CONSTRUCTION DRAWINGS FOR

ANDERSON ROAD WATER MAIN AND FORCE MAIN REPLACEMENT

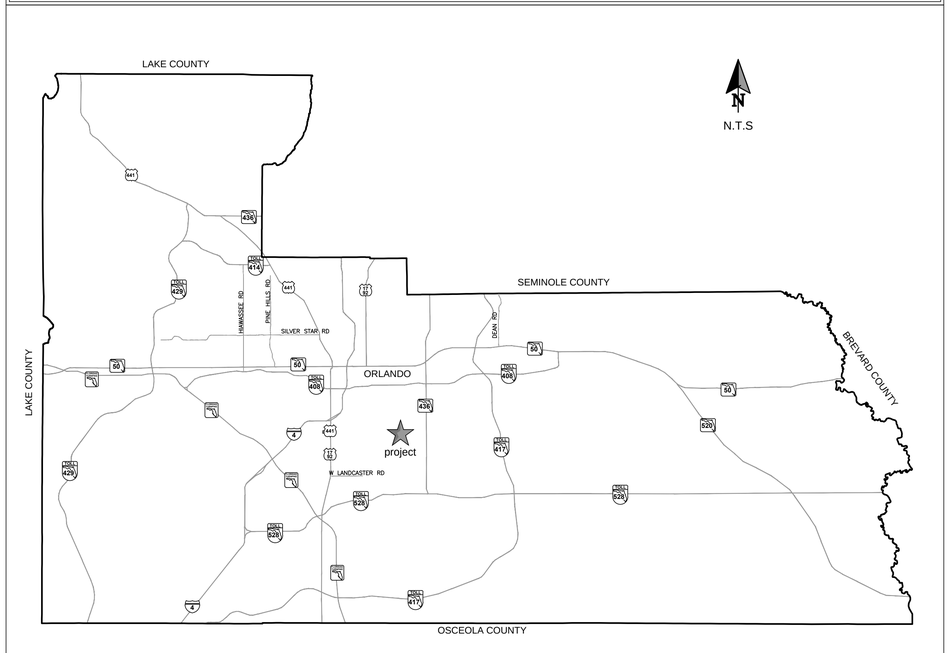
DISTRICT 3

MARCH 2016

CAPITAL PROJECT No. 1553-12 (W) & 1510-37 (WM)

PROJECT SEQUENCE No. 66745

VICINITY MAP



ORANGE COUNTY GOVERNMENT
FLORIDA

ORANGE COUNTY MAYOR

TERESA JACOBS

BOARD OF COUNTY COMMISSIONERS

DISTRICT 1: COMMISSIONER S. SCOTT BOYD
DISTRICT 2: COMMISSIONER BRYAN NELSON
DISTRICT 3: COMMISSIONER PETE CLARKE
DISTRICT 4: COMMISSIONER JENNIFER THOMPSON
DISTRICT 5: COMMISSIONER TED EDWARDS
DISTRICT 6: COMMISSIONER VICTORIA P. SIPLIN

COUNTY ADMINISTRATOR: AJIT LALCHANDANI

UTILITIES DIRECTOR: RAYMOND E. HANSON, P.E.

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

PREPARED BY:

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
PH: (407) 896-8608 FAX: (407)896-1822
ENGINEERING BUSINESS No. 6899

ENGINEER OF RECORD
CYNTHIA K. MALONE, P.E.

FLORIDA REGISTRATION No. 58685

LEGEND

- RIGHT OF WAY LINE
- LIMITED ACCESS RIGHT OF WAY LINE
- EASEMENT LINE
- EXISTING FENCE
- EXISTING CABLE TV
- EXISTING FIBER OPTIC CABLE
- EXISTING BURIED ELECTRIC
- EXISTING OVER FORCE MAIN
- EXISTING GAS
- EXISTING IRRIGATION
- EXISTING OVER HEAD UTILITY
- EXISTING RECLAIMED WATER MAIN
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE
- EXISTING WATER MAIN

REMOVE AND REPLACE EXISTING CONCRETE SURFACE

REMOVE AND REPLACE EXISTING ASPHALT SURFACE

- EXISTING PIPE TO BE REMOVED
- EXISTING PIPE TO BE RETIRED
- TAPPING SLEEVE AND VALVE
- TEE
- LINE STOP ASSEMBLY
- VALVE (TYP)
- SLEEVE
- HDPE / DI ADAPTER
- CAP
- REDUCER
- AIR RELEASE VALVE ASSEMBLY
- FIRE HYDRANT ASSEMBLY

- TREE - MAGNOLIA
- TREE - MAPLE
- TREE - CRAPE MYRTLE
- TREE - OAK
- TREE - OAK
- LIGHT POLE
- POWER POLE
- MAIL BOX (TYP)
- TEST HOLE (TH-1)

UTILITY PIPE DESIGNATION

SIZE — 8" | MATL — CLAY | TYPE — SAN | QUALITY LEVEL — (C)

NOTE: THIS DRAWING WAS PREPARED IN CONFORMANCE WITH ASCE STANDARD CE/ASCE 38-02 "AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA"

CI/ASCE 3802 SUBSURFACE UTILITY QUALITY LEVEL INDEX

1. QUALITY LEVEL A (QLA): UTILITY INFORMATION WHICH HAS BEEN VISUALLY VERIFIED, SURVEY LOCATED (BOTH HORIZONTALLY AND VERTICALLY) AND ACCURATELY REDUCED ONTO THE DRAWINGS. THIS IS TYPICALLY SHOWN AS A HV VERIFICATION EXCAVATION HOLE.
2. QUALITY LEVEL B (QLB): UTILITY INFORMATION DERIVED BY MARKING THE APPROXIMATE SURFACE HORIZONTAL LOCATION OF UTILITY USING ELECTRONIC METHODS BY THE UTILITY OWNER. MARKINGS BY UTILITY OWNERS ARE ASSUMED TO BE LOCATED BY ELECTRONIC METHODS AND SEPARATE LOCATES WILL NOT BE PERFORMED BY THE ENGINEER. MARKING IS SUBSEQUENTLY FIELD SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DRAWINGS.
3. QUALITY LEVEL C (QLC): UTILITY INFORMATION OBTAINED AS BELOW FOR QUALITY LEVEL D, PLOTTED TO CORRELATE WITH SURFACE UTILITY FEATURES WHICH HAVE BEEN FIELD VERIFIED, SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DRAWINGS. INCLUDED IN THIS CATEGORY ARE AERIAL UTILITY INFORMATION AND UTILITY DEPICTIONS, WHICH IN THE PROFESSIONAL OPINION OF THE SUBSURFACE UTILITY ENGINEER, REPRESENT THE MOST PROBABLE APPROXIMATE HORIZONTAL LOCATION, TYPE AND / OR EXISTENCE OF A UTILITY.
4. QUALITY LEVEL D (QLD): UTILITY INFORMATION PLOTTED ON THE DRAWING BASED SOLELY ON RECORD INFORMATION, INDIVIDUAL RECOLLECTIONS OR THE EXISTENCE OF UTILITY SERVICE. IT SHALL BE NOTED THAT ALL INFORMATION SHOWN (OTHER THAN AT TEST HOLE LOCATIONS, SEE QLA ABOVE) WITH REFERENCE TO A UTILITIES SIZE, CAPACITY, MATERIAL COMPOSITION, CONDITION OR SERVICE STATUS SHALL BE CONSIDERED QLD EVEN THOUGH THE UTILITY MAY BE PLOTTED AND LABELED QLC OR QLB.

REF:NNNNN REFERENCE MADE TO AN APPLICABLE SECTION(S) OF THE TECHNICAL SPECIFICATIONS FOR THIS PROJECT.

ABBREVIATIONS

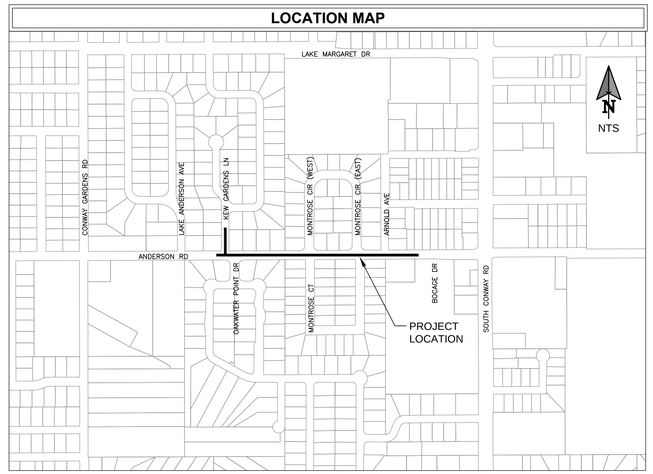
AC	ASBESTOS CEMENT, AIR CONDITIONER
ADPT	ADAPTER
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATELY
ARV	AIR RELEASE VALVE ASSEMBLY
ASPH	ASPHALT
ASSEM	ASSEMBLY
AUX	AUXILIARY
B	BEND
BFO	BURIED FIBER OPTIC
BFP	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BL	BASE LINE
BLDG	BUILDING
BM	BENCHMARK
BO	BLOW OFF
BOT	BOTTOM
BRKT	BRACKET
BV	BALL VALVE
CB	CATCH BASIN
C\C	CENTER LINE TO CENTER LINE
CFS	CUBIC FEET PER SECOND
C&G	CURB AND GUTTER
CIP	CAST IRON PIPE
CIS	CUT IN SLEEVE
CL	CENTER LINE
CLF	CHAIN LINK FENCE
CM	CONCRETE MONUMENT
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONN	CONNECT
CONST	CONSTRUCT
CONT	CONTINUATION
CORP	CORPORATION
CPLG	COUPLING
CULV	CULVERT
CV	CHECK VALVE
CY	CUBIC YARD
DBI	DITCH BOTTOM INVERT
DBL	DOUBLE
DEFL	DEFLECTION
DHW	DESIGN HIGH WATER
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DWLS	DOWELS
DWG	DRAWING
DWY	DRIVEWAY
ELEC	ELECTRIC
EA	EACH
EFF	EFFLUENT
ELEV	ELEVATION
EMB	EMBED OR EMBEDDED
E\P	EDGE OF PAVEMENT
ESMT	EASEMENT
EW	EACH WAY
EXIST	EXISTING
EXP JT	EXPANSION JOINT
FD	FLOOR DRAIN
FDEP	FLORIDA DEPT OF ENVIRON PROTECTION
FDOT	FLORIDA DEPT OF TRANSPORTATION
FA	FLANGED ADAPTER
FF	FINISH FLOOR
FCA	FLANGED COUPLING ADAPTER
FHA	FIRE HYDRANT ASSEMBLY
FIG	FIGURE
FLG	FLANGE
FL	FLOW LINE
FM	FORCE MAIN
FT	FEET
FTG	FOOTING
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERATOR
GRD	GROUND
GSP	GALVANIZED STEEL PIPE
GM	GAS MAIN
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HB	HOSE BIBB
HDWL	HEADWALL
HFCA	HARNESSED FLANGE COUPLING ADAPTER
HT	HEIGHT
HP	HORSE POWER
HORIZ	HORIZONTAL
HWL	HIGH WATER LEVEL
IE	INVERT ELEVATION
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT
IP	IRON PIPE
IR	IRON ROD
JB	JUNCTION BOX
JUNC	JUNCTION
LAT	LATERAL
LF	LINEAR FEET
LS	LIFT STATION
LT	LEFT
LWL	LOW WATER LEVEL
MAX	MAXIMUM
MATL	MATERIAL
MCC	MOTOR CONTROL CENTER
MES	MITERED END SECTION
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MOD	MODIFIED
MOT	MAINTENANCE OF TRAFFIC
MTD	MOUNTED
MTG	MOUNTING
NG	NATURAL GROUND
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
OCU	ORANGE COUNTY UTILITIES
OD	OUTSIDE DIAMETER
OHU	OVERHEAD UTILITY
O\E	OR EQUAL
O\O	OUTSIDE TO OUTSIDE
OPER	OPERATOR
OPNG	OPENING
OUC	ORLANDO UTILITIES COMMISSION
PAVT	PAVEMENT
PB	PULL BOX
PE	PLAIN END
PG	PAGE
PI	POINT OF INTERSECTION
PH	PHASE
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
POLY	POLYETHYLENE
PP	POWER POLE
PROP	PROPOSED
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PSM	PROFESSIONAL SURVEYOR & MAPPER
PUE	PERMANENT UTILITY EASEMENT
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE PIPE
QTY	QUANTITY
RAD PT	RADIUS POINT
R	RADIUS
RJ	RESTRAINED JOINT
R\R	RAIL ROAD
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
REINF	REINFORCED
REQ	REQUIRED
RESTR	RESTRAINED
RPZ	REDUCED PRESSURE ZONE
RT	RIGHT
RW	RECLAIMED WATER
R\W	RIGHT OF WAY
SAN	SANITARY SEWER
SB	SOIL BORING
SCH	SCHEDULE
SD	STORM DRAIN
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SLV	SLEEVE
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
SY	SQUARE YARDS
SYS	SYSTEM
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE
TEMP	TEMPORARY
THD	THREADED
THK	THICK
TOB	TOP OF BANK
TOS	TOP OF SLAB
TOW	TOP OF WALL
TS&V	TAPPING SLEEVE AND VALVE
TYP	TYPICAL
UG	UNDERGROUND
VAC	VOLTAGE ALTERNATING CURRENT
VCP	VITRIFIED CLAY PIPE
VDC	VOLTAGE DIRECT CURRENT
VERT	VERTICAL
VVH	VERIFIED VERTICALLY & HORIZONTALLY
w/	WITH
w/o	WITH OUT
WL	WATER LEVEL
WM	WATER MAIN
WM	WATER METER
WP	WALL PIPE
WRF	WATER RECLAMATION FACILITY
WS	WATER SERVICE
WS	WATER SURFACE
WWF	WELDED WIRE FABRIC

INDEX OF DRAWINGS

UTILITY OWNER CONTACTS

OCU EMERGENCY	ORANGE COUNTY EMERGENCY DISPATCH	407-836-2777	(24 HOUR ASSISTANCE)
WASTEWATER	ORANGE COUNTY FIELD SERVICES DIVISION	407-836-6818	
WATER	ORANGE COUNTY FIELD SERVICES DIVISION	407-836-6818	
TRAFFIC / FIBER	ORANGE COUNTY PUBLIC WORKS	407-836-7814	
POWER	PROGRESS ENERGY FLORIDA, INC.	407-942-9472	
PHONE	AT&T CORP.	407-294-3005	
PHONE	EMBARQ	407-814-5344	
GAS	LAKE APOPKA NATURAL GAS	407-656-2734	
CABLE TV	BRIGHTHOUSE NETWORKS	407-532-8509	

LOCATION MAP



No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
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1230 E. Hillcrest Street, Orlando, FL, 32803
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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

INDEX OF DRAWINGS, LOCATION MAP, LEGEND AND ABBREVIATIONS

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

DRAWING No. G-2

SHEET 2 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM G-02.dwg

MARCH 2016 - 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 UTILITIES FACILITIES CONSTRUCTION CONNECTING TO THE ORANGE COUNTY PUBLIC UTILITIES SYSTEM SHALL CONFORM TO THE ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL, AND BE ONE OF THE APPROVED PRODUCTS LISTED IN APPENDIX 'D' OF THE MANUAL.

2. THE UTILITIES IMPROVEMENTS AND ADJUSTMENT SHOWN ON THESE DRAWINGS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE ORANGE COUNTY WATER, WASTEWATER, AND RECLAIMED WATER SYSTEMS. THE DRAWINGS DO NOT INCLUDE WORK PERFORMED ON, OR FOR UTILITY SYSTEMS OWNED BY OTHERS, UNLESS STATED OTHERWISE ON THE DRAWINGS.

3. COORDINATION AND COMMUNICATIONS WITH ORANGE COUNTY STAFF SHALL BE MADE THROUGH THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION INSPECTOR.

4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ORANGE COUNTY UTILITIES DISPATCH (EMERGENCY ONLY) IN THE EVENT OF UTILITY MAIN BREAK OR DAMAGE AT 407-836-2777.

5. 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.

6. 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.

7. ORANGE COUNTY UTILITIES DEPARTMENT TELEPHONE NUMBERS:

   407-836-2777 ORANGE COUNTY UTILITIES DISPATCH
   407-254-9798 ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION
   407-254-9680 ORANGE COUNTY UTILITIES WATER RECLAMATION DIVISION
   407-254-9850 ORANGE COUNTY UTILITIES WATER DIVISION
   407-254-9900 ORANGE COUNTY UTILITIES ENGINEERING DIVISION

8. 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 FOR PROVIDING TEMPORARY SUPPORT FOR THE UTILITY POLES, ANCHOR GUYS, AND ALL OTHER UTILITIES DURING CONSTRUCTION.

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, FIBER OPTIC 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 THE RESOLUTION OF ANY UNKNOWN OR UNFORESEEN CONFLICTS. 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. ALL MAIN REPAIRS TO BE COMPLETED IMMEDIATELY BY THE CONTRACTOR, AT THE CONTRACTOR'S COST. IF THE MAIN IS NOT REPAIRED IN A TIMELY MANNER, AS DETERMINED BY THE OCU INSPECTOR, ORANGE COUNTY UTILITIES PERSONNEL MAY REPAIR MAIN AND THE CONTRACTOR WILL BE BACK CHARGED FOR REPAIRS.

12. USE EXTREME CAUTION WHEN EXCAVATING OR CONNECTING TO ASBESTOS CEMENT PIPE. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY TRUCKS CAPABLE OF PUMPING OUT THE PUMP STATION UPSTREAM FROM BREAKS OR CONNECTION 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.

13. ALL EXISTING AND NEW OCU WATER AND SEWER VALVES, VALVE BOXES, AND MANHOLES SHALL BE PROTECTED AND ADJUSTED TO FINISHED GRADE AS SHOWN ON THE DRAWINGS. VALVE AND VALVE BOXES SHALL REMAIN ACCESSIBLE AT ALL TIMES. ANY VALVES THAT MIGHT BE COVERED DURING CONSTRUCTION SHALL BE MARKED WITH A MARKER (GREEN FOR SEWER, BLUE FOR WATER, AND PURPLE FOR RECLAIMED WATER MAIN), A MINIMUM OF FOUR (4) FEET ABOVE GRADE. ALL VALVES UNDER CONSTRUCTION ARE TO REMAIN CLOSED DURING CONSTRUCTION.

14. ALL PVC WATER AND SEWER MAIN AND RECLAIMED WATER MAIN SHALL CONFORM TO AWWA C900, DR 18, OR C905, DR 25. ALL DUCTILE IRON WATER MAIN PIPE SHALL CONFORM TO ANSI/AWWA A21.51/C151. ALL PVC PRESSURE PIPE SHALL USE DUCTILE IRON FITTINGS.

15. ALL PROPOSED DUCTILE IRON MECHANICAL JOINT FITTINGS, PIPES, OR PIPE RESTRAINTS WITHIN FORTY (40) FEET OF EXISTING GAS MAINS SHALL BE POLYETHYLENE ENCASED.

16. ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY AS MEASURED BY AASHTO T-180 METHOD 'D' TEST (MODIFIED PROCTOR) IN OPEN AREAS AND TO NOT LESS THAN 98% 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 SOIL TESTING.

17. PIPE LENGTHS SHOWN ON PLANS ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION.

18. ALL NORTHING AND EASTING COORDINATES ARE BASED ON THE STATE PLANE COORDINATE SYSTEM. STATIONING IS FOR REFERENCE ONLY.

19. MAINTAIN EMERGENCY VEHICLE ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.

20. IN AREAS WHERE CONSTRUCTION ACTIVITIES RESTRICT NORMAL ACCESS TO PROPERTIES, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALTERNATE ACCESS ROUTES WHICH ARE SUBJECT TO APPROVAL BY THE ENGINEER, AS PART OF THE M.O.T. PLAN.

21. 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.

22. ALL EXCAVATIONS SHALL BE BACK FILLED AT THE END OF EACH WORK DAY.

23. ALL PIPES 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 AND THRUST COLLAR DETAIL.

24. PIPE SIZES SHOWN ON PLANS ARE NOMINAL DIAMETER.

25. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DE-WATERING REQUIRED DURING CONSTRUCTION AND TO OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR THE TEMPORARY DE-WATERING.

26. REPLACEMENT WATER SERVICE CONNECTIONS SHALL INCLUDE THE REPLACEMENT OF THE EXISTING WATER METER BOXES WHICH ARE TO BE PROVIDED BY ORANGE COUNTY UTILITIES AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH COUNTY FOR THE SPECIFIC INSTALLATION LOCATION OF METER BOXES. FOR REROUTING WATER SERVICE ON PRIVATE PROPERTY THE CONTRACTOR SHALL RELOCATE EXISTING METERS TO NEW METER BOXES WHERE INDICATED ON THE DRAWINGS.

27. THE CONTRACTOR SHALL INSTALL LONG WATER SERVICE CONNECTION PIPING UNDER PAVEMENT USING TRENCHLESS CONSTRUCTION METHODS. WATER SERVICE CONNECTIONS CROSSING UNDER ANY PART OR ALL OF ROADS SHALL BE INSTALLED IN A PVC CASING PIPE.

28. WHERE SHOWN ON THE PLANS, LINE STOPS WILL BE USED TO ISOLATE PORTIONS OF THE EXISTING MAINS. THE ORANGE COUNTY INSPECTOR SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF LINE STOP INSTALLATION.

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 REFERENCE 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. ALL EXISTING VALVES, VALVE BOXES, ARV'S AND VAULTS, AND FIRE HYDRANTS LOCATED ON PIPE DESIGNATED TO BE ABANDONED (OR RETIRED IN PLACE) SHALL BE REMOVED AND DISPOSED OF OR SALVAGED IN ACCORDANCE WITH THE SPECIFICATIONS.

31. PROTECT EXISTING IMPROVEMENTS TO THE MAXIMUM EXTENT POSSIBLE. RESTORE ALL EXISTING IMPROVEMENTS AND DISTURBED AREAS TO ORIGINAL CONDITION. PAVEMENT TO BE RESTORED IN ACCORDANCE WITH THE PAVEMENT RESTORATION DETAILS SHOWN ON THE CONSTRUCTION DETAIL SHEETS. ALL DAMAGED MAILBOXES, IRRIGATION SYSTEMS, SOD, LANDSCAPING, FENCING, SIDEWALK, ROADWAY PAVEMENT AND OTHER IMPROVEMENTS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

32. FOR ALL COUNTY ROADS TO BE OPEN CUT, THE CONTRACTOR SHALL 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 48 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.

33. 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. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OCU UTILITIES INSPECTOR.

34. NO VALVE BOXES, METERS, PORTIONS OF MANHOLES, OR OTHER APPURTENANCES OF ANY KIND RELATING TO ANY UNDERGROUND UTILITIES SHALL BE LOCATED IN ANY PORTION OF A CURB-AND-GUTTER SECTION. CONTRACTOR SHALL ADVISE ENGINEER IMMEDIATELY UPON DISCOVERY OF A POTENTIAL CONFLICT.

35. 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 OR AS NEEDED TO REMAIN WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR TO COMPLY WITH OSHA TRENCH SAFETY REQUIREMENTS AT ALL TIMES.

36. ALL EXISTING MAINS SHALL REMAIN IN SERVICE UNTIL THE PROPOSED MAIN(S) ARE ACCEPTED FOR SERVICE AND ALL SERVICES ARE TRANSFERRED TO THE MAIN(S).

37. CONTRACTOR SHALL APPLY FOR AND SECURE ALL NECESSARY PERMITS FROM STATE, COUNTY, AND LOCAL MUNICIPALITIES. PERMITS SHALL INCLUDE, BUT NOT BE LIMITED TO, RIGHT OF WAY USE, CONSTRUCTION, BUSINESS LICENSE, AND DEWATERING.

38. FOR PVC PIPE, NO HORIZONTAL/VERTICAL PIPE DEFLECTION WILL BE ALLOWED. CONTRACTOR SHALL USE FITTINGS TO OBTAIN THE REQUIRED CLEARANCES. ON DUCTILE IRON PIPE, CONTRACTOR SHALL NOT EXCEED 75% OF THE MANUFACTURES RECOMMENDATION FOR PIPE DEFLECTION. OTHERWISE USE FITTINGS TO OBTAIN REQUIRED CLEARANCES. ALL FITTINGS SHALL BE ADDED TO THE COORDINATE ASSET ATTRIBUTE TABLE.

39. THE DISPOSAL OF ANY EXCESS EARTH WORK MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

40. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SALVAGE AND/OR DISPOSAL OF ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE ORANGE COUNTY UTILITIES INSPECTOR.

41. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN CONSTRUCTION AND ARE THE MINIMUM REQUIRED. CONTRACTOR SHALL FURNISH ADDITIONAL CONTROLS AS NEEDED AT NO ADDITIONAL COST. MATERIALS FROM WORK ON THIS PROJECT SHALL BE CONTAINED AND NOT ALLOWED TO COLLECT ON ANY OFF PERIMETER AREAS OR IN WATERWAYS. SILK SCREENS, HAY BALES, AND TURBIDITY BARRIERS MUST REMAIN IN PLACE AND IN GOOD CONDITION AT ALL LOCATIONS IN PLANS OR AS REQUIRED UNTIL THE CONTRACT IS COMPLETED AND SOILS ARE STABILIZED AND VEGETATION IS ESTABLISHED. MEASURES SHOWN ON THE PLANS ARE MINIMUM REQUIRED, AND THE CONTRACTOR SHALL ENSURE THAT THERE IS NO DIRECT OR INDIRECT DISCHARGE OF CONSTRUCTION MATERIALS IN TURBID WATERS TO OFF SITE AREAS OR WATERWAYS.

42. THE PROJECT SHALL BE CONSTRUCTED SEQUENTIALLY IN THREE GENERAL CONSTRUCTION PHASES AS DETAILED ON SHEET G-4 AND AS EXPLAINED IN SPECIFICATION SECTION 01010 - SUMMARY OF WORK.

SPILL NOTES

1. THE CONTRACTOR SHALL PROVIDE TANKERS AND SIGNED DOCUMENTS ACKNOWLEDGING THE UNDERSTANDING OF THE ORANGE COUNTY UTILITY "**EMERGENCY WASTEWATER SPILL AND WATER MAIN BREAK PROCEDURES**", IN THE PRE-CONSTRUCTION PACKET FOR THE MEETING.

2. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ON-SITE DURING THE LIFE OF THE PROJECT, A WEATHER PROOF ENCLOSURE CONTAINING A READILY ACCESSIBLE LIST OF EMERGENCY CONTACTS AND PHONE NUMBERS.

EMERGENCY WASTEWATER SPILL, WATER MAIN, RECLAIMED WATER MAIN BREAKER PROCEDURES

DAMAGE NOTIFICATION:

1. THE ORANGE COUNTY UTILITY DISPATCH OPERATOR (407-836-2777) SHALL BE NOTIFIED IMMEDIATELY IN THE EVENT OF A FORCE MAIN, GRAVITY SEWER, OR RECLAIMED WATER MAIN BREAK OR DAMAGE.

IMMEDIATE REPAIR:

2. ALL DAMAGE TO ORANGE COUNTY'S MAIN SHALL BE REPAIRED IMMEDIATELY WITHOUT DELAY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. IF THE REPAIR IS NOT MADE IN A TIMELY AND APPROVED MANNER, AS DETERMINED BY THE ORANGE COUNTY UTILITIES INSPECTOR, ORANGE COUNTY MAY PERFORM THE REPAIRS AND THE CONTRACTOR WILL BE CHARGED FOR THE REPAIRS.

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
PH: (407) 896-8608 FAX: (407)896-1822
ENGINEERING BUSINESS No. 6899

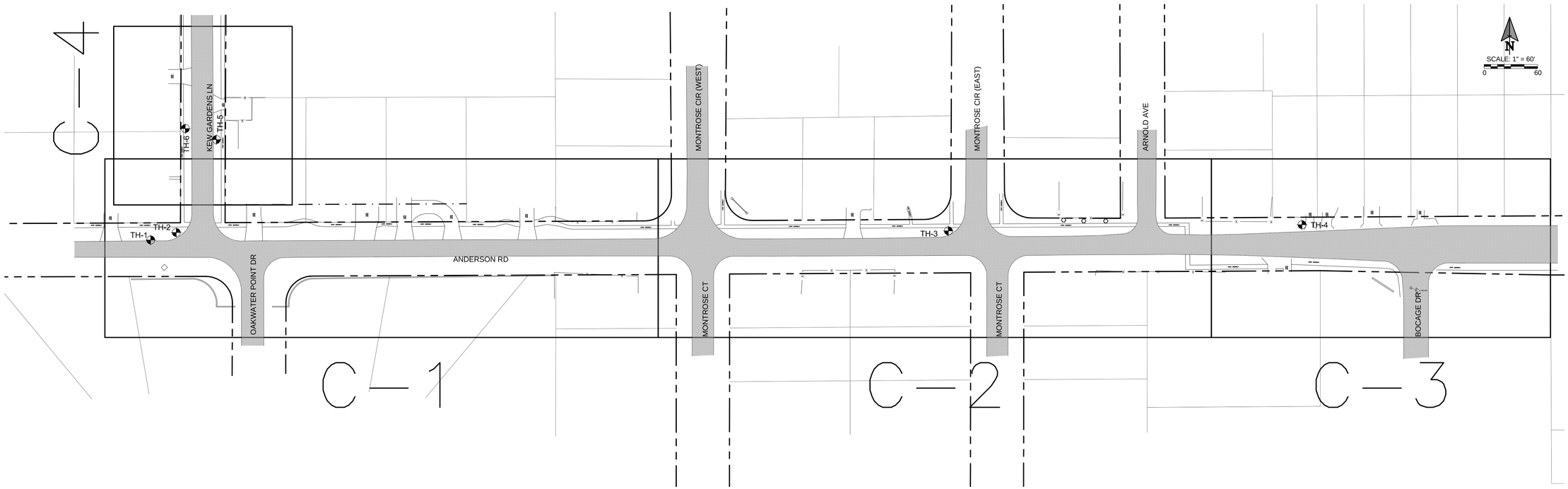
ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

GENERAL NOTES

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No.
58685

PROJECT No.: 2011-11-24
PROJECT DATE: MAR 2016
DESIGNED BY: RGB
DRAWN BY: JAB
CHECKED BY: CKM
DRAWING FILE: SEE MARGIN

DRAWING No.
G-3
SHEET 3 OF 13



HORIZONTAL AND VERTICAL DATA TABLE

Location ID	Horizontal Coordinates	Elevation (ft)	Utility Owner	Size, Material & Type
TH-1	N 1515506.38 E 548115.07	89.47	OCU	8" PVC WATER
TH-2	N 1515514.84 E 548143.75	89.80	OCU	8" AC FORCE
TH-3	N 1515516.62 E 549008.98	99.98	OCU	6" DI WATER
TH-4	N 1515523.51 E 549405.31	103.34	OCU	8" AC FORCE
TH-5	N 1515619.47 E 548192.96	88.90	OCU	8" AC FORCE
TH-6	N 1515631.08 E 548153.89	88.76	OCU	8"X8" AC WATER

Notes

All elevations are to top of utility

Survey field work performed December 18, 2014

Legend

AC	ASBESTOS CONCRETE
DI	DUCTILE IRON
FORCE	FORCE MAIN
PVC	POLYVINYL CHLORIDE (PLASTIC)
WATER	WATER MAIN
TH-#	TEST HOLE

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

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SCALE: AS NOTED

ORANGE COUNTY UTILITIES
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ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

KEY MAP AND TEST HOLE DATA SCHEDULE

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.: 2011-11-24
PROJECT DATE: MAR 2016
DESIGNED BY: RGB
DRAWN BY: JAB
CHECKED BY: CKM
DRAWING FILE: SEE MARGIN

DRAWING No. G-4

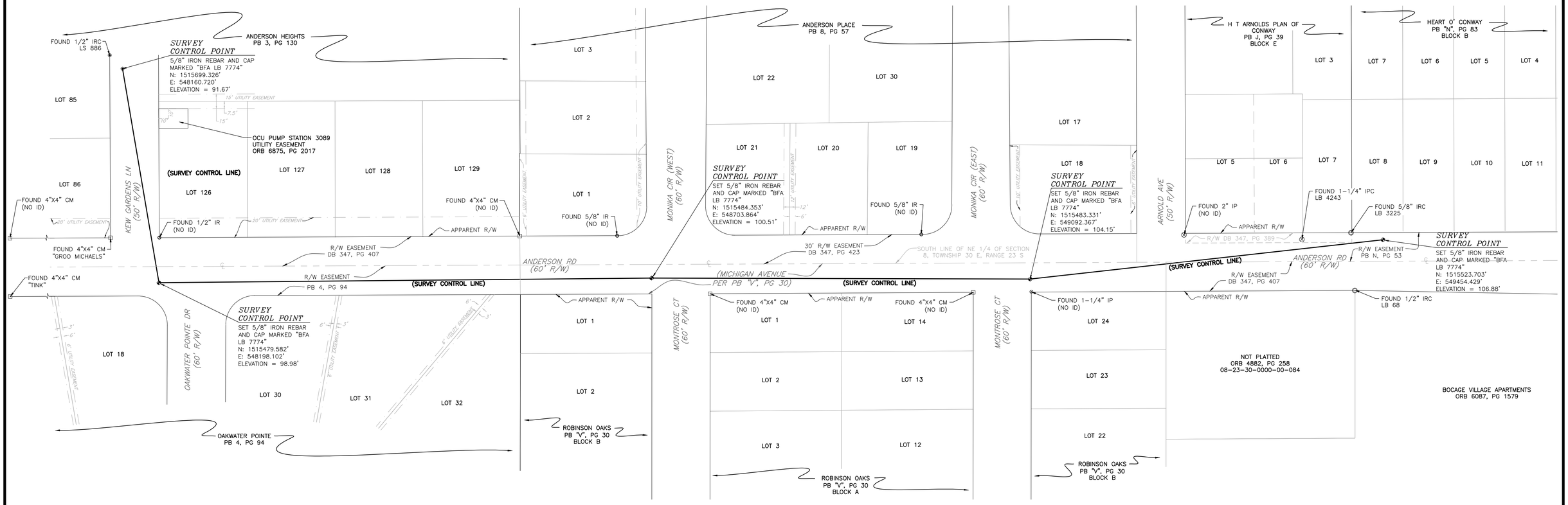
SHEET 4 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM G-04.dwg

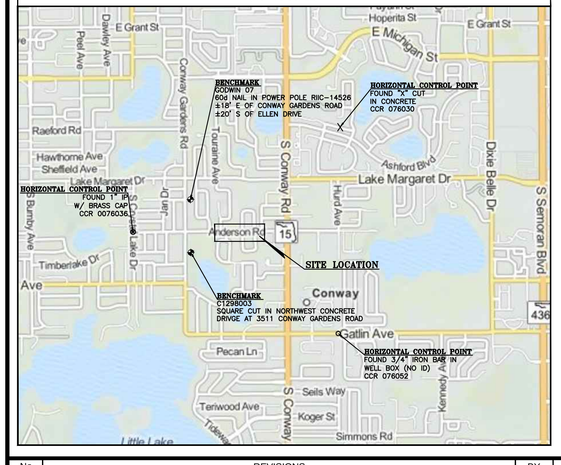
MARCH 2016 - BID SET

CONTROL SURVEY

ANDERSON ROAD WATER MAIN AND FORCE MAIN REPLACEMENT
SECTION 8, TOWNSHIP 30 EAST, RANGE 23 SOUTH
ORANGE COUNTY, FLORIDA.



VICINITY MAP & CONTROL POINTS
(NOT TO SCALE)



SURVEYOR'S NOTES:

1. THIS CONTROL SURVEY IS ACCOMPANIED BY A SIGNED AND SEALED SURVEYOR'S REPORT AND NEITHER IS COMPLETE WITHOUT THE OTHER.
2. GRAPHIC SYMBOLS, SHOWN HEREON, ARE NOT SHOWN TO SCALE.
3. LAST DAY IN THE FIELD: JANUARY 30, 2015

DATUM REFERENCE:

HORIZONTAL DATUM:

COORDINATE VALUES AND BEARINGS FOR THIS PROJECT ARE IN THE FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983/1990 ADJUSTMENT, EXPRESSED IN U.S. SURVEY FEET.

VERTICAL DATUM:

ALL VERTICAL CONTROL IS BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), EXPRESSED IN U.S. SURVEY FEET.

PUBLISHED CONTROL POINTS:

HORIZONTAL CONTROL POINTS:

CCR 076030 – "X" CUT IN CONCRETE
NORTHING: 1518159.60'
EASTING: 551216.42'

CCR 076052 – 3/4" IRON BAR IN WELL BOX
NORTHING: 1512856.245
EASTING: 551226.598

CCR 076036 – 1" IRON PIPE WITH BRASS CAP
NORTHING: 1515485.95'
EASTING: 545921.80'

VERTICAL CONTROL POINTS:

GODWIN 07 – 60d NAIL ON WEST FACE OF POWER POLE
ELEVATION = 98.00'

C1298003 – SQUARE CUT ON NORTHWEST CORNER OF DRIVEWAY
ELEVATION = 93.07'

LEGEND:

N	NORTH / NORTHING
E	EAST / EASTING
S	SOUTH
W	WEST
CCR	CERTIFIED CORNER RECORD
PB	PLAT BOOK
DB	DEED BOOK
PG	PAGE NUMBER
R/W	RIGHT-OF-WAY
IR	IRON REBAR
IRC	IRON REBAR AND CAP
IP	IRON PIPE
IPC	IRON PIPE AND CAP
CM	CONCRETE MARKER
⊕	SURVEY CONTROL POINT
⊡	FOUND 4X4 CONCRETE MARKER
○	FOUND 5/8" REBAR
●	FOUND 5/8" REBAR AND CAP
⊗	FOUND IRON PIPE
X	FOUND "X" CUT IN CONCRETE
–|–	LINE NOT TO SCALE

N

GRAPHIC SCALE
0 25 50 100
1" = 50'

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

LINE IS 2 INCHES
AT FULL SIZE
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SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

SURVEY CONTROL

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

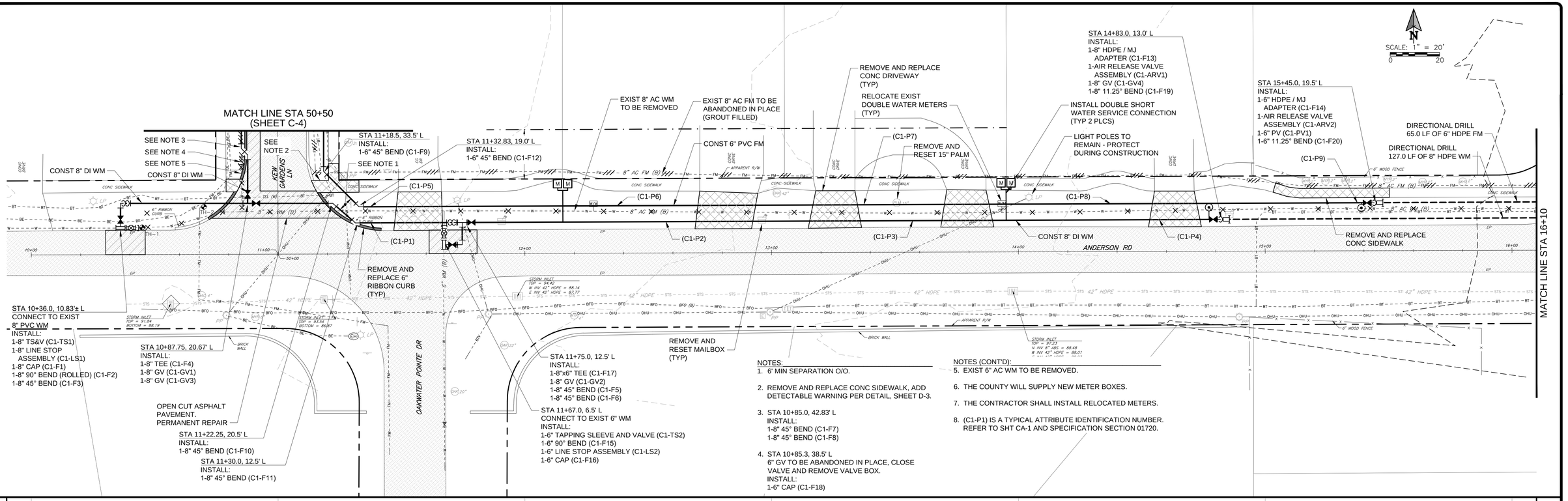
PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	WM
DRAWN BY:	CRS
CHECKED BY:	WM
DRAWING FILE:	SEE MARGIN

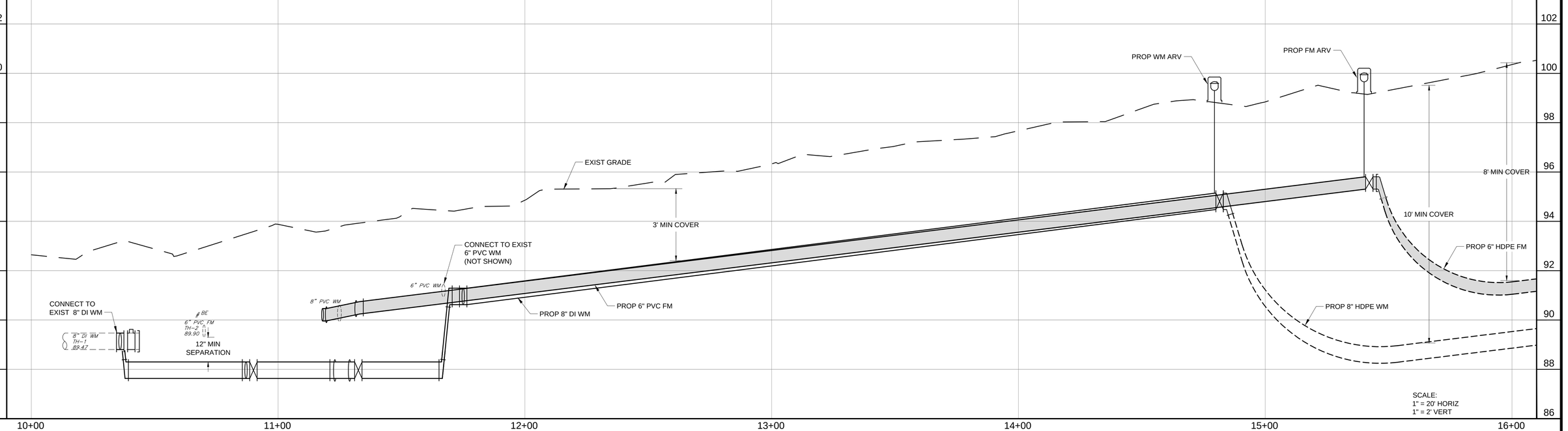
DRAWING No. V-1

SHEET 5 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM V-01.dwg

MARCH 2016 - BID SET





No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

ANDERSON ROAD PLAN AND PROFILE
STA 10+00 TO STA 16+10

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

DRAWING No. C-1
SHEET 6 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM C-01.dwg

MARCH 2016 - BID SET

MATCH LINE STA 16+10

MATCH LINE STA 22+30

EXIST 8" AC WM TO BE REMOVED

EXIST 8" AC FM TO BE ABANDONED IN PLACE (GROUT FILLED)

STA 16+85.0, 26.75'± L
INSTALL:
1-8" CAP (C2-F3)

STA 16+86.0, 17.25'± L
INSTALL:
1-8" CAP (C2-F2)

DIRECTIONAL DRILL
187.0 LF OF 8" HDPE WM

STA 17+96.0, 13.5' L
INSTALL:
1-8" HDPE / DI ADAPTER (C2-F4)
1-8" GV (C2-GV1)
1-8" 11.25° BEND (C2-F15)

EXIST 8" AC WM TO BE REMOVED

EXIST 8" AC FM TO BE REMOVED

STA 19+41, 27.5'± L
CONNECT TO EXIST 8" PVC WM
INSTALL:
1-8" TS & V (C2-TS1)
1-8" 45° BEND (C2-F7)

EXIST 8" GV TO BE CLOSED AND ABANDONED
REMOVE EXIST VALVE BOX
INSTALL:
1-8" CAP (RESTR)(C2-F5)

INSTALL DOUBLE SHORT WATER SERVICE CONNECTION

STA 19+51.0, 34.5'± L
INSTALL:
1-8" CAP (C2-F8)

EXIST 8" AC FM TO BE ABANDONED IN PLACE (GROUT FILLED)

STA 19+82.0, 32.83'± L
INSTALL:
1-8" CAP (C2-F9)

DIRECTIONAL DRILL
486.0 LF OF 6" HDPE FM

STA 20+96.0, 20.5' L
INSTALL:
1-6" HDPE / PVC ADAPTER (C2-F10)
1-6" PV (C2-PV1)
1-6" 11.25° BEND (C2-F16)

EXIST 8" AC FM TO BE REMOVED

CONST 8" PVC FM

REMOVE AND RESET CRAPE MYRTLES (TYP 3 PLCS)

STA 21+45.0, 27.17'± L
INSTALL:
1-8" CAP (C2-F12)

CONST 6" PVC FM
(C2-P2)

EXIST 8" AC FM TO BE ABANDONED IN PLACE (GROUT FILLED)

STA 21+72.0, 26.83'± L
INSTALL:
1-8" CAP (C2-F13)

EXIST 8" AC FM TO BE REMOVED

(C2-P3)

SCALE: 1" = 20'
0 20

EXIST 8" AC WM TO BE ABANDONED IN PLACE (GROUT FILLED)

STA 16+22.0, 16.83'± L
INSTALL:
1-8" CAP (C2-F1)

(C2-P1)

CONST 8" DI WM

STA 19+35.0, 14.25' L
INSTALL:
1-8" 45° BEND (C2-F6)
1-AIR RELEASE VALVE ASSEMLBY (C2-ARV1)

8" PVC WM TO REMAIN IN SERVICE

ABAND 8" AC WM TO BE REMOVED

OPEN CUT ASPHALT PAVEMENT, PERMANENT REPAIR

STA 20+84.0, 18.5'± L
INSTALL:
1-8" CAP (C2-F11)

REMOVE AND RESET MAILBOX (TYP)

REMOVE AND REPLACE CONC DRIVEWAY

REMOVE AND REPLACE CONC SIDEWALK, ADD DETECTABLE WARNING PER DETAIL, SHEET D-3 (TYP)

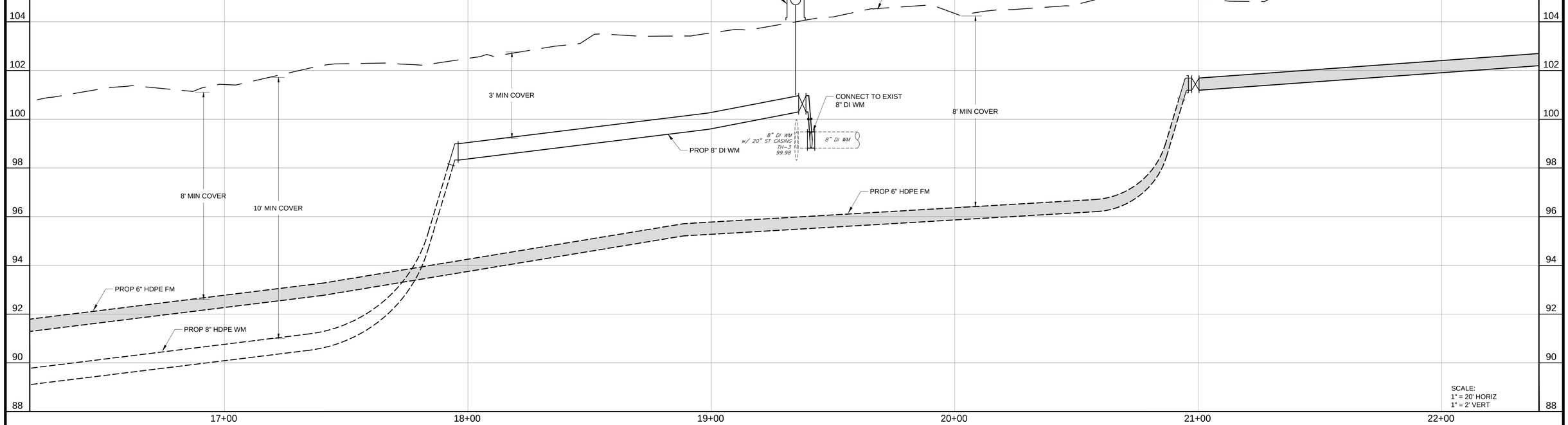
MONIKA CIR (WEST)

MONIKA CIR (EAST)

MONTROSE CT

ANDERSON RD

ARNOLD AVE



No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

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

SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
PH: (407) 896-8608 FAX: (407)896-1822
ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

ANDERSON ROAD PLAN AND PROFILE
STA 16+10 TO STA 22+30

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

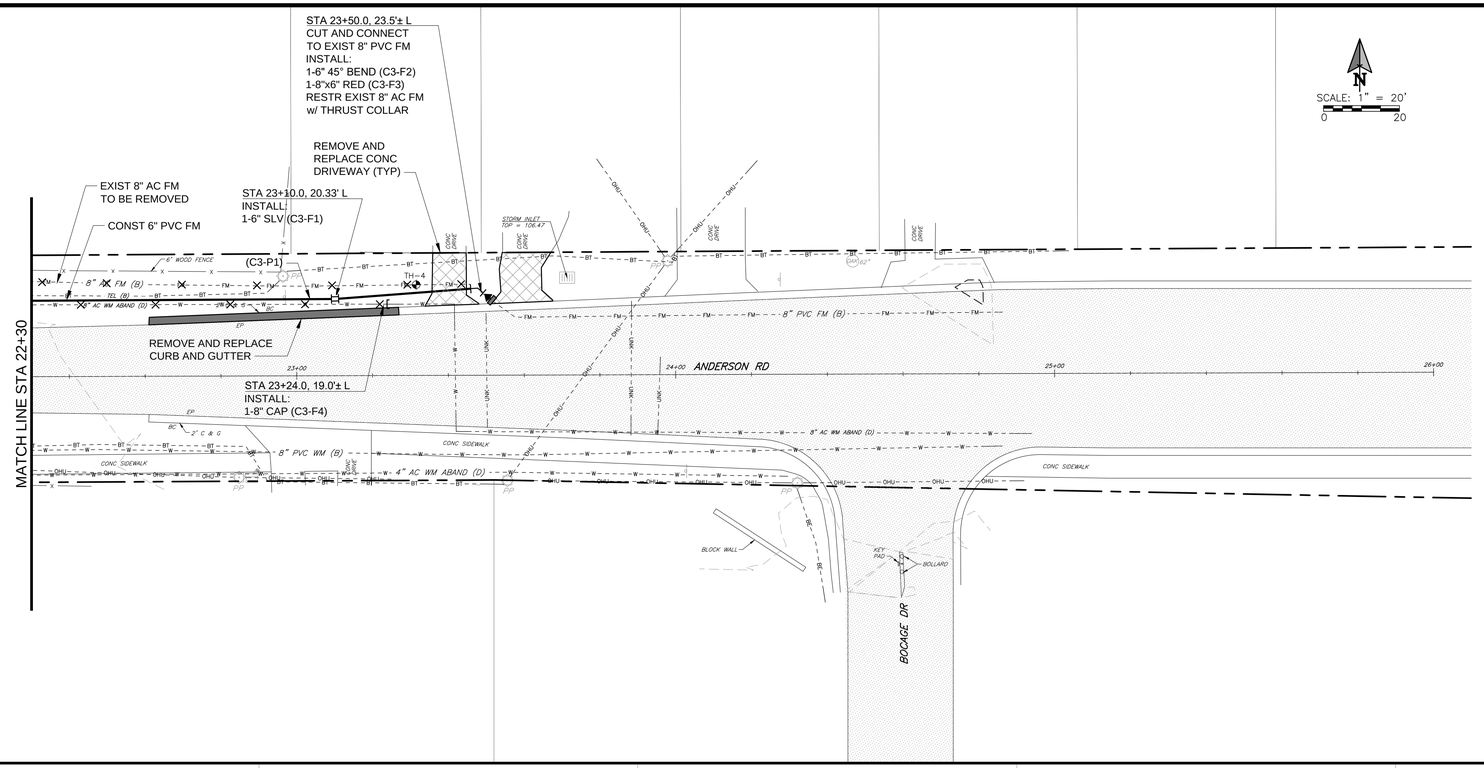
PROJECT No.: 2011-11-24
PROJECT DATE: MAR 2016
DESIGNED BY: RGB
DRAWN BY: JAB
CHECKED BY: CKM
DRAWING FILE: SEE MARGIN

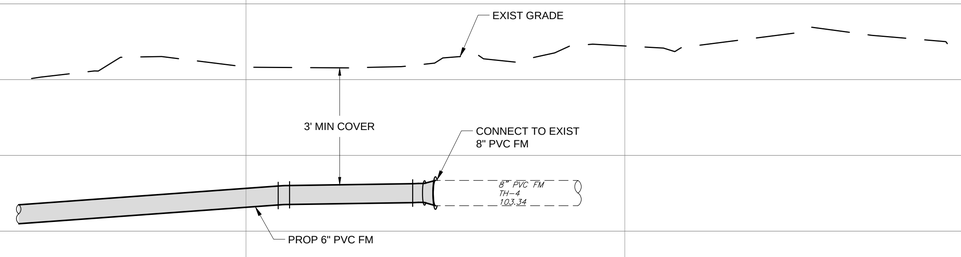
DRAWING No. C-2

SHEET 7 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM C-02.dwg

MARCH 2016 - BID SET





SCALE:
1" = 20' HORIZ
1" = 2' VERT

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

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ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

ANDERSON ROAD PLAN AND PROFILE
STA 22+30 TO STA 26+00

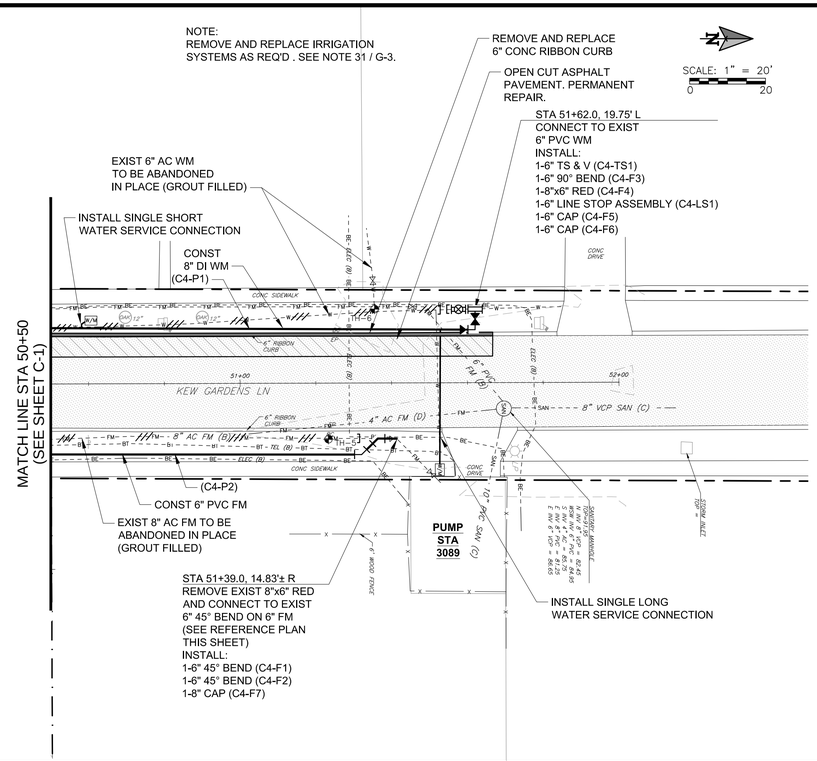
DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

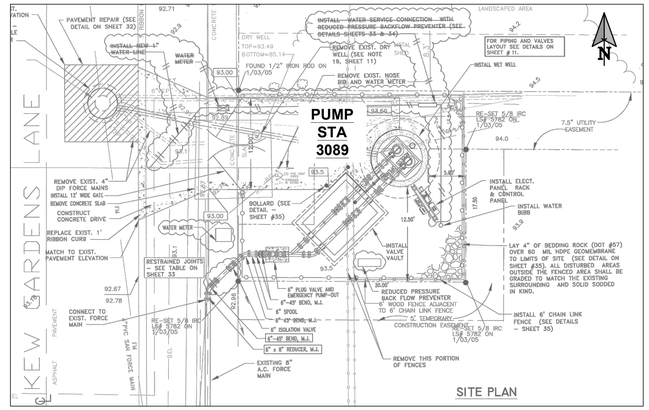
PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

DRAWING No. C-3
SHEET 8 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM C-03.dwg

MARCH 2016 - BID SET



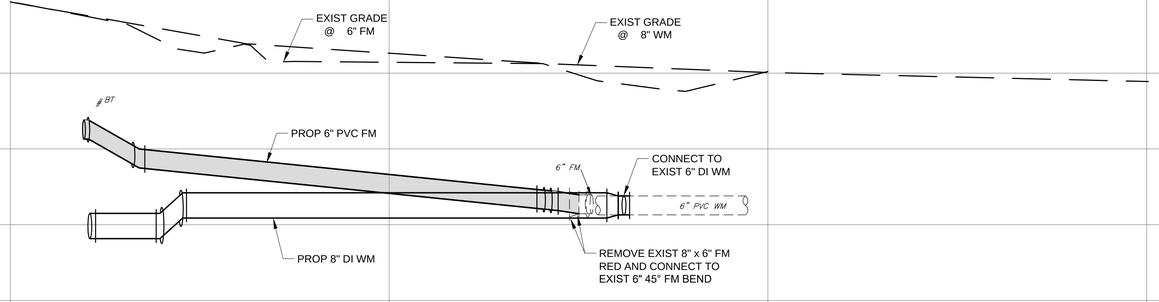


TIE-IN NOTES:

1. SOURCE FOR PUMP STATION REFERENCE PLAN IS FROM RECORD DRAWING DATA (SQ 31384, PG 10). THE ENGINEER HAS NOT VERIFIED ACCURACY OF THE DATA AS SHOWN.
2. THE CONTRACTOR SHALL PROVIDE BY-PASS PUMPING OR PUMPER TRUCK TO ALLOW PUMP STATION TO BE TAKEN OUT-OF-SERVICE AS NEEDED TO MAKE CONNECTIONS TO FORCE MAIN.
3. THE CONTRACTOR SHALL REMOVE EXISTING 6"x6" REDUCER AND CONNECT TO EXISTING 6" 45° BEND, SEE PLAN.

PUMP STA REFERENCE PLAN

NTS



No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

KEW GARDENS LANE PLAN AND PROFILE
STA 50+50 TO STA 52+00

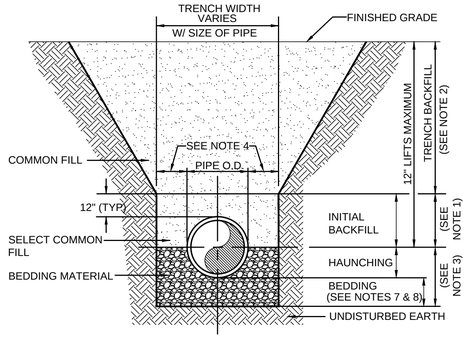
DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

DRAWING No. C-4

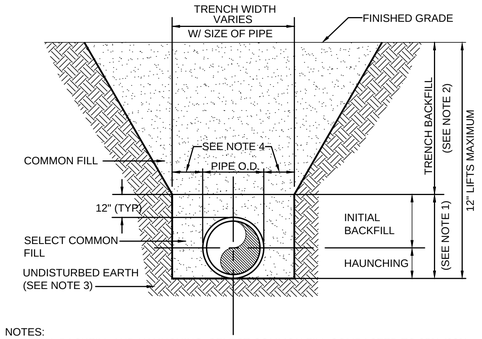
SHEET 9 OF 13

DATE: February 11, 2011 **BEDDING AND TRENCHING - TYPE A** **FIGURE A101**



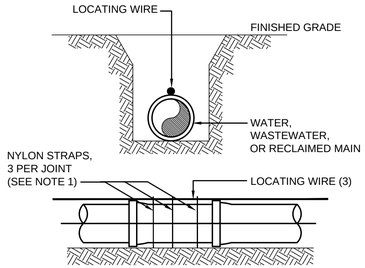
NOTES:
1. INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. TYPE A BEDDING MATERIAL SHALL CONFORM TO FDOT NO. 57 AGGREGATE.
4. 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER UP TO 12" AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
8. 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.
9. 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.

DATE: February 11, 2011 **BEDDING AND TRENCHING - TYPE B** **FIGURE A102**



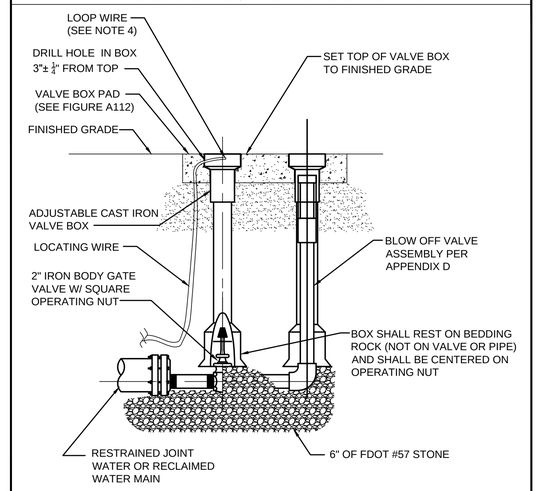
NOTES:
1. INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY UTILITIES.
4. 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. 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.

DATE: February 11, 2011 **PIPE LOCATING WIRE** **FIGURE A114**



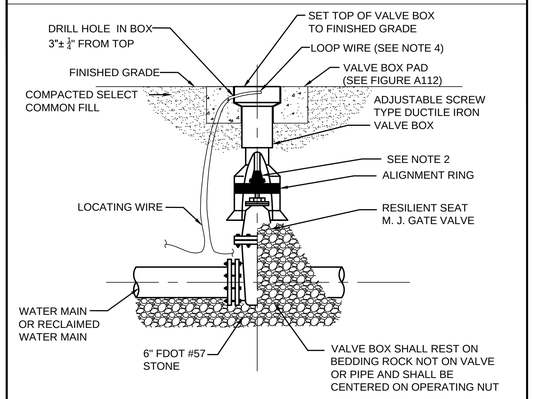
NOTES:
1. ALL PIPE SHALL REQUIRE THREE (3) INSULATED LOCATING WIRE (10 GAUGE SOLID COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE WRAPPED WITH NYLON STRAPS TO TOP CENTERLINE OF THE PIPE.
2. LOCATING WIRE SHALL BE CONTINUOUS INSIDE VALVE BOXES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR.
3. WIRE INSULATION SHALL BE COLOR CODED FOR THE TYPE OF PIPE BEING INSTALLED.

DATE: February 11, 2011 **PERMANENT BLOW OFF VALVE, MANUALLY OPERATED, WATER AND RECLAIMED WATER** **FIGURE A122-1**



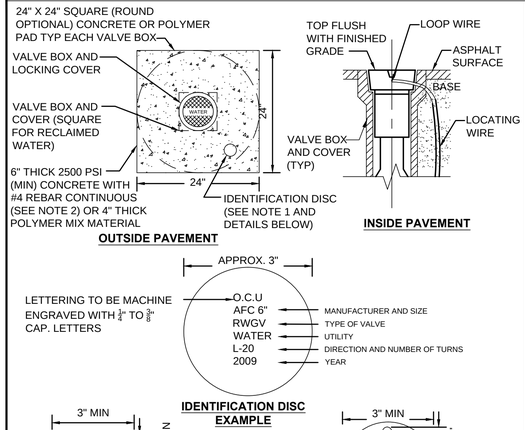
NOTES:
1. INSTALL MANUFACTURED BLOW OFF BOXES AS DEPICTED IN APPENDIX D. BRING VALVE BOX TO GRADE AND INSTALL CONCRETE COLLAR.
2. FOR USE AT PERMANENT WATER AND RECLAIMED WATER DEAD-ENDS, SUCH AS CUL-DE-SACS.
3. LOCATING WIRE SHALL BE CONTINUOUS INSIDE THE VALVE BOX AND SHALL EXTEND 12" ABOVE TOP OF COLLAR. WIRE SHALL BE COLOR CODED TO MATCH THE UTILITY INSTALLED.

DATE: February 11, 2011 **GATE VALVE AND BOX WATER AND RECLAIMED WATER MAINS** **FIGURE A107**



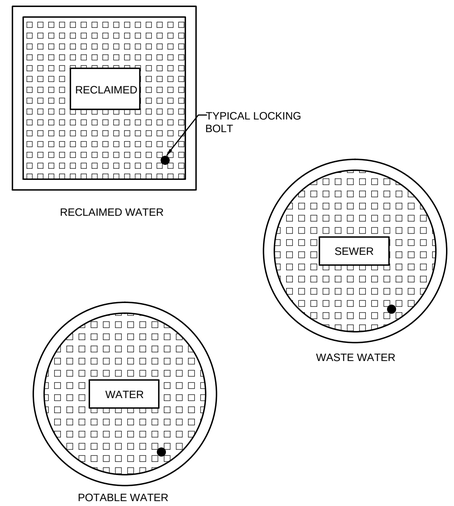
NOTES:
1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED TO BE WITHIN 3' OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD / ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. 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.
5. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
6. REFER TO FIGURE A111 FOR INSTALLATIONS AT A DEPTH OF 6' OR GREATER.

DATE: February 11, 2011 **VALVE BOX PAD** **FIGURE A112**



NOTES:
1. BRONZE (OR STAINLESS STEEL) IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES, EXCEPT HYDRANT VALVES.
2. 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.

DATE: February 11, 2011 **TYPICAL VALVE BOX COVER** **FIGURE A110**



NOTE:
1. LOCKING LIDS ARE REQUIRED ON ALL VALVE BOXES.

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

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

SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

STANDARD DETAILS

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.

FLORIDA REGISTRATION No. 58685

PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

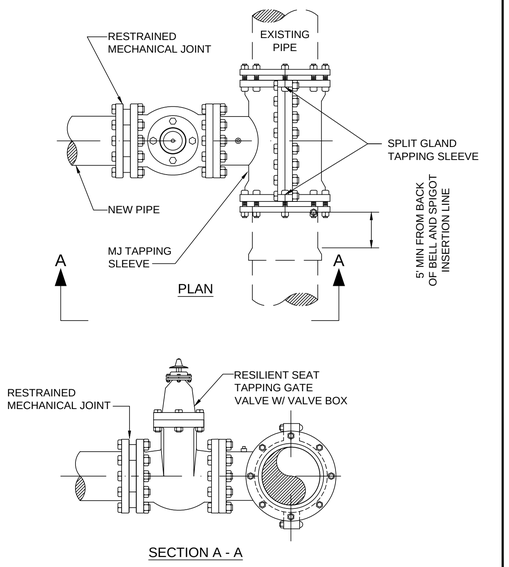
DRAWING No. D-1

SHEET 10 OF 13

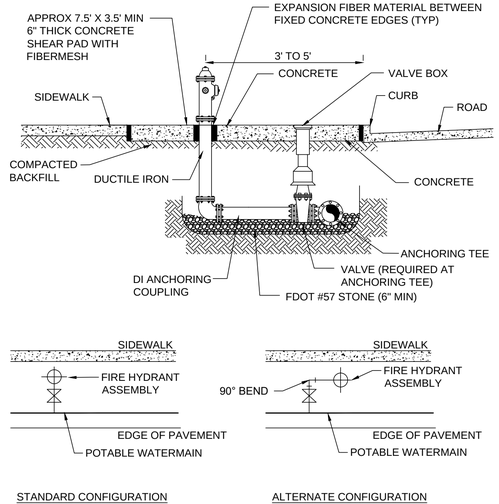
Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM D-01.dwg

MARCH 2016 - BID SET

DATE: February 11, 2011 **MJ TAPPING SLEEVE AND GATE VALVE ASSEMBLY FOR WATER AND RECLAIMED WATER** **FIGURE A121-1**



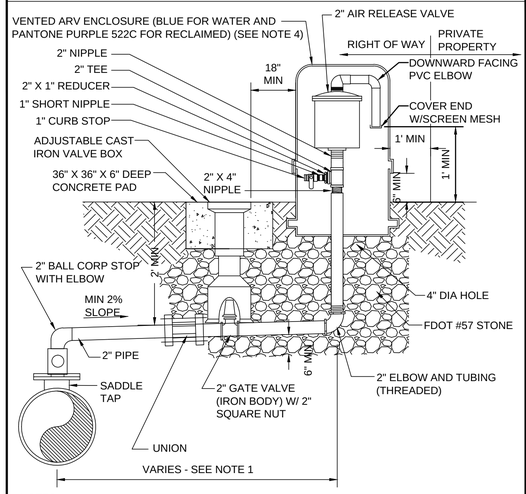
DATE: February 11, 2011 **FIRE HYDRANT ASSEMBLY** **FIGURE A203**



NOTES:

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

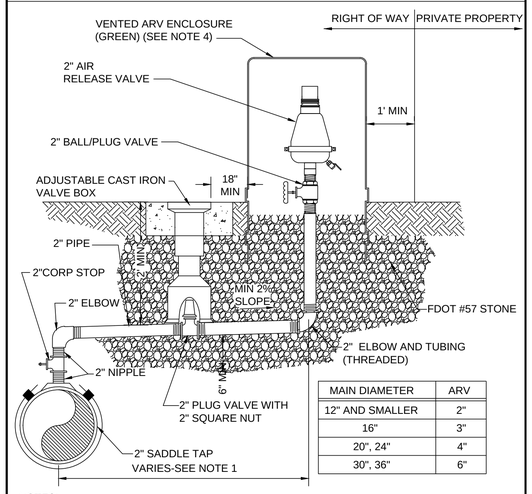
REV: APRIL 25, 2011 **AIR OR COMBINATION AIR/VACUUM RELEASE VALVE FOR WATER AND RECLAIMED WATER** **FIGURE A115-1**



NOTES:

1. OFFSET DISTANCE TO BE FIELD DETERMINED AND AS CLOSE TO THE RIGHT OF WAY AS POSSIBLE AND CLEAR OF PEDESTRIAN WALKWAYS. IF PIPE AT RIGHT OF WAY LINE, NO OFFSET REQUIRED.
2. ABOVE DETAIL APPLIES TO A 2" ARV. FOR LARGER ARVS, PIPE DIAMETER SHALL BE EQUAL TO THE SIZE OF THE ARV .
3. ALL PIPING, VALVES, AND APPURTENANCES TO BE BRASS OR 316 S.S. EXCEPT WHERE SPECIFIED OTHERWISE.
4. THE ENCLOSURE VENTS MUST BE CAPABLE OF ALLOWING AT LEAST THE SAME AMOUNT OF AIRFLOW AS THE VALVE.

REV: APRIL 25, 2011 **COMBINATION AIR RELEASE VALVE FOR WASTEWATER** **FIGURE A115-2**

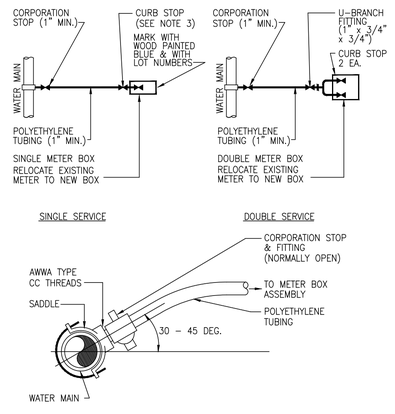


MAIN DIAMETER	ARV
12" AND SMALLER	2"
16"	3"
20", 24"	4"
30", 36"	6"

NOTES:

1. OFFSET DISTANCE TO BE FIELD DETERMINED AND AS CLOSE TO THE RIGHT OF WAY AS POSSIBLE AND CLEAR OF PEDESTRIAN WALKWAYS. IF PIPE IS AT RIGHT OF WAY LINE, NO OFFSET IS REQUIRED.
2. ABOVE DETAIL APPLIES TO A 2" ARV. FOR LARGER ARVS, PIPE DIAMETER AND VALVES SHALL BE EQUAL TO THE SIZE OF THE ARV.
3. ALL PIPING, VALVES AND APPURTENANCES TO BE BRASS OR 316 S.S. EXCEPT WHERE SPECIFIED OTHERWISE.
4. THE ENCLOSURE VENTS MUST BE CAPABLE OF ALLOWING AT LEAST THE SAME AMOUNT OF AIRFLOW AS THE VALVE.

WATER SERVICE CONNECTION DETAILS
N.T.S. FIGURE A/D-3



NOTES:

1. ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3. NEW METER BOXES TO BE PROVIDED BY THE OWNER. COORDINATE AND SCHEDULE PICKUP WITH OWNERS REPRESENTATIVE.

DATE: February 11, 2011 **SEPARATION REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER MAINS** **FIGURE A116**

HORIZONTAL & VERTICAL SEPARATION REQUIREMENTS								
PROPOSED UTILITY	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:

1. 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.
2. 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.
3. 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.
4. DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
5. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURE.

RESTRAINED PIPE TABLE FOR DI WATER WATER MAINS

MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)										
TYPE	PIPE SIZE DIP									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	20	29	37	44	51	65	77	89	105	120
45° BEND	8	12	15	18	21	27	32	37	44	50
22-1/2° BEND	4	6	7	9	10	13	15	18	21	24
11-1/4° BEND	2	3	4	5	6	7	8	9	10	12
PLUG OR BRANCH OF TEE	42	59	77	93	108	138	166	194	231	265
VALVE	21	30	39	47	54	69	83	97	116	133
REDUCER	VARIES BY SIZE; TO BE DETERMINED BY THE DESIGN ENGINEER.									

NOTES:

1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
4. ALL INLINE VALVES SHALL BE RESTRAINED.
5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
6. 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

   FOR DIP ENCASED IN POLYETHYLENE OR FOR PVC PIPE, INCREASE THE GIVEN VALUE BY A FACTOR OF 1.25.

DATE: February 11, 2011 **RESTRAINED PIPE TABLE WASTEWATER FORCE MAINS** **FIGURE A104-2**

MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)										
TYPE	PVC PIPE SIZE									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	18	24	31	38	43	55	65	75	88	100
45° BEND	8	10	13	15	18	23	26	31	38	43
22-1/2° BEND	4	5	6	8	9	11	13	15	18	20
11-1/4° BEND	2	3	4	5	6	8	9	10	11	13
PLUG OR BRANCH OF TEE	38	50	65	79	90	117	139	163	194	223
VALVE	19	25	32	40	45	59	70	82	98	112
REDUCER	VARIES BY SIZE; TO BE DETERMINED BY THE DESIGN ENGINEER.									

NOTES:

1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
4. ALL INLINE VALVES SHALL BE RESTRAINED.
5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
6. 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: 100 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 PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

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ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

STANDARD DETAILS

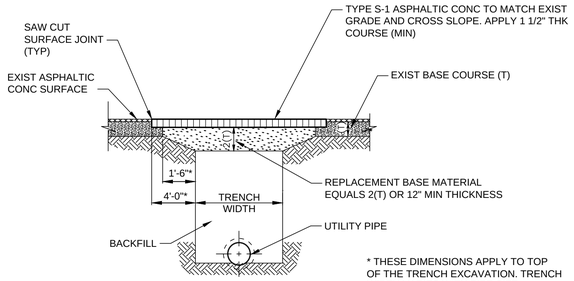
DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

DRAWING No. D-2
SHEET 11 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM D-02.dwg

MARCH 2016 - BID SET

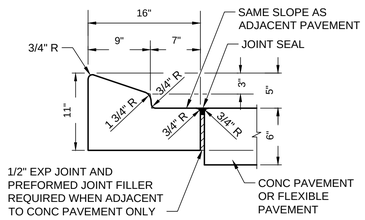


NOTES:

1. ROADWAY OPEN CUT AND REPAIR SHALL BE BACKFILLED WITH GRANULAR MATERIAL AND TOPPED WITH12"MIN THICKNESS OF COURSE MATERIAL (LIMEROCK OR SOIL CEMENT, MATCH EXIST). BACKFILL SHALL BE COMPACTED TO 98%MODIFIED PROCTOR OF THE MINIMUM DRY DENSITY PER AASHTO T-180, ASTM 01557. REFER TO TRENCH DETAILS FOR TYPE A BEDDING AND TYPE B BEDDING.
2. TRENCH WALL SHALL BE SHEETED IN AREAS WHERE SIDE SLOPES WOULD INTERFERE WITH EXIST UTILITIES IMPROVEMENTS, OR EXTEND BEYOND THE EASEMENT OR RIGHT OF WAY LIMITS.
3. EXCAVATION AND SHEETING AND BRACING SHALL COMPLY WITH THE TRENCH SAFETY ACT, AS AMENDED, (90-96 OF THE FLORIDA STATUTES) AND THE LATEST EDITION OF THE FDOT CONSTRUCTION MANUAL.
4. PAVEMENT AREAS SHALL BE RESTORED AND SHALL MATCH EXIST GRADE AND CROSS SLOPES.

ROADWAY OPEN CUT AND REPAIR

NTS

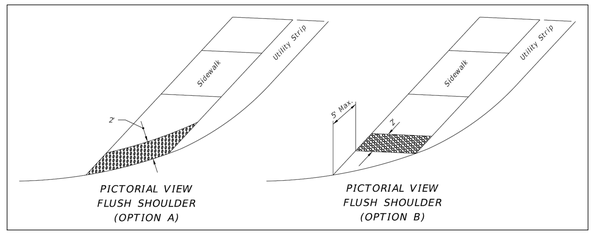


NOTES:

1. INSTALL IN ACCORDANCE WITH FDOT INDEX 300, LATEST EDITION.

FDOT "TYPE A" CURB DETAIL

NTS

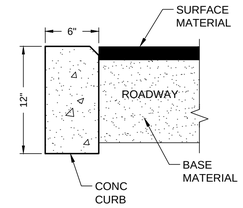


NOTES:

1. INSTALL IN ACCORDANCE WITH FDOT INDEX 304, LATEST EDITION.

TYPICAL PLACEMENT OF DETECTABLE WARNINGS AT FLUSH SHOULDERS

NTS



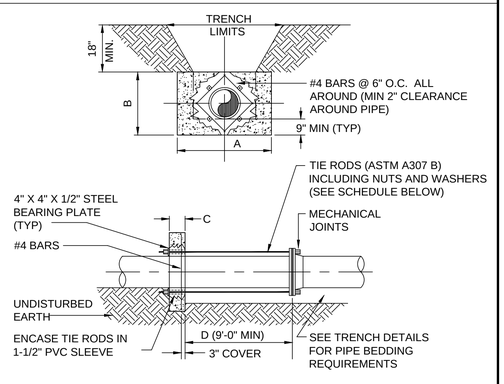
NOTES:

1. INSTALL IN ACCORDANCE WITH FDOT INDEX 300, LATEST EDITION.

6" x 12" VERTICAL RIBBON CURB DETAIL

NTS

DATE: February 11, 2011 — **THRUST COLLAR (150 psi) WATER AND RECLAIMED WATER MAINS** — **FIGURE A105-1**



NOTES:

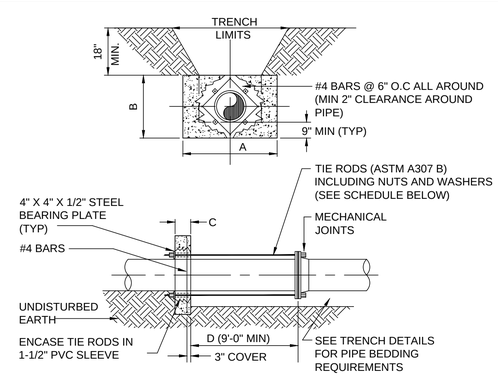
1. ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
3. BEDDING, BACKFILL AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
6. DESIGN PRESSURE: 150 PSI.
7. REQUIRED FOR LINE STOPS.

SCHEDULE OF DIMENSIONS AND MATERIALS

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.
6	2.0	2.0	1.0		3/4	2
8	2.5	2.5	1.0		3/4	2
10	3.5	3.0	1.0		3/4	4
12	5.0	3.0	1.0		3/4	4
16	6.0	4.0	1.5		3/4	4
20	8.0	5.0	1.5		3/4	6
24	9.0	6.0	1.5		3/4	8

NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

DATE: February 11, 2011 — **THRUST COLLAR (100 psi) WASTEWATER FORCE MAINS** — **FIGURE A105-2**



NOTES:

1. ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
3. BEDDING, BACKFILL, AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
6. DESIGN PRESSURE: 100 PSI.
7. REQUIRED FOR LINE STOPS.

SCHEDULE OF DIMENSIONS AND MATERIALS

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.
6	2.0	2.0	1.0		3/4	2
8	2.5	2.5	1.0		3/4	2
10	3.0	2.5	1.0		3/4	4
12	4.0	3.0	1.0		3/4	4
16	5.5	3.5	1.5		3/4	4
20	7.5	4.0	1.5		3/4	4
24	8.5	5.0	1.5		3/4	6

NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

DATE: February 11, 2011 — **GENERAL NOTES** — **FIGURE FigGN**

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 REPAIR.
8. 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.

DATE: February 11, 2011 — **GENERAL NOTES** — **FIGURE FigGN**

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.

No.	REVISIONS	BY	DATE
	BID SET	CKM	3-23-2016

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

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
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1230 E. Hillcrest Street, Orlando, FL, 32803
PH: (407) 896-8608 FAX: (407)896-1822
ENGINEERING BUSINESS No. 6899

ANDERSON ROAD WATE MAIN AND FORCE MAIN REPLACEMENT

STANDARD DETAILS

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.:	2011-11-24
PROJECT DATE:	MAR 2016
DESIGNED BY:	RGB
DRAWN BY:	JAB
CHECKED BY:	CKM
DRAWING FILE:	SEE MARGIN

DRAWING No. D-3

SHEET 12 OF 13

Wednesday, March 23, 2016 1:11:59 PM F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.24 Anderson Road Water Main Replacement\5.0 Drawings\2011-11-24 Anderson WM D-03.dwg

MARCH 2016 - BID SET

VALVE

ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	VALVE TYPE	MAIN TYPE	VALVE SIZE	VALVE MFR	VALVE MODEL #	# OF TURNS TO CLOSE	GEAR ACTUATOR	GEAR RATIO	SIDE ACTUATOR	ACTUATOR MFR	COMMENTS
C1-TV1	C-1				8" TAPPING VALVE	WATER MAIN									
C1-TV2	C-1				6" TAPPING VALVE	WATER MAIN									
C1-LS1	C-1				8" LINE STOP	WATER MAIN									
C1-LS2	C-1				6" LINE STOP	WATER MAIN									
C1-GV1	C-1				8" GATE VALVE	WATER MAIN									
C1-GV2	C-1				8" GATE VALVE	WATER MAIN									
C1-GV3	C-1				8" GATE VALVE	WATER MAIN									
C1-GV4	C-1				8" GATE VALVE	WATER MAIN									
C1-PV1	C-1				6" PLUG VALVE	FORCE MAIN									
C1-ARV1	C-1				2" AIR RELEASE	WATER MAIN									
C1-ARV2	C-1				2" AIR RELEASE	FORCE MAIN									
C2-ARV1	C-2				2" AIR RELEASE	WATER MAIN									
C2-TV1	C-2				8" TAPPING VALVE	WATER MAIN									
C2-GV1	C-2				8" GATE VALVE	WATER MAIN									
C2-PV1	C-2				6" PLUG VALVE	FORCE MAIN									
C4-TV1	C-4				6" TAPPING VALVE	WATER MAIN									
C4-LS1	C-4				6" LINE STOP	WATER MAIN									

PIPE

ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MAIN TYPE	TYPE OF SHOT	CONSTRUCTION METHOD	MATERIAL	PRESSURE CLASS	MANUFACTURER	COMMENTS
C1-P1	C-1				8" WATER MAIN	TOP OF PIPE					
C1-P2	C-1				8" WATER MAIN	TOP OF PIPE					
C1-P3	C-1				8" WATER MAIN	TOP OF PIPE					
C1-P4	C-1				8" WATER MAIN	TOP OF PIPE					
C1-P5	C-1				6" FORCE MAIN	TOP OF PIPE					
C1-P6	C-1				6" FORCE MAIN	TOP OF PIPE					
C1-P7	C-1				6" FORCE MAIN	TOP OF PIPE					
C1-P8	C-1				6" FORCE MAIN	TOP OF PIPE					
C1-P9	C-1				6" FORCE MAIN	TOP OF PIPE					
C2-P1	C-2				8" WATER MAIN	TOP OF PIPE					
C2-P2	C-2				6" FORCE MAIN	TOP OF PIPE					
C2-P3	C-2				6" FORCE MAIN	TOP OF PIPE					
C3-P1	C-3				6" FORCE MAIN	TOP OF PIPE					
C4-P1	C-4				8" WATER MAIN	TOP OF PIPE					
C4-P2	C-4				6" FORCE MAIN	TOP OF PIPE					

FITTING

ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MAIN TYPE	FITTING TYPE	COMMENTS
C1-F1	C-1				WATER MAIN	8" CAP	
C1-F2	C-1				WATER MAIN	8" 90° BEND	
C1-F3	C-1				WATER MAIN	8" 45° BEND	
C1-F4	C-1				WATER MAIN	8" TEE	
C1-F5	C-1				WATER MAIN	8" 45° BEND	
C1-F6	C-1				WATER MAIN	8" 45° BEND	
C1-F7	C-1				WATER MAIN	8" 45° BEND	
C1-F8	C-1				WATER MAIN	8" 45° BEND	
C1-F9	C-1				FORCE MAIN	6" 45° BEND	
C1-F10	C-1				WATER MAIN	8" 45° BEND	
C1-F11	C-1				WATER MAIN	8" 45° BEND	
C1-F12	C-1				FORCE MAIN	6" 45° BEND	
C1-F13	C-1				WATER MAIN	8" HDPE / DI ADAPTER	
C1-F14	C-1				FORCE MAIN	6" HDPE / PVC ADAPTER	
C1-F15	C-1				WATER MAIN	90° BEND	
C1-F16	C-1				WATER MAIN	6" CAP	
C1-F17	C-1				WATER MAIN	8"x6" TEE	
C1-F18	C-1				WATER MAIN	6" CAP	
C1-F19	C-1				WATER MAIN	8" 11.25° BEND	
C1-F20	C-1				FORCE MAIN	6" 11.25° BEND	
C2-F1	C-2				WATER MAIN	8" CAP	
C2-F2	C-2				WATER MAIN	8" CAP	
C2-F3	C-2				FORCE MAIN	8" CAP	
C2-F4	C-2				WATER MAIN	8" HDPE / DI ADAPTER	
C2-F5	C-2				WATER MAIN	8" CAP	
C2-F6	C-2				WATER MAIN	8" 45° BEND	
C2-F7	C-2				WATER MAIN	8" 45° BEND	
C2-F8	C-2				FORCE MAIN	8" CAP	
C2-F9	C-2				FORCE MAIN	8" CAP	
C2-F10	C-2				FORCE MAIN	6" HDPE / PVC ADAPTER	
C2-F11	C-2				WATER MAIN	8" CAP	
C2-F12	C-2				FORCE MAIN	8" CAP	
C2-F13	C-2				FORCE MAIN	8" CAP	
C2-F14	C-2				FORCE MAIN	8" CAP	
C2-F15	C-2				WATER MAIN	8" 11.25° BEND	
C2-F16	C-2				FORCE MAIN	6" 11.25° BEND	
C3-F1	C-3				FORCE MAIN	6" SLV	
C3-F2	C-3				FORCE MAIN	6" 45° BEND	
C3-F3	C-3				FORCE MAIN	8"x6" RED	
C3-F4	C-3				WATER MAIN	8" CAP	
C4-F1	C-4				FORCE MAIN	6" 45° BEND	
C4-F2	C-4				FORCE MAIN	6" 45° BEND	
C4-F3	C-4				WATER MAIN	6" 90° BEND	
C4-F4	C-4				WATER MAIN	8"x6" RED	
C4-F5	C-4				WATER MAIN	6" CAP	
C4-F6	C-4				WATER MAIN	6" CAP	
C4-F7	C-4				FORCE MAIN	8" CAP	

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ASBUILT COORDINATE ATTRIBUTE TABLES

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

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DRAWING FILE:	SEE MARGIN

DRAWING No.
CA-1
SHEET 13 OF 13

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