

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-01 Sewer Notes-1.dwg Model Mar 24, 2011 10:20am by: chris.malone

- A. GRAVITY SEWER PIPE MATERIALS ARE SPECIFIED AS FOLLOWS:
 - 1. DUCTILE IRON: PIPE SHALL CONFORM TO ANSI/ASTM A 746-77, PUSH-ON JOINTS, CLASS 51. JOINTS SHALL CONFORM TO ANSI A21.11-1972.
 - 2. PVC: SDR-35, ASTM STANDARDS D-3034 AND D-1784 (PVC COMPOUND). PIPE SHALL BE "GREEN" IN COLOR. SEWER MAINS AT A DEPTH GREATER THAN 12' SHALL BE SDR-26.
- B. FORCE MAIN SEWER PIPE MATERIALS ARE SPECIFIED AS FOLLOWS OR AS REQUIRED BY CITY OF WILDWOOD.
 - 1. DUCTILE IRON (DI) PIPE: ANSI A21.51, FOR MECHANICAL AND PUSH-ON TYPE JOINTS, MINIMUM THICKNESS CLASS 51, WITH HEAVIER CLASS IF REQUIRED FOR DESIGN CONDITIONS. ANSI A21.10-87, FOR FLANGED PIPE.
 - 2. FITTINGS: ANSI/AWWA 153 A21.10-87, 150 PSI MINIMUM PRESSURE RATING.
 - 3. JOINTS: ANSI A21.11-1972 FOR MECHANICAL AND PUSH-ON TYPE JOINTS. FLANGES SHALL CONFORM TO THE RESPECTIVE CHEMICAL AND PHYSICAL PROPERTIES FOR DUCTILE-IRON FITTINGS IN ANSI/AWWA C110-77. FLANGES FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON.
 - 4. COATINGS & LININGS: DUCTILE IRON PIPE AND FITTINGS SHALL BE COATED INSIDE WITH "PROTECTED 401" OR APPROVED EQUAL AND ON THE OUTSIDE WITH A BITUMINOUS COATING TO A DRY FILM THICKNESS OF AT LEAST 1.0 MILS IN ACCORDANCE WITH ANSI A21.51.
 - 5. POLYVINYL CHLORIDE (PVC) PRESSURE PIPE 4"-12": DR 18, C-900, CLASS 150, ASTM STANDARD D-1784 (PVC COMPOUND), D-2241 (PVC PIPE), D-3139 (JOINT). ALL FITTINGS CONNECTED TO PVC PIPE SHALL BE CAST-IRON MECHANICAL JOINTS. PIPE SHALL BE "GREEN" IN COLOR.
 - 6. POLYVINYL CHLORIDE (PVC) PRESSURE PIPE 1 1/4"-3": SCHEDULE 40. ALL FITTING SHALL BE SOLVENT WELDED. PAINTED TOP SIDE OF PIPE GREEN PRIOR TO INSTALLATION.
 - 7. HIGH DENSITY POLYETHYLENE PIPE SHALL MEET ASTM F-174 AND ASTM D3550 CRITERIA. ALL JOINTS SHALL BE FIELD-WELDED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
 - 8. PLUG VALVES SHALL BE NON-LUBRICATED ECCENTRIC TYPE WITH SEMI-STEEL BODIES, RESILIENT FACED PLUGS, AND WELDED NICKEL OR EPOXY COATED SEATS. PORT AREAS SHALL BE AT AT LEAST 70 PERCENT OF FULL PIPE AREA. ALL VALVES 4 INCH AND LARGER SHALL BE OF THE BOLTED DESIGN. ALL EXPOSED NUTS, BOLTS, SPRINGS, AND WASHERS SHALL BE HOT DIPPED GALVANIZED, EXCEPT EXPOSED HARDWARE FOR SUBMERGED VALVE SHALL BE OF STAINLESS STEEL. VALVE BODIES SHALL BE SEMI-STEEL WITH 125 POUND ANSI STANDARD FLANGED ENDS. ALL PLUG VALVES SHALL BE INSTALLED SO THAT THE DIRECTION OF THE FLOW THROUGH THE VALVE IS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL VALVES AND ACTUATORS SHALL BE AS MANUFACTURED BY DEZURICK, OR APPROVED EQUAL.
- C. ALL SANITARY SEWER CONSTRUCTION SHALL BE PERFORMED IN COMPLIANCE WITH CITY OF WILDWOOD REQUIREMENTS. IN ABSENCE OF A PARTICULAR REQUIREMENT, ALL CONSTRUCTION SHALL ADHERE TO FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
- D. ALL BACKFILLING OPERATIONS SHALL BE IN ACCORDANCE WITH SECTION 125.8 OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.



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 100 NORTH MAIN STREET
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NONE

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03-24-11

CITY OF WILDWOOD SEWER DETAIL

**SANITARY SEWER
 GENERAL NOTES**

DETAIL NUMBER
S-01
 1 OF 5

E. GRAVITY PIPE SYSTEM

1. THE CONTRACTOR SHALL LAY EACH PIPE TRUE TO LINE AND GRADE, FORMING A CLOSE CONCENTRIC JOINT WITH THE ADJOINING PIPE. ALL ADJUSTMENTS TO LINE AND GRADE MUST BE MADE BY SCRAPING AWAY OR FILLING IN UNDER THE BARREL OF THE PIPE AND NOT BY WEDGING OR BLOCKING UP ANY PORTION OF THE PIPE. IN NO CASE SHALL THE PIPE BE WALKED ON EITHER BEFORE OR AFTER THE JOINTS HAVE BEEN MADE. PIPE SHALL NOT BE DRIVEN TO GRADE BY STRIKING IT WITH AN UNYIELDING OBJECT. ANY PIPE THAT IS NOT IN TRUE ALIGNMENT OR WHICH SHOWS ANY SETTLEMENT AFTER LAYING, WILL BE TAKEN UP AND RE-LAID BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION. KEEP THE INTERIOR OF THE PIPE FREE OF DIRT AND DEBRIS. SECURELY CLOSE ALL OPEN ENDS OF PIPES AND FITTINGS WHEN WORK IS NOT IN PROGRESS, AND DURING NON-WORKING HOURS.

2. TIGHTNESS TEST (LOW PRESSURE AIR TEST):

IT IS CRITICAL THAT THE SEWER SYSTEM BE CONSTRUCTED IN A WATER TIGHT FASHION IN ORDER TO ELIMINATE INFILTRATION AND EXFILTRATION. ALL SEWER MAINS, LATERALS, AND MANHOLES SHALL BE VISUALLY INSPECTED. ANY OBSERVED INDICATIONS OF INFILTRATION SHALL REQUIRE THE CONTRACTOR TO DETERMINE THE SOURCE AND MAKE THE NECESSARY CORRECTIONS. IN ADDITION, THE SEWER MAINS AND LATERALS SHALL BE SUBJECT TO A LOW PRESSURE AIR TEST TO BE PERFORMED IN THE FOLLOWING MANNER:

A. THE CONTRACTOR SHALL HAVE COMPLETED TO INSTALLATION OF THE SEWER MAIN SECTION INCLUDING THE ASSOCIATED MANHOLES AND LATERALS. THE LATERALS SHALL HAVE BEEN INSTALLED TO RIGHT-OF-WAY AND A TEMPORARY AIR TIGHT PLUG INSTALLED. IN ORDER TO BETTER LOCATE LEAKS, BACKFILL OPERATIONS NEED TO BE COMPLETE ONLY TO ONE FOOT ABOVE THE TOP OF PIPE. AT THE CONTRACTOR'S OPTION AND RISK ADDITIONAL BACKFILL MAY BE ADDED PRIOR TO THE TEST.

B. THE CONTRACTOR SHALL CLEAN AND REMOVE ALL DEBRIS, SILT, EARTH OR OTHER MATERIAL FROM THE SEWER PRIOR TO TESTING. THE SEWER SHALL BE FLUSHED WITH WATER BY THE CONTRACTOR. NONE OF THIS WATER OR DEBRIS SHALL BE ALLOWED TO ENTER THE EXISTING SEWER.

C. EQUIPMENT SPECIFICALLY DESIGNED FOR LOW PRESSURE AIR TESTING OF SEWER PIPE SHALL BE USED AND THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH SUCH INFORMATION SO AS THE ENGINEER MAY BE REASONABLE ASSUMED THE EQUIPMENT IS PROPERTY FUNCTIONING AND CALIBRATED.

D. TEST PLUGS SHALL BE INSTALLED IN THE PIPE AT THE UPSTREAM AND DOWNSTREAM MANHOLES.

E. IN ORDER TO COMPENSATE FOR GROUNDWATER TABLE, ALL GAUGE PRESSURES LISTED HEREIN SHALL BE INCREASED BY ADDING 0.5 PSI FOR EACH FOOT OF GROUNDWATER DEPTH ABOVE THE INVERT OF THE PIPE.

F. AIR SHALL BE ADDED SLOWLY TO THE TEST PORTION OF THE PIPE UNTIL THE INTERNAL AIR PRESSURE IS RAISED TO 4.0 PSIG. A STABILIZATION TIME OF 5 MINUTES WILL BE USED TO ALLOW ENTERING AIR TO EQUALIZE WITH THE TEMPERATURE OF THE PIPE WALL.

G. AT THE END OF THE STABILIZATION TIME, THE INTERNAL AIR PRESSURE SHALL BE OBSERVED, AND THE TIME REQUIRED FOR THE PRESSURE DROP FROM 3.5 TO 3.0 PSIG RECORDED. THE MINIMUM TIME ALLOWED FOR THIS 0.5 PSI PRESSURE DROP FOR 8 INCH MAIN WITH LATERALS SHALL BE 5 MINUTES FOR MANHOLES SPACED LESS THAN 300 FEET APART AND 6 MINUTES FOR MANHOLES SPACED BETWEEN 300 AND 400 FEET APART. FOR PIPE SIZES DIFFERING FROM THIS ESTABLISHED STANDARDS SHALL BE USED.

H. SHOULD TESTING ON ANY SECTIONS OF PIPE LINE DISCLOSE AN AIR LOSS GREATER THAN THAT PERMITTED, THE CONTRACTOR SHALL REPAIR THE DEFECTIVE AREA AT HIS OWN EXPENSE. FOLLOWING CORRECTIONS, THE SEWER SHALL BE TESTED AGAIN.

3. TIGHTNESS TEST (INFILTRATION):

ALL SEWER MAINS SHALL BE SUBJECT TO INFILTRATION TEST. THE TEST CONSISTS OF OBSERVING AND MEASURING THE GROUNDWATER INFILTRATION INTO THE NEW SEWER MAIN. THE MAXIMUM ALLOWABLE INFILTRATION RATE FOR ANY SECTION OF SEWER MAIN SHALL BE 4 GALLONS PER 1,000 LINEAL FEET OF SEWER MAIN PER HOUR. (THIS ALLOWANCE TAKES INTO ACCOUNT SERVICE LATERALS AND IS BASED UPON THE STANDARD 50 GALLONS PER INCH OF DIAMETER PER MILE PER DAY). THE CONTRACTOR SHALL CONDUCT THE INFILTRATION TEST IN THE PRESENCE OF THE ENGINEER PRIOR TO THE ACCEPTANCE OF THE SEWER MAIN.

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SCALE
NONE
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CITY OF WILDWOOD SEWER DETAIL
SANITARY SEWER
GENERAL NOTES

DETAIL NUMBER
S-02
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4. DEFLECTION TEST (MANDREL TEST):

AFTER THE COMPLETION OF ALL BACKFILLING OPERATIONS ON A SECTION OF SEWER MAIN, A DEFLECTION TEST SHALL BE CONDUCTED TO DETERMINE THE DEFLECTION OF THE PIPE. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE 5%. THE TEST SHALL CONSIST OF PASSING A 5% DEFLECTION MANDREL THROUGH THE ENTIRE LENGTH OF THE PIPE WITHOUT THE MANDREL BECOMING STUCK NOR REQUIRING THE USE OF EXCESS FORCE. FOR 8 INCH PIPE THE MANDREL SHALL HAVE A MINIMUM DIAMETER OF 7.2 INCHES. THE MANDREL MAY BE FLOATED THROUGH THE PIPE USING CLEAN WATER BUT MUST BE ATTACHED TO A STRING OF SUFFICIENT STRENGTH TO ALLOW IT TO BE RETRIEVED IF IT BECOMES STUCK. THIS TEST MAY BE PERFORMED IN CONJUNCTION WITH PIPE FLUSHING.

5. ALIGNMENT TEST (LAMP TEST):

AFTER THE COMPLETION OF ALL BACKFILLING OPERATIONS ON A SECTION OF SEWER MAIN AN ALIGNMENT TEST SHALL BE CONDUCTED. AFTER THE PIPE IS FLUSHED, A HIGH BEAM 12 VOLT LAMP WITH LAMP DIAMETER OF THE APPROXIMATE SIZE OF THE PIPE SHALL BE USED AT THE OPPOSITE END OF THE PIPE TO OBSERVE THE LIGHT. THE FULL DIAMETER OF THE PIPE/LIGHT SHALL BE VISIBLE WHEN VIEWED BETWEEN THE CONSECUTIVE MANHOLES. IF LESS THAN 1/2 OF THE PIPE/LIGHT DIAMETER CAN BE OBSERVED, THE ALIGNMENT IS UNACCEPTABLE.

F. FORCE MAIN SYSTEM

1. PIPE LAYING: INSTALL THE PIPING SYSTEMS COMPLETE, TESTED AND READY FOR OPERATION. CLEAN EACH PIPE AND FITTING AND INSPECT FOR DEFECTS. DEFECTIVE PORTIONS OF PIPE WILL BE CUT OFF AT LEAST 12 INCHES BEYOND VISIBLE CRACKS OR DEFECTS. LAY PIPE REASONABLY STRAIGHT AND LEVEL, WITH CHANGES IN GRADE AND/OR ALIGNMENT MADE WITHIN PIPE MANUFACTURER'TOLERANCES. ANY PIPE THAT IS NOT IN TRUE ALIGNMENT, OR WHICH SHOWS ANY SETTLEMENT AFTER LAYING WILL BE TAKEN UP AND RE-LAID BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION. SECURELY CLOSE ALL OPEN ENDS OF PIPES AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. USE CARE TO PREVENT FLOTATION. LAY PIPE DIRECTLY ON THE TRENCH BOTTOM. SHAPE THE BOTTOM OF THE TRENCH TO PROVIDE FIRM SUPPORT FOR THE PIPE ALONG ITS ENTIRE LENGTH. EXCAVATE SUITABLE HOLES FOR JOINTS TO ALLOW THE MAKING AND ASSEMBLING OF THE JOINTS. PIPING SHALL BE MARKED IN ACCORDANCE WITH LOCAL CODES AND REGULATIONS.
2. PIPE DEPTH AND PROTECTION: THE STANDARD MINIMUM COVER FOR FORCE MAIN SYSTEMS SHALL BE 3 FEET FROM THE TOP OF THE PIPE TO FINISHED GRADE. HOWEVER, SHOULD THIS DESIGN NOT BE FEASIBLE, DUCTILE IRON PIPE, CLASS 52, SHALL BE SUBSTITUTED. WHERE WATERWAYS, CANALS, DITCHES OR OTHER CUTS ARE CROSSED, DUCTILE IRON PIPE OR OTHER APPROVED METHODS SHALL BE CONSTRUCTED.
3. AIR VENTING AND BLOW-OFFS: WHERE THE FORCE MAIN PROFILE IS SUCH THAT AIR POCKETS OR ENTRAPMENT COULD OCCUR, RESULTING IN FLOW BLOCKAGE, METHODS FOR AIR RELEASE SHALL BE PROVIDED. AT CRITICAL POINTS ON MAJOR MAINS, AUTOMATIC AIR RELEASE ASSEMBLIES SHALL BE INSTALLED WITH VALVES. SPECIAL CARE SHALL BE TAKEN TO PRECLUDE ANY CROSS-CONNECTION POSSIBILITY IN THE DESIGN OF AUTOMATIC AIR RELEASE VALVE APPLICATION.
4. JOINT RESTRAINING: PRESSURE PIPE FITTINGS AND OTHER ITEMS REQUIRING RESTRAINT, SHALL BE BRACED WITH "MEGALUGS" OR OTHER RESTRAINING ASSEMBLIES, AS SHOWN ON DETAIL SHEET. SAID RESTRAINING DEVICES SHALL BE DESIGNED FOR THE MAXIMUM PRESSURE CONDITION (TESTING) AND THE SAFE BEARING LOADS OR HORIZONTAL THRUST.
5. VALVES: CAREFULLY INSPECT, OPEN WIDE, THEN TIGHTLY CLOSE EACH VALVE. TEST THE VARIOUS NUTS AND BOLTS FOR TIGHTNESS. TAKE SPECIAL CARE TO PREVENT JOINT MATERIALS, STONES, OR OTHER SUBSTANCES FROM BECOMING LODGED IN THE VALVE SEAT. SET VALVES, UNLESS OTHERWISE SHOWN, WITH THEIR STEMS VERTICALLY ABOVE THE CENTERLINE OF THE PIPE. ADJUST ALL VALVES FOR PROPER OPERATION. DEFECTIVE VALVES WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
6. VALVE BOXES: CAREFULLY CENTER VALVE BOXES OVER THE OPERATING NUTS OF THE VALVES SO AS TO PERMIT A VALVE KEY TO BE EASILY FITTED TO THE OPERATING UNIT. SET THE TOPS OF THE BOXES FLUSH WITH FINISHED GRADE, MAKING ALLOWANCE FOR SETTLEMENT OF THE SURROUNDING BACKFILL OR SURFACE. INSTALL VALVE BOXES SO THEY DO NOT TRANSMIT SURFACE LOADS DIRECTLY TO EITHER THE PIPING OR VALVE. TAKE CARE TO PREVENT EARTH AND OTHER MATERIAL FROM ENTERING THE VALVE BOXES. DIG OUT AND ADJUST TO FINISHED GRADE ANY VALVE BOX THAT IS OUT OF ALIGNMENT OR IS NOT FLUSH WITH THE FINISHED SURFACE, AND WHEN REQUIRED, PROVIDE A CONCRETE SUPPORT RING. PROVIDE COVERS MARKED "SEWER".

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NONE
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CITY OF WILDWOOD SEWER DETAIL
SANITARY SEWER
GENERAL NOTES

DETAIL NUMBER
S-03
 3 OF 5

G. TESTING:

1. THE CONTRACTOR SHALL PERFORM HYDROSTATIC TESTING OF ALL WATER DISTRIBUTION SYSTEMS, AS SET FORTH IN THE FOLLOWING, AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRESENTATIVES FROM THE PUBLIC WORKS DEPARTMENT AND/OR OTHER AUTHORIZED AGENCIES, WITH 5 DAYS ADVANCE NOTICE PROVIDED. ALL JOINTS WILL REMAIN UNCOVERED UNTIL THE TESTING IS COMPLETE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. THE ENGINEER AND A REPRESENTATIVE FROM THE PUBLIC WORKS DEPARTMENT SHALL BE PRESENT DURING TESTING.
2. PIPING AND APPURTENANCES TO BE TESTED SHALL BE WITHIN SECTIONS BETWEEN VALVES, UNLESS ALTERNATE METHODS HAVE RECEIVED PRIOR APPROVAL FROM THE PUBLIC WORKS DEPARTMENT. TESTING SHALL NOT PROCEED UNTIL CONCRETE THRUST BLOCKS ARE IN PLACE AND CURED, OR OTHER RESTRAINING DEVICES INSTALLED. ALL PIPING SHALL BE THOROUGHLY CLEANED AND FLUSHED PRIOR TO TESTING TO CLEAR THE LINES OF ALL FOREIGN MATTER. WHILE THE PIPING IS BEING FILLED WITH WATER, CARE SHALL BE EXERCISED TO PERMIT THE ESCAPE OF AIR FROM EXTREMITIES OF THE TEST SECTION, WITH ADDITIONAL RELEASE COCKS PROVIDED IF REQUIRED.
3. HYDROSTATIC TESTING SHALL BE PERFORMED AT 150 PSI OR AS REQUIRED BY GOVERNING AGENCY (CITY, COUNTY, ETC.). MAINTAIN THE TEST PRESSURE FOR AT LEAST 2 HOURS AND UNTIL ALL EXPOSED PORTIONS OF THE PIPE HAVE BEEN INSPECTED FOR WATER-TIGHTNESS. TESTING SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS AS SET FORTH IN SECTION 13 OF AWWA STANDARD C600. THE ALLOWABLE RATE OF LEAKAGE SHALL BE LESS THAN THE NUMBER OF GALLONS PER HOUR DETERMINED BY THE FOLLOWING FORMULA:

$$L = \frac{SD \times (P)^{1/2}}{133,200}$$

- L = ALLOWABLE LEAKAGE IN GALLONS PER HOUR
- S = LENGTH OF PIPE TESTED, IN FEET
- D = NOMINAL DIAMETER OF THE PIPE IN INCHES
- P = AVERAGE TEST PRESSURE MAINTAINED DURING THE LEAKAGE TEST IN POUNDS PER SQUARE INCH GAUGE

4. THE TESTING PROCEDURE SHALL INCLUDE THE CONTINUED APPLICATION OF THE SPECIFIED PRESSURE TO THE TEST SYSTEM, FOR THE 2 HOUR PERIOD, BY WAY OF A PUMP TAKING SUPPLY FROM A CONTAINER SUITABLE FOR MEASURING WATER LOSS. THE AMOUNT OF LOSS SHALL BE DETERMINED BY MEASURING THE VOLUME DISPLACED FROM SAID CONTAINER.
5. SHOULD THE TEST FAIL, NECESSARY REPAIRS SHALL BE ACCOMPLISHED BY THE CONTRACTOR AND THE TEST REPEATED UNTIL WITHIN THE ESTABLISHED LIMITS. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR, WATER, PUMPS, GAUGES AND ALL OTHER ITEMS REQUIRED TO CONDUCT THE REQUIRED WATER DISTRIBUTION SYSTEM TESTING AND PERFORM NECESSARY REPAIRS. THE CONTRACTOR SHALL BE BILLED FOR ANY AND ALL RE-TESTS.

H. WATER/SANITARY SEWER & STORM SEWER CLEARANCE REQUIREMENTS:

1. VERTICAL CLEARANCE AT CROSSINGS:

GRAVITY SEWERS OR FORCE MAINS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS AND WATER JOINTS WILL BE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN 10 FEET BETWEEN ANY TWO JOINTS. WHERE THE MINIMUM 12 INCH SEPARATION CAN NOT BE MAINTAINED, THE SEWER SHALL BE PLACED IN A SLEEVE OR ENCASED IN CONCRETE FOR 20 FEET CENTERED ON THE POINT OF CROSSING. WHERE THERE IS NO ALTERNATIVE TO SEWER PIPES CROSSING OVER WATER MAINS, THE PIPES SHALL BE CENTERED AT THE CROSSING AS INDICATED ABOVE, AND THE WATER MAIN SHALL BE PLACED IN A SLEEVE OR ENCASED IN CONCRETE FOR 20 FEET CENTERED ON THE POINT OF CROSSING. ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.

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SCALE
NONE
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03-24-11

CITY OF WILDWOOD SEWER DETAIL
SANITARY SEWER
GENERAL NOTES

DETAIL NUMBER
S-04
 4 OF 5

2. HORIZONTAL SEPARATION BETWEEN PARALLEL LINES:

A) GRAVITY SEWERS SHALL BE INSTALLED AT LEAST 6 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 6 FT. SEPARATION, THE WATER MAIN SHALL BE INSTALLED IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND AT AN ELEVATION SO THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE THE TOP OF THE SEWER, AND THE WATER AND SEWER JOINTS SHALL BE STAGGERED.

B) FORCE MAINS SHALL BE INSTALLED AT LEAST 6 FT. HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.

I. SANITARY SEWER/RECLAIMED WATER & POTABLE WATER/RECLAIMED WATER SEPARATIONS

1. WHEN THE RECLAIMED WATER LINE IS TRANSPORTING WATER FOR PUBLIC ACCESS IRRIGATION: MAXIMUM OBTAINABLE SEPARATION OF RECLAIMED WATER LINES AND DOMESTIC WATER LINES SHALL BE PRACTICED. A MINIMUM HORIZONTAL SEPARATION OF FIVE FEET (CENTER TO CENTER) OR THREE FEET (OUTSIDE TO OUTSIDE) SHALL BE MAINTAINED BETWEEN RECLAIMED WATER LINES AND EITHER POTABLE WATER MAINS OR SEWAGE COLLECTION LINES. A 12 INCH VERTICAL SEPARATION SHALL BE MAINTAINED AT CROSSINGS.
2. WHEN THE RECLAIMED WATER LINE IS TRANSPORTING WATER FOR NON-PUBLIC ACCESS IRRIGATION: THE RECLAIMED WATER MAIN SHALL BE TREATED LIKE A SANITARY SEWER, AND A 6 FT. HORIZONTAL AND 12 INCH VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE RECLAIMED WATER MAIN AND ALL EXISTING OR PROPOSED POTABLE WATER MAINS. NO MINIMUM SEPARATION IS REQUIRED BETWEEN THE RECLAIMED WATER MAIN AND SANITARY SEWERS, OTHER THAN THAT NECESSARY TO ENSURE STRUCTURAL INTEGRITY AND PROTECTION OF THE LINES THEMSELVES.

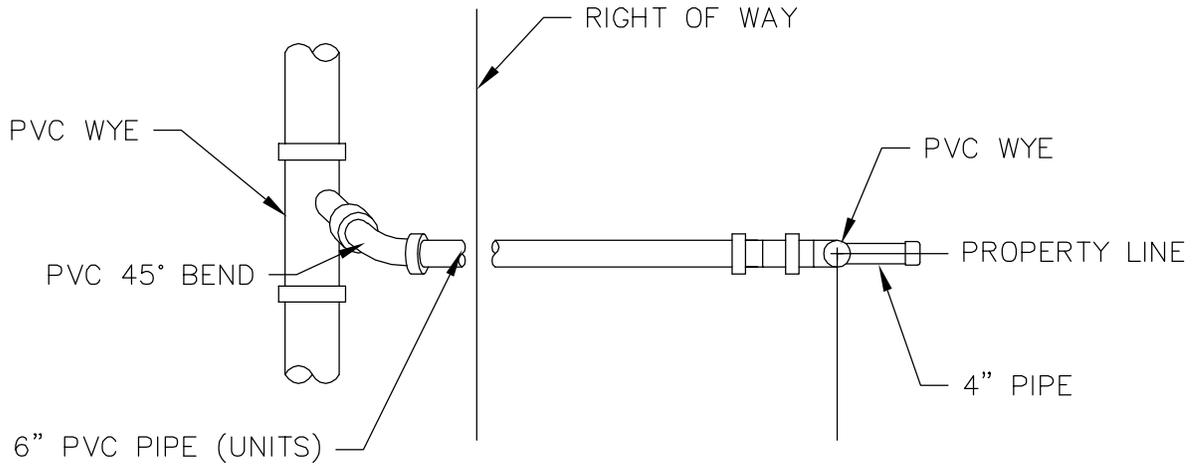
DETECTABLE BURIED WARNING TAPE AND COPPER LOCATION WIRE

DETECTABLE BURIED PIPE WARNING TAPE SHALL BE 2 INCHES MINIMUM WIDTH, LONG LASTING PLASTIC WITH METALIZED FOIL CORE SPECIFICALLY DESIGNED FOR NON-METALLIC PIPES AND SHALL BE PLACED OVER ALL PVC FORCE MAINS AND FITTINGS. METALIZED CORE SHALL BE DETECTABLE TO DEPTHS OF UP TO 6 FEET BY USE OF COM-MERCIALY AVAILABLE PIPE LOCATION EQUIPMENT. TAPE SHALL BE FURNISHED IN MANUFACTURER'S STANDARD COLOR AND ROLL LENGTH AND SHALL BE IMPRINTED CONTINUOUSLY WITH THE FOLLOWING WORDS UNLESS OTHERWISE APPROVED: CAUTION BURIED FORCE MAIN BELOW. IN ADDITION TO THE INSTALLATION OF THE DETECTABLE BURIED WARNING TAPE OVER ALL PVC FORCE MAINS, THE CONTRACTOR SHALL INSTALL A 12 GAUGE INSULATED COPPER WIRE DIRECTLY ON TOP OF ALL PVC FORCE MAINS AND TAPED EVERY TEN FEET FOR LOCATION PURPOSES. THE WIRE SHALL BE CONTINUOUS AND ALL CONNECTIONS TAPED. THREE FEET OF EXCESS WIRE SHALL BE LEFT IN ALL VALVE BOXES.

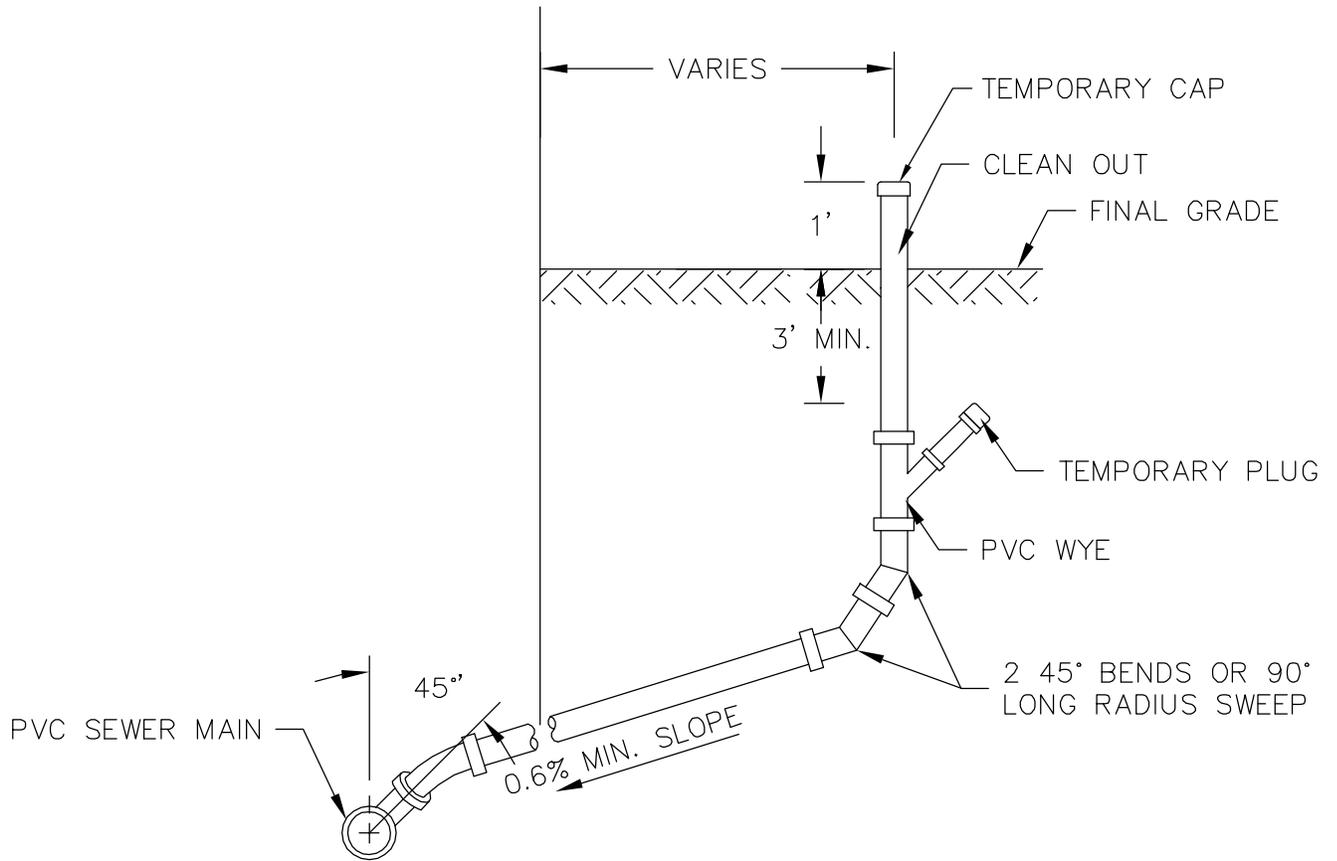
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		LATEST REVISION	SANITARY SEWER GENERAL NOTES	S-05 5 OF 5
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Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-06 Single Service.dwg Model Mar 24, 2011 10:25am by: chris.malone



PLAN VIEW



SIDE VIEW



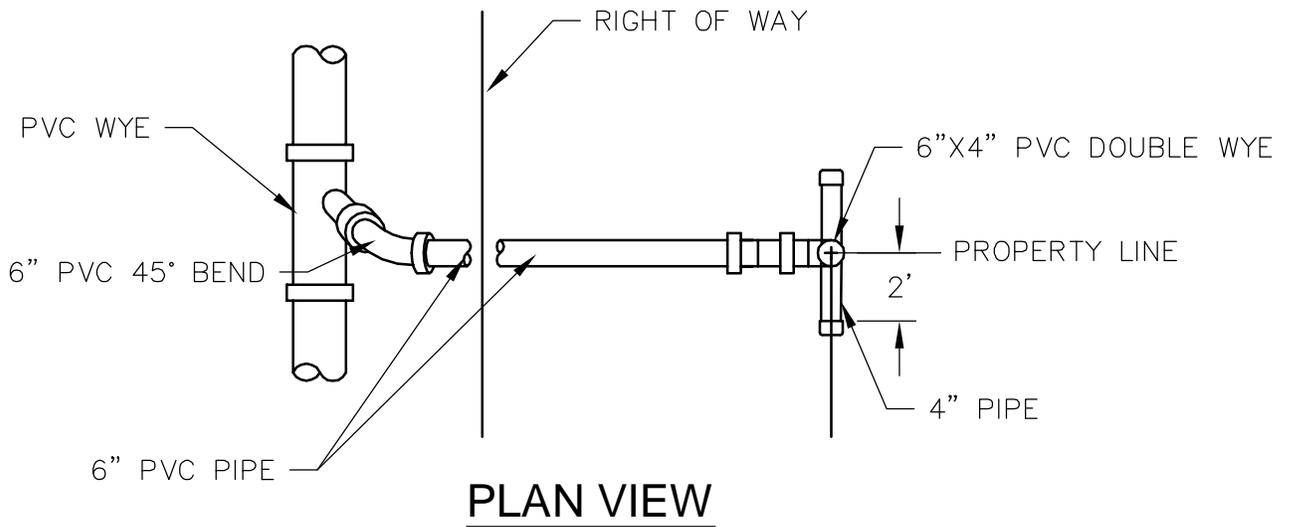
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03-24-11

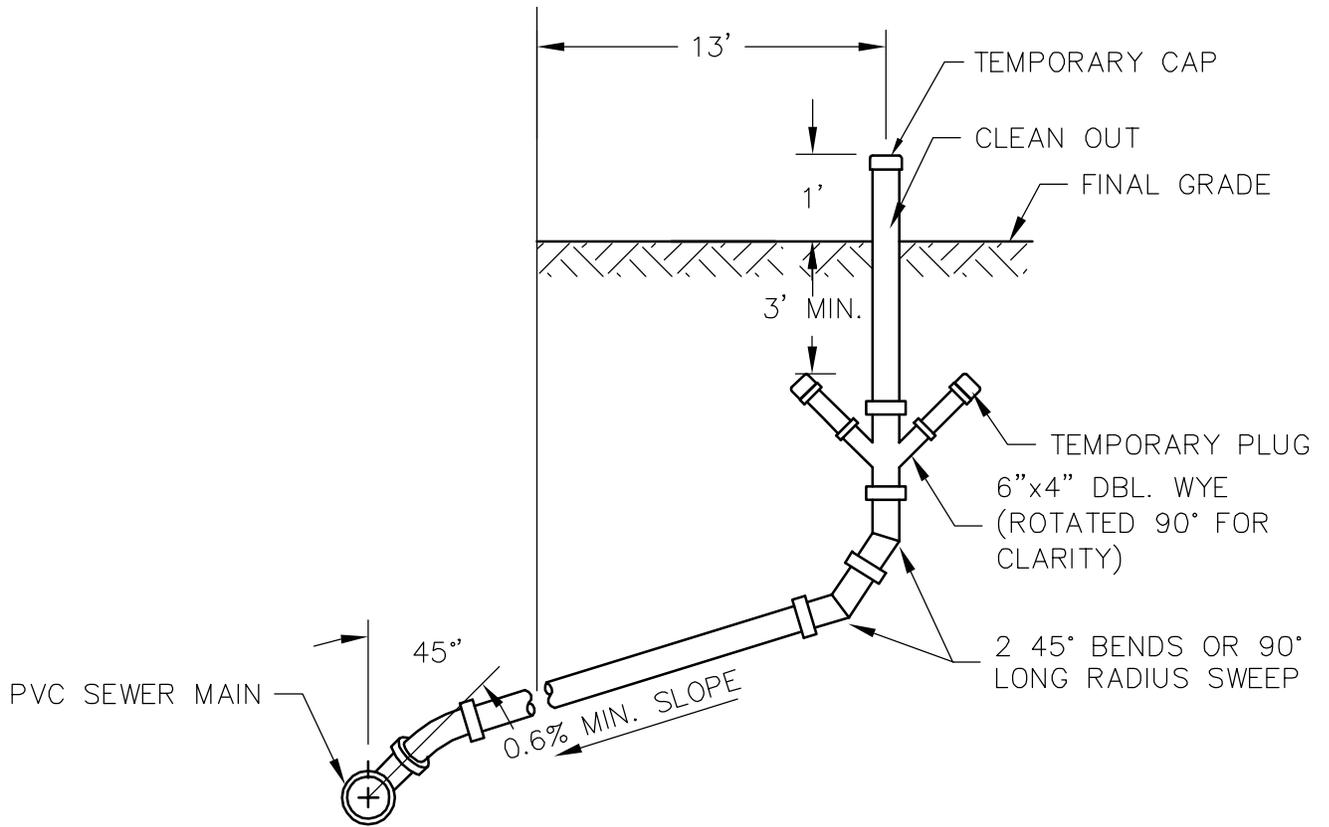
CITY OF WILDWOOD SEWER DETAIL
SANITARY SEWER SINGLE SERVICE

DETAIL NUMBER
S-06
 1 OF 1

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PLAN VIEW



SIDE VIEW



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SANITARY SEWER DOUBLE SERVICE

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S-07
 1 OF 1

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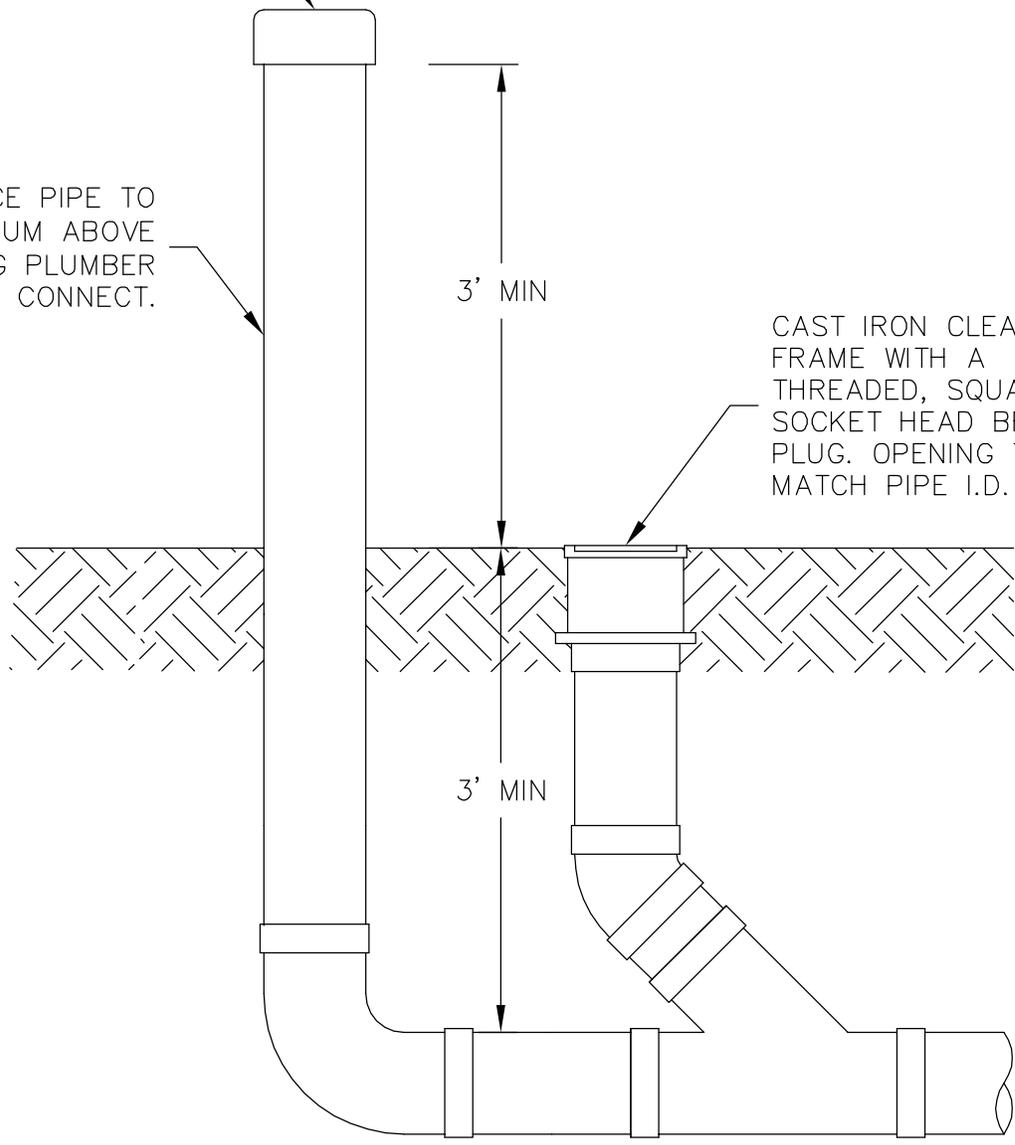
TEMPORARY CAP

SEWER SERVICE PIPE TO EXTEND 3' MINIMUM ABOVE GRADE. BUILDING PLUMBER TO CUT PIPE AND CONNECT.

3' MIN

CAST IRON CLEANOUT FRAME WITH A THREADED, SQUARE SOCKET HEAD BRASS PLUG. OPENING TO MATCH PIPE I.D.

3' MIN



NOTE: IN PAVED AREAS INSTALL CONCRETE PAD AFTER PAVING IS COMPLETE.



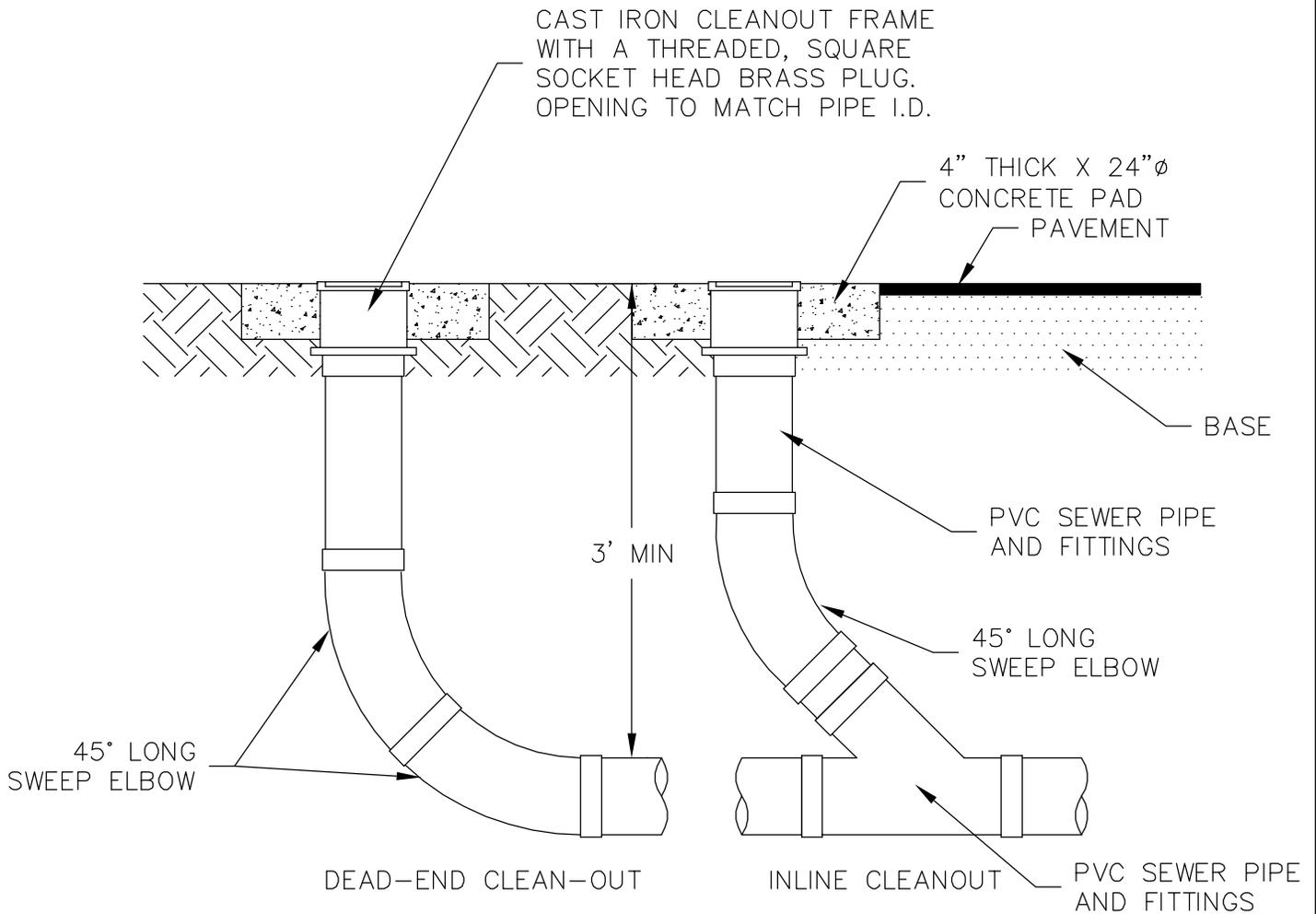
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NONE
LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
COMMERCIAL SANITARY SERVICE
(6" AND SMALLER MAINS)

DETAIL NUMBER
S-08
1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-09 Cleanout-6.dwg Model Mar 24, 2011 10:27am by: chris.malone



NOTE: IN PAVED AREAS INSTALL CONCRETE PAD AFTER PAVING IS COMPLETE.



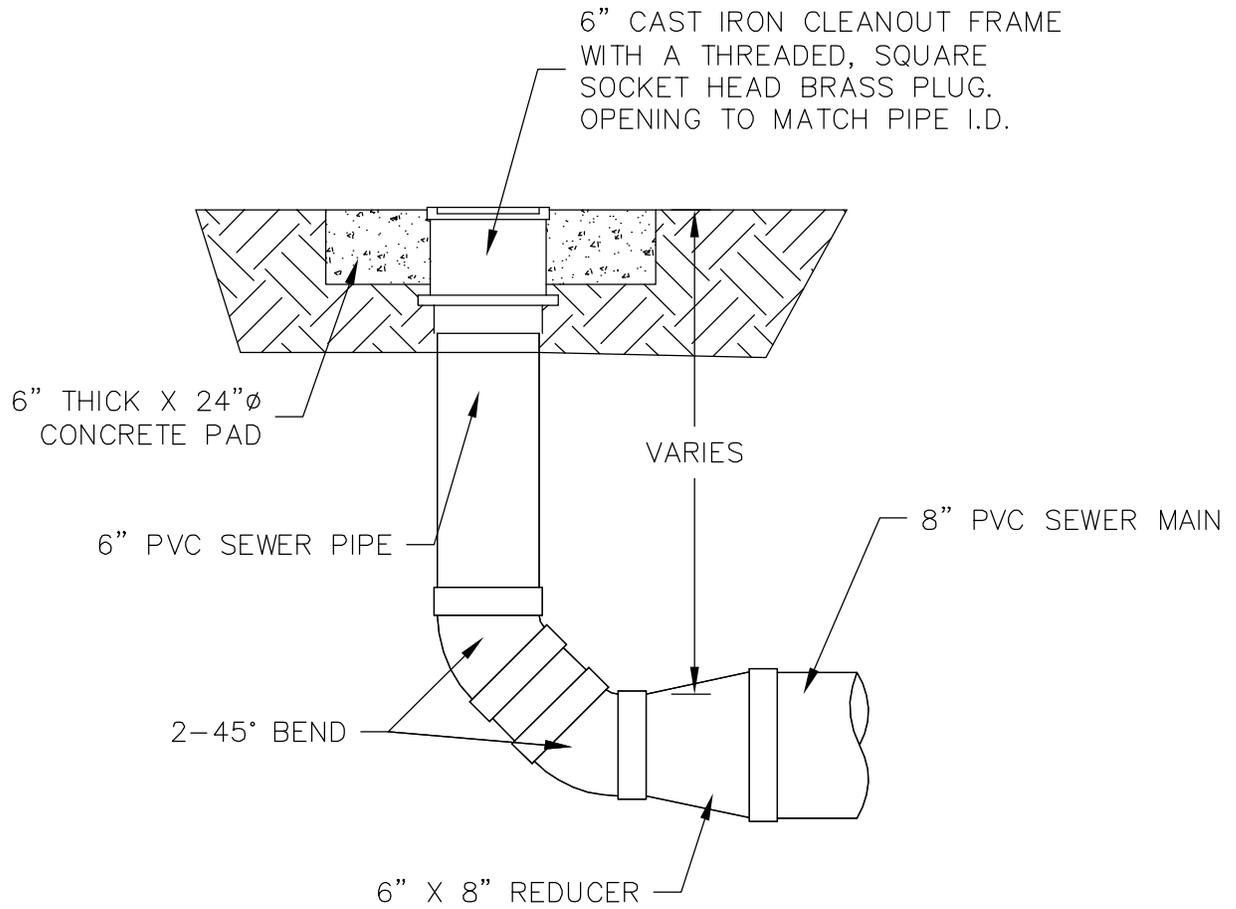
CITY OF WILDWOOD
 100 NORTH MAIN STREET
 WILDWOOD, FLORIDA 34785
 (352) 330-1330

SCALE
NONE
 LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
SANITARY CLEAN-OUT
(6" AND SMALLER MAINS)

DETAIL NUMBER
S-09
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-10 Cleanout-8.dwg Model Mar. 24, 2011 10:28am by: chris.malone



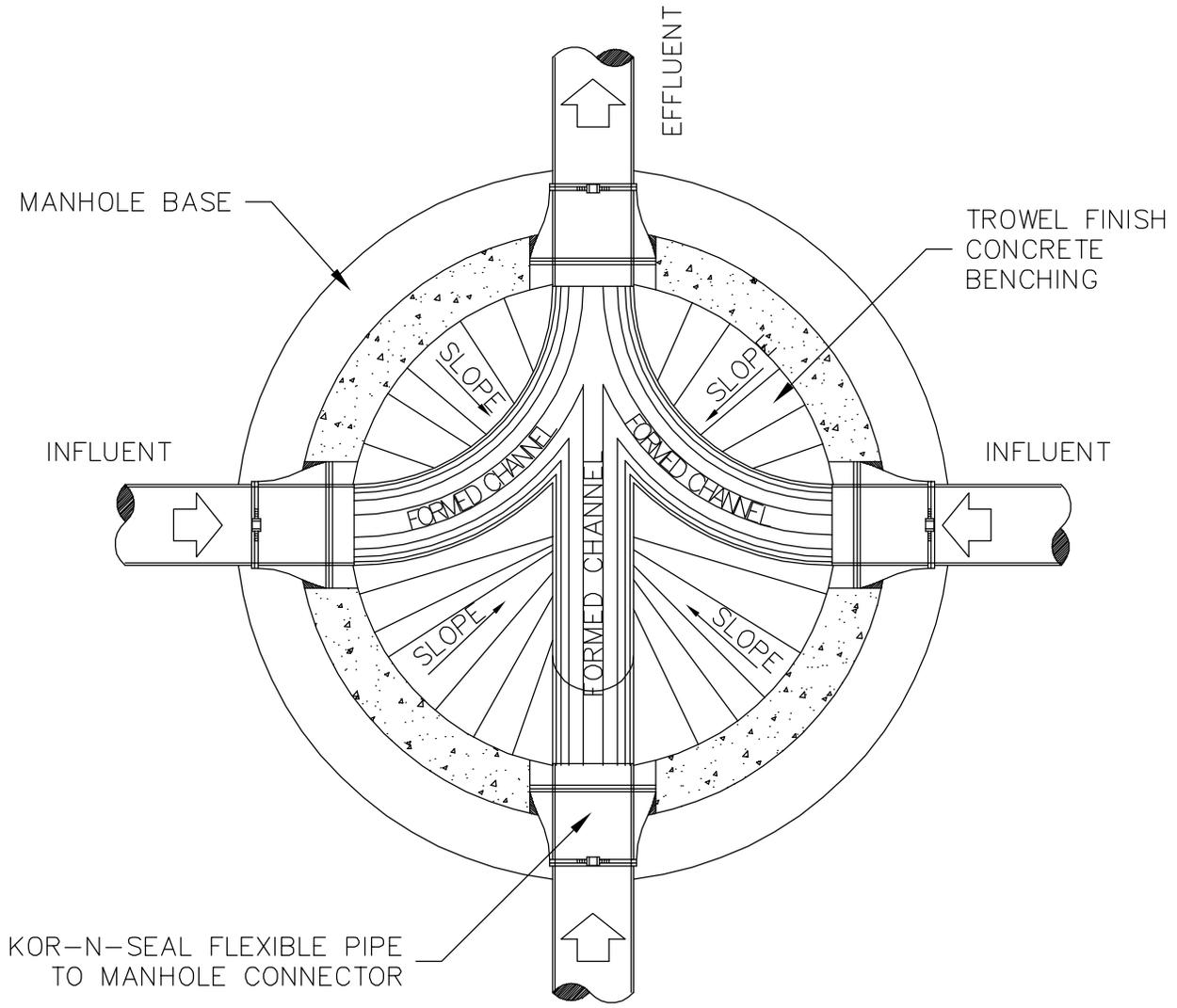
CITY OF WILDWOOD
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SCALE
NONE
LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
SANITARY CLEAN-OUT
(8" MAIN)

DETAIL NUMBER
S-10
1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-11 Manhole.dwg Model Mar 24, 2011 10:28am by: chris.malone



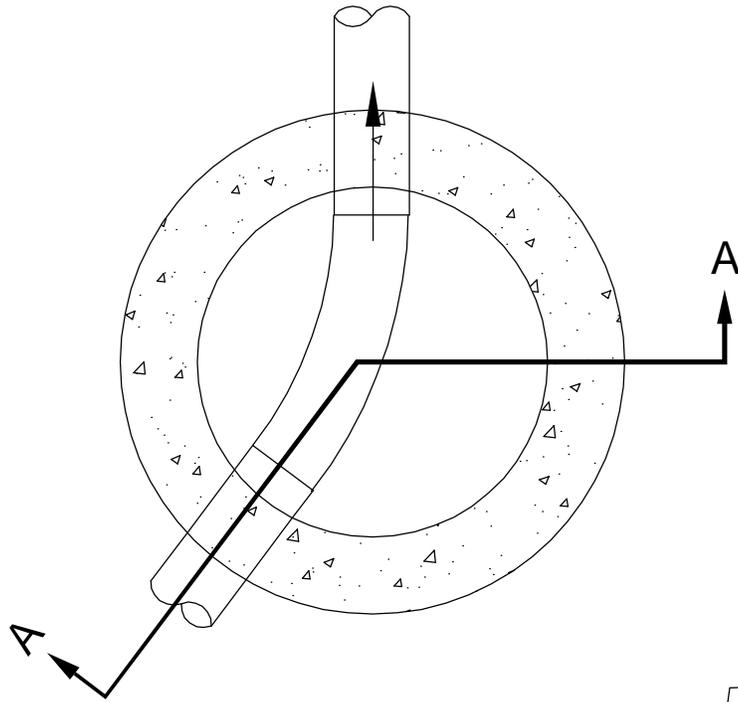
CITY OF WILDWOOD
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SCALE
NONE
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03-24-11

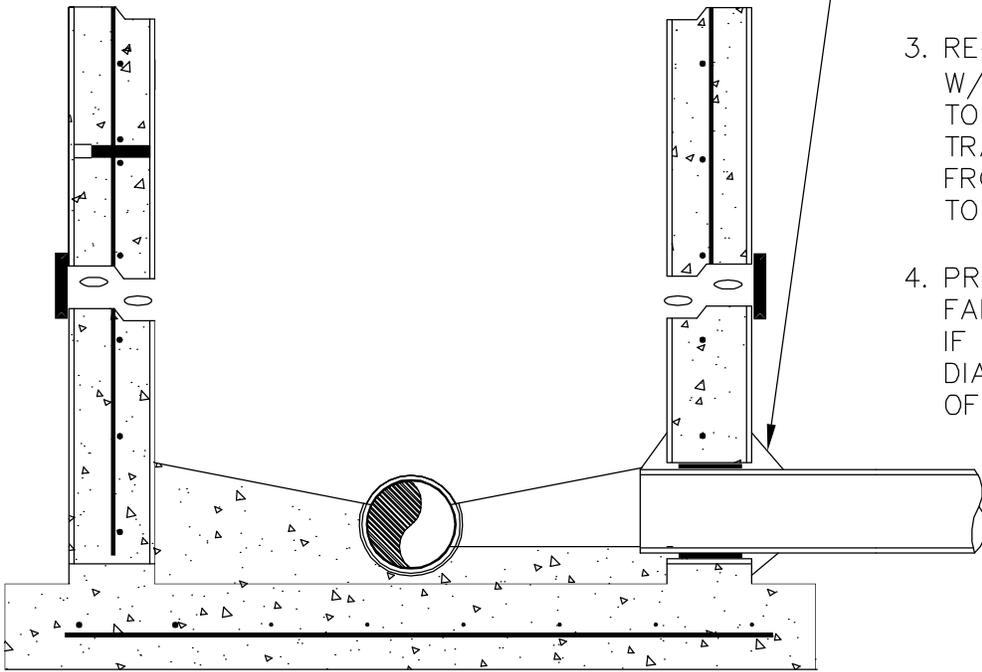
CITY OF WILDWOOD SEWER DETAIL
TYPICAL MANHOLE PLAN

DETAIL NUMBER
S-11
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-12 Ex Manhole Conn.dwg Model Mar 24, 2011 10:29am by: chris.malone



VIEW



1. CORE AND CONNECT WITH "KORE N SEAL" BOOT OR OTHER APPROVED WATER TIGHT CONNECTION.
2. MORTAR ALL AROUND WITH NON-SHRINK GROUT.
3. RE-CONSTRUCT BENCH W/ 3000 PSI CONCRETE TO PROVIDE SMOOTH TRANSITION OF FLOW FROM NEW INCOMING PIPE TO OUTGOING MAIN.
4. PROVIDE MINIMUM OF 0.1' FALL ACROSS MANHOLE. IF PIPES ARE NOT SAME DIAMETER MATCH CROWN OF EXITING PIPE.

TYPICAL SECTION A-A



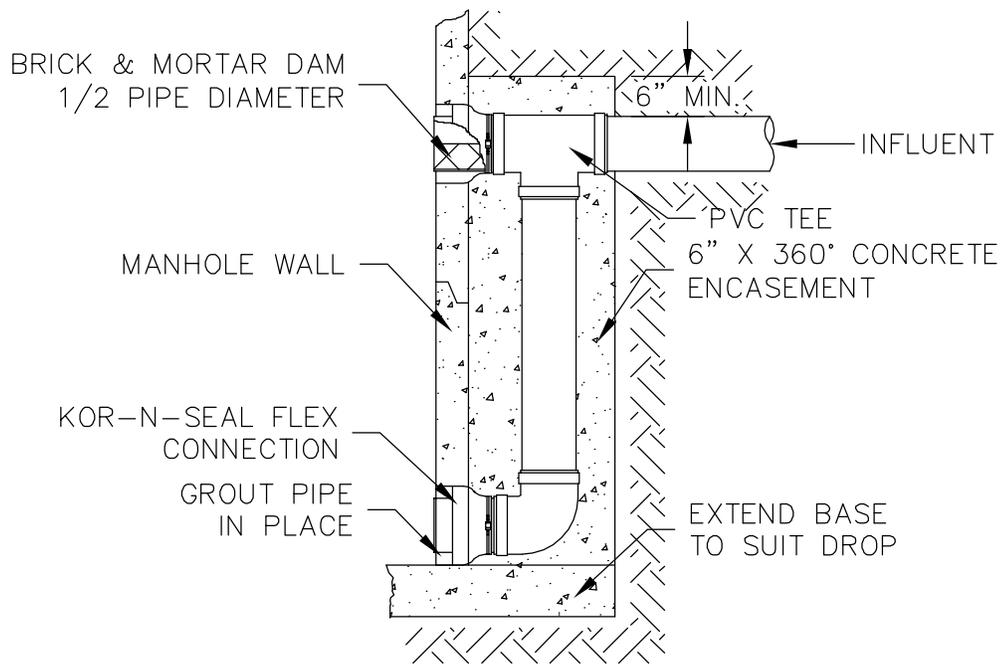
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SCALE
NONE
 LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
CONNECTION TO EXISTING MANHOLE

DETAIL NUMBER
S-12
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-13 Drop Manhole Conn.dwg Model Mar 24, 2011 10:30am by: chrismalone



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SCALE
NONE

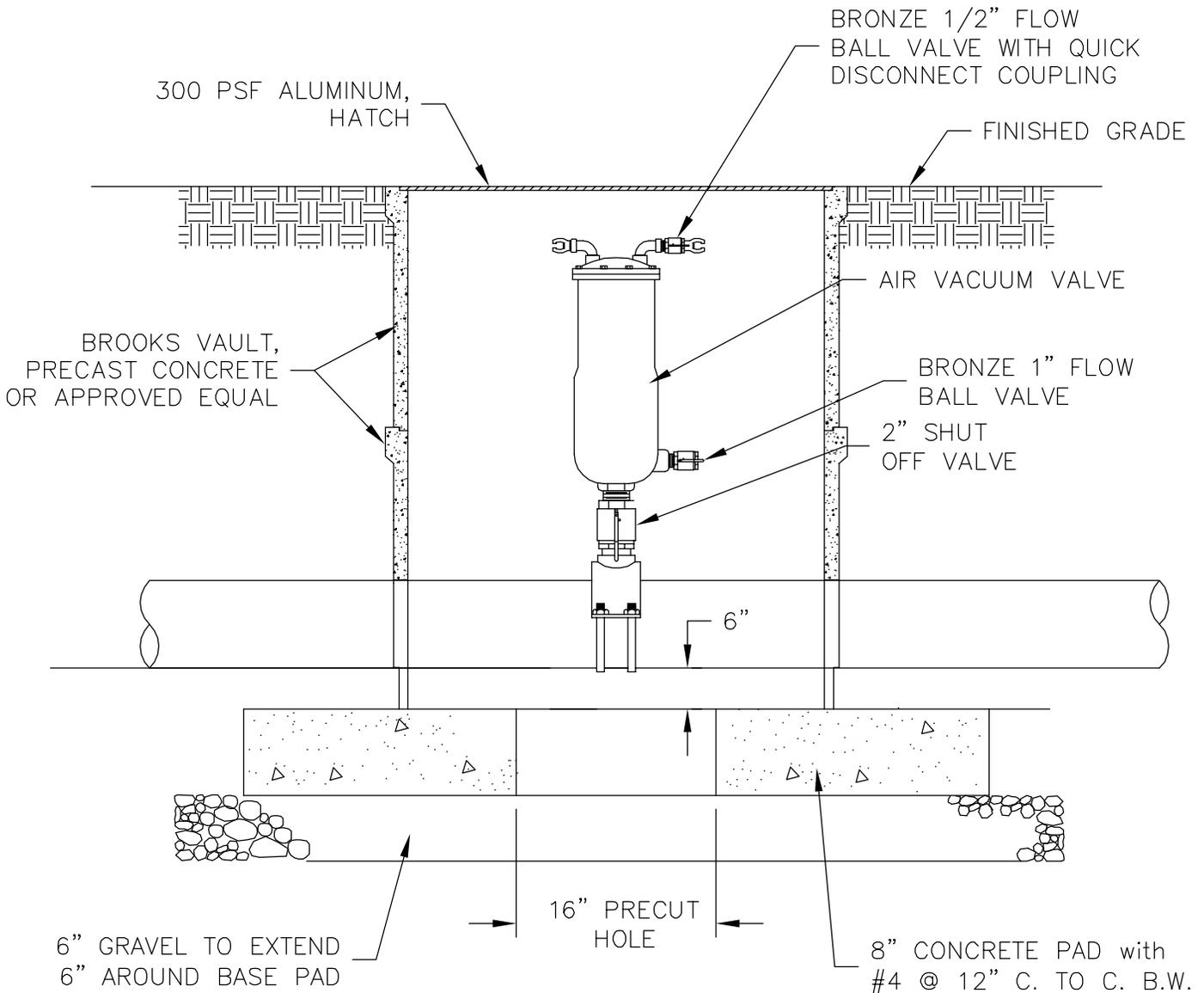
LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL

**STANDARD DROP
 MANHOLE CONNECTION**

DETAIL NUMBER
S-13
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-14 Force Main.dwg Model Mar 24, 2011 10:49am by: chris.malone



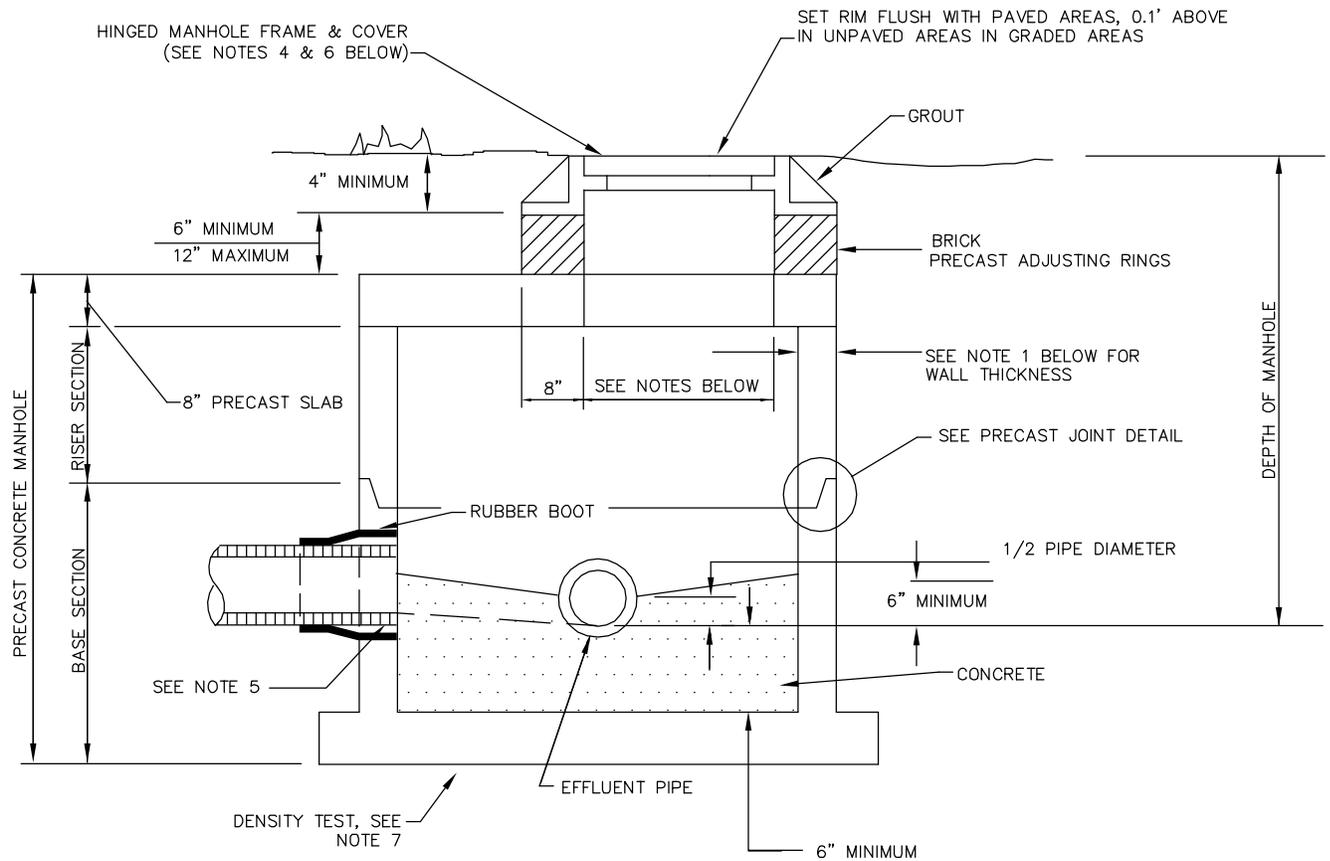
CITY OF WILDWOOD
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SCALE
 NONE
 LATEST REVISION
 03-24-11

CITY OF WILDWOOD SEWER DETAIL
FORCE MAIN
AIR RELEASE VALVE

DETAIL NUMBER
S-14
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-15 Manhole less 5.dwg Model Mar 24, 2011 10:51am by: chris.malone



NOTES

1. MINIMUM WALL THICKNESS SHALL BE FIVE INCHES (5") OR 1/12 THE INSIDE DIAMETER, WHICHEVER IS GREATER.
2. THE INTERIOR, EXTERIOR, JOINTS AND GROUTED AREAS SHALL BE COATED WITH TWO (2) COATS OF BITUMASTIC SEALER. WHERE FORCE MAINS ARE TO BE CONNECTED OR THE MANHOLE LIES IMMEDIATELY UPSTREAM FROM THE WET WELL THE COMPLETE INSIDE OF THE MANHOLE SHALL BE LINED AS SPECIFIED ON THE PLANS. LINING SHALL BE HDPE.
3. MANHOLES SHALL BE FURNISHED WITH FACTORY INSTALLED BOOTS TO CONNECT SEWER PIPES TO MANHOLES.
4. MANHOLE TO BE INSTALLED WITH 24" HINGED RING AND COVER UNLESS OTHERWISE SPECIFIED.
5. FILL ANNULAR VOID BETWEEN PIPE AND RUBBER BOOT WITH GROUT AND FLUSH WITH MANHOLE WALLS.
6. MANHOLE COVER IN PAVED ROADWAY SHALL BE HINGED.



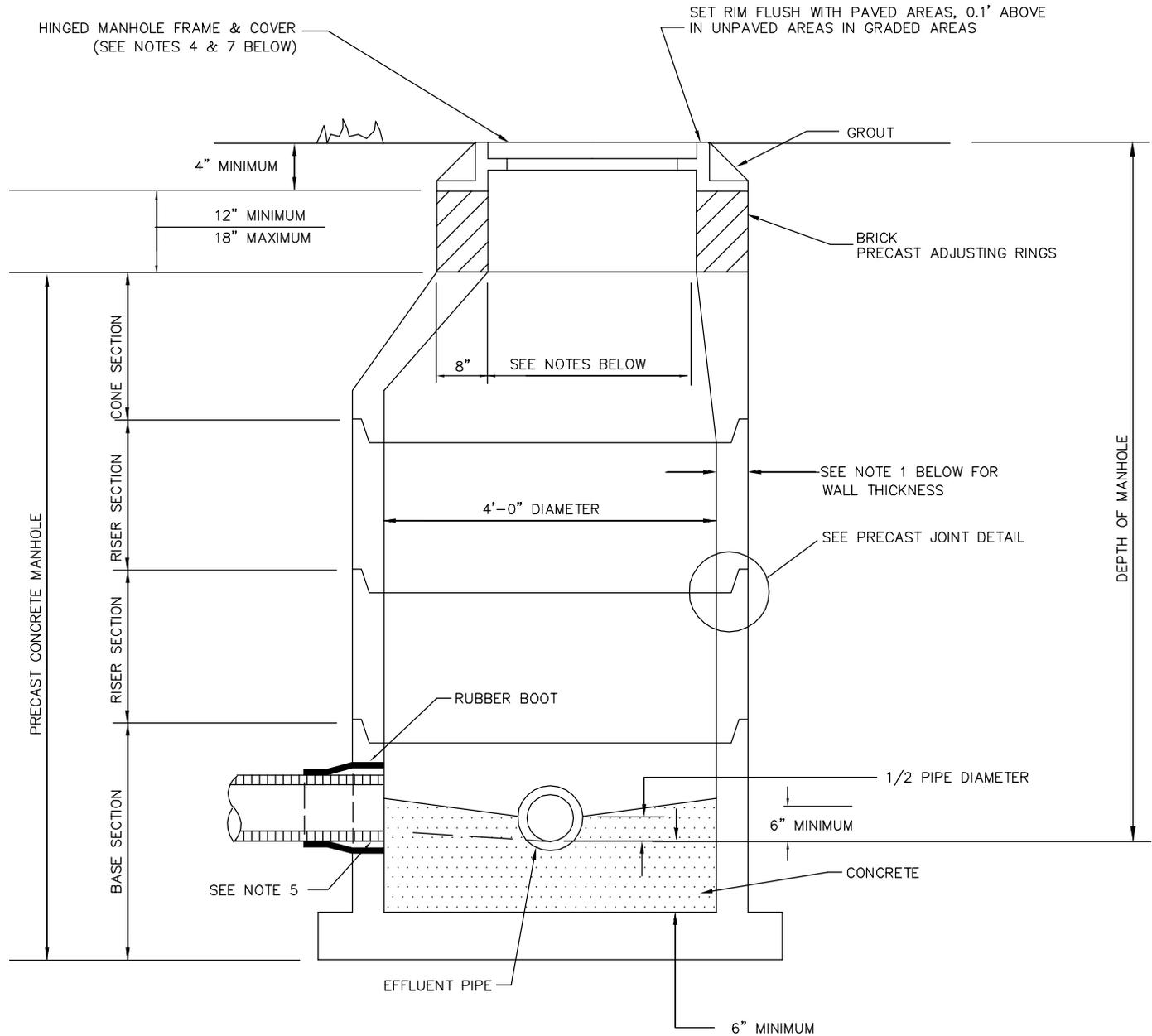
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SCALE
NONE
 LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
PRECAST CONCRETE MANHOLE
LESS THAN 5' DEPTH

DETAIL NUMBER
S-15
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-16 Manhole 5-12.dwg Model Mar 24, 2011 10:52am by: chris.malone



NOTES

1. MINIMUM WALL THICKNESS SHALL BE FIVE INCHES (5") OR 1/12 THE INSIDE DIAMETER, WHICHEVER IS GREATER.
2. THE INTERIOR, EXTERIOR, JOINTS AND GROUTED AREAS SHALL BE COATED WITH TWO (2) COATS OF BITUMASTIC SEALER. WHERE FORCE MAINS ARE TO BE CONNECTED OR THE MANHOLE LIES IMMEDIATELY UPSTREAM FROM THE WET WELL THE COMPLETE INSIDE OF THE MANHOLE SHALL BE LINED AS SPECIFIED ON THE PLANS. LINING SHALL BE HDPE.
3. MANHOLES SHALL BE FURNISHED WITH FACTORY INSTALLED BOOTS TO CONNECT SEWER PIPES TO MANHOLES.
4. MANHOLE TO BE INSTALLED WITH 24" HINGED RING AND COVER UNLESS OTHERWISE SPECIFIED.
5. FILL ANNULAR VOID BETWEEN PIPE AND RUBBER BOOT WITH GROUT AND FLUSH WITH MANHOLE WALL.
6. LIMEROCK WILL BE PLACED AROUND RING & COVER TO BOTTOM OF ASPHALT.
7. MANHOLE COVERS IN PAVEMENT SHALL BE HINGED.



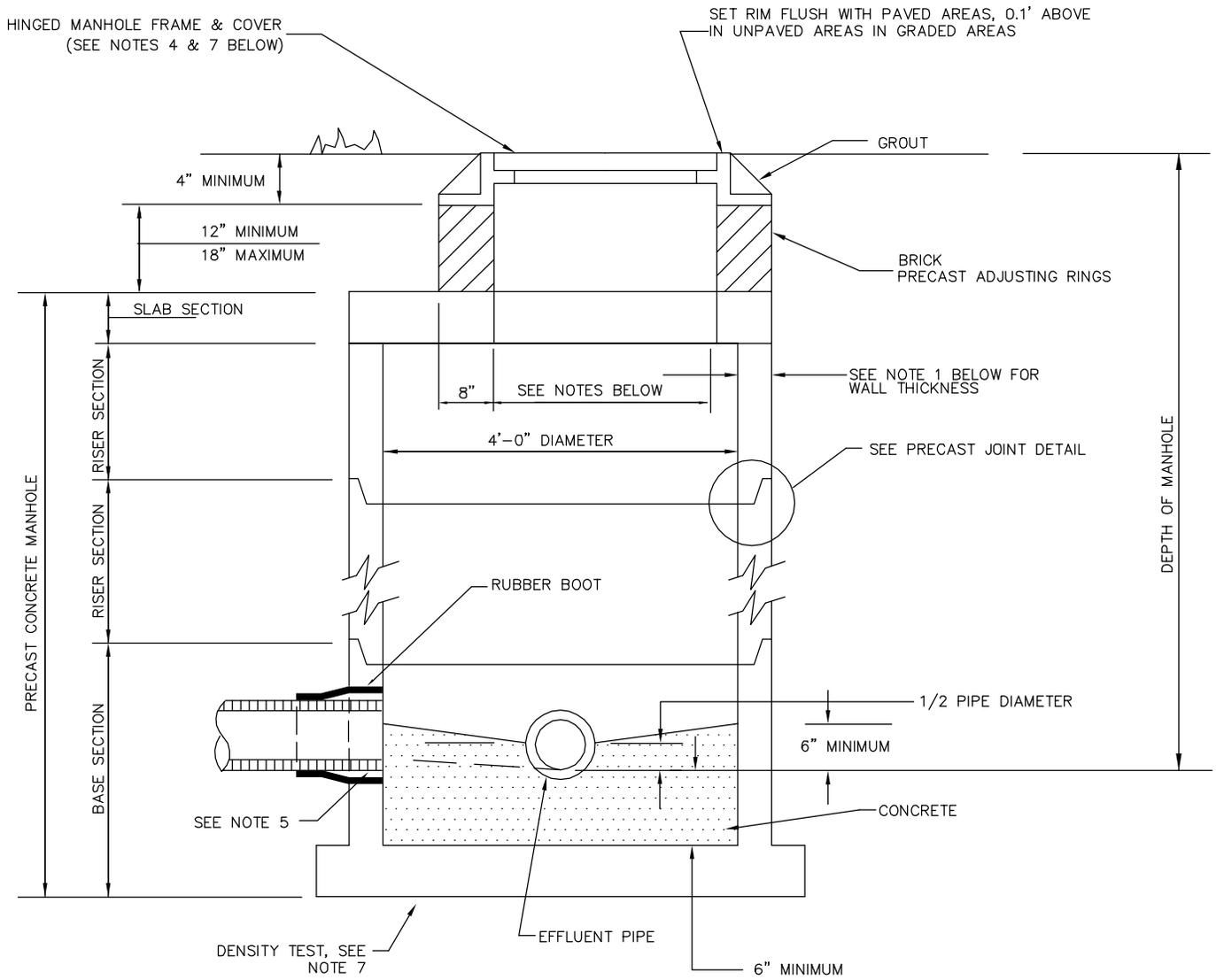
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SCALE
NONE
 LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
PRECAST CONCRETE MANHOLE
5' TO 12' DEPTH

DETAIL NUMBER
S-16
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-17 Manhole over 12.dwg Model Mar 24, 2011 10:53am by: chris.malone



NOTES

1. MINIMUM WALL THICKNESS SHALL BE FIVE INCHES (5") TO A DEPTH OF TEN FEET (10'). WALL THICKNESS SHALL BE INCREASED TO EIGHT INCHES (8") AT TEN FEET BELOW GRADE.
2. THE INTERIOR, EXTERIOR, JOINTS AND GROUTED AREAS SHALL BE COATED WITH TWO (2) COATS OF BITUMASTIC SEALER. WHERE FORCE MAINS ARE TO BE CONNECTED OR THE MANHOLE LIES IMMEDIATELY UPSTREAM FROM THE WET WELL THE COMPLETE INSIDE OF THE MANHOLE SHALL BE LINED AS SPECIFIED ON THE PLANS. LINING SHALL BE HDPE.
3. MANHOLES SHALL BE FURNISHED WITH FACTORY INSTALLED BOOTS TO CONNECT SEWER PIPES TO MANHOLES.
4. MANHOLE TO BE INSTALLED WITH 32" OR 36" HINGED RING AND COVER UNLESS OTHERWISE SPECIFIED.
5. FILL ANNULAR SPACE BETWEEN PIPE AND BOOT WITH GROUT AND FLUSH WITH WALL OF MANHOLE.
6. LIMEROCK WILL BE PLACED AROUND RING AND COVER TO BOTTOM OF ASPHALT.
7. MANHOLE COVERS IN PAVED ROADWAYS SHALL BE HINGED.



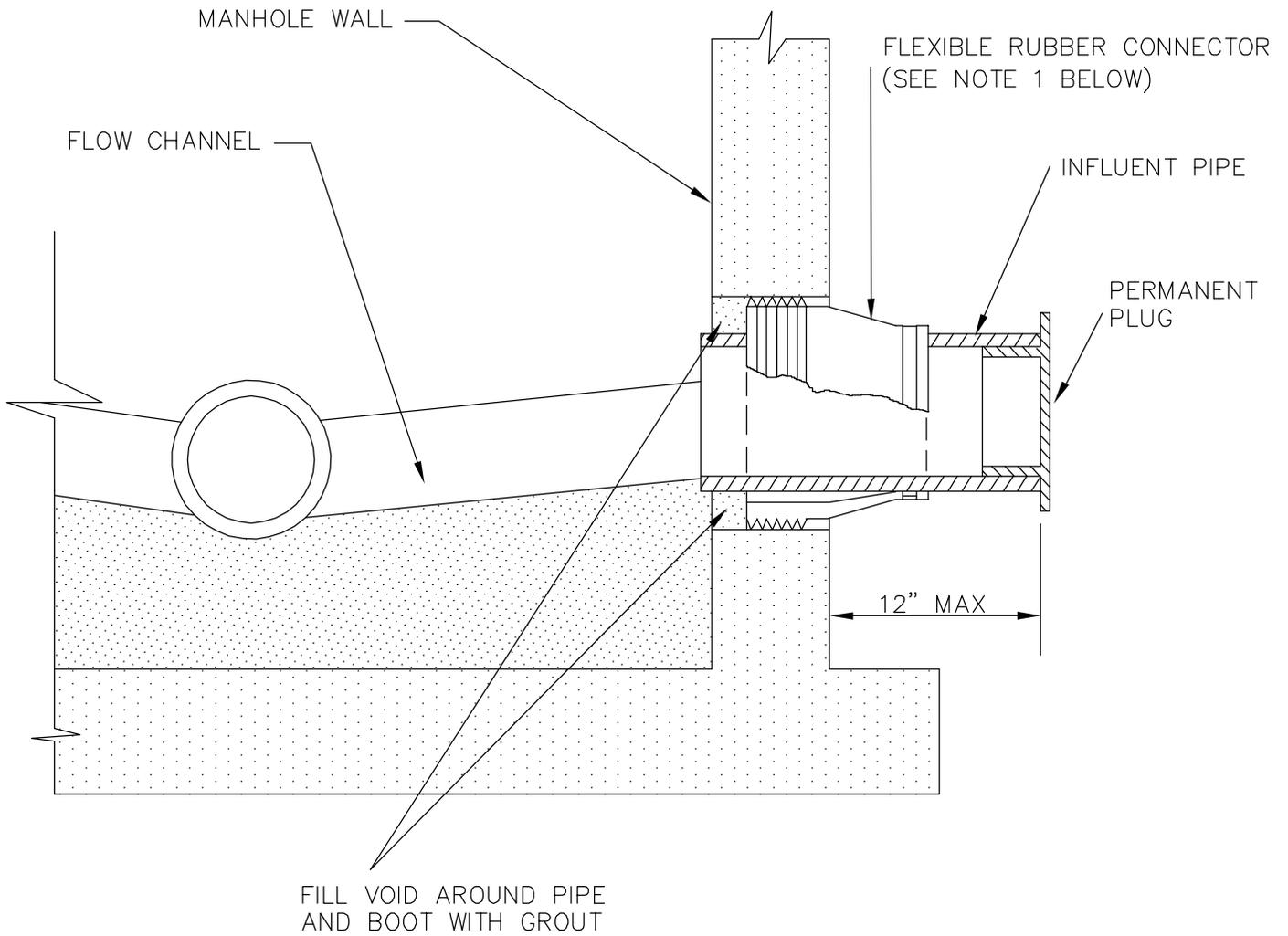
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SCALE
NONE
 LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
PRECAST CONCRETE MANHOLE
OVER 12' DEPTH

DETAIL NUMBER
S-17
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-18 Manhole Stub.dwg Model Mar 24, 2011 10:55am by: chris.malone



NOTES

1. BOOTS SHALL BE INSTALLED BY THE MANUFACTURER OF THE PRECAST MANHOLE IN ACCORDANCE WITH THE BOOT MANUFACTURERS INSTRUCTIONS.



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SCALE
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CITY OF WILDWOOD SEWER DETAIL

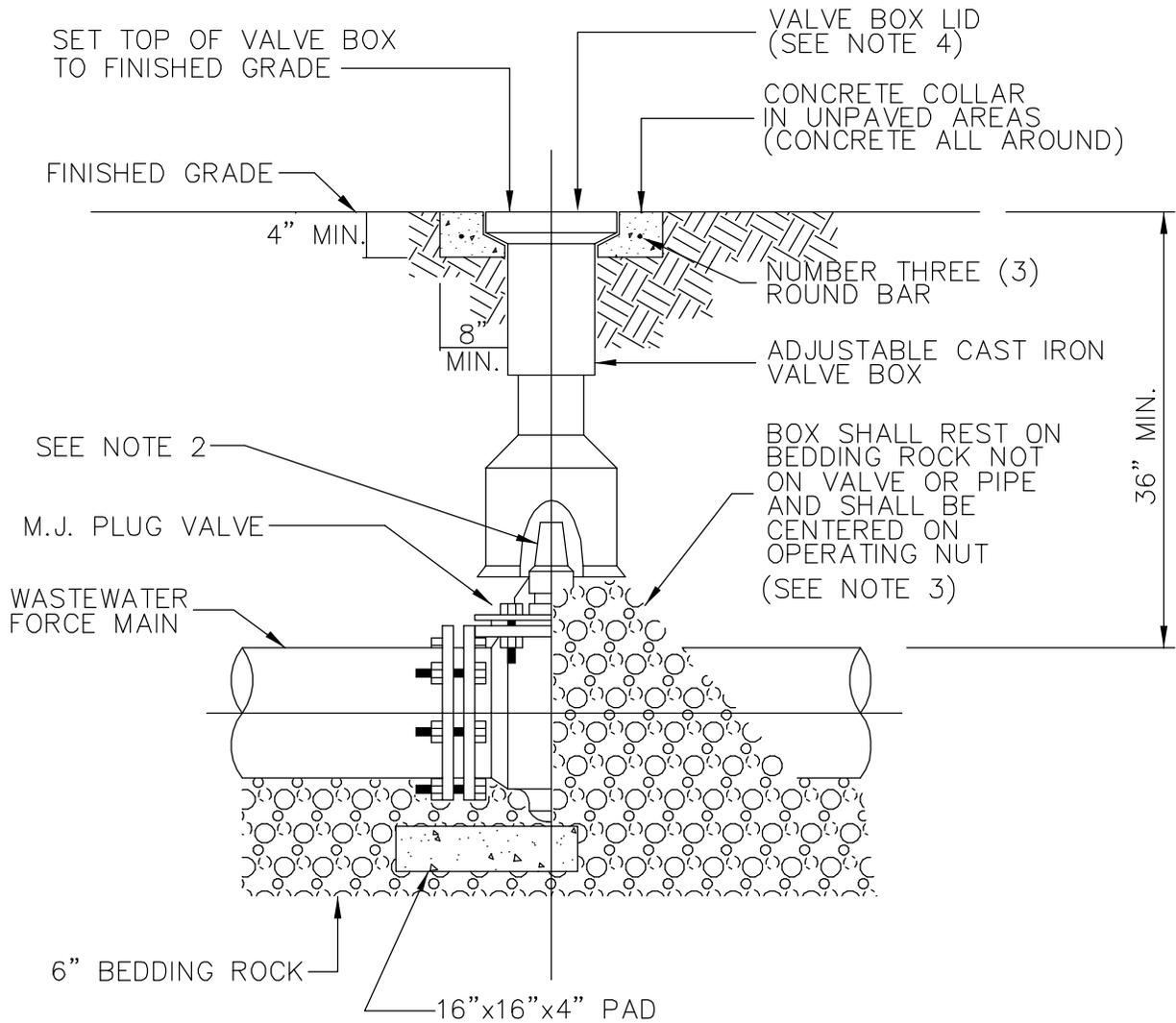
MANHOLE STUBOUT

DETAIL NUMBER

S-18

1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-19 Plug Valve.dwg Model Mar 24, 2011 11:00am by: chris.malone



NOTES:

1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.
3. WHEN VALVE BOX IS TO BE INSTALLED IN ROADWAY OR OTHER TRAFFIC AREAS SET VALVE BOX ON FIVE (5) SOLID BRICKS.
4. VALVE BOX LID TO BE LETTERED WITH THE WORD "SEWER".



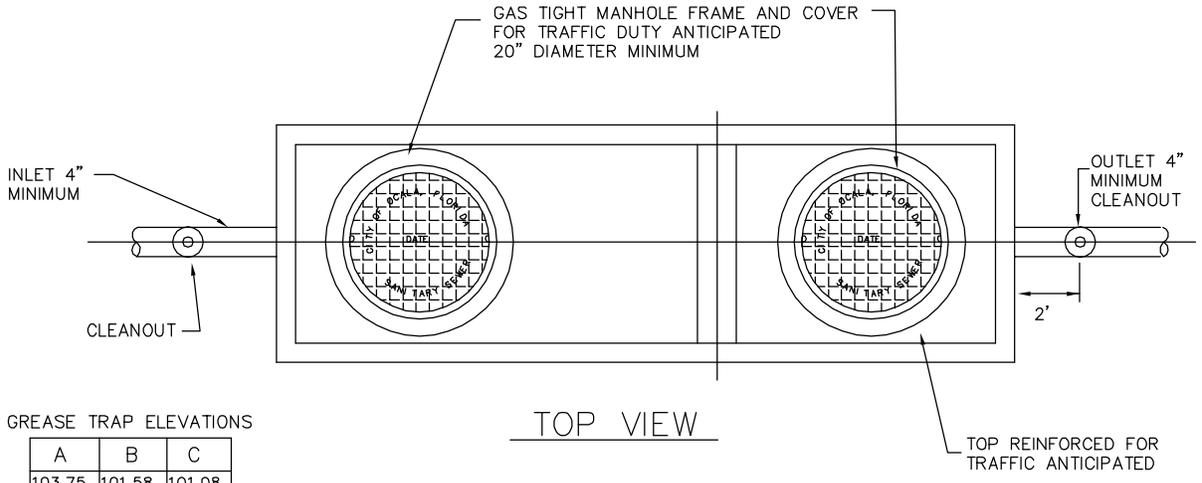
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SCALE
NONE
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03-24-11

CITY OF WILDWOOD SEWER DETAIL
PLUG VALVE AND BOX DETAIL

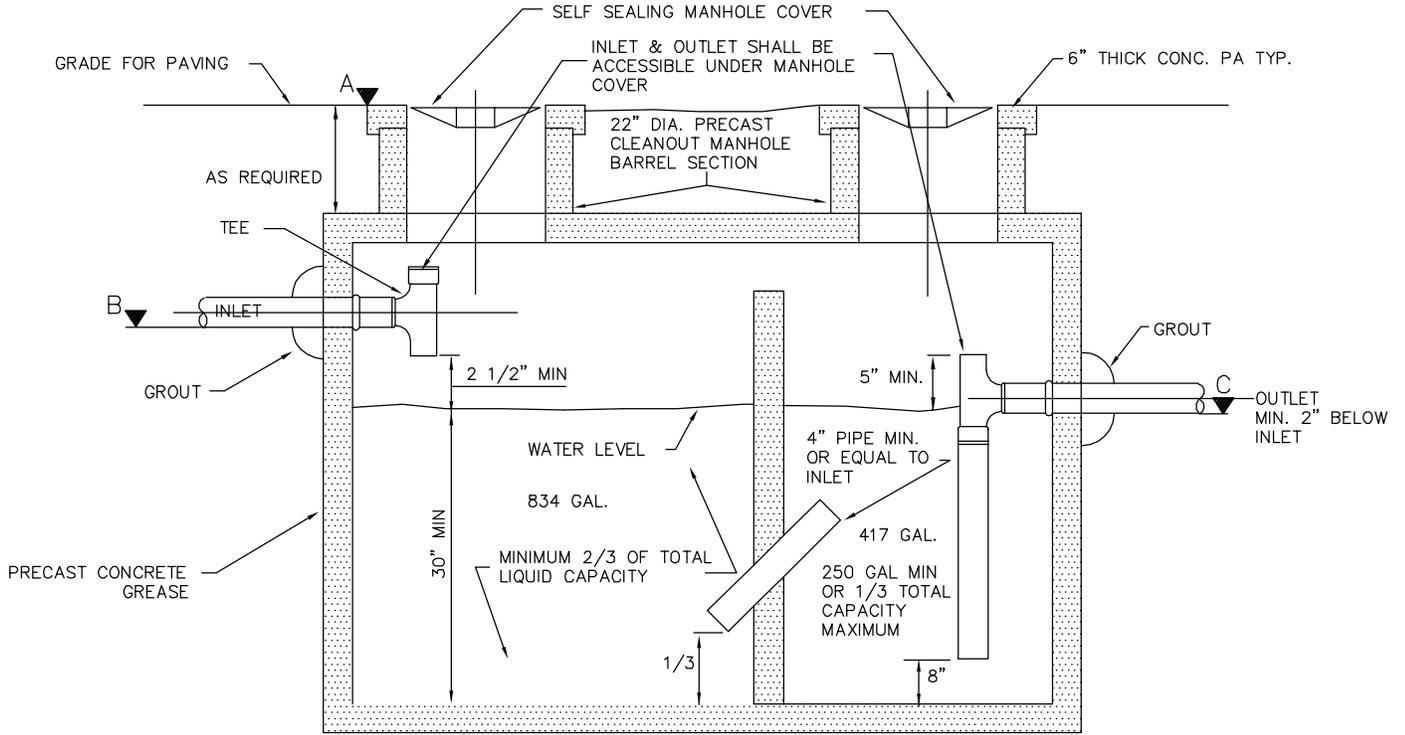
DETAIL NUMBER
S-19
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-20 Grease Oil Separator.dwg Model Mar 24, 2011 11:03am by: chris.malone



GREASE TRAP ELEVATIONS

A	B	C
103.75	101.58	101.08



SECTION

DESIGN CALCULATIONS
 $(S) \times (GS) \times (HR/12) \times (LF) = \text{EFFECTIVE CAPACITY OF GREASE TRAP IN GALLONS}$
 (S) = NUMBER OF SEATS IN DINING AREA
 (GS) = GALLONS OF WASTE WATER PER SEAT (USE 25 GALLONS)
 (HR) = NUMBER OF HOURS ESTABLISHMENT IS OPEN
 (LF) = LOADING FACTOR—(2.0 WITH INTERSTATE HIGHWAYS, 1.5 OTHER FREEWAYS, 1.25 RECREATIONAL AREAS, 1.0 MAIN HIGHWAYS AND 0.75 OTHER HIGHWAYS)

NOTE

- ACCESS FOR MONITORING THE INLET AND OUTLET PIPE FITTINGS OR BAFFLES SHALL BE PROVIDED FROM MANHOLES. CLEANOUTS SHALL BE INSTALLED BEFORE THE FIRST GREASE INTERCEPTOR AND WITHIN TWO FEET AFTER THE LAST INTERCEPTOR IN THE SERIES.



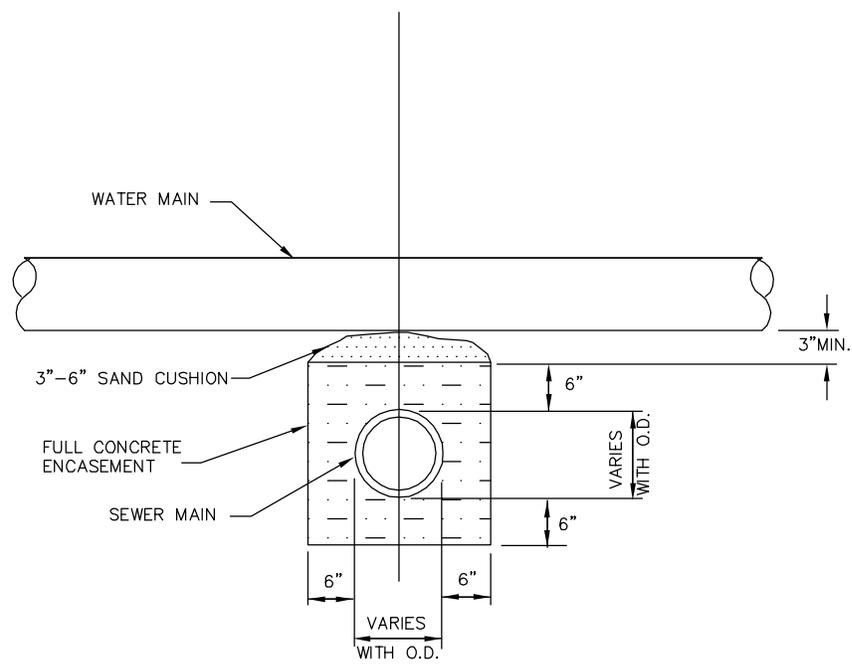
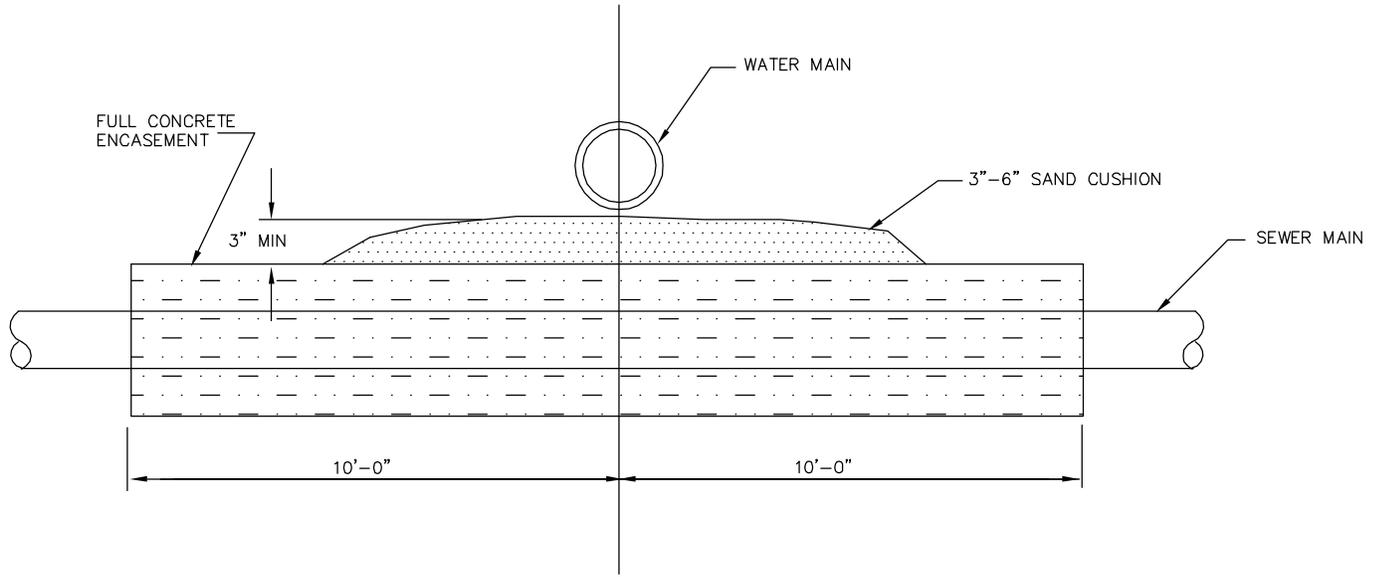
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SCALE
NONE
 LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL
GREASE OIL SEPARATOR

DETAIL NUMBER
S-20
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-21 Conc Encasement.dwg Model Mar. 24, 2011 11:04am by: chris.malone



NOTES

1. USE CONCRETE ENCASEMENT WHERE VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER IS 12" OR LESS.
2. WHEN CROSSING SEWER ONE FULL JOINT OF WATER MAIN SHALL BE CENTERED OVER THE SEWER MAIN.
3. CONCRETE FOR ENCASEMENT SHALL BE 3000 PSI.



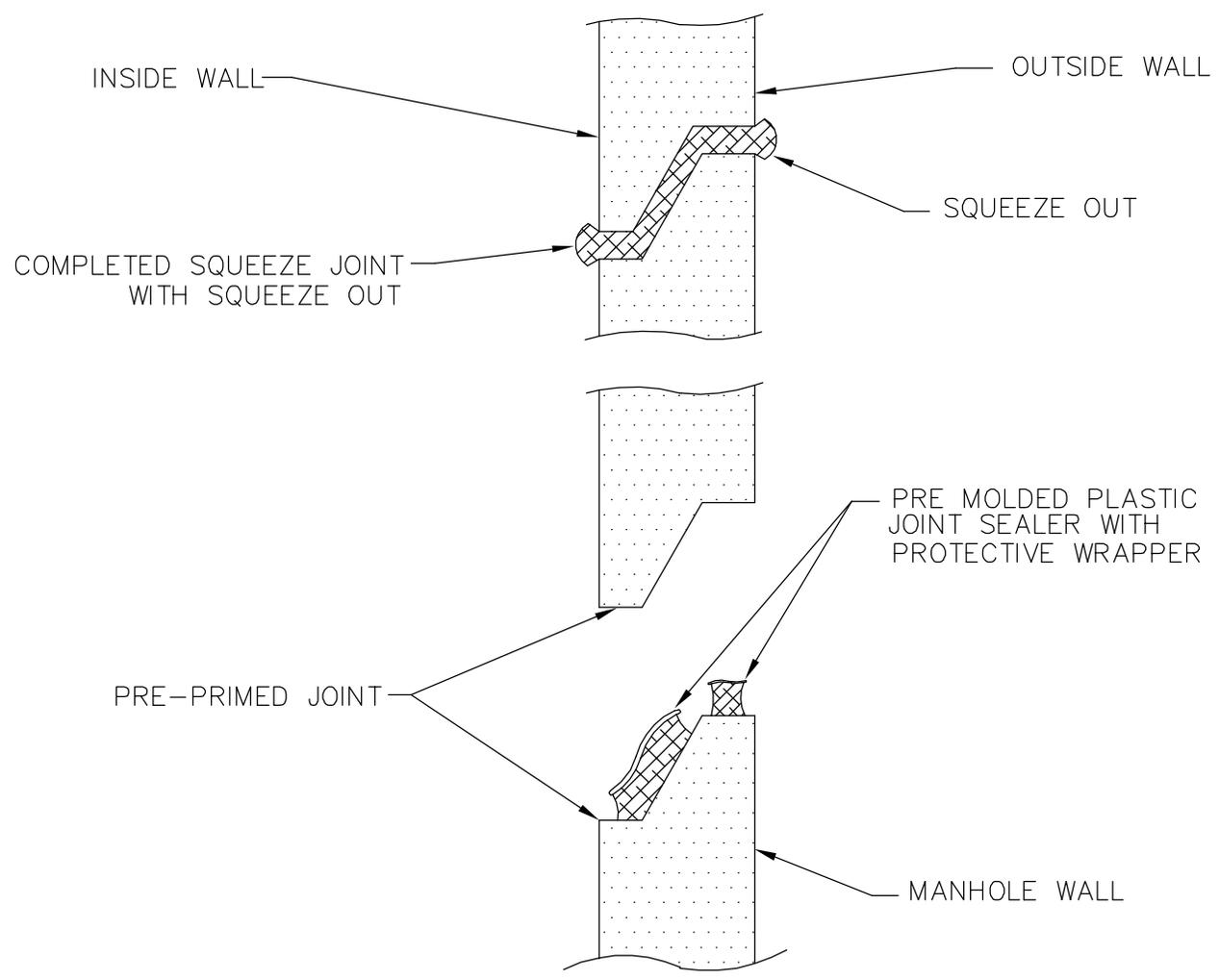
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SCALE
NONE
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03-24-11

CITY OF WILDWOOD SEWER DETAIL
CONCRETE ENCASEMENT

DETAIL NUMBER
S-21
 1 OF 1

Drawing name: M:\CADD\AUTODESK\2007\Library\BLOCKS\Details\Wildwood\SEWER\S-22 Manhole Joint Const.dwg Model Mar 24, 2011 11:05am by: chris.malone



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SCALE
NONE

LATEST REVISION
03-24-11

CITY OF WILDWOOD SEWER DETAIL

PRECAST CONCRETE MANHOLE JOINT CONSTRUCTION

DETAIL NUMBER
S-22
1 OF 1