SEWER SERVICE CONNECTION
PLAN VIEW FOR NON-PUBLIC
RIGHT-OF-WAY
N.T.S.

SADDLES MAY BE USED IN NEW CONSTRUCTION
ONLY WITH THE APPROVAL OF THE PWCSA AND
SHALL BE SUBJECTED TO TEN FEET OF
HYDROSTATIC HEAD (4.3 PSI) PRIOR TO
CUTTING MAIN.

LOOP TRACER WIRE
AROUND MAIN

SANITARY SEWER MAIN

FLOW

PREMANUFACTURED TEE

90° UNLESS OTHERWISE
SHOWN ON PLANS

# 12 SOLID COPPER TRACER
WIRE (COATED)

SEWER SERVICE CONNECTION
PER SPECIFICATIONS

TIE WRAP TRACER WIRE
EVERY 5'

PROPERTY LINE

MIN. 20' (1 FULL JOINT)
BEYOND PROPERTY LINE

C900 / DIP

C900 x IPS COUPLING
WITH IPS PLUG

LOOP ADDITIONAL 2' OF WIRE
PAST END OF LATERAL FOR
CONNECTION TO PLUMBERS
PORTION OF LATERAL

SA

REV–2018
PREMANUFACTURED TEE

SANITARY SEWER MAIN

90° UNLESS OTHERWISE SHOWN ON PLANS

CUT EXISTING SERVICE LINE AND PLUG EXISTING TEE AT MAIN

# 12 SOLID COPPER TRACER WIRE (COATED)

STANDARD #57 STONE BEDDING THROUGHOUT

C900 / DIP

PROPERTY LINE

SEWER SERVICE CONNECTION TERMINATION
N.T.S.

S-2
REV-2018
SADDLES MAY BE USED IN NEW CONSTRUCTION ONLY WITH THE APPROVAL OF THE PWCSA AND SHALL BE SUBJECTED TO TEN FEET OF HYDROSTATIC HEAD (4.3 PSI) PRIOR TO CUTTING MAIN.

LOOP TRACER WIRE AROUND MAIN

FLOOR

SANITARY SEWER MAIN

90' UNLESS OTHERWISE SHOWN ON PLANS

# 12 SOLID COPPER TRACER WIRE (COATED)

SEWER SERVICE CONNECTION PER SPECIFICATIONS

TIE WRAP TRACER WIRE EVERY 5'

PROPERTY LINE

MIN. 20' (1 FULL JOINT) BEYOND PROPERTY LINE

C900 / DIP

PROPERTY LINE CLEAN OUT

NOTE:
1. FOR ELEVATIONS AND FURTHER DETAILS, SEE DETAIL S02.07.00 & SECTION 170.05 OF THE USM.

LOOP ADDITIONAL 2' OF WIRE PAST END OF LATERAL FOR CONNECTION TO PLUMBERS PORTION OF LATERAL

C900 x IPS COUPLING WITH IPS PLUG
NOTES:
1. GRAVEL BEDDING THROUGHOUT AS PER SECTION 170.01.b
2. RISERS LOCATED DIRECTLY OVER THE SANITARY SEWER MAIN MUST BE NOTED ON THE PLANS.
3. 4" LATERALS MUST HAVE A MINIMUM GRADE OF 2.08%. 6" LATERALS MUST HAVE A MINIMUM GRADE OF 1.00%.
4. MARK ALL ENDS OF LATERAL WITH 4" x 4" WOODEN POST.

SEWER SERVICE CONNECTION
PROFILE VIEW FOR NON-PUBLIC RIGHT-OF-WAY
N.T.S.

S-4
REV-2018
NOTES:
1. GRAVEL BEDDING THROUGHOUT AS PER SECTION 170.01.b
2. RISERS LOCATED DIRECTLY OVER THE SANITARY SEWER MAIN MUST BE NOTED ON THE PLANS.
3. 4” LATERALS MUST HAVE A MINIMUM GRADE OF 2.08%. 6” LATERALS MUST HAVE A MINIMUM GRADE OF 1.00%.
4. MARK ALL ENDS OF LATERAL WITH 4” x 4” WOODEN POST.

SEWER SERVICE CONNECTION/REPLACEMENT
PROFILE VIEW FOR PUBLIC
RIGHT-OF-WAY
N.T.S.  S-5
REV-2018
NOTE:
ALL PARTS SHALL BE ASPHALTU姆 PAINT COATED ASTM A-48, CLASS 25 CAST IRON.

SECTION A-A
6" SANITARY CLEANOUT # 12 SOLID COPPER TRACER WIRE (COATED)
TIE WRAP TRACER WIRE EVERY 5'
BRASS CAP

CONCRETE PAD
NOTE:
GRAVITY LATERAL SHALL CONFORM TO SEWER SERVICE CONNECTION DETAIL EXCEPT FOR LOCATION RELATIVE TO PROPERTY LINE.
NOTE:
THIS METHOD OF CONNECTION SHALL NOT TAKE PRECEDENT OVER USING TEES. THE APPLICATION SHOWN HERE IS FOR TAPPING EXISTING MAINS.

NOTE:
INSERT-A-TEE CAN BE CONNECTED TO PVC, PERMALOC, SPIROLITE, SLIP LINER, DUCTILE IRON, THIN WALL MAIN LINES, CONCRETE (MAINLINES AND MANHOLES), CLAY, ALL THICK WALLED MAIN LINES. IT IS A THREE PIECE CONNECTION THAT IS COMPRESSION-FIT INTO THE CORED WALL OF THE MAIN LINE. IT CONSISTS OF SIDE SERVICES OF 4” THROUGH 12” AND FITS ALL MAIN LINE DIAMETERS.
NOTES:
1. MANHOLE TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-478.
2. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. A-615.
3. CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
4. TAPERED JOINT WITH O-RING GASKET TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-361 & C-443.
5. 301 MASTIC OR APPROVED EQUAL SHALL BE USED IN ADDITION TO THE JOINT SPECIFIED.
6. APPROVED FLEXIBLE JOINT REQUIRED ON ALL PIPE CONNECTIONS TO MANHOLES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER’S INSTRUCTIONS. STUB MAY BE USED AT THE APPROVAL OF THE INSPECTOR.
7. MANUFACTURER’S NAME TO BE ON THE INSIDE FACE OF ALL SECTIONS.
8. SET COVER FRAME ON PIONEER 301 MASTIC OR APPROVED SUBSTITUTE.
9. FASTEN WATER TIGHT FRAME TO 3/4” ANCHOR BOLTS (SET ACCORDING TO CONE SECTION DETAIL) WITH NUT AND 2” WASHER. CUT ANCHOR BOLTS OFF 1” ABOVE NUT.
10. KEYWAYS MAY BE SUBSTITUTED FOR LIFTING LUGS.
11. SHOP DRAWINGS ARE REQUIRED FOR MANHOLES USED WITH SEWER MAINS GREATER THAN 24” AND MUST BE APPROVED BY PWCSA.
12. MASONRY UNITS MAY NOT BE USED FOR ADJUSTMENTS.
13. MANHOLE STEPS SHALL BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.

PRECAST CONCRETE
4’ DIAMETER MANHOLE
N.T.S.
S-9
REV-2018
NOTES:

1. CONCRETE MUST BE 4000 PSI COMRESSIVE STRENGTH, MINIMUM.
2. PIPE CONNECTIONS TO MANHOLES TO BE APPROVED FLEXIBLE SLEEVES.
3. MANHOLES OVER 6' DIAMETER REQUIRE DETAILED DRAWING ON PLANS.
4. ALL REINFORCING MUST MEET CURRENT REQUIREMENTS OF ASTM SPEC. A-615.
5. MANUFACTURER'S NAME MUST BE ON INSIDE FACE OF ALL SECTIONS.
6. MANHOLE MUST MEET CURRENT REQUIREMENTS OF ASTM, SPEC. C-478.
7. PLACE 6" COMPACTED VDOT NO. 57 STONE UNDER BASE SECTIONS.
8. JOINT CONFIGURATION MAY BE CAST BELL-UP OR SPIGOT-UP.
9. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TPS-SSR OR APPROVED SUBSTITUTE.

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<tr>
<th>MANHOLE DIAMETER</th>
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<td>IN FEET</td>
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<td>A 60&quot; 72&quot;</td>
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<td>G VARIES</td>
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BITUMASTIC COATING

PRO RING OR LADTECH ADJUSTING RINGS OR OTHERS APPROVED BY SERVICE AUTHORITY

STANDARD MANHOLE FRAME & COVER

STD. PRECAST CONC. 4" CONE

STD. PRECAST CONC. 4" RISER - 4" DIA.

O-RING JOINT
ASTM C-361
ASTM C-443

LIFTING LUG or KEYWAY (TYP.)

STD. PRECAST CONC. RISER

STANDARD PRECAST CONCRETE BASE

PRECAST CONCRETE
5' AND 6' DIAMETER MANHOLE

N.T.S.

S-10
REV-2018
NOTES:

1. CONTRACTOR MUST HAVE ADEQUATE EQUIPMENT TO PUMP AROUND EXISTING LINE WHILE MANHOLE IS CUT IN.

2. PRECAST CONCRETE MANHOLE SHALL CONFORM IN ALL OTHER RESPECTS TO STANDARD PRECAST CONCRETE MANHOLES.

3. DOG HOUSE MANHOLES ARE NOT PERMITTED WITHOUT WRITTEN PERMISSION FROM THE PWCSA.

4. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.
CONSTRUCTION OF MANHOLE OVER EXISTING SEWER

N.T.S.

S-12
REV-2018

NOTES:

1. PRECAST MANHOLE SECTIONS SHALL CONFORM TO PWCSA UTILITY STANDARDS MANUAL.
2. BASE SECTION DIAMETER SHALL BE:
   - 4'-0" FOR 24" PIPE AND SMALLER
   - 5'-0" FOR 27" to 39" PIPE
   - 6'-0" FOR 42" AND LARGER PIPE
3. JOINTS MAY BE CAST BELL-UP OR SPIGOT-UP.
4. EITHER FORM RECESS IN BASE TO MATCH RISER JOINT OR SET RISER SECTION IN CAST-IN-PLACE BASE TO DEPTH OF JOINT.
5. MATCH CROWN OF EXISTING PIPE IF PROPOSED SEWER IS SMALLER THAN EXISTING SEWER, OTHERWISE MATCH INVERT OF EXISTING SEWER.
6. SET PRECAST CONE SECTION SO COVER IS DIRECTLY OPPOSITE THE DOWNSTREAM SEWER.
7. PIPE SURFACE SHALL BE CLEAN AND COATED WITH A BONDING AGENT BEFORE CASTING CONCRETE AGAINST IT.
8. DESIGN AND OR USE OF THIS METHOD IS AT THE SOLE DISCRETION OF THE PWCSA.
9. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.
REMOVE MANHOLE FRAME & COVER.
REMOVE ALL ADJUSTMENT RINGS.

REMOVE MINIMUM 24" FROM BLOCK OR BRICK MANHOLES.
REMOVE CONE SECTION FROM PRECAST MANHOLES.

FILL REMAINING AREA WITH #57 STONE.

BULK HEAD ALL CONNECTIONS TO MANHOLE WITH A PRE-MIXED, FAST SETTING VOLUME STABLE, WATERPROOF CEMENT; or AS DIRECTED BY SERVICE AUTHORITY FIELD INSPECTOR.

NOTES:
1. WHERE MANHOLE IS LOCATED IN PAVEMENT, PAVEMENT SHALL BE RESTORED IN ACCORDANCE WITH VDOT STANDARDS.
2. MANHOLES LOCATED IN EASEMENT AREAS SHALL BE RESTORED SIMILAR TO SURROUNDING CONDITIONS.
3” $\phi \times 4”$ HOLE (TYP.)

3/4” $\phi$ THREADED ANCHOR BOLT or
3/4” $\phi$ ALLTHREAD ROD WITH 2” $\phi$
WASHER LOCKED BETWEEN TWO NUTS
AT EMBEDDED END OR 3/4” $\phi$ ALLTHREAD
WITH 3” LONG BY 1/2” $\phi$ (MIN.) "T"
WELDED ON EMBEDDED END.

FILL ANNULAR SPACE WITH
NON-SHRINK or EXPANSIVE
PORTLAND CEMENT GROUT.

ANCHOR BOLT DETAIL

4” MIN

6” MIN

VARIES

SECTION A-A

PRECAST CONCRETE
MANHOLE CONE SECTION

N.T.S.

S–14
REV–2018
COVER

1-1/2"

1-1/2" LETTERS,
LABEL SHALL READ
"WATER" FOR WATER
APPLICATIONS

1" Ø VENT HOLE

TOP VIEW

FRAME

TOP VIEW

1" 25-1/2"

2-1/2"

SECTION

1" 1-1/4"

3/4"

3/8"

CLOSED PICK HOLE

BOTTOM VIEW

ENLARGED SECTION ALTERNATIVES

NOTES:
1. MACHINE ALL BEARING SURFACES TO BE TRUE AND LEVEL.
2. MANHOLE FRAME MAY BE GUSSETED.
3. USE ASTM A48 CLASS 30B GRAY IRON OR BETTER.
4. CERTIFY FRAME AND COVER FOR AASHTO H20 LOADING OR BETTER.
5. RECESS LABEL LETTERING AND LOGO.
6. ADJUSTABLE FRAME AND COVER AS PERMITTED BY SERVICE AUTHORITY.

STANDARD MANHOLE FRAME AND COVER
N.T.S.

S-15
REV-2018
COVER

1-1/2" LETTERS, LABEL SHALL READ "WATER" FOR WATER APPLICATIONS

1-7/8"

SEWER -

LOGO

TOP VIEW

SECTION

1"

25-1/2"

2-1/2"

21"

23-1/2"

BOLT HOLE

CLOSED PICK HOLE

1/2"

1-1/4"

3/4"

3/6"

TOP VIEW

SECTION

1"

3/4"

3/4"

1"

3/4"

1"

7/16" WIDE x 1/4" DEEP GROOVE FOR GASKET (TYP)

3/4"

MAXIMUM 3" DRAFT

ENLARGED SECTION ALTERNATIVES

FRAME

4 LUGS, WITH HOLES EQUALLY SPACED ON 23-1/2" BOLT CIRCLE

(4) 1" HOLEs, EQUALLY SPACED ON 32" BOLT CIRCLE

90°

SECTION

1"

25-3/4"

8"

24"

-26" +3/8", -1/4"

40"

5/8-11 TAPPED HOLE

LUG DETAIL

WATERTIGHT MANHOLE
FRAME AND COVER
N.T.S.

S-16
REV-2018

NOTES:
1. MACHINE ALL BEARING SURFACES TO BE TRUE AND LEVEL.
2. MANHOLE FRAME MAY BE GUSSETTED.
3. USE ASTM A48 CLASS 30B GRAY IRON OR BETTER.
4. CERTIFY FRAME AND COVER FOR AASHTO H2O LOADING OR BETTER.
5. RECESS LABEL LETTERING AND LOGO.
6. PROVIDE 3/8" # RUBBER O-RING GASKET FOR MANHOLE SEAT.
7. PROVIDE FOUR 5/8-11 x 1-1/2" STAINLESS STEEL HEX HEAD BOLTS.
MANHOLE FRAME AND COVER

3/4" MANUFACTURER SEAL

12" MAX. ADJUSTMENT

PRO RING OR LADTECH ADJUSTING RINGS OR OTHERS AS APPROVED BY SERVICE AUTHORITY

PRECAST MANHOLE CONE

3/4" MANUFACTURER SEAL

PRO RING, LADTECH RING OR OTHER

N.T.S.

S–17
REV–2018
1/8" DIAMETER HOLE (FOR PRESSURE RELIEF)
LOCATE HOLE NEAR TOP OF INSERT

NOTES:
1. THE MANHOLE INSERT WILL BE MADE OF NON-CORRODABLE MATERIALS AND WILL NOT BE DAMAGED BY SEWER GASES OR ROAD OIL.
2. THE INSERT SHALL HAVE TWO NYLON STRAPS FOR LIFTING THE INSERT. THE STRAPS SHALL BE ATTACHED TO THE INSERT WITH STAINLESS STEEL RIVETS.
3. THE BOWL SHALL BE ± 1/8" THICK AND SHALL BE BETWEEN 6" AND 8" DEEP.
4. THE INSERT SHALL HAVE A GASKET TO SEAL BETWEEN THE INSERT AND THE LIP OF THE MANHOLE FRAME.
NOTES:

1. CONCRETE TO BE 4000 PSI COMPRESSIVE STRENGTH, MIN.
2. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. A-615.
3. MANHOLE SECTIONS TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-478.
4. FLAT TOP SHALL BE USED ONLY WHEN SPECIFICALLY REQUIRED BY THE PLANS OR WHERE THERE IS HEIGHT OR INVERT CONFLICT AS DETERMINED BY THE CONTRACTOR AND APPROVED BY THE INSPECTOR.
5. JOINT CONFIGURATION MAY BE CAST BELL – UP OR SPIGOT–UP.
6. ANCHOR BOLTS AS SHOWN IN DETAIL S-14
NOTES:

1. CONCRETE TO BE 4000 PSI COMpressive STRENGTH, MIN.
2. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. A-615.
3. MANHOLE SECTION TO MEET CURRENT Requirements Of ASTM SPEC. C-478.
4. JOINT CONFIGURATION MAY BE CAST BELL–UP OR SPIGOT–UP.

DIMENSIONS

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<th>6'–4&quot;</th>
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<tbody>
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<td>A</td>
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<td>86&quot;</td>
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<td>C</td>
<td>6&quot;</td>
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<td>8&quot;</td>
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SECTION A–A
NOTES:
1. ALL REINFORCING TO MEET REQUIREMENTS OF CURRENT ASTM A-615.
2. MANHOLE SECTIONS TO MEET CURRENT REQUIREMENTS OF ASTM Spec C-478.
3. TAPERED JOINT WITH O-RING GASKET TO MEET CURRENT REQUIREMENTS OF ASTM C-361 SPEC.
4. JOINT CONFIGURATION MAY BE CAST BELL-UP OR SPIGOT-UP.

SECTION A-A

PRECAST CONCRETE MANHOLE CONICAL REDUCER—5’ TO 4’ N.T.S.
S-21 REV-2018
RELINER® INSIDE DROP BOWL SECURED WITH STAINLESS STEEL FASTENERS W/ OPT. FORCE LINE HOOD

EXTERNAL PIPE COUPLER

RELINER® STAINLESS STEEL STRAPS SECURED TO STRUCTURE WITH STAINLESS STEEL FASTENERS, AT 4' INTERVALS (MIN. OF 2)

TBD

RUBBER BOOT

1 FULL JOINT OF DUCTILE IRON PIPE (DIP) INTO MANHOLE.

45° PVC BEND TURNED IN THE DIRECTION OF FLOW, BUILD CHANNEL

RELINER® DROP END (OPTIONAL)

FINISHED GRADE

PVC DROP PIPE

INSIDE DROP MANHOLE DETAIL

N.T.S.

S-22
REV-2018
NOTES:

1. Fill drop connection trench with Class B concrete. Drop connection trench width to be same as approach trench.

2. Manhole shall conform in all other respects to STANDARD 4’ I.D. PRECAST CONCRETE MANHOLE and CONE SECTION details.

3. Keep annular space between manhole and pipes free of concrete, mortar and grout.

4. Manhole steps to be American Step Company ML-10-TDS-SSR or approved substitute.
NOTES

1. ANCHOR HOLES SHALL NOT EXTEND THROUGH MANHOLE WALL
2. COAT PIPE CLAMP WITH BITUMASTIC SEALANT
3. VENT PIPE IN MH IS NOT TO BE OBSTRUCTED BY MANHOLE STEPS.
4. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.

C/L OF PIPE

CORE BORED HOLE (UNLESS CAST-IN-PLACE BOOT IS USED)

KOR-N-SEAL OR CAST-IN-PLACE BOOT

WATER TIGHT FRAME & COVER

24" MIN.

12"-16"

4" SCHEDULE 40 GALV. STEEL PIPE (N.P.T.)

BACKWATER VALVE JOSAM SERIES 67100 OR EQUAL

ALUM. INSECT SCREEN

C CLAMPS AND ALL-THREAD ROD. SEE MANHOLE VENT SUPPORT DETAIL (DETAIL 45)

4" x 4" PRESSURE TREATED WOODEN BLOCK

STAINLESS STEEL NUTS

1" x 1/8" STEEL PIPE CLAMP

1/2" # STAINLESS STEEL ALL-THREAD ROD

THREADED ANCHOR

MANHOLE VENT

N.T.S.

S-24
REV-2018
FLUSHING STATION AND 
GRINDER PUMP CONNECTION TO 
LOW PRESSURE FORCE MAIN 
N.T.S. 

S–25 
REV–2018 

NOTES:

1. USE SCHEDULE 40 SOLVENT WELD BELL & SPIGOT PVC PIPE. (220 PSI RATING).
2. ALL PIPE CONNECTIONS MUST WITHSTAND FULL SYSTEM PRESSURE WITHOUT SEPARATING.
3. PROVIDE #12 SOLID COPPER TRACER WIRE ALONG ENTIRE FORCE MAIN & LATERAL CONNECTION TO GRINDER PUMP HOUSING. TRACER WIRE WILL BE LOOPED IN BOX SO THAT IT CAN BE EXTENDED A MIN. OF 18" ABOVE TOP OF BOX. WIRE TO BE STRAPPED TO MAIN AND LATERAL USING PLASTIC CABLE TIES PLACED EVERY 5 FEET.
4. ALL FITTINGS WILL BE SCHEDULE 80 PVC, (320 PSI RATING)
NOTES:

1. CONCRETE SHALL BE 4000 PSI COMPRESSION STRENGTH, MIN.
2. ALL REINFORCING SHALL MEET REQUIREMENTS OF CURRENT ASTM SPEC A-615.
3. MANHOLE SECTIONS SHALL MEET REQUIREMENTS OF CURRENT ASTM SPEC C-478.
4. TAPERED JOINT WITH O-RING GASKET SHALL MEET REQUIREMENTS ASTM SPECS C-361 & C-443.
5. CAST MANHOLE SECTION INTO BASE 2" OR DEPTH OF JOINT, WHICHEVER IS DEEPER.
6. JOINT CONFIGURATION MAY BE CAST BELL-UP OR SPIGOT-UP.
7. SIZE DOGHOUSE OPENINGS 4" MIN. AND 8" MAX. LARGER THAN PIPE O.D.
8. ALL AIR RELEASE PIPING SHALL BE BRASS.
9. FOR FORCE MAINS SMALLER THAN 6" DIAMETER, EXCEPT FOR DUCTILE IRON, CLAMP THE AIR/VACUUM RELEASE VALVE TO THE ANGLE IRON SUPPORT BRACE.
10. CAST BASE ON FIRM, UNDISTURBED SOIL.
11. STANDARD PRECAST BASE SECTION MAY BE USED FOR NEW FORCE MAIN CONSTRUCTION. BED STANDARD BASE ON MIN. 6" VDOT NO. 21A CORE HOLES FOR PIPE MIN. 4" LARGER THAN PIPE O.D. CONFORM TO THIS DETAIL IN ALL OTHER RESPECTS.
12. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.

CHART A

<table>
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<th>TO 16&quot;</th>
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<tr>
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SEWAGE FORCE MAIN AIR or VACUUM RELEASE ASSEMBLY

N.T.S.

S-26
REV-2018
MANHOLE FRAMES & COVERS AT GRADE.

CLEANOUT

FROM KITCHEN

1'-3"

3"

LIQUID LEVEL

1'-0"

UNDISTURBED EARTH

NOTES:
1. DESIGN BASED ON COMMERCIALLY AVAILABLE PRE-CAST SEPTIC TANK.
2. MINIMUM STORAGE 500 GALLONS.
ONLY ALLOWED WITH SPECIFIC PWCSA PERMISSION

CAREFULLY TAMPERED BACKFILL (95% MAX DENSITY)

12"
1/4 B
1/4 D (4" MIN.)

STANDARD CONCRETE CRADLE

CAREFULLY TAMPERED BACKFILL (95% MAX DENSITY)

12"
1/4 D (4" Min.)
1/4 D (4" MIN.)

STANDARD CONCRETE ENCASEMENT
(FOR USE WHEN APPROVED BY DIRECTOR)

NOTES:
1. CONCRETE TO BE CLASS "B" UNLESS OTHERWISE SPECIFIED.
2. TRENCH WIDTH SHALL BE AS SPECIFIED OR AS SHOWN ON PLANS.

CONCRETE CRADLE
AND ENCASEMENT
N.T.S.

S–28
REV–2018
SEE DETAIL S40 FOR SIGN DETAILS
INSTALL SIGN OVER CENTERLINE OF WATER/SEWER MAIN AT ENDS OF CASING PIPE

EXISTING ROADWAY

SEE PLANS FOR CASING LENGTH

NOTES:
1. SPACE CASING SPACERS ACCORDING TO PIPE OR SPACER MANUFACTURER’S RECOMMENDATION OR 2 PER SECTION OF PIPE, WHICHVER REQUIRES MORE SPACERS, PLUS ONE (1) WITHIN TWO (2) FEET OF EACH END OF CASING.
2. PUSH OR PULL THE CARRIER PIPE THROUGH THE CASING SO THAT THE JOINTS ARE ALWAYS COMPRESSED.
3. ALL JOINTS WITHIN THE CASING WILL BE RESTRAINED USING MEGA–LUG SERIES 1100 RESTRAINING GLANDS OR APPROVED SUBSTITUTE.
4. STEEL ENCASEMENT PIPE SHALL CONFORM TO ASTM A139 WITH A MINIMUM THICKNESS OF 0.5 INCH OR ASTM A53 STANDARD WEIGHT CLASS. PIPE FOR JACKING SHOULD BE OF SUFFICIENT STRENGTH, DIAMETER AND WALL THICKNESS TO ACCOMPLISH THE SPECIFIC TASK.

<table>
<thead>
<tr>
<th>CARRIERS</th>
<th>MINIMUM CASING PIPE O.D.</th>
<th>MINIMUM CASING THICKNESS</th>
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<td>0.5”</td>
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<tr>
<td>48</td>
<td>60</td>
<td>0.5”</td>
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APPROVED STAINLESS STEEL CASING SPACER WITH POLYMER RUNNERS OR APPROVED SUBSTITUTE. (SPACERS TO BE CENTER RESTRAINED UNLESS OTHERWISE NOTED.)

PIPE IN CASING END VIEW
NOTES:
1. SPACING TO BE DETERMINED BY THE DESIGN ENGINEER/INSPECTOR.
2. CLAY DAM (MIN. IMPERVIOUSNESS = 10^{-3} CM/SEC)
3. ALTERNATE MATERIALS INCLUDES SOIL MIXED WITH CEMENT AND CONCRETE. (MATERIALS TO BE APPROVED BY DESIGN ENGINEER PRIOR TO PLACING.)
NOTES:

1. CONCRETE SHALL BE 4000 PSI COMPRESSIVE STRENGTH, MIN.

2. ALL REINFORCING SHALL MEET REQUIREMENTS OF CURRENT ASTM SPEC A-615.

3. MANHOLE SECTIONS SHALL MEET REQUIREMENTS OF CURRENT ASTM SPEC C-478.

4. TAPERED JOINT WITH O-RING GASKET SHALL MEET REQUIREMENTS OF ASTM SPEC C-368 & C-443.

5. CAST MANHOLE SECTION INTO BASE 2" OR DEPTH OF JOINT WHICHEVER IS DEEPER.

6. SIZE DOCHouse OPENINGS 4" MIN.

7. CAST BASE ON FIRM, UNDISTURBED SOIL.

8. STANDARD PRECAST BASE SECTION MAY BE USED FOR NEW FORCE MAIN CONSTRUCTION. BED STANDARD BASE ON MIN. 6" VDOT NO. 21A. CORE HOLES FOR PIPE MIN. 4" LARGER THAN PIPE O.D. CONFORM TO THIS DETAIL IN ALL OTHER RESPECTS.

9. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.

LOW PRESSURE FORCE MAIN VALVE CLUSTER DETAIL

N.T.S.

S-32
REV-2018
SEWER ONLY METER FOR PROCESS WATER

METER TO BE IN ACCORDANCE WITH PWCSA STANDARDS

TRAFFIC RATED MANHOLE COVER
NOT TO HAVE PWCSA LOGO

38" MIN.

FINISH GRADE
NEW C/O AT PROPERTY LINE
FINISHED GRADE

45° BEND
MAIN

INVERT OF
MAIN AT
CONNECTION

INVERT OF
LATERAL AT
MAIN

BEDDING

STATE R.O.W. LINE
PROPERTY LINE

TRANSITION GASKET TO XHC1 WITH PLUG IN C-900 COUPLING.

EXISTING LATERAL

INSULATED #12 TRACER WIRE — LOOPED AROUND MAIN CONTINUOUS TO C/O. MAKE SPLICES WITH BUTT CONNECTORS AND SHRINK SLEEVES.

NOTES:
1. STAINLESS STEEL SHEAR PROOF COUPLING / TRANSITION GASKET TO BE MINIMUM 5' FROM LAST PIPE JOINT.
2. REFER TO APPROVED PRODUCTS LIST FOR ADDITIONAL REQUIREMENTS.

SANITARY SEWER LATERAL REPLACEMENT
N.T.S.
S–34
REV–2018
BEDDING AND BACKFILL FOR C-900, C-905 AND POLY-WRAPPED DIP

BACKFILL AND 4" MIN SIDEWALL SHALL BE CRUSHED AGGREGATE (LESS THAN 1") OR #57 STONE A MIN. OF 24" ABOVE CROWN OF PIPE.

+ 12 SOLID COPPER TRACER WIRE IF REQUIRED BY SERVICE AUTHORITY INSPECTOR.

BEDDING SHALL BE A MIN. OF 4" CRUSHED AGGREGATE OR #57 STONE.
NOTE:

1. CONTRACTOR SHALL FIELD MEASURE TO CONFIRM AREA TO BE FENCED AND LOCATIONS OF GATES AND SUBMIT SHOP DRAWINGS PRIOR TO INSTALLATION
NOTES:
1. HATCH TO OPEN AWAY FROM GRAB BAR OR SAFETY POST.
2. CENTER GRAB BAR OR SAFETY POST ON CENTER OF LADDER. SAFETY POST MAY BE OFFSET WHEN USED WITH MILLER VI-GO™ SYSTEM.
WARNING WATER PIPE CROSSING
SERVICE AUTHORITY
PRINCE WILLIAM COUNTY

WARNING SEWER PIPE CROSSING
SERVICE AUTHORITY
PRINCE WILLIAM COUNTY

SEE NOTES ON DETAIL
S26.07.01 FOR LOCATION OF SIGN INSTALLATION

HEAVY DUTY U-CHANNEL
GREEN METAL POST WITH
PRE-DRILLED HOLES

FINISH GRADE

INSTALL POST DEPTH PER MANUFACTURERS RECOMMENDATION

0.5' STEEL CABLE WELDED TO GREEN METAL POST AND CASING PIPE

WARNING WATER/SEWER PIPE CROSSING
N.T.S.
S40
REV-2019