For loop bars 6d1, 6d2, and 6d3, use 2” smooth steel bars with a minimum yield strength of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3" pin bend diameter. Install loops within 2" of the plan dimensions.

Use Grade 60, ASTM A615 for all other reinforcements. Do not lift or move using loop bars 6d1, 6d2 or 6d3.

Provide for an approved monitoring schedule with a person on call and available 24 hours a day, each day of the week, to realign barrier which has been struck. Initiate service within one hour of notification of need.

Unless stated otherwise in the plans, the barrier rail sections shall be the property of the Contractor. Remove from the site upon completion of work.

Following removal of anchorage, fill all holes with an approved non-shrink grout.

Tapered end section is not designed for use within 30 feet of traffic on facilities with speed limits 55 mph or greater, nor within 10 feet of traffic on facilities with speed limits 40 mph to 50 mph.

Estimated quantity of concrete for one taper section is 0.5 cubic yards.

Include the cost of anchorage, when required in the price bid for “Temporary Barrier Rail, Concrete”.

Permanently mark one end of each rail section with manufacturing information. The “marked end” is that end of the barrier having one loop bar at the top and two loop bars at the bottom. Include the following information in the marking:

- Manufacturer Identification
- Date Manufactured (Month and Year)
- BA-401 Type A

Lifting hole. 4 inch diameter PVC Pipe.

1 inch radius allowed.

Possible Contract Item: Temporary Barrier Rail, Concrete

Possible Tabulation: 108-33
TEMPORARY BARRIER RAIL (PRECAST CONCRETE)

BARRIER MARKER PLACEMENT

1. Retainer bolt & nut are required for connections with 2-loop barriers (previous designs) or in conjunction with Strap Anchorages.

2. Furnish and install Barrier Markers. Attach to the barrier in a manner approved by the manufacturer. Markers to face oncoming traffic and match the barrier in a manner approved by the manufacturer. Maintain the markers and promptly repair or replace any damaged or missing markers to face oncoming traffic and match the barrier in a manner approved by the manufacturer. Furnish and install Barrier Markers. Attach to the barrier in a manner approved by the manufacturer. Markers to face oncoming traffic and match the barrier in a manner approved by the manufacturer. Maintain the markers and promptly repair or replace any damaged or missing markers in the price bid for "Temporary Barrier Rail, Concrete."

**REINFORCING A615 Gr. 60**

<table>
<thead>
<tr>
<th>Bar</th>
<th>Size</th>
<th>Shape</th>
<th>No. of Bars</th>
<th>Length Ft.</th>
<th>Weight Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6a1</td>
<td>4</td>
<td>A</td>
<td>12</td>
<td>6'-0&quot;</td>
<td>48.1</td>
</tr>
<tr>
<td>6a7</td>
<td>6</td>
<td>C</td>
<td>6</td>
<td>35'-0&quot;</td>
<td>38.3</td>
</tr>
<tr>
<td>6c1</td>
<td>5</td>
<td>C</td>
<td>3</td>
<td>12'-0&quot;</td>
<td>38.1</td>
</tr>
<tr>
<td>6d1</td>
<td>4</td>
<td>C</td>
<td>2</td>
<td>10'-0&quot;</td>
<td>18.3</td>
</tr>
</tbody>
</table>

**LOOP ASSEMBLY**

<table>
<thead>
<tr>
<th>Bar</th>
<th>Size</th>
<th>Shape</th>
<th>No. of Bars</th>
<th>Length Ft.</th>
<th>Weight Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6a1</td>
<td>6</td>
<td>C</td>
<td>2</td>
<td>8'-0&quot;</td>
<td>25.3</td>
</tr>
<tr>
<td>6d2</td>
<td>6</td>
<td>C</td>
<td>2</td>
<td>7'-0&quot;</td>
<td>22.8</td>
</tr>
<tr>
<td>6d3</td>
<td>6</td>
<td>C</td>
<td>2</td>
<td>6'-0&quot;</td>
<td>25.5</td>
</tr>
</tbody>
</table>
Pre-drill holes for stakes with 1/2" dia. x 5" min. (or Red Head Large Diameter Tapcon 1/2" dia. x 4" min.) OR Simpson Titen HD Wedge Bolt (1/4" dia. x 5" min.).

3 stakes required per rail section.

Pre-drill holes for stakes with 1/2" core bit.

TIE-DOWN STRAP (after bending)

For use on:
Bridge Decks
PCC Pavement

3" x 3/4 x 36" A36 Steel Plate
2" inside rad.
2/3 rad. to Inside
68°

3" x 3/4 x 36" A36 Steel Strap

STAKE ANCHORAGE

For use on:
HMA Pavement (2" min. thickness)
Compacted Pavement
PCC Pavement

Stop Plate

Edge of Dropoff or Fixed Vertical Object

See Table A

STAKE

TYPICAL SECTION

END VIEW

TIE-DOWN STRAP (before bending)

For use on:
Bridge Decks
PCC Pavement

3" x 3/4 x 36" A36 Steel Plate

1/2"

20"

10"

TABLE A

ANCHORAGE REQUIREMENTS

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Dropoff Depth</th>
<th>Min. Offset when unanchored</th>
<th>Min. Offset when TB is anchored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropoff from pavement</td>
<td>≤ 24&quot;</td>
<td>24&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Dropoff from bridge</td>
<td>&gt; 24&quot;</td>
<td>45&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Fixed vertical object</td>
<td>≤ 3&quot;</td>
<td>1&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>&gt; 3&quot;</td>
<td>45&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

* A dropoff is a slope of 2H:1V or steeper

Temporary Barrier Rail
(Precast Concrete)
TAPERED END SECTION

SIDE ELEVATION
(For connection to "marked end" of barrier. Invert loop bars for other end)

PLAN

DET AIL 'A'

DETAIL 'A'

PERSPECTIVE VIEW

FRONT ELEVATION

END SECTION

1 inch radius allowed.

BENT BAR DETAILS
(Dimensions are out to out of bars unless otherwise noted.)

6d1, 6d2, 6d3
(Extension to "Marked End" shown, invert for other end)

Per 12'-6" Barrier Taper Section

<table>
<thead>
<tr>
<th>Bar</th>
<th>Size</th>
<th>Shape</th>
<th>No.</th>
<th>Length</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>4v1</td>
<td>4</td>
<td></td>
<td>2</td>
<td>23&quot;</td>
<td>2.5</td>
</tr>
<tr>
<td>4v2</td>
<td>4</td>
<td></td>
<td>2</td>
<td>26&quot;</td>
<td>2.9</td>
</tr>
<tr>
<td>4v3</td>
<td>4</td>
<td></td>
<td>2</td>
<td>33&quot;</td>
<td>3.3</td>
</tr>
<tr>
<td>4v4</td>
<td>4</td>
<td></td>
<td>2</td>
<td>37&quot;</td>
<td>3.7</td>
</tr>
<tr>
<td>4v5</td>
<td>4</td>
<td></td>
<td>2</td>
<td>42&quot;</td>
<td>4.2</td>
</tr>
<tr>
<td>4v6</td>
<td>4</td>
<td></td>
<td>2</td>
<td>3&quot;-4&quot;</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Loop Assembly

<table>
<thead>
<tr>
<th>Bar</th>
<th>Size</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>6d1</td>
<td>6</td>
<td>1</td>
<td>8-1/2&quot;</td>
</tr>
<tr>
<td>6d2</td>
<td>6</td>
<td>1</td>
<td>8-1/2&quot;</td>
</tr>
<tr>
<td>6d3</td>
<td>6</td>
<td>1</td>
<td>8-1/2&quot;</td>
</tr>
</tbody>
</table>

Possible Curb

BA-401

STANDARD ROAD PLAN

TEMPORARY BARRIER RAIL
(PRECAST CONCRETE)