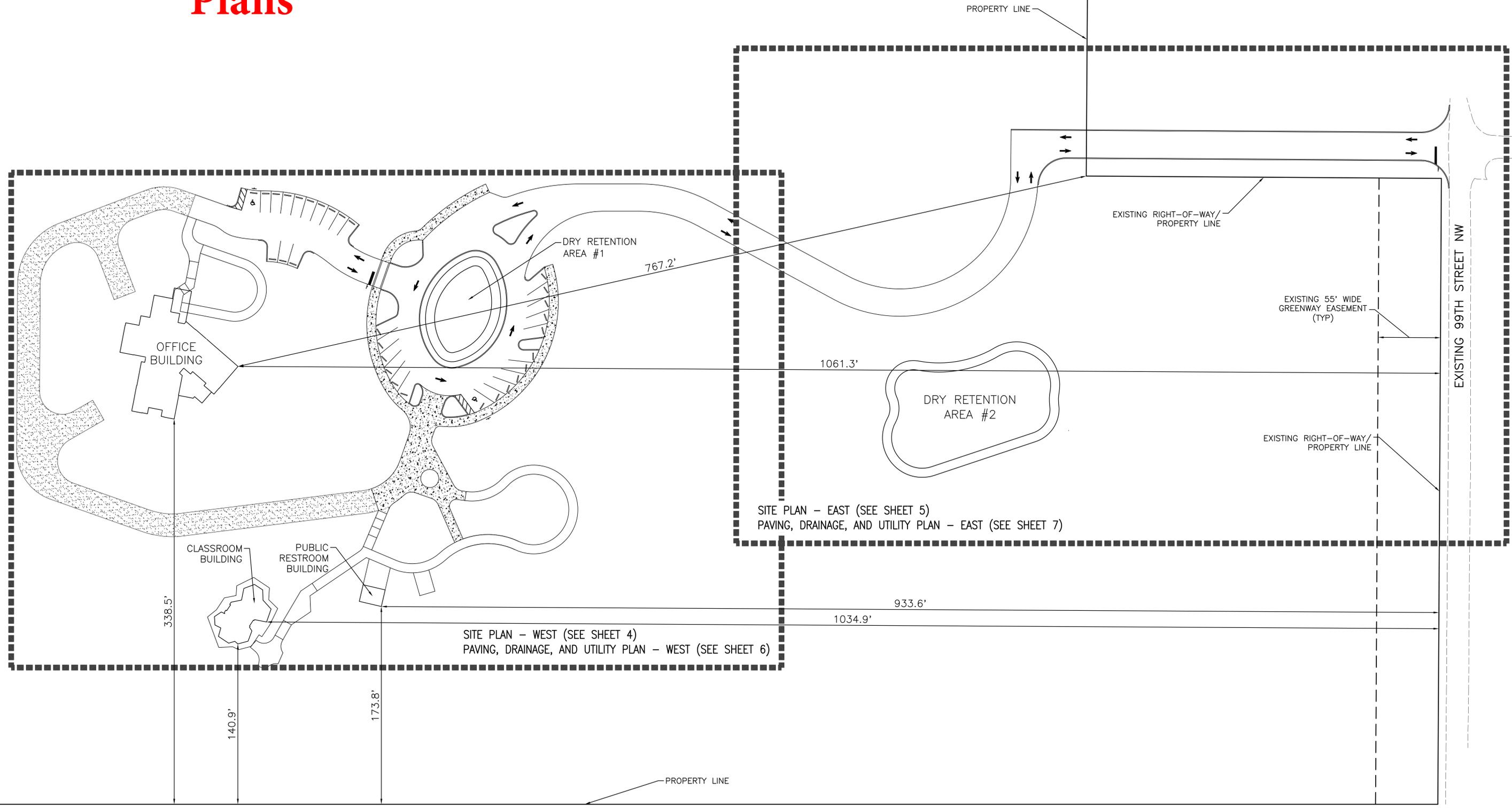


30% Concept Plans



SITE PLAN - EAST (SEE SHEET 5)
PAVING, DRAINAGE, AND UTILITY PLAN - EAST (SEE SHEET 7)

SITE PLAN - WEST (SEE SHEET 4)
PAVING, DRAINAGE, AND UTILITY PLAN - WEST (SEE SHEET 6)

REV. NO.	REVISION	DATE	DRAWN BY / DWP. NO.	CHECKED BY / DWP. NO.	ACTIVITY	INITIALS/EMP. NO.	DATE
					DESIGNED BY:		
					DRAWN BY:		
					CHECKED BY:		
					CONTRACT ADMIN. BY:		
					WM. APPROVED BY:		

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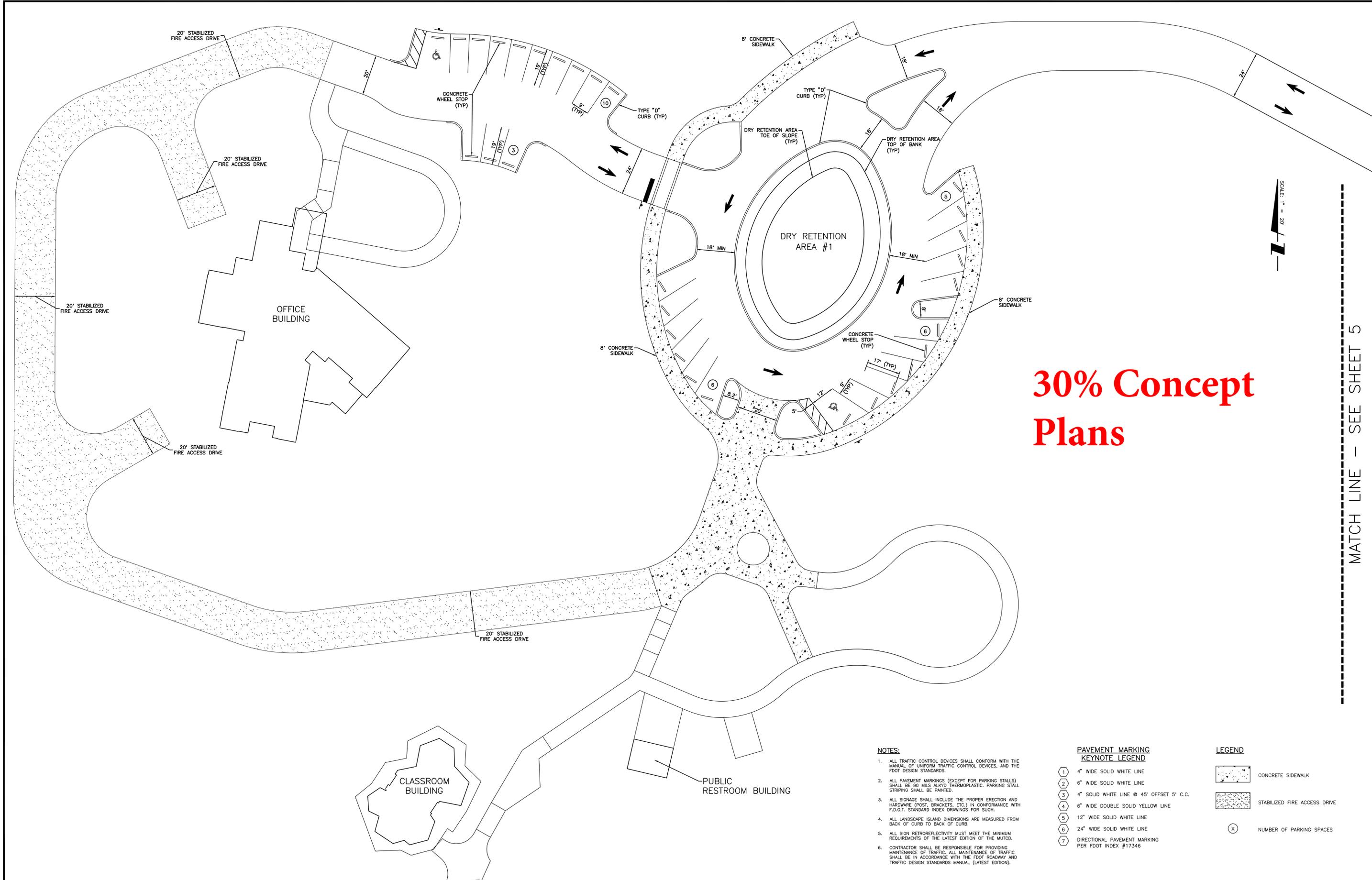
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CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: N/A
SHEET: 23 OF 28
DATE: 28 SEP 2014
TIME: 3:45 PM
RSE: 16E

TITLE: MASTER SITE PLAN AND KEY SHEET
CROSS REFERENCE FILE NO.:
PROJECT NUMBER: 215611990

DANIEL J. BOND, P.E.
FLORIDA LICENSE NO. 57969
INDEX NUMBER: 215611990-02C-102SP
SHEET NUMBER: 3 OF XX



30% Concept Plans

MATCH LINE - SEE SHEET 5

NOTES:

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND THE FDOT DESIGN STANDARDS.
2. ALL PAVEMENT MARKINGS (EXCEPT FOR PARKING STALLS) SHALL BE 90 MILS ALKYD THERMOPLASTIC. PARKING STALL STRIPING SHALL BE PAINTED.
3. ALL SIGNAGE SHALL INCLUDE THE PROPER ERECTION AND HARDWARE (POST, BRACKETS, ETC.) IN CONFORMANCE WITH F.D.O.T. STANDARD INDEX DRAWINGS FOR SUCH.
4. ALL LANDSCAPE ISLAND DIMENSIONS ARE MEASURED FROM BACK OF CURB TO BACK OF CURB.
5. ALL SIGN RETROREFLECTIVITY MUST MEET THE MINIMUM REQUIREMENTS OF THE LATEST EDITION OF THE MUTCD.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MAINTENANCE OF TRAFFIC. ALL MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS MANUAL (LATEST EDITION).

PAVEMENT MARKING KEYNOTE LEGEND

- ① 4" WIDE SOLID WHITE LINE
- ② 6" WIDE SOLID WHITE LINE
- ③ 4" SOLID WHITE LINE @ 45° OFFSET 5' C.C.
- ④ 6" WIDE DOUBLE SOLID YELLOW LINE
- ⑤ 12" WIDE SOLID WHITE LINE
- ⑥ 24" WIDE SOLID WHITE LINE
- ⑦ DIRECTIONAL PAVEMENT MARKING PER FDOT INDEX #17346

LEGEND

- CONCRETE SIDEWALK
- STABILIZED FIRE ACCESS DRIVE
- NUMBER OF PARKING SPACES

REV. NO.	REVISION	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	CONTRACT ADMIN. BY	WM APPROVED BY	ACTIVITY	INITIALS/EMP. NO.	DATE

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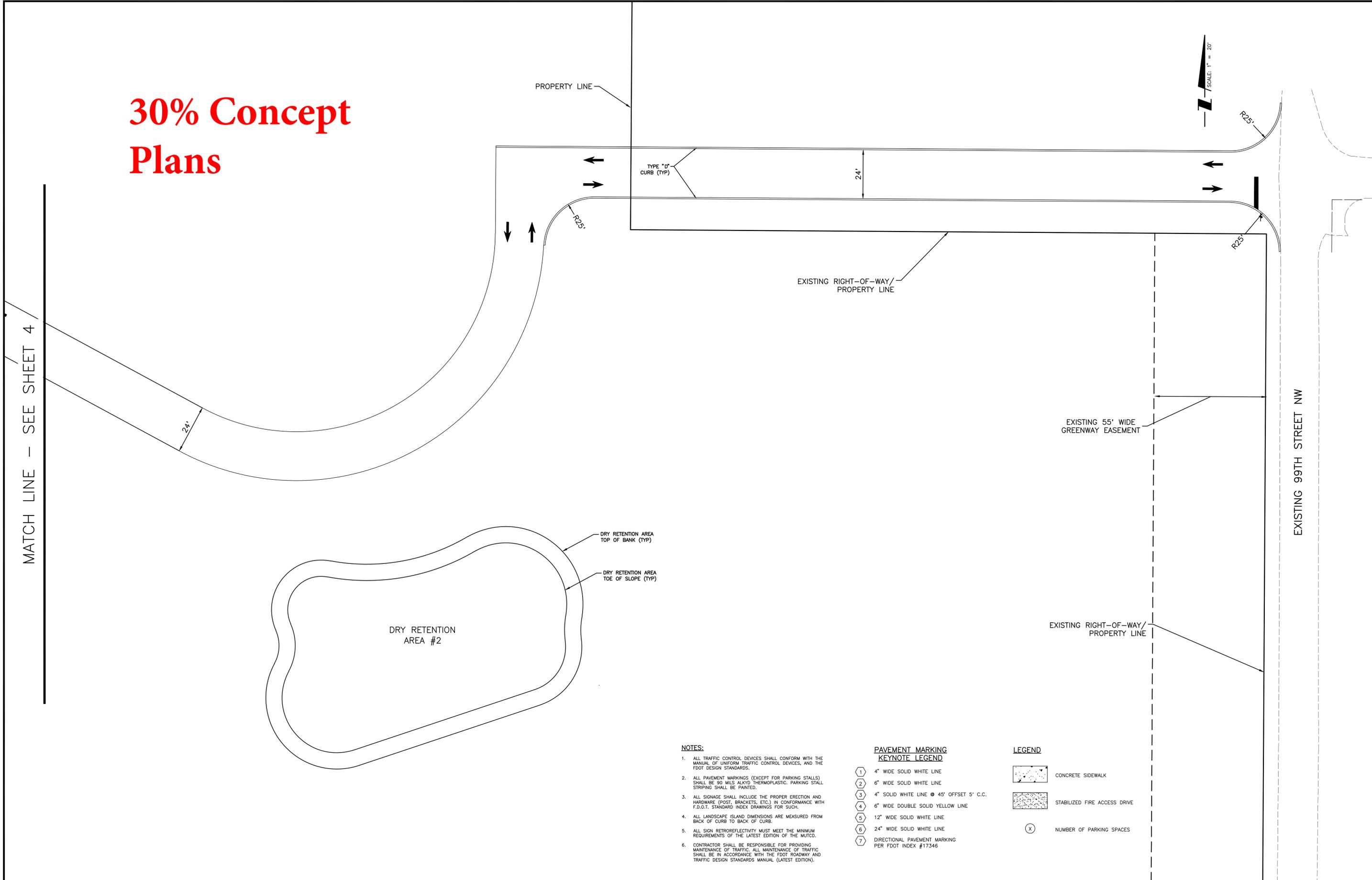
CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
 PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: N/A
 SEC: 23 28
 TWP: 34S 16E

TITLE: SITE PLAN - WEST
 CROSS REFERENCE FILE NO.:
 PROJECT NUMBER: 215611990

DANIEL J. BOND, P.E.
 FLORIDA LICENSE NO. 57969
 INDEX NUMBER: 215611990-02C-111SP
 SHEET NUMBER: 4 OF XX

30% Concept Plans



MATCH LINE - SEE SHEET 4

EXISTING 99TH STREET NW

DRY RETENTION AREA #2

DRY RETENTION AREA
TOP OF BANK (TYP)

DRY RETENTION AREA
TOE OF SLOPE (TYP)

NOTES:

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND THE FDOT DESIGN STANDARDS.
2. ALL PAVEMENT MARKINGS (EXCEPT FOR PARKING STALLS) SHALL BE 90 MILS ALKYD THERMOPLASTIC. PARKING STALL STRIPING SHALL BE PAINTED.
3. ALL SIGNAGE SHALL INCLUDE THE PROPER ERECTION AND HARDWARE (POST, BRACKETS, ETC.) IN CONFORMANCE WITH F.D.O.T. STANDARD INDEX DRAWINGS FOR SUCH.
4. ALL LANDSCAPE ISLAND DIMENSIONS ARE MEASURED FROM BACK OF CURB TO BACK OF CURB.
5. ALL SIGN RETROREFLECTIVITY MUST MEET THE MINIMUM REQUIREMENTS OF THE LATEST EDITION OF THE MUTCD.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MAINTENANCE OF TRAFFIC. ALL MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS MANUAL (LATEST EDITION).

PAVEMENT MARKING KEYNOTE LEGEND

- 1 4" WIDE SOLID WHITE LINE
- 2 6" WIDE SOLID WHITE LINE
- 3 4" SOLID WHITE LINE @ 45° OFFSET 5' C.C.
- 4 6" WIDE DOUBLE SOLID YELLOW LINE
- 5 12" WIDE SOLID WHITE LINE
- 6 24" WIDE SOLID WHITE LINE
- 7 DIRECTIONAL PAVEMENT MARKING PER FOOT INDEX #17346

LEGEND

- CONCRETE SIDEWALK
- STABILIZED FIRE ACCESS DRIVE
- NUMBER OF PARKING SPACES

REV. NO.	REVISION	DATE	DESIGN BY / EMP. NO.	CHECKED BY / EMP. NO.	WM APPROVED BY:

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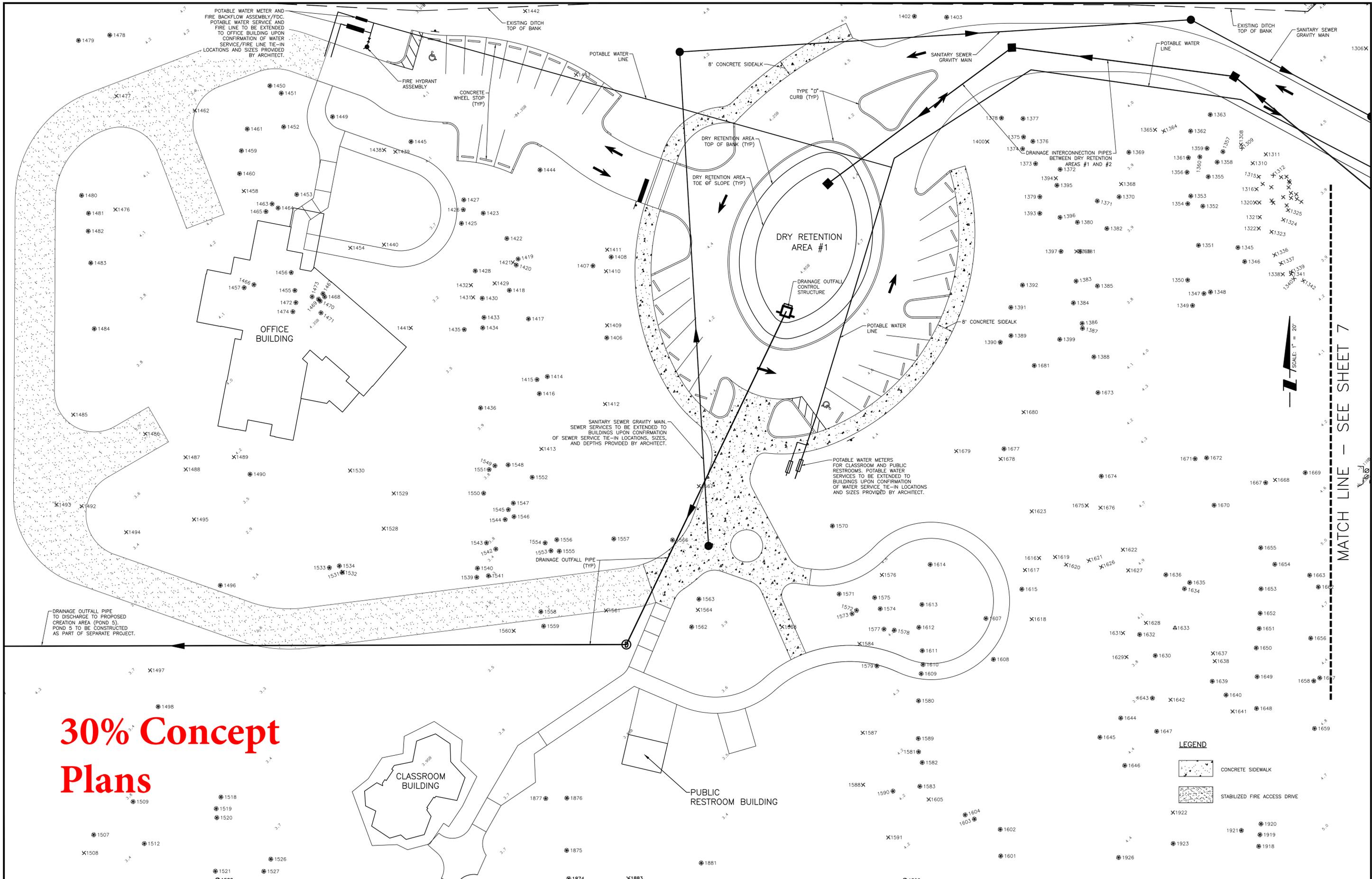
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CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: N/A

TITLE: SITE PLAN - EAST
CROSS REFERENCE FILE NO.:
PROJECT NUMBER: 215611990

DANIEL J. BOND, P.E.
FLORIDA LICENSE NO. 57969
INDEX NUMBER: 215611990-02C-112SP
SHEET NUMBER: 5 OF XX



30% Concept Plans

MATCH LINE - SEE SHEET 7

REV. NO.	REVISION	DATE	DESIGNED BY	CHECKED BY	DATE	INITIALS/EMP. NO.	DATE

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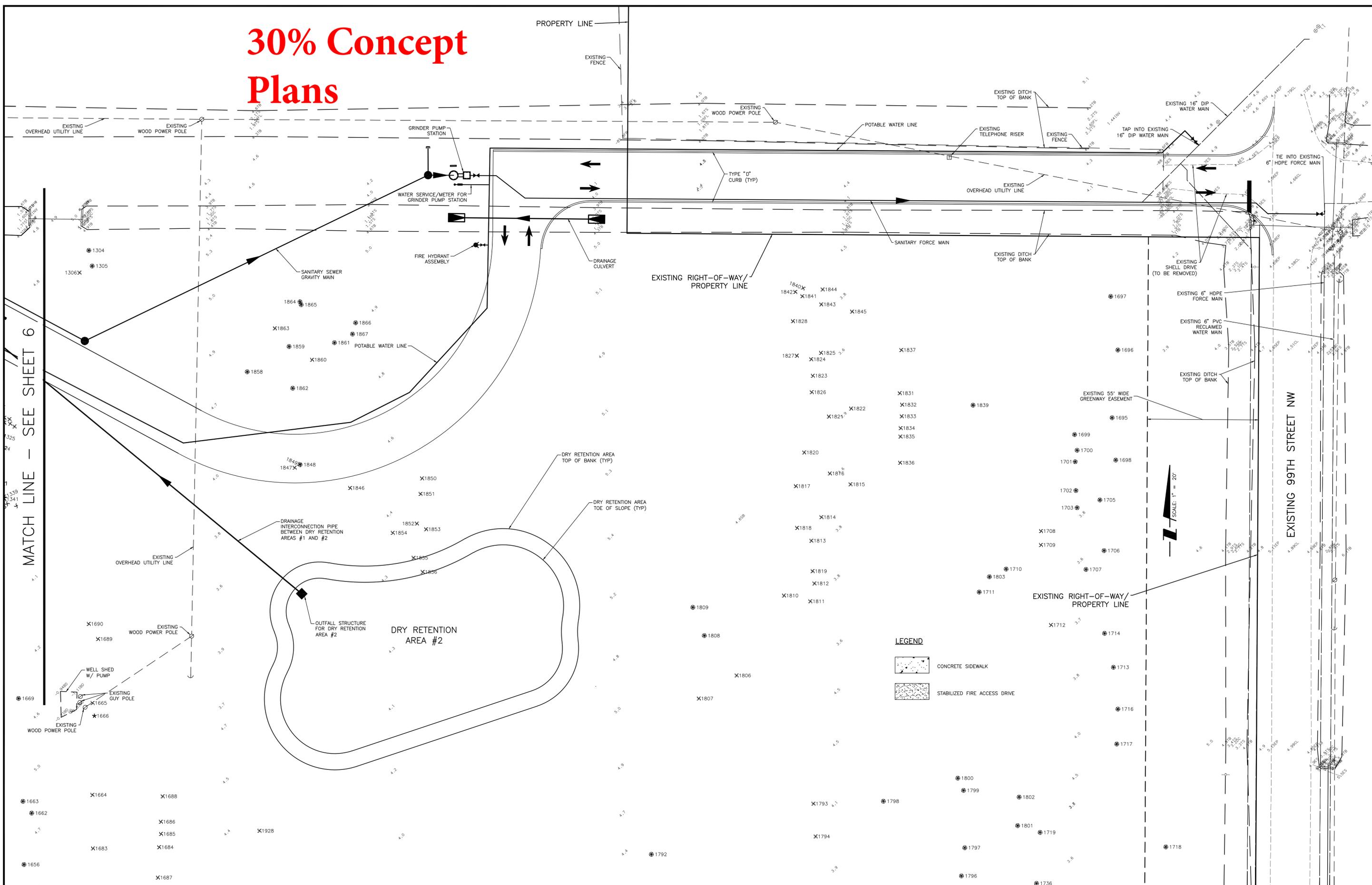
CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
 PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: N/A

TITLE: PAVING, DRAINAGE, AND UTILITY PLAN - WEST
 CROSS REFERENCE FILE NO.:
 PRODUCT NUMBER: 215611990

DANIEL J. BOND, P.E.
 FLORIDA LICENSE NO. 57969
 INDEX NUMBER: 215611990-02C-131SD
 SHEET NUMBER: 6 OF XX

30% Concept Plans



MATCH LINE - SEE SHEET 6

EXISTING 99TH STREET NW



- LEGEND**
-  CONCRETE SIDEWALK
 -  STABILIZED FIRE ACCESS DRIVE

REV. NO.	REVISION	DATE	DESIGNED BY / EMP. NO.	CHECKED BY / EMP. NO.	DATE

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CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
 PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: N/A

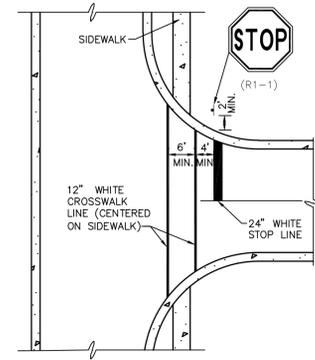
TITLE: PAVING, DRAINAGE, AND UTILITY PLAN - EAST
 CROSS REFERENCE FILE NO.:
 PROJECT NUMBER: 215611990

DANIEL J. BOND, P.E.
 FLORIDA LICENSE NO. 57969
 INDEX NUMBER: 215611990-02C-132SD
 SHEET NUMBER: 7 OF XX

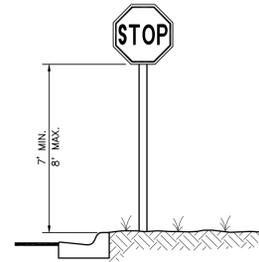
GENERAL SITE CONSTRUCTION NOTES:

- THERE SHALL BE NO CHANGE OR DEVIATION FROM THESE PLANS WITHOUT PRIOR APPROVAL BY THE ENGINEER.
- ALL CLEARING AND GRUBBING DEBRIS TO BE BURNED OR REMOVED FROM SITE AND IS PART OF CLEARING AND GRUBBING ITEM. A BURN PERMIT IS REQUIRED FROM THE ENVIRONMENTAL MANAGEMENT DEPARTMENT IF BURNING IS TO OCCUR.
- ALL PROPOSED GROUND ELEVATIONS ARE FINISHED SOD ELEVATIONS. FINISH EARTHWORK GRADING SHALL BE 0.2 FEET BELOW ELEVATIONS SHOWN TO ALLOW FOR SOD THICKNESS.
- SODDING INCLUDES MAINTAINING SLOPES AND SOD UNTIL COMPLETION AND ACCEPTANCE OF TOTAL PROJECT OR GROWTH IS ESTABLISHED, WHICHEVER COMES LAST. UNTIL THEN, ALL EROSION, SILTATION, AND MAINTENANCE OF GRADES AND GRASS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- CERTAIN TREES ARE DESIGNATED BY THE OWNER TO BE SAVED AND PROTECTED BY THE CONTRACTOR. IT IS ASSUMED THESE TREES ARE HEALTHY AND ARE EXPECTED TO BE PART OF THE LANDSCAPE DEVELOPMENT. THEREFORE, IF ANY TREE(S) ARE DAMAGED BY CONSTRUCTION OPERATIONS OR BY OTHER MEANS (EXCLUDING LIGHTNING, WINDSTORM AND OTHER ACTS OF GOD) AND PERISHES WITHIN THE CONSTRUCTION PERIOD, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE AND DISPOSE OF THOSE TREES. MANATEE COUNTY NRD APPROVAL IS REQUIRED PRIOR TO REMOVAL OF ANY TREES DESIGNATED TO REMAIN. NO ADDITIONAL COMPENSATION SHALL BE MADE BY THE OWNER FOR THE LABOR, MATERIAL, OR MACHINERY REQUIRED TO REMOVE SAID TREE(S).
- WHERE EXCAVATIONS ARE IN CLOSE PROXIMITY OF TREES, THE CONTRACTOR SHALL USE EXTREME CARE IN NOT DAMAGING THE ROOT SYSTEM. NO EQUIPMENT, SUPPLIES, OR VEHICLES SHALL BE STORED OR PARKED WITHIN THE DRIP LINE OF TREES TO REMAIN AND BE PRESERVED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM ALL OF HIS EMPLOYEES AND SUBCONTRACTORS OF THIS REQUIREMENT AND TO ENFORCE SAME.
- LAY SOD AROUND ALL INLETS, MITERED ENDWALLS, HEADWALLS, SWALES, LAKE SLOPES, ADJACENT TO EDGE OF PAVEMENT AND ADJACENT TO BACK OF CURB AS SHOWN IN DETAILS OR AS DIRECTED BY THE ENGINEER.
- NOTIFY "SUNSHINE STATE ONE CALL (1-800-432-4770), MANATEE COUNTY PUBLIC WORKS DEPARTMENT, FLORIDA POWER & LIGHT, PEACE RIVER ELECTRIC, VERIZON AND ANY OTHER UTILITIES (GAS COMPANIES, CABLE TV, ETC.) PRIOR TO CONSTRUCTION OPERATION AND PRIOR TO ANY CONNECTION TO EXISTING UTILITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING UTILITIES FROM DAMAGE.
- ALL UTILITY LINES, STORM DRAIN LINES AND ACCESSORIES SUCH AS, BUT NOT LIMITED TO, MANHOLES, CLEANOUTS, SEWER AND WATER SERVICES, VALVES, FIRE HYDRANTS AND INLETS SHALL BE CONSTRUCTED TO ALIGNMENT AND LOCATIONS SHOWN ON PLANS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- CLEARING, GRUBBING, STRIPPING, AND COMPACTION SHALL BE INSPECTED BY THE ENGINEER OR HIS DULY APPOINTED REPRESENTATIVE PRIOR TO FILLING.
- PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, PRESERVE AREAS WITHIN AND ADJOINING THE AREA OF CONSTRUCTION ACTIVITY SHALL BE PROTECTED BY ERECTION OF TREE PROTECTION BARRIAGES AND/OR SILT BARRIERS. TREE PROTECTION BARRIAGES SHALL MEET THE STANDARDS OF MANATEE COUNTY LAND DEVELOPMENT CODE. SILT BARRIERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES DETAIL DRAWING. THE ENGINEER SHALL DETERMINE THE EXTENT AND TYPE OF PROTECTIVE MEASURES TO BE CONSTRUCTED FOR THE PROTECTION OF PRESERVE AREAS SUBJECT TO THE APPROVAL OF SWFWMD & MANATEE COUNTY NRD WHEN PRESERVE AREA BARRIAGES AND BARRIERS ARE IN PLACE. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY REQUIRED TREE REMOVAL PERMIT FROM MANATEE COUNTY.
- ALL LIMITS OF CONSTRUCTION FOR THE OUTFALL PIPE/STRUCTURE/SPREADER SWALE SHALL BE STAKED PRIOR TO ANY CONSTRUCTION WITHIN THE LAKES OR WETLAND/BUFFERS. APPROVAL FROM THE ENGINEER, AND THE OWNER IS REQUIRED BEFORE EQUIPMENT CAN BE USED WITHIN THE LAKE OR WETLAND/BUFFER. THE ENGINEER SHALL BE ON SITE DURING CONSTRUCTION WITHIN THE LAKE OR WETLAND/BUFFER.
- LOCATION OF ALL STORM STRUCTURES (WEIR, MITERED END, CONTROL STRUCTURE, GRATE INLET, ETC.) ADJACENT TO A WETLAND SHALL BE APPROVED BY THE ENGINEER OR HIS REPRESENTATIVE AFTER SURVEY STAKE OUT AND PRIOR TO INSTALLATION.
- FILLING, EXCAVATING OR REMOVAL OF NATIVE VEGETATION SHALL BE PROHIBITED IN THE PRESERVATION AREA, UNLESS APPROVED BY MANATEE COUNTY NRD.
- THE CONTRACTOR SHALL ADHERE TO AND HAVE A COPY OF THE SWFWMD PERMIT FOR THE PROJECT ON SITE.
- ALL CONCRETE PIPE IN R/W SHALL HAVE A FILTER FABRIC JACKET MINIMUM 12" EACH SIDE OF JOINT WITH MINIMUM 24" OVERLAP AT SEAM PER FDOT INDEX #280 & #199 & ALL APPLICABLE COUNTY REQUIREMENTS. IN ADDITION, ALL ELLIPTICAL PIPE SHALL HAVE ALL JOINTS WRAPPED.
- CONTRACTOR SHALL SPRINKLE OR OTHERWISE APPLY WATER TO AFFECTED CONSTRUCTION AREAS TO CONTROL BOTH SIGNIFICANT WIND EROSION AND FUGITIVE DUST.
- CONTRACTOR SHALL CONSTRUCT ALL VALVES SO THAT NO VALVE BOXES ARE LOCATED IN HANDICAP RAMPS AND/OR CURBING. IF VALVES ARE FOUND TO BE IN THESE LOCATIONS, THE COST OF VALVE RELOCATION IS THE CONTRACTOR'S RESPONSIBILITY.
- THRUST BLOCKS AND JOINT RESTRAINTS DETAILS ON THE WATER DISTRIBUTION DETAILS SHEET SHALL ALSO APPLY TO FORCE MAIN, IRRIGATION & WATER MAINS.
- TRENCH DETAILS ON THE WASTEWATER COLLECTION CONSTRUCTION DETAILS SHEET SHALL ALSO APPLY TO FORCE MAIN, IRRIGATION & WATER MAINS.
- THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS THAT MEET OR EXCEED THE REQUIREMENTS OF THE SWFWMD ERP INFORMATION MANUAL, LATEST EDITION AND THE MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST EDITION.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL DURING CONSTRUCTION IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, MILLENNIUM EDITION AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS, 2006, TRAFFIC CONTROL THROUGH WORK ZONES, SERIES 600 INDICES.

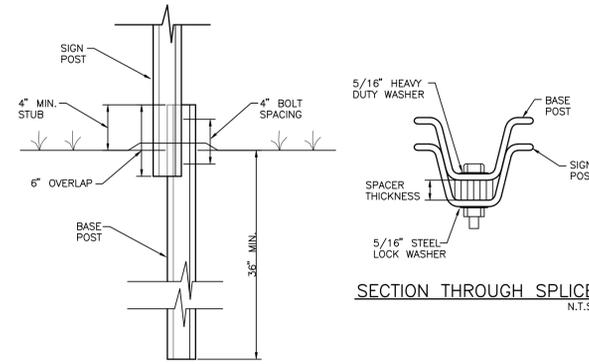
S-M015 (9/11/06)



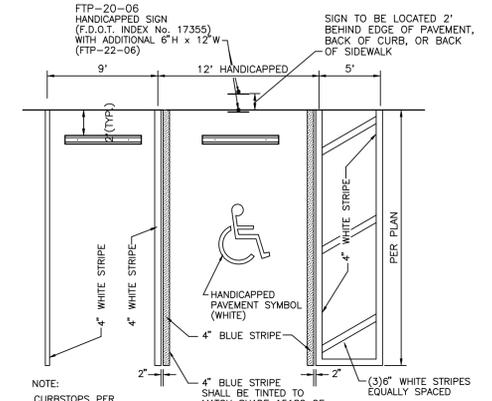
STOP SIGN, STOP LINE AND CROSSWALK LOCATION DETAIL
S-P037 (09/07/04) N.T.S.



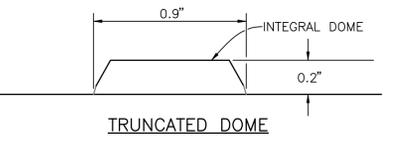
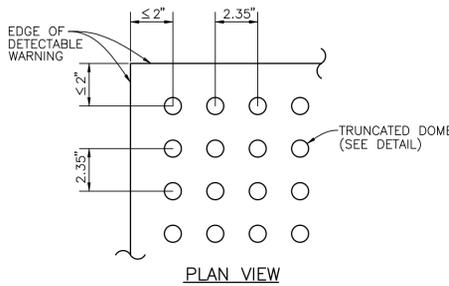
TYPICAL STOP SIGN DETAIL
N.T.S.



SIGN POST BREAKAWAY DETAIL
S-P027 N.T.S.



TYPICAL PARKING SPACE
N.T.S.



**NOTES:
DETECTABLE WARNINGS ON WALKING SURFACES**

THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCH, A HEIGHT OF NOMINAL 0.2 INCH AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCH AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

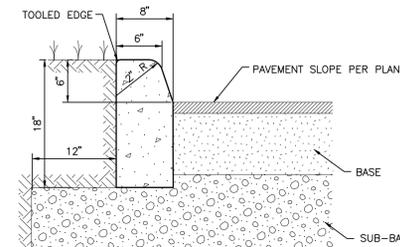
THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE CONTACT.

THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70%. CONTRAST IN PERCENT IS DETERMINED BY:
 $CONTRAST = [(B1-B2)/B1] \times 100$

WHERE B1 = LIGHT REFLECTANCE VALUE (LRV) OF THE LIGHTER AREA AND B2 = LIGHT REFLECTANCE VALUE (LRV) OF THE DARKER AREA.

NOTE THAT IN ANY APPLICATION BOTH WHITE AND BLACK ARE NEVER ABSOLUTE; THUS, B1 NEVER EQUALS 100 AND B2 IS ALWAYS GREATER THAN 0.

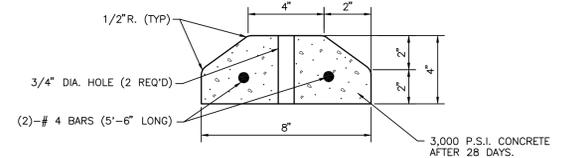
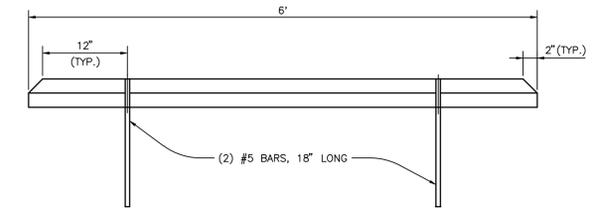
CURB RAMP DETECTABLE WARNINGS
302.3 (6/12/07) N.T.S.



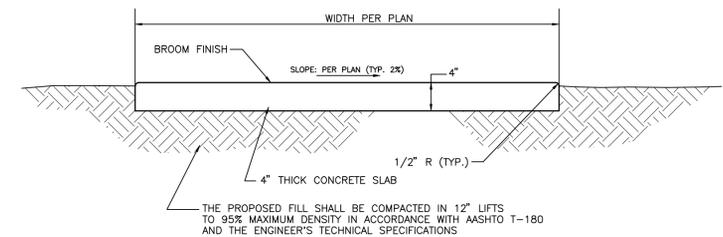
CURB NOTES:

- CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,000 P.S.I. IN 28 DAYS UNLESS OTHERWISE NOTED.
- CURB SHALL MEET THE SPECIFICATIONS ESTABLISHED BY F.D.O.T. STANDARD SPECIFICATIONS PER F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS INDEX NO. 300, LATEST REVISION.
- AN EXPANSION JOINT WILL BE PLACED AT THE END OF ALL RETURNS AT INTERVALS NOT TO EXCEED 50'. CONTRACTION JOINTS AT A MAXIMUM SPACING OF 10' SHALL BE SAW CUT AT DEPTH PER FDOT INDEX NO. 300
- EXPANSION JOINTS SHALL BE CONSTRUCTED WITH 1/2" BITUMINOUS IMPREGNATED EXPANSION JOINT MATERIAL.

TYPE "D" CURB
(MANATEE) S-P040(09/04/07) N.T.S.



PRECAST CONCRETE WHEEL STOP
S-P029 N.T.S.

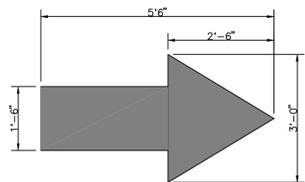


SIDEWALK NOTES:

- CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 P.S.I. IN 28 DAYS UNLESS OTHERWISE NOTED.
- CONTRACTION JOINTS SHALL BE SAW CUT TO A 1/2" DEPTH AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
- AN EXPANSION JOINT WILL BE PLACED AT THE END OF ALL RETURNS, AT FIXED OBJECTS (DRIVEWAYS, CURBS ETC.) AND INTERVALS NOT TO EXCEED 50'. EXPANSION JOINTS SHALL BE CONSTRUCTED WITH 1/2" PREFORMED JOINT FILLER.
- ALL SIDEWALKS AND SIDEWALK CROSSINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).

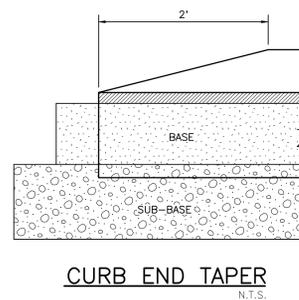
TYPICAL SIDEWALK DETAIL
(MANATEE) S-P023(9/3/02) N.T.S.

NOTE:
ARROW TO BE PAINTED WHITE AND IN ACCORDANCE WITH FDOT SECTION 710 - PAINTING TRAFFIC STRIPES AND MARKINGS



DIRECTIONAL ARROW MARKING
S-P055 N.T.S.

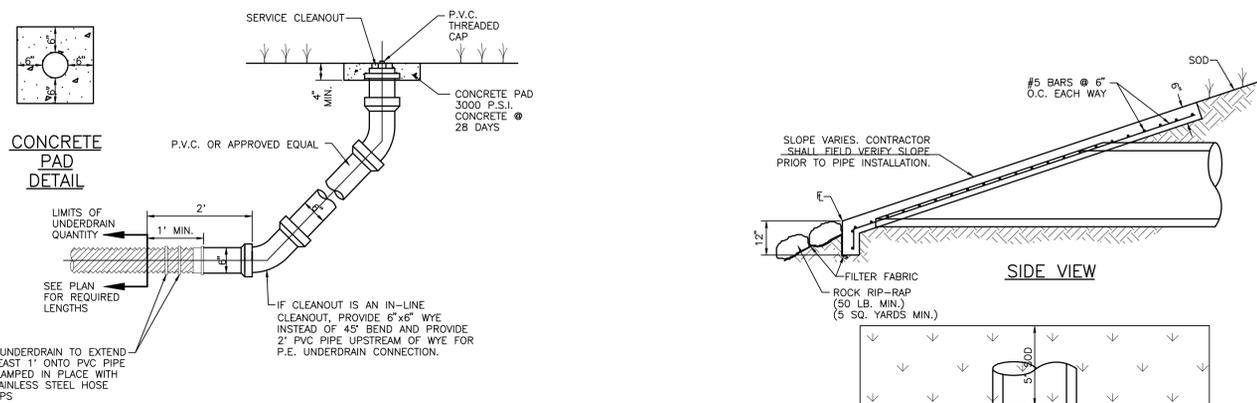
30% Concept Plans



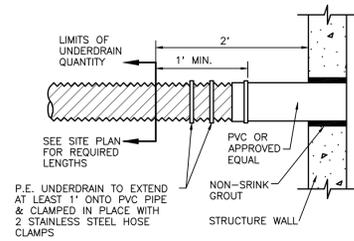
CURB END TAPER
N.T.S.

ACTIVITY	INITIALS/EMP. NO.	DATE	<p>4900 Professional Parkway East, Sarasota, FL 34240-8414 Phone 941-907-6900 • Fax 941-907-6910 Certificate of Authorization #27013 • www.stantec.com</p>	CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS PROJECT: ROBINSON PRESERVE EXPANSION PHASE I	DATE: SEP 2014	TITLE: CONSTRUCTION DETAILS PROJECT NUMBER: 215611990 SHEET NUMBER: 12 of XX
DRAWN BY:					HORIZONTAL SCALE: N/A	
CHECKED BY:					VERTICAL SCALE: N/A	
CONTRACT ADMIN. BY:					CROSS REFERENCE FILE NO.: 345 16E	
DATE	DESIGN BY / EMP. NO.	CHECKED BY / EMP. NO.	DATE	DATE	DATE	DATE

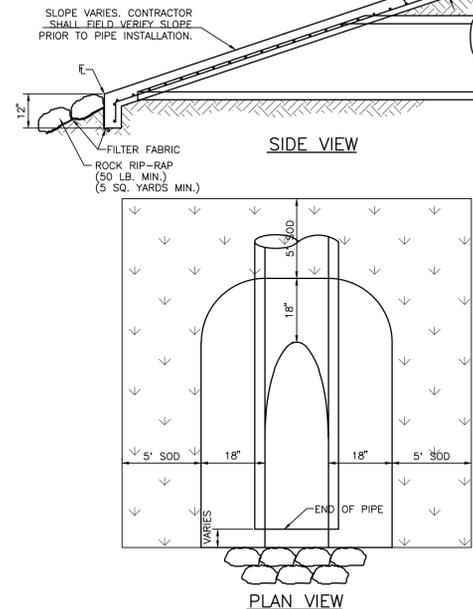
30% Concept Plans



CLEANOUT DETAIL FOR SINGLE UNDERDRAIN FILTER SYSTEM
N.T.S.

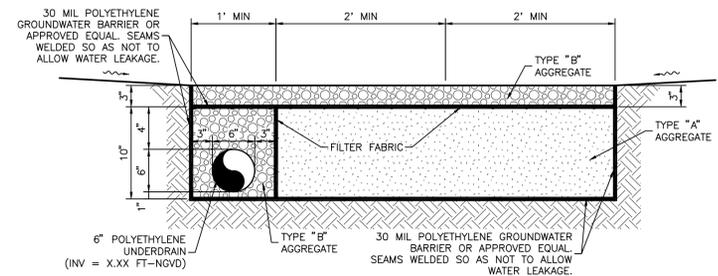


TYPICAL CONNECTION FOR UNDERDRAIN TO STRUCTURE
N.T.S.



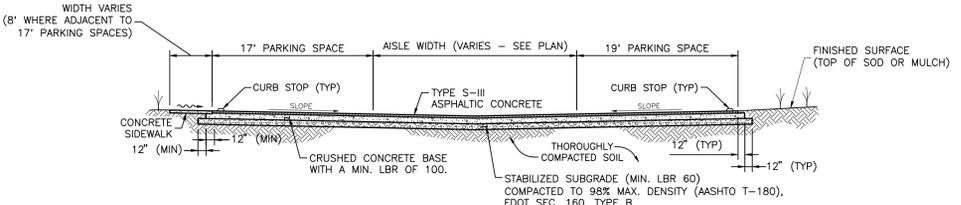
- NOTES:**
- CONCRETE SHALL BE 3000 P.S.I. @ 28 DAYS
 - CHAMFER ALL EXPOSED EDGES 3/4\"
 - RIP-RAP SHALL BE SUPPLIED AND CONSTRUCTED AS DEFINED IN THE F.D.O.T. SPECIFICATIONS SEC. 530, \"RIP-RAP\", SPECIFICALLY SEC. 530-3.1 OR SEC. 530-3.3 \"CONSTRUCTION METHODS\" 5 SY. RIP-RAP AND FILTER CLOTH TO BE INCLUDED IN THE UNIT PRICE OF THE MITERED END SECTION. IF ADDITIONAL RIP-RAP (> 5 SY.) IS REQUIRED AND DIRECTED, IT SHALL BE PAID FOR ON A PER YARD BASIS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - FILTER FABRIC SHALL BE SUPPLIED AND CONSTRUCTED AS DEFINED IN THE F.D.O.T. SPECIFICATIONS SEC. 514, PLASTIC FILTER FABRIC, SPECIFICALLY SEC. 514-3.4 RIPRAP, INCLUDED IN UNIT COST OF MITERED END SECTION.

MITERED END SECTION
S-D022 N.T.S.



- UNDERDRAIN NOTES:**
- TYPE \"A\" AGGREGATE: FILTER AGGREGATE FOR UNDERDRAINS SHALL CONSIST OF WASHED MATERIAL MEETING FDOT ROAD & BRIDGE SPECIFICATIONS FOR SILICA SAND & QUARTZ GRAVEL CONTAINING LESS THAN 1% (BY WEIGHT) OF SILT, CLAY AND ORGANIC MATTER. SAID MATERIAL SHALL HAVE UNIFORMITY COEFFICIENT OF 1.5 OR GREATER, AN EFFECTIVE GRAIN SIZE OF 0.20 - 0.55 MILLIMETER AND SIEVE ANALYSIS (IN PERCENT OF TOTAL WEIGHT PASSING) AS FOLLOWS:
- | | |
|---------|-----------|
| 3/8\" | 95 - 100% |
| NO. 4 | 95 - 100% |
| NO. 8 | 85 - 100% |
| NO. 16 | 65 - 97% |
| NO. 30 | 25 - 70% |
| NO. 50 | 5 - 35% |
| NO. 100 | 0 - 7% |
| NO. 200 | MAX. 1% |
- THE AGGREGATE SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS. WASHED SHELL & LIMESTONE SHALL NOT BE USED FOR FILTER AGGREGATE. PERMEABILITY OF THE AGGREGATE SHALL BE MINIMUM OF 8 FT/HR.
- TYPE \"B\" AGGREGATE: 3/4\" TO 1\" STONE, RIVER GRAVEL OR EQUAL (NO LIMESTONE, MARL, OR SIMILAR MATERIAL).
- FILTER FABRIC: FILTER FABRIC SHALL BE WOVEN GEOTEXTILE, AMOCO 1198 SYNTHETIC INDUSTRIES EROSION 1 OR APPROVED EQUAL.
- UNDERDRAIN: THE UNDERDRAIN SHALL BE SLOTTED POLYETHYLENE CORRUGATED PIPE A.S.T.M F-405-77 OR A.A.S.H.T.O. M-252 HAVING A MINIMUM SLOTTED AREA OF 1 SQ. IN./FT. OF PIPE MANUFACTURED BY A.D.S. OR HANCOR. NO FACTORY INSTALLED SOCK SHALL BE INSTALLED WITH THIS UNDERDRAIN.
- TESTING: THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH SIEVE ANALYSIS & PERCOLATION TEST RESULTS PERFORMED BY AN INDEPENDENT TESTING LABORATORY PRIOR TO DELIVERY OF THE FILTER AGGREGATE MATERIAL ON SITE. FAILURE TO MEET THE SPECIFIED PERMEABILITY OR SIEVE ANALYSIS WILL BE CAUSE FOR REJECTION OF THE MATERIAL. THE CONTRACTOR SHALL ALSO PROVIDE THE ENGINEER WITH SIEVE ANALYSIS & PERCOLATION TEST RESULTS OF THE FILTER AGGREGATE RECEIVED AT THE SITE PRIOR TO IT BEING PUT IN PLACE. THIS TEST SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.

TYPICAL SHALLOW BOTTOM TREATMENT UNDERDRAIN
N.T.S.

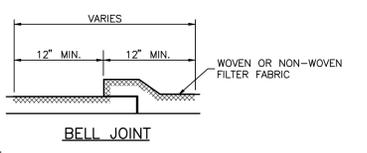
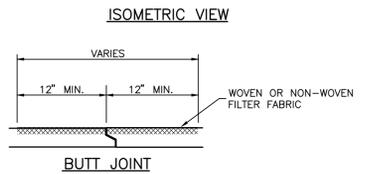
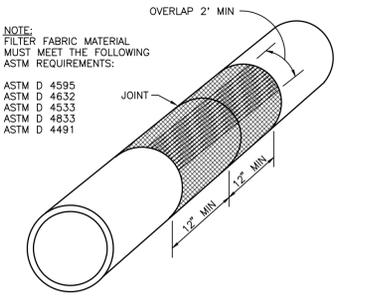


FLEXIBLE PAVEMENT SECTION DESIGN THICKNESS (SEE PAVING & DRAINAGE PLANS FOR HEAVY DUTY FLEXIBLE PAVEMENT LOCATIONS)

STANDARD	1.5\" ASPHALT	8\" BASE	6\" STABILIZED SUBGRADE
HEAVY DUTY	2\" ASPHALT	10\" BASE	6\" STABILIZED SUBGRADE

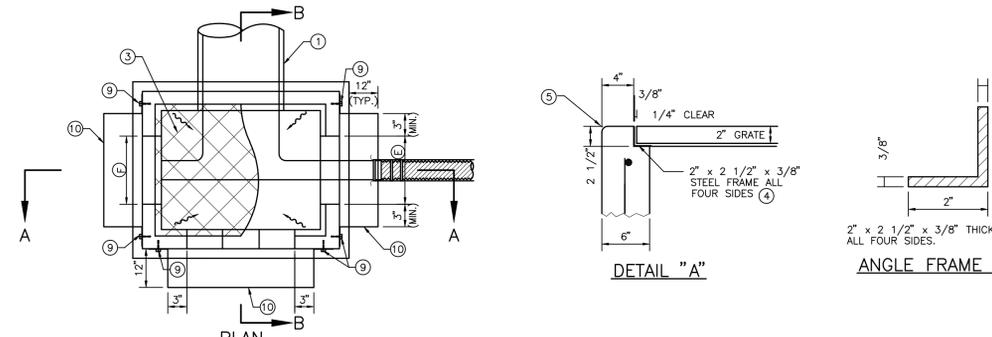
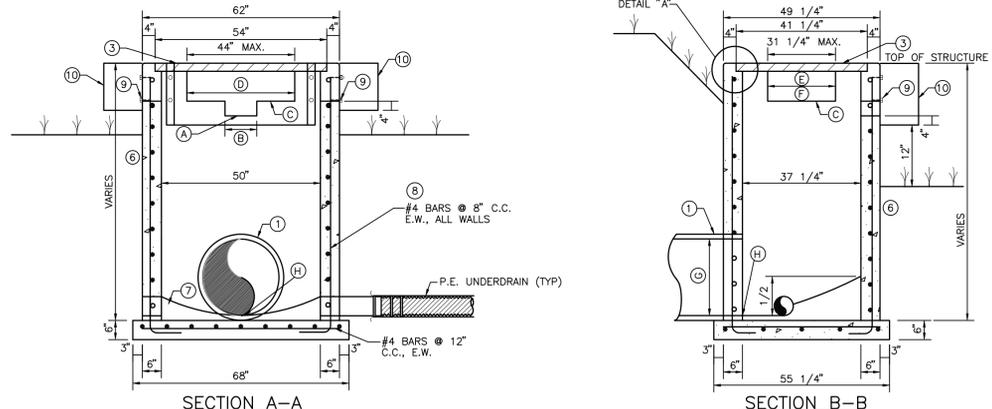
NOTE: WHERE CURB IS NOT PROPOSED, THE BASE MATERIAL SHALL EXTEND A MINIMUM OF 12\" PAST THE EDGE OF ASPHALT AND THE STABILIZED SUBGRADE SHALL EXTEND A MINIMUM OF 12\" PAST THE EDGE OF THE BASE MATERIAL.

TYPICAL FLEXIBLE PAVEMENT SECTION



- NOTES:**
- CENTER FILTER FABRIC ON PIPE JOINT.
 - FILTER FABRIC TO OVERLAP A MIN. OF ONE FOOT.
 - PRICE OF FILTER FABRIC JACKET TO BE INCLUDED IN PRICE OF PIPE.
 - CONTRACTOR SHALL UTILIZE SECURING DEVICES TO WRAP AROUND THE PIPE AND HOLD THE FILTER FABRIC JACKET IN PLACE.

FILTER FABRIC JACKET
(MANATEE) (09/04/07) N.T.S.



DATA TABLE

STRUCTURE NUMBER	NORMAL WATER LEVEL (FT-NGVD)	TOP GRATE EL. (FT-NGVD)	(A) FL. EL. OF NOTCH (FT-NGVD)	(B) WIDTH OF NOTCH (FT)	(C) FL. EL. OF WINDOW (FT-NGVD)	(D) WIDTH OF WINDOW (FT)	(E) WIDTH OF WINDOW (FT)	(F) WIDTH OF WINDOW (FT)	(G) DIAMETER OF OUTFALL PIPE (IN)	(H) PIPE FL. EL. (FT-NGVD)	SPECIAL REMARKS
SCS-1	N/A	XX.XX	N/A	N/A	X.XX	X.XX	N/A	N/A	XX	X.XX	SKIMMER REQUIRED ALL WINDOWS UNDERDRAIN REQUIRED (INV = X.XX FT-NGVD)

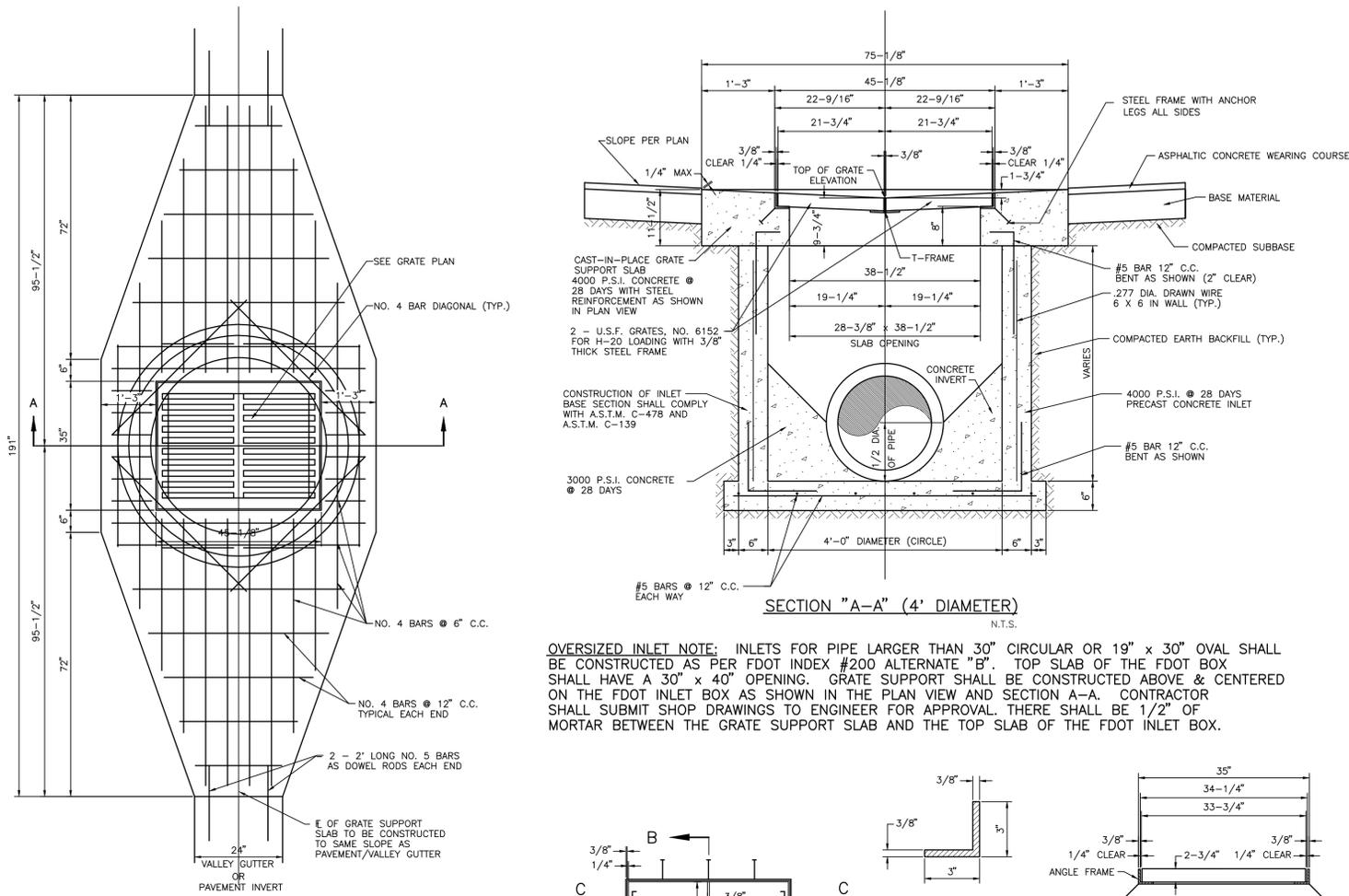
TYPE \"G\" CONTROL STRUCTURE
N.T.S.

REV. NO.	REVISION	DATE	DESIGNED BY / EMP. NO.	CHECKED BY / EMP. NO.	CONTRACT ADMIN. BY / EMP. NO.	W/M APPROVED BY:

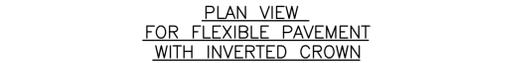
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4900 Professional Parkway East, Sarasota, FL 34240-8414
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CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

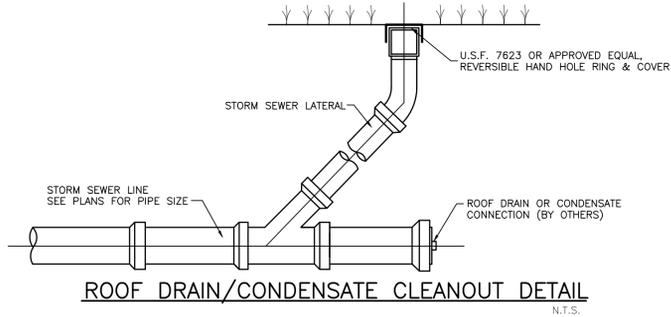
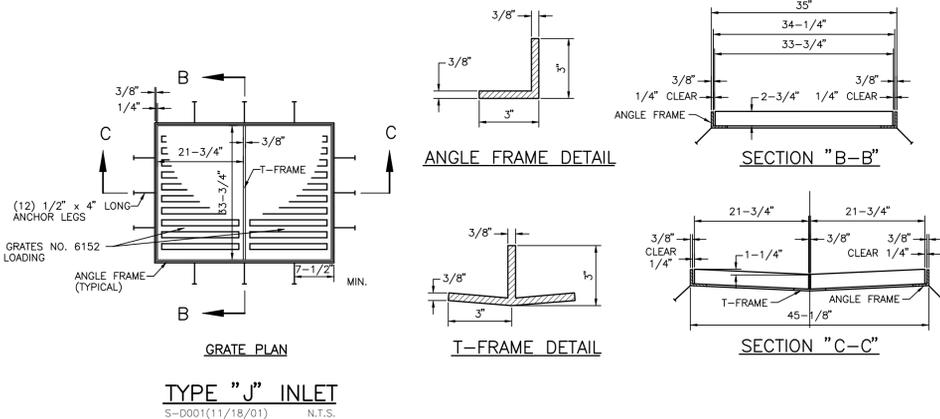
DATE: SEP 2014
TITLE: CONSTRUCTION DETAILS
PROJECT NUMBER: 215611990-01C-501DT
SHEET NUMBER: 13 OF XX



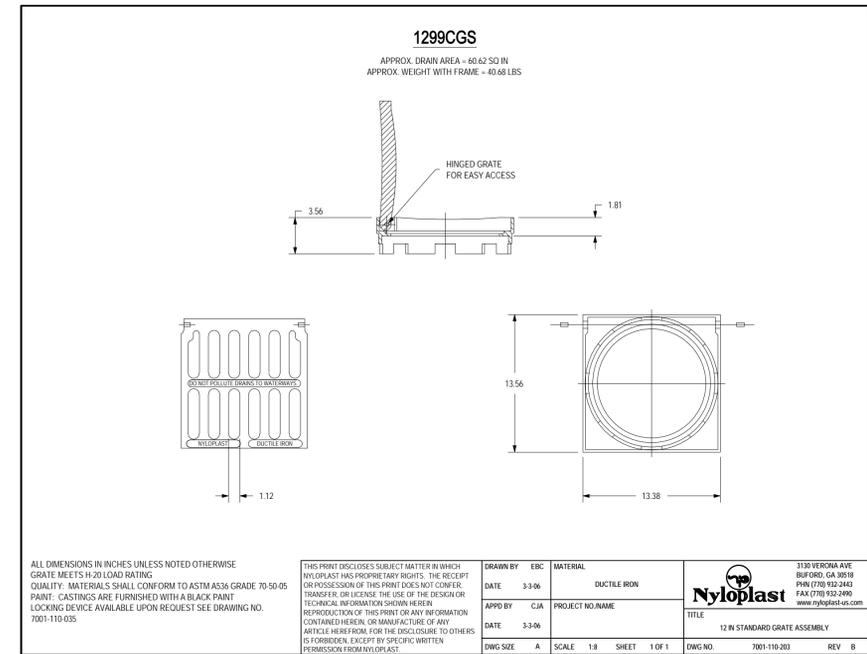
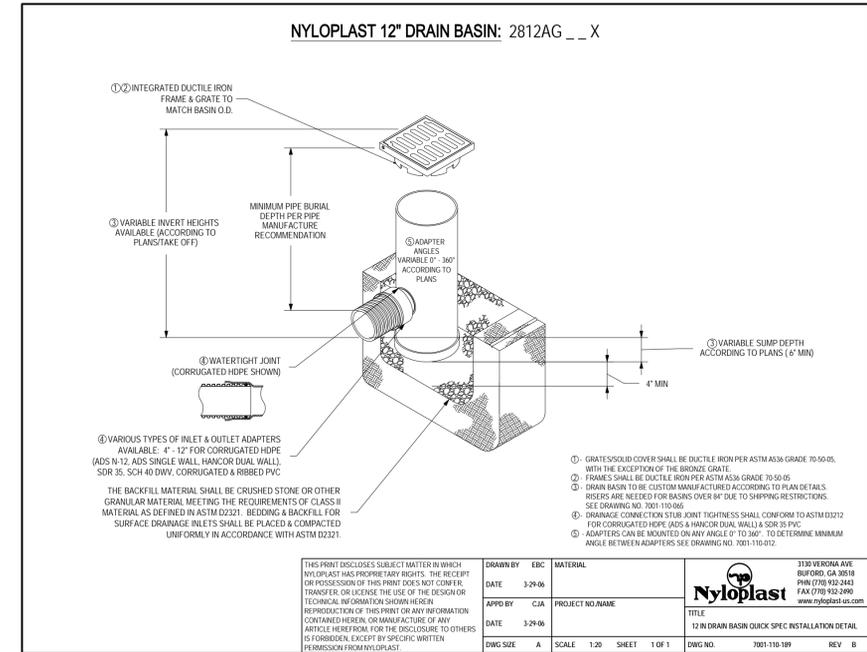
OVERSIZED INLET NOTE: INLETS FOR PIPE LARGER THAN 30" CIRCULAR OR 19" x 30" OVAL SHALL BE CONSTRUCTED AS PER FDOT INDEX #200 ALTERNATE "B". TOP SLAB OF THE FDOT BOX SHALL HAVE A 30" x 40" OPENING. GRATE SUPPORT SHALL BE CONSTRUCTED ABOVE & CENTERED ON THE FDOT INLET BOX AS SHOWN IN THE PLAN VIEW AND SECTION A-A. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL. THERE SHALL BE 1/2" OF MORTAR BETWEEN THE GRATE SUPPORT SLAB AND THE TOP SLAB OF THE FDOT INLET BOX.



- NOTES:**
- MATERIAL: GRATE—CAST IRON, FIELD APPLY ONE COAT OF ASPHALTIC PAINT. FRAME—STEEL, FIELD APPLY ONE COAT OF ASPHALTIC PAINT.
 - SEE DRAINAGE PLANS AND/OR STORMPIPING PLANS FOR PIPE SIZES, FLOWLINES AND DIRECTION. SEE UNDERDRAIN PLANS AND/OR DRAINAGE PLANS FOR UNDERDRAIN SIZES, FLOWLINES AND DIRECTION.
 - CONCRETE TEST CYLINDERS (3 MIN) SHALL BE TAKEN FOR EACH DAYS POUR OR EACH 50 YARDS WHICH EVER IS GREATER



30% Concept Plans



REV. NO.	REVISION	DATE	DESIGNED BY	CHECKED BY	CONTRACT ADMIN. BY	DATE	DRAIN BY / EMP. NO.	CHECKED BY / DIR. NO.	W/M APPROVED BY:

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 4900 Professional Parkway East, Sarasota, FL 34240-8414
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CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
 PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
 HORIZONTAL SCALE: N/A
 VERTICAL SCALE: N/A
 SHEET: 345 16E

TITLE: CONSTRUCTION DETAILS
 CROSS REFERENCE FILE NO.:
 PROJECT NUMBER: 215611990

DANIEL J. BOND, P.E.
 FLORIDA LICENSE NO. 57969
 INDEX NUMBER: 215611990-01C-501DT
 SHEET NUMBER: 14 OF XX

WATER DISTRIBUTION GENERAL NOTES:

THE FOLLOWING NOTES ARE INTENDED AS A SUPPLEMENT TO THE PROJECT SPECIFICATIONS AND ARE NOT INTENDED TO SUPERSEDE THE SPECIFICATIONS. IT IS ASSUMED THE IRRIGATION MAINS ARE OR WILL CONVEY REUSE WATERS.

- ALL CONSTRUCTION SHALL MEET THE MINIMUM REQUIREMENTS OF MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST REVISION, AND EXCEED THE REQUIREMENTS OF THOSE SPECIFICATIONS WHERE INDICATED ON THESE CONSTRUCTION DRAWINGS OR IN THE PROJECT SPECIFICATIONS.
- THE CONTRACTOR SHALL INVESTIGATE AND VERIFY OR HAVE VERIFIED THE LOCATION OF EXISTING UTILITIES AND ANY OTHER SUBSURFACE FACILITIES BEFORE STARTING WORK. HE SHALL BE LIABLE FOR ANY EXPENSE RESULTING FROM DAMAGE TO SAME. ANY CONFLICTS WITH EXISTING UTILITIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AS SOON AS POSSIBLE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE COUNTY, AND THE ENGINEER 24 HOURS PRIOR TO ANY WORK AT SITE & 48 HOURS PRIOR TO ANY TESTING. WATER MAINS TIE-INS REQUIRING WATER SERVICE TO BE SHUT OFF SHALL BE MADE WHEN REQUIRED BY MANATEE COUNTY PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR SHALL COORDINATE HOLDING OF POLES WITH UTILITY COMPANIES IN ADVANCE SO UNNECESSARY DELAYS OF PROJECT SHALL NOT BE INCURRED. THE COST FOR THE HOLDING OF THE POWER POLES SHALL BE INCLUDED IN THE WATER MAIN UNIT COST ITEMS CONTAINED IN THE PROPOSAL.
- WATER MAIN INSTALLATION SHALL BE CONSTRUCTED WITH A MINIMUM OF 3 FEET OF COVER BELOW PROPOSED GRADE OR TO THE ELEVATIONS AND DEPTHS AS INDICATED ON THE PLANS WITHIN 0.25 FT. COST TO RELAY MAIN, IF NECESSARY, SHALL BE BORNE BY THE CONTRACTOR.
- ALL EXISTING SALVAGEABLE PIPE FITTINGS, ETC. SHALL REMAIN THE PROPERTY OF THE OWNER AND BE STORED ON SITE AT THE DIRECTION OF THE ENGINEER.
- ALL PVC WATER MAINS SHALL BE BLUE IN COLOR. COLOR CODED 3" DETECTABLE TAPE SHALL BE LOCATED 12" BELOW GRADE OR COLOR CODED 6" DETECTABLE TAPE SHALL BE LOCATED BETWEEN 12" & 24" BELOW GRADE AND ABOVE THE WATER MAIN. THE TAPE SHALL BE MARKED "WATER". THE COST FOR THE TAPE SHALL BE INCLUDED IN THE WATER MAIN UNIT PRICES.
- UNLESS OTHERWISE NOTED PROPOSED WATER MAINS TO GO UNDER EXISTING CULVERTS STRUCTURES AND OTHER APPURTENANCES. EXCEPT SEWER MAINS WHICH SHALL BE CROSSED OVER.
- PVC WATER MAINS 4" THROUGH 12" SHALL BE AWWA C-900 DR18 (CLASS 150), BLUE IN COLOR & HAVE THE O.D. OF DUCTILE IRON PIPE. PVC WATER MAINS 14" THROUGH 24" SHALL BE AWWA C-905 DR18. FIRE MAINS SHALL BE AWWA C-900 DR14 (CLASS 200).
- WHERE THE WATER MAIN EXCEEDS THE PIPE MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM JOINT DEFLECTION THE CONTRACTOR SHALL FURNISH AND INSTALL FITTINGS AS REQUIRED.
- THE CONTRACTOR SHALL PROVIDE AND UTILIZE A METERED JUMPER ASSEMBLY BETWEEN THE EXISTING POTABLE WATER SOURCE PIPING AND THE NEW WATER MAIN IN ORDER TO PROVIDE BACKFLOW PREVENTION WHILE FILLING AND FLUSHING THE NEW WATER MAIN. FINAL TIE-IN SHALL BE COMPLETED ONLY AFTER THE NEW SYSTEM HAS BEEN FLUSHED CLEAN, PRESSURE TESTED, DISINFECTED, BACTERIOLOGICALLY CLEARED, CERTIFIED COMPLETE BY THE ENGINEER, AND A RELEASE IS OBTAINED FROM THE HEALTH DEPARTMENT. ENGINEER'S REPRESENTATIVE TO BE PRESENT AT FINAL TIE-IN. THE LENGTH OF PIPE REQUIRED FOR FINAL TIE-IN SHALL BE LIMITED TO LESS THAN 20 FEET. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH HEALTH DEPARTMENT AND LOCAL GOVERNMENT RULES AND REGULATIONS.

WATER SERVICE NOTES:

- ALL METER BOXES HAVE BEEN CALCULATED FOR LOCATION AND SHALL BE STAKED ACCORDINGLY IN THE FIELD. BOXES FOUND NOT CONSTRUCTED TO THE PROPOSED LOCATION SHALL BE REMOVED AND RELOCATED BY THE CONTRACTOR AT NO ADDITIONAL CHARGE TO THE OWNER/ENGINEER. THOSE BOXES SHOWN IN CLUSTERS SHALL BE PLACED IN A NEAT ROW AND AGAINST EACH OTHER.
- ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD. NO ADDITIONAL COMPENSATION SHALL BE MADE BY THE OWNER.
- WHERE A HOUSE OR OTHER CONNECTION TERMINATES, THE CONTRACTOR SHALL PROVIDE AND INSTALL 2" x 4" STAKE WITH A MINIMUM OF EIGHTEEN INCHES (18") ABOVE GROUND AND TWO FEET (2') BELOW GROUND THE TOP TWELVE INCHES (12") ARE TO BE PAINTED BLUE.
- FIRE HYDRANTS SHALL BE CONSTRUCTED WITH "GROUND LINE" SET TO FINISHED GRADES AS ESTABLISHED IN THE FIELD. NORMAL BURY IS 3 FEET OF COVER FOR WATER LINES. IF EXTENSIONS ARE REQUIRED, THE COST SHALL BE INCLUDED IN THE PRICE BID.
- 2 INCHES OR SMALLER DIAMETER SERVICES SHALL BE P.E. PIPE MEETING AWWA C-901. PIPE SHALL BE POLY-E DISCO-PIPE 5100 ULTRALINE OR ENDOPIRE BY ENDOT OR APPROVED EQUAL. PIPE SHALL BE BLUE OR ENCASED IN BLUE SLEEVE.
- VERTICAL CLEARANCE BETWEEN WATER AND STORM/WATER MAIN/WASTEWATER LINES SHALL BE 18 INCHES MINIMUM.

THRUST BLOCKS, ANCHOR BLOCKS AND JOINT RESTRAINING:

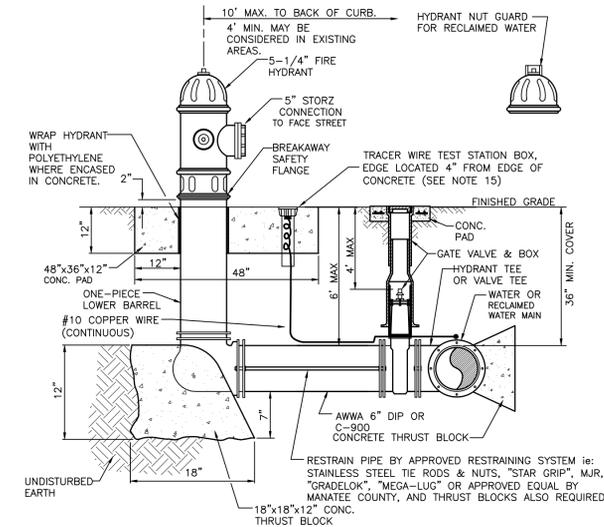
- THE CONTRACTOR SHALL PROVIDE ALL THRUST BLOCKING AND JOINT RESTRAINING AS REQUIRED. SEE THRUST BLOCK AND JOINT RESTRAINTS DETAILS ON WATER DISTRIBUTION CONSTRUCTION DETAILS SHEET.
- DESIGN CRITERIA: 180 P.S.I. TEST PRESSURE TIMES 1.67 SAFETY FACTOR (300 P.S.I.) FOR WATER HAMMER WITH ASSUMED SOIL BEARING CAPACITY OF 1000 LBS. PER SQUARE FOOT.
- COMPLETELY COAT EXPOSED TIE-BARS OR OTHER UNCOATED STEEL AFTER INSTALLATION WITH TWO COATS OF PORTER TARSLET MAXI-BUILD #7080 AT 8 MILS D.F.T. EACH (COAT) USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- WRAP ALL FITTINGS IN POLYETHYLENE PRIOR TO PLACING CONCRETE AGAINST PIPE OR FITTINGS.
- ALL CONCRETE BLOCKING SHALL BE 3000 P.S.I. AT 28 DAYS MINIMUM.
- BLOCK FOR TEE SHALL BE CONSTRUCTED IN SIZE FOR BRANCH DIAMETER.
- MECHANICAL RESTRAINED JOINTS SHALL BE INSTALLED TO MEET MANUFACTURERS RECOMMENDED MINIMUM RESTRAINED DISTANCES FROM FITTING IN ACCORDANCE WITH RECOMMENDED INSTALLATION CRITERIA.

TRENCH NOTES:

- WHERE WATER, RECLAIMED, SEWER MAINS, FORCEMAINS AND/OR STORM SEWERS WOULD CROSS WITH LESS THAN EIGHTEEN INCHES (18") OF VERTICAL CLEARANCE, UPON COUNTY APPROVAL, THE MAIN (WATER, RECLAIMED WATER, FORCEMAIN) MAY BE BURIED WITH LESS THAN 3 FEET OF COVER TO AVOID OBSTRUCTION OF ANOTHER PIPE, PROVIDED THAT THE MAIN IS CONSTRUCTED OF DUCTILE IRON PIPE OR ENCASED IN DUCTILE IRON OR STEEL ENCASEMENT PIPES. WRITTEN APPROVAL FROM THE COUNTY IS REQUIRED PRIOR TO CONSTRUCTION OF MAINS WITH COVER OF LESS THAN 3 FEET OR MORE THAN 6 FEET. MAINS (WATER, RECLAIMED WATER, FORCEMAIN) WITH LESS THAN 3" OF COVER WILL ALSO REQUIRE INCREASED THRUST RESTRAINT.
- HORIZONTAL OR VERTICAL SEPARATION OF PIPES AS REFERRED TO IN THESE NOTES SHALL BE DEFINED TO BE THE MEASUREMENT FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
- A STANDARD MINIMUM 18 INCHES OF VERTICAL CLEARANCE SHALL BE PRACTICED FOR WATER, GRAVITY SEWER RECLAIMED WATER, STORM AND FORCEMAIN PIPES THAT CROSS. WHERE IT IS DEMONSTRATED AND THE COUNTY AGREES THAT STANDARD SEPARATIONS ARE NOT REALISTIC, OR WHERE MAINTENANCE OF A PIPE WOULD BE MADE MORE ACCESSIBLE THE COUNTY ENGINEER MAY APPROVE REDUCTIONS OF THE STANDARD SEPARATIONS AS FOLLOWS:
 - CLEARANCE FROM WATER TO FORCEMAIN, RECLAIMED WATER, STORM AND GRAVITY SEWER AND CLEARANCE FROM RECLAIMED WATER TO GRAVITY SEWER, WATER, FORCEMAIN AND STORM MAY BE REDUCED TO 6 INCHES WHEN THE WATER OR RECLAIMED WATER PIPE IS DI.
 - CLEARANCE FROM FORCEMAIN TO WATER AND RECLAIMED WATER MAY BE REDUCED TO 3 INCHES WHEN THE FORCEMAIN IS BELOW AND HAS A WATER TIGHT CASING PIPE.
 - CLEARANCE FROM RECLAIMED WATER TO WATER MAY BE REDUCED TO 3 INCHES WHEN THE RECLAIMED WATER IS BELOW AND HAS A WATER TIGHT CASING PIPE.
- A MINIMUM OF 10 FEET OF HORIZONTAL SEPARATION (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) IS REQUIRED BETWEEN WATER MAINS AND FORCEMAINS, AND BETWEEN WATER MAINS AND GRAVITY SEWER, AND BETWEEN WATER MAINS AND STORM SEWER, AND BETWEEN STORM SEWER AND GRAVITY SEWER. ALL OTHER COMBINATIONS OF WATER, GRAVITY SEWER, FORCEMAIN, RECLAIMED WATER AND STORM SEWER PIPES MUST HAVE A 5 FEET OF SEPARATION AT A MINIMUM, EXCEPT FOR GRAVITY SEWER AND FORCEMAINS, WHICH SHALL HAVE A MINIMUM OF 3 FEET SEPARATION.
- WHERE IT IS TECHNICALLY FEASIBLE AND ECONOMICALLY PRACTICAL, THE STANDARD MINIMUM HORIZONTAL SEPARATIONS BETWEEN PIPELINES SHALL BE PRACTICED. WHERE IT IS DEMONSTRATED AND THE COUNTY AGREES THAT STANDARD SEPARATIONS ARE NOT REALISTIC, THE COUNTY ENGINEER MAY APPROVE REDUCTIONS OF THE STANDARD SEPARATIONS AS FOLLOWS:
 - SEPARATION FROM RECLAIMED WATER TO GRAVITY SEWER, WATER, STORM, OR FORCEMAIN MAY BE REDUCED TO 3 FEET WHEN THE RECLAIMED WATER IS DI OR HDPE, OR HAS A WATER TIGHT CASING PIPE.
 - SEPARATION FROM GRAVITY SEWER TO WATER OR STORM MAY BE REDUCED TO 5 FEET, AND SEPARATION FROM GRAVITY SEWER TO RECLAIMED OR STORM MAY BE REDUCED TO 3 FEET WHEN THE GRAVITY SEWER HAS A WATER TIGHT CASING PIPE.
 - SEPARATION FROM WATER TO GRAVITY SEWER, STORM AND FORCEMAINS MAY BE REDUCED TO 5 FEET, AND SEPARATION FROM WATER TO RECLAIMED WATER MAY BE REDUCED TO 3 FEET WHEN THE WATER IS DI OR HDPE, OR HAS A WATER TIGHT CASING PIPE.
 - SEPARATION FROM FORCEMAIN TO WATER MAIN MAY BE REDUCED TO 5 FEET, AND SEPARATION FROM FORCEMAIN TO RECLAIMED WATER MAY BE REDUCED TO 3 FEET WHEN THE FORCEMAIN IS HDPE OR HAS A WATER TIGHT CASING PIPE.
- TRENCH SHALL BE BRACED OR SHORED IN ACCORDANCE WITH THE "FLORIDA TRENCH & SAFETY ACT".
- WIDTH OF TRENCH BOTTOM SHALL BE OUTSIDE DIAMETER OF PIPE PLUS TEN INCHES (10") EACH SIDE, MAXIMUM FOR PIPES LESS THAN 24" DIAMETER.
- CONTRACTOR SHALL PLACE METALLIC BURIAL IDENTIFICATION TAPE DIRECTLY ABOVE SEWER LINES IN CONFORMANCE WITH COUNTY CODE.
- ALL WELL POINT HOLES SHALL BE FILLED WITH COARSE SAND OR OTHER SATISFACTORY GRANULAR MATERIAL AT TIME WELL POINTS ARE PULLED.
- DISCHARGE FROM DEWATERING OPERATION SHALL BE DISPOSED OF IN SUCH A MANNER THAT IT SHALL NOT INTERFERE WITH THE NORMAL DRAINAGE OF THE AREA IN WHICH THE WORK IS BEING PERFORMED, CREATE A PUBLIC NUISANCE OR FORM PONDING, THE OPERATIONS SHALL NOT CAUSE INJURY TO ANY PORTION OF THE WORK COMPLETED, OR IN PROGRESS, OR TO THE SURFACE OF STREETS, OR TO PRIVATE PROPERTY.
- THE PROPOSED DEWATERING METHOD(S) AND SCHEDULE SHALL BE COORDINATED WITH THE UTILITY AND/OR THE ENGINEER OF RECORD AND OTHER NECESSARY REGULATORY AGENCIES PRIOR TO CONSTRUCTION. ADDITIONALLY, WHERE PRIVATE PROPERTY SHALL BE INVOLVED, ADVANCE PERMISSION SHALL BE OBTAINED BY THE CONTRACTOR AND/OR DEVELOPER.
- THE CONTRACTOR SHALL PROVIDE SOIL COMPACTION TESTING IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. IF THE SPECIFICATIONS DO NOT ADDRESS COMPACTION TESTS, THEY SHALL BE DONE IN ACCORDANCE WITH MANATEE COUNTY PUBLIC UTILITY STANDARDS, LATEST EDITION. ALL SOIL COMPACTION TESTS RESULTS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD.

AS-BUILTS:

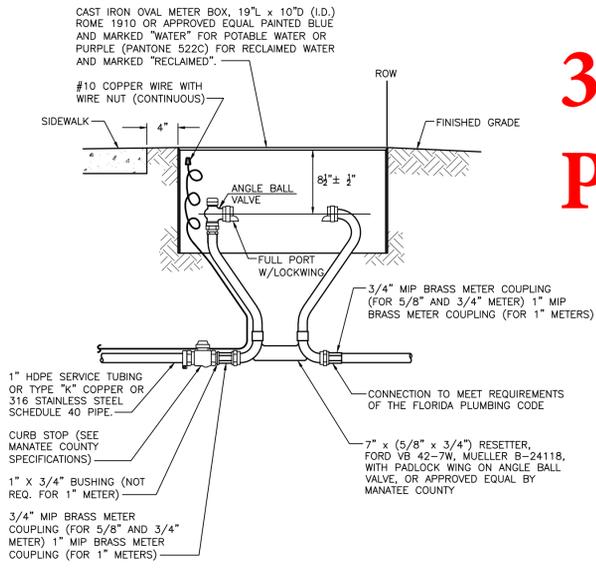
- THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS THAT MEET OR EXCEED THE MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST EDITION.
- THE CONTRACTOR SHALL FURNISH "AS-BUILT" STATIONING OF SEWER WYES USING EACH DOWNSTREAM MANHOLE AS STA. 0+00.
- TOP OF PIPE ELEVATIONS FOR ALL POTABLE WATER AND GRAVITY SEWER MAINS ARE REQUIRED EVERY ONE HUNDRED FEET(100') AND/OR AT EACH STRUCTURE, FITTING OR CHANGE IN GRADE.
- RECORD DRAWINGS, IF PREPARED BY THE CONTRACTOR OR CONTRACTORS SURVEYOR, DRAFT COPIES OF THE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINALIZING THE DRAWINGS. ONCE ACCEPTABLE TO THE ENGINEER THE CONTRACTOR/SURVEYOR WILL PROVIDE 9 SETS OF SIGNED AND SEALED FINALIZED DRAWINGS FOR SUBMITTAL TO THE COUNTY, ONCE THE DRAWING ARE APPROVED BY THE COUNTY, CONTRACTOR/SURVEYOR IS RESPONSIBLE TO PROVIDE THE ENGINEER OF RECORD ONE SET OF MYLARS AND A DIGITAL COPY OF RECORD DRAWINGS IN CAD AND PDF FORMAT, RECORD INFORMATION SHALL BE ON UNIQUE LAYER(S) AND TEXT SHALL USE A STANDARD AUTOCAD FONT.



- 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 DUCTILE IRON CONSTRUCTION.
 - FIRE HYDRANTS SHALL BE PLACED SO THAT STORM WATER FLOWS AWAY FROM THE HYDRANT.
 - FIRE HYDRANTS SHALL BE CONSTRUCTED WITH "GROUND LINE" 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 MARKER (BLUE) FOR POTABLE WATER (PURPLE) FOR RECLAIMED WATER. SHALL BE INSTALLED AT CENTERLINE OF PAVEMENT ADJACENT TO THE HYDRANT.
 - PRECAST CONCRETE THRUST BLOCKS & PADS SHALL NOT BE USED.
 - 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 MAIN UNLESS OTHERWISE APPROVED.
 - 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 THE SIDEWALK, THE TRACER WIRE TEST STATION BOX SHALL NOT BE LOCATED WITHIN THE SIDEWALK.

FIRE HYDRANT ASSEMBLY

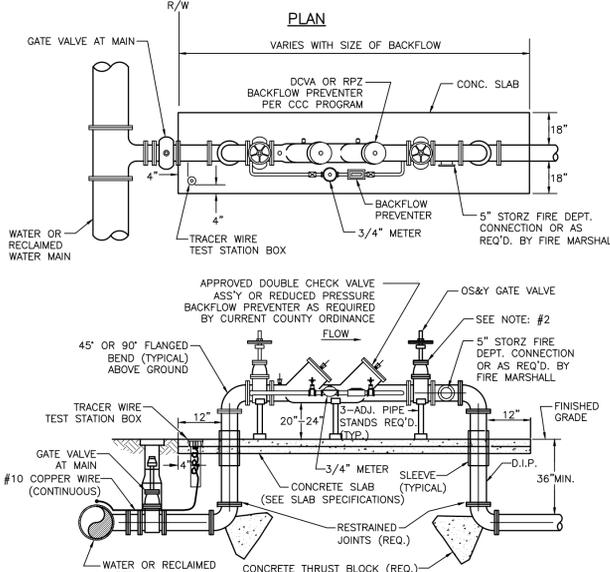
UW-5 (5/10/11) N.T.S.



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

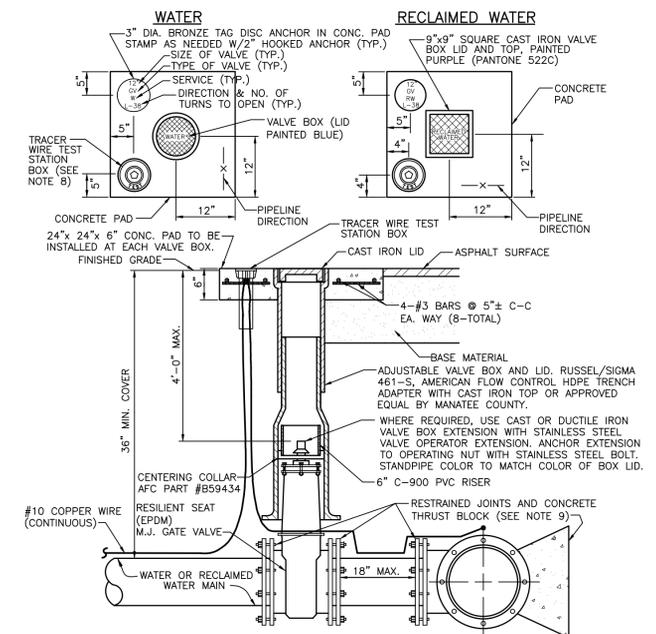
METER BOX ASSEMBLY FOR 5/8" X 3/4", 3/4" & 1" METERS
UW-17 (5/10/11) N.T.S.

30% Concept Plans



- NOTES:**
- THIS DETAIL FOR FIRE PROTECTION ONLY.
 - WHEN PRESSURE TESTING FIRE LINE, TEST AGAINST DOWNSTREAM GATE VALVE.
 - THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION), THE MANATEE COUNTY BACKFLOW PREVENTION ORDINANCE (LATEST EDITION) AND THE MANATEE COUNTY FIRE MARSHALL REQUIREMENTS.
 - ABOVE GROUND PIPING SHALL BE FLANGED DUCTILE IRON CLASS 53 AND PAINTED RED.
 - ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 1/2" CHAMFER.
 - LANDSCAPE VEGETATION SHALL BE 6 FEET MIN. FROM EDGE OF CONCRETE SLAB. STREET SIDE OF ASSEMBLY SHALL REMAIN OPEN.
 - ALL ANCILLARY BOLTS & FASTENERS TO BE STAINLESS STEEL.
 - SEE GATE VALVE, BOX, LID AND TAG DETAIL.
 - PIPE STANDS SHALL BE BOLTED TO SLAB.
- | SLAB SPECIFICATIONS | |
|---------------------|------------------------------|
| PIPE DIAMETER | SLAB THICKNESS REINFORCEMENT |
| 3" TO 10" | 4" 6x6 W1-4 WIRE MESH |
| 12" TO 18" | 4" 6x6 W3 WIRE MESH |

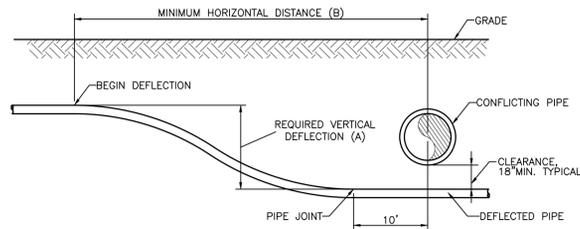
3" AND ABOVE FIRE LINE BACKFLOW PREVENTER
UW-14 (5/10/11) N.T.S.



- NOTES:**
- "RW" OR "ROW" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A BLUE DISC WITH "WM" OR PURPLE DISC WITH "RW" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
 - ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
 - WATER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
 - PRECAST CONCRETE PADS & THRUST BLOCKS SHALL NOT BE USED.
 - ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
 - FOR VALVES 16" AND LARGER, USE BUTTERFLY VALVES.
 - PIPELINE DIRECTION TO BE IMPRESSED INTO NEWLY POURED CONCRETE PAD.
 - TRACER WIRE TEST STATION BOX IS NOT REQUIRED IN VALVE BOX PAD IF THE GATE VALVE IS LOCATED WITHIN 200 FEET OF A WATER SERVICE, BELOW-IF, BACKFLOW PREVENTER OR FIRE HYDRANT THAT HAS A TRACER WIRE BOX.
 - WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR TEES.
 - BINGHAM & TAYLOR P200NFG FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE P252SD CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

GATE VALVE, BOX, LID AND TAG
UW-2 (5/10/11) N.T.S.

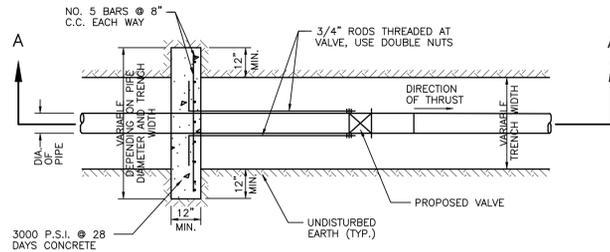
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REV. NO.	REVISION	DATE	DESIGNED BY	CHECKED BY	CONTRACT ADMIN. BY	DATE	DRN BY / EMP. NO.	CHEK BY / DRP. NO.	WM APPROVED BY:																



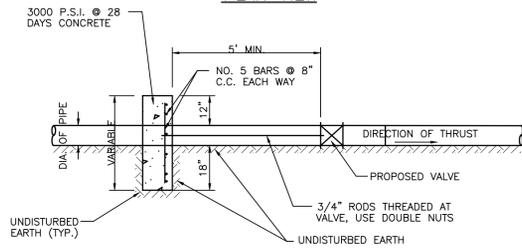
PIPE SIZE	ALLOWABLE BENDING RADIUS	75% ALLOWABLE BENDING RADIUS	REQUIRED VERTICAL DEFLECTION (A)									
			1.0'	1.5'	2.0'	2.5'	3.0'	4.0'	5.0'	6.0'	8.0'	10.0'
4"	100'	134'	34'	39'	43'	47'	50'	57'	62'	67'	75'	83'
6"	150'	200'	39'	45'	50'	55'	59'	67'	74'	80'	90'	99'
8"	200'	267'	43'	50'	57'	62'	67'	76'	83'	90'	103'	113'
10"	250'	334'	47'	55'	62'	68'	74'	83'	92'	100'	114'	126'
12"	300'	400'	50'	59'	67'	74'	80'	90'	100'	108'	123'	137'

TABLE BASED ON 75% OF THE ALLOWABLE BENDING RADIUS
PIPE DEFLECTION DETAIL
S-W030 N.T.S.

30% Concept Plans

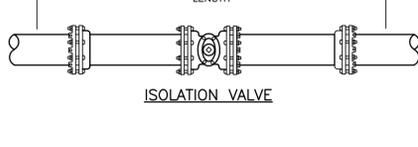
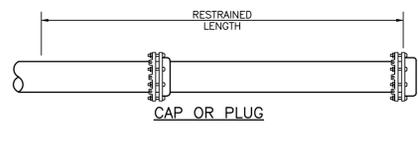
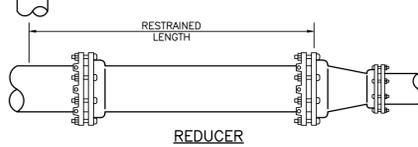
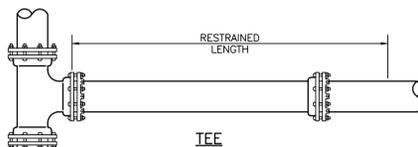
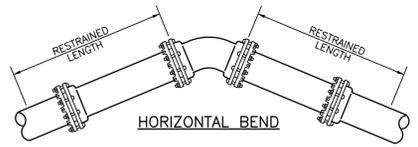


PLAN VIEW



SECTION "A-A"

DEADMAN THRUST BLOCK
S-W001 N.T.S.



RESTRAINED LENGTHS FOR PIPE
UG-10 (5/10/11) N.T.S.

NOTE:
IN ADDITION TO THE MANATEE COUNTY RESTRAINED LENGTHS FOR PVC PIPE DETAIL:
1. IN-LINE GATE VALVES TO BE RESTRAINED THE SAME LENGTH EACH WAY THE SAME AS A PLUG.
2. DEAD END GATE VALVES TO BE RESTRAINED THE SAME LENGTH AS A PLUG.
3. THE CONTRACTOR SHALL OBTAIN A QUALIFIED TESTING LABORATORY IN ORDER TO DETERMINE ACTUAL SOIL CONDITIONS PRIOR TO PIPE INSTALLATION. IF EXISTING SOIL CONDITIONS ARE NOT CONSISTENT WITH THE DESIGN SOIL CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IN ORDER TO MODIFY THE RESTRAINED LENGTHS ACCORDINGLY.
3/17/09

3/4" & 1" BACKFLOW PREVENTER
UW-12 (5/10/11) N.T.S.

NOTES:

- BACKFLOW DEVICE MUST BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER, AS SHOWN ABOVE
- COPPER PIPE TYPE "K" OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 12" BELOW GRADE.
- PIPES PASSING THROUGH OR ENCASED IN CONCRETE MUST BE PROPERLY PROTECTED AND SLEEVED.
- THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND THE MANATEE COUNTY BACKFLOW PREVENTION ORDINANCE (LATEST EDITION).
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
- BACKFLOW PREVENTER SHALL BE TESTED AT THE TIME OF INSTALLATION.
- PRESSURE REDUCING VALVE REQUIRED UPSTREAM OF BACKFLOW IF SYSTEM PRESSURE EXCEEDS 80 PSI.
- 3" MINIMUM CLEARANCE FROM LANDSCAPING PLANTS TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
- IN ADDITION TO THE PRV, THE BUILDING DEPT. MAY REQUIRE AN APPROVED DEVICE FOR THERMAL EXPANSION CONTROL.
- REFER TO DETAIL WATER METER & BACKFLOW PREVENTER FOR LIET STATIONS FOR WATER SERVICE AT SEWAGE PUMPING STATION.

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

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

NOTES:

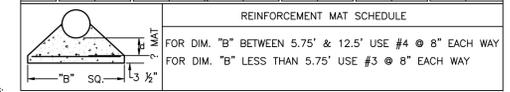
- RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
- ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
- ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
- PIPE SIZES ARE GIVEN IN INCHES.
- RESTRAINED 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.

RESTRAINED LENGTHS FOR PVC PIPE
UG-8 (5/10/11) N.T.S.

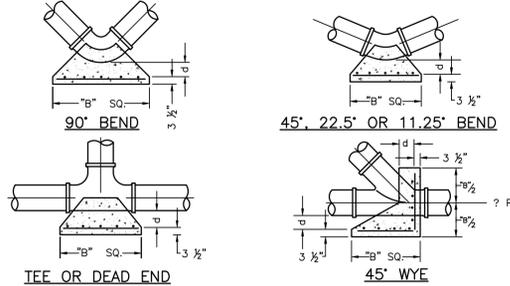
NOTE:
IN ADDITION TO THE MANATEE COUNTY RESTRAINED LENGTHS FOR PVC PIPE DETAIL:
1. IN-LINE GATE VALVES TO BE RESTRAINED THE SAME LENGTH EACH WAY THE SAME AS A PLUG.
2. DEAD END GATE VALVES TO BE RESTRAINED THE SAME LENGTH AS A PLUG.
3. THE CONTRACTOR SHALL OBTAIN A QUALIFIED TESTING LABORATORY IN ORDER TO DETERMINE ACTUAL SOIL CONDITIONS PRIOR TO PIPE INSTALLATION. IF EXISTING SOIL CONDITIONS ARE NOT CONSISTENT WITH THE DESIGN SOIL CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IN ORDER TO MODIFY THE RESTRAINED LENGTHS ACCORDINGLY.
3/17/09

THRUST BLOCK DIMENSIONS B ft. x d inches

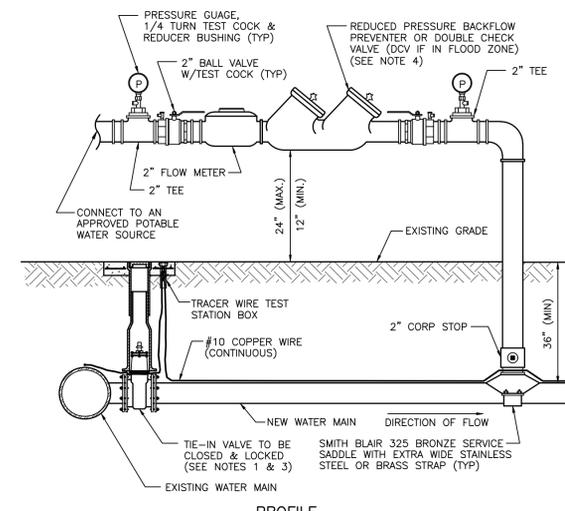
PIPE SIZE (IN.)	90° BEND			45° BEND			22.5° BEND			11.25° BEND			DEAD END & TEE			
	B	d	B	B	d	B	B	d	B	d	B	d	B	d		
4	1.5	3 1/2	1.1	3 1/2	0.8								1.3	3 1/2	1.1	3 1/2
6	2.2	5 1/2	1.6	3 1/2	1.2								1.9	4 1/2	1.6	3 1/2
8	2.9	7	2.1	5	1.5								2.4	5 3/4	2.0	4 3/4
10	3.5	8 1/2	2.6	6 1/4	1.9								3.0	7 1/4	2.5	6
12	4.2	10	3.1	7 1/2	2.2								3.5	8 1/4	3.0	7 1/4
14	4.9	11 3/4	3.6	8 3/4	2.6								4.1	9 3/4	3.4	8 1/4
16	5.5	13 1/4	4.1	9 3/4	2.9								4.7	11 1/4	3.9	9 1/4
18	6.2	15	4.6	11	3.3								5.2	12 1/2	4.4	10 1/2
20	6.9	16 1/2	5.0	12	3.6								5.8	14	4.9	11 1/2
24	8.2	19 1/4	6.0	14 1/2	4.3								6.9	16 1/2	5.8	14
30	10.1	24 1/4	7.5	18	5.3	12 3/4	3.8	9	8.5	20 1/2	7.2	17 1/4				
36	12.1	29	8.9	21 1/4	6.4	15 1/4	4.5	10 3/4	10.2	24 1/2	8.6	20 3/4				



- NOTES:**
- ALL THRUST BLOCKS SHALL BE CAST IN PLACE. FITTINGS ADJACENT TO THRUST BLOCKS SHALL BE WRAPPED IN POLYETHYLENE.
 - THIS TABLE IS BASED ON WATER PRESSURE=180 PSI WITH AN ALLOWABLE SOIL BEARING PRESSURE=3000 PSF, CONCRETE STRENGTH f_c=3000 PSI, REINFORCEMENT f_y=60,000 KSI. THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
 - FOR LARGER "B" DIMENSIONS IT IS NECESSARY TO CHECK THAT PIPE IS SUFFICIENTLY DEEP TO ALLOW 15" MIN. SOIL COVER OVER TOP EDGE OF THRUST BLOCK.
 - RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS TO SAVE SPACE. THRUST BLOCKS SHALL BE USED IN SITUATIONS WHERE THRUST BLOCKS AND RESTRAINED JOINTS ARE BOTH REQUIRED.



CONCRETE THRUST BLOCKS
UG-7 (5/10/11) N.T.S.



PROFILE

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

TEMPORARY JUMPER CONNECTION
UW-21 (5/10/11) N.T.S.

TEMPORARY JUMPER CONNECTION NOTES
UW-22 (5/10/11) (MANATEE) S-W032(10/26/11)

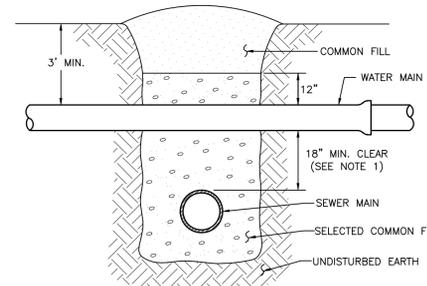
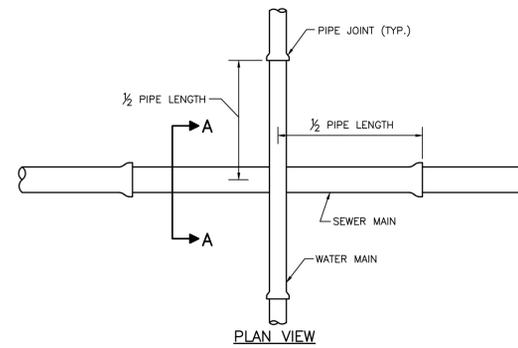
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HORIZONTAL SCALE: N/A	PROJECT: ROBINSON PRESERVE EXPANSION PHASE I	CHECKED BY: N/A	SHEET NUMBER: 17 OF XX
VERTICAL SCALE: N/A	CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS	CONTRACT ADMIN. BY: N/A	
CROSS REFERENCE FILE NO.: 345 16E	DATE: 9/23/2014	DATE: 9/23/2014	
PROJECT NUMBER: 215611990	DATE: 9/23/2014	DATE: 9/23/2014	

TRENCH NOTES:

- WHERE WATER, RECLAIMED, SEWER MAINS, FORCEMAINS AND/OR STORM SEWERS WOULD CROSS WITH LESS THAN EIGHTEEN INCHES (18") OF VERTICAL CLEARANCE, UPON COUNTY APPROVAL, THE MAIN (WATER, RECLAIMED WATER, FORCEMAIN) MAY BE BURIED WITH LESS THAN 3 FEET OF COVER TO AVOID OBSTRUCTION OF ANOTHER PIPE, PROVIDED THAT THE MAIN IS CONSTRUCTED OF DUCTILE IRON PIPE OR ENCASED IN DUCTILE IRON OR STEEL ENCASUREMENT PIPES. WRITTEN APPROVAL FROM THE COUNTY IS REQUIRED PRIOR TO CONSTRUCTION OF MAINS WITH COVER OF LESS THAN 3 FEET OR MORE THAN 6 FEET. MAINS (WATER, RECLAIMED WATER, FORCEMAIN) WITH LESS THAN 3' OF COVER WILL ALSO REQUIRE INCREASED THRUST RESTRAINT.
- HORIZONTAL OR VERTICAL SEPARATION OF PIPES AS REFERRED TO IN THESE NOTES SHALL BE DEFINED TO BE THE MEASUREMENT FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
- A STANDARD MINIMUM 18 INCHES OF VERTICAL CLEARANCE SHALL BE PRACTICED FOR WATER, GRAVITY SEWER RECLAIMED WATER, STORM AND FORCEMAIN PIPES THAT CROSS, WHERE IT IS DEMONSTRATED AND THE COUNTY AGREES THAT STANDARD SEPARATIONS ARE NOT REALISTIC, OR WHERE MAINTENANCE OF A PIPE WOULD BE MADE MORE ACCESSIBLE THE COUNTY ENGINEER MAY APPROVE REDUCTIONS OF THE STANDARD SEPARATIONS AS FOLLOWS:
 - CLEARANCE FROM WATER TO FORCEMAIN, RECLAIMED WATER, STORM AND GRAVITY SEWER AND CLEARANCE FROM RECLAIMED WATER TO GRAVITY SEWER, WATER, FORCEMAIN AND STORM MAY BE REDUCED TO 6 INCHES WHEN THE WATER OR RECLAIMED WATER PIPE IS DI.
 - CLEARANCE FROM FORCEMAIN TO WATER AND RECLAIMED WATER MAY BE REDUCED TO 3 INCHES WHEN THE FORCEMAIN IS BELOW AND HAS A WATER TIGHT CASING PIPE.
 - CLEARANCE FROM RECLAIMED WATER TO WATER MAY BE REDUCED TO 3 INCHES WHEN THE RECLAIMED WATER IS BELOW AND HAS A WATER TIGHT CASING PIPE.
- A MINIMUM OF 10 FEET OF HORIZONTAL SEPARATION (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) IS REQUIRED BETWEEN WATER MAINS AND FORCEMAINS, AND BETWEEN WATER MAINS AND GRAVITY SEWER, AND BETWEEN WATER MAINS AND STORM SEWER, AND BETWEEN STORM SEWER AND GRAVITY SEWER. ALL OTHER COMBINATIONS OF WATER, GRAVITY SEWER, FORCEMAIN, RECLAIMED WATER AND STORM SEWER PIPES MUST HAVE A 5 FEET OF SEPARATION AT A MINIMUM, EXCEPT FOR GRAVITY SEWER AND FORCEMAINS, WHICH SHALL HAVE A MINIMUM OF 3 FEET SEPARATION.
- WHERE IT IS TECHNICALLY FEASIBLE AND ECONOMICALLY PRACTICAL, THE STANDARD MINIMUM HORIZONTAL SEPARATIONS BETWEEN PIPELINES SHALL BE PRACTICED. WHERE IT IS DEMONSTRATED AND THE COUNTY AGREES THAT STANDARD SEPARATIONS ARE NOT REALISTIC, THE COUNTY ENGINEER MAY APPROVE REDUCTIONS OF THE STANDARD SEPARATIONS AS FOLLOWS:
 - SEPARATION FROM RECLAIMED WATER TO GRAVITY SEWER, WATER, STORM, OR FORCEMAIN MAY BE REDUCED TO 3 FEET WHEN THE RECLAIMED WATER IS DI OR HDPE, OR HAS A WATER TIGHT CASING PIPE.
 - SEPARATION FROM GRAVITY SEWER TO WATER OR STORM MAY BE REDUCED TO 5 FEET, AND SEPARATION FROM GRAVITY SEWER TO RECLAIMED OR STORM MAY BE REDUCED TO 3 FEET WHEN THE GRAVITY SEWER HAS A WATER TIGHT CASING PIPE.
 - SEPARATION FROM WATER TO GRAVITY SEWER, STORM AND FORCEMAINS MAY BE REDUCED TO 5 FEET, AND SEPARATION FROM WATER TO RECLAIMED WATER MAY BE REDUCED TO 3 FEET WHEN THE WATER IS DI OR HDPE, OR HAS A WATER TIGHT CASING PIPE.
 - SEPARATION FROM FORCEMAIN TO WATER MAIN MAY BE REDUCED TO 5 FEET, AND SEPARATION FROM FORCEMAIN TO RECLAIMED WATER MAY BE REDUCED TO 3 FEET WHEN THE FORCEMAIN IS HDPE OR HAS A WATER TIGHT CASING PIPE.
- TRENCH SHALL BE BRACED OR SHORED IN ACCORDANCE WITH THE "FLORIDA TRENCH & SAFETY ACT".
- WIDTH OF TRENCH BOTTOM SHALL BE OUTSIDE DIAMETER OF PIPE PLUS TEN INCHES (10") EACH SIDE, MAXIMUM FOR PIPES LESS THAN 24" DIAMETER.
- CONTRACTOR SHALL PLACE METALLIC BURIAL IDENTIFICATION TAPE DIRECTLY ABOVE SEWER LINES IN CONFORMANCE WITH COUNTY CODE.
- ALL WELL POINT HOLES SHALL BE FILLED WITH COARSE SAND OR OTHER SATISFACTORY GRANULAR MATERIAL AT TIME WELL POINTS ARE PULLED.
- DISCHARGE FROM DEWATERING OPERATION SHALL BE DISPOSED OF IN SUCH A MANNER THAT IT SHALL NOT INTERFERE WITH THE NORMAL DRAINAGE OF THE AREA IN WHICH THE WORK IS BEING PERFORMED, CREATE A PUBLIC NUISANCE OR FORM PONDING. THE OPERATIONS SHALL NOT CAUSE INJURY TO ANY PORTION OF THE WORK COMPLETED, OR IN PROGRESS, OR TO THE SURFACE OF STREETS, OR TO PRIVATE PROPERTY.
- THE PROPOSED DEWATERING METHOD(S) AND SCHEDULE SHALL BE COORDINATED WITH THE UTILITY AND/OR THE ENGINEER OF RECORD AND OTHER NECESSARY REGULATORY AGENCIES PRIOR TO CONSTRUCTION. ADDITIONALLY, WHERE PRIVATE PROPERTY SHALL BE INVOLVED, ADVANCE PERMISSION SHALL BE OBTAINED BY THE CONTRACTOR AND/OR DEVELOPER.
- THE CONTRACTOR SHALL PROVIDE SOIL COMPACTION TESTING IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. IF THE SPECIFICATIONS DO NOT ADDRESS COMPACTION TESTS, THEY SHALL BE DONE IN ACCORDANCE WITH MANATEE COUNTY PUBLIC UTILITY STANDARDS, LATEST EDITION. ALL SOIL COMPACTION TESTS RESULTS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD.

AS-BUILTS:

- THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS THAT MEET OR EXCEED THE MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST EDITION.
- THE CONTRACTOR SHALL FURNISH "AS-BUILT" STATIONING OF SEWER WYES USING EACH DOWNSTREAM MANHOLE AS STA. 0+00.
- TOP OF PIPE ELEVATIONS FOR ALL POTABLE WATER AND GRAVITY SEWER MAINS ARE REQUIRED EVERY ONE HUNDRED FEET (100') AND/OR AT EACH STRUCTURE, FITTING OR CHANGE IN GRADE.
- RECORD DRAWINGS, IF PREPARED BY THE CONTRACTOR OR CONTRACTORS SURVEYOR. DRAFT COPIES OF THE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINALIZING THE DRAWINGS. ONCE ACCEPTABLE TO THE ENGINEER THE CONTRACTOR/SURVEYOR WILL PROVIDE 9 SETS OF SIGNED AND SEALED FINALIZED DRAWINGS FOR SUBMITTAL TO THE COUNTY. ONCE THE DRAWING ARE APPROVED BY THE COUNTY, CONTRACTOR/SURVEYOR IS RESPONSIBLE TO PROVIDE THE ENGINEER OF RECORD ONE SET OF MYLARS AND A DIGITAL COPY OF RECORD DRAWINGS IN CAD AND PDF FORMAT, RECORD INFORMATION SHALL BE ON UNIQUE LAYER(S) AND TEXT SHALL USE A STANDARD AUTOCAD FONT.



NOTES:

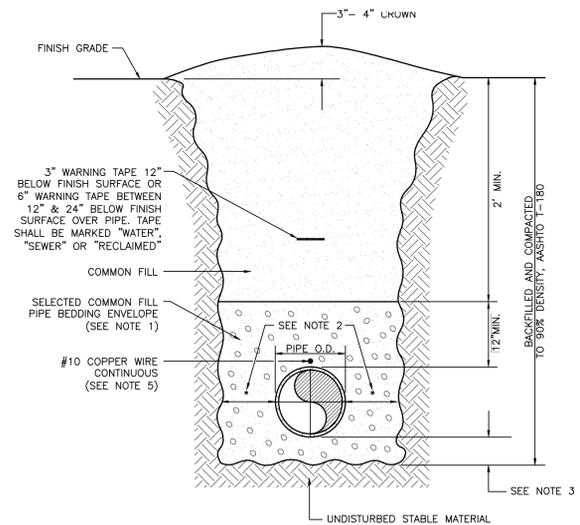
- CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON OR 3" FOR FORCE MAIN WHERE FORCE MAIN IS ENCASED A MINIMUM OF 10" EACH SIDE OF CROSSING.
- WHERE NO ENCASUREMENT IS REQUIRED, PIPE SECTIONS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY SO THAT THE CROSSING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

TYPICAL NEW WATER & SEWER CROSSING

UG-2 (5/10/11) N.T.S.

NOTES:

- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- TYPICALLY 4" TO 6".
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

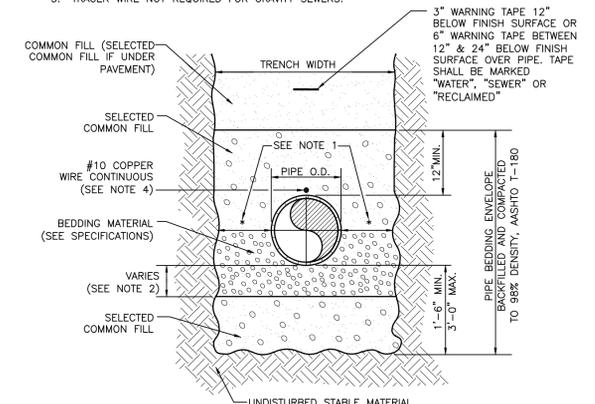


TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING

UG-11 (5/10/11) N.T.S.

NOTES:

- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- TYPICALLY 4" TO 6".
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

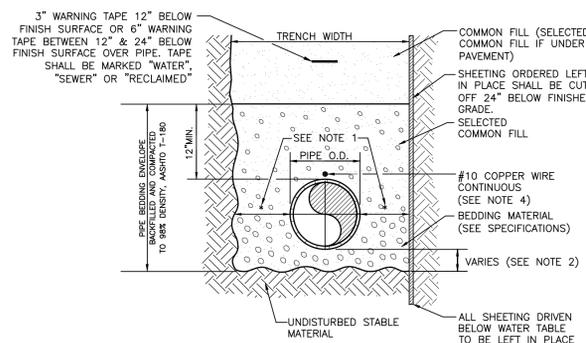


TRENCH WITH TYPE A-3 PIPE BEDDING

UG-16 (5/10/11) N.T.S.

NOTES:

- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- TYPICALLY 4" TO 6".
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



TRENCH WITH TYPE A-2 PIPE BEDDING

UG-15 (5/10/11) N.T.S.

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WASTEWATER COLLECTION GENERAL NOTES:

- THE FOLLOWING NOTES ARE INTENDED AS A SUPPLEMENT TO THE PROJECT SPECIFICATIONS AND ARE NOT INTENDED TO SUPERSEDE THE SPECIFICATIONS. IT IS ASSUMED THE IRRIGATION MAINS ARE OR WILL CONVEY REUSE WATERS.
- ALL CONSTRUCTION SHALL MEET THE MINIMUM REQUIREMENTS OF MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST REVISION, AND EXCEED THE REQUIREMENTS OF THOSE SPECIFICATIONS WHERE INDICATED ON THESE CONSTRUCTION DRAWINGS OR IN THE PROJECT SPECIFICATIONS.
 - ELEVATIONS SHOWN ON THE PLANS FOR FLOWLINES OF PROPOSED WASTEWATER MAINS SHALL BE ADHERED TO. IN MOST CASES THE DESIGN GRADES ARE CRITICAL AND ADJUSTMENTS CAUSED BY MISALIGNMENT OR IMPROPER GRADES ARE IMPRACTICAL. COST TO RELAY MAIN, IF NECESSARY, SHALL BE BORNE BY THE CONTRACTOR.
 - THE CONTRACTOR SHALL INVESTIGATE AND VERIFY OR HAVE VERIFIED THE LOCATION OF EXISTING UTILITIES AND ANY OTHER SUBSURFACE FACILITIES BEFORE STARTING WORK. HE SHALL BE LIABLE FOR ANY EXPENSE RESULTING FROM DAMAGE TO SAME. ANY CONFLICTS WITH EXISTING UTILITIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AS SOON AS POSSIBLE.
 - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE COUNTY, AND THE ENGINEER 24 HOURS PRIOR TO ANY WORK AT SITE & 48 HOURS PRIOR TO ANY TESTING.
 - THE CONTRACTOR SHALL COORDINATE HOLDING OF POLES WITH UTILITY COMPANIES IN ADVANCE SO UNNECESSARY DELAYS OF PROJECT SHALL NOT BE INCURRED. THE COST FOR THE HOLDING OF THE POWER POLES SHALL BE INCLUDED IN THE WASTEWATER MAIN UNIT COST ITEMS CONTAINED IN THE PROPOSAL.
 - PIPE AND FITTINGS FOR P.V.C. GRAVITY PIPE SHALL MEET THE REQUIREMENTS OF A.S.T.M. SPECIFICATION D-3034 SDR26. GRAVITY SEWER MAINS SHALL BE GREEN IN COLOR.
 - FORCE MAINS SHALL BE THRUST BLOCKED IN ACCORDANCE WITH THE WATER MAIN DETAILS UNLESS OTHERWISE SPECIFIED. FORCE MAINS 4" THROUGH 12" SHALL BE AWWA C-900 DR18 (150 PSI), GREEN IN COLOR & HAVE THE O.D. OF DUCTILE IRON. FORCE MAINS OVER 14" THROUGH 36" SHALL BE AWWA C-905, DR21.
 - ALL EXISTING SALVAGEABLE PIPE FITTINGS, ETC. SHALL REMAIN THE PROPERTY OF THE OWNER AND BE STORED ON SITE AT THE DIRECTION OF THE ENGINEER.
 - ALL PVC GRAVITY SEWER LINES AND FORCEMAINS SHALL BE GREEN IN COLOR. COLOR CODED 3" DETECTABLE TAPE SHALL BE LOCATED 12" BELOW GRADE OR COLOR CODED 6" DETECTABLE TAPE SHALL BE LOCATED BETWEEN 12" & 24" BELOW GRADE AND ABOVE THE GRAVITY SEWER LINE OR FORCEMAIN. THE TAPE SHALL BE MARKED "SEWER" FOR GRAVITY SEWER LINES AND "FORCEMAIN" FOR FORCEMAINS. THE COST FOR THE TAPE SHALL BE INCLUDED IN THE SEWER LINES OR FORCEMAIN UNIT PRICES.

SANITARY SEWER SERVICE NOTES:

- METALLIC IDENTIFICATION TAPE SHALL EXTEND FROM WYE CONNECTION TO THE END OF THE SERVICE EIGHTEEN INCHES (18") BELOW FINISHED GRADE AND TERMINATE TWELVE INCHES (12") ABOVE GROUND AT THE LOCATION STAKE. IN ADDITION THE CONTRACTOR SHALL BURY A TWO FOOT, (2') LONG #3 REBAR AT THE END OF THE SERVICE PARALLEL TO THE SURFACE FOR ELECTRONIC LOCATION PURPOSES. COST OF TAPE AND REBAR TO BE INCLUDED IN THE COST FOR SERVICE PIPE INSTALLATION.
- WHERE A HOUSE OR OTHER CONNECTION TERMINATES, THE CONTRACTOR SHALL PROVIDE AND INSTALL 2" x 4" STAKE WITH A MINIMUM OF EIGHTEEN INCHES (18") ABOVE GROUND AND TWO (2) FEET BELOW GROUND. THE TOP TWELVE INCHES (12") ARE TO BE PAINTED GREEN.

CLEAN-OUT NOTES:

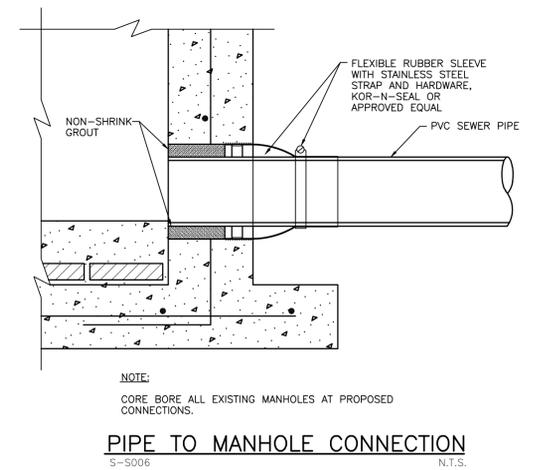
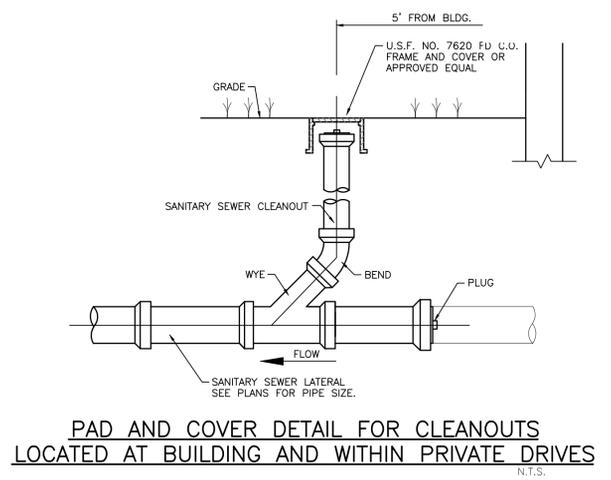
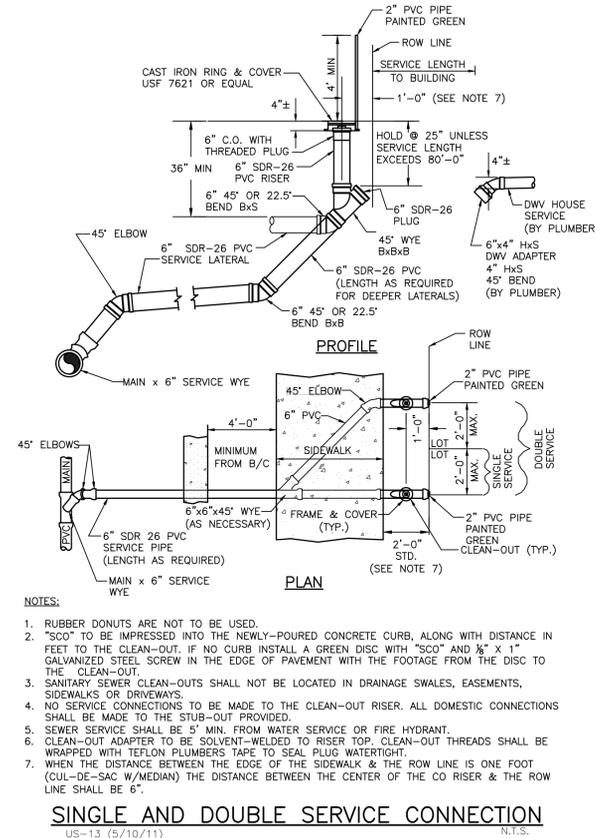
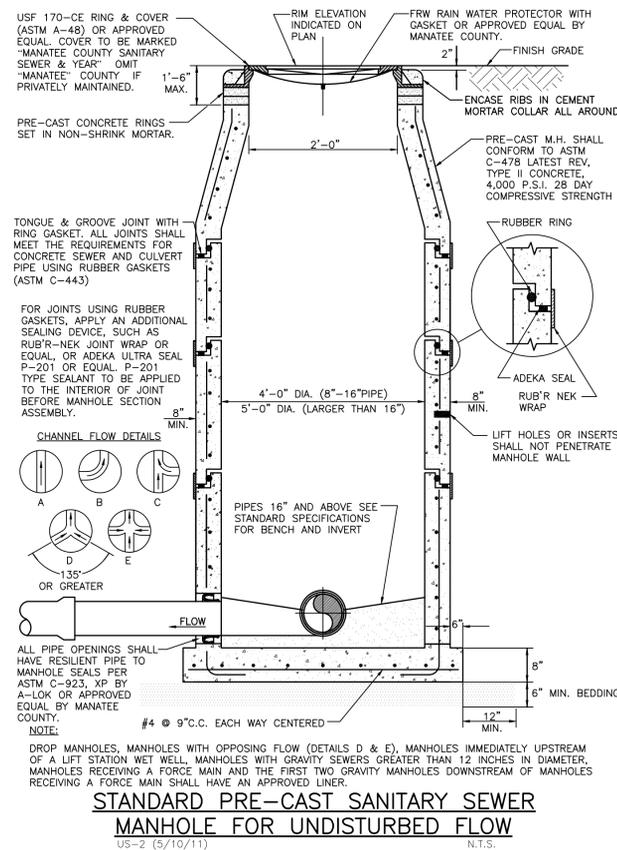
- CLEANOUTS ARE REQUIRED ON ALL SERVICES AND AS SHOWN ON THE PLAN.
- CLEAN-OUTS SHALL BE ADJUSTED TO CONFORM WITH FINISHED SURFACES. ALL ADJUSTMENTS SHALL BE INCLUDED IN THE PRICE BID. NO ADDITIONAL COMPENSATION SHALL BE MADE BY THE OWNER.

SEWER TESTING:

- TESTING SHALL BE IN CONFORMANCE WITH MANATEE COUNTY PUBLIC WORKS STANDARDS.
- THE CONTRACTOR SHALL INCLUDE IN HIS COST FOR THE VARIOUS ITEMS CONTAINED IN THE BID SCHEDULE, THE ADDITIONAL COSTS INVOLVED WITH LAMPING THE NEWLY LAID SEWER PIPE, EXFILTRATION OR INFILTRATION TESTING, LOW PRESSURE AIR TEST PIPE DEFLECTION (MANDREL) TESTS, ALL AS OUTLINED IN THE MANATEE COUNTY PUBLIC WORKS STANDARDS
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING ALL FORCE MAINS IN ACCORDANCE WITH THE MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST EDITION. THE CONTRACTOR SHALL ENSURE THAT FORCE MAINS CAN BE TESTED AT ALL MANHOLE CONNECTIONS AND PLUG VALVE LOCATIONS. IF GATE VALVES MUST BE UTILIZED FOR TESTING PURPOSES, ANY COST ASSOCIATED WITH THE INSTALLATION OF GATE VALVES, (INCLUDING MATERIALS) SHALL BE AT THE CONTRACTOR'S EXPENSE. ANY GATE VALVE(S) INSTALLED FOR TESTING PURPOSES SHALL BE ABANDONED AND LEFT FULLY OPENED.

<p>ACTIVITY</p> <p>DESIGNED BY:</p> <p>DRAWN BY:</p> <p>CHECKED BY:</p> <p>CONTRACT ADMIN. BY:</p> <p>WM APPROVED BY:</p>	<p>INITIALS/EMP. NO.</p> <p>DATE</p>	<p>4900 Professional Parkway East, Sarasota, FL 34240-8414 Phone 941-907-6900 • Fax 941-907-6910 Certificate of Authorization #27013 • www.stantec.com</p>	<p>CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS</p> <p>PROJECT: ROBINSON PRESERVE EXPANSION PHASE I</p>	<p>DATE: SEP 2014</p> <p>HORIZONTAL SCALE: N/A</p> <p>VERTICAL SCALE: N/A</p> <p>SEC: 23 28</p> <p>TRF: 345 16E</p>	<p>TITLE: WASTEWATER COLLECTION AND FORCE MAIN CONSTRUCTION DETAILS</p> <p>CROSS REFERENCE FILE NO.:</p> <p>PROJECT NUMBER: 215611990</p> <p>SHEET NUMBER: 18 OF XX</p>	<p>DANIEL J. BOND, P.E. FLORIDA LICENSE NO. 57969</p> <p>INDEX NUMBER: 215611990-01C-5225M</p>
<p>REV. NO.</p> <p>REVISION</p> <p>DATE</p> <p>ORIGIN BY / EMP. NO.</p> <p>CHECKED BY / DIR. NO.</p> <p>WM APPROVED BY:</p>	<p>DATE</p> <p>ORIGIN BY / EMP. NO.</p> <p>CHECKED BY / DIR. NO.</p> <p>WM APPROVED BY:</p>					

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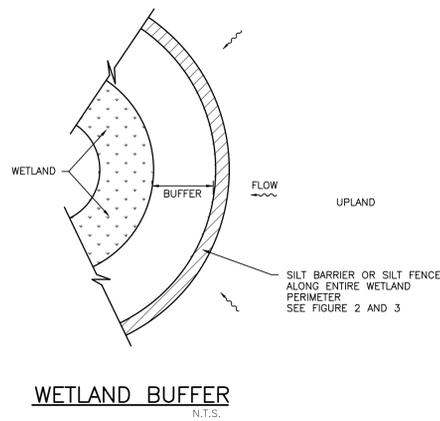


FIGURE 1

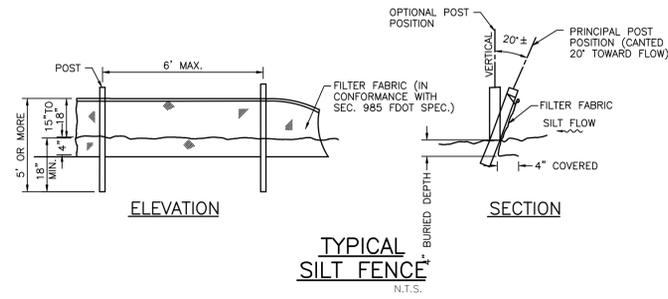


FIGURE 2

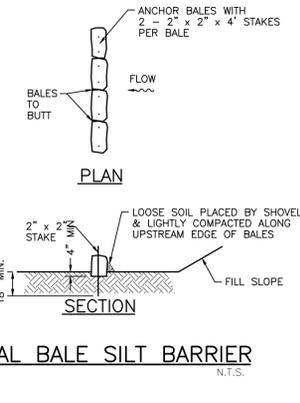


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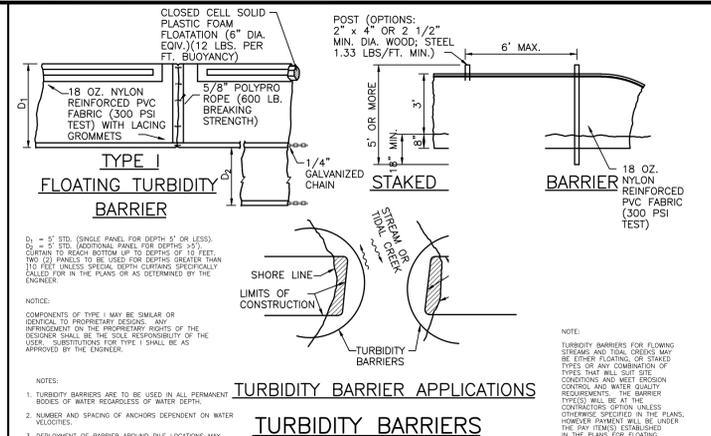


FIGURE 4

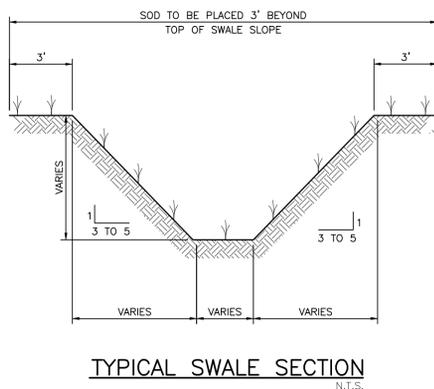


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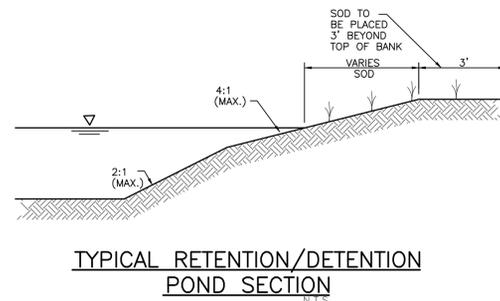


FIGURE 6

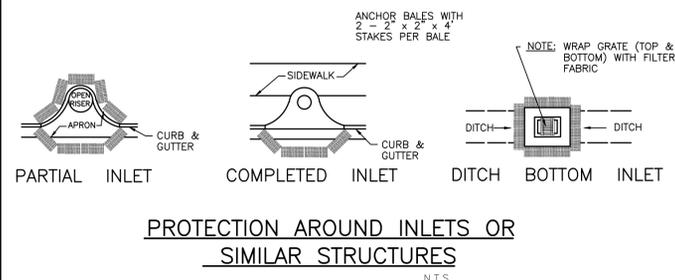


FIGURE 7

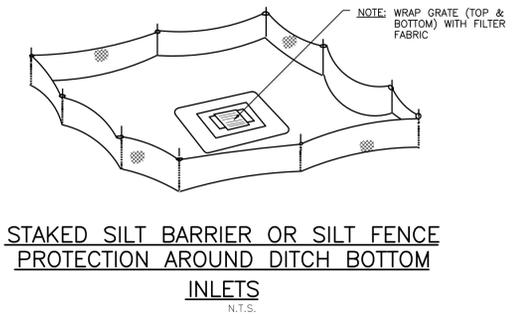


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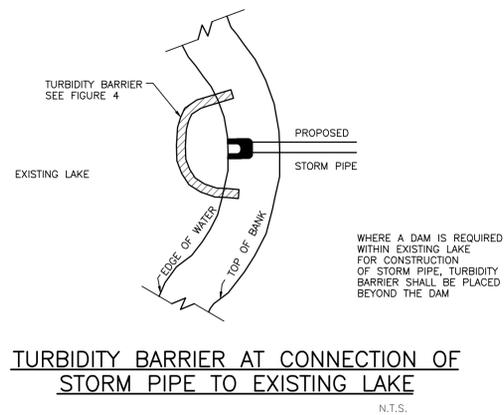


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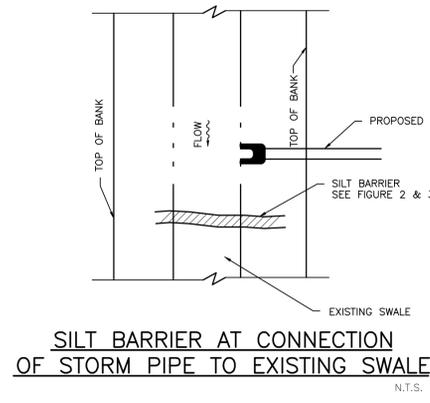


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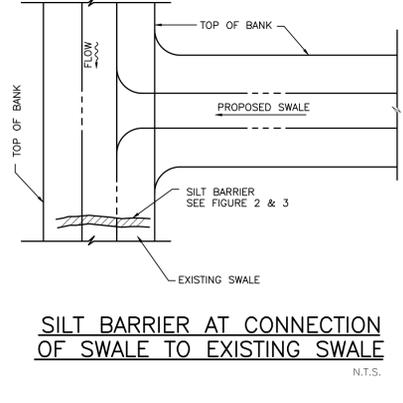


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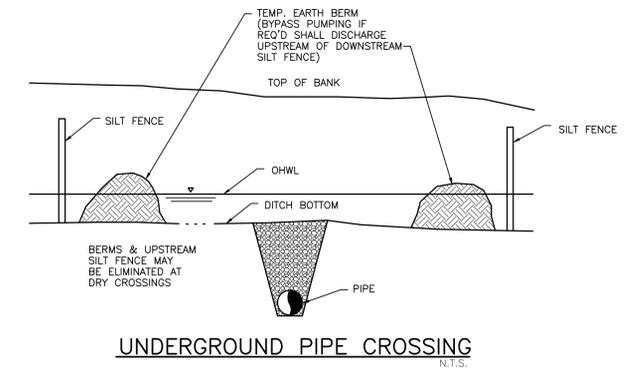


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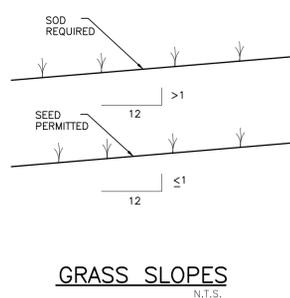


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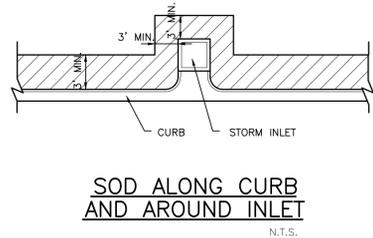


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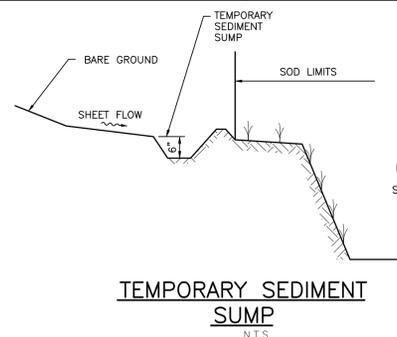


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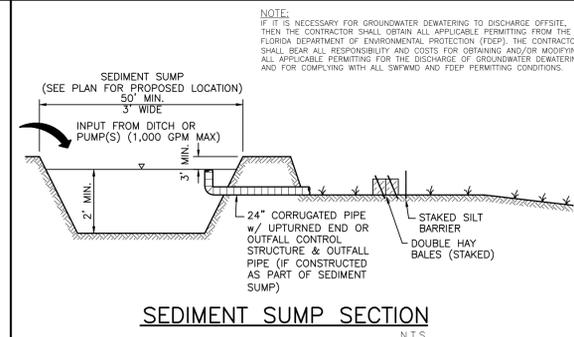


FIGURE 16

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CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS
 PROJECT: ROBINSON PRESERVE EXPANSION PHASE I

DATE: SEP 2014
 HORIZONTAL SCALE: N/A
 VERTICAL SCALE: N/A
 SHEET: 23 OF 28
 CROSS REFERENCE FILE NO.: 345 16E

TITLE: BEST MANAGEMENT PRACTICES DETAILS
 PROJECT NUMBER: 215611990
 SHEET NUMBER: 22 OF XX

DANIEL J. BOND, P.E.
 FLORIDA LICENSE NO. 57969
 INDEX NUMBER: 215611990-01C-702ED
 SHEET NUMBER: 22 OF XX