

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

FAI ROUTE 180
SECTION D3 OVD SIN STR REPL 14-50

OVERHEAD SIGN TRUSS REMOVAL,
REPLACEMENT, AND BRIDGE
MOUNTED SIGN STRUCTURES.
BUREAU COUNTY

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	1
		ILLINOIS	CONTRACT NO. 46316	

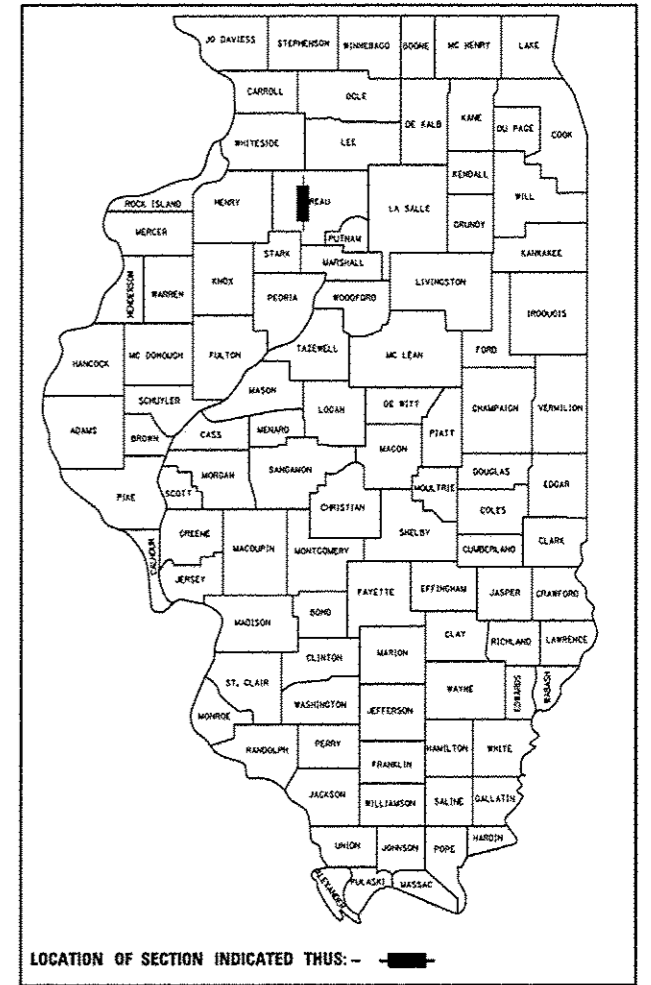
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STANDARDS

- 000001-00 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
 001001-02 AREAS OF REINFORCEMENT BARS
 001006 DECIMAL OF AN INCH AND OF A FOOT
 643001-02 SAND MODULE IMPACT ATTENUATORS
 701101-04 OFF-ROAD OPERATIONS MULTILANE, 15' (4.5 m) TO 24' (600 mm) FROM PAVEMENT EDGE
 701106-02 OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 m) AWAY
 701400-07 APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
 701406-08 LANE CLOSURE, FREEWAY/EXPRESSWAY, DAY OPERATIONS ONLY
 701901-03 TRAFFIC CONTROL DEVICES

D-93-025-14

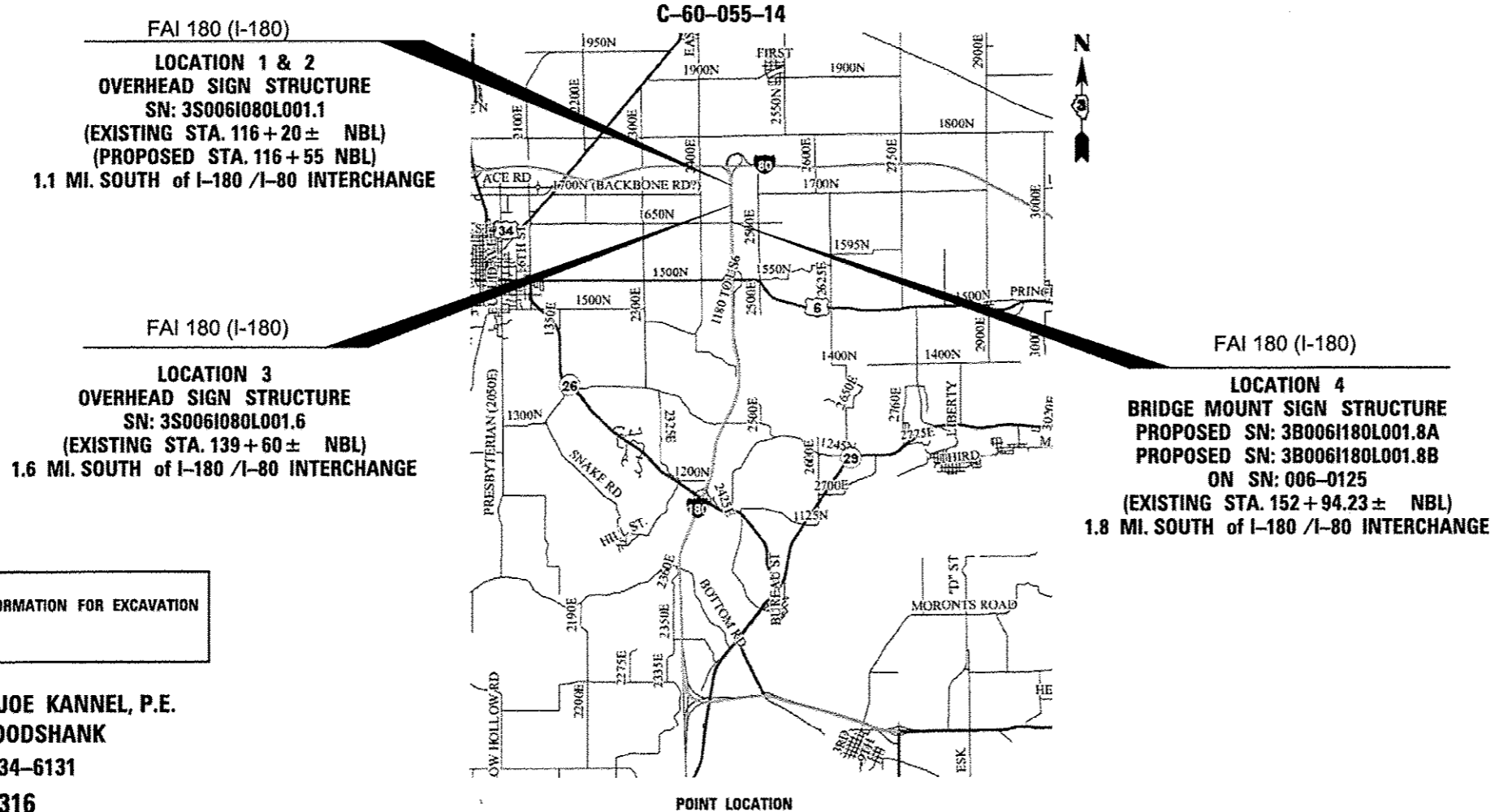


LOCATION OF SECTION INDICATED THUS: - [black rectangle] -

DESIGN DESIGNATION: INTERSTATE

ADT 3550 (2012)

PV=82.2% SU=3.7% MU=14.1%



J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: JOE KANNEL, P.E.
UNIT CHIEF: RON WOODSHANK
DISTRICT NO. (815)-434-6131
CONTRACT NO. 46316

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED 2-7-2014
Paul Coetzee, P.E.
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

March 21, 2014
John D. Baranzelli, P.E., B.S.
ENGINEER OF DESIGN AND ENVIRONMENT

March 21, 2014
Omer Osman, P.E., B.S.
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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OF THE STATE OF ILLINOIS

GENERAL NOTES

PLAN DIMENSIONS AND DETAILS RELATIVE TO THE EXISTING PLANS ARE SUBJECT TO ROUTINE VARIATIONS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND DETAILS AFFECTING NEW CONSTRUCTION AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF THE WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY FURNISHED BASED UPON THE UNIT BID PRICE FOR THE WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE STANDARD SPECIFICATIONS. THE "JULIE" NUMBER IS 1-800-892-0123. A MINIMUM OF FORTY-EIGHT (48) HOURS ADVANCE NOTICE IS REQUIRED.

THE LOCATION OF ALL UTILITIES AND PRIVATELY OWNED FACILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE INSTALLATION OF ANY COMPONENTS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING IDOT ELECTRICAL FACILITIES AT HIS/HER OWN EXPENSE IF REQUIRED. THE CONTRACTOR SHALL ALSO BE LIABLE FOR ANY DAMAGE TO IDOT FACILITIES RESULTING FROM INACCURATE LOCATING.

SEEDING WILL NOT BE PERMITTED AT ANY TIME WHEN THE GROUND IS FROZEN, WET, OR IN AN UNTILLABLE CONDITION. LOCATIONS TO BE SEEDED WILL BE DETERMINED BY THE ENGINEER.

ALL EXCAVATED MATERIAL, WHICH INCLUDES DIGGING OR GRADING OF ANY SOIL OR FILL MATERIAL, WITH THE EXCEPTION OF AGGREGATE FILLS, MUST BE INCORPORATED WITHIN THE IDOT RIGHT OF WAY DUE TO ENVIRONMENTAL DOCUMENTATION REQUIREMENTS.

ALL SURPLUS MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ARTICLE 202.03 OF THE STANDARD SPECIFICATION.

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 706 GR 60. SEE SPECIAL PROVISIONS.

ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER SHOWN IN THE LIST OF STANDARDS OR THE COPY INCLUDED IN THESE PLANS.

COMMITMENTS

DATE: 2-4-14

PREPARED BY: [Signature]
DISTRICT STUDIES & PLANS ENGINEER

EXAMINED BY: [Signature]
DISTRICT CONSTRUCTION ENGINEER

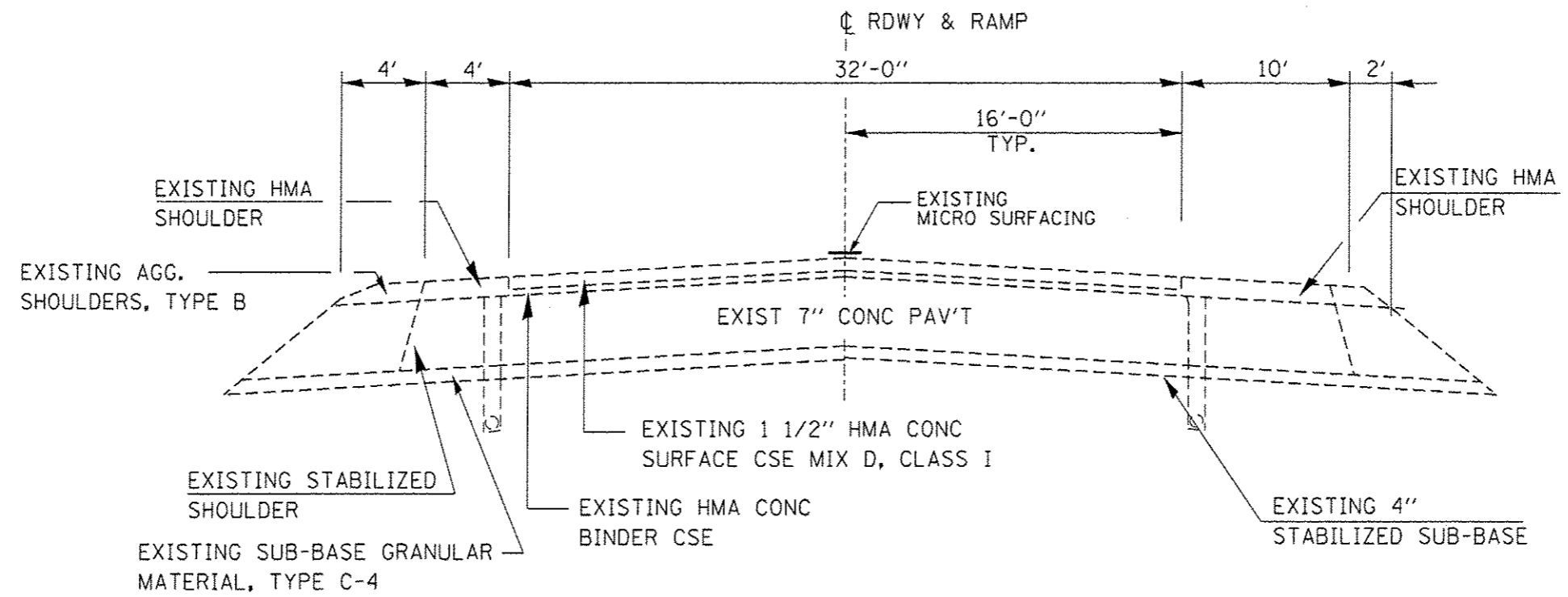
[Signature]
DISTRICT MATERIALS ENGINEER

[Signature]
DISTRICT OPERATIONS ENGINEER

FILE NAME *	USER NAME * Patel, J	DESIGNED - YOGESH PATEL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PROJECT NAME *	PROJECT NO. *	DRAWN - YOGESH PATEL	REVISED -			180	D-3 OVO SIN STR REPL 14-50	BUREAU	24	2
PLOT SCALE * 249999.6758' / in.	CHECKED - RON WOODSHANK	REVISIONS								
PLOT DATE * 2/3/2014	DATE					SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	ILLINOIS

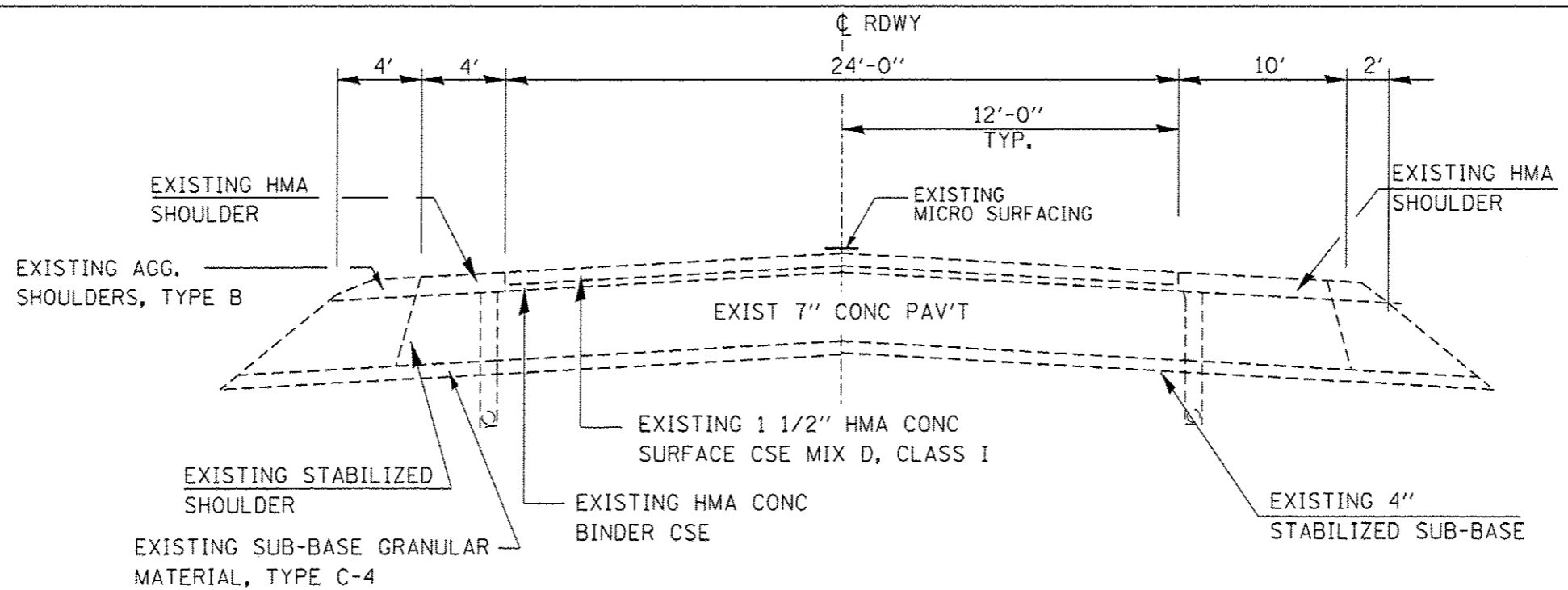
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				STATE FUNDS 100% STATE	STRUCTURE 0040 RURAL
67100100	MOBILIZATION	L SUM	1		1
70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD, 701406	L SUM	1		1
70600350	IMPACT ATTENUATOR, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1		1
73300200	OVERHEAD SIGN STRUCTURE - SPAN, TYPE II-A (4'-6" X 5'-3")	FOOT	100		100
73301810	OVERHEAD SIGN STRUCTURE WALKWAY, TYPE A	FOOT	41		41
73304000	OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	FOOT	31.5		31.5
73400200	DRILLED SHAFT CONCRETE FOUNDATION	CU YD	20.6		20.6
73600100	REMOVE OVERHEAD SIGN STRUCTURE - SPAN	EACH	2		2
73700300	REMOVE CONCRETE FOUNDATION - OVERHEAD	EACH	4		4
X6430110	REMOVE IMPACT ATTENUATORS, SALVAGE	EACH	1		1
X7200052	REMOVE, STORE AND RE-ERECT SIGN PANEL	SQ FT	527		527

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TYPICAL ROADWAY & RAMP SECTION

**FAI ROUTE 180 (I-180)
LOCATION 1 & LOCATION 2**



TYPICAL ROADWAY SECTION

**FAI ROUTE 180 (I-180)
LOCATION 3 & LOCATION 4**

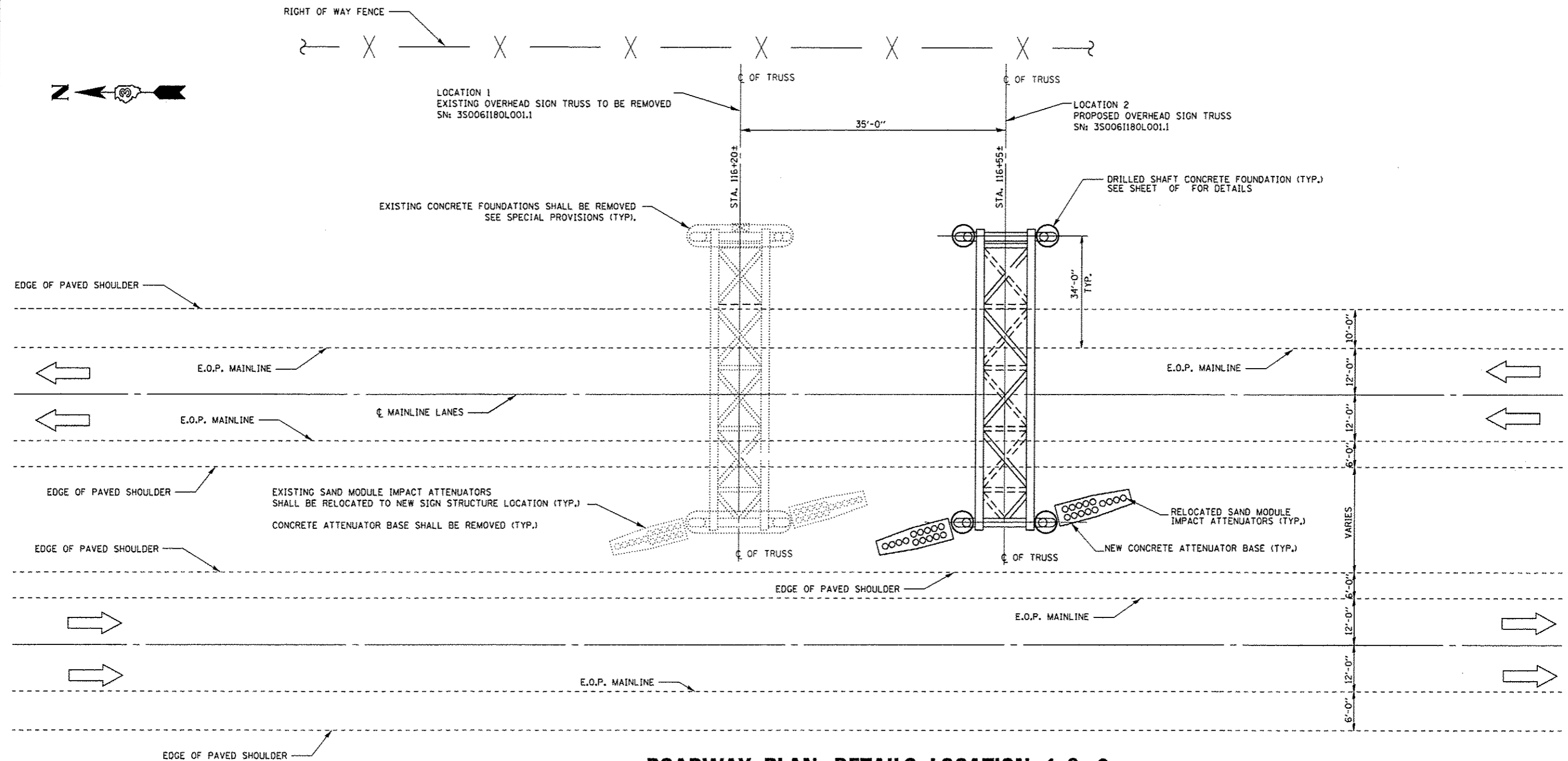
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PROJECT NAME *	180-D-3 OVD SIN STR REPL 14-50	DRAWN - YOGESH PATEL	REVISED -			180-D-3 OVD SIN STR REPL 14-50	BUREAU	24	4	
PLOT SCALE * 249999.8750' / in.	CHECKED - RON WOODSHANK	REVISIONS								
PLOT DATE * 2/3/2014	DATE -									
					SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	CONTRACT NO. 46316	

LOCATION NO.	1	STATE I.D. NO.	3S006I180L001.1 (STA 116+20)				
COUNTY	BUREAU	ROUTE	FAI 180	M.P.	1.1	DIRECTION	NB
DESCRIPTION OF WORK			UNIT		QUANTITY		
REMOVE ATTENUATOR BASE			EACH		2.0		
IMPACT ATTENUATOR RELOCATE (NON-REDIRECTIVE) TEST LEVEL 3			EACH		2.0		
REMOVE OVERHEAD SIGN STRUCTURE - SPAN			EACH		1.0		
REMOVE CONCRETE FOUNDATION - OVERHEAD			EACH		2.0		
REMOVE, STORE AND RE-ERECT SIGN PANEL			SQ FT		282.0		

LOCATION NO.	2	STATE I.D. NO.	3S006I180L001.1 (STA 116+55)				
COUNTY	BUREAU	ROUTE	FAI 180	M.P.	1.1	DIRECTION	NB
DESCRIPTION OF WORK			UNIT		QUANTITY		
DRILLED SHAFT CONCRETE FOUNDATIONS			CU YD		20.6		
OVERHEAD SIGN STRUCTURE-SPAN TYPE II-A (4'-6" X 5'-3")			FOOT		100.0		
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A			FOOT		41.0		
ATTENUATOR BASE			SQ YD		60.0		
RE-INSTALL IMPACT ATTENUATOR (NON-REDIRECTIVE) TEST LEVEL 3			EACH		2.0		
RE-ERECT SIGN PANEL			SQ FT		282.0		

LOCATION NO.	3	STATE I.D. NO.	3S006I180L001.6 (STA 139+60)				
COUNTY	BUREAU	ROUTE	FAI 180	M.P.	1.6	DIRECTION	NB
DESCRIPTION OF WORK			UNIT		QUANTITY		
REMOVE ATTENUATOR BASE			EACH		2.0		
IMPACT ATTENUATOR REMOVE (NON-REDIRECTIVE) TEST LEVEL 3			EACH		2.0		
REMOVE OVERHEAD SIGN STRUCTURE - SPAN			EACH		1.0		
REMOVE CONCRETE FOUNDATION - OVERHEAD			EACH		2.0		
REMOVE, STORE AND RE-ERECT SIGN PANEL			SQ FT		245.0		

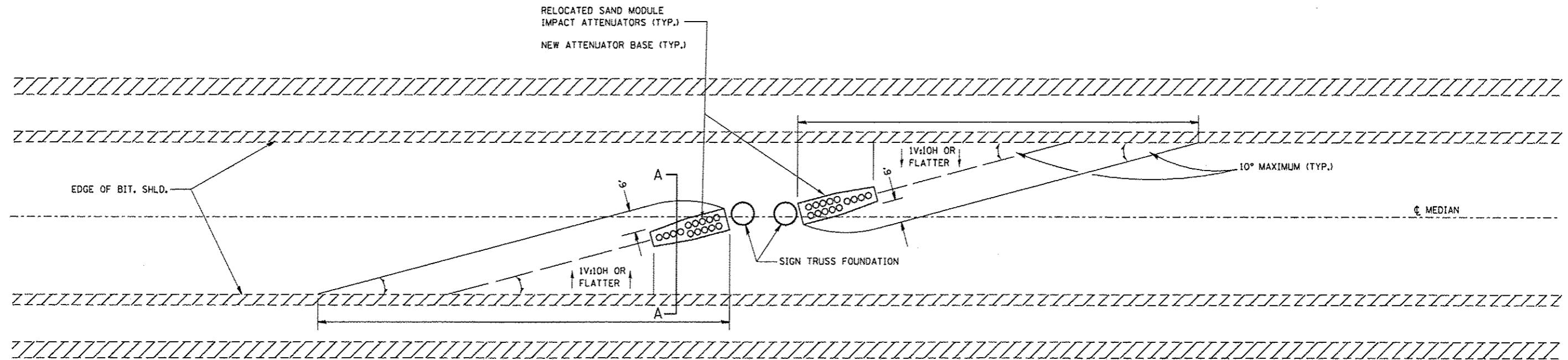
SN: 006-0125							
LOCATION NO.	4	STATE I.D. NO.	3S006I180L001.8 (STA 152+94.23)				
COUNTY	BUREAU	ROUTE	FAI 180	M.P.	1.8	DIRECTION	NB
DESCRIPTION OF WORK			UNIT		QUANTITY		
OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED			FOOT		31.5		
RE-ERECT SIGN PANEL			SQ. FT.		245.0		



ROADWAY PLAN DETAILS LOCATION 1 & 2

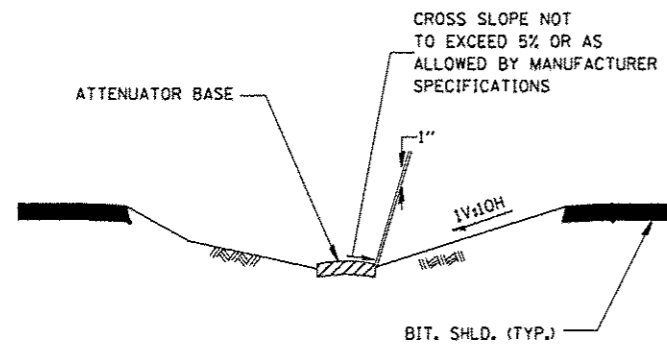
EXISTING: I-180 NB M.P. 1.1 STA. 116 + 20 ±
 PROPOSED: I-180 NB M.P. 1.1 STA. 116 + 55 ±

FILE NAME * o:\pe_work\p\dot\patel\j\00369578\0346016-shr-details.dgn	USER NAME = Patel,j	DESIGNED - YOGESH PATEL, P.E.	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN LOCATION 1 & 2	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 249999.6700' / 1"	CHECKED - RON WOODSHANK	REVISED -			180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	6
PLOT DATE = 2/3/2014	DATE -	REVISED -		SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	ILLINOIS		
								CONTRACT NO. 46316		



IMPACT ATTENUATOR LAYOUT AND GRADING PLAN

LOCATION 1
PROPOSED: I-180 NB
M.P. 1.1 STA. 116 + 55 ±



SECTION A - A
 SEE NOTES

NOTE:

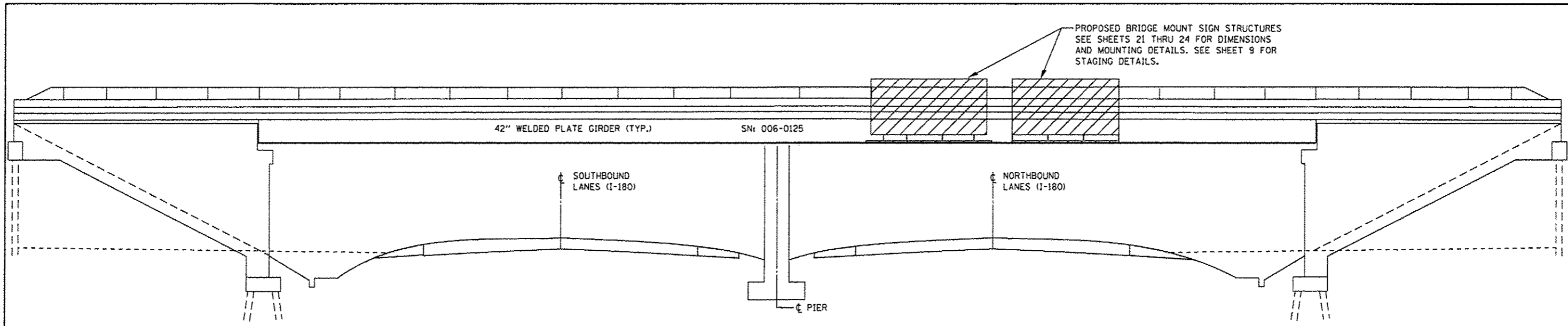
ATTENUATOR BASE SHALL BE PER MANUFACTURER SPECIFICATIONS EXCEPT SAND MODULE SYSTEMS SHALL HAVE THE FOLLOWING ADDITIONAL REQUIREMENTS:

1. ATTENUATOR BASE SHALL PROVIDE A 1' BUFFER ALONG THE SIDES AND FRONT OF THE ARRAY.
2. SAND MODULE SYSTEMS SHALL BE PLACED ON A CONCRETE BASE
3. ALL EARTH EXCAVATION MATERIAL MUST BE DISTRIBUTED ON-SITE AT EACH LOCATION. THE CONTRACTOR IS NOT ALLOWED TO HAUL ANY MATERIAL AWAY.

GENERAL NOTES

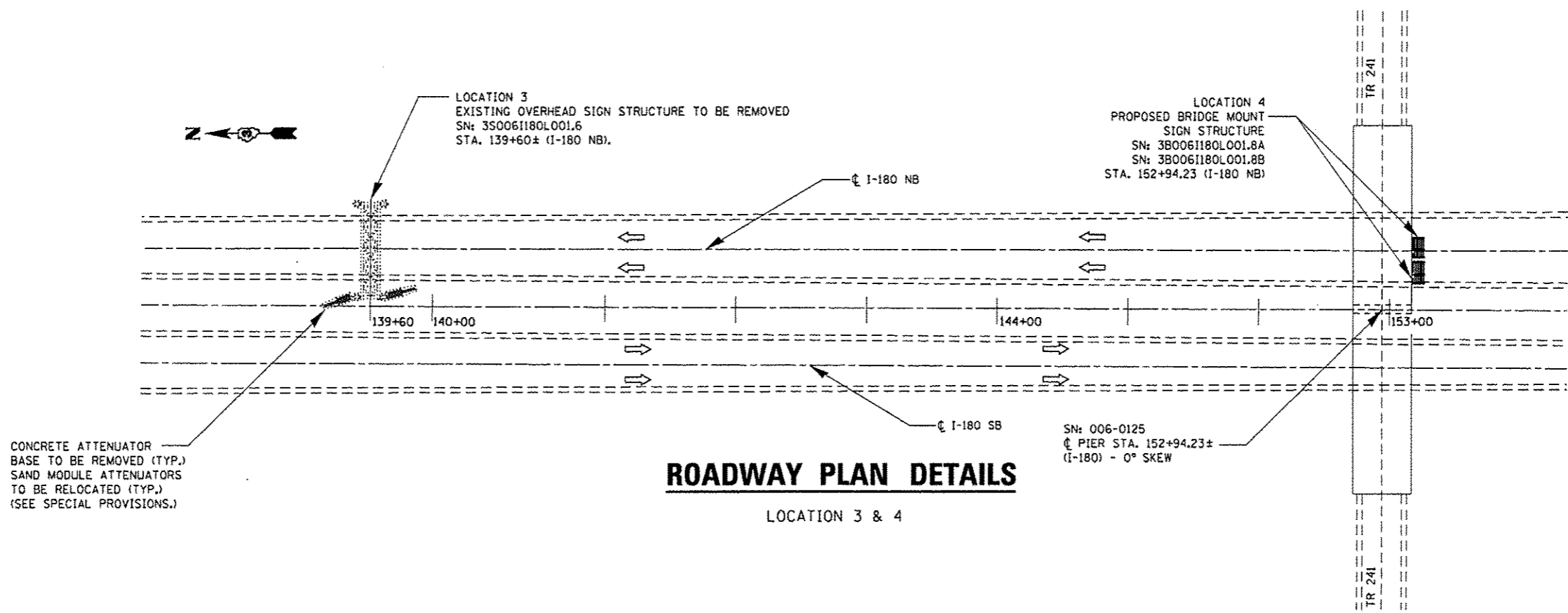
1. THE 10:1 SLOPE CONTROLS NOSE OF ATTENUATOR BASE ELEVATION.
2. ATTENUATOR BASE GRADE PARALLELS EDGE OF PAVEMENT GRADE.
3. SLOPE ADJACENT TO ATTENUATOR BASE SHALL BE 10:1 OR FLATTER.
4. COST FOR ANY NECESSARY GRADING TO MEET THE SLOPE REQUIREMENTS SHALL BE INCLUDED IN THE COST OF THE INSTALLATION OF THE ATTENUATOR BASE
5. THIS DETAIL SHALL BE USED IN CONJUNCTION WITH STANDARD 643001-02

FILE NAME * c:\pwwork\p\p\patel\j\48369578\0346	USER NAME * Patel, J 18-shc-details.dgn	DESIGNED - YOGESH PATEL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	LOCATION 2 IMPACT ATTENUATORS LAYOUT & GRADING PLAN	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
PLOT SCALE * 250000.0000 ' / in.	CHECKED - RON WOODSHANK	DRAWN - YOGESH PATEL	REVISED -			180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	7	
PLOT DATE * 2/3/2014	DATE -	CHECKED -	REVISED -			CONTRACT NO. 46316					
						ILLINOIS FED. AID PROJECT					



ELEVATION-LOCATION 4

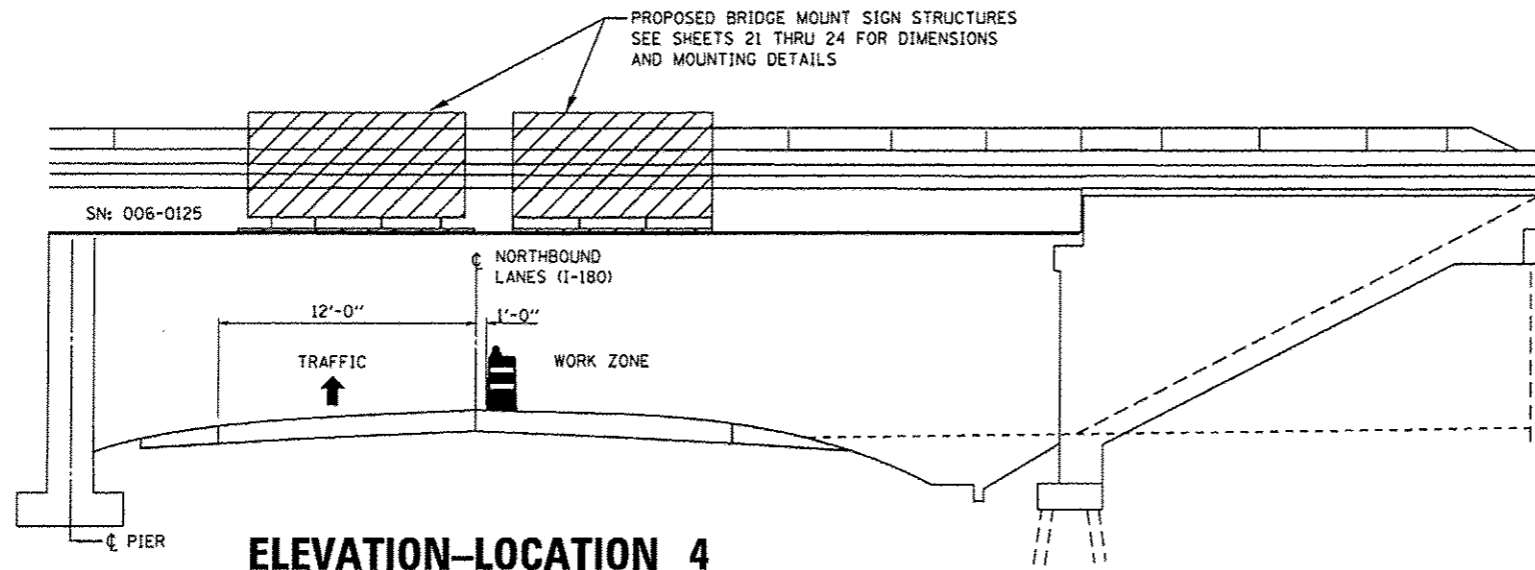
SN: 006-0125
 STA. 152+94.23± (I-180 NB)
 LOOKING NORTH



ROADWAY PLAN DETAILS

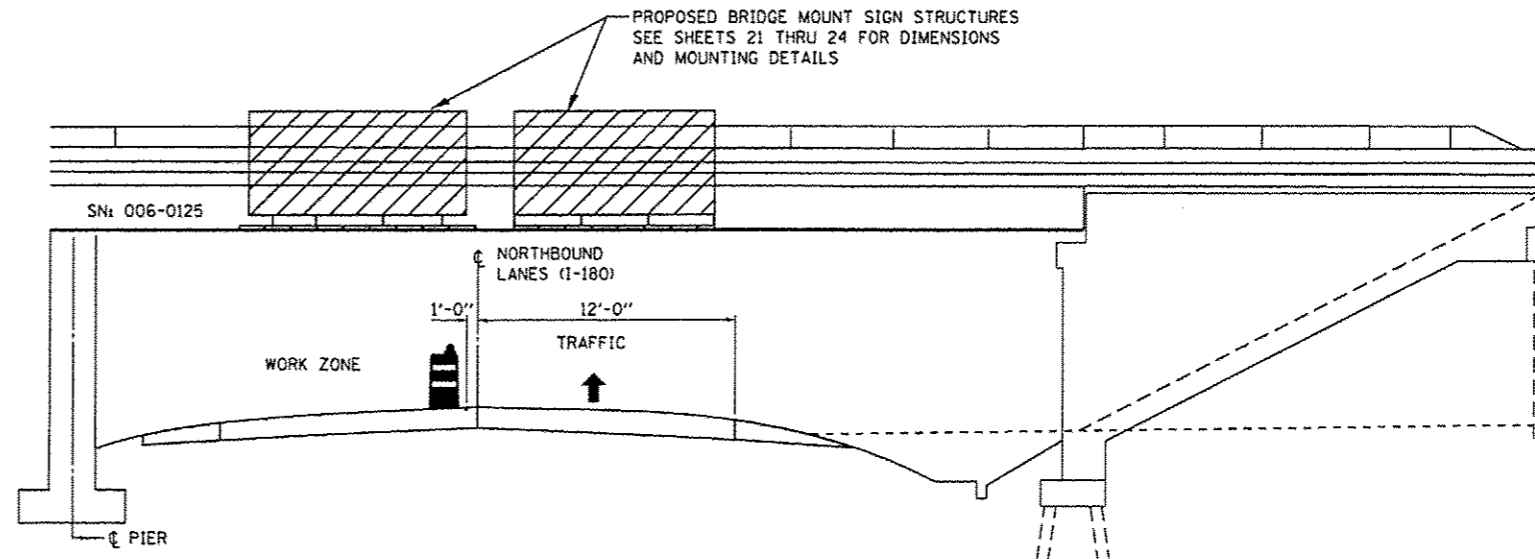
LOCATION 3 & 4

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	16-shs-details.dgn	DRAWN - YOGESH PATEL	REVISED -		SCALE ₁	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	CONTRACT NO. 46316			
	PLOT SCALE * 250000.0000' / 1"	CHECKED - RON WOODSHANK	REVISED -		ILLINOIS FED. AID PROJECT							
	PLOT DATE * 2/3/2014	DATE -	REVISED -									



**ELEVATION-LOCATION 4
STAGE I CONST.**

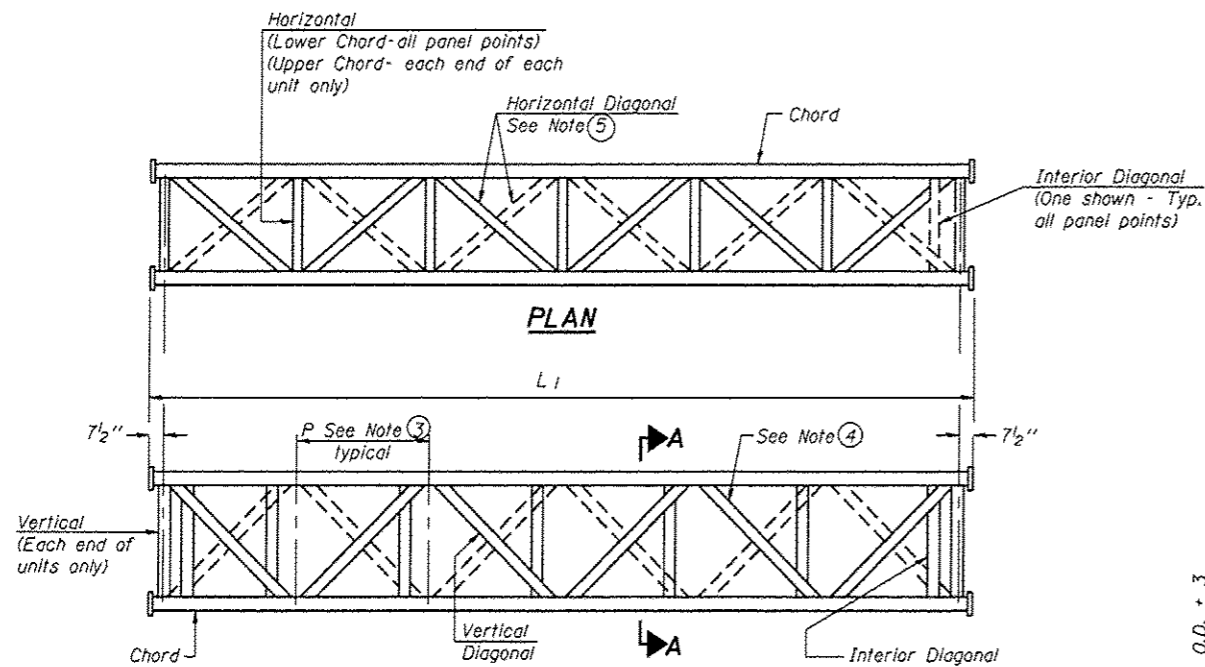
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LOOKING NORTH



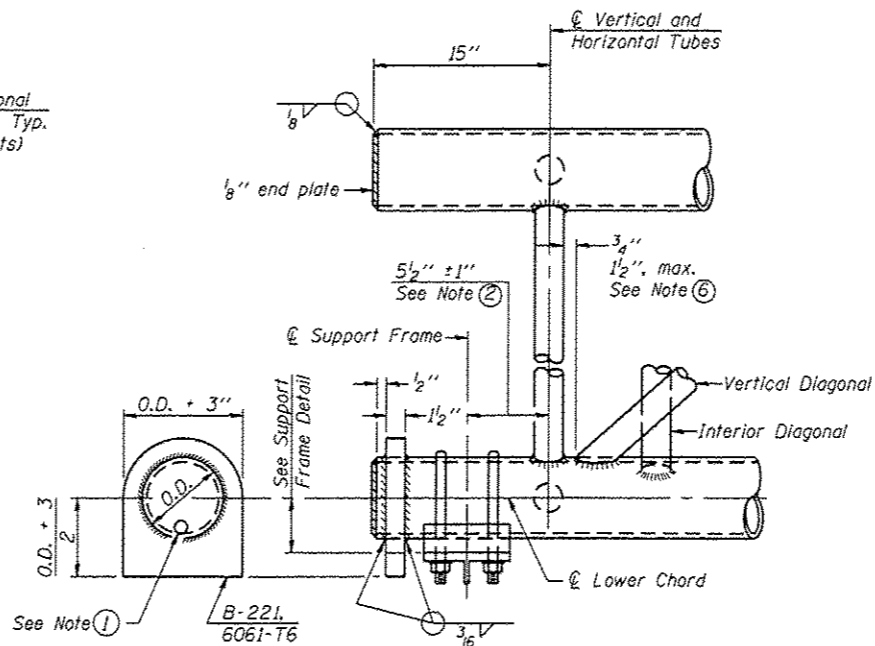
**ELEVATION-LOCATION 4
STAGE II CONST.**

SN: 006-0125
LOOKING NORTH

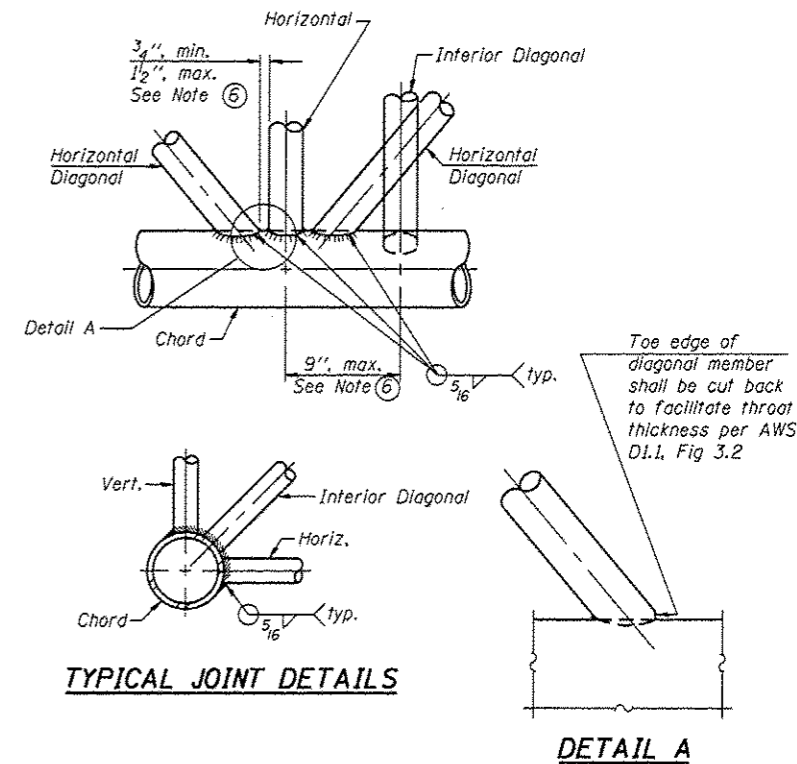
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	PLOT SCALE = 250000.0000 1" = 100'	DRAWN - YOGESH PATEL	REVISED -					180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	9
	PLOT DATE = 2/3/2014	CHECKED - RON WOODSHANK	REVISED -		DATE -	REVISED -	SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	CONTRACT NO. 46316 ILLINOIS FED. AID PROJECT	



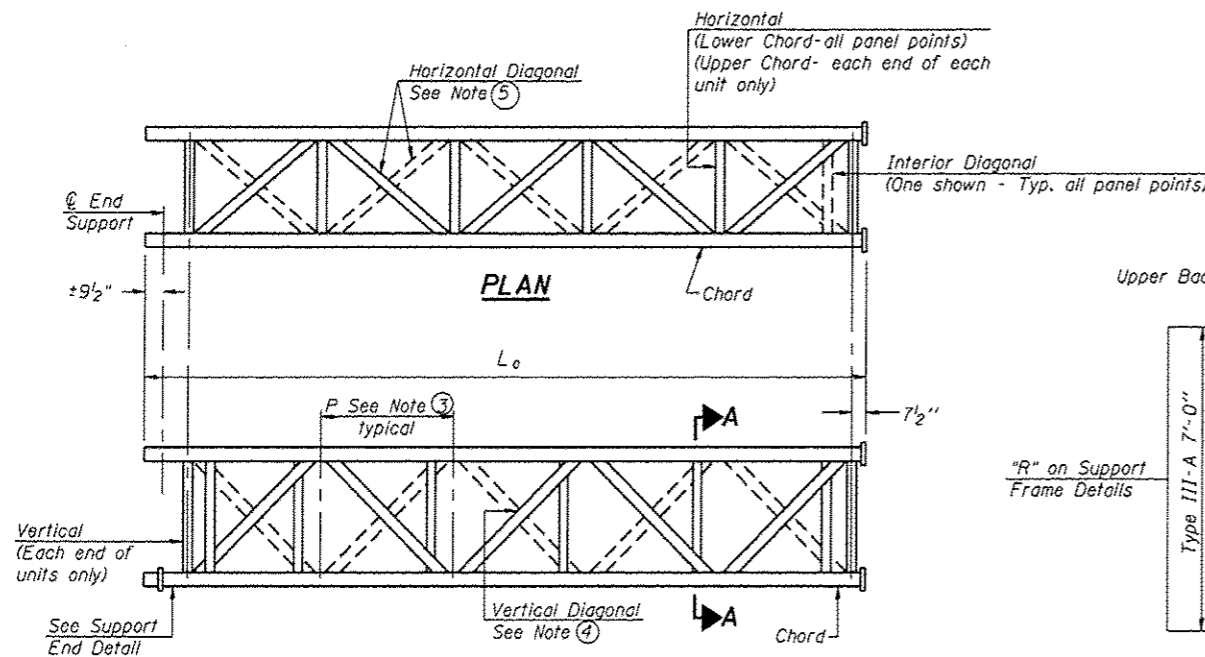
**ELEVATION
TYPICAL INTERIOR UNIT**
Even number of panels/interior unit required.



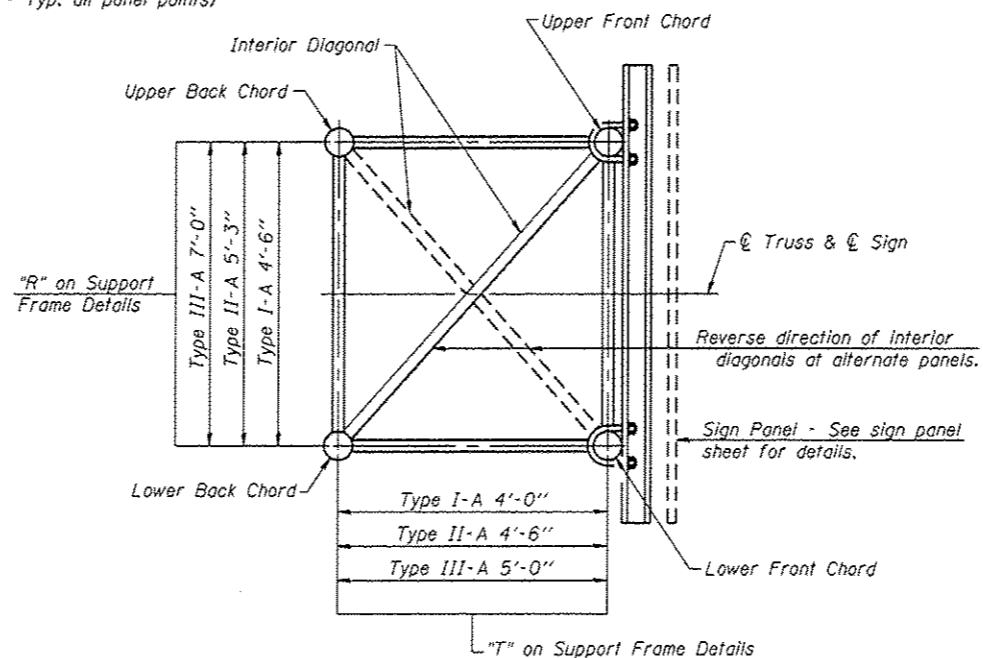
SUPPORT END DETAIL FOR EXTERIOR UNIT



TYPICAL JOINT DETAILS



**ELEVATION
TYPICAL EXTERIOR UNIT**
Even or odd number of panels/exterior units allowed.



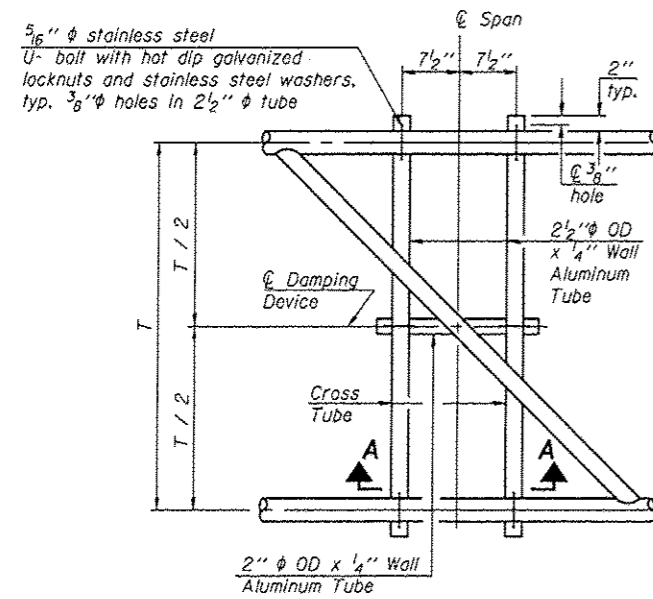
SECTION A-A

- ① Contractor may alternatively use standard aluminum drive-fit cap to close end. 1/2" φ drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
- ② 5 1/2" 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 3/4" minimum to 1 1/2" maximum clearance between any diagonal and any horizontal or vertical member, and to provide clearance for U-bolt connections of signs or walkway brackets.

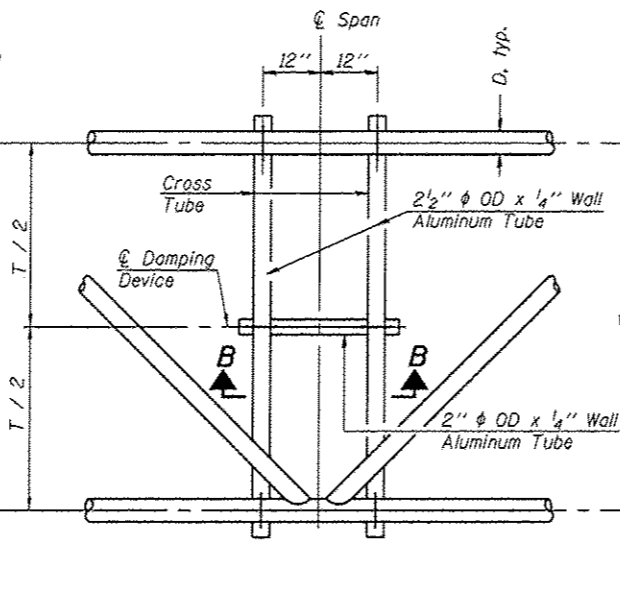
OS-A-2

6-1-12

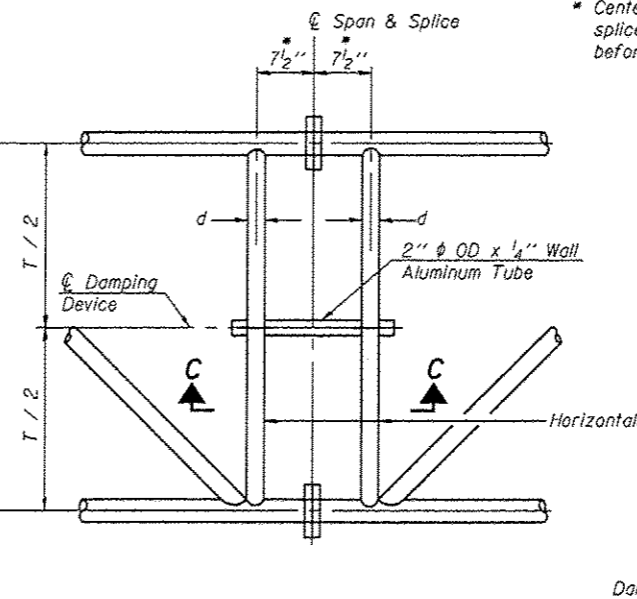
FILE NAME : a:\work\p\idat\patel\vd0369578\0346316-ahc-detailed.dgn	USER NAME : Patel, J	DESIGNED - YOGESH PATEL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	OVERHEAD SIGN STRUCTURES - ALUMINUM TRUSS DETAILS FOR TRUSS TYPES I-A, II-A AND III-A	F.A.I. RATE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = 250000.0000 / 1"	CHECKED - RON WOODSHANK	REVISED -	180			D-3 QVD SIN STR REPL 14-50	BUREAU	24	11	
PLOT DATE = 2/3/2014	DATE -	REVISED -	CONTRACT NO. 46316			ILLINOIS FED. AID PROJECT				
						SCALE:	SHEET NO. 2 OF 11 SHEETS	STA.	TO STA.	



PLAN DETAIL "A"
 @ Span between Panel Points

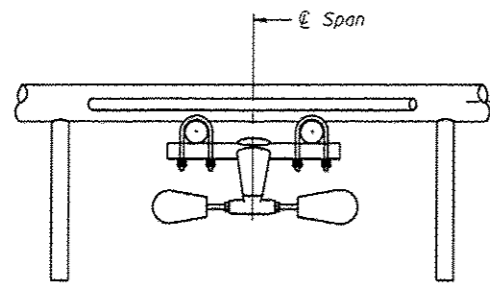


PLAN DETAIL "B"
 @ Span at Panel Point

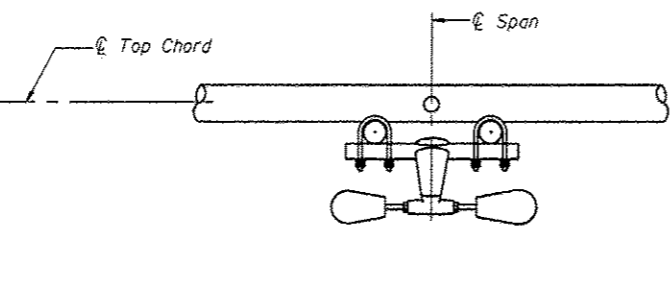


PLAN DETAIL "C"
 @ Span at @ Chord Splice

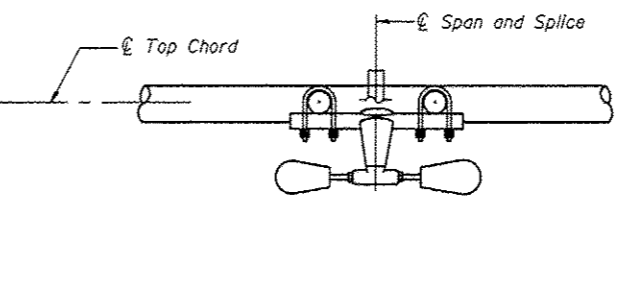
* Center of horizontal to center of splice dimension may vary. Verify before drilling holes in mounting tube.



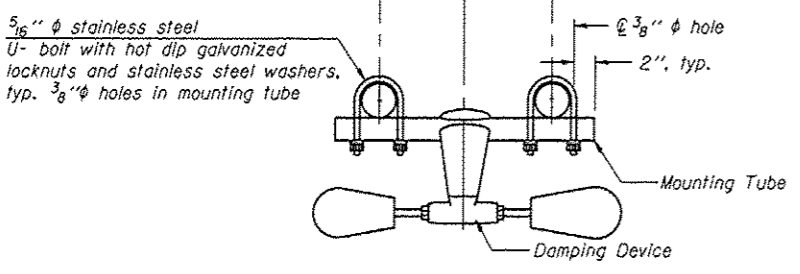
SECTION A-A



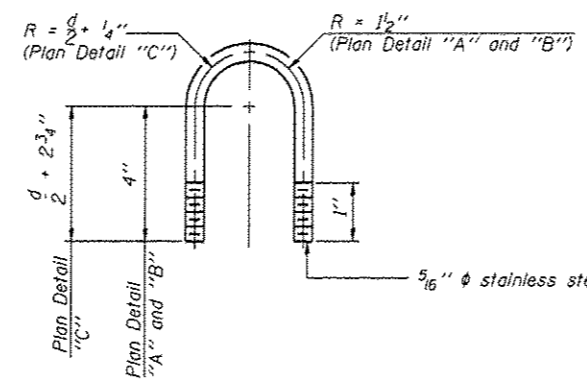
SECTION B-B



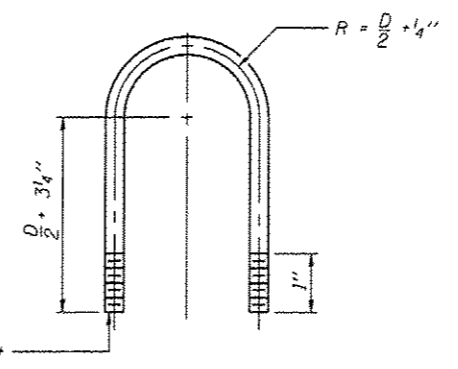
SECTION C-C



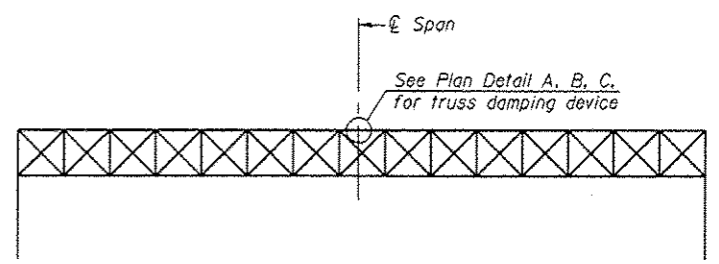
TRUSS DAMPING DEVICE CONNECTION DETAIL
 (Typical)



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL
 (Typical)



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



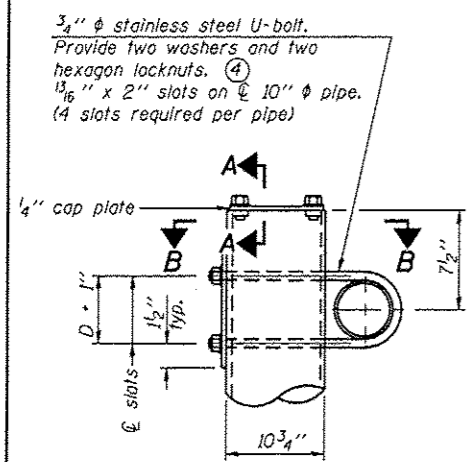
ELEVATION
 Aluminum Overhead Sign Truss

NOTES
 Damper: One damper per truss. (31 lbs. minimum Stockbridge-Type Aluminum - 29" minimum between ends of weights) Cost included in Overhead Sign Structure...
 Materials: Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6. Cost included in Overhead Sign Structure...

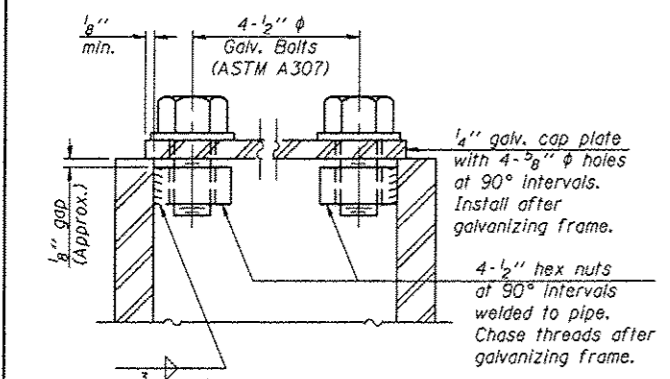
OS-A-D

6-1-12

FILE NAME =	USER NAME = Patelyj	DESIGNED - YOGESH PATEL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	OVERHEAD SIGN STRUCTURE DAMPING DEVICE			F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
al:\pwork\p\patelyj\40369578\0346\18-shr-details.dgn		DRAWN - YOGESH PATEL	REVISED -		180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	13			
PLOT SCALE = 250000.0000' / in.		CHECKED - RON WOODSHANK	REVISED -					CONTRACT NO. 4631				
PLOT DATE = 2/3/2014		DATE -	REVISED -		SCALE:	SHEET NO. 4 OF 11 SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT			

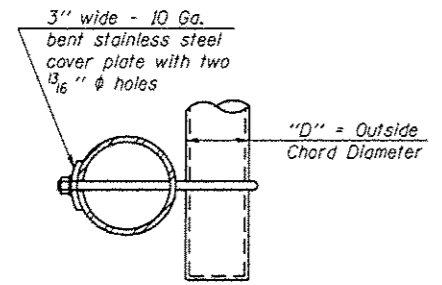


DETAIL A

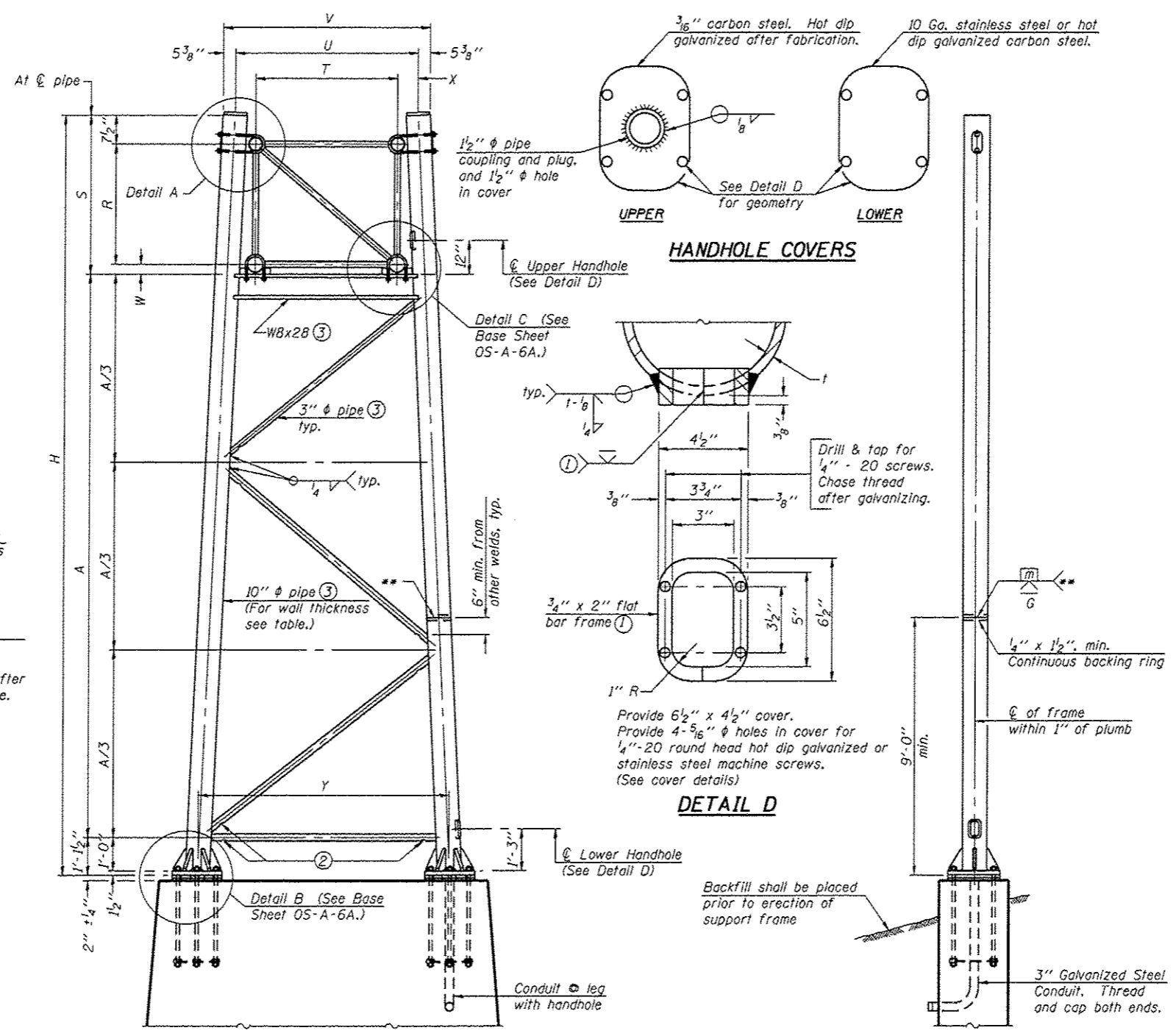


SECTION A-A

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

Truss Type	Dimensions							
	R	S	T	U	V	W	X	Y
I-A	4'-6"	5'-5 1/2"	4'-0"	5'-6"	6'-4 3/4"	4"	9"	8'-3"
II-A ⑤	5'-3"	6'-3 1/4"	4'-6"	6'-1"	6'-11 3/4"	4 3/4"	9 1/2"	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.

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 μin 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.

END ELEVATION

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H ⑥	A
		Left	Right				
3S0061180L001.1	116+55	X	X	II-A	0.365"	29'-4"	21'-11"

OS-A-6

6-1-12

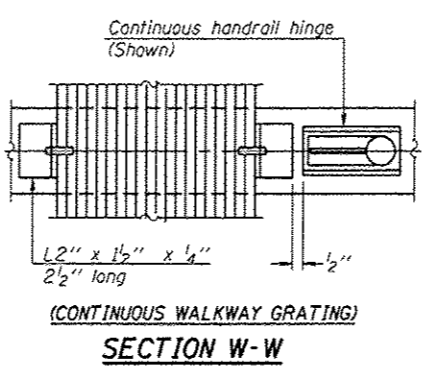
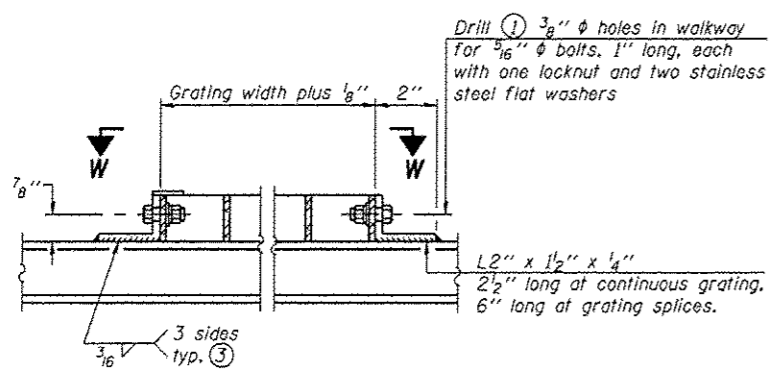
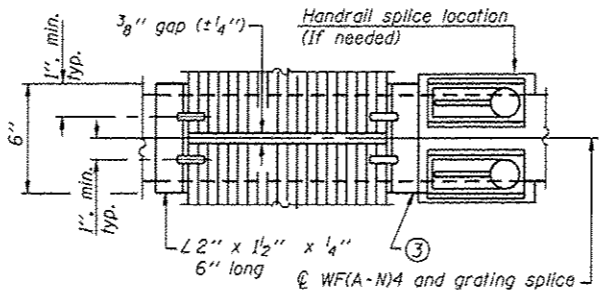
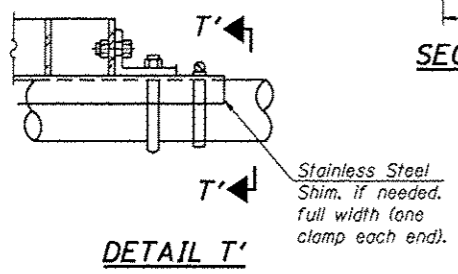
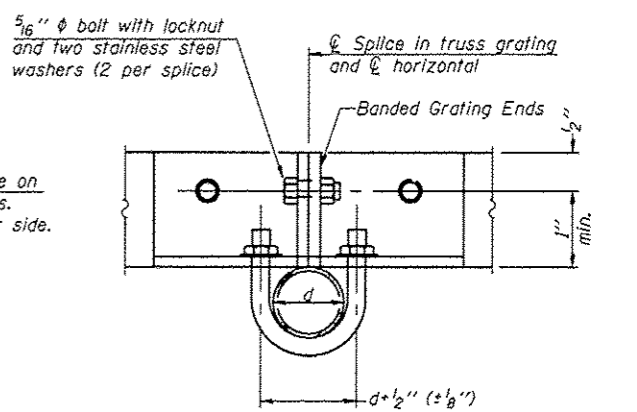
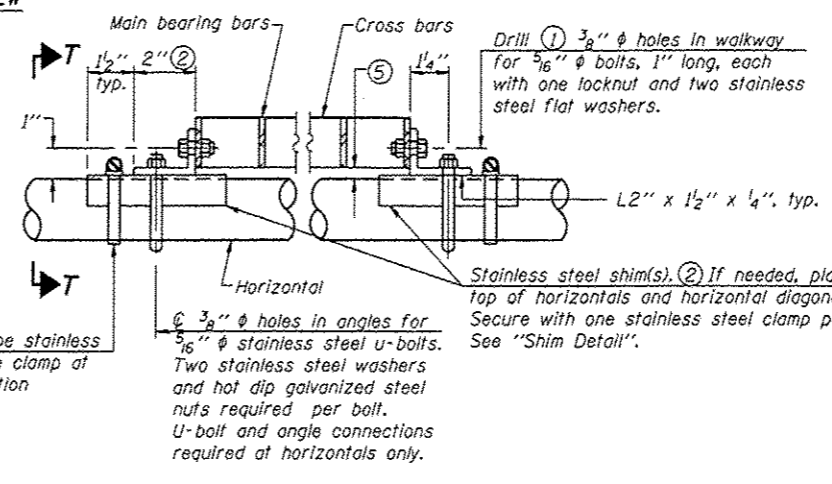
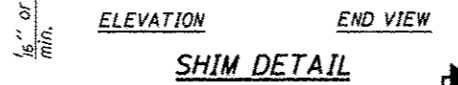
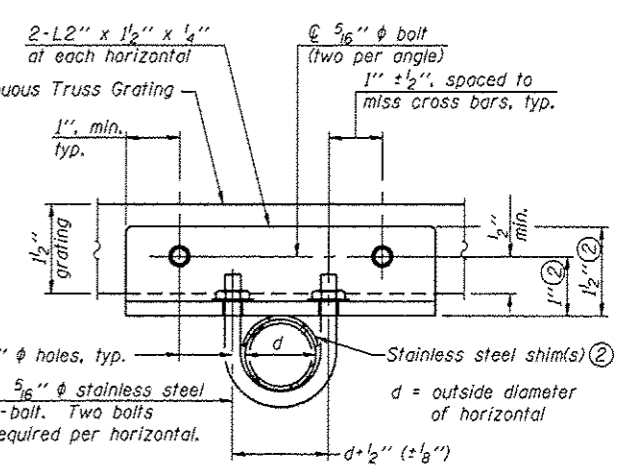
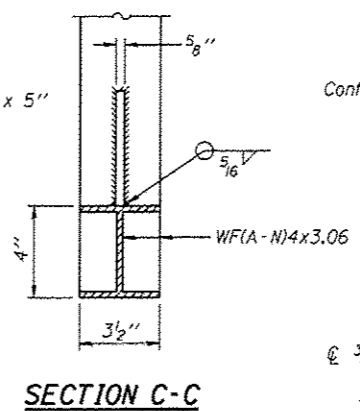
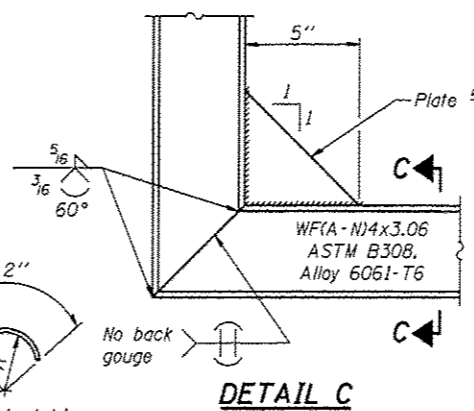
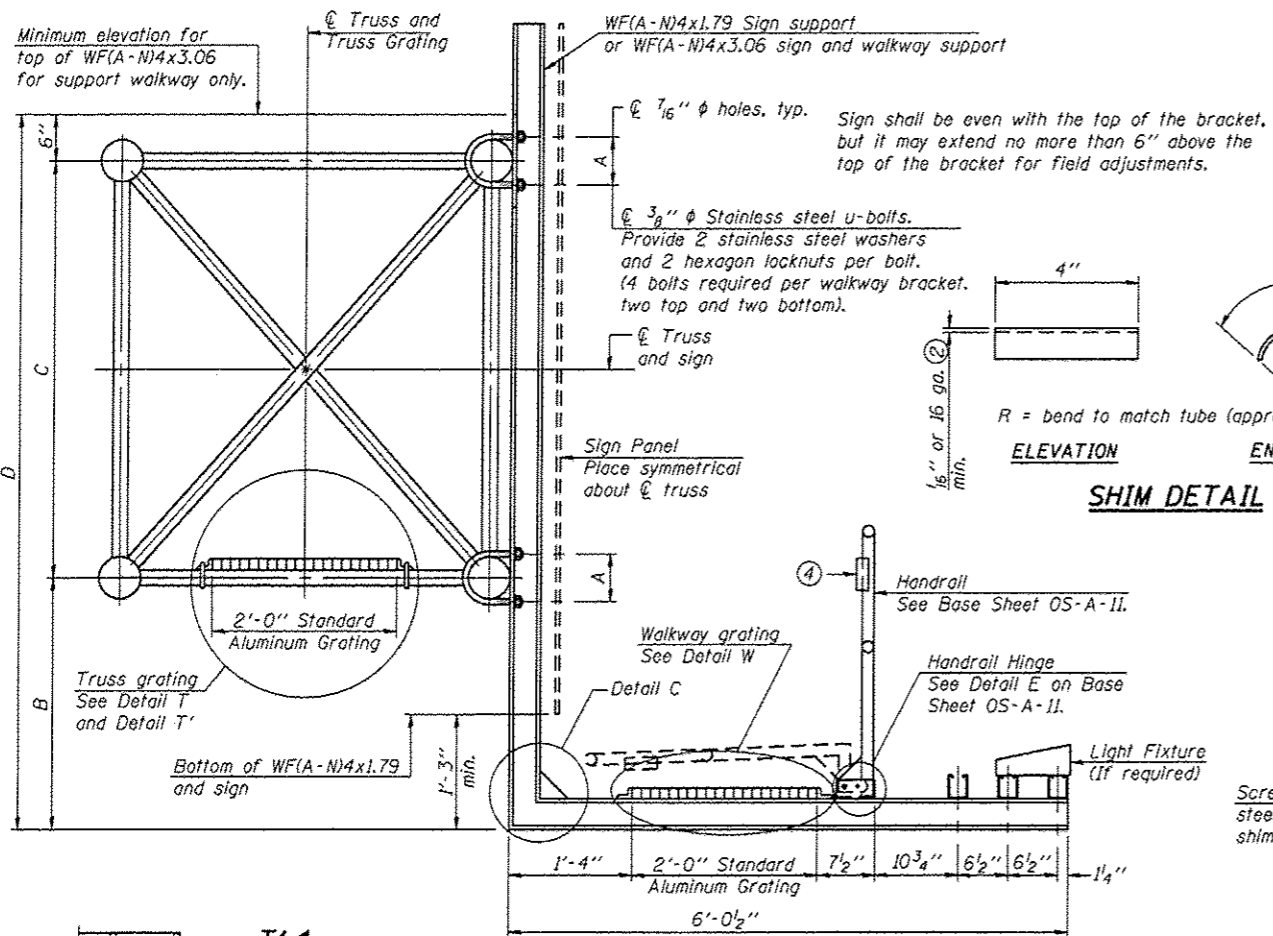
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		CHECKED: RON WOODSHANK	REVISED: -
		DATE: -	REVISED: -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
SUPPORT FRAME FOR ALUMINUM TRUSS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	14
CONTRACT NO. 46316			ILLINOIS FED. AID PROJECT	

SCALE: SHEET NO. 5 OF 11 SHEETS STA. TO STA.



SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B221 Alloy 6061-T6.

Cross bars 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.

Structure Number	Station	A	(6) B	C	(6) D
350061J80L001.1	116+55	7"	3'-7 1/2"	5'-3"	9'-4 1/2"

- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- 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.
- If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OS-A-11.)
- 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.
- Based on actual height of tallest sign given on OS-A-1.

OS-A-10

6-1-12

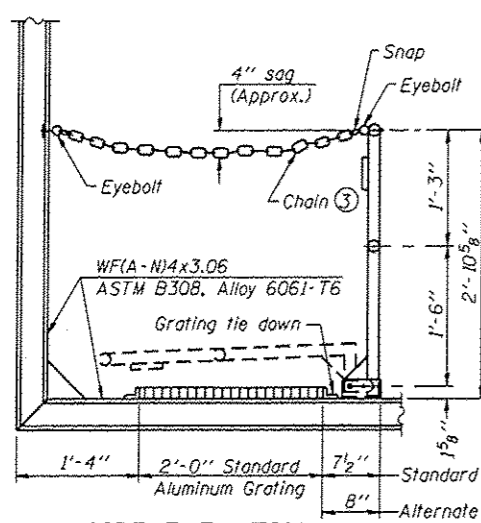
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#FILE#		DRAWN - YOGESH PATEL	REVISED -
	PLOT SCALE * #SCALE*	CHECKED - RON WOODSHANK	REVISED -
	PLOT DATE * #DATE*	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

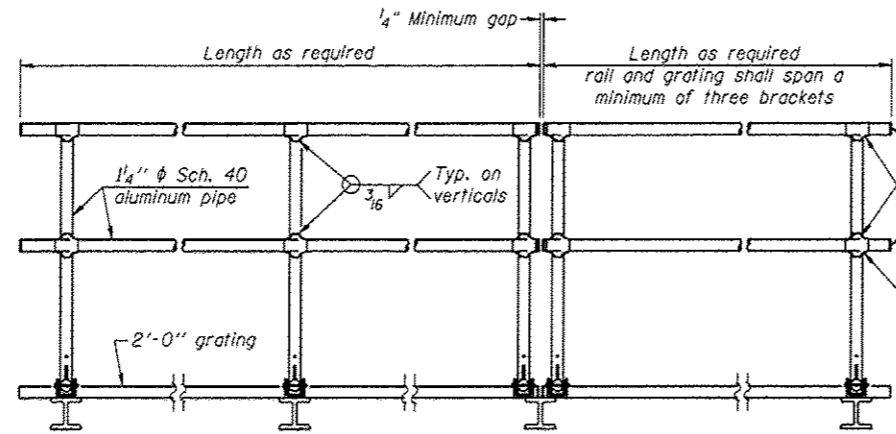
OVERHEAD SIGN STRUCTURES
ALUMINUM WALKWAY DETAILS

SCALE: SHEET NO. 8 OF 11 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	17
ILLINOIS FED. AID PROJECT			CONTRACT NO. 46316	



SIDE ELEVATION
(Showing safety chain w/o sign)



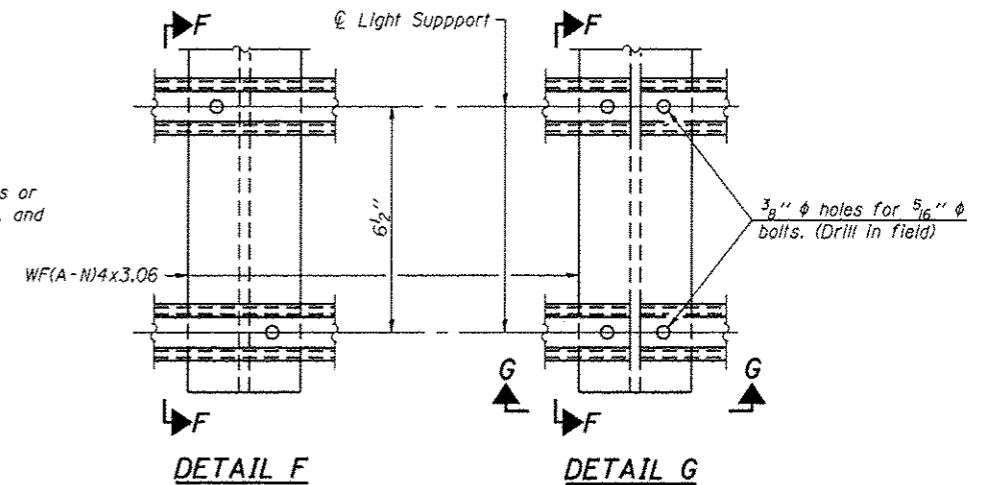
HANDRAIL DETAILS

FRONT ELEVATION

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

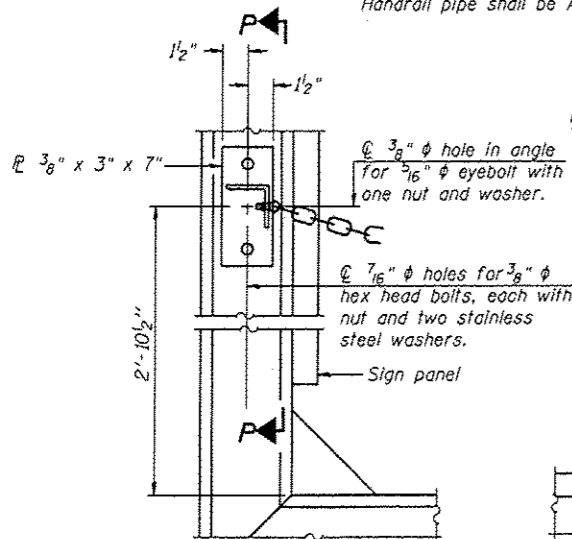
① Install standard force-fit end caps or weld 1/2" end plates with 1/8" c.f.w. and grind smooth. (All rail ends)
Fittings-ASTM B26, Alloy 356-T7 or 1/2" aluminum pipe

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



DETAIL F

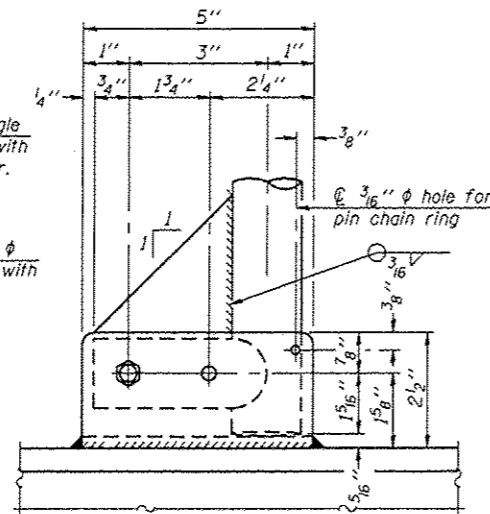
DETAIL G



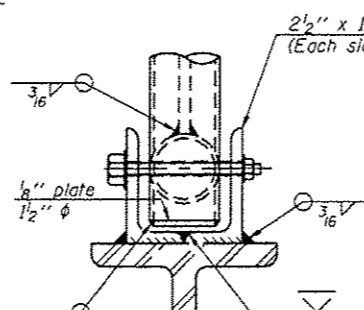
ALTERNATE SAFETY CHAIN ATTACHMENT

(With Sign Present)

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

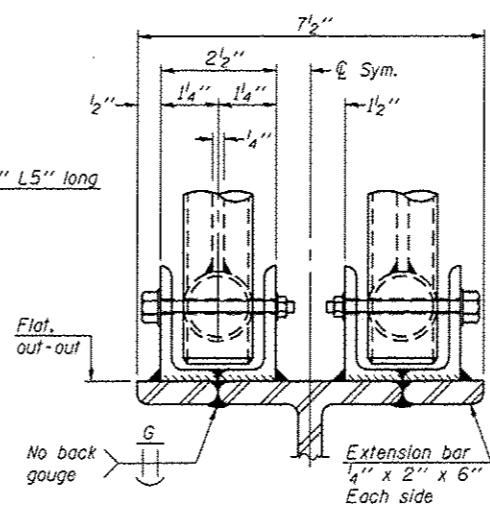


SIDE ELEVATION

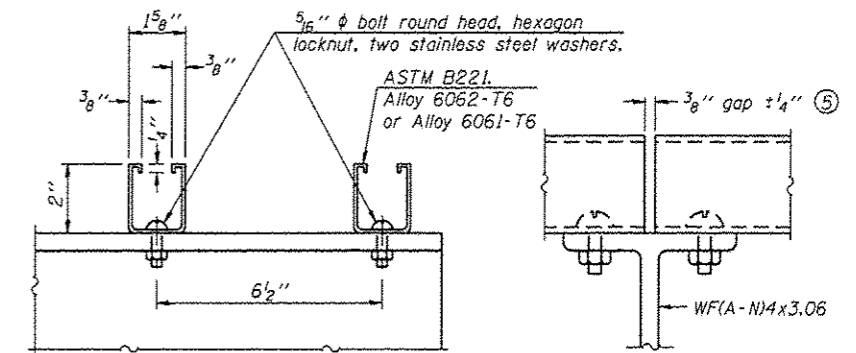


FRONT ELEVATION

See "Elevation" at right for dimensions.



ELEVATION AT HANDRAIL JOINT ④

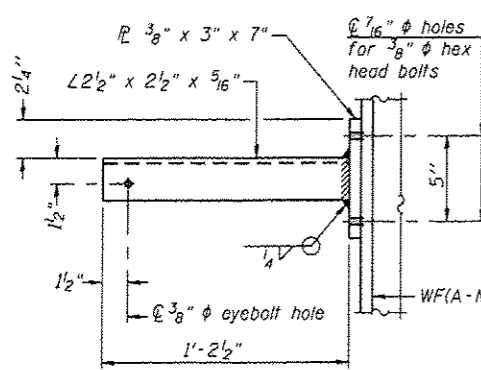


SECTION F-F

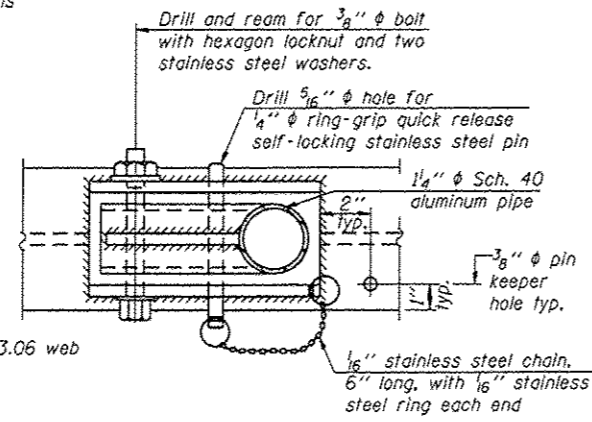
SECTION G-G

LIGHTING FIXTURE MOUNTS (IF REQUIRED)

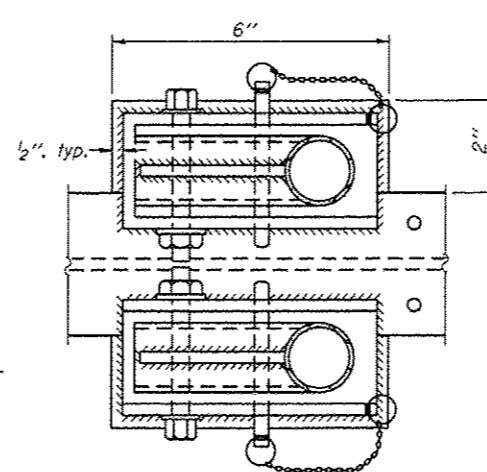
⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



SECTION P-P

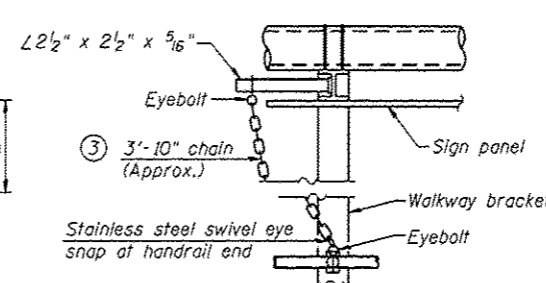


PLAN
DETAIL E HANDRAIL HINGE



PLAN AT HANDRAIL JOINT

Details not shown same as "PLAN"

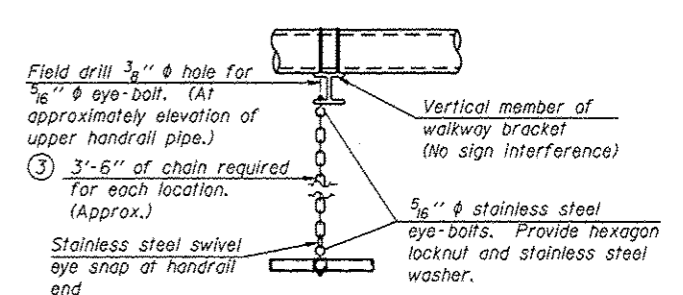


ALTERNATE SAFETY CHAIN ATTACHMENT

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

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.



SAFETY CHAIN

One required for each end of each walkway.

OS-A-11

6-1-12

FILE NAME =	USER NAME = PatelyJ	DESIGNED - YOGESH PATEL	REVISED -
o:\p\work\p\dot\patelyj\08369878\034618-ahd-detail.dgn	18-ahd-detail.dgn	DRAWN - YOGESH PATEL	REVISED -
PLOT SCALE = 250000.0000' / in.		CHECKED - RON WOODSHANK	REVISED -
PLOT DATE = 2/3/2014		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGN STRUCTURES
ALUMINUM HANDRAIL DETAILS

SCALE: SHEET NO. 9 OF 11 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
180	D-3 OVD SIN STR REPL 14-50	BUREAU	24	18
CONTRACT NO. 46316			ILLINOIS FED. AID PROJECT	



Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 12/3/13

ROUTE I-180 DESCRIPTION Northbound I-180, at milepost 1.1, just prior to the I-80 ramps LOGGED BY Larry Myers

SECTION D3 OVD SIN STR REPL 14-50 LOCATION SE 1/4, SEC. 6, TWP. 16N, RNG. 10E, 4th PM, Latitude 41.395676, Longitude -89.382824

COUNTY Bureau DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 3S006180L001.1
Station 116+55
BORING NO. 01 (East Leg)
Station 116+62
Offset 78.0 ft Lt.
Ground Surface Elev. 697.65 ft

Description	Elev. (ft)	D (ft)	B (/6")	U (tsf)	M (%)	Surface Water Elev. (ft)	Stream Bed Elev. (ft)	Groundwater Elev. (ft)	First Encounter (ft)	Upon Completion (ft)	After (Hrs.)	D (ft)	B (/6")	U (tsf)	M (%)
Augered Brown Sand & Gravel, Black Silty Clay Loam Fill	695.15														
Hard Brown, Gray, Black Silty Clay/Silty Clay Loam Fill	693.15	5	7	>4.5	18										
Very Stiff to Soft Brown Silty Clay/Silty Loam Loess	671.15	-5	4	3.5	26										
End of Boring	671.15														
WH = Weight of Hammer	685.65														
Medium to Very Stiff Brown Silty Clay Loam Till	680.65														
Very Stiff Purplish Gray Silty Clay Loam Till	678.15														

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, form 137 (Rev. 8-99)



Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 12/3/13

ROUTE I-180 DESCRIPTION Northbound I-180, at milepost 1.1, just prior to the I-80 ramps LOGGED BY Larry Myers

SECTION D3 OVD SIN STR REPL 14-50 LOCATION SE 1/4, SEC. 6, TWP. 16N, RNG. 10E, 4th PM, Latitude 41.395663, Longitude -89.382824

COUNTY Bureau DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 3S006180L001.1
Station 116+55
BORING NO. 02 (West Leg)
Station 116+62
Offset 26.0 ft Lt.
Ground Surface Elev. 697.78 ft

Description	Elev. (ft)	D (ft)	B (/6")	U (tsf)	M (%)	Surface Water Elev. (ft)	Stream Bed Elev. (ft)	Groundwater Elev. (ft)	First Encounter (ft)	Upon Completion (ft)	After (Hrs.)	D (ft)	B (/6")	U (tsf)	M (%)
Augered Brown Sand & Gravel Fill, Brown Silty Clay Loam Fill	695.28														
Hard Gray, Brown & Black Silty Clay Loam Fill	693.28	5	7	>4.5	14										
Very Stiff to Soft Brown Silty Clay/Silty Loam Loess	671.28	-5	4	3.0	25										
End of Boring	671.28														
WH = Weight of Hammer	685.78														
Very Stiff Brown Silty Clay Loam Till	680.78														
Very Stiff Purplish Gray Silty Clay Loam Till	678.15														

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, form 137 (Rev. 8-99)

FILE NAME: o:\p\work\p\dot\patel\j\08369578\0346	USER NAME: Patel, J	DESIGNED: YOGESH PATEL	REVISED: -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING LOGS	F.A.I. RATE: 180	SECTION: D-3 OVD SIN STR REPL 14-50	COUNTY: BUREAU	TOTAL SHEETS: 24	SHEET NO.: 20		
PLOT SCALE: 250000.0000 1/4 in.	CHECKED: RON WOODSHANK	REVISED: -	SCALE: 1			SHEET NO. 11 OF 11 SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT				
PLOT DATE: 2/3/2014	DATE: -	REVISED: -										
CONTRACT NO. 46316												

GENERAL NOTES

SPECIFICATIONS:

DESIGN: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications") ②

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.

MINIMUM CLEARANCE: 3" greater than bridge members at all locations. (All Obstructions)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 Structural Welding Code (Steel) and the Standard Specifications.

MATERIALS: All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 45,000 p.s.i. 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 (M183, M223 Gr. 50).

HIGH STRENGTH BOLTS: All bolts, washers, nuts and locknuts shall satisfy the requirements of ASTM designation A307 unless noted as "H.S." which shall require AASHTO M164 (A325), ASTM A449, or approved alternate. All fasteners shall be hot dip galvanized per AASHTO M232 unless otherwise specified.

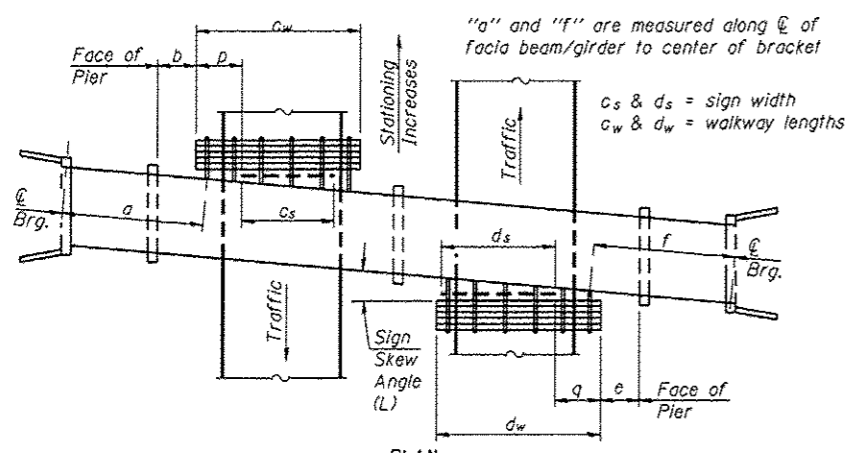
GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: All-threaded rod shall conform to ASTM F1554 Grade 105, 3/4" ϕ x 12" long, each with one plate washer and locknut and be hot dip galvanized per AASHTO M232. They shall be either cast into the concrete or epoxy grouted in accordance with Section 584 of the Standard Specifications. Minimum embedment in concrete shall be 9".

- ① Bracket spacing $g \leq 6'-0"$, max. Spacing shall be uniform if possible but may vary $\pm 6"$ to miss existing obstruction (rail post, light poles, web stiffeners, splice plates, etc.). Adjust bracket lengths accordingly on skewed structures.
- ② Any design modifications shall be based on the current version of applicable specifications and submitted for the Engineer's approval.
- ③ Unit price includes grating, handrail, brackets, supports, anchor bolts, fasteners, fabrication, delivery, erection, field drilling and other necessary items. Limits of payment are based on grating length (c_w , d_w) unless otherwise specified. For Safety Chain Details and Details D, F and G, see Base Sheet BM-4.
- ④ If walkway bracket at safety chain location is behind sign, add angle to bracket. See detail on Base Sheet BM-4.

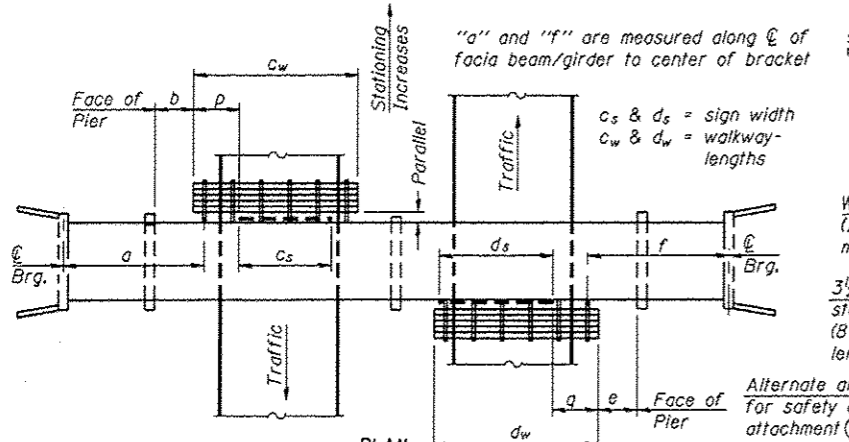
TOTAL BILL OF MATERIAL

③ OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	Foot	31'-6"
--	------	--------



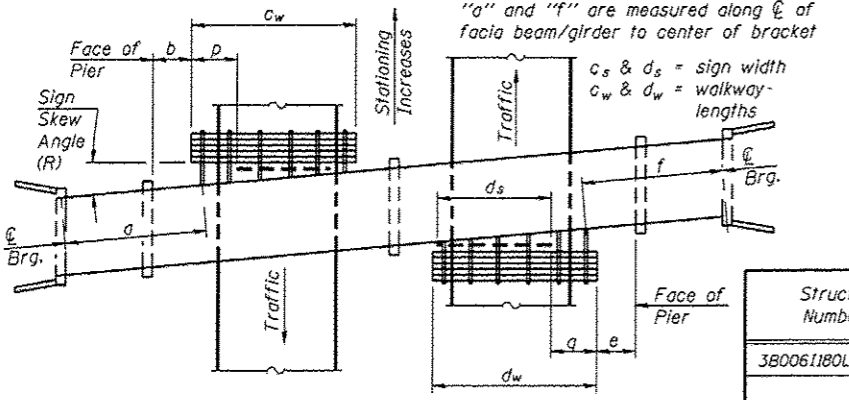
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath structure varies.)



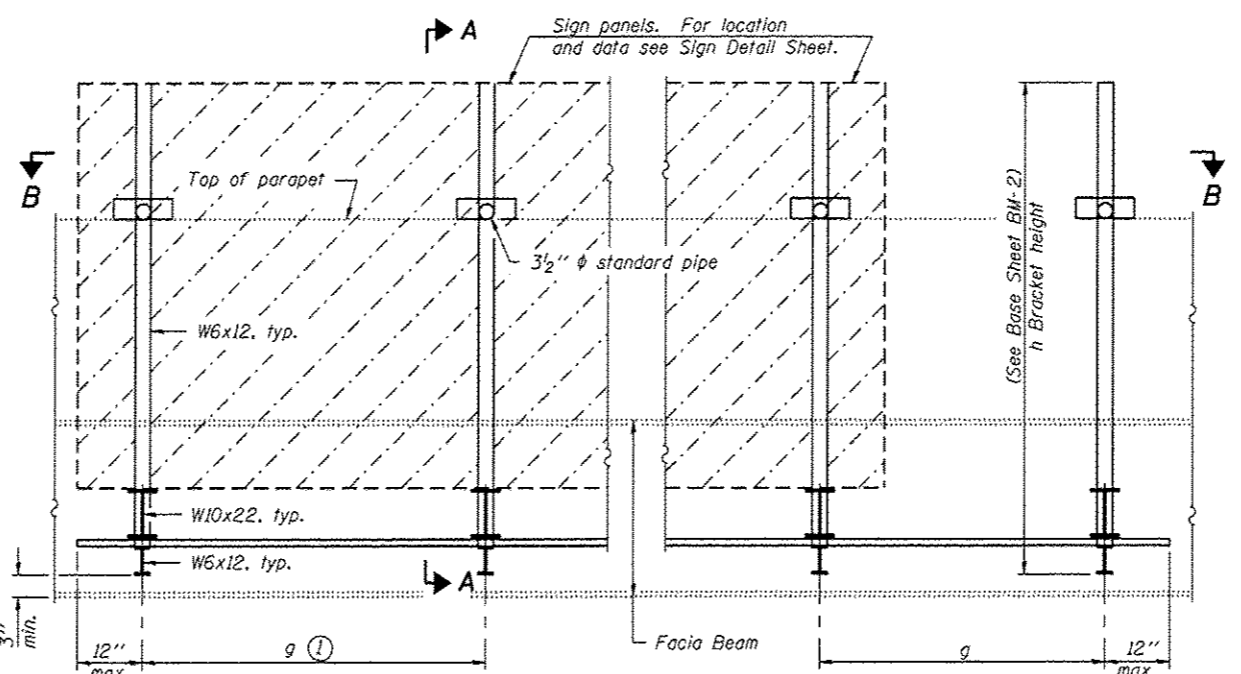
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath structure varies.)



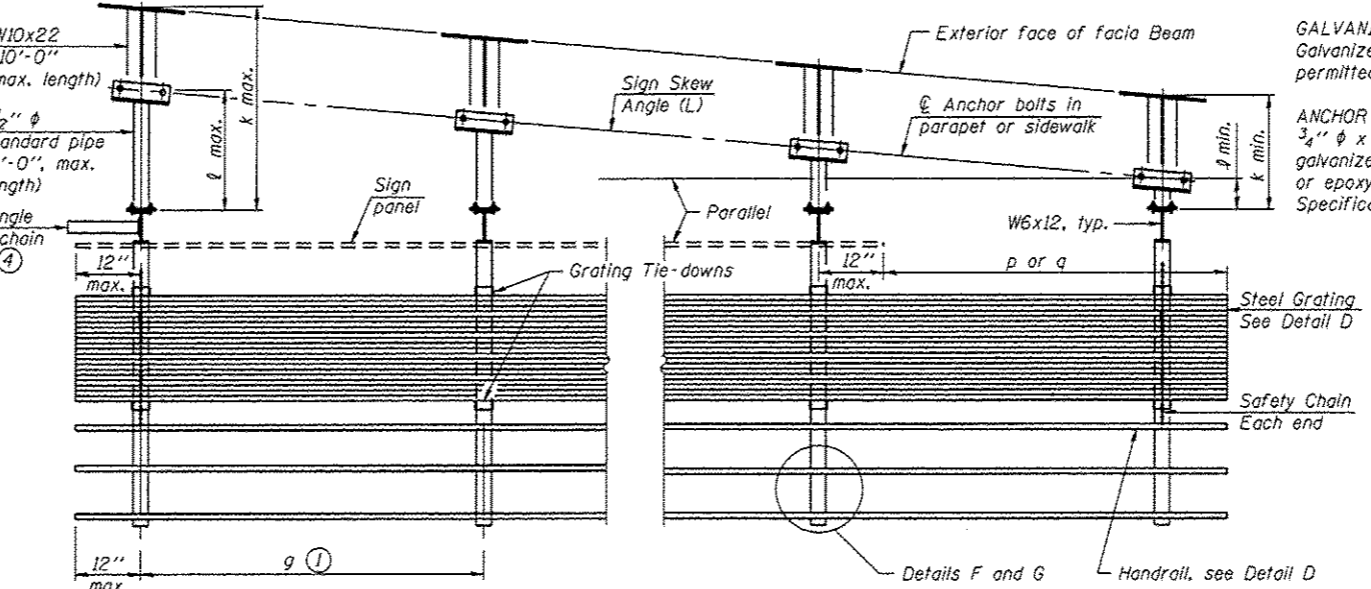
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath structure varies.)



TYPICAL FRONT ELEVATION

(With lights, safety chain and handrail omitted for clarity.)



SECTION B-B

(Shown: Left Sign Skew > 15°)

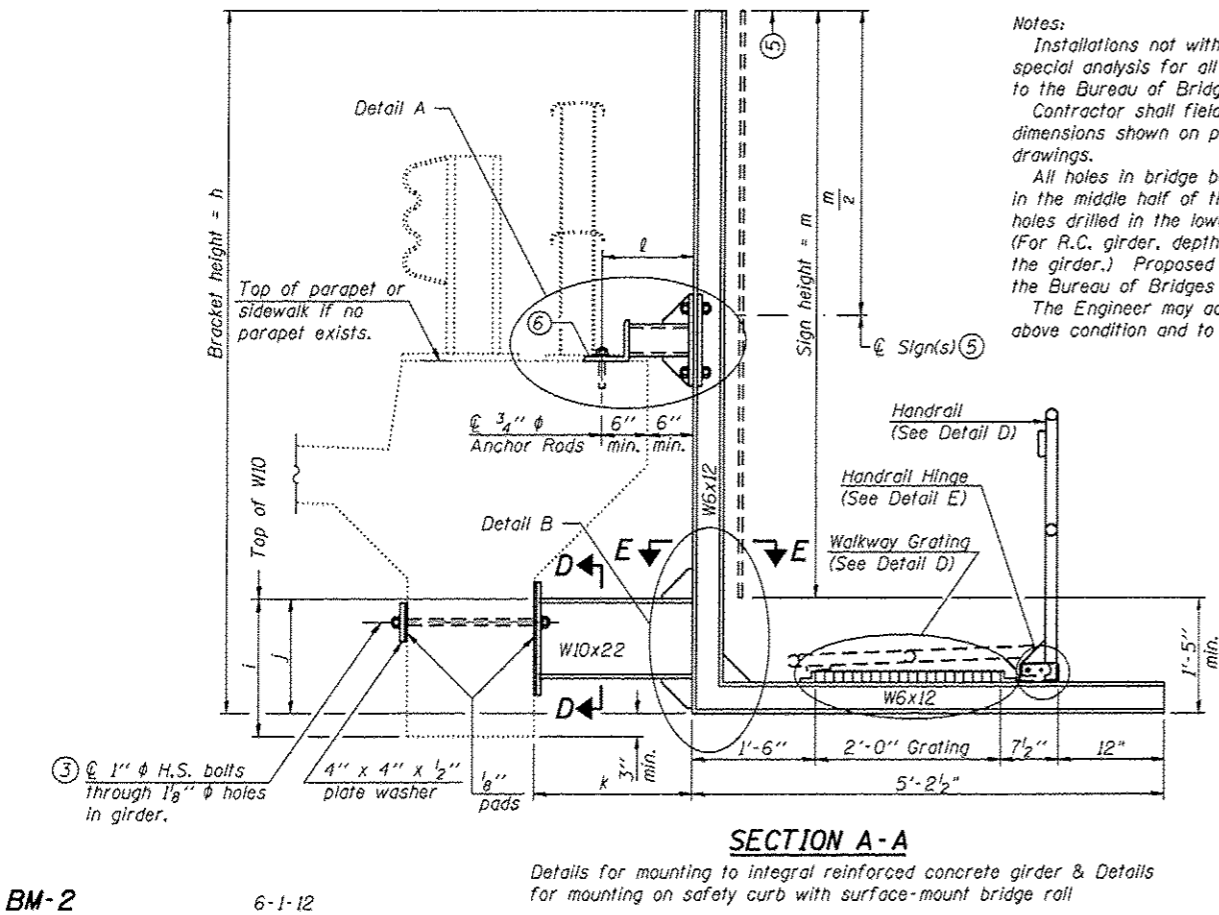
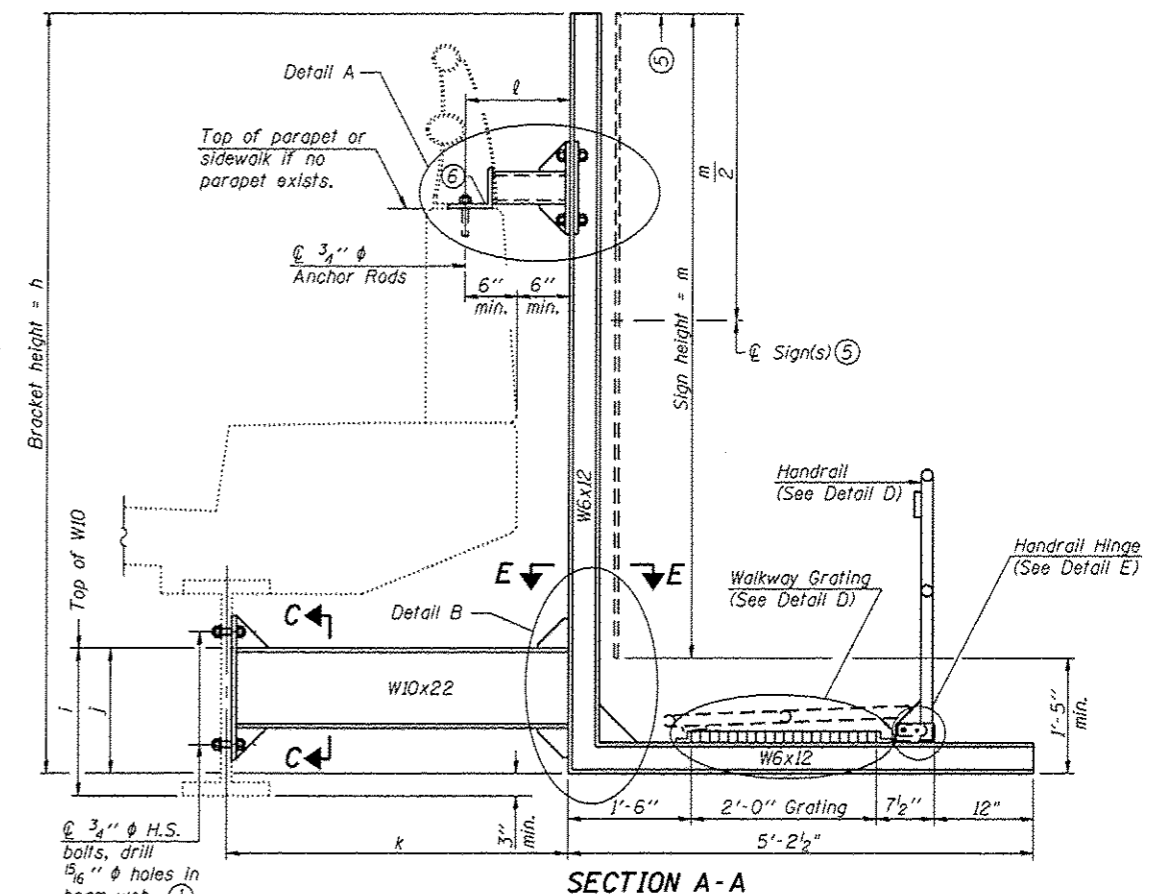
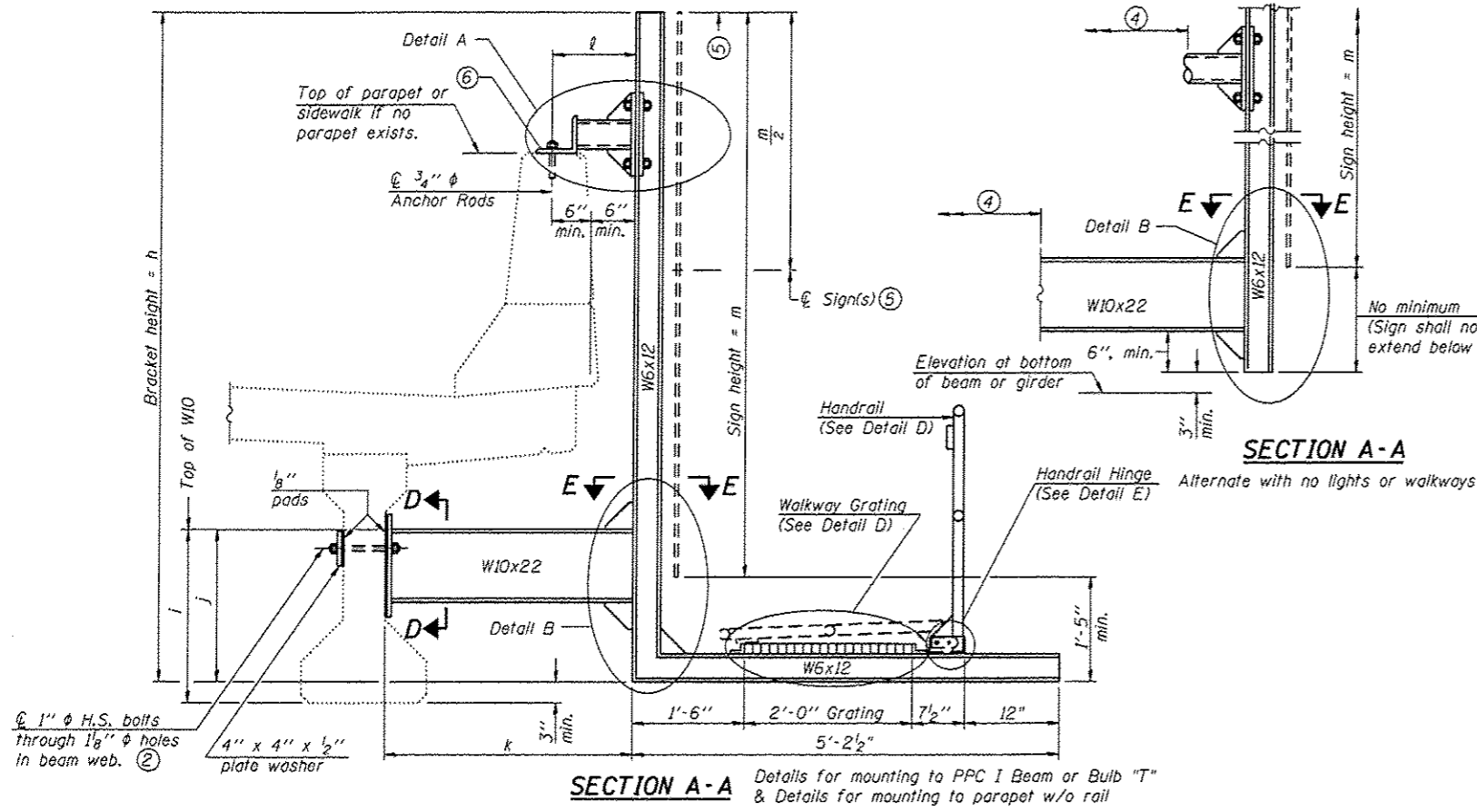
Structure Number	Sign Skew Angle (L) or (R)	Bridge Station	Bridge Structure Number	Contract Route Designation	a	b	c _s	c _w	d _s	d _w	e	f	g	No. of Brackets (Total)	p	q	Total Grating/Hndrl. Lengths (c _w + d _w)
3B0061180L001.8A	0°	152+94.23	006-0125	FA1 180 (I-180 NB)	---	---	---	---	11'-0"	16'-0"	N/A	37'-8 1/2"	3'-6"	5	---	4'-0"	16'-0"
3B0061180L001.8B	0°	152+94.23	006-0125	FA1 180 (I-180 NB)	---	---	---	---	13'-6"	15'-6"	N/A	53'-8 1/2"	4'-6"	4	---	1'-0"	15'-6"

Dimensions a, b, e, f & g may vary as approved by the Engineer, see ①. When $c_w < c_s$ and/or $d_w < d_s$, use alternate brackets without walkway supports where applicable, see ③.

BM-1

6-1-12

FILE NAME : o:\pwork\p\dos\patel\j\d8369578\034616-shr-details.dgn	USER NAME : Patel, J	DESIGNED - YOGESH PATEL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BRIDGE MOUNT SIGN STRUCTURES GENERAL PLAN AND ELEVATION	F.A.I. RTE. : 180	SECTION : D-3 OVD SIN STR REPL 14-50	COUNTY : BUREAU	TOTAL SHEETS : 24	SHEET NO. : 21
PLOT SCALE : 250000.0000 ' / in.	CHECKED - RON WOODSHANK	REVISOR -	SCALE : SHEET NO. 1 OF 4 SHEETS			STA. TO STA.	CONTRACT NO. 46316			
PLOT DATE : 2/3/2014	DATE -	REVISOR -	ILLINOIS FED. AID PROJECT							



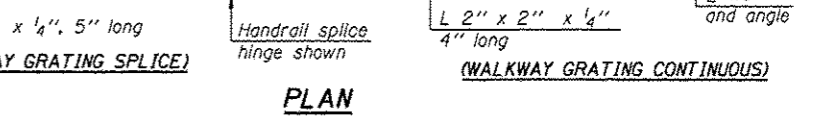
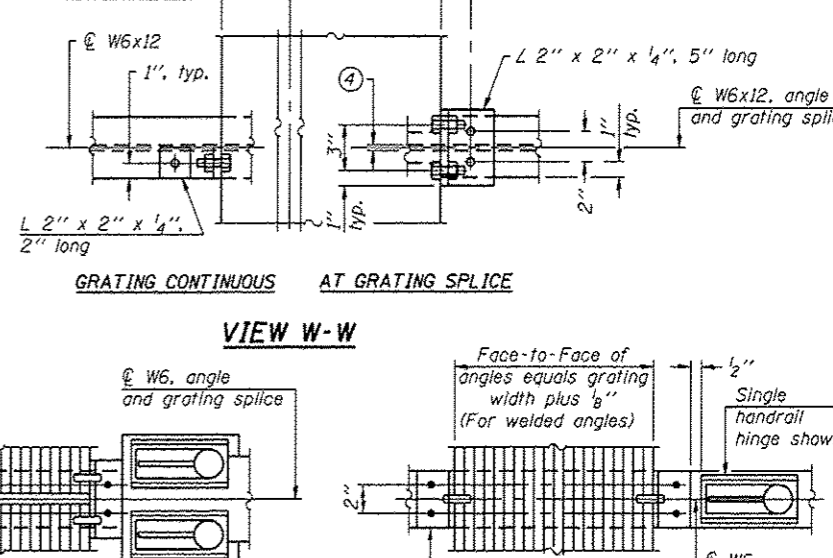
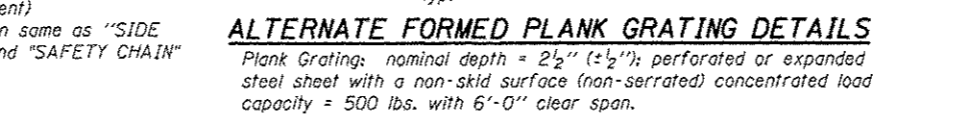
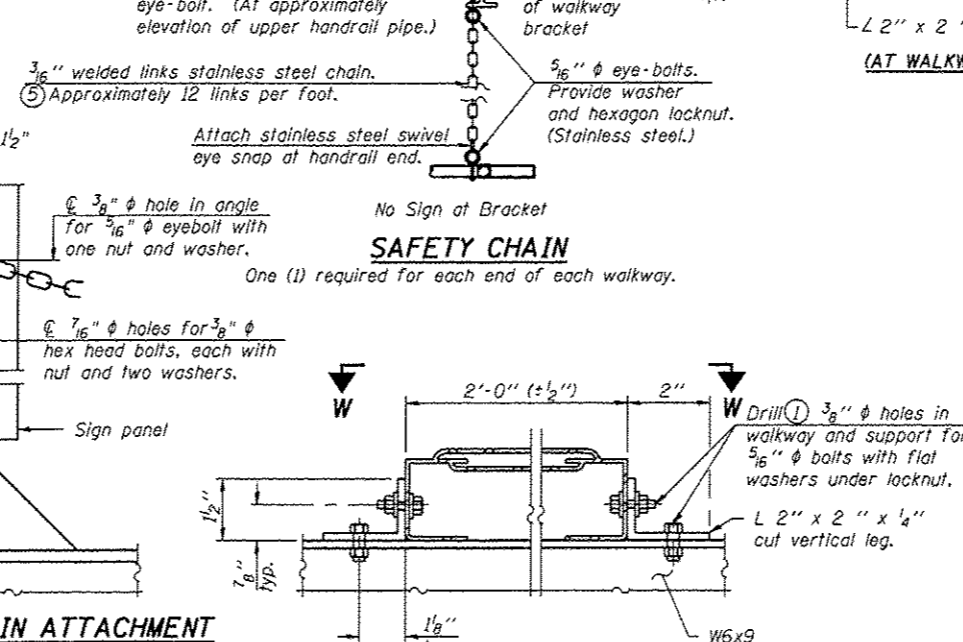
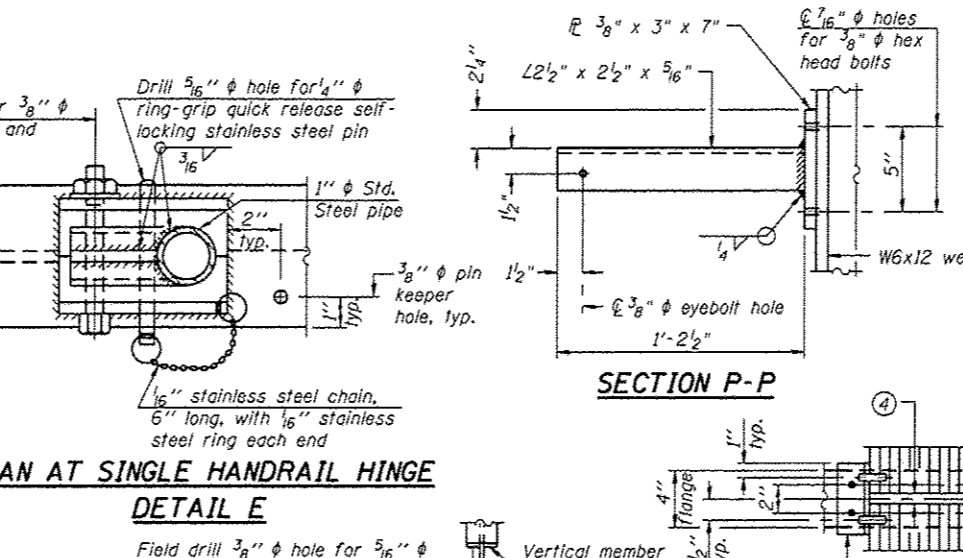
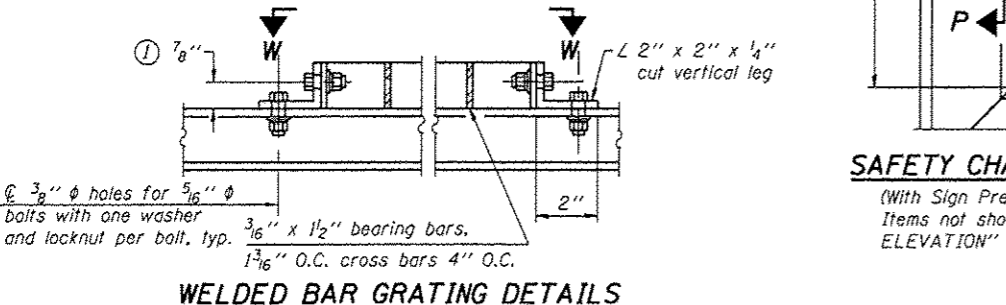
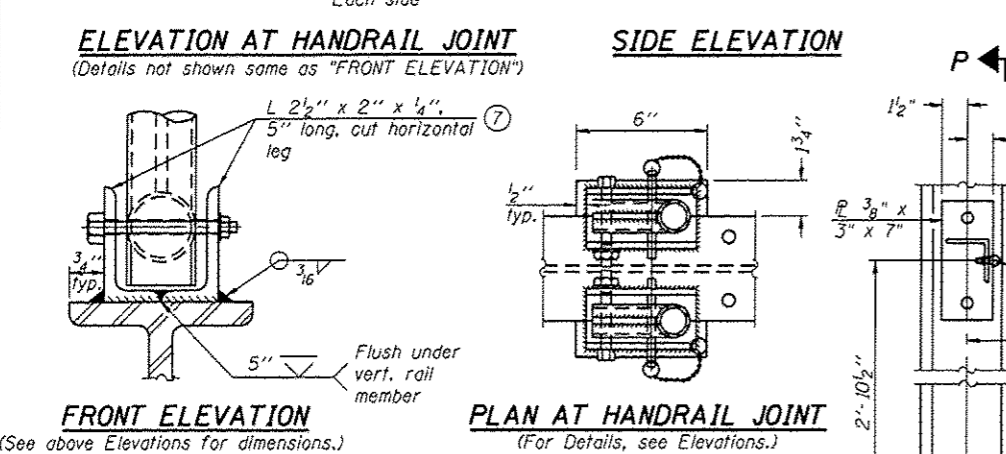
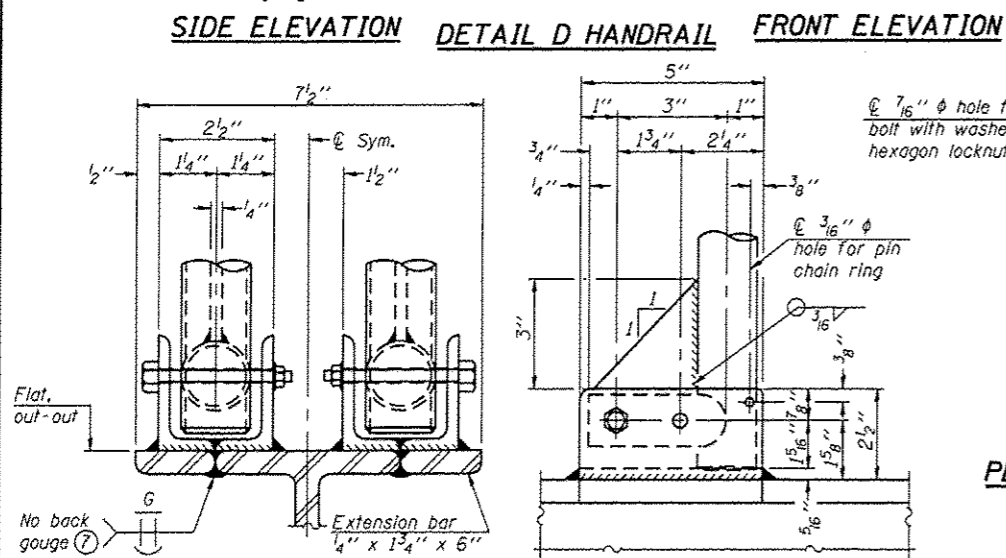
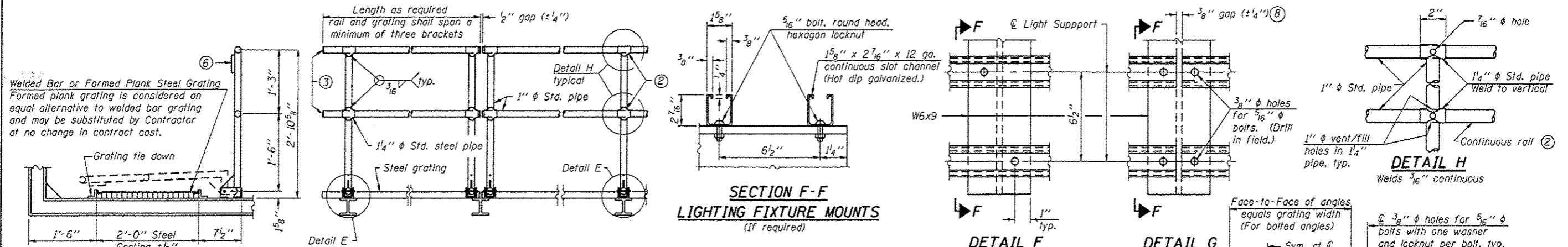
Notes:
 Installations not within dimensional limits shown require special analysis for all components and must be submitted to the Bureau of Bridges and Structures for approval. Contractor shall field check all pertinent existing bridge dimensions shown on plans before submitting shop drawings.
 All holes in bridge beams or girders should be located in the middle half of the member. There shall be no holes drilled in the lower quarter of the member's depth. (For R.C. girder, depth = bottom of deck to bottom of the girder.) Proposed exceptions must be approved by the Bureau of Bridges and Structures.
 The Engineer may adjust dimension "h" to meet the above condition and to keep the sign level.

- ① Holes in new steel members may be drilled in the fabrication shop or in the field. Field drill existing members.
- ② For new PPC I beams, holes shall be formed during casting. For existing PPC I beams, prestressing strand locations shall be determined and spaced to miss strands by 6", min. Minimize spalling during field drilling of existing beams.
- ③ For new construction, form holes. For existing RC beams, locate primary reinforcement and space holes to miss by 6", min. Minimize spalling and concrete fracturing/damage during field drilling of existing concrete. Spalls over 1/4" deep or beyond the coverage of the 4x4 plate washer shall be repaired with epoxy mortar before installing washer.
- ④ For attachment details of 3/2" pipe and W10x22, see other sections as applicable.
- ⑤ Sign shall not extend more than 6" above top of bracket, and this dimension may vary to keep sign level if bridge is on grade or vertical curve. Multiple signs of various heights shall share a common horizontal centerline and use equal bracket heights. If no sign is attached to a W6x12 vertical (bracket only supporting walkway), dimension h shall be the same as an adjacent bracket with a sign attached, unless Engineer specifically directs shorter brackets due to locational restraints on future uses. (See Detail A for minimum bracket height.)
- ⑥ For bridge mounted sign structures installed on new bridges with railing, during design, bracket spacing must be coordinated with railing post spacing and the Contractor must install upper brackets prior to railing installation. For bridge mounted sign structures installed on existing bridges with railing, during design, brackets spacing must be coordinated with railing post spacing and the Contractor must temporarily remove sections of railing to facilitate upper bracket installation. If it is determined during design that existing railings can't be removed, alternate upper connection details must be developed for the contract plans and approved by the Bureau of Bridges and Structures.

For Details A & B, Sections C-C, D-D and E-E, see Base Sheet BM-3.
 For Details D & E, see Base Sheet BM-4.

Structure Number	Station	h	i	j	k max. (10'-0" max.)	l max. (8'-0" max.)	m (15'-0" max.)
3B006180L001.8A	152+94.23	11'-5"	2'-11 5/8"	2'-8 5/8"	3'-6"	1'-0"	10'-0"
3B006180L001.8B	152+94.23	11'-5"	2'-11 5/8"	2'-8 5/8"	3'-6"	1'-0"	10'-0"

BM-2 6-1-12



- NOTES**
- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment. Field drilled holes must be touched up with galvanized paint.
 - Horizontal rail member shall be continuous thru 1.4 inch diameter pipe. Provide 1.4 inch diameter hole in 1.4 inch diameter pipe for 3/8 inch diameter bolt. Field drill 1.4 inch diameter hole in horizontal rail member. Provide washer and locknut for bolt. (Use 5/16 inch eyebolts in 1.4 inch diameter holes on top rail at ends only.)
 - Install standard force-fit end caps or weld 1/8 inch end plates with 1/8 inch c.f.w. and grind smooth. (All rail ends.)
 - 3/8 inch (± 1/4 inch) gap between grating panels at splice.
 - Chain to be type 304L stainless steel suitable for prolonged exterior exposure. Approximately 3'-6" long chain per location. Maximum sag with handrail erected = 4".
 - 1/8 inch x 1/2 inch x 2 inch welded to handrail posts to protect locations that contact grating.
 - Extrusions may be used in lieu of details shown, with approval by Engineer.
 - Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

BM-4				BRIDGE MOUNT SIGN STRUCTURES				F.A.I. RITE.		SECTION		COUNTY		TOTAL SHEETS		SHEET NO.	
16-shd-details.dgn				STATE OF ILLINOIS				180		D-3 OVO SIN STR REPL 14-50		BUREAU		24		24	
2/3/2014				DEPARTMENT OF TRANSPORTATION				SCALE:		SHEET NO. 4 OF 4 SHEETS		STA.		TO STA.		ILLINOIS FED. AID PROJECT	
FILE NAME	USER NAME	DESIGNED	REVISED	STATE OF ILLINOIS				SCALE:		SHEET NO. 4 OF 4 SHEETS		STA.		TO STA.		ILLINOIS FED. AID PROJECT	
DESIGNED	YOGESH PATEL	REVISED		DEPARTMENT OF TRANSPORTATION				SHEET NO. 4 OF 4 SHEETS		STA.		TO STA.		ILLINOIS FED. AID PROJECT			
DRAWN	YOGESH PATEL	REVISED		BRIDGE MOUNT SIGN STRUCTURES				SHEET NO. 4 OF 4 SHEETS		STA.		TO STA.		ILLINOIS FED. AID PROJECT			
CHECKED	RON WOODSHANK	REVISED		WALKWAY DETAILS				SHEET NO. 4 OF 4 SHEETS		STA.		TO STA.		ILLINOIS FED. AID PROJECT			
DATE		REVISED		WALKWAY DETAILS				SHEET NO. 4 OF 4 SHEETS		STA.		TO STA.		ILLINOIS FED. AID PROJECT			