<table>
<thead>
<tr>
<th>CELL / MODEL NAME</th>
<th>DESCRIPTION</th>
<th>DATE</th>
</tr>
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<tbody>
<tr>
<td>TRI-S-1</td>
<td>General plan and elevation</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-2</td>
<td>Steel truss details for truss types TRI-I-S, TRI-II-S, and TRI-III-S</td>
<td>2/17/2017</td>
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<tr>
<td>TRI-S-3</td>
<td>Steel truss details for truss types TRI-I-S, TRI-II-S, and TRI-III-S</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-4</td>
<td>Damping device</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-5</td>
<td>Truss support column</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-6</td>
<td>Steel walkway details</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-7</td>
<td>Steel sign bracket and walkway details</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-8</td>
<td>Handrail details</td>
<td>2/17/2017</td>
</tr>
<tr>
<td>TRI-S-9</td>
<td>Drilled shaft foundation details</td>
<td>2/17/2017</td>
</tr>
</tbody>
</table>
### DESIGN WIND LOADING DIAGRAM

Parameters shown are back for 1/307. Standards and Sign Manual Tables. Installations not within dimensional limits shown require special analysis for all components.

### TYPICAL PLAN

- Drilled Shaft-Type Foundation.
- Alternate direction of diagonal bracing in each panel.
- Sign support structures may be subject to damaging vibrations and oscillation if sign panels are not in place after erection. To avoid these, attach temporary blank sign panels or other bracing to the structure until permanent signs are installed.

### TYPICAL ELEVATION

- Design Elevation
- Top of Support Columns
- Maximum Span Length
- Tallest Sign Height of Sign
- Sign Panel Sign Area
- Pavement Shoulder
- Minimum Clearance to sign, walkway support or truss.

### TYPICAL STRESSES

- Design Wind Loading
- Field Units
- Wind Loadings
- Walkway Loading

### TOTAL BILL OF MATERIAL

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERHEAD SIGN STRUCTURE - TRICHORD TYPE TRI-I-S</td>
<td>Fast</td>
</tr>
<tr>
<td>OVERHEAD SIGN STRUCTURE - TRICHORD TYPE TRI-II-S</td>
<td>Fast</td>
</tr>
<tr>
<td>OVERHEAD SIGN STRUCTURE - TRICHORD TYPE TRI-III-S</td>
<td>Fast</td>
</tr>
<tr>
<td>OVERHEAD SIGN STRUCTURE - TRICHORD TYPE TRI-IV-S</td>
<td>Fast</td>
</tr>
<tr>
<td>TRUSS type - STEEL TRusses, Special provisions. (as applicable) omitted.</td>
<td></td>
</tr>
<tr>
<td>FOUNDATIONS: The contract unit price for Drilled Shaft Concrete Foundations</td>
<td></td>
</tr>
</tbody>
</table>

**WEB DESIGN**

**LOOKING UPSTATION FOR STRUCTURES WITH SIGNS BOTH SIDES**
FOR TRUSS TYPES TRI-I-S, TRI-II-S AND TRI-III-S

TRI-CHORD SIGN STRUCTURES - STEEL TRUSS DETAILS

(Each end of units only)

Even number of panels/exterior unit required.

Even or odd number of panels/interior unit allowed.

Typical interior unit

Even number of panels/interior unit required.

For two interior units, each unit may have even or odd number of panels.

Typical exterior unit

Even or odd number of panels/interior unit allowed.

Perpendicular (Each end of units only)

Diagonal

Back Chord

Typ.

See Note 3

Typ.

See Note 3

Typ.

See Note 4

Contractor must use standard drive-fit cap to close end. The drive-fit cap must have a ½" Ø drain hole and must be installed after galvanizing. (Typ. at non-splice ends of chords)

1'-10" end dimension may vary by ±1" to provide uniform panel spacing (P).

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

All diagonals shall be offset from the panel point based on the following:

Offset shall provide a 1½" minimum to 1½" maximum clearance between diagonal and any other diagonal, or perpendicular member, and to provide clearance for U-bolt connections of signs or walkway brackets.

Galvanizing vent holes of adequate size must be provided at each end of truss members except chords. Place on underside of sloping members and truss side of vertical members. Alternately, holes may be provided in wall of chords. All vent holes must be drilled and de-burred, typ.

SECTION A-A

NOTE:

1. Contractor must use standard drive-fit cap to close end. The drive-fit cap must have a ½" Ø drain hole and must be installed after galvanizing. (Typ. at non-splice ends of chords)

2. 1'-10" end dimension may vary by ±1" to provide uniform panel spacing (P).

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

4. All diagonals shall be offset from the panel point based on the following:

   Offset shall provide a 1½" minimum to 1½" 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. Place on underside of sloping members and truss side of vertical members. Alternately, holes may be provided in wall of chords. All vent holes must be drilled and de-burred, typ.
TRICHORD UNIT TABLE

<table>
<thead>
<tr>
<th>Structure Number</th>
<th>Station</th>
<th>Design Type</th>
<th>Exterior Units (2)</th>
<th>Interior Unit</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>No. Panels per Unit</td>
<td>Panel Light/P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lgth.(Le)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Panel Light/P</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. Panels per Unit</td>
<td>Panel Light/P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lgth.(Li)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Panel Light/P</td>
<td></td>
</tr>
</tbody>
</table>

See Table.

Camber required attained by slope changes at splices between units.

Camber curve shown is theoretical. Actual camber to be measured at midspan camber at with truss fully supported. (No-load condition)

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

CAMBER DIAGRAM

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

TRICHORD ATTAINMENT EXAMPLES:

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

ISOMETRIC VIEW

TYPICAL INTERIOR TRUSS UNIT

Note:
Units shall be shaped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The Contractor is responsible for maintaining the configuration and protection of the units.

TRICHORD DESIGN TABLE

<table>
<thead>
<tr>
<th>Truss Type</th>
<th>Maximum Span Length (ft.)</th>
<th>Chords</th>
<th>Diagonals and Perpendiculars</th>
<th>Splicing Flange</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>O.D.</td>
<td>O.D.</td>
<td>Go/Splice</td>
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<tr>
<td></td>
<td></td>
<td>Wall</td>
<td>Wall</td>
<td>Diameter</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W2</td>
</tr>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B</td>
</tr>
</tbody>
</table>

TRI-I-S 80 4.500 0.237 2.875 0.203 3.25 6 3 3 3 3 3 3
TRI-II-S 100 5.567 0.258 2.875 0.203 3.25 6 3 3 3 3 3 3
TRI-III-S 120 6.625 0.280 2.875 0.203 5.00 4 4 4 4 4 4 4
TRI-IV-S 140 7.683 0.322 3.500 0.216 6.25 6 3 3 3 3 3 3

* Note to fabricator: For spans between maximum span lengths given in table, use linear interpolation to determine camber. Minimum AASTO Camber = L / 1000

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.
SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

TRI-S-5

2-17-2017

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRI-CHORD SIGN STRUCTURES - TRUSS SUPPORT
COLUMN - STEEL TRUSS & STEEL POST
**TYPICAL FRONT ELEVATION**

With lights and handrail omitted for clarity. For Section B-B, see Base Sheet RTRI-S-6.

---

**BRACKET TABLE**

<table>
<thead>
<tr>
<th>W6x9</th>
<th>Number</th>
<th>Bracket Required</th>
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<tbody>
<tr>
<td>&gt; 2' 0&quot;</td>
<td>0-12&quot;</td>
<td>3</td>
</tr>
<tr>
<td>&gt; 12&quot;</td>
<td>10'-0&quot;</td>
<td>4</td>
</tr>
<tr>
<td>&gt; 20'-0&quot;</td>
<td>26'-0&quot;</td>
<td>5</td>
</tr>
</tbody>
</table>

---

**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 joint, grating and light support splices placed as needed.

Truss grating to facilitate shall run full length (center to center of support frames) 1/2" on overhead trusses. Cost of truss grating is included in "Overhead Sign Structure".

---

**Notes:**

- Space W6x9 walkway brackets and sign brackets W6x9 for efficiency and within limits shown.
- f = 12" maximum, 4" minimum (end of sign to edge of nearest bracket)
- g = 12" maximum, 4" minimum (end of walkway grating to edge of nearest support bracket)
- h = 6'-0" maximum (f to g sign and/or walkway support brackets, W6x9)
- k = 2" maximum gap between adjacent walkway grating sections and handrail ends

---

**Alternate Safety Chain Attachment on Base Sheet RTRI-S-7**

If walkway bracket at safety chain location is behind sign, add angle to bracket, see Alternate Safety Chain Attachment on Base Sheet RTRI-S-7.

---

**For Details T and W, Section B-B and Grating Splice Details, see Base Sheet RTRI-S-6**

For Handrail Details see Base Sheet RTRI-S-7.
**NOTES:**

The Foundation dimensions shown in the Foundation Design Table are based on the presence of nearly cohesive soils with an average Unconfined Compressive Strength (Qu) of at least 1.25 tsf, 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 Design 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.

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.

Concrete shall be placed monolithically, without construction joints. 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 per Article 502 of Standard Specification and prior to erection of support column.

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

Concrete shall be placed monolithically, without construction joints. 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 per Article 502 of Standard Specification 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.

Concrete shall be placed monolithically, without construction joints. 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 per Article 502 of Standard Specification 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.

For details of anchor rods and positioning refer to Truss Support Post Base Sheets TRI-S-4.

Concrete shall be placed per Article 502 of Standard Specification 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.

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