

# FORCE MAIN R/R SOUTH AREA PACKAGE 2

LOCATION 1: RHODE ISLAND WOODS CIRCLE

LOCATION 2: SUNFLOWER TRAIL

## BOARD OF COUNTY COMMISSIONERS

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BYRON W. BROOKS, A.I.C.P.  
COUNTY ADMINISTRATOR

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

PLANS PREPARED BY:



2301 Lucien Way, Suite 300  
Maitland, Florida 32751  
PH: (407) 647-6623  
CA8556

N-S PROJECT:  
12483.004

ENGINEER OF RECORD:

STEVEN R. COCKERHAM, PE  
FLORIDA LICENSE # 62285

OCU FILE NO.: 85446

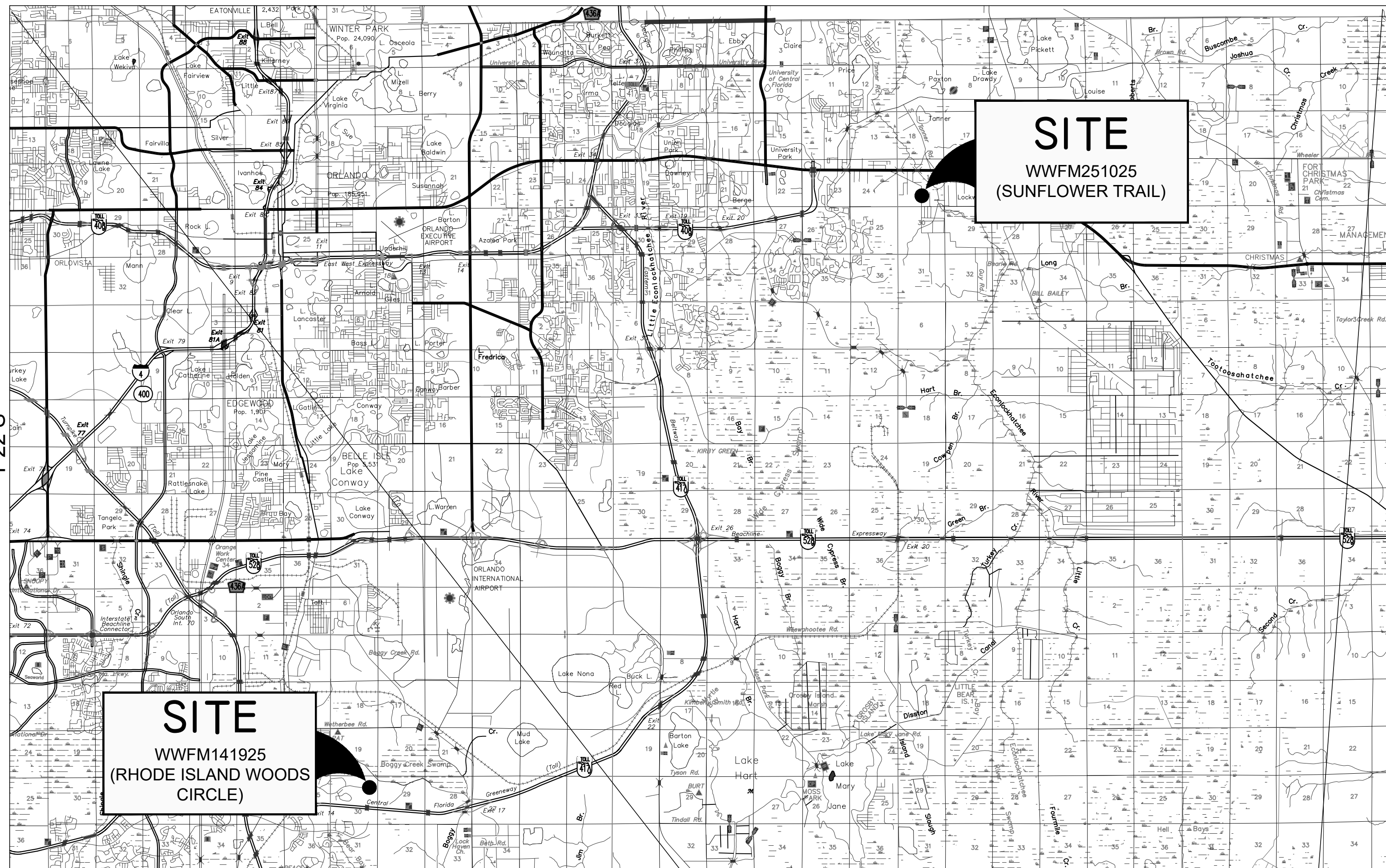
CIP FUNDING CODE: 1539-30

ORANGE COUNTY UTILITIES DEPARTMENT  
ENGINEERING DIVISION  
9150 CURRY FORD ROAD  
ORLANDO, FLORIDA 32825

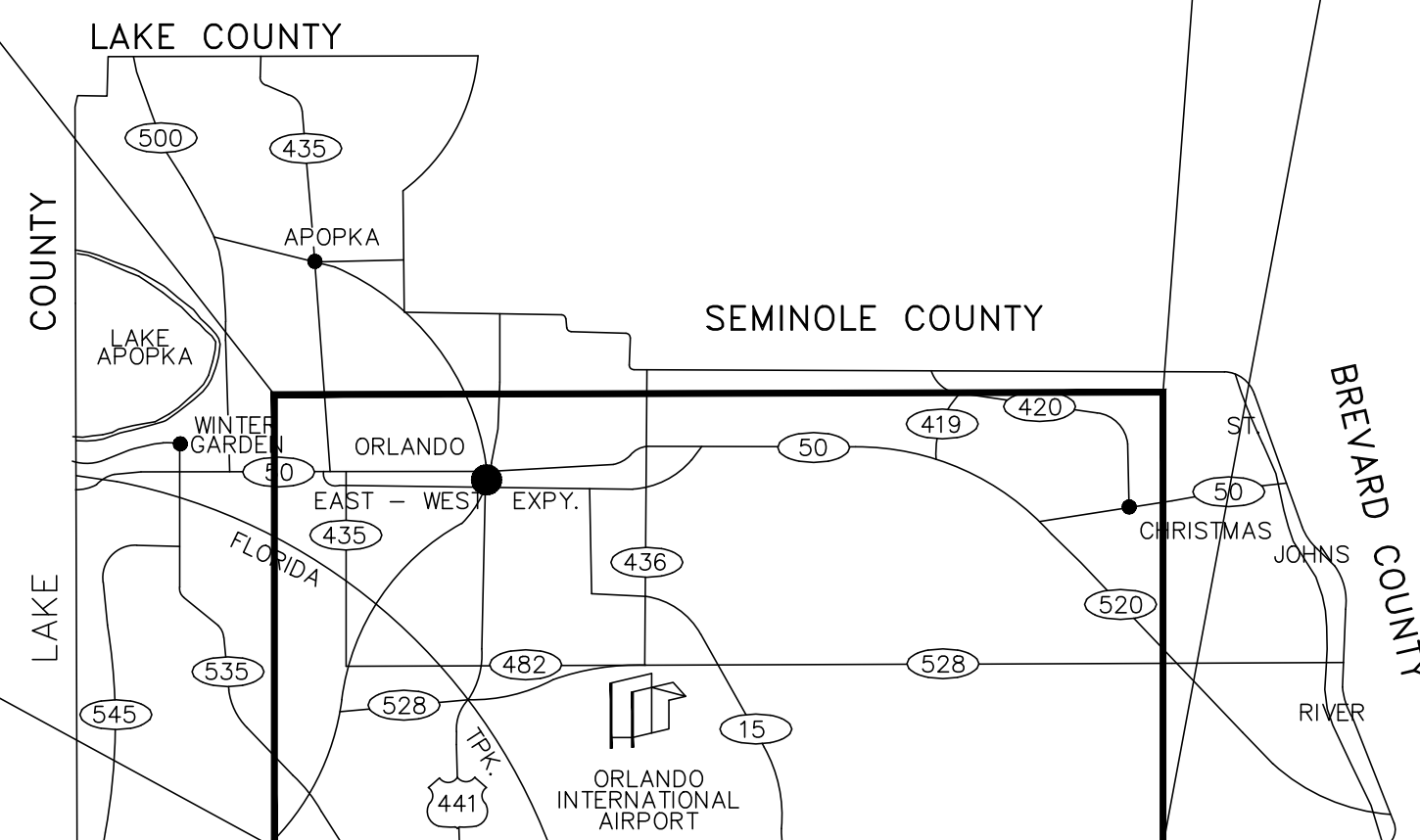
MAY 2019

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA. DIMENSION INFORMATION SHOULD NOT BE OBTAINED BY SCALING THE PLANS. DIMENSION INFORMATION NOT PROVIDED HEREIN CAN BE OBTAINED BY CONTACTING ORANGE COUNTY UTILITIES ENGINEERING DIVISION, AT (407)254-9900

LOCATION MAP



ORANGE COUNTY, FLORIDA  
SCALE: 1" = 5,000'



ORANGE COUNTY, FLORIDA  
SCALE: 1" = 50,000'

NOTE:  
SEE SURVEYS FOR SPECIFIC LOCATIONS

DRAWING INDEX

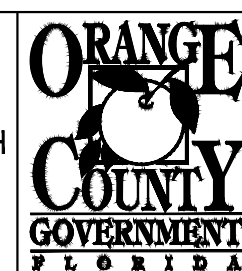
SHEET NO.	DWG. NO.	TITLE	SHEET NO.	DWG. NO.	TITLE
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WASTEWATER PUMPING RATES

LOCATION	NAME	PUMP STATION	FLOW RATE
LOCATION 1	RHODE ISLAND WOODS CIRCLE	PS XXXX	XX GPM
LOCATION 2	SUNFLOWER TRAIL	PS XXXX	XX GPM

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)



ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION  
9150 CURRY FORD ROAD ORLANDO, FL. 32825

NEEL-SCHAFFER SOLUTIONS YOU CAN BUILD UPON  
2301 Lucien Way, Suite 300  
Maitland, Florida 32751  
PH: (407) 647-6623  
CA6556

LOCATION MAP AND DRAWING INDEX

OCU FILE NO.: 85446  
DESIGNED BY: CHH  
DRAWN BY: EDW  
CHECKED BY: SRC  
CADD FILE: G101.dwg

SCALE: NONE  
DRAWING NO.: **G-101**  
SHEET: 2 OF 17

**GENERAL NOTES**

- EXCAVATE CAUTIOUSLY** LOCATIONS OF EXISTING UTILITIES INDICATED HERE IN ARE BASED ON BEST AVAILABLE INFORMATION AND ARE NOT TO BE CONSIDERED ALL INCLUSIVE. CONTRACTOR SHALL VERIFY EXACT LOCATION, CHARACTER AND NATURE OF ALL EXISTING AND PROPOSED UTILITIES PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO FABRICATION OF PIPING AND EQUIPMENT TO ENSURE PROPER ASSEMBLY OF ALL ITEMS.
  - LOCATIONS AND DIMENSION OF EXISTING RIGHTS-OF-WAY AND EASEMENTS ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY THE LIMITS OF THE RIGHTS-OF-WAY AND EASEMENTS IN ORDER TO AVOID ENCROACHMENTS.
  - COVER OVER ALL PIPES SHALL BE THREE (3) FEET MINIMUM, OR AS SHOWN.
  - PIPES SHALL NOT BE DEFLECTED.
  - ALL EXCAVATIONS SHALL BE BACK FILLED AT THE END OF EACH WORK DAY. ALL FINAL BACK FILL IS TO BE COMPACTED TO 98% OF MAXIMUM MODIFIED PROCTOR.
  - ALL SITE WORK SHALL BE COORDINATED WITH THE COUNTY RESIDENT PROJECT REPRESENTATIVE (RPR).
  - THE ELEVATIONS SHOWN ARE BASED ON NAVD 1988 DATUM.
  - 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 FORCE MAIN, 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 GRAVITY-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 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 FORCE MAIN, 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 TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
- AT THE UTILITY CROSSINGS DESCRIBED ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE 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 THE 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 FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
- ALL PROPOSED DUCTILE IRON M.J. FITTINGS, PIPES, OR RESTRAINTS WITHIN FORTY (40) FEET OF EXISTING GAS MAINS SHALL BE POLYETHYLENE ENCASED.
  - ALL EXISTING AND PROPOSED WATER, WASTEWATER AND REUSE VALVES SHALL BE OPERATED BY ORANGE COUNTY UTILITIES AUTHORIZED REPRESENTATIVES. EXISTING VALVE BOXES AND MANHOLES, WHICH ARE TO REMAIN, SHALL BE ADJUSTED TO THE FINISHED GRADE. ALL VALVES UNDER CONSTRUCTION SHALL REMAIN CLOSED DURING CONSTRUCTION.
  - THE CONTRACTOR SHALL PROVIDE TANKERS AND SIGNED DOCUMENT ACKNOWLEDGING THE UNDERSTANDING OF THE ORANGE COUNTY UTILITY **"EMERGENCY WASTEWATER SPILL AND WATER MAIN BREAK PROCEDURES"**, IN THE PRE-CONSTRUCTION PACKET FOR THE MEETING.
  - 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.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SATISFACTION OF ALL REQUIREMENTS OF REGULATORY AGENCY PERMITS WITH REGARD TO CONSTRUCTION ACTIVITIES AND RELATED CONDITIONS.
  - THE CONTRACTOR SHALL CALL SUNSHINE STATE ONE CALL NO LESS THAN FOURTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION. - PHONE - 800-432-4770.
  - ADVANCE NOTIFICATION OF CONSTRUCTION**  
THE ORANGE COUNTY UTILITY CONSTRUCTION SECTION (407) 254-9798, SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY.
  - THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AT ALL INTERSECTIONS OF PROPOSED WORK AND EXISTING UTILITIES. THE EXPLORATORY EXCAVATIONS SHALL BE MADE FORTY-EIGHT (48) HOURS IN ADVANCE OF THE WORK. IF THERE IS A POTENTIAL CONFLICT, THE CONTRACTOR SHALL NOTIFY THE COUNTY RESIDENT PROJECT REPRESENTATIVE IMMEDIATELY WITH INFORMATION WHICH SHALL INCLUDE LOCATION, ELEVATION, UTILITY TYPE, MATERIAL AND SIZE.
  - 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.
  - THE DISPOSAL OF ANY EXCESS EARTH WORK MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - THE CONTRACTOR SHALL REPLACE WITH EQUAL MATERIAL, OR AS DIRECTED BY THE RPR, ALL PAVING, GRASSED AREAS, STABILIZED EARTH, DRIVEWAYS, ETC., DISTURBED OR DAMAGED BY THE CONSTRUCTION OR RELATED ACTIVITIES. ALL DISTURBED AREAS SHALL BE SODDED, EXCEPT DIRT DRIVES AND WHERE INDICATED IN THE DRAWINGS.
  - SALVAGE AND/OR DISPOSAL OF ALL EXISTING EQUIPMENT SHALL BE AT THE DIRECTION OF THE RPR.
  - 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.

- OPERATION OF ORANGE COUNTY PUMP STATIONS** THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATIONS AND SHUT DOWN CONTROL WITH THE ORANGE COUNTY RPR.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY BY-PASS PUMPING AS NEEDED FOR EACH PUMP STATION AND/OR MANHOLE TO BE REHABILITATED AND/OR REPLACED PRIOR TO THE START OF ANY WORK. BOTH THE PRIMARY AND THE BACKUP BY-PASS PUMPING SYSTEMS SHALL BE OF ADEQUATE CAPACITIES AND SIZES TO HANDLE THE FLOW AND SHALL MAINTAIN CONTINUOUS SERVICE DURING THE ENTIRE CONSTRUCTION PROCESS UNTIL THE NEW OR REHABILITATED PUMP STATION OR MANHOLE HAS BEEN ACCEPTED BY THE COUNTY. THE BY-PASS PUMPING SYSTEMS SHALL BE APPROVED AND ACCEPTED BY THE COUNTY PRIOR TO INSTALLATION. THE CONTRACTOR SHALL NOT MAINTAIN MORE THAN TWO (2) PUMP STATION BY-PASS OPERATIONS AT THE SAME TIME DURING THE CONSTRUCTION PROCESS.
- BY-PASS PUMPING SHALL BE LOW NOISE SUITABLE FOR RESIDENTIAL NEIGHBORHOODS (SEE SECTION 01001.1.05B OF THE TECHNICAL SPECIFICATIONS).
- 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.
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY PLUGS, BLOCKING, TAPS, AND TESTING EQUIPMENT REQUIRED TO COMPLETE PRESSURE TESTING, AS SPECIFIED.
- THE CONTRACTOR SHALL NOTIFY THE COUNTY SEVEN (7) WORKING DAYS IN ADVANCE OF ANY SANITARY FORCE MAIN SHUT-DOWN.
- ALL CONNECTIONS TO EXISTING FORCE MAINS SHALL BE MADE BY THE CONTRACTOR ONLY AFTER THE CONNECTION PROCEDURE AND THE WORK SCHEDULING HAS BEEN REVIEWED AND APPROVED BY THE COUNTY. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE COUNTY A MINIMUM OF SEVEN (7) WORKING DAYS PRIOR TO SCHEDULING SAID CONNECTIONS. THE REQUEST SHALL OUTLINE THE FOLLOWING:
  - POINTS OF CONNECTION, FITTINGS TO BE USED, AND METHOD OF FLUSHING.
  - ESTIMATED CONSTRUCTION TIME FOR SAID CONNECTIONS.
- THE COUNTY SHALL REVIEW THE SUBMITTAL WITHIN THREE (3) WORKING DAYS AFTER RECEIPT AND INFORM THE CONTRACTOR REGARDING APPROVAL OR DENIAL OF THE REQUEST. IF THE REQUEST IS REJECTED BY THE COUNTY, THE CONTRACTOR SHALL RESUBMIT THE WRITTEN REQUEST, WHICH HAS BEEN MODIFIED IN A MANNER ACCEPTABLE TO THE COUNTY. ALL CONNECTIONS SHALL BE MADE ONLY ON THE AGREED UPON DATE AND TIME. IF THE CONTRACTOR DOES NOT INITIATE AND COMPLETE THE CONNECTION WORK IN THE AGREED UPON MANNER, HE SHALL BE REQUIRED TO RESCHEDULE THE SAID CONNECTIONS BY FOLLOWING THE PROCEDURE OUTLINED IN NOTE 29.
- ADVANCE NOTIFICATION OF PENDING CONNECTION**  
THE ORANGE COUNTY UTILITY WATER DIVISION AND THE ORANGE COUNTY UTILITY WATER RECLAMATION DIVISION SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS IN ADVANCE TO SCHEDULE MAIN TIE-INS AND VALVE OPERATIONS.
- 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.
- TELEPHONE NOTIFICATIONS**  
THE ORANGE COUNTY DISPATCH OPERATOR SHALL BE NOTIFIED IMMEDIATELY IN THE EVENT OF A FORCEMAIN, GRAVITY SEWER, OR WATER MAIN BREAK OR DAMAGE AT (407)836-2777 (24-HOURS ASSISTANCE).
- ALL WORK AND MATERIAL SHALL CONFORM TO THE ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL, LATEST EDITION OR AS INDICATED IN THE PROJECT SPECIFICATIONS OR DRAWINGS.
- WASTEWATER FLOWS MUST BE MAINTAINED AT ALL TIMES, UNLESS SPECIFICALLY APPROVED BY OCU UTILITY INSPECTOR.
- ALL PAVEMENT, BASE, CURB, AND SIDEWALKS MUST BE REPLACED PER REQUIREMENTS OF AGENCY WITH JURISDICTION OVER DISTURBED ROADWAY.

**OCU GENERAL NOTES:**

- 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.
- SHOULD A PIPE EMERGENCY OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OCU DISPATCH OPERATOR (407-836-2777) AND THE OCU INSPECTOR.
- THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST SEVEN DAYS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION PROJECT BY CALLING (407) 254-9798.
- THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST 48 HOURS PRIOR TO ANY UTILITIES CONSTRUCTION BY CALLING (407) 254-9798.
- 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.
- ALL OCU MAINS AND FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION.

**LEGEND**

	GUY WIRE AND ANCHOR		EXISTING STORM PIPE
	CAP		EXISTING BURIED TELEPHONE
	PLUG		EXISTING FIBER OPTIC CABLE
	BENCHMARK		EXISTING BURIED ELECTRIC
	TREE (TYPE & SIZE NOTED)		EXISTING OVERHEAD ELECTRIC
	SHRUB		EXISTING CABLE TV (BURIED)
	PROPOSED ELEVATION		EXISTING ELEVATION
	PROPOSED FORCE MAIN		EXISTING FORCE MAIN
	PROPOSED GRAVITY MAIN		EXISTING GRAVITY MAIN
	PROPOSED WATER SERVICE		EXISTING WATER MAIN
	PROPOSED CHAIN-LINK FENCE		EXISTING CHAN-LINK FENCE
	PROPOSED WOOD FENCE		EXISTING WOOD FENCE
	PROPOSED POWER POLE		EXISTING POWER POLE
	PROPOSED MANHOLE (SPECIFY)		EXISTING MANHOLE (SPECIFY)
	PROPOSED VALVE (SPECIFY)		EXISTING VALVE (SPECIFY)
	PROPOSED WATER METER		EXISTING WATER METER
	PROPOSED BACK-FLOW PREVENTER		EXISTING BACK-FLOW PREVENTER
	PROPOSED SILT FENCE		
	PROPOSED AIR RELEASE VALVE		

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- ALL WORK SHALL BE INSIDE THE COUNTY ROW OR UTILITY EASEMENT.
- ALL EXISTING FORCE MAIN DESIGNATED FOR REMOVAL IN THESE DRAWINGS SHALL NOT BE REMOVED PRIOR TO THE PROPOSED FORCE MAIN BEING INSTALLED, TESTED, ACCEPTED BY OCU AND PLACED INTO SERVICE.

**ABBREVIATIONS**

AKA	ALSO KNOWN AS	L.S.	LIFT STATION
AC	ASBESTOS CEMENT	LT	LEFT
ALUM.	ALUMINUM	L.W.L.	LOW WATER LEVEL
APPROX.	APPROXIMATELY	MAX.	MAXIMUM
ASPH.	ASPHALT	MATL	MATERIAL
ASSEM.	ASSEMBLY	M.H.	MANHOLE
BE	BURIED ELECTRIC	MIN.	MINIMUM
BL	BASELINE	MOD	MODIFIED
B.M.	BENCHMARK	M.O.T.	MAINTENANCE OF TRAFFIC
B.O.	BLOWOFF	M.J.	MECHANICAL JOINT
BCL	BURRIED CABLE LINE	N.G.	NATURAL GROUND
BT	BURIED TELEPHONE	NO.	NUMBER
B.F.V.	BUTTERFLY VALVE	NPW	NON-POTABLE WATER
CATV	CABLE TELEVISION	N.T.S.	NOT TO SCALE
C.B.	CATCH BASIN	O.C.U.	ORANGE COUNTY UTILITIES
C.F.S.	CUBIC FEET PER SECOND	O.D.	OUTSIDE DIAMETER
CIP	CAST IRON PIPE	O.H.E.	OVERHEAD ELECTRIC
CL	CENTERLINE	O.U.C.	ORLANDO UTILITY COMMISSION
C.M.	CONCRETE MONUMENT	PAVT.	PAVEMENT
C.M.P.	CORRUGATED METAL PIPE	P.B.	PULL BOX
CONC.	CONCRETE	PG.	PAGE
CONN.	CONNECTION	P.I.	POINT OF INTERSECTION
CONST.	CONSTRUCT	PL	PROPERTY LINE
CONT.	CONTINUOUS	POLY.	POLYETHYLENE
CORP.	CORPORATION	PP	POWER POLE
C.V.	CHECK VALVE	PROP.	PROPOSED
C.Y.	CUBIC YARD	PS	PUMP STATION
DBL.	DOUBLE	P.S.I.	POUNDS PER SQUARE INCH
DHW	DESIGN HIGH WATER	P.U.E.	PERMANENT UTILITY EASEMENT
DIA.	DIAMETER	PV	PLUG VALVE
DIP	DUCTILE IRON PIPE	RAD. PT.	RADIUS POINT
DWLS.	DOWELS	R	RADIUS
DWG.	DRAWING	RCP	REINFORCED CONCRETE PIPE
ELEC	ELECTRIC	REINF.	REINFORCED
EA.	EACH	REQ.	REQUIRED
EFF	EFFLUENT	RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
ELEV.	ELEVATION	RT.	RIGHT
EMB.	EMBED OR EMBEDDED	RWM	RECLAIMED WATER MAIN
E/P	EDGE OF PAVEMENT	R/W	RIGHT OF WAY
EMST.	EASEMENT	SAN.	SANITARY SEWER
E.W.	EACH WAY	SCH.	SCHEDULE
EXIST.	EXISTING	S.D.	STORM DRAIN
EXP. JT.	EXPANSION JOINT	S.F.	SQUARE FEET
F.D.	FLOOR DRAIN	SHT.	SHEET
F.D.E.P.	FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION	SHT.	SHEET
F.D.O.T.	FLORIDA DEPT. OF TRANSPORTATION	SHT.	SHEET
F.F.	FINISHED FLOOR	SHT.	SHEET
F.H.	FIRE HYDRANT	SHT.	SHEET
FKA	FORMALLY KNOWN AS	SS	STAINLESS STEEL
FLG.	FLANGE	SS	STAINLESS STEEL
FL.	FLOW LINE	STA.	STATION
FM	FORCEMAIN	STD.	STANDARD
FT.	FEET	STL.	STEEL
FTG.	FOOTING	S.Y.	SQUARE YARDS
GA	GAUGE	TEL	TELEPHONE
GAL.	GALLONS	T&B	TOP AND BOTTOM
GEN.	GENERATOR	TBM	TEMPORARY BENCH MARK
GRD.	GROUND	TCE	TEMPORARY CONSTRUCTION EASEMENT
G.S.P.	GALVANIZED STEEL PIPE	TEMP.	TEMPORARY
GM	GAS MAIN	THD.	THREADED
GPM	GALLONS PER MINUTE	THK.	THICK
GV	GATE VALVE	TYP.	TYPICAL
HB	HOSE BIBB	U.G.	UNDERGROUND
HDWL.	HEADWALL	VAC	VOLTAGE ALTERNATING CURRENT
HT.	HEIGHT	VCP	VITRIFIED CLAY PIPE
HP	HIGH POINT	VDC	VOLTAGE DIRECT CURRENT
HORIZ.	HORIZONTAL	VERT.	VERTICAL
H.W.L.	HIGH WATER LEVEL	V.V.H.	VERIFIED VERTICALLY & HORIZONTALLY
I.E.	INVERT ELEVATION	W/	WITH
I.D.	INSIDE DIAMETER	WM	WATERMAIN
IN.	INCHES	WM	WATER METER
INV.	INVERT	WP	WALL PIPE
I.P.	IRON PIPE	WS	WATER SERVICE
I.R.	IRON ROD	W.S.	WATER SURFACE
J.B.	JUNCTION BOX	WWF	WELDED WIRE FABRIC
JUNC.	JUNCTION	"X"	SPOT ELEVATION
LAT.	LATERAL		
LF	LINEAR FEET		

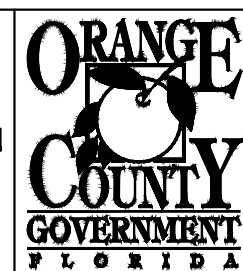
REF:NNNNN REFERENCE MADE TO AN APPLICABLE SECTION(S) OF THE TECHNICAL SPECIFICATIONS FOR THIS PROJECT.

**EMERGENCY NUMBER**

CABLE	ADELPHIA	877-321-5465
CABLE	INTERMEDIA COMMUNICATIONS (MCI)	800-624-9675
CABLE	BRIGHT HOUSE NETWORKS	407-295-9119 --- EXT - 8583
ELECTRIC	PROGRESS ENERGY FLORIDA	800-700-8744
GAS	TECO PEOPLES GAS	877-832-6747
LOCATES	SUNSHINE ONE CALL	800-432-4770
TELEPHONE	BELL SOUTH	800-432-1424
UTILITIES	ORANGE COUNTY DISPATCH	407-836-2777 (24-HR ASSISTANCE)
WASTEWATER	ORANGE COUNTY UTILITIES (O. C. U.)	407-254-9680
WATER	ORANGE COUNTY UTILITIES (O. C. U.)	407-254-9850
CONSTRUCTION	ORANGE COUNTY UTILITIES (O. C. U.)	407-254-9798
WATER/ELE.	ORLANDO UTILITIES COMMISSION (O. U. C.)	407-423-9100

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)



**ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION**  
9150 CURRY FORD ROAD ORLANDO, FL. 32825



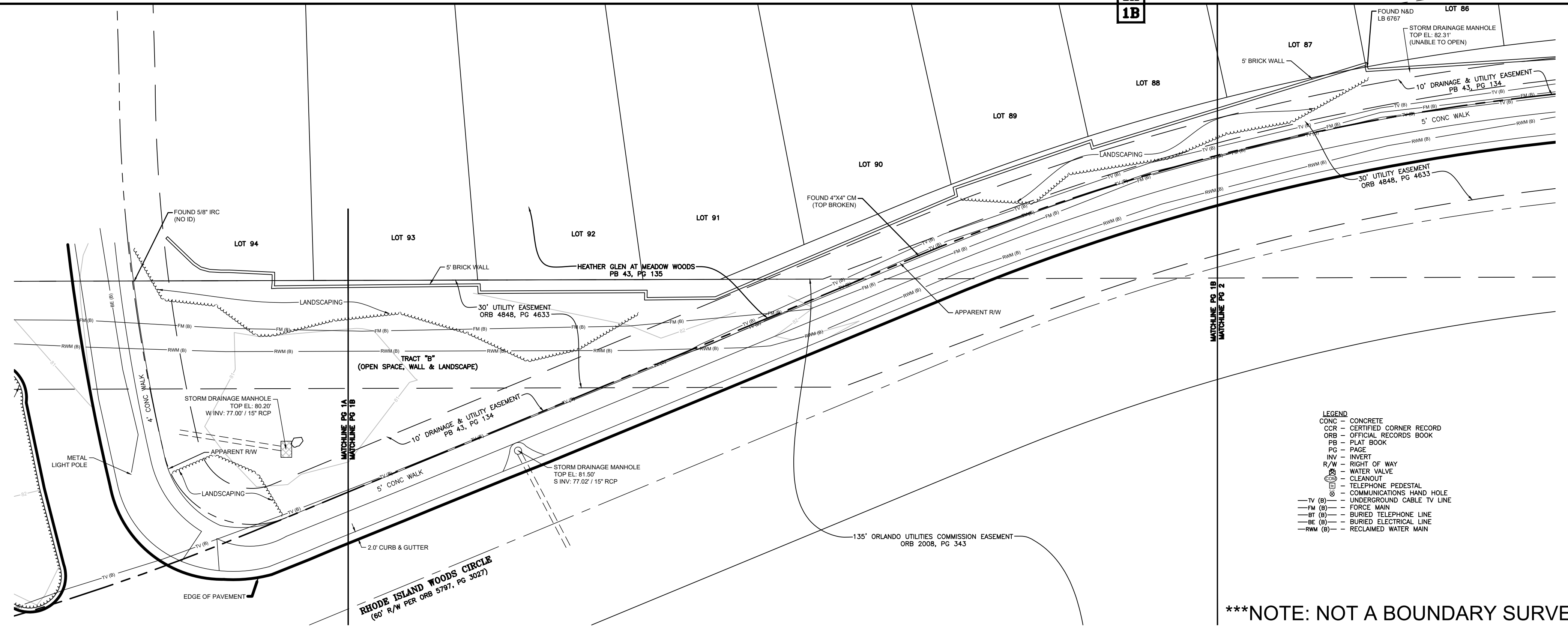
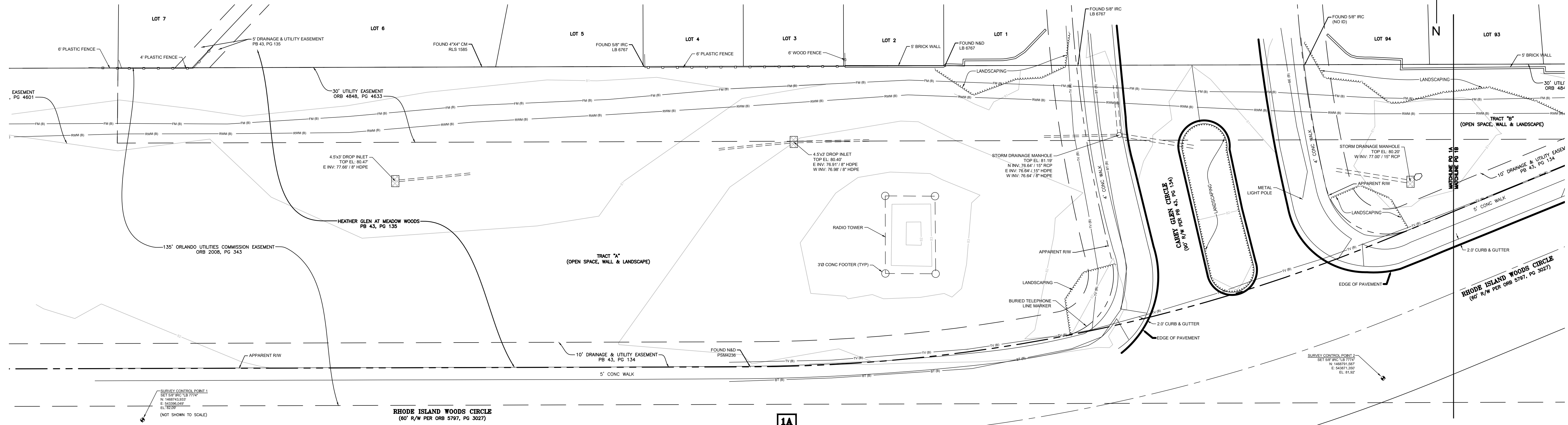
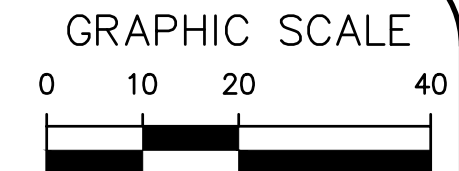
**GENERAL NOTES, LEGEND, AND ABBREVIATIONS**

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DESIGNED BY: CHH	DRAWING NO.:
DRAWN BY: EDW	<b>G-102</b>
CHECKED BY: SRC	SHEET: 3 OF 17
CADD FILE: G102.DWG	

# TOPOGRAPHIC SURVEY

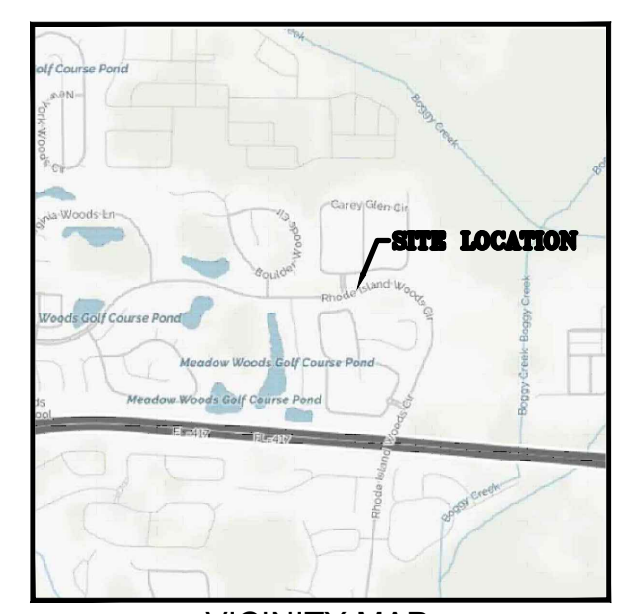
## FORCE MAIN R/R PACKAGE 2

### LYING IN SECTION 30, TOWNSHIP 22 SOUTH, RANGE 32 EAST ORANGE COUNTY, FLORIDA.



#### Surveyor's Notes

- This Topographic Survey is not valid unless signed and embossed with the raised seal of a Florida licensed Surveyor and Mapper.
- Lands were not researched by this firm for matters such as ownership, easements, right of way or other matters in the public records that may affect these lands. A title report was not provided for this survey.
- Bearings and coordinates are relative to the Florida State Plane Coordinate System, East Zone, North American Datum of 1983/2011 Adjustment.
- Elevations shown hereon are relative to North American Vertical Datum of 1988 (NAVD 88) with direct ties to the following published benchmarks:
  - B348021 - Elevation 81.497'  
Square cut on top of pillar, Southeast corner of Tower #74.
  - S1326018 - Elevation 82.181'  
Set 3" Orange County alum. disc on concrete curb inlet east side of Rhode Island Woods Cir., +/-150 ft north of main entrance to Meadows Middle School about +/-1200 FT North of 417 bridge\*
- Last day in the field: August 3, 2016.
- Graphic symbols shown hereon may not be to scale.
- This Topographic Survey is certified true and correct to: Orange County Utilities.
- Apparent Boundary line determination is based on recovered monumentation in the area of this survey, and information provided by others.
- This is not a Boundary Survey.
- Underground features such as foundations were not located
- Underground utilities were located by this firm based on visible existing features and indicators. There may be other non-detectable utilities not known to the Surveyor.



VICINITY MAP (NOT TO SCALE)

**LEGEND**

- CONC - CONCRETE
- CCR - CERTIFIED CORNER RECORD
- ORB - OFFICIAL RECORDS BOOK
- FB - PLAT BOOK
- PG - PAGE
- INV - INVERT
- R/W - RIGHT OF WAY
- WV - WATER VALVE
- CLEANOUT
- TP - TELEPHONE PEDESTAL
- S - COMMUNICATIONS HAND HOLE
- TV (B) - UNDERGROUND CABLE TV LINE
- FM (B) - FORCE MAIN
- BT (B) - BURIED TELEPHONE LINE
- HE (B) - BURIED ELECTRICAL LINE
- RWM (B) - RECLAIMED WATER MAIN

\*\*\*NOTE: NOT A BOUNDARY SURVEY\*\*\*

#### Surveyor Certification

This Topographic Survey was prepared under my direction and is true and correct to the best of my knowledge and belief. This Topographic Survey was performed in conformance with the "Standards of Practice" as contained in Chapter 5J-17, Florida Administrative Code, pursuant to Florida Statute 472.

William L. Miller, PLS Date  
Florida Surveyor and Mapper LS 5010  
Barnes Ferland and Associates LB 7774

\*Not valid without the signature and original raised seal of the Florida licensed surveyor and mapper

**BFA** Environmental Consultants  
Barnes, Ferland and Associates, Inc.  
1230 Hillcrest St., Orlando, Florida 32803  
PH: (407) 896-8608 FAX: (407) 896-1822  
CERTIFICATE OF AUTHORIZATION NUMBER: LB 7774

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY**  
UTILITIES DEPARTMENT  
ENGINEERING DIVISION  
9150 CURRY FORD ROAD ORLANDO, FL. 32825

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Maitland, Florida 32751  
PH: (407) 647-6825  
CA8556

TOPOGRAPHIC SURVEY OF  
WWFM141925 (1 OF 2)

PROFESSIONAL ENGINEER  
FLORIDA LICENSE #

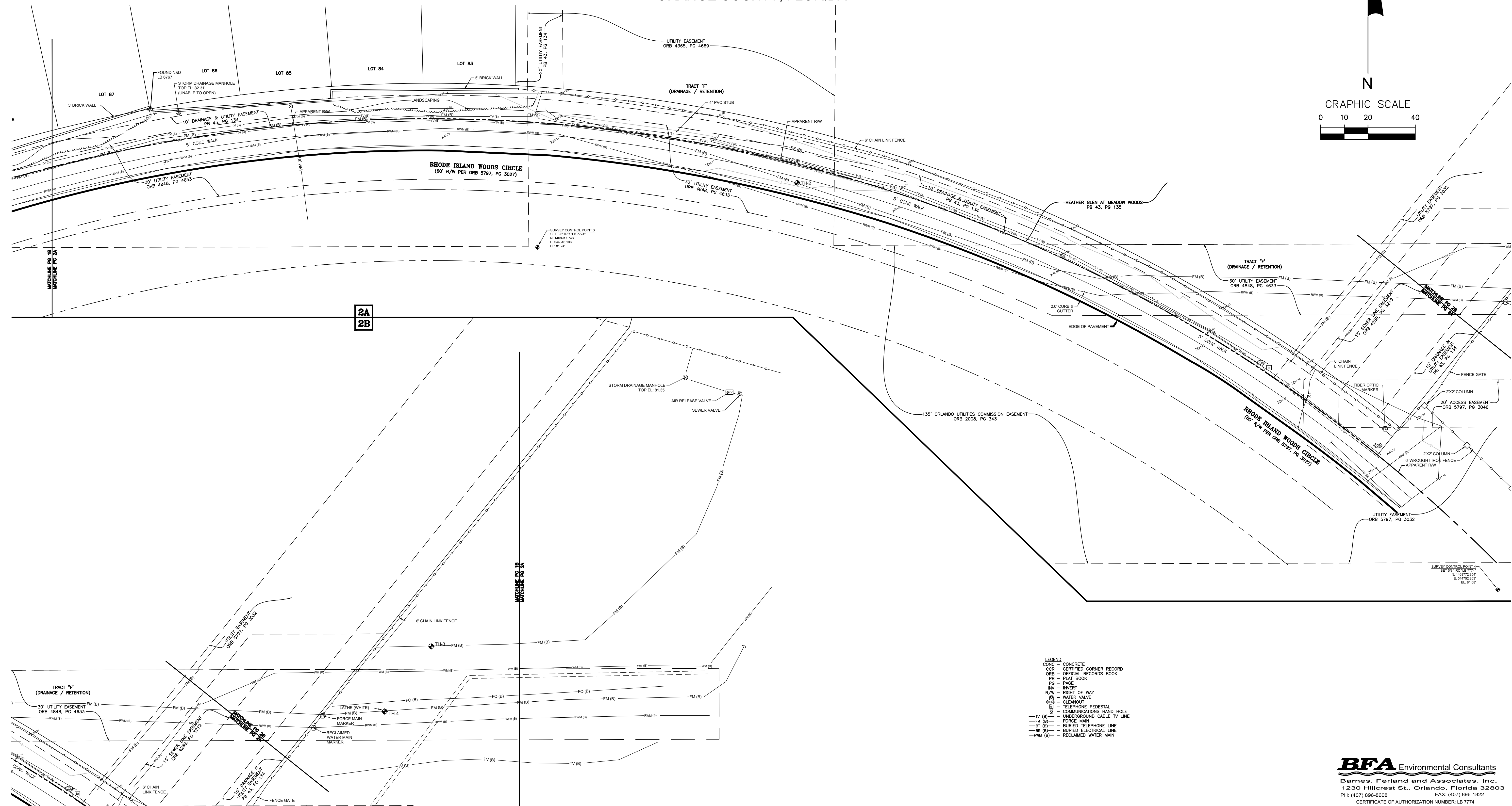
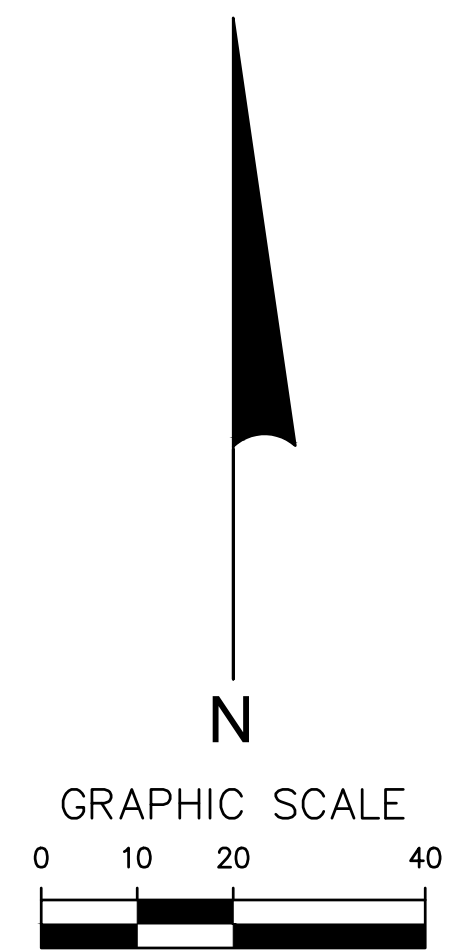
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DESIGNED BY:	DRAWING NO.:
DRAWN BY: CRS	<b>V-100</b>
CHECKED BY: RDW	SHEET: 4 OF 17
CADD FILE: V-100.dwg	

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Mon, 23 Apr 2019 3:05pm

# TOPOGRAPHIC SURVEY

## FORCE MAIN R/R PACKAGE 2

LYING IN SECTION 30, TOWNSHIP 22 SOUTH, RANGE 32 EAST  
ORANGE COUNTY, FLORIDA.



- LEGEND**
- CONC = CONCRETE
  - CCR = CERTIFIED CORNER RECORD
  - ORB = OFFICIAL RECORDS BOOK
  - PB = PLAY BOOK
  - PC = PAGE
  - INV = INVERT
  - R/W = RIGHT OF WAY
  - WV = WATER VALVE
  - CLEANOUT = CLEANOUT
  - TEL = TELEPHONE PEDESTAL
  - CHH = COMMUNICATIONS HAND HOLE
  - FM (B) = UNDERGROUND CABLE TV LINE
  - FM (S) = FORCE MAIN
  - BT (B) = BURIED TELEPHONE LINE
  - BE (B) = BURIED ELECTRICAL LINE
  - RWM (B) = RECLAIMED WATER MAIN

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY  
UTILITIES DEPARTMENT  
ENGINEERING DIVISION**

9150 CURRY FORD ROAD ORLANDO, FL. 32825

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Maitland, Florida 32751  
PH: (407) 647-6623  
CA8556

TOPOGRAPHIC SURVEY OF  
WWFM141925 (2 OF 2)

PROFESSIONAL ENGINEER  
FLORIDA LICENSE #

OCU FILE NO.: 85446	SCALE: AS SHOWN
DESIGNED BY:	DRAWING NO.:
DRAWN BY: CRS	<b>V-101</b>
CHECKED BY: RDW	SHEET: 5 OF 17
CADD FILE: V-101.dwg	

**BFA** Environmental Consultants  
Barnes, Ferland and Associates, Inc.  
1230 Hillcrest St., Orlando, Florida 32803  
PH: (407) 896-8608 FAX: (407) 896-1822  
CERTIFICATE OF AUTHORIZATION NUMBER: LB 7774

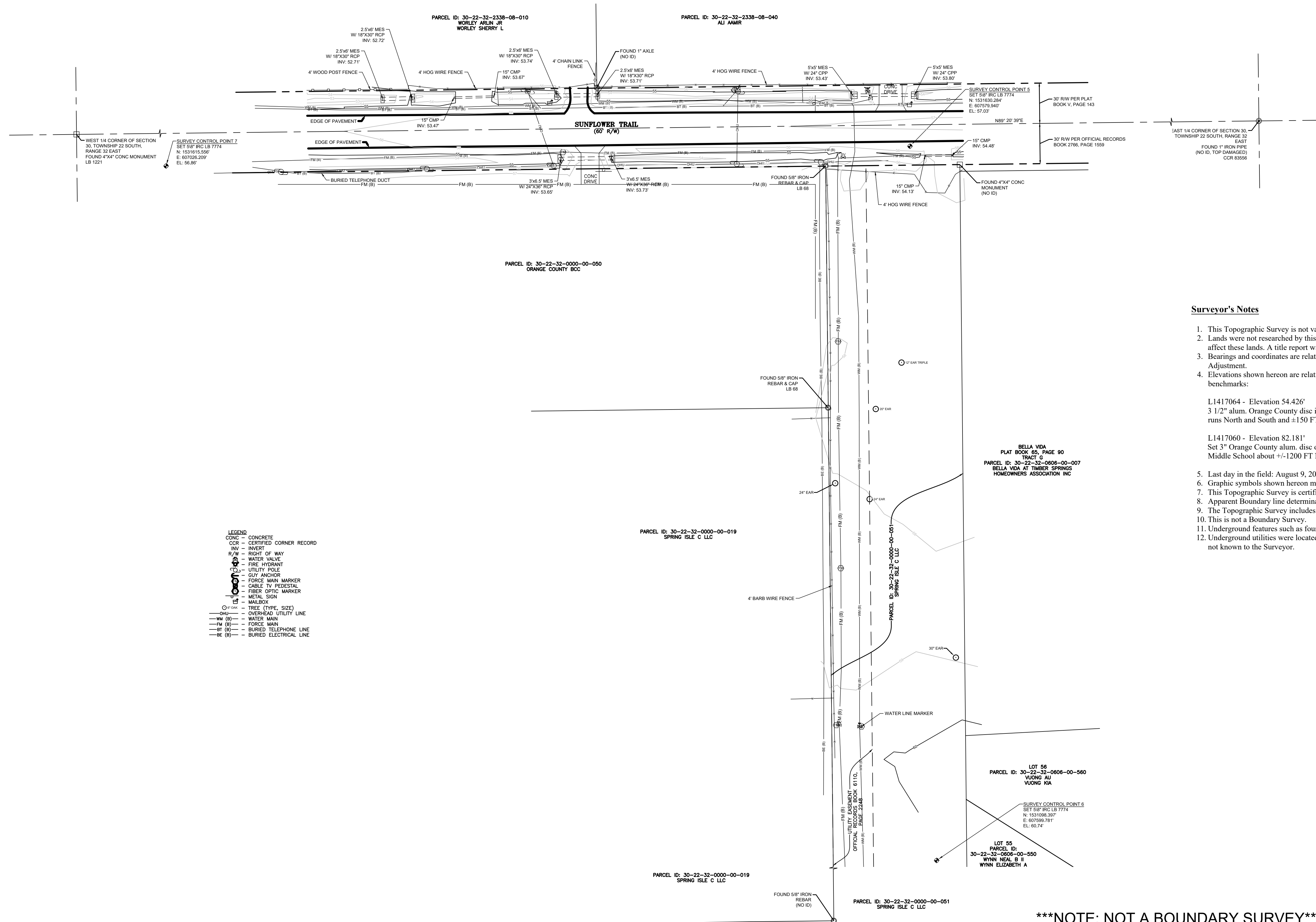
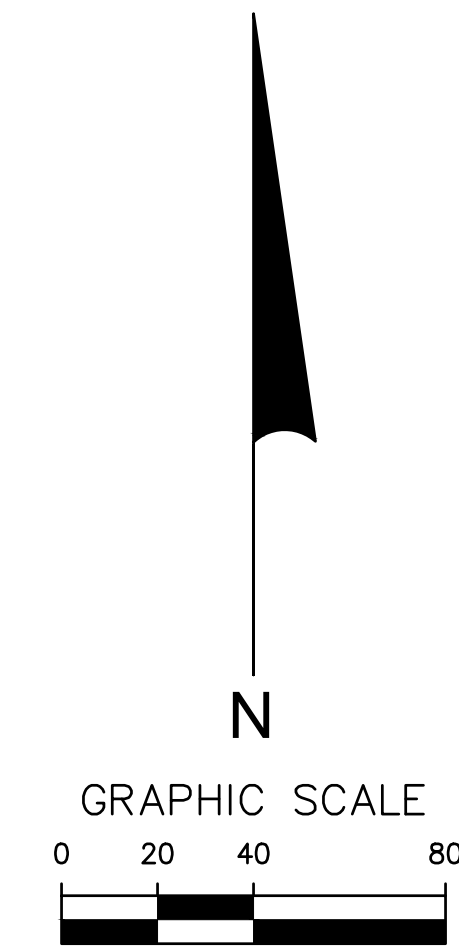
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Mon, 23 Apr 2019 3:05pm

# TOPOGRAPHIC SURVEY

## FORCE MAIN R/R PACKAGE 2

### LYING IN SECTION 30, TOWNSHIP 22 SOUTH, RANGE 32 EAST

### ORANGE COUNTY, FLORIDA.



**LEGEND**

- CONC - CONCRETE
- CCR - CERTIFIED CORNER RECORD
- INV - INVERT
- R/W - RIGHT OF WAY
- WV - WATER VALVE
- FD - FIRE HYDRANT
- UT - UTILITY POLE
- CA - CABLE ANCHOR
- FM - FORCE MAIN MARKER
- FT - FIBER OPTIC MARKER
- MS - METAL SIGN
- MB - MAILBOX
- OT - TREE (TYPE, SIZE)
- OL - OVERHEAD UTILITY LINE
- WM - WATER MAIN
- FM - FORCE MAIN
- BT - BURIED TELEPHONE LINE
- BE - BURIED ELECTRICAL LINE

**Surveyor's Notes**

1. This Topographic Survey is not valid unless signed and embossed with the raised seal of a Florida licensed Surveyor and Mapper.
2. Lands were not researched by this firm for matters such as ownership, easements, right of way or other matters in the public records that may affect these lands. A title report was not provided for this survey.
3. Bearings and coordinates are relative to the Florida State Plane Coordinate System, East Zone, North American Datum of 1983/2011 Adjustment.
4. Elevations shown hereon are relative to North American Vertical Datum of 1988 (NAVD 88) with direct ties to the following published benchmarks:
  - L1417064 - Elevation 54.426'  
3 1/2" alum. Orange County disc in headwall on East side of Sunflower Trail in C/L of headwall ±30 FT East of C/L of Sunflower Trail that runs North and South and ±150 FT North of C/L of Sunflower Trail that runs East and West.
  - L1417060 - Elevation 82.181'  
Set 3" Orange County alum. disc on concrete curb inlet east side of Rhode Island Woods Cir., +/-150 ft north of main entrance to Meadows Middle School about +/-1200 FT North of 417 bridge"
5. Last day in the field: August 9, 2016.
6. Graphic symbols shown hereon may not be to scale.
7. This Topographic Survey is certified true and correct to: Orange County Utilities.
8. Apparent Boundary line determination is based on recovered monumentation in the area of this survey, and information provided by others.
9. The Topographic Survey includes all the pump station property and pertinent features on adjacent lands and the street.
10. This is not a Boundary Survey.
11. Underground features such as foundations were not located
12. Underground utilities were located by this firm based on visible existing features and indicators. There may be other non-detectable utilities not known to the Surveyor.

**Surveyor Certification**

This Topographic Survey was prepared under my direction and is true and correct to the best of my knowledge and belief. This Topographic Survey was performed in conformance with the "Standards of Practice" as contained in Chapter 5J-17, Florida Administrative Code, pursuant to Florida Statute 472.

William L. Miller, PLS Date  
 Florida Surveyor and Mapper LS 5010  
 Barnes Ferland and Associates LB 7774

\*Not valid without the signature and original raised seal of the Florida licensed surveyor and mapper

**BFA Environmental Consultants**  
 Barnes, Ferland and Associates, Inc.  
 1230 Hillcrest St., Orlando, Florida 32803  
 PH: (407) 896-8608 FAX: (407) 896-1822  
 CERTIFICATE OF AUTHORIZATION NUMBER: LB 7774

\*\*\*NOTE: NOT A BOUNDARY SURVEY\*\*\*

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
 AT FULL SIZE  
 (IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY GOVERNMENT**  
**ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION**  
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

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 CA8556

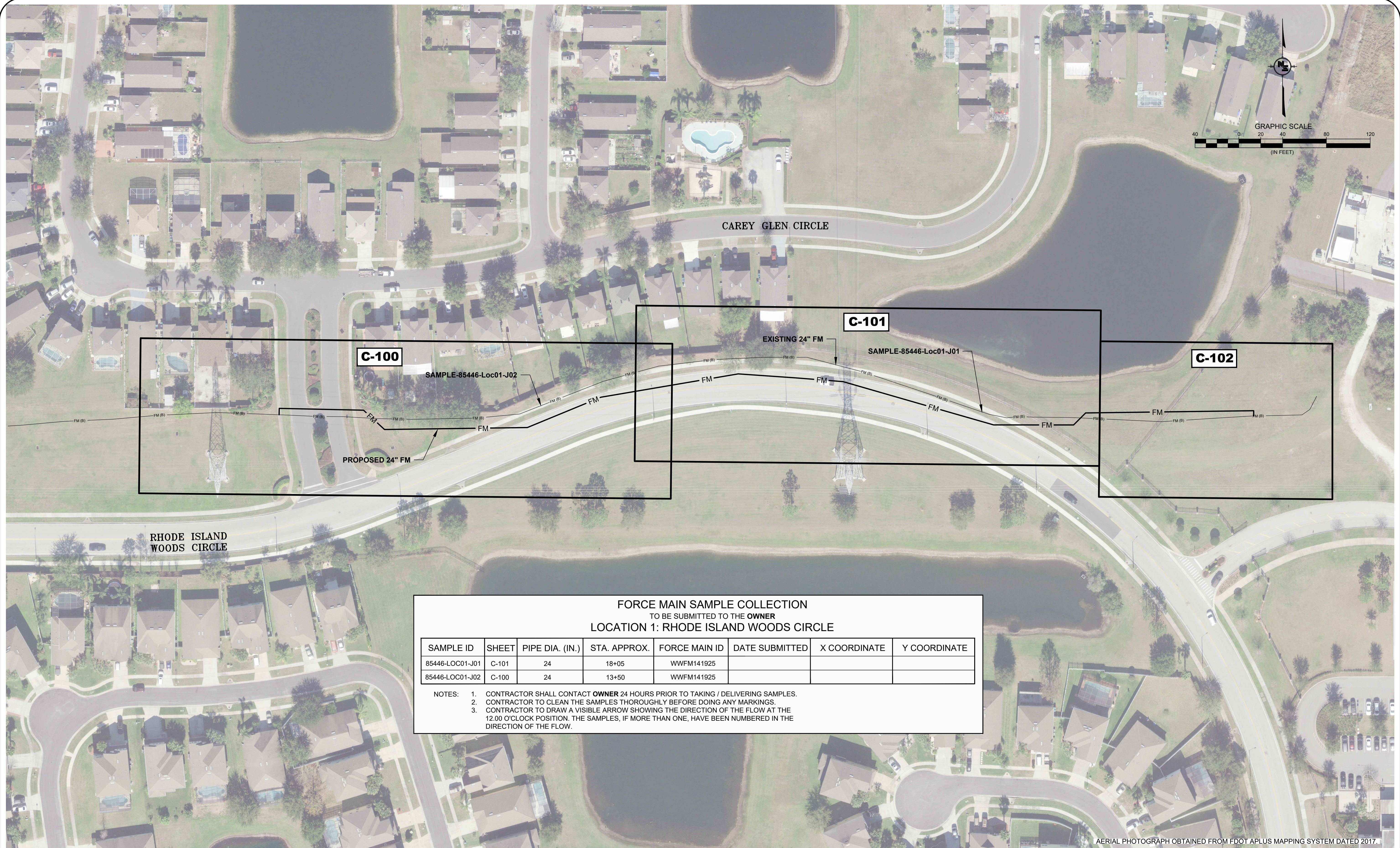
TOPOGRAPHIC SURVEY OF  
 WWFM251025

PROFESSIONAL ENGINEER  
 FLORIDA LICENSE #

OCU FILE NO.: 85446	SCALE: AS SHOWN
DESIGNED BY:	DRAWING NO.:
DRAWN BY: CRS	<b>V-200</b>
CHECKED BY: RDW	SHEET: 6 OF 17
CADD FILE: V-200.dwg	

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 Mon, 23 Apr 2019 11:30:06pm



**FORCE MAIN SAMPLE COLLECTION**  
 TO BE SUBMITTED TO THE OWNER  
 LOCATION 1: RHODE ISLAND WOODS CIRCLE

SAMPLE ID	SHEET	PIPE DIA. (IN.)	STA. APPROX.	FORCE MAIN ID	DATE SUBMITTED	X COORDINATE	Y COORDINATE
85446-LOC01-J01	C-101	24	18+05	WWFM141925			
85446-LOC01-J02	C-100	24	13+50	WWFM141925			

NOTES: 1. CONTRACTOR SHALL CONTACT **OWNER** 24 HOURS PRIOR TO TAKING / DELIVERING SAMPLES.  
 2. CONTRACTOR TO CLEAN THE SAMPLES THOROUGHLY BEFORE DOING ANY MARKINGS.  
 3. CONTRACTOR TO DRAW A VISIBLE ARROW SHOWING THE DIRECTION OF THE FLOW AT THE 12.00 O'CLOCK POSITION. THE SAMPLES, IF MORE THAN ONE, HAVE BEEN NUMBERED IN THE DIRECTION OF THE FLOW.

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
 AT FULL SIZE  
 (IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY**  
**UTILITIES DEPARTMENT**  
**ENGINEERING DIVISION**  
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

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 CA8556

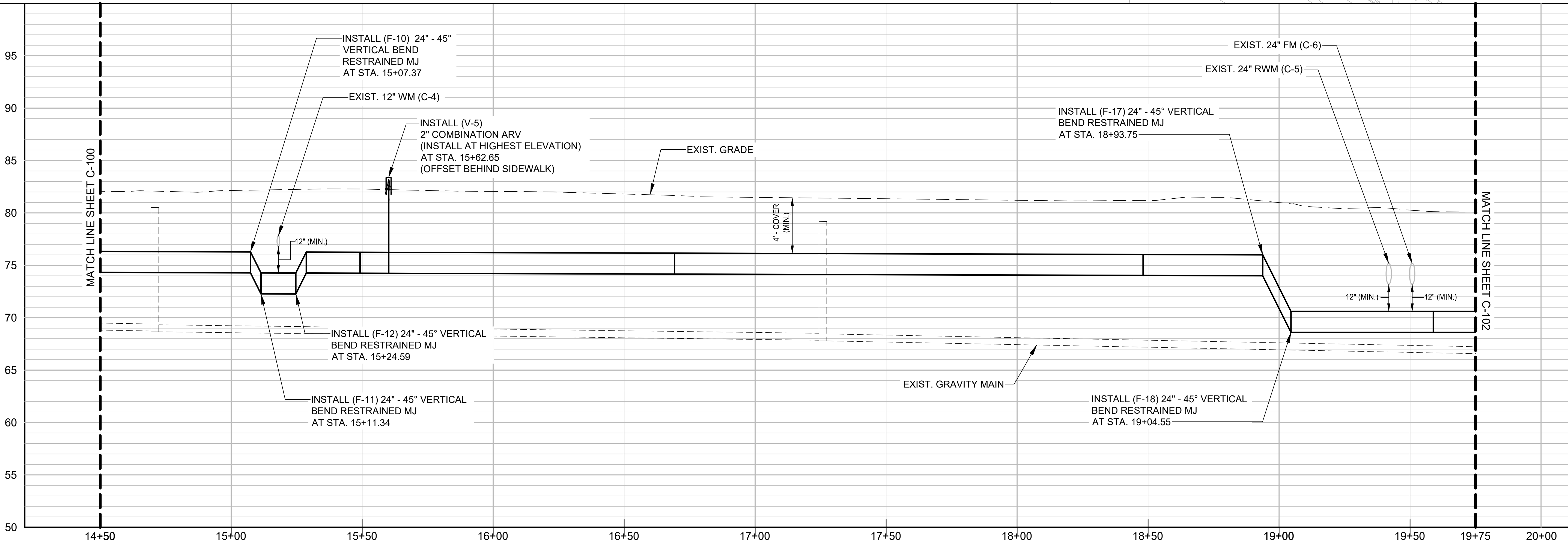
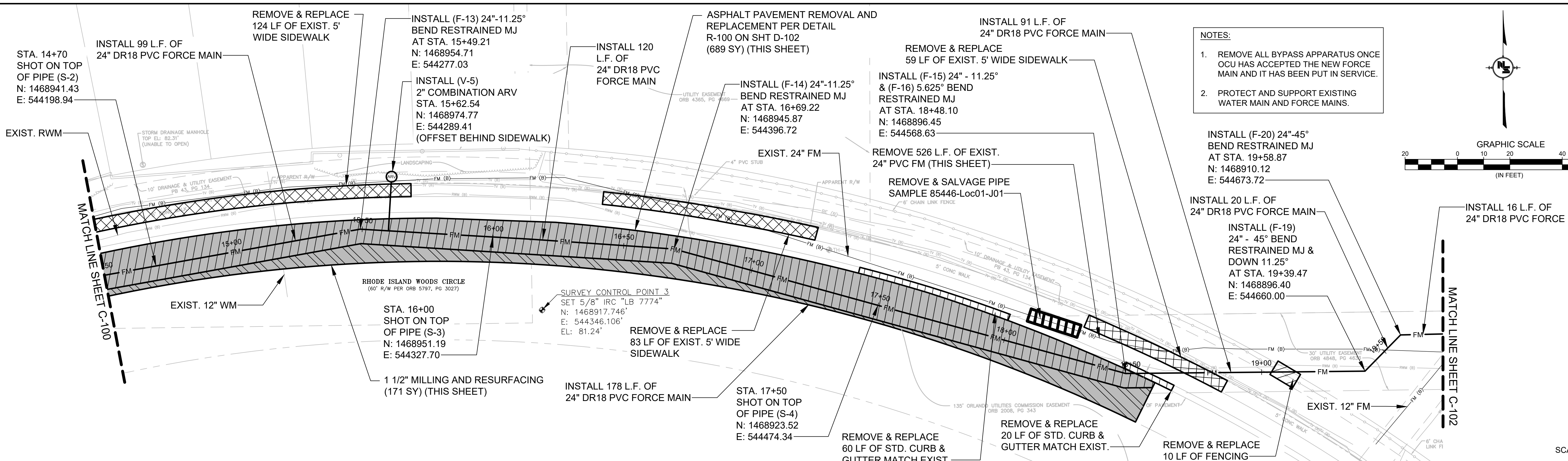
KEY MAP  
 LOCATION 1  
 RHODE ISLAND WOODS CIRCLE

OCU FILE NO.: 85446  
 DESIGNED BY: CHH  
 DRAWN BY: EDW  
 CHECKED BY: SRC  
 CADD FILE: K-100.dwg

SCALE: AS SHOWN  
 DRAWING NO.: **K-100**  
 SHEET: 7 OF 17







REV	DATE	DESCRIPTION

LINE IS 1 INCH AT FULL SIZE (IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY**  
UTILITIES DEPARTMENT  
ENGINEERING DIVISION

9150 CURRY FORD ROAD ORLANDO, FL. 32825

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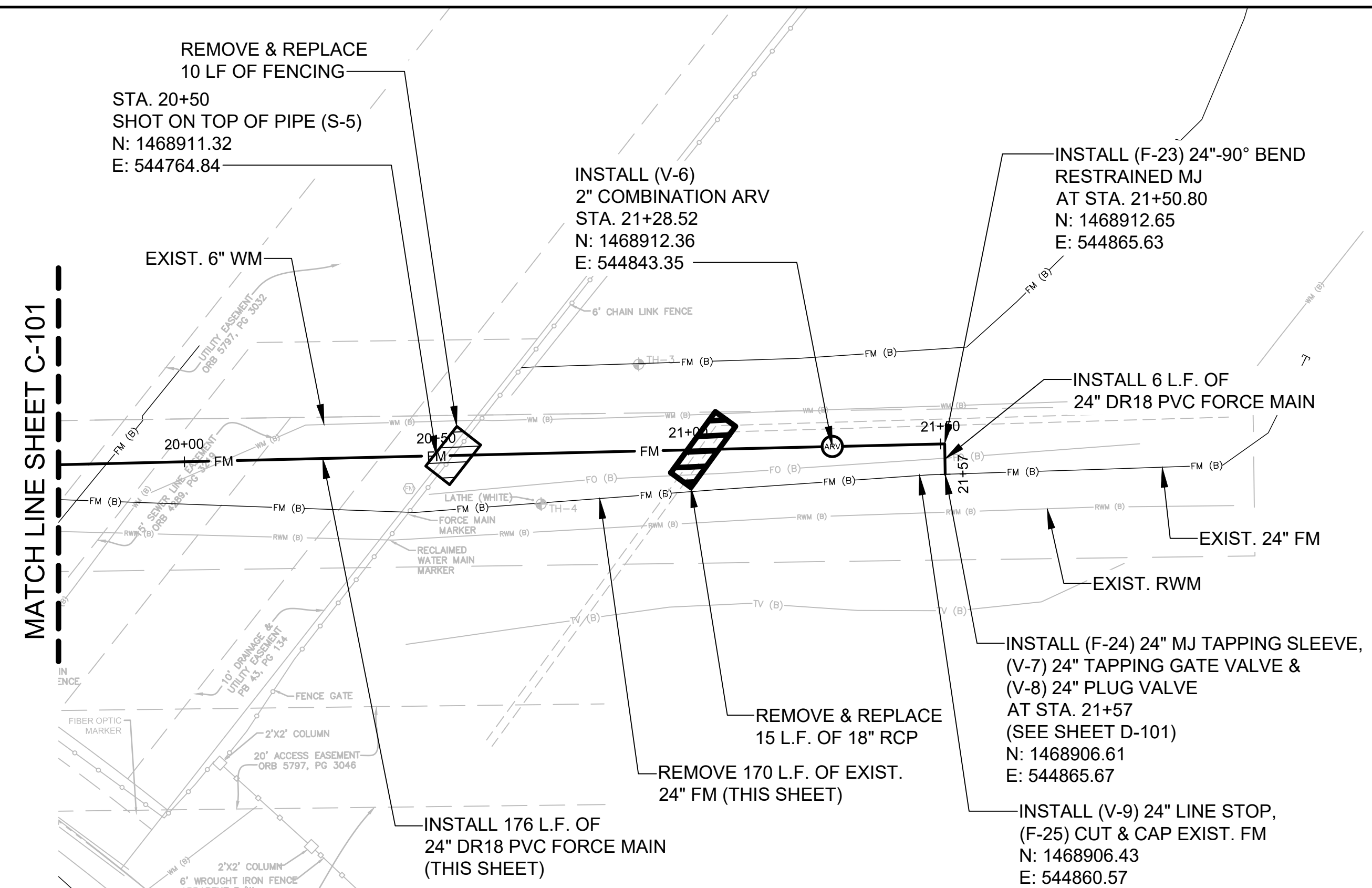
PLAN AND PROFILE  
LOCATION 1  
RHODE ISLAND WOODS CIRCLE  
STA. 14+50 TO STA. 19+75

OCU FILE NO.: 85446  
DESIGNED BY: CHH  
DRAWN BY: EDW  
CHECKED BY: SRC  
CADD FILE: C-101.dwg

STEVEN R. COCKERHAM, P.E.  
PROFESSIONAL ENGINEER  
FLORIDA LICENSE # 62285

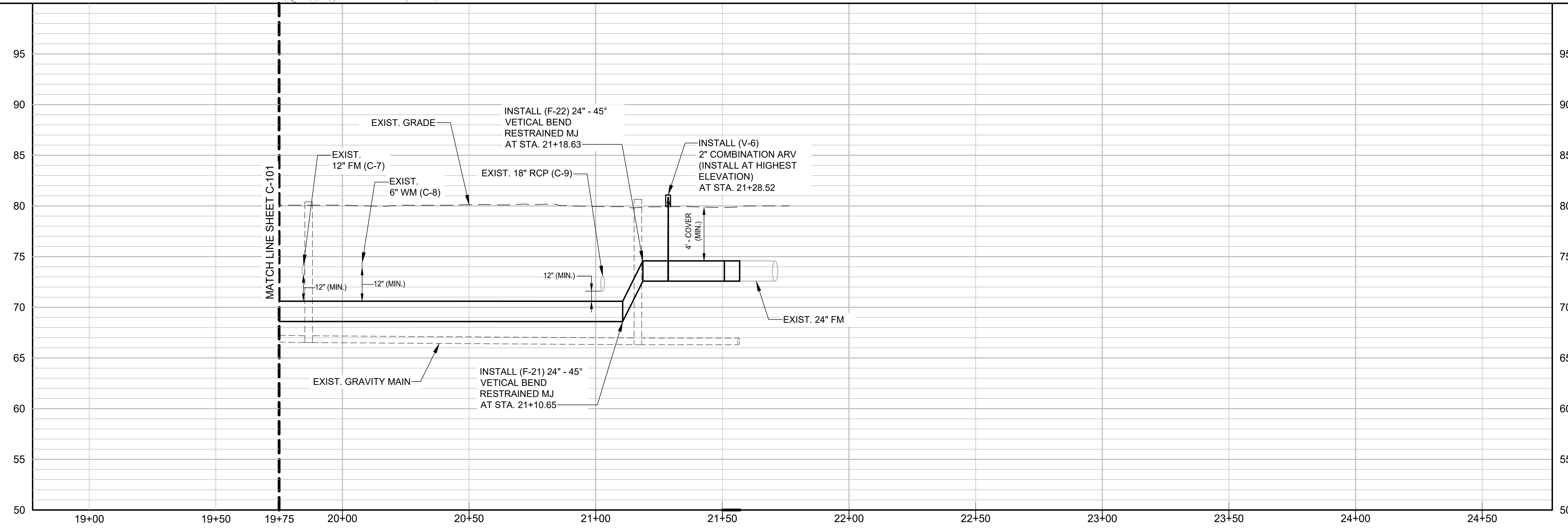
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SHEET: 9 OF 17

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Mon, 23 Apr 2019 1:30:06pm



- NOTES:**
1. REMOVE ALL BYPASS APPARATUS ONCE OCU HAS ACCEPTED THE NEW FORCE MAIN AND IT HAS BEEN PUT IN SERVICE.
  2. PROTECT AND SUPPORT EXISTING WATER MAIN AND FORCE MAINS.

SCALE: 1" = 20' HORIZ.  
1" = 5' VERT.



REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY**  
UTILITIES DEPARTMENT  
ENGINEERING DIVISION  
9150 CURRY FORD ROAD ORLANDO, FL. 32825

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Maitland, Florida 32751  
PH: (407) 647-6623  
CA6556

PLAN AND PROFILE  
LOCATION 1  
RHODE ISLAND WOODS CIRCLE  
STA. 19+75 TO STA. 21+57

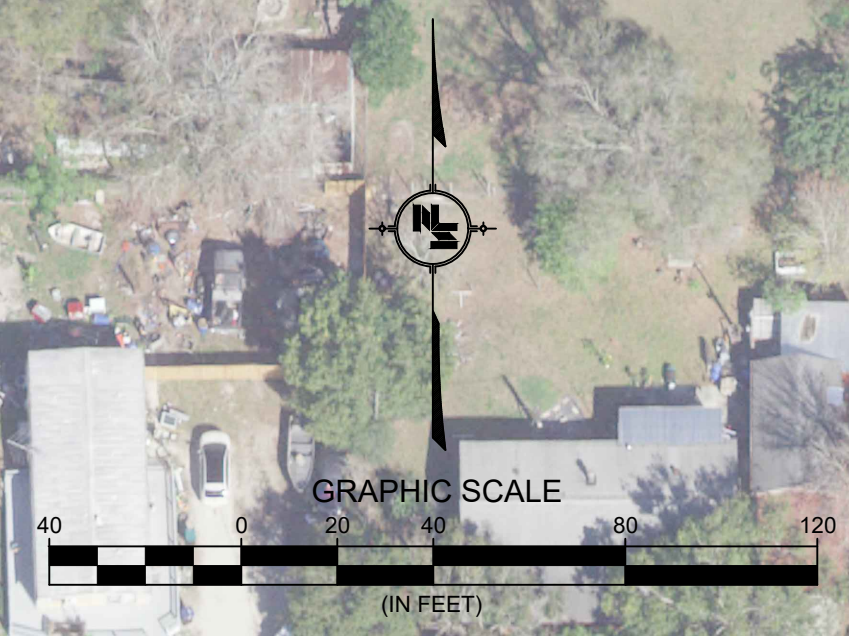
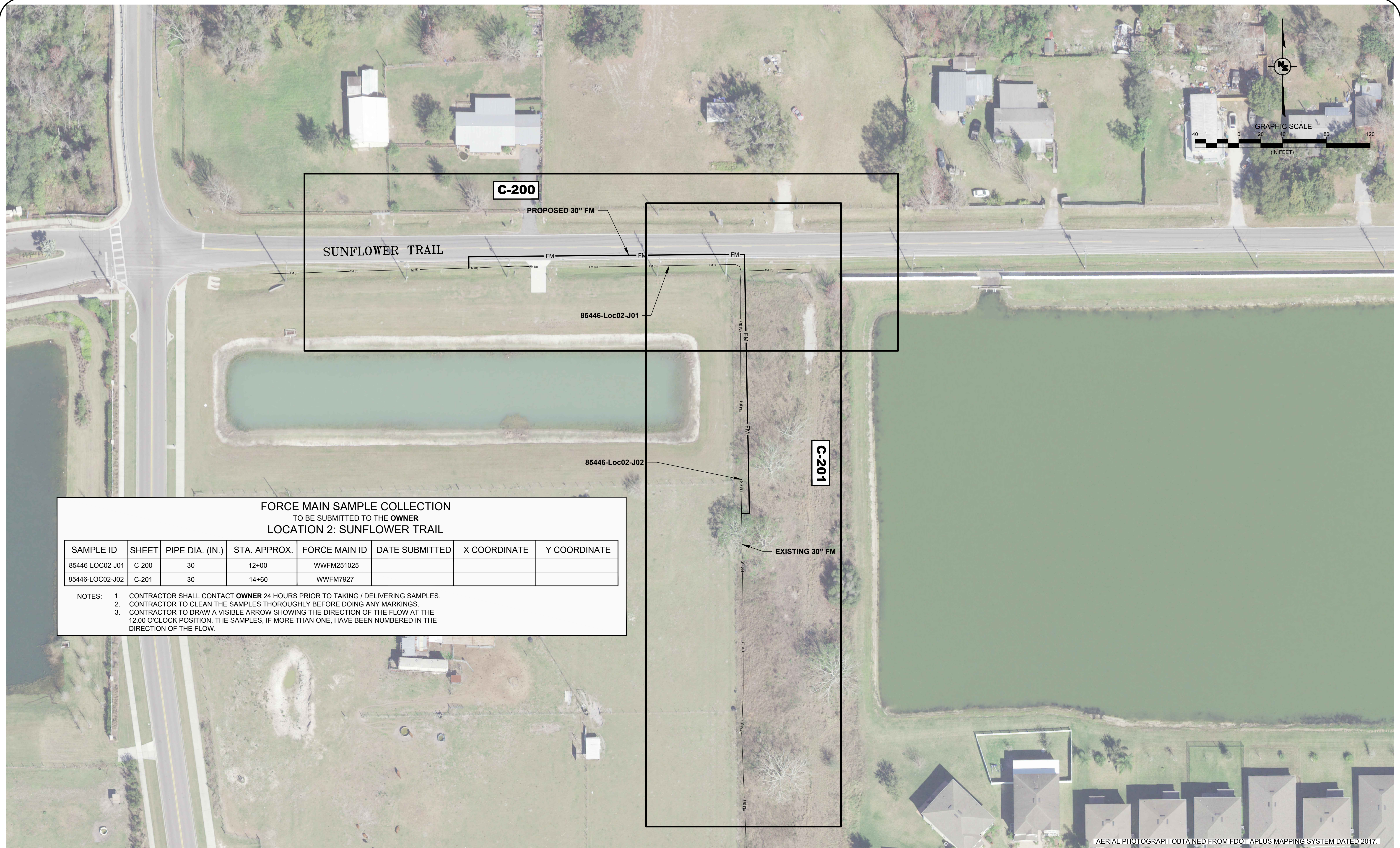
STEVEN R. COCKERHAM, P.E.  
PROFESSIONAL ENGINEER  
FLORIDA LICENSE # 62285

OCU FILE NO.: 85446  
DESIGNED BY: CHH  
DRAWN BY: EDW  
CHECKED BY: SRC  
CADD FILE: C-102.dwg

SCALE: AS SHOWN  
DRAWING NO.:  
**C-102**  
SHEET: 10 OF 17

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 Mon, 23 Apr 2019 11:30:06pm



**FORCE MAIN SAMPLE COLLECTION**  
 TO BE SUBMITTED TO THE OWNER  
 LOCATION 2: SUNFLOWER TRAIL

SAMPLE ID	SHEET	PIPE DIA. (IN.)	STA. APPROX.	FORCE MAIN ID	DATE SUBMITTED	X COORDINATE	Y COORDINATE
85446-LOC02-J01	C-200	30	12+00	WWFM251025			
85446-LOC02-J02	C-201	30	14+60	WWFM7927			

NOTES: 1. CONTRACTOR SHALL CONTACT OWNER 24 HOURS PRIOR TO TAKING / DELIVERING SAMPLES.  
 2. CONTRACTOR TO CLEAN THE SAMPLES THOROUGHLY BEFORE DOING ANY MARKINGS.  
 3. CONTRACTOR TO DRAW A VISIBLE ARROW SHOWING THE DIRECTION OF THE FLOW AT THE 12.00 O'CLOCK POSITION. THE SAMPLES, IF MORE THAN ONE, HAVE BEEN NUMBERED IN THE DIRECTION OF THE FLOW.

REV	DATE	DESCRIPTION

LINE IS 1/8" AT FULL SIZE (IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY GOVERNMENT FLORIDA**

**ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION**

9150 CURRY FORD ROAD ORLANDO, FL. 32825

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 Maitland, Florida 32751  
 PH: (407) 647-6623  
 CA8556

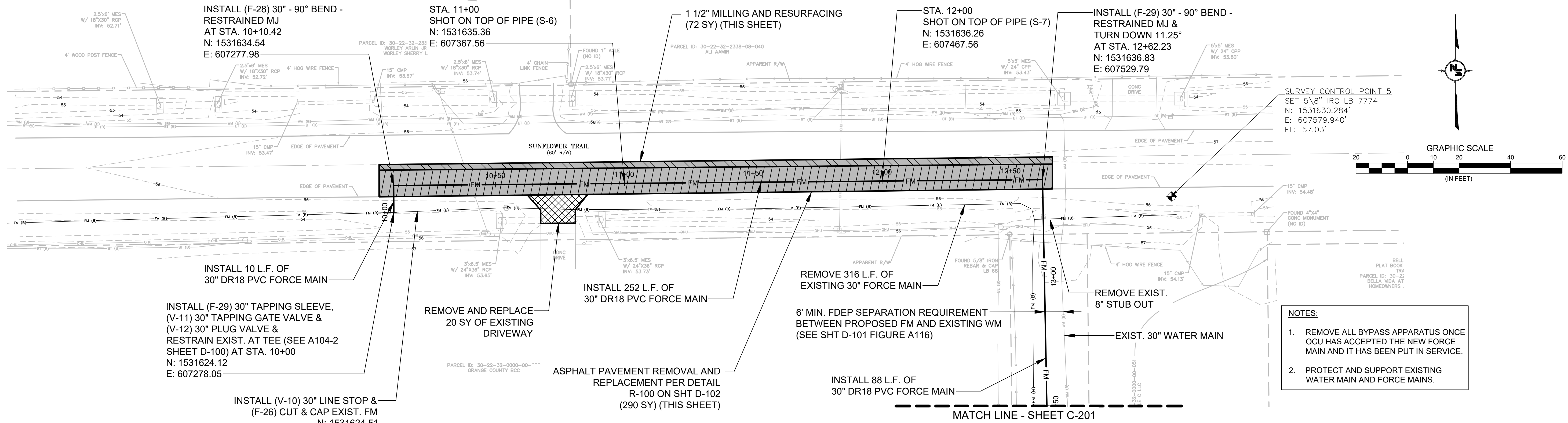
KEY MAP  
 LOCATION 2  
 SUNFLOWER TRAIL

STEVEN R. COCKERHAM, P.E.  
 PROFESSIONAL ENGINEER  
 FLORIDA LICENSE # 62285

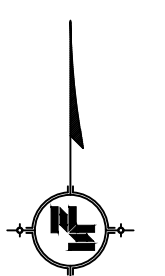
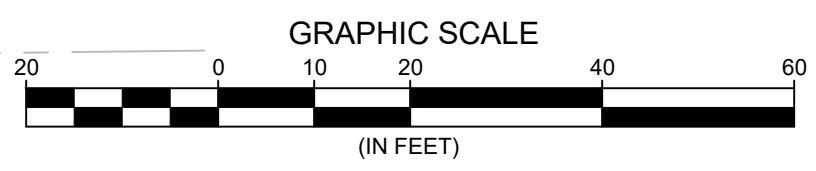
OCU FILE NO.: 85446
DESIGNED BY: CAO
DRAWN BY: EDW
CHECKED BY: SRC
CADD FILE: K-200.dwg

SCALE: AS SHOWN  
 DRAWING NO.: **K-200**  
 SHEET: 11 OF 17

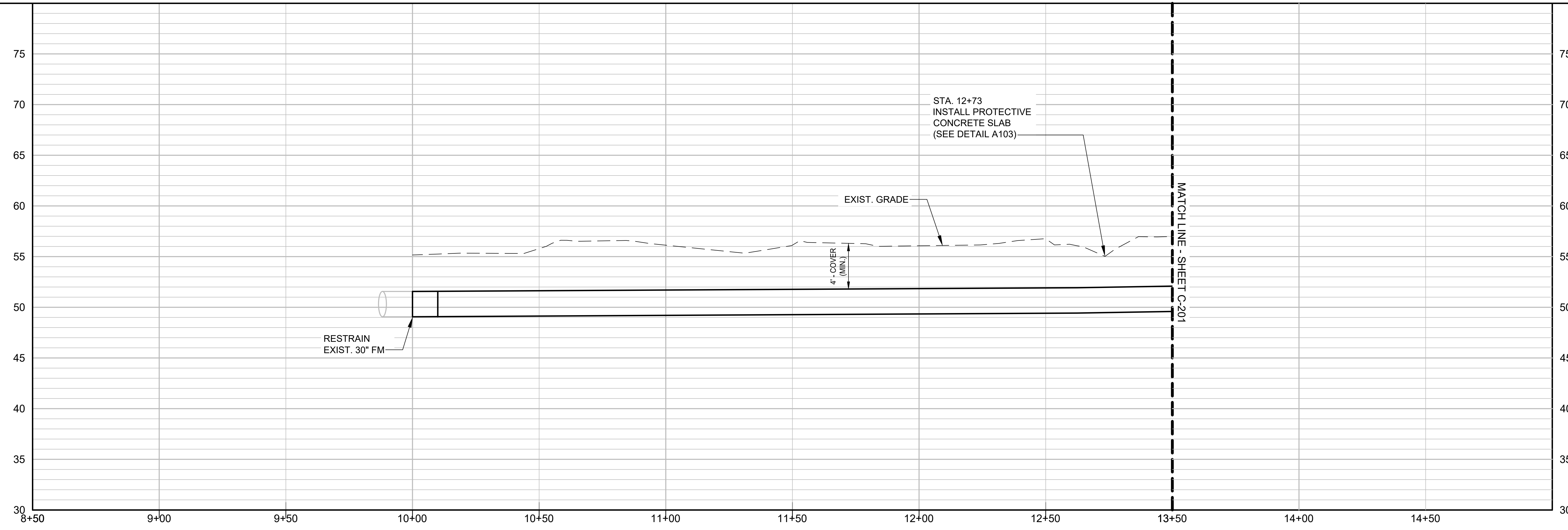
AERIAL PHOTOGRAPH OBTAINED FROM FDOT APLUS MAPPING SYSTEM DATED 2017.



- NOTES:**
1. REMOVE ALL BYPASS APPARATUS ONCE OCU HAS ACCEPTED THE NEW FORCE MAIN AND IT HAS BEEN PUT IN SERVICE.
  2. PROTECT AND SUPPORT EXISTING WATER MAIN AND FORCE MAINS.



SCALE: 1" = 20' HORIZ.  
1" = 5' VERT.



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Mon, 23 Apr 2019 11:30:06pm

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY GOVERNMENT**  
**ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION**  
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

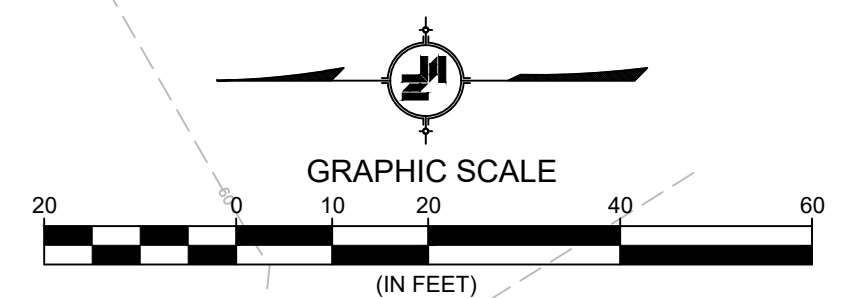
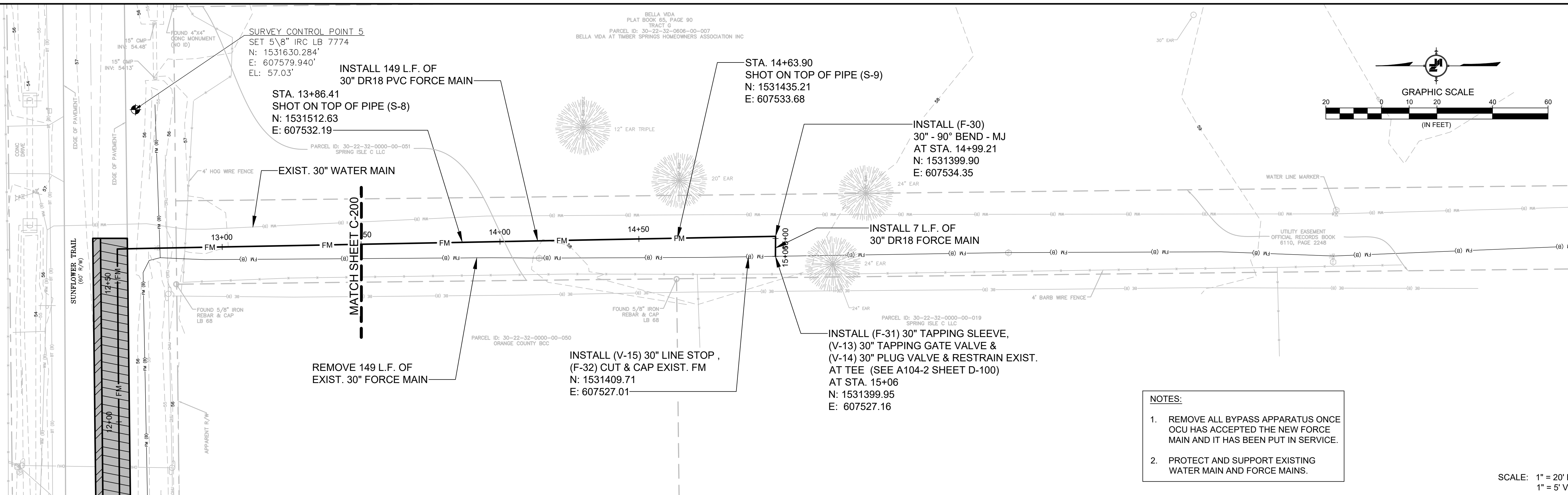
**NEEL-SCHAFFER**  
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 2301 Lucien Way, Suite 300  
 Maitland, Florida 32751  
 PH: (407) 647-6623  
 CA5556

PLAN AND PROFILE  
 LOCATION 2  
 SUNFLOWER TRAIL  
 STA. 10+00 TO STA. 13+50

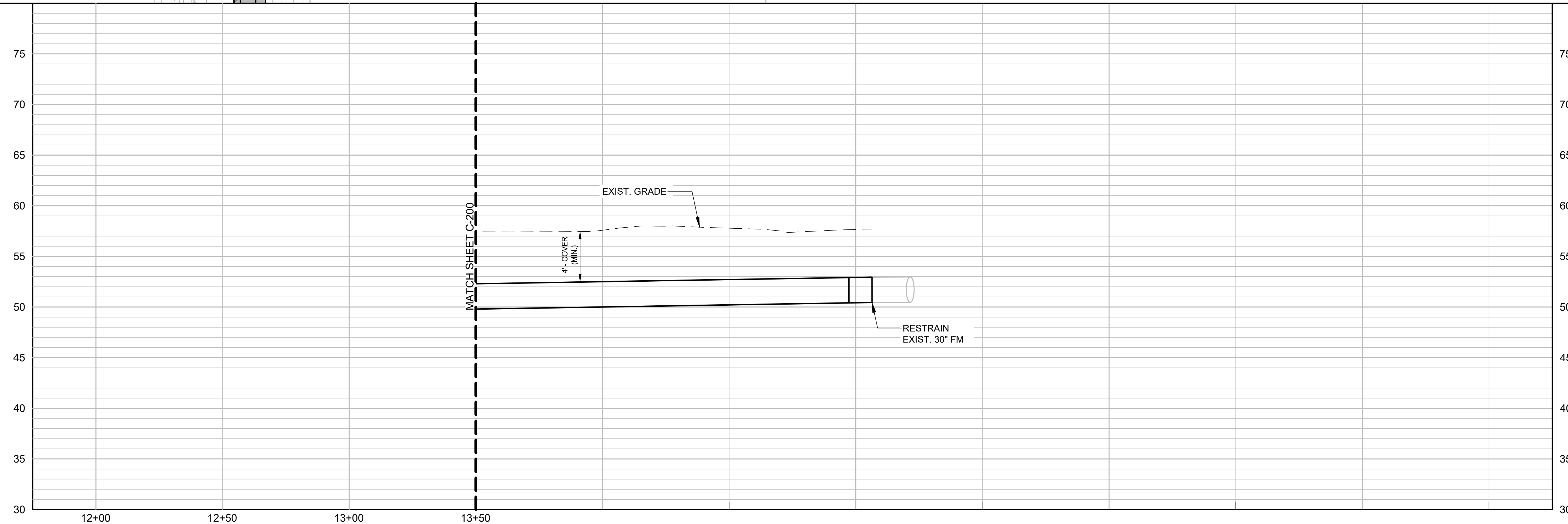
STEVEN R. COCKERHAM, P.E.  
 PROFESSIONAL ENGINEER  
 FLORIDA LICENSE # 62285

OCU FILE NO.: 85446  
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 DRAWN BY: EDW  
 CHECKED BY: SRC  
 CADD FILE: C-200.dwg

SCALE: AS SHOWN  
 DRAWING NO.: **C-200**  
 SHEET: 12 OF 17



SCALE: 1" = 20' HORIZ.  
 1" = 5' VERT.



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 Mon, 23 Apr 2019 11:30:06pm

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
 AT FULL SIZE  
 (IF NOT SCALE ACCORDINGLY)

**ORANGE COUNTY GOVERNMENT**  
**ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION**  
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

**NEEL-SCHAFFER**  
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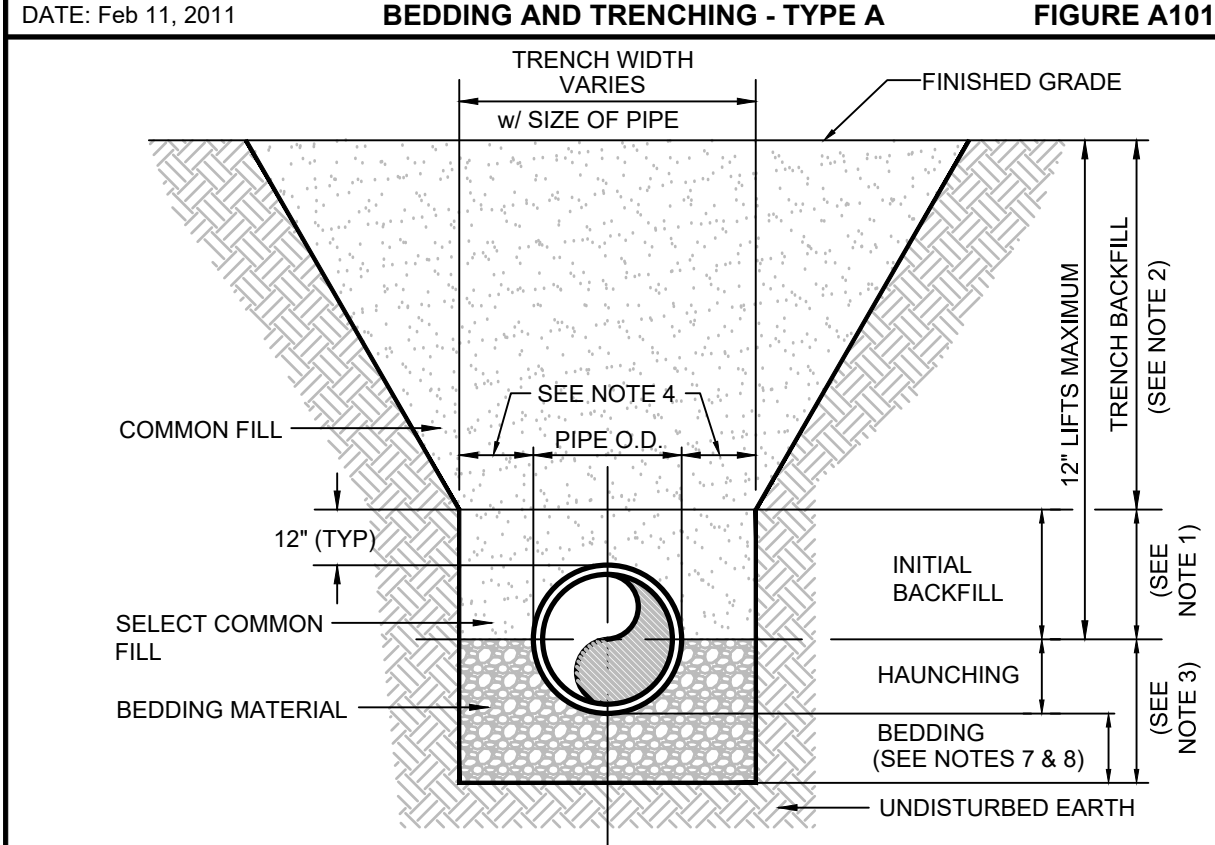
**PLAN AND PROFILE**  
**LOCATION 2**  
**SUNFLOWER TRAIL**  
**STA. 13+50 TO STA. 15+06**

STEVEN R. COCKERHAM, P.E.  
 PROFESSIONAL ENGINEER  
 FLORIDA LICENSE # 62285

OCU FILE NO.: 85446  
 DESIGNED BY: CHH  
 DRAWN BY: EDW  
 CHECKED BY: SRC  
 CADD FILE: C-201.dwg

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 DRAWING NO.: **C-201**  
 SHEET: 13 OF 17

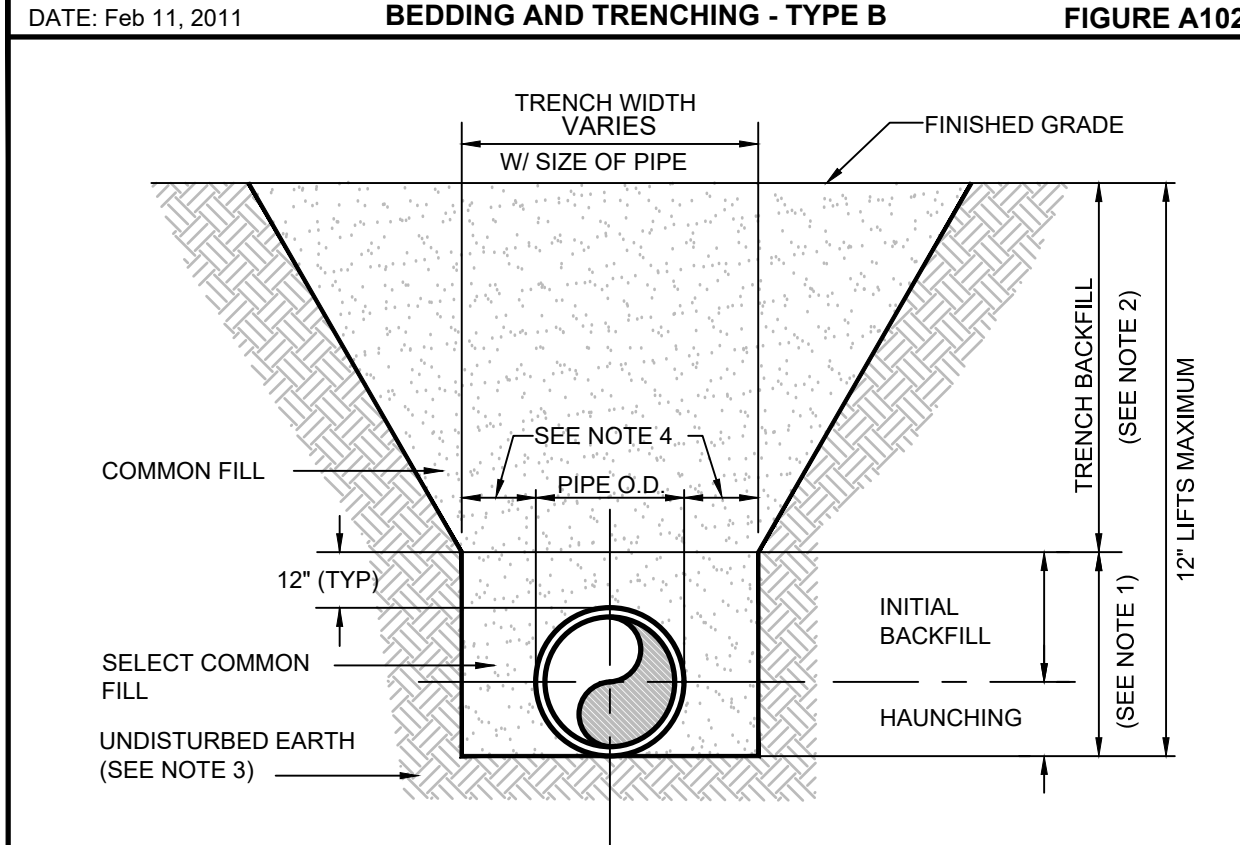
APPENDIX A STANDARD DRAWINGS GENERAL  
BEDDING AND TRENCHING - TYPE A FIGURE A101



NOTES:

- INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
- TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
- 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 RW UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

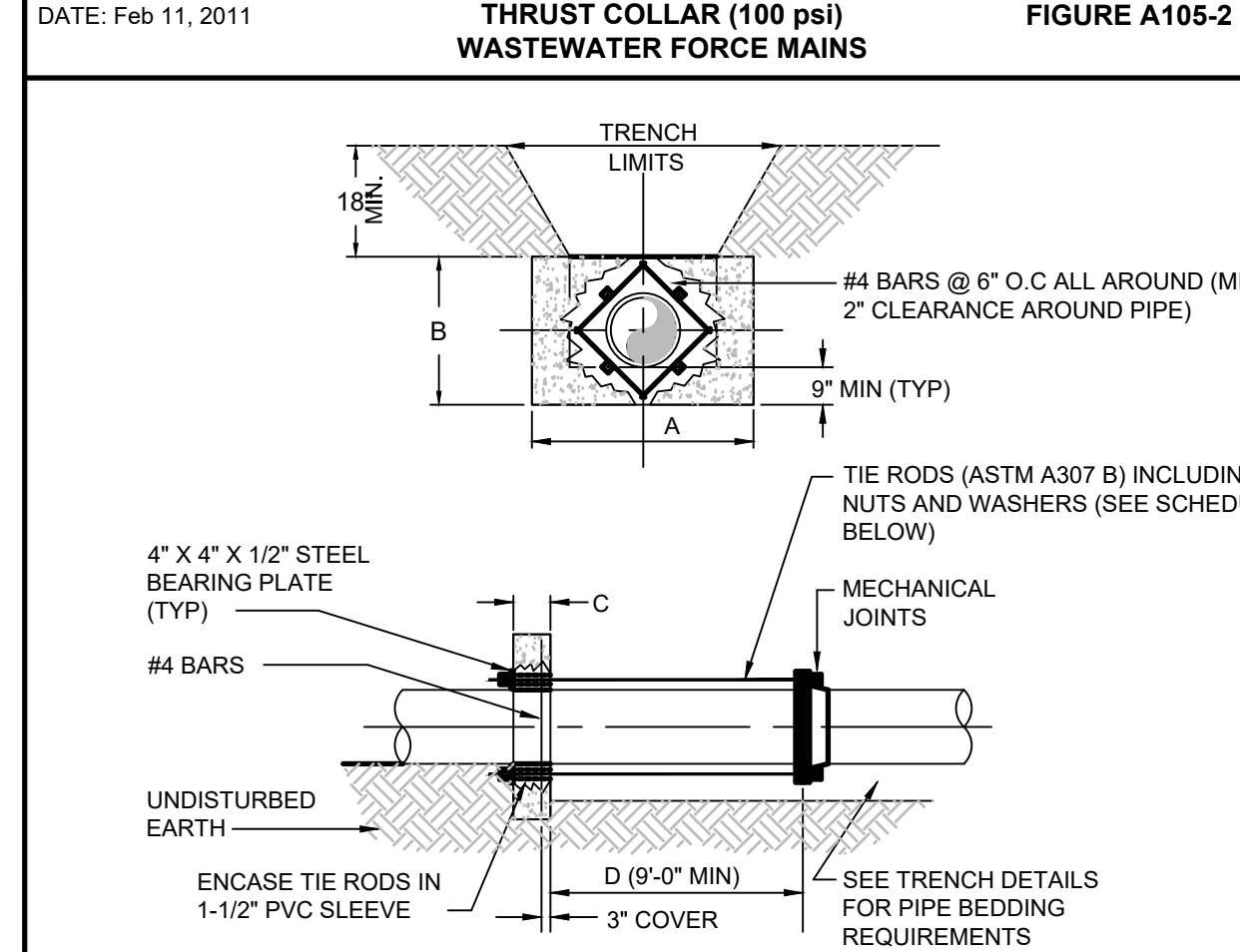
APPENDIX A STANDARD DRAWINGS GENERAL  
BEDDING AND TRENCHING - TYPE B FIGURE A102



NOTES:

- INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
- TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
- 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  
THRUST COLLAR (100 psi) WASTEWATER FORCE MAINS FIGURE A105-2



NOTES:

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

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/SQ. SOIL RESTRAINT BEARING.

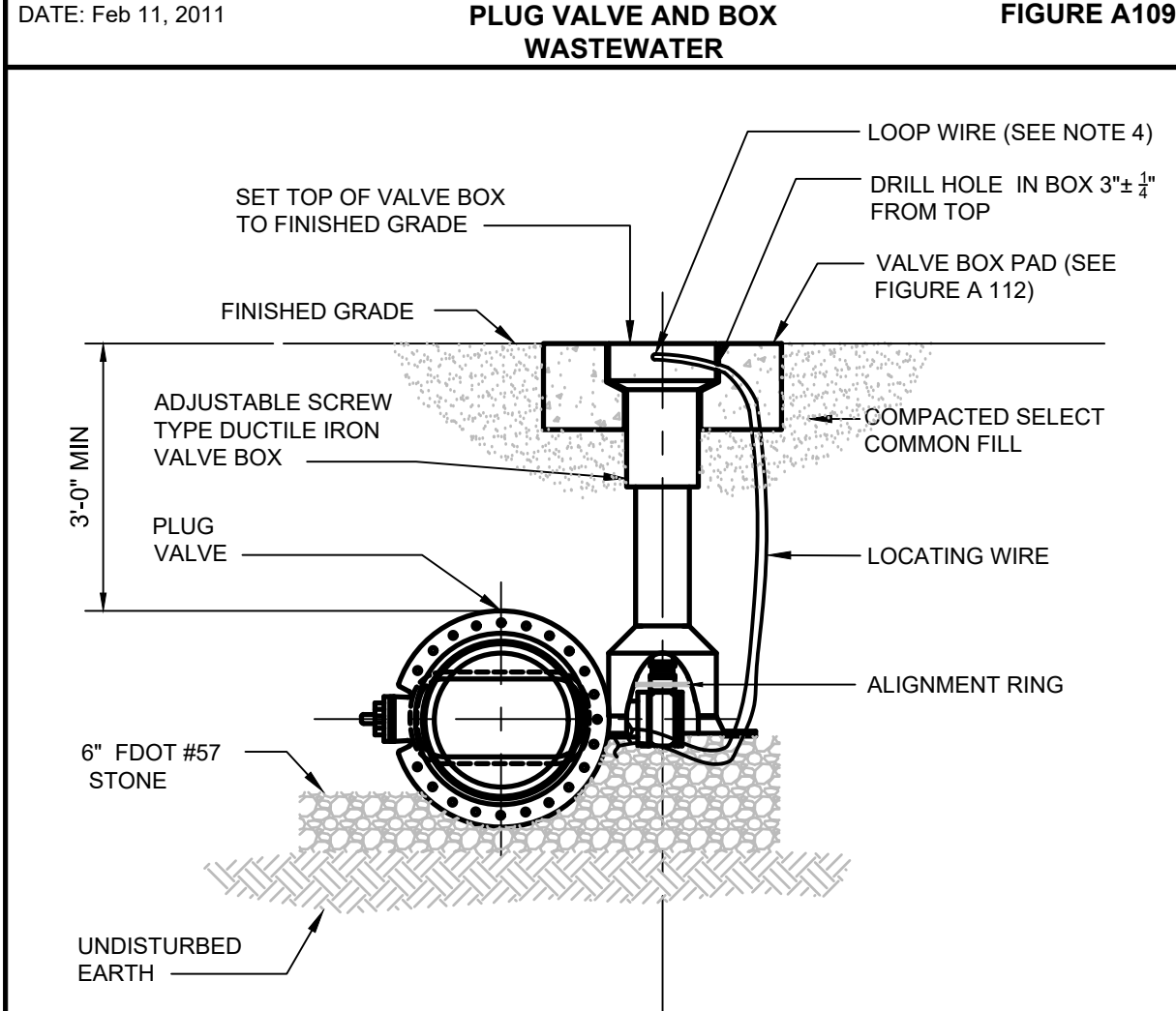
APPENDIX A STANDARD DRAWINGS GENERAL  
RESTRAINED PIPE TABLE WASTEWATER FORCE MAINS FIGURE A104-2

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:

- 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: 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.

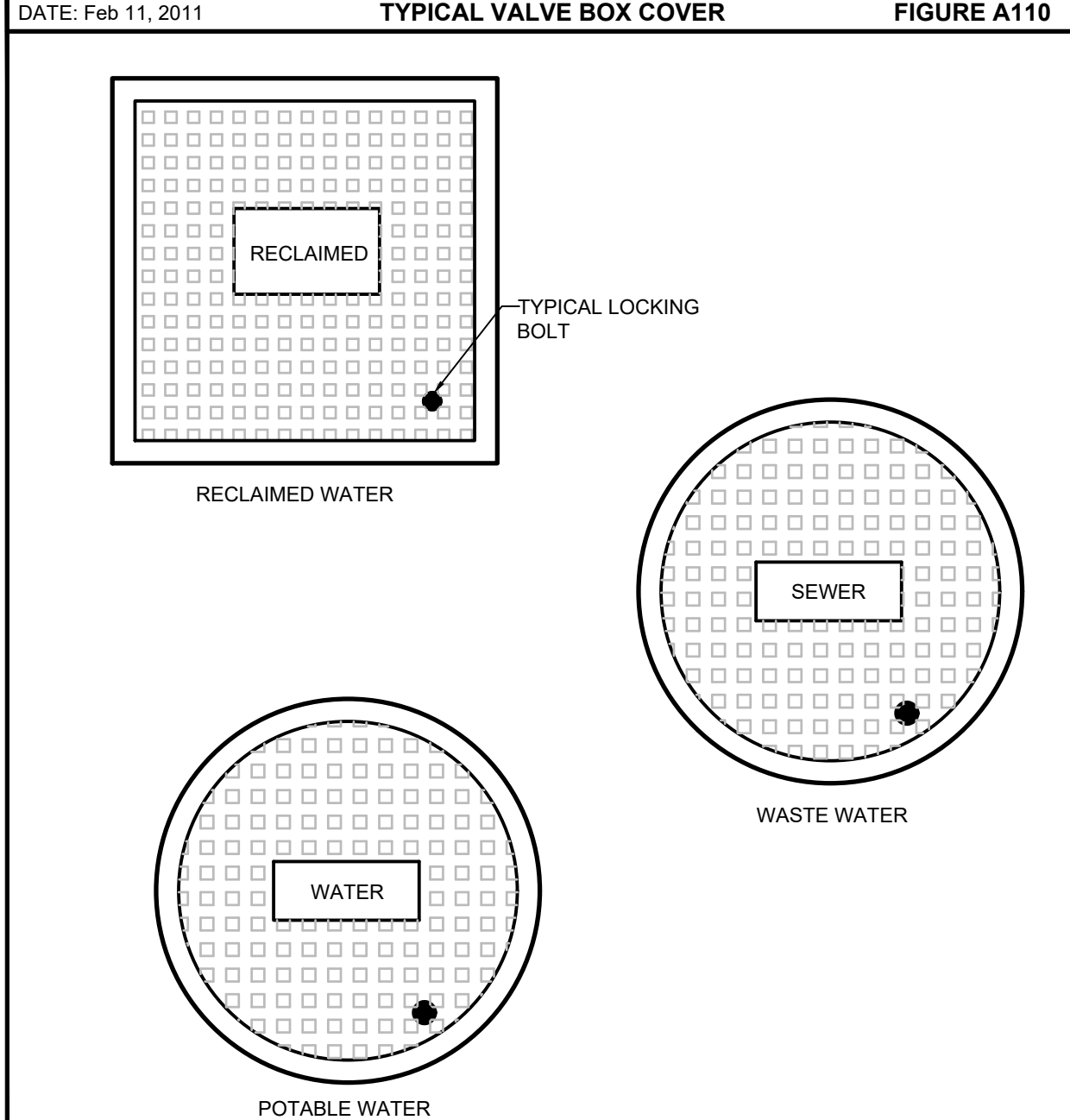
APPENDIX A STANDARD DRAWINGS GENERAL  
PLUG VALVE AND BOX WASTEWATER FIGURE A109



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.

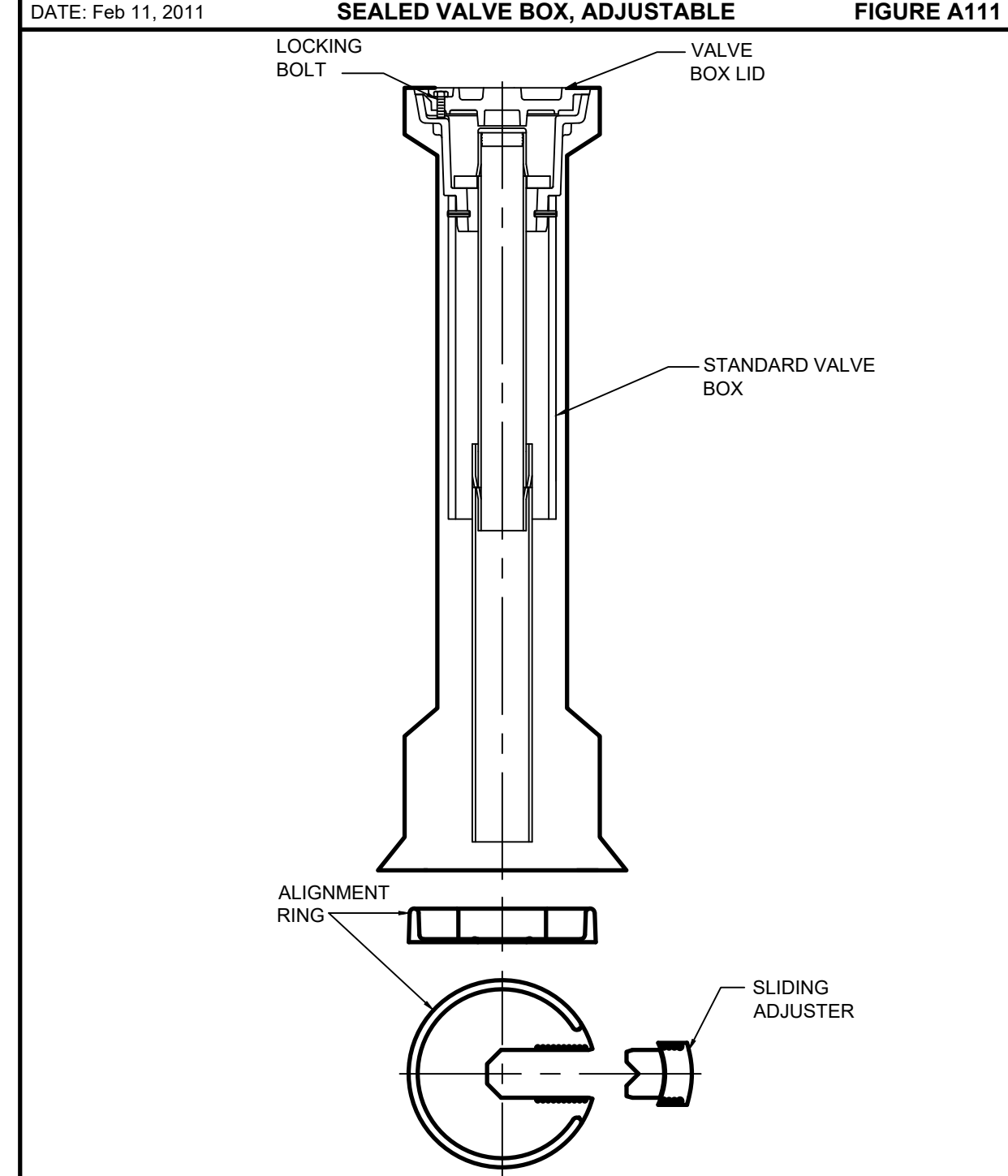
APPENDIX A STANDARD DRAWINGS GENERAL  
TYPICAL VALVE BOX COVER FIGURE A110



NOTE:

- LOCKING LIDS ARE REQUIRED ON ALL VALVE BOXES.

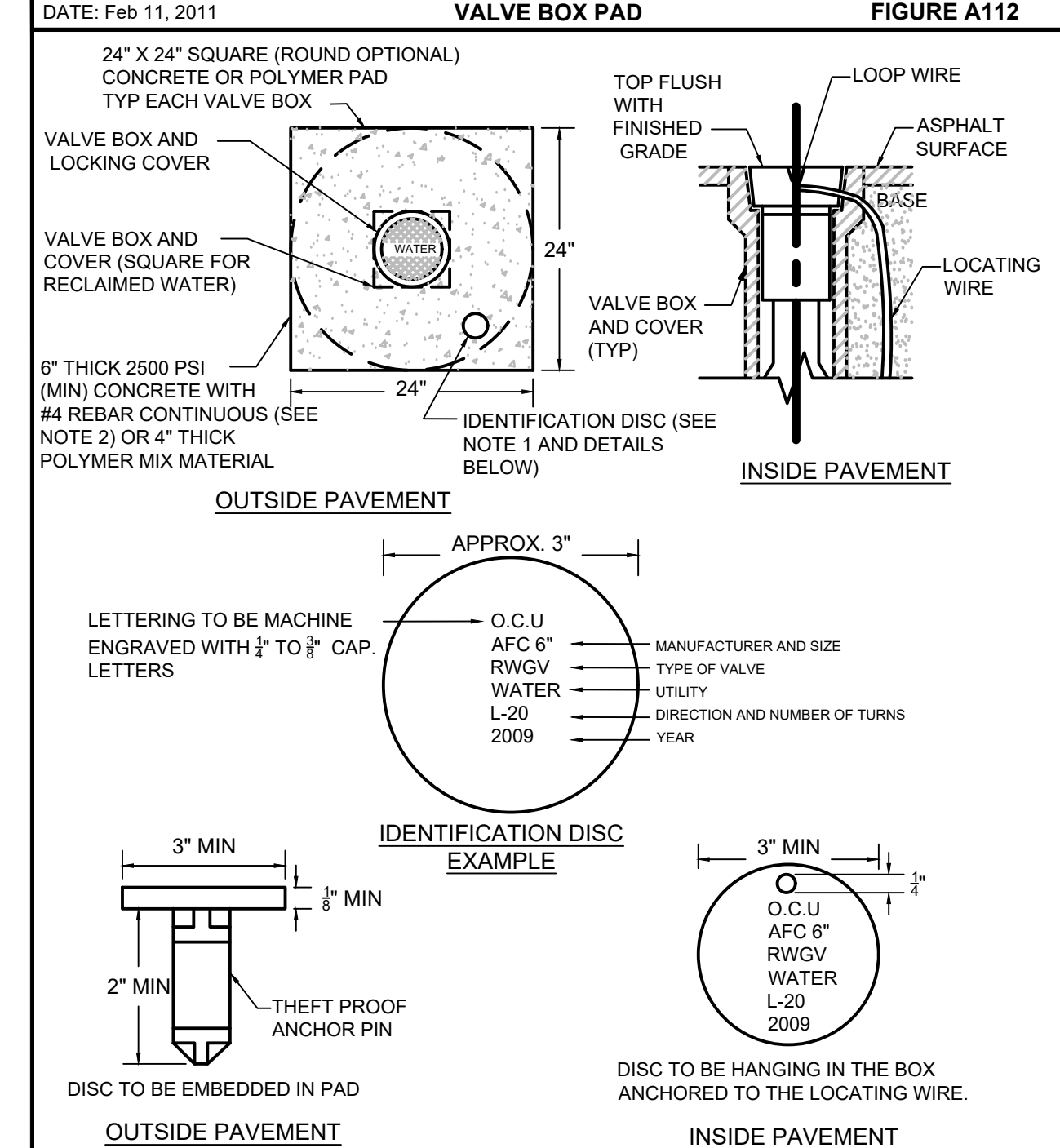
APPENDIX A STANDARD DRAWINGS GENERAL  
SEALED VALVE BOX, ADJUSTABLE FIGURE A111



NOTES:

- FOR ALL MAINS 6" DEEP OR GREATER.
- FOR MAINS 16" IN DIAMETER OR GREATER REGARDLESS OF DEPTH.

APPENDIX A STANDARD DRAWINGS GENERAL  
VALVE BOX PAD FIGURE A112

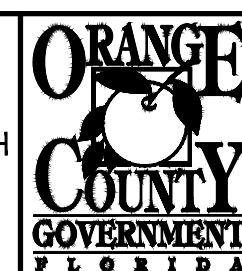


NOTES:

- 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.

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)



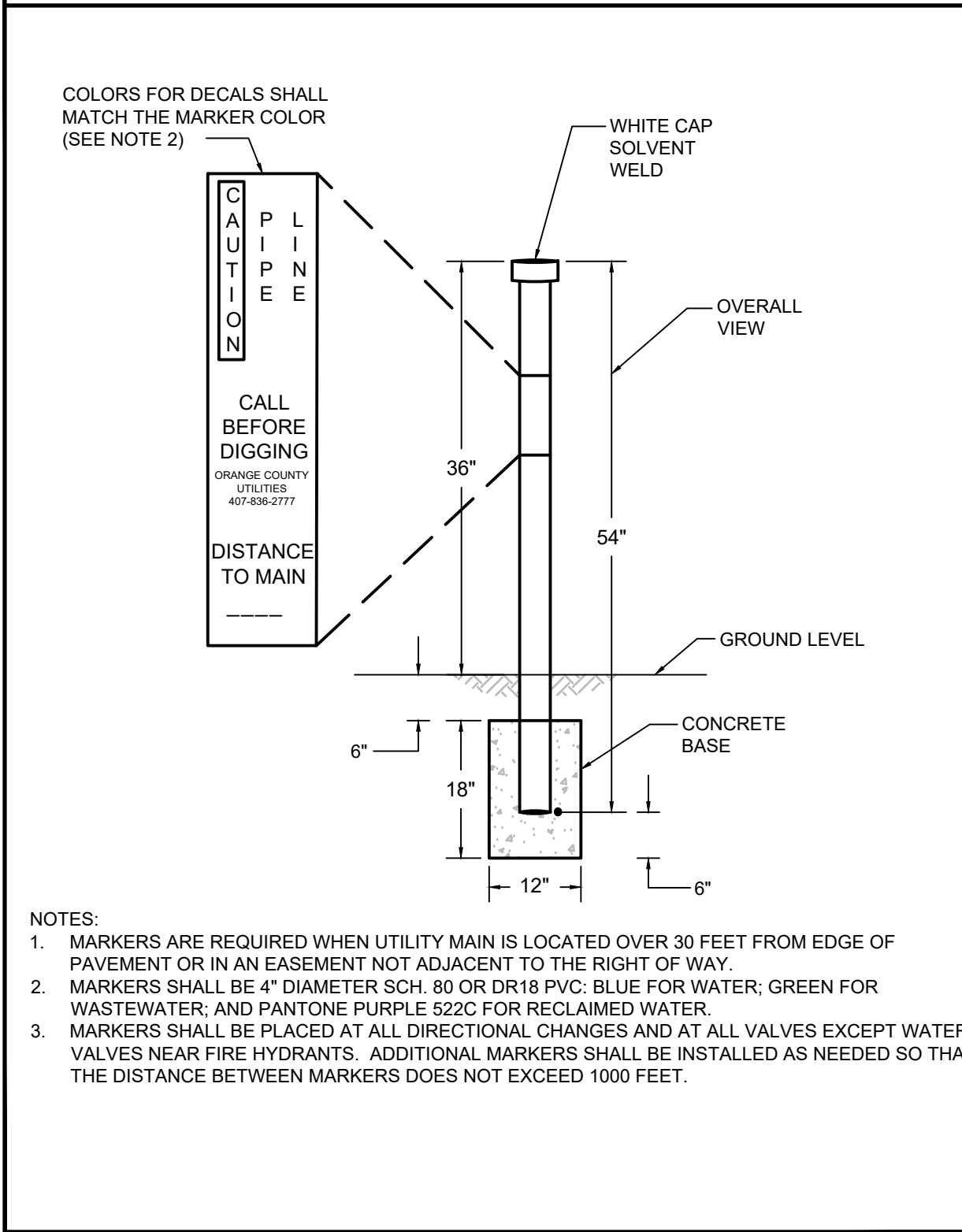
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ENGINEERING DIVISION  
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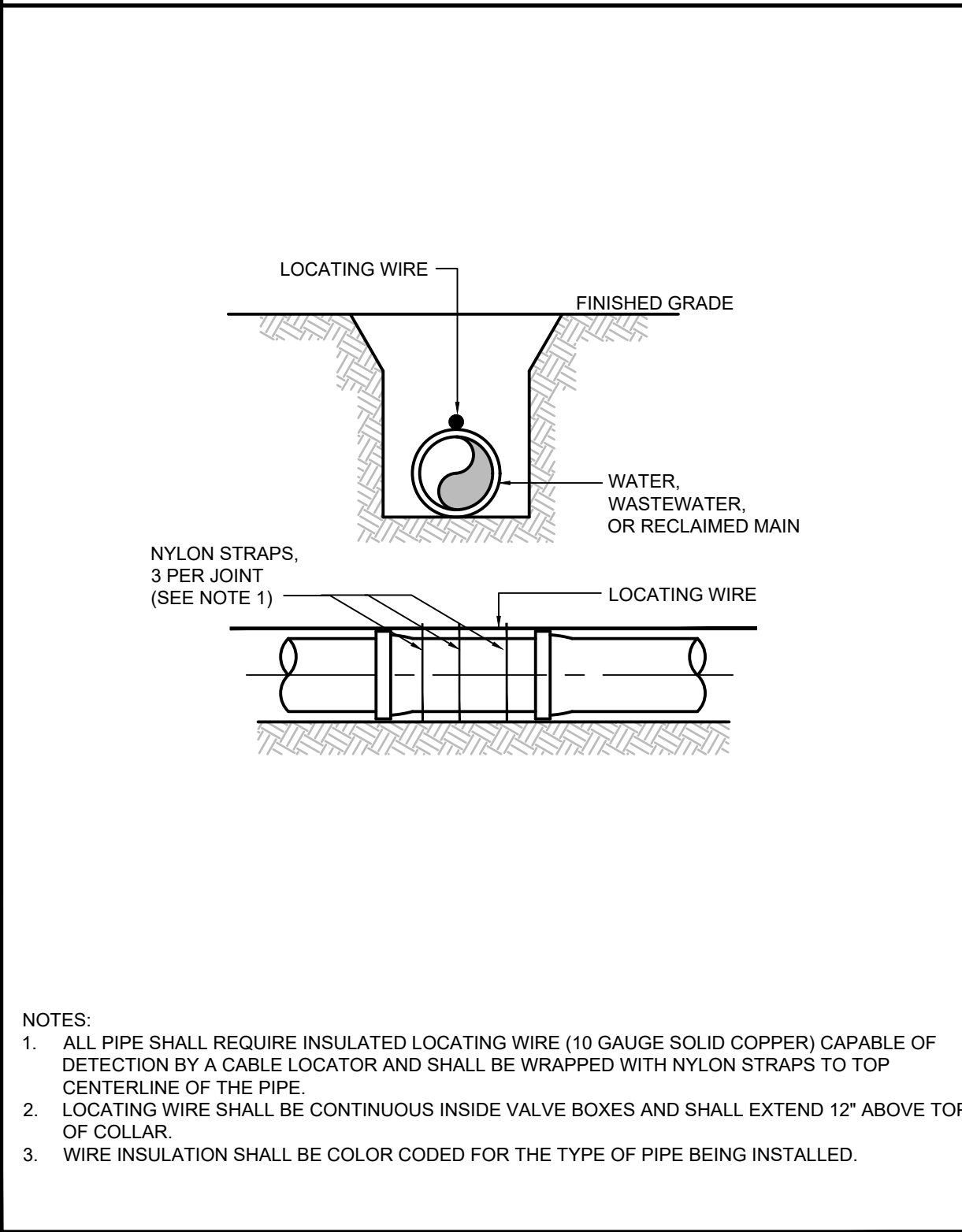
CIVIL DETAILS

OCU FILE NO.: 85446	SCALE: N.T.S.
DESIGNED BY: CHH	DRAWING NO.: D-100
DRAWN BY: EDW	CHECKED BY: SRC
STEVEN R. COCKERHAM, P.E. PROFESSIONAL ENGINEER FLORIDA LICENSE # 62285	CADD FILE: D-100.dwg
SHEET: 14 OF 17	

APPENDIX A STANDARD DRAWINGS GENERAL  
UTILITY MAIN MARKER FIGURE A113



APPENDIX A STANDARD DRAWINGS GENERAL  
PIPE LOCATING WIRE FIGURE A114



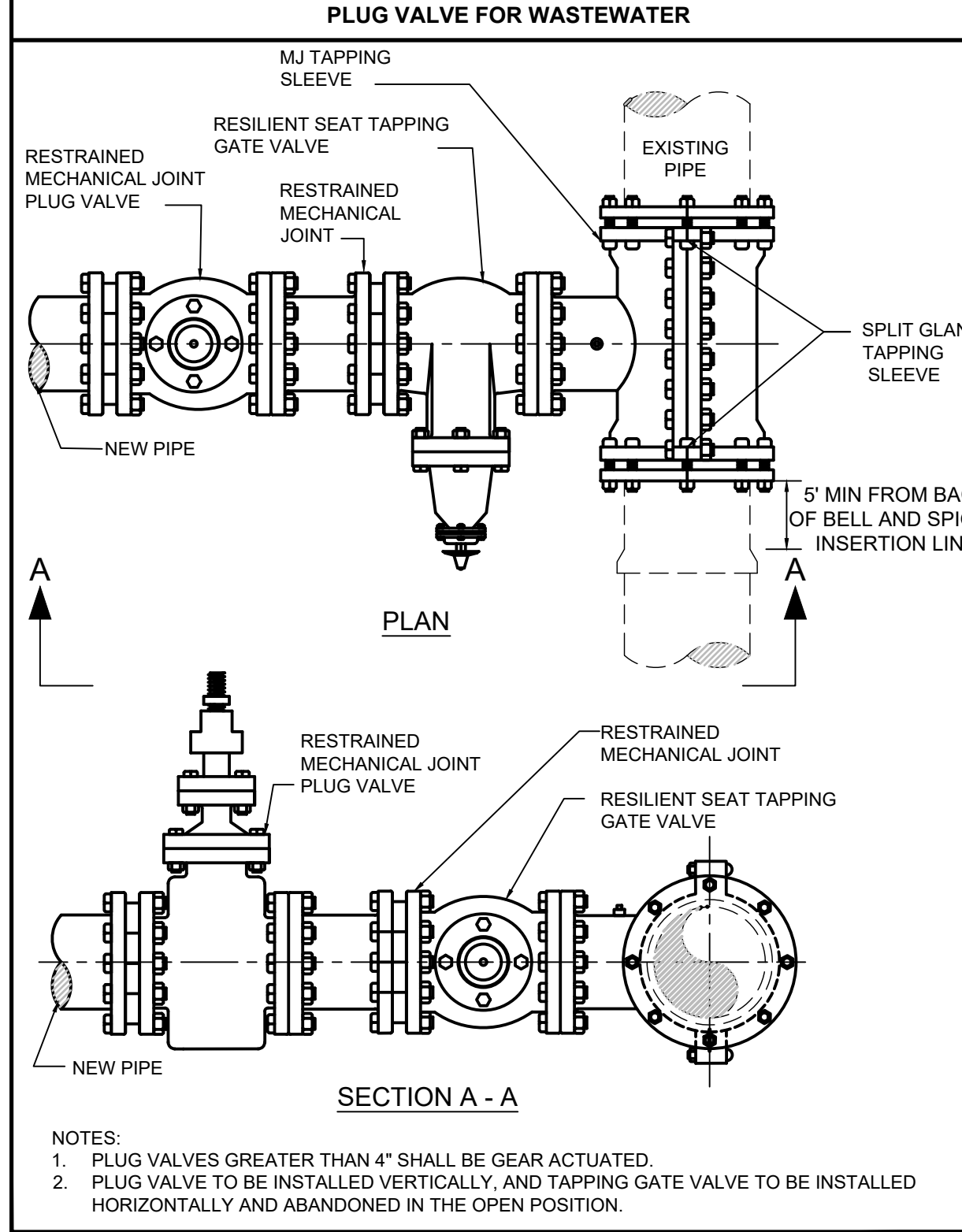
APPENDIX A STANDARD DRAWINGS GENERAL  
SEPARATION REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER MAINS FIGURE A116

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

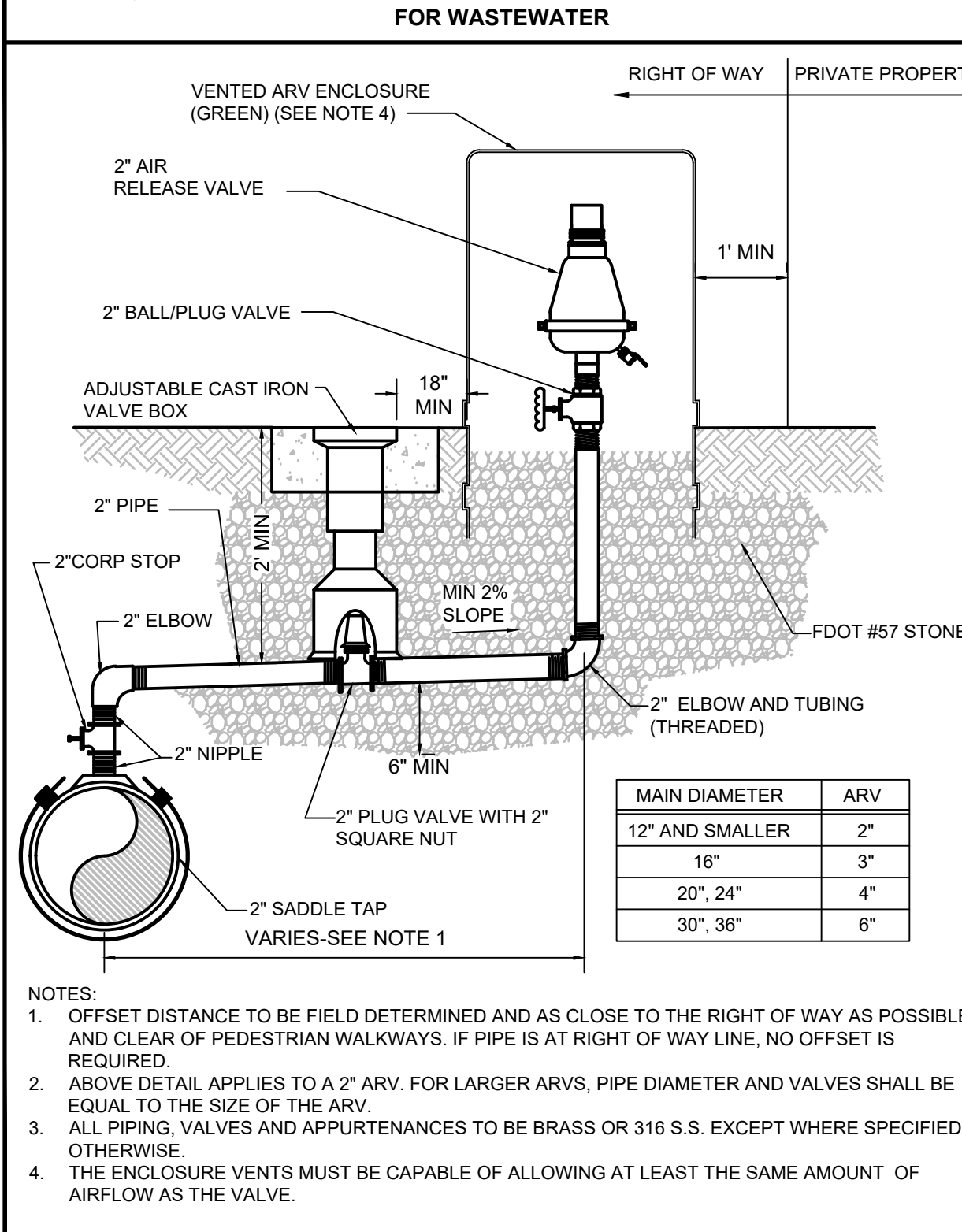
NOTES:

- 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.

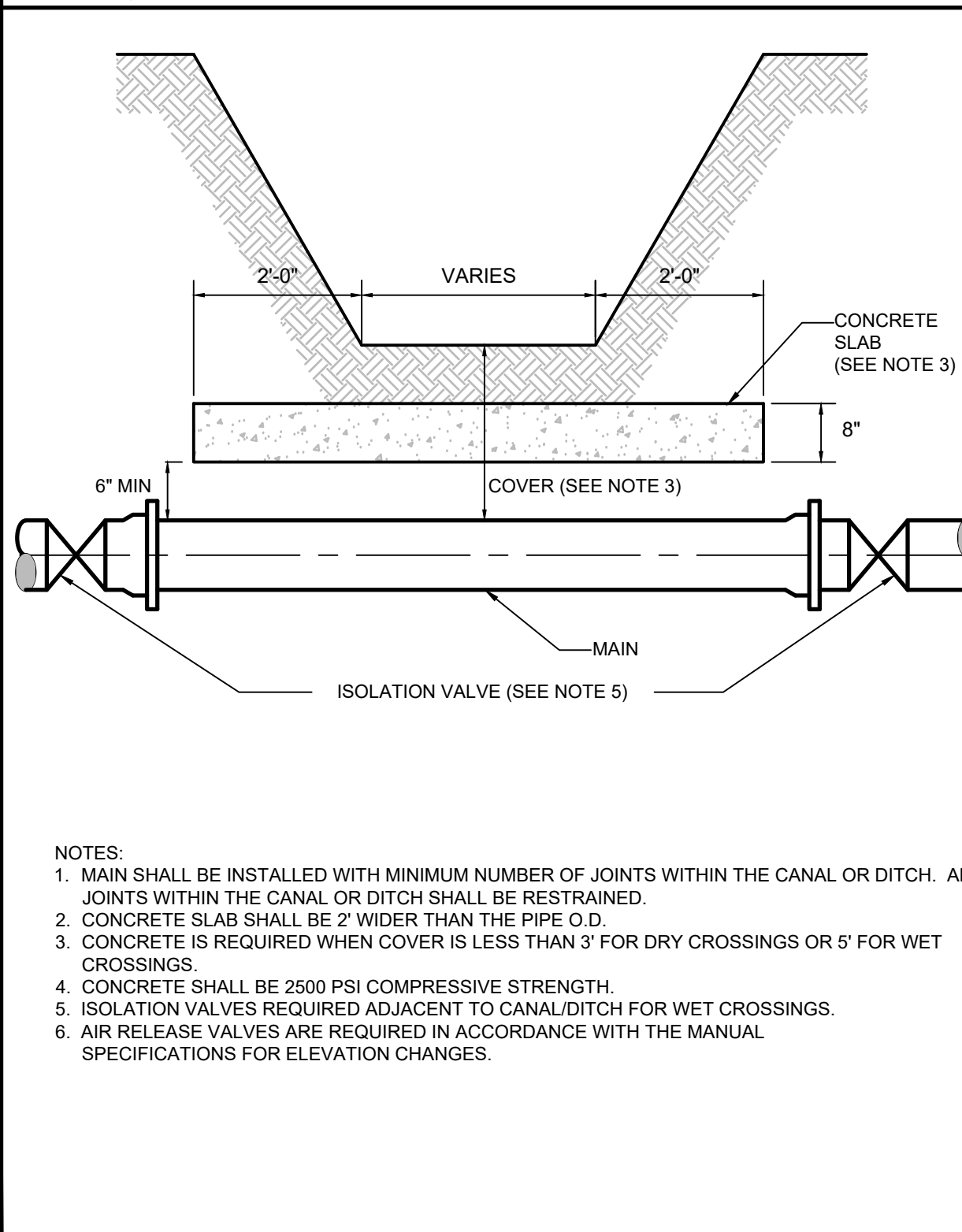
APPENDIX A STANDARD DRAWINGS GENERAL  
MJ TAPPING SLEEVE AND GATE VALVE WITH PLUG VALVE FOR WASTEWATER FIGURE A121-2



APPENDIX A STANDARD DRAWINGS GENERAL  
COMBINATION AIR RELEASE VALVE FOR WASTEWATER FIGURE A115-2



APPENDIX A STANDARD DRAWINGS GENERAL  
CANAL OR DRAINAGE DITCH CROSSING FIGURE A103



REV	DATE	DESCRIPTION

LINE IS 1 INCH  
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**ORANGE COUNTY**  
UTILITIES DEPARTMENT  
ENGINEERING DIVISION

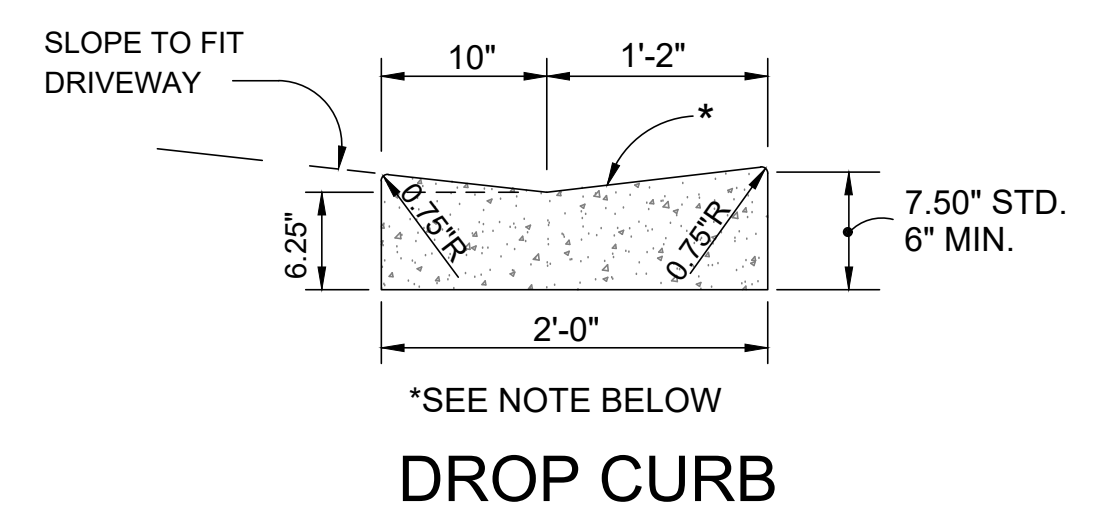
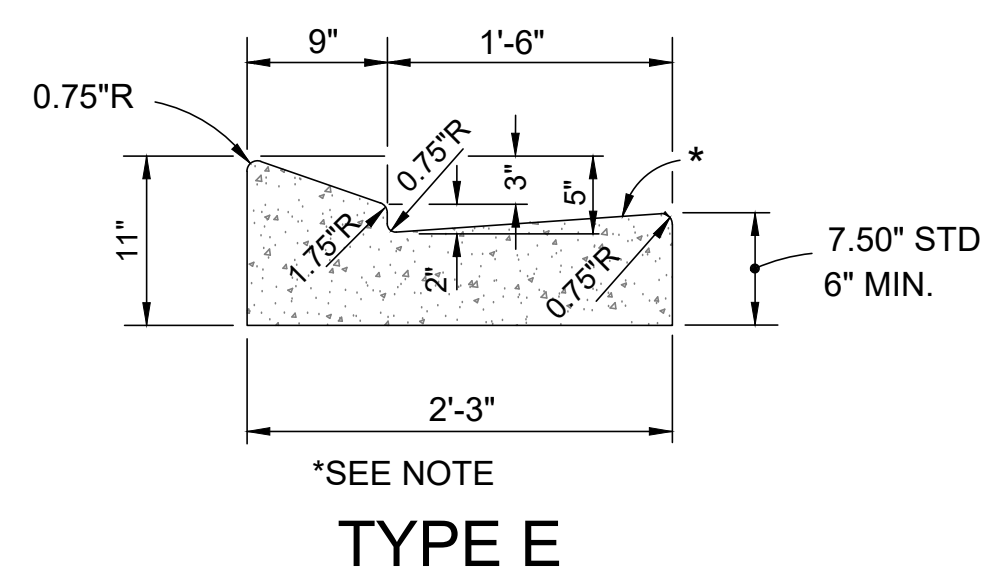
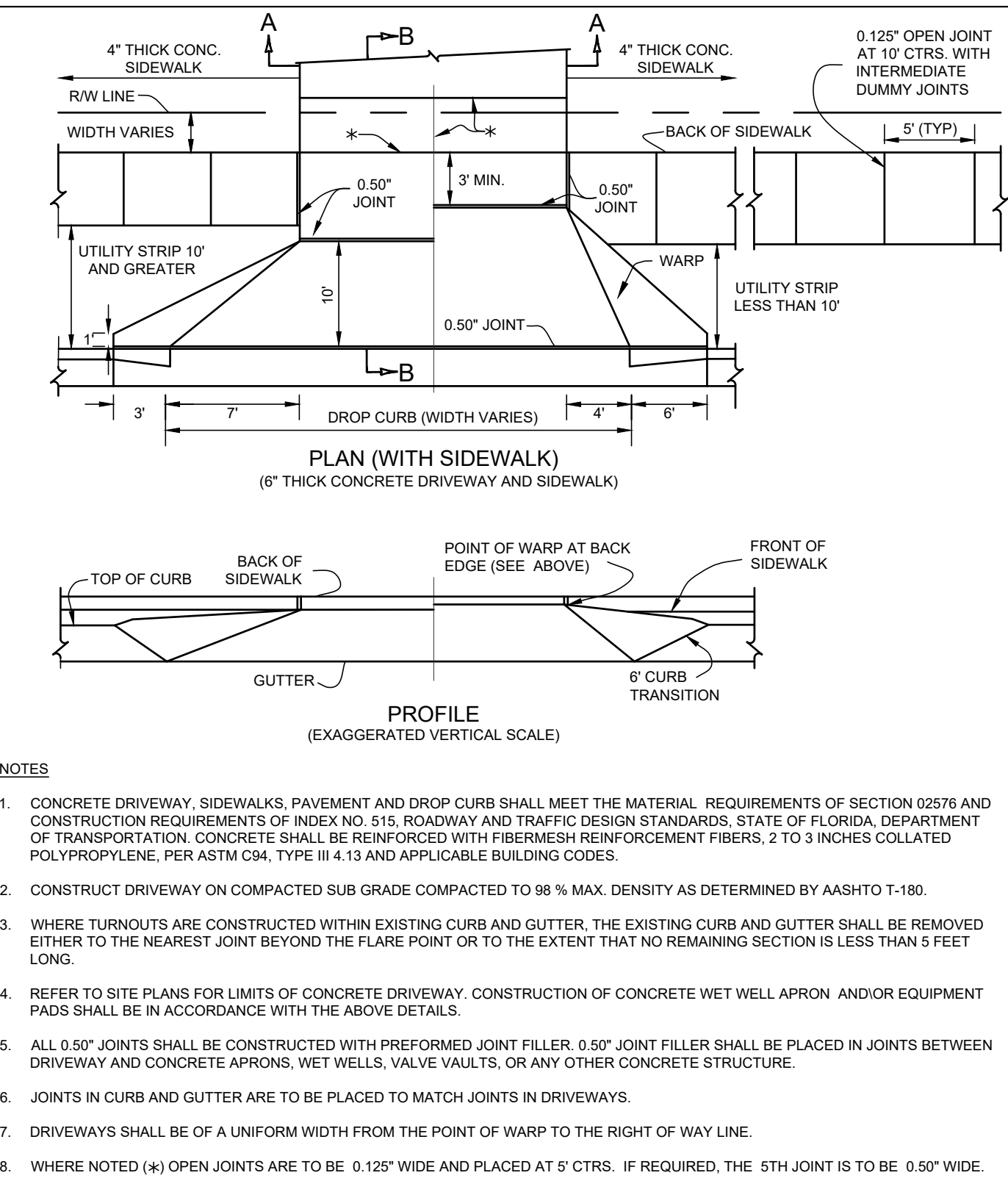
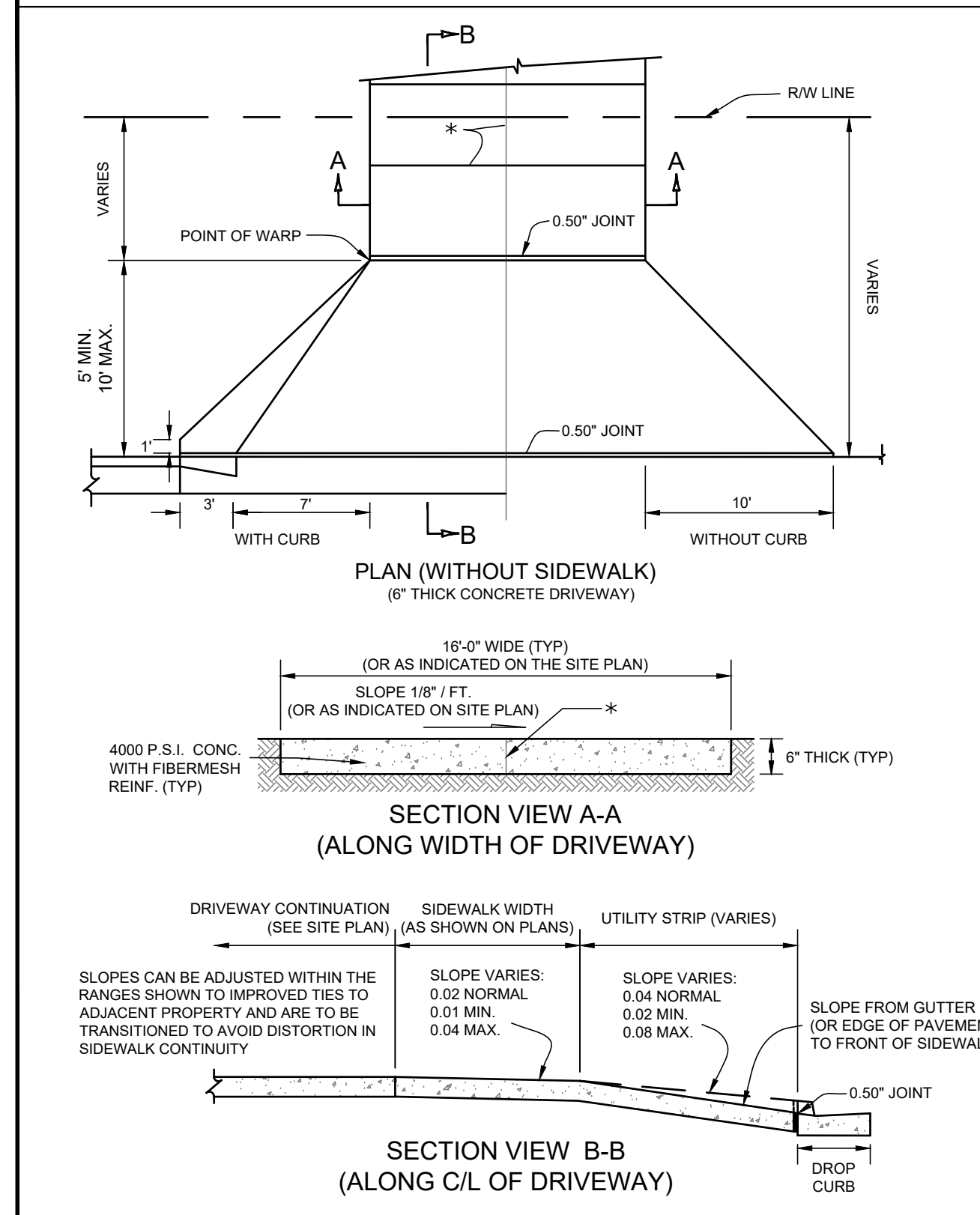
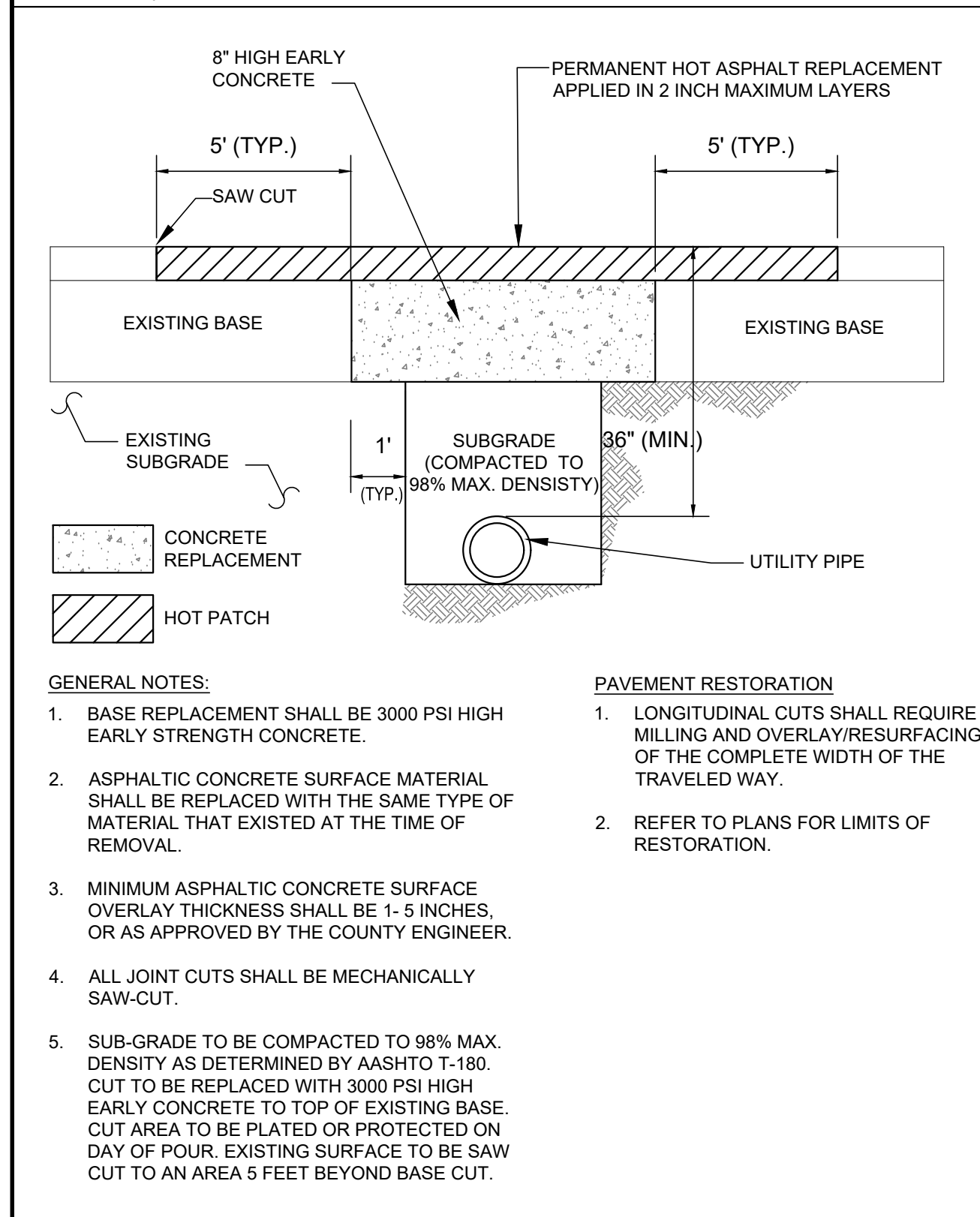
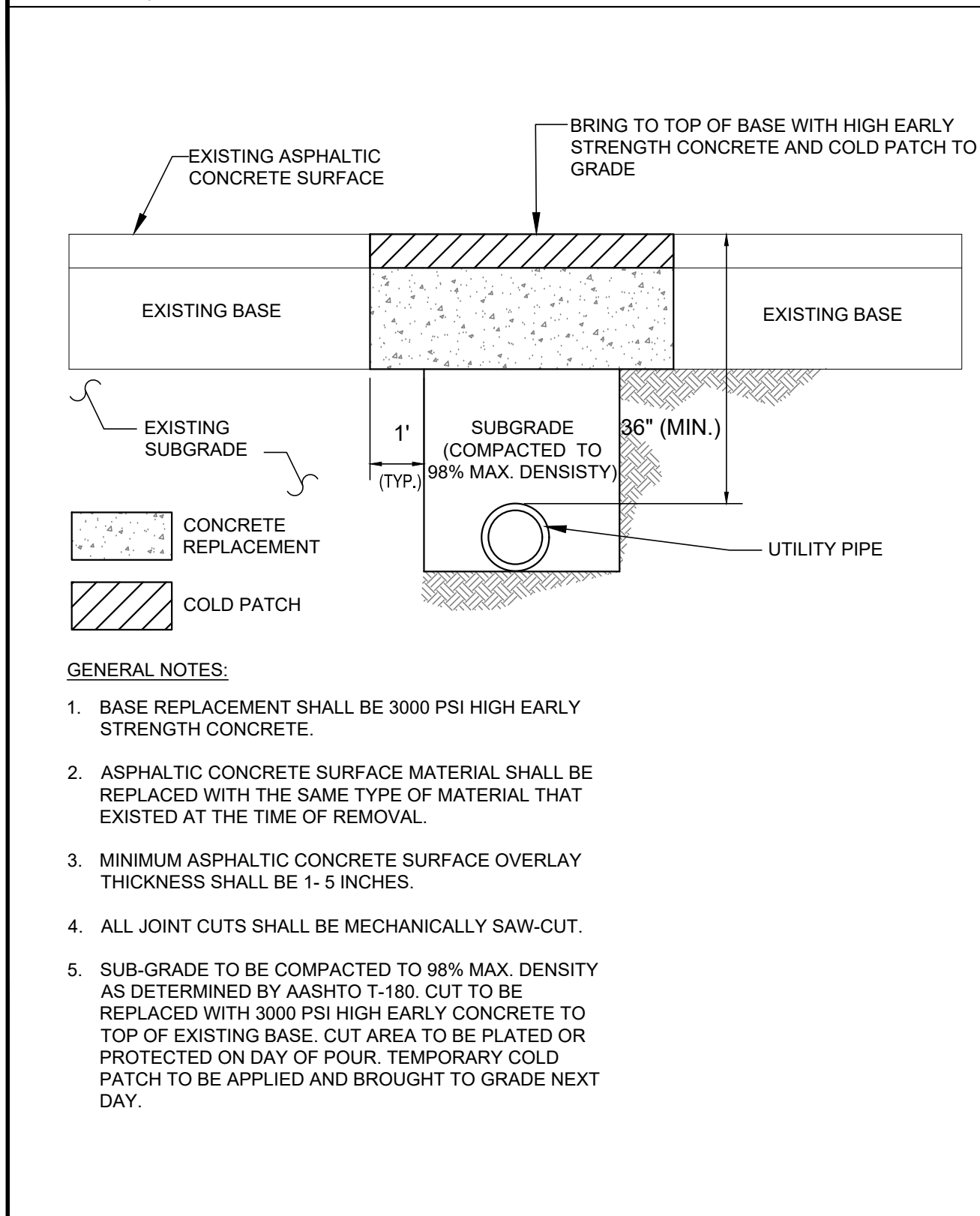
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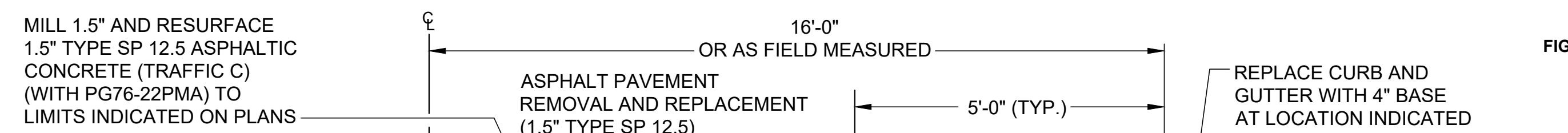
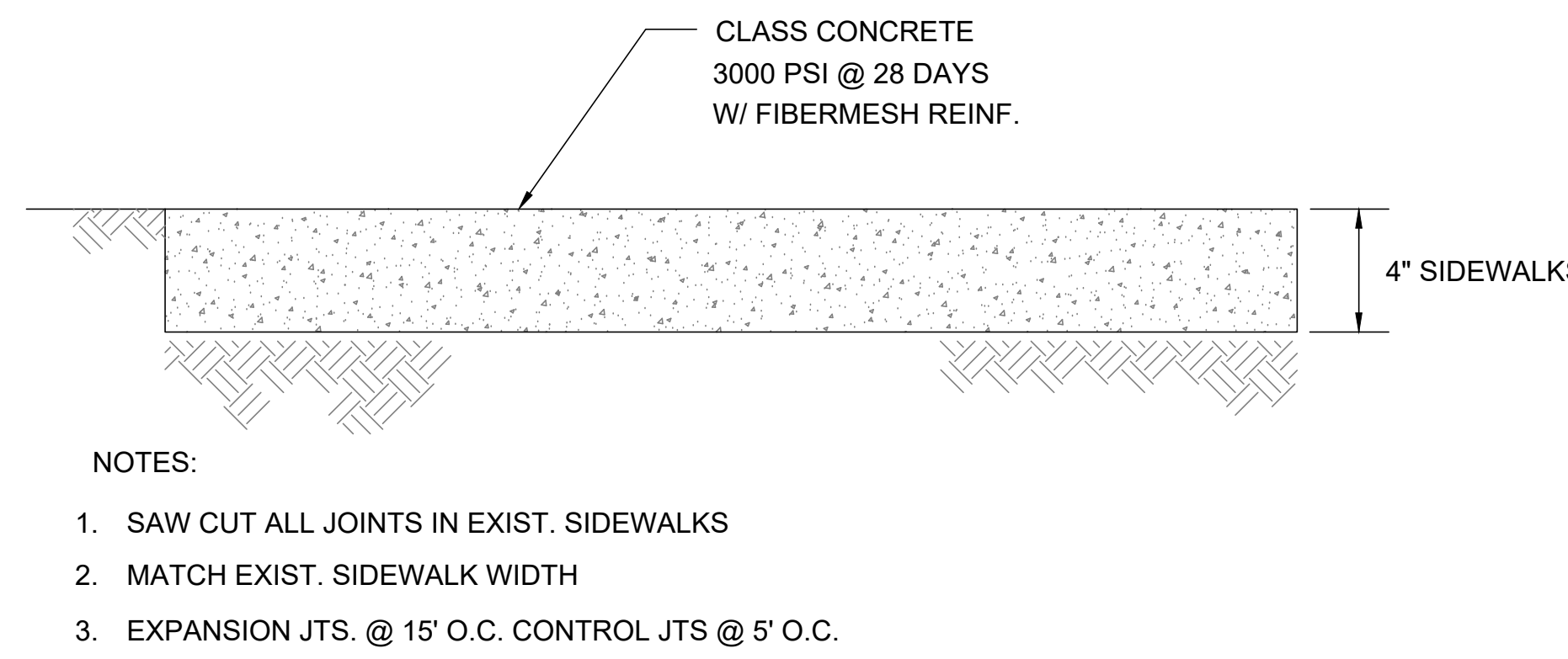
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OCU FILE NO.: 85446	SCALE: N.T.S.
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STEVEN R. COCKERHAM, P.E. PROFESSIONAL ENGINEER FLORIDA LICENSE # 62285	CADD FILE: D-100.dwg
SHEET: 15 OF 17	



\*NOTE: WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.



- GENERAL NOTES:**
- ALL JOINT CUTS SHALL BE MECHANICALL SAW-CUT.
  - EXISTING BASE SHALL BE REPAIRED AND REWORKED TO A SUITABLE CONDITION FOR ASPHALT PAVING.
  - SUB-GRADE AND PIPE TRENCH TO BE COMPACTED TO 98% MAX. DENSITY AS DETERMINED BY AASHTO T-180.3

- PAVEMENT RESTORATION**
- LONGITUDINAL CUTS SHALL REQUIRE MILLING AND OVERLAY/RESURFACING OF THE COMPLETE WIDTH OF THE TRAVELED WAY.
  - REFER TO PLANS FOR LIMITS OF RESTORATION.
  - CONTACTOR SHALL REPLACE ALL PAVEMENT STRIPING AND MARKINGS IN LIKE KIND.

C:\NS\12483.000\_Orange Co. Y14-906\NS\12483.004\_FM\_R&R\_South\_Package\_2\Deliverables\90% (4-3-2019)\Drawings\General\D-102.dwg  
Mon, 23 Apr 2019 3:07pm

REV	DATE	DESCRIPTION

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9150 CURRY FORD ROAD ORLANDO, FL. 32825

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Maitland, Florida 32751  
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CA6556

**CIVIL DETAILS**

OCU FILE NO.: 85446  
DESIGNED BY: CHH  
DRAWN BY: EDW  
CHECKED BY: SRC  
CADD FILE: X100.dwg

SCALE: NONE  
DRAWING NO.: **D-102**  
SHEET: 16 OF 17



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Mon, 29 Apr 2019 3:07pm

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V-2	C-100				Gate	Force Main	24"
V-3	C-100				Plug	Force Main	24"
V-4	C-101				ARV - Combination	Force Main	2"
V-5	C-102				ARV - Combination	Force Main	2"
V-6	C-102				ARV - Combination	Force Main	2"
V-7	C-102				Gate	Force Main	24"
V-8	C-102				Plug	Force Main	24"
V-9	C-102				Line Stop	Force Main	24"
V-10	C-200				Line Stop	Force Main	30"
V-11	C-200				Gate	Force Main	30"
V-12	C-200				Plug	Force Main	30"
V-13	C-201				Gate	Force Main	155
V-14	C-201				Plug	Force Main	30"
V-15	C-201				Line Stop	Force Main	30"

F-1	C-100				Force Main	Cap	24"
F-2	C-100				Force Main	Tapping Sleeve	24"
F-3	C-100				Force Main	Bend 90°	24"
F-4	C-100				Force Main	Bend 11 1/4°	24"
F-5	C-100				Force Main	Bend 45°	24"
F-6	C-100				Force Main	Bend 45°	24"
F-7	C-100				Force Main	Bend 45°	24"
F-8	C-100				Force Main	Bend 22-1/2°	24"
F-9	C-100				Force Main	Bend 11 1/4°	24"
F-10	C-101				Force Main	Bend 45°	24"
F-11	C-101				Force Main	Bend 45°	24"
F-12	C-101				Force Main	Bend 45°	24"
F-13	C-101				Force Main	Bend 11 1/4°	24"
F-14	C-101				Force Main	Bend 11 1/4°	24"
F-15	C-101				Force Main	Bend 11 1/4°	24"
F-16	C-101				Force Main	Bend 11 1/4°	24"
F-17	C-101				Force Main	Bend 45°	24"
F-18	C-101				Force Main	Bend 45°	24"
F-19	C-101				Force Main	Bend 45°	24"
F-20	C-101				Force Main	Bend 45°	24"
F-21	C-102				Force Main	Bend 45°	24"
F-22	C-102				Force Main	Bend 45°	24"
F-23	C-102				Force Main	Bend 45°	24"
F-24	C-102				Force Main	Tapping Sleeve	24"
F-25	C-102				Force Main	Cap	24"
F-26	C-200				Force Main	Cap	30"
F-27	C-201				Force Main	Tapping Sleeve	30"
F-28	C-201				Force Main	Bend 90°	30"
F-29	C-201				Force Main	Bend 90°	30"
F-30	C-201				Force Main	Bend 90°	30"
F-31	C-201				Force Main	Tapping Sleeve	30"
F-32	C-201				Force Main	Cap	30"

S-1	C-100				Force Main	Shot on Pipe
S-2	C-101				Force Main	Shot on Pipe
S-3	C-101				Force Main	Shot on Pipe
S-4	C-101				Force Main	Shot on Pipe
S-5	C-102				Force Main	Shot on Pipe
S-6	C-200				Force Main	Shot on Pipe
S-7	C-200				Force Main	Shot on Pipe
S-8	C-201				Force Main	Shot on Pipe
S-9	C-201				Force Main	Shot on Pipe

C-1	C-100			75.2	70.6	Storm Main	15"
C-2	C-100			75.2	70.6	Force Main	24"
C-3	C-101			75.2	70.6	Reclaimed Water Main	24"
C-4	C-100			77.6	74.8	Water main	12"
C-5	C-100			75.1	71.3	Reclaimed Water Main	24"
C-6	C-100			75.1	71.2	Force Main	24"
C-7	C-100			74.8	71	Force Main	12"
C-8	C-100			74.9	70.9	Water main	6"
C-9	C-100			73	70.6	Storm Main	18"

REV	DATE	DESCRIPTION

LINE IS 1 INCH  
AT FULL SIZE  
(IF NOT SCALE ACCORDINGLY)



**ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION**  
9150 CURRY FORD ROAD ORLANDO, FL. 32825



**COORDINATE ASSET TABLES FOR LOCATION1 RHODE ISLAND WOODS & LOCATION 2 SUNFLOWER TRAIL**

STEVEN R. COCKERHAM, P.E.  
PROFESSIONAL ENGINEER  
FLORIDA LICENSE #62285

OCU FILE NO.: 79645	SCALE: N.T.S.
DESIGNED BY: CHH	DRAWING NO. : <b>X-100</b>
DRAWN BY: EDW	SHEET: 17 OF 17
CHECKED BY: SRC	
CADD FILE: X-100.dwg	