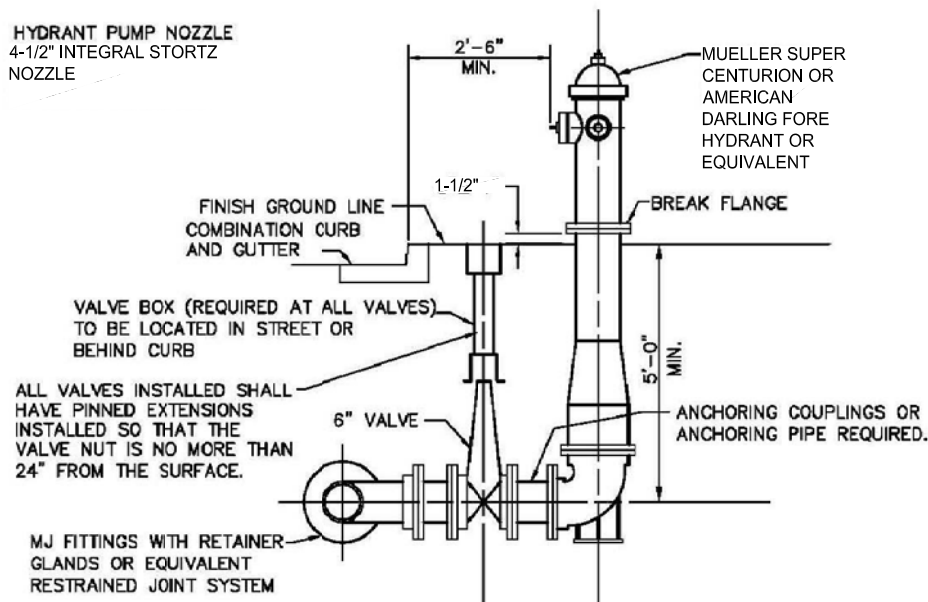
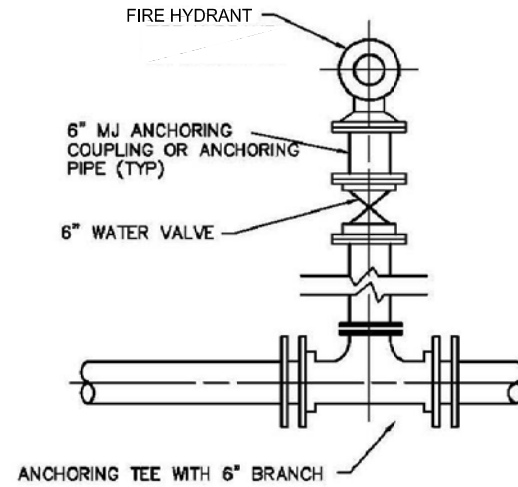


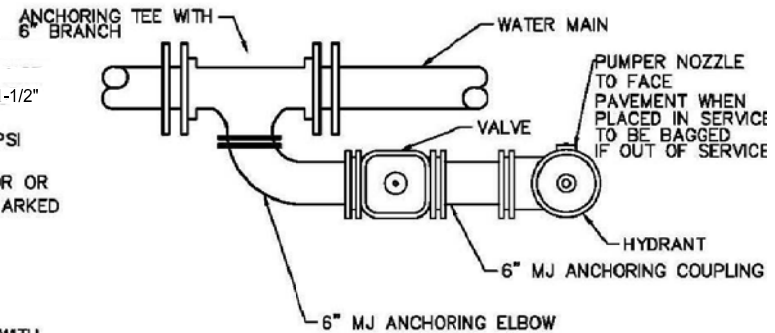
HYDRANT PUMP NOZZLE
4-1/2" INTEGRAL STORTZ
NOZZLE



SECTION VIEW



TYPE "B" HYDRANT TEE



**TYPE "B" MECAHANICAL JOINT
HYDRANT TEE DETAIL PLAN**

NOTES

- A. FIRE HYDRANTS - MUeller SUPER CENTURION OR AMERICAN DARLING; 2-1/2" HOSE NOZZLES WITH STANDARD THREAD CONNECTIONS; ONE 4" I.D AND 4-1/2" O.D., CONFORMING TO AWWA; CW TO CLOSE; NON-DRAINING; BREAK FLANGES 1-1/2" ABOVE GRADE.
- B. GATE VALVES SHALL BE AWWA C-509, RESILIENT WEDGE, NONRISING STEM, MECHANICAL JOINT, 150 PSI WORKING PRESSURE, CW TO CLOSE WITH ARROW INDICATING OPEN DIRECTION, MUeller OR CLOW.
- C. VALVE BOXES SHALL BE 3-PIECE WITH BASE, NO CONTACT WITH VALVE ALLOWED, BINGHAM & TAYLOR OR APPROVED EQUAL, ADJUSTABLE 36" TO 48", 6" DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.
- D. ALL FITTINGS TO BE RESTRAINED.
- E. ALL FITTINGS TO BE AWWA C-153 DUCTILE IRON, COMPACT.
- F. ALL VALVES AND HYDRANTS SHALL CLOSE RIGHT BY TURNING IN A CLOCKWISE DIRECTION.
- G. CONTRACTOR TO FACE HYDRANT AS REQUIRED BY THE VILLAGE.
- H. WATER MAIN SHALL BE DUCTILE IRON PIPE CLASS 53 CEMENT LINED, AWWA C-151, SLIP-ON JOINTS WITH RUBBER GASKETS, OR PVC C900 DR-18 CL 150, WITH SLIP-ON JOINTS WITH RUBBER GASKETS.
- I. THE LAYING OF PIPE ON EXISTING DIRT WITH THE BELLS CUT OUT SHALL NOT BE PERMITTED.
- J. THE OPEN ENDS OF ALL PIPES AND SPECIAL CASTINGS SHALL BE PLUGGED OR OTHERWISE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.
- K. A MINIMUM OF 4" WASHED STONE BACKFILL SHALL BE PLACED AS HYDRANT IS INSTALLED.
- L. HYDRANT SHALL CONFORM TO ITEM 809 AND ALL AWWA SPECIFICATIONS.
- M. ALL FIRE HYDRANTS REMOVED SHALL BE DELIVERED TO THE VILLAGE OF JOHNSTOWN WTP, 395 W. JERSEY ST.
- N. ALL FIRE HYDRANTS SHALL BE FACTORY PAINTED RED.



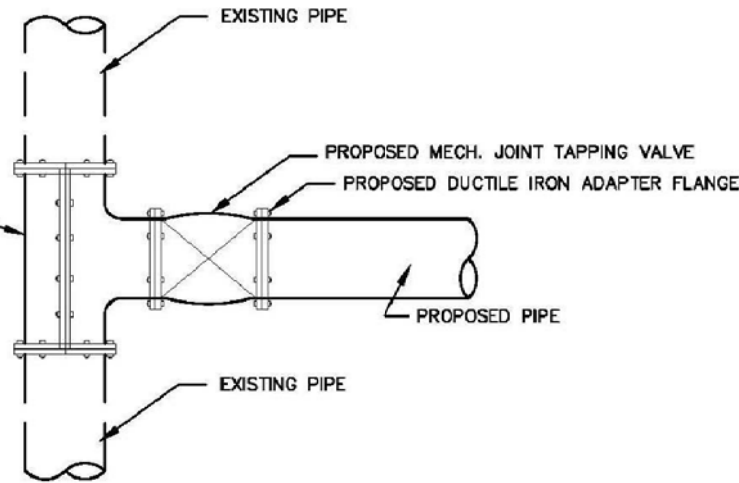
FIRE HYDRANT

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FULL CAST IRON TAPPING SLEEVE WITH DUCTILE IRON FLANGE, OR EQUIVALENT, AWWA APPROVED. TEE SHALL BE PROPERLY RESTRAINED.

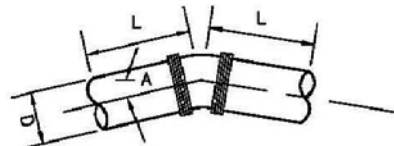
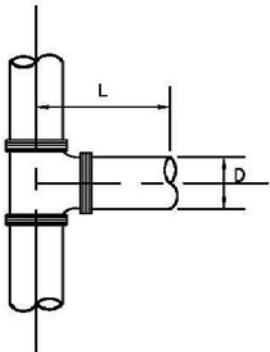
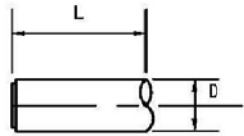


TAPPING SLEEVE AND VALVE DETAIL

ALL JOINTS TO BE RESTRAINED. MECHANICAL RESTRAINT DEVICES SHALL BE AWWA ACCEPTED.

NOTES

- A. BELL JOINT RESTRAINTS - USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.
- B. MECHANICAL JOINT RESTRAINTS - EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.
- C. CONTRACTOR TO USE RESTRAINED JOINTS UNLESS THRUST BLOCKING IS PREAPPROVED FOR SPECIAL CONDITIONS BY THE CITY PRIOR TO THE BEGINNING OF CONSTRUCTION.
- D. WET TAPS - THE VILLAGE WILL ONLY ACCEPT SOLID CAST IRON TYPE WET TAPS. STAINLESS STEEL WILL NOT BE ACCEPTED.



SEE TABLE FOR L, REQUIRED LENGTH OF RESTRAINED JOINTS

REQUIRED LENGTH OF RESTRAINED JOINTS FOR WATER MAINS

		REQUIRED LENGTH OF RESTRAINED JOINTS IN FEET							
		D-DIAMETER OF PIPE							
A ~ DEGREE OF DEFLECTION		4"	6"	8"	10"	12"	16"	20"	24"
	11 1/4'	*	*	*	*	*	2	3	3
	22 1/2'	*	2	3	3	4	5	6	6
	45°	3	4	5	6	8	10	12	13
	90°	18	25	33	40	47	60	72	85
	TEE	18	25	33	40	47	60	72	85
END	18	25	33	40	47	60	72	85	

DESIGN PARAMETERS

LAYING CONDITIONS - TYPE 5
 SOIL DESIGNATION - SILT
 DEPTH OF COVER - 4'
 DESIGN PRESSURE - 80 PSI
 SAFETY FACTOR - 1.50
 BARE PIPE
 THIS CHART AND PARAMETERS WILL BE UTILIZED UNLESS APPROVED BY THE SERVICE DIRECTOR.

* REQUIRED RESTRAINED JOINT AT FITTING.

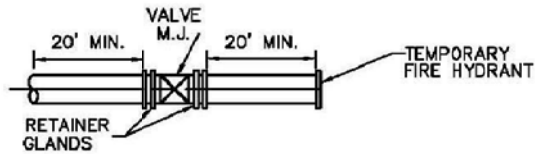


RESTRAINING JOINTS AND TAPPING SLEEVE FOR WATER MAINS

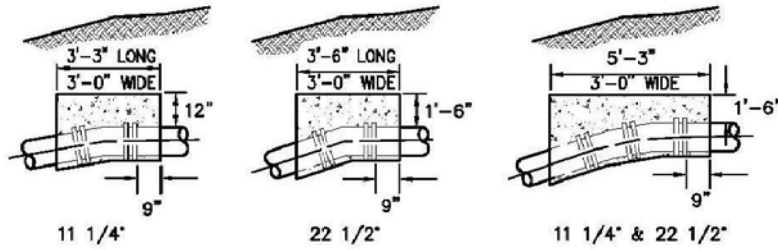
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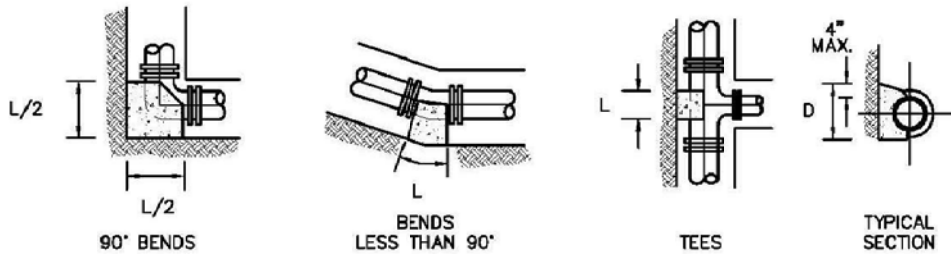


DETAIL - END OF WATER LINE



CONCRETE BLOCKING FOR VERTICAL BENDS

SIZE OF PIPE	BENDS							
	DEGREE OF BEND							
	11 1/4'		22 1/2'		45°		90°	
	L	D	L	D	L	D	L	D
3", 4", 6"	8"	6"	10"	6"	20"	6"	36"	6"
8"	9"	8"	14"	8"	24"	9"	50"	8"
12"	14"	12"	22"	12"	30"	16"	60"	15"
16"	18"	16"	24"	18"	33"	36"	70"	22"



CONCRETE BLOCKING FOR HORIZONTAL BENDS

RUN	TEES							
	BRANCH							
	3", 4", 6"		8"		12"		16"	
	L	D	L	D	L	D	L	D
3", 4", 6"	16"	6"						
8"	14"	8"	18"	12"				
12"	9"	12"	18"	12"	24"	18"		
16"	8"	16"	14"	16"	28"	16"	30"	26"

NOTES

A. CARE SHALL BE TAKEN TO KEEP CONCRETE AWAY FROM MECHANICAL JOINTS BY PLACING VISQUEEN OR OTHER APPROVED MATERIAL OVER PIPE BEFORE PLACING OF CONCRETE. BOLTS SHALL NOT BE ENCASED IN CONCRETE.

B. BLOCKING SHALL BE USED ONLY WITH RESTRAINTS OR AS APPROVED BY CITY ENGINEER. CONCRETE FOR BLOCKING SHALL CONFORM TO SECTION ODOT 499 CLASS C.

G. CONTRACTOR SHALL USE THE THRUST BLOCKS AS SHOWN ONLY IF PREAPPROVED FOR SPECIAL CONDITION BY THE CITY PRIOR TO BEGINNING CONSTRUCTION AND IT IS DISCOURAGED.

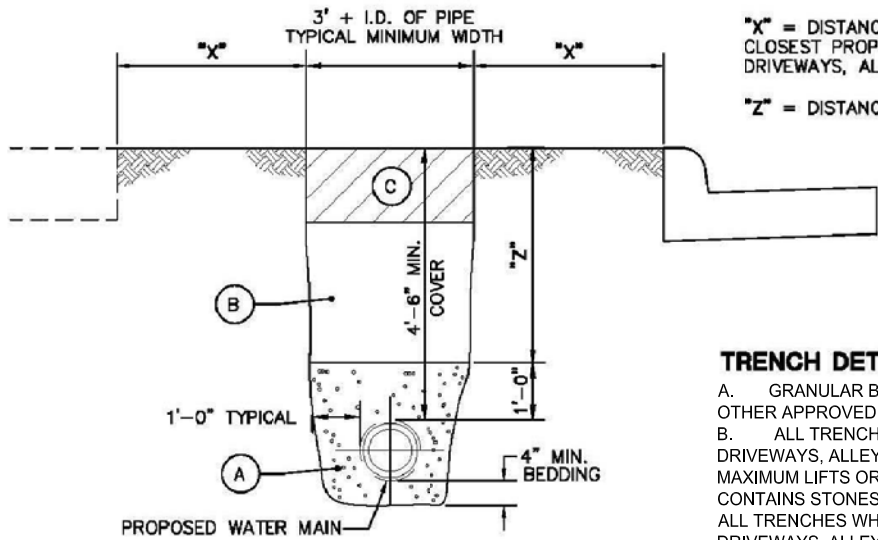


CONCRETE BLOCKING FOR WATER MAINS

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"X" = DISTANCE FROM EDGE OF TRENCH TO EDGE OF CLOSEST PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS.

"Z" = DISTANCE FROM TOP OF BEDDING TO FINISH SURFACE.

WATER MAIN TRENCH DETAIL

WATER MAIN CROSSING SEPARATION

WHENEVER A SANITARY SEWER AND WATER LINE 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 LINE. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18-INCH VERTICAL SEPARATION, THE SANITARY SEWER SHALL BE CONSTRUCTED WITH WATER LINE TYPE MATERIALS WHICH WILL WITHSTAND A 50 PSI PRESSURE TEST. THESE REQUIREMENTS WILL EXTEND FOR A DISTANCE OF 10 FEET, MEASURED PERPENDICULAR, ON BOTH SIDES OF THE WATER LINE.

AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF 18-INCHES FROM STORM AND SANITARY SEWERS. ALSO ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM SANITARY SEWERS AS POSSIBLE.

TRENCH DETAIL NOTES

- A. GRANULAR BEDDING SHALL BE WASHED GRAVEL (NO LIMESTONE), ODOT 603 TYPE 3 (#57 OR #67), OR OTHER APPROVED EQUIVALENT.
- B. ALL TRENCHES WHERE "X" IS GREATER THAN "Z" FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS CAN BE COMPACTED EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE CITY. NO MATERIAL SHALL BE USED FOR BACKFILLING THAT CONTAINS STONES, ROCKS, PAVEMENT ETC., GREATER THAN 4" DIAMETER.
- C. ALL TRENCHES WHERE "Z" IS GREATER THAN "X" FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6" MAXIMUM LIFTS OR LOW STRENGTH MORTAR BACKFILL ODOT ITEM 613 TYPE 1 UNTIL THE TOP OF THE COMPACTED GRANULAR BACKFILL OR LOW STRENGTH MORTAR BACKFILL IS HIGH ENOUGH WHERE "X" IS GREATER THAN "Z". A DENSITY TEST (12" IN PAVEMENT, 24" OFF PAVEMENT) ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAY BE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE VILLAGE. ALSO ALTERNATE COMPACTION USAGE OF WATER JETTING PROBING EVERY 2 FEET WITHIN THE TRENCH WILL BE ACCEPTABLE WITH PROPER APPROVAL.
- D. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 3" OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659, LAWN MIXTURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- E. IN-PAVEMENT AREAS SHALL FOLLOW TYPICAL PAVEMENT RESTORATION DETAILS SHOWN ON PAGE 300 - 19.
- F. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE VILLAGE BEFORE LEAVING THE WORK FOR THE NIGHT.
- G. TRENCH DAM FOR WATER MAINS AND SERVICES - THE CONTRACTOR SHALL PLACE A CUT OFF TRENCH DAM OF NATIVE CLAY OR IMPERVIOUS SOIL ACROSS AND ALONG THE WATERLINE TRENCH. TRENCH DAMS FOR THE WATER MAIN SHALL BE INSTALLED EVERY 150- FEET ALONG THE MAIN LINE AND UPSTREAM FROM THE MAIN LINE CONNECTION OF ALL SERVICES. TRENCH DAMS ARE TO BE INSTALLED TO RETARD OR RESIST THE MOVEMENT OF GROUNDWATER THROUGH THE TRENCH GRANULAR BEDDING OR BACKFILL MATERIAL. THE TRENCH DAM SHALL BE CAREFULLY COMPACTED AND SHALL BE 6' IN LENGTH, AS MEASURED ALONG THE SERVICE CENTERLINE AND SHALL BE CONSTRUCTED AGAINST THE UNDISTURBED TRENCH SIDES AND BOTTOM TO A LIMIT OF 36" OVER THE TOP OF THE PIPE.



WATER MAIN TRENCH DETAIL

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MATERIAL SPECIFICATIONS

- A. WATER MAIN SHALL BE AWWA C900 DR-18 CL 150 OR AWWA C-151 DUCTILE IRON PIPE CLASS 53, WITH SLIP-ON JOINTS AND RUBBER GASKETS. C909 WILL NOT BE ACCEPTED.
- B. BELL JOINT RESTRAINTS - USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.
- C. MECHANICAL JOINT RESTRAINTS - EBA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.
- D. FIRE HYDRANTS - ACCEPTABLE HYDRANT IS MUELLER SUPER CENTURION WITH STORZ NOZZLE, WITH 4 - 5 FEET OF BURY, OR AS REQUIRED TO MEET GRADE. HYDRANT SETTINGS WILL CONFORM TO THE COLUMBUS STANDARD DRAWING L6409 TYPE B SETTING AND CANNOT BE INSIDE THE SIDEWALK UNLESS OTHERWISE SPECIFICALLY APPROVED DUE TO LOCATION BY THE ENGINEER. HYDRANT SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATION AND CONFORM TO ITEM 809 AND ALL AWWA SPECIFICATIONS. ALL HYDRANTS SHALL BE RESTRAINED BY USE OF AN ANCHOR TEE AND ANCHOR COUPLINGS FROM THE MAIN THROUGH THE VALVE TO THE HYDRANT. THE BREAK-OFF LINE OF THE HYDRANT MUST BE 1 1/2" ABOVE FINISHED GRADE. ALL FIRE HYDRANTS REMOVED SHALL BE DELIVERED TO THE VILLAGE OF JOHNSTOWN WATER TREATMENT PLANT, 395 W. JERSEY STREET.
- E. VALVES - APPROVED GATE VALVE MANUFACTURES ARE CLOW AND MUELLER. VALVES SHALL BE AWWA C509 RESILIENT WEDGE, IRON BODY, AND BRONZE MOUNTED. ALL VALVES THAT EXCEED 4 1/2' BURY SHALL BE FURNISHED WITH A PERMANENT VALVE STEM EXTENSION AND GUIDE.
- F. VALVE BOXES - 3-PIECE CAST IRON 6" DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.
- G. SERVICE LINE FROM MAIN TO METER PIT OR CURB STOP - REHAU - MUNICIPEX SDR 9 CTS OR APPROVED EQUIVALENT.
- H. SERVICE LINE FROM METER PIT OR CURB STOP TO INSIDE BUILDING - TYPE "K" COPPER TUBE WITH COMPRESSION TYPE FITTINGS; BLUE OR BLACK WITH BLUE STRIPE HDPE TYPE SDR 9 CTS (200 PSI RATING) OR REHAU-MUNICIPEX SDR 9 CTS OR EQUIVALENT.
- I. CURB STOP - BRASS CONFORMING TO AWWA C-800
- J. CURB BOXES - 2-1/2" SCREW TYPE, BUFFALO STYLE CAST IRON LID WITH PENTAGON HEAD PLUG EM2-45-67.
- K. ALL SERVICE CONNECTIONS REQUIRE A METER.
- L. VALVE SIZING
 6" TO AND INCLUDING 10" TO BE A GATE VALVE
 12" AND LARGER TO BE A BUTTERFLY VALVE OPEN RIGHT.
- M. ALL PLASTIC WATER MAIN AND SERVICES SHALL BE INSTALLED WITH BLUE 12 GAUGE COPPERHEAD HS REINFORCED TRACER WIRE MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC. BLUE FOR WATER. CONNECTORS FOR SERVICES OR SPLICES SHALL BE LOCKING BLUE "SNAKEBITE" CORROSION PROOF WIRE CONNECTORS MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC.

MATERIAL SPECIFICATIONS (CONT'D)

- N. WATER PIPE - ALL WATER MAIN MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT RULES AND REGULATIONS OF THE VILLAGE OF JOHNSTOWN AND COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS 2012, ITEM 801. ALL MATERIAL INCLUDING PIPE, FITTINGS, VALVES AND HYDRANTS MUST MEET AWWA SPECIFICATIONS. ALL WATER MAIN MATERIAL SHALL BE DUCTILE IRON PIPE - CLASS 52, MEETING AWWA C151, OR PVC - SDR18, MEETING AWWA C900 AND APPROVED BY FACTORY MUTUAL SYSTEM CLASS 200.
- O. VALVES - APPROVED GATE VALVE MANUFACTURES ARE CLOW AND MUELLER. VALVES SHALL BE AWWA C509 RESILIENT WEDGE, IRON BODY, AND BRONZE MOUNTED. ALL VALVES THAT EXCEED 4 1/2' BURY SHALL BE FURNISHED WITH A PERMANENT VALVE STEM EXTENSION AND GUIDE.

HYDROSTATIC TEST

- A. WATER MAIN TESTING - AFTER THE PIPE HAS BEEN LAID AND BACKFILLED, ALL NEWLY LAID PIPE OR VALVES SECTIONS, SHALL BE SUBJECTED TO HYDROSTATIC PRESSURE AND LEAKAGE TEST. ALL WATER MAINS MUST BE HYDROSTATICALLY TESTED (AWWA C-600). THE INSTALLING CONTRACTOR IS RESPONSIBLE FOR CONDUCTING PRESSURE AND LEAKAGE TESTS AT A PRESSURE OF 150 PSI. THE NORMAL WORKING PRESSURE FOR THE WATER MAIN SHALL NOT BE LESS THAN 35 PSI. REFERENCE ITEM 801.12 FOR TEST TIME FRAME, ALLOWABLE PIPE LEAKAGE RATE AND CALCULATIONS. THE TESTS MUST BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE VILLAGE. THE DURATION OF THE LEAKAGE TEST SHALL NOT BE LESS THAN 2 HOURS. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP TAKING WATER FROM AN AUXILIARY SUPPLY. ALL PIPING MUST BE PROPERLY FILLED AND FLUSHED TO DISPEL ALL AIR BEFORE THE TEST IS MADE USING POTABLE WATER.

HYDROSTATIC TEST (CONT'D)

- B. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVED SECTION THEREOF, NECESSARY TO MAINTAIN THE SPECIFIED LEAKAGE TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR EXPELLED.
- C. DURING THE HYDROSTATIC TEST, A THOROUGH EXAMINATION OF ALL PIPING, FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE PERFORMED. LEAKING JOINTS SHALL BE TIGHTENED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED. CRACKED OR OTHERWISE DEFECTIVE MATERIAL SHALL BE REMOVED AND REPLACED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

DISINFECTION

- A. CHLORINATION OF WATER MAINS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING THE WATER MAINS CHLORINATED AND TESTED IN ACCORDANCE WITH ITEM 801.13 AND AWWA SPECIFICATIONS SECTION C651. THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE TEST RESULTS TO THE ENGINEER.
- B. MAINTAIN PIPES FREE OF DIRT AND FOREIGN MATTER DURING CONSTRUCTION BY DEWATERING TRENCH AND SEALING OPEN PIPE BARRELS. THIS IS ALSO A REQUIREMENT IF REPAIRS OCCUR.
- C. FLUSH CHLORINE SOLUTION TO WASTE INTO SANITARY SEWER AT A CONTROLLED RATE, NOT TO EXCEED 25 GPM. IF CHLORINE RESIDUAL DROPS IN 10 MG PER LITER, FLUSH MAIN AT 2 FPS AND REPEAT STERILIZATION PROCEDURE.
- D. WATER SAMPLES - PERFORM BACTERIOLOGICAL TEST PER AWWA C-651. THIS TEST WILL BE PERFORMED BY THE CONTRACTOR. TWO CONSECUTIVELY NEGATIVE RESULTS WILL CONSTITUTE A PASSABLE TEST.

AVG. TEST PRESSURE (PSI) BAR

ALLOWABLE LEAKAGE PER 1000 FT. (305M) OF PIPELINE (GPH+)

	NOMINAL PIPE DIAMETER - INCHES									
	6	8	10	12	14	16	18	20	24	30
250(17)	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56
225(16)	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38
200(14)	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19
175(12)	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98
150(10)	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76
120(9)	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52



WATER MAIN MATERIAL AND TESTING

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- A. ALL WATERLINE CONSTRUCTION INCLUDING EXTENSIONS ON PRIVATE PROPERTY SHALL FOLLOW THE VILLAGE STANDARDS, AND AWWA STANDARDS WHICHEVER IS MORE RESTRICTIVE AS DETERMINED BY THE VILLAGE.
- B. OPERATION OF VILLAGE FIRE HYDRANTS, VALVES, METER, SERVICES, STOPS, AND ALL OTHER MECHANICAL INFRASTRUCTURE ITEMS IS STRICTLY PROHIBITED.
- C. ALL WATER MAINS SHALL HAVE A MINIMUM DEPTH OF 4' - 6" AND A MAXIMUM DEPTH OF 5' - 0" FROM TOP OF PIPE TO SURFACE, UNLESS REQUIRED BY DESIGN.
- D. ALL WATER MAINS 12" AND GREATER IN DIAMETER MUST BE PIGGED PRIOR TO TESTING TO TESTING.
- E. ALL WATER MAINS 10" AND GREATER IN DIAMETER SHALL BE DUCTILE IRON CLASS 52 PIPE.
- F. ALL PIPE FITTINGS SHALL BE DUCTILE IRON.

WATER MAIN MINIMUM SIZE UNLESS OTHERWISE APPROVED	
RESIDENTIAL	8"
COMMERCIAL	10"
INDUSTRIAL	12"
6" MAY BE CONSIDERED FOR LOOPING PURPOSES IN RESIDENTIAL AREAS	
THE CITY'S WATER MODEL CALCULATIONS SHALL BE USED TO DETERMINE MINIMUM WATER MAIN SIZE AND SHALL BE BASED ON FIRE FLOW NEEDS PER ORDINANCE 920.04.	

- G. DEAD ENDS ARE NOT PERMITTED AND MUST BE LOOPED UNLESS THEY ARE DEEMED UNPRACTICAL BY THE VILLAGE ENGINEERING DEPARTMENT AFTER A REVIEW OF A WATER MAIN DESIGN. WHEN APPROVED, THEY SHALL BE TERMINATED WITH A FIRE HYDRANT AT THE END.
- H. CLEARANCE - WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED GRAVITY SANITARY OR STORM SEWER, SEPTIC TANK, OR SUBSOIL TREATMENT SYSTEM. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. THERE SHALL ALSO BE A MINIMUM 18 INCHES OF VERTICAL SEPARATION BETWEEN WATER LINES AND GRAVITY STORM OR SANITARY SEWERS WHEN CROSSING. IN CASE OF CONFLICT IN GRADE BETWEEN WATER LINES AND SEWERS, THE WATER LINES SHALL BE LOWERED DURING CONSTRUCTION SO THAT ONE FULL LENGTH OF WATER PIPE IS BELOW THE UTILITY AND BOTH JOINTS ARE AS FAR AWAY FROM THE SEWER JOINTS AS POSSIBLE.
- H. CUT & PLUG (CAP) WATER LINE - AFTER INSTALLING WATER MAIN AND WATER SERVICES AND SUCCESSFULLY MEETING ALL TESTING AND DISINFECTION REQUIREMENTS, THE CONTRACTOR SHALL ABANDON THE EXISTING WATER LINE ACCORDING TO THE FOLLOWING PROCEDURE:
 1. NOTIFY THE VILLAGE SERVICE DIRECTOR (740-967-4746) AT LEAST 72 HOURS PRIOR TO SHUT DOWN THE EXISTING WATER LINE.
 2. CUT AND PLUG (CAP) THE EXISTING 6" WATER LINE AS NECESSARY. THE 'LIVE END' OF THE EXISTING WATERLINE SHALL BE CAPPED USING MECHANICAL JOINT CAPS AS REQUIRED. CAP SHALL MEET AWWA C-110 REQUIREMENTS. AFTER INSTALLING CAP CONTRACTOR SHALL INSTALL REQUIRED BLOCKING TO ADEQUATELY BRACE THE CAP. BLOCKING SHALL BE INSTALLED SUCH THAT FUTURE

- (CON'T) 2. DISTURBANCES OF THE ABANDONED PIPE SHALL NOT AFFECT THE BLOCKING. THE 'DEAD END' OF THE EXISTING WATER LINE SHALL BE PLUGGED "AS DIRECTED BY THE ENGINEER."
- 3. THE EXISTING SERVICE BOXES, COPPER TUBING, FIRE HYDRANTS AND MAIN VALVE BOXES SHALL BE CAREFULLY REMOVED AND DELIVERED TO THE VILLAGE WATER DEPARTMENT.

EXCAVATION AND PIPE LAYING

- A. THE OPEN ENDS OF ALL PIPES SHALL BE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE VILLAGE BEFORE LEAVING THE WORK FOR THE NIGHT AND AT OTHER TIMES OF INTERRUPTION OF THE WORK.

FITTINGS, VALVES AND HYDRANTS

- A. FITTINGS OR SPECIALS IN SIZES 12" THROUGH 48" SHALL CONFORM TO ALL REQUIREMENTS OF AWWA C-153. FITTINGS AND SPECIALS 12" AND SMALLER SHALL BE CLASS 250, LARGER FITTINGS AND SPECIALS SHALL BE CLASS 150. FITTINGS AND SPECIALS SHALL HAVE MECHANICAL JOINTS AND SHALL BE DUCTILE IRON. CLUSTER VALVES WHENEVER POSSIBLE UNLESS APPROVED BY THE VILLAGE.

B. MAXIMUM SPACING UNLESS OTHERWISE APPROVED

	HYDRANTS	VALVES
SINGLE & TWO FAMILY RESIDENTIAL	500'	800'
INDUSTRIAL, COMMERCIAL & MULTI-FAMILY	300'	500'

- C. ALL TEES AND CROSSES SHALL BE VALVED IN EACH DIRECTION UNLESS OTHERWISE APPROVED.
- D. NO VALVE SHALL BE OPERATED BY PERSONNEL OTHER THAN A REPRESENTATIVE EMPLOYED BY THE VILLAGE.
- E. ALL VALVES INSTALLED SHALL HAVE PINNED EXTENSIONS INSTALLED SO THAT THE VALVE NUT IS NO MORE THAN 24" FROM THE SURFACE.
- F. FITTINGS - ALL BENDS, JOINTS, DEFLECTIONS, AND FITTINGS SHALL BE RESTRAINED USING MEGALUG FITTINGS. THE CONTRACTOR SHALL PROVIDE THE PROPER LENGTH OF RESTRAINT AT EACH FITTING TYPE, BASED ON THE MANUFACTURER'S RECOMMENDATIONS (AT LEAST ONE JOINT BACK FROM EACH FITTING). THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND THE PROPOSED RESTRAINED LENGTHS FOR APPROVAL BY THE VILLAGE ENGINEER PRIOR TO CONSTRUCTION. THE COST OF FITTINGS SHALL BE INCLUDED WITH THE PIPE.

UTILITY STAKING

- A. OFFSETS EVERY 25' ON CURVES. OFFSETS EVERY 100' ON STRAIGHT SECTIONS. FLOW LINE OF WATER MAIN (CUT) MARKED EVERY 100' AND OFFSETS SHALL BE CLEARLY MARKED AND EVERY HYDRANT WITH TOP OF CURB ELEVATION.

BORING AND CASING PIPE DETAIL

- A. SEE DETAILS PAGE 500-3 AND 500-4.

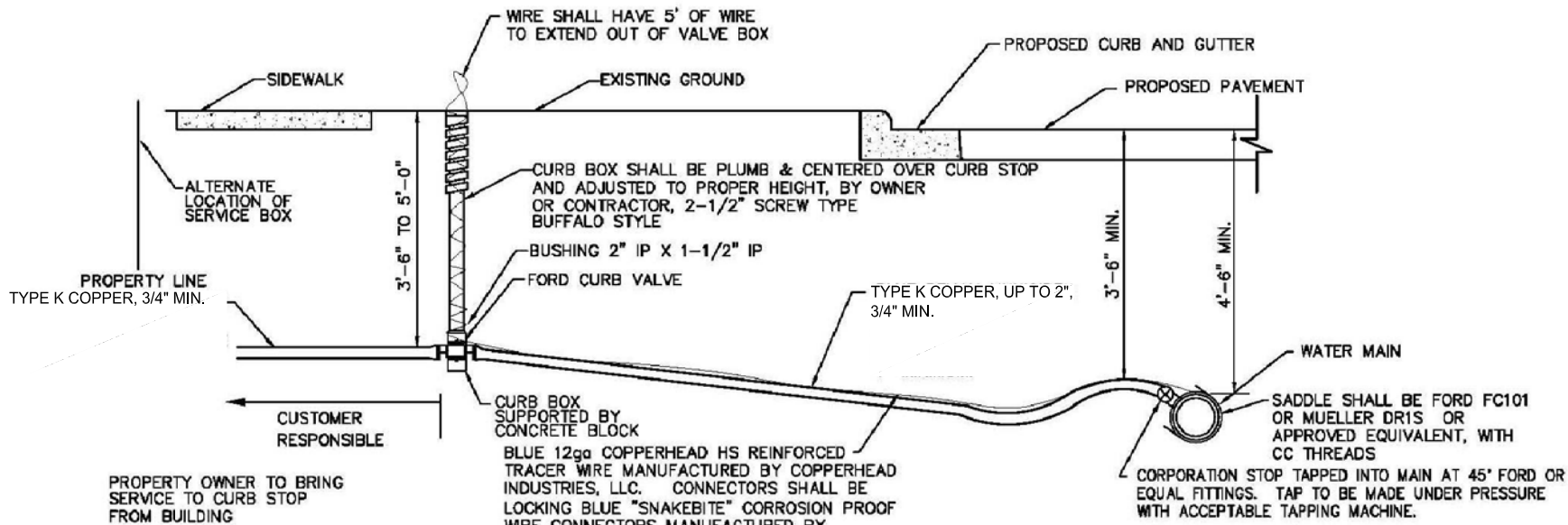


MISCELLANEOUS WATER NOTES

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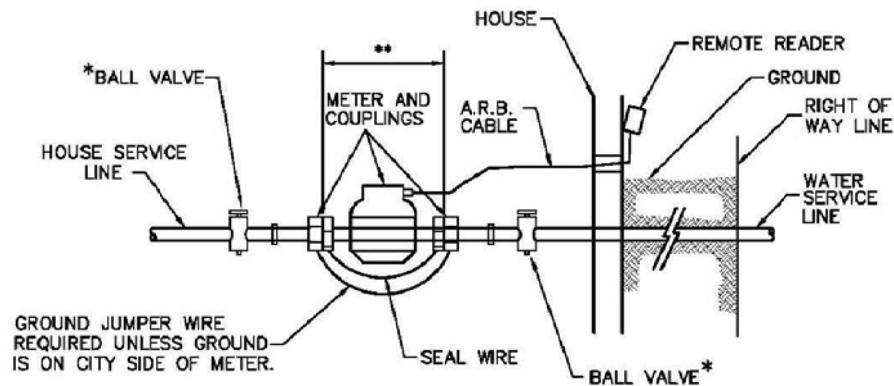
800-6



WATER MAIN SERVICE CONNECTION

ALL FORD PARTS OR APPROVED EQUIVALENT				
	3/4"	1"	1-1/2"	2"
CORPORATION	F-1000-3	F-1000-4	FB-1000-6	FB-1000-7
CURB STOP	B-44-333	B-44-444	B-44-666	B-44-777

NOTES
SEE SHEET 800-7(2) FOR NOTES.



** A JUMPER SUPPLIED BY WATER DEPT. UPON REQUEST

INSIDE WATER METER
(NOT RECOMMENDED)

*A GATE VALVE IS REQUIRED ON EACH SIDE OF 1" AND LARGER SERVICE LINES



**WATER MAIN SERVICE CONNECTION METERS
LOCATED INSIDE (APPROVAL REQUIRED)**

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NOTES

- A. MINIMUM 3/4" WATER SERVICE SHALL BE COPPER TYPE K OR APPROVED MATERIAL BY THE SERVICE DIRECTOR.
- B. WATER SERVICE SHALL BE A MINIMUM OF 10' MEASURED HORIZONTALLY FROM THE SEWER SERVICE AND SHALL BE A MINIMUM OF 18" ABOVE THE CROWN OF THE SANITARY SEWER MAIN WHERE THE WATER SERVICE CROSSES THE SEWER MAIN. WATER SERVICE MAY BE LAID ON BENCH IN THE SEWER LATERAL TRENCH IF CROWN IS AT LEAST 18" BELOW INVERT OF WATER SERVICE, AND THE MINIMUM DISTANCE BETWEEN THE WATER SERVICE AND THE SEWER LATERAL IS 5'-0".
- C. PROPERTY OWNER IS RESPONSIBLE FOR INSIDE METER FREEZE UP. CUSTOMER OR PLUMBER INSTALLS METER AND THE VILLAGE INSTALLS REMOTE WIRE TO OUTSIDE.
- D. THE CURB BOX TO BE PLACED BETWEEN THE CURB AND PROPERTY LINE.
- E. THE METER AND RADIO READ EQUIPMENT SHALL BE SUPPLIED AND INSTALLED BY THE SERVICE DIRECTOR PRIOR TO INSTALLATION. THE CONTRACTOR SHALL INSTALL BRASS BALL VALVES ON BOTH SIDES OF THE METER. SPECIFICATIONS FOR METER EQUIPMENT IS AVAILABLE UPON REQUEST FROM THE SERVICE DIRECTOR.
- F. COUNTY BUILDING INSPECTOR WILL BE REQUIRED TO PERFORM AN INSPECTION TO VERIFY THAT THE ELECTRICAL SYSTEM IS PROPERLY GROUNDED IF AN EXISTING CONDUCTIVE WATER SERVICE IS REPLACED WITH A NON-CONDUCTIVE MATERIAL.
- G. 3/4" WATER SERVICE TAPS, TRANSFERRED - ALL WATER SERVICE TAPS SHALL BE K COPPER MATERIAL AND INCLUDE A NEW CURB STOP AND BOX LOCATED 1-FOOT INSIDE THE EXISTING RIGHT-OF-WAY AND CONNECTED TO THE EXISTING SERVICE LINE. CURB BOXES SHALL INCLUDE AN APPROPRIATE LENGTH ROD WITH CURB BOX CENTERING RING AND A STAINLESS STEEL RISER STEM SHALL BE PROVIDED MEETING COLUMBUS ITEM 802.06. WATER SERVICE TAPS ON C-900 WATER LINE SHALL BE MADE WITH 3/4" BRONZE OD SPECIFIC SADDLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY WATER SERVICE INTERRUPTIONS WITH EFFECTED RESIDENTS. INDIVIDUAL BOOSTER PUMPS WILL NOT BE ALLOWED FOR ANY SERVICE (OHIO ADMINISTRATIVE CODE RULE 3745-95-07(A)).

ALL LONG WATER SERVICES SHALL MEET THE ABOVE STANDARDS AND ARE TO BE INSTALLED BY OPEN CUTTING METHODS ACROSS HILLVIEW DRIVE. THE SERVICE TRENCH SHALL BE BACKFILLED WITH COMPACTED GRANULAR BACKFILL.



**WATER MAIN SERVICE CONNECTION METERS
LOCATED INSIDE (APPROVAL REQUIRED)**

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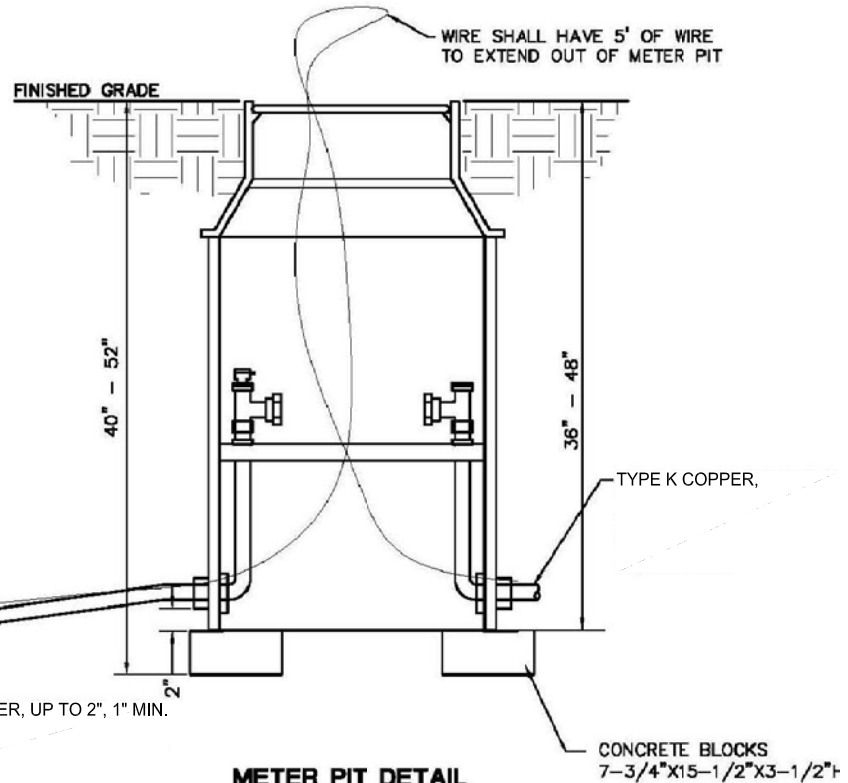
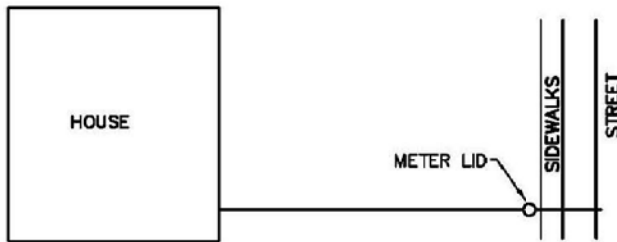
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800-7(2)

NOTES

- A. OUTSIDE METER PITS ARE REQUIRED, FOR ALL SERVICE LINES GREATER THAN 75' BETWEEN THE CURB STOP AND HOME.
- B. VILLAGE APPROVED METER PIT, SEE APPROVED LIST TO DETERMINE CORRECT APPLICATION AND ADDITIONAL REQUIREMENTS.
- C. METER PIT TO BE LOCATED AS DIRECTED BY THE VILLAGE.
- D. METER PIT AND METER PROVIDED BY THE HOMEOWNER/DEVELOPER.
- E. UNSATISFACTORY INSTALLATION WILL RESULT IN WATER NOT BEING TURNED ON.
- F. METER PIT LID MUST BE FLUSH OR 1" BELOW FINISHED GRADE. IF FRAME OF METER LID IS SHOWING, POSSIBILITY OF FREEZING OF METERS AND SERVICE LINES IS INCREASED. VILLAGE RESPONSIBILITY STOPS AT THE FIRST SHUT-OFF VALVE.
- G. MULLER CORPORATION STOPS OR ANY OTHER CORPORATION STOPS ARE NOT CONSIDERED EQUIVALENT TO FORD F-1000 TAPS, UNLESS APPROVED BY THE SERVICE DIRECTOR.
- H. BLUE 12ga COPPERHEAD HS REINFORCED TRACER WIRE MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC. CONNECTORS SHALL BE LOCKING BLUE "SNAKEBITE" CORROSION PROOF WIRE CONNECTORS MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC.

SADDLE SHALL BE FORD FC101 OR MUELLER DR1S OR APPROVED EQUIVALENT, WITH CC THREADS

CORPORATION STOP TAPPED INTO MAIN AT 45° FORD F-1000 TAP TO BE MADE UNDER PRESSURE WITH ACCEPTABLE TAPPING MACHINE.



METER PIT DETAIL

SEE STANDARD DRAWING 800-24 FOR DETAILS.

ELECTRICAL SYSTEM GROUND SHOULD BE INSPECTED AND VERIFIED TO BE ADEQUATE IF USING NON-CONDUCTIVE PIPE FOR WATER SERVICE AND/OR WHEN REPLACING AN EXISTING WATER SERVICE. CONTACT COUNTY'S BUILDING INSPECTOR ADDITIONAL INFORMATION.

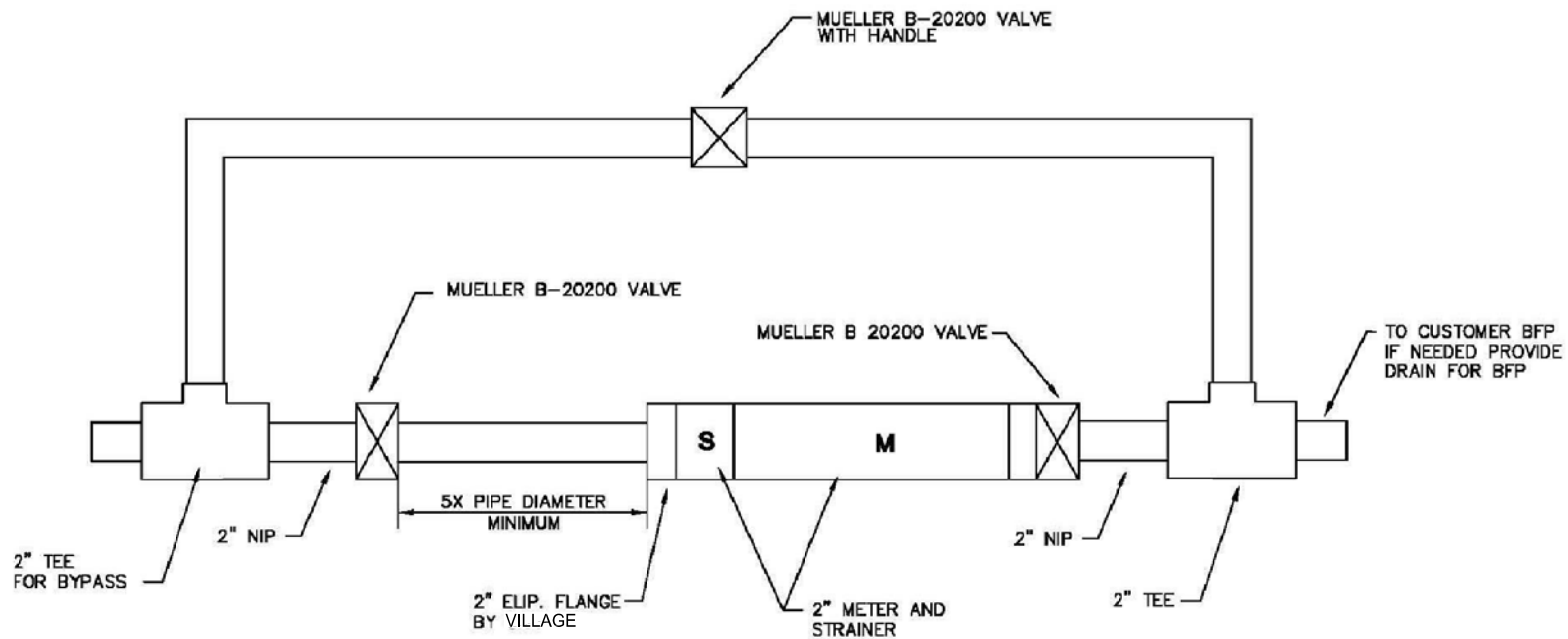


WATER MAIN SERVICE CONNECTION - METER PITS

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800-8



NOTES

- A. CENTERLINE OF METER TO BE NO MORE THAN 36" FROM THE FLOOR.
- B. METER MUST BE MOUNTED HORIZONTALLY INSIDE OF BUILDING.
- C. USE STAINLESS STEEL OR BRASS NUTS AND BOLTS.
- D. METER BYPASS ASSEMBLY AND METER SETTING TO BE CONSTRUCTED OF COPPER.
- E. ALL PIPING TO BE THOROUGHLY SUPPORTED.
- F. THE VILLAGE NOT RESPONSIBLE FOR MAINTENANCE OF INSIDE PLUMBING.
- G. PROVIDE APPROVED BACKFLOW PREVENTER REGISTERED WITH THE VILLAGE.
- H. PROVIDE TWO OR THREE (18-22 GAUGE) CONDUCTOR WIRE TO OUTSIDE OF BUILDING NEAR ELECTRIC METER.
- I. BYPASS VALVE SHALL BE LOCKABLE.
- J. CURB STOP IS ONLY ITEM INSTALLED OUTSIDE.

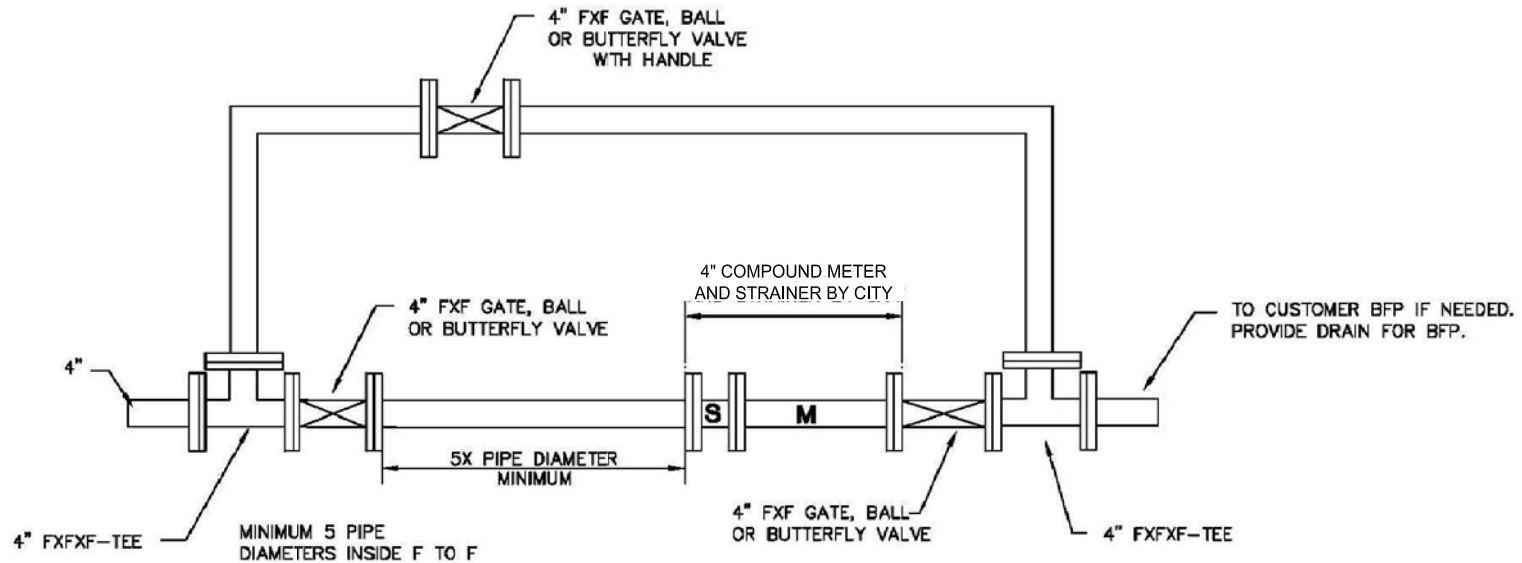


1"-3" COMPOUND METER WITH BYPASS

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NOTES

- A. CENTERLINE OF METER TO BE NO MORE THAN 36" FROM THE FLOOR.
- B. METER MUST BE MOUNTED HORIZONTALLY.
- C. FULL FACE FLANGE GASKETS AND STAINLESS STEEL OR BRASS NUTS AND BOLTS TO BE USED.
- D. METER BYPASS ASSEMBLY AND METER SETTING TO BE CONSTRUCTED OF COPPER.
- E. ALL PIPING TO BE THOROUGHLY SUPPORTED.
- F. THE VILLAGE IS NOT RESPONSIBLE FOR MAINTENANCE OF INSIDE PLUMBING.

- G. PROVIDE APPROVED BACKFLOW PREVENTER REGISTERED WITH THE VILLAGE.
- H. PROVIDE THREE (18-22 GAUGE) CONDUCTOR WIRE TO OUTSIDE OF BUILDING NEAR ELECTRIC METER.
- I. BYPASS VALVE SHALL BE LOCKABLE.



4" COMPOUND METER WITH BYPASS

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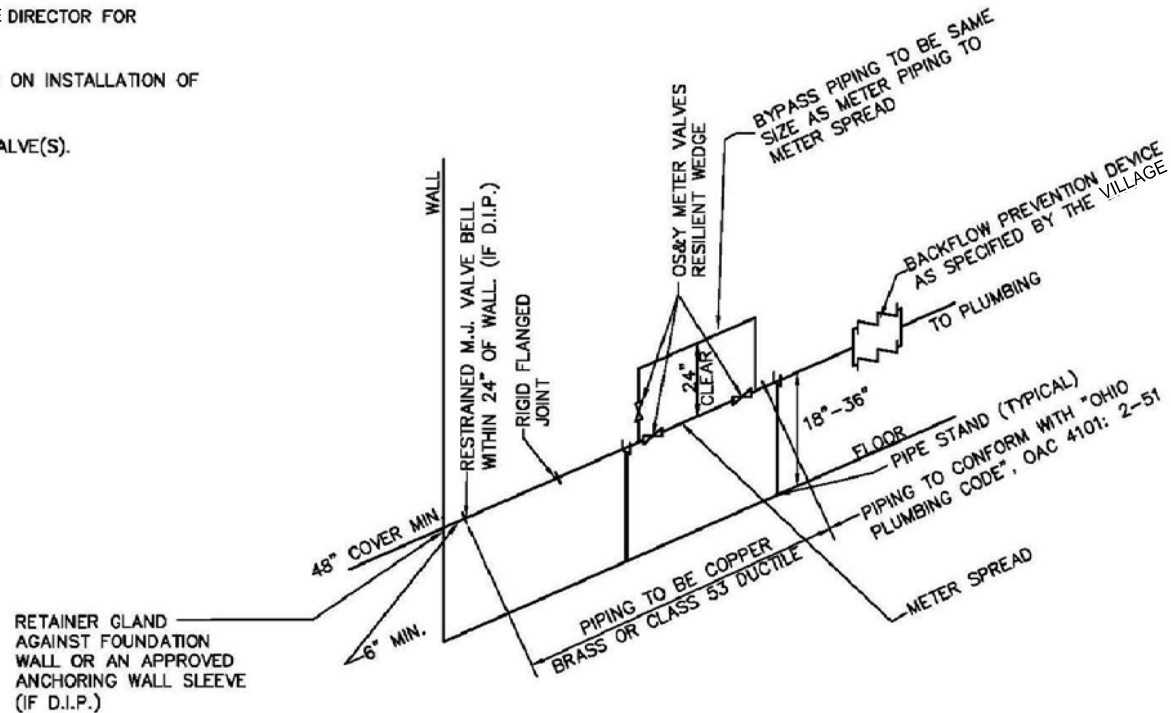
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800-10

NOTES

- A. FOR 4" AND GREATER SERVICES.
- B. PIPING SHALL BE D.I.P. CLASS 53 TO RIGID FLANGE. FROM RIGID FLANGE THROUGH METER VALVES AND BYPASS TO BE DUCTILE, COPPER OR BRASS.
- C. FOR 1-1/2" AND 2" SERVICES: WATER DEPARTMENT RECOMMENDS THE USE OF COPPER PIPING.
- D. FULL PORT GATE OR BALL VALVES IN LIEU OF VALVES MAY BE INSTALLED FOR 1-1/2" AND 2", METERS MUST BE LOCKABLE.
- E. BYPASS MANDATORY FOR ALL METERS 1" AND LARGER. BYPASS VALVE TO BE LOCKABLE.
- F. INSTALLATION FOR DUAL BACKFLOW PREVENTION DEVICES IS OPTIONAL FOR 1-1/2" -2" METERS.
- G. ALTERNATE DESIGNS MAY BE SUBMITTED TO SERVICE DIRECTOR FOR APPROVAL.
- H. PROVIDE SPREADER DEVICE FOR PROPER ALIGNMENT ON INSTALLATION OF METER SPREAD.
- I. NO FLANGE ADAPTERS BEFORE INITIAL SHUT-OFF VALVE(S).

METER SPREAD (FACE TO FACE)

1 1/2"	13"	FLANGED
2" COMPOUND	15"	FLANGED
2" SINGLE	17"	FLANGED
3" COMPOUND	17"	FLANGED
4"	20"	FLANGED
6"	24"	FLANGED
8" AND LARGER TO BE REVIEWED BY THE VILLAGE		



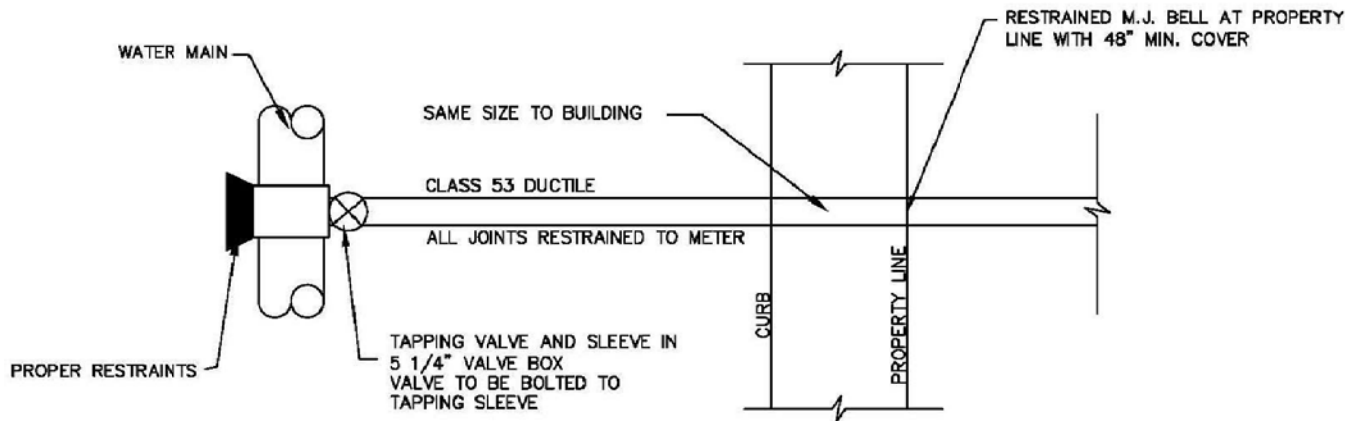
TYPICAL LARGER METER LAYOUT IN BUILDING

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SERVICE TEES ARE PERMITTED IF

- A. SHOWN ON AN APPROVED SET OF CONSTRUCTION PLANS.
- B. 4" MINIMUM BRANCH AND SERVICE LINE WITH GATE VALVE WITHIN 3' OF MAIN.

NOTE

- A. METER SHALL BE LOCATED INSIDE THE BUILDING.

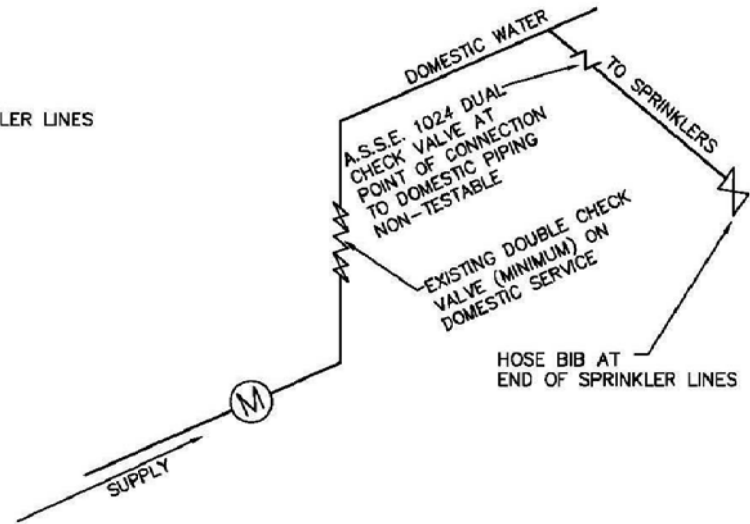
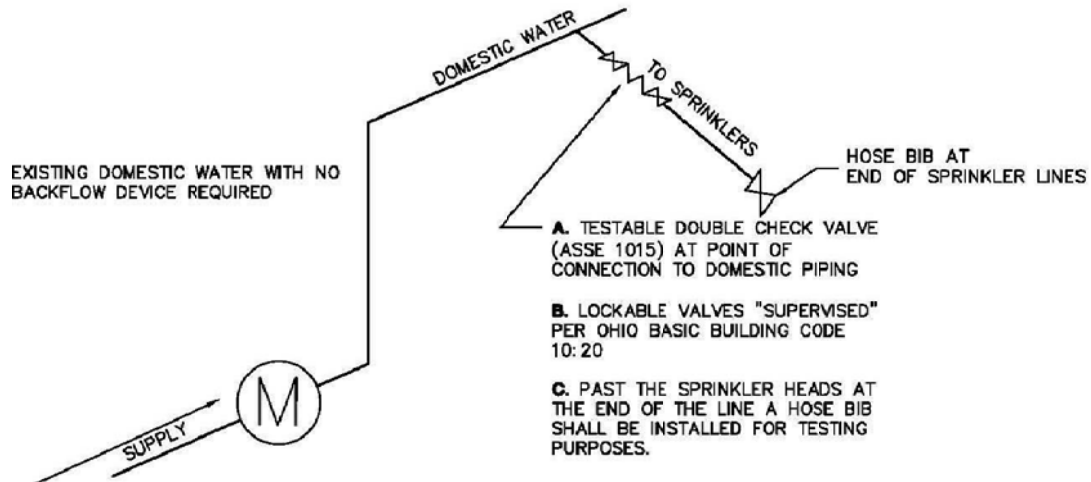


4" AND LARGER WATER MAIN SERVICE CONNECTION (DOMESTIC)

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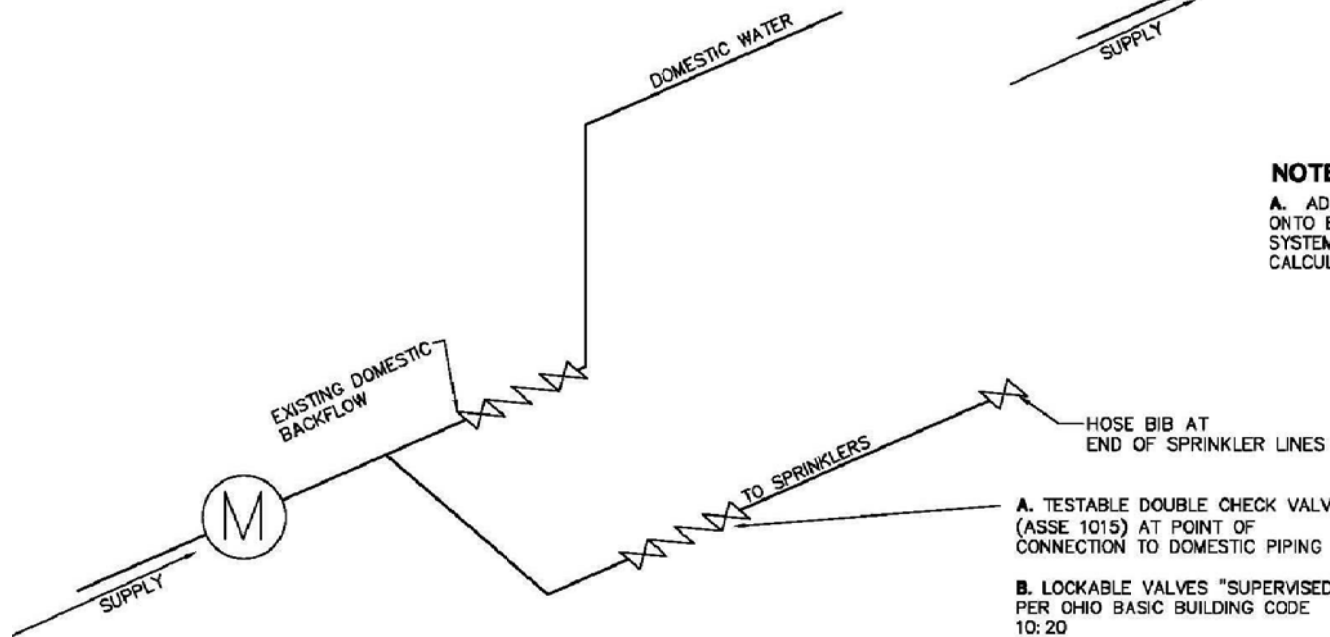
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NOTE:

A. ADDITION OF BACKFLOW DEVICE ONTO EXISTING FIRE SUPPRESSION SYSTEM WILL AFFECT ORIGINAL FLOW CALCULATION



LIMITED AREA SPRINKLER SYSTEM DETAIL

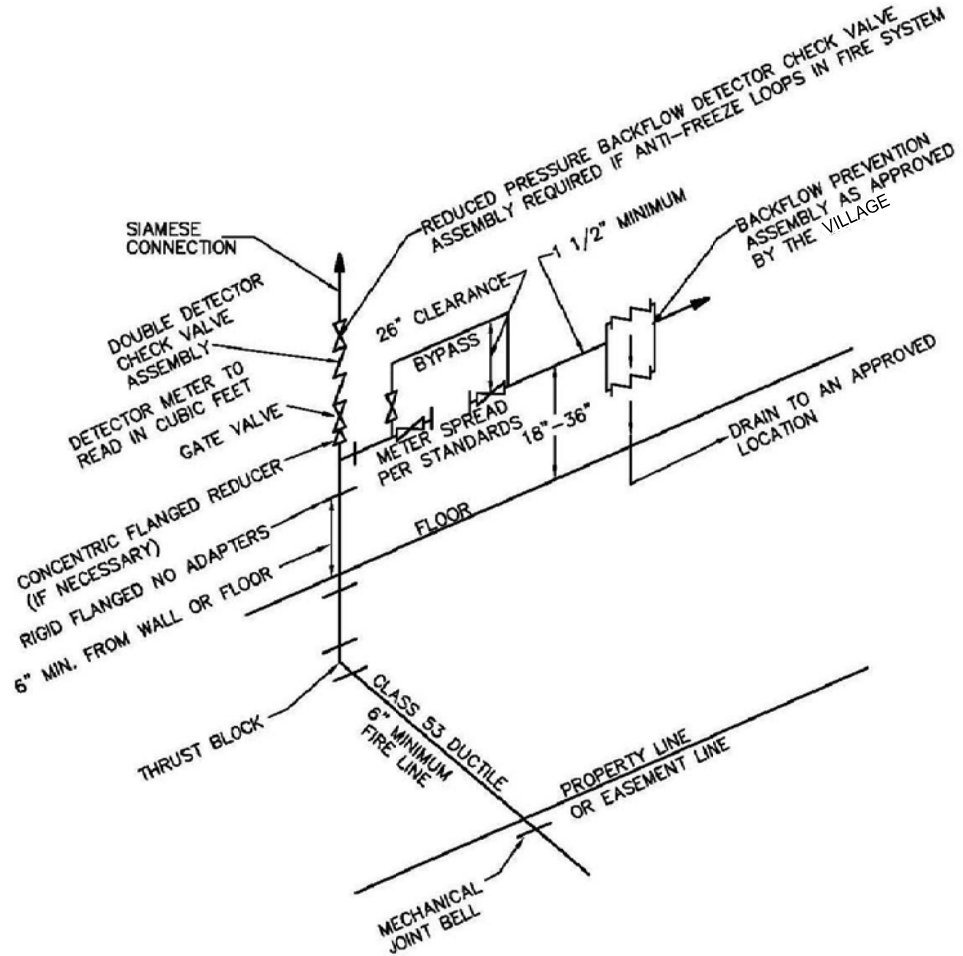
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NOTES

- A. ALL UNDERGROUND JOINTS MUST BE RESTRAINED.
- B. INSIDE PIPING SHALL BE D.I.P. CLASS 53 TO RIGID FLANGE, FROM RIGID FLANGE THROUGH METER VALVES AND BYPASS, TO BE D.I.P. CLASS 53, K-COPPER OR BRASS.
- C. MINIMUM 1-1/2" WATER METER.
- D. ALTERNATE DESIGN MAY BE SUBMITTED TO VILLAGE FOR APPROVAL.
- E. COMBINATION SERVICE NOT PERMITTED INSIDE BUILDING IF THE DOMESTIC METER IS MORE THAN 75 FEET FROM THE PROPERTY/EASEMENT LINE.
- F. 6" FIRE LINE MAY HAVE A 1" DOMESTIC TAP AND 8" FIRE LINE MAY HAVE A 1-1/2" DOMESTIC TAP. ALL DOMESTIC TAPS MUST BE INSTALLED BEFORE THE SPRINKLER RISER.
- G. SIAMESE CONNECTIONS (2-1/2" NATIONAL STANDARD THREADS) TO BE LOCATED ON THE OUTSIDE OF BUILDING.
- H. UP TO 1" DOMESTIC TAPS CAN BE MADE ON FIRE LINES 6" OR LARGER AS THE TAP IS MADE PRIOR TO THE DETECTION CHECK AND METER.

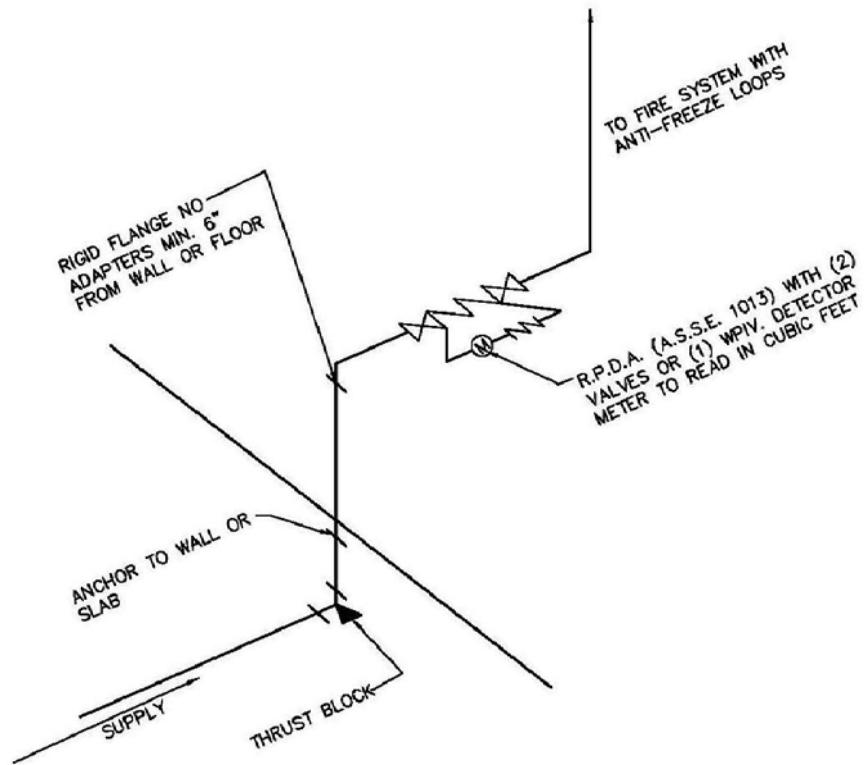


COMBINATION FIRE AND DOMESTIC IN BUILDING

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NOTE:

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE DELIVERED FOR INSTALLATION COMPLETELY ASSEMBLED BY THE ORIGINAL MANUFACTURER WITH ALL COMPONENTS AS APPROVED.

B. ADDITION OF BACKFLOW DEVICE ONTO EXISTING FIRE SUPPRESSION SYSTEMS WILL AFFECT ORIGINAL FLOW CALCULATIONS.

C. CLASS 53 DUCTILE IRON TO VALVE. ALL JOINTS RESTRAINED.

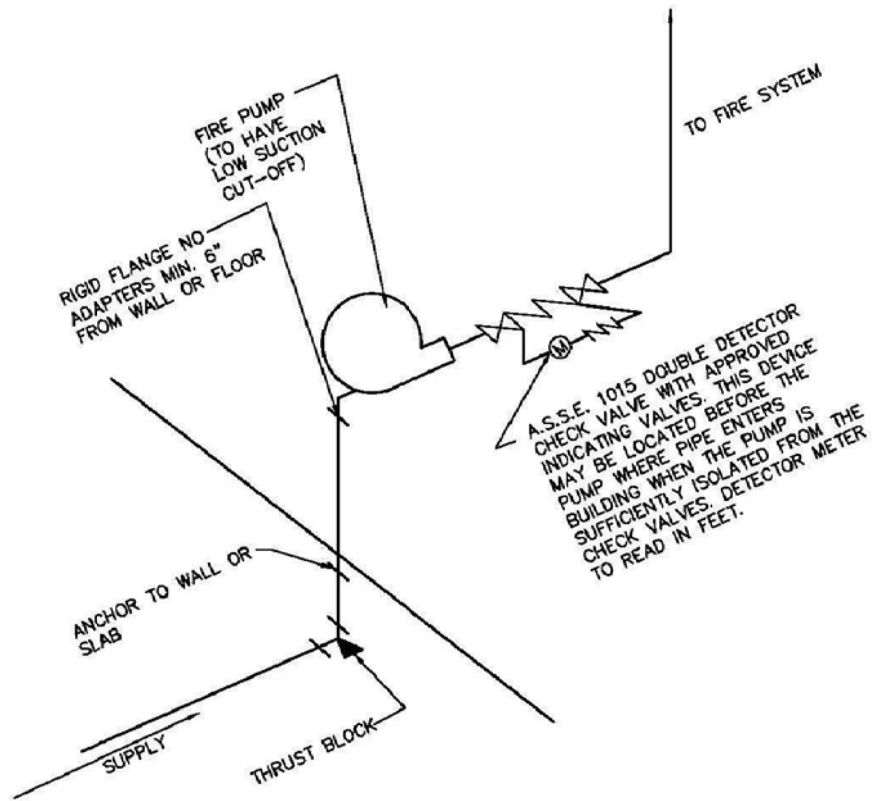
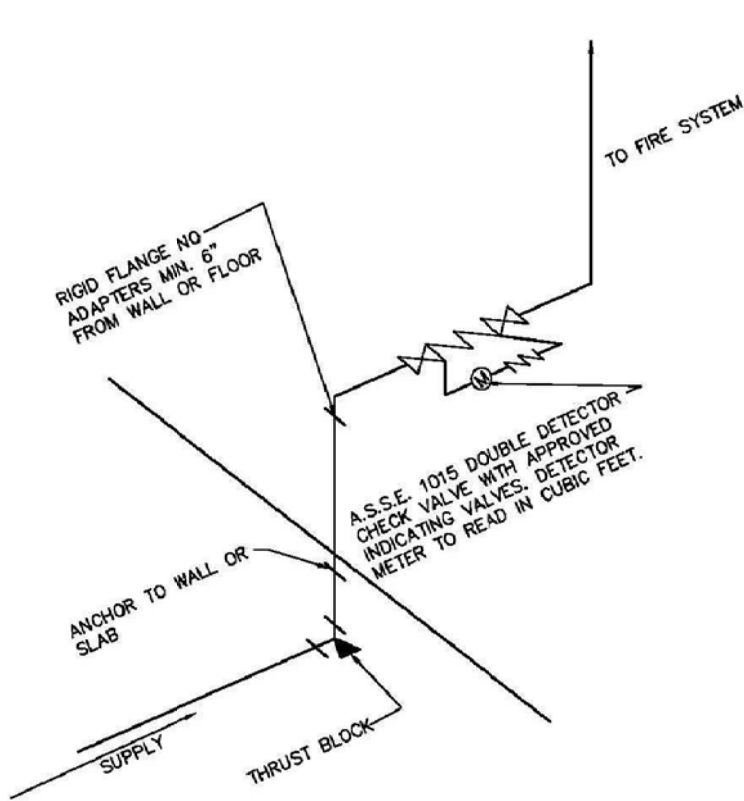


REDUCED PRESSURE DETECTOR ASSEMBLY

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NOTE:
A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE DELIVERED FOR INSTALLATION COMPLETELY ASSEMBLED BY THE ORIGINAL MANUFACTURER WITH ALL COMPONENTS AS APPROVED.
B. CLASS 53 DUCTILE IRON TO VALVE. ALL JOINTS RESTRAINED.



DOUBLE DETECTOR CHECK VALVE ASSEMBLY DETAIL

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NOTES

- A. SEE "STANDARDS FOR TAPS, SERVICES AND METERS" FOR TYPICAL NOTES.
- B. BACKFLOW PREVENTION DEVICE REQUIRED—CONTACT WATER METER DEPARTMENT FOR APPROVED DEVICE.
- C. PROVIDE APPROVED DRAIN FOR IRRIGATION SYSTEM.
- D. ALTERNATE DESIGNS MUST BE SUBMITTED FOR APPROVAL.
- E. THE CURB BOX MUST BE BROUGHT UP TO FINISH GRADE.
- F. NO OUTLETS ARE ALLOWED BETWEEN METER AND THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER WITH THE EXCEPTION OF ONE SCREW PLUG-IN TAP FOR WINTERIZING/DRAINAGE PURPOSES.
- G. THE UNDERGROUND WATER SERVICE SHALL BE TYPE K COPPER OR BLUE REHAU MUNICIPEX TYPE SDR 9 CTS (200 PSI RATING), FROM THE METER PIT UP TO THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER.
- H. THE INSTALLATION SHALL BE INSPECTED BY THE VILLAGE.

**INSTRUCTIONS FOR
THE INSTALLATION OF IRRIGATION METERS
AND
BACKFLOW PREVENTERS FOR IRRIGATION**

- A. MAKE DRAWING OF THE PROPOSED IRRIGATION SYSTEM. THIS DRAWING MUST BE APPROVED BY VILLAGE AND LICKING COUNTY HEALTH DEPARTMENT.
- B. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE VILLAGE STANDARDS FOR TAPS, SERVICES AND METERS".
- C. GET THE NECESSARY PERMITS.
 - 1) TAPPING FEE
- D. GET FORMS AT LICKING COUNTY HEALTH DEPARTMENT FOR EACH BACKFLOW PREVENTER TO BE INSTALLED, PRIOR TO DOING THE WORK.
- E. AFTER THE BACKFLOW PREVENTERS HAVE BEEN INSTALLED, PLEASE FILL OUT THE FORMS COMPLETELY WITH THE OWNER/LEASEHOLDER'S NAME, ADDRESS (WHERE THE BACKFLOW PREVENTER WAS INSTALLED), LOCATION OF THE BACKFLOW PREVENTER, SIZE, MAKE, MODEL, TEST RESULTS BY A LICENSED PLUMBER, ANNUAL TEST RESULTS THERE AFTER, AND SERIAL NUMBER OF THE BACKFLOW PREVENTER. PLEASE RETURN THE COMPLETED FORMS TO THE CITY.
- F. CONTACT BOTH VILLAGE AND THE LICKING COUNTY HEATH DEPARTMENT AFTER THE WORK HAS BEEN COMPLETED. BACKFLOW PREVENTERS HAVE TO BE INSPECTED BY BOTH VILLAGE AND THE LICKING COUNTY HEATH DEPARTMENT.
- G. SEPARATE VALVES, ONE BEFORE AND AFTER, MUST BE PLACED NEAR THE BACKFLOW PREVENTER WHENEVER THE EXISTING BACKFLOW IS REMOVED.
- H. IRRIGATION METERS MUST BE PLACED OUTSIDE IN A DUAL METER PIT.



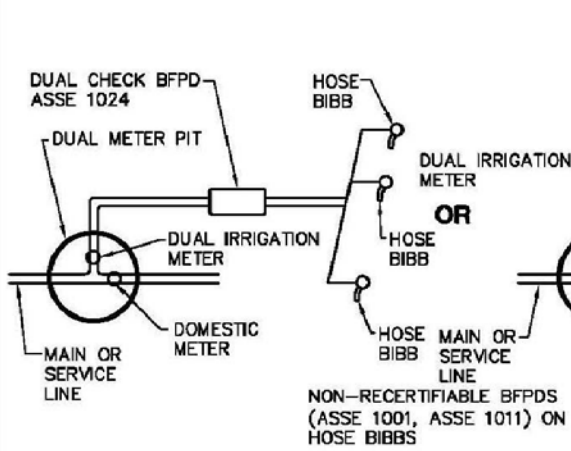
STANDARD INSTALLATION FOR IRRIGATION METERS AND BACKFLOW PREVENTER

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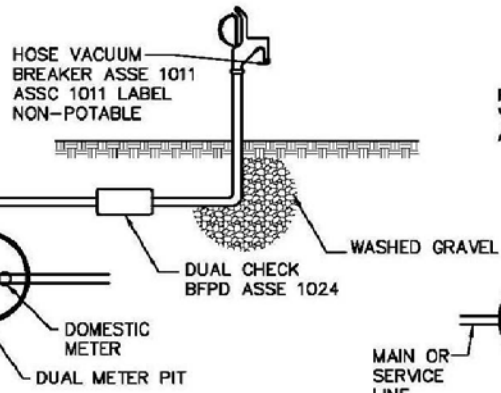
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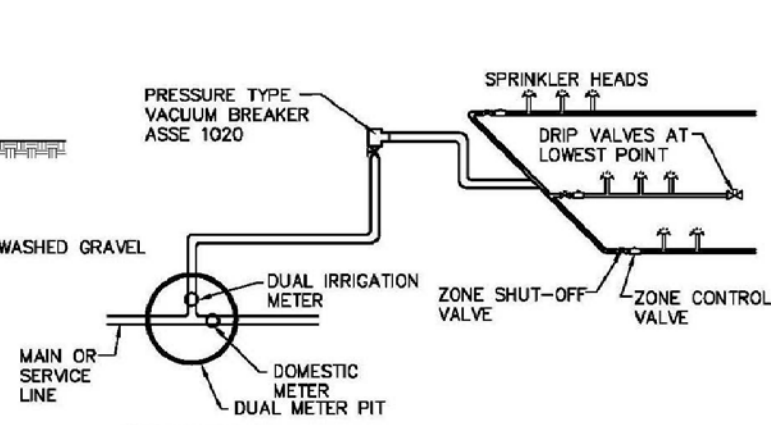
HOSE BIBB



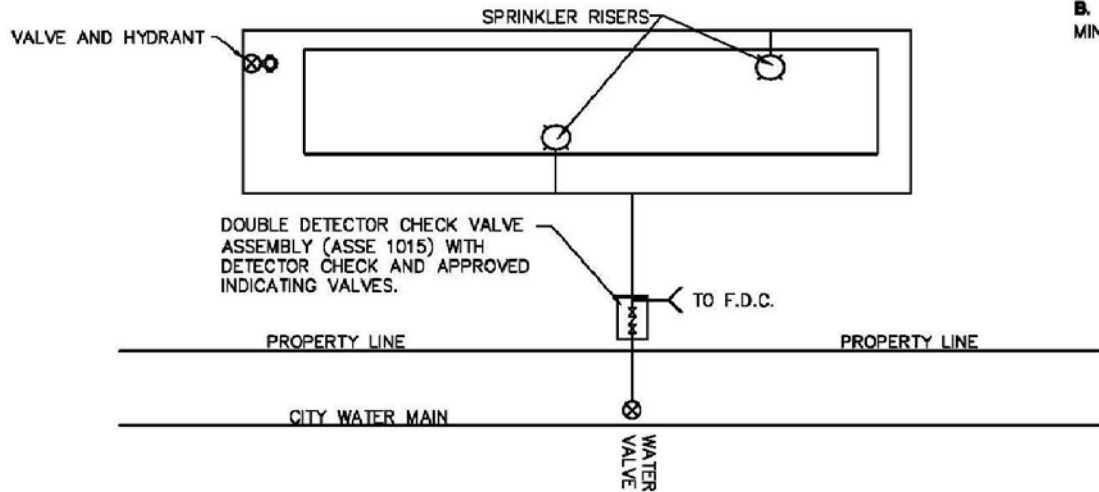
YARD HYDRANT



SPRINKLER SYSTEM



YARD MAIN SYSTEM ARRANGEMENT



CONDITIONS

- A. SHUT-OFF VALVES ARE ALLOWED DOWNSTREAM OF THE BFPD.
- B. THE PRESSURE TYPE VACUUM BREAKER MUST BE A MINIMUM OF 12" ABOVE THE HIGHEST SPRINKLER HEAD.

NOTES

- A. A DRAWING OF EACH PROPOSED IRRIGATION SYSTEM MUST BE APPROVED BY THE VILLAGE AND LICKING COUNTY HEALTH DEPARTMENT PRIOR TO CONSTRUCTION.
- B. IF IRRIGATION SYSTEM IS NONE OF THE ABOVE, USE A REDUCED PRESSURE BACKFLOW PREVENTER, (ASSE 1013), AFTER THE WATER METER.
- C. IRRIGATION CONNECTIONS MUST BE CONNECTED TO MAIN LINE BEFORE DOMESTIC METER AND CONNECTION. NO DEDUCT METER WILL BE ALLOWED.

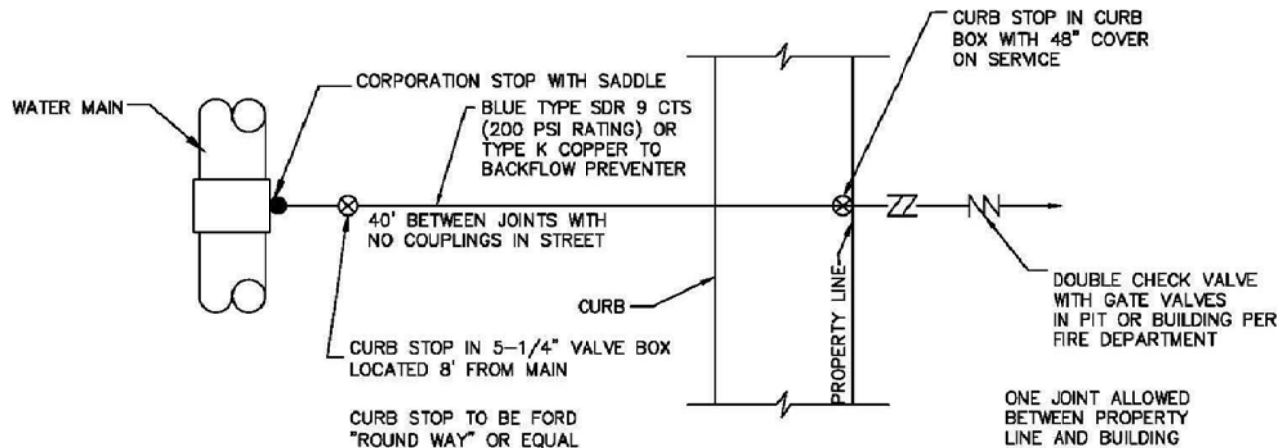


IRRIGATION DETAILS

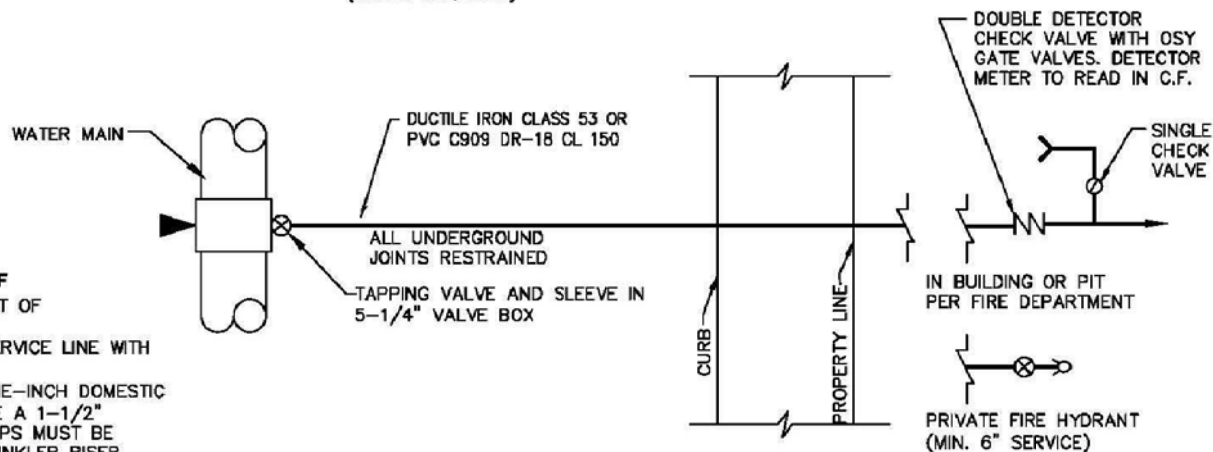
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2" FIRE LINE SERVICE
(METER REQUIRED)



4" AND LARGER FIRE LINE SERVICE
(METER REQUIRED)

WALL/POST INDICATOR VALVES SHALL BE ADDED ON PREMISES AT FIRE DEPARTMENT REQUEST

SERVICE TEES ARE PERMITTED IF

A. SHOWN ON AN APPROVED SET OF CONSTRUCTION DRAWINGS.

B. 4" MINIMUM BRANCH AND SERVICE LINE WITH GATE VALVE WITHIN 3' OF MAIN.

C. 6" FIRE LINE MAY HAVE A ONE-INCH DOMESTIC TAP AND 8" FIRE LINE MAY HAVE A 1-1/2" DOMESTIC TAP. ALL DOMESTIC TAPS MUST BE INSTALLED BEFORE THE FIRE SPRINKLER RISER.

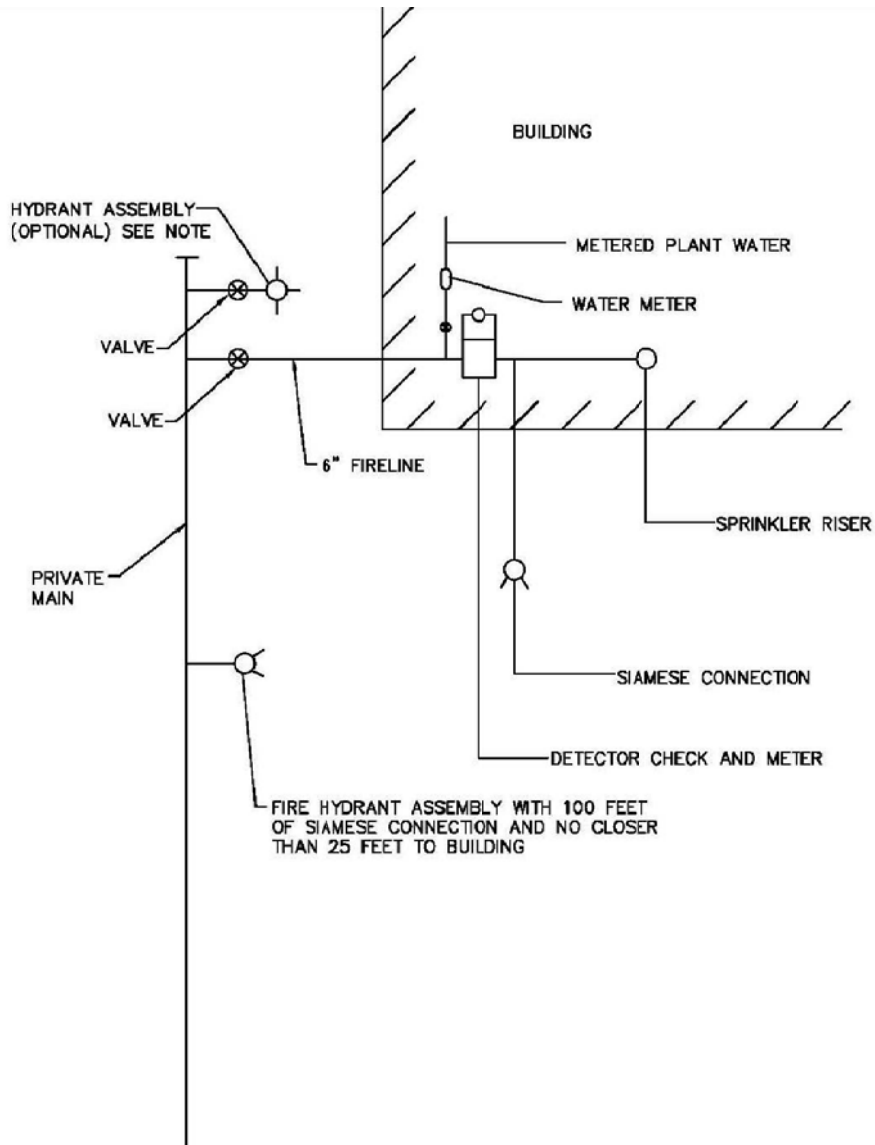


**2" FIRE LINE AND
4" AND LARGER FIRE LINE**

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REVIEW AND FEES

A. FIVE SETS OF SITE PLANS SHALL BE SUBMITTED TO THE COUNTY BUILDING INSPECTOR TO BE REVIEWED BY THE ZONING INSPECTOR, FIRE DEPT. OFFICIAL, SERVICE DIRECTOR, VILLAGE ENGINEER AND THE PLANNING COORDINATOR.

TESTING

A. THE FIRE DEPARTMENT PERSONNEL WILL CONDUCT SELECTIVE FIRE HYDRANT TESTING FOR RESIDUAL PRESSURE. THE TESTING IS DONE ANNUALLY OR WHENEVER NEEDED. PROCEDURES OF THE HYDRANT FLOW TEST ARE FOLLOWED FROM THE FOURTH EDITION OF THE IFSTA MANUAL "WATER SUPPLIES FOR FIRE PROTECTION". TESTING PROCEDURES ARE ON FILE AT THE MAIN FIRE STATION.

GENERAL NOTES

- A. FIRE LINE AND HYDRANT INSTALLATION, TESTING AND MATERIALS SHALL BE THE SAME SPECIFICATIONS AS STATED IN THE CONSTRUCTION STANDARDS AND DRAWINGS. THESE CONSTRUCTION STANDARDS AND DRAWINGS SHALL ALSO BE FOLLOWED FOR WATERLINE EXTENSIONS ON PRIVATE PROPERTY THAT WILL PROVIDE FIRE LINE OR DOMESTIC WATER SERVICE.
- B. VILLAGE OF JOHNSTOWN FIRE LINE REVIEW FORMS SHALL BE COMPLETED WITH TWO SETS OF PLANS FURNISHED TO THE CITY BUILDING INSPECTOR.
- C. VILLAGE OF SIDNET CERTIFIED I.S.O TEST SHALL BE COMPLETED WITH TWO SETS OHIO UNTIL THE FOLLOWING ITEMS HAVE BEEN COMPLETED.
 - 1.) ONE SET OF DRAWINGS FURNISHED TO THE VILLAGE AND
 - 2.) FIRE LINE INSTALLATION FORM SHALL BE COMPLETE
- D. NO ADDITIONAL BOOSTER PUMPS SHALL BE INSTALLED FOR THE DOMESTIC LINE.
- E. A CONTRACTOR REGISTERED THROUGH THE VILLAGE SHALL PERFORM MAINTENANCE OF PRIVATE SERVICE LINES AND HYDRANTS. COORDINATION OF YEARLY HYDRANT FLUSHINGS WILL BE HANDLED THROUGH THE FIRE DEPARTMENT.
- F. FIRE LINE MAINTENANCE SHALL BE PERFORMED BY A CERTIFIED FIRE LINE CONTRACTOR THROUGH THE OFFICE OF THE STATE FIRE MARSHALL.
- G. TESTING OF FIRE LINES SHALL BE PERFORMED BY A STATE-APPROVED FIRE LINE INSTALLER.
- H. A CERTIFIED FIRE LINE CONTRACTOR LICENSED THROUGH THE OFFICE OF THE STATE FIRE MARSHALL SHALL PERFORM THE WORK.

SPRINKLER NOTES

- A. HYDRAULIC CALCULATIONS FROM THE SPRINKLER SYSTEM DESIGNER SHALL BE SUBMITTED TO THE FIRE DEPARTMENT. WITH THE SITE PLAN FOR REVIEW.
- B. INSTALLATION OF A FLOW SENSOR MONITOR WILL BE REQUIRED TO REPORT TO AN APPROVED MONITORING SYSTEM. (I.E. POLICE, PRIVATE STATION, ETC.)
- C. THERE SHALL BE AN EXISTING OR NEW HYDRANT INSTALLED WITHIN 100 FEET OF THE SIAMESE CONNECTION AND NO CLOSER THAN 25 FEET OF A BUILDING. EXCEPTIONS MUST BE SUBMITTED TO THE VILLAGE FIRE PROTECTION OFFICIALS.
- D. A 6" FIRE LINE MAY HAVE A ONE-INCH MAXIMUM DOMESTIC TAP AND AN 8" FIRE LINE MAY HAVE A 1-1/2" MAXIMUM DOMESTIC TAP. ALL DOMESTIC TAPS MUST BE INSTALLED BEFORE THE FIRE SPRINKLER RISER.



FIRE LINE DETAIL AND NOTES

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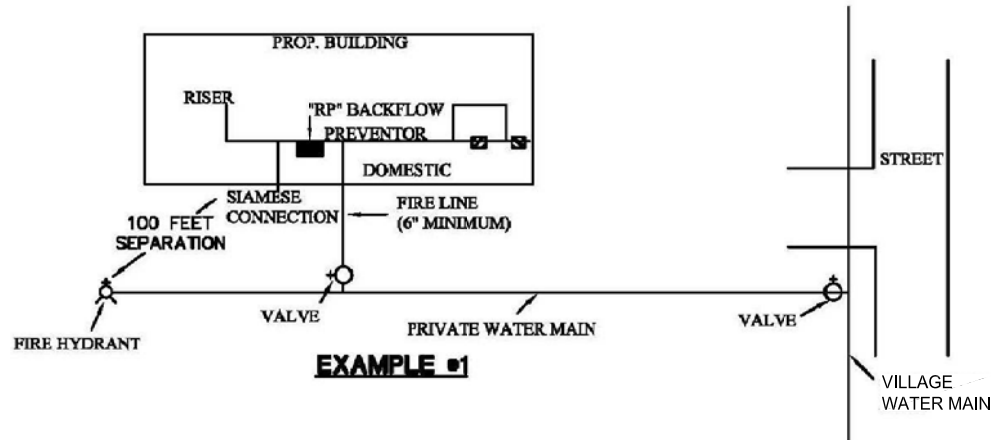
800-20

NOTES

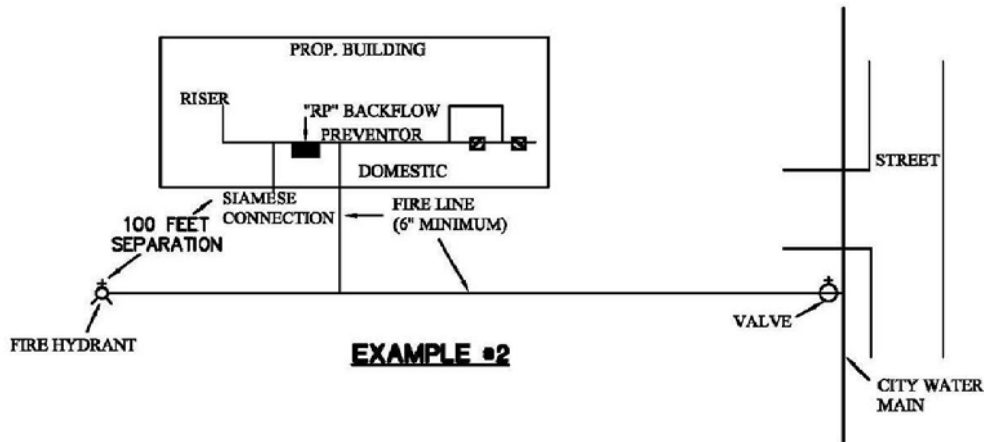
- A. THE FIRE LINE SHALL BE DEFINED AS "THE LINE FROM THE RISER INSIDE THE BUILDING TO THE FIRST VALVE ON THE SYSTEM."
- B. MINIMUM FIRE LINE SIZE SHALL BE 6".
- C. A 1" DOMESTIC TAP CAN BE MADE ON A 6" FIRE LINE AND A 1-1/2" DOMESTIC TAP ON AN 8" FIRE LINE. TAP MUST BE MADE PRIOR TO BACKFLOW PREVENTOR.
- D. A FIRE HYDRANT SHALL BE INSTALLED WITHIN 100 FEET OF THE SIAMESE CONNECTION.
- E. FIRE LINE CHARGES SHALL BE BASED ON SIZE OF RISER.
- F. CONTRACTOR SHALL INSTALL A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR ON FIRE LINE PRIOR TO RISER.
- G. LIMITED AREA SPRINKLERS SHALL BE CONNECTED BEFORE METER.
- H. DOMESTIC SERVICE SHALL INCLUDE BACKFLOW PREVENTOR PRIOR TO METER. WATER METER SHALL HAVE BYPASS AND STRAINER.
- I. ALL MATERIAL AND CONSTRUCTION METHODS SHALL CONFORM TO VILLAGE STANDARDS.
- J. PRIVATE WATER MAIN SHALL REMAIN PRIVATE UNLESS ACCEPTED BY THE VILLAGE AND AN EASEMENT IS GRANTED.
- K. ALL FIRE LINES SHALL BE TESTED AT 200psi. SEE HYDROSTATIC TEST ON PAGE 800-5 FOR ADDITIONAL REQUIREMENTS. FIRE DEPARTMENT TO WITNESS TEST.

TESTING PROCEDURES FOR EXAMPLE #1

- A. FIRE LINE SHALL BE INSTALLED, INSPECTED AND CERTIFIED BY A STATE LICENSED FIRE LINE INSTALLER.
- B. PRIVATE WATER MAIN CAN BE INSTALLED BY THE GENERAL CONTRACTOR AND MUST BE INSPECTED BY THE VILLAGE. CONTRACTOR SHALL PRESSURE TEST MAIN AND OBSERVED BY THE VILLAGE. VILLAGE SHALL PERFORM DISINFECTION AND BACTERIA TEST ON BOTH THE FIRE LINE AND PRIVATE WATER MAIN AFTER PRESSURE TEST HAVE BEEN PERFORMED AND APPROVED.



EXAMPLE #1



EXAMPLE #2

TESTING PROCEDURES FOR EXAMPLE #2

- A. ENTIRE WATER LINE SHALL BE CONSIDERED THE FIRE LINE PER THE DEFINITIONS.
- B. THE ENTIRE FIRE LINE SHALL BE INSTALLED, INSPECTED AND CERTIFIED BY A STATE LICENSED FIRE LINE INSTALLER.
- C. VILLAGE SHALL ALL PERFORM DISINFECTION AND BACTERIA TEST AFTER PRESSURE TEST HAS BEEN PERFORMED AND APPROVED.

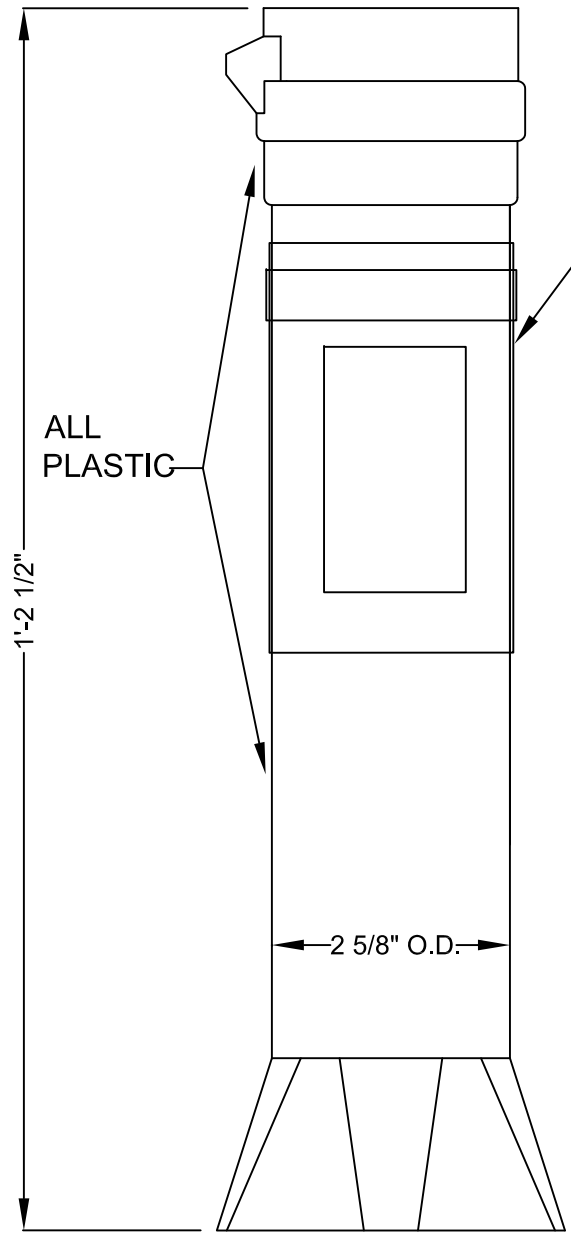


FIRE LINE DETAIL AND NOTES

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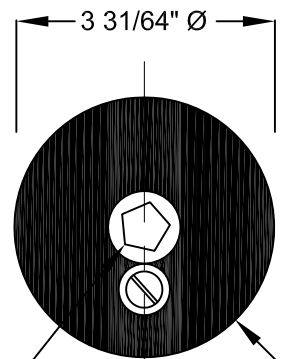
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COPPERHEAD
WAX PACK
TAPED TO
TUBE

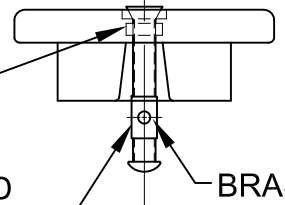
PENTAGON
HEAD BOLT
FOR
TIGHTENING
ONTO BOX



CAST
IRON LID

NYLON
INSULATION
WASHERS

INSTALL WAX
PACK AROUND
COPPERHEAD
TRACER WIRE



BRASS TERMINAL
AND MOUNTING
COMPONENTS

TRACER BOX LID



TRACER WIRE FOR WATER MAIN PIPE DETAIL

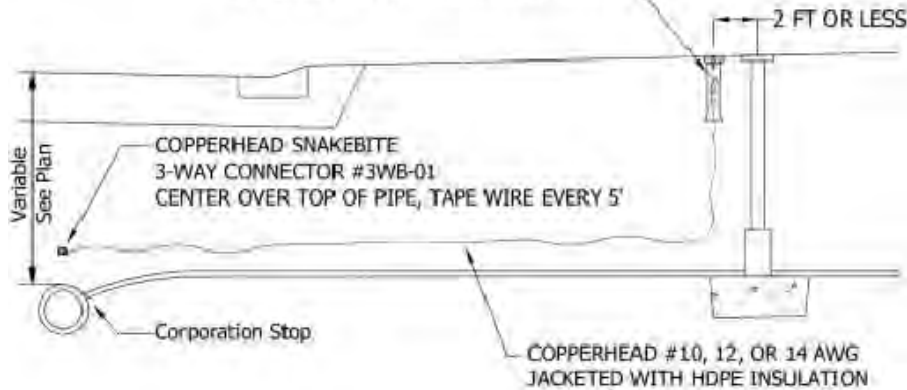
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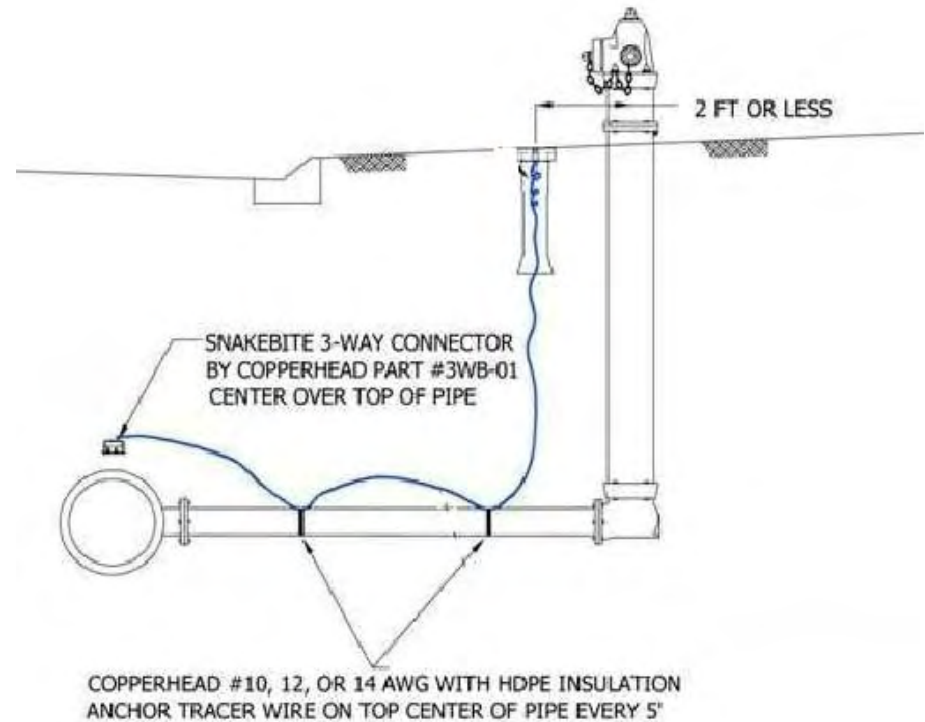
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COPPERHEAD SNAKEBIT[®] MAGNETIZED TRACER BOX

1. CURL 18"-24" EXTRA TRACER WIRE IN BOX.
2. CONNECT COPPERHEAD TRACER WIRE TO BRASS TERMINAL ON BOTTOM OF BOX LID.
3. WRAP TRACER WIRE CONNECTION WITH COPPERHEAD CORROSION RESISTANT TAPE INCLUDED WITH BOX.
4. SECURE LID WITH PENTAGON TOOL.



TRACER SYSTEM FOR WATER SERVICE/CURB BOX



TRACER SYSTEM FOR FIRE HYDRANT

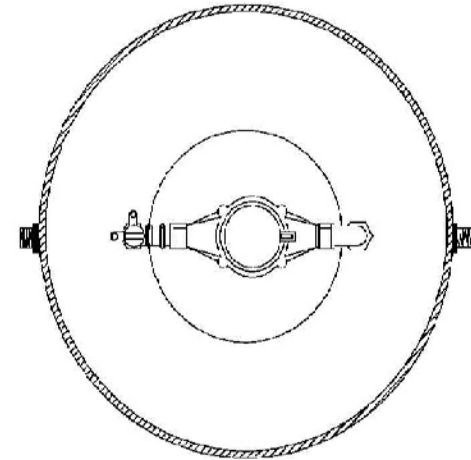
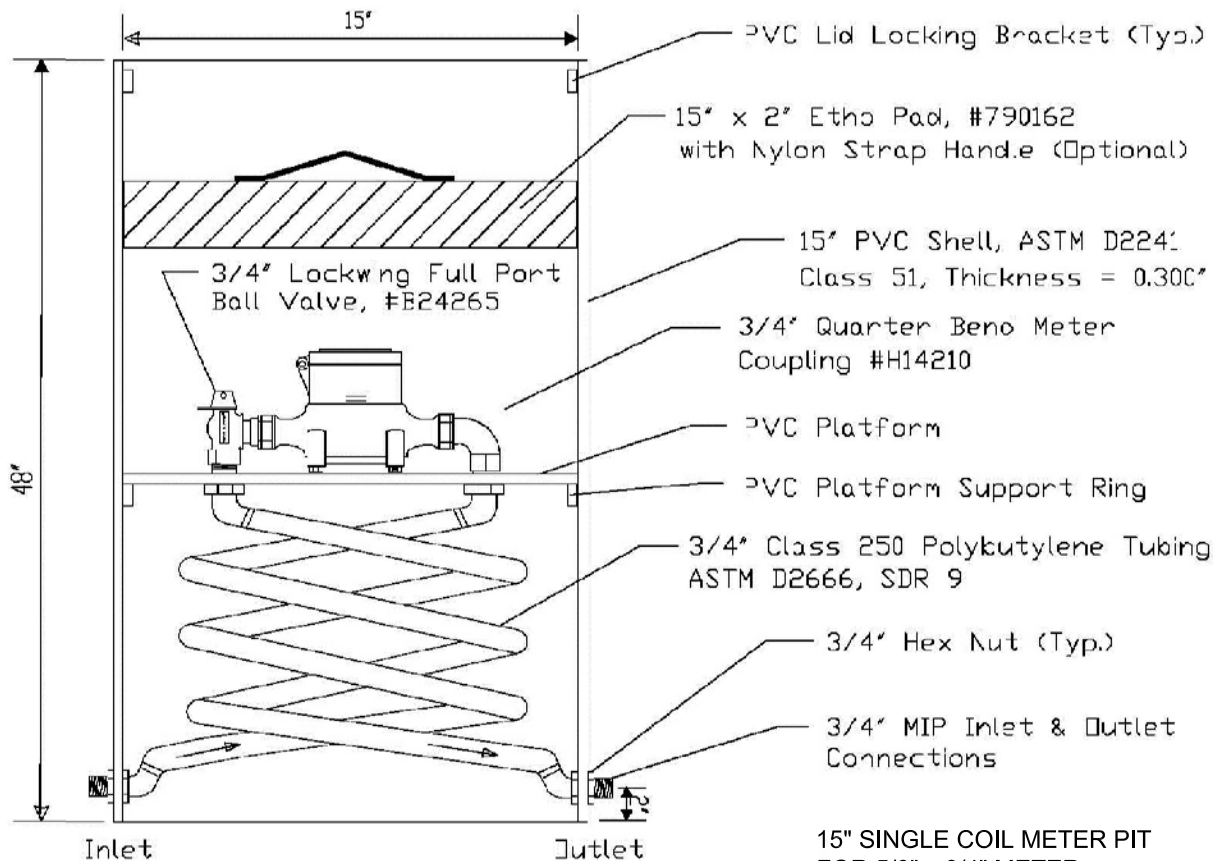


COPPERHEAD TRACER SYSTEM FOR WATER SERVICE/CURB BOX AND FIRE HYDRANT

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15" SINGLE COIL METER PIT
FOR 5/8" x 3/4" METER
#203CS1548FSBS



15-INCH SINGLE COIL METER PIT

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