Quantities shown are for estimating purposes only. When called for in the plans, steel grating, baffles and accessories shall be in accordance with Index 524-001, and paid for under the contract unit price for Performance Turf, SY.

Concrete shall be Class I, except ASTM C478 (4000 psi) concrete may be substituted for precast items manufactured in plants meeting the requirements of Section 449 of the Standard Specifications.

Precasting of this endwall will be permitted. Precast units shall conform to the dimensions shown or in accordance with approved shop drawings. Request for shop drawing approval shall be directed to the State Drainage Engineer. Use Index 425-001 for opening and grouting details. When steel grating is required on endwall see Sheet 3 of 3 for details. Each. Payment shall include cost of concrete, reinforcing steel, and Endwall to be paid for under the contract unit price for U-Endwall, 9.

All reinforcing No. 4 bars with 2" clearance except as noted. All angles, channels and bars shall be ASTM A242/A242M, A572/A572M or A588/A588M Grade 50 steel. When designated Alternate G in the plans galvanize in accordance with Section 975 and 425-3.2 of the Standard Specifications.

Endwall to be constructed only when called for in plans. All angles, channels and bars shall be ASTM A242/A242M, A572/A572M or A588/A588M Grade 50 steel. When designated Alternate G in the plans galvanize in accordance with Section 449 of the Specifications.

GENERAL NOTES

1. Baffles to be constructed only when called for in plans.
2. When steel grating is required on endwall see Sheet 3 of 3 for details.
3. All reinforcing No. 4 bars with 2" clearance except as noted.
4. All angles, channels and bars shall be ASTM A242/A242M, A572/A572M
   or A588/A588M Grade 50 steel. When designated Alternate G in the
   plans galvanize in accordance with Section 975 and 425-3.2 of the
   Standard Specifications.
5. Channel section C 3x6 may be substituted for C 4x5.4 channel.
6. Precasting of this endwall will be permitted. Precast units shall
   conform to the dimensions shown or in accordance with approved shop
   drawings. Request for shop drawing approval shall be directed to the
   State Drainage Engineer. Use Index 425-001 for opening and grouting
   details.
7. Concrete shall be Class I, except ASTM C478 (4000 psi) concrete may
   be substituted for precast items manufactured in plants meeting the
   requirements of Section 449 of the Specifications.
8. Sodding shall be in accordance with Index 524-001, and paid for
   under the contract unit price for Performance Turf, SY.
9. Endwall to be paid for under the contract unit price for U-Endwall.
   Each. Payment shall include cost of concrete, reinforcing steel, and
   when called for in the plans, steel grating, baffles and accessories.
   Quantities shown are for estimating purposes only.
STEEL GRATING USE CRITERIA

1. Provide positive debris control at all upgradient openings. Do not install grates unless one or more of the following conditions exist:

   A. Pipe culvert endwalls are located within the designated clear zone.
   B. Drainage area to culvert consists of median or infield areas or areas where debris and/or drift is negligible.
   C. Runoff to culvert is by sheet flow or in such ill-defined channels that debris transport is considered a major problem.
   D. Runoff to culvert is minor except on an infrequent basis (10 to 15 year frequency); for example a drainage basin in flat sandy terrain with normally low ground water table.
   E. Areas where culvert blockage with resultant backwater would not seriously affect roadway embankment, traffic operation or upland property.

2. Steel grating to be used only where called for in plans.

TABLE OF DIMENSIONS AND QUANTITIES FOR ONE GRATE

<table>
<thead>
<tr>
<th>Rate Of Slope</th>
<th>Size of Pipe D</th>
<th>G</th>
<th>2 Each Bar @ 3.4 lb/ft</th>
<th>(A) Channels @ 5.4 lb/ft</th>
<th>2 Angles @ 3.62 lb/ft</th>
<th>Total Weight (lb)</th>
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<td>15' 2'-8&quot;</td>
<td>9'-3&quot;</td>
<td>3'-3&quot;</td>
<td>85</td>
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<td>10'-3&quot;</td>
<td>3'-6&quot;</td>
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<td>9</td>
<td>2-9½&quot;</td>
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<td>4'-0&quot;</td>
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