BROKEN OAK DRIVE **IMPROVEMENTS**

CITY OF WILDWOOD

SECTION 5: TOWNSHIP 19 SOUTH: RANGE 23 EAST CITY OF WILDWOOD, SUMTER COUNTY, FLORIDA



Kimley»Horn

Ш SH COVER

BROKEN OAK DRIVE IMPROVEMENTS PREPARED FOR CITY OF WILDWOOD

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LOCATION OF PROJECT SUMTER COUNTY, FL

GOVERNING STANDARDS AND SPECIFICATIONS: THE FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION DATED FY 2023-24, AND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED JULY 2023, AS AMENDED BY CONTRACT DOCUMENTS.

UTILITY AGENCY OWNERS:

CITY OF WILDWOOD MARK ODELL 1290 INDUSTRIAL DR WILDWOOD, FL 32835 (352) 330-1346

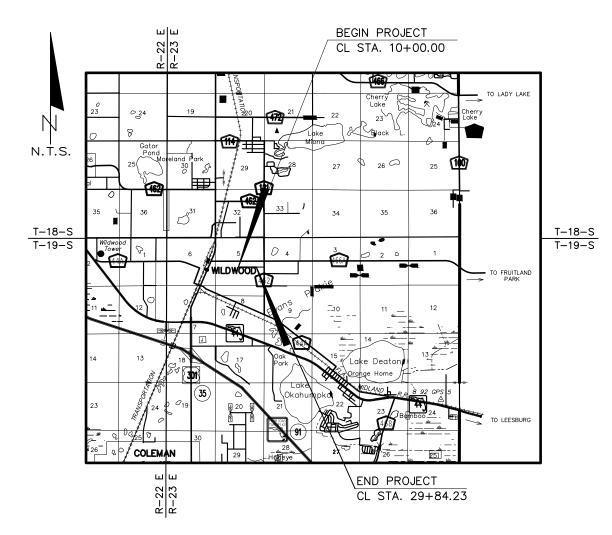
LUMEN JOHN PLAMONDON 501 MCCORMACK ST LEESBURG, FL 34748 (352) 425-4444

SPECTRUM RYAN DUTTENHAVER 730 S MAIN ST WILDWOOD, FL 34785 (352) 717-3704 TECO LANDON MEAHL 316 SW 33RD AVE OCALA, FL (407) 408-5566

AT&T CRAIG PETRIE 2901 W. BUSCH BLVD., STE. 711 TAMPA, FL 33618 (407) 578-8000 (321) 662-7974 (CELL) DUKE ENERGY DISTRIBUTION YANI MIKEDIS 515 INDEPENDENCE HIGHWAY INVERNESS, FL 34453 (352) 229–1870 DUKE ENERGY TRANSMISSION SCOTT VANVELZOR (813) 909-1241

SUMTER ELECTRIC COOPERATIVE, INC DAVID JOHNSON 330 S US HWY 301 SUMTERVILLE, FL 33585





INDEX OF ROADWAY PLANS

COVER SHEET 02 - UTILITY NOTES 03 - UTILITY NOTES & PAY ITEMS 04 - TYPICAL SECTIONS PP-01 TO PP-03 - IMPROVEMENTS PLAN UT-01 TO UT-03 - UTILITY DETAILS

TOPOGRAPHIC SURVEY BY CLYMER FARNER BARLEY, INC. (UNDER A SEPARATE COVER)

PLANS PREPARED BY:

Kimley **Horn

CONSULTING ENGINEERS AND PLANNERS 1700 SE 17TH STREET SUITE 200 OCALA, FLORIDA 34471 TEL: (352) 438–3000 REGISTRY 35106

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

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- 1. MATERIALS FOR THE SANITARY SEWER AND WATER SYSTEM ARE SPECIFIED AS FOLLOWS:
- A. DUCTILE IRON PIPE SHALL CONFORM TO ANSI/ASTM C150/A21.50-81 CLASS 51 OR GREATER. FITTINGS SHALL CONFORM TO AWWA/ANSI C110/A21.10-82 OR AWWA/ANSI C153/A21.53, 350 PSI MINIMUM PRESSURE RATING. FITTINGS SHALL BE COATED ON THE INSIDE WITH PROTECTO 401, A CERAMIC EPOXY LINING, AND A BITUMINOUS COATING ON THE OUTSIDE UNLESS SPECIFIED OTHERWISE. JOINTS SHALL CONFORM TO ANSI/AWWA C111/A21.11-80. NO JOINT DEFLECTION SHALL EXCEED 75% OF MAXIMUM DEFLECTION RECOMMENDED BY THE PIPE MANUFACTURER.
- B. POLYVINYL CHLORIDE (PVC), PRESSURE PIPE 4"-12" SHALL MEET AWWA C900 CLASS 150, DR 18, CRITERIA AND HAVE A WORKING PRESSURE OF 150 PSI. PVC PRESSURE PIPE 14"-36" SHALL MEET AWWA C905. DR-18. FORCE MAIN PIPE SHALL BE GREEN AND RECLAIMED WATER PIPE SHALL BE PURPLE IN COLOR. PIPE JOINTS SHALL BE MADE WITH INTEGRAL BELL AND SPIGOT PIPE ENDS. NO JOINT DEFLECTION SHALL EXCEED 75% OF MAXIMUM DEFLECTION RECOMMENDED BY THE PIPE MANUFACTURER. THE GASKET SHALL MEET THE REQUIREMENTS OF ASTM F-477.
- C. FUSIBLE POLYVINYL CHLORIDE (PVC) PIPE SHALL BE MANUFACTURED UNDER THE TRADE NAMES FUSIBLE C-900® AND FUSIBLE C-905® FOR UNDERGROUND SOLUTIONS, INC.
- D. HIGH DENSITY POLYETHYLENE PIPE, (HDPE), SHALL MEET ASTM F-714 AND ASTM D3550 (PE 4710) CRITERIA. ALL JOINTS SHALL BE FIELD-WELDED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION. PIPE SHALL BE IPS SIZED.
- E. VALVES: VALVES TWO INCHES THROUGH 12 INCHES SHALL BE MUELLER (OR APPROVED ALTERNATIVE) RESILIENT SEAT GATE VALVE, MODIFIED WEDGE DISC TYPE, SUITABLE FOR DIRECT EARTH BURIAL, SUITABLE FOR MECHANICAL JOINT AND TO COMPLY WITH AWWA SPECIFICATIONS. VALVES DEEPER THAN FIVE FEET (5') WILL REQUIRE VALVE NUT EXTENSIONS, MUST BE WELDED AND ONE-PIECE.
- F. VALVE BOXES (PROVIDED FOR ALL VALVES INSTALLED UNDERGROUND): CAST IRON, WITH A MINIMUM INTERIOR DIAMETER OF 5 INCHES, ADJUSTABLE TO FIT THE DEPTH OF EARTH COVER OVER THE VALVES, DESIGNED TO PREVENT THE TRANSMISSION OF SURFACE LOADS DIRECTLY TO THE VALVE PIPING. PROVIDE COVERS MARKED "SEWER" CONSTRUCTED AS TO PREVENT TIPPING OR RATTLING.
- G. MECHANICAL JOINT RESTRAINT, FOR PVC PIPE, SHALL BE INCORPORATED INTO THE DESIGN OF THE FOLLOWER GLAND. THE RESTRAINT MECHANISM SHALL CONSIST OF A PLURALITY OF INDIVIDUALLY ACTUATED GRIPPING SURFACES TO MAXIMIZE RESTRAINT CAPABILITY. GLANDS SHALL BE MANUFACTURED OF DUCTILE IRON CONFORMING TO ASTM A536-80. THE GLAND SHALL BE SUCH THAT IT CAN REPLACE THE STANDARDIZED MECHANICAL JOINT GLAND AND CAN BE USED WITH THE STANDARDIZED MECHANICAL JOINT BELL CONFORMING TO ANSI/AWWA C111/A21.11 AND ANSI/AWWA C153/A21.53 OF LATEST REVISION. TWIST OFF NUTS, SIZED SAME AS TEE-HEAD BOLTS, SHALL BE USED TO INSURE PROPER ACTUATING OF RESTRAINING DEVICES. THE RESTRAINING GLAND SHALL HAVE A PRESSURE RATING EQUAL TO THAT OF THE PIPE ON WHICH IT IS USED. THE RESTRAINING GLANDS SHALL HAVE BEEN TESTED TO UNI-B-13-92. BE LISTED BY UNDERWRITERS LABORATORIES. AND BE APPROVED BY FACTORY MUTUAL. THE RESTRAINT SHALL BE THE EBAA IRON SERIES 2000PV OR APPROVED EQUAL.
- H. RESTRAINT RINGS FOR C-900 PVC PIPE BELLS SHALL BE MADE OF DUCTILE I COMPONENTS. ALL DUCTILE IRON SHALL CONFORM TO ASTM A536. A SPLIT RING SHALL BE USED BEHIND THE BELL AND A SERRATED RESTRAINT RING SHALL BE USED TO GRIP THE PIPE. A SUFFICIENT NUMBER OF BOLTS SHALL BE USED TO CONNECT THE BELL RING AND THE PIPE RING. THE COMBINATION SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 150 PSI. THE RESTRAINT SHALL BE THE SERIES 1500 AS PRODUCED BY THE EBAA IRON, INC. OR APPROVED EQUAL.
- 2. PIPE LAYING: INSTALL THE PIPING SYSTEMS COMPLETE, TESTED AND READY FOR OPERATION. CLEAN EACH PIPE AND FITTING AND INSPECT FOR DEFECTS. DEFECTIVE PORTIONS OF PIPE WILL BE CUT OFF AT LEAST 12 INCHES BEYOND VISIBLE CRACKS OR DEFECTS. LAY PIPE STRAIGHT AND LEVEL, WITH CHANGES IN GRADE AND/OR ALIGNMENT MADE WITHIN PIPE MANUFACTURER'S TOLERANCES. ANY PIPE THAT IS NOT IN TRUE ALIGNMENT OR WHICH SHOWS ANY SETTLEMENT AFTER LAYING WILL BE REMOVED AND RE-LAID BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION. SECURELY CLOSE ALL OPEN ENDS OF PIPES AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. USE CARE TO PREVENT FLOATATION. LAY PIPE DIRECTLY ON THE TRENCH BOTTOM. SHAPE THE BOTTOM OF THE TRENCH TO PROVIDE FIRM SUPPORT FOR THE PIPE ALONG ITS ENTIRE LENGTH. EXCAVATE SUITABLE HOLES FOR JOINTS TO ALLOW THE MAKING AND ASSEMBLING OF THE JOINTS. PIPING SHALL BE MARKED IN ACCORDANCE WITH LOCAL CODES AND REGULATIONS.

CALL 2 BUSINESS DAYS BEFORE YOU DIG IT'S THE LAW! Know what's below. **DIAL 811**

UTILITY NOTES CONT:

- 3. THE BACKFILLING OPERATION SHALL BE IN ACCORDANCE WITH SECTION 125.8 OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- 4. PIPE DEPTH AND PROTECTION: THE STANDARD MINIMUM COVER FOR SANITARY SEWER AND WATER SYSTEMS SHALL BE 3 FEET FROM THE TOP OF THE PIPE TO FINISH GRADE. SHOULD THIS DESIGN NOT BE FEASIBLE, DUCTILE IRON PIPE, CLASS 52, SHALL BE SUBSTITUTED. WHERE WATERWAYS, CANALS, DITCHES OR OTHER CUTS ARE CROSSED, DUCTILE IRON PIPE OR OTHER APPROVED METHODS SHALL BE CONSTRUCTED. WHERE A WATER MAIN CROSSES EITHER ABOVE OR BELOW AN EXISTING OR PROPOSED SANITARY HAZARD (STORM, SANITARY OR REUSE PIPE) WITH LESS THAN 12 INCHES OF CLEARANCE, THEN EITHER THE WATER MAIN OR THE SANITARY HAZARD SHALL BE (1) A SOLID LENGTH OF CLASS 52 DIP FOR 18 FEET CENTERED ON THE POINT OF CROSSING OR (2) ENCASED IN CONCRETE CENTERED ON THE POINT OF CROSSING. THE MINIMUM HORIZONTAL SEPARATION BETWEEN A WATER MAIN AND A SANITARY HAZARD SHALL BE 10 FEET. WHERE A SEPARATION OF 10 FEET BETWEEN A WATER MAIN AND A SANITARY HAZARD CAN NOT BE MAINTAINED, THEN EITHER THE WATER MAIN OR THE SANITARY HAZARD SHALL BE (1) CLASS 52 DIP OR (2) ENCASED IN CONCRETE.
- 5. AIR VENTING: WHERE THE FORCE MAIN PROFILE IS SUCH THAT AIR POCKETS OR ENTRAPMENT COULD OCCUR, METHODS FOR AIR RELEASE SHALL BE PROVIDED. AIR VENTING CAPABILITIES SHALL BE PROVIDED FOR FORCE MAINS BY APPROPRIATELY PLACING AIR RELEASE VALVES. AT CRITICAL POINTS ON MAJOR MAINS, AUTOMATIC AIR RELEASE ASSEMBLIES SHALL BE INSTALLED WITH VALVES. SPECIAL CARE SHALL BE TAKEN TO PRECLUDE ANY CROSS-CONNECTION POSSIBILITY IN THE DESIGN OF AUTOMATIC AIR RELEASE VALVE APPLICATION.
- 6. JOINT RESTRAINING: PRESSURE PIPING FITTINGS AND OTHER ITEMS REQUIRING RESTRAINT, SHALL BE BRACED WITH "MEGALUGS" OR OTHER RESTRAINING ASSEMBLIES, AS SHOWN ON DETAIL SHEET. SAID RESTRAINING DEVICES SHALL BE DESIGNED FOR THE MAXIMUM PRESSURE CONDITION (TESTING) AND THE SAFE BEARING LOADS FOR HORIZONTAL THRUST.
- 7. VALVES: CAREFULLY INSPECT, OPEN WIDE, THEN TIGHTLY CLOSE EACH VALVE. TEST THE VARIOUS NUTS AND BOLTS FOR TIGHTNESS. TAKE SPECIAL CARE TO PREVENT JOINT MATERIALS, STONES, OR OTHER SUBSTANCES FROM BECOMING LODGED IN THE VALVE SEAT. SET VALVES, UNLESS OTHERWISE SHOWN, WITH THEIR STEMS VERTICALLY ABOVE THE CENTERLINE OF THE PIPE. ADJUST ALL VALVES FOR PROPER OPERATION. DEFECTIVE VALVES WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- 8. VALVES BOXES: CAREFULLY CENTER VALVES BOXES OVER THE OPERATING NUTS OF THE VALVES SO AS TO PERMIT A VALVE KEY TO BE EASILY FITTED TO THE OPERATING UNIT. SET THE TOPS OF THE BOXES FLUSH WITH FINISHED GRADE, MAKING ALLOWANCE FOR SETTLEMENT OF THE SURROUNDING BACKFILL OR SURFACE. INSTALL VALVE BOXES SO THAT THEY DO NOT TRANSMIT SURFACE LOADS DIRECTLY TO EITHER THE PIPING OR VALVE. TAKE CARE TO PREVENT EARTH AND OTHER MATERIAL FROM ENTERING THE VALVE BOXES. DIG OUT AND ADJUST TO FINISH GRADE ANY VALVE BOX THAT IS OUT OF ALIGNMENT OR IS NOT FLUSH WITH THE FINISHED SURFACE, AND WHEN REQUIRED, PROVIDE A CONCRETE SUPPORT RING.

9. TESTING:

- A. THE CONTRACTOR SHALL PERFORM HYDROSTATIC TESTING OF ALL SANITARY SEWER AND WATER SYSTEMS, AS SET FORTH IN THE FOLLOWING, AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRESENTATIVES FROM THE CITY OF WILDWOOD AND THE ENGINEER, WITH 3 DAYS ADVANCE NOTICE PROVIDED. ALL JOINTS WILL REMAIN UNCOVERED UNTIL THE TESTING IS COMPLETE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. THE ENGINEER AND A REPRESENTATIVE FROM THE ENGINEER AND THE CITY OF WILDWOOD SHALL BE PRESENT DURING TESTING.
- B. PIPING AND APPURTENANCES TO BE TESTED SHALL BE WITHIN SECTIONS BETWEEN VALVES. UNLESS ALTERNATIVE METHODS HAVE RECEIVED PRIOR APPROVAL FROM THE CITY OF WILDWOOD. TESTING SHALL NOT PROCEED UNTIL ALL RESTRAINING DEVICES ARE INSTALLED. ALL PIPING SHALL BE THOROUGHLY CLEANED AND FLUSHED PRIOR TO TESTING TO CLEAR THE LINES OF ALL FOREIGN MATTER. WHILE THE PIPING IS BEING FILLED WITH WATER, CARE SHALL BE EXERCISED TO PERMIT THE ESCAPE OF AIR FROM EXTREMITIES OF THE TEST SECTION, WITH ADDITIONAL RELEASE COCKS PROVIDED IF REQUIRED.

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BROKEN OAK DRIVE IMPROVEMENTS PREPARED FOR CITY OF WILDWOOD

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C. 1.HYDROSTATIC TESTING SHALL BE PERFORMED AT 150 PSI. MAINTAIN THE TEST PRESSURE FOR AT LEAST 2 HOURS AND UNTIL ALL EXPOSED PORTIONS OF THE PIPE HAVE BEEN INSPECTED FOR WATER-TIGHTNESS. TESTING SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS AS SET FORTH IN SECTION 13 OF AWWA STANDARD C600. THE ALLOWABLE RATE OF LEAKAGE SHALL BE LESS THAN THE NUMBER OF GALLONS PER HOUR DETERMINED BY THE FOLLOWING FORMULA:

SD X (P) 1/2

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133,200

L = ALLOWABLE LEAKAGE IN GALLONS PER HOUR

S = LENGTH OF PIPE TESTED, IN FEET

D = NOMINAL DIAMETER OF THE PIPE IN INCHES

P = AVERAGE TEST PRESSURE MAINTAINED DURING THE LEAKAGE TEST IN POUNDS PER SQUARE INCH GAUGE

- THE TESTING PROCEDURE SHALL INCLUDE THE CONTINUED APPLICATION OF THE SPECIFIED PRESSURE TO THE TEST SYSTEM, FOR THE 2 HOUR PERIOD, BY WAY OF A PUMP TAKING SUPPLY FROM A CONTAINER SUITABLE FOR MEASURING WATER LOSS. THE AMOUNT OF LOSS SHALL BE DETERMINED BY MEASURING THE VOLUME DISPLACED FROM SAID CONTAINER.
- E. SHOULD THE TEST FAIL, NECESSARY REPAIRS SHALL BE ACCOMPLISHED BY THE CONTRACTOR AND THE TEST REPEATED UNTIL WITHIN THE ESTABLISHED LIMITS. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR, WATER, PUMPS, GAUGES AND ALL OTHER ITEMS REQUIRED TO CONDUCT THE REQUIRED WATER DISTRIBUTION SYSTEM TESTING AND PERFORM NECESSARY REPAIRS. THE CONTRACTOR SHALL BE BILLED FOR ANY AND ALL RE-TESTS.
- 10. DETECTABLE BURIED WARNING TAPE AND COPPER LOCATION WIRE:
- A. DETECTABLE BURIED PIPE WARNING TAPE SHALL BE 2 INCHES MINIMUM WIDTH, LONG LASTING PLASTIC WITH METALIZED FOIL CORE SPECIFICALLY DESIGNED FOR NON-METALLIC PIPES AND SHALL BE PLACED OVER ALL PVC WATER LINES AND FITTINGS. METALIZED CORE SHALL BE DETECTABLE TO DEPTHS OF UP TO 6 FEET BY USE OF COMMERCIALLY AVAILABLE PIPE LOCATION EQUIPMENT. TAPE SHALL BE FURNISHED IN MANUFACTURER'S STANDARD COLOR AND ROLL LENGTH AND SHALL BE IMPRINTED CONTINUOUSLY WITH THE FOLLOWING WORDS UNLESS OTHERWISE APPROVED: CAUTION BURIED FORCE MAIN BELOW.
- B. IN ADDITION TO THE INSTALLATION OF THE DETECTABLE BURIED WARNING TAPE OVER ALL PVC SEWER LINES. THE CONTRACTOR SHALL INSTALL AN 10 GAUGE INSULATED COPPER WIRE DIRECTLY ON TOP OF ALL PVC SEWER LINES AND TAPED EVERY TEN FEET FOR LOCATION PURPOSES. THE WIRE SHALL BE CONTINUOUS AND ALL CONNECTIONS TAPED. THREE FEET OF EXCESS WIRE SHALL BE LEFT IN ALL VALVE BOXES.
- 11. ALL DIRECTIONAL DRILLING CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 555 OF THE FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION) AND THE CONTRACT SPECIFICATIONS.
- 12. DISINFECTING:
- A. DISINFECTING THE WATER MAIN AND CONDUCTING BACTERIOLOGICAL SURVEYS AN EVALUATIONS MUST BE DONE IN ACCORDANCE WITH AWWA C551.
- B. UPON COMPLETION OF THE FLUSHING AND DISINFECTION OF THE WATER LINES. THE CONTRACTOR SHALL HAVE WATER SAMPLES TESTED FOR BACTERIOLOGICAL MAIN CLEARANCE IN ACCORDANCE WITH F.A.C. 62-55.315(6), 62-555.330 AND THE PROJECT SPECIFIC FDEP PERMIT REQUIREMENTS.
- 13. SEPARATION REQUIREMENTS:
- A. THE LOCATION OF PUBLIC WATER SYSTEM MAINS SHOULD BE IN ACCORDANCE WITH F.A.C. RULE 62-55.314.

QUANTITIES

BID NUMBER	FDOT PAY ITEM NUMBER	ITEM DESCRIPTION	QUANTITY	UNIT
		GENERAL		
1	101-1	MOBILIZATION	1	LS
2	102-1	MAINTENANCE OF TRAFFIC	1	LS
3	N/A	AS-BUILT PLANS AND CONSTRUCTION LAYOUT SURVEY	1	LS
4	N/A	POLLUTION PREVENTION AND CONTROL	1	LS
5	N/A	UNSUITABLE MATERIAL REMOVAL	100	CY
6	110-1-1	CLEARING AND GRUBBING	0.30	AC
7	285-706	OPTIONAL BASE, BASE GROUP 06	1,310	SY
8	334-1-13	SUPERPAVE ASPHALTIC CONCRETE, TRAFFIC LEVEL C (2.0")	140	TN
9	N/A	TREE REMOVAL & PAVEMENT RESTORATION	2	EA
		UTILITY IMPROVEMENTS		
10	N/A	6" FUSIBLE C-900 DR-18 PVC FORCE MAIN BY HDD (INCLUDES FITTINGS, RESTRAINTS, APPURTENANCES, ETC)	570	LF
11	N/A	12" PVC C-900 DR-18 REUSE MAIN (INCLUDES FITTINGS, RESTRAINTS, APPURTENANCES, ETC)	710	LF
12	N/A	6" PVC C-900 DR-18 FORCE MAIN (INCLUDES FITTINGS, RESTRAINTS, APPURTENANCES, ETC)	1,490	LF
13	N/A	6"CAP	1	EA
14	N/A	12"CAP	1	EA
15	N/A	6" GATE VALVE	2	EA
16	N/A	12"GATE VALVE	2	EA
17	N/A	AIR RELEASE VALVE	2	EA
18	N/A	POTABLE PRESSURE TESTING	1	LS

PAY ITEM FOOTNOTES

BID ITEM NO. FDOT ITEM NO. PAY ITEM NO	T
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4	N/A	COST SHALL INCLUDE DAILY MONITORING AND REPORTING STATUS OF APPROVED EROSION CONTROL PLAN.
6	N/A	TO INCLUDE BARBED WIRE FENCE REPLACEMENT
9	N/A	INCLUDES TREE REMOVAL, STUMP GRINDING, PAVEMENT RESTORATION AND REMOVAL AND RESETTING OF EXISTING FENCING AS REQUIRED. CONTRACTOR SHALL COORDINATE WITH ADJACENT PROPERTY OWNERS IF FENCING NEEDS TO TEMPORARILY BE REMOVED DURING TREE REMOVAL. PAVEMENT RESTORATION TO BE COMPOSED OF 2.0" SP STRUCTURAL COURSE AND 8" LIMEROCK BASE WITH A MINIMUM LBR OF 100, COMPACTED TO 98% DENSITY PER AASHTO T-180.

ALL UTILITY CONSTRUCTION SHALL BE DONE TO MEET THE CITY OF WILDWOOD CONSTRUCTION STANDARDS AND SPECIFICATIONS.

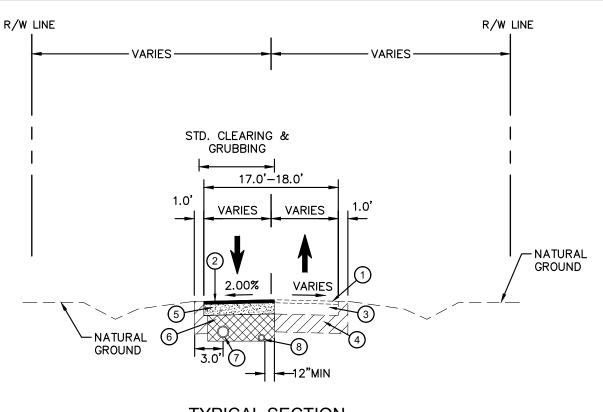
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ROKEN OAK DRIVE IMPROVEMENTS

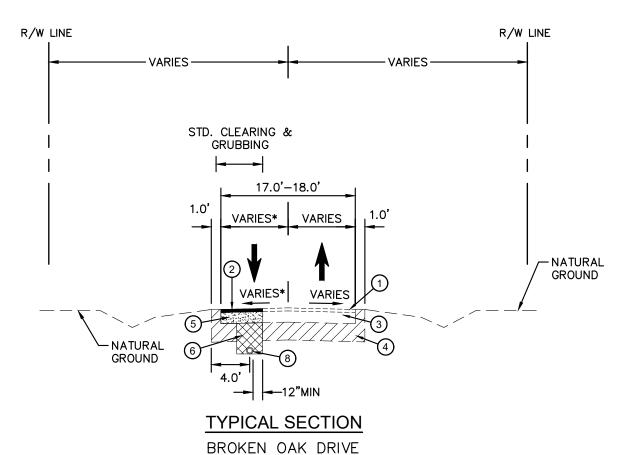
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TYPICAL SECTION

BROKEN OAK DRIVE
DESIGN SPEED 20 MPH
STA. 10+00 TO STA. 16+68



DESIGN SPEED 20 MPH STA. 16+68 TO STA. 23+88 STA. 29+50 TO STA. 29+81

PAVEMENT DESIGN

- (1) EXISTING PAVEMENT
- 2 TYPE SP STRUCTURAL COURSE (2.0")
- (3) EXISTING LIMEROCK BASE
- (4) EXISTING STABILIZED SUBGRADE
- (5) 8" MINIMUM THICK LIMEROCK BASE WITH A MINIMUM LBR OF 100. COMPACTED TO 98% DENSITY PER AASHTO T-180
- 6 SELECT BACKFILL MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY PER AASHTO T-180
- 712" PVC C900 DR-18 RECLAIM MAIN W/ TYPE B BEDDING DETAIL (TO BE INSTALLED AT A MINIMUM 36" COVER DEPTH)
- (8) 6" PVC C900 DR-18 FORCE MAIN (W/ TYPE B BEDDING INSTALLED AT A MINIMUM DEPTH OF 48" COVER DEPTH)

*CONTRACTOR TO MATCH EXISTING SLOPE

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				07/27/23	DATE
				BID PLANS	. REVISIONS
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Kimley >>> Horr © 2023 KIMEY-HORN AND ASSOCIATES, INC. 1700 SE 17TH STREET, SUITE 200, OCALA, FL 34471 PHONE: 352-438-2000

> MARIO PETROLA VEGA FLORIDA LICENSE NUMBER 89603

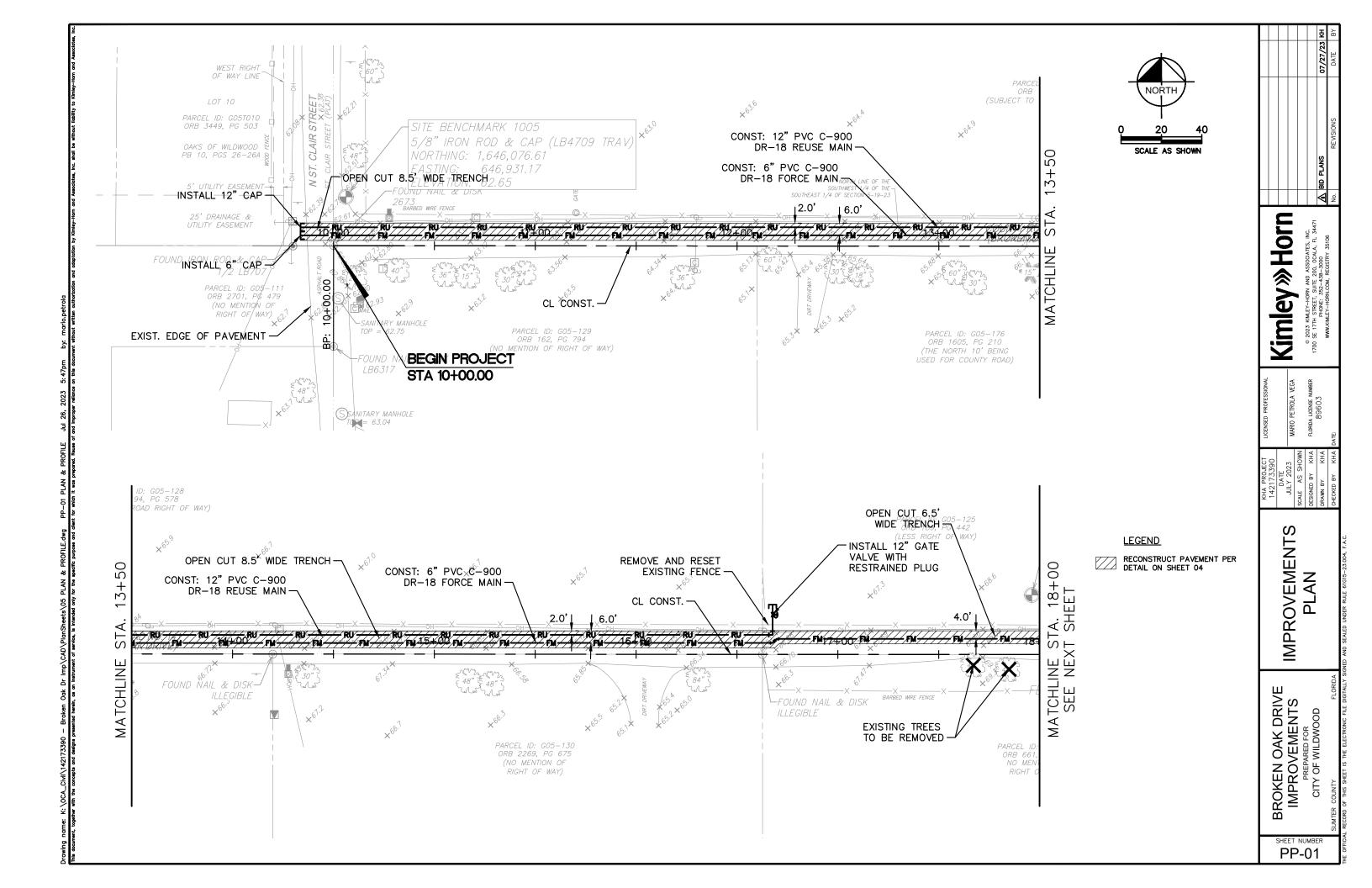
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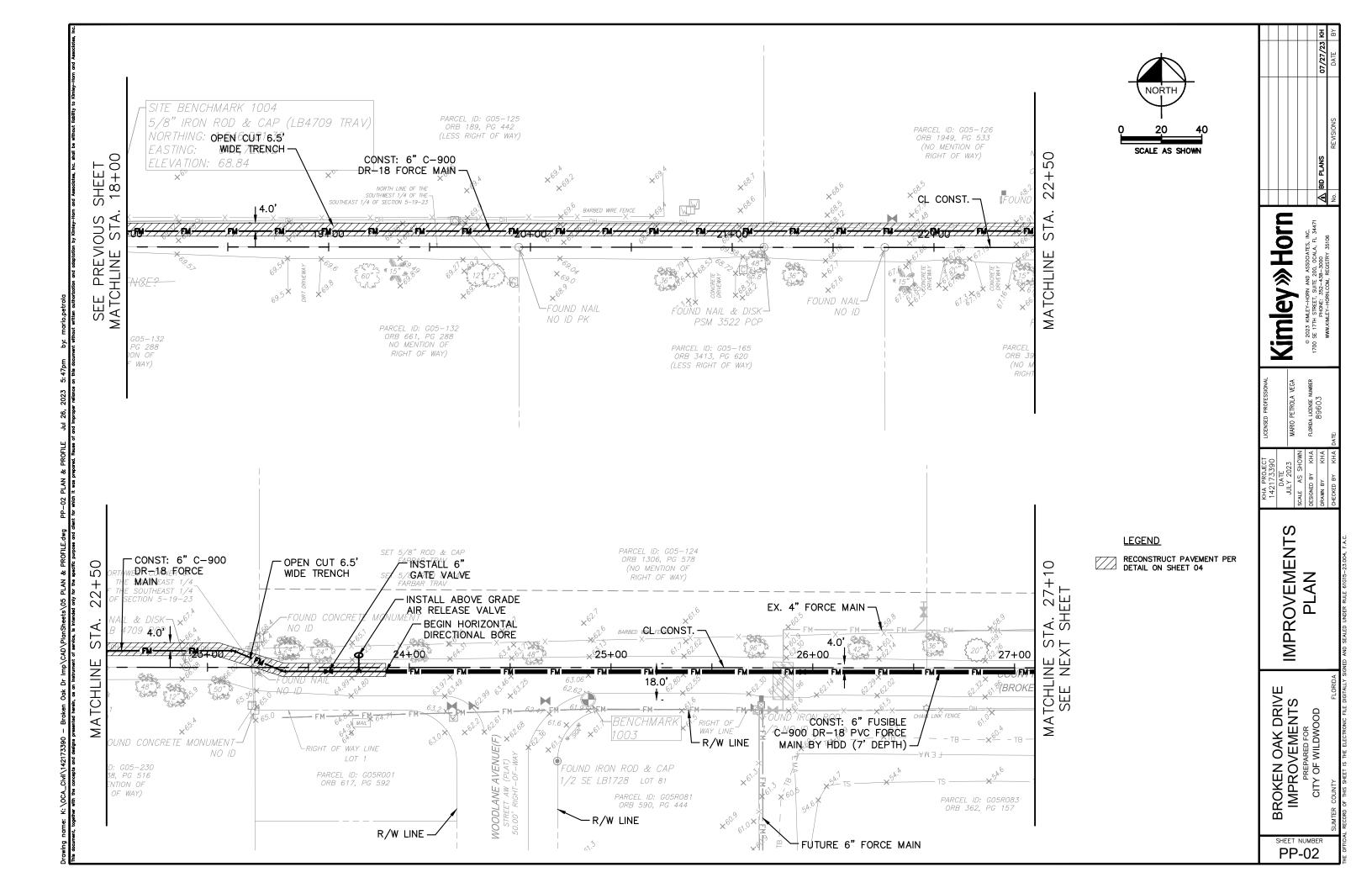
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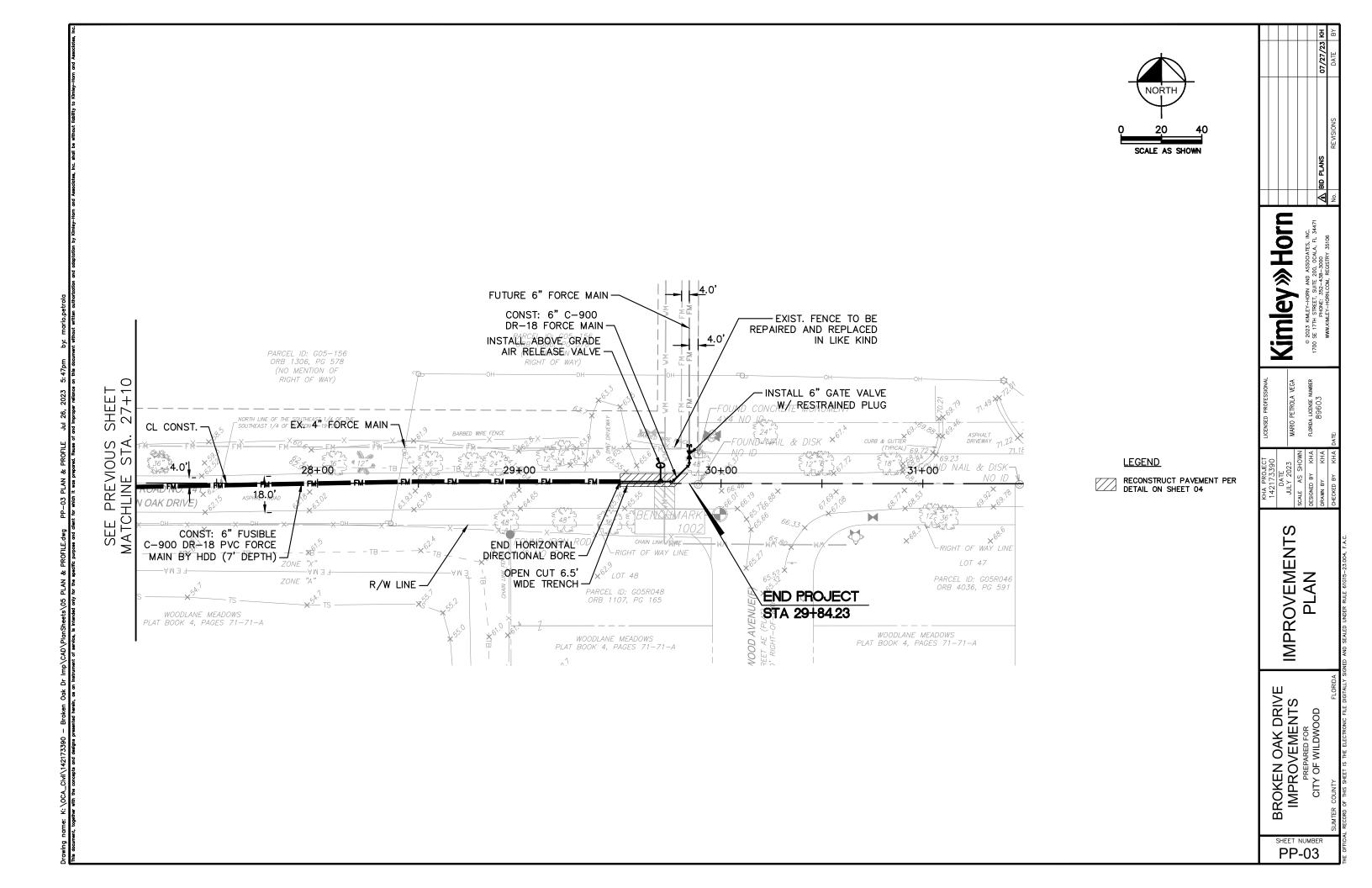
TYPICAL SECTIONS

BROKEN OAK DRIVE
IMPROVEMENTS
PREPARED FOR
CITY OF WILDWOOD

SHEET NUMBER







THE WORK TO BE PERFORMED UNDER THIS SECTION CONSISTS OF FURNISHING ALL TOOLS, EQUIPMENT, MATERIAL, LABOR AND TRANSPORTATION AND PERFORMING ALL WORK NECESSARY FOR THE COMPLETE INSTALLATION OF ALL PIPE, FITTINGS, VALVES SUCSS, AND FIRE THYPRATH'S NECESSARY FOR A COMPLETE AND WORKABLE UNIT AS DETAILED ON THE DRAWINGS AND FURTHER DESCRIBED IN THESE SPECIFICATIONS.

THE PIPING AND OTHER MATERIAL AND EQUIPMENT SHALL BE OF THE SIZE, TYPE AND NUMBER SHOWN ON TO DRAWINGS AND/OR AS SPECIFIED HEREIN. ITEMS DESCRIBED HEREIN AND NOT INCLUDED ON THE DRAWINGS SHALL BE DISREGARDED.

PLASTIC PIPE AND FITTINGS SHALL BE MANUFACTURED FROM VIRGIN PVC COMPOUND, WITH A CELL CLASSIFICATION OF 12454-B, WITH PLASTIC PIPE INSTITUTE (PPI). THE PIPE SHALL BE CONNECTED WITH RING—THE COMPRESSION RING IN WHICH THE BELL IS AN INTEGRAL PART OF THE PIPE. NO SOLVENT WELDED JOINTS WILL BE ALLOWED FOR PIPES 2" AND OVER. DISTRIBUTION SYSTEM PIPPING 3" AND LARGER SHALL BE AWMA C900 OR C905, DR-25. DEDICATED FIRE LINES SERVING BULLDING STRUCTURE SPRINKLER SYSTEMS SHALL BE AWWA C900 OR C905, DR-25. DEDICATED FIRE LINES SERVING BULLDING STRUCTURE SPRINKLER SYSTEMS SHALL BE AWWA C900 OR C904, DR-14. DEDICATED FIRE LINES SHALL BE INSTALLED BY A CONTRACTOR LICENSED IN FLORIDAT OI INSTALL FIRE AIRS. PIPES SMALLER THAN 3" SHALL BE ASTM D2241, SDR-21, WITH A PRESSURE RATING OF 200 PSI. ALL PIPE SHALL BE COLOR—CODED WITH PANTONE PURPLE 52CC.

POLYETHYLENE WATER SERVICE PIPE SHALL BE USED FOR SINGLE AND MULTIPLE SERVICES OF 2" AND LESS DAMETER. THE PE PIPE OR TUBING SHALL BE HONOGENOUS THROUGHOUT AND FREE OF VISIBLE CRACKS, OR HOLES, ORGENO INCLUSIONS OR OTHER DEFECTS. IT SHALL BE UNFORM IN COLOR, OPACITY, DENSITY AND OTHER PHYSICAL PROPERTIES. ALL POLYETHYLENE PIPE AND TUBING SHALL CONTOM TO ALL APPLICABLE REQUIREMENTS IN THE LATEST REVISION OF THE FOLLOWING STANDARDS UNLESS OTHERWISE SPECIFICO.

AWWA C901 – STANDARD FOR POLYETHYLENE (PE) PRESSURE PIPE, TUBING AND FITTINGS, 1/2" THROUGH 3", FOR WATER

ASTM D1248 - STANDARD SPECIFICATION FOR POLYETHYLENE MOLDING AND EXTRUSION MATERIALS ASTM D2737 - STANDARD SPECIFICATION FOR POLYETHYLENE (PE) PLASTIC TUBING (CTS - 0.D.)

PE 4710 RESIN, ENDOT ENDOCORE ONLY, PURPLE WITH VIRGIN CLEAR CENTER

THE PE PIPE OR TUBING SHALL BE RATED FOR USE WITH WATER AT 73.40 F AT A HYDROSTATIC DESIGN STRESS OF 630 PSI AND A MAXIMUM WORKING PRESSURE OF 160 PSI. THE DIMENSIONS AND TOLERANCES SHALL COMPLY WITH: COPPER TUBE SIZE (DR-9) ASTID MO2737. PE PIPE SHALL BE EMBOY ENDOSTRIBES, RECLAIMED WATER PE-4710 CTS TUBING, (DR-9), 250 PSI, FITTINGS AND VALVES FOR USE WITH POLYETHYLER PIPE SHALL BE BRONZE BODY IN ACCORDANCE WITH THE LATEST EDITION OF AWMA C800 AND SHALL HAVE COMPRESSION TYPE JOINT CONNECTIONS SPECIFICALLY DESIGNED FOR USE WITH POLYETHYLENE PIPE. VALVES SHALL BE OF THE BALL AVEC TYPE WITH MOLDED BUNA—R NUBBER SCATS TO SUPPORT THE BALL DOUBLE BUNA NUBBER O-RINGS IN THE STEM. STANLESS STEEL INSERT STIFFENERS SHALL BE USED WITH ALL FITTINGS AND VALVES.

GALVANIZED STEEL WATER PIPE SHALL BE GALVANIZED STEEL MEETING FEDERAL SPECIFICATION WW-P406, CLASS 2 ZINC COATED STANDARD WEIGHT UNLESS OTHERWISE SPECIFIED. FITTINGS SHALL BE GALVANIZED MALLEABLE IRON MEETING FEDERAL SPECIFICATION WW-P-521D.

DUCTILE IRON PIPE SHALL BE DESIGNED IN ACCORDANCE WITH ANSI STANDARD A21.51—86 (AWWA C151—86)
LATEST DUCTILE IRON PIPE, CENTERIOGALLY CAST IN METAL MOLDS OR SAND—LINED MOLDS FOR WATER OR
OTHER LIQUIDS. PIPE SHALL HAVE DESIGN VALUES OF 60.000 PSI TENSILES STREMSH, 42.000 PSI YENG
STRENGTH, AND 10% MIMIMUM ELONGATION. PIPE SHALL BE CEMENT—LINED AND SHALL UTILIZE PUSH—ON
JOINTS CONFORMING TO THE REQUIREMENTS OF ANSI ACIT, I AWWA C111). THE PRESSURE RATING, METAL
THICKNESS CLASS, NET WEIGHT OF PIPE WITHOUT LINING. LENGTH OF PIPE, AND NAME OF MANUFACTURER
SHALL BE CLEARLY MARKED ON EACH LENGTH OF PIPE. FOR DUCTILE IRON PIPE, ANSI WALL THICKNESS
SHALL BE CLEARLY MARKED ON EACH LENGTH OF PIPE.

ALL UNDERGROUND FITTINGS 3" AND LARGER FOR DUCTILE IRON PIPE AND PVC PIPE SHALL BE DUCTILE IRON FITTINGS AND HAVE MECHANICAL JOINT ENDS, SHALL BE CEMENT MORTAR LINED AND BITUMINOUS SEALED, SHALL BE CLASS 250 MINIMUM AND SHALL CONFORM TO ANSI A21.10 (AWWA C110) —LATEST OR NSI A21.53 (AWWA C153) LATEST. APPROVED MANUFACTURERS: TYLER—UNION

ALL UNDERGROUND FITTINGS LESS THAN 3" SHALL BE SCHEDULE 40 PVC

| CITY OF WILDWOOD | 100 NORTH MAIN STREET | MONOO, FLORAD, 37405 | MON-POTABLE WATER DETAIL | NON-POTABLE WATER DISTRIBUTION | SPECIFICATIONS | NON-POTABLE WATER DISTRIBUTION | SPECIFICATIONS | NON-POTABLE WATER DISTRIBUTION | NON W-02

VALVES

JOINT CONNECTIONS, NON-RISING STEMS, AND 2" SQUARE OPERATING NUTS. RESILIENT-WEDGE GATE VALVES SHALL BE MUELLER #2360 SERIES OR EJ FLOWMASTER SERIES.

TAPPING SLEEVES AND VALVES

FOR TAPS 4" AND LARGER ON MAIN LINES 6" AND LARGER, THE TAPPING SLEEVE SHALL BE A FORD FAST ROMAC OR APPROVED EQUAL, AND THE TAPPING VALVE SHALL BE A MUELLER 12360 OR EJ FLOWMASTER SERIES.

FOR TAPS SMALLER THAN 4" ON MAIN LINES LARGER THAN 2" AND LESS THAN 8", THE SADDLE SHALL BE A DOUBLE STRAP, IRON BODY SADDLE WITH STEEL BANDS, FORD F202 OR APPROVED EQUAL. THE TAPPING VALVE SHALL BE A BRASS CORPORATION STOP OR A RESULENT SEATED CATE VALVE, FOR A SERVICE LINE, THE TAPPING VALVE SHALL BE A BRASS CORPORATION STOP, FORD FB 1100—NL OR APPROVED EQUAL.

WHEN TAPPING A MAIN LINE 3" OR LESS, THE SADDLE SHALL BE FORD S71 OR APPROVED EQUAL. THE TAPPING VALVE SHALL BE A BRASS CORPORATION STOP, FORD FB1100-NL OR APPROVED EQUAL.

VALVE BOXES FOR VALVES SHALL BE TYLER-UNION FOUNDRY DOMESTIC #461-S, FINE GRAIN CAST IRON ROADWAY BOXES WITH A 5-1/4" SHAFT, ADJUSTABLE HEIGHT BY SCREWNIG FOR THE TRENCH DEPTH SPECIFIED ON THE DRAWNIOS. BOXES ARE TO BE COMPLETE WITH TOP AND BASE SECTION AND DROP TOP COVER WITH THE WORD "REUSE" PERMANENTLY CAST IN 1T.

BLOW-OFF VALVE ASSEMBLY

THE CONTRACTOR SHALL FURNISH AND INSTALL BLOW-OFF ASSEMBLIES IN THE LOCATIONS SHOWN ON THE DRAWNIGS. EACH ASSEMBLY SHALL CONSIST OF A BLOW-OFF BRANCH, 2" EL FLOWMASTER THEADED MODEL GATE VALVE W/ 2" OPERATING NUT, CAP, FITNIOS, INTER-COUNCETING PHING AND THRUST BLOCKING. SUSSIBLE AS SHOWN IN THE DETAIL DRAWNIG, PIPE AND FITTINGS SHALL BE AS SPECIFIED IN THE PRECEDING PRARQGAPAPE.

NON-POTABLE METER BOX ASSEMBLY

THE CONTRACTOR SHALL FURNISH AND INSTALL METER BOX ASSEMBLIES IN THE LOCATIONS SHOWN ON THE DRAWNISS. EACH ASSEMBLY SHALL INCLUDE AN ANGLE METER VALVE, A U-BERANCH OR Y-BERANCH AS APPLICABLE, AD JUAL CHECK VALVE OR DOUBLE ORDO'S VALVE AS APPLICABLE, AND A WATER METER BOX.

ACCEPTABLE MANUFACTURERS SHALL BE: DUAL BOX — DFW ROTEC #39F PURPLE COMPLETE W/ CI READER, DFW PLASTICS 1200 OR 1500, OR APPROVED EQUIAL.

SINGLE BOX - DFW ROTEC #36F PURPLE COMPLETE W/ CI READER, DFW PLASTICS 1200 OR 1500, OR APPROVED EQUAL.

ALL WATER METERS WILL BE INSTALLED BY THE CITY.

CITY OF WILDWOOD

NON-POTABLE WATER DISTRIBUTION SPECIFICATIONS l w-02

PIPE LAYING

THE APPROXIMATE LOCATION OF THE WATER LINES WILL BE STAKED IN THE FIELD BY THE SURVEYOR, BUT INSTALLATION OF THE WATER LINE WILL BE ROUTED AROUND ANY AND ALL TREES, ROOTS AND OTHER OBSTRUCTIONS ON LINE.

UNLESS SPECIFICALLY DESIGNATED ON THE DRAWINGS, OR SO ORDERED BY THE ENGINEER, THE PIPE SHALL BE BURIED TO A DEPTH TO OBTAIN AT LEAST 48" OF COVER.

BEFORE THE PIPE IS LAID IN THE TERNCH THE EARTH FORMING THE BED SHALL BE CAREFULLY FREED OF ALL STONES, ROOTS, ETC. THE BOTTOM OF THE TRENCH WILL BE EXCAVATED BY HAND AND A FIRM FULL—LENGTH SUPPORT FORMED FOR ALL PIPE, VALVES AND FITTINGS. THE PIPE SHALL BE LAID BY SNAKING IN THE TRENCH.

PREPARATORY TO MAKING PIPE JOINTS ALL SURFACES OF THE PORTIONS OF THE PIPE AND JOINTING MATERIAL

THRUST BLOCKS SHALL BE PROVIDED AT ALL POINTS WHERE THE LINE BENDS GREATER THAN 10° AND AT ALL WYES, TEES, CAPS, VALVES, HYDRANTS AND REDUCERS.

AT THE END OF EACH WORK DAY AND/OR WHEN THE PIPE IS LEFT OPEN FOR LONG PERIODS, ALL OPEN ENDS OF THE PIPE WILL BE SUFFICIENTLY COVERED TO PREVENT ENTRANCE OF TRASH OR WILDLIFE.

ANY LENGTH OF PIPE THAT HAS BEEN REJECTED BY THE ENGINEER WILL BE PROMPTLY REMOVED FROM THE JOB SITE OR DESTROYED.

CONNECTIONS WILL BE MADE TO THE EXISTING AND/OR CONSTRUCTED FACILITIES IN ACCORDANCE WITH STANDARD PLUMBING PRACTICE. ANY CONNECTIONS MADE BETWEEN ANY WATER PIPE AND ANY OTHER TUBE PIPE SHALL BE MADE USING CONNECTORS AND ADAPTERS DESIGNED FOR THE PURPOSE OF CONNECTING THE TWO TYPES OF PIPE.

SINGLE AND MULTIPLE SERVICES SHALL BE AS SPECIFIED AND SHALL BE MADE BY INSTALLING A DOUBLE STRAP SADDLE OF THE APPROPRIATE SIZE FOR THE MATERIAL USED AND A CTS THREAD ADAPTER DESIGNED FOR USE WITH THE POLYETHYLENE PIPE. THE POLYETHYLENE PIPE SHALL THEN BE INSTALLED TO THE PROPER ALIGNMENT AND DEPTH AND CONNECTED TO THE METER BOX ASSEMBLY WITH A COMPRESSION TYPE ADAPTER DESIGNED FOR USE WITH PET TUBING.

VALVE BOXES SHALL BE SET TO CONFORM ACCURATELY TO THE FINISHED PAVEMENT SURFACE. ALL ADJUSTMENTS REQUIRED FOR GRADE SHALL BE DONE AFTER ALL BASE CONSTRUCTION HAS BEEN COMPLETED. IMMEDIATELY BEFORE THE PLACEMENT OF THE FINIAL ASPHAIL SURFACE COURSE, THE VALVE SHALL BE UNCOVERED AND THE VALVE BOX SO PLACED AS TO ACCURATELY MEET THE FINISHED PAVEMENT GRADE. THE AREA EXCAVATED IN THE LIMEROCK BASE COURSE TO ALLOW FOR ADJUSTMENT OF THE VALVE BOX TO GRADE SHALL BE BACKFILLED WITH LIMEROCK AND COMPACTED TO THE SAME DENSITY AS THE LIMEROCK BASE COURSE.

ANY PIPE INSTALLED AND SUBSEQUENTLY REMOVED SHALL NOT BE REINSTALLED AND SHALL IMMEDIATELY BE REMOVED FROM THE JOB SITE.

CLEARANCE REQUIREMENTS

WHEN A RECLAIMED WATER/NON-POTABLE IRRIGATION LINE IS TRANSPORTING WATER FOR PUBLIC ACCESS IRRIGATION OR FIRE PROTECTION, THE MAXIMUM OBTAINABLE SEPARATION OF RECLAIMED WATER/NON-POTABLE IRRIGATION LINES AND POTABLE WATER LINES SHALL BE PRACTICED. MINIMUM SEPARATION REQUIREMENTS ARE SPECIFIED UNDER POTABLE WATER.

en co	CITY OF WILDWOOD	SCALE	CITY OF WILDWOOD WATER DETAIL	DETAIL NUMBER
WILDWOOD	100 NORTH MAIN STREET	NONE LATEST REVISION 11-10-14	NON-POTABLE WATER DISTRIBUTION SPECIFICATIONS	W-02 3 OF 4

TESTING

AFTER THE PIPE HAS BEEN CONNECTED AND LAID IN THE TRENCHES, ENOUGH BACKFILL BETWEEN JOINTS WILL BE MADE TO INSURE THE ANCHORAGE OF THE PIPE IN THE TRENCH AND THE LINES PRESSURE TESTED. THE CONTRACTOR SHALL FILL THE LINE WITH WATER AND INSTALL THE NECESSARY FIXTURES, PUMPS, GAUGES, ETC. TO SUBJECT THE LINES TO A HYDROSTATIC GAUGE PRESSURE OF 150 PSI.

EACH INDIVIDUAL BRANCH LINE OF LOOP SHALL BE SUBJECTED TO THE 150 PSI PRESSURE AND MAINTAINED FOR AT LEAST 15 MINUTES WITH NO LOSS OF PRESSURE. ANY DEFECTS OR LEASH REVEALED WILL BE LOCATED AND REPARED AND ANOTHER PRESSURE TEST RUN BEFORE BACKFLING.

AFTER THE TESTING OF THE INDIVIDUAL BRANCH LINES, THOSE PORTIONS OF THE LINE WILL BE APPROVED FOR BACKFILL, BUT THE JOINTS WHERE EACH BRANCH LINE CONNECTS TO A MAIN OR ANOTHER BRANCH LINE SHALL REMAIN OPEN. AFTER TESTING OF ALL BRANCH LINES AND THE COMPLETE CONNECTION OF THE ENTIRE DISTRIBUTION SYSTEM, A PRESSURE TEST WILL BE RUN ON THE SYSTEM. A PRESSURE OF 150 PSI WILL BE PLUT ON THE SYSTEM AND WILL BE WAINTAINED FOR AT LEAST 2 HOURS WITH NO LOSS IN PRESSURE IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN AWMA MANUAL NO. 23. AFTER THE SYSTEM MAINTAINS THE TEST PRESSURE, THE ENTIRE SYSTEM MAY BE BACKFILLD.

ALL NON-POTABLE WATER DISTRIBUTION SYSTEM PRESSURE TESTING SHALL BE COMPLETED A MINIMUM OF 30 DAYS PRIOR TO THE SUBSTANTIAL COMPLETION DATE OR AS REQUIRED BY THE CITY ENGINEER.

TRENCHES SHALL BE BACKFILLED WITH THE EXCAVATED MATERIALS FROM WHICH LARGE CLODS OR STONES HAVE BEEN REMOVED AND SHALL BE CAREFULLY DEPOSITED IN LAYERS NOT TO EXCEED 12" AND THOROUGHLY AND CARFULLY RAMMED UNIT LENOUGH FILL HAS BEEN PLACED TO PROVIDE A COVER OF NOT LESS THAN 2' ABOVE THE PIPE. THE REMAINDER OF THE BACKFILL MATERIAL MAY THEN BE PLACED AND SHOULD BE MOSTENED AND TAMPED TO INSURE PROPER COMPACTION.

BACKFILL SHALL NOT BE PLACED OVER ANY PLASTIC PIPE WHILE IT IS IN A HEATED CONDITION. BEFORE BACKFILLING THE PIPE, THE TEMPERATURE SHALL BE BROUGHT TO THE APPROXIMATE TEMPERATURE OF THE CROUND EITHER BY RUNNING WATER THROUGH IT OR BY BACKFILLING IN THE EARLY MORNING WHEN THE PIPE AND GROUND ARE AT THE SAME TEMPERATURE.

WHENEVER THE TRENCHES HAVE NOT BEEN PROPERLY FILLED, OR IF SETTLEMENT OCCURS, THEY SHALL BE REFILLED, COMPACTED, SMOOTHED OFF, AND FINALLY MADE TO CONFORM TO THE SURFACE OF THE GROUND. BACKFILL IN OPEN TRENCHES AGROSS ROADWAYS OR OTHER AREAS WHICH ARE TO BE REPAYED SHALL BE MADE AS SPECIFIED ABOVE EXCEPT THAT THE ENTIRE FILL ABOVE PIPE SHALL BE DEPOSITED IN LAYERS NOT TO EXCEED 12" IN THICKNESS, MOSTENED AND COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO THEO STATE AS THE PROPERTY OF THE PROP

PLUMBING CODE

ALL PIPING AND RELATED FITTING SHALL BE INSTALLED ACCORDING TO THE PLUMBING CODE OF THE STATE OF FLORIDA, LOCAL AUTHORITIES AND MANUFACTURER'S RECOMMENDATIONS. WHEREVER THESE SPECIFICATIONS AND/OR DRAWINGS EXCEED THE REQUIREMENTS OF SAID CODES, THESE DOCUMENTS TAKE PRECEDENCE. THE PIPHIG MUST BE INSTALLED IN A STRONG, NEAT AND WORKMANLIKE MANNER, SUBJECT TO THE RESTRICTIONS INDIVIDED.

	CITY OF WILDWOOD	SCALE	CITY OF WILDWOOD WATER DETAIL	DETAIL NUMBER	
WILDWOOD	100 NORTH MAIN STREET WLDWOOD, FLORIDA 34785 (352) 330—1330	NONE LATEST REVISION 11-10-14	NON-POTABLE WATER DISTRIBUTION SPECIFICATIONS	W-02 4 OF 4	

TRENCH WIDTH VARIES W/ SIZE OF PIPE COMMON FILL-PIPE O.D. BEDDI

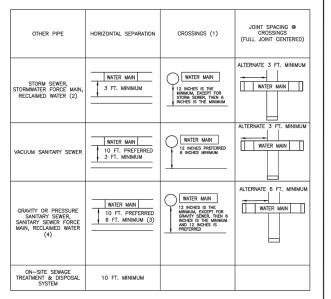
- 1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO $_{\rm T=180}$
- 2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER ROADWAYS) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
- PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
- 4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND
- 5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION
- 6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
- FINAL RESTORATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES.

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	CITY OF WILDWOOD	SCALE	CITY OF WILDWOOD WATER DETAIL	DETAIL NUMBER	8	Г
WILDWOOD	100 NORTH MAIN STREET	NONE LATEST REVISION 11-10-14	TYPE B BEDDING AND TRENCHING DETAIL	W-04 1 OF 1	Drawing names	

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555,314

NONE

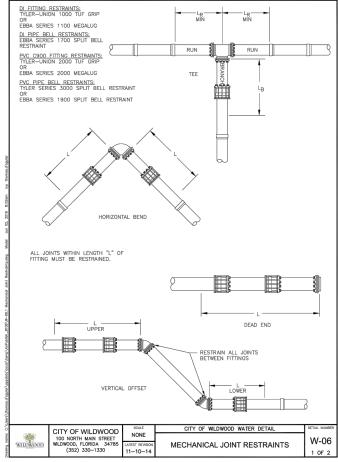
CITY OF WILDWOOD WATER DETAIL



NOTES

- 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 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.
- 4. RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

CITY OF WILDWOOD
100 NORTH MAIN STREET
WILDWOOD, FLORIDA 34785
(352) 330-1330 CITY OF WILDWOOD WATER DETAIL W-05 SEPARATION OF WATER MAINS



MINIMUM LENGTH OF PIPE "L" (FEET) TO BE RESTRAINED (SOURCES: EBBA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

		4°	6"	8"	10"	12"	14"	16"	20"	2
90° HORIZ. BEND		17	24	31	37	43	49	55	66	7
45° HORIZ, BEND		7	10	13	15	18	20	23	28	- 3
22.5" HORIZ. BEND		3	5	6	7	9	10	11	13	- 1
11.25" HORIZ. BEND		2	2	3	4	5	5	6	7	8
45° VERT.	UPPER BEND	16	22	29	34	41	46	52	64	7
OFFSET	LOWER BEND	7	10	13	15	18	20	23	28	3
22.5' VERT.	UPPER BEND	7	12	15	17	20	22	25	31	3
OFFSET	LOWER BEND	3	5	6	7	9	10	11	13	1
11.25* VERT.	UPPER BEND	4	5	7	8	11	12	14	16	1
OFFSET	LOWER BEND	2	2	3	4	4	5	7	7	
PLUG (DEAD END)		38	53	69	83	98	112	129	153	1
VALVE		38	53	69	83	98	112	129	153	1
	4"X *	19	-	-	-	-	-	-	-	
	6"X *	10	35	-	-	-	-	-	-	
	8"X *	1	28	51	-	-	-	-	-	
TEE	10"X *	1	28	46	64	-	-	-	-	
(BRANCH REST.)	12"X *	1	15	40	60	79	-	-	-	
	14"X *	1	8	35	56	75	92	-	-	
	16"X *	1	1	29	51	71	90	106	-	
	20"X *	1	1	18	42	64	85	101	133	
	24"X *	1	1	5	32	55	77	95	128	
	6"X *	27	-	-	-	-	-	-	-	
REDUCER	8"X *	50	29	-	-	-	-	-	-	_
(LARGER PIPE	10"X *	68	51	28	-	-	-	-	-	-
RESTRAINT)	12"X *	85	71	52	48	-	-	-	-	-
-	14"X *	101	89	73	69	29	_	-	_	
	16"X *	117	106	92	89	54	29	-	_	_
	20"X *	146	138	126	113	96	77	54	_	
	24"X *	173	166	157	146	132	98	77	54	

- THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.
- 3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
- 4. RESTRAINED PIPE LENGTHS FOR VALVES APPLY TO PIPE ON BOTH SIDES OF VALVES.
- THIS TABLE IS FOR SP SOILS. THE ENGINEER IS TO BE NOTIFIED IF OTHER TYPE SOILS ARE ENCOUNTERED.

3	OITY OF WILLBURGOR	SCALE	CITY O	F WILDWOOD WAT	TER DETAIL	DETAIL NUMBER
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CITY OF WILDWOOD

100 NORTH MAIN STREET
WILDWOOD, FLORIDA 34785
(352) 330-1330 WILDWOOD W-06 MECHANICAL JOINT RESTRAINTS

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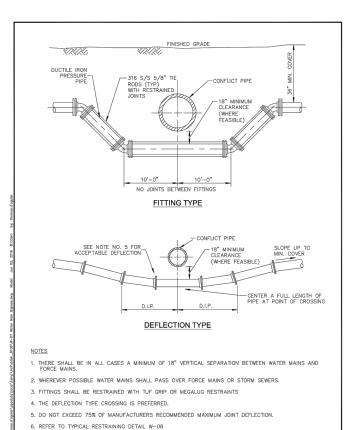
ROKEN OAK DRIVE
IMPROVEMENTS
PREPARED FOR
CITY OF WILDWOOD WILDWOOD

CITY C

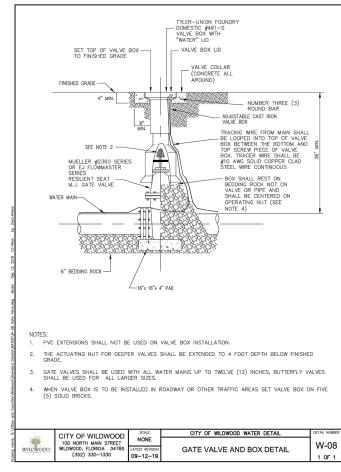
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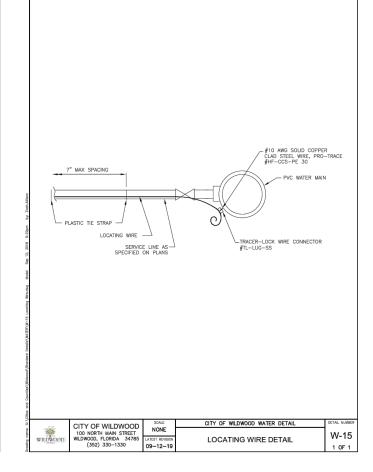
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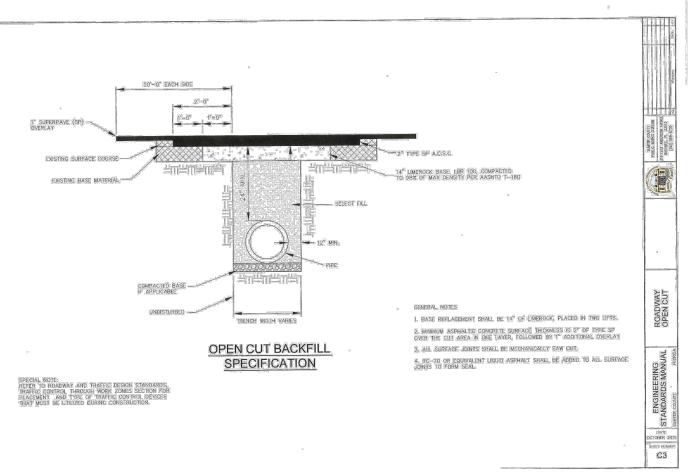
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CITY OF WILDWOOD







W-07

WATER/ SEWER PIPE CONFLICT DETAIL



BROKEN OAK DRIVE
IMPROVEMENTS
PREPARED FOR
CITY OF WILDWOOD

SHEET NUMBER

THE WORK UNDER THIS SECTION INCLUDES THE FURNISHING, INSTALLING AND/OR LAYING, JOINTING, AND TESTING OF ALL SEWER LINES, MANHOLES, FITTINGS AND APPURTENANCES, INCLUDING NECESSARY SERVICE CONNECTIONS, REQUIRED FOR A COMPLETE SYSTEM AS SHOWN ON THE DRAWNOS AND SPECIFIED HEREIN. THE WORK SHALL ALSO INCLUDE SUCH CONNECTIONS, RECONNECTIONS, TEMPORARY SERVICE, AND ALL OTHE PROVISIONS IN REGARD TO EXISTING SEWER OPERATIONS AND MODIFICATIONS AS IS REQUIRED TO PERFORM THE NEW WORK.

ALL MATERIAL SHALL BE FREE FROM DEFECTS IMPAIRING STRENGTH AND DURABILITY AND BE OF THE BEST COMMERCIAL QUALITY FOR THE PURPOSE SPECIFIED. IT SHALL HAVE STRUCTURAL PROPERTIES SUFFICIENT TO SAFELY SUSTAIN OR WITHSTAND STRAINS AND STRESSES TO WHICH IT IS NORMALLY SUBJECTED AND BE TRUE TO DETAIL.

POLYVINYLCHLORIDE (PVC) PIPE & FITTINGS

PIPE AND FITTINGS FOR GRAVITY SEWER CONSTRUCTION SHALL BE MANUFACTURED FROM VIRGIN MATERIAL AND SHALL MEET THE REQUIREMENTS OF ASTM D3034 — LATEST. THE PIPE SHALL BE SDR 35 OR GREATER FOR DEPTHS LESS THAM 15. THE PIPE SHALL BE SDR 26 FOR DEPTHS GREATER THAM 15. ALL JOINTS SHALL BE COMPRESSION TYPE JOINTS MEETING THE REQUIREMENTS OF ASTM D3212 — LATEST.

MANHOLES

MANHOLES SHALL BE THE SIZE AND DEPTH SHOWN ON THE DRAWINGS AND SHALL BE PRECAST REINFORCED CONCRETE BARRELS AND CONES COATED AS SPECIFIED.

PRECAST CONCRETE SECTIONS SHALL CONFORM TO THE ASTM SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS DESIGNATION C478 - LATEST, WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

CEMENT SHALL MEET THE REQUIREMENTS OF ASTM C150 - LATEST, SPECIFICATIONS FOR PORTLAND CEMENT, TYPE II. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. MINIMUM WALL THICKNESS SHALL BE 5", OR 1/12 THE INSIDE DIAMETER AS SHOWN, WHICHEVER IS GREATER. RINGS SHALL BE CUSTOM MADE WITH OPENINGS TO MEET INDICATED PIPE ALIGNMENT CONDITIONS AND INVERT ELEVATIONS.

JOINT CONTACT SURFACES SHALL BE FORMED WITH MACHINED CASTINGS: THEY SHALL BE EXACTLY PARALLEL WITH A 2-1 SLOPE AND NOMINAL 1/16" CLEARANCE WITH THE TORKUE COUPPED WITH A PROPER RECESS FOR THE INSTALLATION OF AN O-RING RUBBER GASKET, CONFORMING TO ASTM C443 -JAIEST, JOINTS OR GROULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKET OR RAMNEK PRE MOLDED PLASTIC JOINT SEALER WITH JOINTS PRE-PRIMED.

WITH THE EXCEPTION OF JOINT CONTACT SURFACES, AND THE INTERIOR SURFACES OF ALL OPENINGS TO RECEIVE THE SEWER PIPE AND A 1" ANNULAR RING AROUND THE EXTERIOR AND INTERIOR OF SAID OPENINGS, THE INTERIOR AND EXTERIOR SURFACES OF EACH MANHOLE SHALL BE GIVEN TWO COATS OF COAL—TAR EPOXY. TOTAL MINIMUM DRY FILM THICKNESS SHALL BE IZ MILLS. EACH COAT SHALL BE APPLIED AT THE RATE OF ONE GALLON PER 100 S.F. THE WATERFROOFING MATERIALS SHALL BE APPLIED BY BRUSH OR SPRAY AND IN ACCORDANCE WITH THE INSTRUCTIONS OF THE MANUFACTURER. TIME SHALL BE ALLOWED BETWEEN COATS TO PERMIT SUFFICIENT DRYING SO THAT THE APPLICATION OF THE SECOND COAT HAS NO EFFECT ON THE FIRST COAT. THE COAL—TARE PDOXY SHALL BE APPLIED AT THE PLACE OF FABRICATION. ADDITIONAL COATING OR TOUGH UP WILL BE REQUIRED AFTER MANHOLE INSTALLATION IF SO DIRECTED BY THE ENCORD.

EXISTING OR NEW MANHOLES RECEIVING TURBULENT WATER WILL REQUIRE AN AGRU SURE GRIP HDPE LINER OR APPROVED FOLIAL.

MANHOLE FRAMES AND COVERS

MANULE HAMES AND COVERS SHALL BE CAST IRON OF THE TYPE AND SIZE SHOWN ON THE DRAWNGS. CASTINGS SHALL BE MADE OF GOOD QUALITY, STRONG, TOUGH, EVEN GRANED CAST IRON, AND SHALL BE SMOOTH, FREE FROM SCALE, LUMPS, BLEISTERS, SHOUGHLES AND DEFECTS OF ANY INVITIES THE METALL CLASS OF THEM SCALE, LUMPS, BLEISTERS, SHOUGHLES AND DEFECTS OF ANY INVITIES THE METALL CLASS OF THEM SUBJECTED TO A CAREFUL HAMMER INSPECTION. CASTINGS SHALL MEET THE REQUIREMENTS OF ASTIM ASP. LATEST, SPECIFICATIONS FOR GRAY IRON CASTINGS, CLASS NO. 30, OR GRADE 65-45-12, DUCTILE IRON MEETING THE REQUIREMENTS OF ASTIM ASS IN LATE AND ADDITIONAL OF THE PROPRIEMENTS OF ASTIMA ASSOCIATIONS. IN EITHER COLUMPANTS OF ASTIMA ASSOCIATIONS FOR GRAY IRON CASTINGS. CLASS NO. 30, OR GRADE 65-45-12, DUCTILE IRON ORE THE COLUMPANTS OF ASTIMA ASSOCIATIONS. THE PROPRIEMENT OF ASTIMA ASSOCIATION OF THE COLUMPANT OF THE CAST OF THE COLUMPANT OF THE CAST OF THE CA

]	CITY OF WILDWOOD	SCALE	CITY OF WILDWOOD SEWER DETAIL	DETAIL NUMBER
WILDWOOD	100 NORTH MAIN STREET	NONE LATEST REVISION 09-12-19	WASTEWATER COLLECTION SPECIFICATIONS	S-01 1 0F 5

EXCAVATION AND BACKFILL

EXCAVATION AND BACKFILL CONSISTS OF EXCAVATING FOR SANITARY SEWER, AND ALL OTHER PIPELINES, MANHOLES, AND SIMILAR STRUCTURES WITH THE FOLLOWING AMENDMENTS TO SECTION 125 OF F.D.O.T. STANDARD SPECIFICATIONS.

WHEN SOIL BORINGS ARE PROVIDED BY THE ENGINEER OR OWNER, THEY SHALL BE CONSIDERED AS SUPPLEMENTAL INFORMATION AND SHALL NOT BE CONSIDERED AS DEFINITIVE OF THE SUBSOIL CONDITIONS. THE CONTRACTOR IS TPLLY RESPONSIBLE FOR ASSESSING SUBSOIL CONDITIONS FOR THE ENTIRE PROJECT. SECT. 125.8 BACKFILLING — THE REQUIREMENTS SPECIFIED SHALL ALSO INCLUDE THE SANITARY SEWER, MANHOLES, FORCE MAIN AND RELATED FACILITIES.

SECT. 125.8.3.3 COMPACTION — THE BACKFILL FOR THE FIRST AND SECOND STAGES SHALL BE PLACED IN 12" LAYERS (COMPACTED THICKNESS) AND SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.

WHERE PAYEMENT IS TO BE CONSTRUCTED OVER THE PIPE OR WITHIN 4" THEREOF, THE BACKFILL FOR THE THIRD STACE (MIN. 4" BELOW FINISH ORADE) SHALL BE PLACED IN THE MANNER REQUIRED FOR THE FIRST AND SECOND STACES AND COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY ASAFTO T-180. WHERE THE CONSTRUCTION IS OUTSIDE THESE LIMITS, THE THIRD STACE SHALL BE COMPACTED TO A FIRMMESS APPROXIMATELY EQUAL TO THAT OF THE ADJACENT SOIL AND NO TESTING WILL BE REQUIRED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TESTING OF THE BACKFILL COMPACTION. THE TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY. DENSITY TESTS SHALL BE TAKEN ON EACH 12" LAYER AT INTERVALS NOT TO EXCEED SOO LF. AND AT EACH TRANSVERSE SECTION OF PIPELINE.

PIPE LATING SHALL BE DONE ONLY AFTER A CAREFUL INSPECTION OF EACH PIECE HAS BEEN CONDUCTED AND DEFECTIVE PIPE DISCARDED AND REPLACED IMMEDIATELY. THE PIPE GRADE MAY BE ESTABLISHED BY USE OF LASER BEAM COUPMENT, OR BY USE OF BATTER BOARDS PLACED AT NOT GREATER THAN 25' INTERVALS.

THE LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, WITH THE SPIGOT ENDS POINTED THE DIRECTION OF FLOW, AND PROCEED UPWARD IN GRADIENT WITH THE ENDS ABUTTING AND TRUE TO LINE AND GRADE.

UNDER NO CIRCUMSTANCES SHALL PIPE BE LAID IN WATER, AND NO PIPE SHALL BE LAID WHEN THE TERNCH CONDITIONS OR WEATHER IS UNSUITABLE FOR WORKING IN DRY CONDITIONS. AT ALL TIMES WHEN WORK IS NOT IN PROGRESS, ALL DEED ENDS OF PIPE AND FITTINGS SHALL BE SECURELY CLOSED SO THAT NO TRENCH WATER, EARTH, OR OTHER SUBSTANCE CAN ENTER THE PIPE. ANY TRENCH DEWATERING (WELL POINT, ETC.) REQUIRED FOR PROPER ALIONMENT OF PIPE SHALL BE LOND BY THE CONTRACTOR AT HIS OWN EXPENSE, AND NO PIPE SHALL BE LAID IN THE DEWATERED TRENCH LIVITLE APPROVAL IS MADE BY THE ENGINEER.

OPENINGS SUCH AS STUBS, WYES, TEES OR OTHER SERVICES ALONG THE LINES SHALL BE SECURELY CLOSED BY MEANS OF AN APPROVED STOPPER THAT FITS INTO THE BELL OF THE PIPE AND IS RECOMMENDED BY THE PIPE MANUFACTURER. THIS STOPPER SHALL BE JOINTED IN SUCH A MANNER THAT IT MAY BE REMOVED AT SOME PUTURE TIME WITHOUT INJURY TO THE PIPE ITSELF. AT THE CLOSE OF EACH DAY'S WORK, AND AT OTHER TIMES WHEN PIPE IS NOT BEING LAID, THE FIND OF THE PIPE SHALL BE TEMPORARILY CLOSED WITH A CLOSE—FITTING STOPPER APPROVED BY THE ENGINEER.

ALL NECSSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT THE ENTRANCE OF MUD, SAND OR OTHER OBSTRUCTING MATERIAL INTO THE PIERLINES. AS THE WORK PROGRESSES, THE INTERFOR OF THE SEWER SHALL BE CLEANED OF ALL DIET, JOINTING MATERIAL, AND SUPERFLUOUS MATERIALS OF EVERY DESCRIPTION. THE CONTRACTOR SHALL FLUSH ALL SEWER LINES CONSTRUCTED UNDER THIS CONTRACT WITH CLEAN WATER, PRIOR TO FINAL INSECTION TO ASSURE COMPLETE REMOVAL OF ALL DEBRIS AND FOREIGN MATERIAL, AND TO THE SATISFACTION OF THE ENGINEER.

SEWER SERVICE CONNECTION

TYPES OF SERVICE CONNECTIONS SHALL BE SHOWN ON THE DRAWINGS. ALTHOUGH THE GENERAL LOCATION OF CONNECTIONS MAY BE SHOWN ON THE DRAWINGS, THE ACTUAL LOCATION SHALL BE DETERMINED BY THE CONTRACTOR, SUBJECT TO APPROVAL BY THE ENGINEER. EACH SERVICE CONNECTION SHALL BE ACCURATELY RECORDED BY STATIONING ON THE AS-BUILT DRAWINGS AND SHALL BE FURNISHED TO THE ENGINEER.

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SERVICE LINES SHALL BE CONNECTED TO THE SEWER LINES BY MEANS OF A WYE FITTING WITH A BRANCH AS SHOWN ON THE STANDARD DRAWNIGS. IN THE ABSENCE OF AN EXISTING WYE, COMNECTIONS OF NEW SERVICES TO EXISTING MAINS SHALL BE MADE BY INSTALLING A SADULE TYPE FITTING OF THE SAME MANUFACTURER AS THE PIPE. THE BRANCH OF THE WYE FITTING WILL BE ELEVATED AS DIRECTED DEPENDING ON THE DETRIN OF THE SEWER AND THE ELEVATION OF THE PROPERTY TO BE SERVED. EIGHT BENDS WILL BE USED TO CONNECT SERVICE LINE AT THE WYE BRANCH.

SERVICE LINES SHALL EXTEND FROM THE SEWER TO THE PROPERTY LINE AND BE PLUGGED. UNLESS OTHERWISE SHOWN. ALL SERVICE LINES SHALL BE 4" IN DIAMETER UNLESS A DOUBLE SERVICE. MARKERS SHALL BE INSTALLED AT THE END OF EACH SERVICE OR OPPOSITE WYES AND THEIR LOCATIONS RECORDED.

INSTALLATION OF PLUGGED WYES WHERE INDICATED ON THE DRAWINGS WILL BE MADE AS DIRECTED. PLUGS SHALL BE OF THE TYPE AND SIZE REQUIRED TO MATCH THE PIPE AND SHALL BE WATER—TIGHT AND REMOVABLE WITHOUT BREAKING THE PIPE.

AN EMS SANITARY MARKER #1253 (GREEN) MANUFACTURED BY AUTOMATION PRODUCTS COMPANY, AUSTIN, TEXAS, SHALL BE INSTALLED OVER EACH SANITARY SEWER SERVICE LATERAL, IF SO REQUIRED BY THE CONSTRUCTION DETAILS OF THE DRAWINGS. THE CONSTRUCTION DETAILS SHALL INDICATE IF THESE MARKERS ARE REQUIRED, AND, IF SO, THE REQUIRED LOCATION AND DEPTH.

ALL WORK CONSTRUCTED SHALL BE SUBJECT TO VISUAL INSPECTION FOR FAULTS OR DEFECTS AND ANY SUCH DEVANION OR OMISSION SHALL BE CORRECTED AT ONCE. ALL TESTS SHALL BE MADE BY THE CONTRACTOR WHO SHALL PROVIDE NECESSARY ECOUPMENT FOR TESTING AND LAMPING THE SYSTEM IN THE PRESENCE OF, AND UNDER THE SUPERVISION AND INSTRUCTION OF THE ENGINEER. ALL COSTS FOR TESTING DEFINED BELOW SHALL BE BORNE BY THE CONTRACTOR. LAMP TESTS SHALL BE OBSERVED FIRST HAND BY THE EMBINEER UPON COMPLETION, EACH SECTION OF SEWER LINE SHALL SHOW A FULL CIRCLE OF LIGHT WHEN LAMPED BETWEEN MANHOLES.

FOLLOWING PLACEMENT OF 1' OF TAMPED BACKFILL COVER, THE PIPE SHALL BE SIGHTED BETWEEN SUCCESSIVE MANHALES TO INSURE PROPER GRADE AND ALIGNMENT. A PULL PIPE CIRCLE SHALL BE OBSERVED. DEFECTS NOTED SHALL BE MINEDIATED BUT DOE OF THE TOP OF THE TRENCH. THE CONTRACTOR IS REQUIRED TO MAINTAIN THIS CONDITION, EDIZIONAL AGAINST DEPRACEMENT, FLOTATION, ETC., SO THAT THAN INSPECTION OF COMPILETED SECTIONS WILL BE FAGULTATED.

IF, IN THE OPINION OF THE ENGINEER, INFILTRATION APPEARS EXCESSIVE, THE CONTRACTOR SHALL VIDEO THE SECTIONS IN QUESTION.

FOLICHING COMPLETION OF THE BACKFILL COVER, THE COMPLETE SEWER LINE SHALL BE TESTED UTILIZING A LOW-PRESSURE AR TEST. ALL TEST REQUIREMENTS AND PROCEDURES SHALL BE IN STRICT ACCORDANCE WITSINN-PILLED SEASOLANT UNI-B-6-30 "RECOMMENDED PRACTICE FOR LOW-PRESSURE AR TEST. ALL TEST REQUIREMENTS AND PROCEDURES SHALL BE IN STRICT ACCORDANCE WITSINN-PILLED SEASOLAND UNIVERSE OF THE PROPERSON OF THE PRO

ALL SANITARY SEWER AIR TESTING SHALL BE COMPLETED A MINIMUM OF 30 DAYS PRIOR TO THE PROJECT

CITY OF WILDWOOD SEWER DETAIL CITY OF WILDWOOD S-01 WASTEWATER COLLECTION 3 OF 5 THE CONTRACTOR IS ADVISED THAT THE OWNER RESERVES THE RIGHT TO USE WHATEVER ADDITIONAL INSPECTION AND TESTING METHODS IT DEEMS APPOPRIATE TO VERIFY THE CONDITION AND ACCEPTABILITY OF THE WORK. THE CONTRACTOR SHALL REPAIR ALL DEFECTS IN THE WORK MADE APPARENT BY ANY AND ALL INSPECTIONS AND TESTS EVEN IF THE WORK OR PARTS OF THE WORK MAY HAVE PASSED OTHER TESTS AND INSPECTIONS, SAID REPAIRS SHALL BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE OWNER SHALL WITHHOLD FROM PAYMENT DUE OF THE CONTRACTOR AND ADDITIONAL COST TO THE OWNER. THE OWNER SHALL WITHHOLD FROM PAYMENT DUE CONTRACTOR IS INSUFFICIENT TO COVER SAID COST, THE CONTRACTOR IS INSUFFICIENT TO COVER SAID COST, THE CONTRACTOR IS INSUFFICIENT TO

MANHOLE INSTALLATION

PRECAST CONCRETE MANHOLES SHALL HAVE EACH SECTION SET SO AS TO BE VERTICAL AND IN TRUE ALLORMENT. JOINT SUBFRACES OF THE SECTIONS SHALL BE SEALED WITH PRE MOLDED PLASTIC JOINT SEALER EQUAL TO "RAMBEK", OR HAVE AN O-RING GASKET INSTALLE IN THE PREFORMED RECESS. ALL HOLES IN THE SECTIONS REQUIRED FOR HANDLING AND THE ANNULAR SPACE BETWEEN THE WALLS OF THE MANHOLE AND THE ENTERING PIPES SHALL BE THOROGHLY PLUGGED WITH NON-SHRINKING GROUT AND SHALL BE FINISHED SMOOTH, AND SHALL BE WATER-TIGHT.

FOR GRADE ADJUSTMENT IN SCTING THE MANHOLE FRAME, PRECAST GRADE ADJUSTMENT RINGS SHALL BE USED ON TOP OF MANHOLE SLABS AND PECAST CONCRETE MANHOLE CONES IN ACCORDANCE WITH THE DRAWNIGS. PRECAST ADJUSTMENT RINGS SHALL BE CONSTRUCTED OF CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. MORTAR FOR JOINTS SHALL BE ONE PART CEMENT AND TWO PARTS SAND: LIME SHALL NOT BE USED. REINFORCEMENT SHALL BE PROVIDED AS NECESSARY TO PREVENT BREAKAGE DURNE HANDLING. EACH ADJUSTMENT FAILE BE LAD IN A FULL BED AND JOINT OF MORTAR MISCUIT REQUIRING SUBSECUENT GROUTING, PLUSHING, OR FILLING, AND SHALL BE INDROUGHLY BONDED AS DIRECTED.

MANHOLE FRAMES AND COVERS SHALL BE SET TO CONFORM ACCURATELY TO THE FINISHED PAVEMENT SURFACE. ALL ADJUSTMENTS REQUIRED FOR GRADE SHALL BE DONE WITH PRECAST GRADE ADJUSTMENT RINGS. TO ASSURE A SUFFICIENT BOND BETWEEN THE MANHOLE COVERS AND THE SURROUNDING ASPHALT SURFACE, THE MANHOLE COVER SHALL DATE OF STATEMENT OF THE MANHOLE SHALL BE PROTECTED DURING THE ROADBAY CONSTRUCTION BY COVERNOW WITH SUFFICIENT THE MANHOLE SHALL BE PROTECTED DURING THE ROADBAY CONSTRUCTION BY COVERNOW WITH SUFFICIENT CONSTRUCTION MACHINERY REQUIRED. IMMEDIATELY BEFORE THE FLACEMENT OF THE FINAL ASPHALT SURFACE COURSE, THE MANHOLE SHALL BE UNCOVERED AND THE RING AND COVER SO PLACED TO ACCURATELY MEET THE FINISH PAVEMENT GRADE. THE MANHOLE FRAME SHALL BE SET ON THIS CONCRETE SECTION IN A RING OF MORTAR AT LEAST 1° THICK AND SHAPED TO SHED WATER AWAY FROM THE FRAME. ADDITIONAL MORTAR SHALL BE ADDED TO EXTEND TO THE COVER SO THE ADJUSTMENT RINGS AND SHALL BE FINISH AND LED FROM THE SMOOTH. THE AREA EXCAVATED IN THE IMERCOCK BASE COURSE TO ALLOW FOR ADJUSTMENT OF THE MANHOLE RING AND COVER TO GRADE SHALL BE BE ACKFILLED WITH LIMEROCK AND COMPACTED TO THE SAME DENSITY AS THE LIME ROCK BASE COURSE.

ALL MANHOLE COVERS SHALL BE CLEANED TO REMOVE ASPHALT AND DEBRIS, THEN PAINTED WITH BLACK RUST-IN-HIBITING PAINT. IF THE MANHOLE IS LOCATED IN A PAVED AREA, CLEANING AND PAINTING SHALL OCCURA FITER THE FIRAL ASPHALT SURFACE IS PLACED.

FLOW CHANNELS IN MANHOLE BASE SHALL BE FORMED OF 2500 PSI CONCRETE AND/OR BRICK RUBBLE AND MORTAR WHILE THE MANHOLES ARE UNDER CONSTRUCTION. CUT OFF PIPES AT INSIDE FACE OF THE MANHOLE AND CONSTRUCT THE INVERT OF THE SHAPE AND SIZES OF PIPE INDICATED. ALL INVERTS SHALL FOLLOW THE GRADES OF THE PIPE ENTERING THE MANHOLES. CHANGES IN DIRECTION OF THE SEMER AND ENTERING BRANCH OR BRANCHES SHALL BE LAD OUT IN SMOOTH CURVES OF THE LONGEST POSSIBLE RADIUS WHICH IS TANGENT TO THE CENTERINGS OF ADDINING PIPELINES.

CONNECTIONS TO EXISTING STRUCTURES

WHERE SHOWN ON THE DRAWINGS STUB LINES SHALL BE PROVIDED FOR THE CONNECTION OF FUTURE SEWER LINES TO MANHOLES. THE END OF EACH STUB LINE SHALL BE PROVIDED WITH A BELL END WHICH SHALL BE CLOSED BY AN APPROVED STOPPER AS SPECIFIED HERDINGSFORE. EACH STUB LINE SHALL BE ACCURATELY REFERENCED TO THE CENTER OF THE MANHOLE, AND THE ACTUAL INVERT ELEVATION OF EACH OF THE STUB LINE SHALL BE ACCURATELY RECORDED ON THE AS-BUILT ORANINGS.

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A FLEXIBLE PIPE TO MANHOLE CONNECTOR SHALL BE EMPLOYED IN THE CONNECTION OF THE SANITARY SEWER PIPE TO PRECAST MANHOLES. THE CONNECTOR SHALL BE THE SALE ELEMENT RELIED ON TO ASSURE A FLEXIBLE WATER—THICK-THE SALL OF THE PIPE TO THE MANHOLE. NO ADHESIVES OR LUBRICANTS SHALL BE EMPLOYED IN THE INSTALLATION OF THE CONNECTOR INTO THE MANHOLE. THE RUBBER FOR THE CONNECTOR SHALL COMPLY WITH ASTIN CHAJA AND ASTIN 6923 AND CONSIST OF EPDM AND ELASTOMERS DESIGNED TO BE RESISTANT TO 0ZONE, WEATHER ELEMENTS, AND CHEMICALS, INCLUDING ACIDS, ALKALIS, ANIMAL AND VEGETABLE FATS, OLIS AND PETROLEUM PRODUCTS FROM SHILLS. ALL STAINLESS STELL ELEMENT OF THE CONNECTOR SHALL BE TOTALL'N NOMMAGNETIC SERVES 304 STAINLESS EXCLUDING THE WORM, SCREW FOR FOR THE PRODUCT OF THE CONNECTOR SHALL BE TOTALL BAND SHALL BE TORQUED BY A BREAKAWAY TORQUE WERECH AVAILABLE FROM THE PRECAST MANHOLE SUPPLIER, AND SET FOR RO'/LBS. THE CONNECTOR SHALL BE INSTALLED IN THE RECOMMENDATIONS OF THE CONNECTOR SHALL BE INSTALLED IN THE RECOMMENDATIONS OF THE CONNECTOR MANUFACTURER. PENCELL MODEL AGVNS-1420 ARV ENCLOSURE (GREEN FOR WASTEWATER) WASTEWATER COMBINATION AIR— ALVE (SPEC: ARI MODEL D-025 2" WASTEWATER ARV OR VAL-MATIC MODEL 801A 2" WASTEWATER ARV WHERE SHOWN ON THE DRAWINGS NEW LINES SHALL BE CONNECTED INTO EXISTING MANHOLES OR STRUCTURES. UNLESS STUBS OF CORRECT SIZE ARE FOUND TO EXIST, THE CONTRACTOR SHALL CUT SUITABLE OPENINGS INTO THE EXISTING STRUCTURE (WALL AND FLOOR SLAB AS REQUIRED) OR REMOVE THE EXISTING PIPE TO ACCOMMODATE THE PIPELINES AS INDICATED ON THE DRAWINGS AND AS HEREIN SPECIFIED. THE PORTION OF EACH EXISTING STRUCTURE REMOVED FOR NEW INSTALLATION SHALL BE CONFINED TO THE SMALLEST OPENING POSSIGLE, CONSISTENT WITH THE WORK TO BE DONE. 150 PSI, OR EQUAL) 2" MUELLER OR EJ— FLOWMASTER GATE VALVE FOR SHUT OFF. SEE NOTE 1. AFTER THE PIPE IS INSTALLED, CONTRACTOR SHALL CAREFULLY CLOSE UP THE OPENINGS AROUND THE PIPE TO MAKE A WATER-TIGHT JOINT USING CONSTRUCTION GROUT OR "SEE GROUT" AS MANUFACTURED BY THE CALL AND REPAIR THE EXISTING MANHOE INVESTIGATION OF THE STATE OF THE CALL AND REPAIR THE EXISTING MANHOE INVESTIGATION OF THE STATE EXISTING MANHOLES, WITHIN THE LIMITS OF THE PROPOSED WORK, THAT DO NOT CONFORM TO THE FINISHED GRADE DESIGNATED ON THE DRAWINGS FOR SUCH STRUCTURES, SHALL BE CUT DOWN OR EXTENDED, AND MADE TO CONFORM TO THE GRADE OF THE NEW PAVEMENT, OR TO THE DESIGNATED GRADE OF THE STRUCTURE IF OUTSIDE OF THE PROPOSED PAVEMENT AREA. THE MATERIALS AND CONSTRUCTION METHODS FOR THIS WORK SHALL CONFORM TO THE REQUIREMENTS SECURIED ABOVE. SLOPE MISCELLANEOUS CONCRETE IN SEWER TRENCH 2' RIGID GALVANIZED WHERE DIRECTED BY THE ENGINEER AND WHERE THE DEPTH OF PIPE TRENCH IS 10' AND OVER, CONCRETE ENCASEMENT SHALL ALSO BE PLACED AROUND SERVICE WYES TO THE DIMENSIONS SHOWN ON THE DRAWINGS. — FORD #F202 WITH 2" JP DUTLET SADDLE TAP PAVEMENT REPLACEMENT → VARIES - SEE NOTE 2 —

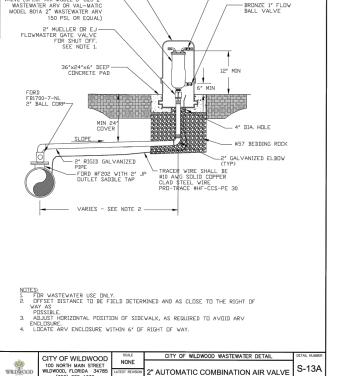
WHERE EXISTING PAVEMENT, CURB, CURB AND GUTTER, SIDEWALK OR DRIVEWAY PAVING IS REMOVED ONLY FOR THE PURPOSE OF CONSTRUCTING, REPLACING, OR REMOVING SEWER PIPE, SERVICE LATERALS, MANHOLES, ETC., SUCH PAVEMENT, ETC., SHALL BE REPLACED AND RESIDENCE TO AS GOOD CONDITION, AS DETERMINED BY THE SUCH PAVEMENT, ETC. SHALL BE REPLACED AND RESIDENCE TO AS DETERMINED BY THE THAT REMOVED, EXCEPT WHERE PERMISSION IS GIVEN BY THE ENGINEER FOR THE USE OF ANOTHER TYPE. ROUGH CUTS FOR PAVEMENT CURB AND GUTTER, SIDEWALK, PRIVEWAYS, ETC. SHALL BE TRIMINED BACK WITH A STRAIGHT SAW CUT IN A MANNER SO AS TO PRODUCE AS NEAR AS PRACTICAL A CUT OF UNFORM WIDTH AND AND AND AND AS SECOND CONTROL OF A SOURCE WITH A STRAIGHT SAW CUT IN A MANNER SO AS TO PRODUCE AS NEAR AS PRACTICAL A CUT OF UNFORM WIDTH AND AND AND ASSOCIATION OF A SOURCE WITH THE REQUIREMENTS OF THE EXPLACEMENT OF PAVEMENT ON PUBLIC ROADWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE COLD COVERNMENTAL ENTITY HAVING JURISDICTION AND IN A COORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION GRAWINGS.

CLEARANCE REQUIREMENTS

MINIMUM SEPARATION REQUIREMENTS ARE SPECIFIED UNDER POTABLE WATER.

MANHOLES SHALL BE LOCATED IN THE CENTERLINE OR "CROWN" OF THE STREET TO MINIMIZE INFLITATION.
 MINIMATION.
 MANHOLES SHALL MATCH GROWN TO CROWN. INVERTS OVER 2 FEET FROM THE BOTTOM OF MANHOLES SHALL REQUIRE AN EXTERNAL DROP COMMERCTION.
 SANITARY LATERALS SHALL BE INSTALLED AT 90 DEGREES WITH THE RIGHT—OF—WAY TO THE GREATEST EXTENT POSSIBLE.
 LUNLESS OTHERWISE APPROVED, NO LATERALS SHALL CONNECT DIRECTLY TO A MANHOLE.
 ALL MANHOLES SHALL BE WATER TIGHT WITH A COLD TAR EXTERIOR COATING.

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