DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

DESIGN GUIDELINE
BRICK MANHOLE WITH ECCENTRIC ACCESS OPENING
OVER EXISTING SEWER
WITH CAST IN PLACE CONCRETE BASE

<table>
<thead>
<tr>
<th>SEWER DIAMETER</th>
<th>FRAME DIAMETER (A)</th>
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<tbody>
<tr>
<td>10&quot; THRU 21&quot;</td>
<td>24&quot;</td>
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<tr>
<td>24&quot; AND 36&quot;</td>
<td>36&quot; *</td>
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* IF SURFACE TO INVERT < 15', A 36"X 24" DIA. ADAPTER RING WITH 24" DIA. COVER SHALL BE USED.

NOTE:
1. ALL CONCRETE TO BE CLASS 4000, AIR ENTRAINMENT, TYPE II CEMENT.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60.
3. WHEN THE MANHOLE DEPTH EXCEEDS 15 FEET, THE BRICK WALL THICKNESS SHALL BE INCREASED TO 12 INCHES BELOW THE 15 FEET DEPTH.

APPROXIMATE LIMIT OF SEWER TO BE REMOVED

8" BRICK WITH 1/2" CEMENT PLASTER (TYP.)

SECTIONAL PLAN
DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

DESIGN GUIDELINE
BRICK MANHOLE WITH ECCENTRIC ACCESS OPENING
OVER EXISTING SEWER
WITH CAST IN PLACE CONCRETE BASE

2 - 5/8" STEEL
DOWELS 180° APART

MANHOLE STEPS
IN LINE 12" O/C

8" BRICK WITH
1/2" CEMENT
PLASTER

BRICK BENCH

CONCRETE AND/OR
MASONRY FILL

EXISTING SEWER WITH
CONCRETE BEDDING
AND JOINT ENCASEMENT

APPROXIMATE LIMIT
OF SEWER TO BE
REMOVED

3" CL

#5 @ 6" EF EW (TYPICAL)

1'-0"

6" MINIMUM OF UNIFORM
GRADED SCREENED GRAVEL
OF CRUSHED STONE, ASTM
C-33 #67

SECTION A-A
DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY  
DG–22.04  
1 OF 3

DESIGN GUIDELINE
CAST IN PLACE CONCRETE MANHOLE BASE
FOR NEW 54” DIAMETER AND LARGER SEWERS
WITH PIPE OR BRICK RISER OPTION

SECTIONAL PLAN

<table>
<thead>
<tr>
<th>&quot;X&quot; DIA. PRECAST MANHOLE RISER (OPTION)</th>
<th>MANHOLE STEPS</th>
<th>48&quot; DIA. PRECAST MANHOLE RISER (OPTION)</th>
<th>48&quot; DIA. BRICK MANHOLE RISER (OPTION)</th>
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<tr>
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<td>DIMENSION &quot;A&quot;</td>
<td>DIMENSION &quot;B&quot;</td>
<td>DIMENSION &quot;B&quot;</td>
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<td>(PIPE OD + 30&quot;)</td>
<td>(PIPE OD + 50&quot;)</td>
<td>(PIPE OD + 50&quot;)</td>
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<td>&quot;X&quot; INSIDE PIPE DIAMETER - INCHES</td>
<td>&quot;X&quot; INSIDE PIPE DIAMETER - INCHES</td>
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<tr>
<td>108</td>
<td>13' - 2&quot;</td>
<td>14' - 10&quot;</td>
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NOTES:
1. SEWER MANHOLE BASE SHALL BE DESIGNED FOR AASHTO HS–20 LIVE LOADING.
2. ALL CONCRETE TO BE CLASS 4000, AIR ENTRAINRED, TYPE II CEMENT.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A–615, GRADE 60.
4. FOR MANHOLE DEPTHS GREATER THAN 15' TO INVERT, USE 36" DIA. CAST IRON FRAME AND COVER. FOR MANHOLE DEPTHS EQUAL TO 15' OR LESS, USE A 36" X 24" ADAPTER RING WITH A 24" DIA. COVER.
5. DIMENSIONS "A" AND "B" SHOWN ON TABLE CORRESPOND TO A CLASS III, WALL B REINFORCED CONCRETE SEWER PIPE.
DESIGN GUIDELINE
CAST IN PLACE CONCRETE MANHOLE BASE
FOR NEW 54" DIAMETER AND LARGER SEWERS
WITH PIPE OR BRICK RISER OPTION

SECTION A - A

6" MINIMUM OF UNIFORM GRADED SCREENED GRAVEL OR CRUSHED STONE, ASTM C-33 #67
DESIGN GUIDELINE
CAST IN PLACE CONCRETE MANHOLE BASE
FOR NEW 54" DIAMETER AND LARGER SEWERS
WITH PIPE OR BRICK RISER OPTION

BRICK ADJUSTMENT COURSES
48" DIA. PRECAST MANHOLE RISER (OPTION)
MANHOLE STEPS, IN LINE, ONE - FOOT CENTER TO CENTER
48" DIA. BRICK MANHOLE RISER (OPTION)
1/2" CEMENT PLASTER APPLIED TO OUTSIDE OF BRICK RISER
8" BRICK RISER

"O" RING
2-BULB 3/8" X 9" PVC WATERSTOP (TYPICAL)

#5 DIAGONAL EF (TYPICAL) AT END WALLS

CONCRETE FILL

3" CL.

6" MINIMUM OF UNIFORM GRANULATED SCREENED GRAVEL OR CRUSHED STONE, ASTM C-33 #67

DIMENSION "B"

"X" DIA. RCPRS

DIMENSION "A"

SECTION B - B
DUCTILE IRON PIPE (RESTRAINED JOINT AS REQUIRED)

OPENING IN TOP OF SLAB (TYP.)

FLANGED GATE VALVE (WHEEL OPERATED), (TYP.)

LINK SEAL OR APPROVED EQUAL, JOINT TO BE WATERTIGHT (TYP.)

8 PIPE DIAMETERS (MINIMUM)

METER STRAINER (SEE NOTE NO. 5)

STEEL REINFORCED POLYPROPYLENE MANHOLE STEPS (SEE NOTE NO. 2)

SECTIONAL PLAN
(NOT TO SCALE)
15" OPENING WITH CAST-IRON FRAME AND 12-1/4" COMPOSITE COVER SUITABLE FOR AMR DEVICE (SEE DETAIL W-95.02)

30" DIAMETER CAST IRON FRAME AND COVER (SEE DETAIL W-95.01)

EXISTING SURFACE

VARIES

12" ON CENTER

7"

STEEL REINFORCED POLYPROPYLENE MANHOLE STEPS (SEE NOTE NO. 2)

PRECAST CONCRETE RING OR BRICK TO BRING CASING TO GRADE (TYP.)

METER STRAINER (SEE NOTE NO. 5)

MINIMUM SLOPE TO SUMP 1/4" TO THE FOOT

BRICK PIER (TYP.)

12" X 12" X 12" SUMP CAST IN BOTTOM OF VAULT

SECTION A-A (NOT TO SCALE)

LINK SEAL OR APPROVED EQUAL, JOINT TO BE WATERTIGHT (TYP.)
DISTRIBUTION OF COLUMBIA
WATER AND SEWER AUTHORITY

DESIGN GUIDELINE

METER INSTALLATION
COMPOUND METER / TURBINE METER

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<th>B</th>
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NOTES:

1. SEALED STRUCTURAL COMPUTATIONS AND REINFORCING DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATIONS.

2. MANHOLE STEPS TO BE M.A. INDUSTRIES MODEL PS3–PFC OR APPROVED EQUAL. CAST INSERTS IN WALL 12" ON CENTER.

3. CONCRETE TO BE CLASS 4000, TYPE II CEMENT.

4. DUCTILE IRON PIPE JOINTS WITHIN VAULT SHALL BE FLANGED.

5. COMPOUND METERS REQUIRE THE INSTALLATION OF METER STRainers. HOWEVER, TURBINE METERS DO NOT REQUIRE THE INSTALLATION OF METER STRainers. METER STRainers SHALL BE INSTALLED BETWEEN THE METER AND SHUTOFF VALVE ON THE STREET SIDE OF THE METER AND HAVE 8 PIPE LENGTHS (MINIMUM) BETWEEN THE METER STRAINER AND NEAREST FITTING.

DESIGN GUIDELINE

METER INSTALLATION
DETECTOR CHECK METER

SECTIONAL PLAN
(NOT TO SCALE)
30" CAST IRON FRAME AND COVER (SEE DETAIL W-95.01)

15" OPENING WITH CAST-IRON FRAME AND 12-1/4" COMPOSITE COVER SUITABLE FOR AMR DEVICE (SEE DETAIL W-95.02)

EXISTING SURFACE

VARES

NOT TO EXCEED 24"

PRECAST CONCRETE RING OR BRICK TO BRING CASING TO GRADE (TYP.)

STEEL REINFORCED POLYPROPYLENE MANHOLE STEPS (SEE NOTE NO. 2)

FLANGED GATE VALVE (WHEEL OPERATED), (TYP.)

MINIMUM SLOPE TO SUMP 1/4" TO THE FOOT

12" ON CENTER

LINK SEAL OR APPROVED EQUAL, JOINT TO BE WATERTIGHT (TYP.)

BRICK PIER (TYP.)

12" X 12" X 12" SUMP CAST IN BOTTOM OF VAULT

SECTION A-A (NOT TO SCALE)
NOTES:

1. SEALED STRUCTURAL COMPUTATIONS AND REINFORCING DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATIONS.

2. MANHOLE STEPS TO BE M.A. INDUSTRIES MODEL PS3–PFC OR APPROVED EQUAL. CAST INSERTS IN WALL 12" ON CENTER.

3. CONCRETE TO BE CLASS 4000, TYPE II CEMENT.

4. DUCTILE IRON PIPE JOINTS WITHIN VAULT SHALL BE FLANGED.

5. DETECTOR CHECK METERS MUST MEET ASSE #1048 AND ANSI/AWWA C510–97 FOR DOUBLE CHECK TYPES; AND ASSE#1047 AND ANSI/AWWA C511–97 FOR REDUCED PRESSURE DETECTOR CHECK METERS.

6. IF A REDUCED PRESSURE BACKFLOW PREVENTER IS REQUIRED ON THE FIRE SERVICE LINE, THEN A REDUCED PRESSURE DETECTOR CHECK METER MUST BE INSTALLED INSIDE OF THE BUILDING ACCORDING TO THE DCWASA INSIDE DESIGN CRITERIA.

DUCTILE IRON PIPE (RESTRAINED JOINT AS REQUIRED)

OPENING IN TOP OF SLAB (TYP.)

LINK SEAL OR APPROVED EQUAL JOINT TO BE WATERTIGHT (TYP.)

8 PIPE DIAMETERS (MINIMUM)

FLANGED GATE VALVE (WHEEL OPERATED) (TYP.)

STEEL REINFORCED POLYPROPYLENE MANHOLE STEPS (SEE NOTE NO. 2)

OPENING IN TOP OF SLAB (TYP.)

SECTIONAL PLAN (NOT TO SCALE)
DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

DESIGN GUIDELINE

METER INSTALLATION
FIRE SERVICE TYPE

15" OPENING WITH CAST-IRON FRAME
AND 12-1/4" COMPOSITE COVER
SUITABLE FOR AMR DEVICE
(SEE DETAIL W-95.02)

30" DIAMETER CAST IRON
FRAME AND COVER
(SEE DETAIL W-95.01)

EXISTING SURFACE

VARIES

NOT TO EXCEED 24"

Steel reinforced polypropylene manhole steps
(See Note No. 2)

Precast concrete ring or brick to bring casing to grade (Typ.)

Flanged gate valve (wheel operated)
(Typ. of 3)

Meter strainer

Link seal or approved equal, joint to be watertight (Typ.)

Brick pier (Typ.)

Minimum slope to sump 1/4" to the foot

12" x 12" x 12"
sump cast in bottom of vault

SECTION A-A
(Not to scale)
### FM Detector Meter with By-Pass Meter *

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
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<th>C</th>
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* METERING DESIGN FOR USE ON COMBINATION FIRE AND DOMESTIC SUPPLY.

### NOTES:

1. SEALED STRUCTURAL COMPUTATIONS AND REINFORCING DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATIONS.

2. MANHOLE STEPS TO BE M.A. INDUSTRIES MODEL PS3–PFC OR APPROVED EQUAL. CAST INSERTS IN WALL 12" ON CENTER.

3. CONCRETE TO BE CLASS 4000, TYPE II CEMENT.

4. DUCTILE IRON PIPE JOINTS WITHIN VAULT SHALL BE FLANGED.