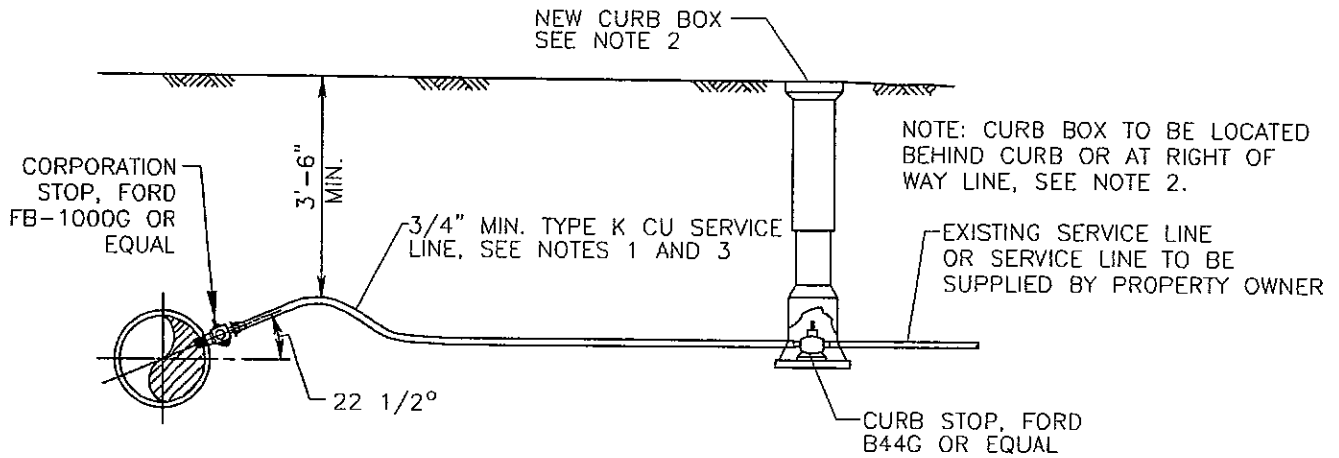


APPENDIX B - STANDARD DETAILS
STANDARD WATER DETAILS

DETAIL NO.	DETAIL DESCRIPTION
FSWA-W1	WATER SERVICE LINE CONNECTION DETAIL
FSWA-W2	WATER SERVICE LINE RECONNECTION DETAIL
FSWA-W3	HYDRANT DETAIL
FSWA-W4	2" BLOWOFF HYDRANT DETAIL TOP MOUNT
FSWA-W5	2" BLOWOFF HYDRANT DETAIL DEAD END
FSWA-W6	(RESERVED)
FSWA-W7	WATER METER PIT DETAIL
FSWA-W8	ANCHOR BLOCK
FSWA-W9	BLOCKING & CAPPING DETAIL (A)
FSWA-W10	BLOCKING & CAPPING DETAIL (B)
FSWA-W11	CRADLES
FSWA-W12	REACTION BACKING (A)
FSWA-W13	REACTION BACKING (B)
FSWA-W14	REACTION BACKING (C)
FSWA-W15	REACTION BACKING (D)
FSWA-W16	REACTION BACKING (E)
FSWA-W17	WATER MAIN STREAM CROSSING DETAIL
FSWA-W18	WATER MAIN UTILITY CROSSING DETAIL
FSWA-W19	WATER MAIN UTILITY CROSSING VERTICAL OFFSET DETAIL
FSWA-W20	WATER LATERAL INSTALLATION SCHEMATIC
FSWA-W21	WATER SERVICE LINE INSTALLATION SCHEMATIC
FSWA-W22	WATER SERVICE LINE DETAIL
FSWA-W23	WATER SERVICE LINE & METER PIT DETAIL
FSWA-W24	RESIDENTIAL OR COMMERCIAL FIRE SPRINKLER WATER SERVICE DETAIL



TYPICAL WATER SERVICE LINE CONNECTION DETAIL

NO SCALE

NOTES

1. REPLACE EXISTING WATER SERVICE LINES WITH MIN. 3/4" CU., IF EXISTING SERVICE IS LARGER DIAMETER, REPLACE WITH SAME SIZE.
2. CURB STOP LOCATION NO MORE THAN 1'-0" BEHIND CURB.
3. NEW SERVICE LINES - FROM CORPORATION TO CURB STOP, INCLUDING NEW CURB BOX.
4. ANY METER PITS REQUIRED FOR SERVICE LINES WILL BE AT THE AUTHORITY'S DISCRETION.

STANDARD DETAILS FOR WATER SYSTEMS

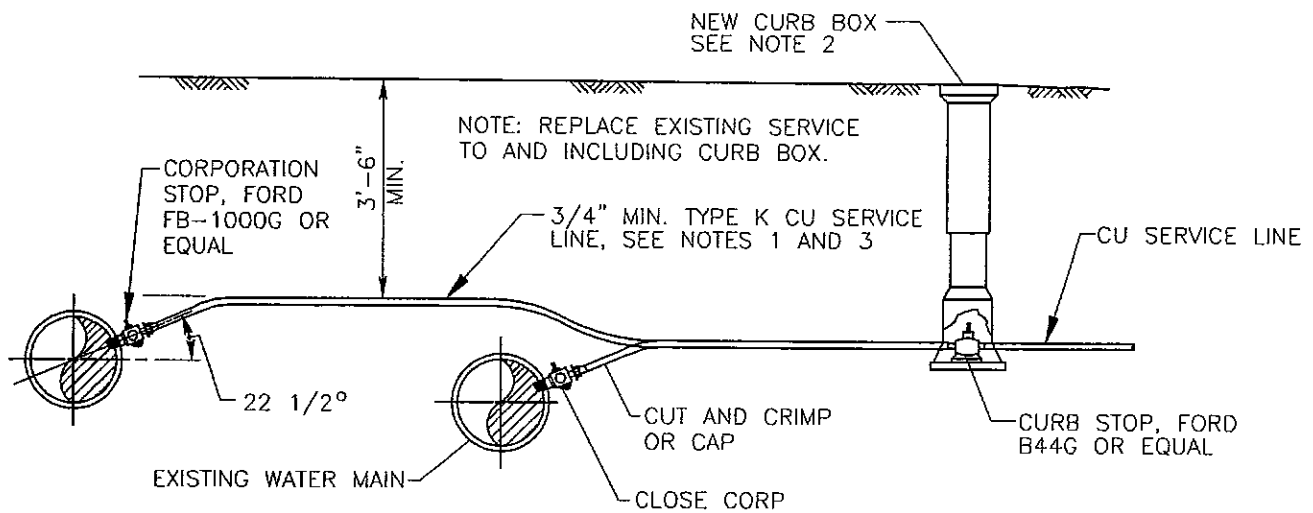
SERVICE LATERAL

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DATE: NOVEMBER 2008

DETAIL: W1



TYPICAL WATER SERVICE LINE RECONNECTION DETAIL

NO SCALE

NOTES

1. REPLACE EXISTING WATER SERVICE LINES WITH MIN. 3/4" CU., IF EXISTING SERVICE IS LARGER DIAMETER, REPLACE WITH SAME SIZE.
2. CURB STOP LOCATION NO MORE THAN 1'-0" BEHIND CURB.
3. NEW SERVICE LINES -- FROM CORPORATION TO CURB STOP, INCLUDING NEW CURB BOX.
4. ANY METER PITS REQUIRED FOR SERVICE LINES WILL BE AT THE AUTHORITY'S DISCRETION.

STANDARD DETAILS FOR WATER SYSTEMS

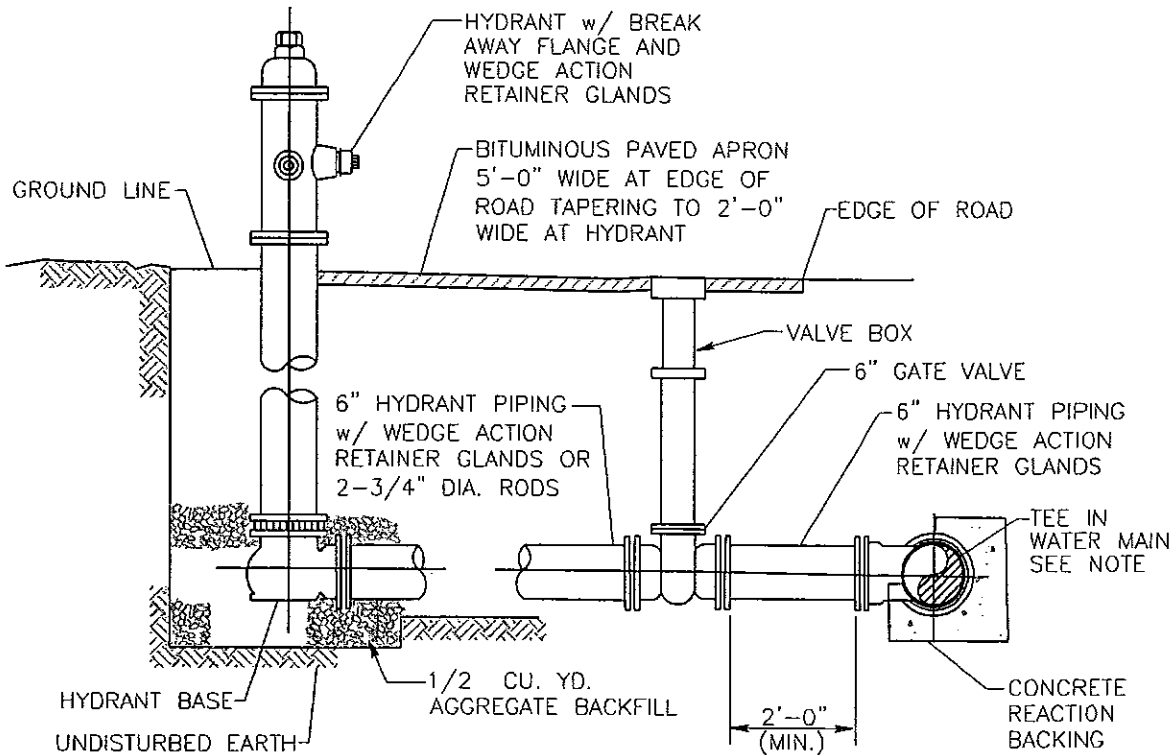
SERVICE LATERAL RECONNECTION

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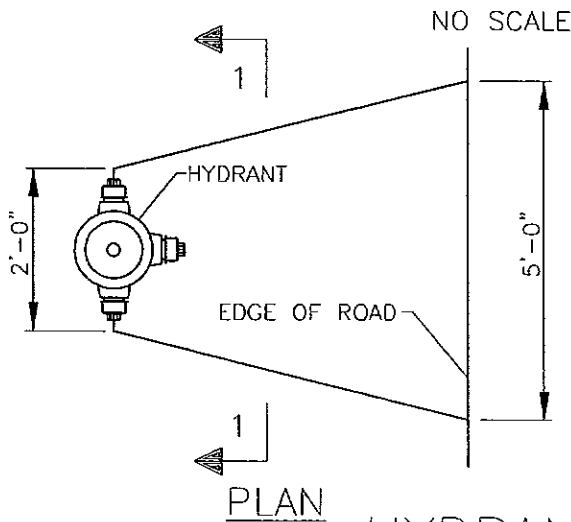
DATE: NOVEMBER 2008

DETAIL: W2



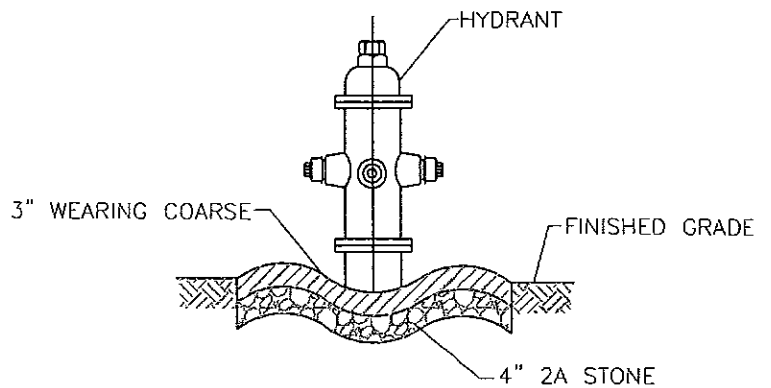
NOTE: WRAP FITTING w/ POLYETHYLENE WRAP PRIOR TO CONCRETE WORK.

HYDRANT DETAIL



HYDRANT APRON

NO SCALE



SECTION 1

FILE: D:\PC405\STANDARD\LEBANON\STDDTL5.DWG
 DATE: 11/04/2002 TIME: 11:19:44 am

STANDARD DETAILS FOR WATER SYSTEMS

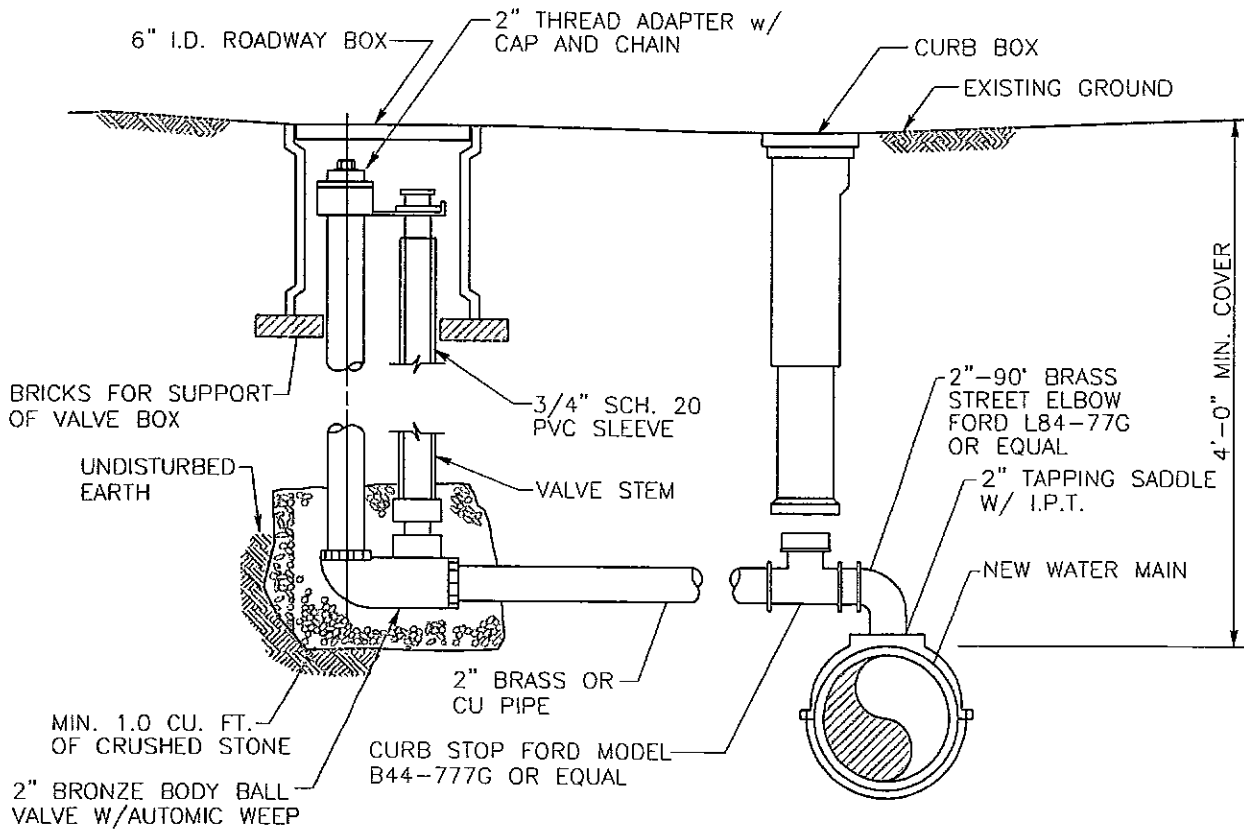
HYDRANT DETAIL (A)



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DATE: NOVEMBER 2008

DETAIL: W3



2" BLOW-OFF HYDRANT DETAIL (TOP MOUNT)

NO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

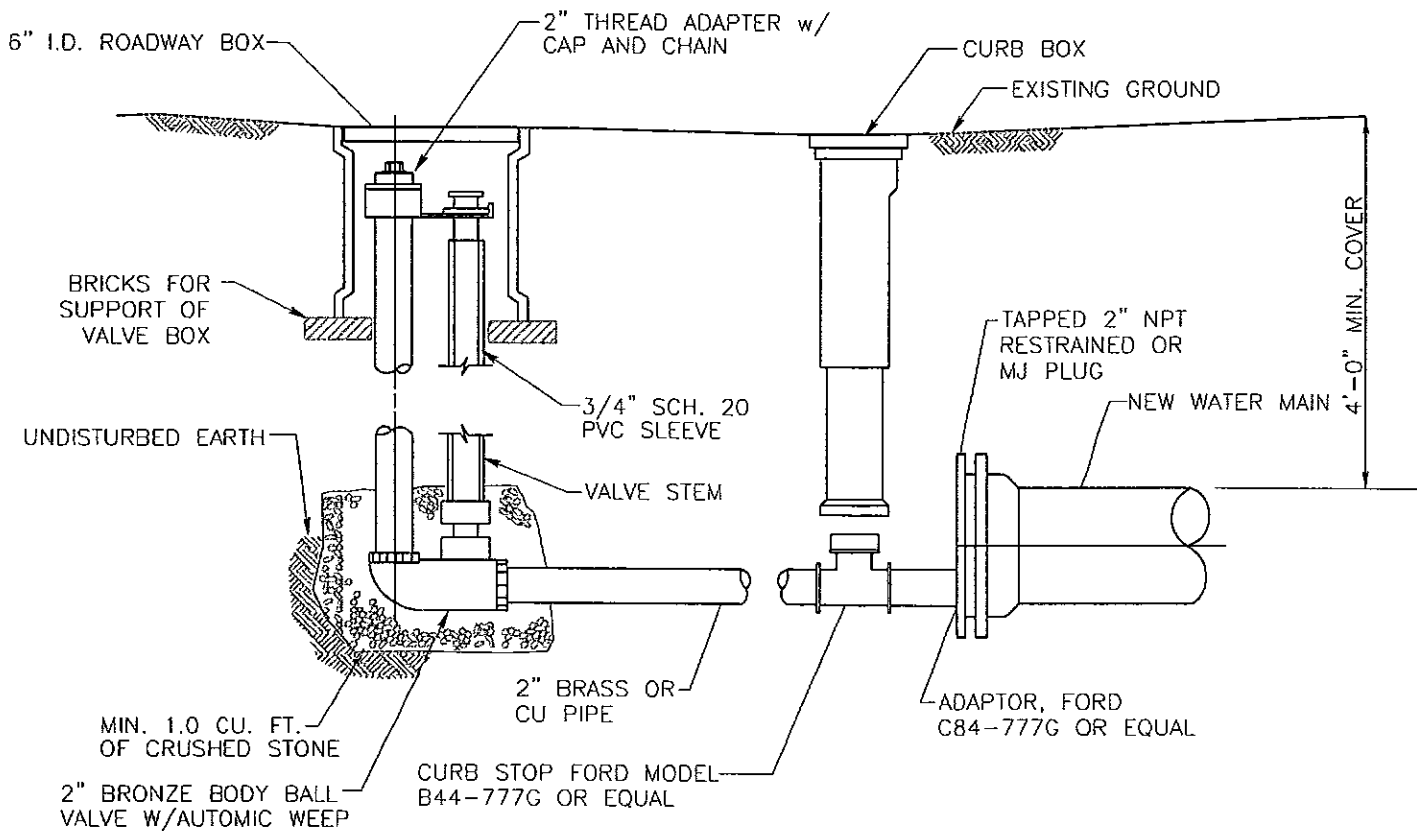
HYDRANT DETAIL (B)



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DATE: NOVEMBER 2008

DETAIL: W4



2" BLOW-OFF HYDRANT DETAIL (DEAD-END)

SCALE: N.T.S.

STANDARD DETAILS FOR WATER SYSTEMS

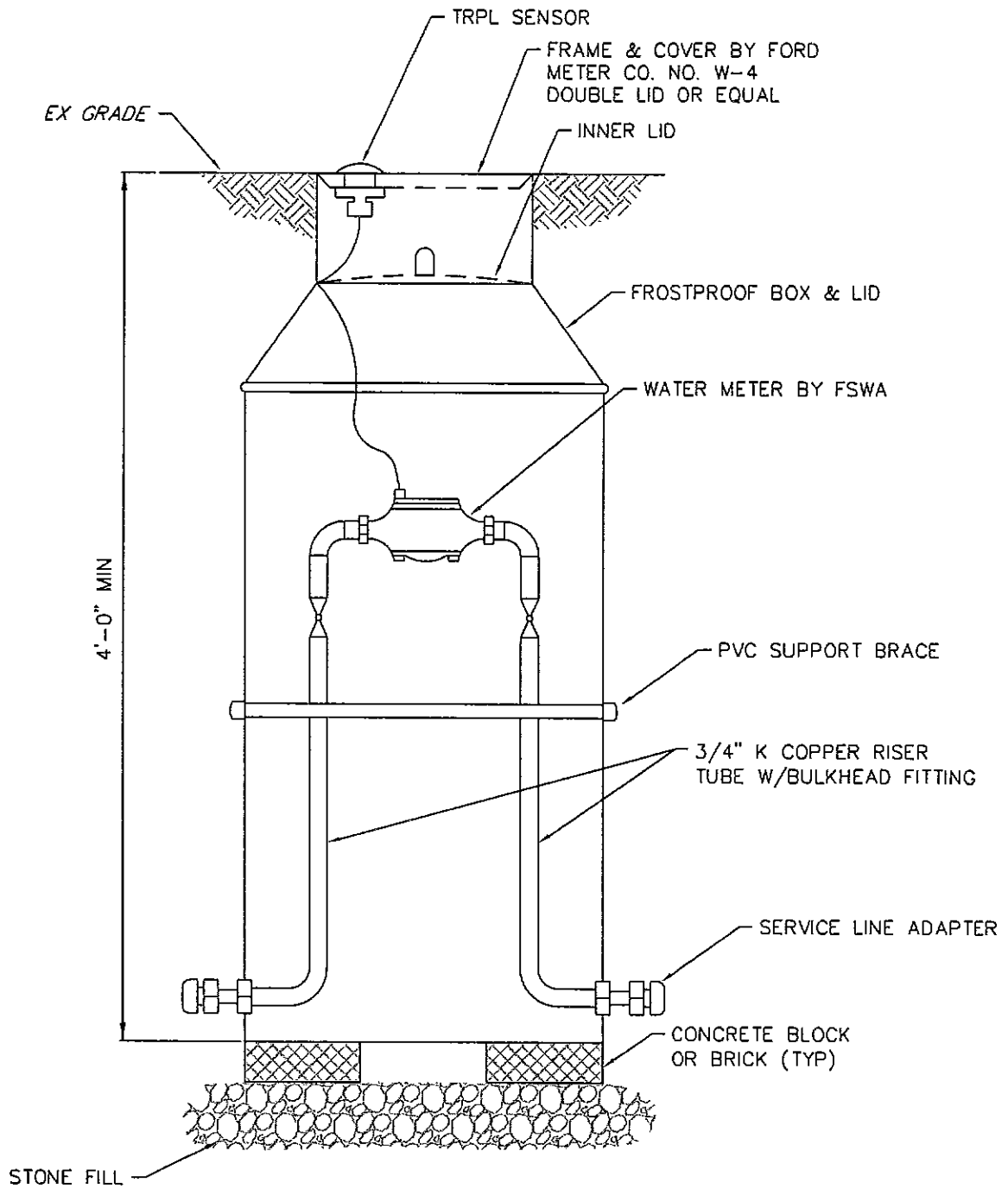
2" BLOW OFF HYDRANT



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DETAIL: W5



WATER METER PIT
NOT TO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

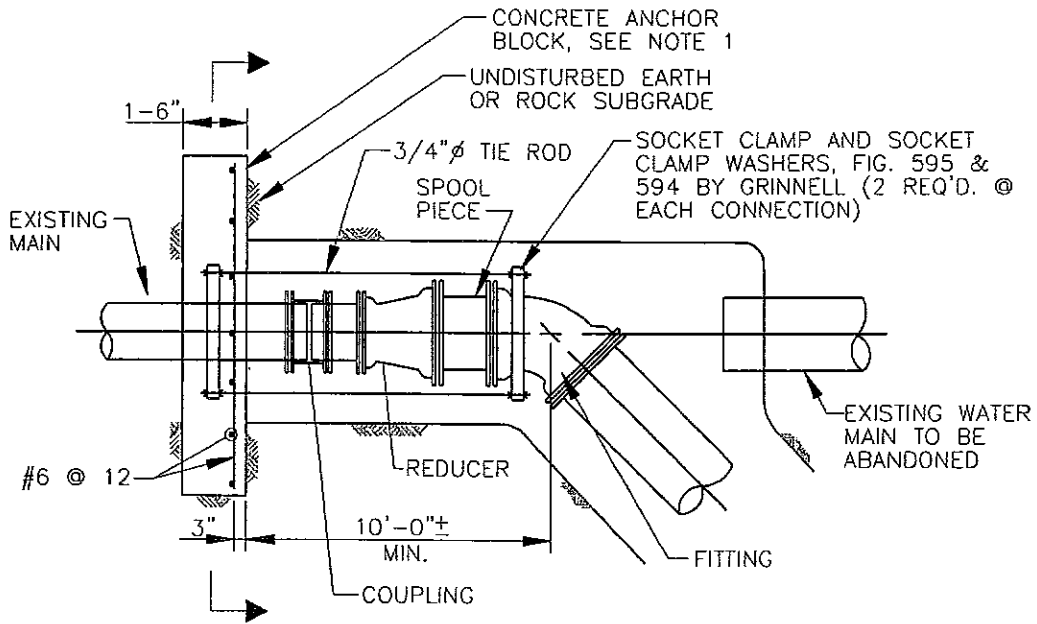
WATER METER PIT



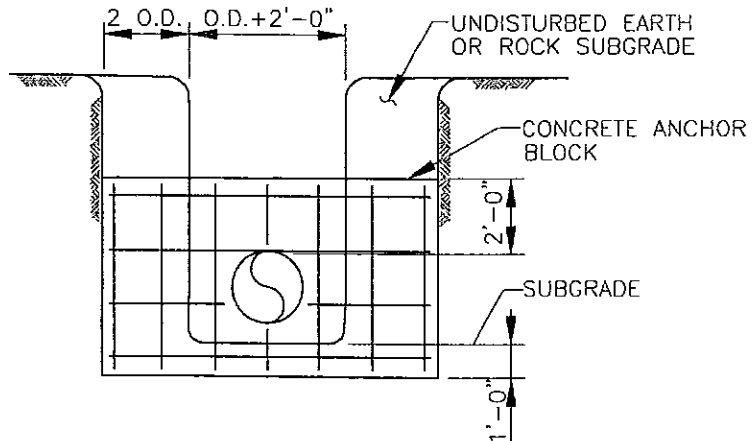
STECKBECK ENGINEERING & SURVING INC
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LEBANON, PA 17042
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DATE: NOVEMBER 2008

DETAIL: W7



PLAN



SECTION

NOTES:

1. CONCRETE ANCHOR BLOCK SHALL BE INSTALLED A MIN. OF 7 DAYS PRIOR TO INSTALLATION OF CONNECTION.
2. TIE RODS AND SOCKET CLAMPS SHALL BE COATED w/ 2 COATS BITUMASTIC PAINT, AND WRAPPED WITH 8 MIL THICK POLYETHYLENE. (TYP.).

STANDARD DETAILS FOR WATER SYSTEMS

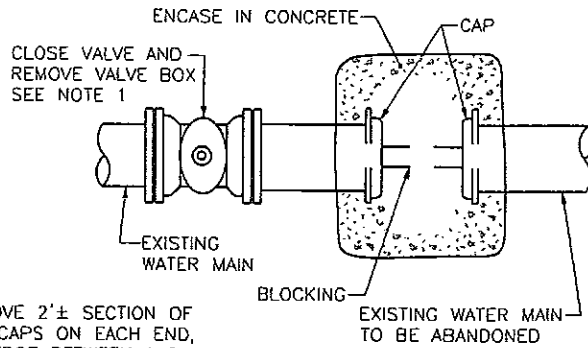
ANCHOR BLOCK



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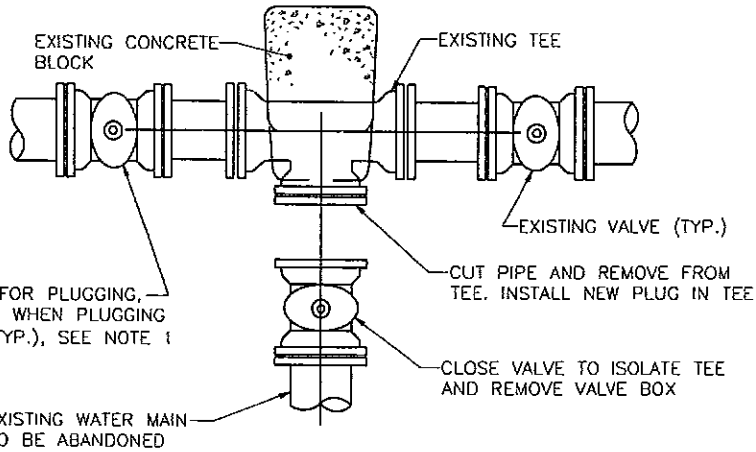
DATE: NOVEMBER 2008

DETAIL: W8



CUT AND REMOVE 2'± SECTION OF PIPE. INSTALL CAPS ON EACH END, BLOCK AND WEDGE BETWEEN AND ENCASE WITH CONCRETE.

DETAIL A



CLOSE VALVES FOR PLUGGING, REOPEN VALVES WHEN PLUGGING IS COMPLETE (TYP.), SEE NOTE 1

DETAIL B

NOTES

1. VALVES TO BE OPERATED BY AUTHORITY PERSONNEL ONLY.

CUTTING, CAPPING AND
BLOCKING DETAILS

NO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

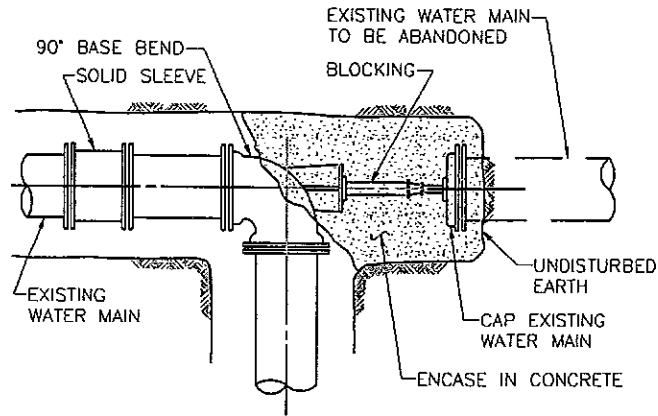
BLOCKING & CAPPING (A)



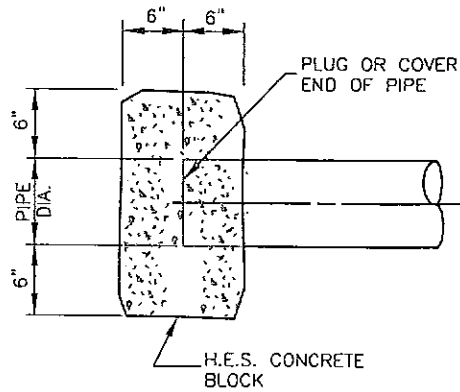
STECKBECK ENGINEERING & SURVING INC
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DATE: NOVEMBER 2008

DETAIL: W9



CUTTING-IN
CONNECTION DETAIL
NO SCALE



CUT AND PLUG
NO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

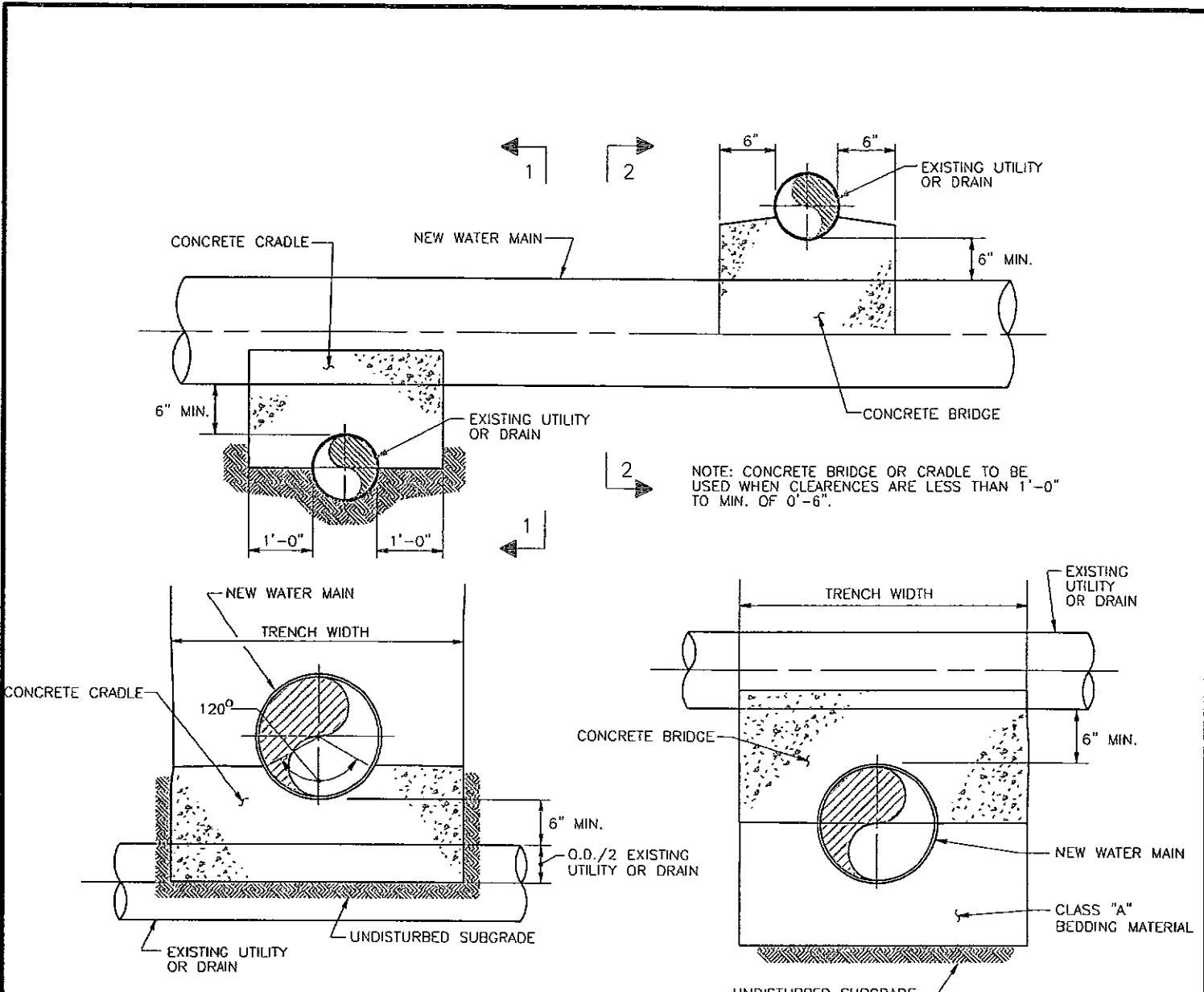
BLOCKING & CAPPING (B)



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DETAIL: W10



NOTE: CONCRETE BRIDGE OR CRADLE TO BE USED WHEN CLEARANCES ARE LESS THAN 1'-0" TO MIN. OF 0'-6".

SECTION 1

SECTION 2

CONCRETE CRADLE AND CONCRETE BRIDGE DETAIL

NO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

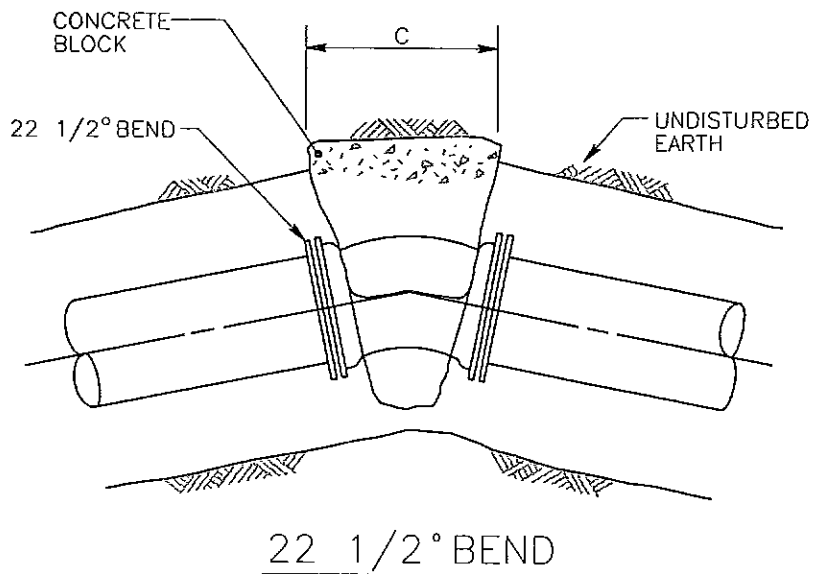
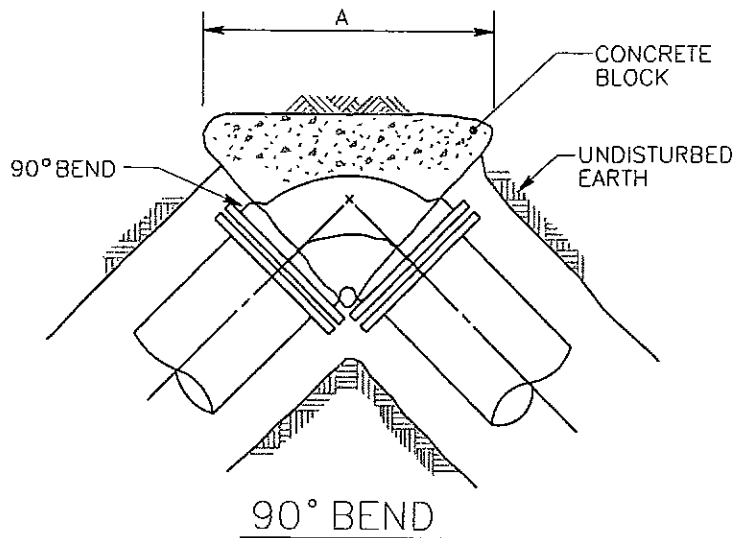
CRADLES



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DETAIL: W11



STANDARD DETAILS FOR WATER SYSTEMS

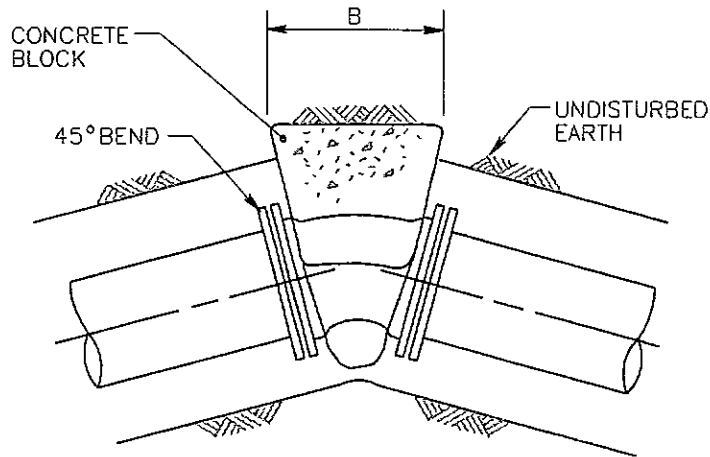
REACTION BACKING (A)



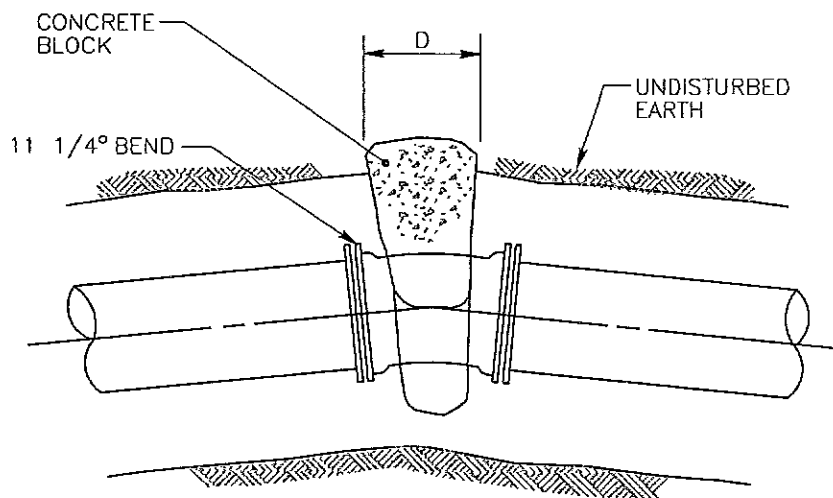
STECKBECK ENGINEERING & SURVING INC
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DATE: NOVEMBER 2008

DETAIL: W12



45° BEND



11 1/4° BEND

STANDARD DETAILS FOR WATER SYSTEMS

REACTION BACKING (B)



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DATE: NOVEMBER 2008

DETAIL: W13

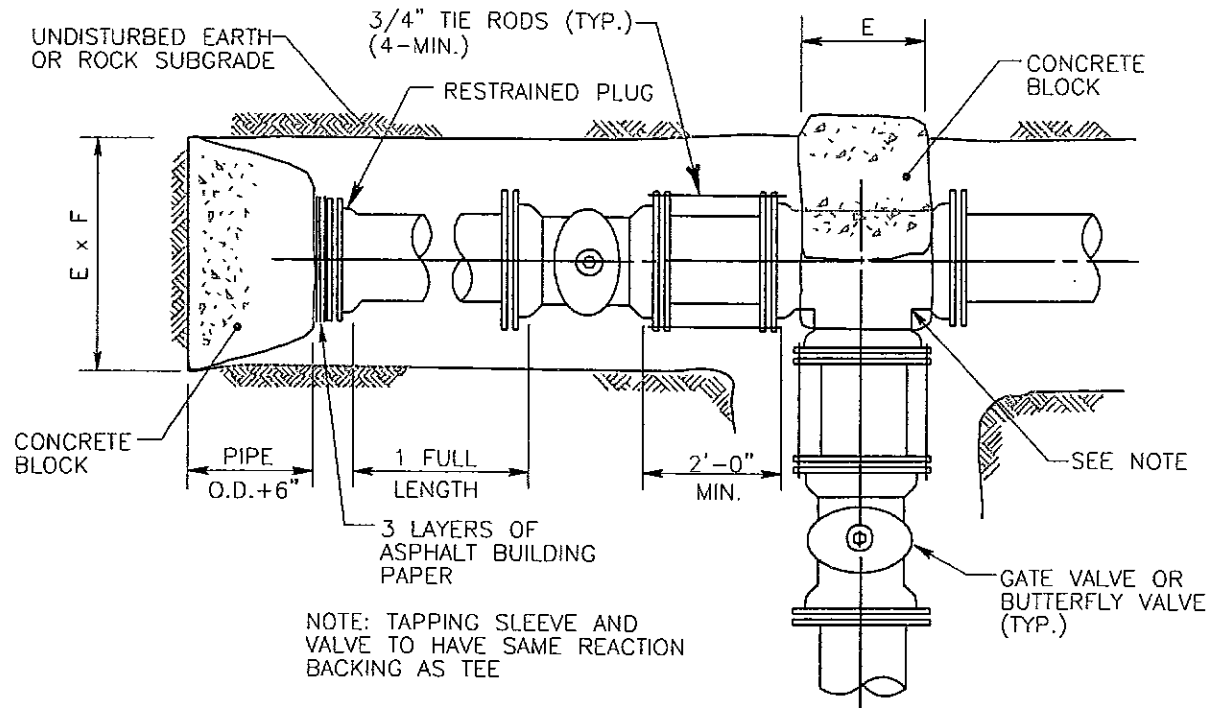


TABLE OF REACTION BACKING DIMENSIONS

PIPE DIA.	TEST PRESSURE (PSI)	A	B	C	D	E	F	G	H			I			J			K	L	M
									45	22½	11¼	45	22½	11¼	45	22½	11¼			
24"	150	11'-0"	6'-0"	3'-0"	1'-8"	8'-0"	5'-0"	4'-0"	7'-6"	3'-9"	2'-0"	9'-0"	4'-0"	1'-6"	20'-0"	10'-0"	5'-0"	2'-0"	3'-0"	2'-0"
20"	150	8'-8"	4'-8"	2'-6"	1'-4"	6'-3"	4'-6"	3'-8"	5'-9"	3'-0"	1'-6"	8'-6"	3'-6"	1'-6"	16'-4"	8'-4"	4'-3"	1'-10"	2'-10"	1'-10"
16"	150	6'-2"	3'-6"	2'-0"	1'-0"	4'-3"	4'-0"	3'-4"	4'-3"	2'-2"	1'-2"	5'-6"	2'-6"	0'-10"	12'-6"	6'-6"	3'-3"	1'-8"	2'-8"	1'-8"
12"	150	5'-0"	2'-8"	1'-3"	1'-0"	3'-6"	3'-0"	3'-0"	2'-8"	1'-4"	1'-0"	3'-6"	1'-8"	0'-9"	8'-9"	4'-6"	2'-3"	1'-6"	2'-6"	1'-6"
10"	150	4'-3"	2'-6"	1'-6"	1'-0"	3'-0"	2'-6"	2'-10"	2'-2"	1'-2"	1'-0"	3'-9"	1'-0"	0'-3"	7'-0"	3'-6"	2'-0"	1'-5"	2'-5"	1'-5"
8"	150	3'-6"	2'-0"	1'-0"	1'-0"	2'-6"	2'-0"	2'-8"	1'-6"	1'-0"	1'-0"	1'-10"	0'-6"	0'-4"	5'-0"	2'-6"	2'-0"	1'-4"	2'-4"	1'-4"
6"	150	2'-8"	1'-6"	1'-0"	1'-0"	2'-0"	1'-6"	2'-6"	1'-0"	1'-0"	1'-0"	1'-0"	0'-6"	0'-4"	3'-0"	2'-0"	2'-0"	1'-3"	2'-3"	1'-3"
4"	150	2'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-4"	1'-0"	1'-0"	1'-0"	0'-4"	0'-4"	0'-4"	2'-0"	2'-0"	2'-0"	1'-3"	2'-2"	1'-2"

NOTES:

1. REACTION BACKING DIMENSIONS HAVE BEEN CALCULATED USING A SOIL BEARING CAPACITY OF 2000 POUNDS PER SQUARE FOOT AND TEST PRESSURES AS INDICATED.
2. ALL FITTINGS SHALL BE MECHANICAL JOINT AND SHALL HAVE WEDGE ACTION FOLLOWER GLANDS INSTALLED TO MANUFACTURERS SPECIFICATIONS, EXCEPT IN RESTRAINED JOINT AREAS.
3. ALL CONCRETE SHALL BE HIGH EARLY STRENGTH.

STANDARD DETAILS FOR WATER SYSTEMS

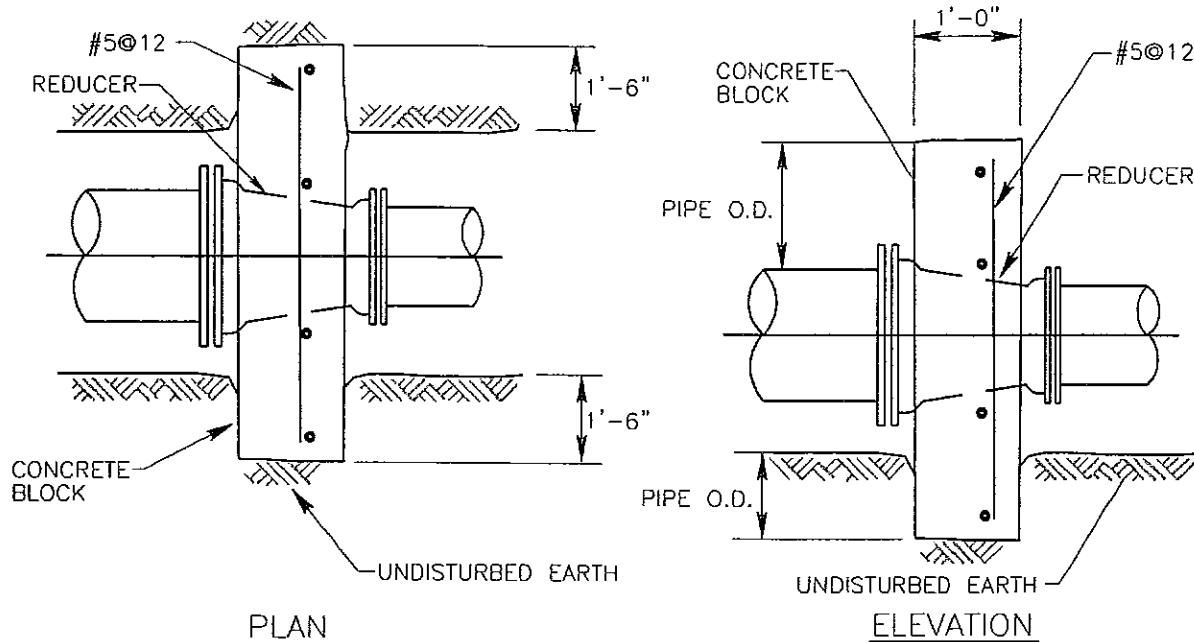
REACTION BACKING (C)



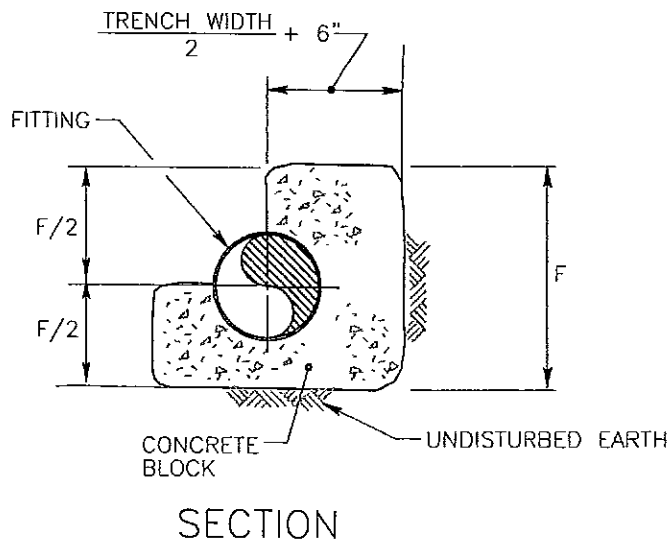
STECKBECK ENGINEERING & SURVING INC
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DATE: NOVEMBER 2008

DETAIL: W14



REDUCER



SECTION

STANDARD DETAILS FOR WATER SYSTEMS

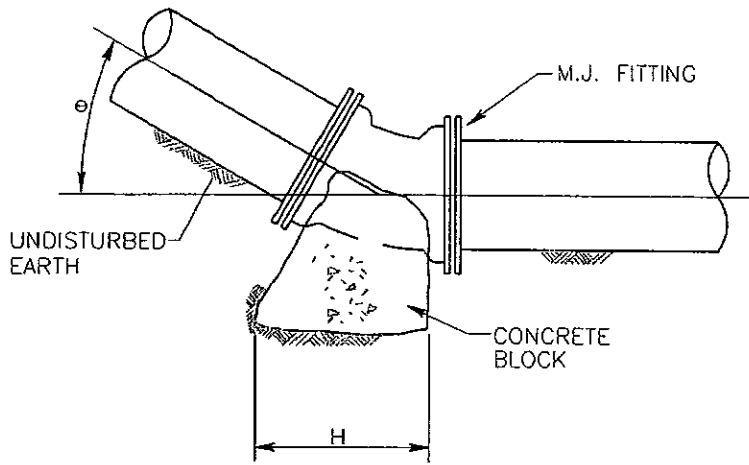
REACTION BACKING (D)



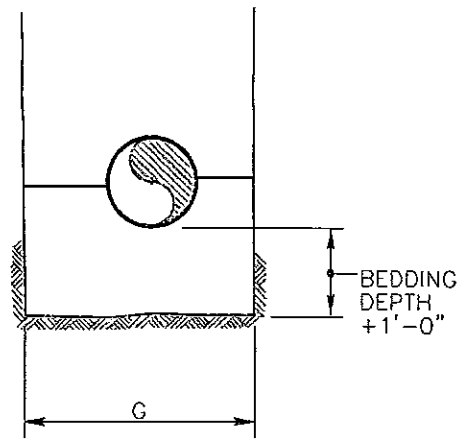
STECKBECK ENGINEERING & SURVING INC
 279 N ZINNS MILL ROAD
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DATE: NOVEMBER 2008

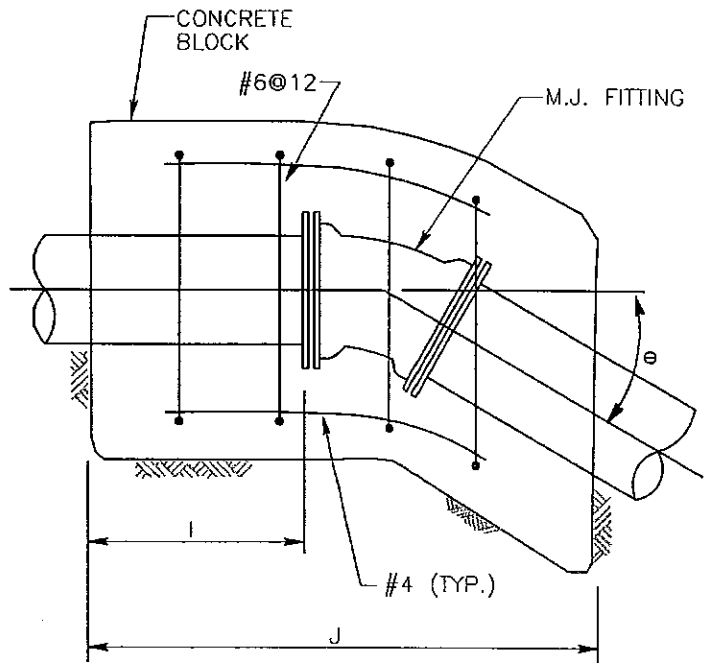
DETAIL: W15



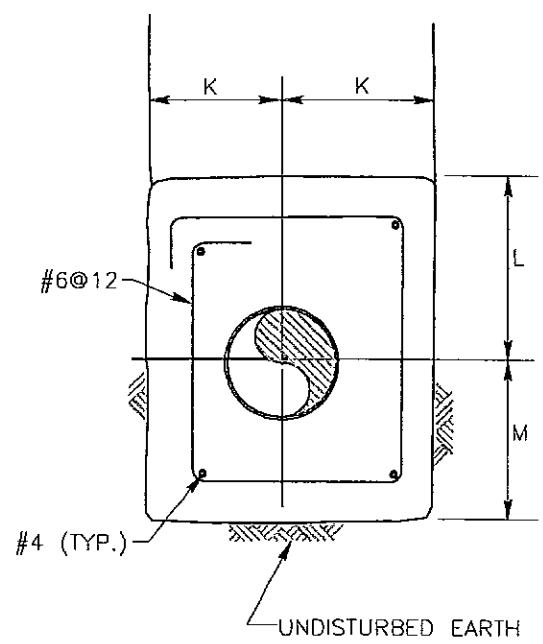
ELEVATION



SECTION



ELEVATION



SECTION

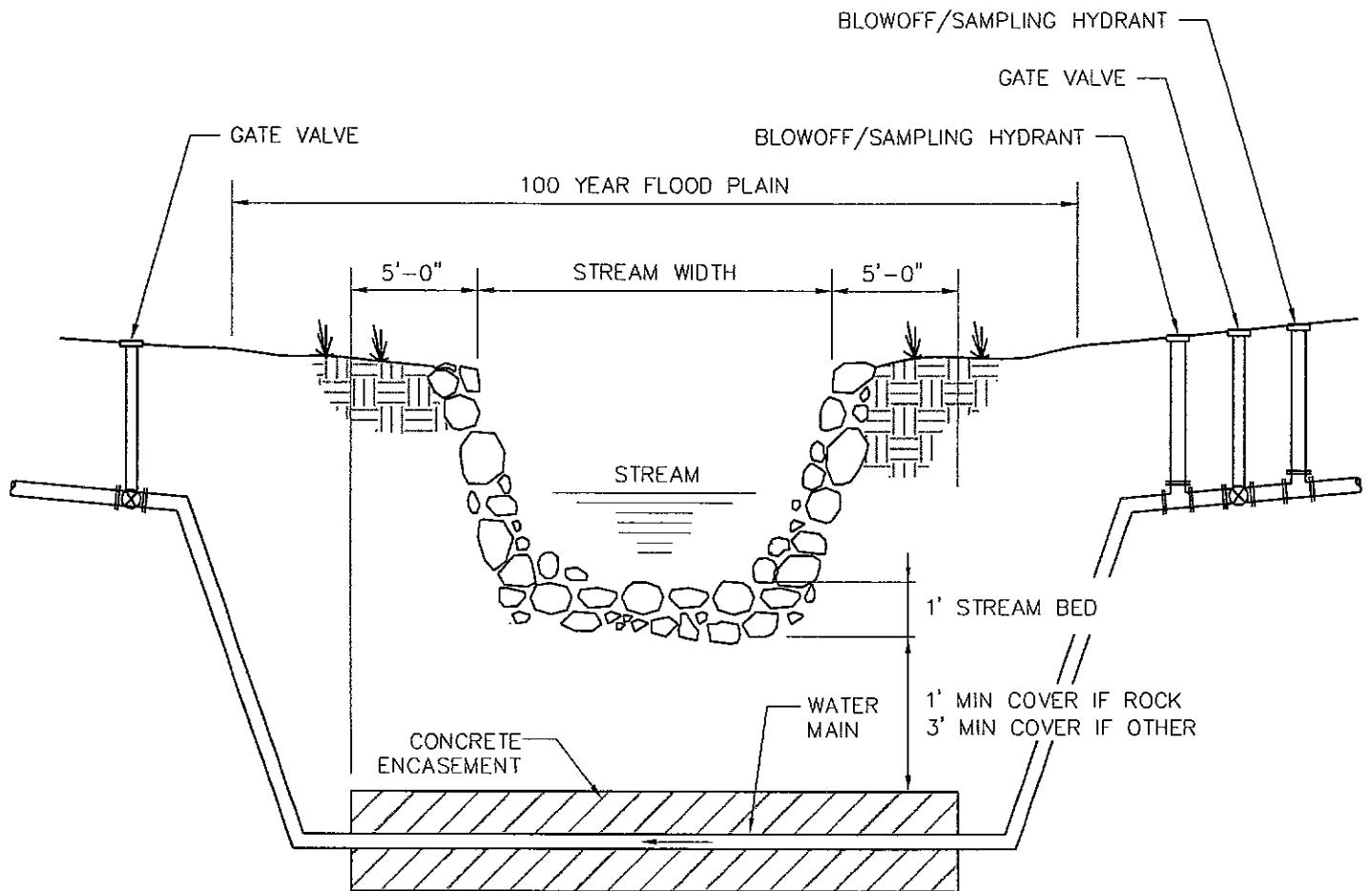
VERTICAL REACTION BACKINGS

NO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

REACTION BACKING (E)

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 DETAIL: W16



WATER MAIN STREAM CROSSING DETAIL

NOT TO SCALE

NOTES:

- 1 ISOLATION GATE VALVES AND BLOWOFF/SAMPLING HYDRANTS SHALL BE LOCATED OUTSIDE THE 100 YEAR FLOOD PLAIN.
- 2 STREAMS LESS THAN 15' WIDE DO NOT REQUIRE ISOLATION VALVES AND BLOWOFF/SAMPLING HYDRANTS.
- 3 FOR STREAMS 15' WIDE AND GREATER PIPING SHALL BE OF SPECIAL CONSTRUCTION, HAVING FLEXIBLE RESTRAINED OR WELDED WATERTIGHT JOINTS.

STANDARD DETAILS FOR WATER SYSTEMS

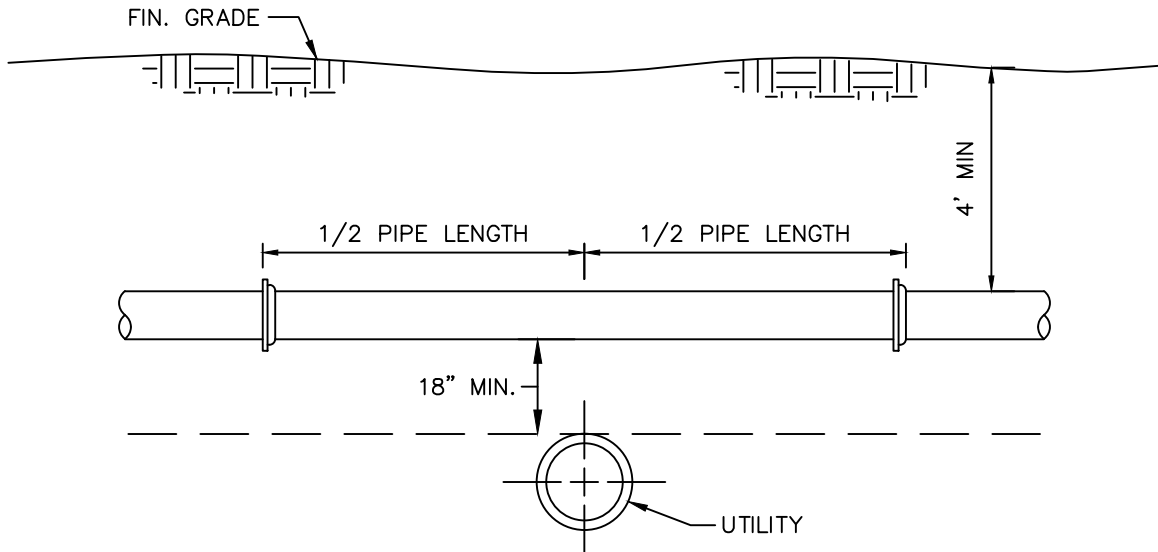
WATER MAIN STREAM CROSSING DETAIL

SESI

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DATE: AUGUST 2009

DETAIL: W17



NOTE:

- 1 MAINTAIN 18" MIN VERTICAL SEPARATION FOR THE PORTION OF THE WATER MAIN LOCATED WITHIN 10 FEET HORIZONTALLY OF ANY SEWER OR DRAIN IT CROSSES.
- 2 MEASURE 10 FEET AS A PERPENDICULAR DISTANCE FROM THE DRAIN OR SEWER LINE TO THE WATER LINE.
- 3 ONE FULL LENGTH OF PIPE SHALL BE LOCATED SO THAT BOTH JOINTS WILL BE AS FAR FROM THE DRAIN OR SEWER LINE AS POSSIBLE.

STANDARD DETAILS FOR WATER SYSTEMS

WATER MAIN UTILITY CROSSING DETAIL



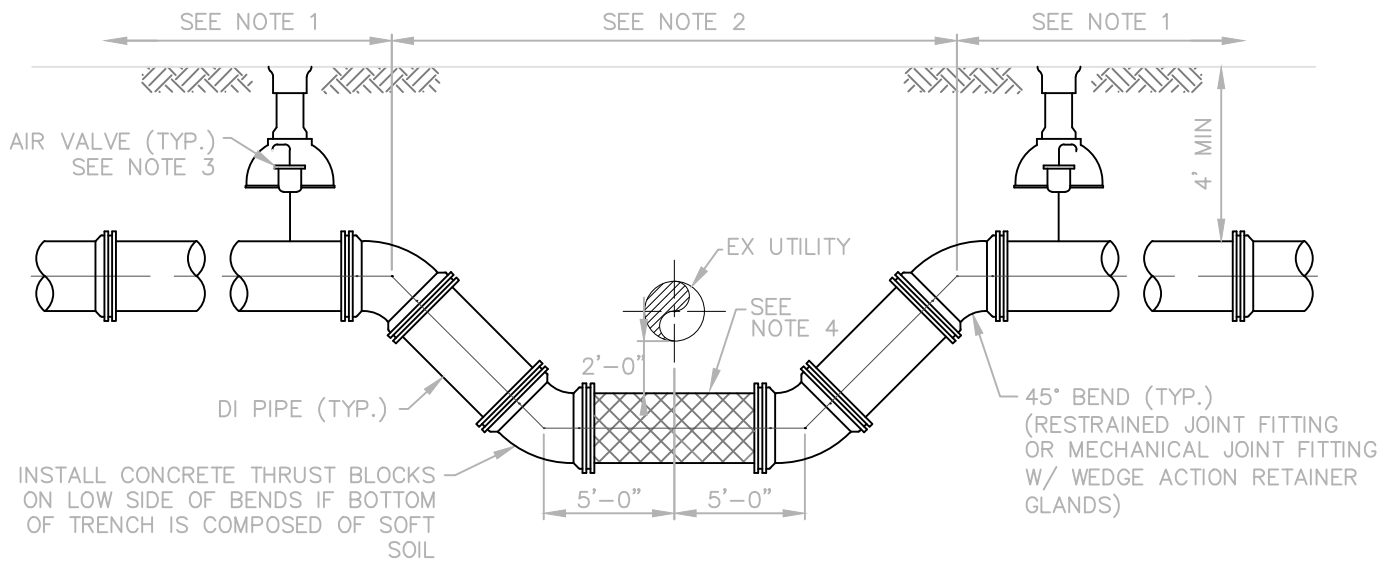
STECKBECK ENGINEERING & SURVING INC
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DATE: JANUARY 2010

DETAIL: FSWA - W18

NOTES:

- 1 80 LF OF RESTRAINED JOINT PIPE (TYP. EACH SIDE) (120 LF IF POLYETHYLENE ENCASED OR PVC PIPE) UP TO AND INCLUDING 12"Ø PIPE.
- 2 ALL PIPE JOINTS BETWEEN BENDS MUST BE RESTRAINED.
- 3 INSTALL AIR VALVE PER STANDARD DETAILS UNLESS DIRECTED OTHERWISE BY AUTHORITY.
- 4 INSULATE WATER MAIN UNDER STORMWATER PIPES.



UTILITY CROSSING VERTICAL OFFSET DETAIL

NOT TO SCALE

STANDARD DETAILS FOR WATER SYSTEMS

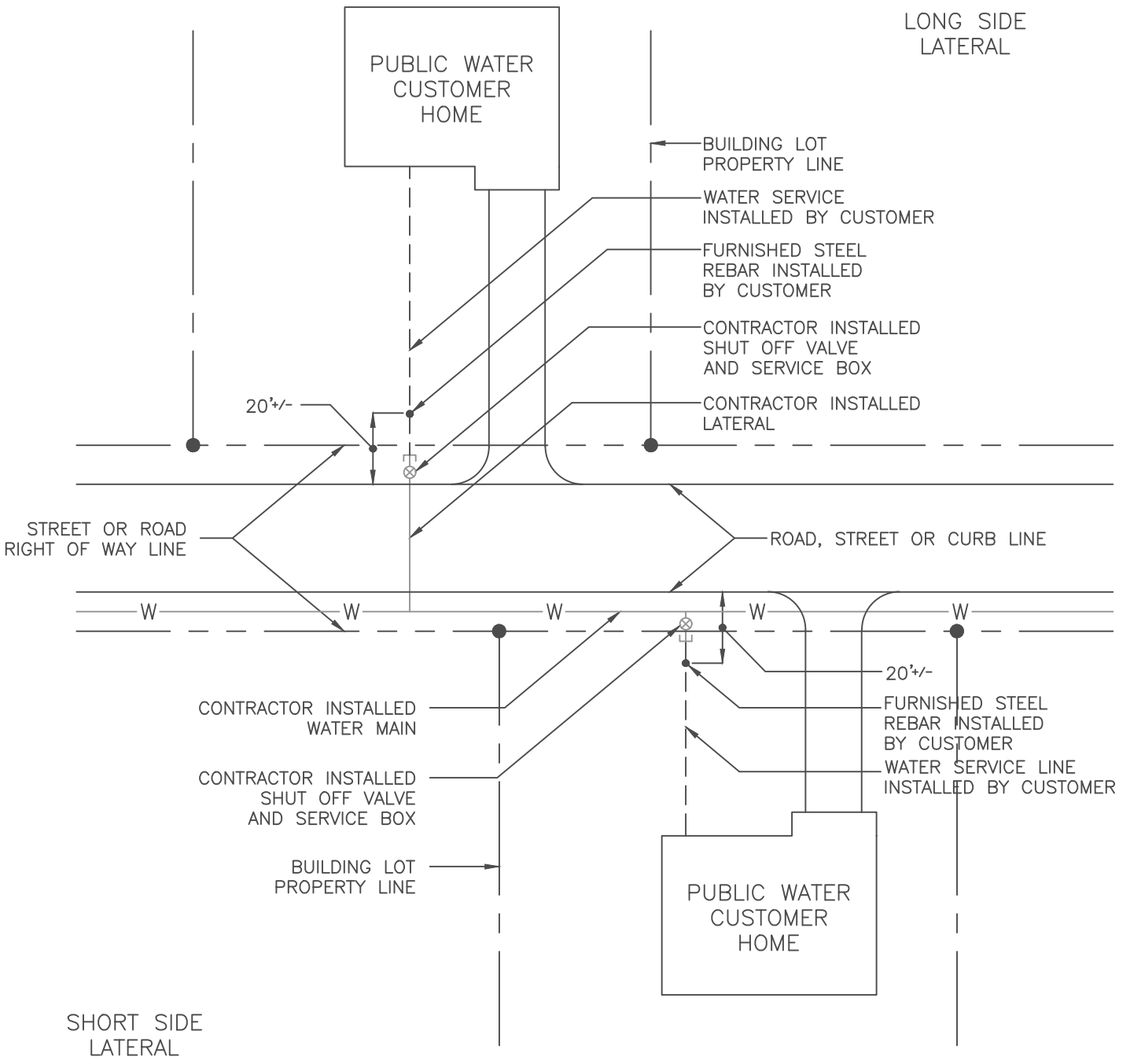
WATER MAIN UTILITY CROSSING
VERTICAL OFFSET DETAIL



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DATE: JANUARY 2010

DETAIL: FSWA - W19



STANDARD DETAILS FOR WATER SYSTEMS

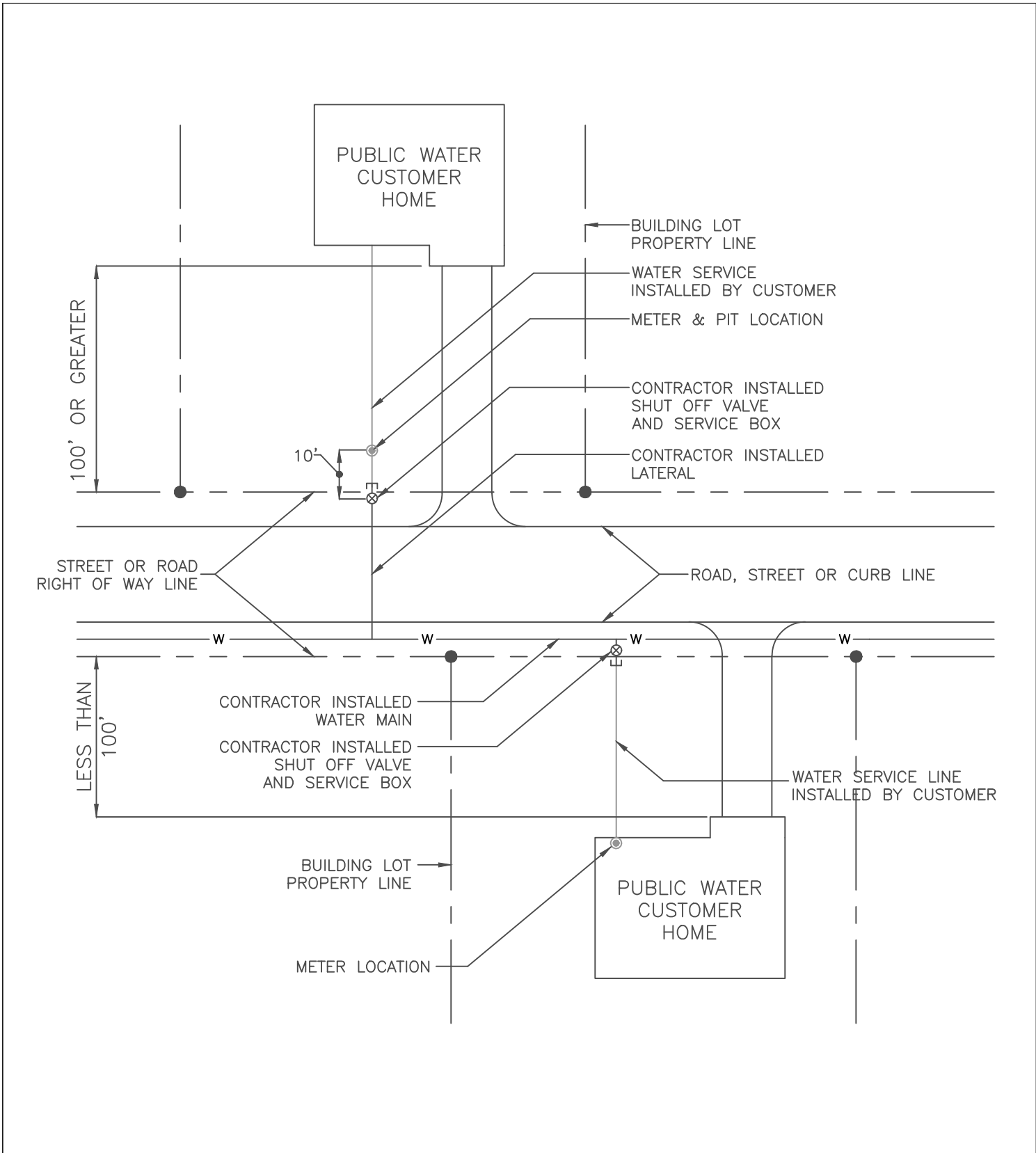
WATER LATERAL INSTALLATION SCHEMATIC



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 P: (717) 272-7110 F: (717) 272-7348

DATE: FEBRUARY 2010

DETAIL: FSWA - W20



STANDARD DETAILS FOR WATER SYSTEMS



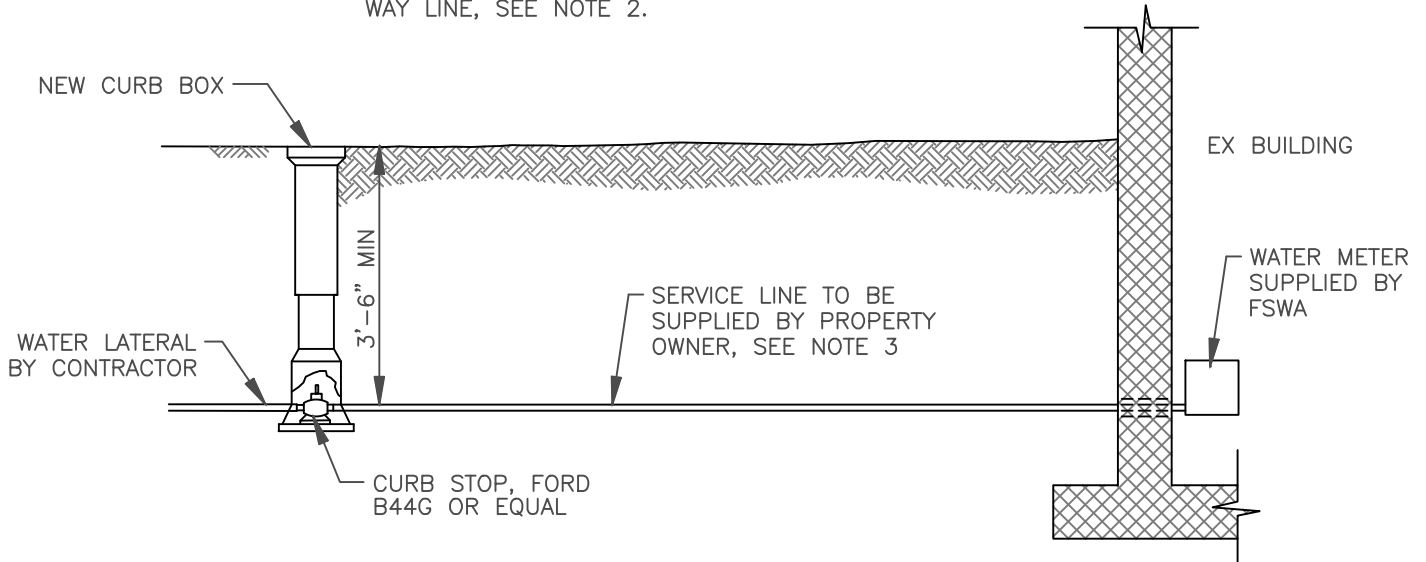
STECKBECK ENGINEERING & SURVING INC
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 LEBANON, PA 17042
 P: (717) 272-7110 F: (717) 272-7348

DATE: FEBRUARY 2010

DETAIL: FSWA - W21

WATER SERVICE LINE INSTALLATION SCHEMATIC

NOTE: CURB BOX TO BE LOCATED
BEHIND CURB OR AT RIGHT OF
WAY LINE, SEE NOTE 2.



NOTES

1. REPLACE EXISTING WATER SERVICE LINES WITH MIN. 3/4" CU., IF EXISTING SERVICE IS LARGER DIAMETER, REPLACE WITH SAME SIZE.
2. CURB STOP LOCATION NO MORE THAN 1'-0" BEHIND CURB UNLESS WATER MAIN IS BEHIND CURB, THEN LOCATED AT EDGE OF PUBLIC R.O.W.
3. FROM CURB STOP TO WATER METER IN BUILDING
4. FOR THIS CONFIGURATION, THE SERVICE LINE MUST BE COPPER OR COPPER-ALLOY TUBING AS PER THE LATEST VERSION OF THE INTERNATIONAL PLUMBING CODE.

STANDARD DETAILS FOR WATER SYSTEMS

WATER SERVICE LINE DETAIL

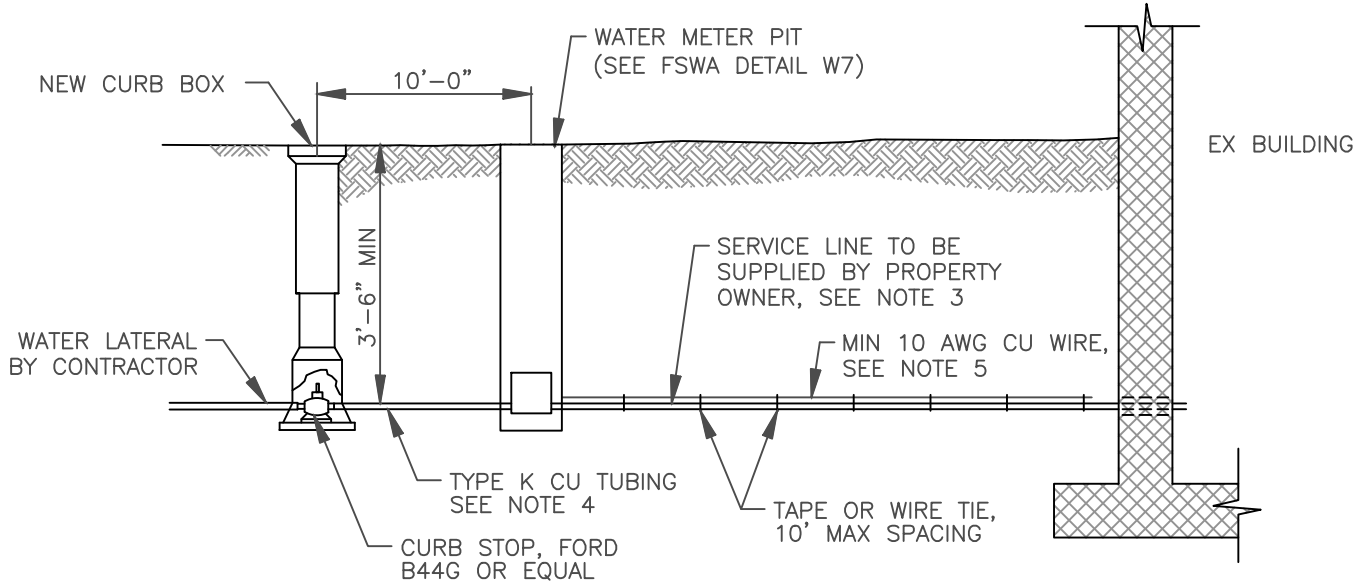


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DATE: FEBRUARY 2010

DETAIL: FSWA - W22

NOTE: CURB BOX TO BE LOCATED BEHIND CURB OR AT RIGHT OF WAY LINE, SEE NOTE 2.



NOTES

1. REPLACE EXISTING WATER SERVICE LINES WITH MIN. 3/4" CU., IF EXISTING SERVICE IS LARGER DIAMETER, REPLACE WITH SAME SIZE.
2. CURB STOP LOCATION NO MORE THAN 1'-0" BEHIND CURB UNLESS WATER MAIN IS BEHIND CURB, THEN LOCATED AT EDGE OF PUBLIC R.O.W.
3. FROM CURB STOP TO WATER METER PIT AND FROM WATER METER PIT TO BUILDING.
4. FOR THIS CONFIGURATION THE SERVICE LINE BETWEEN THE CURB STOP AND METER IT SHALL BE COPPER OR COPPER ALLOY AS PER THE LATEST VERSION OF THE INTERNATIONAL PLUMBING CODE (IPC). THE SERVICE LINE FROM THE METER PIT TO THE BUILDING MAY BE ANY MATERIAL APPROVED BY THE IPC FOR THE APPLICATION.
5. IF MATERIAL SELECTED FOR SERVICE LINE IS NON-METALLIC A 10 AWG MIN COPPER WIRE SHALL BE ATTACHED TO THE SERVICE LINE TO FACILITATE FUTURE LOCATION USING A METAL DETECTOR.

STANDARD DETAILS FOR WATER SYSTEMS

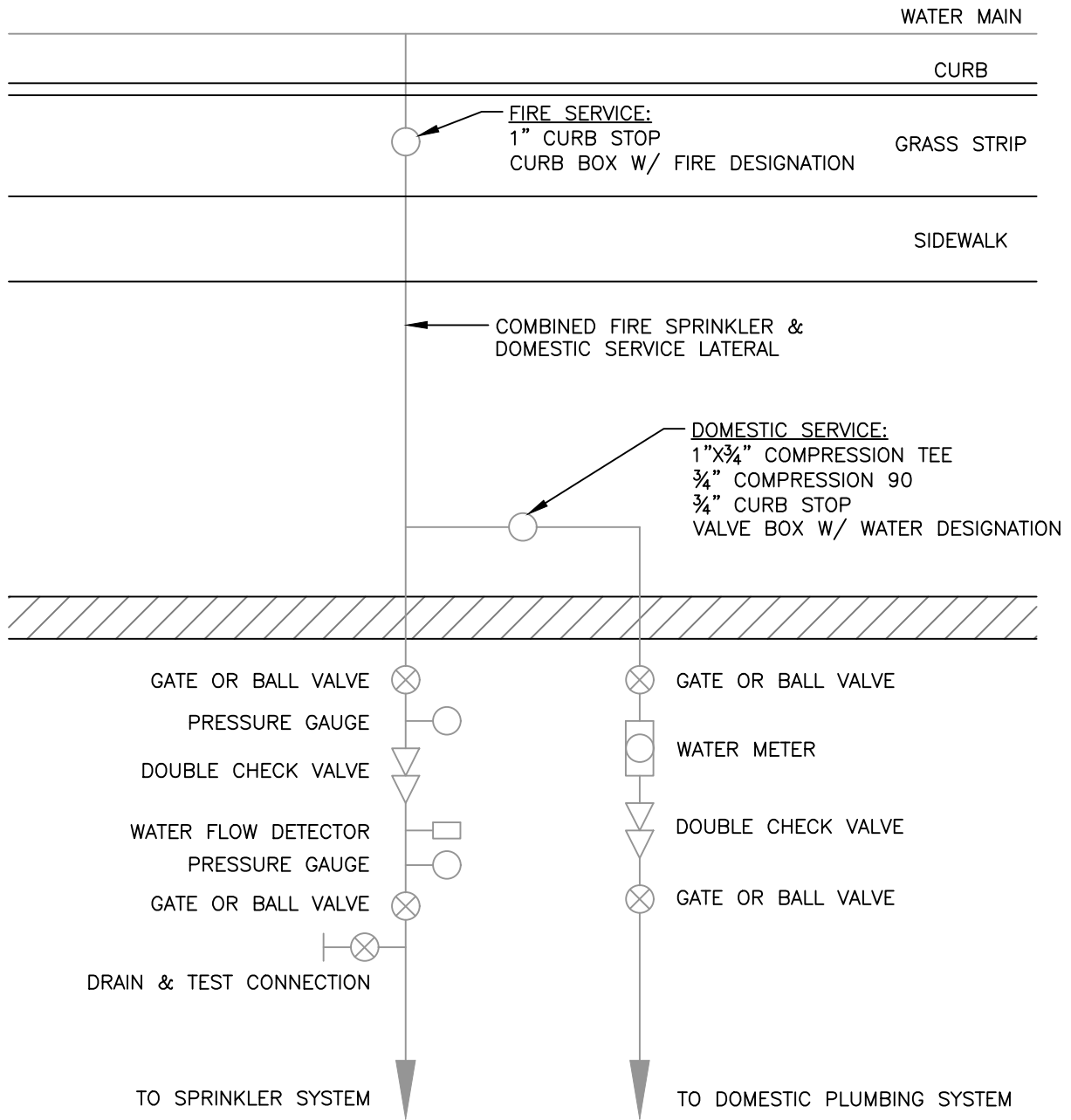
WATER SERVICE LINE & METER PIT DETAIL



STECKBECK ENGINEERING & SURVING INC
279 N ZINNS MILL ROAD
LEBANON, PA 17042
P: (717) 272-7110 F: (717) 272-7348

DATE: FEBRUARY 2010

DETAIL: FSWA - W23



NOTE:
THE 1" FIRE LINE SIZE IS TO BE ADJUSTED
ACCORDINGLY BY THE SPRINKLER SYSTEM DESIGNER

STANDARD DETAILS FOR WATER SYSTEMS

RESIDENTIAL OR COMMERCIAL FIRE SPRINKLER WATER SERVICE DETAIL



STECKBECK ENGINEERING & SURVING INC
279 N ZINNS MILL ROAD
LEBANON, PA 17042
P: (717) 272-7110 F: (717) 272-7348

DATE: SEPTEMBER 2013

DETAIL: FSWA - W/24