**NOTES**

1. Refer to **Standard Plan C-1b and C-20.11** for additional details not shown on this plan.
2. Extend shoulder pavement to provide a base for the extruded curb. See **Contract Plans** for exceptions to distances shown.
3. Use a single block or combination of blocks (no more than two (2) to achieve the actual 12” (in.) offset. See **Standard Specification**, Section 9-16.3(2).
4. Wood blocks are shown. Blocks of an approved alternative material may be used. See **Standard Specification**, Section 9-16.3(2).
5. All posts for any standard barrier run shall be of the same type: timber or steel.
6. Attach blockouts to steel posts using bolt holes on approaching traffic side of post web.
7. Anti-rotation holes in steel posts are not required when using blocks with anti-rotation features (e.g., routed blocks).

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**BEAM GUARDRAIL TYPE 31**

**STANDARD PLAN C-20.10-07**

**Aug 20, 2021**

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**TYPICAL RAIL ELEMENT**

**TYPICAL ELEVATION**

**TYPICAL SECTION ~ WITHOUT CURB**

5/8” (IN) x 1 1/4” (IN) BUTTON HEAD BOLT WITH 7/32” (IN) OVAL GRIP AND RECESSED HEX NUT (TYP.).

6 x 12 BLOCKOUT (TYP.)

5/8” (IN) x 9 x 6’ (FT) LONG TIMBER POST (SEE NOTES 1 & 5)

**SLOPE/EHMANKMENT TABLE FOR 6’, 8’, 9’, AND 11’ LONG POSTS**

<table>
<thead>
<tr>
<th>POST LENGTH</th>
<th>SLOPE</th>
<th>W (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-FOOT</td>
<td>2H: 1V OR FLATTER</td>
<td>2.5 MIN.</td>
</tr>
<tr>
<td>6-FOOT</td>
<td>1H: 1V OR FLATTER</td>
<td>4.0 MIN.</td>
</tr>
<tr>
<td>8-FOOT</td>
<td>1H: 1V</td>
<td>2.5 MIN.</td>
</tr>
<tr>
<td>8-FOOT</td>
<td>2H: 1V</td>
<td>0</td>
</tr>
<tr>
<td>9-FOOT</td>
<td>1.5H: 1V</td>
<td>0</td>
</tr>
<tr>
<td>11-FOOT</td>
<td>1H: 1V</td>
<td>0</td>
</tr>
</tbody>
</table>

**PLAN VIEW**

**GROUND LINE**

**SLOPE BREAK POINT**

**FACE OF CURB LIMIT**

**6 x 12 BLOCKOUT (SEE NOTE 4)**

**WOOD BLOCK (SEE NOTE 4)**

**6 x 8 TIMBER POST OR 6" x 8.5 OR 6" x 9 STEEL POST (SEE NOTES 1 & 5)**

**TYPICAL SECTION ~ WITH CURB**

5/8” (IN) x 1 1/4” (IN) BUTTON HEAD BOLT WITH 7/32” (IN) OVAL GRIP AND RECESSED HEX NUT (TYP.) AND RECESSED HEX NUTS ~ EIGHT (8) REQUIRED PER SPLICE

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**STATE DESIGN ENGINEER**

**APPROVED FOR PUBLICATION**

**Aug 20, 2021**