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<th>CELL / MODEL NAME</th>
<th>DESCRIPTION</th>
<th>DATE</th>
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<tr>
<td>TRI-S-1</td>
<td>General plan and elevation</td>
<td>08/21/2013</td>
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<td>TRI-S-2</td>
<td>Steel truss details for truss types TRI-I-S, TRI-II-S and TRI-III-S</td>
<td>06/01/2012</td>
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<td>TRI-S-3</td>
<td>Steel truss details for truss types TRI-I-S, TRI-II-S and TRI-III-S</td>
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<tr>
<td>TRI-S-4</td>
<td>Damping device</td>
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<td>TRI-S-5</td>
<td>Truss support column</td>
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<td>TRI-S-6</td>
<td>Steel walkway details</td>
<td>06/01/2012</td>
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<td>TRI-S-7</td>
<td>Steel sign bracket and walkway details</td>
<td>06/01/2012</td>
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<td>TRI-S-8</td>
<td>Handrail details</td>
<td>06/01/2012</td>
</tr>
<tr>
<td>TRI-S-9</td>
<td>Drilled shaft foundation details</td>
<td>08/21/2013</td>
</tr>
</tbody>
</table>
**TYPICAL PLAN**

Sign support structures may be subjected to damaging vibrations and oscillations if sign panels are not to precise tolerances. To avoid these, attach temporary blank sign panels or other bracing to the structure until permanent signs are installed.

**TYPICAL ELEVATION**

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

**TYPICAL WIND LOADING DIAGRAM**

Parameters shown are based on Illinois DOT - Standards and Sign Manual Tables. Variations not within dimensional limits shown require special analysis for all components.

**TOTAL BILL OF MATERIAL**

- The contract unit price for Drilled Shaft Concrete Foundations shall include fabrication in accordance with AASHTO M111. All bolts, u-bolts, eye bolts, lock nuts and washers must be hot dip galvanized per AASHTO M232.

**GENERAL NOTES**

- 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.
- Walkway loading: Dead load plus 500 lbs. concentrated load.
- Design stresses: Field units: $f_y = 60,000$ psi (reinforcement).
- Minimum clearance: Vertical Roadway Clearance = 17'-3" (All Obstructions).
- Welding: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 Structural Welding Code and the Standard Specifications.

**MATERIALS**

- Structural steel pipe for chords shall be ASTM A500 Grade C. Structural steel pipe for chords and diagonals shall be ASTM A500 Grade B or ASTM A500 Grade C. If A500 pipe is substituted for A36, the outside diameter shall be at least one and one half inches greater than or equal to A36.
- Steel structural plates and shapes shall conform to A572 Grade 50. The net section and stiffening lugs at the base plate shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 20,000 ft-lb at 20°F.

**GENERAL NOTES**

- Fasteners for steel trusses: All bolts noted as "high strength" (HS) must satisfy the requirements of AASHTO M254, A578, A495, A499, or an Engineer approved alternate. All lock nuts must have nylon or steel inserts. All bolts, u-bolts, eye bolts, lock nuts and washers must be hot dip galvanized per AASHTO M232.
- Anchor bolts: Steel conform to ASTM A307 Grade B. All lock nuts must have nylon or steel inserts. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the Standard Specifications. Rotational capacity ("ROCAP") testing will not be required. Anchor bolts: Steel conform to ASTM A307 Grade B. All lock nuts must have nylon or steel inserts. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the Standard Specifications. Rotational capacity ("ROCAP") testing will not be required.
- Concrete surfaces: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleared and coated with Concrete Sealer in accordance with AASHTO M90. All piers, foundations, and walls shall be hot dip galvanized after fabrication in accordance with AASHTO M232. All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleared and coated with Concrete Sealer in accordance with AASHTO M90. All piers, foundations, and walls shall be hot dip galvanized after fabrication in accordance with AASHTO M232.
For steel truss details for truss types TRI-I-S, TRI-II-S and TRI-III-S, the following notes apply:

1. Contractor must use standard drive-fit cap to close end. The drive-fit cap must extend 1/2" past end dimension and must be installed after galvanizing. (Typ. at non-splice ends of chords)

2. P = Perpendicular and dimension may vary by 1" to provide uniform panel spacing (P).

3. Panel spacing (P) shall be uniform for entire truss and between 4'-0" and 5'-0". (Fabricator may vary for uniform diagonals)

4. All diagonals shall be offset from the panel point based on the following:
   - Between diagonal and any other diagonal, or perpendicular member, and the offset shall provide a 3/8" minimum to 1/2" maximum clearance
   - Between diagonal and any other diagonal, or perpendicular member, and to provide clearance for U-bolt connections of signs or walkway brackets.

5. Galvanizing vent holes of adequate size must be provided at each end of truss members except chords.Falcs an underside of diagonal members and truss sides of exterior members. Alternately, holes may be provided in wall of chords. All vent holes must be drilled and de-burred. (Typ. at non-splice ends of chords)

6. To facilitate throat thickness per AWS D1.1, Fig 3.2, all joints shall be cut back to facilitate throat thickness per AWS D1.1.
### TRICHORD UNIT TABLE

<table>
<thead>
<tr>
<th>Structure Number</th>
<th>Station</th>
<th>Exterior Units</th>
<th>Exterior Unit</th>
<th>Exterior Unit</th>
<th>Interior Unit</th>
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<td></td>
<td></td>
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<td>Panel Length</td>
<td>No. Panels</td>
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<tr>
<td></td>
<td></td>
<td>per Unit</td>
<td>Lgth. (L)</td>
<td>Lgth. (P)</td>
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<td>Lgth. (P)</td>
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</tbody>
</table>

#### TRUSS TYPES I-S, II-S, & III-S

- **Tri-Chord Design Table**
  - **Type**: Truss Design per Unit
  - **No. Panels**: Exterior Units (2), Interior Unit
  - **Lgth.**: Lgth. (L), Lgth. (P)
  - **Panel Req'd.**: no.

#### Section B-B

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

- **Camber Retention Examples**
  - 2 units
  - 3 units

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

- **Isometric View**
  - Typical Interior Truss Unit
  - Note: units shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require splices between horizontal and diagonal or energy dissipating (elastic) ties to the vehicle. The contractor is responsible for maintaining the configuration and protection of the units.

- **Truss Types I-S, II-S, & III-S**
  - **Splicing Flanges**
    - High strength bolts with lock nuts and flat washers under head and nut.

---

**TRI-S-3**

- **File Name**
  - **User Name**
  - **Plot Scale**
  - **Plot Date**
  - **REVISED**

**STATE OF ILLINOIS**

DEPARTMENT OF TRANSPORTATION

**TRI-CORD SIGN STRUCTURES – STEEL TRUSS DETAILS**

FOR TRUSS TYPES TRI-I-S, TRI-II-S AND TRI-III-S

---
Drilled Shaft Foundation

Conduit Hole

To roadway

Truss

Anchor bolts

Inside corners

Wrap welds at

Base Plate

Rib Plate

Clip heel of ribs

Note 1: Facilitate galvanizing.

Extend welds to clip to

1" x 1", typ.

Clip to 1" of anchor bolt nuts are fully tightened.

For Foundation Details see Base Sheet OSC-S-9.

For Truss Support

Base and extra nuts become Contractor's property. Cost included in Drilled Shaft Foundations.

Provide 1 nut per rod. Before thread or use chemical thread lock to secure.

ANCHOR ROD DETAIL

Drilled Shaft Detail

Concrete Foundations.
**Eyebolt and Chain Details**

- **1'-6'' Chain 3 W6x9 Grating tie down**
- **2'-10''**
- **1'-3''**

**Snap Details**

- **Eyebolt Snap (Approx.)**
- **4'' sag**

**Pipe Details**

- **2'-0'' 1''} Std. Steel pipe**
- **2'-0'' 1''} verticals**
- **Typ. on rail and grating shall span a Length as required**
- **2'-0'' pipe**
- **3'-10'' chain 3 W6x9**
- **1'-4'' 7"'' Type 304L stainless steel chain, approximately 12 links per foot.**
- **3'-10'' chain 3 W6x9**
- **4'' sag**

**Light Support Details**

- **3" holes for 3/8'' bolts.**
- **6'' Light Support**
- **W6x9 web**

**Section F-F**

- **Lighting Fixture Mounts (If Required)**

**Elevation at Handrail Joint**

- **ELEVATION AT HANDRAIL JOINT**
- **Drill in field**
- **5'' pipe 1/2'' (2)**
- **Light Support**
- **W6x9 web**
- **3'' holes for 1/4'' bolts**

**Light Suppport Details**

- **Light Suppport W6x9**
- **2'' x 2'' x 1'' 5'' long**

**ALTERNATE SAFETY CHAIN ATTACHMENT**

- **(With Sign Present)**

**DETAIL F**

- **DETAIL F**
- **Light Suppport**
- **W6x9 web**

**FACE ELEVATION**

- **SIDE ELEVATION**

**VIEW H-H**

- **VIEW H-H**
- **Sign panel**
- **25'' x 25'' x 1''**

**SECTION P-P**

- **SECTION P-P**

**DETAIL E HANDRAIL HINGE**

- **DETAIL E HANDRAIL HINGE**
- **Elevation and plan**
- **2'' bolt with washer and hexagon locknut.**

**SAFETY CHAIN**

- **SAFETY CHAIN**
- **One required for each end of each walkway.**

**PLAN AT HANDRAIL JOINT**

- **PLAN AT HANDRAIL JOINT**
- **Deets not shown neen as "PLAN"**

**TRI-S-B 6-1-12**
**Anchor Rod**

for grounding to
Approved clamps
wire or cable

- #6 braided copper

"Drilled Shaft Concrete Foundations" shall be included in cost of
Cost of rod, cable and clamps
rod driven into natural ground.

- 3'-0'' { shaft

<table>
<thead>
<tr>
<th>Number</th>
<th>Structure Type</th>
<th>Station</th>
<th>Elevation Top</th>
<th>Elev. Bottom</th>
<th>B</th>
<th>F</th>
<th>Elevation Top</th>
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<th>F</th>
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</table>

**NOTES:**

- The foundation dimensions shown in the Foundation Design Table are based on the presence of mostly cohesive soils with an average Uncorrected Compressive Strength (UCS) of at least 1.25 tpsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown in the Foundation Data Table will be the result of site specific designs.

- If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.

- No sawed or decomposable forms shall be used below the lower conduit entrance.

- Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

- Concrete shall be placed monolithically, without construction joints.

- Backfill shall be placed per Article 502 of Standard Specifications and prior to erection of support column.

- A normal surface finish followed by a Concrete Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.

- Distance to edge of pavement

- #4 bar spiral (E) at 6" pitch

- 3" cl.

- 3'-0'' { shaft

- 3 loops minimum

- 9''

- "As-built" plans shown in "SECTION B-B"

- "As-built" plans shown in "SECTION D-D"