

GENERAL

- ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT MANAGEMENT DIVISION. THE PROJECT MANAGER IS: ERIC SHROYER, P.E. AND CAN BE REACHED AT (941)-708-7450 X7344.
- SITE VISITS ARE MANDATORY FOR ALL BIDDERS.
- ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
- THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WATERVEY INVESTIGATION THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
- THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
- AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.
- NO WORK, EXCEPT FOR EMERGENCY TYPE, SHALL BE PERFORMED AFTER 7:00 PM AND BEFORE 7:00 AM. FOR ADDITIONAL PROJECT RESTRAINTS, REFER TO SECTION 01310 OF THE SPECIFICATIONS.

SAFETY

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA EFFECTIVE OCTOBER 1, 1990 AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.
 - THE CONTRACTOR SHALL USE SHEET PILING, SHEETING, BRACING, ETC., AS REQUIRED IN ALL EXCAVATION AREAS AND CONFORM TO ALL OSHA REQUIREMENTS.
 - THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
 - THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.
- ENVIRONMENTAL**
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY STORM WATER, EROSION, AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE FDEP "FLORIDA STORM WATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT TO SURFACE DRAINS AND TO DITCHES DURING CONSTRUCTION.
 - STOCKPILES SHALL BE PROTECTED AT ALL TIMES BY ON-SITE DRAINAGE CONTROLS WHICH PREVENT EROSION OF THE STOCKPILED MATERIAL. CONTROL OF DUST FROM SUCH STOCKPILES IS REQUIRED, DEPENDING UPON THEIR LOCATION AND THE EXPECTED LENGTH OF TIME THE STOCKPILES WILL BE PRESENT. IN NO CASE SHALL ANY STOCKPILED MATERIAL REMAIN AFTER THIRTY (30) CALENDAR DAYS.
 - STORM WATER INLETS IN THE VICINITY OF THE PROJECT SHALL BE PROTECTED BY SEDIMENT TRAPS SUCH AS SECURED HAY BALES, SOD, STONE, ETC., WHICH SHALL BE MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS, AND WHICH MUST BE APPROVED BY THE ENGINEER BEFORE INSTALLATION. THIS WILL BE MAINTAINED TO PREVENT DEGRADATION OF THE WATERS OF THE COUNTY AND STATE.
 - SEDIMENT BASINS AND TRAPS, PERIMETER BERMS, SEDIMENT BARRIERS, VEGETATIVE BUFFERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT AND/OR PREVENT THE TRANSPORT OF SEDIMENT ON ADJACENT PROPERTIES, OR INTO EXISTING BODIES OF WATER, MUST BE INSTALLED, CONSTRUCTED, OR IN THE CASE OF VEGETATIVE BUFFERS, PROTECTED FROM DISTURBANCE, AS A FIRST STEP IN THE LAND ALTERATION PROCESS. SUCH SYSTEMS SHALL BE FULLY OPERATIVE BEFORE ANY OTHER DISTURBANCE OF THE SITE BEGINS. EARTHEN STRUCTURES INCLUDING BUT NOT LIMITED TO BERMS, EARTH FILTERS, DAMS OR DIKES SHALL BE STABILIZED AND PROTECTED FROM DRAINAGE DAMAGE OR EROSION WITHIN ONE (1) WEEK OF INSTALLATION.
 - ALL SWALES, DITCHES, AND CHANNELS LEADING FROM THE SITE SHALL BE PROTECTED FROM SILTATION AND EROSION DURING CONSTRUCTION AND BE SODDED WITHIN THREE (3) DAYS OF EXCAVATION.
 - SOIL DISPLACED BY CONSTRUCTION WILL BE REMOVED. EROSION CONTROL SHALL BE IMPLEMENTED IN AREAS WHICH ARE CONSIDERED ENVIRONMENTALLY SENSITIVE. EROSION CONTROL SYSTEMS SHALL BE REQUIRED FOR ALL WORK WITHIN JURISDICTIONAL AREAS. THESE SYSTEMS MAY INCLUDE STAKED HAY BALES, SILT SCREENS, FILTER FABRIC, AND TURBIDITY SCREENS.
 - ALL EROSION AND POLLUTION CONTROL DEVICES SHALL BE CHECKED REGULARLY, ESPECIALLY AFTER EACH RAINFALL AND SHALL BE CLEANED OUT AND/OR REPAIRED AS REQUIRED.
 - THE CONTRACTOR SHALL NOT ENTER UPON OR IN ANY WAY ALTER WETLAND AREAS THAT MAY BE ON OR NEAR THE CONSTRUCTION SITE. ALL WORK IN THE VICINITY OF OPEN WATER AND/OR WETLANDS IS TO BE PERFORMED IN COMPLIANCE WITH THE ENVIRONMENTAL REGULATIONS AND/OR PERMITS FOR THE SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES RESULTING FROM HIS VIOLATION OF ANY REGULATIONS OR PERMIT CONDITIONS.
 - FOR MORE INFORMATION, SEE THE EROSION CONTROL DETAIL SHEET INCLUDED IN THE PLANS.

RIGHT-OF-WAY

- ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO WITHIN THE MANATEE COUNTY/FDOT RIGHT-OF-WAY AND/OR EASEMENTS SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO REFERENCE AND RESTORE PROPERTY CORNER MONUMENTS, PINS, AND LANDMARKS THAT MAY BE DISTURBED BY CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR, PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN A RIGHTS-OF-WAY USE PERMIT AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED STORM WATER STRUCTURES, PIPING, ENTRANCE PIPE AND HEADWALLS WHETHER SHOWN ON THE PLANS OR NOT. THE HEADWALLS SHALL BE REPLACED IN ACCORDANCE WITH F.D.O.T. STANDARDS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH IN THE FIELD THE RIGHT-OF-WAY LINES, BASE LINES, BENCH MARKS (ELEV.), CENTER LINES, AND STATIONING AS REQUIRED TO CONSTRUCT THIS PROJECT.
- THE CONTRACTOR SHALL COORDINATE THE CUTTING OF DRIVEWAYS WITH THE PROPERTY OWNER PRIOR TO CUT. ALL DRIVEWAYS WILL BE IN PASSABLE CONDITION AT THE END OF THE WORK DAY AND FULLY RESTORED PER SECTION 02575 OF THE INFRASTRUCTURE ENGINEERING STANDARD SPECIFICATIONS.
- A RIGHT OF ENTRY AGREEMENT SHALL BE OBTAINED BY THE PROJECT MANAGER FROM THE PROPERTY OWNER BEFORE ANY DRIVEWAY CONSTRUCTION WORK IS DONE OUTSIDE OF THE RIGHT-OF-WAY OR EASEMENT.

UTILITIES

- LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY AFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, WATER AND SEWER LINES, STORM DRAINS, UTILITIES, DRIVEWAYS, SIDEWALKS, SIGNS, MAIL BOXES, FENCES, TREES, LANDSCAPING, AND ANY OTHER IMPROVEMENT OR FACILITY IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
- ANY TEMPORARY SHUTDOWNS FOR MODIFICATIONS OF EXISTING UTILITY SYSTEMS THAT MUST REMAIN IN SERVICE DURING CONSTRUCTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH AND APPROVED BY THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IT IS NOTED THAT TEMPORARY SHUTDOWNS MAY BE RESTRICTED TO CERTAIN HOURS AT ANY TIME OF THE DAY OR NIGHT AND WILL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
- FOR WORK BEING DONE ON EXISTING SANITARY SEWER LINES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE FLOW OF ALL SEWAGE DURING CONSTRUCTION, WHICH MAY REQUIRE BY-PASS PUMPING AND/OR PUMPER TRUCKS. THE CONTRACTOR SHALL SUBMIT A DETAILED BY-PASS PUMPING PLAN PER SECTION 02720 OF THE INFRASTRUCTURE ENGINEERING STANDARD SPECIFICATIONS.

- ALL WATER SERVICES TO BE INSTALLED OR MODIFIED ON PRIVATE PROPERTY SHALL REQUIRE A PLUMBING PERMIT:
 - THE CONTRACTOR'S PLUMBER SHALL INSTALL A REDUCED PRESSURE (RP) TYPE BACKFLOW PREVENTION ASSEMBLIES (BPA'S) EQUIPPED WITH A PRESSURE RELIEF VALVE AT THE POTABLE WATER METER WHENEVER ANY OF THE FOLLOWING CONDITIONS EXIST AT A PROPERTY:
 - IN-GROUND IRRIGATION SYSTEM,
 - SECONDARY SOURCE OF WATER (I.E. RECLAIMED WATER OR WELL),
 - SWIMMING POOL,
 - FIRE SPRINKLER SYSTEM,
 - FLOOD ZONE DESIGNATION (IF ONLY FLOOD ZONE, INSTALL A DOUBLE CHECK BPA),
 - PROPERTY THAT ABUTS OR INCLUDES A BODY OF WATER (INCLUDING RIVER, BAY, LAKE OR POND),
 - SOLAR WATER HEATING SYSTEM,
 - MULTISTORY OR MULTIFAMILY RESIDENTIAL FACILITY.
 - A LICENSED PLUMBER SHALL INSTALL THE BPA'S IN ACCORDANCE WITH THE CURRENT FLORIDA PLUMBING CODE AND MANATEE COUNTY CODE OF ORDINANCES, AND SHALL SELECT A PRESSURE RELIEF VALVE WITH AN APPROPRIATE PRESSURE SET POINT TO PROTECT THE CUSTOMERS' PLUMBING AND NOT ALLOW EXCESSIVE LEAKAGE DUE TO SYSTEM SUPPLY PRESSURE. A PRESSURE REDUCING VALVE MAY BE NECESSARY UPSTREAM OF THE PRESSURE RELIEF VALVE, WHERE NORMAL SUPPLY PRESSURE EXCEEDS 80 PSI. CONTRACTOR SHALL COORDINATE WITH COUNTY CROSS CONNECTION CONTROL STAFF AS REQUIRED.
 - IF IN-GROUND IRRIGATION SYSTEM IS CONNECTED TO THE POTABLE WATER LINE, AN ADDITIONAL REDUCED PRESSURE BPA SHALL BE INSTALLED AT THE POINT OF CONNECTION.
 - VACUUM BREAKERS SHALL BE INSTALLED ON ALL EXTERNAL HOSE BIBBS.
 - CONTRACTOR SHALL COORDINATE WITH COUNTY CROSS CONNECTION STAFF & PRIVATE PROPERTY OWNER AS REQUIRED. CROSS CONNECTION STAFF SHALL DETERMINE WHICH PROPERTIES REQUIRE A BPA AND BPA-TYPE TO BE INSTALLED.

RESTORATION

- ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS SHOWN OTHERWISE.
- ALL DISTURBED GRASSED AREAS SHALL BE SODDED OR SEEDED UNLESS OTHERWISE INDICATED. THE TYPE OF SOD USED TO REPLACE OWNER MAINTAINED AREAS IN RIGHT-OF-WAY SHALL BE COORDINATED WITH THE PROPERTY OWNER.
- ALL CONCRETE THRUST BLOCKS INSTALLED FOR TESTING PURPOSES AND NOT REQUIRED FOR THE OPERATION OF THE PIPELINE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR, PRIOR TO FINAL ACCEPTANCE, AT NO ADDITIONAL COST TO THE OWNER.
- ASPHALT DRIVES THAT ARE CUT SHALL BE RESTORED PER SECTION 02513 OF THE INFRASTRUCTURE ENGINEERING STANDARD SPECIFICATIONS.
- CONCRETE DRIVEWAYS OR SIDEWALKS THAT ARE CUT SHALL BE RESTORED TO MATCH EXISTING ACCORDING TO THE CURRENT EDITIONS OF THE F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE DESIGN, SECTION 522, AND SECTION 310 OF THE F.D.O.T. DESIGN STANDARDS.
- WHENEVER A PERMANENT ROADWAY SURFACE IS NOT PLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OF THE NEWLY INSTALLED PIPE LINE IN AREAS WHERE TRAFFIC MUST PASS, THE CONTRACTOR SHALL INSTALL A TEMPORARY SURFACE CONSISTING OF NINE INCHES OF COMPACTED LIME ROCK BASE AND A COAT OF ASPHALT EMULSION. PERMANENT ROADWAY REPAIR SHALL BE PERFORMED A MAXIMUM OF TWENTY-ONE CALENDAR DAYS AFTER THE INITIAL OPEN CUTTING.
- RESTORATION OF CURBS, DRIVEWAYS, SIDEWALKS, AND PLACEMENT OF SOD SHALL BE COMPLETED WITHIN FORTY-FIVE CALENDAR DAYS OF INITIAL DISTURBANCE, OR TWENTY-ONE CALENDAR DAYS OF SUBSTANTIAL COMPLETION, WHICHEVER OCCURS FIRST.

CONSTRUCTION

- THE EXHAUST SYSTEM OF ALL GASOLINE AND DIESEL ENGINES SHALL BE EQUIPPED WITH MUFFLERS THAT MEET THE EQUIPMENT MANUFACTURER'S REQUIREMENTS FOR NOISE SUPPRESSION. THE CONTRACTOR SHALL INSTALL NOISE ABATEMENT BAFLES POSITIONED TO BREAK LINE-OF-SITE FROM THE NOISE SOURCE TO AFFECTED RESIDENCES, AS APPROVED BY THE ENGINEER.
- NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEEP DAILY AS PART OF DAILY CLEAN UP.
- THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
- INGRESS AND EGRESS TO ALL THE PROPERTIES IN THE CONSTRUCTION AREA SHALL BE MAINTAINED AT ALL TIMES.
- PRIOR APPROVAL WILL BE REQUIRED FOR REMOVAL OF ANY TREE WITHIN THE CONSTRUCTION AREA.
- THE CONTRACTOR SHALL PROVIDE ALL DEWATERING EQUIPMENT NECESSARY TO KEEP ALL EXCAVATIONS DRY. DEWATERING IS REQUIRED TO 18" BELOW TRENCH BOTTOM.
- ALL PIPING AND FITTINGS USED ON THIS PROJECT SHALL BE AS NOTED ON THE PLANS AND IN THE CONTRACT DOCUMENT AND SHALL BE INSTALLED TO THE LINES AND GRADES SHOWN ON THE PLANS AND PROFILES. MODIFICATIONS MUST BE APPROVED BY THE ENGINEER OF RECORD.
- ALL PIPE SHALL BE COLOR CODED TO CONFORM TO MANATEE COUNTY STANDARDS.
- ALL PIPE AND FITTINGS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER AND ALL PIPE JOINTS SHALL BE RESTRAINED WHERE REQUIRED.
- ALL FITTINGS FOR PRESSURE CLASS-RATED PIPE SHALL BE RESTRAINED DUCTILE IRON. RESTRAINED LENGTHS OF PIPE SHALL ADHERE TO THE REQUIREMENTS AS SHOWN ON THE DETAIL SHEETS.
- WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE RECOMMENDED DEFLECTION.
- ALL PIPE LENGTHS ARE PLUS OR MINUS AND MAY BE ADJUSTED IN THE FIELD AS REQUIRED. PIPE MEASUREMENTS ARE TO CENTER OF STRUCTURES OR FITTINGS.
- ALL ROCKS OR STONES LARGER THAN SIX INCH DIAMETER SHALL BE REMOVED FROM THE BACKFILL MATERIAL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES SHALL NOT CONTAIN ANY STONES LARGER THAN TWO INCH DIAMETER.
- ONLY MANATEE COUNTY UTILITY OPERATIONS STAFF ARE AUTHORIZED TO OPERATE VALVES ON COUNTY OWNED AND MAINTAINED UTILITY SYSTEMS.
- ALL CONCRETE PENETRATED OR DISTURBED SHALL BE COATED WITH TWO COATS OF EPOXY.
- THE CONTRACTOR, PRIOR TO ANY TEMPORARY WATER SHUT-OFFS DURING WATER MAIN TIE-IN, ETC., SHALL NOTIFY THE AFFECTED RESIDENTS BY POSTING INFORMATIONAL SIGNS IN THE NEIGHBORHOOD AT LEAST TWO DAYS (48 HRS) PRIOR TO THE WATER SHUT-OFF. REFERENCE SECTION 01580, PARAGRAPH 1.03 OF THE SPECIFICATIONS. WHEN FEASIBLE, "DOOR HANGERS" SHALL BE DELIVERED TO AFFECTED RESIDENCES AT LEAST TWO DAYS (48 HRS) PRIOR TO WATER SHUT-OFF. FOR LARGE PROJECTS WITH HUNDREDS OF HOMES AFFECTED, THE CONTRACTOR SHALL ALSO MAKE EXTENSIVE USE OF THE MEDIA AND SHALL HAVE PRIOR CONTACT WITH HOMEOWNER'S ASSOCIATIONS. WRITTEN NOTIFICATIONS SHALL ALSO BE FAXED TO THE TAMPA TRIBUNE, BRADENTON HERALD, SARASOTA HERALD TRIBUNE, WBRD RADIO, EMERGENCY COMMUNITY CENTERS, INSPECTIONS, WATER TREATMENT PLANT, WATER MANAGER, HELPLINE, CUSTOMER SERVICE, AND THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT.
- ALL NEW PIPE LINES SHALL BE PIG CLEANED (4" AND LARGER), FLUSHED, PRESSURE TESTED, DISINFECTED AND CERTIFIED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PIG CLEANING AND PRESSURE TESTING.
- ALL TEST POINT PIPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. A CORPORATION STOP-PLUG SHALL BE INSTALLED AND THE CORPORATION STOP SHALL REMAIN IN PLACE.
- WATER MAINS CROSSING OVER OR UNDER SANITARY SEWERS, FORCE MAINS, AND RECLAIMED WATER LINES SHALL BE LAID PER CURRENT EDITION OF "10 STATE STANDARDS" AND MANATEE COUNTY UTILITY STANDARDS UNLESS NOTED OTHERWISE ON THE PLANS.
- FIELD CONDITIONS MAY NECESSITATE MINOR ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED UTILITIES TO AVOID OBSTACLES, AS ORDERED BY THE ENGINEER.
- CONTRACTOR SHALL PROVIDE RECORD DRAWINGS IN ACCORDANCE WITH SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS AT NO COST TO THE OWNER. RECORD DRAWINGS SHALL BE SIGNED & SEALED BY A SURVEYOR CURRENTLY LICENSED BY THE STATE OF FLORIDA. ALL RECORD DRAWING INFORMATION REQUIREMENTS IN SECTION 14 SHALL BE STRICTLY ENFORCED. A COPY OF SECTION 14 WILL BE PROVIDED UPON REQUEST.
- THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF THE WORK AS CONSTRUCTED. AS-BUILT DRAWINGS SHALL INCLUDE THE LOCATION OF ABANDONED FORCE MAIN CUT AND PLUG POINTS. AS-BUILT DRAWINGS SHALL BE ANNOTATED EACH DAY AS THE WORK PROCEEDS AND SHALL BE AVAILABLE TO THE COUNTY PROJECT MANAGER AND/OR FIELD INSPECTOR FOR REVIEW ON AN ONGOING BASIS. AS-BUILT DRAWINGS SHALL PROVIDE THE HORIZONTAL AND VERTICAL INSTALLED LOCATION OF ALL NEW PIPELINE, FITTINGS, VALVES AND FORCE MAIN APPURTENANCES REFERENCED TO FIXED SURFACE FEATURES THAT ARE SHOWN ON THE CONSTRUCTION DRAWINGS AND/OR RIGHT-OF-WAY LINES, PROPERTY CORNERS OR OTHER SURVEYED POINTS. THE CONTRACTOR SHALL BE ABLE TO PRESENT THE RECORD DRAWINGS TO THE COUNTY PROJECT MANAGER AND/OR INSPECTOR ON DEMAND AS THE WORK PROGRESSES.

EXISTING UTILITY LOCATIONS

- THE FOLLOWING IDENTIFIES THE QUALITY LEVEL OF EXISTING UTILITY LINENWORK ON PLANS.
 - LEVEL "A" -VISUALLY LOCATED OR SOFT DIGGS (HORIZONTAL AND VERTICAL)
 - LEVEL "B" -DESIGNATED BY GPR OR FLAGGING (HORIZONTAL)
 - LEVEL "C" -SURFACE VISIBLE FEATURES SURVEY
 - LEVEL "D" -EXISTING RECORDS OR GIS

REFERENCE 2010 EDITION OF FDOT UTILITY ACCOMODATION MANUAL (UAM)

MAINTENANCE OF TRAFFIC

- THE CONTRACTOR IS RESPONSIBLE FOR ANY TRAFFIC CONTROL PLAN (TCP) IMPLEMENTED. THE TCP BE PREPARED BY AN INDIVIDUAL CERTIFIED TO PREPARE A TCP'S IN THE STATE OF FLORIDA THAT MEETS OR EXCEEDS THE REQUIREMENTS OF THE F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS LATEST EDITION (SERIES 600). ANY DEVIATIONS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SUBMITTED TO THE COUNTY (AND F.D.O.T.) FOR APPROVAL AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COUNTY (AND F.D.O.T.) APPROVAL PRIOR TO IMPLEMENTATION AND FAILURE TO OBTAIN APPROVAL SHALL NOT BE GROUNDS FOR ANY DELAY CLAIM FOR TIME OR ADDITIONAL COMPENSATION.
- THE CONTRACTOR PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN A RIGHT-OF-WAY USE PERMIT AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
- THE CONTRACTOR SHALL USE, BUT ARE NOT LIMITED TO, F.D.O.T. INDICES 415, 600, 615, 616, AND 621. THE RECOMMENDED F.D.O.T. DESIGN STANDARD INDICES ARE CONCEPTUAL.
- THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE TEMPORARY DRAINAGE. THERE WILL BE NO DIRECT PAY FOR THIS WORK. COSTS SHALL BE INCLUDED IN THE COST OF THE TCP BID PRICE.
- MOTORIZED AND MECHANICAL EQUIPMENT SHALL BE EFFECTIVELY SHIELDED, PADDED, OR LOCATED TO MINIMIZE NOISE.
- THE CONTRACTOR SHALL NOTIFY ALL EMERGENCY AND RESCUE AGENCIES LOCATED IN THE PROJECT VICINITY 24 HOURS IN ADVANCE OF ANY PROPOSED LANE CLOSURES OR DETOURS.
- ACCESS TO ALL SIDE STREETS AND DRIVEWAYS MUST BE PROVIDED AND MAINTAINED DURING CONSTRUCTION.
- USE F.D.O.T. INDEX NO. 619 FOR TRAFFIC CONTROL MEASURES WHEN CONSTRUCTION EQUIPMENT IS DRIVEN ON OPEN TRAVEL LANES. THE REGULATORY SPEED IN WORK ZONES SHOULD BE AS CLOSE TO NORMAL CONDITIONS AS POSSIBLE, UNLESS NOTED ON THE TRAFFIC CONTROL PLANS.
- THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO WORKING NEAR THEIR EXISTING FACILITIES.
- CONSTRUCTION SEQUENCES SHALL BE COORDINATED TO PROVIDE POSITIVE DRAINAGE OF THE TRAVELWAYS AT ALL TIMES.
- ANY M.O.T. ITEM NOT SPECIFICALLY LISTED UNDER A PARTICULAR PAY ITEM SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS. THERE SHALL BE NO SEPARATE PAYMENT.
- THE MAXIMUM SPACING BETWEEN WARNING DEVICES USED FOR DELINEATION BETWEEN THE TRAVELWAY(S) AND CONSTRUCTION AREA SHALL BE AS PER F.D.O.T. STANDARD INDEX 600.
- ALL DETOURS, IF APPROVED BY THE COUNTY, SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D. LATEST EDITION) AND THE F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS, LATEST EDITION (600 SERIES). ANY DETOUR RECOMMENDED BY THE CONTRACTOR MUST BE SUBMITTED TO THE COUNTY (AND F.D.O.T.) FOR APPROVAL AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COUNTY APPROVAL PRIOR TO IMPLEMENTATION AND FAILURE TO OBTAIN APPROVAL SHALL NOT BE GROUNDS FOR ANY DELAY CLAIM FOR TIME OR ADDITIONAL COMPENSATION.

LEGEND

<p>EXISTING</p> <ul style="list-style-type: none"> BENCH MARK CONCRETE MONUMENT IRON PIPE IRON ROD HUB NAIL & DISK ELEVATION PARCEL ID NO. PARCEL ID NO. LOT NO. GUY WIRE POWER POLE LIGHT POLE MAIL BOX SIGN REFLECTOR SPRINKLER GAS MARKER BACKFLOW PREVENTER BLOW OFF VALVE FIRE HYDRANT WATER VALVE AIR RELEASE VALVE WATER METER SANITARY SEWER MANHOLE SANITARY SEWER CLEAN OUT SOIL BORING LOCATION TELEPHONE SERVICE BOX FLOW DIRECTION GRATE INLET MITERED END SECTION 	<p>PROPOSED</p> <ul style="list-style-type: none"> MAIN SERVICE LINE PROPOSED EASEMENT FIRE HYDRANT VALVE SANITARY SEWER MANHOLE BLOW OFF ASSEMBLY REDUCER TEE HORIZONTAL BEND VERTICAL BEND PLUG MASTER METER ASSEMBLY SERVICE LINE & METER DOUBLE SERVICE 	<p>ABBREVIATIONS</p> <ul style="list-style-type: none"> R/W RIGHT OF WAY CONC CONCRETE ASPH ASPHALT DRWY DRIVEWAY SWK SIDEWALK EP EDGE OF PAVEMENT BOC BACK OF CURB R.M.J RESTRAINED MECH. JOINT
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<p>MANATEE COUNTY WORKS DEPT. SARASOTA, FL 34208 (941) 708-7450 EXT. 7650 John.Plott@ftr.com</p>	<p>FRONTIER 1701 RINGLING BLVD. SARASOTA, FL 34236 JOHN PLOTT (941) 906-6707 FAX: (941) 906-6706 John.Plott@ftr.com</p>	<p>SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT SARASOTA SERVICE OFFICE STEVE LOPEZ 6750 FRUITVILLE ROAD SARASOTA, FL 34240 (941) 377-3722 FAX: (941) 373-7660</p>	<p>DEPARTMENT OF ENVIRONMENTAL PROTECTION 13051 N. TELECOM PKWY TEMPLE TERRACE, FL 33637 ED WATSON PHONE: (813) 470-5875 FAX: (813) 470-5993</p>
<p>TECO/PEOPLES GAS CO. 8261 VICO COURT SARASOTA, FL 34240 (941) 342-4030 DAN SHANAHAN FAX: (941) 342-4011 EMERGENCY: 1-877-832-6911</p>	<p>FLORIDA POWER & LIGHT 1253 12TH AVENUE EAST PALMETTO, FL 34221 GREG COKER (941) 723-4430 FAX: (941) 723-4444 EMERGENCY: 1-800-4-OUTAGE Greg_Coker@fpl.com</p>	<p>FLORIDA GAS TRANSMISSION 7804 ANDERSON RD. TAMPA FL 33634 CHAD HARRELL PHONE: (813) 466-3327 E-mail: chad.harrell@sug.com</p>	<p>CHARTER COMMUNICATION 5413 E. STATE ROAD 64 BRADENTON, FL. 34208-5535 TOM WRIGHT (941) 748-3816 EXT. 21348 Tom.Wright@charter.com</p>
<p>ATMS 2101 47TH TERRACE EAST BRADENTON, FL 34203 VISHAL KAKAAD, P.E. (941) 749-3500 EXT. 7812 FAX: (941) 749-3571 vishal.kakkad@mymanatee.org.</p>	<p>MANATEE COUNTY HEALTH DEPT. 410 6th AVENUE EAST BRADENTON, FL. 34208 (941) 748-0747 EXT. 1355 FAX: (941) 750-9364</p>	<p>PEACE RIVER ELECTRIC COOPERATIVE, INC. P.O. BOX 1310 WACHULA, FL 33873 KENDELL COKER (863) 767-4660 kendell.coker@preco.coop</p>	<p>SUNSHINE STATE ONE CALL OF FLORIDA 1-(800) 432-4770</p>

NO.	REVISION DESCRIPTION	BY	DATE

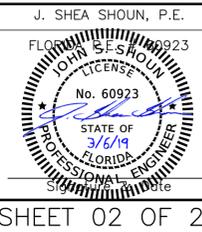
WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

NOTES



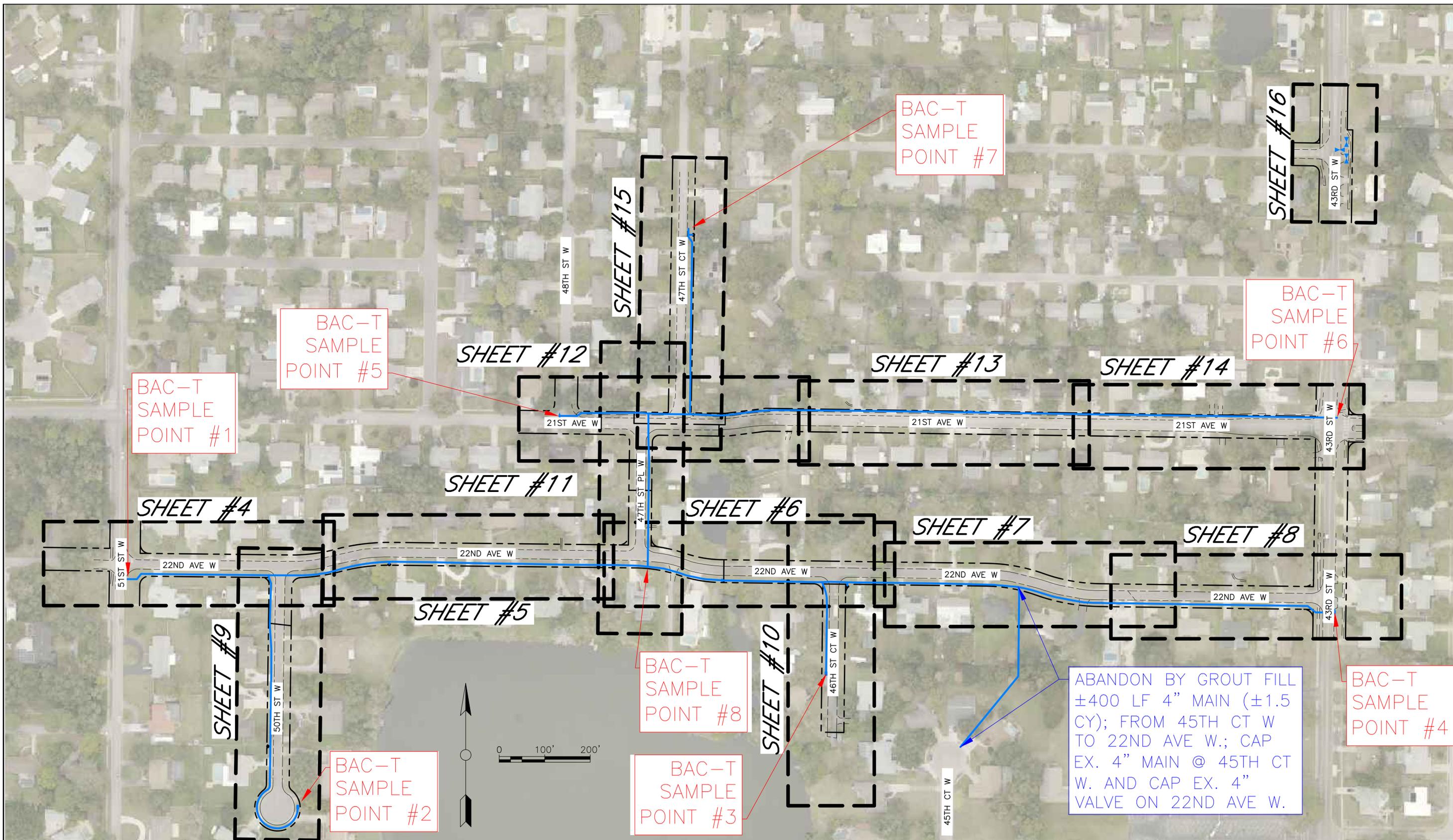
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

PROJECT #	404.6089170	J. SHEA SHOUN, P.E.	
SURVEY #	0577-0032	FLORIDA STATE ONE CALL 800-432-4770	
SEC./TWN./RGE	33/34/17	LICENSE No. 60923	
SCALE	SEE PLAN	DATE 3/6/19	
SURVEYED	FDC	BY	DATE
DESIGNED	JSS	DATE	MAY 17
DRAWN	CAK	DATE	MAY 17
CHECKED	JSS	DATE	MM/YYYY



SHEET 02 OF 22

S:\P\02_Engineering_Sheets\Util_Eng_Design\PROJ-WTR_LINE_Proj\Willow_Woods_Lakes_Estates_WA_Upgrade\DWGS\c-02_03_19_2019_3:10 PM Bruce Robertson.tit; ANSI full bleed D (34.00 x 22.00 inches)



NO.	REVISION DESCRIPTION	BY	DATE

**WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE**

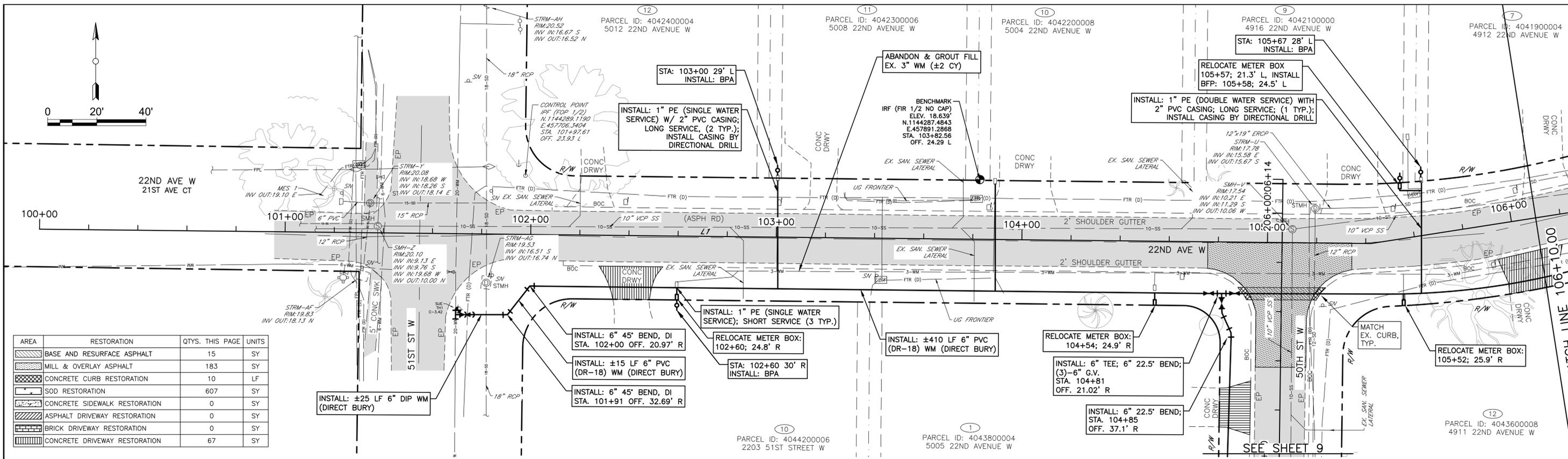
KEY SHEET



PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

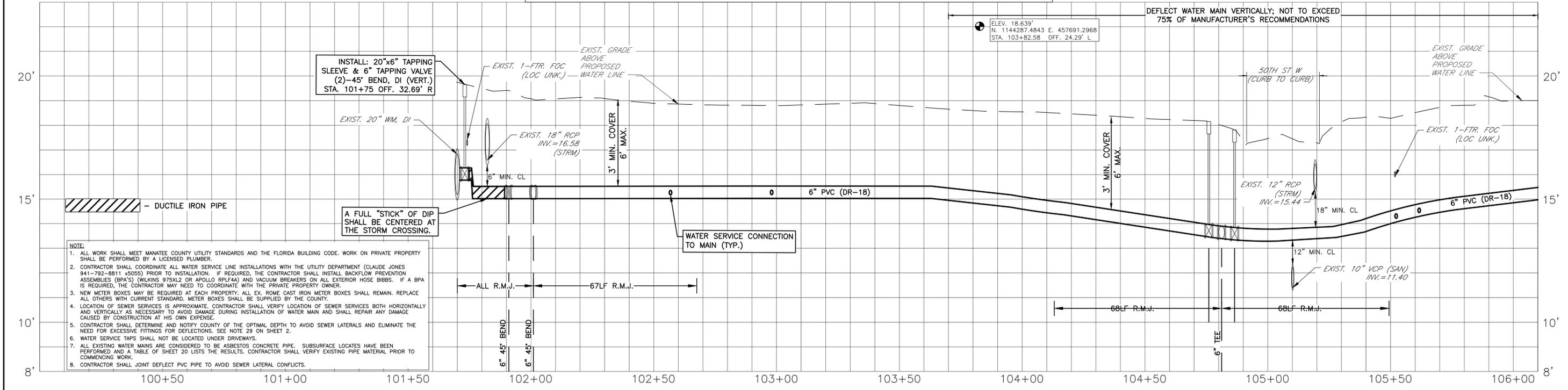
J. SHEARPHOIN, P.E.
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 Signature & Date

S:\PND_Engineering\Shore\UTR LINE Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\11-Willow Woods.dwg, 03, 5/5/2019 3:10 PM Bruce Robertson, 1:1, ANSI full bleed D (34.00 x 22.00 inches)



AREA	RESTORATION	QTY. THIS PAGE	UNITS
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	MILL & OVERLAY ASPHALT	183	SY
	CONCRETE CURB RESTORATION	10	LF
	SOD RESTORATION	607	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
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	CONCRETE DRIVEWAY RESTORATION	67	SY

22ND AVE W STA: 100+00 to 106+10



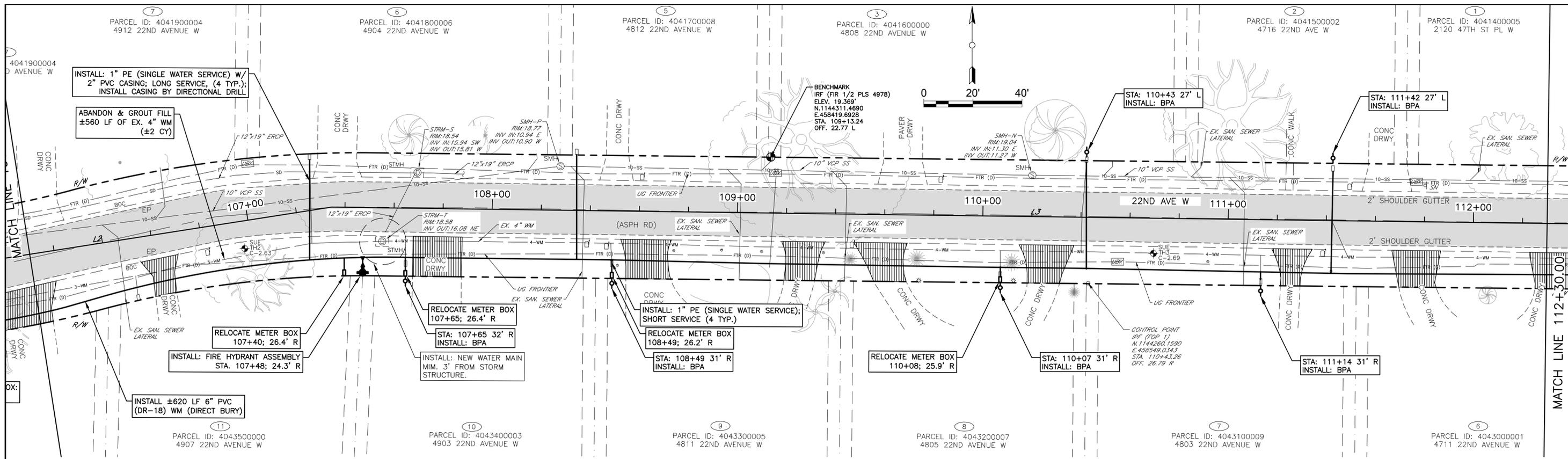
NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-100+00-106+10

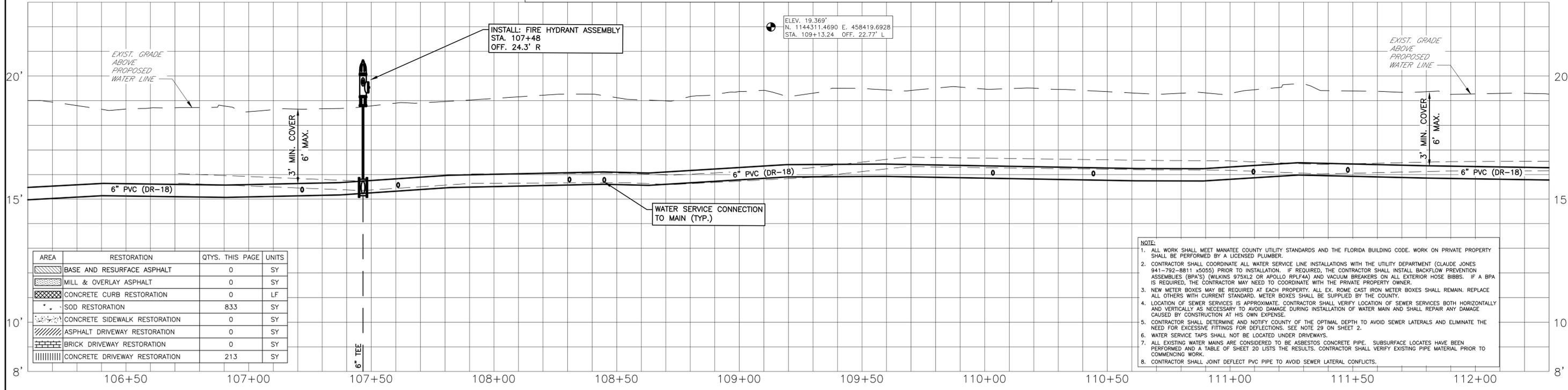


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 LICENSE No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 SHEET 04 OF 22



22ND AVE W STA: 106+10 to 112+30



AREA	RESTORATION	QTY. THIS PAGE	UNITS
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[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	213	SY

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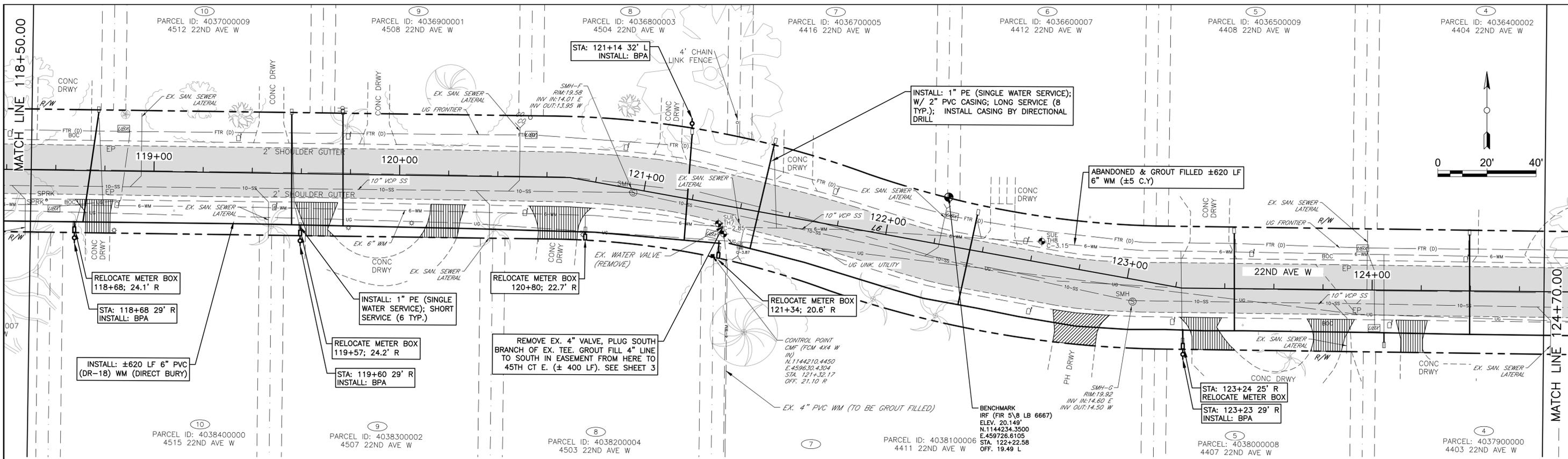
NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-106+10-112+30

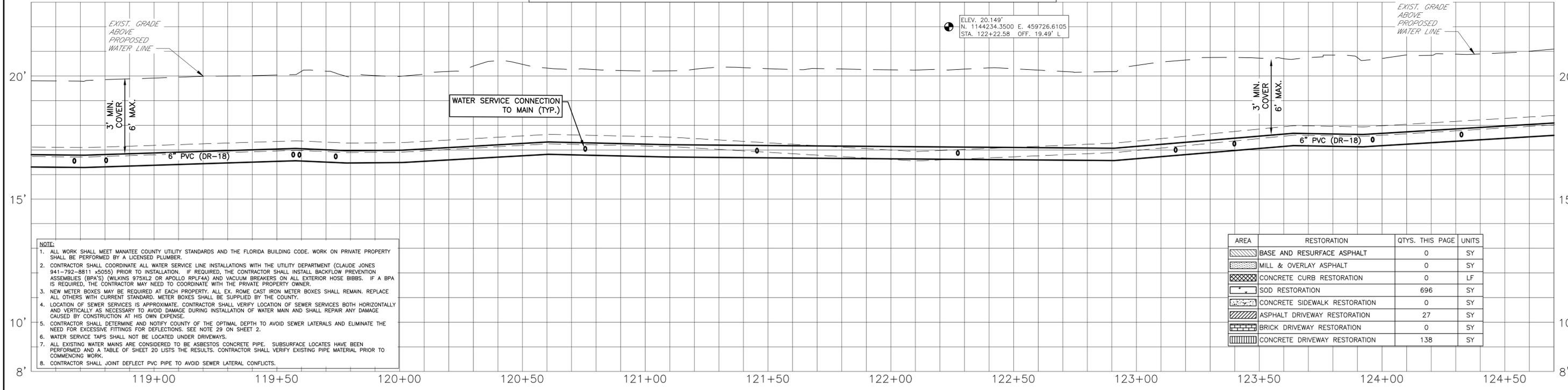


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLO 06923
 JOHN S. SHOUN
 LICENSE
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER



22ND AVE W STA: 118+50 to 124+70



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AREA	RESTORATION	QTY'S. THIS PAGE	UNITS
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[Pattern]	MILL & OVERLAY ASPHALT	0	SY
[Pattern]	CONCRETE CURB RESTORATION	0	LF
[Pattern]	SOD RESTORATION	696	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	0	SY
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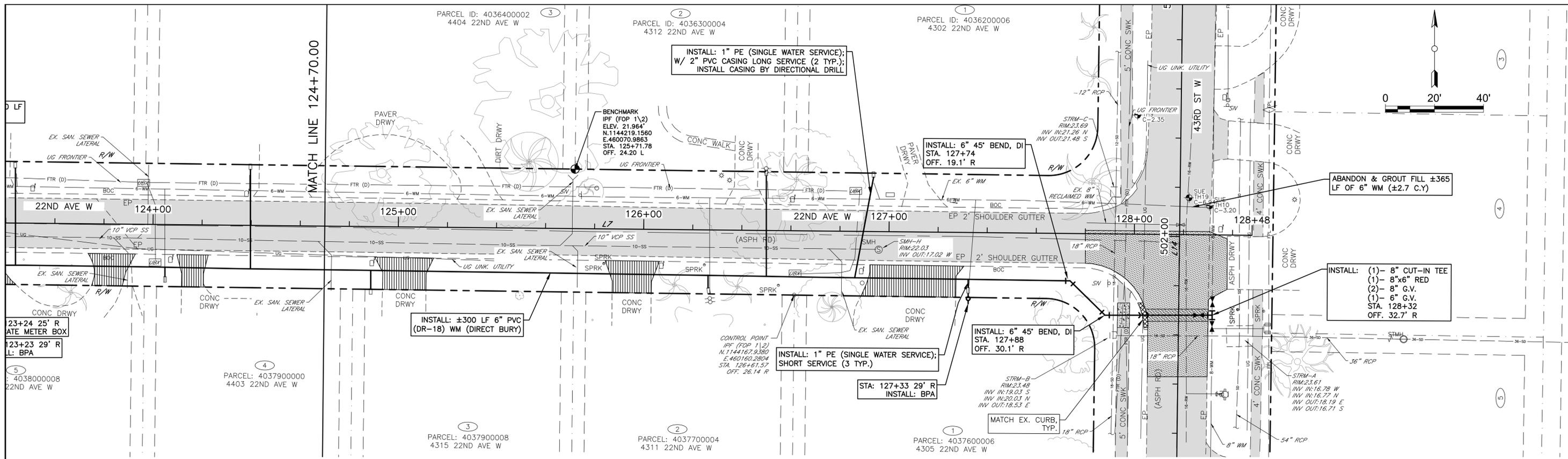
NO.	REVISION DESCRIPTION	BY	DATE

**WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-118+50-124+70**



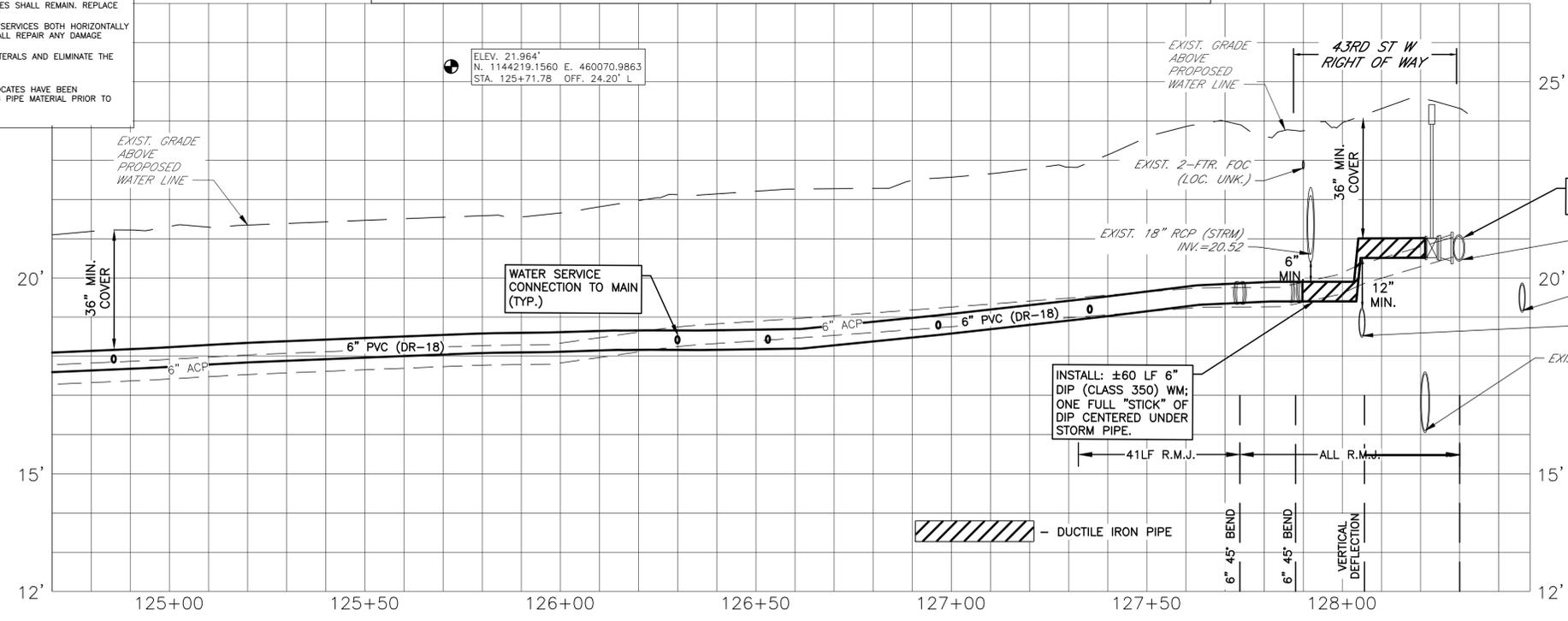
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLO 00000023
 LICENSE
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 3/6/19



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22ND AVE W STA: 124+70 to 128+48



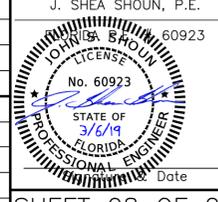
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	SOD RESTORATION	375	SY
	CONCRETE SIDEWALK RESTORATION	6	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	106	SY

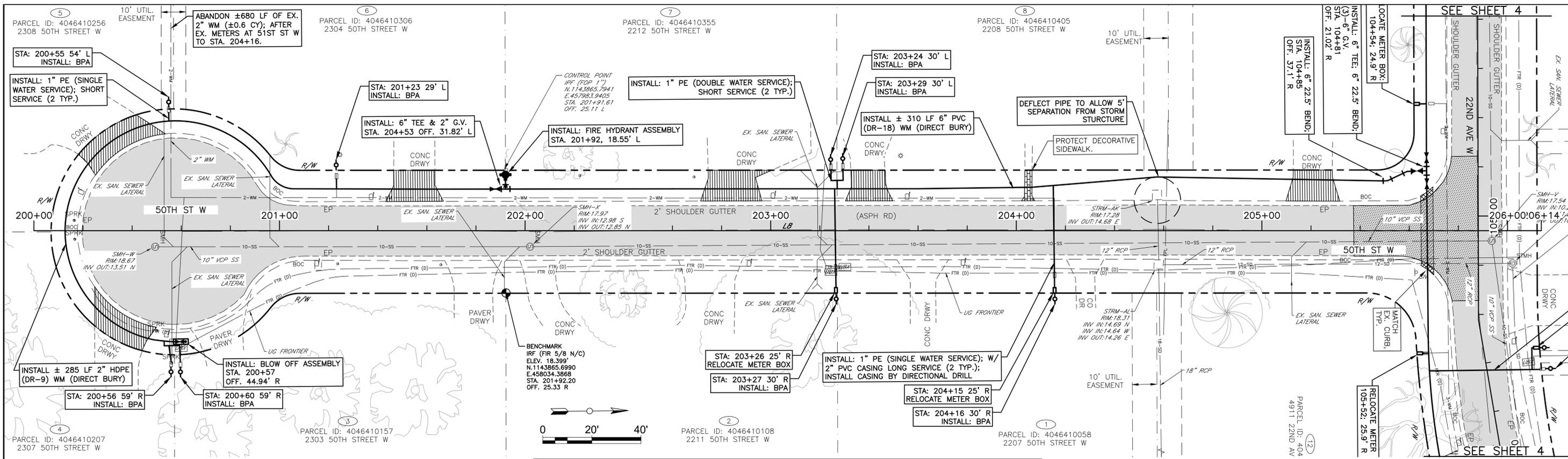
NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-124+70-128+48

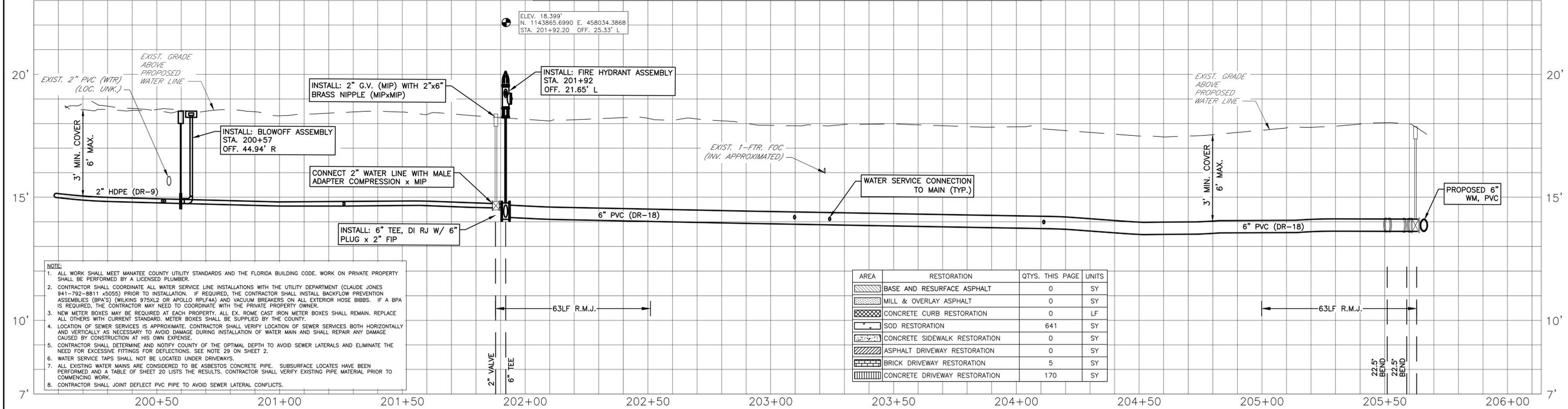


PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	60923
SEC./TWN./RGE	33/34/17	
SCALE	SEE PLAN	
SURVEYED	FDC	JAN 17
DESIGNED	JSS	MAY 17
DRAWN	CAK	MAY 17
CHECKED	JSS	MM/YYYY





50TH ST W STA: 200+00 to 206+14



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AREA	RESTORATION	QTY. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	0	SY
	MILL & OVERLAY ASPHALT	0	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	641	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	5	SY
	CONCRETE DRIVEWAY RESTORATION	170	SY

NO.	REVISION DESCRIPTION	BY	DATE

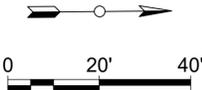
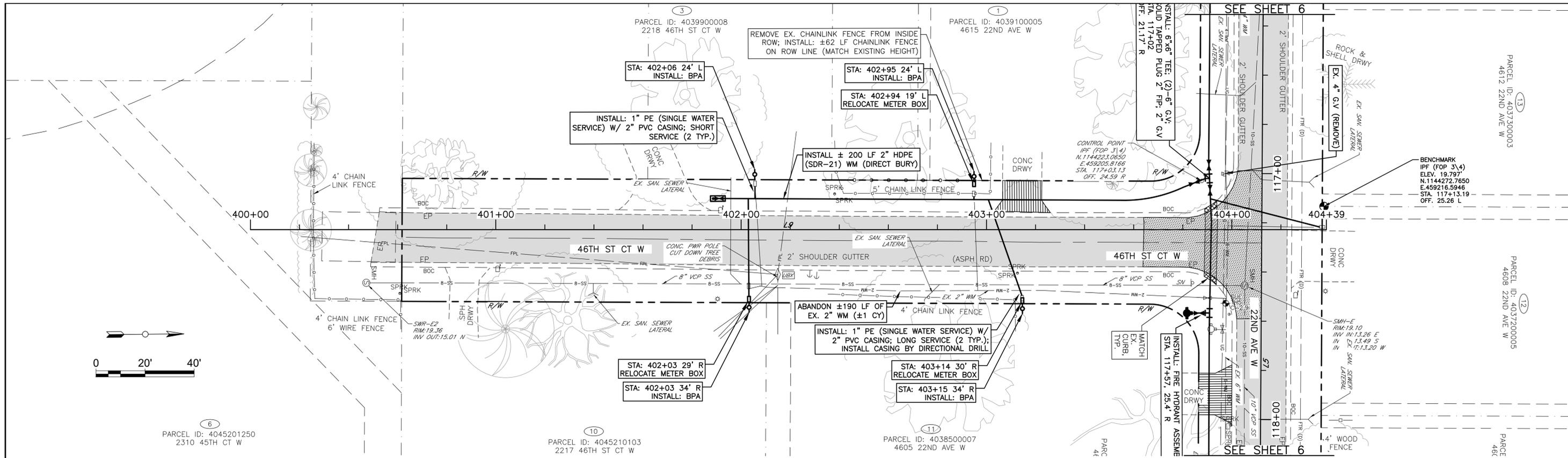
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
50TH ST W-200+00-206+14



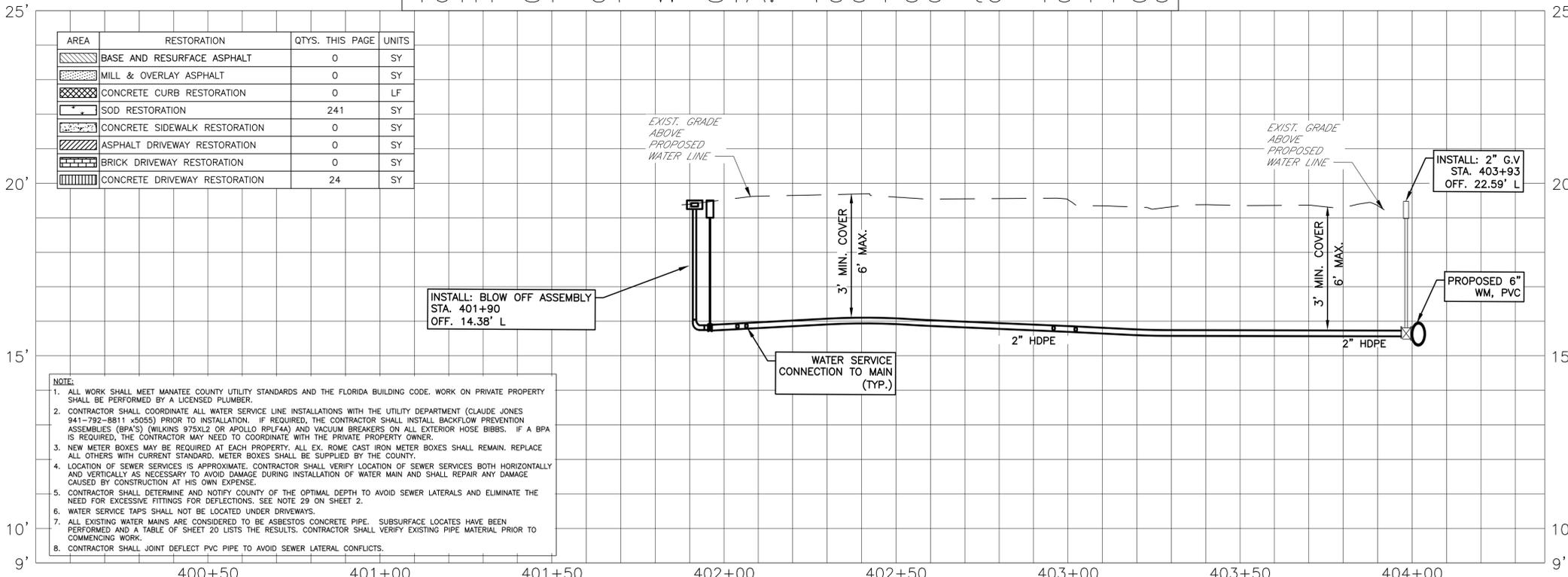
PROJECT #	404.6089170
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BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLO 10197-23
 LICENSE
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 Sign: [Signature]

S:\P\02_Engineering\Shoun\JSH\Eng Design\PROJ\404\WTR Line Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\50th St W Main Upgrade.dwg, 09/25/2019 3:11 PM Bruce Robertson, T1: ANS full bleed D (34.00 x 22.00 inches)



46TH ST CT W STA: 400+00 to 404+39



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	CONCRETE SIDEWALK RESTORATION	0	SY
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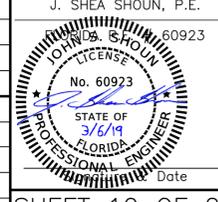
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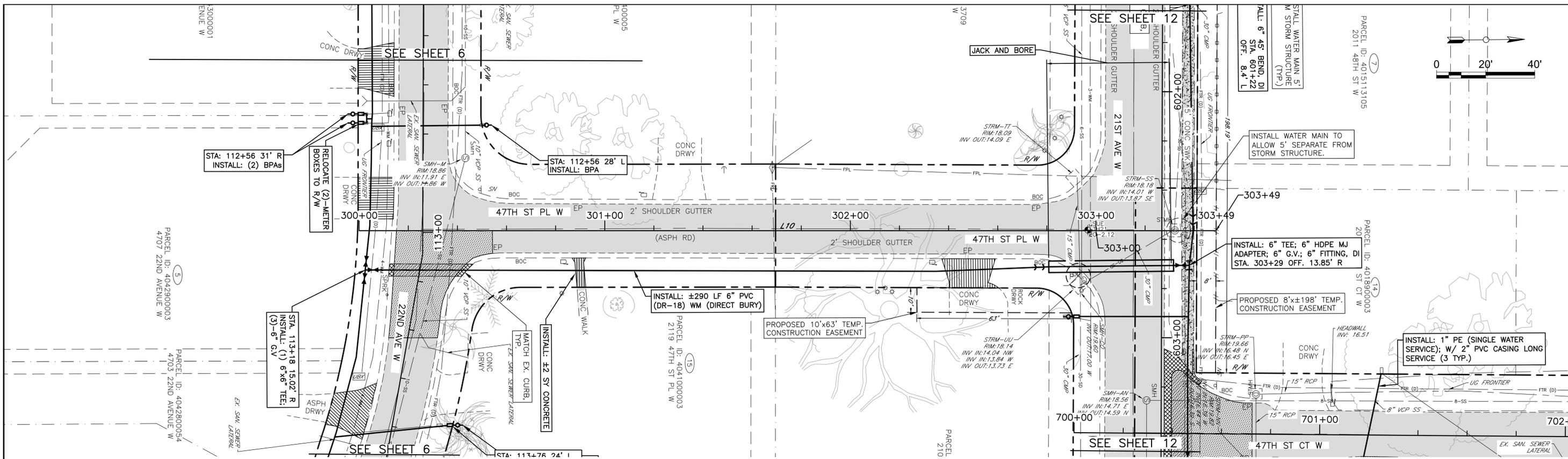
NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
46TH ST CT W-400+00-404+39

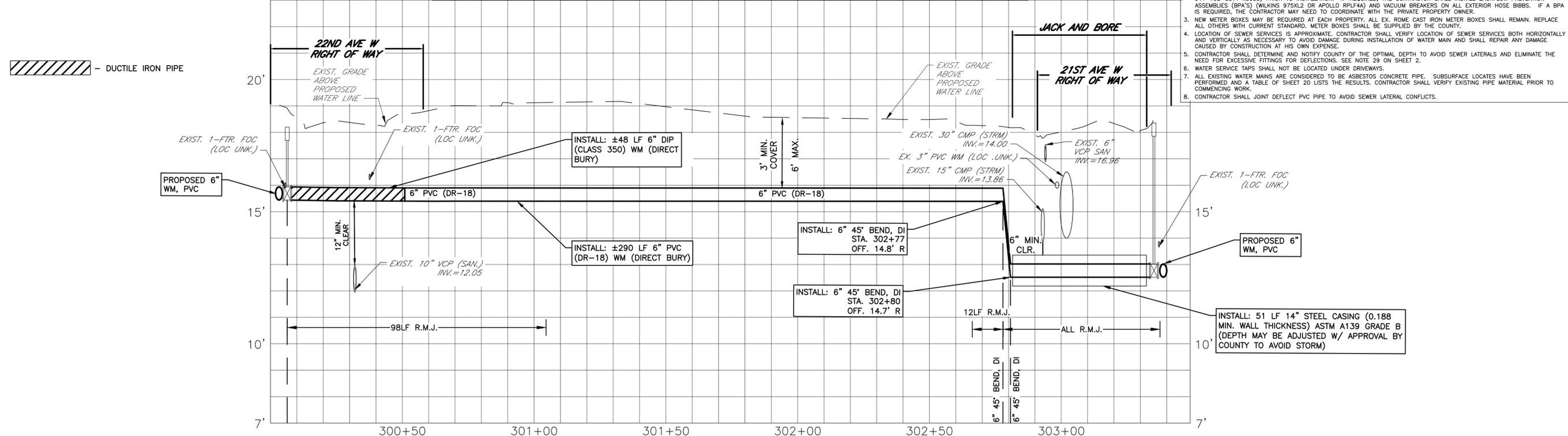


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SCALE	SEE PLAN	
SURVEYED	FDC JAN 17	
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DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	





47TH ST PL W STA: 300+00 to 303+49



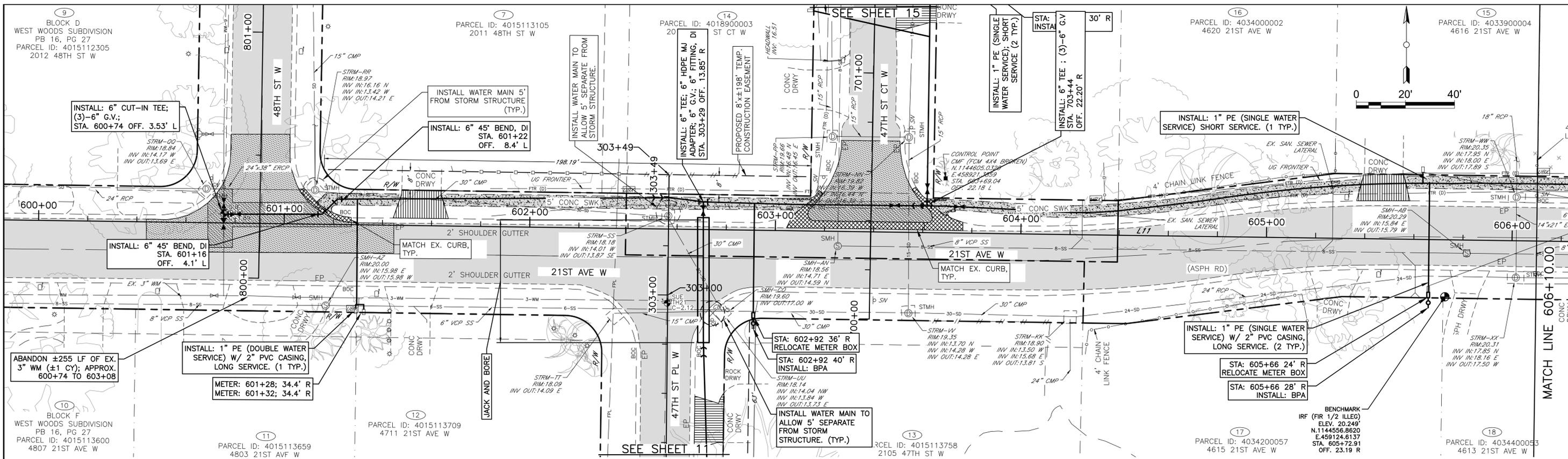
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 - CONTRACTOR SHALL DETERMINE AND NOTIFY COUNTY OF THE OPTIMAL DEPTH TO AVOID SEWER LATERALS AND ELIMINATE THE NEED FOR EXCESSIVE FITTINGS FOR DEFLECTIONS. SEE NOTE 29 ON SHEET 2.
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 - ALL EXISTING WATER MAINS ARE CONSIDERED TO BE ASBESTOS CONCRETE PIPE. SUBSURFACE LOCATES HAVE BEEN PERFORMED AND A TABLE OF SHEET 20 LISTS THE RESULTS. CONTRACTOR SHALL VERIFY EXISTING PIPE MATERIAL PRIOR TO COMMENCING WORK.
 - CONTRACTOR SHALL JOINT DEFLECT PVC PIPE TO AVOID SEWER LATERAL CONFLICTS.

NO.	REVISION DESCRIPTION	BY	DATE

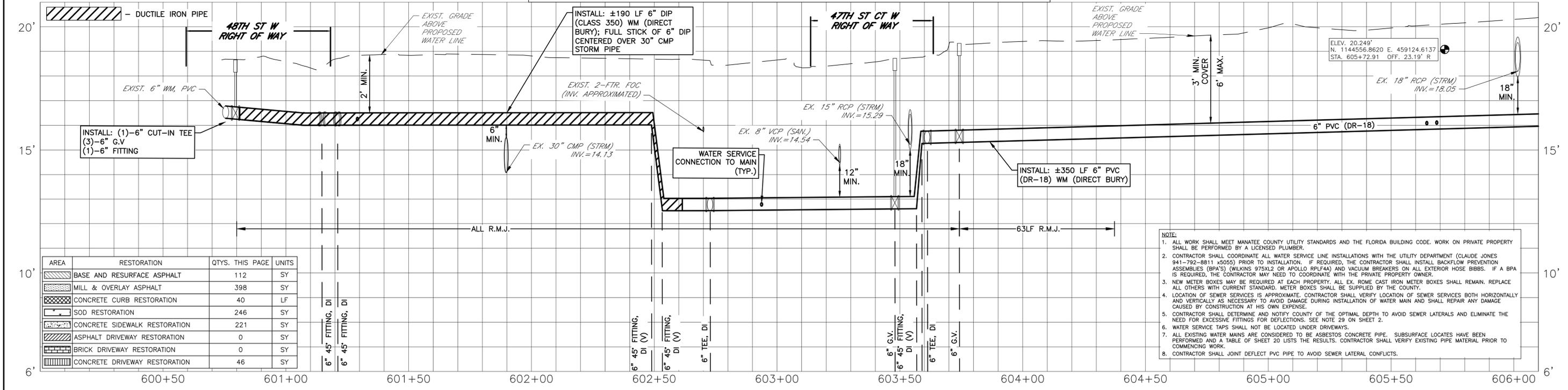
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
47TH ST PL W-300+00-303+49



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA LICENSE No. 60923
SEC./TWN./RGE	33/34/17	DATE 3/6/19
SCALE	SEE PLAN	
SURVEYED	FDC JAN 17	
DESIGNED	JSS MAY 17	
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	



21ST AVE W STA: 600+00 to 606+10



- NOTE:**
- ALL WORK SHALL MEET MANATEE COUNTY UTILITY STANDARDS AND THE FLORIDA BUILDING CODE. WORK ON PRIVATE PROPERTY SHALL BE PERFORMED BY A LICENSED PLUMBER.
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NO.	REVISION DESCRIPTION	BY	DATE

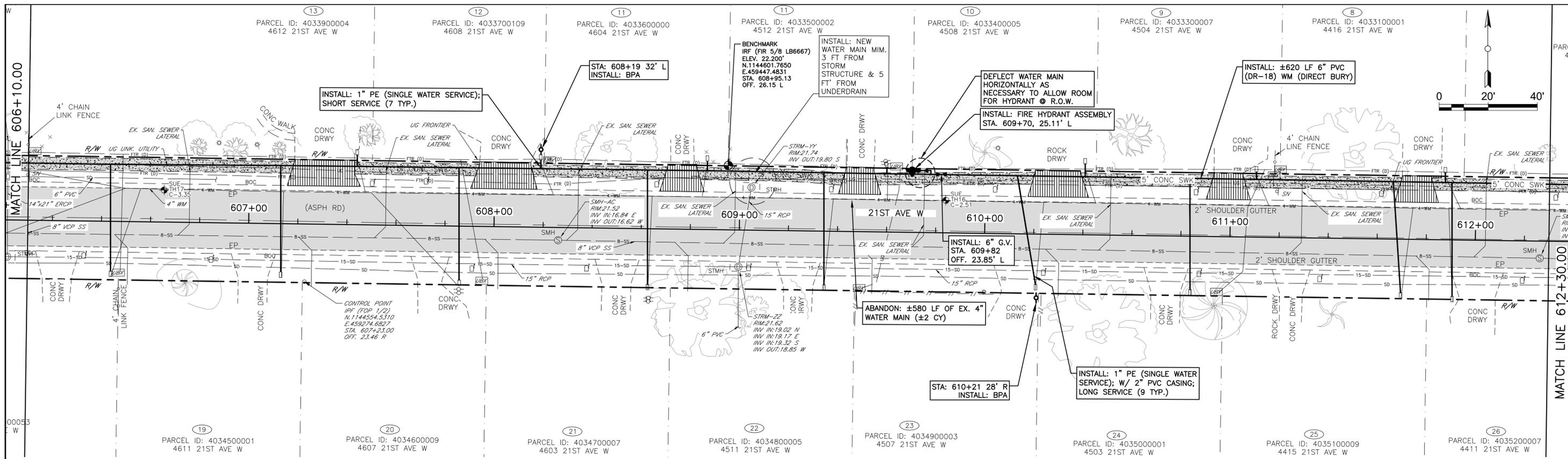
WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

PLAN & PROFILE

21ST AVE W-600+00-606+10

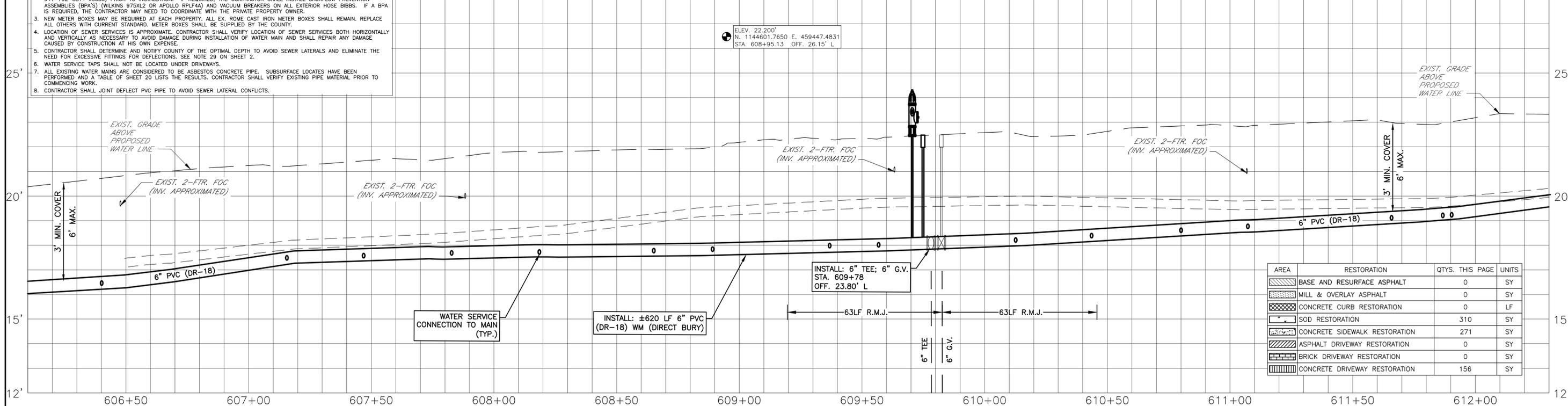


PROJECT #	404.6089170	
SURVEY #	0577-0032	
SEC./TWN./RGE	33/34/17	J. SHEA SHOUN, P.E. No. 60923 STATE OF FLORIDA PROFESSIONAL ENGINEER Date: _____
SCALE	SEE PLAN	
SURVEYED	FDC JAN 17	SHEET 12 OF 22
DESIGNED	JSS MAY 17	
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	



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21ST AVE W STA: 606+10 to 612+30



AREA	RESTORATION	QTY. THIS PAGE	UNITS
[Pattern]	BASE AND RESURFACE ASPHALT	0	SY
[Pattern]	MILL & OVERLAY ASPHALT	0	SY
[Pattern]	CONCRETE CURB RESTORATION	0	LF
[Pattern]	SOD RESTORATION	310	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	271	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	156	SY

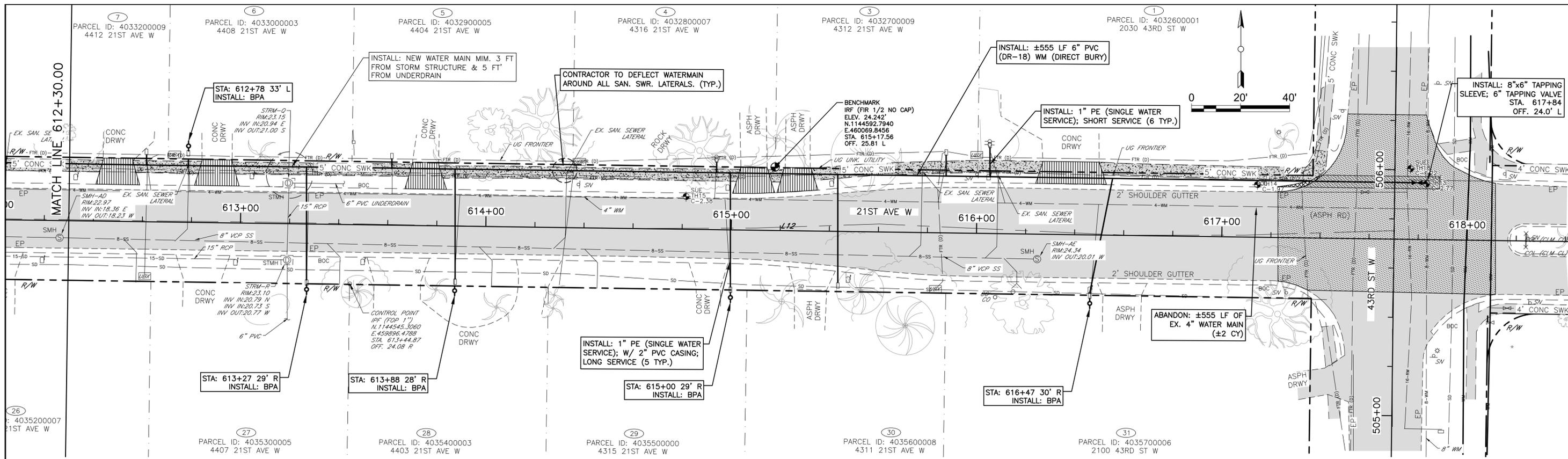
NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-606+10-612+30

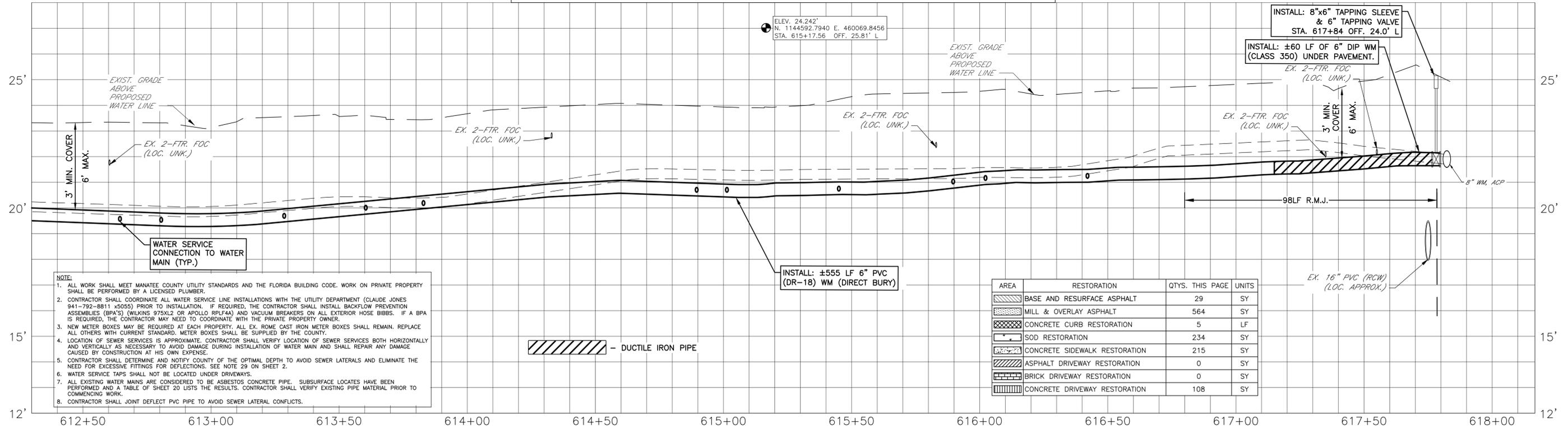


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 LICENSE No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 Signature: _____ Date: _____



21ST AVE W STA: 612+30 to 618+17



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AREA	RESTORATION	QTY. THIS PAGE	UNITS
[Pattern]	BASE AND RESURFACE ASPHALT	29	SY
[Pattern]	MILL & OVERLAY ASPHALT	564	SY
[Pattern]	CONCRETE CURB RESTORATION	5	LF
[Pattern]	SOD RESTORATION	234	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	215	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	108	SY

NO.	REVISION DESCRIPTION	BY	DATE

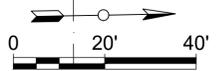
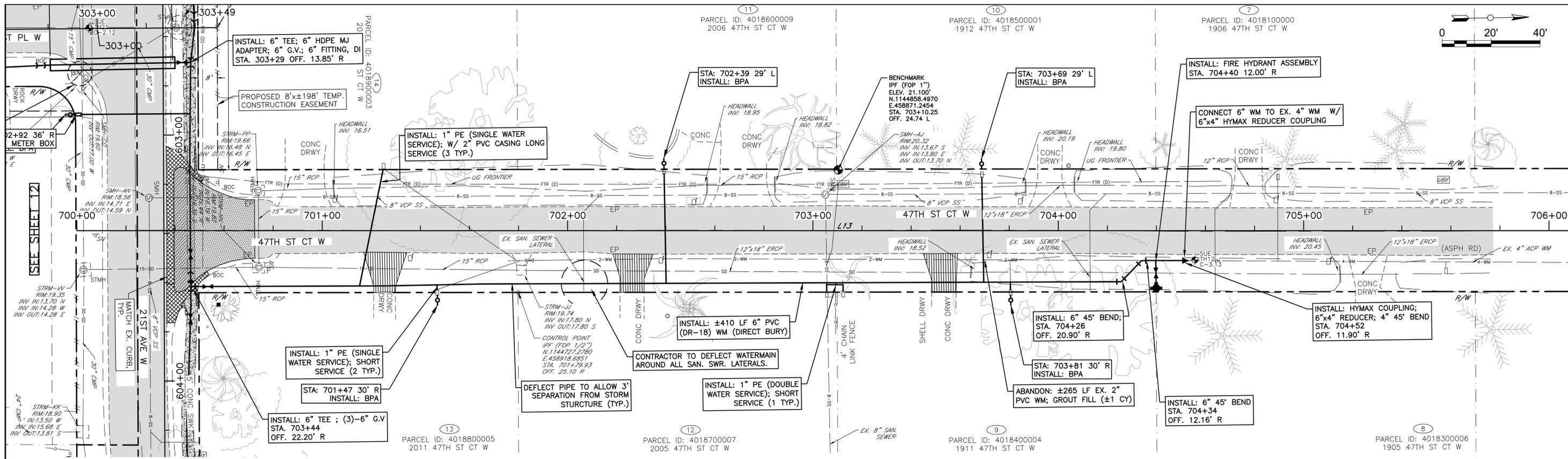
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-612+30-618+17



PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 SHEET 14 OF 22

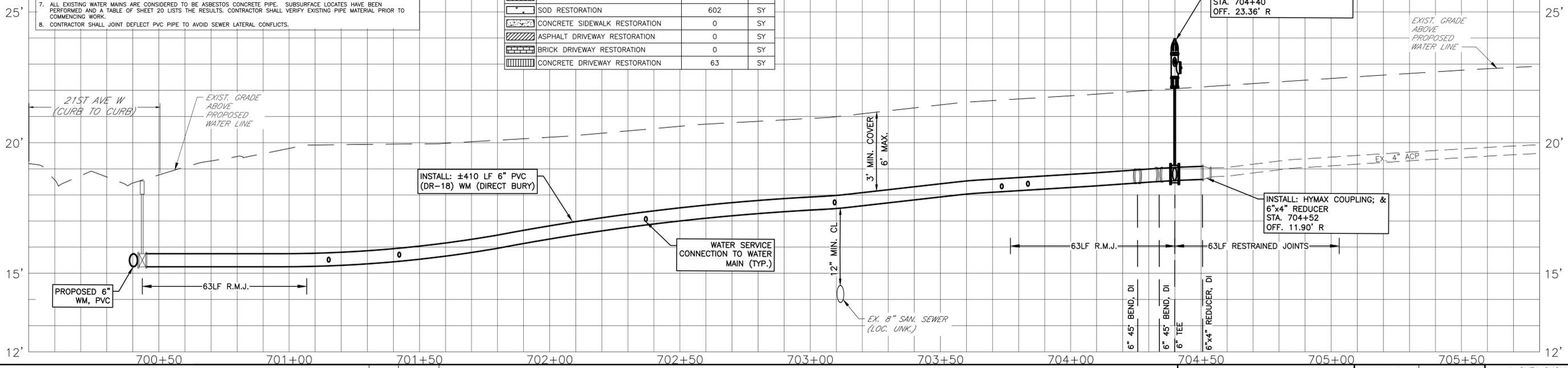
S:\P\02_Engineering\Shoun\21st Ave W Upgrade\DWG\21st Ave W Upgrade.dwg, 14, 5/2/2018 3:12 PM Bruce Robertson, 1:1, ANSI full bleed D (34.00 x 22.00 inches)



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47TH ST CT W (1) STA: 700+00 to 705+80

AREA	RESTORATION	QTY. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	0	SY
	MILL & OVERLAY ASPHALT	0	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	602	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	63	SY



NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

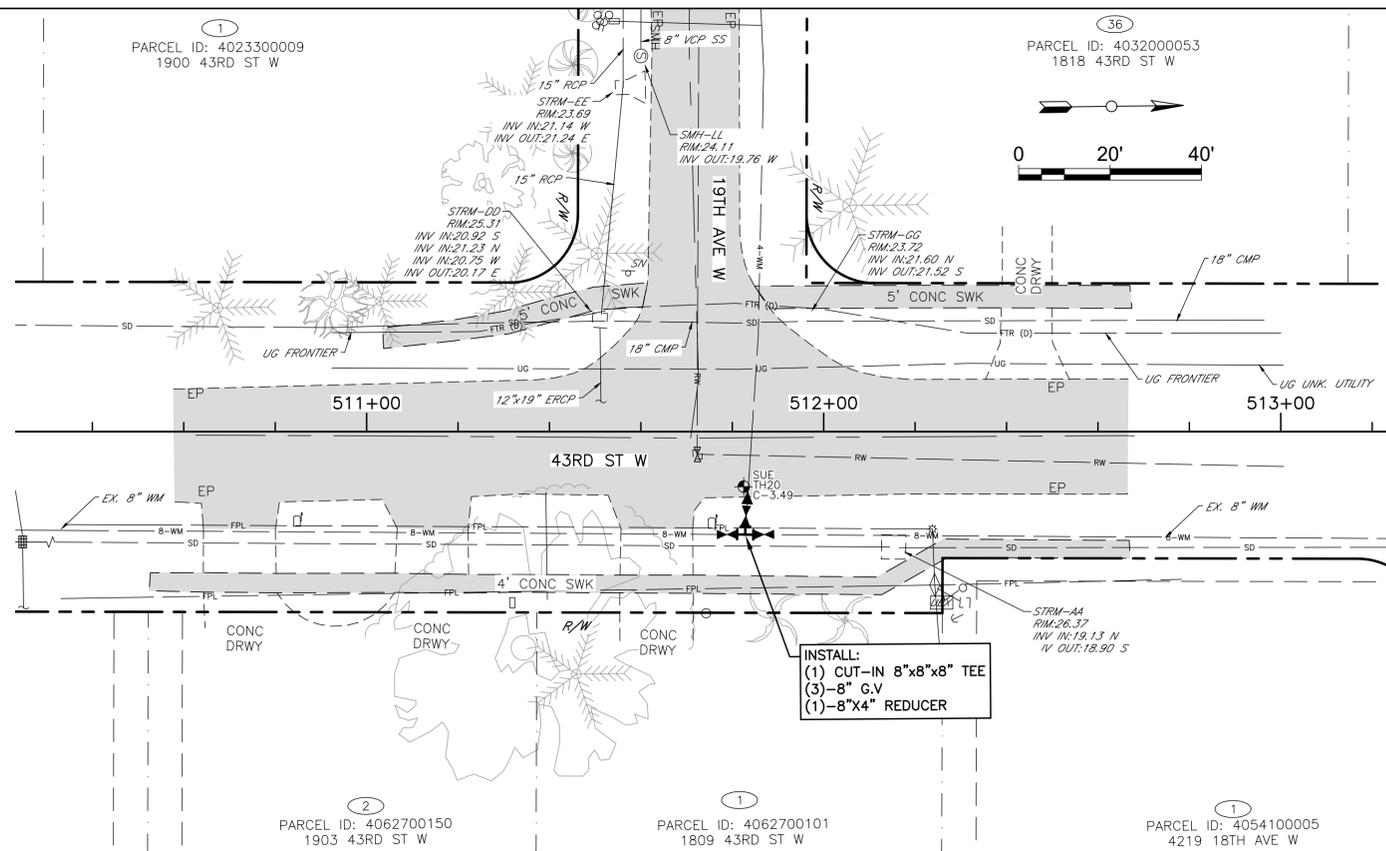
PLAN & PROFILE

47TH ST CT W-700+00-705+80

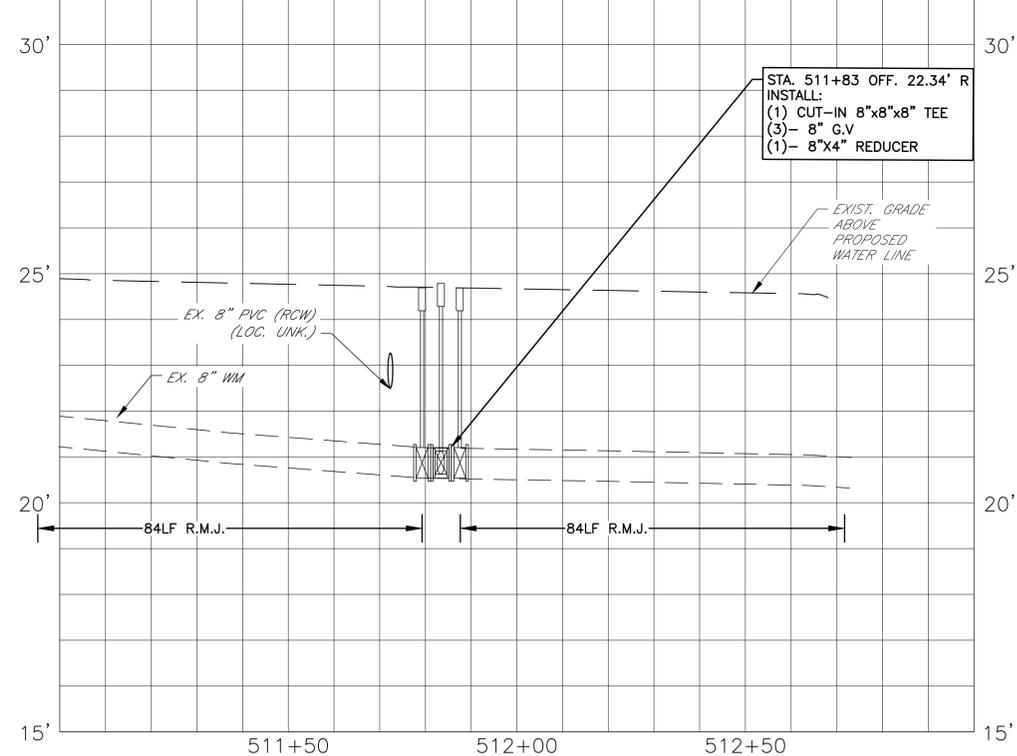


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 LICENSE NO. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 3/16/19



43RD ST W STA: 511+00 to 513+00



AREA	RESTORATION	QTY. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	51	SY
	MILL & OVERLAY ASPHALT	332	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	30	SY
	CONCRETE SIDEWALK RESTORATION	4	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	0	SY

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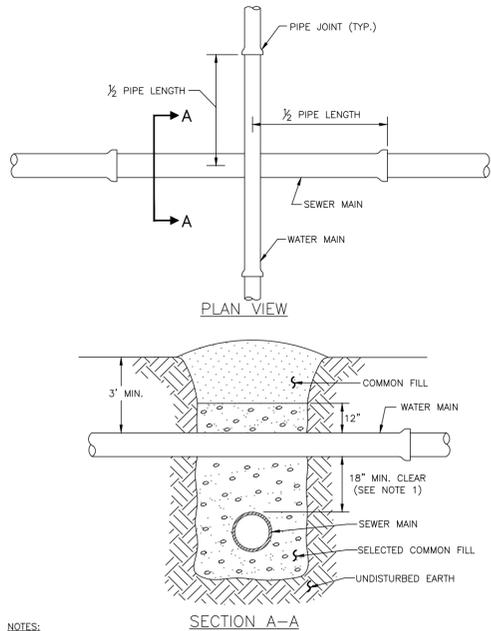
**WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
43RD ST W-511+00-513+00**



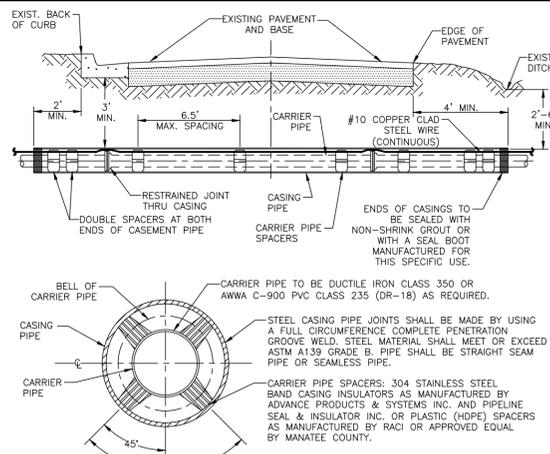
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
60923
No. 60923
STATE OF FLORIDA
PROFESSIONAL ENGINEER
& Date

S:\P\02_Engineering\Shoun\JSH\Eng Design\PROG\WTR Line Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\WTR Line\Woods.dwg, 16: 07/27/2019 3:12 PM Bruce Robertson, 1:1, ANSI full bleed D (34.00 x 22.00 inches)



- NOTES:**
- CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON OR 3" FOR FORCE MAIN WHERE FORCE MAIN IS ENCASED A MINIMUM OF 10' EACH SIDE OF CROSSING.
 - WHERE NO ENCASEMENT IS REQUIRED, PIPE SECTIONS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY SO THAT THE CROSSING IS AT EACH PIPE SECTION'S MIDPOINT REGARDLESS OF THE VERTICAL CLEARANCE.
 - REFER TO THE CASING CROSSING DETAIL FOR CASING AND SPACER REQUIREMENTS.



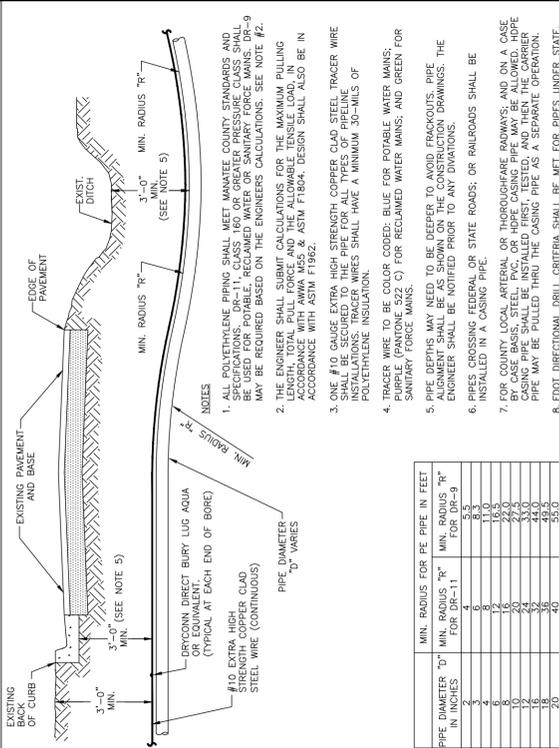
STEEL CASING SIZES

CARRIER	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	12"	14"	16"	20"	24"	30"	30"	36"	36"
CASING / WALL THICKNESS	0.188	0.188	0.250	0.250	0.344	0.406	0.406	0.406	0.406

PVC/HDPE CASING SIZES

CARRIER	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	8"	12"	16"	20"	24"	30"	30"	36"	36"

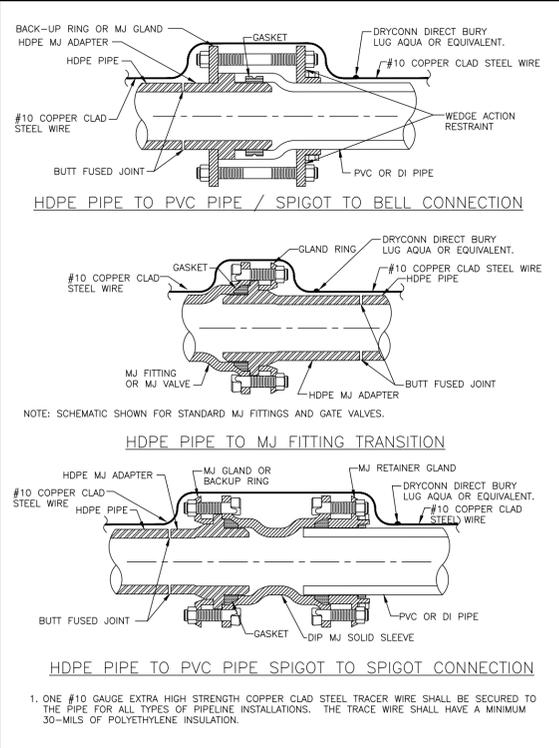
- NOTES:**
- THE ENGINEER OF RECORD MAY SELECT A LARGER CASING DIAMETER, INCREASE WALL THICKNESS, AND/OR INCREASE DEPTH OF BURY DUE TO EXTERNAL LOADS.
 - ALL PIPES CROSSINGS OF FEDERAL OR STATE ROADS; OR RAILROADS SHALL BE INSTALLED IN A CASING PIPE OR SHALL BE DUCTILE IRON PIPE.
 - ALL PIPES CROSSINGS OF COUNTY LOCAL ARTERIAL AND THOROUGHFARE ROADWAYS SHALL BE IN A CASING PIPE OR SHALL BE DUCTILE IRON PIPE.
 - SPLIT-STEEL CASINGS MAY BE USED ON EXISTING COUNTY MAINS.
 - FOR JACK & BORE SPECIFICATIONS UNDER STATE ROADS AND RAILROADS, REFER TO THE F.D.O.T. UTILITY ACCOMMODATION MANUAL, LATEST EDITION.
 - HDPE CASING SHALL HAVE ALL WELD BEADS REMOVED FROM THE INSIDE SURFACE SUCH THAT THE JOINT SURFACES SHALL BE SMOOTH.



MIN. RADIUS FOR PE PIPE IN FEET

PIPE DIAMETER "D"	MIN. RADIUS "R"	MIN. RADIUS "R"
4"	4.0	4.0
6"	6.0	6.0
8"	8.0	8.0
10"	10.0	10.0
12"	12.0	12.0
14"	14.0	14.0
16"	16.0	16.0
18"	18.0	18.0
20"	20.0	20.0
24"	24.0	24.0
30"	30.0	30.0
36"	36.0	36.0
42"	42.0	42.0
48"	48.0	48.0
54"	54.0	54.0
60"	60.0	60.0

- NOTES:**
- ALL POLYETHYLENE PIPING SHALL MEET MANATEE COUNTY STANDARDS AND A FULL CIRCUMFERENCE COMPLETE PENETRATION GROOVE WELD. STEEL MATERIAL SHALL MEET OR EXCEED ASTM A139 GRADE B. PIPE SHALL BE STRAIGHT SEAM PIPE OR SEAMLESS PIPE.
 - THE ENGINEER SHALL SUBMIT CALCULATIONS FOR THE MAXIMUM PULLING LENGTH, TOTAL PULL FORCE, AND THE ALLOWABLE TENSILE LOAD, IN ACCORDANCE WITH AWWA M55 & ASTM F184. DESIGN SHALL ALSO BE IN ACCORDANCE WITH ASTM F1952.
 - ONE #10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE INSTALLED IN A CASING PIPE.
 - TRACER WIRE TO BE COLOR CODED: BLUE FOR POTABLE WATER MAINS; PURPLE (PANTONE 522 C) FOR RECLAIMED WATER MAINS; AND GREEN FOR SANITARY FORCE MAINS.
 - PIPE DEPTHS MAY NEED TO BE DEEPER TO AVOID FRACTURES. PIPE INSTALLATIONS, TRACER WIRES SHALL HAVE A MINIMUM 30-MILS OF POLYETHYLENE INSULATION.
 - PIPES CROSSING FEDERAL OR STATE ROADS; OR RAILROADS SHALL BE INSTALLED IN A CASING PIPE.
 - FOR COUNTY LOCAL ARTERIAL OR THOROUGHFARE ROADWAYS, AND ON A CASE BY CASE BASIS, STEEL, PVC, OR HDPE CASING PIPE MAY BE ALLOWED. HDPE CASING PIPE SHALL BE INSTALLED IN A CASING PIPE AS A SEPARATE OPERATION. PIPE SHALL BE PULLED THROUGH THE CASING PIPE AS A SEPARATE OPERATION.
 - FOR FEDERAL ROADS, OR LOCAL ARTERIALS & THOROUGHFARES, UNDER STATE, FEDERAL, OR LOCAL AGENCIES, REFER TO THE AASHTO M318.1 SPECIFICATION.



- NOTES:**
- ONE #10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE SECURED TO THE PIPE FOR ALL TYPES OF PIPELINE INSTALLATIONS. THE TRACER WIRE SHALL HAVE A MINIMUM 30-MILS OF POLYETHYLENE INSULATION.

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE

MAIN PIPE SIZE	HORIZ. BENDS	TEES			REDUCERS			PLUGS & VALVES		
		90°	45°	22.5°	SIZE	LENGTH	SIZE		LENGTH	
24	90	38	18	24	K24	K20	K16	K12	K10	214
20	78	32	16	20	K20	K16	K12	K10	K8	184
16	66	27	13	16	K16	K12	K10	K8	K6	151
12	52	22	10	12	K12	K10	K8	K6	K4	118
10	44	18	9	10	K10	K8	K6	K4	K3	100
8	37	15	7	8	K8	K6	K4	K3	K2	83
6	29	12	6	6	K6	K4	K3	K2	K1	63
4	21	8	4	4	K4	K3	K2	K1	K0	45

- NOTES:**
- RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
 - ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
 - ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
 - PIPE SIZES ARE GIVEN IN INCHES.
 - RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
 - LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
 - THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON SOIL CLASSIFICATION SP WITH AWWA TYPE 3 TRENCH CONDITIONS, 180 PSI TEST PRESSURE, 3 FEET OF COVER AND 1.5 FACTOR OF SAFETY. ACTUAL BURY CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.
 - RESTRAINED LENGTHS TO BE APPLIED TO PIPELINES PER DETAIL RESTRAINED LENGTHS FOR PIPE.
 - ALL RESTRAINED JOINT HARDWARE SHALL CONFORM TO 1.11.18.E OF THE PUBLIC WORKS UTILITIES STANDARDS MANUAL.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

TYPICAL NEW WATER & SEWER LINE CROSSING UG-2

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

CASING CROSSING UG-3

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

DIRECTIONAL BORE ROADWAY CROSSING UG-4

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

HDPE TO PVC OR DI PIPE ADAPTER UG-6

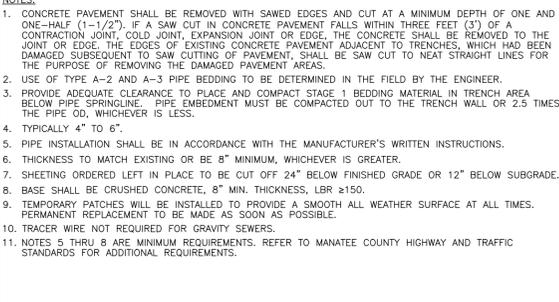
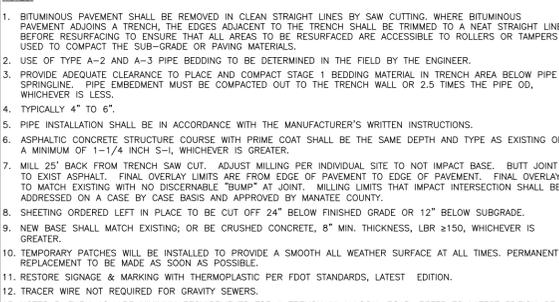
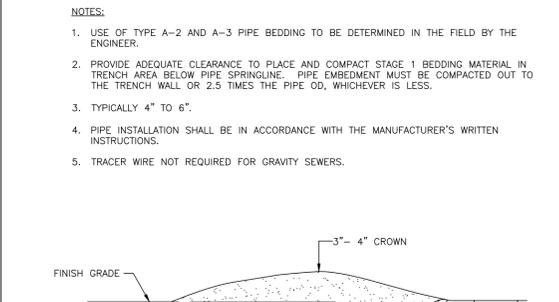
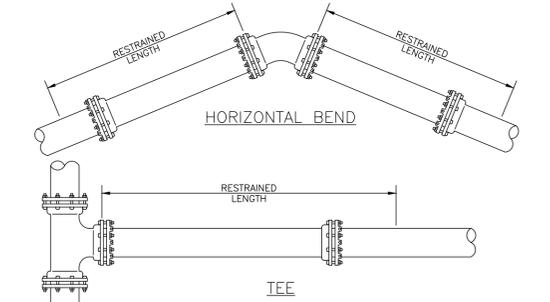
MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

RESTRAINED LENGTHS FOR PVC PIPE UG-8

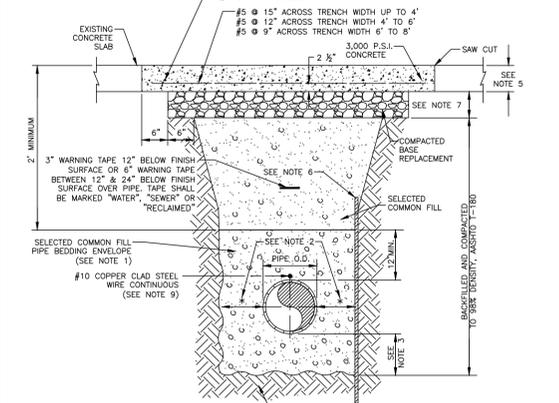
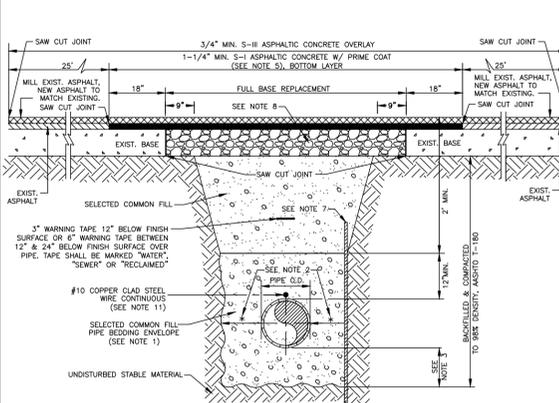
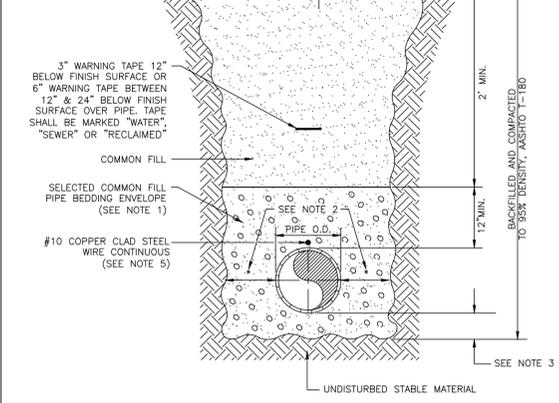
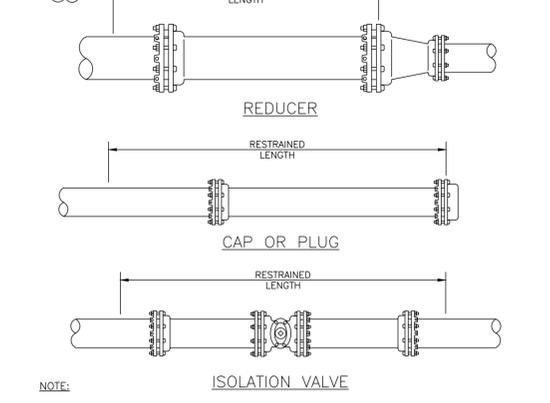
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES			REDUCERS			PLUGS & VALVES		
		90°	45°	22.5°	SIZE	LENGTH	SIZE		LENGTH	
36	142	59	28	36	K36	K30	K24	K18	K12	453
30	124	51	25	30	K30	K24	K18	K12	K10	391
24	106	44	21	24	K24	K20	K16	K12	K10	327
20	92	38	18	20	K20	K16	K12	K10	K8	280
16	77	32	15	16	K16	K12	K10	K8	K6	231
12	61	25	12	12	K12	K10	K8	K6	K4	181
10	52	22	10	10	K10	K8	K6	K4	X4	153
8	44	18	9	8	K8	X6	X4	X3	X2	128
6	34	14	7	6	K6	X4	X3	X2	X1	98
4	24	10	5	4	K4	X3	X2	X1	X0	69



REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES			REDUCERS			PLUGS & VALVES		
		90°	45°	22.5°	SIZE	LENGTH	SIZE		LENGTH	
36	100	42	20	36	K36	K30	K24	K18	K12	188
30	88	37	18	30	K30	K24	K18	K12	K10	162
24	75	31	15	24	K24	K20	K16	K12	K10	135
20	65	27	13	20	K20	K16	K12	K10	K8	116
16	54	22	11	16	K16	K12	K10	K8	K6	96
12	43	18	8	12	K12	K10	K8	K6	X4	75
10	37	15	7	10	K10	X8	X6	X4	X3	63
8	30	13	6	8	K8	X6	X4	X3	X2	53
6	24	10	5	6	K6	X4	X3	X2	X1	41
4	17	7	3	4	K4	X3	X2	X1	X0	29



MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

RESTRAINED LENGTHS FOR DIP UG-9

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

RESTRAINED LENGTHS FOR PIPE UG-10

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING UG-11

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING UG-12

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV. BY: DATE: DATE OF APPROVAL

TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING UG-13

NO.	REVISION DESCRIPTION	BY	DATE

NO.	REVISION DESCRIPTION	BY	DATE

NO.	REVISION DESCRIPTION	BY	DATE

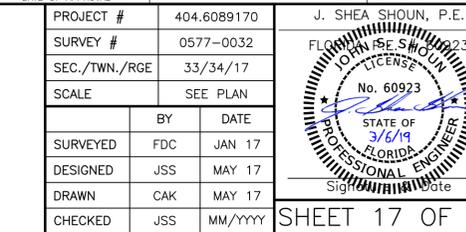
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

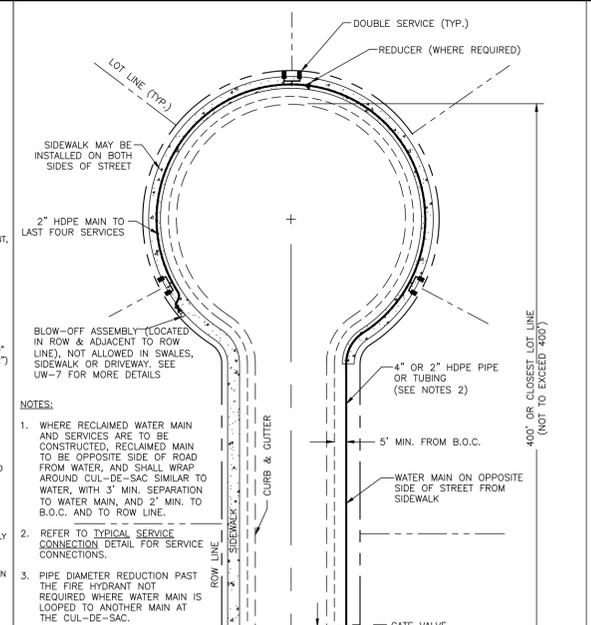
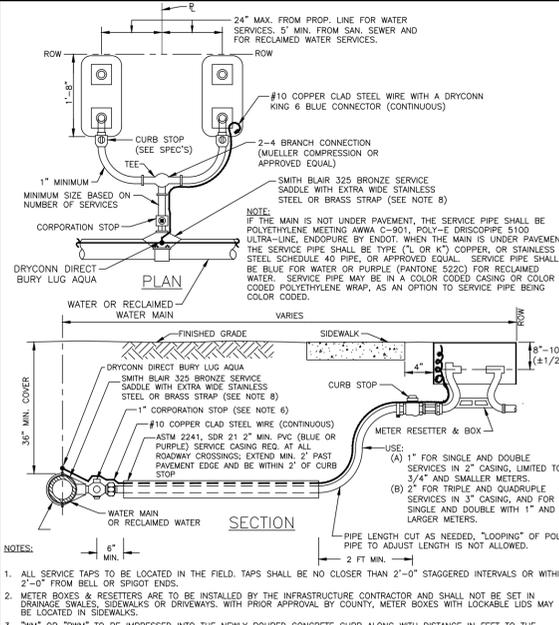
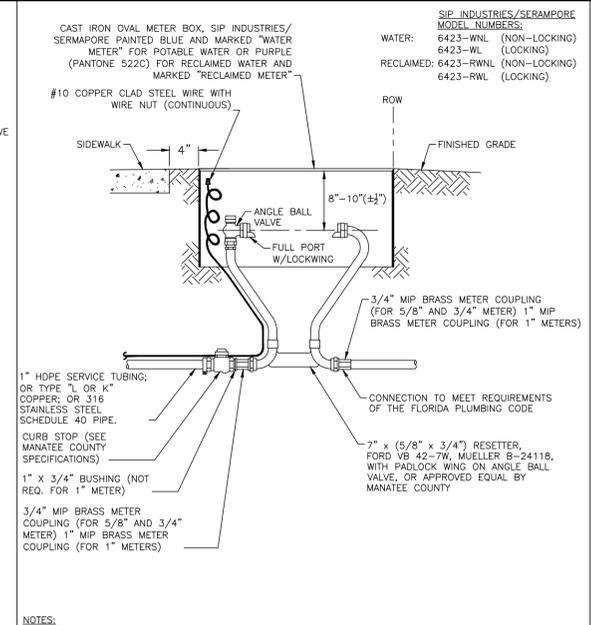
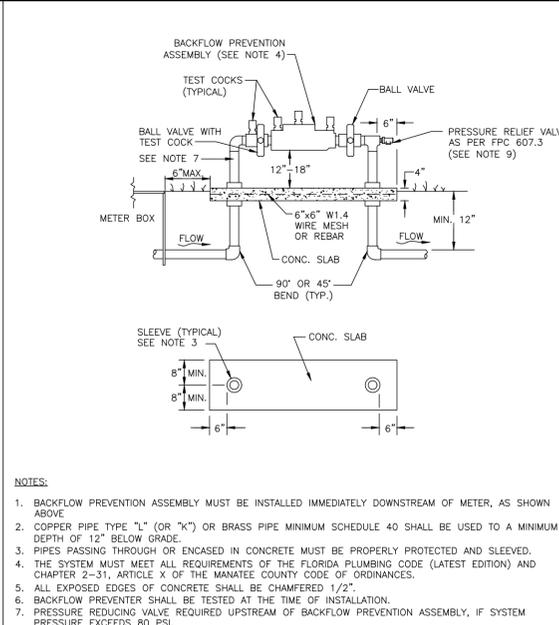
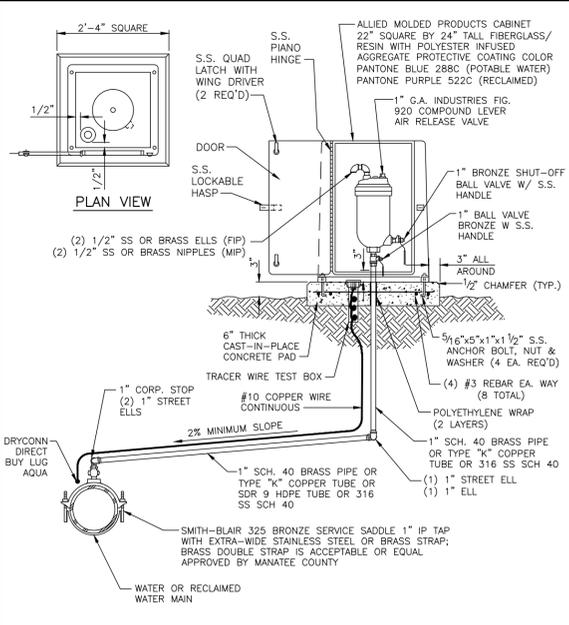
WILLOW WOODS & LAKES ESTATES

WATER MAIN UPGRADE

DETAILS



S:\PMD_Engineering\Shoun\JSH\LINE_Proj\Willow_Woods & Lakes Estates_WM_Upgrade\DWG\UG-9-17-19.dwg 17-09-2019 3:12 PM Bruce Robertson, 111 ANS (full bleed D) (34.00 x 22.00 inches)



- NOTES:**
- AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS ALONG WATER MAINS WHERE SPECIFICALLY INDICATED ON THE PLAN.
 - ARV VENT ORIFICE TO BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR WATER MAIN SIZE.
 - ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL, BRASS OR COPPER.
 - ALL PIPE THREADS TO BE SEALED AIR TIGHT.
 - VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
 - ARV SHALL BE INSTALLED MINIMUM 6 FT FROM EDGE OF PAVEMENT; 10 FT MAXIMUM FROM BACK OF CURB; 4 FT MIN. MAY BE APPROVED BY UTILITIES IN SOME EXISTING AREAS.

- NOTES:**
- BACKFLOW PREVENTION ASSEMBLY MUST BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER, AS SHOWN ABOVE.
 - COPPER PIPE TYPE "L" (OR "K") OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 12" BELOW GRADE.
 - PIPES PASSING THROUGH OR ENCASED IN CONCRETE MUST BE PROPERLY PROTECTED AND SLEEVED.
 - THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND CHAPTER 2-31, ARTICLE X OF THE MANATEE COUNTY CODE OF ORDINANCES.
 - ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
 - BACKFLOW PREVENTER SHALL BE TESTED AT THE TIME OF INSTALLATION.
 - PRESSURE REDUCING VALVE REQUIRED UPSTREAM OF BACKFLOW PREVENTION ASSEMBLY, IF SYSTEM PRESSURE EXCEEDS 80 PSI.
 - 3" MINIMUM CLEARANCE FROM LANDSCAPING PLANTS AND 10' MIN. CLEARANCE FROM TREES TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
 - IN ADDITION TO THE PRV, THE BUILDING DEPT. MAY REQUIRE AN APPROVED DEVICE FOR THERMAL EXPANSION CONTROL DOWNSTREAM OF THE ASSEMBLY.
 - FITTINGS AND CONNECTIONS FOR ABOVE-GROUND INSTALLATIONS SHALL NOT ALLOW ANY MOVEMENT OR ROTATION OF BACKFLOW PREVENTION ASSEMBLY.
 - REFER TO DETAIL WATER METER & BACKFLOW PREVENTER FOR LIET STATIONS FOR WATER SERVICE AT SEWAGE PUMPING STATION.
 - BACKFLOW PREVENTION ASSEMBLIES USED FOR POTABLE APPLICATIONS SHALL BE LEAD FREE AS DEFINED IN THE REDUCTION OF LEAD IN DRINKING WATER ACT, SECTION 1417 OF THE SAFE DRINKING WATER ACT, 42 U.S.C. 3009-6, AS MAY BE AMENDED, AND IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS.

- NOTES:**
- FORD 40 SERIES RESETTERS VB43 AND VB44 OR EQUAL FOR 3/4" OR 1" METERS ALSO ALLOWED.
 - METER BOX AND RESETTER ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR AND SHALL NOT BE SET IN DRAINAGE SWALES, SIDEWALKS OR DRIVEWAYS. WITH PRIOR APPROVAL BY COUNTY, METER BOXES WITH LOCKABLE LIDS MAY BE LOCATED IN SIDEWALKS.
 - FOR COMPLETE SERVICE CONNECTION ASSEMBLY, SEE DETAIL TYPICAL SERVICE CONNECTION.
 - WHEN THE DISTANCE BETWEEN THE EDGE OF THE SIDEWALK AND THE R/W IS ONE FOOT (CUL-DE-SAC W/ MEDIAN) A 10'-FOOT-WIDE PUBLIC UTILITY EASEMENT SHALL BE LOCATED IN THE FRONT OF THE LOTS, ADJACENT TO THE ROW.
 - 3" MINIMUM CLEARANCE FROM LANDSCAPING PLANTS AND 10' MIN. CLEARANCE FROM TREES TO EDGE OF METER, CLEAR ACCESS OPENING TO STREET.

- NOTES:**
- ALL SERVICE TAPS TO BE LOCATED IN THE FIELD. TAPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVALS OR WITHIN 2'-0" FROM BELL OR SPIGOT ENDS.
 - METER BOXES & RESETTERS ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR AND SHALL NOT BE SET IN DRAINAGE SWALES, SIDEWALKS OR DRIVEWAYS. WITH PRIOR APPROVAL BY COUNTY, METER BOXES WITH LOCKABLE LIDS MAY BE LOCATED IN SIDEWALKS.
 - "MM" OR "RM" TO BE IMPRESSED INTO THE NEWLY POURED CONCRETE CURB ALONG WITH DISTANCE IN FEET TO THE METER. IF NO CURB, INSTALL A BLUE DISC WITH "MM" OR A PURPLE DISC WITH "RM" AND A 1/8" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE DISTANCE TO THE METER.
 - #10 COPPER CLAD STEEL COLOR CODED WIRE SHALL BE INSTALLED WITH WATER AND RECLAIMED MAIN AND ALL SERVICES. SERVICE WIRES SHALL BE CONNECTED TO THE TRACER WIRE ALONG THE MAIN, ON DOUBLE SERVICES, WHEN SECOND METER IS OVER 8 FT APART, TWO TRACER WIRES SHALL BE INSTALLED; ONE FOR EACH METER.
 - WATER AND RECLAIMED WATER SERVICE LINES TO BE 5" MINIMUM FROM SEWER SERVICE PIPES.
 - FOR 2" SERVICES REPLACE CORPORATION STOP WITH 2" RESILENT WEDGE PIPE GATE VALVE W/BOX, LID & TAG.
 - WHEN THE DISTANCE BETWEEN THE EDGE OF THE SIDEWALK AND THE ROW IS ONE FOOT (CUL-DE-SAC W/MEDIAN) A 10'-FOOT-WIDE PUBLIC UTILITY EASEMENT SHALL BE LOCATED IN THE FRONT OF THE LOTS, ADJACENT TO THE ROW.
 - FOR HDPE MAINS, USE ROMAC 306H STAINLESS STEEL OR EQUIVALENT SADDLE.
 - TEMPORARY RESIDENTIAL USE CAN BE PROVIDED BY CONTACTING THE UTILITY CUSTOMER SERVICE. SEE DETAIL UW-24.

- NOTES:**
- WHERE RECLAIMED WATER MAIN AND SERVICES ARE TO BE CONSTRUCTED, RECLAIMED MAIN TO BE OPPOSITE SIDE OF ROAD FROM WATER, AND SHALL WRAP AROUND CUL-DE-SAC SIMILAR TO WATER, WITH 3' MIN. SEPARATION TO WATER MAIN, AND 2' MIN. TO B.O.C. AND TO ROW LINE.
 - REFER TO TYPICAL SERVICE CONNECTION DETAIL FOR SERVICE CONNECTIONS.
 - PIPE DIAMETER REDUCTION PAST THE FIRE HYDRANT NOT REQUIRED WHERE WATER MAIN IS LOOPED TO ANOTHER MAIN AT THE CUL-DE-SAC.

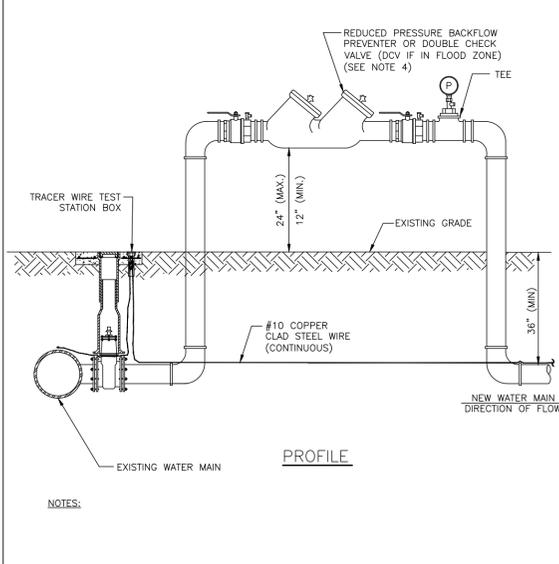
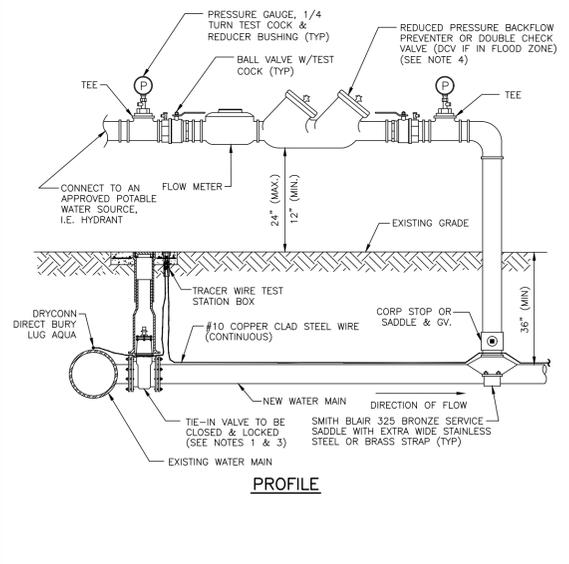
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR 12-INCH AND SMALLER WATER MAINS	UW-9
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		3/4" & 1" BACKFLOW PREVENTER	UW-12
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		METER BOX ASSEMBLY FOR 5/8" x 3/4", 3/4" & 1" METERS	UW-17
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYPICAL SERVICE CONNECTION	UW-19
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CUL-DE-SAC MAINS	UW-20
REV. BY	DATE	DATE OF APPROVAL	



- NOTES:**
- A 2-INCH MIN. TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE POTABLE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS WITH THE FOLLOWING EXCEPTIONS:
 - PROJECTS THAT INCLUDE A PERMANENT BACKFLOW PREVENTER AT THE RIGHT-OF-WAY WHICH IS ADJACENT TO THE EXISTING WATER MAIN;
 - PROJECTS THAT INCLUDE NEW WATER MAINS THAT ARE LESS THAN OR EQUAL TO 18 LINEAR FEET IN LENGTH; OR
 - OTHER PROPOSED CASES THAT ARE APPROVED BY MANATEE COUNTY AND THE CONSTRUCTION DRAWINGS SPECIFICALLY STATE THAT A TEMPORARY JUMPER CONNECTION IS NOT REQUIRED.
 - A TEMPORARY JUMPER SHALL BE USED AND BE CONNECTED TO AN APPROVED POTABLE WATER SOURCE (E.G., EXISTING FIRE HYDRANT, EXISTING MAIN, EXISTING SERVICE TAP OR TANK TRUCK, ETC.) AS SHOWN IN THE STANDARD TEMPORARY JUMPER DETAIL UW-21A. A TEMPORARY JUMPER SHALL BE USED FOR FILLING, FLUSHING AND FOR DISINFECTION OF ANY NEW MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER THE FILLING, FLUSHING, TESTING AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) OR THE FLORIDA DEPARTMENT OF HEALTH (FDH) HAS BEEN OBTAINED.
 - LOCATIONS AND ORIENTATION OF JUMPERS ASSOCIATED WITH CONNECTIONS TO EXISTING WATER MAINS THAT ARE LOCATED UNDER THE ROADWAY PAVEMENT SHALL BE APPROVED ON A CASE-BY-CASE BASIS.
 - PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, LATEST EDITION, UNLESS APPROVED OTHERWISE. THE TAPPING SLEEVE, AND EXTERIOR OF THE EXISTING MAIN TO BE TAPPED, PIPING WITHIN THE JUMPER, AND NEW PIPING SHOWN ON STANDARD TEMPORARY JUMPER DETAIL UW-21A OR UW-21B SHALL BE DISINFECTED BY SPRAYING OR SWABBING PER SECTION 4.6 OF AWWA C651.
 - A SEPARATE AND SUCCESSFUL HYDROSTATIC TEST ON THE NEW SYSTEM SHALL OCCUR BEFORE THE TIE-IN VALVE AND THE CLOSEST DOWNSTREAM GATE VALVE OR BUTTERFLY VALVE BEFORE PERFORMING A HYDROSTATIC TEST ON THE REMAINDER OF THE NEWLY-CONSTRUCTED WATER MAIN. THE TIE-IN VALVE AND THE CLOSEST DOWNSTREAM GATE VALVE OR BUTTERFLY VALVE SHALL BE CLOSED DURING THE HYDROSTATIC TEST OF THE REMAINDER OF THE NEWLY-CONSTRUCTED WATER MAIN.
 - THE JUMPER SHALL INCLUDE A FLOW METER TO ENSURE THAT THE FLOW FROM THE SUPPLY SOURCE IS AT A CONSTANT MEASURED RATE WHILE CHLORINATING THE NEW MAIN. THE CHLORINE CONCENTRATION SHALL BE MEASURED AT REGULAR INTERVALS TO ENSURE THAT IT IS FED AT A CONSTANT RATE OF NOT LESS THAN 25 MILLIGRAMS PER LITER (MG/L) OF FREE CHLORINE.
 - THE JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI IN THE NEW MAINS CONTINUOUSLY AFTER DISINFECTION AND UNTIL FDEP/FDH CLEARANCE LETTER IS OBTAINED.
 - ALL TEMPORARY BACKFLOW DEVICES OR "JUMPERS" UTILIZED DURING PIPELINE CONSTRUCTION MUST SHOW CERTIFICATION THAT THEY HAVE BEEN TESTED ANNUALLY ACCORDING TO THE FLORIDA BUILDING CODE, PLUMBING SECTION, CHAPTER 3, SECTION 312.9.1, 312.9.2, CHAPTER 6, SECTION 608, AND RESOLUTION R87-125. ANNUAL CERTIFICATION MUST BE VALID AT TIME OF INSTALLATION AND PROVIDED TO THE MANATEE COUNTY INSPECTOR UPON REQUEST.
 - EXCEPT AS REQUIRED TO FLUSH LINES GREATER THAN 6 INCHES IN DIAMETER, THE LOCKABLE TIE-IN VALVE SHALL REMAIN CLOSED AND SHALL BE LOCKED IN THE CLOSED POSITION BY MANATEE COUNTY. THE TIE-IN VALVE SHALL REMAIN CLOSED AND LOCKED UNTIL THE NEW SYSTEM HAS BEEN CLEARED FOR USE BY THE FDEP/FDH AND ALL OTHER PERTINENT AGENCIES.
 - AFTER RECEIPT OF CLEARANCE FOR USE BY FDEP/FDH, MANATEE COUNTY, AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE TEMPORARY JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2-INCH BRASS.
 - ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION DEVICE, FLOW METER, FITTINGS, VALVES, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - TEMPORARY JUMPER SIZE DEPENDS ON THE SITUATION; JUMPERS LARGER THAN 2" MAY BE USED FOR FLUSHING PURPOSES OR IF PARTIAL FIRE PROTECTION IS REQUIRED DURING INITIAL CONSTRUCTION, AS DETERMINED BY THE EOR OR FIRE DEPARTMENT.

- NOTES:**
- FOR TIE-IN VALVE, SEE DETAIL UW-4 FOR TAPPING SLEEVE VALVE, DETAIL UW-2 FOR GATE VALVE AND DETAIL UW-3 FOR BUTTERFLY VALVE.
 - CORPORATION STOP CONNECTIONS TO WATER MAINS SHALL BE AT A SUFFICIENT DISTANCE FROM NEW TAPPING SLEEVE & VALVE (TIE-IN VALVE). ALL CORPORATION STOP TAPS SHALL BE PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP DIAMETERS (WHICHEVER IS LARGER) FROM THE NEW TIE-IN VALVE (TAPPING VALVE & SLEEVE). A CROSS MAY BE INSTALLED IF THE EXISTING WATER MAIN IS NOT LARGER THAN THE NEW WATER MAIN.
 - IF THE EXISTING WATER MAIN IS LOCATED UNDER PAVEMENT OR CLOSE TO THE ROADWAY, BOTH JUMPER CORPORATION STOPS MAY CONNECT TO THE NEW WATER MAIN LOCATED OUTSIDE OF THE PAVEMENT. AN ADDITIONAL GATE VALVE OR BUTTERFLY VALVE SHALL BE INSTALLED AND THE VALVE MAY BE LOCATED AT THE ROW LINE. PIPING AND APPURTENANCES BETWEEN THE EXISTING MAIN AND ISOLATION VALVE AND JUMPER SHALL BE DISINFECTED BY SPRAYING OR SWABBING.
 - BACKFLOW PREVENTER SHALL BE STRUCTURALLY SUPPORTED.
 - SEE DETAIL UW-22 FOR ADDITIONAL JUMPER CONNECTION NOTES.

- NOTES:**
- FOR TIE-IN VALVE, SEE DETAIL UW-4 FOR TAPPING SLEEVE VALVE, DETAIL UW-2 FOR GATE VALVE AND DETAIL UW-3 FOR BUTTERFLY VALVE.
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 - BACKFLOW PREVENTER SHALL BE STRUCTURALLY SUPPORTED.
 - SEE DETAIL UW-22 FOR ADDITIONAL JUMPER CONNECTION NOTES.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION - HYDRANT AVAILABLE	UW-21A
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION - NO HYDRANT AVAILABLE	UW-21B
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION NOTES	UW-22
REV. BY	DATE	DATE OF APPROVAL	

NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

DETAILS

PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA PROFESSIONAL ENGINEER
SEC./TWN./RGE	33/34/17	No. 60923
SCALE	SEE PLAN	DATE 3/6/19
SURVEYED	FDC	JAN 17
DESIGNED	JSS	MAY 17
DRAWN	CAK	MAY 17
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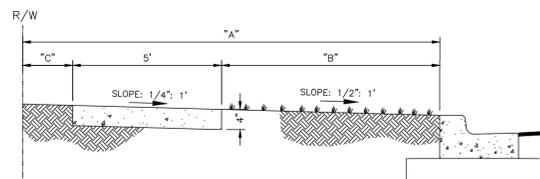
SHEET 19 OF 22

S:\P\02_Engineering_Shoun\019-Eng_Design\PROJ-WTR_LINE_Proj\Willow_Woods & Lakes Estates_WM_Upgrade\DWGS\W-21_Milieu_Notes.dwg, 19, 03/05/2019 3:12 PM Bruce Robertson, 1:1, ANSI full bleed D (34.00 x 22.00 inches)

GENERAL NOTES

- SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE. WHERE SIDEWALK BISECTS A DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS 1 CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH. SEE DETAILS 101.2 & 101.3 OF THE HIGHWAY & TRAFFIC STANDARDS MANUAL.
- ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, CHAPTER 10. A MINIMUM FIVE FOOT (5') WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF FIVE FOOT (5') IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO FDOT DESIGN STANDARDS, LATEST EDITION FOR CURB CUT RAMP SPECIFICATIONS.
- THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT (10') STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE FOOT (5') TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
- EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL AND SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG POOLS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
- CONTRACTION JOINTS:
 - OPEN TYPE JOINTS: OPEN TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.
 - SAMED JOINTS: A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
- SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
- HANDICAP RAMP SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND DETAILS 302.1, 302.2 AND 302.3.
- ALL SIDEWALKS IN RIGHT OF WAY WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR @ 20' LONG, CENTERED, AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.
- DROP OFF HAZARDS SHALL BE PROTECTED PER FDOT PLAN PREPARATION MANUEL, LATEST EDITION. SLOPE SHALL NOT START CLOSER THAN 6" TO SIDEWALK.

NOTE:
FOR COMPLETE SIDEWALK DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 7 AND INDEX 310, SHEETS 1 & 2.



A= BACK OF CURB TO RIGHT OF WAY (VARIES)
B= UNPAVED AREA (VARIES). REFER TO FDOT GREEN BOOK, TABLE 3-12, LATEST EDITION.
C= VARIES; SEE SECTION 401

TYPICAL SIDEWALK LOCATION

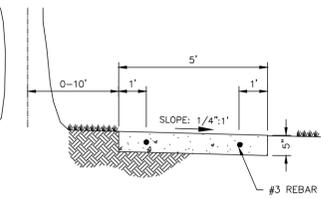


WHERE SIDEWALK ABUTS CURB PROVIDE 1/2" PREFORMED JOINT FILLER SEE NOTE 4 ON DETAIL 301.0

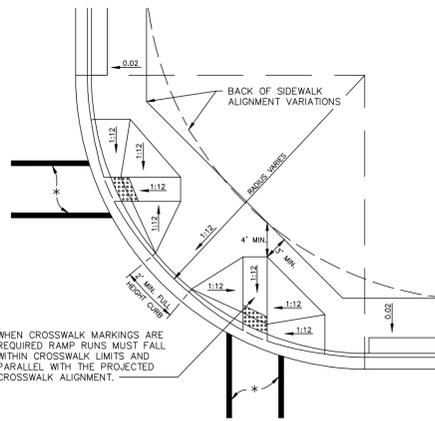
D= SIDEWALK WIDTH SHALL BE 6' STANDARD, WHERE WALK ABUTS TYPE "AB, D, OR F" CURB. WHERE SPEED LIMIT IS 25 MPH OR LESS, WIDTH CAN BE 5'-6".

SEE DETAIL 301.0 "SIDEWALKS GENERAL NOTES" FOR FURTHER INFORMATION

ALTERNATE SIDEWALK LOCATION



SIDEWALK LOCATION CLOSE TO TREES

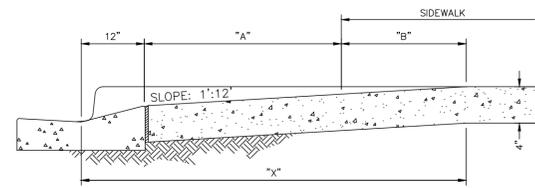


WHEN CROSSWALK MARKINGS ARE REQUIRED RAMP RUNS MUST FALL WITHIN CROSSWALK LIMITS AND PARALLEL WITH THE PROJECTED CROSSWALK ALIGNMENT.

* CROSSWALK WIDTHS AND CONFIGURATION VARY; MUST CONFORM TO FDOT INDEX NO. 17344 AND 17346.

- CURB CUT RAMP ARE TO BE LOCATED AS SHOWN ON PLANS.
- SEE DETAIL 301.0 "SIDEWALKS GENERAL NOTES" & DETAIL 302.2 "HANDICAPPED RAMP SHEET 2" FOR FURTHER REQUIREMENTS.
- RADIUS OF CURB VARIES AS FOLLOWS:
 - A) 25' RAD. LOCAL STREET WITH ALLEY.
 - B) 25' RAD. LOCAL STREET WITH LOCAL STREET.
 - C) 35' RAD. LOCAL STREET WITH THOROUGHFARE OR COLLECTOR.
 - D) 50' RAD. THOROUGHFARE WITH THOROUGHFARE
- CURB RADIUS SHOULD BE A MINIMUM OF 50' WHERE INDUSTRIAL AND BUS TRAFFIC (5% OR MORE) IS ANTICIPATED ON LOWER CLASSIFICATION ROADWAYS.
- BOTH LOCATION OPTIONS FOR HANDICAPPED RAMP ARE SHOWN. ENGINEER MAY SELECT EITHER, WHICHEVER FITS THE SITUATION.

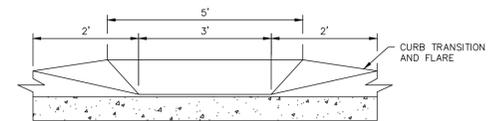
NOTE:
FOR COMPLETE HANDICAP, PUBLIC SIDEWALK AND CURB RAMP DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 6.



SECTION A-A
(SEE SHEET 301.0)

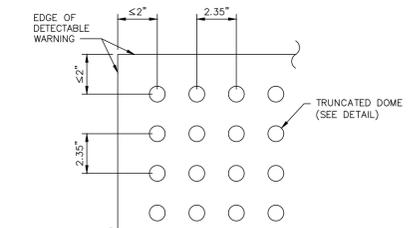
S.W. = SIDEWALK "A" S.W. + A + 10" "X" "B"

5'	0	5.8'	5.8'	5'
6'	0	6.8'	6.8'	6'
7'	0	7.8'	7.3'	6.5'
8'	0	8.8'	7.3'	6.5'
5'	2.5'	7.8'	7.8'	5'
5'	2.5'	8.3'	8.1'	4.8'
5'	3'	8.8'	8.2'	4.4'
5'	3.5'	9.3'	8.4'	4.1'
5'	4'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5'	10.8'	9.1'	3.1'

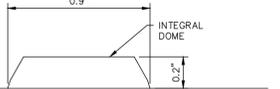


SECTION B-B
(SEE SHEET 301.0)

NOTE:
FOR COMPLETE HANDICAP, PUBLIC SIDEWALK AND CURB RAMP DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 6.



PLAN VIEW



TRUNCATED DOME

CURB RAMP DETECTABLE WARNING DETAIL

NOTES:

DETECTABLE WARNINGS ON WALKING SURFACES

- THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH THE CURB RAMP AND A DEPTH OF 2'.
 - DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCH, A HEIGHT OF NOMINAL 0.2 INCH AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCH AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.
 - THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE CONTACT.
 - THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70% CONTRAST IN PERCENT IS DETERMINED BY:
CONTRAST = $\frac{[(B1-B2)/B1] \times 100}{B1}$
WHERE B1 = LIGHT REFLECTANCE VALUE (LRV) OF THE LIGHTER AREA AND B2 = LIGHT REFLECTANCE VALUE (LRV) OF THE DARKER AREA.
- NOTE THAT IN ANY APPLICATION BOTH WHITE AND BLACK ARE NEVER ABSOLUTE; THUS, B1 NEVER EQUALS 100 AND B2 IS ALWAYS GREATER THAN 0.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SIDEWALKS GENERAL NOTES	301.0	MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SIDEWALK REQUIREMENTS	301.1	MANATEE COUNTY PUBLIC WORKS DEPARTMENT		HANDICAPPED RAMP SHEET 1	302.1	MANATEE COUNTY PUBLIC WORKS DEPARTMENT		HANDICAPPED RAMP SHEET 2	302.2	MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CURB RAMP DETECTABLE WARNINGS	302.3
REV. BY	DATE			REV. BY	DATE			REV. BY	DATE			REV. BY	DATE			REV. BY	DATE		
DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL		DATE OF B.O.C.C. APPROVAL	

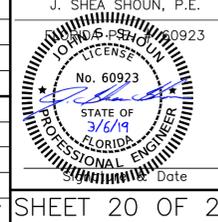
NO.	REVISION DESCRIPTION	BY	DATE

**WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE**

DETAILS



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.	
SURVEY #	0577-0032	60923	
SEC./TWN./RGE	33/34/17	LICENSE	
SCALE	SEE PLAN	No. 60923	
SURVEYED	FDC JAN 17	STATE OF FLORIDA	
DESIGNED	JSS MAY 17	PROFESSIONAL ENGINEER	
DRAWN	CAK MAY 17	3/6/19	
CHECKED	JSS MM/YYYY	Date	



S:\P\02_Engineering\Shoun\JSH\WTR Line Proj\Willow Woods & Lakes Estates\WM Upgrade\DWGS\WTR Line\Woods.dwg, 20_03/05/2019 3:12 PM Bruce Robertson, 1:1 ANS full bleed D (34.00 x 22.00 inches)

Topographic Survey

In Section 32/33, Township 34 South, Range 17 East
Manatee County, Florida

SURVEYOR'S REPORT

THIS INFORMATION WAS EXTRACTED FROM THE SURVEYOR'S REPORT TOPOGRAPHIC SURVEY PROVIDED BY FLORIDA DESIGN CONSULTANTS, INC. JOB NUMBER: 0577-0032 (EPN 736). THE ORIGINAL REPORT AND TOPOGRAPHICAL SURVEY MAY BE REQUESTED.

PROJECT DATUM

HORIZONTAL:

BEARINGS AND COORDINATES (IN U.S. SURVEY FEET) ARE BASED ON THE NATIONAL GEODETIC SURVEY (NGS), STATE PLANE COORDINATES, FLORIDA WEST ZONE, NORTH AMERICAN DATUM 1983/2011 ADJUSTMENT.

CONTROL STATIONS UTILIZED:

- A FOUND 3-1/4" ALUMINUM MANATEE COUNTY DISK STAMPED "M 082", DESIGNATED BY NGS AS "M 082", PID=AG9187 (NORTHING=1,143,106.22, EASTING=462,931.59);
- ALL AS PUBLISHED BY THE NATIONAL GEODETIC SURVEY WEB SITE. (<http://www.ngs.noaa.gov>)

VERTICAL:

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988 ADJUSTMENT (NAVD 88).

CONTROL BENCHMARK UTILIZED:

- A FOUND BRADENTON DISK IN CONCRETE STAMPED "COB 1026 2010", DESIGNATED "COB 1026" BY NGS, PID = D06910, ELEVATION = 22.93 FEET (NAVD 88).
- A FOUND BRADENTON DISK IN CONCRETE STAMPED "COB 1025 2010", DESIGNATED "COB 1025" BY NGS, PID D06909, ELEVATION = 23.93 FEET (NAVD 88).

ALL AS PUBLISHED BY THE NATIONAL GEODETIC SURVEY WEB SITE. (<http://www.ngs.noaa.gov>)

CONVERSION FACTOR:

ADD 0.98 FEET TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM, 1929 ADJUSTMENT (NGVD 29). CONVERSION CALCULATED UTILIZING VERTCON (VERSION 2.0).

CONSTRUCTION BASELINE HORIZONTAL CONTROL TABLE

22ND AVE W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L1	542.16			S89° 23' 00.90"E		100+00.00	1144267.32	457508.49	105+42.16	1144261.48	458050.62
L2	192.30			N81° 08' 24.00"E		105+42.16	1144261.48	458050.62	107+34.46	1144291.10	458240.62
L3	574.40			S89° 13' 48.19"E		107+34.46	1144291.10	458240.62	113+08.86	1144283.38	458814.97
L4	175.67			S79° 18' 47.58"E		113+08.86	1144283.38	458814.97	114+84.53	1144250.81	458987.59
L5	584.82			S89° 10' 22.96"E		114+84.53	1144250.81	458987.59	120+69.35	1144242.37	459572.35
L6	253.22			S79° 46' 36.52"E		120+69.35	1144242.37	459572.35	123+22.56	1144197.42	459821.54
L7	525.40			S89° 26' 02.73"E		123+22.56	1144197.42	459821.54	128+47.96	1144192.23	460346.92
50TH ST W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L8	613.75			N00° 46' 31.84"E		200+00.00	1143673.86	458006.46	206+13.75	1144287.55	458014.77
46TH ST CT W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L9	438.53			N00° 28' 41.27"E		400+00.00	1143835.18	459222.40	404+38.53	1144273.70	459226.06
47TH ST PL W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L10	348.89			N00° 35' 46.38"E		300+00.00	1144257.63	458805.15	303+48.89	1144606.50	458808.78
21ST AVE W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L11	1099.98			S89° 12' 39.63"E		599+00.00	1144589.32	458452.08	609+99.98	1144574.17	459551.96
L12	1046.63			S89° 12' 17.92"E		609+99.98	1144574.17	459551.96	620+46.61	1144559.65	460598.49
47TH ST CT W (1)											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L13	626.16			N01° 03' 09.68"E		700+00.00	1144547.84	458890.28	706+26.16	1145173.89	458901.79
43RD ST W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L14	390.26			N00° 43' 39.20"E		500+00.00	1143991.76	460314.84	503+90.26	1144381.99	460319.79
L15	960.83			N00° 43' 31.97"E		503+90.26	1144381.99	460319.79	513+51.09	1145342.74	460331.96

S.U.E. DATA

TEST HOLE DATA
(OMNI COMMUNICATIONS REPORT, JOB #33-16-034)

TEST HOLE	UTILITY	FIELD MARKING	GROUND EL (FEET)	TOP OF PIPE (FEET)	NOTES PER OMNI REPORT
TH-1	20" DIP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 20" DIP WM C-3.42	20.13	16.71	FOUND 20" DIP WM
TH-2	2" PVC WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 2" PVC WL C-2.63	18.59	15.96	FOUND 2" PVC WM
TH-3	5" ACP WM	APPROXIMATE LOCATION BASED ON OMNI SKETCH. HOME OWNER AT RESIDENCE #4803 REMOVED FIELD MARKINGS	19.43	16.74	FOUND 5" ACP WM
TH-4	4" PVC WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 4" PVC WL C-2.86	18.62	15.76	FOUND 4" PVC WM
TH-5	6" ACP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 6" ACP WL C-2.94	19.31	16.37	FOUND 6" ACP WM
TH-6	4" PVC WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 4" PVC WM C-3.87	20.14	16.27	FOUND 4" PVC WM
TH-7	6" ACP WM	FOUND X-CUT IN CURB W/ LATH MARKED 6" ACP WL C-2.85	19.41	16.56	FOUND 6" ACP WM
TH-8	6" ACP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 6" ACP WM C-3.15	20.44	17.29	FOUND 6" ACP WM
TH-9	1" DB FOC	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 1" DB FOC C-2.35	24.16	21.81	FOUND 1" DB FOC
TH-10	6" ACP WM	FOUND NAIL IN ASPH MARKED 6" ACP WL C-3.20	24.47	21.27	FOUND 6" ACP WM
TH-11	6" PVC WM	FOUND NAIL IN ASPH MARKED 6" PVC WM C-1.89	18.69	16.80	FOUND 6" PVC WM
TH-12	4" ACP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 4" ACP WL C-3.13	21.72	18.59	FOUND 4" ACP WM
TH-13	8" ACP WM	FOUND NAIL IN ASPH MARKED 8" ACP WL C-2.77	25.25	22.48	FOUND 8" ACP WM
TH-14	6" PVC UNK	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 6" PVC UNK C-1.97	24.78	22.81	6" PVC UNK POSSIBLE NPW. DUG WHERE CONFLICT WAS & FOUND 6"
TH-15	4" ACP WL	FOUND X-CUT IN CURB MARKED 4" ACP WL C-2.38	23.24	20.86	FOUND 4" ACP WL
TH-16	4" ACP WL	FOUND NAIL IN ASPH MARKED 4" ACP WL C-2.51	21.77	19.26	FOUND 4" ACP WL
TH-17	4" ACP WL	FOUND NAIL IN ASPH MARKED 4" ACP WL C-3.35	20.75	17.40	FOUND 4" ACP WL
TH-18	16" PVC RWM	FOUND NAIL IN ASPH MARKED 16" PVC NPW C-6.22	25.51	19.29	FOUND 16" PVC NPW
TH-19	16" PVC RWM	FOUND NAIL IN ASPH MARKED 16" NPW C-6.94	24.55	17.61	FOUND 16" PVC NPW
TH-20	4" ACP WL	FOUND NAIL IN ASPH MARKED 4" ACP WL C-3.49	24.48	20.99	FOUND 4" ACP WL
TH-21	3" PVC WL	FOUND NAIL IN ASPH MARKED 3" PVC WL C-2.12	18.26	16.14	FOUND 3" PVC WL

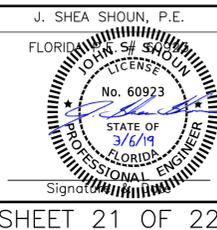
NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

SURVEY CONTROL



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA PROFESSIONAL ENGINEER
SEC./TWN./RGE	33/34/17	No. 60923
SCALE	SEE PLAN	STATE OF FLORIDA
BY	DATE	3/6/19
SURVEYED	FDC	JAN 17
DESIGNED	JSS	MAY 17
DRAWN	CAK	MAY 17
CHECKED	JSS	MM/YYYY



S:\PND_Engineering\Share\Util Eng Design\PROJ-WTR LINE Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\WP-WTR Line\Woods.dwg, 21 - 3/5/2019 3:13 PM Bruce Robertson, 1:1, ANSI full bleed D (34.00 x 22.00 inches)

