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, in the floor.
3. The walls and floor will be built with expansion and contraction joints. No section of wall or floor will be over 30 feet long between contraction joints, or over 50 feet between expansion joints. See Expansion Joint Details, page 4, and contraction joint details page 5.
4. A construction joint must be placed any where the concrete placement is not continuous. See Construction Joint Notes on page 4.
5. Use #5 rebars each way in the endwalls and outlet box. Use #4 rebars, at 12 inches each way, in sidewalls and interior walls.
6. Use minimum rebar lap splice lengths:
   - Floor Bars—#4 bars—25”, #6 bars—32”, #8 bars—40”.
   - Use the #6 bar splice length where #4 and #5 bars are spliced.
7. 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 3 inches.
8. Field bend or cut vertical and horizontal bars in sidewalls and outlet box to clear pipe by a minimum of 2 inches.
9. Additional bars may be used in the floor to help stabilize the vertical wall bars during bar tying. Maintain 3” cover over concrete.
10. PVC pipe must meet the requirements of ASTM D-1785 PVC PLASTIC PIPE SCHEDULE 40 or 80.
11. Approved base course material includes DOT Gradation No. 8, 11, 12, 14, 15, 16 or FA 1, 2, 4.
12. Construct flashboards with treated lumber or other suitable material that will withstand exposure to moisture without major corrosion and rot.
13. Fill expansion joints with preformed expansion joint filler with a minimum thickness of 1/2 inch. Joint filler must conform to ASTM D 1752 Type 1, 2, or 3: D 994, or D 1751.
14. Connect and weld all stopwater splices and intersections according to manufacturer’s instructions.
**DRAINAGE NOTES:**

1. Provide perimeter drain to achieve 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 maximum size of 3" and not more than 5% passing a #200 sieve. Qualifying IDOT 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 (lb) ASTM D 4632 _____________ 202
   - Elongation at failure (%) ASTM D 4632 _____________ ≤50
   - Trapezoidal tear strength (lb) ASTM D 4533 _____________ 79
   - Puncture strength (lb) ASTM D 6241 _____________ 438
   - 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 _____________ ≤0.70

6. Any geotextile splice 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>
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</tr>
<tr>
<td>Reinforcing Steel #4 Rebars (Grade 60)</td>
<td>Lbs.</td>
<td></td>
</tr>
<tr>
<td>Reinforcing Steel #5 Rebars (Grade 60)</td>
<td>Lbs.</td>
<td></td>
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<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>
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<tr>
<td>Base Course Material</td>
<td>Tons</td>
<td></td>
</tr>
<tr>
<td>Geotextile</td>
<td>Sq Ft.</td>
<td></td>
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<tr>
<td>Perimeter Drain Fill</td>
<td>Tons</td>
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<tr>
<td>4&quot; Perforated CPT</td>
<td>Lin Ft.</td>
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Scale As Noted
### REINFORCING STEEL SCHEDULE (60,000 PSI)

<table>
<thead>
<tr>
<th>Location</th>
<th>Mark</th>
<th>Size</th>
<th>Qty.</th>
<th>Length Type</th>
<th>Type A</th>
<th>Type B</th>
<th>Tot. Lg. Ft. In.</th>
<th>Tot. Lg. Decimal</th>
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</thead>
<tbody>
<tr>
<td>Side Wall Vertical, Basin</td>
<td>A</td>
<td>#4</td>
<td></td>
<td>4’-8”</td>
<td>2’-3”</td>
<td>3’-5”</td>
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<tr>
<td>Side Wall Vertical, Ramp</td>
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<td>2’-3”</td>
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<tr>
<td>Side Wall Horizontal</td>
<td>C</td>
<td>#4</td>
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<tr>
<td>End Wall Vertical</td>
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<td>#5</td>
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<tr>
<td>Interior Wall Vertical</td>
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<tr>
<td>Outlet Box Vertical</td>
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<td>Outlet Box Floor</td>
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<tr>
<td>Outlet Box/Sidewall Corner</td>
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<td>Basin Floor Longitudinal</td>
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<tr>
<td>Basin Floor Lateral</td>
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<tr>
<td><strong>Total Weight</strong></td>
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<td></td>
<td>27</td>
<td>1</td>
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</tbody>
</table>

### Construction Joint Notes

1. A construction joint must be prepared when the concrete pour is 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, coatings, 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

**Note:** All bent bar types are standard 90° hooks with a bend radius of 6 times the bar diameter.

**Scale:** 3/4” = 1’-0”
SECTION @ DOWEL CENTERLINE
FLOOR SLAB CONTRACTION JOINT

Scale: 1" = 1'-0"

Note: Dowel sleeve for contraction joints may be manufactured plastic sleeve, PVC sleeve, grease, or any other means to prevent a bond between half of the dowel and the concrete. Place a dowel sleeve on one end of each dowel.

Flexible 6" Non-Metallic Waterstop
Dowel Sleeve See Note
Smooth Dowel 3/4"x14"x2" C.C.

3" Approved Base Course Material
(See Note 11 Page 2)

PLAN
FLOOR SLAB CONTRACTION JOINT 30' C.C. SPACING
Not To Scale

WALL CONTRACTION JOINT
30' C.C. SPACING

Scale: 1/2" = 1'-0"

EXAMPLE WALL JOINT PLACEMENT SEQUENCE
Not To Scale

TOP VIEW
WALL CONTRACTION JOINT
Scale: 3/4" = 1'-0"

Of 2" Deep X 1" Wide Groove, Both Sides. Form Groove with Blockout Strips Attached to Forms
Flexible 6" Non-Metallic Waterstop Or Inside Face Of Concrete Wall

Dowel Sleeve See Note
Rebar

Center

WALL ThICKNESS

7" From Center Of Groove To The End Of Dowel

3" From Center Of Groove To End Of Waterstop & Rebar

Rebar

3/4"x14"x2" C.C.

WALL ThICKNESS

7" From Center Of Saw Cut To End Of Dowel
3" From Center Of Saw Cut To End Of Waterstop & Rebar

Rebar

Smooth Dowel 3/4"x14"x2" C.C.

Flexible 6" Non-Metallic Waterstop
Dowel Sleeve See Note

SIDE VIEW
WALL CONTRACTION JOINT
30' C.C. SPACING

Scale: 1/2" = 1'-0"

Expansion Joint
Contraction Joint
Contraction Joint
Expansion Joint

30'
30'
30'

Rebar

Dowel Sleeve See Note
Smooth Dowel 3/4"x14"x2" C.C.