

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 ALLEVIATE 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 ONTO 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 SEEDD 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 BUFFERS 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 DIGS (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 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 GATE 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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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

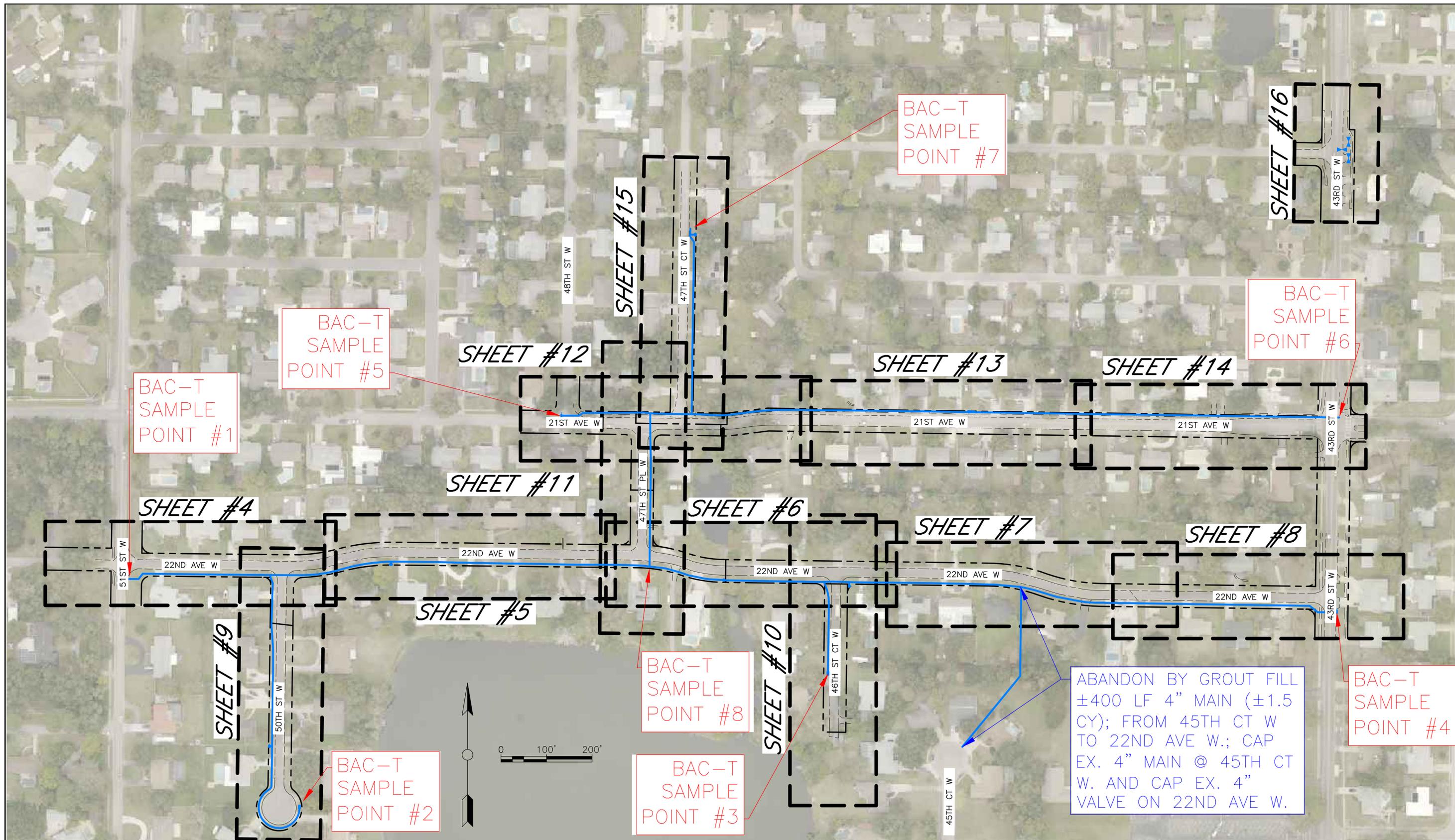
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SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
	BY DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.

FLORIDA REGISTERED PROFESSIONAL ENGINEER
No. 60923
9/10/19
STATE OF FLORIDA
PROFESSIONAL ENGINEER
Signature & Date

SHEET 02 OF 22

C:\Users\Eng\Desktop\PROJ\wfr\LINE Proj\Willow Woods & Lakes Estates\WMA\Upgrade\DWG\WMA-UP-Willow Woods-est-02.dwg 2019/06/19 08:37 AM Shep 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**

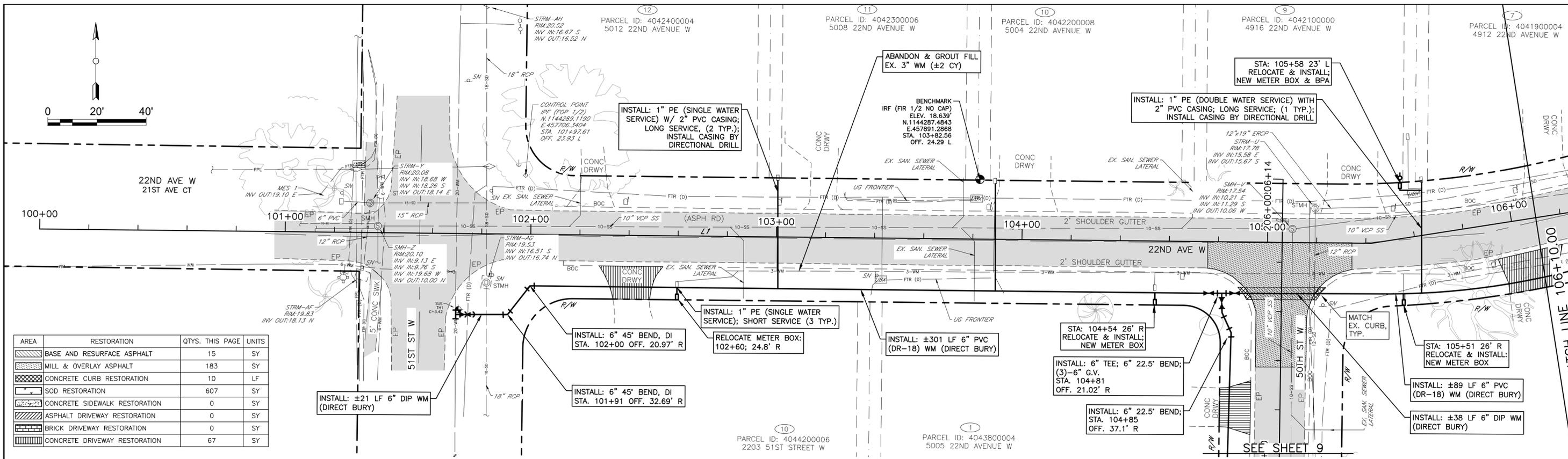
KEY SHEET



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

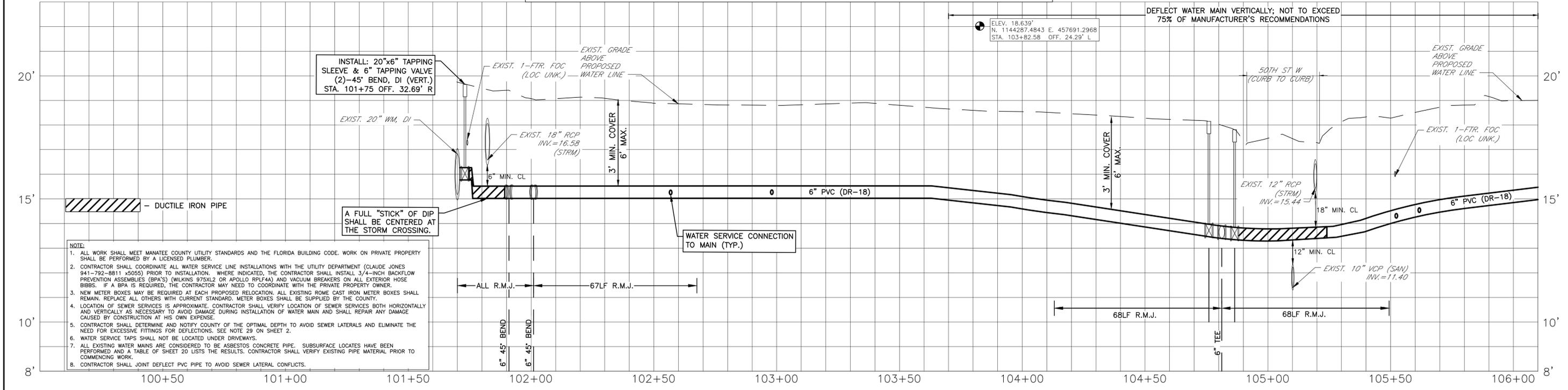
J. SHEA SHOUN, P.E.
 LICENSE No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 Signed: _____ Date: _____

H:\CADD\Eng Design\PROJ\WTR Line Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\WWS-PL-Wilow Woods.dwg, 03/10/2019 8:37 AM Shep Shoun, 1:1, ANSI full bleed D (34.00 x 22.00 inches)



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

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



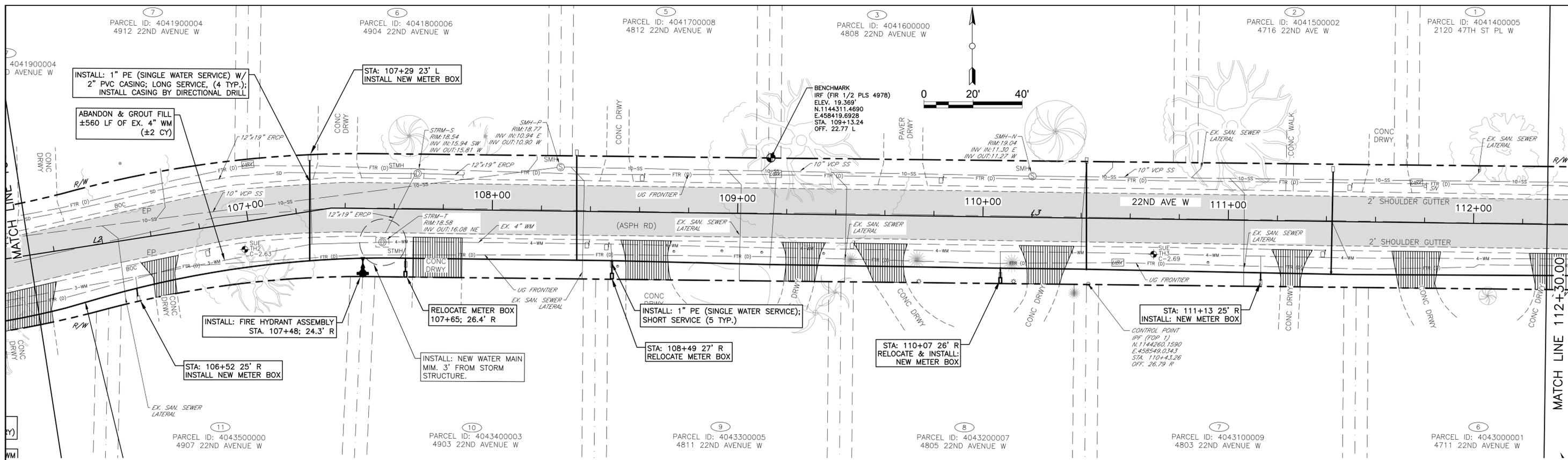
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2, added DIP under 50th St W	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

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

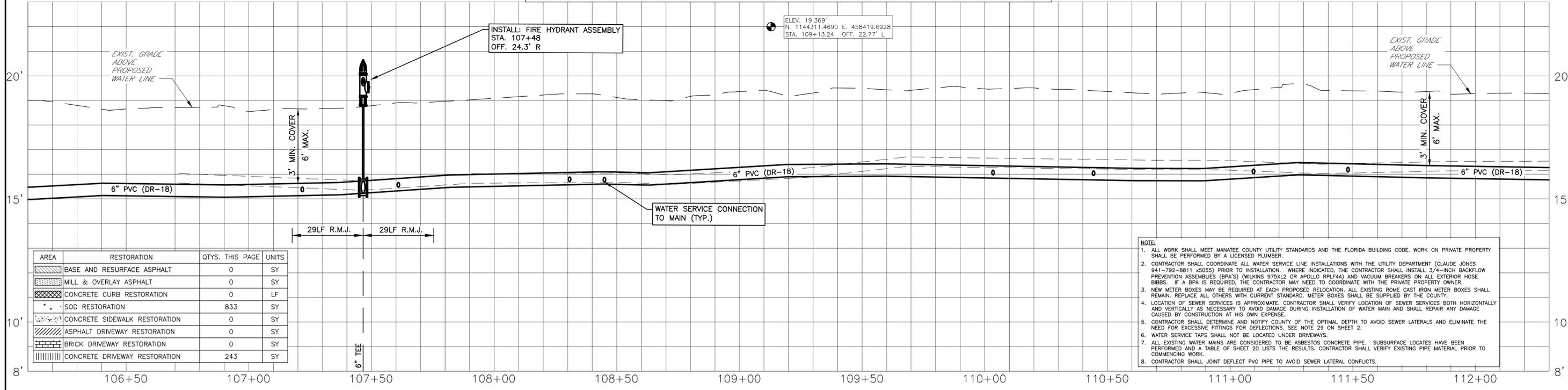


PROJECT #	404.6089170
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SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLO 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 No. 60923
 9/10/19
 SHEA SHOUN & ASSOCIATES, INC.
 1111 11th Street, Suite 100, Bradenton, FL 34208



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



AREA	RESTORATION	QTY'S. 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

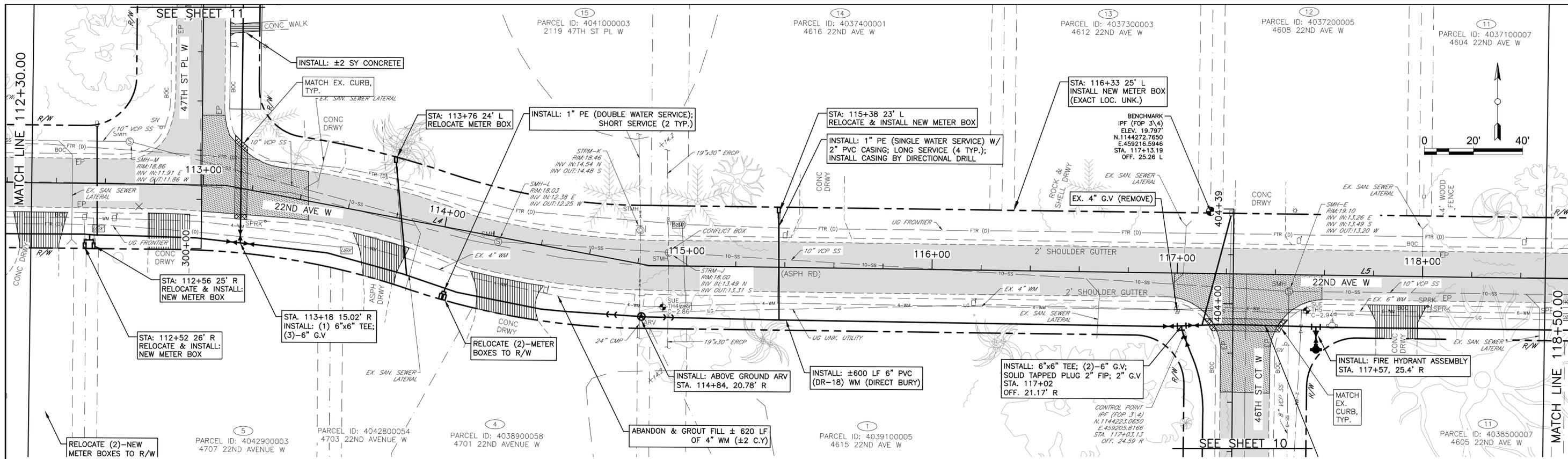
- NOTE:
- ALL WORK SHALL MEET MANATEE COUNTY UTILITY STANDARDS AND THE FLORIDA BUILDING CODE. WORK ON PRIVATE PROPERTY SHALL BE PERFORMED BY A LICENSED PLUMBER.
 - CONTRACTOR SHALL COORDINATE ALL WATER SERVICE LINE INSTALLATIONS WITH THE UTILITY DEPARTMENT (CLAUDE JONES 941-792-8811 x5055) PRIOR TO INSTALLATION. WHERE INDICATED, THE CONTRACTOR SHALL INSTALL 3/4-INCH BACKFLOW PREVENTION ASSEMBLIES (BPA'S) (WILKINS 975XL2 OR APOLLO RPL44) 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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 - 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
1	revised note 2; lot 11 revised service location	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

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

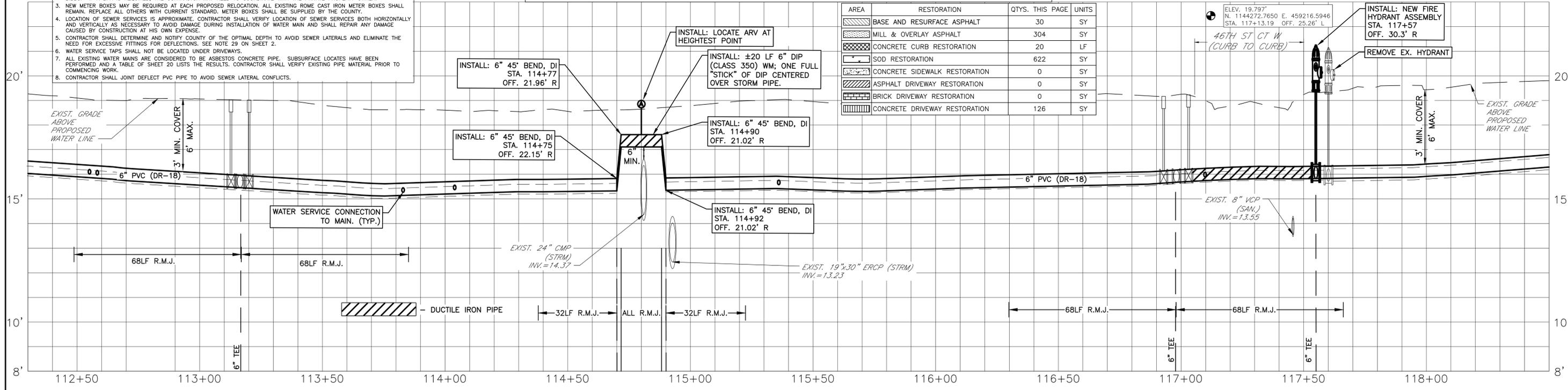


PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA LICENSE NO. 60923
SEC./TWN./RGE	33/34/17	DATE: 9/10/19
SCALE	SEE PLAN	PROFESSIONAL ENGINEER
SURVEYED	FDC JAN 17	DATE
DESIGNED	JSS MAY 17	
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	



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



AREA	RESTORATION	QTY'S. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	30	SY
	MILL & OVERLAY ASPHALT	304	SY
	CONCRETE CURB RESTORATION	20	LF
	SOD RESTORATION	622	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	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
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

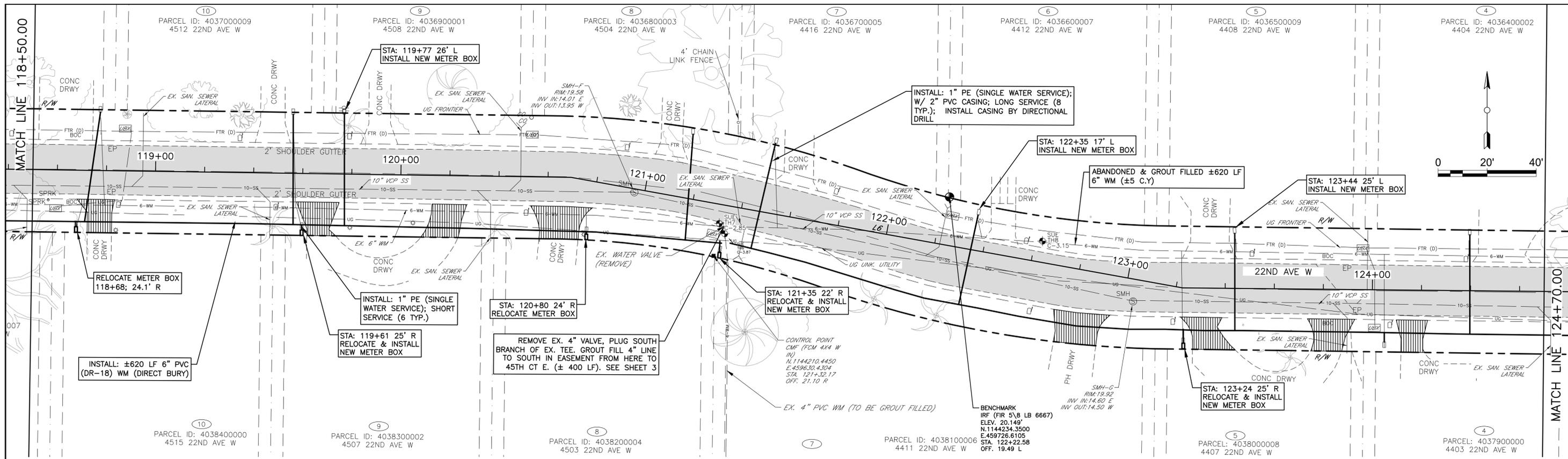
PLAN & PROFILE

22ND AVE W-112+30-118+50

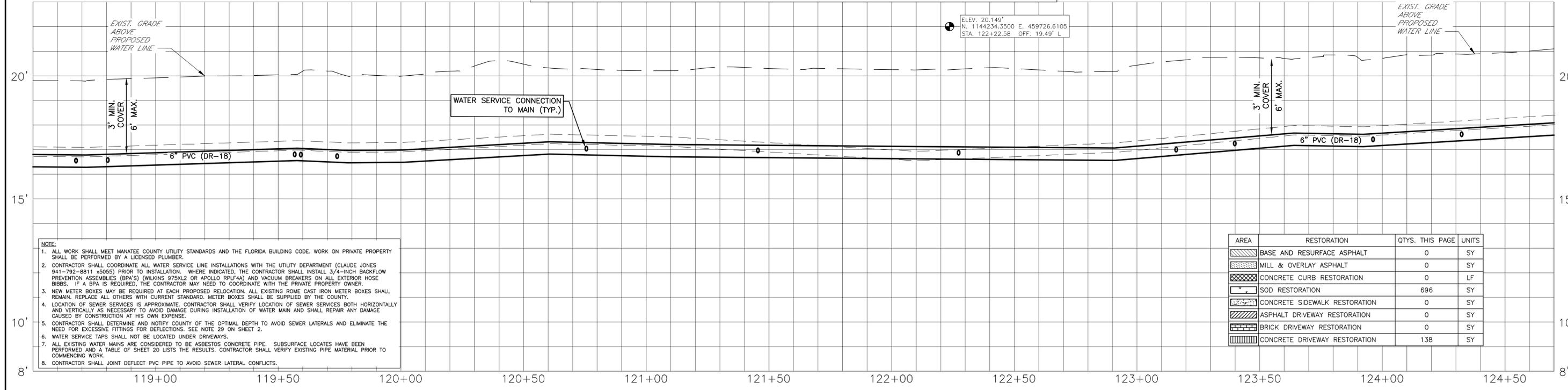


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
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DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
FLORIDA LICENSE NO. 92923
No. 60923
9/10/19
STATE OF FLORIDA
PROFESSIONAL ENGINEER



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



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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
[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
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	138	SY

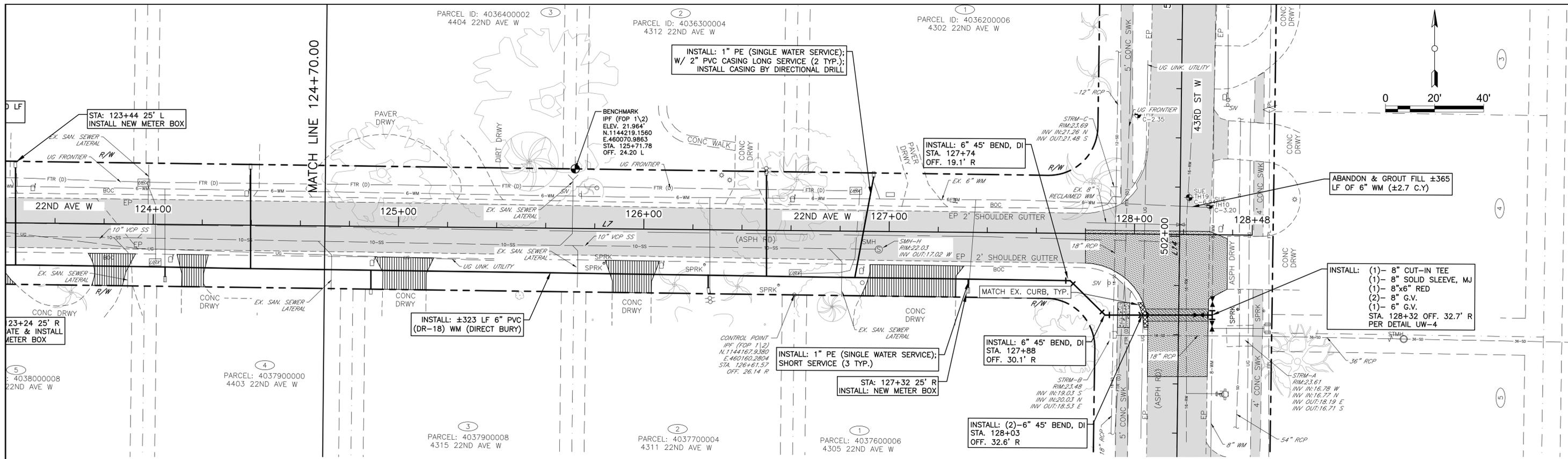
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

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



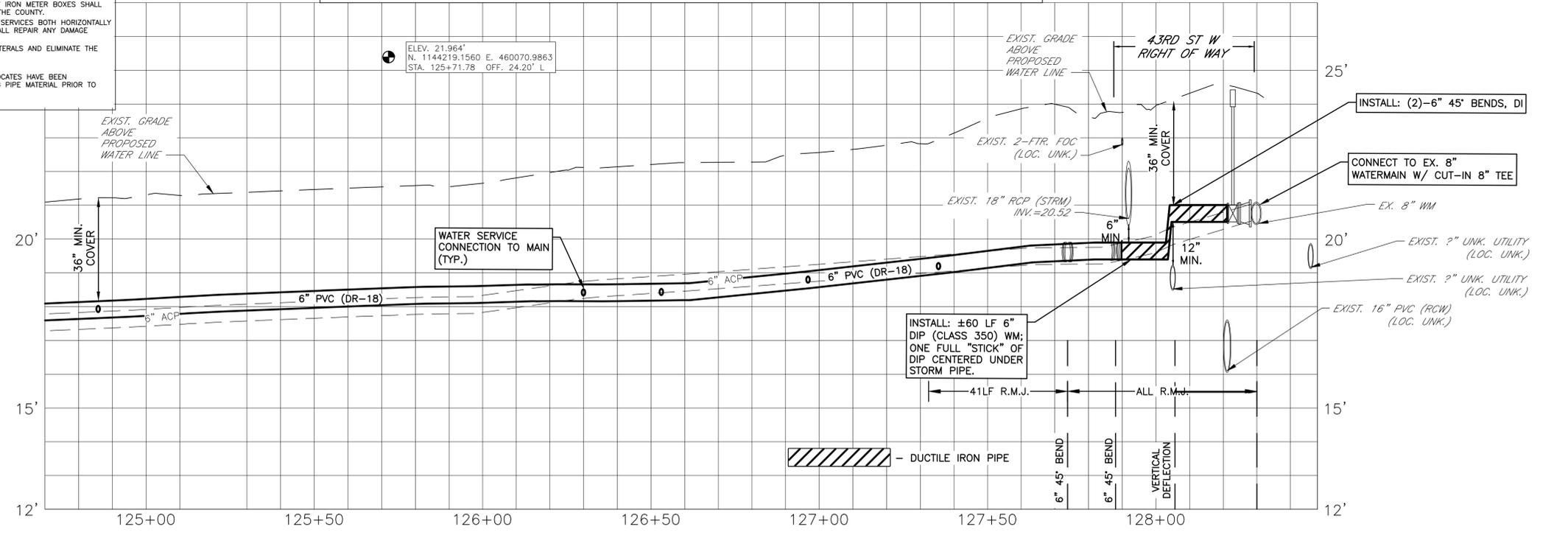
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLORIDA LICENSE NO. 60923
 JOHN S. SHOUN
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 9/10/19



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



AREA	RESTORATION	QTY'S. THIS PAGE	UNITS
[Pattern]	BASE AND RESURFACE ASPHALT	14	SY
[Pattern]	MILL & OVERLAY ASPHALT	236	SY
[Pattern]	CONCRETE CURB RESTORATION	10	LF
[Pattern]	SOD RESTORATION	375	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	6	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	0	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	106	SY

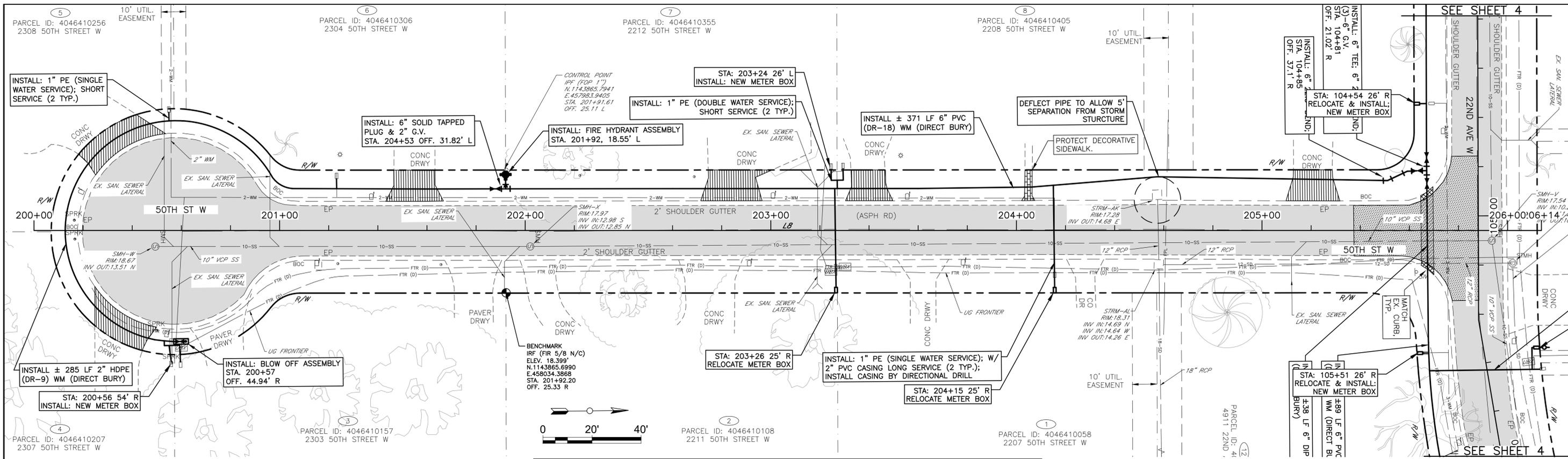
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF; rev. callout for cut-in tee	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

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

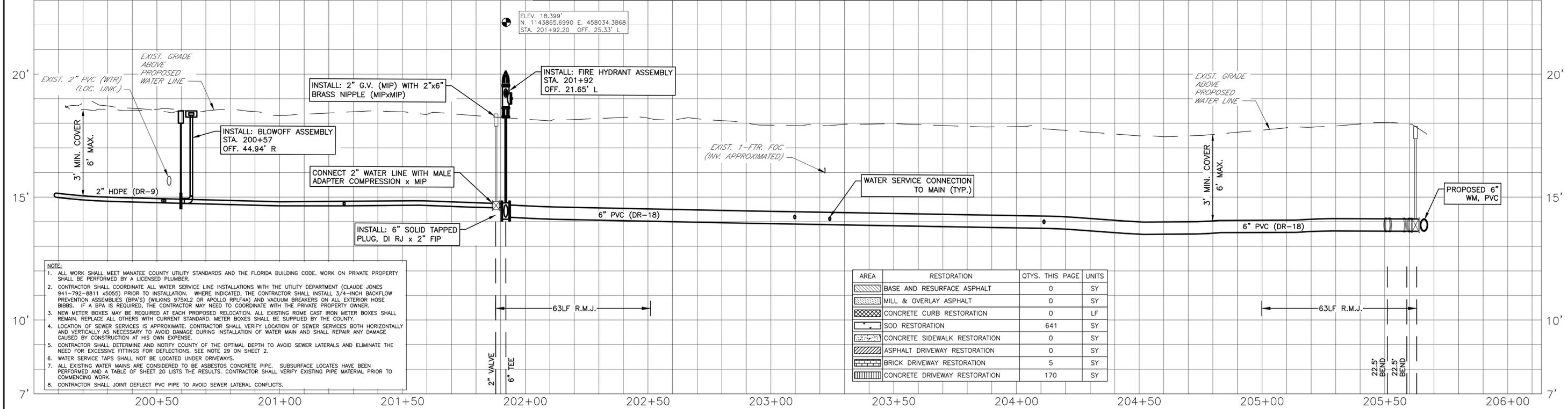


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SCALE	SEE PLAN
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DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLORIDA LICENSE NO. 60923
 JOHN S. SHOUN
 LICENSE
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 9/10/19



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



- NOTE:**
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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	641	SY
[Pattern]	CONCRETE SIDEWALK RESTORATION	0	SY
[Pattern]	ASPHALT DRIVEWAY RESTORATION	0	SY
[Pattern]	BRICK DRIVEWAY RESTORATION	5	SY
[Pattern]	CONCRETE DRIVEWAY RESTORATION	170	SY

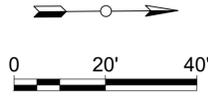
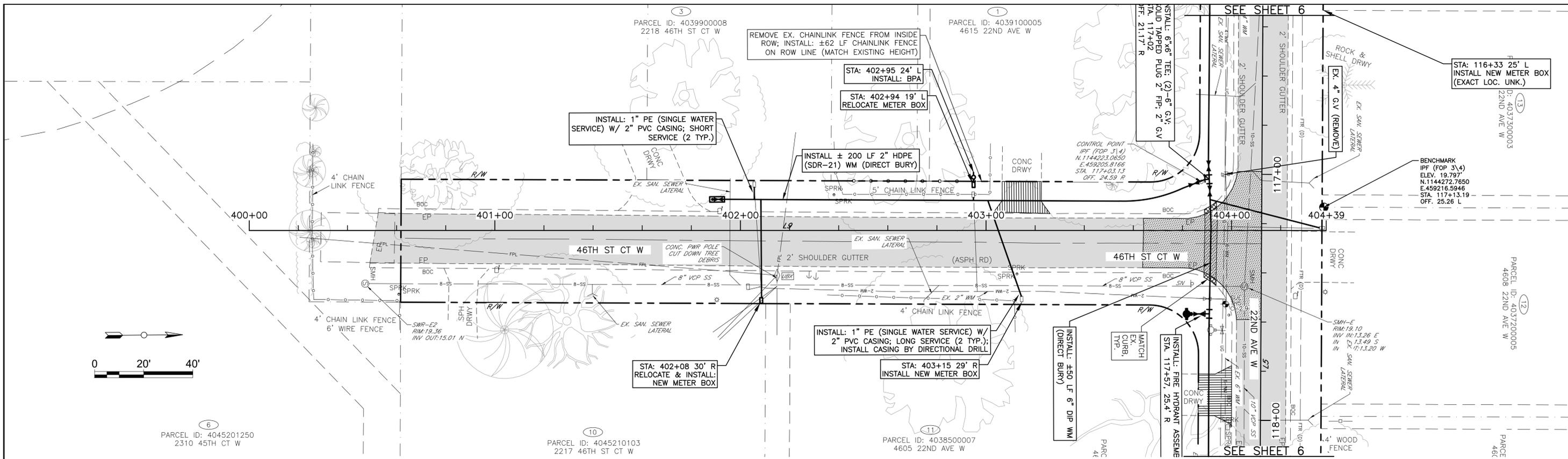
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2	revised notes 2&3 and BPA installation locations	JSS	9/19

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

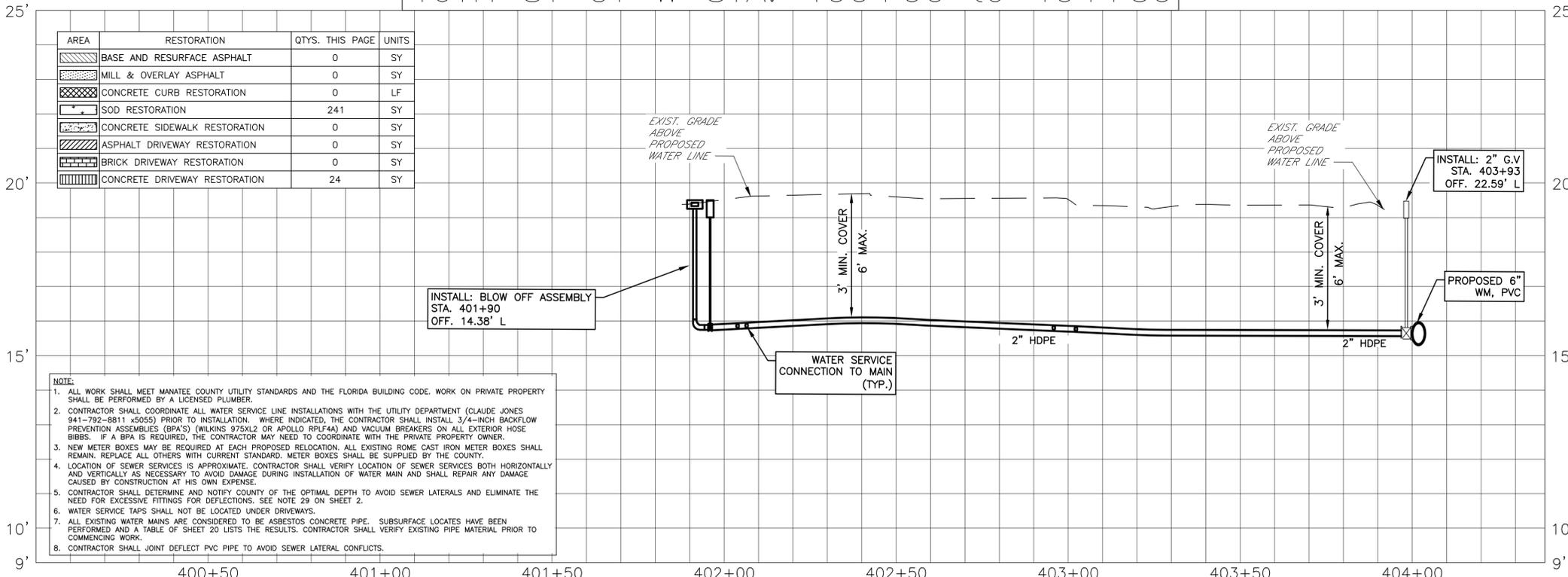


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J. SHEA SHOUN, P.E.
 FLORIDA LICENSE NO. 0923
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER



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



AREA	RESTORATION	QTY. 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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1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

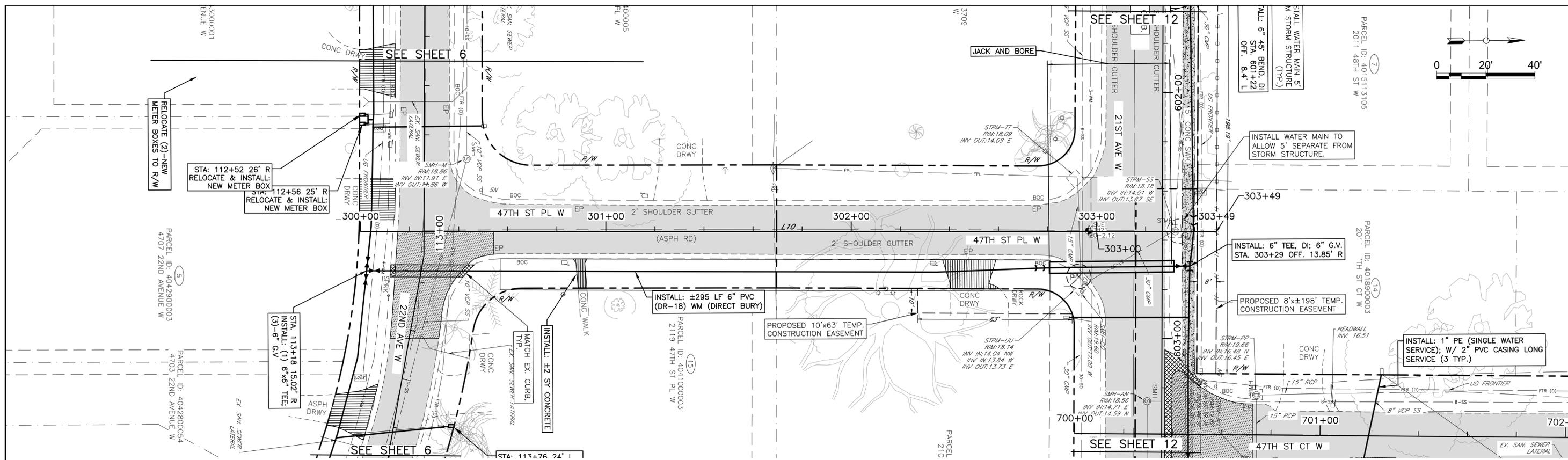
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
46TH ST CT W-400+00-404+39



PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
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J. SHEA SHOUN, P.E.
 LICENSE No. 60923
 STATE OF FLORIDA
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 SHEET 10 OF 22

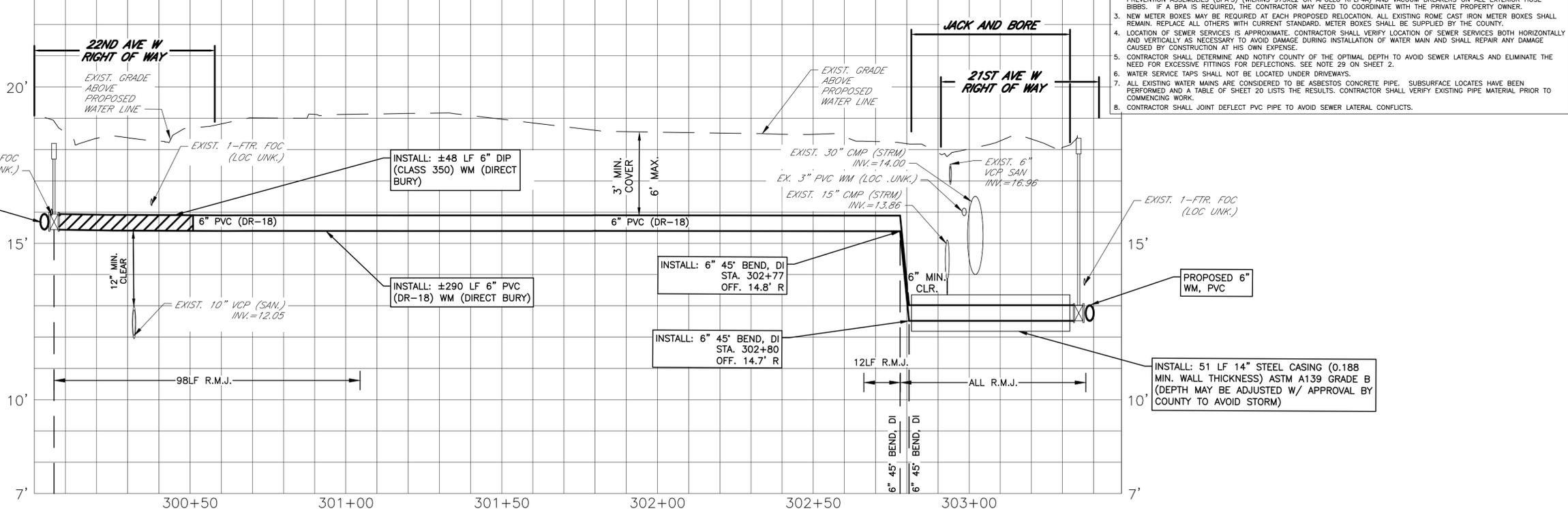
I:\Users\jshoun\OneDrive\Documents\Projects\Willow Woods & Lakes Estates\WM Upgrade\DWG\17-Willow Woods.dwg, 10/9/2019 8:38 AM, Sheet Shoun, 1:1, ANSI full bleed D (34.00 x 22.00 inches)



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

DUCTILE IRON PIPE

AREA	RESTORATION	QTYs. 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



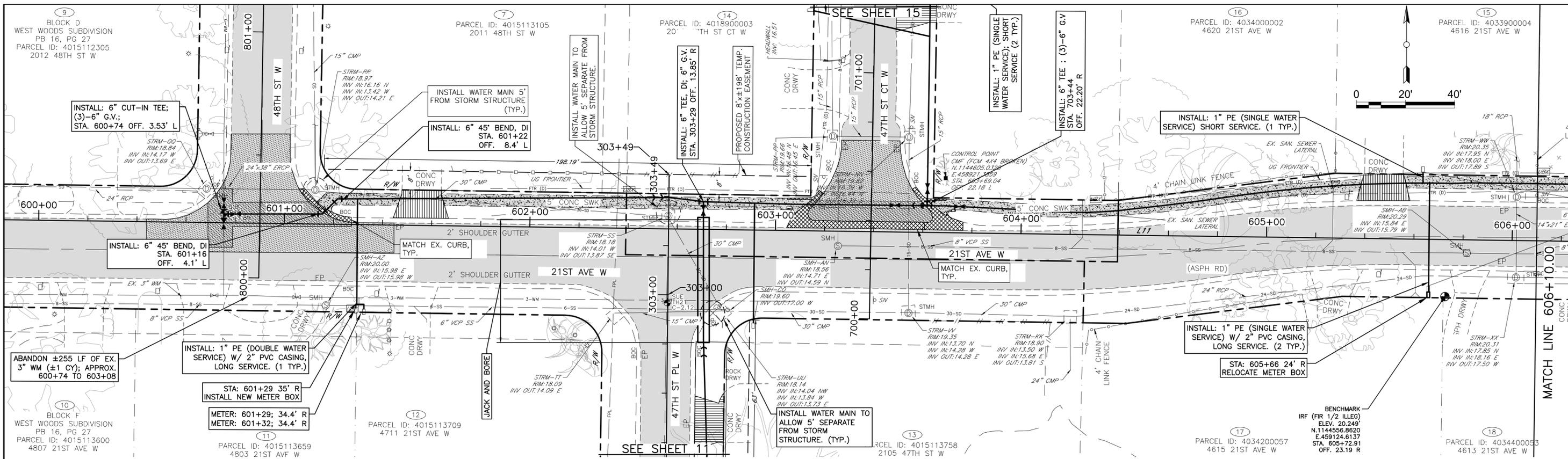
- NOTE:
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NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF, added restoration table	JSS	6/19

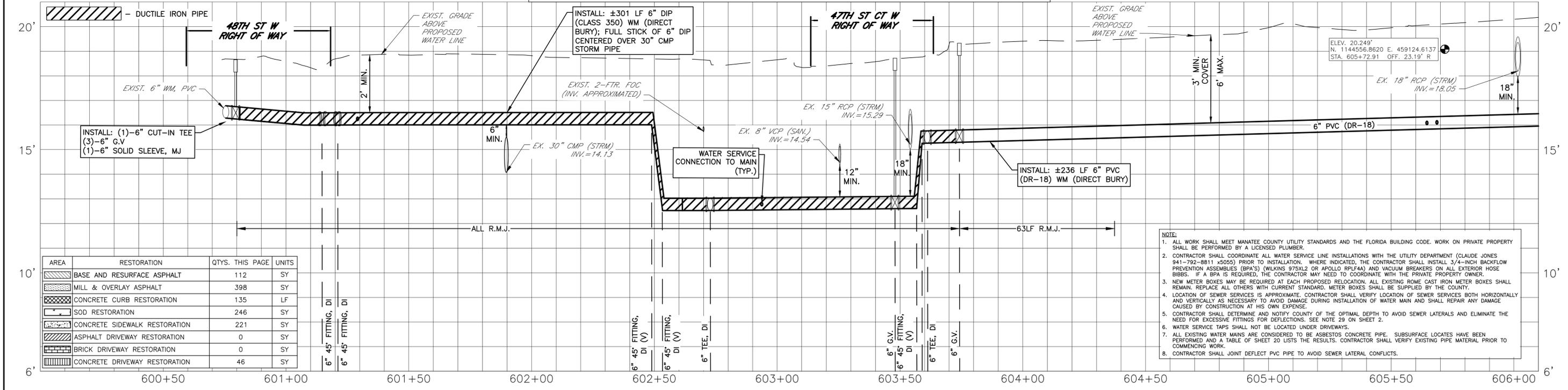
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
47TH ST PL W-300+00-303+49



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	Professional Engineer License No. 60923
SEC./TWN./RGE	33/34/17	STATE OF FLORIDA
SCALE	SEE PLAN	Professional Engineer
SURVEYED	FDC JAN 17	9/10/19
DESIGNED	JSS MAY 17	Signature & Date
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	



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



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

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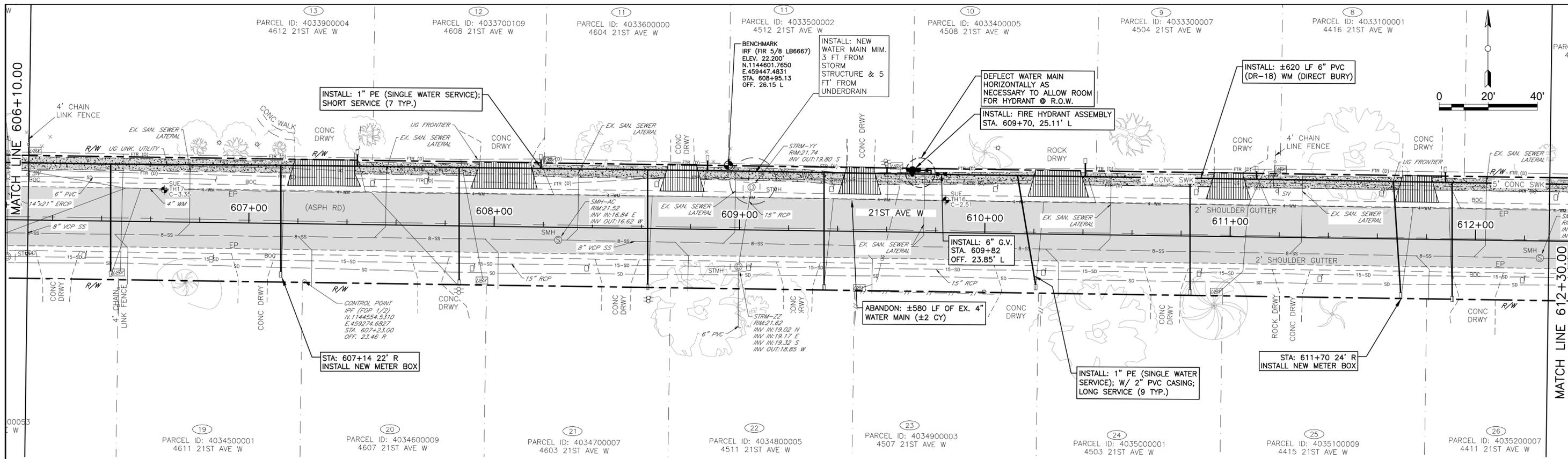
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. DIP/PVC LF; update restoration table	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-600+00-606+10



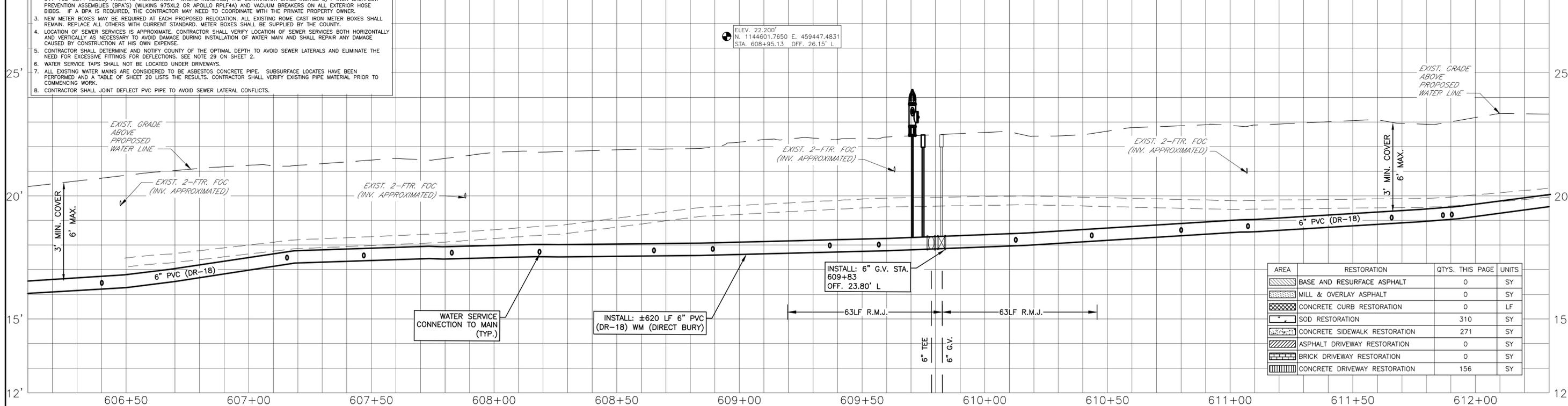
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLORIDA PROFESSIONAL ENGINEER
 No. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 Signature: [Signature]



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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

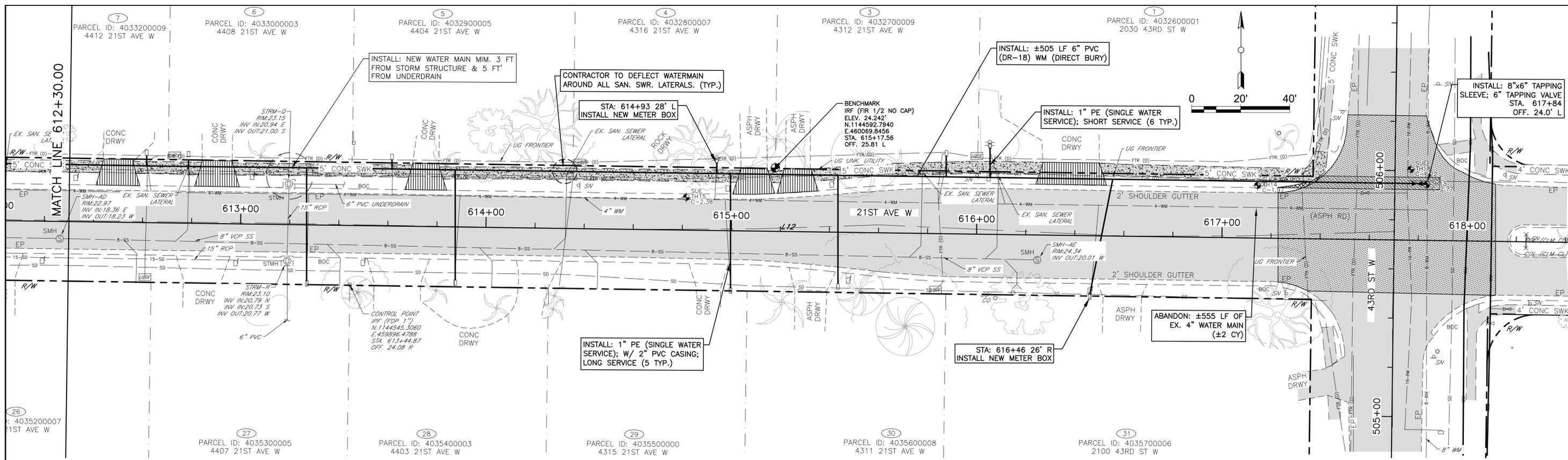
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

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

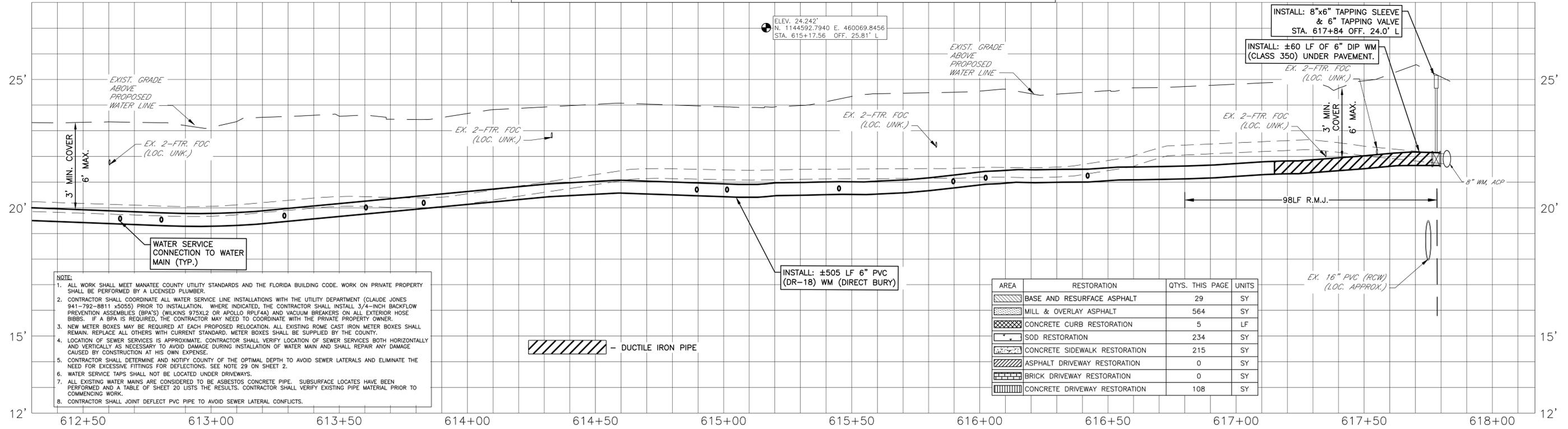


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 LICENSE NO. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 SHEET 13 OF 22



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



- NOTE:**
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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
1	revised note 2; rev. PVC LF	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

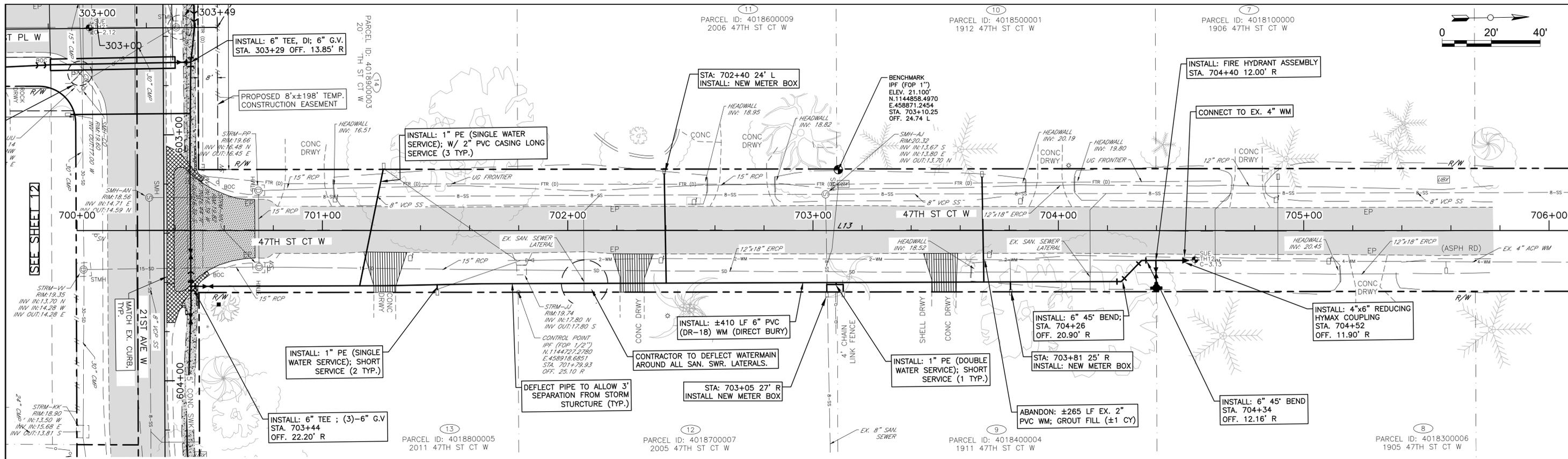
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-612+30-618+17



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 SHOUN, P.E.
 FLORIDA PROFESSIONAL ENGINEER
 No. 60923
 STATE OF FLORIDA
 9/10/19
 SHEET 14 OF 22

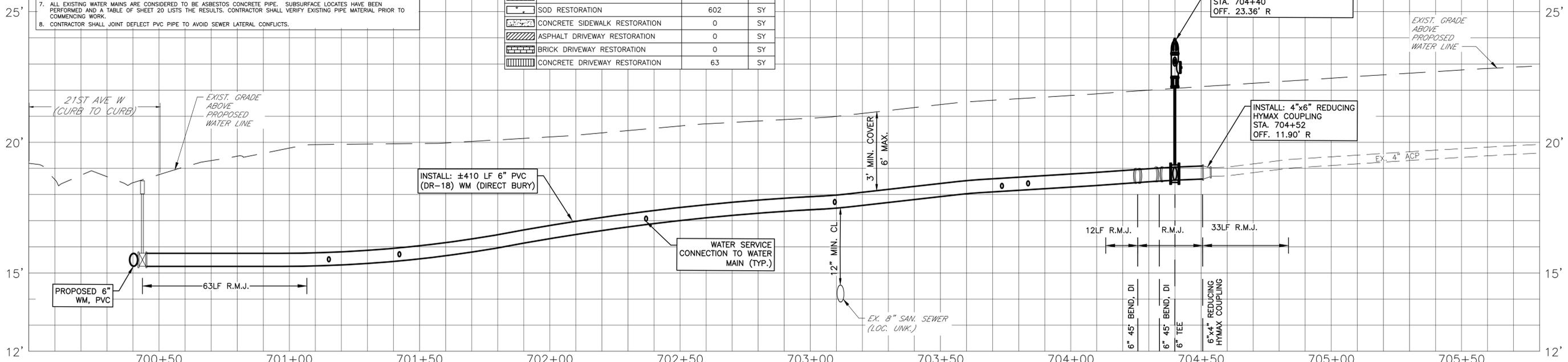
P:\CADD\Eng Design\PROJ\417R Line Proj\Willow Woods & Lakes Estates WM Upgrade\DWG\417R Line Plan\417R Line Plan.dwg, 14, 9/10/2019 8:39 AM Shep Shoun, 1:1, ANSI full sheet D (34.00 x 22.00 inches)



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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
1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

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

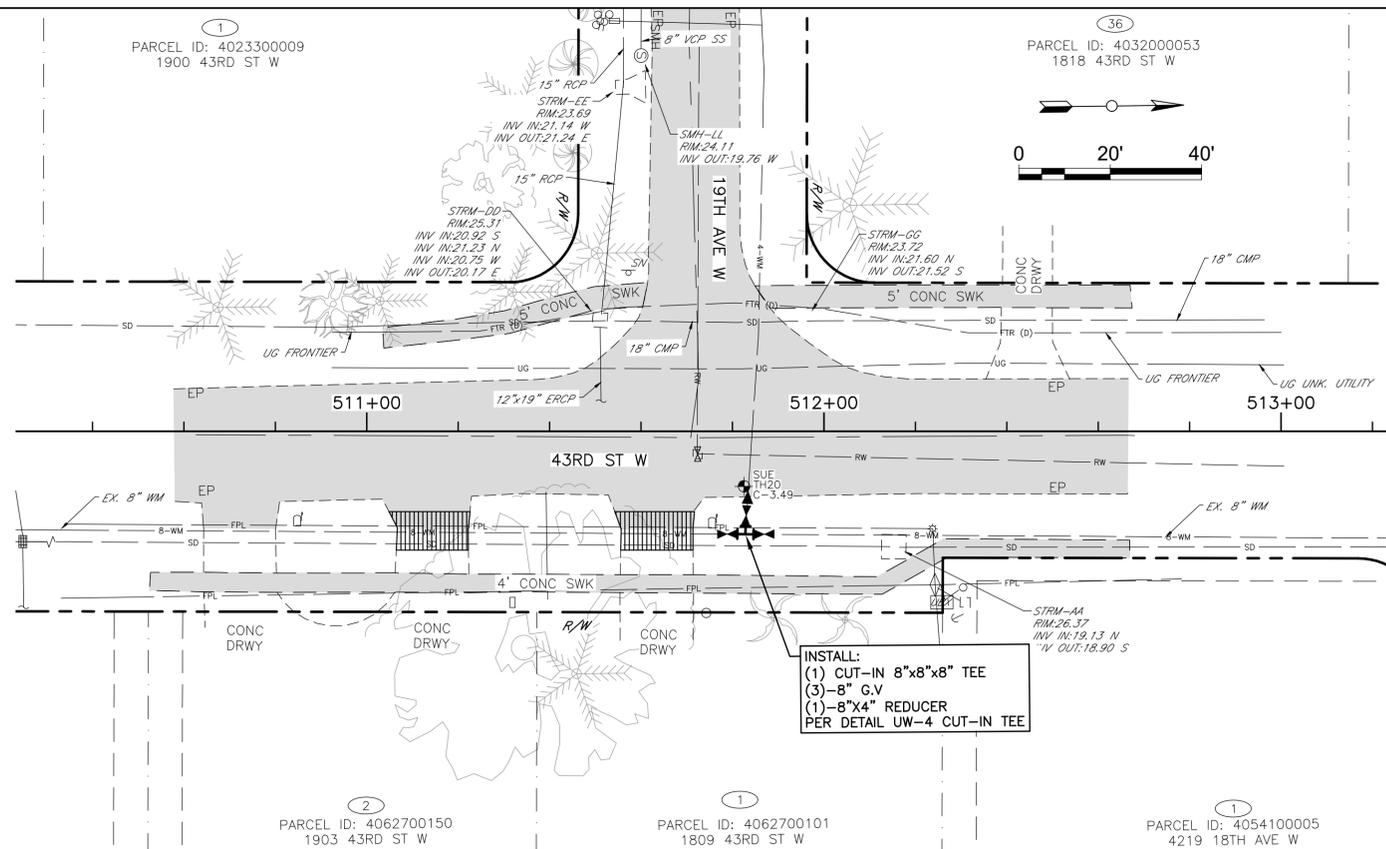


PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

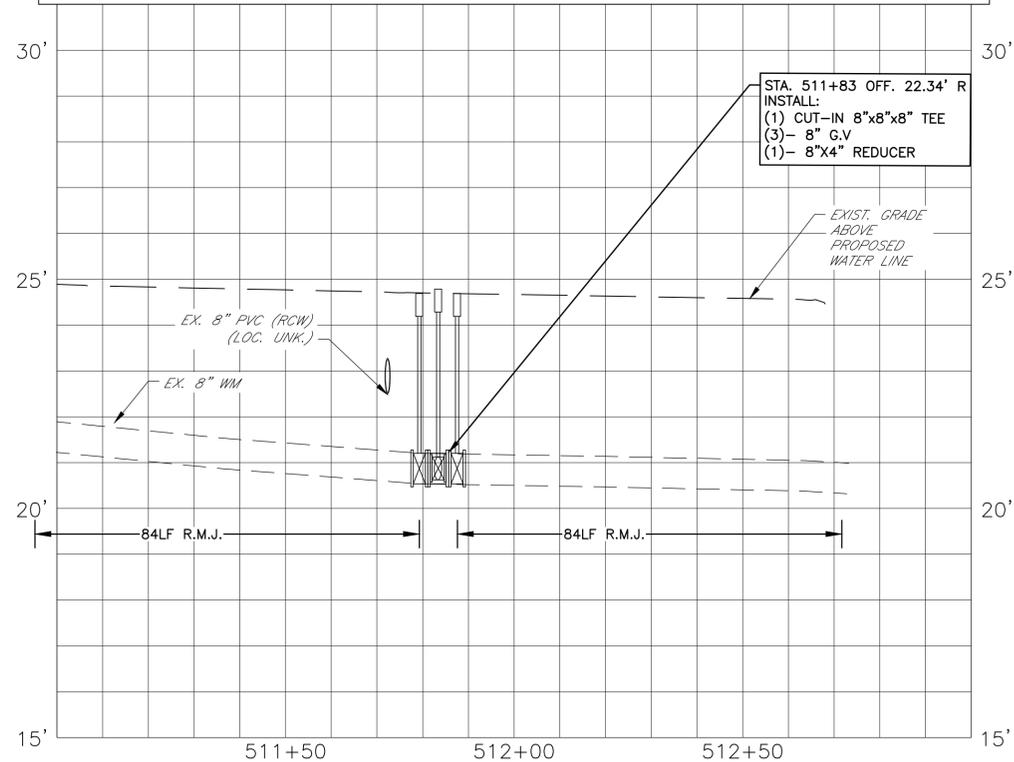
J. SHEA SHOUN, P.E.
FLORIDA LICENSE NO. 60923
STATE OF FLORIDA
PROFESSIONAL ENGINEER

SHEET 15 OF 22

I:\Projects\2019\Willow Woods\DWG\15_9/10/2019 8:39 AM Sheo Shoun_11_11 ANSI Full Sheet D (34.00 x 22.00 inches)



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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NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. restoration table; added conc driveway repair; modified cut-in tee callout	JSS	6/19

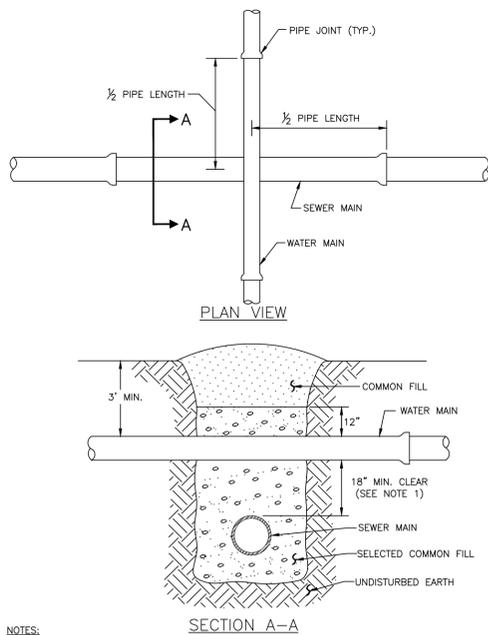
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
43RD ST W-511+00-513+00



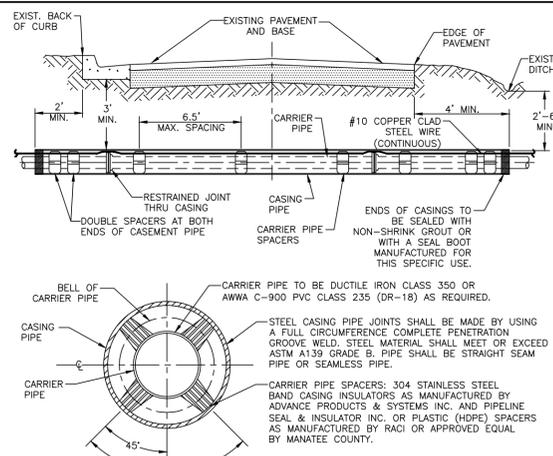
PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
 FLORIDA LICENSE NO. 60923
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 SHEET 16 OF 22

I:\CADD\Eng Design\PROJ\43rd St W\Willow Woods.dwg, 05/10/2019 8:39 AM, Shea Shoun, 1:1, ANSI full bleed D (34.00 x 22.00 inches)



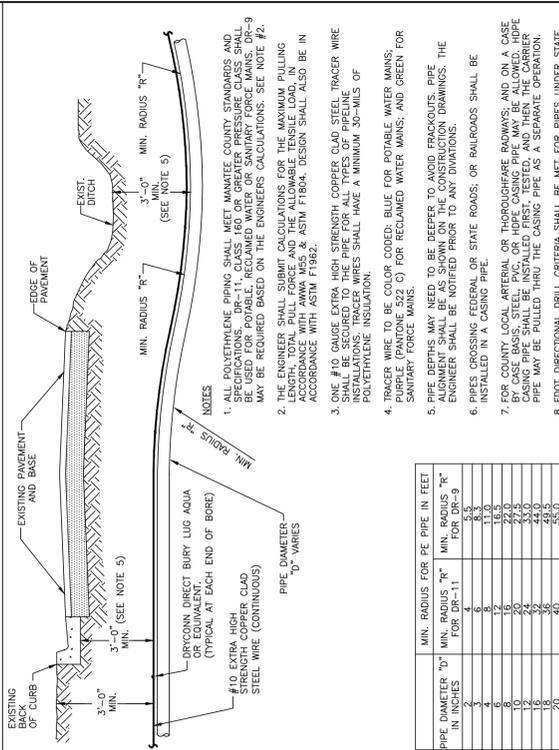
- NOTES:
- CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON OR 3" FOR FORCE MAIN WHERE FORCE MAIN IS ENCASED A MINIMUM OF 10" EACH SIDE OF CROSSING.
 - WHERE NO ENCASEMENT IS REQUIRED, PIPE CROSSINGS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY SO THAT THE 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" 18" 20" 24" 30" 36" 48"
CASING / WALL THICKNESS	0.188 0.250 0.250 0.344 0.406 0.406 0.406 0.406

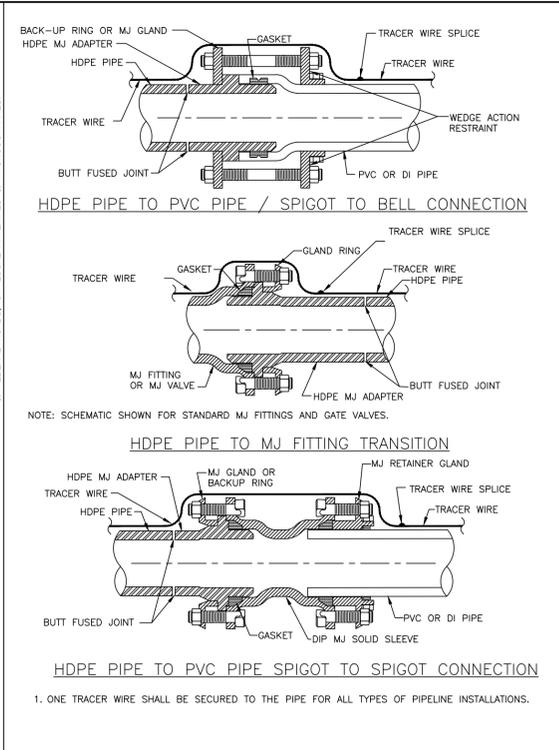
CARRIER SIZE & MINIMUM CASING SIZE	
CARRIER	4" 6" 8" 10" 12" 14" 16" 18" 20"
CASING	8" 12" 16" 20" 24" 30" 36" 48"

- 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.



PIPE DIAMETER "D"	MIN. RADIUS "R"
4"	30'
6"	45'
8"	60'
10"	75'
12"	90'
14"	105'
16"	120'
18"	135'
20"	150'
24"	180'
30"	225'
36"	270'
48"	360'

- NOTES:
- PIPE JOINTS SHALL BE MADE BY USING 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 FORCE OF THE CARRIER PIPE AND THE ALLOWABLE TENSILE LOAD, IN ACCORDANCE WITH ASTM F1982.
 - 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 MAINS; RED FOR RECLAIMED WATER MAINS; AND GREEN FOR SANITARY MAINS.
 - PIPE DEPTHS MAY NEED TO BE DEEPER TO AVOID FRACKOUTS. 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 PIPE BEING PULLED THROUGH THE CASING PIPE AS A SEPARATE OPERATION.
 - FOOT DIRECTIONAL DRILL CRITERIA SHALL BE MET FOR PIPES UNDER STATE, FEDERAL, ROADS; OR LOCAL ARTERIALS & THOROUGHFARES.



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	X8	X6	214
20	78	32	16	X20	X16	X12	X10	X8	X6	X4	184
16	66	27	13	X16	X12	X10	X8	X6	X4	X3	151
12	52	22	10	X12	X10	X8	X6	X4	X3	X2	118
10	44	18	9	X10	X8	X6	X4	X3	X2	X1	100
8	37	15	7	X8	X6	X4	X3	X2	X1	X0	83
6	29	12	6	X6	X4	X3	X2	X1	X0	X0	63
4	21	8	4	X4	X3	X2	X1	X0	X0	X0	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

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

TYPICAL NEW WATER & SEWER LINE CROSSING UG-2

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

CASING CROSSING UG-3

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

DIRECTIONAL BORE ROADWAY CROSSING UG-4

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

HDPE TO PVC OR DI PIPE ADAPTER UG-6

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

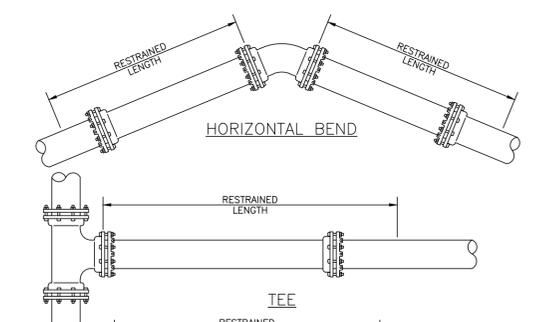
REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

RESTRAINED LENGTHS FOR PVC PIPE UG-8

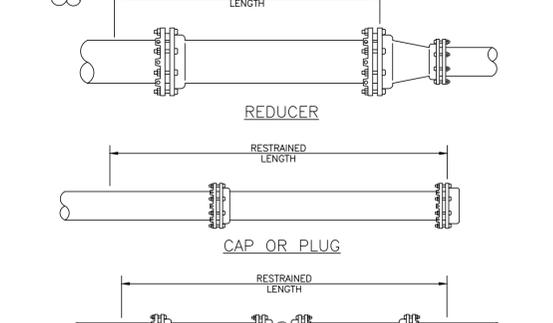
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)

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	X20	X16	X12	X10	453
30	124	51	25	X30	X24	X20	X16	X12	X10	X8	391
24	106	44	21	X24	X20	X16	X12	X10	X8	X6	327
20	92	38	18	X20	X16	X12	X10	X8	X6	X4	280
16	77	32	15	X16	X12	X10	X8	X6	X4	X3	231
12	61	25	12	X12	X10	X8	X6	X4	X3	X2	181
10	52	22	10	X10	X8	X6	X4	X3	X2	X1	153
8	44	18	9	X8	X6	X4	X3	X2	X1	X0	128
6	34	14	7	X6	X4	X3	X2	X1	X0	X0	98
4	24	10	5	X4	X3	X2	X1	X0	X0	X0	69



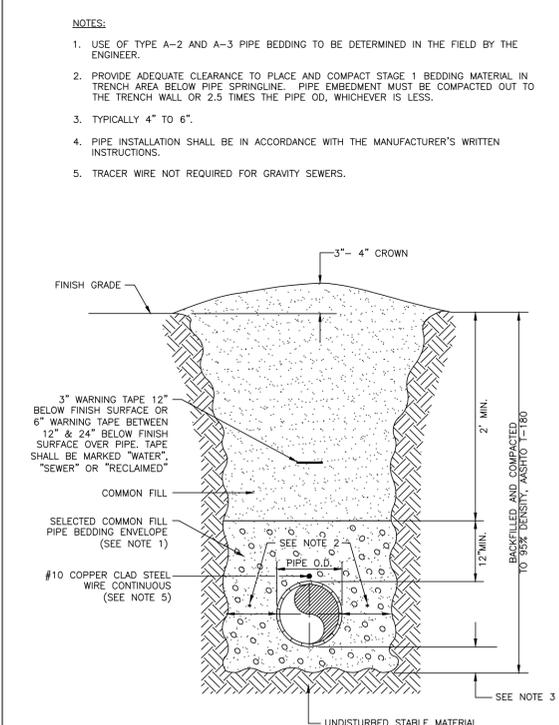
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

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	X20	X16	X12	X10	188
30	88	37	18	X30	X24	X20	X16	X12	X10	X8	162
24	75	31	15	X24	X20	X16	X12	X10	X8	X6	135
20	65	27	13	X20	X16	X12	X10	X8	X6	X4	116
16	54	22	11	X16	X12	X10	X8	X6	X4	X3	96
12	43	18	8	X12	X10	X8	X6	X4	X3	X2	75
10	37	15	7	X10	X8	X6	X4	X3	X2	X1	63
8	30	13	6	X8	X6	X4	X3	X2	X1	X0	53
6	24	10	5	X6	X4	X3	X2	X1	X0	X0	41
4	17	7	3	X4	X3	X2	X1	X0	X0	X0	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.

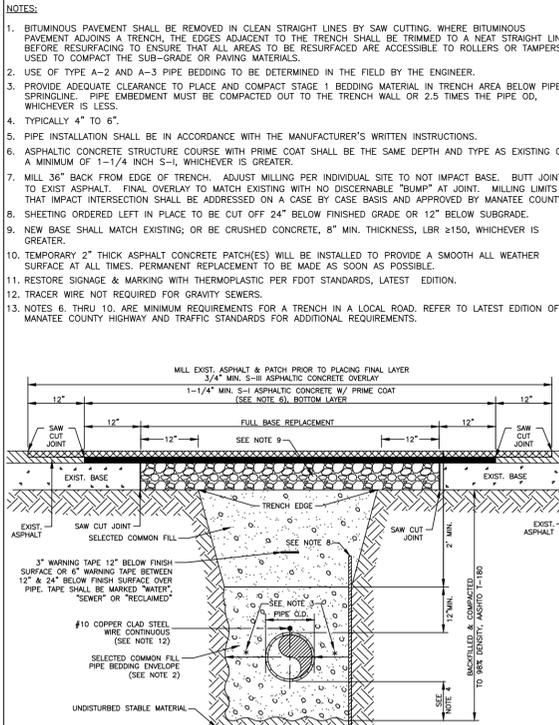


MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

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

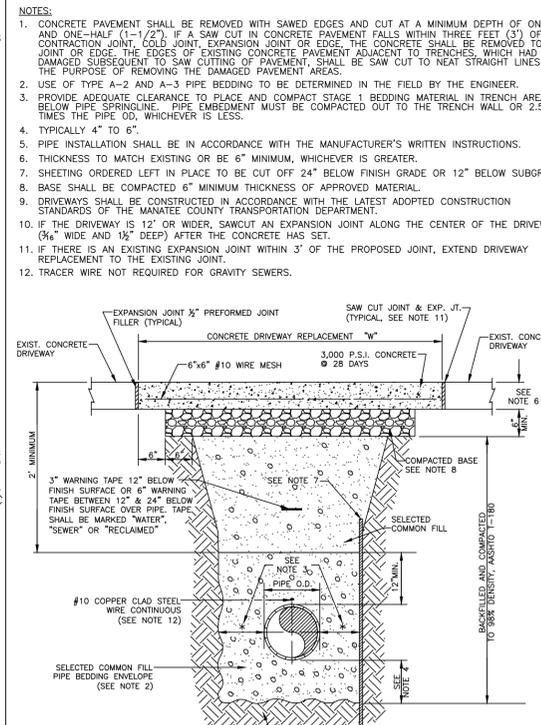


MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

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



MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

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

WILLOW WOODS & LAKES ESTATES

WATER MAIN UPGRADE

DETAILS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

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

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

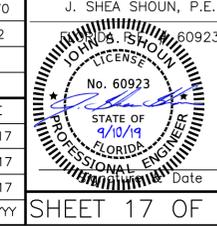
REVISIONS:

NO.	DATE	DESCRIPTION
1		Updated all details

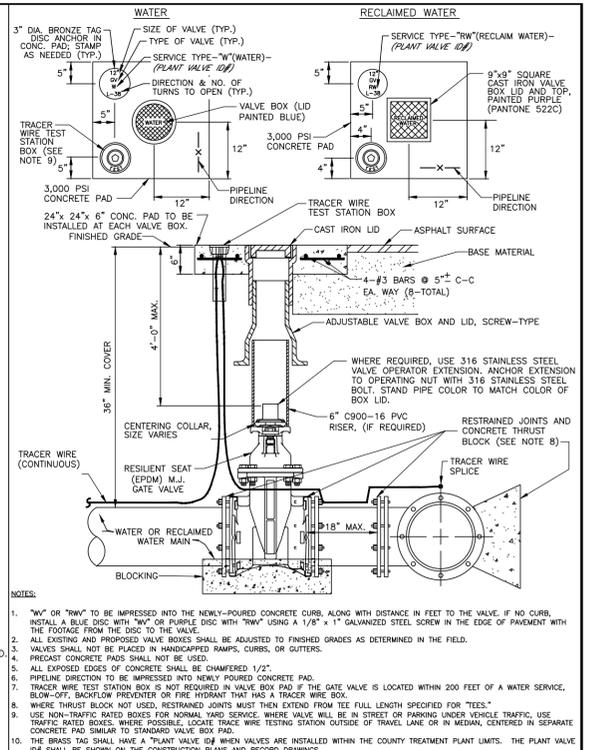
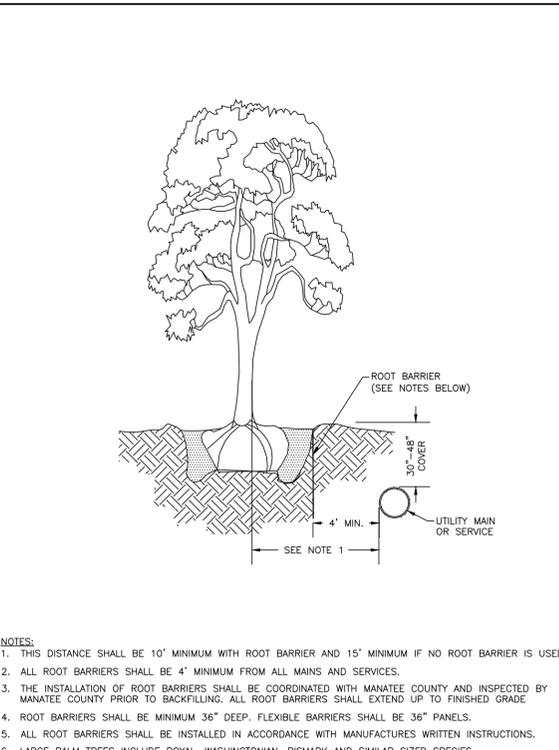
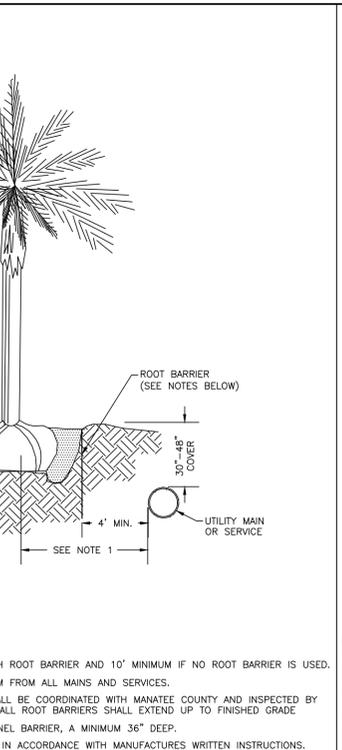
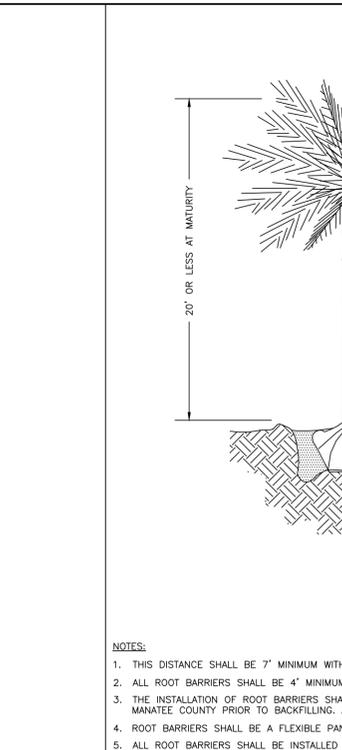
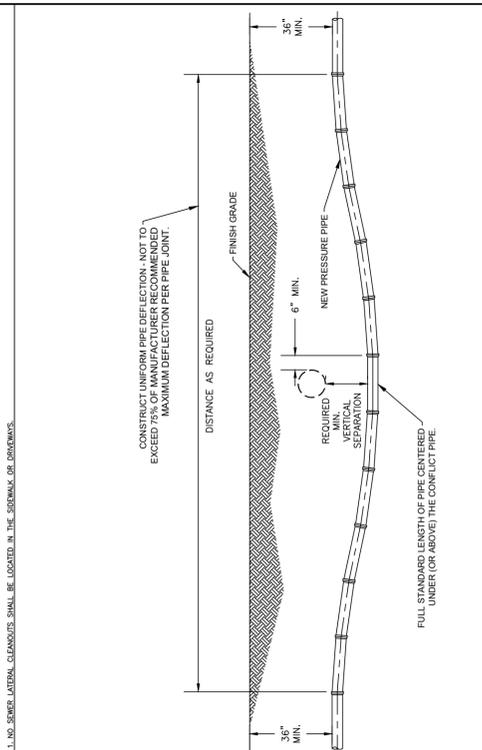
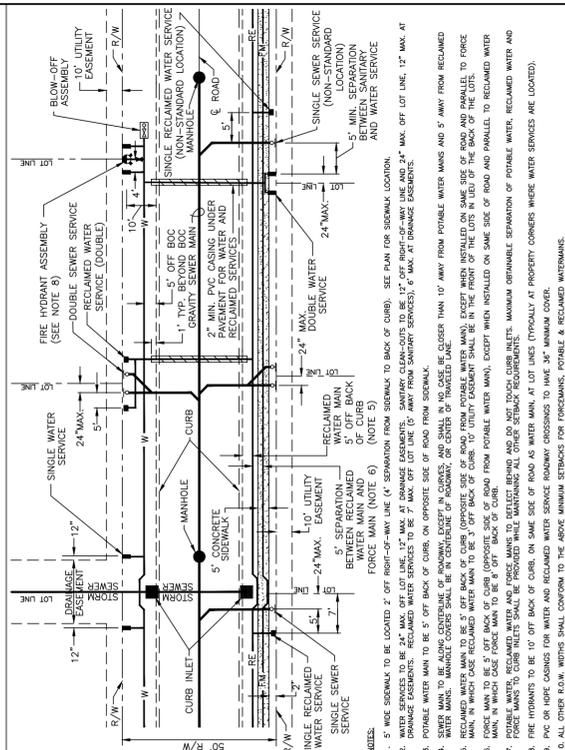
TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING UG-14



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	



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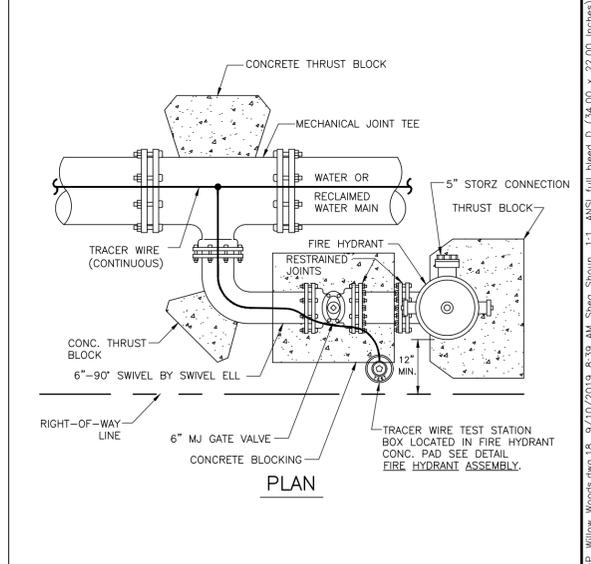
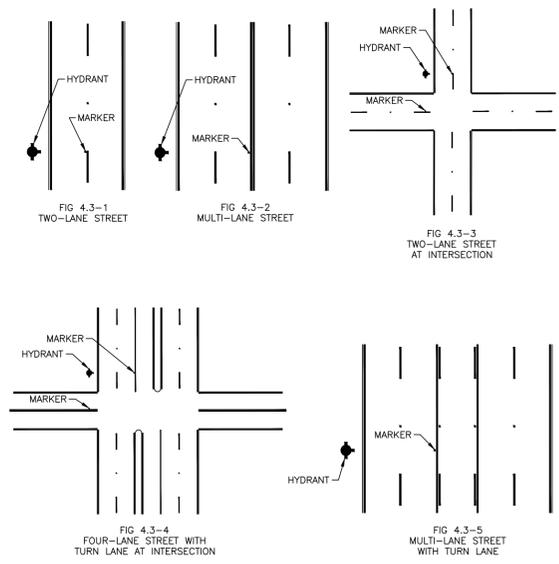
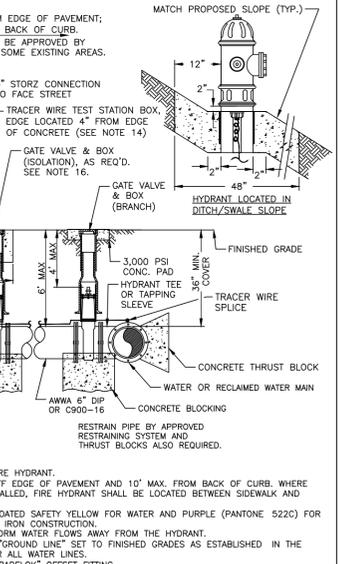
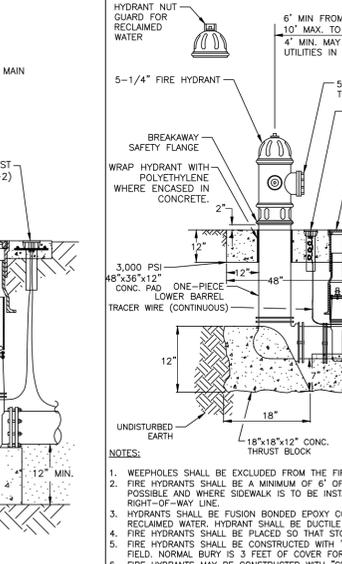
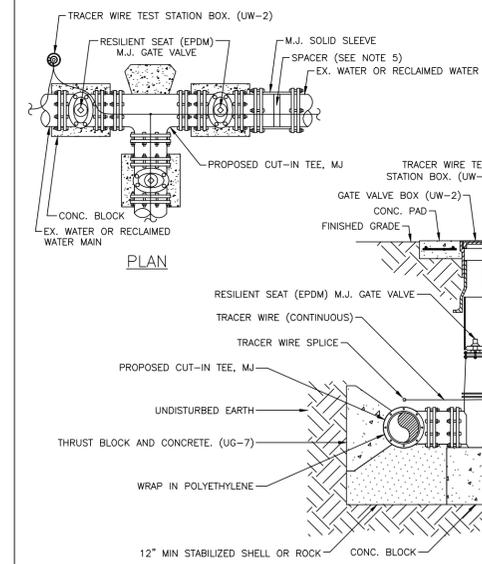
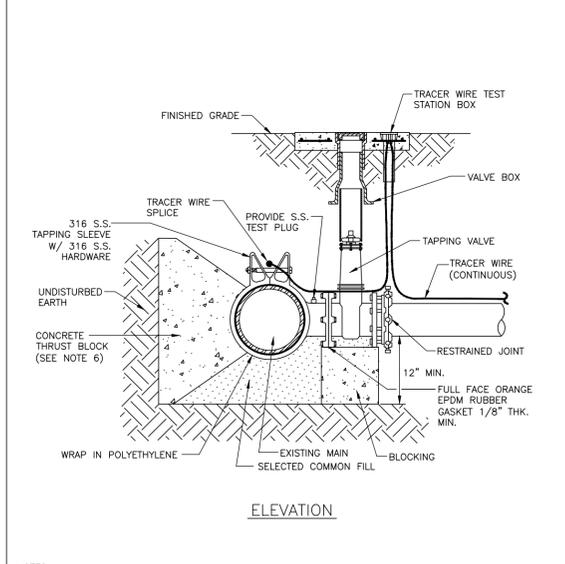
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		UTILITY LAYOUT FOR 50' R/W	UG-17
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		PRESSURE PIPE DEFLECTION AT UTILITY CROSSING	UG-18
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYP. SMALL TREE OR PALM TREE WITH ROOT BARRIER	UG-19
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYP. CANOPY TREE, LARGE PALM OR EXOTIC TREE WITH ROOT BARRIER	UG-20
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		GATE VALVE, BOX, LID AND TAG	UW-2
REV. BY	DATE	DATE OF APPROVAL	



- NOTES:
- PRIOR TO TAPPING, CONTRACTOR TO DEMONSTRATE 60 MINUTE HYDROSTATIC TEST OF THE TAPPING SLEEVE AND VALVE WITH NO LOSS OF 180 PSI PRESSURE FOR WATER AND RECLAIMED WATER.
 - ALL FITTINGS TO BE WRAPPED WITH 20 MIL POLYETHYLENE WRAP AT THRUST BLOCK.
 - ALL TAPS ON CONCRETE WATER MAINS AND LARGER THAN 12" ARE TO BE MADE BY A MANATEE COUNTY APPROVED TAPPING COMPANY. ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR.
 - ALL TAPS MUST BE OF A SMALLER SIZE THAN THE MAIN BEING TAPPED & PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS GREATER) FROM A JOINT OR FITTING.
 - CONTRACTOR TO SUPPLY A DRY HOLE FOR TAPPING CREW TO WORK IN AND A BACK-HOE TO LOWER TAPPING MACHINE INTO THE HOLE.
 - WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR TEES.
 - TRACER WIRE TEST STATION BOX IS REQUIRED AT CONNECTIONS TO EXISTING MAINS.
 - SEE SECTION 1.1.1 TAPPING SLEEVES AND VALVES FOR FURTHER DETAILS.

- NOTES:
- ALL FITTINGS TO BE WRAPPED WITH 20 MIL POLYETHYLENE WRAP AT THRUST BLOCK.
 - TRACER WIRE TEST STATION BOX IS REQUIRED AT CONNECTIONS TO EXISTING MAINS.
 - WATER VALVES SHALL BE INSTALLED ON ALL SIDES OF TEES AND CROSSES, UNLESS INLINE VALVES ON THAT LEG WITHIN 200 FEET.
 - RESTRAINED JOINTS MUST EXTEND FROM TEE FULL LENGTH SPECIFIED FOR VALVES. (UG-8)
 - SPACER IS REQUIRED IF A GAP EXISTS. SPACER NOT TO EXCEED OVER 30% OF SLEEVE WIDTH.
 - IN ASBESTOS CONCRETE PIPE (AC) APPLICATIONS: TWO COUPLINGS ARE REQUIRED. ALL FITTINGS INCLUDING COUPLINGS SHALL BE SUPPORTED WITH CONCRETE BLOCKING TO PREVENT SETTLEMENT.
 - ALL EXISTING RESTRAINING SHALL BE MODIFIED AND/OR RE-INSTATED AS NECESSARY, TO MEET THE REQUIREMENTS OF UG-8 FOR VALVES.

- NOTES:
- WEEPHOLES SHALL BE EXCLUDED FROM THE FIRE HYDRANT.
 - FIRE HYDRANTS SHALL BE A MINIMUM OF 6" OFF EDGE OF PAVEMENT AND 10' MAX. FROM BACK OF CURB, WHERE POSSIBLE AND WHERE SIDEWALK IS TO BE INSTALLED, FIRE HYDRANT SHALL BE LOCATED BETWEEN SIDEWALK AND RIGHT-OF-WAY LINE.
 - HYDRANTS SHALL BE FUSION BONDED EPOXY COATED SAFETY YELLOW FOR WATER AND PURPLE (PANTONE 522C) FOR RECLAIMED WATER. HYDRANT SHALL BE BRITTLE IRON CONSTRUCTION.
 - FIRE HYDRANTS SHALL BE PLACED SO THAT STORM WATER FLOWS AWAY FROM THE HYDRANT.
 - FIRE HYDRANTS SHALL BE CONSTRUCTED WITH "GROUND LINES" SET TO FINISHED GRADES AS ESTABLISHED IN THE FIELD. NORMAL BURY IS 3 FEET OF COVER FOR ALL WATER LINES.
 - FIRE HYDRANTS MAY BE CONSTRUCTED WITH "GRADELOK" OFFSET FITTING.
 - RAISED REFLECTIVE PAVEMENT MARKERS (BLUE) FOR POTABLE WATER (PURPLE) FOR RECLAIMED WATER SHALL BE INSTALLED ON THE PAVEMENT DIRECTLY ACROSS FROM THE HYDRANT IN ACCORDANCE WITH THE FDOT TRAFFIC ENGINEERING MANUAL, CHAPTER 4, SECTION 4.3 OR MOST CURRENT ADDITION.
 - ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 1/2" CHAMFER.
 - FIRE HYDRANT VALVE SHALL BE FASTENED DIRECTLY TO TEE.
 - IN-LINE VALVES SHOULD BE LOCATED AT HYDRANT TEES.
 - HYDRANTS SHALL BE LOCATED ON SAME SIDE OF ROAD AS WATER OR RECLAIMED MAIN.
 - THERE MUST BE A CLEARANCE OF 7 1/2 FEET FROM FRONT AND BOTH SIDES, AND FOUR FEET TO THE REAR OF THE HYDRANT, TO ABOVE GRADE OBSTRUCTIONS INCLUDING POSTS, FENCES, TREES, ETC. PER THE FLORIDA FIRE PREVENTION CODE.
 - SEE STANDARD DETAIL GATE VALVE, BOX, LID AND TAG.
 - SHOULD THE FIRE HYDRANT'S CONCRETE PAD OVERLAP A SIDEWALK, THE TRACER WIRE TEST STATION BOX SHALL NOT BE LOCATED WITHIN THE SIDEWALK.
 - IF A HYDRANT IS LOCATED ON THE SLOPE OF A DITCH OR SWALE; THE CONCRETE PAD SHALL CONFORM TO THE FINISH GRADE/SLOPE. THE CONCRETE PAD SHALL BE LEVEL 2-INCHES BEHIND & IN FRONT OF THE HYDRANT.
 - AT THE DISCRETION OF THE COUNTY AN ADDITIONAL ISOLATION GATE VALVE SHALL BE ADDED, WHEN A PHYSICAL BARRIER IS PRESENT, (I.E. ROADWAY, FENCE, WALL, BERM ETC), BETWEEN THE BRANCH GATE VALVE AND THE HYDRANT. SEE SECTION 1.1.1 HYDRANTS FOR FURTHER DETAILS.

- NOTES:
- TWO-WAY STREETS OR ROADS: MARKER SHOULD BE PLACED 6 INCHES FROM EDGE OF PAINTED CENTERLINE ON THE SIDE NEAREST THE FIRE HYDRANT. IF THE STREET HAS NO CENTERLINE, THE MARKER SHOULD BE PLACED 6 INCHES FROM APPROXIMATE CENTER OF THE ROADWAY ON THE SIDE NEAREST THE HYDRANT. SEE FIGURE 4.3-1, 4.3-2, AND 4.3-3.
 - STREETS WITH LEFT TURN LANE AT INTERSECTION: MARKER SHOULD BE PLACED 6 INCHES FROM EDGE OF PAINTED WHITE CHANNELIZING LINE OF THE SIDE NEAREST THE FIRE HYDRANT. SEE FIGURE 4.3-4.
 - STREETS WITH CONTINUOUS TWO-WAY TURN LANE: MARKER SHOULD BE PLACED 6 INCHES FROM THE EDGE OF THE PAINTED YELLOW BARRIER LINE ON THE SIDE NEAREST THE FIRE HYDRANT. SEE FIGURE 4.3-5.
 - MARKER SHALL BE BLUE/BLUE RAISED RETROREFLECTIVE PAVEMENT MARKER.

- NOTES:
- THIS DETAIL FOR USE ONLY WHEN THE WATER MAIN IS LOCATED TOO CLOSE TO THE RIGHT-OF-WAY LINE TO USE THE FIRE HYDRANT ASSEMBLY DETAIL.
 - SEE STANDARD DETAIL GATE VALVE, BOX, LID AND TAG.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TAPPING SLEEVE AND VALVE (WATER/RECLAIM)	UW-3
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CUT-IN TEE	UW-4
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		FIRE HYDRANT ASSEMBLY	UW-5A
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		HYDRANT LOCATION MARKERS - BLUE (RPMs)	UW-5B
REV. BY	DATE	DATE OF APPROVAL	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		FIRE HYDRANT WITH LOCKED 90° BEND	UW-6
REV. BY	DATE	DATE OF APPROVAL	

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

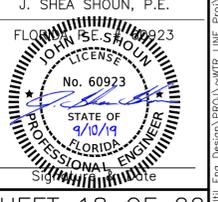
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1	Updated all details	JSS	6/19

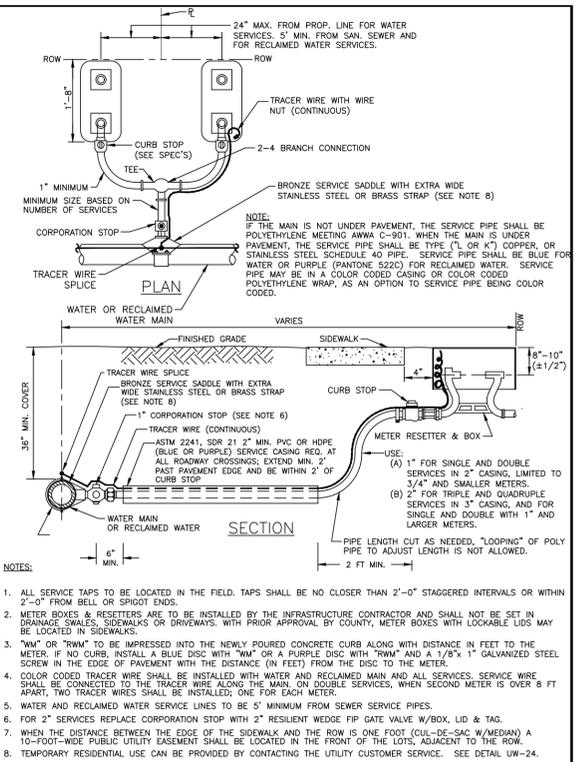
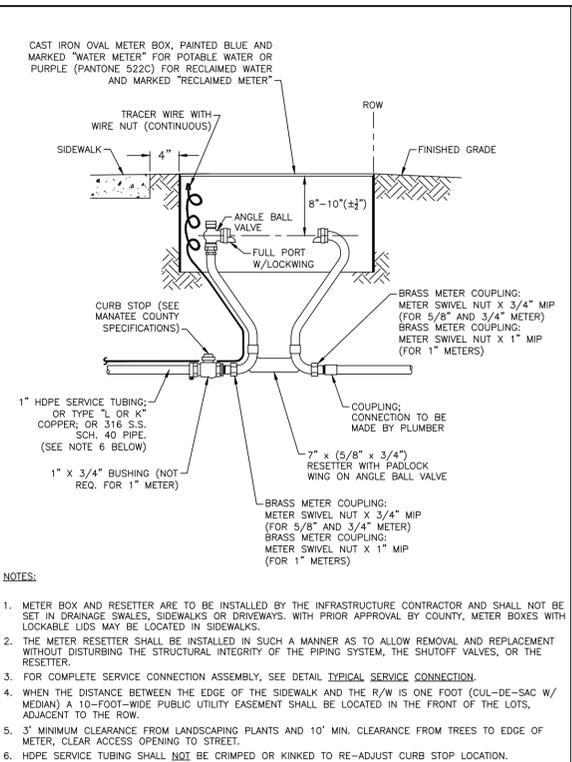
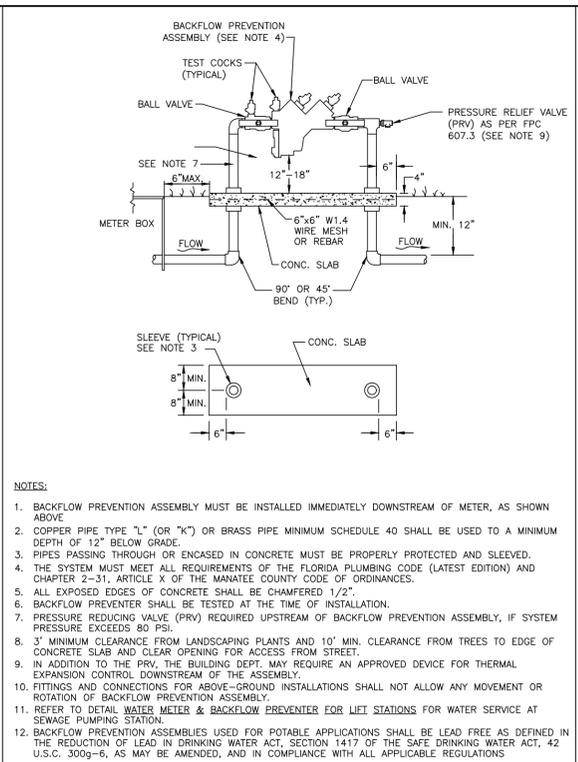
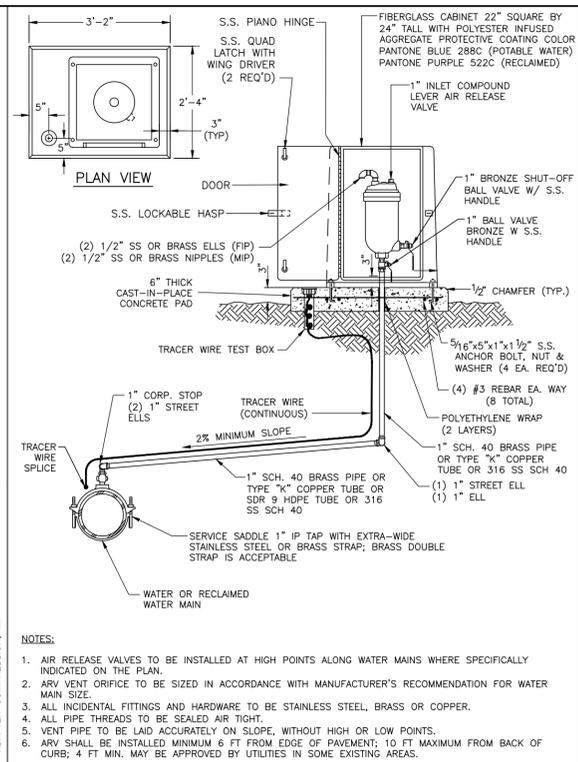
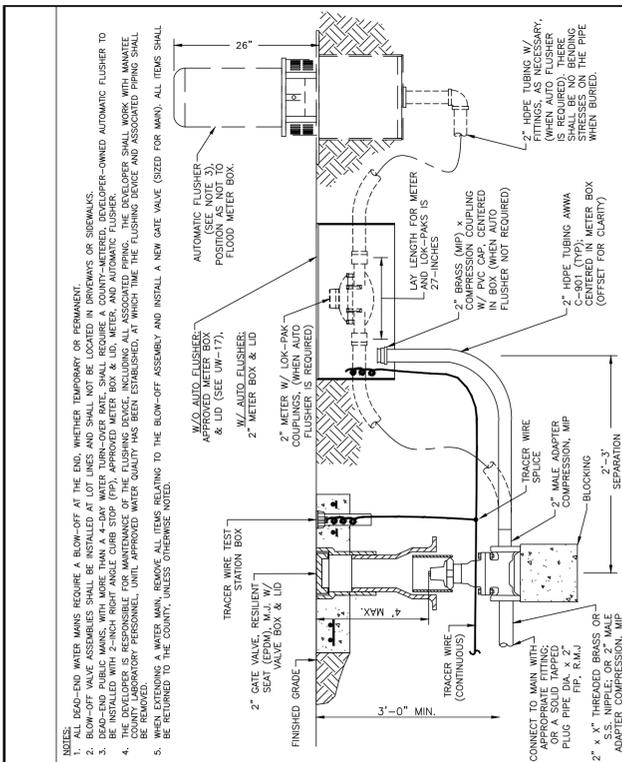
NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA PROFESSIONAL ENGINEER
SEC./TWN./RGE	33/34/17	No. 60923
SCALE	SEE PLAN	STATE OF FLORIDA
SURVEYED	FDC JAN 17	9/10/19
DESIGNED	JSS MAY 17	PROFESSIONAL ENGINEER
DRAWN	CAK MAY 17	Signature
CHECKED	JSS MM/YYYY	

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

DETAILS





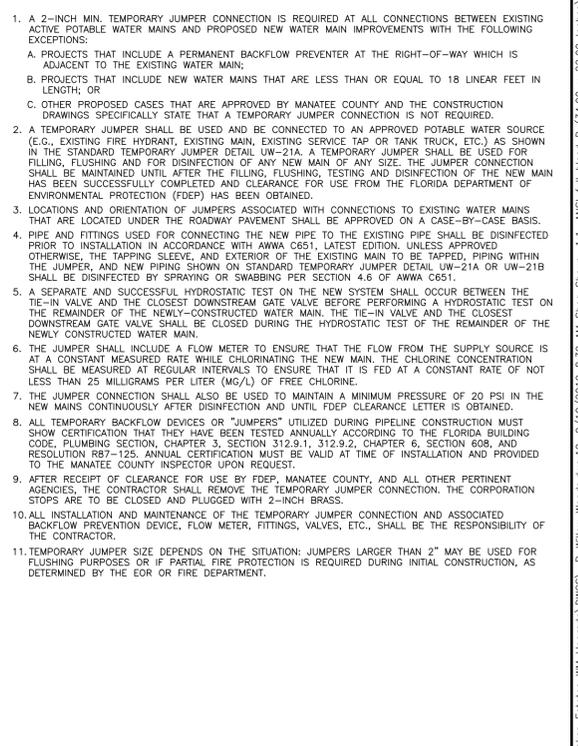
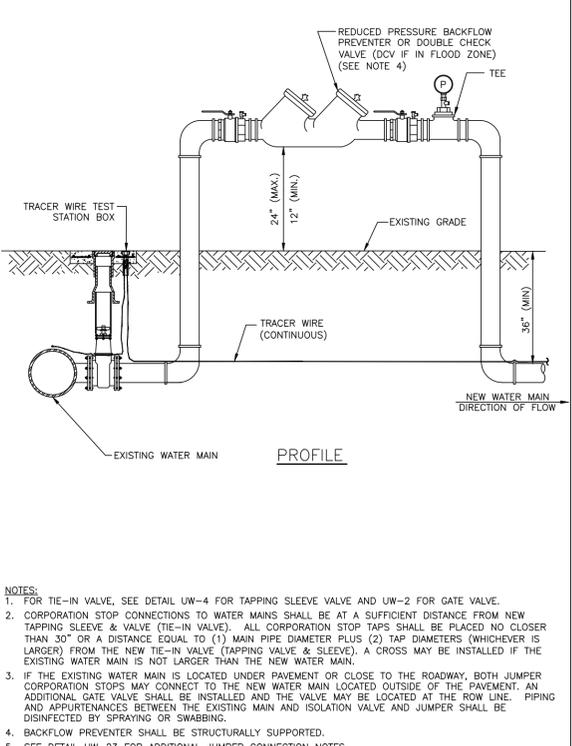
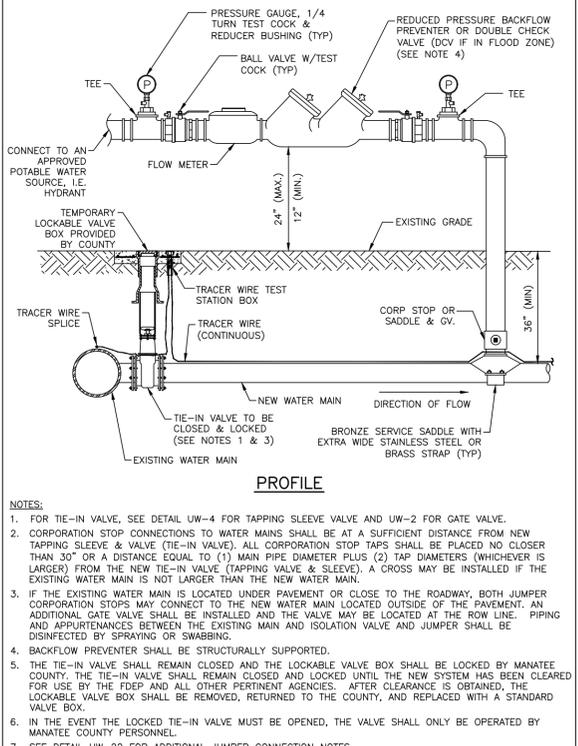
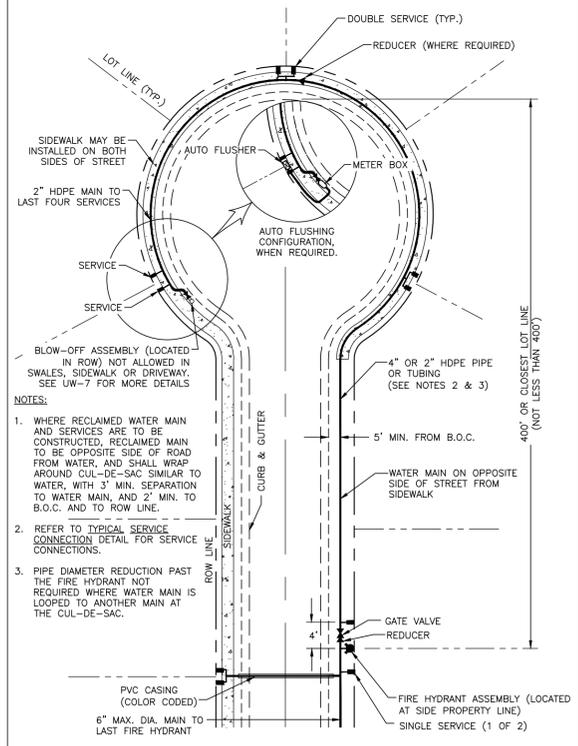
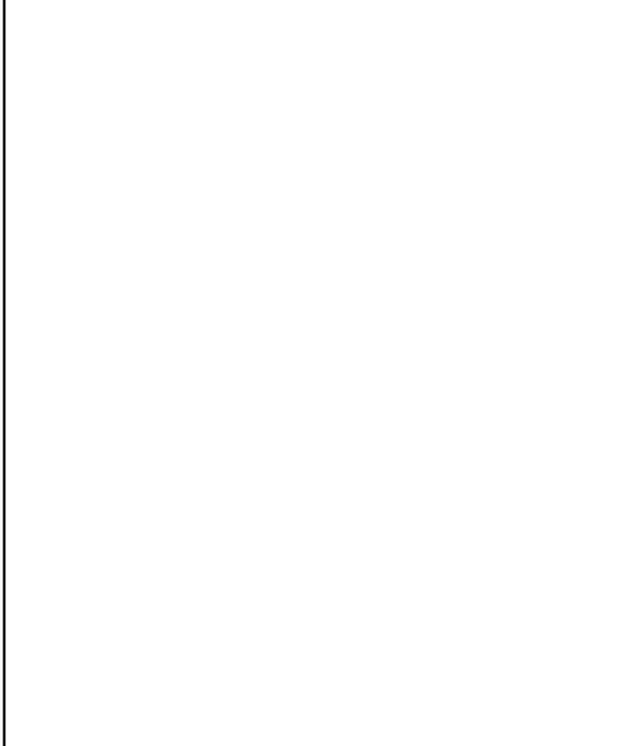
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		2" BLOW-OFF ASSEMBLY	UW-7
REV. BY	DATE		
DATE OF APPROVAL			

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-20
REV. BY	DATE		
DATE OF APPROVAL			



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CUL-DE-SAC MAINS	UW-21
REV. BY	DATE		
DATE OF APPROVAL			

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

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION - NO HYDRANT AVAILABLE	UW-22B
REV. BY	DATE		
DATE OF APPROVAL			

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION NOTES	UW-23
REV. BY	DATE		
DATE OF APPROVAL			

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19
2	Updated details UW-7 & UW-9	JSS	9/19

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

DETAILS

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

PROJECT # 404.6089170
SURVEY # 0577-0032
SEC./TWN./RGE 33/34/17
SCALE SEE PLAN

BY DATE
DESIGNED JSS MAY 17
DRAWN CAK MAY 17
CHECKED JSS MM/YYYY

J. SHEA SHOUN, P.E.
FLORIDA PROFESSIONAL ENGINEERING LICENSE No. 60923
STATE OF FLORIDA
9/10/19
SHEET 19 OF 22

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

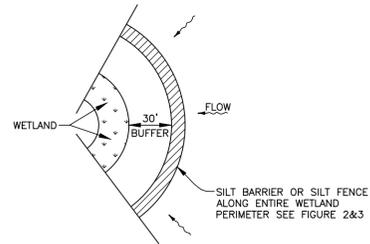
SURVEY CONTROL



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

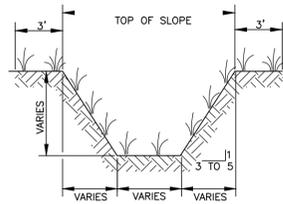
PROJECT #	404.6089170
SURVEY #	0577-0032
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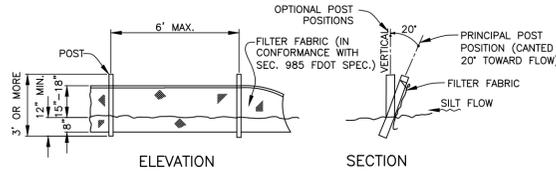


WETLAND BUFFER
FIGURE 1

SOD TO BE PLACED 3' BEYOND

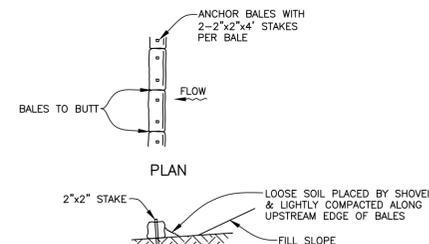


TYPICAL SWALE SECTION
FIGURE 5

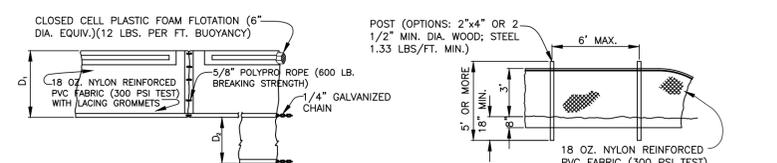


TYPICAL SILT FENCE
FIGURE 2

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



TYPICAL BALE SILT BARRIER
FIGURE 3

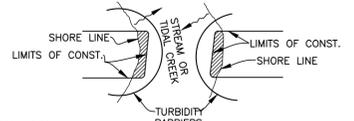


FLOATING TURBIDITY BARRIERS

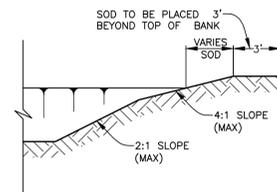
STAKED TURBIDITY BARRIER

D₁ = 5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS), D₂ = 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.

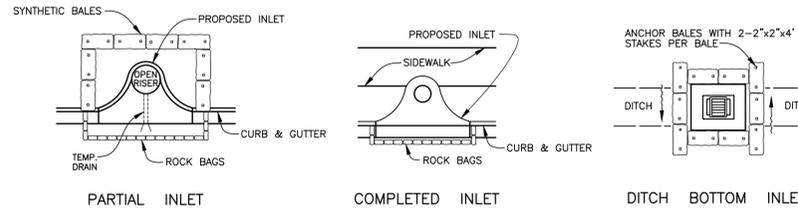
NOTE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.



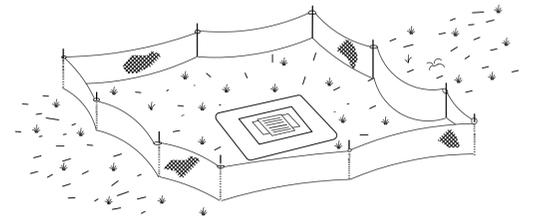
TURBIDITY BARRIERS
FIGURE 4



TYPICAL RETENTION/DETENTION POND SECTION
FIGURE 6

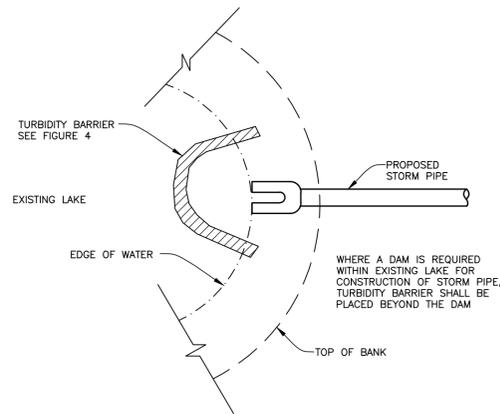


SYNTHETIC BALE PROTECTION AROUND INLETS OR SIMILAR STRUCTURES
FIGURE 7



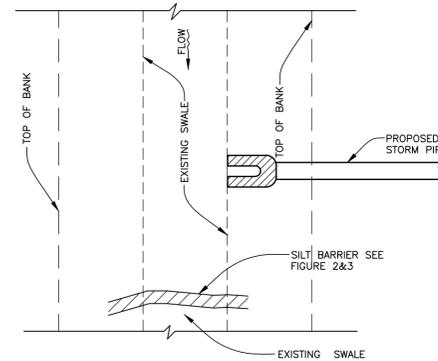
TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

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

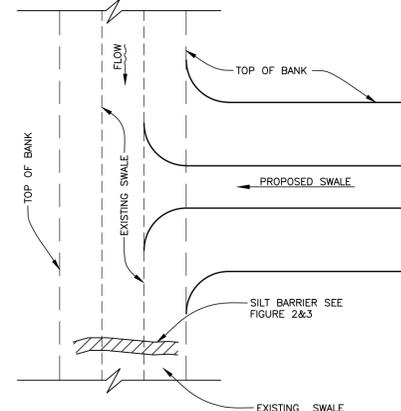


TURBIDITY BARRIER AT CONNECTION OF STORM PIPE TO EXISTING LAKE
FIGURE 9

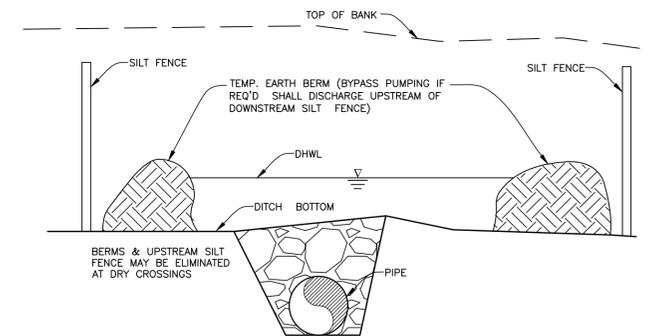
WHERE A DAM IS REQUIRED WITHIN EXISTING LAKE FOR CONSTRUCTION OF STORM PIPE, TURBIDITY BARRIER SHALL BE PLACED BEYOND THE DAM



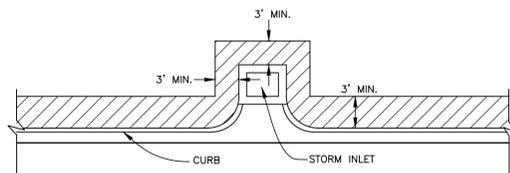
SILT BARRIER AT CONNECTION OF STORM PIPE TO EXISTING SWALE
FIGURE 10



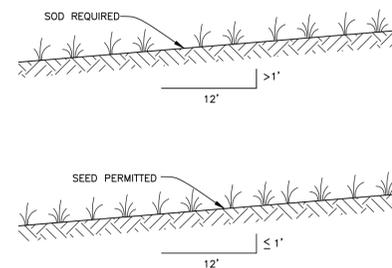
SILT BARRIER AT CONNECTION OF SWALE TO EXISTING SWALE
FIGURE 11



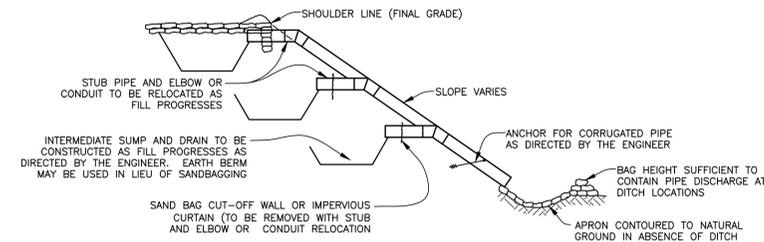
UNDERGROUND PIPE CROSSING
FIGURE 12



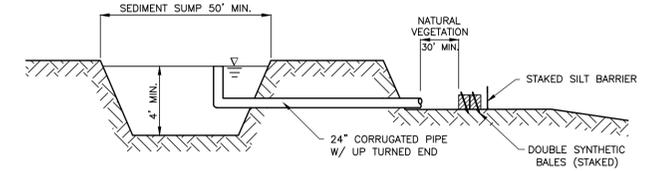
SOD ALONG CURB AND AROUND INLET
FIGURE 14



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



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Signature: [Signature]