DITCH SECTION

BARRIER CURB SECTIONS

FILL SECTION

SIGN ORIENTATION

POST SPACING

DETAIL A

GENERAL NOTES:

1. Vertical clearances from the roadway shall be met and increased only to meet the 7.5' minimum vertical clearance from the grade.

2. Post size is determined using sign height, sign width and clear height. The clear height is equal to the length of the longest post measured from the ground to the bottom of the sign.

POST INSTALLATION DETAILS

TYPICAL SECTION: MOUNTING HEIGHT AND POST SPACING WIDE FLANGE (WF) POSTS

SHEET NO. 3 OF 16
CLAMP TYPE SIGN SUPPORT FOR PIPE POST

WIDTH OF PIPE POST CLAMP

<table>
<thead>
<tr>
<th>SIGN TYPE</th>
<th>MINIMUM W</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAT</td>
<td>1½&quot;</td>
</tr>
<tr>
<td>STRUCTURAL</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

MOUNTING DETAILS FOR FLAT SHEET ON PIPE POST

NOTES:
- FOR GENERAL NOTES, SHEET 1 OF 16.
- FOR MOUNTING HEIGHT AND OFFSET DETAIL, SEE SHEET 10 OF 16.
- FOR DETAILS OF EXTRUDED ALUMINUM PANEL AND POST CLIP DETAILS, SEE STANDARD PLANS 903.02 SHEET 8 OF 7.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL, Jefferson City, MO 65102
1-888-651-MOXT (6698) (TDD/TTY 1-888-651-5680)

SIGN MOUNTING DETAILS PIPE POST

MOUNTING DETAILS FOR FLAT SHEET SIGNS ON ROUND STRUCTURES >4" PIPE POST

VIEW SHOWN "ENDS OF STRAP, CLAMPED IN SEAL"

FLARED LEG SIGN BRACKET

VIEW SHOWING "ENDS OF STRAP, CLAMPED IN SEAL"

STRAP SEAL

T ½" STAINLESS STEEL

HEX HEAD ALL THREAD

THICK STEEL WASHER

PLASTIC FIBER WASHER

STAINLESS STEEL BRACKET MATERIAL

T ½" THICK TAPPED HOLE IN CENTER

2½" x 4½" STAINLESS STEEL STRAP MATERIAL

L ½" STAINLESS STEEL
**Extruded Panel Mounting Detail**

**Post Clip Method**

**T-Bolt Method**

### T-Bolt Detail

**Notes:**
- Aluminum bolts shall be ASTM E 211, 2024-T6 or 6061-T6.
- Aluminum flat washers shall be ASTM E 209, AASHTO 2024-T6 or 2024-T6.
- Aluminum lock nuts (nylon insert) shall be ASTM E 211 or 2017-T6.

For the general notes, see Sheet 1 of 16.
For mounting height and offset details, see Sheet 10 of 16.
For post clip details, see standard plans 903-02 Sheet 6 of 7.
Alternate post mounting hardware use shall be on approved list.
### Wood Post Detail

- **4" x 4" Wood Post - No Slots or Holes Required**
- **4" x 6" Wood Post - 1 1/2" x 4" Slot on 6" Side or 1 1/4" Dia. Hole on 6" Side**
- **6" x 6" Wood Post - 2" x 4" Slot or 2" Dia. Hole**

Slot Across Neutral Axis Formed by Successive Drilling with 1/2" Bit.

### U-Channel Post-Stub Detail

Four 4" Galvanized 40" x 40" Bolts, Nuts and Washers

### U-Channel Post Detail

Optional Installation

### Number of Bolts to Attach Steel Channel to Wood Post

<table>
<thead>
<tr>
<th>Sign Height</th>
<th>No. of Bolts Per Wood Post Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1'</td>
<td>2</td>
</tr>
<tr>
<td>2'</td>
<td>3</td>
</tr>
<tr>
<td>3'</td>
<td>4</td>
</tr>
<tr>
<td>4'</td>
<td>5</td>
</tr>
<tr>
<td>5'</td>
<td>6</td>
</tr>
<tr>
<td>6'</td>
<td>7</td>
</tr>
<tr>
<td>7'</td>
<td>8</td>
</tr>
</tbody>
</table>

### Plan View

Mounting Details for Extruded Panels on Wood Post

### Notes:

- **For General Notes:** See Sheet 1 of 16.
- **All Posts Shall Be Echeed at a Minimum of 3 Feet Into the Ground.**
- **U-Channel Post-Stub Overlap Shall Be Positioned Entirely Between Ground Line and 1½ Above Ground Line**
- **For Post Sizes See Engineering Policy Guide.**
- **For Post Clip Details, See Standard Plans 903.00 Sheet 6 of 7.**
- **For Mounting Height and Offset Details, See Sheet 10 of 16.**

### Post Size Requirements

**Sign Area (sq. ft.):**

<table>
<thead>
<tr>
<th>Size</th>
<th>H-Channel</th>
<th>Wood</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10</td>
<td>1 - 3.0 lb./ft.</td>
<td>1 - 4&quot; x 4&quot;</td>
</tr>
<tr>
<td>&gt; 10 ≤ 16</td>
<td>3 - 3.0 lb./ft.</td>
<td>2 - 4&quot; x 6&quot;</td>
</tr>
<tr>
<td>&gt; 16 ≤ 24</td>
<td>3 - 3.0 lb./ft.</td>
<td>2 - 4&quot; x 6&quot;</td>
</tr>
<tr>
<td>&gt; 24 ≤ 30</td>
<td>3 - 3.0 lb./ft.</td>
<td>2 - 4&quot; x 6&quot;</td>
</tr>
<tr>
<td>&gt; 30 ≤ 50</td>
<td>3 - 3.0 lb./ft.</td>
<td>2 - 6&quot; x 6&quot;</td>
</tr>
</tbody>
</table>

+ Signs greater than 6 feet in height require two posts, except standard shape warning signs, yield signs, and one way signs.
CHANNEL POST DELINEATOR AND FASTENER DETAILS

GROUND MOUNT U-CHANNEL

CHANNEL POST DELINEATOR

<table>
<thead>
<tr>
<th>Limits</th>
<th>128</th>
<th>126</th>
<th>124</th>
<th>122</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal</td>
<td>1.12</td>
<td>1.24</td>
<td>1.36</td>
<td>1.48</td>
<td>1.60</td>
</tr>
<tr>
<td>Tolerances</td>
<td>± 5%</td>
<td>± 5%</td>
<td>± 5%</td>
<td>± 5%</td>
<td>± 5%</td>
</tr>
</tbody>
</table>

(2) HEAT BEFORE SALVAGING OR FINISHING.

THE CHANNEL POST FOR DELINEATORS SHALL BE MANUFACTURED FROM A CORRUGATED 36 MIL GIRDLE WITH A BOLT OR WING NUT.

36 INCH SURFACE-MOUNT DELINEATOR POST

TUBULAR DELINEATOR

DELINETER PLACEMENT FOR ISLANDS

36" SPACING

DELINETER PLACEMENT FOR MEDIAN STRIPS

NOTES:

RETROREFLECTIVE SHEETING MAY BE FLEXIBLE OR RIGID. THE RETROREFLECTIVE SHEETING SHALL BE APPLIED TO ONLY ONE SIDE OF THE DELINEATOR REFLECTOR.

RETROREFLECTIVE SHEETING SHALL FOLLOW GUIDELINES OUTLINED IN SE 400.087.02c FOR HARDWARE APPLICATION OF SHEETING TO DELINEATOR BOLTS. THE COLOR OF THE SHEETING SHALL MATCH THE COLOR DESIGNATION FOR THE MEDIAN PAYMENT MARKING.

5" X 6" DELINEATOR BUCK SHALL BE MADE FROM 0.080 INCH SHELL.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SIGN MOUNTING DETAILS DELINEATORS

FORCE EFFECTIVE: 9/30/2020

903.03BM 11 OF 16
DELINEATORS ON CONCRETE TRAFFIC BARRIER

FOR CONCRETE BARRIER DETAILS:
SEE SHEET 14 OF 16 OR BRIDGE PLANS.

NOTE:
FOR GENERAL NOTES, SEE SHEET 1 OF 16.

REFLECTIVE SHEETING SHALL FOLLOW GUIDELINES OUTLINED IN ANSI Z136.27 FOR CORRECT APPLICATION OF SHEETING TO DELINEATOR BODY. THE COLOR OF THE SHEETING SHALL MATCH THE CloseST ADJACENT PAINTING MARKING.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 N. COLUMBIA, Jefferson City, MO 65102
1-916-589-MDOT (1-916-589-6638)

SIGN MOUNTING DETAILS
CONCRETE BARRIER DELINEATORS

DATE EFFECTIVE: 05/04/2023
DATE PRINTED: 05/04/2023
903.03BM SHEET NO. 12 OF 16

ROADWAY OR BRIDGE CONCRETE TRAFFIC BARRIER DELINEATION

LEGEND
- WHITE DELINEATOR
- YELLOW DELINEATOR
- RED DELINEATOR

SECONDARY DELINEATOR ON BACK SIDE NOT REQUIRED IF ROADWAY "A" HAS MORE THAN 2 LANES
DELINEATORS ON GUARDRAIL

FOR GUARDRAIL DETAILS, SEE SHEET PLANS 606.00 AND 606.50.

(1) A SECONDARY DELINEATOR WITH REFLECTIVE SHEETING SHALL BE ATTACHED TO THE BACK SIDE OF THE GUARDRAIL WHEN THE DELINEATION IS PLACED ALONG AN INTERCHANGE RAMP AND SHALL BE VISIBLE BY {{MILEAGE}} TRAFFIC.

DELINEATORS ON THREE-STRAND MEDIAN GUARD CABLE

FOR THREE-STRAND CABLE DETAIL SEE SHEET PLANS 606.41.

NOTES:

FOR GENERAL NOTES, SEE SHEET 1 OF 16.

RETROREFLECTIVE YELLOW, WHITE OR REFLECTIVE IN ACCORDANCE WITH A2TH & 4905 TYPE 3 or 5 SHALL BE APPLIED TO ONLY ONE SIDE OF THE CHANNEL POST DELINEATOR MOUNTED TOWARDS THE CHANNEL POST.

RETROREFLECTIVE SHEETING SHALL FOLLOW GUIDELINES OUTLINED IN Sec 1002.2.7 FOR CORRECT APPLICATION OF SHEETING TO DELINEATOR BODY. THE COLOR OF THE SHEETING SHALL MATCH THE CLOSEST ADJACENT PAVEMENT MARKING.
### DELIMITER SPACING ON HORIZONTAL CURVES

<table>
<thead>
<tr>
<th>RADIUS OF CURVE (FEET)</th>
<th>SPACING ON CURVE (FEET)</th>
<th>SPACING IN ADVANCE &amp; BEHIND CURVE (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>20</td>
<td>90</td>
</tr>
<tr>
<td>150</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>200</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>250</td>
<td>40</td>
<td>85</td>
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<tr>
<td>300</td>
<td>45</td>
<td>100</td>
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<tr>
<td>350</td>
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<td>100</td>
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<tr>
<td>400</td>
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<tr>
<td>450</td>
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<td>700</td>
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</tr>
<tr>
<td>750</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>800</td>
<td>95</td>
<td>100</td>
</tr>
</tbody>
</table>

**Legend:**
- White Delimiter
- Yellow Delimiter
- Red Delimiter
- White Double Stacked Delimiter

**NOTES:**
- For General Notes: See Sheet 1 of 16.
- The color of the DELIMITER shall be white. The color of the REFLECTIVE SHEETING shall be in accordance with Section 1042.2.1.3.
- Channel Shift Delimiters shall be installed on sections where channel shift is present. These sections shall be delineated utilizing the quadruple Delimiter. Areas where red Delimiter are delineated. Reflective sheeting will be placed on the rear side of the quadruple Delimiter.
**BARRIER WALL INSTALLATION**

1. **Perforated Square Steel Tube** 2" x 2" x 0.12 (12 gauge). Tube shall extend a minimum of 6" below the top of the foundation. **(4)**

2. **Pipe to Extent Above Foundation Only Enough** to allow bolt to be inserted 2" max. **(4)**

3. **Concrete Mix to Hold Foundation Tube Plumb Without Spacing** shall have a minimum of 5:1 mix of cement per cubic yard and a maximum slump of 2". **(4) 2" x 2" x 0.12 (12 gauge) Square Tube Galvanized 1 gauge with 9/16" diameter holes in each face 2" below top of pipe.**

4. **Fall Arrest Cable** 2" x 2" x 0.12 (12 gauge). **(4)**

5. **Perforated Square Steel Tube** 2" x 2" x 0.12 (12 gauge). **(7)**

6. **Perforated Square Steel Tube** 2" x 2" x 0.12 (12 gauge). **(4)**

7. **Fall Arrest Cable** to be secured to next full hole below sign. **(1)**

---

**NOTES:**

For general notes, see Sheet 1 of 16.

**Perforated Square Steel Tube** shall be secured to foundation tube or barrier wall mounting plate with a shoulder bolt per manufacturer’s specification.

**Missouri Highways and Transportation Commission**

105 West Capitol
Jefferson City, MO 65102
1-660-656-1994

**SIGN MOUNTING DETAILS**

**Emergency Reference Markers**

**Sheet No.** 903.03BM

**Date Printed:** 7/31/2010

**Page 16 of 16**