CONSTRUCTION PLANS FOR: LITTLE EGYPT / RING ROAD GRAVITY SEWER IMPROVEMENT PROJECT

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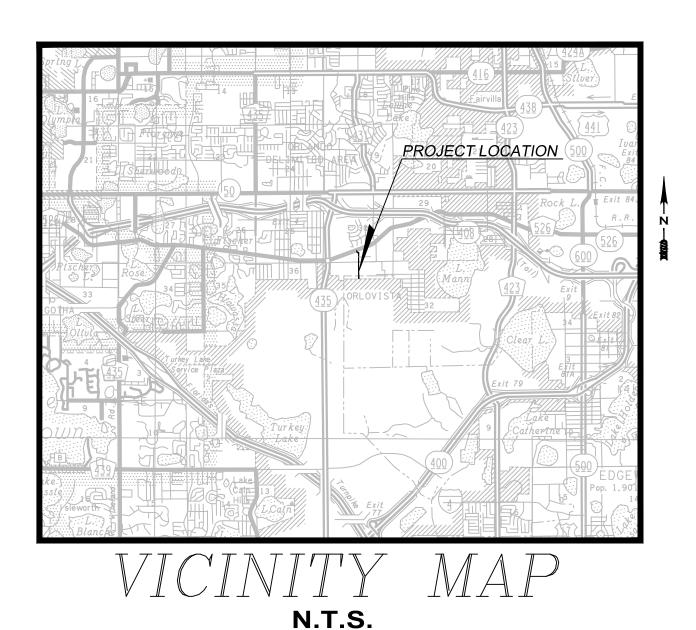
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ORANGE COUNTY UTILITIES DEPARTMENT
ENGINEERING DIVISION
ORANGE COUNTY, FLORIDA

COUNTY SEQUENCE NUMBER: 85506
ORANGE COUNTY CAPITAL NUMBER: 1505-10
BID SET

ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL

APPENDIX A

DATE: February 11, 2011

OCU GENERAL NOTES:

- 1. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, GRAVITY MAINS AND RECLAIMED WATER MAINS. MAIN LOCATIONS SHOWN ON PLANS MAY NOT BE EXACT. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
- 2. SHOULD A PIPE EMERGENCY OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OCU DISPATCH OPERATOR (407-836-2777) AND THE OCU INSPECTOR.
- 3. THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST SEVEN DAYS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION PROJECT BY CALLING (407) 254-9798.
- 4. THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST 48 HOURS PRIOR TO ANY UTILITIES CONSTRUCTION BY CALLING (407) 254-9798.
- 5. THE MATERIALS, PRODUCTS, AND CONSTRUCTION OF ALL UTILITIES CONNECTING TO THE OCU SYSTEM SHALL BE IN CONFORMANCE WITH THE ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL.
- 6. ALL OCU MAINS AND FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION.
- 7. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO OCU MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY OCU, OCU MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE
- THE CONTRACTOR SHALL ADJUST ALL EXISTING OCU MAINS AND FACILITIES IN CONFLICT WITH NEW GRADE, NEW OR ALTERED ROADWAYS, SIDEWALKS, DRIVEWAYS, OR STORM WATER IMPROVEMENTS. OCU FACILITIES TO BE ADJUSTED INCLUDE, BUT ARE NOT LIMITED TO PIPELINES, PUMP STATIONS, VALVE BOXES, AIR RELEASE VALVES, FIRE HYDRANTS, MANHOLE COVERS, AND METERS.
- 9. ONLY OCU SHALL OPERATE OCU WATER, WASTEWATER, AND RECLAIMED WATER VALVES. THE CONTRACTOR SHALL COORDINATE VALVE OPERATION WITH THE OCU INSPECTOR. FOR OPERATION OF MAINS NOT OWNED BY OCU, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY REPRESENTATIVE.
- 10. CONSTRUCTION ACTIVITIES SHALL NOT CAUSE INTERRUPTIONS IN WATER, WASTEWATER, OR RECLAIMED WATER SERVICE. THE CONTRACTOR SHALL COORDINATE PRE-APPROVED INTERRUPTIONS OF SERVICE WITH THE OCU INSPECTOR 7 WORKING DAYS IN ADVANCE.
- 11. THE CONTRACTOR SHALL PROVIDE FOR BYPASSING AND/OR HAULING WASTEWATER DURING APPROVED INTERRUPTIONS OF WASTEWATER FLOWS AND CONNECTIONS. THE CONTRACTOR SHALL SUBMIT A BYPASS PLAN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER TO OCU DEVELOPMENT ENGINEERING FOR APPROVAL PRIOR TO IMPLEMENTATION BY CONTRACTOR
- 12. ALL VALVES INSTALLED AS PART OF THIS CONSTRUCTION PROJECT SHALL REMAIN CLOSED DURING CONSTRUCTION. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT NEWLY CONSTRUCTED WATER MAINS TO ANY EXISTING WATER MAINS UNLESS CLEARED BY FDEP AND OCU.
- 13. THE CONTRACTOR SHALL PROVIDE A JUMPER ASSEMBLY WITH A BACKFLOW PREVENTER FOR MAKING TEMPORARY CONNECTIONS TO AN EXISTING POTABLE WATER SOURCE IN ORDER TO CHLORINATE AND FLUSH NEW WATER MAINS WITH POTABLE WATER. ANY TEMPORARY POTABLE WATER CONNECTIONS TO RECLAIMED WATER OR FORCEMAIN SHALL ALSO BE EQUIPPED WITH A BACKFLOW PREVENTER.
- 14. FOR PVC PIPE THAT WILL BE OWNED AND MAINTAINED BY OCU, NO PIPE BENDING IS ALLOWED. THE MAXIMUM ALLOWABLE TOLERANCE FOR JOINT DEFLECTION IS 0.75 DEGREES (3-INCHES PER JOINT PER 20 FT STICK OF PIPE.) ALIGNMENT CHANGE SHALL BE MADE ONLY WITH SLEEVES AND FITTINGS.
- 15. FOR NON-PVC PIPE THAT WILL BE OWNED AND MAINTAINED BY OCU, LONG RADIUS CURVES, EITHER HORIZONTAL OR VERTICAL, MAY BE INSTALLED WITH STANDARD PIPE BY DEFLECTIONS AT THE JOINTS. MAXIMUM DEFLECTIONS AT PIPE JOINTS, FITTINGS AND LAYING RADIUS FOR THE VARIOUS PIPE LENGTHS SHALL NOT EXCEED 75 PERCENT OF THE PIPE MANUFACTURER'S RECOMMENDATION.

OCU EMERGENCY CONTACT NUMBER: 407-836-2777

SITE PREPARATION

FIGURE GN

- 1. SITE PREPARATION IS TO BE IN ACCORDANCE WITH ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL; SPECIFICATION SECTION 2230 OR LISTED HEIREN.
- 2. UNLESS OTHERWISE DIRECTED BY THE OWNER OR ENGINEER, THE CONTRACTOR IS EXPECTED TO CONTAIN ALL CONSTRUCTION ACTIVITIES WITHIN THE PROPERTY, RIGHT-OF-WAY, AND EASEMENTS AS INDICATED ON THE DRAWINGS UNLESS OTHERWISE GRANTED ACCESS THROUGH RIGHT OF ENTRY DOCUMENTATION. AT NO TIME SHALL THE CONTRACTOR DISTURB SURROUNDING PROPERTIES OR TRAVEL ON SURROUNDING PROPERTIES WITHOUT WRITTEN CONSENT FROM THE PROPERTY OWNER. DAMAGED AREAS IN SURROUNDING PROPERTIES SHALL BE REPAIRED BY THE CONTRACTOR ON AN IMMEDIATE BASIS. ALL COSTS FOR REPAIRS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA COMPENSATION SHALL BE PROVIDED.
- 3. STAKE OUT THE CONSTRUCTION, ESTABLISH LINES AND LEVELS, TEMPORARY BENCH MARKS, BATTER BOARDS, CENTERLINES, BASELINES, AND REFERENCE POINTS FOR THE WORK, AND VERIFY ALL DIMENSIONS RELATING TO INTERCONNECTION WITH EXISTING FEATURES. REPORT ANY INCONSISTENCIES IN THE PROPOSED GRADES, LINES AND LEVELS, DIMENSIONS AND LOCATIONS TO THE ENGINEER BEFORE COMMENCING WORK.
- 4. PROTECT ALL TREES AND SHRUBS LOCATED OUTSIDE THE RIGHT-OF-WAY, EASEMENTS, AND OWNER SECURED PROPERTY, PARTICULARLY THOSE TREES AND SHRUBS LOCATED ADJACENT TO WORK AREAS.
- 5. WITHIN THE RIGHT-OF-WAY, EASEMENTS, AND OWNER SECURED PROPERTY, THE INTENT IS TO ALLOW TREES AND SHRUBS TO REMAIN IN ACCORDANCE WITH THE FOLLOWING SCHEDULE: NEW ROADWAY CONSTRUCTION - TREES AND SHRUBS TO REMAIN WHERE LOCATED MORE THAN 15 FEET FROM THE BACK OF CURB. OR OUTSIDE THE LIMITS OF EXCAVATION OR FILL AREAS, WHICHEVER IS FURTHER. UTILITY PIPELINE CONSTRUCTION - TREES AND SHRUBS TO REMAIN OUTSIDE A 15 FOOT WIDE PATH, CENTERED ON THE PIPELINE.
- TREES TO REMAIN IN THE CONSTRUCTION AREA SHALL BE BOXED, FENCED OR OTHERWISE PROTECTED IN ACCORDANCE WITH DETAILS ON THE DRAWINGS. DO NOT PERMIT HEAVY EQUIPMENT OR STOCKPILES WITHIN BRANCH SPREAD
- 7. AREAS TO RECEIVE CLEARING AND GRUBBING SHALL INCLUDE ALL AREAS TO BE OCCUPIED BY THE PROPOSED IMPROVEMENTS, AREAS FOR FILL AND SITE GRADING, AND BORROW SITES. REMOVE TREES OUTSIDE OF THESE AREAS ONLY AS INDICATED ON THE DRAWINGS OR AS APPROVED IN WRITING BY THE ENGINEER.
- 8. CLEARING SHALL CONSIST OF REMOVING TREES AND BRUSH AND DISPOSAL OF OTHER MATERIALS THAT ENCROACH UPON OR OTHERWISE OBSTRUCT THE WORK.
- 9. EXERCISE EXTREME CARE DURING THE CLEARING AND GRUBBING OPERATIONS. DO NOT DAMAGE EXISTING STRUCTURES, PIPES OR UTILITIES.
- 10. GRUBBING SHALL CONSIST OF REMOVING AND DISPOSING OF STUMPS, ROOTS LARGER THAN 2" IN DIAMETER, AND MATTED ROOTS. REMOVE TO A DEPTH OF NOT LESS THAN 18" BELOW THE ORIGINAL SURFACE LEVEL OF THE
- 11. ALL COMBUSTIBLE DEBRIS AND REFUSE FROM SITE PREPARATION OPERATIONS SHALL BE REMOVED TO LEGAL OFFSITE DISPOSAL AREAS. NO BURNING WILL BE PERMITTED.

AS - BUILT DRAWINGS

- 1. THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL AS-BUILT INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES. THE SUBMITTAL WILL INCLUDE A SIGNED AND SEALED DRAWINGS AND A CD WITH THE AS-BUILT INFORMATION IN AUTOCAD 2012 FORMAT.
- 2. AS-BUILT DRAWINGS SHALL BE AS SPECIFIED IN SPECIFICATION SECTION 1720 AND SECTION 1050 AND THE LATEST VERSION OF THE ORANGE COUNTY STANDARDS.

UTILITY GENERAL NOTES

- 1. THE UTILITY DATA SHOWN ON THESE PLANS WAS LOCATED BY THE RESPECTIVE UTILITY, OR IS BASED ON UTILITY DRAWINGS, MAPS, OR FIELD RECONNAISSANCE.
- THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATIONS OF THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. ANY UTILITIES, WHETHER SHOWN ON THESE PLANS OR NOT, THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER AND THE RESPECTIVE UTILITY COMPANY FOR RELOCATION OR PROPER INSTRUCTION.
- 3. A SINGLE POINT UTILITY IDENTIFICATION SERVICE HAS BEEN SET UP FOR EXISTING UTILITIES. THE CONTRACTOR IS TO CONTACT THE SUNSHINE STATE ONE CALL CENTER BY DIALING "811" AT LEAST TWO (2) AND NO MORE THAN FIVE (5) WORKING DAYS PRIOR TO THE SPECIFIC CONSTRUCTION ACTIVITY FOR FIELD LOCATION. NOTE THAT NOT ALL UTILITIES PARTICIPATE IN THIS PROGRAM. THE CONTRACTOR SHOULD CONTACT ALL NON-PARTICIPATING UTILITIES SEPARATELY FOR FIELD LOCATION OF THEIR FACILITIES AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION PER FLORIDA STATUTE 553.851, THE CONTRACTOR OR EXCAVATOR IS REQUIRED TO NOTIFY THE GAS COMPANY TWO (2) WORKING DAYS PRIOR TO STARTING EXCAVATION.
- 4. THE CONTRACTOR SHALL KEEP LOCATE TICKETS UP TO DATE AT ALL TIMES.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION WITH EACH UTILITY AND ALL COSTS ASSOCIATED WITH THE PROTECTION OF EXISTING FACILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL ALSO COORDINATE NECESSARY RELOCATIONS OR OTHER CONSTRUCTION RELATED MATTERS WITH EACH UTILITY.
- 6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN IN SERVICE ALL EXISTING PIPING ENCOUNTERED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED IN THE DRAWINGS. ANY PIPING WHICH CAN BE REMOVED DURING CONSTRUCTION WITHOUT UNDUE INTERRUPTION OF SERVICE MAY BE REMOVED AND REPLACED BY THE CONTRACTOR WITH THE PERMISSION OF THE OWNER AND THE ENGINEER.
- 7. TYPICAL DETAILS AS SHOWN ARE TO ILLUSTRATE THE ENGINEER'S INTENT AND ARE NOT PRESENTED AS A SOLUTION TO ALL CONSTRUCTION PROBLEMS ENCOUNTERED IN THE FIELD. THE CONTRACTOR MAY ALTER THE METHOD OF CONSTRUCTION TO SUIT FIELD CONDITIONS, PROVIDING HE SUBMITS A PROPOSAL FOR AN ALTERNATE METHOD TO THE ENGINEER FOR APPROVAL AND USES MATERIALS AS DESIGNATED IN THE SPECIFICATIONS.
- FOR EACH RESPECTIVE PIPELINE CONSTRUCTION REQUIRED, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, DEPTH, AND ALIGNMENT OF ALL EXISTING PIPES, CABLES, ETC. TO BE CROSSED OR CONNECTED TO. IF THE CONTRACTOR DEEMS NECESSARY (A) A CHANGE IN ALIGNMENT OR DEPTH, OR THE NEED FOR ADDITIONAL FITTINGS. BENDS, OR COUPLINGS, WHICH REPRESENT A DEPARTURE FROM THE CONTRACT DRAWING, OR (B) A NEED FOR RELOCATION OF EXISTING UTILITIES, THEN DETAILS OF SUCH DEPARTURES, RELOCATIONS, OR ADDITIONAL FITTINGS, INCLUDING CHANGES IN RELATED PORTIONS OF THE PROJECT AND THE REASONS THEREFORE, SHALL BE SUBMITTED WITH SHOP DRAWINGS. APPROVED DEPARTURES FOR THE CONTRACTOR'S CONVENIENCE SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC, LEAKAGE, AND PRESSURE TESTING. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND THE OWNER IN WRITTEN FORM, FORTY-EIGHT (48) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION.

EXCAVATION, TRENCHING, AND FILL

- 1. EXCAVATION, TRENCHING AND FILL IS TO BE IN ACCORDANCE WITH ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL; SPECIFICATION SECTIONS 02220 OR LISTED HEREIN OR DETAILED IN THE CONSTRUCTION DRAWINGS.
- 2. THE CONTRACTOR SHALL RECOGNIZE AND ABIDE BY ALL OSHA EXCAVATION SAFETY STANDARDS, INCLUDING THE FLORIDA TRENCH SAFETY ACT (FS 553.60-553.64). ANY MATERIAL, CONSTRUCTION METHODS, OR MATERIAL COST TO COMPLY WITH THESE LAWS SHALL BE INCIDENTAL TO THE CONTRACT.
- 3. FIELD DENSITY TESTING FREQUENCIES: A) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 300 LINEAL FEET OR FRACTION THEREOF PER LIFT OF GENERAL BACKFILLING IN THE PIPELINE TRENCH; D) ONE TEST PER LIFT PER EACH CHANGE IN TYPE OF FILL; E) ONE TEST PER 1000 SQUARE FEET OF PAVEMENT SUBGRADE, MINIMUM OF 2 TESTS.
- 4. IT IS INTENDED THAT PREVIOUSLY EXCAVATED MATERIALS CONFORMING TO THE FOLLOWING REQUIREMENTS BE UTILIZED WHEREVER POSSIBLE.
- A. ACCEPTABLE MATERIALS: AASHTO M145 CLASSIFICATION A-1, A-3, A-2-4, A-2-6; ASTM D2487 CLASSIFICATION GW, GP, GM, SM, SW, SP; UNLESS OTHERWISE DISAPPROVED WITHIN THE SOIL AND SUBSURFACE INVESTIGATION REPORTS. NO MORE THAN 12% OF ACCEPTABLE MATERIALS SHALL PASS THE NUMBER 200 SIEVE.
- B. UNACCEPTABLE MATERIALS: AASHTO M145 CLASSIFICATION A-2-5, A-2-7, A-4, A-5, A-6, A-7, A-8; ASTM D2487 ${\tt CLASSIFICATION~GC, SC, ML, MH, CL, CH, OL, OH, PT; UNLESS~OTHERWISE~APPROVED~WITHIN~THE~SOIL~AND~SUBSURFACE}$ INVESTIGATION REPORTS.
- 6. PROVIDE BARRIERS, WARNING LIGHTS AND OTHER PROTECTIVE DEVICES AT ALL EXCAVATIONS.
- 7. SIDEWALKS, ROADS, STREETS, AND PAVEMENTS SHALL NOT BE BLOCKED OR OBSTRUCTED BY EXCAVATED MATERIALS, EXCEPT AS AUTHORIZED BY THE ENGINEER, IN WHICH CASE ADEQUATE TEMPORARY PROVISIONS MUST BE MADE FOR SATISFACTORY TEMPORARY PASSAGE OF PEDESTRIANS, AND VEHICLES. MINIMIZE INCONVENIENCE TO PUBLIC TRAVEL OR TO TENANTS OCCUPYING ADJOINING PROPERTY.
- 8. FURNISH, INSTALL, AND MAINTAIN, WITHOUT ADDITIONAL COMPENSATION, SHEETING, BRACING, AND SHORING SUPPORT REQUIRED TO KEEP EXCAVATIONS WITHIN THE PROPERTY OR EASEMENTS PROVIDED, TO SUPPORT THE SIDES OF THE EXCAVATION, AND TO PREVENT ANY MOVEMENT WHICH MAY DAMAGE ADJACENT PAVEMENTS OR STRUCTURES, DAMAGE OR DELAY THE WORK, OR ENDANGER LIFE AND HEALTH. VOIDS OUTSIDE THE SUPPORTS SHALL BE IMMEDIATELY FILLED AND
- 9. ALL EXCAVATIONS SHALL BE MADE BY OPEN CUT UNLESS OTHERWISE INDICATED. SLOPE SIDES OF TRENCHES IN ACCORDANCE WITH OSHA REQUIREMENTS AND THE RECOMMENDATIONS CONTAINED WITHIN THE PROJECT GEOTECHNICAL
- 10. EXCAVATE TRENCHES TO DEPTH INDICATED OR REQUIRED FOR INDICATED FLOW LINES AND INVERT ELEVATIONS. OVER EXCAVATE TRENCHES A MINIMUM OF 2 FEET WHERE EXCAVATIONS OCCUR WITHIN UNSUITABLE SOILS, AND REPLACE OVER EXCAVATED MATERIAL WITH SUITABLE SOILS.
- 11. TRENCH BOTTOMS AND THE BOTTOMS OF ALL STRUCTURES SHALL BE KEPT DRY, COMPACTED, AND STABLE TO A DEPTH TWO FEET BELOW THE BOTTOM OF THE TRENCH OR STRUCTURE.
- 12. ALL BEDDING, FILL, AND BACKFILL MATERIAL SHALL BE SUITABLE SOILS OR FLOWABLE FILL. WHERE TRENCH OR EXCAVATION IS WITHIN THE INFLUENCE AREA OF ROADWAYS, STRUCTURES, FOUNDATIONS, OR SLABS, PLACE BACKFILL IN LAYERS OF 8 INCH LOOSE DEPTH. IN ALL OTHER AREAS, PLACE FILL AND BACKFILL IN LAYERS OF 12 INCH LOOSE DEPTH.
- 13. MINIMUM DENSITY REQUIREMENT (ASTM D1557 OR AASHTO T180): BACKFILL AND FILL UNDER AND WITHIN THE INFLUENCE AREA OF ROADWAYS, STRUCTURES, SLABS, FOUNDATIONS = 98 PERCENT; BACKFILL AND FILL PLACED WITHIN PUBLIC ROAD RIGHT-OF-WAY AND UTILITY EASEMENTS = 98 PERCENT; BACKFILL AND FILL PLACED WITHIN POND AND ROAD EMBANKMENT = 95 PERCENT; BACKFILL AND FILL PLACED IN ALL OTHER AREAS = 95 PERCENT.

SANITARY SEWER SYSTEMS

- 1. THE ENTITY THAT WILL OPERATE AND MAINTAIN THE SEWER SYSTEM SHOWN ON THESE PLANS IS ORANGE COUNTY <u>UTILITIES</u>. THE CONTRACTOR SHALL MEET ALL THE REQUIREMENTS OF <u>ORANGE COUNTY UTILITIES</u> AS SPECIFIED IN THE DRANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION AND SPECIFICATIONS MANUAL.
- 2. SANITARY SEWER IS TO BE CONSTRUCTED IN ACCORDANCE WITH ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL, 02774, 02775, LISTED HEREIN OR DETAILED IN THE CONSTRUCTION DRAWINGS.
- 3. INSTALL ALL SEWER MAINS AT A MINIMUM 36 INCHES OF COVER.
- 4. FITTINGS SHALL CONFORM TO THE SAME REQUIREMENTS AS THE PIPE. PROVIDE ADAPTERS AS REQUIRED TO JOIN PVC PIPE TO PIPE, FITTINGS AND EQUIPMENT OF OTHER MATERIALS. SOLVENT CEMENT SHALL BE AS RECOMMENDED BY THE PIPE
- 5. PVC SEWER PIPE SHALL BE COLOR CODED GREEN, STENCILED "SEWER LINE" (2" LETTERING ON TWO SIDES OF THE PIPE IN AT LEAST THREE AREAS PER PIPE SECTION).
- 6. INSTALL ADHESIVE IDENTIFICATION TAPE ALONG ALL PRESSURE PIPELINE. TAPE SHALL BE MINIMUM THICKNESS 4 MILS, WIDTH 6 INCHES, LETTER SIZE 1 INCH. TAPE COLOR AND LETTERING SHALL BE "SEWER LINE", BLACK PRINTING ON GREEN BACKGROUND. PLACE TAPE AS FOLLOWS: 2" - 8" PIPE - CENTER ALONG TOP HALF OF PIPE; 10" - 18" PIPE - PLACE ALONG BOTH SIDES OF THE TOP HALF OF PIPE; 20" PIPE AND LARGER - PLACE ON BOTH SIDES OF TOP HALF OF PIPE WITH A THIRD STRIP CENTERED ALONG TOP HALF OF PIPE.
- 7. INSTALL WARNING TAPE ALONG ALL PRESSURE SEWER PIPELINES. TAPE SHALL BE 6-INCH WIDE VINYL CONTINUOUS TAPE, COLORED GREEN WITH BLACK LETTERING CODED AND WORDED "CAUTION: SEWER BURIED BELOW". INSTALL ALONG PIPELINE, 2 FEET ABOVE PIPE, MINIMUM OF 1 FOOT BELOW GRADE
- 8. CONNECTIONS TO EXISTING SEWER SHALL BE CONDUCTED IN SUCH A MANNER THAT THE EXISTING SEWER REMAINS IN OPERATION. PROVIDE BY PASS PUMPING OF EXISTING FLOWS OR COLLECT AND LEGALLY DISPOSE OF EXISTING SEWER FLOW AS NEEDED TO ACCOMMODATE CONSTRUCTION WHILE KEEPING EXISTING SEWER IN SERVICE.
- 9. PRIOR TO INSPECTIONS AND TESTING, CLEAN ALL INSTALLED LINES AND MANHOLES. TEST PROCEDURES SHALL BE APPROVED BY THE ENGINEER. ALL TESTS SHALL BE MADE IN THE PRESENCE OF THE ENGINEER AND UTILITY. NOTIFY THE ENGINEER AND THE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY WORK IS TO BE INSPECTED OR TESTED.
- 10. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT FOR TESTING. INCREMENTS ON GAGES USED FOR LOW PRESSURE AIR TESTING SHALL BE OF SCALED TO THE NEAREST 0.1 PSI. GAGES, PUMPS, AND HOSES SHALL BE IN GOOD WORKING ORDER
- 11. ALL SERVICE LATERALS SHALL BE COMPLETED PRIOR TO TESTING, AND ARE SUBJECT TO THE SAME TESTING REQUIREMENTS AS THE MAIN LINE.
- 12. PROVIDE LIGHT SOURCE AND MIRRORS FOR LAMPING OF SEWER. ANY SEWER IN WHICH THE DIRECT LIGHT OF A LAMP CANNOT BE VIEWED IN EITHER DIRECTION, FULL CIRCLE, BETWEEN ADJACENT MANHOLES SHALL BE CONSIDERED UNSATISFACTORY, UNLESS THE LINE IS DESIGNED WITH HORIZONTAL DEFLECTIONS, AND SHALL BE REPAIRED BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
- 13. CONDUCT LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPING IN ACCORDANCE WITH THE SPECIFICATIONS
- 14. CONDUCT LEAKAGE TESTING OF MANHOLES. PLUG INVERTS AND FILL MANHOLE WITH WATER. ALLOWABLE WATER DROP IN MANHOLE TO BE FIELD DETERMINED BY UTILITY AND ENGINEER. MINIMUM TEST DURATION IS 1 HOUR IN ACCORDANCE WITH
- 15. CONDUCT DEFLECTION TESTING OF PIPELINE AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. MAXIMUM ALLOWABLE PIPE DEFLECTION IS 5%. MEASURE DEFLECTION BY MANUALLY PULLING A MANDREL THROUGH THE PIPE. THE MINIMUM MANDREL OUTER DIAMETER SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- 16. DEFLECTION TESTING IS CONSIDERED SATISFACTORY IF THE MANDREL CAN BE PULLED BY HAND THROUGH THE PIPE BEING TESTED. IF THE MANDREL CANNOT BE PULLED THROUGH THE PIPE, REPLACE OR CORRECT THE PIPE AND RETEST UNTIL TESTING IS SATISFACTORY. ANY PIPE REMOVED OR CORRECTED DUE TO FAILING DEFLECTION TESTING SHALL ALSO BE RE-TESTED FOR LEAKAGE.

PRECAST STRUCTURES AND APPURTENANCES

- 1. PRECAST STRUCTURES AND APPURTENANCES ARE TO BE IN ACCORDANCE WITH ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL, SPECIFICATION SECTION 03410
- 2. ALL MANHOLES SHALL BE PRECAST CONSTRUCTION. THE MINIMUM SIZE DIAMETER OF MANHOLES SHALL BE 48" FOR SEWER LINES 21" IN DIAMETER OR LESS. INTEGRALLY CAST STEPS WITHIN PRECAST STRUCTURES ARE NOT ALLOWED.
- 3. BASES SHALL BE ONE-PIECE PRECAST BASE SECTIONS CONSISTING OF INTEGRALLY CAST SLAB, BOTTOM RING SECTION AND CONCRETE FLOW CHANNELS. BASE SECTIONS SHALL HAVE INTEGRAL INVERTS WITH GASKETS TO MATCH THE PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL INVERT ANGLES. PROVIDE OUTLET STUBS WITH JOINTS TO MATCH THE PIPE.
- 4. PROVIDE A FLEXIBLE WATERTIGHT SEAL OF THE PIPE TO THE MANHOLE. CONNECTION OF CONCRETE PIPE TO THE MANHOLE SHALL BE MADE WITH NON-SHRINK METALLIC GROUT. CONNECTION OF DUCTILE IRON OR PVC PIPE TO THE MANHOLE SHALL PROVIDE A WATERTIGHT CONNECTION PER THE SPECIFICATIONS. WHERE CONNECTORS ARE USED, THEY SHALL BE INSTALLED IN THE MANHOLE WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATION OF THE CONNECTOR MANUFACTURER. THE USE OF ADHESIVES OR LUBRICANTS FOR INSTALLATION OF RUBBER CONNECTORS IS PROHIBITED.
- 5. FRAMES AND COVERS SHALL BE AS SHOWN IN THE DESIGN DETAILS AND AS REQUIRED BY THE ORANGE COUNTY UTILITY STANDARDS AND CONSTRUCTION SPECIFICATION MANUAL.
- 6. CASTINGS SHALL BE SMOOTH, CLEAN, FREE FROM BLISTERS, BLOWHOLES, AND SHRINKAGE. RAISED LETTERING ON COVERS SHALL BE AS DETAILED ON THE DRAWINGS.
- 7. MANHOLE COATINGS AND FINISHES SHALL BE IN ACCORDANCE WITH ORANGE COUNTY UTILITY STANDARDS AND CONSTRUCTION SPECIFICATION MANUAL, SPECIFICATION SECTION 3410.
- 8. AS-BUILT INFORMATION SHALL INCLUDE AT A MINIMUM, ALL RIM, TOP AND INVERT ELEVATIONS FOR ALL PRECAST STRUCTURES.

PAVING, SIDEWALKS, AND CURBING

- MATERIALS AND CONSTRUCTION METHODS FOR THE ROADWAY AND PAVING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2000 OR LATEST EDITION AND SPECIFICATION SECTIONS 02572
- 2. ROADWAY PAVING, BASE, AND SUBGRADE THICKNESSES SHALL BE IN ACCORDANCE WITH DETAILS ON THESE DRAWINGS, SPECIFICATION SECTION 02572 AND 02573.
- 3. CURBING SHALL BE CONSTRUCTED WHERE NOTED ON THE CONSTRUCTION PLANS. CONCRETE FOR CURBS SHALL BE FDOT CLASS "1" CONCRETE WITH A 28-DAY COMPRESSION STRENGTH OF 3000 PSI. ALL CURBS SHALL HAVE SAW CUT CONTRACTION JOINTS AND SHALL BE CONSTRUCTED AT INTERVALS NOT TO EXCEED 10'-0" ON CENTER. CONSTRUCTION OF CURBS SHALL BE IN CONFORMANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION) SECTION 520 AND DETAILS PROVIDED ON THE CONSTRUCTION PLANS.
- 4. FIELD COMPACTION DENSITY, STABILITY, AND THICKNESS TESTING FREQUENCIES OF SUB-BASE, BASE, AND ASPHALT SHALL BE TESTED ONCE EVERY 300 LINEAR FEET OF PAVING PER 24-FT WIDE STRIP. STAGGERED LEFT, CENTER AND RIGHT OF CENTERLINE. WHERE LESS THAN 300 LINEAR FEET OF SUB-BASE, BASE, AND ASPHALT IS PLACED IN ONE DAY, PROVIDE MIN. OF ONE TEST FOR EACH PER DAY'S CONSTRUCTION AT A LOCATION DESIGNATED BY THE ENGINEER. ASPHALT EXTRACTION GRADATION SHALL BE TESTED FROM GRAB SAMPLES COLLECTED ONCE EVERY 1800 SQUARE YARDS OF ASPHALT DELIVERED TO THE SITE (OR A MINIMUM OF ONCE PER DAY)

M.O.T. PLAN PROCESSING PROCEDURE

FOR NON-EMERGENCY ROAD CLOSURES

- 1. M.O.T. PLANS ARE TO BE SUBMITTED BY THE CONTRACTOR, IN ACCOORDANCE WITH SECTION 01570 OF
- PLANS WILL BE REVIEWED BY ORANGE COUNTY UTILITIES, FOR GENERAL CONFORMANCE. CONTRACTOR
- SHALL SUBMIT TO ORANGE COUNTY PUBLIC WORKS FOR ALL APPROVALS. 3. A COVER LETTER FOR THE TRAFFIC DETOUR PLAN SHALL BE SUBMITTED AND SHALL INCLUDE:
- A. DATES AND ANTICIPATED DURATION OF ROAD CLOSURE.
- B. DATE AND TIME THE ROAD CLOSURE WILL BEGIN. C. LOCATION OF ROAD CLOSURE.
- D. REASON FOR ROAD CLOSURE.
- E. COMPLETE ALTERNATE AND DETOUR ROUTES.
- F. ALL SIGNAGE SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION, AND THE STATE OF FLORIDA'S "MANUAL ON TRAFFIC " AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS AND INDEX 600 SERIES OF FDOT DESIGN STANDARDS MANUAL
- G. ALL SIGNS SHALL BE SHOWN ON A SCALED DETOUR PLAN SHEET WITH THE APPROPRIATE REFERENCE NUMBERS AS NOTED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- H. THE PLACEMENT OF EACH SIGN SHALL BE DIMENSIONED FROM REFERENCE POINTS THAT CAN BE IDENTIFIED IN THE FIELD.
- FLASHERS SHALL BE PLACED ON ALL BARRICADES AND CONSTRUCTION WARNING SIGNAGE IF THE DETOUR PLAN IS TO EXTEND INTO THE EVENING HOURS,
- J. THE PLANS SHALL BE SIGNED AND SEALED BY A REGISTERED ENGINEER IN THE STATE OF FLORIDA WHO IS EXPERIENCED IN TRANSPORTATION ENGINEERING.

BID SET

DATE DESCRIPTION

LINE IS 2 INCHES

AT FULL SIZE

IF NOT SCALE ACCORDINGLY

9150 CURRY FORD ROAD ORLANDO, FL. 32825

ORANGE COUNTY ITILITIES DEPARTMENT ENGINEERING DIVISION



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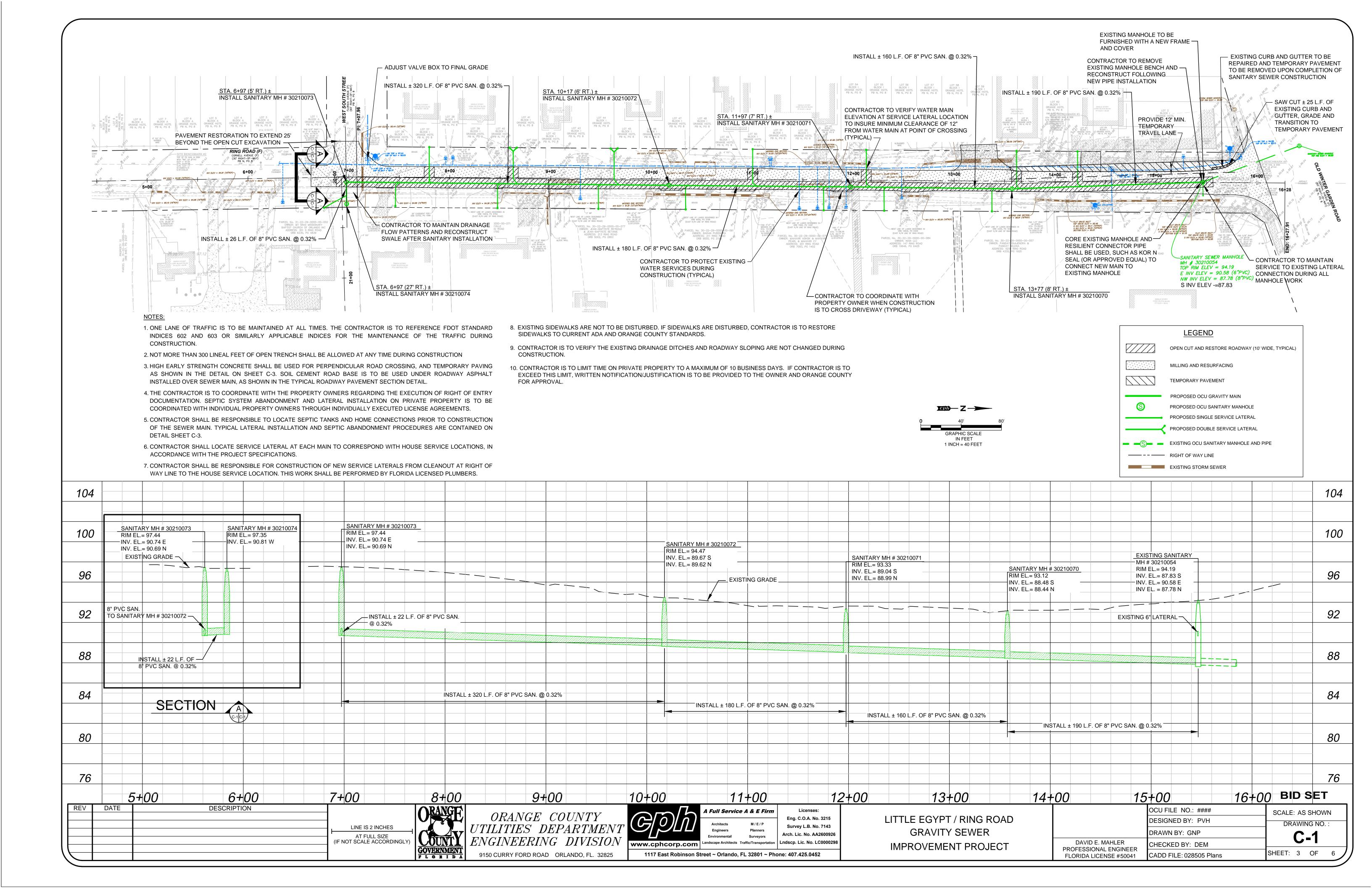
Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926 Lndscp. Lic. No. LC000029

LITTLE EGYPT / RING ROAD 1117 East Robinson Street ~ Orlando, FL 32801 ~ Phone: 407.425.0452

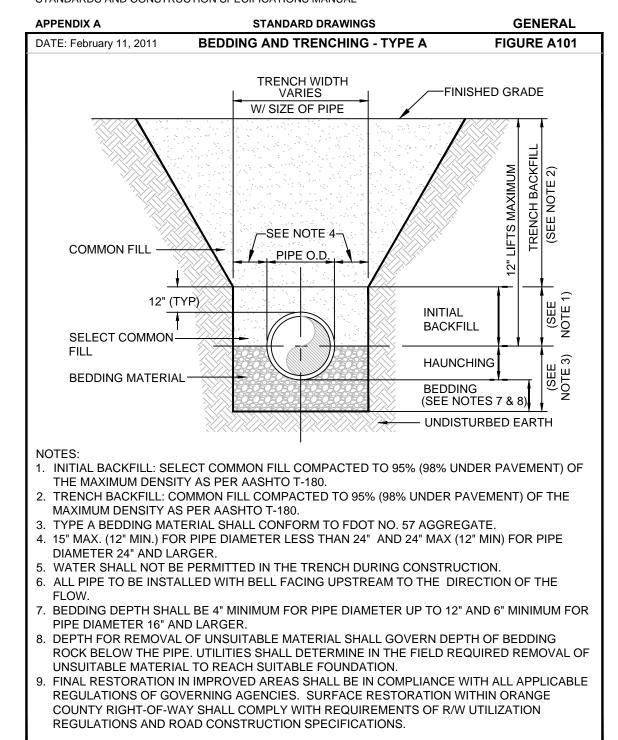
SANITARY SEWER **IMPROVEMENT PROJECT**

GENERAL NOTES

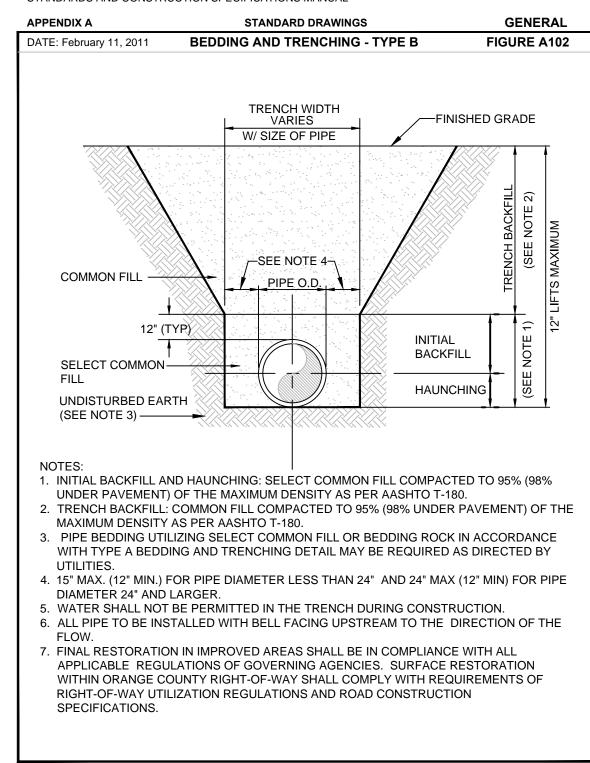
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ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL



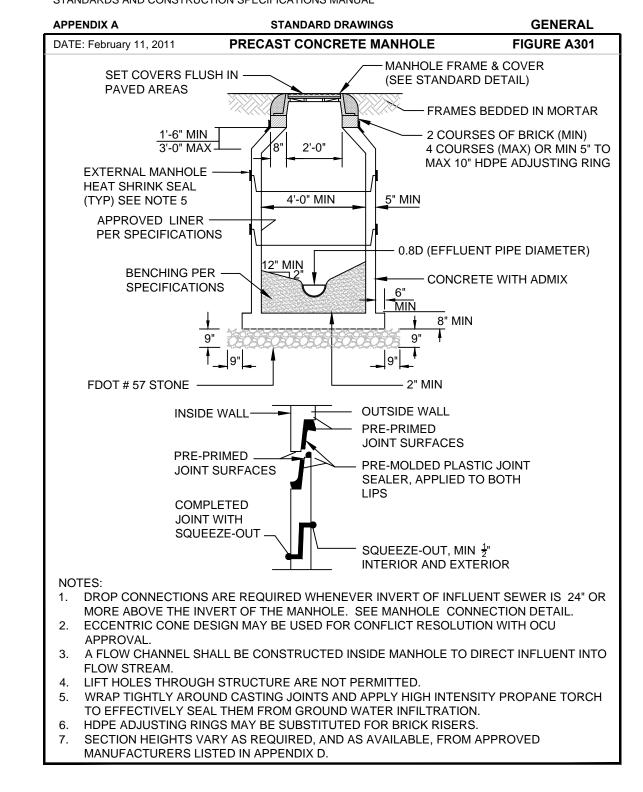
ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL



ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL

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UTILITY	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT
POTABLE WATER	3' NOTE 1	12"	3' NOTE 1 & 3	12" NOTE 3	6' NOTE 3	12" NOTE 3	3' NOTE 1 & 3	12"/18" NOTE 2 & 3
RECLAIMED WATER	3' NOTE 1 & 3	12" NOTE 3	3' NOTE 1	12"	3' NOTE 1	12"	3' NOTE 1	12"/18" NOTE 2
WASTEWATER (GRAVITY AND FI	6' NOTE 3	12" NOTE 3	3' NOTE 1	12"	3' NOTE 1	12"	3' NOTE 1	12"/18" NOTE 2
RIGHT OF WAY	3' NOTE 1	N/A	3' NOTE 1	N/A	3' NOTE 1	N/A	N/A	N/A
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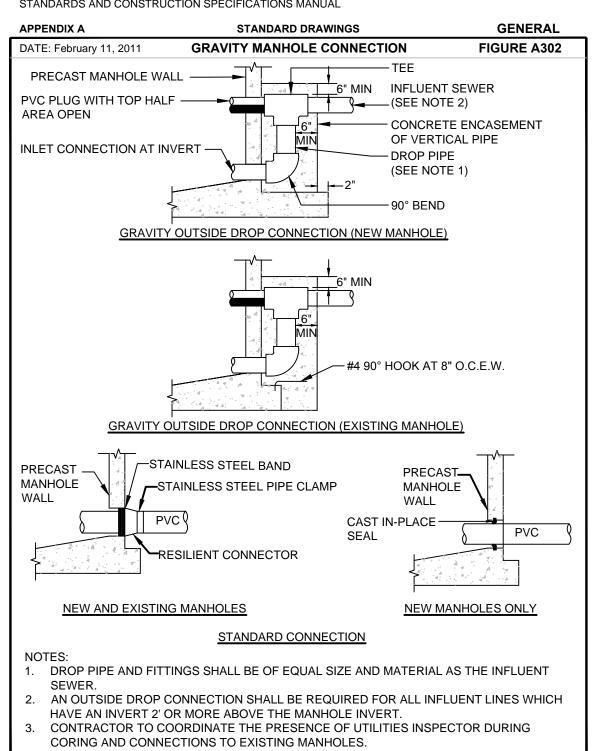
ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL



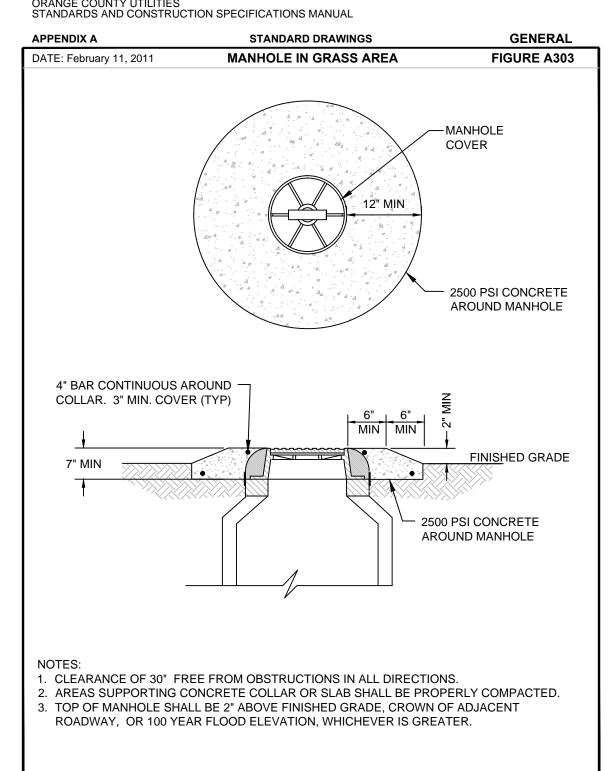
ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL

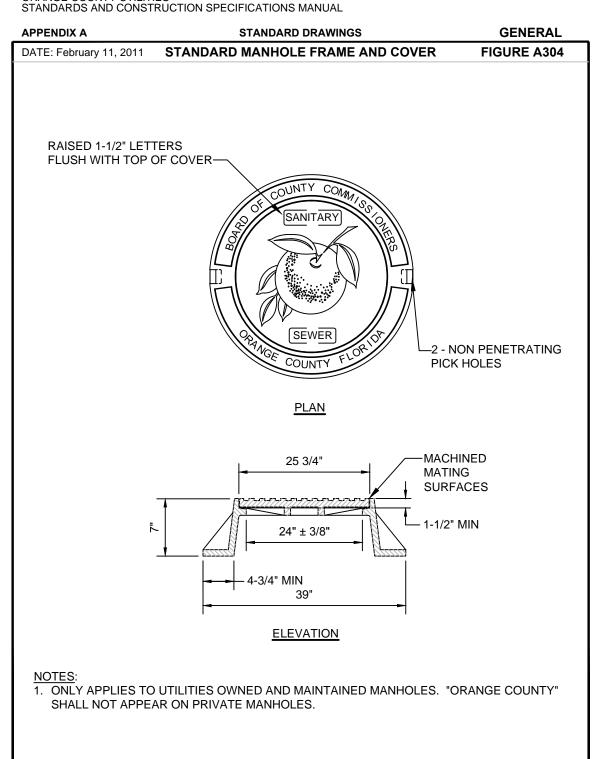
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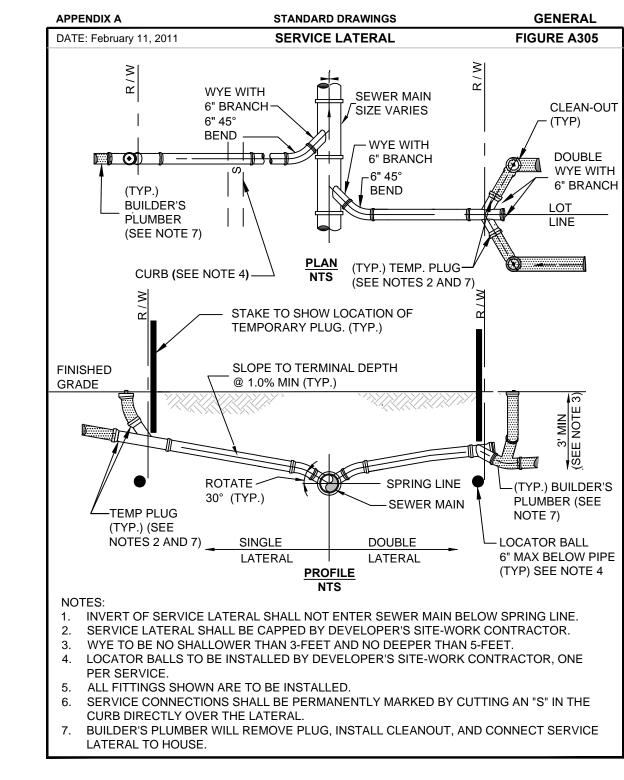


ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL





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DESCRIPTION LINE IS 2 INCHES AT FULL SIZE IF NOT SCALE ACCORDINGLY

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www.cphcorp.com

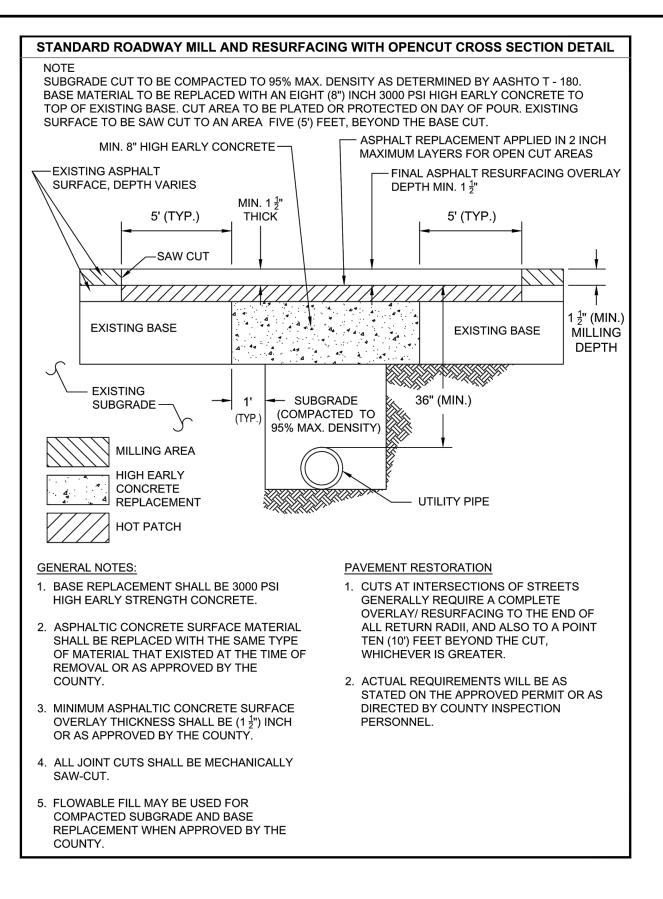
Full Service A & E Firm Eng. C.O.A. No. 3215 M/E/P Survey L.B. No. 7143 Planners Arch. Lic. No. AA2600926

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CONSTRUCTION DETAILS LITTLE EGYPT / RING ROAD SANITARY SEWER **IMPROVEMENT PROJECT**

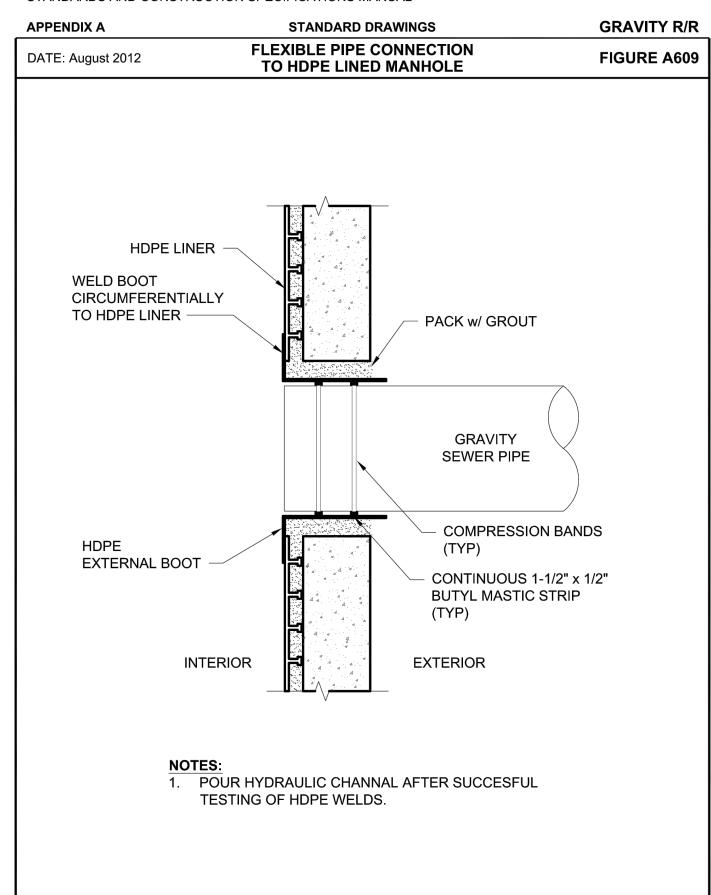
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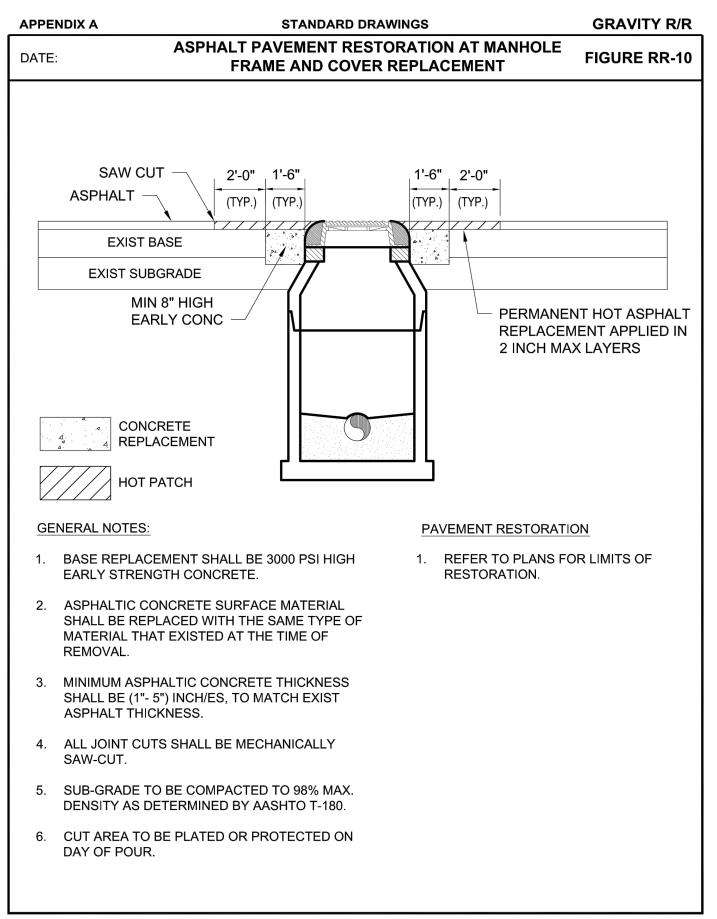


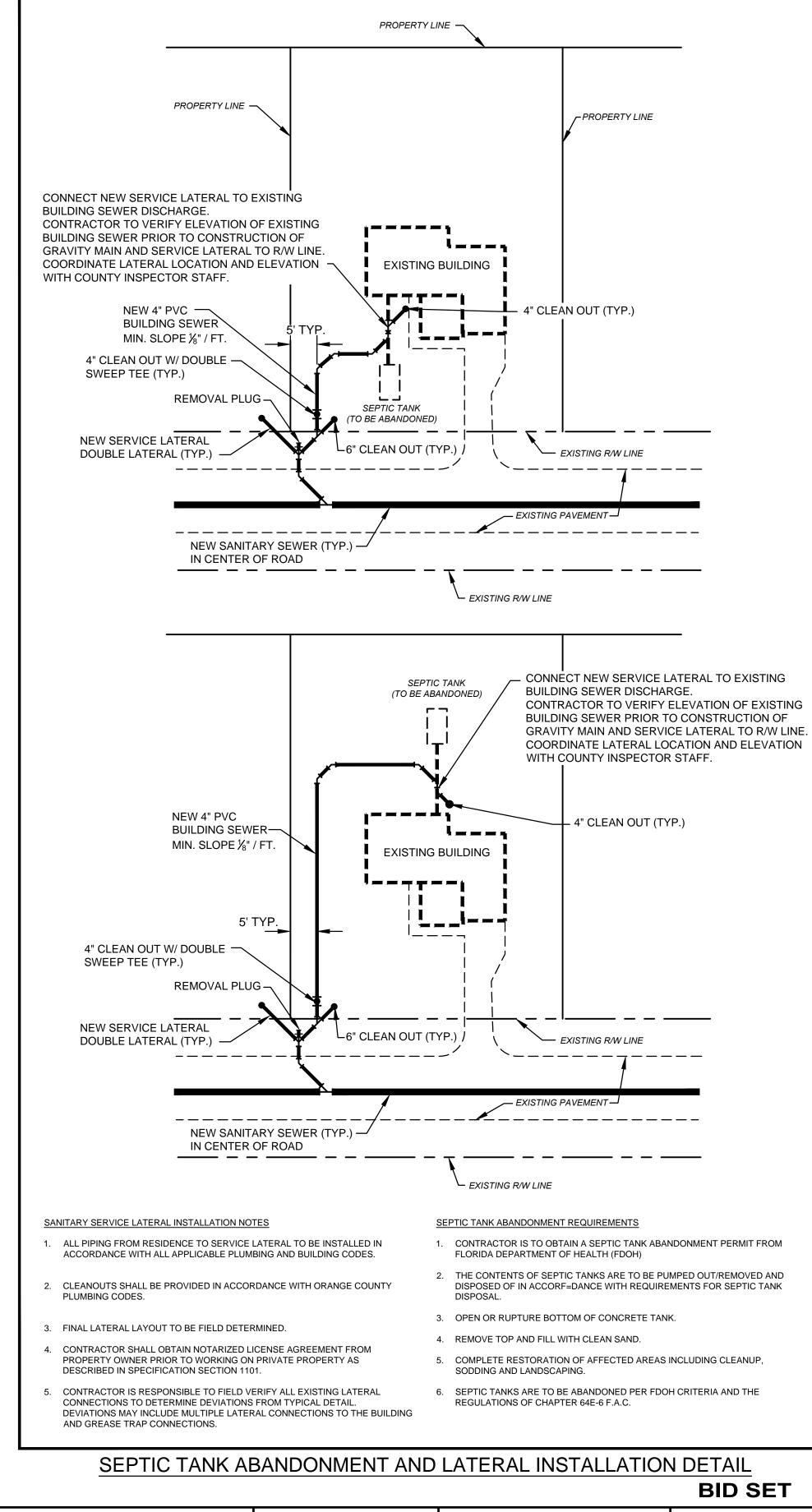
TYPICAL ROADWAY PAVEMENT SECTION D.O.T. TYPE S-III OR SP-9.5 ASPHALT CONCRETE - 8" SOIL CEMENT BASE (3000 PSI) — 12" STABILIZATION SUB BASE (MIN. LBR40)

ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL



ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL





DESCRIPTION DATE

AT FULL SIZE (IF NOT SCALE ACCORDINGLY)

LINE IS 2 INCHES

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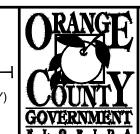
Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926

CONSTRUCTION DETAILS LITTLE EGYPT / RING ROAD SANITARY SEWER **IMPROVEMENT PROJECT**

OCU FILE NO.: SCALE: N.T.S. DESIGNED BY: PVH DRAWING NO. DRAWN BY: GNP **C-3** DAVID E. MAHLER CHECKED BY: DEM PROFESSIONAL ENGINEER SHEET: 5 OF FLORIDA LICENSE #50141 CADD FILE: 028505 Cover

SANITARY MANHOLE ASSET TABLE								
Manhole ID	Plan Sheet	Easting	Northing	Rim Elevation	INVERT EL. N	INVERT EL. E	INVERT EL. S	INVERT EL. W
MH 30210054	C-1	511349.207	1529320.42	94.19	87.78	90.58	87.83	
MH 30210070	C-1	511355.781	1529131.277	93.12	88.44		88.48	
MH 30210071	C-1	511353.783	1528971.32	93.33	88.99		89.04	
MH 30210072	C-1	511352.283	1528791.32	94.47	89.62		89.67	
MH 30210073	C-1	511349.063	1528471.336	97.44	90.69	90.74		
MH 30210074	C-1	511370.771	1528471.641	97.35				90.81

REV DATE DESCRIPTION LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY)



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<i>-</i>		Architects Engineers Environmenta
	www.cphcorp.com	Landscape Archit

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Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926 hitects Traffic/Transportation Lndscp. Lic. No. LC0000298

ASSET TABLES LITTLE EGYPT / RING ROAD SANITARY SEWER IMPROVEMENT PROJECT

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DAVID E. MAHLER PROFESSIONAL ENGINEER FLORIDA LICENSE #50141	CHECKED BY: DEM		C	-4		
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