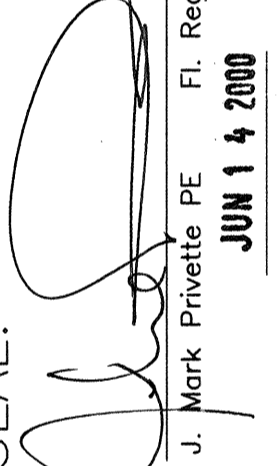


PROJECT NO. 950030	DRAWN BY L.D.M.
CHECKED BY J.M.P.	DATE 01 JUN 95
REVISIONS	DATE
INDEXED DROP MANHOLE DETAIL	4 FEB 98 L.D.M.

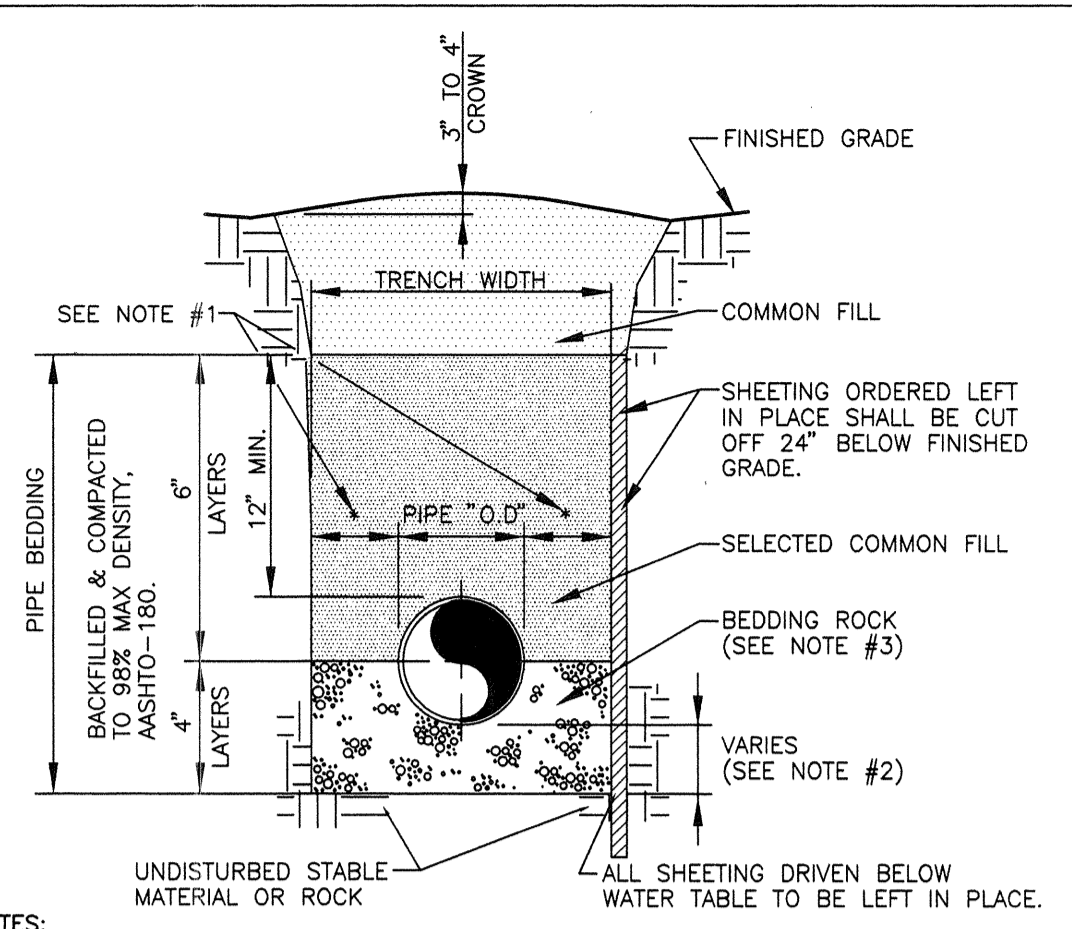
SEAL:  J. Mark Privette PE
 Fi. Reg. # 43394
 JUN 14 2000
 Date

**CONRAD BEACH
 SUBDIVISION
 CONSTRUCTION PLANS**

**SANITARY SEWER
 CONSTRUCTION DETAILS**

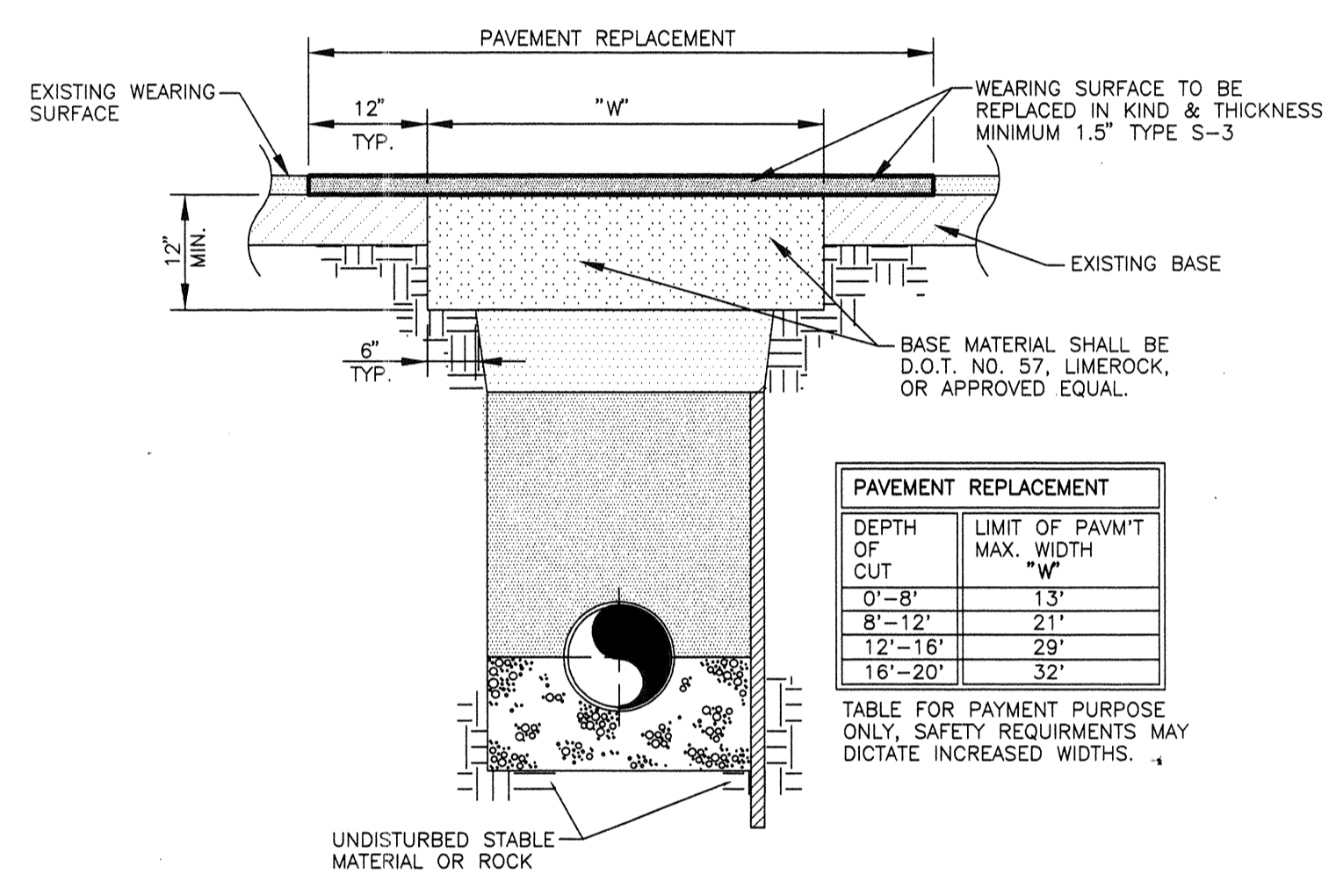
GENERAL SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM CONSTRUCTION

- MANHOLES SHALL COMPLY WITH A.S.T.M. SPECIFICATION C-478, LATEST REVISION, "PRECAST REINFORCED CONCRETE MANHOLE SECTION."
- CEMENT SHALL BE TYPE II
- CONCRETE SHALL BE 4000 P.S.I. @ 28 DAY MINIMUM STRENGTH, UNLESS OTHERWISE NOTED.
- MORTAR SHALL BE TWO (2) PARTS CLEAN SAND AND ONE (1) PART CEMENT WITH NO MORE THAN 1/4 PART HYDRATED LIME.
- MORTAR SHALL BE FULL AND STRUCK FLUSH.
- A DROP CONSTRUCTION SHALL BE PROVIDED FOR A SEWER ENTERING A MANHOLE AT AN ELEVATION OF TWENTY-FOUR INCHES (24") OR MORE ABOVE THE CHANNEL FLOW LINE.
- NO STEPS SHALL BE USED.
- FOR A FOUR FOOT (4') DIAMETER MANHOLE, DEPTHS GREATER THAN THIRTEEN FEET (13') ADDITIONAL FLOATATION BALLAST CONCRETE SHALL BE POURED IN BOTTOM SECTION UNDER PIPE AT A RATE OF FOUR INCHES (4") OF CONCRETE FOR EACH ADDITIONAL FOOT OF MANHOLE DEPTH. BALLAST MAY NOT BE REQUIRED IF SIX INCH (6") LIP IS PROVIDED AT BASE AS SHOWN IN DETAIL.
- WHERE A HOUSE OR OTHER CONNECTION TERMINATES, THE CONTRACTOR SHALL PROVIDE AND INSTALL A 2"x4" STAKE, MINIMUM TWO FEET (2') ABOVE AND TWO FEET (2') BELOW GROUND. THE TOP TWELVE INCHES (12") ARE TO BE PAINTED RED.
- GRAVITY SEWER COLLECTION LINES SHALL BE GREEN P.V.C. PIPE (DR 18)
- MANHOLE FRAMES AND LIDS SHALL BE ADJUSTED TO CONFORM WITH FINISHED SURFACES. NOT ALL ADJUSTMENTS SHALL BE INCLUDED IN THE PRICE BID. NO ADDITIONAL COMPENSATION WILL BE MADE BY THE OWNER. MANHOLES IN GRASSED AREA SHALL BE 0.2' ABOVE FINISHED GROUND.
- AN "S" OR "W" SHALL BE STAMPED IN CURB WHERE SEWER SERVICE OR MANHOLES IS LOCATED. STAMP SHALL BE PRESSED INTO CONCRETE A MINIMUM OF 1/16" INCH. A MEASUREMENT FROM THE EDGE OF THE CURB, TAKEN BY THE CONTRACTOR, SHALL BE SHOWN ON THE AS-BUILT PLANS FOR REFERENCE IN LOCATING SERVICE OR MANHOLE. BRANDING IRONS OR STAMPS WILL BE APPROVED BY THE ENGINEER PRIOR TO THEIR USE.
- ON CURBED STREETS, THE LOCATION FOR EACH INSTALLED SERVICE SHALL BE MARKED BY USING AN ALUMINUM DISC LABELED SEWER AS SUPPLIED BY NATIONAL BAND & TAG COMPANY. THE HORIZONTAL DISTANCE TO THE SERVICE IS TO BE ENGRAVED ON THE DISC.
- THE CONTRACTOR SHALL LOCATE MANHOLES, SERVICES, ETC. BY USING A TWO (2) POINT SWING MEASUREMENT FROM PERMANENT PHYSICAL FEATURES THAT CAN READILY BE FOUND ON THE DRAWING AND IN THE FIELD. THESE MEASUREMENTS SHALL BE SHOWN ON THE AS-BUILT DRAWINGS BY THE CONTRACTOR.
- ALL WET POINT HOLES WILL BE FILLED WITH COURSE SAND OR OTHER SATISFACTORY GRANULAR MATERIAL AT TIME WELL POINTS ARE PULLED.
- CLEANOUTS SHALL BE ADJUSTED TO CONFORM WITH FINISHED SURFACES. ALL ADJUSTMENTS SHALL BE INCLUDED IN THE PRICE BID. NO ADDITIONAL COMPENSATION WILL BE MADE BY THE OWNER.
- CONTRACTOR SHALL PLACE METALLIC ID TAPE WITHIN 18" DIRECTLY ABOVE SEWER LINES IN CONFORMANCE WITH COUNTY STANDARDS.
- METALLIC ID TAPE SHALL EXTEND FROM WYE CONNECTION TO THE END OF THE SERVICE AND TERMINATE TWELVE INCHES (12") ABOVE GROUND AT THE LOCATION STAKE.
- TESTING SHALL BE IN CONFORMANCE WITH THE TOWN OF L.B.K. UNIFORM SEWER CODE.
- LENGTH OF SANITARY SEWER IN PROFILES IS STATED FROM CENTERLINE OF MANHOLE TO CENTERLINE OF MANHOLE.
- 2" # ALUMINUM DISC (GREEN) SHALL BE PLACED ON CURB WITH FOOTAGE TO CLEAN OUT.
- HORIZONTAL SEPARATION**
 IF POSSIBLE, SANITARY SEWERS AND SEWAGE FORCE MAINS SHOULD BE LAID WITH AT LEAST A-10 FOOT HORIZONTAL SEPARATION FROM ANY WATER MAIN, SEWERS (OR SEWAGE FORCE MAIN) MAY BE LAID CLOSER THAN 10 FEET TO A WATER MAIN IF IT IS LAID IN A SEPARATE TRENCH AND THE ELEVATION OF THE CROWN OF THE SEWER (OR SEWAGE FORCE MAIN) IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. IF IT IS IMPOSSIBLE TO MAINTAIN 18 INCHES VERTICAL SEPARATION WHEN THE SEWER IS LAID CLOSER THAN 10 FEET TO THE WATER MAIN, THE SANITARY SEWER SHOULD BE CONSTRUCTED OF (OR ENCASED IN) WATER MAIN TYPE MATERIALS WHICH WILL WITHSTAND A 50 P.S.I. WATER PRESSURE TEST.
- VERTICAL SEPARATION**
 WHENEVER A SANITARY SEWER AND WATER MAIN MUST CROSS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18 INCH VERTICAL SEPARATION, THE SANITARY SEWER SHOULD BE CONSTRUCTED OF (OR ENCASED IN) WATER MAIN TYPE MATERIAL WHICH WILL WITHSTAND A 50 P.S.I. PRESSURE TEST FOR A DISTANCE OF 10 FEET ON BOTH SIDES OF THE WATER MAIN. WHENEVER A SEWAGE FORCE MAIN AND WATER MAIN MUST CROSS, THE SEWAGE FORCE MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWAGE FORCE MAIN IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN.
- TOWN OF L.B.K. DENOTES: TOWN OF LONGBOAT KEY



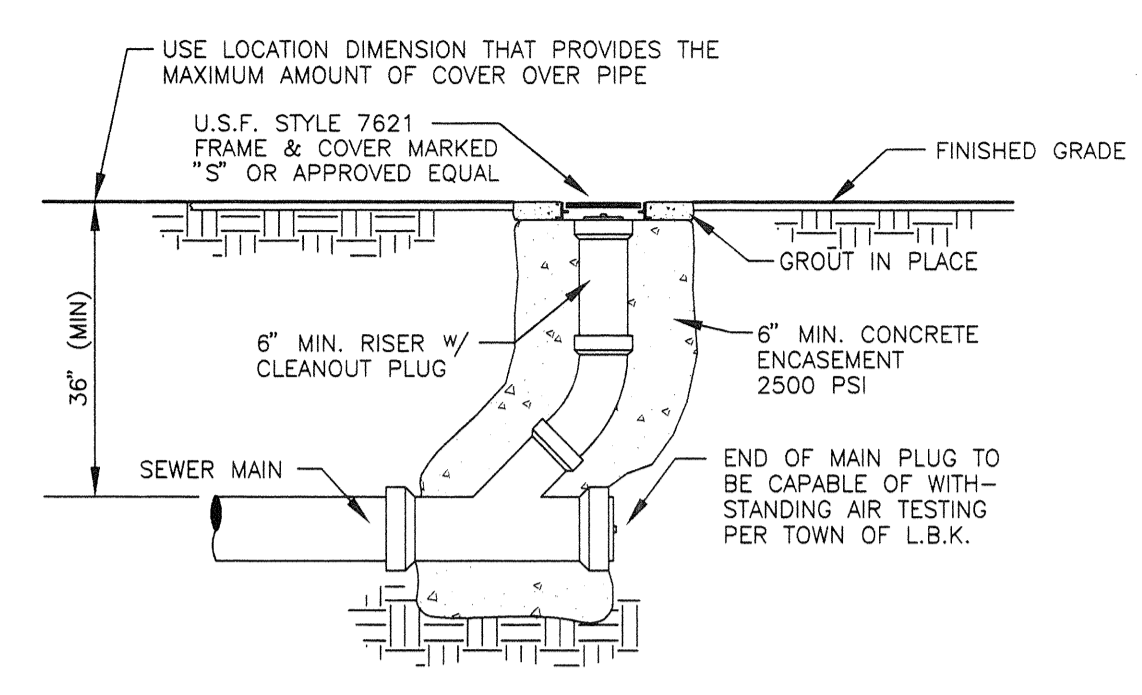
- NOTES:
- 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" & LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" & OVER.
 - 4" MAX. FOR PIPE 15" DIA. & LESS; 6" MAX. FOR PIPE 18" DIA. TO 36" DIA. & 9" MAX. FOR PIPE 42" DIA. AND LARGER.
 - BEDDING MATERIAL AS PER TOWN OF L.B.K. MATERIAL AND EQUIPMENT STANDARDS FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS.

**PIPE BEDDING DETAIL
 TYPE "A-2"**

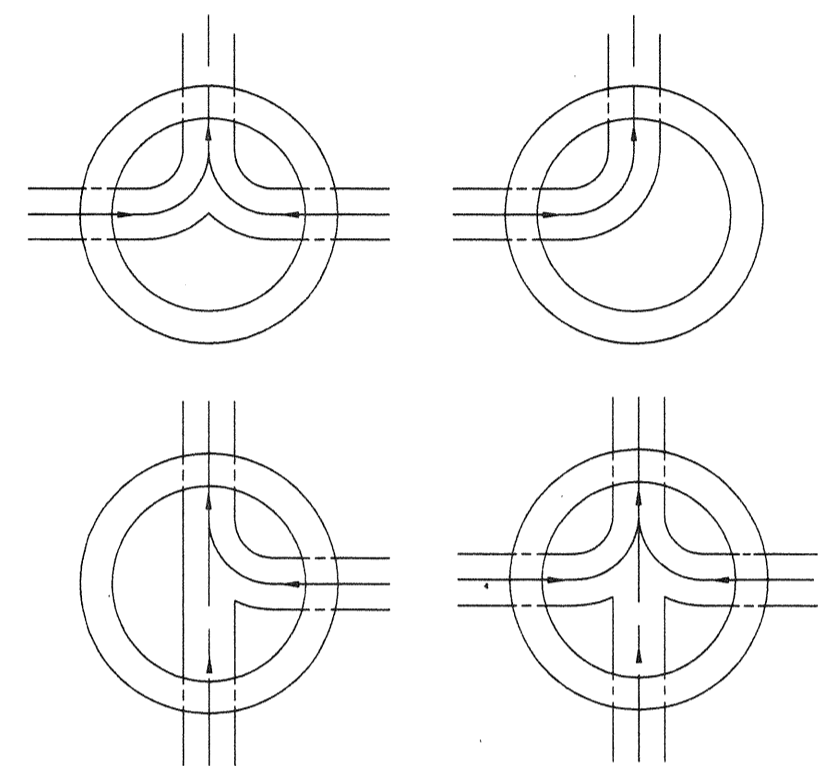


DEPTH OF CUT	LIMIT OF PAVMT "W"
0'-8"	13"
8'-12"	21"
12'-16"	29"
16'-20"	32"

TABLE FOR PAYMENT PURPOSE ONLY. SAFETY REQUIREMENTS MAY DICTATE INCREASED WIDTHS.



**CLEANOUT DETAIL
 AT END OF MAIN**

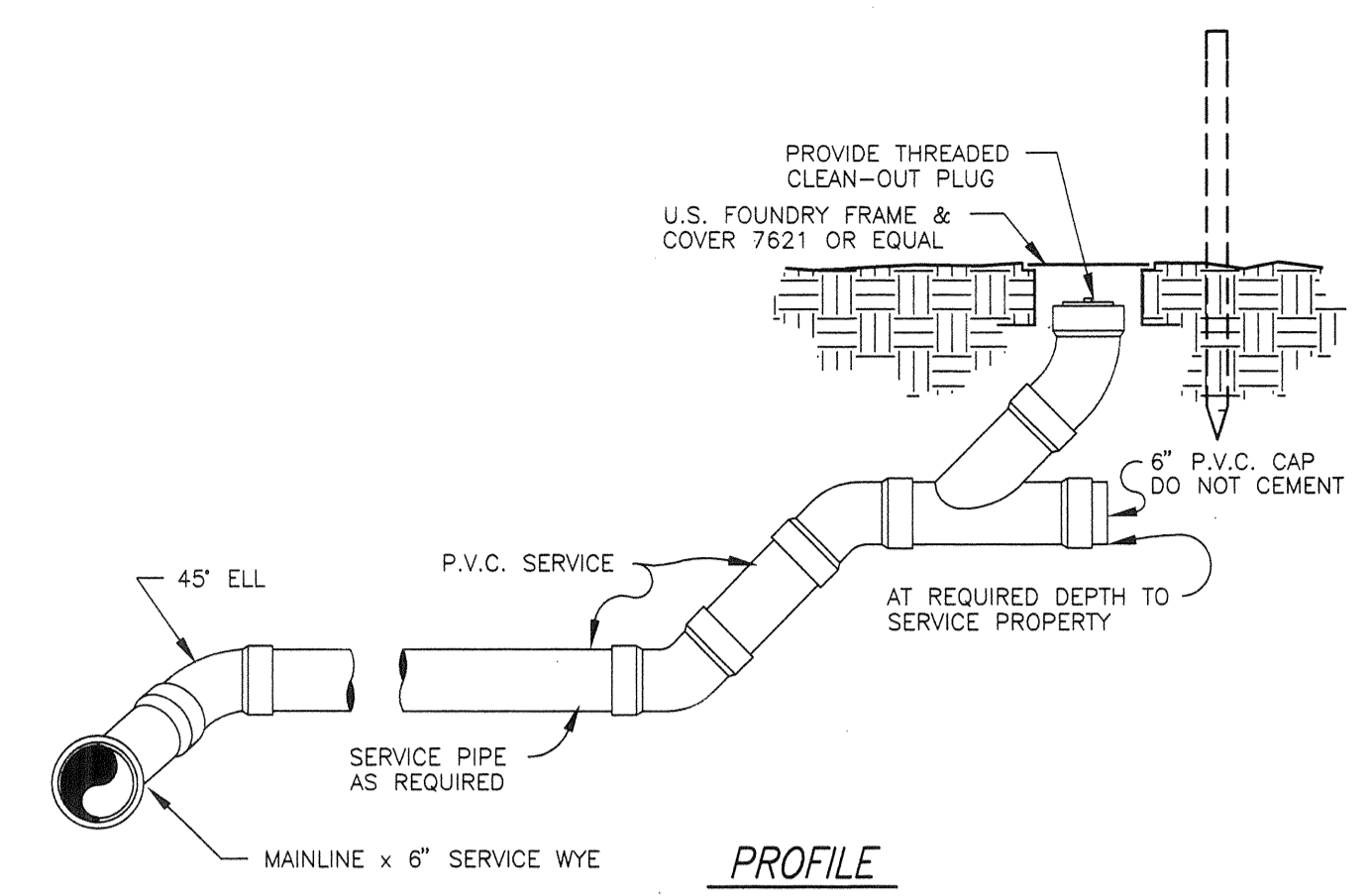


**PLAN OF BOTTOM
 AND FLOW CURVES**

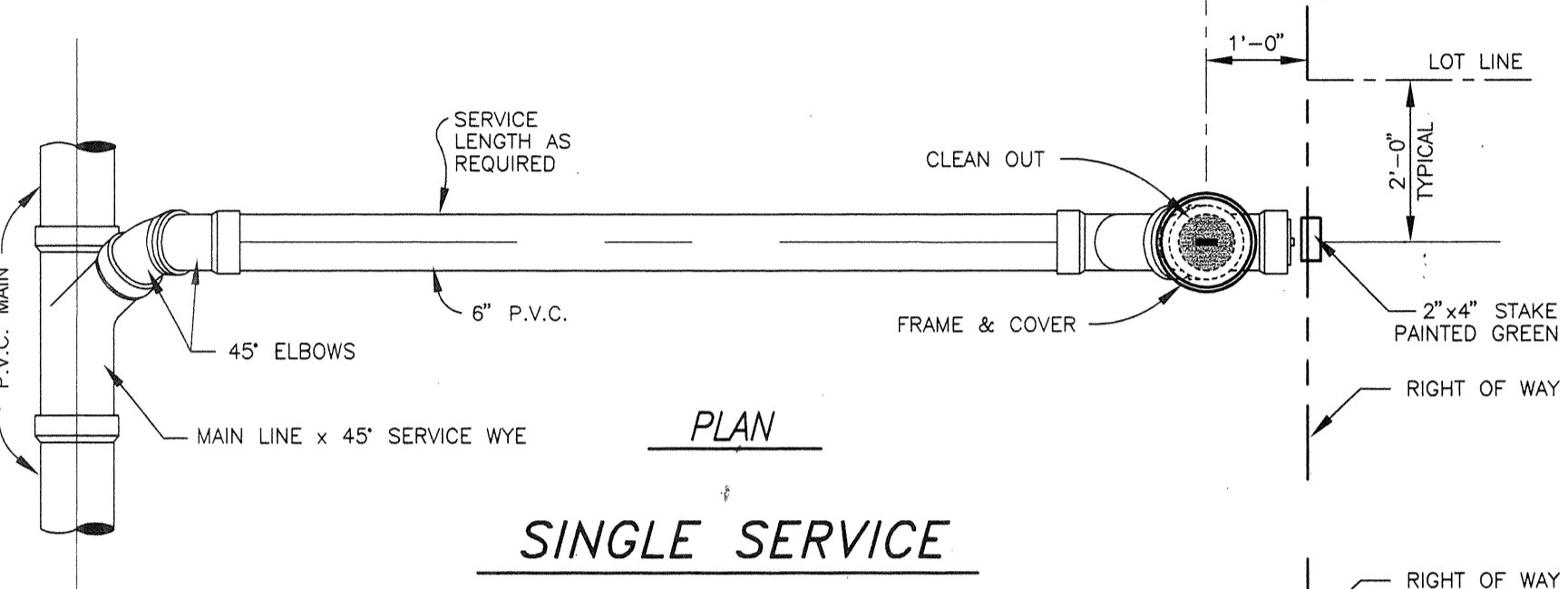
- A SPILLWAY SHALL BE PROVIDED FOR A SMOOTH FLOW BETWEEN PIPES WITH DIFFERENT INVERTS.
- THE MANHOLE SHELVE SHALL BE SLOPED WITH A 1/2" MIN. TO A 1" MAX. DROP FROM MANHOLE WALL TO CHANNEL.
- CHANNEL WIDTH SHALL BE NOT LESS THAN PIPE DIAMETER "D" AND SHALL HAVE DEPTH OF .75 x "D".

TYPICAL SECTION

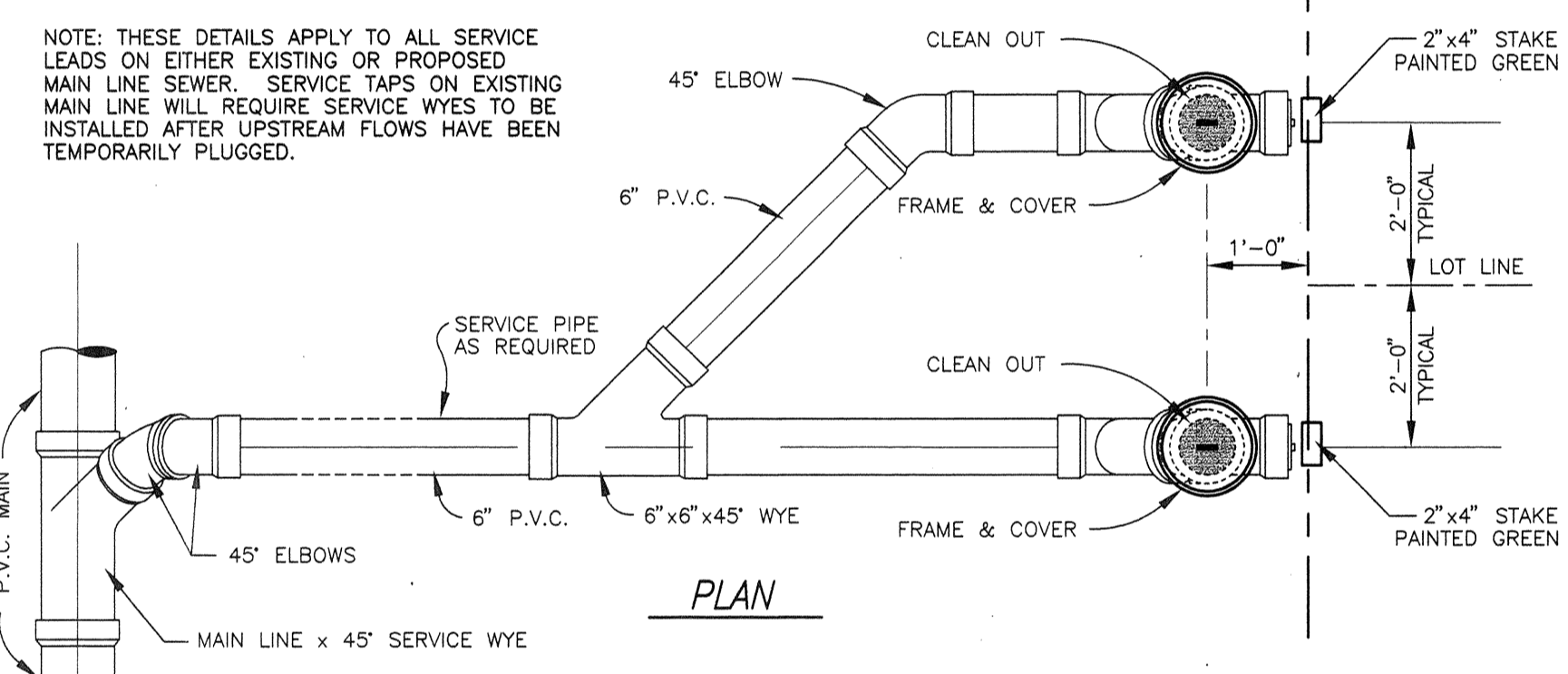
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PROFILE



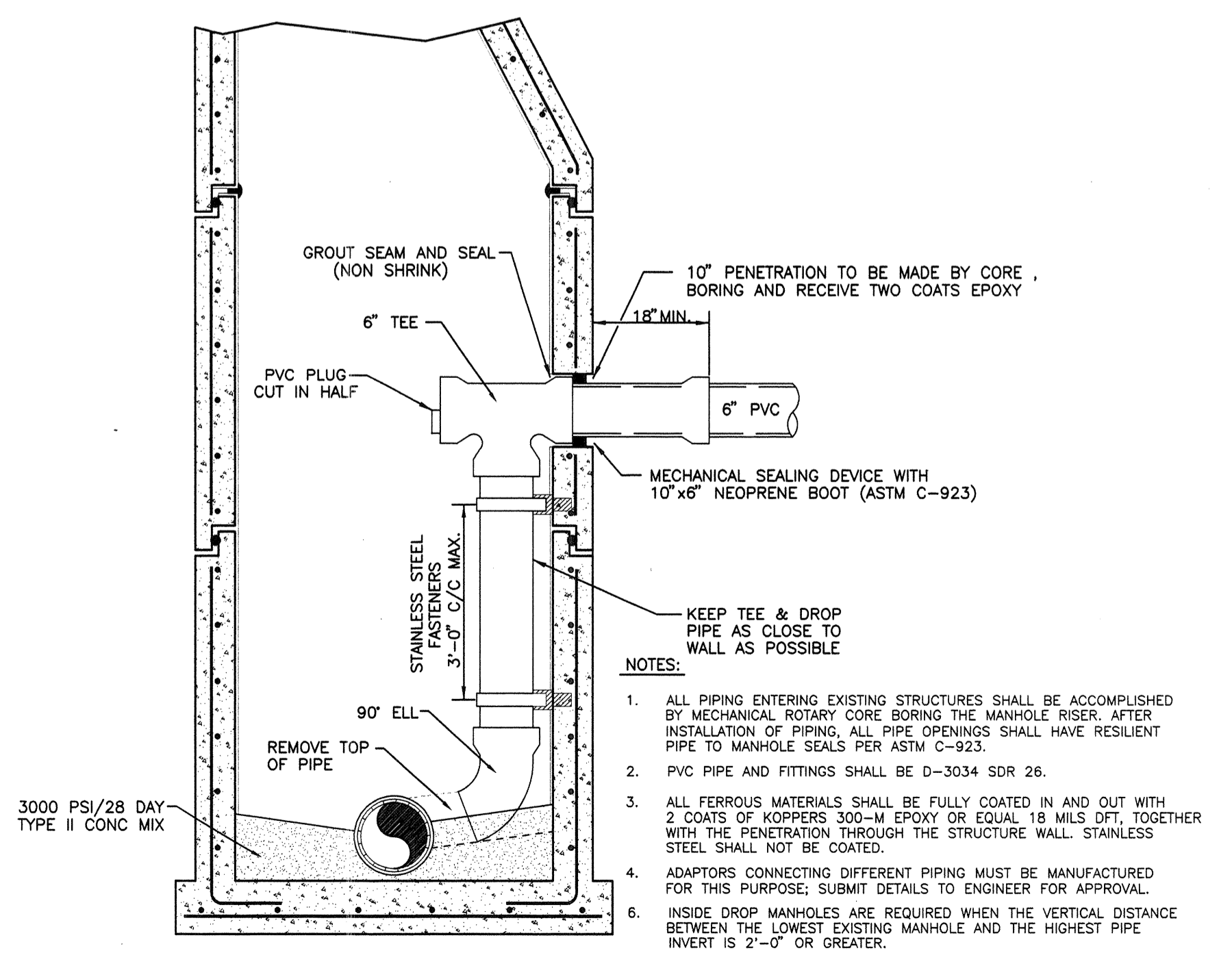
SINGLE SERVICE



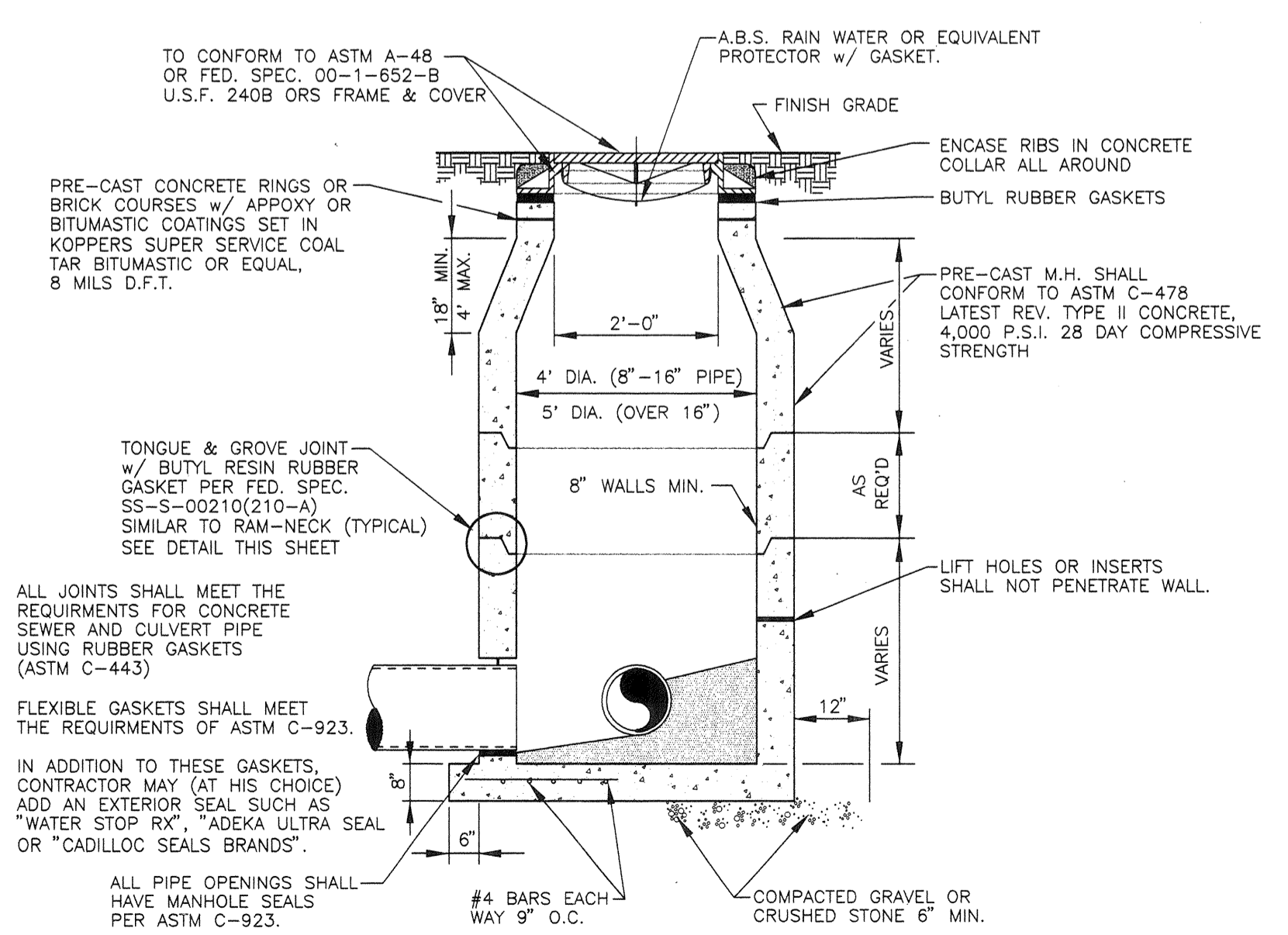
DOUBLE SERVICE

SINGLE AND DOUBLE SERVICE CONNECTION

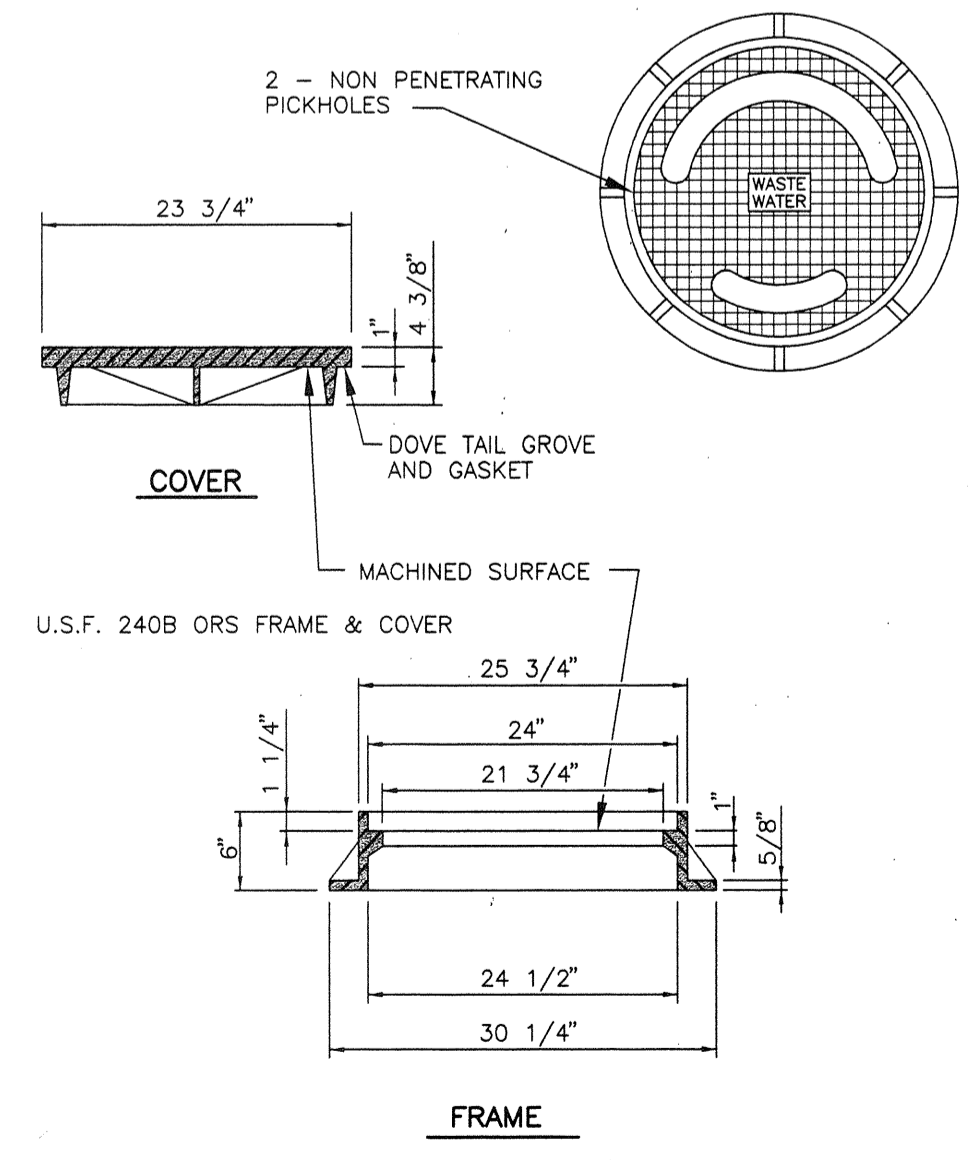
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DROP MANHOLE DETAIL



STANDARD MANHOLE-PRECAST



SPECIAL SERVICE MANHOLE COVER

(FOR FLOOD PRONE OR INFLOW AREA)