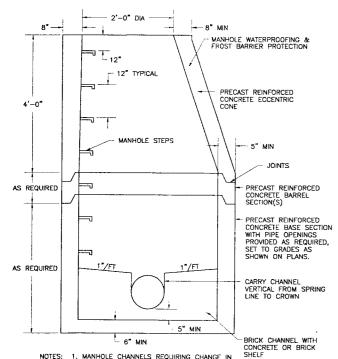


MANHOLE FRAME INSTALLATION

NOTES:

1. IN PAVED AREAS, THE MANHOLE FRAME ELEVATION SHALL BE 1/2" BELOW FINISH GRADE.

2. IN THE CROSS COUNTRY AREAS, THE MANHOLE FRAME ELEVATION SHALL BE A MINIMUM OF 6 INCHES ABOVE FINISH GRADE AND SLOPED TO PROVIDE A POSITIVE DRAIN AWAY FROM THE MANHOLE.

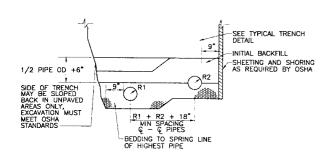


NOTES: 1. MANHOLE CHANNELS REQUIRING CHANGE IN SH ALIGNMENT ARE TO BE BUILT ON A SMOOTH RADIUS. IF SIDE PIPES ENTER CHANNEL, SHAPE TO RECEIVE ADDED SIDE FLOW.

2. USE FLAT SLAB TOP MANHOLE WHEN THE DIFFERENCE BETWEEN INVERT AND RIM IS LESS THAN 6'-0', WHEN MANHOLE DIAMETER IS GREATER THAN 4'-0', OR WHEN USED AS VALVE PIT WITH VALVE OPERATOR EXTENSIONS AND VALVE BOXES IN COVERS.

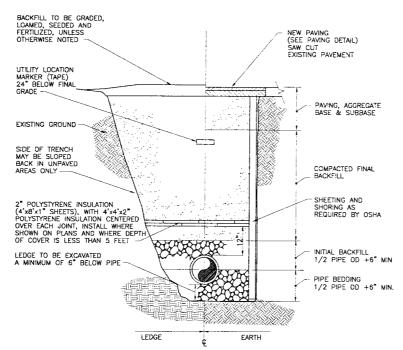
PROVIDE FROST BARRIER PROTECTION (SPEC. SECTION 02601) ON ALL MANHOLES.

TYPICAL 4 FOOT DIAMETER MANHOLE (TYPE A)



- NOTES: 1. THIS SECTION IS SHOWN FOR TWO PIPES, IT IS TO BE USED FOR ANY NUMBER OF PIPES.
 2. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL MATERIALS AND COMPACTED BACKFILL REQUIREMENTS.
 3. PIPE SPACING SHOWN IS TYPICAL UNLESS OTHERWISE INDICATED.

MULTIPLE PIPE TRENCH SECTION



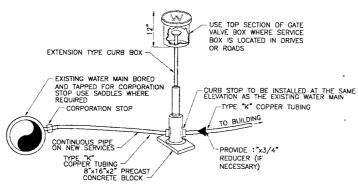
NOTES: 1. ALL EXCAVATION MUST MEET OSHA STANDARDS

2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' TO PREVENT TRENCH GROUND WATER FROM BEING CHANNELED ALONG BEDDING/INITIAL BACKFILL

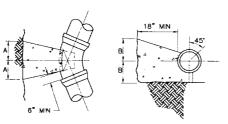
3. SEE SPECIFICATIONS (02200) FOR BEDDING AND BACKFILL REQUIREMENTS.

4. TRENCH PIPE INSULATION TO BE USED WHERE WATER MAIN AND GRAVITY SEWER IN LESS THAT 5 FEET UNLESS OTHERWISE DIRECTED.

PIPE TRENCH DETAIL



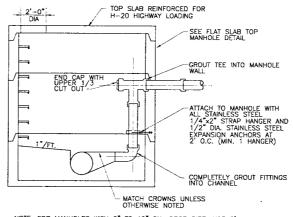
WATER SERVICE CONNECTION



PIPE SIZE	90° BEND		45° BEND		22 1/2" BEND		11 1/4" BEND	
	Α	В	Α	В	А	В	А	В
6"	18"	12"	12"	9"	9*	9*	9"	9"
8"	24"	15*	15"	12*	12"	12"	12*	12"
12*	24"	24*	18*	18"	15"	12"	12"	12*
18"	33*	33*	27"	27"	27"	27"	21*	21"

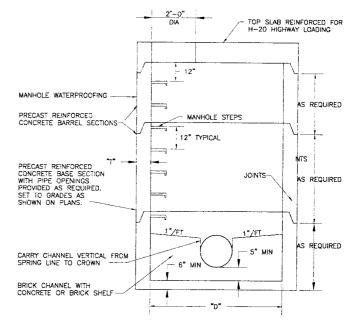
- 1. THRUST BLOCK SIZES ABOVE ARE BASED ON A SOIL BEARING CAPACITY OF 1000 PSF AND TEST PRESSURES OF 100 PSI. CONTRACTOR SHALL NOTIFY THE ENGINEER IF LOW BEARING STRENGTH SOILS ARE ENCOUNTERED.
- 2. RETAINER GLANDS SHALL BE USED.

SEWER/FORCE MAIN OR WATER MAIN -6" MIN SAND BEDDING 2' OR LESS - CULVERT PIPE - CULVERT PIPE 2' OR LESS SEWER/FORCE MAIN OR WATER MAIN INSULATION JOINTS TO STAGGERED NOTE: INSULATION TO BE USED WHERE PIPE SEPARATION IS 2 FEET OR LESS. CULVERT CROSSING DETAIL



NOTE: FOR MANHOLES WITH 8" TO 12" DIA. DROP PIPE, USE 5' DIAMETER OR AS INDICATED. FOR MANHOLES WITH TWO OR MORE DROP PIPES, USE 6" DIAMETER, OR AS INDICATED.

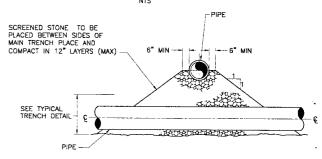
INSIDE DROP MANHOLE WITH PVC PIPE



NOTE: MANHOLE CHANNELS REQUIRING CHANGE IN ALIGNMENT ARE TO BE BUILT ON A SMOOTH RADIUS. IF SIDE PIPES ENTER CHANNEL, SHAPE TO RECEIVE ADDED SIDE FLOW.

DIAMETER ("D")	MAX PIPE DIAMETER STRAIGHT THRU TO 45° DEFLECTION	MINIMUM WAL
48"	UP TO 30" O.D.	5*
60"	UP TO 44" O.D.	6"
72"	UP TO 51" O.D.	7"

FLAT SLAB TOP MANHOLE (TYPE B)



JOINTS ON EACH PIPE TO BE AS FAR FROM INTERSECTION AS POSSIBLE

PIPE CROSSING DETAIL

BOTTOM PLAN 24" DIA TOP 35" DIA

SECTION SECTION MANHOLE STANDARD COVER AND FRAME

TIE BOLTS (TYP) - 2 SOCKET CLAMPS - SPOOL PIECE EXISTING WATER MAIN 45° BEND (TYP) COMPACTED SCREENED
GRAVEL BETWEEN PROPOSED
SEWER MAIN AND
RELOCATED WATER MAIN ----3/4" DIA TIE RODS (TYP) INSTALL PROPOSED SEWER SUCH THAT SEWER PIPE JOINTS ARE LOCATED AS FAR FROM WATER MAIN AS POSSIBLE

NOTES: 1. WATER MAIN MATERIALS TO BE CLASS 52 DUCTILE IRON. JOINT RESTRAINT TO BE BY MECHANICAL JOINT WITH RETAINER GLANDS, OR WITH THE BOLTS AS SHOWN, 2. THE RODS, THE BOLTS, SOCKET CLAMPS AND BRIDLES SHALL BE COATED WITH A BITUMINOUS PAINT AFTER ASSEMBLY OR IF NECESSARY PROIR TO ASSEMBLY.

3. THE RODS: 10° DIA WATER MAIN OR LARGER — 4 REQUIRED.

8° DIA WATER MAIN OR SMALLER — 2 REQUIRED.

4. EXISTING WATER MAINS TO BE RELOCATED OVER NEW SEWERS WHEREVER SUFFICIENT GROUND COVER EXISTS (5' MINIMUM COVER).

WATER MAIN RELOCATION DETAIL

NOTES:

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CHEC DATE APPR DATE BOOK

THRUST BLOCK DETAIL