



**GENERAL**

- ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT MANAGEMENT DIVISION. THE PROJECT MANAGER IS: JIM RENNEBERG, P.E. AND CAN BE REACHED AT (941)-708-7450 X7220.
- 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 TO 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 SEEDDED 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 BAFFLES 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><b>EXISTING</b></p> <ul style="list-style-type: none"> <li> BENCH MARK</li> <li> CONCRETE MONUMENT</li> <li> IRON PIPE</li> <li> IRON ROD</li> <li> HUB</li> <li> NAIL &amp; DISK</li> <li> ELEVATION</li> <li> PARCEL ID NO.</li> <li> PARCEL ID NO.</li> <li> LOT NO.</li> <li> GUY WIRE</li> <li> POWER POLE</li> <li> LIGHT POLE</li> <li> MAIL BOX</li> <li> SIGN</li> <li> REFLECTOR</li> <li> SPRINKLER</li> <li> GAS MARKER</li> <li> BACKFLOW PREVENTER</li> <li> BLOW OFF VALVE</li> <li> FIRE HYDRANT</li> <li> WATER VALVE</li> <li> AIR RELEASE VALVE</li> <li> WATER METER</li> <li> SANITARY SEWER MANHOLE</li> <li> SANITARY SEWER CLEAN OUT</li> <li> SOIL BORING LOCATION</li> <li> TELEPHONE SERVICE BOX</li> <li> FLOW DIRECTION</li> <li> GRATE INLET</li> <li> MITERED END SECTION</li> </ul>	<p><b>PROPOSED</b></p> <ul style="list-style-type: none"> <li> MAIN</li> <li> SERVICE LINE</li> <li> PROPOSED EASEMENT</li> <li> FIRE HYDRANT</li> <li> VALVE</li> <li> SANITARY SEWER MANHOLE</li> <li> BLOW OFF ASSEMBLY</li> <li> REDUCER</li> <li> TEE</li> <li> HORIZONTAL BEND</li> <li> VERTICAL BEND</li> <li> PLUG</li> <li> MASTER METER ASSEMBLY</li> <li> SERVICE LINE &amp; METER</li> <li> DOUBLE SERVICE</li> </ul>	<p><b>ABBREVIATIONS</b></p> <ul style="list-style-type: none"> <li>R/W RIGHT OF WAY</li> <li>CONC CONCRETE</li> <li>ASPH ASPHALT</li> <li>DRWY DRIVEWAY</li> <li>SWK SIDEWALK</li> <li>EP EDGE OF PAVEMENT</li> <li>BOC BACK OF CURB</li> <li>R.M.J RESTRAINED MECH. JOINT</li> </ul>
--	--	---

<p>MANATEE COUNTY PUBLIC WORKS DEPT. 1701 RINGLING BLVD. SARASOTA, FL 34236 JOHN PLOTT (941) 906-6707 SCOTT MAY, P.E. (941) 708-7450 EXT. 7650 John.Plott@ftr.com FAX: (941) 708-7415</p>	<p>FRONTIER 1253 12TH AVENUE EAST SARASOTA, FL 34240 (941) 342-4030 GREG COKER DAN SHANAHAN FAX: (941) 342-4011 EMERGENCY: 1-877-832-6911</p>	<p>FLORIDA POWER &amp; 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>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>
---	---	--	---	--

NO.	REVISION DESCRIPTION	BY	DATE
1	rev. note 1, project manager name	JSS	6/19

# WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

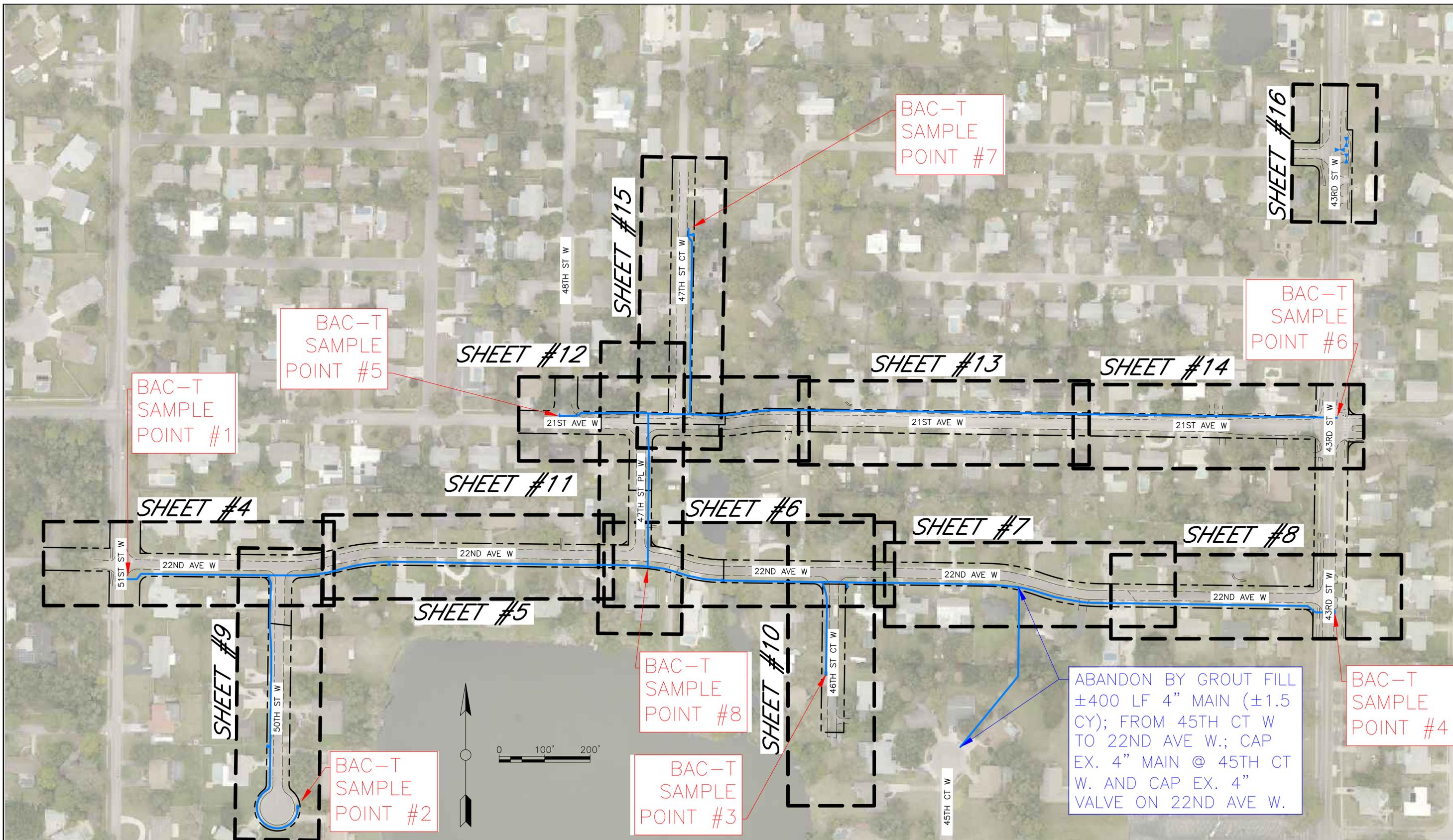
## NOTES



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

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

S:\P\WD\_Engineering-Shoun\Util Eng Design\PROJ-WTR LINE Proj\Willow Woods & Lakes Estates\_WW\_Upgrade\DWGS\1-P\_Willow\_Woods.dwg 07/14/2019 8:49 AM Shea Shoun, P.E. ANSI Full Sheet D (34.00 x 22.00 inches)



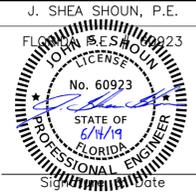
NO.	REVISION DESCRIPTION	BY	DATE

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

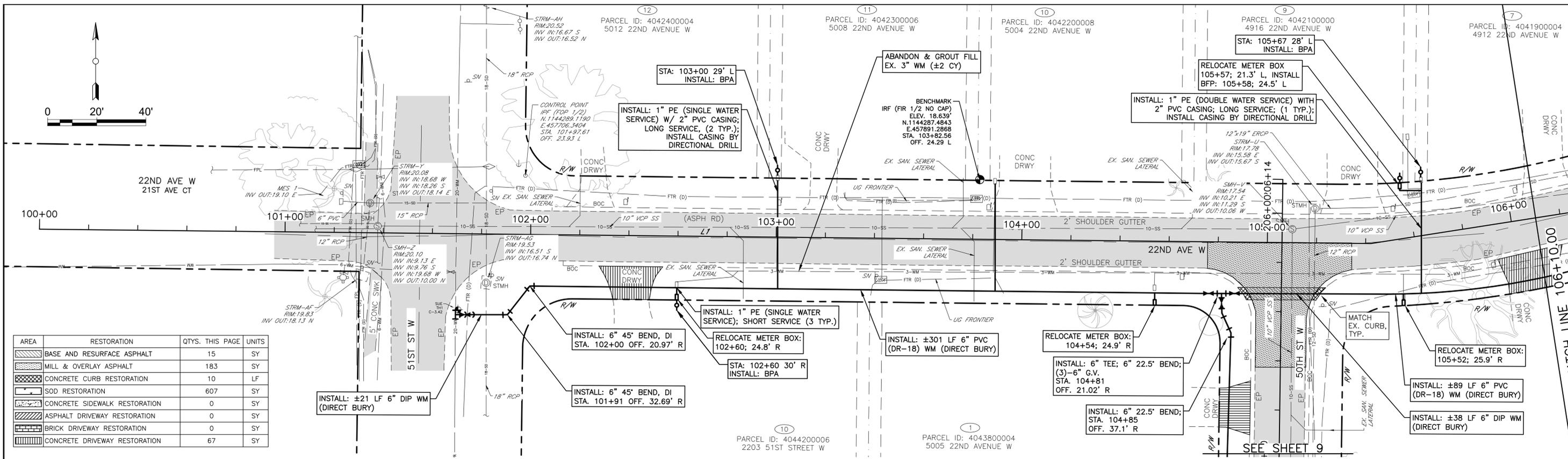
**KEY SHEET**



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

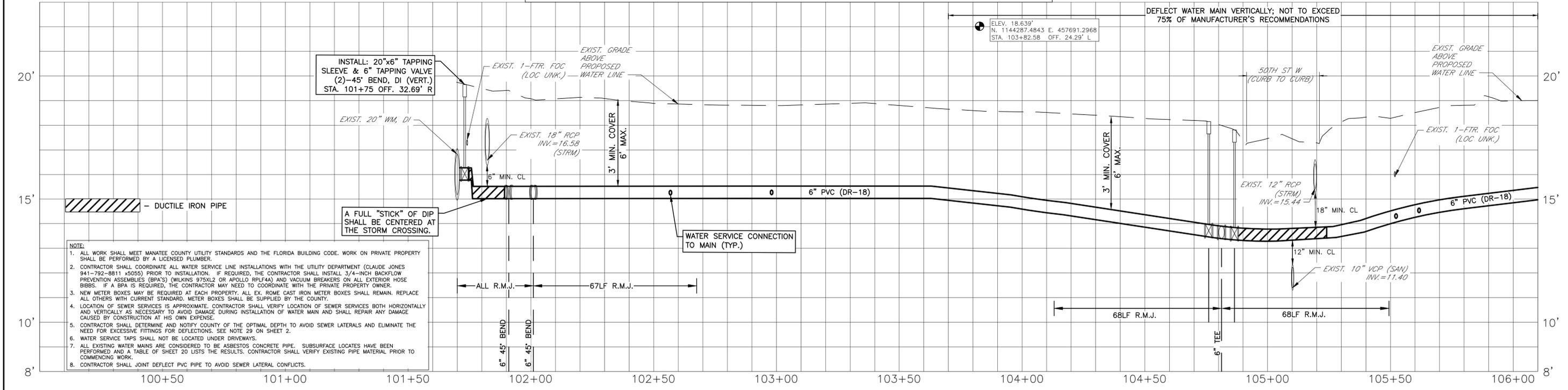


S:\P\02\_Engineering-Shoun\WTR LINE Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\WTR Line\Woods.dwg, 03/14/2019 8:49 AM Shea Shoun, 1:1, ANSI Full bleed D (34.00 x 22.00 inches)



AREA	RESTORATION	QTYs. THIS PAGE	UNITS
[Pattern]	BASE AND RESURFACE ASPHALT	15	SY
[Pattern]	MILL & OVERLAY ASPHALT	183	SY
[Pattern]	CONCRETE CURB RESTORATION	10	LF
[Pattern]	SOD RESTORATION	607	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	0	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	67	SY

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

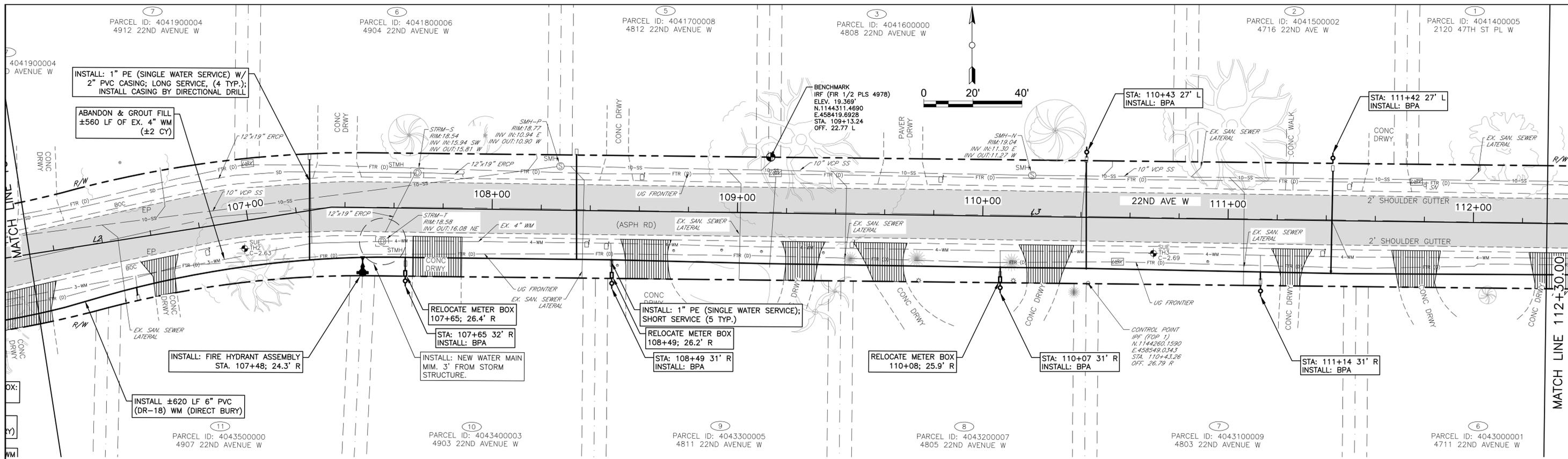


NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2, added DIP under 50th St W	JSS	6/19

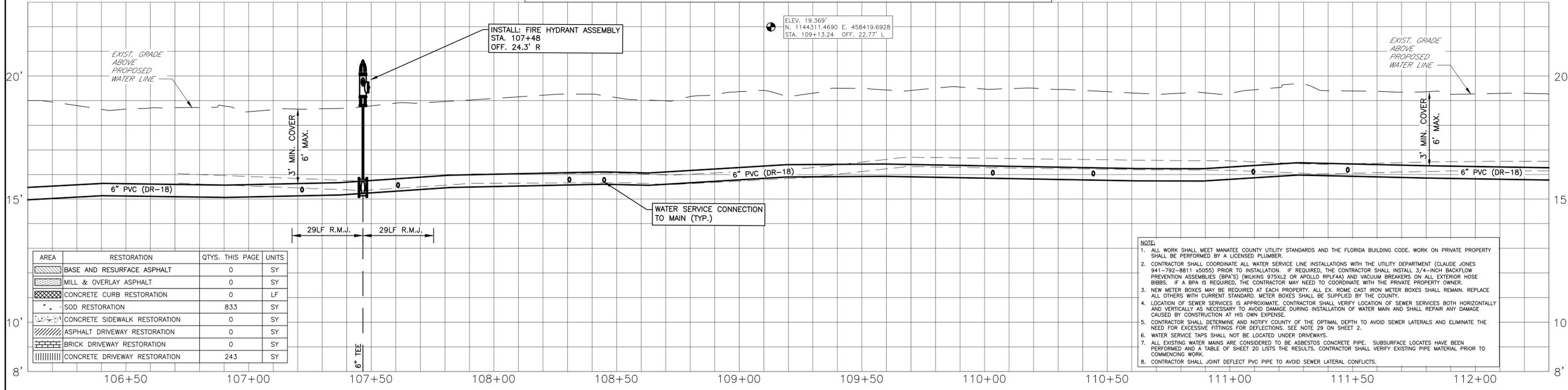
**WILLOW WOODS & LAKES ESTATES**  
**WATER MAIN UPGRADE**  
**PLAN & PROFILE**  
**22ND AVE W-100+00-106+10**



PROJECT #	404.6089170	
SURVEY #	0577-0032	
SEC./TWN./RGE	33/34/17	
SCALE	SEE PLAN	
SURVEYED	FDC JAN 17	SHEET 04 OF 22
DESIGNED	JSS MAY 17	
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	



22ND AVE W STA: 106+10 to 112+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	833	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	0	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	243	SY

- 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.
  - CONTRACTOR SHALL COORDINATE ALL WATER SERVICE LINE INSTALLATIONS WITH THE UTILITY DEPARTMENT (CLAUDE JONES 941-792-8811 x5055) PRIOR TO INSTALLATION. IF REQUIRED, THE CONTRACTOR SHALL INSTALL 3/4-INCH BACKFLOW PREVENTION ASSEMBLIES (BPA'S) (WILKINS 975XL2 OR APOLLO RPLF4A) AND VACUUM BREAKERS ON ALL EXTERIOR HOSE BIBBS. IF A BPA IS REQUIRED, THE CONTRACTOR MAY NEED TO COORDINATE WITH THE PRIVATE PROPERTY OWNER.
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  - CONTRACTOR SHALL JOINT DEFLECT PVC PIPE TO AVOID SEWER LATERAL CONFLICTS.

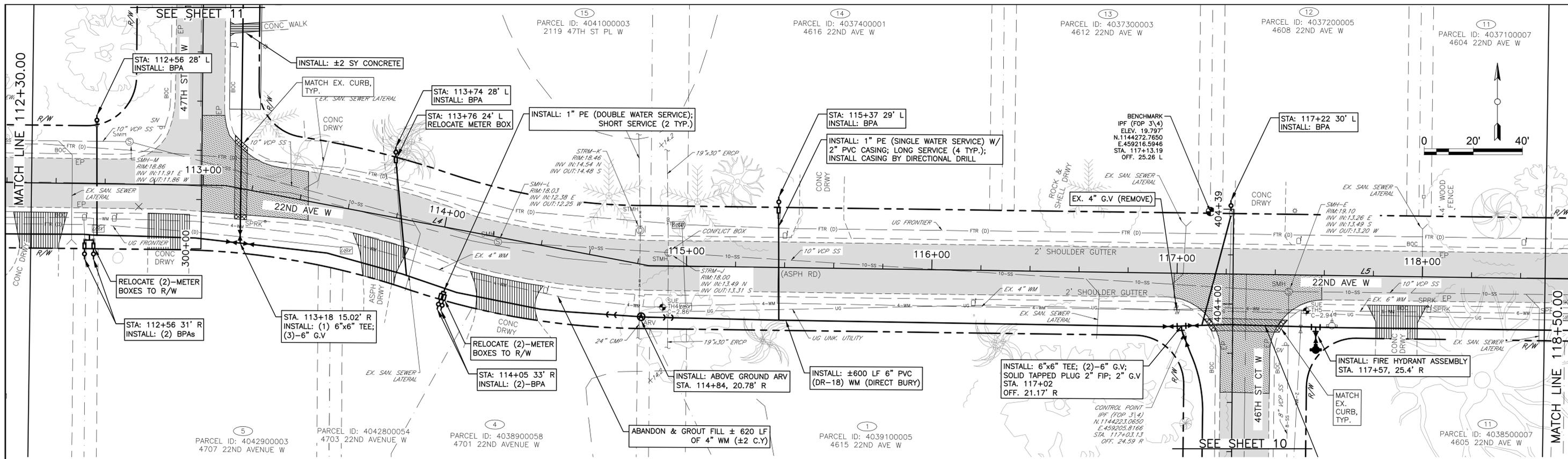
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; lot 11 revised service location	JSS	6/19

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



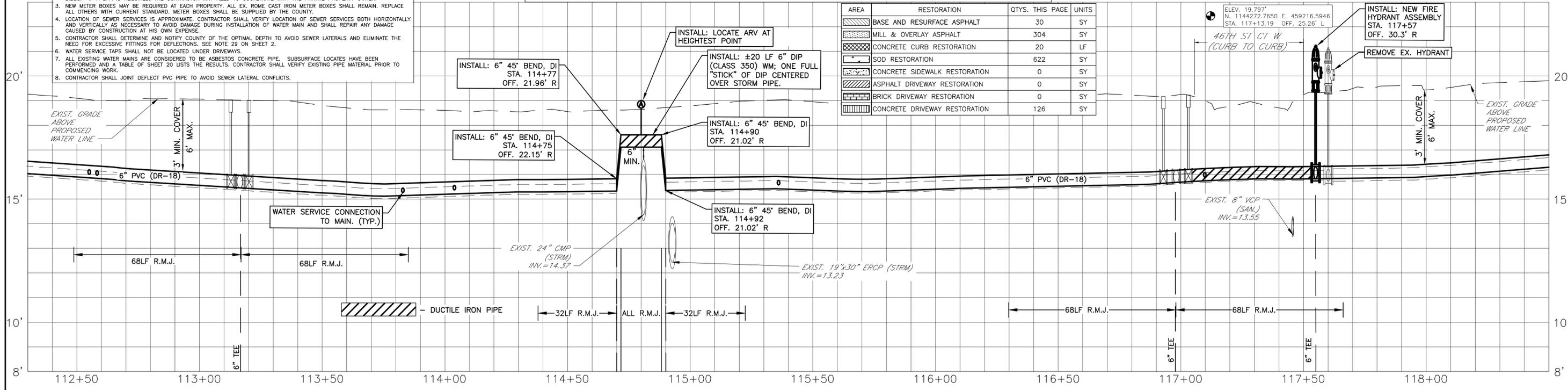
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.  
 No. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 SHEET 05 OF 22



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22ND AVE W STA: 112+30 to 118+50



AREA	RESTORATION	QTY. THIS PAGE	UNITS
[Pattern]	BASE AND RESURFACE ASPHALT	30	SY
[Pattern]	MILL & OVERLAY ASPHALT	304	SY
[Pattern]	CONCRETE CURB RESTORATION	20	LF
[Pattern]	SOD RESTORATION	622	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	0	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	126	SY

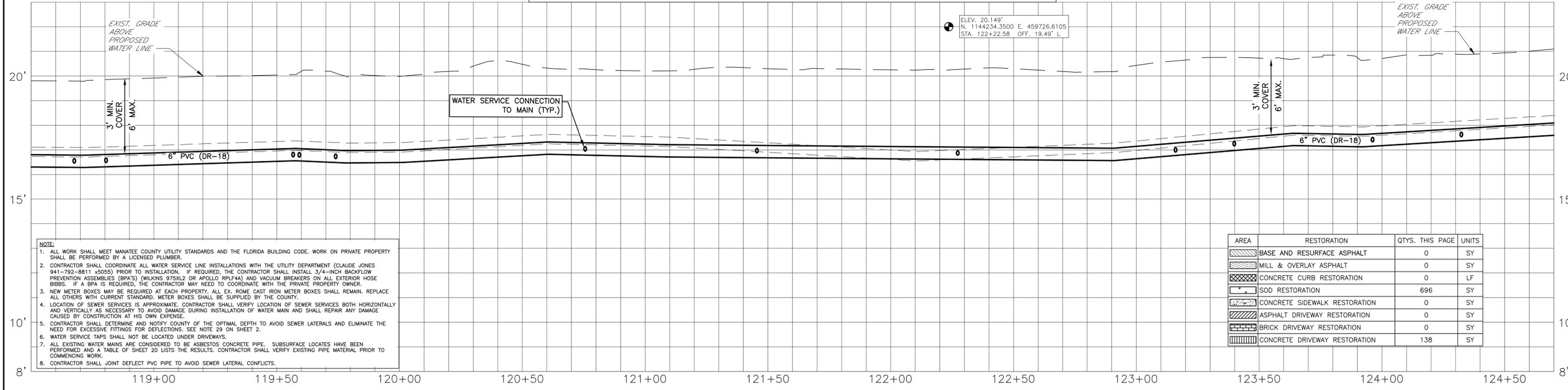
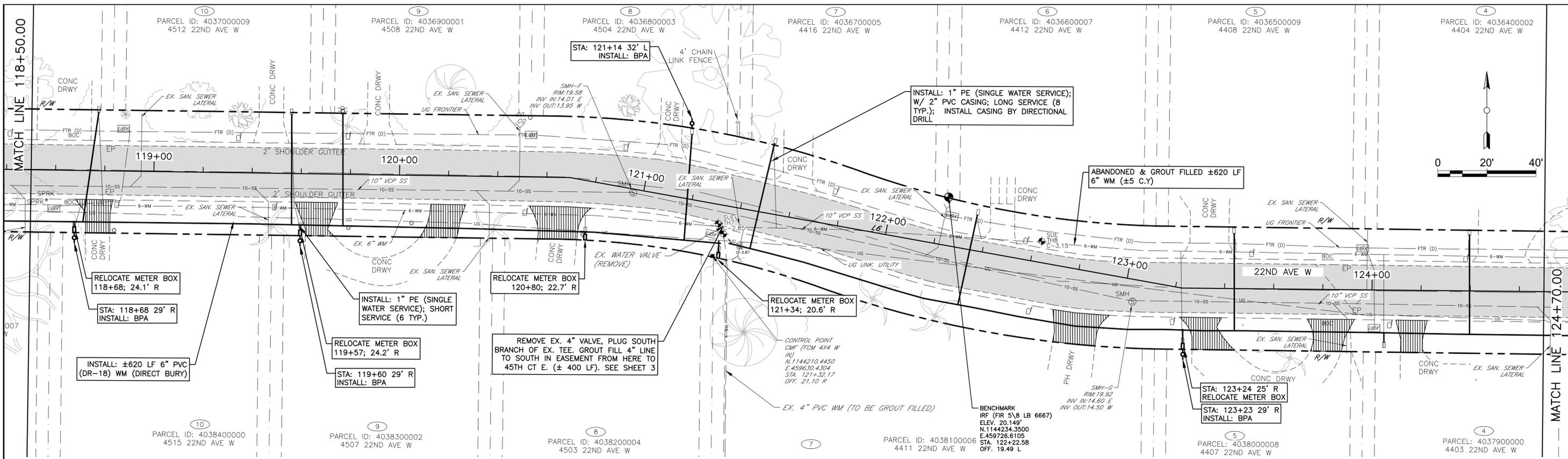
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; added DIP under 46th St Ct W; add BPA Lot 4608	JSS	6/19

**WILLOW WOODS & LAKES ESTATES  
WATER MAIN UPGRADE  
PLAN & PROFILE  
22ND AVE W-112+30-118+50**



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  
 6/14/19



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	696	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	0	SY
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[Pattern]	CONCRETE DRIVEWAY RESTORATION	138	SY

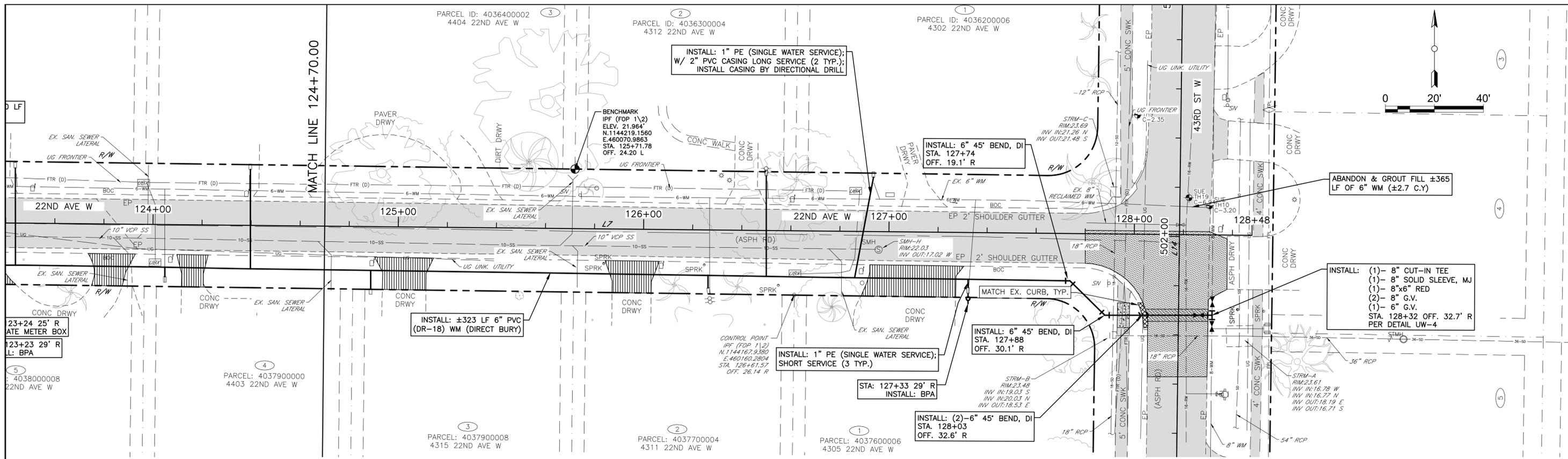
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19

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



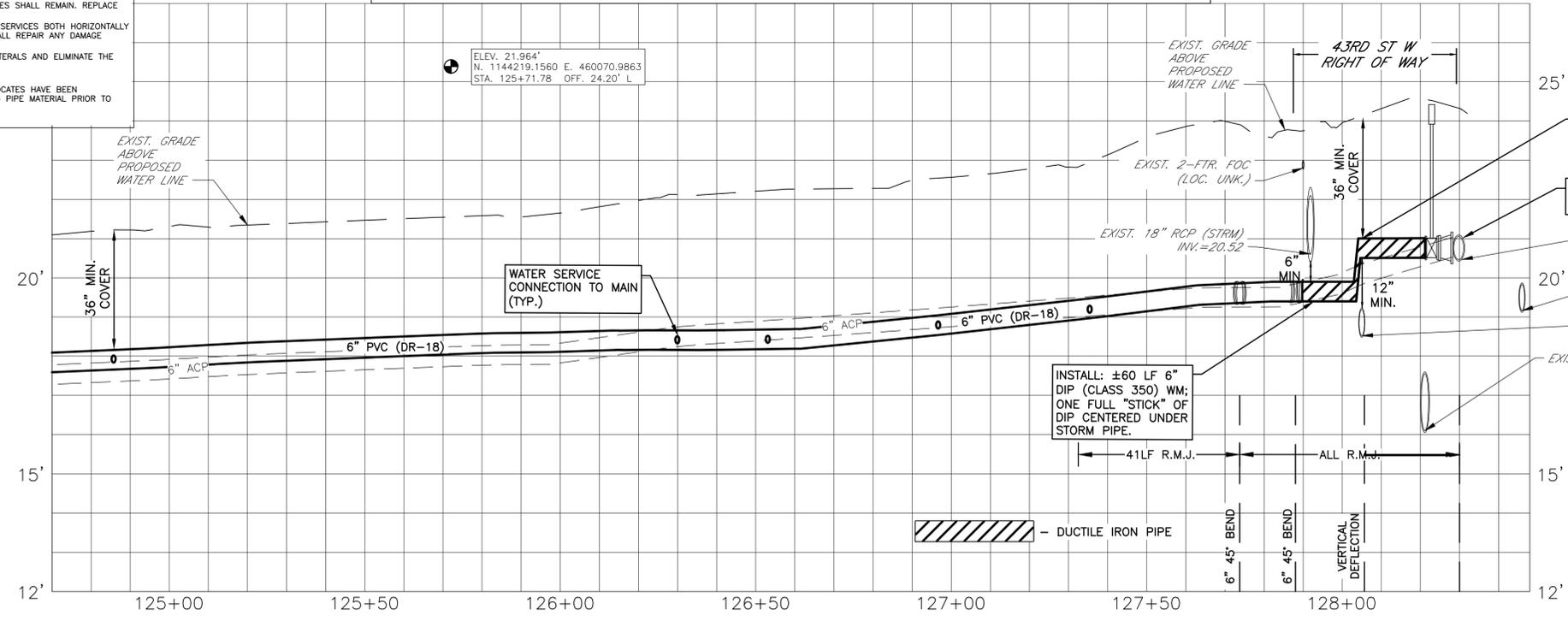
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.  
 LICENSE NO. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 SHEA SHOUN & ASSOCIATES, INC.  
 1111 1st St. SE, Bradenton, FL 34208



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



AREA	RESTORATION	QTY'S. THIS PAGE	UNITS
[Hatched Pattern]	BASE AND RESURFACE ASPHALT	14	SY
[Dotted Pattern]	MILL & OVERLAY ASPHALT	236	SY
[Cross-hatched Pattern]	CONCRETE CURB RESTORATION	10	LF
[Stippled Pattern]	SOD RESTORATION	375	SY
[Horizontal Line Pattern]	CONCRETE SIDEWALK RESTORATION	6	SY
[Vertical Line Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Diagonal Line Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Grid Pattern]	CONCRETE DRIVEWAY RESTORATION	106	SY

NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF; rev. callout for cut-in tee	JSS	6/19

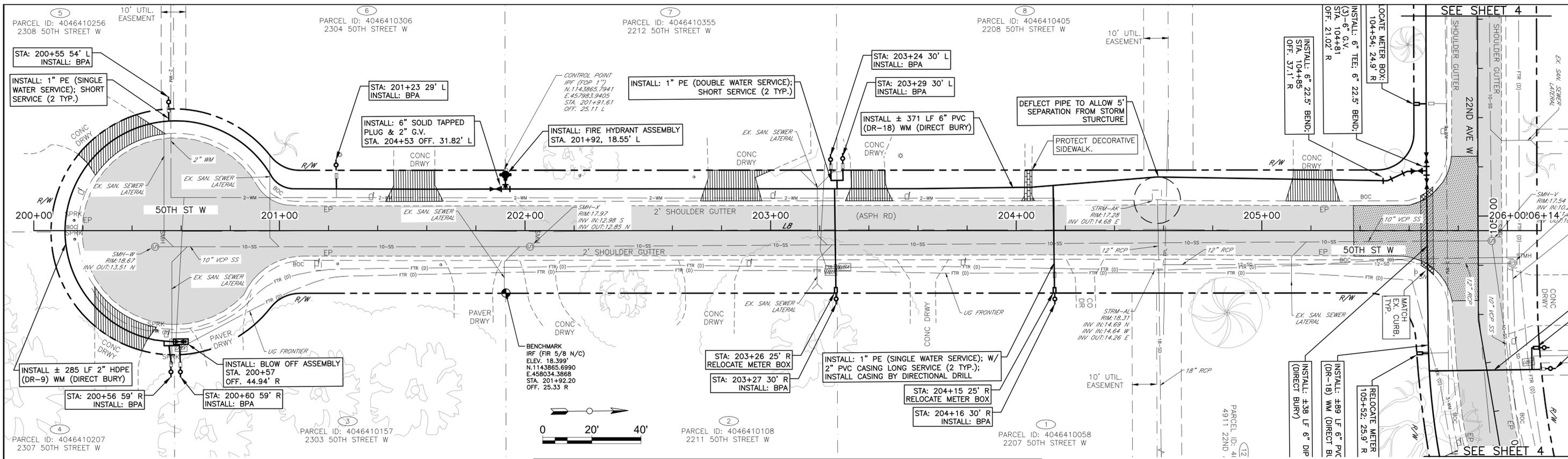
**WILLOW WOODS & LAKES ESTATES**  
**WATER MAIN UPGRADE**  
**PLAN & PROFILE**  
**22ND AVE W-124+70-128+48**



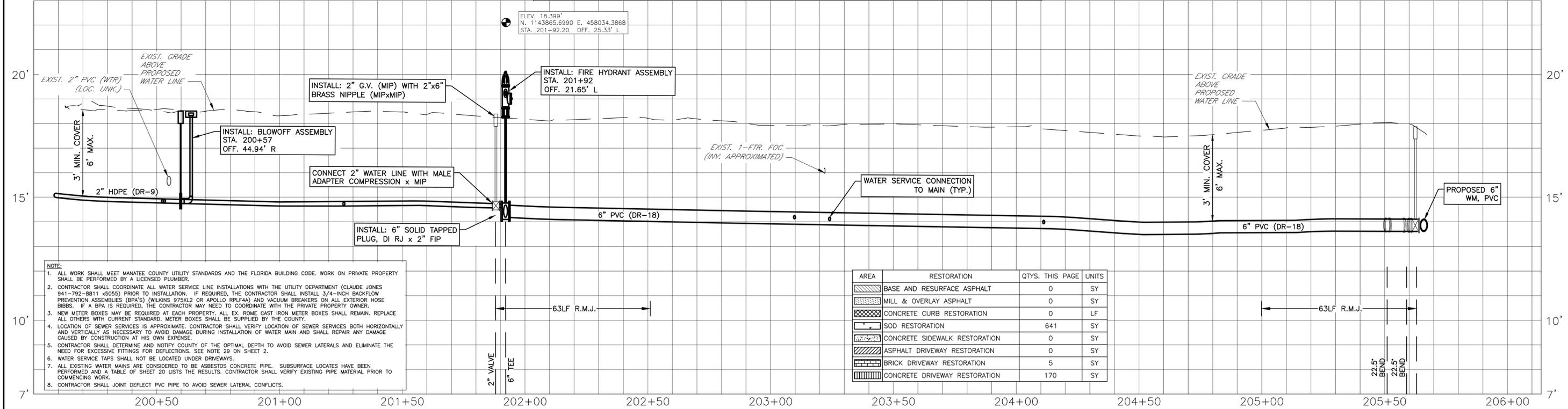
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.  
 No. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 SHEET 08 OF 22

S:\P\2019\Projects\Woods & Lakes Estates\W\Upgrade\DWG\W-22nd Ave W Water Main Upgrade.dwg, 08/14/2019 9:50 AM Shea Shoun, 11. ANSI Full Sheet D (34.00 x 22.00 inches)



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



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1. 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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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

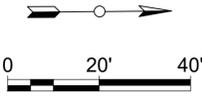
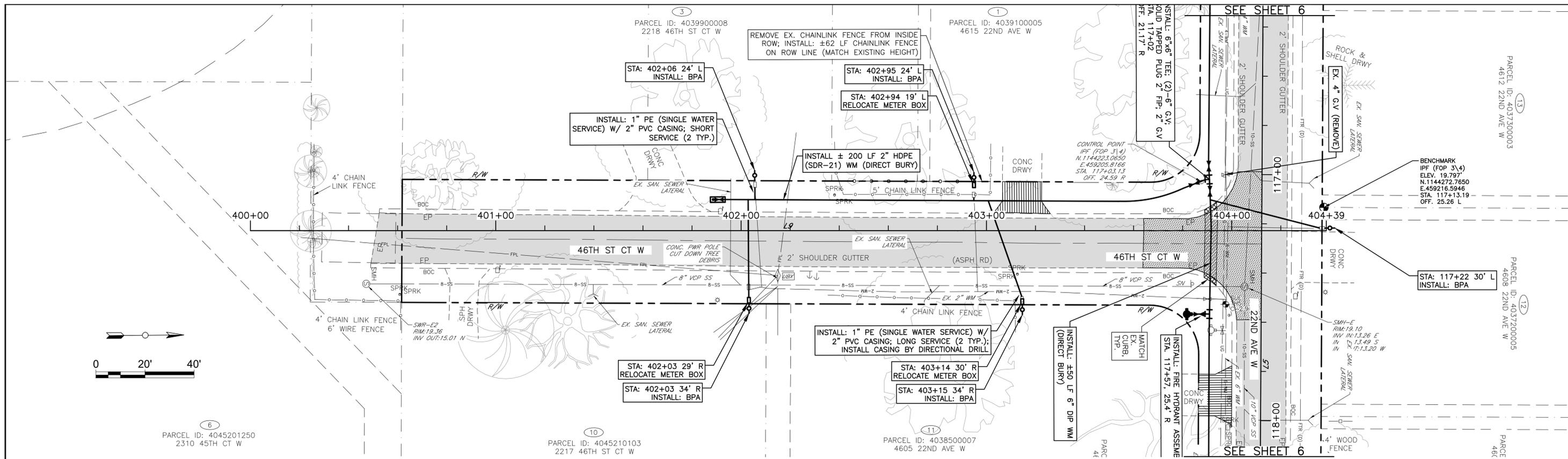
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF	JSS	6/19

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

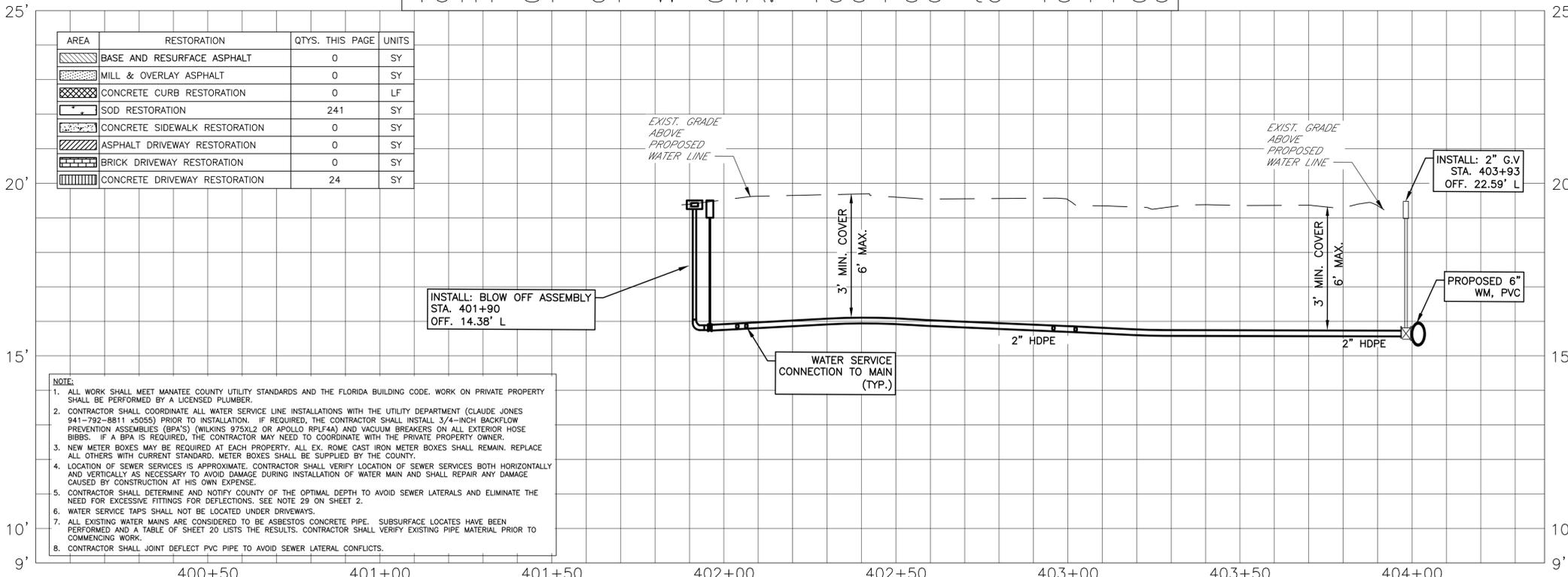


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.  
 LICENSE NO. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 Signature & Date



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



AREA	RESTORATION	QTYS. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	0	SY
	MILL & OVERLAY ASPHALT	0	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	241	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	24	SY

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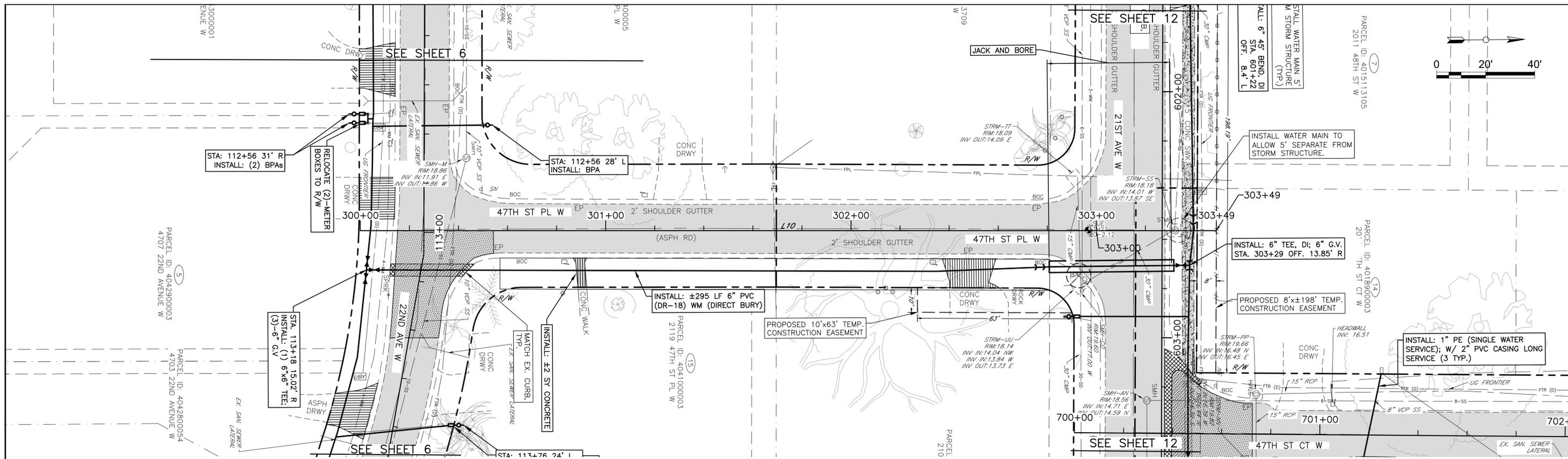
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19

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



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

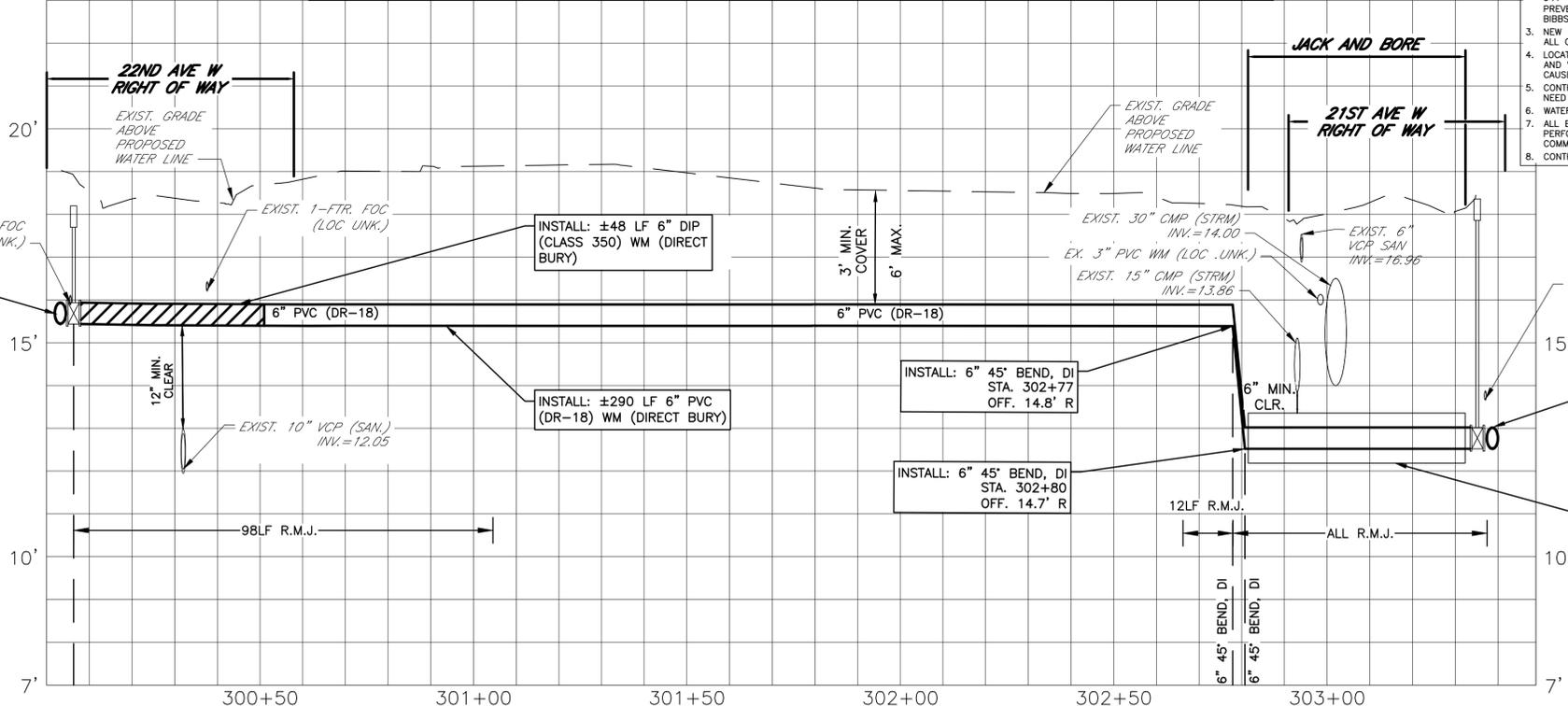
J. SHEA SHOUN, P.E.  
 LICENSE No. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 Signed: \_\_\_\_\_ Date: \_\_\_\_\_



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

DUCTILE IRON PIPE

AREA	RESTORATION	QTY. THIS PAGE	UNITS
[Hatched Pattern]	BASE AND RESURFACE ASPHALT	0	SY
[Dotted Pattern]	MILL & OVERLAY ASPHALT	0	SY
[Cross-hatched Pattern]	CONCRETE CURB RESTORATION	0	LF
[Stippled Pattern]	SOD RESTORATION	314	SY
[Horizontal Line Pattern]	CONCRETE SIDEWALK RESTORATION	2	SY
[Vertical Line Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Diagonal Line Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Grid Pattern]	CONCRETE DRIVEWAY RESTORATION	24	SY



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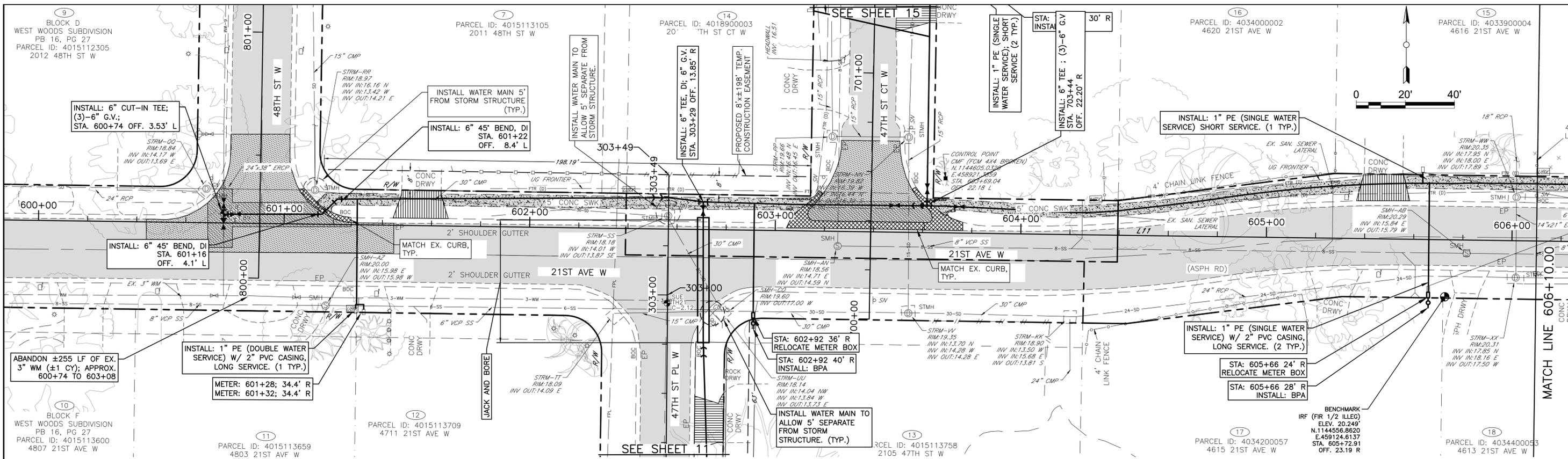
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF, added restoration table	JSS	6/19

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

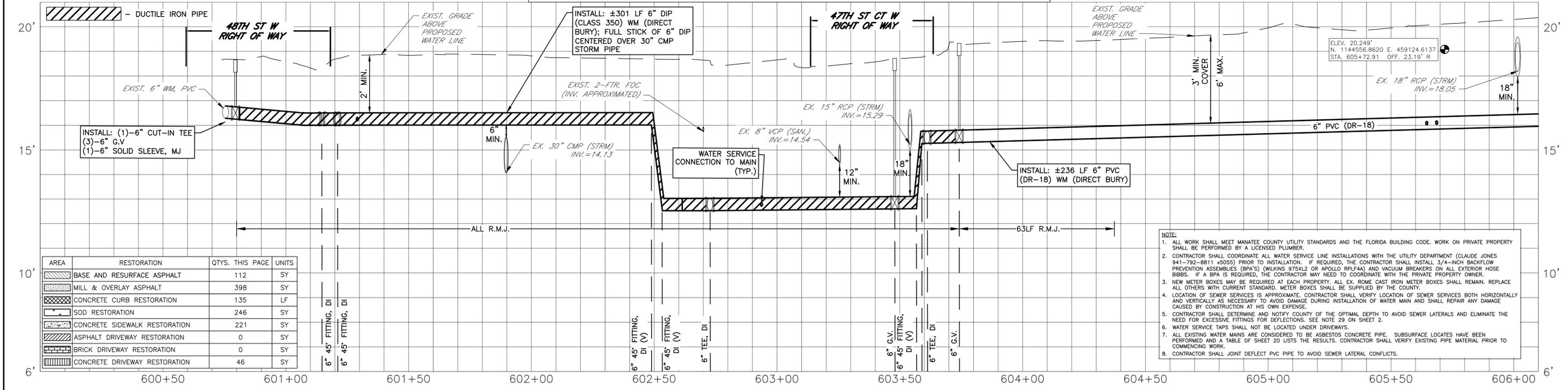


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.  
 FLORIDA PROFESSIONAL ENGINEER  
 LICENSE NO. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 SIGNATURE: [Signature]  
 DATE: [Date]



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



AREA	RESTORATION	QTY. THIS PAGE	UNITS
[Pattern]	BASE AND RESURFACE ASPHALT	112	SY
[Pattern]	MILL & OVERLAY ASPHALT	398	SY
[Pattern]	CONCRETE CURB RESTORATION	135	LF
[Pattern]	SOD RESTORATION	246	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	221	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	46	SY

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NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. DIP/PVC LF; update restoration table	JSS	6/19

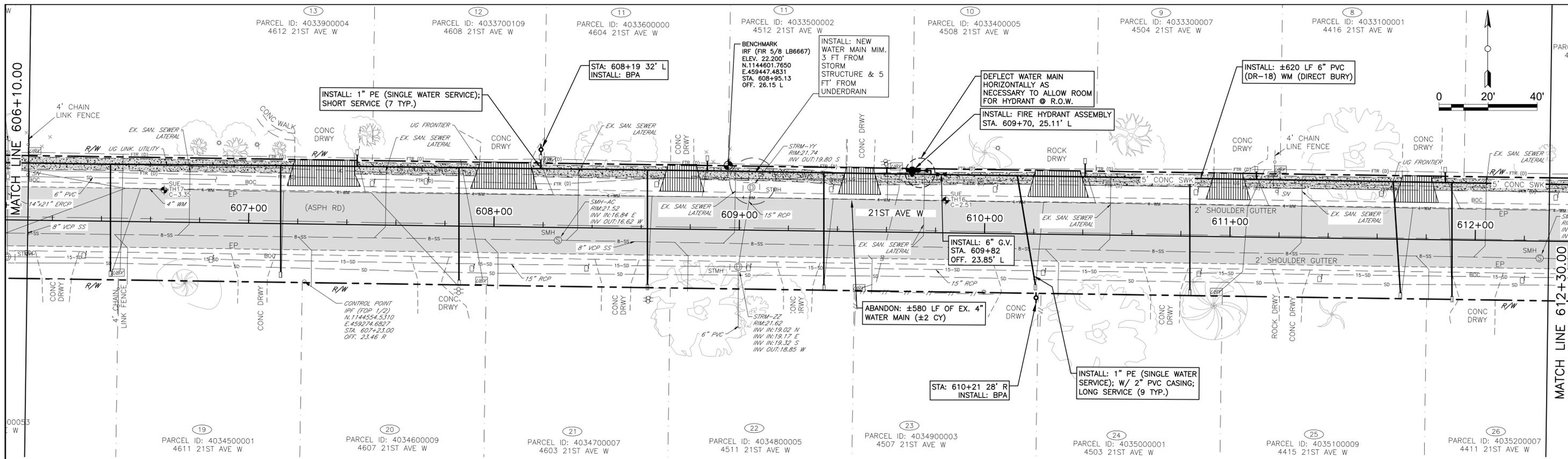
## WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

### PLAN & PROFILE

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

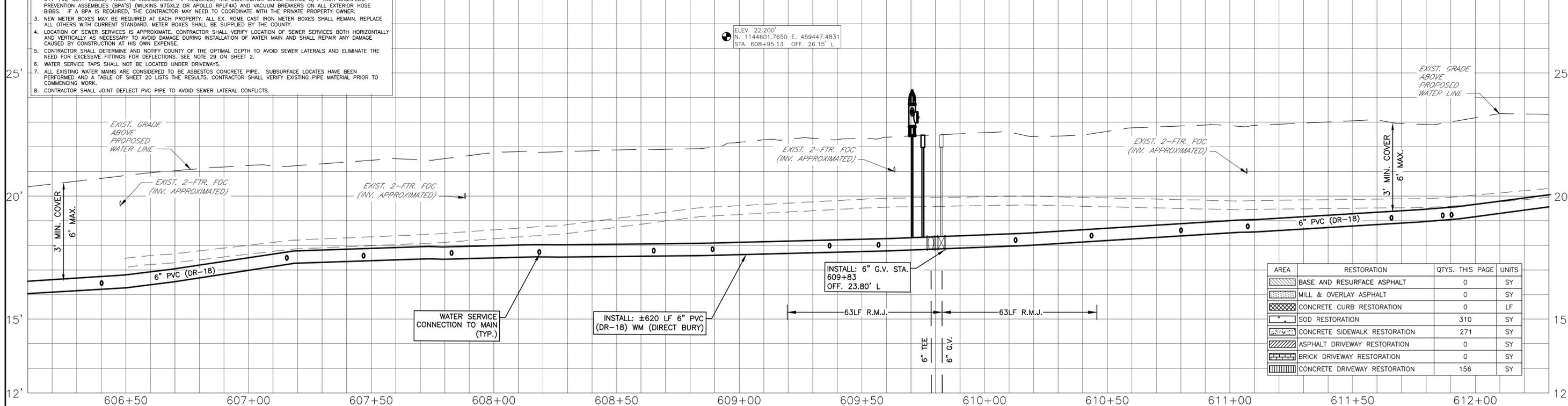


PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	60923
SEC./TWN./RGE	33/34/17	STATE OF FLORIDA
SCALE	SEE PLAN	PROFESSIONAL ENGINEER
SURVEYED	FDC JAN 17	6/14/19
DESIGNED	JSS MAY 17	DATE
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	



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



AREA	RESTORATION	QTYs. 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

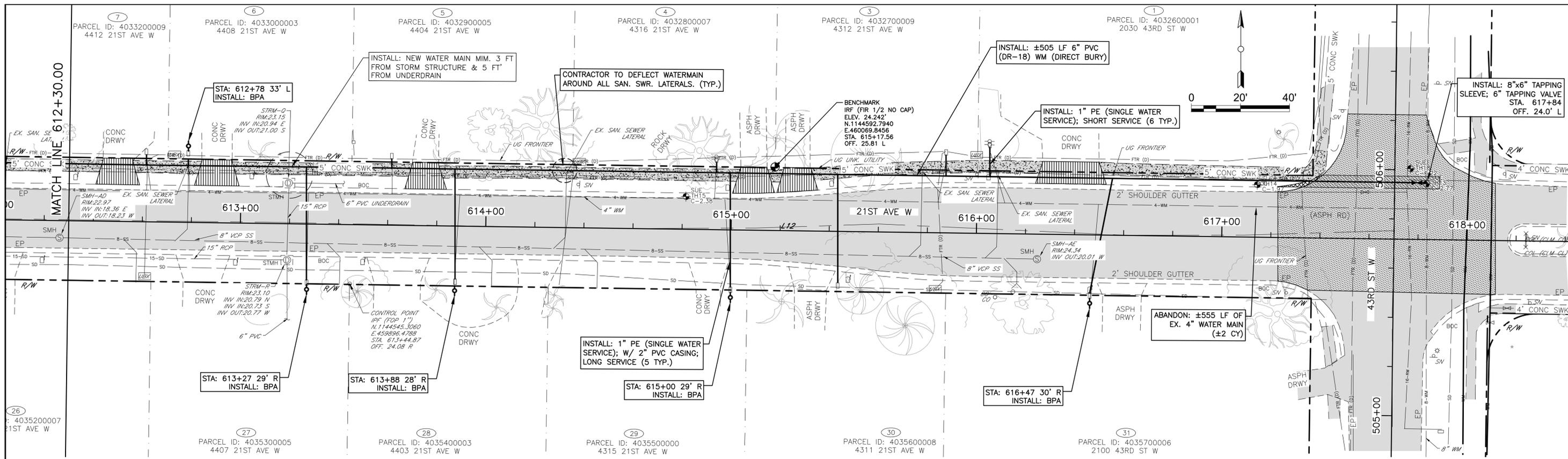
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19

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

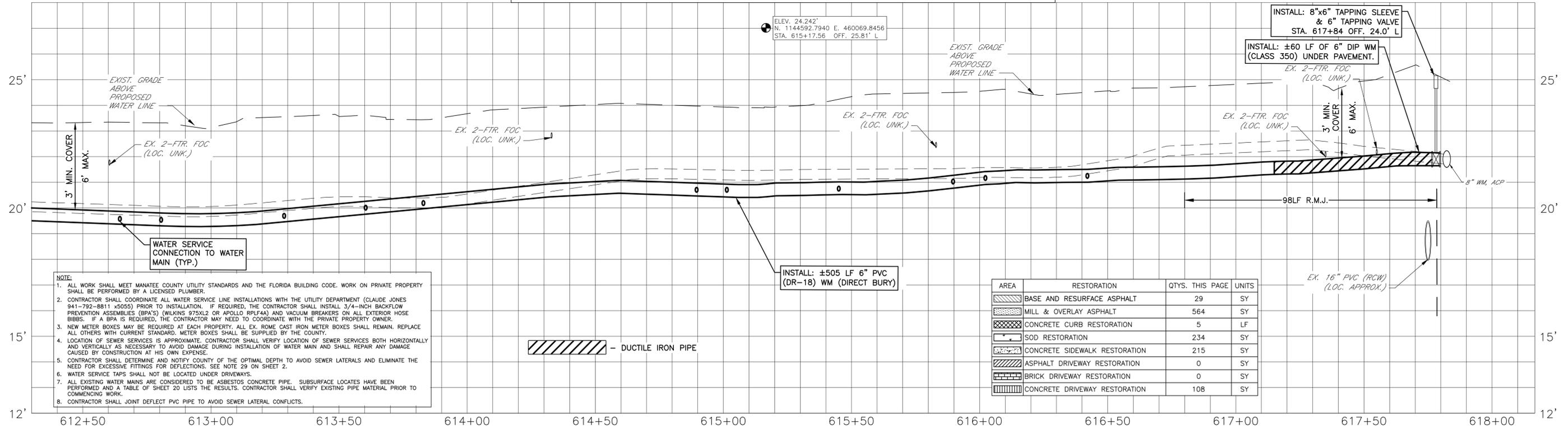


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.  
FLORIDA LICENSE No. 60923  
6/14/19  
PROFESSIONAL ENGINEER



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



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

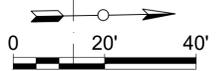
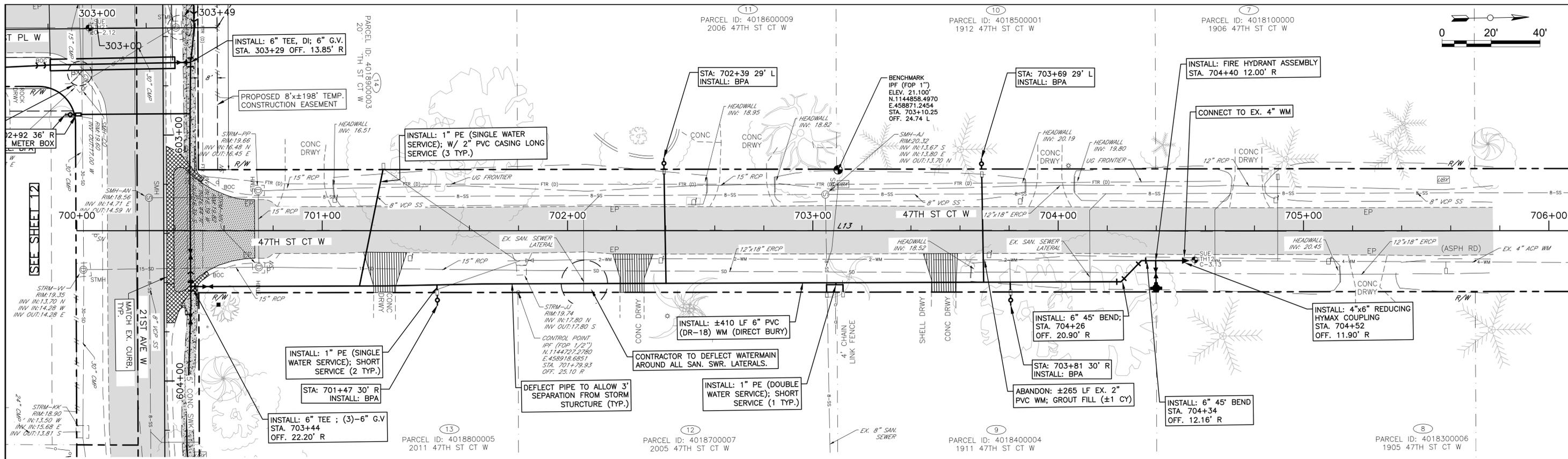
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF	JSS	6/19

**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

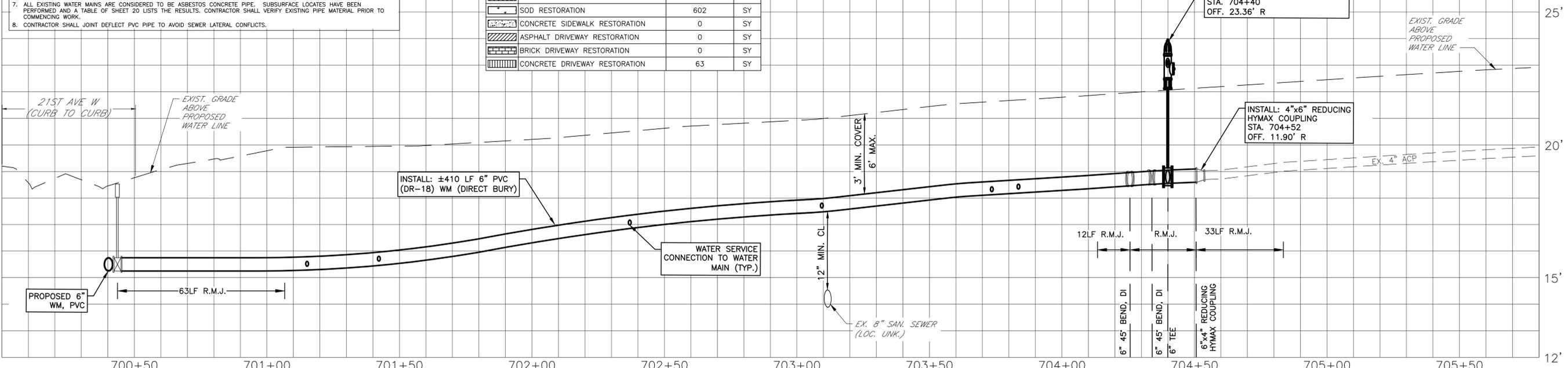
J. SHEA SHOWN, P.E.  
 FLORIDA PROFESSIONAL ENGINEER  
 No. 60923  
 STATE OF FLORIDA  
 6/14/19  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_



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

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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	602	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	63	SY



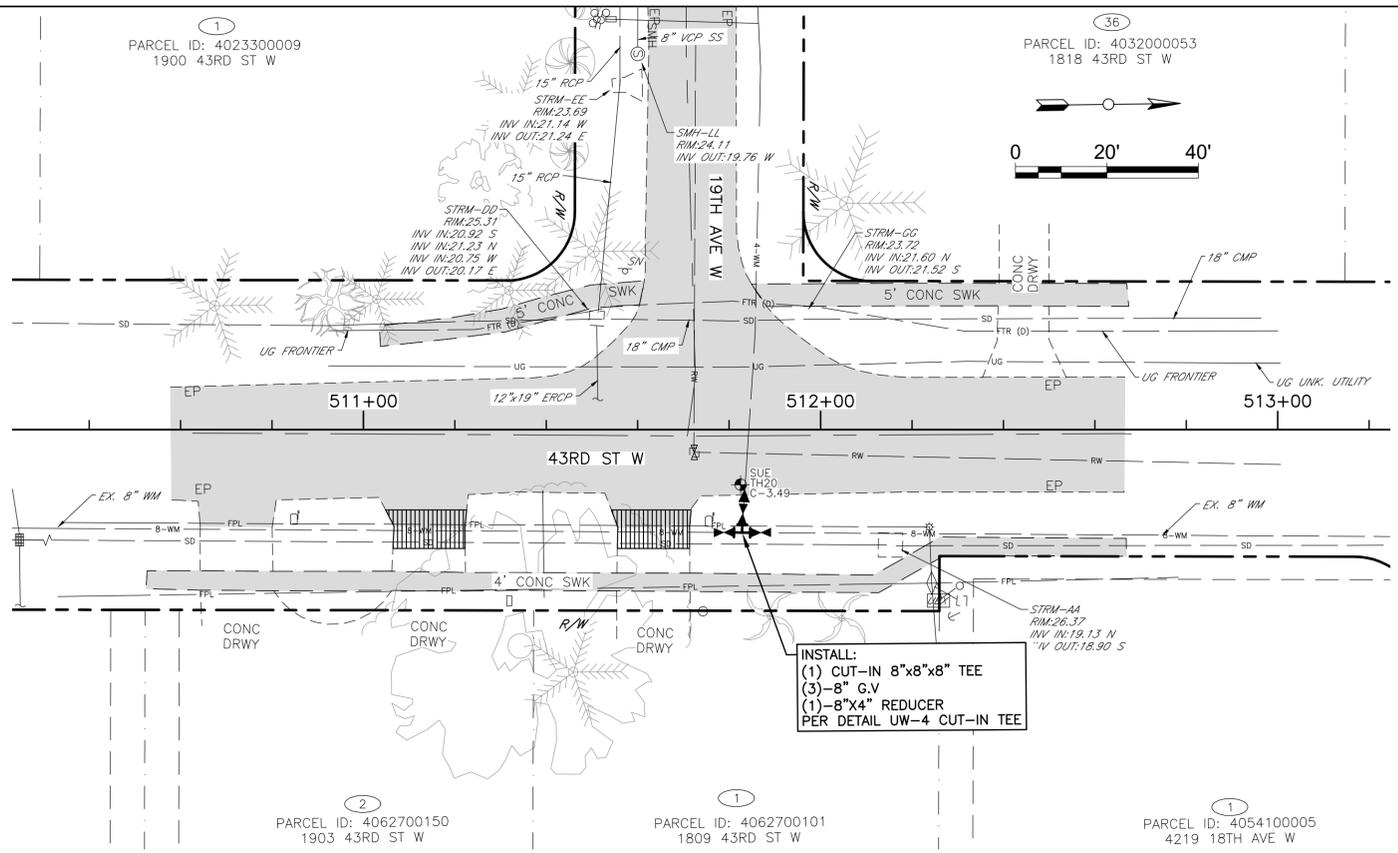
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19

## WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE PLAN & PROFILE 47TH ST CT W-700+00-705+80

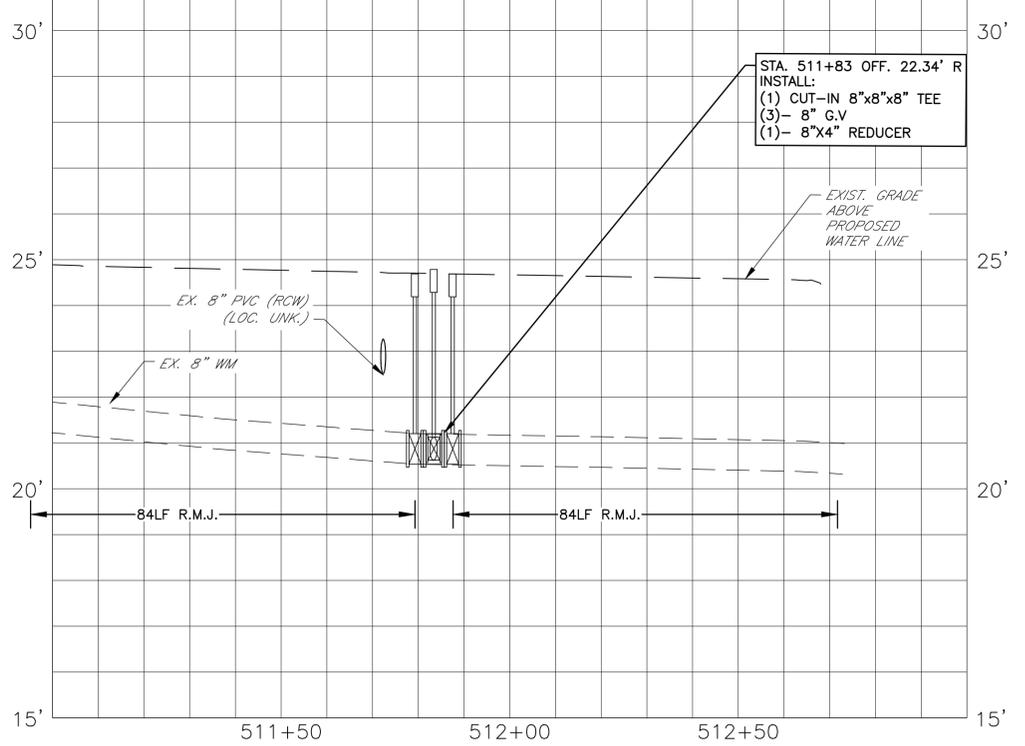


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEPHERD, P.E.  
FLORIDA LICENSE NO. 60923  
6/14/19  
PROFESSIONAL ENGINEER  
Signature & Date



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	178	SY
	CONCRETE SIDEWALK RESTORATION	4	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	30	SY

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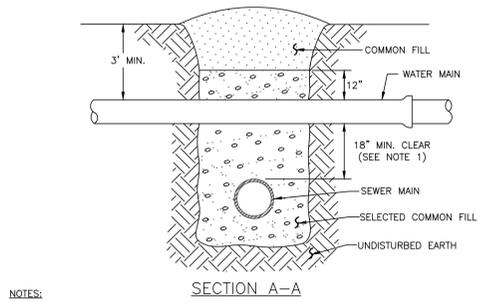
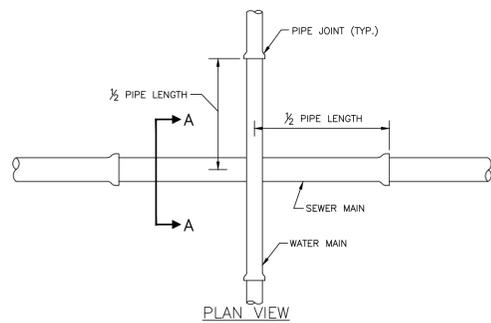
**WILLOW WOODS & LAKES ESTATES**  
**WATER MAIN UPGRADE**  
**PLAN & PROFILE**  
**43RD ST W-511+00-513+00**



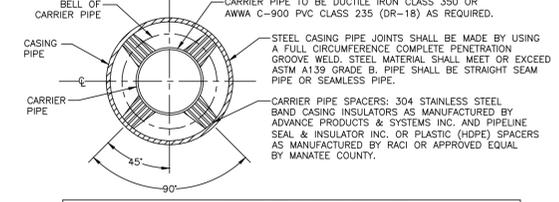
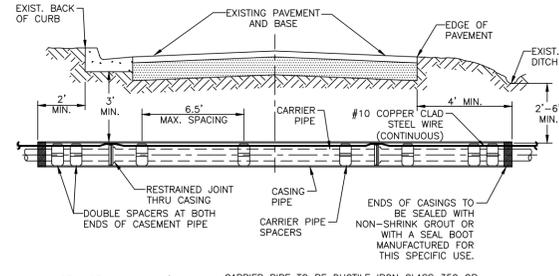
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J. SHEA SHAWN, P.E.  
 PROFESSIONAL ENGINEER  
 LICENSE No. 60923  
 STATE OF FLORIDA  
 Signature & Date

S:\P\W\Engineering-Shawn\Utl Eng Design\PROJ-WTR LINE Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\W-M-Willow Woods.dwg, 15, 6/14/2019 8:51 AM Shea Shawn, 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.

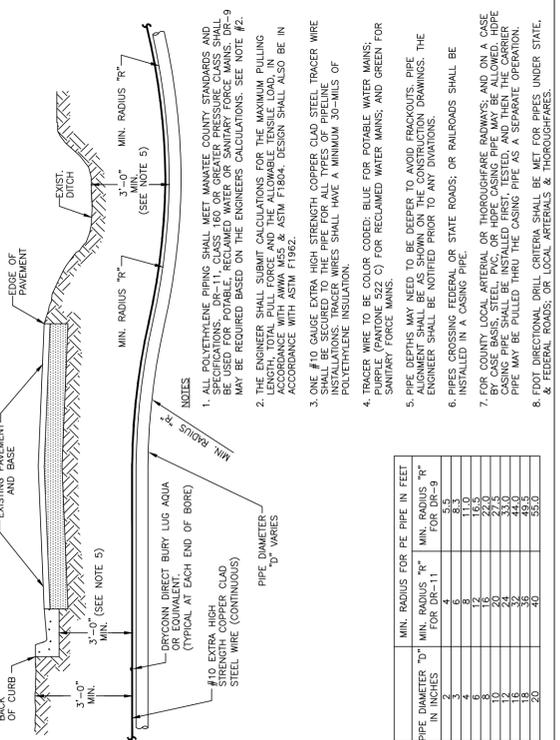


CARRIER SIZE & MINIMUM CASING SIZE	
CARRIER	4" 6" 8" 10" 12" 14" 16" 18" 20"
CASING	12" 14" 16" 20" 24" 30" 36" 36" 36"
CASING / WALL THICKNESS	0.188 0.188 0.250 0.250 0.344 0.406 0.406 0.406 0.406

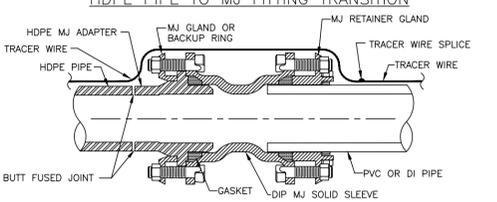
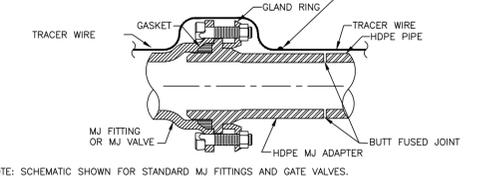
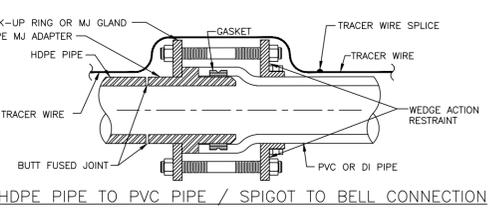
CARRIER SIZE & MINIMUM CASING SIZE	
CARRIER	4" 6" 8" 10" 12" 14" 16" 18" 20"
CASING	8" 12" 16" 20" 24" 30" 30" 36" 36"

- NOTES:**
- THE ENGINEER OF RECORD MAY SELECT A LARGER CASING DIAMETERS, 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.
  - 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.



PIPE DIAMETER "D" IN INCHES	MIN. RADIUS FOR PE PIPE IN FEET FOR DR-9	MIN. RADIUS "R" IN FEET FOR DR-11
4	6	6
6	6	6
8	6	6
10	6	6
12	6	6
14	6	6
16	6	6
18	6	6
20	6	6
24	6	6
30	6	6
36	6	6
42	6	6
48	6	6
54	6	6
60	6	6
72	6	6
84	6	6
96	6	6
108	6	6
120	6	6
144	6	6
168	6	6
192	6	6
216	6	6
240	6	6
264	6	6
288	6	6
312	6	6
336	6	6
360	6	6
384	6	6
408	6	6
432	6	6
456	6	6
480	6	6
504	6	6
528	6	6
552	6	6
576	6	6
600	6	6
624	6	6
648	6	6
672	6	6
696	6	6
720	6	6
744	6	6
768	6	6
792	6	6
816	6	6
840	6	6
864	6	6
888	6	6
912	6	6
936	6	6
960	6	6
984	6	6
1008	6	6
1032	6	6
1056	6	6
1080	6	6
1104	6	6
1128	6	6
1152	6	6
1176	6	6
1200	6	6
1224	6	6
1248	6	6
1272	6	6
1296	6	6
1320	6	6
1344	6	6
1368	6	6
1392	6	6
1416	6	6
1440	6	6
1464	6	6
1488	6	6
1512	6	6
1536	6	6
1560	6	6
1584	6	6
1608	6	6
1632	6	6
1656	6	6
1680	6	6
1704	6	6
1728	6	6
1752	6	6
1776	6	6
1800	6	6
1824	6	6
1848	6	6
1872	6	6
1896	6	6
1920	6	6
1944	6	6
1968	6	6
1992	6	6
2016	6	6
2040	6	6
2064	6	6
2088	6	6
2112	6	6
2136	6	6
2160	6	6
2184	6	6
2208	6	6
2232	6	6
2256	6	6
2280	6	6
2304	6	6
2328	6	6
2352	6	6
2376	6	6
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2568	6	6
2592	6	6
2616	6	6
2640	6	6
2664	6	6
2688	6	6
2712	6	6
2736	6	6
2760	6	6
2784	6	6
2808	6	6
2832	6	6
2856	6	6
2880	6	6
2904	6	6
2928	6	6
2952	6	6
2976	6	6
3000	6	6

- NOTES:**
- PIPE DIAMETER BEING SHALL BE MANATEE COUNTY STANDARD. EXCEEDING SHALL BE SPECIFICATION. PIPE CLASS 18" OR GREATER PRESSURE CLASS SHALL BE USED FOR POTABLE, RECLAIMED WATER OR SANITARY FORCE MAINS. DR-9 MAY BE REQUIRED BASED ON THE ENGINEER'S CALCULATIONS. SEE NOTE #2.
  - THE ENGINEER SHALL SUBMIT CALCULATIONS FOR THE MAXIMUM PULLING FORCE TO THE LOCAL AGENCIES AND THE ALLOWABLE TENSILE LOAD. IN ACCORDANCE WITH ASTM F1962.
  - ONE #10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE SECURED TO THE PIPE FOR ALL TYPES OF PIPELINE INSTALLATIONS. TRACER WIRES SHALL HAVE A MINIMUM 30-MILS OF POLYURETHANE INSULATION.
  - TRACER WIRE TO BE COLOR CODED: BLUE FOR POTABLE WATER MAINS; GREEN FOR SANITARY FORCE MAINS; (3) FOR RECLAIMED WATER MAINS; AND GREEN FOR SANITARY FORCE MAINS.
  - PIPE DEPTHS MAY NEED TO BE DEEPER TO AVOID BRACKETS. PIPE ALIGNMENT SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE ENGINEER SHALL BE NOTIFIED PRIOR TO ANY DIVIATIONS.
  - 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, THE ENGINEER SHALL BE NOTIFIED PRIOR TO THE CARRIER CASING PIPE BEING INSTALLED FIRST. THE CARRIER PIPE MAY BE PULLED THRU THE CASING PIPE AS A SEPARATE OPERATION.
  - DOT DIRECTIONAL DRILL CRITERIA SHALL BE MET FOR PIPES UNDER STATE, FEDERAL, ROADS; OR LOCAL ARTERIALS & THOROUGHFARES.



- NOTES:**
- ONE TRACER WIRE SHALL BE SECURED TO THE PIPE FOR ALL TYPES OF PIPELINE INSTALLATIONS.

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

MAIN PIPE SIZE	HORIZ. BENDS	90°	45°	22.5°	TEES			REDUCERS			PLUGS & VALVES			
					SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH				
24	90	38	18	X24	X20	X16	X12	X10	X6	X20	X16	X12	158	214
20	78	32	16	X20	X16	X12	X8	X6	X4	X16	X12	X8	149	184
16	66	27	13	X16	X12	X8	X6	X4	X3	X12	X8	X6	111	151
12	52	22	10	X12	X8	X6	X4	X3	X2	X8	X6	X4	86	118
10	44	18	9	X10	X8	X6	X4	X3	X2	X6	X4	X3	81	100
8	37	15	7	X8	X6	X4	X3	X2	X1	X4	X3	X2	60	83
6	29	12	6	X6	X4	X3	X2	X1	X1	X3	X2	X1	45	63
4	21	8	4	X4	X3	X2	X1	X1	X1	X2	X1	X1	36	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

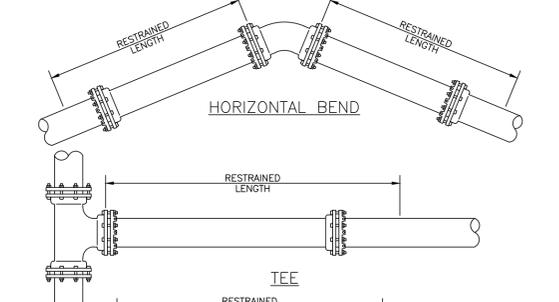
**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

REV. BY: DATE: DATE OF APPROVAL

RESTRAINED LENGTHS FOR PVC PIPE UG-8

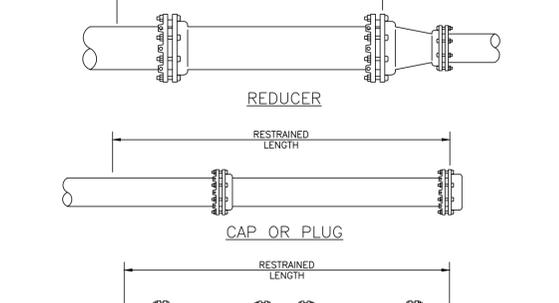
**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS	90°	45°	22.5°	TEES			REDUCERS			PLUGS & VALVES			
					SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH				
36	142	59	28	X36	X30	X24	X18	X12	X8	X30	X24	X18	359	453
30	124	51	25	X30	X24	X18	X12	X8	X6	X24	X18	X12	276	391
24	106	44	21	X24	X20	X16	X12	X8	X6	X20	X16	X12	241	327
20	92	38	18	X20	X16	X12	X8	X6	X4	X16	X12	X8	227	280
16	77	32	15	X16	X12	X8	X6	X4	X3	X12	X8	X6	169	231
12	61	25	12	X12	X8	X6	X4	X3	X2	X8	X6	X4	131	181
10	52	22	10	X10	X8	X6	X4	X3	X2	X6	X4	X3	125	153
8	44	18	9	X8	X6	X4	X3	X2	X1	X4	X3	X2	92	128
6	34	14	7	X6	X4	X3	X2	X1	X1	X3	X2	X1	60	98
4	24	10	5	X4	X3	X2	X1	X1	X1	X2	X1	X1	45	69



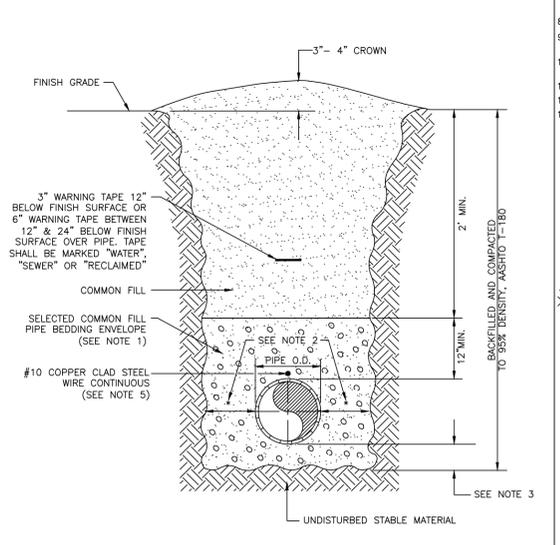
**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS	90°	45°	22.5°	TEES			REDUCERS			PLUGS & VALVES			
					SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH				
36	100	42	20	X36	X30	X24	X18	X12	X8	X30	X24	X18	149	188
30	88	37	18	X30	X24	X18	X12	X8	X6	X24	X18	X12	114	162
24	75	31	15	X24	X20	X16	X12	X8	X6	X20	X16	X12	100	135
20	65	27	13	X20	X16	X12	X8	X6	X4	X16	X12	X8	94	116
16	54	22	11	X16	X12	X8	X6	X4	X3	X12	X8	X6	70	96
12	43	18	8	X12	X8	X6	X4	X3	X2	X8	X6	X4	54	75
10	37	15	7	X10	X8	X6	X4	X3	X2	X6	X4	X3	52	63
8	30	13	6	X8	X6	X4	X3	X2	X1	X4	X3	X2	38	53
6	24	10	5	X6	X4	X3	X2	X1	X1	X3	X2	X1	28	41
4	17	7	3	X4	X3	X2	X1	X1	X1	X2	X1	X1	21	29



- NOTE:**
- SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.

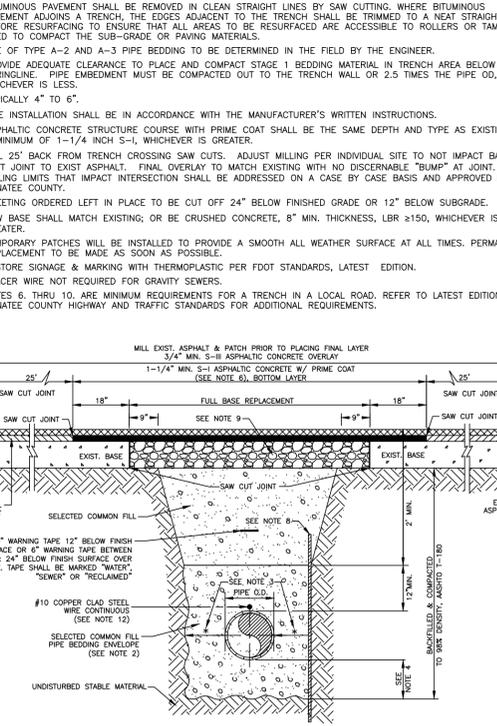
- NOTE:**
- SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR PIPE.



**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

REV. BY: DATE: DATE OF APPROVAL

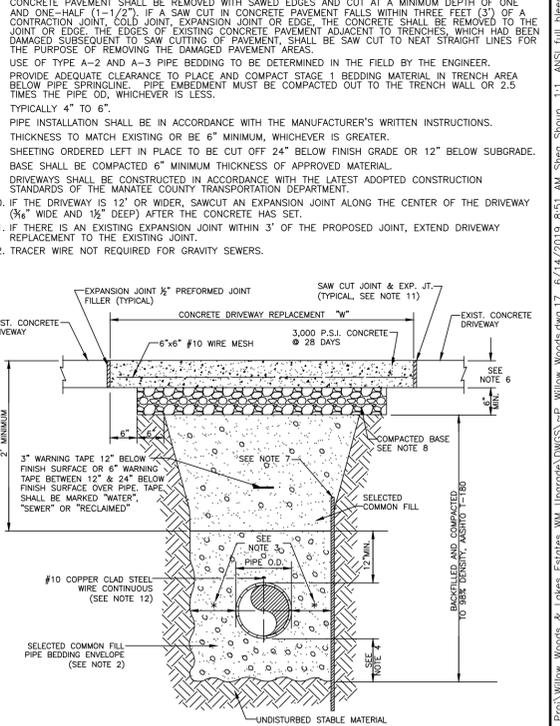
TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING UG-11



**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

REV. BY: DATE: DATE OF APPROVAL

TRENCH CROSSING 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 DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING UG-14

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

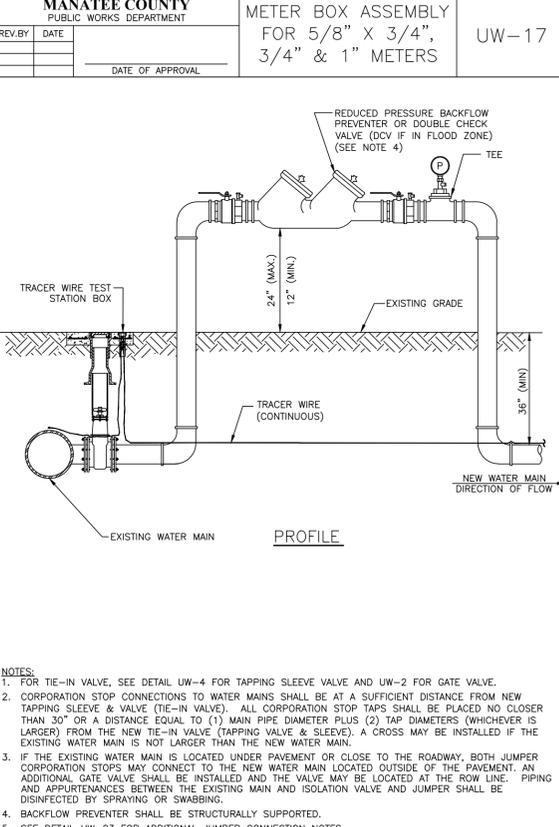
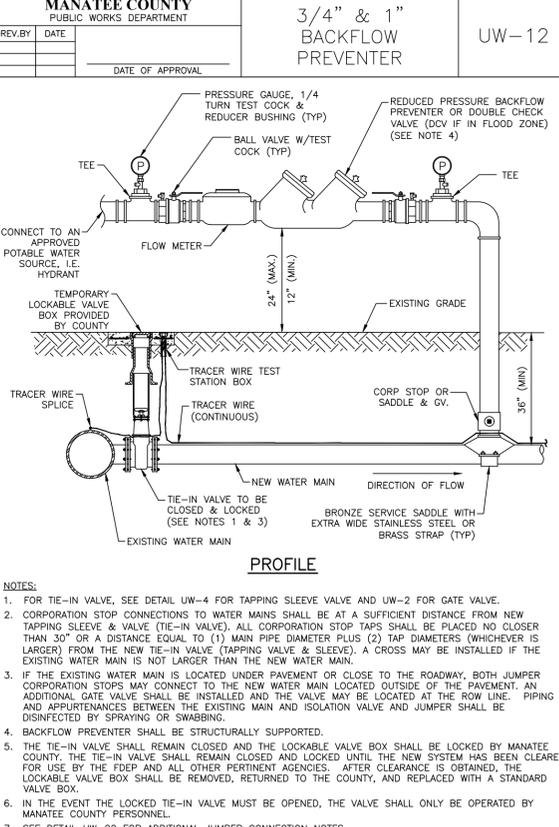
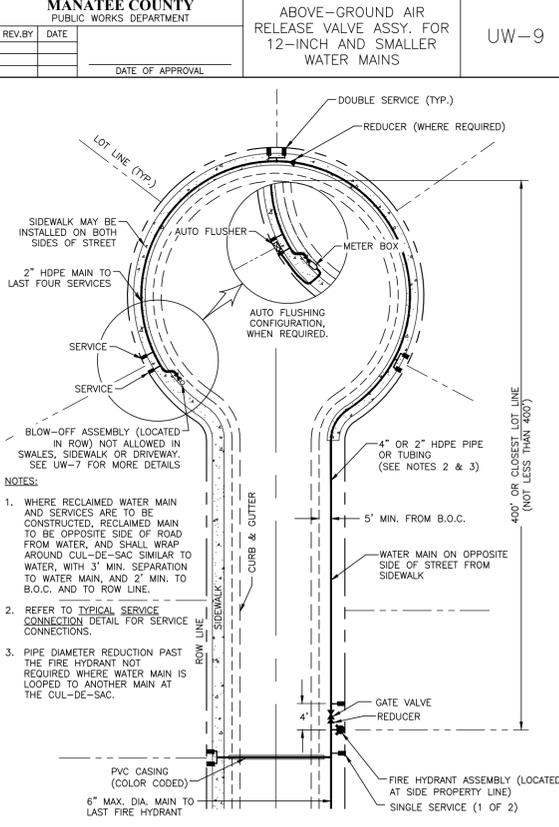
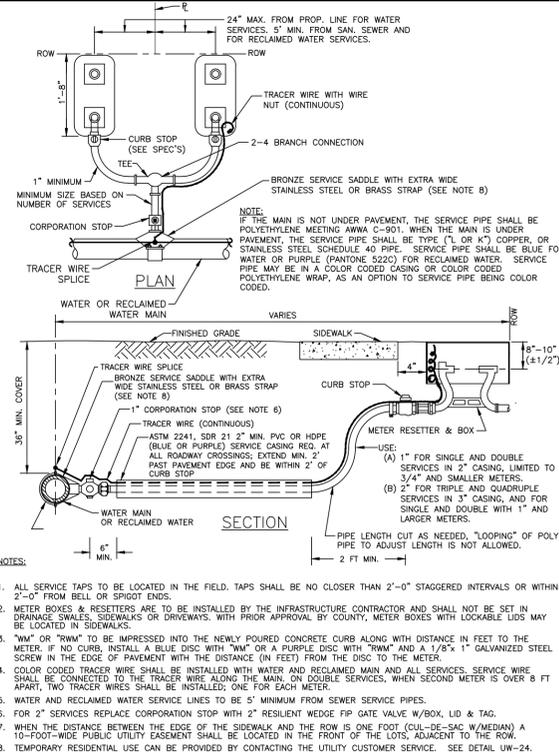
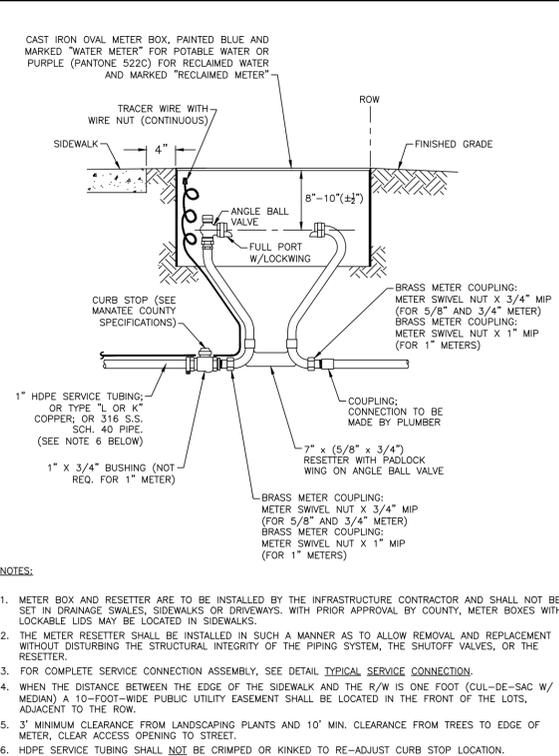
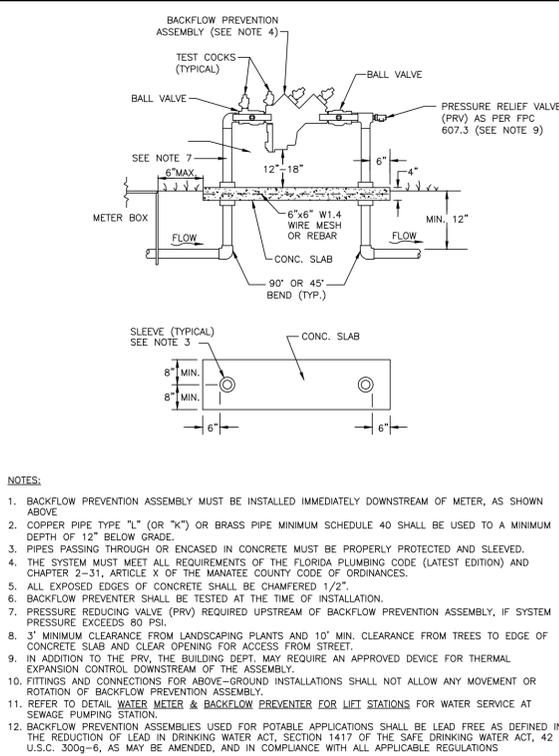
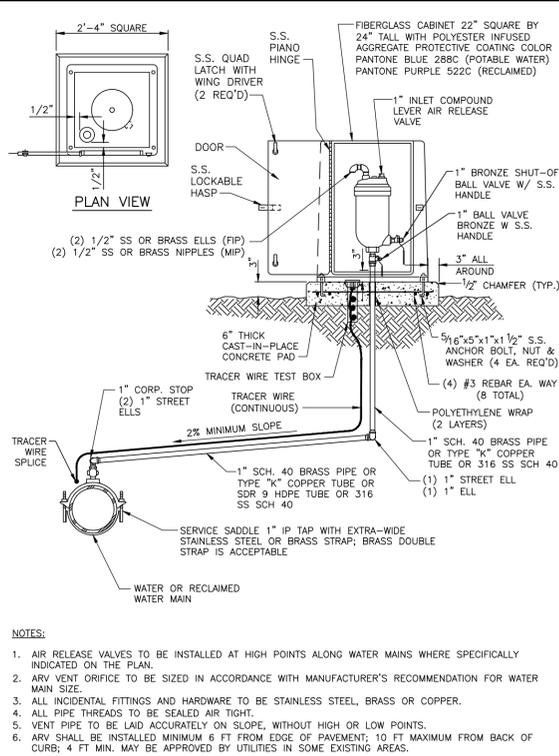
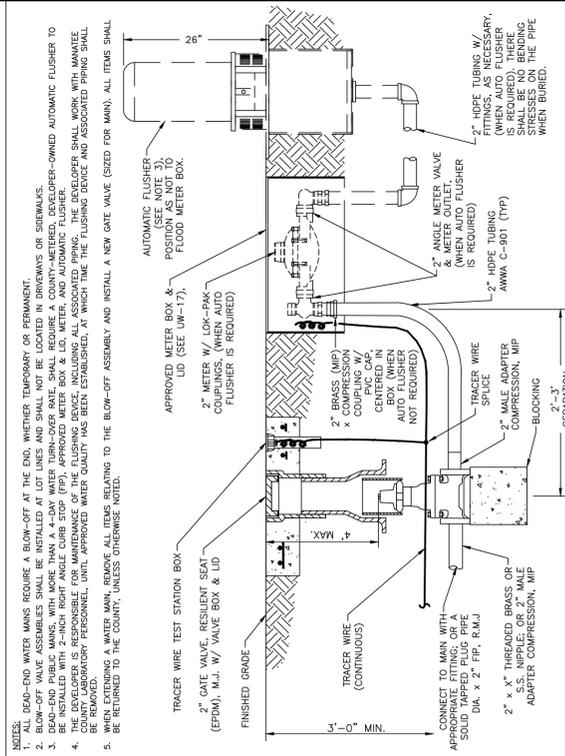
PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORENCE H. SHOUN, P.E.
SEC./TWN./RGE	33/34/17	STATE OF FLORIDA
SCALE	SEE PLAN	PROFESSIONAL ENGINEER
SURVEYED	FDC JAN 17	6/19/19
DESIGNED	JSS MAY 17	Signature
DRAWN	CAK MAY 17	Date
CHECKED	JSS MM/YYYY	

# WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

## DETAILS







NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

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# WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

## DETAILS

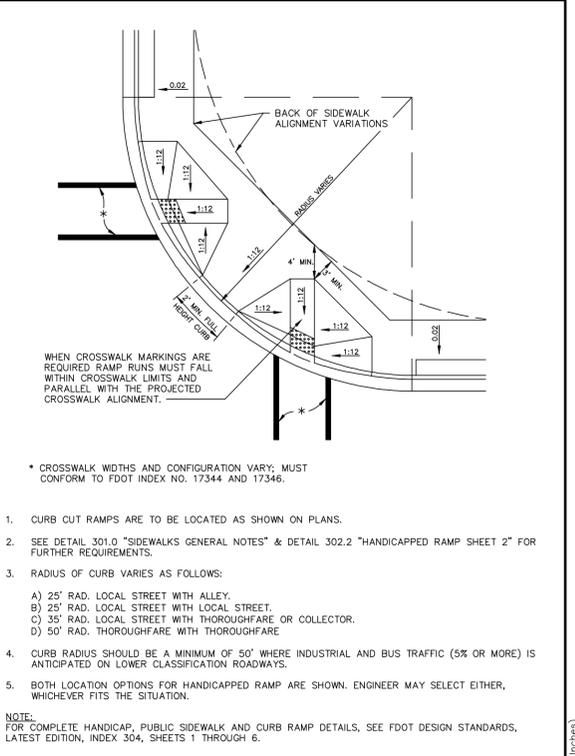
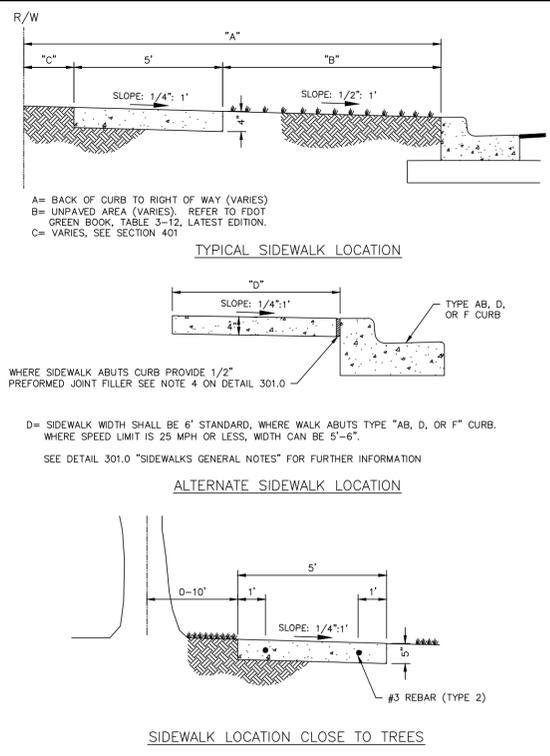


PROJECT #	404.6089170	J. SHEA	P.E.
SURVEY #	0577-0032	FLORIDA	PROFESSIONAL ENGINEER
SEC./TWN./RGE	33/34/17	No. 60923	6/14/19
SCALE	SEE PLAN	STATE OF	FLORIDA
SURVEYED	FDC JAN 17	Signature & Date	
DESIGNED	JSS MAY 17		
DRAWN	CAK MAY 17		
CHECKED	JSS MM/YYYY		

**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 POORS, 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.  
 SAVED 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 RAMPS 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.

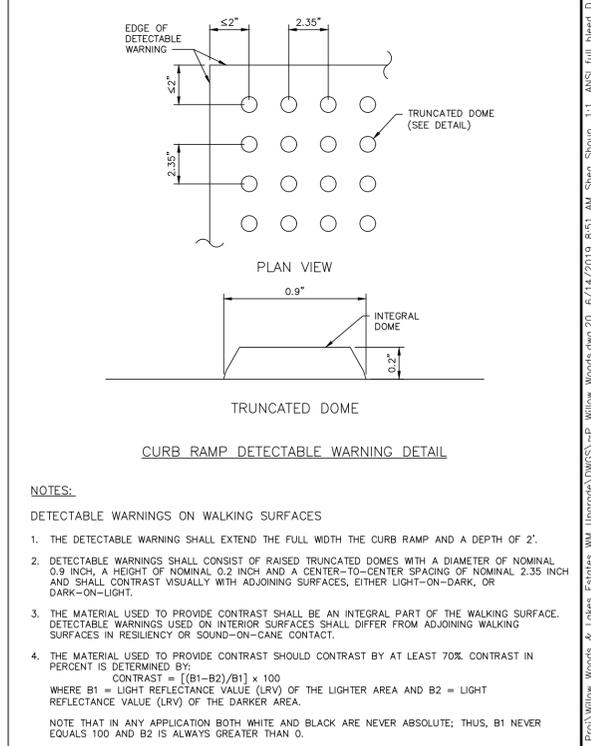
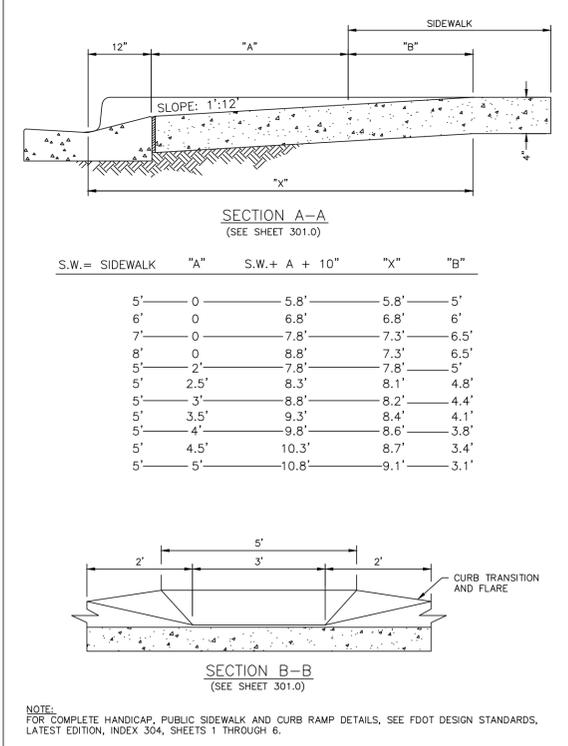
NOTE:  
 FOR COMPLETE SIDEWALK DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 7 AND INDEX 310, SHEETS 1 & 2.



<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		SIDEWALKS GENERAL NOTES	301.0
REV. BY	DATE		
DATE OF B.O.C.C. APPROVAL			

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		SIDEWALK REQUIREMENTS	301.1
REV. BY	DATE		
DATE OF B.O.C.C. APPROVAL			

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		HANDICAPPED RAMP SHEET 1	302.1
REV. BY	DATE		
DATE OF B.O.C.C. APPROVAL			



<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		HANDICAPPED RAMP SHEET 2	302.2
REV. BY	DATE		
DATE OF B.O.C.C. APPROVAL			

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		CURB RAMP DETECTABLE WARNINGS	302.3
REV. BY	DATE		
DATE OF B.O.C.C. APPROVAL			

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

# WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

## DETAILS



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

S:\P\02\_Engineering-Shares\Util\_Eng\_Design\FRGA\WTR\_LINE\_Proj\Willow\_Woods & Lakes\_Estates\_WW\_Upgrade\DWGS\Util\_P\Willow\_Woods.dwg, 20\_6/14/2019 8:51 AM Shea, Shaun, 11, ANSI Full Sheet 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



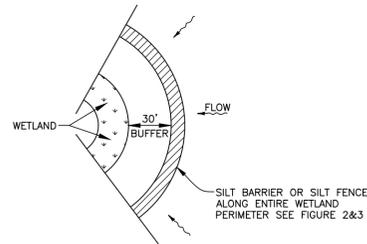
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SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.

FLORIDA PROFESSIONAL ENGINEER  
No. 60923  
STATE OF FLORIDA  
6/14/19

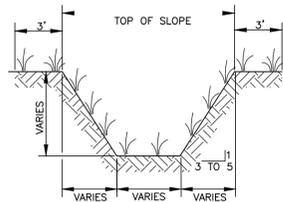
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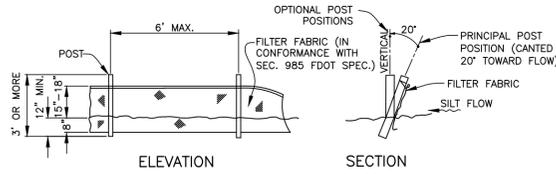


**WETLAND BUFFER**  
FIGURE 1

SOD TO BE PLACED 3' BEYOND

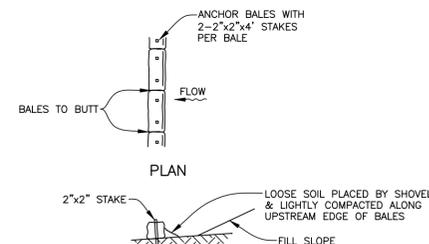


**TYPICAL SWALE SECTION**  
FIGURE 5

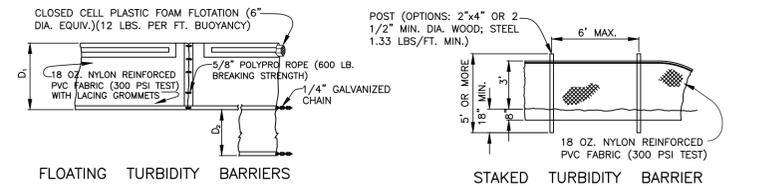


**TYPICAL SILT FENCE**  
FIGURE 2

NOTE: SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE (LF).



**TYPICAL BALE SILT BARRIER**  
FIGURE 3

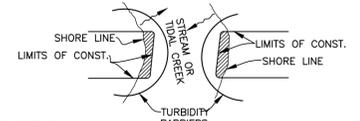


**FLOATING TURBIDITY BARRIERS**

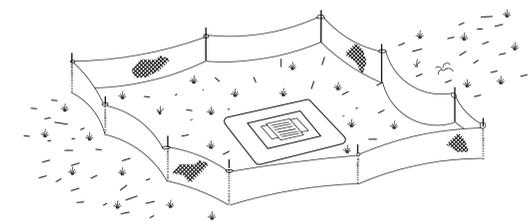
**STAKED TURBIDITY BARRIER**

D<sub>1</sub> = 5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS). D<sub>2</sub> = 5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5'). CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET. TWO(2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

NOTICE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

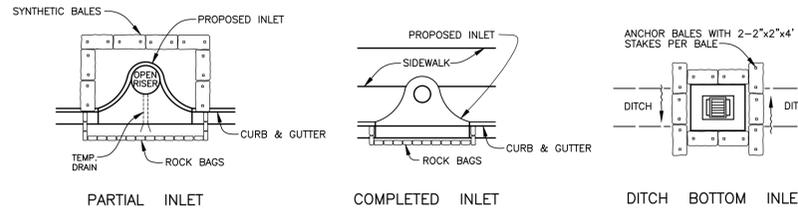


**TURBIDITY BARRIERS**  
FIGURE 4

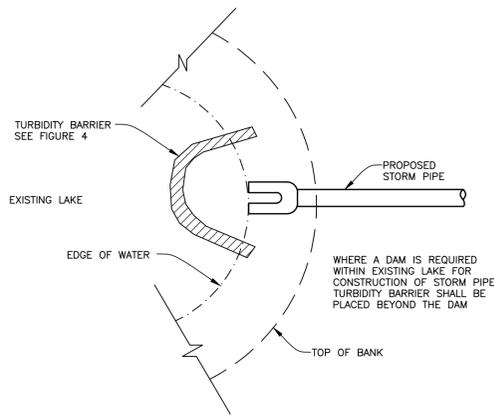


**TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS**

**STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS**  
FIGURE 8

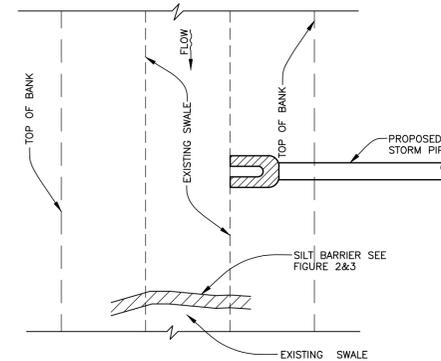


**SYNTHETIC BALE PROTECTION AROUND INLETS OR SIMILAR STRUCTURES**  
FIGURE 7

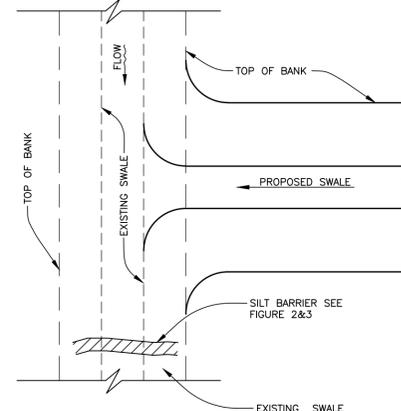


**TURBIDITY BARRIER AT CONNECTION OF STORM PIPE TO EXISTING LAKE**  
FIGURE 9

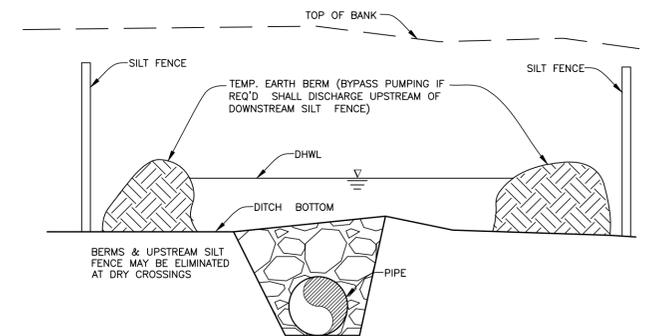
WHERE A DAM IS REQUIRED WITHIN EXISTING LAKE FOR CONSTRUCTION OF STORM PIPE, TURBIDITY BARRIER SHALL BE PLACED BEYOND THE DAM



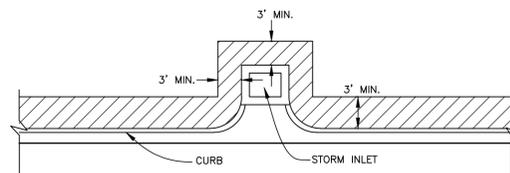
**SILT BARRIER AT CONNECTION OF STORM PIPE TO EXISTING SWALE**  
FIGURE 10



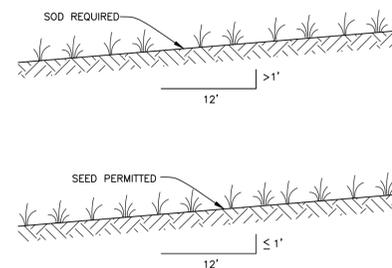
**SILT BARRIER AT CONNECTION OF SWALE TO EXISTING SWALE**  
FIGURE 11



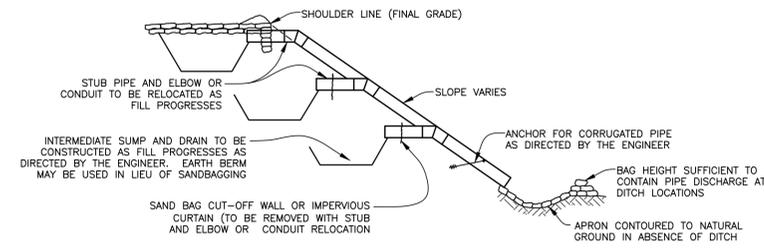
**UNDERGROUND PIPE CROSSING**  
FIGURE 12



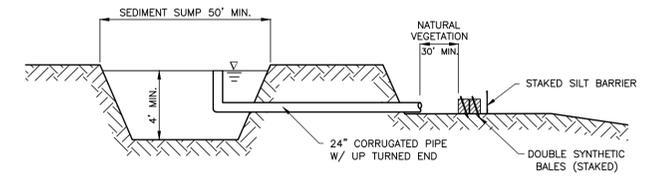
**SOD ALONG CURB AND AROUND INLET**  
FIGURE 14



**GRASS SLOPES**  
FIGURE 13



**SECTION AA**  
**TEMPORARY SLOPE DRAIN**  
FIGURE 15



**SEDIMENT SUMP SECTION**  
FIGURE 16

NOTE: REFERENCE THE FDOT DESIGN STANDARDS LATEST EDITION FOR ALL TEMPORARY EROSION CONTROL MEASURES.

NO.	REVISION DESCRIPTION	BY	DATE

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

**EROSION CONTROL**



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.  
 FLORENCE J. SHEA SHOUN  
 LICENSE No. 60923  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 Signature: [Signature]

S:\P\W\Engineering-Shoun\JSH\Eng Design\PROJ-WTR LINE Proj\Willow Woods & Lakes Estates\WU Upgrade\DWGS-1-P\_Milrow\Woods.dwg, 22, 8/14/2019 8:51 AM Shea Shoun, 111, ANSI Full Sheet D (34.00 x 22.00 inches)