**NOTES:**

1. HEADWALL WHERE REQUIRED WILL BE PROVIDED FOR NONSKEWED CULVERTS HAVING A DIAMETER OR RISE OF 36" OR LESS.
2. REINFORCING STEEL SHALL BE #5 BAR.
3. DIMENSIONS AND QUANTITIES ARE SHOWN FOR CIRCULAR SECTIONS ONLY. CALCULATE REINFORCEMENT FOR ELLIPTICAL CONCRETE OR CORRUGATED PIPE IN ACCORDANCE WITH EQUATIONS LISTED BELOW.
4. CONCRETE SHALL BE CLASS "C".
5. FOUNDATION: INCREASE WIDTH OF BASE WHERE SOIL BORINGS INDICATE A BEARING CAPACITY LESS THAN 2600 LBS. PER SQ. FT. IT WILL BE NECESSARY TO INCREASE THE WIDTH OF THE BASE.
6. WHEN SLOPES OTHER THAN 2:1 ARE USED ADJUST LENGTH "L" AND HEIGHT "H" AS REQUIRED.

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>H</th>
<th>L</th>
<th>CONCRETE QUANTITY</th>
<th>REINF. STEEL</th>
<th>LEGEND</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot;-12&quot;</td>
<td>4'-9&quot;</td>
<td>5'-8&quot;</td>
<td>1.3</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>15&quot;</td>
<td>5'-2&quot;</td>
<td>7'-0&quot;</td>
<td>1.7</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>18&quot;</td>
<td>5'-5&quot;</td>
<td>8'-4&quot;</td>
<td>2.2</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>21&quot;</td>
<td>5'-8&quot;</td>
<td>9'-8&quot;</td>
<td>2.8</td>
<td>62</td>
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<tr>
<td>24&quot;</td>
<td>5'-11&quot;</td>
<td>11'-0&quot;</td>
<td>3.3</td>
<td>69</td>
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</tr>
<tr>
<td>30&quot;</td>
<td>6'-5&quot;</td>
<td>13'-8&quot;</td>
<td>4.7</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>36&quot;</td>
<td>7'-0&quot;</td>
<td>16'-4&quot;</td>
<td>6.5</td>
<td>105</td>
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</tr>
</tbody>
</table>

**EQUATIONS:**

- D = DIAMETER OF PIPE
- R = RISE OF PIPE
- S = SPAN OF PIPE
- T = THICKNESS OF BARREL
- L = LENGTH OF HEADWALL
- H = HEIGHT OF HEADWALL

**LEGEND:**

- L CIRCULAR SECTIONS = 5D+4T
- H CIRCULAR SECTIONS = R+1+4T
- ELLIPTICAL OR PIPE ARCH = 4R+T+S

Date: 3/14/2018

Standard Construction Drawing

**Cast-In-Place Pipe Headwalls**

8" to 36" Diameter

**Drawing No.**

STS-11