

Construction Plans  
for

SSA - ESA WATER MAIN  
(MEADOW WOODS WSF  
ALONG RHODE ISLAND WOODS CIRCLE)

TERESA S. JACOBS  
Mayor

BOARD OF COUNTY COMMISSIONERS

S. SCOTT BOYD  
District 1

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District 4

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District 2

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District 5

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District 3

TIFFANY MOORE RUSSELL  
District 6



AJIT LALCHANDANI  
County Administrator

RAYMOND E. HANSON, P.E.  
Utilities Department Director

UTILITIES DEPARTMENT  
ORANGE COUNTY, FLORIDA

September 2014

PREPARED BY

<b>cph</b>	<b>A Full Service A &amp; E Firm</b>	
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**BID SET**

ORG/SUB ORG 1450-40  
ORANGE COUNTY UTILITIES  
PROJECT SEQUENCE NO. 39265

**GENERAL CONSTRUCTION REQUIREMENTS:**

DRAINAGE

IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE ADEQUATE DRAINAGE IS PROVIDED TO THE EXISTING SITE DURING CONSTRUCTION. AT NO TIME SHALL THERE BE FLOODING ON THE SITE AS A RESULT OF THE DEMOLITION OR CONSTRUCTION

LIMITS OF DISTURBANCE

AT NO TIME SHALL THE CONTRACTOR DISTURB SURROUNDING PROPERTIES OR TRAVEL ON SURROUNDING PROPERTIES WITHOUT WRITTEN CONSENT FROM THE PROPERTY OWNER. REPAIR OR RECONSTRUCTION OF DAMAGED AREAS ON SURROUNDING PROPERTIES SHALL BE PERFORMED BY THE CONTRACTOR ON AN IMMEDIATE BASIS. ALL COSTS FOR REPAIRS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO COMPENSATION FROM THE UTILITY.

CONTINUOUS ACCESS SHALL BE MAINTAINED FOR THE SURROUNDING PROPERTIES AT ALL TIMES DURING THE PROJECT.

DEWATERING

IN THE EVENT THAT GROUNDWATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE WATER MAIN, DEWATERING SHALL BE CONDUCTED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION, OPERATION, AND SUBSEQUENT REMOVAL OF DEWATERING SYSTEMS AND THEIR SAFETY AND CONFORMITY WITH LOCAL, COUNTY, STATE AND FEDERAL CODES AND REGULATIONS.

DEWATERING SYSTEMS SHALL BE UTILIZED IN ACCORDANCE WITH GOOD STANDARD PRACTICE AND MUST BE EFFICIENT ENOUGH TO LOWER THE WATER LEVEL IN ADVANCE OF THE EXCAVATION AND MAINTAIN IT CONTINUOUSLY TO KEEP THE TRENCH BOTTOM AND SIDES FIRM AND DRY.

AT ALL TIMES DURING CONSTRUCTION, KEEP EXCAVATIONS FREE FROM STANDING WATER. SUMPS, IF REQUIRED, SHALL BE LOCATED OUTSIDE OF LOAD BEARING AREAS SO THAT BEARING SURFACES WILL NOT BE DISTURBED. WATER PUMPED FROM THE EXCAVATION SHALL BE DISCHARGED TO PREVENT RE-ENTRY INTO THE SOIL STRATA BEING DEWATERED. WATER CONTAINING SILT IN SUSPENSION SHALL NOT BE PUMPED INTO SEWER LINES OR ADJACENT STREAMS, PONDS, OR OTHER WATER BODIES. THE METHOD OF DISPOSING OF WATER PUMPED FROM THE EXCAVATION SHALL BE APPROVED BY THE ENGINEER, PRIOR TO ACTUAL DISPOSAL.

WETLAND PROTECTION

THERE ARE NO ON-SITE WETLANDS. IF WETLAND AREAS ARE ENCOUNTERED, THEY SHALL BE PROTECTED FROM DISTURBANCE AT ALL TIMES. CONTRACTOR SHALL PROVIDE EROSION, SILTATION AND DIVERSION MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN A COPY OF EACH PERMIT RELATING TO WETLANDS AND ADHERE TO ALL PROVISIONS AND CONDITIONS THERETO.

TREE REMOVAL

THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER WHEN ALL WORK IS LAID OUT (SURVEY STAKED), SO THAT A DETERMINATION MAY BE MADE OF SPECIFIC TREES TO BE REMOVED. NO TREES SHOWN ON THE CONSTRUCTION PLANS AS BEING SAVED SHALL BE REMOVED WITHOUT PERMISSION FROM THE OWNER AND ENGINEER.

EROSION AND SEDIMENT CONTROL

EROSION AND SILTATION CONTROL MEASURES ARE TO BE PROVIDED AND INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THESE MEASURES ARE TO BE INSPECTED BY THE CONTRACTOR ON A REGULAR BASIS AND ARE TO BE MAINTAINED OR REPAIRED ON AN IMMEDIATE BASIS AS REQUIRED. LOCAL AND STATE JURISDICTIONAL AGENCIES SHALL BE REFERRED TO AND IMPLEMENTED DURING ALL CONSTRUCTION.

AN EROSION CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE COUNTY AND ENGINEER FOR APPROVAL PRIOR TO THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL EXECUTE ALL MEASURES NECESSARY TO LIMIT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT TO THE VOLUME AND AMOUNT AS THAT ARE EXISTING PRIOR TO THE COMMENCEMENT OF CONSTRUCTION PERIOD. PROVISION MUST BE MADE TO PRESERVE THE INTEGRITY AND CAPACITY OF CHECK WEIRS, SEDIMENT BASINS, SLOPE DRAINS, GRADING PATTERNS, ETC. REQUIRED TO MEET THIS PROVISION THROUGHOUT THE LIFE OF THE CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE SYNTHETIC HAY BALES, SILT BARRIERS, TEMPORARY GRASSING, ETC. AS REQUIRED TO FULLY COMPLY WITH THE INTENT OF THIS SPECIFICATION.

- STOCKPILING MATERIAL  
NO EXCAVATED MATERIAL SHALL BE STOCKPILED IN SUCH A MANNER AS TO DIRECT RUNOFF DIRECTLY OFF THE PROJECT SITE OR INTO ANY ADJACENT WATER BODY OR STORMWATER COLLECTION FACILITY.
- EXPOSED AREA LIMITATION  
THE SURFACE OF OPEN, RAW ERODABLE SOIL EXPOSED BY CLEARING AND GRUBBING OPERATIONS OR EXCAVATION AND FILLING OPERATIONS SHALL BE CONTROLLED, SO THAT THIS OPERATION WILL NOT SIGNIFICANTLY AFFECT OFFSITE DEPOSIT SEDIMENTS.
- INLET PROTECTION  
INLETS AND CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT LADEN STORMWATER RUNOFF UNTIL THE COMPLETION OF THE ALL CONSTRUCTION OPERATIONS THAT MAY CONTRIBUTE SEDIMENT TO THE INLET.
- MAINTENANCE  
ALL FEATURES OF THE PROJECT SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENT AND SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION PROPERLY WITHOUT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT.

TEMPORARY SILT FENCES AND STAKED SILT BARRIERS, SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATION, SEC. 104.6, 104.7 AND SEC. 985.

**GENERAL PROJECT DATA:**

OWNER/OPERATOR

ORANGE COUNTY UTILITIES (OCU) WILL OWN, OPERATE AND MAINTAIN THE PROPOSED WATER MAIN. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THE UTILITY AND JURISDICTIONAL AGENCIES.

FOR IDENTIFICATION OF CONTRACTUAL AGREEMENTS, THE ENGINEERING PLANS SHALL BE DATED AS JUNE 2013. ANY REVISIONS THEREAFTER WILL BE NOTED AND DATED ON THE AFFECTED DRAWING(S). EXISTING UTILITY LOCATION

THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE. 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 RELOCATION TO 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 DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE RELOCATION OF VARIOUS UTILITIES SHALL BE INCIDENTAL, WITH NO COMPENSATION FROM THE UTILITY.

A SINGLE POINT UTILITY LOCATION SERVICE HAS BEEN SET UP FOR PARTICIPATING UTILITIES. CONTRACTOR IS TO CONTACT THE SUNSHINE STATE ONE CALL CENTER 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. CONTRACTOR SHOULD CONTACT NON-PARTICIPATING UTILITIES SEPARATELY FOR THEIR FIELD LOCATING OF FACILITIES. PER FLORIDA STATUTE 553.851, THE CONTRACTOR OR EXCAVATOR IS REQUIRED TO NOTIFY THE GAS COMPANY TWO (2) WORKING DAYS PRIOR TO STARTING EXCAVATION.

AS-BUILTS - REFER TO SECTION 01720 OF THE SPECS

PERMITS AND PERMIT REQUIREMENTS

THE ORANGE COUNTY BUILDING DIVISION PERMIT SHALL BE PAID FOR BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING FOR AND OBTAINING ALL REQUIRED SUB-DISCIPLINE PERMITS FOR THIS PROJECT, WHICH INCLUDE BUT ARE NOT LIMITED TO ELECTRICAL, PLUMBING, AND MECHANICAL PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PICKING UP ALL REQUIRED PERMITS FROM THE ORANGE COUNTY BUILDING DIVISION USING THEIR CONTRACTOR'S LICENSE PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.

QUALITY CONTROL TESTING REQUIREMENTS - REFER TO SECTION 01450 OF THE SPECS

SHOP DRAWINGS - REFER TO SECTION 01340 OF THE SPECS

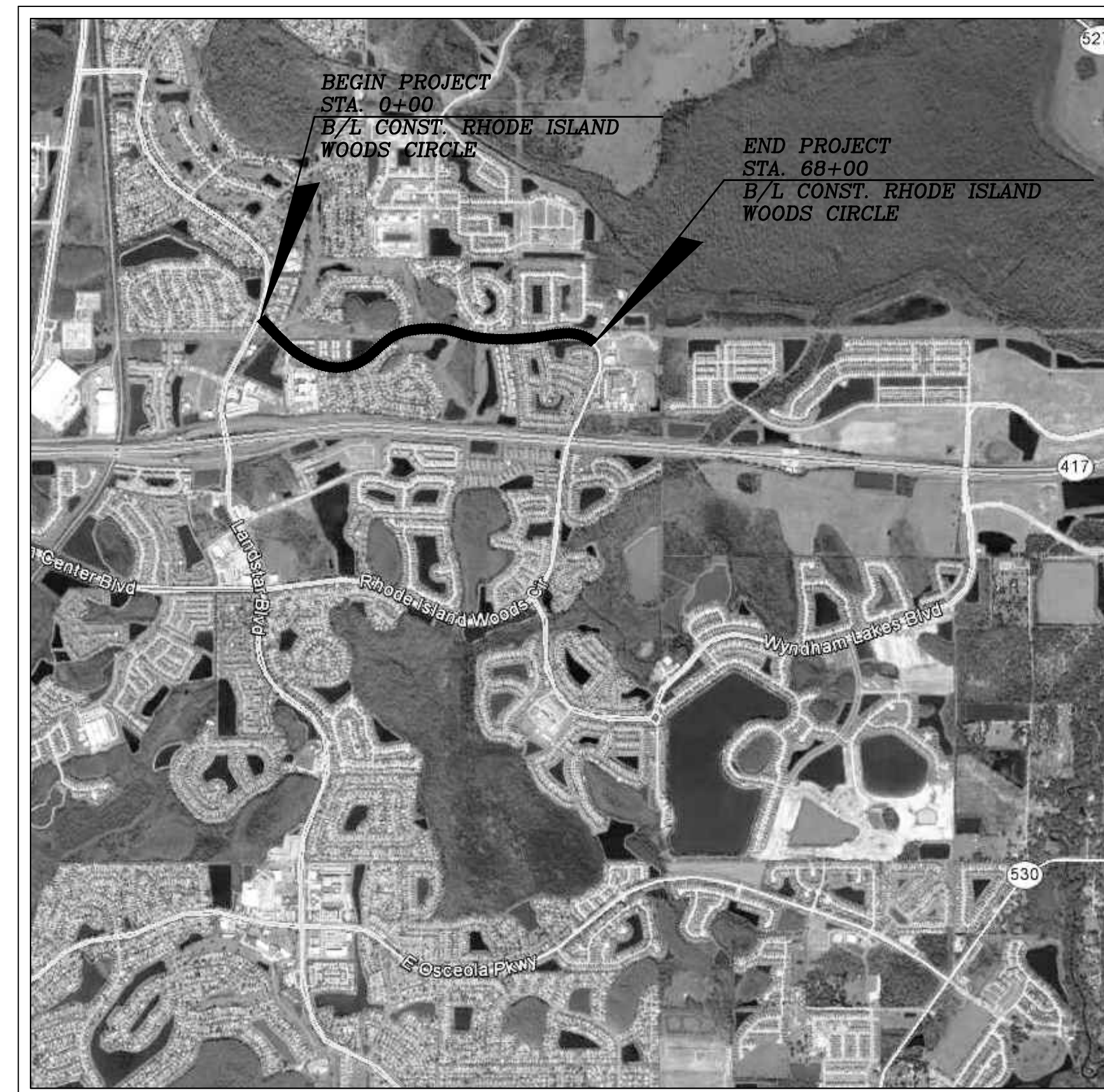
NOTICE OF APPLICABILITY

WHEREVER STATE, COUNTY, CITY OR LOCAL STANDARD SPECIFICATIONS DIFFER FROM THOSE CONTAINED HEREIN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND UTILITY FOR CLARIFICATION. TYPICALLY THE MORE STRINGENT SHALL GOVERN.

PRE-CONSTRUCTION CONFERENCE - REFER TO SECTION 01312 OF THE SPECS

**M.O.T. PLAN PROCESSING PROCEDURE FOR NON-EMERGENCY ROAD CLOSURES:**

- M.O.T. PLANS ARE TO BE SUBMITTED TO THE ORANGE COUNTY ENGINEERING FOR APPROVAL.
- THE DETOUR PLAN WILL BE REVIEWED BY THE SUPERVISOR OF THE PERMITS SECTION, ORANGE COUNTY ENGINEERING DEPARTMENT AND SUBMITTED AS SHOP DRAWINGS AT PRE-CONSTRUCTION.
- THE DETOUR PLAN WILL THEN BE REVIEWED BY THE ORANGE COUNTY TRAFFIC ENGINEER FOR COMPLETENESS.
- A COVER LETTER FOR THE TRAFFIC DETOUR PLAN SHALL BE SUBMITTED AND SHALL INCLUDE:
  - DATES AND ANTICIPATED DURATION OF ROAD CLOSURE.
  - DATE AND TIME THE ROAD CLOSURE WILL BEGIN.
  - LOCATION OF ROAD CLOSURE.
  - REASON FOR ROAD CLOSURE.
  - COMPLETE ALTERNATE AND DETOUR ROUTES.
  - 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 CONTROL AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS."
  - 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.
  - 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.
  - THE PLANS SHALL BE SIGNED AND SEALED BY A REGISTERED ENGINEER IN THE STATE OF FLORIDA WHO IS EXPERIENCED IN TRANSPORTATION ENGINEERING.
- ONCE THE ORANGE COUNTY TRAFFIC ENGINEER APPROVES THE PLAN, THE PLAN WILL BE RECOMMENDED FOR APPROVAL TO THE ORANGE COUNTY COMMISSION BY THE TRAFFIC ENGINEER. COMPLETE BACK-UP INFORMATION COPIES WILL BE TRANSMITTED TO THE PERMITS SECTION.
- THE PERMITS SECTION SHALL BE RESPONSIBLE TO NOTIFY THE APPLICANT OF THE ORANGE COUNTY COMMISSION'S DECISION.
- ONCE THE DETOUR PLAN IS PROCESSED, THE APPLICANT SHALL BE RESPONSIBLE TO NOTIFY THE MEDIA, I.E., RADIO, TELEVISION, AND THE NEWSPAPER(S) AT LEAST 7 DAYS IN ADVANCE OF THE CLOSURE. APPLICANT SHALL PLACE IN THE LOCAL NEWSPAPER, A NOTICE OF CONSIDERABLE SIZE, NOTIFYING THE PUBLIC OF THE LOCATION AND DURATION OF CLOSURE. ALL EMERGENCY RESPONSE AGENCIES, AMBULANCE SERVICES, FIRE DEPARTMENT, POLICE AUTHORITIES (SPECIFICALLY THE FLORIDA HIGHWAY PATROL AND THE ORANGE COUNTY SHERIFF'S DEPARTMENT) AND THE COUNTY SCHOOL BOARD'S TRANSPORTATION DEPARTMENT SHALL BE NOTIFIED BY TELEPHONE, FOLLOWED BY A LETTER.
- QUESTIONS PERTAINING TO THE DETOUR PLAN SHALL BE ADDRESSED TO THE ENGINEERING DEPARTMENT'S PERMITS SECTION.
- THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN INGRESS/ EGRESS TO EXISTING RESIDENCES AT ALL TIMES.
- ALL TEMPORARY PEDESTRIAN SIDEWALKS SHALL BE CONCRETE OR ASPHALT. ASPHALT MILLINGS WILL NOT BE ACCEPTED.



**VICINITY MAP**

**INDEX OF SHEETS**

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
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22	ASSET TABLES

**UTILITY CONTACTS**

UTILITIES	COMPANY	TELEPHONE
WATER	ORANGE COUNTY UTILITIES DEPARTMENT	(407) 254-9680
SANITARY SEWER	ORANGE COUNTY UTILITIES DEPARTMENT	(407) 254-9680
RECLAIMED WATER	ORANGE COUNTY UTILITIES DEPARTMENT	(407) 254-9680
ELECTRIC	PROGRESS ENERGY	(407) 359-4404
TELEPHONE	CENTURY LINK	(407) 830-3279
CABLE - TV	BRIGHT HOUSE CABLE	(407) 532-8509
GAS	TECO (PEOPLE GAS)	(407) 532-8509
OCU CONSTRUCTION DIVISION		(407) 254-9798
OCU ENGINEERING DIVISION		(407) 254-9900
OCU CONSTRUCTION DIVISION'S INSPECTOR		(407) 254-9798

NOTE: THIS LISTING IS PROVIDED AS AN AID. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY AND ARRANGE FOR FIELD LOCATION OF ALL FACILITIES THAT WILL BE ENCOUNTERED DURING CONSTRUCTION.

Drawing Name: J:\2013\OCU\Drawings\SSA-ESA Water Main\SSA-ESA Water Main.dwg, Date: 6/16/2014, 10:23am, gph308

No.	Date	Revision	By	No.	Date	Revision	By

**SSA-ESA WATER MAIN (MEADOW WOODS WSF TO RHODE ISLAND WOODS CIRCLE)**  
Orange County, Florida

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DAVID E. MAHLER, P.E.  
REG.# 50041

**GENERAL NOTES, VICINITY MAP AND INDEX OF SHEETS**

Sheet No. **2**

BID SET

**GENERAL NOTES**

**ALL WORK AND REQUIREMENTS FROM THE NOTES IN THIS PAGE SHALL BE A REQUIREMENT OF THE CONTRACT AND EXECUTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO ORANGE COUNTY.**

- 1. ALL COORDINATION AND COMMUNICATIONS WITH ORANGE COUNTY STAFF SHALL BE MADE THROUGH THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION INSPECTOR. CONTACT THE OCU DISPATCH DURING EMERGENCIES.
- 2. THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY, OR PRIOR TO ANY ACTIVITY REQUIRING THE PRESENCE OF OR AN ACTION BY UTILITIES STAFF SUCH AS SCHEDULING VALVE OPERATION, PRESSURE TESTING, PIPE CONNECTION, PUMP STATION OPERATIONS OR SHUTDOWNS, ETC.  
  
THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST 48 HOURS PRIOR TO ANY UTILITIES CONSTRUCTION BY CALLING (407) 254-9798.
- 3. ORANGE COUNTY FIELD SERVICES TELEPHONE NUMBER : 407-836-6818  
  
SHOULD A PIPE EMERGENCY OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OCU DISPATCH OPERATOR (407-836-2777) AND THE OCU INSPECTOR.
- 4. THE CONTRACTOR SHALL PROVIDE FOR ALL BY-PASSING AND/OR HAULING OF WASTEWATER DURING ALL INTERRUPTIONS OF FLOWS AND/OR CONNECTIONS TO THE EXISTING WASTEWATER SYSTEM. CONTRACTOR TO COORDINATE WITH COUNTY INSPECTOR. 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. 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.
- 5. WATER, WASTEWATER AND RECLAIMED WATER VALVES, PUMP STATIONS OR OTHER UTILITY INFRASTRUCTURE ARE TO BE OPERATED ONLY BY ORANGE COUNTY UTILITIES PERSONNEL. ALL VALVES BEING INSTALLED ARE TO REMAIN CLOSED DURING CONSTRUCTION. FOR OPERATION OF ORANGE COUNTY PUMP STATIONS THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATION AND SHUT DOWN WITH AN ORANGE COUNTY UTILITIES INSPECTOR (407-254-9798).
- 6. ALL EXISTING WATER MAINS, FORCE MAINS, GRAVITY PIPES AND OTHER UTILITY FACILITIES WITHIN THE LIMITS OF THE PROJECT WILL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION. ALL EXISTING WATER MAIN, FORCEMANS, GRAVITY PIPES AND OTHER UTILITY FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION. WATER, WASTEWATER AND REUSE VALVES ARE TO BE OPERATED BY ORANGE COUNTY UTILITIES STAFF COORDINATED BY OCU INSPECTOR (407-254-9798). ALL VALVES BEING INSTALLED ARE TO REMAIN CLOSED DURING CONSTRUCTION.
- 7. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, AND GRAVITY MAINS AND RECLAIMED WATER MAINS. WATER MAIN, FORCE MAIN, GRAVITY MAIN AND RECLAIMED WATER MAIN LOCATIONS SHOWN ON THE PLANS ARE NOT EXACT OR GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
- 8. LOCATIONS OF EXISTING UTILITIES AS SHOWN AS APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTENCE AND LOCATION OF ALL ABOVEGROUND AND UNDERGROUND UTILITIES AND DETERMINE THE STATUS OF SAID UTILITY, PRIOR TO ANY DEMOLITION OR CONNECTION OF PROPOSED UTILITIES. CONTRACTOR SHALL CONTACT UTILITY OWNERS, INCLUDING FIBER OPTICS COMPANIES, AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION AND A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION. EXTREME CAUTION SHALL BE EXERCISED IN AREAS OF FIBER OPTICS.
- 9. IMMEDIATELY AT ONSET OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES CRITICAL TO COMPLETING THE PROJECT (INCLUDING WATER, SEWER, RECLAIMED WATER, POWER, TELEPHONE, GAS AND CABLE TV) AND SHALL EVALUATE POTENTIAL CONFLICTS IN A WRITTEN REPORT. ANY CONFLICTS SHALL BE REPORTED TO ENGINEER/OWNER IMMEDIATELY UPON DISCOVERY AND DETAILED IN THE REPORT.
- 10. CONTRACTOR SHALL COORDINATE WITH ALL OTHER UTILITY OWNERS FOR RESOLUTION OF CONFLICTS. CONTRACTOR SHALL HAVE 48 HOURS TO DETERMINE AND PRESENT TO OCU A REMEDIAL RESOLUTION TO ANY UNKNOWN OR UNFORESEEN CONFLICTS ENCOUNTERED DURING CONSTRUCTION. COSTS INCURRED SHALL BE BORNE BY THE UTILITY OWNER AND/OR CONTRACTOR AND NO CLAIMS MAY BE MADE AGAINST ORANGE COUNTY OR THE ENGINEER FOR THESE CONFLICTS. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THE PERIOD OF TIME TO RESOLVE ANY CONFLICTS.
- 11. USE EXTREME CAUTION WHEN EXCAVATING OR CONNECTING TO ASBESTOS CEMENT PIPE. THE CONTRACTOR MAY BE REQUIRED TO SUPPLY TRUCKS CAPABLE OF PUMPING OUT THE PUMP STATION UPSTREAM FROM BREAKS OR CONNECTING POINT. WHEN CONNECTING TO ASBESTOS CEMENT WATER MAIN OR FORCE MAIN THE CONTRACTOR IS REQUIRED TO REPLACE ANY DAMAGED LENGTHS OF PIPE. THE AMOUNT OF REPLACED PIPE WILL BE DETERMINED BY THE ORANGE COUNTY UTILITIES INSPECTOR.
- 12. ALL ASBESTOS CEMENT PIPE TO BE TAKEN OUT OF SERVICE WILL BE REMOVED UNLESS OTHER WISE NOTED ON PLANS. ASBESTOS CEMENT PIPE WILL BE REMOVED AND DISPOSED OF ACCORDING TO STATE AND FEDERAL ORDINANCES AND REGULATIONS.
- 13. ALL UTILITIES CONSTRUCTION CONNECTING TO THE ORANGE COUNTY UTILITIES SYSTEM SHALL CONFORM TO THE CURRENT ORANGE COUNTY MANUAL OF STANDARDS AND SPECIFICATIONS FOR WASTEWATER AND WATER MAIN CONSTRUCTION UNLESS OTHERWISE NOTED. ALL MATERIALS USED IN CONSTRUCTION SHALL BE ON THE APPROVED 'APPENDIX D' LIST FROM THE CURRENT STANDARDS MANUAL MENTIONED PREVIOUSLY.
- 14. SUPPORT AND PROTECT ALL EXISTING UTILITIES. CONTRACTOR SHALL CONTACT UTILITY OWNERS FOR LOCATION OF ALL EXISTING FACILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH UTILITY OWNERS AND BE RESPONSIBLE FOR PROVIDING TEMPORARY SUPPORT FOR UTILITY POLES AND ALL OTHER UTILITIES DURING CONSTRUCTION.
- 15. THE UTILITY IMPROVEMENTS AND ADJUSTMENTS SHOWN ON THESE DRAWINGS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE ORANGE COUNTY WATER, WASTEWATER AND RECLAIM WATER SYSTEMS. THE DRAWINGS DO NOT INCLUDE WORK PERFORMED ON OR FOR UTILITY SYSTEMS OWNED BY OTHERS, UNLESS STATED OTHERWISE ON THE DRAWINGS.
- 16. FLUSHING, HYDROSTATIC TESTING AND DISINFECTING OF WATER MAINS SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH AWWA SPECIFICATIONS C-600, C-651 AND APPLICABLE SECTIONS OF THE CURRENT ORANGE COUNTY STANDARDS AND SPECIFICATIONS MANUAL. FITTINGS AND MINOR REPLACEMENT SEGMENTS ARE REQUIRED TO MAKE CONNECTIONS TO EXISTING WATER LINES SHALL BE THOROUGHLY DISINFECTED BY SWABBING THE ENTIRE INTERIOR WITH A MINIMUM 5% CHLORINE SOLUTION PRIOR TO INSTALLATION. CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT, MATERIALS AND MANPOWER TO ACCOMPLISH THESE OPERATIONS. AUTHORIZED ORANGE COUNTY UTILITIES DIVISION PERSONNEL SHALL BE PRESENT DURING THE TEST. COORDINATE WITH THE ORANGE COUNTY INSPECTOR AT LEAST SEVEN (7) DAYS PRIOR TO START OF THIS WORK. 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.
- 17. ALL EXISTING OCU VALVE BOXES, LOCATED ON EXISTING WATER MAIN TO REMAIN, SHALL BE REPLACED WITH ADJUSTABLE SEALED VALVE BOX AS SHOWN IN THE STANDARD DETAILS. ALL NEW AND EXISTING VALVES AND VALVE BOXES SHALL BE PROTECTED AND ADJUSTED TO FINISH GRADE AS SHOWN ON THE DRAWINGS. VALVE AND VALVE BOXES SHALL REMAIN ACCESSIBLE AT ALL TIMES.
- 18. THE CONTRACTOR SHALL PROTECT EXISTING WATER METERS AND SERVICE CONNECTIONS DURING CONSTRUCTION AND SHALL COORDINATE THE RELOCATION OF WATER SERVICE METERS WITH THE MAINTENANCE PERSONNEL OF THE ORANGE COUNTY WATER DEPARTMENT. THE CONTRACTOR WILL RELOCATE WATER METERS AS NECESSARY AND AS DIRECTED BY ORANGE COUNTY PERSONNEL.
- 19. ALL PVC WATER MAIN, SEWER AND RECLAIMED WATER MAIN PIPE SHALL CONFORM TO AWWA C900, DR 18 OR C905, DR 25. ALL DUCTILE IRON WATER MAIN AND RECLAIM WATER MAIN SHALL CONFORM TO ANSI/AWWA A21.51/C151. ALL PVC PRESSURE PIPES SHALL USE DUCTILE IRON FITTINGS. FITTINGS FOR ALL SERVICES SHALL BE BRASS.
- 20. ALL PIPE, PIPE FITTINGS AND APPURTENANCES INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320 (21) (b) 3, FAS, USING BLUE AS PREDOMINANT COLOR FOR WATER; GREEN FOR WASTEWATER; AND PURPLE FOR RECLAIMED WATER.
- 21. ALL BACKFILL SHOWN ON PLANS TO BE COMPACTED TO NOT LESS THAN 98% OF MAXIMUM DRY DENSITY AS MEASURED BY AASHTO T-180 METHOD 'D' TEST (MODIFIED PROCTOR) UNDER ASPHALT OR CONCRETE PAVEMENT AND WITHIN 3 FT OF PAVEMENT. ALL SOIL TESTING TO BE CONDUCTED BY THE COUNTY. THE CONTRACTOR SHALL PROVIDE ALL REASONABLE ASSISTANCE DURING THE SOIL TESTING.
- 22. PIPE LENGTHS SHOWN ON PLANS ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION.
- 23. ALL STATIONS AND OFFSETS REFER TO BASELINE OF STATIONING.
- 24. MAINTAIN EMERGENCY VEHICLE ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.
- 25. ALL MAINS SHALL BE CONSTRUCTED AS SHOWN ON PLANS. A MINIMUM COVER OF 36 INCHES SHALL BE MAINTAINED ON ALL MAINS, WHERE IT IS NOT OTHERWISE SPECIFIED ON PLANS OR DIRECTED BY ENGINEER. FOR DUCTILE IRON PIPE, ALL DIRECTION CHANGES IN THE PIPE BOTH HORIZONTAL AND VERTICAL SHALL BE BY INSTALLATION OF FITTINGS UNLESS OTHERWISE NOTED OR DIRECTED BY ENGINEER. JOINT DEFLECTION, IF ALLOWED BY OCU, SHALL NOT EXCEED 75% OF THE MANUFACTURER'S RECOMMENDED DEFLECTION. NO DEFLECTION OR BENDING OF ANY KIND SHALL BE PERMITTED FOR PVC PIPE.
- 26. ALL PIPES SHALL BE RESTRAINED IN ACCORDANCE WITH THE RESTRAINT TABLES SHOWN ON DETAIL SHEETS. IN ADDITION, ALL FITTINGS SHALL BE MECHANICAL JOINT RESTRAINED. NO THRUST BLOCKS SHALL BE PERMITTED. RESTRAIN EXISTING PIPE WHERE REQUIRED IN ACCORDANCE WITH THE RESTRAINT TABLE.

- 27. PIPE SIZES SHOWN ON PLANS ARE MINIMUM INSIDE DIAMETER.
  - 28. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT ANY PROPOSED WATER MAIN TO ANY EXISTING WATER MAIN UNLESS CLEARED BY FDEP. CONTRACTOR SHALL NOT OPERATE ANY VALVES IN THE SYSTEM.
  - 29. ALL CONNECTIONS TO EXISTING MAINS SHALL BE MADE BY THE CONTRACTOR ONLY AFTER THE PROPOSED CONNECTION PROCEDURE AND WORK SCHEDULE HAVE BEEN REVIEWED AND ACCEPTED BY THE OWNER. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE OWNER A MINIMUM OF SEVEN (7) WORKING DAYS PRIOR TO SCHEDULING ANY CONNECTIONS. THE REQUEST SHALL REFER TO THE PROFESSIONAL LAND SURVEYOR CERTIFIED COMPLETED AS-BUILT RECORD DRAWINGS PREVIOUSLY SUBMITTED AND SHALL OUTLINE THE FOLLOWING:  
    - A. POINTS OF CONNECTION, FITTINGS TO BE USED, METHODS OF FLUSHING AND DISINFECTION AND VERIFICATION OF RESTRAINT ON EXISTING PIPE.
    - B. ESTIMATED CONSTRUCTION TIME FOR THE CONNECTIONS.

THE OWNER SHALL REVIEW THE SUBMITTAL WITHIN FIVE (5) WORKING DAYS AFTER RECEIVING IT AND INFORM THE CONTRACTOR REGARDING APPROVAL OR DENIAL OF THE REQUEST. IF THE OWNER REJECTS THE REQUEST, THE CONTRACTOR SHALL RESUBMIT THE REQUEST MODIFYING IT IN A MANNER ACCEPTABLE TO THE OWNER. ALL CONNECTIONS SHALL ONLY BE MADE ON THE AGREED UPON DATE AND TIME. SHOULD THE CONTRACTOR NOT INITIATE AND COMPLETE THE CONNECTION WORK IN THE AGREED UPON MANNER, HE SHALL BE REQUIRED TO RESCHEDULE THE CONNECTION BY FOLLOWING THE PROCEDURE OUTLINED ABOVE. THE CONTRACTOR SHALL NOT OPERATE ANY VALVES IN THE SYSTEM. MAINS SHALL NOT BE PLACED IN SERVICE UNTIL CLEARANCE IS RECEIVED FROM FDEP; AS-BUILT DRAWINGS MUST BE COMPLETED AND SUBMITTED PRIOR TO WATER MAIN CHLORINATION.
  - 30. NO VALVE BOXES, METERS, PORTIONS OF MANHOLES OR OTHER APPURTENANCES OF ANY KIND SHALL BE LOCATED IN ANY PORTION OF A CURB-AND-GUTTER SECTION. CONTRACTOR SHALL ADVISE ENGINEER IMMEDIATELY UPON DISCOVERY OF A POTENTIAL CONFLICT.
  - 31. CONTRACTOR SHALL PROVIDE DETAILED AS-BUILT DRAWINGS OF ALL UTILITIES UNCOVERED IN TRENCHES. THE AS-BUILT SHALL RECORD LOCATION, SIZE, TYPE, ELEVATION AND OWNER OF ALL UTILITY FACILITIES UNCOVERED.
  - 32. ALL EXISTING WATER MAINS SHALL REMAIN IN SERVICE UNTIL THE PROPOSED MAINS ARE ACCEPTED FOR SERVICE AND ALL SERVICES ARE TRANSFERRED TO THE NEW WATER MAIN.
  - 33. ALL PROPOSED DUCTILE IRON PIPES SHALL BE WRAPPED WITH 8 MIL POLYETHYLENE.
  - 34. REPLACE ALL EXISTING VALVE BOXES WITH NEW BOXES.
  - 35. WHEN USING SCALED DATA CONSIDER THAT THESE PLANS MAY HAVE ALTERED IN SIZE DURING REPRODUCTION.
  - 36. LOCATIONS AND DIMENSIONS OF EXISTING RIGHT-OF-WAYS AND EASEMENTS ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY AND STAKE THE LIMITS OF THE RIGHT-OF-WAYS AND EASEMENTS IN ORDER TO AVOID ENCROACHMENTS BEFORE AND CONSTRUCTION.
  - 37. WHEN OBTAINING DATA AND INFORMATION FROM THE PLANS, FIGURES SHALL BE USED IN REFERENCE TO SCALED DIMENSIONS.
  - 38. LOCAL RESIDENTIAL ACCESS SHALL BE MAINTAINED AT ALL TIMES. PROVIDE WRITTEN NOTIFICATION TO RESIDENTS SEVEN (7) DAYS PRIOR TO IMPLEMENTING ANY ROADWAY OR DRIVEWAY CLOSURE.
  - 39. ALL PIPE SHALL BE RESTRAINED IN ACCORDANCE WITH THE RESTRAINT TABLES SHOWN ON THE DETAIL SHEETS. IN ADDITION, ALL FITTINGS SHALL BE MECHANICAL JOINT RESTRAINED. NO THRUST BLOCKS SHALL BE PERMITTED. RESTRAIN EXISTING PIPE WHERE REQUIRED IN ACCORDANCE WITH THE RESTRAINT TABLES.
  - 40. COMPLETE ALL CONSTRUCTION WITHIN RIGHT OF WAY LIMITS AND EASEMENT LIMITS, UNLESS OTHERWISE NOTED.
  - 41. RESTORE ALL EXISTING IMPROVEMENTS AND DISTURBED AREAS TO ORIGINAL OR BETTER CONDITION. PAVEMENT TO BE RESTORED IN ACCORDANCE WITH THE PAVEMENT RESTORATION DETAILS SHOWN ON THE CONSTRUCTION DETAIL SHEETS.
  - 42. IF RELOCATION OF AN EXISTING GAS MAIN IS REQUIRED, IT SHALL BE RELOCATED BY OTHERS.
  - 43. PROTECT EXISTING IMPROVEMENTS TO THE MAXIMUM EXTENT POSSIBLE. ALL DAMAGED SIDEWALK, ROADWAY PAVEMENT AND OTHER IMPROVEMENTS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION, AT THE CONTRACTOR EXPENSES.
  - 44. ASPHALTIC CONCRETE DRIVES SHALL BE COMPLETED TO THE ORIGINAL EDGE OF PAVEMENT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE EXISTING PAVEMENT OUTSIDE OF NEW PAVING LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL DAMAGE TO THE EXISTING ROADWAY OUTSIDE THE NEW PAVING LIMITS.
  - 45. ALL COUNTY ROADS TO BE OPEN CUT SHALL BE APPROVED BY ORANGE COUNTY PUBLIC WORKS PRIOR TO OPEN-CUTS. SUBMIT A MAINTENANCE OF TRAFFIC (MOT) PLAN CONFORMING TO ORANGE COUNTY RIGHT-OF-WAY UTILIZATION REGULATIONS TO ORANGE COUNTY PUBLIC WORKS A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO ANY WORK WITHIN COUNTY RIGHT-OF-WAY. A COPY OF THIS PLAN SHALL ALSO BE SUBMITTED TO THE ENGINEER AND UTILITY COUNTY INSPECTOR. NOTIFY THE COUNTY ENGINEER 24 HOURS PRIOR TO ANY OPEN CUT OF ROADWAYS WITHIN THE COUNTY RIGHT-OF-WAY. TWO WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION. MAINTAIN A SET OF COUNTY APPROVED CONSTRUCTION PLANS AND MOT PLANS AT THE CONSTRUCTION SITE AT ALL TIMES WHEN WORKING WITHIN THE COUNTY RIGHT-OF-WAY.
  - 46. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SATISFYING ALL REQUIREMENTS OF REGULATORY AGENCY PERMITS FOR CONSTRUCTION ACTIVITIES AND RELATED ACTIVITIES.
  - 47. BENCHMARK LOCATIONS AND ELEVATIONS ARE SHOWN IN THE PLANS AS REPRESENTED BY THE SURVEYOR AT THE TIME OF SURVEY. CONTRACTOR SHALL VERIFY ITS CORRECTNESS AT THE TIME OF CONSTRUCTION AND INSTALL HIS OWN TEMPORARY BENCHMARKS AS NECESSARY. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OCU INSPECTOR.
  - 48. WHERE REQUIRED, AT NO ADDITIONAL COST TO THE COUNTY, THE CONTRACTOR SHALL USE TEMPORARY SHEETING OR TRENCH BOXES TO MINIMIZE THE SIZE OF EXCAVATIONS AND PROTECT EXISTING ROADWAYS, UTILITIES AND OTHER FACILITIES. CONTRACTOR TO COMPLY WITH OSHA TRENCH SAFETY REQUIREMENTS AT ALL TIMES.
  - 49. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCEMAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND COUNTY UTILITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER, NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY-OR VACUUM-TYPE SANITARY SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE 3 OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCEMAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TOLAY THE WATER MAIN ABOVE THE OTHER PIPELINE.  
  
AT THE UTILITY CROSSINGS DESCRIBED ABOVE, ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY-OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCEMANS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
  - 50. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ON-SITE DURING THE LIFE OF THE PROJECT, A WEATHERPROOF ENCLOSURE CONTAINING A READILY ACCESSIBLE LIST OF EMERGENCY CONTACTS AND PHONE NUMBERS.
  - 51. THE CONTRACTOR SHALL PROVIDE TANKERS AND SIGNED DOCUMENT ACKNOWLEDGING THE UNDERSTANDING OF THE ORANGE COUNTY UTILITY "EMERGENCY WATER SPILL AND WATER MAIN BREAK PROCEDURES " IN THE PRE CONSTRUCTION PACKET FOR THE MEETING.
  - 52. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ON-SITE DURING THE LIFE OF THE PROJECT, A WEATHERPROOF ENCLOSURE CONTAINING A READILY ACCESSIBLE LIST OF EMERGENCY CONTACTS AND PHONE NUMBERS.
  - 53. THE CONTRACTOR SHALL CALL SUNSHINE STATE ONE CALL NO LESS THAN FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION - PHONE - 800-432-4777.
  - 54. THE DISPOSAL OF ANY EXCESS EARTHWORK MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - 55. SALVAGE AND/OR DISPOSAL OF ALL EXISTING EQUIPMENT SHALL BE AT THE DIRECTION OF THE ORANGE COUNTY RESIDENT PROJECT REPRESENTATIVE.
  - 56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF ALL STRUCTURES, PIPE, CONDUIT, WIRE, FITTINGS, PANELS, ETC. THAT ARE DEMOLISHED, DISASSEMBLED, OR REMOVED, PER SECTION 02080 OF THE SPECIFICATION MANUAL OF THIS PROJECT.
  - 57. BY-PASS PUMPING SHALL BE LOW NOISE SUITABLE FOR RESIDENTIAL NEIGHBORHOODS (SEE SECTION 01001.1.05D OF THE TECHNICAL SPECIFICATIONS).
  - 58. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DE-WATERING REQUIRED DURING CONSTRUCTION AND TO OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR THE TEMPORARY DEWATERING OF DRAINAGE STRUCTURES.
  - 59. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY PLUGS, BLOCKING, TAPS, AND TESTING EQUIPMENT REQUIRED TO COMPLETE PRESSURE TESTING, AS SPECIFIED.
  - 60. THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL BY THE COUNTY, A COMPREHENSIVE WRITTEN PROCEDURE THAT DESCRIBES THE INTENDED CONSTRUCTION SEQUENCE FOR MAINTAINING AND TRANSFERRING SERVICE FROM THE EXISTING WATER MAIN TO THE NEW WATER. THIS PROCEDURES SHALL BE SUBMITTED WITH THE PROJECT SCHEDULE.
  - 61. ANY WORK PROPOSED FOR THE POTABLE WATER SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND DETAILS OF THE APPROPRIATE UTILITY PROVIDER.
- REPAIR IMMEDIATELY**  
ALL DAMAGE TO ORANGE COUNTY MAINS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. IF THE REPAIR IS NOT DONE IN A TIMELY MANNER, AS DETERMINED BY THE ORANGE COUNTY UTILITY INSPECTOR, ORANGE COUNTY MAY PERFORM REPAIRS AND THE CONTRACTOR WILL BE CHARGED FOR SAID REPAIRS.
- 63. THE PROJECT IS A PHASED PROJECT. THEREFORE, THE CONTRACTOR SHALL CONSIDER TIME IN HIS CONSTRUCTION SCHEDULE FOR THE PROCESSING OF F.D.E.P. CLEARANCE FOR EACH SECTION OF PIPELINE COMPLETED BEFORE PROCEEDING WORK ON THE SUCCEEDING SECTION.
  - 64. CONTRACTOR SHALL NOT USE THE O.U.C. EASEMENT AS STAGING ARE FOR CONSTRUCTION.

**ORANGE COUNTY UTILITIES CONTRACTOR PROCEDURE TO CONNECT NEW WATER MAIN TO EXISTING WATER MAIN**

- ALL WORK TO BE COMPLETED BY CONTRACTOR UNLESS OTHERWISE NOTED.**
- 1. THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION (407-254-9798) SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY, OR PRIOR TO ANY ACTIVITY REQUIRING THE PRESENCE OF OR AN ACTION BY UTILITIES STAFF SUCH AS VALVE OPERATION, PRESSURE TESTING, PIPE CONNECTION, PUMP STATION OPERATION OR SHUTDOWN, ETC.
  - 2. INSTALL NEW WATER MAIN.
  - 3. MAKE TEMPORARY CONNECTIONS TO AN EXISTING POTABLE WATER SOURCE; FLUSH OUT NEW WATER MAIN WITH POTABLE WATER (USE "JUMPER" ASSEMBLY WITH BACKFLOW PREVENTER).
  - 4. FILL NEW WATER MAIN WITH POTABLE WATER AND PRESSURE TEST AT 150 PSI FOR 2 HOURS.
  - 5. AS-BUILTS MUST BE COMPLETED AND SUBMITTED TO OCU INSPECTOR PRIOR TO WATER MAIN CHLORINATION.
  - 6. CHLORINATE WATER MAIN (50 MGL). LET STAND FOR 24 HOURS; VERIFY THAT CHLORINE RESIDUAL IS STILL 25 MGL.
  - 7. FLUSH HIGHLY CHLORINATED WATER OUT OF NEW WATER MAIN AND FILL WITH POTABLE WATER AGAIN. CONTRACTOR TO MAINTAIN ADEQUATE CONTROLS AND DIVERSION DEVICES, CHECK DAMS, HOLDING PONDS, DITCH BLOCKS, ETC. TO AVOID DIRECTLY DISCHARGING CHLORINATED WATER TO ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATER BODIES.
  - 8. TAKE SAMPLES FOR BACTERIOLOGICAL TEST (TAKE SAMPLES ON TWO CONSECUTIVE DAYS).
  - 9. AFTER ANALYSIS AND ACCEPTABLE RESULTS, SUBMIT TO ORANGE COUNTY UTILITIES INSPECTOR WATER MAIN AND "CLEARANCE" PACKAGE INCLUDING BACTERIOLOGICAL TEST RESULTS AS REQUIRED BY FDEP PERMIT.
  - 10. WAIT FOR PERMISSION FROM FDEP TO RELEASE NEW WATER MAIN FOR USE.
  - 11. ONCE THE RELEASE IS RECEIVED, ORANGE COUNTY WATER DEPARTMENT NOTIFIES IN WRITING (FLYERS ON DOOR) ALL PEOPLE SERVICED BY THE EXISTING WATER MAIN THAT SERVICE WILL BE INTERRUPTED (24 HOURS PRIOR TO INTERRUPTION) FOR CONNECTION TO THE NEW WATER MAIN. CHLORINE RESIDUAL IS ONCE AGAIN VERIFIED.
  - 12. ALL CONNECTIONS AND TAPS ON EXISTING MAINS SHALL MAINTAIN PRESSURE ON EXISTING MAIN (WET TAP). IF PRESSURE CANNOT BE MAINTAINED AND WITH PRIOR APPROVAL OF ORANGE COUNTY UTILITIES INSPECTOR, THE PROCEDURE OUTLINED BELOW IN THE NOTES 13-21 SHALL BE FOLLOWED. OTHERWISE SKIP THEM AND CONTINUE AT 22.
  - 13. AFTER DEPARTMENT CLOSES UPSTREAM AND DOWNSTREAM VALVES INCLUDING LINE STOPS VALVES TO ISOLATE PORTION OF EXISTING WATER MAIN AFFECTED.
  - 14. THE EXISTING PIPE WILL BE FULLY EXCAVATED AND THE EXCAVATION DEWATERED SO THAT NO SOIL OR WATER IS WITHIN TWELVE INCHES OF THE BOTTOM OF THE WATER MAIN AT THE TIE-IN SITE PRIOR TO INITIATING THE WORK.
  - 15. THE PIPE SHALL BE BRUSHED CLEAN AND THE PIPE AND EXCAVATION TREATED WITH HYDROCHLORIDE TO ASSIST WITH CONTAMINATION PREVENTION. (AWWA C651 STDS.)
  - 16. A SECTION IS CUT FROM THE EXISTING WATER MAIN. WATER DRAINING FROM THE EXISTING MAIN IS DIVERTED AND PUMPED SO THAT NO BACKFLOW OCCURS.
  - 17. IF A FITTING OR PIPE SECTION IS TO BE INSTALLED (THIS WILL TYPICALLY NEED A SLEEVE, PIPE SPOOL OR A FILLER PIECE) PIPE AND FITTINGS ARE TO BE MECHANICALLY RESTRAINED. PRIOR TO INSTALLATION ALL FITTINGS ARE SWABBED WITH CHLORINATED WATER. THE WATER LEVEL IN THE TRENCH SHALL BE BELOW THE TRENCH BOTTOM. NO EXTERNAL WATER IS ALLOWED TO ENTER THE PIPE.
  - 18. FITTING (S) OR TEE (USUALLY WITH VALVE) IS CONNECTED TO THE NEW WATER MAIN BY MEANS OF FITTINGS NECESSARY.
  - 19. VALVES ON EXISTING WATER MAIN ARE OPENED BY THE WATER DEPARTMENT AND WATER FLOWS FROM EXISTING WATER MAIN TO NEW WATER MAIN. A VISUAL INSPECTION OF THE CONNECTION IS MADE PRIOR TO BACKFILLING THE EXCAVATION TO INSURE THERE ARE NO LEAKS.
  - 20. THE CONNECTION PROCESS IS REPEATED ON BOTH ENDS OF THE NEW WATER MAIN.
  - 21. IF THE EXISTING WATER MAIN IS TO REMAIN IN SERVICE, IT IS TO BE FLUSHED WITH POTABLE WATER UNTIL NORMAL SYSTEM CHLORINE RESIDUAL IS OBTAINED. THE EXISTING WATER MAIN WILL NOT BE CHLORINATED IF IT IS TO BE ABANDONED OR REMOVED.
  - 22. COUNTY TAKES WATER SAMPLES FOR TWO CONSECUTIVE DAYS AND HAS THEM ANALYZED FOR CHLOROFORM COUNT TO INSURE WATER MEETS STANDARDS.
  - 23. IF CUSTOMERS ARE SERVED FROM EXISTING POTABLE MAINS THAT ARE DEPRESSURIZED DURING INSTALLATION OF NEW MAINS OR IF ANY OF THE BACTERIOLOGICAL SAMPLES ARE POSITIVE, THE AREA WILL BE ISOLATED, SLUG CHLORINATION APPLIED AND THE BOIL WATER NOTICES DISTRIBUTED TO THE CUSTOMERS IN THE AFFECTED AREA. THE MAIN WILL BE BLOWN OFF AGAIN AND SAMPLES RETAKEN. THIS PROCESS WILL BE REPEATED UNTIL PASSING SAMPLES ARE OBTAINED.
- SITE SPECIFIC NOTES:**
- 1. TEST HOLES DATA AS PER ASCE-38-02, LEVEL A. ALL OTHER UTILITY INFORMATION IS LEVEL CD.
  - 2. TOPOGRAPHIC SURVEY COMPLETED ON May 31, 2013.

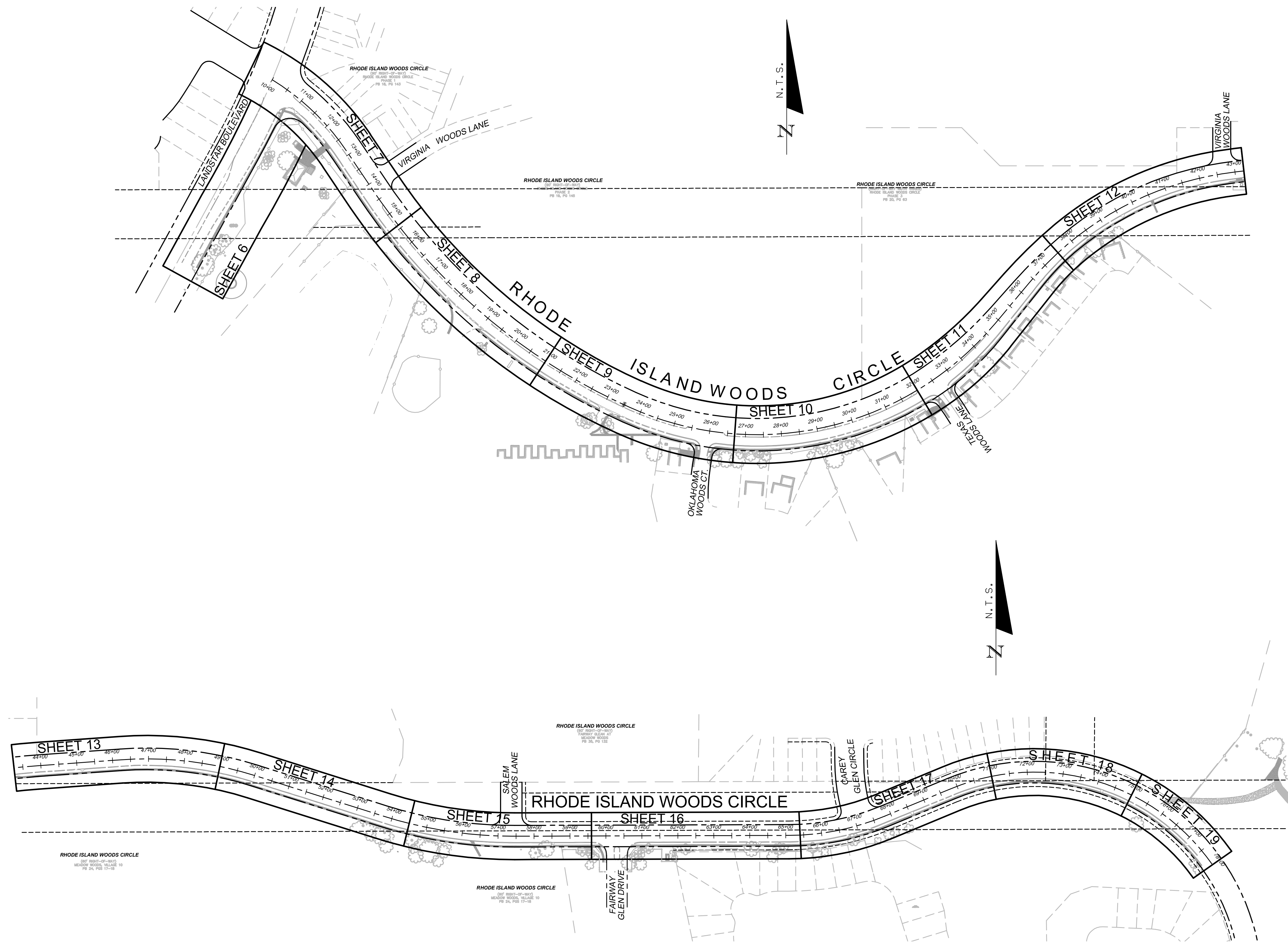
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Plans Prepared By: <b>CPH, Inc.</b> 1117 E. Robinson St., Orlando, FL 32801 Ph: 407-425-0452 Licenses: Eng. C.O.A. No. 3215 Arch. Lic. No. AA2600926 Survey L.B. No. 7143 Landscp. Lic. No. LC0000298			<b>GENERAL NOTES</b> DAVID E. MAHLER, P.E. REG # 50041			Sheet No. <b>3</b>		
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• Connecticut	Approved by:	DEM		
• Maryland	Job No.:	O28416		
• Texas				©2014

**SSA-ESA WATER MAIN  
 (MEADOW WOODS WSF TO  
 RHODE ISLAND WOODS CIRCLE)**  
 Orange County, Florida

Plans Prepared By:  
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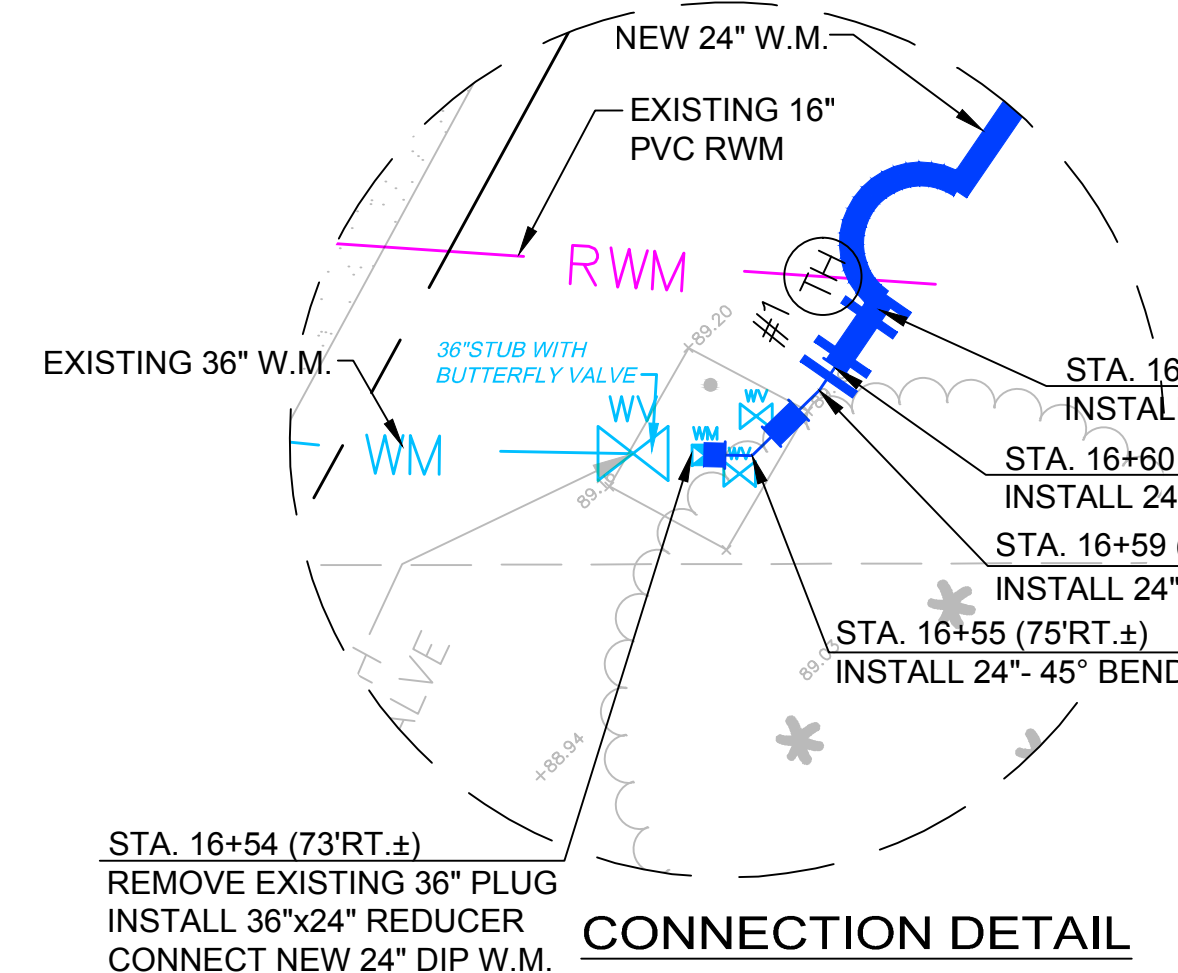
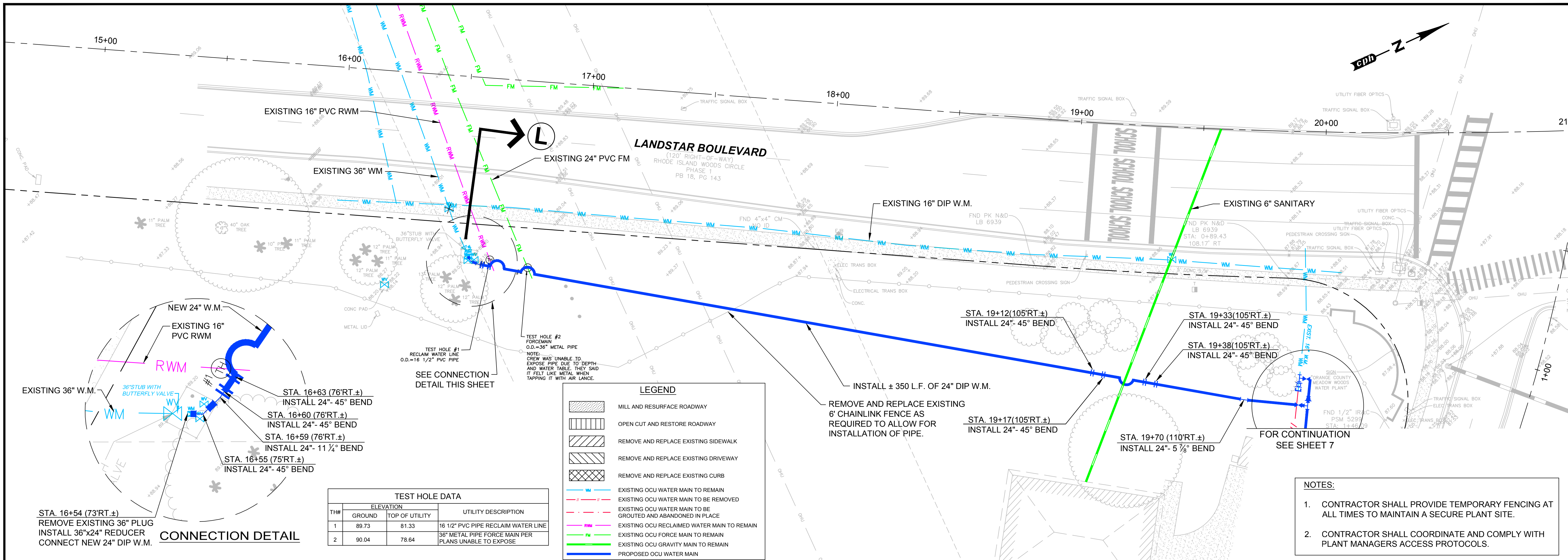
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 REG.# 50041

PROJECT LAYOUT

Sheet No.  
**4**

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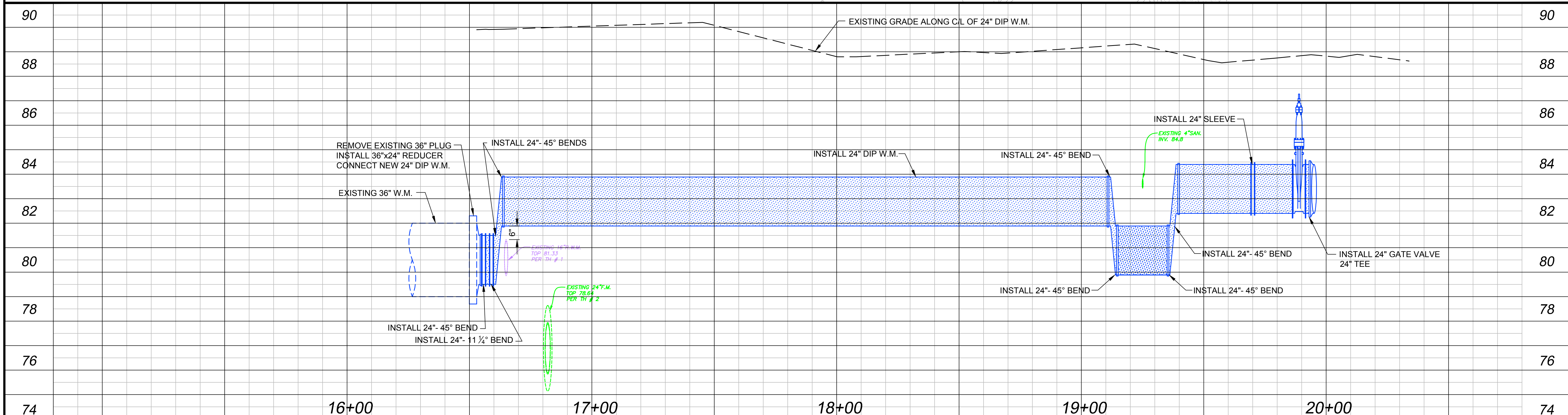




TEST HOLE DATA			
TH#	ELEVATION		UTILITY DESCRIPTION
	GROUND	TOP OF UTILITY	
1	89.73	81.33	16 1/2\"/>
2	90.04	78.64	36\"/>

LEGEND	
	MILL AND RESURFACE ROADWAY
	OPEN CUT AND RESTORE ROADWAY
	REMOVE AND REPLACE EXISTING SIDEWALK
	REMOVE AND REPLACE EXISTING DRIVEWAY
	REMOVE AND REPLACE EXISTING CURB
	EXISTING OCU WATER MAIN TO REMAIN
	EXISTING OCU WATER MAIN TO BE REMOVED
	EXISTING OCU WATER MAIN TO BE GROUDED AND ABANDONED IN PLACE
	EXISTING OCU RECLAIMED WATER MAIN TO REMAIN
	EXISTING OCU FORCE MAIN TO REMAIN
	EXISTING OCU GRAVITY MAIN TO REMAIN
	PROPOSED OCU WATER MAIN

- NOTES:**
- CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AT ALL TIMES TO MAINTAIN A SECURE PLANT SITE.
  - CONTRACTOR SHALL COORDINATE AND COMPLY WITH PLANT MANAGERS ACCESS PROTOCOLS.



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No.	Date	Revision	By																																														
No.	Date	Revision	By																																														

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- NOTES:**
- CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AT ALL TIMES TO MAINTAIN A SECURE PLANT SITE.
  - CONTRACTOR SHALL COORDINATE AND COMPLY WITH PLANT MANAGERS ACCESS PROTOCOLS.

TH#	ELEVATION		UTILITY DESCRIPTION
	GROUND	TOP OF UTILITY	
4	87.23	78.78	36" METAL PIPE FORCE MAIN
		84.53	2" PVC PIPE COMM LINE
5	87.13	81.18	16 1/2" PVC RECLAIM WATER LINE
		84.73	2" PVC PIPE COMM LINE

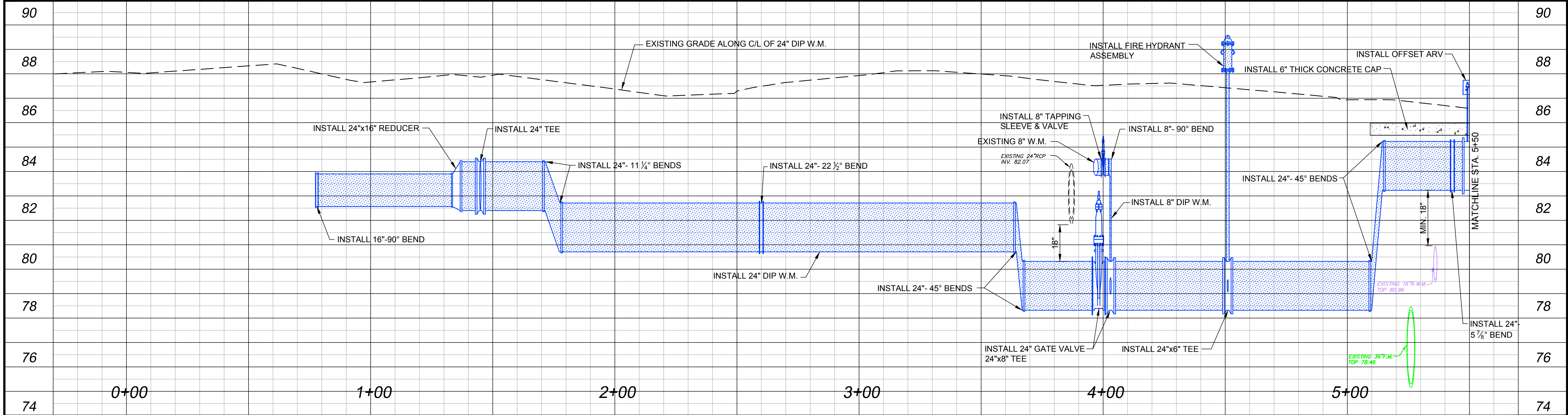
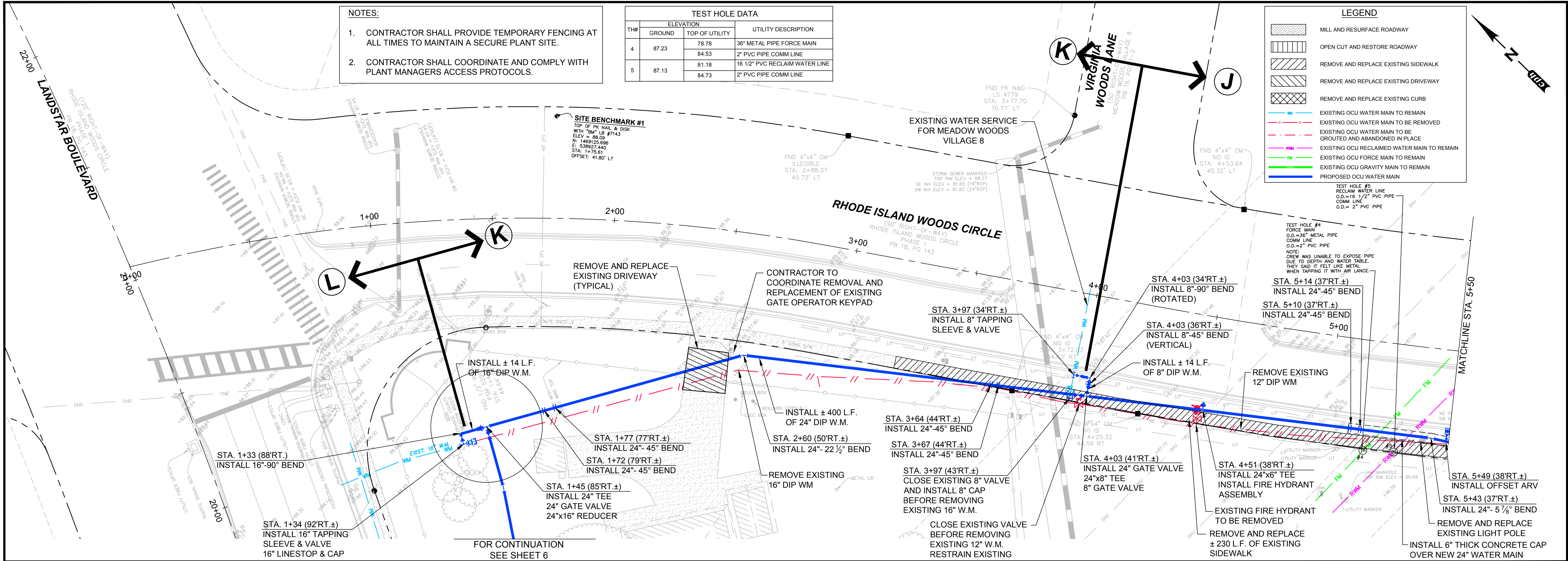
**LEGEND**

- MILL AND RESURFACE ROADWAY
- OPEN CUT AND RESTORE ROADWAY
- REMOVE AND REPLACE EXISTING SIDEWALK
- REMOVE AND REPLACE EXISTING DRIVEWAY
- REMOVE AND REPLACE EXISTING CURB
- EXISTING OCU WATER MAIN TO REMAIN
- EXISTING OCU WATER MAIN TO BE REMOVED
- EXISTING OCU WATER MAIN TO BE GROUNDED AND ABANDONED IN PLACE
- EXISTING OCU RECLAIMED WATER MAIN TO REMAIN
- EXISTING OCU FORCE MAIN TO REMAIN
- EXISTING OCU GRAVITY MAIN TO REMAIN
- PROPOSED OCU WATER MAIN

TEST HOLE #5  
RECLAIM WATER LINE  
O.D.=16 1/2" PVC PIPE  
COMM LINE  
O.D.=2" PVC PIPE

TEST HOLE #4  
FORCE MAIN  
O.D.=36" METAL PIPE  
COMM LINE  
O.D.=2" PVC PIPE

NOTE:  
CREW WAS UNABLE TO EXPOSE PIPE DUE TO DEPTH AND WATER TABLE. THEY SAID IT FELT LIKE METAL WHEN TAPPING IT WITH AIR LANCE.



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• Connecticut  
• Maryland  
• Texas

Designed by: BCB Date: 9/16/2014  
Drawn by: GNP Scale: 1"=20' H.  
Checked by: WWW 1"=2' V.  
Approved by: DEM  
Job No. O28416 ©2014

**SSA-ESA WATER MAIN**  
(MEADOW WOODS WSF TO  
RHODE ISLAND WOODS CIRCLE)  
Orange County, Florida

Plans Prepared By:  
**CPH, Inc.**  
1117 E. Robinson St. Orlando, FL 32801  
Ph: 407.425.0492  
Licenses:  
Eng. C.O.A. No. 3215 Arch. Lic. No. AA2600926  
Survey L.B. No. 7143 Landscp. Lic. No. LC0000298

DAVID E. MAHLER, P.E.  
REG.# 50041

**PLAN AND PROFILE**  
RHODE ISLAND WOOD CIRCLE  
STA. 0+00 TO STA. 5+50

Sheet No.  
**7**

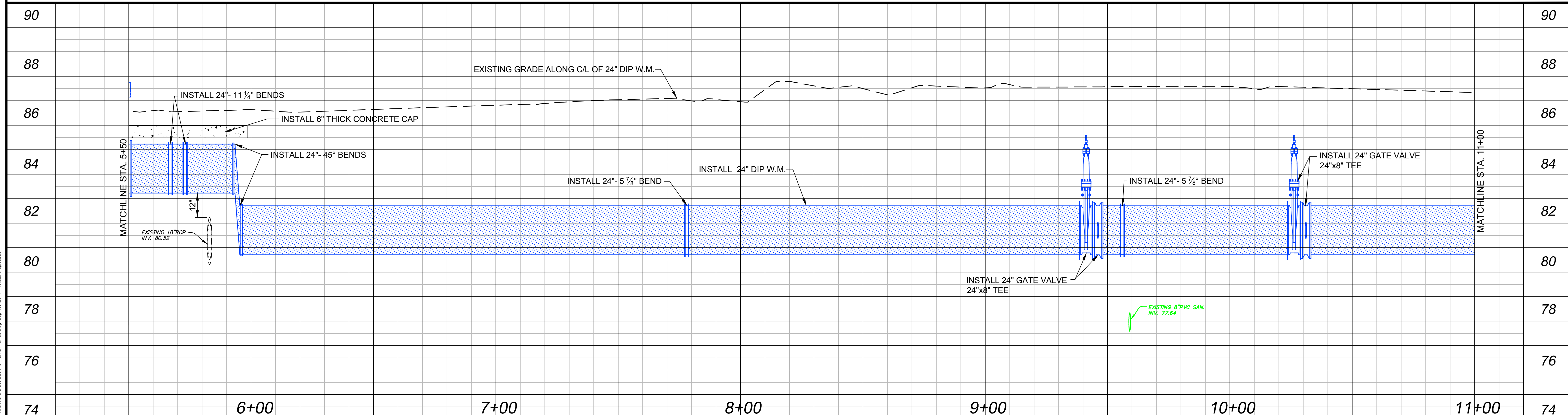
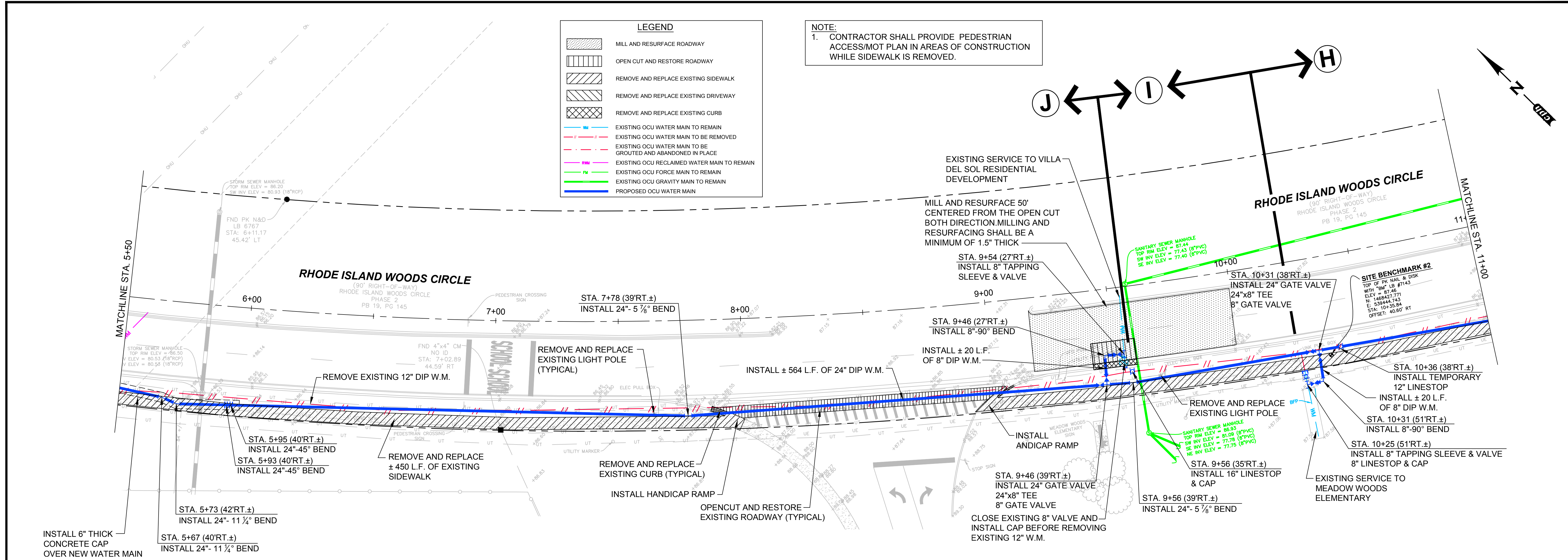
Drawing name: J:\028416\RhodeIsland\RhodeIsland\RhodeIsland.dwg, Sep 16, 2014 - 10:01am, gphobus

BID SET

**LEGEND**

	MILL AND RESURFACE ROADWAY
	OPEN CUT AND RESTORE ROADWAY
	REMOVE AND REPLACE EXISTING SIDEWALK
	REMOVE AND REPLACE EXISTING DRIVEWAY
	REMOVE AND REPLACE EXISTING CURB
	EXISTING OCU WATER MAIN TO REMAIN
	EXISTING OCU WATER MAIN TO BE REMOVED
	EXISTING OCU WATER MAIN TO BE GROUDED AND ABANDONED IN PLACE
	EXISTING OCU RECLAIMED WATER MAIN TO REMAIN
	EXISTING OCU FORCE MAIN TO REMAIN
	EXISTING OCU GRAVITY MAIN TO REMAIN
	PROPOSED OCU WATER MAIN

**NOTE:**  
 1. CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS/MOT PLAN IN AREAS OF CONSTRUCTION WHILE SIDEWALK IS REMOVED.



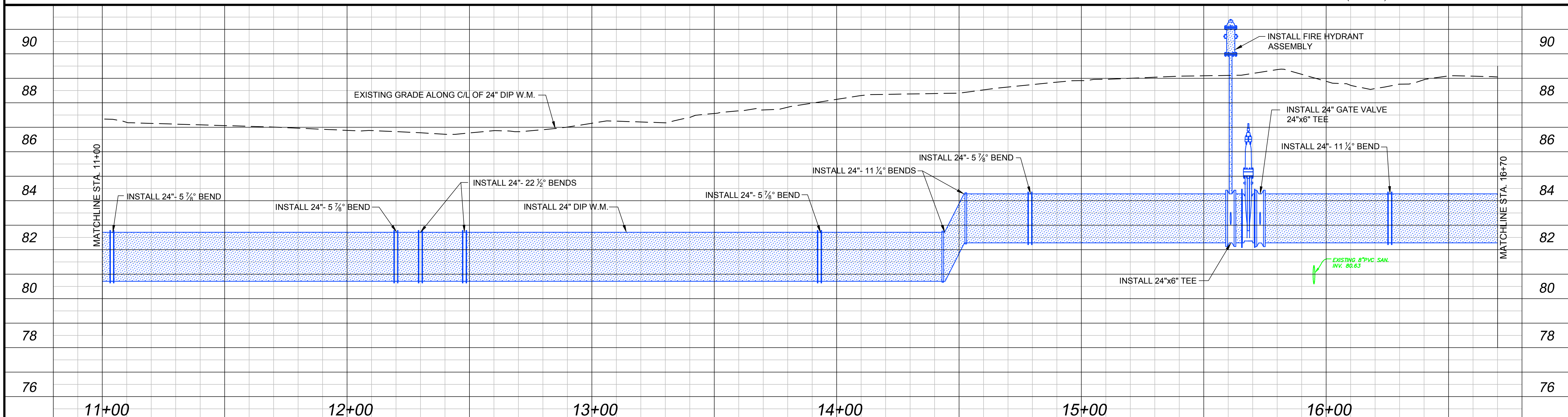
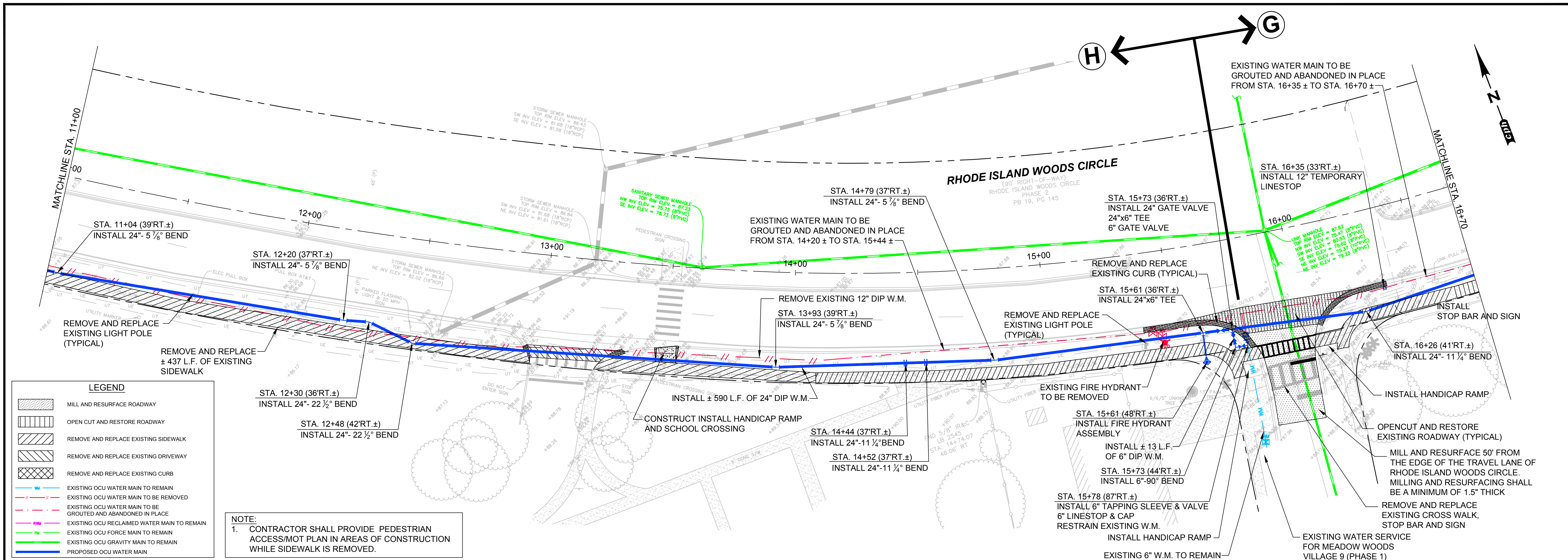
No.	Date	Revision	By	No.	Date	Revision	By

<b>gph</b> www.cphcorp.com	<b>A Full Service A &amp; E Firm</b> Architects Engineers Environmental Landscape Architects	M / E / P Planners Surveyors Texas	Offices In: • Florida • Puerto Rico • Connecticut • Maryland • Texas	Designed by: BCB Date: 9/16/2014 Scale: 1"=20' H. 1"=2' V. Checked by: WWW Approved by: DEM Job No. O28416	SSA-ESA WATER MAIN (MEADOW WOODS WSF TO RHODE ISLAND WOODS CIRCLE) Orange County, Florida	Plans Prepared by: <b>CPH, Inc.</b> 1117 E. Robinson St. Orlando, FL 32801 Ph: 407.425.0452 Licenses: Eng. C.O.A. No. 3215 Arch. Lic. No. AA2600926 Survey L.B. No. 7143 Landscp. Lic. No. LC0000298	DAVID E. MAHLER, P.E. REG.# 50041	<b>PLAN AND PROFILE</b> RHODE ISLAND WOOD CIRCLE STA. 5+50 TO STA. 11+00	Sheet No. <b>8</b>
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Designed by: BCB Date: 9/16/2014  
Drawn by: GNP Scale: 1"=20' H.  
Checked by: WWW 1"=2' V.  
Approved by: DEM  
Job No. O28416 ©2014

**SSA-ESA WATER MAIN  
(MEADOW WOODS WSF TO  
RHODE ISLAND WOODS CIRCLE)**  
Orange County, Florida

Plans Prepared by:  
**CPH, Inc.**  
1117 E. Robinson St. Orlando, FL 32801  
Ph: 407.425.0452  
Licenses:  
Eng. C.O.A. No. 3215 Arch. Lic. No. AA2600926  
Survey L.B. No. 7143 Landscp. Lic. No. LC0000298

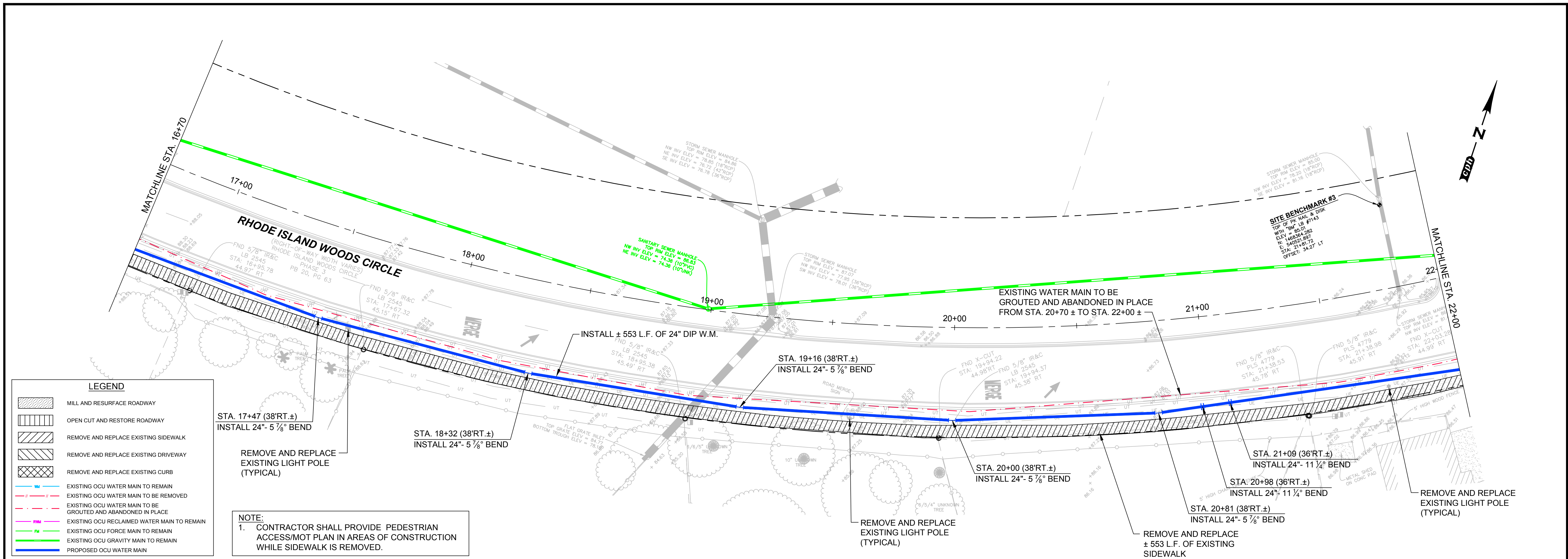
DAVID E. MAHLER, P.E.  
REG.# 50041

**PLAN AND PROFILE  
RHODE ISLAND WOOD CIRCLE  
STA. 11+00 TO STA. 16+70**

Sheet No.  
**9**

Drawing Name: J:\028416\RhodeIsland\RhodeIsland\RhodeIsland.dwg, Sep 16, 2014 - 10:03am gphcorps

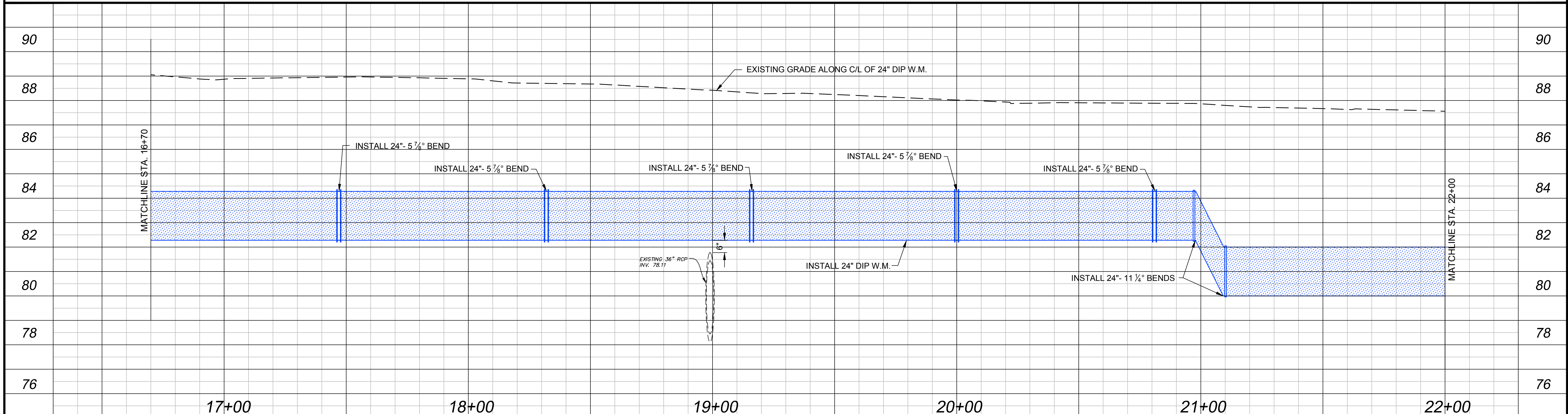
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**LEGEND**

	MILL AND RESURFACE ROADWAY
	OPEN CUT AND RESTORE ROADWAY
	REMOVE AND REPLACE EXISTING SIDEWALK
	REMOVE AND REPLACE EXISTING DRIVEWAY
	REMOVE AND REPLACE EXISTING CURB
	EXISTING OCU WATER MAIN TO REMAIN
	EXISTING OCU WATER MAIN TO BE REMOVED
	EXISTING OCU WATER MAIN TO BE GROUTED AND ABANDONED IN PLACE
	EXISTING OCU RECLAIMED WATER MAIN TO REMAIN
	EXISTING OCU FORCE MAIN TO REMAIN
	EXISTING OCU GRAVITY MAIN TO REMAIN
	PROPOSED OCU WATER MAIN

**NOTE:**  
 1. CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS/MOT PLAN IN AREAS OF CONSTRUCTION WHILE SIDEWALK IS REMOVED.



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Designed by: BCB Date: 9/16/2014  
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 Checked by: WWW  
 Approved by: DEM  
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**SSA-ESA WATER MAIN  
 (MEADOW WOODS WSF TO  
 RHODE ISLAND WOODS CIRCLE)  
 Orange County, Florida**

Plans Prepared by:  
**CPH, Inc.**  
 1117 E. Robinson St. Orlando, FL 32801  
 Ph: 407-425-0452  
 Licenses:  
 Eng. C.O.A. No. 3215 Arch. Lic. No. AA2600926  
 Survey L.B. No. 7143 Landscp. Lic. No. LC0000298

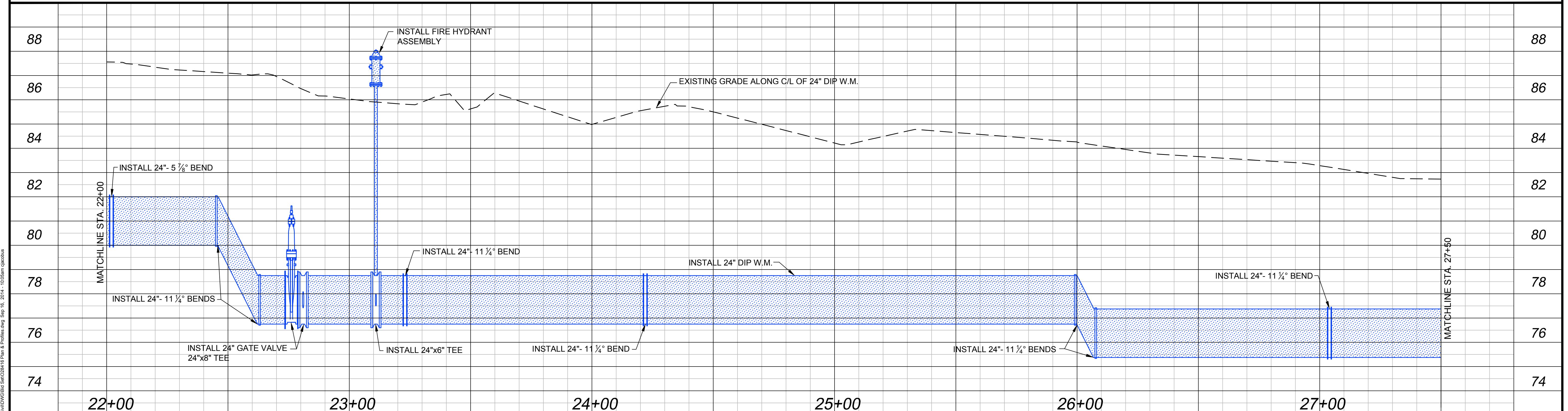
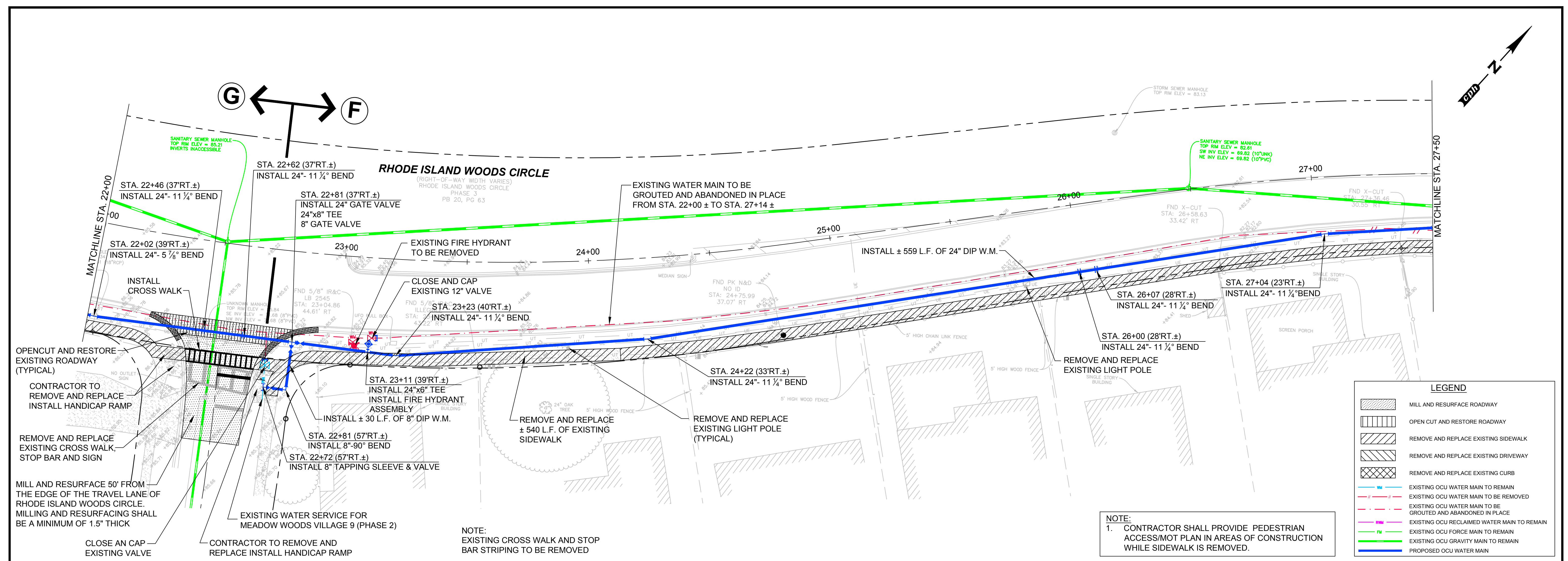
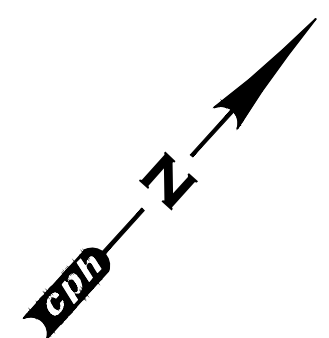
DAVID E. MAHLER, P.E.  
 REG.# 50041

**PLAN AND PROFILE  
 RHODE ISLAND WOOD CIRCLE  
 STA. 16+70 TO STA. 22+00**

Sheet No.  
**10**

Drawing Name: J:\028416\RhodeWoods\RhodeWoods.dwg, Sep 16, 2014 - 10:04am, gphcorps

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No.	Date	Revision	By	No.	Date	Revision	By

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 Checked by: WWW 1"=2' V.  
 Approved by: DEM  
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**SSA-ESA WATER MAIN  
 (MEADOW WOODS WSF TO  
 RHODE ISLAND WOODS CIRCLE)**  
 Orange County, Florida

Plans Prepared By:  
**CPH, Inc.**  
 1117 E. Robinson St. Orlando, FL 32801  
 Ph: 407.425.0452  
 Licenses:  
 Eng. C.O.A. No. 3215 Arch. Lic. No. AA2600926  
 Survey L.B. No. 7143 Landscp. Lic. No. LC0000298

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 REG.# 50041

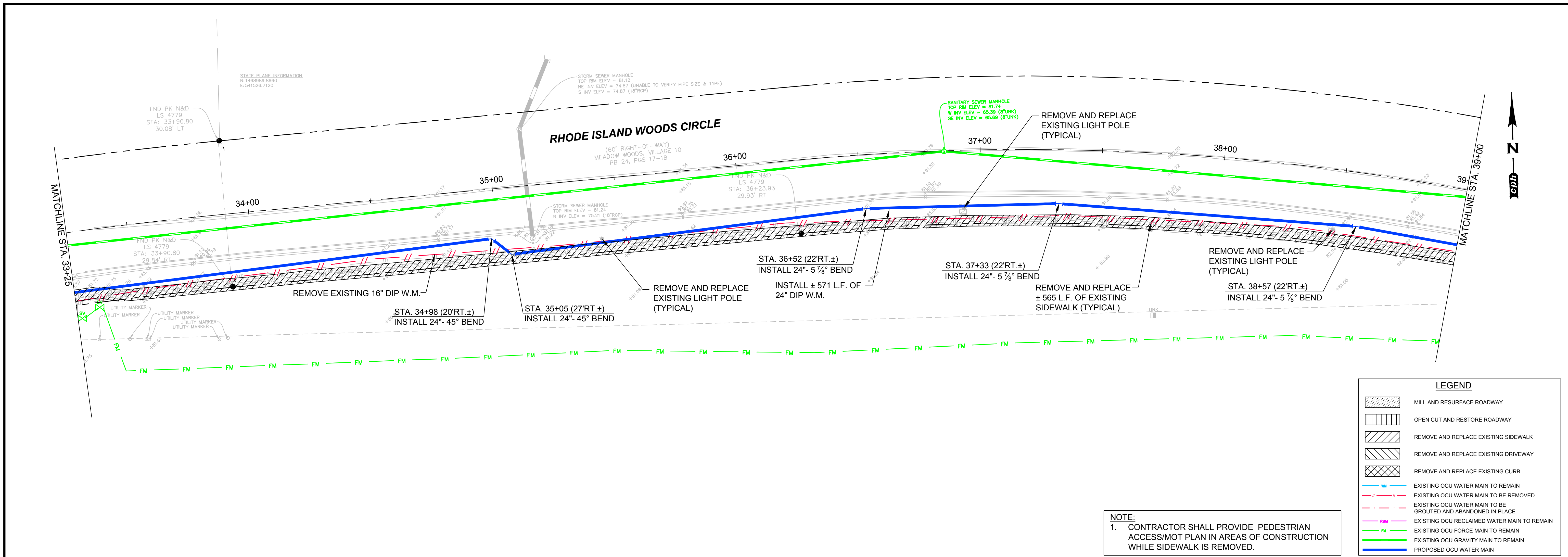
**PLAN AND PROFILE  
 RHODE ISLAND WOODS CIRCLE  
 STA. 22+00 TO STA. 27+50**

Sheet No.  
**11**

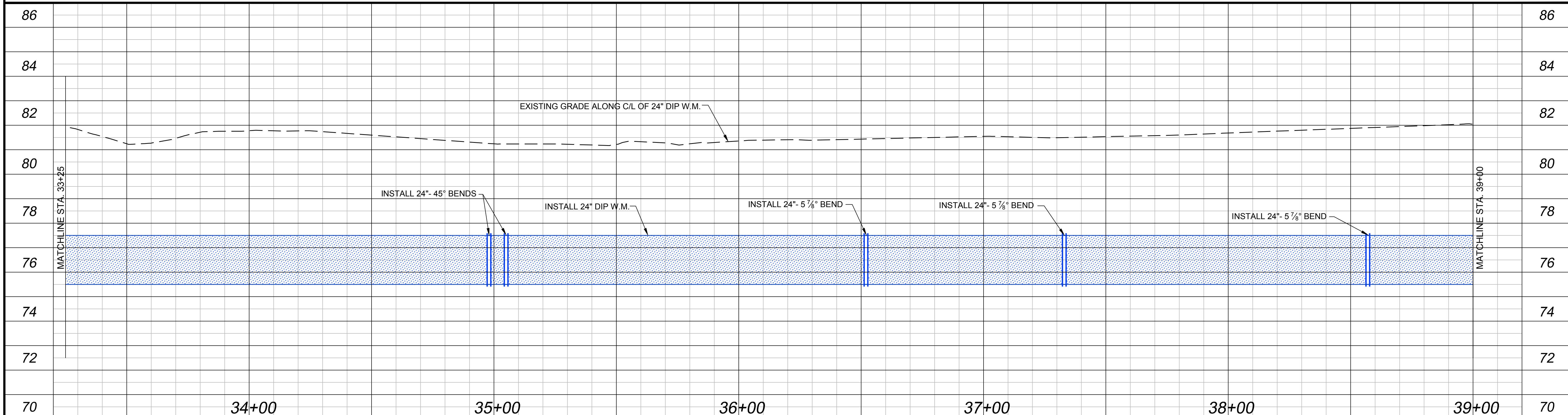
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BID SET





**NOTE:**  
 1. CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS/MOT PLAN IN AREAS OF CONSTRUCTION WHILE SIDEWALK IS REMOVED.

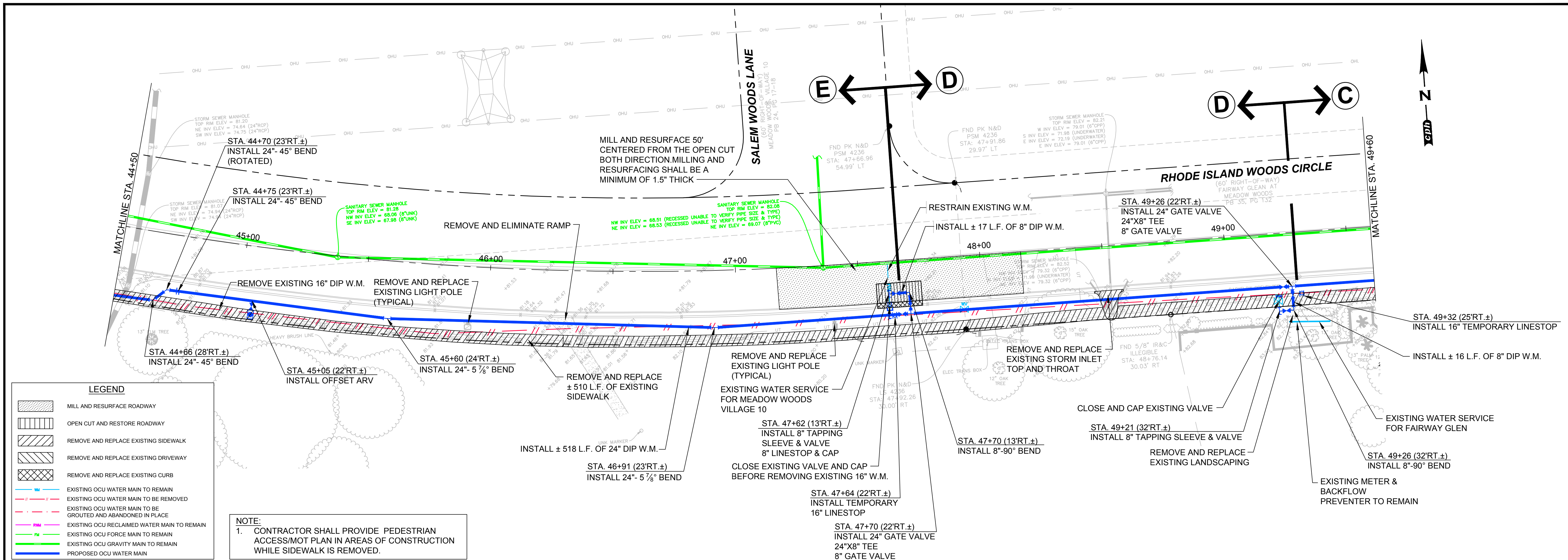


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No.	Date	Revision	By																																																
No.	Date	Revision	By																																																

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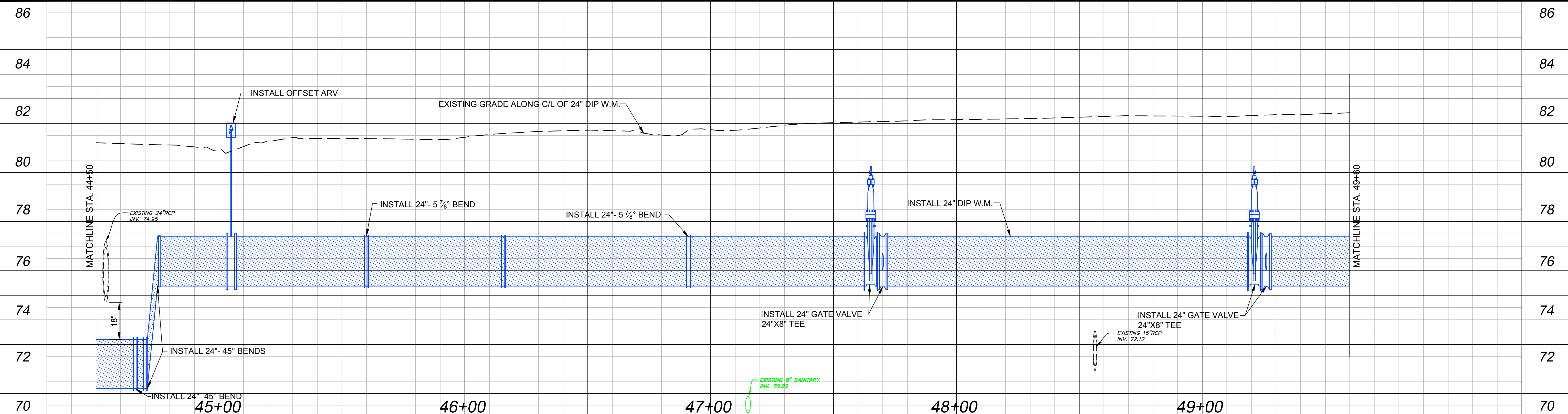




**LEGEND**

	MILL AND RESURFACE ROADWAY
	OPEN CUT AND RESTORE ROADWAY
	REMOVE AND REPLACE EXISTING SIDEWALK
	REMOVE AND REPLACE EXISTING DRIVEWAY
	REMOVE AND REPLACE EXISTING CURB
	EXISTING OCU WATER MAIN TO REMAIN
	EXISTING OCU WATER MAIN TO BE REMOVED
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	EXISTING OCU FORCE MAIN TO REMAIN
	EXISTING OCU GRAVITY MAIN TO REMAIN
	PROPOSED OCU WATER MAIN

**NOTE:**  
 1. CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS/MOT PLAN IN AREAS OF CONSTRUCTION WHILE SIDEWALK IS REMOVED.



Drawing Name: J:\0254\RhodeIsland\RhodeIsland.dwg, Sep. 16, 2014 - 10:12am, gpcorpus

No.	Date	Revision	By

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 Approved by: DEM  
 Job No. O28416 ©2014

**SSA-ESA WATER MAIN  
 (MEADOW WOODS WSF TO  
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 Orange County, Florida

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DAVID E. MAHLER, P.E.  
 REG.# 50041

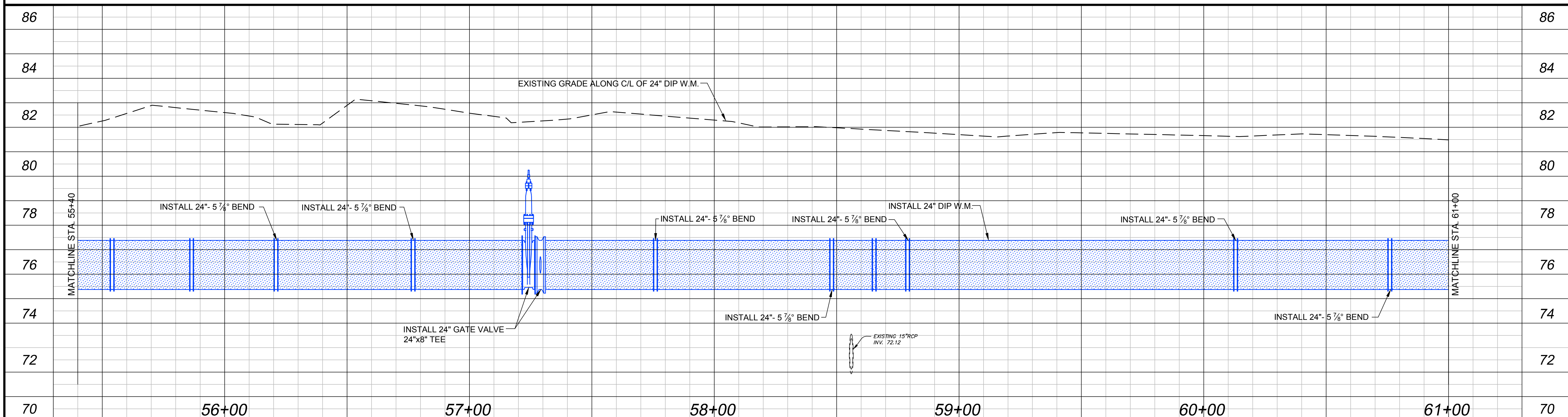
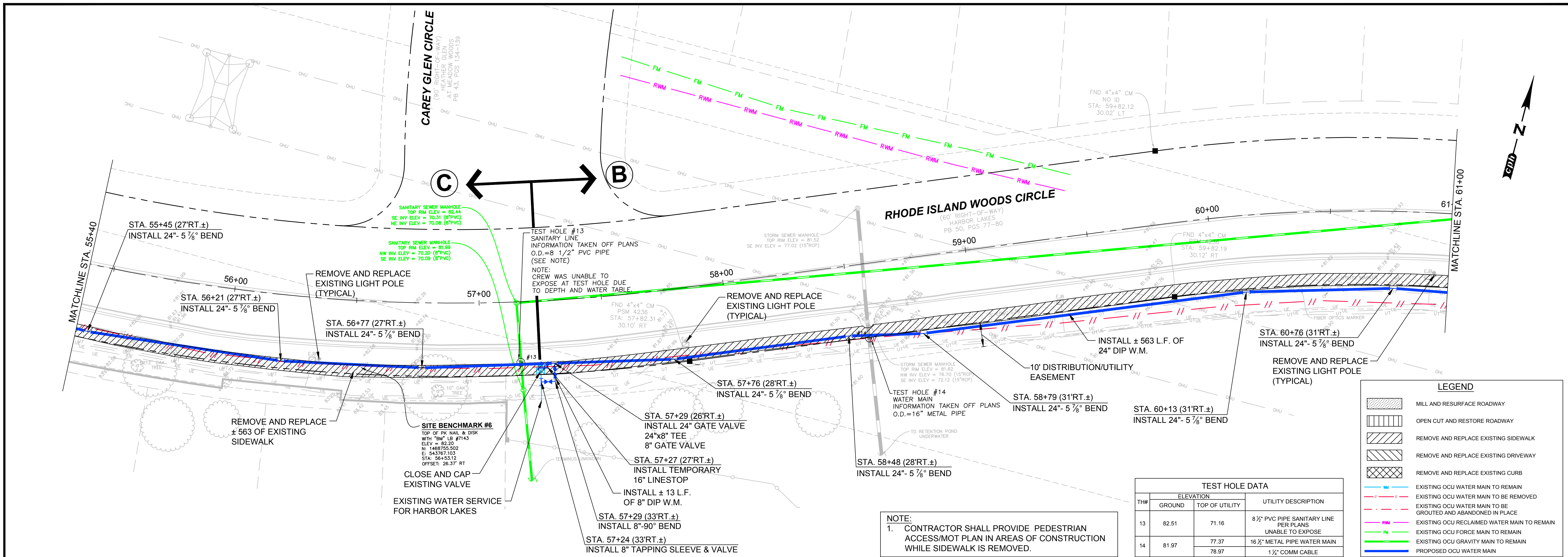
**PLAN AND PROFILE  
 RHODE ISLAND WOOD CIRCLE  
 STA. 44+50 TO STA. 49+60**

Sheet No.  
**15**

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No.	Date	Revision	By	No.	Date	Revision	By

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**SSA-ESA WATER MAIN (MEADOW WOODS WSF TO RHODE ISLAND WOODS CIRCLE)**  
Orange County, Florida

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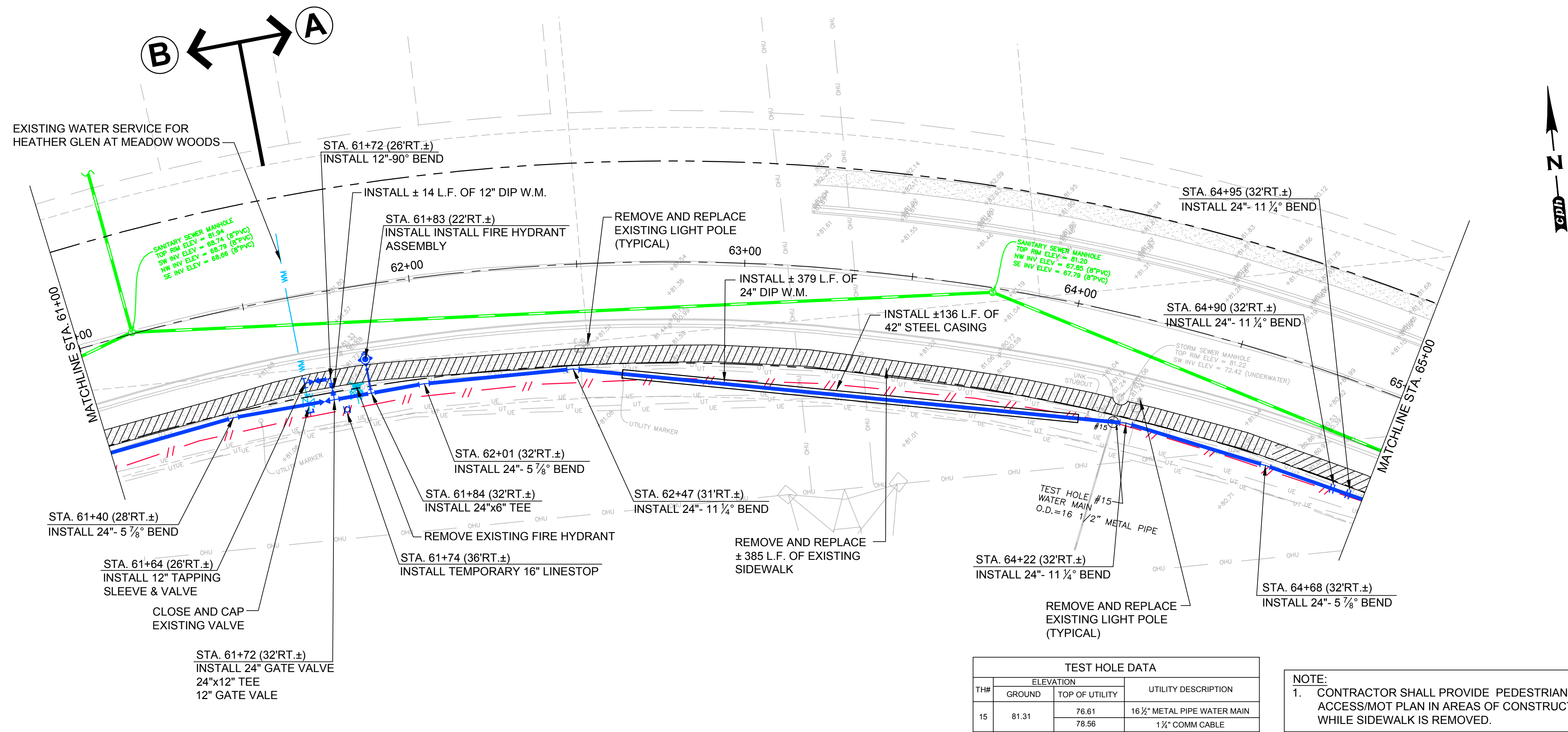
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REG.# 50041

**PLAN AND PROFILE RHODE ISLAND WOOD CIRCLE STA. 55+40 TO STA. 61+00**

Sheet No. **17**

Drawing Name: J:\028416\RhodeIsland\RhodeIsland\RhodeIsland.dwg, Sep 16, 2014 - 10:44am gph/cph

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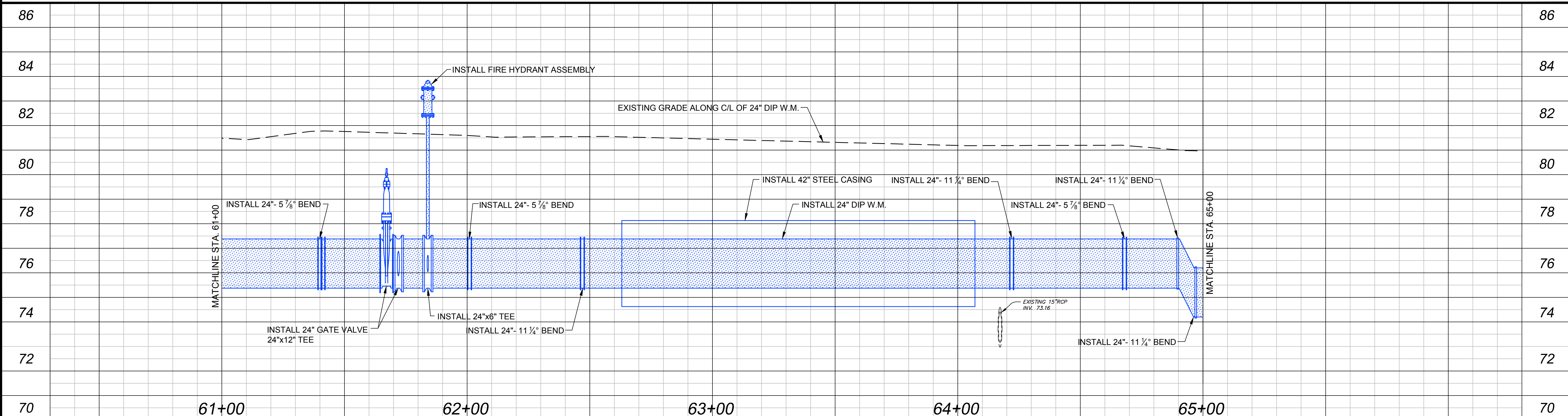
**LEGEND**

- MILL AND RESURFACE ROADWAY
- OPEN CUT AND RESTORE ROADWAY
- REMOVE AND REPLACE EXISTING SIDEWALK
- REMOVE AND REPLACE EXISTING DRIVEWAY
- REMOVE AND REPLACE EXISTING CURB
- EXISTING OCU WATER MAIN TO REMAIN
- EXISTING OCU WATER MAIN TO BE REMOVED
- EXISTING OCU WATER MAIN TO BE GROUDED AND ABANDONED IN PLACE
- EXISTING OCU RECLAIMED WATER MAIN TO REMAIN
- EXISTING OCU FORCE MAIN TO REMAIN
- EXISTING OCU GRAVITY MAIN TO REMAIN
- PROPOSED OCU WATER MAIN

**TEST HOLE DATA**

TH#	ELEVATION		UTILITY DESCRIPTION
	GROUND	TOP OF UTILITY	
15	81.31	76.61	16 1/2" METAL PIPE WATER MAIN
		78.56	1 1/2" COMM CABLE

**NOTE:**  
1. CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS/MOT PLAN IN AREAS OF CONSTRUCTION WHILE SIDEWALK IS REMOVED.



Drawing Name: J:\0254\0254\DWG\0254\0254\0254.dwg, Sep 16, 2014 - 10:15am gph/cph

No.	Date	Revision	By	No.	Date	Revision	By

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Designed by: BCB Date: 9/16/2014  
 Drawn by: GNP Scale: 1"=20' H.  
 Checked by: WWW 1"=2' V.  
 Approved by: DEM  
 Job No. O28416 ©2014

**SSA-ESA WATER MAIN**  
 (MEADOW WOODS WSF TO  
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 Orange County, Florida

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DAVID E. MAHLER, P.E.  
 REG.# 50041

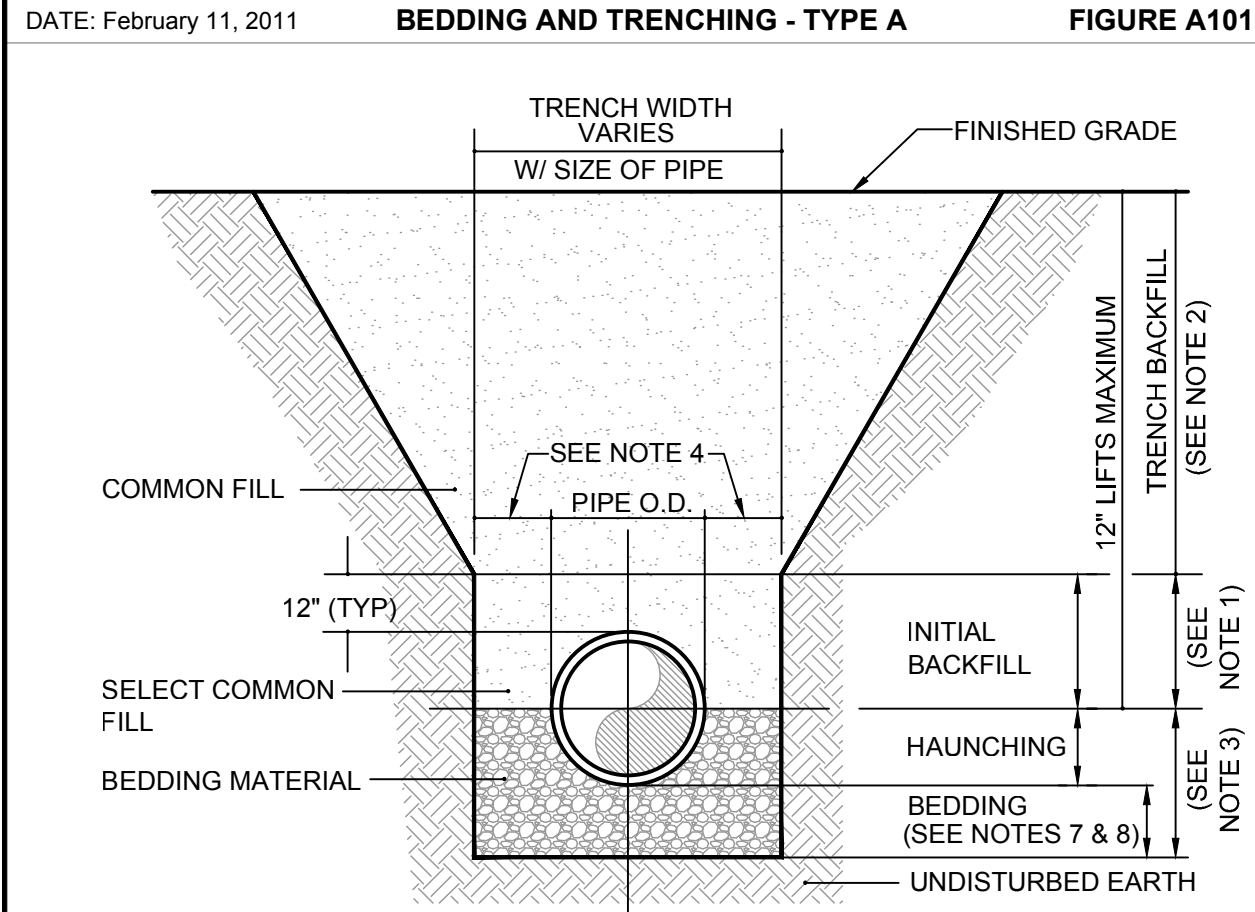
**PLAN AND PROFILE**  
 RHODE ISLAND WOOD CIRCLE  
 STA. 61+00 TO STA. 65+00

Sheet No.  
**18**

BID SET

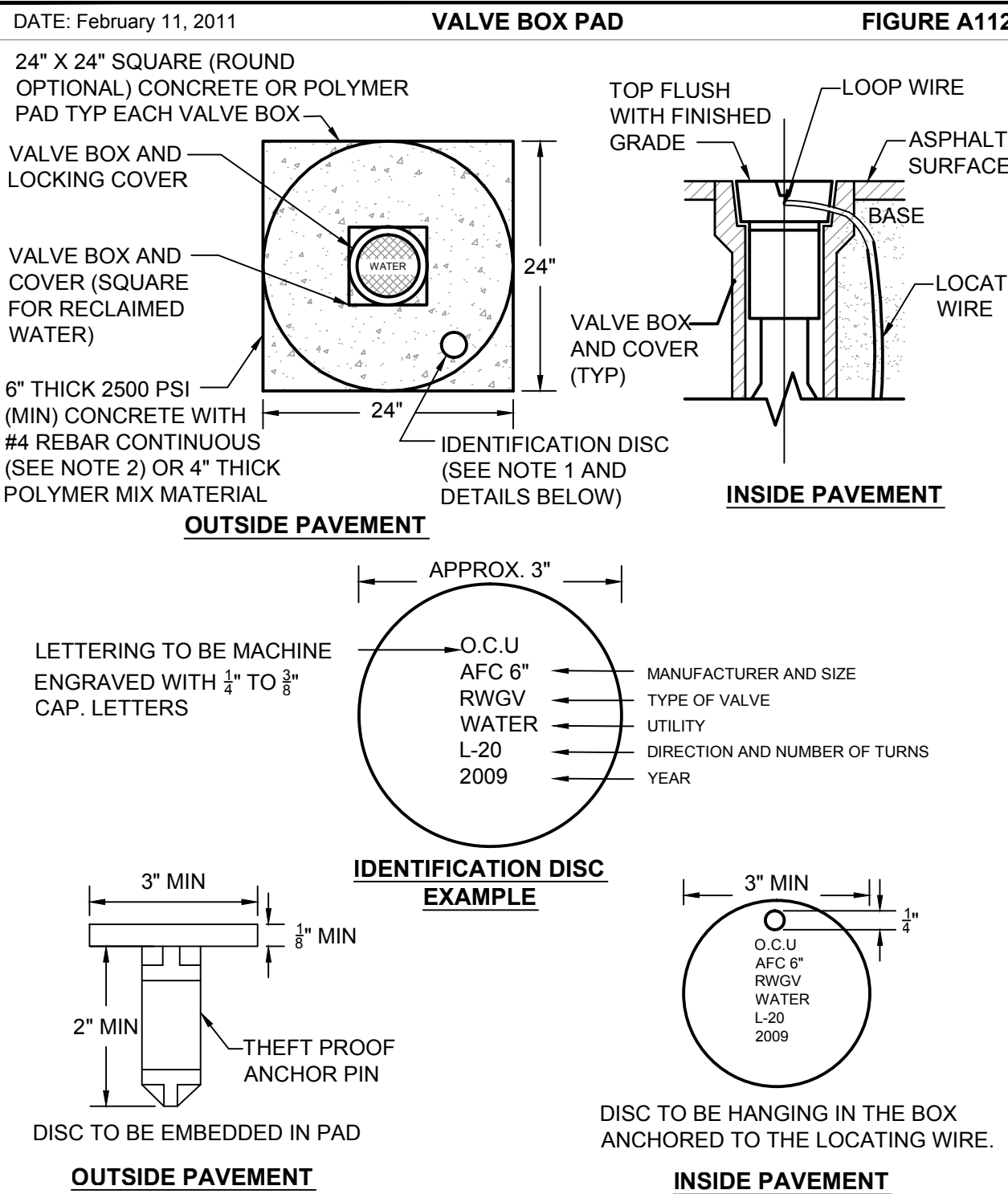


APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 BEDDING AND TRENCHING - TYPE A FIGURE A101



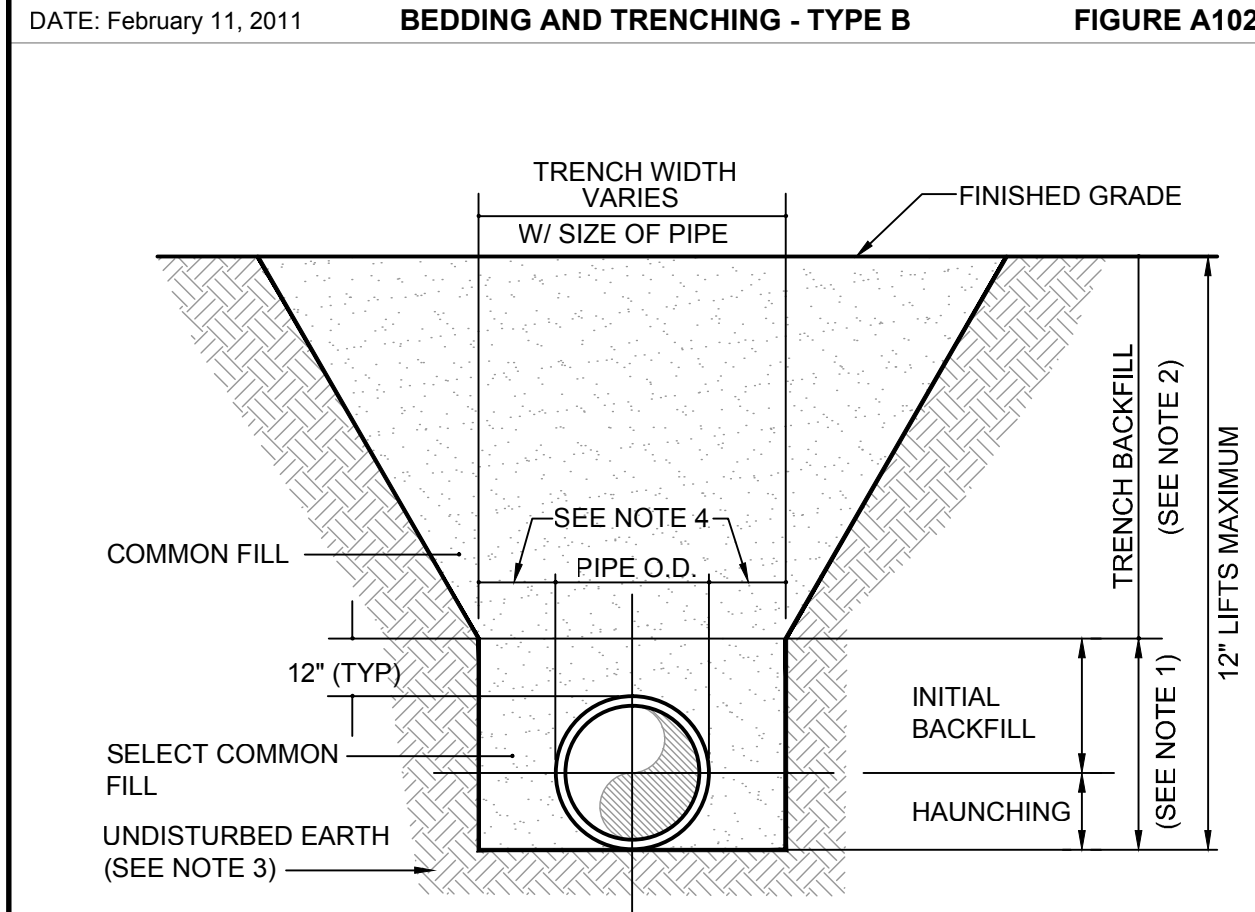
- NOTES:
- INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
  - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
  - TYPE A BEDDING MATERIAL SHALL CONFORM TO FDOT NO. 57 AGGREGATE.
  - 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
  - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
  - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
  - BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER UP TO 12" AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
  - DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. UTILITIES SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
  - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF R/W UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 VALVE BOX PAD FIGURE A112



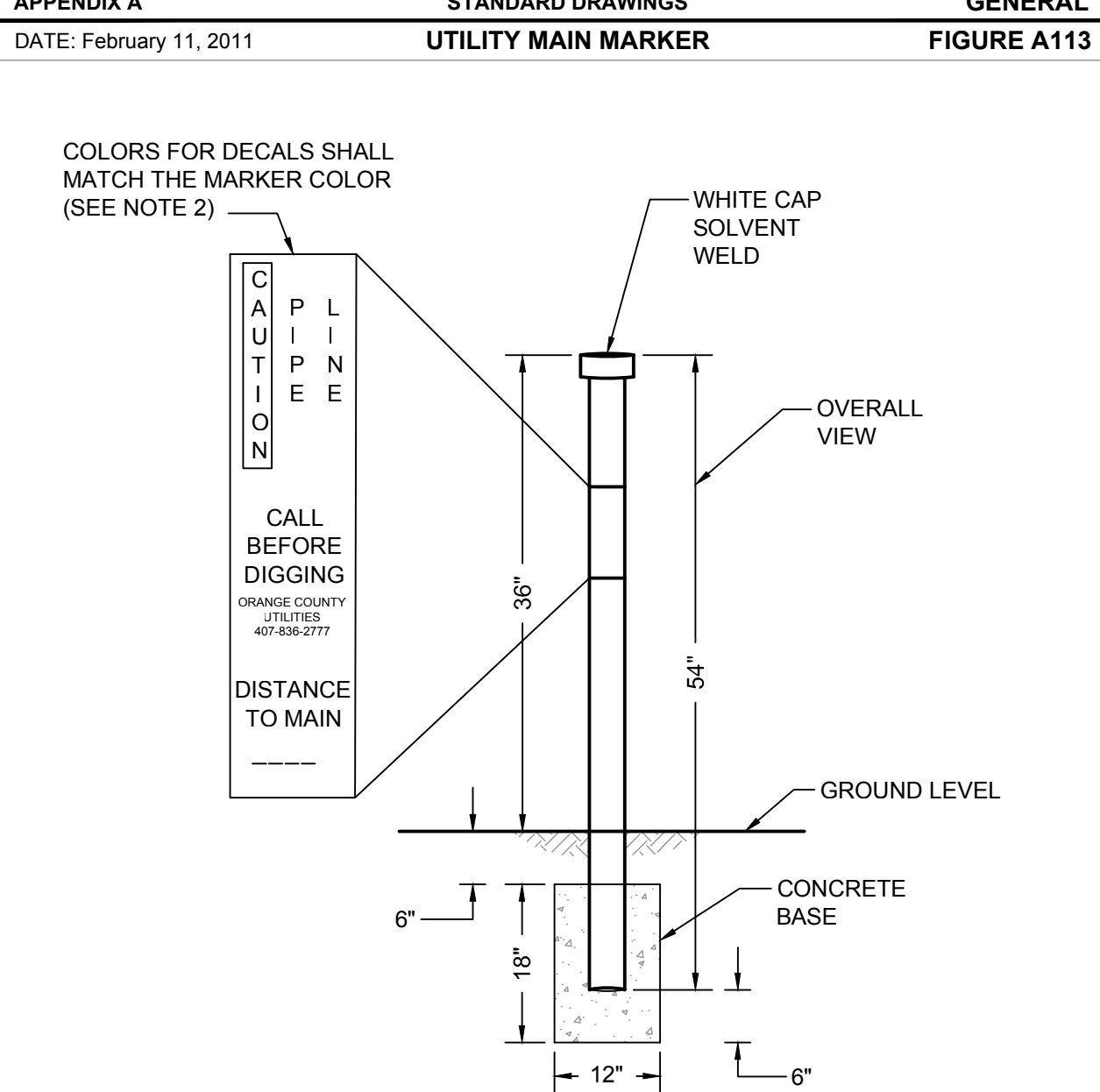
- NOTES:
- BRONZE (OR STAINLESS STEEL) IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES, EXCEPT HYDRANT VALVES.
  - IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD WITH TWO #4 REBAR AROUND PERIMETER MAY BE USED.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 BEDDING AND TRENCHING - TYPE B FIGURE A102



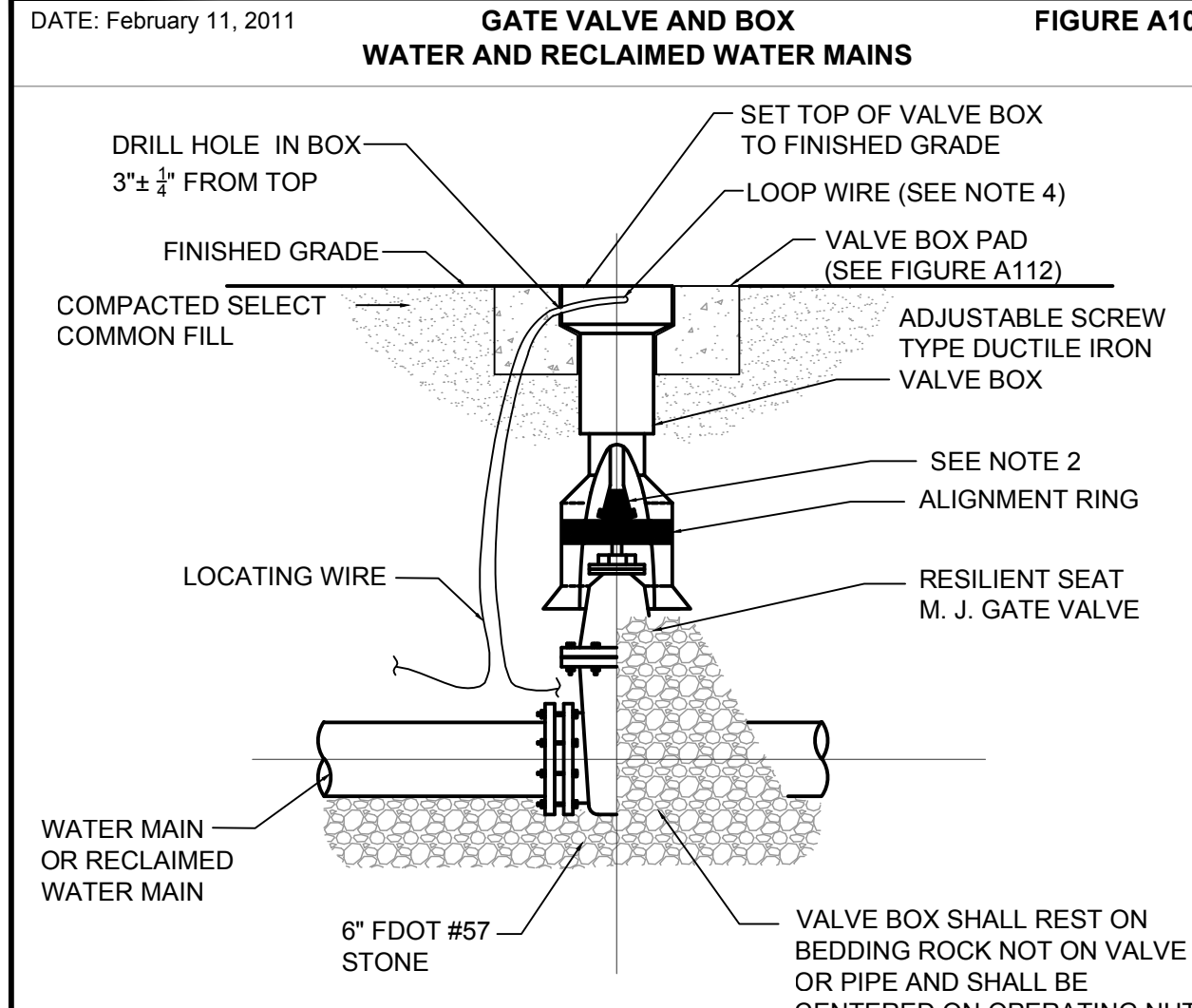
- NOTES:
- INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
  - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
  - PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY UTILITIES.
  - 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
  - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
  - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
  - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 UTILITY MAIN MARKER FIGURE A113



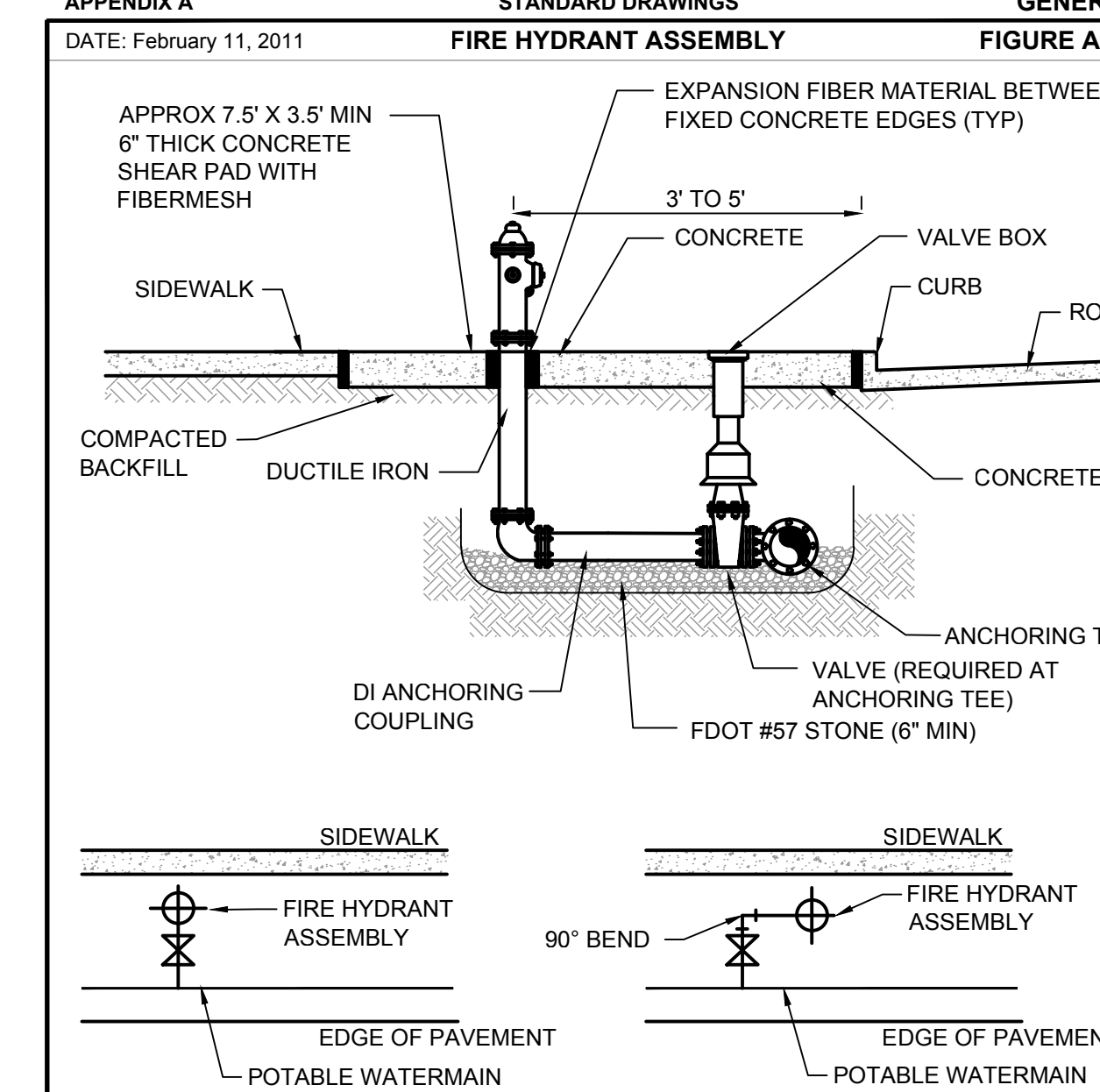
- NOTES:
- MARKERS ARE REQUIRED WHEN UTILITY MAIN IS LOCATED OVER 30 FEET FROM EDGE OF PAVEMENT OR IN AN EASEMENT NOT ADJACENT TO THE RIGHT OF WAY.
  - MARKERS SHALL BE 4" DIAMETER SCH. 80 OR DR18 PVC. BLUE FOR WATER; GREEN FOR WASTEWATER; AND PANTONE PURPLE 522C FOR RECLAIMED WATER.
  - MARKERS SHALL BE PLACED AT ALL DIRECTIONAL CHANGES AND AT ALL VALVES EXCEPT WATER VALVES NEAR FIRE HYDRANTS. ADDITIONAL MARKERS SHALL BE INSTALLED AS NEEDED SO THAT THE DISTANCE BETWEEN MARKERS DOES NOT EXCEED 1000 FEET.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 GATE VALVE AND BOX WATER AND RECLAIMED WATER MAINS FIGURE A107



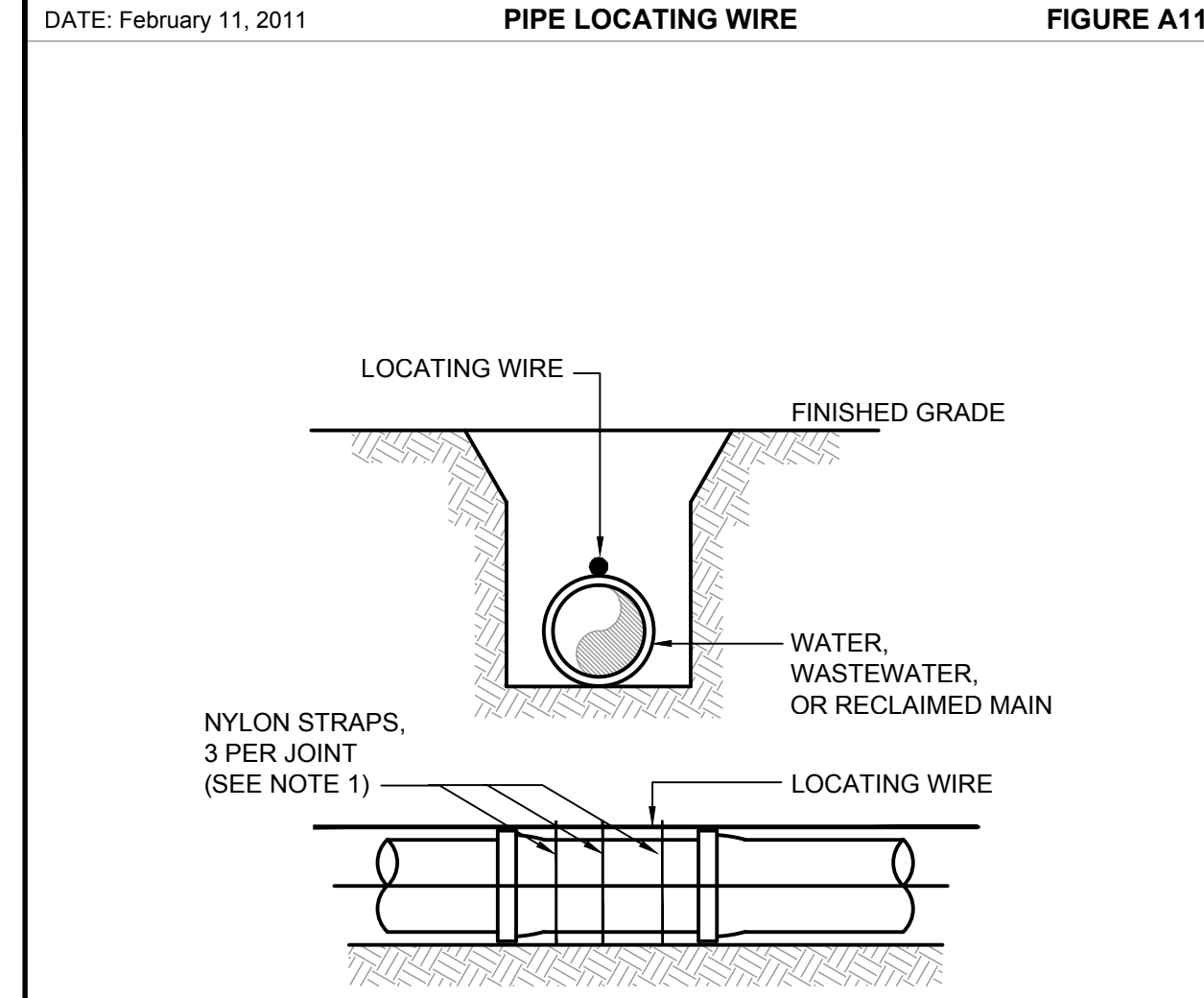
- NOTES:
- PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
  - THE VALVE ACTUATING NUT SHALL BE EXTENDED TO BE WITHIN 3' OF FINISHED GRADE.
  - PROVIDE A PLASTIC DEBRIS SHIELD / ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
  - LOCATING WIRE SHALL BE CONTINUOUS WITH NO SPLICES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR. WIRE SHALL BE COLOR CODED TO MATCH THE UTILITY INSTALLED.
  - FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
  - REFER TO FIGURE A111 FOR INSTALLATIONS AT A DEPTH OF 6' OR GREATER.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 FIRE HYDRANT ASSEMBLY FIGURE A203



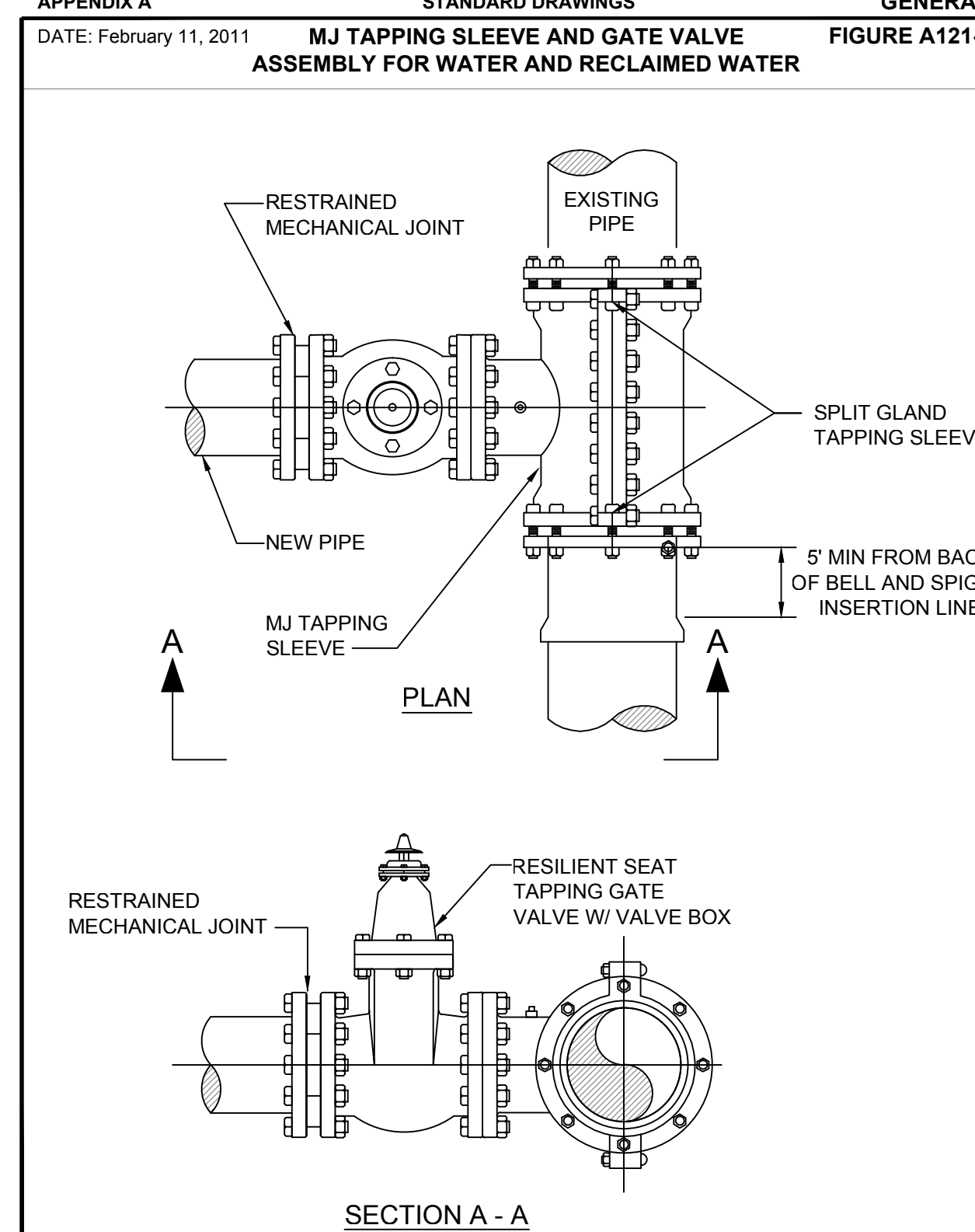
- NOTES:
- CENTER OF THE FLANGE CONNECTION SHALL BE 5" FROM THE TOP OF THE SLAB.
  - BARREL COLORS: PRIVATE HYDRANTS - RED; PUBLIC HYDRANTS - SILVER.
  - BONNET COLORS: TO BE DETERMINED BY FLOW TEST.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 PIPE LOCATING WIRE FIGURE A114



- NOTES:
- ALL PIPE SHALL REQUIRE INSULATED LOCATING WIRE (10 GAUGE SOLID COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE WRAPPED WITH NYLON STRAPS TO TOP CENTERLINE OF THE PIPE.
  - LOCATING WIRE SHALL BE CONTINUOUS INSIDE VALVE BOXES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR.
  - WIRE INSULATION SHALL BE COLOR CODED FOR THE TYPE OF PIPE BEING INSTALLED.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011 MJ TAPPING SLEEVE AND GATE VALVE ASSEMBLY FOR WATER AND RECLAIMED WATER FIGURE A121-1



Drawing Name: J:\0254\0254\DWG\DETAILS\0254\0254\0254\0254.dwg - notes - color details\0254\0254.dwg - Sep 18, 2014 - 10:32am gph\cbus

No.	Date	Revision	By	No.	Date	Revision	By
1				1			
2				2			
3				3			
4				4			
5				5			

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Designed by: BCB Date: 9/16/2014  
Drawn by: GNP Scale: None  
Checked by: WWW  
Approved by: DEM  
Job No. O28416 ©2014

**SSA-ESA WATER MAIN**  
(MEADOW WOODS WSF TO  
RHODE ISLAND WOODS CIRCLE)  
Orange County, Florida

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DAVID E. MAHLER, P.E.  
REG.# 50041

**CONSTRUCTION DETAILS**

BID SET

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011

RESTRAINED PIPE TABLE  
WATER AND RECLAIMED WATER MAINS

FIGURE A104-1

TYPE	MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)									
	PVC					DIP				
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	25	36	46	55	64	65	77	89	105	120
45° BEND	10	15	19	23	26	27	32	37	44	50
22-1/2° BEND	5	8	9	11	13	13	15	18	21	24
11-1/4° BEND	3	4	5	6	8	7	8	9	10	12
PLUG OR BRANCH OF TEE	53	74	97	117	135	138	166	194	231	265
VALVE	27	38	49	59	68	69	83	97	116	133
REDUCER	VARIES BY SIZE; TO BE DETERMINED BY THE DESIGN ENGINEER.									

- NOTES:
- FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
  - INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
  - WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
  - ALL INLINE VALVES SHALL BE RESTRAINED.
  - WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
  - LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:

WORKING PRESSURE: 150 PSI  
SOIL DESIGNATION: SM (SAND SILT)  
LAYING CONDITIONS: 3  
DEPTH OF COVER: 3 FT  
SAFETY FACTOR: 1.5  
CONVERSION FACTOR FOR PVC PIPE: 1.25

THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC SOIL DESIGNATIONS, LAYING CONDITIONS, PIPE MATERIAL, ETC. FOR DIP ENCASED IN POLYETHYLENE, INCREASE THE GIVEN VALUE BY A FACTOR OF 1.25.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011

SEPARATION REQUIREMENTS FOR  
WATER, WASTEWATER AND RECLAIMED WATER MAINS

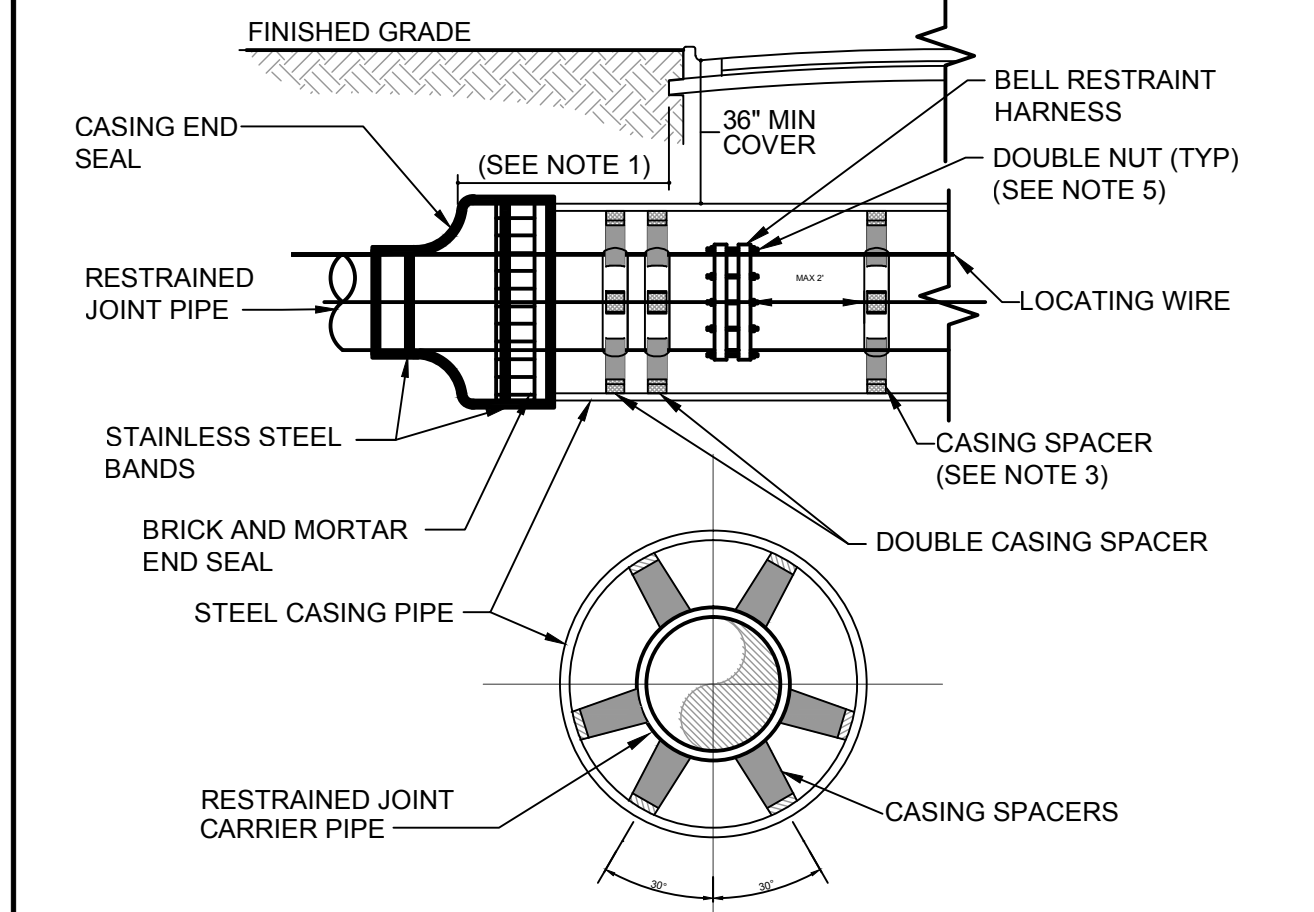
FIGURE A116

PROPOSED UTILITY	HORIZONTAL & VERTICAL SEPARATION REQUIREMENTS							
	POTABLE WATER		RECLAIMED WATER		WASTEWATER (GRAVITY & FM)		STORM SEWER	
	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 FM)	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

- NOTES:
- THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTHS, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
  - THE 18-INCH SEPARATION REQUIREMENT APPLIES WHEN THE STORM PIPE CROSSES ABOVE THE OCU MAIN, AND WHEN THE STORM PIPE HAS A DIAMETER EQUAL TO OR GREATER THAN 24 INCHES. OTHERWISE, THE REQUIRED SEPARATION IS 12 INCHES.
  - THIS SEPARATION REQUIREMENT COMPLIES WITH MINIMUM FDEP SEPARATION REQUIREMENTS OUTLINED IN 62-555.314, FAC. VARIANCES FROM THE FDEP REQUIREMENTS MUST COMPLY WITH 62-555.314(5), FAC AND MUST BE APPROVED INDIVIDUALLY BY BOTH FDEP AND OCU.
  - DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
  - NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURE.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011

BORE AND JACK  
FIGURE A106



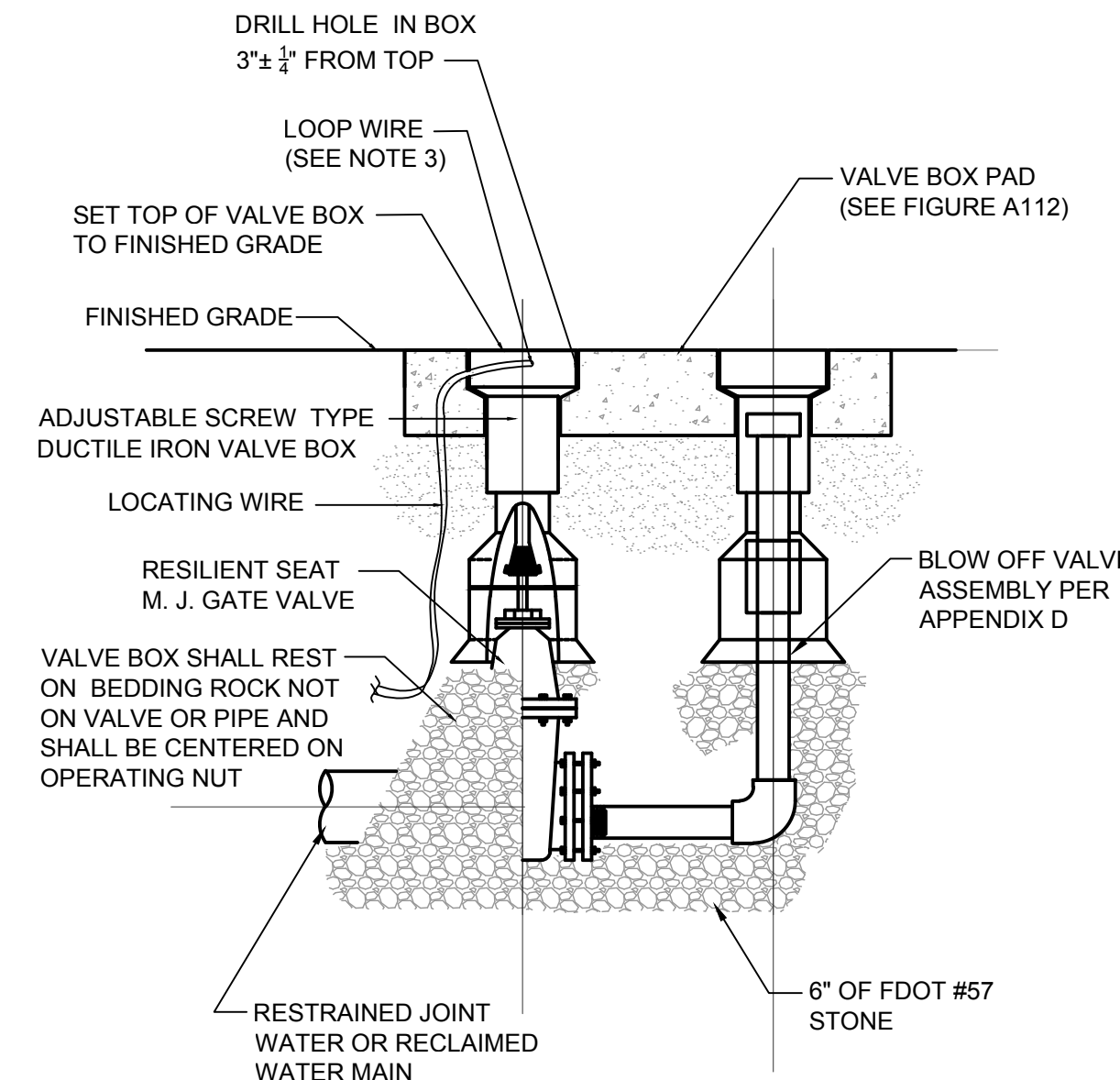
CARRIER PIPE NOMINAL DIAMETER (INCHES)	(VARIES BY CASING SIZE)										
	4	6	8	10	12	16	20	24	30	36	42
MINIMUM CASING OUTSIDE DIAMETER (INCHES)	16	16	18	20	24	30	36	42	48	54	60
MINIMUM CASING WALL THICKNESS (INCHES)	.250"	.250"	.250"	.250"	.250"	.312"	.375"	.500"	.500"	.500"	.500"

- NOTES:
- CASING SHALL EXTEND A MINIMUM OF TEN FEET BEYOND THE EDGE OF PAVEMENT OR MEET FDOT REQUIREMENTS, WHICHEVER IS GREATER.
  - REQUIREMENTS OF OTHER JURISDICTIONS SHALL BE MET. WHEN CONSTRUCTION IS WITHIN FDOT JURISDICTION, ADDITIONAL REQUIREMENTS OF THE "FDOT UTILITY ACCOMMODATION GUIDE" SHALL BE MET.
  - DISTANCE BETWEEN SPACERS TO BE PER MANUFACTURER'S SPECIFICATIONS, OR MAX OF 6.5', WHICHEVER IS MORE STRINGENT.
  - USE OF FLOWABLE FILL IN THE ANNULAR SPACE BETWEEN THE CASING AND CARRIER PIPE IS PROHIBITED.
  - PIPE IN CASING SHALL HAVE A MECHANICAL BELL RESTRAINT HARNESS WHERE RODS ARE DOUBLE NUTTED TO PRECLUDE OVERBELLING THE JOINT DURING PUSHING CARRIER PIPE CASING.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011

TEMPORARY BLOW OFF VALVE,  
MANUALLY OPERATED, WATER AND RECLAIMED WATER

FIGURE A122-2

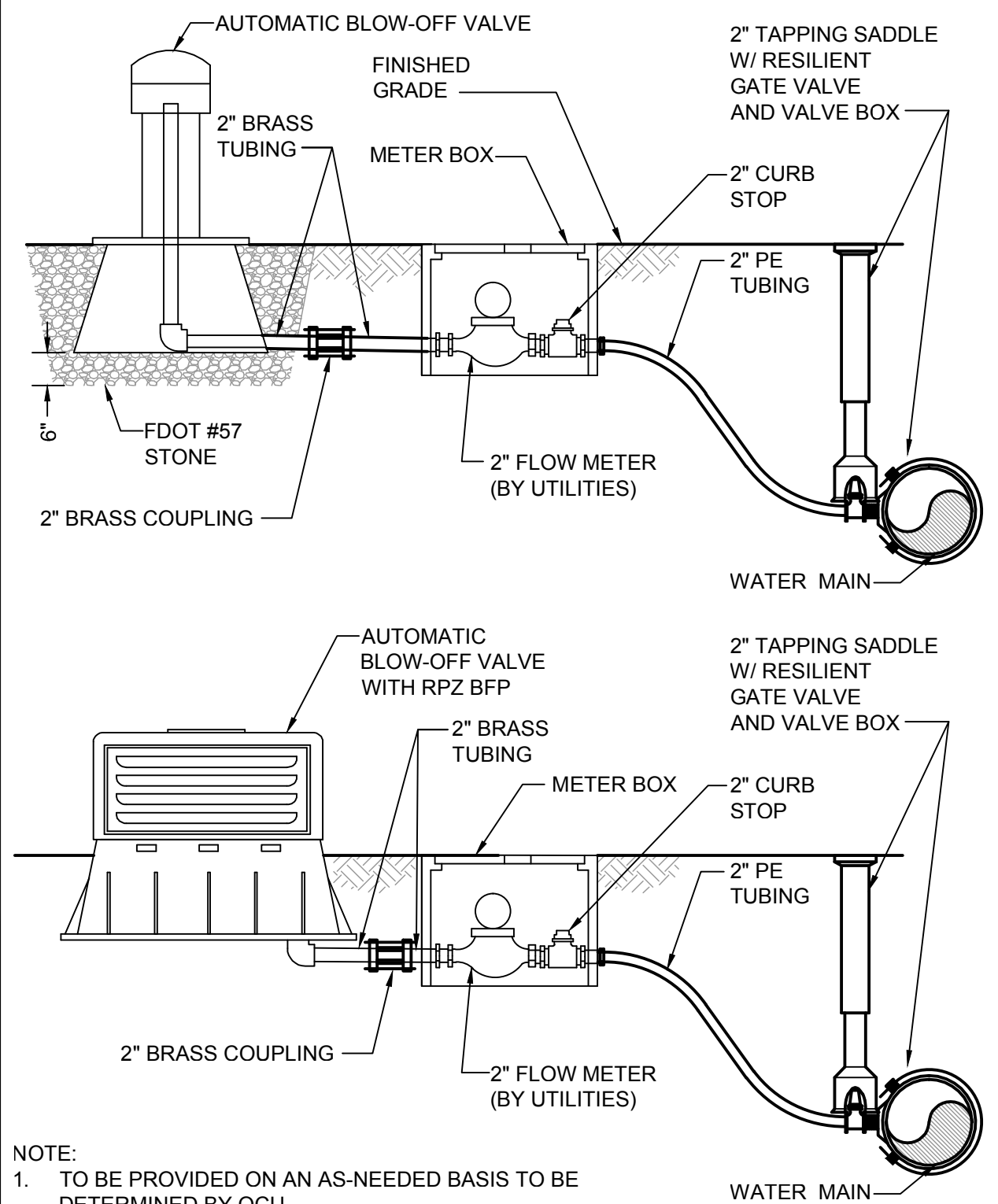


- NOTES:
- FOR USE AT PHASE LINES OR TEMPORARY TERMINATION POINTS.
  - LOCATING WIRE SHALL BE CONTINUOUS INSIDE THE VALVE BOX AND SHALL EXTEND 12" ABOVE TOP OF COLLAR. WIRE SHALL BE COLOR CODED TO MATCH THE UTILITY INSTALLED.

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011

BLOW OFF VALVE, AUTOMATIC, WATER

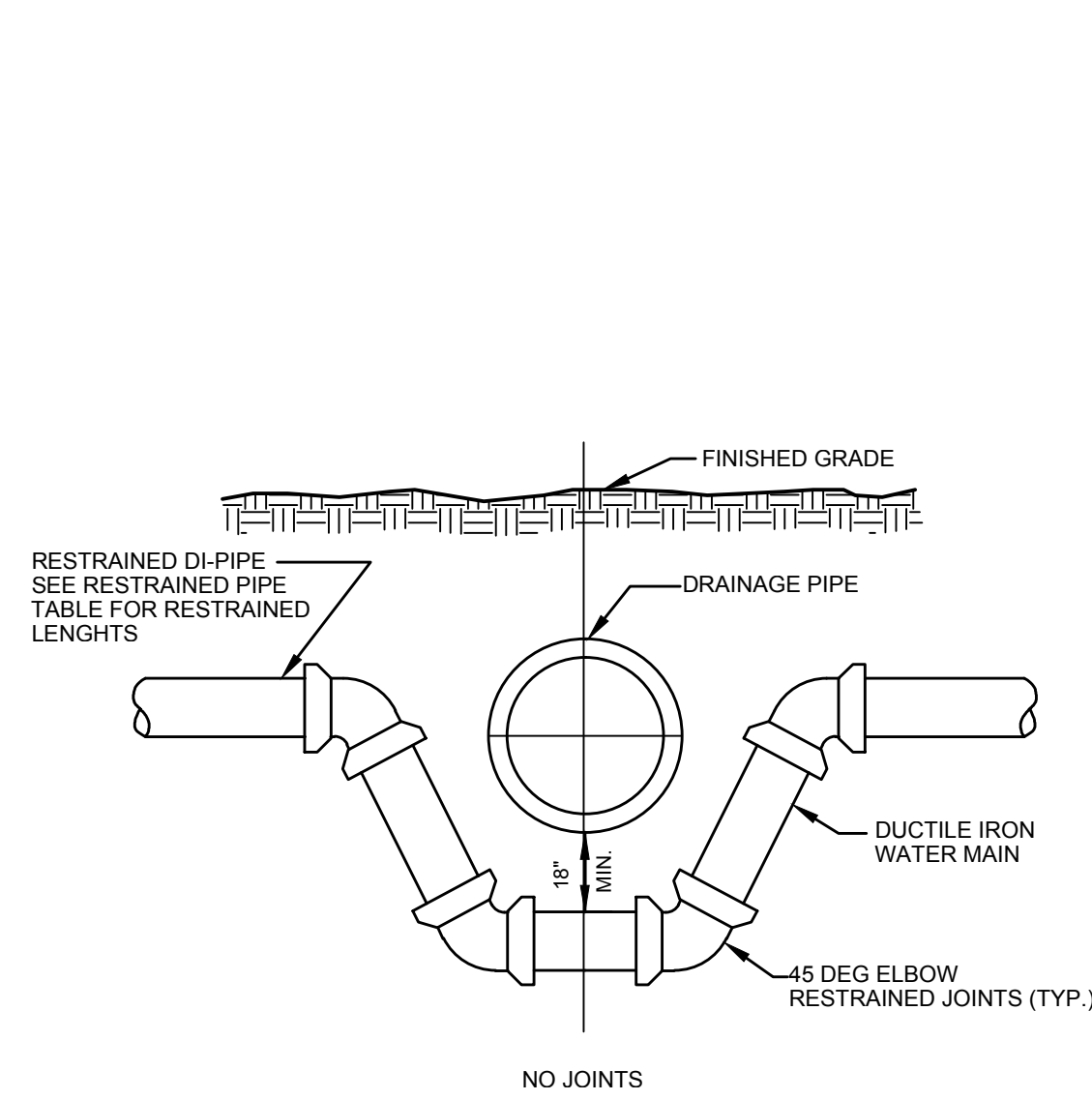
FIGURE A122-3



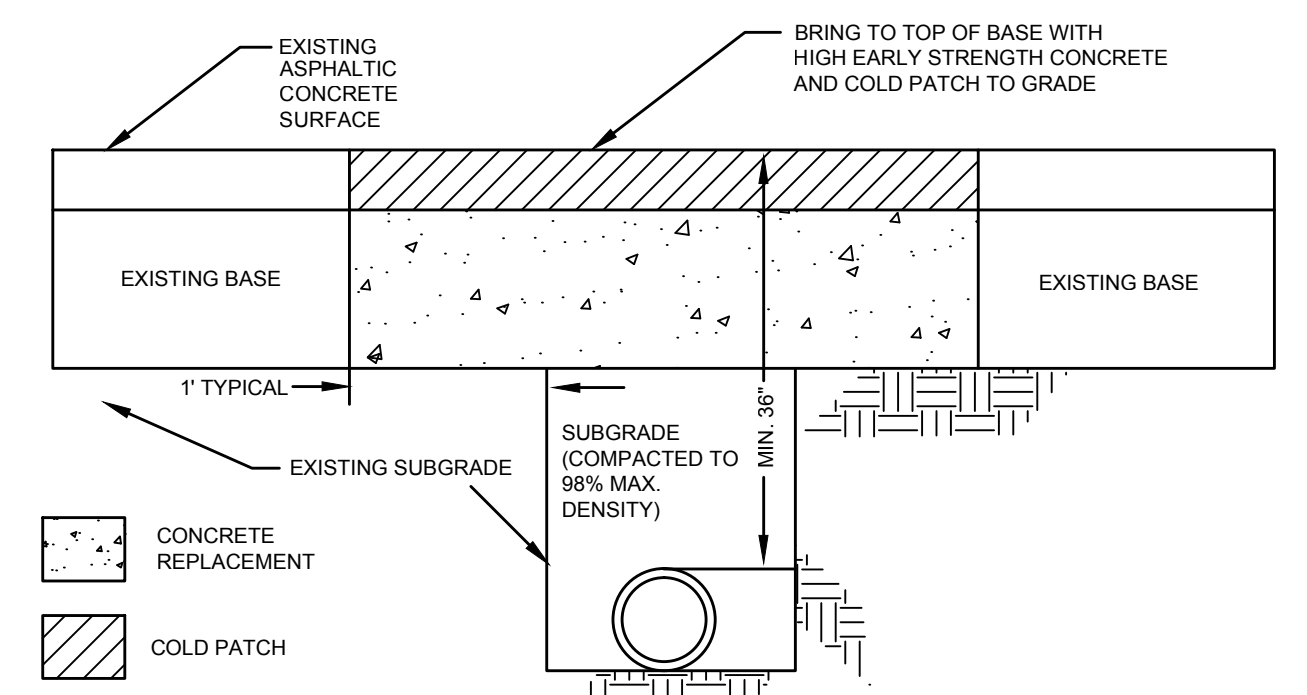
- NOTE:
- TO BE PROVIDED ON AN AS-NEEDED BASIS TO BE DETERMINED BY OCU

APPENDIX A STANDARD DRAWINGS GENERAL  
DATE: February 11, 2011

UTILITY TRANSITION DETAIL



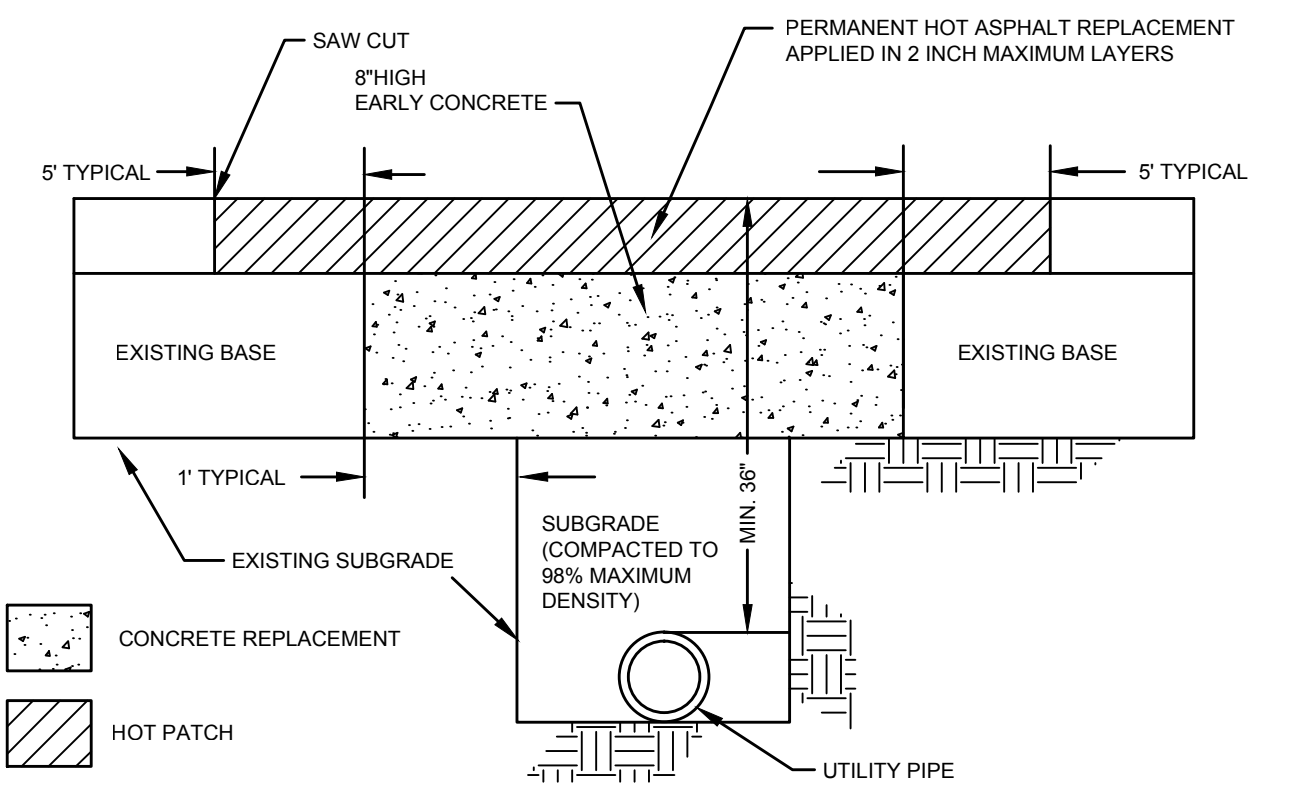
- NOTES:
- THIS METHOD TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW UTILITY PIPE TO CROSS ABOVE STORM SEWER WITH 18" VERTICAL SEPARATION AND MAINTAIN 36" MIN. COVER TO FINISHED GRADE.
  - SUBMIT SHOP DRAWINGS FOR EACH PARTICULAR SITUATION.
  - ALL RESTRAINED JOINTS. NO THRUST COLLARS TO BE USED WITH THIS METHOD.



- NOTE:
- SUB-GRADE CUT TO BE COMPACTED TO 98% MAX DENSITY AS DETERMINED BY AASHTO T-180. CUT TO BE REPLACED WITH 3000 PSI HIGH EARLY STRENGTH CONCRETE TO TOP OF EXISTING BASE. CUT AREA TO BE PLATED OR PROTECTED ON DAY OF POUR. TEMPORARY COLD PATCH TO BE APPLIED AND BROUGHT TO GRADE NEXT DAY. PERMANENT REPAIR TO BE MADE WITHIN 30 DAYS.

STANDARD ROADWAY OPENCUT DETAIL

TEMPORARY COLD PATCH OVER CONCRETE BASE - TYPICAL OF MAJOR OPEN CUTS



- NOTE:
- SUB-GRADE CUT TO BE COMPACTED TO 98% MAX. DENSITY AS DETERMINED BY AASHTO T-180. CUT TO BE REPLACED WITH AN 8" 3000 PSI HIGH EARLY CONCRETE TO TOP OF EXISTING BASE. CUT AREA TO BE PLATED OR PROTECTED ON THE DAY OF POUR. EXISTING SURFACE TO BE CUT TO AN AREA 5 FEET BEYOND BASE CUT.

STANDARD ROADWAY OPENCUT DETAIL

FINAL RESTORATION - TYPICAL OF MAJOR OPEN CUTS

PAVEMENT RESTORATION

- LONGITUDINAL CUTS MAY REQUIRE OVERLAY/ RESURFACING OF THE COMPLETE WIDTH OF THE TRAVELED WAY.
- CUTS AT INTERSECTIONS OF STREETS GENERALLY MAY REQUIRE A COMPLETE OVERLAY/ RESURFACING TO THE END OF ALL RETURN RADII AND ALSO TO A POINT TEN (10) FEET BEYOND THE CUT, WHICHEVER IS GREATER.
- ACTUAL REQUIREMENTS WILL BE AS STATED ON THE APPROVED PERMIT.

GENERAL NOTES:

- BASE REPLACEMENT SHALL BE 3000 PSI HIGH EARLY STRENGTH CONCRETE.
- ASPHALTIC CONCRETE SURFACE MATERIAL SHALL BE REPLACED WITH THE SAME TYPE OF MATERIAL THAT EXISTED AT THE TIME OF REMOVAL OR AS APPROVED BY THE COUNTY PUBLIC WORKS DEPARTMENT.
- MINIMUM ASPHALTIC CONCRETE SURFACE OVERLAY THICKNESS SHALL BE ONE (1 1/2) INCH, OR AS APPROVED BY THE COUNTY PW DEPARTMENT.
- ALL JOINT CUTS SHALL BE MECHANICALLY SAW CUT.

Drawing Name: J:\0251\FCH\DWG\DETAILS\Std\0251-FCH-Cover-roads-constr-details-Bldg-Std.dwg, Sep 16, 2014 - 10:30am gpcabuc

No.	Date	Revision	By	No.	Date	Revision	By

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Drawn by: GNP Scale: None  
Checked by: WWW  
Approved by: DEM  
Job No. O28416 ©2014

Plans Prepared By:  
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1117 E. Robinson St. Orlando, FL 32801  
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Survey L.B. No. 7143 Landscp. Lic. No. LC0000298

**SSA-ESA WATER MAIN**  
**(MEADOW WOODS WSF TO**  
**RHODE ISLAND WOODS CIRCLE)**  
Orange County, Florida

DAVID E. MAHLER, P.E.  
REG # 50041

CONSTRUCTION DETAILS

Sheet No. **21**

BID SET

UNIQUE ID No.	ASSET TYPE	COUNTY FEATURE No.	STATION	OFFSET	NORTHING	EASTING	ELEV.	SIZE
WM-1	Reducer		1+45	85' RT				36" x 24"
WM-2	45° Bend		1+55	75' RT				24"
WM-3	11.25° Bend		1+59	76' RT				24"
WM-4	45° Bend		1+60	76' RT				24"
WM-5	45° Bend		1+63	76' RT				24"
WM-6	5 7/8" Bend		1+53	110' RT				24"
WM-7	Tapping Sleeve & Valve		1+34	92' RT				16"
WM-8	Linestop		1+34	92' RT				16"
WM-9	Cap		1+34	92' RT				16"
WM-10	90° Bend		1+33	88' RT				16"
WM-11	Tee		1+45	85' RT				24"
WM-12	Gate Valve		1+45	85' RT				24"
WM-13	Reducer		1+45	85' RT				24" x 16"
WM-14	45° Bend		1+72	79' RT				24"
WM-15	45° Bend		1+77	77' RT				24"
WM-16	22.5° Bend		2+60	50' RT				24"
WM-17	45° Bend		3+64	44' RT				24"
WM-18	45° Bend		3+67	44' RT				24"
WM-19	Cap		3+97	43' RT				8"
WM-20	Gate Valve		4+03	41' RT				24"
WM-21	Tee		4+03	41' RT				24" x 8"
WM-22	Gate Valve		4+03	41' RT				8"
WM-23	90° Bend		4+03	34' RT				8"
WM-24	45° Bend		4+03	36' RT				8"
WM-25	Tapping Sleeve & Valve		3+97	34' RT				8"
WM-26	Tee		4+51	38' RT				24" x 6"
WM-27	Fire Hydrant Assembly		4+51	38' RT				6"
WM-28	45° Bend		5+10	37' RT				24"
WM-29	45° Bend		5+14	37' RT				24"
WM-30	5 7/8" Bend		5+43	37' RT				24"
WM-31	Air Release Valve		5+49	38' RT				2"
WM-32	11.25° Bend		5+67	40' RT				24"
WM-33	11.25° Bend		5+73	42' RT				24"
WM-34	45° Bend		5+93	40' RT				24"
WM-35	45° Bend		5+95	40' RT				24"
WM-36	5 7/8" Bend		7+78	39' RT				24"
WM-37	Gate Valve		9+46	39' RT				24"
WM-38	Tee		9+46	39' RT				24" x 8"
WM-39	Gate Valve		9+46	39' RT				8"
WM-40	90° Bend		9+46	27' RT				8"
WM-41	Tapping Sleeve & Valve		9+54	27' RT				8"
WM-42	Linestop		9+56	35' RT				16"
WM-43	Cap		9+56	35' RT				16"
WM-44	5 7/8" Bend		9+56	39' RT				24"
WM-45	Gate Valve		10+31	38' RT				24"
WM-46	Tee		10+31	38' RT				24" x 8"
WM-47	Gate Valve		10+31	38' RT				8"
WM-48	90° Bend		10+31	51' RT				8"
WM-49	Tapping Sleeve & Valve		10+25	51' RT				8"
WM-50	Linestop		10+25	51' RT				8"
WM-51	Cap		10+25	51' RT				8"
WM-52	Temporary Linestop		10+36	38' RT				12"
WM-53	5 7/8" Bend		11+04	39' RT				24"
WM-54	5 7/8" Bend		12+20	37' RT				24"
WM-55	22.5° Bend		12+30	36' RT				24"
WM-56	22.5° Bend		12+48	42' RT				24"
WM-57	5 7/8" Bend		13+93	39' RT				24"
WM-58	11.25° Bend		14+44	37' RT				24"
WM-59	11.25° Bend		14+52	37' RT				24"
WM-60	5 7/8" Bend		14+79	37' RT				24"
WM-61	Tee		15+61	36' RT				24" x 6"
WM-62	Fire Hydrant Assembly		15+61	48' RT				6"
WM-63	Gate Valve		15+73	36' RT				24"
WM-64	Tee		15+73	36' RT				24" x 6"
WM-65	Gate Valve		15+73	36' RT				6"
WM-66	90° Bend		15+73	44' RT				6"
WM-67	Tapping Sleeve & Valve		15+78	87' RT				6"

UNIQUE ID No.	ASSET TYPE	COUNTY FEATURE No.	STATION	OFFSET	NORTHING	EASTING	ELEV.	SIZE
WM-68	Linestop		15+78	87' RT				6"
WM-69	Cap		15+78	87' RT				6"
WM-70	11.25° Bend		16+26	41' RT				24"
WM-71	Temporary Linestop		16+35	33' RT				12"
WM-72	5 7/8" Bend		17+47	38' RT				24"
WM-73	5 7/8" Bend		18+32	38' RT				24"
WM-74	5 7/8" Bend		19+16	38' RT				24"
WM-75	5 7/8" Bend		20+00	38' RT				24"
WM-76	5 7/8" Bend		20+81	38' RT				24"
WM-77	11.25° Bend		20+98	36' RT				24"
WM-78	11.25° Bend		21+09	36' RT				24"
WM-79	5 7/8" Bend		22+02	39' RT				24"
WM-80	11.25° Bend		22+46	37' RT				24"
WM-81	11.25° Bend		22+62	37' RT				24"
WM-82	Gate Valve		22+81	37' RT				24"
WM-83	Tee		22+81	37' RT				24" x 8"
WM-84	Gate Valve		22+81	37' RT				8"
WM-85	90° Bend		22+81	57' RT				8"
WM-86	Tapping Sleeve & Valve		22+72	57' RT				8"
WM-87	Cap		23+15	33' RT				12"
WM-88	Tee		23+11	39' RT				24" x 6"
WM-89	Fire Hydrant Assembly		23+11	39' RT				6"
WM-90	11.25° Bend		23+23	40' RT				24"
WM-91	11.25° Bend		24+22	33' RT				24"
WM-92	11.25° Bend		26+00	28' RT				24"
WM-93	11.25° Bend		26+07	28' RT				24"
WM-94	11.25° Bend		27+04	23' RT				24"
WM-95	5 7/8" Bend		27+51	51' RT				24"
WM-96	5 7/8" Bend		28+38	22' RT				24"
WM-97	5 7/8" Bend		29+18	22' RT				24"
WM-98	45° Bend		29+41	24' RT				24"
WM-99	45° Bend		29+45	23' RT				24"
WM-100	45° Bend		29+50	28' RT				24"
WM-101	45° Bend		29+71	28' RT				24"
WM-102	45° Bend		29+75	24' RT				24"
WM-103	45° Bend		29+79	24' RT				24"
WM-104	5 7/8" Bend		30+22	22' RT				24"
WM-105	Gate Valve		30+61	22' RT				24"
WM-106	5 7/8" Bend		30+77	22' RT				24"
WM-107	5 7/8" Bend		31+94	22' RT				24"
WM-108	5 7/8" Bend		32+49	22' RT				24"
WM-109	Tee		32+60	23' RT				24" x 6"
WM-110	Fire Hydrant Assembly		32+60	23' RT				6"
WM-111	Gate Valve		32+73	23' RT				24"
WM-112	Tee		32+73	23' RT				24" x 8"
WM-113	Gate Valve		32+73	23' RT				8"
WM-114	90° Bend		32+73	21' RT				8"
WM-115	Tapping Sleeve & Valve		32+81	21' RT				8"
WM-116	Cap		32+81	27' RT				8"
WM-117	Temporary Linestop		33+05	29' RT				16"
WM-118	45° Bend		34+98	20' RT				24"
WM-119	45° Bend		35+05	27' RT				24"
WM-120	5 7/8" Bend		36+52	22' RT				24"
WM-121	5 7/8" Bend		37+33	22' RT				24"
WM-122	5 7/8" Bend		38+57	22' RT				24"
WM-123	5 7/8" Bend		39+38	22' RT				24"
WM-124	45° Bend		40+18	24' RT				24"
WM-125	45° Bend		40+23	24' RT				24"
WM-126	45° Bend		40+61	24' RT				24"
WM-127	45° Bend		40+66	24' RT				24"
WM-128	Tee		43+03	21' RT				24" x 6"
WM-129	Fire Hydrant Assembly		43+03	21' RT				6"
WM-130	Gate Valve		43+18	23' RT				24"
WM-131	45° Bend		44+24	22' RT				24"
WM-132	45° Bend		44+28	22' RT				24"
WM-133	5 7/8" Bend		44+31	22' RT				24"
WM-134	11.25° Bend		44+37	22' RT				24"

UNIQUE ID No.	ASSET TYPE	COUNTY FEATURE No.	STATION	OFFSET	NORTHING	EASTING	ELEV.	SIZE
WM-135	22.5° Bend		44+40	24' RT				24"
WM-136	45° Bend		44+46	29' RT				24"
WM-137	45° Bend		44+66	28' RT				24"
WM-138	45° Bend		44+70	23' RT				24"
WM-139	45° Bend		54+75	23' RT				24"
WM-140	Air Release Valve		45+05	22' RT				2"
WM-141	5 7/8" Bend		45+60	24' RT				24"
WM-142	5 7/8" Bend		46+91	23' RT				24"
WM-143	Temporary Linestop		47+64	22' RT				16"
WM-144	Tapping Sleeve & Valve		47+62	13' RT				8"
WM-145	Linestop		47+62	13' RT				8"
WM-146	Cap		47+62	13' RT				8"
WM-147	90° Bend		47+70	13' RT				8"
WM-148	Gate Valve		47+70	22' RT				24"
WM-149	Tee		47+70	22' RT				24" x 8"
WM-150	Gate Valve		47+70	22' RT				8"
WM-151	Gate Valve		49+26	22' RT				24"
WM-152	Tee		49+26	22' RT				24" x 8"
WM-153	Gate Valve		49+26	22' RT				8"
WM-154	Cap		49+21	26' RT				8"
WM-155	90° Bend		49+26	32' RT				8"
WM-156	Tapping Sleeve & Valve		49+21	32' RT				8"
WM-157	Temporary Linestop		49+32	25' RT				16"
WM-158	45° Bend		51+97	22' RT				24"
WM-159	45° Bend		52+03	28' RT				24"
WM-160	5 7/8" Bend		55+45	27' RT				24"
WM-161	5 7/8" Bend		56+21	27' RT				24"
WM-162	5 7/8" Bend		56+77	27' RT				24"
WM-163	Cap		56+24	27' RT				8"
WM-164	Gate Valve		57+29	26' RT				24"
WM-165	Tee		57+29	26' RT				24" x 8"
WM-166	Gate Valve		57+29	26' RT				8"
WM-167	90° Bend		57+29	33' RT				8"
WM-168	Tapping Sleeve & Valve		57+24	33' RT				8"
WM-169	5 7/8" Bend		57+76	28' RT				24"
WM-170	5 7/8" Bend		57+48	28' RT				24"
WM-171	5 7/8" Bend		67+79	31' RT				24"
WM-172	5 7/8" Bend		60+13	31' RT				24"
WM-173	5 7/8" Bend		60+76	31' RT				24"
WM-174	5 7/8" Bend		61+70	28' RT				24"
WM-175	Cap		61+64	35' RT				12"
WM-176	Gate Valve		61+72	32' RT				24"
WM-177	Tee		61+72	32' RT				24" x 12"
WM-178	Gate Valve		61+72	32' RT				12"
WM-179	90° Bend		61+72	26' RT				12"
WM-180	Tapping Sleeve & Valve		61+64	26' RT				12"
WM-181	Temporary Linestop		61+74	36' RT				16"
WM-182	Tee		61+84	32' RT				24" x 6"
WM-183	Fire Hydrant Assembly		61+84	22' RT				