

**NOTES:**

1. PLACE TWO HALF MOON SHAPED PLYWOOD COVERS ( 5/8\"/>
2. FOR DROP MANHOLE SEE MCWD STD. PLAN S-11. DROPS OVER 1-FT REQUIRE DISTRICT APPROVAL.
3. FOR MANHOLES LOCATED OUTSIDE PAVED AREAS THE FRAME AND COVER SHOULD BE SET A MINIMUM OF 0.1 FT. ABOVE FINISH GRADE IN SHOULDER AREAS, UNPAVED ROADS OR LANDSCAPED AREAS, AND 18\"/>
4. ALL INLETS AND OUTLETS SHALL BE SUPPORTED WITH CONCRETE SUPPORTS PRIOR TO POURING MANHOLE BASE.

APPROVED BY  
DISTRICT  
ENGINEER

DATE  
11/2007



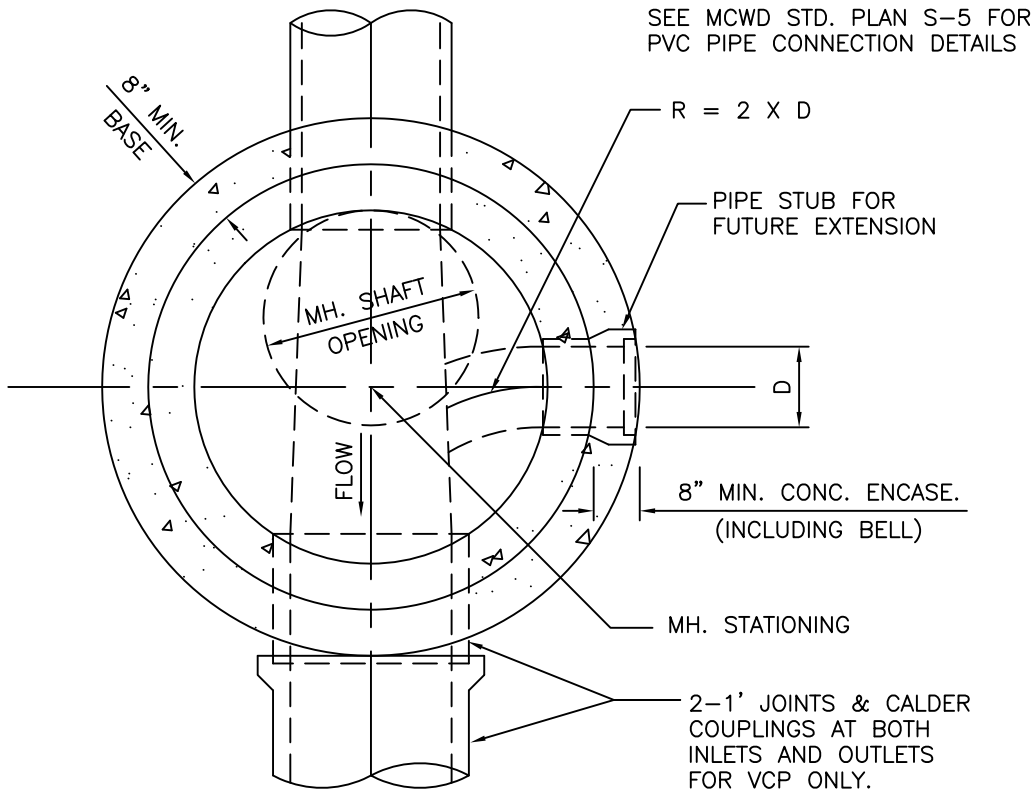
**MARINA COAST WATER DISTRICT STANDARD PLAN**

**MANHOLE DETAILS**

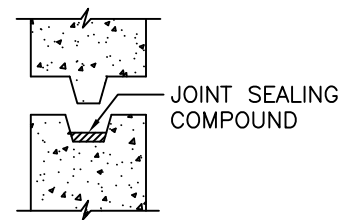
STANDARD

**S-1**

SHEET 1 OF 1

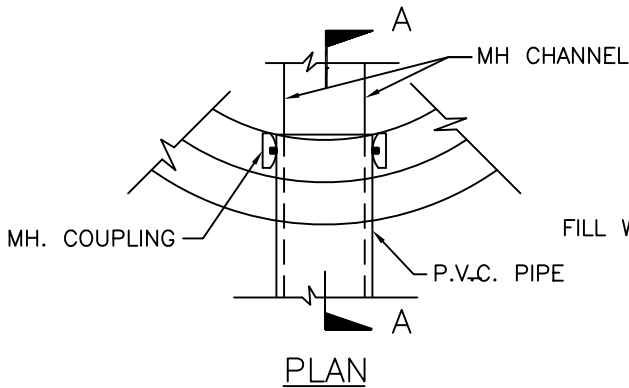


MANHOLE BASE PLAN

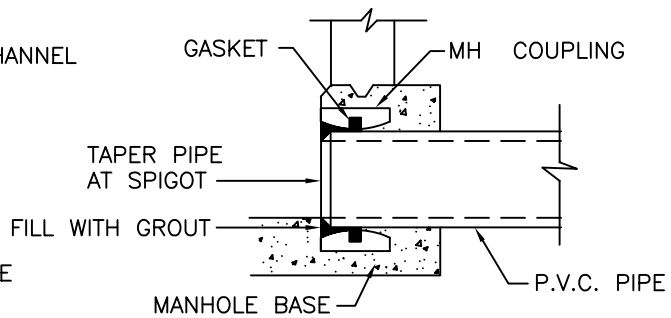


BARREL JOINT SEALANT

0.10' MIN. FALL ACROSS  
MH. (TYP.) UNLESS SEWER  
SLOPE GREATER. 0.20' MIN.  
FALL FOR 90" MH.



PLAN



SECTION A-A

MANHOLE CONNECTION DETAILS

NOTES:

- BARREL JOINT SEALANT - PREFORMED COLD-APPLIED ELASTOMERIC PLASTIC JOINT SEALING COMPOUND SHALL BE RAM-NEK OR APPROVED EQUAL.

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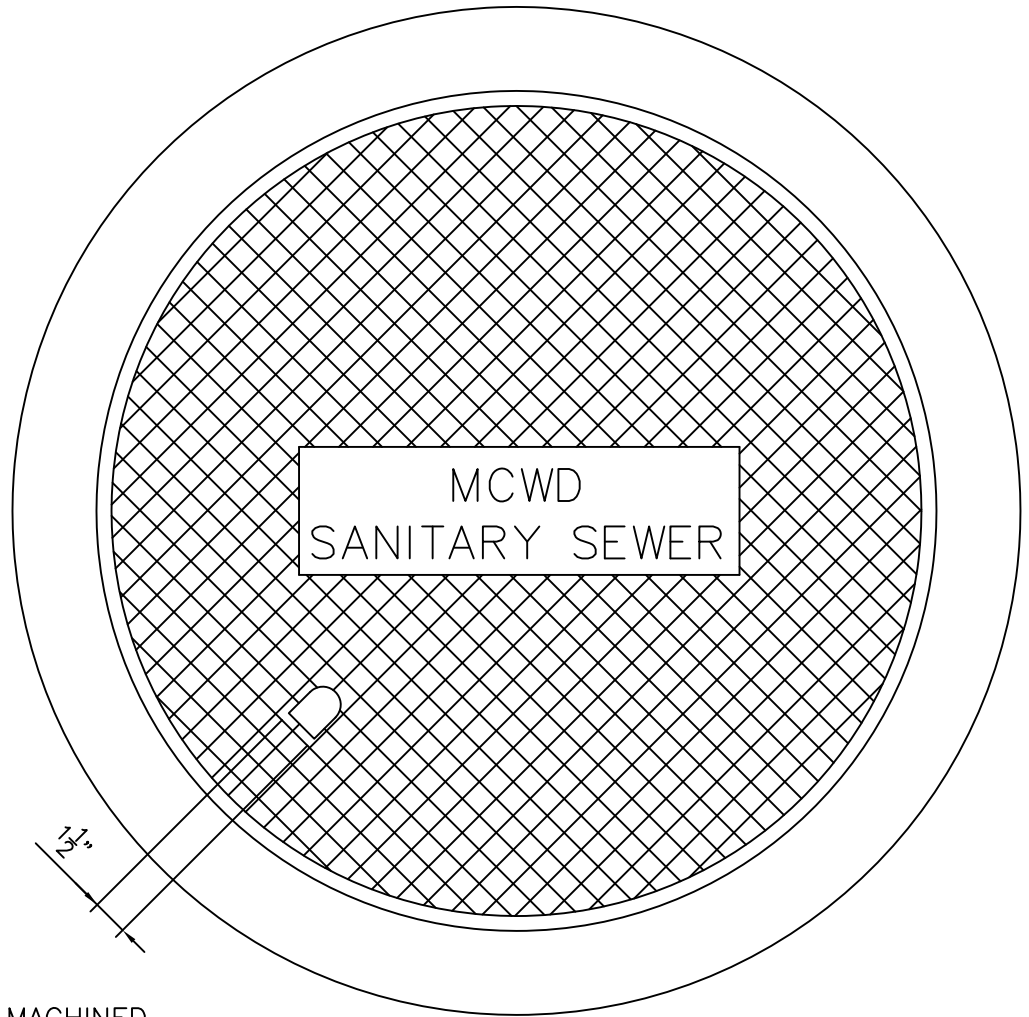
MARINA COAST WATER DISTRICT STANDARD PLAN

CONCRETE MANHOLE BASE,  
CONNECTION & JOINT DETAILS

STANDARD

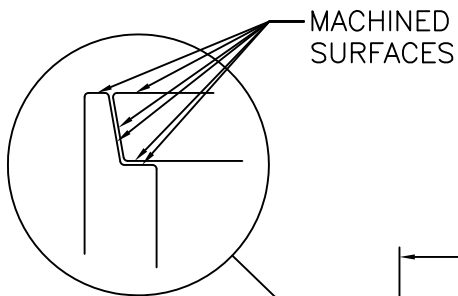
**S-2**

SHEET 1 OF 1



MCWD  
SANITARY SEWER

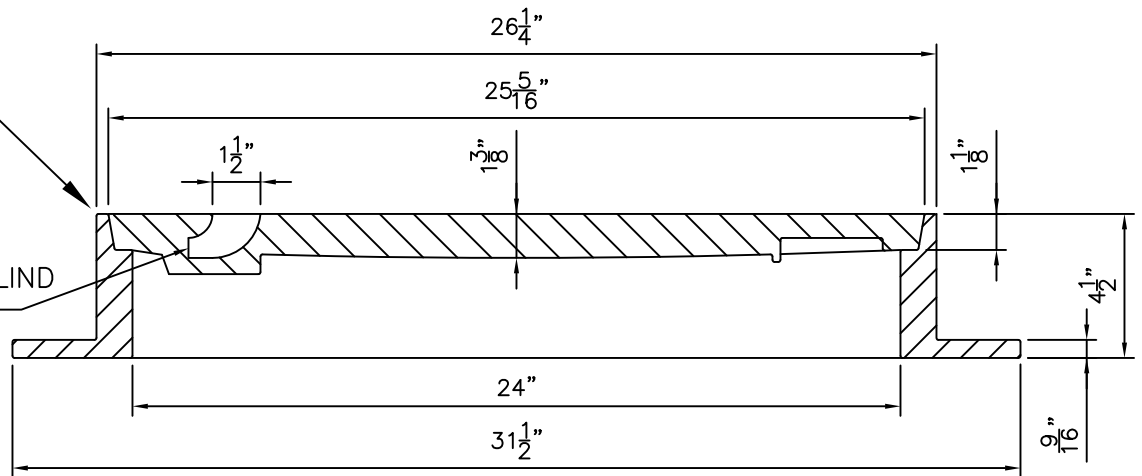
13 1/2"



MACHINED SURFACES

CURVED BLIND PICKHOLE

SOUTHBAY FOUNDRY SFB 1900 OR EQUAL 24" FULL TRAFFIC TYPE NON ROCKING MANHOLE FRAME AND COVER. DESIGNED FOR H-20 HIGHWAY LOADING



SET WEIGHT  
COVER 130  
FRAME 140  
TOTAL 270 LBS

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DISTRICT  
ENGINEER

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11/2007



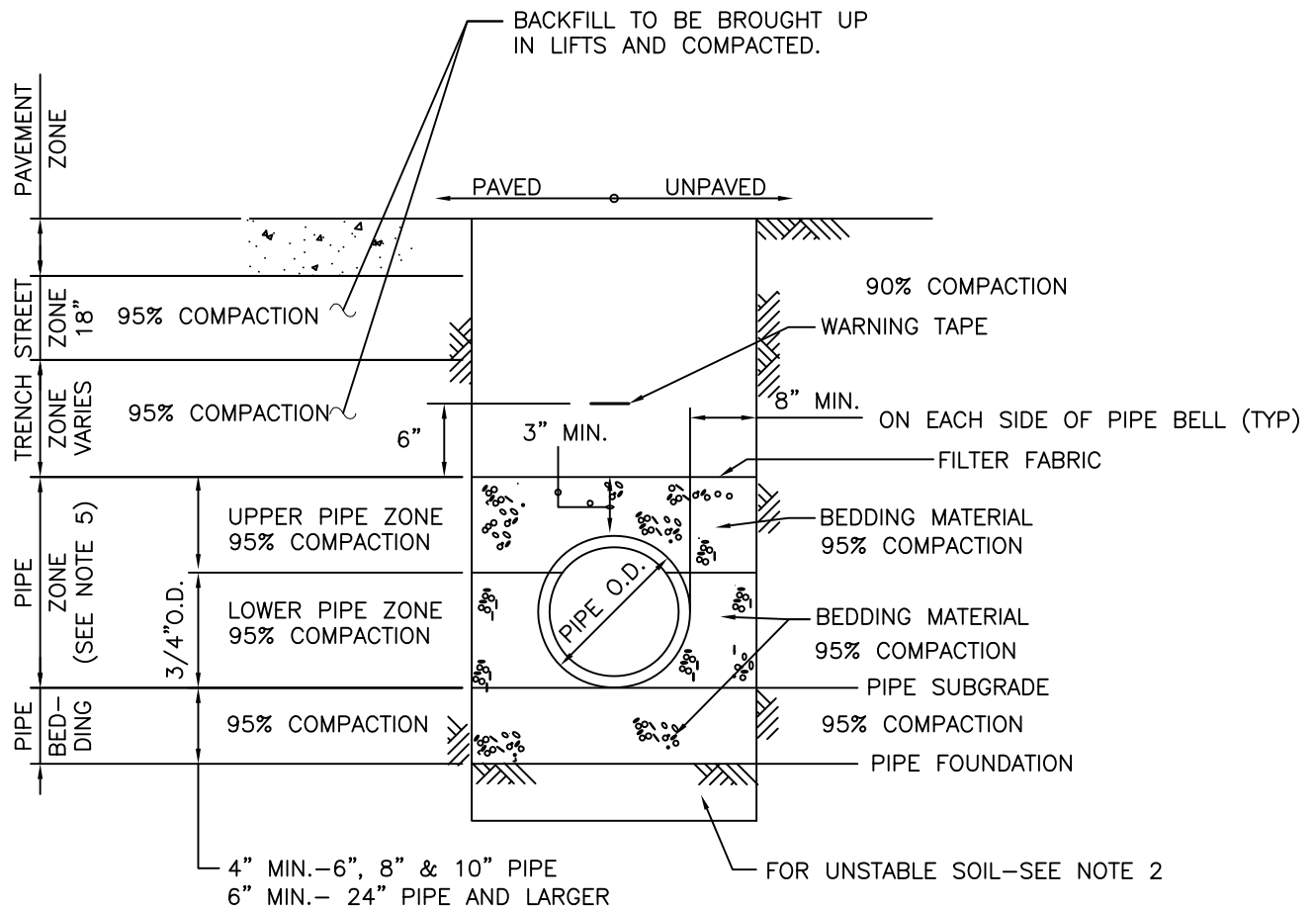
MARINA COAST WATER DISTRICT STANDARD PLAN

TRAFFIC MANHOLE FRAME & COVER

STANDARD

S-3

SHEET 1 OF 1



NORMAL BEDDING

NOTES:

1. CONCRETE ENCASEMENT PER MCWD STD. PLAN S-8 SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAX. WIDTH SPECIFIED ABOVE.
2. IF UNSTABLE SOIL IS ENCOUNTERED, DISTRICT REPRESENTATIVE SHALL DETERMINE DEPTH OF REMOVAL AND SIZE OF FOUNDATION ROCK REFILL MATERIAL.
3. OVERWIDTH BEDDING SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMITS OF THE PIPE ZONE EXCEEDS THE MAXIMUM SPECIFIED ABOVE. MAXIMUM OVERWIDTH BEDDING TO BE DETERMINED IN THE FIELD BY THE DISTRICT REPRESENTATIVE ON THE BASIS OF OVERWIDTH EXCAVATED.
4. NO NATIVE BACKFILL SHALL BE ALLOWED IN THE PIPE ZONE.
5. PIPE INSTALLED MORE THAN 20' BELOW GRADE SHALL BE ENGINEERED AND SUBMITTED TO THE DISTRICT ENGINEER FOR APPROVAL.
6. THESE ARE MINIMUM REQUIREMENTS. IF OTHER JURISDICTIONAL REQUIREMENTS DIFFER FROM THOSE CONTAINED HEREIN, THE MOST STRINGENT REQUIREMENTS SHALL DICTATE.

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MARINA COAST WATER DISTRICT STANDARD PLAN

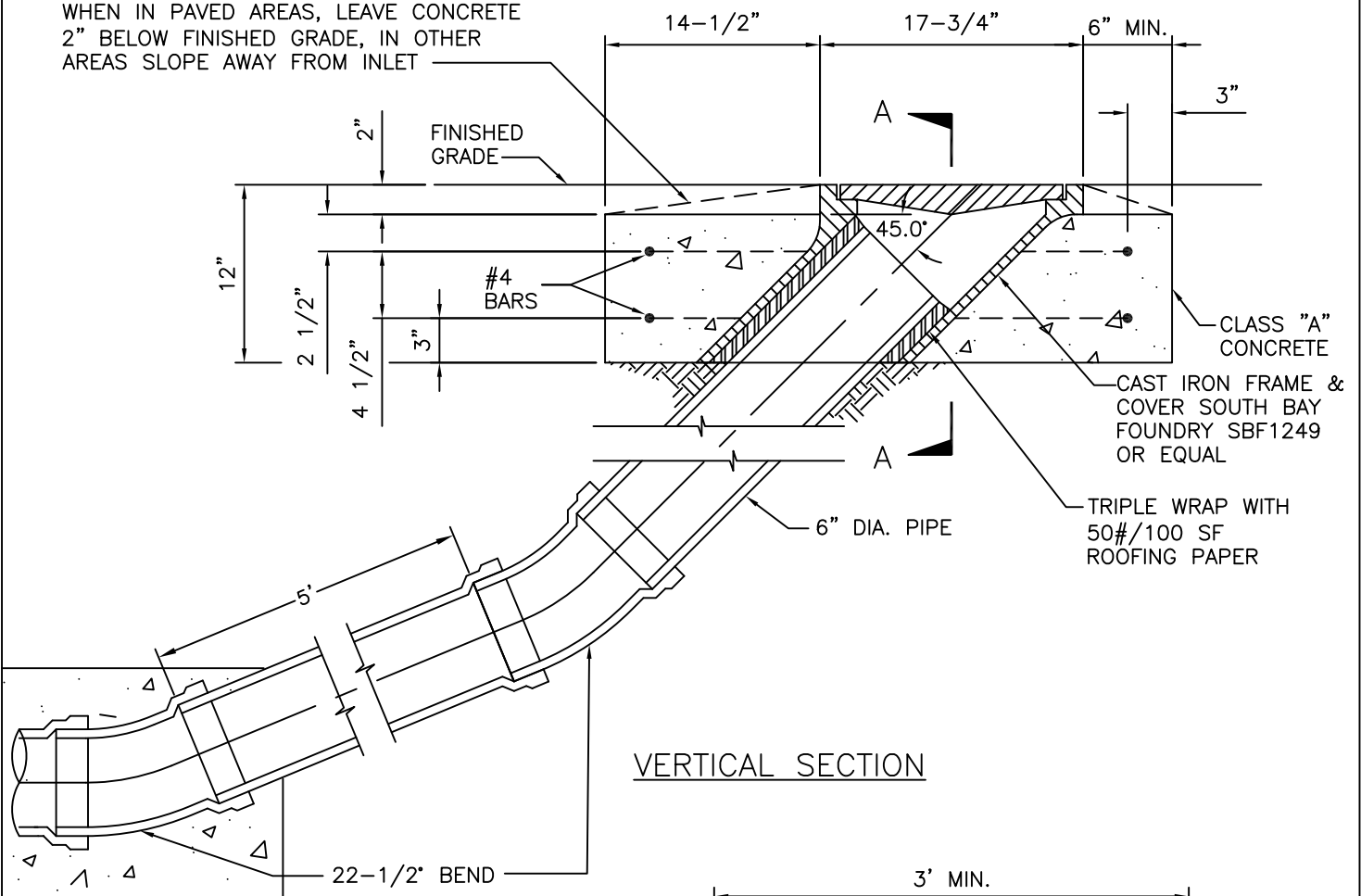
PVC PIPE BEDDING DETAIL

STANDARD

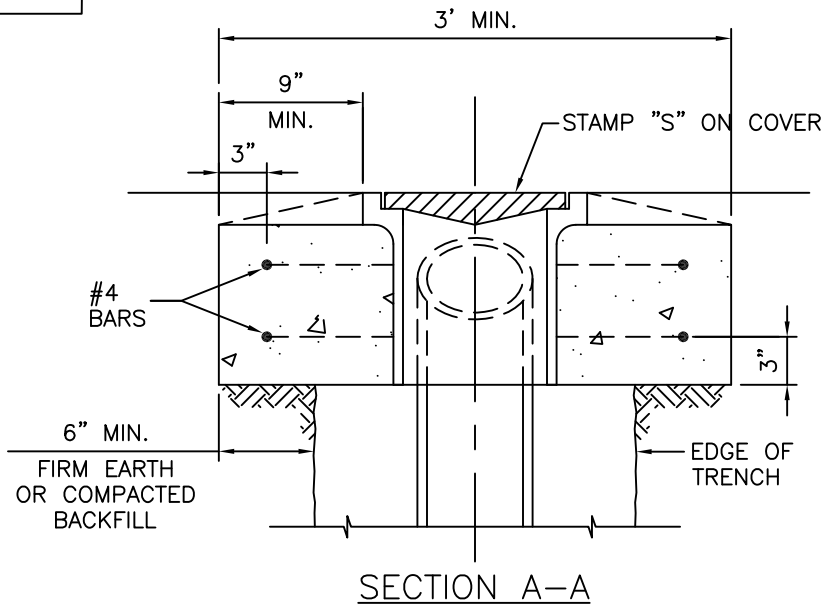
**S-4**

SHEET 1 OF 1

WHEN IN PAVED AREAS, LEAVE CONCRETE 2" BELOW FINISHED GRADE, IN OTHER AREAS SLOPE AWAY FROM INLET



VERTICAL SECTION



SECTION A-A

FURNISH CONCRETE THRUST BLOCK THE ENTIRE WIDTH OF TRENCH

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11/2007



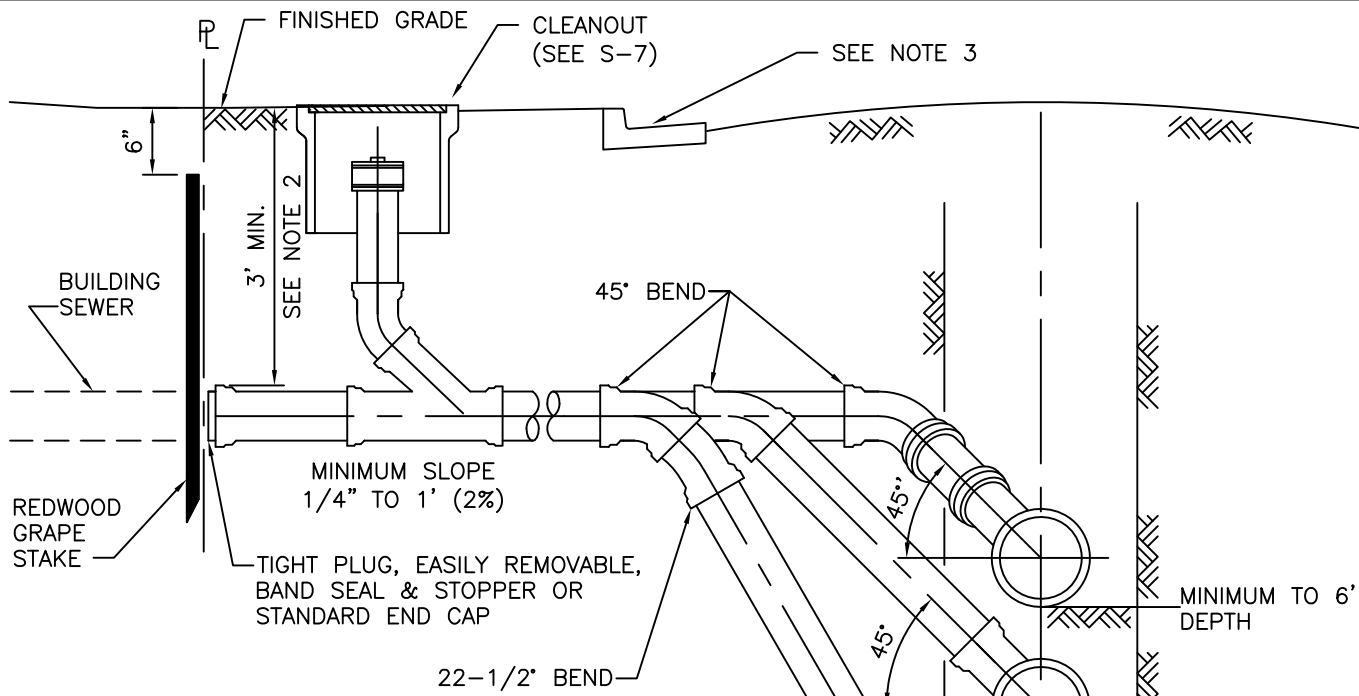
MARINA COAST WATER DISTRICT STANDARD PLAN

FLUSHING INLET

STANDARD

S-5

SHEET 1 OF 1

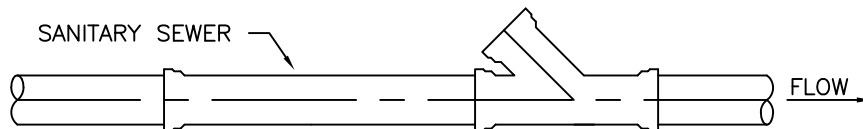


**NOTES:**

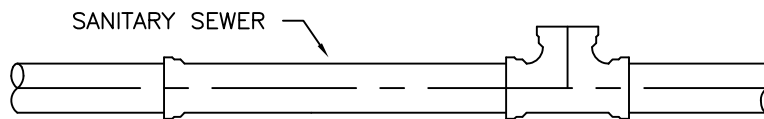
- 1- FOR SEWER DEPTHS FROM MINIMUM COVER TO 6 FT. USE STANDARD WYE CONNECTION. FOR DEPTHS BELOW 6 FT. USE STANDARD TEE CONNECTION WITH SLOPING RISER AS SHOWN.
- 2- WHEN SEWER IS AT MINIMUM DEPTH, HOLD SERVICE LINE TO MINIMUM SLOPE AND LESSEN COVER AT PROPERTY LINE.
- 3- THE LOCATION OF ALL SEWER LATERALS SHALL BE MARKED WITH THE LETTER "S" ON FACE OF CURB OR BACK OF WALK.
- 4- IF CONTRACTOR IS UNABLE TO MEET MINIMUM COVER REQUIREMENTS, DUCTILE IRON PIPE SHALL BE USED.
- 5- ALL SERVICE TEES OR WYES SHALL BE MANUFACTURER'S STANDARD FITTINGS. ON SERVICE ADDITIONS, TAP-RITE OR SEWER SADDLE SHALL BE USED. NO PIPE BREAKING AND CONCRETE PATCHING WILL BE PERMITTED. ONLY NEATLY SNAPPED OR SAW CUT LENGTHS WILL BE ALLOWED.

**MATERIALS**

SANITARY SEWER PIPE MATERIAL	CUT-IN FITTING MATERIAL
PVC	PVC/DIP
DIP	DIP
VCP	PVC
CMLC	PVC



STANDARD WYE CUT-IN DETAIL



STANDARD TEE CUT-IN DETAIL

APPROVED BY  
DISTRICT  
ENGINEER



DATE  
11/2007

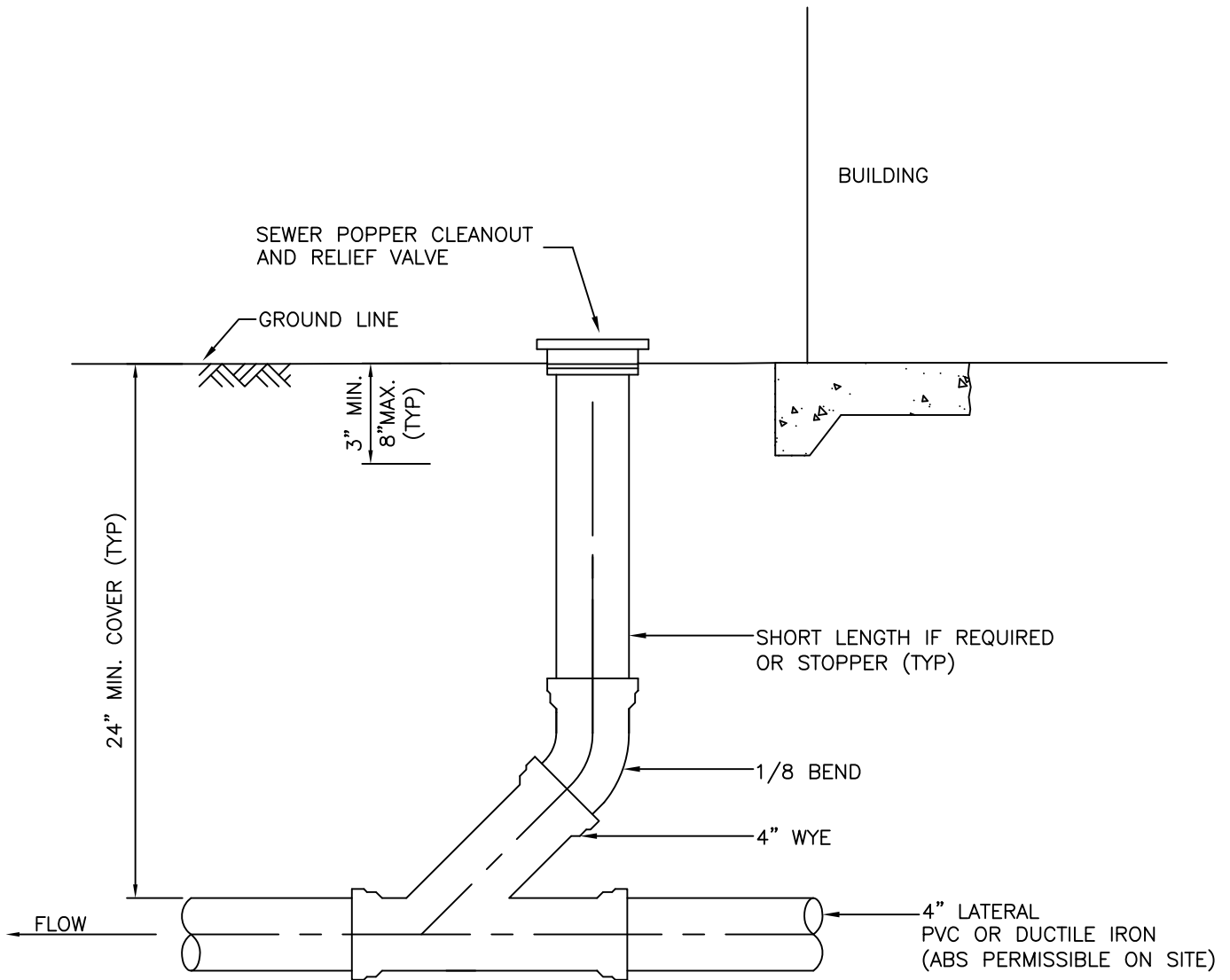
MARINA COAST WATER DISTRICT STANDARD PLAN

LATERAL CONNECTION

STANDARD

S-6

SHEET 1 OF 1



**BUILDING SEWER**

**STANDARD CLEANOUT DETAIL SPECIFICATION**

**NOTES:**

- 1- REFER TO MCWD STD S-13 WHERE BACKWATER PROTECTION IS REQUIRED.
- 2- IF VALVE INSTALLED IN SIDEWALK OR TRAVELED WAY, PLACE VALVE IN NO. B9 CHRISTY BOX COVER OR EQUAL.
- 3- SEWER POPPER CLEANOUT SHALL BE JONES STEPHENS CORP. PART NO. S62-304 OR EQUAL.

APPROVED BY  
DISTRICT  
ENGINEER

DATE  
05/2014



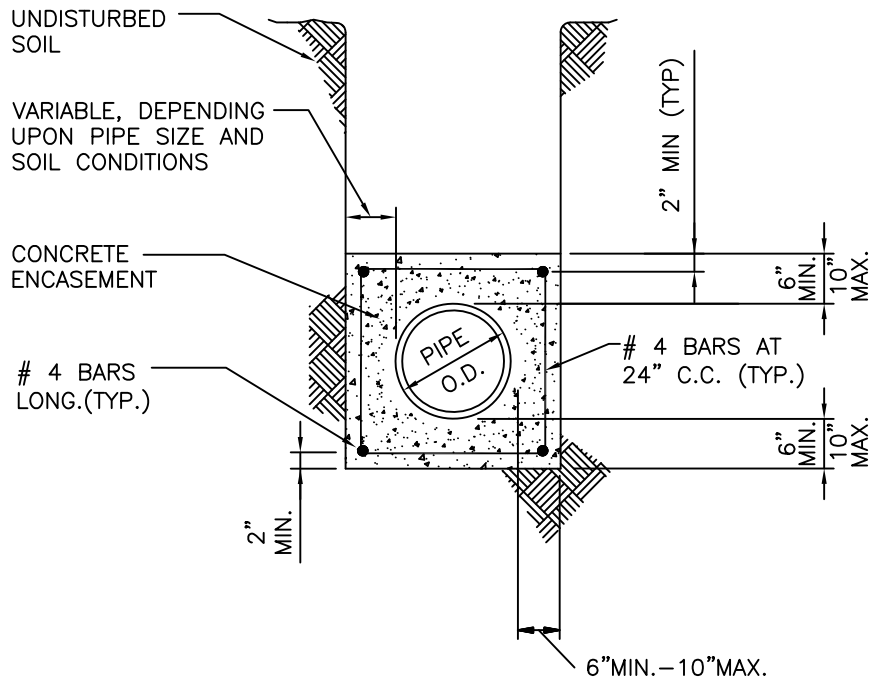
**MARINA COAST WATER DISTRICT STANDARD PLAN**

**BUILDING CLEANOUT**

STANDARD

**S-7**

SHEET 1 OF 1



NOTES:

- 1- CONCRETE ENCASEMENT SHALL BE USED WHEN COVER IS UNDER 4' OR OVER 20'
- 2- ENCASEMENT TO BE PLACED AGAINST UNDISTURBED NATURAL GROUND OR FILL COMPACTED TO 90% RELATIVE DENSITY
- 3- NO. 4 STEEL REINFORCING BARS SHALL BE USED AS SPECIFIED.
- 4- UNLESS NOTED OTHERWISE, ENCASEMENT SHALL BE CLASS "B" CONCRETE.
- 5- WHERE SLOPED TRENCHES ARE USED, WALLS WILL NOT BEGIN TO SLOPE CLOSER THAN 12" FROM THE TOP OF THE PIPE.
- 6- DUCTILE IRON PIPE MAY BE PERMISSIBLE IN LIEU OF CONCRETE ENCASEMENT AS APPROVED BY THE ENGINEER.

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DISTRICT  
ENGINEER

DATE  
11/2007



MARINA COAST WATER DISTRICT STANDARD PLAN

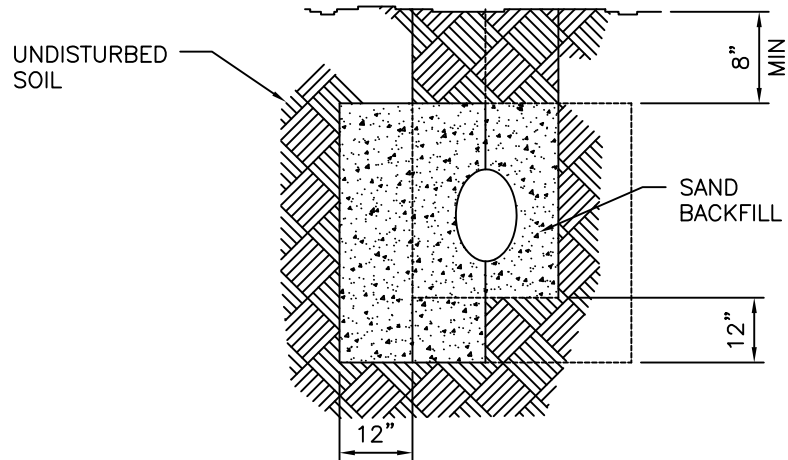
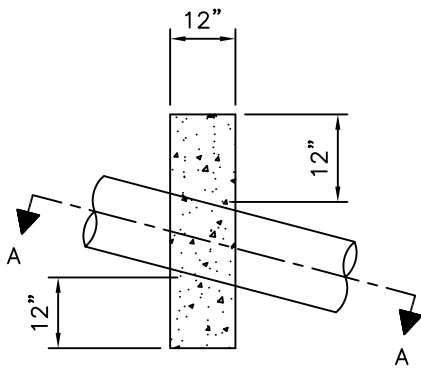
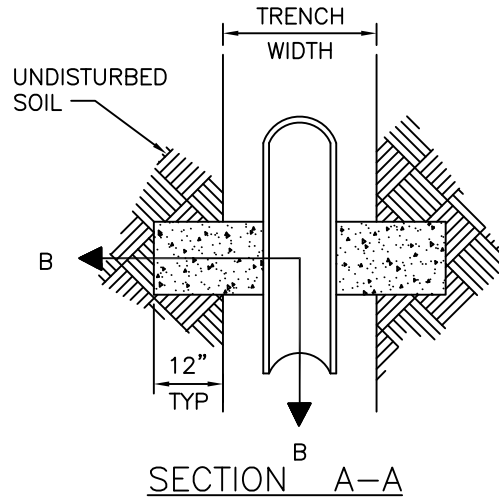
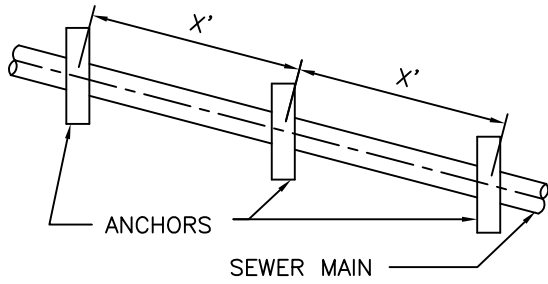
CONCRETE ENCASEMENT

STANDARD

S-8

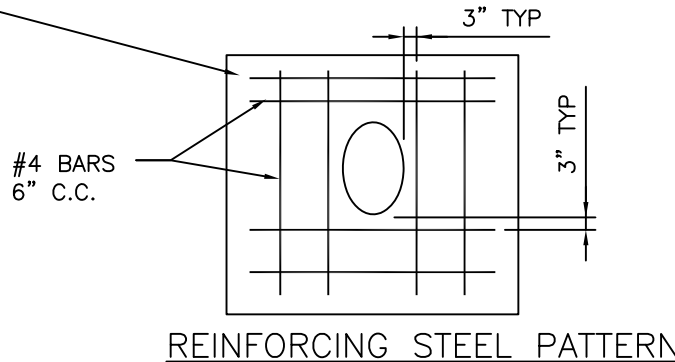
SHEET 1 OF 1





3" MIN. CLEARANCE BETWEEN REINFORCING STEEL AND EDGE OF CONCRETE

PIPE SLOPE	PIPE SLOPE	X DISTANCE
100%	1:1	12'
66.6%	1-1/2:1	14'
50%	2:1	16'
40%	2-1/2:1	18'
33.3%	3:1	20'



**NOTES:**

- 1- PIPE ANCHORS REQUIRED ON ALL SLOPES OF 2:1 OR STEEPER
- 2- ANCHOR SHALL EXTEND 12" INTO NATURAL UNDISTURBED SOIL
- 3- CONCRETE SHALL BE CLASS "A".
- 4- ANCHORS FOR TRAPAZOIDAL TRENCH SECTIONS WILL CONFORM TO TRENCH CROSS SECTION AND EXTEND 12" INTO UNDISTURBED SOIL

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MARINA COAST WATER DISTRICT STANDARD PLAN

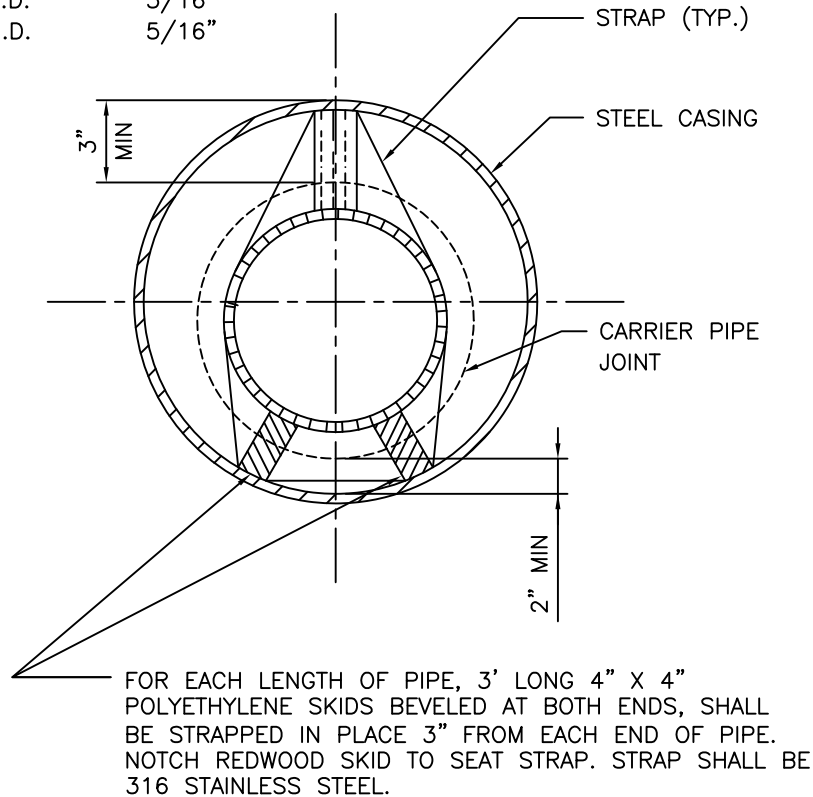
CONCRETE SLOPE ANCHORS

STANDARD

S-9

SHEET 1 OF 1

P.V.C. SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS.
6"	12" I.D.	1/4"
8"	16" I.D.	1/4"
10"	18" I.D.	5/16"
12"	20" I.D.	5/16"



**NOTES:**

- 1- UNLESS NOTED OTHERWISE, CASING SHALL BE INSTALLED BY THE BORE, JACK AND/OR TUNNEL METHOD. IF OPEN-CUT INSTALLATION OF CASING IS ALLOWED, BACKFILL SHALL BE IN ACCORDANCE WITH MCWD STD. PLAN S-4.
- 2- SIZE AND THICKNESS OF CASING SHALL BE AS SHOWN IN SCHEDULE.
- 3- ALL STEEL CASING PIPE FIELD JOINTS SHALL BE WELDED FULL-CIRCUMFERENCE.
- 4- 4"x4" POLYETHYLENE SKIDS SHALL BE PROVIDED PER DETAIL ABOVE.
- 5- CARRIER PIPE SHALL BE AIR PRESSURE TESTED PRIOR TO FILLING CASING.
- 6- UPSTREAM AND DOWNSTREAM ELEVATIONS OF CARRIER PIPE TO BE VERIFIED PRIOR TO FILLING.
- 7- EACH END OF CASING SHALL BE MANUFACTURER SEALS (PER SPECIFICATIONS)
- 8- CASING PIPE DESIGN SHALL BE SUBMITTED TO THE DISTRICT ENGINEER FOR APPROVAL.
- 9- THESE ARE MINIMUM REQUIREMENTS. IF OTHER JURISDICTIONS REQUIREMENTS ARE MORE STRINGENT, THOSE REQUIREMENTS WILL DICTATE.

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11/2007

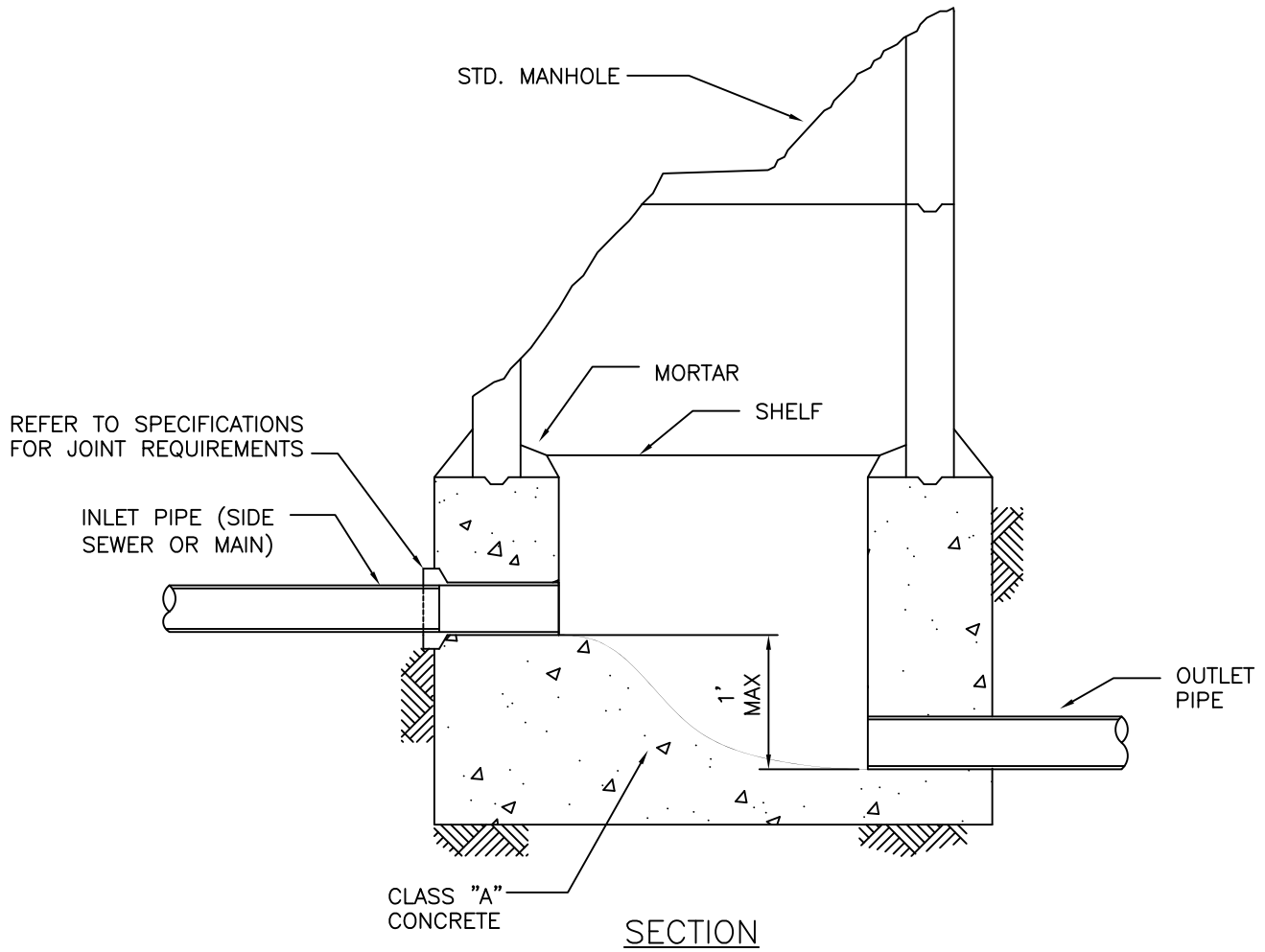
**MARINA COAST WATER DISTRICT STANDARD PLAN**

**STEEL CASING PIPE**

STANDARD

**S-10**

SHEET 1 OF 1



NOTES:

- 1- ALL NEW OPENINGS CONSTRUCTED INTO MANHOLE SHALL BE DONE BY CORE DRILLING
- 2- INTERIOR WALL OF MANHOLE TO BE LINED WITH PVC LINER PER SPECIFICATIONS
- 3- DEEPER DROPS REQUIRE SPECIAL DESIGN AND APPROVAL

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11/2007



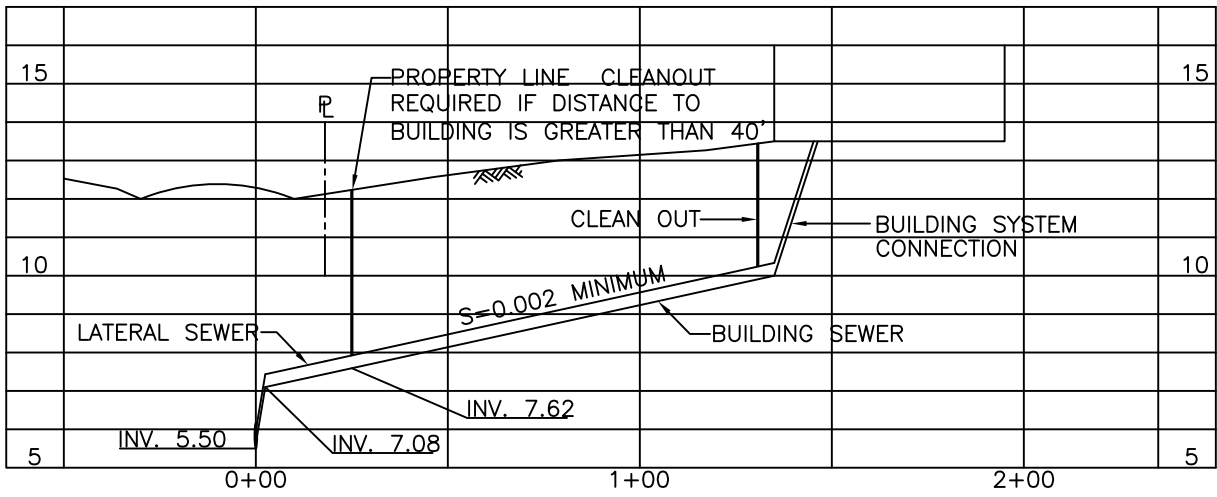
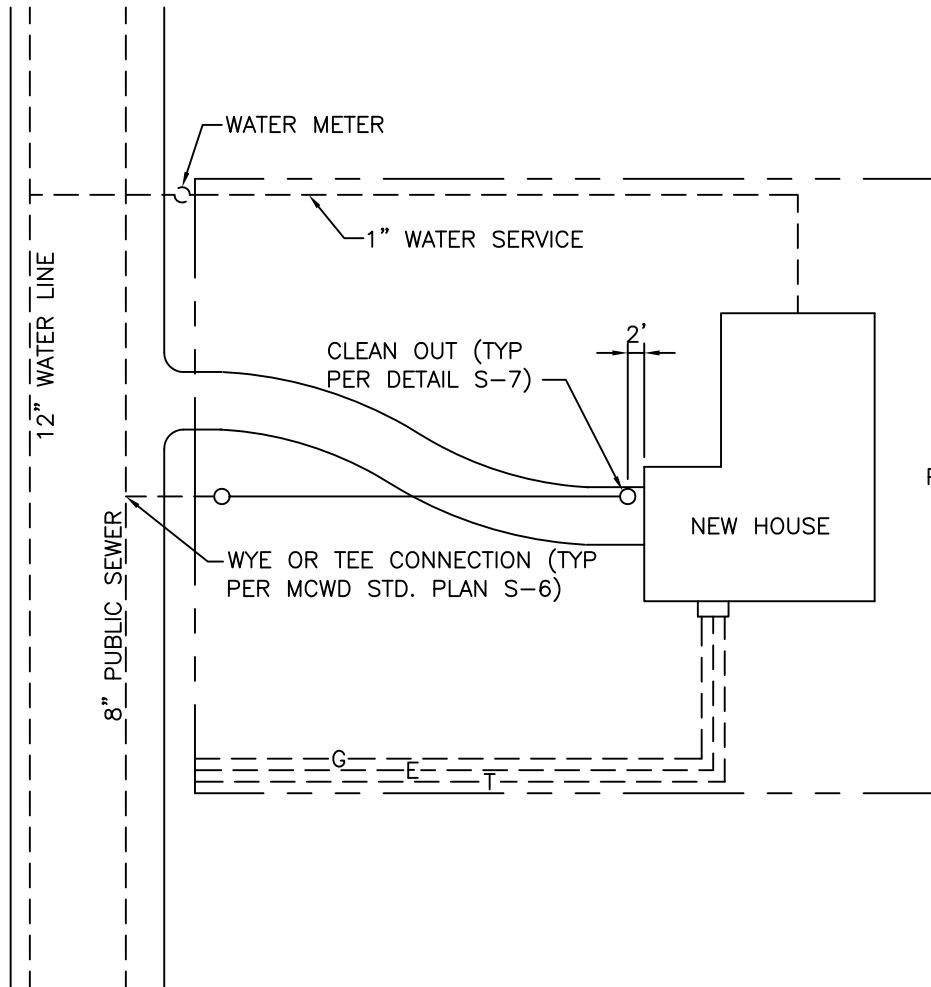
MARINA COAST WATER DISTRICT STANDARD PLAN

ALLOWABLE DROP IN MANHOLE

STANDARD

**S-11**

SHEET 1 OF 1



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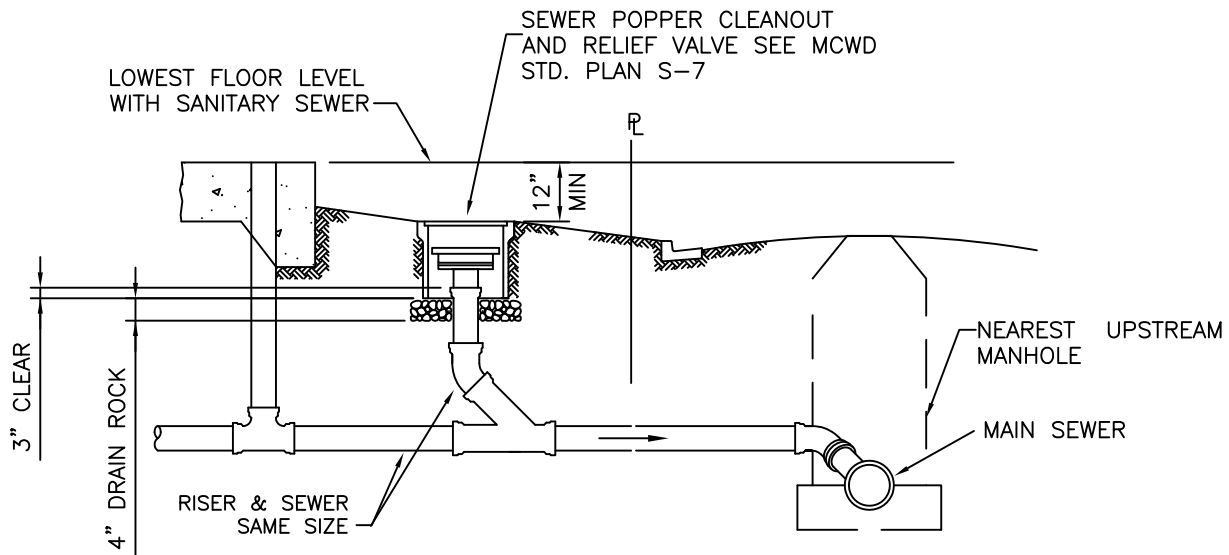
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11/2007



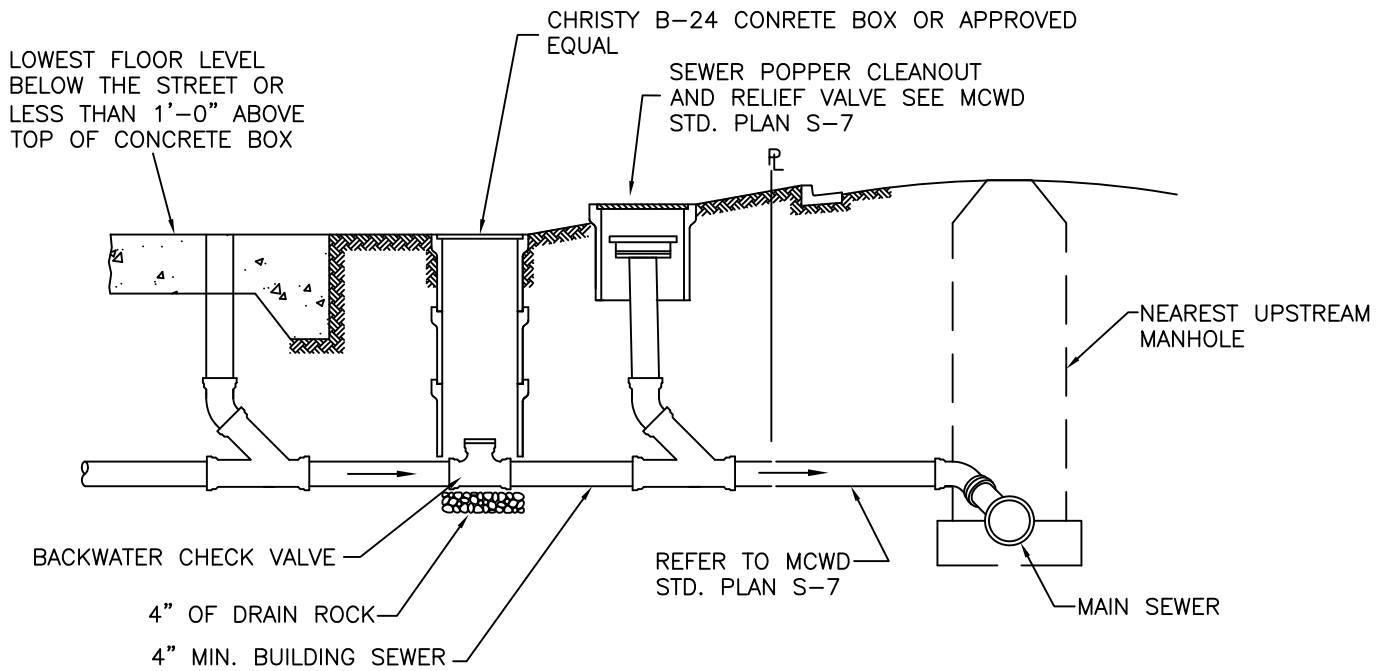
MARINA COAST WATER DISTRICT STANDARD PLAN

SAMPLE BUILDING SEWER  
PLAN AND PROFILE

STANDARD  
**S-12**  
SHEET 1 OF 1



TYPICAL CLEANOUT AND OVERFLOW DEVICE



BACKWATER VALVE

NOTES:

- 1- EVERY BUILDING SEWER SHALL HAVE AN OVERFLOW DEVICE AND/OR BACKWATER VALVE INSTALLED IN THE SEWER LATERAL SERVING THE BUILDING. COMBINATION BACKWATER VALVE/CLEAN-OUT IS ALLOWED.
- 2- OVERFLOW DEVICES SHALL BE INSTALLED ON ALL LATERALS; HOWEVER BACKWATER VALVES SHALL BE INSTALLED (A) WHEN BACKWATER PROTECTION IS REQUIRED, (B) WHEN THE LOWEST FLOOR LEVEL IS BELOW THE STREET OR LESS THAN 1 FOOT ABOVE THE TOP OF THE CONCRETE BOX CONTAINING THE OVERFLOW DEVICE, OR (C) SEWAGE CANNOT BE ALLOWED TO OVERFLOW ON THE SURROUNDING AREA.

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DATE

05/2014



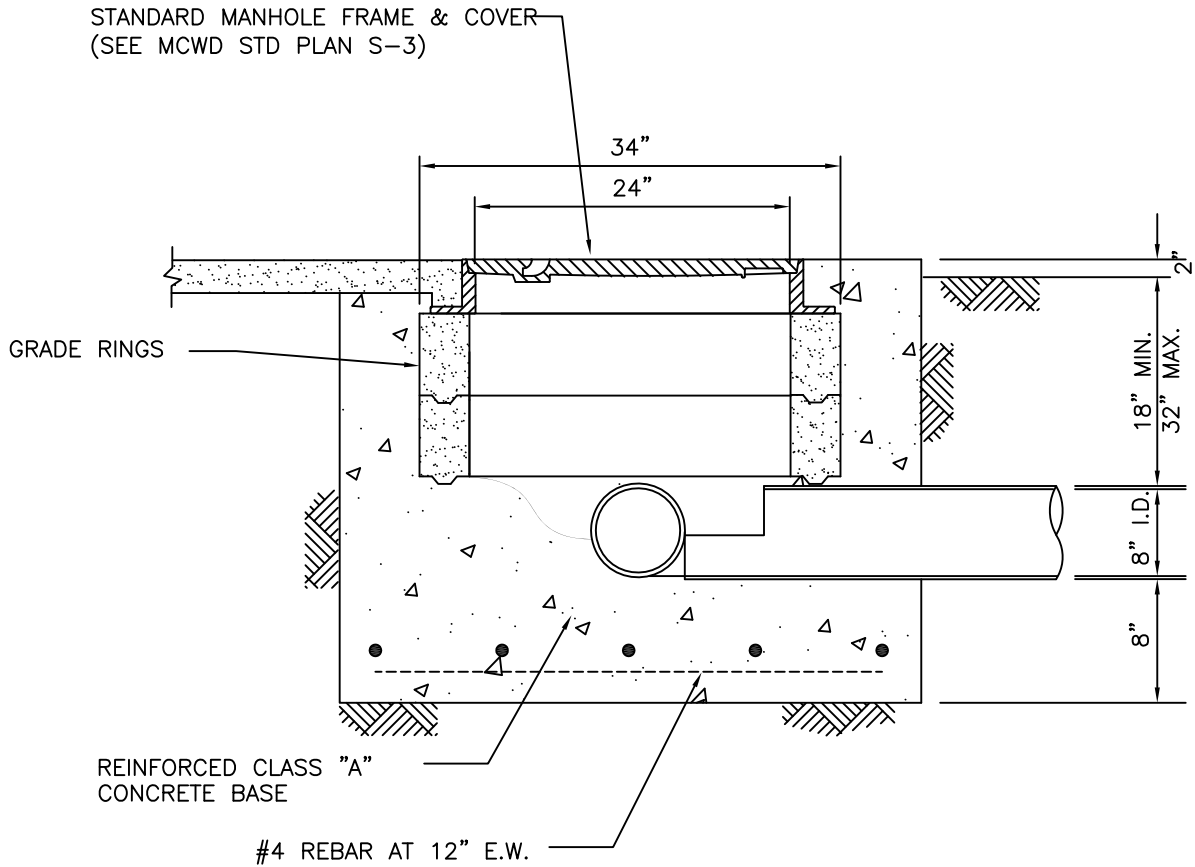
MARINA COAST WATER DISTRICT STANDARD PLAN

BACKWATER PROTECTION

STANDARD

S-13

SHEET 1 OF 1



SECTION

NOTES:

- 1- SPECIAL SHALLOW MANHOLE IS USED FOR 8-INCH OR SMALLER PIPE ONLY.
- 2- SPECIAL SHALLOW MANHOLE SHALL BE USED ONLY WITH APPROVAL OF DISTRICT ENGINEER

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11/2007



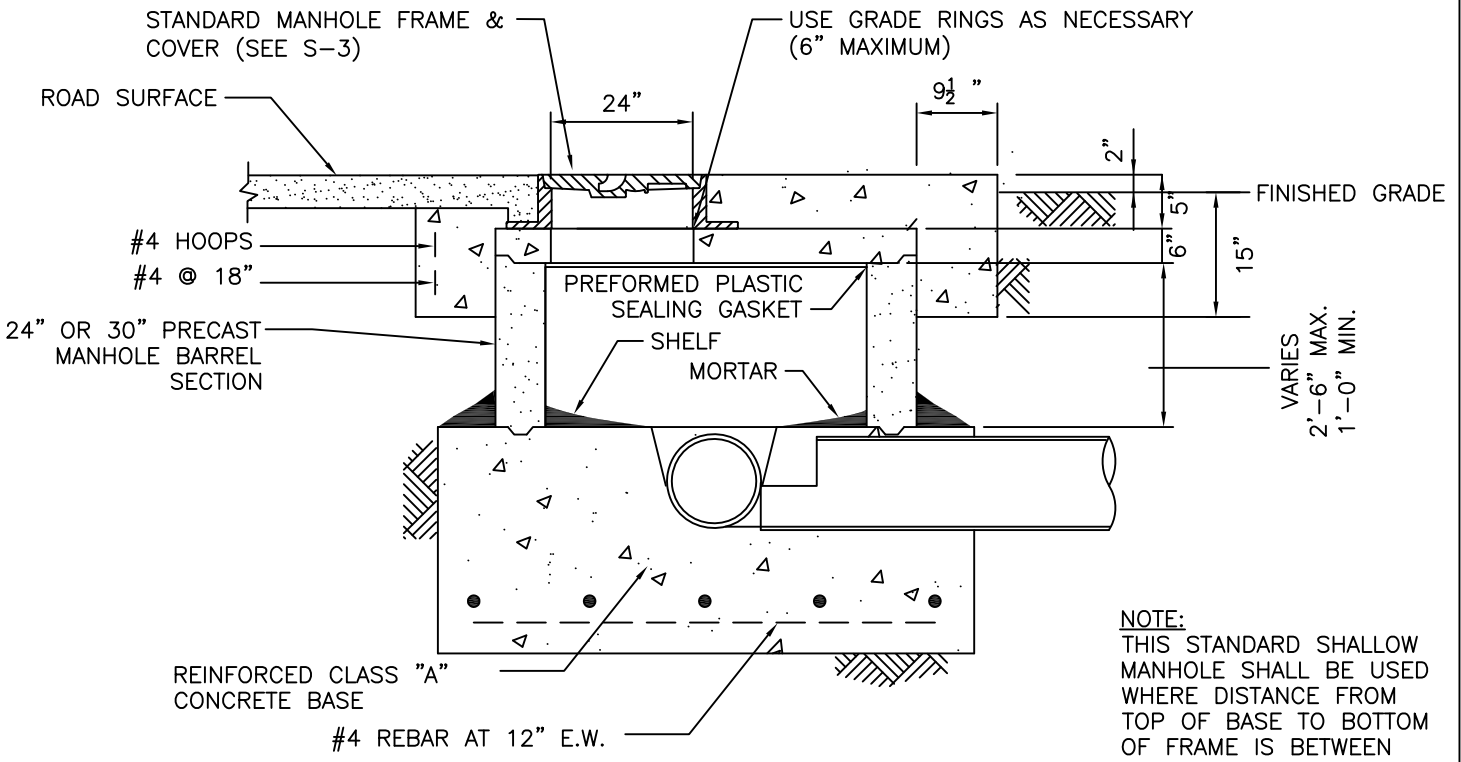
MARINA COAST WATER DISTRICT STANDARD PLAN

SPECIAL SHALLOW MANHOLE

STANDARD

**S-14**

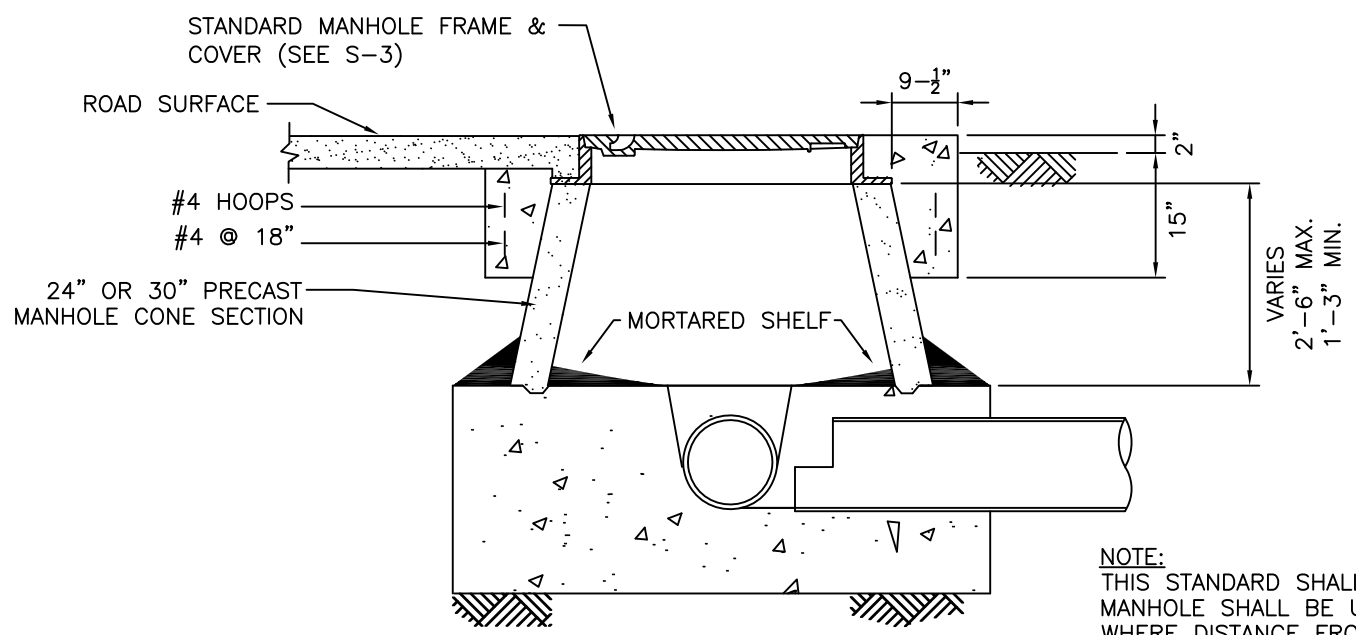
SHEET 1 OF 1



**SECTION**

BETWEEN 36" & 54" (RIM TO FLOWLINE)

**NOTE:**  
THIS STANDARD SHALLOW MANHOLE SHALL BE USED WHERE DISTANCE FROM TOP OF BASE TO BOTTOM OF FRAME IS BETWEEN 18" AND 36", WITH APPROVAL FROM THE DISTRICT.



**SECTION**

BETWEEN 32" & 47" (RIM TO FLOWLINE)

**NOTE:**  
THIS STANDARD SHALLOW MANHOLE SHALL BE USED WHERE DISTANCE FROM TOP OF BASE TO BOTTOM OF FRAME IS BETWEEN 15" AND 30", WITH APPROVAL FROM THE DISTRICT.

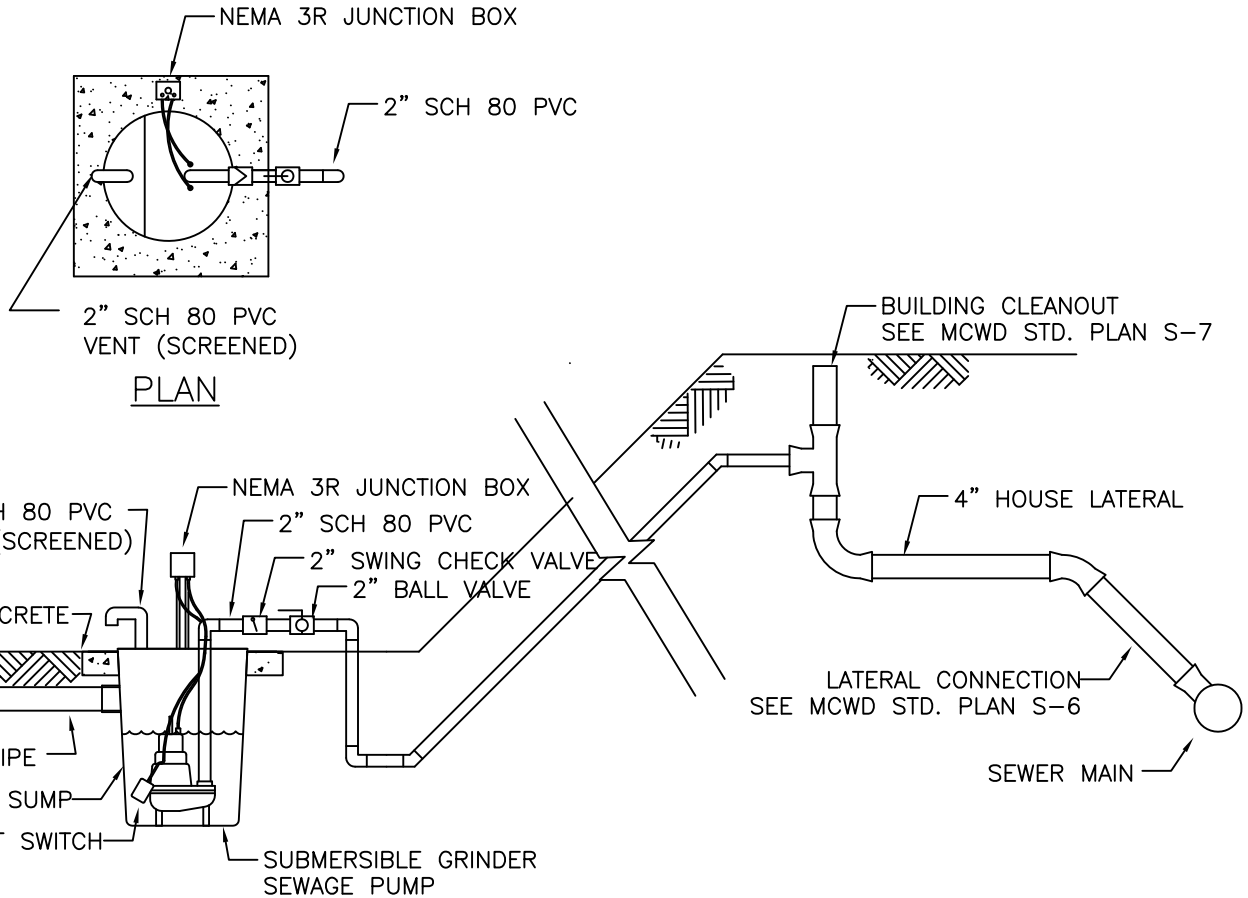
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11/2007



MARINA COAST WATER DISTRICT STANDARD PLAN

STANDARD SHALLOW MANHOLES

STANDARD  
**S-15**  
  
SHEET 1 OF 1



**NOTES:**

**ELEVATION**

GENERAL: THE MINIMUM REQUIREMENTS FOR A RESIDENTIAL SEWAGE PUMP STATION CONNECTION A SINGLE RESIDENCE OR EQUIVALENT TO THE DISTRICT'S SYSTEM ARE SPECIFIED IN THE FOLLOWING NOTES. THE DISTRICT ACCEPTS NO RESPONSIBILITY FOR THE DESIGN, OPERATION OR MAINTENANCE OF SUCH PRIVATELY OWNED AND OPERATED SYSTEMS.

ALL EQUIPMENT AND ACCESSORIES SHALL BE STANDARD MANUFACTURED ITEMS AND THOSE COMING IN DIRECT CONTACT WITH SEWAGE SHALL BE SPECIFICALLY MANUFACTURED FOR SEWAGE USE.

WHEN INSTALLED OUTSIDE OF A BUILDING, THE MOTOR AND CONTROLS SHALL BE PROTECTED AND SHELTERED BY A WEATHER-PROOF, WELL VENTILATED ENCLOSURE.

WHEN SURCHARGE HEAD IS DEEMED EXCESSIVE, THE DISTRICT SHALL MAY REQUIRE A PRESSURE RELIEF STRUCTURE.

PUMPS: RAW SEWAGE PUMPS SHALL BE USED ON ALL NEW CONSTRUCTION AND MAY BE USED ON EXISTING FACILITIES. PUMP SHALL BE A SUBMERSIBLE VERTICAL ENCLOSED SHAFT OF PROPER LENGTH TO FIT THE PUMP SUMP AND SHALL HAVE A MINIMUM CAPACITY OF 45-GALLONS PER MINUTE WHEN PUMPING AGAINST THE REQUIRED HEAD, AS CALCULATED BY THE ENGINEER.

THE IMPELLER SHALL BE CAPABLE OF PASSING A 2-INCH SPHERE. THE MINIMUM PUMP DISCHARGE SHALL BE 3-INCH IN DIAMETER.

IF A GARBAGE DISPOSAL UNIT IS TO BE CONNECTED, THE PUMP CAPACITY SHALL BE INCREASED TO A MINIMUM OF 75 GPM WHEN PUMPING AGAINST THE REQUIRED HEAD AS CALCULATED BY THE ENGINEER. THE MINIMUM PUMP DISCHARGE SHALL BE 4-INCHES IN DIAMETER.

IF GRINDER PUMPS ARE USED, THE MINIMUM PUMP DISCHARGE SHALL BE 2-INCHES IN DIAMETER. PUMP CAPACITY SHALL BE AS REQUIRED ABOVE.

COMMERCIAL INSTALLATIONS SHALL CONSIST OF 4-INCH DUPLEX PUMPS EACH RATED FOR TOTAL LOADING. EFFLUENT SEWAGE PUMP MAY BE USED WITH EXISTING SEPTIC TANK INSTALLATIONS ONLY. THE PUMP SHALL BE A SUMP OR BILGE TYPE WITH A VERTICAL ENCLOSED SHAFT, HAVING A MINIMUM CAPACITY OF 20 GPM WHEN PUMPING AGAINST THE REQUIRED HEAD. THE MINIMUM PUMP DISCHARGE SHALL BE 2-INCHES IN DIAMETER.

PUMP SUMP: THE PUMP SUMP SHALL BE 36-INCHES IN DIAMETER AND THE DEPTH SHALL BE AS REQUIRED TO EXTEND 6-INCHES ABOVE GRADE AND 3-FT BELOW THE INLET PIPE. IT MAY BE MADE OF THE FOLLOWING MATERIALS.

\*\*\*\*\*DOES MCWD WANT THIS HERE OR IN SPEC?\*\*\*\*\*

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**MARINA COAST WATER DISTRICT STANDARD PLAN**

STANDARD

DATE

11/2007

**RESIDENTIAL SEWAGE PUMP STATION**

**S-16**

SHEET 1 OF 2



