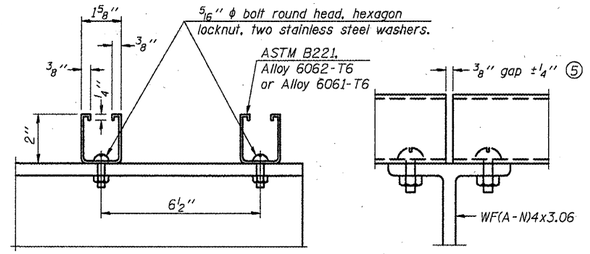


FRONT ELEVATION

See "Elevation" at right for dimensions.



ELEVATION AT HANDRAIL JOINT (4)

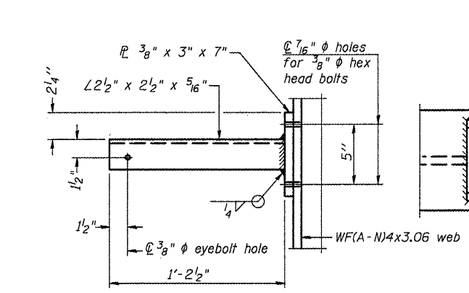


SECTION F-F

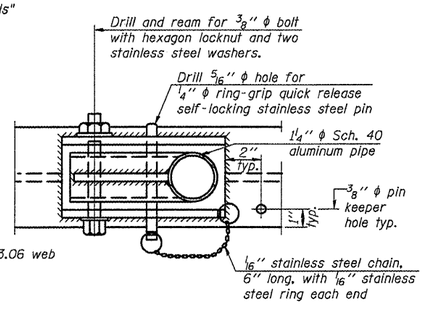
SECTION G-G

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.

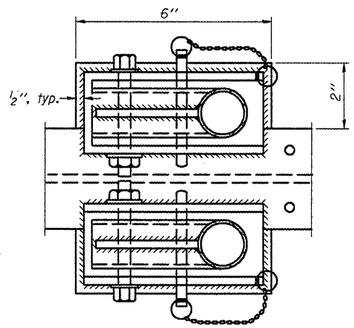


SECTION P-P



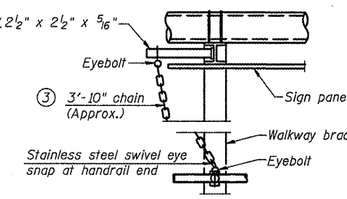
PLAN

DETAIL E HANDRAIL HINGE



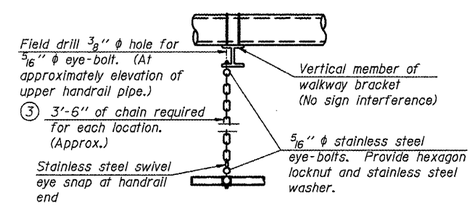
PLAN AT HANDRAIL JOINT

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 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
ALUMINUM HANDRAIL DETAILS

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

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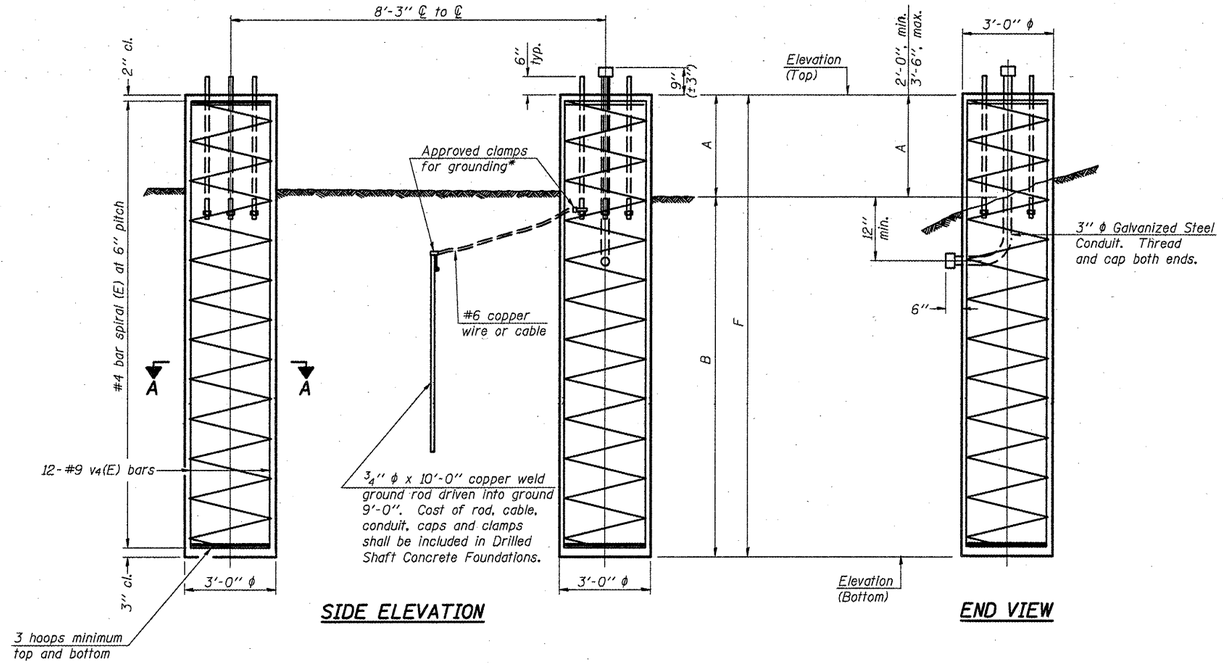
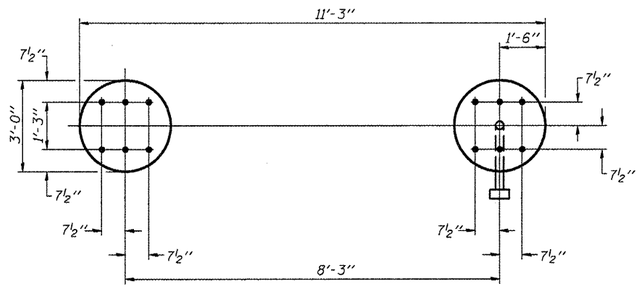


SIDE ELEVATION

END VIEW



PLAN

For anchor rod size and placement, see Support Frame Detail Sheet.

* Anchor rod shall be ground or filled to bright metal at clamp and cable connection location.

BAR LIST - EACH FOUNDATION

Bar	Number	Size	Length	Shape
v4(E)	24	#9	F less 5"	——
#4 bar spiral (E) - see Side Elevation				

NOTES:

The foundation dimensions shown are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Qu) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown will be the result of site specific designs.

If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.

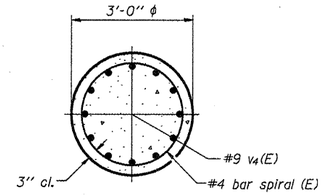
No sonotubes or decomposable forms shall be used below the lower conduit entrance.

Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

Concrete shall be placed monolithically, without construction joints.

Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.

A normal surface finish followed by a Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.



SECTION A-A

DETAILS FOR 10" ϕ SUPPORT FRAME TYPE I-A or II-A TRUSS

Structure Number	Station	Left Foundation					Right Foundation					Class DS Concrete (Cu. Yds.)
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top	Elevation Bottom	A	B	F	
5 S 092 1074 R213.03	1860+02	662.50	642.00	3'-0"	17'-6"	20'-6"	661.50	641.00	3'-0"	17'-6"	20'-6"	21.5

OS4-F3 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
DRILLED SHAFT DETAILS

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

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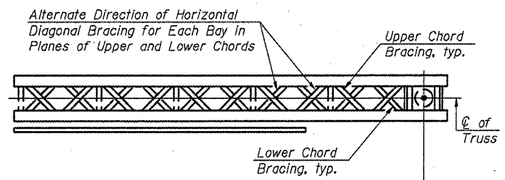
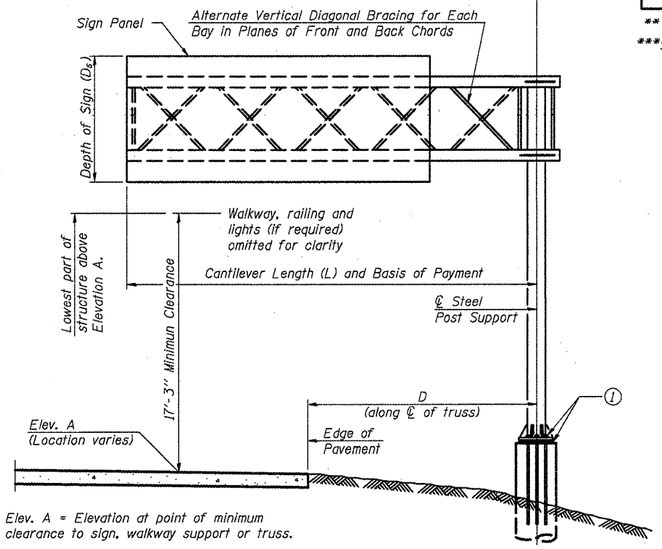
		ILLINOIS FED. AID PROJECT		



TYPICAL PLAN
(Walkway not shown)



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

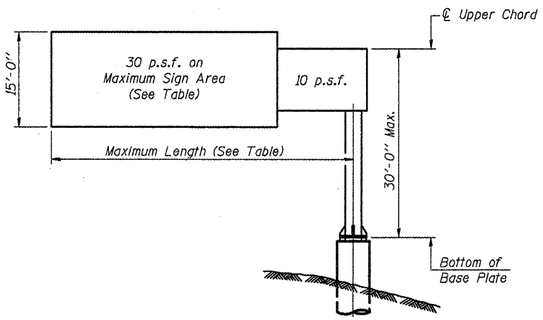
TYPICAL ELEVATION
Looking in Direction of Traffic

Sign support structures may be subject to damaging vibrations and oscillations when sign panels are not in place during erection or maintenance of the structure. To avoid these vibrations and oscillations, consideration should be given to attaching temporary blank sign panels to the structure.

Structure Number	Station	Design Truss Type	Cantilever Length (L)	Elev. A	Dim. D	Ds ***	Total Sign Area
5 C 092 1074 R214.21	1922+15	II-C-A	28'-0"	612.64	**	8'-6"	161.5
5 C 092 1074 L214.50	1937+05	II-C-A	28'-0"	609.19	**	8'-6"	145.0
5 C 092 1074 R215.65	1996+55	II-C-A	28'-0"	570.73	**	8'-6"	178.5

** See Sign Truss Mounting Details
***Support post heights based on 15'-0" sign height per OSC-A-5

Truss Type	Maximum Sign Area	Maximum Length
I-C-A	170 Sq. Ft.	25 Ft.
II-C-A	340 Sq. Ft.	30 Ft.
III-C-A	400 Sq. Ft.	40 Ft.



DESIGN WIND LOADING DIAGRAM
Parameters shown are basis for I.D.O.T. Standards Installations not within dimensional limits shown require special analysis for all components.

Note:
Trusses 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 trusses.

(1) After adjustments to level truss and insure adequate vertical clearance, all top and leveling nuts shall be tightened against the base plate with a minimum torque of 200 lb.-ft. Stainless steel mesh shall then be placed around the perimeter of the base plate. Secure to base plate with stainless steel banding.

* 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.

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 Specificiations.

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 AASHTO M314 Gr. 105 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F.

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

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

FOUNDATIONS: The contract unit price for Drilled Shaft Concrete Foundations shall include reinforcement bars complete in place.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE II-C-A	Foot	84.0
OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	Foot	72.0
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	27.0

*D-5 OVD SIN STR REPL 2011-17

OSC-A-1 7-1-10

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - GENERAL PLAN & ELEVATION
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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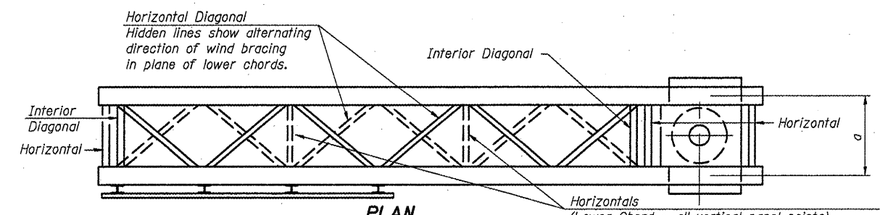
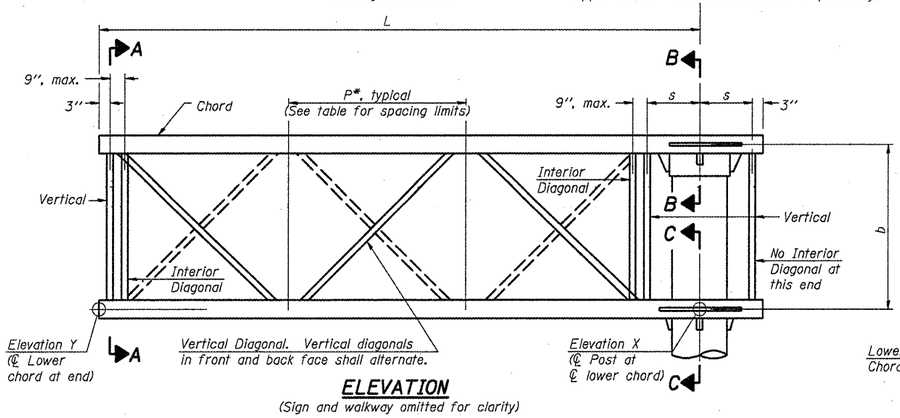
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			



PLAN
(Walkway not shown)



ELEVATION
(Sign and walkway omitted for clarity)

TYPICAL TRUSS UNIT

For Section B-B and Section C-C, see Base Sheet OSC-A-3.

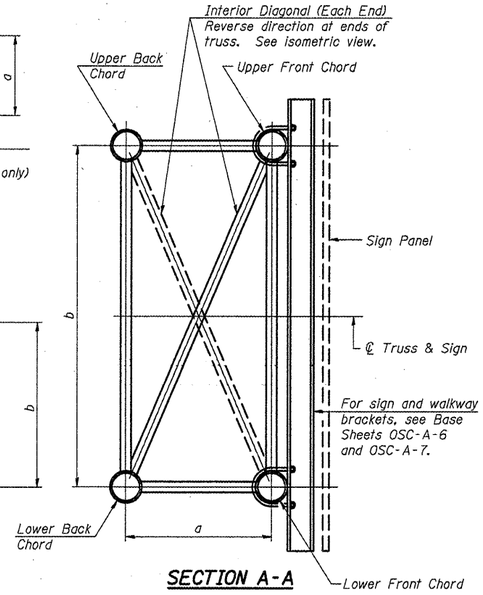
Note:
There are twice as many horizontal diagonals as there are vertical diagonals.

TRUSS UNIT TABLE

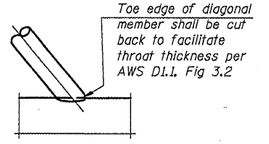
Truss Type	Dimension "a"	Dimension "b"	Dimension "s"	Limits for Panel Spacing (P)*	Up. & Low. Chord		Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals	
					O.D.	Wall	O.D.	Wall
I-C-A	24"	54"	16"	36" min. to 48" max.	5"	5/16"	2½"	5/16"
II-C-A	36"	66"	21"	42" min. to 54" max.	6½"	5/16"	3¼"	5/16"
III-C-A (35' Max.)	36"	84"	21"	48" min. to 66" max.	7"	3/8"	3½"	3/8"
III-C-A (>35' to 40')	36"	84"	21"	48" min. to 66" max.	8"	3/8"	3½"	3/8"

$$*P = \frac{L - s - 3''}{\#\ Panels}$$

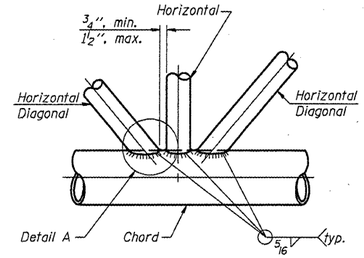
Structure Number	Station	Truss Type	Design Length (L)	Number of Panels Per Unit	Panel Length (P)*
5 C 092 1074 R214.21	1922+15	II-C-A	28'-0"	6	4'-4"
5 C 092 1074 L214.50	1937+05	II-C-A	28'-0"	6	4'-4"
5 C 092 1074 R215.65	1996+55	II-C-A	28'-0"	6	4'-4"



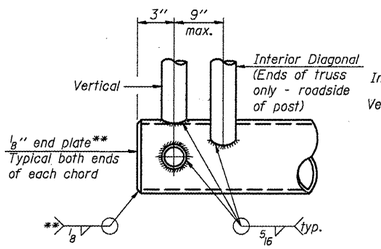
SECTION A-A



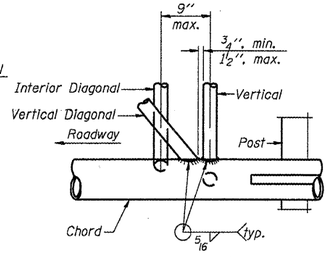
DETAIL A



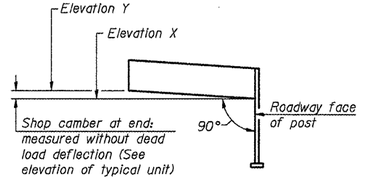
TRUSS INTERIOR JOIT DETAIL



CANTILEVER END JOINT DETAIL
** Contractor may alternatively use standard aluminum drive-fit cap to close ends.



POST END JOINT DETAIL



CAMBER DIAGRAM
(For Fabrication Only)

SHOP CAMBER TABLE

Unit Length (L)	Shop Camber at End
15'	1½"
16'-17'	1¾"
18'-20'	2"
21'-22'	2¼"
23'-25'	2½"
26'-27'	2¾"
28'-30'	3"
31'-32'	3¼"
33'-35'	3½"
36'-37'	4"
38'-40'	4½"

ISOMETRIC VIEW
TYPICAL TRUSS UNIT
ASTM B221 Alloy 6061 Temper T6

OSC-A-2 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – TRUSS DETAILS
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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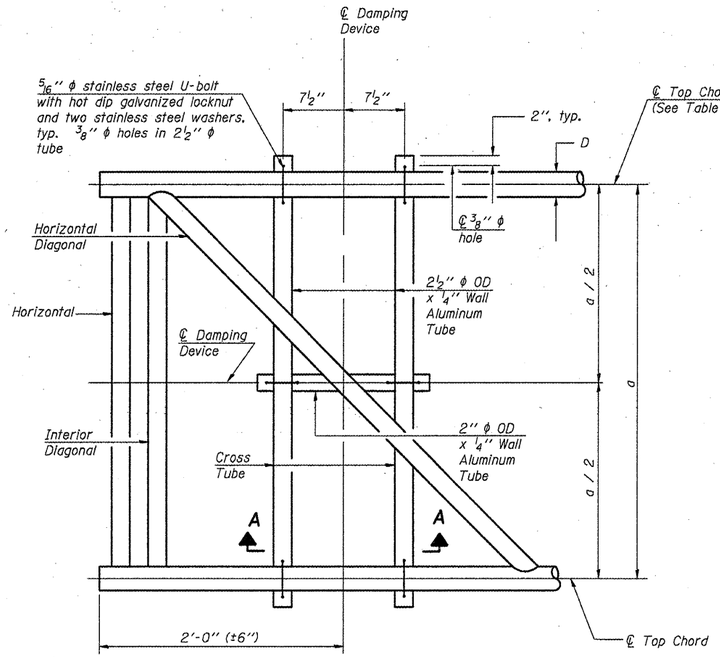
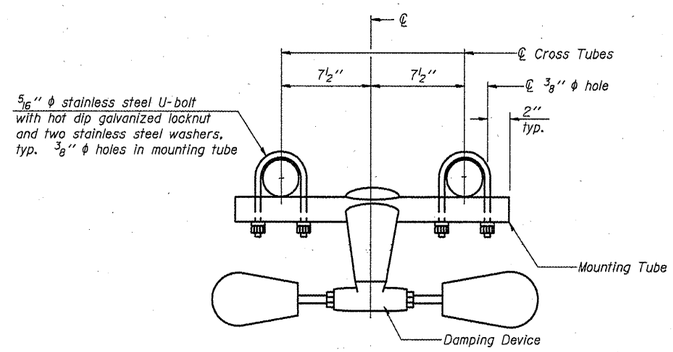
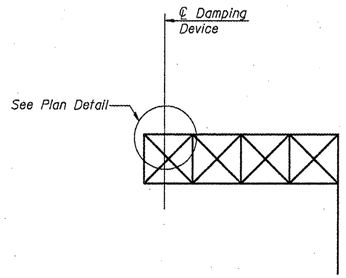
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		



PLAN DETAIL



TRUSS DAMPING DEVICE CONNECTION DETAIL



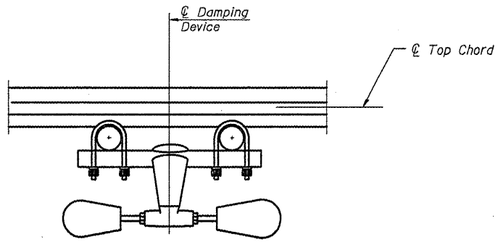
ELEVATION

Aluminum Cantilever Sign Structure

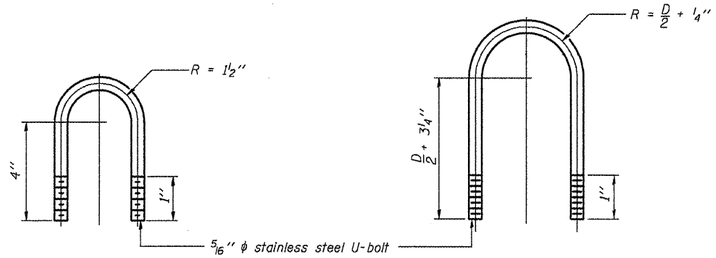
GENERAL NOTES

Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum-29" minimum between ends of weights)

Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6



SECTION A-A



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL

(Typical)

TOP CHORD TO CROSS TUBE U-BOLT DETAIL

(Typical)

OSC-A-D 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURE
DAMPING DEVICE

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

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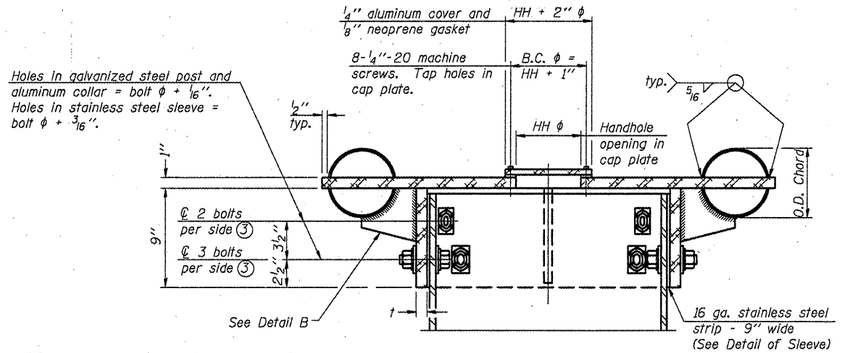
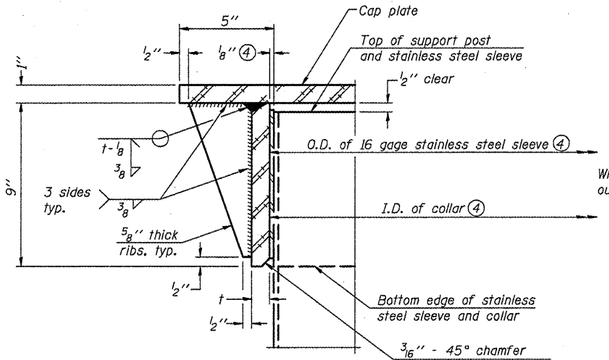


SECTION B-B

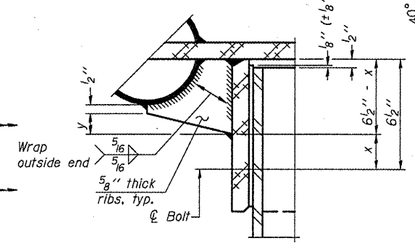
Bolts, washers (Including contoured washers), and locknuts shall be stainless steel.

④ Collar I.D. shall be manufactured to correspond to O.D. of actual galvanized post and stainless steel sleeve plus 1/8" (±1/16"). Maximum gap between post and collar at any location equals 1/8" before tightening bolts.



DETAIL A

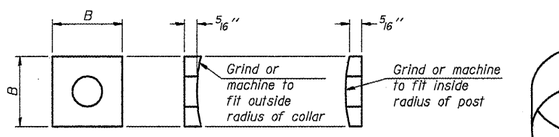
(Two locations)



DETAIL B

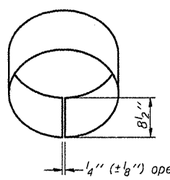
Two locations

(For details not shown, see Detail C)



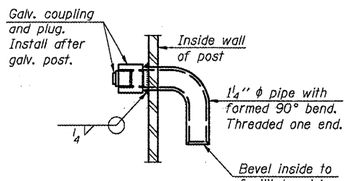
CONTOURED WASHERS

Bolt Size	Contoured Washers	
	Hole Dia.	B
7/8"	1"	2 1/2"
1"	1 1/8"	3"
1 1/4"	1 3/8"	3 1/4"

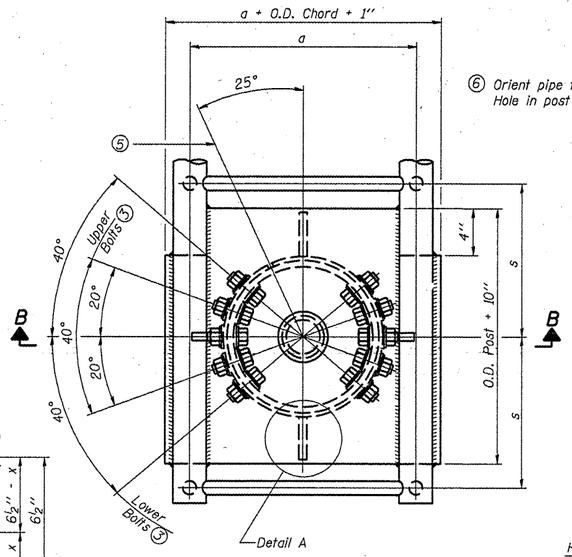


DETAIL OF STAINLESS STEEL SLEEVE

Weld to post after galvanizing. (Prepare post surface to insure tight, uniform fit and allow welding.) Welds to be 1 1/2" long at 6" cts. along top edge and at 1/4" opening.



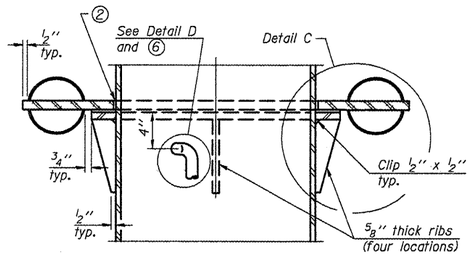
DETAIL D



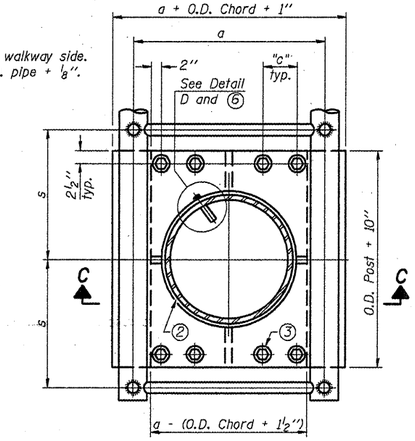
PLAN VIEW - TOP OF COLUMN

⑤ Optional full penetration weld in collar. (Two locations maximum....(180° apart)....X-ray or UT 100%)

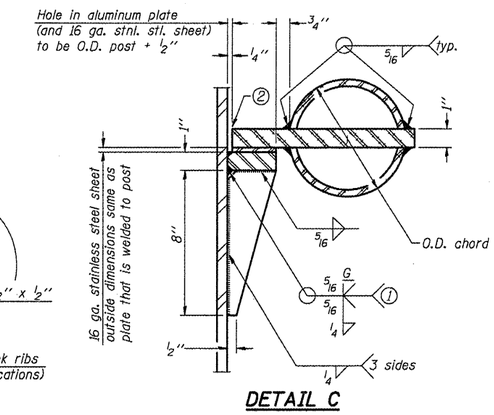
⑥ Orient pipe toward walkway side. Hole in post = O.D. pipe + 1/8".



SECTION C-C



SECTION THRU POST ABOVE LOWER CHORDS



DETAIL C

Truss Type	Post Size	Upper & Lower Connection Bolt Diameter (3)	Lower Juncture Bolt Spacing Dimension "c" (3)	Opening in Cap Plate "HH"	Collar Thickness (t)	Side Rib x	Side Rib y
I-C-A	16" ϕ (83#/')	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-A	24" ϕ (125#/')	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-A (35' max.)	24" ϕ (125#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"
III-C-A (>35' to 40')	24" ϕ (171#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"

① Grind top if required to fully seat aluminum plate and stainless steel sheet.

② After tightening lower connection bolts, fill gap with non-hardening, silicone caulk suitable for exterior exposure and acceptable to the Engineer. Cost is included in Overhead Sign Structure Cantilever.

③ Upper and lower connection bolts in collar and bolts at lower chord connection shall be high strength with matching locknuts. Connection bolts shall have 2 stainless steel flat washers each.

OSC-A-3 7-1-10

*D-5 OVD SIN STR REPL 2011-17

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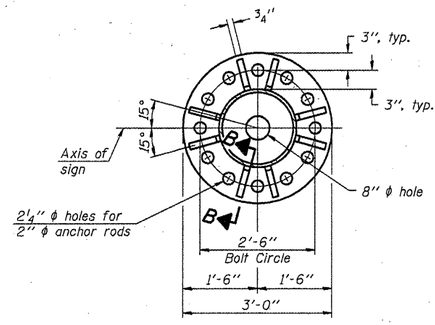
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

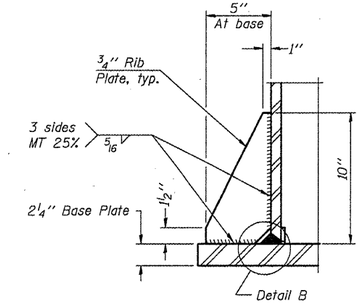
CANTILEVER SIGN STRUCTURES – JUNCTURE DETAILS
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

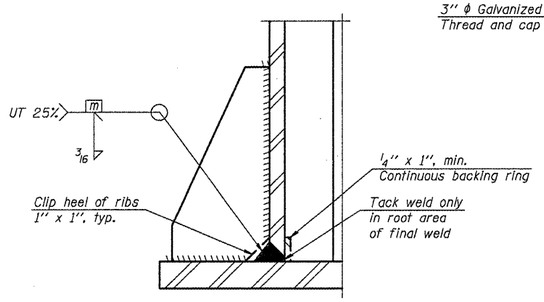
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	21
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			



SECTION A-A

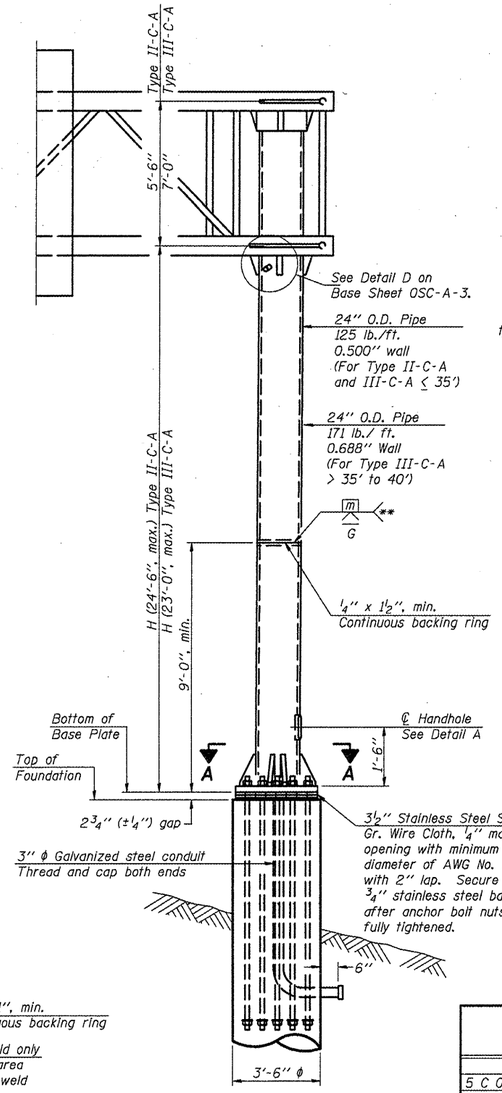


SECTION B-B



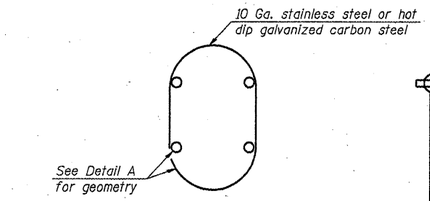
DETAIL B

(Typical rib)

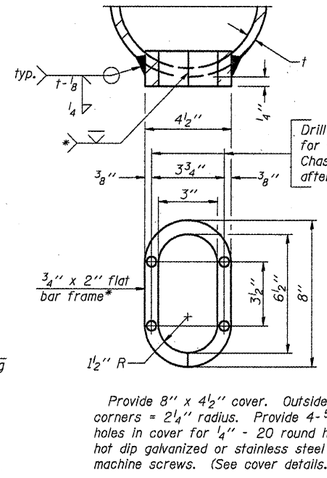


FRONT ELEVATION

For Foundation Details see Base Sheet OSC-A-9.



HANDHOLE COVER

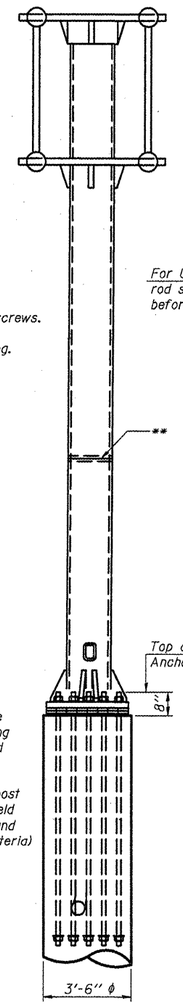


Provide 8" x 4½" cover. Outside corners = 2¼" radius. Provide 4-5/16" ϕ holes in cover for ¼" - 20 round head hot dip galvanized or stainless steel machine screws. (See cover details.)

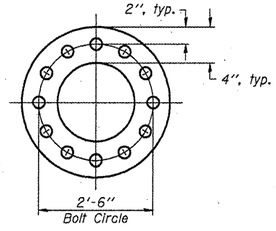
DETAIL A

* Bent bars may be butt welded top and bottom or bottom only. 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 500 min or less.

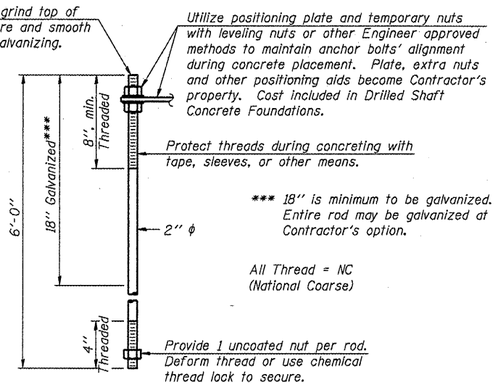
** Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.



SIDE ELEVATION



SUGGESTED POSITIONING PLATE



ANCHOR ROD DETAIL

Anchor rods shall conform to AASHTO M314 Grade 105 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F. before galvanizing. Galvanize the upper 18" (minimum***) and associated M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide an unfinished nut at bottom, a hexagon locknut and washer above base plate and a leveling nut and washer below base plate. Nuts shall each be tightened with 200 lb.-ft. minimum torque against base plate. Before or after threading, but before galvanizing, each anchor rod shall be ultrasonically tested (UT) by a Level II or III inspector, qualified in accord with ANSI guidelines, using a straight beam, ½" ϕ 3.5 mhz. transducer, to insure no rejectable flaws exist in the upper 18" (tension criteria). Cost of testing included in Drilled Shaft Concrete Foundations.

Structure Number	Station	H
5 C 092 1074 R214.21	1922+15	22'-0"
5 C 092 1074 L214.50	1937+05	22'-0"
5 C 092 1074 R215.65	1996+55	22'-0"

Note: "H" based on 15'-0" or actual sign height, whichever is greater.

OSC-A-5 7-1-10

•D-5 OVD SIN STR REPL 2011-17

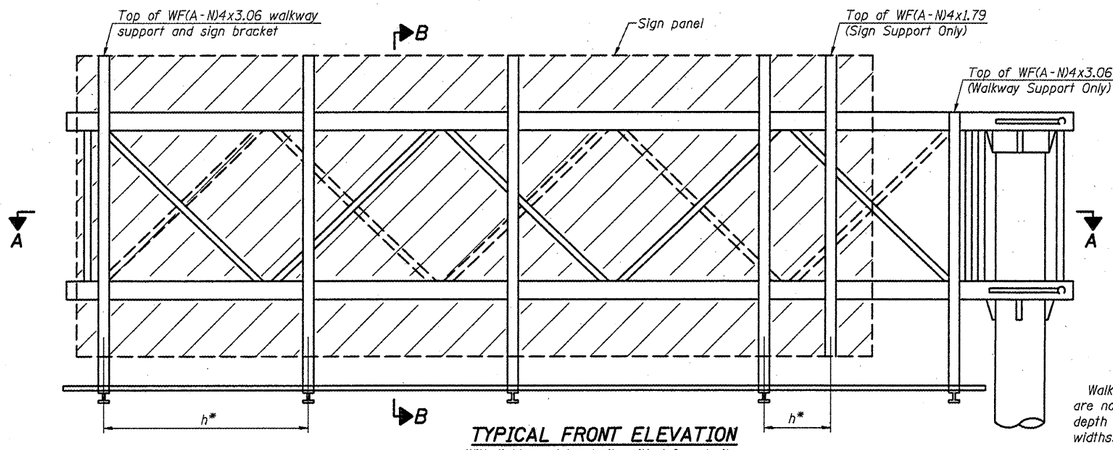
FILE NAME =	USER NAME = buckleyjj	DESIGNED - JAL	REVISED -
c:\pw_work\pwidot\buckleyjj\d0241273\D546140-sht-details.dgn	DRAWN - BBP	REVISED -	
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – TYPE II-C-A & III-C-A
TRUSS SUPPORT POST – ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

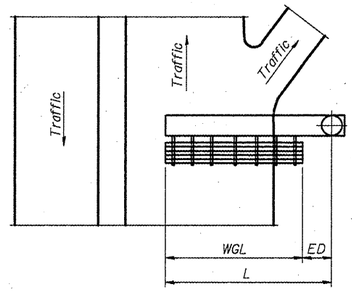
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	22
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		



TYPICAL FRONT ELEVATION

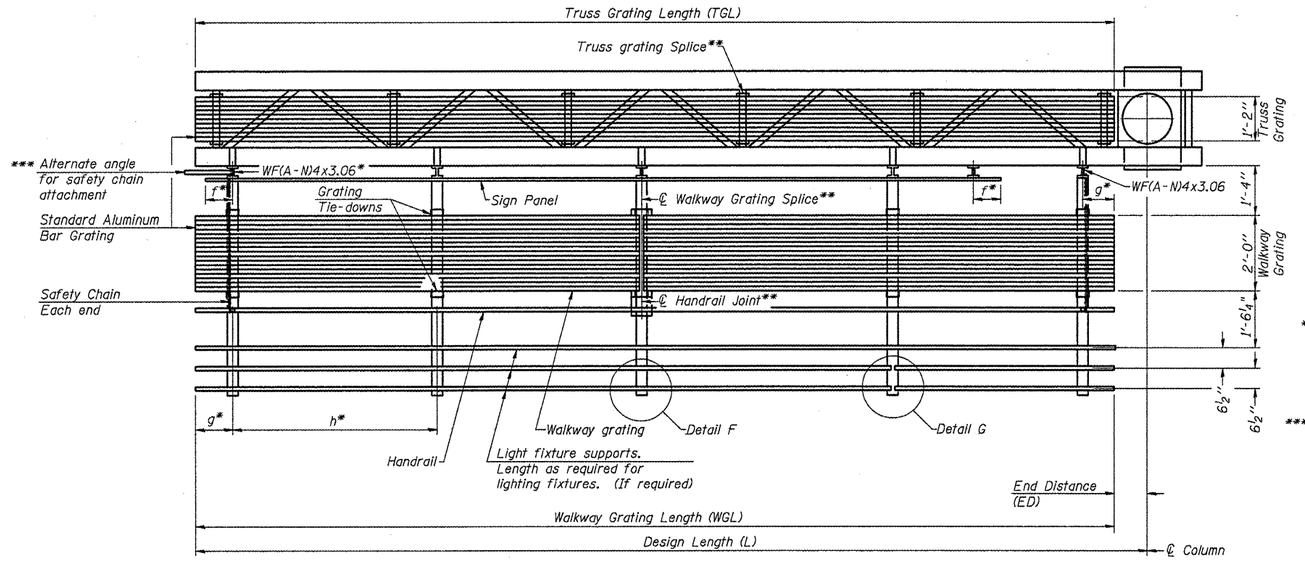
With lights and handrail omitted for clarity.

Walkway and truss grating dimensions are nominal and may vary (width ±½", depth ±½") based on available standard widths.



PLAN
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath truss varies)



Structure Number	Station	WGL	ED	TGL
5 C 092 I074 R214.21	1922+15	24'-0"	4'-0"	26'-6"
5 C 092 I074 L214.50	1937+05	24'-0"	4'-0"	26'-6"
5 C 092 I074 R215.65	1996+55	24'-0"	4'-0"	26'-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 to ℄ of nearest bracket)
h = 6'-0" maximum (℄ to ℄ sign and/or walkway support brackets. WF(A-N)4x1.79 or WF(A-N)4x3.06)

*** If walkway bracket at safety chain location is behind sign, add angle to bracket. See alternate safety chain attachment on base sheet OSC-A-8

For details of sign placement, sign/walkway brackets, truss and walkway gratings, grating splices and Section B-B, see Base Sheet OSC-A-7.

For details of handrail, handrail joint, safety chain and Details F and G, see Base Sheet OSC-A-8.

Truss grating to facilitate inspection shall run full length of cantilevers. Cost of truss grating is included in Overhead Sign Structure Cantilever.

SECTION A-A

Handrail and walkway grating shall span a minimum of three brackets between splices.

** Use and location of handrail joints or grating splices are optional, based on lengths needed and material availability.

$$TGL = L - \left(\frac{\text{Post O.D.}}{2} + 6''\right)$$

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

OSC-A-6 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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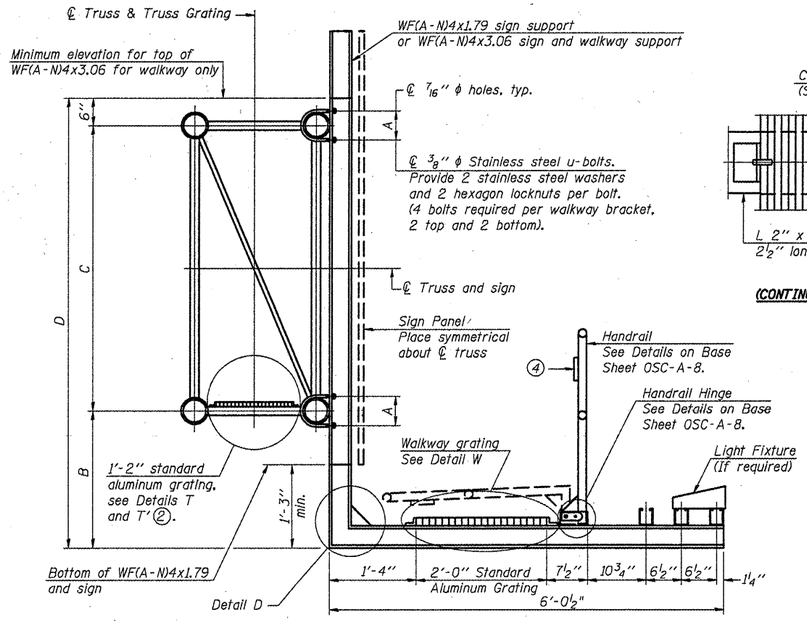
		DRAWN - BBP	REVISED -
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – ALUMINUM WALKWAY
DETAILS – ALUMINUM TRUSS & STEEL POST

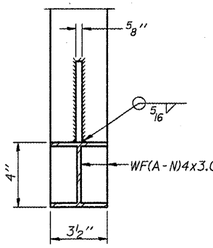
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	23
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			

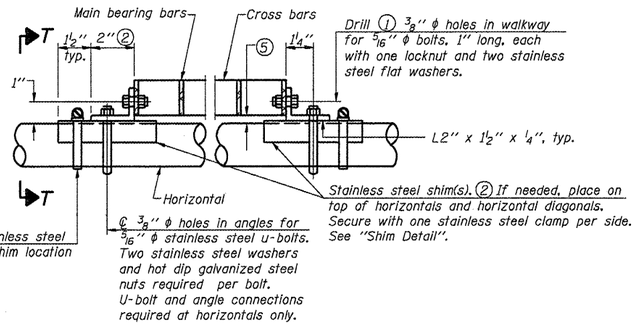


SECTION B-B

Sign shall be even with the top of the bracket, but it may extend no more than 6" above the top of the bracket for field adjustments.

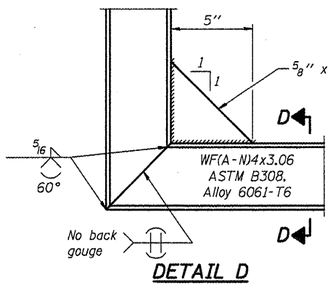


SECTION D-D

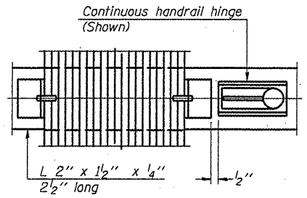


DETAIL T

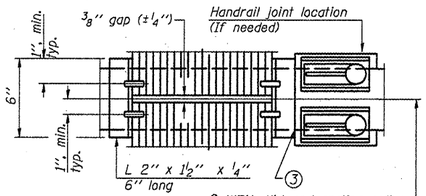
(Continuous Truss grating)



DETAIL D

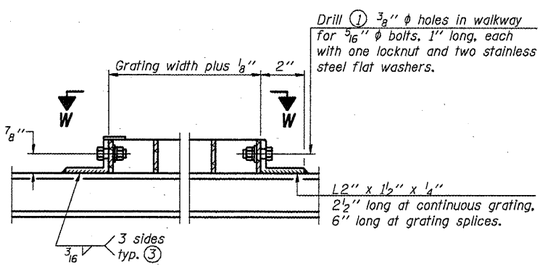


(CONTINUOUS WALKWAY GRATING)



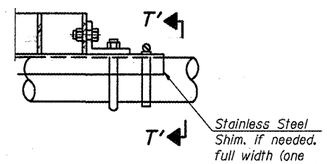
(AT WALKWAY GRATING SPLICE)

SECTION W-W



DETAIL W

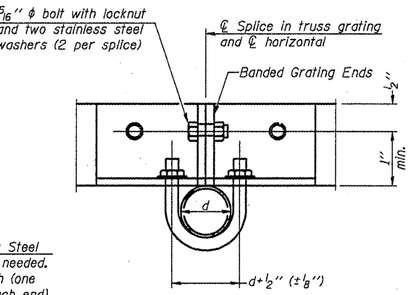
(Walkway grating)



DETAIL T'

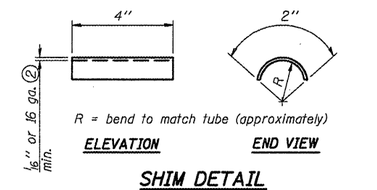
(Truss grating splice)

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



SECTION T'-T'

SECTION T-T



SHIM DETAIL

Structure Number	Station	A	(6) B	C	(6) D*
5 C 092 1074 R214.21	1922+15	II-C-A	2'-9"	5'-6"	8'-9" & VAR.
5 C 092 1074 L214.50	1937+05	II-C-A	2'-9"	5'-6"	8'-9" & VAR.
5 C 092 1074 R215.65	1996+55	II-C-A	2'-9"	5'-6"	8'-9" & VAR.

* SEE ALSO " SIGN TRUSS MOUNTING DETAILS " - SHEET #7 FOR INFORMATION NEEDED TO DETERMINE THE VARIABLE WALKWAY SUPPORT & SIGN SUPPORT LENGTHS.

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

Main Bearing Bars (MBB) shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B211 Alloy 6061-T6.

Cross bars (CB) shall be 3/16" x 1 1/2" 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 1 1/2", spaced on 1 3/16" centers.

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

(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 1/4" extension bars. (See Base Sheet OSC-A-8.)

(4) ℄ 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.

(5) Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.

(6) Based on actual sign height, D_S, given on OSC-A-1.

OSC-A-7 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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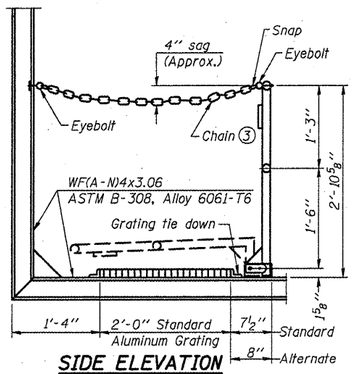
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – WALKWAY DETAILS
ALUMINUM TRUSS & STEEL POST

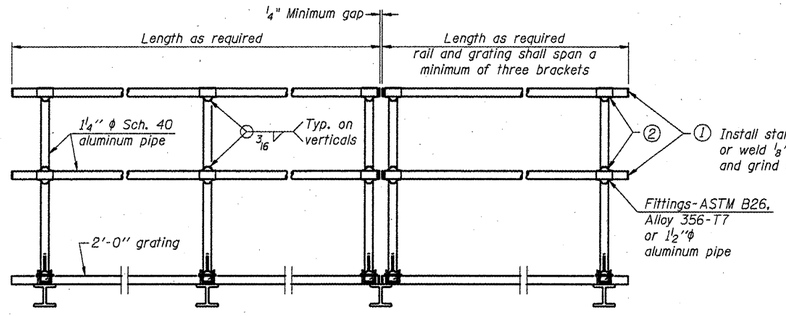
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	24
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

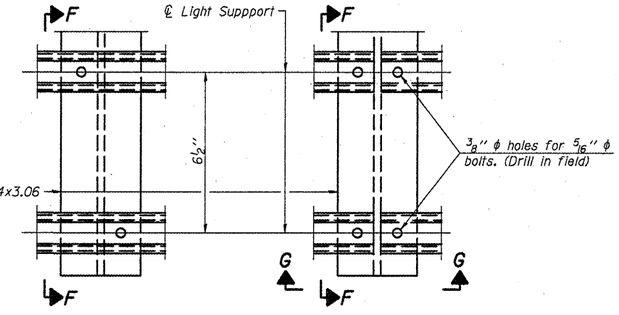


SIDE ELEVATION

(Showing Safety Chain W/O Sign)



FRONT ELEVATION



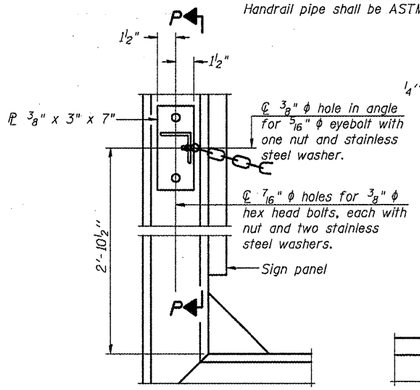
DETAIL F

DETAIL G

HANDRAIL DETAILS

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

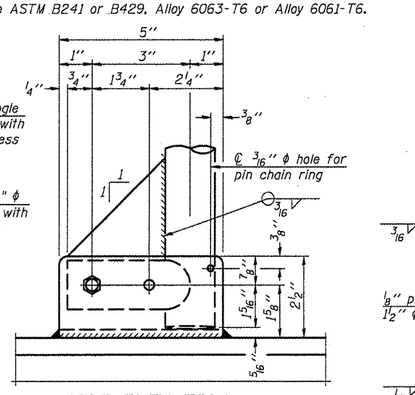
(2) Horizontal handrail member shall be continuous thru fitting. Provide 7/16" ϕ hole in fitting for 3/8" ϕ bolt. Field drill 7/16" ϕ hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 7/16" ϕ holes on top rail at ends only.)



ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

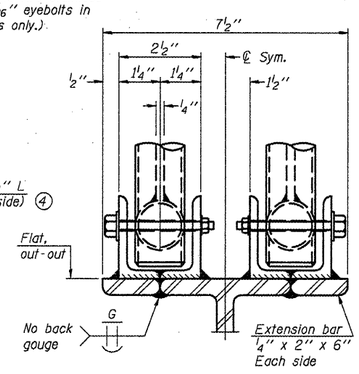
Items not shown same as "Side Elevation" of "Handrail Details"



SIDE ELEVATION

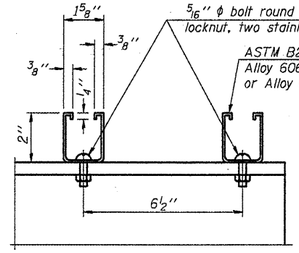
FRONT ELEVATION

Details not shown same as "ELEVATION" at right.

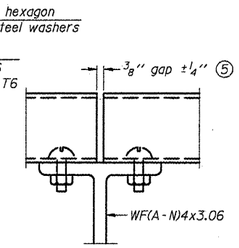


ELEVATION AT HANDRAIL JOINT (4)

Details not shown same as "FRONT ELEVATION"



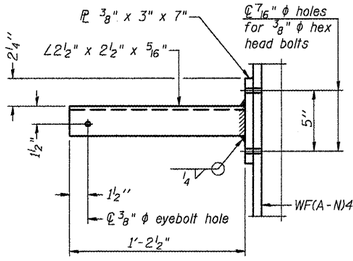
SECTION F-F



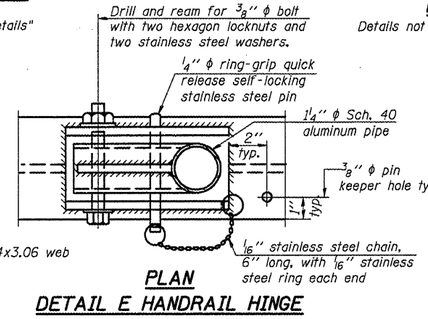
SECTION G-G

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.

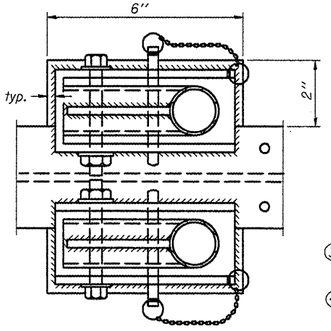


SECTION P-P



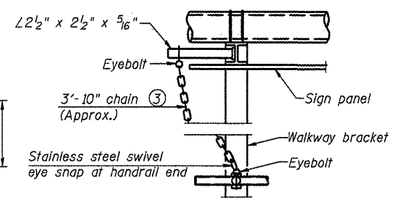
PLAN

DETAIL E HANDRAIL HINGE



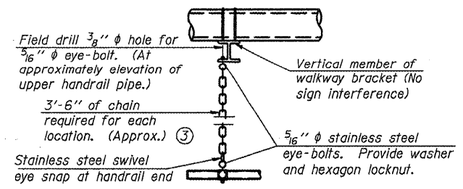
PLAN AT HANDRAIL JOINT

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.

OSC-A-8 7-1-10

•D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

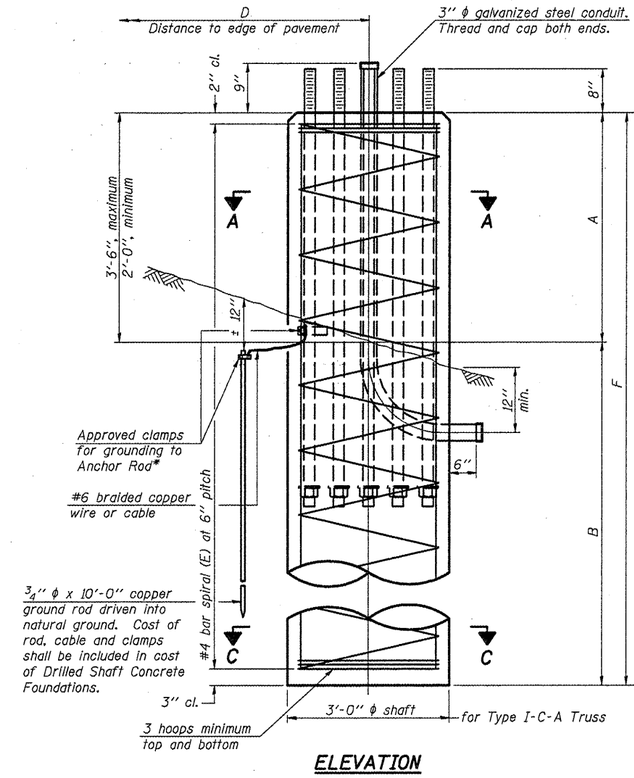
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – HANDRAIL DETAILS
ALUMINUM TRUSS & STEEL POST

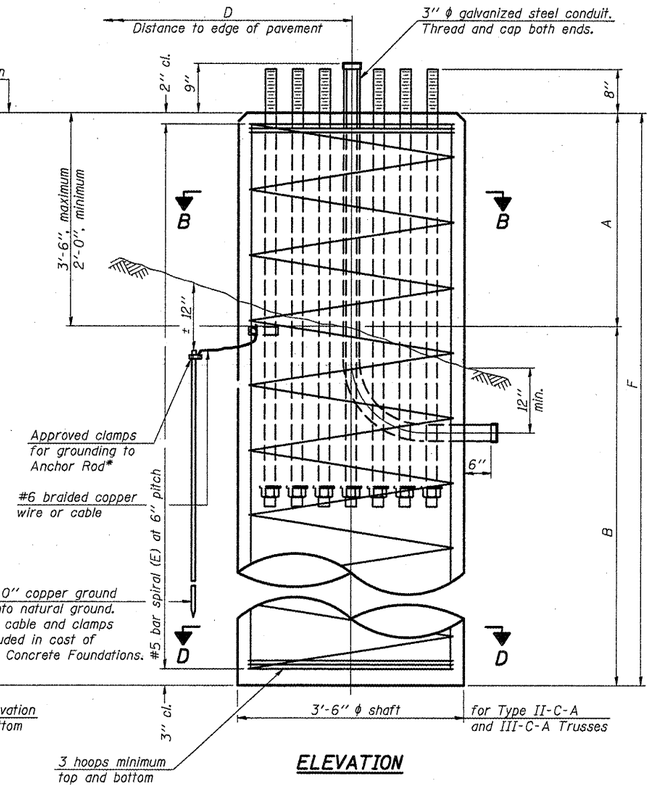
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	25
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

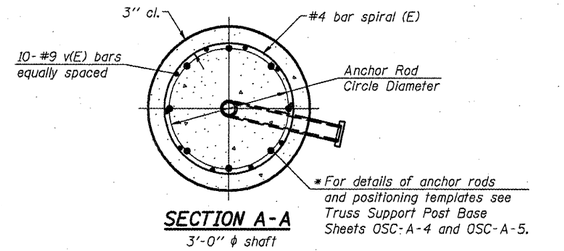
* Grind anchor rod to bright finish at ground clamp location before installing clamp.



ELEVATION

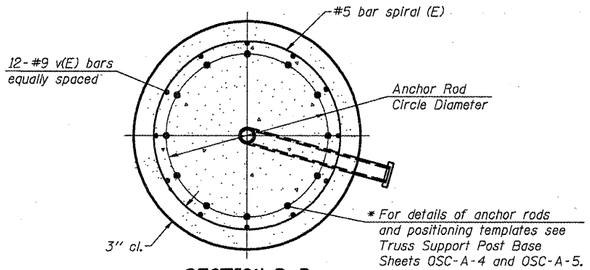


ELEVATION



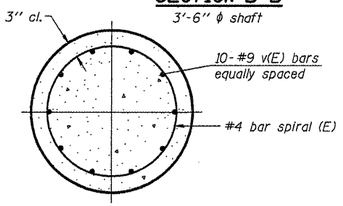
SECTION A-A

3'-0" ϕ shaft



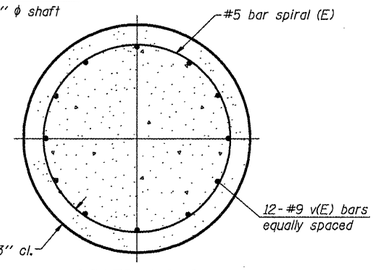
SECTION B-B

3'-6" ϕ shaft



SECTION C-C

3'-0" ϕ shaft



SECTION D-D

3'-6" ϕ shaft

NOTES:

The foundation dimensions shown in the Foundation Design Table are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Qu) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown in the Foundation Data Table will be the result of site specific designs.

If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.

No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

Concrete shall be placed monolithically, without construction joints.

Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.

A normal surface finish followed by a Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in "Drilled Shaft Concrete Foundation".

FOUNDATION DESIGN TABLE

Truss Type	Post Base Sheet	Maximum CantileverLength (ft)	Maximum Total Sign Area (sq ft)	Shaft Diameter (in)	"B" Depth (ft)	Anchor Rods No.	Anchor Rods Diameter (in)	Anchor Rod Circle Diameter (in)
I-C-A	OSC-A-4	25	170	3.0	16.0	8	2	22
II-C-A	OSC-A-5	30	170	3.5	17.0	12	2	30
II-C-A	OSC-A-5	30	340	3.5	21.5	12	2	30
III-C-A	OSC-A-5	35	170	3.5	19.0	12	2	30
III-C-A	OSC-A-5	35	250	3.5	22.5	12	2	30
III-C-A	OSC-A-5	35	400	3.5	26.5	12	2	30
III-C-A	OSC-A-5	40	400	3.5	32.0	12	2	30

FOUNDATION DATA TABLE

Structure Number	Station	Truss Type	Shaft Diameter	Elevation Top	Elevation Bottom	Qu	A	B	F	Class DS Concrete Cubic Yards
5 C 092 1074 R214.21	1922+15	II-C-A	3'-6"	614.00	589.00		3'-0"	22'-0"	25'-0"	9.0
5 C 092 1074 L214.50	1937+05	II-C-A	3'-6"	610.50	585.50		3'-0"	22'-0"	25'-0"	9.0
5 C 092 1074 R215.65	1996+55	II-C-A	3'-6"	572.00	547.00		3'-0"	22'-0"	25'-0"	9.0

OSC-A-9 7-1-10

•D-5 OVD SIN STR REPL 2011-17

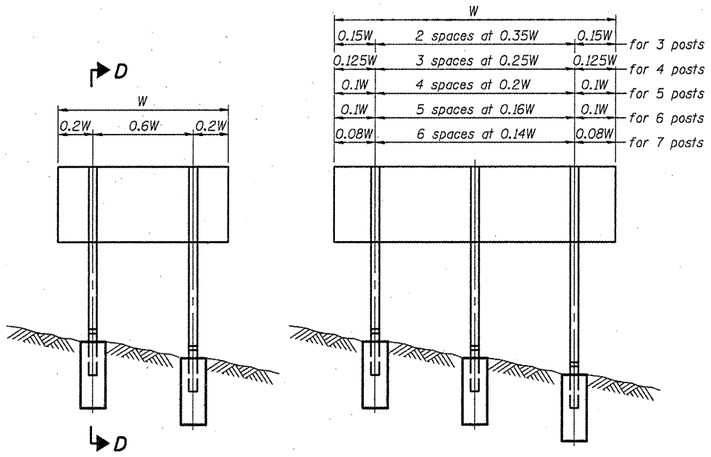
FILE NAME = c:\pw_work\pwidot\buckleslj\d0241273\OSC46140-sht-details.dgn	USER NAME = buckleslj	DESIGNED - JAL	REVISED -
		DRAWN - BBP	REVISED -
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

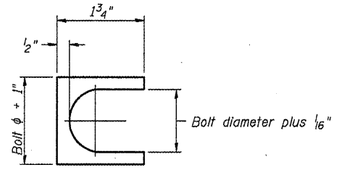
CANTILEVER SIGN STRUCTURES – DRILLED SHAFT
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	26
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

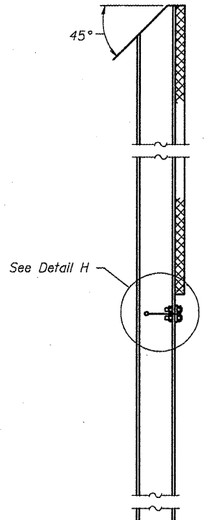


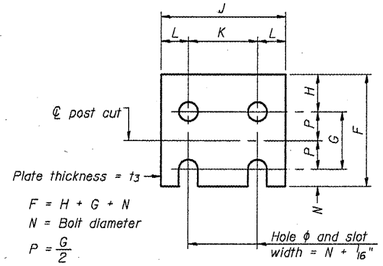
ELEVATION



SHIM DETAIL

Furnish two 0.01" thick and two 0.03" thick stainless steel or brass (ASTM B36) shims per post.

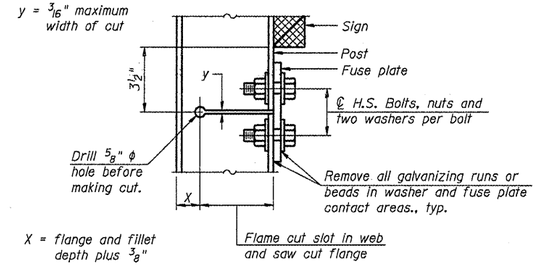




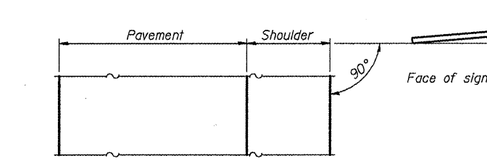
FUSE PLATE DATA		
N = Bolt Diameter	G	H
1/2"	2"	1 1/8"
5/8"	2 1/4"	1 1/4"
3/4"	2 1/2"	1 3/8"
7/8"	2 3/4"	1 1/2"
1"	3"	1 5/8"
1 1/8"	3 1/4"	1 3/4"
1 1/4"	3 1/2"	1 7/8"

FUSE PLATE DETAIL

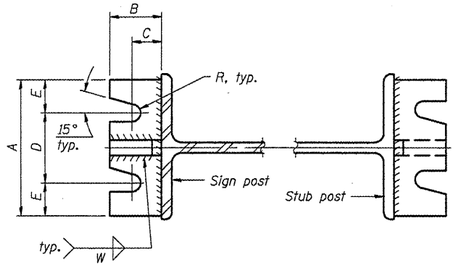
(Install with notches down.)



DETAIL H

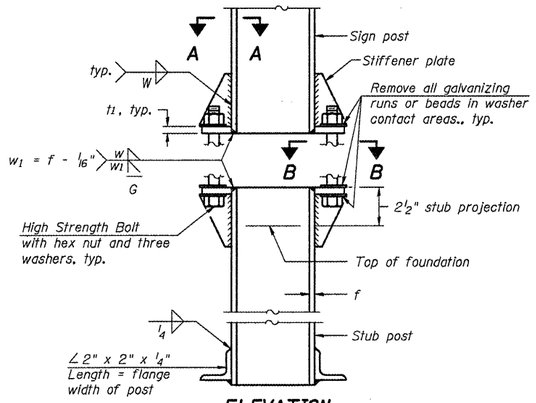


LOCATION SKETCH

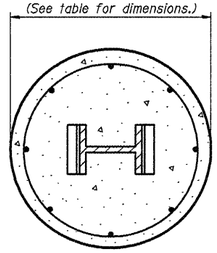


SECTION A-A

SECTION B-B



ELEVATION
SIGN POST & STUB POST



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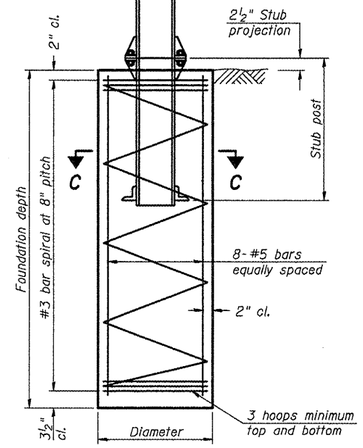
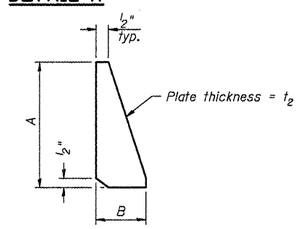


SECTION D-D



STIFFENER PLATE DETAIL

Diameter

GENERAL NOTES

Posts shall be plumbed by using shims with post-to-stub post connection bolts snug tight only. Final tightening of all High Strength Bolts shall be in accordance with Article 727.05 and threads at the junction of the bolt and nut shall be burred or center punched to prevent the nut from loosening.

LOADING: 80 m.p.h. wind with 30% gust factor, normal to sign.

DESIGN STRESSES:
Structural steel - 20,000 p.s.i.
Reinforcing steel - 20,000 p.s.i.
Concrete - 1,400 p.s.i.
Footing soil pressure - 2,000 p.s.f.

After fabrication, the post, fuse plate and upper 6", min. of the stub post shall be hot-dip galvanized in accordance with AASHTO M111. All bolts, nuts and washers shall be hot-dip galvanized in accordance with AASHTO M232.

Work this sheet with Base Sheet BAW-A-2.

BAW-A-1 7-1-10

•D-5 OVD SIN STR REPL 2011-17

FILE NAME =	USER NAME = buckleyjj	DESIGNED - JAL	REVISED -
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	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAK-AWAY WIDE FLANGE STEEL SIGN POST DETAILS

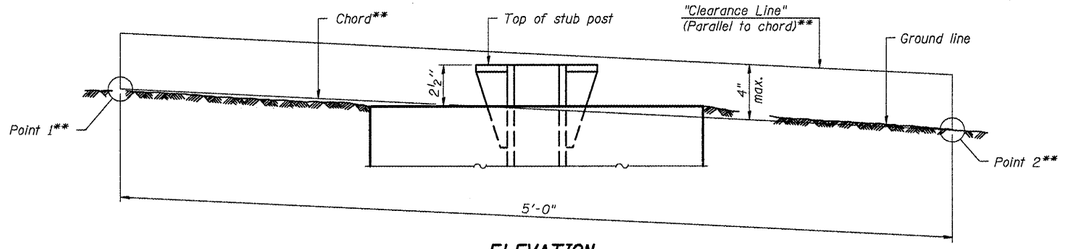
SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	27
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

POST	CONCRETE FOUNDATION TABLE							POST TO STUB POST CONNECTION DATA										FUSE PLATE DATA			
	Foundation			Reinforcement			Stub Post														
	Diameter	*Minimum Depth	Concrete (1) cu. yds.)	Vertical Bars Length	Bar Spirals Diameter	Bar Spirals Length	lbs. (2)	Length	Bolt Size	A	B	C	D	E	t_1	t_2	R	W	J	K	L	t_3
W6x9	2'-0"	6'-0"	0.70	5'-9"	1'-8½"	79'-0"	78	2'-3"	⅝" x 3¼"	6"	2¼"	1¼"	3½"	1¼"	¾"	½"	11/32"	¼"	4"	2¼"	⅞"	¼"
W6x15	2'-0"	6'-0"	0.70	5'-9"	1'-8½"	79'-0"	78	2'-6"	⅝" x 3¼"	6"	2¼"	1¼"	3½"	1¼"	¾"	½"	11/32"	¼"	6"	3½"	1¼"	⅜"
W8x18	2'-0"	6'-0"	0.70	5'-9"	1'-8½"	79'-0"	78	2'-6"	¾" x 3¾"	6"	2½"	1⅜"	3¼"	1⅜"	1"	½"	13/32"	5/16"	5¼"	2¾"	1¼"	⅜"
W10x22	2'-6"	6'-6"	1.18	6'-3"	2'-2½"	105'-0"	92	3'-0"	¾" x 3¾"	6"	2½"	1⅜"	3¼"	1⅜"	1"	½"	13/32"	5/16"	5¾"	2¾"	1½"	½"
W10x26	2'-6"	7'-0"	1.27	6'-9"	2'-2½"	112'-0"	98	3'-0"	⅞" x 4"	7"	2¾"	1½"	4"	1½"	1"	¾"	15/32"	⅜"	5¾"	2¾"	1½"	⅝"
W12x26	2'-6"	7'-9"	1.41	7'-6"	2'-2½"	119'-0"	107	3'-0"	⅞" x 4"	7"	2¾"	1½"	4"	1½"	1"	¾"	15/32"	⅜"	6½"	3½"	1½"	⅝"
W14x30	3'-0"	7'-3"	1.90	7'-0"	2'-8½"	145'-0"	113	3'-0"	⅞" x 4"	7"	2¾"	1½"	4"	1½"	1"	¾"	15/32"	⅜"	6¾"	3½"	1⅝"	½"
W14x38	3'-0"	8'-0"	2.09	7'-9"	2'-8½"	153'-0"	122	3'-6"	1" x 4½"	7½"	3"	1¾"	4"	1¾"	1¼"	¾"	17/32"	⅜"	6¾"	3½"	1⅝"	½"
W16x45	3'-0"	8'-6"	2.23	8'-3"	2'-8½"	162'-0"	130	3'-6"	1" x 4½"	7½"	3"	1¾"	4"	1¾"	1¼"	¾"	17/32"	⅜"	7"	3½"	1¾"	½"

*Dimensional changes required for varying site conditions shall be approved by the Engineer.

POST	FUSE PLATE BOLT SIZE																			
	Sign Height																			
	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18'-0"	19'-0"	20'-0"	21'-0"	22'-0"	23'-0"	24'-0"
W6x9	½" x 1½"	½" x 1½"	½" x 1½"	½" x 1½"	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——
W6x15	½" x 1¾"	½" x 1¾"	½" x 1¾"	⅝" x 2"	⅝" x 2"	¾" x 2"	¾" x 2"	¾" x 2"	¾" x 2"	——	——	——	——	——	——	——	——	——	——	——	——
W8x18	½" x 1¾"	½" x 1¾"	½" x 1¾"	½" x 1¾"	⅝" x 2"	⅝" x 2"	¾" x 2"	¾" x 2"	¾" x 2"	¾" x 2"	——	——	——	——	——	——	——	——	——	——	——
W10x22	½" x 2"	½" x 2"	½" x 2"	½" x 2"	½" x 2"	⅝" x 2"	⅝" x 2"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	——	——	——	——	——	——	——	——
W10x26	½" x 2"	½" x 2"	½" x 2"	½" x 2"	½" x 2"	⅝" x 2¼"	⅝" x 2¼"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	——	——	——	——	——	——	——
W12x26	½" x 2"	½" x 2"	½" x 2"	½" x 2"	½" x 2"	⅝" x 2¼"	⅝" x 2¼"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	——	——	——	——	——	——
W14x30	½" x 2"	½" x 2"	½" x 2"	½" x 2"	½" x 2"	⅝" x 2"	⅝" x 2"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	¾" x 2¼"	——	——	——	——
W14x38	½" x 2"	½" x 2"	½" x 2"	½" x 2"	½" x 2"	⅝" x 2¼"	⅝" x 2¼"	¾" x 2½"	¾" x 2½"	¾" x 2½"	¾" x 2½"	⅞" x 2½"	⅞" x 2½"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"
W16x45	——	½" x 2"	½" x 2"	½" x 2"	½" x 2"	½" x 2"	⅝" x 2¼"	⅝" x 2¼"	¾" x 2½"	¾" x 2½"	¾" x 2½"	⅞" x 2½"	⅞" x 2½"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"	1" x 2¾"



ELEVATION
GROUND LINE & STUB POST

** For all "Point 1" and "Point 2" locations, "Clearance Line" must be at or above top of stub post.

(1) Quantity includes all concrete necessary for one foundation.

(2) Includes reinforcement bars and spiral hooping for one foundation.

Note: All necessary excavation or drilling, backfilling, disposal of material, formwork, and furnishing and placing all materials including Class DS Concrete and reinforcing steel shall be included with "Concrete Foundations".

BAW-A-2 7-1-10

(Sheet 2 of 2)

•D-5 OVD SIN STR REPL 2011-17

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		DRAWN - BBP	REVISED -
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

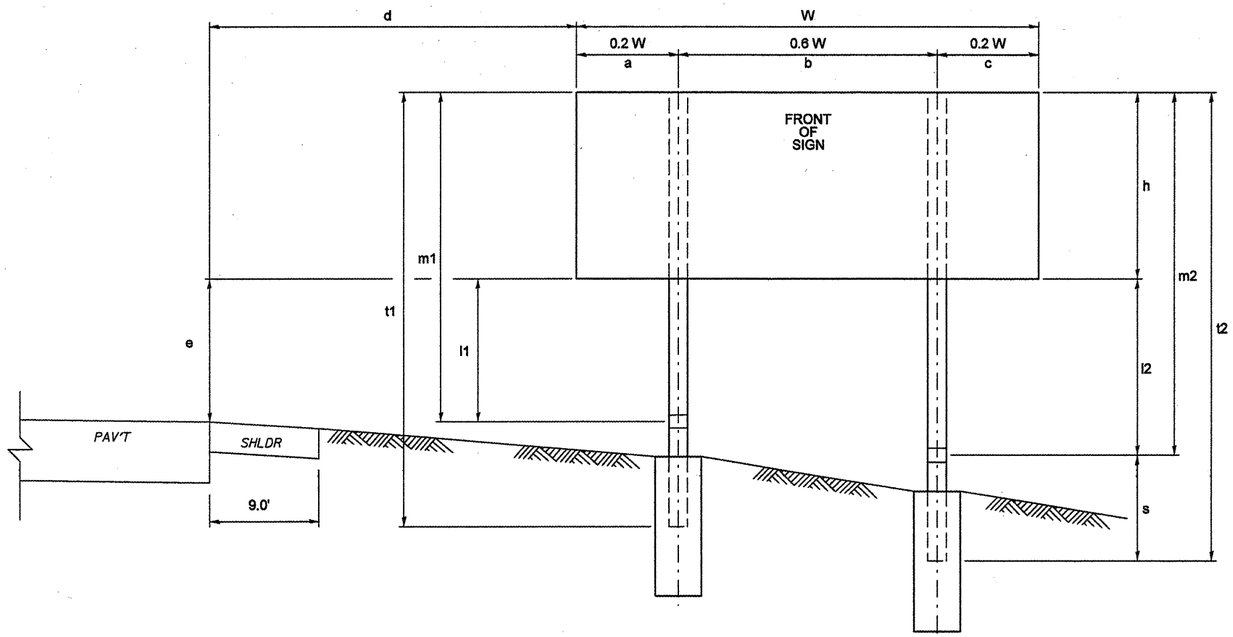
BREAK-AWAY WIDE FLANGE
STEEL SIGN POST TABLES

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	28
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

BREAK AWAY GROUND MOUNT SIGNAGE LAYOUT
LYNCH RD.

Location No.	Existing Structure No.	Mounting OFFSET to the near edge of sign "d"	Mounting HEIGHT to the bottom edge of sign "e"	Sign Size W x h ft	Sign Width W ft	0.2W a ft	0.6W b ft	0.2W c ft	Clear Height CH ft	Sign Height h ft	leg 1 l1 ft	leg2 l2 ft	main post 1 m1 ft	main post 2 m2 ft	stub post s ft	Total post 1 t1 ft	Total post 2 t2 ft	Post Type	Nominal wt. lbs/ft	Total Weight (both posts) lbs	Total Concrete (both fdns) cu. yds.
5-05	5 C 092 I074 R022.24	18 feet from edge of pavement = 9 feet from edge of shoulder	7 feet from white stripe / edge of pavement	13.5' x 11.0'	13.5	2.7	8.1	2.7	9.5	11.0	8.5	9.5	19.5	20.5	3.0	22.5	23.5	W12 x 26	26.0	1196.0	2.82
5-06	No Existing Structure	20 feet from edge of pavement = 11 feet from edge of shoulder	7 feet from white stripe / edge of pavement	13.5' x 11.0'	13.5	2.7	8.1	2.7	11.5	11.0	9.5	11.5	20.5	22.5	3.0	23.5	25.5	W14 x 30	30.0	1470.0	3.80



CH = Clear Height = the greater of l1 or l2

PROPOSED LOCATIONS AND LAYOUT

5-05 5 C 092 I074 R022.24 - North leg of I-74 and Lynch Rd. - (Southbound Lynch Rd.)
This sign structure is over the southbound lane of Lynch Road just North of I-74 interchange. This existing cantilever will be replaced with a ground mounted sign on breakaway sign supports. The new ground mount will be moved approximately 75' South of the existing cantilever from Sta. 339+00 to 339+75. This proposed location is also at the beginning of the taper for the I-74 West turn lane / on-ramp.

5-06 Breakaway Ground Mount - South leg of I-74 and Lynch Rd. - (Northbound Lynch Rd.)
No green board signage currently exists over the northbound lane of Lynch Road just South of I-74 interchange. For interchange signage continuity and to match the replacement of 5C092I074R022.24, a new ground mounted sign on breakaway sign supports will be placed at Lt. Sta. 1362+73 for northbound drivers. This proposed location is also at the beginning of the taper for the I-74 East turn lane / on-ramp.

•D-5 OVD SIN STR REPL 2011-17

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		DRAWN - BBP	REVISED -
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	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAK AWAY GROUND MOUNT SIGNAGE LAYOUT
LYNCH RD.

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	29
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 9/10/10

ROUTE FAI 74 DESCRIPTION Mast Arm on I-74EB West of G Street LOGGED BY CNA

SECTION Sign Structure LOCATION SE, SEC. 13, TWP. 19N, RNG. 12W, 2nd PM GPS:

COUNTY Vermilion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 S 092 1074 R213.03
Station 1860+00

BORING NO. 1 Simple Span
Station 1859+90
Offset 16.5 ft Rt. of EBCL
Ground Surface Elev. 661.1 ft

Surface Water Elev. ft
Stream Bed Elev. ft
Groundwater Elev.:
First Encounter ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)		BLOWS (6")	UCS Qu (tsf)	MOIST (%)
660.1	Asphalt Shoulder			
	Brown to Gray Sandy Clay Loam (Embankment)	8		
		10	3.9	8
-5		8	B	
		3		
		7	3.5	11
653.1		9	S	
	Brown Sandy Clay Loam (Embankment)	4		
		5	2.5	23
-10	(Black Silty Clay Loam Seam)	7	B	
		3		
		5	2.5	20
		5	B	
		3		
		5	2.7	12
-15		5	S	
		3		
		6	1.6	12
		8	B	
		5		
641.1 -20		8	1.6	16
		9	B	

End of Boring

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

9/9/2010 7:59:47 AM S:\SOILS\BORING LOGS\VERMILION CNTY\MAST ARMS FAI RT 74.GPJ

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 10/11/07

ROUTE FAI Rt 74 DESCRIPTION Mast Arm on I-74EB at Rt 1/US 150 SB Off Ramp LOGGED BY CNA

SECTION LOCATION SE, SEC. 18, TWP. 19N, RNG. 11W, 2nd PM GPS:

COUNTY Vermilion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 092 1074 R214.21
Station 52+00

BORING NO. 4 Mast Arm
Station 1922+15
Offset 213.0 ft Rt.
Ground Surface Elev. 610.9 ft

Surface Water Elev. ft
Stream Bed Elev. ft
Groundwater Elev.:
First Encounter 597.4 ft ▼
Upon Completion Plugged ft
After Hrs. ft

DEPTH (ft)		BLOWS (6")	UCS Qu (tsf)	MOIST (%)
610.4	Aggregate Shoulder Stone			
	Gray Slightly Weathered Massive Shale with Oxidized Joints (Bedrock)	5		
		7		14
-5		9		
		5		
		6		11
		16		
		3		
		6		13
-10		8		
		3		
		10		10
		15		
▼		7		
		10		11
-15		7		
		3		
		8		14
		9		
		2		
-20		4		15
		4		

DEPTH (ft)		BLOWS (6")	UCS Qu (tsf)	MOIST (%)
	Gray Slightly Weathered Massive Shale with Oxidized Joints (Bedrock) (continued)	6		
		10		15
585.9 -25		6		
	Gray Massive Shale (Bedrock)	15		
		12		14
580.9 -30		17		
	End of Boring			
-35				
-40				

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

9/9/2010 10:47:54 AM S:\SOILS\BORING LOGS\VERMILION CNTY\MAST ARMS FAI RT 74 OCT 2007.GPJ

•D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/29/2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS

SCALE: NONE | SHEET NO. 1 OF 3 SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	•	VERMILION	39	30
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 9/13/10

ROUTE FAI 74 DESCRIPTION Mast Arm on I-74WB Off Ramp to NB Rt. 1 LOGGED BY CNA

SECTION Sign Structure LOCATION SW, SEC. 17, TWP. 19N, RNG. 11W, 2nd PM GPS:

COUNTY Vermilion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 092 1074
Station I.214.50
Station 1937+20

BORING NO. 2 Cantilever
Station 1937+03
Offset 5.0 ft Lt. of Shoulder Edge
Ground Surface Elev. 608.1 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOISTURE (%)
Aggregate Shoulder 607.1			
Gray Clay Loam (Embankment)	3		
	3	0.6	23
603.1 -5	3	B	
*Medium Gray Massive Shale (Bedrock)	16		
	21		10
	41		
	13		
	23		11
-10	30		
	31		
	50-5"		11
-15			
*Note: Shale was easily augered through.	26		
	50-5"		9
588.1 -20			

End of Boring

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

9/22/2010 7:39:48 AM S:\SOILS\BORING LOGS\VERMILION CNTY\MAST ARMS I 74.GPJ

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 9/10/10

ROUTE FAI 74 DESCRIPTION Mast Arm on I-74EB West of Bowman Ave. LOGGED BY CNA

SECTION Sign Structure LOCATION NW, SEC. 16, TWP. 19N, RNG. 11W, 2nd PM GPS:

COUNTY Vermilion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 092 1074
Station R215.65
Station 1996+40

BORING NO. 3 Cantilever
Station 1996+40
Offset 36.0 ft Rt. of EBCL
Ground Surface Elev. 569.6 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOISTURE (%)
Asphalt Shoulder 568.6			
GrayBrown Sandy Clay Loam with Gravel (Embankment)	4		
	4		10
564.6 -5	6		
Brown Sand Loam to Loam (Embankment)	6		
	7		10
	10		
	7		
	6		12
-10	5		
	4		
(Trace of Free Water)	3		8
	7		
	2		
	7		
(No Sample Obtained)	5		
-15 554.1			
Brown to Gray Sandy Clay Loam (Embankment)	10		
	9	2.5	13
	13	B	
	5		
	11	3.5	9
-20	15	S	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOISTURE (%)
Brown to Gray Sandy Clay Loam (Embankment) (continued)			
	11		
	21		9
-25	14		
	14		9
539.6 -30	16		
End of Boring			

-35 -40

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

9/22/2010 7:39:48 AM S:\SOILS\BORING LOGS\VERMILION CNTY\MAST ARMS I 74.GPJ

*D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/29/2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS

SCALE: NONE | SHEET NO. 2 OF 3 SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	31
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 9/13/10

ROUTE Lynch Road DESCRIPTION Mast Arm on Lynch Rd. SB at I-74 Interchange LOGGED BY CNA

SECTION Sign Structure LOCATION SE, SEC. 7, TWP. 19N, RNG. 10W, 1st PM GPS:

COUNTY Vermilion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 092 1074
Station R022.24
339+00

BORING NO. 4 Cantilever
Station 339+10
Offset 25.0 ft Rt.
Ground Surface Elev. 659.3 ft

Surface Water Elev. ft
Stream Bed Elev. ft
Groundwater Elev.:
First Encounter 654.3 ft
Upon Completion 654.3 ft
After Hrs. ft

	DEPTH (ft)	BLOWS (/6")	UCS (tsf)	MOIST (%)
Aggregate Shoulder				
658.3				
Black Silty Clay				
657.3				
Brown Mottled Silty Clay				
		2		
		2	1.0	32
654.3 ▼	-5	4	B	
Brown to Gray Mottled Oxidized Silt to Dense Fine Sand				
		1		
		2		23
		3		
		1		
		2		
	-10	2		
648.3				
Brown Clay Loam Till to Sand Loam Till		2		
		5	2.3	17
		11	B	
		2		
		6	0.9	13
	-15	12	B	
		2		
		7		
		10		
640.3		6		
Gray Sandy Clay Loam Till		11		
	-20	22		
Gray Sandy Clay Loam Till (continued)				
		7		
		15	5.2	8
		15	S	
		6		
		7	4.4	10
634.3	-25	12	S	
End of Boring				
	-30			
	-35			
	-40			

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

9/14/2010 8:07:24 AM P:\DOS\STRUCTURE\BORING LOGS\NOTEBOOK\LYNCH ARMS\LYNCH RD 2010.GPJ

*D-5 OVD SIN STR REPL 2011-17

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	PLOT DATE = 10/29/2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS

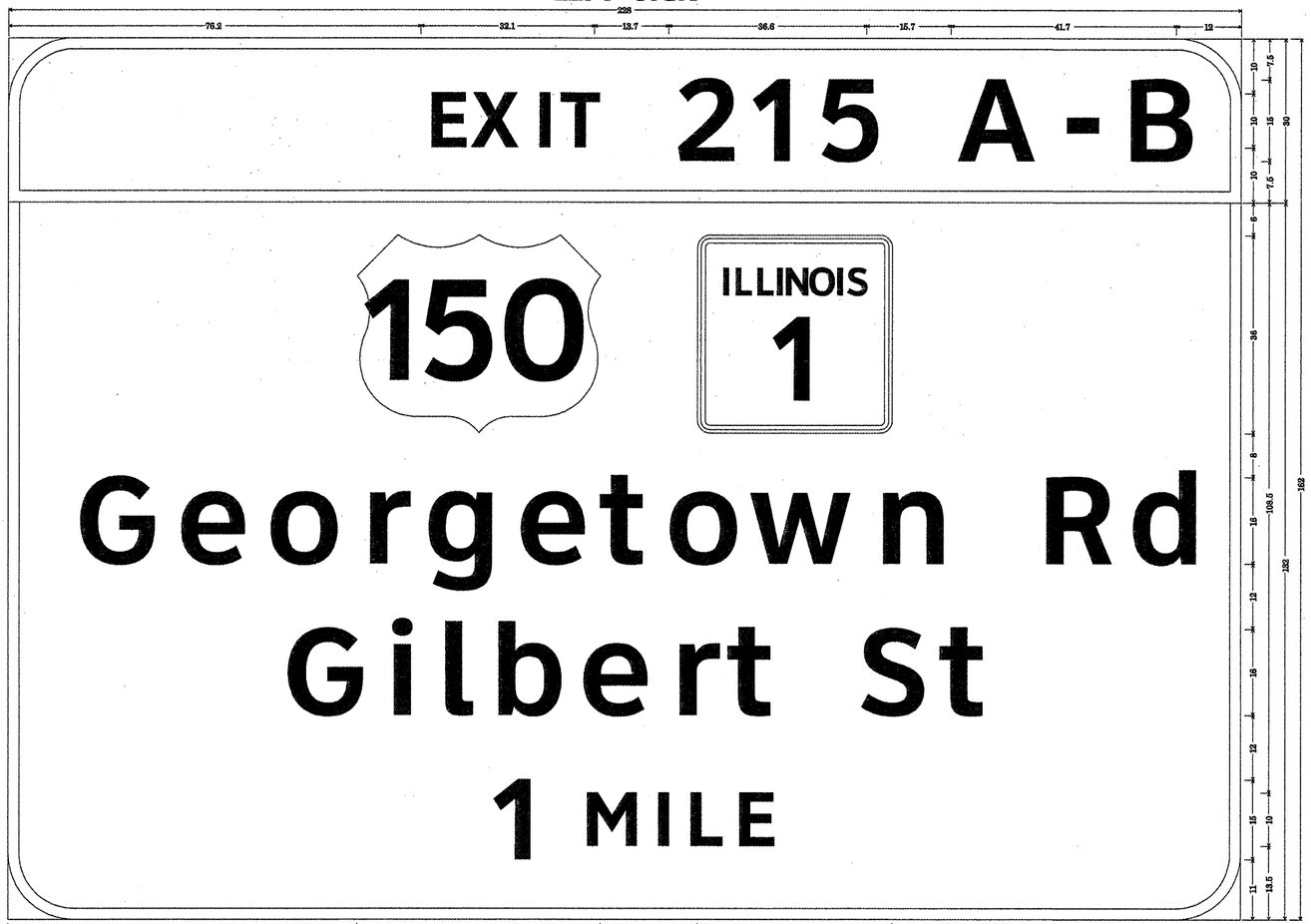
SCALE: NONE | SHEET NO. 3 OF 3 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	32
		CONTRACT NO. 46140		
	ILLINOIS FED. AID PROJECT			

5–01 A

5 S 092 I074 R213.03

LEFT SIGN



12.0" Radius, 2.0" Border, White on Green;
[EXIT 215 A-B] ClearviewHwy-5-W;
12.0" Radius, 2.0" Border, White on Green;
[Georgetown Rd] ClearviewHwy-5-W; [Gilbert St] ClearviewHwy-5-W; [1 MILE] ClearviewHwy-5-W;
Table of letter and object lefts.

E 76.2	X 84.7	I 96.1	T 101.1	2 122.0	1 136.2	5 148.2	A 174.3	- 192.8	B 204.6		
93 64.5	1 127.5										
G 10.7	e 29.6	o 46.2	r 64.0	g 75.4	e 92.4	t 108.0	o 120.0	w 136.0	n 158.9	E 188.9	d 205.7
G 49.2	i 68.4	l 77.8	b 87.7	o 104.1	r 121.2	t 131.6	S 155.9	t 170.9			
1 88.3	M 105.1	I 118.3	L 124.3	E 133.3							

*D-5 OVD SIN STR REPL 2011-17

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		DRAWN - BBP	REVISED -			74	*	VERMILION	39	33
	PLOT SCALE = 48.0000 ' / IN.	CHECKED -	REVISED -					CONTRACT NO. 46140		
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		

5–01 B

5 S 092 I074 R213.03

RIGHT SIGN

12.0" Radius, 2.0" Border, White on Green;
[EXIT 214] ClearviewHwy-5-W;
12.0" Radius, 2.0" Border, White on Green;
[G Street] ClearviewHwy-5-W; [* MILE] ClearviewHwy-5-W;
Table of letter and object kerns.

E 48.6	X 57.1	I 68.5	T 73.4	2 94.4	1 108.5	4 120.1
G 16.9	S 48.1	t 63.1	r 75.8	e 87.1	o 103.7	t 119.2
* 42.3	M 79.0	I 92.2	L 98.2	E 107.2		

*D-5 OVD SIN STR REPL 2011-17

FILE NAME = c:\pw_work\pwidot\bucklesjj\d0241273\D546140-sht-details.dgn	USER NAME = bucklesjj	DESIGNED - JAL	REVISED -
		DRAWN - BBP	REVISED -
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	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

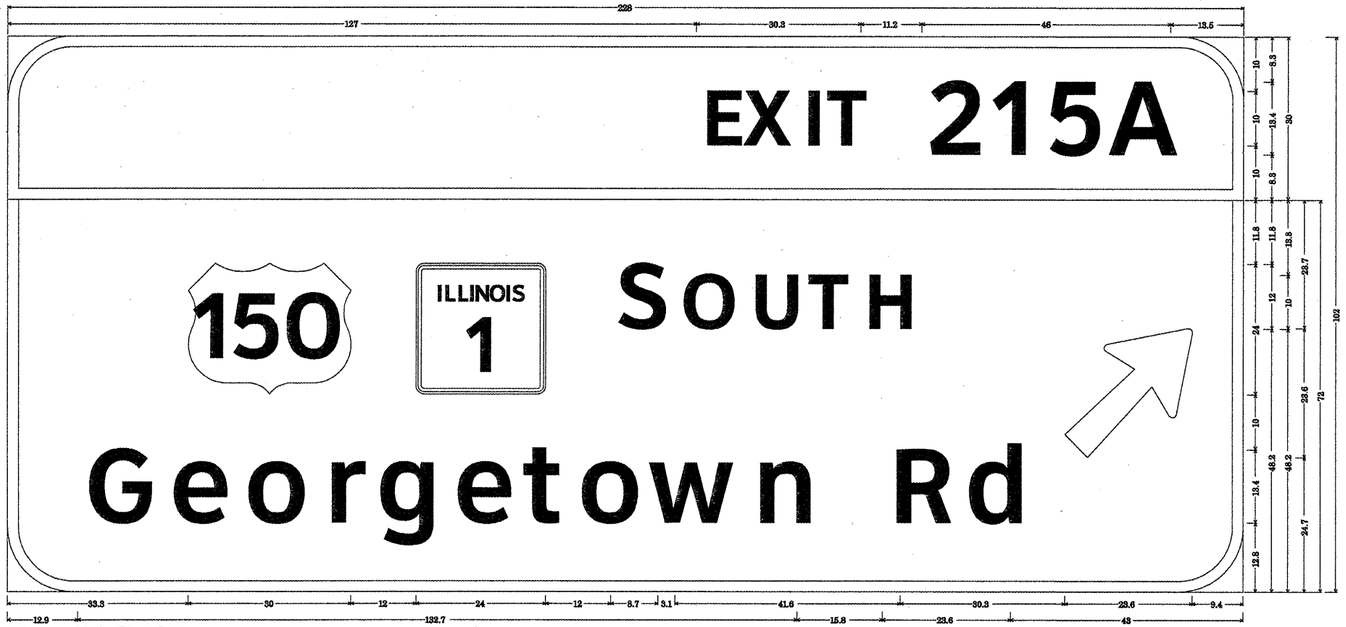
SIGNING DETAILS

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	34
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

5–02

5 C 092 1074 R214.21



12.0" Radius, 2.0" Border, White on Green;
[EXIT 215A] ClearviewHwy-5-W-R;
12.0" Radius, 2.0" Border, White on Green;
[S OUTH] ClearviewHwy-5-W; [Georgetown Rd] ClearviewHwy-5-W; Arrow 133 – 30.0" 45[;
Table of letter and object lefts.

E	X	I	T	2	1	5	A	
127.0	135.0	145.7	150.1	168.5	180.4	190.2	202.0	
G	1	S	O	U	T	H	45	
33.3	75.3	111.3	123.1	136.0	146.8	157.0	195.0	
G	e	o	r	g	e	t	o	w	n	R	d
12.9	28.7	42.4	57.3	66.8	81.0	94.0	104.0	117.3	136.4	161.4	175.4

*D-5 OVD SIN STR REPL 2011-17

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		DRAWN - BBP	REVISED -							74	*	VERMILION	39	35
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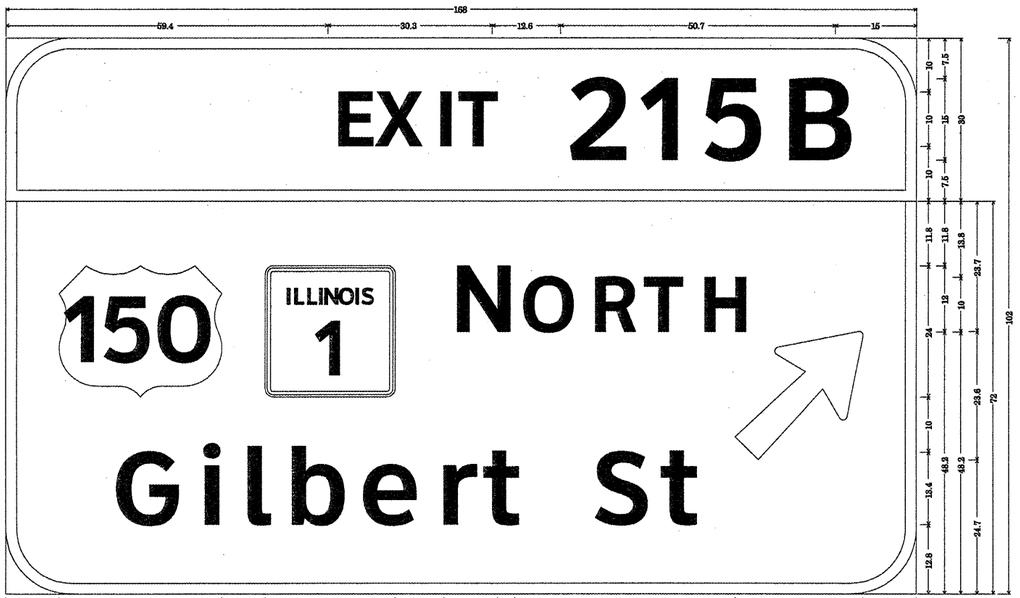
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -		SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.		ILLINOIS FED. AID PROJECT		

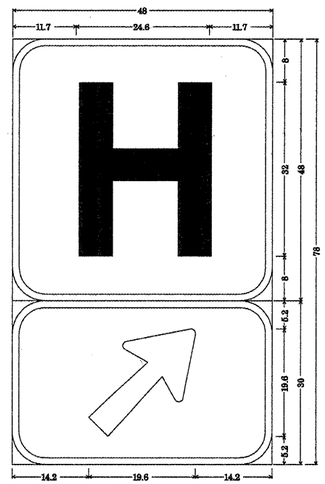
5–03 A
5 C 092 I074 L214.50
LEFT SIGN



12.0" Radius, 2.0" Border, White on Green;
[EXIT 215B] ClearviewHwy-5-W-R;
12.0" Radius, 2.0" Border, White on Green;
[N ORTH] ClearviewHwy-5-W; [Gilbert St] ClearviewHwy-5-W; Arrow 133 – 30.0" 45{;
Table of letter and object lefts.

E 59.4	X 67.3	I 78.1	T 82.5	2 102.3	1 115.6	5 126.7	B 141.6
150 9.8	1 47.8	N 80.8	O 93.9	R 106.3	T 116.7	H 127.0	134.6
G 18.2	i 34.2	l 42.1	b 50.3	e 63.9	r 78.3	t 88.9	S 107.2	t 119.7

5–03 B
5 C 092 I074 L214.50
RIGHT SIGN



6.0" Radius, 1.3" Border, White on Blue;
[H] ClearviewHwy-5-W;
6.0" Radius, 1.3" Border, White on Blue;
Arrow 80 – 25.0" 45{;
Table of letter and object lefts.

H 11.7
14.2

•D-5 OVD SIN STR REPL 2011-17

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	PLOT SCALE = 40.0000 ' / IN.	DRAWN - BBP	REVISED -			74	•	VERMILION	39	36
	PLOT DATE = 10/29/2010	CHECKED -	REVISED -					CONTRACT NO. 46140		
		DATE - 09/23/10	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		

5–04

5 C 092 I074 R215.65

12.0" Radius, 2.0" Border, White on Green;
[EXIT 216] ClearviewHwy-5-W;
12.0" Radius, 2.0" Border, White on Green;
[Bowman Ave] ClearviewHwy-5-W; [Perrysville Rd] ClearviewHwy-5-W; Arrow 160 – 35.0° 45(;
Table of letter and object lefts.

E 154.0	X 162.5	I 173.9	T 178.8	2 199.8	1 213.9	6 226.2	
B 32.5	o 40.5	w 56.5	m 79.4	a 102.5	n 119.5	A 147.8	v 165.4	e 181.2	2nd 213.8
P 14.7	e 30.7	r 47.9	r 59.9	y 69.9	s 85.4	v 98.8	i 114.8	l 124.3	l 134.2	e 143.4	R 173.4	d 190.2	

•D-5 OVD SIN STR REPL 2011-17

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		DRAWN - BBP	REVISED -						74	•	VERMILION	39	37
	PLOT SCALE = 48.0000 ' / IN.	CHECKED -	REVISED -								CONTRACT NO. 46140		
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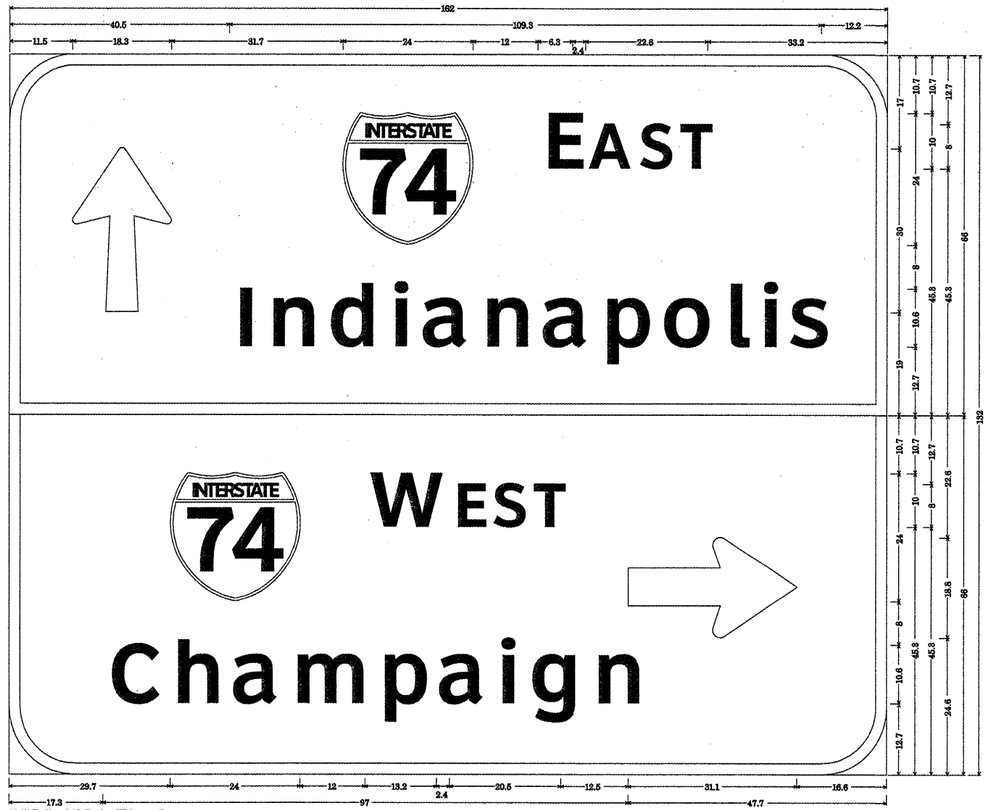

12.0" Radius, 2.0" Border, White on Green;
Arrow 133 – 30.0" 90{; [E AST] ClearviewHwy–5–W; [Indianapolis] ClearviewHwy–6–W;
12.0" Radius, 2.0" Border, White on Green;
[W EST] ClearviewHwy–5–W; [Champaign] ClearviewHwy–6–W; Standard Arrow Custom 31.1" X 18.8" 0{;
Table of letter and object lefts.

I 11.5	74 61.5	E 97.5	A 104.2	S 115.5	T 123.0	
I 40.5	n 46.7	d 57.8	i 69.3	a 74.9	n 86.3	a 97.1
p 108.4	o 119.3	l 131.2	i 137.5	s 148.0		
74 29.7	W 65.7	E 81.3	S 88.5	T 96.1	⇨ 114.3	
C 17.3	h 29.2	a 40.0	m 51.3	p 67.4	a 78.1	i 89.2
g 95.1	n 106.9					

*D-5 OVD SIN STR REPL 2011-17

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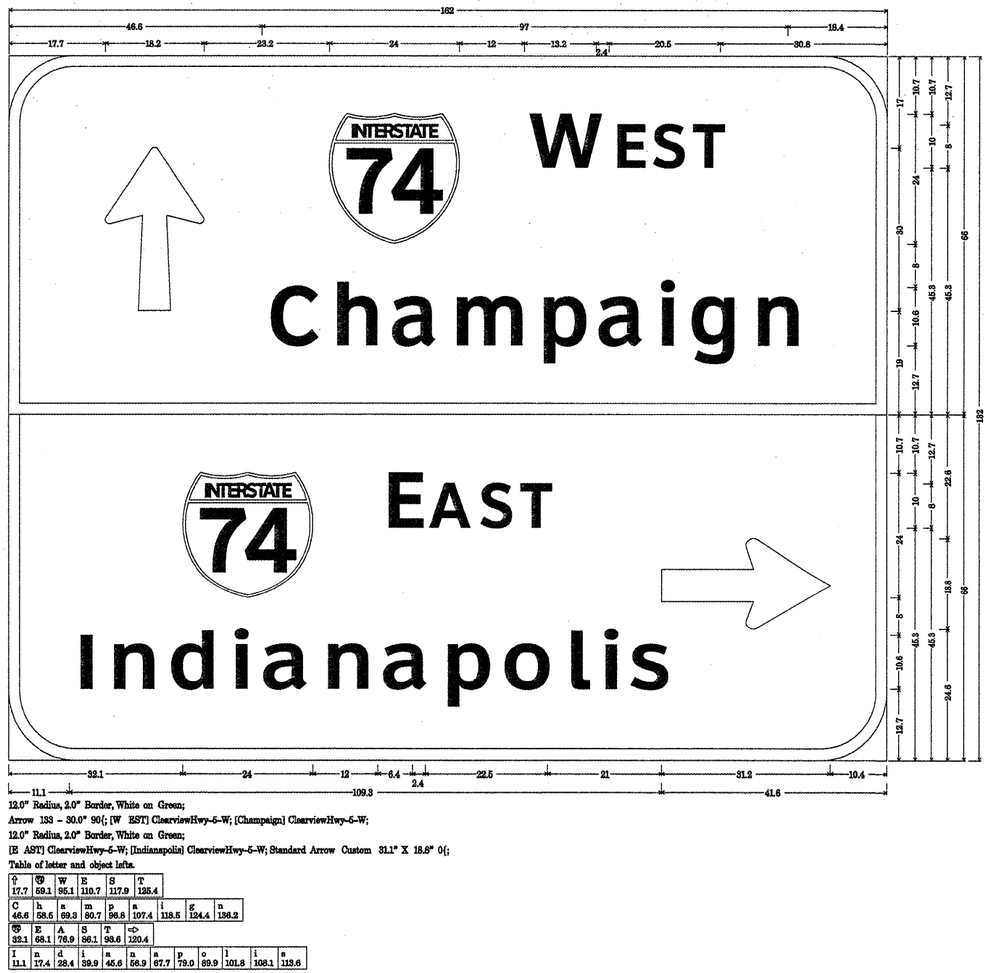
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -						
	PLOT DATE = 10/29/2010	DATE - 09/23/10	REVISED -		SCALE:	SHEET NO. OF SHEETS	STA.	TO STA.	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	*	VERMILION	39	38
		CONTRACT NO. 46140		
		ILLINOIS FED. AID PROJECT		

5–06
SOUTH LEG LYNCH RD. & I–74 /NB LYNCH RD.



12.0" Radius, 2.0" Border, White on Green;
Arrow 133 – 30.0" 90{; [W EST] ClearviewHwy-5-W; [Champaign] ClearviewHwy-5-W;
12.0" Radius, 2.0" Border, White on Green;
[E AST] ClearviewHwy-5-W; [Indianapolis] ClearviewHwy-5-W; Standard Arrow Custom 31.1" X 18.8" 0{;
Table of letter and object lefts.

⇧ 17.7	W 59.1	W 86.1	E 110.7	S 117.9	T 125.4

C 46.6	h 58.5	a 69.3	m 80.7	p 96.8	a 107.4	i 118.5	g 124.4	n 136.2

W 32.1	E 68.1	A 76.9	S 86.1	T 93.6	⇨ 120.4

I 11.1	n 17.4	d 28.4	i 39.9	a 46.6	n 56.9	a 67.7	p 79.0	o 89.9	i 101.8	i 108.1	a 113.6	

•D-5 OVD SIN STR REPL 2011-17

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	PLOT SCALE = 40.0000 ' / IN.	DRAWN - BBP	REVISED -			74	•	VERMILION	39	39
	PLOT DATE = 10/29/2010	CHECKED -	REVISED -					CONTRACT NO. 46140		
		DATE - 09/23/10	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		