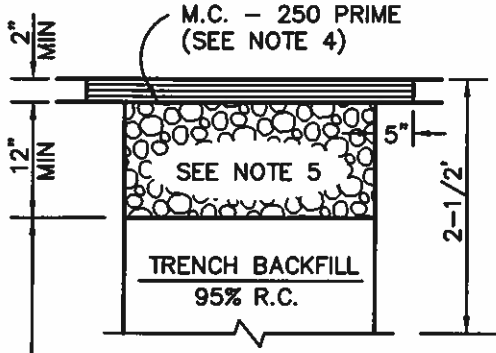
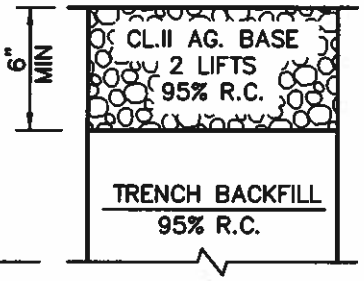
SECTION 3

SEWER STANDARDS

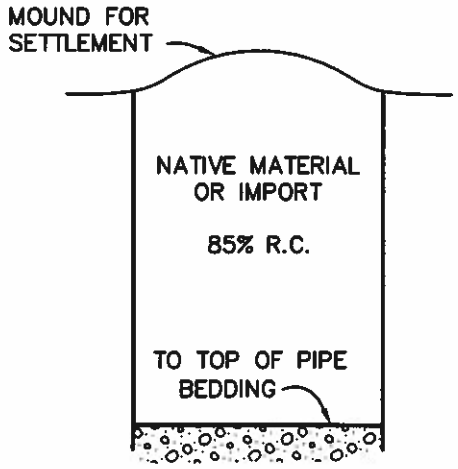
PAVED AREAS

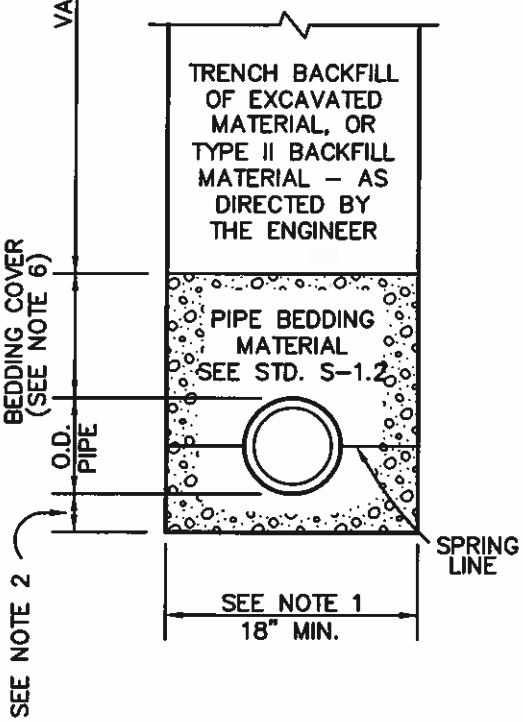


SHOULDER AREAS



UNIMPROVED AREAS





NOTES:

1. MAXIMUM TRENCH WIDTH SHALL BE 16" PLUS O.D OF PIPE. MINIMUM WIDTH SHALL BE 18".
2. IN UNSTABLE MATERIAL– 12", OR TO STABLE MATERIAL, WHICHEVER IS LESS, OR AS DIRECTED BT THE ENGINEER.
   IN ROCK– 1/3 O.D. OF PIPE, OR 4" MIN.
   IN STABLE MATERIAL– 3" MIN.
3. R.C. SHALL MEAN RELATIVE COMPACTION.
4. A.C. PAVING SHALL BE EQUAL IN THICKNESS TO EXIST. PAVING, OR 2" MIN., WHICHEVER IS GREATER. SEE PLANS.
5. CLASS II AGG. BASE, WHICHEVER IS GREATER. SEE PLANS.
6. 6" MINIMUM PIPE BEDDING COVER FOR D.I.P. AND 12" MINIMUM FOR ALL OTHER PIPE.
7. PIPE BEDDING MATERIAL SHALL BE PLACED IN 3 OPERATIONS.
   a. BEDDING TO BOTTOM OF PIPE AND COMPACTED.
   b. BACKFILL TO SPRING LINE AND COMPACTED.
   c. BACKFILL TO 12" ABOVE PIPE AND COMPACTED.
8. ALL TRENCH EXCAVATION AND SHORING SHALL CONFORM TO CAL–OSHA REGULATIONS.
9. THE ENGINEER MAY DIRECT THE CONTRACTOR TO EXCAVATE THE TRENCH TO A DEPTH GREATER THAN SHOWN ON THIS DRAWING WHEN, IN THE ENGINEER'S OPINION, THE NATIVE MATERIAL AT THE TRENCH BOTTOM WILL NOT PROVIDEPROPER SUPPORT FOR THE PIPE. THE RESULTING ADDITIONAL EXCAVATED VOLUME SHALL BE BACKFILLED WITH TYPE 1 MATERIAL TO THE GRADE LINE. PAYMENT FOR THE ADDITIONAL EXCAVATION AND BACKFILL MATERIAL WILL BE BASED ON THE ADDITIONAL DEPTH ORDERED BY THE ENGINEER, THE STANDARD WIDTH OF THE TRENCH (PIPE O.D. + 16") AND THE UNIT PRICE BID.

SEE STD. S–1.2 FOR ADDITIONAL NOTES

SEBASTOPOL CALIFORNIA PUBLIC WORKS

STANDARD SANITARY SEWER TRENCH DETAIL

STD. NO. S-1.1

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998

MATERIAL SPECIFICATIONS:

DRAIN ROCK SHALL BE EITHER OF THE NOMINAL SIZES DESIGNATED AS 1-1/2" BY 3/4" OR 2-1/2" BY 1-1/2".

PIPE BEDDING AND TRENCH BACKFILL MATERIAL SHALL BE A WELL GRADED AGGREGATE MATERIAL AND SHALL HAVE A MINIMUM SAND EQUIVALENT VALUE OF 30 AND SHALL CONFORM TO THE FOLLOWING GRADINGS:

	PERCENT PASSING			
	3"	1"	3/4"	NO. 4
PIPE BEDDING		100	95-100	55-100
TRENCH BACKFILL	100			40-100

AGGREGATE BASE SHALL BE CLASS 2, 1-1/2" MAX. OR 3/4" MAX CONFORMING TO THE PROVISIONS OF SECTION 26 OF THE STATE STANDARD SPECIFICATIONS.

NATIVE MATERIAL SHALL NOT CONTAIN ROCKS LARGER THAN 3".

COMPACTION REQUIREMENTS: (AS SHOWN ON STD. S-1.1 AND BY THE FOLLOWING MODIFICATIONS).

DRAIN ROCK SHALL BE CONSOLIDATED WITH A SURFACE VIBRATOR.

PIPE BEDDING MATERIAL USED TO GRADE THE TRENCH SHALL BE CONSOLIDATED WITH A SURFACE VIBRATOR WHEN IT IS PLACED OVER DRAIN ROCK OR WHEN DEPTH IS GREATER THAN 12".

PIPE BEDDING MATERIAL SHALL EITHER BE HAND TAMPED UNDER AND AT THE SIDES OF THE PIPE IN LIFTS NOT GREATER THAN 6" OR SHAPED AND COMPACTED PRIOR TO PIPE INSTALLATION.

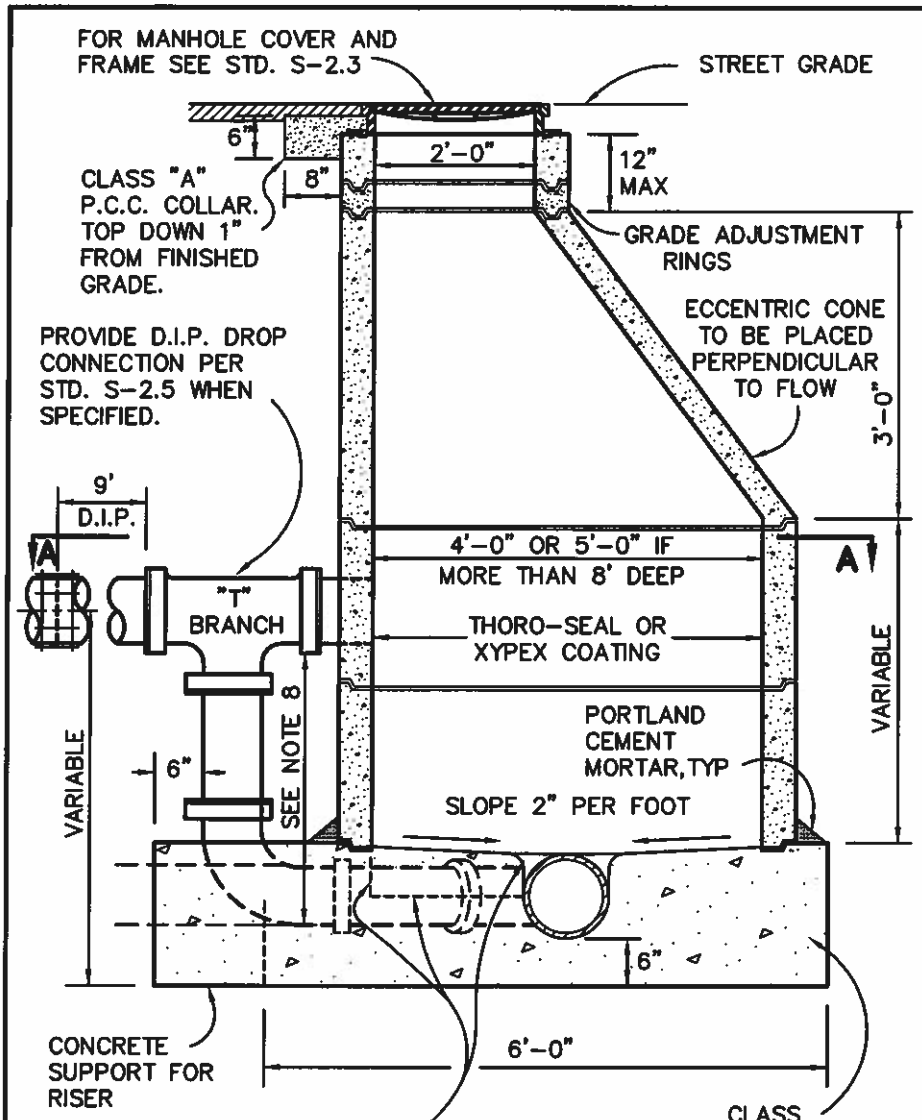
GENERAL: THE COMPACTION REQUIREMENTS SHALL BE ACHIEVED UTILIZING METHODS AND EQUIPMENT APPROVED BY THE CITY. ANY METHOD OF COMPACTION WHICH FAILS TO UNIFORMLY ACHIEVE THE REQUIRED LEVELS OF COMPACTION THROUGHOUT THE LENGTH AND DEPTH OF TRENCHES SHALL BE DISCONTINUED. COMPACTION METHODS AND EQUIPMENT SHALL BE SUCH AS NOT TO DAMAGE THE INSTALLED PIPE, EXCEED ITS LOADING CAPACITY, OR DISTURB ITS ALIGNMENT. FLOODING, PONDING, OR THE USE OF DROP HAMMER TYPE COMPACTION EQUIPMENT WILL NOT BE ALLOWED.

MECHANICAL COMPACTION: TRENCH BACKFILL SHALL BE PLACED IN UNIFORM, HORIZONTAL LAYERS NOT EXCEEDING EIGHT (8) INCHES IN THICKNESS BEFORE COMPACTION. EACH LAYER SHALL BE COMPACTED, USING MECHANICAL MEANS, TO THE SPECIFIED DENSITY SHOWN ON THE PLANS.

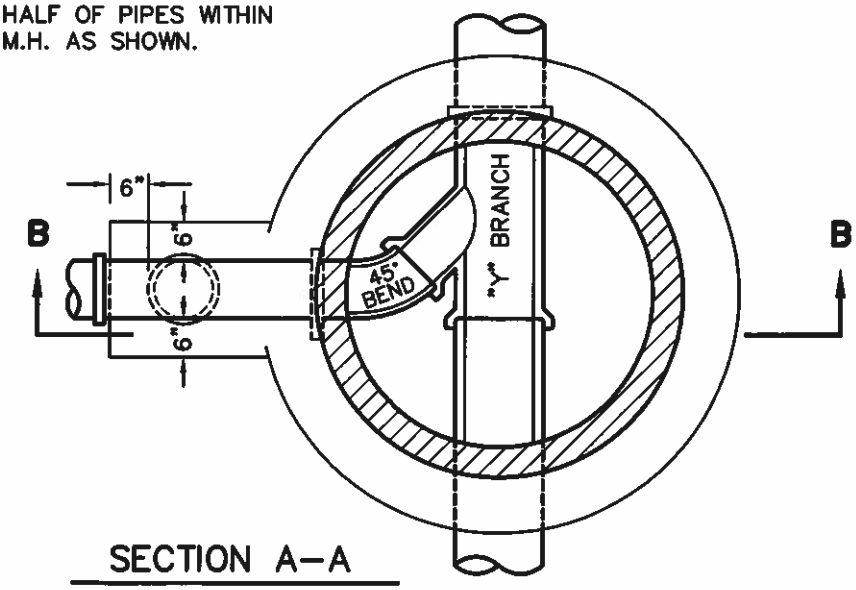
THE CONTRACTOR MAY, AT HIS SOLE OPTION AND AT HIS SOLE EXPENSE, CONSTRUCT A TEST TRENCH SECTION WHICH DEMONSTRATES METHODS, EQUIPMENT, OR MATERIALS WHICH WILL RELIABLY ACHIEVE THE REQUIRED COMPACTION IN LIFTS GREATER THAN 8 INCHES. AT ITS SOLE DISCRETION, THE CITY MAY INCREASE THE MAXIMUM ALLOWABLE LIFT THICKNESS PERMITTED BASED UPON THE RESULTS DEMONSTRATED BY THE TEST TRENCH SECTION. SHOULD SUBSEQUENT TESTING DEMONSTRATE THAT THE REQUIRED COMPACTION IS NOT BEING RELIABLY ACHIEVED, THE CITY MAY, AT ITS SOLE DISCRETION, REDUCE THE MAXIMUM LIFT THICKNESS TO ITS ORIGINAL VALUE OF 8 INCHES.

JETTING: JETTING IS NOT ALLOWED.

SEBASTOPOL CALIFORNIA PUBLIC WORKS	STANDARD SANITARY SEWER TRENCH DETAIL (CONTINUED)				STD. NO. S-1.2
	SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



SECTION B-B



SECTION A-A

NOTES:

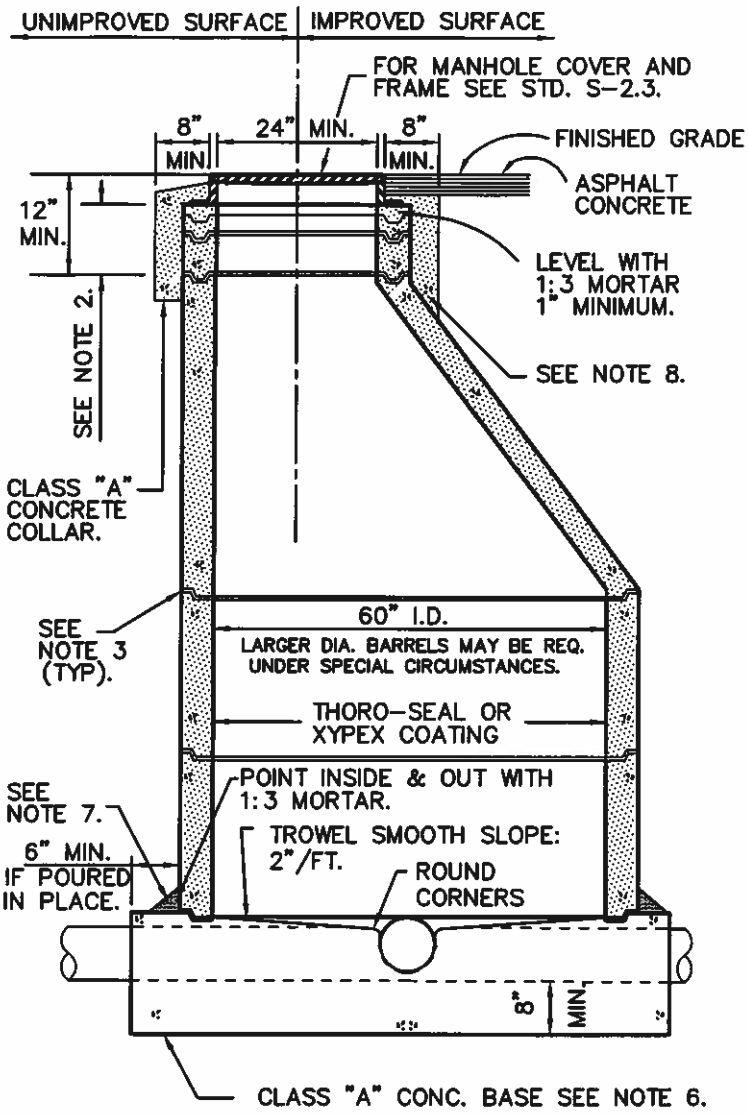
1. PRE-CAST MANHOLES TO BE MANUFACTURED TO A.S.T.M. SPECIFICATION C-478.
2. SET ALL BARREL SECTIONS & TAPER SECTIONS IN PLASTIC GASKET, RAM-NEK OR APPROVED ALTERNATE. TYP JOINT 1-1/2" (3/4"x 2-1/2") RAM-NEK SEAL (2 SEALS IN HIGH WATER TABLE AREAS).
3. WHEN MANHOLES ARE INSTALLED IN UNIMPROVED AREAS, THE TOP OF THE COVER SHALL BE A MINIMUM OF 1 FOOT ABOVE ADJACENT FINISHED GRADE.
4. OUTSIDE DROP FITTINGS SHALL BE DUCTILE IRON CLASS 50 WITH MECHANICAL JOINTS.
5. FLEXIBLE COUPLING SHALL BE PLACED OUTSIDE M.H. EXCAVATION AND SHALL BE SMITH BLAIR OR EQUAL.
6. WHEN D.I.P. OR PVC PIPE IS USED, A SEWER COUPLING ADAPTER SHALL BE USED WITH RUBBER GASKET.
7. MINIMUM DIFFERENCE BETWEEN INVERTS IS AS FOLLOWS:
   - 6" DIA. - 30"
   - 8" DIA. - 32"
   - 10" DIA. - 36"
   - 12" DIA. - 38"
8. FOR LESS THAN MIN. DIFFERENCE, SHAPE BOTTOM OF MANHOLE TO ACHIEVE DROP IN ELEVATION.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

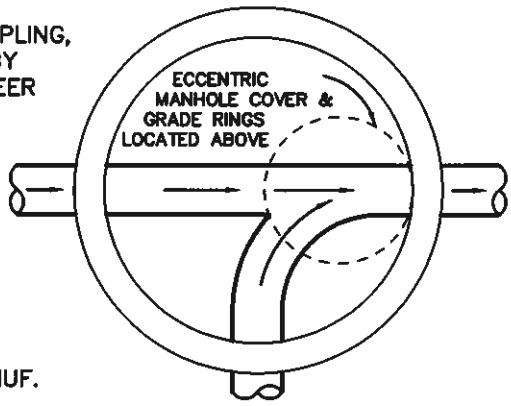
STANDARD 48" DIAMETER CONCRETE SANITARY SEWER MANHOLE

STD. NO. **S-2.1**

SCALE: NONE	DRAWN: LMM	CHK: SAL	APPVD: PHK	DATE: JULY 1998



A FLEXIBLE COUPLING, AS APPROVED BY THE CITY ENGINEER SHALL BE INSTALLED IN THE SEWER MAIN WITHIN 12" OF THE BASE OF THE MANHOLE (TYP). NOT REQUIRED WHEN PRECAST BASES ARE MANUF. W/FLEX. CPLGS. ALREADY INSTALLED.



MANHOLE BASE

CHANNELIZATION PLAN AND LOCATION OF ECCENTRIC MANHOLE COVER

NOTES:

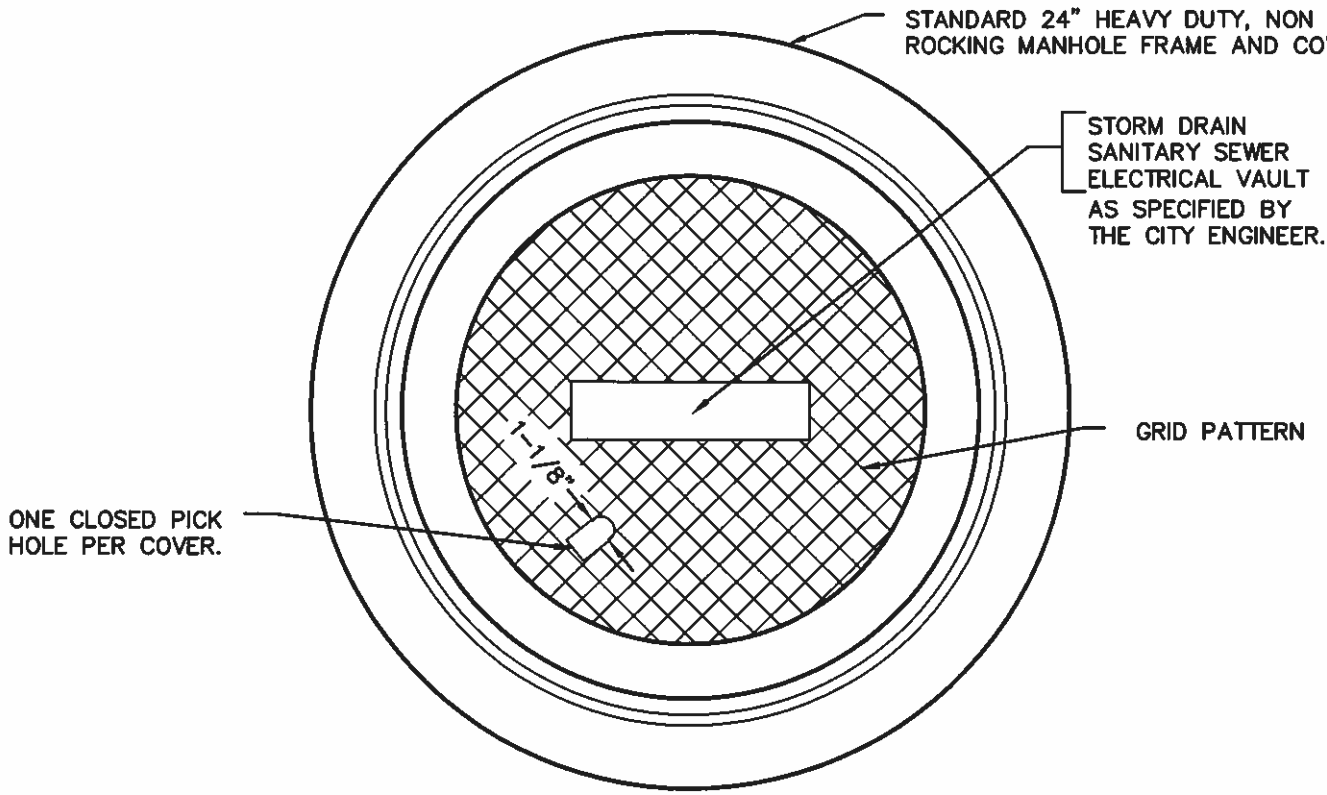
1. WHEN MANHOLES ARE INSTALLED IN UNIMPROVED AREAS, THE TOP OF THE COVER SHALL BE A MIN. OF 1 FOOT ABOVE ADJACENT FINISHED GRADE.
2. MIN. OF ONE 3" AND ONE 6" GRADE ADJUSTMENT RINGS. MAX. HEIGHT OF GRADE ADJUSTMENT RINGS = 20". ALTERNATELY, CONTRACTOR MAY CAST GRADE ADJUSTMENT RINGS IN PLACE.
3. SET ALL BARREL SECTIONS & TAPER SECTIONS IN PLASTIC GASKET, RAM-NEK OR APPROVED ALTERNATE. TYP JOINT 1-1/2" (3/4" X 2-1/2")RAM-NEK SEAL (2 SEALS IN HIGH WATER TABLE AREAS).
4. CONE SECTION (TAPER) MUST BE ECCENTRIC FOR 60" MANHOLE UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CITY ENGINEER.
5. CONSTRUCT ALL FLOW CHANNELS OF PIPE WHEREVER POSSIBLE. AFTER LOWER RING SECTION IS SET, BREAK OUT TOP HALF OF PIPE FLUSH WITH INSIDE FACE OF M.H. WALL AND CONSTRUCT SHELF AND U-SHAPED CHANNEL. MAKE ELEVATION CHANGES GRADUALLY AND DIRECTIONAL CHANGES WITH SMOOTH CURVES.
6. POURED-IN-PLACE BASE SHALL BE POURED FULL THICKNESS TO UNDISTURBED SIDES OF EXCAVATION OR SHALL BE FORMED. PRECAST BASE TO BE FROM DISTRICT APPROVED LIST AND PLACED ON 12" THICK 3/4" DRAIN SUB-BASE INSTALLED AGAINST UNDISTURBED EARTH.
7. JOINT BETWEEN BASE AND BARREL SHALL BE SEALED W/1-1/2" (3/4" X 2-1/2") RAM-NEK SEAL (2 SEALS IN HIGH WATER TABLE AREAS), AND PLASTER 6" FILLET, 1:3 MORTAR.
8. CLASS "A" CONC. COLLAR SHALL BE 2" BELOW FINISHED GRADE.
9. STANDARD MANHOLE BARREL SECTION PER ASTM C478.
10. BARREL AND TAPER SECTIONS MAY BE CAST IN PLACE AS APPROVED BY THE CITY ENGINEER.
11. 60" I.D. MANHOLE TO BE USED FOR ALL TRUNK AND COLLECTOR SEWERS 18" OR LARGER, OR WHERE DIMENSION FROM FINISHED GRADE TO THE SEWER FLOW LINE IS GREATER THAN 8'-0", AS INDICATED ON THE DESIGN PLANS.
12. MANHOLES ON TRUNK SEWERS LARGER THAN 30"SHALL BE SIZED BY THE CITY ENGINEER.
13. ALL SECTIONS OF MANHOLE MUST BE OF IDENTICAL MAKE AND MANUFACTURER.
14. MANHOLE SHALL BE DEWATERED AND DRY PRIOR TO INSPECTION.

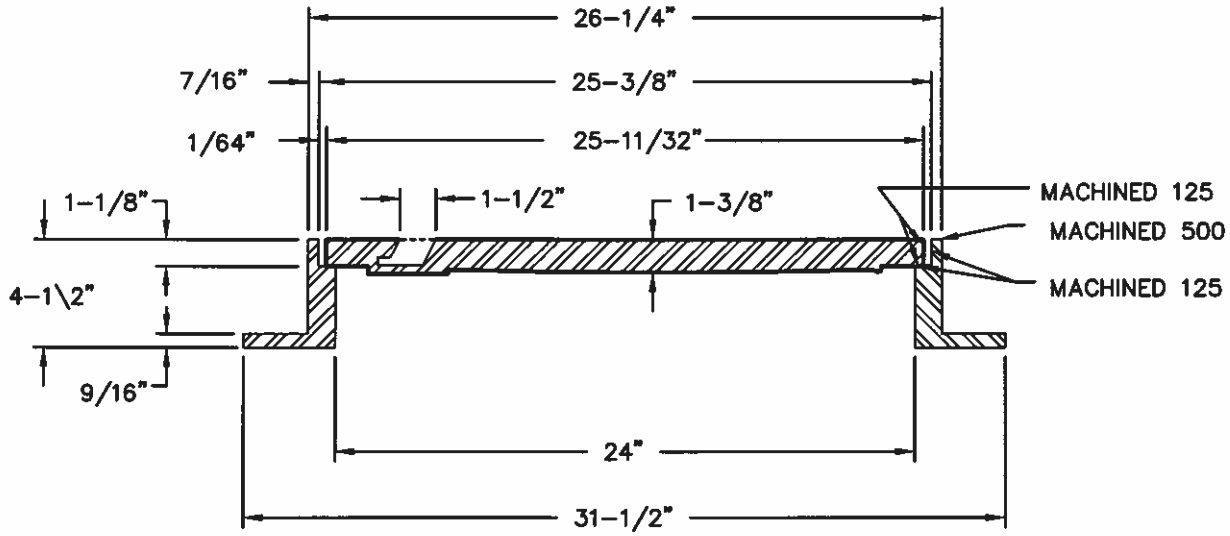
SEBASTOPOL CALIFORNIA PUBLIC WORKS

STANDARD 60" DIAMETER PRECAST CONCRETE SANITARY SEWER MANHOLE

STD. NO. **S-2.2**

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998





NOTES:

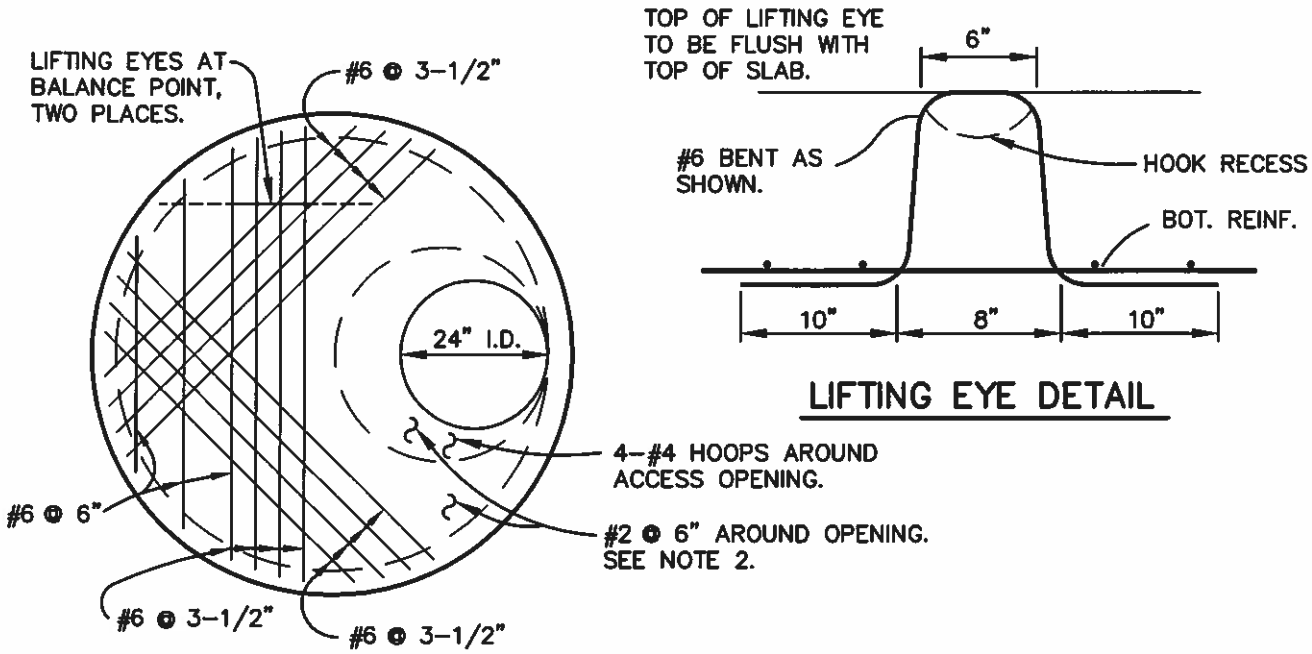
1. SPECIFY SANITARY SEWER, STORM DRAIN OR ELECTRICAL VAULT WHEN ORDERING. ALL CASTINGS SHALL BE DIPPED IN APPROVED ASPHALT PAINT.
2. ALL MATERIAL USED IN MANUFACTURING SHALL CONFORM TO A.S.T.M. DESIGNATION A-159-G3000, OR TO UNITED STATES GOVERNMENT SPECIFICATIONS QQI-652b.
3. MINIMUM WEIGHT COMPONENTS: COVER – 130 POUNDS
   FRAME – 135 POUNDS
4. SEE CITY'S APPROVED LIST FOR MANHOLE FRAME AND COVER.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

STANDARD MANHOLE FRAME AND COVER

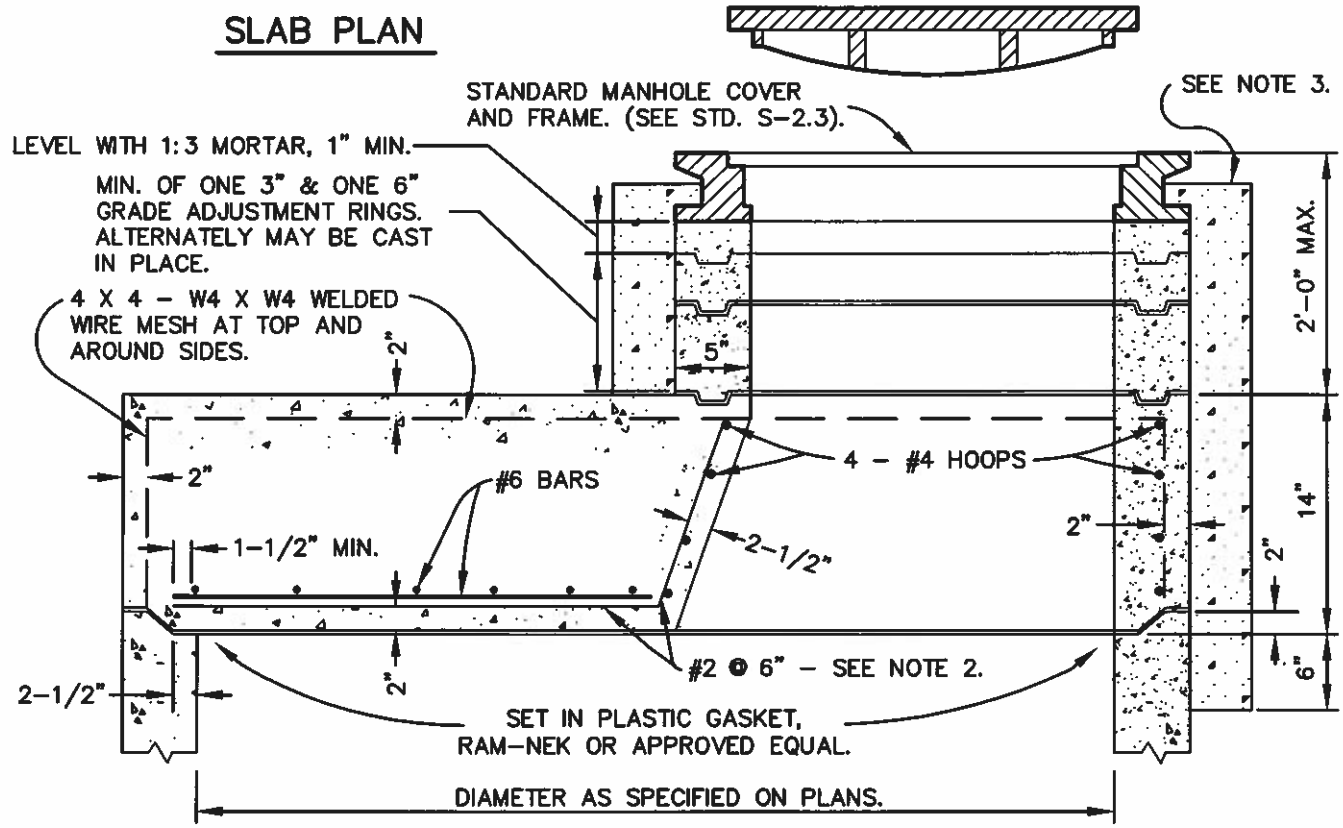
STD. NO. S-2.3

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



SLAB PLAN

LIFTING EYE DETAIL



NOTES:

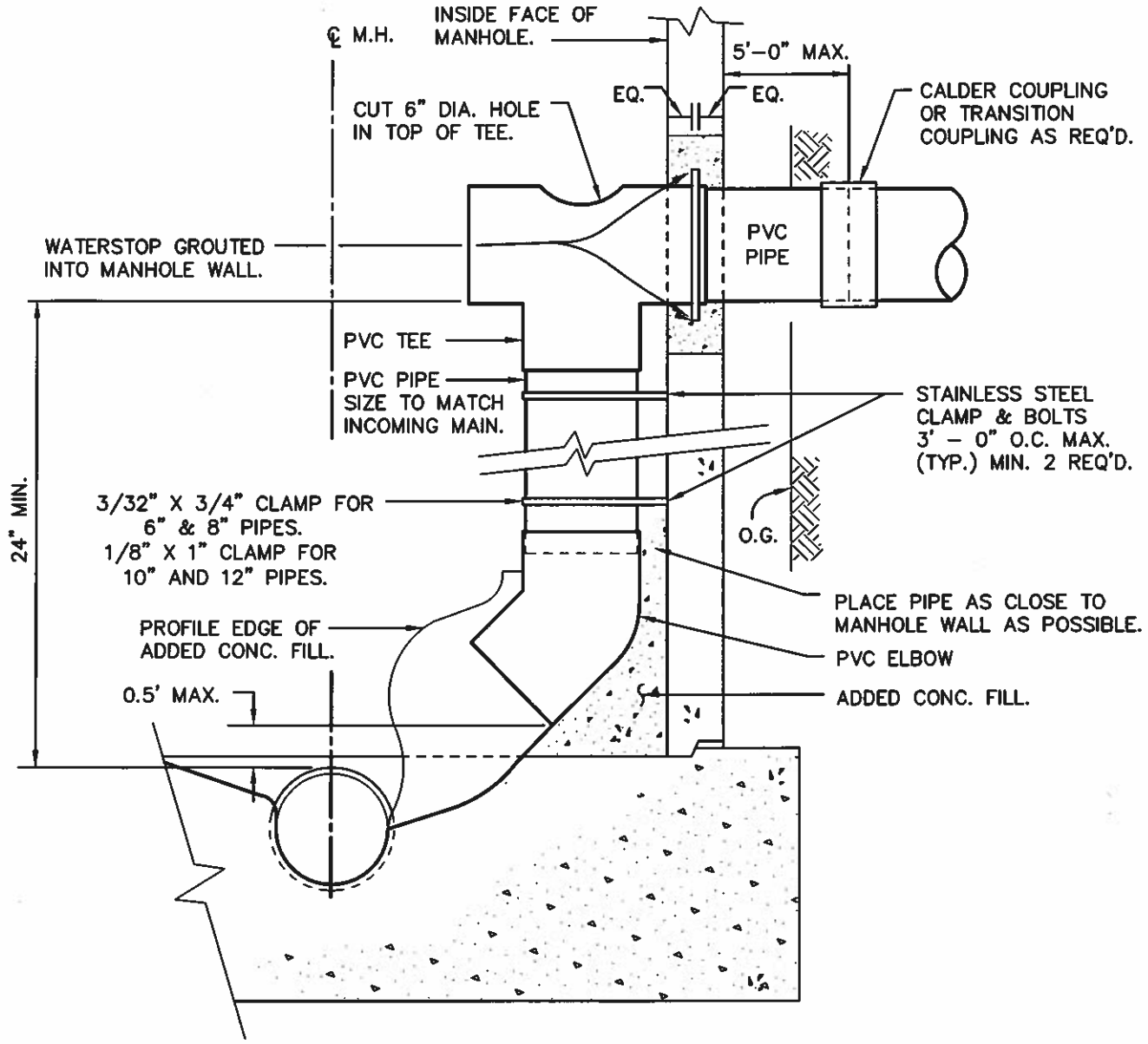
1. FOR DETAILS AND SPECIFICATIONS OF BASE AND BARREL SECTIONS, SEE STDS. S-2.1 AND S-2.2.
2. #2 BARS BENT UP AND SPACED 6" O.C. AROUND 24" OPENING. HORIZONTAL LEGS TO FAN OUT EQUALLY SPACED, TO 2-1/2" CLEAR AT EDGE OF SLAB.
3. CLASS "A" CONCRETE COLLAR.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

STANDARD PRECAST CONCRETE SANITARY SEWER MANHOLE REDUCER SLAB

STD. NO. **S-2.4**

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



NOTES:

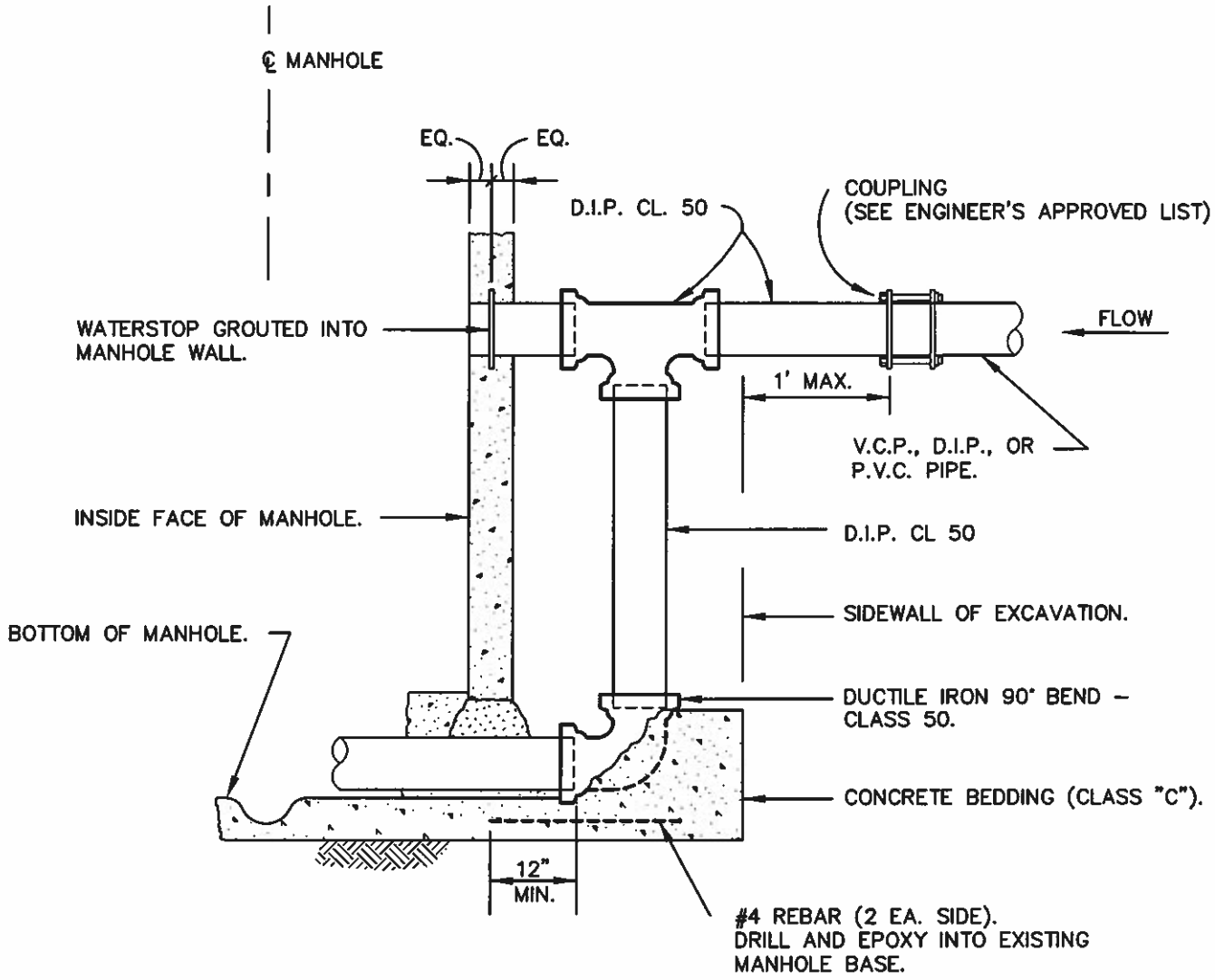
1. INSTALL WATERSTOP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AS SHOWN.
2. NEW MANHOLES CONSTRUCTED USING THIS STANDARD SHALL BE 60 INCHES IN DIAMETER, & INSTALLED IN CONFORMANCE WITH STD. S–2.2.
3. ENCLOSE ELBOW IN CONCRETE. FORM SMOOTH CHANNEL TO MANHOLE FLOWLINE.
4. PVC PIPE AND FITTINGS TO BE SDR 35 OR SCH 40.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

INSIDE DROP INLET FOR SANITARY SEWER MANHOLE

STD. NO. S-2.5

SCALE: NONE	DRAWN: LMM	CHK: PHK	APPVD: PHK	DATE: JULY 1998



NOTES:

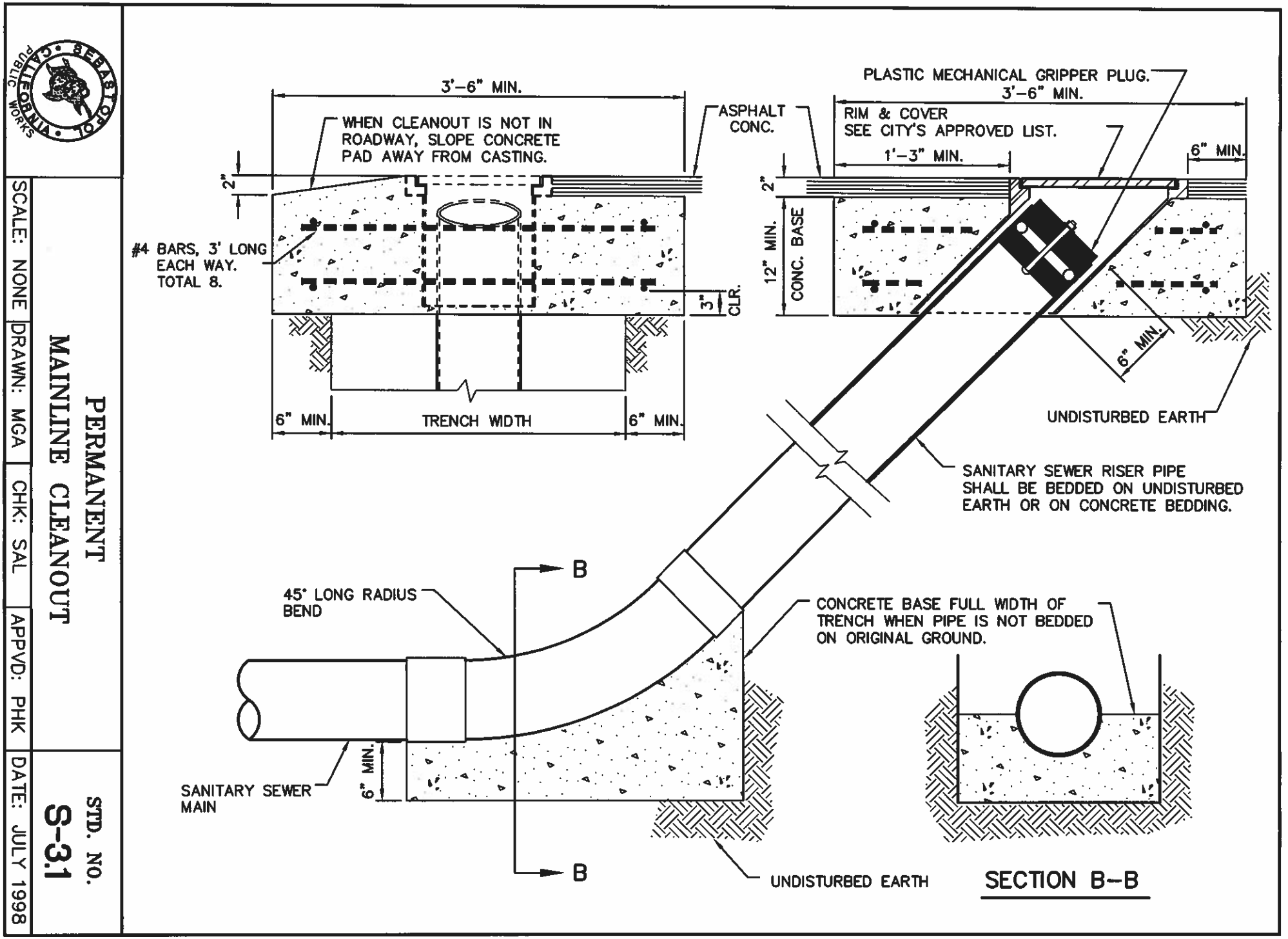
1. DUCTILE IRON PIPE AND FITTINGS SHALL BE CLASS 50 CONFORMING TO THE REQUIREMENTS OF ANSI A21.51.
2. PIPE AND FITTINGS SHALL BE FURNISHED WITH BELL AND SPIGOT ENDS, "TYTON JOINT" OR MECHANICAL JOINTS.
3. TO BE INSTALLED AT EXISTING 48" MANHOLES OR WHERE SPECIFICALLY APPROVED BY THE CITY ENGINEER.
4. DROP INLET PIPE AND FITTINGS SHALL BE THE SAME SIZE AS THE INCOMING SEWER MAIN.
5. SEE STD. S–2.5 FOR STANDARD INSIDE DROP INSTALLATION.
6. INSTALL WATERSTOP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AS SHOWN.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

OUTSIDE DROP INLET FOR SANITATRY SEWER MANHOLE

STD. NO. S-2.6

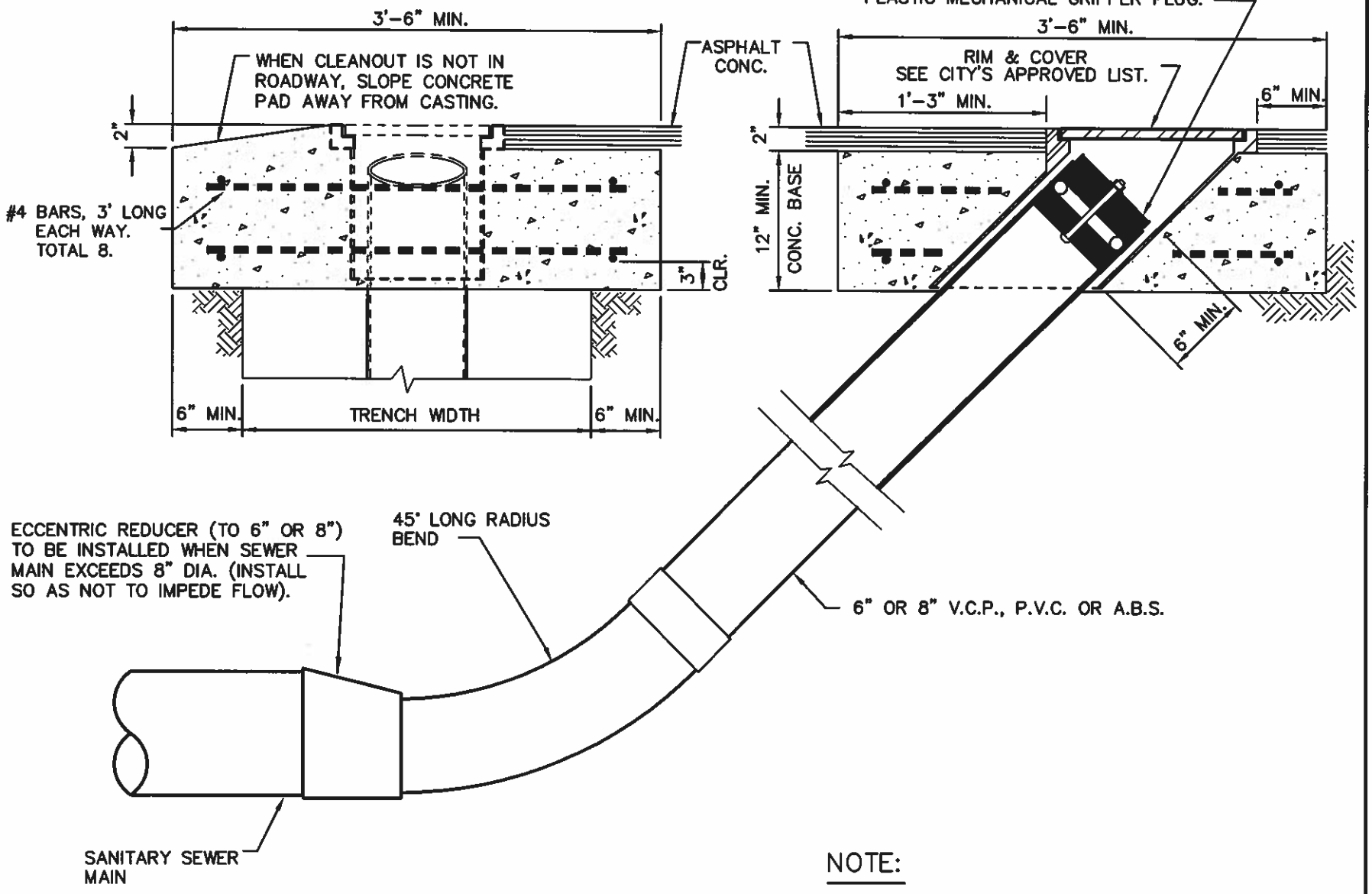
SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



SCALE: NONE | DRAWN: MGA | CHK: SAL | APPVD: PHK | DATE: JULY 1998

PERMANENT MAINLINE CLEANOUT

STD. NO. S-3.1



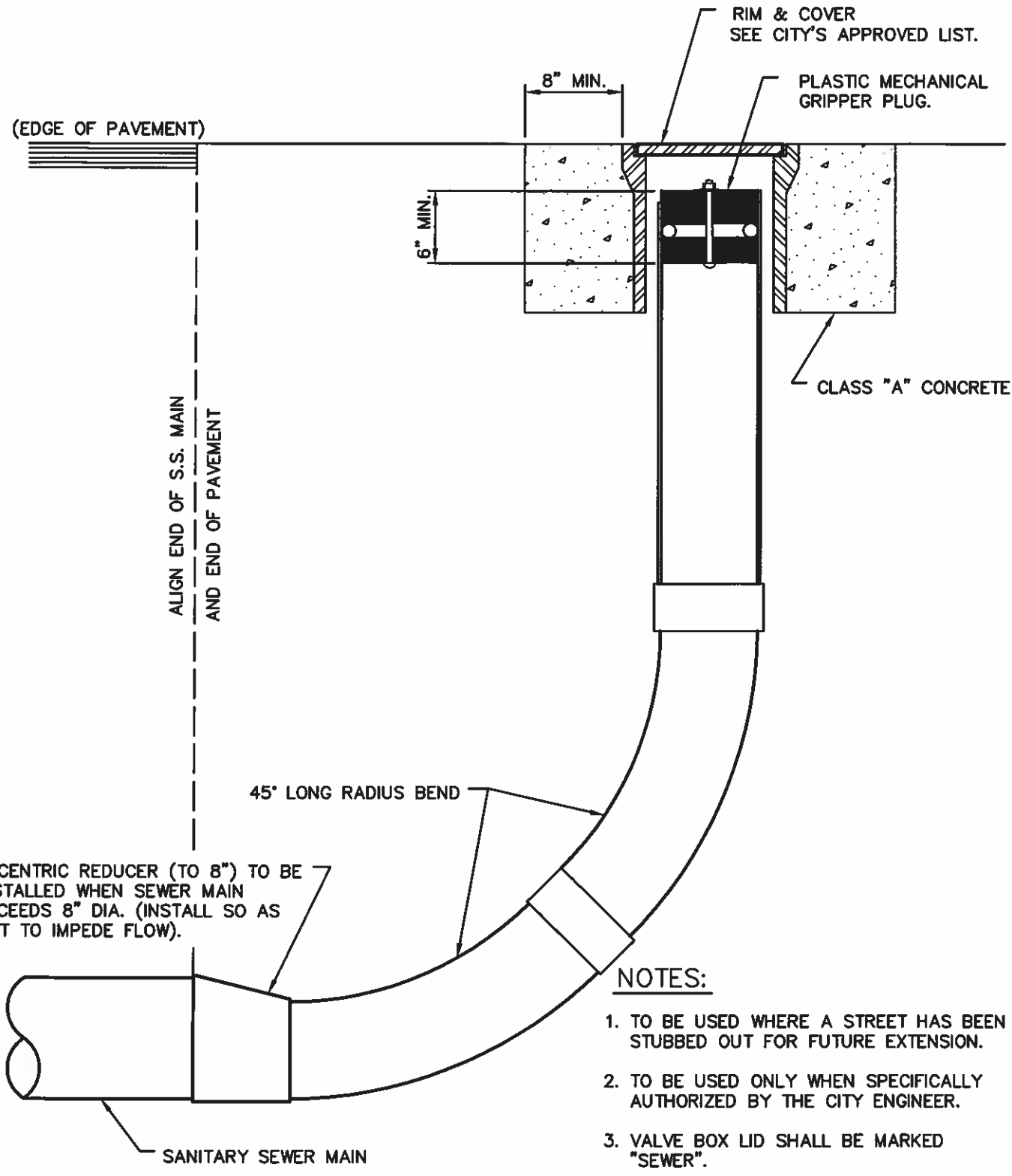
TYPE I TEMPORARY MAINLINE CLEANOUT

NOTE:

TO BE USED ONLY WHEN SPECIFICALLY AUTHORIZED BY THE CITY ENGINEER.

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998

STD. NO. S-3.2



NOTES:

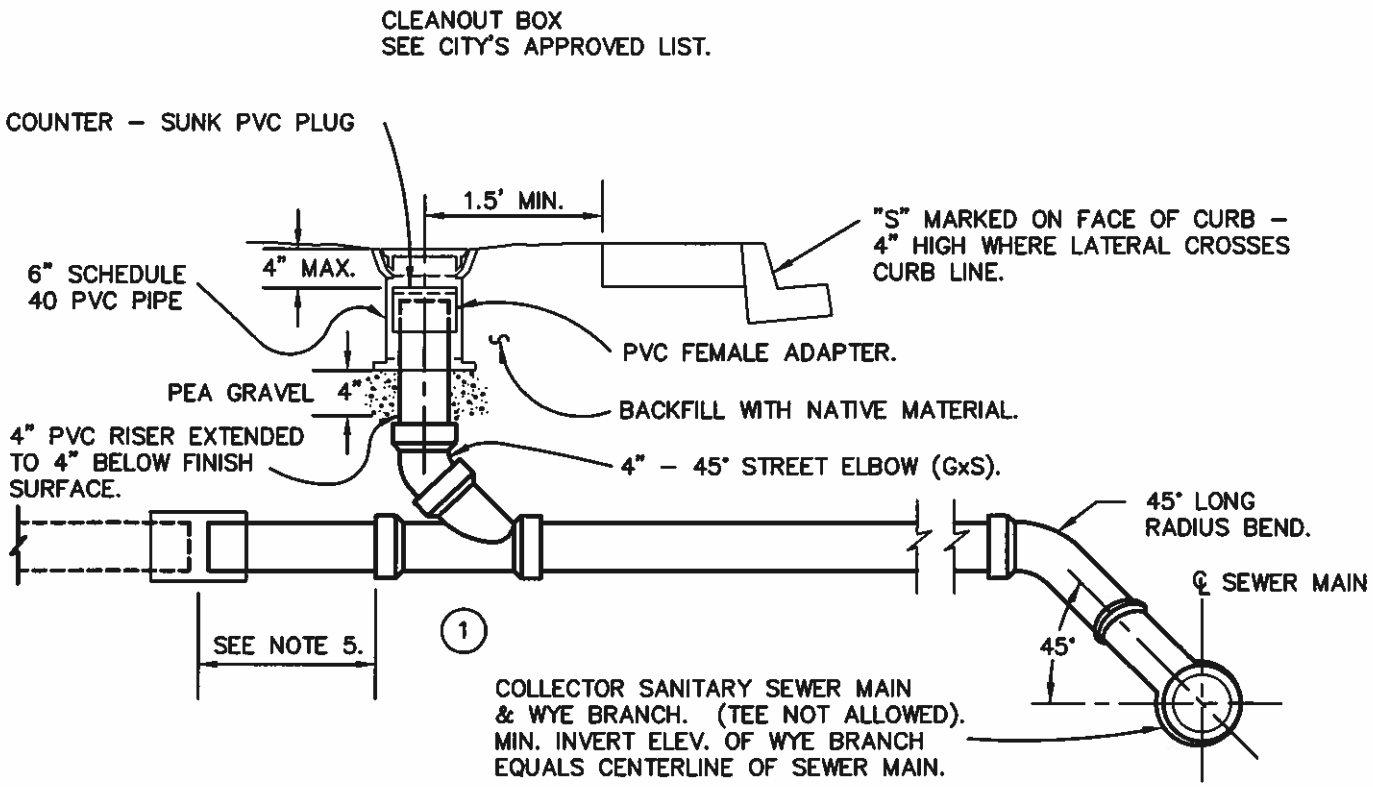
1. TO BE USED WHERE A STREET HAS BEEN STUBBED OUT FOR FUTURE EXTENSION.
2. TO BE USED ONLY WHEN SPECIFICALLY AUTHORIZED BY THE CITY ENGINEER.
3. VALVE BOX LID SHALL BE MARKED "SEWER".
4. EASEMENT ACQUISITION MAY BE REQ'D.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

TYPE II TEMPORARY MAINLINE CLEANOUT

STD. NO. S-3.3

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



CLEANOUT COMPONENTS:

(1) FOR 4" SVC. LATERAL USE 4" PVC 45° (GxGxG). FOR 6" SVC. LATERAL USE 6" X 6" X 4" WYE. WHEN LATERAL IS NOT PVC USE COUPLINGS AS NECESSARY TO INSTALL WYE.

(2) 4" PVC RISER LENGTH AS NECESSARY TO EXTEND TO WITHIN 4" OF FINISHED GRADE.

LATERAL CONNECTIONS TO EXISTING MAINS:

PVC, (SDR 35):
4" – 8" : CUT IN WYE
10" & LARGER: GLUE ON SADDLE WITH STRAP TIES.

LATERAL PIPE TO BE 4" MINIMUM DIAMETER AND ONE OF THE FOLLOWING MATERIALS:

1) DUCTILE IRON PIPE
2) POLYVINYL CHLORIDE (PVC) PIPE, SDR 35 WHEN USED WITH A MANUFACTURED "Y" SPECIFICALLY DESIGNED FOR PVC LATERALS. THE "Y" SHALL BE POLYVINYL CHLORIDE (PVC), SDR 35.

NOTES:

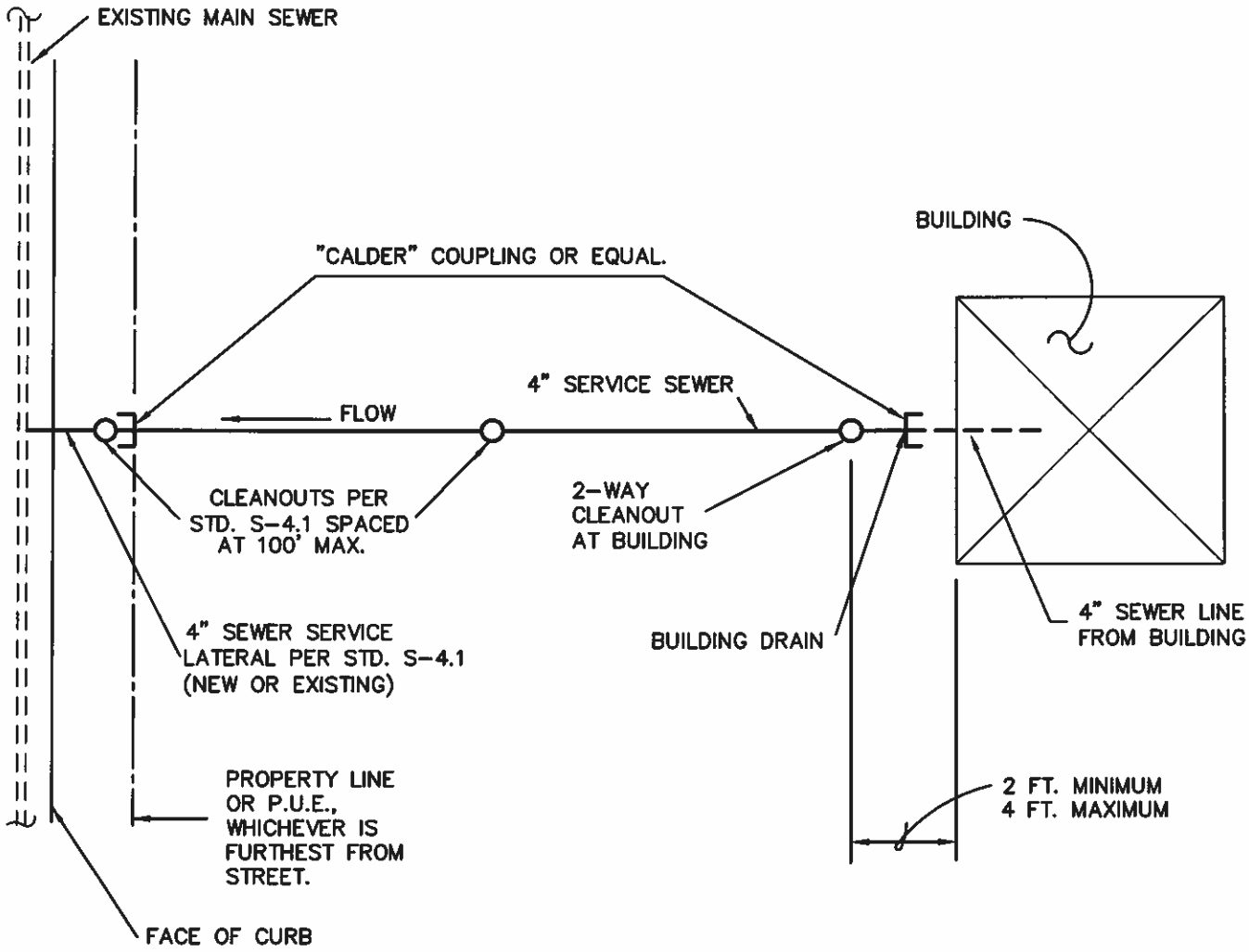
1. THE SEWER SERVICE LATERAL SHALL BE OF SUFFICIENT DEPTH TO ADEQUATELY SERVE THE BUILDING SITE, AND IN NO CASE SHALL HAVE LESS THAN 3 FT OF COVER AT THE CLEANOUT UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER.
2. WHERE PROBLEMS ARE ANTICIPATED IN PROVIDING SEWER SERVICE TO A GIVEN BUILDING SITE, THE LATERAL INVERT AT THE BACK OF THE P.U.E. SHALL BE STAKED BY THE OWNER'S ENGINEER.
3. WHERE SERVICE LATERAL IS LOCATED IN DRIVEWAY APPROACH, THE CLEANOUT IS TO BE LOCATED 18" BEHIND APRON.
4. MINIMUM 2% SLOPE EXCEPT WHERE A VARIATION IS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
5. A MINIMUM OF 12" WHEN CONNECTING TO EXISTING SEWER LATERAL AND EXTEND TO 1' BEHIND P.U.E.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

SEWER SERVICE LATERAL

STD. NO. S-4.1

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998

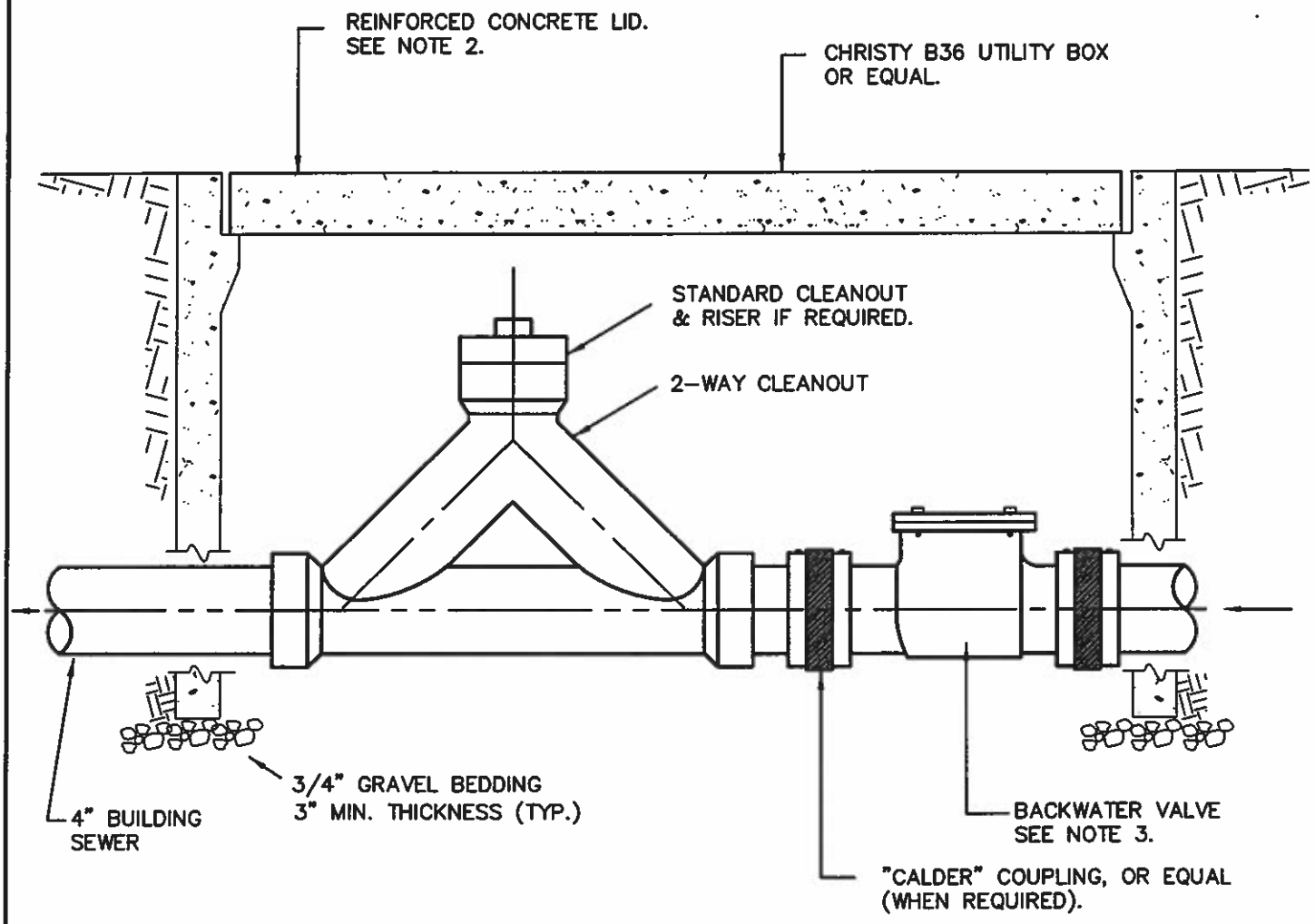


PLAN

NOTES:

1. WHERE BUILDING SEWERS ARE LOCATED UNDER DRIVEWAYS, CAST IRON OR DUCTILE IRON SEWER PIPE SHALL BE USED.
2. SEE STD. S-4.4 FOR TRENCH DETAIL.

SEBASTOPOL CALIFORNIA PUBLIC WORKS	TYPICAL SEWER SERVICE CONNECTION DETAILS	STD. NO. S-4.2
SCALE: NONE	DRAWN: MGA / CHK: SAL / APPVD: PHK	DATE: JULY 1998



NOTES:

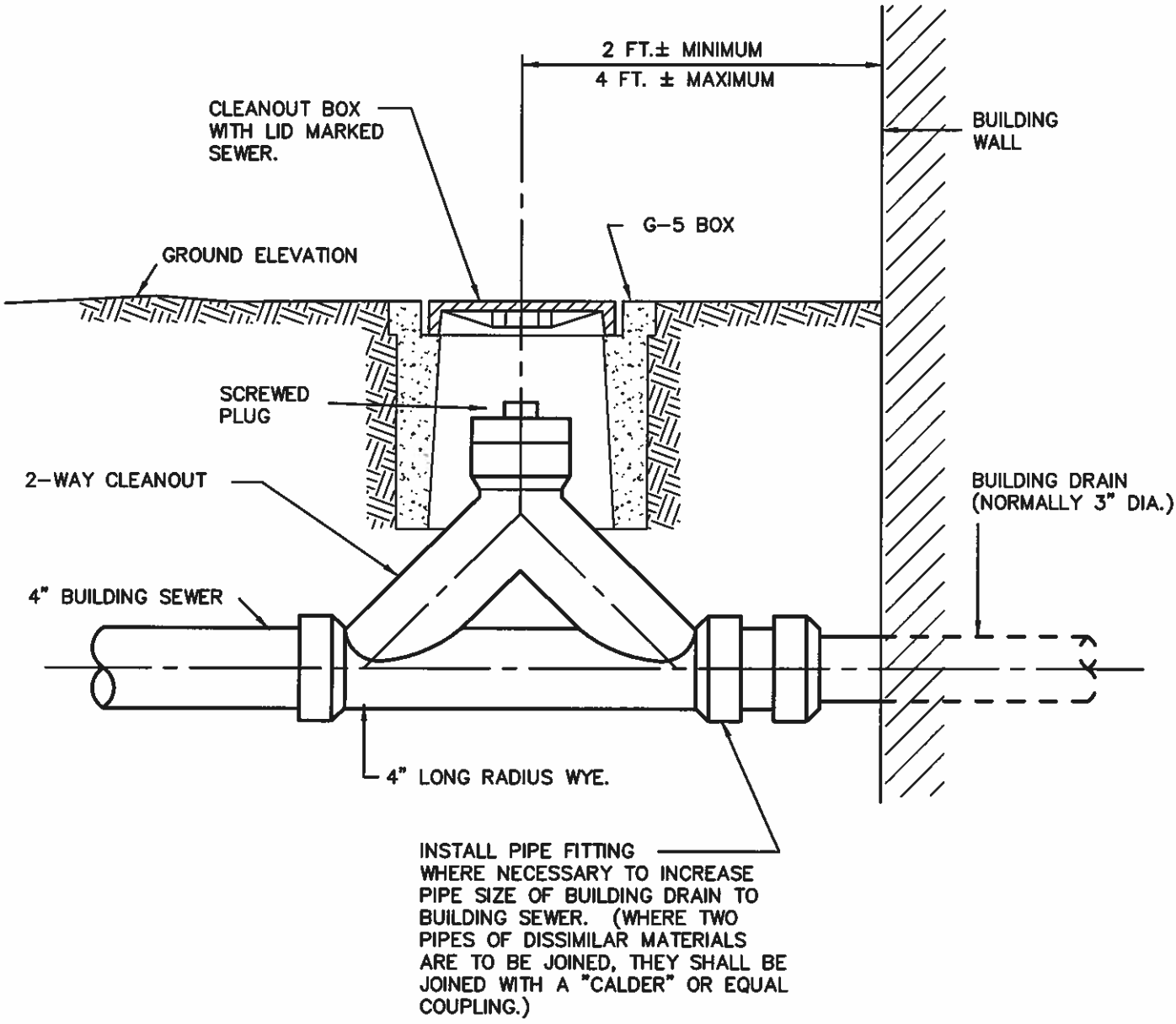
1. THIS INSTALLATION IS REQUIRED WHEREVER THE LOWEST FINISHED FLOOR ELEVATION IS TWELVE (12") INCHES, OR LESS ABOVE THE TOP ELEVATION OF THE NEAREST UPSTREAM MANHOLE OR CLEANOUT.
2. IF THE LID IS SUBJECT TO VEHICULAR TRAFFIC, USE LID DESIGNED FOR H-20 TRAFFIC LOADINGS.
3. BACKWATER VALVE SHALL BE CAST IRON OR CAST BRONZE. VALVE SHALL BE APPROVED BY THE CITY ENGINEER.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

BACKWATER CHECK VALVE INSTALLATION

STD. NO. S-4.3

SCALE: NONE	DRAWN: LMM	CHK: PHK	APPVD: PHK	DATE: JULY 1998



SEBASTOPOL CALIFORNIA PUBLIC WORKS

CLEANOUT DETAIL AT BUILDING

STD. NO. S-4.4

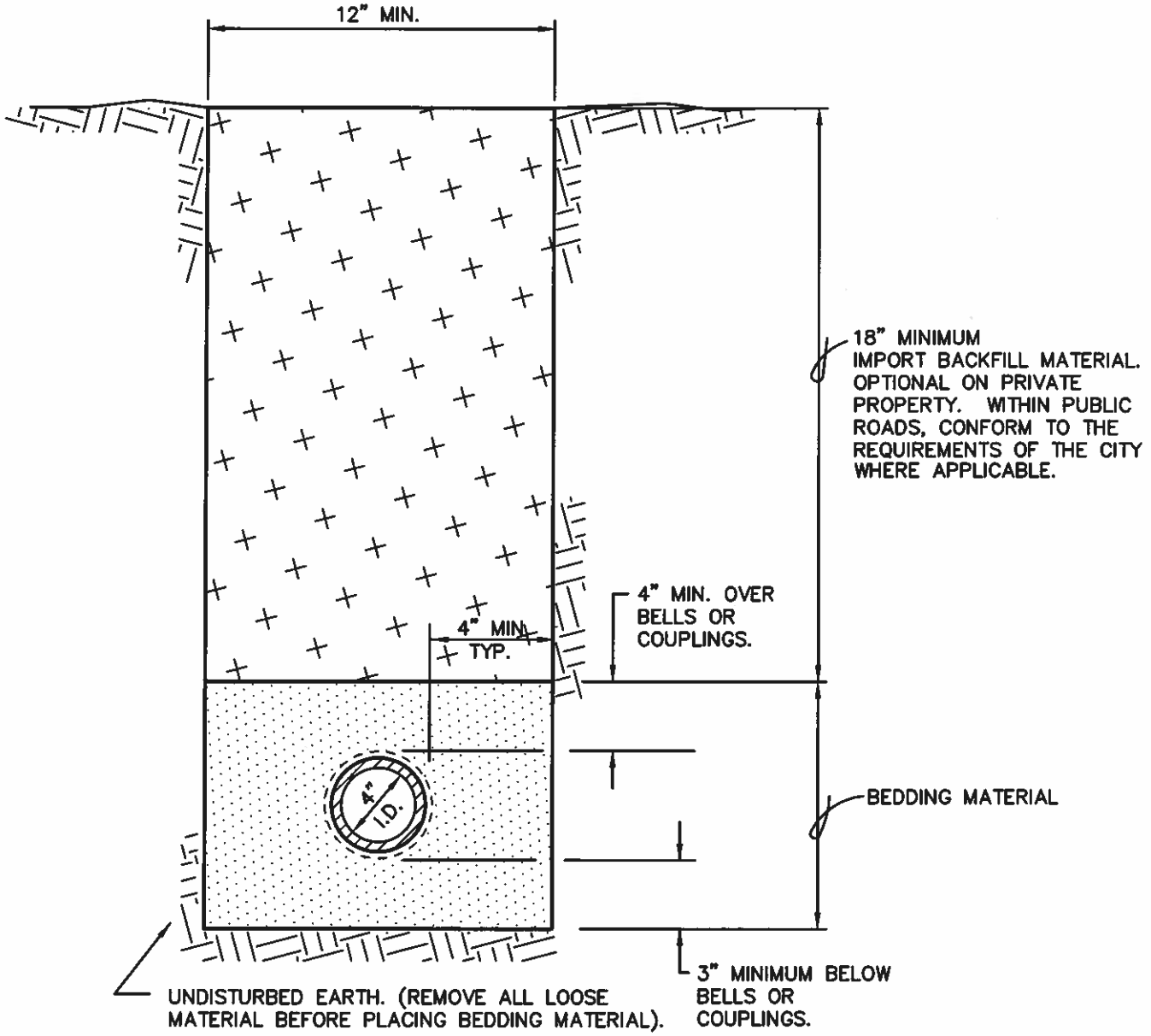
SCALE: NONE	DRAWN: LMM	CHK: PHK	APPVD: PHK	DATE: JULY 1998

NOTES:

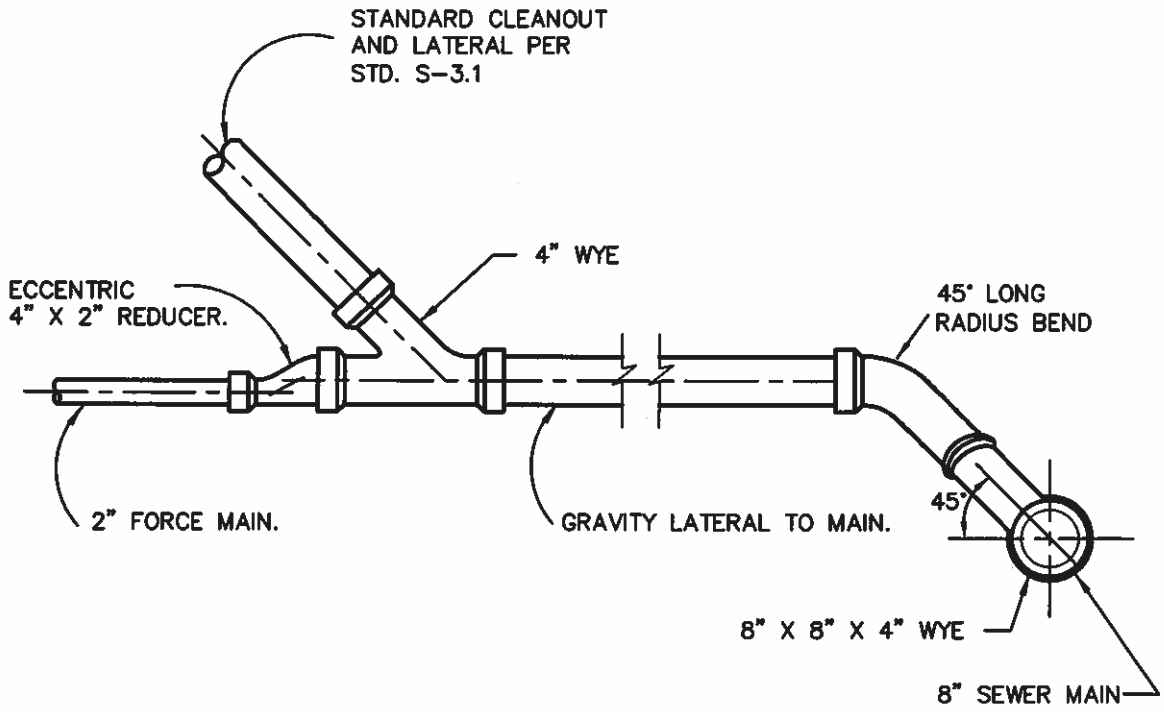
PIPE BEDDING AND TRENCH BACKFILL MATERIAL SHALL BE A WELL GRADED MATERIAL AND SHALL HAVE A MINIMUM SAND EQUIVALENT VALUE OF 30 AND SHALL CONFORM TO THE FOLLOWING GRADINGS:

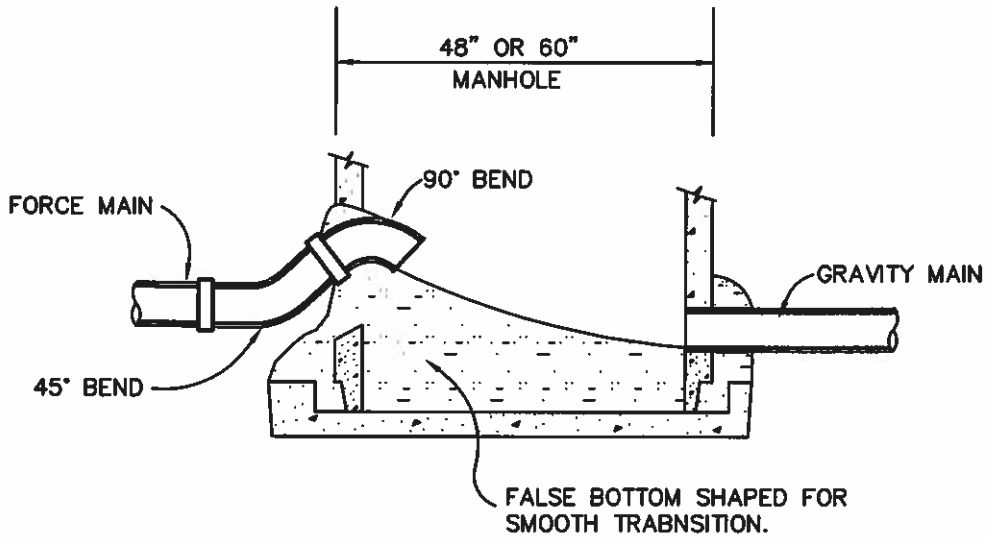
	PERCENT PASSING					
	3"	3/4"	3/8"	NO.4	NO.16	NO.200
PIPE BEDDING		100	80–100	10–50	5–30	0–4
TRENCH BACKFILL		NATIVE MATERIAL MAY BE USED				

IN ADDITION, WHEN TESTED WITH THE FOLLOWING SERIES OF SIEVES, NO MORE THAN 25% OF THE MATERIAL WILL BE RETAINED BETWEEN ANY ADJACENT SIEVES: 3", 2–1/2", 2", 1–1/2", 1", 3/4", 1/2", 3/8", NO. 4, NO. 8, NO. 16, NO. 30, NO. 50, NO. 100, AND NO. 200.



SEBASTOPOL CALIFORNIA PUBLIC WORKS	SEWER SERVICE TRENCH DETAIL				STD. NO. S-4.5
	SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998





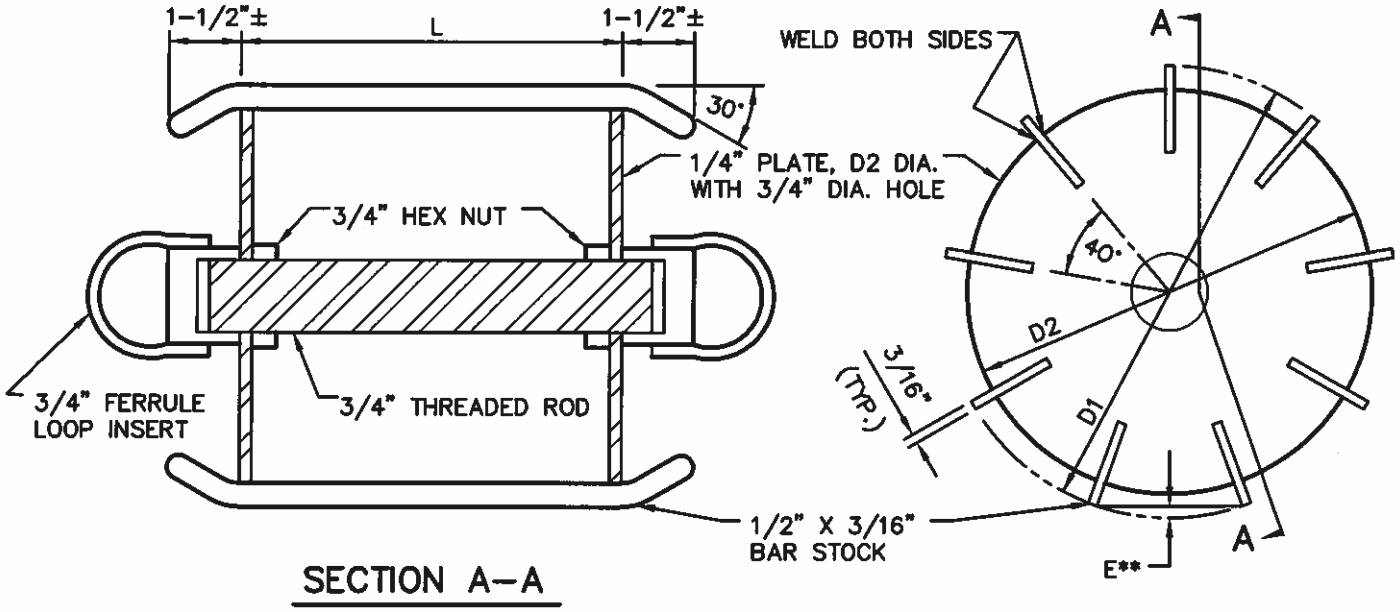
TERMINAL MANHOLE OF FORCE MAIN

NOTES:

1. MUST BE USED FOR ALL PRIVATE SEWAGE LIFT STATION DISCHARGES. NO DISCHARGES MAY BE MADE DIRECTLY TO THE COLLECTOR SEWER, TRUNK SEWER, OR MANHOLE.
2. ANY ALTERNATE DESIGN MUST BE APPROVED BY THE CITY ENGINEER.
3. CONSTRUCTION DETAILS, SLOPE, AND MATERIALS CONFORM TO STD. S-4.1.

SEBASTOPOL CALIFORNIA PUBLIC WORKS	PRESSURE SEWER SERVICE LATERAL AND PRESSURE MAIN CONNECTIONS	STD. NO. S-4.6

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



SECTION A–A

		4% DEFLECTION		5% DEFLECTION			
		PVC ASTM D 2680		ABS ASTM D 2751 PVC ASTM D 3034		ASTM D 2680	
		COMPOSITE (I)		SDR35		COMPOSITE (I)	
NOM. DIA.	L	D(2)	R(3)	D(2)	D(3)	D(2)	R(3)
6"	6"	5.544	4.544	5.629	4.629	5.492	4.492
8"	8"	7.473	6.473	7.537	6.537	7.402	6.402
10"	10"	9.401	8.401	9.421	8.421	9.312	8.312
12"	12"	11.330	10.330	11.210	10.210	11.223	10.223
15"	15"	14.222	13.222	13.729	12.729	14.088	13.088

1. TRUSS PIPE – ABS OR PVC.
2. GAGE DIAMETER HAS BEEN CALCULATED TO CORRECT CHORD LENGTH ERROR "E".
3. MINIMUN PLATE DIAMETER.
4. A PROVING RING OF THE SPECIFIED DIAMETER (D) SHALL BE SUPPLIED WITH EACH DEFLECTION GAGE.

NOTES:

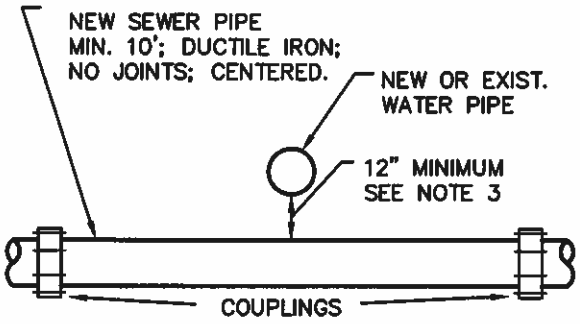
1. MARK ALL GAGES WITH ASTM SPECIFICATION NUMBER, SDR NUMBER AND DEFLECTION.
2. THE 1/2" BAR STOCK ON EDGE PROVIDES CLEARANCE TO PASS SMALL AMOUNTS OF SOIL WHICH MAY BE IN PIPE.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

PLASTIC SEWER PIPE DEFLECTION GAGE

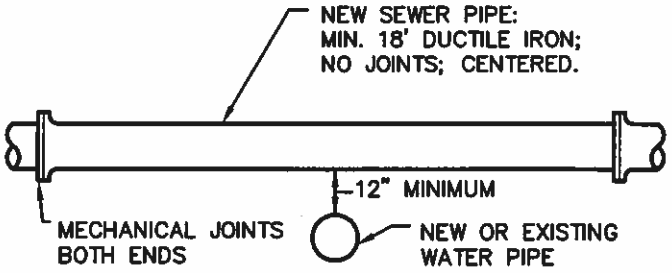
STD. NO. S-5.1

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



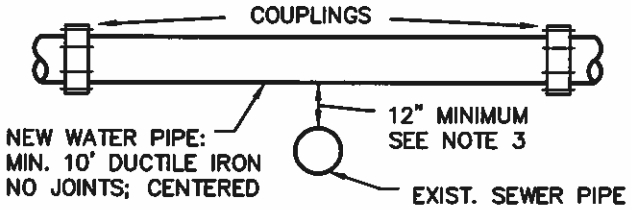
NEW SEWER UNDER NEW OR EXISTING WATER

CASE 1



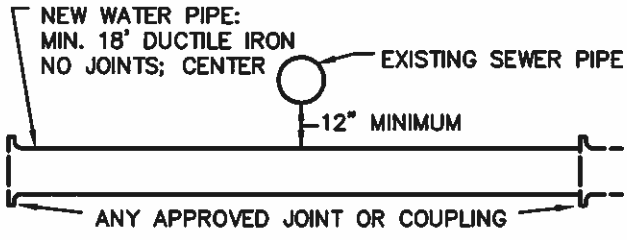
NEW SEWER OVER NEW OR EXISTING WATER

CASE 2



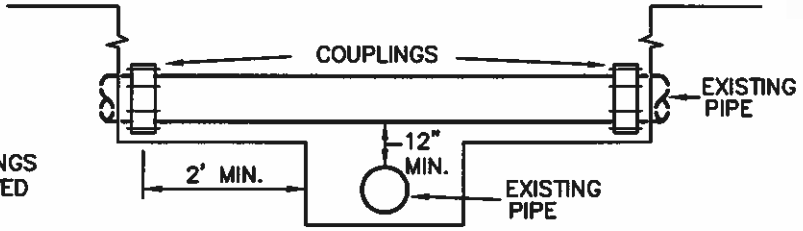
NEW WATER OVER EXISTING SEWER

CASE 3



NEW WATER UNDER EXISTING SEWER

CASE 4



NEW PIPE UNDER EXISTING

CASE 5 – SEE NOTE 4

NOTES:

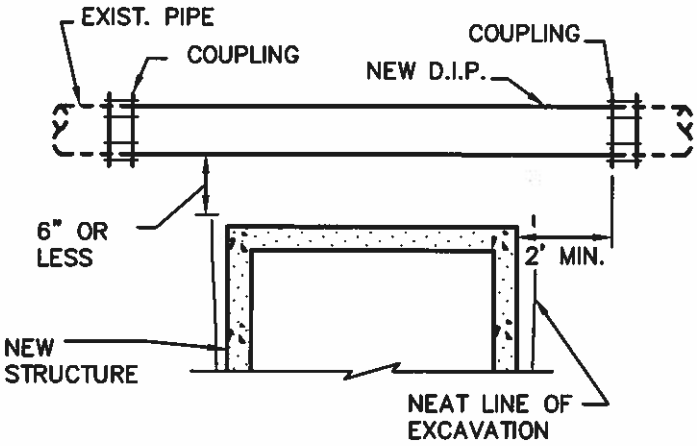
1. THIS STANDARD APPLIES TO PIPES UP TO AND INCLUDING 16" DIAMETER. ALL CROSSINGS OF LARGER DIAMETER SHALL BE AS APPROVED BY THE CITY ENGINEER.
2. ALL NEW DUCTILE IRON SHALL BE WRAPPED IN POLYETHYLENE PER CITY CONSTRUCTION SPECIFICATIONS.
3. WHERE SEWER CROSSES BELOW A WATER MAIN, WITH 1' OR MORE VERTICAL CLEARANCE, NO SPECIAL INSTALLATION IS REQUIRED.
4. "NEW PIPE UNDER EXISTING–CASE 5" SHALL BE USED WHEN THE EXISTING PIPE HAS A JOINT OVER OR WITHIN 2' OF THE NEW TRENCH.
5. ANY PIPE–PIPE CROSSING WITH LESS THAN 6" VERTICAL CLEARANCE SHALL NOT BE INSTALLED WITHOUT APPROVAL OF THE CITY ENGINEER.
6. FOR WATER MAIN LOWERING DETAIL, SEE CITY STD. W–3.5.
7. SEE CITY'S APPROVED LIST FOR APPROVED COUPLINGS.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

PIPE – PIPE CROSSING DETAILS

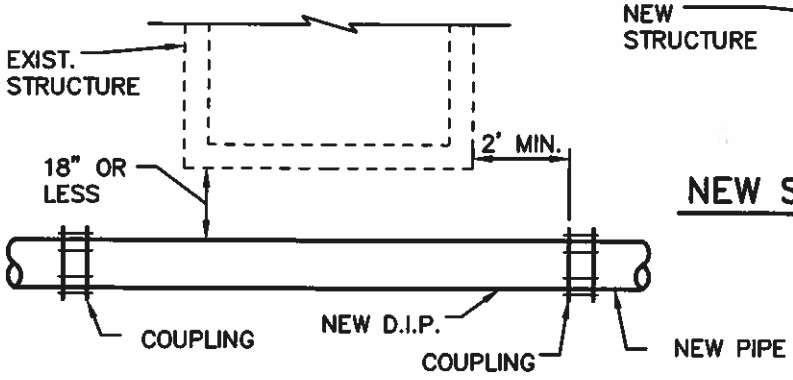
STD. NO. S-5.2

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



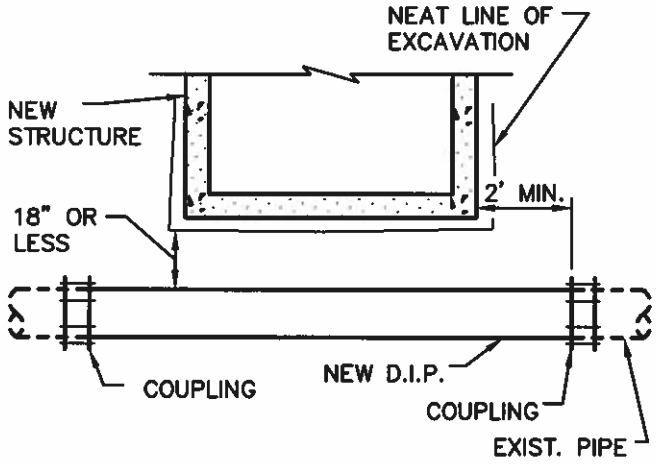
NEW STRUCTURE UNDER EXIST.

TYPE C



NEW PIPE UNDER EXISTING

TYPE A



NEW STRUCTURES OVER EXISTING PIPES

TYPE B

NOTES:

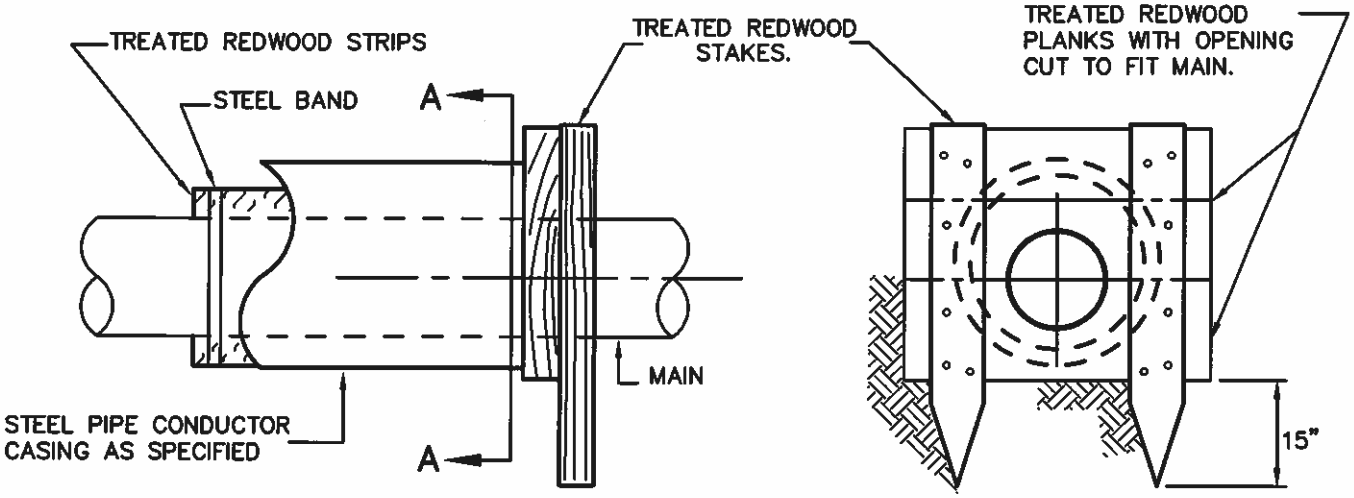
1. THIS STD. APPLIES TO PIPES UP TO AND INCLUDING 16" DIAMETER. ALL CROSSINGS INVOLVING PIPES OF LARGER DIAMETER SHALL BE AS APPROVED BY THE CITY ENGINEER.
2. WHEN PIPES CROSS WITHIN THE DIMENSIONS SHOWN, A NEW DUCTILE IRON PIPE SECTION SHALL BE INSTALLED AS DETAILED.
3. ALL DUCTILE IRON PIPE SHALL BE ENCASED IN POLYETHYLENE FILM IN TUBE FORM.
4. ANY TYPE "A" INSTALLATION REQUIRING MORE THAN ONE LENGTH OF PIPE SHALL BE ENCASED PER STD. S-5.4.
5. SEE CITY APPROVED LIST FOR APPROVED COUPLINGS.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

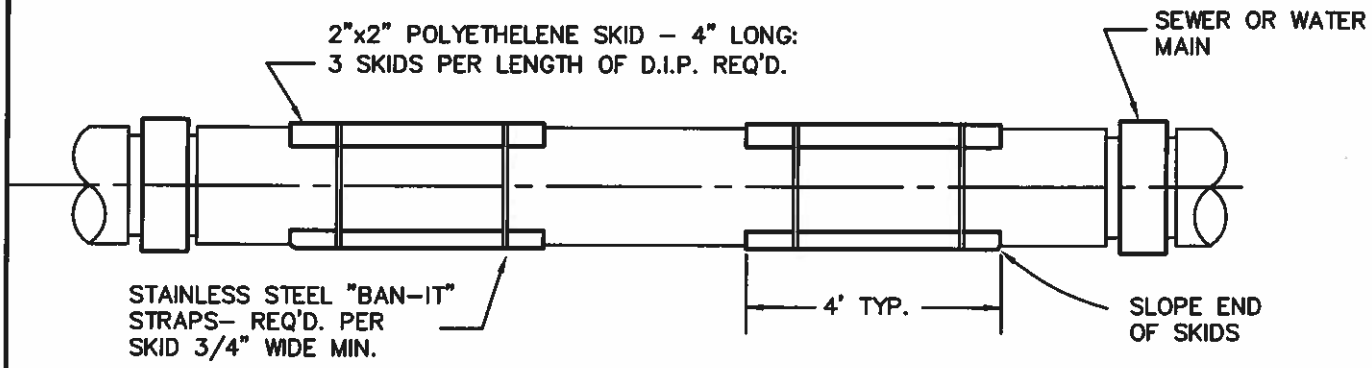
PIPE - STRUCTURE CROSSING DETAIL

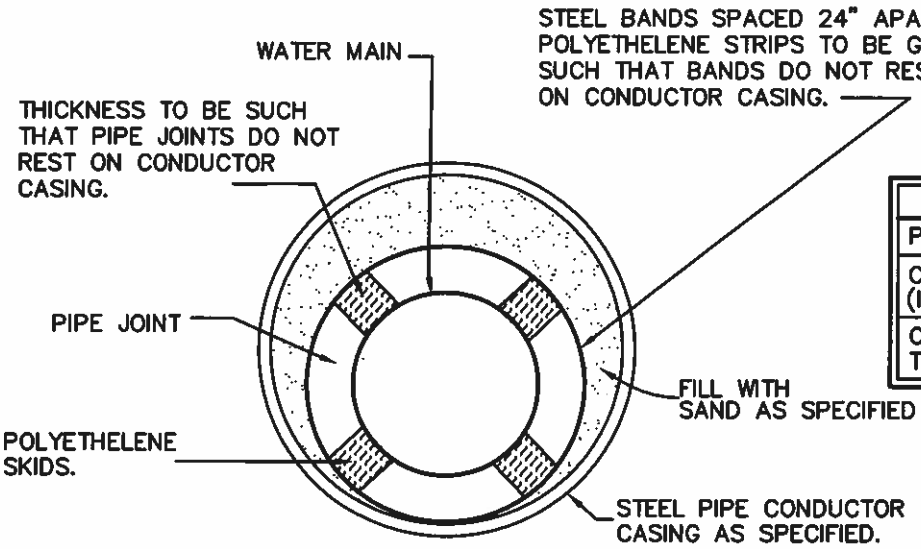
STD. NO. S-5.3

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



TYPICAL DIRT STOP AT ENDS OF CONDUCTOR CASING





MINIMUM SIZE CASING REQUIRED					
PIPE SIZE	6"	8"	12"	14"	16"
CASING SIZE (INSIDE DIA.)	16"	16"	20"	24"	30"
CASING WALL THICKNESS	.375"	.375"	.375"	.375"	.500"

SECTION "A–A"

TYPICAL MAIN ENCASEMENT

NOTES

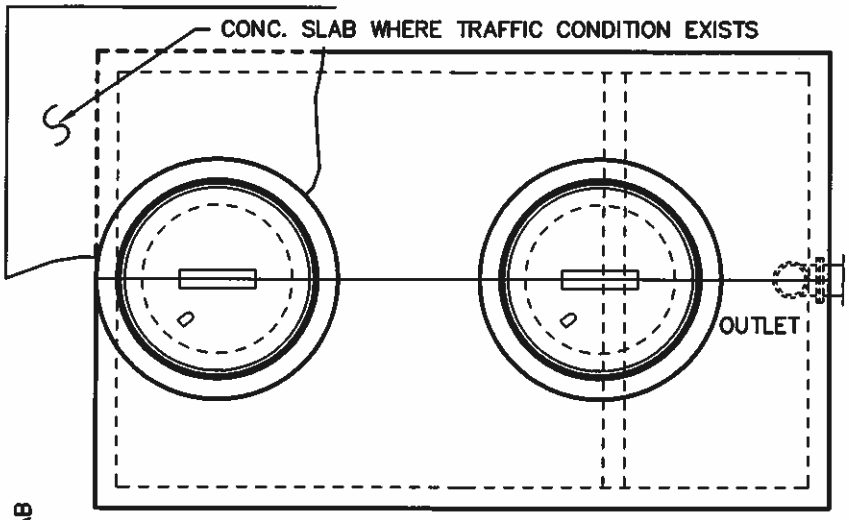
1. STAKES SHALL BE 2"x6"
2. PLANKS SHALL BE MIN. 2" "T"

SEBASTOPOL CALIFORNIA PUBLIC WORKS

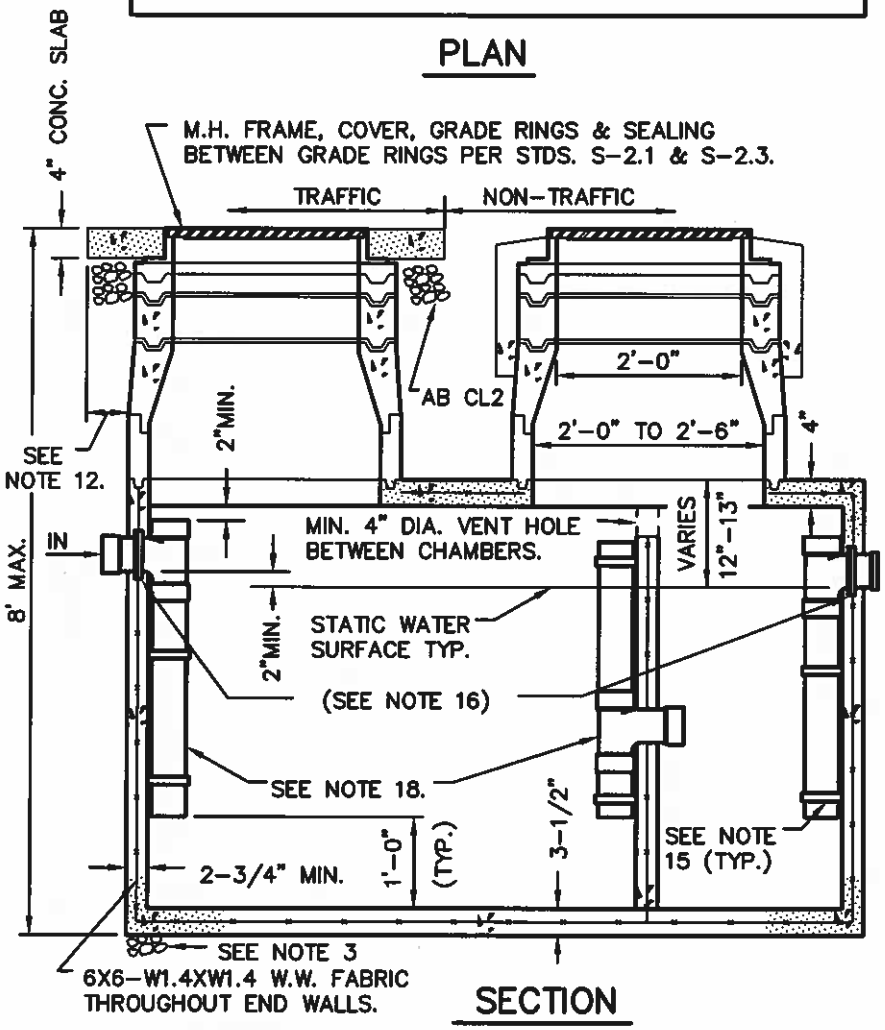
TYPICAL DETAILS FOR SEWER & WATER MAIN ENCASEMENTS

STD. NO. **S-5.4**

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



PLAN



SECTION

NOTES:

1. TANK TO BE PRECAST. SEE CITY'S APPROVED LIST.
2. POLYETHYLENE TANKS ACCEPTABLE IN NON-TRAFFIC AREAS UPON SPECIFIC APPROVAL OF THE CITY ENGINEER.
3. 3" MIN. BEDDING MAT'L PER CITY STD. S-1.1.
4. ALL SURFACE WATER MUST DRAIN AWAY FROM MANHOLES.
5. PIPE SHALL BE 6" MAX. DIAMETER PER U.P.C.
6. CONCRETE MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
7. ALL WYES SHALL BE ONE-WAY CLEANOUT WYES EXCEPT AS NOTED. TYPE PER U.P.C.
8. GREASE INTERCEPTORS SHALL BE LOCATED OUTSIDE OF BUILDINGS IN A LOCATION ACCESSIBLE TO WASTE HAULER PUMPER.
9. ALL GREASE INTERCEPTORS SHALL BE LOCATED OUTSIDE PUBLIC RIGHT-OF-WAY.
10. EXCAVATIONS SHALL BE NEAT LINE TYPICALLY ALL SIDES.
11. INTERCEPTOR TO BE USED IN CONJUNCTION WITH "SAMPLING MANHOLE" PER STD. S-6.3.
12. SLAB TO EXTEND MIN. 24" BEYOND ALL SIDES OF TANK. (TRAFFIC AREA)
13. ALL WASTE MUST ENTER THROUGH INLET FITTING ONLY.
14. TANK TO BE STENCILED ON UPPER LEFT HAND CORNER OF INLET END IN WHITE.
15. STAINLESS STEEL CLAMP & BOLTS 3'-0" O.C. MAX. (TYP.) MIN. 2 REQ'D.
16. A WATERSTOP CONSISTING OF A STD. MANHOLE ADAPTER GASKET AS SUPPLIED BY THE PIPE MANUFACTURER SHALL BE GROUTED INTO THE INTERCEPTOR WALL NEAR THE CENTER OF THE WALL.
17. TANK CAPACITY TO BE DETERMINED AT THE TIME OF INDUSTRIAL WASTE PERMIT APPLICATION.

NOTES: (CONT.)

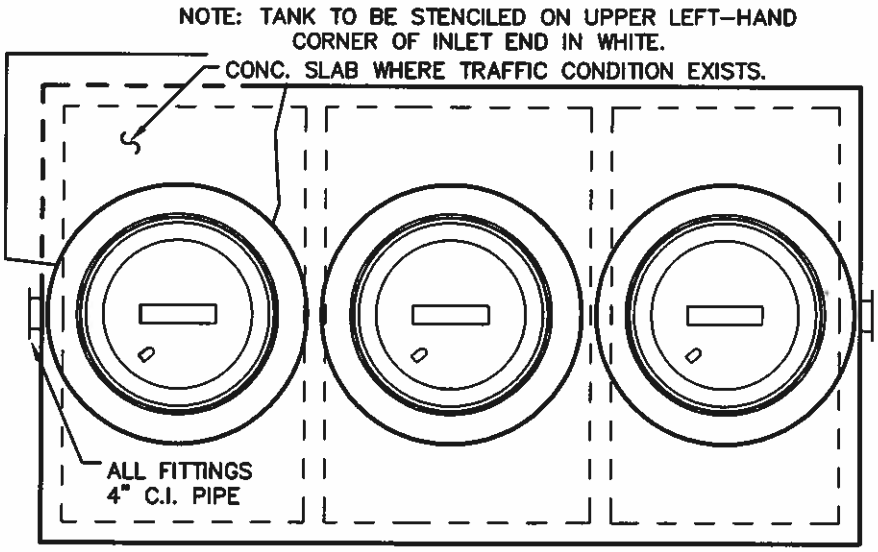
18. PIPE & FITTINGS TO BE 4" SCH. 40 PVC.
19. REINFORCING BARS INTERMEDIATE GRADE ASTM A615-62T & A305-56T. REINFORCING WIRE FABRIC - ASTM A185-61T.
20. ALTERNATE DESIGN BY A REGISTERED ENGINEER MAY BE SUBSTITUTED FOR REVIEW BY THE CITY.
20. TOILETS, URINALS AND SIMILAR FIXTURES SHALL NOT BE CONNECTED TO INTERCEPTOR.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

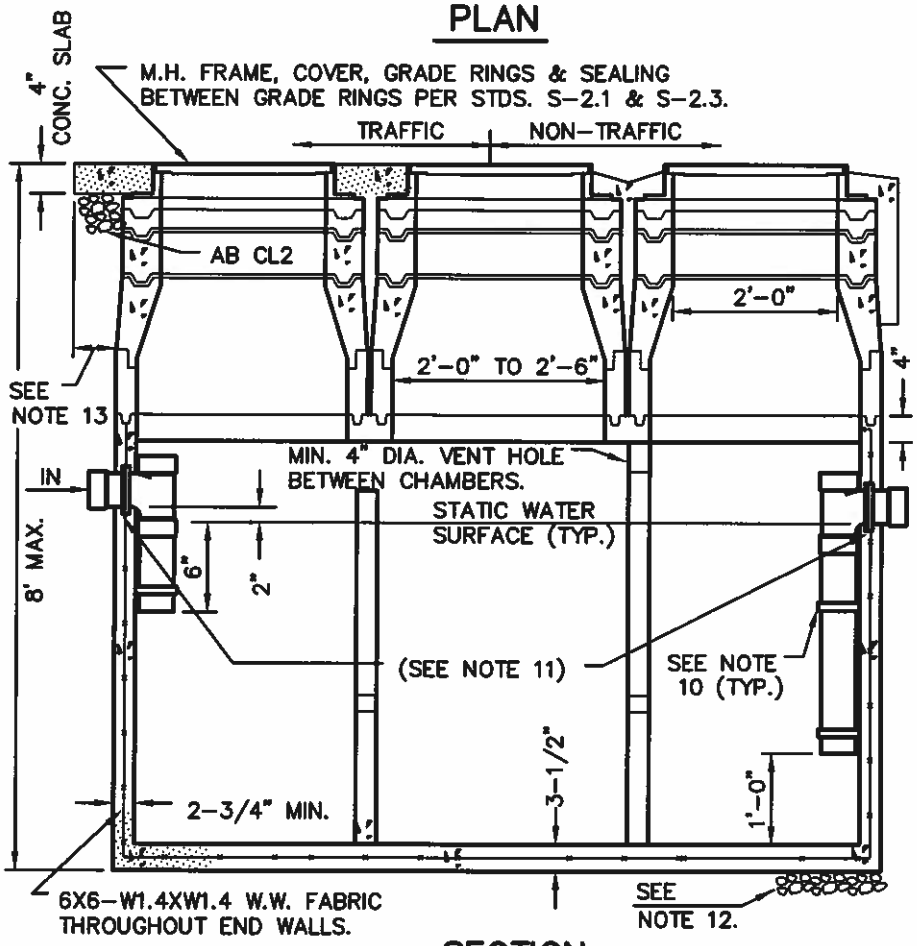
PRECAST CONCRETE GREASE INTERCEPTOR

STD. NO. S-6.1

SCALE: NONE	MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



PLAN



SECTION

NOTES:

1. TANK TO BE PRECAST. SEE CITY'S APPROVED LIST.
2. ALL GREASE INTERCEPTORS SHALL BE LOCATED OUTSIDE PUBLIC R/W
3. GREASE INTERCEPTORS SHALL BE LOCATED OUTSIDE OF BUILDINGS IN A LOCATION ACCESSIBLE TO WASTE HAULER PUMPER.
4. ALTERNATE DESIGN BY A REGISTERED ENGINEER MAY BE SUBSTITUTED FOR REVIEW BY THE CITY.
5. PIPE SHALL BE 6" MAX. DIAMETER PER U.P.C.
6. EXCAVATIONS SHALL BE NEAT LINE TYPICALLY ALL SIDES.
7. HEIGHT OF TANK ABOVE FITTINGS VARIABLE. ONE FT. SECTIONS MAY BE ADDED TO REQUIRED F.G.
8. ALL WYES SHALL BE ONE-WAY CLEANOUT WYES EXCEPT AS NOTED. TYPE PER U.P.C.
9. INTERCEPTOR TO BE USED IN CONJUNCTION WITH "SAMPLING MANHOLE" PER STD. S-6.3.
10. STAINLESS STEEL CLAMP & BOLTS 3'-0" O.C. MAX. (TYP.) MIN. 2 REQ'D.
11. A WATERSTOP CONSISTING OF A STD. MANHOLE ADAPTER GASKET AS SUPPLIED BY THE PIPE MANUFACTURER SHALL BE GROUTED INTO THE INTERCEPTOR WALL NEAR THE CENTER OF THE WALL.
12. 3" MIN. BEDDING MAT'L PER CITY STD. S-1.1.
13. SLAB TO EXTEND MIN. 24" BEYOND ALL SIDES OF TANK. (TRAFFIC AREA)
14. TANK CAPACITY TO BE DETERMINED AT THE TIME OF INDUSTRIAL WASTE PERMIT APPLICATION.
15. PIPE & FITTINGS TO BE 4" SCH. 40 PVC.
16. CONCRETE MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
17. ALL WASTE MUST ENTER THROUGH INLET FITTING.

NOTES: (CONT.)

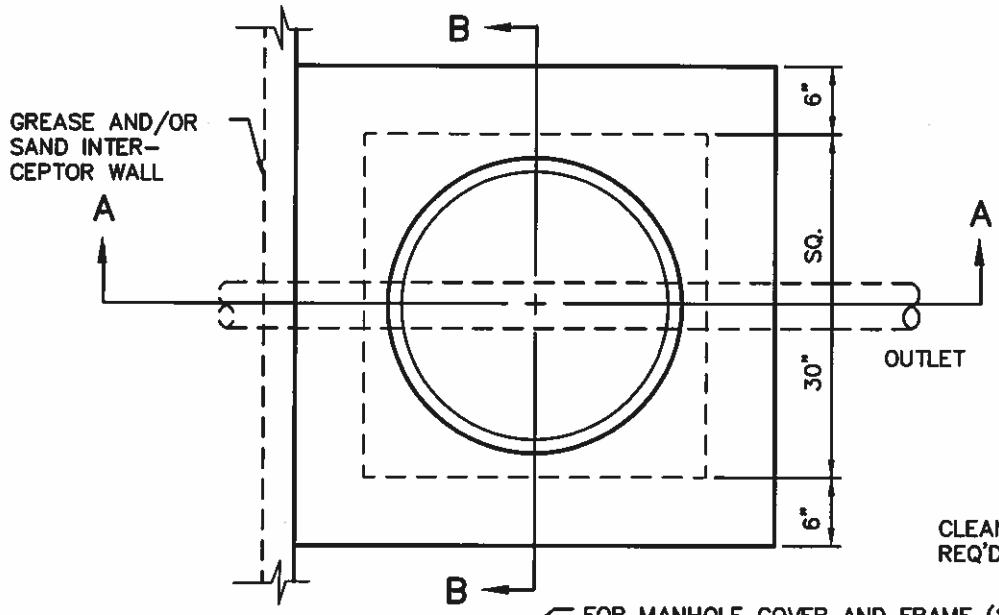
18. REINFORCING BAR INTERMEDIATE GRADE ASTM A615-62T & A305-56T.
19. REINFORCING WIRE FABRIC- ASTM A185-61T.
20. TOILETS, URINALS AND SIMILAR FIXTURES SHALL NOT BE CONNECTED TO INTERCEPTOR.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

PRECAST CONCRETE SAND AND GREASE INTERCEPTOR

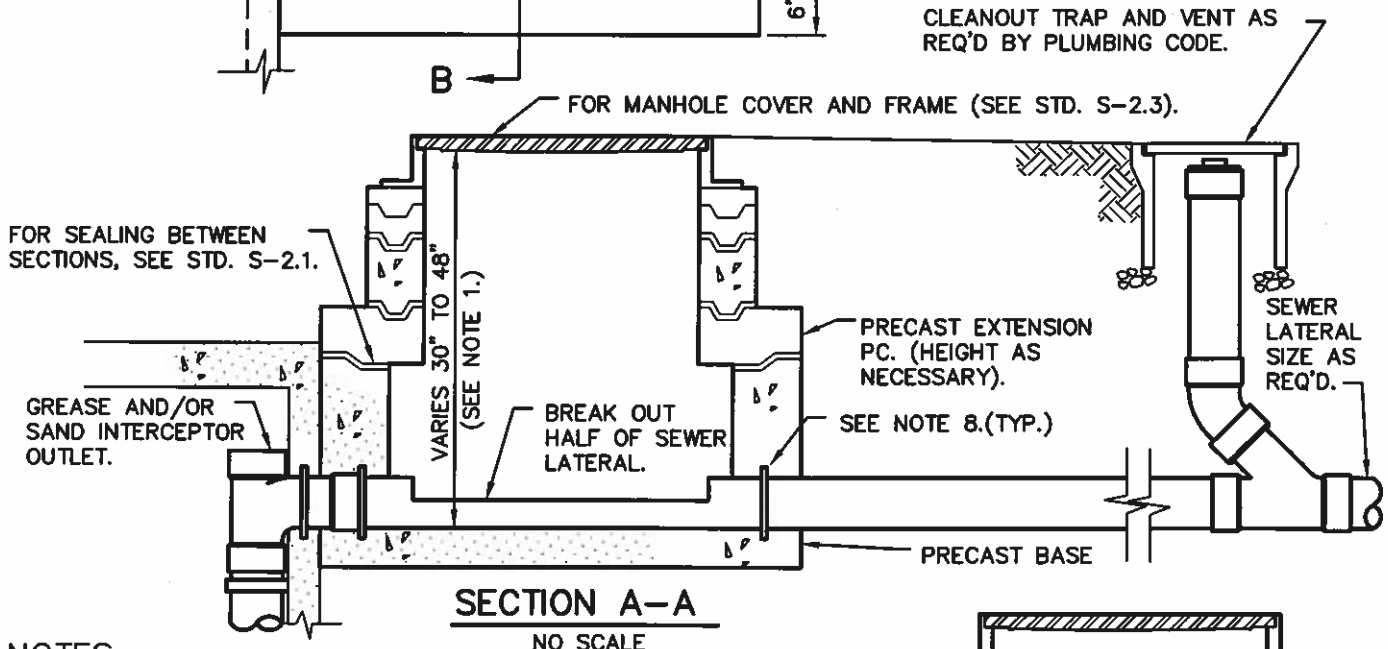
STD. NO. S-6.2

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



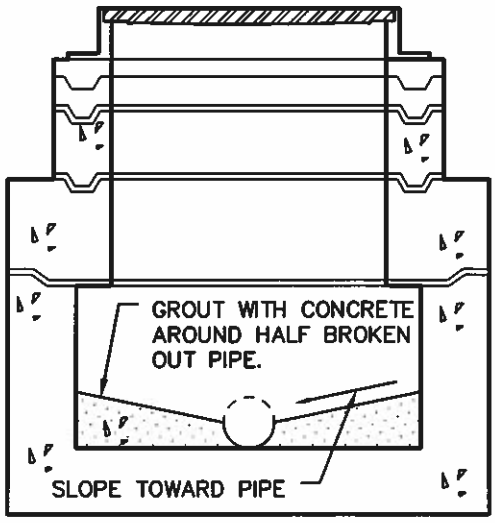
PLAN

NO SCALE



SECTION A-A

NO SCALE



SECTION B-B

NO SCALE

NOTES:

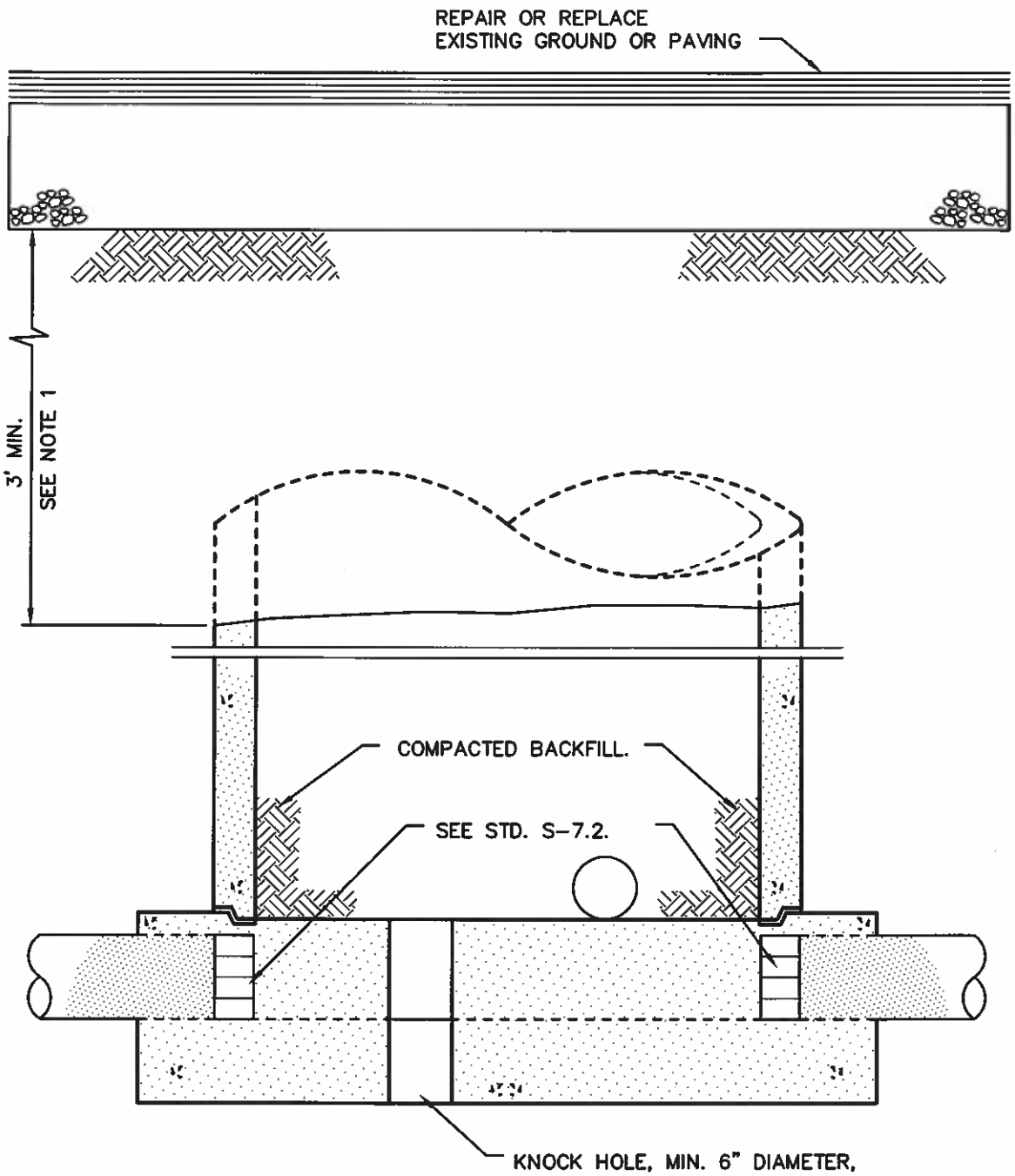
1. IF LESS THAN 30" REVIEW WITH CITY FOR ADD'L VAULT REQ'MTS. IF GREATER THAN 48" INSTALL SAMPLING M.H. SIM. TO STD. S-2.1 WITH FLOW-THROUGH CUT-AWAY PIPE AS PER THIS STD.
2. SAMPLING M.H. TO BE LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY EXCEPT WITH WRITTEN APPROVAL OF THE PUBLIC WORKS ENCROACHMENT OFFICER.
3. AN ALTERNATE DESIGN BY A REGISTERED ENGINEER MAY BE SUBMITTED FOR REVIEW BY THE CITY.
4. LOCATION SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
5. MANHOLE SHALL BE SANTA ROSA CAST PRODUCTS PRECAST CONC. DROP INLET BOX #5K WITH #5K X 24" DIAMETER TRANSITION SLAB.
6. ALL SURFACE WATER MUST DRAIN AWAY FROM SAMPLING M.H.
7. SAMPLING M.H. TO BE USED IN CONJUNCTION WITH EITHER STDS. S-6.1 OR S-6.2.
8. A WATERSTOP CONSISTING OF A STD. MANHOLE ADAPTER GASKET AS SUPPLIED BY THE PIPE MFR. TO BE GROUTED INTO THE BOX WALL NEAR THE CENTER OF THE WALL.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

SAMPLING MANHOLE EXTERIOR USE

STD. NO. S-6.3

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



NOTES:

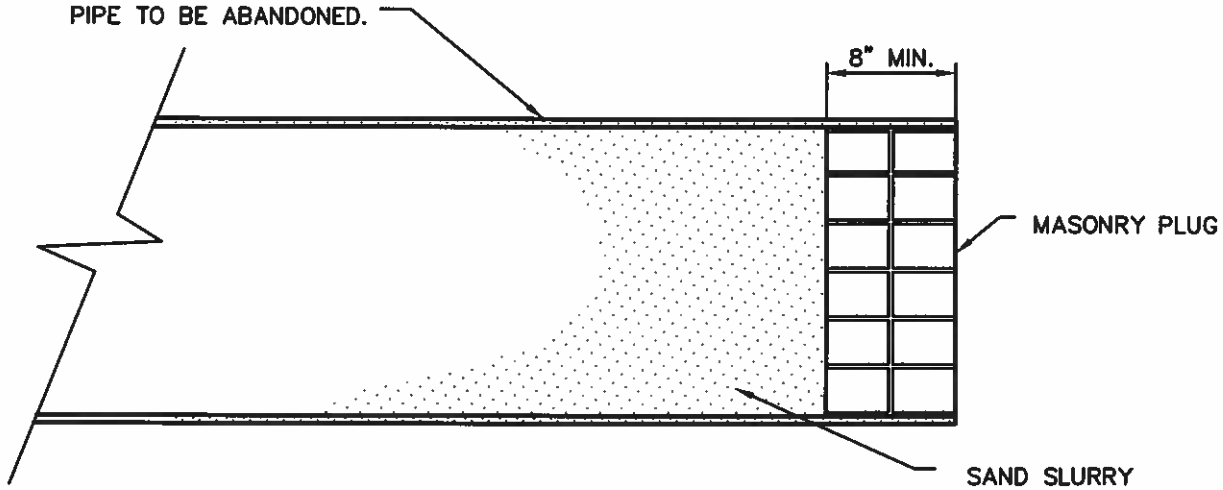
1. REMOVE FRAME, COVER, TAPER AND BARREL SECTIONS.
2. AFTER PLUGGING ALL PIPES IN MANHOLE, THE REMAINING PORTION OF THE BARREL SECTION AND ALL VOIDS CREATED BY THE REMOVAL OF THE UPPER PORTIONS OF THE MANHOLE, SHALL BE BACKFILLED AND COMPACTED TO 90% RELATIVE DENSITY. USE TRENCH BACKFILL OR PIPE BEDDING MATERIAL.

SEBASTOPOL CALIFORNIA PUBLIC WORKS

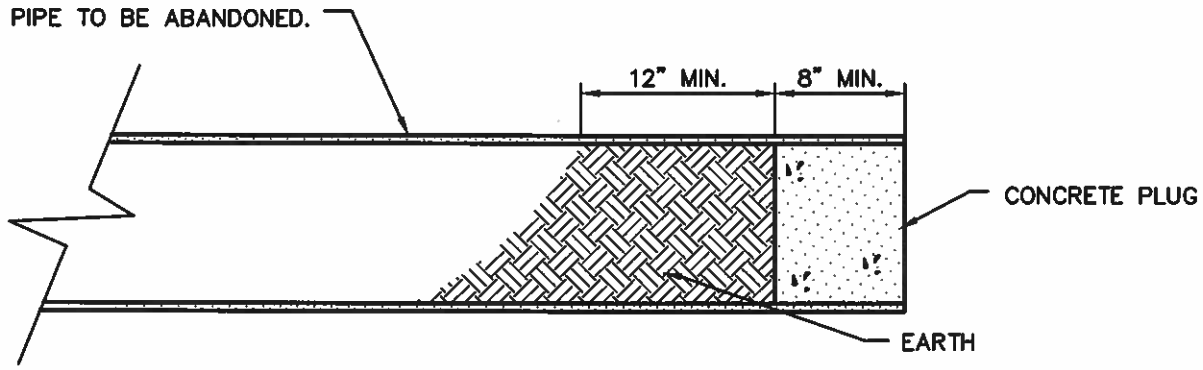
ABANDONED SANITARY SEWER MANHOLE DETAIL

STD. NO. S-7.1

SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



12" DIAMETER PIPE AND LARGER



10" DIAMETER PIPE AND SMALLER

NOTES:

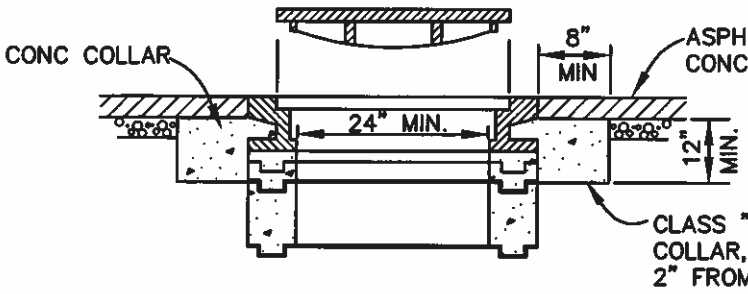
1. PIPE PLUGS SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY ENGINEER.
2. ABANDONED PIPES, 12" AND LARGER, SHALL BE BROKEN INTO EVERY 50' AND SHALL BE FILLED COMPLETELY WITH SAND SLURRY.

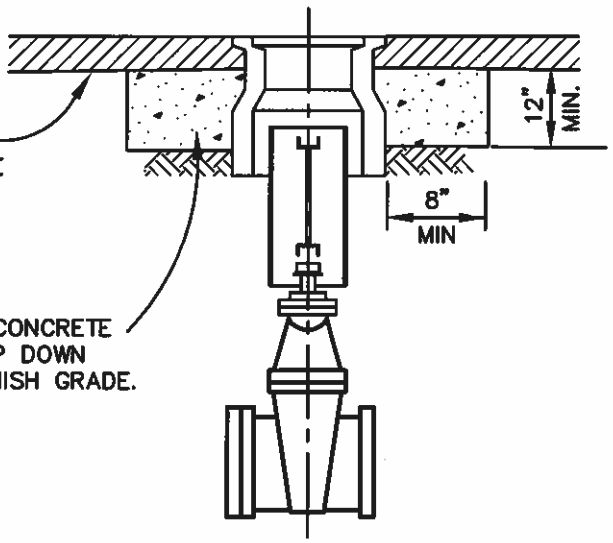
SEBASTOPOL CALIFORNIA PUBLIC WORKS

ABANDONED SANITARY SEWER PIPE PLUG DETAIL

STD. NO. S-7.2

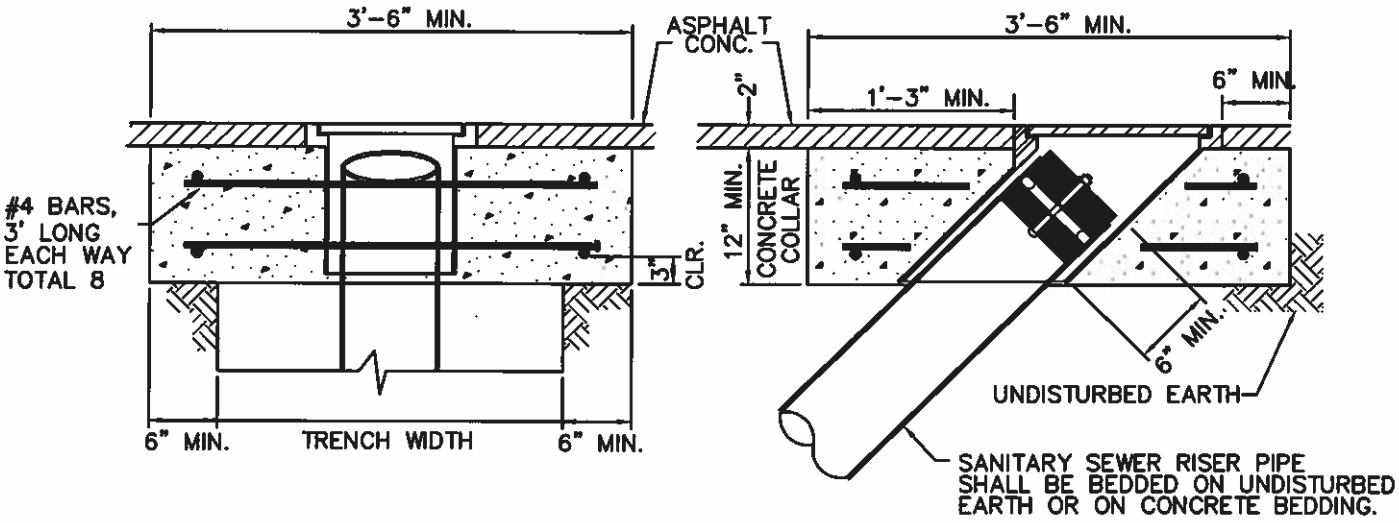
SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998





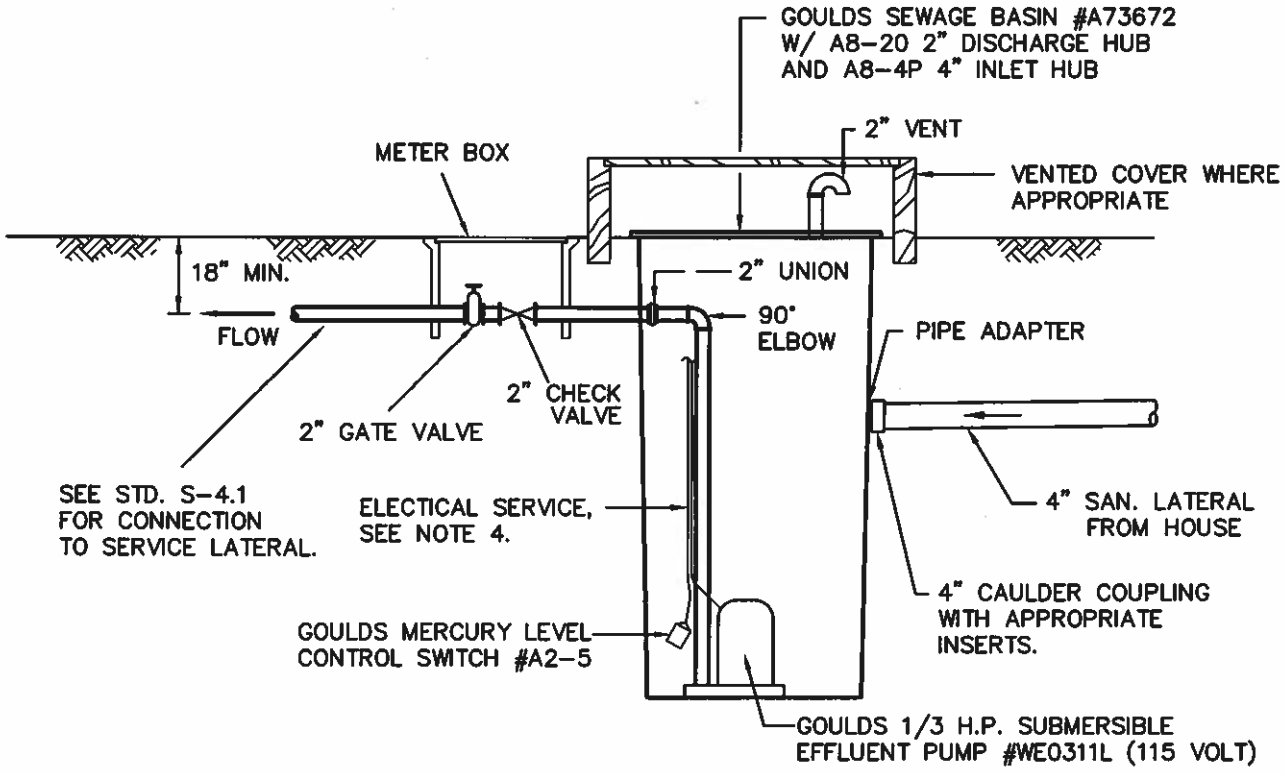
SEWER MANHOLE

WATER VALVE



SEWER CLEANOUT

SEBASTOPOL CALIFORNIA PUBLIC WORKS	STANDARD MANHOLE, CLEANOUT & VALVE BOX ADJUSTMENT				STD. NO. S-7.3
	SCALE: NONE	DRAWN: MGA	CHK: SAL	APPVD: PHK	DATE: JULY 1998



NOTES:

1. PUMPING SYSTEM TO BE MAINTAINED BY PROPERTY OWNER.
2. THE FACILITIES SHOWN ARE MINIMUM AND CALCULATIONS AND SHOP DRAWINGS BY THE MANUFACTURER OR ENGINEER MUST BE SUBMITTED TO THE CITY FOR APPROVAL FOR EACH INSTALLATION.
3. AN AUDIBLE HIGH-WATER ALARM SHALL BE PROVIDED.
4. ROUTE ELECTICAL SERVICE UNDERGROUND TO HOUSE MAIN PANEL (110 VOLT MIN.).

SEBASTOPOL CALIFORNIA PUBLIC WORKS

INDIVIDUAL PUMPING SYSTEM

STD. NO. S-7.4

SCALE: NONE	DRAWN: LMM	CHK: PHK	APPVD: PHK	DATE: JULY 1998