GENERAL NOTES:
1. Use concrete with a 28-day compressive strength of 
   4000 PSI. Place concrete with all the steel tied securely
   in place. Use Grade 60 rebar.
2. Use #4 rebars @ 12" center to center, each way, or
   6"x6"x6/8 WWF, in the floor.
3. The walls and floor will be built with expansion joints.
   No section of wall or floor will be over 30 feet long
   between contraction joints, or over 90 feet between
   expansion joints. See Expansion Joint Details, page 5 and
   contraction joint details on page 3.
4. A construction joint must be placed anywhere the
   concrete placement is not continuous. See Construction
   Joint Notes on page 5.
5. Lap splice of rebar must have a minimum lapped length
   of: Mark B & F - 33", all other #4 bars - 25",
   #5 bars - 31". Use #5 bar splice length where #4 and
   #5 are spliced.
6. All rebars must have a minimum concrete cover of 2
   inches except when concrete is placed on or against the
   earth, then the minimum cover must be three inches.
7. Field bend or cut vertical and horizontal bars in sidewalls
   and outlet box to clear pipe by a minimum of 2 inches.
8. Additional bars may be used in the floor to help stabilize
   the vertical wall bars during tying. Maintain 3 inch cover
   over steel.
9. PVC pipe must meet the requirements of ASTM D-1785
   PVC PLASTIC PIPE SCHEDULE 40 or 80.
10. Approved base course material includes DOT Gradation
    No. CA 7, 8, 11, 12, 14, 15, 16 or FA 1, 2, 4.
11. Construct flash boards of treated timber or
    other suitable material that can withstand exposure to
    manure without major corrosion and rot.
12. Fill expansion joints with preformed expansion joint filler
    with a minimum thickness of ½ inch. Joint filler must
    conform to ASTM D1752 type I, II, or III; D994,
    or D1751.
13. Connect and weld all waterstop splices and intersections
    according to manufacturer's instructions.
DRAINAGE NOTES:
1. Provide perimeter drain to adequate outlet if water table can rise above floor level.
2. Perimeter drain pipe and gravel/geotextile filter is to be routed around 3 sides of the basin and drain freely to a surface water outlet or other subsurface drainage outlet.
3. Perimeter drain pipe and fittings must be perforated, corrugated polyethylene (CPT) meeting ASTM Specifications listed below:

<table>
<thead>
<tr>
<th>CPT</th>
<th>ASTM F405, F667</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Wall CPT</td>
<td>ASTM F2306, F2648, F405, F667</td>
</tr>
</tbody>
</table>

4. Drain fill must consist of sand, gravel or concrete aggregate mixture with a minimum size of 3" and not more than 5% passing a #200 sieve. Qualifying DOT gradations include:
   - CA-1, CA-3, CA-5, CA-7, CA-8, CA-11, CA-12, CA-13, CA-14, CA-15, CA-16, CA-18
5. Geotextile (non-woven, needle punched) minimum criteria:
   - Grab tensile strength (lbf) ASTM D 4632 ___________ 202
   - Elongation at failure (%) ASTM 4632 ___________ 260
   - Trapezoidal tear strength (lbf) ASTM D 4553 ___________ 79
   - Puncture strength (lbf) ASTM D 6241 ___________ 143
   - Ultraviolet light (% retained strength) ASTM D 4355 ___________ min 50
   - Apparent opening size (AOS) ASTM D 4751 ___________ max 0.22 mm (US sieve size 70)
   - Permeability sec^-1 ASTM D 4491 ___________ min 0.70
6. Any geotextile splices must overlap a minimum of 18 inches.
7. Geotextile must encase all drain fill.

ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete (28 Days, 4000 PSI)</td>
<td>Cu. Yd.</td>
<td></td>
</tr>
<tr>
<td>Reinforcing Steel #4 Rebars</td>
<td>Lbs.</td>
<td></td>
</tr>
<tr>
<td>Reinforcing Steel #5 Rebars</td>
<td>Lbs.</td>
<td></td>
</tr>
<tr>
<td>Reinforcing 6&quot;x6&quot;x 8/8 WWF</td>
<td>Sq. Ft.</td>
<td></td>
</tr>
<tr>
<td>6&quot; Nonmetallic Water Stop</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>Inlet ___ Pipe________Dia.</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>Outlet ___ Pipe________Dia.</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>Base Course Material</td>
<td>Tons</td>
<td></td>
</tr>
<tr>
<td>Geotextile</td>
<td>Sq. Ft.</td>
<td></td>
</tr>
<tr>
<td>Perimeter Drain Fill</td>
<td>Tons</td>
<td></td>
</tr>
<tr>
<td>4&quot; Perforated CPT</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
</tbody>
</table>
Construction Joint Notes
1. A construction joint must be prepared when the concrete pours are not continuous, typically between the floor and wall.
2. Prepare all surfaces that will be in contact with new concrete as per note 5.
3. Let concrete cure at least 12 hours prior to steel tying and form construction for the next pour.
4. New concrete must not be placed until the hardened concrete has cured at least 12 hours.
5. Construction joints must be prepared using one of the following two methods:
   Method 1 - Water-Air or Sandblasting. Clean the joint surface of all unsatisfactory concrete, laitance, coating, stains, and debris by sandblasting or high-pressure air-water cutting, or both. Sandblasting can be used after the concrete has gained sufficient strength to resist excessive cutting, and high-pressure air-water cutting can be used as soon as the concrete has hardened sufficiently to prevent the jet from displacing the coarse aggregates. The surface of the concrete in place must be cut to expose clean, sound aggregate, but not so deep as to undercut the edges of larger particles of the aggregate. Cut the surface to at least 1/4" depth. Thoroughly wash the surface to remove all material after cutting.
   Method 2 - Mechanical. Clean the joint surface of all unsatisfactory concrete, laitance, coatings, stains, and debris by washing and scrubbing with a wire brush, wire broom, or other means approved by the engineer to expose coarse aggregate without displacing it. The surface must be roughened to at least 1/4" depth.
6. All construction joints must be wetted and standing water removed immediately before new concrete is placed.
7. New concrete must be sufficiently vibrated to ensure good contact into the prepared joint.
8. Keyways or steel plates cannot be substituted for the construction joint methods above.

LEGEND
WS = 6" Nonmetallic Water Stop
Ej = Expansion Joint
CJ = Construction Joint