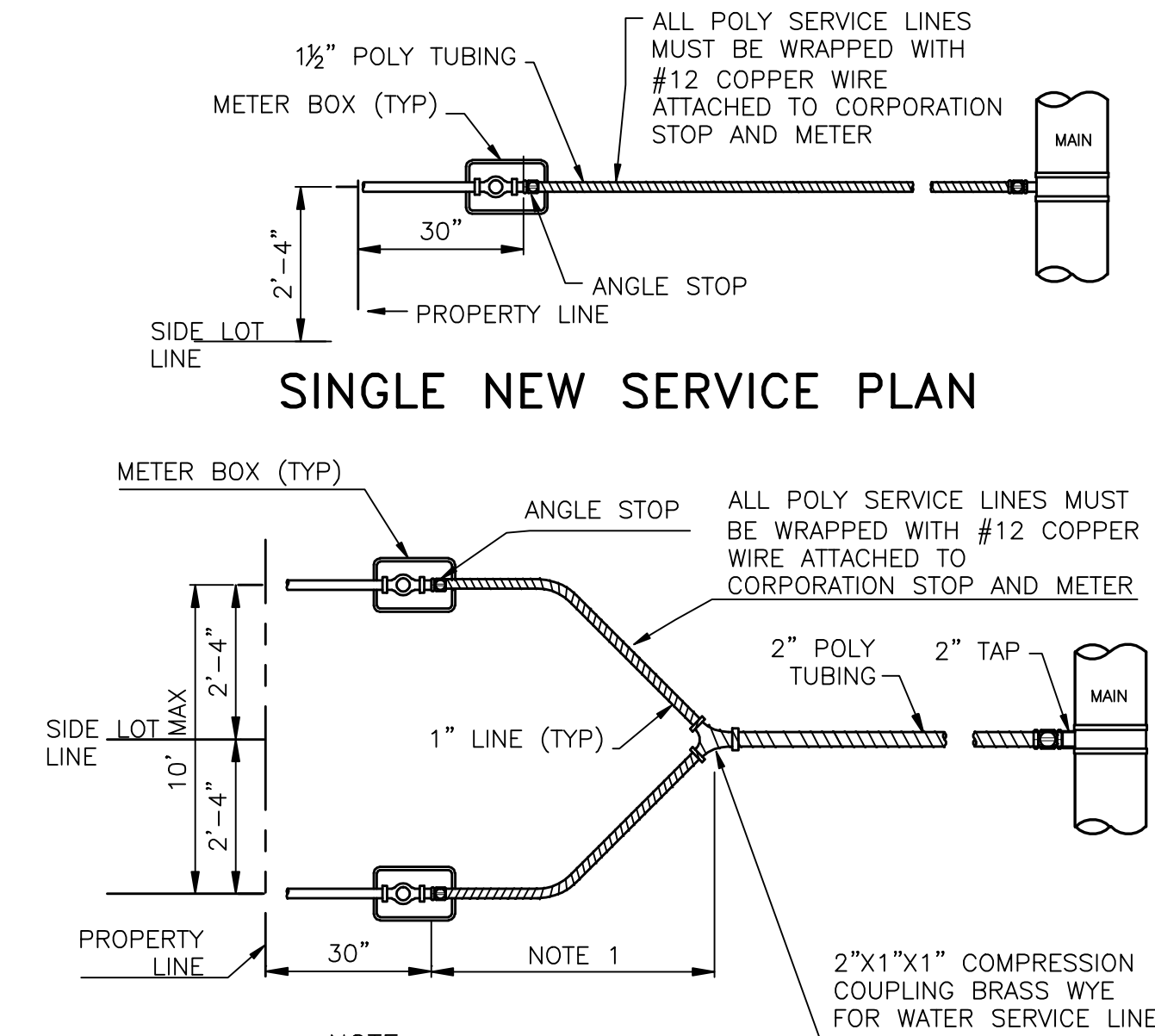
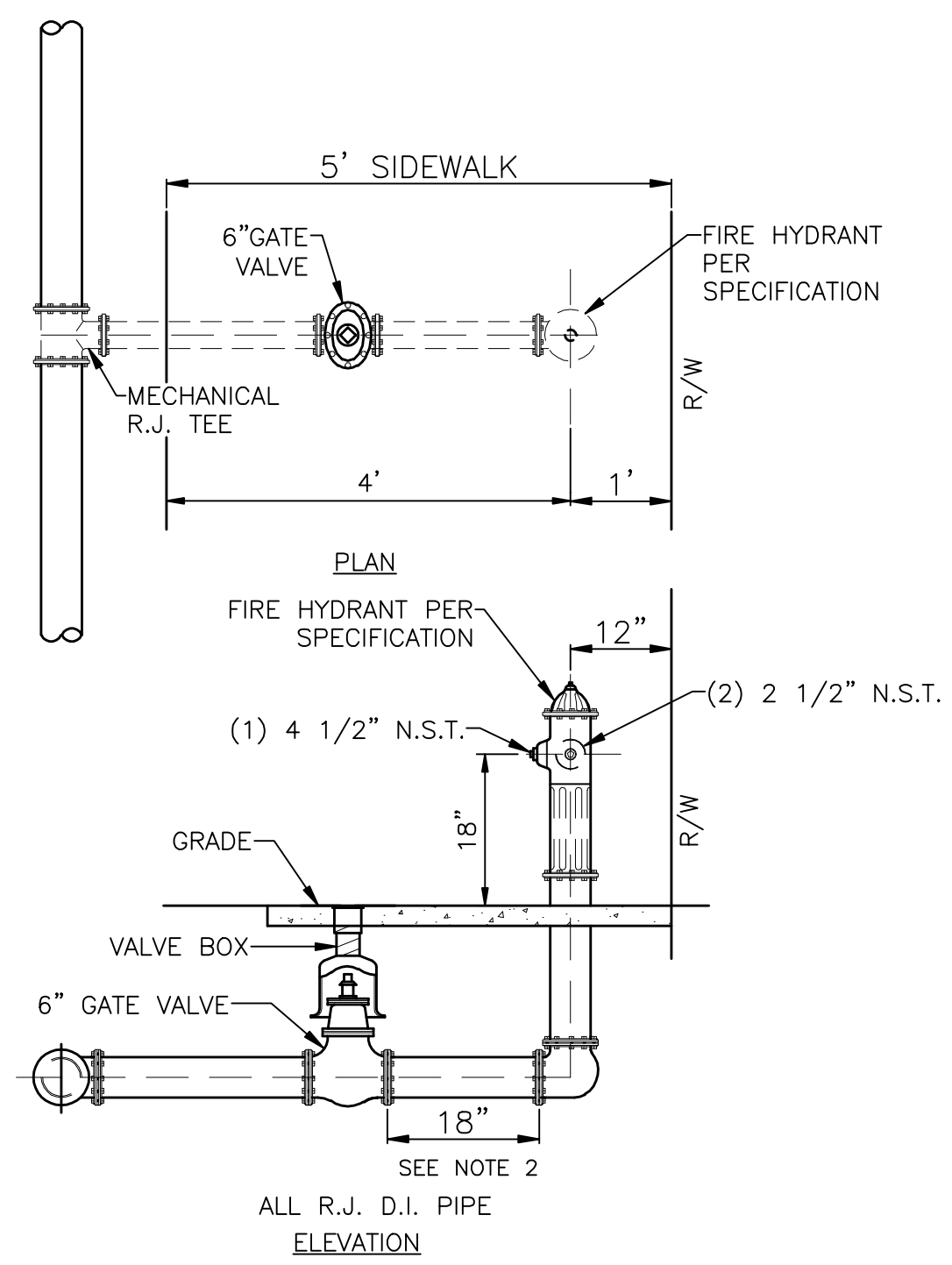


- NOTE:
- GROUND KEY ANGLE METER STOP CONDUCTIVE COMPRESSION FOR CTS O.D. TUBING, X METER FLANGE 180° TURN CHECK-LOCK WING "MUELLER" H-14277, FOR 2-INCH INCLUDING THE STAINLESS STEEL LINER, "MUELLER" 506141 (FOR 2-INCH) OR APPROVED EQUAL, AND MUELLER 110 COMPRESSION CONNECTION.
 - METER BOXES FOR 5/8, 3/4, AND 1 INCH METERS SHALL BE THE OKIE DOKIE #890-40-260282 MEDIUM BOX AND 890-40-260257 MEDIUM LID OR EQUAL.
 - CONNECT ANGLE VALVE TO EXISTING METER WHERE APPLICABLE.

TYPICAL WATER SERVICE INSTALLATION (300)

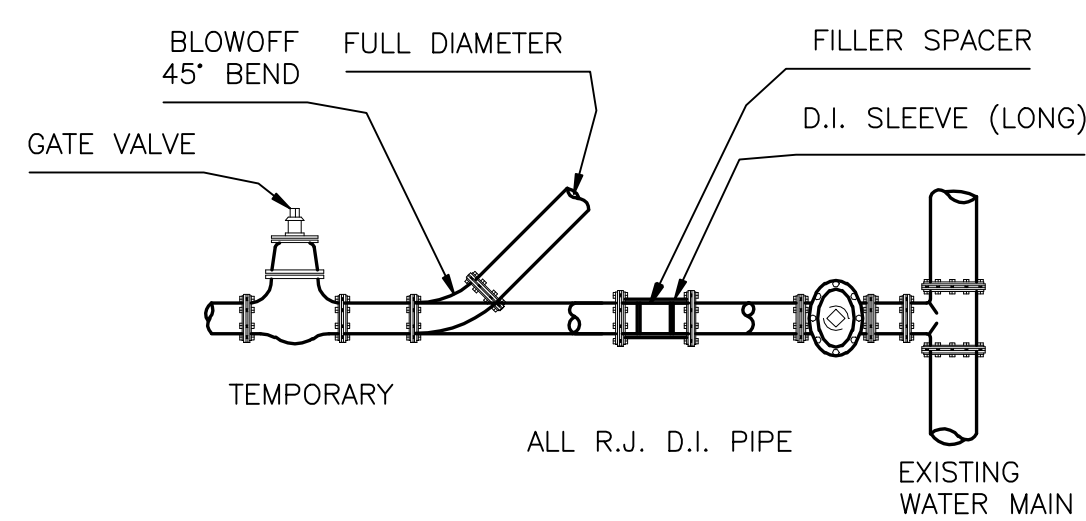


TYPICAL WATER SERVICE (301)



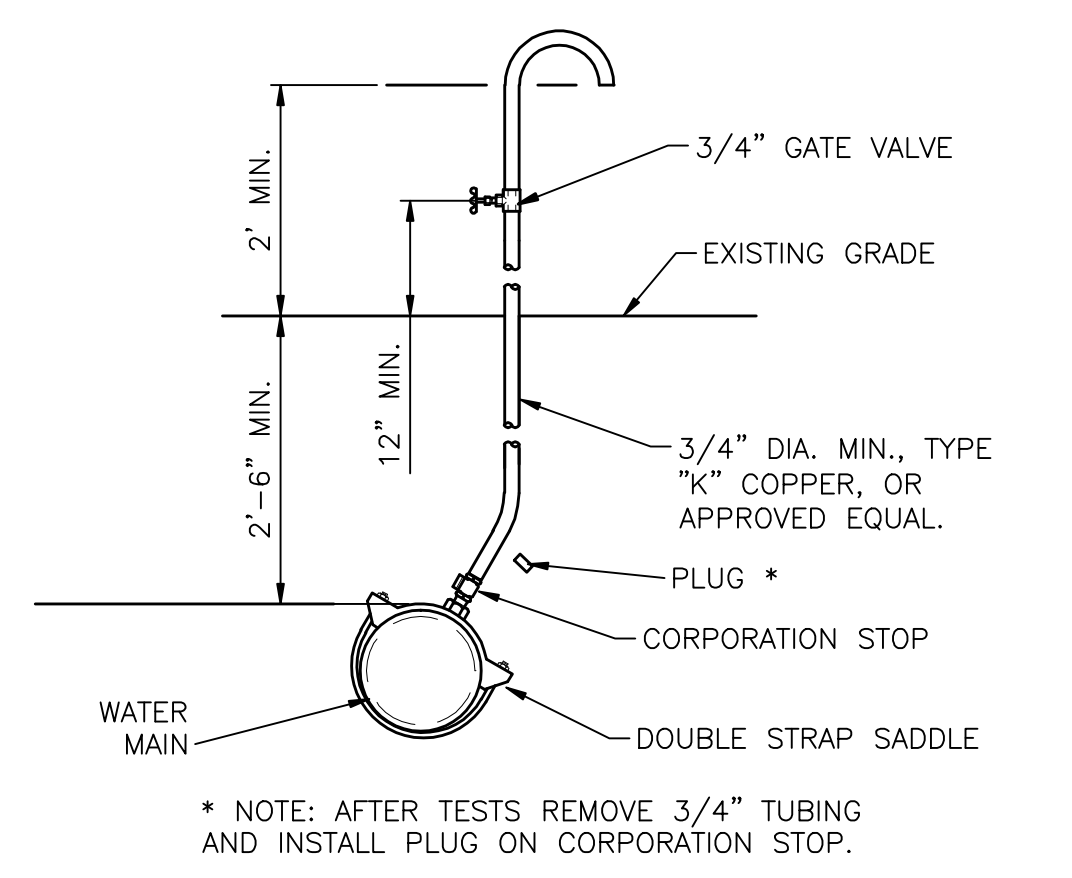
- NOTES:
- ACTUAL LOCATION OF FIRE HYDRANT TO BE DECIDED IN THE FIELD WITH ENGINEER'S APPROVAL.
 - KEEP VALVE AS CLOSE AS POSSIBLE TO THE HYDRANT.

TYPICAL NEW FIRE HYDRANT ASSEMBLY INSTALLATION (302)

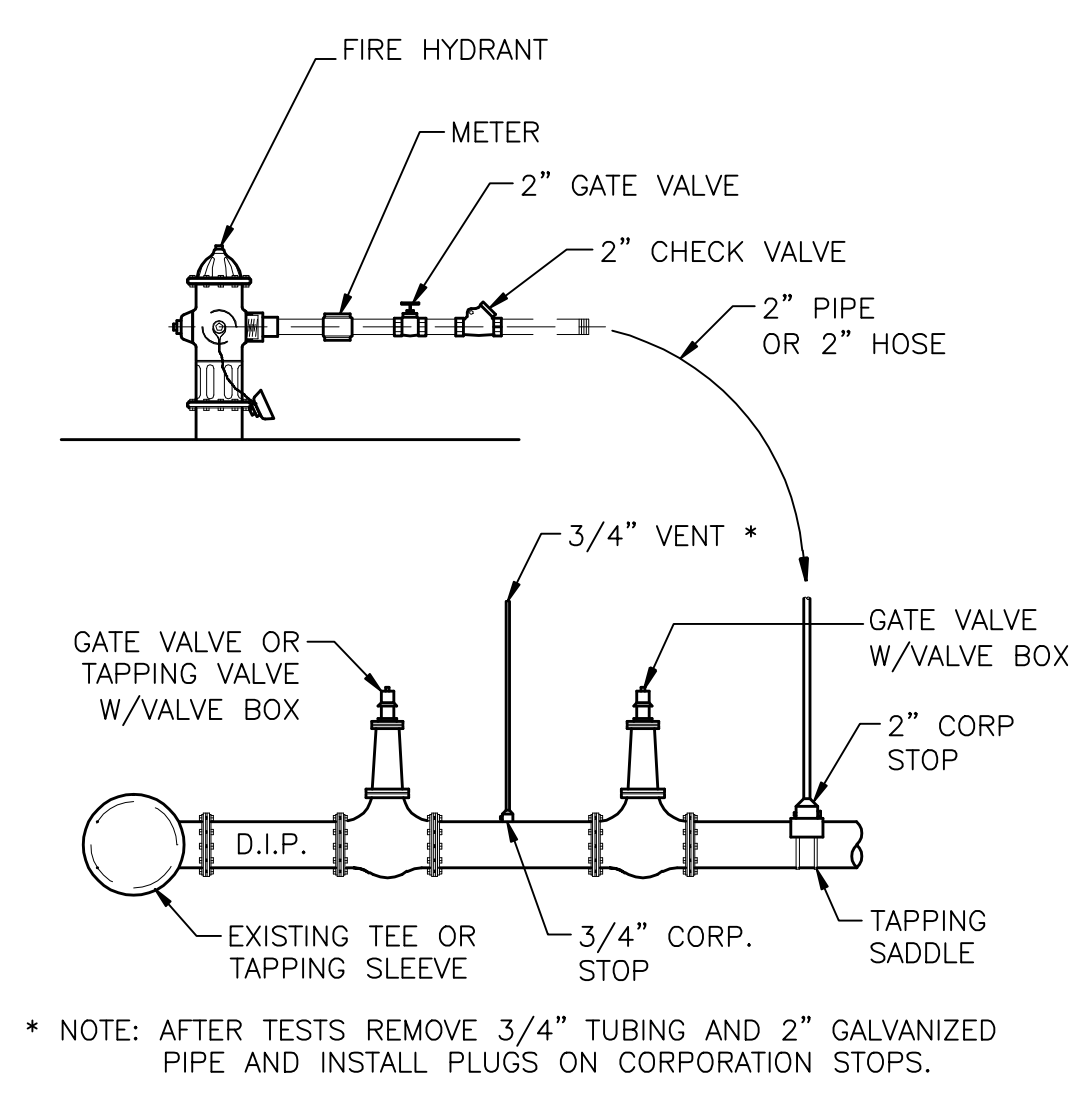


- NOTES:
- UPON COMPLETION OF THE PIPE INSTALLATION FOR ANY SECTION, THE MAINS SHALL BE SWABBED AND FLUSHED TO REMOVE DIRT AND ANY OTHER FOREIGN MATTER BY ACHIEVING A MINIMUM VELOCITY OF 2.5 FEET PER SECOND IN THE PIPE. TEMPORARY FITTINGS, PIPE, ETC. MAY BE NEEDED TO FACILITATE FLUSHING.
 - INSTALL A 45° BEND AND ASSOCIATED PIPING AS SHOWN TO DIRECT THE FLUSHING WATER AWAY FROM THE IMMEDIATE WORK AREA AND EXERCISE DUE CARE SO AS TO ENSURE THAT THE WATER USED IN FLUSHING DOES NOT CAUSE A NUISANCE OR INFLECT PROPERTY DAMAGE.
 - BENDS AND PIPING SHALL BE THE SAME SIZE AS THE LINE TO BE FLUSHED.
 - PRIOR TO THE ACTUAL LINE FLUSHING OPERATION, THE CONTRACTOR SHALL PROPERLY NOTIFY THE CITY INSPECTOR OF SUCH INTENDED WATER USE.
 - NO EXISTING VALVES SHALL BE TURNED ON OR OFF, EXCEPT BY AUTHORIZED CITY PERSONNEL.
 - FLUSHING SHALL NOT BE ACCOMPLISHED WITHOUT THE ACTUAL PRESENCE OF THE CITY INSPECTOR.
 - AFTER THE LINE UNDER CONSTRUCTION HAS BEEN SUCCESSFULLY FLUSHED THE CONTRACTOR SHALL REMOVE THE TEMPORARY PIPING ARRANGEMENT AND PROCEED WITH THE REMAINING CONSTRUCTION AS SPECIFIED.
 - THERE MAY BE SPECIAL REQUIREMENTS FOR FLUSHING PIPE LARGER THAN 12" DIAMETER.

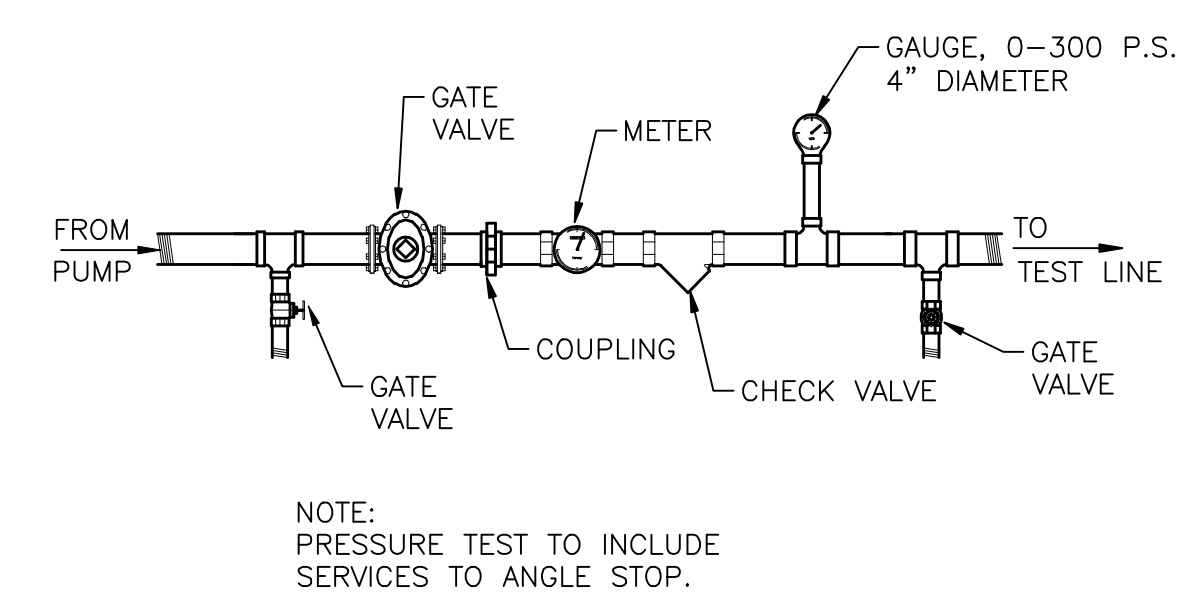
FLUSHING CONNECTION AND BLOW OFF DETAIL (303)



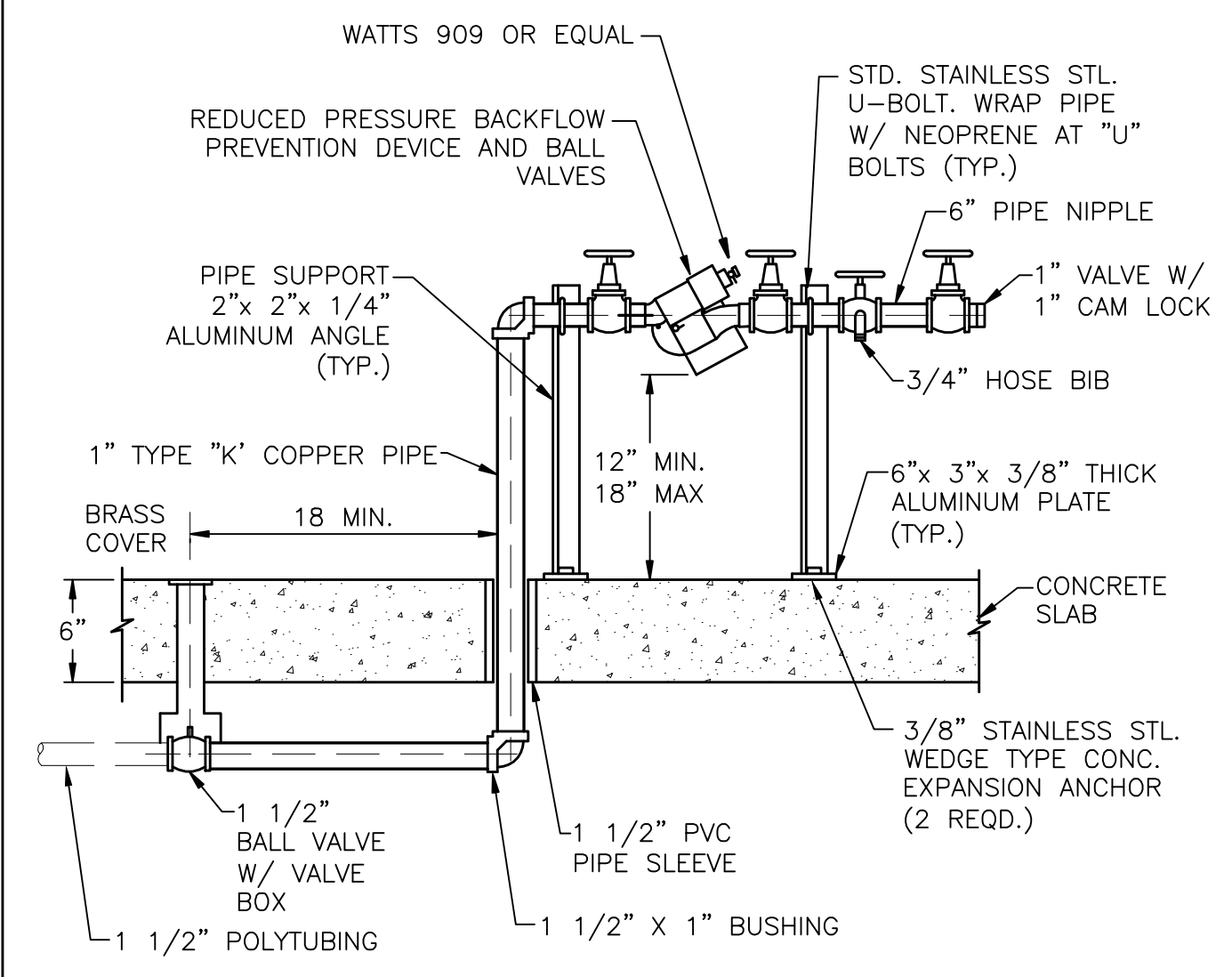
TYPICAL BACTERIOLOGICAL SAMPLING POINT AT INTERMEDIATE POINTS (304)



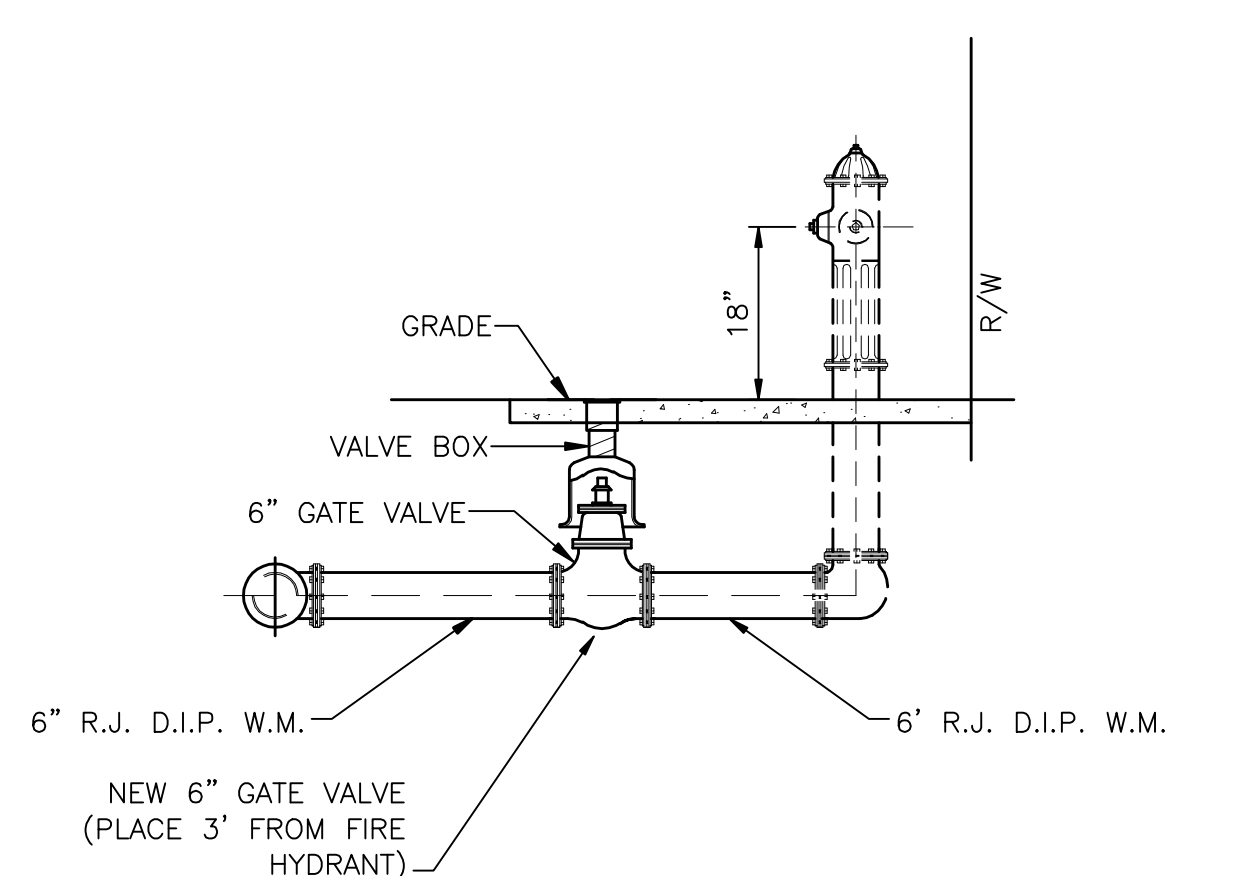
FILLING CONNECTION (305)



PRESSURE TEST DETAIL (306)



REDUCED PRESSURE BACKFLOW PREVENTER WITH HOSE CONNECTION FOR LIFT STATION (307)



RELOCATE OR CONNECT EXISTING FIRE HYDRANT (308)

- NOTES:
- RECONNECT EXISTING FIRE HYDRANT TO NEW WATER MAIN.
 - KEEP VALVE AS CLOSE AS POSSIBLE TO THE HYDRANT.
 - WHEN FIRE HYDRANT "TEE" IS ON P.V.C. PIPE RUN, CONSTRUCT 1 LENGTH OF D.I.P. (R.J.) PIPE ON EACH SIDE OF FIRE HYDRANT "TEE".

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
FORT LAUDERDALE, FLORIDA

FINAL APPROVAL	FLA. P.E. NO. 00000 PETER PARTINGTON
SCALE: N.T.S.	DATE: FEB. 2006
DRAWN BY: ENG.	CHECKED BY: WW2011
DESIGNED BY: WW2011	FIELD BOOK: 0000/00-00

REVISIONS	
NO.	DESCRIPTION
1	REVISE DETAILS 300, 301

STANDARD DETAIL SHEET

PROJECT # 0000
Name of job
Description
Street Address
WATER DETAILS

NO. OF SHEETS: 00
SHEET NO.: 0
CAD FILE NO. XXXXX-001-010WATR
FILE NO. 04-000-00

xx/xx/xx

LEGEND:

SYMBOL	DESCRIPTION
	WATER METER BOX
	EXISTING VALVE
	PROPOSED VALVE
	FIRE HYDRANT
	BENCH MARK
	TREE
NBC	NAIL IN BOTTLE CAP
NIA	NAIL IN ASPHALT
	GAS LINE
	WATER MAIN
	BURIED TELEPHONE
	TELEPHONE
	UNDERGROUND ELECTRIC
	FORCE MAIN
	OVERHEAD WIRES
	CABLE TELEVISION
	CHAIN LINK FENCE
	WOOD FENCE
	EXISTING ELEVATION
	SOIL BORING LOCATION MARK
	SOIL TYPE SEPERATION MARK

WATER SYSTEM NOTES:

PIPE D.I.P.

- Ductile Iron water main pipe shall conform to the requirements of A.N.S.I./ A.W.W.A. C-151/A 21.51-02 and lined and coated per A.N.S.I./A.W.W.A. C-104/A-214-03. 20" and smaller pipe shall be pressure class 350; 24" and larger, pipe shall be pressure class 250.
- All DIP shall have adequate protective measures against corrosion and it shall be used only if as determined by the design engineer, based on field conditions.
- All DIP shall be installed in accordance with A.N.S.I./A.W.W.A. C-600-99, or latest revision.

PIPE P.V.C.

- All P.V.C. mains shall be series 1120, class 150 (DR 18) pressure pipe, conforming to A.N.S.I./A.W.W.A. C-900-07, or latest revision, and shall have push on joints, and iron pipe O.D.
- All P.V.C. pipe shall be installed in accordance with the Uni-Bell plastic pipe Association's "Guide for installation of P.V.C. pressure pipe for Municipal water distribution system". Water distribution pipe shall be of "BLUE" color. All water main installations shall comply with the color coding requirements of Chapter 62-555.320 F.A.C. (Florida Administrative Code).

- Detector tape on all P.V.C. mains shall be installed 18" above the water main.
- All P.V.C. mains must have #6 copper wire, single strand, placed on top of pipe, shall be electrically continuous over the entire length of the pipe, and fastened every 10' with a #12 wire.

FITTINGS

- Fittings shall be ductile iron meeting A.N.S.I./A.W.W.A. C153/21.00 and shall be coated with 6 to 8 mil. Thickness coal tar epoxy conforming to the requirements of A.N.S.I./A.W.W.A. C550-05 and C116/A21.03.
- Restrained joint pipe shall be used for all bends, tees, crosses, plugs, and fire hydrants. Thrust blocks shall not be allowed.
- Retainer glands/mechanical joint restraint shall be used only if authorized by the Engineer and shall conform to A.N.S.I./A.W.W.A. standards C 111/A-21.11-03, or latest revision.
- All glands shall be manufactured from ductile iron as listed by underwriter's laboratory for 250 P.S.I. minimum water pressure rating.
- Glands shall be CLOW Corporation model F-1058, standard fire protection equipment company, or approved equal.

VALVES

- Tapping valves shall be Mueller H667 or approved equal.
- Tapping sleeves shall be Mueller H615 or approved equal.
- Gate valves 3" or less shall be NIBCO T-133 OR T-136 with malleable hand wheels. No substitutions allowed.
- Gate valves 4" or larger shall meet A.W.W.A. C-500-02 specification (latest revision). Valves shall be Mueller Co. or approved equal.
- All valves shall be furnished with extension type cast iron valve boxes of proper length for pipe depth. All boxes shall conform with A.W.W.A. specifications with a shaft of no less than 5 inches and have the word "WATER" cast in the cover. Base of valve box shall have a flared section to fit over stuffing box of valve.

HYDRANTS

- Fire hydrants shall be breakaway Mueller Co. Centurion model #A-423, or Metropolitan 250 Eddy Compression type F.H. or approved equal.
- Fire hydrants shall be installed with the center of the nozzle 18" above finished grade.
- Dead-end water mains 6" or larger shall terminate with a fire hydrant.

PLACEMENT

- The minimum depth of cover over water mains is 30" except where shown differently on plans.
- A continuous and uniform bedding shall be provided. Backfill material shall be tamped in layers around the pipe as shown on the plans and/or City of Fort Lauderdale Construction Standards and Specifications, January 1982. Rocks or stones larger than 3/4" diameter found in the trench shall be removed for a depth of at least 6" below the bottom of the pipe.
- Pipe deflection shall not exceed 75% of the maximum deflection recommended by the manufacturer.

SEPARATION

- Sanitary sewers and force mains should cross under water mains whenever possible. Sanitary sewers and force mains crossing water mains shall be laid to provide a minimum vertical distance of 18" between the invert of the upper pipe and the crown of the lower pipe whenever possible.
- Where sanitary sewer force mains must cross a water main with less than 18" vertical separation, both the sewer and water main shall be constructed of ductile iron pipe (DIP) at the crossing. Sufficient lengths of DIP must be used to provide a minimum separation of 10 feet between any two joints. All joints on the water main within 20 feet of the crossing must be mechanically restrained. A minimum vertical clearance of 6" must be maintained at all crossings.
- A minimum 10 foot horizontal separation shall be maintained between any type of sewer and water main in parallel installations whenever possible.
- The preferred separation between water mains and sewer mains shall be 10 feet. In cases where it is not possible to maintain a 6 foot horizontal separation between the water mains and sewer mains, one of the following conditions must be met. The minimum separation between water and sewer mains shall be 3 feet:

SEPARATION (CONT'D)

- The water main must be laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer or force main at such elevation that the bottom of the water main is at least 18 inches above the top of the sewer.
- The sewer or force main is encased in concrete or a watertight carrier pipe.
- Both the sewer and the water main are constructed of pressure pipe tested to 150 p.s.i.
- Where it is not possible to maintain a vertical distance of 18" in parallel installations, the water main shall be constructed of DIP and the sanitary sewer or force main shall be constructed of DIP, with a minimum vertical clearance of 6". The water main should be above the sewer. Joints on the water main shall be located as far apart as possible from the joints on the sewer or force main (staggered joints).
- All crossings shall be arranged so that the sewer pipe joints and the water main pipe joints are equidistant from the point of crossing (pipes centered on the crossing).
- Where a new pipe conflicts with an existing pipe with less than 18" vertical clearance, the new pipe shall be arranged to meet the crossing requirements above.

TESTING, DISINFECTION

- Pipe shall be tested under constant pressure of 150 P.S.I. for a minimum test period of 2 hours and shall not exceed the leakage requirements as per A.N.S.I./A.W.W.A. specifications of C-600-05 leakage formula: $Q = (SD\sqrt{P}) / 133,200$
 Q = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
 D = DIAMETER OF THE PIPE TESTED, IN INCHES.
 S = TOTAL LENGTH OF PIPE TESTED, IN FEET.
 P = AVERAGE TEST PRESSURE, IN POUNDS PER SQUARE INCH.
- The City of Fort Lauderdale Public Services Department will take all bacteriological tests, to be scheduled via inspector. If otherwise specified in contract detailed specification and/or authorized by the engineer of record, bacteriological tests may be performed by a certified environmental testing laboratory.
- Disinfection of mains shall comply with A.N.S.I./A.W.W.A. C-651-05 standard. Bacteriological sampling points shall be designated on the engineering plans. Minimum one sampling point at each end. Maximum space between sampling points is 1200 feet.

CONNECTION

- All connections to existing mains shall be made under the direction of the City of Fort Lauderdale.
- There shall be no connection to an existing water main until pressure and bacteriological tests have been conducted and the results are approved and accepted by the City of Fort Lauderdale.

SERVICE CONNECTIONS

- All meter service connections shall be bronze from plug valve. No gate valves are to be used (2" or less).
- Service saddles shall be ductile iron with stainless steel straps. Saddles shall be double strap type. All service saddles shall conform to A.N.S.I./A.W.W.A. C 111/A-21.11-00 and A.S.T.M. A588.
- All service lines shall be copper tubing, type "K", or plasticized polyethylene 3408, A.S.T.M. D-2737, S.D.R. 9, 200 P.S.I.

GENERAL NOTE:

ALL EXISTING 2" WATER MAINS ARE TO BE CAPPED AND ABANDONED IN PLACE. NEW WATER SERVICE LINES SHALL BE INSTALLED TO SERVICE THE EXISTING PROPERTIES.

FINAL APPROVAL	FLA. P.E. NO. 00000 PETER PARTINGTON
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SCALE: N.T.S.	DATE: FEB. 2006
DRAWN BY: ENG.	CHECKED BY: WW2011
DESIGNED BY: WW2011	FIELD BOOK: WW2011

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
FORT LAUDERDALE, FLORIDA

REVISIONS		CHK'D	DESCRIPTION
NO.	DATE	BY	
1	04/06	T.A.	REVISE NOTE 33
2	08/08	R.C.	REVISE NOTES 4 & 10

STANDARD DETAIL SHEET

PROJECT # 0000
 Name of job
 Description
 Street Address
 STANDARD WATER DETAILS

NO. OF SHEETS: 00
 SHEET NO.: 0
 CAD FILE NO.
 XXXXX-001-010WATR
 FILE NO.
 04-000-00