

**TOWN OF HILLSBOROUGH  
PUBLIC WORKS DEPARTMENT  
STANDARD DETAILS**


**SECTION 2.0**

**SANITARY SEWER DETAILS**

1. ALL REFERENCES TO "TOWN" IN THESE GENERAL NOTES SHALL MEAN TOWN OF HILLSBOROUGH SEWER DEPARTMENT.
2. THE APPROVAL OF THESE PLANS BY THE TOWN SHALL BE INTERPRETED TO MEAN THAT THE SANITARY SEWER DESIGN SHOWN ON THESE PLANS MEETS THE TOWN'S STANDARDS. THE TOWN'S APPROVAL IN NO WAY GUARANTEES ANY OTHER ASPECT OF THIS PLAN OR ITS ACCURACY RELATIVE TO ACTUAL FIELD CONDITIONS.
3. THE CONTRACTOR SHALL CONTACT THE TOWN AT 375-7444, TWO (2) WORKING DAYS IN ADVANCE OF BEGINNING ANY SANITARY SEWER WORK. THE CONTRACTOR SHALL THEREAFTER KEEP THE INSPECTOR FOR THE TOWN INFORMED OF HIS SCHEDULE FOR SANITARY SEWER WORK.
4. ALL SANITARY SEWER WORK CONSTRUCTED WITHOUT INSPECTION BY THE TOWN SHALL BE REMOVED AND RECONSTRUCTED WITH INSPECTION.
5. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT FORTY-EIGHT (48) HOURS IN ADVANCE OF BEGINNING ANY WORK.
6. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES BEFORE BEGINNING ANY EXCAVATING.
7. THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY THE TOWN BEFORE BEGINNING ANY SANITARY SEWER WORK.
8. UPON THE COMPLETION OF CONSTRUCTION A COMPLETE SET OF REPRODUCIBLE "AS-CONSTRUCTED" PLANS SHALL BE PROVIDED TO THE TOWN.
9. SANITARY SEWER SERVICE SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL USE WHATEVER MEANS ARE NECESSARY (E.G. PUMPS, BYPASS LINES, ETC.) TO MAINTAIN THIS SERVICE DURING CONSTRUCTION.
10. PRIOR TO COMMENCING ANY SANITARY SEWER WORK IN OFF-SITE EASEMENTS, THE CONTRACTOR SHALL PROVIDE THE TOWN WITH ADEQUATE EVIDENCE THAT ALL AFFECTED PROPERTY OWNERS (AND TENANTS WHERE APPLICABLE) WERE NOTIFIED 48 HOURS IN ADVANCE OF THE DATE WORK IN THESE EASEMENTS WAS TO BEGIN AND THAT THEY HAVE UPDATED THAT NOTICE IN A TIMELY MANNER WHEN THOSE DATES HAVE CHANGED.
11. THE TOWN IS NOT RESPONSIBLE FOR CLEANING PRIVATE SEWER LATERALS. THE PROPERTY OWNER IS RESPONSIBLE FOR REPAIR AND REPLACEMENT OF THE LATERAL FROM THE HOUSE TO THE MAIN, INCLUDING THE CONNECTION TO THE MAIN.



**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**STANDARD SPECIFICATIONS  
 GENERAL NOTES**

STD. DETAIL No.  
**S1**

## **POLYVINYL CHLORIDE PIPE (PVC)**

1. ALL PIPE AND FITTINGS SHALL BE SDR26 CONFORMING TO ASTM SPECIFICATION D3034.
2. ALL JOINTS SHALL BE A BELL AND SPIGOT ASSEMBLY CONFORMING TO ASTM SPECIFICATION D3212 WITH ELASTOMERIC SEALING GASKETS. SEALING GASKETS SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION F477. SOLVENT CEMENT JOINTS ARE NOT PERMITTED.
3. ALL PIPE ENTERING OR LEAVING A CONCRETE STRUCTURE SHALL HAVE A RUBBER WATERSTOP GASKET ATTACHED TO IT. THE WATERSTOP GASKET SHALL CONFORM TO THE PIPE MANUFACTURER'S SPECIFICATIONS. THE WATERSTOP GASKET SHALL BE SEATED FIRMLY AROUND THE PIPE EXTERIOR AND BE CAST INTO THE CONCRETE STRUCTURE.
4. ALL PIPE JOINTS SHALL BE MADE USING MANUFACTURED PVC COUPLINGS. BAND TYPE COMPRESSION COUPLINGS ARE NOT PERMITTED, EXCEPT AT REPAIRS. FERNCO SHIELDED COUPLINGS, MISSION ARC FLEX-SEAL OR APPROVED EQUIVALENT MAY BE USED, WITH ENGINEER'S APPROVAL, FOR JOINING PIPES OF DISSIMILAR MATERIALS AT REPAIRS.

## **HDPE**

1. ALL PIPES AND FITTINGS SHALL CONFORM TO ASTM SPECIFICATIONS F714 AND D3035.
2. ALL JOINTS AND FITTINGS SHALL BE BUTT FUSED OR CONNECTED W/ ELECTROFUSION COUPLINGS / FITTINGS.
3. GENERIC BUTT FUSION JOINTING PROCEDURE FOR FIELD JOINING OF PE PIPE SHALL FOLLOW ASTM SPECIFICATIONS D2620.
4. ALL CONNECTIONS TO EXISTING PIPES OF DIFFERING MATERIALS SHALL BE MADE W/ A STAINLESS STEEL SHEAR BANDED COUPLING (FERNCO SHIELDED COUPLING, MISSION ARC FLEX-SEAL OR APPROVED EQUIVALENT).
5. INTERNAL BEADS RESULTING FROM PIPE FUSING SHALL BE REMOVED BY DE-BEADER OR A METHOD APPROVED BY THE CITY ENGINEER.

## **FUSIBLE PVC (APPLICATION REQUIRES PRE-APPROVAL BY CITY ENGINEER)**

1. ALL PIPES AND FITTINGS SHALL CONFORM TO ASTM SPECIFICATION D3034.
2. ALL JOINTS AND FITTINGS SHALL BE BUTT FUSED OR CONNECTED W/ ELECTROFUSION COUPLINGS / FITTINGS.
3. GENERIC BUTT FUSION JOINTING PROCEDURE FOR FIELD JOINING OF PVC PIPE SHALL FOLLOW ASTM SPECIFICATIONS D2538.
4. JOINT TESTING SHALL CONFORM TO ASTM SPECIFICATIONS D638 AND D1599.
5. ALL CONNECTIONS TO EXISTING PIPES OF DIFFERING MATERIALS SHALL BE MADE W/ A STAINLESS STEEL SHEAR BANDED COUPLING (FERNCO SHIELDED COUPLING, MISSION ARC FLEX-SEAL OR APPROVED EQUIVALENT).
6. INTERNAL BEADS RESULTING FROM PIPE FUSING SHALL BE REMOVED BY DE-BEADER OR A METHOD APPROVED BY THE CITY ENGINEER.



### **TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:

  
PUBLIC WORKS DIRECTOR  
DATE: JULY 8, 2013

### **STANDARD SPECIFICATIONS PIPES AND FITTINGS**

STD. DETAIL No.

*S2a*

**DUCTILE IRON PIPE (DIP)  
(ALLOWED FOR WYE CONNECTION TO MAIN ONLY FOR REPAIR ONLY)**

1. ALL PIPE SHALL BE THICKNESS CLASS 50 (FOUR INCH PIPE SHALL BE THICKNESS CLASS 51) IN ACCORDANCE WITH ANSI SPECIFICATIONS C150/A21.50. FITTINGS SHALL BE IN ACCORDANCE WITH ANSI SPECIFICATION C110/A21.10.
2. JOINTS SHALL BE PUSH-ON TYPE OR MECHANICAL JOINT TYPE IN ACCORDANCE WITH ANSI SPECIFICATION C111/A21.11. RUBBER GASKETS FOR PUSH-ON JOINTS SHALL BE IN ACCORDANCE WITH ANSI SPECIFICATIONS HEREIN.
3. PIPE AND FITTINGS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH ASTM SPECIFICATION A746, UNLESS OTHERWISE SPECIFIED HEREIN.
4. PIPE AND FITTINGS SHALL HAVE A 1/16" (ONE-SIXTEENTH INCH) CEMENT-MORTAR LINING WITH AN ASPHALTIC SEAL COAT ON BOTH THE INTERIOR AND EXTERIOR. EPOXY COATINGS MAY BE SUBSTITUTED WITH THE ENGINEER'S APPROVAL.

**VITRIFIED CLAY PIPE (VCP)  
(ALLOWED FOR WYE CONNECTION TO MAIN ONLY FOR REPAIR ONLY)**

1. PIPE AND FITTINGS SHALL BE EXTRA STRENGTH, UNGLAZED, BELL AND SPIGOT, CONFORMING TO THE LATEST REVISION OF ASTM SPECIFICATION C700.
2. JOINTS SHALL BE A BELL AND SPIGOT ASSEMBLY WITH FACTORY INSTALLED FLEXIBLE COMPRESSION TYPE GASKETS MADE OF PLASTICIZED POLYVINYL OR POLYURETHANE CONFORMING TO THE LATEST REVISION OF ASTM SPECIFICATIONS C425. BAND TYPE COUPLINGS ARE NOT ALLOWED EXCEPT AT REPAIRS. FERNCO SHIELDED COUPLINGS, MISSION ARC FLEX-SEAL OR APPROVED EQUIVALENT MAY BE USED, WITH ENGINEER'S APPROVAL, FOR JOINING PIPES OF DISSIMILAR MATERIALS AT REPAIRS.



**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**STANDARD SPECIFICATIONS  
PIPES AND FITTINGS**

STD. DETAIL No.  
*S2b*

1. ALL REFERENCES TO "TOWN" IN THESE TESTING REQUIREMENTS SHALL MEAN THE TOWN OF HILLSBOROUGH. ALL REFERENCES TO ENGINEER SHALL MEAN THE TOWN OF HILLSBOROUGH CITY ENGINEER OR THEIR DESIGNATED REPRESENTATIVE.
2. ALL REQUIRED CLEANING AND TESTING OF SANITARY SEWER MAINS AND LATERALS SHALL BE PERFORMED IN THE PRESENCE OF A REPRESENTATIVE OF THE TOWN.
3. ALL SANITARY SEWER MAINS BEING CONSTRUCTED SHALL BE CLEANED BY MEANS OF A HIGH SPEED JET RODDER PRIOR TO TESTING. VCP AND DIP SHALL BE TESTED FOR OBSTRUCTION BY APPROVED MANDREL TESTING.
4. ALL SANITARY SEWER MAINS BEING CONSTRUCTED SHALL PASS A LOW PRESSURE AIR TEST. EACH SECTION OF MAIN SHALL BE TESTED BETWEEN SUCCESSIVE MANHOLES. THE LOW PRESSURE AIR TEST SHALL BE CONDUCTED IN THE FOLLOWING MANNER.

A COMPRESSED AIR SUPPLY SHALL BE ATTACHED TO AN AIR FITTING ON THE MAIN AND THE AIR PRESSURE WITHIN THE LINE INCREASED TO FOUR (4) POUNDS PER SQUARE INCH (PSI). AFTER THE AIR SUPPLY IS SECURELY TURNED OFF OR DISCONNECTED, THERE SHALL BE A TWO (2) MINUTE WAITING PERIOD BEFORE THE ACTUAL TEST PERIOD BEGINS TO ALLOW STABILIZATION OF AIR WITHIN THE MAIN.

IN NO CASE SHALL THE AIR PRESSURE WITHIN THE LINE BE LESS THAN 3.5 PSI AT THE BEGINNING OF THE TEST PERIOD. REFER TO THE CHART WHICH FOLLOWS FOR THE LENGTH OF THE TEST PERIOD. THE MINIMUM LENGTH OF TEST IS TWO (2) MINUTES). THE ALLOWABLE AIR PRESSURE LOSS DURING THE TEST PERIOD SHALL BE 1.0 PSI. A WRITTEN RECORD OF THE TEST SHALL BE SUBMITTED TO THE ENGINEER BY THE CONTRACTOR.

NOMINAL PIPE SIZE (inches)	LENGTH OF LINE (feet)	LENGTH OF TEST (minutes)
4	ALL	2
6	0 – 300	2
6	300 – 370	2 1/2
6	370 AND GREATER	3
8	0 – 170	2
8	170 – 210	2 1/2
8	210 – 250	3
8	250 – 290	3 1/2
8	290 AND GREATER	3 3/4
10	0 – 110	2
10	110 – 165	3
10	165 – 215	4
10	215 AND GREATER	4 3/4



<b>TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL</b>		
APPROVED BY:  PUBLIC WORKS DIRECTOR DATE: JULY 8, 2013	<b>STANDARD SPECIFICATIONS TESTING REQUIREMENTS</b>	STD. DETAIL No. <i>S3a</i>

5. A CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION SHALL BE MADE OF ALL SANITARY SEWER MAINS BEING CONSTRUCTED. IMMEDIATELY PRIOR TO TELEVISIONING THE SEWER, AN AMOUNT OF WATER ACCEPTABLE TO THE TOWN'S REPRESENTATIVE SHALL BE INTRODUCED INTO THE SEWER MAIN BEING INSPECTED.

DIGITAL VIDEO RECORD SHALL BE MADE DURING THE CCTV INSPECTION. THE STANDARDS FOR THE INSPECTOR ARE AS CONTAINED IN CHAPTER 13.33 OF THE TOWN OF HILLSBOROUGH MUNICIPAL CODE.

THE SUBMITTED DIGITAL VIDEO RECORD (WINDOWS FORMAT) SHALL INCLUDE A CONTINUOUS ON-SCREEN DISPLAY WHICH CONTAINS, AS A MINIMUM, THE DATE OF THE FILMING, IDENTIFICATION OF THE LINE AND SEGMENT (REACH) OF THE LINE BEING VIEWED DIRECTION (UPSTREAM OR DOWNSTREAM), AND A READOUT IN FEET (ACCURATE TO 0.1'), SHOWING THE DISTANCE FROM THE ENTRY POINT.

IF, IN THE OPINION OF THE TOWN, THE SUBMITTED DIGITAL VIDEO RECORD IS OF POOR QUALITY, THE TOWN MAY REJECT IT AND REQUIRE THE CCTV VIDEO INSPECTION TO BE REPEATED AND NEW VIDEO SUBMITTED TO THE TOWN FOR REVIEW AND ACCEPTANCE. ALL VIDEO RECORDS SHALL BECOME THE PROPERTY OF THE TOWN.

6. DEFLECTION TESTING OF POLYVINYL CHLORIDE (PVC) SEWER MAINS SHALL BE PERFORMED AFTER THE PLACEMENT OF ALL TRENCH BACKFILL. PIPE DEFLECTION SHALL BE TESTED BY PULLING BY HAND AN APPROVED MANDREL THROUGH THE INSTALLED SECTIONS OF SEWER MAIN.

THE MANDREL USED SHALL HAVE A LENGTH AT LEAST EQUAL TO ITS DIAMETER. THE MANDREL SHALL BE CONSTRUCTED WITH A MINIMUM OF NINE (9) RIBS FABRICATED PARALLEL TO ITS LONGITUDINAL AXIS. BOTH THE DESIGN OF THE MANDREL AND THE FABRICATED MANDREL ITSELF SHALL BE INSPECTED AND APPROVED BY THE TOWN WELL IN ADVANCE OF THE DEFLECTION TEST.

THE MANDREL DIAMETER SHALL BE 95% OF THE PIPE'S AVERAGE INSIDE DIAMETER AS DEFINED BY ASTM SPECIFICATION D3034, AND AS DETAILED IN THE FOLLOWING TABLE:

NOMINAL PIPE SIZE (inches)	AVERAGE INSIDE DIAMETER (inches)	MINIMUM MANDREL DIAMETER (inches)
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6	5.893	5.598
8	7.891	7.497
10	9.864	9.371
12	11.737	11.150
15	14.374	13.655

NOTE: AVERAGE INSIDE DIAMETER = AVERAGE OUTSIDE DIAMETER - 2(1.06)T; WHERE T = MINIMUM WALL THICKNESS AS DEFINED BY ASTM SPECIFICATION D3034.

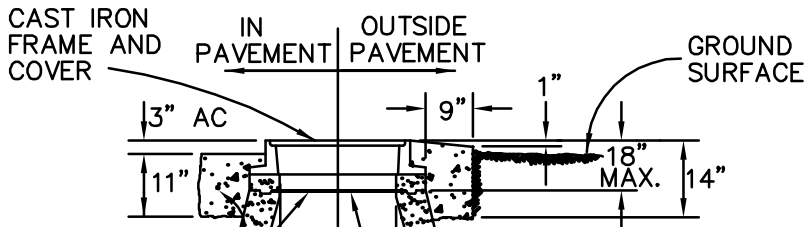


**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
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 DATE: JULY 8, 2013

**STANDARD SPECIFICATIONS  
TESTING REQUIREMENTS**

STD. DETAIL No.  
*S3b*



GRADE RING (IF NEEDED) 9" MAX.

CLEAN JOINT AND INSTALL SEALING GASKET PER NOTE # 5 PRIOR TO SETTING NEXT BARREL OR CONE SECTION

CONCENTRIC CONES FOR MULTIPLE CONNECTIONS TO MANHOLES FOR MAINTENANCE. ECCENTRIC CONES PER CITY ENGINEER DISCRETION.

PLASTER INTERIOR JOINTS FLUSH USING NON-SHRINKING GROUT

FORM RECESS IN BASE WITH APPROVED METAL FORMING RING TO RECEIVE PRECAST MANHOLE JOINT.

SEAL EXTERIOR OF JOINT WITH NON-SHRINKING GROUT

INSTALL SEALING GASKET PER NOTE # 5 BEFORE PLACING FIRST BARREL OR CONE SECTION.

BASE SHALL BE POURED TO A LEVEL AT LEAST 3" ABOVE THE HIGHEST PIPE

#6 @ 12" GRID

REINFORCED CLASS 2 CONCRETE BASE

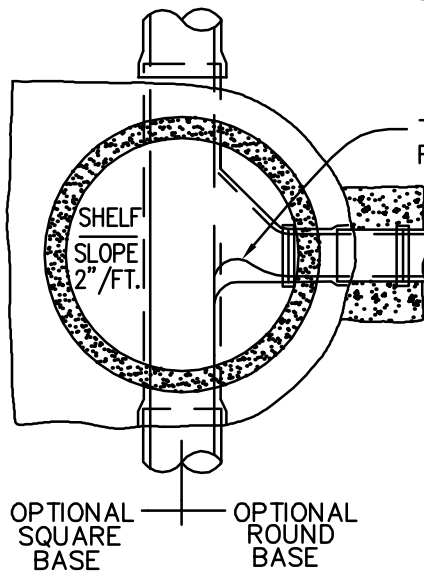
PIPE JOINT

PROVIDE A CONCRETE CRADLE FOR PIPES TO JOINT.

VARIES

**NOTES:**

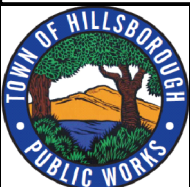
1. ALL REINFORCING STEEL TO HAVE 3" COVER.
2. LAY PIPE THRU M.H. WHEN POSSIBLE.
3. M.H. SHELF SHALL BE MORTARED TO A SLOPE OF 2"/FT.
4. THERE SHALL BE NO STEPS IN THE MANHOLE.
5. PREFORMED PLASTIC SEALING GASKET SHALL BE "RAM-NEK" OR APPROVED EQUAL.
6. IN THE EVENT PVC OR HDPE PIPES ARE APPROVED, STANDARD WATER STOPS SHALL BE INCORPORATED INTO THE MANHOLE BASE.
7. IF AN ECCENTRIC CONE IS PERMITTED, MANHOLE THROAT LOCATION TO BE OPPOSITE THE LARGEST SHELF AREA OR AS DIRECTED BY THE ENGINEER.
8. MANHOLE PIPE PENETRATIONS SHALL BE WATER TIGHT USING PIPE O-RING OR AS DIRECTED BY THE ENGINEER.
9. IF FRAME MUST BE SHIMMED TO MATCH SLOPE OF STREET, THE GAP SHALL BE COMPLETELY FILLED WITH NON-SHRINKING GROUT AND TROWELLED SMOOTH ON THE INNER SURFACE.



**SECTION A-A**

**MANHOLE DIMENSION TABLE**

D	W
48"	64"
60"	78"



**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
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 DATE: JULY 8, 2013

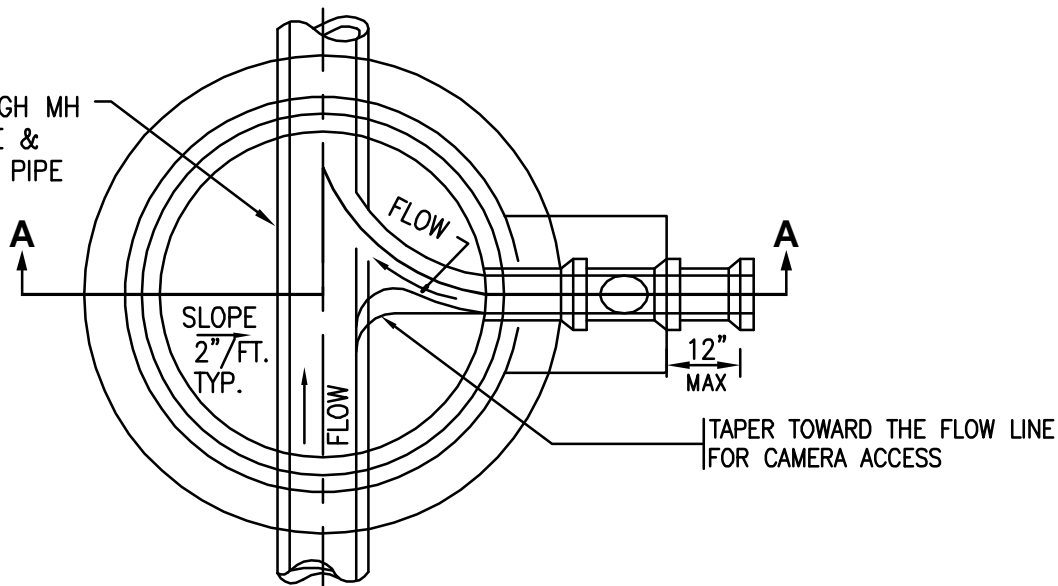
**SANITARY SEWER MANHOLE**

STD. DETAIL No.

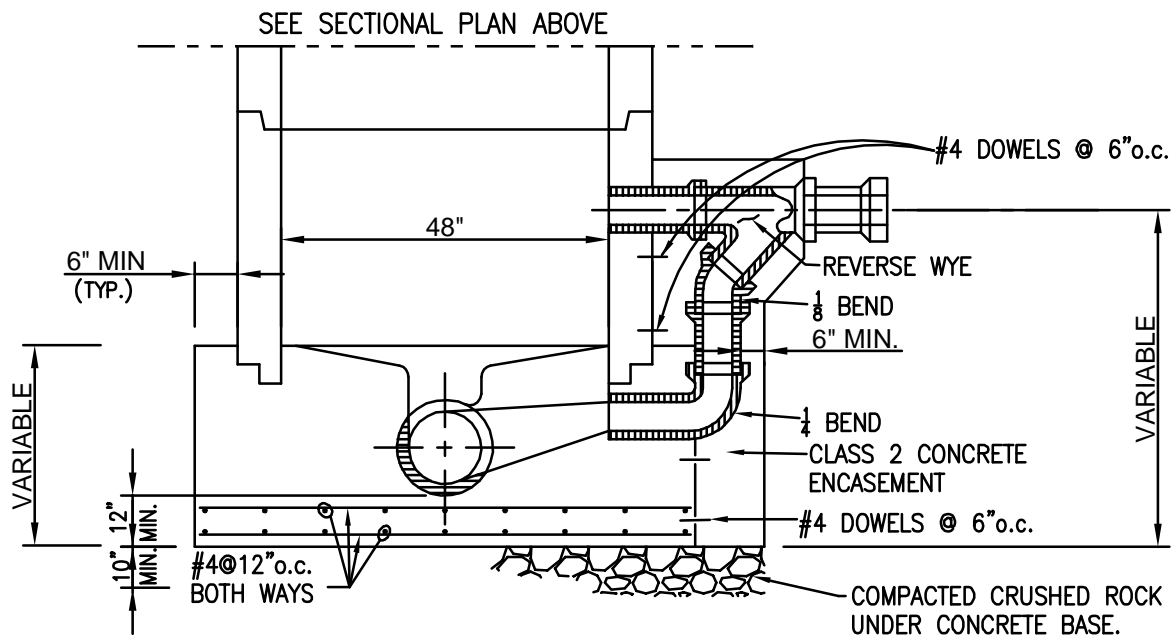
**S4**



LAY PIPE THROUGH MH  
WHERE POSSIBLE &  
REMOVE TOP OF PIPE



**SECTIONAL PLAN**



**SECTION A-A**

**NOTES:**

1. PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C478-74.
2. ALL CONCRETE JOINTS SHALL BE CLEAN WETTED PRIOR TO SETTING NEXT SECTION. JOINTS SHALL BE OF MORTAR CONSISTING OF ONE PART OF CEMENT AND 1-1/2 PARTS OF SAND BY VOLUME. INSIDE JOINTS TO BE STRUCK FLUSH & BRUSHED SMOOTH.
3. FOUNDATION SHALL BE CLASS 2 CONCRETE.
4. FORM CHANNEL TO MAINTAIN PIPE SECTION.



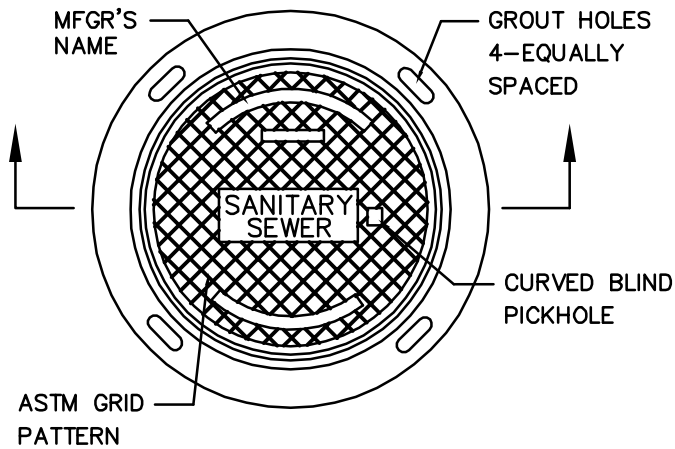
**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

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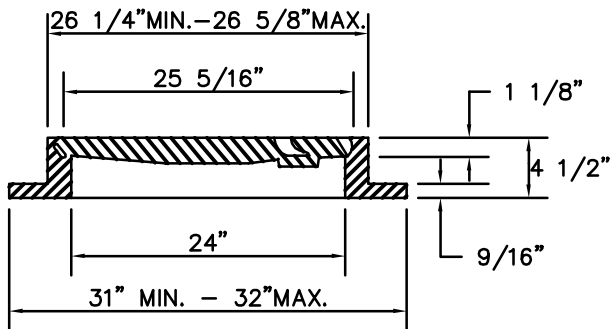
**MANHOLE  
OUTSIDE DROP**

STD. DETAIL No.  
**S5**





\* ALL MATERIALS USED SHALL CONFORM TO ASTM SPEC. A-159-70T-G3000 OR U.S. GOV'T SPEC. QQ1-653

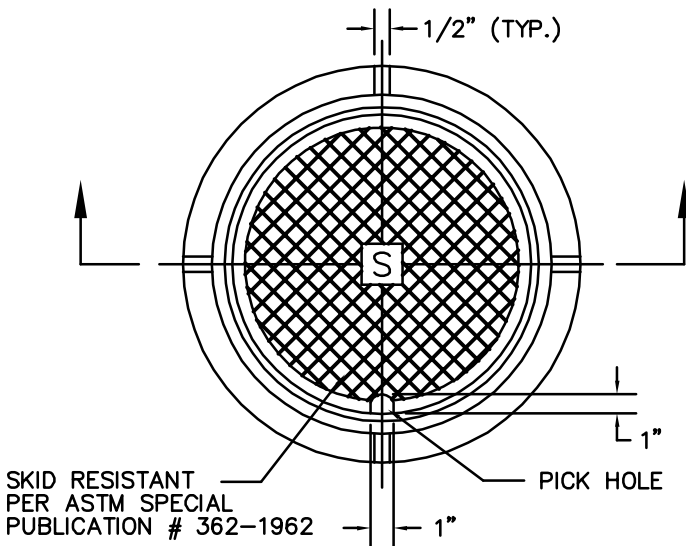


**GENERAL NOTE:**

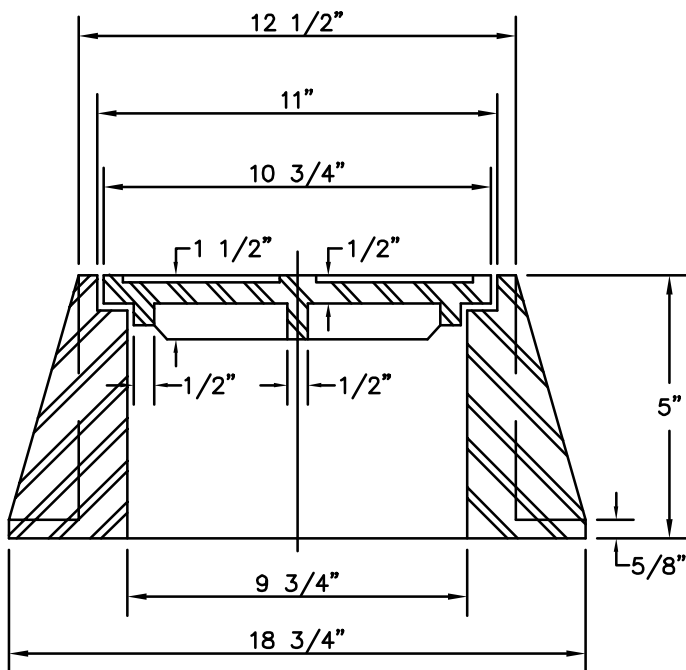
1. FRAME AND COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF AASHTO H-20 LOADING.
2. FOR TRAFFIC AREAS USE PHOENIX IRON WORKS P-1001 OR APPROVED EQUIVALENT
3. FOR NON-TRAFFIC / EASEMENT AREAS USE PHOENIX IRON WORKS FRAME AND COVER P-1090

\*\*SPECIFY SANITARY SEWER

**SEWER MANHOLE  
FRAME + COVER**



\* ALL MATERIALS USED SHALL CONFORM TO ASTM SPEC. A-159-64T-G3000 OR U.S. GOV'T SPEC. QQ1-653



**FLUSHING INLET  
FRAME + COVER**

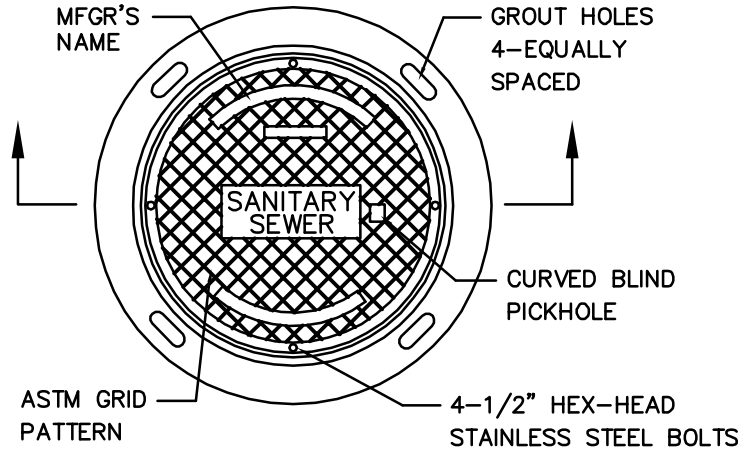


**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

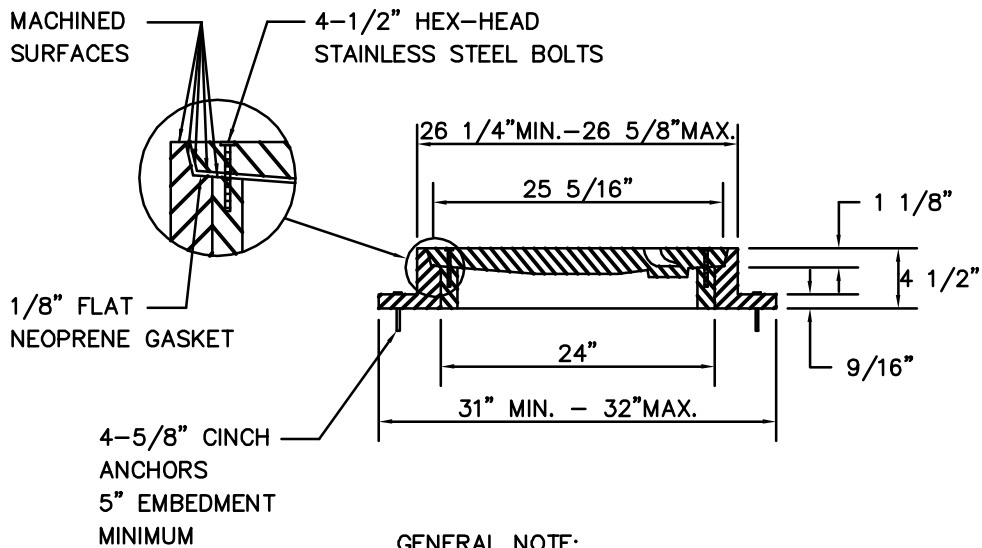
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 DATE: JULY 8, 2013

**SEWER STRUCTURE  
FRAME AND COVER**

STD. DETAIL No.  
**S6**



\* ALL MATERIALS USED SHALL CONFORM TO ASTM SPEC. A-159-70T-G3000 OR OR U.S. GOV'T SPEC. QQ1-653



GENERAL NOTE:

1. FRAME AND COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF AASHTO H-20 LOADING.
2. MAXIMUM ALLOWABLE PRESSURE SHALL BE 10 P.S.I.
3. USE PHOENIX IRON WORKS P-1002 OR APPROVED EQUIVALENT.

\*\*SPECIFY SANITARY SEWER

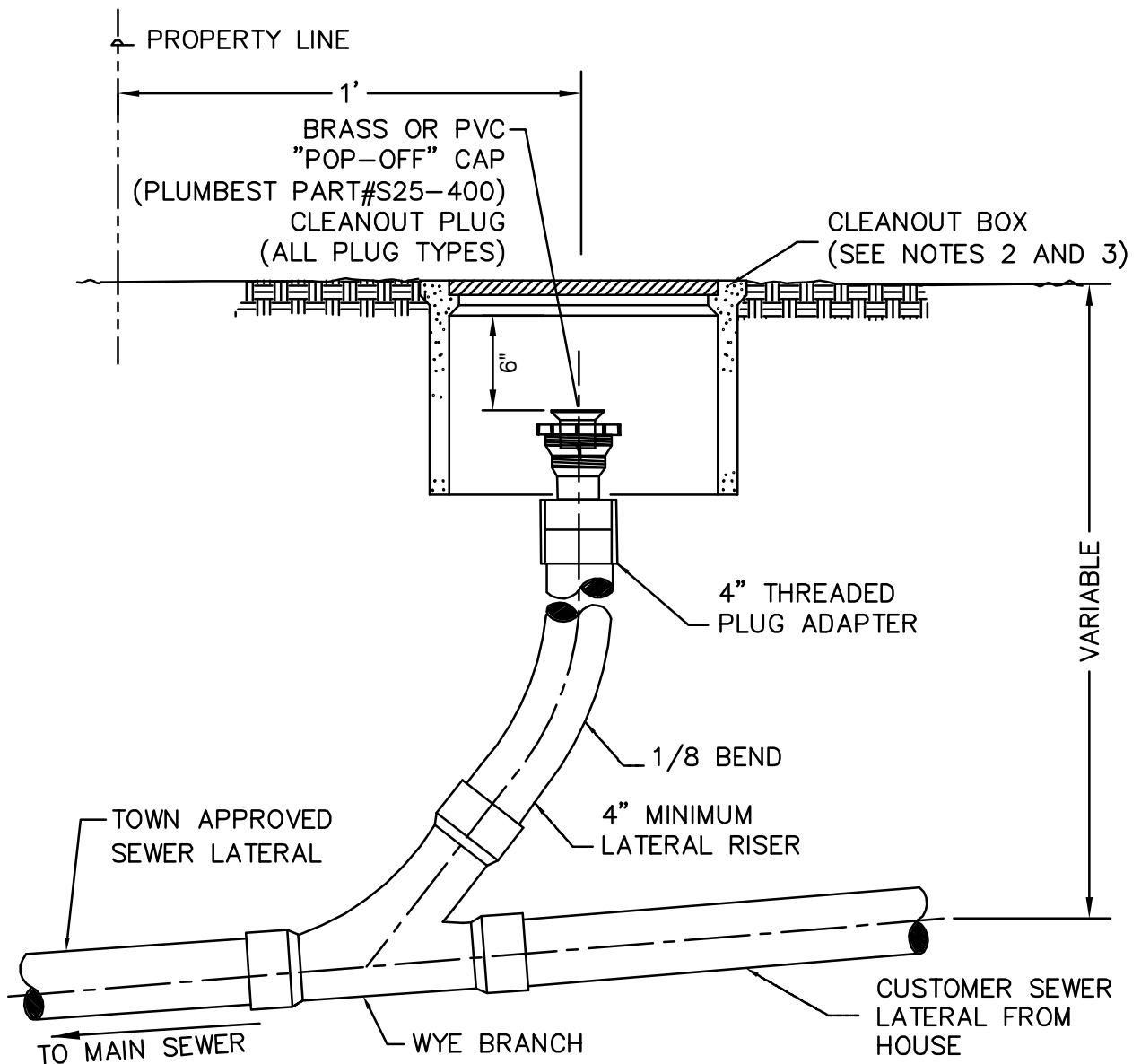


**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**SEWER BOLT DOWN  
 FRAME AND COVER**

STD. DETAIL No.  
**S7**



**NOTE:**

1. THE TOWN SHALL NOT BE RESPONSIBLE FOR FLUSHING PRIVATE LATERALS.
2. SEWER LATERAL FROM THE HOUSE SHALL BE MADE OF FUSIBLE HDPE OR PVC AND CONSTRUCTED PER BUILDING DEPARTMENT REQUIREMENTS.
3. IN DRIVEWAY OR PLANTED AREA, USE CHRISTY TYPE G5 TRAFFIC BOX WITH G5C LID OR EQUAL. LID SHALL CONTAIN THE LETTERS "SEWER".
4. WHEN INSTALLED IN PLANTED AREAS, CLEANOUT BOX SHALL BE SET A MINIMUM OF 4" ABOVE GRADE. IN LAWNS, THE BOX MAY BE LOWER TO ALLOW MOWING.
5. OWNER IS RESPONSIBLE FOR LATERAL TO THE MAIN, INCLUDING THE CONNECTION TO THE MAIN.
6. INSTALL BACKFLOW PREVENTOR UPSTREAM WITHIN 5 FEET OF PROPERTY LINE CLEANOUT.
7. ARC COUPLINGS MAY BE USED ONLY WITH APPROVAL FROM THE CITY ENGINEER OR AUTHORIZED TOWN REPRESENTATIVE.
8. SEWER CLEANOUT SHALL BE INSTALLED 1 FOOT FROM THE PROPERTY LINE.

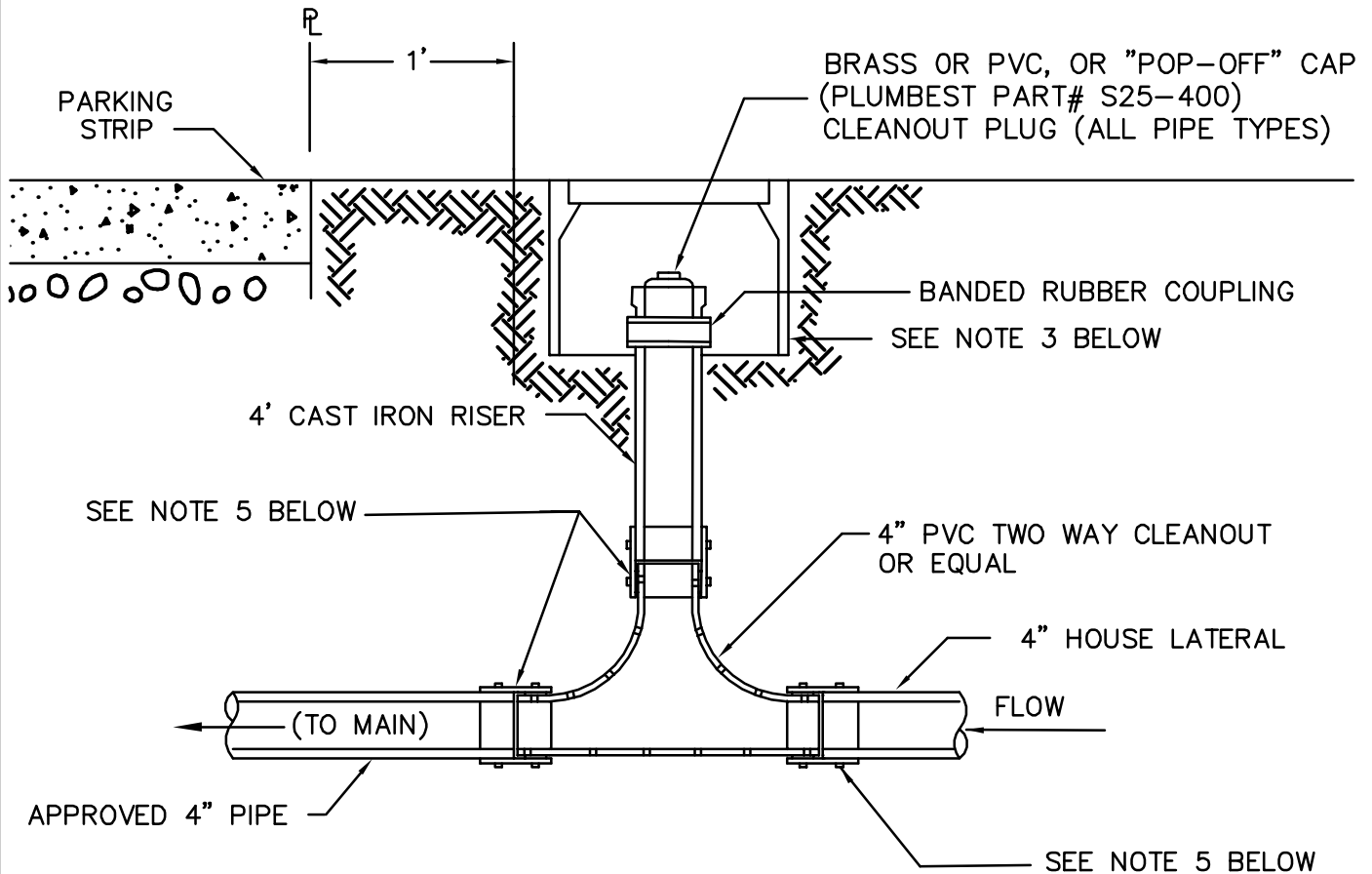


**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**SEWER LATERAL  
 VERTICAL CLEANOUT**

STD. DETAIL No.  
**S8a**



**NOTES:**

1. THE TOWN SHALL NOT BE RESPONSIBLE FOR FLUSHING PRIVATE LATERALS.
2. ALTERNATE CLEANOUT TO BE USED AS DIRECTED BY THE ENGINEER.
3. IN SIDEWALK OR PARKING STRIP, USE CHRISTY TYPE F1 VALVE BOX WITH F8D LID OR APPROVED EQUAL. IN DRIVEWAY OR PLANTED AREA, USE CHRISTY TYPE G5 TRAFFIC BOX WITH G5C LID OR APPROVED EQUAL. LID SHALL CONTAIN THE LETTERS "SEWER".
4. WHEN INSTALLED IN PLANTED AREAS, CLEANOUT BOX SHALL BE SET A MINIMUM OF 1/2" ABOVE GRADE.
5. COUPLINGS SHALL BE BUTT FUSED OR ELECTOFUSION COUPLING FOR PVC AND HDPE PIPE. MUST BE A WATER TIGHT CONNECTION.
6. OWNER IS RESPONSIBLE FOR LATERAL TO THE MAIN, INCLUDING THE CONNECTION TO THE MAIN.
7. INSTALL BACKFLOW PREVENTOR UPSTREAM WITHIN 5 FEET OF PROPERTY LINE CLEANOUT.
8. SEWER LATERAL FROM THE HOUSE SHALL BE CONSTRUCTED PER BUILDING DEPARTMENT REQUIREMENTS.



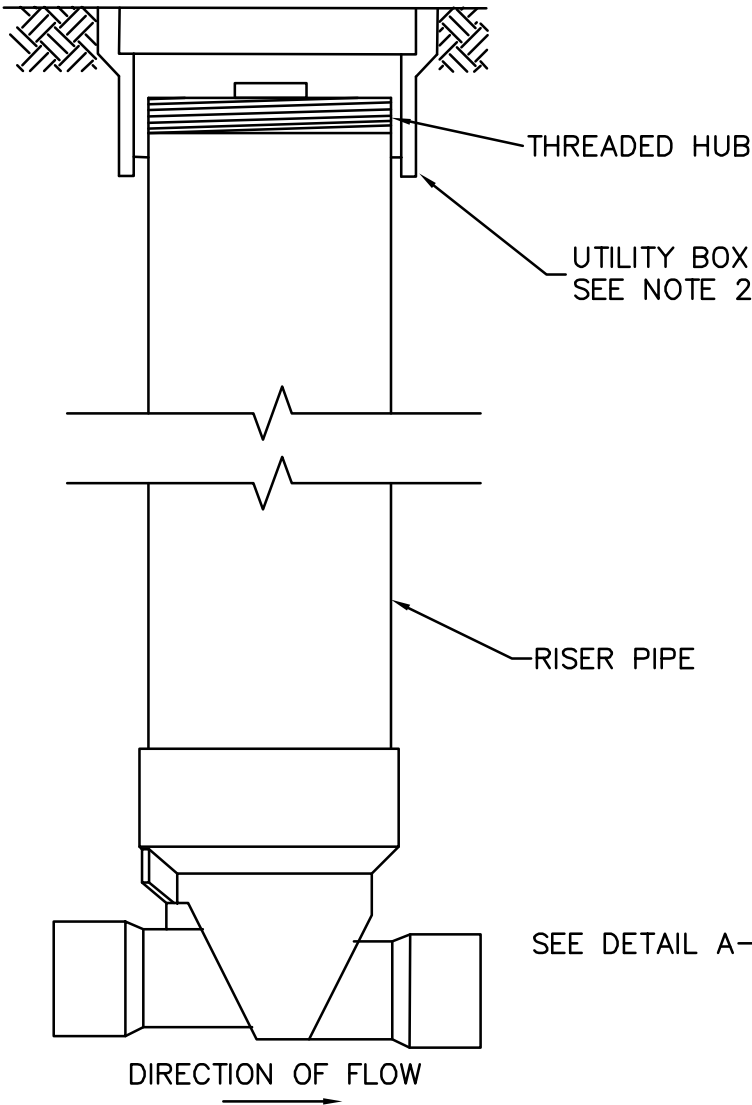
**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

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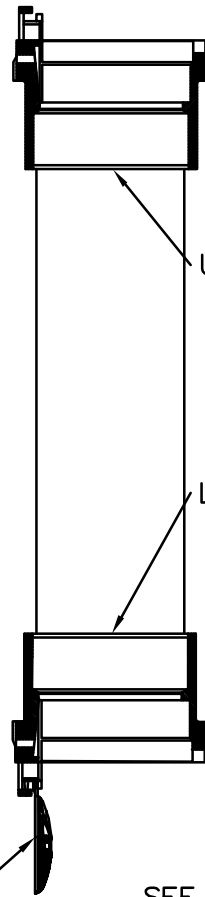
**SEWER LATERAL  
 DUAL DIRECTION CLEANOUT**

STD. DETAIL No.  
**S8b**

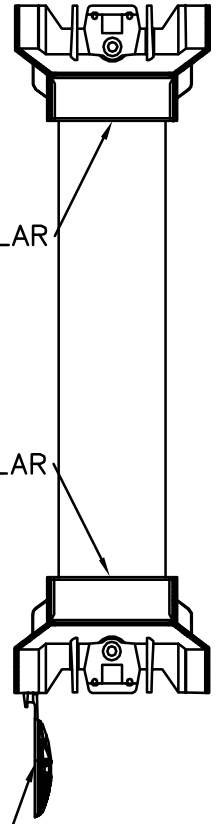
**BACKFLOW PREVENTION DEVICE SLEEVE**



**4" ABS/PVC BACKFLOW PREVENTION DEVICE**



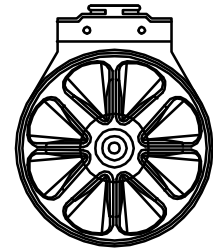
**6" PVC BACKFLOW PREVENTION DEVICE**



SEE DETAIL A

SEE DETAIL A

**FLAPPER VALVE DETAIL  
DETAIL A**



**GENERAL NOTES:**

1. BACK-FLOW PREVENTION DEVICE SHALL BE PLACED 3' MAX. AND 6" MIN. FROM BACK OF WALK OR AS DIRECTED BY THE ENGINEER.
2. USE CHRISTY TYPE F1 VALVE BOX WITH F8D LID OR EQUAL. IN DRIVEWAY, USE CHRISTY TYPE G5 TRAFFIC BOX WITH G5C LID OR EQUAL. THE LID SHALL BE MARKED "SEWER".

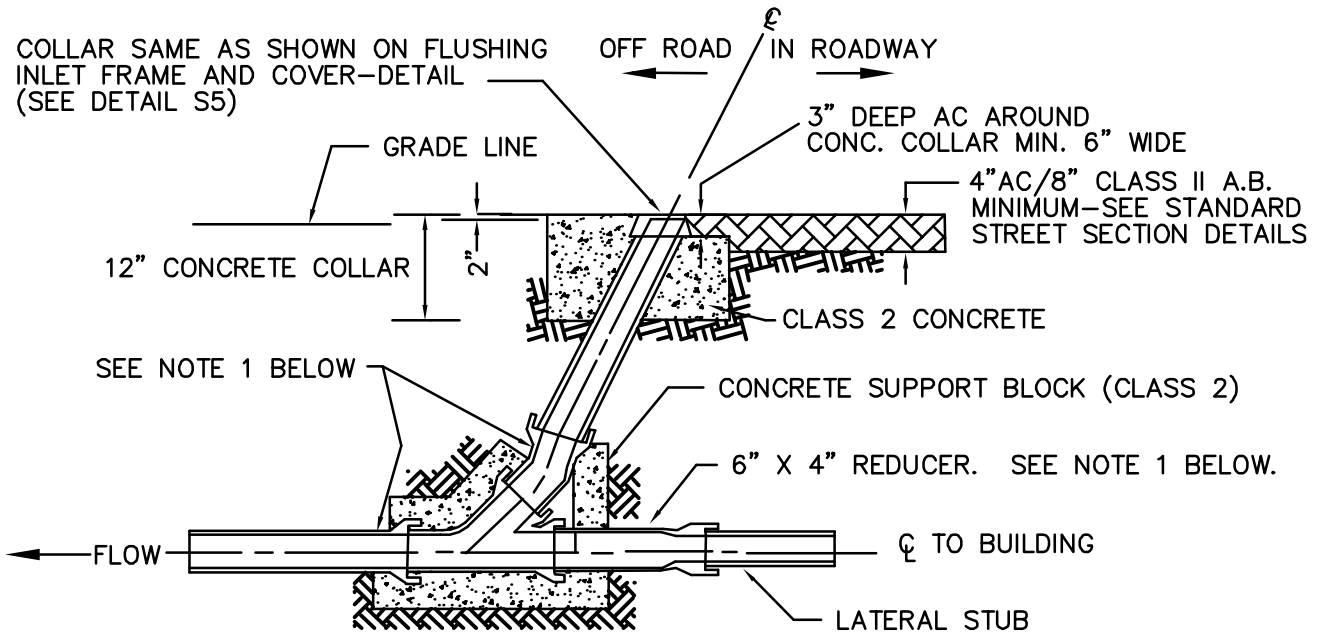


**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

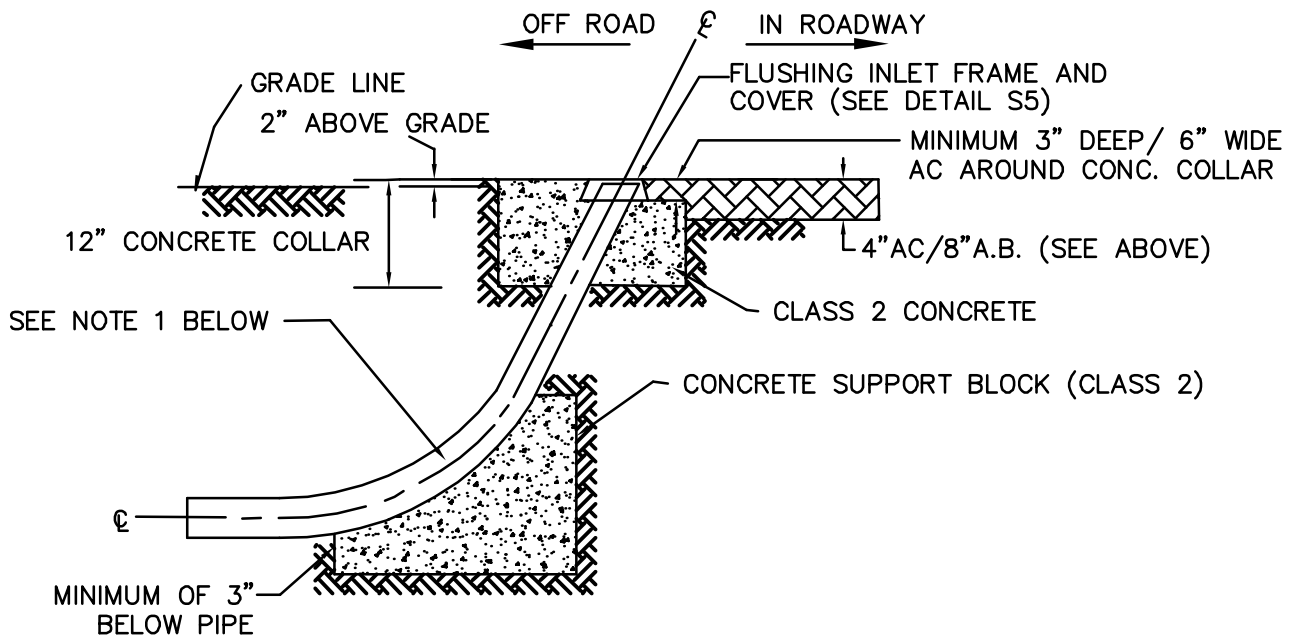
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 DATE: JULY 8, 2013

**OVERFLOW AND BACKFLOW DEVICES**

STD. DETAIL No.  
**S9**



**FLUSHING INLET WITH LATERAL STUB**



**FLUSHING INLET**

- NOTE:**
1. FOR HDPE AND P.V.C. PIPE, LONG MANUFACTURED SWEEPS SHALL BE USED AS DIRECTED BY THE CITY ENGINEER. ALL FITTINGS SHALL BE BUTT FUSED OR ELECTROFUSION COUPLINGS FOR PVC AND HDPE PIPE.
  2. ALL PIPES SHALL BE HDPE (SDR 17) OR PVC (SDR 26)



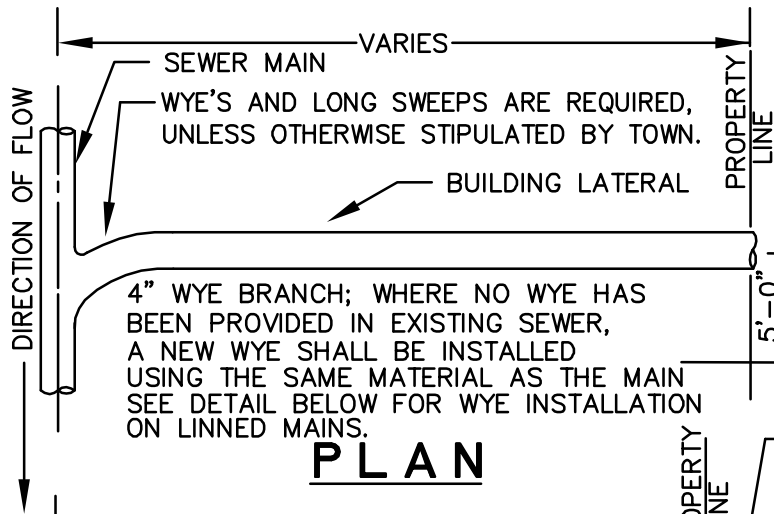
**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**FLUSHING INLET**

STD. DETAIL No.

**S10**

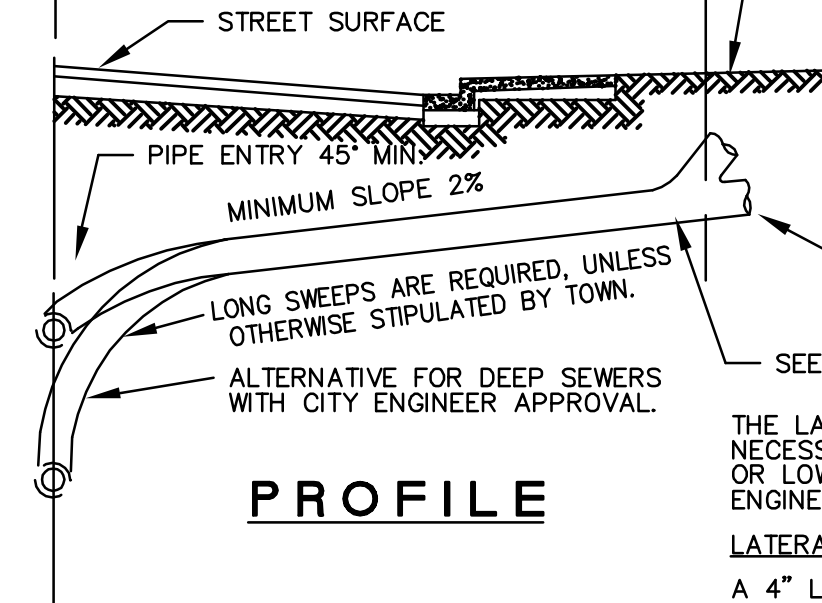


ON NEW CONSTRUCTION—LATERAL TO BE PLACED 5' FROM LOWER LOT LINE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE WYE LATERAL AND PROPERTY LINE CLEAN OUT SHALL BE REQUIRED.

4" WYE BRANCH; WHERE NO WYE HAS BEEN PROVIDED IN EXISTING SEWER, A NEW WYE SHALL BE INSTALLED USING THE SAME MATERIAL AS THE MAIN SEE DETAIL BELOW FOR WYE INSTALLATION ON LINED MAINS.

**PLAN**

NOTE: (1) SEE TOWN OF HILLSBOROUGH CLEANOUT DETAIL.  
(2) BEDDING AND BACKFILL MATERIAL SEE DETAILS C16



3'-0" TO FLOW LINE (UNLESS OTHERWISE APPROVED BY THE ENGINEER)

INSTALL STOPPER OR PLUG IF BUILDING LATERAL IS NOT CONNECTED AT THE SAME TIME

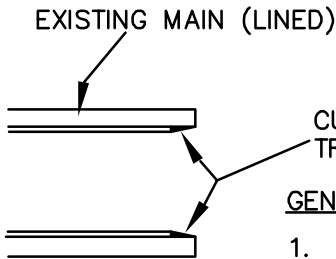
SEE NOTE 1

THE LATERAL SHALL BE LOWER WHERE NECESSARY TO SERVE EXISTING PLUMBING OR LOW LOTS OR WHEN DIRECTED BY THE ENGINEER.

**PROFILE**

LATERAL SIZES

A 4" LATERAL CAN BE USED FOR A SINGLE FAMILY RESIDENCE OR A SFR WITH A SECOND UNIT. A MINIMUM 6" LATERAL SHALL BE USED FOR ALL OTHER DEVELOPMENTS.



METHOD OF INSTALLING WYE CONNECTION ON LINED MAINS

CUT BACK LINNER MATERIAL 1" AND EPOXY TRANSITION TO LINER IN EXISTING MAIN.

GENERAL NOTES:

1. ALL CONNECTIONS SHALL BE WYE TYPE OR TO MANHOLE ONLY IF APPROVED THE CITY ENGINEER.
2. CONNECTIONS TO TOWN MAINS REQUIRE INSPECTIONS TO BE MADE BY THE PUBLIC WORKS DEPT. SCHEDULE INSPECTION AT (650) 375-7444.



**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

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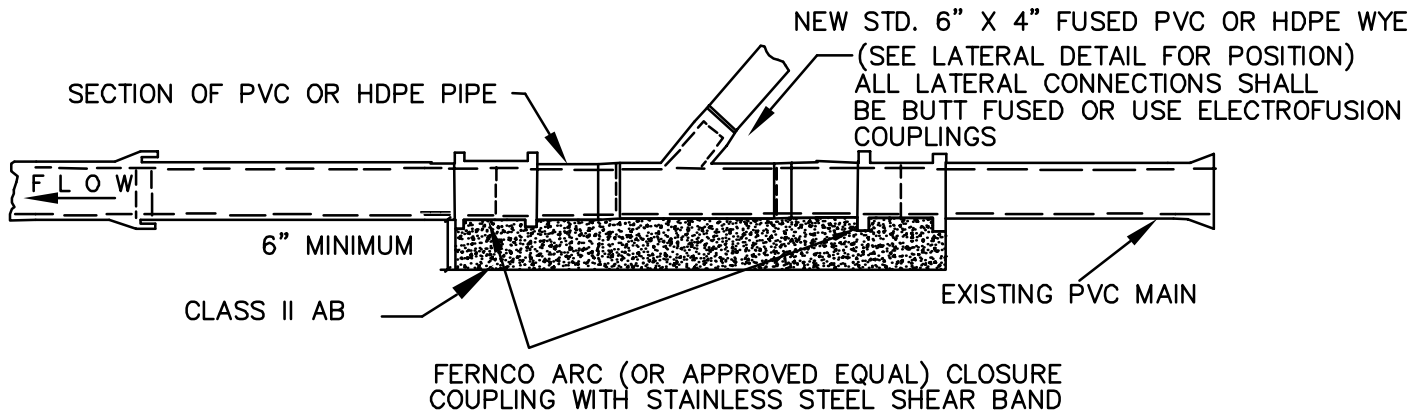
**SEWER LATERAL**

STD. DETAIL No.

**S11a**

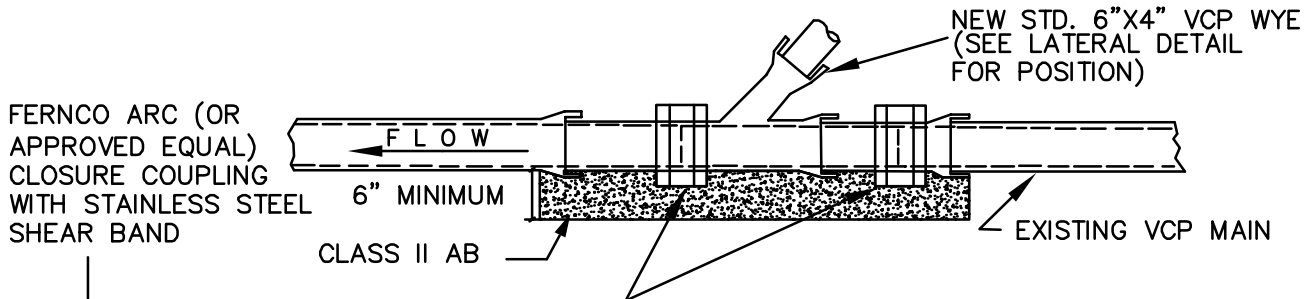


## POLYVINYL CHLORIDE PIPE (PVC) OR HIGH-DENSITY POLYETHYLENE (HDPE)



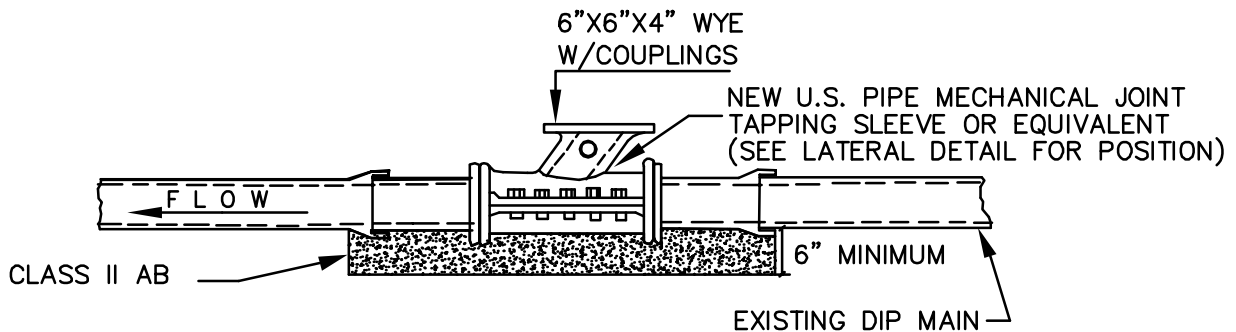
**NOTE:** ALL PVC AND HDPE, PIPE AND FITTINGS SHALL BE SDR 26 SDR 17 RESPECTIVELY AND SHALL BE BUTT FUSED OR USE ELECTROFUSION COUPLINGS. SOLVENT WELDED JOINTS SHALL NOT BE ALLOWED.

## VITRIFIED CLAY (VCP)



**NOTE:** THE NEWLY INSTALLED WYE SHALL BE OF THE SAME MATERIAL AS THE EXISTING MAIN.

## DUCTILE IRON PIPE (DIP)



**NOTE:** THE NEWLY INSTALLED WYE SHALL BE OF THE SAME MATERIAL AS THE EXISTING MAIN.

## LATERAL CONNECTION TO EXISTING MAIN

**NOTE:** LATERAL CONNECTION INSTALLATION ON NEWLY INSTALLED PIPE SHALL BE INSTALLED PER PLANS APPROVED BY THE CITY ENGINEER. ENCROACHMENT PERMIT AND INSPECTION REQUIRED.



**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

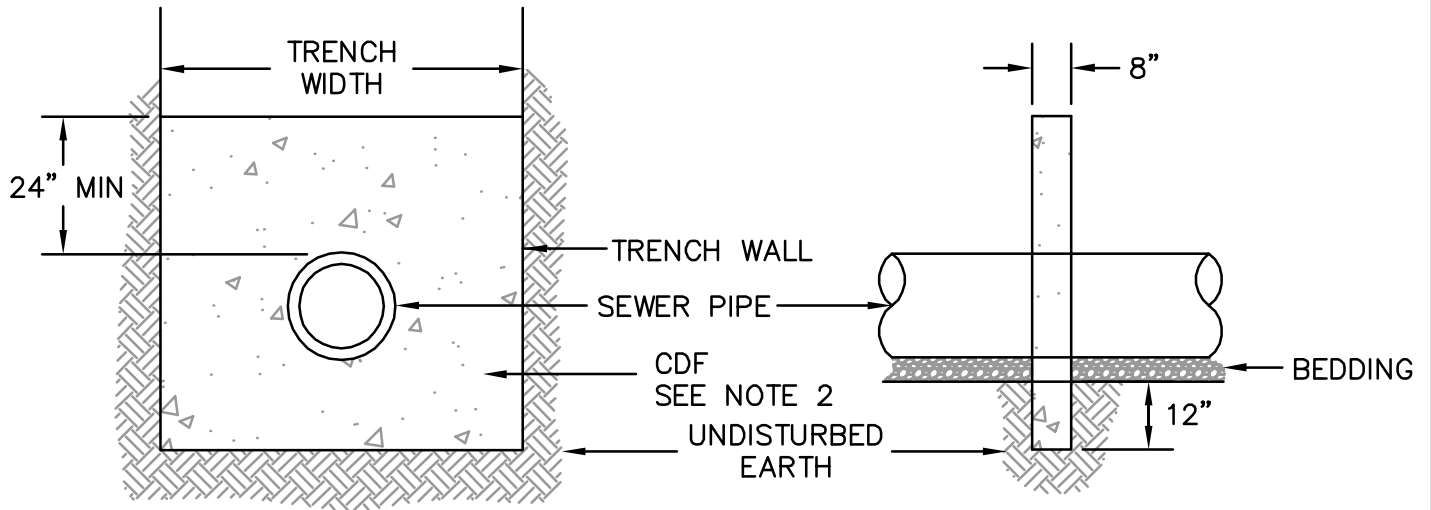
APPROVED BY:

  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

# SEWER LATERAL CONNECTION TO EXISTING

STD. DETAIL No.

# S11b



NOTES:

1. APPLICATION OF TRENCH DAM:
  - A. ANCHOR SEWER PIPE TO KEEP FROM FLOATING.
  - B. ACT AS DAM IN CASE OF WATER ENTERING TRENCH.
2. TOP OF DAM TO EXTEND INTO INTERMEDIATE BACKFILL 12" MINIMUM OR TOP OF GROUND WATER HGL, WHICHEVER IS LESS.
3. CONTROLLED DENSITY FILL (CDF) MATERIAL (50-125 PSI MAX AT 28 DAYS).
4. ENGINEER APPROVAL IS REQUIRED IF CDF IS USED FOR TRENCH BACKFILL.



TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL

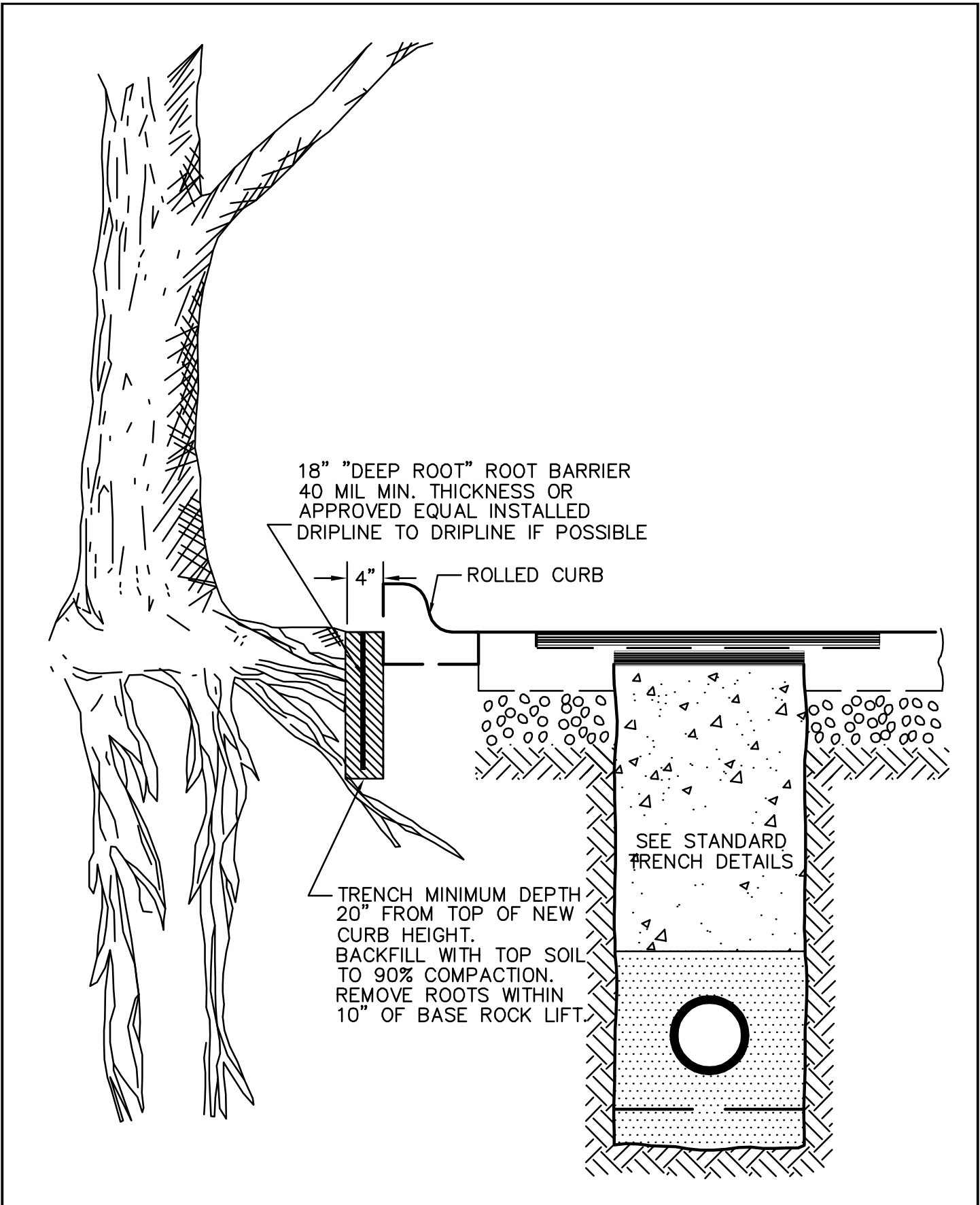
APPROVED BY:

  
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 DATE: JULY 8, 2013

TRENCH DAMS

STD. DETAIL No.

S12



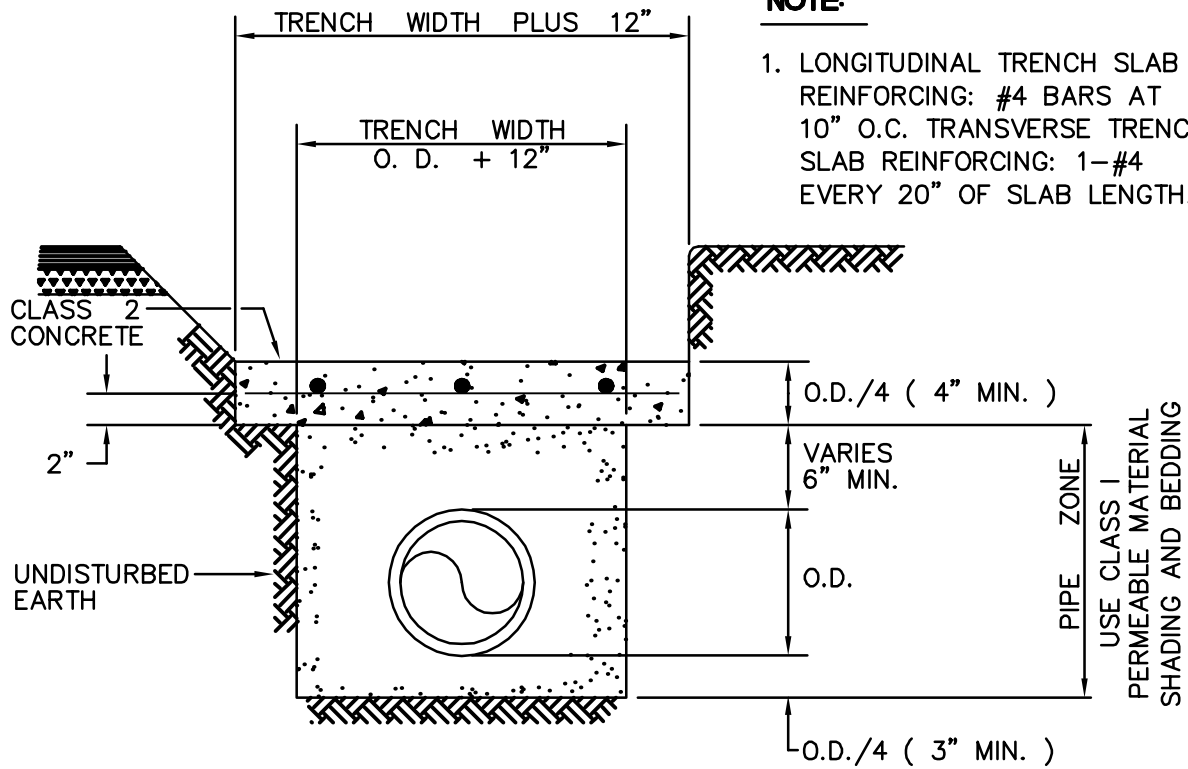
**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**ROOT BARRIER**

STD. DETAIL No.

**S13**

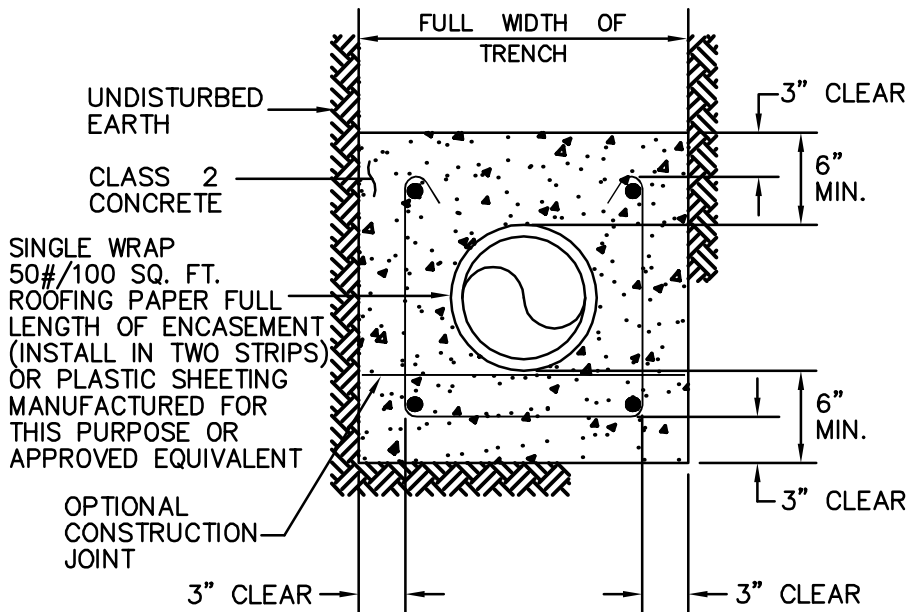


**NOTE:**

1. LONGITUDINAL TRENCH SLAB REINFORCING: #4 BARS AT 10" O.C. TRANSVERSE TRENCH SLAB REINFORCING: 1-#4 EVERY 20" OF SLAB LENGTH.

**REINFORCED CONCRETE CAP**

**NON - PLASTIC PIPE ONLY**



**NOTE:**

1. LONGITUDINAL REINFORCING: 4-#4 BARS AS SHOWN. STIRRUP REINFORCING: 1-#4 BAR EVERY 24" OF CONCRETE ENCASEMENT LENGTH.

**REINFORCED CONCRETE ENCASEMENT**

**NON - PLASTIC PIPE ONLY**



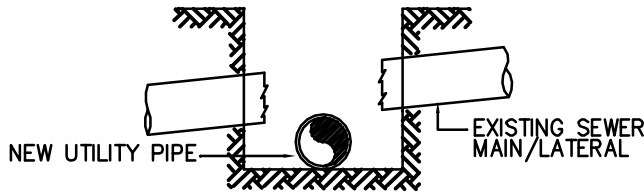
**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:  
  
 PUBLIC WORKS DIRECTOR  
 DATE: JULY 8, 2013

**CONCRETE ENCASEMENT**

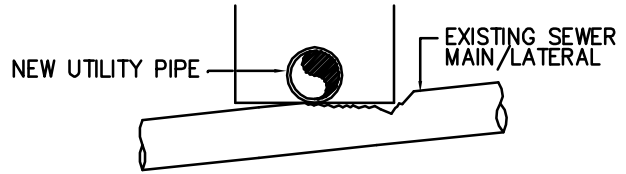
STD. DETAIL No.

**S14**



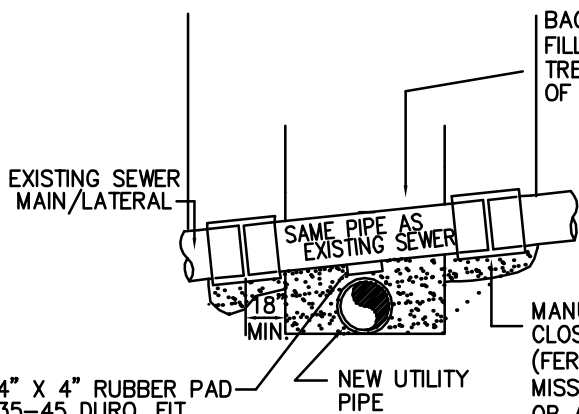
SIMPLE SEWER MAIN/LATERAL BREAK  
( NO CONFLICT IN GRADE )

**BREAK**



SIMPLE SEWER MAIN/LATERAL BREAK  
( NO CONFLICT IN GRADE )

**BREAK**



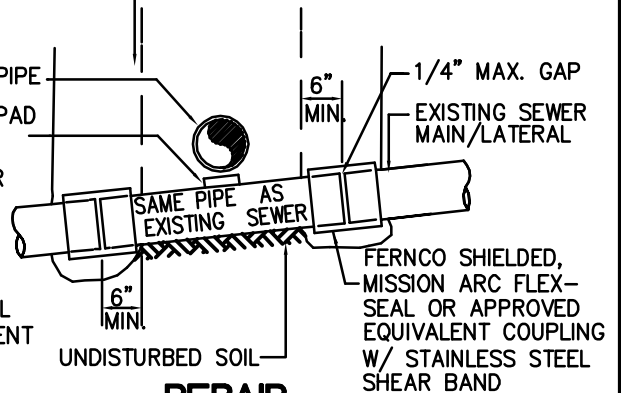
4" X 4" RUBBER PAD  
35-45 DURO. FIT  
SNUGLY BETWEEN  
PIPES WHEN 1" OR  
LESS CLEAR.

**REPAIR**

BACKFILL MATERIAL (SEE NOTE 4),  
FILL ENTIRE EXCAVATION OUTSIDE  
TRENCH AREA MIN. 18" EACH SIDE  
OF SEWER LINE

NEW UTILITY PIPE  
4" X 4" RUBBER PAD  
35-45 DURO. FIT  
SNUGLY BETWEEN  
PIPES WHEN 1" OR  
LESS CLEAR.

MANUFACTURED  
CLOSURE COUPLING  
(FERNCO SHIELDED,  
MISSION ARC FLEX-SEAL  
OR APPROVED EQUIVALENT



**REPAIR**

**NOTES:**

1. NOTIFY TOWN SANITARY SEWER DEPARTMENT
2. TRIM SEWER MAIN/LATERAL TO A CLEAN-CUT, UNDAMAGED END, A MINIMUM OF 18" INTO TRENCH WALL. INSTALL NEW PVC PIPE WITH MANUFACTURED CLOSURE COUPLINGS WITH NEW AND EXISTING PIPES. (IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS).
3. WHEN OUTSIDE DIAMETER OF THE CROSSING PIPES ARE WITHIN 1" OF EACH OTHER, THERE SHALL BE A 4" X 4" PAD OF 35-45 DUROMETER RUBBER PLACED SNUGLY BETWEEN THE PIPES.
4. BACKFILL MATERIAL SHALL BE CL II AB SEE TRENCH DETAIL, SS 2-6
5. BACKFILL SHALL BE COMPACTED TO 95% AND 90% FOR STRUCTURAL SECTIONS AND NON STRUCTURAL SECTIONS RESPECTIVELY (RELATIVE COMPACTION)

**CALL TOWN SEWER DEPARTMENT AT (650) 375-7444 BEFORE MAKING ANY SEWER REPAIRS. ALL REPAIRS MUST BE DONE IN THE PRESENCE OF A TOWN PUBLIC WORKS INSPECTOR AND SHALL HAVE A VALID PERMIT FOR SUCH WORK.**



**TOWN OF HILLSBOROUGH, CALIFORNIA STANDARD DETAIL**

APPROVED BY:

PUBLIC WORKS DIRECTOR  
DATE: JULY 8, 2013

**SEWER PIPE  
CROSSING REPAIR**

STD. DETAIL No.

**S15**