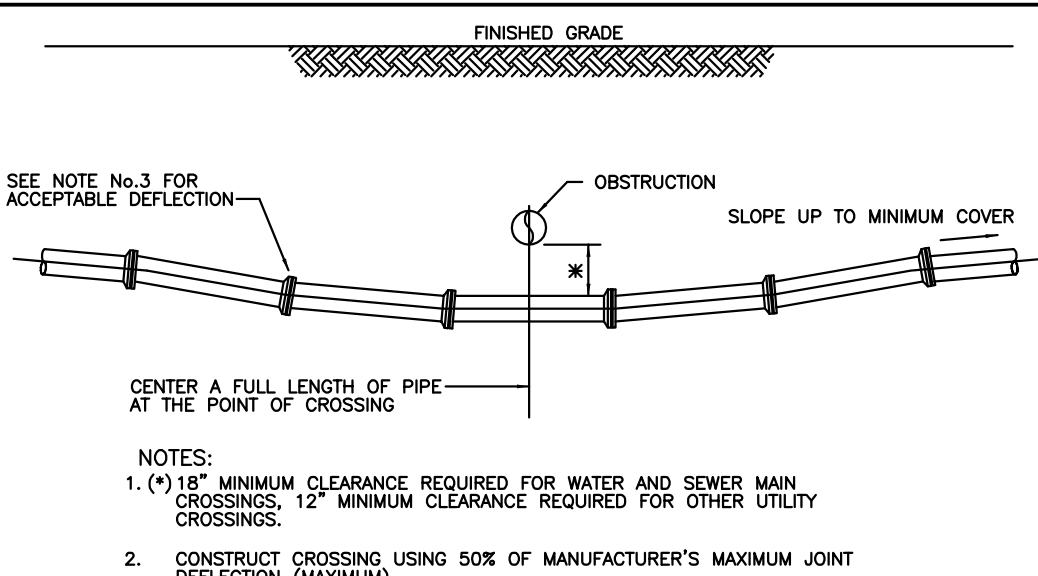
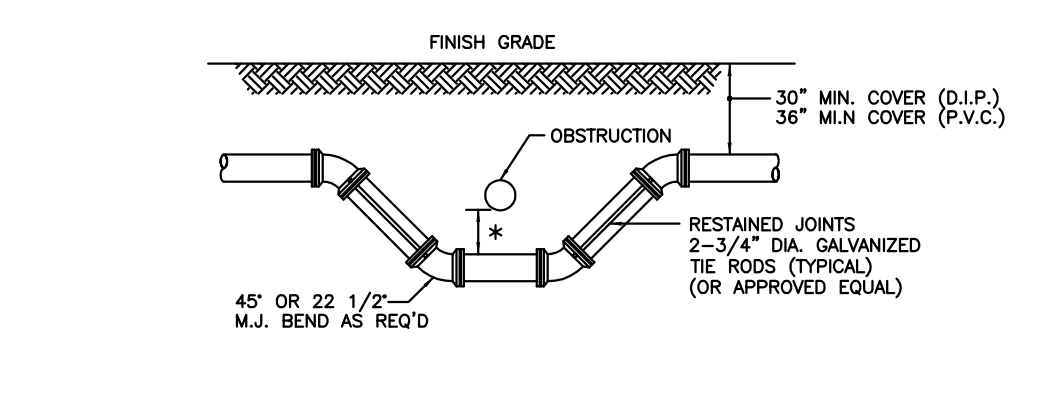


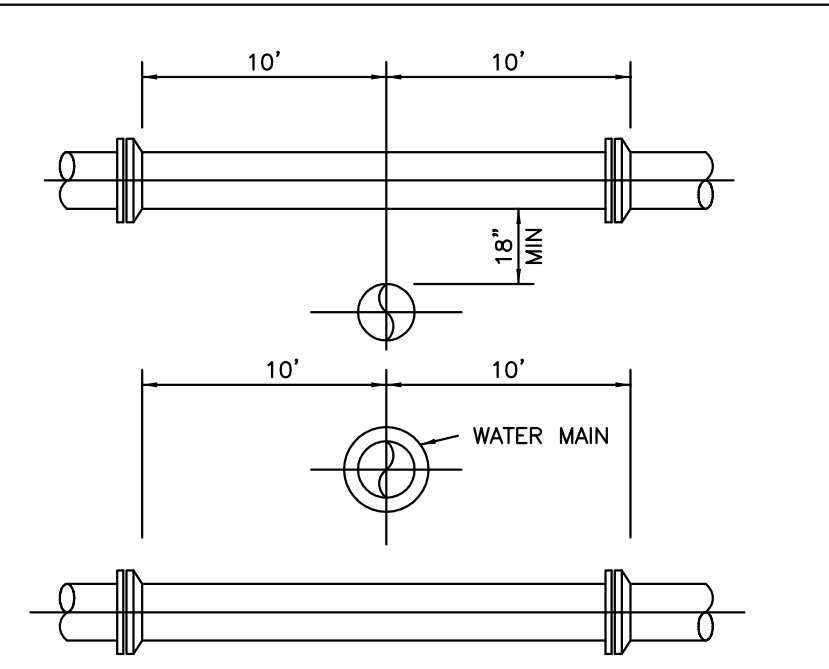
Drawing name: H:\042_jobs\042701051-Commerce Bank\042701051-Sawgrass Pky & Lyons Rd-Coco Crk\CADD\CIVIL\CONSTR\C12-UTILITYDETAILS#2.dwg C12 Sep 20, 2006 1:16pm by: mariorivera
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UTILITY CROSSING DEFLECTION TYPE



UTILITY CROSSING FITTING TYPE



UTILITY CROSSING GENERAL REQUIREMENTS

MAXIMUM QUANTITY OF WATER (GALLONS PER HOUR) THAT MAY BE SUPPLIED TO MAINTAIN PRESSURE WITHIN 5 P.S.I. OF THE SPECIFIED TEST PRESSURE, (MECHANICAL OR PUSH-ON JOINT, 18 FT. NOMINAL LENGTHS, PER 1000 FT. OF PIPE)

AVG. TEST PRESSURE (PSI)	PIPE DIAMETER (INCHES)												
	2	3	4	6	8	10	12	14	16	18	20	24	30
150	0.10	0.14	0.18	0.27	0.37	0.46	0.55	0.64	0.73	0.83	0.92	1.10	1.38

TO OBTAIN THE MAXIMUM QUANTITY OF WATER FOR PIPE WITH 20 FT. NOMINAL LENGTHS, MULTIPLY THE QUANTITY CALCULATED FROM THE TABLE BY 0.9

THE MAXIMUM QUANTITY OF ADDED WATER FOR A PIPELINE IS CALCULATED BY MULTIPLYING THE QUANTITY PER HOUR AS OBTAINED FROM THE ABOVE TABLE, BY THE DURATION OF THE TEST IN HOURS, AND BY THE TOTAL LENGTH OF THE LINE BEING TESTED, DIVIDED BY 1,000. IF THE LINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE MAXIMUM QUANTITY ADDED WILL BE THE SUM OF THE COMPUTED QUANTITIES FOR EACH SIZE.

MAXIMUM TEST LENGTH = 2,500 FEET PER SECTION. THIS STANDARD SHALL REFLECT ANY REVISION OF A.W.W.A. C-600. HOWEVER, THE MAXIMUM QUANTITY OF WATER ADDED SHALL NOT EXCEED 50% OF THE RECOMMENDED LIMIT PER APPLICABLE AWWA C-600 STANDARD.

STANDARD TEST PRESSURE = 150 P.S.I. FORMULA BASIS: $L = \frac{(S) \times (D) \times (P)^{1/2}}{133,200} \times 1/2$

L = MAXIMUM QUANTITY OF WATER TO BE ADDED (GALLONS PER HOUR)
 D = LENGTH OF PIPE TESTED (FEET)
 D = DIAMETER OF PIPE (INCHES)
 P = TEST PRESSURE (P.S.I.)

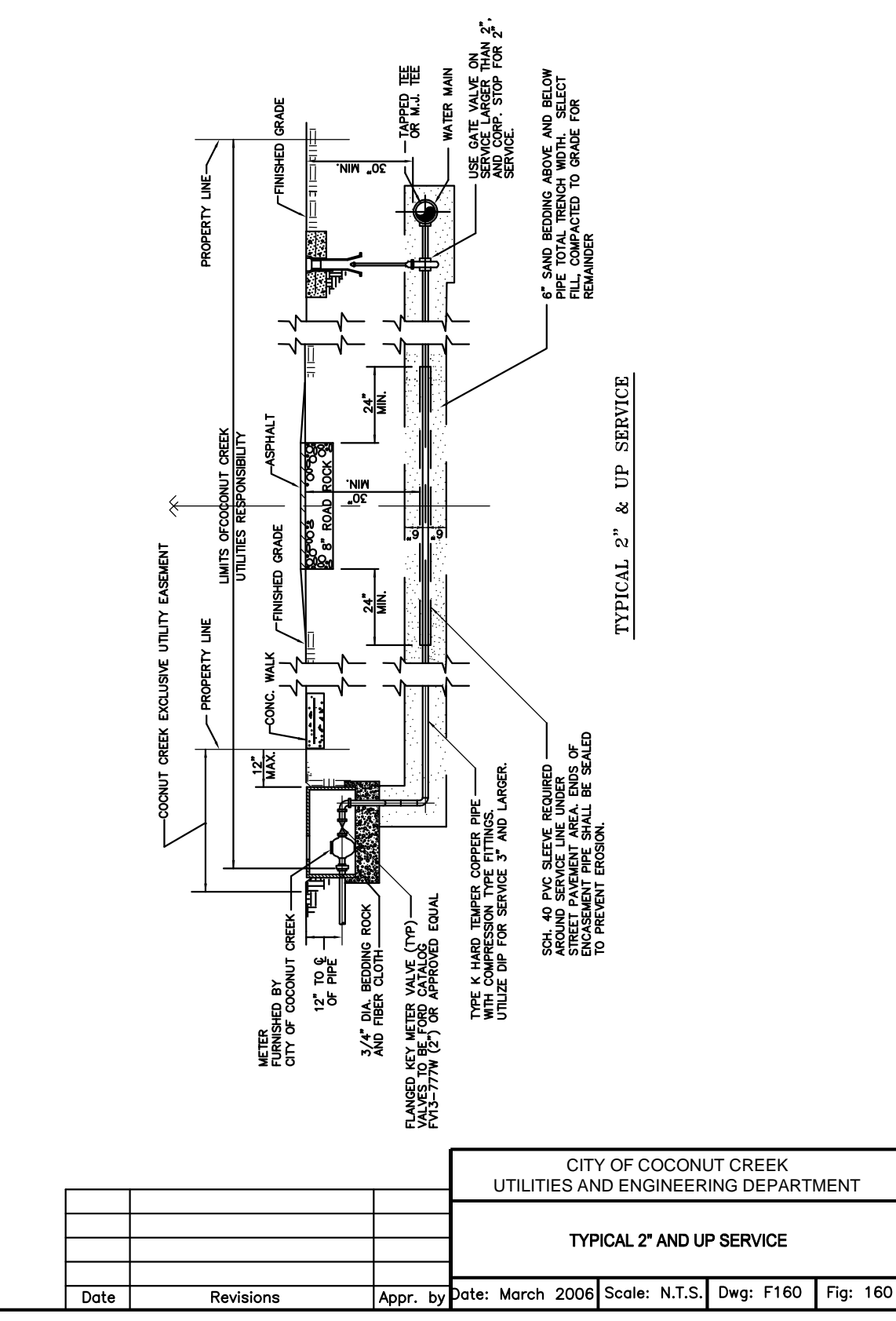
PRESSURE TEST DURATION TO BE MIN. 2 HOURS.

POTABLE WATER PRESSURE TEST CRITERIA

CITY OF COCONUT CREEK UTILITIES AND ENGINEERING DEPARTMENT				
UTILITY CROSSING INSTALLATION DETAILS				
Date	Revisions	Appr. by	Date	Scale: N.T.S. Dwg: F142 Fig: 142

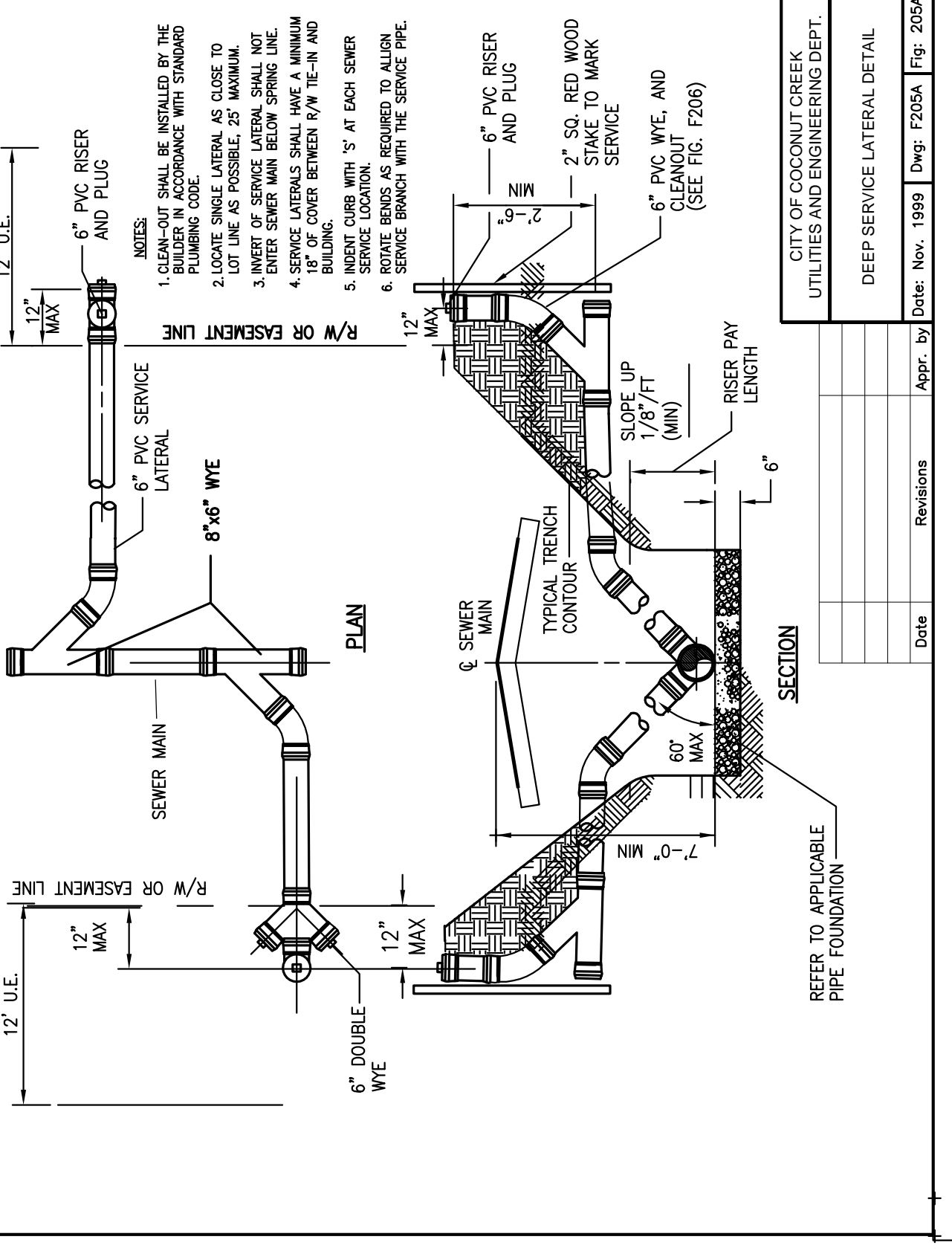
CITY OF COCONUT CREEK UTILITIES AND ENGINEERING DEPARTMENT				
UTILITY CROSSING GENERAL REQUIREMENTS				
Date	Revisions	Appr. by	Date	Scale: N.T.S. Dwg: F143 Fig: 143

CITY OF COCONUT CREEK UTILITIES AND ENGINEERING DEPARTMENT				
POTABLE WATER PRESSURE TEST CRITERIA				
Date	Revisions	Appr. by	Date	Scale: N.T.S. Dwg: F151 Fig: 151



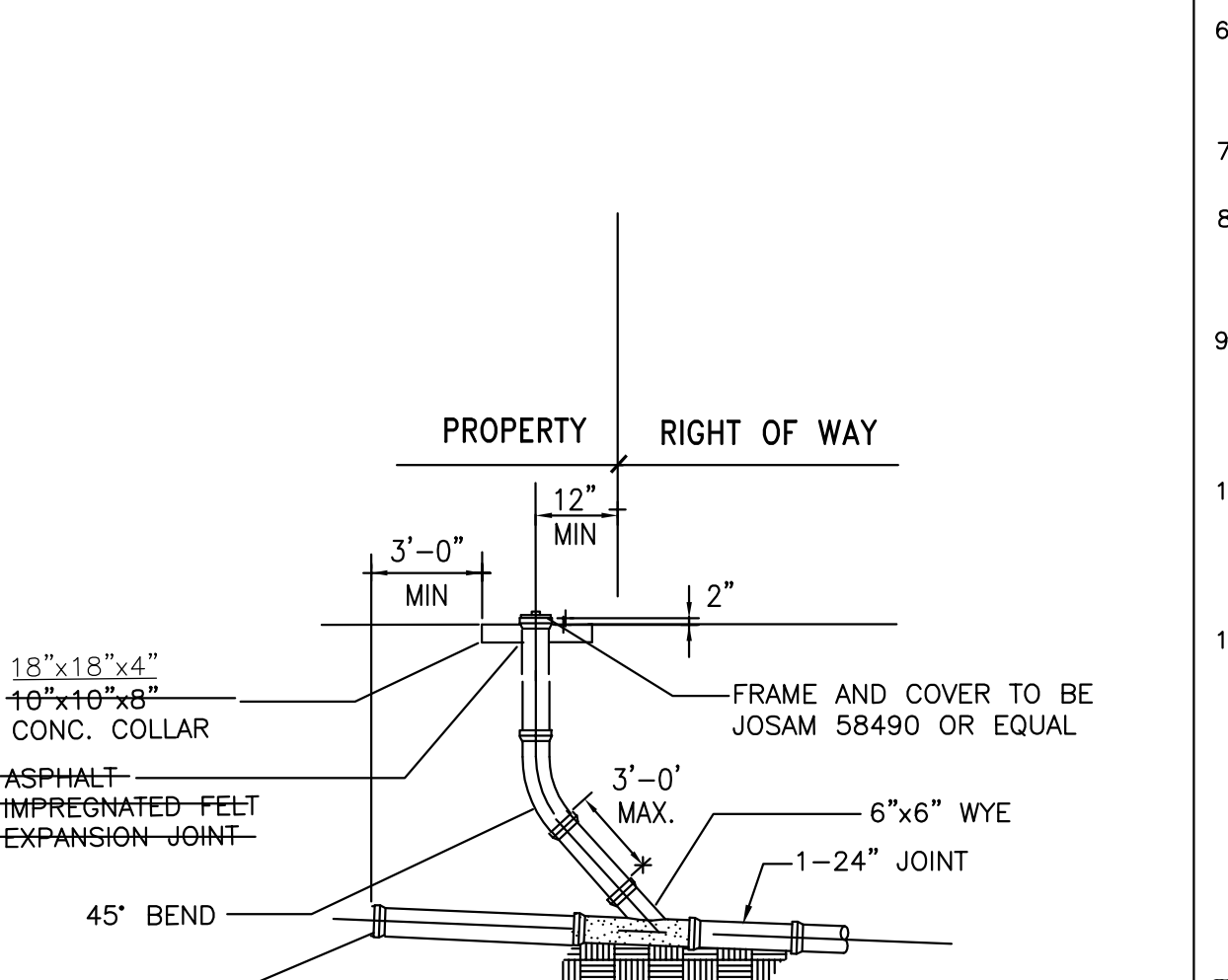
TYPICAL 2" AND UP SERVICE

CITY OF COCONUT CREEK UTILITIES AND ENGINEERING DEPARTMENT				
TYPICAL 2" AND UP SERVICE				
Date	Revisions	Appr. by	Date	Scale: N.T.S. Dwg: F160 Fig: 160



SANITARY SERVICE CLEANOUT DETAIL

CITY OF COCONUT CREEK UTILITIES AND ENGINEERING DEPARTMENT				
SANITARY SERVICE CLEANOUT DETAIL				
Date	Revisions	Appr. by	Date	Scale: N.T.S. Dwg: F206 Fig: 206
April 2006	Amended frame and cover standards			



BACKFLOW PREVENTION ASSEMBLY

NOTES:
 1. THREADS SHALL BE LUBRICATED AS NECESSARY AND UNIT FULLY OPERATIONAL PRIOR TO ACCEPTANCE AND/OR FINAL APPROVAL BY THE CITY.
 2. CITY MAINTAINS SEWER UP TO 1ST CLEANOUT.

CITY OF COCONUT CREEK UTILITIES AND ENGINEERING DEPARTMENT				
SANITARY SERVICE CLEANOUT DETAIL				
Date	Revisions	Appr. by	Date	Scale: N.T.S. Dwg: F206 Fig: 206

WATER NOTES

- PIPE: WATER MAINS AND/OR SEWER FORCE MAINS SHALL BE EITHER POLYVINYL CHLORIDE (PVC) C-900 OR DUCTILE IRON PIPE (DIP).
 - A. PVC PRESSURE PIPE 4" THROUGH 12" SHALL CONFORM TO ANSI/AWWA STANDARD C-900-97 (LATEST REVISION). PVC PRESSURE PIPE SHALL BE MADE FROM CLASS 12454-A OR 12454-B MATERIAL AND CONFORM TO THE OUTSIDE DIAMETER OF DUCTILE IRON PIPE WITH A MINIMUM WALL THICKNESS OF DR 18 (4" & 6" TO BE DR SERIES 14). ULTRA VIOLET DEGRADATION OR SUN-BLEACHED PIPE WILL BE CAUSE FOR REJECTION. PVC PRESSURE PIPE SHALL BE LAID WITH A THIRTY-SIX (36) INCH MINIMUM CLEAR COVER UNLESS OTHERWISE NOTED ON PLANS AND APPROVED BY THE CITY UTILITIES DEPARTMENT.
 - B. DUCTILE IRON PIPE (DIP) SHALL CONFORM TO ANSI/AWWA C151/A21.51-02 (LATEST REVISION).
 - IN ACCORDANCE WITH ANSI/AWWA C104/A21.4-95 (LATEST REVISION), DIP SHALL BE LAID WITH A THIRTY (30) INCH MINIMUM CLEAR COVER UNLESS OTHERWISE NOTED ON PLANS, AND APPROVED BY THE CITY UTILITIES DEPARTMENT.
- ALL MECHANICAL JOINT DUCTILE IRON FITTINGS SHALL BE AS PER ANSI/AWWA C153/A21.53-00 (LATEST REVISION) WITH A 350 PSI RATING. ALL FITTINGS SHALL BE CEMENT LINED AND SEAL COATED THE SAME AS DUCTILE IRON PIPE.
- ALL POTABLE WATER SERVICE LINES UP TO 1 1/2" INCH SHALL BE POLYETHYLENE TUBING, TYPE K SOFT TEMPER COPPER, OR APPROVED EQUAL. 2" SERVICE LINES SHALL BE POLYETHYLENE TUBING, HARD TEMPER COPPER OR APPROVED EQUAL. ALL SERVICE LINES SHALL CONFORM TO ANSI/AWWA STANDARDS C800-01 AND/OR C901-02 (LATEST REVISION). ALL SERVICE FITTINGS UP TO 2" SHALL BE COMPRESSION TYPE OR EQUAL AS APPROVED BY THE DIRECTOR OF UTILITIES. ALL SERVICE LINES AND FITTINGS 3" OR LARGER SHALL BE CONSTRUCTED OF D.I.P.
- VALVES 2" AND SMALLER SHALL BE ALL BRASS BI-DIRECTIONAL BALL VALVES SUITABLE FOR A WORKING PRESSURE OF 200 PSI MEETING THE REQUIREMENTS OF ANSI/AWWA C800-01 (LATEST REVISION). GATE VALVES 3" THROUGH 16" SHALL BE IRON BODY, RESILIENT SEAT, EQUIPPED WITH A 2" SQUARE OPERATING NUT, SUITABLE FOR A WORKING PRESSURE OF 200 PSI, COMPLY WITH ANSI/AWWA C509-01 (LATEST REVISION) AND BE M & H, AMERICAN DARLING, MUELLER, OR APPROVED EQUAL.
- ALL VALVES SHALL BE FURNISHED WITH ADJUSTABLE TYPE CAST IRON TYPE VALVE BOXES OF PROPER LENGTH FOR THE TRENCH DEPTH. ALL BOXES SHALL CONFORM TO AWWA WITH A SHAFT NOT LESS THAN 5" DIAMETER AND HAVE THE WORD "WATER" CAST IN THE COVER. BASE OF THE VALVE BOX SHALL BE CENTERED OVER THE VALVE, BE PLUMB AND BE SUPPORTED AT THE TOP WITH A 24" SQUARE CONCRETE COLLAR, EXCEPT IN PAVED AREAS. PVC (SDR 35) RISERS SHALL BE USED UNDER VALVE BOXES. USE BRASS I.D. TAG WITH ANCHORING POST, INDICATE DIRECTION, # OF TURNS, AND TYPE OF VALVE. ALL VALVES WITH 2" OPERATING NUTS DEEPER THAN 36" BELOW FINISHED GRADE WILL BE EQUIPPED WITH A NON-SECURED NUT EXTENSION TO 18" BELOW FINISHED GRADE.
- WHERE SANITARY SEWER FORCE MAINS MUST CROSS A WATER MAIN WITH LESS THAN 18 INCHES VERTICAL DISTANCE, BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP). A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS. ALL CROSSINGS SHALL BE ARRANGED USING A FULL LENGTH OF PIPE, IF POSSIBLE, SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT THE POINT OF 10 FEET FROM CROSSING (PIPES SHOULD BE CENTERED AT THE CROSSING). WHERE NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 18 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENT ABOVE.

GENERAL NOTES

- THE CITY OF COCONUT CREEK WILL HOLD A PRE-CONSTRUCTION MEETING PRIOR TO THE START OF ANY PROJECT. IT SHALL INCLUDE A REPRESENTATIVE FROM THE CITY OF COCONUT CREEK UTILITIES DEPARTMENT, THE ENGINEER OF RECORD, THE CONTRACTOR, AND ANY OTHER APPLICABLE AGENCY.
- ALL MATERIAL, INSTALLATION, TESTING AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF COCONUT CREEK CURRENT STANDARDS. WHERE DISCREPANCIES OMISSIONS OR MODIFICATIONS EXIST BETWEEN THE PLANS AND THE CITY OF COCONUT CREEK MINIMUM CONSTRUCTION SPECIFICATIONS, THE CITY OF COCONUT CREEK SPECIFICATIONS SHALL GOVERN.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. ALL INSTALLATIONS SHALL BE MADE IN SUCH A MANNER AS NOT TO INTERFERE WITH EXISTING OR FUTURE UTILITIES, DRAINAGE OR ROADWAY CONSTRUCTION.
- ALL DIP SHALL BE PRESSURE CLASS 350 OR HIGHER. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE ENGINEER OF RECORD OR IN ACCORDANCE WITH GOOD ENGINEERING PROCEDURES.
- ALL PAVEMENT RESTORATION TO BE MADE IN ACCORDANCE WITH THE CITY, COUNTY OR STATE OF FLORIDA DOT SPECIFICATIONS, WHERE APPLICABLE.
- COMPLETE "AS-BUILT" INFORMATION RELATIVE TO MANHOLES, VALVES, SERVICES, FITTINGS, LENGTH OF PIPE, AND THE LIKE, SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL ELEVATIONS SHALL BE TAKEN BY AN INDEPENDENT LICENSED STATE OF FLORIDA REGISTERED SURVEYOR AND SHOWN ON "AS-BUILT" PLANS SEALED BY SURVEYOR AND ENGINEER OF RECORD. BASE LINES FOR "AS-BUILTS" SHALL BE TAKEN FROM PERMANENT, EASY TO LOCATE, PHYSICAL STRUCTURES, SUCH AS MANHOLES, CATCH BASINS, ETC.
- TRENCH TO BE DE-WATERED TO ENABLE PIPE AND APPURTENANCES TO BE INSTALLED FREE OF WATER AND DEBRIS. IF PIPE BED IS ROCK, PIPE BED SHALL BE EXCAVATED AN BACKFILLED WITH 3/4" WASHED EXTRA 6" AND ROCK. AT THE END OF THE DAY ALL PIPE ENDS MUST BE PROPERLY SECURED TO PREVENT ANY MUD, ANIMALS, OR DEBRIS FROM ENTERING.
- ALL REFLECTORS TO BE PLACED IN THE CENTER OF THE LANE CLOSEST TO THE FIRE HYDRANT AND/OR VALVE. USE BLUE REFLECTORS FOR FIRE HYDRANT AND WHITE FOR VALVES.
- NO VALVES, METERS, FIRE HYDRANTS, CLEANOUTS, MANHOLES OR OTHER UTILITY APPURTENANCES ARE TO BE PLACED IN, OR ADJACENT TO, SIDEWALKS, CURBS, PARKING SPACES OR OTHER SUCH SITE FEATURES SO AS TO PRESENT A HAZARD OR RESTRICT THE MAINTENANCE OR OPERATION OF THE UTILITY INFRASTRUCTURE.
- HEAVY LANDSCAPE, WALLS, FENCES, SIDEWALKS, ENTRANCE FEATURES, BERMS AND SIGNS, ETC. THAT MAY INTERFERE WITH THE INSTALLATION AND MAINTENANCE OF UTILITIES SHALL NOT BE PLACED WITHIN A UTILITY EASEMENT OR WITHIN 7 1/2 FEET OF A WATER MAIN, FIRE HYDRANT OR FORCEMAIN, OR WITHIN 10 FEET OF A SANITARY OR STORM SEWER.
- WORK PERFORMED UNDER ALL PROJECTS WILL NOT BE CONSIDERED AS COMPLETE UNTIL THE FOLLOWING DOCUMENTS/AGREEMENTS ARE RECEIVED AND APPROVED BY THE CITY OF COCONUT CREEK UTILITIES DEPARTMENT.
 - A) ALL EASEMENT DOCUMENTS; TO INCLUDE:
 - a. PUBLIC UTILITY EASEMENT
 - b. BLANKET PUBLIC SAFETY INGRESS/EGRESS EASEMENT
 - c. COCONUT CREEK EXCLUSIVE WATER AND SEWER UTILITY EASEMENT
 - d. UTILITY EASEMENT ENCROACHMENT AND HOLD HARMLESS AGREEMENT
 - B) HRS CLEARANCE CERTIFICATIONS
 - C) DPEP CLEARANCE CERTIFICATIONS
 - D) CERTIFIED ACTUAL COST
 - E) BILL OF SALE ABSOLUTE
 - F) ACCEPTANCE OF WARRANTY BOND (25% OF CERTIFIED ACTUAL COST)
 - G) AS-BUILT DRAWINGS (ONE MYLAR COPY AND TWO PAPER COPIES) AS-BUILT DRAWINGS TO INCLUDE FLORIDA STATE PLANE COORDINATES NAD-1983 WITH 1990 ADJUSTMENT
 - H) AS-BUILT DRAWINGS ON CAD DISK.
- BACKFILL MATERIAL FOR SEWER MAIN AND LINES SHALL BE NON-COHESIVE, NON-PLASTIC MATERIAL FREE OF DEBRIS, LUMPS AND ORGANIC MATTER. BACKFILL MATERIAL PLACED WITHIN (1) FOOT OF PIPING AND APPURTENANCES SHALL NOT CONTAIN ANY STONES LARGER THAN (2) INCHES IN DIAMETER (1" FOR PVC PIPE) AND NO STONE LARGER THAN SIX INCHES IN DIAMETER WILL BE PERMITTED IN ANY BACKFILL.
- PVC SHALL BE LAID IN STRICT CONFORMANCE TO MANUFACTURING SPEC (JOHNS MANVILLE RING TIE PVC PIPE INSTALLATION GUIDE OR EQUAL.) BACKFILLING OF UTILITY TRENCHES WILL NOT BE ALLOWED UNTIL INSPECTED BY THE CITY UTILITIES ENGINEERING DIVISION. ALL PIPE SHALL BE INSTALLED IN COMPLIANCE WITH OSHA TRENCH AND EXCAVATION STANDARDS.
- ALL SEWER LATERAL TIE-INS FOR NEW CONSTRUCTION MUST USE RIGID COUPLINGS OR CONNECTORS.

BACKFLOW NOTES

- THE TYPE OF BACKFLOW PREVENTION ASSEMBLY TO BE INSTALLED AT ANY GIVEN LOCATION WILL BE DETERMINED AT THE BUILDING PLAN REVIEW, IN ACCORDANCE WITH THE GUIDELINES SET DOWN BY THE AMERICAN WATER WORKS ASSOCIATION. INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES ON THE NEW CONSTRUCTION WILL BE ACCOMPLISHED AT TIME OF METER INSTALLATION.
- ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE INSTALLED DOWNSTREAM OF AND IMMEDIATELY ADJACENT TO THE WATER METER. VARIANCES TO THIS RULE WILL BE GRANTED ONLY BY THE DIRECTOR OF UTILITIES OR HIS DESIGNATED REPRESENTATIVE.
- ON THE SERVICE LINE THERE MUST BE NO OUTLET, TEE, TAP, OR CONNECTION OF ANY SORT TO OR FROM THE SUPPLY PIPE LINE BETWEEN THE METER AND THE PROTECTIVE ASSEMBLY.
- ALL REDUCED PRESSURE ASSEMBLIES SHALL CONFORM TO AWWA STANDARD C511, LATEST REVISION. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO AWWA STANDARD C510, LATEST REVISION.
- ALL PERMANENT INSTALLATIONS, OTHER THAN THE DUAL CHECK VALVE SHALL HAVE A MINIMUM OF TWENTY-FOUR (24) INCHES HORIZONTAL CLEARANCE ON THE TESTING SIDE OF THE ASSEMBLY, AND TWELVE (12) INCHES ON THE OPPOSITE SIDE, FROM ANY WALL OR STRUCTURE, TO FACILITATE TESTING, MAINTENANCE, OR REMOVAL.
- NO TREES, SHRUBS, BUSHES, ETC., SHALL BE PLANTED WITHIN THREE (3) FEET OF ANY BACKFLOW PREVENTION ASSEMBLY. BRANCHES OR LIMBS OF NEARBY PLANTINGS WILL NOT BE ALLOWED TO GROW WITHIN THREE (3) FEET OF ANY BACKFLOW PREVENTION ASSEMBLY.
- DIMENSIONS AND WEIGHTS OF VARIOUS ASSEMBLIES CAN BE OBTAINED FROM MANUFACTURER'S SPECIFICATIONS.
- WHERE MORE THAN ONE METER IS REQUIRED FOR SERVICE, A BACKFLOW PREVENTION ASSEMBLY SHALL BE REQUIRED FOR EACH METER.
- INSTALLATION SHALL BE IN ACCORDANCE WITH FLORIDA BUILDING CODE AND MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
- ALL REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLIES SHALL BE SUPPORTED AND SECURED PROPERLY ACCORDING TO FLORIDA BUILDING CODE AND MANUFACTURER'S STANDARDS.
- 4" G.S.P. GUARD POSTS FILLED WITH CONCRETE ARE REQUIRED WHEN AN ASSEMBLY IS WITHIN 5' OF ANY PAVED SURFACE. MULTIPLE POSTS ARE TO BE SPACED NO MORE THAN 5' APART.

3 ISSUED FOR PERMIT SUBMITTALS 2 PER DRC COMMENTS 1 PER DRC COMMENTS	7/28/2006 6/9/2006 5/24/2006	HLS HLS HLS	DRAWN BY GB CHECKED BY HLS	SCALE AS NOTED	Kinley-Horn and Associates, Inc. 5200 NW 33RD AVENUE, SUITE 109, FT. LAUDERDALE, FL 33309 (954) 535-5100 CA 0000696	DATE 12/09/05	DESIGN ENGINEER: HEATHER SPENCER, P.E. FLORIDA REGISTRATION NUMBER: 59511	SHEET NUMBER C12
						PROJECT NO. 042701051		

COMMERCE BANK OUTPARCEL
 EL DORADO HOME FURNISHINGS CENTER
 COCONUT CREEK, FL
 COCONUT CREEK, BROWARD COUNTY FLORIDA