

PRICE \$3.00

**STANDARD PLANS
for
SEWER FACILITIES**

City of Seal Beach
Department of
Public Works



FEBRUARY 2004 EDITION

The following Standard Plans have been adopted by the City of Seal Beach as a guide for standardization of "Public Works" within the City and have been prepared for the guidance of engineers, contractors and developers who have an interest in the preparation of plans and construction of facilities and improvements under the jurisdiction of the City of Seal Beach. Standard plans are to be used in conjunction with the currently adopted edition of the Standard Specifications for Public Works Construction, any adopted supplements or Department amendments as well as any adopted Design Criteria/Manuals and Master Plans. Conformance with these standards will reduce design costs and the processing time needed to review and approve plans. They are not intended to be a substitute for professional engineering knowledge, experience or judgment. Any deviations from what is contained in the following documents must be approved in writing by the Director of Public Works/City Engineer. These standards may be modified from time to time as required. Please visit the Department website at www.sb-publicworks.com to check for new or updated standards.

Douglas A. Dancs, P.E., Director of Public Works/City Engineer

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Douglas A. Dancs, P.E., Director of Public Works/City Engineer

RESOLUTION NO. 5211

A RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF SEAL BEACH APPROVING STANDARD PLANS FOR
SEWER FACILITIES,
2004 EDITION

WHEREAS, The Public Works Department of the City of Seal Beach has presented to the City Council a certain publication which is desired by the Public Works Department to be used in the design and construction of sewer facilities within the City of Seal Beach; and

WHEREAS, Said publication is the Standard Plans for Sewer Facilities, 2004 Edition; and

WHEREAS, The City Council desires to approve said publication as the minimum standard to be followed for the design and construction of sewer facilities within the City of Seal Beach and for projects requiring a Public Works Permit; and to authorize the Director of Public Works/City Engineer to make changes to said publication as required by new regulations, for improvements to the sewer infrastructure, and for the protection of public health and safety;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SEAL BEACH DOES HEREBY RESOLVE, DECLARE, DETERMINE AND ORDER AS FOLLOWS:

SECTION 1. Adoption, adopts said publication as the minimum standard to be followed for the design and construction of sewer facilities with the City of Seal Beach.

SECTION 2. Authorization, Authorizes the Director of Public Works/City Engineer to make changes to said publication as required by new regulations, for improvements to the sewer infrastructure, and for the protection of public health and safety.

PASSED, APPROVED AND ADOPTED by the City Council of the City of Seal Beach at a meeting thereof held on the 23rd day of February, 2004 by the following vote:

AYES: Councilmembers Griggs, Campbell, Deane, Larson, Yost
NOES: Councilmembers None
ABSENT: Councilmembers None

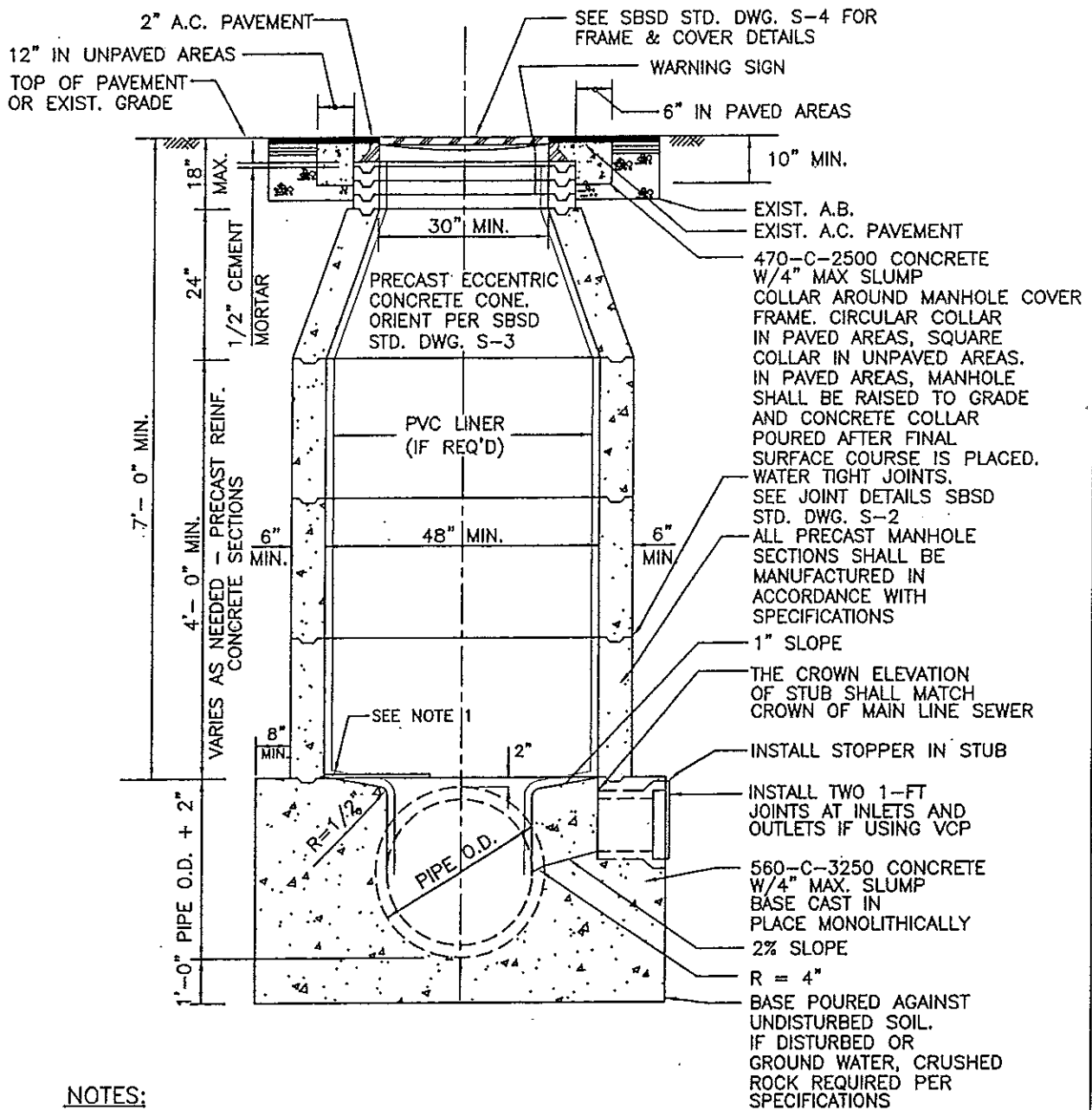
Patricia E. Campbell
Mayor

ATTEST:
Joanne M. Yeo
City Clerk

STATE OF CALIFORNIA)
COUNTY OF ORANGE) SS
CITY OF SEAL BEACH)

I, Joanne M. Yeo, City Clerk of the City of Seal Beach, California, do hereby certify that the foregoing resolution is an original copy of Resolution Number 5211 on file in the Office of the City Clerk, passed, approved and adopted by the City Council of the City of Seal Beach at a meeting thereof held on the 23rd day of February, 2004.

Joanne M. Yeo
City Clerk




NOTES:

1. PLACE TWO HALF MOON SHAPED PLYWOOD COVERS (5/8" THICK MINIMUM) IN BOTTOM OF MANHOLE AFTER SHAFTS HAVE BEEN SET TO KEEP DEBRIS FROM ENTERING SEWER.
2. FOR DROP MANHOLE SEE SBSD STD. DWG. S-13.
3. FOR MANHOLES LOCATED OUTSIDE PAVED AREAS, THE FRAME AND COVER SHALL BE SET A MINIMUM OF 0.1 FT. ABOVE FINISH GRADE IN SHOULDER AREAS, UNPAVED ROADS OR LANDSCAPED AREAS, AND 18" IN UNFINISHED AREAS.
4. ALL INLETS AND OUTLETS SHALL BE SUPPORTED WITH CONCRETE SUPPORTS PRIOR TO POURING MANHOLE BASE.
5. MANHOLE LOCATIONS SHALL BE MARKED ON CURB FACE.

STANDARD DRAWING—MANHOLE DETAILS

STANDARD PLAN
925 S-1

REVIEWED <i>Mark Vukobratovic</i> 3-1-04 DEPUTY CITY ENGINEER—RCE 61527	PUBLIC  WORKS
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS—RCE 57202	
DRAWN BY:	CHECKED BY: ZK

REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		

PIPE SHALL BE LAID WITH END SQUARE INTO M.H. BASE, UNLESS OTHERWISE NOTED. REMOVE TOP PORTION OF PIPE, THEN CONSTRUCT FILLET SHELF OVER PIPE TO DRAIN

FOR LOCATION OF M.H. SHAFT OPENING SEE SBSD STD. DWG. S-3

M.H. STATIONING

8" MIN. BASE

0.10' MIN. FALL ACROSS M.H. (TYP.) UNLESS SEWER SLOPE GREATER. 0.20' MIN. FALL FOR 90° M.H.

SEE SBSD STD. DWG. S-5 FOR PVC PIPE CONNECTION DETAILS

$R = 2 \times D$

STUB (TYP.)

D

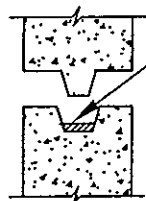
M.H. SHAFT OPENING

FLOW

8" MIN. CONC. ENCASEMENT (INCLUDING BELL)

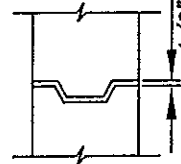
2-1' JOINTS AT BOTH INLETS AND OUTLETS FOR VCP ONLY.

PLAN



JOINT SEALING COMPOUND

PLASTIC JOINT



MORTAR JOINT

NOTES:

1. **MORTAR JOINTS** -- SUFFICIENT MORTAR SHALL BE APPLIED ACROSS ENTIRE FACE OF JOINT SO THAT WHEN PRECAST UNITS ARE PLACED ON TOP OF ONE ANOTHER, THE MORTAR WILL SQUEEZE OUT BOTH THE INSIDE AND OUTSIDE WALL FACES. JOINTS SHALL BE "POINTED UP" AFTER SETTING PRECAST UNITS EXCLUDING GRADE RINGS.
2. **PLASTIC JOINTS** -- PERFORMED COLD-APPLIED READY-TO-USE PLASTIC JOINT SEALING COMPOUND SHALL BE QUICK-SEAL AS SUPPLIED BY QUIKSET UTILITY VAULTS, SANTA ANA, CALIFORNIA -- OR APPROVED EQUAL. MUST BE USED WHEN GROUND WATER IS ENCOUNTERED.

STANDARD DRAWING--CONCRETE BASE AND JOINT DETAILS

STANDARD PLAN
925 S-2

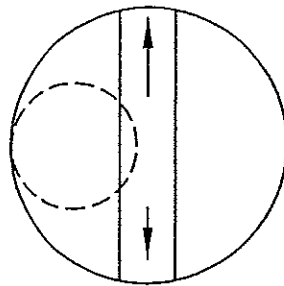
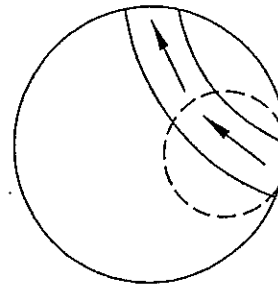
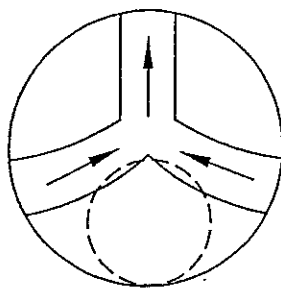
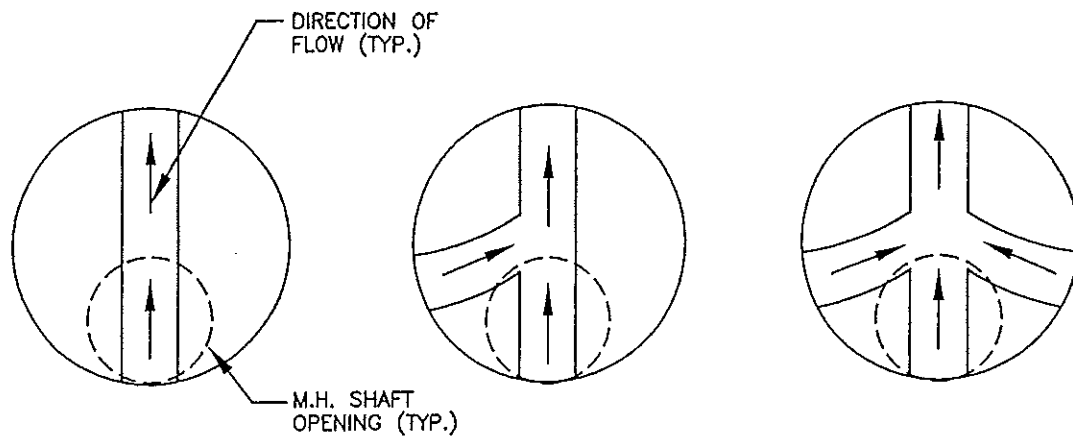
REVIEWED <i>Mark Vukobratovic</i> 3-1-04 DEPUTY CITY ENGINEER--RCE 61527
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS--RCE 57202
DRAWN BY:



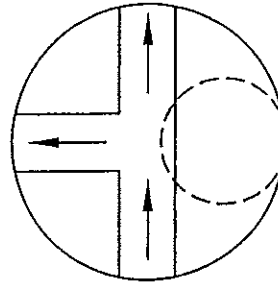
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NO.	DESCRIPTIONS

SUPERCEDES	REFERENCES

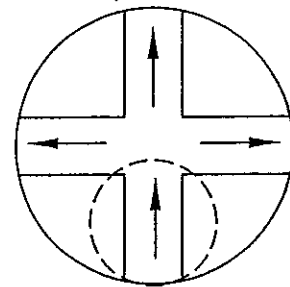
SHEET 1 OF 1



SUMMIT M.H. (ONLY)
EITHER SIDE



SUMMIT M.H. (ONLY)

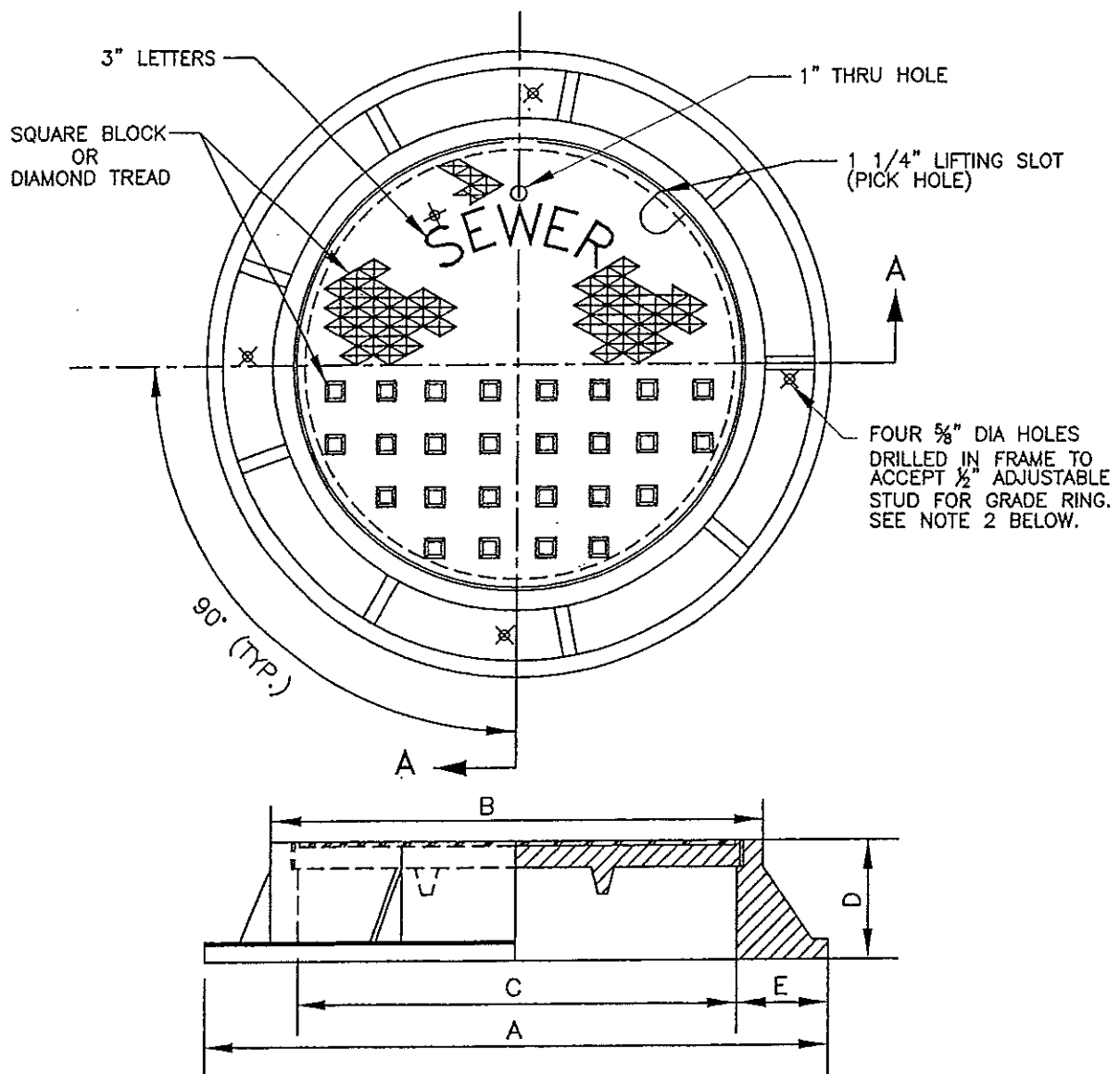


SUMMIT M.H. (ONLY)
ANY POSITION

STANDARD DRAWING—MANHOLE SHAFT LOCATION DETAILS

STANDARD PLAN
925 S-3

REVIEWED <i>Mark Kelly</i> - 3-1-04 DEPUTY CITY ENGINEER-RCE 61527 APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202 DRAWN BY: _____ CHECKED BY: ZK	PUBLIC WORKS	REVISIONS NO. DESCRIPTIONS		SUPERCEDES 	REFERENCES
		NO. DESCRIPTIONS			
SHEET 1 OF 1					



SIZE	24"	30"	36"
A	34"	38"	44"
B	29"	33"	39"
C	23 1/2"	30"	36"
D	6"	6"	6"
E	4"	4"	4"

- 48" MANHOLES SHALL HAVE 24" COVERS, 60" MANHOLES SHALL HAVE 30" COVERS, 72" MANHOLES SHALL HAVE 36" COVERS.
- WHERE FRAME AND COVER ARE SET 18" ABOVE GRADE, FOUR (4) 1/2" DIA. INSERTS FOR ADJUSTABLE STUDS SHALL BE CAST IN TOP GRADE RING, ALIGNED AS DETAILED ABOVE. FRAME SHALL BE BOLTED TO GRADE RING.

STANDARD DRAWING—TRAFFIC MANHOLE FRAME AND COVER

STANDARD PLAN
925 S-4

REVIEWED
Mark Vukobratovic 3-1-04
DEPUTY CITY ENGINEER—RCE 61527

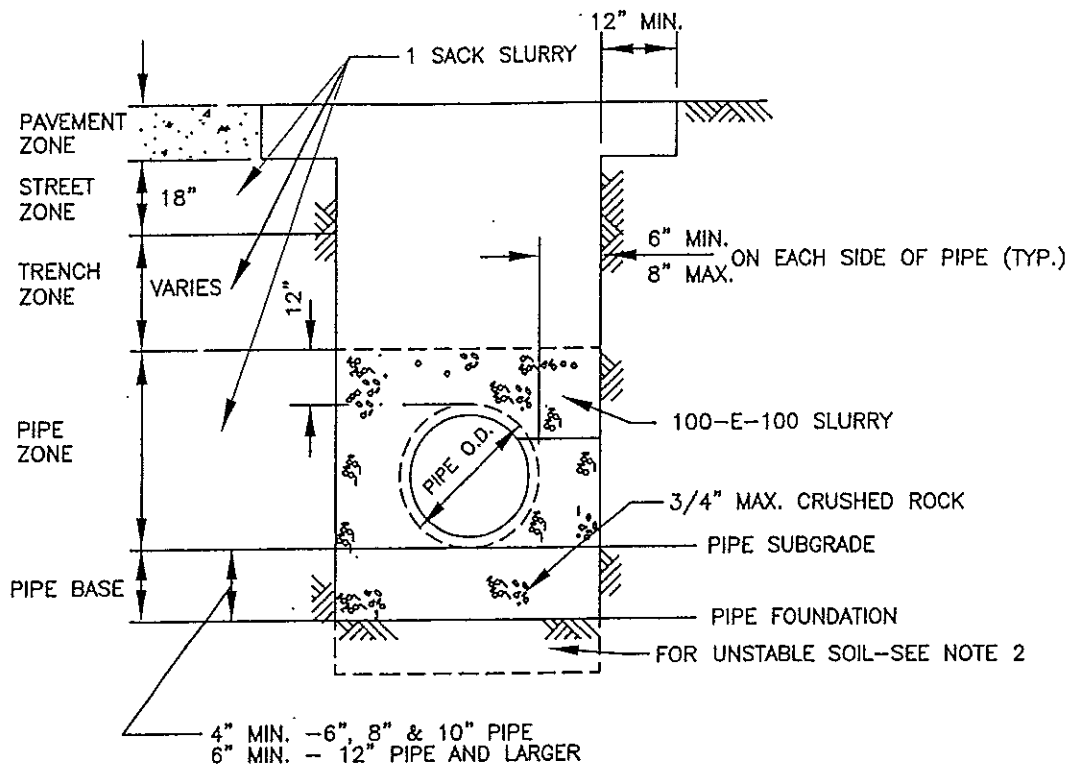
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CA 3/1/04
DIRECTOR OF PUBLIC WORKS—RCE 57202

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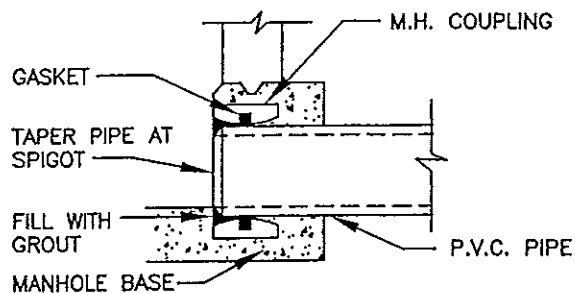
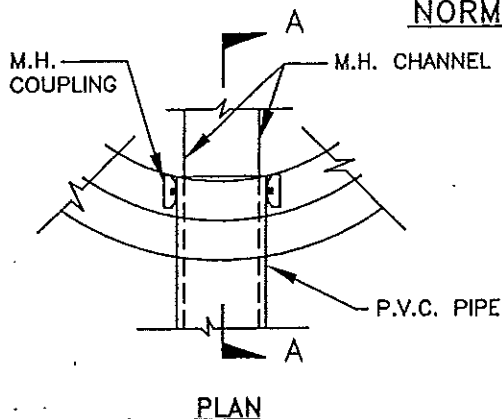


REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		

SHEET 1 OF 1



NORMAL BEDDING



NOTES:

MANHOLE CONNECTION DETAILS

1. CONCRETE ENCASEMENT PER SBSD STD. DWG. S-10 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, CITY REPRESENTATIVE SHALL DETERMINE DEPTH OF REMOVAL AND SIZE OF FOUNDATION ROCK REFILL MATERIAL.
3. SEE SBSD STD. DWGS. S-1 & S-2 FOR MANHOLE DETAILS.

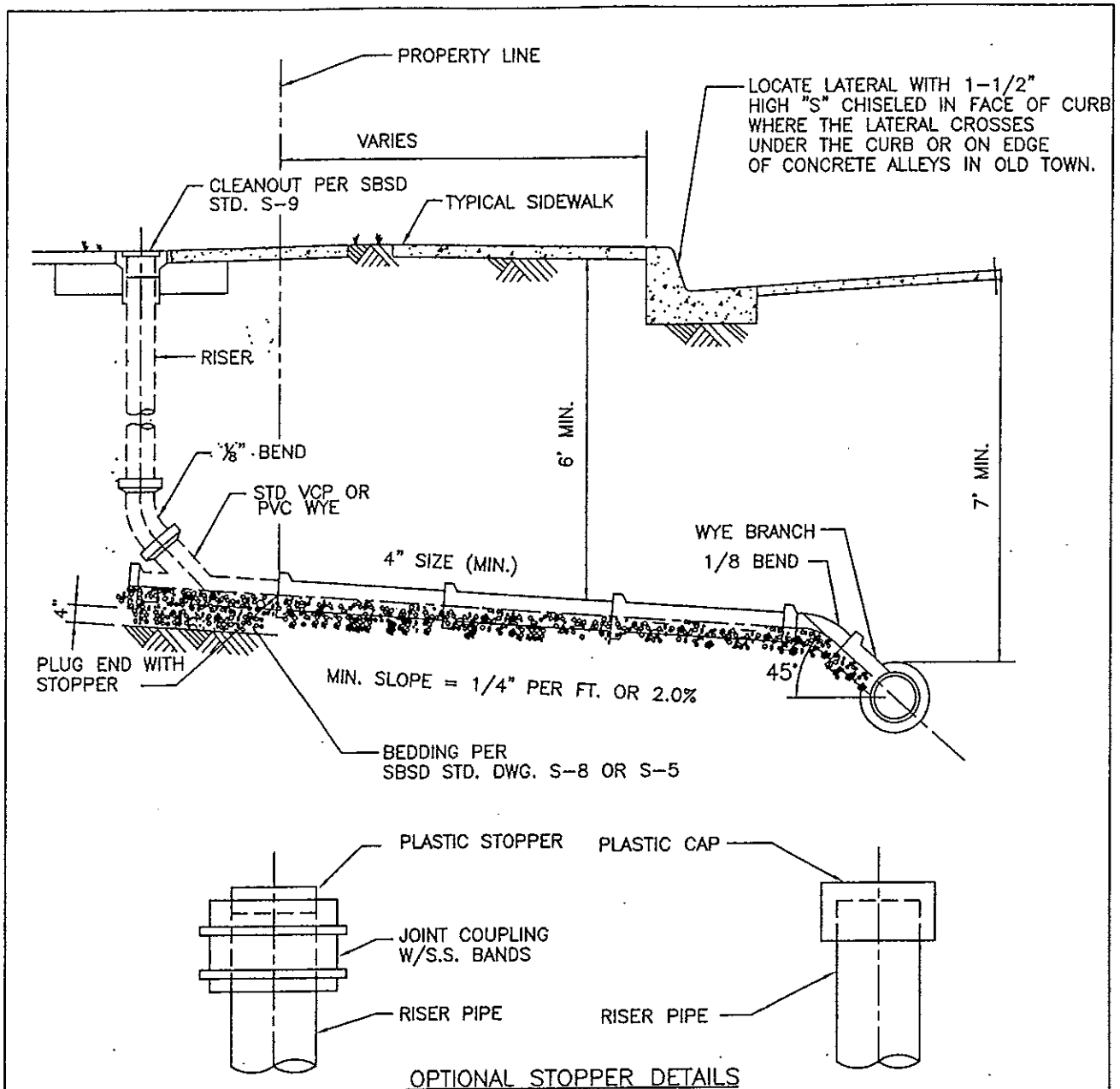
STANDARD DRAWING-P.V.C. PIPE BEDDING & SPECIAL DETAILS

STANDARD PLAN
925 S-5

REVIEWED <i>Mark Vukobratovic</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202
DRAWN BY: _____
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NO.	DESCRIPTIONS		



NOTES:

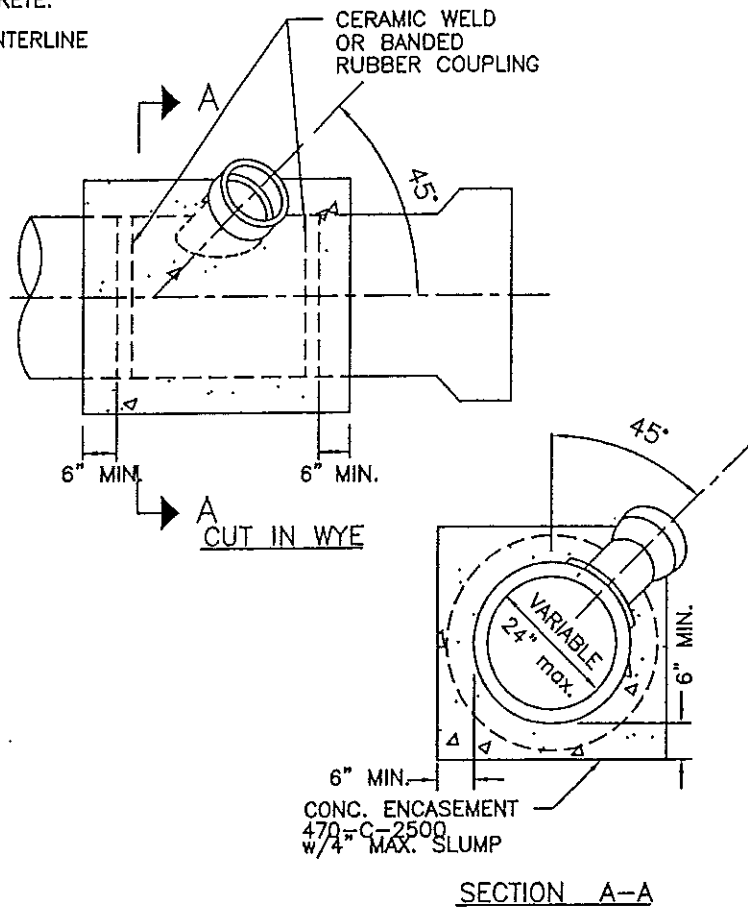
1. LATERAL SIZE TO BE DETERMINED ON THE BASIS OF TOTAL NUMBER OF FIXTURE UNITS DRAINED, BUT IN NO CASE SHALL THE LATERAL DIAMETER BE LESS THAN FOUR INCHES FOR SINGLE OR MULTIPLE FAMILY RESIDENTIAL AND SIX INCHES FOR COMMERCIAL OR INDUSTRIAL LAND USES.
2. LATERAL TO BE INSTALLED TO PROPERTY LINE.
3. IF RISER NOT BUILT, PLUG WYE BRANCH WITH STOPPER.

STANDARD DRAWING-VCP OR PVC TYPICAL LATERAL			STANDARD PLAN 925 S-6		
REVIEWED <i>Mark V...</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527	PUBLIC  WORKS	REVISIONS		SUPERCEDES	REFERENCES
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202		NO.	DESCRIPTIONS		
DRAWN BY:	CHECKED BY: ZK	SHEET 1 OF 1			

NOTE:

THE BELL ON THE COLLAR WYE SADDLE SHALL NOT BE ENCASED IN CONCRETE.

TAP TO BE MADE AT APPROX. CENTERLINE OF JOINT.




CLAY OR PVC	
8 & UP	CONNECTION BY STD MANHOLE

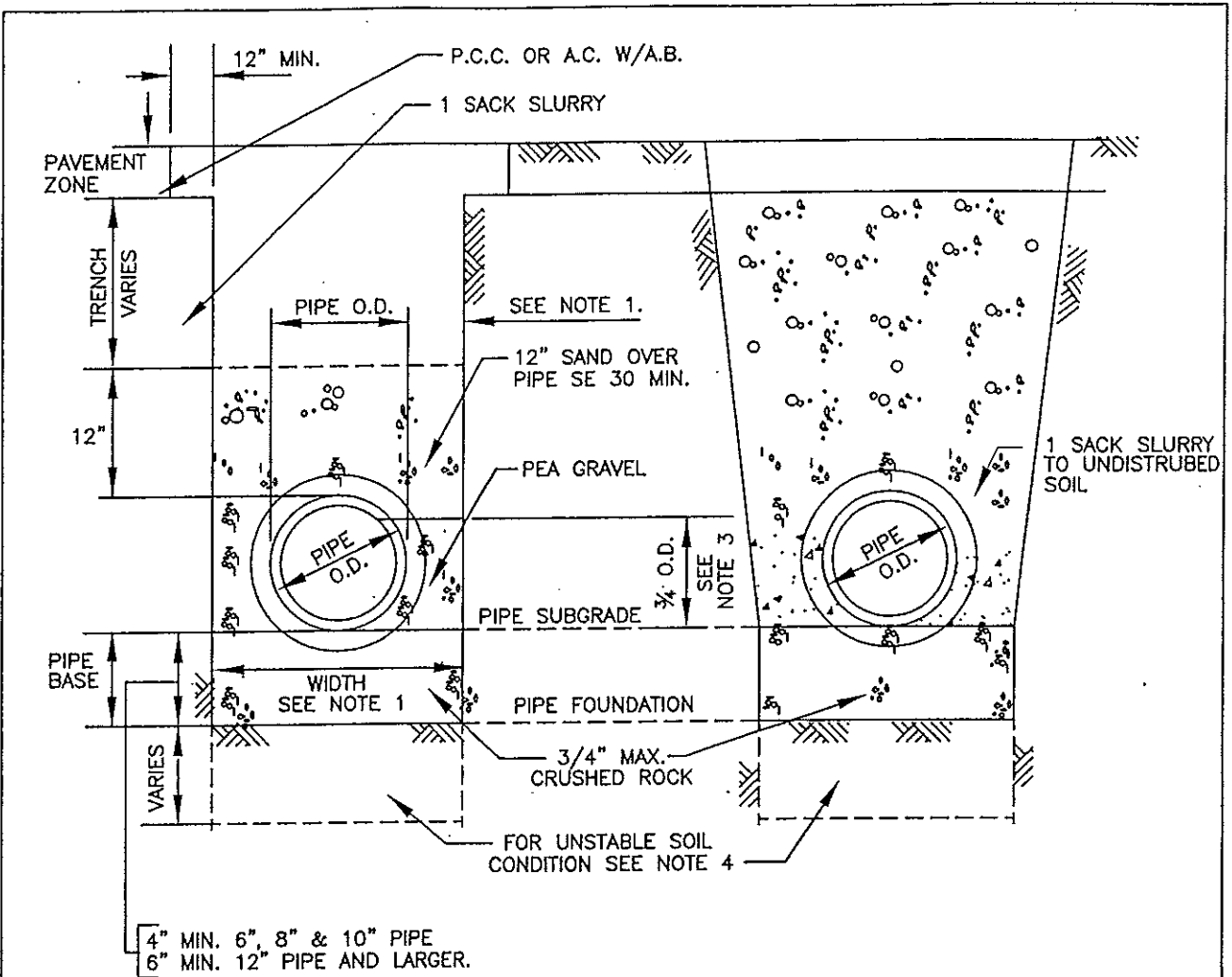
NOTES:

1. THE SADDLE CONNECTION SHALL BE SECURED WITH 470-C-2500 W/4" MAX SLUMP CONCRETE ENCASEMENT AFTER THE CONNECTION IS APPROVED BY THE CITY REPRESENTATIVE.
2. ALL CHIPS, DIRT, EPOXY, MORTAR, AND CONCRETE SHALL BE KEPT OUT OF THE SEWER.
3. DAMAGED PIPE SHALL BE REPLACED.

STANDARD DRAWING—CUT IN WYE CONNECTION

**STANDARD PLAN
925 S-7**

<p>REVIEWED <i>Mark Vukobratovic</i> 3-1-04 DEPUTY CITY ENGINEER—RCE 61527</p> <p>APPROVED <i>[Signature]</i> 5/1/04 DIRECTOR OF PUBLIC WORKS—RCE 57202</p> <p>DRAWN BY: _____ CHECKED BY: ZK</p>	<p>PUBLIC  WORKS</p>	<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th></tr> <tr> <th>NO.</th><th>DESCRIPTIONS</th></tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	REVISIONS		NO.	DESCRIPTIONS									<table border="1"> <thead> <tr> <th>SUPERCEDES</th><th>REFERENCES</th></tr> </thead> <tbody> <tr><td> </td><td> </td></tr> </tbody> </table> <p>SHEET 1 OF 1</p>	SUPERCEDES	REFERENCES		
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SUPERCEDES	REFERENCES																		



TYPICAL NORMAL BEDDING

OVERWIDTH BEDDING

NOTES:

1. TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE SHALL BE WITHIN THE FOLLOWING LIMIT FOR TYPICAL NORMAL BEDDING.
 - (A) MAXIMUM TRENCH WIDTH—O.D. PIPE OR BELL PLUS 8" MAX. EACH SIDE OF PIPE.
 - (B) MINIMUM TRENCH WIDTH—O.D. PIPE OR BELL PLUS 6" MIN. EACH SIDE OF PIPE.
2. OVERWIDTH BEDDING SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAXIMUM WIDTH SPECIFIED ABOVE.
3. MAXIMUM OVERWIDTH BEDDING TO BE DETERMINED IN FIELD BY THE CITY REPRESENTATIVE ON THE BASIS OF OVERWIDTH EXCAVATED.
4. IF UNSTABLE SOIL IS ENCOUNTERED, CITY REPRESENTATIVE SHALL DETERMINE DEPTH OF REMOVAL AND SIZE OF FOUNDATION ROCK REFILL MATERIAL.

STANDARD DRAWING—V.C.P. PIPE BEDDING DETAILS

STANDARD PLAN
925 S-8

REVIEWED
Mah Vukobratovic 3-1-04
DEPUTY CITY ENGINEER—RCE 61527

APPROVED
R. D. Shipe
DIRECTOR OF PUBLIC WORKS—RCE 57202

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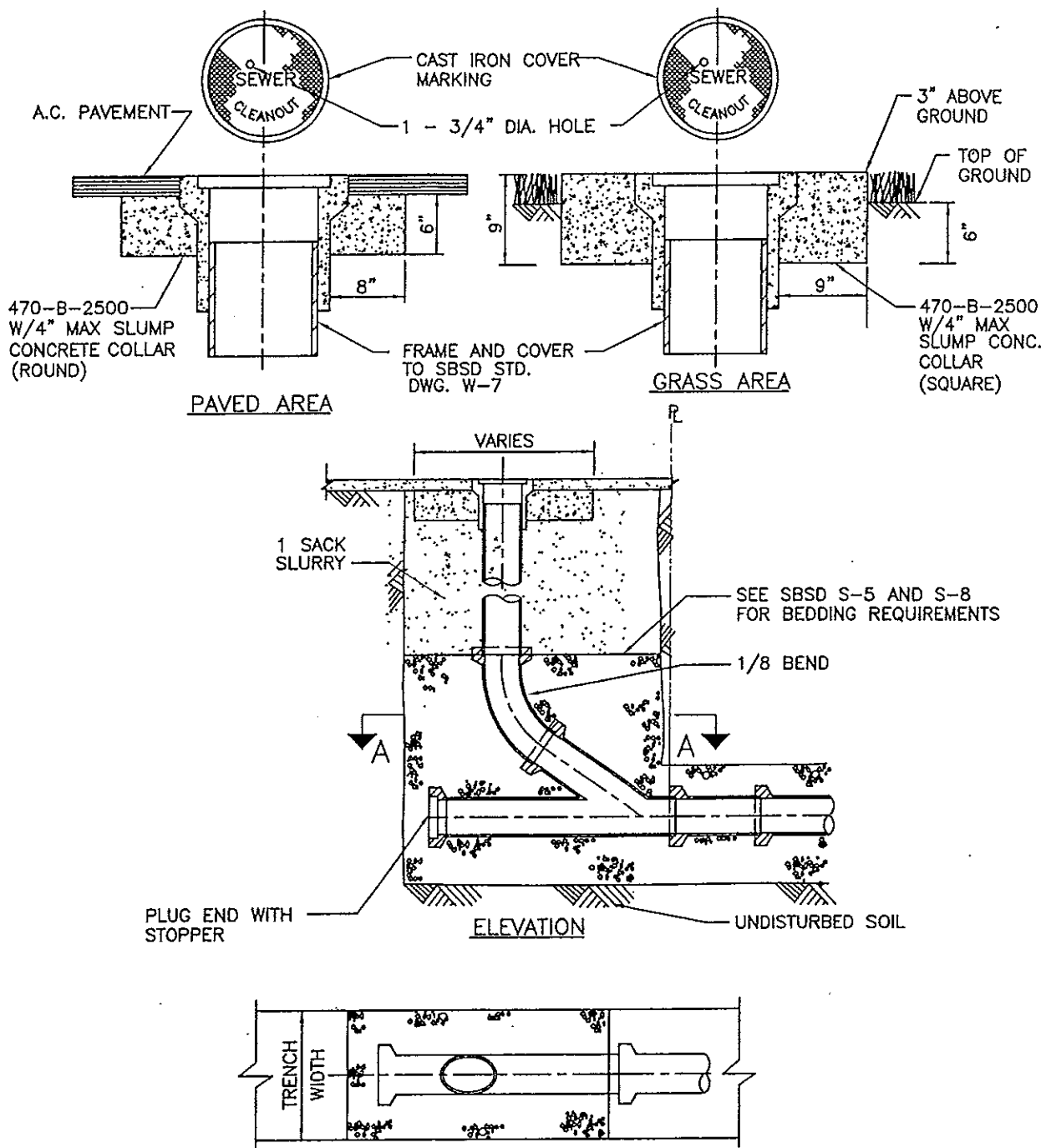
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WORKS

REVISIONS	
NO.	DESCRIPTIONS

SUPERCEDES	REFERENCES



SECTION A - A

NOTES:

1. CLEANOUT PIPE TO BE SAME SIZE AND KIND OF MATERIAL AS MAIN.

STANDARD DRAWING—TERMINAL OR MAIN CLEANOUT DETAIL

STANDARD PLAN
925 S-9

REVIEWED <i>Mark Vahry</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202
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PUBLIC

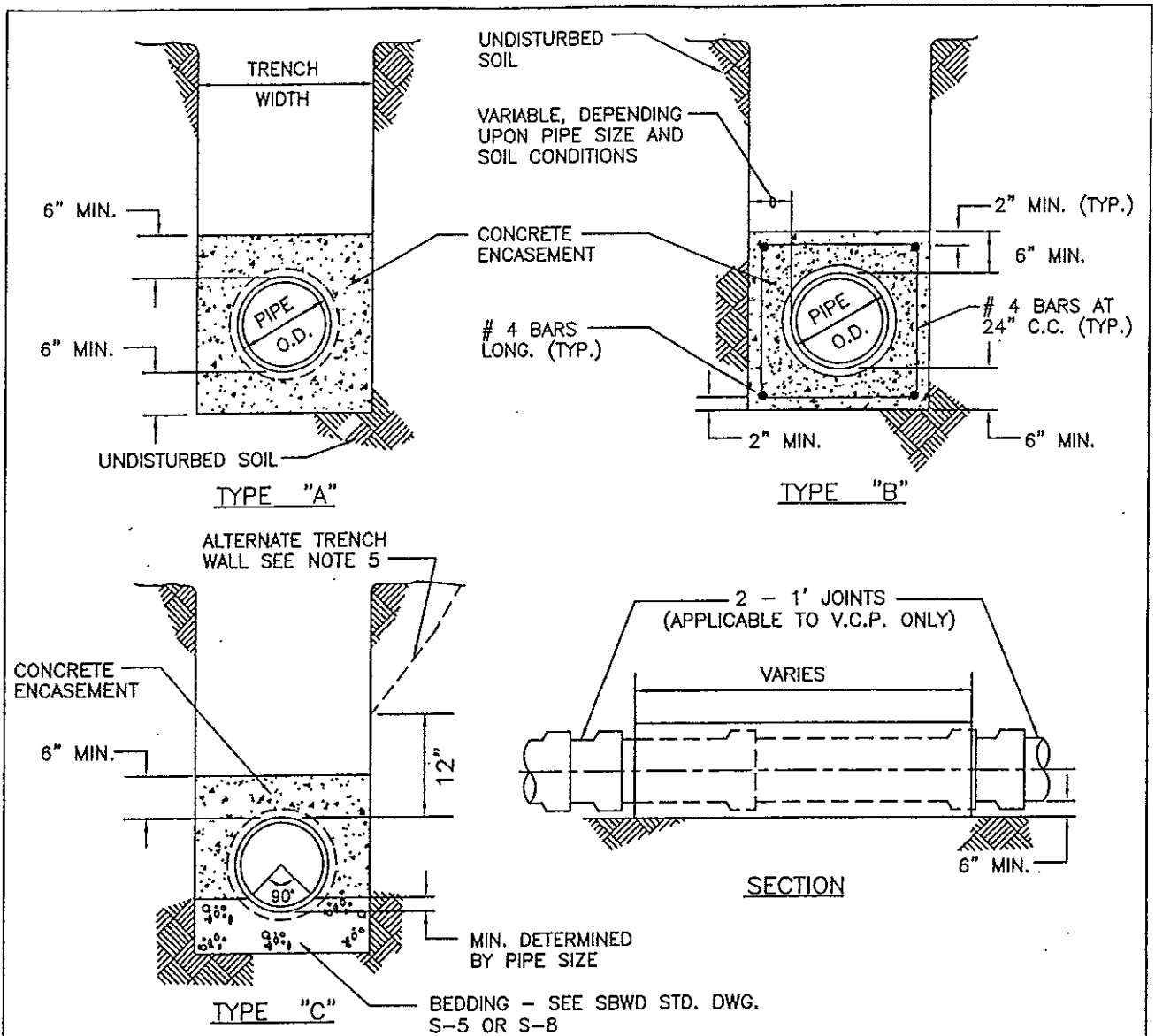


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NO.	DESCRIPTIONS


SUPERCEDES	REFERENCES

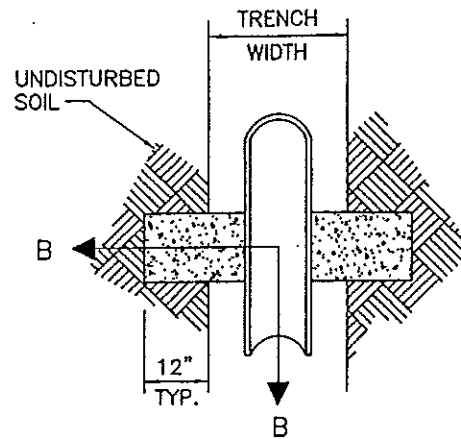
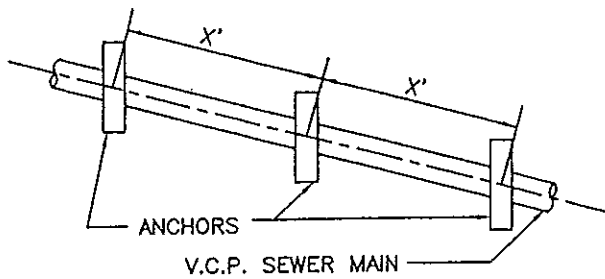
SHEET 1 OF 1



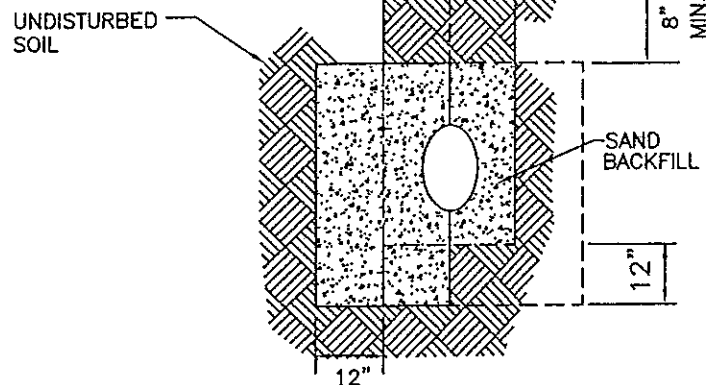
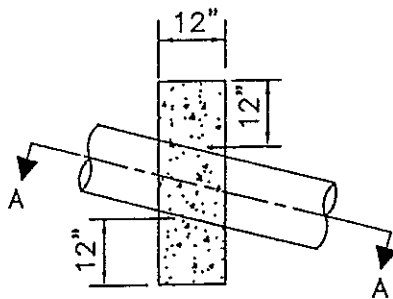
NOTES:

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. TYPE OF CONCRETE ENCASEMENT TO BE USED WILL BE SHOWN ON PLANS OR AS SPECIFIED BY CITY REPRESENTATIVE TO MEET UNFORESEEN FIELD CONDITIONS, UNLESS NOTED OTHERWISE, ENCASEMENT SHALL BE 470-C-2500 WITH 4" MAX. SLUMP CONCRETE.
5. WHERE SLOPED TRENCHES ARE USED, WALLS WILL NOT BEGIN TO SLOPE CLOSER THAN 12" FROM THE TOP OF THE PIPE.

STANDARD DRAWING-CONCRETE ENCASEMENT TYPE A, B & C				STANDARD PLAN 925 S-10	
REVIEWED <i>Mark Vahy</i> -3-1-04 DEPUTY CITY ENGINEER-RCE 61527	PUBLIC  WORKS	REVISIONS		SUPERCEDES	REFERENCES
APPROVED <i>UO</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202		NO.	DESCRIPTIONS		
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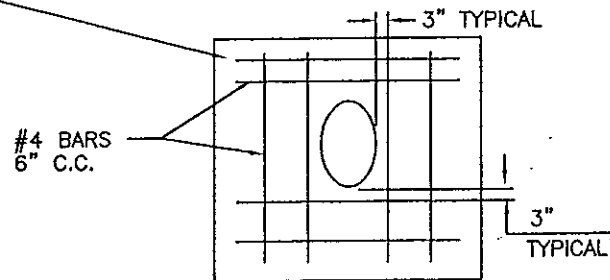
SECTION A-A



SECTION B-B

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'



REINFORCING STEEL PATTERN

NOTES:

1. PIPE ANCHORS REQUIRED ON ALL SLOPES OF 3:1 OR STEEPER.
2. ANCHOR SHALL EXTEND 12" INTO NATURAL UNDISTURBED SOIL.
3. CONCRETE SHALL BE 560-C-3250 W/4" MAX. SLUMP.
4. ANCHORS FOR TRAPAZOIDAL TRENCH SECTIONS WILL CONFORM TO TO TRENCH CROSS SECTION AND EXTEND 12" INTO UNDISTURBED SOIL.

STANDARD DRAWING-CONCRETE SLOPE ANCHORS

STANDARD PLAN
925 S-11

REVIEWED
Mark Vahlgren - 3/10/04
DEPUTY CITY ENGINEER - RCE 64527
APPROVED
[Signature] 3/1/04
DIRECTOR OF PUBLIC WORKS - RCE 57202
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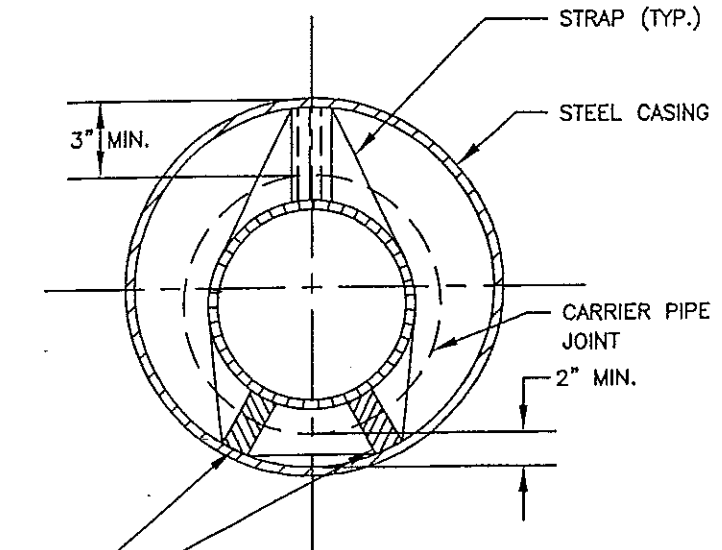


REVISIONS	
NO.	DESCRIPTIONS

SUPERCEDES	REFERENCES

V.C.P. SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS.
6"	16" I.D.	1/4"
8"	18" I.D.	1/4"
10"	21" I.D.	5/16"
12"	24" I.D.	5/16"

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"




FOR EACH LENGTH OF PIPE, 3' LONG
4" X 4" SKIDS BEVELED AT BOTH ENDS,
SHALL BE STRAPPED IN PLACE 3" FROM EACH
END OF PIPE. NOTCH SKID TO SEAT STRAP.
STRAP SHALL BE 316 STAINLESS STEEL.

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 SBSO STD. DWG. S-5 OR S-8.
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. UNFINISHED 4"X4" REDWOOD 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 SEALED WITH CONCRETE MORTAR.

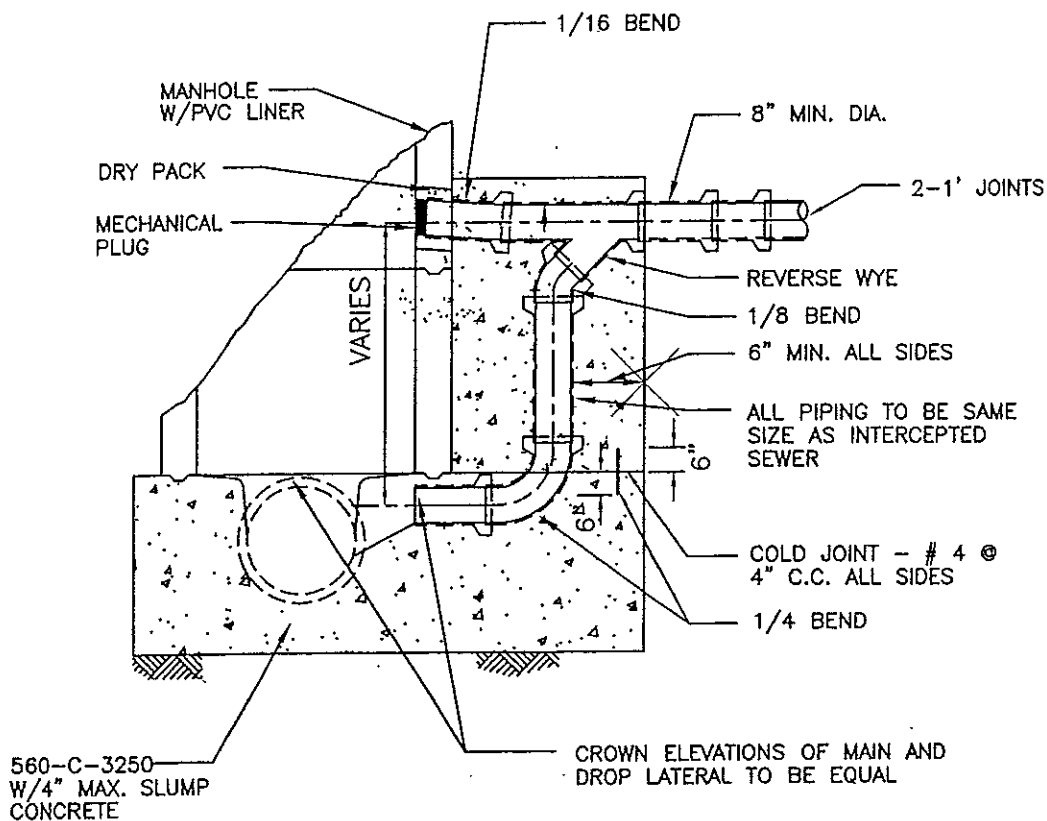
STANDARD DRAWING-STEEL CASINO PIPE

STANDARD PLAN
925 S-12

REVIEWED <i>Mark Vukobratovic</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527	 PUBLIC WORKS
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202	
DRAWN BY: _____ CHECKED BY: ZK	



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SECTION

NOTES:

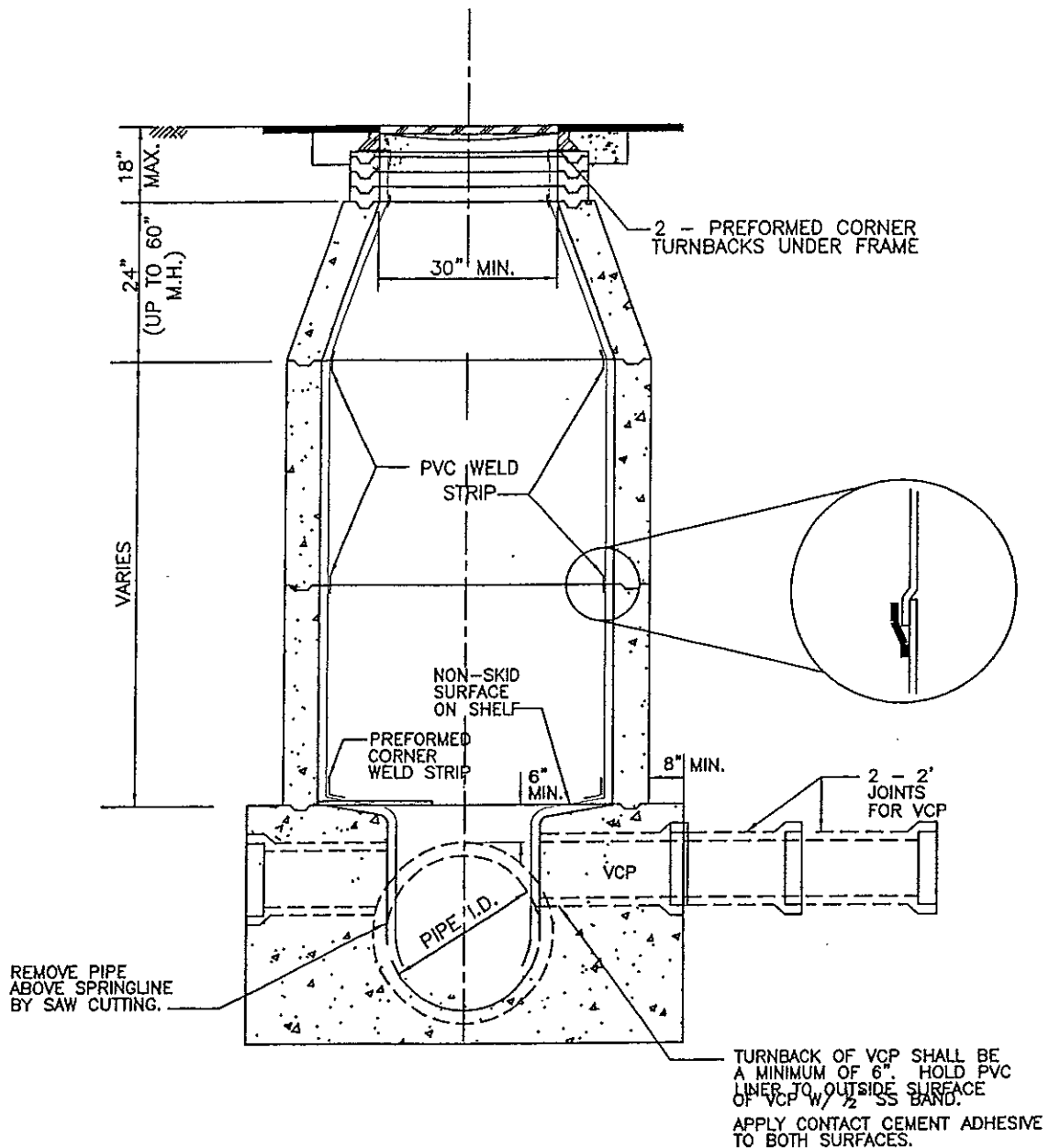
1. DROP MANHOLE TO BE USED FOR SPECIAL SITUATIONS ONLY, AND SHALL NOT BE CONSTRUCTED WITHOUT CITY APPROVAL.
2. ALL NEW OPENINGS CONSTRUCTED INTO MANHOLE SHALL BE DONE BY CORE DRILLING.
3. INTERIOR WALL OF MANHOLE TO BE LINED WITH PVC LINER PER DESIGN STANDARDS FOR SEWER FACILITIES AND STANDARD DRAWING S-14.

STANDARD DRAWING-DROP MANHOLE DETAIL


STANDARD PLAN
925 S-13

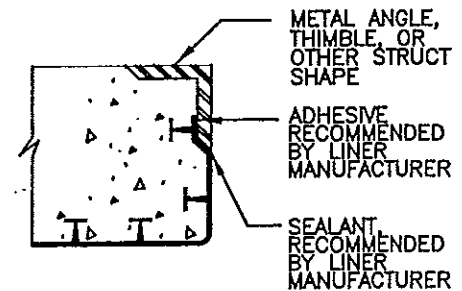
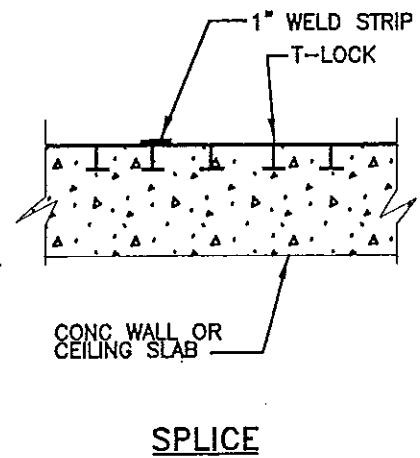
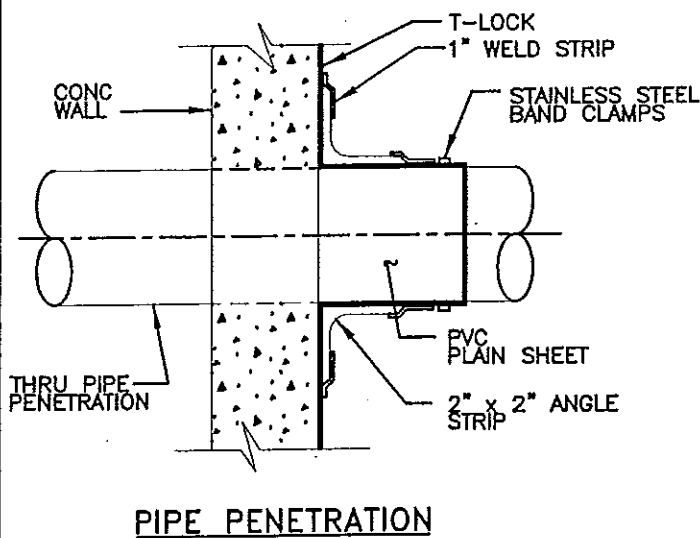
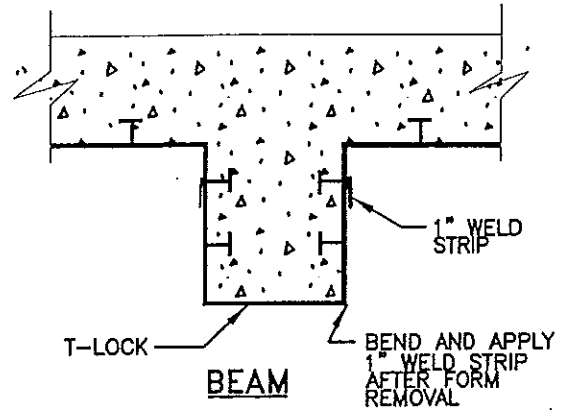
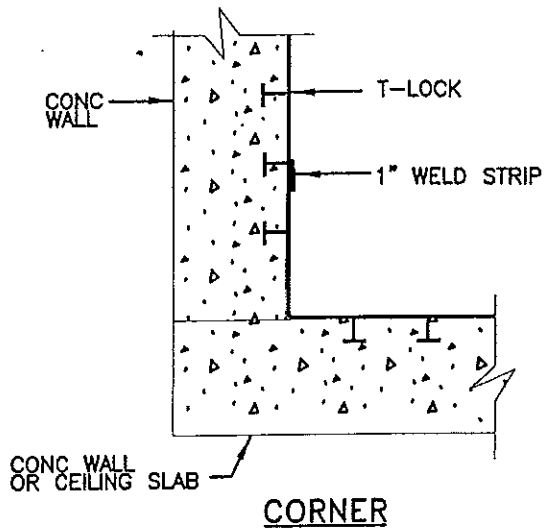
REVIEWED <i>Mark V. [Signature]</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527	 WORKS
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-668 57202	
DRAWN BY: _____ CHECKED BY: ZK	

REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		
		SHEET 1 OF 1	



SEE SBSD STD. DWGS. S-1, S-2, S-4, S-5, S-13

STANDARD DRAWING-PVC LINED MANHOLE FOR SEWERS			STANDARD PLAN 925 S-14		
REVIEWED <i>Mark Vukobratovic</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527	PUBLIC  WORKS	REVISIONS		SUPERCEDES	REFERENCES
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202		NO.	DESCRIPTIONS		
DRAWN BY:	CHECKED BY: ZK	SHEET 1 OF 1			



NOTE

1. AT BUTT JOINTS, INSTALL 1" WELD STRIP ON FRONT AND BACK.
2. LINER RIBS SHALL BE ORIENTED VERTICALLY ON VERTICAL SURFACES.

STANDARD DRAWING-P.V.C. LINER DETAILS

STANDARD PLAN
925 S-15a

REVIEWED <i>Mark Vahry</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527	
APPROVED <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS-RCE 57202	
DRAWN BY:	
CHECKED BY: ZK	

PUBLIC

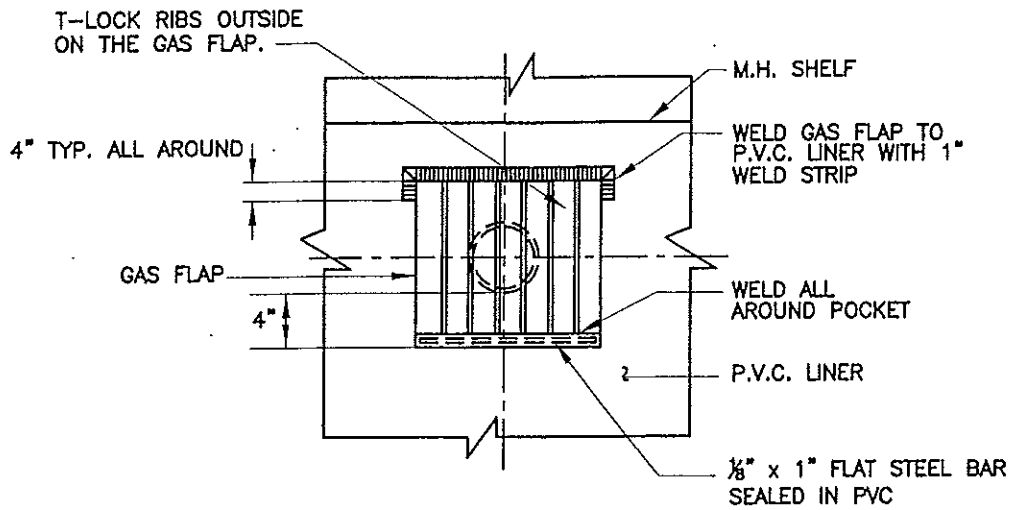


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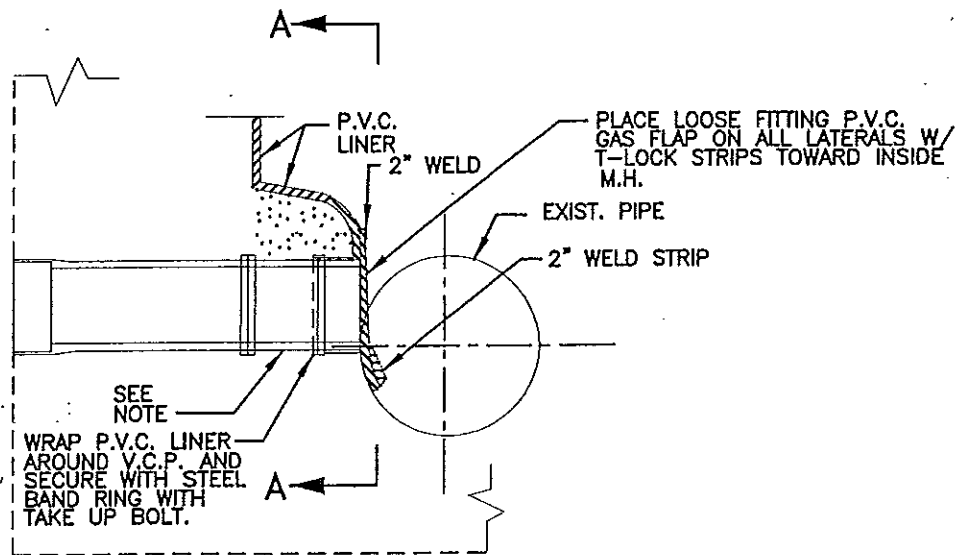
NO.	REVISIONS DESCRIPTIONS

SUPERCEDES	REFERENCES

SHEET 1 OF 1



NOT TO SCALE



PLAN

STANDARD DRAWING-P.V.C. LINER DETAILS

STANDARD PLAN
925 S-15b

REVIEWED	<i>Mark V. [Signature]</i> 3-1-04
	DEPUTY CITY ENGINEER-RCE 61527
APPROVED	<i>RO [Signature]</i> 3/1/04
	DIRECTOR OF PUBLIC WORKS-RCE 57202
DRAWN BY:	CHECKED BY: ZK

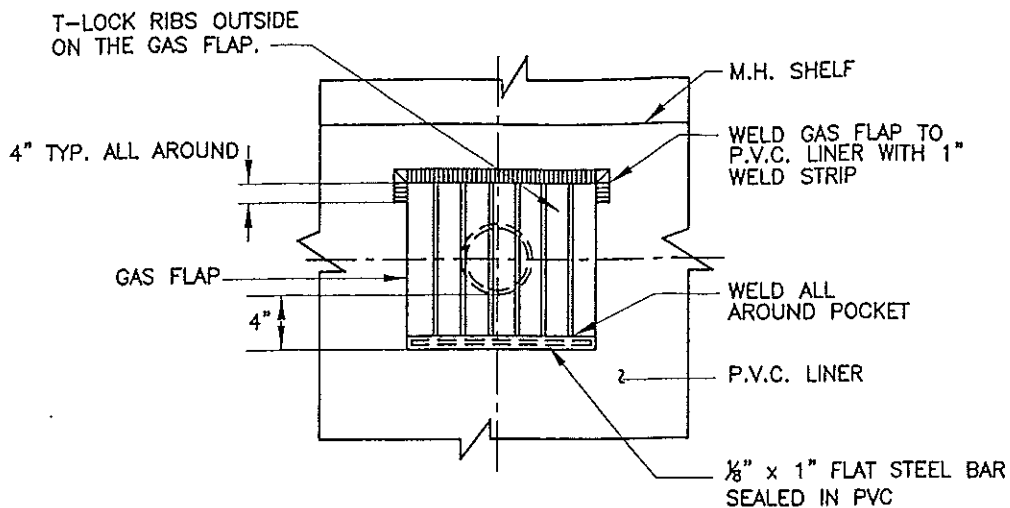
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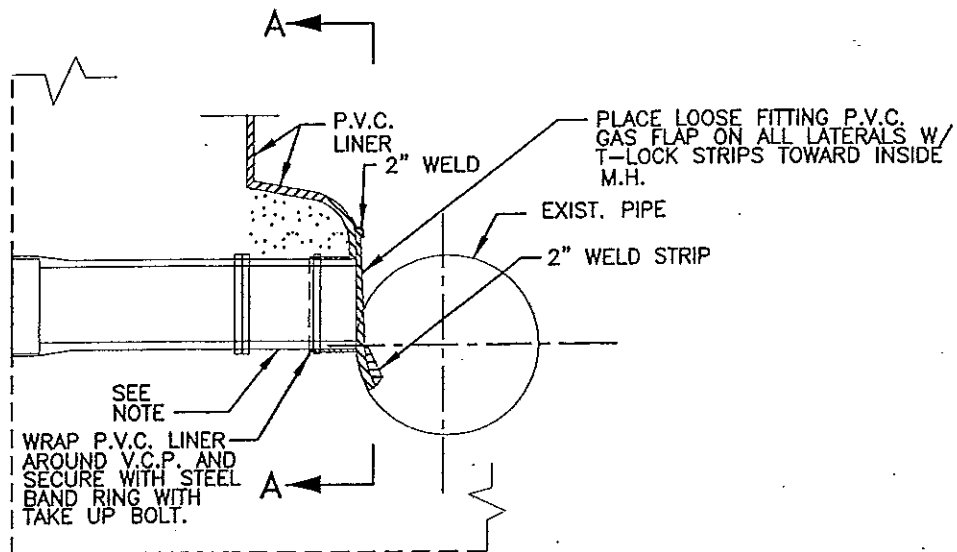
WORKS

REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		

SHEET 1 OF 1



VIEW A-A
NOT TO SCALE



PLAN

NOTE

FOR INSTALLATION AT EXISTING M.H., REMOVE INTERFERING CONCRETE AT END OF EACH LATERAL AND EXTEND VCP AS SHOWN. GROUT IN PLACE. EXTEND PVC M.H. LINER OVER GROUT AND INSTALL GAS FLAP AS SHOWN.

STANDARD DRAWING—P.V.C. LINER & GAS FLAP INSTALLATION

STANDARD PLAN
925 S-16

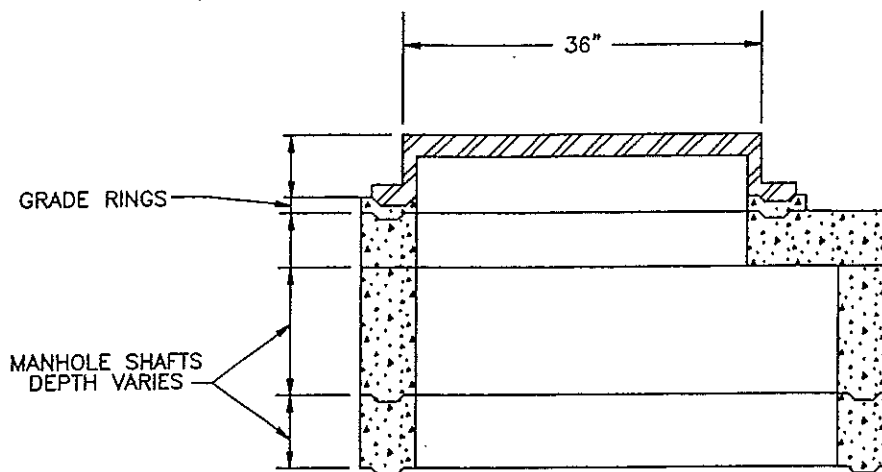
REVIEWED <i>Mark V. [Signature]</i> 3-1-04 DEPUTY CITY ENGINEER—RCE 61527
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS—RCE 57202
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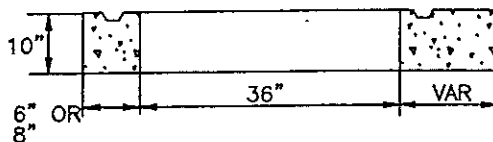
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NO.	DESCRIPTIONS

SUPERCEDES	REFERENCES

SHEET 1 OF 1



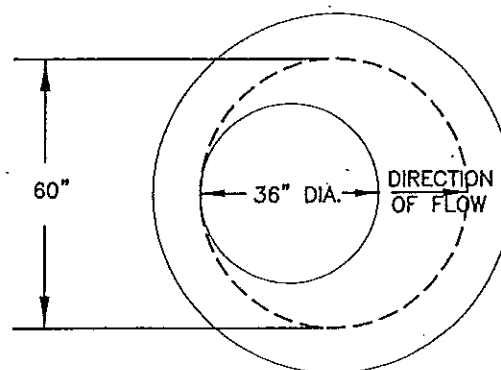
TYPICAL SECTION
FLAT TOP MANHOLE



FLAT TOP COVER

NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH SBSD STD. DWG. S-1.
2. REINFORCED CONCRETE MANHOLE, QUIKSET OR APPROVED EQUAL.
3. FOR MANOLE FRAME AND COVER, SEE SBSD STD. DWG. S-4.



PLAN

STANDARD DRAWING—FLAT TOP MANHOLE

STANDARD PLAN
925 S-17

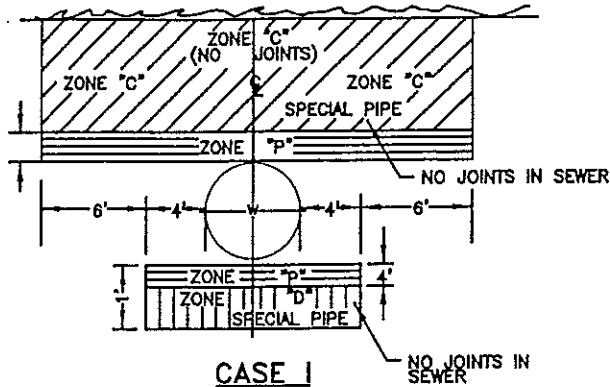
REVIEWED	<i>Mark Vichy</i> 3-1-04
DEPUTY CITY ENGINEER—RCE 61527	
APPROVED	<i>[Signature]</i> 3/1/04
DIRECTOR OF PUBLIC WORKS—RCE 57202	
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REVISIONS	
NO.	DESCRIPTIONS

SUPERCEDES	REFERENCES

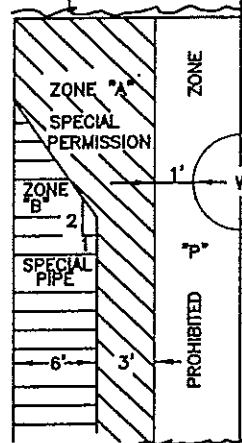
NEW SEWER



NOTE: "P" IS A PROHIBITED CONSTRUCTION ZONE

NOTE:

ZONES IDENTICAL ON EITHER SIDE OF CENTER LINES. ZONE "P" IS A PROHIBITED ZONE, SECTION 84630 (2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22



CASE 1: NEW SEWER BEING INSTALLED

ZONE: SPECIAL CONSTRUCTION REQUIRED FOR SEWER

- A SEWER LINES PARALLEL TO WATER MAINS SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM THE RESPONSIBLE HEALTH AGENCY AND WATER SUPPLIER.
- B A SEWER LINE PLACED PARALLEL TO A WATER LINE SHALL BE CONSTRUCTED OF:
1. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS.
 2. PLASTIC SEWER PIPE WITH RUBBER RING JOINTS, DR 26.
 3. DUCTILE IRON PIPE WITH COMPRESSION JOINTS.
 4. REINFORCED CONCRETE PRESSURE PIPE WITH COMPRESSION JOINTS (PER AWWA C302-74).
- C A SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF:
1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS.
 2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED.
 3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
 4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.


(CONT.)

ZONE

- D A SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF
1. A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
 2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT, CENTERED ON THE PIPE BEING CROSSED.
 3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED ON THE PIPE BEING CROSSED.
 4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.
 5. ANY SEWER PIPE SEPARATED BY A TEN-FOOT BY TEN-FOOT, FOUR-INCH-THICK REINFORCED CONCRETE SLAB.

STANDARD DRAWING-DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS

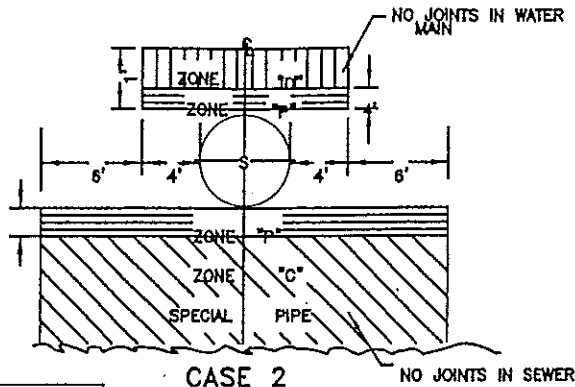
STANDARD PLAN
925 S-18a

REVIEWED <i>Mark V...</i> 3-1-04 DEPUTY CITY ENGINEER-RCE 61527	PUBLIC  WORKS
APPROVED <i>[Signature]</i> 3/1/04 DIRECTOR OF PUBLIC WORKS-RCE 57202	
DRAWN BY:	
CHECKED BY: ZK	

REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		

SHEET 1 OF 1

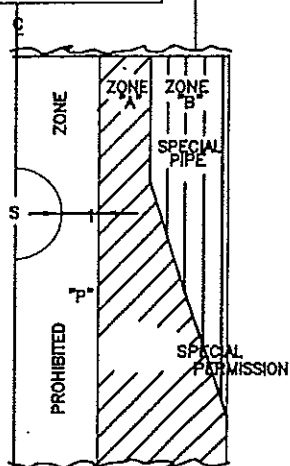
NEW WATER MAIN



CASE 2

NOTE:

ZONES IDENTICAL ON EITHER SIDE OF CENTER LINES. ZONE "P" IS A PROHIBITED ZONE SECTION 84630 (2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22



(CONT.)

ZONE

CASE 2: NEW WATER MAINS BEING INSTALLED

ZONE

- A NO WATER MAINS PARALLEL TO SEWER SHALL BE CONSTRUCTED WITHOUT APPROVAL FROM THE HEALTH AGENCY.
- B IF THE SEWER PARALLELING THE WATER MAIN DOES NOT MEET THE CASE 1 ZONE B REQUIREMENTS, THE WATER MAIN SHALL BE CONSTRUCTED OF:
1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
 2. DIPPED AND WRAPPED ONE-FOURTH-INCH-THICK WELDED STEEL PIPE.
 3. CLASS 200, TYPE II, PRESSURE PIPE.
 4. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 PER AWWA C900) OR EQUIVALENT.
 5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-74 OR C301-79 OR C303-70).

- D IF THE SEWER CROSSING THE WATER MAIN DOES NOT MEET THE CASE 1, ZONE D, REQUIREMENTS, THE WATER MAIN SHALL HAVE NO JOINTS IN ZONE C AND BE CONSTRUCTED OF


1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
2. DIPPED AND WRAPPED ONE-FOURTH-INCH-THICK WELDED STEEL PIPE.
3. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-74 OR C301-79 OR C303-70)

IF THE SEWER CROSSING THE WATER MAIN DOES NOT MEET THE REQUIREMENTS FOR ZONE D, CASE 1, THE WATER MAIN SHALL HAVE NO JOINTS WITHIN FOUR FEET FROM EITHER SIDE OF THE SEWER AND SHALL BE CONSTRUCTED OF:

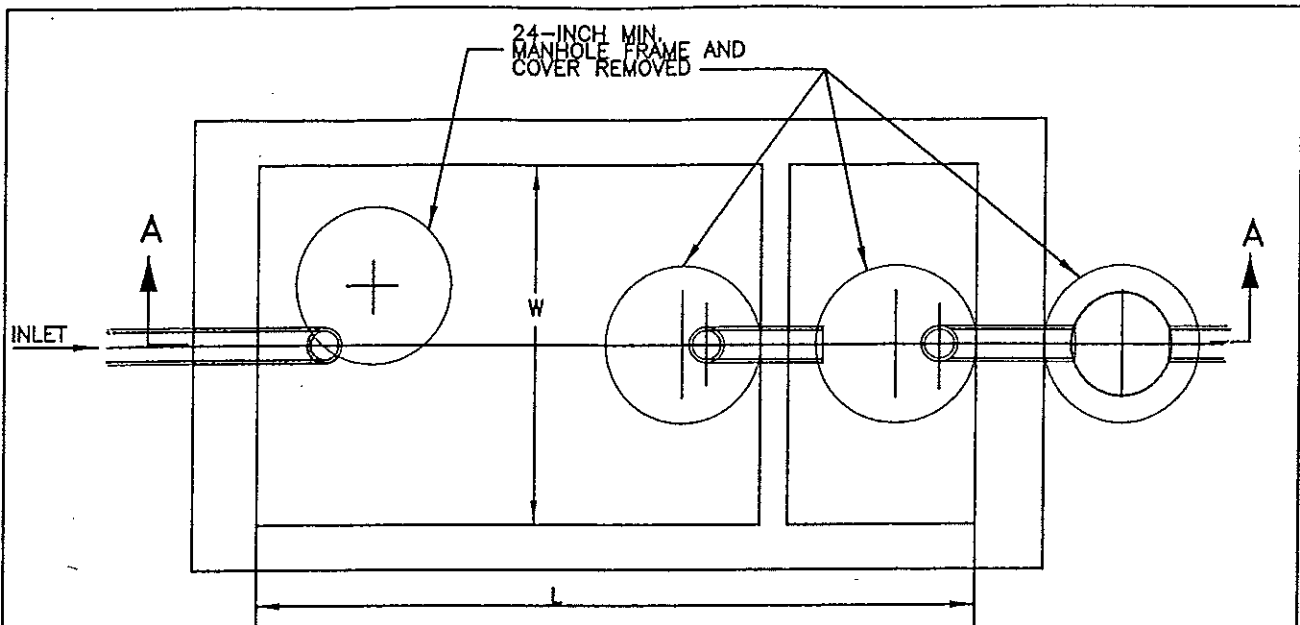
1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
2. DIPPED AND WRAPPED ONE-FOURTH-INCH-THICK WELDED STEEL PIPE.
3. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 PER AWWA C900) OR
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-74 OR C301-79 OR C303-70)

STANDARD DRAWING-DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS

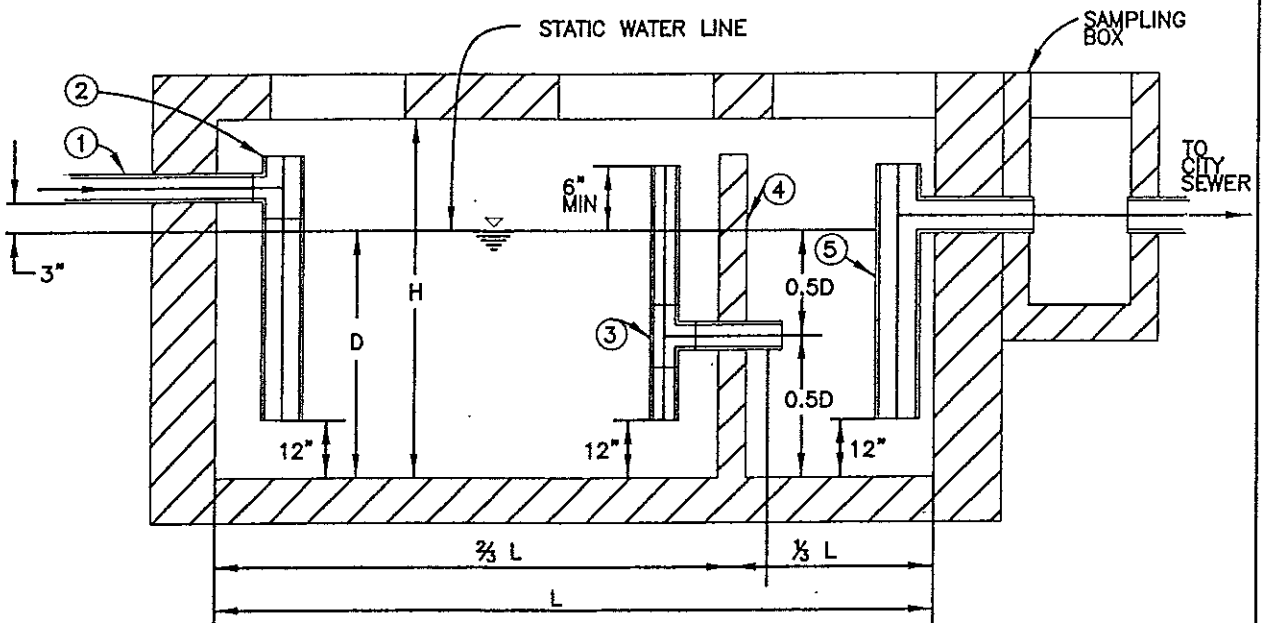
STANDARD PLAN
925 S-18b

REVIEWED <i>Mark Vally</i> 3-1-04	PUBLIC  WORKS
DEPUTY CITY ENGINEER-RCE 61527	
APPROVED <i>CA 2/2/04</i>	
DIRECTOR OF PUBLIC WORKS-RCE 57202	
DRAWN BY:	CHECKED BY: ZK

REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		



PLAN



SECTION A-A

- ① INLET PIPE 4-INCH MINIMUM
- ② INFLOW TEE AND STANDPIPE
- ③ CROSSOVER TEE AND STANDPIPE
- ④ BAFFLE WALL
- ⑤ OUTFLOW TEE AND STANDPIPE

NOTE:

GREASE INTERCEPTOR SHALL BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE UNIFORM PLUMBING CODE, APPENDIX H.

STANDARD DRAWING—TYPICAL GREASE INTERCEPTOR

STANDARD PLAN
925 S-19

REVIEWED
Mark Vukobratovic 3-1-04
DEPUTY CITY ENGINEER—RCE 61527

APPROVED
[Signature] 3/1/04
DIRECTOR OF PUBLIC WORKS—RCE 67202

DRAWN BY: CHECKED BY: ZK



REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		

REVISIONS		SUPERCEDES	REFERENCES
NO.	DESCRIPTIONS		
		SHEET 1 OF 1	