

# 110-140 FT OVERHEAD SIGN SUPPORT TRUSS GENERAL NOTES

**Specifications:**

All references to the standard specifications are to the 2019 Edition of the Kentucky Transportation Cabinet Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals with Interims through 2022.

**Design:**

Designed in accordance with AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals with Interims through 2022 using the following parameters:

- 1700 year MRI, with 120 MPH Design Wind Speed
- Infinite Fatigue Life
- 10 year MRI 76 MPH Service Wind Speed
- Fatigue Design Loads: Natural Wind Gust, Truck-Induced Wind Gust

**Superelevation of Roadway:**

The contractor shall allow for differences in elevations across the full shoulder width as shown in the Roadway Plans in maintaining the required 18 foot minimum vertical clearance to the bottom, of the lowest part of the sign or support. Sign shall be centered over the lane or lanes to which it applies, or as specified in the Signing Plans.

**Material Design Specifications:**

For Class "A" Concrete	f'c = 3,500 psi
For Steel Reinforcement	fy = 60,000 psi
For Structural Steel	fy = 50,000 psi
For Steel Columns and Chords	fy = 42,000 psi
For Steel Diagonals	fy = 35,000 psi

**Material Specifications:**

AASHTO Specifications or ASTM, Current edition, as designated below shall govern the materials furnished:

Steel Shapes galvanized in accordance with ASTM A123:

Structural Steel:	ASTM A992 Grade 50, ASTM A572 Grade 50
Steel Diagonals:	ASTM A53 Grade B, ASTM A500 Grade B or C, ASTM A1085 Grade A
Steel Columns and Chords:	ASTM A500 Grade B or C, ASTM A1085 Grade A

Steel Hardware galvanized in accordance with ASTM A153:

High Strength Bolts	ASTM F3125 Grade A325
U-bolts	ASTM A307 Grade A
Anchor Bolts	ASTM F1554 Grade 55
Heavy Hex Nuts	ASTM A194 2H
Flat Washers	ASTM F436

**Concrete:**

Class "A" Concrete shall be used throughout, and shall be paid for at unit bid price for Class "A" Concrete for Signs.

**Beveled Edges:**

All exposed concrete edges are to be beveled 3/4" unless otherwise shown.

**Reinforcement:**

Dimensions shown from the face of concrete to bars are to center of bar unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 2 inches unless otherwise noted. Reinforcing bars in the plans shall be epoxy coated in accordance with section 811.10 of the Standard Specifications.

Any reinforcing bars designated by the suffix (s) in a Bill of Reinforcement shall be considered a stirrup bar for purposes of bend diameters.

Payment for reinforcement shall be paid for at the unit bid price for Steel Reinforcement for Signs.

**Shop Drawings:**

The contractor shall submit detailed shop drawings to the Division of Construction for review prior to fabrication in accordance with the specifications. The roadway cross section developed by the contractor is to accompany the shop drawings. The shop drawings and roadway cross section will also be forwarded to the engineer to review.

**Bolted Connections:**

All bolted connections shall include lock washers. After bolted connections are complete, threads shall be scored to prevent nut loosening. Care shall be taken not to damage the nut and threads engaged by the nut. Damaged nuts shall be replaced at the contractors expense.

**Fabrication:**

The sign support shall be fabricated in accordance with the AASHTO Specifications. Any damaged galvanization shall be repaired in accordance with ASTM A780. Perform all welding according to requirements specified in ANSI/AASHTO/AWS D1.1 Structural Welding Code Current edition with interims.

**Mill Test Reports:**

Submit Mill Test Reports in accordance with section 607.03.13 of the Standard Specifications

**Vent/Drain Holes for Galvanization**

Vent/drain holes shall be drilled in the column or chord member at each end of all closed diagonal members prior to welding. The holes shall be spaced as equally as possible across the chord/column surface where the diagonal member opening projects. Vent/drain holes shall be shown in the shop drawings for approval. Total area of vent/drain holes at each end shall be equal to or less than the following:

- 30% of the diagonal inside cross sectional opening for members with inside diameters greater than or equal to 3 inches.
- 45% of the diagonal inside cross sectional opening for members with inside diameters less than 3 inches.

**Footings:**

All footings shall be poured against undisturbed earth. The maximum allowable service bearing pressure is 3 kips per square foot.

**Design Limits:**

This standard drawing is applicable to all overhead sign supports that meet the following criteria:

Maximum Total Sign Area:	1200 SF
Minimum Vertical Clearance of Sign Above Roadway:	18 FT
Maximum Height of Sign Above Roadway:	44 FT
Maximum Sign Panel Height:	24 FT
Maximum Exit Panel Height:	4.5 FT
Span Range:	110 FT - 140 FT
Min. Sign Edge Distance to Column CL:	12 FT
Max./Min. Column Height (HL/HR):	27 FT / 18 FT
Max. Pedestal Height (FL/FR):	14 FT
Min. Pedestal Offset behind Guardrail:	6 FT
Min. Pedestal Projection above soil:	2.5 FT
Min. Fill above Base of Footing:	3 FT

Provided that all other design limits are adhered to, this standard may be used for span lengths less than those shown by using 2 or 3 of the truss modules.

**Design Chart:**

A registered professional engineer licensed to practice in the Commonwealth of Kentucky shall fill out the Design Chart based on the design cross section at the location where the truss is to be erected, the actual signs to be used, and the instructions herein. The Engineer's name shall appear in the "Checked By:" Box of the title block of this sheet. The Engineer is responsible for verifying the information based on the contractor's submitted cross sections and reviewing the fabricators shop drawings in detail.

**Roadway Cross Section:**

The contractor shall take field measurements at each sign location and develop a cross section showing the following:

- Pedestal and median heights
- Pedestal offset distance behind guardrail
- Column Heights
- Minimum Vertical Clearance to each sign

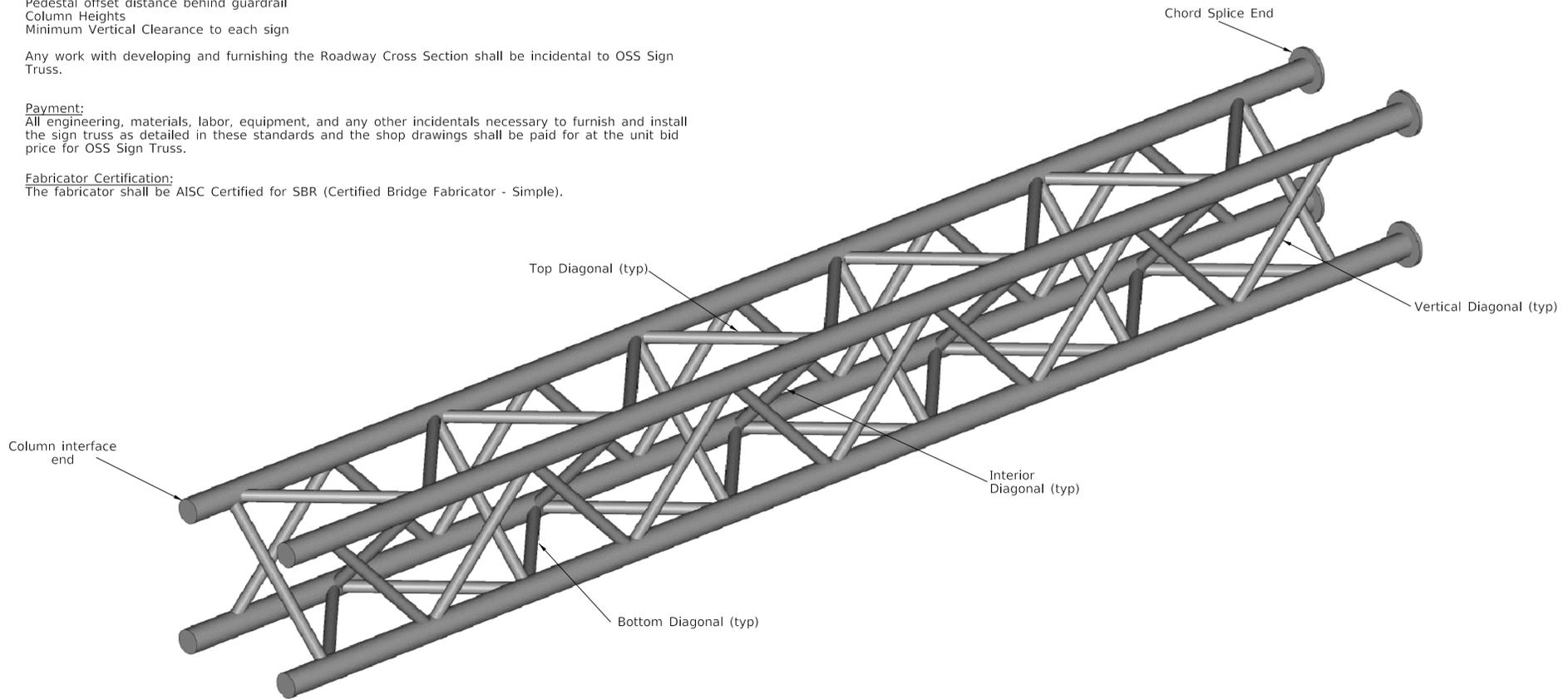
Any work with developing and furnishing the Roadway Cross Section shall be incidental to OSS Sign Truss.

**Payment:**

All engineering, materials, labor, equipment, and any other incidentals necessary to furnish and install the sign truss as detailed in these standards and the shop drawings shall be paid for at the unit bid price for OSS Sign Truss.

**Fabricator Certification:**

The fabricator shall be AISC Certified for SBR (Certified Bridge Fabricator - Simple).



**ISOMETRIC VIEW OF TYPICAL TRUSS MODULE**  
(FOR INFORMATION ONLY)



COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS



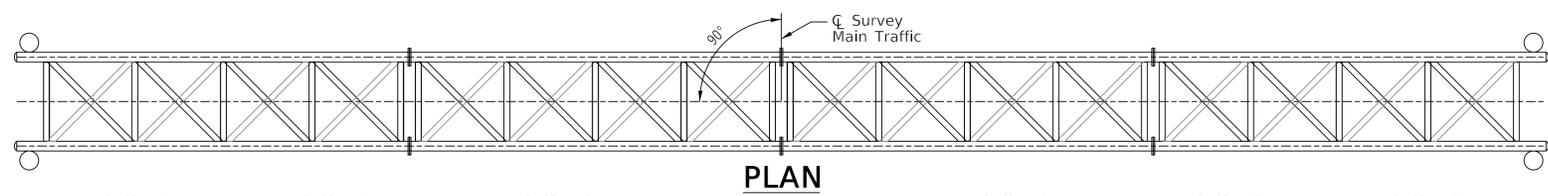
REVISION	DATE

PREPARED BY	DATE:	CHECKED BY
	DESIGNED BY:	
	DETAILED BY:	

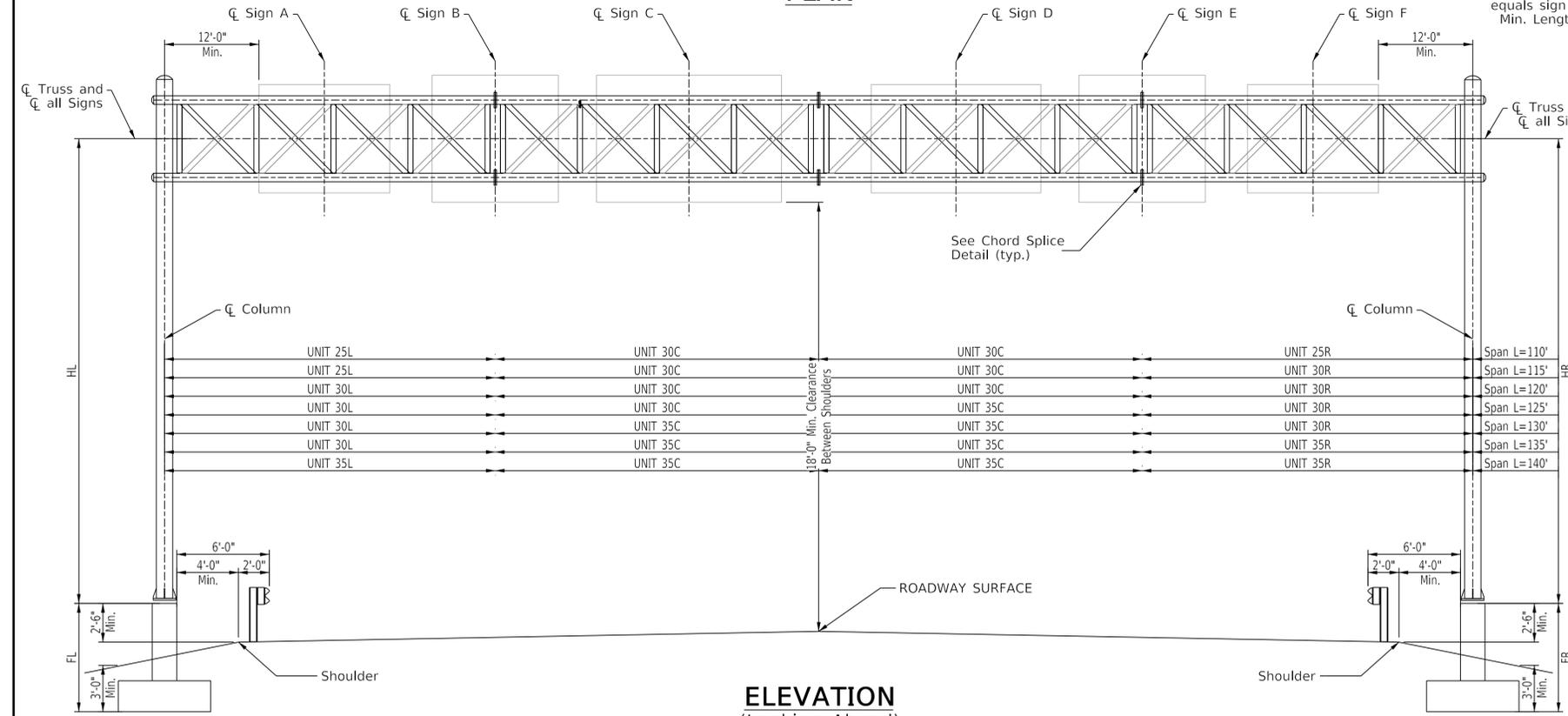

<i>GENERAL NOTES</i>
CROSSING

ROUTE	ITEM NO.	COUNTY OF
	SHEET NO.	

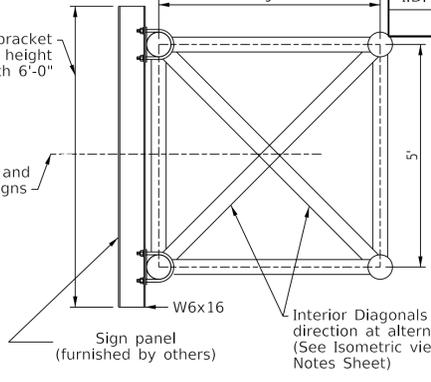
Support No.	STATION	SPAN		SUPPORT HEIGHT		FOOTING HEIGHT						
		L		HL	HR	FL	FR					
Total Area**	SIGN A				SIGN B				SIGN C			
	I.D.	Horiz.	Vert.	Area*	I.D.	Horiz.	Vert.	Area*	I.D.	Horiz.	Vert.	Area*
	SIGN D				SIGN E				SIGN F			
	I.D.	Horiz.	Vert.	Area*	I.D.	Horiz.	Vert.	Area*	I.D.	Horiz.	Vert.	Area*



**PLAN**



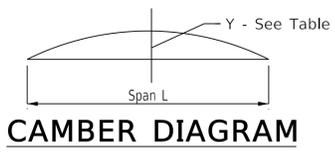
**ELEVATION**  
(Looking Ahead)



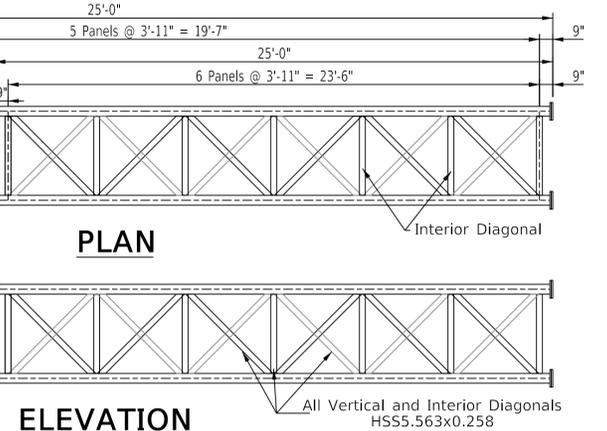
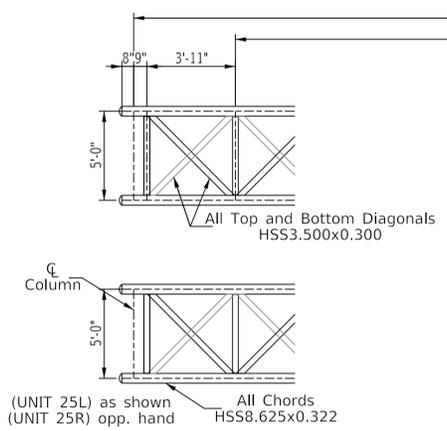
Sign panel (furnished by others)

\* Area includes Exit Number Signs that are not shown.  
 \*\* Total Area includes the sum of all of the signs on the structure and shall not exceed 1200 square feet.  
 ① Maximum space between sign brackets = 4'-0"  
 Maximum sign overhang past chord at sign brackets = 2'-0"

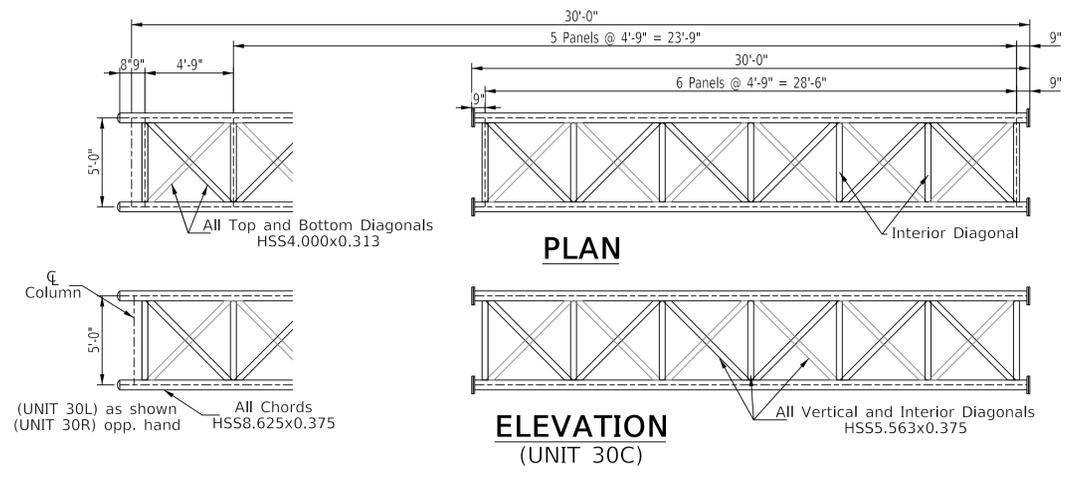
L	Y
110	1 1/16"
115	1 3/16"
120	2 1/4"
125	2 7/16"
130	2 5/8"
135	2 15/16"
140	3 3/8"



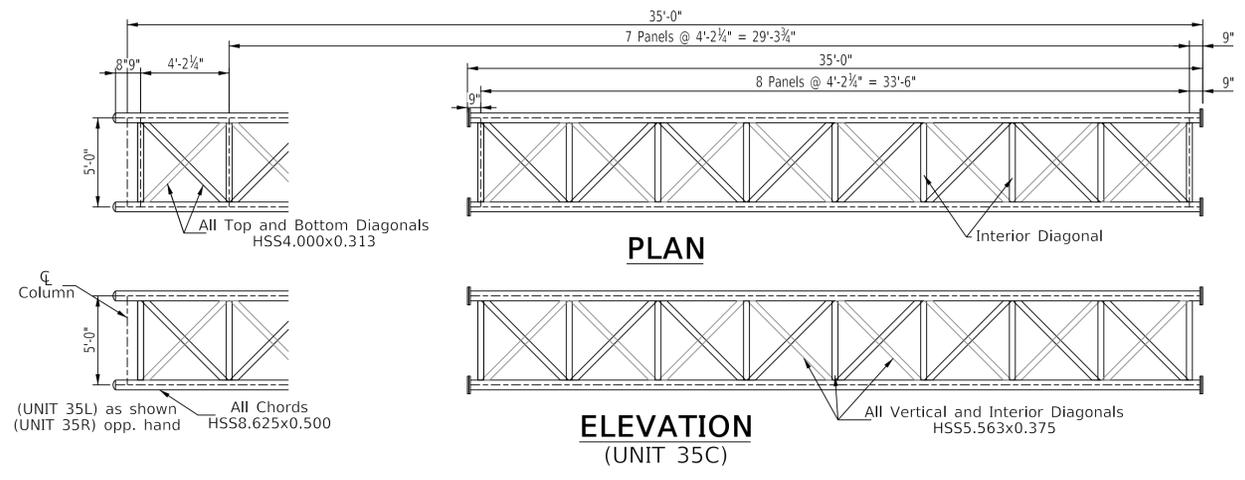
**CAMBER DIAGRAM**



**ELEVATION**  
(UNIT 25C)

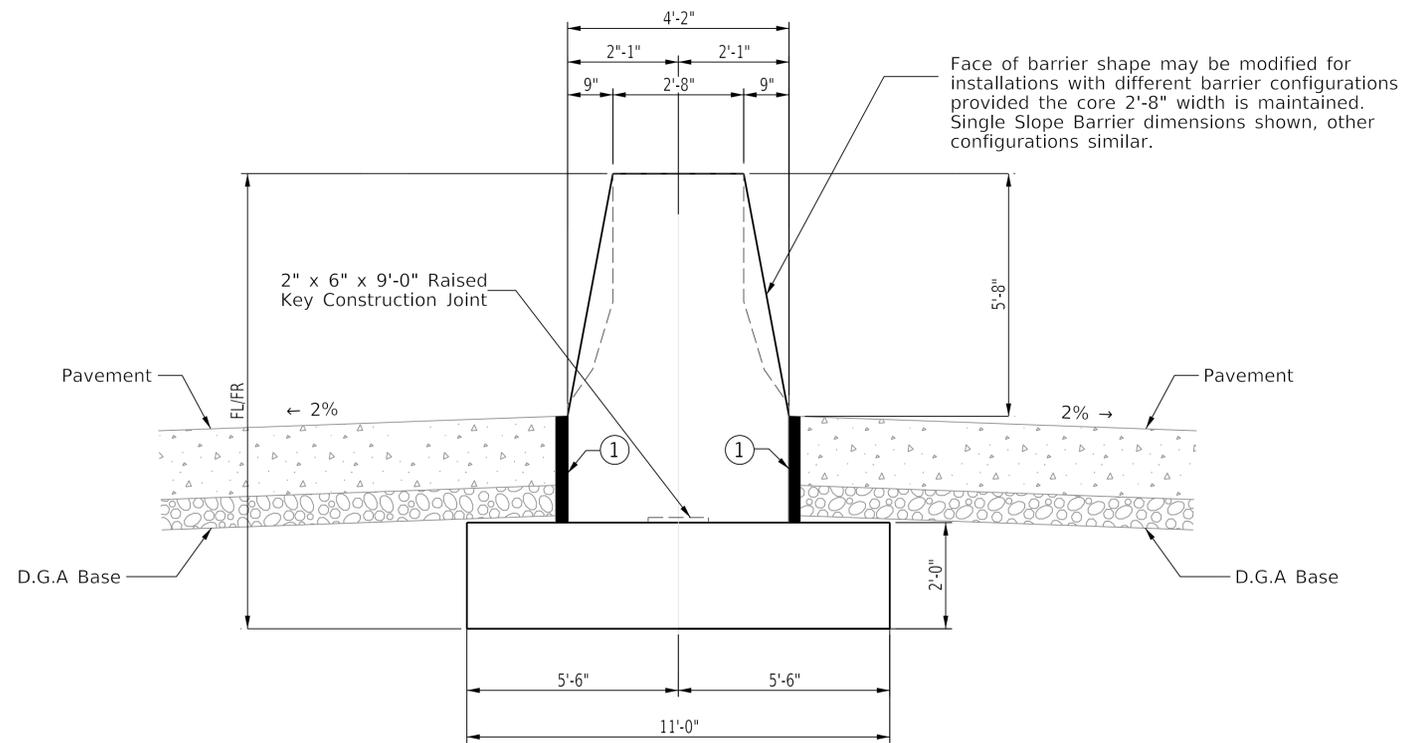


**ELEVATION**  
(UNIT 30C)



**ELEVATION**  
(UNIT 35C)

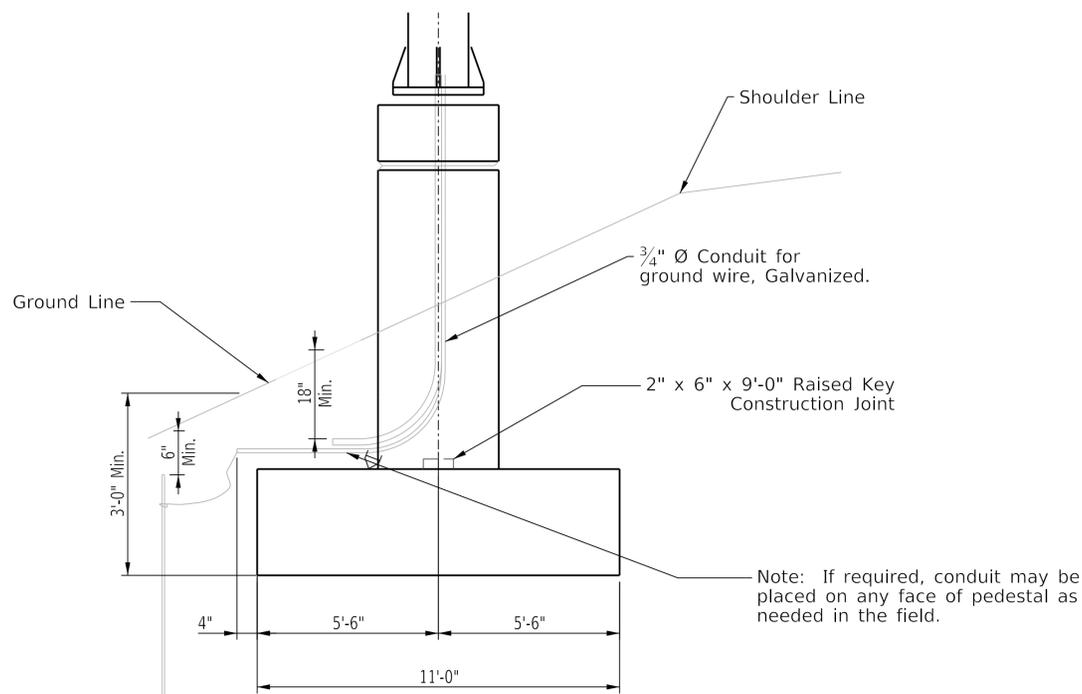




**END VIEW MEDIAN**  
(At Sign Truss)

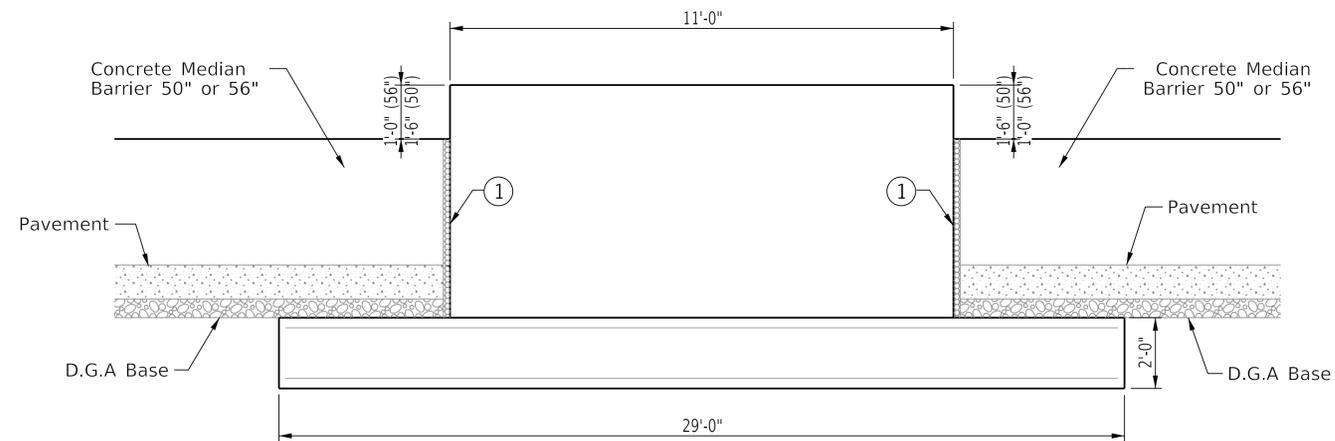
Note:  
① 1/2" PRE-MOLDED EXPANSION MATERIAL

NOTE:  
FOR DETAILS SEE TRUSS LAYOUT  
AND TRUSS DETAILS SHEET

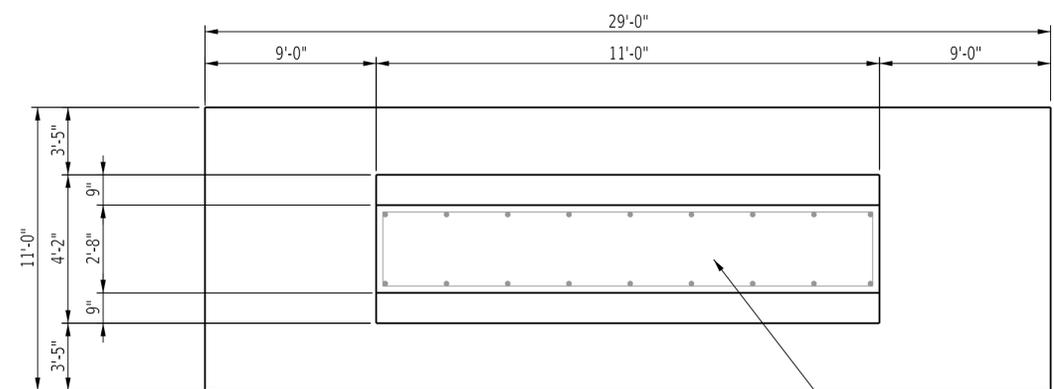


**END VIEW PEDESTAL**

See Truss Details Sheet for Plan View

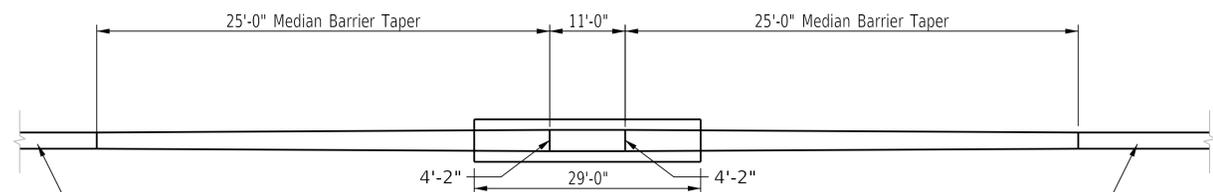


**SIDE ELEVATION MEDIAN**



**PLAN VIEW MEDIAN**

SEE TRUSS DETAILS SHEET  
FOR REINFORCEMENT



**PLAN VIEW MEDIAN BARRIER TAPER**

\* Approx. estimate is for  
information only. Tabulated  
FL/FR shall be verified by the  
Engineer in the field.

* ESTIMATE OF QUANTITIES FOR MEDIAN FOOTING		
	Conc. Class "A"	Steel Reinforcement
FL/FR=8'-0"	31.8 cu.yds.	3552 lbs
1' of additional Pedestal height	1.7 cu.yds.	154 lbs



COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS



REVISION	DATE

PREPARED BY

DATE:

DESIGNED BY:

DETAILED BY:

CHECKED BY

**FOUNDATION LAYOUT**

CROSSING

ROUTE

ITEM NO.

COUNTY OF

SHEET NO.