MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY
SEWER IMPROVEMENTS

MALCOLM PIRNIE

CERTIFICATE OF AUTHORIZATION NO. 67

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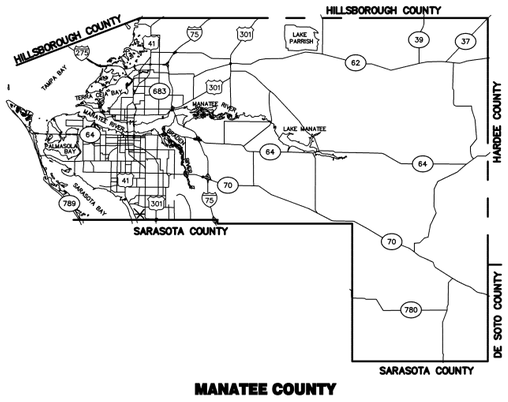
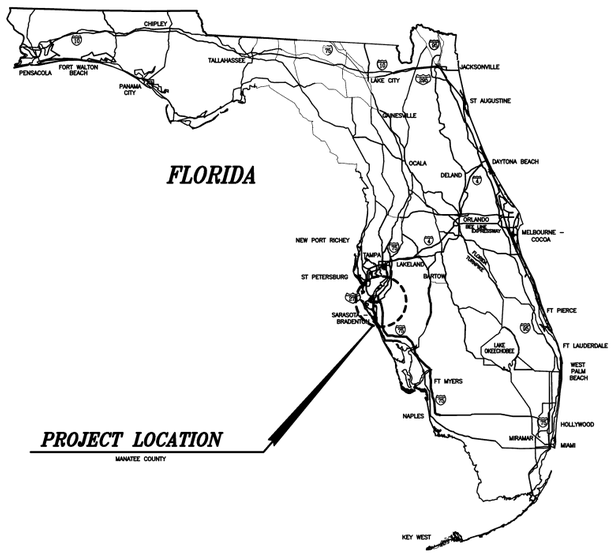
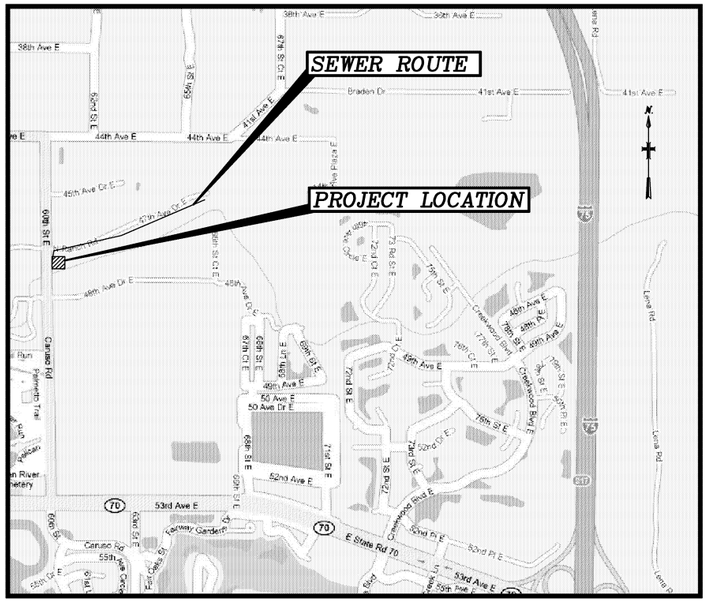
MPI PROJECT NO.: 0132-006

NOVEMBER 2009





VICINITY MAP



LOCATION MAP

BID SUBMITTAL

INDEX OF DRAWINGS

JOHN PACIFICI P.E. #57561

1. GENERAL

A. ALL MATERIALS, INSTALLATION, TESTING AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANATEE COUNTY WATER AND PUBLIC WORKS DEPARTMENT UTILITY STANDARDS MANATEE COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION STANDARDS AND THE TECHNICAL SPECIFICATIONS (WHEN APPLICABLE). WHERE DISCREPANCIES, OMISSIONS OR MODIFICATIONS EXIST BETWEEN THE PLANS, THE SPECIFICATIONS AND THE STANDARDS, THE SPECIFICATIONS SHALL GOVERN.

B. WHENEVER A MATERIAL, ARTICLE OR PIECE OF EQUIPMENT IS IDENTIFIED IN THE PROJECT MANUAL, INCLUDING DRAWINGS AND SPECIFICATIONS, BY REFERENCE TO MANUFACTURERS' OR VENDORS' NAMES, TRADE NAMES, CATALOG NUMBERS OR OTHERWISE, IT IS INTENDED MERELY TO ESTABLISH A STANDARD, UNLESS IT IS FOLLOWED BY WORDS INDICATING THAT NO SUBSTITUTION IS PERMITTED BECAUSE OF FORM, FIT, FUNCTION AND QUALITY. ANY MATERIAL, ARTICLE, OR EQUIPMENT OF OTHER MANUFACTURERS AND VENDORS WHICH WILL PERFORM OR SERVE THE REQUIREMENTS OF THE GENERAL DESIGN WILL BE CONSIDERED EQUALLY ACCEPTABLE, PROVIDED THE MATERIALS, ARTICLE OR EQUIPMENT SO PROPOSED IS, IN THE OPINION OF THE COUNTY, EQUAL IN SUBSTANCE, QUALITY AND FUNCTION.

PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY:
SUNSHINE STATE: 1-800-432-4770

C. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD, COUNTY INSPECTION, MANATEE COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION, AND ANY OTHER GOVERNMENTAL AGENCIES HAVING JURISDICTION AT LEAST 24 HOURS PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS, WHERE APPLICABLE:

- CLEARING AND FILLING
- SANITARY SEWER SYSTEM (INSTALLATION & TESTING)
- SUBGRADE
- LIMEROCK BASE
- ASPHALTIC CONCRETE
- SIDEWALK
- LANDSCAPING
- IRRIGATION
- FINAL

D. ALL TREES, SHRUBS, ETC., ALONG THE LINES OF CONSTRUCTION SHALL BE PROTECTED WHERE POSSIBLE UNLESS NOTED OTHERWISE ON THE DRAWINGS. NO TREES LARGER THAN THREE INCHES (3") IN DIAMETER SHALL BE DESTROYED WITHOUT PRIOR APPROVAL OF COUNTY. TREES THREE INCHES (3") AND SMALLER SHALL BE REMOVED, PROPERLY STORED AND REPLANTED ON COMPLETION AND TESTING OF THE WORK.

E. RESTORE ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK TO A CONDITION EQUAL TO OR BETTER THAN EXISTED BEFORE COMMENCING CONSTRUCTION WORK, UNLESS SPECIFICALLY EXEMPTED BY THE DRAWINGS. RESTORATION WORK INCLUDES, BUT IS NOT LIMITED TO PAVEMENT, BASE, SUBGRADE, CONCRETE CURBS, THERMOPLASTIC TRAFFIC MARKINGS, SIDEWALKS, GRASS, TREES, SHRUBS, ETC. IF ADDITIONAL TOPOGRAPHIC OR ANY OTHER INFORMATION IS NECESSARY FOR THE CONTRACTOR TO RECONSTRUCT ALL FACILITIES TO PRE-CONSTRUCTION GRADES AND DIMENSIONS, THE ACQUISITIONS OF SUCH ADDITIONAL INFORMATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY, AND AT HIS EXPENSE. RECONSTRUCT ALL FACILITIES TO PRE-CONSTRUCTION GRADES AND DIMENSIONS, UNLESS OTHERWISE NOTED. WATER, FERTILIZE AND SUPPLY ALL ITEMS AND CARE NECESSARY TO MAINTAIN THE HEALTH OF ALL NEW OR REPLANTED VEGETATION, AT NO EXPENSE TO COUNTY, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

F. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC MAINTENANCE (MOT) IN ACCORDANCE WITH THE SPECIFICATIONS, U.S. DEPARTMENT OF TRANSPORTATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," FDOT SPECIFICATIONS, AND OTHER GOVERNING AGENCY SPECIFICATIONS. IN THE EVENT OF A CONFLICT, THE MORE STRINGENT SPECIFICATION OR REQUIREMENT SHALL GOVERN. PROVIDE ALL NECESSARY BARRICADES, WARNING SIGNS, DELINEATORS, FLAGMEN, ETC., REQUIRED FOR TRAFFIC CONTROL AND/OR MAINTENANCE. PROVIDE ANY TEMPORARY CONTROLS AND/OR STRUCTURES REQUIRED TO MAINTAIN SUITABLE AND SAFE WORKING CONDITIONS AT ALL TIMES. SUCH ITEMS SHALL BE REMOVED ONCE THAT PORTION OF WORK HAS BEEN COMPLETED.

G. STORE CONSTRUCTION EQUIPMENT AND MATERIALS ONLY IN THOSE AREAS APPROVED BY COUNTY. SECURITY OF CONSTRUCTION EQUIPMENT AND MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. PUBLIC RIGHTS-OF-WAY MAY NOT BE UTILIZED FOR STORAGE OF EQUIPMENT OR MATERIALS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENTITY WHICH OWNS THE RIGHT-OF-WAY.

H. OSHA'S EXCAVATION SAFETY STANDARDS 29, CFR PART 1926.650-652 SUBPART P, AS WELL AS FLORIDA'S TRENCH SAFETY ACT (FLORIDA STATUTE 90-96) ARE CONSIDERED AS COMPLIMENTARY TO THESE CONTRACT DOCUMENTS. IF THERE IS ANY DUPLICATION, REDUNDANCY OR CONFLICT BETWEEN THE STIPULATIONS OF THESE CONTRACT DOCUMENTS AND THOSE STANDARDS, THE MOST STRINGENT REQUIREMENT SHALL GOVERN. THE CONTRACTOR SHALL ALSO COMPLETE THE FLORIDA TRENCH SAFETY ACT STATEMENT

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT EXCAVATIONS DO NOT ENDANGER WORKMEN, EXISTING STRUCTURES, UTILITIES, OR OTHER FACILITIES. IF SUCH CONDITIONS OCCUR WHICH MAY ENDANGER WORKMEN, EXISTING STRUCTURES, UTILITIES, OR OTHER FACILITIES, IMMEDIATELY INSTALL AND MAINTAIN ADEQUATE SHEETING AND BRACING AS PER OSHA SPECIFICATIONS. CEASE ALL WORK UNTIL THE SHEETING AND BRACING HAS BEEN PROPERLY AND COMPLETELY INSTALLED. INSTALL THE SHEETING AND BRACING IN A MANNER THAT WILL ALLOW REMOVAL WITHOUT INJURING OR ENDANGERING WORKMEN, THE WORK, ADJACENT STRUCTURES, AND THE LIKE. PROMPTLY AND COMPLETELY FILL ALL VOIDS CAUSED BY THE WITHDRAWAL OF SHEETING WITH SAND AND COMPACT TO A DEGREE EQUAL TO THE SURROUNDING SOIL. REMOVE THE SHEETING AS THE WORK PROGRESSES OR, AT THE DISCRETION OF THE ENGINEER, CUT THE SHEETING OFF A MINIMUM OF 2.5 FEET BELOW FINISHED GRADE AND LEAVE IN PLACE.

I. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND RELOCATING ALL INFORMATION AND TRAFFIC SIGNS TEMPORARILY DURING CONSTRUCTION. SIGNS SHOULD BE VISIBLE TO MOTORIZED VEHICLES. REPOSITION SIGNS IN PRE-CONSTRUCTION LOCATION IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED.

J. THE CONTRACTOR SHALL MAINTAIN ACCESS TO PRIVATE PROPERTY AT ALL TIMES.

K. WITHIN MANATEE COUNTY JURISDICTIONAL RIGHT-OF-WAY, ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITHMANATEE COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION ?MINIMUM STANDARDS? REQUIREMENTS. PLAN APPROVAL AND PERMIT ISSUANCE ARE REQUIRED PRIOR TO SCHEDULING PRE-CONSTRUCTION CONFERENCE. PRE-CONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO START OF CONSTRUCTION.

L. UPON THE RECEIPT OF THE NOTICE TO PROCEED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD AND ARRANGE A PRE-CONSTRUCTION CONFERENCE TO INCLUDE ALL INVOLVED GOVERNMENTAL AGENCIES, UTILITY OWNERS AND THE ENGINEER OF RECORD.

M. LOCATION OF EXISTING FACILITIES AS SHOWN ON CONSTRUCTION DRAWINGS ARE DRAWN FROM AVAILABLE RECORDS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE EXISTING FACILITIES SHOWN OR FOR ANY EXISTING FACILITY NOT SHOWN. THE CONTRACTOR SHALL VERIFY THROUGH VACUUM EXCAVATION & TEST HOLE METHODS, THE ELEVATIONS AND LOCATIONS OF EXISTING FACILITIES PRIOR TO CONSTRUCTION. IF AN EXISTING FACILITY IS FOUND TO CONFLICT WITH THE PROPOSED CONSTRUCTION UPON EXCAVATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD SO THAT APPROPRIATE MEASURES CAN BE TAKEN TO RESOLVE THE ISSUE.

N. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY.

O. WITHIN (10) TEN DAYS OF RECEIPT OF NOTICE-TO-PROCEED, CONTRACTOR SHALL SUBMIT A PRELIMINARY SCHEDULE. WITHIN 10 DAYS OF RECEIPT OF COMMENT FROM COUNTY, A REVISED SCHEDULE SHALL BE SUBMITTED.

2. TRAFFIC REGULATION

A. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.). A MAINTENANCE OF TRAFFIC PLAN MUST BE APPROVED BY MANATEE COUNTY BEFORE STARTING WORK IN THE PUBLIC RIGHT-OF-WAY.

B. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.

C. NO TRENCHES OR HOLES NEAR WALKWAYS, IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS, UNLESS IN ACCORDANCE WITH METHODS APPROVED BY THE ENGINEER OF RECORD ANDMANATEE COUNTY.

D. THE SAFE WALK ROUTE FOR ALL SCHOOLS WITHIN THE VICINITY OF THE CONSTRUCTION ZONE SHALL BE MAINTAINED DURING THE ARRIVAL AND DISMISSAL OF SCHOOL.

E IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR ANY NECESSARY CONSTRUCTION, PAVEMENT MARKING AND SIGNAGE OR ANY PEDESTRIAN SIGNALIZATION AND/OR SIGNAL MODIFICATION TO ACCOMMODATE AN ALTERNATE SAFE WALK ROUTE.

F. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL TRAFFIC CONTROL DEVICES DURING CONSTRUCTION. ANY DEVICE DAMAGED DURING CONSTRUCTION, SHALL BE PROPERLY RESTORED AT THE CONTRACTOR'S EXPENSE. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED IN ACCORDANCE WITH MANATEE COUNTY TRAFFIC ENGINEERING STANDARDS AND MANATEE COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION MINIMUM STANDARDS.

3. SITE CLEAN-UP AND MAINTENANCE

A. CLEANING UP:

1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER, AND UPON FINAL CLEAN-UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE BROOM SWEPT CLEAN.

2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS WORK, EQUIPMENT, OR EMPLOYEES, TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS.

3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR HAS BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL SHALL BE REMOVED AND SATISFACTORILY DISPOSED AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.

4. ALL PROPERTY MONUMENTS OR PERMANENT REFERENCES, REMOVED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED BY A STATE OF FLORIDA REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.

GRAVITY SEWER

1. GENERAL:

A. ALL WORK PERFORMED SHALL BE IN FULL COMPLIANCE WITH THE REQUIREMENTS OF THE MANATEE COUNTY UTILITIES DEPT., FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), AND ALL OTHER AGENCIES WHICH MAY EXERT JURISDICTION. WHEN CONFLICTS OCCUR BETWEEN REQUIREMENTS SHOWN ON THESE DRAWINGS/SPECIFICATIONS AND REGULATORY CRITERIA, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL. THE CONTRACTOR SHALL VERBALLY BRING ANY CONFLICT TO THE ATTENTION OF THE WWS IMMEDIATELY, FOLLOWED BY AN OFFICIAL WRITTEN NOTIFICATION WITHIN 24 HOURS.

B. MANHOLE RIM ELEVATIONS AS SHOWN ON PLANS MAY BE ADJUSTED TO CONFORM TO NEW OR EXISTING GRADES.

C. DISTANCE AND LENGTHS SHOWN ON PLANS AND PROFILE DRAWINGS ARE REFERENCED TO THE CENTER OF STRUCTURES.

D. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, QUANTITIES AND DETAILS SHOWN ON THE DRAWINGS, SUPPLEMENTARY DRAWINGS, SCHEDULES OR OTHER DATA RECEIVED FROM COUNTY AND SHALL NOTIFY THEM OF ALL OMISSIONS, ERRORS, CONFLICTS, AND DISCREPANCIES FOUND THEREIN. FAILURE TO DISCOVER OR TO CORRECT ERRORS, CONFLICTS OR DISCREPANCIES SHALL NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR UNSATISFACTORY WORK, FAULTY CONSTRUCTION OR PROPER OPERATION RESULTING THEREFROM, NOR FROM RECTIFYING SUCH CONDITION, AT HIS OWN EXPENSE.

E COMPLETE AS-BUILT INFORMATION RELATIVE TO SEWER MANHOLES, FITTINGS, LENGTH OF PIPE AND ALL APPURTENANCES, SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR IN STATE PLANE COORDINATES AND SUBMITTED TO COUNTY IN ACCORDANCE WITH MANATEE COUNTY (PROJECT SURVEY AND RECORD DOCUMENTATION STANDARD REQUIREMENTS. ALL ELEVATIONS SHALL BE TAKEN BY A REGISTERED SURVEYOR. FINAL APPROVAL OF THE PROJECT IS SUBJECT TO THE FINAL REVIEW AND APPROVAL OF THE AS-BUILT INFORMATION FURNISHED TO THE REGULATORY AGENCIES AND COUNTY.

F ALL EXISTING TOPO GRAPHFIC SURVEY DATA WAS PROVIDED BY, FLORIDA DESIGN CONSULTANTS, INC. CERTIFICATE OF AUTHORIZATION: LB 6707.

2. INSTALLATION

A. UNDER NO CIRCUMSTANCES SHALL PIPE BE LAID IN A WET TRENCH OR STRUCTURES BE CONSTRUCTED IN A WET EXCAVATION. DEWATERING SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.

B. THE CONTRACTOR SHALL BACKFILL ALL TRENCHES AT THE END OF EACH DAY'S WORK. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT. THE ENDS OF ALL PIPE SHALL BE PLUGGED AT THE CLOSE OF EACH DAY'S WORK.

C. NO MACHINE EXCAVATION SHALL BE PERFORMED WITHIN 5 FEET OF A GAS MAIN.

D. THE PIPE SHALL BE INSTALLED TO THE GRADE AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING PIPELINE CONSTRUCTION.

E MANHOLES SHALL BE SET PLUMB TO LINE AND GRADE ON FIRM SUBGRADE PROVIDING UNIFORM BEARING UNDER THE BASE. ALL OPENINGS AND JOINTS SHALL BE SEALED WATERTIGHT.

F ALL EXISTING SEWER PIPE THAT WILL BE ABANDONED IN-PLACE SHALL BE EMPTIED, FLUSHED OUT AND COMPLETELY FILLED WITH GROUT. THE CONTRACTOR MUST COMPLY WITH ALL APPLICABLE LOCAL, FEDERAL AND STATE ENVIRONMENTAL REQUIREMENTS.

G ALL HOUSES AND OTHER STRUCTURES ABUTTING THE NEW SEWERS, ARE IN THE APPROPRIATE PROXIMITY OF THE NEW SEWERS, OR ARE CONNECTED TO EXISTING SEWERS TO BE ABANDONED, SHALL BE CONNECTED TO THE NEW SEWERS.

H THE CONTRACTOR IS RESPONSIBLE TO PERFORM INSTALLATION OF THE SEWER LATERAL TO THE EDGE OF THE RIGHT OF WAY, BASED ON FIELD CONDITIONS. CONNECTION OF INDIVIDUAL RESIDENCES TO THEIR RESPECTIVE SERVICES CONNECTIONS IS NOT PART OF THE THIS CONTRACT.

I SANITARY SEWER SYSTEMS SHOULD CROSS UNDER POTABLE WATER MAINS WHENEVER PHYSICALLY POSSIBLE. SANITARY SEWERS SYSTEMS CROSSING POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE.

SANITARY SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE F.A.C. RULE 62-555.314.

NOTES

1. **TEMPORARY SOIL BANKS SHALL CONTAIN BREACHES THAT PREVENT IMPOUNDMENT OR RESTRICTION OF SURFACE WATER FLOWS.**
2. **PRE-CONSTRUCTION GROUND ELEVATIONS AND THE CONTOURS OF ALL DISTURBED SOILS, INCLUDING VEHICLE RUTS IN WETLANDS AND OTHER SURFACE WATERS, SHALL BE RESTORED WITHIN 30 DAYS OF COMPLETION OF LINE INSTALLATION. RESTORED GRADES SHALL BE STABILIZED WITHIN 72 HOURS FOLLOWING COMPLETION OF ELEVATION AND CONTOUR RESTORATION TO MINIMIZE EROSION.**

ABBREVIATIONS:

@	AT
APPROX	APPROXIMATELY
ARV	AIR RELEASE VALVE
BF	BLIND FLANGE
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BV	BALL VALVE
BYP	BYPASS
℄	CENTERLINE
CO	CLEAN OUT
CONC	CONCRETE
CV	CHECK VALVE
DEG OR °	DEGREE
DI	DUCTILE IRON
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRAIN
ECC	ECCENTRIC
EJ	EXPANSION JOINT
EL	ELEVATION
EP	END POINT
E/P	EDGE OF PAVEMENT
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FLG	FLANGE
FM	FORCE MAIN
GS	GRAVITY SEWER
HB	HOSE BIB
HDPE	HIGH DENSITY POLYETHYLENE
HORZ	HORIZONTAL
INV	INVERT
IE	INVERT ELEVATION
LF	LINEAR FOOT
MAX	MAXIMUM
ME	MATCH EXISTING
MECH	MECHANICAL
MES	MITERED END SECTION
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
NPT	NATIONAL PIPE THREAD
NO OR #	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW DRAIN
PG	PRESSURE GAGE
PRV	PRESSURE RELIEF VALVE
PVC	POLYVINYL CHLORIDE
PRC	POINT OF RECEIVING CURVE
PC	POINT OF CURVE
PT	POINT OF TANGENT
R	RADIUS
RED	REDUCER
REQ'D	REQUIRED
RJ	RESTRAINED JOINT
RWM	RECLAIMED WATER MAIN
RWBYP	RAW WATER BYPASS
SMD	STORM DRAIN
SS	STAINLESS STEEL
ST	STORM SEWER
TOE	TOE OF SLOPE
TOB	TOP OF BANK
TS	TAP SLEEVE
TYP	TYPICAL
ULP	UTILITY LIGHT POLE
W/	WITH
WM	WATER MAIN

PROJECT LEGEND:

1460	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
FM	PROPOSED FORCE MAIN
SAN	PROPOSED SANITARY SEWER
Ⓢ MH	PROPOSED MANHOLE
W	EXISTING WATER LINE
SAN	EXISTING SANITARY SEWER
MH	EXISTING MANHOLE
OH	EXISTING OVERHEAD ELECTRIC
	EXISTING STREAM
	EXISTING GUIDE RAIL
	EXISTING STORM CATCH BASIN
	EXISTING UTILITY POLE
FH	EXISTING FIRE HYDRANT
7" 14"	EXISTING TREES
	EXISTING BUILDING STRUCTURE
	EXISTING GRAVEL ROADWAY
	WETLANDS
	REDUCER
	BLIND FLANGE
	CAP OR PLUG
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	CHECK VALVE
	HYDRANT
SF	SILT FENCE
	WETLAND BOUNDARY
	TEMPORARY EASEMENT
	PERMANENT EASEMENT

SECTION OR DETAIL* NUMBER — 1 / C-2 — SECTION
SCALE:
SHEET ON WHICH SECTION OR DETAIL* IS FIRST CUT

SECTION OR DETAIL* NUMBER — 1 / C-2
SHEET ON WHICH SECTION OR DETAIL* IS LOCATED

SECTION AND DETAIL KEY

MALCOLM PIRNIE
CERTIFICATE OF AUTHORIZATION NO. 67
1300 E. 8TH AVE. SUITE F-100
TAMPA, FLORIDA 33605

JOHN PACIFICI
P.E. #57561

REVISIONS

NO.	BY	DATE	REMARKS

DES JC
DWN JC
CKD JP

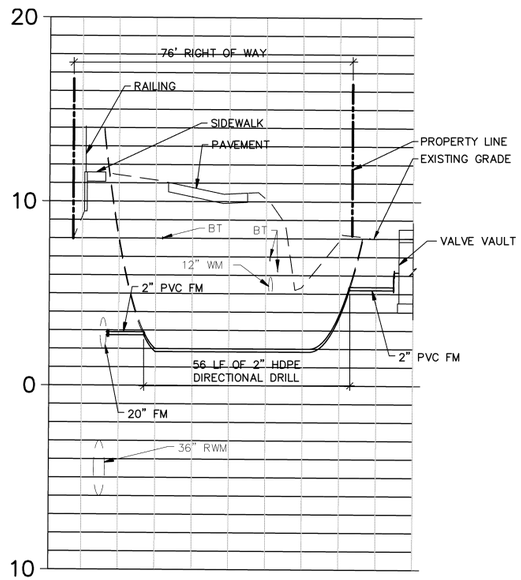
MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

GENREAL NOTES, ABBREVATIONS AND LEGEND

DATE NOVEMBER 09
SHEET G-2
CAD REF. NO. NOTE_LEGEND

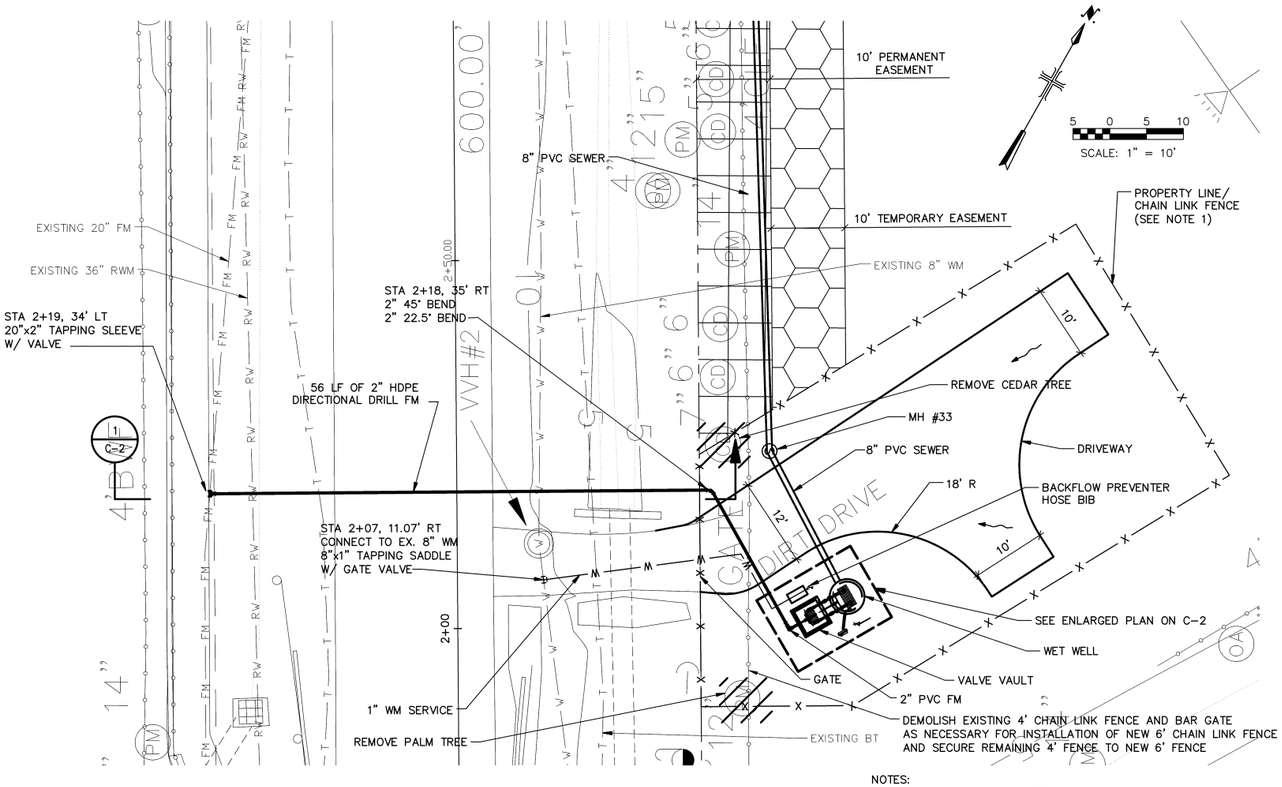
GENERAL LIFT STATION NOTES:

1. ALL ACCESS COVERS SHALL BE ALUMINUM, WITH STAINLESS STEEL HARDWARE AND RATED FOR 300 P.S.F. LOADING. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE 2 COATS BITUMASTIC EPOXY, TOTAL 16 MILS DFT. ALL ACCESS COVERS SHALL BE EQUIPPED WITH A LOCKING STAPLE OR BAR FOR USE WITH A PADLOCK. PADLOCKS FOR WETWELL, VALVE VAULT, FENCE GATE AND CONTROL PANELS OF PUBLICLY OWNED & MAINTAINED LIFT STATIONS SHALL BE FURNISHED BY THE MANATEE COUNTY UTILITIES DEPARTMENT.
2. INSTALL WET WELL VENT ON THE HINGED SIDE OF THE WET WELL HATCH COVER.
3. GROUND SHALL BE SLOPED AWAY FROM SLAB TO NATURAL GROUND ELEVATION IN ALL DIRECTIONS. SITE SHALL INCLUDE A WEED BARRIER FABRIC THAT IS COVERED WITH WASHED SHELL OR ROCK WITHIN LIFT STATION FENCING, SITE SHALL INCLUDE A WEED BARRIER FABRIC THAT IS COVERED WITH SHREDDED WOOD TYPE MULCH UNDER THE SHRUBS AND UP TO OUTSIDE OF THE FENCE. WEED BARRIER FABRIC THAT IS COVERED WITH SHREDDED WOOD–TYPE MULCH SHALL BE LOCATED UNDER THE TREES FOR A MINIMUM DISTANCE OF 3 FEET FROM THE TREE. SODDING OR SHREDDED WOOD–TYPE MULCH SHALL BE INSTALLED ON THE REMAINDER OF THE SITE TO THE EDGE OF THE EASEMENT.
4. DUCTILE IRON OR CAST IRON VALVES AND FITTINGS SHALL HAVE A FACTORY APPLIED FUSION BONDED EPOXY EXTERIOR AND INTERIOR COATING.
5. ALL FORCE MAIN PIPING AND FITTINGS WITHIN THE WETWELL AND THE VALVE VAULT, FROM THE PUMP BASE ELBOW TO THE CHECK VALVE, SHALL BE DR11 HDPE. ALL CONNECTIONS TO IRON BODIED FLANGE FITTINGS IN THE WETWELL (PUMP BASE ELLS) AND TO THE VALVE VAULT CHECK VALVES SHALL BE MADE USING HDPE FLANGE ADAPTERS WITH 316 STAINLESS STEEL BACKUP RINGS. ALL HDPE CONNECTIONS SHALL BE THERMAL FUSED OR ELECTRO–FUSED. ALL PIPING DOWNSTREAM OF THE CROSS IN THE VALVE VAULT TO THE PLUG VALVE SHALL BE PVC DR 14 C–900.
6. ALL PIPING SHALL BE COLOR CODED IN ACCORDANCE WITH MANATEE COUNTY STANDARDS. GREEN–RAW SEWAGE; PANTONE 522C PURPLE–RECLAIMED: BLUE–POTABLE WATER.
7. ANCHORS & LIFTING DEVICES SHALL NOT PENETRATE THE WALLS OF THE WET WELL.
8. ALL INTERIOR SURFACES OF WET WELL SHALL BE LINED. SEE STANDARD PRE–CAST SANITARY SEWER MANHOLE FOR TURBULENT FLOW DETAIL.
9. ALL METAL APPURTENANCES INCLUDING BOLTS, NUTS AND WASHERS INSIDE THE WET WELL AND VALVE VAULT SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED (TYPE 316). ALL STAINLESS STEEL BOLTS SHALL BE TREATED WITH NEVER–SEIZE PRIOR TO ASSEMBLY.
10. VERTICAL HDPE PUMP DISCHARGE PIPE IN THE WET WELL SHALL BE BRACED EVERY EIGHT (8) LINEAR FEET TO PREVENT EXCESSIVE BOWING. THE PIPE SHALL BE CLAMPED TO A SINGLE LENGTH OF 1–5/8" STAINLESS STEEL CHANNEL INSTALLED HORIZONTALLY AND ANCHORED TO THE WET WELL WALL AT EACH END WITH A CENTER BRACE OF 1–5/8" CHANNEL ATTACHED TO THE BACK OF THE WET WELL. THE PIPE CLAMPS SHALL BE A MINIMUM OF 1–1/2" WIDE, 12 GA. STAINLESS STEEL. WET WELLS LARGER THAN 8 FEET OR PIPING LARGER THAN 6 INCHES SHALL HAVE BRACING CONSTRUCTED FROM 1/4 INCH X 4 INCH STAINLESS STEEL ANGLE.
11. VALVE & METER VAULTS SHALL BE PRECAST TYPE II REINFORCED CONCRETE.
12. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT FLOTATION DURING CONSTRUCTION.
13. TOP OF WETWELL'S AND VALVE VAULT'S TOP SLABS SHALL BE AT THE SAME ELEVATION.
14. FOR 5/8" WATER METER, PROVIDE POTABLE WATER SERVICE CONNECTION WITH 3/4" BRASS LOCKSHIELD AND LOOSE KEY HOSE BIB. PROVIDE WATTS 909 BACKFLOW PREVENTER (OR APPROVED EQUAL). ALL WATER SERVICE PIPING FROM WATER METER TO BE TYPE "K" COPPER OR BRASS, 3/4" MIN. DIAMETER FOR 5/8" METER AND 2" MIN. DIAMETER PIPING FOR 2" METER, SEE DETAIL US–15
15. LANDSCAPING SHALL BE IRRIGATED WITH NON–POTABLE WATER. A RAIN SENSOR SHALL BE FURNISHED AND INSTALLED.
16. HOSE BIB TO BE A MAXIMUM OF 2 FEET FROM THE VALVE VAULT, A MINIMUM OF 6 FEET FROM THE ELECTRICAL CONTROL PANEL, 24" ABOVE THE SURROUNDING FINISH GRADE, AND ANCHORED TO A 4" PVC CONCRETE FILLED PIPE.
17. BASE AND FIRST WALL SECTION SHALL BE MONOLITHIC.
18. EVERY EFFORT SHALL BE MADE BY THE CONTRACTOR TO CONSTRUCT WATERTIGHT STRUCTURES WITH NO VISIBLE LEAKS. COMPLETED STRUCTURES THAT ARE NOT WATERTIGHT AND/OR DO NOT MEET THE REQUIREMENTS OF ASTM C–443 WILL BE REJECTED.
19. FLEXIBLE GASKET CONNECTORS SHALL MEET THE REQUIREMENTS OF ASTM C–923 LATEST REVISION AND ARE REQUIRED IN ALL MANHOLES.
20. ALL GATE VALVES SHALL BE RESILIENT SEAT IN ACCORDANCE WITH THESE STANDARDS.
21. ELECTRICAL SERVICE SHALL BE 3 PHASE MINIMUM UNLESS THE ELECTRICAL UTILITY PROVIDES CORRESPONDENCE STATING THAT 3 PHASE SERVICE IS UNAVAILABLE.
22. ELECTRICAL CONDUIT SHALL BE RUN BY THE SHORTEST ROUTE POSSIBLE FROM THE ELECTRICAL SOURCE TO THE CONTROL PANEL AND FROM THE CONTROL PANEL TO THE LIFT STATION WET WELL. NO ELECTRICAL SHALL BE INSTALLED BETWEEN THE WET WELL AND VALVE VAULT STRUCTURES.
23. THE VALVE VAULT SHALL HAVE A MINIMUM CLEARANCE OF 12" FROM FLANGES TO THE VALVE VAULT WALL, 18" FROM FLANGES TO THE VALVE VAULT FLOOR AND 12" FROM THE CROSS TO THE VALVE VAULT WALL AT THE FORCE MAIN EXIT POINT.
24. THE CONTROL PANEL, HOSE BIB AND ANTENNA SHALL NOT BE LOCATED BETWEEN THE WETWELL, VALVE VAULT AND THE DRIVEWAY.



SECTION (1 / C-2)

SCALE: 1" = 20'–0" (HORZ.), 1" = 4 ' (VERT.)



NOTES:
1. STATION LAYOUT AND SITE SHALL BE IN ACCORDANCE WITH MANATEE COUNTY STANDARD REQUIREMENTS.

PUMP STATION OVERALL SITE PLAN

SCALE: 1" = 10'–0"

Item	Description	Estimated Quantity	Unit
1	Precast Concrete Manhole	11	EA
2	PVC Sanitary Sewer Main	3,313	LF
3	Sewer Service Laterals	33	EA
4	PVC (C-900 & C-905) Force Mains	45	LF
5	Tapping Sleeves/Valves	1	EA
6	Valves and Appurtenances	1	EA
7	Submersible Lift Station	1	EA
8	Seeding and Sodding	600	SY
9	Pavement Repair and Road Restoration	1,500	SY
10	Horizontal Directional Drill	56	LF
11	Mobilization (Not to Exceed 10% of the Total Bid)	1	LS
12	Misc. Work and Cleanup	1	LS
13	Discretionary Work	-	

BID TABLE

MALCOLM PIRNIE
CERTIFICATE OF AUTHORIZATION NO. 67
1300 E. 8TH AVE. SUITE F–100
TAMPA, FLORIDA 33605

JOHN PACIFICI
P.E. #57561

REVISIONS

NO.	BY	DATE	REMARKS

DES JC
DWN JC
CKD JP

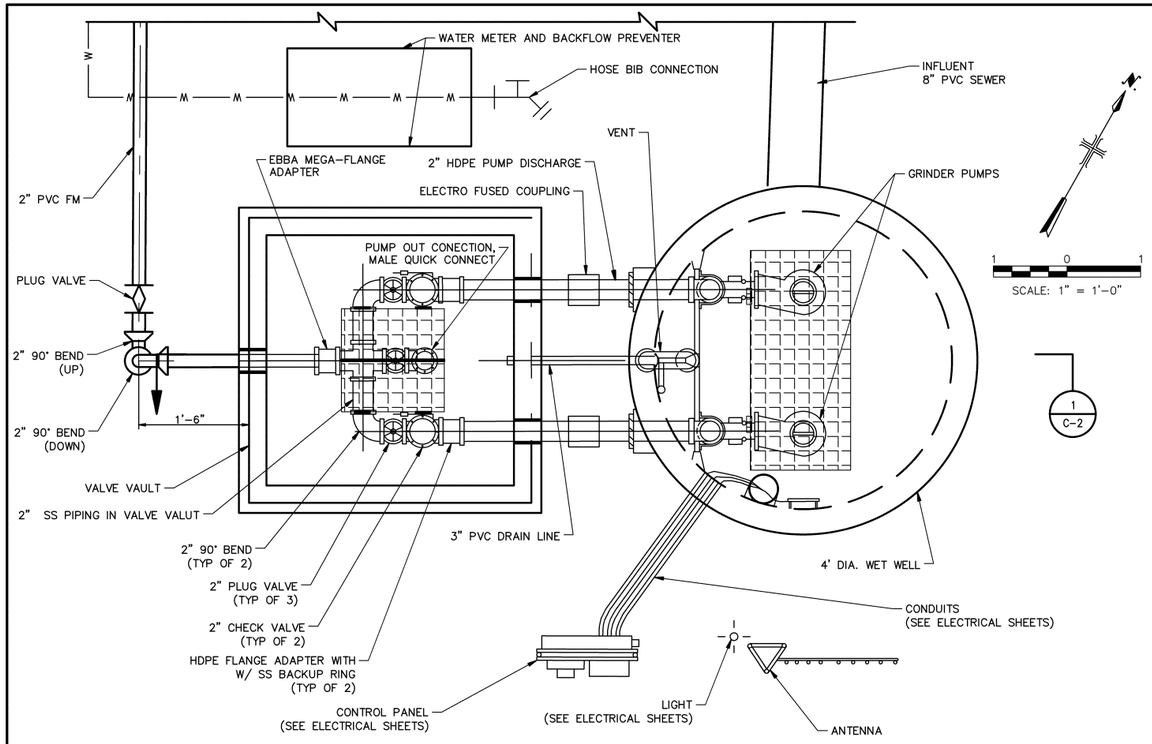
MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

PUMP STATION OVERALL SITE PLAN AND FORCE MAIN CROSSING

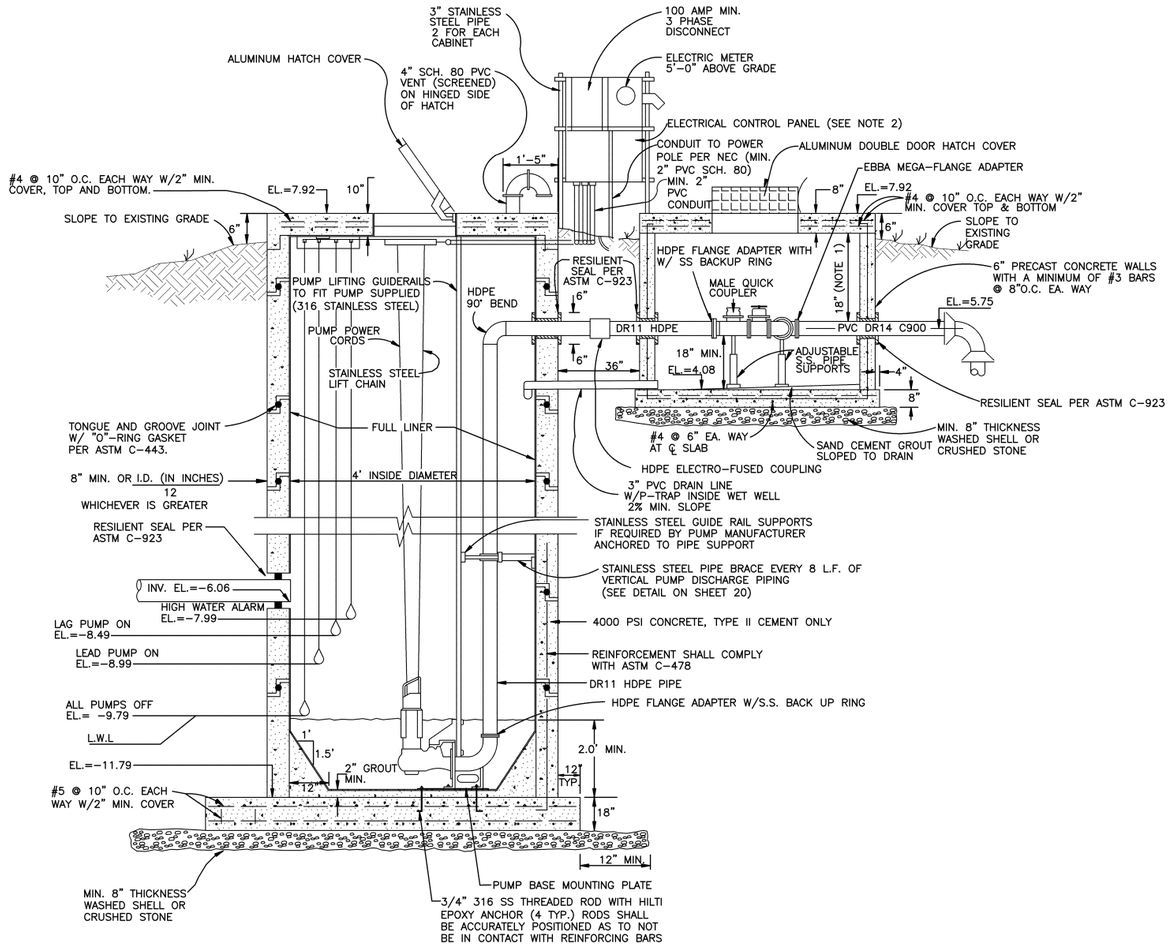
DATE NOVEMBER 09

SHEET C-1

CAD REF. NO. PUMPSTATION2



ENLARGED PLAN
SCALE: 1" = 1'-0"



PUMP DATA AND DESIGN CHARACTERISTICS	
NUMBER OF PUMPS	2
DESIGN CAPACITY PER PUMP, G.P.M.	25
TOTAL DYNAMIC HEAD, FT.	105
MIN. EFF. AT DESIGN CAPACITY %	20.5
HORSEPOWER PER PUMP, H.P.	4
SHUT-OFF HEAD, FT.	144
MAX. SIZE SOLIDS, IN.	3
DISCHARGE SIZE, IN.	2
PUMP MANUF. & MODEL NUMBER	FLYGT, MP3085.172.HT OR EQUAL
IMPELLER DIAMETER, IN.	6.30
PUMP R.P.M.	3450
ELECT. SVC- VOLTAGE & PHASE	230V, 3 PHASE
FORCE MAIN- LENGTH, DIAMETER & MATERIAL	87 FEET LONG, 2 INCH, PVC
FORCE MAIN DISCHARGE ELEV. & HIGHEST EL.	2

NOTES:

1. FOR LIFT STATIONS WITH GRINDER PUMPS, THE FORCE MAIN SHALL BE AT LEAST 18 INCHES BELOW THE TOP SLAB WITHIN THE VALVE VAULT. A 90 DEGREE BEND, THAT IS TURNED DOWN, SHALL BE INSTALLED 18 INCHES OUTSIDE OF THE VALVE VAULT TO OBTAIN A MINIMUM 3 FEET OF COVER.
2. INSTALL INFULENT DROP PIPE, FOR INFULENT DROP SEE DETAIL ON C-4.

SECTION 1/C-2
SCALE: NONE

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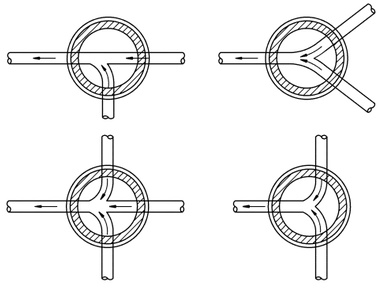
DUDE RANCH SANITARY SEWER IMPROVEMENTS

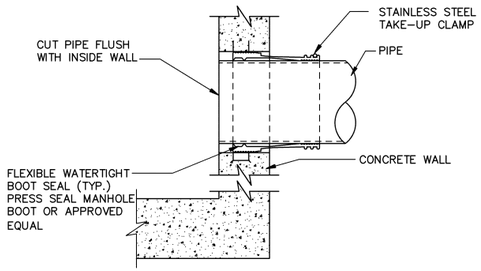
PUMP STATION ENLARGED SITE PLAN AND SECTION

DATE NOVEMBER 09
SHEET C-2
CAD REF. NO. PUMPSTATION



TYPICAL MANHOLE BENCH INVERTS

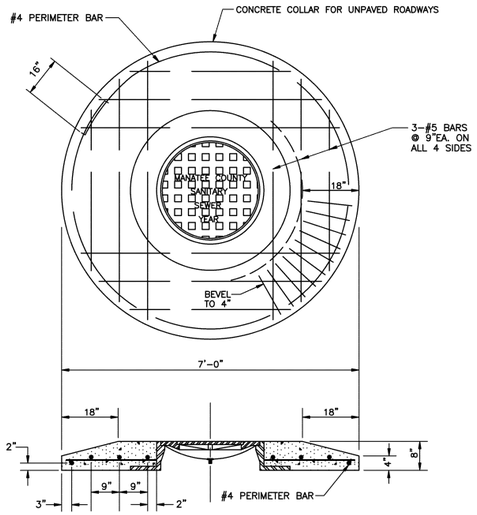
NOT TO SCALE



NOTE: TO BE INSTALLED DURING FABRICATION OF MH.

TYPICAL FLEXIBLE WATER-TIGHT BOOT SEAL THROUGH CONCRETE WALLS

NOT TO SCALE

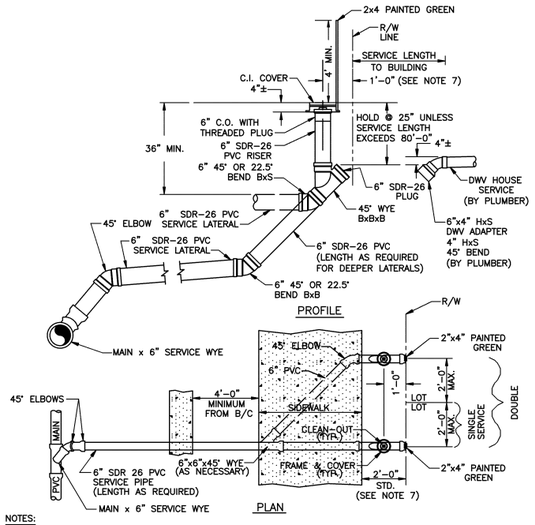


NOTES:

1. OMIT "MANATEE COUNTY" IF PRIVATELY MAINTAINED.
2. PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE 1, AND CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 P.S.I.

MANHOLE COVER & CONCRETE COLLAR FOR UNPAVED ROADWAYS

NOT TO SCALE

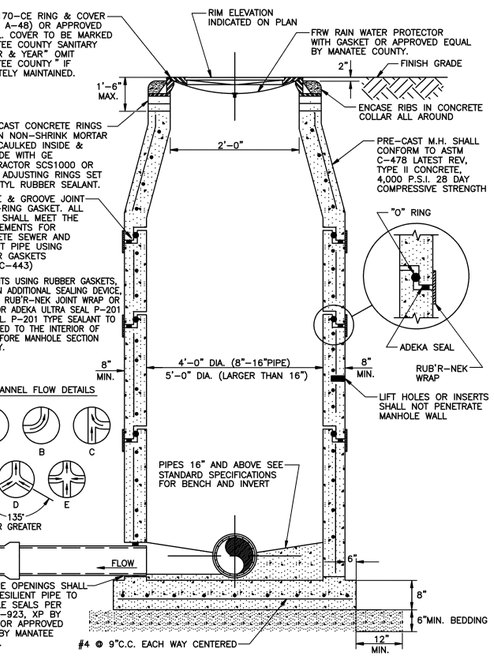


NOTES:

1. RUBBER DONUTS ARE NOT TO BE USED.
2. "SCO" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE CLEAN-OUT. IF NO CURB, INSTALL A GREEN DISC WITH "SCO" AND A 1/8" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE CLEAN-OUT.
3. SANITARY SEWER CLEAN-OUTS SHALL NOT BE LOCATED IN DRAINAGE SWALES, EASEMENTS, SIDEWALKS OR DRIVEWAYS.
4. NO SERVICE CONNECTIONS TO BE MADE TO THE CLEAN-OUT RISER. ALL DOMESTIC CONNECTIONS SHALL BE MADE TO THE STUB-OUT PROVIDED.
5. SEWER SERVICE SHALL BE 5' MIN. FROM WATER SERVICE OR FIRE HYDRANT.
6. CLEAN-OUT THREADS SHALL BE ENTIRELY WRAPPED WITH TEFLON TAPE PRIOR TO ATTACHING THREADED PLUG.
7. WHEN THE DISTANCE BETWEEN THE EDGE OF THE SIDEWALK & THE R/W LINE IS ONE FOOT (CUL-DE-SAC W/ MEDIAN) THE DISTANCE BETWEEN THE CENTER OF THE CO RISER & THE R/W LINE SHALL BE 6".
8. CLASS I CONCRETE W/ 3,000 P.S.I., 28 DAY COMPRESSIVE STRENGTH SHALL BE USED FOR SIDEWALK AND

SINGLE AND DOUBLE SERVICE CONNECTION

NOT TO SCALE



NOTE:
DROP MANHOLES, MANHOLES WITH OPPOSING FLOW (DETAILS D & E), MANHOLES IMMEDIATELY UPSTREAM OF A LIFT STATION WET WELL, MANHOLES WITH GRAVITY SEWERS GREATER THAN 12 INCHES IN DIAMETER, MANHOLES RECEIVING A FORCE MAIN AND THE FIRST TWO GRAVITY MANHOLES DOWNSTREAM OF MANHOLES RECEIVING A FORCE MAIN SHALL HAVE AN APPROVED LINER.

TYPICAL MANHOLE DETAIL (PRECAST CONCRETE SECTIONS)

NOT TO SCALE

NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

2.) 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

4.) PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

5.) ASPHALTIC CONCRETE FRICTION COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF ONE INCH, WHICHEVER IS GREATER.

6.) SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.

7.) BASE SHALL BE 8" MINIMUM THICKNESS CRUSHED CONCRETE. SAND ASPHALT BASE WILL BE AN ACCEPTABLE ALTERNATIVE.

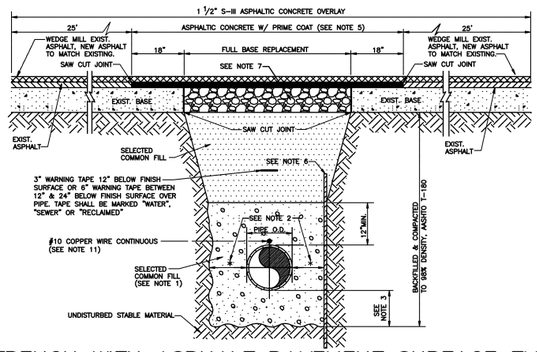
8.) BACKFILL AASHTO M-145 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6 INCHES. EACH LAYER SHALL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% AASHTO T-180 DENSITY.

9.) TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIME. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.

10.) RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FDOT STANDARDS, LATEST EDITION.

11.) TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

12.) NOTES 5.) THRU 11.) ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING

NOT TO SCALE

NOTES:

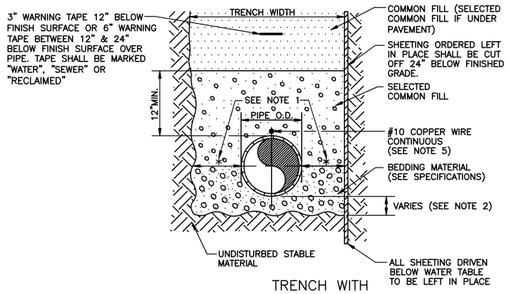
1.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

2.) 4" MAX. FOR PIPE 16" DIAMETER AND LESS; 6" MAX. FOR PIPE DIAMETER 18" TO 36" AND 9" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

4.) BACKFILL AASHTO M-145 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6 INCHES. EACH LAYER SHALL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% AASHTO T-180 DENSITY.

5.) TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



TRENCH WITH

TRENCH WITH TYPE A-2 PIPE BEDDING

NOT TO SCALE

NOTES:

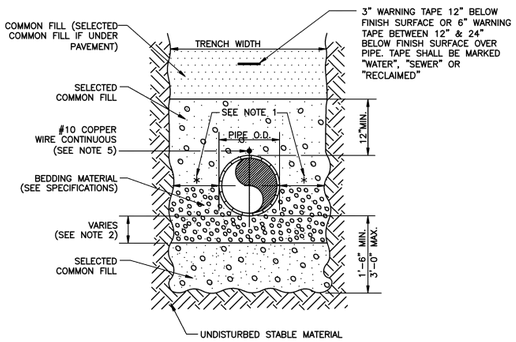
1.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

2.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

3.) PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

4.) BACKFILL AASHTO M-145 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6 INCHES. EACH LAYER SHALL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% AASHTO T-180 DENSITY.

5.) TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



TRENCH WITH TYPE A-3 PIPE BEDDING

NOT TO SCALE

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REVISIONS

NO.	BY	DATE	REMARKS

DES JC
DWN JC
CKD JP

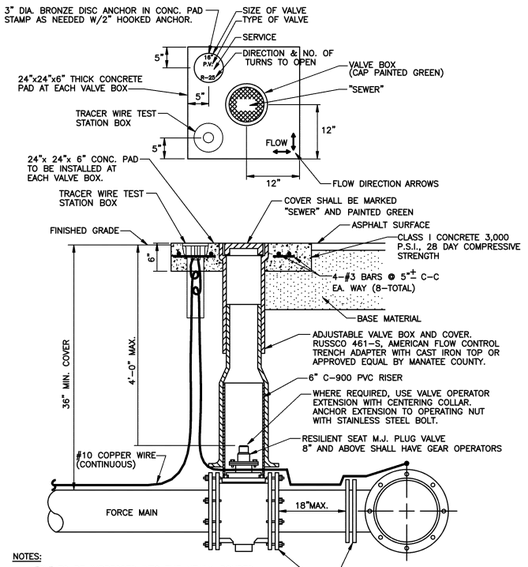
MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

CIVIL DETAILS 1

DATE NOVEMBER 09

SHEET C-3

CAD REF. NO. DETAILS1

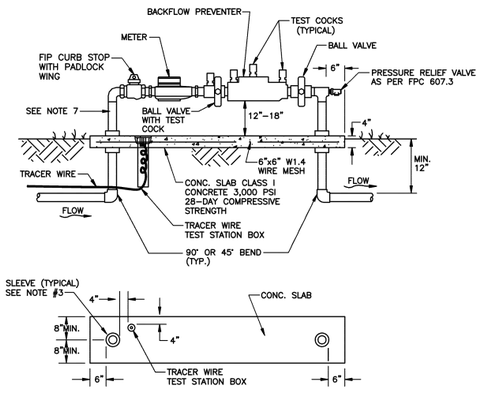


NOTES:

1. "SV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A GREEN DISC WITH "SV" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE DISTANCE (FT.) FROM THE DISC TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.
3. SEWER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
4. PRECAST CONCRETE PADS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. PLUG VALVES SHALL NOT BE USED AS A TAPPING VALVE. A SEPARATE TAPPING GATE VALVE AND TAPPING SLEEVE IS REQUIRED IN ADDITION TO PLUG VALVE. SEE STANDARD DETAIL UW-4.

PLUG VALVE, BOX, COVER AND TAG

NOT TO SCALE

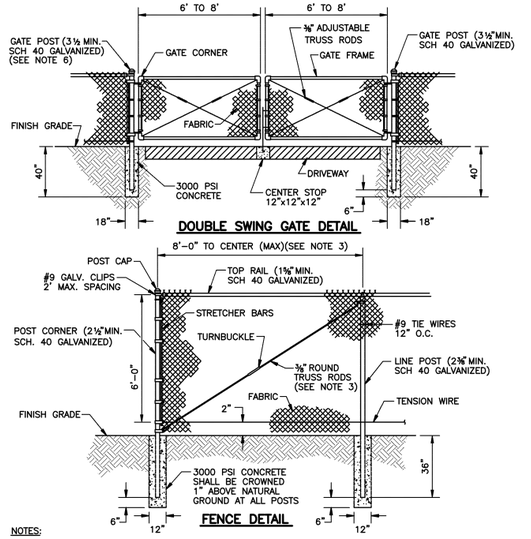


NOTES:

1. BACKFLOW DEVICE MUST BE INSTALLED DOWNSTREAM OF METER, AS CLOSE TO METER AS POSSIBLE.
2. COPPER PIPE TYPE "L" OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 12" BELOW GRADE.
3. PIPES PASSING THROUGH OR ENCASED IN CONCRETE MUST BE PROPERLY PROTECTED AND SLEEVED.
4. THE SYSTEM MUST MEET ALL REQUIRMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND THE MANATEE COUNTY BACKFLOW PREVENTION ORDINANCE (LATEST EDITION).
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. BACKFLOW PREVENTER SHALL BE TESTED AT THE TIME OF INSTALLATION.
7. PRESSURE REDUCING VALVE REQUIRED UPSTREAM OF BACKFLOW IF SYSTEM PRESSURE EXCEEDS 80 PSI.
8. 2' MINIMUM CLEARANCE FROM LANDSCAPING PLANTS TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
9. THE WATER METER AND BACKFLOW PREVENTER SHALL BE LOCATED WITHIN THE LIFT STATION SECURITY FENCING FOR PUBLICLY OWNED AND MAINTAINED LIFT STATIONS. THE WATER METER AND BACKFLOW PREVENTER SHALL NOT BE LOCATED WITHIN THE LIFT STATION FENCING FOR PRIVATE LIFT STATIONS. WATER METER FOR PRIVATE LIFT STATIONS SHALL BE LOCATED WITHIN THE ROW, ADJACENT TO THE ROW LINE OR WITHIN AN EASEMENT.
10. LIFT STATIONS SHALL HAVE A 5/8 INCH WATER METER, WITH A REDUCED PRESSURE BACKFLOW PREVENTER, AS SHOWN IN THIS DETAIL. LIFT STATIONS WITH A WETWELL DIAMETER GREATER THAN OR EQUAL TO 12 FT SHALL HAVE A 2 INCH WATER METER, WITH A REDUCED PRESSURE BACKFLOW PREVENTER, AS SHOWN IN STANDARD DETAIL UW-13.

WATER METER AND BACKFLOW PREVENTER

NOT TO SCALE



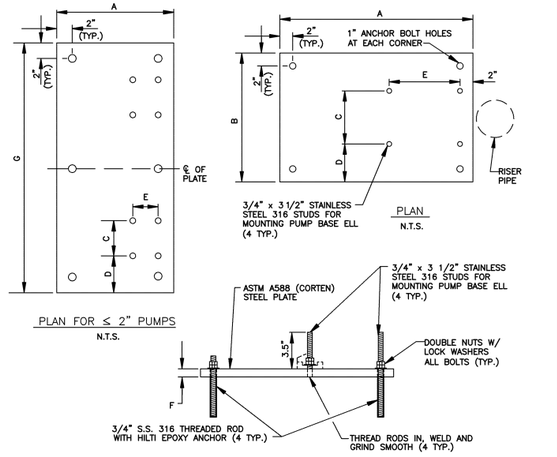
NOTES:

1. FENCING SHALL BE CONCRETE AGGREGATE, STUCCO, BRICK, STONE, SPLIT FACE CONCRETE MASONARY, OR CHAIN LINK.
2. CHAIN LINK FENCING SHALL BE #9 GAUGE, GALVANIZED STEEL WITH VINYL COATING.
3. TRUSS BARS ON CHAIN LINK FENCES ARE REQUIRED FOR THE FIRST SPAN ON EACH SIDE OF THE CORNER POST AND FOR EACH GATE SECTION.
4. LANDSCAPE SCREENING SHALL BE LOCATED ON THE EXTERIOR OF LIFT STATION FENCING.
5. SWING GATES SHALL BE CAPABLE OF SWINGING BOTH INWARDS AND OUTWARDS. CANTILEVER SLIDE GATES AND ROLL SLIDE GATES MEETING FDOT DESIGN STANDARDS MAY BE USED AS AN OPTION TO SWING GATES.
6. GATE POSTS AND TRACK LINE POSTS SHALL BE 4 INCH SCHEDULE 40 FOR CANTILEVER SLIDE GATES AND ROLL SLIDE GATES.

END & CORNER POST TOP OPTIONS		TOP & BOTTOM FABRIC OPTIONS	
STANDARD	DOME	TWIST	KNUCKLE

SECURITY FENCING

NOT TO SCALE



PUMP BASE ELL MOUNTING PLATE DIMENSIONS

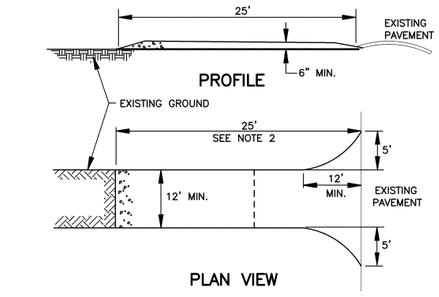
DIMENSIONS	A	B	C	D	E	F	G
FOR 6" PUMPS	24"	20"	8.25"	5.875"	11"	3/4"	N/A
FOR 4" PUMPS	20"	16"	6"	5"	10"	1/2"	N/A
FOR ≤ 2" PUMPS	15"	N/A	4.5"	4.75"	3.25"	1/2"	32"

NOTES:

1. INSTALL DOUBLE NUTS ON ALL EIGHT (8) THREADED RODS.
2. THE PLATE EDGES AND ALL HOLES SHALL BE GROUND SMOOTH TO REMOVE ALL BURRS.
3. DIMENSIONS "C" & "E" ARE FOR BARNEY'S PUMPS, INC. BASE ELLS.
4. FOR PUMPS WITH A 2-INCH DISCHARGE OR LESS, A SINGLE BASE PLATE SHALL BE INSTALLED UNDER BOTH GRINDER PUMPS.

PUMP BASE ELL MOUNTING PLATE

NOT TO SCALE

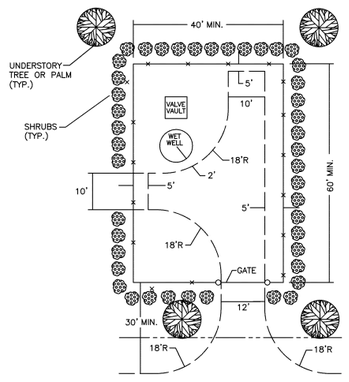


1. STONE SIZE-USE NYSDOT ITEM 304.03, CRUSHED STONE SUBBASE COURSE.
2. LENGTH-AS REQUIRED, BUT NOT LESS THAN 25'.
3. THICKNESS-NOT LESS THAN 6".
4. GEOTEXTILE FABRIC WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
5. MAINTENANCE-THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
6. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

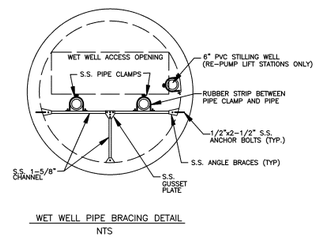
NOTES:

1. A MINIMUM SETBACK OF 5 FT SHALL BE PROVIDED BETWEEN LIFT STATION STRUCTURES/EQUIPMENT AND THE FENCE.
2. LIFT STATION EASEMENT SHALL EXTEND A MINIMUM OF 15 FT BEYOND ALL FOUR SIDES OF THE LS SECURITY FENCE.
3. LIFT STATION SHALL BE ACCESSIBLE WITH A MINIMUM 30 FT WIDE CORRIDOR/EASEMENT.
4. A MINIMUM SETBACK OF 5 FT SHALL BE PROVIDED BETWEEN THE SHRUB'S BASE STEM AND THE LS SECURITY FENCE.
5. A MINIMUM SETBACK OF 10 FT SHALL BE PROVIDED BETWEEN THE TRUNK OF SMALL TREES AND THE LS SECURITY FENCE.
6. SPECIFIC LANDSCAPING REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 13.10 OF MANATEE COUNTY UTILITY STANDARDS.
7. DRIVEWAY MATERIALS SHALL BE IN ACCORDANCE WITH MANATEE COUNTY HIGHWAY & TRAFFIC STANDARDS FOR THE ENTIRE LENGTH OF THE DRIVEWAY.

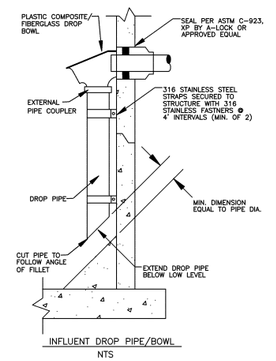


MINIMUM ACCESS/EGRESS AND LANDSCAPING REQUIREMENTS FOR LIFT STATIONS

NOT TO SCALE



WET WELL PIPE BRACING DETAIL
NTS



INFLUENT DROP PIPE/BOWL
NTS

PUMP STATION DROP PIPE AND WET WELL BRACING DETAIL

NOT TO SCALE

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MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

CIVIL DETAILS 2

DATE NOVEMBER 09
SHEET C-4
CAD REF. NO. DETAILS2

ENVIRONMENTAL PROTECTION NOTES:

1. SILT BARRIERS, STRAW BALES, STAKED SILT FENCES OR FLOATING SILT SCREENS SHALL BE USED AS SILT BARRIERS. SEE NOTE NO. 7 ON THIS SECTION. THE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL MONITOR AND MAINTAIN THESE SILT BARRIERS DAILY AND CHECK FOLLOWING EACH STORM EVENT. SHOULD THE SILT BARRIERS BECOME LOOSE OR DAMAGED DURING THE CONSTRUCTION PERIOD, CONTRACTOR SHALL RECONSTRUCT AND CORRECT THEM, OR REPLACE THEM WITH A DIFFERENT TYPE IF NECESSARY, AT NO COST TO THE COUNTY.

2. ALL WATER COLLECTED AND PUMPED DURING TRENCH DEWATERING ACTIVITIES SHALL BE DISPOSED OF ON UPLAND AREAS INTO DOUBLE STAKED HAY BALES. DISCHARGE LOCATIONS SHALL BE A MINIMUM OF 75 FEET FROM THE NEAREST WETLAND TO ALLOW FOR A MAXIMUM OVERLAND FILTRATION OF SOIL PARTICLES. ALL PERMITTING ASSOCIATED WITH CONTRACTOR'S DEWATERING ACTIVITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

3. EXCAVATION ACROSS ALL WETLANDS WITHIN ESTABLISHED LIMITS OF CONSTRUCTION SHALL BE ACCOMPLISHED BY STRIPPING THE TOP 10 INCHES OF ORGANIC SURFICIAL SOILS FROM THE FULL WIDTH OF THE AREA TO BE DISTURBED AND STOCKPILING THESE SOILS ON UPLAND AREAS. THE REMAINING EXCAVATIONS NECESSARY FOR PIPE INSTALLATION THAT SHALL BE USED FOR BACKFILL SHALL BE TEMPORARILY PLACED ADJACENT TO THE PIPE TRENCH. THE EXCAVATED MATERIAL THAT SHALL NOT BE USED FOR BACKFILL SHALL BE STOCKPILED SEPARATELY FROM SURFICIAL SOILS ON UPLAND AREAS OUTSIDE OFJURISDICTIONAL AREAS DESIGNATED ON THE DRAWINGS AT A MINIMUM DISTANCE OF 200 FEET FROM A WETLAND. BACKFILLING OPERATIONS SHALL PROCEED SUCH THAT SURFICIAL SOILS SHALL BE REPLACED LAST AND SHALL BE SPREAD ACROSS THE ENTIRE DISTURBED WETLAND AREA TO HELP PROMOTE NATIVE VEGETATIVE GROWTH. SURFICIAL SOILS SHALL NOT BE LEFT STOCKPILED IN EXCESS OF TWO WEEKS. ALL WETLAND CROSSINGS THAT ARE DISTURBED DURING CONSTRUCTION, SHALL HAVE AN ADEQUATE AMOUNT OF FILL REMOVED SO THAT THE WETLAND IS RESTORED TO THE ORIGINAL LINE, GRADE AND CROSS-SECTION AS INDICATED BY THESE DRAWINGS.

4. ALL UPLAND AREAS IMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE SEEDED AND MULCHED, UNLESS OTHERWISE INDICATED ON THESE DRAWINGS.

5. THE CONTRACTOR SHALL BE HELD LIABLE FOR THE VIOLATION OF ANY AND ALL ENVIRONMENTAL REGULATIONS AND PERMIT CONDITIONS, IN ACCORDANCE WITH THE GENERAL CONDITIONS AND GENERAL REQUIREMENTS SECTIONS OF THE CONTRACT DOCUMENTS.

6. BANKS SHALL BE PROTECTED FROM EROSION OR COLLAPSE DURING CONSTRUCTION. MATERIAL SHALL BE CAREFULLY PLACED FROM THE BANK AND NOT DUMPED FROM ABOVE IN AN UNCONTROLLED MANNER. EROSION CONTROL FABRIC SHALL BE USED FOR EROSION PROTECTION WHERE SOD SHALL NOT HOLD OR BECOME ESTABLISHED IN TIME TO PROTECT THE BANKS. UPON COMPLETION OF CONSTRUCTION, BANKS AND WATERWAYS SHALL BE RESTORED TO THEIR PRE-CONSTRUCTION CONFIGURATION AND PROTECTED FROM EROSION.

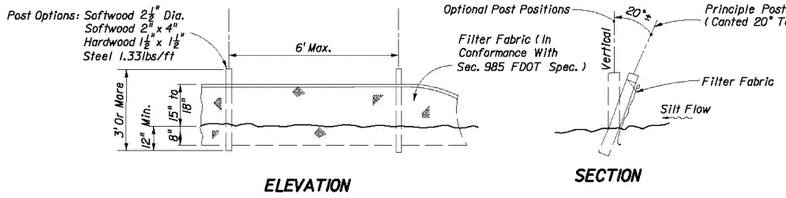
7. THESE ENVIRONMENTAL NOTES ARE APPLICABLE TO THE COMPLETE PROJECT. HOWEVER, THE CONTRACTOR SHALL TAKE EXTRA PRECAUTIONS WHERE SPECIFIC REFERENCES ARE MADE WITHIN THE DRAWINGS.

8. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE-HALF THE DEPTH OF THE SILTATION CONTROL BARRIER SHALL BE IMMEDIATELY REMOVED AND PLACED IN UPLAND AREAS (PER S.W.F.W.M.D.).

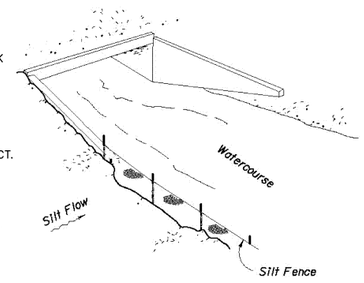
EROSION CONTROL NOTES

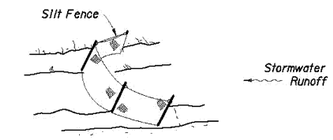
1. ALL CONSTRUCTION ACTIVITIES SHALL INCORPORATE BEST MANAGEMENT PRACTICES TO CONTROL EROSION, SEDIMENTATION, AND THE POTENTIAL FOR DOWNSTREAM WATER QUALITY DEGRADATION. CONSTRUCTION PRACTICES INCLUDE:
   - A. CONSTRUCT TEMPORARY SEDIMENTATION BASINS OR EARTHEN BERMS AT DOWNGRADIENT ENDS OF NEWLY GRADED AREAS TO PROVIDE FOR SEDIMENT AND TURBIDITY REMOVAL.
   - B. LIMIT SITE CLEARING TO THOSE AREAS REQUIRED FOR A PARTICULAR PHASE OF CONSTRUCTION. EXISTING TREES AND VEGETATION TO REMAIN WHEREVER POSSIBLE.
   - C. TURBIDITY BARRIERS, HAY BALES AND OTHER EROSION CONTROL MEASURERS SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THE POTENTIAL FOR EROSION IS ELIMINATED.
2. SOLID SOD DITCH AND SWALE BANKS AS SOON AS POSSIBLE AFTER CONSTRUCTION IN ORDER TO STABILIZE THE SLOPES AND MINIMIZE EROSION. IN AREAS DELINEATED AS "WETLANDS," REVEGETATE IN ACCORDANCE WITH PERMIT CONDITIONS.
3. DO NOT EMPLOY SILT FENCES IN A MANNER TO CAUSE THEM TO ACT AS A DAM ACROSS PERMANENTLY FLOWING WATERCOURSES. USE SILT FENCES AT UPLAND LOCATIONS, AND TURBIDITY BARRIERS IN PERMANENT WATER BODIES, REGARDLESS OF WATER DEPTH.
4. TURBIDITY BARRIERS FOR WATER BODIES MAY BE EITHER FLOATING OR STAKED TYPE, OR ANY COMBINATION OF TYPES THAT WILL SUIT SITE CONDITIONS, AND MEET EROSION CONTROL AND WATER QUALITY REQUIREMENTS. INSTALL POSTS IN STAKED TURBIDITY BARRIERS IN THE VERTICAL POSITION UNLESS OTHERWISE NOTED.
5. TURBIDITY IN ALL WATER BODIES TO BE CONTROLLED TO PREVENT VIOLATION OF WATER QUALITY PURSUANT TO RULE 62-302.510(5)(r), FLORIDA ADMINISTRATIVE CODE. TURBIDITY SHALL NOT EXCEED 29 NEPHELOMETRIC TURBIDITY UNITS ABOVE NATURAL BACKGROUND CONDITIONS.
6. FOR EROSION CONTROL DETAILS, REFER TO FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) "ROADWAY AND TRAFFIC DESIGN STANDARDS":
   - A. TRASH RETAINER AND SEDIMENT BASIN -- INDEX NO. 101
   - B. BAILED HAY OR STRAW BARRIERS AND SILT FENCES -- INDEX NO. 102 (ALSO SHOWN THIS SHEET).
   - C. TURBIDITY BARRIERS -- INDEX NO. 103.

   ADDITIONALLY, COMPLY WITH FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," SECTION 104 - PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLLUTION.

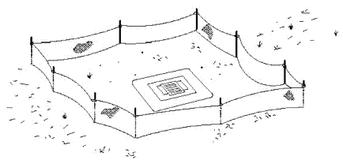


TYPE III SILT FENCE





Silt Fence Protection in Ditches with Intermittent Flow

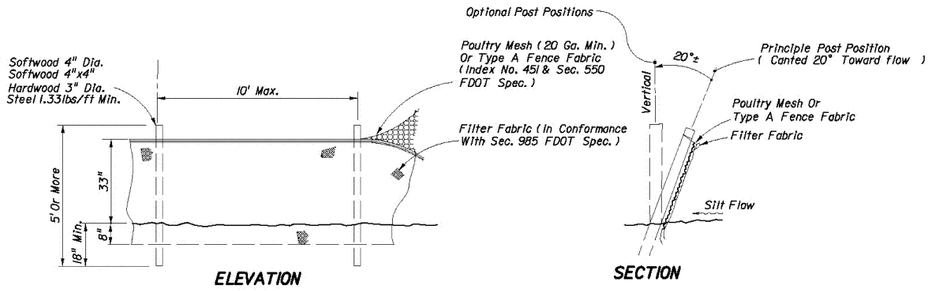


Silt Fence Protection Around Ditch Bottom Inlets.

SILT FENCE APPLICATIONS

MAINTENANCE

A. INSPECT SILT BARRIERS IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST ONCE A DAY DURING PERIODS OF PROLONGED RAINFALL. MAKE NEEDED REPAIRS IMMEDIATELY.
B. SHOULD THE FABRIC ON A SILT BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND IF THE BARRIER IS STILL NEEDED, REPLACE THE FABRIC IMMEDIATELY.
C. REMOVE SEDIMENT DEPOSITS AFTER EACH STORM EVENT.
D. ANY SEDIMENT DEPOSITS IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, AND PREPARED FOR SEEDING OR SODDING.



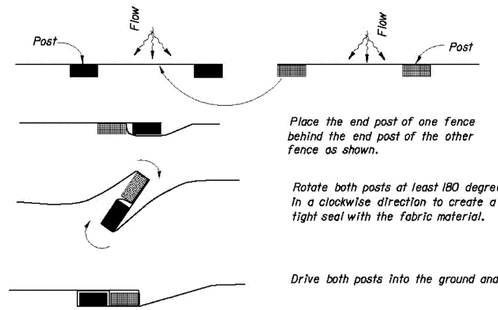
TYPE IV SILT FENCE

NOTES FOR SILT FENCES

1. TYPE III SILT FENCE TO BE USED AT MOST LOCATIONS. WHERE USED IN DITCHES THE SPACING FOR TYPE III SILT FENCE SHALL BE IN ACCORDANCE WITH CHART I, SHEET I.
2. TYPE IV SILT FENCE TO BE USED WHERE LARGE SEDIMENT LOADS ARE ANTICIPATED. SUGGESTED USE IS WHERE FILL SLOPE IS 1:2 OR STEEPER AND LENGTH OF SLOPE EXCEEDS 25 FEET. AVOID USE WHERE THE DETAINED WATER MAY BACK INTO TRAVEL LANES OR OFF THE RIGHT OF WAY.
3. DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER
4. WHERE USED AS SLOPE PROTECTION, SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.
5. PERIMETER SILT FENCE SHALL BE TRENCHED 8-10 INCHES DEEP EXCEPT AROUND THE DRIPLINEOF LARGE TREES WHERE YOU SHOULD REFER TO THE TREE PROTECTION BARRIER DETAIL.

EROSION CONTROL NOTES CONT.

7. STORM DRAIN INLET PROTECTION SHALL BE ACCOMPLISHED BY: STAKED HAY BALES, GRAVEL, BLOCK FILTER OR OTHER APPROVED METHODS.
8. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEPT DAILY AS PART OF DAILY CLEAN UP.
9. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND AIR AND WATER POLLUTION SHALL BE MINIMIZED. STATE AND LOCAL LAWS SHALL BE COMPLIED WITH AT ALL TIMES.
10. MINIMIZE THE AMOUNT OF BARE SOIL EXPOSED AT ONE TIME AND INSTALL SOIL EROSION CONTROL FENCES IN SUCH A MANNER AS TO CAPTURE AND FILTER SURFACE WATER DURING CONSTRUCTION.



PLAN VIEW

JOINING TWO SILT FENCES

STORMWATER NOTES:

1. STORMWATER DESIGN SHALL COMPLY WITH HILLSBOROUGH COUNTY STORMWATER REQUIREMENTS.
2. UNDER THE PROVISIONS OF THE CLEAN WATER ACT, AS AMENDED, FEDERAL LAW PROHIBITS DISCHARGES OF POLLUTANTS IN STORMWATER FROM CONSTRUCTION ACTIVITIES WITHOUT A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES). THE CONTRACTOR SHALL COMPLETE AND SUBMIT AN FDEP NOI FORM 62-621.300 (4) (b) TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES TO OBTAIN COVERAGE UNDER A CONSTRUCTION GENERAL PERMIT.
3. IN ORDER TO COMPLY WITH SECTION 4.01.05.A OF THE HILLSBOROUGH COUNTY LAND DEVELOPMENT CODE TO MINIMIZE SOIL EROSION PROPOSED LAND ALTERATION ACTIVITIES SHALL NOT UNNECESSARILY REMOVE EXISTING VEGETATION AND ALTER EXISTING TOPOGRAPHY. ADEQUATE PROTECTION MEASURES (I.E., HAY BALES, SILT FENCE, BAFFLES, SODDING AND SANDBAGGING) SHALL BE PROVIDED, AS NECESSARY, TO MINIMIZE EROSION AND DOWNSTREAM SEDIMENTATION CAUSED BY SURFACE WATER RUN-OFF ON EXPOSED LAND SURFACES.

MALCOLM PIRNIE
CERTIFICATE OF AUTHORIZATION NO. 67
1300 E. 8TH AVE. SUITE F-100
TAMPA, FLORIDA 33605

JOHN PACIFICI
P.E. #57561

REVISIONS

NO.	BY	DATE	REMARKS

DES JC
DWN JC
CKD JP

MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

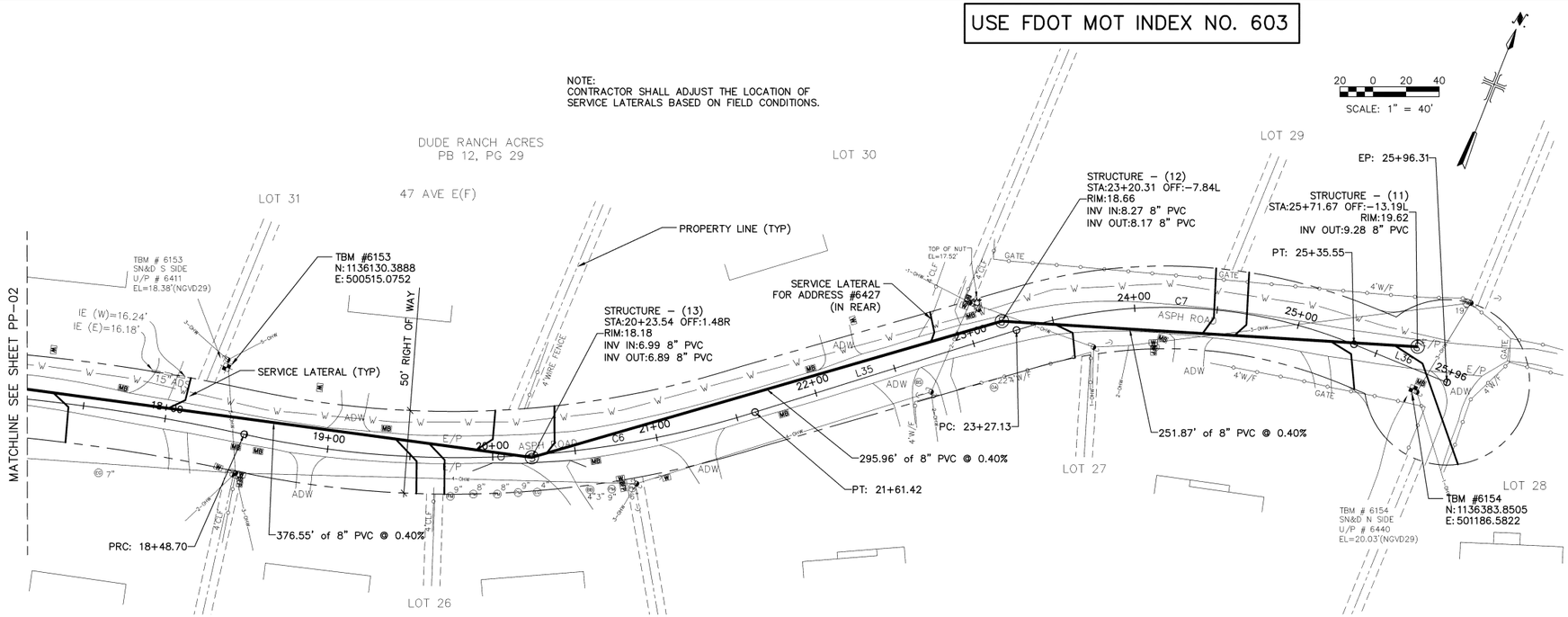
CIVIL DETAILS 3

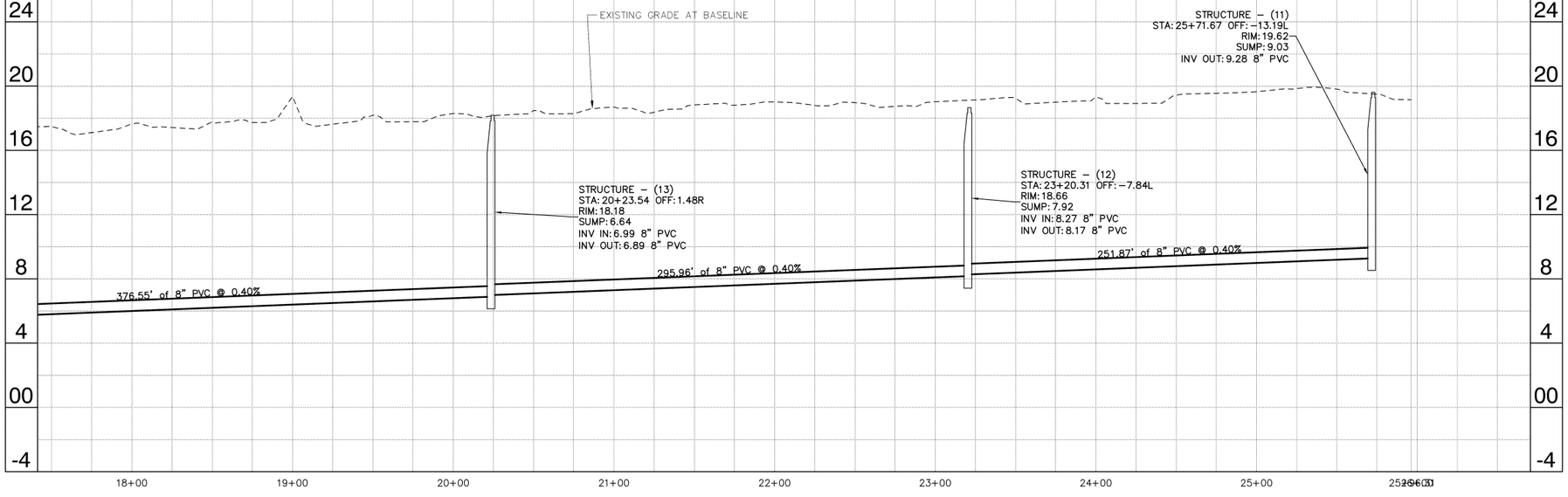
DATE NOVEMBER 09
SHEET C-5
CAD REF. NO. DETAILS3

48 HOURS BEFORE DIGGING
CALL SUNSHINE
TOLL FREE
1 800 432 4770
UNDERGROUND UTILITIES NOTIFICATION CENTER OF FLORIDA

USE FDOT MOT INDEX NO. 603

NOTE:
CONTRACTOR SHALL ADJUST THE LOCATION OF SERVICE LATERALS BASED ON FIELD CONDITIONS.





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MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

PLAN AND PROFILE
STA 17+15 TO STA 25+96
47TH AVE

DATE NOVEMBER 09
SHEET PP-1
CAD REF. NO. sewer.dwg

48 HOURS BEFORE DIGGING
CALL SUNSHINE
TOLL FREE
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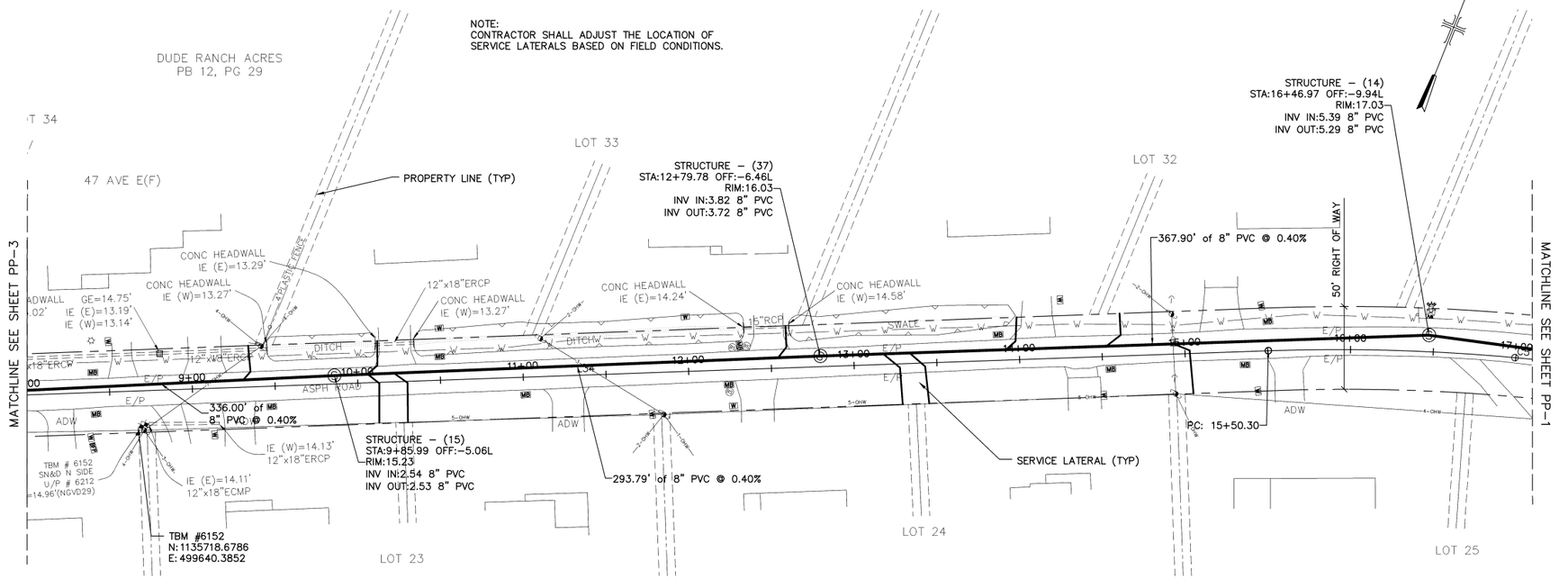
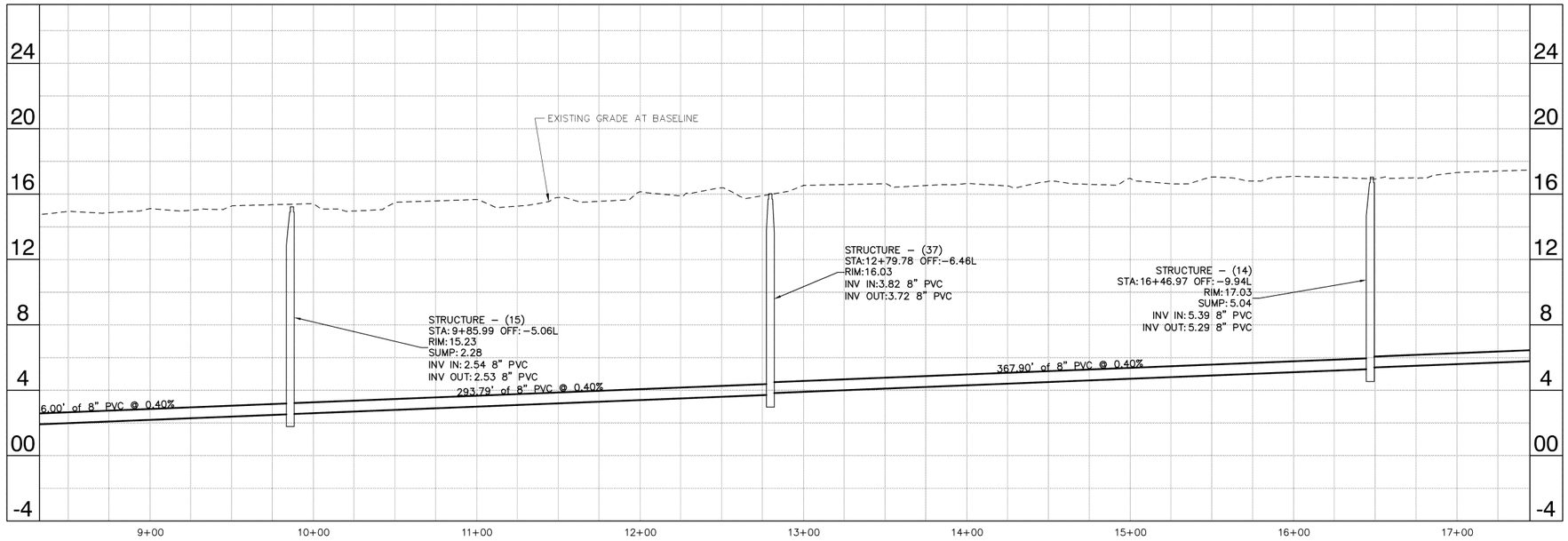
UNDERGROUND UTILITIES NOTIFICATION CENTER OF FLORIDA

USE FDOT MOT INDEX NO. 603

SCALE: 1" = 40'

NOTE:
CONTRACTOR SHALL ADJUST THE LOCATION OF SERVICE LATERALS BASED ON FIELD CONDITIONS.





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REVISIONS			
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DWN JC
CKD JP

MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

PLAN AND PROFILE
STA 8+05 TO STA 17+15
47TH AVE

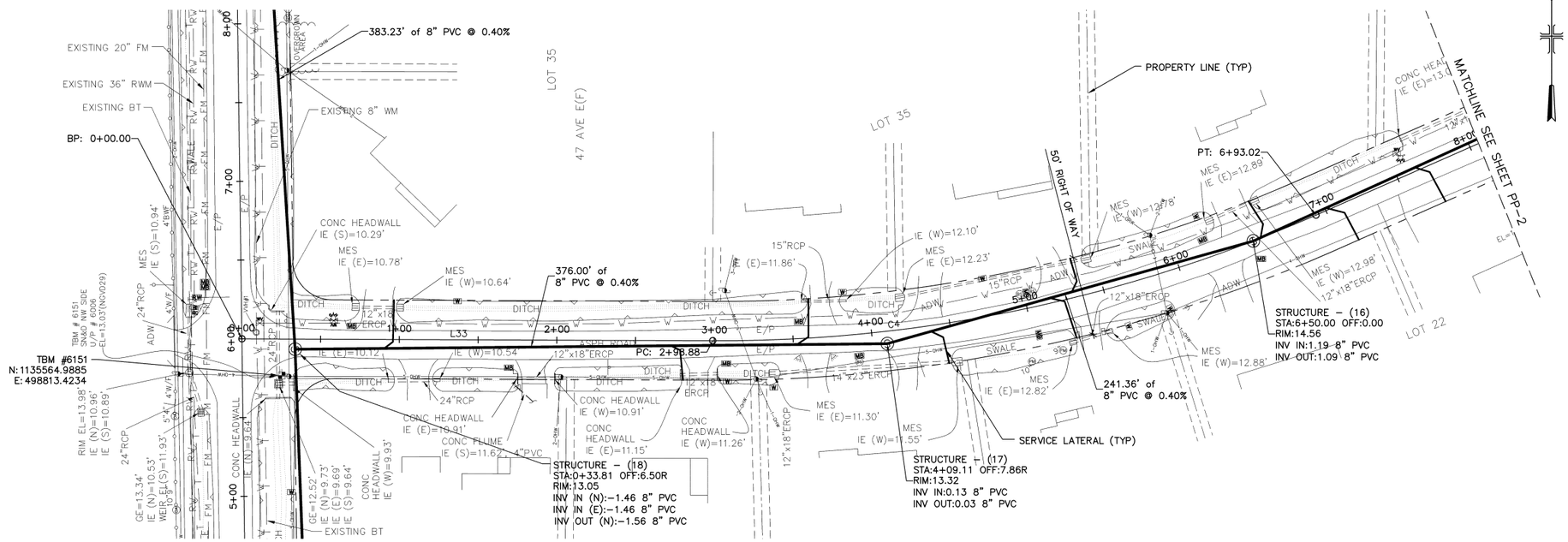
DATE NOVEMBER 09
SHEET PP-2
CAD REF. NO. sewer.dwg

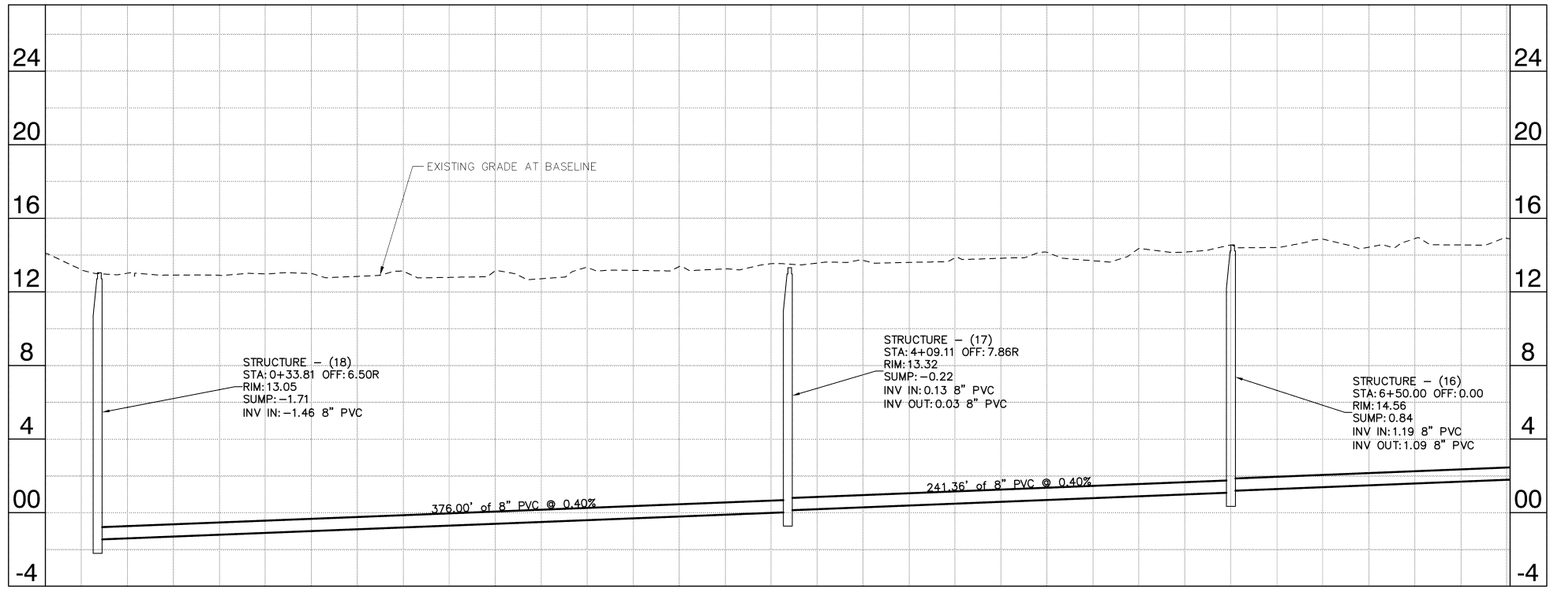
48 HOURS BEFORE DIGGING
CALL SUNSHINE
TOLL FREE
1 800 432 4770
UNDERGROUND UTILITIES NOTIFICATION CENTER OF FLORIDA

NOTE:
CONTRACTOR SHALL ADJUST THE LOCATION OF SERVICE LATERALS BASED ON FIELD CONDITIONS.

USE FDOT MOT INDEX NO. 602, 603, 605

SCALE: 1" = 40'





Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L1	1100.00	N0° 46' 15.43"W	(498796.16,1134988.26)	(498781.36,1136088.16)
L33	298.88	S89° 45' 38.07"E	(498788.09,1135588.21)	(499086.97,1135586.96)
L34	857.28	N66° 14' 21.93"E	(499470.02,1135666.70)	(500254.63,1136012.12)
L35	165.71	N50° 51' 55.93"E	(500821.97,1136223.48)	(500950.51,1136328.07)
L36	60.75	S89° 30' 33.07"E	(501143.30,1136395.66)	(501204.05,1136395.14)

Curve Table: Alignments						
Curve #	DELTA	Radius	Length	Chord Direction	Start Point	End Point
C4	24.0000	940.93	394.14	N78° 14' 21.93"E	(499086.97,1135586.96)	(499470.02,1135666.70)
C5	14.4889	1180.00	298.40	N73° 29' 01.93"E	(500254.63,1136012.12)	(500539.96,1136096.72)
C6	29.8628	600.00	312.72	N65° 47' 48.93"E	(500539.96,1136096.72)	(500821.97,1136223.48)
C7	39.6253	301.37	208.42	N70° 40' 41.43"E	(500950.51,1136328.07)	(501143.30,1136395.66)

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REVISIONS			
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CKD JP

MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

PLAN AND PROFILE
STA 0+00 TO STA 8+05
47TH AVE

DATE NOVEMBER 09
SHEET PP-3
CAD REF. NO. sewer.dwg

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NOTE:
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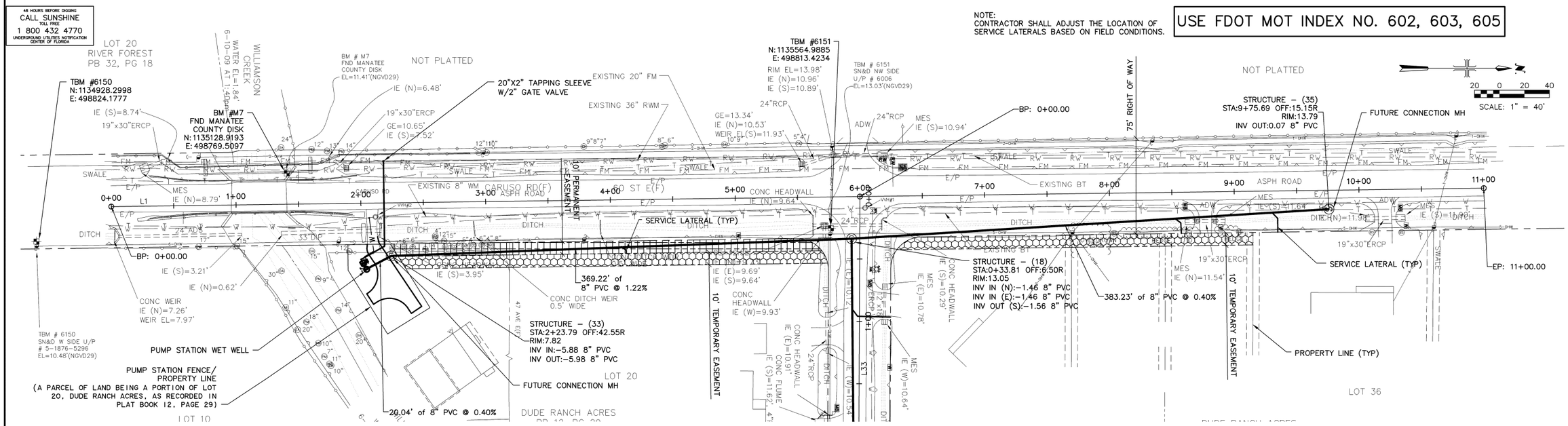
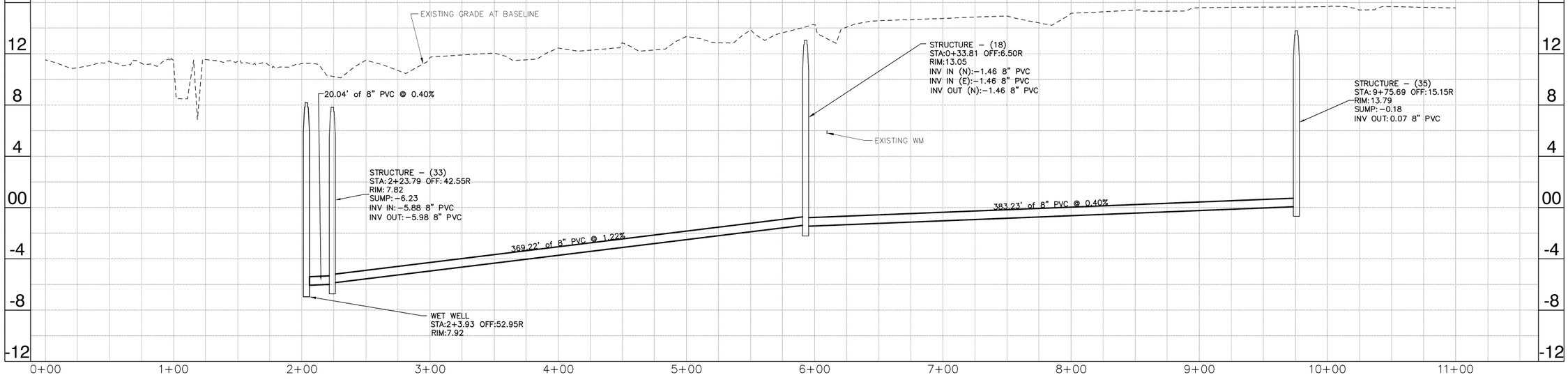
USE FDOT MOT INDEX NO. 602, 603, 605





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REVISIONS			
NO.	BY	DATE	REMARKS

DES JC
DWN JC
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MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

PLAN AND PROFILE
STA 00+00 TO STA 11+00
CARUSO RD

DATE NOVEMBER 09
SHEET PP-4
CAD REF. NO. sewer.dwg

DIAGRAMS:

- MOTOR STARTER/CONTROLLER (NON-COMBINATION – COMBINATION – MANUAL) RV DENOTES REDUCED VOLTAGE
- LOCAL CONTROL PANEL WITH CONTROLLERS FURNISHED BY EQUIPMENT VENDOR.
- POWER RECPT. WITH DISCONNECT–600V, 3 PHASE, 4 WIRE NUMBER DENOTES AMPERE RATING
- POWER RECPT. 600V, 3 PHASE, 4 WIRE
- POWER ON–OFF SNAP SWITCH, 1PH, 120V AC, 20A S2–DENOTES, 2 POLE, 240 VOLTS, 20A
- 20A TWO OR THREE POLE MANUAL STARTER,
- PUSH–BUTTON STATION
- PUSH–BUTTON STATION WITH LOCK–OUT FEATURE
- SELECTOR SWITCH
- INDICATING LIGHT
- CONTROL STATION
- HAND–OFF–AUTO SELECTOR SWITCH CONTROL STATION
- CONTROL STATION FURNISHED BY EQUIPMENT VENDOR
- AMMETER – AMMETER SWITCH
- VOLTMETER – VOLTMETER SWITCH
- DISCONNECT SWITCH – 480V 3POLE UNFUSED OR FUSED F DENOTES FUSING, ONLY WHERE INDICATED. FIRST NUMBER DENOTES SWITCH AMP RATING. SECOND NUMBER DENOTES FUSE SIZE WHEN PROVIDED.
- VARIABLE FREQUENCY DRIVE – VFD –B WHEN INDICATED DENOTES WITH STARTING AND FULL SPEED BYPASS
- JUNCTION BOX; SIZE AS REQUIRED BY N.E.C.
- TERMINAL BOX; SIZE AS REQUIRED BY N.E.C. AND TO ACCOMODATE ALL TERMINATIONS ON TERMINAL BLOCKS. TERMINATIONS TO INCLUDE SPARE WIRING.
- PULL BOX; SIZE AS REQUIRED BY N.E.C.
- LOCK FOR RESPECTIVE KEY INTERLOCK WITH KEY CAPTIVE IN LOCK
- LOCK FOR RESPECTIVE KEY INTERLOCK
- OVER–TEMPERATURE DEVICE
- ELECTRIC MOTOR (NUMBER INDICATES HORSEPOWER).
- MOTORIZED VALVE WITH CONTROLLER BY VENDOR
- CURRENT LIMITING FUSE
- CURRENT TRANSFORMER, RATIO AND QUANTITY DENOTED
- POTENTIAL TRANSFORMER
- MOISTURE SWITCH
- THERMAL SWITCH

PLANS:

- DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C. 20 AMP RECEPTACLE DESIGNATIONS, FIRST NUMBER DENOTES PANEL, SECOND NUMBER DENOTES CIRCUIT NUMBER. GF–DENOTES GROUND FAULT TYPE. SS–DENOTES SURGE SUPPRESSION TYPE WP–DENOTES WEATHERPROOF ENCLOSURE
- SINGLE CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE; 120 VOLTS AC. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
- POWER RECEPTACLE, 2 POLE, 3 WIRE 250 VOLTS A.C. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
- SINGLE POLE SWITCH – LOWER CASE LETTER DENOTES SWITCHING.
- TWO POLE SWITCH
- THREE–WAY SWITCH
- FOUR–WAY SWITCH
- NEW CONDUIT ABOVE GROUND
- NEW CONDUIT UNDER GROUND
- EXISTING CONDUIT ABOVE GROUND
- EXISTING CONDUIT UNDER GROUND
- CONDUIT TURNING UP

INSTRUMENTS:

- INSTRUMENT DEVICE: LETTERS IDENTIFY DEVICE FUNCTION, NUMBERS WHERE INDICATED DENOTE LOOP NUMBER
- PRESSURE CONTROLLER
- PRESSURE SWITCH (PSH DENOTES PRESSURE SWITCH HIGH AND PSL DENOTES PRESSURE LOW)
- DIFFERENTIAL PRESSURE SWITCH (dPSH DENOTES PRESSURE SWITCH HIGH AND dPSL DENOTES PRESSURE SWITCH LOW)
- DIAPHRAGM LEAK DETECTOR
- FLOW SWITCH (FSH DENOTES FLOW SWITCH HIGH AND FSL DENOTES FLOW SWITCH LOW)
- LIMIT SWITCH
- PRESSURE TRANSMITTER (I DENOTES INDICATING TYPE AND PE DENOTES PRESSURE ELEMENT)
- LEVEL TRANSMITTER (LE DENOTES LEVEL ELEMENT)
- FLOW TRANSMITTER (FE DENOTES FLOW ELEMENT)
- ANALYSIS TRANSMITTER (AE DENOTES ANALYSIS ELEMENT)
- TEMPERATURE TRANSMITTER (TE DENOTES TEMPERATURE ELEMENT)
- TEMPERATURE SWITCH (TSH DENOTES TEMPERATURE SWITCH HIGH AND TSL DENOTES TEMPERATURE SWITCH LOW)
- LEVEL SWITCH (LSH DENOTES LEVEL SWITCH HIGH AND LSL DENOTES LEVEL SWITCH LOW. LE DENOTES LEVEL ELEMENT)
- VIBRATION SWITCH (VE INDICATES VIBRATION ELEMENT)
- MOV OR MV — MOTORIZED VALVE
- OR SV — SOLENOID VALVE
- STROKE POSITIONER
- STROBE LIGHT
- MPD — MOTOR PROTECTION DEVICE W/ NEGATIVE SEQUENCE VOLTAGE RELAY (47), VOLTAGE UNDERVOLTAGE RELAY (27), AMPERAGE, AND VOLTAGE.

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATS	AUTOMATIC TRANSFER SWITCH
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
CCB	CONTROL CIRCUIT BREAKER
CBV	CABLE BY VENDOR, INSTALLED BY CONTRACTOR
CKT	CIRCUIT
CNTRL	CONTROL
CP–1	CONTROL PANEL, NUMBER AS NOTED
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
EC	EMPTY CONDUIT
ECB	EMERGENCY BREAKER
EL, ELEV	ELEVATION
EP	EXPLOSION PROOF
EXIST	EXISTING
FDR	FEEDER
FIXT	FIXTURE
FVNR	FULL VOLTAGE NON–REVERSING
G	GALVANIZED
GEC	GROUND ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPTOR
GND	GROUND
HOA	HAND/OFF/AUTO
INSTANT.	INSTANTENOUS
JB OR J	JUNCTION BOX, CONDULET, FITTING AS REQUIRED BY NEC, UNLESS NOTED OTHERWISE
KCMIL OR MCM	THOUSAND CIRCULAR MILS
LA	LIGHTNING ARRESTOR
LCP	LOCAL CONTROL PANEL
LTG	LIGHTING
MCB	MASTER CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MTS	MANUAL TRANSFER SWITCH
NA	NON–AUTOMATIC
NCTC	NORMALLY CLOSED, TIME CLOSE
NCTO	NORMALLY CLOSED, TIME OPEN
NOTC	NORMALLY OPEN, TIME CLOSED
NOTO	NORMALLY OPEN, TIME OPEN
NTS	NOT TO SCALE
P/B, PB	PULL BOX
PCB	POWER CIRCUIT BREAKER
PFD	PULL FUSE DISCONNECT
PNL	PANEL
PFC	POWER FACTOR CORRECTION CAPACITORS
PT	POTENTIAL TRANSFORMER
RECEP	RECEPTACLE
RTU	REMOTE TELEMETRY UNIT
RVNR	REDUCED VOLTAGE NON–REVERSING
(S) (SH)	SHIELDED CABLE
SP	SPARE
SEL	SELECTOR
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEW	THERMOCOUPLE EXTENSION WIRE
TYP.	TYPICAL
UON	UNLESS OTHERWISE NOTED
USE	UNDERGROUND SERVICE ENTRANCE CABLE
WP	WEATHERPROOF
WT	WINDING TEMPERATURE RELAY
XFMR	TRANSFORMER
NEC	NATIONAL ELECTRIC CODE
TX	TRANSFORMER
TYP	TYPICAL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION

CONTROL SCHEMATIC SYMBOLS

- FOUR WAY HAND SWITCH – HAND, OFF, AUTO, REMOTE TELEMETRY UNIT
- 1AMP FS — FUSE – TOP LABEL AMPERAGE, BOTTOM LABEL IS NAME
- 0L1 — CONTACT – NORMALLY CLOSED – DESIGNATION DESCRIBES PURPOSE OF CONTACT
- ULT3 — CONTACT – NORMALLY OPEN – DESIGNATION DESCRIBES PURPOSE OF CONTACT
- T1 FS1 T2, OFF — FLOAT SWITCH – NORMALLY OPEN – BOTTOM DESIGNATION DESCRIBES PURPOSE OF CONTACT, TOP DESIGNATION DESCRIBES FLOAT LABEL AND TERMINIAL CONNECTIONS
- SILENCE — PUSH BOTTON – DESCRIPTION
- SEAL FAILED — POSITION SWITCH – NORMALLY OPEN – DESRIPTION
- A — PILOT LIGHT / STROB – A=AMBER, R=RED, G=GREEN, S=STOBE
- R3 — RELAY CONTACT – DESIGNATION DESCRIBES PURPOSE OF RELAY CONTACT (SEE DWG. E–08 FOR DESCRIPTION)
- SWITCH – TEMPERATURE NORMALLY CLOSED. OPENS ON RISING TEMPERATURE
- 12 VDC BACKUP — UPS – BATTERY BACKUP
- GROUND TEST POINT
- GROUND ROD
- GROUND GRID CABLE CONNECTION
- GROUND
- #4/0 GROUND CABLE BURIED 2'–6" BELOW GRADE UNLESS OTHERWISE NOTED
- LED LIGHTING FIXTURE MOUNTED ON PIPE STAND
- POLE OR STANCHION MOUNTED LIGHTING FIXTURE.
- TWO (2) POLE OR STANCHION MOUNTED LIGHTING FIXTURES
- GF — POLE MOUNTED FIXTURE WITH GF RECEPTACLE

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AUBREY ARMAND HAUDRICOURT
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REVISIONS

NO.	BY	DATE	REMARKS

DES WEH
DWN WEH
CKD AAH

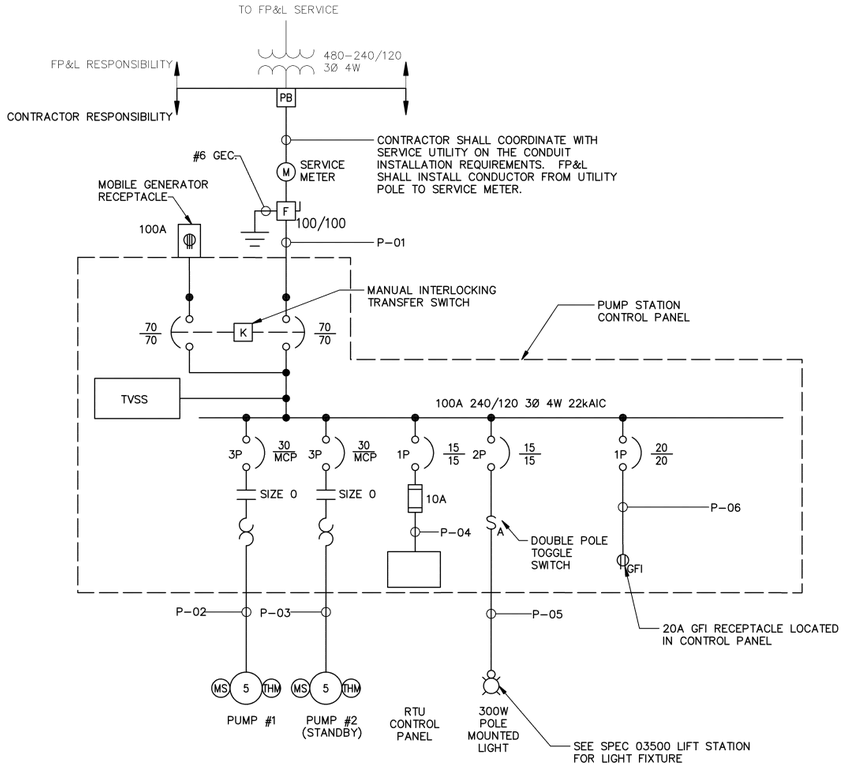
MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

ELECTRICAL LEGENDS, ABBREVIATIONS, AND NOTES

DATE NOVEMBER 09

SHEET E-01

CAD REF. NO. 0132006–E01



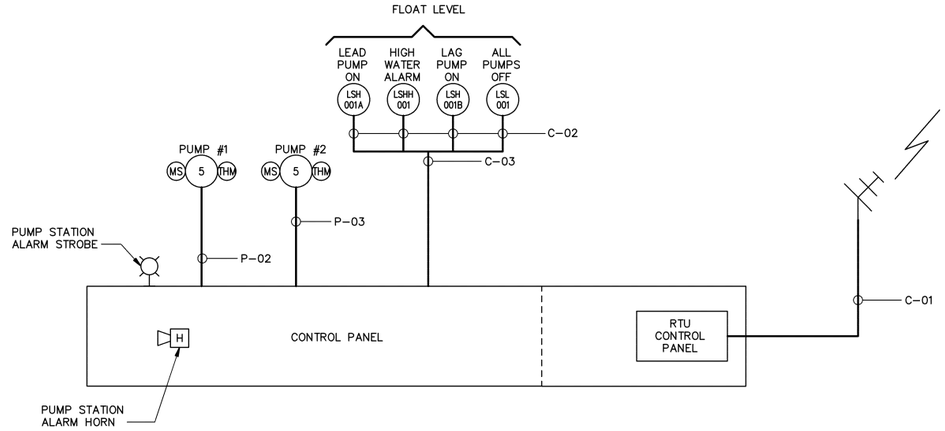
ONE LINE DIAGRAM
SCALE: NONE

LOAD CALCULATIONS (PER NEC 430.24)				
CONNECTED LOAD	HP/KVA	CONTINUOUS LOAD (FLA)	NON-CONTINUOUS LOAD (FLA)	LOADING (AMPS)
PUMP NO.1	5.00	7.60		9.5
PUMP NO.2	5.00	7.60		7.60
DATAFLOW CONTROL PANEL	1.00	8.30		8.30
FLOOD LIGHT	0.37		1.53	1.53
RECEPTACLE	2.00		16.00	16.00
TOTALS	13.37	23.50	17.53	43

LOAD CALCULATIONS
SCALE: NONE

NOTE:

1. SEE LIFT STATION SPECIFICATION NO. 03500 FOR CABLE AND CONDUIT REQUIREMENTS.
2. CONTRACTOR SHALL COORDINATE WITH CONTROL PANEL MANUFACTURER AND SPECIFICATIONS ON WIRE FOR SEAL FAILURE AND THERMAL PROTECTION WIRING.



INTERCONNECT DIAGRAM
SCALE: NONE

SEE NOTE 2

CONDUIT NUMBER	NUMBER OF WIRES AND SIZE	CONDUIT SIZE	FROM	TO	REMARKS
P-01	4#1, #6G.	2"	TRANSFORMER SERVICE METER DISCONNECT SWITCH	SERVICE METER DISCONNECT SWITCH PUMP CONTROL PANEL	PUMP STATION POWER FEEDER MINIMUM CONDUIT SIZE REQUIREMENT
P-02	3-#12, #10G.	2"	CONTROL PANEL	PUMP MOTOR NO. 1	MOTOR POWER WITH SEAL FAILURE, THERMAL PROTECTION (SEE NOTE 2)
P-03	3-#12, #10G.	2"	CONTROL PANEL	PUMP MOTOR NO. 2	MOTOR POWER WITH SEAL FAILURE, THERMAL PROTECTION (SEE NOTE 2)
P-04	2#12, #12G.	3/4"	CONTROL PANEL	RTU	RTU POWER
P-05	2#12, #12G.	3/4"	CONTROL PANEL	LIGHT FIXTURE	POLE MOUNTED LIGHT FIXTURE POWER
P-06	2#12, #12G.	NONE	CONTROL PANEL	GFI RECEPTACLE	GFI RECEPTACLE POWER
C-01	COAXIAL CABLE	1"	RTU	ANTENNA	WIRELESS SIGNAL
C-02	2-#14	3/4"	C-03	LEVEL SWITCHES	DISCRETE SIGNAL
C-03	8#14	2"	CONTROL PANEL	C-03	DISCRETE SIGNAL (FLOATS)

CABLE SCHEDULE
SCALE: NONE

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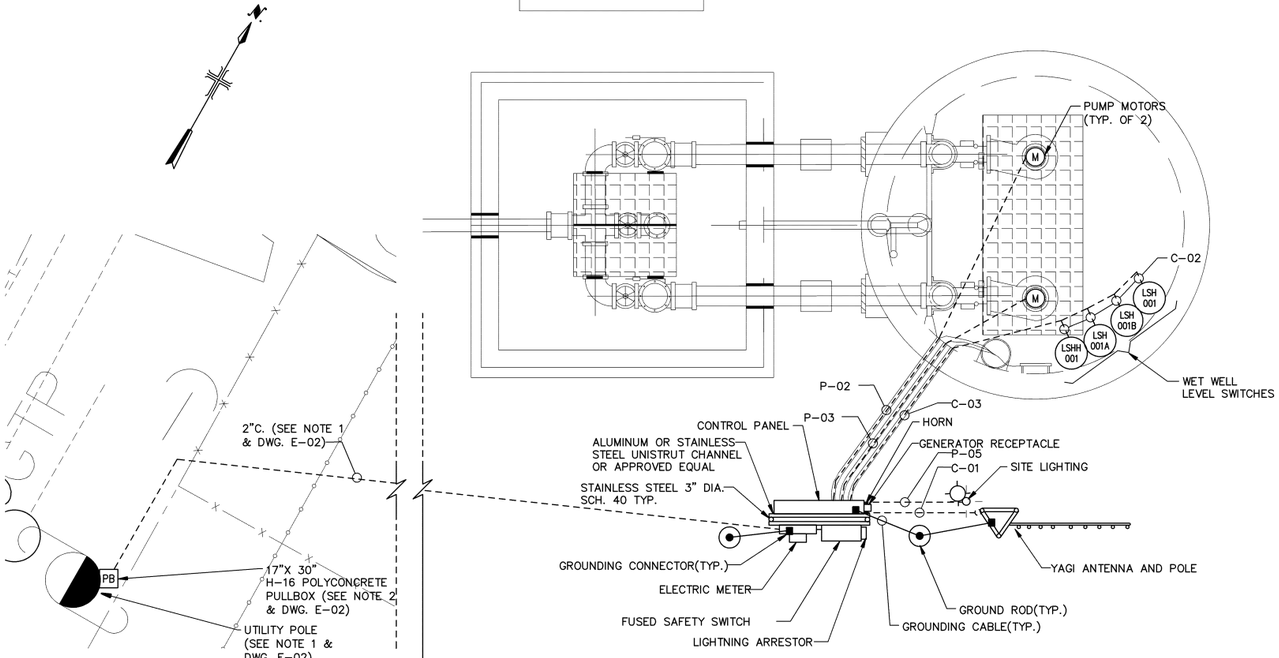
DUDE RANCH SANITARY SEWER IMPROVEMENTS

CONDUIT SCHEDULE, ELECTRICAL ONE LINE, AND INTERCONNECT DIAGRAM

DATE NOVEMBER 09
SHEET E-02
CAD REF. NO. 0132006-E02



PARTIAL PLAN VIEW

0 3" 12"

SCALE: 3" = 1'-0"

PARTIAL PLAN VIEW

1 0 1

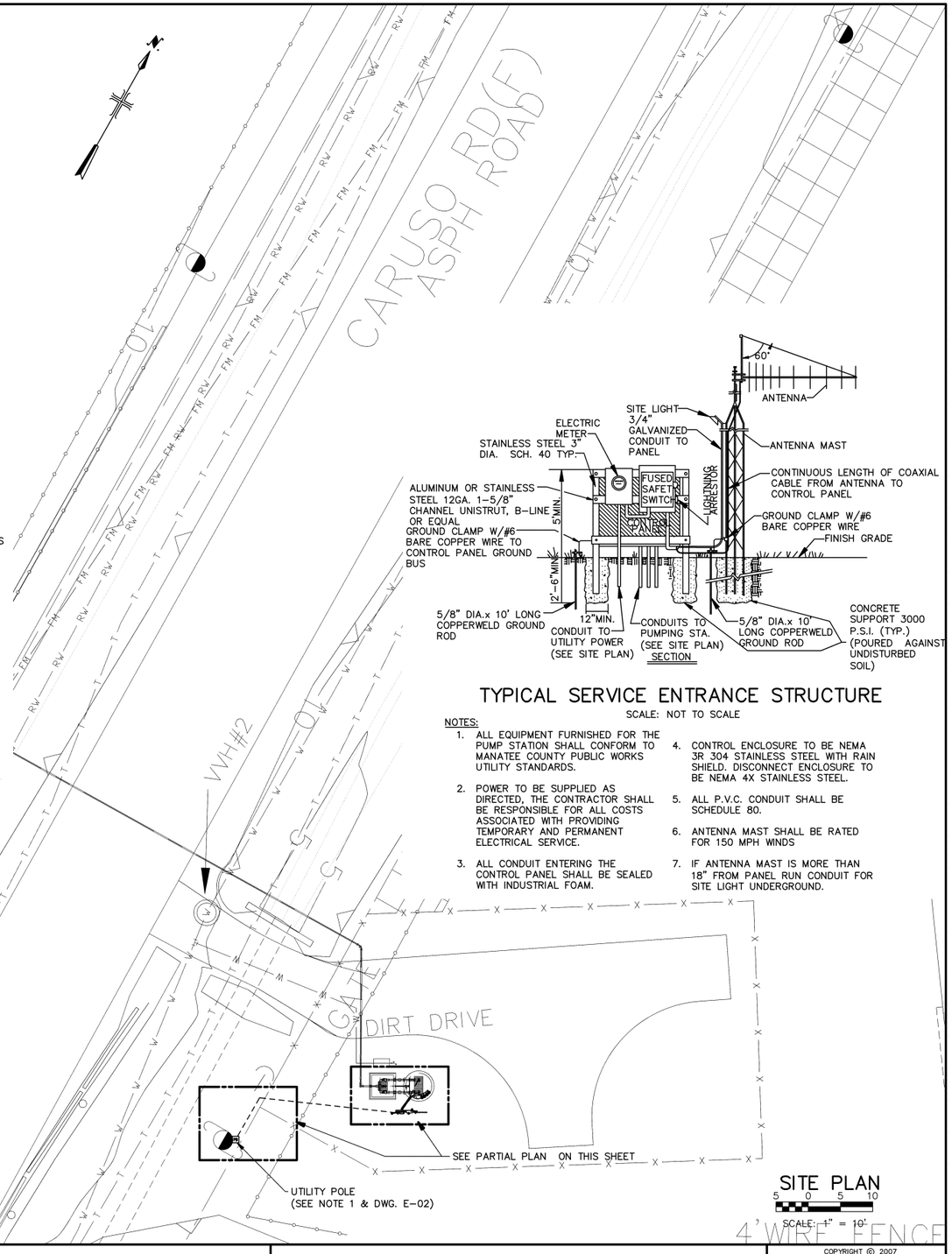
SCALE: 1" = 1'-0"

TYPICAL SERVICE ENTRANCE STRUCTURE

SCALE: NOT TO SCALE

NOTES:

1. ALL EQUIPMENT FURNISHED FOR THE PUMP STATION SHALL CONFORM TO MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS.
2. POWER TO BE SUPPLIED AS DIRECTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH PROVIDING TEMPORARY AND PERMANENT ELECTRICAL SERVICE.
3. ALL CONDUIT ENTERING THE CONTROL PANEL SHALL BE SEALED WITH INDUSTRIAL FOAM.
4. CONTROL ENCLOSURE TO BE NEMA 3R 304 STAINLESS STEEL WITH RAIN SHIELD. DISCONNECT ENCLOSURE TO BE NEMA 4X STAINLESS STEEL.
5. ALL P.V.C. CONDUIT SHALL BE SCHEDULE 80.
6. ANTENNA MAST SHALL BE RATED FOR 150 MPH WINDS
7. IF ANTENNA MAST IS MORE THAN 18" FROM PANEL RUN CONDUIT FOR SITE LIGHT UNDERGROUND.



SITE PLAN

5 0 5 10

SCALE: 1" = 10'

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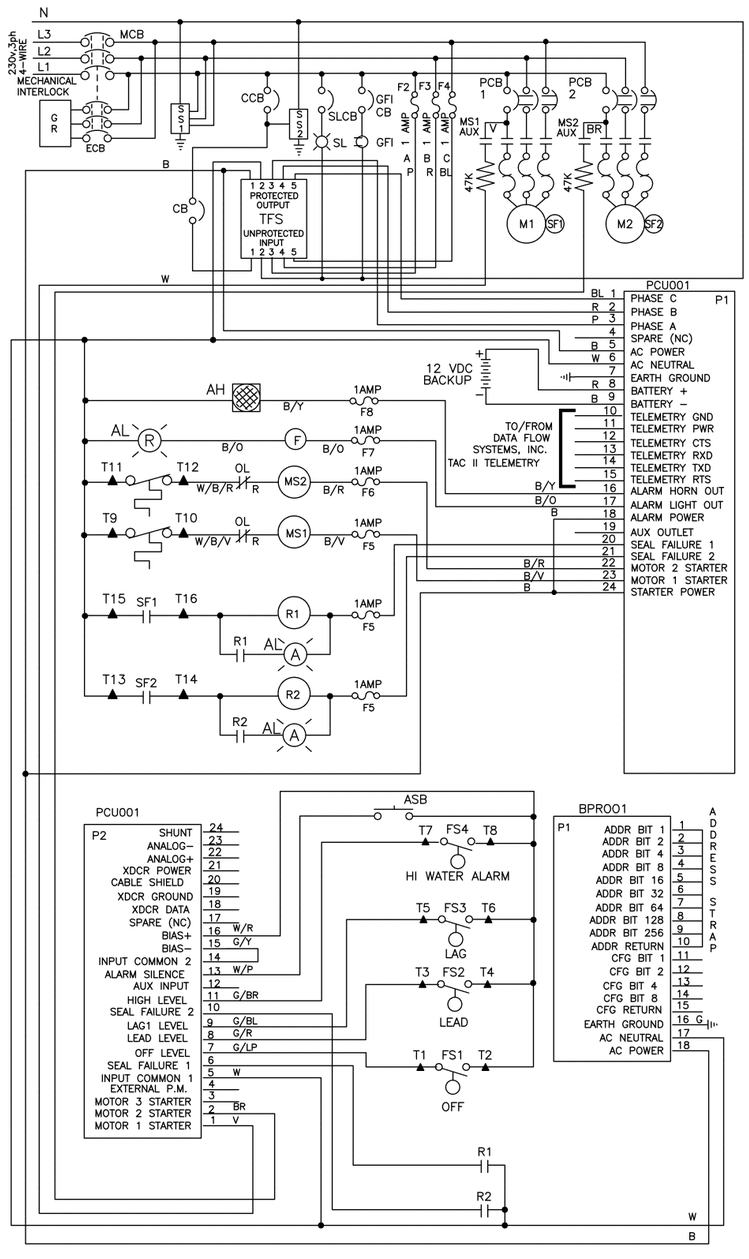
DUDE RANCH SANITARY SEWER IMPROVEMENTS

ELECTRICAL SITE PLAN & PARTIAL SITE PLAN

DATE NOVEMBER 09

SHEET E-03

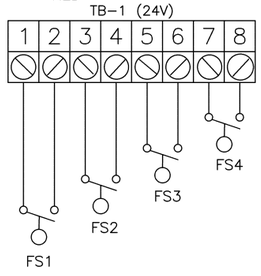
CAD REF. NO. 0132006-E03



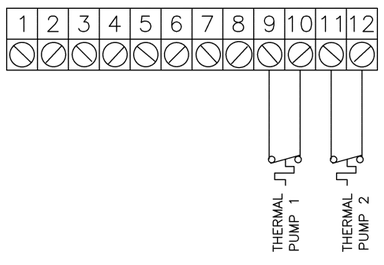
PANEL COMPONENTS

ENC	ENCLOSURE	HOFFMAN, A–36H3012SSLP 304SS
MCB	MAIN CIRCUIT BREAKER	SQ–D, QOU
ECB	EMERGENCY CIRCUIT BREAKER	SQ–D, QOU
PCB	PUMP CIRCUIT BREAKER	SQ–D, QOU
CCB	CONTROL CIRCUIT BREAKER	SQ–D, QOU115
GFICB	GFI CIRCUIT BREAKER	SQ–D, QOU115
MS1,2	STARTER	FURNAS, ESP–100
GR	GENERATOR RECEPTACLE	RUSSELL STOLL, JRSB1044FR
AH	ALARM HORN	FEDERAL, 350–WB–120
AL	ALARM LIGHT	INGRAM, LRXB–40
F	FLASHER	INGRAM, FL–120–60
ASB	ALARM SILENCE BUTTON	SQ–D, 9001 SKR1BH5
GFI	CONVIENENCE RECEPTACLE	LEVITON, 6598–I
TCU	TELEMETRY CONTROL UNIT	DATA FLOW, DFS TCU001
CB	CIRCUIT BREAKER	E–T–A, ETA–42–01
F2–8	FUSE AND HOLDER	
47K	RESISTER BLOCK	WAGO, DFS–00271–003–1
TFS	TRANSIENT FILTER SHIELD	DATA FLOW TFS001–02
12VDC	BATTERY BACKUP	YUASA, NP2.6–12 12 VDC @ 2.6AM
SS1	230V SURGE SUPRESSOR (TPS001)	DITEK, DFS PN# 005–0062
SS2	120V SURGE SUPRESSOR (SPS001)	DITEK, DFS PN# 005–0061
TB1	TERMINAL BLOCK (24V)	IDEAL, 89–212
TB2	TERMINAL BLOCK (ALL OTHERS)	IDEAL, 89–212
SLB	SITE LIGHTING CIRCUIT BREAKER	WAGO, DFS–00271–003–9, 1AMP SB
FMB	FLOW METER CIRCUIT BREAKER (RE–PUMP LIFT STATIONS ONLY)	SQ–D, QOU120
		SQ–D, QOU120
SL	SITE LIGHT	
SF	SEAL FAILURE	
A	AMBER	
R	RED	

TB–1 (24V)

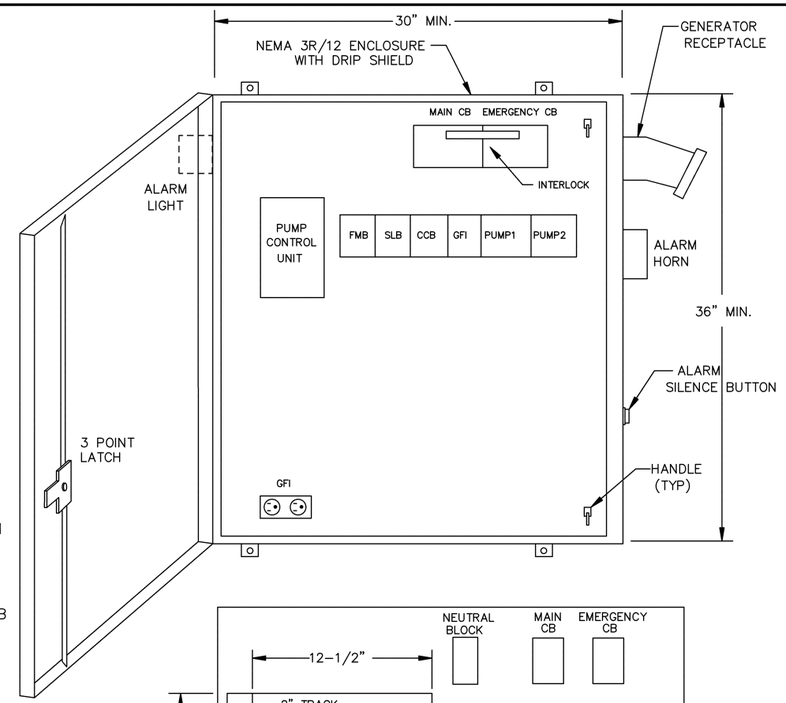


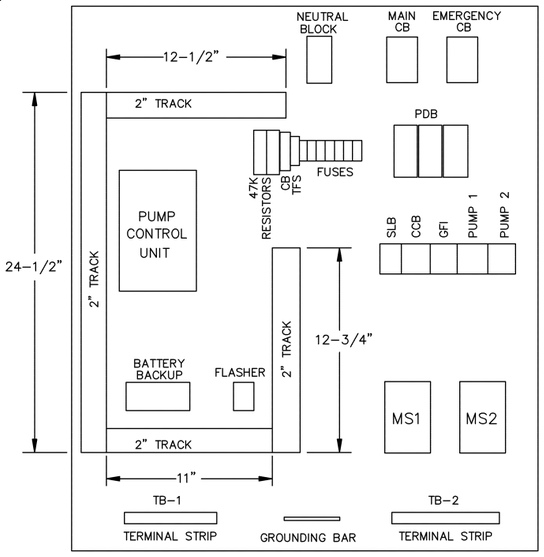
TB–2 (110V)



COLOR CODE

SYMBOL	COLOR
B	BLACK
W	WHITE
G	GREEN
BL	BLUE
R	RED
P	PINK
V	VIOLET
BR	BROWN
B/Y	BLACK/YELLOW
B/O	BLACK/ORANGE
B/R	BLACK/RED
B/V	BLACK/VIOLET
G/LP	GREY/LIGHT PINK
G/R	GREY/RED
G/BL	GREY/BLUE
G/BR	GREY/BROWN
W/P	WHITE/PINK
G/Y	GREY/YELLOW
W/R	WHITE/RED
W/B/V	WHT/BLK/VIOLET
W/B/R	WHT/BLK/RED





BACKPLATE LAYOUT (TYPICAL)

ENCLOSURE AND DEADFRONT LAYOUT (TYPICAL)

NOTES:

1. OUTER BOX SIZE WILL BE A MINIUM OF 30"W X 36"H X 12"D.
2. DEAD FRONT DOOR SHALL HAVE A MINIMUM OF TWO LATCHES.

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MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

ELECTRICAL CONTROL SCHEMATIC AND DETAILS

DATE NOVEMBER 09

SHEET E-04

CAD REF. NO. 0132006–E04

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	PRIMARY LOCATION (b) NORMALLY ACCESSIBLE TO OPERATOR****	FIELD MOUNT	AUXILIARY LOCATION (b) NORMALLY ACCESSIBLE TO OPERATOR****
DISCRETE INSTRUMENTS	XXX(a)		
SHARED DISPLAY, SHARED CONTROL			
COMPUTER FUNCTION			
PROGRAMMABLE LOGIC CONTROL			

****NORMAL INACCESSIBLE OR BEHIND THE PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOL BUT WITH DASHED HORIZONTAL BARS.

SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS

(XXX)

DESIGNATIONS OF CONTROL FUNCTIONS ASSOCIATED INSTRUMENT OR OTHER COMPONENTS.

AM	AUTO/MANUAL	RL	RAISE/LOWER
AND	"AND" GATE FUNCTION	RSL	RAISE/STOP/LOWER
HOA	HAND/OFF/AUTO	SD	SHUTDOWN
HOR	HAND/OFF/REMOTE	SEL	SELECT
HSP	HAND SWITCH POTENTIOMETER	SLC	SINGLE LOOP CONTROLLER
LOS	LOCKOUT STOP	SP	SET POINT
LR	LOCAL/REMOTE	SR	START/RESET
MOA	MANUAL/OFF/AUTO	SS	STOP/START
OO	ON/OFF	REM	REMOTE
OR	"OR" GATE FUNCTION		

(XXX)

PANEL MOUNTED PILOT LIGHT WITH PANEL NUMBER DESIGNATION(i.e. XXX = 100, 200, ETC.).

1 INTERLOCK

I/O SYMBOLS

EXISTING NEW ANALOG INPUT

ANALOG OUTPUT

EXISTING NEW DISCRETE INPUT

DISCRETE OUTPUT

IDENTIFICATION LETTERS

	FIRST–LETTER		SUCCEEDING–LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGE		GLASS VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O			ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	INTRUSION	X–AXIS			
Y	EVENT, STATE OR PRESENCE	Y–AXIS		COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z–AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

SYMBOLS

CENTRIFUGAL PUMP

DIAPHRAGM SEAL

BUTTERFLY VALVE

CHECK VALVE

GATE VALVE OR GENERAL VALVE

BALL VALVE

PRESSURE REDUCING/PRESSURE SUSTAINING VALVE

PRESSURE RELIEF VALVE

STRAINER

REDUCER/ENLARGER

PRESSURE GAUGE

FLOW SWITCH

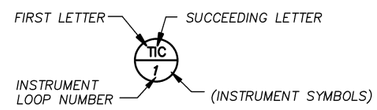
MAG FLOW METER

FIELD DEVICE

INSTRUMENT TAG NUMBERS

TYPICAL FORMAT

TIC–1 – INSTRUMENT IDENTIFICATION OR TAG NUMBER
TIC – FUNCTIONAL IDENTIFICATION
T – FIRST–LETTER
IC – SUCCEEDING–LETTER(S)
1 – LOOP NUMBER



EXPANDED FORMAT

TIC–1–1 — TAG NUMBER
1 — LOOP NUMBER
1 — OPTIONAL SUFFIX

GENERAL ABBREVIATIONS

AVG. – AVERAGE
LOR – LOCAL – OFF – REMOTE SWITCH
HOA – HAND – OFF – AUTO SWITCH
INSTANT – INSTANTANEOUS

PLC – PROGRAMMABLE LOGIC CONTROLLER.
SCADA – EXISTING SUPERVISORY CONTROL AND DATA ACQUISITION.

SP – SAMPLE POINT
TYP – TYPICAL

GENERAL NOTES

1. THE PLC INPUT/OUTPUT SCHEDULE IS AN ESTIMATE AND DOES NOT INDICATE ALL OF THE I/O REQUIRED FOR THIS PROJECT.
2. SPARE DI AND AI ON THE PLC INPUT/OUTPUT SCHEDULE SHALL BE PROVIDED AND INCLUDE PROGRAMMING SERVICES, GRAPHIC CONFIGURATION AND DOCUMENTATION REQUIRED FOR A TYPICAL STATUS POINT.
3. SPARE DO AND AO ON THE PLC INPUT/OUTPUT SCHEDULE SHALL BE PROVIDED AND INCLUDE PROGRAMMING SERVICES, GRAPHIC CONFIGURATION AND DOCUMENTATION REQUIRED FOR A TYPICAL PROCESS INTERLOCK FOR A DISCRETE OUTPUT AND A REMOTE INDICATION FOR AN ANALOG OUTPUT.
4. FIELD TRANSMITTERS SHALL BE MOUNTED 42" ABOVE FINISH FLOOR OR GRADE

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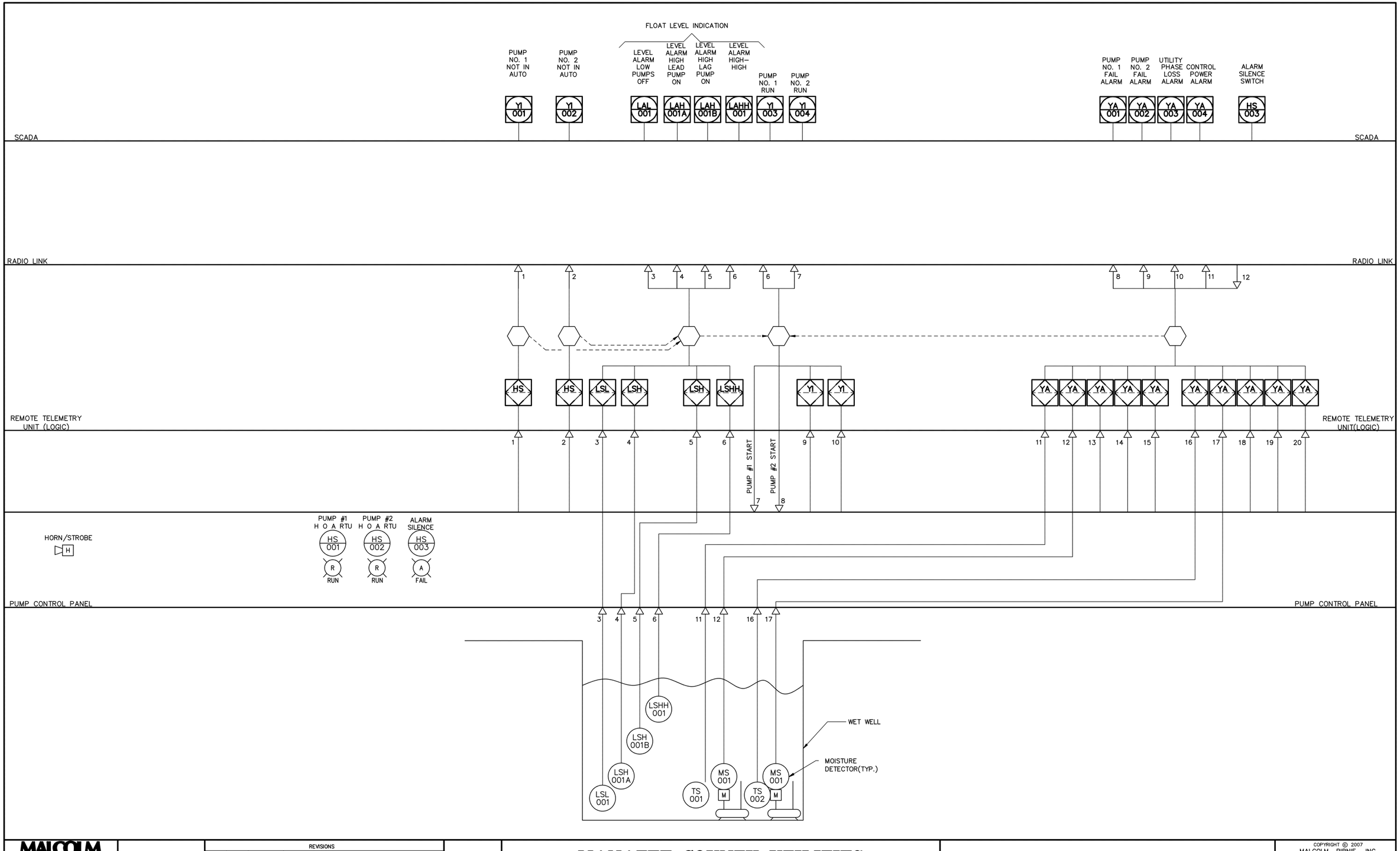
MANATEE COUNTY UTILITIES
DUDE RANCH SANITARY SEWER IMPROVEMENTS

INSTRUMENTATION AND CONTROLS LEGENDS, ABBREVIATIONS, AND NOTES

DATE NOVEMBER 09

SHEET I-01

CAD REF. NO. 0132006–101



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INSTRUMENTATION AND CONTROLS LEGENDS, ABBREVIATIONS, AND NOTES

DATE NOVEMBER 09

SHEET I-02

CAD REF. NO. 0132006-I02