

Public Works Department • Water & Wastewater Services

WATER & WASTEWATER ENGINEERING DIVISION

2555 West Copans Road • Pompano Beach, Florida 33369 • 954-831-0745 • FAX 954-831-0798/0925

STANDARD DETAILS

Date: March 21, 2012 Date Last Issued: June 22, 2011

Date First Issued: Prior To 1988

This document approved by the Broward County Water & Wastewater Services Technical Standards Committee.

Mu Uhs Steven W. Uhrick, P.E, Chair

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL

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REPLACES FORMER DWG NO.1

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DETAIL INDEX

FIGURE 1

1

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> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



Know what's **below**. **Call** before you dig.

- 1. PRIOR TO BEGINNING ANY WORK, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES THAT HAVE FACILITIES WITHIN THE PROJECT AREA.
- 2. THE ABOVE NOTICE SHALL APPEAR ON THE COVER SHEET OF ALL CONSTRUCTION PLANS SUBMITTED TO THE COUNTY.

REPLACES FORMER DWG NO.101

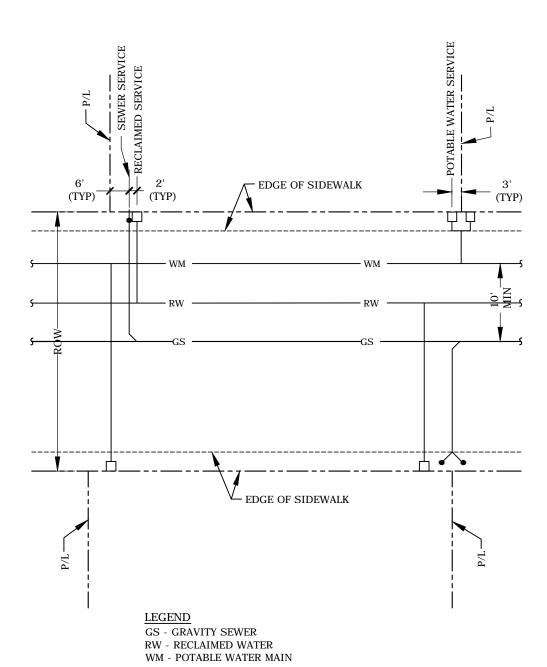
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UTILITY LOCATES

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STANDARD DETAIL



REPLACES FORMER DWG NO.104

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UTILITY LOCATIONS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL

RULE 62-555,314 WATER MAIN SEPARATION IN ACCORDANCE WITH F.A.C.

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (1) (4)	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORM WATER FORCE MAIN, RECLAIMED WATER (2)	Water Main Water Main 3 ft. minimum 2	Water Main 12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred 12 inches is preferred	Alternate 3 ft. minimum
VACUUM SANITARY SEWER	\(\begin{align*}	\[\langle \la	Alternate 3 ft. minimum Water Main
GRAVITY SANITARY SEWER,(3) SANITARY SEWER FORCE MAIN, RECLAIMED WATER	Water Main	Water Main 7 12 inches is the minimum, except for gravity sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 6 ft. minimum
ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 ft. minimum		

(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
(3) 3 FT. FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.

SANITARY SEWER.

(4) 18" VERTICAL MINIMUM SEPARATION REQUIRED BY WWS, UNLESS OTHERWISE APPROVED.

REPLACES FORMER **DWG NO.105**

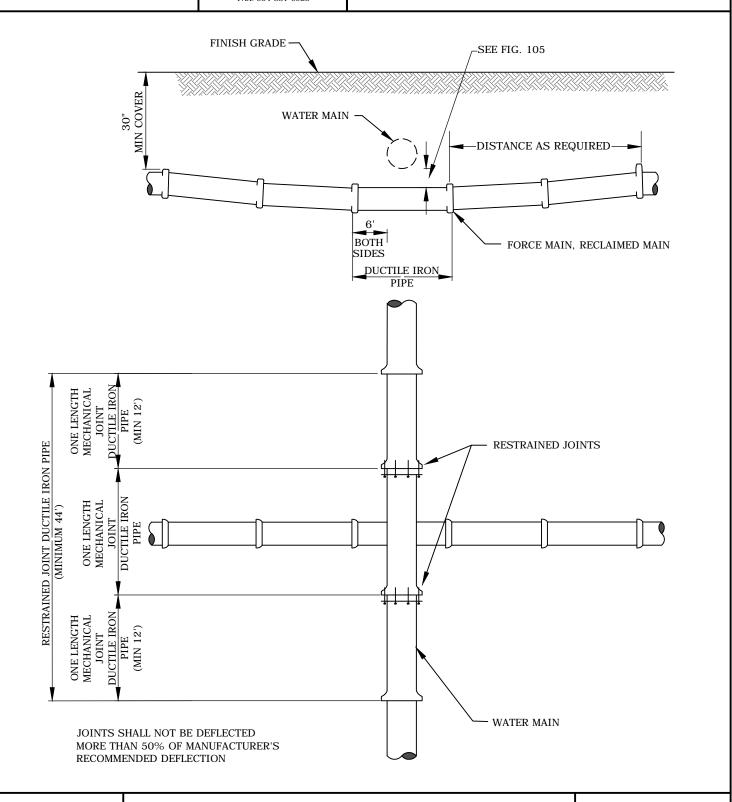
> **REVISED** 3/9/2012

WATER MAIN SEPARATION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

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STANDARD DETAIL



REPLACES FORMER DWG NO.16B

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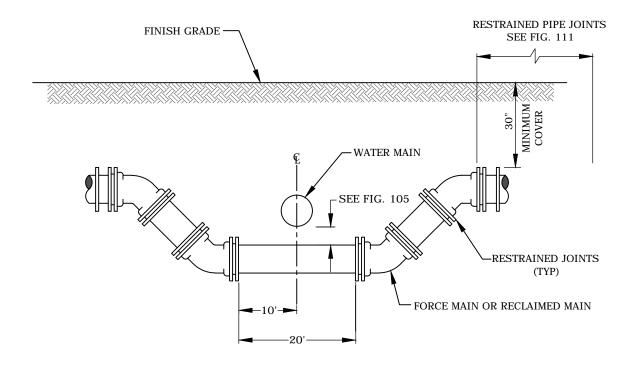
STANDARD UTILITY CROSSING

figure 106

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

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STANDARD DETAIL



WHEREVER POSSIBLE DEFLECTION OF THE PIPE WILL BE USED TO AVOID EXISTING OBSTRUCTIONS. THIS CROSSING SHALL BE USED ONLY WHEN APPROVED BY WWS.

REPLACES FORMER DWG NO.16C

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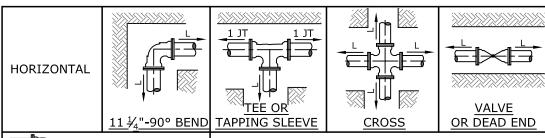
SPECIAL UTILITY CROSSING

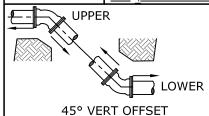
 $\frac{\text{FIGURE}}{107}$

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STANDARD DETAIL





CROSSES SHALL BE RESTRAINED IN ALL DIRECTIONS. FITTINGS AND VALVES NEED TO BE RESTRAINED PER STANDARD DETAILS 109-112, EVEN WHEN THE FITTINGS OR VALVES ARE CUT IN AFTER THE INITIAL PIPE INSTALLATION. ASBESTOS CEMENT PIPE WILL BE REPLACED WITH DUCTILE IRON PIPE AT LEAST THROUGH THE RESTRAINING LENGTH.

DUCTILE IRON PIPE

	HORI	ZONTAL	45° VERTICAL	OFFSET (FEET)				
Diameter	11 ¼°	22 ½°	45°	90°	Tee or Cross	Valves and Dead End	UPPER	LOWER
4	1	2	4	10	3	20	9	3
6	2	3	6	14	11	28	12	4
8	2	4	8	17	20	37	16	5
10	2	5	19	21	27	44	19	6
12	3	5	10	24	34	52	22	6

PVC PIPE

	HORI	ZONTAL	45° VERTICAL	OFFSET (FEET)				
Diameter	11 ¼°	22 ½°	45°	90°	Tee or Cross	Valves and Dead End	UPPER	LOWER
4	2	3	5	12	5	32	14	3
6	2	4	7	16	18	45	19	5
8	3	5	9	21	31	59	25	6
10	3	5	11	25	43	71	30	7
12	3	6	12	29	55	83	35	7

THE NOTED REQUIREMENTS WERE CALCULATED IN ACCORDANCE WITH THRUST RESTRAINT CALCULATOR V6.1 BY EBAA IRON WITH THE FOLLOWING ASSUMPTIONS:

SOIL CONDITIONS: SAND (SW, SP, GW)

LAYING CONDITION: 4, SAND BEDDING, BACKFILL COMPACTED > 80%

MINIMUM COVER: 3.0 FT SAFETY FACTOR: 1.5 BARE PIPE

IF FIELD CONDITIONS DIFFER FROM THE ABOVE, CONTRACTOR SHALL NOTIFY WWS. FOR PIPE LARGER THAN INCLUDED IN THE ABOVE TABLES, ENGINEER OF RECORD SHALL SUBMIT CALCULATIONS FOR EACH JOINT REQUIRING RESTRAINT.

SINGLE FITTING RESTRAINED JOINT 150 PSI TEST PRESSURE

REPLACES FORMER
DWG NO.109

REVISED 2/23/2011

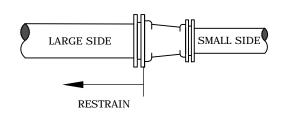
RESTRAINED JOINT
REQUIREMENTS SINGLE FITTING

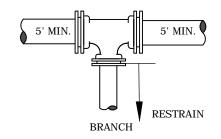
SMALL SIDE

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STANDARD DETAIL





STRAIGHT REDUCER

DUCTILE IRON PIPE					
DIAMETER	6"	8"	10"	12"	
4"	15'	27'	36'	45'	
6"		16'	27'	38'	
8"			15'	28'	
10"				16'	
PVC PIPE					
	6"	8"	10"	12"	
4"	24'	43'	58'	72'	
6"		25'	44'	61'	
8"			24'	44'	
10"				25'	

TEE REDUCER

	DUCTILE IRON PIPE							
	DIAMETER	6"	8"	10"	12"			
	4"	1'	1'	1'	1'			
	6"		6'	1'	1'			
	8"			15'	10'			
BRANCH SIZE	10"				23'			
NCH	PVC PIPE							
$\mathrm{BR}^{\!\!/}$		6"	8"	10"	12"			
	4"	1'	1'	1'	1'			
•	6"		9'	1'	1'			
	8"			24'	16'			
	10"				37'			

THE NOTED REQUIREMENTS WERE CALCULATED IN ACCORDANCE WITH THRUST RESTRAINT CALCULATOR V6.1 BY EBAA IRON WITH THE FOLLOWING ASSUMPTIONS:

SOIL CONDITIONS: SAND (SW, SP, GW)

LAYING CONDITION: 4, SAND BEDDING, BACKFILL COMPACTED > 80%

MINIMUM COVER: 3.0 FT SAFETY FACTOR: 1.5 BARE PIPE

IF FIELD CONDITIONS DIFFER FROM THE ABOVE, CONTRACTOR SHALL NOTIFY WWS. FOR PIPE LARGER THAN INCLUDED IN THE ABOVE TABLES, ENGINEER OF RECORD SHALL SUBMIT CALCULATIONS FOR EACH JOINT REQUIRING RESTRAINT.

RESTRAINED REDUCING FITTING 150 PSI TEST PRESSURE

REPLACES FORMER **DWG NO.112**

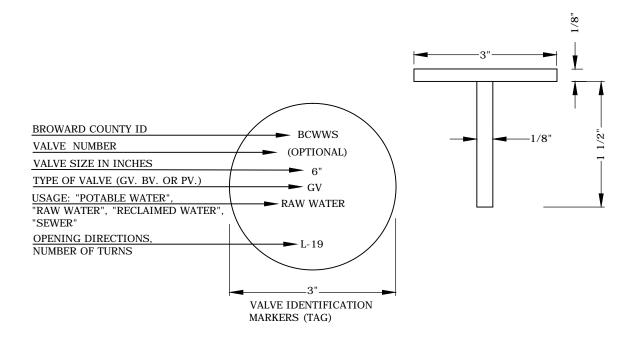
> **REVISED** 2/23/2011

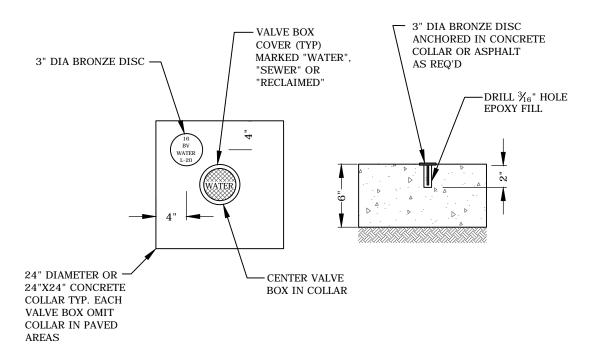
RESTRAINED JOINT REQUIREMENTS REDUCING FITTINGS

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STANDARD DETAIL





REPLACES FORMER DWG NO.3E

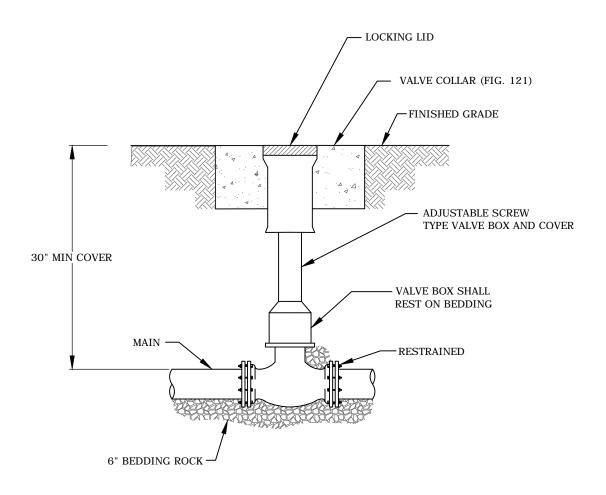
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VALVE COLLAR AND IDENTIFICATION MARKER

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STANDARD DETAIL



- 1. WHEN VALVE IS NOT LOCATED IN PAVEMENT, PLACE AN APPROPRIATE PAVEMENT REFLECTOR MARKER IN THE DRIVE LANE, ADJACENT TO THE VALVE.
- 2. OPERATOR EXTENSION SHAFT SHALL BE PROVIDED WHEN OPERATING NUT IS MORE THAN 24" BELOW TOP OF VALVE BOX.
- 3. PVC PIPE OR DUCTILE IRON PIPE IS NOT ACCEPTABLE FOR VALVE BOX RISER.

REPLACES FORMER DWG NO.123

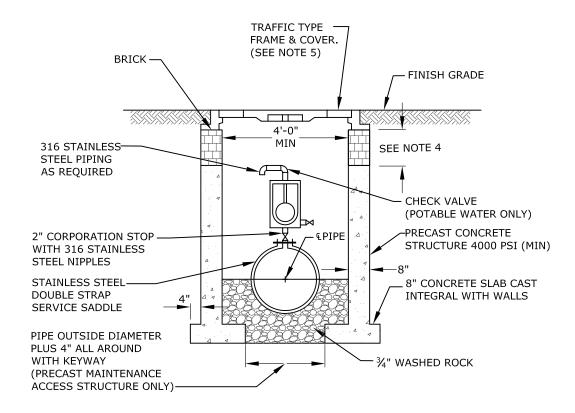
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VALVE BOX DETAIL

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STANDARD DETAIL



- LIFT HOLES ARE TO BE SEALED WITH MORTAR INSIDE AND OUTSIDE AFTER INSTALLATION.
- 2. MAINTENANCE ACCESS STRUCTURE WALLS TO BE COATED INSIDE AND OUTSIDE WITH 16 MIL. THICKNESS COAL TAR EPOXY.
- 3. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF, EXPANDING GROUT. ACTUAL LOCATION AND MAINTENANCE ACCESS STRUCTURE FRAME ELEVATION SHALL BE DETERMINED BY ENGINEER BASED ON AS-BUILT SURVEY DATA.
- 4. THE CHIMNEY AREA SHALL BE A MINIMUM OF 4" AND A MAXIMUM OF 12" IN HEIGHT. A MINIMUM OF 3 COURSES OF BRICK SHALL BE INSTALLED.
- 5. SET MAINTENANCE ACCESS STRUCTURE FRAME ON A BED OF PORTLAND CEMENT AND SILICA SAND. BRING MORTAR UP OVER FRAME.

REPLACES FORMER

DWG NO.11

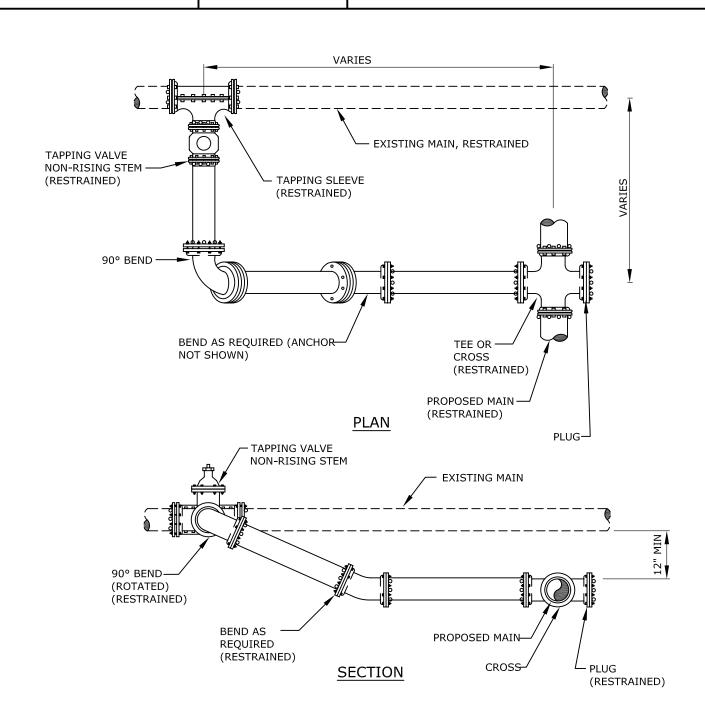
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AIR RELEASE VALVE WITH MAINTENANCE ACCESS STRUCTURE

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STANDARD DETAIL



ALL JOINTS TO BE RESTRAINED BY APPROVED METHODS.

REPLACES FORMER DWG NO.131

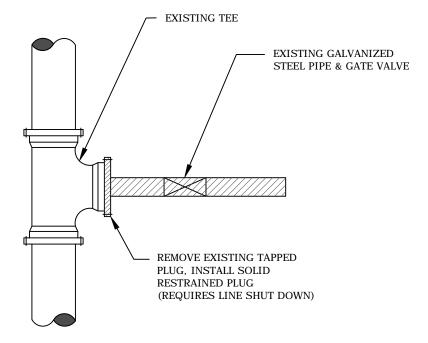
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TYPICAL CONNECTION TO EXISTING MAIN

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STANDARD DETAIL



LIVE LINE SEALING 2" AND 3" G.S.P.

REPLACES FORMER DWG NO.141

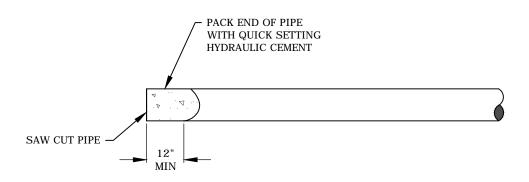
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PIPE TO BE ABANDONED (LIVE LINE LESS THAN 4")

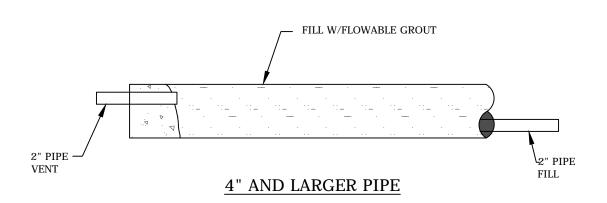
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STANDARD DETAIL



2" AND 3" PIPE



- 1. INSTALL 2" PIPE AT BOTH ENDS OF LINE TO BE ABANDONED. GROUT IN PLACE WITH QUICK SETTING HYDRAULIC CEMENT.
- 2. PUMP FLOWABLE GROUT FROM ONE END, OR INTERMEDIATE POINTS ALONG THE PIPELINE, UNTIL PIPE IS FILLED AS WITNESSED BY THE DISCHARGE FROM 2" PIPE(S). REMOVE 2" PIPE AND FILL WITH QUICK SETTING HYDRAULIC CEMENT.

REPLACES FORMER DWG NO.142

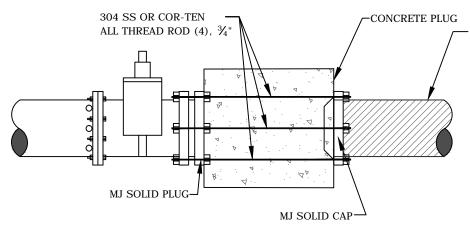
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PIPE TO BE ABANDONED

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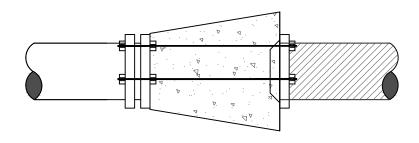
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STANDARD DETAIL



GROUT EXISTING PIPE PER ABANDONED PIPE DETAIL (FIG. 142)

PROFILE



PLAN

AT EXISTING VALVE OR FITTING

SEQUENCE OF CONSTRUCTION

- 1. RESTRAIN VALVE OR FITTING. CONTRACTOR TO PROVIDE TEMPORARY RESTRAINT AS REQUIRED.
- 2. REMOVE EXISTING PIPE FOR NEW CONCRETE PLUG.
- 3. INSTALL PLUG INTO BELL OF VALVE OR FITTING AND CAP ON END OF EXISTING PIPE TO BE ABANDONED.
- 4. INSTALL ALL THREAD RODS (COATED, 3/4" DIA., MIN) AND POUR CONCRETE PLUG.

REPLACES FORMER DWG NO.143

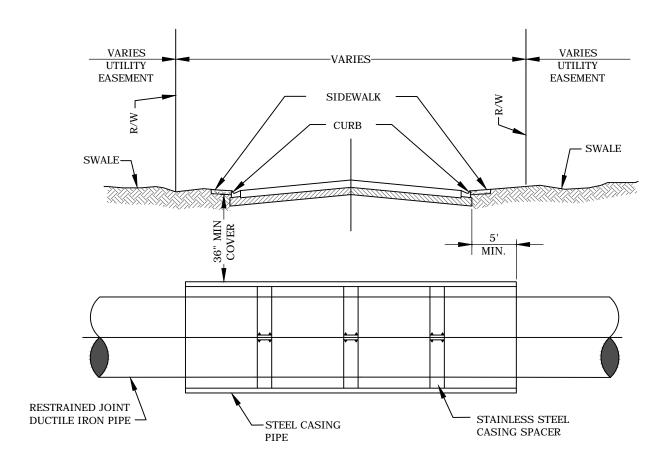
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PIPE TO BE ABANDONED (LIVE LINE 4" AND LARGER)

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STANDARD DETAIL



- 1. THE END OF THE CASING PIPE SHALL EXTEND BEYOND THE EDGE OF PAVEMENT A MINIMUM OF 5'.
- 2. WHEN CONSTRUCTION IS WITHIN FDOT OR RAILROAD JURISDICTION, ADDITIONAL REQUIREMENTS OF THE UTILITY ACCOMMODATION MANUAL SHALL BE MET.

REPLACES FORMER DWG NO.17A

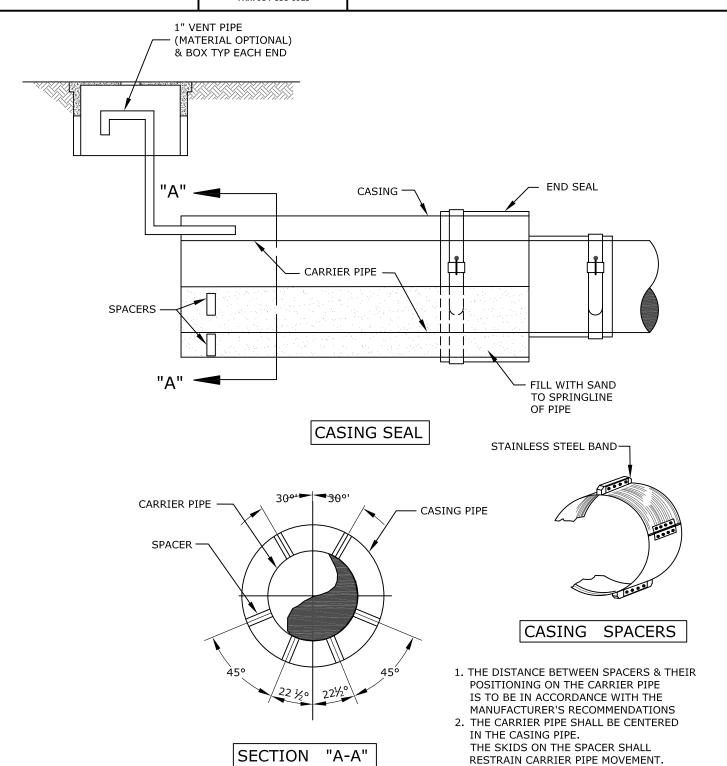
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JACK AND BORE PROFILE

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STANDARD DETAIL



REPLACES FORMER DWG NO.17B

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CASING PIPE DETAIL
JACK AND BORE

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STANDARD DETAIL

SPECIFICATIONS FOR CARRIER AND CASING PIPES						
	CARRIER PIPE	CASING PIPE				
CONTENTS TO BE HANDLED	WATER/WASTEWATER	NONE				
OUTSIDE DIAMETER	DETERMINED BY PROJECT	SEE TABLE				
PIPE MATERIAL	DIP	STEEL				
SPECIFICATION AND GRADE	ANSI/AWWA C151/A21.5'	ASTM A139, GRADE"B"				
PRESSURE CLASS/WALL THICKNESS	350	0.500"				
ACTUAL WORKING PRESSURE	150 PSI	NONE				
TYPE OF JOINT	RESTRAINED	WELDED				
COATING	BLACK BITUMINOUS	BLACK BITUMINOUS				
METHOD OF INSTALLATION	CASING SPACERS	JACK AND BORE				
PROTECTION AT ENDS OF CASING	N/A	CASING END SEAL				

- CASING PIPE TO BE INSTALLED UNDER ROAD BY JACKING AND BORING.
- 2. ALL WORK DONE WITHIN FDOT OR RAILROAD RIGHT OF WAY IS SUBJECT TO INSPECTION AND DIRECTION OF THEIR ENGINEER.
- 3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT AWWA STANDARDS FOR PIPE LINES CONVEYING NONFLAMMABLE SUBSTANCES AND FDOT REQUIREMENTS AS PER UTILITY ACCOMMODATION GUIDE, LATEST VERSION.
- 4. FIELD AND SHOP WELDS OF THE CASING PIPES SHALL CONFORM WITH AWS STANDARD SPECIFICATIONS. FIELD WELDS SHALL BE COMPLETE PENETRATIONS, SINGLE-BEVEL GROOVE TYPE JOINTS.
- 5. STEEL CASING SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A139. THE CASING PIPES SHALL HAVE THE MINIMUM NOMINAL DIAMETER AND MINIMUM WALL THICKNESS AS SHOWN.
- 6. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO STARTING JACKING AND BORING.
- 7. MINIMUM VERTICAL CLEARANCE BETWEEN PROPOSED CASING PIPE AND OTHER EXISTING UTILITIES SHALL BE 12" MINIMUM.
- 8. STAINLESS STEEL CASING SPACERS WITH POLYMER RUNNERS SUBJECT TO APPROVAL OF WWS.

CARRIER PIPE SIZE	NOMINAL DIA OF STEEL CASING PIPE
6"	14"
8"	16"
10"	20"
12"	24"
14"	24"
16"	30"
18"	34"
20"	36"
24"	42"
30"	42"
36"	48"
42"	54"
48"	72"

REPLACI	ES FO	ORMER
DWG	NO.	17C

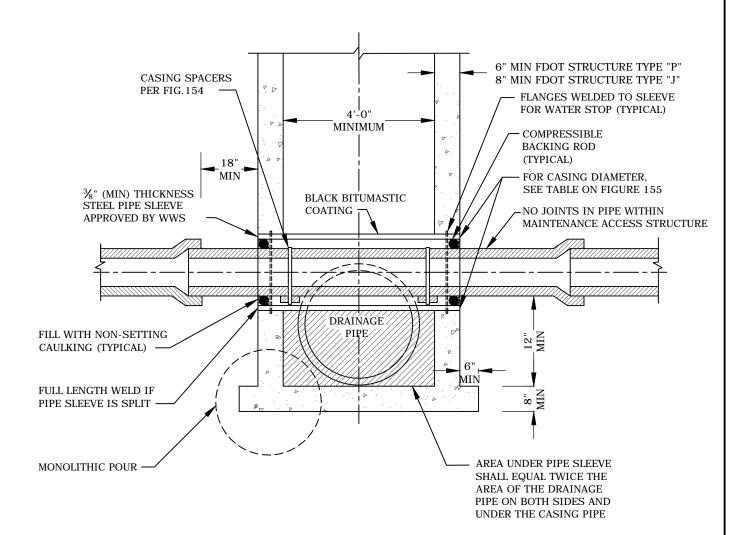
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JACK AND BORE PIPE DETAILS

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> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. ALL CONFLICT MAINTENANCE ACCESS STRUCTURE SHALL CONFORM TO THE DETAILS SHOWN ON THIS DRAWING, AND TO THE REQUIREMENTS OF ASTM C-478 AND BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION'S "MINIMUM STANDARDS", LATEST EDITION.
- 2. POTABLE WATER PIPE SHALL NOT PASS THROUGH OR CONTACT STORM DRAINAGE MAINTENANCE ACCESS STRUCTURE WITHOUT WRITTEN PERMISSION OF WWS TECHNICAL STANDARDS COMMITTEE.
- 3. POTABLE WATER PIPE SHALL NOT PASS THROUGH OR CONTACT SANITARY SEWER MAINTENANCE ACCESS STRUCTURE.

REPLACES FORMER DWG NO.14

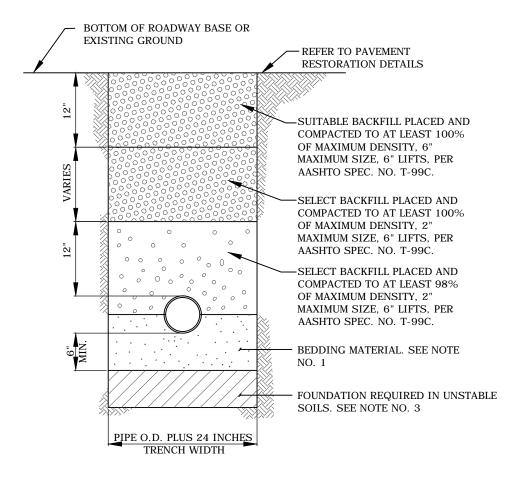
REVISED 3/9/2012

CONFLICT
MAINTENANCE ACCESS STRUCTURE

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. UNLESS OTHERWISE SPECIFIED, BEDDING MATERIAL SHALL CONSIST OF SELECT BACKFILL MATERIAL 2" MAX. SIZE, COMPACTED TO AT LEAST 100% OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. NO. T-99C.
- 2. WHERE REQUIRED, SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.
- 3. WHERE UNSTABLE SOILS ARE ENCOUNTERED, INCLUDING PEAT, MUCK OR OTHER ORGANIC SOILS, ELASTIC SILT AND CLAYS, A FOUNDATION IS REQUIRED AS DETERMINED BY THE ENGINEER OF RECORD.

REPLACES FORMER DWG NO.180

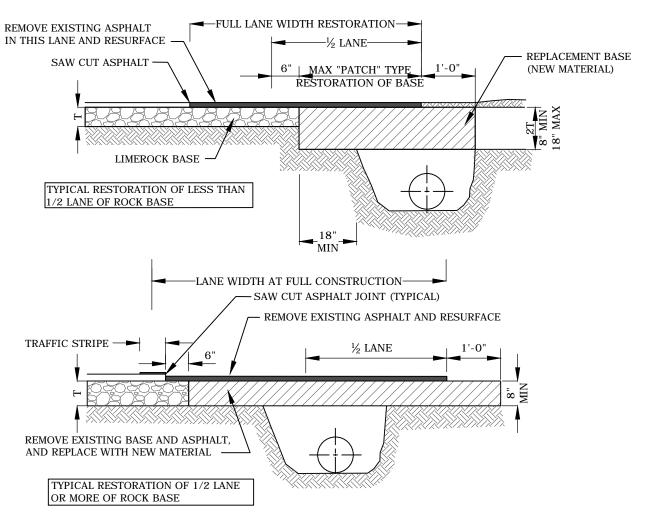
REVISED 2/23/2011

TYPICAL TRENCH BACKFILL

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100 AND A MINIMUM CARBONATE CONTENT OF 70% (60% FOR LOCAL STREETS).
- 2. BASE SHALL BE PLACED IN 6" MAXIMUM THICKNESS LAYERS WITH EACH LAYER COMPACTED AS REQUIRED AND TESTED PRIOR TO THE PLACEMENT OF THE SUCCEEDING LAYERS.
- SUBGRADE MATERIAL SHALL BE GRANULAR AND ANGULAR AND SHALL HAVE A MINIMUM LBR OF 40.
- 4. BACKFILL SHALL BE PLACED AND COMPACTED IN 6" LAYERS, BUT TESTING WILL BEGIN 12" ABOVE THE INSTALLED FACILITY.
- 5. ALL EDGES OF EXISTING ASPHALT PAVEMENT THAT ABUT RESURFACING SHALL BE SAW CUT IN STRAIGHT LINES PARALLEL TO OR PERPENDICULAR TO THE ROADWAY, PRIOR TO RESURFACING.
- 6. RESURFACING MATERIAL SHALL BE CONSISTENT WITH SURROUNDING SURFACE, AND SHALL BE APPLIED IN 2 LIFTS, A MINIMUM OF $\frac{3}{4}$ INCH AND A MAXIMUM OF $\frac{2}{7}$ IN THICKNESS.
- 7. TRAFFIC STRIPES SHALL NOT BE PLACED DIRECTLY ON TOP OF THE JOINT.
- 8. FOR STATE ROADS REFER TO FDOT SPECIFICATIONS AND REQUIREMENTS.

REPLACES FORMER DWG NO.19A

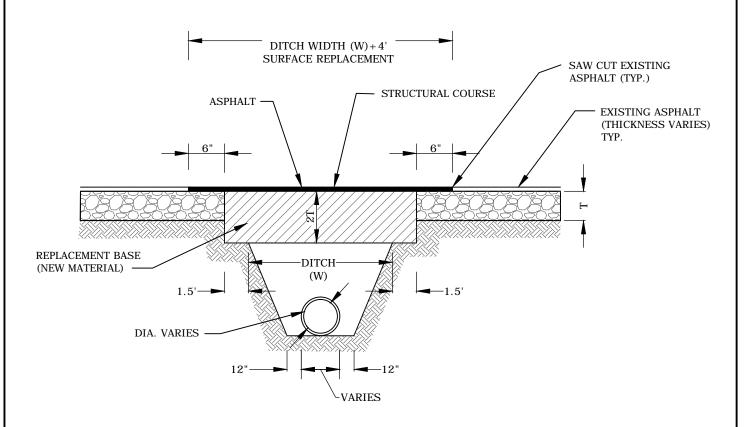
REVISED 2/23/2011

RESTORATION OF ROADWAY CUT FOR PARALLEL UTILITY INSTALLATION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL.
- 2. BASE MATERIAL SHALL BE PLACED IN 6" MAXIMUM LAYERS (LOOSE MEASUREMENT) AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98% OF MAXIMUM DENSITY, PER AASHTO T-180,
- 3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAW CUT.
- 4. SURFACE MATERIAL SHALL BE CONSISTENT WITH THE SURROUNDING SURFACE MATERIAL.
- BASE MATERIAL SHALL HAVE A MINIMUM CARBONATE OF 70% (60% FOR LOCAL STREETS).
- SUB GRADE MATERIAL SHALL BE GRANULAR AND ANGULAR AND SHALL HAVE A MINIMUM LBR OF 40.
- 7. IF THE DITCH IS FILLED TEMPORARILY, IT SHALL BE COVERED WITH A 2" THICK ASPHALT CONCRETE PATCH TO KEEP THE FILL MATERIAL FROM RAVELING, UNTIL REPLACED WITH A PERMANENT PATCH.
- 8. FOR STATE ROADS REFER TO FDOT SPECIFICATIONS AND REQUIREMENTS.

REPLACES FORMER DWG NO.19B

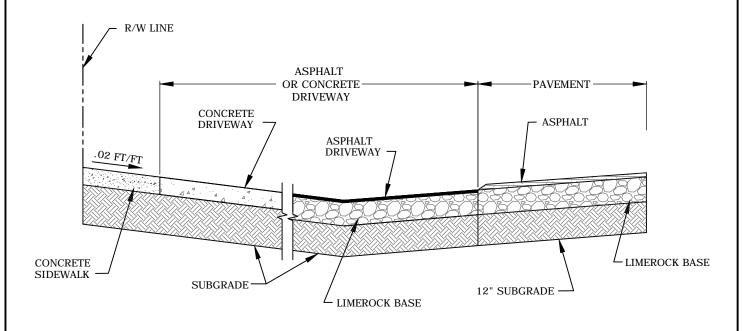
REVISED 2/23/2011

RESTORATION OF ROADWAY CUT FOR PERPENDICULAR UTILITY INSTALLATION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



$\frac{\text{RESTORATION SPECIFICATION}}{\text{SUMMARY TABLE}}$

TYPE	MATERIAL	SPECIFICATION
TYPE I	SOD, SEED OR MULCH	COMPACTED SUBGRADE (95% PER AASHTO T-99C) BAHIA OR ST. AUGUSTINE SOD TO MATCH EXISTING
TYPE II-A	ASPHALT DRIVEWAY	1-1/2" ASPHALT, 6" LIMEROCK (98% PER AASHTO T-180), COMPACTED SUBGRADE (100% PER AASHTO T-99C)
TYPE III	CONCRETE DRIVEWAY	6" CONCRETE (NO WIRE MESH) COMPACTED SUBGRADE (100% PER AASHTO T-99C)

REPLACES FORMER DWG NO.21A

REVISED 2/23/2011

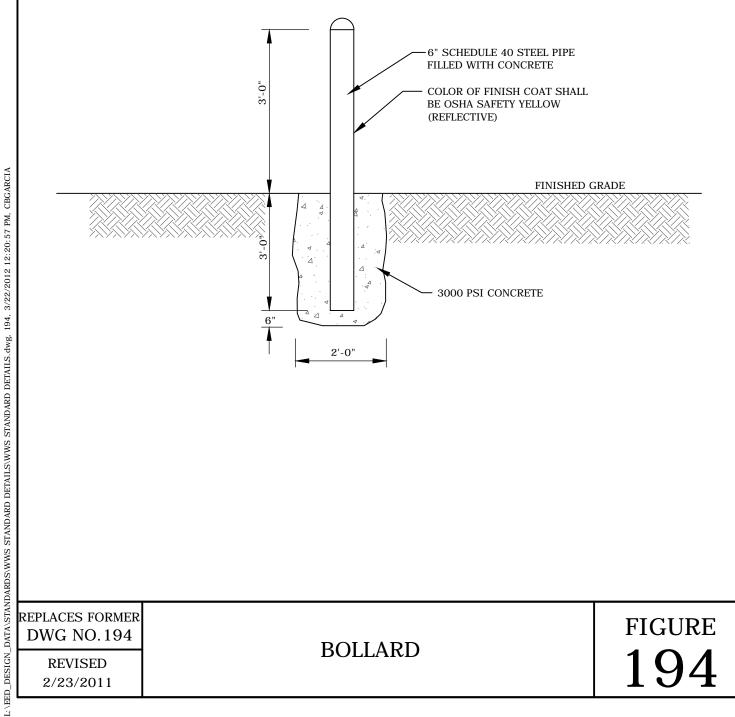
TYPICAL SECTION THROUGH SWALE

figure 192

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



REPLACES FORMER **DWG NO.194**

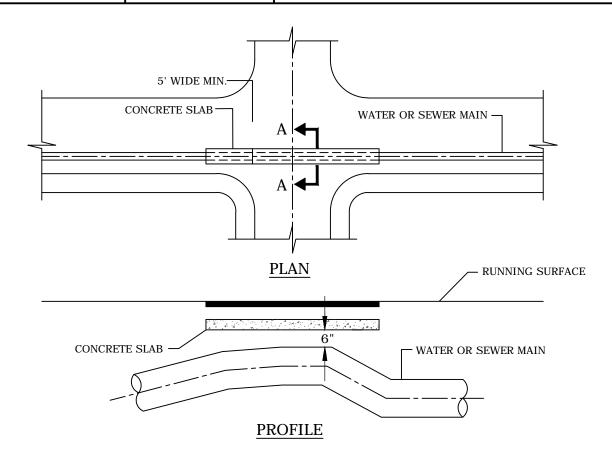
> **REVISED** 2/23/2011

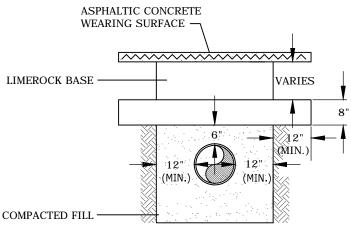
BOLLARD

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL





SECTION A-A

- 1. CONCRETE SLAB DESIGNED BY ENGINEER OF RECORD.
- 2. EXTEND CONCRETE SLAB UNTIL COVER EXCEEDS 30 INCHES FOR DIP OR 36 INCHES FOR PVC.
- 3. CONCRETE TO BE 3,000 PSI.
- 4. THIS DETAIL TO BE USED ONLY UPON WRITTEN APPROVAL FROM WWS TECHNICAL STANDARDS COMMITTEE.

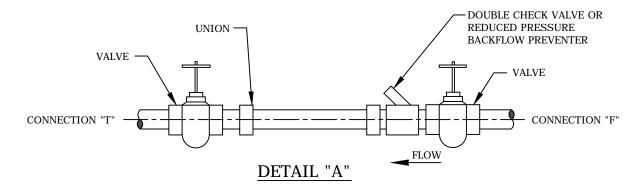
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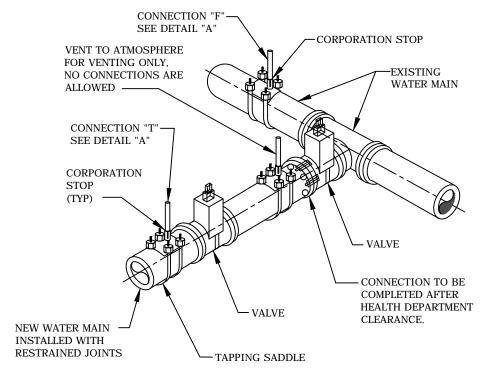
CONCRETE SLAB OVER SHALLOW PIPELINES figure 195

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL





- REMOVE TEMPORARY CONNECTION AT CORPORATION STOP ON EXISTING MAIN AFTER FILLING AND FLUSHING OF NEW LINE.
- 2. DO NOT REMOVE TEMPORARY CONNECTION AT CORPORATION STOP ON NEW MAIN UNTIL ALL TESTING HAS BEEN CLEARED BY HEALTH DEPARTMENT.
- CLOSE CORPORATION STOPS AND PLUG/CAP WITH BRASS FITTINGS AFTER SAMPLING IS COMPLETED.

REPLACES FORMER DWG NO.7

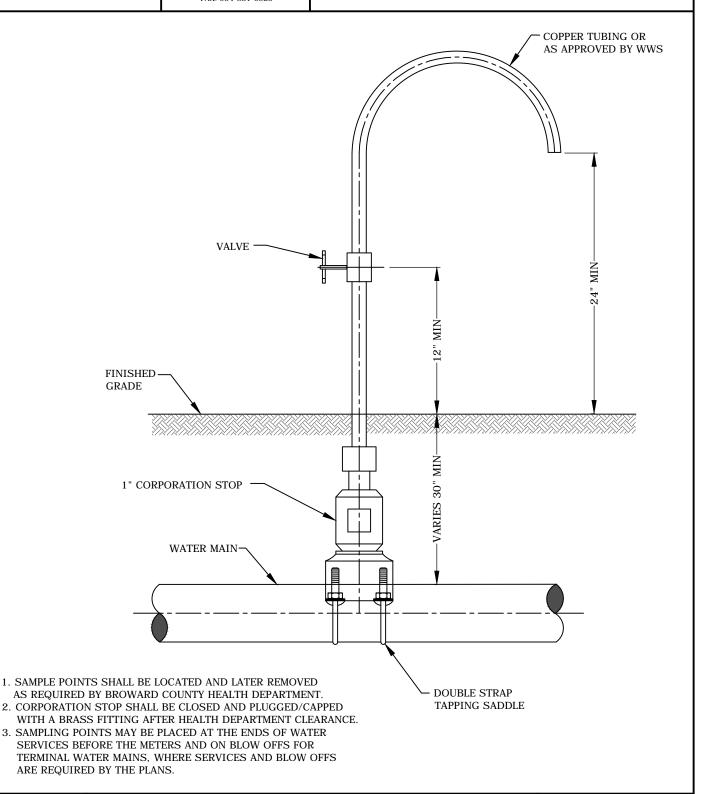
REVISED 2/23/2011

FILLING AND FLUSHING CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



REPLACES FORMER
DWG NO.6

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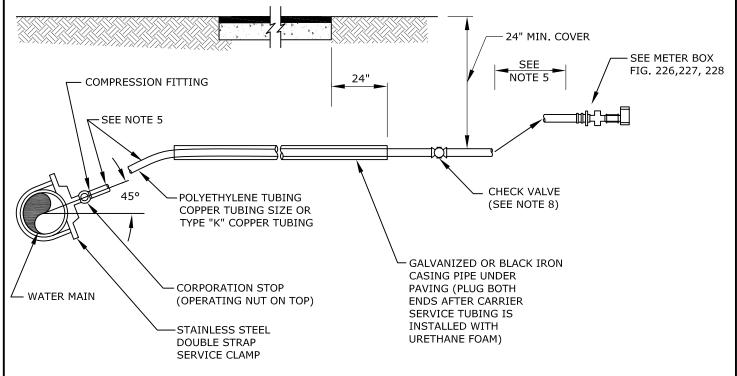
REVISED 2/23/2011

SAMPLING POINT

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED NOT LESS THAN 18" ON CENTER. NO TAPS SHALL BE CLOSER THAN 18" TO A JOINT.
- 2. 1" SERVICE REQUIRE A 2" MINIMUM INSIDE DIAMETER CASING PIPE.
- 3. 2" SERVICE REQUIRE A 3" MINIMUM INSIDE DIAMETER CASING PIPE.
- 4. ALL CASING PIPE SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF PAVING STREETS.
- 5. FOR 1" SERVICE LINES THE MINIMUM RADIUS SHALL BE 14". FOR 2" SERVICE LINES THE MINIMUM RADIUS SHALL BE 21".
- 6. ALL CASING PIPE ENDS SHALL BE FILED SMOOTH WITH NO BURRS AND SEALED WITH URETHANE FOAM.
- 7. THE POLYETHYLENE OR COPPER TUBING SHALL BE ONE CONTINUOUS PIECE FROM THE CORPORATION STOP TO THE CHECK VALVE. NO JOINTS WILL BE PERMITTED BETWEEN THESE POINTS.
- 8. THE CHECK VALVE IS TO BE INSTALLED 5 FEET BEFORE THE METER VALVE.

THIS DETAIL APPLIES ONLY TO RESIDENTIAL ROADS WITH LESS THAN 70' R.O.W. (NO MEDIAN) OR WITHIN EASEMENTS

REPLACES FORMER

DWG NO.1A

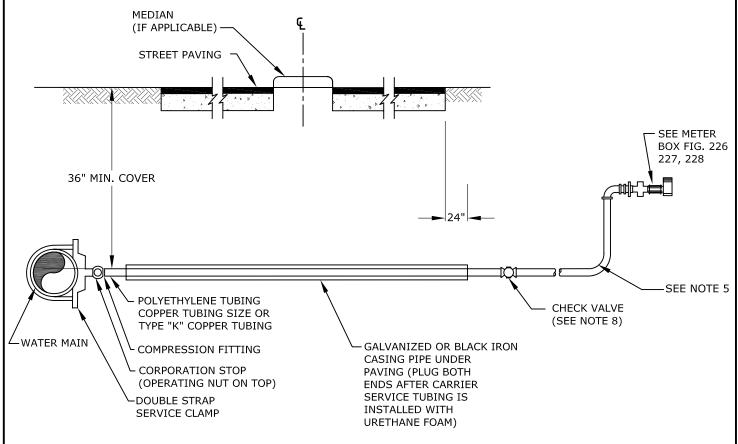
REVISED 2/23/2011

TYPE 1 WATER
SERVICE CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED NOT LESS THAN 18" ON CENTER. NO TAPS SHALL BE CLOSER THAN 18" TO A JOINT.
- 2. 1" SERVICES REQUIRE A 2" MINIMUM INSIDE DIAMETER CASING PIPE.
- 3. 2" SERVICES REQUIRE A 3" MINIMUM INSIDE DIAMETER CASING PIPE.
- 4. ALL CASING PIPE SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF PAVED STREETS.
- 5. FOR 1" SERVICE LINES THE MINIMUM RADIUS SHALL BE 14". FOR 2" SERVICE LINES THE MINIMUM RADIUS SHALL BE 21".
- 6. ALL CASING PIPE ENDS SHALL BE FILED SMOOTH WITH NO BURRS AND SEALED WITH URETHANE FOAM.
- 7. THE POLYETHYLENE OR COPPER TUBING SHALL BE ONE CONTINUOUS PIECE FROM THE CORPORATION STOP TO THE CHECK VALVE. NO JOINTS WILL BE PERMITTED BETWEEN THESE POINTS.
- 8. THE CHECK VALVE IS TO BE INSTALLED 5 FEET BEFORE THE METER VALVE.

THIS DETAIL APPLIES ONLY TO COUNTY ARTERIAL AND COLLECTOR ROADS (70' TO 120' R/W) AND ALL STATE ROAD R/W

REPLACES FORMER

DWG NO.1B

REVISED 2/23/2011 TYPE 2 WATER
SERVICE CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL

2" METER SET (SEE FIG. 228 FOR WATER METER INSTALLATION) **METER METER** CHECK VALVE 2" POLYETHYLENE TUBING OR 2" TYPE "K" COPPER TUBING (TYP.) 21" MINIMUM RADIUS (TYP.) 4" MECHANICAL JOINT TEE 4" PLUG WITH 2" TAP & 2" CORPORATION STOP (TYP.) 4" GATE VALVE (OMIT IF LESS THAN 16' TO MAIN LINE) 1. ALL JOINTS TO BE RESTRAINED. 4" WM 4" GATE VALVE TAPPING SADDLE WATER MAIN OR MECHANICAL (SIZE VARIES) JOINT TEE ALTERNATIVELY, THE WATER MAIN CAN BE TAPPED FOR EACH METER.

REPLACES FORMER DWG NO.3D

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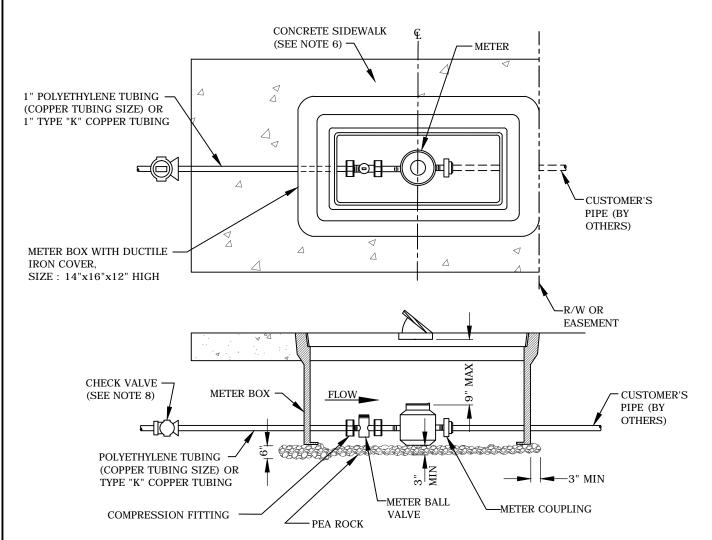
REVISED 2/23/2011

METER INSTALLATION FOR TWO 2" METERS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. ALL STRUCTURES TO BE TRAFFIC BEARING TYPE.
- 2. R/W LINE OR EASEMENT LINE IS THE CUSTOMER'S SIDE OF METER BOX.
- 3. WWS RESPONSIBILITY ENDS AT THE CUSTOMER'S SIDE OF METER.
- 4. CURVE IN SERVICE LINE SHALL BE AS CLOSE TO METER BOX AS PRACTICAL, WITH A MINIMUM RADIUS SHALL BE 14" FOR 1" TUBING.
- 5. ALL METERS WILL BE SUPPLIED AND INSTALLED BY WWS. METER HAS IRON PIPE THREAD MALE CONNECTION ON EACH END.
- 6. WHEN SIDEWALKS ARE PRESENT, OR PLANNED FOR IN THE R/W, THE BACK EDGE OF THE METER BOX SHALL LINE UP WITH THE BACK EDGE OF THE SIDEWALK.
- 7. METER SHALL BE CENTERED IN BOX DIRECTLY UNDER THE ACCESS LID.
- 8. THE CHECK VALVE IS TO BE INSTALLED 5 FEET BEFORE THE METER BALL VALVE.
- 9. WHEN THERE ARE NO SIDEWALKS, CONSTRUCT 6" WIDE x 6" THICK CONCRETE COLLAR AT GRADE.

METER SIZE	LAYING LENGTH (IN)	HEIGHT (IN)
5/8"	7.5	4.56
1"	10.75	5.75

REPLACES FORMER DWG NO.3A

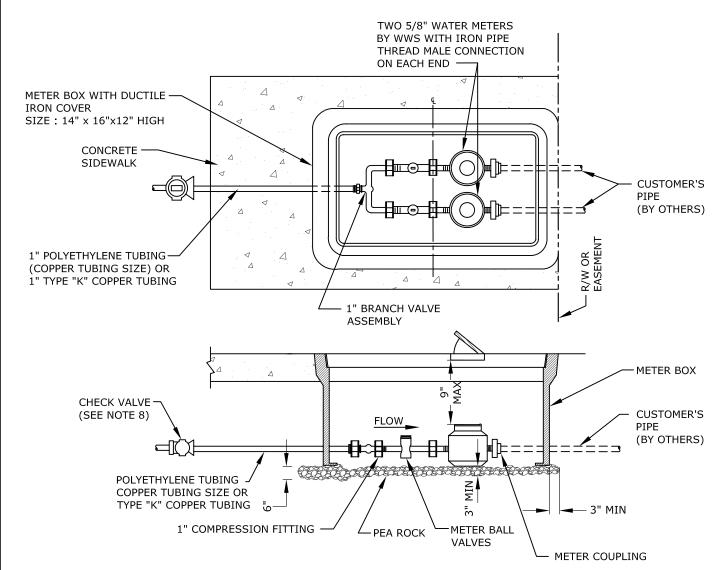
REVISED 2/23/2011

WATER METER INSTALLATION FOR 5/8" AND 1" METERS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. ALL STRUCTURES TO BE TRAFFIC BEARING TYPE.
- 2. R/W LINE OR EASEMENT LINE IS THE CUSTOMER'S SIDE OF METER BOX.
- 3. WWS RESPONSIBILITY ENDS AT THE CUSTOMER'S SIDE OF METER.
- CURVE IN SERVICE LINE SHALL BE AS CLOSE TO METER BOX AS PRACTICAL, WITH A MINIMUM RADIUS SHALL BE 14" FOR 1" TUBING.
- ALL METERS WILL BE SUPPLIED AND INSTALLED BY WWS. METER HAS IRON PIPE THREAD MALE CONNECTION ON EACH END.
- WHEN SIDEWALKS ARE PRESENT, OR PLANNED FOR IN THE R/W, THE BACK EDGE OF THE METER BOX SHALL LINE UP WITH THE BACK EDGE OF THE SIDEWALK.
- 7. METER SHALL BE CENTERED IN BOX DIRECTLY UNDER THE ACCESS LID.
- 8. THE CHECK VALVE IS TO BE INSTALLED 5 FEET BEFORE THE METER VALVE.
- 9. WHEN THERE ARE NO SIDEWALKS, CONSTRUCT 6" WIDE \times 6" THICK CONCRETE COLLAR AT GRADE.

REPLACES FORMER DWG NO.3B

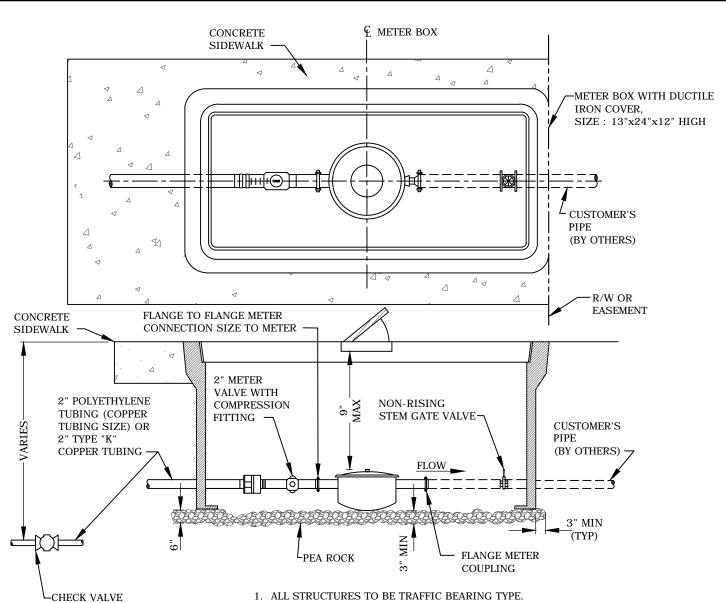
REVISED 2/23/2011

DOUBLE METER
INSTALLATION
FOR TWO \(^5\)\(^8\)'' METERS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



METER LAYING LENGTH HEIGHT SIZE (IN) (IN) 6 %" 1 ½" 17 7 17/32"

(SEE NOTE 8)

- 2. R/W LINE OR EASEMENT LINE IS THE CUSTOMER'S SIDE OF METER BOX.
- 3. WWS RESPONSIBILITY ENDS AT THE CUSTOMER'S SIDE OF METER.
- CURVE IN SERVICE LINE SHALL BE AS CLOSE TO METER BOX AS PRACTICAL, WITH A MINIMUM RADIUS SHALL BE 21" FOR 2" TUBING.
- ALL METERS WILL BE SUPPLIED AND INSTALLED BY WWS. METER HAS IRON PIPE THREAD MALE CONNECTION ON EACH END.
- WHEN SIDEWALKS ARE PRESENT, OR PLANNED FOR IN THE R/W, THE BACK EDGE OF THE METER BOX SHALL LINE UP WITH THE BACK EDGE OF THE SIDEWALK.
- 7. METER SHALL BE CENTERED IN BOX DIRECTLY UNDER THE ACCESS LID.
- THE CHECK VALVE IS TO BE INSTALLED 5 FEET BEFORE THE METER VALVE.
- WHEN THERE ARE NO SIDEWALKS, CONSTRUCT 6" WIDE x 6" THICK CONCRETE COLLAR AT GRADE.

REPLACES FORMER DWG NO.3C **REVISED**

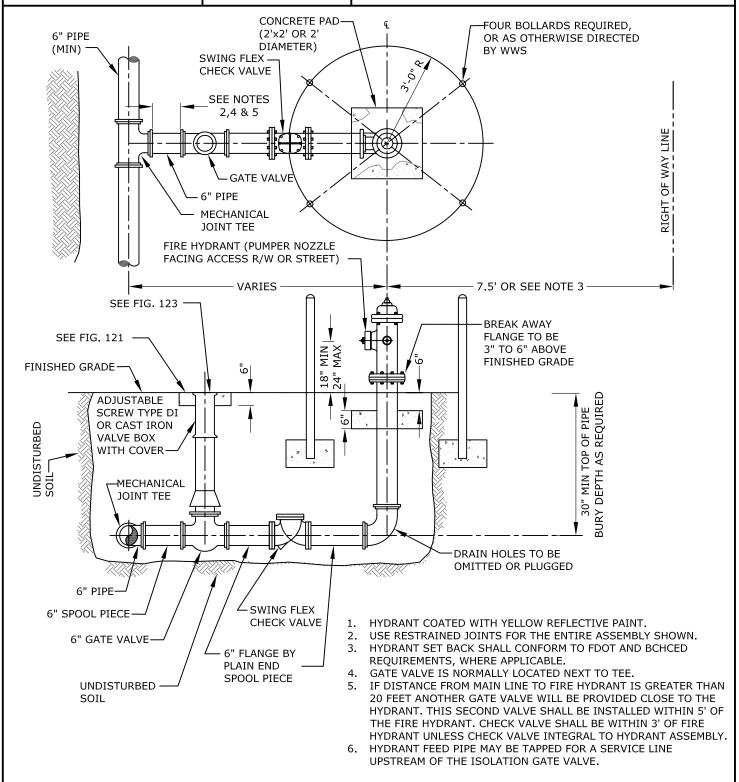
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METER INSTALLATION FOR 1 $\frac{1}{2}$ " OR 2" METERS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



REPLACES FORMER
DWG NO.8

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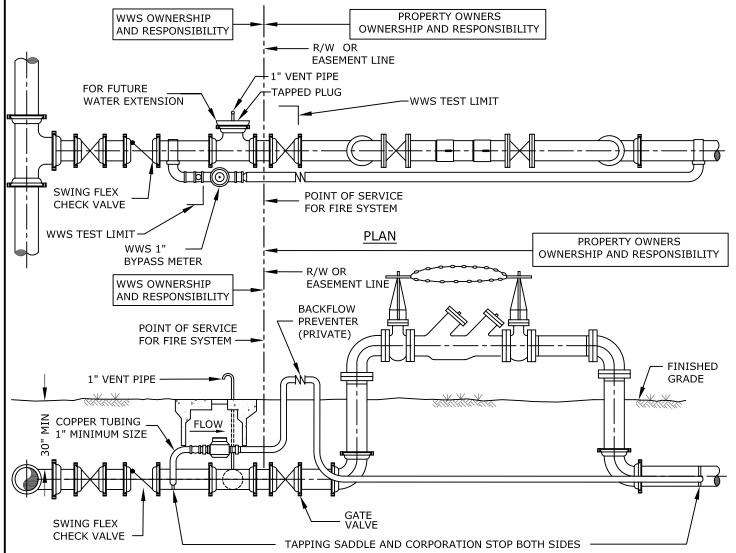
REVISED 2/23/2011

FIRE HYDRANT INSTALLATION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



PROFILE

- 1. THE DOUBLE CHECK VALVE SHALL BE PRIVATELY OWNED BY PROPERTY OWNER.
- 2. FIRE SYSTEM TO BE CONSTRUCTED/TESTED IN ACCORDANCE WITH NFPA STDS. & ALL APPLICABLE CODES.
- 3. METER BOX AND SERVICE LINE SHALL BE IN ACCORDANCE WITH WWS STANDARD DETAIL FOR WATER METER INSTALLATION AND NFP STDS & CODES. USE TYPE "K" COPPER TUBING AND BRASS OR COPPER FITTINGS.
- 4. BACKFLOW PREVENTER FOLLOWING THE METER SHALL BE THE SAME TYPE DEVICE (DEGREE OF HAZARD) AS THE FIRE MAIN DEVICE. THIS SHALL BE PRIVATELY OWNED BY THE PROPERTY OWNER. METER BOX SHALL BE SUPPLIED BY CONTRACTOR.
- 5. EXTENT OF WWS OWNERSHIP IS LIMITED TO THE BYPASS METER AND ALL PIPING PRIOR TO THE POINT OF SERVICE FOR THE FIRE SYSTEM AS SHOWN ON THIS DRAWING VIA PLAN AND PROFILE ABOVE.
- 6. 1" VENT PIPE TO BE REMOVED AFTER WWS APPROVAL.

DEDICATED FIRE SYSTEM

REPLACES FORMER

DWG NO.9A

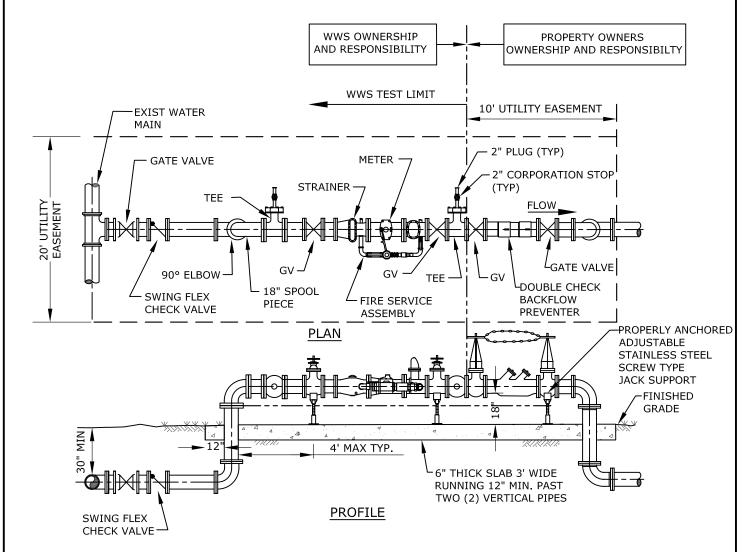
REVISED 3/22/2012

TYPE 1
PRIVATE FIRE PROTECTION
4", 6" AND 8" DIAMETER CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. THE DOUBLE CHECK VALVE SHALL BE PRIVATELY OWNED BY THE PROPERTY OWNER.
- 2. WWS RESPONSIBILITY IS BETWEEN WATER MAIN AND METER.
- 3. EASEMENT SHALL BE PROVIDED IN ACCORDANCE WITH WWS MINIMUM REQUIREMENTS.
- 4. ALL ABOVE GROUND PIPE SHALL BE FLANGED, DI (DUCTILE IRON) TYPE.
- 5. ALL PIPE LEADING FROM WATER MAIN TO FLANGED PIPING SHALL BE D.I. PIPE, RESTRAINED JOINTS.
- 6. ALL ABOVE GROUND PIPING, FITTINGS, GATE VALVES AND CHECK VALVES AND THE METER ASSEMBLY SHALL BE PAINTED WITH POLYURETHANE COATING (BLUE).

COMBINED DOMESTIC WATER SERVICE AND FIRE PROTECTION

REPLACES FORMER

DWG NO.9B

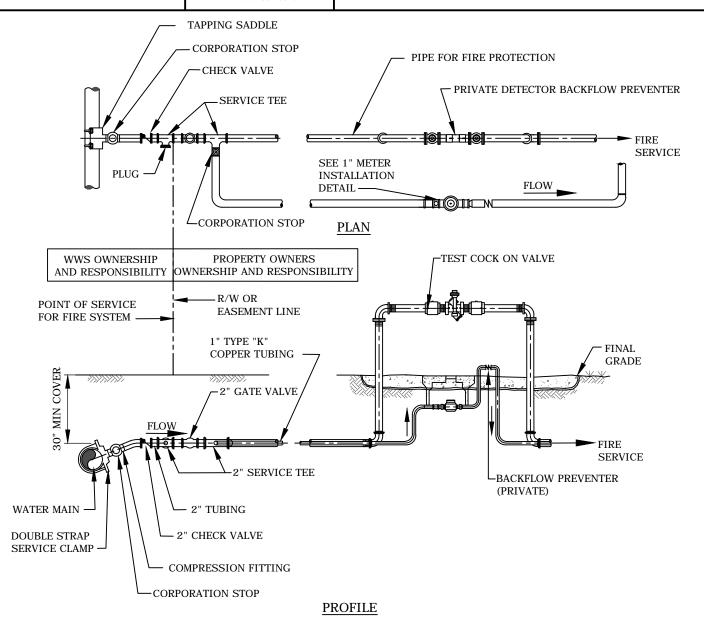
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TYPE 2 PRIVATE
FIRE PROTECTION
4", 6" AND 8" DIAMETER CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. THE DOUBLE CHECK VALVE SHALL BE PRIVATELY OWNED BY PROPERTY OWNER.
- 2. FIRE SYSTEM TO BE CONSTRUCTED/TESTED IN ACCORDANCE WITH NFPA STDS AND ALL APPLICABLE CODES
- 3. METER BOX AND SERVICE LINE SHALL BE IN ACCORDANCE WITH WWS STANDARD DETAIL FOR WATER METER INSTALLATION AND NFP STDS AND CODES. USE TYPE "K" COPPER TUBING AND BRASS OR COPPER FITTINGS.
- 4. BACKFLOW PREVENTER FOLLOWING THE METER SHALL BE THE SAME TYPE DEVICE (DEGREE OF HAZARD) AS THE FIRE MAIN DEVICE. THIS SHALL BE PRIVATELY OWNED BY THE PROPERTY OWNER. METER AND METER BOX SHALL BE SUPPLIED BY CONTRACTOR.
- 5. EXTENT OF WWS OWNERSHIP IS LIMITED TO THE BYPASS METER AND ALL PIPING PRIOR TO THE POINT OF SERVICE FOR THE FIRE SYSTEM AS SHOWN ON THIS DRAWING VIA PLAN AND PROFILE ABOVE.

REPLACES FORMER
DWG NO.9C

REVISED 2/23/2011

TYPE 3 PRIVATE
FIRE PROTECTION
2" DIAMETER CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL

TRAFFIC BEARING 2" THREADED VALVE BOX AND COVER-**BRASS PLUG** FINISHED GRADE _ 6" MIN **RESTRAINED PLUG** 2" BRONZE-ANGLE VALVE -90° STREET ELBOW SCH 40 PEA ROCK STAINLESS STEEL $11 \frac{1}{4}$ " ID MIN. 2" PIPE SCH 40 STAINLESS STEEL 2" - 90° ELBOW SCH 40 STAINLESS STEEL **GATE VALVE DUCTILE IRON PIPE** WATER MAIN

1. 2" TAP IN BOTTOM OF PLUG.

PROFILE

2. USE RESTRAINED JOINT PIPE.

3. IN GRASS AREA USE CONCRETE COLLARS, 6" THICK.

REPLACES FORMER

DWG NO.5A

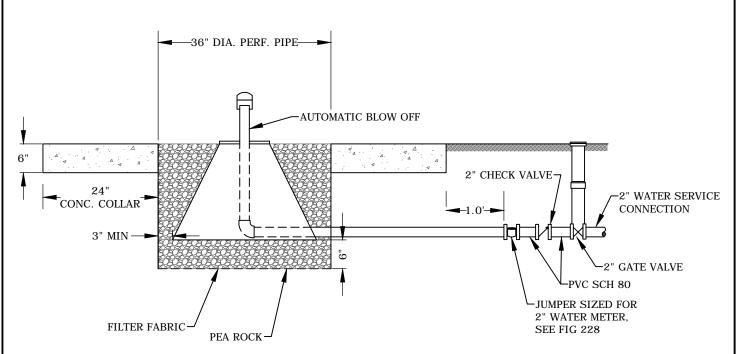
REVISED 2/23/2011

MANUAL BLOW OFF

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



REPLACES FORMER
DWG NO.5C

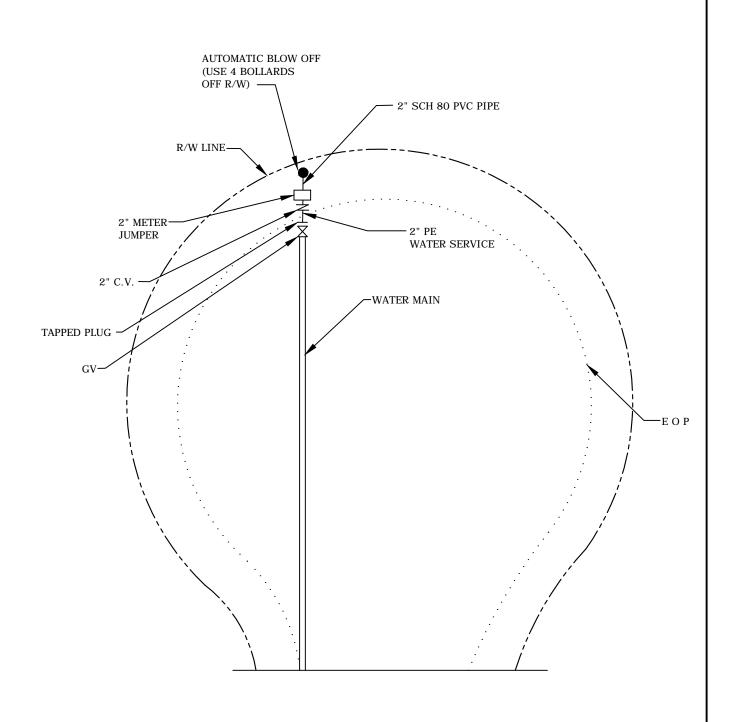
REVISED 2/23/2011

AUTOMATIC BLOW OFF PROFILE

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



REPLACES FORMER DWG NO.5B

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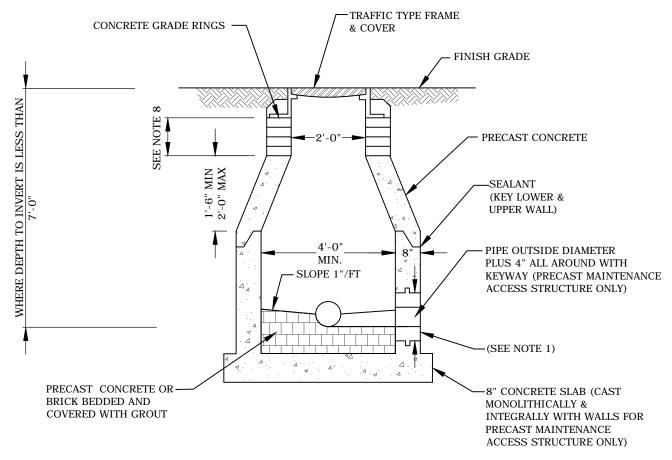
REVISED 2/23/2011

AUTOMATIC BLOW OFF PLAN

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- MAINTENANCE ACCESS STRUCTURE ADAPTOR COUPLING NEOPRENE BOOT OR APPROVED EQUAL ARE REQUIRED FOR ALL PIPE MATERIAL OR AS APPROVED BY WWS.
- 2. MAINTENANCE ACCESS STRUCTURE WALLS TO BE SEAL COATED INSIDE AND OUTSIDE WITH 16 MIL. THICKNESS OF COAL TAR EPOXY. THE 1st COAT IS RED AND THE 2nd COAT IS BLACK.
- 3. LIFT HOLES THROUGH PRECAST SECTIONS PERMITTED PER OSHA REQUIREMENTS.
- 4. ALL OPENINGS SHALL BE SEALED WITH WATERPROOF EXPANDING GROUT. SEE FIG. 322
- 5. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MAINTENANCE ACCESS STRUCTURE TO DIRECT INFLUENT INTO FLOW STREAM.
- ALL CONCRETE SHALL BE TYPE II CEMENT, MEETING LATEST ASTM REQUIREMENTS AND PROVIDED WITH LABORATORY CERTIFICATION ON PRECAST STRUCTURES.
- 7. THE CHIMNEY AREA SHALL BE MINIMUM OF 4" AND A MAXIMUM OF 12" IN HEIGHT. A MINIMUM OF 3 CONCRETE GRADE RINGS SHALL BE INSTALLED. SET IN 2 STRIPS OF SEALANT/ADHESIVE COMPOUND ON EACH SEALING FACE.
- 8. SET MAINTENANCE ACCESS STRUCTURE FRAME ON 2 STRIPS OF SEALANT PLUS A BED OF PORTLAND CEMENT AND SILICA SAND. BRING MORTAR UP OVER FRAME.
- 9. APPLY MORTAR COATING TO INSIDE AND OUTSIDE OF CHIMNEY. BRING MORTAR UP AND OVER FRAME.

REPLACES FORMER DWG NO.13D

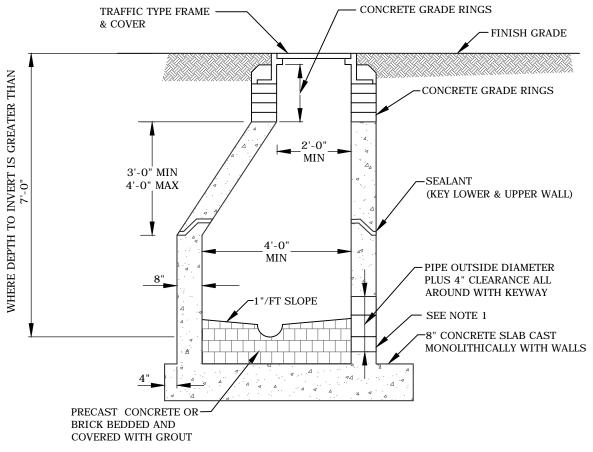
REVISED 3/9/2012

SHALLOW MAINTENANCE ACCESS STRUCTURE

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- MAINTENANCE ACCESS STRUCTURE ADAPTOR COUPLING NEOPRENE BOOT OR APPROVED EQUAL ARE REQUIRED FOR ALL PIPE MATERIAL OR AS APPROVED BY WWS.
- 2. MAINTENANCE ACCESS STRUCTURE WALLS TO BE SEAL COATED INSIDE AND OUTSIDE WITH 16 MIL. THICKNESS OF COAL TAR EPOXY. THE 1st COAT IS RED AND THE 2nd COAT IS BLACK.
- 3. LIFT HOLES THROUGH PRECAST SECTIONS PERMITTED PER OSHA REQUIREMENTS.
- 4. ALL OPENINGS SHALL BE SEALED WITH WATERPROOF EXPANDING GROUT. SEE FIG. 322.
- 5. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MAINTENANCE ACCESS STRUCTURE TO DIRECT INFLUENT INTO FLOW STREAM.
- 6. ALL CONCRETE SHALL BE TYPE II CEMENT, MEETING LATEST ASTM REQUIREMENTS AND PROVIDED WITH LABORATORY CERTIFICATION ON PRECAST STRUCTURES.
- 7. THE CHIMNEY AREA SHALL BE MINIMUM OF 4" AND A MAXIMUM OF 12" IN HEIGHT. A MINIMUM OF 3 CONCRETE GRADE RINGS SHALL BE INSTALLED. SET IN 2 STRIPS OF SEALANT/ADHESIVE COMPOUND ON EACH SEALING FACE.
- SET MAINTENANCE ACCESS STRUCTURE FRAME ON 2 STRIPS OF SEALANT PLUS A BED OF PORTLAND CEMENT AND SILICA SAND. BRING MORTAR UP OVER FRAME.
- APPLY MORTAR COATING TO INSIDE AND OUTSIDE OF CHIMNEY. BRING MORTAR UP AND OVER FRAME.

REPLACES FORMER DWG NO.13A

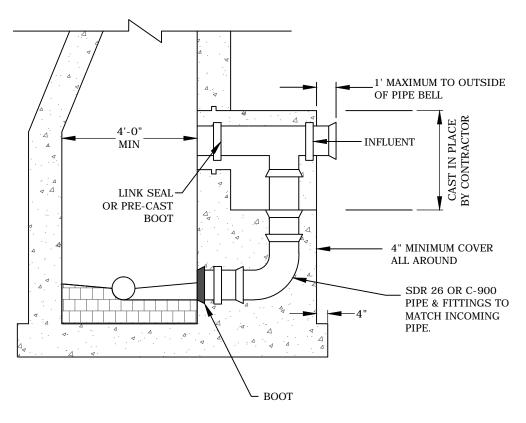
REVISED 3/9/2012 PRECAST
MAINTENANCE ACCESS STRUCTURE

312

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- THE MANUFACTURER'S PORTION OF THE CONCRETE ENCASEMENT FOR THE DROP CONNECTION SHALL BE POURED INTEGRALLY WITH BOTH THE MAINTENANCE ACCESS STRUCTURE SLAB AND WALL.
- 2. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO (2) FEET OR MORE ABOVE THE MAIN INVERT CHANNEL.
- 3. ALL REQUIREMENTS FOR PRECAST MAINTENANCE ACCESS STRUCTURE WITHOUT DROP CONNECTIONS WILL ALSO APPLY TO PRECAST MAINTENANCE ACCESS STRUCTURE WITH DROP CONNECTIONS. SEE PRECAST MAINTENANCE ACCESS STRUCTURE STANDARD DETAIL FOR OTHER REQUIREMENTS.
- 4. ALL PIPE TO BE SAME DIAMETER AS INFLUENT SEWER MAIN.

REPLACES FORMER DWG NO.13C

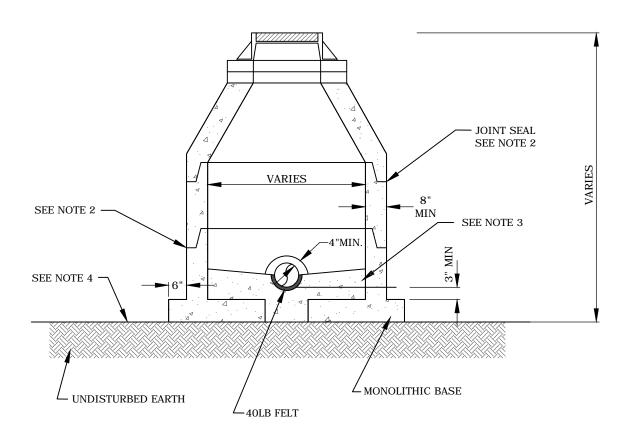
REVISED 3/9/2012

PRECAST
MAINTENANCE ACCESS STRUCTURE
DROP CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. SEE FIGURE 315 FOR COVER REQUIREMENTS.
- 2. "O" RING OR RAM NECK SEAL (KEY LOWER & UPPER WALL).
- 3. ENTIRE BOTTOM SHALL BE POURED IN PLACE AFTER INSTALLATION OF STRUCTURE. CONCRETE SHALL BE 4,000 PSI, TYPE II.
- 4. COMPACT BOTTOM OF TRENCH 3' AROUND STRUCTURE TO 100% OF THE MAX-DENSITY AS PER AASHTO-T-99.
- MAINTENANCE ACCESS STRUCTURE WALLS TO BE SEAL COATED INSIDE AND OUTSIDE WITH 16 MIL. THICKNESS OF COAL TAR EPOXY. THE 1st COAT IS RED AND THE 2nd COAT IS BLACK.

REPLACES FORMER DWG NO.13E

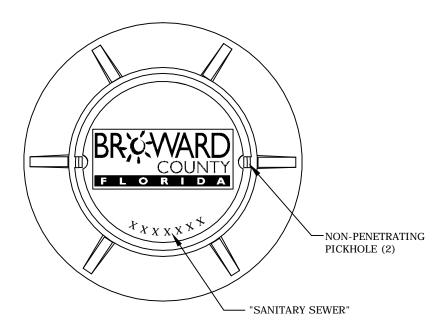
REVISED 3/9/2012

DOGHOUSE MAINTENANCE ACCESS STRUCTURE DETAIL

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



REPLACES FORMER DWG NO.15A

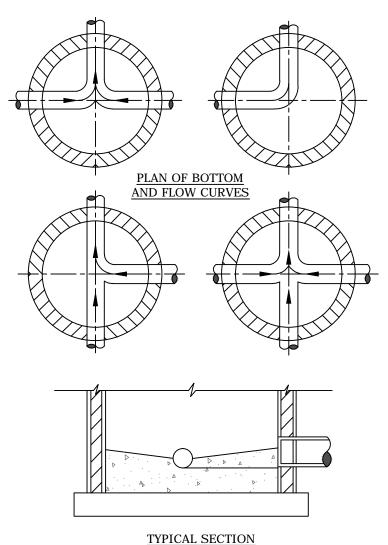
REVISED 3/9/2012

GRAVITY SEWER
MAINTENANCE ACCESS STRUCTURE
COVER

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- THIEFE BECTION
- 1. PROVIDE SPILLWAY FOR SMOOTH FLOW BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS.
- 2. SLOPE MAINTENANCE ACCESS STRUCTURE SHELF 1"/FT MAINTENANCE ACCESS STRUCTURE WALL TO CHANNEL.
- 3. INVERT CHANNEL TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
- 4. CHANNEL SHALL BE PRECAST CONCRETE OR FILLED WITH BRICK COVERED WITH 1" OF MORTAR.

REPLACES FORMER DWG NO.13B

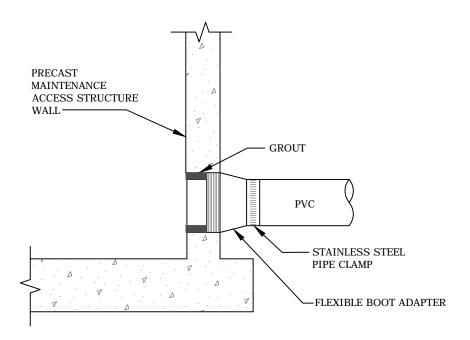
REVISED 3/9/2012

INVERT CHANNEL FLOW DIRECTIONS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



STANDARD PRECAST

MAINTENANCE ACCESS STRUCTURE

PIPE CONNECTION

WWS MAY APPROVE ALTERNATE WATER TIGHT CONNECTION.

REPLACES FORMER DWG NO.322

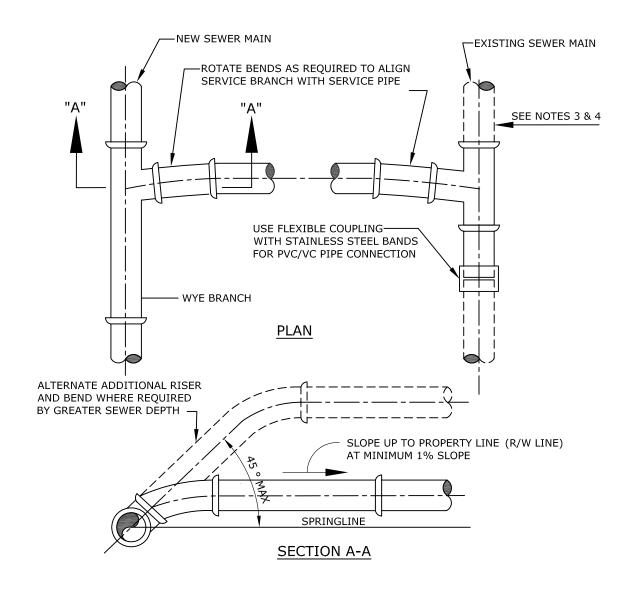
REVISED 3/9/2012

MAINTENANCE ACCESS STRUCTURE CONNECTION DETAIL

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. SINGLE SERVICE CONNECTIONS SHALL USE 6" SDR 26 PVC PIPE AND FITTINGS.
- 2. USE RISER CONNECTIONS WHERE INVERT OF SEWER IS MORE THAN 7'-0" DEEP.
- 3. WHERE BELL OF WYE AND SPIGOT OF EXISTING MAIN ARE NOT COMPATIBLE, USE A SECOND FLEXIBLE COUPLING.
- 4. RIGID COUPLINGS MAY BE USED IN LIEU OF FLEXIBLE COUPLINGS.
- 5. MAINTAIN 36" MINIMUM COVER FROM TOP OF SERVICE TO FINISH GRADE; WHERE NOT TECHNICALLY FEASIBLE CONTACT WWS ENGINEERING.
- PVC SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH MINIMUM STANDARDS OF THE UNI-BELL HANDBOOK OF PVC PIPE DESIGN AND CONSTRUCTION, LATEST EDITION.

REPLACES FORMER

DWG NO.2A

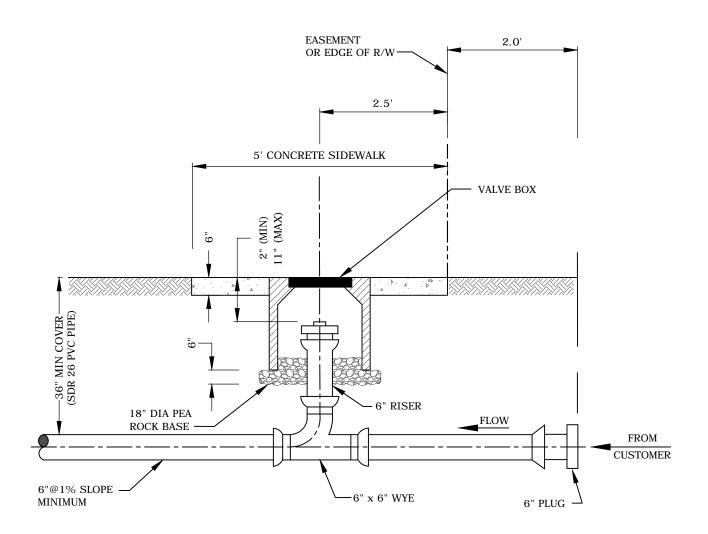
REVISED 2/23/2011

WYE SEWER
SERVICE CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. THE CLEAN OUT SHALL BE INSTALLED IN THE MIDDLE OF THE SIDEWALK. THIS DIMENSION WILL VARY DEPENDING UPON THE WIDTH OF THE SIDEWALK. 2.5' APPLIES TO 5' SIDEWALK WIDTH. IF SIDEWALKS DO NOT EXIST, THE CLEAN OUT SHALL BE INSTALLED 2.5' FROM THE RIGHT OF WAY LINE.
- 2. A NEW SECTION OF SIDEWALK SHALL BE POURED AROUND THE VALVE BOX WHEN WORKING IN AN AREA WITH EXISTING SIDEWALKS.
- 3. IN GRASS AREA USE 24"x24" OR 24" DIAMETER CONCRETE COLLAR.

REPLACES FORMER DWG NO.4A

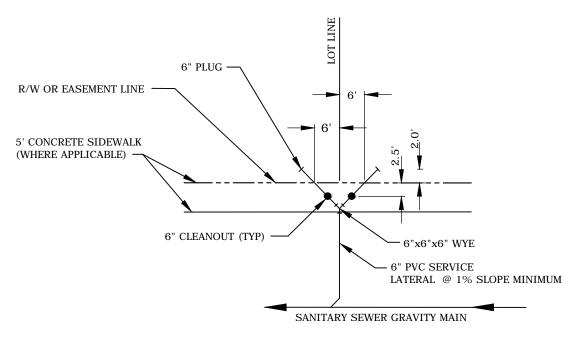
REVISED 2/23/2011

SEWER SERVICE CONNECTION AT PROPERTY LINE OR EASEMENT LINE PROFILE

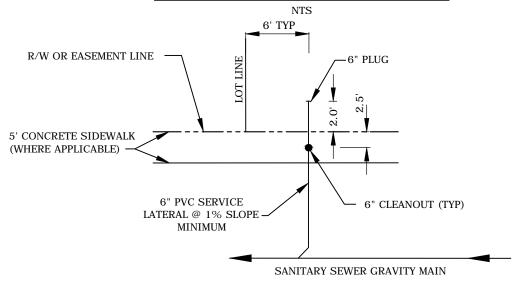
WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



TYPICAL DOUBLE SERVICE LATERAL DETAIL



TYPICAL SINGLE SERVICE LATERAL DETAIL NTS

REPLACES FORMER DWG NO.4B

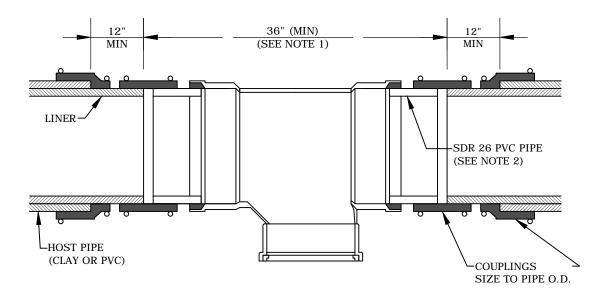
REVISED 2/23/2011

SEWER SERVICE CONNECTION AT PROPERTY LINE OR EASEMENT LINE PLAN

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. FOR MAINS LARGER THAN 8" THIS DIMENSION SHALL BE THE FITTING DIAMETER PLUS 24"
- 2. FOR DEPTHS GREATER THAN 12 FEET, USE C-900 PVC PIPE

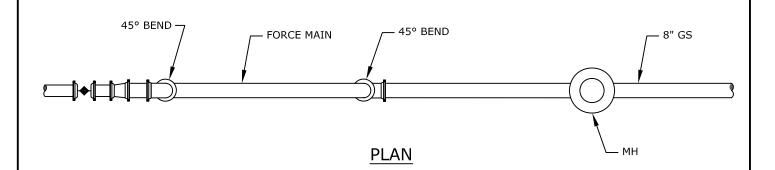
REVISED 2/23/2011

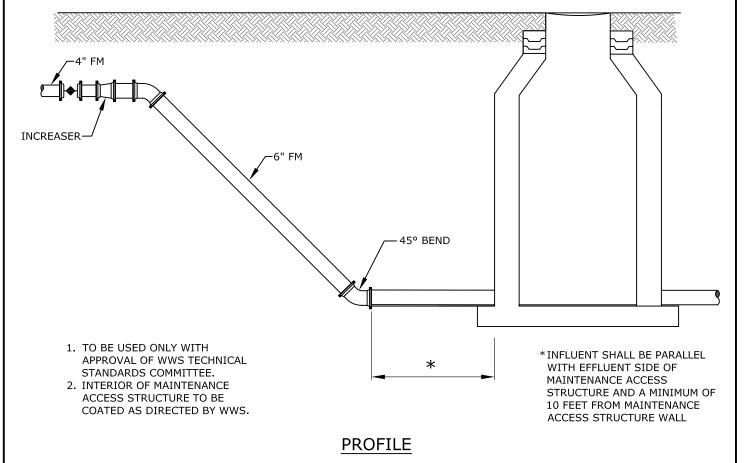
SERVICE CONNECTION ON LINED GRAVITY SEWER

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL





REPLACES FORMER DWG NO.22

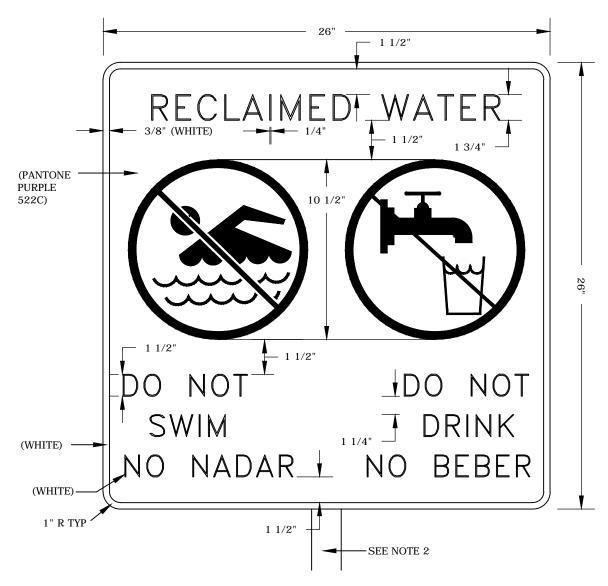
REVISED 3/9/2012

FORCE MAIN CONNECTION TO GRAVITY SEWER

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- SIGN SHALL BE 0.080 GAUGE ALUMINUM WITH ENGINEERING GRADE REFLECTIVE PANTONE PURPLE BACK, AND WHITE TEXT AND GRAPHICS.
- 2. SIGN SHALL BE ANCHORED WITH A 2" SQUARE GALVANIZED POST.
- 3. MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
- 4. HEIGHT OF SIGN WILL DEPEND ON LOCATION AND SURROUNDING LANDSCAPE PLANT TYPES. IN ALL CASES, THE SIGN SHALL BE VISIBLE TO THE PUBLIC.
- SIGN SHALL BE PLACED BY CONTRACTOR IN ACCORDANCE WITH FAC CHAPTER 62-610 "ACCESS CONTROL AND ADVISORY SIGNS", THE COUNTY APPROVED ENGINEERING PLANS AND/OR AS APPROVED BY WWS.

REVISED 2/23/2011

TYPE 1
RECLAIMED WATER SIGN

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. FOR COMMERCIAL PROPERTIES THE WORD "NEIGHBORHOOD" SHALL BE REPLACED WITH "AREA".
- 2. THIS SIGN SHALL BE POSTED AT THE ENTRANCE(S) TO SUBDIVISIONS AND COMMERCIAL PROPERTIES WHERE RECLAIMED WATER IS INSTALLED.
- 3. SIGN SHALL BE 0.080 GAUGE ALUMINUM WITH ENGINEERING GRADE REFLECTIVE PANTONE PURPLE BACK, AND WHITE TEXT AND GRAPHICS.
- 4. SIGN SHALL BE ANCHORED WITH A 2" SQUARE SHAPED GALVANIZED POST.
- 5. MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
- 6. HEIGHT OF SIGN WILL DEPEND ON LOCATION AND SURROUNDING LANDSCAPE PLANT TYPES. IN ALL CASES, THE SIGN SHALL BE VISIBLE TO THE PUBLIC.
- 7. SIGNS SHALL BE PLACED BY THE CONTRACTOR IN ACCORDANCE WITH FAC CHAPTER 62-610 "ACCESS CONTROL AND ADVISORY SIGNS", THE COUNTY APPROVED ENGINEERING PLANS AND/OR AS APPROVED BY WWS.

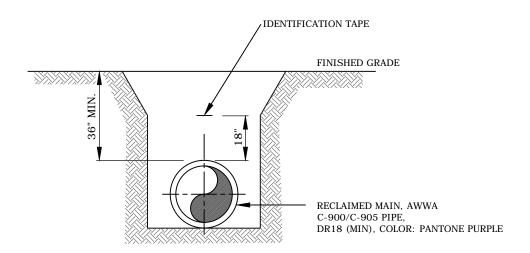
REVISED 2/23/2011 TYPE 2
RECLAIMED WATER SIGN

figure 506

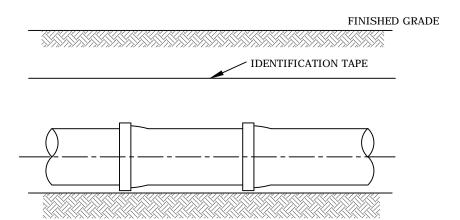
WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



SECTION



PROFILE

- 1. DETECTABLE IDENTIFICATION TAPE SHALL BE INSTALLED DIRECTLY OVER CENTERLINE OF THE PIPE AT 18-INCHES ABOVE THE PIPE.
- 2. METALIZED DETECTOR TAPE SHALL BE ONE LAYER OF METALIZED FOIL LAMINATED BETWEEN TWO LAYERS OF INERT PLASTIC FILM (MINIMUM 5.5 MILS THICKNESS). TAPE SHALL BE PURPLE CONTINUOUSLY MARKED "CAUTION, RECLAIMED LINE BURIED BELOW".

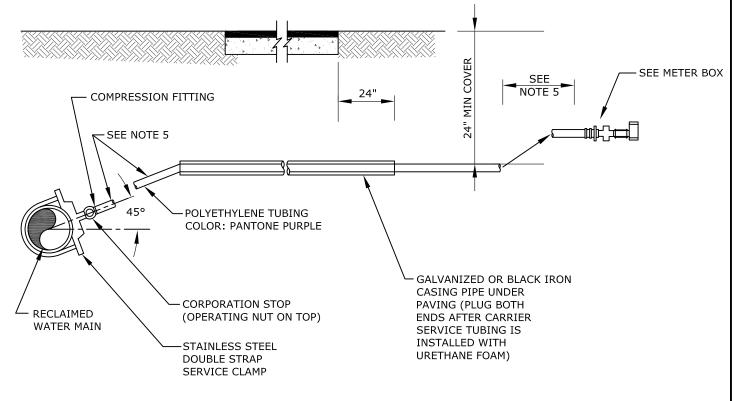
REVISED 2/23/2011

RECLAIMED MAIN INSTALLATION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. SUCCESSIVE TAPS INTO THE RECLAIMED MAIN SHALL BE SPACED NOT LESS THAN 18" ON CENTER. NO TAPS SHALL BE CLOSER THAN 18" TO A JOINT.
- 2. 1" SERVICES REQUIRE A 2" MINIMUM INSIDE DIAMETER CASING PIPE. 3. 2" SERVICES REQUIRE A 3" MINIMUM INSIDE DIAMETER CASING PIPE.
- 4. ALL CASING PIPE SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF PAVEMENT.
- 5. FOR 1" SERVICE LINES (DR-9)THE MINIMUM RADIUS SHALL BE 14". FOR 2" SERVICE LINES (DR-9) THE MINIMUM RADIUS SHALL BE 21".
- 6. ALL CASING PIPE ENDS SHALL BE FILED SMOOTH WITH NO BURRS AND SEALED WITH URETHANE FOAM.
- 7. THE POLYETHYLENE TUBING SHALL BE ONE CONTINUOUS PIECE FROM THE CORPORATION STOP TO THE METER VALVE. NO JOINTS WILL BE PERMITTED BETWEEN THESE POINTS.

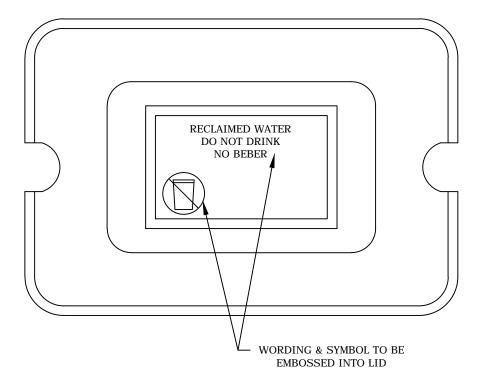
REVISED 2/23/2011

RECLAIMED WATER SERVICE CONNECTION

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



COVER TO BE EPOXY COATED WITH INFUSED PANTONE PURPLE.

REVISED 2/23/2011

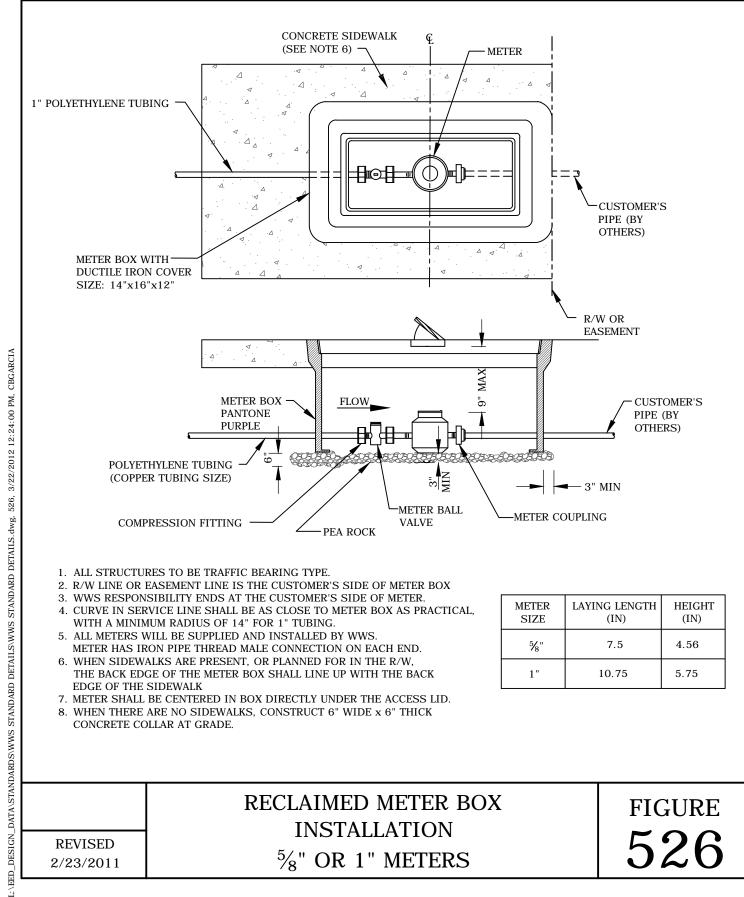
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RECLAIMED METER BOX COVER

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. ALL STRUCTURES TO BE TRAFFIC BEARING TYPE.
- 2. R/W LINE OR EASEMENT LINE IS THE CUSTOMER'S SIDE OF METER BOX
- 3. WWS RESPONSIBILITY ENDS AT THE CUSTOMER'S SIDE OF METER.
- 4. CURVE IN SERVICE LINE SHALL BE AS CLOSE TO METER BOX AS PRACTICAL, WITH A MINIMUM RADIUS OF 14" FOR 1" TUBING
- 5. ALL METERS WILL BE SUPPLIED AND INSTALLED BY WWS. METER HAS IRON PIPE THREAD MALE CONNECTION ON EACH END.
- 6. WHEN SIDEWALKS ARE PRESENT, OR PLANNED FOR IN THE R/W, THE BACK EDGE OF THE METER BOX SHALL LINE UP WITH THE BACK EDGE OF THE SIDEWALK
- 7. METER SHALL BE CENTERED IN BOX DIRECTLY UNDER THE ACCESS LID.
- 8. WHEN THERE ARE NO SIDEWALKS, CONSTRUCT 6" WIDE x 6" THICK CONCRETE COLLAR AT GRADE.

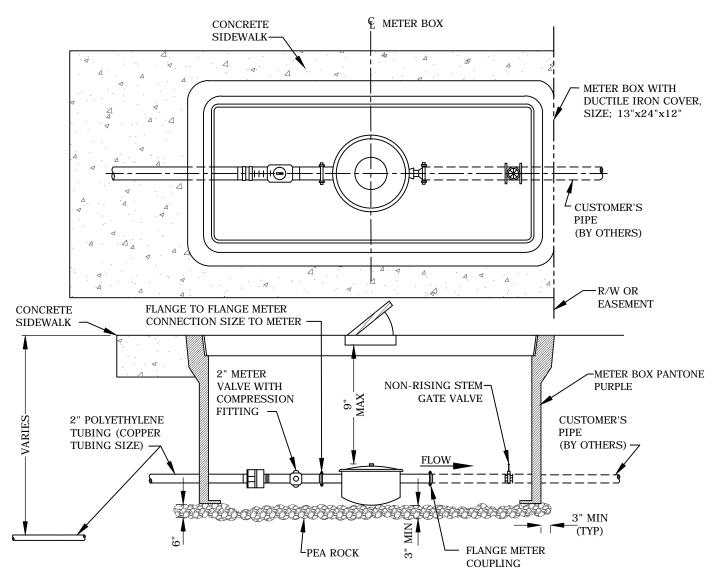
METER SIZE	LAYING LENGTH (IN)	HEIGHT (IN)
5/8"	7.5	4.56
1"	10.75	5.75

REVISED 2/23/2011 RECLAIMED METER BOX INSTALLATION 5/8" OR 1" METERS

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL



- 1. ALL STRUCTURES TO BE TRAFFIC BEARING TYPE
- 2. R/W LINE OR EASEMENT LINE IS THE CUSTOMER'S SIDE OF METER BOX.
- 3. WWS RESPONSIBILITY ENDS AT THE CUSTOMER'S SIDE OF METER.
- 4. CURVE IN SERVICE LINE SHALL BE AS CLOSE TO METER BOX AS PRACTICAL, WITH A MINIMUM RADIUS OF 21" FOR 2" TUBING.
- 5. ALL METERS WILL BE SUPPLIED AND INSTALLED BY WWS.
- 6. WHEN SIDEWALKS ARE PRESENT, OR PLANNED FOR IN THE R/W, THE BACK EDGE OF THE METER BOX SHALL LINE UP WITH THE BACK EDGE OF THE SIDEWALK.
- 7. METER SHALL BE CENTERED IN BOX DIRECTLY UNDER THE ACCESS LID.
- 8. WHEN THERE ARE NO SIDEWALKS, CONSTRUCT 6" WIDE x 6" THICK CONCRETE COLLAR AT GRADE.

METER SIZE	LAYING LENGTH (IN)	HEIGHT (IN)
1 ½"	13	6 % "
2"	17	7 17/32"

REVISED 2/23/2011

RECLAIMED METER BOX FOR $1\frac{1}{2}$ " OR 2" METER

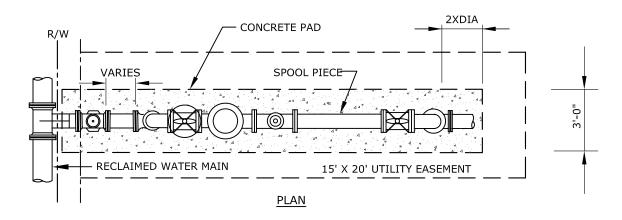
FIGURE 527

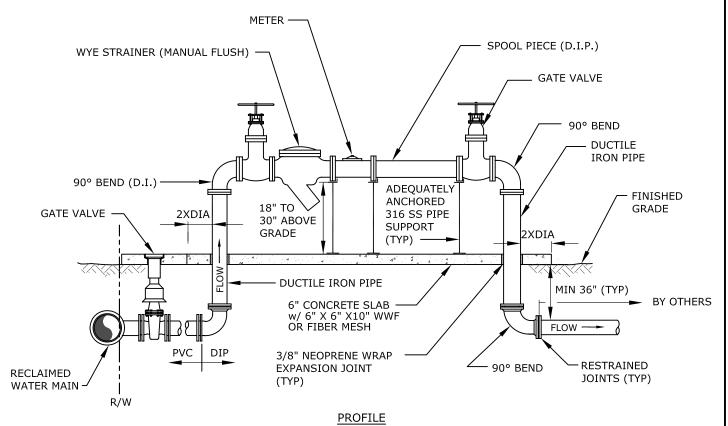
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WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL





- 1. ALL PIPES AND FITTINGS ABOVE GRADE SHALL HAVE FLANGED ENDS.
- 2. ALL PIPES AND FITTINGS BELOW GRADE SHALL BE MECHANICAL RESTRAINED JOINT ENDS.
- 3. INSTALLATION SHALL COMPLY WITH ALL REQUIREMENTS OF FAC CHAPTER 62-610.
- 4. PIPING AND APPURTENANCES SHALL BE PAINTED PANTONE PURPLE 522C. PIPE SHALL BE COLORED WITH PANTONE PURPLE 522C USING LIGHT STABLE COLORANTS.

REVISED 2/23/2011

RECLAIMED WATER
MASTER METER ASSEMBLY
(4" AND LARGER)

WATER & WASTEWATER SERVICES ENGINEERING DIVISION 2555 WEST COPANS ROAD POMPANO BEACH, FL 33069

> PHONE NO. 954-831-0745 FAX: 954-831-0925

STANDARD DETAIL

BRASS KAMLOCK ADAPTOR TRAFFIC BEARING FEMALE N.P.T W/DUST VALVE BOX AND COVER CAP COVER LABELED "RECLAIMED"-FINISHED GRADE 6" MIN 36" RESTRAINED **PLUG** 11 1/4" INSIDE DIAMETER PEA ROCK 2"-SCH 40 STAINLESS STEEL PIPE (TYP) 2" - 90° SS ELBOW **GATE VALVE RECLAIMED** WATER MAIN **PROFILE**

- 1. 2" TAP IN BOTTOM OF PLUG.
- 2. USE RESTRAINED JOINT PIPE.
- 3. IN GRASS AREA USE
- CONCRETE COLLARS, 6" THICK.
- 4. PIPE AND VALVE BOX SHALL BE EPOXY COATED WITH PANTONE PURPLE.

REVISED 2/23/2011 RECLAIMED WATER MANUAL BLOW OFF