

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

Various Routes  
D1 OVD SIN STR REP & REPL09-22  
Various Counties  
Sheet 1 of 33  
Contract Number 46033

# PLANS FOR PROPOSED FEDERAL AID HIGHWAY

VARIOUS ROUTES  
D1 OVD SIN STR REP & REPL09-22  
VARIOUS COUNTIES  
C-60-032-09

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## STANDARDS

701400-03  
701401-05  
701411-05  
701426-03  
701901-01

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED  
PASSED

February 24, 2009

Aaron Weatherholt  
ENGINEER OF OPERATIONS

March 27, 2009

Charles J. Ingersoll  
ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED

March 27, 2009

Christine M. Reed  
DIRECTOR DIVISION OF HIGHWAYS

CONTRACT NO. 46033

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

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Summary of Quantities

Various Routes  
D1 OVD SIN STR REP & REPL09-22  
Various Counties  
Sheet 2 of 33  
Contract Number 46033

| CODE NUMBER | PAY ITEM   | UNIT  | Y002 - 1C<br>100% STATE<br>TOTAL<br>QUANTITY | URBAN  | RURAL |
|-------------|--|-------|--|--------|-------|
| T9990710    | REMOVE <sup>AND</sup> REINSTALL WALKWAY                                | FOOT  | 115.67                                       | 115.67 |       |
| 73305000    | OVERHEAD SIGN STRUCTURE WALKWAY  | FOOT  | 330.00                                       | 330.00 |       |
| T9992530    | REPLACE <sup>AND</sup> TIGHTEN <sup>SIGN MOUNTING</sup> CLIPS PER SIGN | EACH  | 3.00   | 3.00   |       |
| T9992700    | REMOVE <sup>AND</sup> REINSTALL SIGN PANEL                             | SQ FT | 546.00                                       | 546.00 |       |
| T9995210    | TIGHTEN U-BOLT   | EACH  | 2.00   | 2.00   |       |
| T9995400    | FURNISH <sup>AND</sup> INSTALL SADDLE SHIM BLOCK                       | EACH  | 16.00  | 16.00  |       |
| T9996200    | REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE                 | EACH  | 7.00   | 7.00   |       |
| T9996300    | OVERHEAD SIGN SUPPORT GROUT REPAIR                                     | EACH  | 10.00  | 10.00  |       |
| T9997250    | FURNISH <sup>AND</sup> INSTALL INTERNAL <sup>MEMBER</sup> TRUSS CLAMP  | EACH  | 1.00   | 1.00   |       |
| T9997255    | FURNISH <sup>AND</sup> INSTALL INTERNAL TRUSS DAMPER                   | EACH  | 4.00   | 4.00   |       |
| T9997700    | FURNISH <sup>AND</sup> INSTALL SAFETY CHAIN                            | EACH  | 6.00   | 6.00   |       |
| T9998815    | REPAIR HANDRAIL LOCKING PIN CONNECTION                                 | EACH  | 10.00  | 10.00  |       |
| T9998897    | REPLACE HANDRAIL SUPPORT   | EACH  | 1.00   | 1.00   |       |
| 67100100    | MOBILIZATION   | L SUM | 1.00   | 1.00   |       |
| 70101700    | TRAFFIC CONTROL AND PROTECTION   | L SUM | 1.00   | 1.00   |       |
| 72000300    | SIGN PANEL - TYPE 3  | SQ FT | 582.50                                       | 582.50 |       |
| 72400330    | REMOVE SIGN PANEL - TYPE 3   | SQ FT | 564.00                                       | 564.00 |       |
| 73300100    | OVERHEAD SIGN STRUCTURE - SPAN, TYPE I-A (4' - 0" x 4' - 6")           | FOOT  | 64.00  | 64.00  |       |
| 73300300    | OVERHEAD SIGN STRUCTURE - SPAN, TYPE III-A (5' - 0" X 7' - 0")         | FOOT  | 95.00  | 95.00  |       |



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
D1 OVD SIN STR REP & REPL09-22  
Various Counties  
Sheet 4 of 33  
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District 1  
Schedule of Overhead Sign Structure Repair & Replacement

|  |       |                 |                               |       |    |            |    |
|--|-------|-----------------|-------------------------------|-------|----|------------|----|
| Location No.:  | 1-01  | State I.D. No.: | 1S016I094L033.0-000 (RS-9) N1 |       |    |            |    |
| County:  | Cook  | Route:          | I - 94                        | M.P.: | 33 | Direction: | NB |
| Description of Work  | Unit  | Quantity        |                               |       |    |            |    |
| REMOVE OVERHEAD SIGN STRUCTURE-SPAN  | EACH  | 1.00            |                               |       |    |            |    |
| OVERHEAD SIGN STRUCTURE-SPAN TYPE III-A  | FOOT  | 95.00           |                               |       |    |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE   | EACH  | 2.00            |                               |       |    |            |    |
| REMOVE & REINSTALL SIGN PANEL  | SQ FT | 546.00          |                               |       |    |            |    |
| REMOVE & REINSTALL WALKWAY   | FOOT  | 77.67           |                               |       |    |            |    |
| REPLACE / TIGHTEN CLIP PER SIGN  | EACH  | 3.00            |                               |       |    |            |    |
| REPAIR HANDRAIL LOCKING PIN CONNECTION   | EACH  | 4.00            |                               |       |    |            |    |
| This structure is being downsized from a Type IV to a Type III.  |       |                 |                               |       |    |            |    |
| End Support will be nonstandard designs to match existing anchor bolt patterns of existing concrete foundations. |       |                 |                               |       |    |            |    |
| Field measurements are required before ordering materials.   |       |                 |                               |       |    |            |    |
| This work shall be completed during District 1 night-time hours.   |       |                 |                               |       |    |            |    |

|  |       |                 |                                |       |      |            |    |
|--|-------|-----------------|--------------------------------|-------|------|------------|----|
| Location No.:  | 1-02  | State I.D. No.: | 1S016I094L030.8-000 (RS-10) P1 |       |      |            |    |
| County:  | Cook  | Route:          | I - 94                         | M.P.: | 30.8 | Direction: | NB |
| Description of Work  | Unit  | Quantity        |                                |       |      |            |    |
| REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE - SPAN   | EACH  | 1.00            |                                |       |      |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE   | EACH  | 2.00            |                                |       |      |            |    |
| FURNISH & INSTALL SADDLE SHIM BLOCK  | EACH  | 4.00            |                                |       |      |            |    |
| FURNISH & INSTALL INTERNAL TRUSS DAMPER  | EACH  | 1.00            |                                |       |      |            |    |
| OVERHEAD SIGN STRUCTURE WALKWAY  | FOOT  | 77.00           |                                |       |      |            |    |
| REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE   | EACH  | 1.00            |                                |       |      |            |    |
| REMOVE SIGN PANEL - TYPE 3   | SQ FT | 301.00          |                                |       |      |            |    |
| SIGN PANEL - TYPE 3  | SQ FT | 385.00          |                                |       |      |            |    |
| REPLACE HANDRAIL SUPPORT   | EACH  | 1.00            |                                |       |      |            |    |
| End Support will be nonstandard designs to match existing anchor bolt patterns of existing concrete foundations. |       |                 |                                |       |      |            |    |
| Field measurements are required before ordering materials.   |       |                 |                                |       |      |            |    |
| This work shall be completed during District 1 night-time hours.   |       |                 |                                |       |      |            |    |

|  |      |                 |                               |       |    |            |    |
|--|------|-----------------|-------------------------------|-------|----|------------|----|
| Location No.:  | 1-03 | State I.D. No.: | 1S016I094L036.0-000 (RS-7) J1 |       |    |            |    |
| County:  | Cook | Route:          | I - 94                        | M.P.: | 36 | Direction: | NB |
| Description of Work  | Unit | Quantity        |                               |       |    |            |    |
| REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN   | EACH | 1.00            |                               |       |    |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE   | EACH | 2.00            |                               |       |    |            |    |
| FURNISH & INSTALL SADDLE SHIM BLOCK  | EACH | 4.00            |                               |       |    |            |    |
| FURNISH & INSTALL INTERNAL TRUSS DAMPER  | EACH | 1.00            |                               |       |    |            |    |
| OVERHEAD SIGN STRUCTURE WALKWAY  | FOOT | 82.00           |                               |       |    |            |    |
| REPAIR HANDRAIL LOCKING PIN CONNECTION   | EACH | 4.00            |                               |       |    |            |    |
| TIGHTEN U-BOLT   | EACH | 2.00            |                               |       |    |            |    |
| FURNISH & INSTALL INTERNAL TRUSS CLAMP   | EACH | 1.00            |                               |       |    |            |    |
| End Support will be nonstandard designs to match existing anchor bolt patterns of existing concrete foundations. |      |                 |                               |       |    |            |    |
| Field measurements are required before ordering materials.   |      |                 |                               |       |    |            |    |
| This work shall be completed during District 1 night-time hours.   |      |                 |                               |       |    |            |    |

|  |        |                 |                            |       |     |            |    |
|--|--------|-----------------|----------------------------|-------|-----|------------|----|
| Location No.:  | 1-04   | State I.D. No.: | 1S022I290L006.8 (ST-48) G2 |       |     |            |    |
| County:  | DuPage | Route:          | I - 290                    | M.P.: | 6.8 | Direction: | WB |
| Description of Work  | Unit   | Quantity        |                            |       |     |            |    |
| REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN                   | EACH   | 1.00            |                            |       |     |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE                 | EACH   | 1.00            |                            |       |     |            |    |
| FURNISH & INSTALL SAFETY CHAIN                                   | EACH   | 2.00            |                            |       |     |            |    |
| REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE           | EACH   | 1.00            |                            |       |     |            |    |
| OVERHEAD SIGN SUPPORT GROUT REPAIR                               | EACH   | 2.00            |                            |       |     |            |    |
| REPLACE SPLICE FLANGE BOLT                                       | EACH   | 40.00           |                            |       |     |            |    |
| This work shall be completed during District 1 night-time hours. |        |                 |                            |       |     |            |    |

|  |        |                 |                                |       |   |            |    |
|--|--------|-----------------|--------------------------------|-------|---|------------|----|
| Location No.:  | 1-05   | State I.D. No.: | 1S022S083R000.0-002 (BTN-3) D7 |       |   |            |    |
| County:  | DuPage | Route:          | IL 83                          | M.P.: | 0 | Direction: | NB |
| Description of Work  | Unit   | Quantity        |                                |       |   |            |    |
| REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN                   | EACH   | 1.00            |                                |       |   |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE                 | EACH   | 2.00            |                                |       |   |            |    |
| FURNISH & INSTALL SADDLE SHIM BLOCK                              | EACH   | 4.00            |                                |       |   |            |    |
| FURNISH & INSTALL INTERNAL TRUSS DAMPER                          | EACH   | 1.00            |                                |       |   |            |    |
| FURNISH & INSTALL SAFETY CHAIN                                   | EACH   | 2.00            |                                |       |   |            |    |
| OVERHEAD SIGN STRUCTURE WALKWAY                                  | FOOT   | 87.00           |                                |       |   |            |    |
| REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE           | EACH   | 2.00            |                                |       |   |            |    |
| OVERHEAD SIGN SUPPORT GROUT REPAIR                               | EACH   | 4.00            |                                |       |   |            |    |
| This work shall be completed during District 1 night-time hours. |        |                 |                                |       |   |            |    |

|  |        |                 |                                |       |   |            |    |
|--|--------|-----------------|--------------------------------|-------|---|------------|----|
| Location No.:  | 1-06   | State I.D. No.: | 1S022S083R000.0-001 (BTN-2) D5 |       |   |            |    |
| County:  | DuPage | Route:          | IL 83                          | M.P.: | 0 | Direction: | NB |
| Description of Work  | Unit   | Quantity        |                                |       |   |            |    |
| REMOVE & RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN                   | EACH   | 1.00            |                                |       |   |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE                 | EACH   | 2.00            |                                |       |   |            |    |
| FURNISH & INSTALL SADDLE SHIM BLOCK                              | EACH   | 4.00            |                                |       |   |            |    |
| FURNISH & INSTALL INTERNAL TRUSS DAMPER                          | EACH   | 1.00            |                                |       |   |            |    |
| FURNISH & INSTALL SAFETY CHAIN                                   | EACH   | 2.00            |                                |       |   |            |    |
| OVERHEAD SIGN STRUCTURE WALKWAY                                  | FOOT   | 84.00           |                                |       |   |            |    |
| REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE           | EACH   | 2.00            |                                |       |   |            |    |
| OVERHEAD SIGN SUPPORT GROUT REPAIR                               | EACH   | 4.00            |                                |       |   |            |    |
| This work shall be completed during District 1 night-time hours. |        |                 |                                |       |   |            |    |

|  |      |                 |                            |       |      |            |    |
|--|------|-----------------|----------------------------|-------|------|------------|----|
| Location No.:  | 1-07 | State I.D. No.: | 1C016I290L019.8 (CLW-4) O1 |       |      |            |    |
| County:  | Cook | Route:          | I - 290                    | M.P.: | 19.8 | Direction: | WB |
| Description of Work                                    | Unit | Quantity        |                            |       |      |            |    |
| REPAIR CONCRETE FOUNDATION FOR OVERHEAD SIGN STRUCTURE | EACH | 1.00            |                            |       |      |            |    |

|  |       |                 |                 |       |   |            |    |
|--|-------|-----------------|-----------------|-------|---|------------|----|
| Location No.:                                    | 1-08  | State I.D. No.: | 1S049U041R000.0 |       |   |            |    |
| County:  | LAKE  | Route:          | US 41           | M.P.: | 0 | Direction: | NB |
| Description of Work                              | Unit  | Quantity        |                 |       |   |            |    |
| REMOVE OVERHEAD SIGN STRUCTURE-SPAN              | EACH  | 1.00            |                 |       |   |            |    |
| OVERHEAD SIGN STRUCTURE-SPAN TYPE I-A            | FOOT  | 64.00           |                 |       |   |            |    |
| STRUCTURAL STEEL SUPPORT OVERHEAD SIGN STRUCTURE | EACH  | 2.00            |                 |       |   |            |    |
| REMOVE & REINSTALL WALKWAY                       | FOOT  | 38.00           |                 |       |   |            |    |
| REMOVE SIGN PANEL - TYPE 3                       | SQ FT | 263.00          |                 |       |   |            |    |
| SIGN PANEL - TYPE 3                              | SQ FT | 197.50          |                 |       |   |            |    |
| REPAIR HANDRAIL LOCKING PIN CONNECTION           | EACH  | 6.00            |                 |       |   |            |    |

GENERAL NOTES

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

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WIND LOADING: 30 p.s.f. normal to Sign Panel Area and truss elements not behind sign Loading Diagram.

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

DESIGN STRESSES:

Field Units  
F<sub>c</sub> = 3,500 p.s.i.  
F<sub>y</sub> = 60,000 p.s.i. (reinforcement)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 and D1.2 Structural Welding Codes (Steel and Aluminum) and the Standard Specifications.

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53.

All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W\*. Stainless steel for shims, sleeves and handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer. The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

FASTENERS FOR ALUMINUM TRUSSES: All bolts noted as "high strength" must satisfy the requirements of AASHTO M164 (ASTM A325), or approved alternate, and must have matching lock nuts. Threaded studs for splices (if Members interfere) must satisfy the requirements of ASTM A449, ASTM A193, Grade B7, or approved alternate, and must have matching lock nuts. Bolts and lock nuts not required to be high strength must satisfy the requirements of ASTM A307. All bolts and lock nuts must be hot dip galvanized per AASHTO M232. The lock nuts must have nylon or steel inserts. A stainless steel flat washer conforming to ASTM A240 Type 302 or 304, is required under both head and nut or under both nuts where threaded studs are used. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the IDOT Standard Specifications for Road and Bridge Construction. Rotational capacity ("ROCAP") testing of bolts will not be required.

U-BOLTS AND EYEBOLTS: U-Bolts and Eyebolts must be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finished stainless steel, or an equivalent material acceptable to the Engineer. All nuts for U-Bolts and Eyebolts must be lock nuts equivalent to ASTM A307 with nylon or steel inserts and hot dip galvanized per AASHTO M232. A stainless steel flat washer conforming to ASTM A240, Type 302 or 304, is required under each U-Bolt and Eyebolt lock nut.

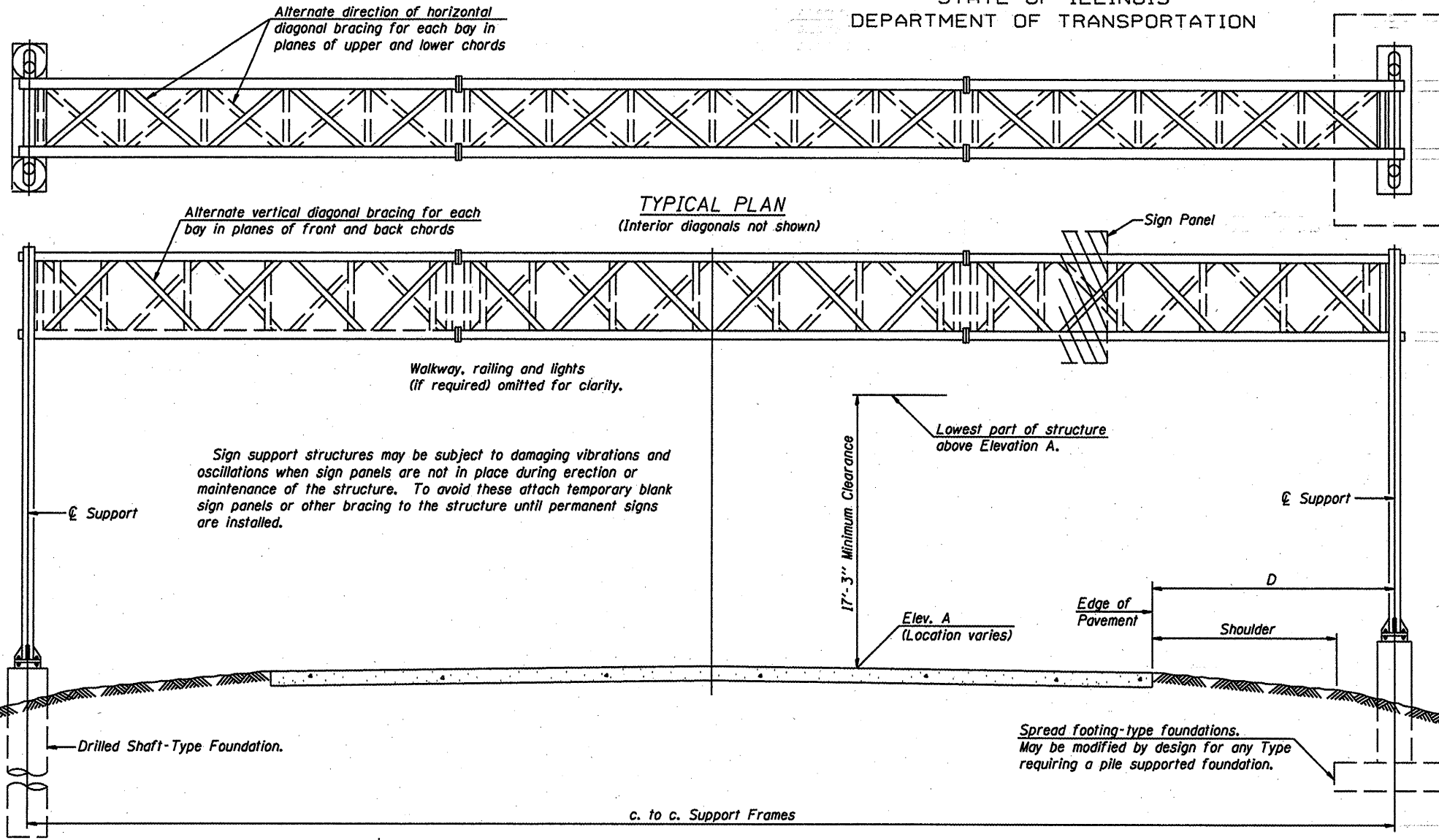
GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: Shall conform to AASHTO M314 Gr. 36 or 55 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F.

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

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

\* If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding.

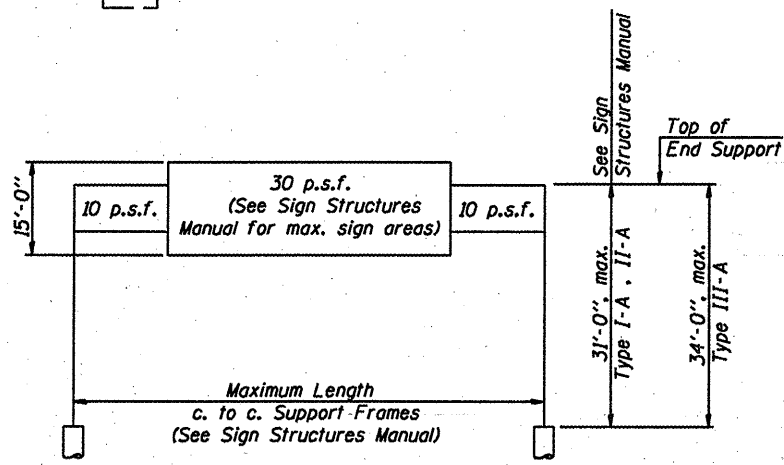


TYPICAL ELEVATION  
(Looking at Face of Signs)\*\*

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

| Structure Number | Station   | Design Truss Type | c. to c. Supports | Elev. A | Dim. D | Height of Tallest Sign | Total Sign Area |
|------------------|-----------|-------------------|-------------------|---------|--------|------------------------|-----------------|
| ISO161094L033.0  | 439 + 49  | III-A             | 95'-0"            | 623.90  | 20'-9" | 12'-0"                 | 546.00          |
| ISO49U041R000.0  | 1123 + 50 | I-A               | 64'-0"            | 110.26  | 15'-0" | 7'-6"                  | 197.50          |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |
|                  |           |                   |                   |         |        |                        |                 |

\*\*Looking upstation for structures with signs both sides.



DESIGN WIND LOADING DIAGRAM

Parameters shown are basis for I.D.O.T. Standards and Sign Manual Tables. Installations not within dimensional limits shown require special analysis for all components.

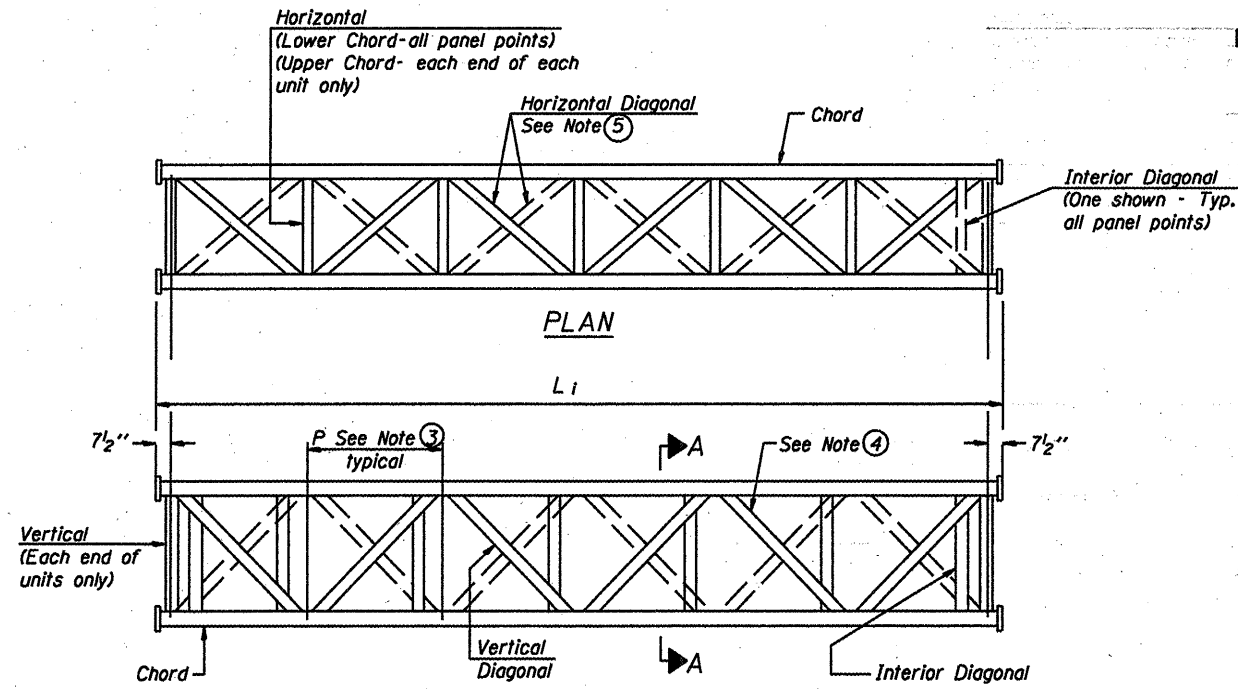
|            |                                    |
|------------|------------------------------------|
| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGES AND STRUCTURES |

TOTAL BILL OF MATERIAL

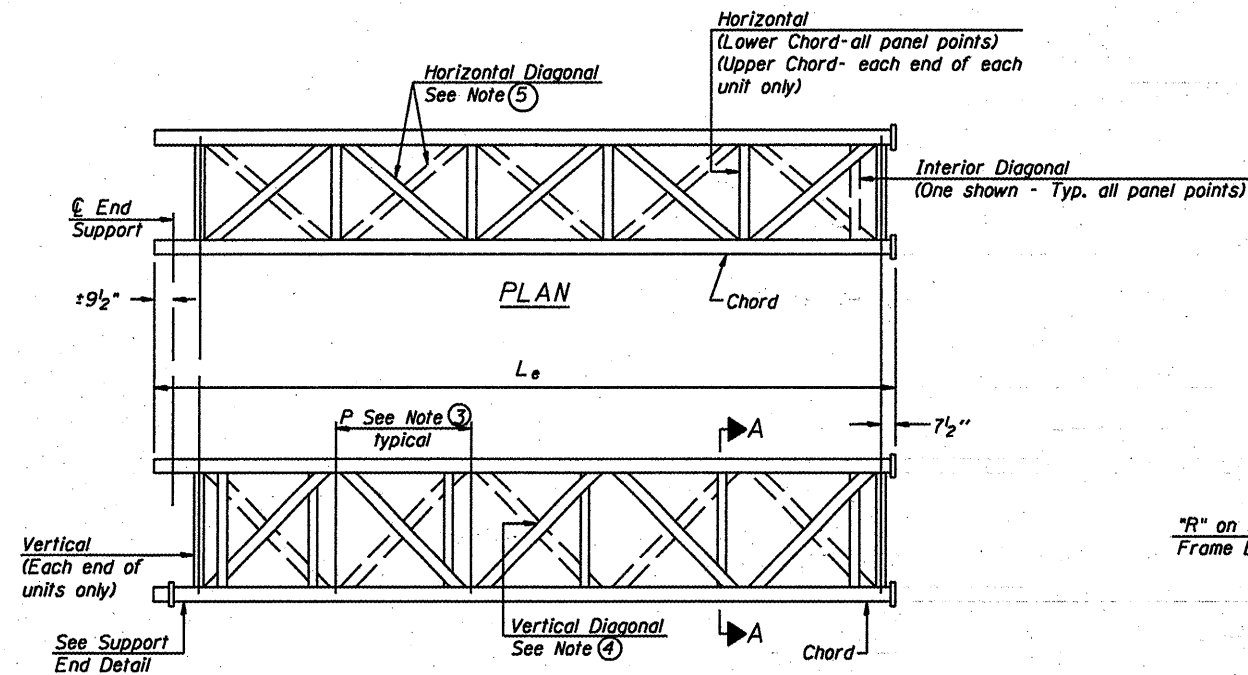
| ITEM                                    | UNIT     | TOTAL |
|---|----------|-------|
| OVERHEAD SIGN STRUCTURE SPAN TYPE I-A   | Foot     |       |
| OVERHEAD SIGN STRUCTURE SPAN TYPE II-A  | Foot     |       |
| OVERHEAD SIGN STRUCTURE SPAN TYPE III-A | Foot     |       |
| OVERHEAD SIGN STRUCTURE WALKWAY TYPE A  | Foot     |       |
| CONCRETE FOUNDATIONS                    | Cu. Yds. |       |
| DRILLED SHAFT CONCRETE FOUNDATIONS      | Cu. Yds. |       |

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

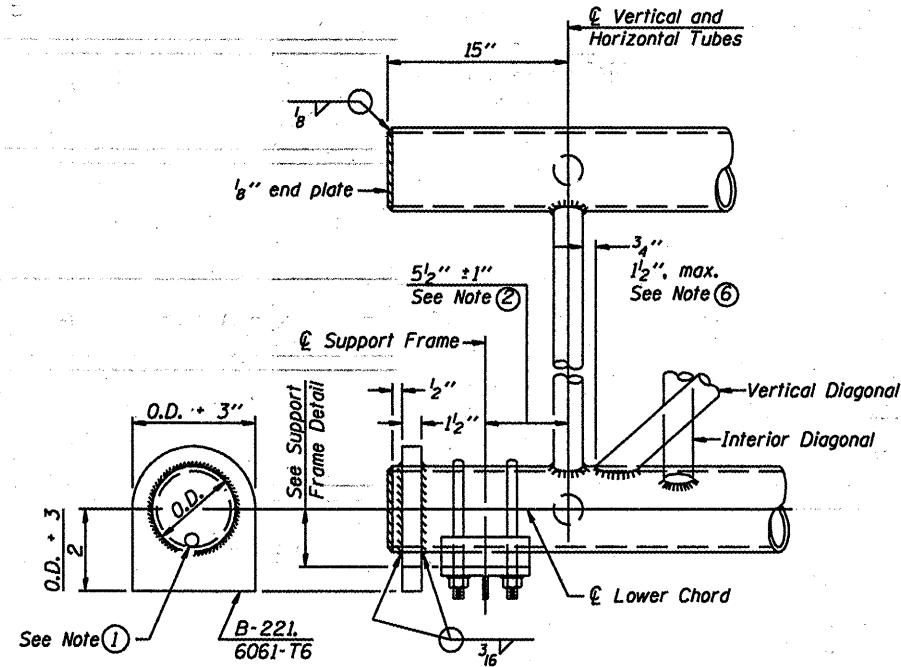
District 1  
Overhead Sign Structure  
Repair & Replacement



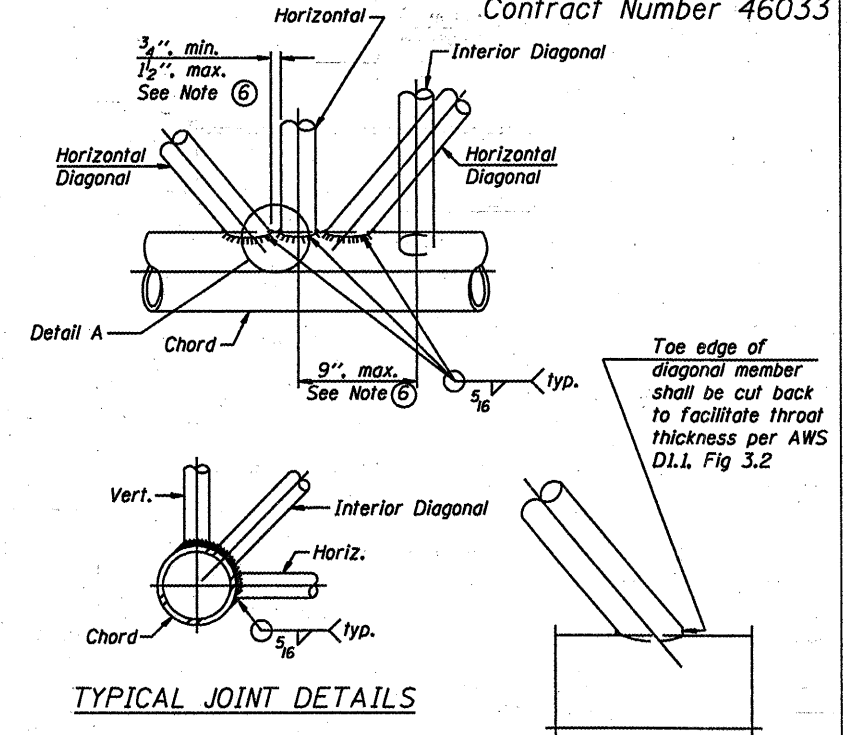
**ELEVATION  
TYPICAL INTERIOR UNIT**  
Even number of panels/interior unit required.



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



**SUPPORT END DETAIL FOR EXTERIOR UNIT**

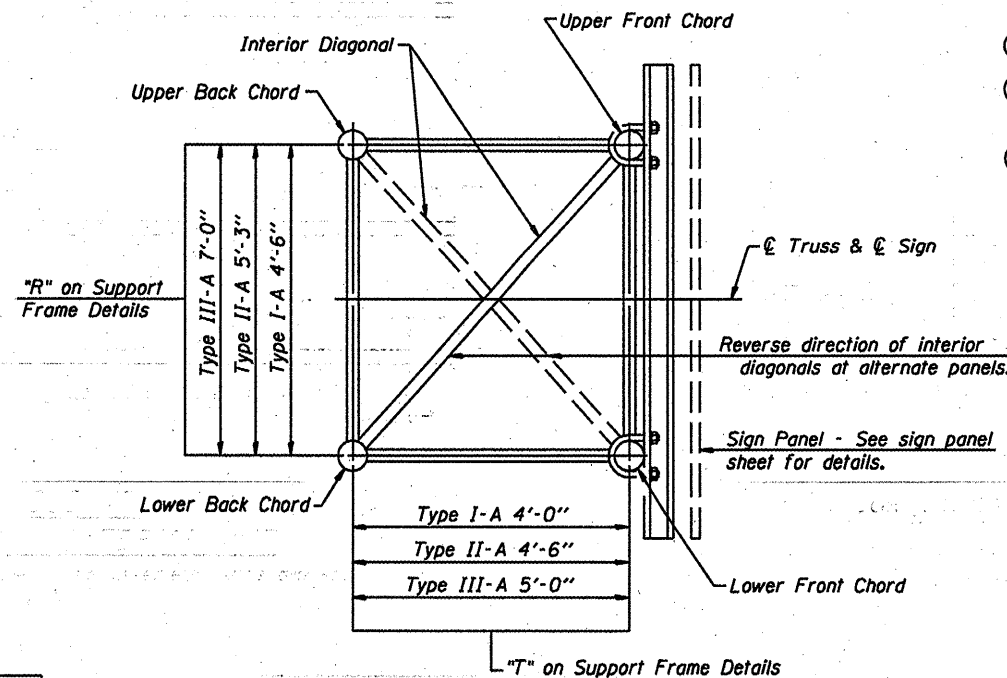


**TYPICAL JOINT DETAILS**

**DETAIL A**

**NOTES**

- ① Contractor may alternatively use standard aluminum drive-fit cap to close end.  $\frac{1}{2}$ "  $\phi$  drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
- ②  $5\frac{1}{2}$ " end dimension may vary by  $\pm 1$ " to provide uniform panel spacing (P).
- ③ Panel spacing (P) shall be uniform for entire truss and between 4'-0" and 5'-0" for Type I-A or 4'-0" and 5'-6" for Types II-A and III-A.
- ④ Vertical Diagonals in front and back face shall alternate.
- ⑤ Hidden lines show wind bracing alternates direction between planes of top and bottom chords.
- ⑥ All diagonals shall be detailed for minimum offset from the panel point based on the following: Offset shall be such as to provide a  $\frac{3}{4}$ " minimum to  $\frac{1}{2}$ " maximum clearance between any diagonal and any horizontal or vertical member, and to provide clearance for U-bolt connections of signs or walkway brackets.



**SECTION A-A**

**OVERHEAD SIGN STRUCTURES  
ALUMINUM TRUSS DETAILS  
FOR TRUSS TYPES I-A, II-A and III-A**

District 1  
Overhead Sign Structure  
Repair & Replacement

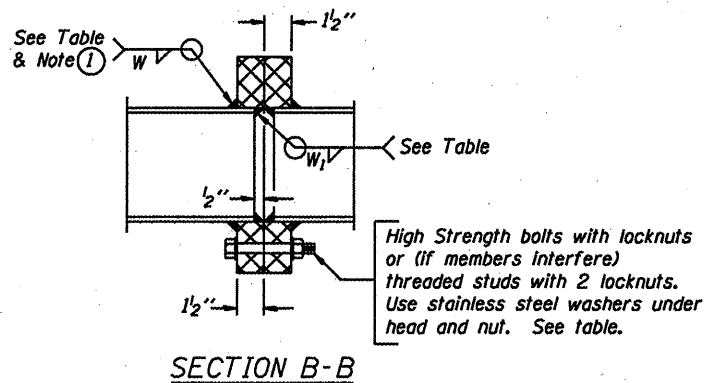
|            |                                    |
|------------|------------------------------------|
| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGES AND STRUCTURES |

5/16/08

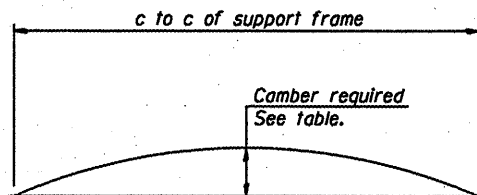
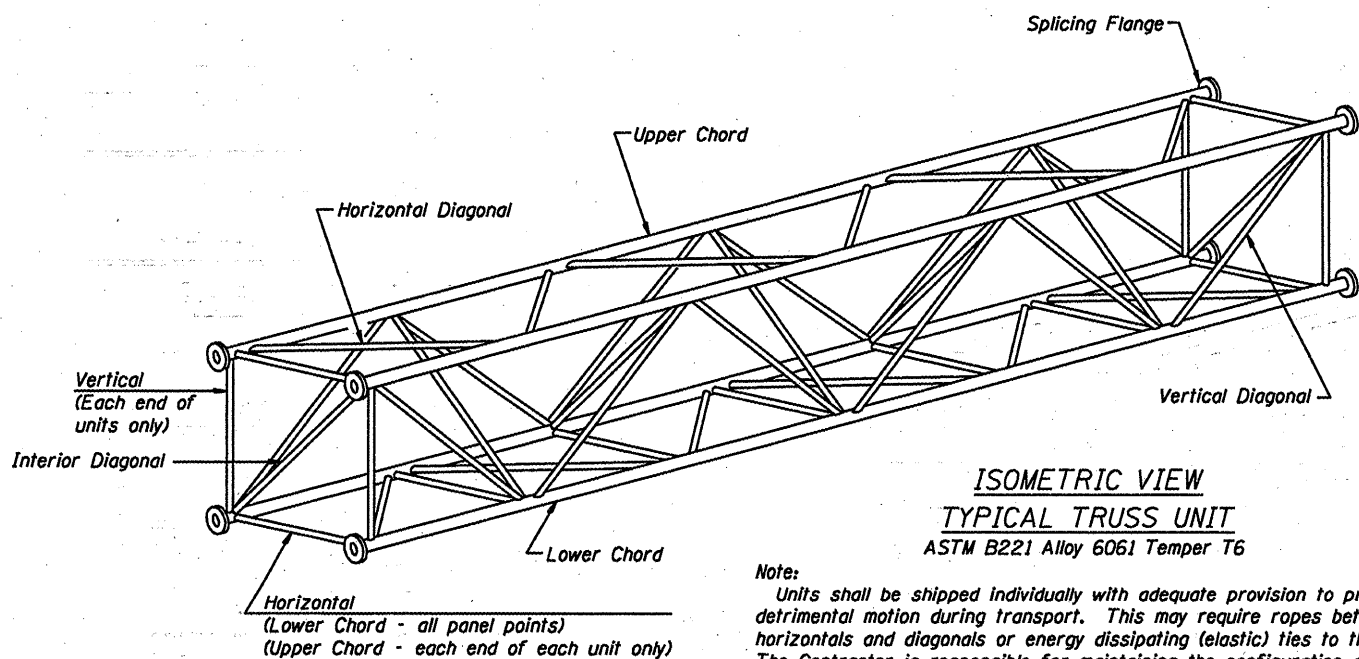
| NUMBER | REVISION | DATE |
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TRUSS UNIT TABLE

| Structure Number | Station   | Design Truss Type | Exterior Units (2)  |                             |                | Interior Unit |                     |                             | Upper & Lower Chord |      | Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals |        |       |            | Camber at Midspan | Splicing Flange |       |       |         |                |  |  |
|------------------|-----------|-------------------|---------------------|-----------------------------|----------------|---------------|---------------------|-----------------------------|---------------------|------|--|--------|-------|------------|-------------------|-----------------|-------|-------|---------|----------------|--|--|
|                  |           |                   | No. Panels per Unit | Unit Lgth.(L <sub>e</sub> ) | Panel Lgth.(P) | No. Req'd.    | No. Panels per Unit | Unit Lgth.(L <sub>i</sub> ) | Panel Lgth.(P)      | O.D. | Wall   | O.D.   | Wall  | Bolts      |                   | Weld Sizes      |       | A     | B       |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       | No./Splice |                   | Dia.            | W     |       |         | W <sub>1</sub> |  |  |
| ISO161094LO33.0  | 439 + 49  | III-A             | 6                   | 32'-4 1/2"                  | 5'-1"          | 1             | 6                   | 31'-9"                      | 5'-1"               | 7"   | 5/16"  | 3 1/4" | 5/16" | .2"        | 6                 | 1"              | 7/16" | 5/16" | 11 1/2" | 15"            |  |  |
| ISO49U041R000.0  | 1123 + 50 | I-A               | 7                   | 32'-9 1/2"                  | 4'-5"          |               |                     |                             |                     | 5"   | 5/16"  | 2 1/2" | 5/16" | 1 1/2"     | 6                 | 7/8"            | 5/16" | 1/4"  | 8 3/4"  | 11 3/4"        |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |
|                  |           |                   |                     |                             |                |               |                     |                             |                     |      |  |        |       |            |                   |                 |       |       |         |                |  |  |



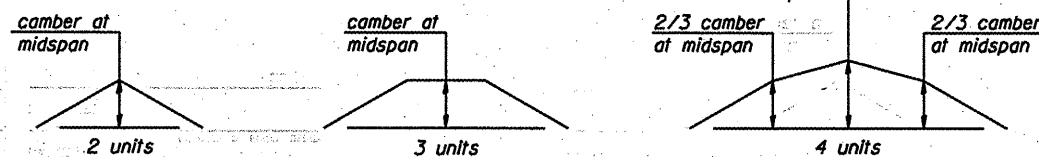
① Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining welds are made after disassembly. Adjacent flanges shall be "match marked" to insure proper field assembly.



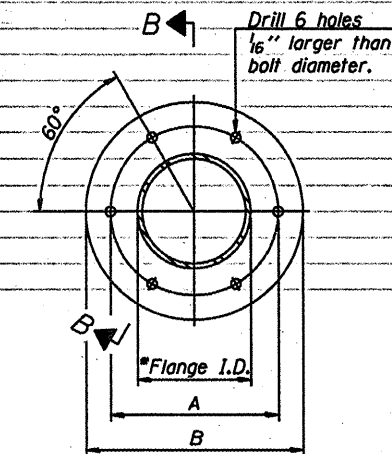
CAMBER DIAGRAM

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

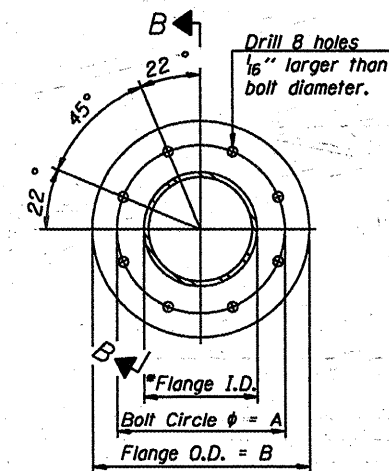
CAMBER ATTAINMENT EXAMPLES:



Camber shown is for fabrication only, measured with truss fully supported. (No-load condition)



TRUSS TYPES I-A, II-A, & III-A



TRUSS TYPES II-A & III-A

SPlicing FLANGES

ASTM B221, Alloy 6061-T6  
or ASTM B209, Alloy 6061-T651

\*To fit O.D. of Chord with maximum gap of 1/16".

| NUMBER | REVISION | DATE |
|--------|----------|------|
|        |          |      |
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|        |          |      |

|            |                                    |
|------------|------------------------------------|
| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGE DESIGN          |
|            | ENGINEER OF BRIDGES AND STRUCTURES |

OS4-A-2

5/16/08

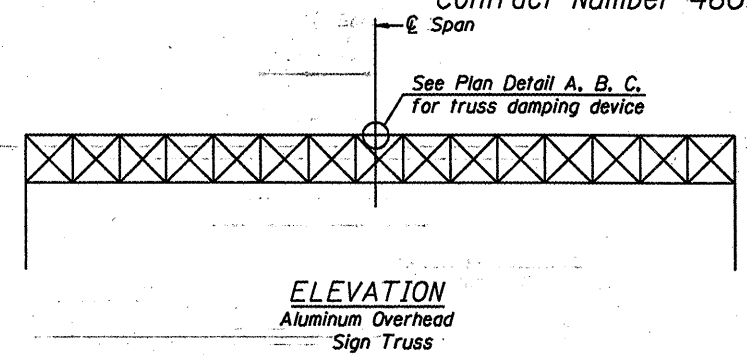
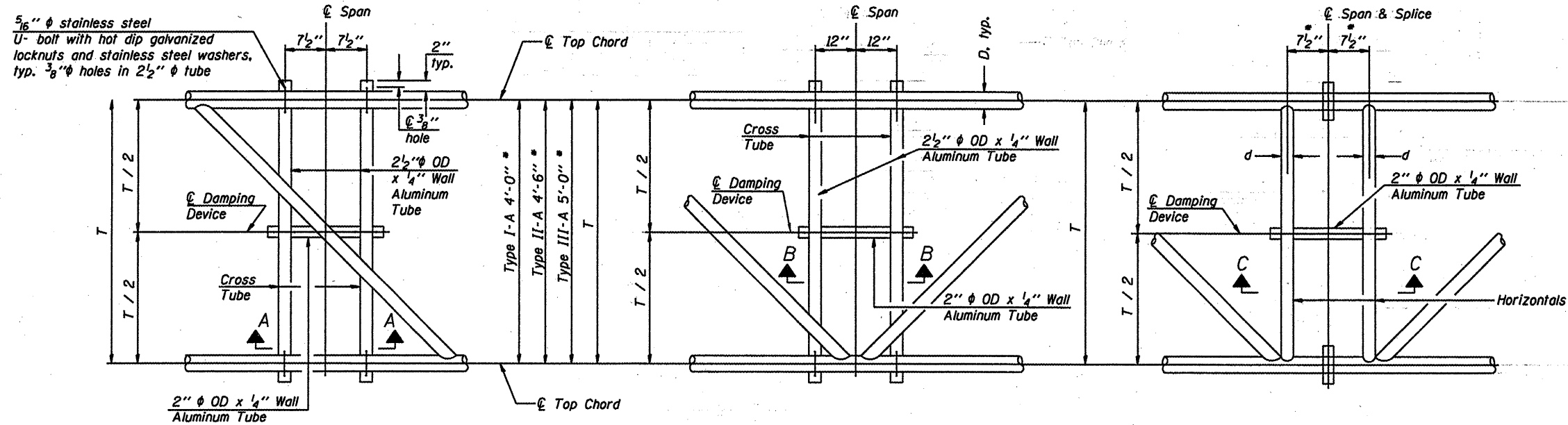
OS4-A-2

5/16/08

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

District 1  
Overhead Sign Structure  
Repair & Replacement

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



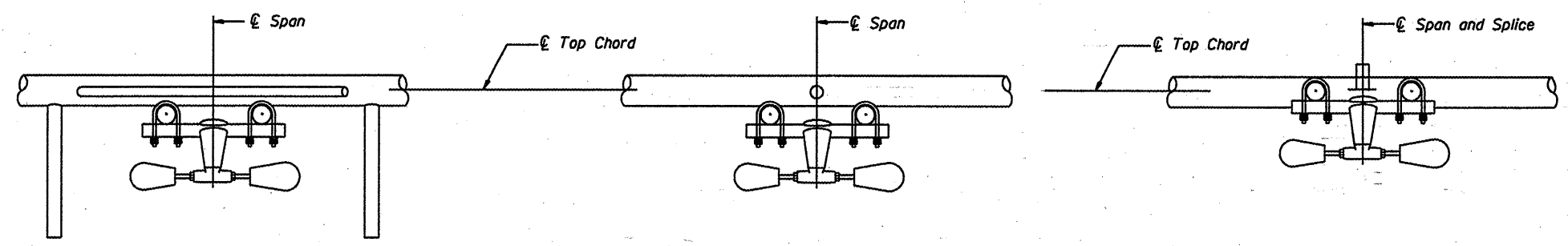
ELEVATION  
Aluminum Overhead  
Sign Truss

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

PLAN DETAIL "A"  
Span between Panel Points

PLAN DETAIL "B"  
Span at Panel Point

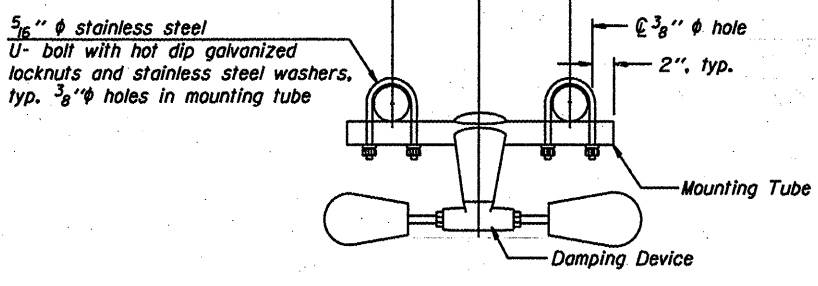
PLAN DETAIL "C"  
Span at Chord Splice



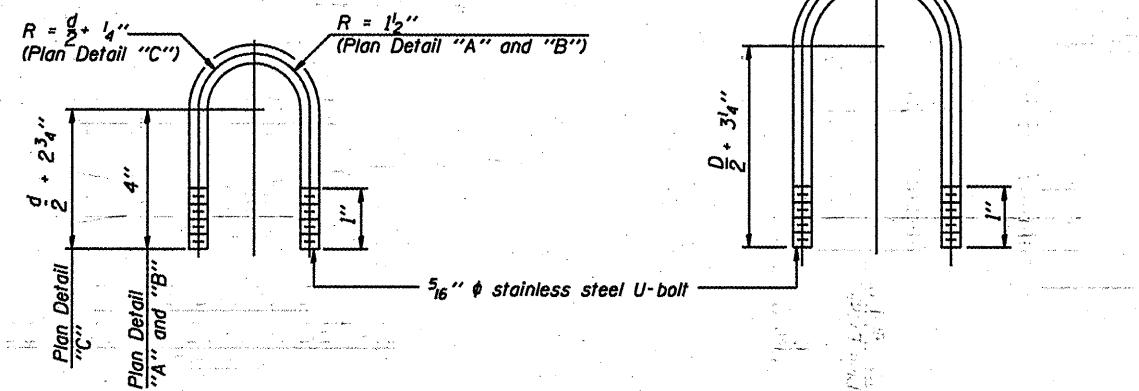
SECTION A-A

SECTION B-B

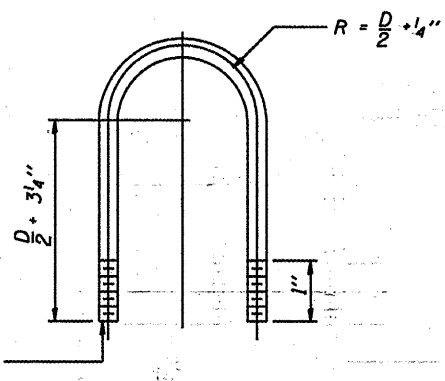
SECTION C-C



TRUSS DAMPING  
DEVICE CONNECTION DETAIL  
(Typical)



DAMPING DEVICE MOUNTING  
TUBE U-BOLT DETAIL  
(Typical)



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

This detail applies to the following overhead sign structures:  
1. ISO16I094L033.0  
2. ISO49U041R000.0

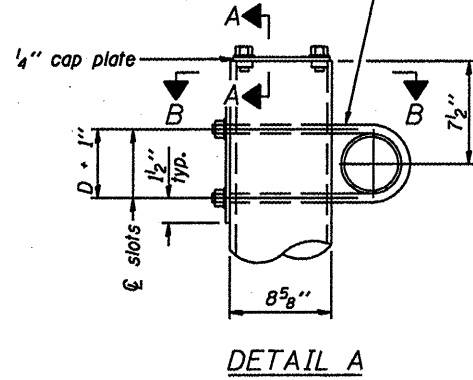
OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE

District 1  
Overhead Sign Structure  
Repair & Replacement

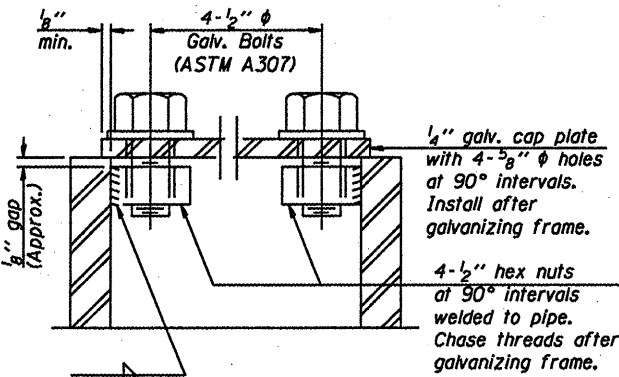
|            |                                    |
|------------|------------------------------------|
| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGES AND STRUCTURES |



3/4" φ stainless steel U-bolt.  
Provide two washers and two hexagon locknuts. (4)  
1/16" x 2" slots on 8" φ pipe.  
(4 slots required per pipe)

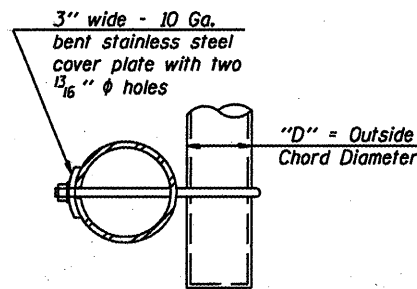


DETAIL A

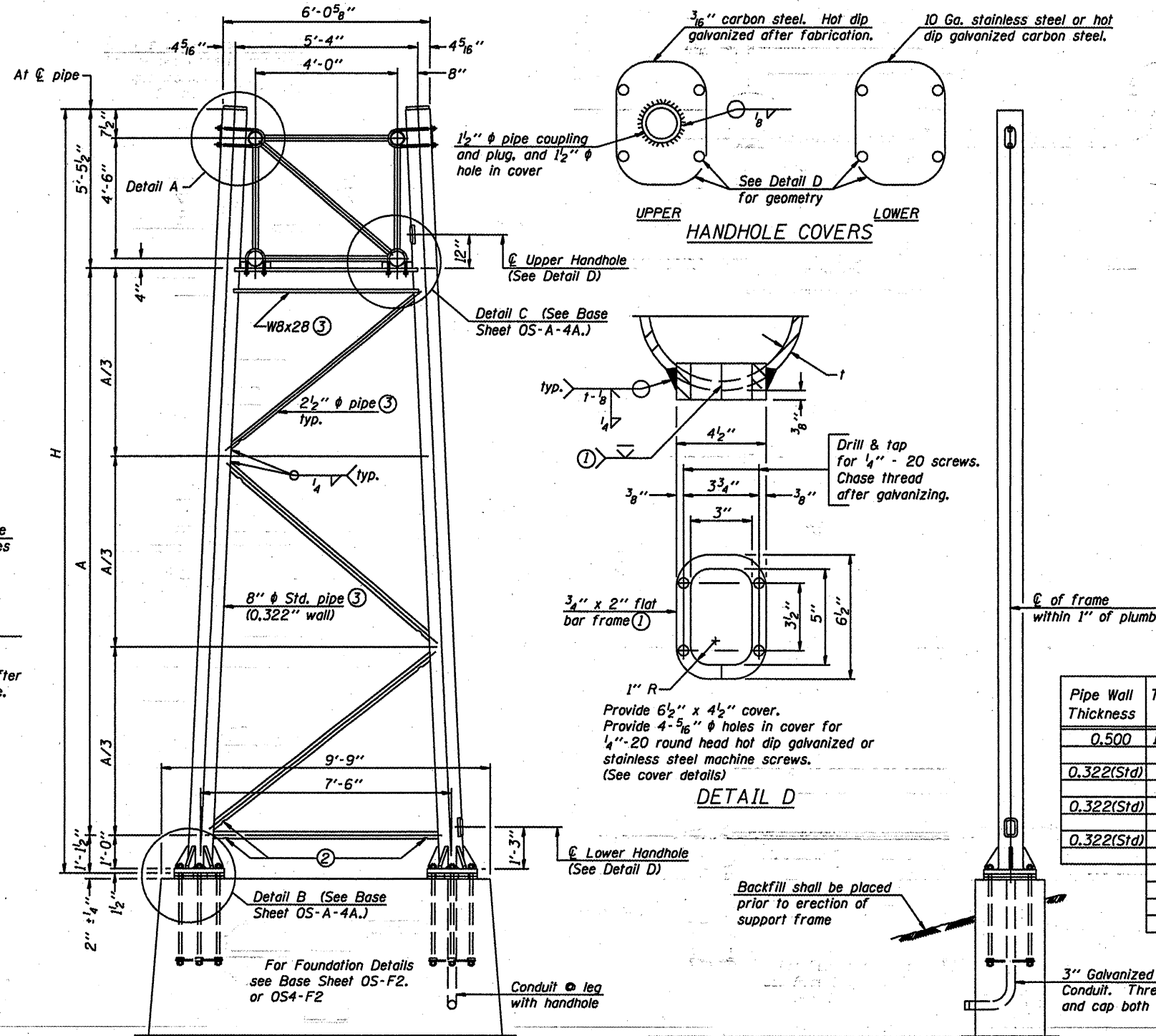


SECTION A-A

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



SECTION B-B



SIDE ELEVATION

END ELEVATION

Support Design Loads: See Base Sheet OS-A-1 for design and loading criteria.  
Load combinations checked include deadload plus:  
a) 100% wind normal to sign, 20% parallel to sign  
b) 60% wind normal to sign, 30% parallel to sign

- ① In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.
- ② Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.
- ③ Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet OS-A-1.
- ④ See General Notes for fasteners.
- ⑤ Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.
- ⑥ "H" based on 15'-0" or actual sign height, whichever is greater.

| Pipe Wall Thickness | TRUSS TYPE | Structure Number | Station   | Support |       | H<br>⑥      | A           |
|---------------------|------------|------------------|-----------|---------|-------|-------------|-------------|
|                     |            |                  |           | Left    | Right |             |             |
| 0.500               | III-A      | ISO161094L033.0  | 439 + 49  | X       | # 1   | 25'-2 1/4"  | 14'-10 1/2" |
| 0.322(Std)          | II-A       | ISO161094L030.8  | 558 + 80  | X       | # 2   | 24'-11 1/2" | 17'-5 1/2"  |
| 0.322(Std)          | I-A        | ISO161094L036.0  | 287 + 50  | X       | # 3   | 25'-9 3/4"  | 19'-1 1/4"  |
| 0.322(Std)          | I-A        | ISO49U041R000.0  | 1123 + 50 | X       | X     | 27'-2"      | 20'-7"      |

The "H" and "A" dimensions shown were taken from the existing end support details.  
\*1. For right end support details see Structure No. ISO161094L033.0 for 12-inch end support.  
\*2. For right end support details see Structure No. ISO161094L030.8 for 10-inch end support.  
\*3. For right end support details see Structure No. ISO161094L036.0 for 10-inch end support.

|            |                                    |
|------------|------------------------------------|
| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGE DESIGN          |
|            | ENGINEER OF BRIDGES AND STRUCTURES |

OS-A-4

5/16/08

| NUMBER | REVISION | DATE |
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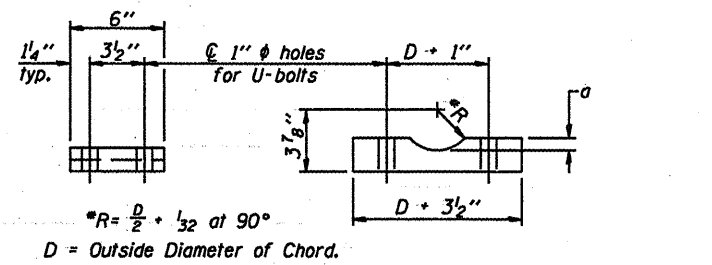
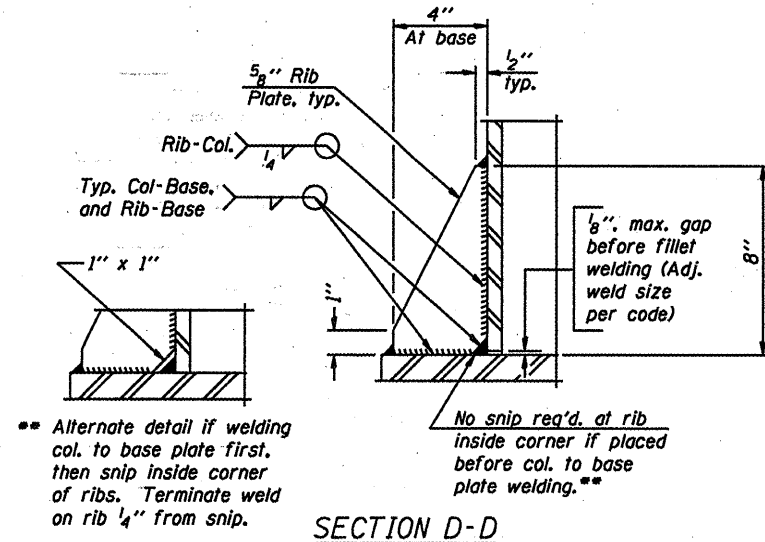
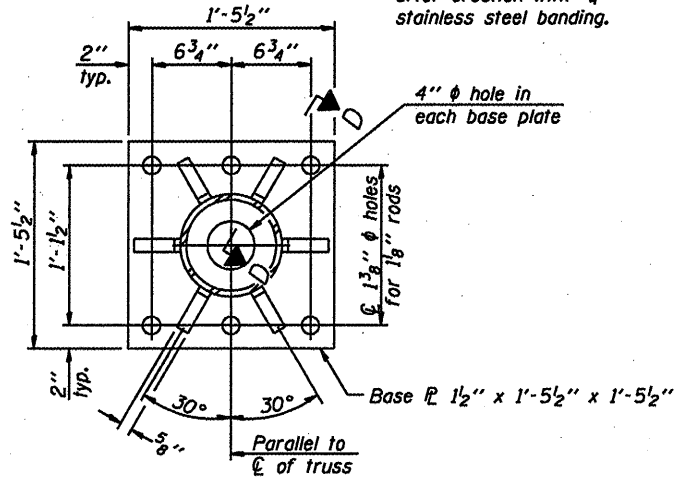
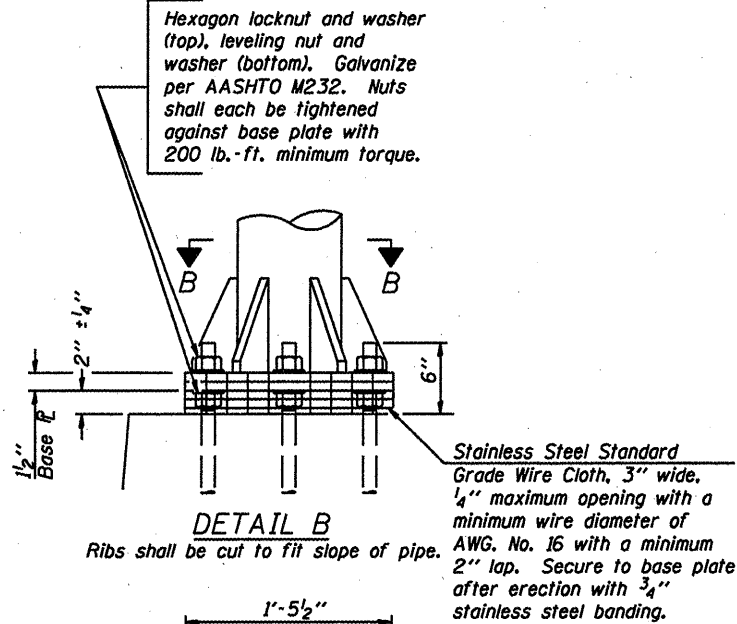
8" φ PIPE TRUSS SUPPORT FRAME

NOTES:

1. New End Supports to be installed on existing concrete foundations with existing anchor bolts. The Contractor shall provide new anchor bolt nuts and washers as necessary.
2. These are non standard end supports the Contractor and the Engineer shall field verify the existing end support dimensions and the existing anchor bolt dimensions prior to fabrication of the new end supports. This measurement should include the horizontal distance between the center line of the columns at the base plate to assure the new supports will fit the existing anchor bolt pattern.

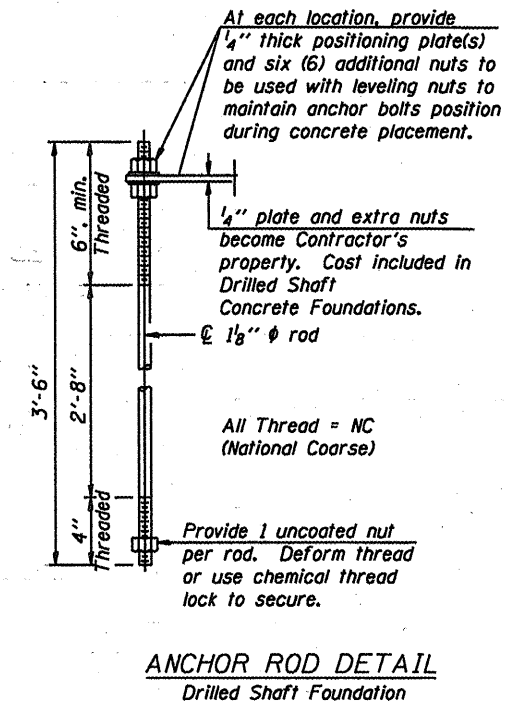
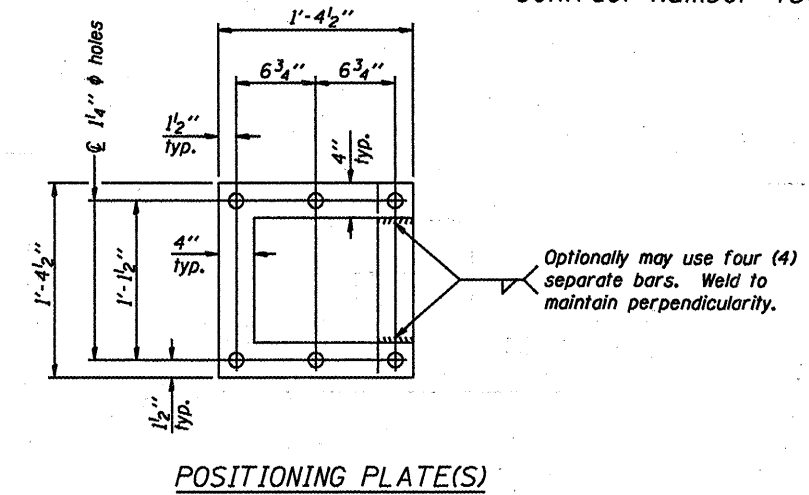
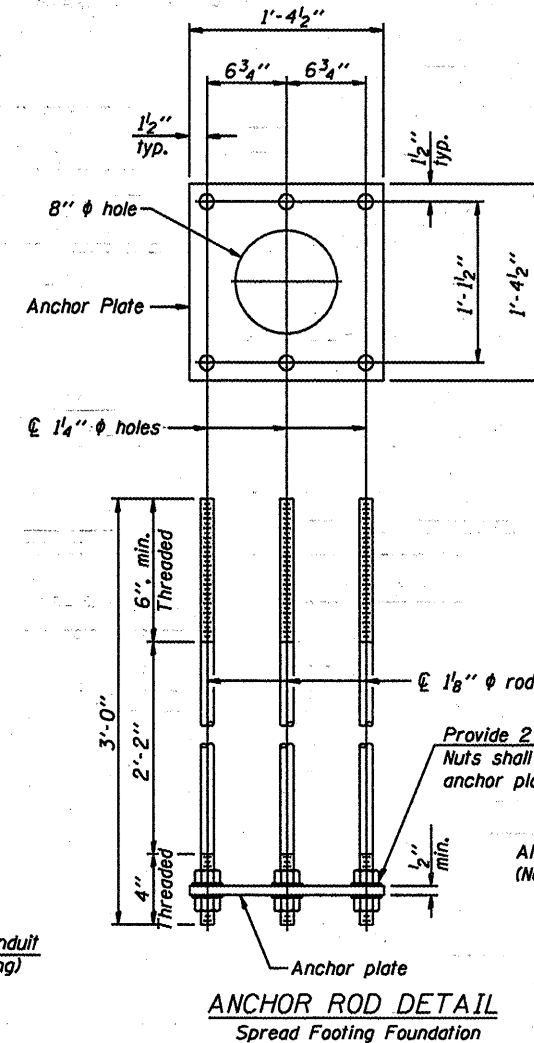
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE I-A ALUMINUM TRUSS

District 1  
Overhead Sign Structure  
Repair & Replacement

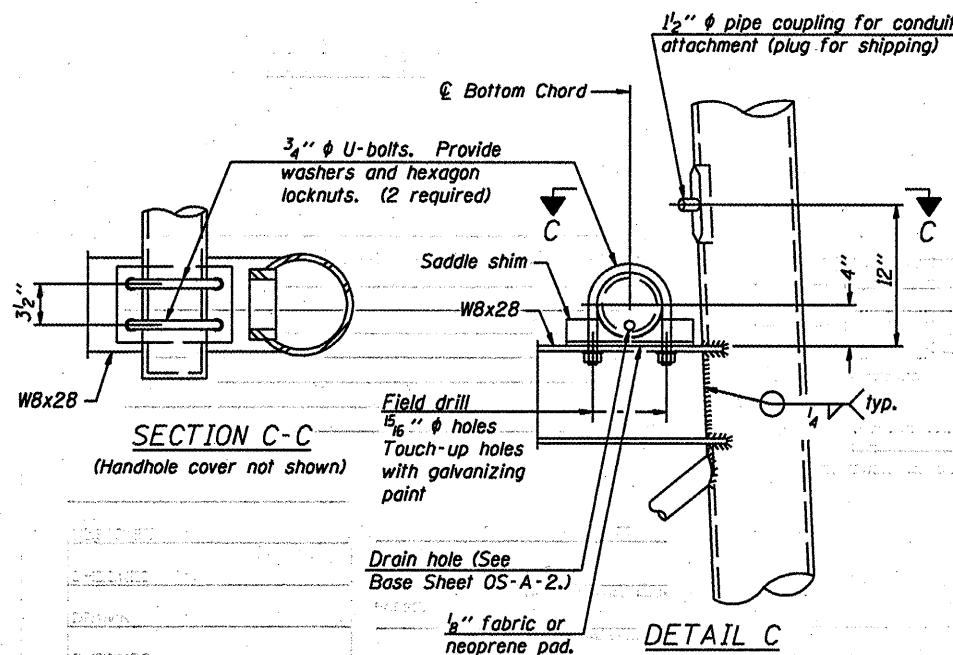


ASTM B26 Alloy 356-F  
or  
ASTM B209 Alloy 6061-T651  
(4 required per sign truss)

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



| NUMBER | REVISION | DATE |
|--------|----------|------|
|        |          |      |
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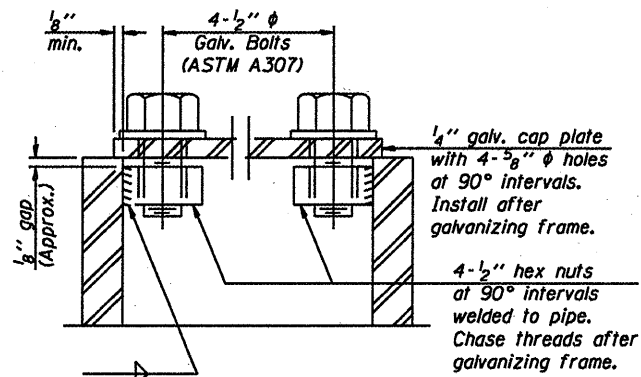
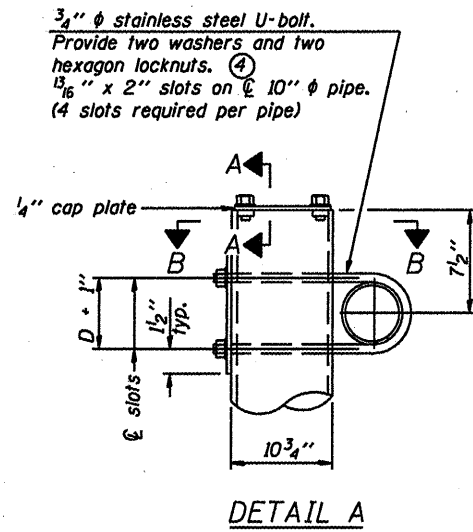
TYPE I-A TRUSS  
8"  $\phi$  PIPE SUPPORT FRAME DETAILS

Anchor rods shall conform to AASHTO M314 Grade 36 or 55 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. Galvanize upper 12" per AASHTO M232. No welding shall be permitted on rods.

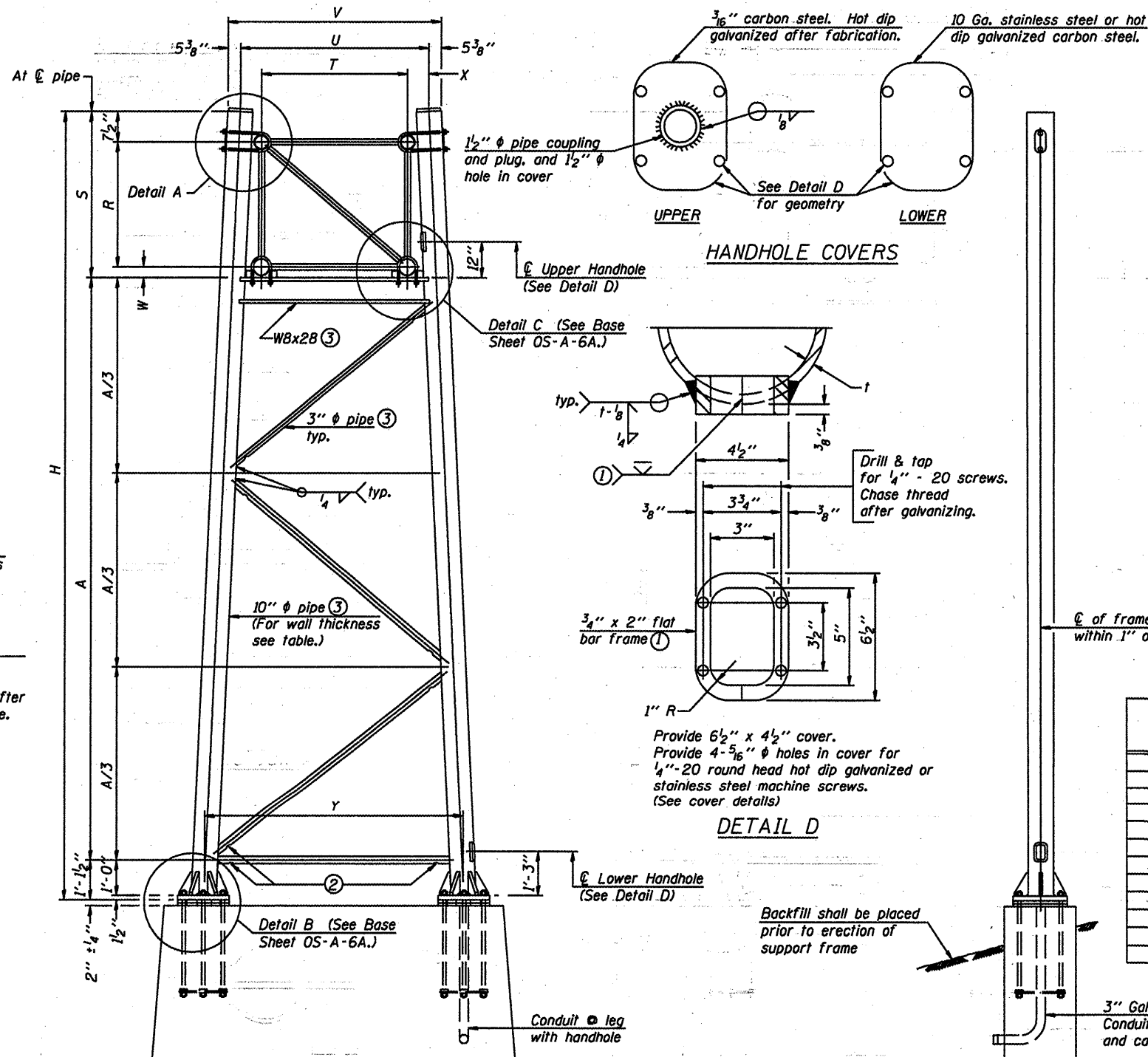
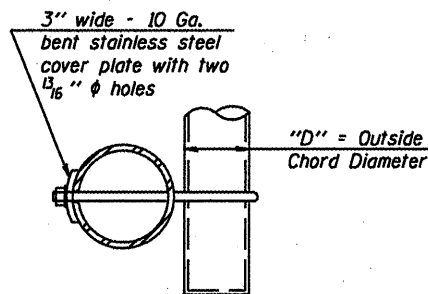
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 1  
Overhead Sign Structure  
Repair & Replacement

|          |                                    |
|----------|------------------------------------|
| DESIGNED | 20                                 |
| CHECKED  | EXAMINED                           |
| DRAWN    | PASSED                             |
| CHECKED  | ENGINEER OF BRIDGES AND STRUCTURES |



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



Support Design Loads: See Base Sheet OS-A-1 for design and loading criteria.  
Load combinations checked include deadload plus:  
a) 100% wind normal to sign, 20% parallel to sign  
b) 60% wind normal to sign, 30% parallel to sign

- ① In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500  $\mu$ in or less.
- ② Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.
- ③ Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet OS-A-1.
- ④ See General Notes for fasteners.
- ⑤ Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.
- ⑥ "H" based on 15'-0" or actual sign height, whichever is greater.

NOTES:

1. New End Supports to be installed on existing concrete foundations with existing anchor bolts. The Contractor shall provide new anchor bolt nuts and washers as necessary.
2. These are non standard end supports the Contractor and the Engineer shall field verify the existing end support dimensions and the existing anchor bolt dimensions prior to fabrication of the new end supports. This measurement should include the horizontal distance between the center line of the columns at the base plate to assure the new supports will fit the existing anchor bolt pattern.

| Structure Number | Station  | Support |       | Truss Type | Pipe Wall Thickness | H (6)       | A          |
|------------------|----------|---------|-------|------------|---------------------|-------------|------------|
|                  |          | Left    | Right |            |                     |             |            |
| ISO161094L030.8  | 558 + 80 | # 2     | X     | II-A       | 0.279               | 29'-1 3/4"  | 22'-0 1/4" |
| ISO161094L036.0  | 287 + 50 | # 3     | X     | I-A        | 0.279               | 27'-11 1/8" | 21'-1 1/8" |
| ISO22S083R000.0  | 45 + 00  | X       |       | I-A        | 0.279               | 23'-0"      | 17'-0 1/4" |
|                  |          |         | X     |            |                     | 26'-2 1/2"  | 18'-3 3/4" |
| ISO22S083R000.0  | 33 + 00  | X       |       | I-A        | 0.307               | 24'-0"      | 17'-1 1/4" |
|                  |          |         | X     |            |                     | 25'-8 1/2"  | 18'-9 3/4" |

The "H" and "A" dimensions shown were taken from the existing end support details.  
\*2. For left end support details see Structure No. ISO161094L030.8 for 8-inch end support.  
\*3. For left end support details see Structure No. ISO161094L036.0 for 8-inch end support.

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

SIDE ELEVATION

END ELEVATION

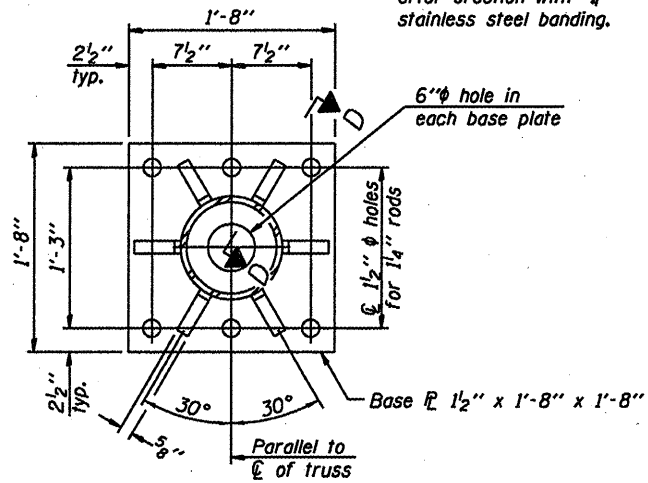
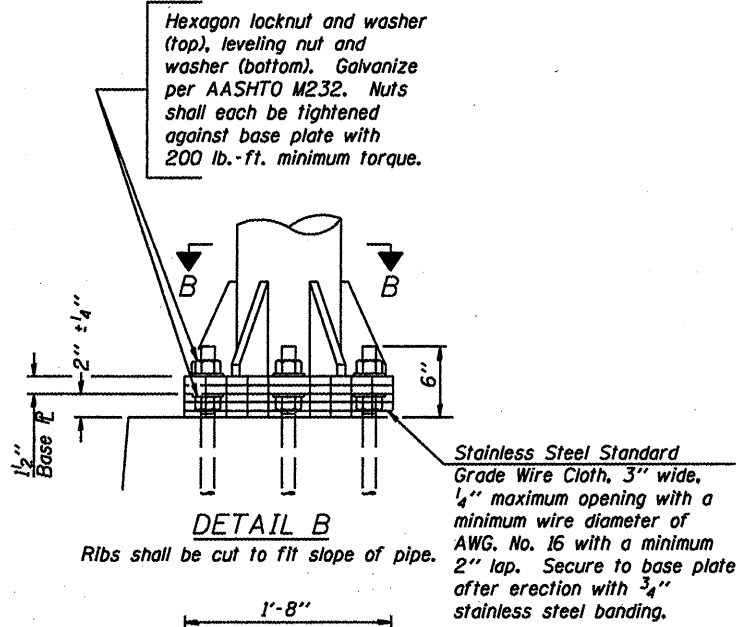
10"  $\phi$  PIPE TRUSS SUPPORT FRAME

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

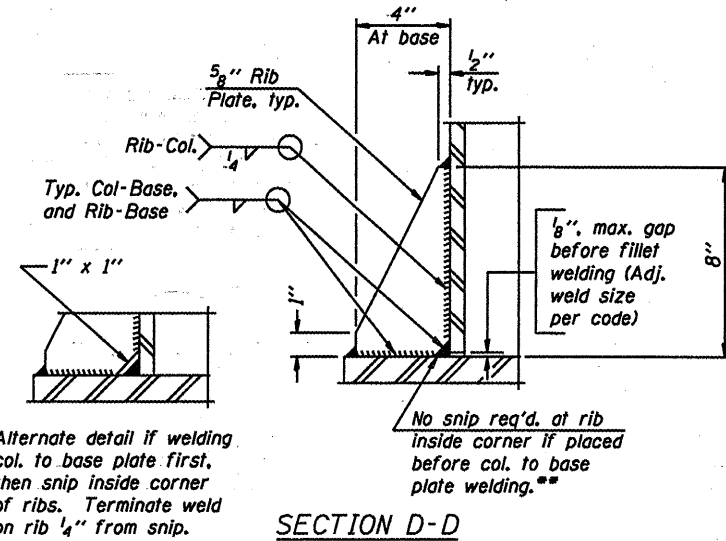
|            |                                    |
|------------|------------------------------------|
| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGE DESIGN          |
|            | ENGINEER OF BRIDGES AND STRUCTURES |

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for ALUMINUM TRUSS

District 1  
Overhead Sign Structure  
Repair & Replacement

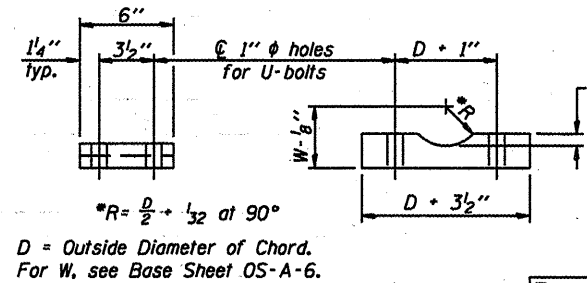


SECTION B-B



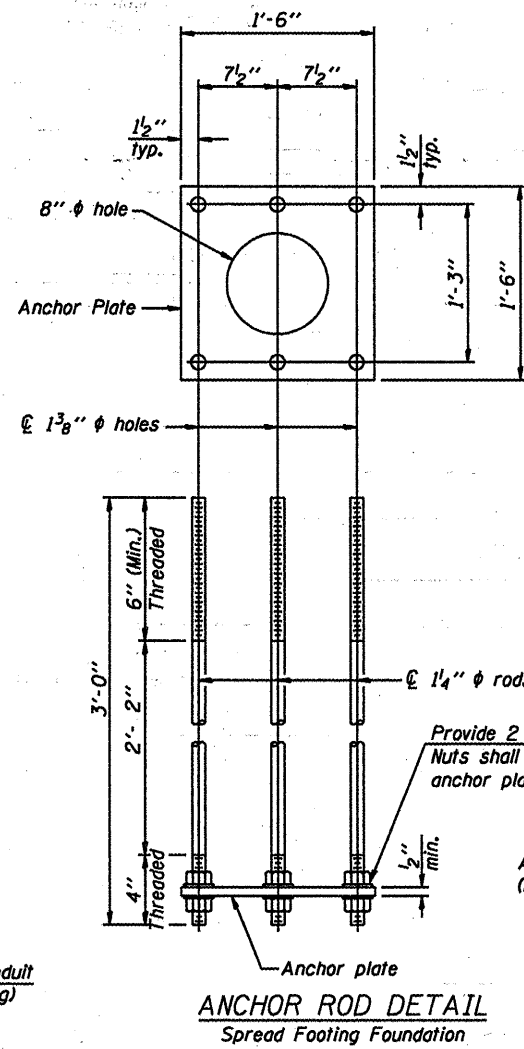
SECTION D-D

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

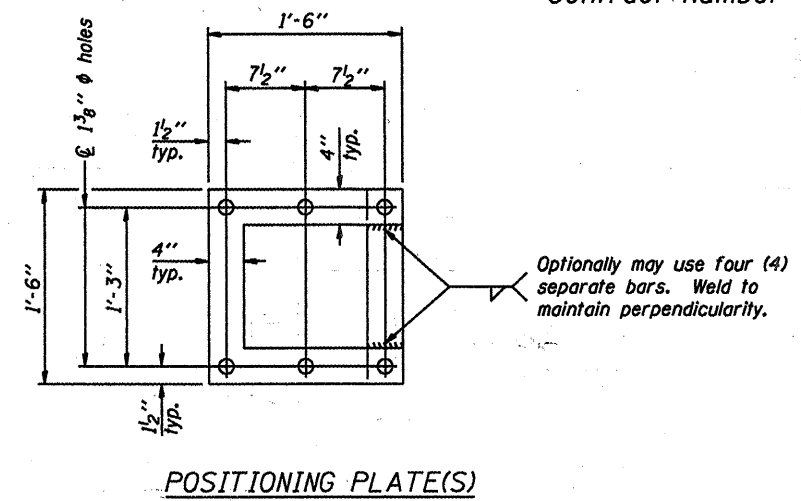


**SADDLE SHIM DETAIL**  
ASTM B26 Alloy 356-F  
or  
ASTM B209 Alloy 6061-T651  
(4 required per sign truss)

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

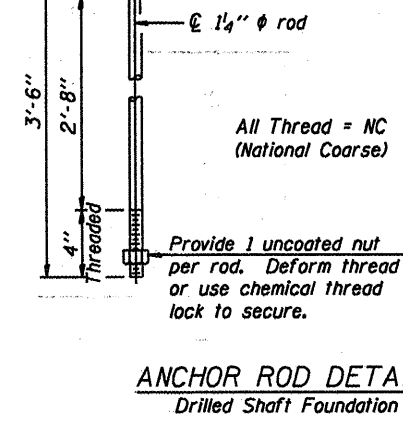


All Thread = NC (National Coarse)

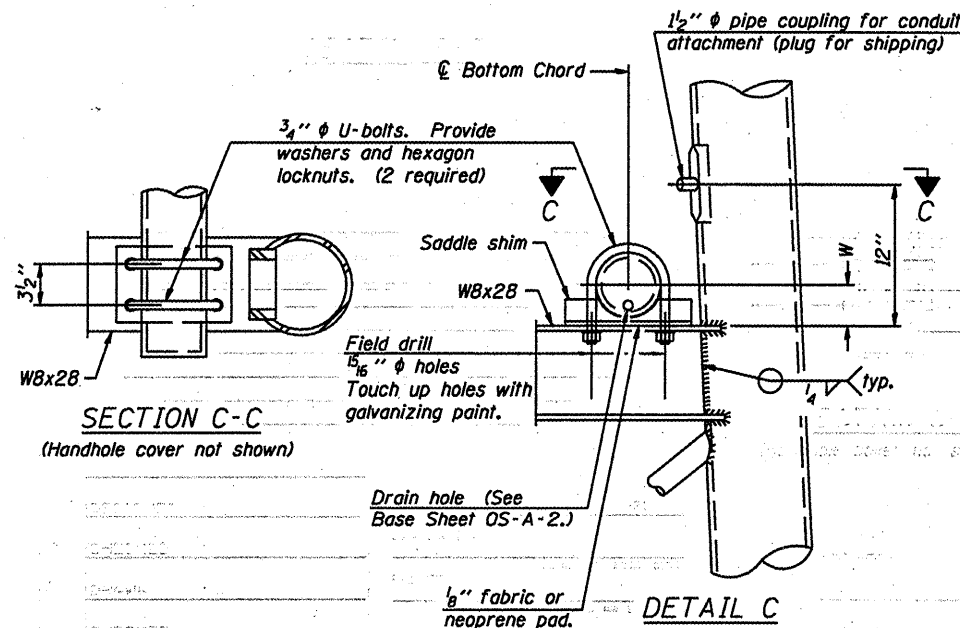


At each location, provide 1/4" thick positioning plate(s) and six (6) additional nuts to be used with leveling nuts to maintain anchor bolts position during concrete placement.

1/4" plate and extra nuts become Contractor's property. Cost included in Drilled Shaft Concrete Foundations.



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



SECTION C-C

(Handhole cover not shown)

DETAIL C

10" PIPE SUPPORT FRAME DETAILS

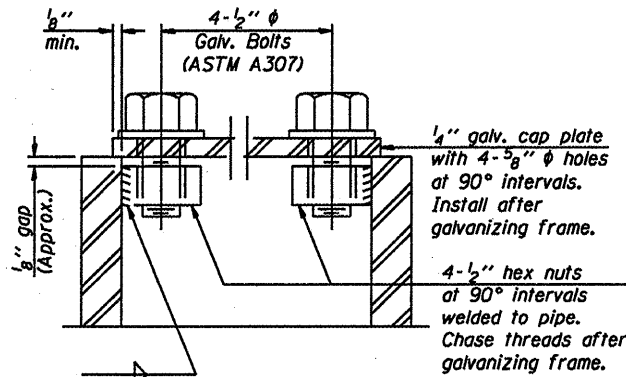
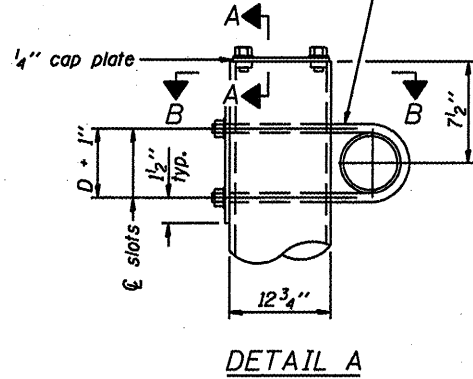
OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 1  
Overhead Sign Structure  
Repair & Replacement

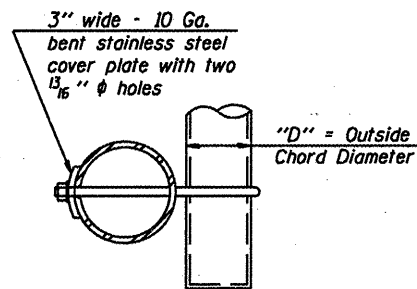
| NUMBER | REVISION | DATE |
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| DESIGNED - | 20                                 |
| CHECKED -  | EXAMINED                           |
| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGES AND STRUCTURES |

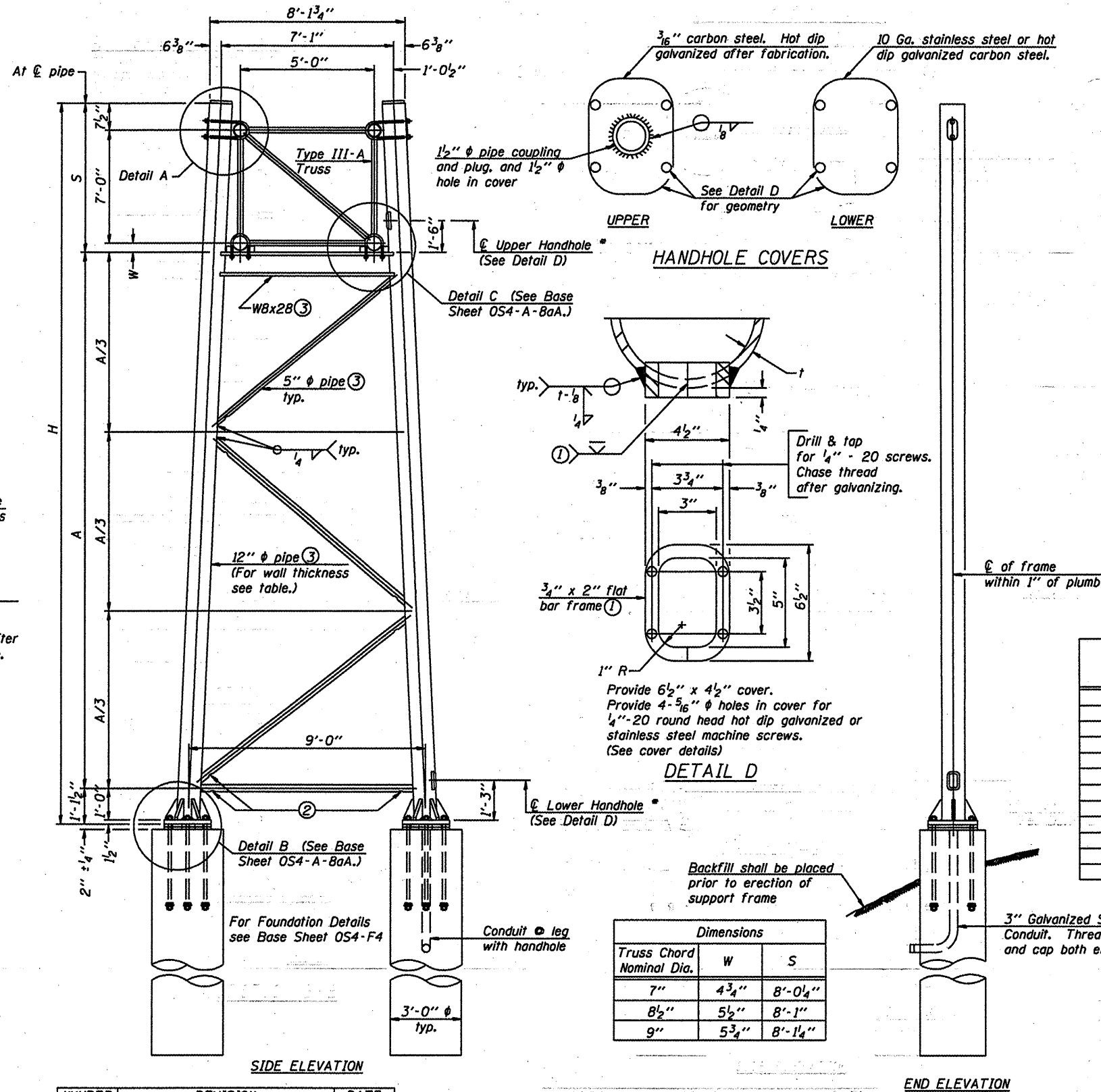
3/4" φ stainless steel U-bolt.  
Provide two washers and two hexagon locknuts. (4)  
13/16" x 2" slots on 12" φ pipe.  
(4 slots required per pipe)



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



SECTION B-B



| Dimensions               |        |           |
|--------------------------|--------|-----------|
| Truss Chord Nominal Dia. | W      | S         |
| 7"                       | 4 3/4" | 8'-0 1/4" |
| 8 1/2"                   | 5 1/2" | 8'-1"     |
| 9"                       | 5 3/4" | 8'-1 1/4" |

TRUSS SUPPORT DETAILS  
(12" φ Pipe-Type III-A Truss)

NOTES:

1. New End Supports to be installed on existing concrete foundations with existing anchor bolts. The Contractor shall provide new anchor bolt nuts and washers as necessary.

2. These are non standard end supports the Contractor and the Engineer shall field verify the existing end support dimensions and the existing anchor bolt dimensions prior to fabrication of the new end supports. This measurement should include the horizontal distance between the center line of the columns at the base plate to assure the new supports will fit the existing anchor bolt pattern.

Support Design Loads: See Base Sheet OS-A-1 for design and loading criteria.  
Load combinations checked include deadload plus:  
a) 100% wind normal to sign, 20% parallel to sign  
b) 60% wind normal to sign, 30% parallel to sign

- In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.
  - Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.
  - Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet OS-A-1.
  - See General Notes for fasteners.
  - Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.
  - "H" based on 15'-0" or actual sign height, whichever is greater.
- \* For dynamic message sign installations, provide upper and lower handholes in both legs of each support frame.

| Structure Number | Station  | Support |       | Pipe Wall Thickness | H (6)  | A     |
|------------------|----------|---------|-------|---------------------|--------|-------|
|                  |          | Left    | Right |                     |        |       |
| ISO161094L033.0  | 439 + 49 | # 1     | X     | 0.330               | 26'-9" | 8'-3" |
|                  |          |         |       |                     |        |       |
|                  |          |         |       |                     |        |       |
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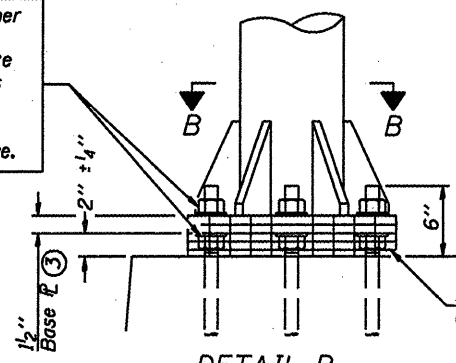
The "H" and "A" dimensions shown were taken from the existing end support details.  
\*1. For right end support details see Structure No. ISO161094L033.0 for 12-inch end support.  
\*2. For right end support details see Structure No. ISO161094L030.8 for 10-inch end support.  
\*3. For right end support details see Structure No. ISO161094L036.0 for 10-inch end support.

OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE III-A ALUMINUM TRUSS

District 1  
Overhead Sign Structure  
Repair & Replacement

|          |                                    |
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| DESIGNED | 20                                 |
| CHECKED  | EXAMINED                           |
| DRAWN    | PASSED                             |
| CHECKED  | ENGINEER OF BRIDGES AND STRUCTURES |

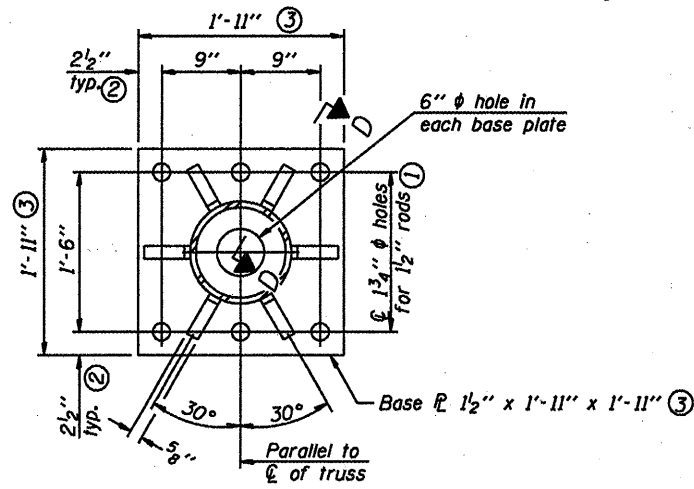
Hexagon locknut and washer (top), leveling nut and washer (bottom). Galvanize per AASHTO M232. Nuts shall each be tightened against base plate with 200 lb.-ft. minimum torque.



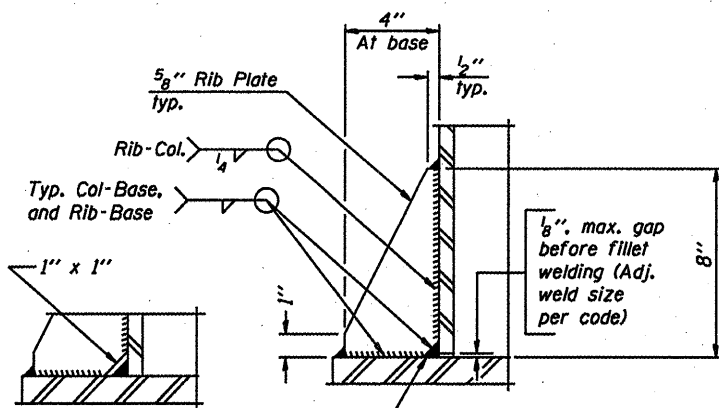
**DETAIL B**

Ribs shall be cut to fit slope of pipe.

Stainless Steel Standard Grade Wire Cloth, 3" wide, 1/4" maximum opening with a minimum wire diameter of AWG. No. 16 with a minimum 2" lap. Secure to base plate after erection with 3/4" stainless steel banding.



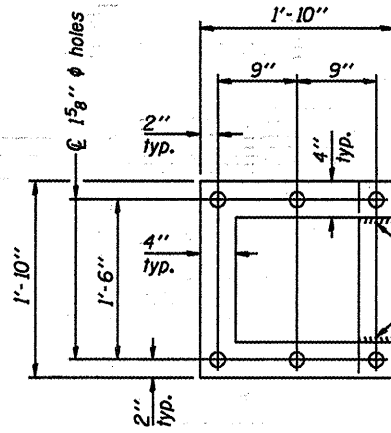
**SECTION B-B**



**SECTION D-D**

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

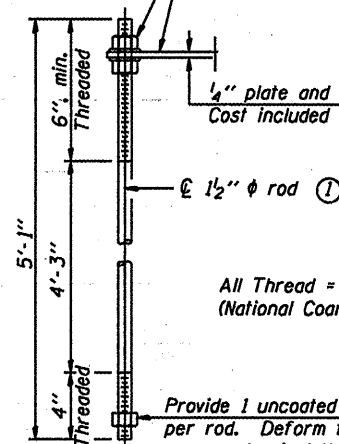
No snip req'd. at rib inside corner if placed before col. to base plate welding.



**POSITIONING PLATE(S)**

Optionally may use four (4) separate bars. Weld to maintain perpendicularity.

At each location, provide 1/4" thick positioning plate(s) and six (6) additional nuts to be used with leveling nuts to maintain anchor bolts position during concrete placement.



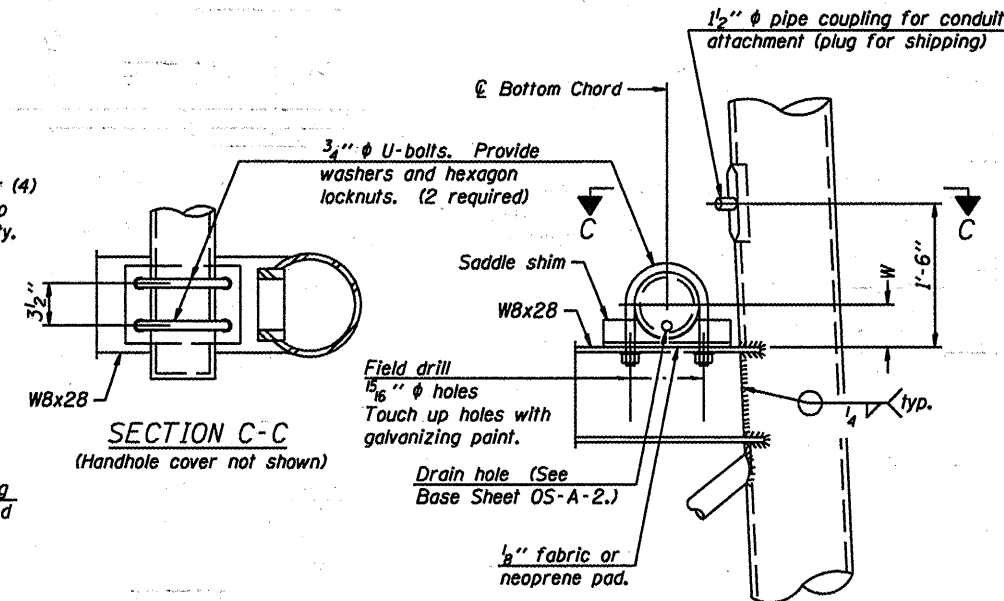
**ANCHOR ROD DETAIL**

Anchor rods shall conform to AASHTO M314 Grade 36 or 55 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. Galvanize upper 12" per AASHTO M232. No welding shall be permitted on rods.

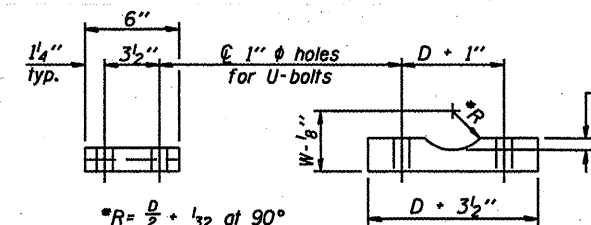
**TYPE III-A TRUSS  
12" Ø PIPE SUPPORT FRAME DETAILS**

Notes:  
For Type III-A Truss spans greater than 150 ft. and up to 160 ft.:

- ① 1 3/4" Ø rod, 2" Ø holes
- ② 2 3/4" edge distance
- ③ Base P 1 5/8" x 1'-11 1/2" x 1'-11 1/2"



**DETAIL C**



**SADDLE SHIM DETAIL**

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

| Truss Chord Nominal Dia. | a      |
|--------------------------|--------|
| 7"                       | 1"     |
| 8 1/2"                   | 1 1/4" |
| 9"                       | 1 3/8" |

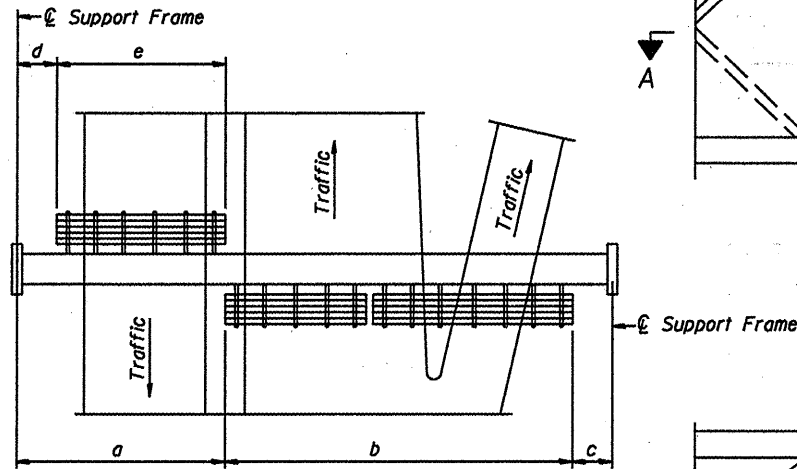
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**OVERHEAD SIGN STRUCTURES  
SUPPORT FRAME for TYPE III-A ALUMINUM TRUSS**

District 1  
Overhead Sign Structure  
Repair & Replacement

| NUMBER | REVISION | DATE |
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PLAN  
WALKWAY AND HANDRAIL SKETCH  
(Road plan beneath truss varies)

BRACKET TABLE

| Sign Width   |                          | Number<br>Brackets<br>Required |
|--------------|--------------------------|--------------------------------|
| Greater Than | Less Than or<br>Equal To |                                |
|              | 8'-0"                    | 2                              |
| 8'-0"        | 14'-0"                   | 3                              |
| 14'-0"       | 20'-0"                   | 4                              |
| 20'-0"       | 26'-0"                   | 5                              |
| 26'-0"       | 32'-0"                   | 6                              |

Notes:  
• Space walkway brackets WF(A-N)4x3.06 and sign brackets WF(A-N)4x1.79 for efficiency and within limits shown:

f = 12" maximum, 4" minimum (End of sign to  $\mathcal{C}$  of nearest bracket)  
g = 12" maximum, 4" minimum (End of walkway grating to  $\mathcal{C}$  of nearest support bracket)  
h = 6'-0" maximum ( $\mathcal{C}$  to  $\mathcal{C}$  sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)  
k = 2" maximum gap between adjacent walkway grating sections and handrail ends

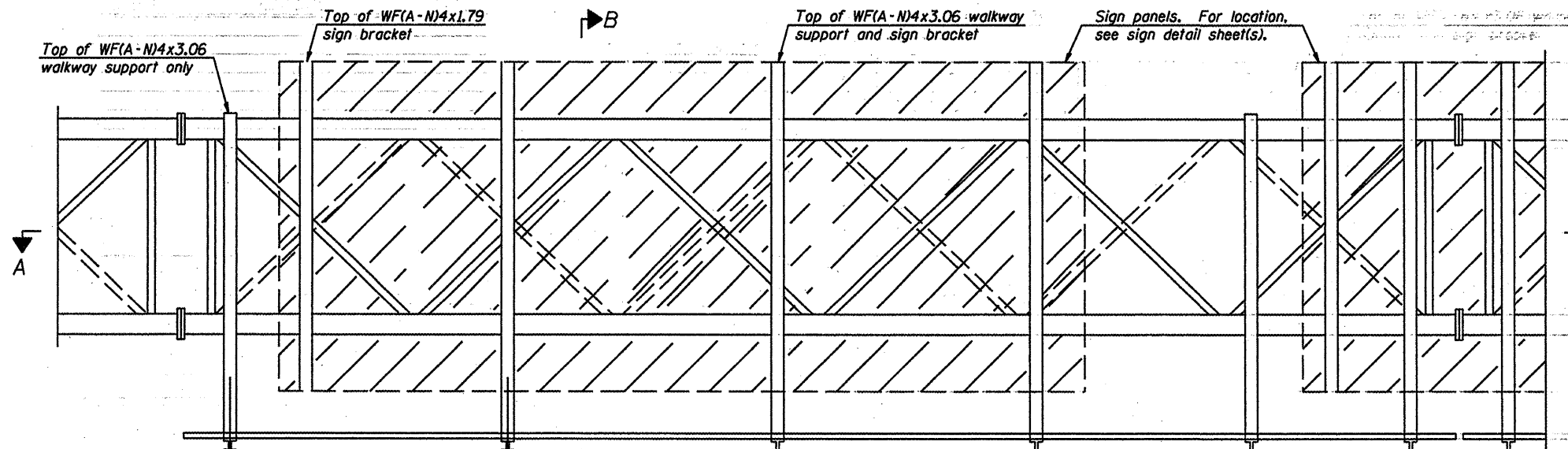
• If walkway bracket at safety chain location is behind sign, add angle to bracket, see Alternate Safety Chain Attachment on Base Sheet OS-A-11.

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

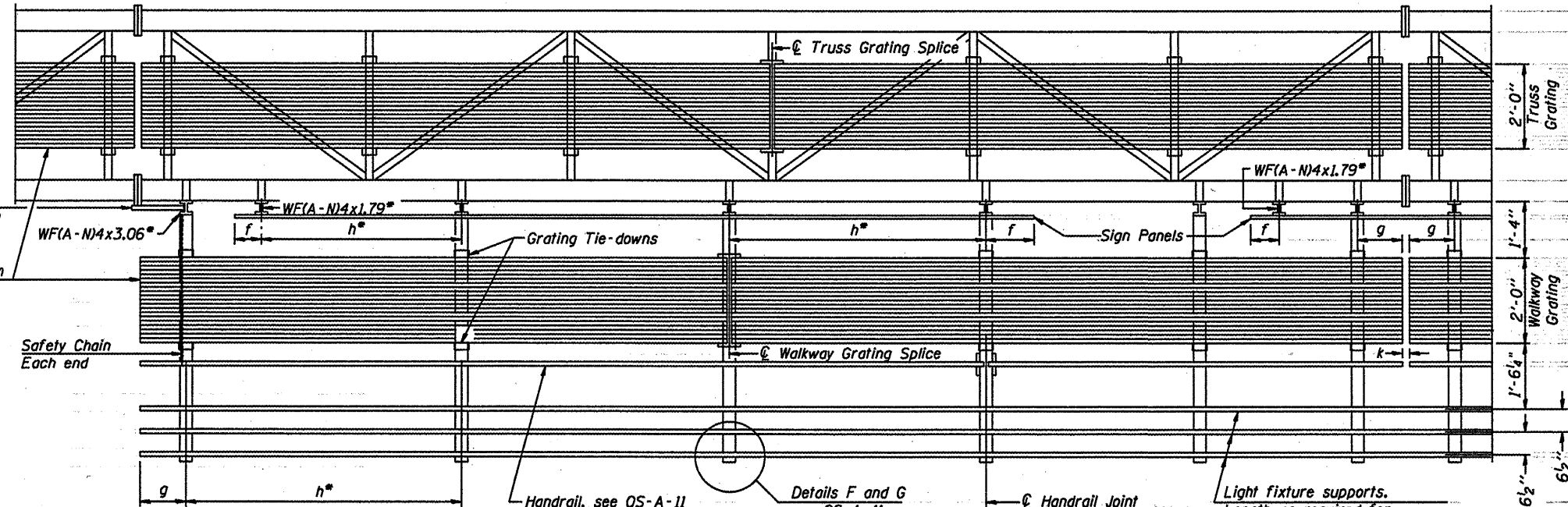
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| DRAWN -    | PASSED                             |
| CHECKED -  | ENGINEER OF BRIDGES AND STRUCTURES |

OS-A-9

5/16/08



TYPICAL FRONT ELEVATION  
With lights and handrail omitted for clarity.  
For Section B-B, see Base Sheet OS-A-10.



SECTION A-A

Handrail and walkway shall span a minimum of three brackets between splices and/or gap joints. Place all sign and walkway brackets as close to panel points as practical. Handrail joints, grating, and light support splices placed as needed.

Truss grating to facilitate inspection shall run full length (center to center of support frames)  $\pm 12"$  on overhead trusses. Cost of truss grating is included in "Overhead Sign Structure".

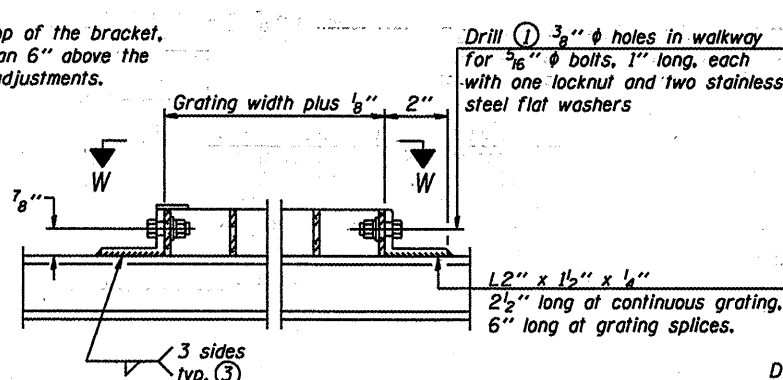
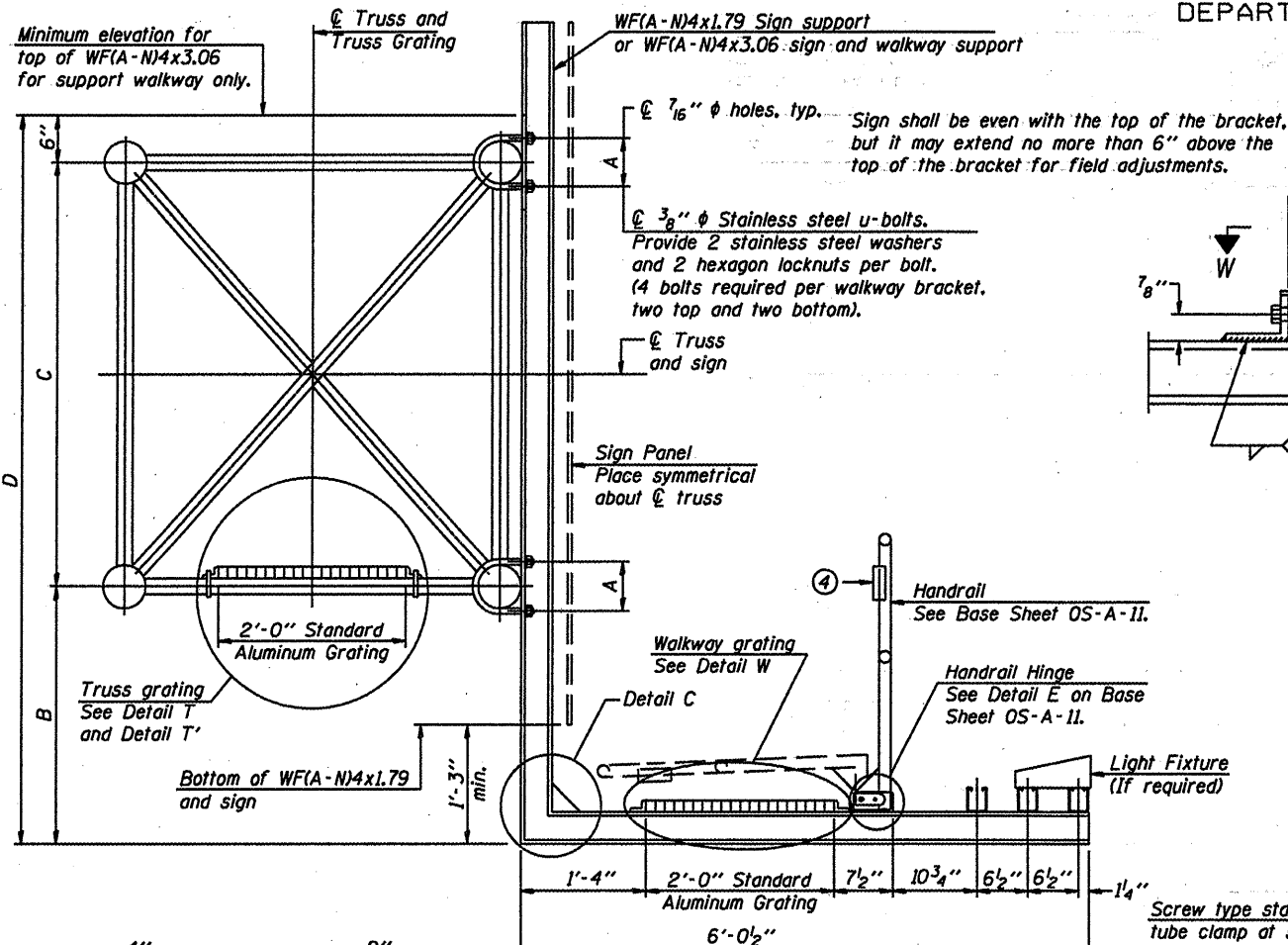
Walkway and Truss Grating width dimensions are nominal and may vary  $\pm 1/2"$  based on available standard widths.

| Structure Number | Station  | a   | b   | c   | d   | e   | Walkway Grating and Handrail Lengths |
|------------------|----------|-----|-----|-----|-----|-----|--------------------------------------|
| IS0161094L033.0  | 439 + 49 | N/A | N/A | N/A | N/A | N/A | 82'-0" *                             |
| IS0161094L030.8  | 558 + 80 | N/A | N/A | N/A | N/A | N/A | 77'-0" *                             |
| IS0161094L036.0  | 287 + 50 | N/A | N/A | N/A | N/A | N/A | 82'-0" *                             |
| IS022S083R000.0  | 45 + 00  | N/A | N/A | N/A | N/A | N/A | 87'-0" *                             |
| IS022S083R000.0  | 33 + 00  | N/A | N/A | N/A | N/A | N/A | 84'-0" *                             |

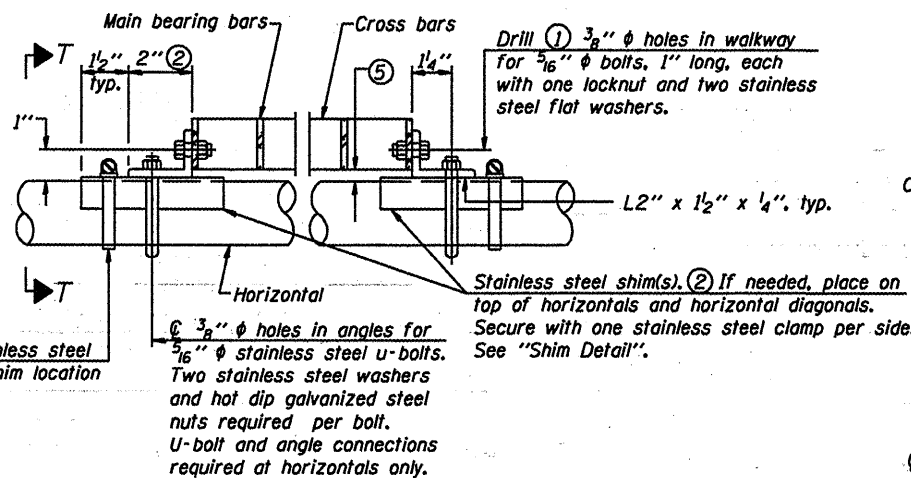
\* Length shown is for the internal truss grating to be installed.

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

District 1  
Overhead Sign Structure  
Repair & Replacement



DETAIL W  
(Walkway grating)



DETAIL T  
(Continuous Truss grating)

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

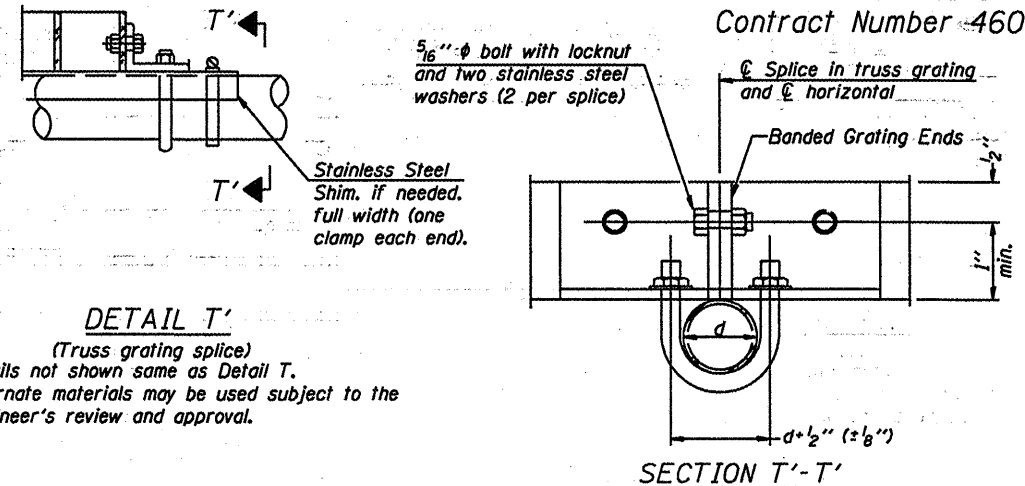
Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B221 Alloy 6061-T6.  
Cross bars shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR

Aluminum Grating with modified "I" sections for main bearing bars shall meet the following requirements:  
Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.<sup>3</sup> per bar, a depth of 1 1/2", spaced on 1 3/16" centers.  
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.

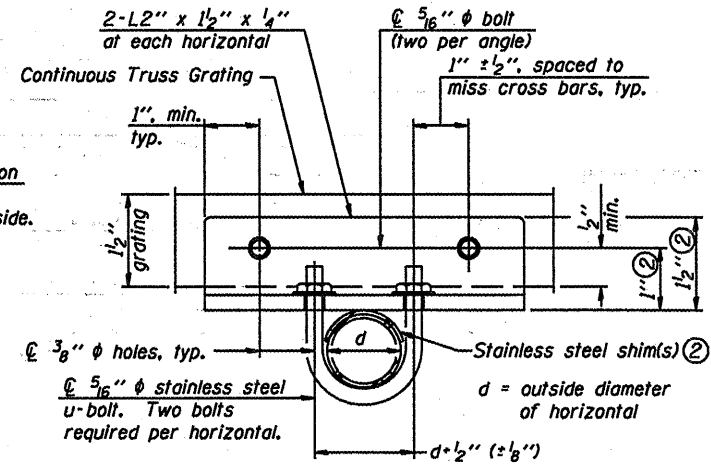
This Sheet For Information Only

| Structure Number | Station | A | B | C | D |
|------------------|---------|---|---|---|---|
|                  |         |   |   |   |   |
|                  |         |   |   |   |   |
|                  |         |   |   |   |   |
|                  |         |   |   |   |   |
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DETAIL T'  
(Truss grating splice)

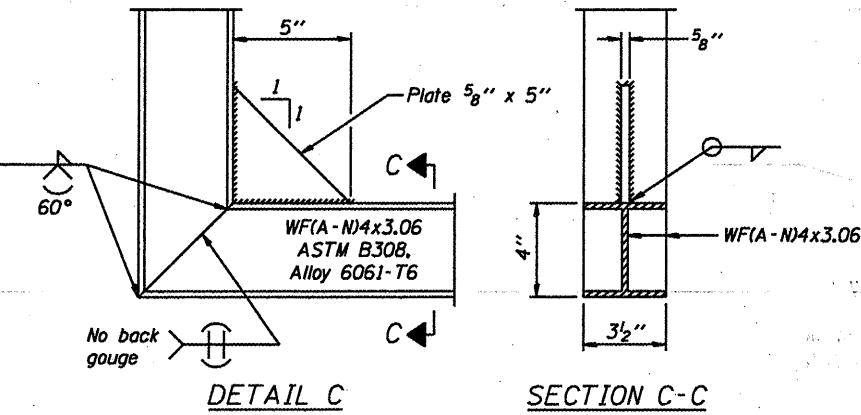
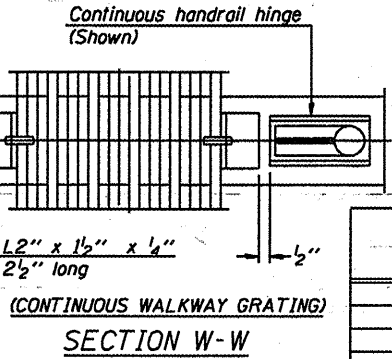
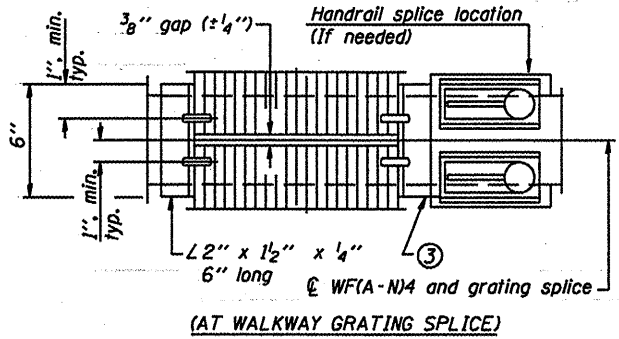
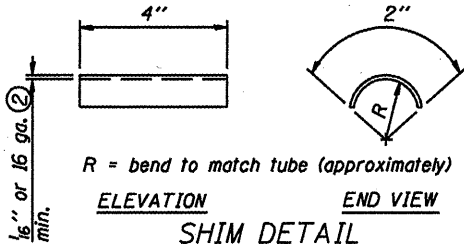
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.



- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- Stainless steel shims shall be placed as shown in Detail T if needed to compensate for alignment variations between horizontal and diagonal pipes beyond adjustment provided by angles. Thicker shims may be used subject to shims performing properly.
- If Handrail Joint present, weld angle to WFA-N4 and 1/4" extension bars. (See Base Sheet OS-A-II.)
- 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.

OVERHEAD SIGN STRUCTURES  
ALUMINUM WALKWAY DETAILS

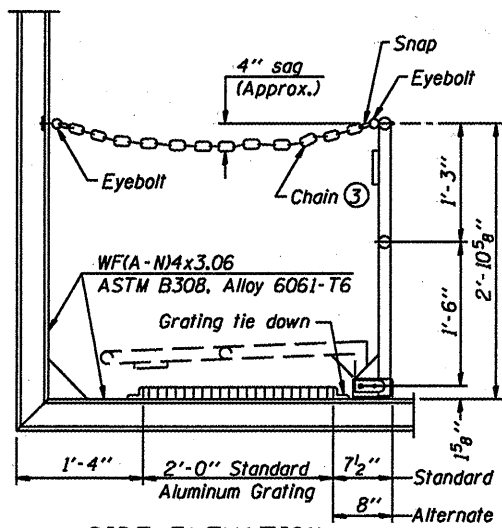
District 1  
Overhead Sign Structure  
Repair & Replacement



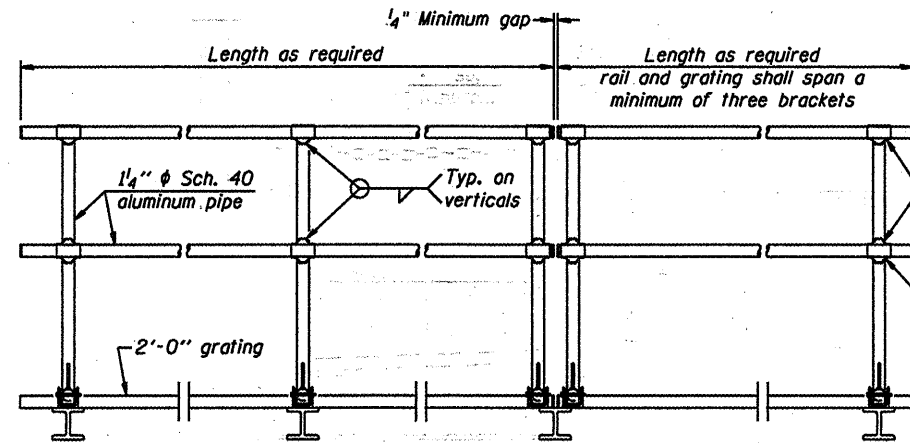
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| DESIGNED - | 20       |
| CHECKED -  | EXAMINED |
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**SIDE ELEVATION**  
(Showing safety chain w/o sign)

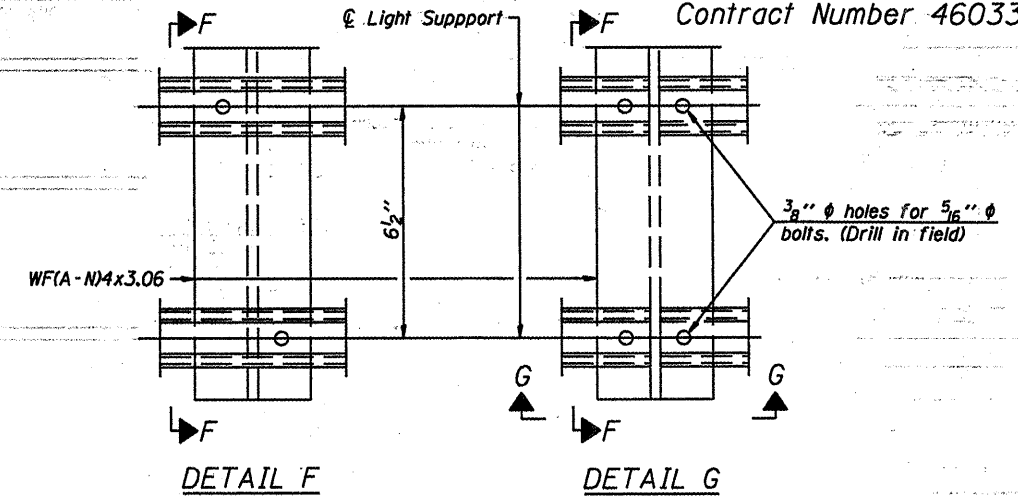


**FRONT ELEVATION**

**HANDRAIL DETAILS**

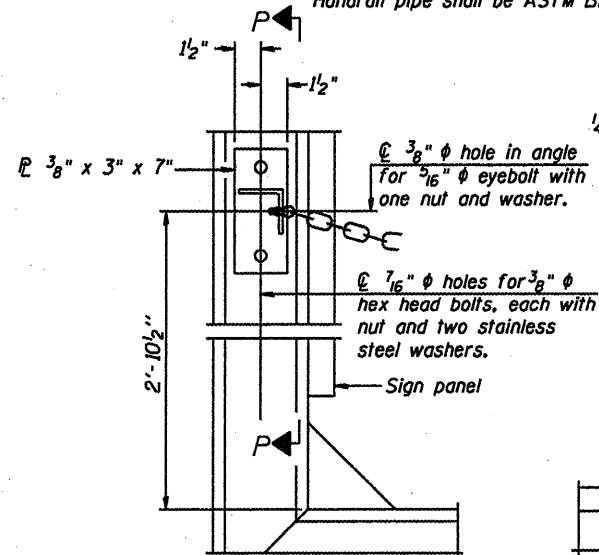
Handrail pipe shall be ASTM B241 or B429, Alloy 6063-T6 or Alloy 6061-T6.

- Install standard force-fit end caps or weld 1/2" end plates with 1/2" c.f.w. and grind smooth. (All rail ends)
- Horizontal handrail member shall be continuous thru fitting. Provide 1/16" hole in fitting for 3/8" bolt. Field drill 1/16" hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 1/16" holes on top rail at ends only.)



**DETAIL F**

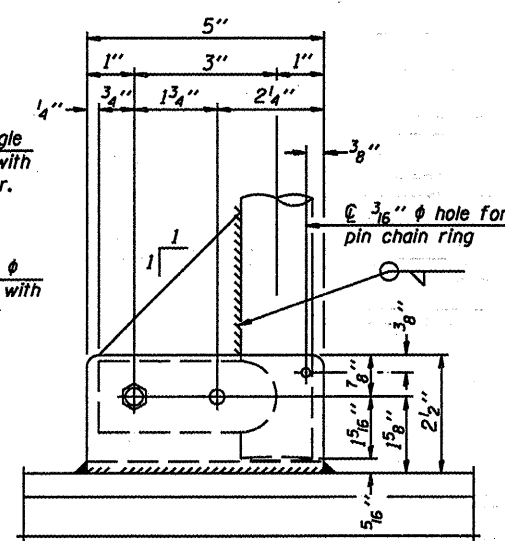
**DETAIL G**



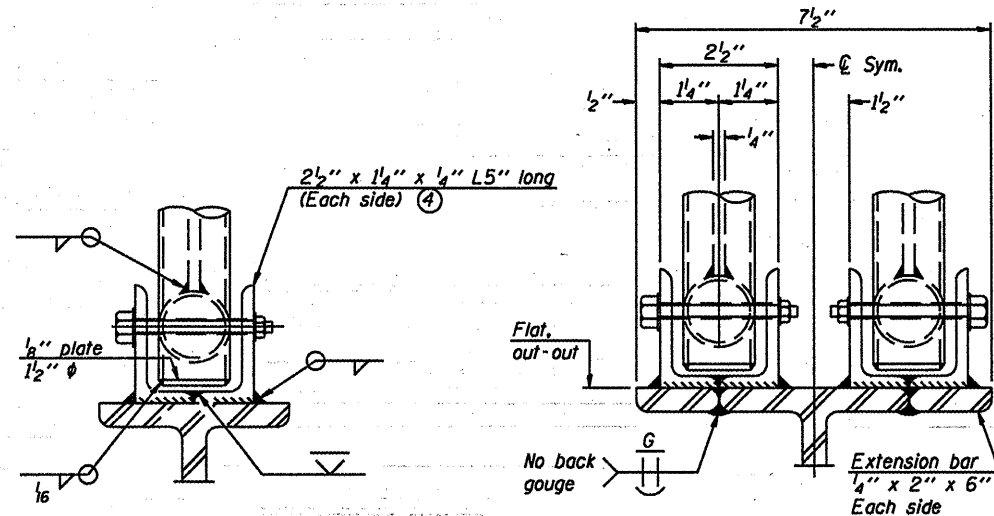
**ALTERNATE SAFETY CHAIN ATTACHMENT**

(With Sign Present)

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



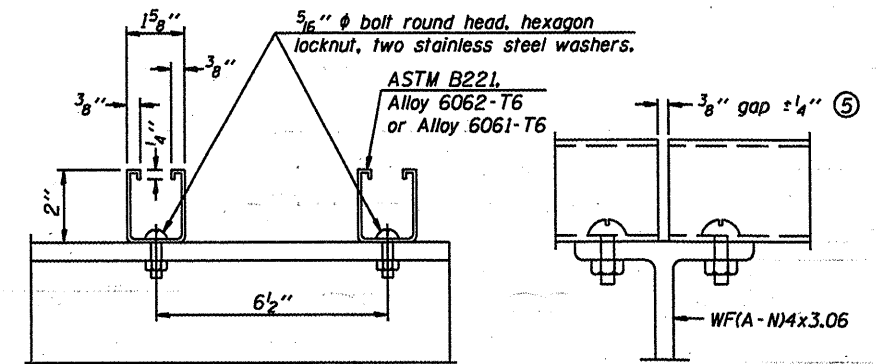
**SIDE ELEVATION**



**FRONT ELEVATION**

See "Elevation" at right for dimensions.

**ELEVATION AT HANDRAIL JOINT**

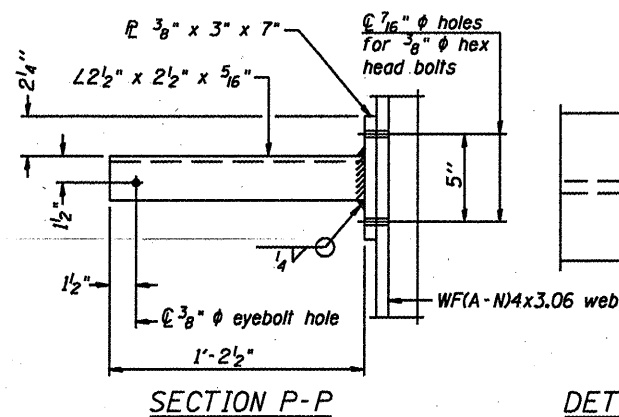


**SECTION F-F**

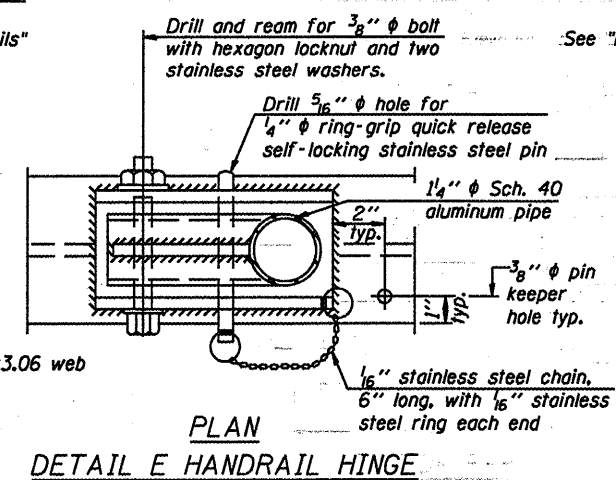
**SECTION G-G**

**LIGHTING FIXTURE MOUNTS (IF REQUIRED)**

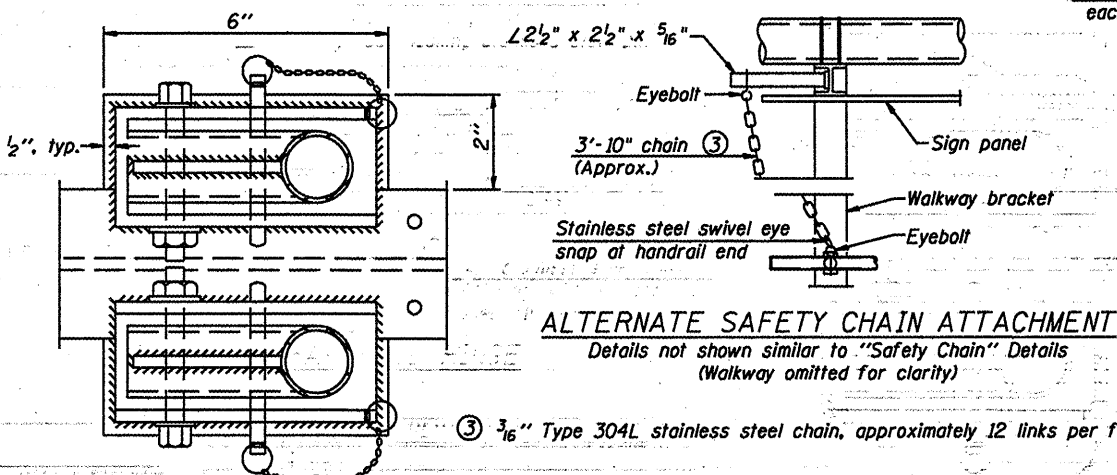
- Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.



**SECTION P-P**



**DETAIL E HANDRAIL HINGE**



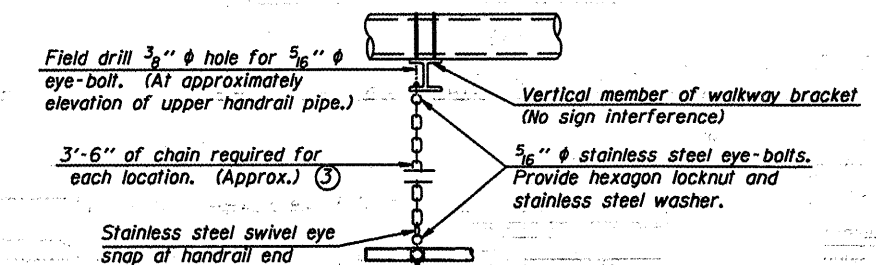
**PLAN AT HANDRAIL JOINT**

Details not shown same as "PLAN"

**ALTERNATE SAFETY CHAIN ATTACHMENT**

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

- 3/16" Type 304L stainless steel chain, approximately 12 links per foot.
- Extrusions may be used in lieu of the details shown, with approval of the Engineer.



**SAFETY CHAIN**

One required for each end of each walkway.

This Sheet For Information Only

**OVERHEAD SIGN STRUCTURES  
ALUMINUM HANDRAIL DETAILS**

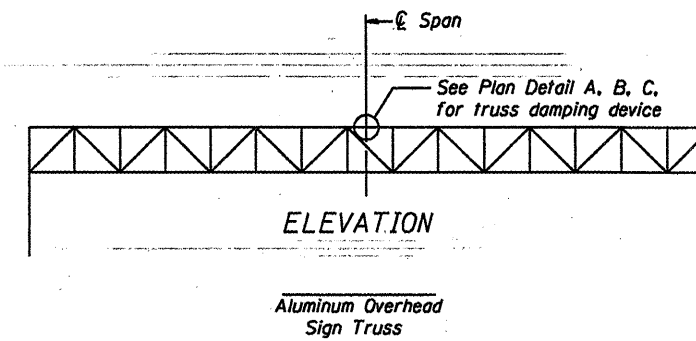
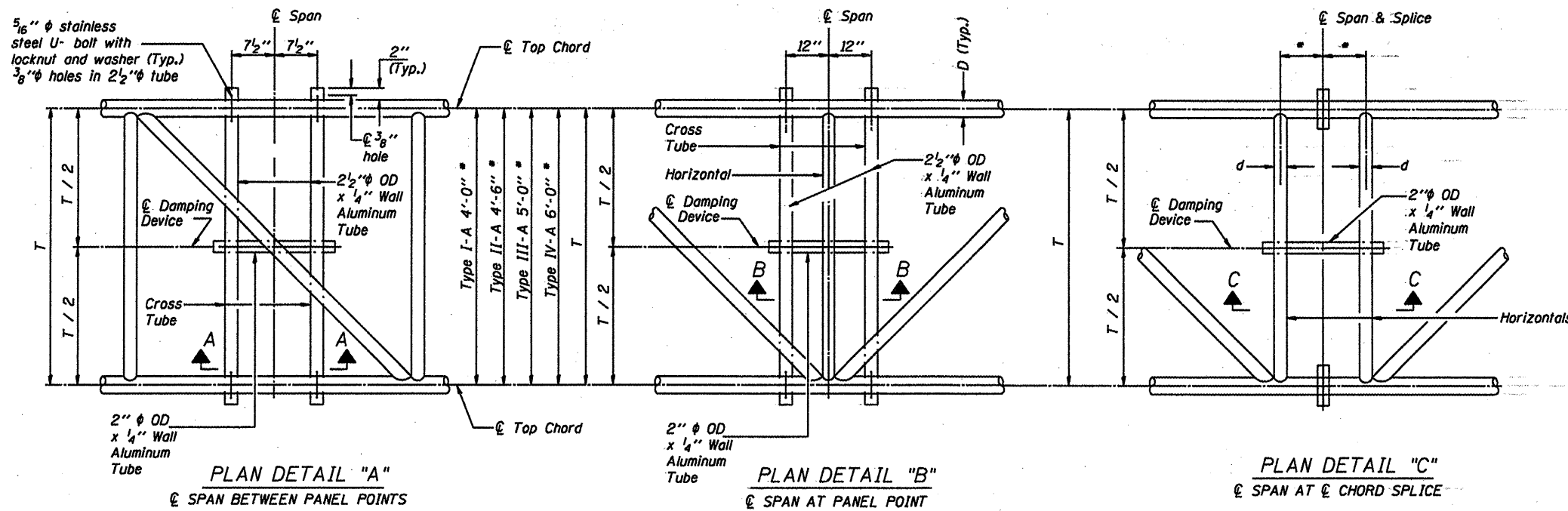
District 1  
Overhead Sign Structure  
Repair & Replacement

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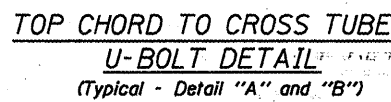
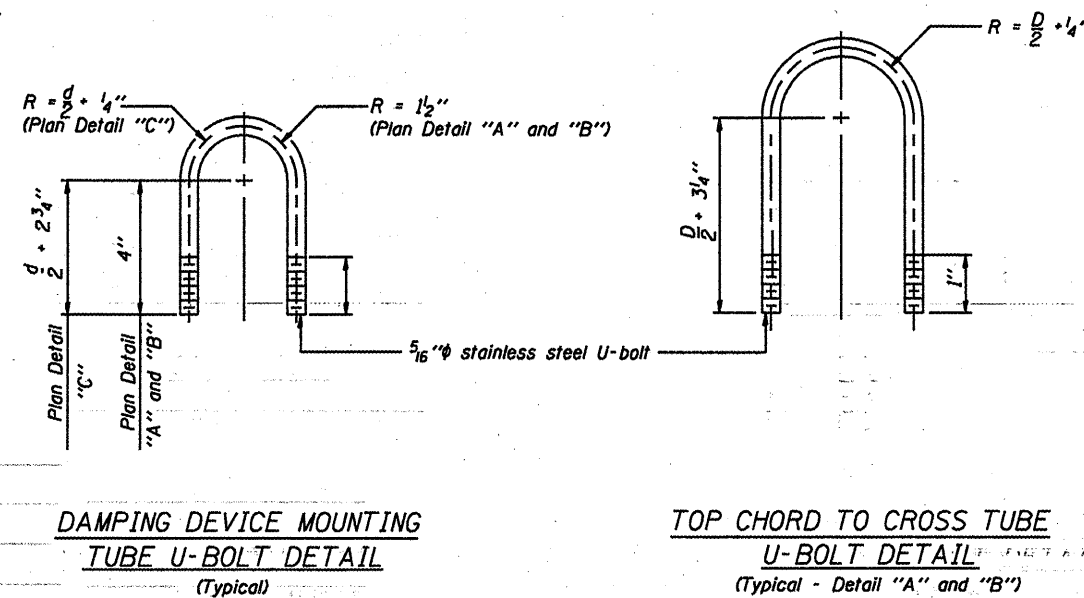
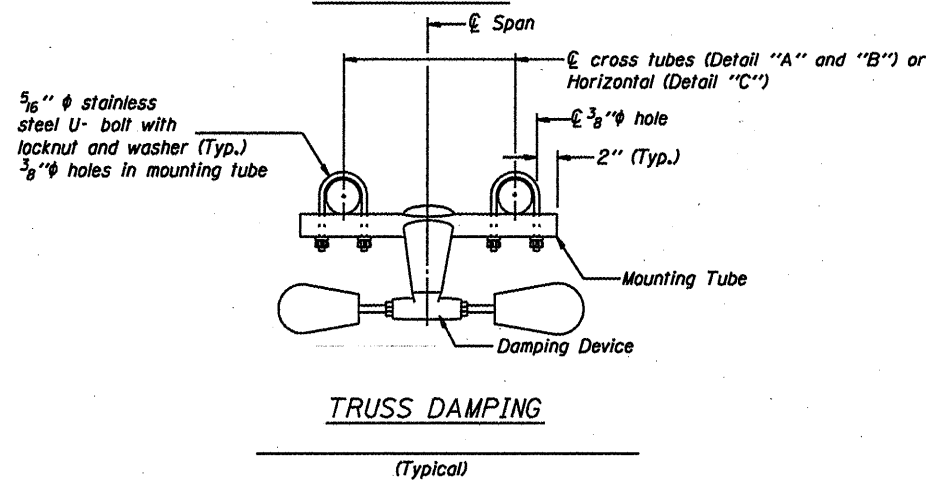
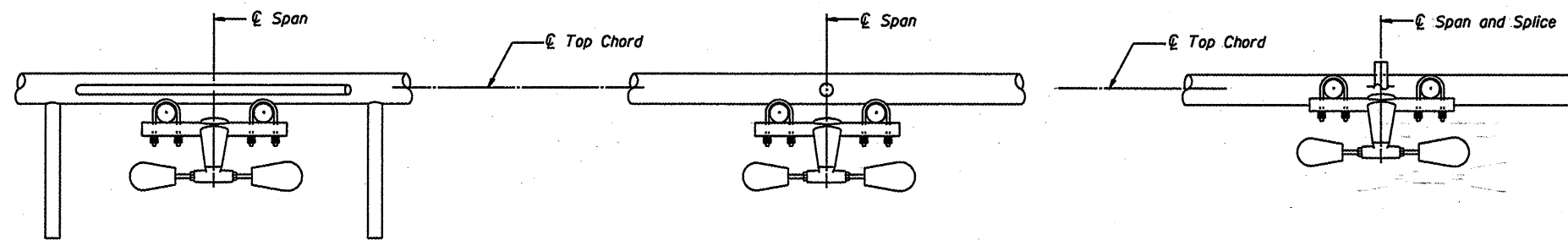
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| EXAMINED | ENGINEER OF BRIDGE DESIGN          |
| PASSED   | ENGINEER OF BRIDGES AND STRUCTURES |

| NUMBER | REVISION | DATE |
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Verify before drilling holes in mounting tube and cross tubes.



- This detail applies to the following overhead sign structures:
1. ISO16I094L030.8
  2. ISO16I094L036.0
  3. ISO22S083R000.0-002
  4. ISO22S083R000.0-001



**GENERAL NOTES**

**Damper:** One damper per truss. (31 lbs. Stockbridge-Type Aluminum)

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

**Fasteners:** U-bolts shall be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finish, or an equivalent material acceptable to the Engineer. All nuts shall be stainless steel conforming to ASTM A194, Grade 8 (AISI Type 304) or Grade 8F (AISI Type 303). The nuts shall be "locknuts" with nylon or steel inserts and semifinished hexagonal heads equivalent to the finished hex series of the American National Standards. All washers shall be stainless steel conforming to ASTM A240, Type 302 or 304.

|            |          |
|------------|----------|
| DESIGNED - | 20       |
| CHECKED -  | EXAMINED |
| DRAWN -    | PASSED   |
| CHECKED -  |          |

TRUSS DAMPER RETROFIT 07-01-2001

OVERHEAD SIGN STRUCTURE  
DAMPING DEVICE

District 1  
Overhead Sign Structure  
Repair & Replacement



P.O. BOX 640  
 FRANKFORD, OH 45628  
 PHONE: 740-898-2122  
 FAX: 740-898-2073

Job Number:  
 05-L-195 P2

Project Number:  
 C-91-048-05

Section:  
 Route:

State: ILLINOIS  
 County/City: LAKE/COOK/DUPAGE

Date: 5/27/2005

Drawn By: DebS

File Name: G:\SignMaker\Jobs\2005\05L195.dwg

| Notes:                |       | Sign Number:  | 05               |       |       |       |       |
|-----------------------|-------|---------------|------------------|-------|-------|-------|-------|
|                       |       | Item Number:  | 1/OVERHEAD-TRUSS |       |       |       |       |
|                       |       | Location:     |                  |       |       |       |       |
|                       |       | Length:       | 15'6" (188.00)   |       |       |       |       |
|                       |       | Top           | Bottom           |       |       |       |       |
|                       |       | Height:       | 0'0" (108.00)    |       |       |       |       |
|                       |       | Edge Mat'l:   | Extra (1M)       |       |       |       |       |
|                       |       | Ref:          | H                |       |       |       |       |
|                       |       | Color:        | Green            |       |       |       |       |
|                       |       | Border Mat'l: | .040             |       |       |       |       |
|                       |       | Ref:          | PRSN             |       |       |       |       |
|                       |       | Color:        | White            |       |       |       |       |
|                       |       | Width:        | 3.00             |       |       |       |       |
|                       |       | Radius:       | 0.00             |       |       |       |       |
|                       |       | Margins:      |                  |       |       |       |       |
|                       |       | Mount Type:   | Overhead         |       |       |       |       |
|                       |       | Supports:     | 3                |       |       |       |       |
| Symbol                | Mat'l | Ref.          | Color            | X     | Y     | Wid   | Ht    |
| H1-1 w/18.00" Spacing | .040  | PRSN          | White            | 01.00 | 02.00 | 33.00 | 33.00 |



#2  
 Initial by: [Signature]  
 Manufactured in place by: [Signature]  
 Calculated by: [Signature]  
 Checked by: [Signature]

Structure No. 15016I094L030.8-000 (RS-10) P1

| Y Series | Letter Spacings |   |   |   |   |   |   |  |  |  |  |  |  |  |  | Ht | Mat'l Ref. Color |       |                 |
|----------|-----------------|---|---|---|---|---|---|--|--|--|--|--|--|--|--|----|------------------|-------|-----------------|
| 74.00    | M               |   |   |   |   |   |   |  |  |  |  |  |  |  |  |    |                  | 12.00 | .040 PRSN White |
| 85.00    | E               | S | T |   |   |   |   |  |  |  |  |  |  |  |  |    |                  | 12.00 | .040 PRSN White |
| 103.00   | T               | D | L | L | W | A | Y |  |  |  |  |  |  |  |  |    |                  | 10.00 | .040 PRSN White |
| 124.00   | M               | I | L | W | O | K | E |  |  |  |  |  |  |  |  |    |                  | 10.00 | .040 PRSN White |
| 135.00   | R               | I | G | H | T |   |   |  |  |  |  |  |  |  |  |    |                  | 12.00 | .040 PRSN White |
| 146.00   | 3/4             |   |   |   |   |   |   |  |  |  |  |  |  |  |  |    |                  | 10.00 | .040 PRSN White |
| 157.00   | M               | I | L | E |   |   |   |  |  |  |  |  |  |  |  |    |                  | 12.00 | .040 PRSN White |

Date: 9/27/2005

Drawn By: DabS

File Name: G:\SignMaker\John\2005\0511195.dwg



P.O. BOX 840  
 FRANKFORT, OH 45628  
 PHONE: 740-898-8122  
 FAX: 740-898-2073

Job Number:  
 05-IL-195

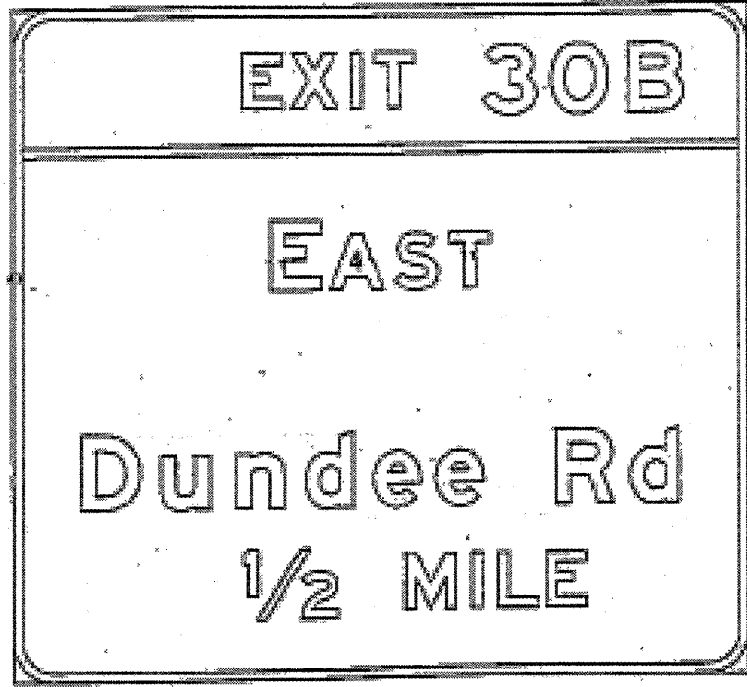
Project Number:  
 C-91-048-05

Section:  
 Route:

State: ILLINOIS  
 County/City: LAKE/COOK/DUPAGE

|                   |               |                 |       |      |        |       |      |
|-------------------|---------------|-----------------|-------|------|--------|-------|------|
| Notes:            | Sign Number:  | 56              |       |      |        |       |      |
|                   | Item Number:  | 1/OVERHEAD-PLSS |       |      |        |       |      |
|                   | Location:     |                 |       |      |        |       |      |
|                   | Length:       | 17'6" (163.00)  |       |      |        |       |      |
|                   |               | Top Bottom      |       |      |        |       |      |
|                   | Height:       | 17'0" (154.00)  |       |      |        |       |      |
|                   | Blkg Mat'l:   | Enin (LW)       |       |      |        |       |      |
|                   | Ref:          | 11              |       |      |        |       |      |
|                   | Color:        | Green           |       |      |        |       |      |
|                   | Border Mat'l: | .040            |       |      |        |       |      |
| Ref:              | PHSM          |                 |       |      |        |       |      |
| Color:            | White         |                 |       |      |        |       |      |
| Width:            | 2.00          |                 |       |      |        |       |      |
| Radius:           | 0.00          |                 |       |      |        |       |      |
| Mounting:         |               |                 |       |      |        |       |      |
| Mount Type:       | Postered      |                 |       |      |        |       |      |
| Support:          | 5             |                 |       |      |        |       |      |
| Symbol            | Mat'l         | Ref.            | Color | X    | Y      | Wid   | Ht   |
| Horizontal Border | 040           | PHSM            | White | 0.00 | 112.00 | 15.00 | 2.00 |

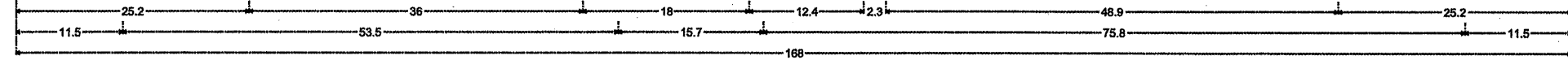
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1



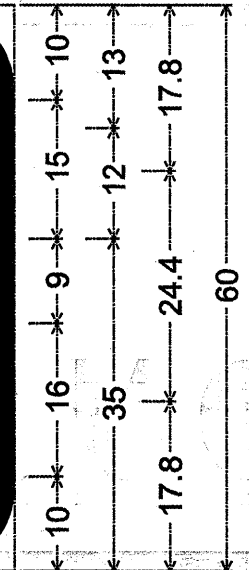
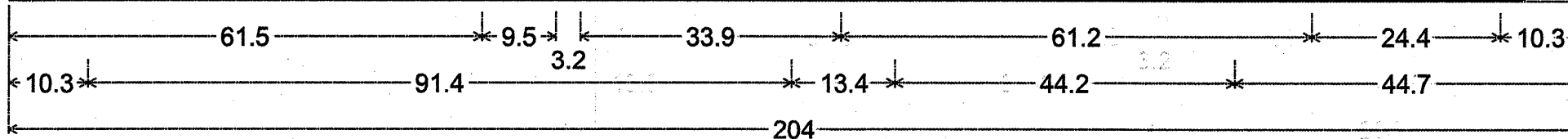
Initial(s) CS 9/28/05  
 Measured in place by: \_\_\_\_\_  
 Created by: \_\_\_\_\_  
 Checked by: \_\_\_\_\_

Structure No. 13016 I094L030.8-000 (RS-10) P1

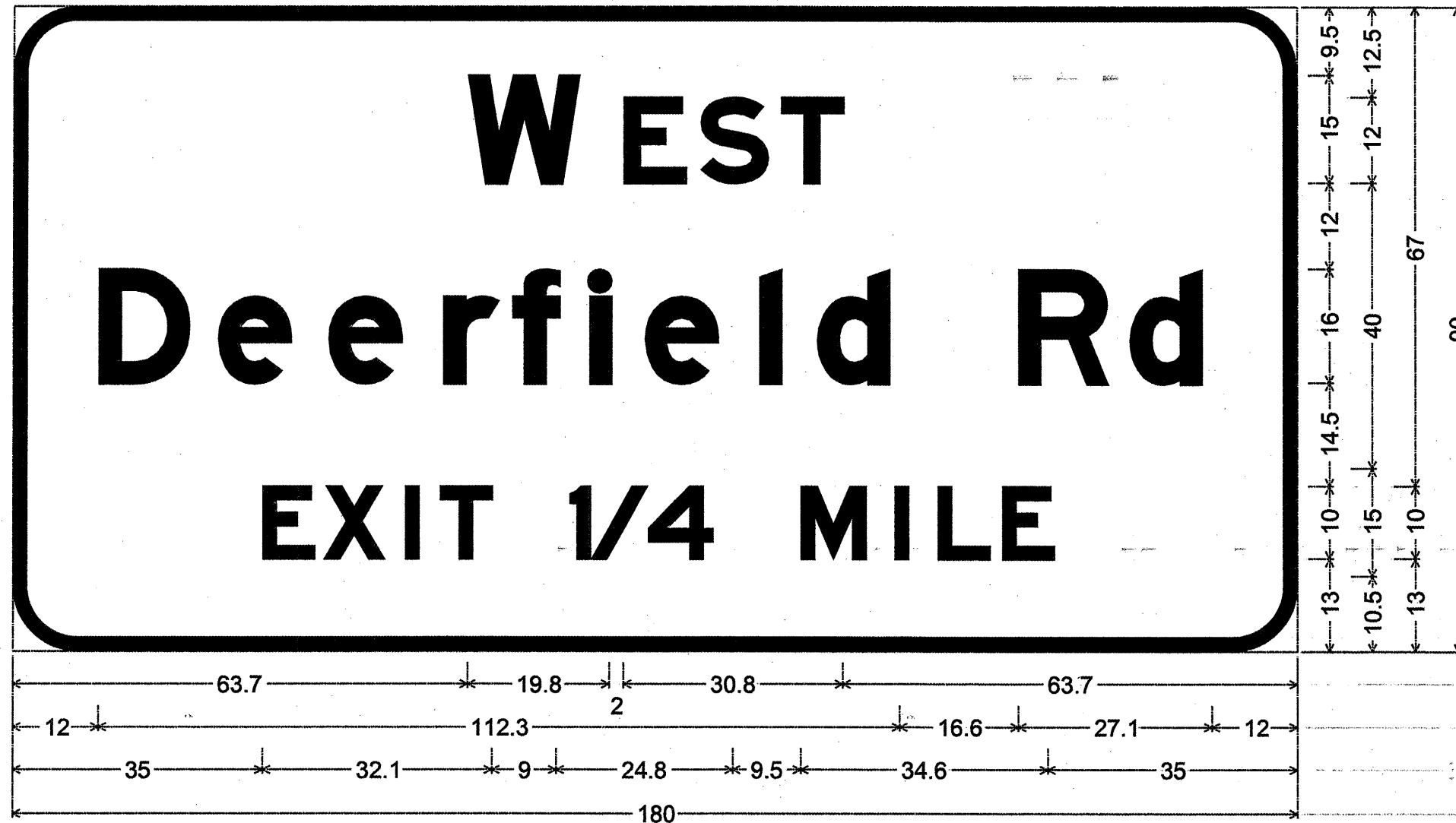
| Y         | Letter Spacings |       |       |       |      |      |  |  |  |  | Ht    | Mat'l |       |
|-----------|-----------------|-------|-------|-------|------|------|--|--|--|--|-------|-------|-------|
| Series    | E               | X     | I     | T     |      |      |  |  |  |  | Len   | Ref.  | Color |
| 02.00     |                 |       |       |       |      |      |  |  |  |  | 02.00 | J40   | White |
| Series ID | 50.3            | 63.2  | 74.8  | 79.5  |      |      |  |  |  |  | 02.00 | J40   | White |
| 03.00     | S               | D     | B     |       |      |      |  |  |  |  | 03.00 | J40   | White |
| Series ID | 103.4           | 118.1 | 133.8 |       |      |      |  |  |  |  | 03.00 | J40   | White |
| 04.00     | E               |       |       |       |      |      |  |  |  |  | 04.00 | J40   | White |
| Series ID | 56.8            |       |       |       |      |      |  |  |  |  | 04.00 | J40   | White |
| 05.00     | A               | G     | T     |       |      |      |  |  |  |  | 05.00 | J40   | White |
| Series ID | 63.8            | 84.3  | 88.2  |       |      |      |  |  |  |  | 05.00 | J40   | White |
| 07.00     | D               | U     | G     | A     | E    |      |  |  |  |  | 07.00 | J40   | White |
| Series ID | 18.7            | 32.5  | 46.3  | 64.2  | 78.4 | 83.3 |  |  |  |  | 07.00 | J40   | White |
| 07.00     | R               | d     |       |       |      |      |  |  |  |  | 07.00 | J40   | White |
| Series ID | 119.0           | 138.3 |       |       |      |      |  |  |  |  | 07.00 | J40   | White |
| 08.00     | 1/2             |       |       |       |      |      |  |  |  |  | 08.00 | J40   | White |
| Series ID | 80.0            |       |       |       |      |      |  |  |  |  | 08.00 | J40   | White |
| 14.00     | M               | I     | L     | E     |      |      |  |  |  |  | 14.00 | J40   | White |
| Series ID | 85.8            | 101.0 | 105.8 | 117.8 |      |      |  |  |  |  | 14.00 | J40   | White |



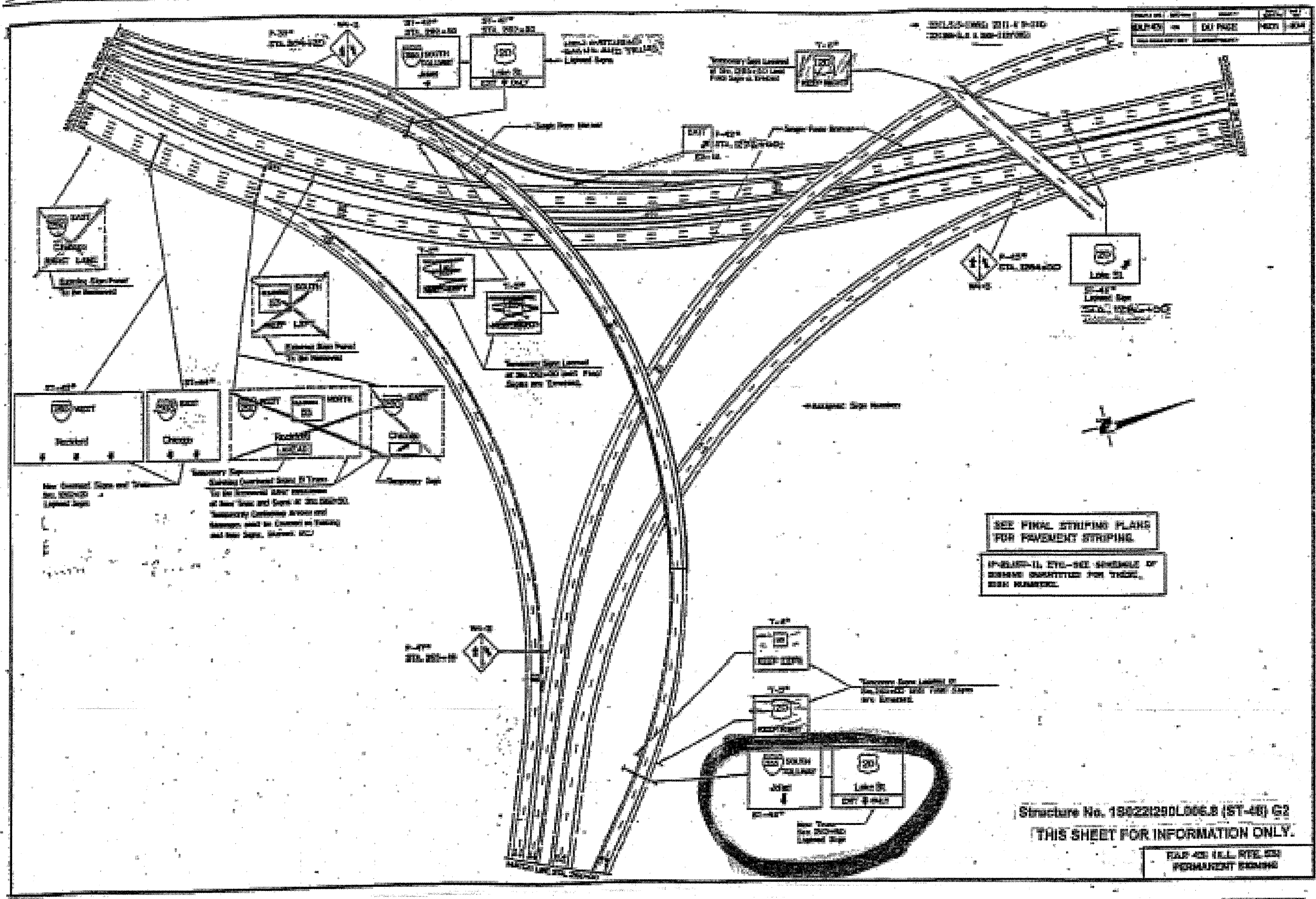
Structure No. 1S0161094L030.8-000 (RS-10) PL; 12.0" Radius, 2.0" Border, White on Green;  
 [NORTH] ClearviewHwy-5-W; [LEFT LANES] ClearviewHwy-5-W specified length;



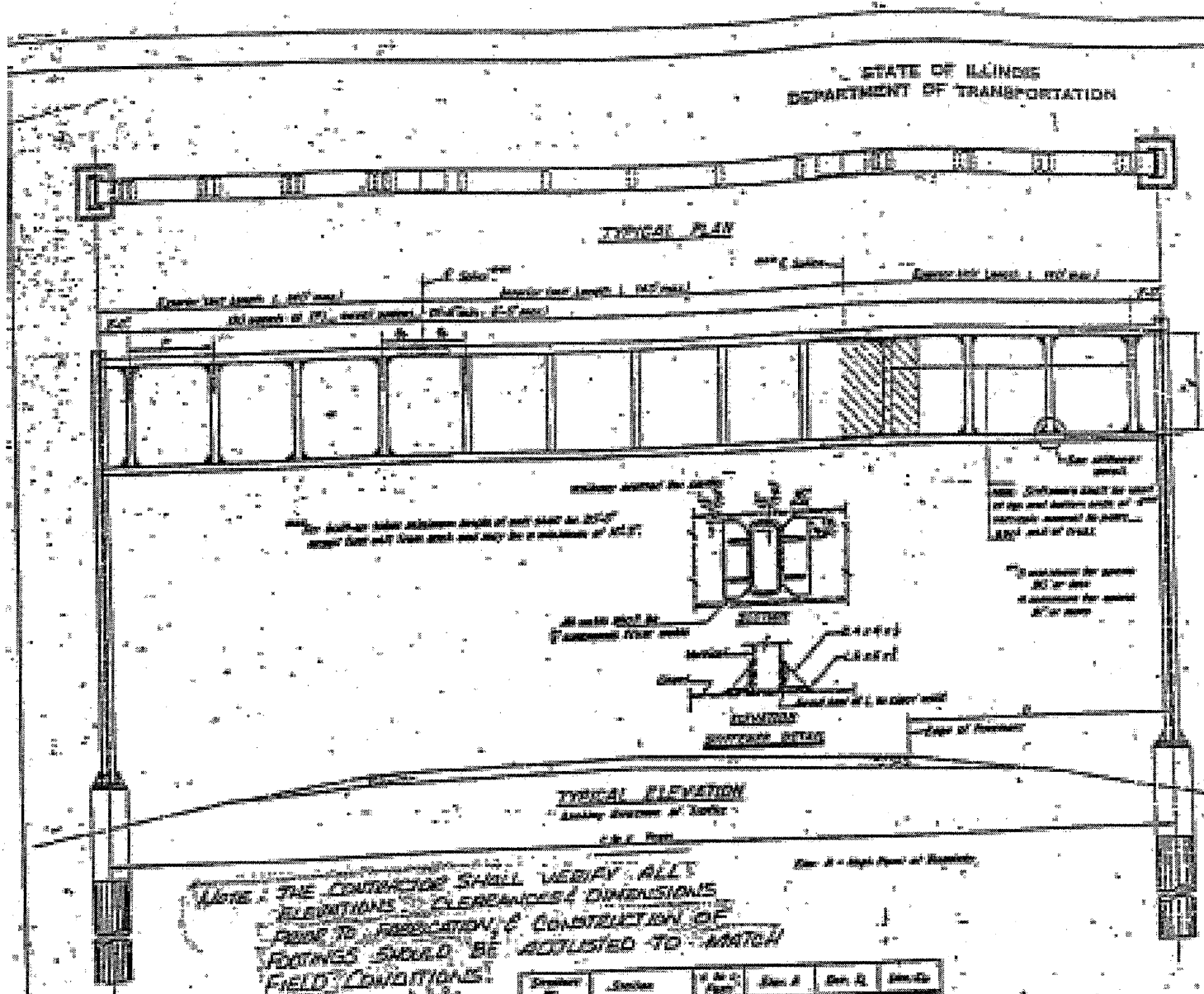
For Structure No. 1S049U041R000.0; 9.0" Radius, 2.0" Border, White on Green; [EAST] ClearviewHwy-5-W; [Central Ave] ClearviewHwy-5-W specified length; Standard Arrow Custom-31.1" X-18.8" 45°; Standard Arrow Custom-31.1" X-18.8" 45°;



For Structure No. 1S049U041R000.0; 9.0" Radius, 2.0" Border, White on Green;  
 [W EST] ClearviewHwy-5-W; [Deerfield Rd] ClearviewHwy-5-W-R specified length; [EXIT] ClearviewHwy-5-W;  
 [1/4 MILE] ClearviewHwy-5-W;



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION



**GENERAL NOTES**

1. **CONSTRUCTION:** General Requirements for Road and Bridge Construction, State of Illinois, March 1982; Specifications for Steel and Alloy Steel Structures, Standard Specifications for Traffic Control Signs, Manual No. 1, 1982; and Standard Practices.

2. **MINIMUM CLEARANCE:** Vertical Highway Clearance = 17'-0" (SEE DIMENSIONS)

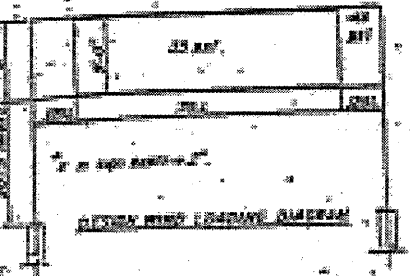
3. **LOADING:** WIND LOADS SHALL BE IN ACCORDANCE WITH THE FOLLOWING: WIND SPEED = 100 MPH (SEE SPECIFICATIONS) AND WIND PRESSURE COEFFICIENTS = 0.4 (SEE SPECIFICATIONS)

4. **PAINTING:** The structure and sign shall be painted in accordance with the specifications for Highway Signs, Manual No. 1, 1982, and the specifications for Highway Structures, Manual No. 1, 1982.

**TOTAL BILL OF MATERIAL**

| ITEM                                 | QUANTITY | UNIT | PRICE     | TOTAL     |
|--------------------------------------|----------|------|-----------|-----------|
| OVERHEAD SIGN STRUCTURE, SPAN 20'-0" | 1        | EA   | 10,000.00 | 10,000.00 |
| OVERHEAD SIGN STRUCTURE, SPAN 10'-0" | 1        | EA   | 5,000.00  | 5,000.00  |
| STEEL BRACKET, WIND RESISTANT        | 2        | EA   | 1,000.00  | 2,000.00  |
|                                      |          |      |           |           |
|                                      |          |      |           |           |
|                                      |          |      |           |           |

| Item No. | Description                   | Quantity | Unit | Price    | Total    |
|----------|-------------------------------|----------|------|----------|----------|
| ST-01    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-02    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-03    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-04    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-05    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-06    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-07    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-08    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-09    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-10    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-11    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-12    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-13    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-14    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-15    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-16    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-17    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-18    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-19    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-20    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-21    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-22    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-23    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-24    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-25    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-26    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-27    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-28    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-29    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-30    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-31    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-32    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-33    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-34    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-35    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-36    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-37    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-38    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-39    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-40    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-41    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-42    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-43    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-44    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-45    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-46    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-47    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-48    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-49    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |
| ST-50    | STEEL BRACKET, WIND RESISTANT | 2        | EA   | 1,000.00 | 2,000.00 |



THIS SHEET FOR INFORMATION ONLY.  
 STRUCTURE No. 1502212501.006.8 (ET-48) G2  
 OVERHEAD SIGN STRUCTURES  
 GENERAL PLAN & ELEVATION

EAU 451 B 3-250

|           |  |
|-----------|--|
| DATE:     |  |
| BY:       |  |
| CHECKED:  |  |
| APPROVED: |  |

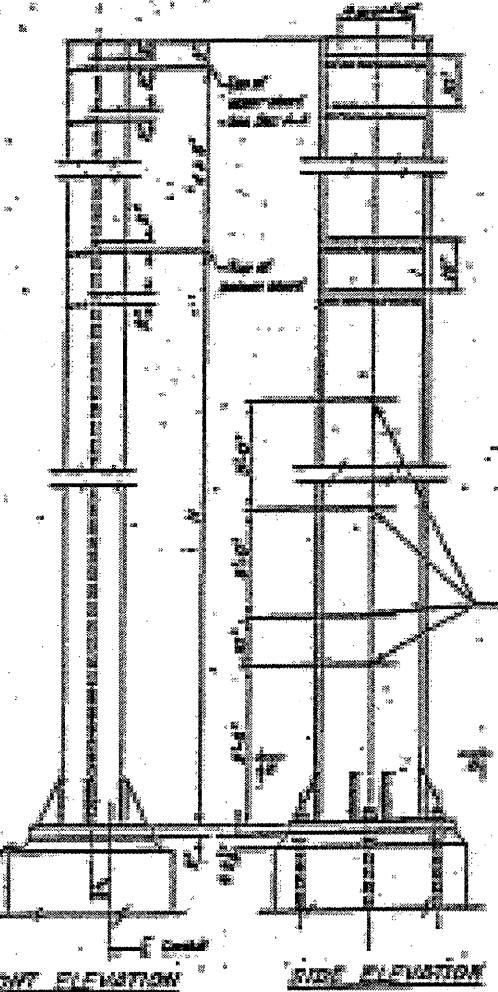
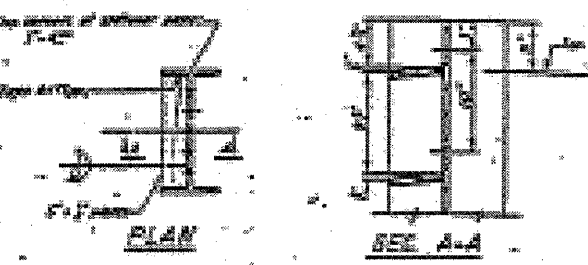
DS-3-1 SPECIAL



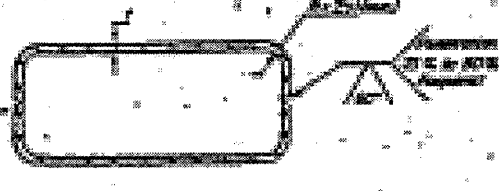
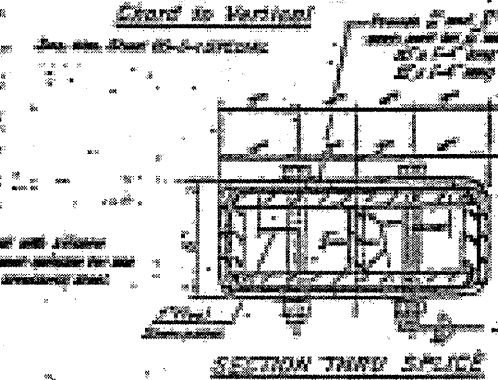
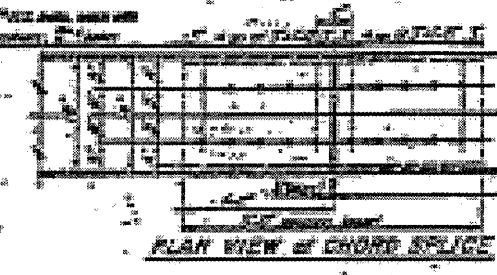
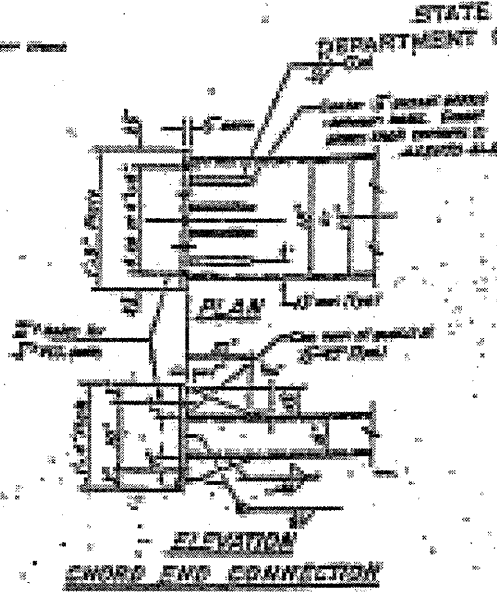
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

|                 |          |           |           |
|-----------------|----------|-----------|-----------|
| PROJECT NO.     | DATE     | BY        | CHKD      |
| 150221290L006.8 | 11/11/04 | J. J. ... | J. J. ... |

| Item  | Quantity | Unit | Material | Notes |
|-------|----------|------|----------|-------|
| ST-31 | 1        | EA   | STEEL    | ...   |
| ST-32 | 1        | EA   | STEEL    | ...   |
| ST-33 | 1        | EA   | STEEL    | ...   |
| ST-34 | 1        | EA   | STEEL    | ...   |
| ST-35 | 1        | EA   | STEEL    | ...   |
| ST-36 | 1        | EA   | STEEL    | ...   |



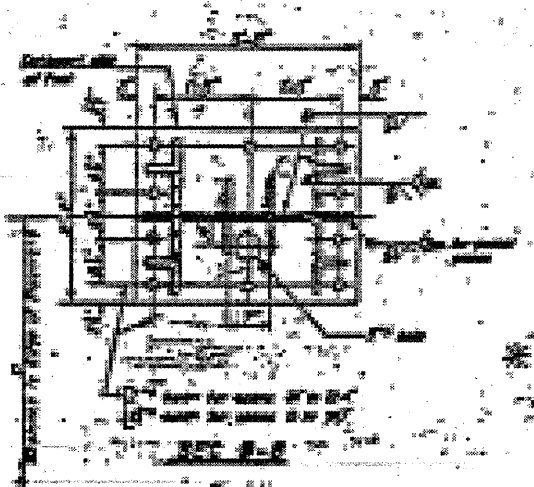
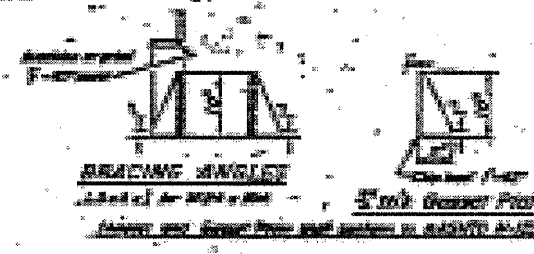
POST  
 8" x 8" x 1/4"



ALTERNATE BUILT-UP TUBE  
 Check, design and dimensions shall be as indicated by the members indicated in table.



CAMBER DIAGRAM



| Member No. | Section        | Span   | W  | H  | Flange | Web  | Flange | Web  | Flange | Web  | Flange | Web  | Flange | Web  | Flange | Web  |
|------------|----------------|--------|----|----|--------|------|--------|------|--------|------|--------|------|--------|------|--------|------|
| ST-31      | 8" x 8" x 1/4" | 12'-0" | 8" | 8" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" |
| ST-32      | 8" x 8" x 1/4" | 12'-0" | 8" | 8" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" |
| ST-33      | 8" x 8" x 1/4" | 12'-0" | 8" | 8" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" |
| ST-34      | 8" x 8" x 1/4" | 12'-0" | 8" | 8" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" |
| ST-35      | 8" x 8" x 1/4" | 12'-0" | 8" | 8" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" |
| ST-36      | 8" x 8" x 1/4" | 12'-0" | 8" | 8" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" | 1/4"   | 1/4" |

COMPONENTS SHALL BE AS  
 DETAILED IN SHOP DRAWINGS

The Contractor and the Engineer shall field verify the dimensions of the end support to be replaced prior to fabrication. The splice bolts for connecting the end supports to the truss shall be replaced with high strength hot dipped galvanized bolts of the proper size.

\* MODIFY SHOP DRAWINGS FOR STRUCTURES ST-31, ST-32 & ST-33

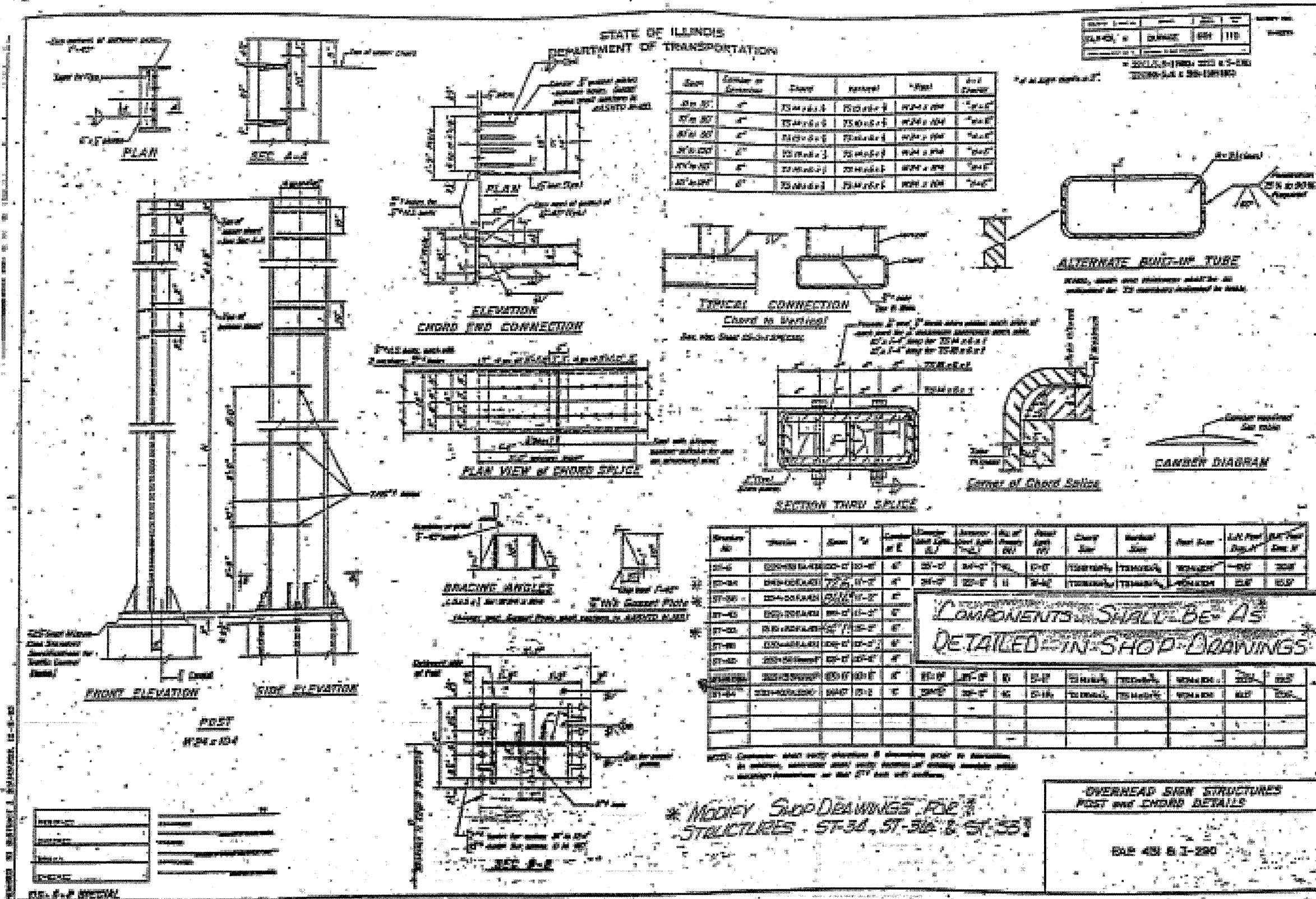
Structure No. 150221290L006.8 (ST-48) G2

OVERHEAD SIGN STRUCTURES  
 POST and CHORD DETAILS

FAR 431 B J-200







STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

Note: Unless construction specifications current at time contract is advertised. Special design notes or 2004 AASHTO Specifications, for modifications shall meet current specifications.

|     |      |    |       |      |
|-----|------|----|-------|------|
| NO. | DATE | BY | CHKD. | APP. |
|     |      |    |       |      |

GENERAL NOTES

**DESIGNATION:** AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals - State D

**CONSTRUCTION:** Standard Specifications for Road and Bridge Construction, State of Illinois Supplemental Specifications for Road and Bridge Construction, Standard Specifications for Traffic Control Items and Special Provisions. (State D)

**MINIMUM CLEARANCE:** Vertical Minimum Clearance = 17'-3" (See Instructions)

**LOADING:** 30 P.S.F. WIND VELOCITY

**WIND LOADINGS:** 30 p.s.f. applied to sign panel area as shown below in Wind Loading Diagram per 4.1 A.S.T. referred to exposed frame members.

**RAILROAD LOADINGS:** See Load per BSS# concentrated Live Load

**MATERIALS:**

**REINFORCEMENT BARS:** shall conform to the requirements of AASHTO M31 or M32, Grade 60. Reinforcement designated (E) shall be epoxy coated in accordance with Art. 702.02 of the Standard Specifications.

**GRADE OF CONCRETE:** shall be used throughout.

**STRUCTURAL STEEL:** All materials for frame, bolts, post assemblies, angles, channels and sheet piling shall conform to either ASTM A 360 Grade C or AASHTO M 210 Grade 50 or A572 Gr. 50 or M-210. For plate steel, sign brackets, welds, etc., see respective notes.

Materials identified by a "C" in structural details shall satisfy the 10' or frequency longitudinal Charpy V-notch (CNS) impact test requirements of 25 ft.-lbs. at 40° F., per AASHTO T-242 and T-244. This test includes chords, verticals, posts, 1/2" gusset plates, 3/4" chord-to-post stiffener plates and bracing angles and all other details identified except bolts.

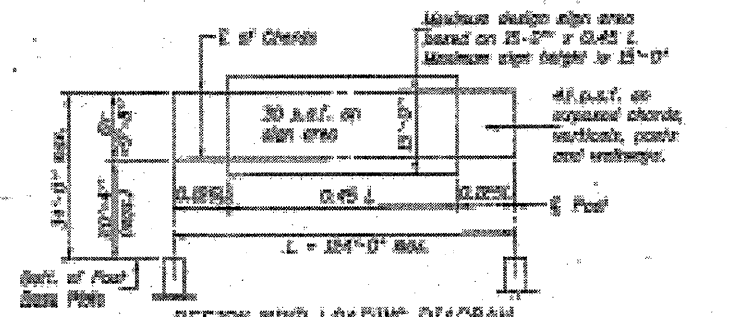
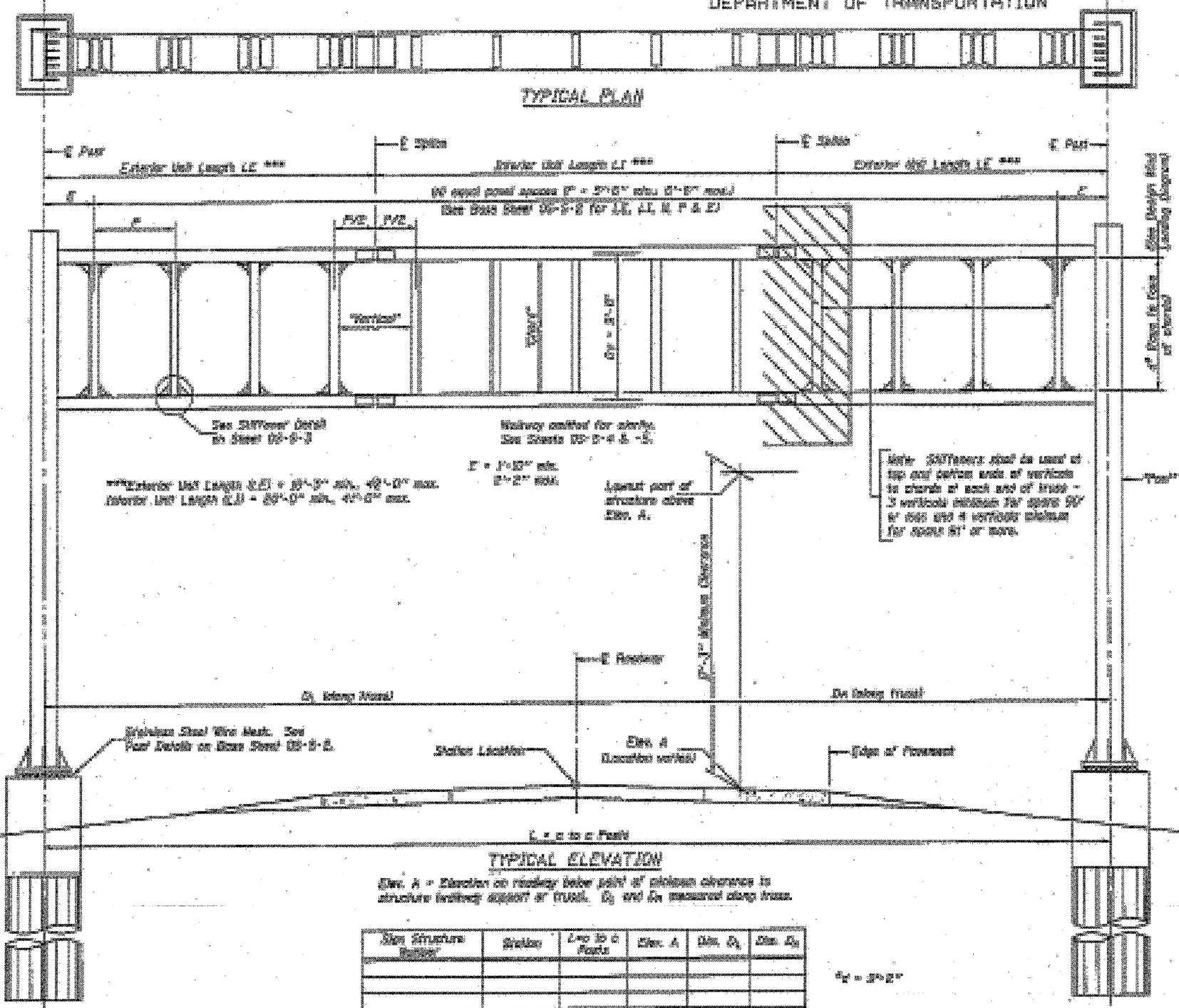
**HIGH STRENGTH BOLTS:** shall conform to the requirements of AASHTO M 294 and shall be galvanized per ASTM B693, Class 30.

**PAINTING:** The Organic zinc-rich primer/Epoxy/Unsaturated Polyester resin shall be used for shop painting of new structural steel, except anchor bolts and structural steel across shall not be painted. The color of the final finishing coat shall be "Weather Brown", Mineral Ox. 2.5 FT 1/2. See the Special Provisions "Coating and Painting New Steel Structures".

**WELDING:** All welding shall be in accordance with the Standard Specifications for Road and Bridge Construction. (State D)

**ANCHOR BOLTS:** shall conform to AASHTO M-214 Gr. 50 with a minimum Charpy V-notch (CNS) energy of 25 ft.-lbs. at -20° F. Steel shall be galvanized.

**CONCRETE SURFACES:** Bridge Deck Slabs shall be applied to all concrete surfaces above an elevation 6" below the final ground line in accordance with Art. 507 of the Standard Specifications. (See Appendix to Drilled Shaft Concrete Foundations.)



**DESIGN WIND LOADING DIAGRAM**  
 Parameters shown are based on I.S.G.T. Standards. Modifications per within dimensional limits shown require special analysis for all components, and must be submitted to the I.S.G.T. Bureau of Bridges and Structures for approval. (Note 2)

TOTAL BILL OF MATERIAL

|  |          |
|--|----------|
| OVERHEAD SIGN STRUCTURE - SPAN SPECIAL   | Lbs. Ft. |
| OVERHEAD SIGN STRUCTURE BALANCE - TYPE 2 | Lbs. Ft. |
| DRILLED SHAFT CONCRETE FOUNDATIONS       | Cu. Yds. |
|  |          |
|  |          |

| Sign Structure | Spans | L x W to G | Elev. A | Min. D <sub>1</sub> | Min. D <sub>2</sub> |
|----------------|-------|------------|---------|---------------------|---------------------|
|                |       |            |         |                     |                     |
|                |       |            |         |                     |                     |
|                |       |            |         |                     |                     |
|                |       |            |         |                     |                     |
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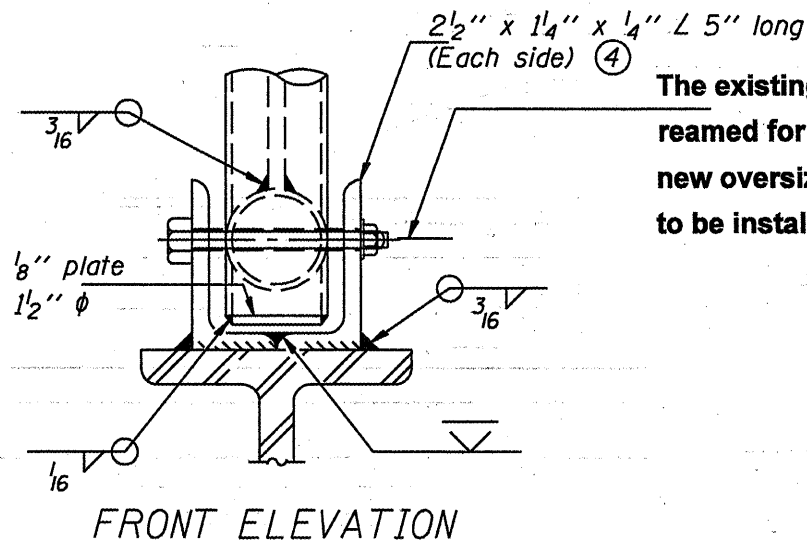
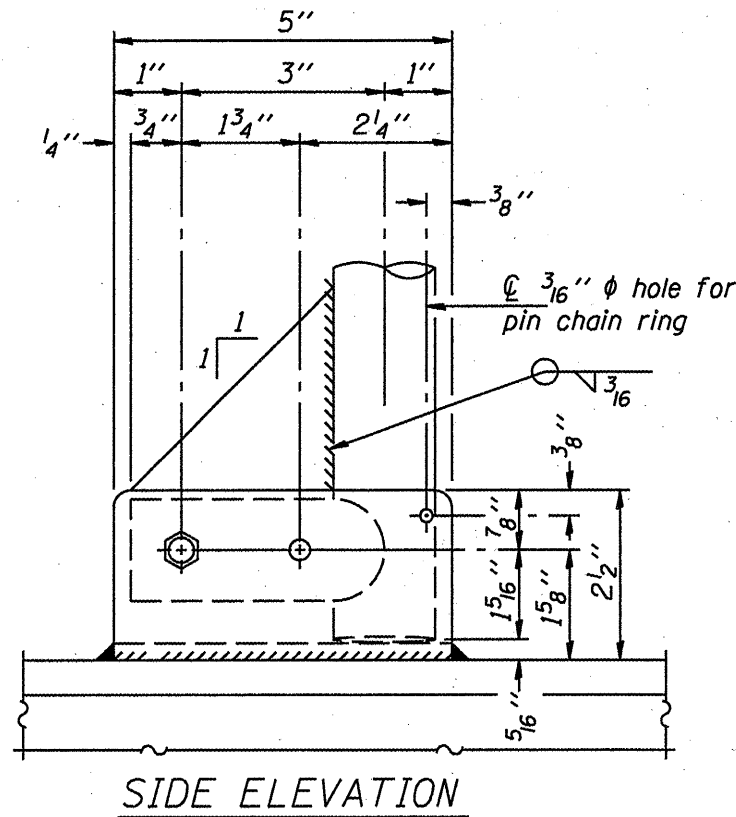
|             |  |
|-------------|--|
| DESIGNED BY |  |
| CHECKED BY  |  |
| DATE        |  |



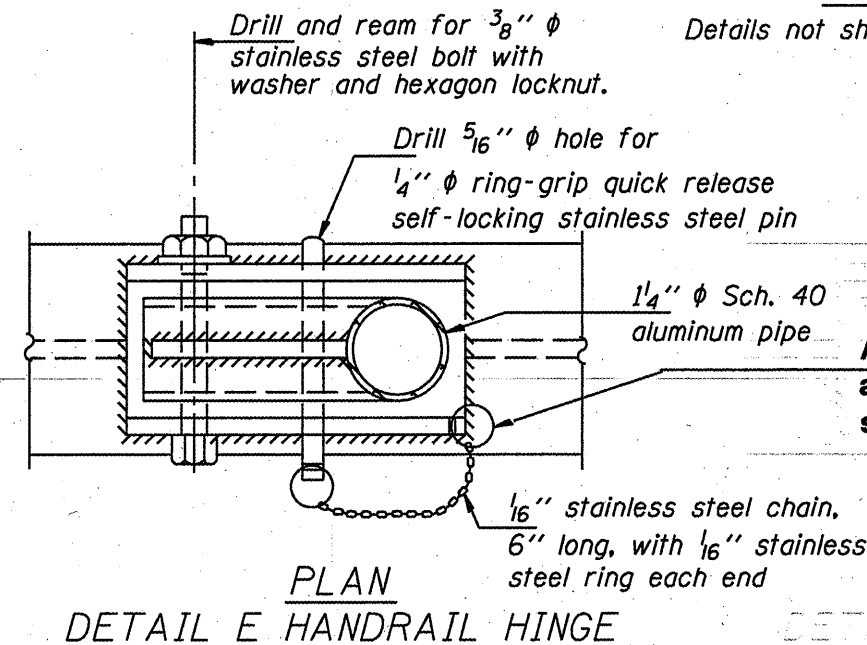


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Various Routes  
D1 OVD SIN STR REP & REPL09-22  
Various Counties  
Sheet 32 of 33  
Contract Number 46033



The existing locking pin hole to be reamed for proper alignment and a new oversized stainless steel pin to be installed.



Details not shown same as "ELEVATION" at right.

A new stainless steel chain shall be attached to the angle with a 1/16" stainless steel ring.

OVERHEAD SIGN STRUCTURES  
HANDRAIL HINGE REPAIR DETAIL

PLAN  
DETAIL E HANDRAIL HINGE

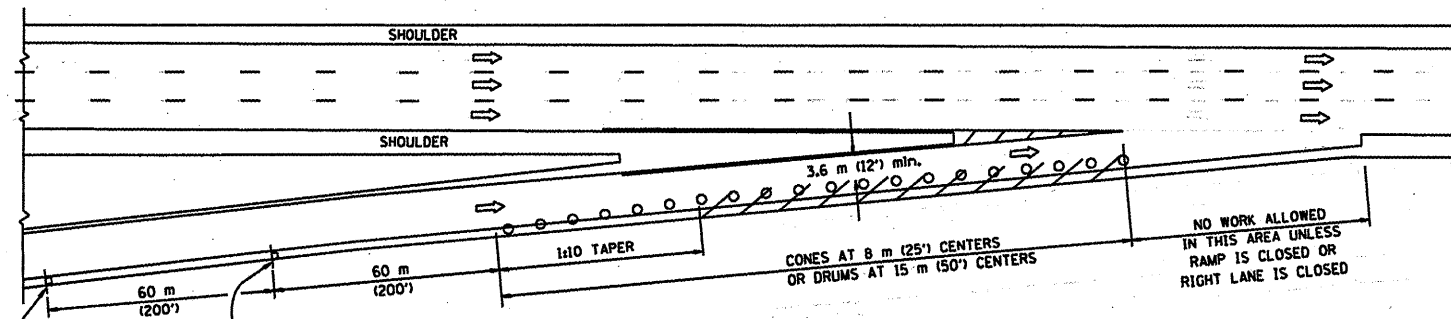


PARTIAL RAMP CLOSURE DETAILS

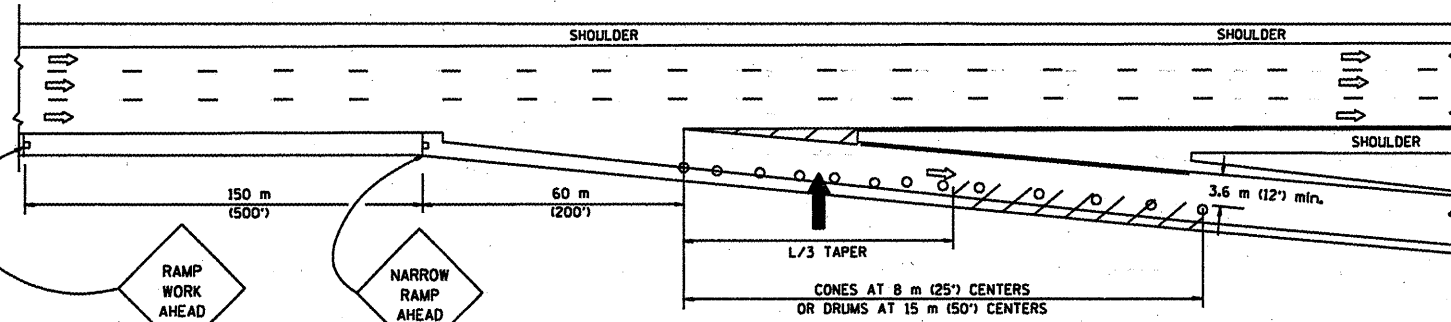
PARTIAL RAMP CLOSURE DETAILS

SHOULDER CLOSURE DETAILS

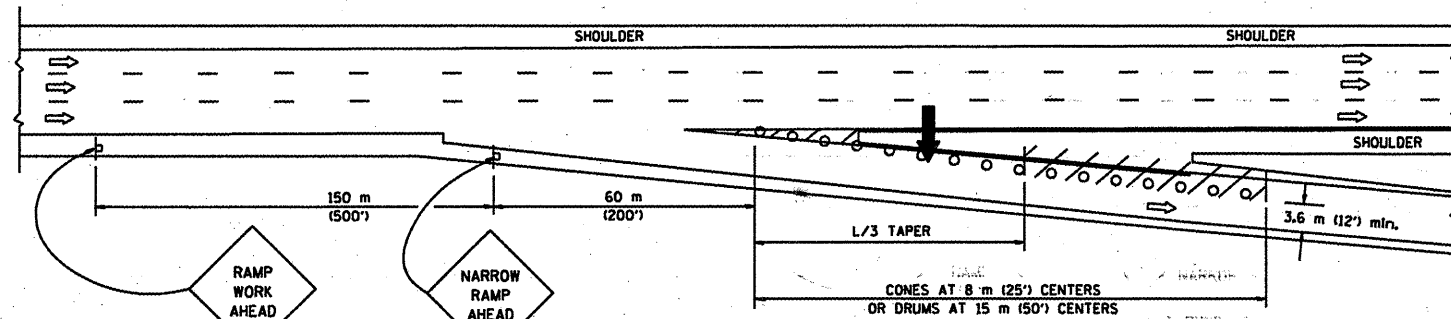
Various Routes  
 D1 OVD SIN STR REP & REPL09-22  
 Various Counties  
 Sheet 33 of 33  
 Contract Number 46033



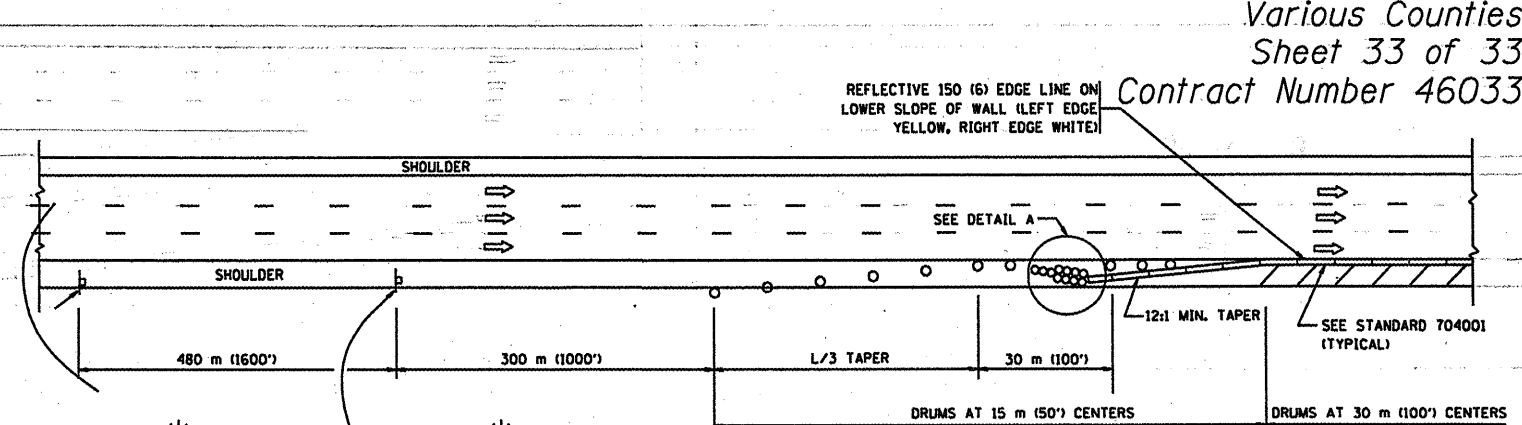
TYPICAL ENTRANCE RAMP



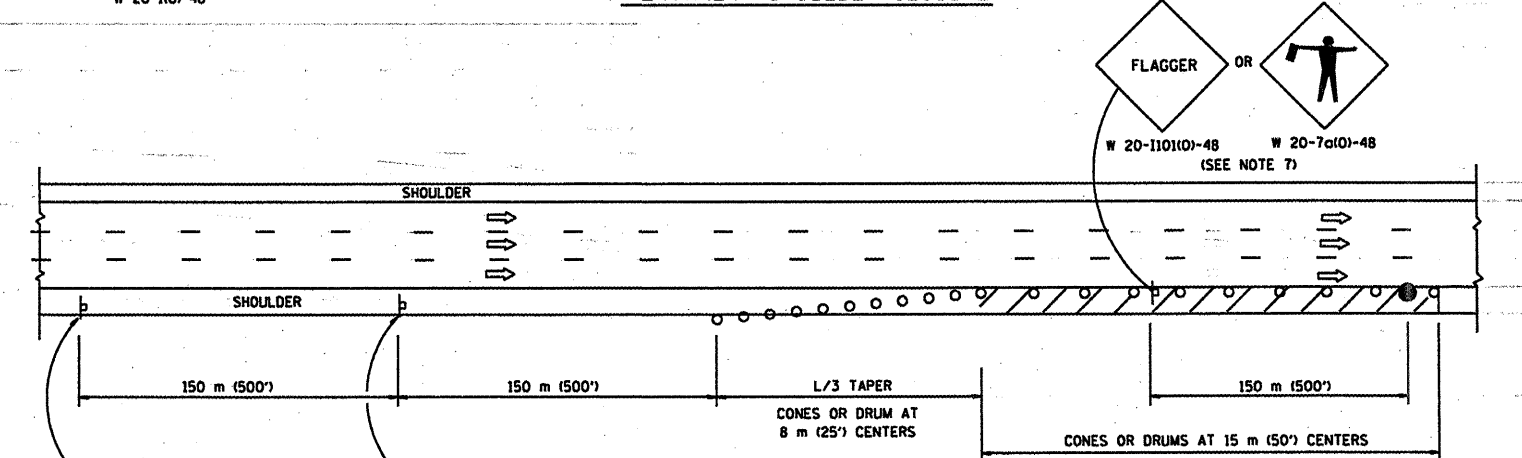
TYPICAL EXIT RAMP



TYPICAL EXIT RAMP



PERMANENT SHOULDER CLOSURE



DAYTIME SHOULDER CLOSURE

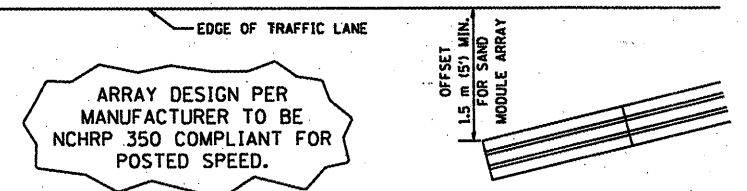
- SYMBOLS**
- ↑ ARROWBOARD
  - ▨ WORK AREA
  - ┆ SIGN ON PORTABLE OR PERMANENT SUPPORT
  - FLAGGER WITH CONTROL SIGN
  - ⊙ DRUM WITH MONO-DIRECTIONAL STEADY BURNING LIGHT
  - CONES - 700 (28) IN HEIGHT

**GENERAL NOTES**

1. THE "L" DISTANCE EQUALS:
 

|                                      |                         |
|--------------------------------------|-------------------------|
| SPEED LIMIT                          | FORMULAS                |
| 80 km/h (45 mph) OR GREATER          | METRIC: $L = 0.65(W/S)$ |
|                                      | ENGLISH: $L = (W/S)$    |
| W = WIDTH OF OFFSET IN METERS (FEET) |                         |
| S = NORMAL POSTED SPEED KM/H (MPH)   |                         |
2. PLASTIC DRUMS WITH HIGH PERFORMANCE REFLECTIVE SHEETING AND STEADY BURNING LIGHTS ARE REQUIRED FOR ALL NIGHTTIME CLOSURES.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
4. FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.

5. THE IMPACT ATTENUATOR, TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS OUTSIDE THE CLEAR ZONE OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE "TRAFFIC BARRIER TERMINAL, TYPE III, TEMPORARY" DEVICE TO MEET NCHRP350 FOR POSTED SPEED.
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
7. THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
  - a. FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE-HOUR PERIOD.
  - b. THE WORK ACTIVITY REQUIRES FREQUENT ENCR OACHMENT INTO THE LANE OPEN TO TRAFFIC.
 THE FLAGGER SHALL BE STATIONED APPROXIMATELY 30 m (100') TO 60 m (200') IN ADVANCE OF THE WORKERS.



DETAIL "A"  
 IMPACT ATTENUATOR, TEMPORARY  
 (SEE NOTE 5)

| REVISIONS |       |
|-----------|-------|
| NAME      | DATE  |
| DWS       | 11/96 |
| JAF       | 12/02 |
| NCHRP 350 | 04/03 |

ALL DIMENSIONS ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SHOWN.  
 ILLINOIS DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL DETAILS**  
 FOR FREEWAY  
 SHOULDER CLOSURES  
 PARTIAL RAMP CLOSURES  
 SCALE: NONE  
 DATE: \*\*DATE\*\*  
 DRAWN BY: DWS  
 DESIGNED BY: DWS  
 CHECKED BY: