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<td>S40-96</td>
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NOTES FOR STORM STRUCTURES

1. ALL PIPE STUBS FROM STRUCTURES FOR FUTURE CONNECTIONS, SHALL BE INSTALLED WITH REMOVABLE WATERTIGHT PLUGS, PLACED FROM WITHIN THE STRUCTURE

2. FOR APPLICABLE RING AND COVER, SEE STANDARD DETAIL-MANHOLE RING AND COVER CASTING.

3. STORM STRUCTURES SHALL NOT HAVE OUTSIDE DROP CONNECTIONS.

4. PROVIDE MINIMUM 8" SOLID WALL BETWEEN ALL OPENINGS FOR PIPES. SEAL BETWEEN PIPE AND STRUCTURE WITH NON SHRINK GROUT.

5. ALL BRICK SHALL BE CONCRETE OR CLAY BRICK AND SHALL HAVE A MINIMUM 3/4" CEMENT PLASTER COATING ON ALL SURFACES.

6. BENCH SHALL SLOPE @ 1:12 MINIMUM.

7. PRECAST AND CAST-IN-PLACE MANHOLES, CATCH BASINS, AND GRATE INLETS ARE DESIGNED FOR A MAXIMUM DEPTH OF 12 FEET, STRUCTURES IN EXCESS OF 12 FEET, AS MEASURED FROM THE FINISHED GRADE TO THE INSIDE OF THE BASE SLAB, SHALL REQUIRE VERIFICATION OF THE STRUCTURAL DESIGN AND SPECIFIC MODIFICATIONS TO THE REINFORCING REQUIREMENTS FOR THE DEPTH REQUIRED.

8. PRIOR TO PRECASTING STRUCTURES THE PRECASTER SHALL SUBMIT SITE SPECIFIC INDIVIDUAL SHOP DRAWINGS FOR APPROVAL. SHOP DRAWINGS SUBMITTED FOR NON-STANDARD STRUCTURES OR STRUCTURES THAT DEVIATE FROM THE STANDARD DETAILS MUST BE DESIGNED AND CERTIFIED BY A REGISTERED FLORIDA PROFESSIONAL ENGINEER.

9. PRECAST MANHOLES SHALL CONSIST OF A LIMITED NUMBER OF SECTIONS, AS APPROVED BY THE ENGINEER.

10. ALL PRECAST STRUCTURES SHALL HAVE AN INTEGRAL FLOOR AND BASE RISER SECTION.

11. SEE STANDARD DETAIL-PRECAST STRUCTURE JOINT ASSEMBLY AND STRUCTURE SEALING.

12. ALL EXPOSED EDGES TO HAVE 3/4" CHAMFER.

13. ALL REINFORCING STEEL SHALL HAVE A MINIMUM 2" CONCRETE COVER, UNLESS NOTED ELSEWHERE.

14. ADDITIONAL REINFORCEMENT IS REQUIRED IN ALL TYPE CATCH BASIN WALLS, GRATE INLETS, AND TYPE II, III, IV, AND TYPE V MANHOLE WALLS WITH OPENINGS FOR PIPE OR CULVERT. THE VERTICAL AND HORIZONTAL WALL REINFORCEMENT DISPLACED DUE TO OPENINGS SHALL BE REPLACED WITH ADDITIONAL REINFORCEMENT BARS ABOVE, BELOW, AND ON BOTH SIDES OF OPENING, EQUAL IN AREA TO THOSE DISPLACED. REPLACEMENT REINFORCEMENT SHALL BE PLACED WITH 3" CLEARANCE TO THE EDGES OF OPENINGS.

CITY STANDARDS

STORM STRUCTURE NOTES

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DIRECTOR

DATE: OCT. 2019

DWG. No. S40-1
BRICK COURSE WITH 3/4" PLASTER COATING

MANHOLE ACCESS-SEE STANDARD DETAIL-MANHOLE RING AND COVER CASTING (S40-21)

FINISHED GRADE

TOP SLAB-SEE STANDARD DETAIL-TYPE II MANHOLE TOP SLAB (S40-10)

WALL REINFORCEMENT-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

WT-WALL THICKNESS-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

MANHOLE RISER INTERMEDIATE SLAB-SEE STANDARD DETAIL-TYPE II (S40-13), TYPE III (S40-14), OR TYPE IV (S40-15) MANHOLE RISER INTERMEDIATE SLAB

NOTE:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).

CITY STANDARDS

PRECAST MANHOLE RISER DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:

DIRECTOR

DATE: OCT. 2019

SCALE: N.T.S.

REVISIONS

BY DATE

S40-2
MANHOLE ACCESS-SEE STANDARD DETAIL-MANHOLE RING AND COVER CASTING (S40-21)

BRICK COURSE WITH 3/4" PLASTER COATING

FINISHED GRADE

TOP SLAB-SEE STANDARD DETAIL-TYPE II MANHOLE TOP SLAB (S40-10)

WALL REINFORCEMENT-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

WT-WALL THICKNESS-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

BOX CULVERT TOP SLAB

ADDITIONAL REINFORCING AS REQUIRED FOR RISER OVER BOX CULVERT, TYP.

NOTE:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).

CITY STANDARDS

PRECAST MANHOLE RISER FOR BOX CULVERT DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:

DATE: OCT. 2019

SCALE: N.T.S.

DWG. No. S40-3
FINISHED GRADE

BRICK COURSES WITH 3/4"
PLASTER COATING

WALL REINFORCEMENT-SEE
STANDARD DETAIL-TYPE I
AND II MANHOLE BASE AND
WALL (S40-16)

6" TO BACK OF BELL, TYP.

LATERAL STORM DRAIN

BASE SLAB-SEE STANDARD DETAIL-TYPE I
AND II MANHOLE BASE AND WALL (S40-16)

COMPACTED SUBGRADE, OR 4"
CONCRETE MAT, OR 6" COARSE
AGGREGATE, AS ORDERED

TYPICAL SECTION VIEW

PLAN VIEW

NON-SHRINK GROUT, TYP.

R=24" MIN.

NOTE:
FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).

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CITY STANDARDS

PRECAST STORM
MANHOLE TYPE I DETAIL

ENGINEERING AND CAPITAL
IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY: [Signature]

DATE: OCT. 2019

DWG. No. S40- 4
FINISHED GRADE

TOP SLAB-SEE STANDARD DETAIL-TYPE II MANHOLE TOP SLAB (S40-10)

6" TO BACK OF BELL, TYP.

BASE SLAB-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

BRICK COURSES WITH 3/4" PLASTER COATING

WT-WALL THICKNESS-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

WALL REINFORCEMENT-SEE STANDARD DETAIL-TYPE I AND II MANHOLE BASE AND WALL (S40-16)

COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED

SCHEDULE

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NOTE:

FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).

CITY STANDARDS

PRECAST STORM MANHOLE

TYPE II DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:

DIRECTOR

DATE: OCT. 2019

DWG. No. S40-5
NOTES:
1. MANHOLES LARGER THAN 16'x16' SHALL REQUIRE A SPECIAL DESIGN TO BE APPROVED BY THE ENGINEER.
2. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
3. MULTIPLE PIPES ALLOWED. SPACING BETWEEN PIPES TO BE DETERMINED BY THE ENGINEER.
4. L=BOX LENGTH PARALLEL TO MAIN PIPE RUN, W=BOX WIDTH PERPENDICULAR TO MAIN PIPE RUN.

**CITY STANDARDS**

**PRECAST STORM MANHOLE**

**TYPE III DETAIL**

**REVISIONS**

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**ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT**

**CITY OF ST. PETERSBURG**

**APPROVED BY:**

[Signature]

**DATE:**

**S40- 6**

**SCALE:** N.T.S.

**DIRECTOR**

**SCHEDULE**

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**MANHOLE ACCESS-SEE STANDARD DETAIL-MANHOLE RING AND COVER CASTING (S40-21)**

**BRICK COURSES WITH 3/4" PLASTER COATING**

**WT-WALL THICKNESS-SEE STANDARD DETAIL-TYPE III MANHOLE BASE AND WALL (S40-17)**

**WALL REINFORCEMENT-SEE STANDARD DETAIL-TYPE III MANHOLE BASE AND WALL (S40-17)**

**COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED**

**PLAN VIEW**

**ANTI-FLOTATION LIP-SEE STANDARD DETAIL-TYPE III MANHOLE BASE AND WALL (S40-17)**

**TOP SLAB-SEE STANDARD DETAIL-TYPE III MANHOLE TOP SLAB (S40-11)**

**LATERAL STORM DRAIN**

**BASE SLAB-SEE STANDARD DETAIL-TYPE III MANHOLE BASE AND WALL (S40-17)**

**FINISHED GRADE**

**TYPICAL SECTION VIEW**

**NON-SHRINK GROUT, TYP.**

**W-INSIDE**

**FLOW**

**L-INSIDE**

**R=24'' MIN**

**4'' MINIMUM TYP.**

**4'' MINIMUM TYP.**
FINISHED GRADE

MANHOLE ACCESS - SEE STANDARD DETAIL - MANHOLE RING AND COVER CASTING (S40-21)

BRICK COURSES WITH 3/4" PLASTER COATING

WT-WALL THICKNESS - SEE STANDARD DETAIL - TYPE IV MANHOLE BASE AND WALL (S40-18)

WALL REINFORCEMENT - SEE STANDARD DETAIL - TYPE III MANHOLE BASE AND WALL (S40-17)

TOP SLAB - SEE STANDARD DETAIL - TYPE IV MANHOLE TOP SLAB (S40-12)

MANHOLE TOP SLAB (S40-12)

MANHOLE RING AND COVER CASTING (S40-21)

MANHOLE BASE AND WALL (S40-18)

TOP SLAB - SEE STANDARD DETAIL - TYPE IV MANHOLE TOP SLAB (S40-12)

LATERAL STORM DRAIN

BASE SLAB - SEE STANDARD DETAIL - TYPE IV MANHOLE BASE AND WALL (S40-18)

ANTI-FLOTATION LIP - SEE STANDARD DETAIL - TYPE IV MANHOLE BASE AND WALL (S40-18)

NON-SHRINK GROUT, TYP.

FLOW

R=24" MIN

4" MIN. TYP.

PLAN VIEW

NOTES:
1. MANHOLES LARGER THAN 16'x16' SHALL REQUIRE A SPECIAL DESIGN TO BE APPROVED BY THE ENGINEER.
2. FOR GENERAL NOTES, SEE STANDARD DETAIL - STORM STRUCTURE NOTES (S40-1).
3. MULTIPLE BOX CULVERTS ALLOWED. SPACING BETWEEN BOXES TO BE DETERMINED BY THE ENGINEER.
4. L=BOX LENGTH PARALLEL TO MAIN PIPE RUN, W=BOX WIDTH PERPENDICULAR TO MAIN PIPE RUN.
5. BOX CULVERT DIMENSIONS PER ASTM C 1433.

<table>
<thead>
<tr>
<th>SPAN(S)</th>
<th>W</th>
</tr>
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<tbody>
<tr>
<td>5'</td>
<td>5'</td>
</tr>
<tr>
<td>4'</td>
<td>6'</td>
</tr>
<tr>
<td>4'</td>
<td>7'</td>
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<tr>
<td>5'</td>
<td>8'</td>
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<td>6'</td>
<td>9'</td>
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<td>10'</td>
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<td>8'</td>
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<td>9'</td>
<td>12'</td>
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<td>11'</td>
<td>14'</td>
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<tr>
<td>12'</td>
<td>15'</td>
</tr>
<tr>
<td>12'</td>
<td>16'</td>
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</table>

CITY STANDARDS

PRECAST STORM MANHOLE
TYPE IV DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

SCALE: N.T.S.

APPROVED BY: Director

DATE: OCT. 2019

DWG. No. S40-7
FINISHED GRADE

MANHOLE ACCESS- SEE STANDARD DETAIL-MANHOLE RING AND COVER CASTING (S40-21)

18" MAX. COVER UNDER PAVEMENT

3/4" PLASTER COATING

BASE REINFORCEMENT-SEE SCHEDULE BELOW

BT-BASE THICKNESS SEE SCHEDULE BELOW

DIAMETER-INSIDE

R=24" MIN

FLOW

ANTI-FLOTATION LIP-SEE SCHEDULE BELOW

WT-WALL THICKNESS, SEE NOTATION ABOVE

22° MAX.

BRICK COURSES WITH 3/4" PLASTER COATING

2-6" MINIMUM

8"-WT W/MAXIMUM COVER 12"-WT
W/O MAXIMUM COVER

6" TO BACK OF BELL, TYP.

LATERAL STORM DRAIN

SEAL OPENINGS WITH NON-SHRINK GROUT

COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED

TYPICAL SECTION VIEW

NOTES:
1. FOR GENERAL NOTES SEE, STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. NO INLET PIPE SHALL BE INSTALLED IN THE CONE SECTION.

CITY STANDARDS

STORM BRICK MANHOLE
TYPE I DETAIL

REVISIONS

BY DATE

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DIRECTOR

DATE: OCT. 2019

DWG. No. S40-8
MANHOLE ACCESS - SEE STANDARD DETAIL - MANHOLE RING AND COVER CASTING (S40-21)

FINISHED GRADE

18" MAX. COVER UNDER PAVEMENT

TOP SLAB - SEE STANDARD DETAIL - TYPE II MANHOLE TOP SLAB (S40-10)

3/4" PLASTER COATING

BASE REINFORCEMENT - SEE SCHEDULE BELOW

BT - BASE THICKNESS SEE SCHEDULE BELOW

TOP SLAB - SEE STANDARD DETAIL - TYPE II MANHOLE TOP SLAB (S40-10)

BRICK COURSES WITH 3/4" PLASTER COATING

8"-WT W/MAXIMUM COVER

12"-WT W/O MAXIMUM COVER

6" TO BACK OF BELL, TYP.

LATERAL STORM DRAIN

SEAL OPENINGS WITH NON-SHRINK GROUT

2" COVER

COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED

TYPICAL SECTION VIEW

PLAN VIEW

SCHEDULE

<table>
<thead>
<tr>
<th>RECOMMENDED MAXIMUM PIPE</th>
<th>DIA. INSIDE</th>
<th>BASE DIA. 8&quot; WALL</th>
<th>BASE DIA. 12&quot; WALL</th>
<th>H MAX</th>
<th>BT MIN</th>
<th>ANTI-FLOAT. LIP</th>
<th>BASE REINFORCEMENT</th>
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<tbody>
<tr>
<td>24&quot;</td>
<td>4'</td>
<td>6'-4&quot;</td>
<td>7'-0&quot;</td>
<td>6'</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>#6 @ 12&quot; EW</td>
</tr>
<tr>
<td>30&quot;</td>
<td>5'</td>
<td>7'-4&quot;</td>
<td>8'-0&quot;</td>
<td>8'</td>
<td>8&quot;</td>
<td>#6 @ 9&quot; EW</td>
<td>#6 @ 9&quot; EW</td>
</tr>
<tr>
<td>42&quot;</td>
<td>6'</td>
<td>8'-4&quot;</td>
<td>9'-0&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>#6 @ 9&quot; EW</td>
<td>#6 @ 9&quot; EW</td>
</tr>
<tr>
<td>42&quot;</td>
<td>6'</td>
<td>8'-4&quot;</td>
<td>9'-0&quot;</td>
<td>15'</td>
<td>12&quot;</td>
<td>#6 @ 6&quot; EW</td>
<td>#6 @ 6&quot; EW</td>
</tr>
</tbody>
</table>

NOTE:
FOR GENERAL NOTES, SEE STANDARD DETAIL - STORM STRUCTURE NOTES (S40-1).

CITY STANDARDS

STORM BRICK MANHOLE TYPE II DETAIL

APPROVED BY:

DATE: OCT. 2019

DWG. No. S40-9
**Plan View**

**Typical Section View**

**Schedule**

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter</th>
<th>WT Wall Thickness</th>
<th>Top Slab Thickness</th>
<th>Access Diameter</th>
<th>Main Reinforcement</th>
<th>Additional Reinforcement</th>
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<td>Precast</td>
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<td>8&quot;</td>
<td>24&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td></td>
<td>5'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td></td>
<td>6'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td></td>
<td>7'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 10&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td></td>
<td>8'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 10&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>Brick</td>
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<td>8&quot;</td>
<td>8&quot;</td>
<td>24&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
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<tr>
<td></td>
<td>5'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td></td>
<td>6' (3)</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
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<tr>
<td></td>
<td>6' (3)</td>
<td>12&quot;</td>
<td>8&quot;</td>
<td>32&quot;</td>
<td>#6 @ 10&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
</tbody>
</table>

**Notes:**

1. For general notes, see standard detail-storm structure notes (S40-1).
2. Opening shall be centered in top slab, unless otherwise noted, or shown.
3. See brick manhole detail for other conditions.

**City Standards**

**Type II Manhole**

**Top Slab Detail**

**Engineering and Capital Improvement Department**
City of St. Petersburg

**Approved By:**

**Director**

**Date:** Oct. 2019

**Drawing No.:** S40-10
**MAIN REINFORCING BARS-SEE SCHEDULE BELOW**

**ADDITIONAL REINF., SEE SCHEDULE BELOW**

**PLAN VIEW**

**ADDITIONAL REINF., SEE SCHEDULE BELOW**

**TYPICAL SECTION VIEW**

**SCHEDULE**

<table>
<thead>
<tr>
<th>WIDTH INSIDE</th>
<th>LENGTH INSIDE</th>
<th>WT WALL THICKNESS</th>
<th>TOP SLAB THICKNESS</th>
<th>ACCESS DIAMETER</th>
<th>MAIN REINFORCEMENT</th>
<th>ADDITIONAL REINFORCEMENT</th>
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<tbody>
<tr>
<td>4' TO 16'</td>
<td>4'</td>
<td>8'</td>
<td>8'</td>
<td>24'</td>
<td>#6 @ 12&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
</tr>
<tr>
<td>4' TO 16'</td>
<td>5'</td>
<td>8'</td>
<td>8'</td>
<td>32'</td>
<td>#6 @ 9&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
</tr>
<tr>
<td>4' TO 16'</td>
<td>6'</td>
<td>8'</td>
<td>8'</td>
<td>32'</td>
<td>#6 @ 8&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
</tr>
<tr>
<td>4' TO 16'</td>
<td>7'</td>
<td>8'</td>
<td>8'</td>
<td>32'</td>
<td>#6 @ 6&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>MAIN REINFORCEMENT</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>J REINF.</td>
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<td>K REINF.</td>
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<td></td>
<td></td>
<td>#6 @ 12&quot; EW</td>
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<td></td>
<td></td>
<td>#6 @ 12&quot; EW</td>
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<td>#6 @ 12&quot; EW</td>
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<td>#6 @ 12&quot; EW</td>
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<td>#6 @ 12&quot; EW</td>
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<td></td>
<td>#6 @ 12&quot; EW</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>#6 @ 9 1/2&quot; EW</td>
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<td></td>
<td></td>
<td>#6 @ 8&quot; EW</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td>#6 @ 7&quot; EW</td>
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<td></td>
<td></td>
<td></td>
<td>#6 @ 7&quot; EW</td>
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</table>

**NOTES:**

1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. OPENING SHALL BE CENTERED IN TOP SLAB, UNLESS OTHERWISE NOTED, OR SHOWN.
3. SHALL BE CAST-IN-PLACE WHEN SIZE EXCEEDS 12' OVERALL DIMENSION.
4. FOR WIDTH AND LENGTH COMBINATIONS NOT SHOWN, USE REINFORCEMENT, WALL, AND TOP SLAB THICKNESS FOR LONGER DIMENSION FOR BOTH.

---

**CITY STANDARDS**

**TYPE III MANHOLE TOP SLAB DETAIL**

**REVISIONS**

<table>
<thead>
<tr>
<th>BY</th>
<th>DATE</th>
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**ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT**

**CITY OF ST. PETERSBURG**

**APPROVED BY:**

**DATE:** OCT. 2019

**DWG. No.:** S40-11
## Schedule

<table>
<thead>
<tr>
<th>W x L INSIDE</th>
<th>WT WALL THICKNESS</th>
<th>TOP SLAB THICKNESS</th>
<th>ACCESS DIAMETER</th>
<th>MAIN REINFORCEMENT</th>
<th>ADDITIONAL REINFORCEMENT</th>
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</thead>
<tbody>
<tr>
<td>5'x5'</td>
<td>8&quot;</td>
<td>10&quot;</td>
<td>32&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>6'x6'</td>
<td>8&quot;</td>
<td>12&quot;</td>
<td>32&quot;</td>
<td>#7 @ 7&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>7'x7'</td>
<td>8&quot;</td>
<td>12&quot;</td>
<td>32&quot;</td>
<td>4-#8 @ 7&quot; OC</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>8'x8'</td>
<td>8&quot;</td>
<td>13&quot;</td>
<td>32&quot;</td>
<td>4-#8 @ 7&quot; OC</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>9'x9'</td>
<td>8&quot;</td>
<td>13&quot;</td>
<td>32&quot;</td>
<td>5-#8 @ 5&quot; OC</td>
<td>8-#6 @ 3&quot; OC</td>
</tr>
<tr>
<td>10'x10'</td>
<td>8&quot;</td>
<td>14&quot;</td>
<td>32&quot;</td>
<td>5-#8 @ 5&quot; OC</td>
<td>3-#6 @ 10&quot; OC</td>
</tr>
<tr>
<td>11'x11'</td>
<td>8&quot;</td>
<td>15&quot;</td>
<td>32&quot;</td>
<td>4-#9 @ 7&quot; OC</td>
<td>2-#8 @ 3&quot; OC</td>
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<tr>
<td>12'x12'</td>
<td>8&quot;</td>
<td>15&quot;</td>
<td>32&quot;</td>
<td>5-#9 @ 5&quot; OC</td>
<td>5-#8 @ 5&quot; OC</td>
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<tr>
<td>13'x13' (3)</td>
<td>10&quot;</td>
<td>16&quot;</td>
<td>32&quot;</td>
<td>4-#10 @ 7&quot; OC</td>
<td>4-#9 @ 7&quot; OC</td>
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<tr>
<td>14'x14' (3)</td>
<td>10&quot;</td>
<td>17&quot;</td>
<td>32&quot;</td>
<td>4-#10 @ 7&quot; OC</td>
<td>3-#9 @ 10&quot; OC</td>
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<td>15'x15' (3)</td>
<td>10&quot;</td>
<td>17&quot;</td>
<td>32&quot;</td>
<td>5-#10 @ 5&quot; OC</td>
<td>5-#9 @ 5&quot; OC</td>
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<tr>
<td>16'x16' (3)</td>
<td>10&quot;</td>
<td>18&quot;</td>
<td>32&quot;</td>
<td>5-#10 @ 5&quot; OC</td>
<td>5-#9 @ 5&quot; OC</td>
</tr>
</tbody>
</table>

### Notes:

1. For general notes, see standard detail-storm structure notes (S40-1).
2. Opening shall be centered in top slab, unless otherwise noted, or shown.
3. Shall be cast-in-place when size exceeds 12' overall dimension.
4. For width and length combinations not shown, use reinforcement, wall, and top slab thickness for longer dimension for both.

---

**CITY STANDARDS**

**TYPE IV MANHOLE**

**TOP SLAB DETAIL**

[Signature]

**Director**

[Scale: N.T.S.]

**Date:** Oct. 2019

**DWG. No.:** S40-12
ADDITIONAL REINF.,
SEE SCHEDULE BELOW

 PLAN VIEW

ADDITIONAL REINF.
3/4" CHAMFER, TYPICAL
INTERMEDIATE SLAB THICKNESS-
SEE SCHEDULE BELOW
1-1/2" TYPICAL

MAIN REINFORCING BARS

ADDITIONAL REINF.,
SEE SCHEDULE BELOW

TYPICAL SECTION VIEW

KEY WAY DETAIL

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>WT WALL THICKNESS</th>
<th>INTERMEDIATE SLAB THICKNESS</th>
<th>MAIN REINFORCEMENT</th>
<th>ADDITIONAL REINFORCEMENT</th>
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</thead>
<tbody>
<tr>
<td>6'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>7'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>#6 @ 10&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>8'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>#6 @ 10&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
</tbody>
</table>

NOTES:
1. FOR USE WITH MANHOLES DEEPER THAN 10', FROM RIM TO INVERT.
2. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
3. OPENING SHALL BE CENTERED IN TOP SLAB, UNLESS OTHERWISE NOTED, OR SHOWN.
4. NOT ALLOWED WITH BRICK MANHOLES.

CITY STANDARDS

TYPE II MANHOLE RISER
INTERMEDIATE SLAB DETAIL

APPROVED BY: [Signature] 
DATE: OCT. 2019

DWG. No. S40-13
**Main Reinforcing Bars**

See schedule below.

**Additional Rein.**

See schedule below.

**Intermediate Slab Thickness**

See schedule below.

**Plan View**

**Main Reinforcing Bars**

**Typical Section View**

**Schedule**

<table>
<thead>
<tr>
<th>W x L Inside</th>
<th>WT Wall Thickness</th>
<th>Intermediate Slab Thickness</th>
<th>Main Reinforcement</th>
<th>Additional Reinforcement</th>
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<tbody>
<tr>
<td>6'x6'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>7'x7'</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
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<tr>
<td>8'x8'</td>
<td>8&quot;</td>
<td>10&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>9'x9'</td>
<td>8&quot;</td>
<td>10&quot;</td>
<td>#6 @ 12&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>10'x10'</td>
<td>8&quot;</td>
<td>10&quot;</td>
<td>#6 @ 9 1/2&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>11'x11'</td>
<td>8&quot;</td>
<td>10&quot;</td>
<td>#6 @ 8&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>12'x12'</td>
<td>8&quot;</td>
<td>10&quot;</td>
<td>#6 @ 7&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>13'x13' (3)</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>#6 @ 8&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>14'x14' (3)</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>#6 @ 6&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
<tr>
<td>15'x15' (3)</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>#7 @ 8&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
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<td>16'x16' (3)</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>#7 @ 7&quot; EW</td>
<td>2-#8 @ 3&quot; OC</td>
</tr>
</tbody>
</table>

**Notes:**

1. For use with manholes deeper than 10', from rim to invert.
2. For general notes, see standard detail - storm structure notes (S40-1).
3. Shall be cast-in-place when size exceeds 12' overall dimension.
4. Opening shall be centered in top slab, unless otherwise noted, or shown.
5. For width and length combinations not shown, use reinforcement, wall, and intermediate slab thickness for longer dimension for both.

---

**City Standards**

Type III Manhole Riser

Intermediate Slab Detail

Approved by: [Signature]

Date: Oct. 2019

DWG. No. S40-14
ADDITTONAL REINFORCING BARS, SEE SCHEDULE BELOW
MAIN REINFORCING BARS-SEE SCHEDULE BELOW

INTERMEDIATE SLAB THICKNESS-SEE SCHEDULE BELOW
1-1/2" TYPICAL
2" COVER

W x L INSIDE
6'x6'
7'x7'
8'x8'
9'x9'
10'x10'
11'x11'
12'x12'
13'x13' (3)
14'x14' (3)
15'x15' (3)
16'x16' (3)

WT WALL THICKNESS
8"
8"
8"
8"
8"
8"
8"
10"
10"
10"
10"
10"

INTRMD. SLAB THICKNESS
12"
12"
13"
13"
14"
15"
16"
16"
17"
17"
17"
18"

D REINFORCEMENT
4-#7 @ 7" OC
4-#8 @ 7" OC
4-#8 @ 7" OC
5-#8 @ 5" OC
5-#8 @ 5" OC
4-#9 @ 7" OC
5-#9 @ 5" OC
4-#10 @ 7" OC
4-#10 @ 7" OC
5-#10 @ 5" OC
5-#10 @ 5" OC

E REINFORCEMENT
#6 @ 12" OC
#6 @ 12" OC
#6 @ 12" OC
#6 @ 9 1/2" OC
#6 @ 9 1/2" OC
#6 @ 8" OC
#6 @ 7" OC
#6 @ 8" OC
#6 @ 6" OC
#7 @ 8" OC
#7 @ 7" OC

F REINFORCEMENT
N/A
N/A
N/A
8-#6 @ 3" OC
3-#6 @ 10" OC
1-#8
5-#8 @ 5" OC
4-#8 @ 7" OC
3-#8 @ 10" OC
5-#9 @ 5" OC
4-#9 @ 7" OC
5-#9 @ 5" OC

ADDITIONAL REINFORCEMENT
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC
2-#8 @ 3" OC

NOTES:
1. FOR USE WITH MANHOLES DEEPER THAN 10', FROM RIM TO INVERT.
2. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (540-1).
3. SHALL BE CAST-IN-PLACE WHEN SIZE EXCEEDS 12' OVERALL DIMENSION.
4. OPENING SHALL BE CENTERED IN TOP SLAB, UNLESS OTHERWISE NOTED, OR SHOWN.
5. FOR WIDTH AND LENGTH COMBINATIONS NOT SHOWN, USE REINFORCEMENT, WALL, AND INTERMEDIATE SLAB THICKNESS FOR LONGER DIMENSION FOR BOTH.

CITY STANDARDS

TYPE IV MANHOLE RISER
INTERMEDIATE SLAB DETAIL

INDEX: 2-1/4"
THICKNESS: 3-1/4"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"
W ALUM: 1"

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DwG. No.
S40-15
SLAB REINFORCEMENT-SEE SCHEDULE BELOW

WALL REINFORCEMENT-SEE SCHEDULE BELOW AND NOTE 2, BELOW

BASE SLAB REINFORCEMENT-SEE SCHEDULE BELOW

WT-WALL THICKNESS-SEE SCHEDULE BELOW

PLAN VIEW

DIAMETER INSIDE

BASE DIAETER

TYPICAL SECTION

V A R I E S

BASE SLAB THICKNESS-SEE SCHEDULE BELOW

2" COVER

BASE SLAB THICKNESS-SEE SCHEDULE BELOW

DIAMETER INSIDE

SEE NOTE 4 BELOW

SCHEDULE

<table>
<thead>
<tr>
<th>DIAMETER INSIDE</th>
<th>BASE DIAMETER</th>
<th>WT WALL THICKNESS</th>
<th>WALL REINFORCEMENT</th>
<th>BASE SLAB THICKNESS</th>
<th>BASE SLAB REINFORCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'</td>
<td>5'-0&quot;</td>
<td>6&quot;</td>
<td>#4 @ 12&quot; EW</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
</tr>
<tr>
<td>5' (3)</td>
<td>6'-4&quot;</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; EW</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
</tr>
<tr>
<td>6'</td>
<td>7'-4&quot;</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; EW</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
</tr>
<tr>
<td>7'</td>
<td>8'-4&quot;</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; EW</td>
<td>8&quot;</td>
<td>#6 @ 10&quot; EW</td>
</tr>
<tr>
<td>8'</td>
<td>9'-4&quot;</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; EW</td>
<td>10&quot;</td>
<td>#6 @ 10&quot; EW</td>
</tr>
</tbody>
</table>

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. OPTIONAL WALL REINFORCEMENT MAY BE WELDED WIRE AS PER ASTM C-478 OR ASTM C-76, CLASS III, B WALL, WITH WHERE THE REINFORCEMENT CAGE IN THE CENTER 1/3 OF THE WALL.
3. MAXIMUM SIZE ALLOWED FOR TYPE I MANHOLE. 6', 7', AND 8' DIAMETER SHALL BE TYPE II MANHOLE.
4. ADD 2 #4 REINFORCING BARS AT 3" CENTERS AT THE TOP AND SIDES OF ALL WALL OPENINGS.

CITY STANDARDS

TYPE I AND II MANHOLE
BASE AND WALL DETAIL

APPROVED BY: 

DIRECTOR

DATE: OCT. 2019

DWG. No. S40-16
### SCHEDULE

<table>
<thead>
<tr>
<th>WIDTH INSIDE</th>
<th>LENGTH INSIDE</th>
<th>WT WALL THICKNESS</th>
<th>WALL REINFORCEMENT</th>
<th>BASE SLAB THICKNESS</th>
<th>BASE SLAB REINFORCEMENT</th>
<th>ANTI-FLOAT LIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>8' TO 16'</td>
<td>4'</td>
<td>SEE BELOW</td>
<td>SEE BELOW</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>10' TO 16'</td>
<td>5'</td>
<td>SEE BELOW</td>
<td>SEE BELOW</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>12' TO 16'</td>
<td>6'</td>
<td>SEE BELOW</td>
<td>SEE BELOW</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>14' TO 16'</td>
<td>7'</td>
<td>SEE BELOW</td>
<td>SEE BELOW</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>4'</td>
<td>4'</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>5'</td>
<td>5'</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>6'</td>
<td>6'</td>
<td>8&quot;</td>
<td>#4 @ 11&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>7'</td>
<td>7'</td>
<td>8&quot;</td>
<td>#4 @ 8&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>8'</td>
<td>8'</td>
<td>8&quot;</td>
<td>#4 @ 8&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>N/A</td>
</tr>
<tr>
<td>9'</td>
<td>9'</td>
<td>8&quot;</td>
<td>#4 @ 5&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 12&quot; EW</td>
<td>2&quot;</td>
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<tr>
<td>10'</td>
<td>10'</td>
<td>8&quot;</td>
<td>#4 @ 4&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 9 1/2&quot; EW</td>
<td>4&quot;</td>
</tr>
<tr>
<td>11'</td>
<td>11'</td>
<td>8&quot;</td>
<td>#5 @ 5&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 8&quot; EW</td>
<td>9&quot;</td>
</tr>
<tr>
<td>12'</td>
<td>12'</td>
<td>8&quot;</td>
<td>#5 @ 4&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 7&quot; EW</td>
<td>9&quot;</td>
</tr>
<tr>
<td>13' (3)</td>
<td>13' (3)</td>
<td>10&quot;</td>
<td>#6 @ 7&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 8&quot; EW</td>
<td>11&quot;</td>
</tr>
<tr>
<td>14' (3)</td>
<td>14' (3)</td>
<td>10&quot;</td>
<td>#6 @ 6&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#6 @ 6&quot; EW</td>
<td>11&quot;</td>
</tr>
<tr>
<td>15' (3)</td>
<td>15' (3)</td>
<td>10&quot;</td>
<td>#6 @ 5&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#7 @ 8&quot; EW</td>
<td>15&quot;</td>
</tr>
<tr>
<td>16' (3)</td>
<td>16' (3)</td>
<td>10&quot;</td>
<td>#6 @ 4 1/2&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>#7 @ 7&quot; EW</td>
<td>15&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR MANHOLE NOT LISTED, USE REINFORCEMENT, WALL, AND BASE SLAB THICKNESS FOR LONGER DIMENSION.
3. SHALL BE CAST-IN-PLACE WHEN SIZE EXCEEDS 12' OVERALL DIMENSION.
WALL REINFORCEMENT - SEE SCHEDULE BELOW
WALL REINFORCEMENT - 2" CONCRETE COVER
WT WALL THICKNESS - SEE SCHEDULE BELOW
ANTI-FLATION LIP - TYPICAL ALL SIDES, SEE SCHEDULE BELOW

PLAN VIEW

W INSIDE
H
G
BOTTOM

DETAIl AT CORNER

ADDITIONAL REINF. #4 AT 6" OC AS REQUIRED

H REINFORCEMENT
G REINFORCEMENT
I REINFORCEMENT

2" COVER

BASE SLAB THICKNESS - SEE SCHEDULE BELOW
2" COVER: PRE-CAST
3" COVER: CAST-IN-PLACE

TYPICAL SECTION

SCHEDULE

<table>
<thead>
<tr>
<th>W OR L INSIDE</th>
<th>WT WALL THICKNESS</th>
<th>WALL REINFORCEMENT</th>
<th>BASE SLAB THICKNESS</th>
<th>BASE SLAB REINFORCEMENT</th>
<th>ANTI-FLOAT LIP</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>HORIZONTAL</td>
<td>VERTICAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5'x5'</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; EW</td>
</tr>
<tr>
<td>6'x6'</td>
<td>8&quot;</td>
<td>#4 @ 11&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>8&quot;</td>
<td>#7 @ 7&quot; EW</td>
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<tr>
<td>7'x7'</td>
<td>8&quot;</td>
<td>#4 @ 8&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>8&quot;</td>
<td>#6 @ 12&quot; OC</td>
</tr>
<tr>
<td>8'x8'</td>
<td>8&quot;</td>
<td>#4 @ 6&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>10&quot;</td>
<td>#6 @ 12&quot; OC</td>
</tr>
<tr>
<td>9'x9'</td>
<td>8&quot;</td>
<td>#4 @ 5&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>10&quot;</td>
<td>#6 @ 12&quot; OC</td>
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<tr>
<td>10'x10'</td>
<td>8&quot;</td>
<td>#4 @ 4&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>10&quot;</td>
<td>#6 @ 9 1/2&quot; OC</td>
</tr>
<tr>
<td>11'x11'</td>
<td>8&quot;</td>
<td>#5 @ 5&quot; OC</td>
<td>#4 @ 12&quot; OC</td>
<td>10&quot;</td>
<td>#6 @ 8&quot; OC</td>
</tr>
</tbody>
</table>

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR MANHOLES NOT LISTED, USE REINFORCEMENT, WALL, AND BASE SLAB THICKNESS FOR LONGER DIMENSION.
3. SHALL BE CAST-IN-PLACE WHEN SIZE EXCEEDS 12" OVERALL DIMENSION.

CITY STANDARDS

TYPE IV MANHOLE BASE AND WALL DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:

DIRECTOR

DATE: OCT. 2019
DWG. No. S40-18
**Typical Section View**

**Schedule**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
<td>Up to 18&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
<td>Up to 5&quot;</td>
<td>(3)</td>
<td>3&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
<td>21&quot; to 36&quot;</td>
<td>12&quot;</td>
<td>4&quot;</td>
<td>6&quot; to 18&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
<td>42&quot; to 72&quot;</td>
<td>12&quot;</td>
<td>5&quot;</td>
<td>21&quot; to 36&quot;</td>
<td>12&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
<td>Beyond 72&quot;</td>
<td>(3)</td>
<td>6&quot;</td>
<td>42&quot; to 72&quot;</td>
<td>(3)</td>
<td>5&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
<td></td>
<td>--</td>
<td></td>
<td></td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Concrete shall be poured against undisturbed soil or sheeting. Therefore, remove sheeting before pouring concrete or leave a portion of sheeting, up to top of pipe, in place.
2. Dimension X shall be based on trench width as required.
3. For pipes/conduits less than 5" OD, ditch width may be reduced to the width of the mechanical tamper if backfilled with dry 15:1 sand/cement mix, or other approved material, to 4" above pipe/conduit.

**City Standards**

Concrete Cradle for Pipe/Conduit or Box Culvert Detail

**Revisions**

<table>
<thead>
<tr>
<th>By</th>
<th>Date</th>
</tr>
</thead>
</table>

**Approved By:**

[Signature]

**Date:** Oct. 2019

**Drawing No.:** S40-19
**SCHEDULE**

<table>
<thead>
<tr>
<th>STAGE NO.</th>
<th>MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BEDDING: WHERE DIRECTED, REPLACE EXISTING MATERIAL WITH 4&quot; TO 6&quot; OF GRANULAR MATERIAL. THE GRANULAR MATERIAL MAY BE ANY OF THE FOLLOWING: CLEAN NATIVE SAND, CONCRETE SAND, GRAVEL, OR RECLAIMED CONCRETE. SEE NOTE 1, BELOW. BOX CULVERTS SHALL HAVE MANDATORY STONE BEDDING PER SPECIFICATIONS.</td>
</tr>
<tr>
<td>2</td>
<td>PIPE BEDDING/HANCHING: NATIVE SAND IN 6&quot; LIFTS. WHERE DIRECTED, REPLACE EXISTING MATERIAL WITH CLEAN CONSTRUCTION SAND, OR GRAVEL. SEE NOTE 2, BELOW</td>
</tr>
<tr>
<td>3</td>
<td>INITIAL BACKFILL: NATIVE SAND IN 6&quot; LIFTS. WHERE DIRECTED, REPLACE EXISTING MATERIAL WITH CLEAN CONSTRUCTION SAND, SEE NOTE 2, BELOW</td>
</tr>
<tr>
<td>4</td>
<td>TRENCH BACKFILL: NATIVE SAND IN LIFTS AS LISTED BELOW- WHERE DIRECTED, REPLACE EXISTING MATERIAL WITH CLEAN CONSTRUCTION SAND. PAVED ROADS, PAVED DRIVEWAYS, AND PAVED ALLEYS IN 6&quot; LIFTS UNPAVED ROADS, UNPAVED DRIVEWAYS, UNPAVED ALLEYS, AND SIDEWALKS IN 6&quot; LIFTS SOD OR MULCHED SURFACES IN 12&quot; LIFTS</td>
</tr>
<tr>
<td>5</td>
<td>SURFACE RESTORATION: AS SHOWN BELOW. ALSO SEE NOTES BELOW FOR OTHER STANDARD DETAIL REFERENCES.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>PRESSURE PIPE</th>
<th>X</th>
<th>STORM DRAIN-RCP, ERCP, B/C</th>
<th>X</th>
<th>OTHER PIPE/CONDUIT</th>
<th>X</th>
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<tbody>
<tr>
<td>4&quot;</td>
<td>12&quot;</td>
<td>UP TO 18&quot;</td>
<td>12&quot;</td>
<td>UP TO 5&quot;</td>
<td>(2) OR (3)</td>
</tr>
<tr>
<td>6&quot;</td>
<td>12&quot;</td>
<td>21&quot; TO 36&quot;</td>
<td>18&quot;</td>
<td>6&quot; TO 18&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>12&quot;</td>
<td>42&quot; TO 72&quot;</td>
<td>24&quot;</td>
<td>21&quot; TO 36&quot;</td>
<td>18&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>12&quot;</td>
<td>BEYOND 72&quot;</td>
<td>(2) OR (3)</td>
<td>42&quot; TO 72&quot;</td>
<td>24&quot;</td>
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<tr>
<td>16&quot;</td>
<td>12&quot;</td>
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<table>
<thead>
<tr>
<th>ITEM</th>
<th>ALLEY OR D/W</th>
<th>STD DUTY RDWY</th>
<th>HVY DUTY RDWY</th>
<th>BRICK RDWY</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SURFACE PAVING MIN. THICKNESS</td>
<td>1&quot; ASPHALT</td>
<td>2.50&quot; ASPHALT</td>
<td>2.50&quot; ASPHALT</td>
<td>ROADWAY BRICK</td>
</tr>
<tr>
<td>B</td>
<td>SURFACE COVER MIN. THICKNESS</td>
<td>6&quot; SHELL</td>
<td>6&quot; SHELL</td>
<td>N/A</td>
<td>SOD</td>
</tr>
<tr>
<td>T</td>
<td>BASE MATERIAL MIN. THICKNESS</td>
<td>SHELL-9 RCLM. CONC. 10.5&quot;</td>
<td>SHELL-12 RCLM. CONC. 14&quot;</td>
<td>SHELL-16 RCLM. CONC. 19&quot;</td>
<td>1&quot; SAND OVER 12&quot; SHELL BASE</td>
</tr>
<tr>
<td>D</td>
<td>COVER MIN. DEPTH</td>
<td>PRESS, PIPE-36 ALL OTHER PIPE-30&quot;</td>
<td>PRESS, PIPE-36 ALL OTHER PIPE-30&quot;</td>
<td>PRESS, PIPE-36 ALL OTHER PIPE-30&quot;</td>
<td>PRESS, PIPE-36 ALL OTHER PIPE-30&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
1. ALL BEDDING TYPES REQUIRE AN IMPERMEABLE GROUNDWATER BARRIER AT 100' INTERVALS ALONG THE TRENCH LENGTH.
2. GRAVEL OR RECLAIMED CONCRETE SHOULD NOT CONTACT DUCTILE IRON OR POLYVINYL PIPE OR CONDUIT.
3. FOR PAVED SURFACES SEE STANDARD DETAIL-FLEXIBLE PAVEMENT RESTORATION (S20-11).
4. FOR UNPAVED SURFACES SEE STANDARD DETAIL-RIGHT-OF-WAY RESTORATION (S20-17).

**CITY STANDARDS**

<table>
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<th>REVISIONS</th>
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<td>BY</td>
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ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

<table>
<thead>
<tr>
<th>BEDDING FOR PIPE/CONDUIT OR BOX CULVERT DETAIL</th>
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APPROVED BY: [Signature]

DATE: OCT. 2019

DWG. No: S40-20
**TYPICAL PLAN VIEWS**

**MANHOLE APPLICATION**
FOR DESIGNATIONS A, B, AND E
SECTION Z-Z

**FLUSH SLAB APPLICATION**
FOR DESIGNATIONS C AND D
SECTION Y-Y

**COVER**
LABEL PER APPLICATION:
STORM DRAIN, WATER,
OR FIBER OPTIC

**TYPICAL SECTION VIEWS**

**SCHEDULE**

<table>
<thead>
<tr>
<th>CITY TYPE DESIGNATION</th>
<th>RING AND COVER TYPE SEE NOTE 1</th>
<th>DIMENSION I</th>
<th>DIMENSION II</th>
<th>DIMENSION III</th>
<th>DIMENSION IV</th>
<th>DIMENSION V</th>
<th>RING WEIGHT</th>
<th>COVER WEIGHT</th>
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**NOTES:**
1. RING AND COVER TYPES, LISTED ABOVE, ARE MANUFACTURED BY U.S. FOUNDRY AND MANUFACTURING CORPORATION OR APPROVED EQUAL.
2. ALL SURFACES OF THE RING AND COVER WHICH CONTACT EACH OTHER SHALL BE MACHINED.
3. MANHOLE RING AND COVER CASTING APPLICATIONS AS FOLLOWS:
   - **STORM DRAINS:** TYPE A-FOR MANHOLES WITH PIPES UP TO 24" DIAMETER OR EQUAL, UNLESS OTHERWISE SHOWN.
   - TYPE B-FOR MANHOLES WITH PIPES 27" DIAMETER OR EQUAL AND LARGER, CONFLICT STRUCTURES, AND BOX CULVERTS.
   - TYPE C-FOR CATCH BASIN ACCESS, EXCEPT TYPE S-I AND TYPE S-II, ALL PIPE SIZES.
   - TYPE D-FOR MANHOLES WITH TOP OF TOP SLAB AT FINISHED GRADE, ALL PIPE SIZES, CATCH BASIN ACCESS, ALL PIPE SIZES, AND TYPE S-I AND TYPE S-II, ALL PIPE SIZES.
   - **SANITARY SEWERS:** REFER TO S30-22 FOR MANHOLE COVER DETAIL
   - TYPE B-FOR MANHOLES WITH PIPES 21" DIAMETER AND LARGER.
   - TYPE B-FOR SEWAGE AIR/VACUUM VALVE MANHOLE.
   - TYPE E-FOR MANHOLES WITH PIPES UP TO 18" DIAMETER.

**CITY STANDARDS**

**REVISIONS**

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**MANHOLE RING AND COVER CASTING DETAIL**

**APPROVED BY:**

[Signature]

**DATE:** OCT. 2019

**SCALE:** N.T.S.

**DIRECTOR:**

**ENG: CAPITAL IMPROVEMENT DEPARTMENT**

**CITY OF ST. PETERSBURG**

**DWG. No.:** S40-21
R = 24" MIN.

**PLAN**

**TYPE I OR II MANHOLE**
(SEE DETAIL "A" BELOW)

**TYPE III MANHOLE**
CATCH BASIN, OR GRATE INLET
(SEE DETAIL "B" BELOW)

**BENCH SLOPE AT**
1:12, MINIMUM, TYP.

FOR ROUND PIPES

**BENCH SLOPE AT**
1:12, MINIMUM, TYP.

FOR ELIPTICAL PIPES

**BENCH SLOPE AT**
1:12, MINIMUM, TYP.

FOR BOX CULVERTS

**CAST-IN-PLACE OR BRICK SECTION**

**SIDE OF PIPE FLUSH W/ INSIDE OF STRUCTURE**

**CENTER OF PIPE FLUSH W/ INSIDE OF STRUCTURE**

**END OF PIPE FLUSH W/ INSIDE OF STRUCTURE**

**BEVEL END, ABOVE BENCH**

**INCOMING PIPE(S)**

**EXITING PIPE**

**DETAIL "A"**
TYPICAL FOR ROUND STRUCTURES

**DETAIL "B"**
TYPICAL FOR SQUARE AND RECTANGULAR STRUCTURES

**NOTES:**
1. SMOOTH FLOW CHANNELS COMPOSED OF CONCRETE, OR BRICK AND MORTAR SHALL BE CONSTRUCTED IN THE BOTTOMS OF ALL STRUCTURES AS SHOWN.
2. WT=WALL THICKNESS OF STRUCTURE, D=DIAMETER OF ROUND PIPE, AND R=RISE OF ELIPTICAL PIPE OR BOX CULVERT.

**CITY STANDARDS**

**ACCESS STRUCTURE CHANNELIZATION DETAIL**

**ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT**
CITY OF ST. PETERSBURG

**PROJECTIONS**

**REVISIONS**

**BY**

**DATE**

**SCALE:** N.T.S.

**APPROVED BY:**

**DIRECTOR**

**DATE:** OCT. 2019

**DWG. No.** S40-22
ADDITIONAL REINFORCING BARS, SEE SCHEDULE BELOW

INSIDE FACE OF BASIN TO BE FLUSH WITH INSIDE FACE OF STRUCTURE

ADDITIONAL REINF.
3/4" CHAMFER, TYPICAL

INTERMEDIATE SLAB THICKNESS- SEE SCHEDULE BELOW

1-1/2" TYPICAL

MAIN REINFORCING BARS

PLAN VIEW

PROPOSED CB WALL
6x6-W2.9xW2.9

3-1/4"  2-1/4"
8" WT
4-1/4"  10" WT

TYPICAL SECTION VIEW

KEY WAY DETAIL

SCHEDULE

<table>
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<tr>
<th>W x L INSIDE</th>
<th>WT WALL THICKNESS</th>
<th>INTRMD. SLAB THICKNESS</th>
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NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. SHALL BE CAST-IN-PLACE WHEN SIZE EXCEEDS 12' OVERALL DIMENSION.
3. FOR WIDTH AND LENGTH COMBINATIONS NOT SHOWN, USE REINFORCEMENT, WALL, AND INTERMEDIATE SLAB THICKNESS FOR LONGER DIMENSION FOR BOTH.
ADDITIONAL REINFORCING BARS,
SEE SCHEDULE BELOW

INSIDE FACE OF BASIN TO BE FLUSH WITH
INSIDE FACE OF STRUCTURE

ADDITIONAL REINF.
3/4" CHAMFER, TYPICAL

INTERMEDIATE SLAB THICKNESS-
SEE SCHEDULE BELOW

1-1/2" TYPICAL

TYPICAL SECTION VIEW

MAIN REINFORCING BARS-
SEE SCHEDULE BELOW

Plan View

Proposed CB Wall

6x6-W2.9xW2.9

3-1/4"
2-1/4"
1"
4-1/4"
8" WT
10" WT

KEY WAY DETAIL

Typical Section View

Schedule

<table>
<thead>
<tr>
<th>W x L INSIDE</th>
<th>WT WALL THICKNESS</th>
<th>INTRMD. SLAB THICKNESS</th>
<th>MAIN REINFORCEMENT</th>
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NOTES:
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2. SHALL BE CAST-IN-PLACE WHEN SIZE EXCEEDS 12' OVERALL DIMENSION.
3. FOR WIDTH AND LENGTH COMBINATIONS NOT SHOWN, USE REINFORCEMENT, WALL, AND INTERMEDIATE SLAB THICKNESS FOR LONGER DIMENSION FOR BOTH.

CITY STANDARDS

TYPE II CATCH BASIN RISER
INTERMEDIATE SLAB DETAIL
(FOR TYPE III MANHOLE)

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DIRECTOR

DATE: OCT. 2019

DWG. No. S40-31
CATCH BASIN SLAB OR WING COVER SLAB
THROAT INVERT

24"
5" THROAT

PAVEMENT WARPAGE AT BASIN AND WINGS, SEE STANDARD DETAIL-CATCH BASIN FLOW LINE TRANSITIONS

TYPICAL PAVEMENT SLOPE
TYPICAL CURB BOTTOM
2 #4 REINFORCEMENT BARS, FOR THE LIMITS OF THE PAVEMENT FLOWLINE WARPAGE
WARP CURB AT BASIN AND WING, SEE STANDARD DETAIL-CATCH BASIN FLOW LINE TRANSITIONS (S40-33)

TYPE "A" CURB

CATCH BASIN SLAB OR WING COVER SLAB
THROAT INVERT

FLOW LINE

TYPICAL CURB BOTTOM
2 #4 REINFORCEMENT BARS, FOR THE LIMITS OF THE PAVEMENT FLOWLINE WARPAGE
WARP CURB AT BASIN AND WING, SEE STANDARD DETAIL-CATCH BASIN FLOW LINE TRANSITIONS (S40-33)

TYPE "B" CURB

CATCH BASIN SLAB OR WING COVER SLAB
THROAT INVERT

FLOW LINE

TYPICAL CURB BOTTOM
2 #4 REINFORCEMENT BARS, FOR THE LIMITS OF THE PAVEMENT FLOWLINE WARPAGE
WARP CURB AT BASIN AND WING, SEE STANDARD DETAIL-CATCH BASIN FLOW LINE TRANSITIONS (S40-33)

NOTE:
1. BOC=BACK OF CURB.

TYPE "D" CURB

CITY STANDARDS

CATCH BASIN THROAT CONFIGURATION DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DATE: OCT. 2019

DWG. No. S40-32
NOTE:
* RESIDENTIAL ROADWAYS ONLY. NOT ALLOWABLE FOR MAJOR AND/OR SECONDARY
ARTERIAL ROADWAY(S) UNLESS CLEAR LANE WIDTH OF 10' OR MORE.
CAST IN PLACE TYPE "A" CURB AND THROAT

SEE NOTES BELOW FOR CATCH BASIN AND WING STRUCTURE SIZES

6" RADI, TYPICAL

GRANITE CURB

OMIT RADIAL FLOW INDUCOR FROM CATCH BASINS WITH WINGS

PLAN

GRANITE CURB IN BACKGROUND

ROADWAY

5" THROAT

SEE NOTE 5

WARP PAVEMENT AT BASIN

CAST-IN-PLACE TYPE A CURB, W/ 2-#4 REINFORCEMENT BARS

LATERAL STORM DRAIN

SECTION A-A

PREFORMED BITUMINOUS JOINT SEALING COMPOUND BETWEEN BASIN COVER SLAB, WING COVER SLAB, AND WALL

PRECAST CATCH BASINS, UPPER 24" SHALL BE CAST-IN-PLACE

BENCH SLOPE

COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED

SAW CUT CURB TO FIT FLUSH WITH THROAT (TYP. BOTH SIDES)

CAST-IN-PLACE TYPE A CURB

W/O WING(S)

W/WING(S)

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. SEE STANDARD DETAIL-CATCH BASIN FLOWLINE TRANSITIONS (S40-33).
3. FOR PLAN OF CROSS SECTIONS, SEE STANDARD DETAIL-CATCH BASIN GENERAL (S40-36).
4. FOR WING AND COVER SECTIONS, SEE STANDARD DETAIL-TYPICAL WING SHELF SECTIONS (S40-48).
5. SLOPE BASIN AND WING COVER 1/4" TO 1/2" PER FOOT. COVER TO MATCH SLOPE IF IN SIDEWALK.

CITY STANDARDS

CATCH BASIN AT GRANITE CURB TRANSITION DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY: Date:

DIRECTOR

DATE: OCT. 2019

DWG. No.

SCALE: N.T.S.
4" SPILLWAY, SLOPE BOTTOM AS SHOWN

CAST-IN-PLACE OR BRICK CATCH BASIN RISER, TYP.

#4 BARS-16"x16" @ 6" OC., OMIT WITH BRICK

#4 BARS @ 6" OC-EW., MAX.

OUTFALL PIPE, SEE SCHEDULE

CORE DRILL EX. CONDUIT MIN. 1" TO 1-1/2" MAX. LARGER THAN OUTFALL PIPE

ALL REINFORCEMENT TO HAVE 2" OF COVER

TYPICAL SECTION VIEW

CATCH BASIN RISER

FOUNDATION LIMITS

EXISTING CONDUIT

OUTFALL PIPE, SEE SCHEDULE

4" SPILLWAY, SLOPE BOTTOM AS SHOWN

FOUNDATION CAN BE ROTATED AROUND EX. CONDUIT AS REQUIRED. MAINTAIN PROPER CATCH BASIN CURB ALIGNMENT

TYPICAL SECTION VIEW

SCHEDULE

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NOTE:
THIS APPLICATION IS ALLOWED ONLY WHEN THE EXISTING CONDUIT HAS 5" OR LESS COVER AND/OR WHEN A STANDARD CATCH BASIN WILL BE IN CONFLICT WITH AN EXISTING UTILITY.


NOTES:  
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).  
2. ALL BASIN AND WING COVERS SHALL BE REMOVABLE. EDGES AND SEAMS SHALL NOT BE GROUTED.  
3. ACCESS OPENING SHALL BE REQUIRED AT EACH CATCH BASIN STRUCTURE. STRUCTURES WITH MULTIPLE  
   COVERS, ACCESS OPENING SHALL BE ALIGNED WITH CENTER LINE OF THE LARGEST PIPE IN STRUCTURE.  
4. PRE-CAST CATCH BASINS, UPPER 24" SHALL BE CAST IN PLACE.  
5. SEE STANDARD DETAIL-TYPE I THRU V TYPICAL CATCH BASIN SECTIONS (S40-38).  
7. SEE STANDARD DETAIL-CATCH BASIN COVER SLAB REINFORCING PLAN VIEW (S40-40).  
8. SEE STANDARD DETAIL-CATCH BASIN COVER SLAB SECTIONS AND REINFORCING (S40-41).  
9. SEE STANDARD DETAIL-TYPICAL WING ASSEMBLY (S40-47).  
10. SEE STANDARD DETAIL-TYPICAL WING SHELF SECTIONS (S40-48).  
11. SEE STANDARD DETAIL-WING COVER SLAB SECTIONS AND REINFORCING (S40-49).  
12. SEE STANDARD DETAIL-CATCH BASIN THROAT CONFIGURATION (S40-32).  
13. REFERENCE POINT=INTERFACE BETWEEN WING COVER AND WING SHELF AT THE FACE.  
14. ACCESS MAN HOLE RING AND COVER SHALL BE CONSTRUCTED IN EVERY OTHER RECTANGULAR TOP SLAB.
NOTES:
2. FOR SECTION VIEWS: C-C, D-D, AND E-E, SEE STANDARD DETAIL-TYPICAL WING SHELF SECTIONS (S40-48).

SECTION VIEW KEY

NOTE:
- FOR SECTION VIEWS: C-C, D-D, AND E-E, SEE STANDARD DETAIL-TYPICAL WING SHELF SECTIONS (S40-48).
PRECAST CATCH BASINS, UPPER 24" SHALL BE CAST-IN-PLACE

BENCH SLOPE

COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED

SECTION A-A

FINAL 24" CAST-IN-PLACE, 8"
THICK RISER WALL

8" RISER WALL

FINAL 24" CAST-IN-PLACE, 8"
THICK RISER WALL

10" RISER WALL

WALL TRANSITION SECTION

ROADWAY

5" THROAT

WARP CURB AT BASIN

LATERAL STORM DRAIN

SECTION B-B

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR SIZES AND REINFORCING, SEE STANDARD DETAIL-TYPE I THRU V CATCH BASIN BASE AND WALL (S40-39).
3. SEE STANDARD DETAIL-CATCH BASIN FLOW LINE TRANSITIONS (S40-33).
4. FOR PLAN OF CROSS SECTIONS, SEE STANDARD DETAIL-CATCH BASIN GENERAL (S40-36).
5. FOR WING COVER SECTIONS-SEE STANDARD DETAIL-WING COVER SLAB SECTIONS AND REINFORCING (S40-49).
6. FOR WING SHELF SECTIONS-SEE STANDARD DETAIL-TYPICAL WING SHELF SECTIONS (S40-48).
7. SLOPE BASIN AND WING COVER 1/4" TO 1/2" PER FOOT. COVERS TO MATCH SLOPE IF IN SIDEWALK.

CITY STANDARDS

TYPE I THRU V
TYPICAL CATCH BASIN
SECTIONS DETAIL

APPROVED BY: 
DATE: OCT. 2019

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

DIRECTOR
### CATCH BASIN TYPE I, II, OR III

**Plan View**

- **Final 24" Cast-In-Place, 8" Thick Riser Wall**
- **8" Riser Wall**

**Wall Transition Section**

- **If Horizontal, See Below**
- **If Vertical, See Below**

**Typical Section**

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<th>Length Inside</th>
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<th>Wall Reinforcement</th>
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<th>Base Slab Reinf.</th>
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<td>#4 @ 12&quot; EW</td>
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<td>#6 @ 5&quot;</td>
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**NOTES:**

1. For general notes, see standard detail-storm structure notes (S40-1).
2. Provide 2" clearance from concrete face to reinforcement in all locations.

### CITY STANDARDS

**Type I Thru V Catch Basin Base and Wall Detail**

**Revisions**

**By**

**Date**

**City of St. Petersburg**

**Approved By:**

**Date:** Oct. 2019

**DWG. No.:** S40-39
CATCH BASIN TYPE | COVER SLAB QUANTITY AND WIDTH
---|---
TYPE I | 1 @ 4'-10"
TYPE I-M | 1 @ 4'-6"
TYPE I-M2 | 1 @ 4'-2"
TYPE II | 2 @ 4'-6"
TYPE II-M | 1 @ 4'-6", 1 @ 4'-2"
TYPE II-M2 | 2 @ 4'-2"
TYPE III | 2 @ 4'-6", 1 @ 4'-2"
TYPE III-M | 1 @ 4'-6", 2 @ 4'-2"
TYPE III-M2 | 3 @ 4'-2"
TYPE IV | 2 @ 4'-6", 2 @ 4'-2"
TYPE IV-M | 1 @ 4'-6", 3 @ 4'-2"
TYPE IV-M2 | 4 @ 4'-2"
TYPE V | 2 @ 4'-6", 3 @ 4'-2"
TYPE V-M | 1 @ 4'-6", 4 @ 4'-2"
TYPE V-M2 | 5 @ 4'-2"

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. ACCESS SHALL BE TYPE C. SEE STANDARD DETAIL-MANHOLE RING AND COVER CASTING (S40-21).
3. REINFORCEMENT SHOWN IS FOR STANDARD SIZES SHOWN. MAINTAIN REINFORCEMENT SIZE, SPACING, AND ADD ADDITIONAL BARS FOR MODIFIED STRUCTURES.
4. FOR REINFORCEMENT PLACEMENT AND SECTION VIEWS F-F, G-G, SEE STANDARD DETAIL-CATCH BASIN COVER SLAB SECTIONS AND REINFORCING (S40-41).
5. NOSING IS ASSEMBLED FROM 3" 4.1 W/ END CLOSURES OF 1/4" PLATE, GRIND ALL EDGES. NOSING ASSEMBLY SHALL BE GALVANIZED AFTER FABRICATION.
6. NOSING SHALL BE USED WHERE SHOWN ON THE PLANS OR WHEN BASIN IS IN CURB RADII.

CITY STANDARDS
ACCESS (OMIT WHEN NOT REQUIRED)

TYPICAL SECTION F-F

ACCESS

TYPICAL SECTION G-G

ACCESS OPENING

TYPICAL HALF SECTION G-G

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. REINFORCEMENT SHOWN IS FOR STANDARD SIZES SHOWN. MAINTAIN REINFORCEMENT SIZE AND SPACING, AND ADD ADDITIONAL BARS FOR MODIFIED STRUCTURES.
3. FOR PLAN VIEWS, SEE STANDARD DETAIL-CATCH BASIN COVER SLAB REINFORCING PLAN VIEW (S40-40).

CITY STANDARDS

CATCH BASIN COVER SLAB SECTIONS AND REINFORCING DETAIL

AIRY C. RAYMOND
DIRECTOR

ENGREERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

SCALE: N.T.S.

DATE: OCT. 2019

DWG. NO. S40-41
NOTE:
FOR NOTES AND SECTION VIEWS B-B AND C-C, SEE STANDARD DETAIL-TYPE S-1 AND TYPE S-11
SECTION VIEWS (540-44)

OUTER EDGE OF CASTING
ADDITIONAL REINF.- 2-#8 @ 3' OC, TYP.
ADDITIONAL #5 BAR IN TOP OF TOP SLAB

1-1/2" BEVEL
3" CONCRETE

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

FLOW LINE
#5 REINF.

LIMITS OF PAVEMENT WARPAGE-
CATCH BASIN FLOW LINE TRANSITIONS (540-30)

TOP OF CURB
SEE NOTE 3

SECTION A-A

WING SLAB REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

CAST IN PLACE THE STRUCTURE ABOVE THIS LINE

BENCH SLOPE

1-1/2" BEVEL
6" SUPPORT POST
WITH 2-#5 REBAR

FLOW

#5 REINF.

6' THROAT
SHELF

3" DROP

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

NOTE:
FOR NOTES AND SECTION VIEWS B-B AND C-C, SEE STANDARD DETAIL-TYPE S-1 AND TYPE S-11
SECTION VIEWS (540-44)

OUTER EDGE OF CASTING
ADDITIONAL REINF.- 2-#8 @ 3' OC, TYP.
ADDITIONAL #5 BAR IN TOP OF TOP SLAB

1-1/2" BEVEL
3" CONCRETE

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

FLOW LINE
#5 REINF.

LIMITS OF PAVEMENT WARPAGE-
CATCH BASIN FLOW LINE TRANSITIONS (540-30)

TOP OF CURB
SEE NOTE 3

SECTION A-A

WING SLAB REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

CAST IN PLACE THE STRUCTURE ABOVE THIS LINE

BENCH SLOPE

1-1/2" BEVEL
6" SUPPORT POST
WITH 2-#5 REBAR

FLOW

#5 REINF.

6' THROAT
SHELF

3" DROP

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

NOTE:
FOR NOTES AND SECTION VIEWS B-B AND C-C, SEE STANDARD DETAIL-TYPE S-1 AND TYPE S-11
SECTION VIEWS (540-44)

OUTER EDGE OF CASTING
ADDITIONAL REINF.- 2-#8 @ 3' OC, TYP.
ADDITIONAL #5 BAR IN TOP OF TOP SLAB

1-1/2" BEVEL
3" CONCRETE

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

FLOW LINE
#5 REINF.

LIMITS OF PAVEMENT WARPAGE-
CATCH BASIN FLOW LINE TRANSITIONS (540-30)

TOP OF CURB
SEE NOTE 3

SECTION A-A

WING SLAB REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

CAST IN PLACE THE STRUCTURE ABOVE THIS LINE

BENCH SLOPE

1-1/2" BEVEL
6" SUPPORT POST
WITH 2-#5 REBAR

FLOW

#5 REINF.

6' THROAT
SHELF

3" DROP

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

NOTE:
FOR NOTES AND SECTION VIEWS B-B AND C-C, SEE STANDARD DETAIL-TYPE S-1 AND TYPE S-11
SECTION VIEWS (540-44)

OUTER EDGE OF CASTING
ADDITIONAL REINF.- 2-#8 @ 3' OC, TYP.
ADDITIONAL #5 BAR IN TOP OF TOP SLAB

1-1/2" BEVEL
3" CONCRETE

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

FLOW LINE
#5 REINF.

LIMITS OF PAVEMENT WARPAGE-
CATCH BASIN FLOW LINE TRANSITIONS (540-30)

TOP OF CURB
SEE NOTE 3

SECTION A-A

WING SLAB REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

CAST IN PLACE THE STRUCTURE ABOVE THIS LINE

BENCH SLOPE

1-1/2" BEVEL
6" SUPPORT POST
WITH 2-#5 REBAR

FLOW

#5 REINF.

6' THROAT
SHELF

3" DROP

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

NOTE:
FOR NOTES AND SECTION VIEWS B-B AND C-C, SEE STANDARD DETAIL-TYPE S-1 AND TYPE S-11
SECTION VIEWS (540-44)

OUTER EDGE OF CASTING
ADDITIONAL REINF.- 2-#8 @ 3' OC, TYP.
ADDITIONAL #5 BAR IN TOP OF TOP SLAB

1-1/2" BEVEL
3" CONCRETE

WING WALL REINFORCEMENT-
#5 @ 6" OC
WITH 2" CONCRETE COVER

FLOW LINE
#5 REINF.
TOP SLAB REINFORCEMENT-2 MATS-#5 @ 6" OC/EW STAGGER MATS AS SHOWN WITH 2" CONCRETE COVER, TYP.

WALL REINFORCEMENT-
#5 @ 12" OC-HORIZ., #4 @ 12" OC-VERT., WITH 2" CONCRETE COVER

BASE SLAB REINFORCEMENT-
#5 @ 9" OC WITH 2" CONCRETE COVER

SECTIONS B-B

BASE SLAB REINFORCEMENT-#5 @ 9" OC WITH 2" CONCRETE COVER

WING WALL REINFORCEMENT-
#5 @ 6" OC WITH 2" CONCRETE COVER (FROM TOP)

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR PLAN VIEW-SEE STANDARD DETAIL-TYPE S-I OR TYPE S-II CATCH BASIN (S40-42 & S40-43).
3. SEE STANDARD DETAIL-CATCH BASIN FLOW LINE TRANSITIONS (S40-33).
4. OUTLET PIPE-MAXIMUM SIZES: RCP @ 54", ERCP @ 34"x53", AND BC @ 4'-0" SPAN.
5. SLOPE TOP OF BASIN AND WING 1/4" TO 1/2" PER FOOT TO MATCH SLOPE OF EXISTING SIDEWALK.

CITY STANDARDS

TYPE S-I AND TYPE S-II

SECTION VIEWS DETAIL

ENGINEERING AND CAPITAL
IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:
DIRECTOR

DATE: OCT. 2019

DWG. No. S40-44
CATCH COVER SLAB OR WING COVER SLAB CONCRETE PIERS, TYP.

SECURE POCKETS WITH WIRE TIES, TYP.

STABILIZATION POCKETS, FILL WITH #57 CRUSHED STONE OR EQUIVALENT (2-POCKETS EACH FILTER, TYP.)

**TYPICAL PLAN VIEW**
(TYPE I-M2 SHOWN)

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**SCHEDULE**

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**NOTES:**

1. CURB INLET FILTERS SHALL BE INSTALLED AT ALL EXISTING CATCH BASINS AND GRATE INLETS THAT ARE WITHIN THE CONSTRUCTION AREA AND THOSE TO WHICH STORMWATER MAY FLOW TO, OFF SITE OF THE CONSTRUCTION AREA.
2. CURB INLET FILTERS SHALL REMAIN IN PLACE UNTIL ALL RESODDED AREA'S ARE ESTABLISHED WITH VEGETATION.
3. CURB FILTER INLETS SHALL BE INSPECTED ON A DAILY BASES, AND ANY SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN A PROPER MANNER.
4. CURB FILTER INLETS SHALL BE REPLACED IF THEY HAVE CUTS OR SLITS, ABRASIONS AND PLACEMENT. THOSE THAT ARE DAMAGED SHALL BE REPLACED, AND THOSE MISPLACED SHALL BE REINSTALLED IN THE PROPER LOCATION, AS SHOWN ABOVE.

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**CITY STANDARDS**

<table>
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<th>BY</th>
<th>DATE</th>
<th>ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT CITY OF ST. PETERSBURG</th>
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<td>S40-45</td>
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SCALE: N.T.S.
ALL BALES IN GRASS AREA'S ARE TO BE STAKED AS SHOWN. USE AS A MIN.: 2-2"X2" WOOD STAKES PER BALE.

NOTE:
1. ALL HAY BALES SHALL BE MAINTAINED TO ALLOW WATER TO FILTER THROUGH TO THE CATCH BASIN, REPLACE HAY BALES AS NEED WHEN FILTRATION IS NO LONGER FUNCTIONAL.
2. ALL HAY BALES IN AREA'S THAT CAN NOT BE STAKED ARE TO BE TIED TO THOSE THAT CAN BE STAKED.
3. USE TIE WIRE, TOP AND BOTTOM, OF EACH HAY BALE TO TIE BALES TOGETHER.

CITY STANDARDS

HAY BALES FOR EROSION CONTROL AT CATCH BASIN DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY: [Signature]
DIRECTOR

REVIZIONS
BY DATE

SCALE: N.T.S.

DATE: OCT. 2019
DWG. No. S40-46
NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. SEE STANDARD DETAILS-CATCH BASIN FLOW LINE TRANSITIONS (S40-33) AND CATCH BASIN THROAT CONFIGURATION (S40-32).
3. COMPENSATE FOR BASIN COVER AND WING, PITCH, AND SLOPE AS REQUIRED.
4. SLOPE CATCH BASIN COVER SLAB AND WING COVER SLAB 1/4" TO 1/2" PER FOOT. COVERS TO MATCH SLOPE IF IN SIDEWALK.
5. REFERENCE POINT INTERFACE BETWEEN WING COVER AND WING SHELF AT THE FACE.
NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. SEE STANDARD DETAILS-CATCH BASIN FLOW LINE TRANSITIONS (S40-33) AND CATCH BASIN THROAT CONFIGURATION (S40-32).
3. FOR SECTION PLAN VIEW, SEE STANDARD DETAIL-CATCH BASIN GENERAL (S40-36).
4. COMPENSATE FOR BASIN COVER AND WING, PITCH, AND SLOPE AS REQUIRED.
5. SLOPE BASIN AND WING COVER 1/4" TO 1/2" PER FOOT. COVERS TO MATCH SLOPE IF IN SIDEWALK.
6. 6'-REFERENCE POINT=INTERFACE BETWEEN WING COVER AND WING SHELF AT THE FACE.

CITY STANDARDS

TYPICAL WING SHELF
SECTIONS DETAIL

REVISIONS
BY DATE

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:

DATE: OCT. 2019
DWG. No. S40-48
CITY STANDARDS

WING COVER SLAB SECTIONS
AND REINFORCING DETAIL

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. NOSING SHALL BE USED WHERE SHOWN ON THE PLANS OR WHEN BASIN IS IN CURB RADII.
3. REINFORCEMENT SHOWN IS FOR STANDARD SIZES SHOWN. MAINTAIN REINFORCEMENT SIZE,
   AND SPACING, AND ADD ADDITIONAL BARS FOR MODIFIED STRUCTURES.

ENGINEERING AND CAPITAL
IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY: [Signature]
DATE: OCT. 2019
DWG. No. S40-49

SCALE: N.T.S.
DIRECTOR
MAX. D=18" RCP

Bench slope

SECTION A-A

CONCRETE COLLAR CURB, WHEN ORDERED, TYP., SEE NOTE 2

1/2" EXPANSION JOINT MATERIAL W/CURB, TYP.

MAX. D=18" RCP

SECTION B-B

CONCRETE COLLAR CURB, WHEN ORDERED, TYP., SEE NOTE 2

4:1 MAX. SLOPE IN GRASS AREA'S, TYP.

MATCH SLOPE IN PAVEMENT AREA'S, TYP.

Bench slope

CAST-IN-PLACE BASE, TYP.

NOTES:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR BOND BEAM, REINFORCING STEEL SIZES AND PLACEMENT, AND COLLAR CURB REQUIREMENTS, SEE STANDARD DETAIL-REINFORCEMENT AND MISCELLANEOUS FOR TYPE I AND TYPE II INLETS (S40-53).
3. FOR GRATE AND FRAME REQUIREMENTS, SEE STANDARD DETAIL-GRATE AND FRAME FOR TYPE I AND II INLETS (S40-54).
4. INLET TO BE CONSTRUCTED ON COMPACTED SUBGRADE, 4" CONCRETE MAT, OR 6" COURSE AGGREGATE, AS ORDERED.

CITY STANDARDS

BRICK GRATE INLET
TYPE I DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY: [Signature]

DIRECTOR

SCALE: N.T.S.

DATE: OCT. 2019

DWG. No. S40-50
CITY STANDARDS

PRECAST GRATE INLET
TYPE I DETAIL

NOTES:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR BOND BEAM, REINFORCING STEEL SIZES AND PLACEMENT, AND COLLAR CURB REQUIREMENTS, SEE STANDARD DETAIL-REINFORCEMENT AND MISCELLANEOUS FOR TYPE I AND TYPE II GRATE INLETS (S40-53).
3. FOR GRATE AND FRAME REQUIREMENTS, SEE STANDARD DETAIL-GRATE AND FRAME FOR TYPE I AND II INLETS (S40-54).
4. INLET TO BE CONSTRUCTED ON COMPACTED SUBGRADE, 4" CONCRETE MAT, OR 6" COURSE AGGREGATE, AS ORDERED.
5. FOR WALL PENETRATION SEALING, SEE STANDARD DETAIL-PRECAST STRUCTURE JOINT ASSEMBLY AND STRUCTURE SEALING (S40-92).

---

PIECE SEALING, SEE NOTE 5
MAX. D=18" RCP
1-1/2" MIN., TYP.
CONCRETE COLLAR CURB,
WHEN ORDERED, TYP.

PLAN VIEW

18" SHALL BE CAST-IN-PLACE

SECTION A-A

CONCRETE COLLAR CURB,
WHEN ORDERED, TYP.,
SEE NOTE 2
1/2" EXPANSION JOINT
MATERIAL W/CURB, TYP.
MAX. D=18" RCP
PIPE SEALING, SEE NOTE 5
4:1 MAX. SLOPE IN GRASS
AREA'S, TYP.
MATCH SLOPE IN PAVEMENT
AREA'S, TYP.
PRECAST BASE AND RISER, TYP.
BENCH SLOPE

SECTION B-B

PIPE SEALING, SEE NOTE 5
MAX. D=18" RCP
BENCH SLOPE

MAX. D=18" RCP
PIPE SEALING, SEE NOTE 5
NOTES:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. FOR BOND BEAM, REINFORCING STEEL SIZES AND PLACEMENT, AND COLLAR CURB
   REQUIREMENTS, SEE STANDARD DETAIL-REINFORCEMENT AND MISCELLANEOUS FOR TYPE I AND
   TYPE II GRATE INLETS (S40-53).
3. FOR GRATE AND FRAME REQUIREMENTS, SEE STANDARD DETAIL-GRATE AND FRAME FOR TYPE I
   AND II INLETS (S40-54).
4. INLET TO BE CONSTRUCTED ON COMPACTED SUBGRADE, 4" CONCRETE MAT, OR 6" COURSE
   AGGREGATE, AS ORDERED.
5. FOR WALL PENETRATION SEALING, SEE STANDARD DETAIL-PRECAST STRUCTURE JOINT AND
   STRUCTURE SEALING (S40-92).
CITY STANDARDS

REINFORCEMENT AND MISCELLANEOUS FOR TYPE I AND TYPE II GRATE INLETS DETAIL

NOTES:
1. FINAL 18" MINIMUM, SHALL BE CAST-IN-PLACE.
2. PROVIDE 2" CLEARANCE FROM CONCRETE FACE TO REINFORCEMENT, OR AS INDICATED.

SCHEDULE

<table>
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<tr>
<th>INLET TYPE</th>
<th>WIDTH INSIDE</th>
<th>LENGTH INSIDE</th>
<th>WALL THICKNESS</th>
<th>WALL REINFORCEMENT</th>
<th>SLAB THICKNESS</th>
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<tr>
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<td>2'-0&quot;</td>
<td>2'-9&quot;</td>
<td>8&quot;</td>
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<td>#4 @ 9&quot; EW</td>
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<td>2'-0&quot;</td>
<td>2'-9&quot;</td>
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<td>#4 @ 10&quot; EW</td>
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<td>#4 @ 9&quot; EW</td>
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<td>PRECAST-II</td>
<td>3'-0&quot;</td>
<td>4'-2&quot;</td>
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<td>#4 @ 10&quot; EW</td>
<td>8&quot;</td>
<td>#4 @ 12&quot; EW</td>
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ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT CITY of ST. PETERSBURG

APPROVED BY: [Signature]
DATE: OCT. 2019
DWG. No. S40-53
NOTES:
1. RETICULINE GRATES SHALL BE BICYCLE SAFE, HAVE A H-20 RATING AND SHALL BE MANUFACTURED BY U.S. FOUNDRY AND MANUFACTURING CORPORATION OR APPROVED EQUAL.
2. RETICULINE GRATE, BASE FRAME, AND STUDS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
NOTES:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (540-1).
2. FOR REINFORCING STEEL SIZES AND PLACEMENT AND COLLAR CURB REQUIREMENTS, SEE STANDARD DETAIL-REINFORCEMENT AND MISCELLANEOUS FOR TYPE III GRATE INLET (540-56).
3. FOR GRATE AND FRAME REQUIREMENTS, SEE STANDARD DETAIL-GRATE AND FRAME FOR TYPE III GRATE INLET (540-57).
4. INLET TO BE CONSTRUCTED ON COMPACTED SUBGRADE, 4" CONCRETE MAT, OR 6" COURSE AGGREGATE, AS ORDERED.
5. FOR WALL PENETRATION SEALING, SEE STANDARD DETAIL-PRECAST STRUCTURE JOINT AND STRUCTURE SEALING (540-92), SHOWING FILTER FABRIC AT PIPE/STRUCTURE INTERFACE.

CITY STANDARDS

REVISIONS

PRECAST GRATE
INLET TYPE III DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DATE: OCT. 2019

SCALE: N.T.S.

DIRECTOR

S40-55
NOTES:
1. GENERAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (S40-1).
2. PROVIDE 2" CLEARANCE FROM CONCRETE FACE TO REINFORCEMENT, OR AS INDICATED.
3. CIPL = CAST-IN-PLACE.
NOTES:
1. RETICULINE GRATES ARE 5" STEEL DECKING AS DESCRIBED ABOVE, WEIGHING 630 LBS AND SHALL BE BICYCLE SAFE, HAVE A H-20 RATING AND SHALL BE MANUFACTURED BY THE U.S. FOUNDRY AND MANUFACTURING CORPORATION OR APPROVED EQUAL.
2. RETICULINE GRATE ASSEMBLY SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

CITY STANDARDS

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

GRAVE AND FRAME FOR
TYPE III GRATE INLET DETAIL

APPROVED BY:

DATE: OCT. 2019
DWG. No. S40-57
NOTES:
1. FOR GENERAL NOTES, SEE STANDARD DETAIL-STRUCTURE NOTES (540-1).
2. ALL BASIN AND WING COVERS SHALL BE REMOVABLE. EDGES AND SEAMS SHALL NOT BE GROUTED.
3. ACCESS OPENING SHALL BE REQUIRED AT EACH CATCH BASIN STRUCTURE. STRUCTURES WITH MULTIPLE COVERS, ACCESS OPENING SHALL BE ALIGNED WITH CENTER LINE OF THE LARGEST PIPE IN STRUCTURE.
4. PRE-CAST CATCH BASINS, UPPER 24" SHALL BE CAST IN PLACE.
5. SEE STANDARD DETAIL-TYPE I THRU V TYPICAL CATCH BASIN SECTIONS (S40-38).
7. SEE STANDARD DETAIL-CATCH BASIN COVER SLAB REINFORCING PLAN VIEW (S40-40).
8. SEE STANDARD DETAIL-CATCH BASIN COVER SLAB SECTIONS AND REINFORCING (S40-41).
9. SEE STANDARD DETAIL-TYPICAL WING ASSEMBLY (S40-47).
10. SEE STANDARD DETAIL-TYPICAL WING SHELF SECTIONS (S40-48).
11. SEE STANDARD DETAIL-WING COVER SLAB SECTIONS AND REINFORCING (S40-49).
12. SEE STANDARD DETAIL-CATCH BASIN THROAT CONFIGURATION (S40-32).
13. REFERENCE POINT=INTERFACE BETWEEN WING COVER AND WING SHELF AT THE FACE.
14. MAKE TOP SLAB PERFECTLY LEVEL.
GRATE (USF 6160)

GRAY CAST IRON
FLOW AREA 219 IN²

NOTES:
1—FRAME, STEEL A36, GALVANIZED
2—APPROX WEIGHT: 45.5 LBS.

FRAME

CITY STANDARDS
FILTER MEDIA SPECIFICATIONS

FINE FILTER AGGREGATE FOR STORMWATER FILTRATION SYSTEMS AS REQUIRED BY SWFWMD SHALL BE WASHED MATERIAL, i.e., CLEAN CREEK GRAVELS, AND SILICA SAND; OR MIXTURES THEREOF WITH LESS THAN 1-PERCENT SILT, CLAY, AND ORGANIC MATTER.

1. THE FILTRATION MEDIA MUST HAVE A UNIFORMITY COEFFICIENT BETWEEN 1.5 AND 2.0, AND AN EFFECTIVE GRAIN SIZE OF 0.40 TO 0.55 MILLIMETERS.
2. THE VERTICAL PERMEABILITY RATE (K) SHALL BE AT LEAST 130-FEET PER DAY WHEN COMPACTED TO 98 PERCENT OF MAXIMUM DENSITY BY AASHTO T 180.

COURSE AGGREGATE SPECIFICATIONS

1. COARSE AGGREGATE SHALL BE GRAVEL OR STONE MEETING THE REQUIREMENTS OF THE FDOT-SSRBC, SECTIONS 901.
2. THE GRADATION SHALL MEET SECTION 901, SIZE NO. 7 OR 89 STONE, UNLESS OTHERWISE SPECIFIED.
3. SAND OR LIMEROCK WILL NOT BE AN ACCEPTABLE COURSE AGGREGATE.
SCREEN SIZE 10" x 1' 11"

EMBANKMENT SLOPE AT 3:1

SCREEN SIZE 10" x 2' 4-3/4"

EMBANKMENT SLOPE AT 4:1

SCREEN SIZE 10" x 2' 10-1/2"

EMBANKMENT SLOPE AT 5:1

NOTE:
ATTACH SCREEN TO COLLAR W/ 1/4"x 1" FLAT WASHER AND 1/4"x 2" ANCHOR BOLT W/ LEAD ANCHOR AT EACH CORNER 1" FROM EDGE OF SCREEN.

CITY STANDARDS

FILTRATION SYSTEM COLLAR DETAIL

APPROVED BY: [Signature]

DATE: OCT. 2019

DWG. No. S40-61
CAST IRON FRAME AND COVER
U.S. FOUNDARY #USF 7621, OR
EQUAL LABEL LID: STORM DRAIN

FINISHED GRADE

16" DIA. X 8" CONCRETE COLLAR
(3000 psi CONCRETE)

PVC CLEAN OUT PLUG

PVC PIPE

PVC 11 1/4 BEND

PLUG AT END OF LINE ONLY

6" DIA. NON-PERFORATED PVC PIPE

6" PVC WYE

COURSE AGGREGATE, PER SPECIFICATIONS, TYP.

6" DIA. PERFORATED PVC PIPE

CITY STANDARDS

Filtration Underdrain
Cleanout Detail

ENGINEERING AND CAPITAL
IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:

DATE: OCT. 2019

DIRECTOR

DWG. No. S40-62
NOTES:
1. 6" PVC PIPES SHALL BE PARALLEL AND ORIENTED SUCH THAT PERFORATED SIDES FACE EACH OTHER.
2. ARRANGEMENT OF THE 3/8" PERFORATIONS (AS SHOWN ABOVE) SHALL BE REPEATED ALONG THE PIPE LENGTH.
3. PERFORATIONS MUST BE DRILLED BY THE CONTRACTOR AS SHOWN, EACH VERTICAL ROW REQUIRES 9 PERFORATIONS EACH. VERTICAL ROWS ARE AT 3" O.C. FOR THE FULL LENGTH OF THE FILTRATION PIPE.
STAKED POST, SEE NOTE 1

GEOTEXTILE MATERIAL, SEE NOTES 2 AND 3, BELOW

DISTURBED EARTH SIDE

FIELD ESTABLISHED STAKING ALIGNMENT

NON DISTURBED EARTH SIDE

ELEVATION VIEW

TYPICAL POST POSITION

OPTIONAL POST POSITION
(CANTED 20° TOWARD FLOW) SEE NOTE 5, BELOW

GEOTEXTILE MATERIAL

SILT FLOW SIDE

SECTION VIEW

12" BURY, MINIMUM. ALLOW ENOUGH SCREEN MATERIAL TO KEEP FROM BEING PULLED OUT

NOTES:
1. POST; 2"X2" WOOD, P.T. OR 2-1/2"Ø STEEL AT 6' CENTERS, MAXIMUM.
2. GEOTEXTILE: GRAB TENSILE AT 90 LBS, TRAPEZOIDAL TEAR AT 35 LBS., MULLEN BURST AT 180 PSI.
3. GEOTEXTILE MATERIAL SHALL BE BURIED IN THE GROUND A MINIMUM OF 12" AND BACK FILLED.
4. ALSO SEE FDOT INDEX 199, "GEOTEXTILE CRITERIA", EROSION CLASS.
5. OPTIONAL POST POSITION REQUIRED WHEN SLOPE IS GREATER THAN 1:2.
CITY STANDARDS

FLOATING TURBIDITY BARRIER ELEVATIONS DETAIL

NOTE:
SEE STANDARD DETAIL-FLOATING TURBIDITY BARRIER NOTES FOR ADDITIONAL INFORMATION. (S40-72)
NOTES:
1. SEE STANDARD DETAIL–FLOATING TURBIDITY BARRIER ELEVATIONS (S40-71) FOR ADDITIONAL VIEWS AND CONDITIONS.
2. CURTAIN TO REACH THE BOTTOM UP TO DEPTHS OF 10'. 2 PANELS ARE TO BE USED FOR DEPTHS GREATER THAN 10'
   UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY ARE CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. COMPONENTS OF TYPES I AND TYPES II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT
   OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND/OR TYPE
   II SHALL BE AS APPROVED BY THE ENGINEER.
4. TURBIDITY BARRIERS SHALL BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
5. NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
6. DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VERY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
7. NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION ACTIVITIES.
8. FOR ADDITIONAL INFORMATION, SEE SECTION 104 OF THE FDOT/SSRBQ SPECIFICATIONS.

CITY STANDARDS

FLOATING TURBIDITY
BARRIER NOTES DETAIL
NOTES:
1. ALL EXPOSED EDGES TO HAVE 3/4" CHAMFER.
2. SHEET PILING MINIMUM REQUIREMENTS: SECTION MODULUS=8.6 CI/FT OF WALL, THICKNESS=0.25 IN., LENGTH=10 FT., EMBEDMENT=3 IN., Z OR ARCH SHAPE.
3. ALL REINFORCEMENT: #5 @ 9" ON CENTER EACH WAY WITH 2" CONCRETE COVER MINIMUM, 3" CONCRETE COVER WHEN CAST AGAINST SOIL.
4. #5 DOWEL WITH 3' x 3' LEGS @ 9" OC WHEN PIPE SIZE EXCEEDS 42" DIAMETER. CONTINUE DOWELS IN THE SIDE WALLS UNTIL WALL HEIGHT IS 3'-2". ALSO 1-#5 BAR, HORIZONTALLY AT TOP OF ROW.
NOTES:
1. ALL EXPOSED EDGES TO HAVE 3/4" CHAMFER.
2. SHEET PILING MINIMUM REQUIREMENTS: SECTION MODULUS=8.6 CI/FT OF WALL, THICKNESS=0.25 IN., LENGTH=10 FT., EMBEDMENT=3 IN., Z OR ARCH SHAPE.
3. ALL REINFORCEMENT: #5 @ 9" ON CENTER EACH WAY WITH 2" CONCRETE COVER MINIMUM, 3" CONCRETE COVER WHEN CAST AGAINST SOIL.
4. #5 DOWEL WITH 3' x 3' LEGS @ 9" OC WHEN PIPE SIZE EXCEEDS 42" DIAMETER. CONTINUE DOWELS IN THE SIDE WALLS UNTIL WALL HEIGHT IS 3'-2". ALSO 1-#5 BAR, HORIZONTALLY AT TOP OF ROW.

CITY STANDARDS

TYPE H-II
HEADSTRUCTURE DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

APPROVED BY:          DATE: OCT. 2019

DIRECTOR

S40-81
SLOPE SPILLWAY @ 1/2" PER FOOT

PLAN VIEW

FINISHED GRADE
6-#5 AS SHOWN WITH #4 HOOP @ 9" OC
SLOPE TO MATCH EMBANKMENT

ADDITIONAL #5 BAR
3" COVER

SECTION A-A

NOTES:
1. ALL EXPOSED EDGES TO HAVE 3/4" CHAMFER.
2. SHEET PILING MINIMUM REQUIREMENTS: SECTION MODULUS=8.6 CI/FT OF WALL, THICKNESS=0.25 IN., LENGTH=10 FT., EMBEDMENT=3 IN., Z OR ARCH SHAPE.
3. ALL REINFORCEMENT: #5 @ 9" ON CENTER EACH WAY WITH 2" CONCRETE COVER MINIMUM, 3" CONCRETE COVER WHEN CAST AGAINST SOIL.
4. #5 DOWEL WITH 3' x 3' LEGS @ 9" OC WHEN PIPE SIZE EXCEEDS 42" DIAMETER. CONTINUE DOWELS IN THE SIDE WALLS UNTIL WALL HEIGHT IS 3'-2". ALSO 1-#5 BAR, HORIZONTALLY AT TOP OF ROW.

CITY STANDARDS

TYPE H-III
HEADSTRUCTURE DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DIRECTOR

SCALE: N.T.S.

REVISIONS

BY DATE

DATE: OCT. 2019

DWG. No. S40-82
FINISHED GRADE
BRICK COURSES WITH 3/4" PLASTER COATING
WALL REINFORCEMENT-SEE STANDARD DETAIL-TYPE III MANHOLE BASE AND WALL (S40-17)
STORM DRAIN
COMPACTED SUBGRADE, OR 4" CONCRETE MAT, OR 6" COARSE AGGREGATE, AS ORDERED

SECTION A-A
NON-SHRINK GROUT, TYP.
FLOW
STORM DRAIN
FLOW CHANNEL
12" MIN. (TYP.)
CONFLICT PIPE JOINT
ANTIFLOTATION LIP-SEE STANDARD DETAIL-TYPE III MANHOLE BASE AND WALL (S40-17)

PLAN VIEW

NOTES:
1. FOR GENERAL NOTES, SEE STANDARD-STORM STRUCTURE NOTES (S40-1).
2. AREA BELOW PIPE IN CONFLICT AND ABOVE FLOW LINE OF OUTLET PIPE SHALL BE EQUAL TO OR GREATER THAN OUTLET PIPE AREA.
3. NO CONFLICT PIPE JOINT SHALL BE WITHIN STRUCTURE.
4. ONLY DUCTILE IRON OR SEAMLESS STEEL PIPE PER SPECIFICATIONS SHALL BE ALLOWED TO PASS THROUGH THE STRUCTURE.
5. SUMPED CONFLICT STRUCTURES SHALL NOT BE USED UNLESS SYSTEM IS HYDRAULICALLY DESIGNED TO TAKE INTO ACCOUNT THE HEAD LOSS GENERATED IF THE SUMP BECOMES COMpletely BLOCKED.
6. USE TYPE B MANHOLE RING AND COVER CASTING AT UPSTREAM SIDE OF CONFLICT PIPE. IF IN A POTENTIALLY HIGH MAINTENANCE AREA, INSTALL AN ADDITIONAL TYPE B MANHOLE RING AND COVER CASTING, ON DOWNSTREAM SIDE OF THE CONFLICT PIPE, AS ORDERED OR DIRECTED.
7. CONFLICT PIPE SHALL HAVE A 1" COMPRESSIBLE JOINT FILLER BETWEEN THE PIPE AND THE STRUCTURE.

CITY STANDARDS

PRECAST STORM CONFLICT STRUCTURE DETAIL (TYPE III MH)

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY:

DATE: OCT. 2019
DWG. No.
S40-90
STRUCTURE SCHEDULE

A: ___. ___ * E: ___. ___ *
B: ___. ___ * F: ___. ___ *
C: ___. ___ * G: ___. ___ *
D: ___. ___ * H: ___. ___ *

* PER APPLICATION

CONTROL UNITS SCHEDULE

UNDERDRAIN 6" INV. ______
OUTFALL ___" INV. ______
SLOT ELEV. ______
TOP OF STRUCTURE ELEV. ______

OIL SKIMMER AT EACH CONTROL SLOT.
ATTACH WITH 5/8" BOLTS AT 2" CENTERS,
typical each side.

MODIFIED CITY TYPE PRECAST GRATE INLET WITH
CONTROL SLOTS AND SKIMMERS. (SEE NOTE 1,
BELOW)

OIL SKIMMER AT EACH CONTROL SLOT.
ATTACH WITH 5/8" BOLTS AT 2" CENTERS,
typical each side.

NOTE:
1. SEE STANDARD DETAIL- PRECAST GRATE INLET FOR OTHER CONSTRUCTION REQUIREMENTS.
2. OIL SKIMMER CAN BE CONSTRUCTED FROM THE FOLLOWING OPTIONS: FIBERGLASS, HDPE, OR PVC.
3. OMIT ANCHOR STUD AT CONTROL SLOT AREAS.

CITY STANDARDS

DETENTION AREA OUTFALL
CONTROL STRUCTURE DETAIL

APPROVED BY:

DATE: OCT. 2019
DWG. No. S40-91

ENGINEERING AND CAPITAL
IMPROVEMENT DEPARTMENT
CITY of ST. PETERSBURG

S40-91

NOTE:
1. SEE STANDARD DETAIL- PRECAST GRATE INLET FOR OTHER CONSTRUCTION REQUIREMENTS.
2. OIL SKIMMER CAN BE CONSTRUCTED FROM THE FOLLOWING OPTIONS: FIBERGLASS, HDPE, OR PVC.
3. OMIT ANCHOR STUD AT CONTROL SLOT AREAS.
NOTES:
1. JOINTS SHALL CONFORM TO ASTM C443.
2. A LAYER OF PREFORMED JOINT SEALING COMPOUND SUCH AS "RAM-NEK" SHALL BE INSTALLED AT ALL PRECAST STRUCTURE JOINTS AND STRUCTURE TOP AND CATCH BASIN LID PEDESTALS PRIOR TO ASSEMBLY.
3. FILTER FABRIC SHALL BE MIRAFI 140-N, OR APPROVED EQUAL. FILTER FABRIC IS TO BE PLACED IN A BEDDING OF BITUMINOUS MASTIC AND APPLIED AS PER FDOT DESIGN STANDARDS INDEX NO. 201.
4. FOR ADDITIONAL NOTES, SEE STANDARD DETAIL-STORM STRUCTURE NOTES (540-1).

CITY STANDARDS
PROPOSED SAND CEMENT RIP RAP FOR EROSION PROTECTION

PROPOSED OR EXISTING HEADSTRUCTURE

PLAN

SECTION A-A

NOTES:
1. ALL EXPOSED EDGES TO HAVE 3/4" CHAMFER.
2. ALL REINFORCING STEEL SHALL HAVE 2" CONCRETE COVER MINIMUM.

CITY STANDARDS

CONCRETE SPLASH PAD DETAIL

SCALE: N.T.S.
NOTES:
1. ALL CONDUITS SHALL HAVE AN INTERNAL JOINT GASKET CONFORMING TO ONE OF THE FOLLOWING:
   - ROUND PIPE: RUBBER GASKET, OR APPROVED EQUAL.
   - ELLIPTICAL PIPE: COLD ADHESIVE PREFORMED PLASTIC GASKET OR RUBBER GASKET, OR APPROVED EQUAL(S).
   - BOX CULVERT: RUBBER, PLASTIC, OR PREFORMED BITUMINOUS JOINT SEALING MATERIAL "RAM-NEK", OR APPROVED EQUAL.

2. THE CONTRACTOR SHALL CHOOSE FROM THE MATERIALS LISTED BELOW FOR EXTERNAL WRAP OF EACH CONDUIT JOINT, EXCEPT THE EXTERNAL SEALING BAND AND FILTER FABRIC WRAP SHALL BE MANDATORY FOR BOX CULVERTS.
   A. EXTERNAL JOINT SEALING BAND(S) SHALL BE AS LISTED BELOW:
      - ROUND PIPE WITH A BELL TYPE JOINT SHALL BE MAR MAC WRAP (*), OR APPROVED EQUAL. MINIMUM 14" WIDE BAND, MINIMUM OF 2 BANDS PER JOINT.
      - ROUND PIPE, ELLIPTICAL PIPE, AND BOX CULVERT SHALL BE MAR MAC WRAP (*) EXTERNAL PIPE SEALING BAND, OR APPROVED EQUAL. MINIMUM 13" WIDE BAND, CENTERED ON JOINT.
   * DISTRIBUTED BY THE MAR MAC CONSTRUCTION PRODUCTS COMPANY.
   B. FILTER FABRIC SHALL BE TYPE D-3 PER DOT SSRBC SECTION 985, OR APPROVED EQUAL, CENTERED ON JOINT. FILTER FABRIC SHALL BE SECURED BY STRAPS OR OTHER METHOD APPROVED BY THE MANUFACTURER.

3. ALL TONGUE AND GROOVE, AND BELL AND SPIGOT SURFACES ADJACENT TO THE INTERNAL JOINT GASKET(S) SHALL HAVE LUBRICANT APPLIED AS PER GASKET MANUFACTURES RECOMMENDATIONS.
SAW CUT AT TERMINAL LIMIT

EXISTING GRAVITY PIPE

1/2" PLASTER COVER

8" WALL FOR PIPES 12" THRU 30", ALSO EQUIVALENT SIZE ELIPTICAL PIPES

12" WALL FOR PIPES 36" THRU 54", ALSO EQUIVALENT SIZE ELIPTICAL PIPES

RUNNING BOND: 2 PER PIPES 12" THRU 30" TYP.
RUNNING BOND: 4 PER PIPES 36" THRU 54" TYP.

TYPICAL SECTION VIEW

NOTE:
BRICK, MOTAR, AND PLASTER FOR BULKHEAD SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS.
6' CHAINLINK FENCE REQUIRED, WHEN SLOPES ARE GREATER THAN ALLOWED, OR WHEN DIRECTED.

NOTE:
1. SLOPES FOR LAKES, DETENTION PONDS AND RETENTION PONDS SHALL CONFORM TO CITY CODE: 16.40.140.4.4(C).

TYPICAL LAKE SECTION VIEW

NOTES:
1. CHANNELS SHALL HAVE A SIDE SLOPE OF 2:1 MAX.
2. THE CHANNEL SLOPE SHALL NOT EXCEED THE SATURATED ANGLE OF REPOSE FROM THE GEOTECHNICAL REPORT.

TYPICAL CHANNEL SECTION VIEW

CITY STANDARDS

STANDARD SLOPES FOR NEW LAKES OR PONDS AND CHANNEL EXCAVATIONS DETAIL

ENGINEERING AND CAPITAL IMPROVEMENT DEPARTMENT
CITY OF ST. PETERSBURG

APPROVED BY: [Signature]
DIRECTION

SCALE: N.T.S.

DATE: OCT. 2019
DWG. No. S40-96