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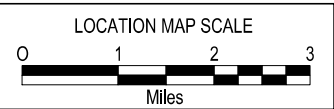
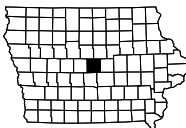
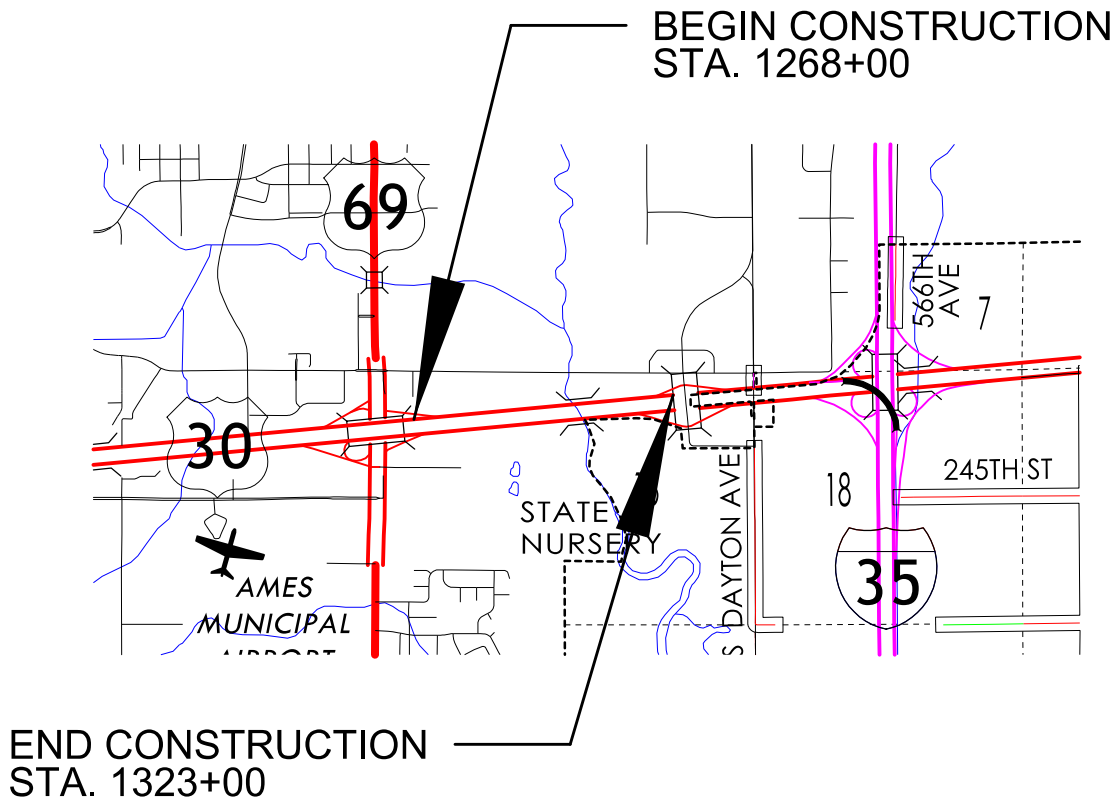


PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
STORY COUNTY
Traffic Signs
W of Duff Ave to S Dayton Ave
in Ames (WB)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



INDEX OF SEALS		
Sheet No.	Signature	Work Type
A.1	Neal Fobian	Primary Signature Block
NI.1	David Urban	Intelligent Transportation Sytem

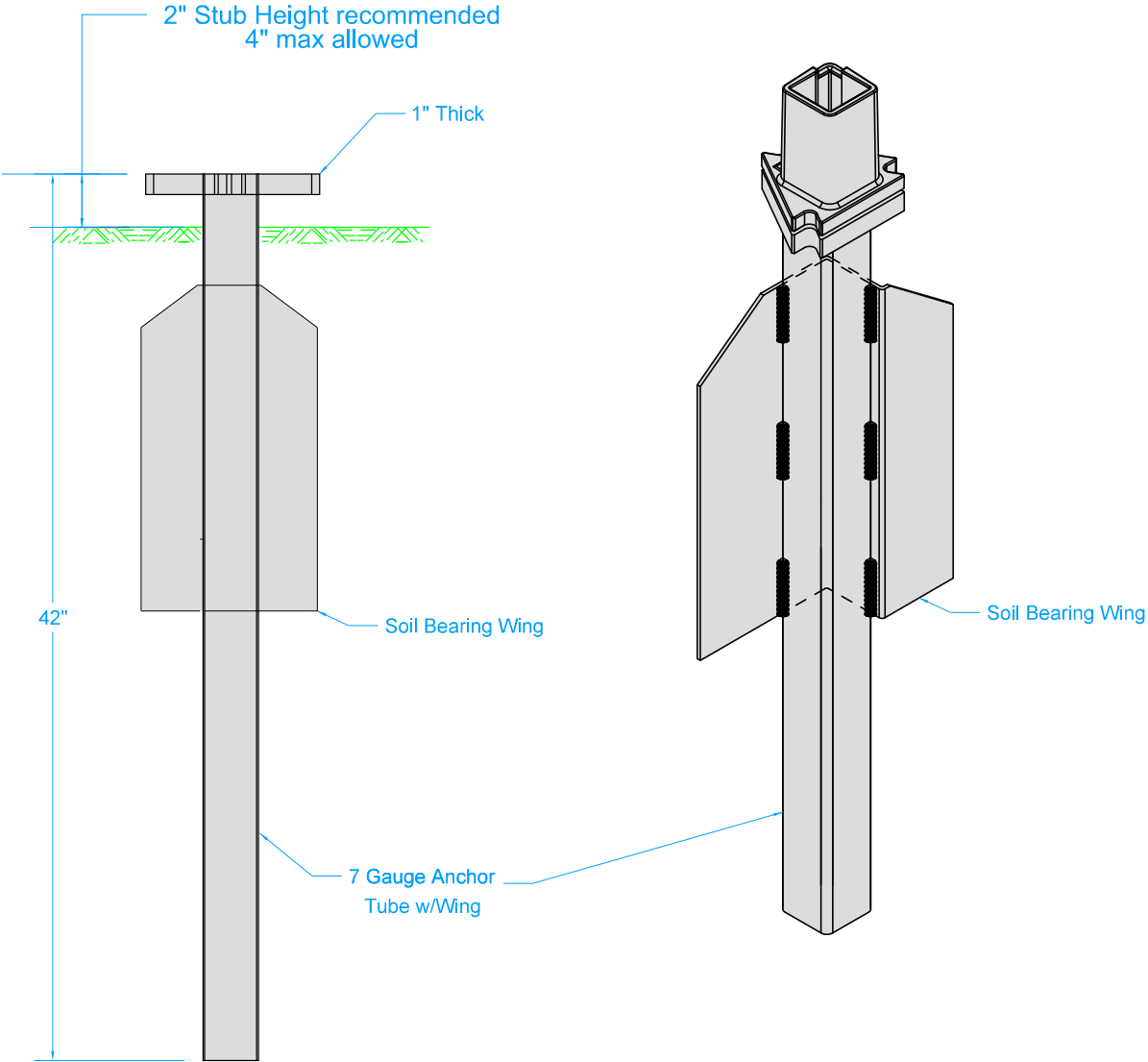


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

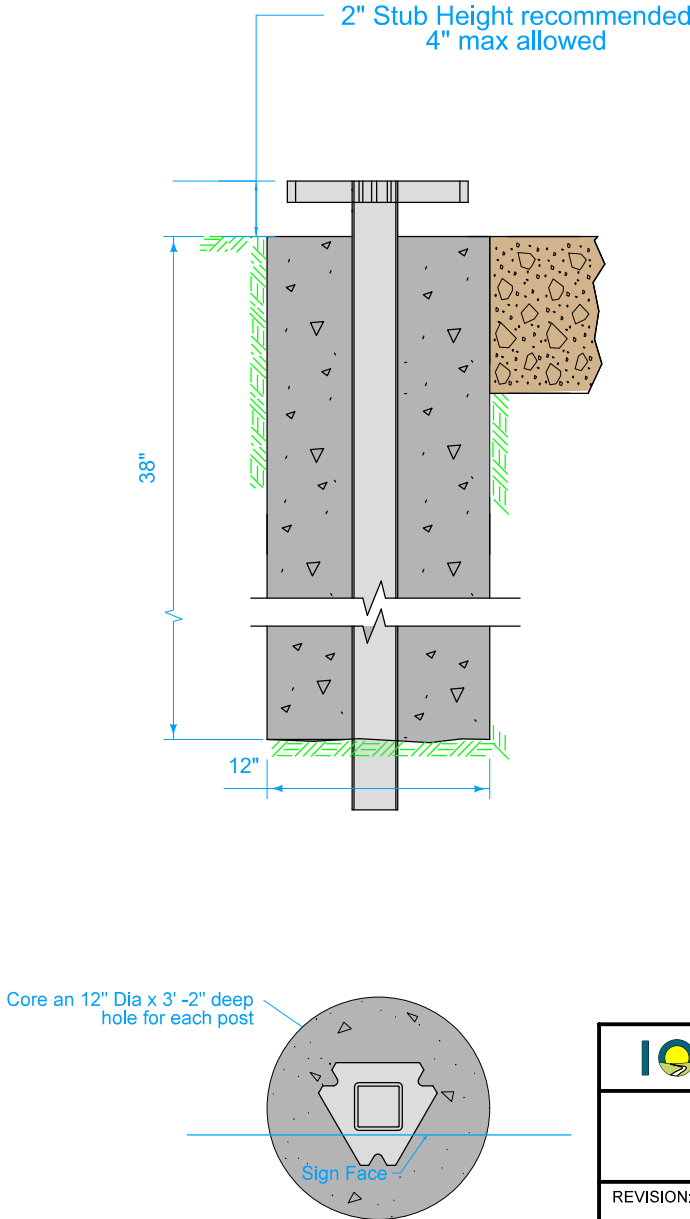
Neal Fobian
Signature: Neal T. Fobian Date: 08/03/2026
Printed or Typed Name: Neal T. Fobian
My license renewal date is December 31, 20 26

Pages or sheets covered by this seal: A.1; B.1-B.12; C.1-C.13; J.1; N.1-12

TYPE 3 INSTALLATION
(TRIANGULAR SLIP BASE SOIL)



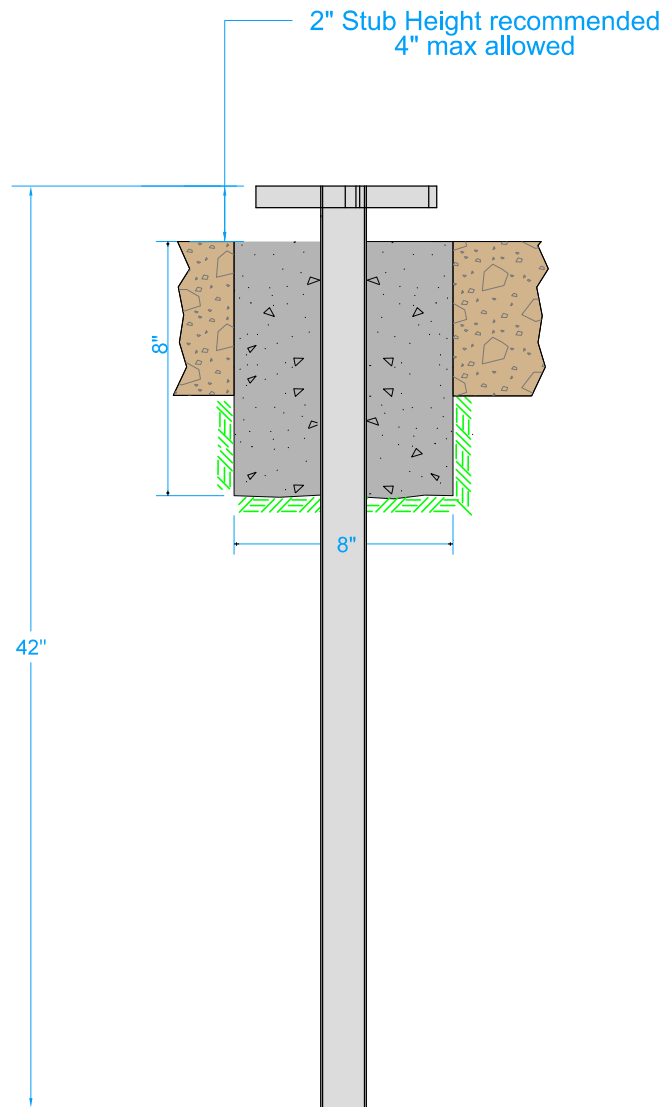
TYPE 4 INSTALLATION
(TRIANGULAR SLIP BASE CONCRETE)



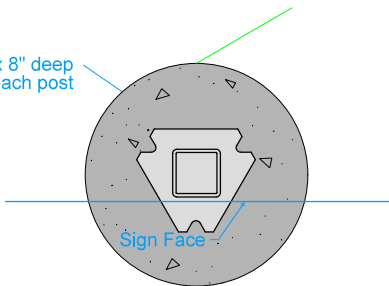
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REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		

TYPE 5 INSTALLATION
(TRIANGULAR SLIP BASE CONCRETE)

①

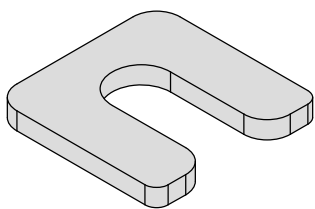


Core an 8" Dia x 8" deep
hole for each post



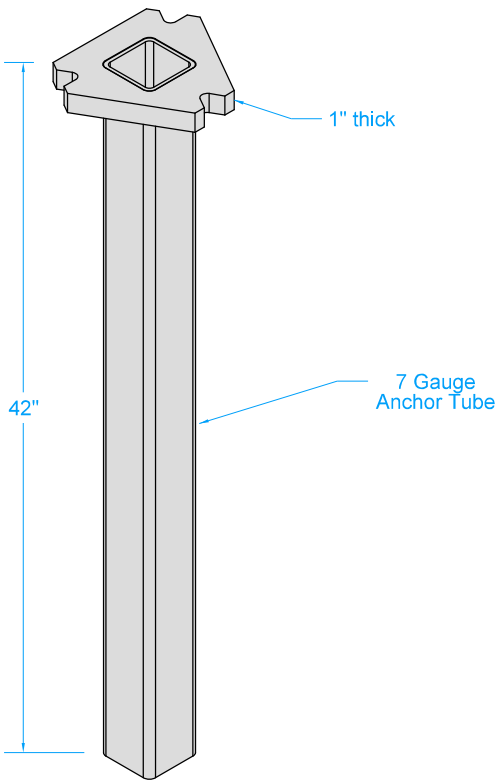
① Used in concrete islands.

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Support Structures - Perforated Square Steel Tube Anchor and Post		

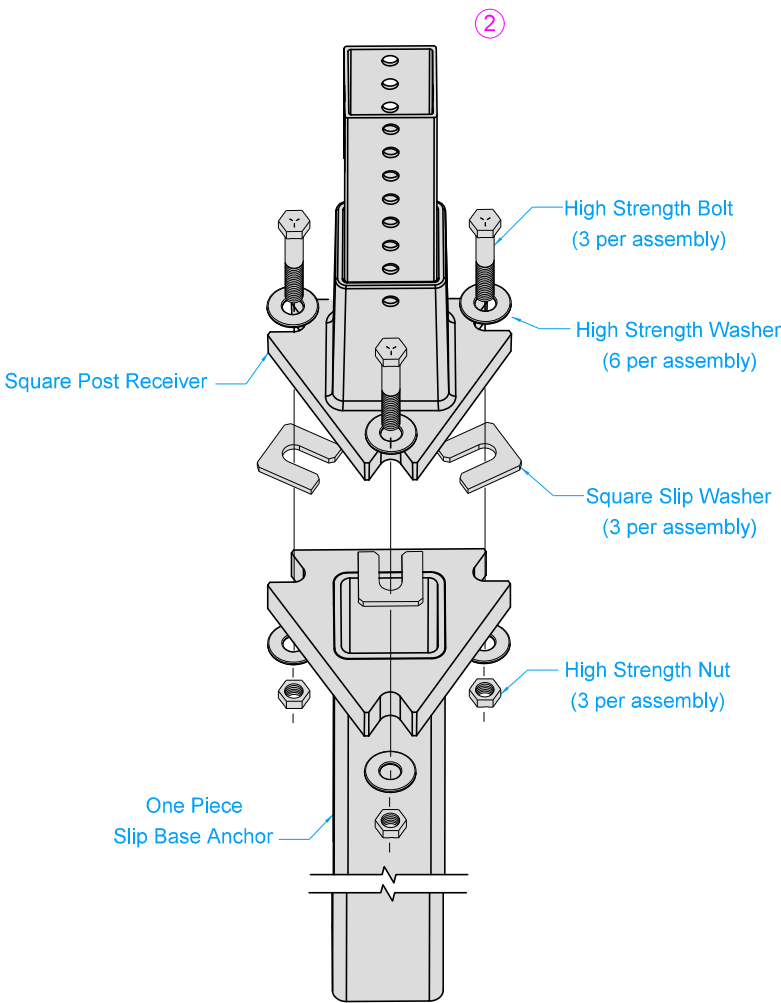


1 $\frac{3}{4}$ " SQUARE X $\frac{3}{16}$ "
SQUARE SLIP WASHER

ONE PIECE
SLIP BASE ANCHOR

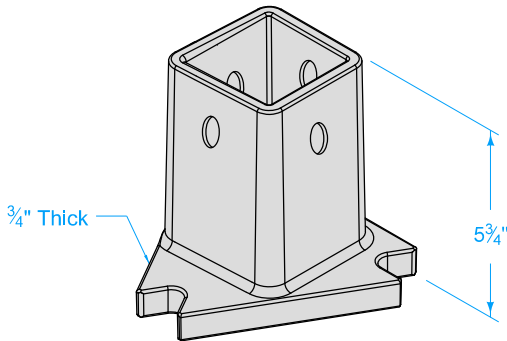


- ① Type III/IV installation
② Fastener size and installation procedure shall be according to manufacturer's recommendation.



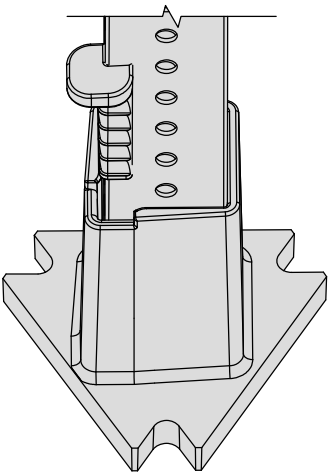
EXPLODED VIEW
SLIP BASE, RECEIVER AND
CONNECTION HARDWARE

OPTION 1



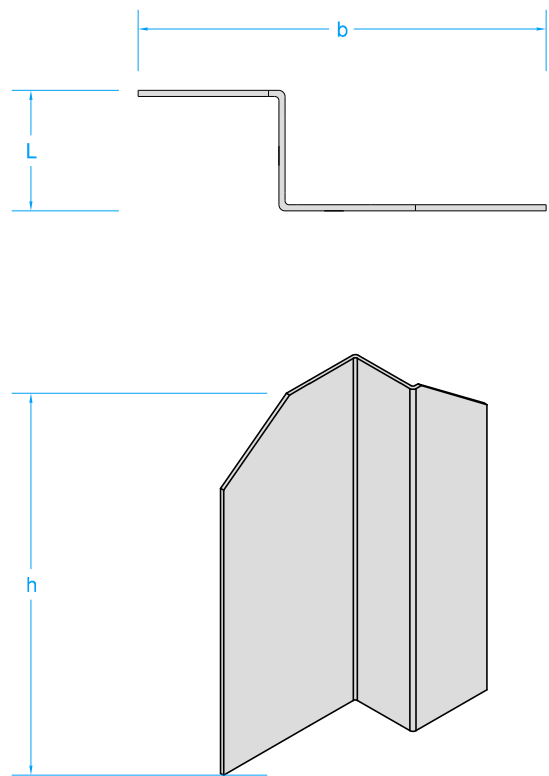
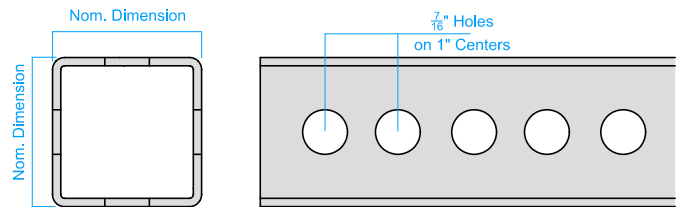
2 $\frac{1}{2}$ " SQUARE POST RECEIVER

OPTION 2



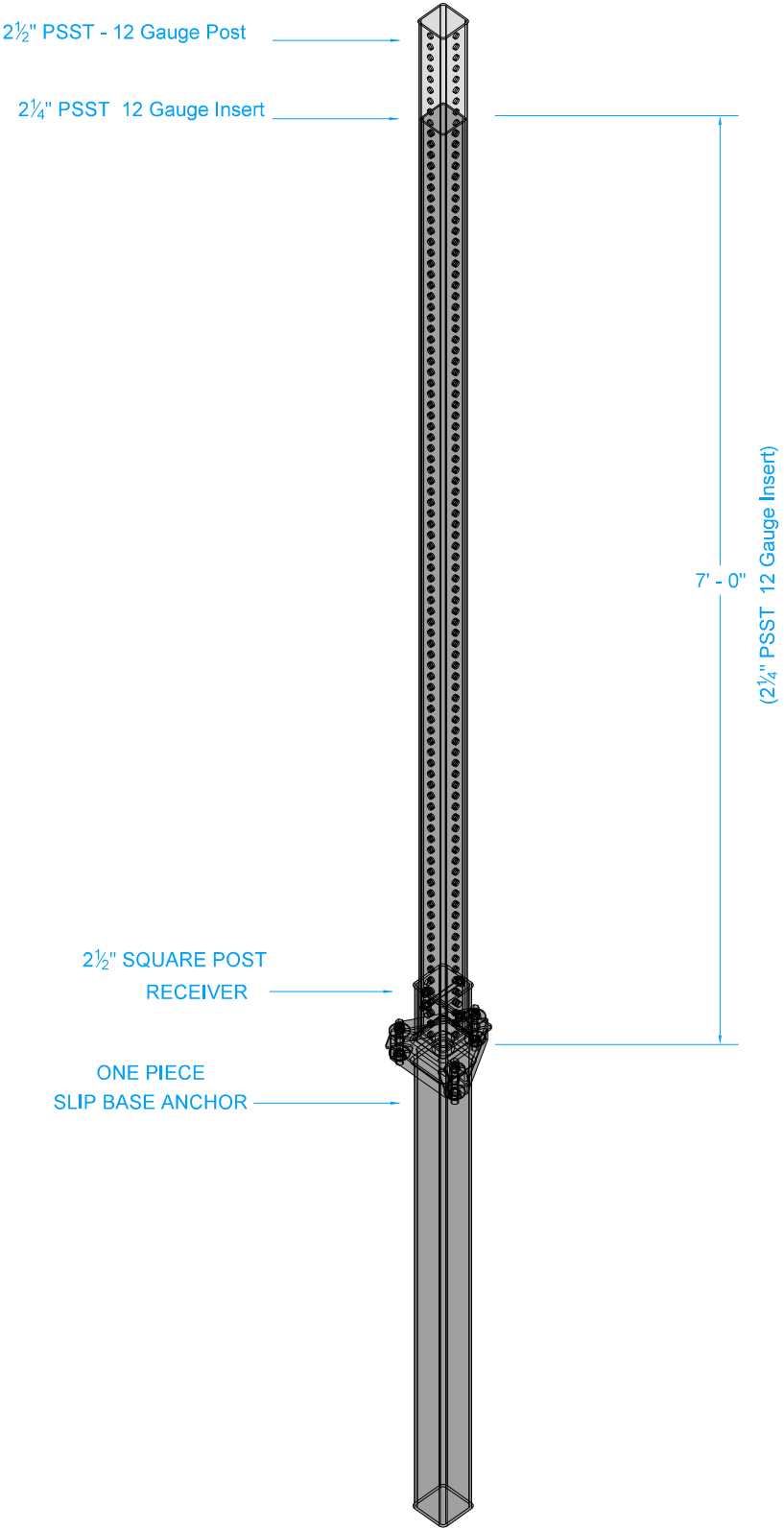
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Support Structures - Perforated Square Steel Tube Anchor and Post			

PERFORATED STEEL SQUARE TUBE POST DETAILS

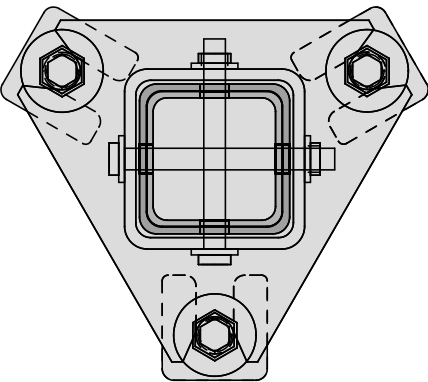
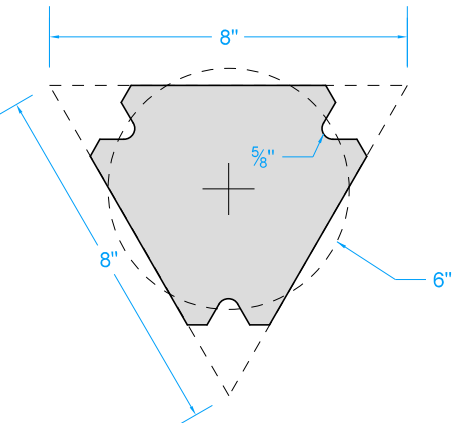


SOIL BEARING WING

SLIP BASE WITH NESTED PERFORATED SQUARE STEEL TUBE POST ^①



SLIP PLATE DIMENSIONS ^①

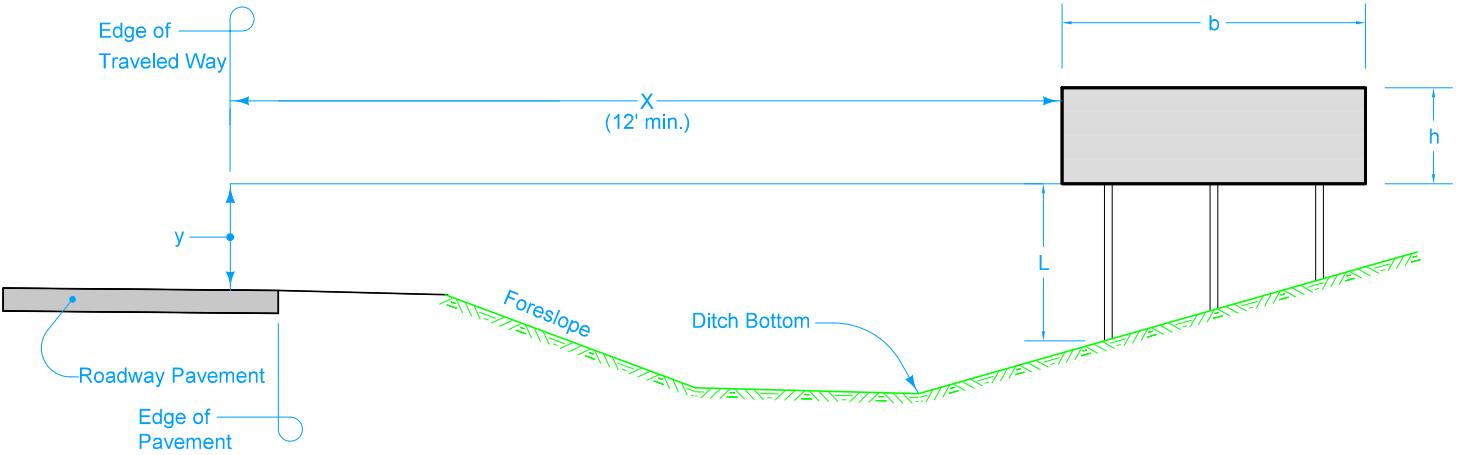


^① Type III/IV installation only

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Support Structures - Perforated Square Steel Tube Anchor and Post		

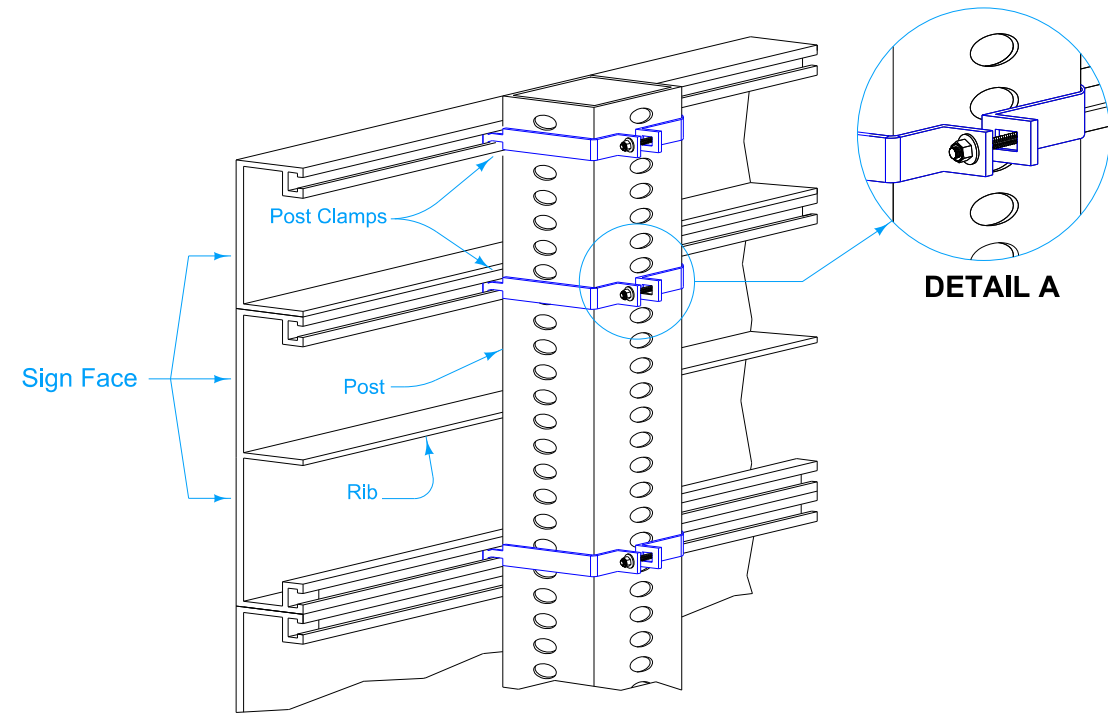
Note: The sign centroid is equivalent to $L + h/2$, (length of the longest post from the ground to the bottom of the sign plus the half the height of the sign.) and the Sign Area Yielding Design is the maximum area that the corresponding sign can have without failure. Sign Area is equivalent to $b \times h$.

POST LOADING FOR PERFORATED SQUARE STEEL TUBE POSTS						
SIGN CENTROID (FT)	SIGN AREA (SQ-FT) YIELDING DESIGN					
	TYPE 1 TYPE 2	TYPE 3/TYPE 4 (SLIP BASE REQUIRED)				
		2 1/2" x 12ga		2 1/4" x 12ga inserted into a 2 1/2" x 12 ga		
		1 Post	2 Post	3 Post	1 Post	2 Post
16.5	10.44	20.88	31.32	18.78	37.56	56.34
16	10.76	21.52	32.28	19.36	38.72	58.08
15.5	11.11	22.22	33.33	19.99	39.98	59.97
15	11.48	22.96	34.44	20.65	41.3	61.95
14.5	11.87	23.74	35.61	21.36	42.72	64.08
14	12.3	24.6	36.9	22.13	44.26	66.39
13.5	12.75	25.5	38.25	22.95	45.9	68.85
13	13.24	26.48	39.72	23.83	47.66	71.49
12.5	13.77	27.54	41.71	24.78	49.56	74.34
12	14.35	28.7	43.05	25.82	51.64	77.46
11.5	14.97	29.94	44.91	26.94	53.88	80.82
11	15.65	31.3	46.95	28.16	56.32	84.48
10.5	16.4	32.8	49.2	29.5	59	88.5
10	17.22	34.44	51.66	30.98	61.96	92.94
9.5	18.12	36.24	54.36	32.61	65.22	97.83
9	19.13	38.26	57.39	34.42	68.84	103.26
8.5	20.26	40.52	60.78	36.45	72.9	109.35
8	21.52	43.04	64.56	38.72	77.44	116.16

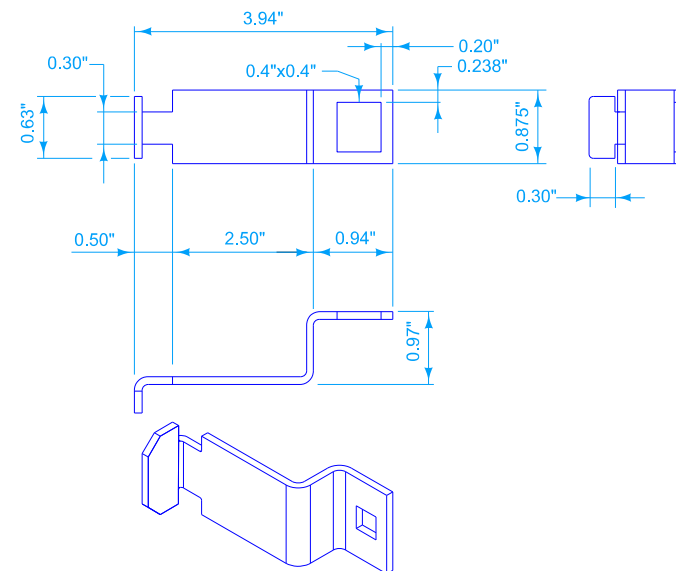


- ① Adapted from AASHTO Standard Specifications for - Highway Signs, Luminaires, and Traffic Signals. 6th Edition 2013. <Rev B 4/7/14>
- ② 90 MPH Wind Load

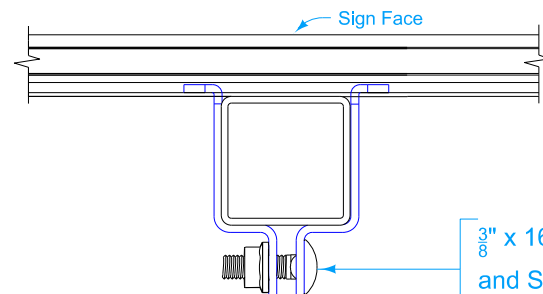
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REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		



Install post clamps at top and bottom of the sign, and at each joint for each post.



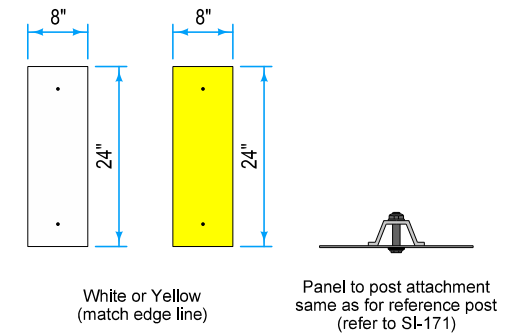
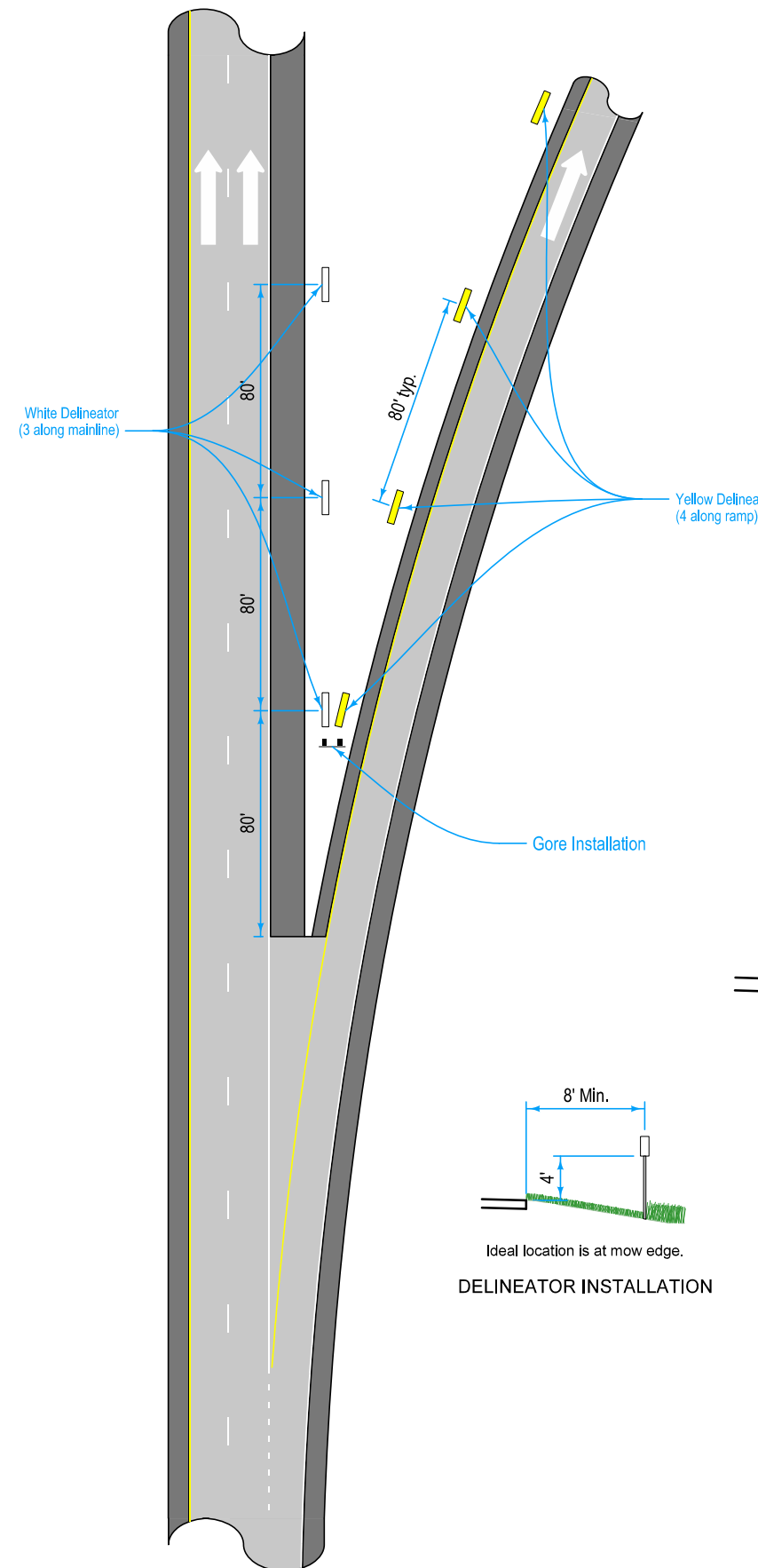
POST CLAMP DETAIL
Post clamp shall be stainless.



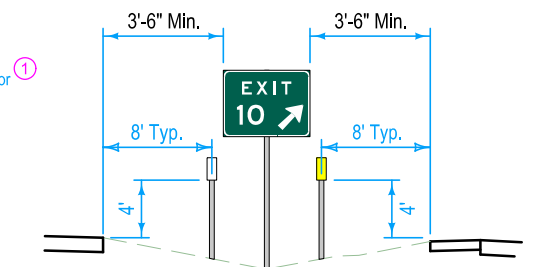
PLAN VIEW

$\frac{3}{8}$ " x 16 x 2" Carriage Bolt and Serated Flange Nut.
Bolt and Nut shall be stainless steel.

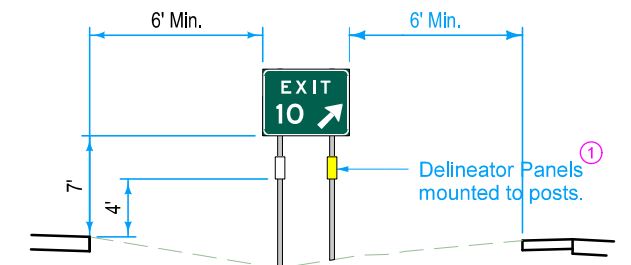
**PSST POST
TYPE 'B' SIGN
ATTACHMENT DETAILS**



RETROREFLECTIVE DELINEATOR PANEL



MASSH-400 POST GORE INSTALLATION



Exit gore sign must be installed at 7' height above edge of roadway and be less than 80' from end of paved gore.

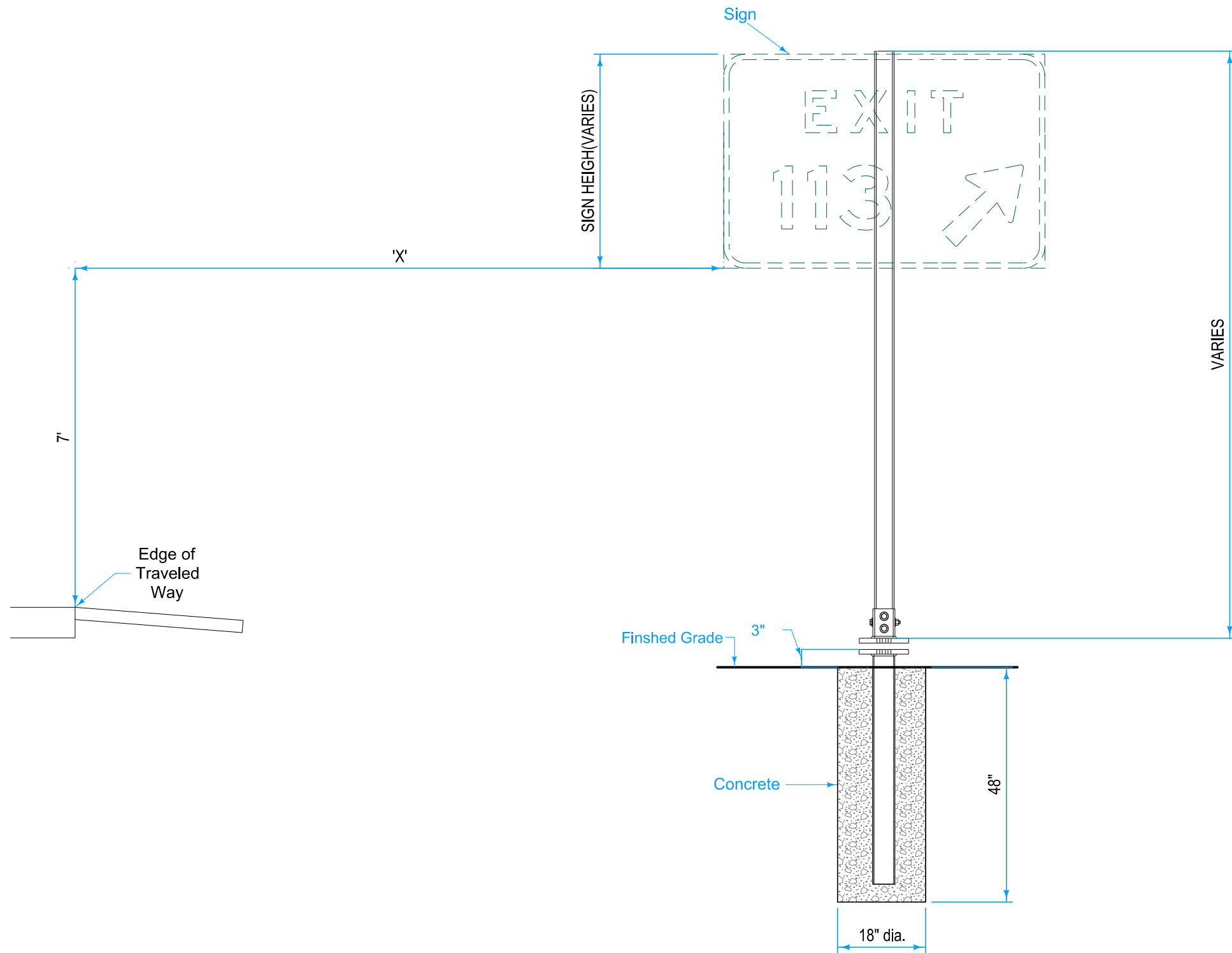
GORE INSTALLATION

This is a typical layout. Additional route signing may be required.
Only one direction of travel shown.
The distances given are for a rural application and may vary to fit existing conditions.

IOWA DOT TYPICAL SIGNING LAYOUT	REVISION	
	NEW	10-05-15
	TAS-811 TAS STANDARD	

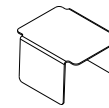
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Gore Delineation

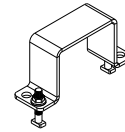


TYPICAL INSTALLATION

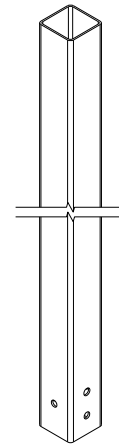
NOTE:
For sign installations, install 18" diameter by 48" depth concrete foundation.
Top of concrete foundation shall be flush with surrounding grade.
Top of slip base plate shall extend no higher than 3" above ground.



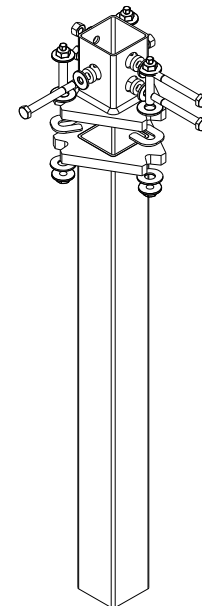
X4SQCC
Post Cap



UPC400SQ
Post Clamp



4" x 8ga
galvanized
sign post

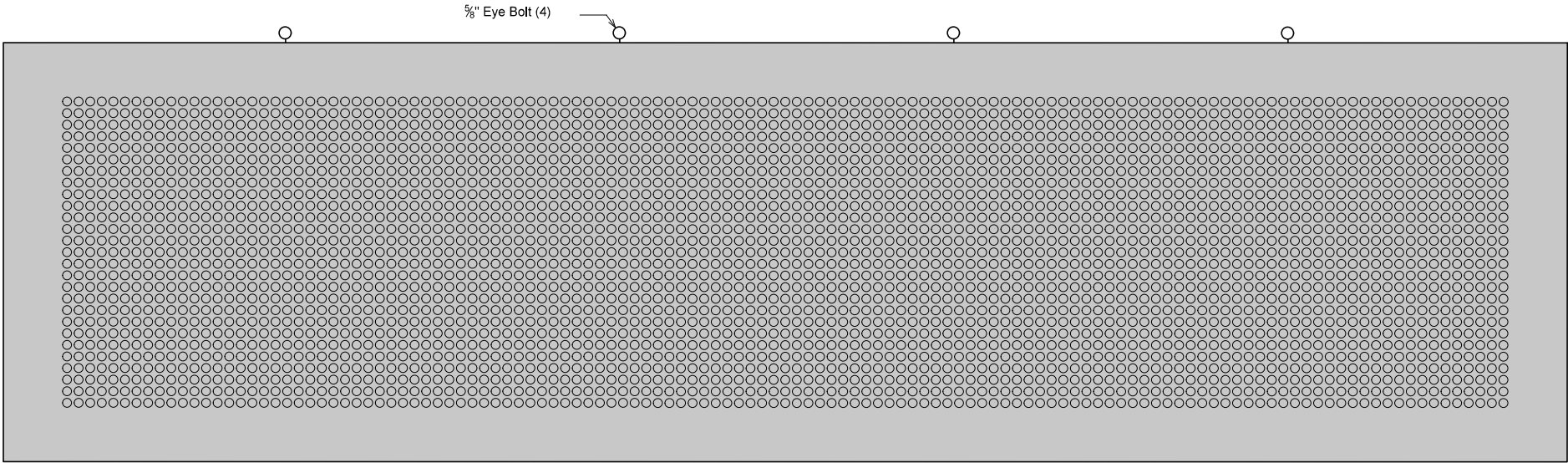


RT13UX-400A-48C-G
slip base assembly

MASSH POST
DETAIL

DMS Unit Details
Make: Daktronics
Model: VF-1000-27X125-18-W
Type: Full Matrix
Pixels: 125 x 27 (W x H)

Height: 7'-10"
Width: 29'-3"
Depth: 3'-11"
Weight: 3950 lbs.



TRANSPORTATION REQUIREMENTS

All material and equipment necessary to transport the sign to or from the storage site and/or installation site shall be furnished by the Contractor.

The sign shall be transported in the upright position. At no point in time shall the sign be laid on its side, front, or back.

To avoid damage to the sign during transport, consult the sign manufacturer to determine the correct method to secure the sign to the trailer.

Any damage incurred during transportation shall be the responsibility of the Contractor.

STORAGE REQUIREMENTS

All material and equipment necessary to store the sign at the designated site shall be furnished by the Contractor.

The sign shall be stored upright and level. At no point in time shall the sign be laid on its side, front, or back.

The sign must be blocked up at least three inches from the ground. When the sign is not stored on concrete, extra blocking shall be used to provide for settlement.

Remove shipping support legs from the DMS after installation on the support structure.

During transportation and storage, the DMS shall be secured at all times to prevent tipping. The DMS shall be secured with dead man anchors or other suitable methods. The DMS shall not be marred by the selected method. Tipping may be caused by any number of reasons, but high winds and other weather related events are the primary concern while the DMS is on the ground.

Any damage resulting from the failure to properly secure the DMS shall be the responsibility of the Contractor.

ATTACHMENT HARDWARE

All materials necessary to attach the DMS to the support structure will be furnished by the Contractor.

Dry fit the DMS to the sign truss to determine the actual attachment bracket locations. Adjust the brackets to avoid conflicts between the U Bolts and the internal members of the sign truss. Drill the bolt holes in the Z bracket on the back of the DMS after conflicts are resolved.

After installation of the DMS onto the truss, ensure that all unused hardware (bolts, nuts, washers, etc), construction materials, tools and such are removed from the structure. The Contractor is liable for any damages that result from materials falling into traffic.

LIFTING REQUIREMENTS

The following procedures should be followed when lifting the sign for either removal or installation, including lifting the sign from the storage site to the trailer or the reverse, and from the trailer to the support structure or the reverse.

The Contractor shall provide all equipment necessary to lift the DMS.

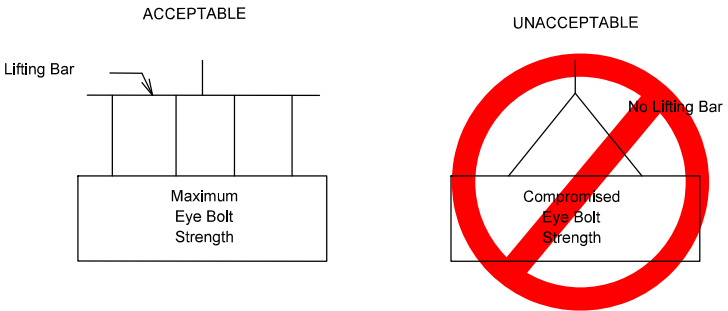
The crane and lifting bar shall be rated to lift the weight of the sign.

Any damage incurred during lifting shall be the responsibility of the Contractor.

Consult the manufaturer for complete lifting requirements.

The eyebolts used to lift the sign shall be furnished by the Contractor. The rated load of the eyebolts shall not be exceeded. Consult manufacturer for specific information about the eyebolts.

The figures illustrate the correct (left example) and the incorrect (right example) method of lifting a sign. Lift the sign with the lifting bar as shown on the left. Use every lifting point (eyebolt) provided. Not doing so may cause the eyebolts to fail.



After installation, plug and seal the eyebolt openings as per the manufacturer's requirements. Any damage incurred by improperly sealed openings shall be the responsibility of the Contractor.

**OVERHEAD
DYNAMIC MESSAGE SIGN
CARE AND HANDLING REQUIREMENTS**

LIFTING NOTE:

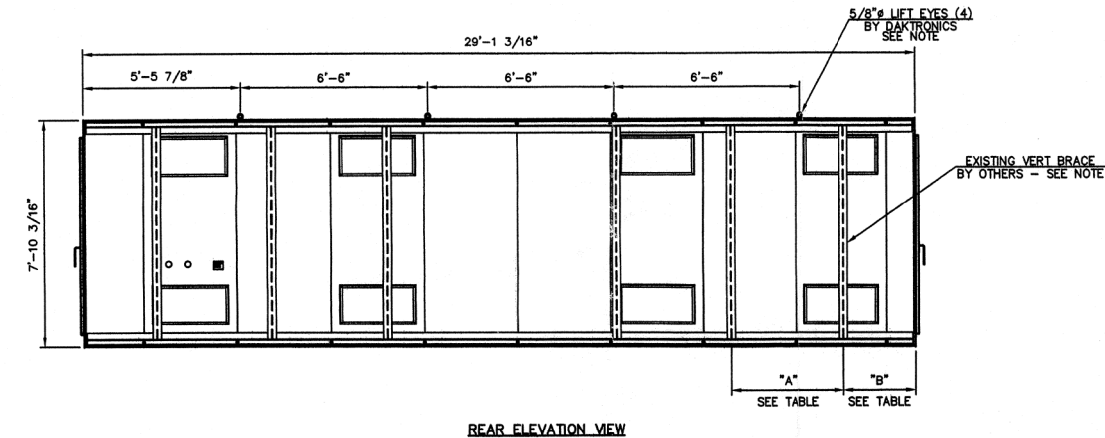
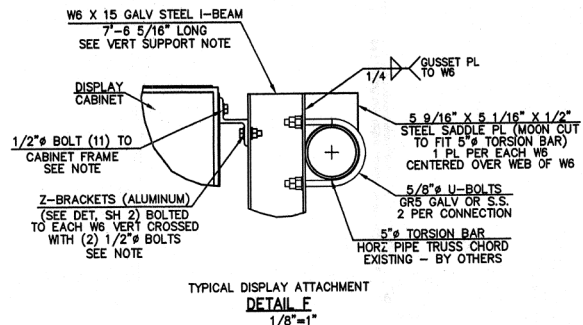
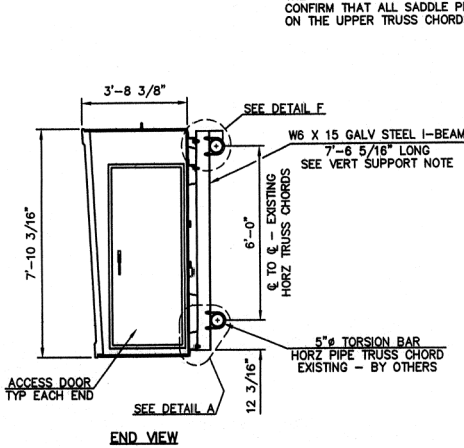
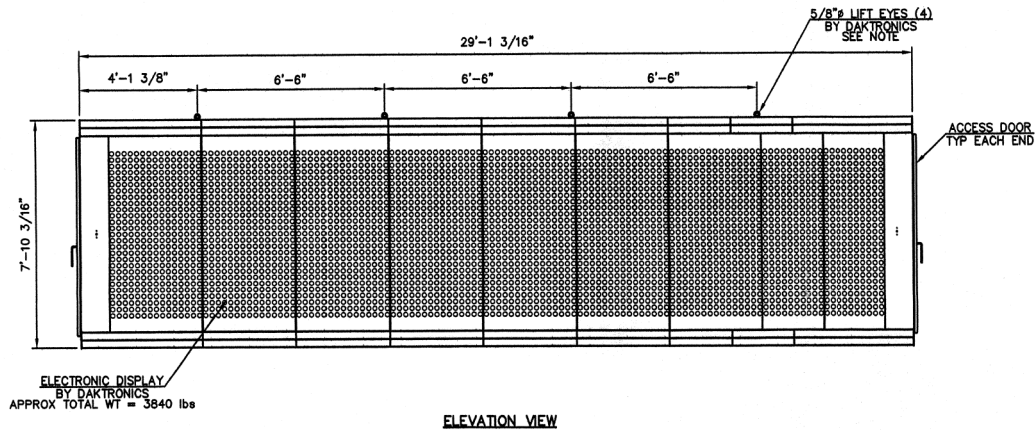
THE FRAME AND DISPLAY SHALL BE LIFTED BY THE 5/8" EYE BOLTS SHOWN ONLY. THE LIFTING APPARATUS SHALL LIFT THE BOLT AS NEAR AS POSSIBLE TO VERTICAL TO AVOID LATERAL LOADS ON THE EYE BOLTS AND ON THE CABINET FRAME. EACH OF THE LIFT POINTS SHALL BE LIFTED EVENLY AND SIMULTANEOUSLY. THE 5/8" EYE BOLTS SHALL BE REPLACED BY STANDARD BOLTS AFTER LIFTING. THE STRUCTURE SHALL BE INSPECTED FOLLOWING THE LIFTING AND INSTALLATION AND CORNERSTONE SHALL BE CONTACTED WITH ANY CONCERNS.

DISPLAY ATTACHMENT NOTE:

THE DISPLAYS SHALL BE ATTACHED TO THE TOP AND BOTTOM C4 FRONT HORIZONTAL ONLY WITH 1/4" BOLTS AT 13" C/C (6 PER PANEL).

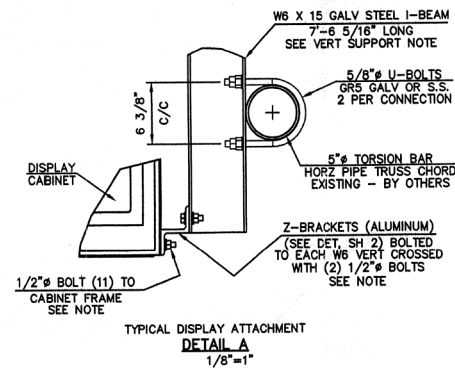
DETAIL A/F NOTE:

THE TOP AND BOTTOM Z-CLIPS SHALL BE BOLTED TO THE TOP AND BOTTOM L4X4 MEMBERS IN THE REAR OF THE CABINET ADJACENT TO EACH VERTICAL FRAME (11) USING THE PRE-DRILLED HOLES AND 1/2" BOLTS. THE Z-CLIPS SHALL THEN BE FIELD DRILLED TO ATTACH TO THE FRONT FLANGE OF EACH W6 VERTICAL CROSSED ON BOTH SIDES OF THE WEB. ALL FIELD DRILLED HOLES SHALL BE AT LEAST 1" FROM THE EDGE OF THE MEMBER. THE W6 VERTICALS SHALL BE CLAMPED AT THE TOP AND BOTTOM TO THE EXISTING PIPE TRUSS CHORDS WITH U-BOLTS AS SHOWN. THE SADDLE PLATES SHALL BE MOON CUT TO FIT THE UPPER TRUSS PIPE CHORDS SNUGLY AND THE INSTALLER SHALL CONFIRM THAT ALL SADDLE PLATES BEAR EVENLY AND SIMULTANEOUSLY ON THE UPPER TRUSS CHORDS AS SHOWN IN DETAIL F.

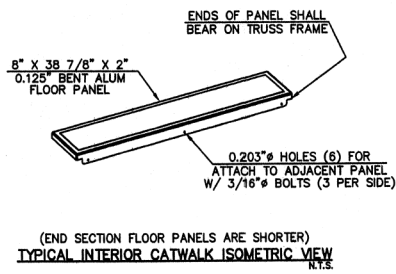
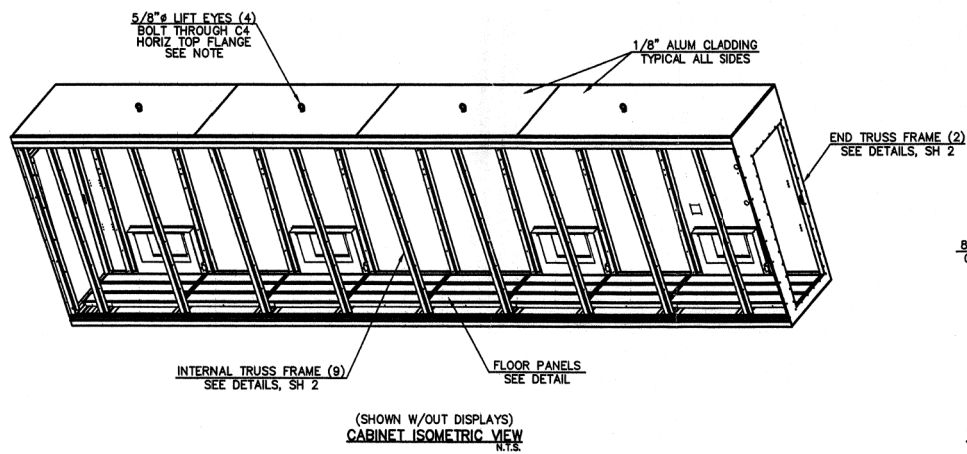
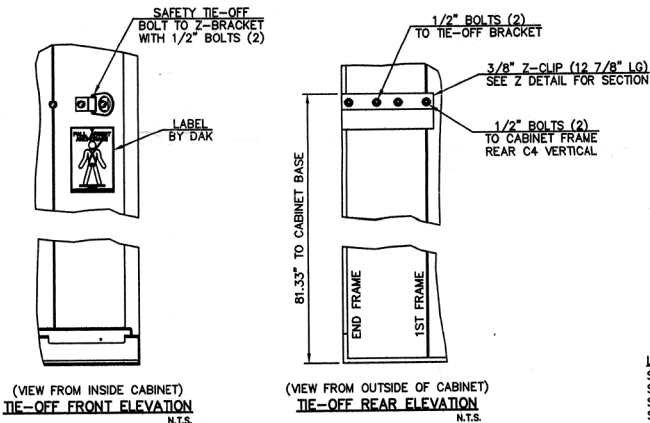


VERTICAL SUPPORT NOTE:
THE NUMBER OF SUPPORTS SHOWN MAY NOT BE ACTUAL NUMBER OF SUPPORTS REQUIRED. REFER TO TABLE FOR MAXIMUM ALLOWED SPACING. VERTICALS SHALL BE ALIGNED TO MATCH CABINET FRAME TRUSS SPACING AS CLOSELY AS POSSIBLE. THE ACTUAL C/C OF THE EXISTING HORIZ PIPE TRUSS CHORDS SHALL BE FIELD CONFIRMED FOR EACH STRUCTURE PRIOR TO FABRICATION AND INSTALLATION. THE Z-CLIPS SHALL BE FIELD DRILLED TO MATCH THE VERTICAL SUPPORTS BY OTHERS AND BOLTED IN PLACE WITH 1/2" BOLTS AS SHOWN IN DETAIL A. SEE Z-CLIP DETAIL, SHEET 2.

VERTICAL SUPPORT SPACING TABLE	
"A"	6'-6"
"B"	11"



SAFETY TIE-OFF ATTACHMENT NOTE:
THE SAFETY TIE-OFF BOLTS TO THE 3/8" Z-BRACKET AS SHOWN. THE Z-BRACKET IS IN TURN BOLTED TO THE REAR VERTICALS OF THE CABINET FRAME. THIS ATTACHMENT IS FOR FIELD FITUP ONLY. THE CABINET FRAME HAS NOT BEEN DESIGNED TO WITHSTAND THE DESIGN TIE-OFF LOAD. THE Z-BRACKET SHALL BE FIELD BOLTED TO A NEW VERTICAL PROVIDED ON THE BASE STRUCTURE WITH A MINIMUM OF TWO BOLTS, SPACED EQUALLY AROUND THE CENTER OF THE Z-BRACKET. CORNERSTONE IS NOT RESPONSIBLE FOR THE ATTACHMENT OF THE Z-BRACKET TO THE BASE STRUCTURE. THE ENGINEER RESPONSIBLE FOR THE BASE STRUCTURE SHALL DESIGN THIS ATTACHMENT TO SUPPORT A POINT LOAD OF 5000 LBS IN ANY DIRECTION FROM THE SAFETY TIE-OFF. THIS CABINET SHALL NOT BE INSTALLED WITHOUT THE APPROPRIATE ATTACHMENT OF THIS Z-BRACKET TO THE BASE STRUCTURE.



GENERAL NOTES:

- All design, fabrication, installation and construction shall conform to the following specifications, unless specifically noted otherwise on the drawing:
 - The 2006 International Building Code.
 - American Concrete Institute Building Code Requirements for Reinforced Concrete (318-02).
 - American Institute of Steel Construction, Inc. Manual of Steel Construction (13th Edition).
 - American Welding Society AWS/AWS D1.1 & D1.2 Structural Welding Code - Steel or Alum.
 - The Aluminum Association Design Manual, Current Edition.
 - Standard Specifications for Structural Supports Highway Signs, Luminaires and Traffic Signals 4th Edition, 2001, AASHTO.
- All structural components shall be as listed below, unless noted otherwise:
 - All rolled steel shapes, plates and bars shall be ASTM A36, or equal.
 - All steel I-beams shall be ASTM A572, Grade 50, or equal.
 - Steel tubing shall be ASTM A500, Grade B, or equal.
 - All aluminum shapes shown shall be 6061-T6, unless noted otherwise.
 - All aluminum sheeting shown shall be 5052-H32.
 - All bolted connections shall be made with ASTM A325 Bolts, Grade 5 bolts, or equal as noted below.
 - All bolts (and any other steel components) in contact with aluminum shall be galvanized or SS.
 - All aluminum welds shall be made with 4043 alloy, or an approved alternate.
 - All ferrous and non-ferrous materials shall be adequately separated to prevent corrosion.
 - All steel welds shall be made with E70XX electrode, or an approved alternate.
 - Stainless steel bolts shall be ASTM A193, Class 2, B8MN, or an approved alternate.
- All field welds shall be made by a welder certified in the specified position.
- The structure has been designed to support its own weight, the noted weights of the attached cabinets, and the loads listed below:
 - A design wind speed of 140 mph (3-second gust) as per the requirements of AASHTO Section 5.8.
 - A surface ice load of 3 psf.
 - The structure has been designed to support a random live load of 500 lbs over 2 ft.
 - The fatigue loading requirements of AASHTO section 11.
- Cornerstone is in no way responsible for the safety of the work site during installation. The installer shall take appropriate measures to make sure that the erection of the structure is performed using methods in compliance with applicable OSHA regulations.
- If existing and proposed conditions are not as detailed in this design drawing the installer shall cease work and notify Cornerstone immediately. Cornerstone will not be performing on-site inspections or verification of conditions. It is the responsibility of the installer, the structure owner, and the property owner to identify the on-site conditions (as per the limitations of the notes above) and to contact Cornerstone with any discrepancies or concerns. The system shall be properly maintained and regularly inspected.
- Any deviation from these plans or non-compliance with the general notes without written approval from Cornerstone will render the entire design certification to be void.
- The display cabinet shall be made watertight as per Daktronics specifications. Any field penetrations into the cabinet shall be sealed from infiltration by the installer.
- The design depicted on these drawings is based on fully detailed shop and assembly drawings by Daktronics, Inc.



NOTICE:
CORNERSTONE ENGINEERING, INC. IS RESPONSIBLE FOR NEW STRUCTURAL COMPONENTS SHOWN ONLY. THE ENGINEER RESPONSIBLE FOR THE ATTACHED-TO STRUCTURE SHALL REVIEW AND APPROVE THE PROPOSED ATTACHMENT PRIOR TO INSTALLATION.

LOCATIONS:		(5 LOCATIONS TOTAL)
SITE 1	SB I-29	STA 994+00
SITE 2	SB I-29	STA 220+50
SITE 3	WB I-80	STA 1034+50
SITE 4	WB I-80	MILE POST 163±
SITE 5	WB I-80	MILE POST 174±

INFORMATION ONLY

JAMES E. WRIGHT, JR.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

JAMES E. WRIGHT, JR., P.E. (date) 7/23/08

My license renewal date is December 31, 2008

Pages or sheets covered by this seal:

Sheet 1 of 2

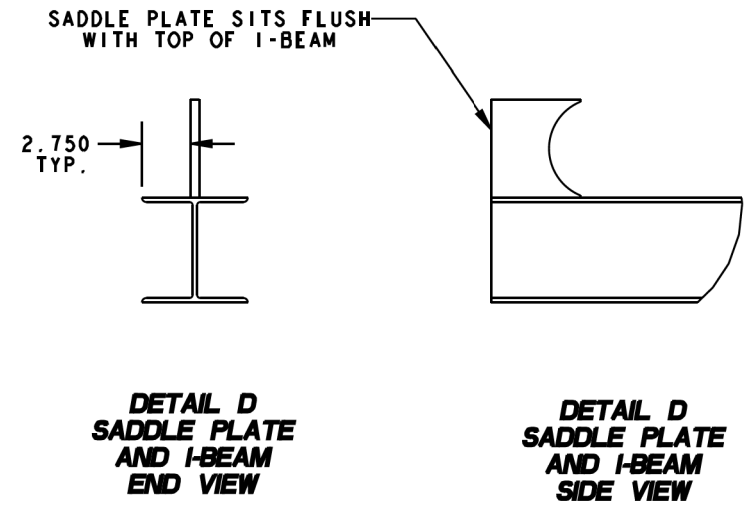
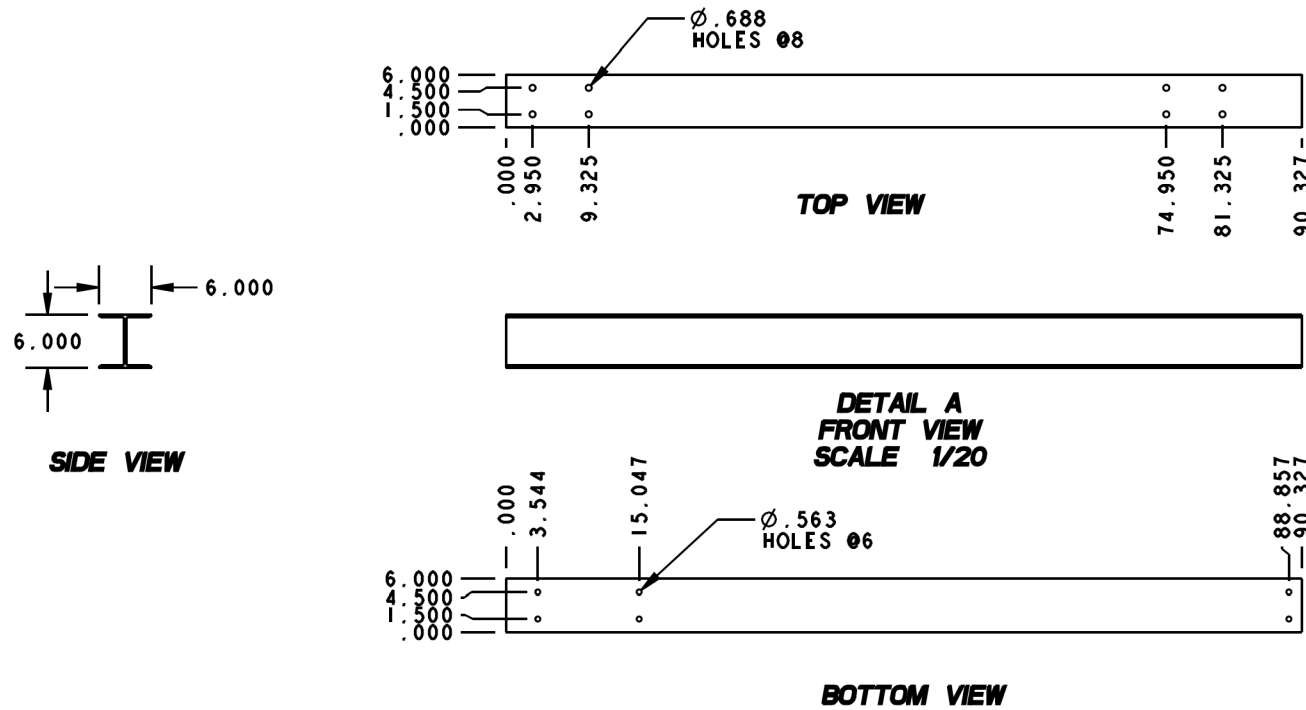
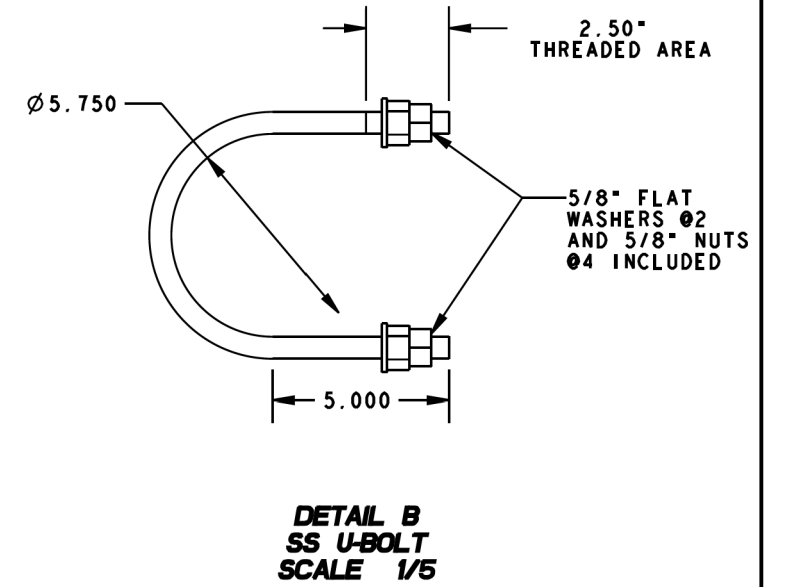
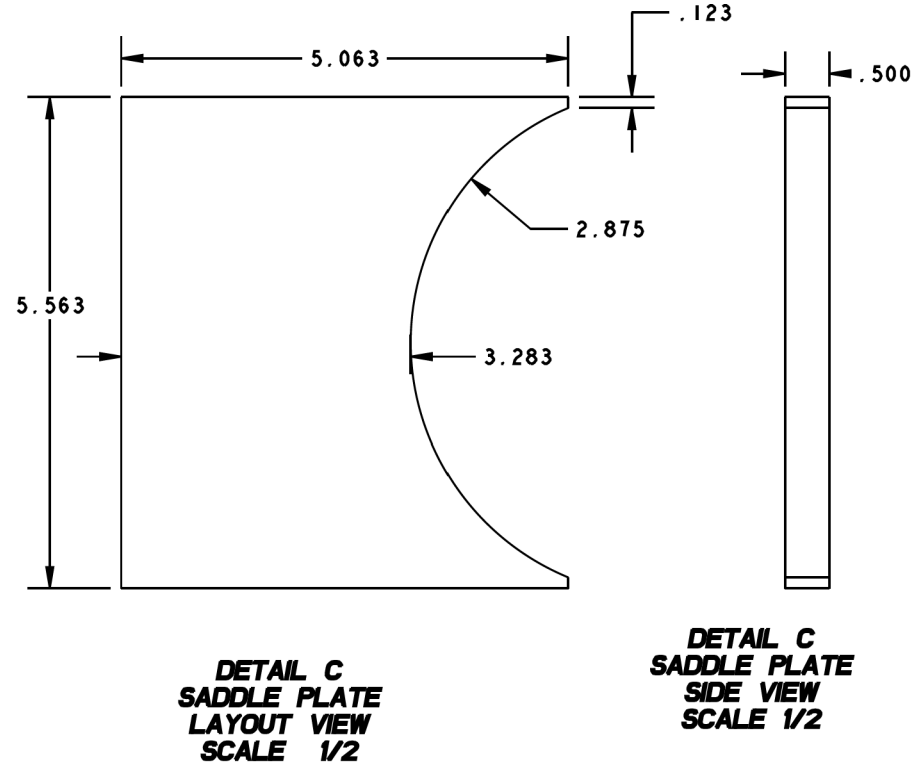
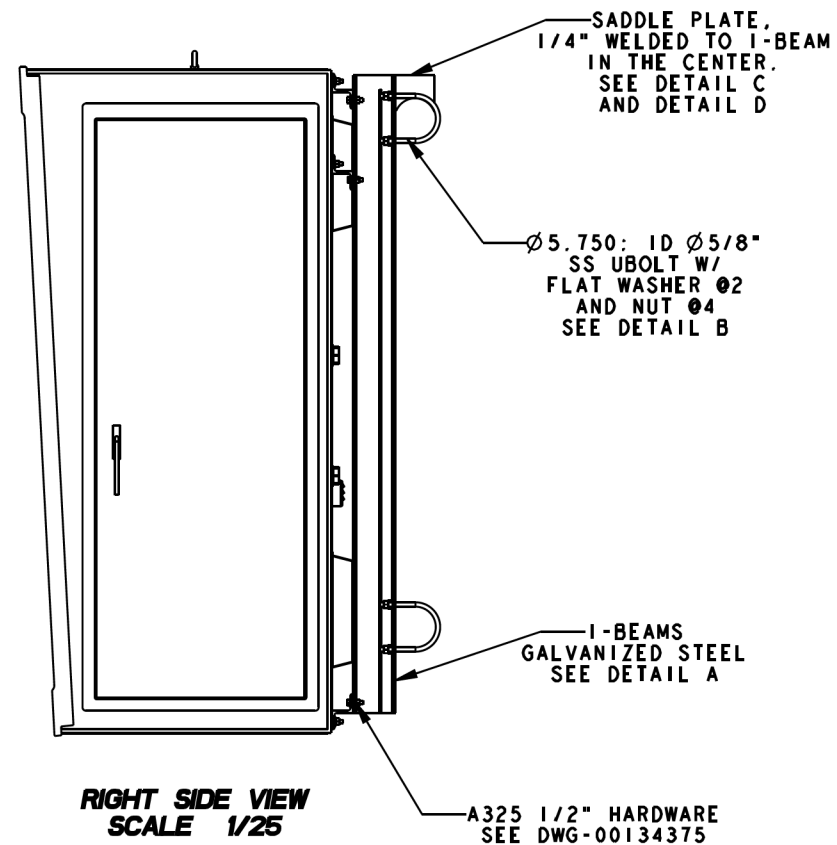
IA P.E. # P14608

DAKTRONICS, INC.
331 32nd Avenue - Brookings, SD 57006
Vanguard Highway Walk-In VMS Display (27x125-66)
IOWA D.O.T. - Various Locations

CORNERSTONE ENGINEERING, INC.

302 College Street, P.O. Box 1029 - Madisonville, TN 37354
(423) 420-1741 Fax (423) 420-1747

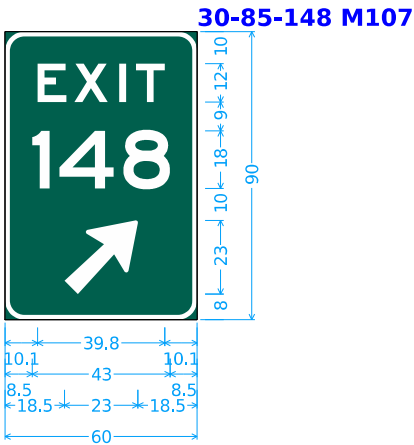
Project #	080987	Dwg #	D2843	Date:	07/23/08
Drawn By:	RFF	Scale:	3/8"=1'-0"	Sheet:	1 of 2



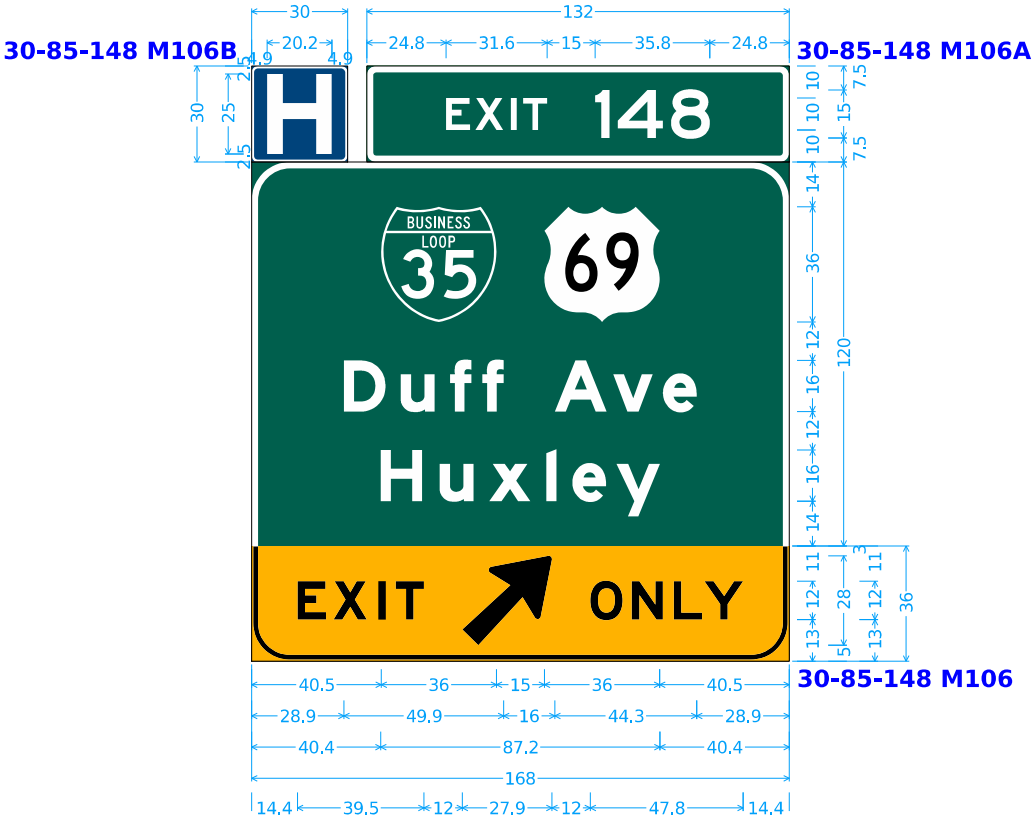
INFORMATION ONLY

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2004 DAKTRONICS, INC.									
DAKTRONICS, INC. BROOKINGS, SD 57006									
PROJ: VANGUARD									
TITLE: ATTACHMENT, VF-20*0-27X125-66-* TO STRUCTURE									
DES. BY: BSTUEFE DRAWN BY: BSTUEFE DATE: 07 MAY 08									
REVISION	SHEET 1 OF DWG 406406		15332 - E07B - 406406						
SCALE:	1=10								

01	08 JUL 08	CHANGED U-BOLT DIAMETER, SADDLE PLATE RADIUS, & I-BEAM HOLE PLACEMENT	DKK	
REV.	DATE	DESCRIPTION	BY	APPR.



top;
6,0" Radius, 1,5" Border, White on Green;
"EXIT", E 2K 150% spacing;
"148", E 2K;
Arrow Custom - 29,3" 45°;



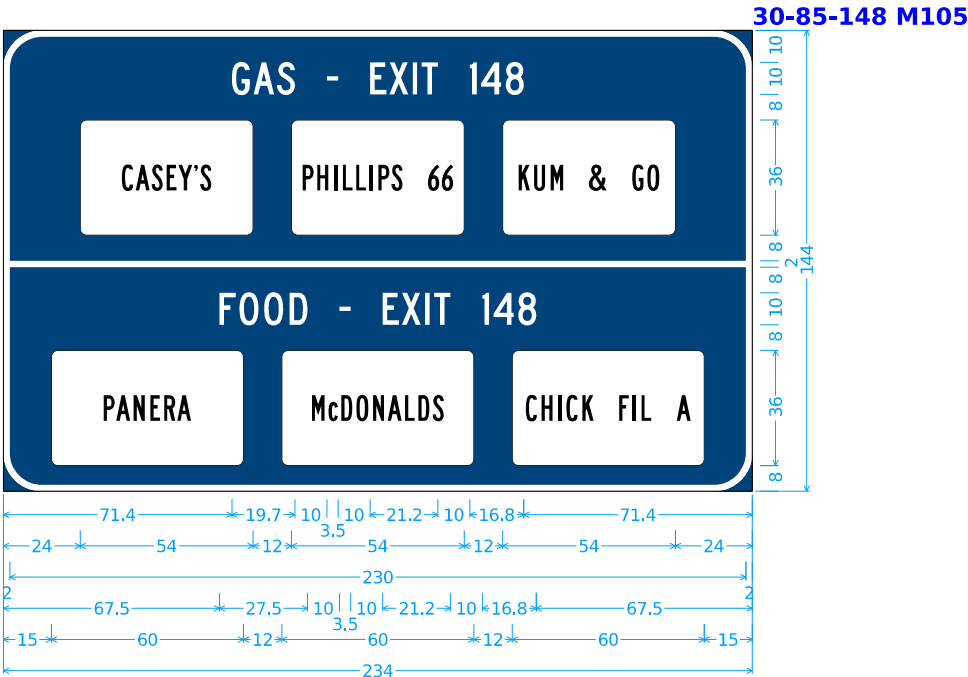
D9-2 Extruded Panel;
0,8" Border, White on Blue;
"H", E Mod 2K;

E1-5P;
2,0" Border, White on Green;
"EXIT", E 2K 120% spacing; "148", E 2K;

12,0" Radius, 2,0" Border, White on Green;
"Duff Ave", E Mod 2K; "Huxley", E Mod 2K;

E11-1d;
12,0" Radius, 1,5" Border, 0,5" Indent, Black on Yellow;
"EXIT", E Mod 2K specified length; Arrow Custom - 35,6" 45°;
"ONLY", E Mod 2K specified length;

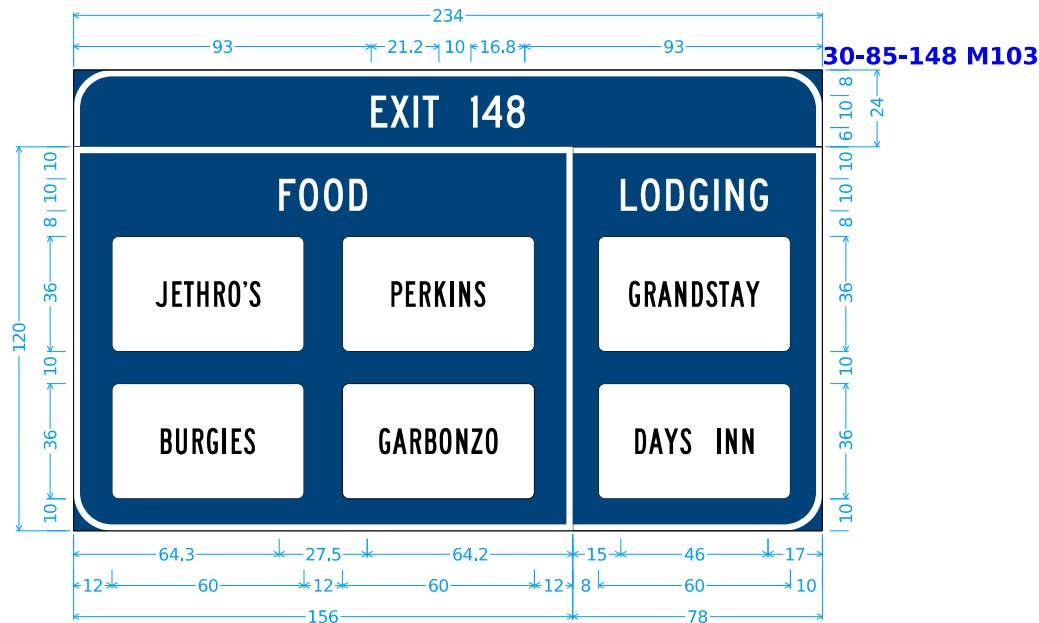
Note to Fabricator: Omit logo plaques.
Note to Contractor: Remove logo plaques from
existing logo sign and reinstall on new sign.



12,0" Radius, 2,0" Border, White on Blue;
"GAS - EXIT 148", C 2K; 2,0" Radius, No border, White;
"CASEY'S" Black, B 2K;
2,0" Radius, No border, White;
"PHILLIPS 66" Black, B 2K;
2,0" Radius, No border, White;
"KUM & GO" Black, B 2K;
"FOOD - EXIT 148", C 2K; 2,0" Radius, No border, White;
"PANERA" Black, B 2K;
2,0" Radius, No border, White;
"McDONALDS" Black, B 2K;
2,0" Radius, No border, White;
"CHICK FIL A" Black, B 2K;

SIGN PANEL
DETAILS

Note to Fabricator: Omit logo plaques.
Note to Contractor: Remove logo plaques from
existing logo sign and reinstall on new sign.



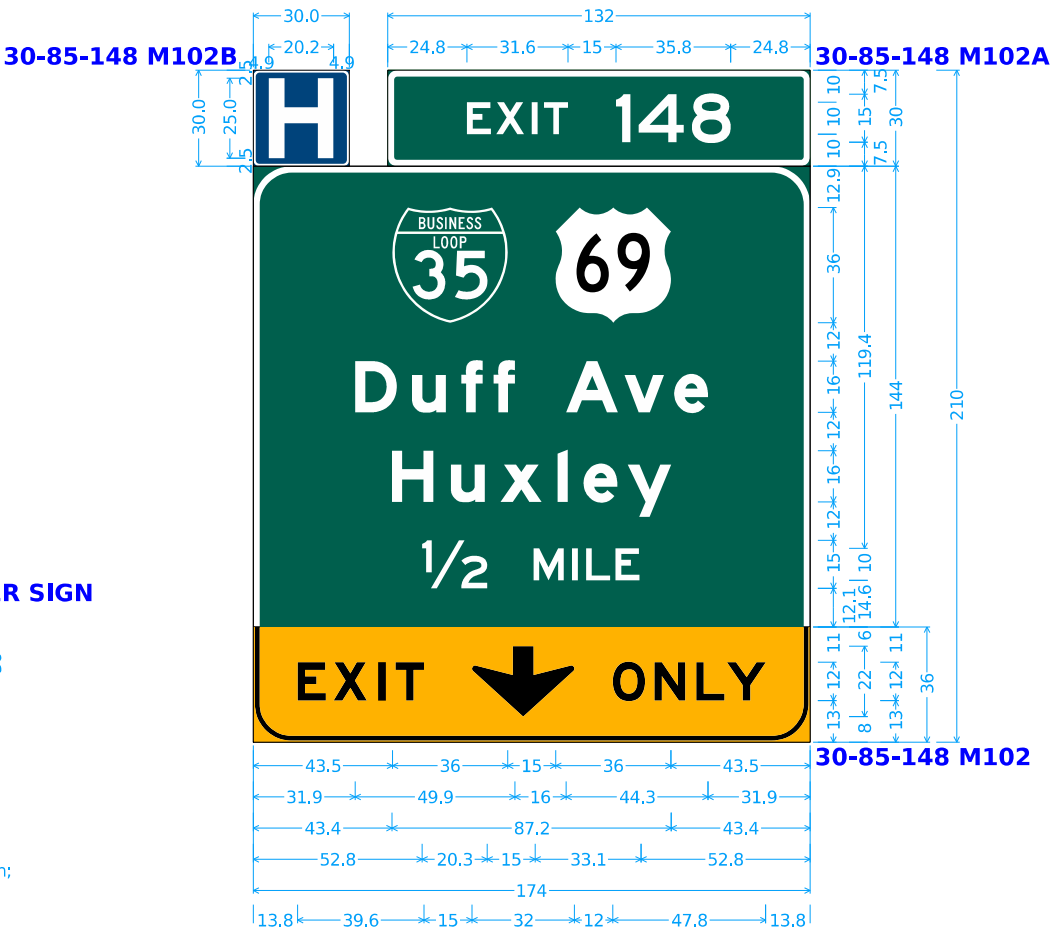
12.0" Radius, 2.0" Border, White on Blue;
"EXIT 148", C 2K;

12.0" Radius, 2.0" Border, White on Blue;
"FOOD", C 2K; 2.0" Radius, No border, White;
"JETHRO'S" Black, B 2K;
2.0" Radius, No border, White;
"PERKINS" Black, B 2K;
2.0" Radius, No border, White;
"BURGIES" Black, B 2K;
2.0" Radius, No border, White;
"GARBONZO" Black, B 2K;

12.0" Radius, 2.0" Border, White on Blue;
"LODGING", C 2K; 2.0" Radius, No border, White;
"GRANDSTAY" Black, B 2K;
2.0" Radius, No border, White;
"DAYS INN" Black, B 2K;



Creek - FreewayExpressway Template;
4.0" Radius, 1.5" Border, White on Green;
"South Skunk", D 2K;
"River", D 2K;

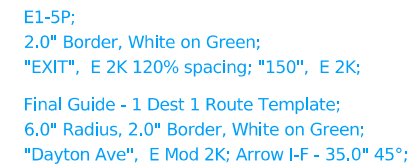
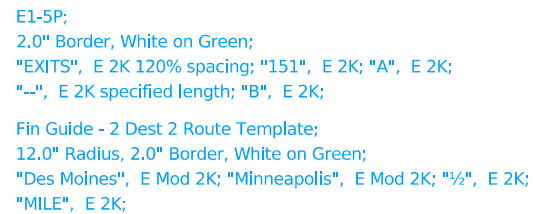


2.0" Border, White on Green;
"EXIT", E 2K 120% spacing; "148", E 2K;

Fin Guide - 2 Dest 2 Route Template;
12.0" Radius, 2.0" Border, White on Green;
"Duff Ave", E Mod 2K; "Huxley", E Mod 2K; "1/2", E 2K;
"MILE", E 2K;

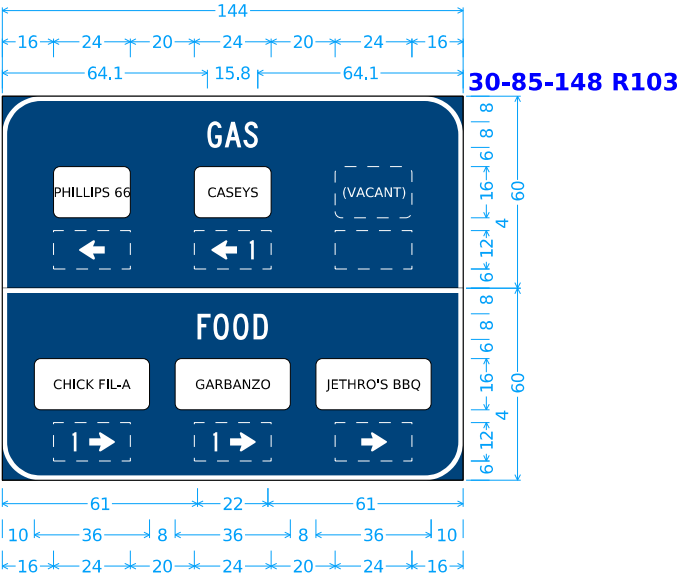
12.0" Radius, 1.5" Border, 0.5" Indent, Black on Yellow;
"EXIT", E Mod 2K specified length;
Down Arrow Custom - 22.0" 270°;
"ONLY", E Mod 2K specified length;

SIGN PANEL
DETAILS



FILE NO.	ENGLISH	DESIGN TEAM Fobian\Kenton	STORY	COUNTY	PROJECT NUMBER NHSX--030-5(314)--3H-85
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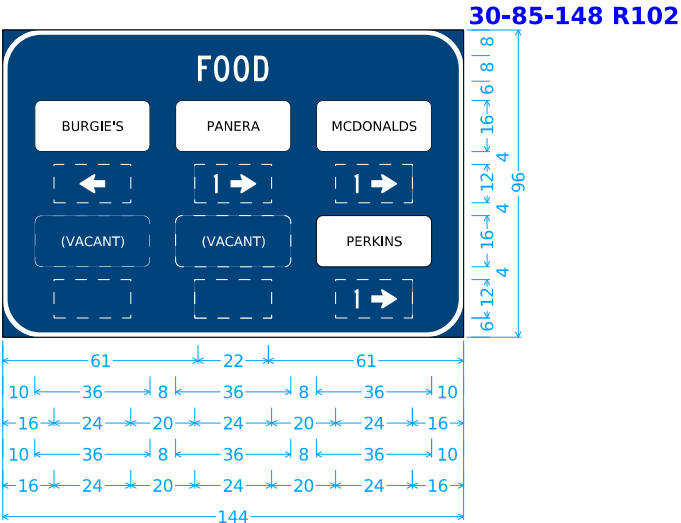
SHEET NUMBER **B.13**



12.0" Radius, 1.5" Border, White on Blue;
"GAS", C 2K; 2.0" Radius, No border, White;
2.0" Radius, No border, White;
2.0" Radius, No border, White; No border, Blue;
No border, Blue; No border, Blue;

12.0" Radius, 1.5" Border, White on Blue;
"FOOD", C 2K; 2.0" Radius, No border, White;
2.0" Radius, No border, White;
2.0" Radius, No border, White; No border, Blue;
No border, Blue; No border, Blue;

Note to Fabricator: Omit logo plaques.
Note to Contractor: Remove logo plaques from
existing logo sign and reinstall on new sign.



12.0" Radius, 1.5" Border, White on Blue;
"FOOD", C 2K; 2.0" Radius, No border, White;
2.0" Radius, No border, White;
2.0" Radius, No border, White; No border, Blue;
No border, Blue; No border, Blue;
2.0" Radius, No border, White;
2.0" Radius, No border, White;
2.0" Radlus, No border, White; No border, Blue;
No border, Blue; No border, Blue;

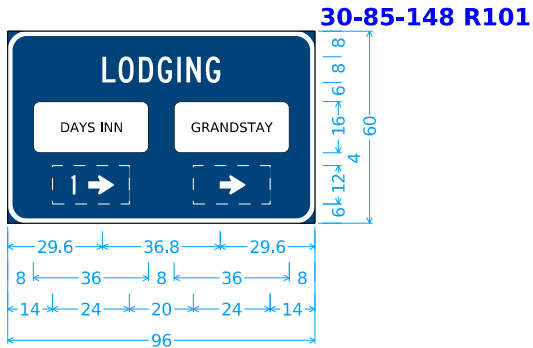


No border, White on Blue;
Arrow III-6S - 8.0" 180°;
No border, White on Blue;
Arrow III-6S - 8.0" 0°;



No border, White on Blue;
Arrow III-6S - 8.0" 180°;
"1", C 2K;
No border, White on Blue;
"1", C 2K;
Arrow III-6S - 8.0" 0°;

DIRECTION PLAQUES



6.0" Radius, 1.5" Border, White on Blue;
"LODGING", C 2K;
2.0" Radius, No border, White;
2.0" Radius, No border, White;
No border, Blue; No border, Blue;

SIGN PANEL
DETAILS

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Traffic Sign Items : Traffic Sign Items
Deliver and Stockpile : Delivery and Stockpile of Salvaged Items
ITS Items : Non-Participating

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
1	2401-6745355	REMOVAL OF CONCRETE FOOTINGS OF HIGHWAY SIGNS	EACH	15			15	Refer to Tabulation 190-62 for locations and details. This item shall consist of removal of concrete footings for steel breakaway sign support posts. Concrete footings or parts of concrete footings removed shall become the property of the Contractor, and shall be removed in accordance with Article 1104.08. Unless otherwise provided or ordered, concrete footings for steel breakaway sign support posts shall be removed 1 foot below natural ground surface. Where portions of the existing concrete footings lie wholly or in part within limits for a new structure (culvert, concrete footing, or other), they shall be removed as necessary to accommodate construction of the proposed structure. Holes remaining from the removal of concrete footings for steel breakaway sign support posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09. Measurement: The Engineer will count each concrete footing for steel breakaway sign support post removed. Payment: For each concrete footing for steel breakaway sign support post removed, the Contractor shall be paid the contract unit price. This payment shall be full compensation for furnishing all material, equipment, and labor and for the performance of all work necessary for removal of the concrete footings from the project and for any backfilling made necessary by these operations.
2	2402-2720000	EXCAVATION, CLASS 20	CY	704.8			704.8	Refer to Tabulation 190-52 for locations and details. Temporary shoring may be required for excavation near existing pavement. Soil boring information for these locations is available in the e-files.
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	168.8			168.8	Refer to Tabulation 190-52 for locations and details.
4	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	25,056			25,056	

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
5	2423-0001010	DYNAMIC MESSAGE SIGN (D.M.S.) INSTALLATION	EACH	1			1	Refer to Tabulation 190-52 and Steel Overhead Sign Truss (SOST) standard drawings for more information. Work shall consist of furnishing all labor, equipment, and materials to construct and install Dynamic Message Sign (DMS), generally including, but not limited to: - Attachment of the DMS to the support structure. - Installation of the conduit between the sign support structure foundation and the ITS Handhole. - Transport DMS and associated appurtenances from storage area. The following items will be provided by the Contractor: DMS-to-sign support structure attachment brackets and hardware. The Contractor shall assume full responsibility for the DOT furnished materials prior to accessing them. This assumption of responsibility shall be documented with an itemized invoice clearly identifying each item and shall be signed and dated by the Contractor and the Engineer. Lacking a signed invoice, the default date of assumption of responsibility for these materials shall be the date the contract between the DOT and the Contractor is signed. Upon the assumption of responsibility for any and all materials, the Contractor shall be wholly liable for safe handling, storage, and installation of the equipment. Any damaged equipment shall be replaced at the Contractor's expense, without additional compensation. DMS storage location: Council Bluffs North Garage, 2501 N 25th Street, Council Bluffs, IA 51501 Garage Contact: Brandon Congdon, (712)366-0332 Iowa DOT ITS Coordination Contact: Jason Dale, (515)239-1995 Method of Measurement: By count. Basis of Payment: The Contractor shall be paid the contract unit price for each Dynamic Message Sign (D.M.S.) installed. This payment shall be considered full compensation for furnishing all material, equipment (except as noted above) and labor, and for the performance of all work necessary, including transport of all provided materials from their present location, to provide DMS installation.
6	2423-1051320	STEEL CANTILEVER SIGN TRUSS, 32 FT. ARM	EACH	1			1	Refer to Tabulation 190-52 for locations and details. For fabrication and installation of steel overhead sign truss, refer to SOST series standards for dimensions and details. These items shall be constructed as per section 2423 of the Standard Specifications.
7	2423-1051380	STEEL CANTILEVER SIGN TRUSS, 38 FT. ARM	EACH	1			1	

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
8	2423-1060085	STEEL OVERHEAD SIGN TRUSS, 85 FT. SPAN	EACH	2			2	Refer to Tabulation 190-52 for locations and details. Truss at Sta. 1297+75 to include runway, ladder and security door for DMS access and incidental to this item. For fabrication and installation of steel overhead sign truss, refer to SOST series standards for dimensions and details. These items shall be constructed as per section 2423 of the Standard Specifications.
9	2501-8400172	TEMPORARY SHORING	LS	1			1	Soil boring logs are available in the e-files for the contractor's reference in temporary shoring design.
10	2518-0000080	ITS HANDHOLE, 30x17x24	EACH			2	2	Refer to ITS tabulations found in sheets NI.2-NI.5.
11	2518-0000090	ITS HANDHOLE, 36x24x36	EACH			1	1	
12	2518-0000150	ITS GROUND ROD	EACH			3	3	
13	2518-0001200	ITS CONDUIT, HDPE, 2 INCH BORED	LF			632	632	
14	2518-0002200	ITS CONDUIT, HDPE, 2 INCH PLOWED	LF			798	798	
15	2518-0004200	ITS CONDUIT, RIGID STEEL, 2 INCH	LF			16	16	
16	2518-0006004	XHHW COPPER WIRE, NO. 4 AWG	LF			3,618	3,618	
17	2518-0006006	XHHW COPPER WIRE, NO. 6 AWG	LF			621	621	
18	2518-0006015	ITS TRACER WIRE	LF			97	97	
19	2518-0008300	FIBER OPTIC CABLE, INSTALL ONLY	LF			97	97	
20	2518-0008322	ITS CIRCUIT BREAKER	EACH			2	2	
21	2518-0008325	ITS TRANSFORMER	EACH			2	2	
22	2518-0008400	FIBER OPTIC CABLE ACCEPTANCE TESTING	LS			1	1	

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
23	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	1			1	Refer to Tabulations 190-50 and 190-62. The Contractor shall remove each sign and the hardware used to secure the sign to another sign, posts, or sign support structure. For signs mounted directly to posts, removal of the sign shall include removal of the posts. Posts may be either wood posts or steel breakaway sign posts. The removal of concrete footings for steel breakaway sign posts will be measured and paid for separately. Holes remaining from the removal of wood posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. All steel posts removed shall become the property of the Contractor. Unless otherwise noted, wood posts removed shall remain the property of DOT. The Contractor shall deliver the wood posts to a DOT storage area within 50 miles, as designated by the Engineer. **The existing sign shall be removed and stored. The Contractor shall remove the sign and transport it to a DOT storage area within 50 miles, as designated by the Engineer. The Contractor shall transport the sign back to the job site when ready for reinstallation. The Contractor shall furnish all necessary hardware to install the signs. When the new installation is similar to the original installation, unless otherwise noted, the existing hardware may be used to reinstall the sign. Signs damaged by the Contractor's activities shall be replaced at the Contractor's expense. Replacement materials shall be new. The DOT will furnish all details necessary for fabrication of the replacement materials. METHOD OF MEASUREMENT: The Engineer will count each sign removed and reinstalled. BASIS OF PAYMENT: For each sign removed and reinstalled, the Contractor shall be paid the contract unit price.
24	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY	EACH	1			1	Refer to Tabulation 190-62 for location and details. This item for the removal of Type A Sign Assemblies, including the sign panels, sign brackets, supporting structures and hardware. Contractor shall carefully dismantle each sign assembly. Sign posts, brackets and hardware shall become property of the Contractor. Sign panels shall become property of the DOT and shall be delivered to the nearest DOT maintenance facility. All holes resulting from removal of post shall be filled level with the adjacent grade with backfill material conforming to the Standard Specifications. Measurement: The Engineer will count the number of sign assemblies removed. Payment: The Contractor will be paid the contract unit price for each sign assembly removed.

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
25	2524-6765220	REMOVAL OF TYPE B SIGN ASSEMBLY	EACH	9			9	Refer to Tabulation 190-62 for location and details. This item for the removal of Type B Sign Assemblies, including the sign panels, sign brackets, supporting structures and hardware. Contractor shall carefully dismantle each sign assembly. Sign posts, brackets and hardware shall become property of the Contractor. All holes resulting from removal of posts shall be filled level with the adjacent grade with backfill material conforming to the Standard Specifications. Measurement: The Engineer will count the number of sign assemblies removed. Payment: The Contractor will be paid the contract unit price for each sign assembly removed.
26	2524-9081275	CONCRETE FOOTING FOR BREAKAWAY SIGN POST, 2'-8" DIA. X 7'-6"	EACH	4			4	Refer to Tabulation(s) 190-50 (and 190-51) for details.
27	2524-9081290	CONCRETE FOOTING FOR BREAKAWAY SIGN POST, 2'-8" DIA. X 9'-0"	EACH	6			6	
28	2524-9089100	DELINEATOR, RIGID - TYPE I	EACH	11			11	Refer to Tabulation 190-25 for locations and details. Removal of existing delineators and mileposts shall be incidental.
29	2524-9089110	DELINEATOR, RIGID - TYPE IA	EACH	4			4	
30	2524-9089200	DELINEATOR, RIGID - TYPE II	EACH	18			18	
31	2524-9210007	REFERENCE LOCATION SIGNS	EACH	4			4	
32	2524-9276010	PERFORATED SQUARE STEEL TUBE POSTS	LF	45			45	Refer to Tabulation(s) 190-50 and/or 190-51 for locations and details.
33	2524-9276027	PERFORATED SQUARE STEEL TUBE POST ANCHOR, TRIANGULAR SLIP BASE ASSEMBLY	EACH	3			3	
34	2524-9281090	STEEL BREAKAWAY SIGN POSTS FOR TYPE A OR B SIGNS, W 6 X 9	LF			18	18	Refer to ITS tabulations shown in sheets NI.2-NI.5
35	2524-9281210	STEEL BREAKAWAY SIGN POSTS FOR TYPE A OR B SIGNS, W 8 X 21	LF	69.4			69.4	Refer to Tabulation 190-50 for locations and details.
36	2524-9281426	STEEL BREAKAWAY SIGN POSTS FOR TYPE A OR B SIGNS, W 12 X 26	LF	144.5			144.5	
37	2524-9325001	TYPE A SIGNS, SHEET ALUMINUM	SF	16			16	Refer to Tabulation 190-51 and 190-66 for locations and details.
38	2524-9380001	TYPE B SIGNS, EXTRUDED ALUMINUM STRUCTURAL PANEL	SF	1,553			1,553	Refer to Tabulation 190-50 for locations and details.
39	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1			1	

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
40	2533-4980005	MOBILIZATION	LS	1			1	- -
41	2555-0000010	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS		1		1	Refer to Tab. 110-13.
42	2599-9999005	('EACH' ITEM) Anchor Bolt Assembly, Install and Survey	EACH	10			10	Refer to Steel Overhead Sign Truss and Steel Cantilever Sign Truss Standards and Tabulation 190-52 for locations and details. Item is for accurately installing, surveying, and providing documentation to the Engine that anchor bolt assemblies installed meet the tolerances specified in Steel Overhead Sign Truss and Steel Cantilever Sign Truss Standards. Measurement: The Engineer will count each anchor bolt assembly installed and surveyed. Payment: The Contractor shall be paid the contract unit price for each anchor bolt assembly installed and surveyed.
43	2599-9999005	('EACH' ITEM) Delineator, Gore	EACH	7			7	This item is for gore delineators as detailed in Typical Signing Layout TAS-811. Refer to Tabulation 190-25 for location and details. Fabricate gore delineators with materials complying with Section 4186 of the Standard Specifications. Measurement: Each gore delineator panel will be counted by the various types installed. Payment: The Contractor shall be paid the contract until price for each gore delineator furnished and installed complete. Payment is full compensation for furnishing, fabricating, and erecting the gore delineators including posts, fittings and attachments, and all labor necessary to complete the work.
44	2599-9999005	('EACH' ITEM) ITS TRANSFORMER BASE	EACH			2	2	Refer to ITS tabulations shown in sheets NI.2-NI.5

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Traffic Sign Items	Deliver and Stockpile	ITS Items	Total	
45	2599-9999005	('EACH' ITEM) MASSH-400 Sign Post	EACH	2			2	Item is for furnishing and installing MASSH-400 breakaway post system. Refer to sheet B.7 for installation details. Item includes: - (1) 13” slip base top kit - (1) 13” unibase 4”x48" (including concrete for complete 18"x48" footing) - (1) ¾” redi Torque kit - (7) universal post clamp (min. of 1 clamp per 10 sq. ft. of sign with a min. of at least 3 clamps) - (1) closure cap for 4” sq post - (1) sign post 4”x(varies)’ 8ga. - All hardware required to assemble the sign post system complete MASSH-400 posts shall be installed per the manufacturer's specifications. Measurement: The Engineer will count each MASSH-400 post furnished and installed. Payment: The Contractor shall be paid the contract until price for each MASSH-400 post furnished and installed complete.
46	2599-9999008	('POUNDS' ITEM) Anchor Bolt Assembly, Furnish	LB	7,230			7,230	Item is for furnishing anchor bolt assemblies as specified in the Steel Overhead Sign Truss and Steel Cantilever Sign Truss Standards. Refer to Steel Overhead Sign Truss]and Steel Cantilever Sign Truss standards and Tabulation 190-52 for location and details. Measurement: (LB) The weight of anchor bolt assemblies will be measured in pounds. Payment: The Contractor shall be paid the contract unit price per pound of anchor bolts assemblies furnished.

105_04
10/20/26

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
ITS-101	10/21/2025	ITS Handholes
SI-101	4/19/2016	Locations - Type 'A' Signs
SI-102	4/19/2016	Locations - Type 'B' Signs
SI-112	4/19/2016	Footings For Steel Breakaway Posts
SI-121	10/16/2018	Fabrication - Sign Legend Components
SI-123	10/20/2020	Fabrication - Type 'B' Signs
SI-131	10/18/2016	Installation - Type 'A' Signs
SI-132	4/17/2018	Installation - Type 'B' Signs
SI-133	10/17/2017	Installation - Type 'A' Sign Shim
SI-171	4/18/2017	Reference Location Sign Posts
SI-172	4/19/2016	Delineators
TC-1	10/15/2019	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	4/18/2023	Work Within 15 ft of Traveled Way
TC-402	4/18/2023	Work Within 15 ft of Traveled Way
TC-418	4/18/2023	Lane Closure on Divided Highway
TC-451	4/18/2023	Temporary Road Closure on Divided Highway

110_13
8/15/22

DELIVERY AND STOCKPILING

Line No.	Item Description	Quantity	Quantity Units	Delivery Location	Contact Name	Contact Number	Remarks
1.0	Adopt a Highway Signs	2	EA	Ames Garage	Scott Robinson	515-663-6367	
2.0				3917 Turing St.			
3.0				Ames, IA 50010			

190_25
2/10/23

REFERENCE LOCATION SIGNS AND DELINEATORS

Refer to SI-171, SI-172 and SI-173.

Line No.	Station From	Station To	Location	Reference Location Sign Type	Quantity (EA)	Enhanced Reference Location Sign Type	Quantity (EA)	Intermediate Reference Location Sign Type	Quantity (EA)	Type I Delineator White (EA)	Type I Delineator Yellow (EA)	Type IA Delineator White (EA)	Type IA Delineator Yellow (EA)	Type II Delineator White (EA)	Type II Delineator Yellow (EA)	Type III Delineator White (EA)	Type III Delineator Yellow (EA)	Object Marker Type 1 (EA)	Object Marker Type 2 (EA)	Object Marker Type 3 (EA)	Installation Type	Installation Offset
1.0	1281+23.00	1286+51.00	US30 (WB)									3									1	8.0
2.0	1289+15.00		US30 (WB)			D10-3A	1														1	8.0
3.0	1289+15.00		US30 (WB)			D10-9A	1														1	8.0
4.0	1291+79.00		US30 (WB)									1									1	8.0
5.0	1294+12.00		US30 (WB)			D10-3A	1														1	8.0
6.0	1294+12.00		US30 (WB)			D10-8A	1														1	8.0
7.0			Ramp A - Exit 148							4				7							1	8.0
8.0			Ramp C - Exit 150							7				11							1	8.0
					0		4		0	11	0	4	0	18	0	0	0	0	0	0		

190_50 3/24/25																																																
MATERIALS FOR TYPE 'B' SIGNS																																																
Line No.	Number	Route	County	Exit Number	Road ID	Seq. No.	Dir of Travel	Sign Location Station	Fab Info	Sign Width (FT)	Sign Height (FT)	New Area (SF)	4x6 L (FT)	4x6 M (FT)	4x6 R (FT)	Perf. Sq. Steel L (FT)	Perf. Sq. Steel M (FT)	Perf. Sq. Steel R (FT)	Perf. Sq. Anchor Type	Anchor Quantity (EA)	W8x21 L (FT)	W8x21 M (FT)	W8x21 R (FT)	Footing 2'8"x7'6" (EA)	W12x26 L (FT)	W12x26 M1 (FT)	W12x26 M2 (FT)	W12x26 R (FT)	Footing 2'8"x9' (EA)	Install Type	Install Dim 'X'	Install Dim 'Y'	See Signing Notes	Remarks														
1.0	1	30	85	148	M	107	EB	127231.00	NEW	5.0	7.5	37.5																		3		7.0		MASSH-400 Post														
2.0	2	30	85	148	M	106	EB	127900.00	NEW	14.0	13.0	182.0																		4				Overhead														
3.0	3	30	85	148	M	106A	EB	127900.00	NEW	11.0	2.5	27.5																		4				Overhead														
4.0	4	30	85	148	M	106B	EB	127900.00	NEW	2.5	2.5	6.3																		4				Overhead														
5.0	5	30	85	148	M	105	EB	128700.00	NEW	19.5	12.0	234.0													22.7	23.1		23.7	3	1	40.0	7.0																
6.0	6	30	85	148	M	104	EB	129500.00	NEW	19.5	12.0	234.0													26.9	25.0		23.1	3	1	30.0	7.0																
7.0	7	30	85	148	M	102	EB	130300.00	NEW	14.5	15.0	217.5																		4				Overhead														
8.0	8	30	85	148	M	102A	EB	130300.00	NEW	11.0	2.5	27.5																		4				Overhead														
9.0	9	30	85	148	M	102B	EB	130300.00	NEW	2.5	2.5	6.3																		4				Overhead														
10.0	10	30	85	150	M	5	WB	130575.00	NEW	6.5	7.5	48.8																		4				Overhead														
11.0	11	30	85	151	M	1	WB	130575.00	NEW	15.5	12.0	186.0																		4				Overhead														
12.0	12	30	85	151	M	001A	WB	130575.00	NEW	15.5	2.5	38.8																		4				Overhead														
13.0	13	30	85	150	M	6	WB	130575.00	NEW	18.5	4.5	83.3																		4				Overhead														
14.0	14	30	85	150	M	006A	WB	130575.00	NEW	11.0	2.5	27.5																		4				Overhead														
15.0	15	30	85	148	R	103	EB	526950.00	NEW	12.0	5.0	60.0									16.6		15.1	2						1	24.0	7.0																
16.0	16	30	85	148	R	102	EB	527150.00	NEW	12.0	8.0	96.0									19.6		18.1	2						1	24.0	7.0																
17.0	17	30	85	148	R	101	EB	527350.00	NEW	8.0	5.0	40.0																		1	24.0	7.0		MASSH-400 Post														
1553.0													36.2				0				33.2				4				49.6				48.1				0				46.8				6			

190_51
2/10/23

MATERIALS FOR TYPE 'A' SIGNS

Refer to SI-101, SI-111, SI-119 and N Sheets.

Line No.	Type A Signing Typicals	Sign Number	Dir. of Travel	Sign Location Station	Wood Posts (No.)	4 x 6 Leg 1 (FT)	4 x 6 Leg 2 (FT)	Perf. Sq. Steel Leg 1 (FT)	Perf. Sq. Steel Leg 2 (FT)	Perf. Sq. Steel Leg 3 (FT)	Perf. Sq. Anchor Type	Anchor Quantity (EA)	Steel Rect. Tube (No)	Steel Rect. Tube (FT)	Steel Rect. Tube Anchors (EA)	Type A Bracket One Post	Type A Bracket Two Post	Type A Bracket Auxiliary	Type A Bracket (H)	Type A Bracket (F)	Type A Bracket (F1)	Install. Type	Install. Dim X (FT)	Install. Signing Notes	Remarks
1.0		W4-1	EB	132000.00				15.5	15.0		Slip	2											30.0	IA,PP	
						15.5	15.0	0				2													

190_66 9/29/23					
SUMMARY OF TYPE 'A' SIGNS					
Line No.	Sign Number	Non-Standard Sign Number or Name	Quantity (EA)	Size (IN)	Total Sign Area (SF)
1.0	W4-1		1	48 X 48	16.0
					16.0

190_52

10/15/24

MATERIALS FOR OVERHEAD SIGN SUPPORT STRUCTURES

Line No.	Roadway	Reference Location Sign	Station	State Plane North	State Plane South	Direction of Travel	Span Length	Structure Designation	Sign Truss Standard Series	Inside Foundation Offset (FT)	Outside Foundation Offset (FT)	Additional Stem Height 'L' Inside (FT)	Additional Stem Height 'L' Outside (FT)	Class 20 Excavation (CY)	Reinforcing Epoxy Coated Steel (LB)	Structural Concrete (CY)	Anchor Bolt Assembly (EA)	Anchor Bolt Assembly (LB)
1.0	US30	148.8	1279+00.00			WB	32.0	Cantilever	SCST		-81.0			177.40	6351	33.8	1	2063
2.0	US30	150.07	1297+75.00			EB	85.0	Overhead Truss	SOST		85.0		1.0	175.00	6098	49.9	4	1552
3.0	US30	150.17	1303+00.00			WB	38.0	Cantilever	SCST		-85.2			161.40	6351	33.8	1	2063
4.0	US30	150.22	1305+75.00			EB	85.0	Overhead Truss	SOST		85.0		2.0	191.00	6256	51.3	4	1552
														704.80	25056	168.8	10	7230

190_01 9/23/25			
SIGN SUPPORT STRUCTURES			
Line No.	Number	Date	Title
1.0	SCST-01-17	11-2025	Index and Notes
2.0	SCST-02-17	11-2025	Sign Support Views
3.0	SCST-03-17	11-2025	Isometric View Typical Truss
4.0	SCST-04-17	11-2025	Truss-to-Post Connection Details
5.0	SCST-05-17	11-2025	Gusset Plate Connection Details
6.0	SCST-06-17	11-2025	Post Base Support Details
7.0	SCST-07-17	11-2025	Sign Attachment Details
8.0	SCST-08-17	11-2025	Foundation Details - Spread Footing
9.0	SOST-01-11	06-2025	Index and Notes for 50'-130' Spans
10.0	SOST-03-11	06-2025	Elevation Views for 80'-100' Spans
11.0	SOST-06-11	06-2025	Support Base and DMS Electrical Access Details for 50'-100' Spans
12.0	SOST-08-11	06-2025	Gusset Plate Connections
13.0	SOST-09-11	06-2025	Truss Support and Chord Splice Details for 50'-100' Spans
14.0	SOST-11-11	06-2025	Sign Attachment Details
15.0	SOST-12-11	06-2025	DMS Runway Details
16.0	SOST-13-11	06-2025	DMS Runway Details
17.0	SOST-14-11	06-2025	DMS Runway Gate Details
18.0	SOST-15-11	06-2025	DMS Ladder Details
19.0	SOST-16-11	06-2025	DMS Ladder Security Door Details
20.0	SOST-17-11	06-2025	Foundation Details - Non-staged
21.0	SOST-18-11	06-2025	Conduit Location Details

190_61										190_61
2/10/23										2/10/23
EXISTING SIGNS TO BE REINSTALLED										
Line No.	Sign Description	Direction of Travel	Location Station	Number of Posts	Square Tube Steel Posts	Wood Posts 4"x4" (LF)	Wood Posts 4"x6" (LF)	Installation Type	Installation Dim 'X'	See Signing Notes
1.0	ADOPT A HIGHWAY/AVAILABLE	WB		1	14.5			1	30.0	RR, PP
Total					14.5					

Include one (1) Slip Base Anchor for this installation.

190_62 2/13/23											
EXISTING SIGNS TO BE REMOVED											
Line No.	Sign Number or Description	Location Station	Direction of Travel	Type 'A' Sign Assembly (RA) (EA)	Type 'B' Sign Assembly (RB) (EA)	Type 'A' Remove and Reinstall (RR) (EA)	Type 'B' Remove and Reinstall (RR) (EA)	Concrete Foundation (RF) (EA)	Support Structure & Foundation (RS) (EA)	Applicable Signing Notes	Remarks
1.0	RAMP LOGO GAS SIGN	5268+57.00	WB		1			2		RB/RF	
2.0	RAMP LOGO FOOD SIGN	5270+28.00	WB		1			2		RB/RF	
3.0	RAMP LOGO LODGING SIGN	5271+79.00	WB		1			2		RB/RF	
4.0	EXIT GORE SIGN	1271+26.00	WB		1			1		RB/RF	
5.0	FINAL GUIDE SIGN	1279+26.00	WB		1			2		RB/RF	
6.0	LOGO GAS/FOOD SIGN	1287+15.00	WB		1			2		RB/RF	
7.0	ADOPT A HIGHWAY SIGN	1294+14.00	WB			1				RR	
8.0	LOGO FOOD/LODGING SIGN	1294+97.00	WB		1			2		RB/RF	
9.0	RIVER SIGN 'SOUTH SKUNK RIVER'	1302+75.00	WB		1					RA	
10.0	FINAL GUIDE EXIT 150	1305+25.00	EB		1			2		RB/RF	
11.0	MERGE SIGN	1317+97.00	WB	1						RA	
				1	9	1	0	15	0		

259_01 10/15/25 SIGNING NOTES		259_01 10/15/25 SIGNING NOTES		259_01 10/15/25 SIGNING NOTES		259_01 10/15/25 SIGNING NOTES										
The following tolerances will be allowed on all signs: Accumulation error of not greater than +/-0.50" per line of copy, not greater than +/-0.50" for spacing between lines of copy, and the margin between lines of copy and the inside edge of the sign border. The following tolerances will be allowed on each letter or numeral: <table><tr><td>nominal height</td><td>variation in height</td><td>variation in width</td></tr><tr><td>4" thru 12"</td><td>-1/8" to +3/8"</td><td>-1/4" to +1/4"</td></tr><tr><td>over 12"</td><td>-1/8" to +3/8"</td><td>-3/8" to +3/8"</td></tr></table> ----- Type B signs can be separated into two categories: - Major Guide Signs. - Minor Guide Signs. Major Guide Signs include the advance and exit direction guide signs for an interchange or intersection. Minor Guide Signs include all other guide signs such as NEXT EXIT signs, supplemental guide signs, logo signs, exit gore signs, post-interchange mileage signs, ramp destination signs, and ramp logo signs for an interchange, as well as destination signs along sideroads. Type A signs are not separated into categories, but special consideration should be given to regulatory signs. Do not remove Type B signs until replacement signs have been installed. If construction activities require the removal of a sign, the existing sign may be relocated to temporary posts, or a temporary plywood sign may be installed to replace the existing sign. Existing non-regulatory Type A signs are NOT required to remain in place until installation of replacement signs. Existing regulatory Type A signs, particularly Stop signs, should not be removed until replacement signs are installed. Where a staged traffic control plan is contrary to this guidance, follow the direction of the traffic control plan. Apply the following during the replacement or modification of signs: - No more than one of the major guide signs for each direction of travel at an interchange out of service at any one time. - No major guide sign out of service for more than 8 hours. - No minor guide out of service for more than 24 hours. Remove existing signs and posts within 24 hours following the installation of a new replacement sign. In any case where the plans call for a new sign and posts to be installed at the same station location and offset as an existing sign, install the new posts at a minimum of either 5 ft ahead or behind the existing sign installation. Signs shall not be installed more than 25 ft ahead or behind the existing sign installation. Whenever posts for a replacement sign are erected directly in front of an existing sign, install the new replacement sign and remove the existing sign installation within 24 hours of the time that the new posts are erected. Where signs are located behind guardrail, locate the near edge of the sign a minimum of 3 ft behind the guardrail posts.		nominal height	variation in height	variation in width	4" thru 12"	-1/8" to +3/8"	-1/4" to +1/4"	over 12"	-1/8" to +3/8"	-3/8" to +3/8"	Unless noted otherwise, leave auxiliary panels, such as exit number panels, in place or reattach to the sign using the existing mounting hardware. Also, when replacing an existing logo sign with a new logo sign, remove the business logo panel(s) from the existing sign and attach to the new sign as directed by the Engineer. Do not damage the auxiliary or logo panels when removing and reattaching them. This work is incidental to other work and no separate payment will be made. The following notes apply to the corresponding sign installations shown on the plan sheets and listed in the tabulations. IB INSTALL NEW TYPE B SIGN IA INSTALL NEW TYPE A SIGN Install new signs at the location identified in the plans. For installation of new signs on an existing sign support structure, refer to note (L). For installation of new signs on existing posts: - if the new sign is taller than the existing sign, furnish the necessary hardware to extend the sign above the posts. Refer to Standard Road Plan SI-132. - if the new sign is shorter than the existing sign: - for wood posts and perforated square tube posts, install the sign at the proper height and cut off the excess post length. - for MASSH-400 and steel breakaway posts, install the sign at the top of the posts. For plywood signs, no vertical splices are allowed in signs less than or equal to 10 ft wide. No horizontal splices are allowed in signs less than or equal to 4 ft tall. Each new sign installed shall have a sticker applied to the back of the sign that shows the date the sign was installed. The Contractor shall supply the sticker for all contractor supplied signs. The DOT will supply date stickers on any signs supplied by the department. Payment for installing Type A signs or Type B signs includes furnishing hardware for mounting, extending signs above existing posts, and cutting posts to length. MS MODIFICATION OF EXISTING SIGNS For removal and/or installation of logo panels, and other sign modifications. Refer to the project plans and typical details for additional information. SC SIGN COVER For the installation or removal of temporary sign covers for the purposes of temporary traffic control. Sign covers shall completely cover the existing Sign. Care should be taken so that covers, fasteners, and installation practices do not damage the existing sign. Tape of any type shall not be applied to the sheeted face of the existing sign under any circumstances. Repair of damage to the existing sign caused by sign covers will be the responsibility of the Contractor. SO OVERLAY TYPE B GUIDE SIGNS MB INSTALL SPECIAL MOUNTING BRACKET Install special mounting brackets at the locations identified in the plans. Refer to Tabulations 190-51 and/or 190-65.		PB INSTALL NEW BREAKAWAY STEEL POSTS AND FOOTING PP INSTALL NEW PERFORATED SQUARE TUBE POSTS AND ANCHORS PM INSTALL NEW MASSH-400 POSTS AND ANCHORS Install new breakaway steel posts and footings, perforated square tube posts and anchors, or MASSH-400 posts and anchors at the locations identified in the plans. Refer to the Standard Road Plans, Typicals, and Tabulations 190-51 and 190-50 for post size and footing information. New posts shall be installed in undisturbed soil. The new posts shall not be placed in the hole of removed posts. Remove excess soil from footing hole. Do not spread soil on adjacent seeded or vegetated areas. If note (RR) accompanies (PB), (PP), or (PM), install an existing sign on the new posts. RR REMOVE AND REINSTALL SIGN AS PER PLAN Do not remove existing major Type B guide signs on posts until the new posts are installed. Promptly remove sign and install at the new location. Existing major Type B guide signs on overhead support structures, minor Type B guide signs, plywood signs, and Type A signs may be removed and stored. Transport the signs to a DOT storage area as designated by the Engineer. Transport the signs back to the job site when ready for installation at the new location. Signs to be reinstalled shall not be stored for any length of time with the sheeted face in contact with the ground. Replace signs damaged by the Contractor's activities at no additional cost to the Contracting Authority. Payment for Remove and Reinstall Sign includes sign removal, delivery to and from the DOT storage area (if applicable), and reinstallation, including any hardware required for reinstallation. When noted in the plans, payment for delivery and stockpile of existing signs will be separate from the payment for Remove and Reinstall Sign. RA REMOVAL OF TYPE A SIGN ASSEMBLY RB REMOVAL OF TYPE B SIGN ASSEMBLY Type A Sign Assembly consists of one or more signs installed on one or more posts, either directly mounted to the post or mounted to the post with special sign mounting brackets. Type B Sign Assembly consists of the main sign, all auxiliary signs and brackets, and posts. Unless stated otherwise in the plans, remove all posts with the signs and brackets. Remove each sign assembly identified in the plans. Sign posts removed become the property of the Contractor. All other materials removed remain the property of the DOT. For each sign assembly removed, disassemble each assembly before delivering to the DOT. * For Type A sign assemblies, unbolt all signs,		special mounting brackets, and posts from each other. * For Type B assemblies, unbolt all extruded aluminum panels, brackets, and posts from each other. Do not damage the disassembled materials. When the plans call for the removal of posts, the entire existing post shall be removed. The post shall not be broken off or cut off at the ground line. Place backfill in holes remaining from the removal of posts and restore to the surrounding conditions. Deliver the removed signs, special sign mounting brackets, and extruded aluminum panels to a DOT storage area, as designated by the Engineer. The concrete footings for steel posts are not considered part of the sign assembly. Refer to note RF for concrete footing removal. Payment for Removal of Type A Sign Assembly or Removal of Type B Sign Assembly includes sign assembly removal and disassembly, post removal (if applicable), delivery to the DOT storage area, placing backfill in holes, and restoration of the surrounding conditions. RF REMOVE EXISTING CONCRETE FOOTING FOR STEEL POST Remove existing concrete footings to a depth of at least 1 ft below the natural groundline. Place backfill in holes remaining from removal and restore to the normal surrounding conditions. This work is incidental to other work and no separate payment will be made. RS REMOVE EXISTING TYPE B SIGN SUPPORT STRUCTURE The following are considered Type B Sign Support Structures: - Overhead sign trusses and foundations - Cantilever sign trusses and foundations - Bridge-mounted brackets Unless stated otherwise in the plans, existing overhead trusses, cantilever trusses, and bridge brackets which are removed become the property of the Contractor. If stated in the plans, deliver overhead trusses, cantilever trusses, and bridge brackets to a DOT storage area, as designated by the Engineer. Payment for Removal of Sign Support Structure and Foundation includes sign support structure removal, delivery to the DOT storage area (if applicable), and restoration of the surrounding conditions. Removal of the foundation includes removal of the stem to a minimum of 1 ft below the natural groundline. L MODIFY SIGN SUPPORT ANGLES NEEDED TO INSTALL SIGNS ON EXISTING SIGN SUPPORT STRUCTURES Refer to the sign support structure details for information on the required angle brackets. Provided all specifications are met, the existing sign support angles may be reused. Install existing sign support angles to be reused only on the sign support structure from which they were removed. Sign support angles removed and not reused become the property of the Contractor.	
nominal height	variation in height	variation in width														
4" thru 12"	-1/8" to +3/8"	-1/4" to +1/4"														
over 12"	-1/8" to +3/8"	-3/8" to +3/8"														
FILE NO.	ENGLISH	DESIGN TEAM	Fobian\Kenton	STORY COUNTY	PROJECT NUMBER	NHSX-030-5(314) -- 3H-85	SHEET NUMBER	C.12								

SIGNING NOTES

When reusing the existing sign support angles with a shorter replacement sign, the sign support angles may need to be trimmed. Refer to the sign support details to determine if and where to trim the sign support angles.

Do not use existing fasteners. Use new U-Bolts, stainless steel bolts and nuts to install the existing or new sign support angles to the sign support structure.

Removal of existing sign support angles is incidental to removal of the sign.

Reinstalling and/or modifying existing sign support angles; furnishing and installing new sign support angles (if required); and furnishing and installing new fasteners is incidental to work associated with Type B signs.

SIGN INSTALLATION QUALITY CONTROL NOTES

Post lengths have been derived from the proposed grading cross sections. Verify post lengths in the field prior to ordering or fabrication.

Slight differences between the design template and the actual conditions should be expected. These variations should be resolved by doing some localized shaping and grading. Obtain material needed to meet the site requirements of SI-112 from the excavation and/or the area immediately adjacent to the work. Ensure reshaping work does not substantially change foreslopes or the drainage in the vicinity of the sign.

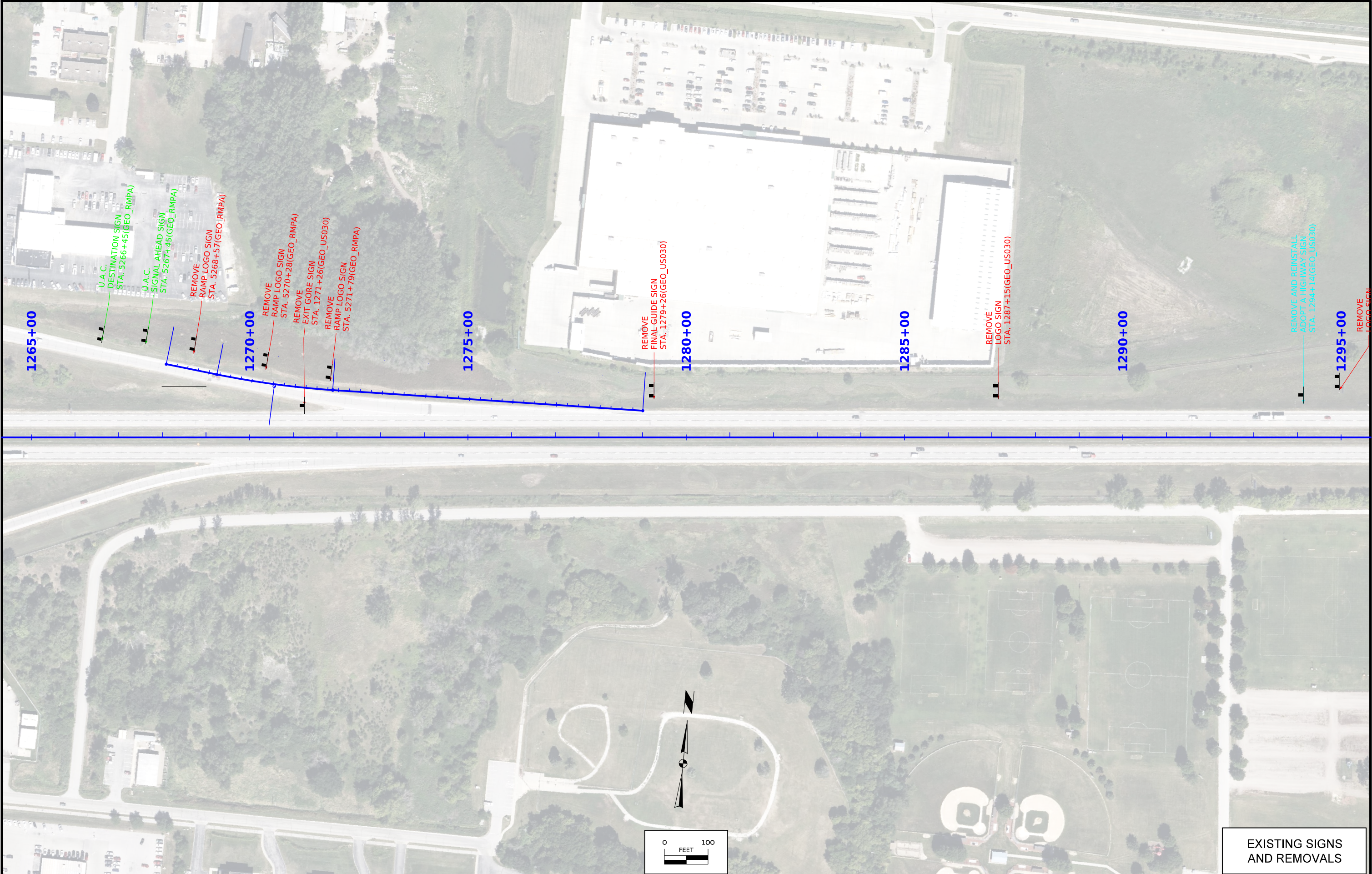
Significant differences between the plan design and the actual field conditions shall be resolved in this manner:

Survey the location and draw the actual template on the cross section. Recalculate each post length and compare to the maximum allowable leg length. If all of the maximum leg lengths are less than or equal to the maximum allowable leg length, then the proposed post design will be sufficient. If any leg is greater than the maximum allowable leg length, then submit the cross section with the actual template drawn (including offsets and elevation from the survey shown) to the Engineer. The Engineer may forward this information to the Engineer of Record in order to complete a new post design.

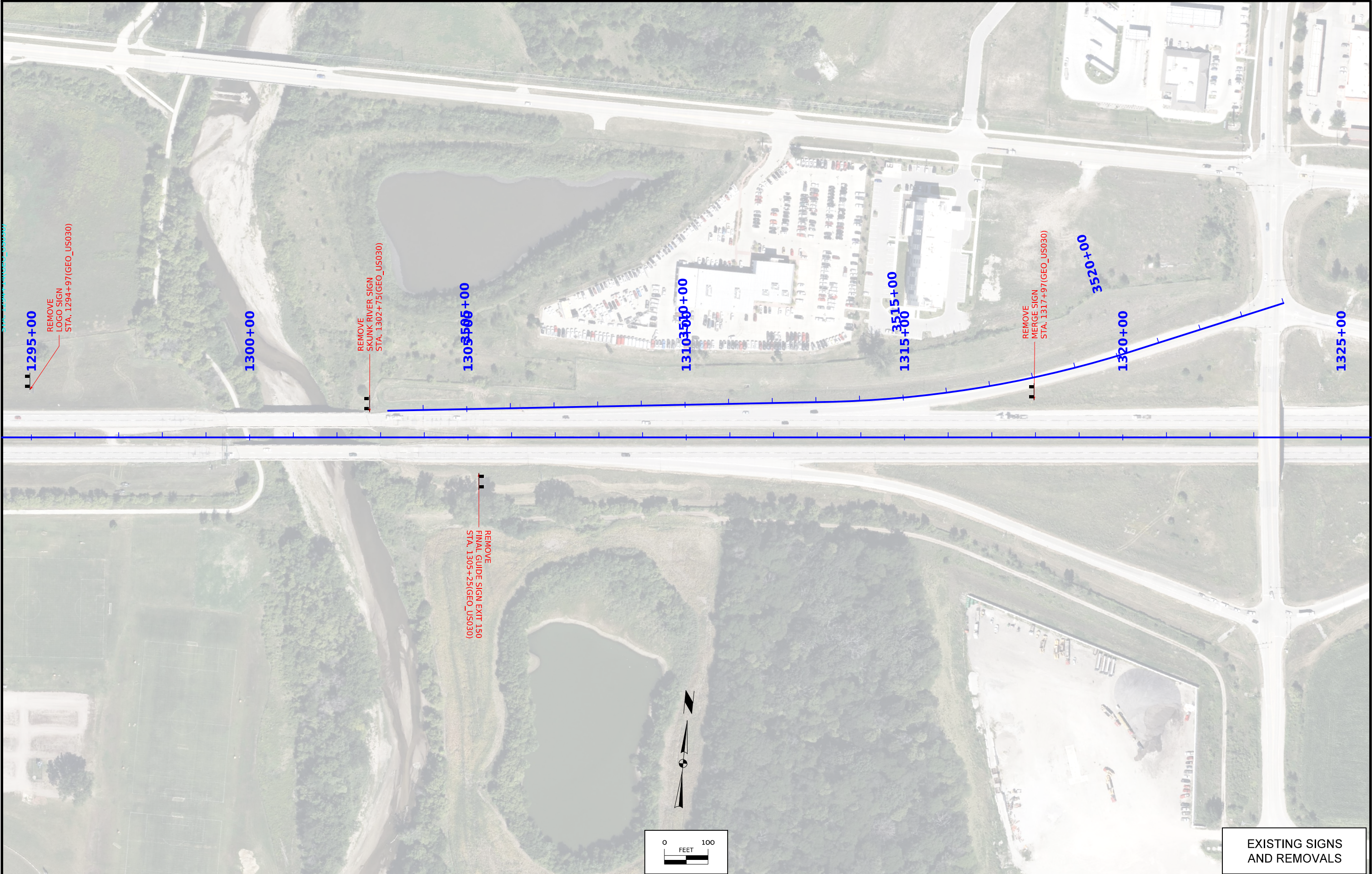
Install the footings, stub posts, and posts according to the tolerances shown on the applicable SI Series Standard Road Plans.

Footing construction is the controlling activity that substantially affects the quality of the site installation. Verify the elevation difference between the stubs is exactly the same as the elevation difference between the post lengths. If the Engineer requests, submit documentation detailing the site cross section in order to verify site installation.

Refer to project #NHSX-030-5(310)--3H-85 for traffic control details.

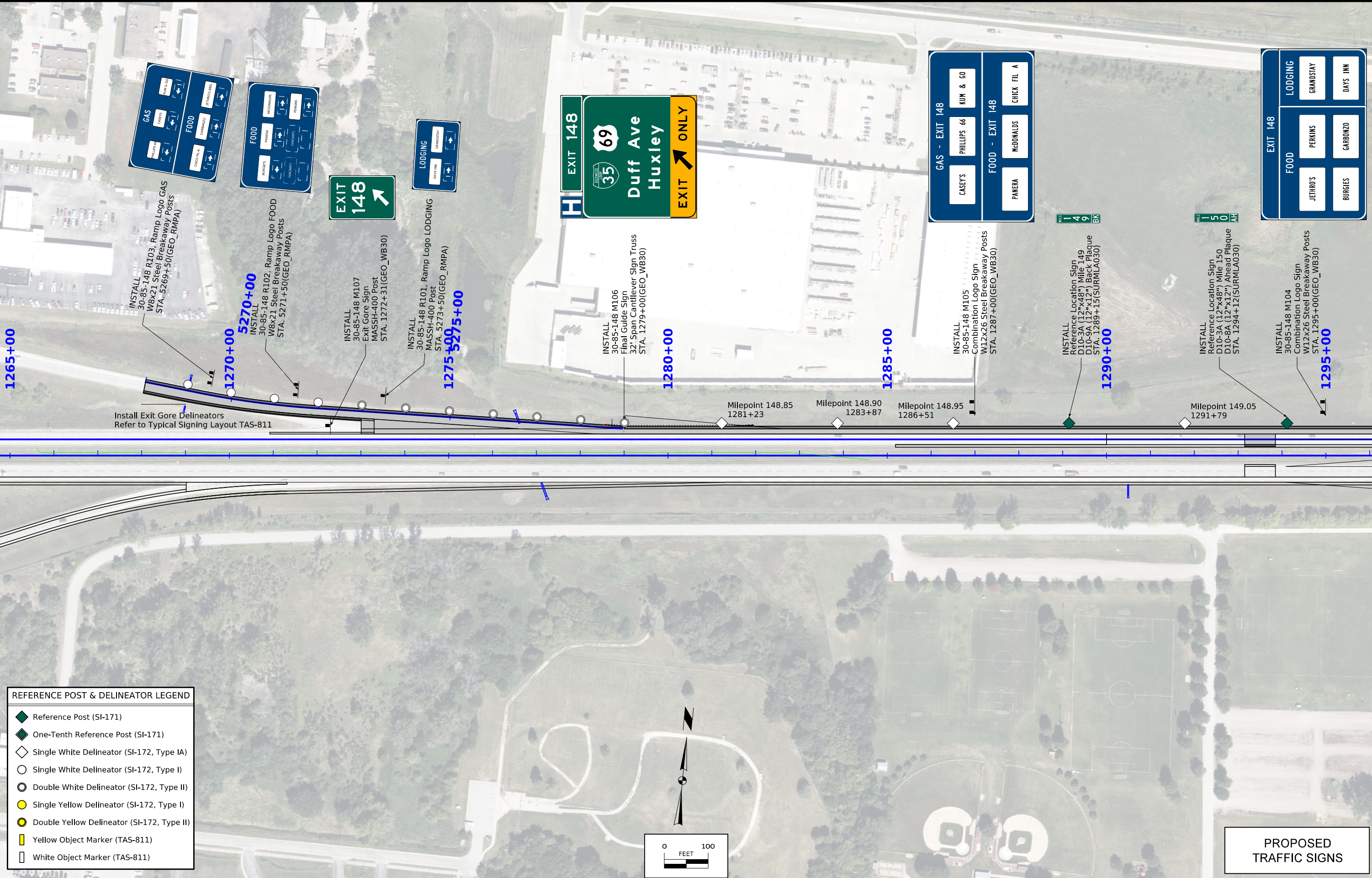


FILE NO.	ENGLISH	DESIGN TEAM Fobian\Kenton	STORY COUNTY	PROJECT NUMBER NHSX--030-5(314)--3H-85	SHEET NUMBER N.1
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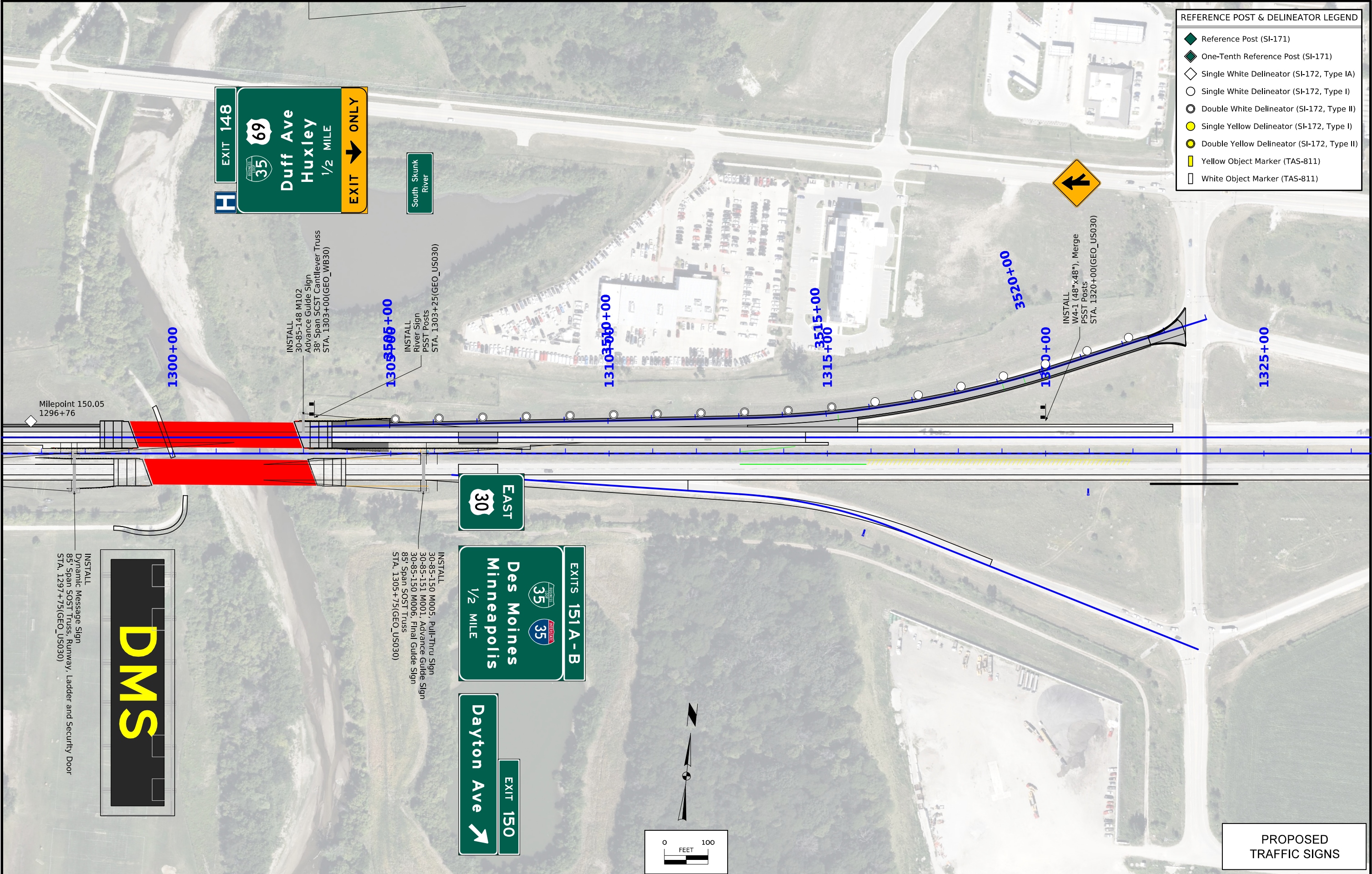
EXISTING SIGNS
AND REMOVALS

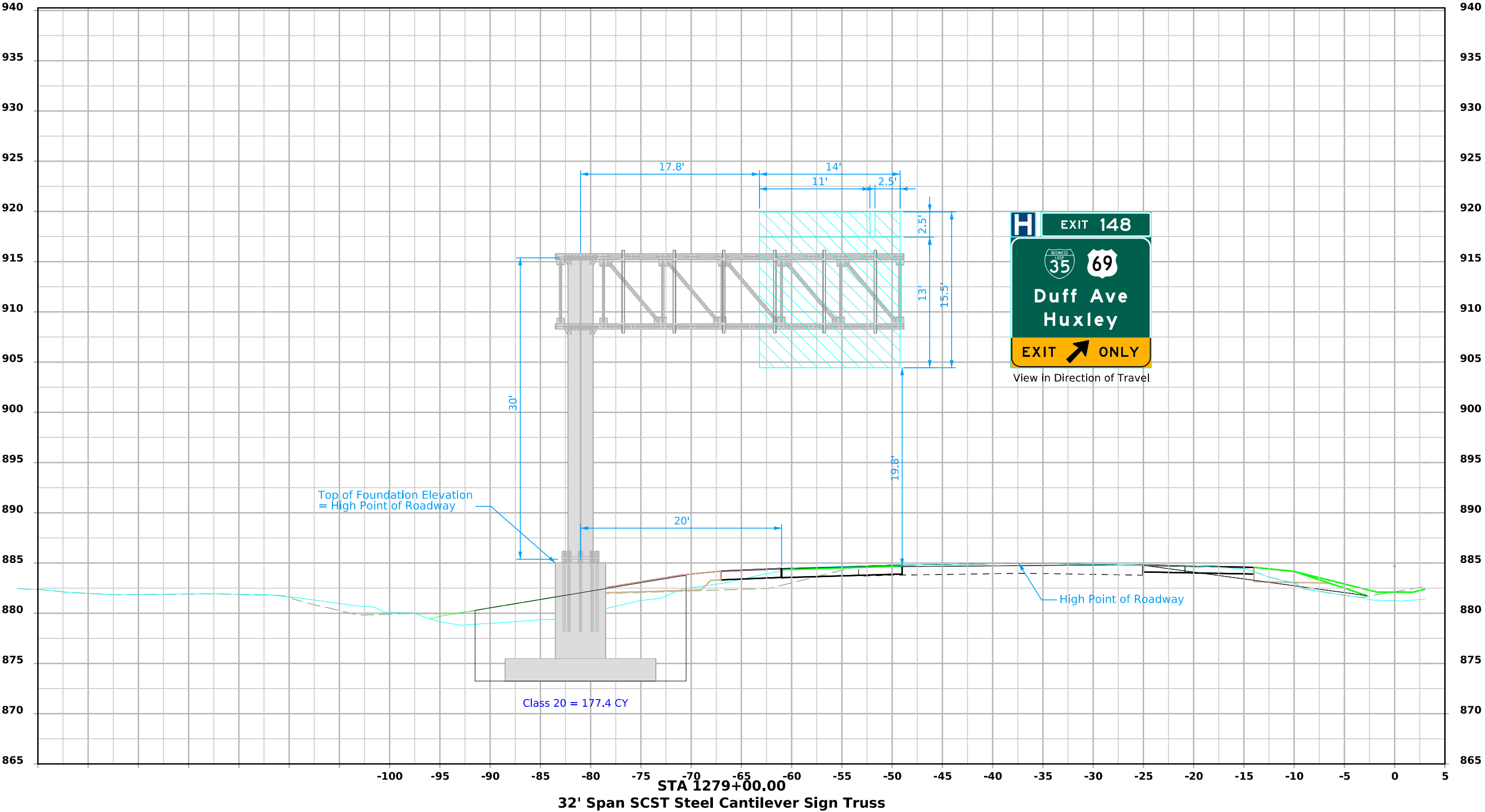
FILE NO.	ENGLISH	DESIGN TEAM Fobian\Kenton	STORY COUNTY	PROJECT NUMBER NHSX--030-5(314)--3H-85	SHEET NUMBER N.2
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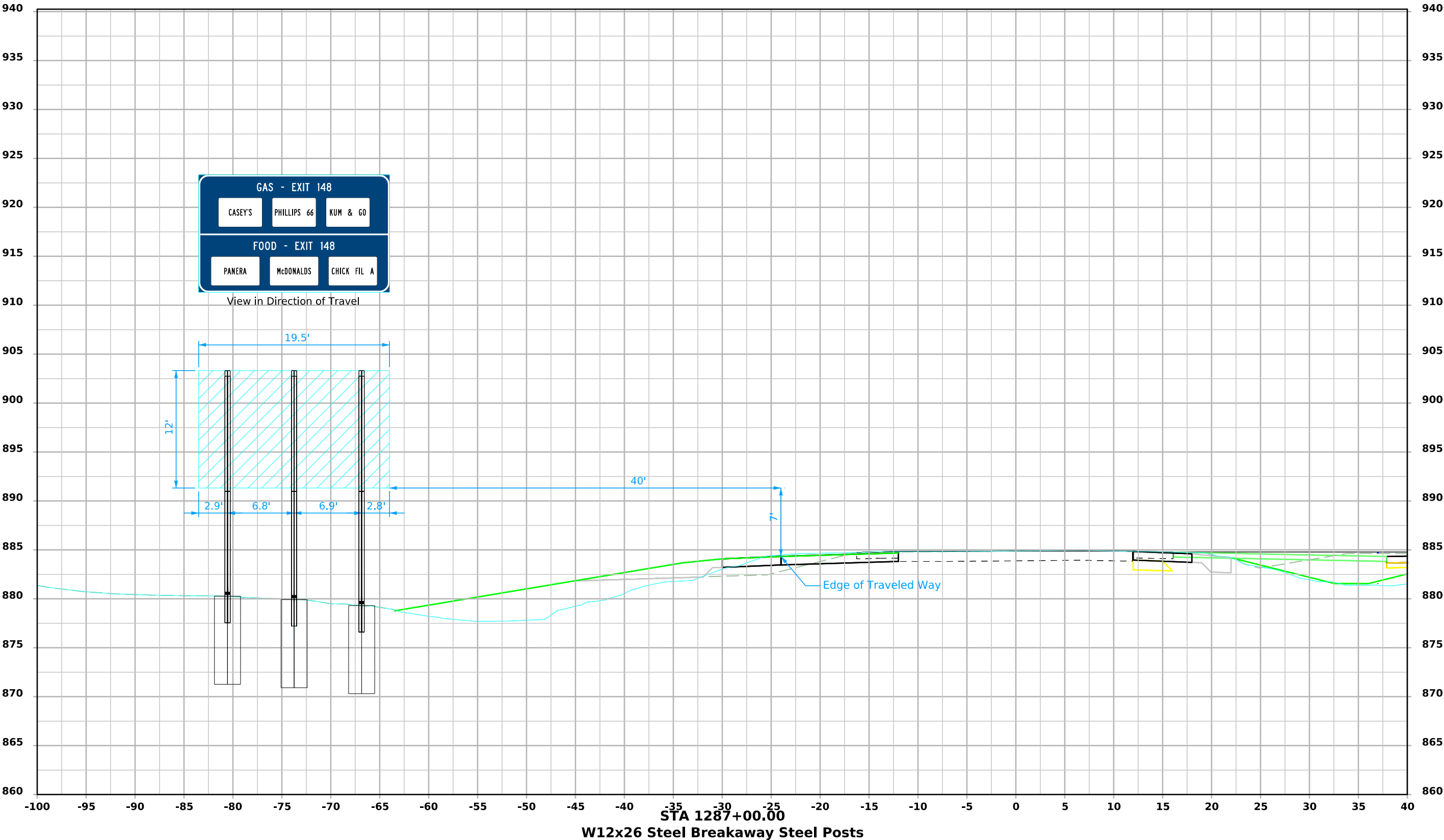


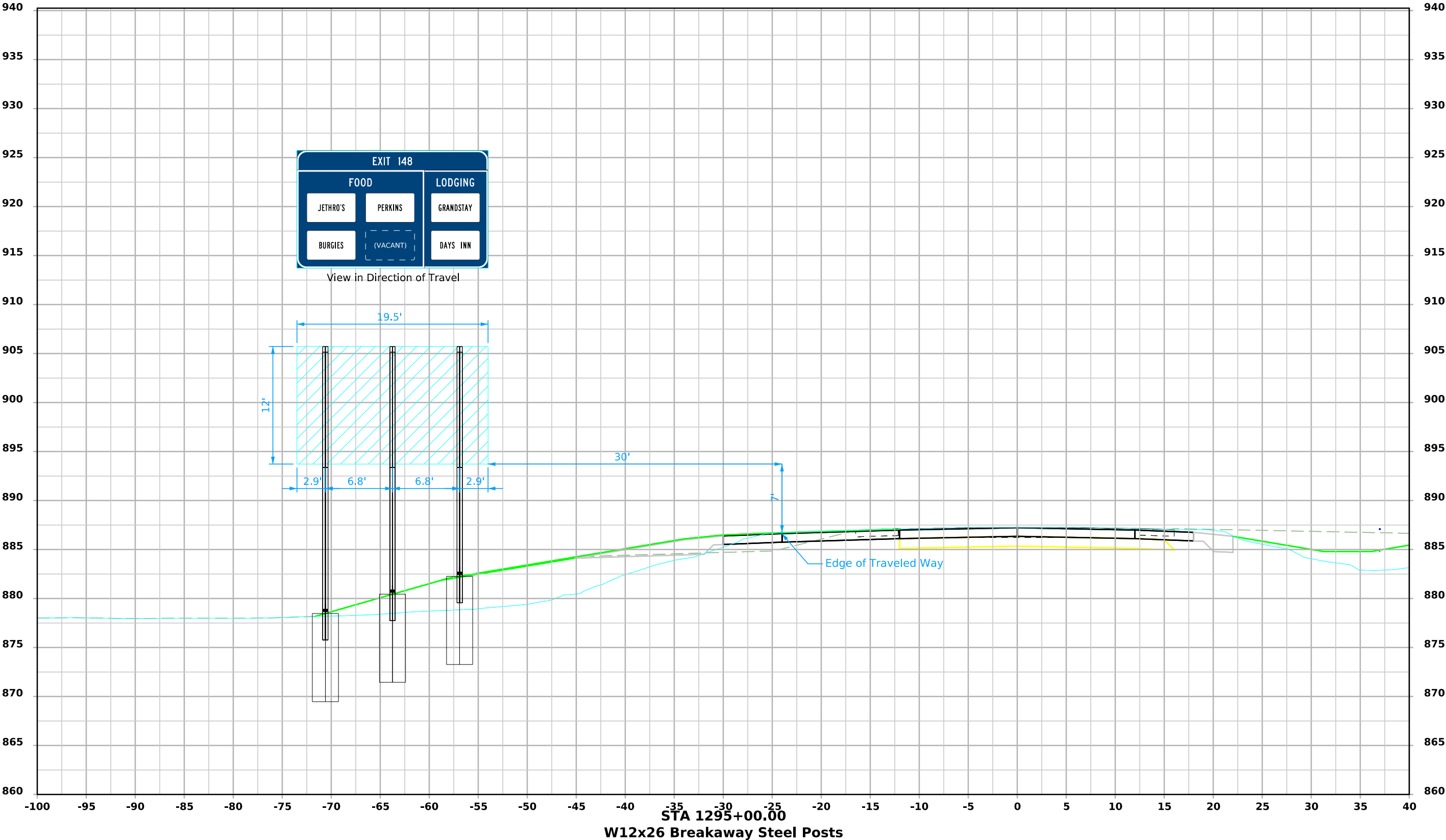
REFERENCE POST & DELINEATOR LEGEND	
	Reference Post (SI-171)
	One-Tenth Reference Post (SI-171)
	Single White Delineator (SI-172, Type IA)
	Single White Delineator (SI-172, Type I)
	Double White Delineator (SI-172, Type II)
	Single Yellow Delineator (SI-172, Type I)
	Double Yellow Delineator (SI-172, Type II)
	Yellow Object Marker (TAS-811)
	White Object Marker (TAS-811)

PROPOSED
TRAFFIC SIGNS

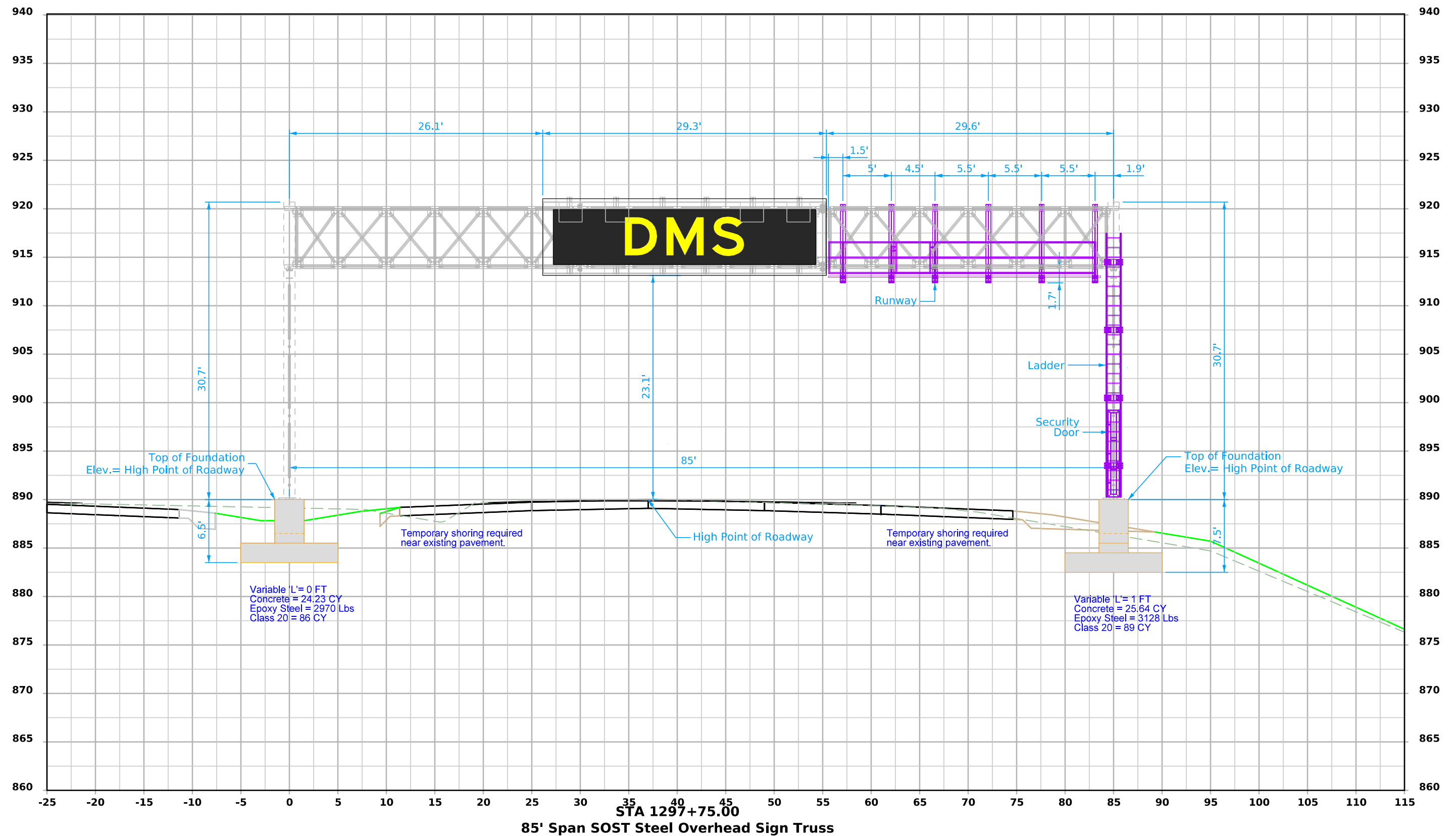


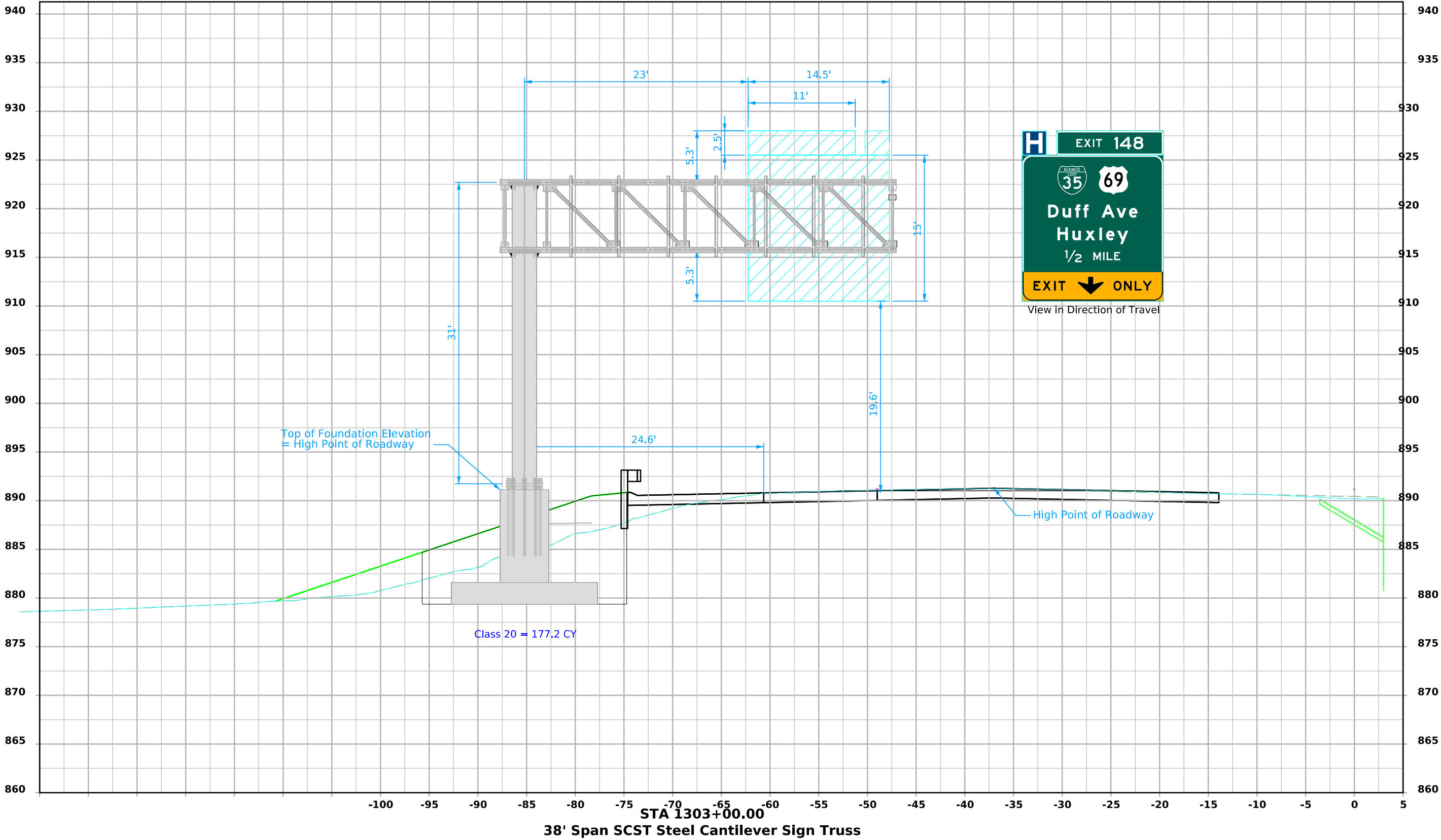


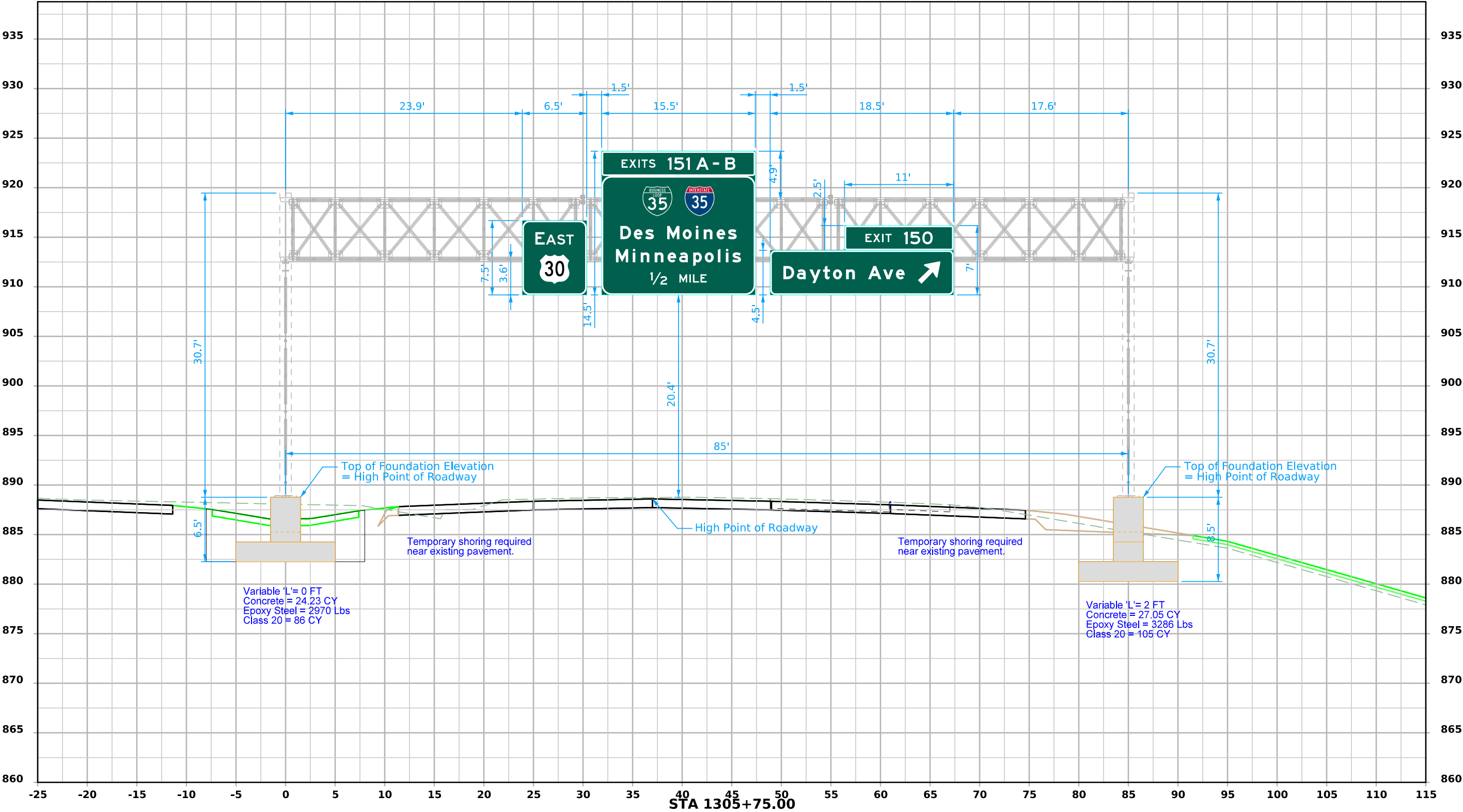




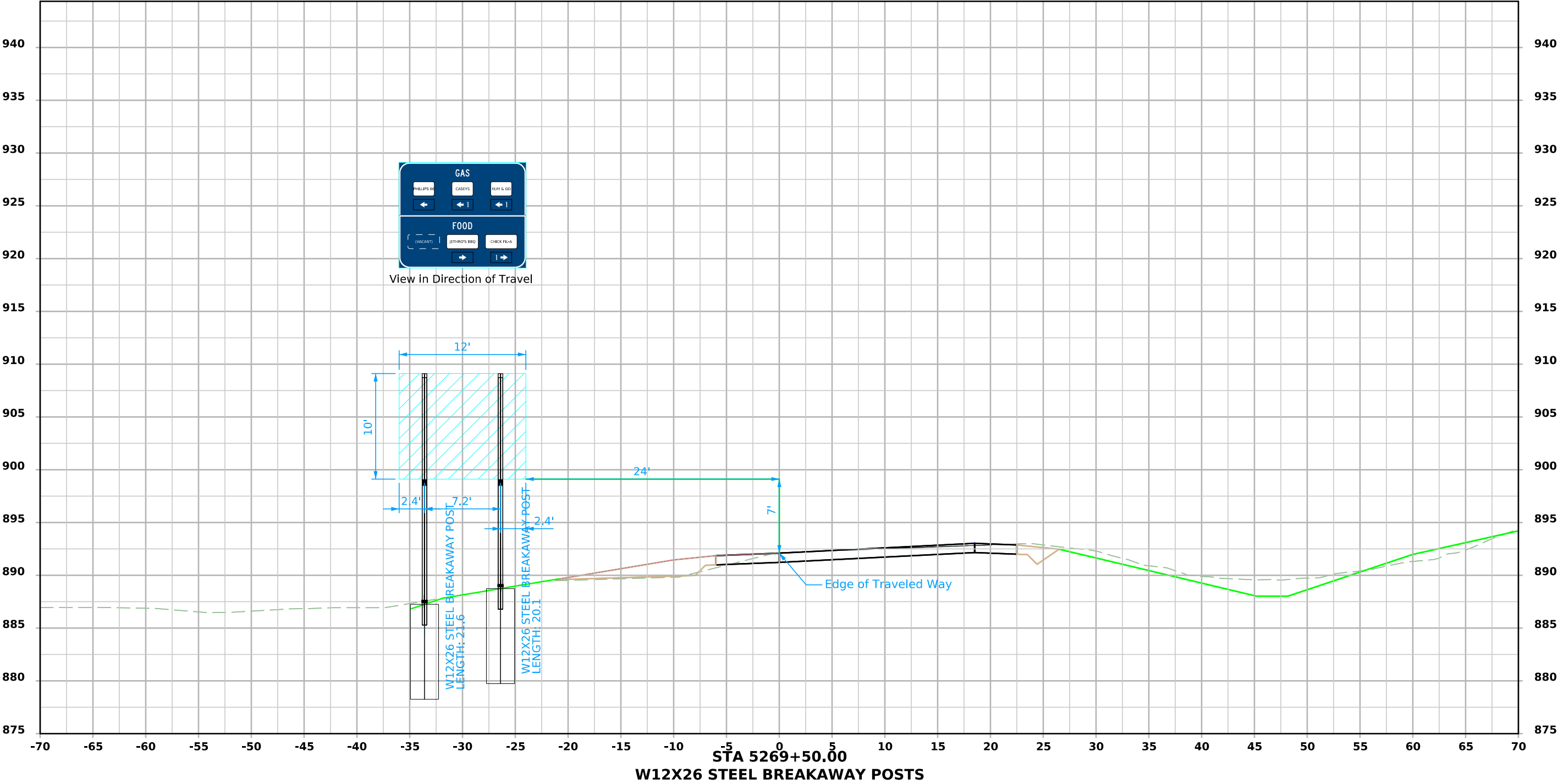
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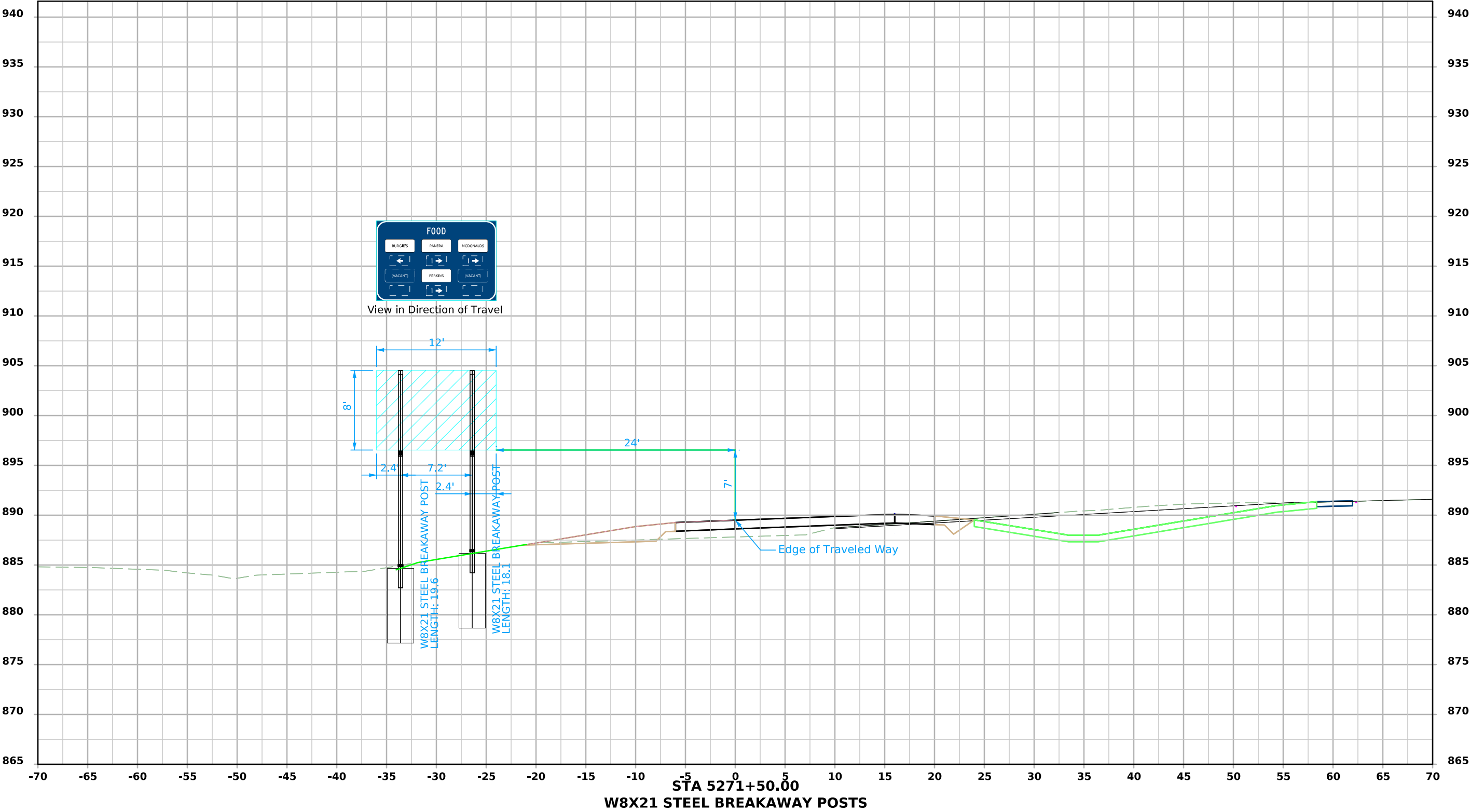






85' Span SOST Steel Overhead Sign Truss





STANDARD SYMBOLS

	Interstate Highway Symbol		Traffic Signal
	U.S. Highway Symbol		Traffic Signal with Luminaire
	Iowa Highway Symbol		Telephone Pedestal
	County Road Highway Symbol		Television Pedestal
			Telephone Pole
			Telephone Pole (Second Company)
			Telephone Pole (Third Company)
			Telephone Pole (Fourth Company)
			Telephone Pole (Fifth Company)
	Evergreen Tree		Power Pole
	Deciduous Tree		Power Pole (Second Company)
	Fruit Tree		Power Pole (Third Company)
	Shrub (Bushes)		Power Pole (Fourth Company)
	Timber		Power Pole (Fifth Company)
	Hedge		Electrical Highline Tower (Metal or Concrete)
	Stump		Power Riser Pole
	Swamp		Telegraph Pole
	Rock Outcrop		Satellite TV Dish
	Broken Concrete		Existing Water Line
	Revetment (Rip Rap)		Existing Water Line (Second Company)
	Cemetery		Existing Sanitary Sewer Line
	Grave		Existing Telephone Line
	Cave		Existing Telephone Line (Second Company)
	Sink Hole		Existing Fiber Optics Telephone Line
	Board Fence		Existing Storm Sewer Line
	Chain Link or Security Fence		
	Wire Fence		
	Terrace		
	Earth Dam or Dike (Existing)		
	Earth Dam or Dike (Proposed)		
	Tile Outlet		
	Edge of Water		
	Existing Drainage		
	Proposed Drainage		
	Right of Way Rail or Lot Corner		
	Concrete Monument		
	Well		
	Windmill		
	Beehive Intake		
	Existing Intake		
	Proposed Intake		
	Existing Utility Access (Manhole)		
	Proposed Utility Access (Manhole)		
	Fire Hydrant		
	Water Hydrant (Rural)		
	Septic Tank		
	Cistern Symbol		
	L.P. Gas Tank (No Footing)		
	Underground Storage Tank		
	Latrine		
	Luminaire		

	Existing Gas Line		Guardrail (Beam or Cable)
	Existing High Pressure Gas Line		Guard Post (one or two)
	Existing Gas Line (Second Company)		Guard Post (over two)
	Existing High Pressure Gas Line (Second Company)		Filler Pipe
	Existing Power Line		Gas Valve
	Existing Power Line (Second Company)		Water Valve
	Cable Television Line		Speed Limit Sign
	Mile Marker Post		Sign
	Water Hook Up		Radio Tower
	Tower Anchor		Traffic Signal Control Box
	Electric Box		Rail Road Signal Control Box
	Telephone Switch Box		

UNIQUE SYMBOLS FOR THIS PROJECT

EXISTING	PROPOSED	DESCRIPTIONS
		Iowa DOT Plowed Conduit
		Iowa DOT Bored Conduit
		Plowed Power Conduit
		Bored Power Conduit
		Existing Fiber
		Iowa DOT Handhole
		Iowa DOT Power Handhole
		Iowa DOT Traffic Camera
		Iowa DOT Traffic Sensor
		Meter Pedestal
		Iowa DOT ITS Device Cabinet, Pole Mount
		Iowa DOT ITS Device Cabinet, Ground Mount
		Iowa DOT Device Pole
		Iowa DOT Roadside DMS
		Iowa DOT Transformer

ABBREVIATIONS

CCTV	Closed-Circuit Television
DMS	Dynamic Message Sign
DOT	Department of Transportation
HH	Handhole
ICN	Iowa Communications Network
ITS	Intelligent Transportation Systems
NEC	National Electrical Code
NTS	Not to Scale
OTDR	Optical Time Domain Relectometer
ROW	Right of Way
TCP	Traffic Control Plan



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of

Signature 08/4/2026
Date
Printed or Typed Name
My license renewal date is December 31, 2026

Pages or sheets covered by this seal: NI.1-NI.8

LEGEND AND SYMBOL INFORMATION SHEET

ESTIMATED PROJECT QUANTITIES						
Line No.	Item No.	Item Code	Item	Unit	Total	As Built Qty.
1.0	1	2518-0000080	ITS HANDHOLE, 30x17x24	EA	2.00	
2.0	2	2518-0000090	ITS HANDHOLE, 36x24x36	EA	1.00	
3.0	3	2518-0000150	ITS GROUND ROD	EA	3.00	
4.0	4	2518-0001200	ITS CONDUIT, HDPE, 2 INCH BORED	LF	632.00	
5.0	5	2518-0002200	ITS CONDUIT, HDPE, 2 INCH PLOWED	LF	798.00	
6.0	6	2518-0004200	ITS CONDUIT, RIGID STEEL, 2 INCH	LF	16.00	
7.0	7	2518-0006004	XHHW COPPER WIRE, NO. 4 AWG	LF	3618.00	
8.0	8	2518-0006006	XHHW COPPER WIRE, NO. 6 AWG	LF	621.00	
9.0	9	2518-0006015	ITS TRACER WIRE	LF	97.00	
10.0	10	2518-0008300	FIBER OPTIC CABLE, INSTALL ONLY	LF	97.00	
11.0	11	2518-0008322	ITS CIRCUIT BREAKER	EA	2.00	
12.0	12	2518-0008325	ITS TRANSFORMER	EA	2.00	
13.0	13	2518-0008400	FIBER OPTIC CABLE ACCEPTANCE TESTING	LS	1.00	
14.0	14	2524-9281090	STEEL BREAKAWAY SIGN POSTS FOR TYPE A OR B SIGNS, W 6 X 9	LF	18.00	
15.0	15	2599-9999005	ITS TRANSFORMER BASE	EA	2.00	

100_01A
3/24/25

ESTIMATE REFERENCE INFORMATION			100_04A 6/2/23
Item No.	Item Code	Description	
1	2518-0000080	ITS HANDHOLE, 30x17x24	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
2	2518-0000090	ITS HANDHOLE, 36x24x36	
		MATERIALS REQUIRED AS PART OF DMS INSTALLATION. REFER TO MODIFIED ITS-304 SHEET ON NI.7.	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
3	2518-0000150	ITS GROUND ROD	
		MATERIALS REQUIRED FOR ITS TRANSFORMER BASE INSTALLATION AND AS PART OF DMS INSTALLATION.	
		REFER TO SHEETS NI.7 - NI.8.	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
4	2518-0001200	ITS CONDUIT, HDPE, 2 INCH BORED	
5	2518-0002200	ITS CONDUIT, HDPE, 2 INCH PLOWED	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
6	2518-0004200	ITS CONDUIT, RIGID STEEL, 2 INCH	
		MATERIALS REQUIRED AS PART OF ITS TRANSFORMER BASE INSTALLATION. REFER TO SHEET NI.8.	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
7	2518-0006004	XHHW COPPER WIRE, NO. 4 AWG	
8	2518-0006006	XHHW COPPER WIRE, NO. 6 AWG	
9	2518-0006015	ITS TRACER WIRE	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
10	2518-0008300	FIBER OPTIC CABLE, INSTALL ONLY	
		EXISTING COILED FIBER WILL BE INSTALLED FROM EXISTING HH 1-2 TO NEW HH 1-3.	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
11	2518-0008322	ITS CIRCUIT BREAKER	
		PROVIDE A 60A CIRCUIT BREAKER AHEAD OF TRANSFORMER 1, A 30A CIRCUIT BREAKER BETWEEN TRANSFORMER 1	
		AND TRANSFORMER 2. SERVICE DISCONNECT TO BE INSTALLED BY OTHERS. VERIFY EQUIPMENT RATINGS PRIOR TO INSTALLATION.	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
12	2518-0008325	ITS TRANSFORMER	
		TRANSFORMER 1 WILL BE A 240/480V STEP UP AND ITS TRANSFORMER 2 WILL BE A 480/240V STEP DOWN. TRANSFORMERS SHALL	
		BE 10 KVA RATED AND HAVE NEMA 3R ENCLOSURE.	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
13	2518-0008400	FIBER OPTIC CABLE ACCEPTANCE TESTING	
		REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS.	
-	-	-	
14	2524-9281090	STEEL BREAKAWAY SIGN POSTS FOR TYPE A OR B SIGNS, W 6 X 9	
		REFER TO THE IOWA DOT STANDARD SPECIFICATIONS WITH GS-23006 REVISIONS.	
-	-	-	
15	2599-9999005	ITS TRANSFORMER BASE	
		CONCRETE FOR THE ITS TRANSFORMER BASE WILL FOLLOW THE CABINET FOUNDATION REQUIREMENTS SHOWN IN THE	
		DEVELOPMENT SPECIFICATIONS FOR INTELLIGENT TRANSPORTATION SYSTEMS. OTHER MOUNTING MATERIALS ARE	
		INCIDENTAL TO BID ITEM.	
		METHOD OF MEASUREMENT: THE ENGINEER SHALL COUNT EACH ITS TRANSFORMER BASE INSTALLED.	
		BASIS OF PAYMENT: THE CONTRACTOR SHALL BE PAID THE CONTRACT UNIT PRICE FOR EACH ITS TRANSFORMER	
		BASE (INCLUDING FOUNDATION AND MOUNTING OF THE TRANSFORMER) FURNISHED AND INSTALLED. THE PAYMENT	
		SHALL BE CONSIDERED FULL COMPENSATION FOR FURNISHING ALL MATERIALS, EQUIPMENT AND LABOR, AND FOR THE	

300_99
Modified

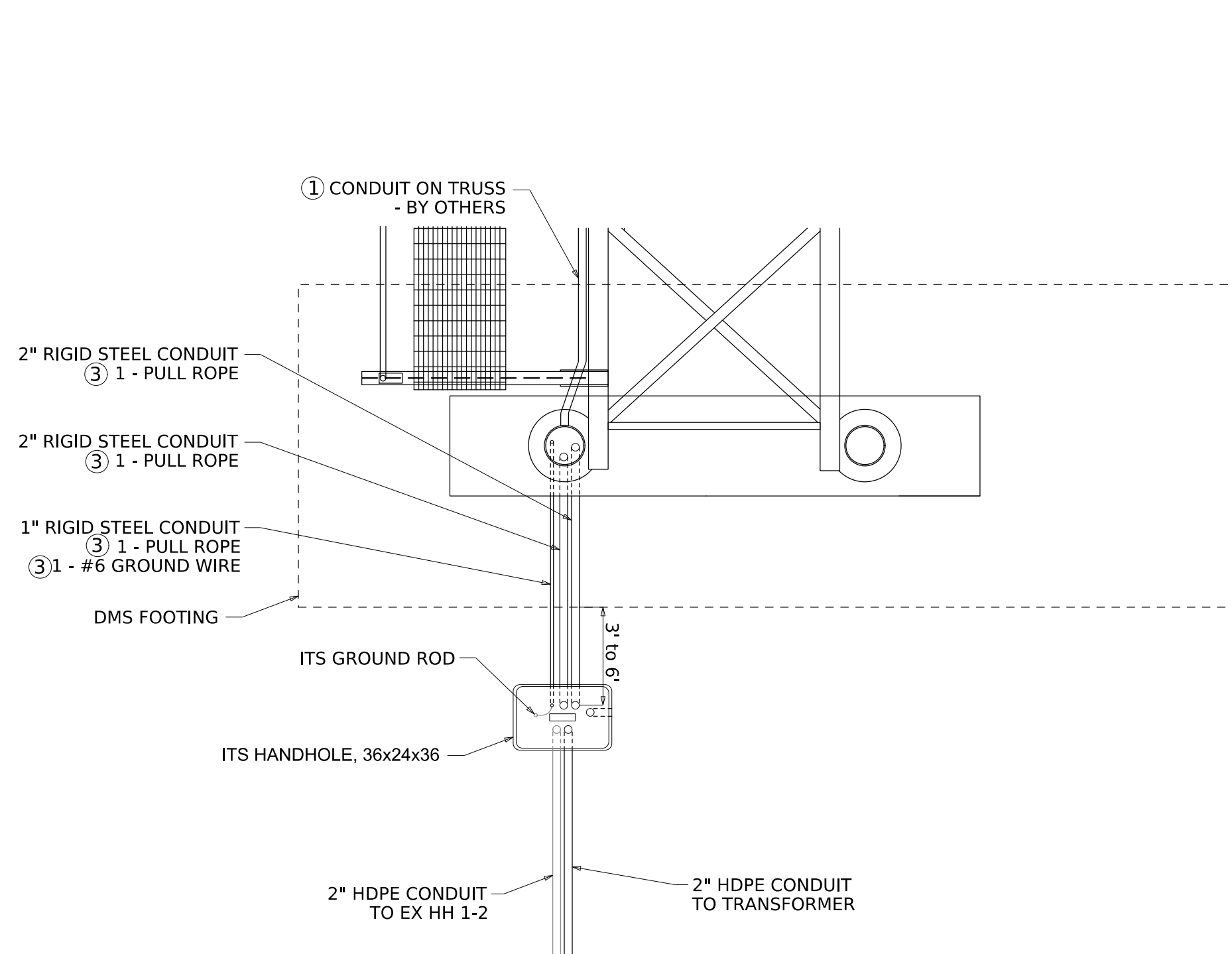
LISTING OF HANDHOLE

Line No.	Handhole Label	Handhole Type	Route	Comment
1	HH P 1-1	30x17x24	US 30	New
2	HH P 1-2	30x17x24	US 30	New
3	HH 1-1	48x30x36	US 30	Existing
4	HH 1-2	36x24x36	US 30	Existing
5	HH 1-3	36x24x36	US 30	New

301.99
Modified

LISTING OF CONDUIT AND CABLE WORK									
Line No.	Conduit Run	From	To	ITS Conduit HDPE - 2 inch Bored (LF)	ITS Conduit HDPE - 2 inch Plowed (LF)	XHHW Copper Wire - No. 6 AWG	XHHW Copper Wire - No. 4 AWG	Fiber Optic Cable - Install Only	Tracer Wire
1	6A	EXIST POWER METER	ITS TRANSFORMER 1		30	90			
2	6B	ITS TRANSFORMER 1	HH P 1-1		370		1110		
3	6C	HH P 1-1	HH P 1-2		398		1194		
4	6D	HH P 1-2	ITS TRANSFORMER 2	438			1314		
5	6E	ITS TRANSFORMER 2	HH 1-3	97		291			
6	6E	HH 1-2	HH 1-3	97				97	97
7	6F	HH 1-3	DMS			240			
Total:				632	798	621	3618	97	97





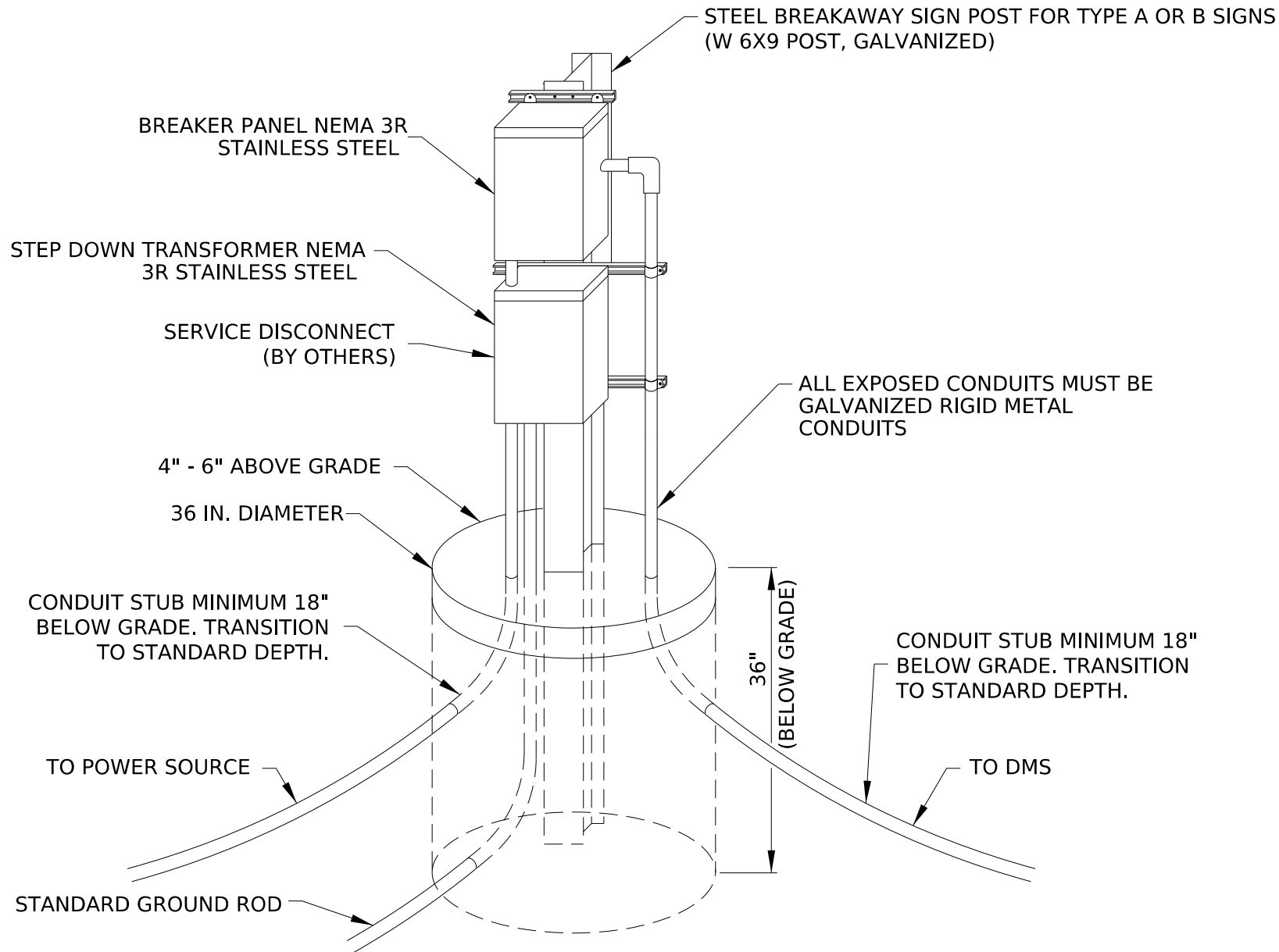
PLAN VIEW

- ① CONDUIT ON TRUSS INSTALLED BY OTHERS. CONTRACTOR SHALL NOTIFY ENGINEER AT LEAST 7 DAYS IN ADVANCE TO HAVE THE ITS MAINTENANCE CONTRACTOR COMPLETE THIS PRIOR TO INSTALLATION OF OVERHEAD DMS AND RELATED POWER CABLES.
- ② WIRING FOR INTERNAL DMS ELECTRICAL CONNECTION BY OTHERS.
- ③ ALL WIRING, INCLUDING PULL ROPE, IS INCIDENTAL TO CONDUIT INSTALLATION

MODIFIED STANDARD ITS PLAN	ITS-304
	SHEET 1 of 1
MODIFICATIONS: Updated ITS-304 in Revision.	
ITS INSTALLATION DETAILS FOR DYNAMIC MESSAGE SIGNS	

GENERAL NOTES:

- 1. MOUNT TRANSFORMER TO SIDE AWAY FROM TRAFFIC. TRANSFORMER SHALL BE LOCATED AT THE BACK OF THE RIGHT-OF-WAY WHERE POSSIBLE AND AT LEAST 5' FROM ANY CABINET.
- 2. INSTALL PERFORATED 1.5 IN X 1.5 IN (MIN) SQUARE TUBING ON BOTH SIDES OF TRANSFORMER. FASTEN EQUIPMENT SUCH THAT ALL LOAD BEARING ELEMENTS ARE TRANSFERRED TO THE TUBING.
- 3. SEAL AND WATERPROOF ALL CONDUIT ENTRANCES WITH 50 YEAR SILICONE CAULK.
- 4. ALL METAL CONDUIT AND EQUIPMENT SHALL BE GALVANIZED OR STAINLESS STEEL.
- 5. SERVICE DISCONNECT INSTALLED BY OTHERS. CONTRACTOR SHALL NOTIFY ENGINEER AT LEAST 7 DAYS IN ADVANCE TO HAVE THE ITS MAINTENANCE CONTRACTOR COMPLETE THIS PRIOR TO INSTALLATION OF OVERHEAD DMS.



PEDESTAL-MOUNT TRANSFORMER CABINET INSTALLATION

NOT TO SCALE

ITS TRANSFORMER
BASE DETAIL