1-17-14 LETTING ITEM 001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

VARIOUS ROUTES
D-5 OVD SIN STR REPL 2014-10
VARIOUS COUNTIES
C-60-010-14

INDEX OF SHEETS

NO.	DESCRIPTION
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3 - 4	SCHEDULE OF QUANTITIES
5	SIGNING DETAILS
6 - 7	SIGN TRUSS MOUNTING DETAIL
8 - 16	CANTILEVER SIGN STRUCTURE DETAILS
17 - 19	BREAK AWAY GROUND MOUNT SIGNAGE DETAILS
20	SOIL BORING LOGS

STANDARDS

701101-04
701106-02
701400-07
701401-08
701411-08
701451-02
701601-09
701901-03
720001-01
720006-04
720021-02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED 10/9/13 2013
PASSED

Justin Mamo
ENGINEER OF OPERATIONS

Dec 6 2013

John D. Baranzelli, P.E. for
acting ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED Dec 6 2013

Omer Osman, P.E. for
DIRECTOR DIVISION OF HIGHWAYS

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

CONTRACT NO. 46271

CODE NUMBER	PAY ITEM	UNIT	TOTAL QUANTITY	RURAL 100% STATE 0040
67100100	MOBILIZATION	L SUM	1.00	1.00
70100205	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	EACH	2.00	2.00
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	4.00	4.00
70100820	TRAFFIC CONTROL AND PROTECTION, STANDARD 701451	L SUM	1.00	1.00
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	1.00	1.00
70200100	NIGHTTIME WORK ZONE LIGHTING	L SUM	1.00	1.00
72000300	SIGN PANEL - TYPE 3	SQFT	354.00	354.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	351.00	351.00
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	1102.50	1102.50
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	40.00	40.00
73302210	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE III-C-A (36" X 7'-0")	FOOT	66.00	66.00
73400100	CONCRETE FOUNDATIONS	CUYD	2.80	2.80
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	21.20	21.20
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	2.00	2.00
73602000	REMOVE OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	EACH	2.00	2.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	2.00	2.00
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.00	1.00

GENERAL DESCRIPTION OF FUND CODES:
0040 = SPECIAL BRIDGE - OVERHEAD SIGN STRUCTURES

* D-5 OVD SIN STR REPL 2014-10

FILE NAME = c:\pw_work\pwidot\buckleyjj\d0336951\D5-46271-Sht-S00.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
MODELNAME	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	2	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			

CODE NUMBER	PAY ITEM	UNIT	100% STATE TOTAL QUANTITY	5-01 WB 5C057 I074 L123.00	5-02 EB 5C057 I074 R122.20	5-03 WB 5B010 U136 L014.65	5-04 EB 5B010 U136 R014.63
	General Location:			McLEAN CNTY		CHAMPGN CNTY	
	Scope of Work:			C	C	GM	GM
67100100	MOBILIZATION	L SUM	1.00	0.25	0.25	0.25	0.25
70100205	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	EACH	2.00	1.00	1.00	-	-
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	4.00	1.00	1.00	1.00	1.00
70100820	TRAFFIC CONTROL AND PROTECTION, STANDARD 701451	L SUM	1.00	0.50	0.50	-	-
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	1.00	-	-	0.50	0.50
70200100	NIGHTTIME WORK ZONE LIGHTING	L SUM	1.00	0.50	0.50	-	-
72000300	SIGN PANEL - TYPE 3	SQFT	354.00	105.00	105.00	72.00	72.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	351.00	97.50	97.50	78.00	78.00
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	1102.50	-	-	540.00	562.50
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	40.00	20.00	20.00	-	-
73302210	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE III-C-A (36" X 7'-0")	FOOT	66.00	33.00	33.00	-	-
73400100	CONCRETE FOUNDATIONS	CUYD	2.80	-	-	1.40	1.40
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	21.20	10.60	10.60	-	-
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	2.00	1.00	1.00	-	-
73602000	REMOVE OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	EACH	2.00	-	-	1.00	1.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	2.00	1.00	1.00	-	-
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.00	0.25	0.25	0.25	0.25

C = Overhead Sign Structure Replacement w/ Cantilever
GM = Overhead Sign Structure Replacement w/ Breakaway Ground Mount

• D-S OVD SIN STR REPL 2014-10

FILE NAME = c:\pw_work\pwidot\bucklesjj\d0336951\D546271-Sht-Schedule.dgn	USER NAME = bucklesjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	3	20
		CONTRACT NO. 46271		
	ILLINOIS	FED. AID PROJECT		

Location No.	5-01		
Structure No.	5 C 057 I074 L123.00		
County / Route	McLEAN CO. - I-74 WB - Carlock Weigh Station		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100205	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	EACH	1.00
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
70100820	TRAFFIC CONTROL AND PROTECTION, STANDARD 701451	L SUM	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	105.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	97.50
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	20.00
73302210	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE III-C-A (36" X 7'-0")	FOOT	33.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	10.60
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	1.00
The sign truss contractor is strongly encouraged to utilize a specialy foundation contractor for 73400200 Drilled Shaft Concrete			
Foundations due to the size and depth of the foundation and the soil conditions.			

Location No.	5-02		
Structure No.	5 C 057 I074 R122.20		
County / Route	McLEAN CO. - I-74 EB - Carlock Weigh Station		
Scope of Work	This overhead cantilever is being replaced on a new drilled shaft foundation.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100205	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	EACH	1.00
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
70100820	TRAFFIC CONTROL AND PROTECTION, STANDARD 701451	L SUM	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	105.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	97.50
73301840	OVERHEAD SIGN STRUCTURE WALKWAY, CANTILEVER, TYPE A	FOOT	20.00
73302210	OVERHEAD SIGN STRUCTURE - CANTILEVER, TYPE III-C-A (36" X 7'-0")	FOOT	33.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CUYD	10.60
73600200	REMOVE OVERHEAD SIGN STRUCTURE - CANTILEVER	EACH	1.00
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	1.00
The sign truss contractor is strongly encouraged to utilize a specialy foundation contractor for 73400200 Drilled Shaft Concrete			
Foundations due to the size and depth of the foundation and the soil conditions.			

Location No.	5-03		
Structure No.	5 B 010 U136 L014.65		
County / Route	CHAMPAIGN CO. - US 136 WB under I-57 NB - Bridge 010-0013		
Scope of Work	This bridge mounted truss is to be removed & replaced with a breakaway ground mount.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	72.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	78.00
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	540.00
73400100	CONCRETE FOUNDATIONS	CUYD	1.40
73602000	REMOVE OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	EACH	1.00

Location No.	5-04		
Structure No.	5 B 010 U136 R014.63		
County / Route	CHAMPAIGN CO. - US 136 EB under I-57 SB - Bridge 010-0012		
Scope of Work	This bridge mounted truss is to be removed & replaced with a breakaway ground mount.		
CODE NUMBER	PAY ITEM	UNIT	QUANTITY
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1.00
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	0.50
72000300	SIGN PANEL - TYPE 3	SQFT	72.00
72400330	REMOVE SIGN PANEL - TYPE 3	SQFT	78.00
72700100	STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY	POUND	562.50
73400100	CONCRETE FOUNDATIONS	CUYD	1.40
73602000	REMOVE OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	EACH	1.00

« D-5 OVD SIN STR REPL 2014-10

FILE NAME =	USER NAME = buckleyjj	DESIGNED -	REVISED -
c:\pw_work\pwidot\buckleyjj\d0336951\D546271-Sht-Schedule.dgn		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

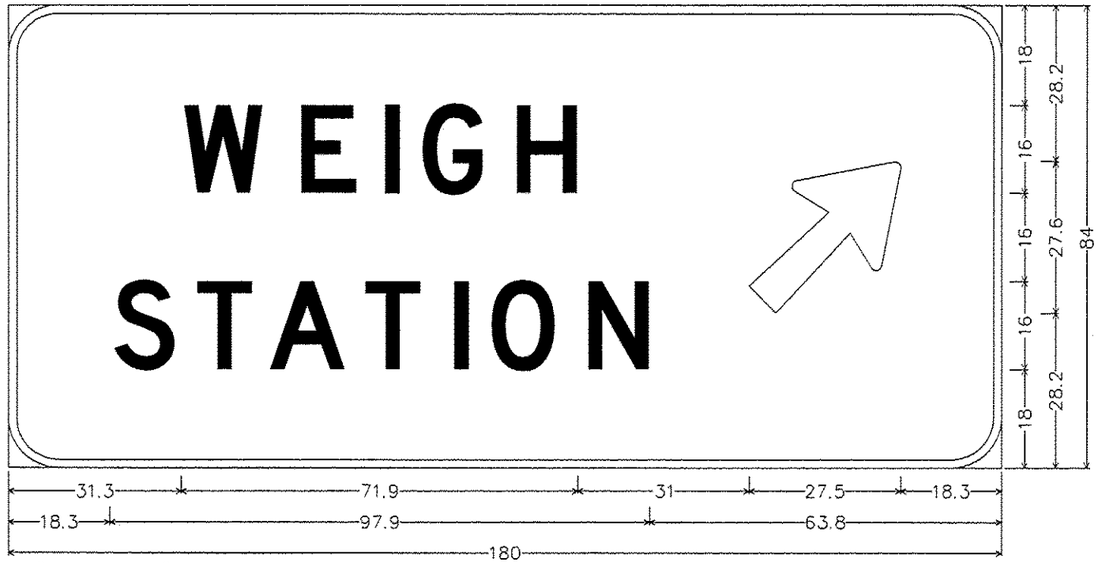
SCHEDULE OF QUANTITIES
INDIVIDUAL TRUSS LOCATIONS

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	4	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			

5–01
5 C 057 I074 L123.33 WB

5–02
5 C 057 I074 R122.20 EB

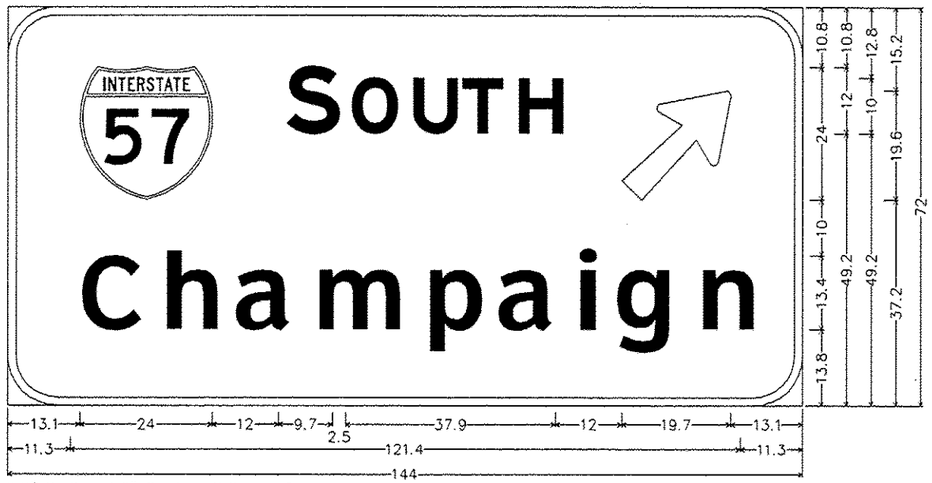


9.0" Radius, 1.5" Border, White on Green;
[WEIGH] T2000HWYEMOD; [STATION] T2000HWYEMOD; Arrow 160 – 35.0" 45{;
Table of letter and object lefts.

W 31.3	E 51.1	I 66.3	G 73.4	H 90.2	⇗ 134.2

S 18.3	T 33.7	A 46.8	T 64.2	I 78.9	O 86.0	N 103.2

5–03
5 B 010 U136 L014.65 WB

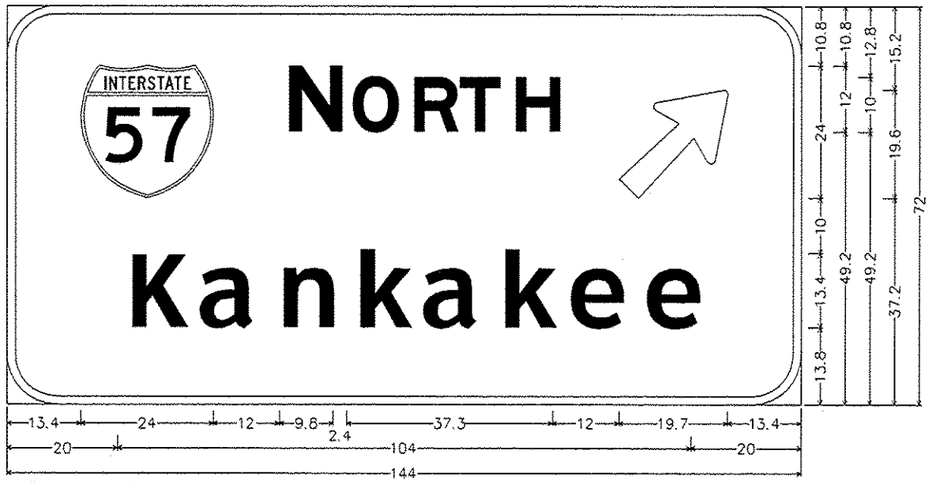


9.0" Radius, 1.5" Border, White on Green;
[S OUTH] T2000HWYEMOD; Arrow 80 – 25.0" 45{; [Champaign] ClearviewHwy–5–W;
Table of letter and object lefts.

13.1	S 49.1	O 61.3	U 72.0	T 81.9	H 91.1	⇗ 111.2	

C 11.3	h 26.2	a 39.7	m 53.8	p 73.9	a 87.3	i 101.2	g 108.5	n 123.3

5–04
5 B 010 U136 R014.63 EB



9.0" Radius, 1.5" Border, White on Green;
[N ORTH] T2000HWYEMOD; Arrow 80 – 25.0" 45{; [Kankakee] ClearviewHwy–5–W;
Table of letter and object lefts.

13.4	N 49.4	O 61.6	R 72.4	T 81.6	H 90.8	⇗ 110.9	

K 20.0	a 33.4	n 47.5	k 61.8	a 73.9	k 88.0	e 100.3	e 114.1	

* D-5 OVD SIN STR REPL 2014-10

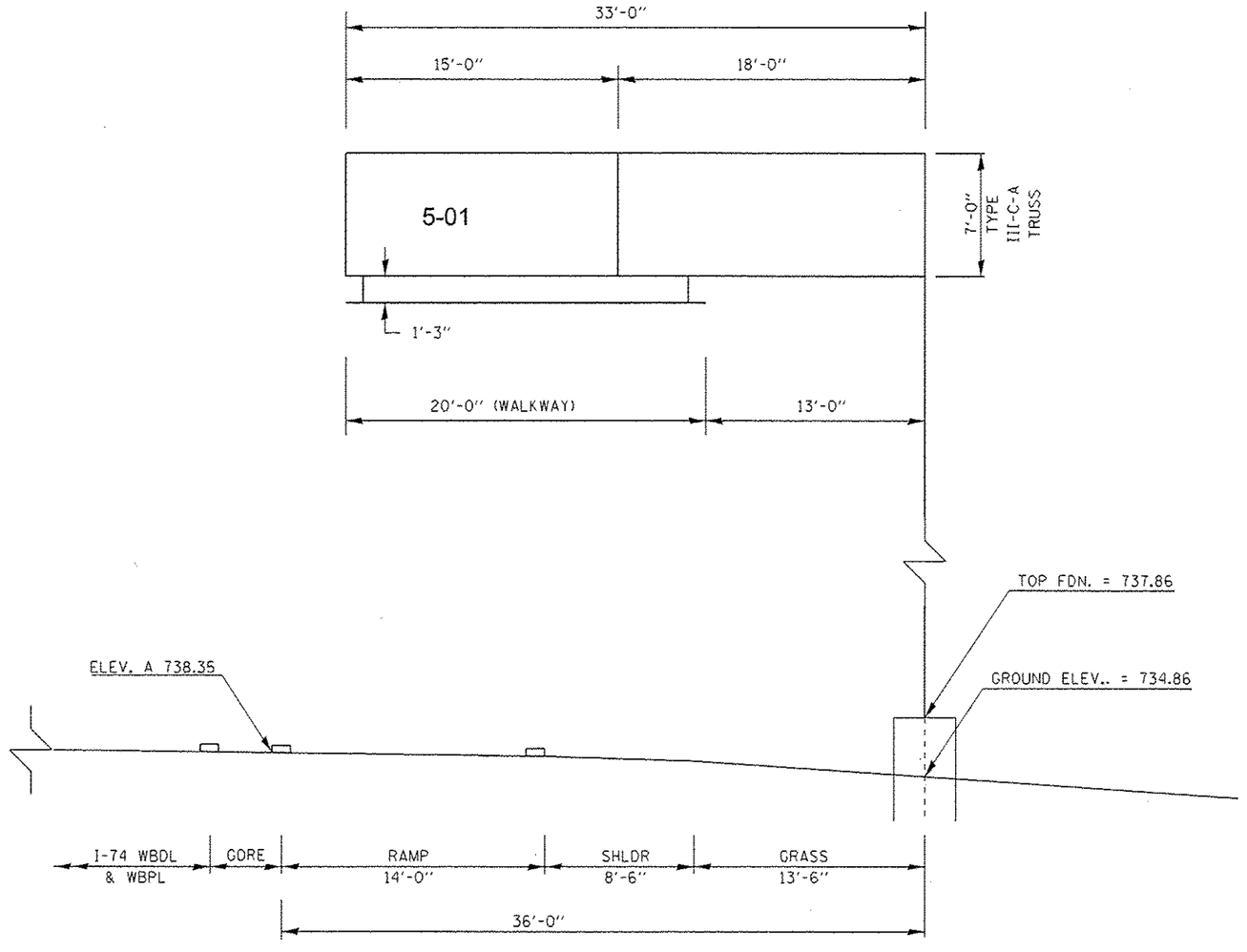
FILE NAME = c:\pe_work\pwidat\buckleyjj\d0336951\D546271-SNt-Details.dgn	USER NAME = buckleyjj	DESIGNED - JAL	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/8/2013	DATE - 04/26/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIGNING DETAILS

SCALE: | SHEET NO. 15 OF 17 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	5	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			



TEMP. BENCHMARK = CHIS. "X" ON SW ANCHOR BOLT = 736.42 (FROM 1970 PLANS)

• D-5 OVD SIN STR REPL 2014-10

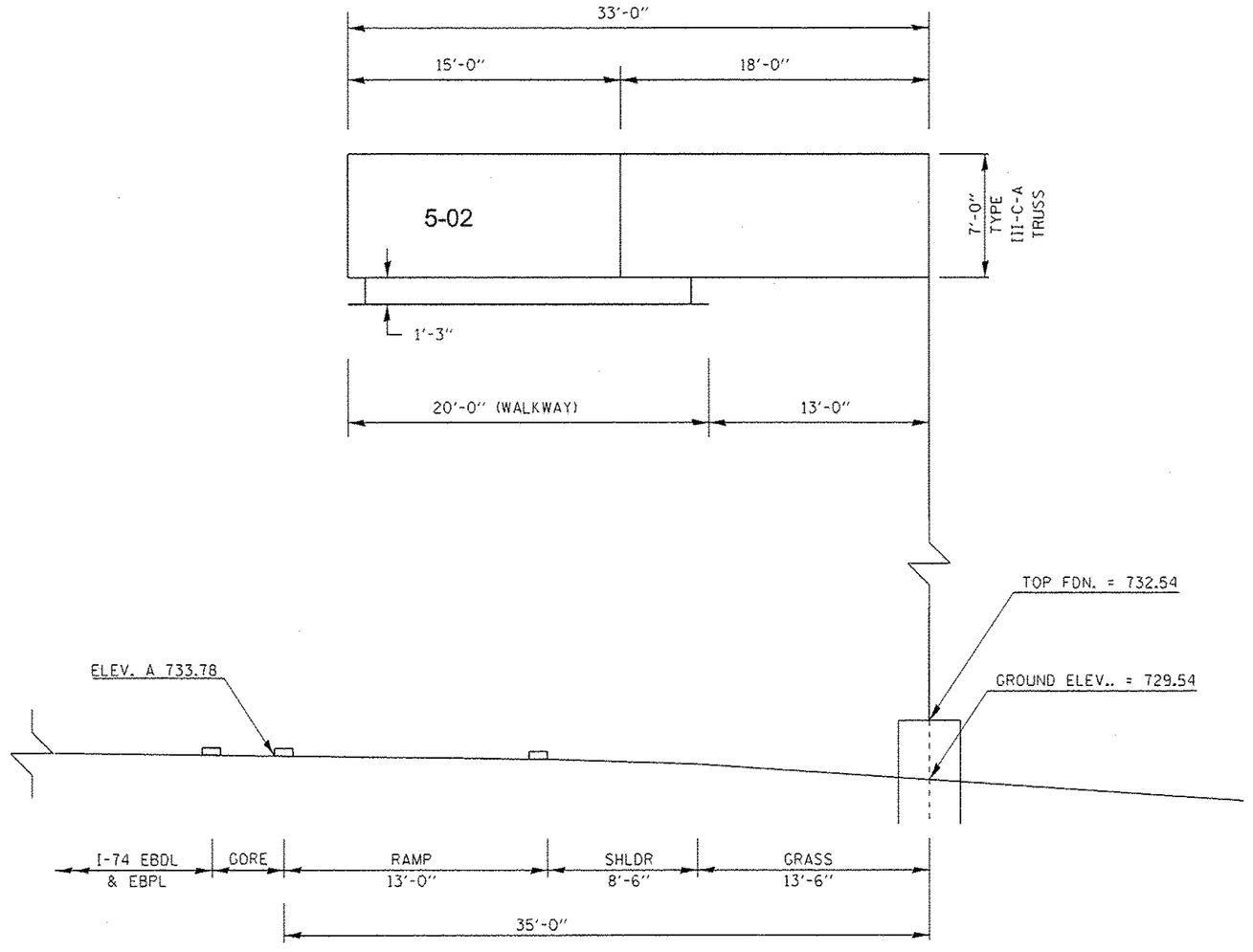
FILE NAME = c:\pw_work\pwidot\buckles_jj\d0336951\D5-46271-Sht-Details.dgn	USER NAME = buckles_jj	DESIGNED - JAL	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/8/2013	DATE - 04/26/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIGN TRUSS MOUNTING DETAIL
5 C 057 I074 L123.00

SCALE: | SHEET NO. 15 OF 17 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	6	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		



TEMP. BENCHMARK = CHIS. "X" ON NE ANCHOR BOLT = 731.80 (FROM 1970 PLANS)

• D-5 OVD SIN STR REPL 2014-10

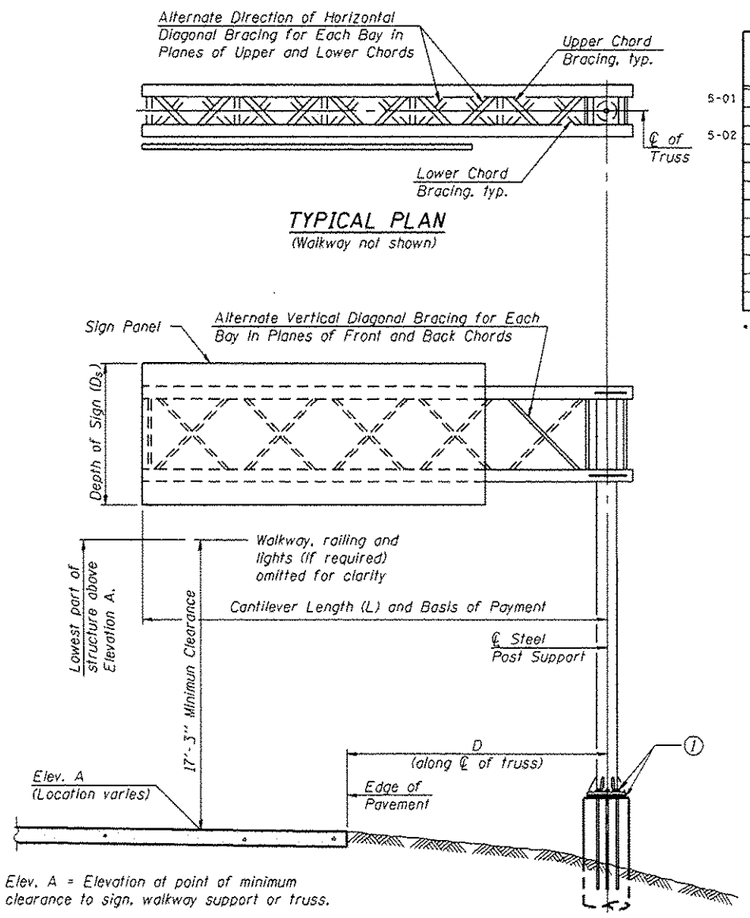
FILE NAME = c:\p...work\pwidot\buckleyjj\d0036951\D546271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED - JAL	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/8/2013	DATE - 04/26/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIGN TRUSS MOUNTING DETAIL
5 C 057 1074 R122.20

SCALE: | SHEET NO. 15 OF 17 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	7	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		



TYPICAL PLAN
(Walkway not shown)

TYPICAL ELEVATION
Looking in Direction of Traffic

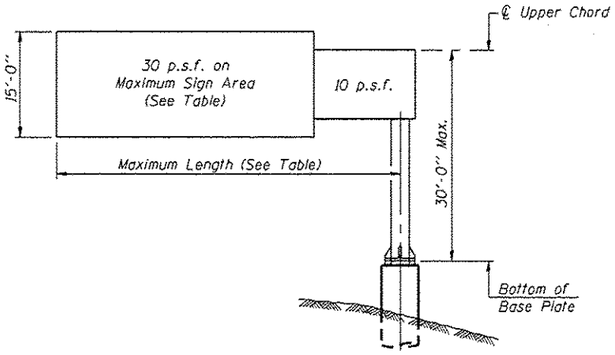
Elev. A = Elevation at point of minimum clearance to sign, walkway support or truss.

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	D_s	Total Sign Area
S-01	5 C 057 1074 L123.00 WB	1694+78	III-C-A	33'-0"	738.35	**	7'-0"	108.5
S-02	5 C 057 1074 R122.20 EB	1651+70	III-C-A	33'-0"	733.78	**	7'-0"	108.5

** SEE SIGN TRUSS MOUNTING DETAILS

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 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 ASTM F1554 Gr. 105.

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

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

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 I-C-A	Foot	
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE II-C-A	Foot	
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE III-C-A	Foot	66.0
OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	Foot	40.0
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	21.2

OSC-A-1 8-21-13

* D-5 OVD SIN STR REPL 2014-10

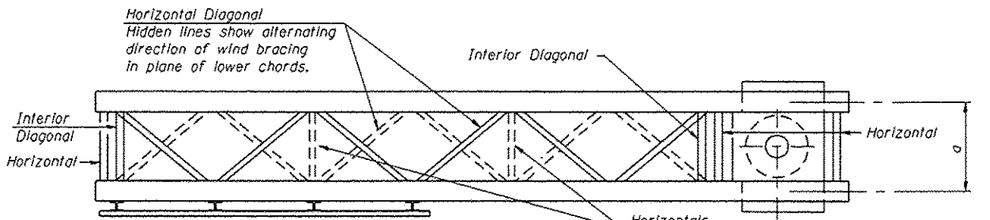
FILE NAME = c:\pw_work\pwidot\buckleyjj\d0336951\OS46271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 48.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

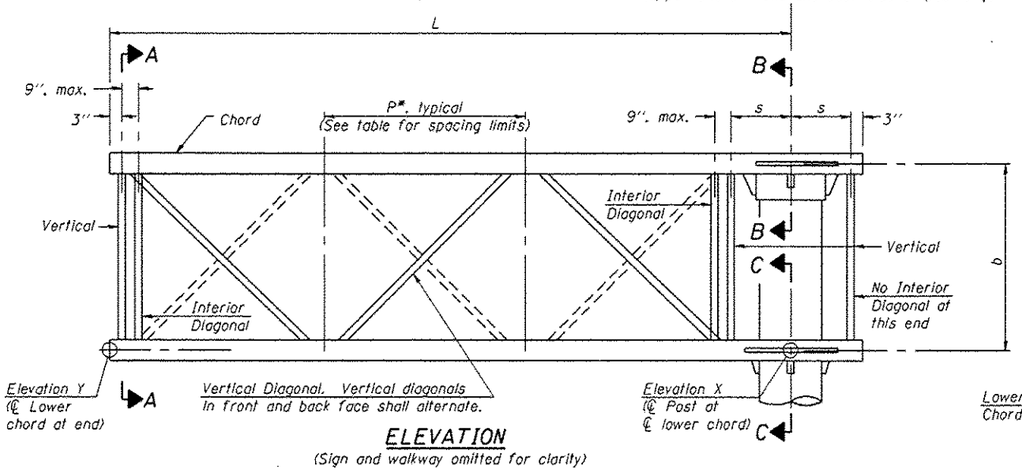
CANTILEVER SIGN STRUCTURES – GENERAL PLAN & ELEVATION
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	8	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		



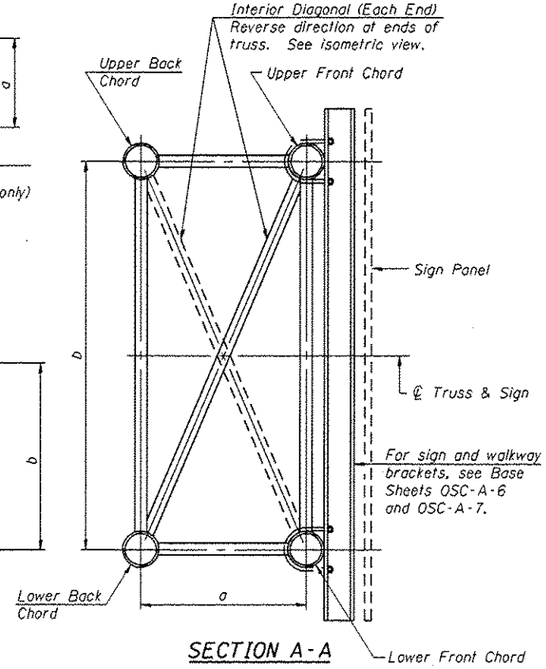
PLAN
(Walkway not shown)



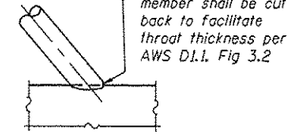
ELEVATION
(Sign and walkway omitted for clarity)

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

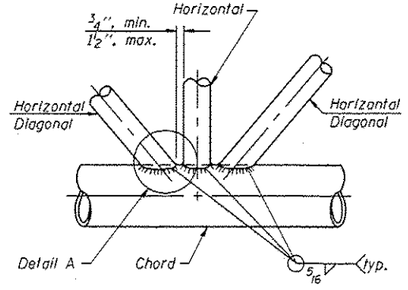
Note:
There are twice as many horizontal diagonals as there are vertical diagonals.



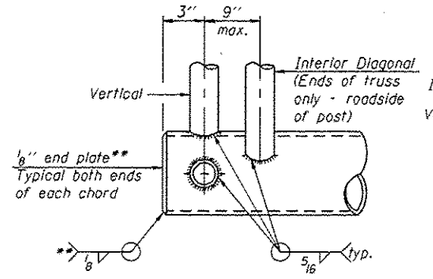
SECTION A-A



DETAIL A

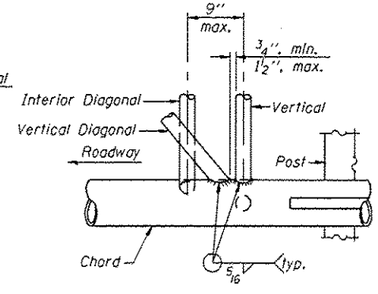


TRUSS INTERIOR JOINT DETAIL

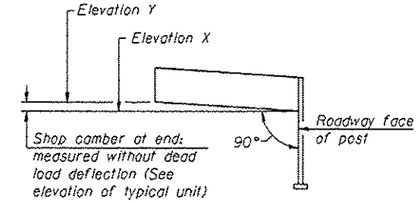


CANTILEVER END JOINT DETAIL

** Contractor may alternatively use standard aluminum drive-fit cap to close ends. 1/2" ϕ Drain hole in end plate / drive-fit cap.



POST END JOINT DETAIL



CAMBER DIAGRAM
(For Fabrication Only)

ISOMETRIC VIEW
TYPICAL TRUSS UNIT
ASTM B221 Alloy 6061 Temper T6

TRUSS UNIT TABLE

Truss Type	Dimension "a"	Dimension "b"	Dimension "s"	Limits for Panel Spacing (P)*	Up. & Low. Chord O.D.	Up. & Low. Chord Wall	Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals O.D.	Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals Wall
I-C-A	24"	54"	16"	36" min. to 48" max.	5"	5/16"	2 1/2"	5/16"
II-C-A	36"	66"	21"	42" min. to 54" max.	6 1/2"	5/16"	3 1/4"	5/16"
III-C-A (35' Max.)	36"	84"	21"	48" min. to 66" max.	7"	3/8"	3 1/2"	3/8"
III-C-A (>35' to 40')	36"	84"	21"	48" min. to 66" max.	8"	3/8"	3 1/2"	3/8"

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

	Structure Number	Station	Truss Type	Design Length (L)	Number of Panels Per Unit	Panel Length (P)*
S-01	5 C 057 1074 L123.00 WB	1694+78	III-C-A	33'-0"	6	5'-2"
S-02	5 C 057 1074 R122.20 EB	1651+70	III-C-A	33'-0"	6	5'-2"

SHOP CAMBER TABLE

Unit Length (L)	Shop Camber at End
15'	1 1/2"
16'-17'	1 3/4"
18'-20'	2"
21'-22'	2 1/4"
23'-25'	2 1/2"
26'-27'	2 3/4"
28'-30'	3"
31'-32'	3 1/4"
33'-35'	3 1/2"
36'-37'	4"
38'-40'	4 1/2"

OSC-A-2 6-1-12

* D-5 OVD SIN STR REPL 2014-10

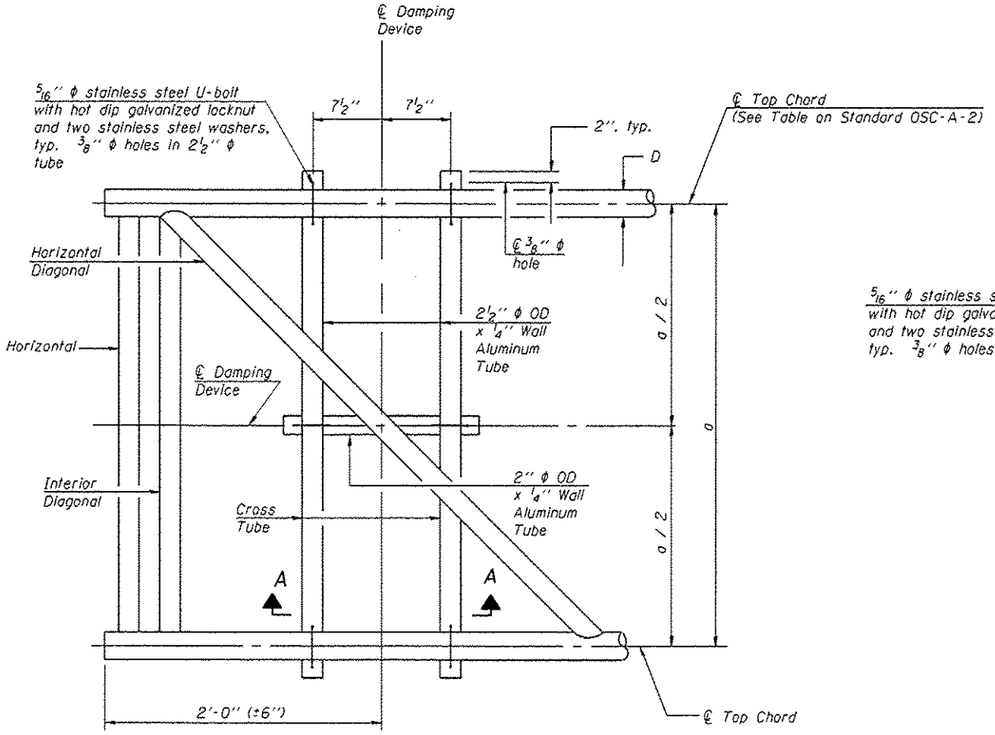
FILE NAME = c:\pw_work\pwidot\buckleyjj\d0338951\D5046271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 '/ in.	CHECKED -	REVISED -
MODELNAME	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

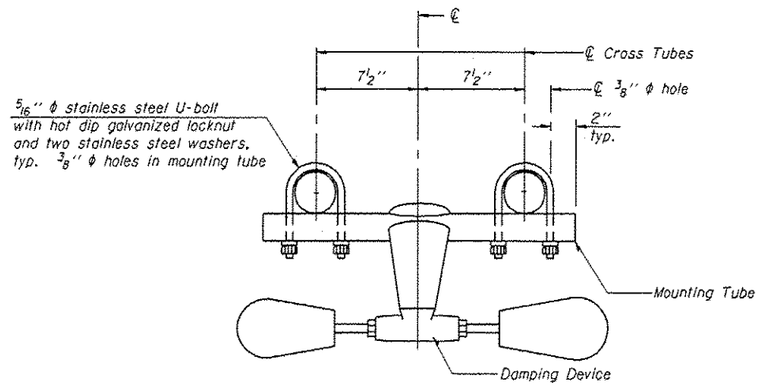
CANTILEVER SIGN STRUCTURES – TRUSS DETAILS
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET OF SHEETS | STA. | TO STA.

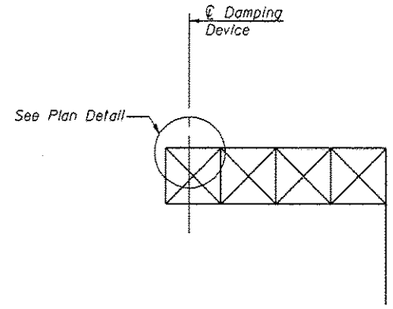
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	9	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			



PLAN DETAIL



TRUSS DAMPING DEVICE CONNECTION DETAIL

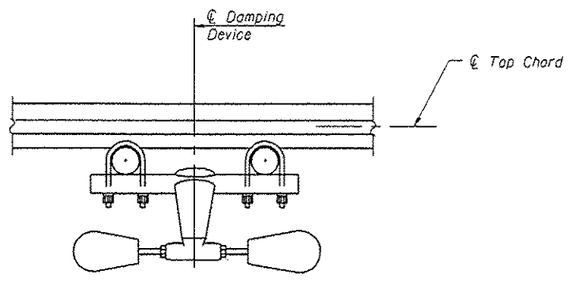


ELEVATION
Aluminum Cantilever Sign Structure

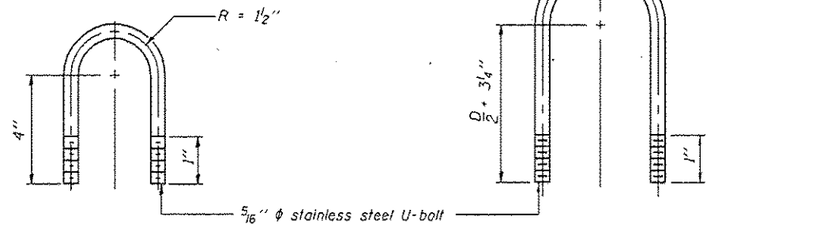
GENERAL NOTES

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 6-1-12

* D-5 OVD SIN STR REPL 2014-10

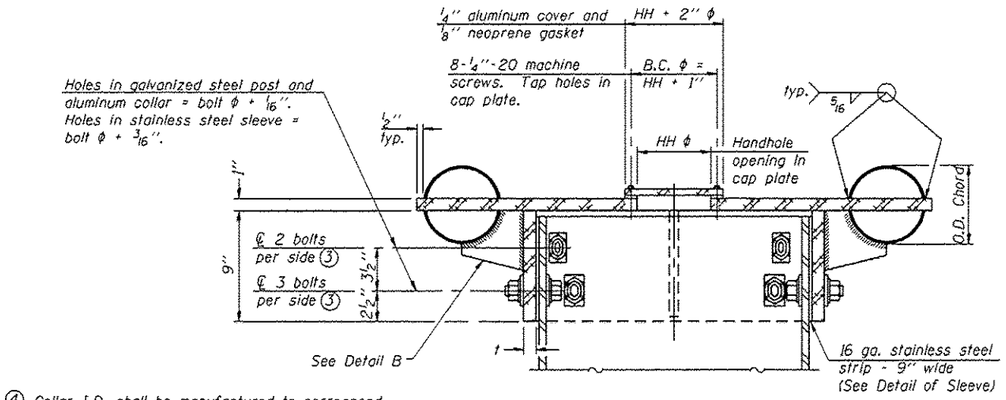
FILE NAME = c:\p-..work\p-idot\buckleyjj\d0336951\054271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURE
DAMPING DEVICE

SCALE: | SHEET OF SHEETS | STA. TO STA.

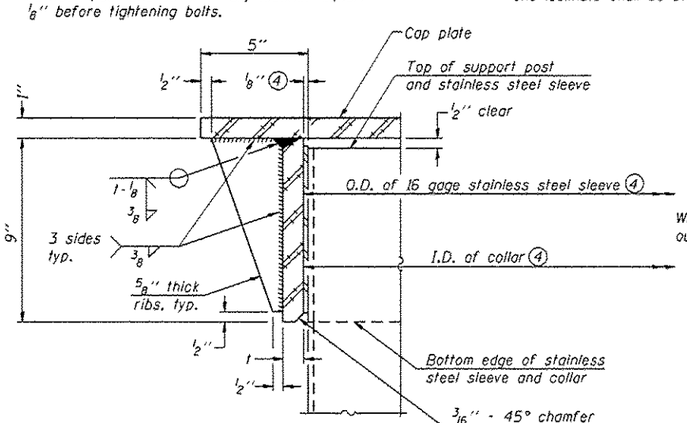
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	10	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			



SECTION B-B

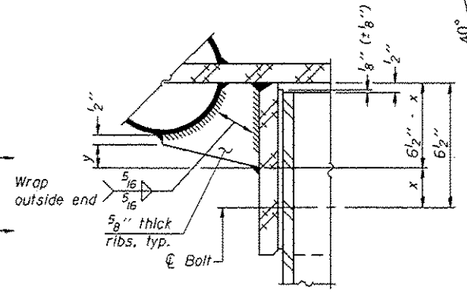
Bolts, washers (including contoured washers), and locknuts shall be stainless steel.

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

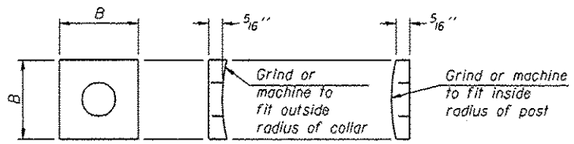
(Two locations)



DETAIL B

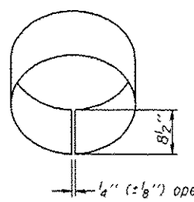
Two locations

(For details not shown, see Detail C)



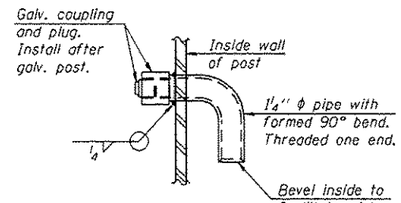
CONTOURED WASHERS

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"

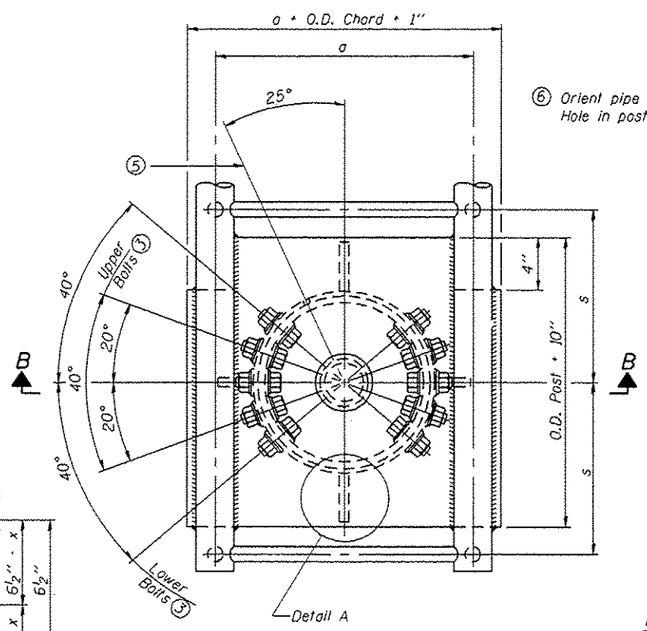


DETAIL OF STAINLESS STEEL SLEEVE

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.



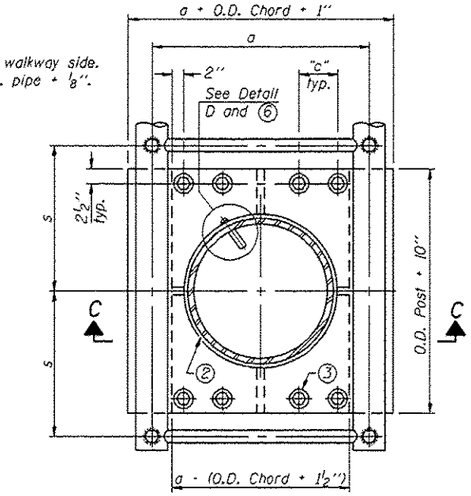
DETAIL D



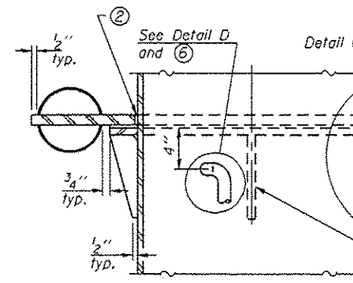
PLAN VIEW - TOP OF COLUMN

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

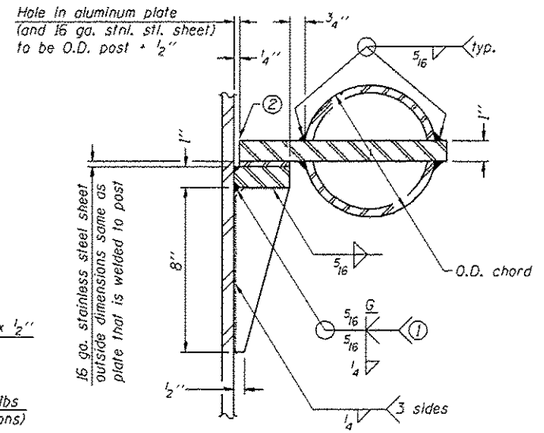
⑥ Orient pipe toward walkway side. Hole in post = O.D. pipe + 1/8".



SECTION THRU POST ABOVE LOWER CHORDS



SECTION C-C



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 Ribs	
						x	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 6-1-12

* D-5 OVD SIN STR REPL 2014-10

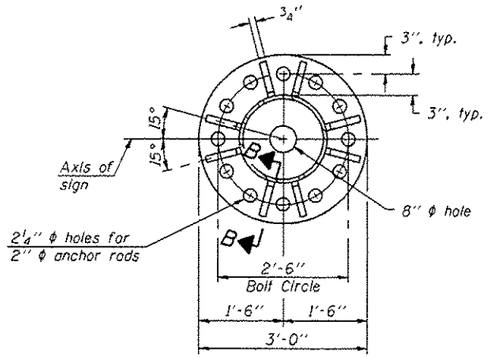
FILE NAME = c:\p=.work\pwidot\buckles_jj\d0136951\D546271-Sht-Details.dgn	USER NAME = buckles_jj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 48.0000 ' / in.	CHECKED -	REVISED -
MODELNAME	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

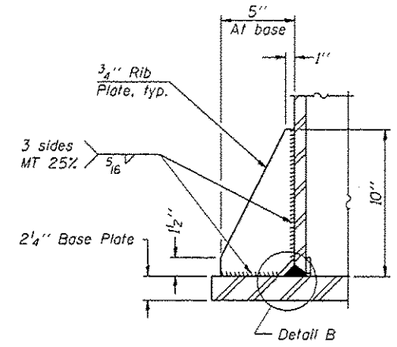
CANTILEVER SIGN STRUCTURES – JUNCTURE DETAILS
ALUMINUM TRUSS & STEEL POST

SCALE: | SHEET OF SHEETS | STA. | TO STA.

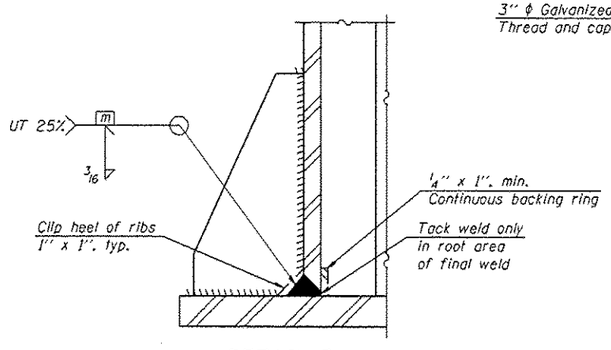
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	11	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		



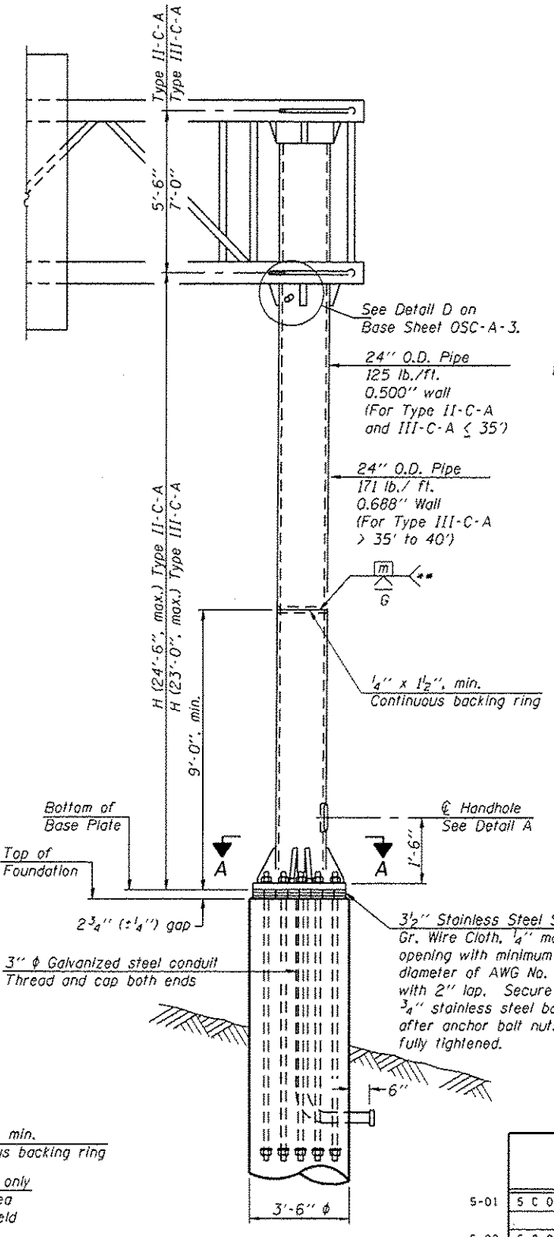
SECTION A-A



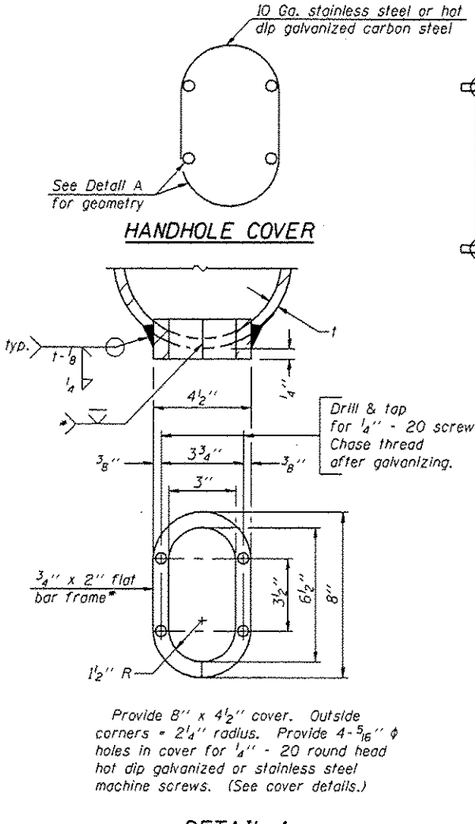
SECTION B-B



DETAIL B
(Typical rib)



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



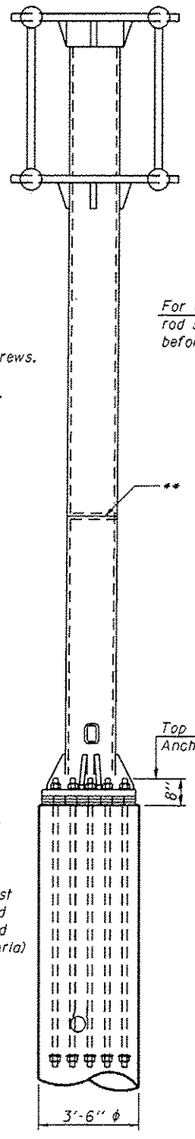
HANDHOLE COVER

Provide 8" x 4 1/2" cover. Outside corners = 2 1/4" radius. 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.)

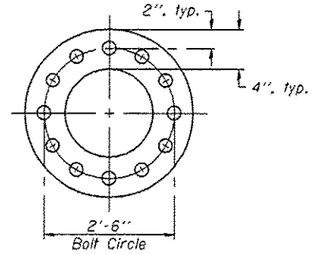
DETAIL A

* 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 μin or less.

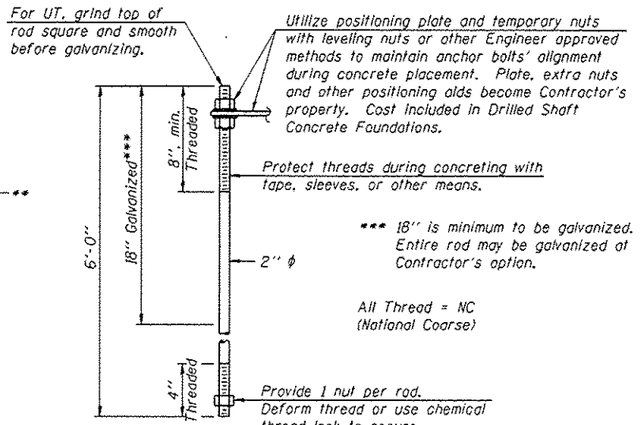
** Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.



SIDE ELEVATION



SUGGESTED POSITIONING PLATE



*** 18" is minimum to be galvanized. Entire rod may be galvanized at Contractor's option.

All Thread = NC (National Coarse)

ANCHOR ROD DETAIL

Anchor rods shall conform to ASTM F1554 Grade 105. Galvanize the upper 18" (minimum***) and associated AASHTO M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide a 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, 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
5-01	5 C 057 1074 L123.00 WB	1694+78	21'-9"
5-02	5 C 057 1074 R122.20 EB	1651+70	22'-6"

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

OSC-A-5 6-1-12

* D-5 OVD SIN STR REPL 2014-10

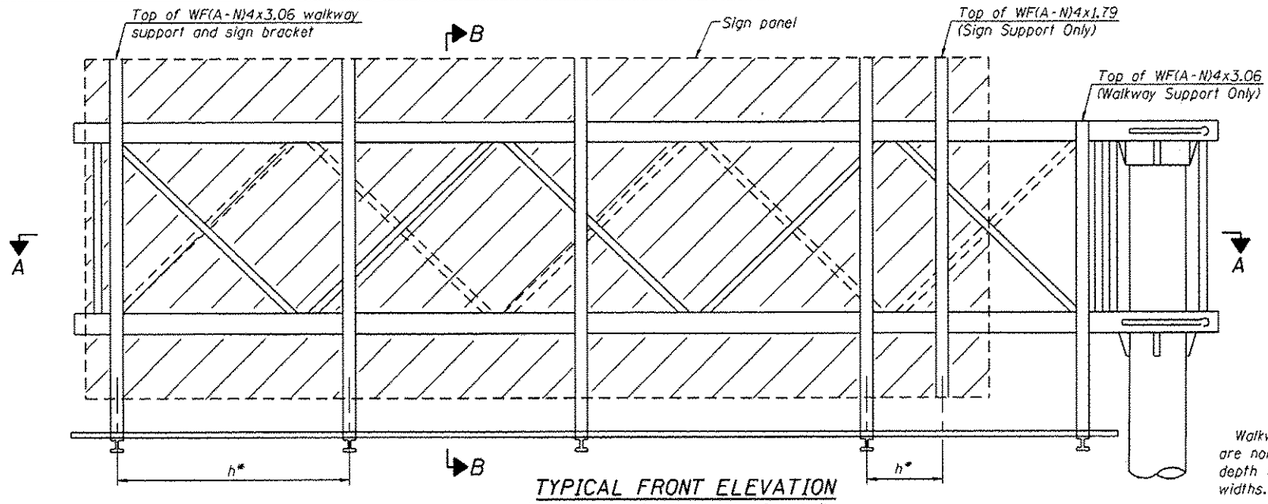
FILE NAME = c:\p-_work\p-idot\buckleyjj\d0336951\D5-46271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
#MODELNAME#	PLOT DATE = 10/8/2013	DATE -	REVISED -

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 OF SHEETS | STA. | TO STA.

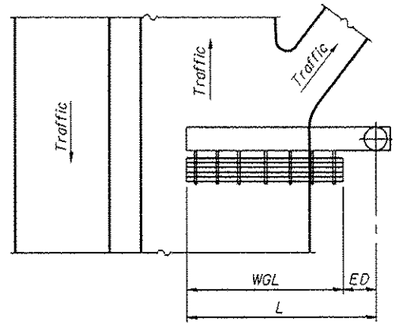
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	-	VARIOUS	12	20
		CONTRACT NO. 46271		
	ILLINOIS	FED. AID PROJECT		



TYPICAL FRONT ELEVATION

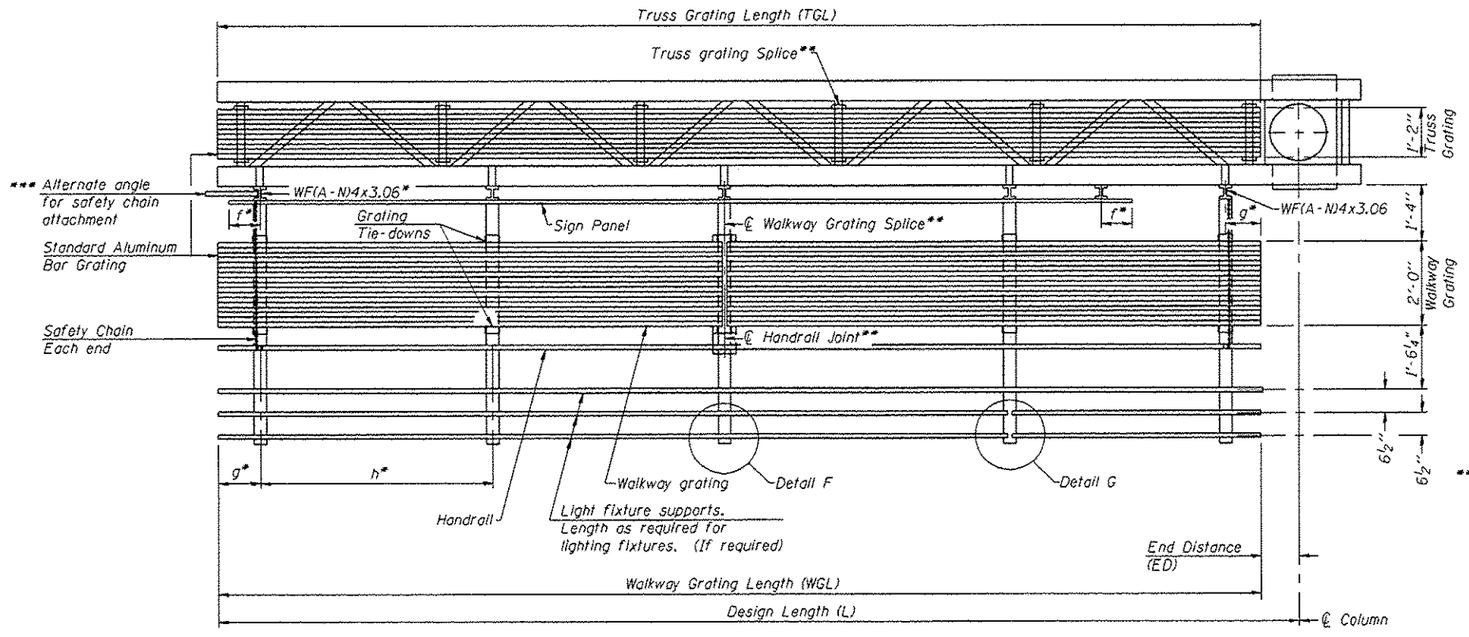
With lights and handrail omitted for clarity.

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)



SECTION A-A

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

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.

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

	Structure Number	Station	WGL	ED	TGL
5-01	5 C 057 1074 L123.00 WB	1694+78	20'-0"	13'-0"	31'-6"
5-02	5 C 057 1074 R122.20 EB	1651+70	20'-0"	13'-0"	31'-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.

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 6-1-12

* D-S OVD SIN STR REPL 2014-10

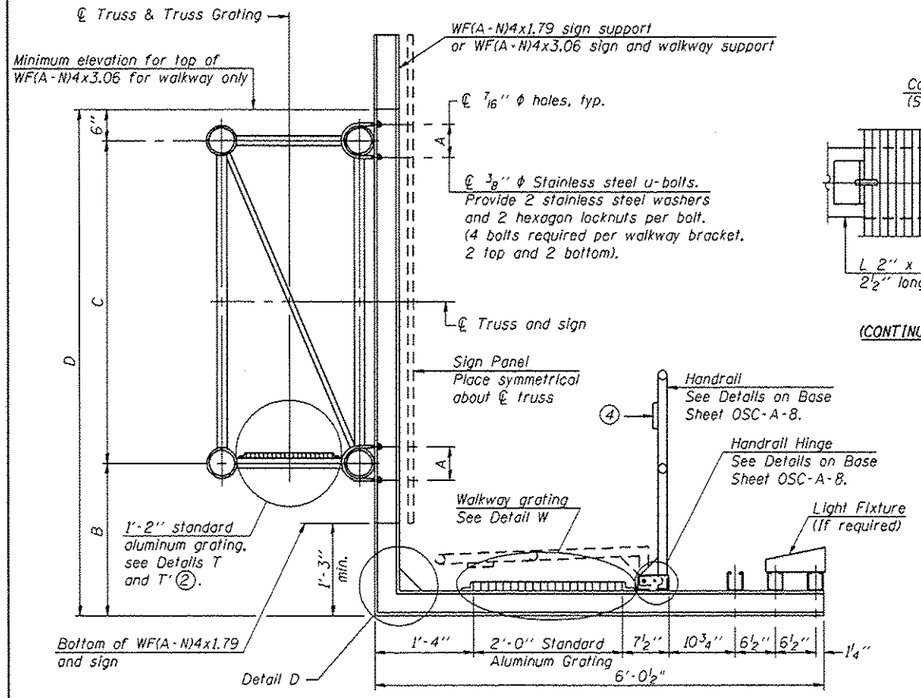
FILE NAME = o:\pe_work\pwidot\buckleyj\d0336951\DS46271-Sht-Details.dgn	USER NAME = buckleyj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 48.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

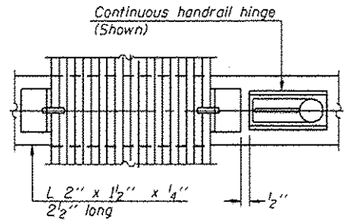
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

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

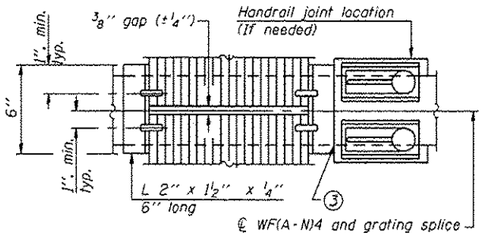
SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	13	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			



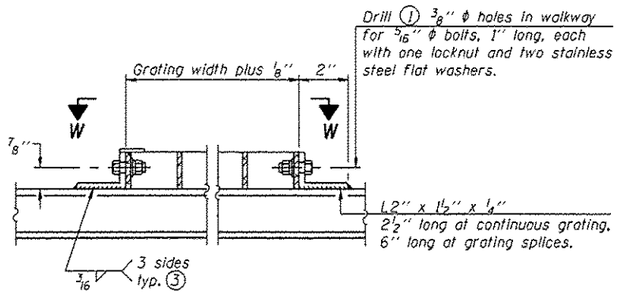


(CONTINUOUS WALKWAY GRATING)



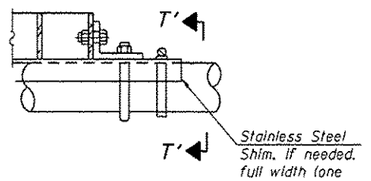
(AT WALKWAY GRATING SPLICE)

SECTION W-W



DETAIL W

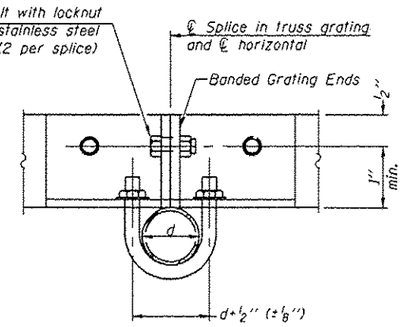
(Walkway grating)



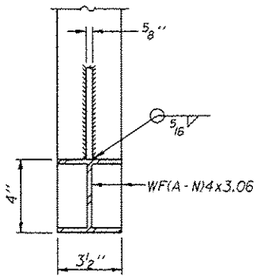
DETAIL T'

(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'

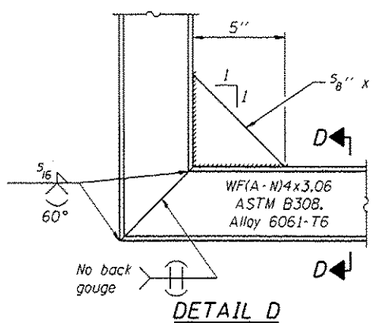


SECTION D-D

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 B-B

SECTION T-T



DETAIL T

(Continuous Truss grating)

DETAIL D

Structure Number	Station	A	⑥ B	C	⑥ D
5-01 5 C 057 1074 L123.00 WB	1694+78		1'-3"	7'-0"	8'-9"
5-02 5 C 057 1074 R122.20 EB	1651+70		1'-3"	7'-0"	8'-9"

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.

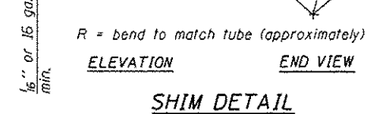
Cross bars (CB) shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

Aluminum Grating with modified "I" 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.



SHIM DETAIL

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 6-1-12

* D-5 OVD SIN STR REPL 2014-10

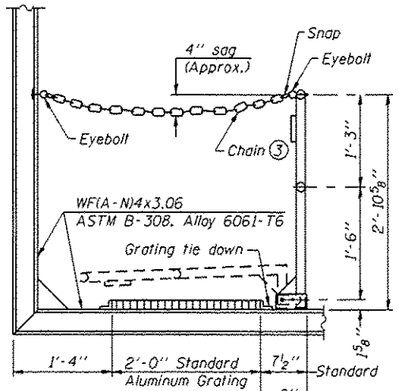
FILE NAME = c:\pw_work\pwidot\buckleyjj\d8336951\OSC-A-7	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – WALKWAY DETAILS
ALUMINUM TRUSS & STEEL POST

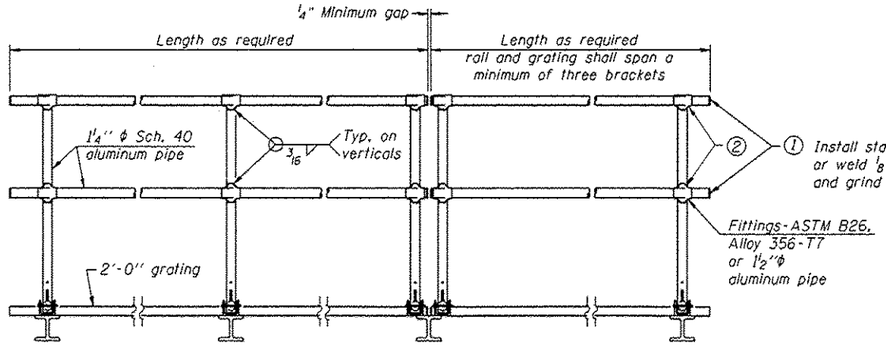
SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	14	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		



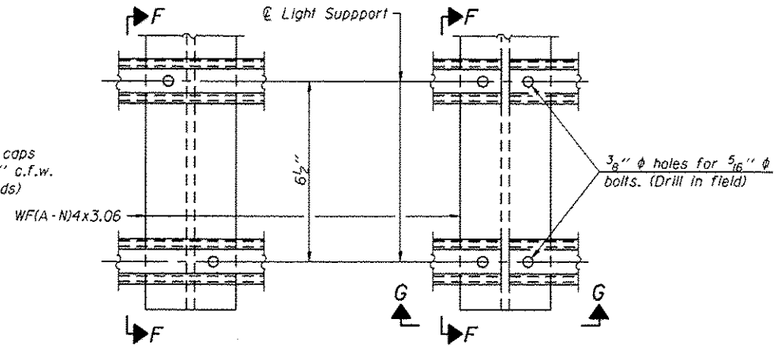
SIDE ELEVATION

(Showing Safety Chain W/O Sign)



FRONT ELEVATION

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



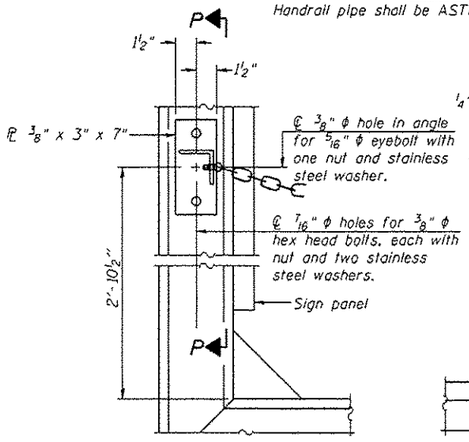
DETAIL F

DETAIL G

HANDRAIL DETAILS

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

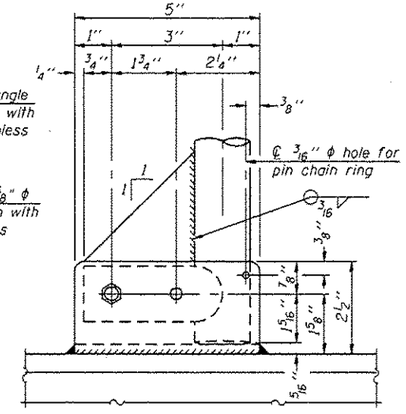
② Horizontal handrail member shall be continuous thru fitting. Provide 7/16" ϕ hole in fitting for ⅜" ϕ bolt. Field drill 7/16" ϕ hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 7/16" ϕ holes on top rail at ends only.)



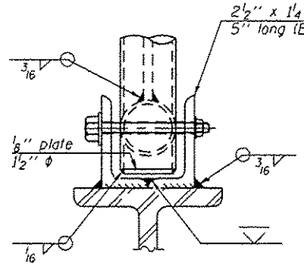
ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

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

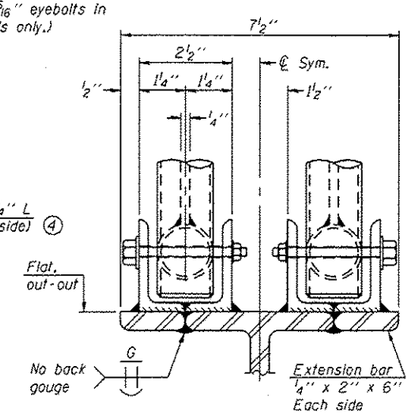


SIDE ELEVATION



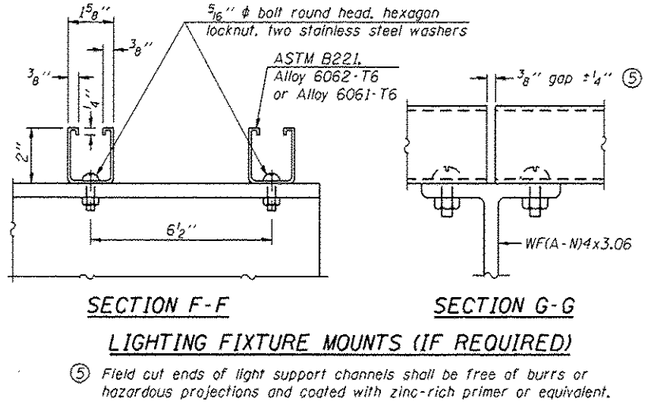
FRONT ELEVATION

Details not shown same as "ELEVATION" at right.



ELEVATION AT HANDRAIL JOINT ④

Details not shown same as "FRONT ELEVATION"

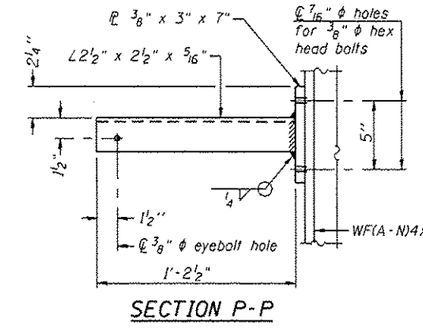


SECTION F-F

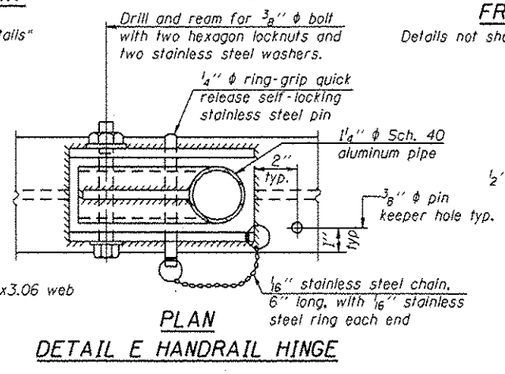
SECTION G-G

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.

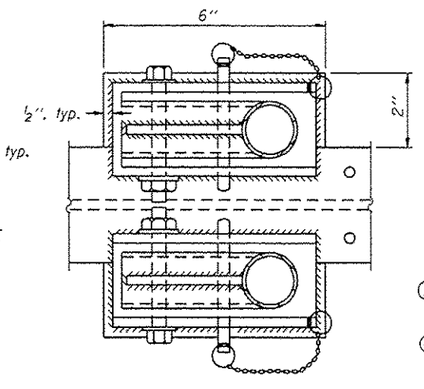


SECTION P-P



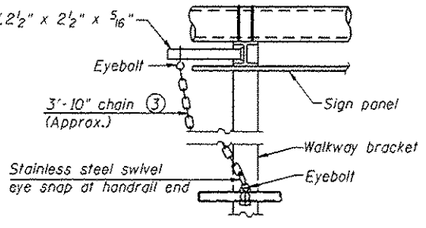
PLAN

DETAIL E HANDRAIL HINGE



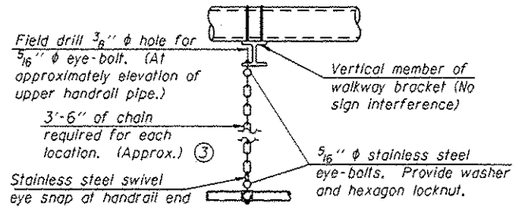
PLAN AT HANDRAIL JOINT

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 6-1-12

• D-S OVD SIN STR REPL 2014-10

FILE NAME = o:\pw_work\pwidot\buckleyjj\d0336951\D546271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
MODELNAME	PLOT DATE = 10/8/2013	DATE -	REVISED -

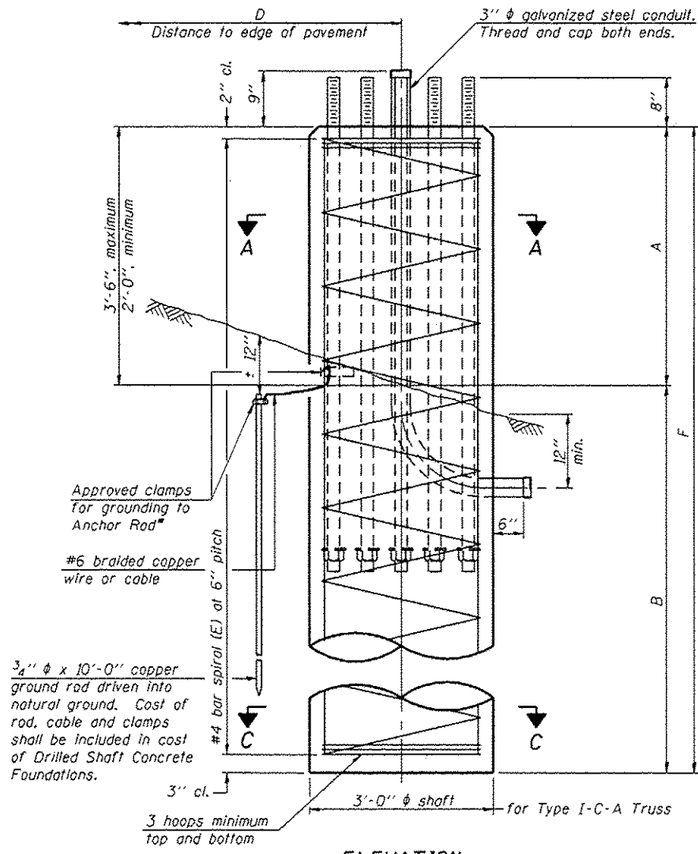
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – HANDRAIL DETAILS
ALUMINUM TRUSS & STEEL POST

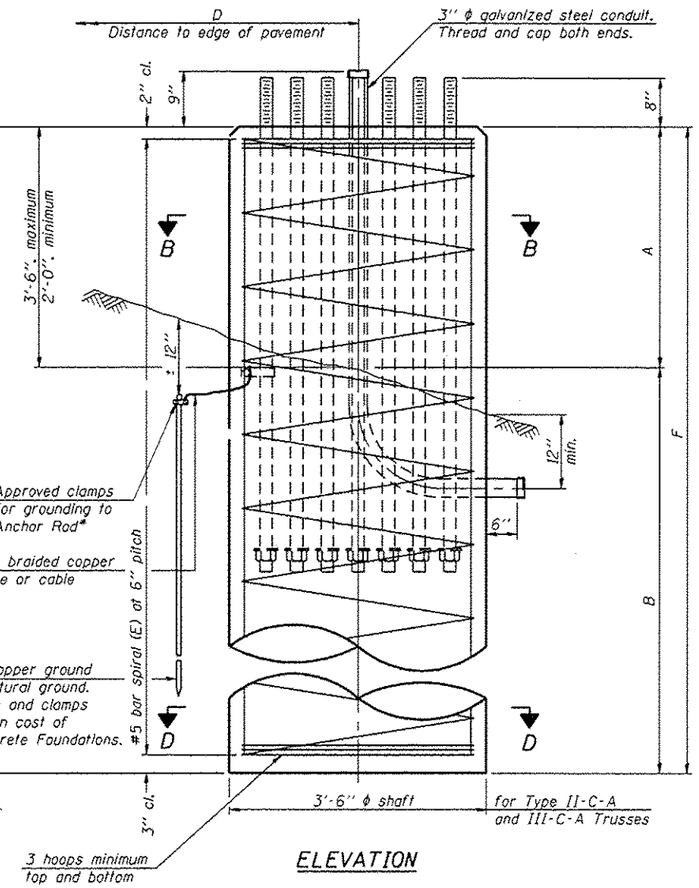
SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	15	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		

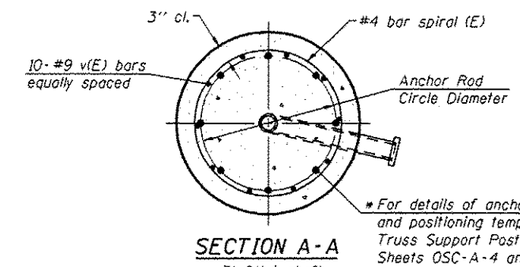
* Grind anchor rod to bright finish at ground clamp location before installing clamp.



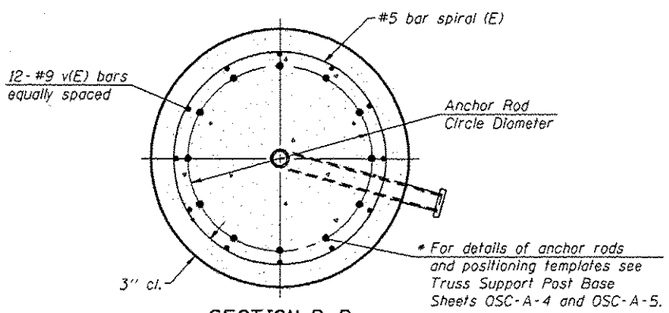
ELEVATION



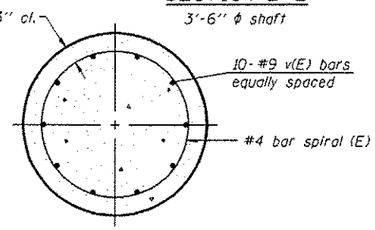
ELEVATION



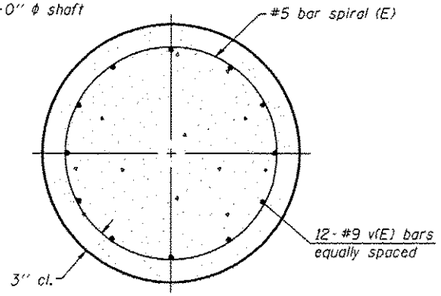
SECTION A-A
3'-0" ϕ shaft



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 Concrete 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 Cantilever Length (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
S-01	S C 057 1074 L123.00 WB	1694+78	III-C-A	3'-6"	737.86	708.36		3'-0"	26'-6"	29'-6"	10.6
S-02	S C 057 1074 R122.20 EB	1651+70	III-C-A	3'-6"	732.54	703.04		3'-0"	26'-6"	29'-6"	10.6

OSC-A-9 8-21-13

* D-5 OVD SIN STR REPL 2014-10

FILE NAME =	USER NAME = buckleyjj	DESIGNED -	REVISED -
o:\pw_work\p=idot\buckleyjj\d0336951\D546271-Sht-Details.dgn		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 '/ in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES – DRILLED SHAFT ALUMINUM TRUSS & STEEL POST

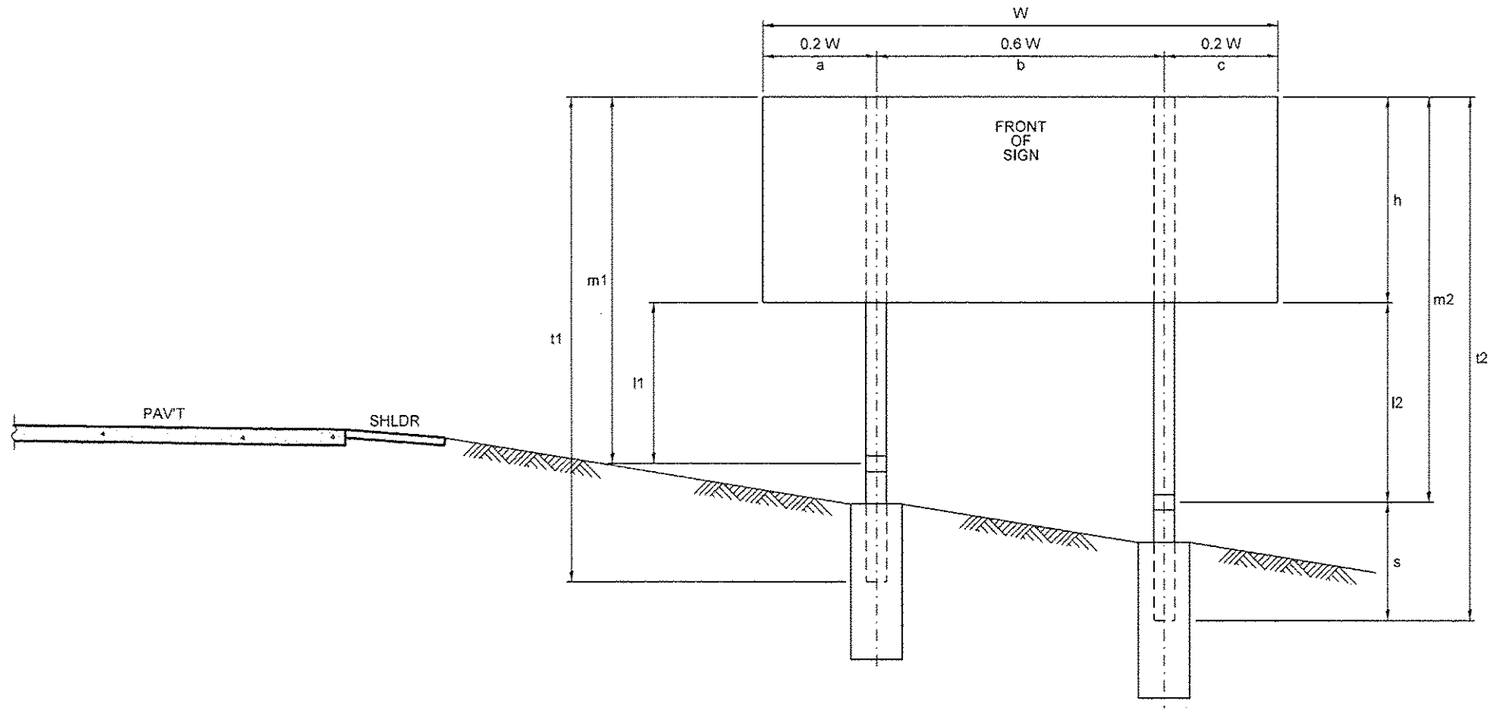
SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	16	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		

BREAK AWAY GROUND MOUNT SIGNAGE LAYOUT
CHAMPAIGN COUNTY

Location No.	Structure No.	Mounting OFFSET to the near edge of sign	Mounting HEIGHT to the bottom edge of sign	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 cu. yds.
5-03 WB	5 B 010 U136 L014.65	4 feet from face of guardrail	8 feet from white stripe / edge of pavement	12.0' x 6.0'	12.0	2.4	7.2	2.4	10.0	6.0	9.0	10.0	15.0	16.0	2.5	17.5	18.5	W6 x 15	15.0	540.0	1.40
		18.5 feet from white stripe / edge of pavement																			
5-04 EB	5 B 010 U136 R014.63	4 feet from face of guardrail	8 feet from white stripe / edge of pavement	12.0' x 6.0'	12.0	2.4	7.2	2.4	10.75	6.0	9.75	10.75	15.75	16.75	2.5	18.25	19.25	W6 x 15	15.0	562.5	1.40
		17.5 feet from white stripe / edge of pavement																			

Location No.	Structure No.	Station - Proposed Location
5-03 WB	5 B 010 U136 L014.65	The proposed breakaway ground mount is to be at Sta. 216+35. This is 56' east of the east overhead bridge fascia beam.
5-04 EB	5 B 010 U136 R014.63	The proposed breakaway ground mount is to be at Sta. 213+67. This is 56' west of the west overhead bridge fascia beam.



CH = Clear Height = the greater of l1 or l2

• D-5 OVD SIN STR REPL 2014-10

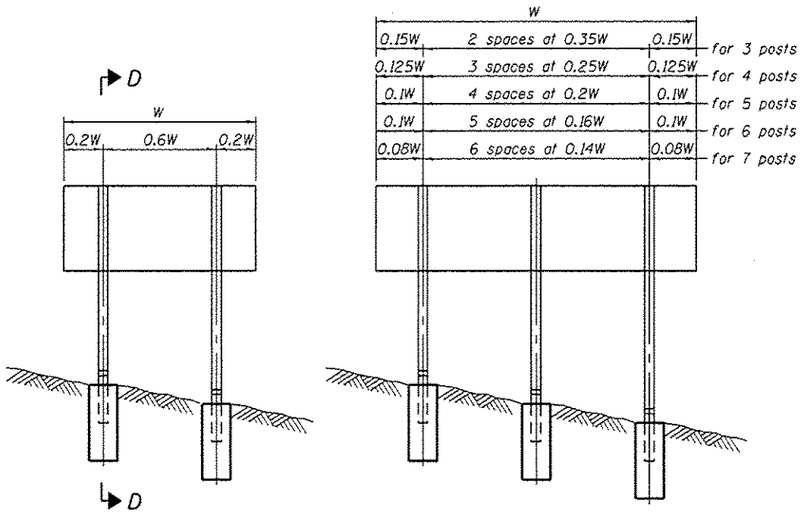
FILE NAME = o:\pw_work\pwidot\buckleyjj\d0336951\D0546271-Sht-Details.dgn	USER NAME = buckleyjj	DESIGNED - JAL	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/8/2013	DATE - 04/26/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

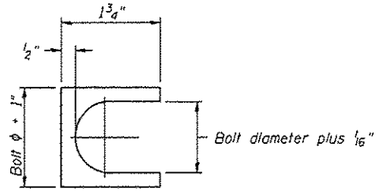
BREAK AWAY GROUND MOUNT SIGNAGE LAYOUT
CHAMPAIGN COUNTY

SCALE: | SHEET NO. 15 OF 17 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	17	20
		CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			

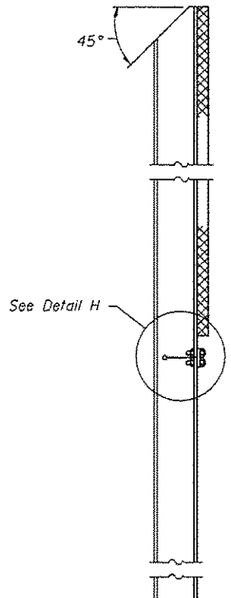


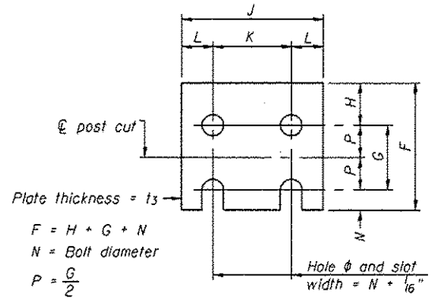
ELEVATION



SHIM DETAIL

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

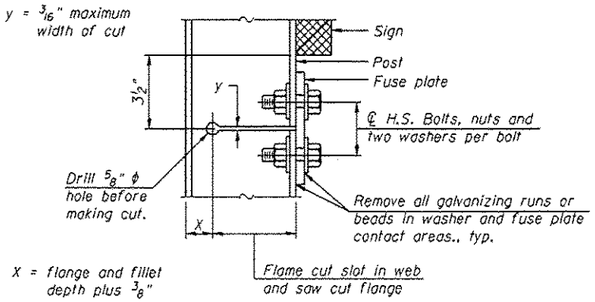




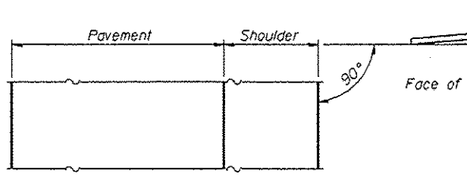
FUSE PLATE DETAIL

(Install with notches down.)

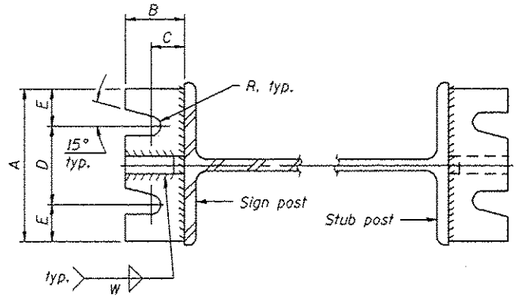
FUSE PLATE DATA		
N = Bolt Diameter	G	H
1/2"	2"	1 1/8"
5/8"	2 1/4"	1 1/4"
3/4"	2 1/2"	1 3/8"
7/8"	2 3/4"	1 1/2"
1"	3"	1 5/8"
1 1/8"	3 1/4"	1 3/4"
1 1/4"	3 1/2"	1 7/8"



DETAIL H

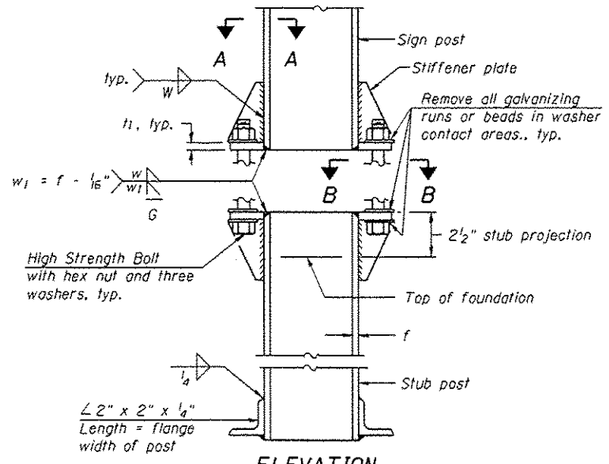


LOCATION SKETCH

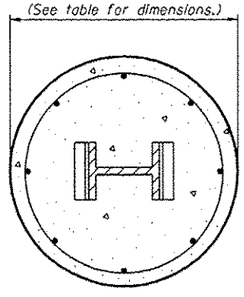


SECTION A-A

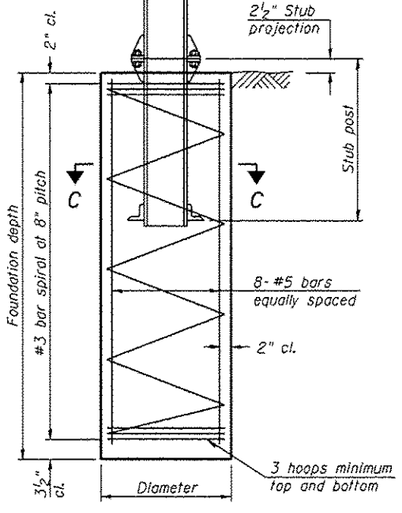
SECTION B-B



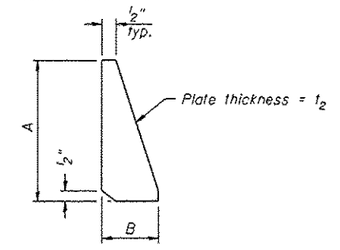
ELEVATION
SIGN POST & STUB POST



SECTION C-C



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 6-1-12

(Sheet 1 of 2)

• D-5 DVD SIN STR REPL 2014-10

FILE NAME = e:\pw_work\pwidot\bucklesjj\d0336951\D546271-Sht-Details.dgn	USER NAME = bucklesjj	DESIGNED - JAL	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/8/2013	DATE - 04/26/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAK-AWAY WIDE FLANGE STEEL SIGN POST DETAILS

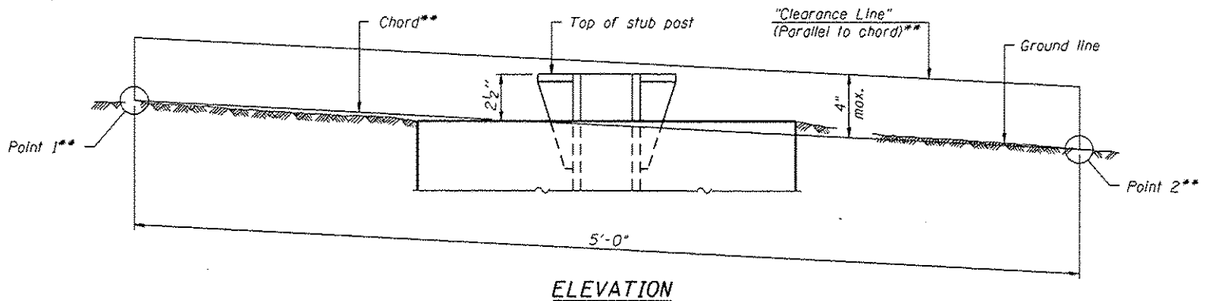
SCALE: | SHEET NO. 16 OF 17 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	18	20
		CONTRACT NO. 46271		
		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"	—	—	—	—	—	—	—	—	—
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"	½" x 2"	⅝" x 2¼"	⅝" x 2¼"	⅝" x 2¼"	¾" x 2½"	¾" x 2½"	⅞" 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"



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 in the pay item for "Concrete Foundations".

BAW-A-2 6-1-12

(Sheet 2 of 2)

* D-5 OVD SIN STR REPL 2014-10

FILE NAME =	USER NAME = bucklesjj	DESIGNED - JAL	REVISED -
c:\pw_work\pwidot\bucklesjj\d0336951\D5046271-Sht-Details.dgn		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/8/2013	DATE - 04/26/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAK-AWAY WIDE FLANGE
STEEL SIGN POST TABLES

SCALE: | SHEET NO. 17 OF 17 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	19	20
		CONTRACT NO. 46271		
		ILLINOIS FED. AID PROJECT		

Illinois Department of Transportation
Division of Highways
State of Illinois

SOIL BORING LOG

Page 1 of 1

Date 5/1/13

ROUTE FAI Rt 74 DESCRIPTION West Bound Weigh Station on I-74 East of Carlock LOGGED BY CNA

SECTION Weigh Station Sign Structure LOCATION NE, SEC. 9, TWP. 24N, RNG. 1E, 3rd PM

COUNTY McLean DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 057 1074
Station L123.00 (Exist.)

BORING NO. 1 Sign Truss
Station 1694+87 of I-74
Offset 14.00ft S of Exist
Ground Surface Elev. 738.1 ft

Surface Water Elev. ft
Stream Bed Elev. ft

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

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)
Asphalt Pavement - Shoulder			
737.10			
Red Brown Loam (Embankment)			
735.10			
Gray/Brown Clay Loam (Embankment)	6		
	6	5.0	9
-5	6	S	
732.10			
Brown/Gray Mottled Silty Clay (Soft)	2		
	3	0.4	26
	3	B	
730.10			
Brown/Gray Mottled Silt	2		
	2	0.2	29
-10	3	B	
	2		
726.10	3	1.0	23
Brown/Gray Mottled Silty Clay	5	B	
	3		
	3	1.5	24
-15	4	B	
722.10			
Gray Silty Clay to Clay	4		
	5	1.7	22
	6	B	
	3		
718.60	3	1.7	23
Gray Clay Loam Till -20	8	B	
Gray Clay Loam Till (continued)			
	5		
	7	2.7	13
	8	B	
	5		
	6	2.2	13
713.10 -25	8	B	
End of Boring			
-30			
-35			
-40			

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)

Illinois Department of Transportation
Division of Highways
State of Illinois

SOIL BORING LOG

Page 1 of 1

Date 5/1/13

ROUTE FAI Rt 74 DESCRIPTION East Bound Weigh Station on I-74 East of Carlock LOGGED BY CNA

SECTION Weigh Station Sign Structure LOCATION NW, SEC. 9, TWP. 24N, RNG. 1E, 3rd PM

COUNTY McLean DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 5 C 057 1074
Station R122.20 (Exist.)

BORING NO. 2 Sign Truss
Station 1651+64 of I-74
Offset 16.00ft N of Exist
Ground Surface Elev. 733.7 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 721.7 ft ▼
Upon Completion 718.7 ft ▽
After Hrs. ft

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)
Asphalt Pavement - Shoulder			
732.70			
Black Clay Loam to Green Silty Clay Loam (Embankment)			
	4		
	5	3.7	17
-5	8	B	
727.70			
Brown/Green Mottled Silt to Silty Clay with Trace of Free Water	3		
	3	1.8	29
	5	B	
	3		
	3	0.5	33
-10	2	E	
	0		
▼	1	0.1	30
	2	B	
719.70	3		
Brown Oxidized Dirty Dense Coarse Sand with Trace of Free Water ▽ -15	4		19
	5		
718.20			
Brown Mottled Sandy Loam	3		
716.70	4	0.7	15
Gray Clay Loam Till	4	B	
	3		
	3	1.2	15
-20	4	B	
Gray Clay Loam Till (continued)			
	5		
	10	5.7	12
	13	B	
	8		
	14	7.0	10
708.70 -25	15	B	
End of Boring			
-30			
-35			
-40			

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)

SOIL BORING I-74_SIGNTRUSS@CARLOCKWS.GPJ IL_DOT.GDT 9/16/13

FILE NAME = c:\pw_work\pwidot\buckleyjj\d0336951\D5@6271-Sht-Blog.dgn	USER NAME = buckleyjj	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
$MODELNAME$	PLOT DATE = 10/8/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS

SCALE: | SHEET | OF | SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	20	20
	D-5 OVD SIN STR REPL 2014-10	CONTRACT NO. 46271		
	ILLINOIS FED. AID PROJECT			