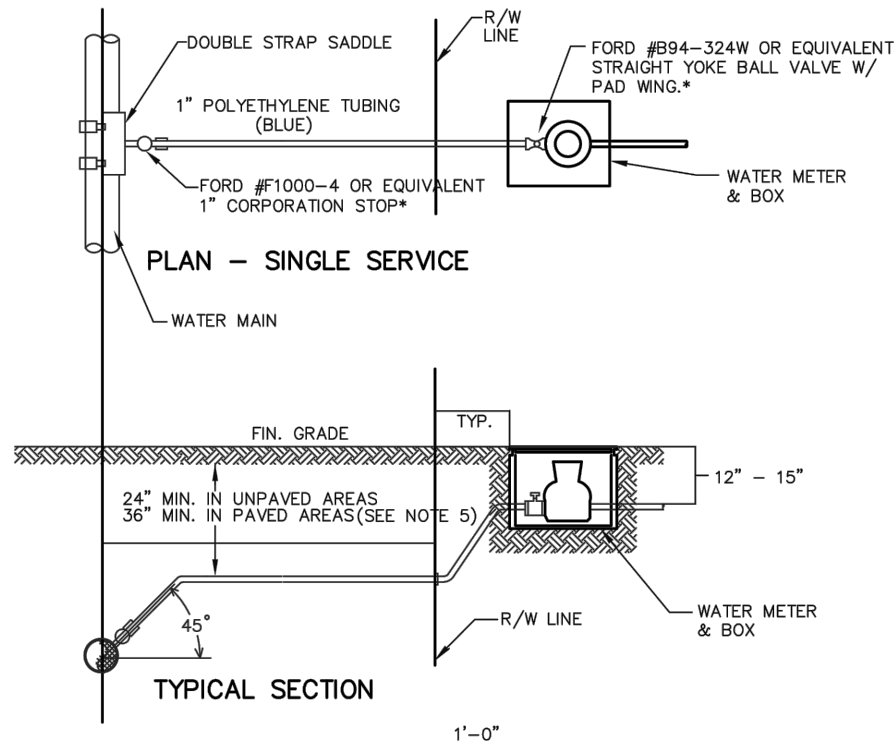


VALVE SCHEDULE	
FORD OR EQUIVALENT	
WATER SERVICES	
VALVES AT MAIN	
1"	F1000-4
1 1/2"	B81-656 (REQ. C84-66 PACK JOINT COUPLING)
2"	B81-777 (REQ. C84-77 PACK JOINT COUPLING)
VALVES AT METER	
1"	B94-324W
1 1/2"-2"	BF43-777W



NOTES:

- CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
- HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL).
- REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE.
- ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVAL OR WITHIN 2'-0" OF BELL OR SPIGOT ENDS.
- IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE-TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.
- ALL IRRIGATION SERVICES (WATER) MUST HAVE AN APPROVED BACKFLOW PREVENTION DEVICE INSTALLED ON CUSTOMERS SIDE OF WATER METER. THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND CERTIFICATION COST. A COPY OF THE CERTIFICATION MUST BE SENT TO THE CITY OF ORMOND BEACH ENGINEERING DEPARTMENT, PRIOR TO FINAL INSPECTION.
- WATER METERS INSTALLED IN AREAS SERVED BY RECLAIMED WATER SHALL BE EQUIPPED WITH A DUAL CHECK BACKFLOW PREVENTER.
- WATER METERS IN AREA SERVED WITH AN ALTERNATE IRRIGATION SUPPLY SHALL BE EQUIPPED WITH BACKFLOW PREVENTION TO BE APPROVED FOR USE BY FDP.

PIPE SIZE (IN.)	THRUST		BLOCK		DIMENSION (feet)		DEAD END	TEE/WYE	
	90° BEND	45° BEND	22.5° BEND	11.25° BEND	1.0	0.5		1.0	0.5
4	1.5	0.5	1.0	0.5	1.0	0.5	1.0	0.5	0.5
6	2.0	0.5	1.5	0.5	1.0	0.5	2.0	0.5	0.5
8	2.5	0.5	2.0	0.5	1.5	0.5	2.0	1.0	0.5
10	3.0	0.5	2.5	1.0	2.0	0.5	3.0	1.0	0.5
12	4.0	1.0	3.0	1.0	2.0	0.5	3.0	1.0	0.5
14	4.5	1.0	3.0	1.0	2.5	0.5	4.0	1.5	1.0
16	5.0	1.5	4.0	1.0	3.0	1.0	4.5	1.5	1.0
18	5.7	1.7	4.2	1.4	3.1	1.4	6.9	1.7	
24	7.7	1.7	5.6	1.4	4.1	1.4	9.1	2.1	
30	9.5	2.1	7.0	1.7	5.1	1.4	11.3	2.4	
36	11.5	2.4	8.4	1.8	6.0	1.7	13.6	2.5	

- NOTES:
- THRUST BLOCKS TO BE SET AGAINST FIRM UNDISTURBED SOIL.
 - FITTINGS TO BE WRAPPED IN VESQUEEN OR POLYETHYLENE ENCASEMENT PRIOR TO POURING CONCRETE.
 - CONCRETE STRENGTH $f = 3000$ P.S.I.

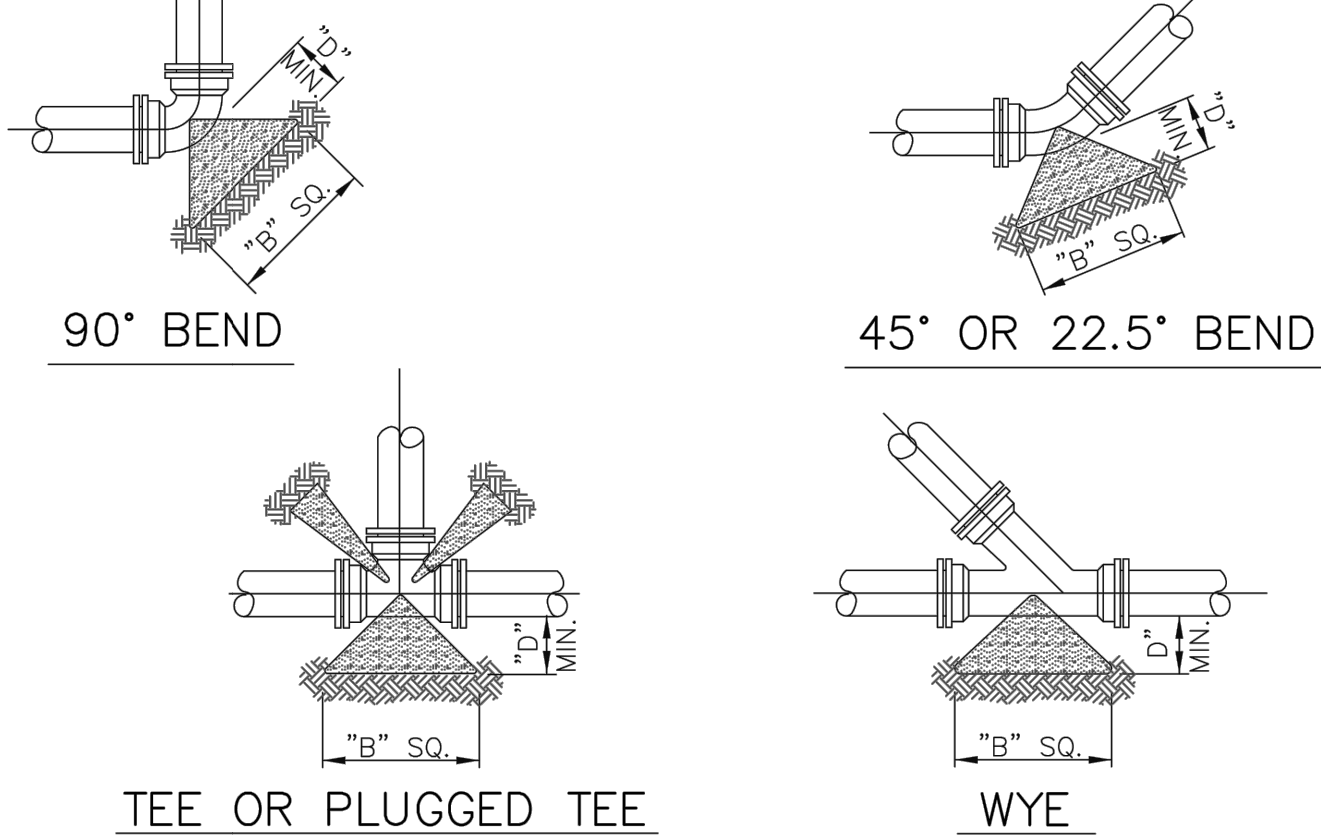


TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 3

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	148
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (195)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36" *	69 (82)	28 (34)	18 (18)	18 (18)	170 (204)
42" *	76 (92)	31 (37)	18 (18)	18 (18)	191 (229)
48" *	90 (106)	40 (46)	18 (18)	18 (18)	212 (254)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

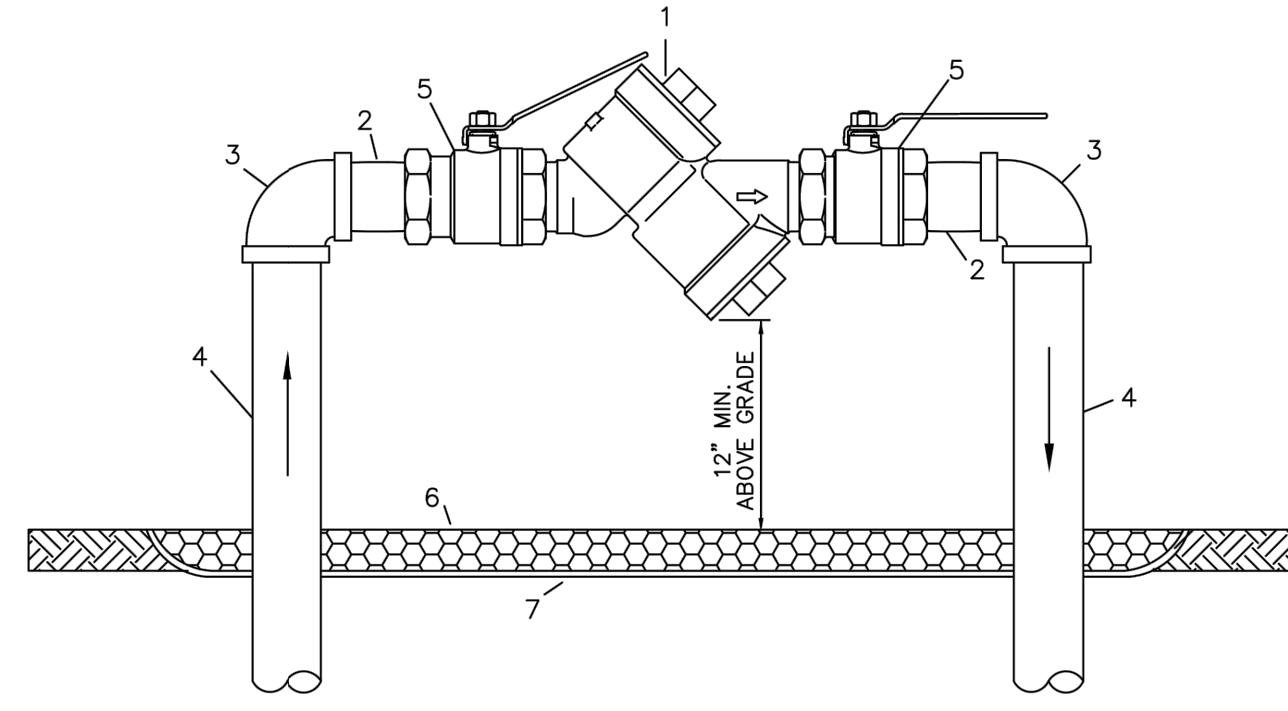
VALUES IN PARENTHESIS ARE FOR PIPE ENCASED IN POLYETHYLENE.

TABLE APPLIES TO D.I.P. FOR THE FOLLOWING CONDITIONS:
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

STANDARD CONSTRUCTION DETAIL PVC AND D.I.P. RESTRAINED JOINT TABLE

INDEX
W-5
DEC 2015

ACCEPTABLE MANUFACTURERS: HERSEY MODEL FRP II, WILKINS MODEL 950XL, WATTS MODEL 007M1 DCDA, APOLLO MODEL DCLF4A



M A T E R I A L S		
ITEM	QUANT.	DESCRIPTION
1	1	3/4", 1", 1-1/2" OR 2" BACKFLOW PREVENTER ASSEMBLY
2	2	3/4", 1", 1-1/2" OR 2" x NOM. NIPPLES - BRASS
3	2	3/4", 1", 1-1/2" OR 2" x 90° ELBOWS - PVC, BRASS OR COPPER
4	2	3/4", 1", 1-1/2" OR 2" x VARIES RISER - PVC, BRASS OR COPPER
5	2	3/4", 1", 1-1/2" OR 2" BALL VALVE
6	*	PEA GRAVEL
7	*	PLASTIC LINER

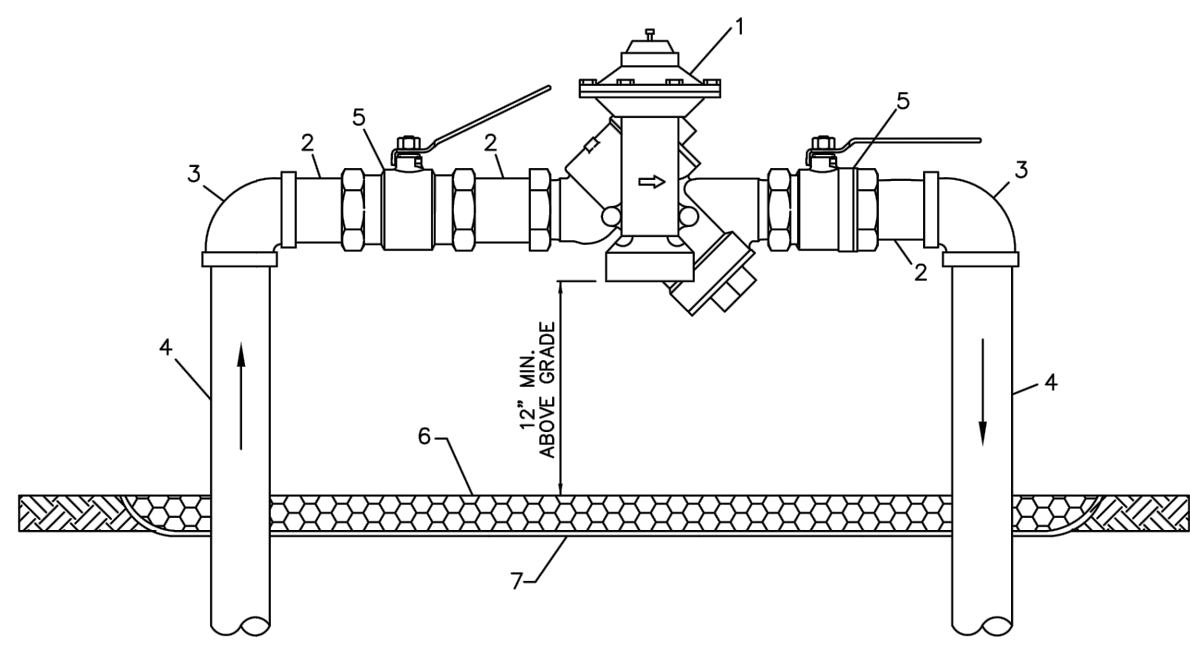
- NOTE:
- FIELD ADJUST AND CUT ITEM 4 TO THE PROPER LENGTH.
 - NO GALVANIZED PIPE OR FITTINGS ALLOWED.
 - A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY'S ENGINEERING DEPARTMENT BEFORE FINAL INSPECTION
 - ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND IT TO OBSCURE VIEW.
 - ASSEMBLY SHALL BE PAINTED FOREST GREEN
 - WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES



STANDARD CONSTRUCTION DETAIL DOUBLE CHECK BACKFLOW PREVENTER (FIRE LINE) 3/4", 1", 1-1/2", OR 2" NTS.

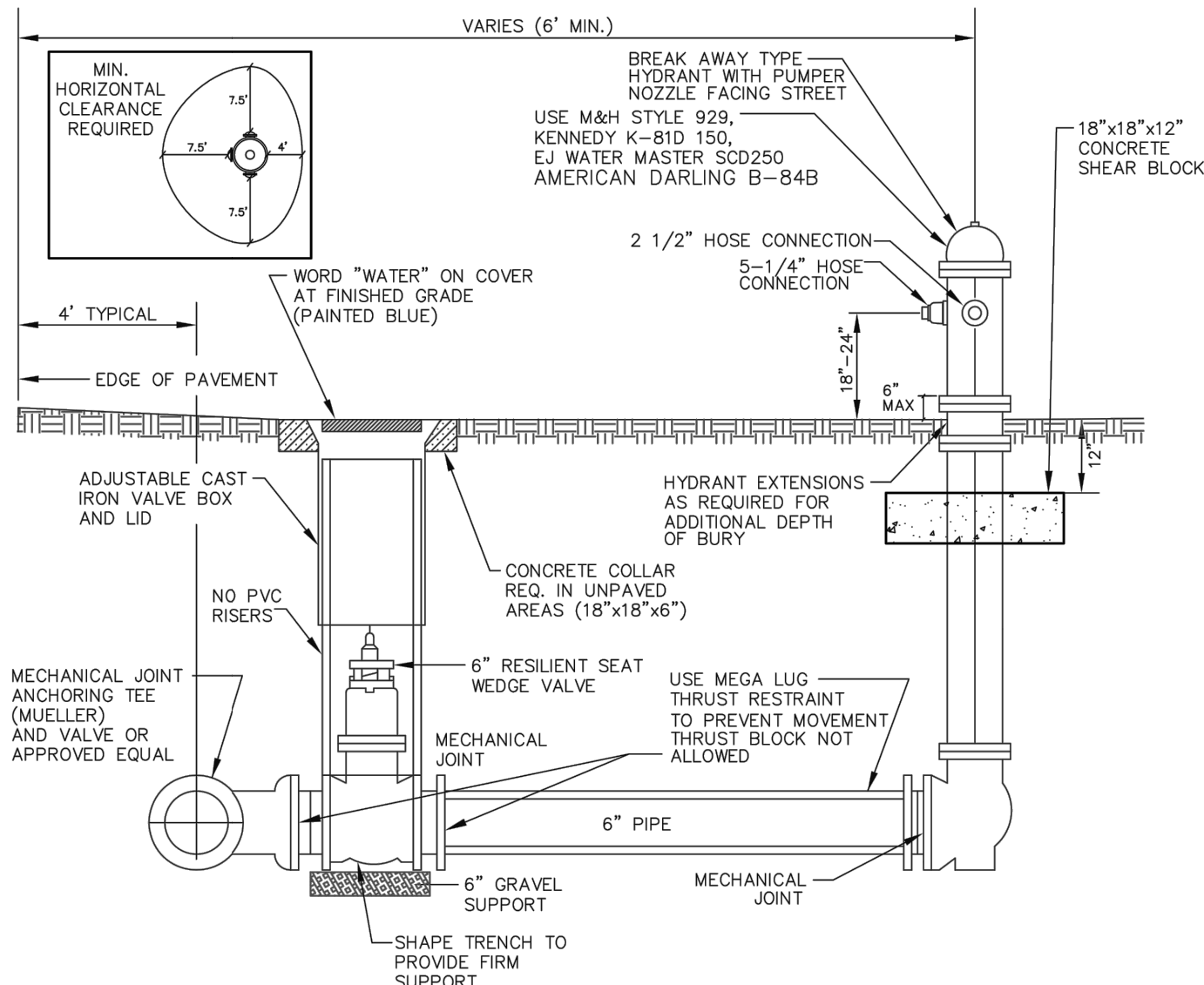
INDEX
W-6A
DEC 2016

ACCEPTABLE MANUFACTURERS:
WILKINS MODEL 975XL, WATTS MODEL 009 QTS, APOLLO MODEL RPLF4A



M A T E R I A L S		
ITEM	QUANT.	DESCRIPTION
1	1	3/4", 1", 1-1/2" OR 2" BACKFLOW PREVENTER ASSEMBLY
2	3	3/4", 1", 1-1/2" OR 2" x NOM. NIPPLES - BRASS
3	2	3/4", 1", 1-1/2" OR 2" x 90° ELBOWS - PVC, BRASS OR COPPER
4	2	3/4", 1", 1-1/2" OR 2" x VARIES RISER - PVC, BRASS, OR COPPER
5	2	3/4", 1", 1-1/2" OR 2" BALL VALVE
6	*	PEA GRAVEL
7	*	PLASTIC LINER

- NOTE:
- FIELD ADJUST AND CUT ITEM 4 TO THE PROPER LENGTH.
 - NO GALVANIZED FITTINGS OR PIPE ALLOWED.
 - A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY'S ENGINEERING DEPARTMENT BEFORE FINAL INSPECTION.
 - ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND IT TO OBSCURE VIEW.
 - ASSEMBLY SHALL BE PAINTED FOREST GREEN
 - WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES



- NOTES:
- ALL JOINTS SHALL BE RESTRAINED
 - HYDRANTS TO BE PAINTED SAFETY YELLOW (PUBLIC) OR RED (PRIVATE).
 - HYDRANT BONNET AND CAP TO BE PAINTED ACCORDING TO THE FOLLOWING SCHEME:
CLASS AA - 1500 GPM AND GREATER - LIGHT BLUE
CLASS A - 1000 GPM TO 1499 GPM - GREEN
CLASS B - 500 GPM TO 999 GPM - ORANGE
CLASS C - LESS THAN 500 GPM - RED
 - HYDRANTS SHALL BE PRIMED WITH A CATALYZED TWO PART PRIMER (DURAPLATE #235), ELECTRICALLY CHARGED AND A CATALYZED URETHANE TOP COAT (ACROLOW 218), TWO COMPONENT POLYURETHANE PAINT.
 - HOSE CONNECTIONS TO BE AMERICAN STANDARD THREADS.
 - THE HYDRANT SHOE WILL BE COATED INSIDE WITH FUSION BONDED EPOXY. 6 MIL MINIMUM.
 - ADJUSTMENTS OR REPAIRS TO THE HYDRANT AFTER INSTALLATION SHALL BE DONE BY AN UNDERGROUND UTILITY CONTRACTOR OR THE CITY AND ALL COST SHALL BE CHARGED TO THE DEVELOPER. PAYMENT SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY OF PROPERTY.
 - RESTRAINED JOINTS REQUIRED. THRUST BLOCKS NOT PERMITTED.
 - BOLTS SHALL BE 316 STAINLESS STEEL.
 - INSTALL BLUE REFLECTIVE MARKER IN SUCH A MANNER THAT THE REFLECTIVE FACE OF THE MARKER IS PERPENDICULAR TO A LINE PARALLEL TO THE ROADWAY CENTERLINE. THE BLUE REFLECTIVE MARKERS SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE, DIRECTLY ACROSS FROM AND ADJACENT TO EACH FIRE HYDRANT.



STANDARD CONSTRUCTION DETAIL FIRE HYDRANT ASSEMBLY NTS

INDEX
W-8
DEC 2015



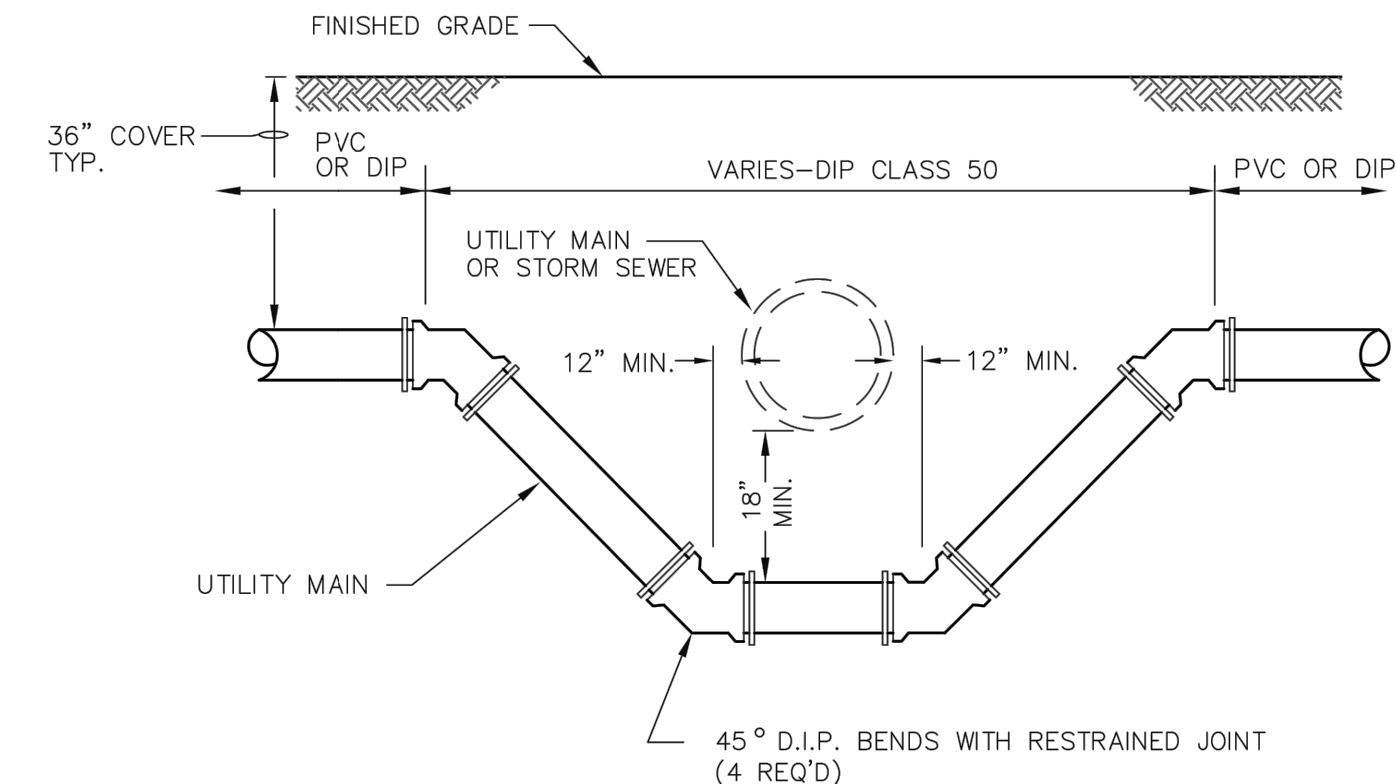
STANDARD CONSTRUCTION DETAIL WATER MAIN SEPARATION NTS

INDEX
W-9A
DEC 2015



STANDARD CONSTRUCTION DETAIL PIPE CROSSING NTS.

INDEX
W-9B
DEC 2015



NOTE: ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 18" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

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CONSULTING ENGINEERS
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880 AIRPORT ROAD, SUITE. 113
ORMOND BEACH, FL 32174
TEL: (386) 673-7640
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TODD ORIE WAREHOUSE/STORAGE
ORMOND BEACH, FLORIDA
Details

NO.	DATE	REVISION	BY

DESIGNER	FILE	DATE	DRAWN BY	PROJECT	SCALE
KAB	1816	11-20-2020	CTB	1816	As Noted

SHEET
C007