Signs
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<td>Locations - Type 'A' Signs</td>
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<td>SI-102</td>
<td>04-19-16</td>
<td>Locations - Type 'B' Signs</td>
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<tr>
<td>SI-111</td>
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<td>Support Structures - Wood Posts</td>
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<td>SI-112</td>
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<td>Footings For Steel Breakaway Posts</td>
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<td>Support Structures - Steel Breakaway Posts</td>
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<td>SI-114</td>
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<td>Support Structures - Steel Breakaway Posts Rectangular Tube</td>
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<td>Support Structures - Mounting Brackets</td>
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<td>Fabrication - Sign Legend Components</td>
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<td>SI-123</td>
<td>10-20-20</td>
<td>Fabrication - Type 'B' Signs</td>
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<td>Installation - Type 'A' Signs</td>
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<td>10-17-17</td>
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<td>Reference Location Sign Posts</td>
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<td>SI-172</td>
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<td>Delineators</td>
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<td>04-21-20</td>
<td>Emergency Management Ramp Signing</td>
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<td>Chevrons</td>
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<td>Permanent Road Closure - Rural</td>
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<td>Permanent Road Closure - Urban</td>
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<td>Object Marker and Delineator Placement with Guardrail</td>
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<td>Sign Placement Approaching a Railroad Crossing</td>
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<td>SI-882</td>
<td>10-18-16</td>
<td>Special Signs for Restricted Width Traffic Control Zones</td>
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</table>
Type 3 installation is intended to show the requirements for a Type 'A' sign when installed in an island or median (where traffic passes on both sides of the sign) as well as for locations where the Type 'A' sign is installed adjacent to a curbed roadway (sign may be located on either side of a roadway as specified in project plans).

Possible Contract Items:
- Remove and Reinstall Sign as per plan
- Wood Posts for Type A or B signs, 4in x 6in
- Perforated Square Steel tube Post (Anchor Series)
- Type A Signs, Sheet Aluminum
- Install Type A Sign

Possible Tabulations:
- 190-51
- 190-61
- 190-62
- 190-66

Final sign location will be at the discretion of the Engineer.

Use the Type 1 installation in any case except where:
(A) Specified otherwise in the plans.
(B) Directed otherwise by the Engineer.
(C) A Type 3 installation is required due to location in an island or gore area.
**SIGN ORIENTATION PLAN**

Face of Sign parallel to main roadway

Shoulder Line

Edge of Travelled Way

Ground Mounted Installation Sign Face

**SIGN WIDTH (W)**

- 20%
- 80%
- 20%

**SIGN ORIENTATION PLAN**

Two Post Erection

Three Post Erection

Four Post Erection

**POST POSITION DETAIL**

Modification of plan requirements will be permitted only as physical conditions require and are subject to the following limitations:

- Provide breakaway sign posts that are a minimum length of 7'-4" plus the height of the sign, unless noted otherwise in the tabulations.
- Obtain the Engineer’s approval for spacing between signs less than 800 feet.
- Set all signs level.
- Do not modify sign location without approval of the Engineer.

Possible Contract Items:
- Install Type B Sign
- Perforated Square Steel Tube Posts
- Perforated Square Steel Tube Post Anchor (series)
- Remove and Replace Signs as Per Plan
- Type B Signs
- Wood Posts for Type A or B Signs, 4 in. x 6 in.
- Steel Breakaway Sign Post for Type A or B Signs
- Concrete Footing for Breakaway Sign Post

Possible Tabulations:
- 16C-50
- 15C-61

IOWA DOT
STANDARD ROAD PLAN
SI-102

Revision: Changed Lane Edge Line to Edge of Travelled Way, modified notes and added Possible Contract Items and Tabs. Added FOUR POST DETAIL.
Details indicated are for an installation adjacent to a curbed roadway. The sign may be located on either side of the roadway, or in a gore area where curbed roadways pass on both sides, such as an urban freeway exit ramp. When located in a gore area, install where the width between curbs is no less than 12 feet plus sign width.

Details indicated are for an installation in a gore area where traffic on non-curbed roadways passes on both sides of the sign, such as the exit ramp for a rural type interchange.

Refer to the Office of Bridges and Structures' Sign Truss Standards as detailed in the contract documents. Cantilevers are special designs detailed elsewhere in the contract documents.
Possible Contract Item:
Wood Posts for Type A or Type B Signs, 4 in. x 6 in.

Possible Tabulations:
190-50
190-51
Concrete footing for breakaway sign post

Possible contract item:
Concrete footing for breakaway sign post

FOOTING REINFORCING DATA

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<th>Post Size</th>
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<td>6&quot;</td>
<td>1'-0&quot;</td>
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<td>SI-113</td>
<td>W12x26</td>
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<td>8&quot;</td>
<td>2'-8&quot;</td>
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<td>W6x12</td>
<td>6'-0&quot;</td>
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</table>

Note: Footing information previously shown on SI-113 and SI-114.

Added reference to 2524.05, I in Notes.

NEW

1. Drill holes twice bar diameter and fill with water.
2. When hole is fully saturated, blow water out and fill two-thirds depth with sand cement mortar.
3. Insert bar and consolidate mortar.
4. Fill hole to top with mortar.

Construct the footing as shown for normal footing in earth. Where solid rock is encountered, the alternate design for footing in solid rock may be used with the approval of the Engineer.

Dispose of all excavation for the footing in the area adjacent to the footing and shape to normal ground contour, unless directed otherwise by the Engineer.

Hold the stub post in proper position by an approved device to ensure that it remains in proper position upon completion of concrete placement.

The contract price for size of footing required is full compensation for footing as detailed herein, including all necessary excavation. Excavation in unexpected rock will be paid for according to Article 2524.06, 1., of the Standard Specifications.

1. Lengths are for normal footings. Required length may vary where alternate rock design is used.
2. Refer to the contract documents for post size.
3. Set vertical bars in solid rock as follows:
   1. Drill holes twice bar diameter and fill with water.
   2. When hole is fully saturated, blow water out and fill two-thirds depth with sand cement mortar.
   3. Insert bar and consolidate mortar.
   4. Fill hole to top with mortar.

FOOTINGS FOR STEEL BREAKAWAY POSTS

SI-112

REVISIONS:
APPROVED BY DESIGN METHODS ENGINEER

STANDARD ROAD PLAN

SI-112

REVISION
SI-112

SHEET 1 of 1

FOOTINGS FOR STEEL BREAKAWAY POSTS

CONTRACT DOCUMENTS

IOWA DOT

CONTRACT DOCUMENTS
Plumb signpost by installing brass stock or strip shims complying with ASTM B36. Furnish two shims each of 0.012" and 0.032" thickness (total of 4 per post).

1. Not for single post installations.
2. Refer to Standard Road Plan SI-112 for footing information.

Possible Contract Item:
Steel Breakaway Sign Post for Type A or B Signs

**FUSE PLATE ASSEMBLY**

- Post Cut
- Splice Plate
- High Strength Bolt (4 per Splice Plate)
- High Strength Washer (8 per Splice Plate)
- High Strength Nut (4 per Splice Plate)
- Fuse Plate
- High Strength Nut (4 per Fuse Plate)
- High Strength Washer (8 per Fuse Plate)

---

**FUSE AND SPLICE PLATE DATA**

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---

**SIGN INSTALLATION**

- 3D View
- Side View

**STUB & SIGN POSTS**

- Footing
- Stub Post Length
Grind smooth all welds and galvanizing between Base post plate as indicated herein. Holes and notches in the stub post plate and the sign post and stub post. Properly match and align the bolt holes.

Alternate 1 - Weld base plates (2 each) to sides of signpost and stub post flanges.

Alternate 2 - Weld base plate (1 each) to end of signpost and stub post flanges.

The following Base Plate alternates are considered equivalent:

Alternate 1 - Weld base plates (2 each), to sides of signpost and stub post. Properly match and align the bolt holes and notches in the stub post plate and the sign post plate as indicated herein.

Grind smooth all welds and galvanizing between Base Plates.

---

**SHIM BREAKAWAY BASE DATA**

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<th>F</th>
<th>G</th>
<th>H</th>
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<tbody>
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<td>W x 12</td>
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<td>4</td>
<td>3</td>
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<td>W x 21</td>
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</table>

---

**SECTION A-A PLAN - BASE**

Alternate 1

Alternate 2

---

**BREAKAWAY BASE**

Side View

Side View

---

**SIDE VIEW**

**SIDE VIEW**

---

**KEEPER PLATE**

---

**SI-113 STANDARD ROAD PLAN**

---

**supports structures - Steel breakaway posts**

---

**REVISIONS:**

- Modified C dimension for W 6 x 12 post in BREAKAWAY BASE DATA table on Sheet 2.
Plumb signpost by installing brass stock or strip shims complying with ASTM B 36. Furnish two shims each of 0.012" and 0.032" thickness (total of 4 per post).

Refer to Standard Road Plan SI-112 for footing information.
The following Base Plate alternates are considered equivalent:

**ALTERNATE 1** - Weld base plates (2 each) to sides of stub post flanges.

**ALTERNATE 2** - Weld base plate (1 each) to end of stub post. During assembly, properly match and align the bolt holes and notches in the stub post plate and the sign post plate as indicated hereon.

Grind smooth all welds and galvanizing between Base Plates.

2" dia. x 3½"
Torque = 62.50 ft. lbs.
Bid price for the brackets is to include the necessary mounting bolts, washers, nuts, and set screws.
Existing Stop Sign Mounting Bolt

Washer

R5-1 Sign

Washer

1

FOR SINGLE WOOD POST INSTALLATION

Typical Mounting Bracket Arrangement

Nut

Self-Locking

Pipe Bracket 'F'

BACK OF SIGN

2'' Post Clamps

Bracket Assembly 'YF'

2 Sign Mounting Bars

Required Per Sign

3D VIEW

BACK OF SIGN

Mount the wood post so that the top is flush with the top of the sign panel.

Extend the Auxiliary Sign Mounting Bracket to the full length of the proposed mounted sign assembly.

Maintain a 3 inch space between Route Shields. This should be accomplished by using different drilled holes specified on the brackets, and will vary depending on the number of 2 or 3 digit signs in the assembly.

Perforated square steel tube (PSST) posts may be substituted for wood posts if approved by the Engineer.

Field drill 3" dia. holes. Locate top hole 3" below and perpendicular to existing stop sign mounting bolt. Bottom hole will be 18" below top hole as shown.

Attach R6-1A & R6-1C sign even with top of pipe using approved pipe post clamps. Mount sign perpendicular to approaching traffic. Install Auxiliary Sign Mounting Bars as bracing for R6-1A & R6-1C signs.

2'' OD Galvanized steel pipe

(See Section A-A for detail of attaching pipe to post.)

2'' Dia. Galvanized Steel Pipe

16" dia. hex head bolt, Length 7''

Washer

RS-1 Sign

Sign Mounting Bar for R5-1

(See BACK OF SIGN)

Type 2/Type 6 Sign Mounting Bracket

Auxiliary sign mounting bar

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR SINGLE WOOD POST INSTALLATION

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR TWO WOOD POST INSTALLATION

R6-1A & R6-1C signs.

Auxiliary Sign Mounting Bracket

Auxiliary sign mounting bar

Maintain a 3 inch space between Route Shields. This should be accomplished by using different drilled holes specified on the brackets, and will vary depending on the number of 2 or 3 digit signs in the assembly.

Perforated square steel tube (PSST) posts may be substituted for wood posts if approved by the Engineer.

Extend the Auxiliary Sign Mounting Bracket to the full length of the proposed mounted sign assembly.

Mount the wood post so that the top is flush with the top of the sign panel.

Field drill 3" dia. holes. Locate top hole 3" below and perpendicular to existing stop sign mounting bolt. Bottom hole will be 18" below top hole as shown.

Attach R6-1A & R6-1C sign even with top of pipe using approved pipe post clamps. Mount sign perpendicular to approaching traffic. Install Auxiliary Sign Mounting Bars as bracing for R6-1A & R6-1C signs.

2'' OD Galvanized steel pipe

(See Section A-A for detail of attaching pipe to post.)

2'' Dia. Galvanized Steel Pipe

16" dia. hex head bolt, Length 7''

Washer

RS-1 Sign

Sign Mounting Bar for R5-1

(See BACK OF SIGN)

Type 2/Type 6 Sign Mounting Bracket

Auxiliary sign mounting bar

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR SINGLE WOOD POST INSTALLATION

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR TWO WOOD POST INSTALLATION

R6-1A & R6-1C signs.

Auxiliary Sign Mounting Bracket

Auxiliary sign mounting bar

Maintain a 3 inch space between Route Shields. This should be accomplished by using different drilled holes specified on the brackets, and will vary depending on the number of 2 or 3 digit signs in the assembly.

Perforated square steel tube (PSST) posts may be substituted for wood posts if approved by the Engineer.

Extend the Auxiliary Sign Mounting Bracket to the full length of the proposed mounted sign assembly.

Mount the wood post so that the top is flush with the top of the sign panel.

Field drill 3" dia. holes. Locate top hole 3" below and perpendicular to existing stop sign mounting bolt. Bottom hole will be 18" below top hole as shown.

Attach R6-1A & R6-1C sign even with top of pipe using approved pipe post clamps. Mount sign perpendicular to approaching traffic. Install Auxiliary Sign Mounting Bars as bracing for R6-1A & R6-1C signs.

2'' OD Galvanized steel pipe

(See Section A-A for detail of attaching pipe to post.)

2'' Dia. Galvanized Steel Pipe

16" dia. hex head bolt, Length 7''

Washer

RS-1 Sign

Sign Mounting Bar for R5-1

(See BACK OF SIGN)

Type 2/Type 6 Sign Mounting Bracket

Auxiliary sign mounting bar

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR SINGLE WOOD POST INSTALLATION

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR TWO WOOD POST INSTALLATION

R6-1A & R6-1C signs.

Auxiliary Sign Mounting Bracket

Auxiliary sign mounting bar

Maintain a 3 inch space between Route Shields. This should be accomplished by using different drilled holes specified on the brackets, and will vary depending on the number of 2 or 3 digit signs in the assembly.

Perforated square steel tube (PSST) posts may be substituted for wood posts if approved by the Engineer.

Extend the Auxiliary Sign Mounting Bracket to the full length of the proposed mounted sign assembly.

Mount the wood post so that the top is flush with the top of the sign panel.

Field drill 3" dia. holes. Locate top hole 3" below and perpendicular to existing stop sign mounting bolt. Bottom hole will be 18" below top hole as shown.

Attach R6-1A & R6-1C sign even with top of pipe using approved pipe post clamps. Mount sign perpendicular to approaching traffic. Install Auxiliary Sign Mounting Bars as bracing for R6-1A & R6-1C signs.

2'' OD Galvanized steel pipe

(See Section A-A for detail of attaching pipe to post.)

2'' Dia. Galvanized Steel Pipe

16" dia. hex head bolt, Length 7''

Washer

RS-1 Sign

Sign Mounting Bar for R5-1

(See BACK OF SIGN)

Type 2/Type 6 Sign Mounting Bracket

Auxiliary sign mounting bar

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR SINGLE WOOD POST INSTALLATION

TYPICAL MOUNTING BRACKET ARRANGEMENT FOR TWO WOOD POST INSTALLATION

R6-1A & R6-1C signs.

Auxiliary Sign Mounting Bracket

Auxiliary sign mounting bar

Maintain a 3 inch space between Route Shields. This should be accomplished by using different drilled holes specified on the brackets, and will vary depending on the number of 2 or 3 digit signs in the assembly.

Perforated square steel tube (PSST) posts may be substituted for wood posts if approved by the Engineer.

Extend the Auxiliary Sign Mounting Bracket to the full length of the proposed mounted sign assembly.

Mount the wood post so that the top is flush with the top of the sign panel.
### INTERSTATE ROUTE MARKERS

**Series 2000 Standard Alphabets.**

**Optically space numerals about vertical center line.**

#### SIGN LEGEND COMPONENTS

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**All dimensions are in inches unless otherwise designated.**

**COLORS:**
- Text: White
- Border: White
- Background (Interstate): Red
- Background (Route No.): Blue

---

**NOTES**

* Circled Note 2 to Sheet 4.
* Added 15" tall route shields for Interstates, U.S. Hwys, & IA Hwys.

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**APPROVED BY DESIGN METHODS ENGINEER**

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**SIGN LEGEND COMPONENTS**

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**FABRICATION - SIGN LEGEND COMPONENTS**

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**STANDARD ROAD PLAN**

---

**REV/VER**

---

**SI-121**

---

**SHEET 1 of 5**
### Series 2000 Standard Alphabets

**Optically space numerals about vertical center line.**

#### Sign Width and Height

<table>
<thead>
<tr>
<th>Digit</th>
<th>Width</th>
<th>Height</th>
<th>Numeral Top Offset</th>
<th>Numeral Height &amp; Font</th>
<th>Numeral Bottom Offset</th>
<th>Bottom Tangent Length</th>
<th>Upper Section Height</th>
<th>Corner &amp; Top Radius</th>
<th>Side Radius</th>
<th>Top Radius</th>
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</tr>
</tbody>
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**COLORS:**
- Text: White
- Shield: White

* Series 2000 Standard Alphabets.

** Optically space numerals about vertical center line.

All dimensions are in inches unless otherwise designated.

Black borders added to route shields will not be accepted.
STATE ROUTE MARKERS

** Sign Legend Components **

COLORS:
Text: Black
Shield: White

* Series 2000 Standard Alphabets
** Optically spaced numerals about vertical center line

All dimensions are in inches unless otherwise designated.

Black borders added to route shields will not be accepted.

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<th>Numerals Height &amp; Foot</th>
<th>Radius</th>
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<td>D</td>
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All dimensions are in inches unless otherwise designated.
* Series 2000 Standard Alphabets
** Optically space numerals about vertical center line.
*** County shield centered horizontally and vertically on white background plaque

All dimensions are in inches unless otherwise designated.

COLORS:
Text: Yellow
Border: Yellow
Shield: Blue
Background: White

Yellow sheeted background plaques will not be accepted.
**TYPE I**

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<th>Radius</th>
<th>Tip</th>
<th>Shaft Width at Head</th>
<th>Shaft Width at Tail</th>
<th>Shaft Length</th>
<th>Letter Size</th>
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<td>4.03</td>
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<td>4.36</td>
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<td>17.5</td>
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**TYPE II**

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<th>Draft</th>
<th>Radius</th>
<th>Tip</th>
<th>Shaft Width at Head</th>
<th>Shaft Width at Tail</th>
<th>Shaft Length</th>
<th>Letter Size</th>
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**TYPE III**

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<th>Radius</th>
<th>Tip</th>
<th>Shaft Width at Head</th>
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<td>16</td>
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</tbody>
</table>

All dimensions are in inches unless otherwise designated.

Type II-A arrows should be used in all typical "down arrow" applications except where not practical due to size constraints.
Actual Length of Panels = Design Length + 1.5"

Panel bolt slotted holes spaced at 12 inch centers shall be located along the full length of each panel, such that the outermost slots are of equal distances (not to exceed 6 inches) from the ends of the panel.

Signs shall be made up of full panels unless a half panel is required, in which case it shall be placed at the top edge of the sign.

Refer to detail project plans and summary sheet for exact data for individual sign fabrication requirements.

No overlap of edge molding or border strip permitted.

Two washers per panel bolt, one each side of sign.

Edge molding shall be installed full length of each vertical side of each sign. Attach in accordance with current specifications.
Wood Sign Post
Steel Breakaway Sign Post
Possible Contract Items:

CL Post
CL 48" Sign Post
66" Sign Face
96" Sign Post
51" L Slot CL Post

ALUMINUM ZEE BAR
1" OD Washer
" Bolt
Self-Locking Nut

Refer to SI-114 for details of steel breakaway sign post rectangular tube.

Self-Locking Nut
Nominal Width
Washer
Post*
Nominal Depth

PLAN

*NOTE: Treated Wood or Perforated Square Tube Post

WOOD OR PERFORATED SQUARE TUBE POST ATTACHMENT

4" x 6" RECTANGULAR TUBE POST ATTACHMENT DETAILS

SECTION A-A

SECTION B-B

SECTION C-C

REVISION
10-18-16
SHEET 1 of 1

STANDARD ROAD PLAN
SI-131

INSTALLATION - TYPE "A" SIGNS

APPROVED BY DESIGN METHODS ENGINEER

Revised old Iowa DOT logo with new logo.
**CLIP INSTALLATION**

- **Nut**
- **Post Clip Bolt**

The shank of the post clip bolt shall fit tightly against the post flange after nuts are tightened.

- **Rib**
- **Post**

**POST CLIP**

- **Panel + 2'' Length = Sign Delineator Post**
- **Sign Face**
- **Plan**

Post Bolts - place bolts near top and bottom of sign plus 1 bolt per sign panel with a minimum of 3 bolts per post.

**TYPE 1 ATTACHMENT**

Type 1 Attachment shall be used for all signs placed on metal breakaway posts.

**TYPE 3 ATTACHMENT**

Use Type 3 Attachment for all signs with wood posts.

**TYPE 4 ATTACHMENT**

Type 4 Attachment shall be used for all signs mounted on overhead sign support structures.

**CLIP BOLT**

(Square or Rectangular Head Optional)

Position the EXIT NUMBER PANEL above the guide sign aligned with the edge of the guide sign indicating direction of exit.

- If the bolt holes in the top panel and the bottom panel of the two signs line up, panel bolts are to be used.
- If the angle fasteners can not be horizontally placed as shown, they can be moved so as to securely hold the top sign.

A post clip is required on each angle at top of panel and each extrusion joint.

The aluminum angles are considered part of the mounting hardware and are to be furnished by the Contractor as an incidental item. No separate payment will be made for aluminum angles.

Use cast aluminum post clips and stainless steel nuts, bolts, and washers for post clips meeting the requirements of Article 4186.09, B of the Standard Specifications.
1. Do not allow the aluminum L to extend below the bottom of the major sign.
2. Sign height added above existing supports.
Self-Locking Nut Post
Width Nominal
Self-Locking Nut Post
Sign Face

FOR SHEET ALUMINUM SIGNS ONLY

NOTE: FOR SINGLE POST WITH SIGN WIDTH > 24" AND HEIGHT > 24"
FOR SHEET ALUMINUM SIGNS ONLY

L/2
L/2
L
L/2
L
L/2
L/2
L/2
L/2

L/2
L
L/2
L

Shim Placed in Center of Sign Only

SI-133
STANDARD ROAD PLAN
SHEET 1 of 1

SHIM ATTACHMENT DETAIL
FOR PSST POST

SHIM ATTACHMENT DETAIL
FOR WOOD POST

INSTALLATION - TYPE "A" SIGN SHIM
Furnish Type 1 delineator posts for each location unless specified otherwise in the plans. 4" or 6" holes in delineators are acceptable.

All dimensions are in inches unless otherwise designated.

Install post of sufficient length to provide a minimum of 30 inches of embedment when installed at the specified mounting height.

REFERENCES:
- Changed title and "milepost" to new Reference Location Sign naming.

APPROVED BY DESIGN METHODS ENGINEER

REFERENCE LOCATION SIGN ASSEMBLY
TOP VIEW
REFERENCE LOCATION SIGN POSTS

1.50" Radius, 0.50" Border, White on Green;
[SOUTH] C 2K;
[1] D 2K;
1.50" Radius, No border, Green on White;
[2] D 2K;

1.50" Radius, 0.50" Border, White on Green;
[WEST] C 2K;
[1] D 2K;
1.50" Radius, No border, Green on White;
[2] D 2K;

1.50"Radius, 0.50" Border, White on Green;
[EAST] C 2K;
[1] D 2K;
1.50" Radius, No border, Green on White;
[2] D 2K;

REVISIONS: Changed title and "milepost" to new Reference Location Sign naming.
**Rigid Delineator Mountings**

<table>
<thead>
<tr>
<th>Post Lengths for Shoulder Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offset</td>
</tr>
<tr>
<td>2'</td>
</tr>
<tr>
<td>4'</td>
</tr>
<tr>
<td>6'</td>
</tr>
<tr>
<td>8'</td>
</tr>
<tr>
<td>10'</td>
</tr>
</tbody>
</table>

**ATTACHMENTS**

- Aluminum Rivet (head this side)
- Aluminum Flat Washer
- Aluminum Hex Bolt and Self-Locking Nut

**Possible Contract Items:**

- Delineator, Rigid - Type I
- Delineator, Rigid - Type IA
- Delineator, Rigid - Type II
- Delineator, Rigid - Type III

**Possible Tabulation:**

190-25

**Furnish materials complying with Section 4186 of the Standard Specifications.**

**Face of Curb**

- Edge of Shoulder
- Post Length (see Table I)
- Offsets
- 6'-0" max. text length
- 2'-6" min. text length
- Delineator Reference Point Plaque
- Aluminum Flat Washer

**Shoulder Installation**

- Edge of Shoulder
- 2'-6" min.
- 4'-0" max.

**Curb Installation**

- Edge of Shoulder
- 6'-0" max.
- 2'-6" min.
Fabricate object markers from materials complying with Section 4.8.6 of the Standard Specifications.

Buttons on Type 1 Object Markers may consist of yellow reflectors or yellow reflective sheeting. Do not mix types on any single object marker. When reflectors are used, attach to sign blank with an aluminum, brazier head, blind rivet of 1/8 inch diameter and a grip range of 1/4 to 5/16 inches.

Install object markers truly vertical.
Ensure top of post does not extend above top of object marker.

Possible Contract Item:
Object Marker
Possible Tabulation:
190-25

OFFSET BRACKET
Galvanized in accordance with AASHTO M 111.
INSTALLATION AT GUARDRAIL LOCATIONS

STANDARD ATTACHMENT

OFFSET BRACKET ATTACHMENT

1. Install Type 3 Object Markers so the inside edge of the marker is in line with the inner edge of the obstruction.
2. Attach object marker or offset bracket to the delineator post at two locations. Use the following per bolt hole location:
   - one galvanized 1/4" in. dia x 2 1/4" length hex head bolt with matching self locking nut.
   - galvanized steel washer, 1/4" ID, 1/2" OD, 1/16" thick under the head of the bolt.
3. When Type 3 Object Marker is installed on an offset bracket, attach marker to bracket at two locations. Use the following per bolt hole location:
   - one 1/4" in. dia x 1 1/2" in. length hex head bolt with matching self locking nut.
   - galvanized steel washer, 1/4" ID, 1/2" OD, 1/16" thick under the head of the bolt.

Object Marker (Traffic Side)

Offset Bracket

Self-Locking Nut and Flat Washer

Galvanized Steel Bolt (1/4" OD x 1/16" thick washer)

Type 3 Object Marker (Traffic Side)

Galvanized Steel Bolt (1/4" OD x 1/16" thick washer)

Hex Bolt and Self-Locking Nut

Self-Locking Nut and Flat Washer

Offset Bracket
Furnish Type 1 delineator posts for each location unless specified otherwise in the plans.

1/2 or 1/4 holes in delineators are acceptable.

All dimensions are in inches unless otherwise designated.

Install post of sufficient length to provide a minimum of 30 inches of embedment when installed at the specified mounting height.

Emergency Management Sign Assembly

EMERGENCY MANAGEMENT SIGN ASSEMBLY
TOP VIEW

Type 1 Delineator
Hot Dipped Galvanized Steel Bolts, Self-Locking Nuts, and Washers
3/8" x 2" - 18NC hex bolts and hex self-locking nuts with washers
3/8" I.D. x 5/8" O.D. x 0.062" hot-dipped galvanized washer

1 1/2" O.D. 1/8" thick hot-dipped galvanized washer

Emergency Management Sign

All dimensions are in inches unless otherwise designated.

Other features could be light poles, sign truck legs, etc.

Attach to feature with stainless steel bands.

Hot Dipped Galvanized Washer

Emergency Management Sign Assembly

EMERGENCY MANAGEMENT SIGN ASSEMBLY
TOP VIEW

Type 1 Delineator
Hot Dipped Galvanized Steel Bolts, Self-Locking Nuts, and Washers
3/8" x 2" - 18NC hex bolts and hex self-locking nuts with washers
3/8" I.D. x 5/8" O.D. x 0.062" hot-dipped galvanized washer

1 1/2" O.D. 1/8" thick hot-dipped galvanized washer

Emergency Management Sign
1.5" Radius, 0.5" Border, White on Green;
[RAMP] 2K,

1.5" Radius, 0.5" Border, White on Green;
[RAMP] B 2K,
[3] D 2K.
To be effective, Chevron Sign Panels should be visible for at least 500 feet. Attach Chevron Sign Panels to the adjustable brackets at an angle so headlight beams are not reflected back into the driver’s eye.

Furnish adjustable brackets in all aluminum or all galvanized steel products. Include locking devices on all bolts.

Each correctly installed “Guidance Marker, Chevron W1-8 (Special)” will be counted and paid for at the contract unit price. Payment is full compensation for furnishing and installing one wood post, two Chevron W1-8 sign panels, approved mounting brackets, braces, and all work necessary to install as shown:

1. Adjust chevron locations as necessary to meet as near as possible.
2. Possible delineators.
3. Align horizontal placement of Chevrons with roadway delineators if applicable.
4. Perforated Square Steel Tube (PSST) may be substituted for the wood post if allowed by the Engineer.

Possible Contract Item:
Guidance Marker, Chevron W1-8 (Special)

Possible Tabulation:
108-34
Minimum Barricade length = design width (W).

1. Design width (W) equals width of existing roadway and shoulders.
2. Install posts according to Section 2524.03.B.1 of the Standard Specifications.
3. Assemble the wood frame with standard strength, hot dip galvanized bolts, nuts and washers according to the following specifications:
   - Bolts - ASTM A325
   - Washers - ASTM F884
   - Nuts - ASTM A563
   - High-strength steel - ASTM A307
4. Recess all bolt heads in a 1/2 inch diameter x 1 inch deep hole to allow sign panels to lay flush on the planks.
5. Use 0.063 inch aluminum blank for sign panel. Install sign panel meeting the requirements of Section 2524 of the Standard Specifications. Attach sign panels to the planks along the top and bottom at 2 foot centers using #10 x 1 inch self-drilling, phillips, pan head, 18-8 stainless steel screws. Use a 1 inch OD x 3/4 inch thick neoprene washer between the sign panel and the treated wood plank to prevent corrosion.
6. Use pressure treated 4 in. x 4 in. x 12 ft. nominal boards for posts, and pressure treated 2 in. x 10 in. x variable length nominal boards for planks. Use planks of sufficient length to span at least 2 posts.

Possible Contract Item:
Permanent Road Closure, Rural, SI-181

Possible Tabulation:
102-4
Possible Tabulation:
Permanent Road Closure, Urban, SI-182

Possible Contract Item:
102-4

- **Width** includes the width of the existing roadway and shoulders.
- **Type I delineator posts.**
- Use 0.063 inch aluminum blank with Type IV retro reflective sheeting for sign panel.

Price bid for "Permanent Road Closure, Urban, SI-182" includes furnishing and installing the closure, signs, posts, and hardware.

Closures will be counted and the contractor will be paid the contract unit price for each closure.

**Diagram Notes:**
- Place sign panel on the approach side of posts.
- Limits of roadway removal.
- R.O.W. or Controlled Access Line.
- 2'-6" min. - 10' max.

**Approach View Notes:**
- 2'-6" min. - 10' max.
- Width (W) includes the width of the existing roadway and shoulders.
- Minimum 3 Markers, Equal Spaces (6' Minimum, 8' Maximum)

**Dead End with Cul-de-Sac Notes:**
- 24.2
- OM4:2
- 6.8" across sides 1.5" radius
- No border, Black

**Approach View Details:**
- 4' typ.
- 2'-6" min. typ.

**Approach View Diagram:**
- R.O.W. or Controlled Access Line.
- Limits of roadway removal.

**Approach View Diagram Notes:**
- R.O.W. or Controlled Access Line.
- 2'-6" min. - 10' max.

**Approach View Diagram Notes:**
- Roadway Width (W)

**TYPE 1**: Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Install Type 3 Object Marker at the bridge ends. On paved roadways only, install 7 Single White Delineators at 200 foot spacing beginning 200 feet in front of the approach end of the guardrail. For ramp terminals see note 2.

**TYPE 2**: Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Install Type 3 Object Marker at the bridge ends.

**TYPE 3**: Install Type 3 Object Markers at the bridge ends.

1. Not required on projects where delineators are proposed or installed throughout the length of the project.
2. At ramp terminals only, install Single White Delineators as follows: Place first delineator at location where near ramp terminal radius meets the edge of the through pavement. Place additional delineator(s) spaced equally (spacing not to exceed 200 feet) between first delineator and guardrail.
Type 1: Rigid Delineator, Type 1 White

Type 2: Type 2 Object Marker, Left (OM-3L) max. 25’ typ. 200’ typ.

INSTALLATION AT SIDE OBSTACLES

Legend:
- Type 3 Object Marker, Left (OM-3L)
- Type 3 Object Marker, Right (OM-3R)
- Type 2 Object Marker
- Rigid Delineator, Type 1 White

Type 4:
Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Beginning 200 feet in front of approach end of the guardrail, install 3 Single White Delineators at 200 foot spacing. Additional markers as shown.

Not required on projects where delineators are proposed or installed throughout the length of the project.

Type 2 and Type 3 Object Marker at trailing end of obstacle not required when one-way traffic exists.

Type 5:
(Spine Beam Guardrail on the Shoulder)

Type 6:
(Spine Beam Guardrail 2 ft. or more from the shoulder line)
MARKING RAILROAD CROSSING SIGNALS

(ONE-WAY TRAFFIC)

TYPE 7:
Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Beginning 200 feet in front of approach end of the outside guardrail, install 3 Single White Delineators at 200 foot spacing.

TYPE 8:
Beginning 25 feet from the approach end of guardrail, install Type 2 Object Markers at 25 foot intervals behind the guardrail. Beginning 200 feet in front of approach end of the right guardrail, install 3 Single White Delineators at 200 foot spacing.

Not required on projects where delineators are proposed or installed throughout the length of the project.

MARKING RAILROAD CROSSING SIGNALS

(TWO-WAY TRAFFIC)

INSTALLATION AT RAILROADS

LEGEND
- Type 3 Object Marker, Left (OM-3L)
- Type 3 Object Marker, Right (OM-3R)
- Type 2 Object Marker
- Rigid Delineator, Type 1 White
FOUR-LANE CROSSING WITH CROSSING SIGNAL

POSTED SPEED LIMIT

<table>
<thead>
<tr>
<th>Speed Limit</th>
<th>L (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 MPH</td>
<td>325</td>
</tr>
<tr>
<td>30 MPH</td>
<td>465</td>
</tr>
<tr>
<td>35 MPH</td>
<td>565</td>
</tr>
<tr>
<td>40 MPH</td>
<td>670</td>
</tr>
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<td>45 MPH</td>
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<td>50 MPH</td>
<td>865</td>
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<td>55 MPH</td>
<td>995</td>
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<tr>
<td>60 MPH</td>
<td>1050</td>
</tr>
<tr>
<td>65 MPH</td>
<td>1200</td>
</tr>
</tbody>
</table>

LEGEND

- Traffic Sign

REV: 1
12-18-16

STANDARD ROAD PLAN
SI-241

SIGN PLACEMENT
APPROACHING A RAILROAD CROSSING

REVISIONS:
- Replaced old Iowa DOT logo with new logo.
- Changed No Passing Zone sign size from 48" x 60" x 60" to 48" x 64" to 64".

APPROVED BY DESIGN METHODS ENGINEER
**W4-2M**

**MERGE**

- Standard Arrow Custom: 29.25" X 13.50" X 180°
- 48.00" across sides
- 3.00" Radius
- 0.75" Indent
- Black on Orange

**W8-11A**

**END UNEVEN LANES**

- Standard Arrow Custom: 29.25" X 13.50" X 180°
- 48.00" across sides
- 3.00" Radius
- 0.75" Indent
- Black on Orange

**W20-1A**

**RAMP WORK AHEAD**

- Standard Arrow Custom: 29.25" X 13.50" X 180°
- 48.00" across sides
- 3.00" Radius
- 0.75" Indent
- Black on Orange

**W21-9**

**AERIAL SEEDING**

- Standard Arrow Custom: 29.25" X 13.50" X 180°
- 48.00" across sides
- 3.00" Radius
- 0.75" Indent
- Black on Orange

**W20-3A**

**TRUCKS TURNING AHEAD**

- Standard Arrow Custom: 29.25" X 13.50" X 180°
- 48.00" across sides
- 3.00" Radius
- 0.75" Indent
- Black on Orange

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**REVISIONS:**

- Added WORK ZONE sign to page 4.

**APPROVED BY DESIGN METHODS ENGINEER**

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**STANDARD ROAD PLAN**

**SPECIAL SIGNS FOR WORKZONES**
RESTRICTED WIDTH
MILES AHEAD
USE NEXT EXIT

3.0” Radius, 1.3” Border, 0.8” Indent, Black on Orange;
[RESTRICTED WIDTH] D 2K; [MILES AHEAD] D 2K; [USE NEXT EXIT] D 2K.

WIDE LOADS OVER
EXIT HERE

3.0” Radius, 1.3” Border, 0.8” Indent, Black on Orange;
[WIDE LOADS] D 2K; [OVER] D 2K; [EXIT HERE] D 2K.

NO WIDE LOADS OVER

3.0” Radius, 1.3” Border, 0.8” Indent, Black on Orange;
[NO WIDE] D 2K; [LOADS OVER] D 2K.

RESTRICTED WIDTH AHEAD

3.0” Radius, 1.3” Border, 0.8” Indent, Black on Orange;
[RESTRICTED] D 2K; [WIDTH AHEAD] D 2K.

See TC81 for requirement of restricted width dimension.
TRAFFIC CONTROL ZONES

SPECIAL SIGNS FOR RESTRICTED WIDTH

See TC-81 for requirement of restricted width dimension.