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### SECTION 2000 — MANHOLES

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### SECTION 3000 — GRAVITY SEWERS

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<td>SUPPORT FOR CARRIER PIPE INSIDE CASING</td>
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### SECTION 4000 — BUILDING SEWERS

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SECTION 6000 – PRESSURE SEWERS/FORCE MAINS

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<td>PRESSURE TO GRAVITY SIDE SEWER STUB</td>
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<td>PRESSURE SIDE SEWER TO LOW PRESSURE MAIN</td>
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<td>FORCE MAIN TAPPING SLEEVE</td>
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<td>FORCE MAIN STUBS FOR FUTURE CONNECTIONS</td>
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ABBREVIATIONS

PVC  POLYVINYL CHLORIDE  
DIP  DUCTILE IRON PIPE  
HDPE  HIGH DENSITY POLYETHYLENE  
SS  STAINLESS STEEL  
CL  CLASS  
C  CENTERLINE  
CONC  CONCRETE  
TYP  TYPICAL  
I.D.  INSIDE DIAMETER  
O.D.  OUTSIDE DIAMETER  
NOM  NOMINAL  
Φ, DIA, DIAM  DIAMETER  
SCH  SCHEDULE  
MH  MANHOLE  
GFSP  GLASS FIBER SUPPORTED PLASTIC  
C/C  ON CENTER  
IPF  INDUSTRIAL PIPE FITTINGS, INC.  
O.C.  ON CENTER  
GU  "GU" IS PRODUCT NAME OF SEALCON INTERNATIONAL  
R/W  RIGHT-OF-WAY  
I.E.  INVERT ELEVATION  
H-20  "H-20" IS A LOADING SPECIFICATION  
P/L  PROPERTY LINE  
NPT  NATIONAL PIPE THREAD  
FL  FLANGED  
A.R.I.  BRAND NAME
NOTES:
1. LEGS MAY BE PARALLEL OR APPROXIMATELY RADIAL AT OPTION OF MANUFACTURER EXCEPT THAT ALL STEPS IN ANY MANHOLE SHALL BE IDENTICAL.
2. LAST STEP SHALL BE NO MORE THAN 18" FROM BOTTOM OF MANHOLE.
3. FIRST STEP SHALL BE NO MORE THAN 24" FROM RIM/FINISH GRADE.
4. STEPS SHALL NOT INTERFERE WITH CHIMNEY SEAL (SEE DETAIL 1002).
MANHOLE RING - PLAN

2 1/2" W X 3" H LETTERS AS REQUIRED
1/2" W X 3" L ASTM NON-SKID PATTERN WITH 1/2" OFFSETS BETWEEN TREADS
1/2" WEB (8 TYP.)
COUNTRY OF ORIGIN IDENTIFICATION
3/8" RAISED LETTERS 1/8" FROM EDGE OF RING
DRILL AND TAP - 3 PLACES (120 DEG.) FOR 5/8" - 11 NC SS SDC. HEAD CAP SCREW

MANHOLE COVER - PLAN

1/2" RAISED LETTERS 1/2" FROM EDGE OF COVER
FOUNDRY IDENTIFICATION 1/2" RAISED LETTERS (13 MAXIMUM) 1/2" FROM EDGE OF COVER
COUNTRY OF ORIGIN IDENTIFIER, 1/2" RAISED LETTERS, 1/2" FROM EDGE OF COVER
4" 8 X 3" DEEP CAST IN PLACE HAND HOLD W/ 1" HANDLE
(SEE SECTION A-A DETAIL 1003 PAGE 2)

MANHOLE COVER - SECTION

1/4" RAISED LETTERING AND TREAD PATTERN

MANHOLE RING - SECTION

SEE LOCKING BOLT DETAIL

LOCKING BOLT - DETAIL

5/8" S.S. SOCKET HEAD CAP SCREW (3 TYPICAL)
3/8" X 5/16" NEOPRENE GASKET (RECESSED) 60 DURAMETER HARDNESS

STANDARD DETAILS
PUBLIC MANHOLE FRAME AND LOCKING LID

PIERCE COUNTY PUBLIC WORKS & UTILITIES DEPARTMENT
SEWER UTILITY DIVISION
9850 64TH STREET WEST
UNIVERSITY PLACE, WASHINGTON 98467-1078
(253) 798-4050

DATE
05/01/2011

SCALE
NTS

STANDARD DETAIL NO.
1003

PAGE 1 OF 2
SECTION A-A FROM 1003 PAGE 1 OF 2

WATERTIGHT LID HAND HOLD

TOP VIEW

SECTION A-A FROM 1003 PAGE 1 OF 2

VENTED LID HAND HOLD

PUBLIC MANHOLE FRAME
AND LOCKING LID
HAND HOLD DETAIL
DRILL AND TAP - 3 PLACES (120 DEG.) FOR 5/8"-11 NC SS SOC. HEAD CAP SCREW

2 1/2" W X 3" H LETTERS AS REQUIRED

1/2" W X 3" L ASTM NON-SKID PATTERN WITH 1/2" OFFSETS BETWEEN TREADS

1/2" WEB (8 TYP.)

COUNTRY OF ORIGIN IDENTIFICATION 3/8" RAISED LETTERS 1/8" FROM EDGE OF RING

PRIVATE SEWER

COUNTRY OF ORIGIN IDENTIFIER, 1/2" RAISED LETTERS, 1/2" FROM EDGE OF COVER

4" 8 X 3" DEEP CAST IN PLACE HAND HOLD W/ 1" HANDLE (SEE SECTION A-A DETAIL 1003 PAGE 2)

MANHOLE RING - PLAN

MANHOLE COVER - PLAN

MANHOLE RING - SECTION

SEE LOCKING BOLT DETAIL

MANHOLE COVER - SECTION

5/8" S.S. SOCKET HEAD CAP SCREW (3 TYPICAL)

3/8" X 5/16" NEOPRENE GASKET (RECESSED) 60 DURAMETER HARDNESS

LOCKING BOLT - DETAIL NTS

PIERCE COUNTY PUBLIC WORKS & UTILITIES DEPARTMENT
SEWER UTILITY DIVISION
9850 64TH STREET WEST
UNIVERSITY PLACE, WASHINGTON 98467-1078
(253) 798-4050

STANDARD DETAILS

PRIVATE MANHOLE FRAME & LOCKING LID

STANDARD DETAIL NO. 1004

DATE 05/01/2011
SCALE NTS

PAGE 1 OF 1
BOLLARD DETAIL

TURNDOWN REQUIRED WHEN:
1. ACCESS IS FROM A MAJOR OR SECONDARY ARTERIAL ROAD AS DEFINED BY COUNTY ORDINANCE 2001, OR
2. ACCESS ROAD IS LONGER THAN 150 FEET, OR
3. ACCESS ROAD HAS ANY CURVES OR TURNS, AND IS GREATER THAN 50 FEET LONG, OR
4. ACCESS ROAD GRADE IS GREATER THAN 10%.

STANDARD DRIVeway APPROACH PER JURISDICTION

HOT MIX ASPHALT, CL.
CL 1/2 IN PG58-22
3" COMPACTED DEPTH (MIN.)

2 1/2" COMPACTED DEPTH
CRUSHED SURFACING BASE COURSE

15' WIDE EASEMENT
12' WIDE MAINTENANCE ROAD
6'
6'
7.5' MIN.
2.00%
EDGE OF ROAD

EXISTING GROUND

PIERCE COUNTY PUBLIC WORKS & UTILITIES DEPARTMENT
SEWER UTILITY DIVISION
9850 64TH STREET WEST
UNIVERSITY PLACE, WASHINGTON 98467-1076
(253) 798-4000

STANDARD DETAILS
PAVED ACCESS MAINTENANCE ROAD DETAIL WITH HAMMERHEAD

DATE
05/01/2011

SCALE
N7S

STANDARD DETAIL NO.
1006

PAGE 1 OF 1
SECTION A-A

TURNAROUND REQUIRED WHEN:
1. ACCESS IS FROM A MAJOR OR SECONDARY ARTERIAL ROAD AS DEFINED BY COUNTY ORDINANCE 2601, OR
2. ACCESS ROAD IS LONGER THAN 150 FEET, OR
3. ACCESS ROAD HAS ANY CURVES OR TURNS, AND IS GREATER THAN 50 FEET LONG, OR
4. ACCESS ROAD GRADE IS GREATER THAN 10%.

MAINTENANCE ROAD

EXISTING GROUND

2.1/2" COMPACTED DEPTH CRUSHED SURFACING BASE COURSE

HOT MIX ASPHALT, CL. 1/2 IN. PG58-22
3" COMPACTED DEPTH (MIN.)
FINISHED GRADE
CONCRETE FOOTING
- CONC. CLASS 2000
6" X 1/4" DIAM. STEEL BAR

1'-2 1/2" SQUARE OR ROUND

STEEL CAP PLATE

1/2" RETRO REFLECTIVE TAPE (TYP)

STEEL PIPE - ASTM A 53,
NF S 3 (3" NOM),
SCHEDULE 80, PAINTED
SAFETY YELLOW, RUST-OLEUM
INDUSTRIAL ENAMEL (7400
SYSTEM-9444002), OR
APPROVED EQUAL

5/16" DRILLED HOLE

PIERCE COUNTY PUBLIC WORKS & UTILITIES DEPARTMENT
SEWER UTILITY DIVISION
9860 84TH STREET WEST
UNIVERSITY PLACE, WASHINGTON 98467-1076
(253) 798-4060

STANDARD DETAILS
FIXED BOLLARD DETAIL

DATE
05/01/2011
SCALE
NTS

STANDARD DETAIL NO.
1009
PAGE 1 OF 1
Notes:
1. Chain link fencing shall be 9 gauge wire woven in a two (2) inch mesh coated with 15 mils of black PVC with black PVC slats.
2. Posts, rails, and gate frames shall be schedule 40 steel pipe, galvanized and PVC coated (15 mils).
3. Fencing around pump stations shall have black PVC slats.

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<th>Brace Rail &amp; Top Rail</th>
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<th>End, Corner, &amp; Pull Post</th>
<th>Gate Post</th>
<th>All Posts</th>
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<td>Roll Formed</td>
<td>Round</td>
<td>Roll Formed</td>
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<td>Size (inches)</td>
<td>Size (inches)</td>
<td>Nom I.D. Pipe (inches)</td>
<td>Size (inches)</td>
<td>Size (inches)</td>
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<tr>
<td>1 1/4</td>
<td>1 1/4 x 1 1/4</td>
<td>1 5/8 x 1 1/4</td>
<td>2</td>
<td>2 1/4</td>
<td>1 5/8 x 1 7/8</td>
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<tr>
<td>2 1/2</td>
<td>3 1/2 x 3 1/2</td>
<td>3 1/2</td>
<td>10' - 8'</td>
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NOTE:
GATE SHALL BE CONSTRUCTED TO OPEN IN, AWAY FROM THE RIGHT-OF-WAY AND ABLE TO FULLY OPEN WITHOUT INTERFERENCE FROM THE PAVEMENT OR OTHER STRUCTURES.
1. ALL NEWLY CONSTRUCTED MANHOLES SHALL HAVE PREDL LINERS WITH GU-MANHOLE PIPE CONNECTORS. LINER SYSTEM SHALL BE MANUFACTURED BY PREDL SYSTEMS NORTH AMERICA, INC.

2. ALL MANHOLE RISER JOINTS SHALL HAVE BOTH BUTYL RUBBER GASKETS AND PREFORMED (ROPE TYPE) JOINT SEALANT, PER PIERCE COUNTY SPECIFICATIONS.

3. THE INTERIOR WALLS OF ALL MANHOLES WITH PIPES 15' NOMINAL INSIDE DIAMETER OR LARGER AND/OR WITH FORCE MAIN CONNECTIONS SHALL BE COATED PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.

4. ALL MANHOLES LOCATED IN NON-PAVED AREAS SHALL HAVE WATERTIGHT LIDS AND CONCRETE COLLARS (SEE DETAILS 1002, 1003, AND 1004).

5. NO MORE THAN 5 SIDE SEwers CAN BE INSTALLED AT A TERMINAL MANHOLE. THE SIDE SEWERS MUST BE INSTALLED AT 90° OR GREATER FROM THE OUTLET MAIN.

6. EXTERIOR OF ALL CONCRETE MANHOLES SHALL BE COATED WITH BITUMINOUS COAL TAR EPOXY AT A MIN. DRY THICKNESS OF 30 MILS.

7. MANHOLES SHALL BE VACUUM TESTED PER PIERCE COUNTY SPECIFICATIONS.

8. PRECAST MANHOLE SECTIONS SHALL BE CONSTRUCTED PER ASTM C478.

9. MANHOLES WITH 72' OR GREATER DIAMETER MAY USE A REINFORCED CONCRETE TOP SLAB TO TRANSITION TO A 48' RISER. BASE SECTIONS MUST PROVIDE A MINIMUM OF 8 FEET FROM MANHOLE BENCH TO TOP SLAB.
NOTE: 1) ALL NOTES ON 2001 PAGES 1 AND 2 APPLY ON SHALLOW MANHOLE INSTALLATION.
2) THE MINIMUM COVER OVER A PVC PIPE SHALL BE 5 FEET UNDER DRIVING SURFACES AND 3 FEET IN
NON-PAVED AREAS. THE MINIMUM COVER OVER CLASS 52 DUCTILE IRON PIPE SHALL BE 3 FEET
UNDER DRIVING SURFACES AND NON-PAVED AREAS.
NOTES:

1. EXISTING SANITARY SEWER, 18" OR LESS, SHALL BE CUT TO ALLOW INSTALLATION OF NEW MANHOLE.

2. COUPLERS FOR JOINING DISSIMILAR PIPE TYPES SHALL BE MANUFACTURED BY SPECIFIED FITTINGS. ALL OTHERS SHALL BE ROMAC OR APPROVED EQUIL.

3. ALL NOTES ON DETAIL 2001 PAGES 1 AND 2 SHALL APPLY.

4. SLOPE OF MANHOLE CHANNEL SHALL MATCH EXISTING PIPE SLOPE.

5. MANHOLE SIZE WILL BE DEPENDENT UPON THE NUMBER OF PIPES INTO THE MANHOLE, PIPE SIZE, AND CONFIGURATION THROUGH THE MANHOLE.
NOTES:
1. MANHOLE SIZE WILL BE DEPENDENT UPON THE NUMBER OF PIPES INTO THE MANHOLE, PIPE SIZE, AND CONFIGURATION THROUGH THE MANHOLE.
2. ALL MANHOLE RISER JOINTS SHALL HAVE BOTH BUTYL RUBBER GASKETS AND PREFORMED (PIPE TYPE) JOINT SEALANT, PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.

TABLE 1

<table>
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<td>24&quot; OR LESS</td>
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<tr>
<td>36&quot; OR LESS</td>
<td>60&quot;</td>
</tr>
<tr>
<td>42&quot; OR LESS</td>
<td>72&quot;</td>
</tr>
<tr>
<td>72&quot; OR LESS</td>
<td>96&quot;</td>
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SEC. A-A

CUT AND REMOVE TOP HALF OF EXISTING PIPE. BOTTOM HALF TO REMAIN AS MANHOLE CHANNEL. SLOPE BENCH 1:10.

DO NOT SET OVER EXISTING JOINT.

CONCRETE SLAB MAY BE PRECAST OR CAST IN PLACE.

8" PEA GRAVEL BASE

UNDISTURBED NATIVE MATERIAL

PIERCE COUNTY PUBLIC WORKS & UTILITIES DEPARTMENT
SEWER UTILITY DIVISION
9800 84TH STREET WEST
UNIVERSITY PLACE, WASHINGTON 98497-1078
(253) 798-4050

STANDARD DETAILS

CONCRETE SADDLE MANHOLE
NOTES:
1. BACKFILL SHALL BE PLACED AROUND THE MANHOLE RISER FOR THE FULL HEIGHT OF THE MANHOLE.
2. BACKFILL SHALL EXTEND A MINIMUM OF 3.5' FEET FROM THE RISER OR TO THE TRENCH WALL, WHICHEVER DISTANCE IS GREATER.
3. PIPE STUB THICKNESS SHALL CONFORM TO SPECIFIED SIZES SHOWN ON DETAIL 2005 PAGE 3.
4. BENCH AND PIPE TO BE AT FULL PIPE DEPTH IN NON-HATCHED AREAS, HATCH LOCATIONS TO BE HALF PIPE DEPTH.
<table>
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<th>HDPE MANHOLE INLET STUB</th>
<th>HDPE MANHOLE OUTLET STUB</th>
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<td>10” DR11</td>
<td>8” DR17</td>
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<td>12” DR11</td>
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<td>24” DR11</td>
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NOTES:
1) REGARDLESS OF PIPE TYPE THE INSIDE DIAMETER OF DOWNSTREAM PIPE SHALL BE EQUAL TO OR LARGER THAN UPSTREAM PIPE.
2) PVC TO HDPE GRAVITY CONNECTIONS SHALL BE MADE USING COUPLINGS MADE BY SPECIFIED FITTINGS, INC OF BELLINGHAM, WA.
SECTION A-A

<table>
<thead>
<tr>
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<th>54&quot;</th>
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NOTES:
1. THIS TABLE IS TO BE USED WITH 16" OR SMALLER THROUGH PIPES.
2. FOR PIPES OF LARGER DIAMETER OR FOR GREATER DEPTHS THE ENGINEER SHALL BE REQUIRED TO SUBMIT CALCULATIONS AND SUBMITALS FOR APPROVAL.
24" MAX. FIN. GRADE TO FIRST LADDER STEP

22"

18"

12' TYP

SEE DETAIL "A"

FULL PENETRATION VELD TO MANHOLE WALL

6" (TYP.)

7/16" 

1"

12" MAX.

NOTES:
1. LADDERS SHALL BE FIBERGLASS REINFORCED PLASTIC (FRP), SAFRILL OR APPROVED EQUAL.

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STANDARD DETAILS

HDPE MANHOLE LADDER

DATE
05/01/2011

SCALE
NTS

STANDARD DETAIL NO
2005

PAGE 6 OF 7
HDPE MANHOLE
FORCE MAIN CONNECTION

HDPE, SEE 2005 PAGE 3
NOTE: FOR CLARITY, MANHOLE STEPS NOT SHOWN.

**GU #370 INSIDE DROP**

**CORE DRILL**

**LINK SEAL OR KDR-N-SEAL BOOT**

**MINIMUM OF ONE FULL LENGTH OF D.I.P., CL 52 OUT OF MANHOLE OR UNDISTURBED MATERIAL WHICHEVER IS GREATER.**

**D.I./PVC MECHANICAL TRANSITION COUPLING SPECIFIED FITTINGS, INC. OR APPROVED EQUAL**

---

**NOTE:**
If distance from top of inside drop to manhole bench is less than 5', no additional ladder is required and a 60" diameter manhole may be substituted.

---

**CHIP OUT EXISTING CONCRETE CHANNEL. REPAIR GU LINER, AS NECESSARY.**

---

**NOTES**

1. Minimum of two (2) brackets shall be placed a maximum of 10" apart vertical, drop shall be 8" dia. min. for main lines & 6" dia. for side sewers.
2. Manhole base to be rechanneled as required.
3. Use dead-end channel for manholes with invert liners.
4. Two inside drop structures require a 54" manhole, unless written permission is given by the county.
5. Additional ladder must be installed one foot from the drop structure (measured edge to edge) and built from the manhole shelf up to the GU370 drop.
6. All ductile iron pipe and fittings shall be coated per Pierce County Sanitary Sewer Specifications.
7. Core drill to be 1 foot above or below manhole joint.
8. Adapter by GU required for manholes 72" dia. and larger.

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STANDARD DETAILS

CONCRETE MANHOLE WITH TWO INSIDE DROP STRUCTURES FOR GRAVITY CONNECTION

---

DATE
05/01/2011

SCALE
NTS

STANDARD DETAIL NO.
2007

PAGE 1 OF 1
ENGINEER SHALL SPECIFY HDPE SLEEVE AND LINK-SEAL SIZING IF INLET PIPE IS OTHER THAN THOSE SHOWN IN TABLE.

NOTE: FOR CLARITY, MANHOLE STEPS NOT SHOWN.

NOTE: IF DISTANCE FROM INSIDE DROP TO MANHOLE BENCH IS LESS THAN 5', NO ADDITIONAL LADDER IS REQUIRED.

NOTES:
1. DROP SHALL BE 8" MIN FOR MAIN LINES AND 6" FOR SIDE SEWERS.
2. BRACKETS SHALL BE PLACED A MAXIMUM OF 10' APART VERTICAL, DROP SHALL BE 8" MIN FOR MAIN LINES & 6" FOR SIDE SEWERS.
3. USE DEAD-END CHANNEL WHEN NOT IN MAIN FLOW LINE.
4. ONLY ONE INSIDE DROP STRUCTURE PER 48' MANHOLE. UNLESS WRITTEN PERMISSION IS GIVEN BY THE COUNTY.
ENGINEER SHALL SPECIFY HDPE SLEEVE AND LINK-SEAL SIZING IF INLET PIPE IS OTHER THAN THOSE SHOWN IN TABLE.

NOTE:
FOR CLARITY, MANHOLE STEPS NOT SHOWN.

NOTE:
IF DISTANCE FROM INSIDE DROP TO MANHOLE BENCH IS LESS THAN 5', NO ADDITIONAL LADDER IS REQUIRED.

1. DROP SHALL BE 8"Ø MIN FOR MAIN LINES AND 6"Ø FOR SIDE SEwers.
2. BRACKETS SHALL BE PLACED A MAXIMUM OF 10' APART VERTICAL, DROP SHALL BE 8"Ø MIN FOR MAIN LINES & 6"Ø FOR SIDE SEwers.
3. USE DEAD-END CHANNEL WHEN NOT IN MAIN FLOW LINE.
4. ONLY ONE INSIDE DROP STRUCTURE PER 48"Ø MANHOLE. UNLESS WRITTEN PERMISSION IS GIVEN BY THE COUNTY.

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STANDARD DETAILS
HDPE MANHOLE WITH TWO INSIDE DROP STRUCTURES FOR GRAVITY CONNECTION
IF FORCE MAIN IS 6”Ø OR GREATER, FORCE MAIN MUST ENTER AT 135° MIN. TO THE OUTLET PIPE.

IF FORCE MAIN IS LESS THAN 6”Ø, FORCE MAIN MAY ENTER AT 90° OR GREATER TO THE OUTLET PIPE.

FORCE MAIN INVERT ELEVATION TO MATCH GRAVITY PIPE INVERT ELEVATION.

FORCE MAIN CONNECTED DIRECTLY INTO MANHOLE

NOTES:
1. RE-CHANNEL BENCH, AS NECESSARY IN EXISTING CONCRETE MANHOLES.
2. THE INTERIOR WALLS OF EXISTING CONCRETE MANHOLES WITH FORCE MAIN CONNECTIONS SHALL BE COATED PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
3. NEW MANHOLES WITH FORCE MAIN CONNECTIONS SHALL BE HDPE.

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STANDARD DETAILS

FORCE MAIN CONNECTION TO EXISTING CONCRETE MANHOLE

DATE
05/01/2011

SCALE
NTS

STANDARD DETAIL NO.
2010

PAGE 1 OF 1
UNDISTURBED NATIVE MATERIAL OR FOUNDATION GRAVEL

CONCRETE ENCASEMENT
SECTION A-A

NOTES:
1. CONCRETE ENCASEMENT USED FOR REDUCED VERTICAL SEPARATION FROM OTHER UTILITIES SHALL EXTEND 10' BEYOND EACH SIDE OF THE CROSSING.

PLAN VIEW
NOTES:

- NOT ALLOWED UNLESS APPROVED OTHERWISE.

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STANDARD DETAILS

TEMPORARY SEWER CLEANOUT

DATE
05/01/2011
SCALE
NIS

STANDARD DETAIL NO.
3003
PAGE 1 OF 1
SECTION A-A

STEEL STRAP SECURELY BOUND IN SLOT PROVIDED

NOTE:
SUCCESSIVE LENGTHS OF CASING PIPE SHALL BE JOINED WITH A CONTINUOUS WELD.

FILL ALL Voids WITH NON-SHRINK GROUT OR SAND.

NOTE:
USE RESTRAINED JOINTS FOR CARRIER PIPE IF BOTTOM IS AT OR BELOW THE NORMAL GROUND WATER ELEVATION AT THE PARTICULAR INSTALLATION LOCATION.

NOTE:
SEAL END OF CASING PIPE TO SANITARY SEWER PIPE PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.

SIDE VIEW

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STANDARD DETAILS

SUPPORT FOR CARRIER PIPE INSIDE CASING

DATE
06/01/2011

SCALE
N7S

STANDARD DETAIL NO.
3004

PAGE 1 OF 2
NOTE:
SKIDS ARE TO BE THOROUGHLY SEASONED WESTERN RED CEDAR
OR PRESSURE TREATED DOUGLAS/HEMLOCK FIR. PREFABRICATED STEEL
PIPE SUPPORTS MAY BE USED INSTEAD OF TIMBERS.
SEE PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
PLASTIC FILM MARKING TAPE  
2' ABOVE PIPE PER PIERCE  
COUNTY SPECIFICATIONS  

2"X4" LOCATION STAKE  
W/TOP 18" PAINTED WHITE  
AND STENCILLED 'SEWER'.  
ALSO DEPTH TO INVERT  
MARKED.

SERVICE TEE  
ONLY (VYES  
NOT ALLOWED)  

SEE NOTE 7  

1.5' MIN. 

E/P  

WATER MAIN  

OTHER UTILITY  
(INCLUDING STORM DRAIN)  

R/V OR SEWER EASEMENT  

UTILITY EASEMENT  

FINISH GRADE  

24" MIN. 

W/WATERTIGHT  
PLUG OR CAP  

INVERT ELEVATION  
AS DIRECTED BY  
THE ENGINEER. SEE  
NOTE 6.  

PEA GRAVEL  
BEDDING  

6" DIA. SIDE SEWER LAID ON UNIFORM SLOPE.  
MIN. SLOPE = 2%. SEE NOTE 1 BELOW 

SEWER MAIN,  
SIZE VARIES  
SEE NOTES 3 & 4) 

NOTES:  
1. ACCEPTABLE PIPE TYPES FOR SIDE SEWERS ARE POLYVINYL CHLORIDE ASTM 3034 SDR 35 OR DUCTILE  
IRON PIPE CL. 52.  
2. BEDDING FOR POLYVINYL CHLORIDE AND CLASS 52 DUCTILE IRON PIPE SHALL BE PEA GRAVEL ONLY.  
3. TEES SHALL BE INSTALLED ON ALL NEW CONSTRUCTION OF SEWER MAINS LESS THAN 18" IN DIAMETER.  
4. NO SIDE SEWER TAPS PERMITTED ON 18-INCH DIAMETER AND GREATER PIPELINES.  
5. THE STANDARD VERTICAL SEPARATION FOR WATER LINES IS 3 FEET ABOVE THE SEWER LINE AND  
1.5 FEET FOR ALL OTHER UTILITIES (SEPARATION SHALL BE MEASURED FROM THE OUTER WALL OF  
The pipes). CONCRETE ENCASMENT WILL BE ALLOWED FOR WATER MAINS CROSSING AT LESS THAN  
3 FEET BUT NO CLOSER THAN 1.5 FEET. FOR OTHER UTILITIES A 0.75 FOOT CLEARANCE WILL BE  
ALLOWED. IF STANDARD CLEARANCES CAN NOT BE OBTAINED, THEN EITHER THE SANITARY SEWER  
SHALL BE CONCRETE ENCASED OR CLASS 52 DUCTILE IRON PIPE SHALL BE USED.  
6. SIDE SEWER DEPTH AT PROPERTY LINE SHALL NOT EXCEED 8 FEET UNLESS APPROVED BY SEWER UTILITY.  
7. MINIMUM COVER SHALL BE 5' IN R/V. MINIMUM COVER OUTSIDE OF R/W SHALL BE 5' UNDER DRIVING  
SURFACES AND 3' UNDER NON-DRIVING SURFACES.  
8. NO HORIZONTAL BENDS IN R/W.
2'x4' LOCATION STAKE
W/TOP 18" PAINTED WHITE
AND STENCILLED "SEWER"
ALSO DEPTH TO INVERT
MARKED.

ONLY ONE VERTICAL BEND
ALLOWED IN R/W AND MUST
INCREASE DOWNSTREAM SLOPE
W/WATERTIGHT
PLUG

MIN. SLOPE = 2%
SLOPE SHALL BE UNIFORM

SIDE SEWER BEDDING CLASS, AS
REQUIRED. SEE NOTE 2 BELOW.

6' DIA. SIDE SEWER,
SEE NOTE 1 BELOW

PLASTIC FILM MARKING TAPE 2' ABOVE
PIPE PER PIERCE COUNTY SPECIFICATIONS

BELL END CUT TO LENGTH SO THAT BELL STOPS
AT FITTING

SERVICE TEE, ROMAC SADDLE, OR ELECTROFUSION
SADDLE (WYES NOT ALLOWED)

NOTES:
1. ACCEPTABLE PIPE TYPES FOR SIDE SEWERS ARE POLYVINYL CHLORIDE ASTM 3034 SDR 35 OR DUCTILE IRON
PIPE CL 52, OR HDPE DR17 MIN.
2. BEDDING FOR POLYVINYL CHLORIDE, CLASS 52 DUCTILE IRON PIPE, AND HDPE DR17 SHALL BE PEA GRAVEL
ONLY.
3. TEES SHALL BE INSTALLED ON ALL NEW CONSTRUCTION OF SEWER MAINS LESS THAN 18" IN DIAMETER.
4. NO SIDE SEWER TAPS PERMITTED ON 18-INCH DIAMETER AND GREATER PIPELINES.
5. TEES SHALL BE DUCTILE IRON WHEN SIDE SEWER IS 45 DEGREES OR GREATER, AND TEE SHALL BE ENCASED
IN CONCRETE UP TO BOTTOM OF BELL.
6. THE STANDARD VERTICAL SEPARATION FOR WATER LINES IS 3 FEET ABOVE THE SEWER LINE AND 1.5 FEET
FOR ALL OTHER UTILITIES (SEPARATION SHALL BE MEASURED FROM THE OUTER WALL OF THE PIPES). CONCRETE
ENCASMENT WILL BE ALLOWED FOR WATER MAINS CROSSING AT LESS THAN 3 FEET BUT NO CLOSER THAN
1.5 FEET. FOR OTHER UTILITIES A 0.75 FOOT CLEARANCE WILL BE ALLOWED. IF STANDARD CLEARANCES CAN
NOT BE OBTAINED, THEN EITHER THE SANITARY SEWER SHALL BE CONCRETE ENCASED OR CLASS 52 DUCTILE
IRON PIPE SHALL BE USED.
7. SIDE SEWER DEPTH SHALL NOT EXCEED 8 FEET UNLESS APPROVED BY SEWER UTILITY.
8. MINIMUM COVER SHALL BE 5' IN R/W. MINIMUM COVER OUTSIDE OF R/W SHALL BE 5' UNDER DRIVING SURFACES
AND 3' UNDER NON-DRIVING SURFACES.
9. NO HORIZONTAL BENDS IN R/W.
NOTES:
1. SIDE SEwers SHALL BE HDPE DR17 MIN. IPS.
2. BEDDING SHALL BE PE GRAVEL ONLY.
3. MINIMUM COVER SHALL BE 3 FEET IN NON-DRIVING SURFACES.
4. NO SIDE SEwer TAPS PERMITTED ON 18-INCH DIAMETER AND GREATER PIPELINES.
5. THE STANDARD VERTICAL SEPERATION FOR WATER LINES IS 3 FEET ABOVE THE SEWER LINE AND 1.5 FEET FOR ALL OTHER UTILITIES (SEPERATION SHALL BE MEASURED FROM THE OUTER WALL OF THE PIPES). CONCRETE ENCASEMENT WILL BE ALLOWED FOR WATER MAINS CROSSING AT LESS THAN 3 FEET BUT NO CLOSER THAN 1.5 FEET. FOR OTHER UTILITIES A 0.75 FOOT CLEARANCE WILL BE ALLOWED. IF STANDARD CLEARANCES CAN NOT BE OBTAINED, THEN EITHER THE SANITARY SEWER SHALL BE CONCRETE ENCASED OR CLASS 5B DUCTILE IRON PIPE SHALL BE USED.
6. SIDE SEWER DEPTH SHALL NOT EXCEED 8 FEET UNLESS APPROVED BY SEWER UTILITY.
7. MINIMUM COVER SHALL BE 5' IN R/W. MINIMUM COVER OUTSIDE OF R/W SHALL BE 5' UNDER DRIVING SURFACES AND 3' UNDER NON-DRIVING SURFACES.
8. NO HORIZONTAL BENDS IN R/W.
EXISTING PVC, CONCRETE, OR DUCTILE IRON GRAVITY MAIN LESS THAN 18’ DIAMETER.

ROMAC SEWER SADDLE (CB)

BELL END CUT TO LENGTH SO THAT BELL STOPS AT FITTING

6’ SIDE SEWER, 2% MIN SLOPE

ROMAC SADDLE

45° MAX.

EXISTING GRAVITY MAIN LESS THAN 18’ DIAMETER.

HOLE MUST BE CUT WITH HOLE SAW AND HOLE MUST PROVIDE SMOOTH TRANSITION.

NOTES:
1. FOR EXISTING PVC, CONCRETE, AND DUCTILE IRON MAINS ONLY.
2. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
3. NO SIDE SEWER TAPS PERMITTED ON 18-INCH DIAMETER AND GREATER PIPELINES.
4. WET TAPS INTO EXISTING HOPE GRAVITY MAINS SHALL USE ELECTROFUSION SADDLES.
5. BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH THE SADDLE MANUFACTURER’S INSTALLATION INSTRUCTIONS.
NEW R/W LINE
OR SLOPE/UTILITY
EASEMENT

CLEAN OUT WITH
SCREW-IN PLUG AT
SURFACE TO 1' MAX.
DEPTH (20 CASTING &
LID REQUIRED IF IN
DRIVING AREA).

EXISTING GROUND

PLASTIC FILM MARKING
TAPE 2' ABOVE PIPE
PER PIERCE COUNTY
SPECIFICATIONS.

REMOVE EXISTING
CLEAN-OUT AND TEE

ADAPTER

SEWER RISER

DOUBLE SWEEP
VERTICAL TEE, AS
REQUIRED

EXISTING LATERAL

USE PVC ADAPTER
OR ROMAC COUPLING,
AS REQUIRED

REDUCER, AS REQUIRED

6' MIN.
MATCH EXISTING
STUB DIAMETER

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STANDARD DETAILS

CLEANOUT RELOCATION
DETAIL

DATE
05/01/2011
SCALE
NTS

STANDARD DETAIL NO.
3009

PAGE 1 OF 1
Typical Side/Building Sewer Profile

Note 1:
Bottom of pipe must be above 1 ft zone of influence from building foundation.

Note:
100' max. between clean-outs.

Typical Building Sewer Plan

Bedding material shall be pea gravel.
Initial trench backfill.

Clean-out connection profile

These details plus the Pierce County Administration Code, current issue, constitute total design and construction requirements.
ALTERNATE BUILDING SEWER PLAN

NOTE:
100' MAX. BETWEEN CLEAN-OUTS
3' MIN.
SEE NOTE 1

BUILDING FOUNDATION

ALTERNATE BUILDING SEWER PROFILE

COMPACTED INITIAL FILL

PEA GRAVEL

SEE NOTE 1

INSTALLATION BEDDING CROSS-SECTION

SEWER RISER BOX
CAST IRON RING & COVER (TRAFFIC BEARING)

SCREW-IN PLUG

CONCRETE PAD

4" OR 6" SEWER RISER

SEWAGE RISER DETAIL IN OPEN AREA

AT R/W
(0.5' MIN. TO 1.0 MAX.)

OPEN OR LANDSCAPED AREA

SCREW-IN PLUG

4" ADAPTER

4" SEWER RISER

SEWAGE RISER DETAIL IN PAVEMENT OR DRIVING AREA

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STANDARD DETAILS

BUILDING SEWER LAYOUT

4001
PAGE 2 OF 2
AIRELEASE/VAUCUM RELIEF
VALVE PER PIERCE
COUNTY SPECIFICATIONS

3" RESILIENT SEAT
GATE VALVE (FLxFL)

72" MIN. I.D. MANHOLE

3" RESILIENT SEAT
GATE VALVE (FLxFL)

FLANGED COUPLING
ADAPTOR

JOINT COUPLING
PER PIERCE COUNTY
SANITARY SEWER
SPECIFICATIONS.

2", 2 1/2", OR 3" PVC
CL 200

REDUCER AS NEEDED

FLOW

3" X 3" DI-
45° WYE (FL)

3/4" PVC SCH 80

3/4" PVC SCH 80
CONDUIT

INSTALL POLYPROPYLENE
LADDER RUNGS (SEE
DETAIL 1001)

LOCATION OF MANHOLE
FRAME AND COVER

2, 2 1/2, OR 3" PVC
CL 200

REDUCER AS NEEDED

FLOW

3" 316 STAINLESS
STEEL SCH 40

8" MIN.

LOCATE TEST STATION
TESTIX, MODEL #311
(TYP. 2 PLCS.)
INDICATOR CABLE SHALL
BE #10 HMW-PE CABLE

10" DIA. X 6" DEEP SUMP

1) FLOOR TO BE SLOPED AT 2% TOWARDS SUMP.
2) COAT PIPE AND FITTINGS
(INNER AND EXTERIOR) PER
PIERCE COUNTY SANITARY
SEWER SPECIFICATIONS.
3) COAT VALVE VAULT INTERIOR WITH RAVEN 405 AND EXTERIOR
WITH COAL TAR EPoxy PER PIERCE COUNTY SANITARY SEWER
SPECIFICATIONS.
4) MANHOLES SHALL BE VACUUM TESTED PER
PER PIERCE COUNTY SANITARY SEWER
SPECIFICATIONS.

1) 3" SHORT RADIUS 90° BEND (FLxFL), POINTING UP.
2) 3" PLUG VALVE (DEZURIK, FLxFL).
3) 3" TAPPED BLIND FLANGE (FLxNPT).
4) 3" CAM-LOCK, MALE NPT, STAINLESS STEEL,
PT COUPLING, PART NO. 30F.
5) 3" CAM-LOCK DUST CAP, STAINLESS STEEL,
PT COUPLING, PART NO. 30V.

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STANDARD DETAILS

3" FORCE MAIN AIR/VACUUM
RELIEF VALVE, CLEANOUT AND
PIG LAUNCH MANHOLE
(PLAN VIEW)
SECTION VIEW "A-A"

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STANDARD DETAILS

3" FORCE MAIN AIR/VACUUM RELIEF VALVE, CLEANOUT AND PIG LAUNCH MANHOLE (SECTION VIEW)
PLAN

NOTES: 1) COAT PIPE AND FITTINGS (INTERIOR AND EXTERIOR) PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
2) COAT VALVE VAULT INTERIOR WITH RAVEN 405 AND EXTERIOR WITH COAL TAR EPONY PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
3) VAULTS SHALL BE VACUUM TESTED PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.

1) 4" x 3" SHORT RADIUS 90° REDUCING BEND (FLxFL), POINTING TOWARDS MANWAY.
2) 3" PLUG VALVE (DEZURIK, FLxFL).
3) 3" TAPPED BLIND FLANGE (FLxNPT).
4) 3" CAM-LOCK, MALE NPT, STAINLESS STEEL, PT COUPLING, PART NO. 306.
5) 3" CAM-LOCK CAP, STAINLESS STEEL, PT COUPLING, PART NO. 30V.
SECTION VIEW "A-A"

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STANDARD DETAILS

4" FORCE MAIN AIR/VACUUM
RELIEF VALVE, CLEANOUT AND
PIG LAUNCH VAULT
(SECTION VIEW)
**6" FORCE MAIN AIR/VACUUM PIG LAUNCH VAULT (PLAN VIEW)**

**STANDARD DETAILS**

**6" RESILIENT SEAT GATE VALVE (FLxFL)**

**6" X 6" 45° WYE (FL)**

**AIR RELEASE/VACUUM RELIEF VALVE PER PIERCE COUNTY SPECIFICATIONS**

**6" RESILIENT SEAT GATE VALVE (FLxFL)**

**FLANGE COUPLING ADAPTER**

**CORE DRILL HOLE, USE LINK SEAL AND EPOXY GROUT (ALL CEMENT OR APPROVED EQUAL) (TYP.)**

**3/4" PVC SCH. 80 CONDUIT**

**6" DIP CL 52**

**6" PVC CL 200**

**12" DIA. SUMP**

**LOCATE TEST STATION TESTOX, MODEL #311 (TYP. 2 PLCS.) INDICATOR CABLE SHALL BE #10 HMW-PE CABLE**

**INSTALL POLYPROPYLENE LADDER RUNGS (SEE DETAIL 1001)**

**LOCATION OF MANHOLE FRAME AND COVER**

**HANSON #4484-23 OR APPROVED EQUAL**

**PLAN**

1. **6" X 3" SHORT RADIUS 90° REDUCING BEND (FLxFL), POINTING TOWARDS MANWAY.**
2. **3" PLUG VALVE (BEZURIK, FLxFL).**
3. **3" TAPPED BLIND FLANGE (FLxNPT).**
4. **3" CAM-LOCK, MALE NPT, STAINLESS STEEL, PT COUPLING, PART NO. 30F.**
5. **3" CAM-LOCK DUST CAP, STAINLESS STEEL, PT COUPLING, PART NO. 30V.**

**NOTES:**

1. COAT PIPE AND FITTINGS (INTERIOR AND EXTERIOR) PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
2. COAT VALVE VAULT INTERIOR WITH RAVEN 405 AND EXTERIOR WITH COAL TAR EPOXY PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
3. VAULTS SHALL BE VACUUM TESTED PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
LOCATE TEST STATION
TESTOX, MODEL 4311
(TYP. 3 PLCs)
INDICATOR CABLE SHALL
BE #10 MV-PE CABLE

CORE DRILL HOLE
USE LINK SEAL
EPOXY GROUT
(ALL-CRETE OR
APPROVED EQUAL)
(TYP.)

REINFORCEMENT
(4"x4"
(6X6"
(8"x8"
(10"x10"

INSTALL
POLYPROPYLENE
LADDER RUNGS
(SEE DETAIL 1001)

1/2"W x 1/2"H x 6'-D
SUMP LOCATION
SHALL BE AT MH.
END OF CHAMBER

ALTERNATE LADDER LOCATION

STANDARD 24"
M.H. FRAME &
COVER LOCATION

FLOW

ASSEMBLY:
1.) 90° D.I. REDUCING BEND w/ BASE,
(FLX FL)
2.) 3" DEZURIK PLUG VALVE (FLXFL)
3.) 3" CAM-LOCK, MALE NPT, STAINLESS STEEL,
PT COUPLING, PART NO. 30F
4.) 3" CAM-LOCK DUST CAP, STAINLESS STEEL,
PT COUPLING, PART NO. 30V

PLN DETAIL

NOTES:
1.) FLOOR TO BE SLOPED AT 2% TOWARDS SUMP.
2.) COAT PIPE AND FITTINGS (INTERIOR AND EXTERIOR) PER PIERCE COUNTY SEWER SPECIFICATIONS.
3.) COAT VALVE VAULT INTERIOR WITH RAVEN 405 AND EXTERIOR WITH COAL TAR EPOXY PER PIERCE COUNTY
SEWER SPECIFICATIONS.
4.) SIZES MAY VARY DUE TO FORCE MAIN CRITERIA.
5.) INSTALL D.I. REDUCING BEND SO THAT CAMLOCK CONNECTION IS POINTING TOWARD MANWAY.
6.) VAULTS SHALL BE VACUUM TESTED PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.

PIERCE COUNTY PUBLIC WORKS & UTILITIES DEPARTMENT
SEWER UTILITY DIVISION
8850 64TH STREET WEST
UNIVERSITY PLACE, WASHINGTON 98467-1078
(253) 798-4050

STANDARD DETAILS

LOW PRESSURE FORCE MAIN
CLEANOUT VALVE VAULT
(PLAN VIEW)

DATE
05/01/2011

SCALE
NTS

STANDARD DETAIL NO.
5004

PAGE 1 OF 2
SECTIONAL DETAIL "A-A"

STANDARD DETAILS
LOW PRESSURE FORCE MAIN CLEANOUT VALVE VAULT (SECTION VIEW)
NOTES:
1. FLOOR TO BE SLOPED AT 2% TOWARDS SUMP.
2. COAT PIPE AND FITTINGS (INTERIOR AND EXTERIOR) PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
3. COAT VALVE VAULT INTERIOR WITH RAVEN 405 AND EXTERIOR WITH COAL TAR EPOXY PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.
4. MANHOLES SHALL BE VACUUM TESTED PER PIERCE COUNTY SANITARY SEWER SPECIFICATIONS.

(FOR 2" AND LARGER FORCE MAINS)
THRUST BLOCK DETAIL

90° BEND
11 1/4° BEND
22 1/2° BEND

45° BEND
TEE

SEE 6001 PAGE 2 FOR MIN. THRUST BLOCK AREA, TYP. ALL BENDS.
THrust Developed by fittings in pressure pipe

<table>
<thead>
<tr>
<th>Nominal pipe size (in)</th>
<th>Test pressure (psi)</th>
<th>Dead end, tee, valve Бенды</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bend 90</td>
<td>Bend 45</td>
</tr>
<tr>
<td>3</td>
<td>1,845</td>
<td>2,625</td>
</tr>
<tr>
<td>4</td>
<td>2,715</td>
<td>3,840</td>
</tr>
<tr>
<td>6</td>
<td>5,610</td>
<td>7,935</td>
</tr>
<tr>
<td>8</td>
<td>9,645</td>
<td>13,650</td>
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<td>27,585</td>
<td>39,000</td>
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<tr>
<td>16</td>
<td>35,670</td>
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<tr>
<td>18</td>
<td>44,835</td>
<td>63,260</td>
</tr>
<tr>
<td>20</td>
<td>54,960</td>
<td>77,730</td>
</tr>
<tr>
<td>24</td>
<td>78,420</td>
<td>110,895</td>
</tr>
</tbody>
</table>

SOIL TYPE | APPROX. BEARING CAPACITY (LBS/SQ FT)
--- | ---
Muck, peat, etc. | 0
Soft clay | 500
Sand, silt | 1000
Sand and gravel, sandy silt | 1500
Sand and gravel with clay | 2000
Sand and gravel cemented with clay | 4000
Sandy clay | 6000
Hard clay, hard shale | 9000

- Soil bearing capacities shown are approximate. Actual soil and bearing capacity adjacent to thrust block must be determined by a licensed engineer or other soils professional.
- To determine minimum thrust block area required, divide the thrust by the soil bearing capacity.
- For test pressures other than 100 psi, multiply the thrust by the ratio of actual pressure to 100 psi.
- Example: 4' 45° bend with test pressure of 250 psi, and soil bearing capacity of 2000 lbs/sq ft from chart, thrust = 2085 lbs x (250/100) = 5213 lbs
  Min. thrust block area = 5213 lbs / (2000 lbs/sq ft) = 2.6 sq ft

Notes:
1) Thrust blocks are required on all bends for pressure pipe with push-on or mechanical type joints.
2) All concrete blocking shall be poured against dry, undisturbed soil.
3) Thrust blocks shall be sized using the test pressure of the pipe.
4) Thrust blocks shall be poured in the presence of the inspector.
5) All vertical bends and valves shall utilize gravity thrust blocks.
6) The concrete shall be commercial class.
7) The contractor may make a submittal for engineers approval to use restrained joints in lieu of thrust blocks. Submittal shall include calculations of restrained lengths.
8) Thrust block sizing calculations shall be submitted by the engineer for approval.
NOTES

1. SERVICE LINE SHALL BE INSTALLED, SO AS TO PROVIDE A POSITIVE SLOPE UPWARD TOWARD ITS TERMINUS.

2. MINIMUM COVER SHALL BE 5' IN R/W, MINIMUM COVER OUTSIDE OF R/W SHALL BE 5' UNDER DRIVING SURFACES AND 3' UNDER NON-DRIVING SURFACES.
NOTES: 1. VALVE BOXES IN NON-DRIVING SURFACES SHALL BE CARSDIN 1220-12 W/ EXTENSION OR APPROVED EQUAL. VALVE BOXES IN DRIVING SURFACE SHALL BE HANSON 3030 OR APPROVED EQUAL.

2. MINIMUM COVER SHALL BE 5' IN R/W, MINIMUM COVER OUTSIDE R/W SHALL BE 5' UNDER DRIVING SURFACES AND 3' UNDER NON-DRIVING SURFACES.
NOTES:
1. CONTRACTOR TO INSTALL AND TEST TAPPING SLEEVE AND VALVE, WITNESSED BY PIERCE COUNTY SEWER INSPECTOR.
2. CONTRACTOR TO SUPPLY EQUIPMENT TO HANDLE TAPPING MACHINE AND DEWATERING EQUIPMENT.
3. SIZE OF FITTINGS AS PER CONTRACT DRAWINGS.
4. TAPPING ASSEMBLY SHALL BE PRESSURE TESTED PRIOR TO TAPPING MAIN.
BEFORE CONNECT

AFTER CONNECT

NOTES:
1. AS-BUILT LOCATION MUST BE STATIONED ON AS-BUILT DRAWINGS.
2. VALVE SHALL BE LOCATED IN A NON-DRIVING AREA, 5' MIN. DISTANCE FROM ANY DRIVING SURFACE.