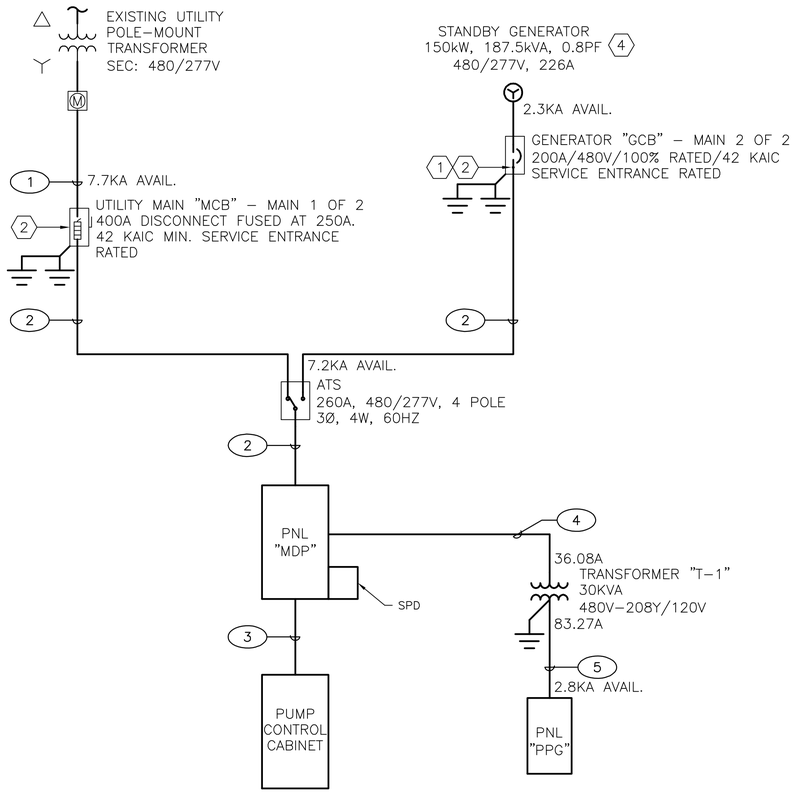


SINGLE LINE DIAGRAM

PANEL "PPG"

VOLTAGE: 208Y/120V PHASE: 3 WIRE: 4 60HZ MAINS: MCB AMPS: 80A MOUNTING: SURFACE
MIN. INTERRUPTING RATING: 10,000 A NEMA: 12

CKT NO	DESCRIPTION/LOCATION	BREAKERS POLE	BREAKERS AMPS	KVA		BREAKERS AMPS	BREAKERS POLE	DESCRIPTION/LOCATION	CKT NO
1	JACKET WATER HEATER	1	30	2.50	–	20	1	ODOR CONTROL SYSTEM	2
3	SPARE	1	20	–	–	20	1	SPARE	4
5	WINDING HEATER	1	20	0.10	0.35	20	1	EXTERIOR LIGHT	6
7	BATTERY CHARGER	1	20	1.50	–	20	1	ODOR CONTROLLER	8
9	SPARE	1	20	–	–	20	1	SPARE	10
11	SPARE	1	30	–	–	20	1	SPARE	12
13	SPACE	–	–	–	–	20	1	SPARE	14
15	SPARE	–	–	–	0.20	20	1	TANK INVENTORY SYSTEM CONTROLLER	16
17	SPACE	–	–	–	0.20	20	1	TANK OVERFILL ALARM	18
19	SPACE	–	–	–	0.20	20	1	TANK INVENTORY CONTROL PANEL HEATER	20
21	SPACE	–	–	–	–	–	–	SPACE	22
23	SPACE	–	–	–	–	–	–	SPACE	24
25	SPACE	–	–	–	–	–	–	SPACE	26
27	SPACE	–	–	–	–	–	–	SPACE	28
29	SPACE	–	–	–	–	–	–	SPACE	30

CONNECTED LOAD: 5.05 KVA

NOTE: CONDUIT BETWEEN PANEL "PPG" AND LOADS ARE NOT INDICATED ON SITE PLAN. LOADS SHALL BE SERVED WITH (2) #12, (1) #12 GND, ¾"C. REFER TO GENERAL NOTE 1.

PANEL "MDP"

VOLTAGE: 480Y/277V PHASE: 3 WIRE: 4 60HZ MAINS: 100% RATED MCB AMPS: 250A MOUNTING: SURFACE
MIN. INTERRUPTING RATING: 10,000 A NEMA: 12

CKT NO	DESCRIPTION/LOCATION	BREAKERS POLE	BREAKERS AMPS	KVA		BREAKERS AMPS	BREAKERS POLE	DESCRIPTION/LOCATION	CKT NO
1									2
3	PUMP CONTROL CABINET	3	225	162	10	30	3	ODOR CONTROL – BLOWER	4
5									6
7									8
9	SPARE	3	225	–	7.08	45	3	TRANSFORMER T–1	10
11									12
13				–	–				14
15	SPARE	3	30	–	–	45	3	SPARE	16
17				–	–				18
19	SPACE	–	–	–	–	–	–	SPACE	20
21	SPACE	–	–	–	–	–	–	SPACE	22
23	SPACE	–	–	–	–	–	–	SPACE	24
25	SPACE	–	–	–	–	–	–	SPACE	26
27	SPACE	–	–	–	–	–	–	SPACE	28
29	SPACE	–	–	–	–	–	–	SPACE	30

CONNECTED LOAD: 179 KVA
DEMAND LOAD: 197 KVA

FEEDER SCHEDULE:

1. (3) 250KCMIL PH. AND (1) 250KCMIL GROUNDED SERVICE CONDUCTOR IN 3 IN. CONDUIT.
2. (3) 250KCMIL PH., (1) 250KCMIL NEUT. AND (1) #4 AWG GND. IN 3 IN. CONDUIT.
3. (3)#4/0 AWG PH., AND (1)#4 AWG GND. IN 3 IN. CONDUIT.
4. (3) #8 AWG PH. AND (1) #8 AWG GND. IN 1 IN. CONDUIT.
5. (3) #4 AWG PH., (1) #4 AWG NEUT. AND (1) #8 AWG GND. IN 1½ IN. CONDUIT.

REFERENCE NOTES:

1. PROVIDE ADDITIONAL LINE–SIDE LUGS FOR REMOTE RADIATOR FAN MOTOR CIRCUIT.
2. PROVIDE NEUTRAL TO GROUND BOND IN "MCB" ENCLOSURE. GROUNDING ELECTRODE CONDUCTOR (GEC) TO CONSIST OF #4/0 AWG FROM N–G BOND IN CIRCUIT BREAKER ENCLOSURE AND EXTENDED UNBROKEN TO TWO (2) 3/4" X 10' L COPPER CLAD STEEL VERTICALLY DRIVEN GROUND RODS IN ACCORDANCE WITH NEC 250.104. ROUTE EXTERIOR EXPOSED PORTIONS OF GEC IN PVC. ALL CONCEALED CONNECTIONS SHALL BE BY EXOTHERMIC WELD PROCESS.
3. JACKET WATER HEATER SHALL BE FED WITH 2 #10, 1 #10 GNA ¾" C. REFER TO GENERAL NOTE 1.
4. DURING EMERGENCY OPERATION, (1) PUMP WILL BE DISABLED. THE GENERATOR IS SIZED BASED ON (2) 50 HP PUMPS AND MISCELLANEOUS LOADS.

GENERAL NOTES:

1. ALL PVC UNDERGROUND CONDUITS SHALL TRANSITION TO AL CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE AL. PROVIDE AL TO PVC FITTING FOR TRANSITION BETWEEN AL & PVC CONDUIT. PROVIDE BITUMASTIC COATING ON AL CONDUIT WHEN IN CONTACT WITH EARTH OR CONCRETE.

SERVICE LOAD SUMMARY

LOAD DESCRIPTION:	LOAD (kVA)
EXISTING LIGHTING, POWER, AND SMALL MOTOR LOADS (17.08kVA @ 125%)	21.35
PUMP 1: 50HP (54.0kVA @ 125%)	67.5
PUMP 2: 50HP (54.0kVA @ 100%)	54.0
PUMP 3: 50HP (54.0kVA @ 100%)	54.0
SUB–TOTAL kVA TOTAL CURRENT (A) @ 480V, 3PH.	197 256A

NOTE: PUMPS 2 AND 3 ARE EXISTING 40HP PUMPS. THE SERVICE LOAD CALCULATIONS ARE BASED ON THE ANTICIPATED INSTALLATION OF (2) NEW 50 HP PUMPS.

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286–1711 Fax: (813) 286–6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388
PM: C. OSMANSKI
ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: September 28, 2008

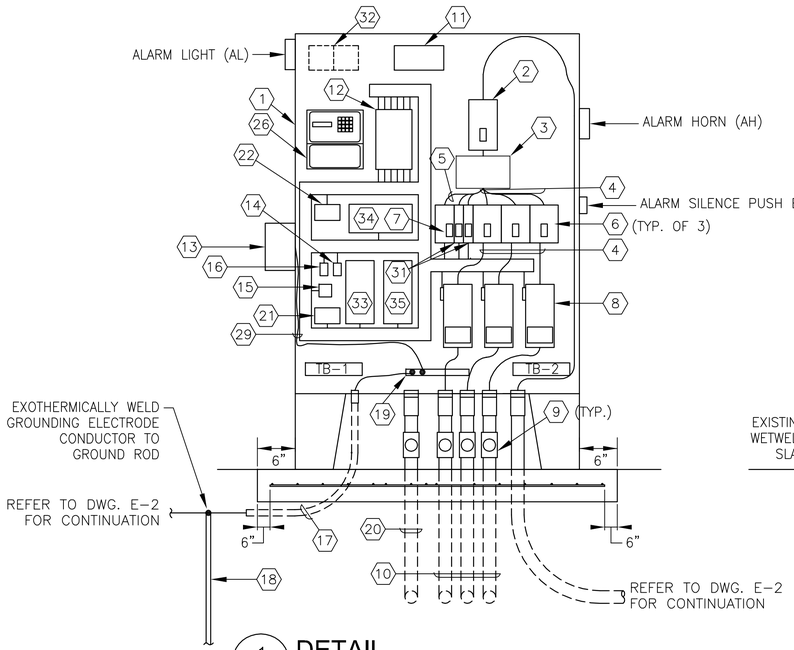
IMPROVEMENTS AT
MASTER LIFT STATION 41–A
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SINGLE LINE DIAGRAM AND
ELECTRICAL SCHEDULES

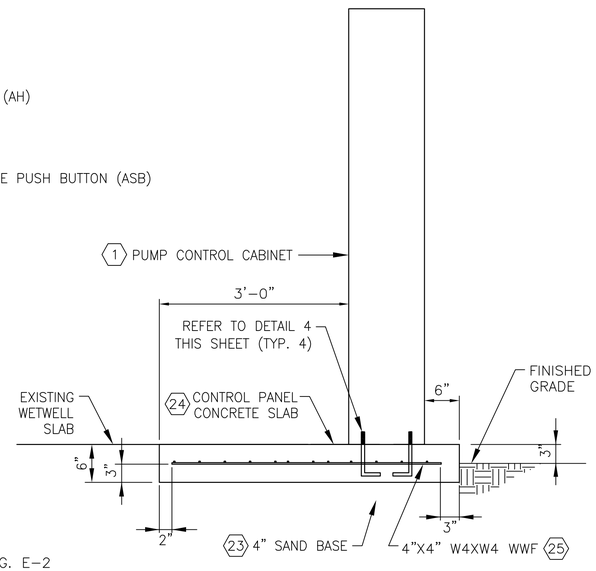
GLENN H. DAVIS
FLORIDA P.E. NO. 66443

PROJECT STATUS
BID SET
OCTOBER 2008

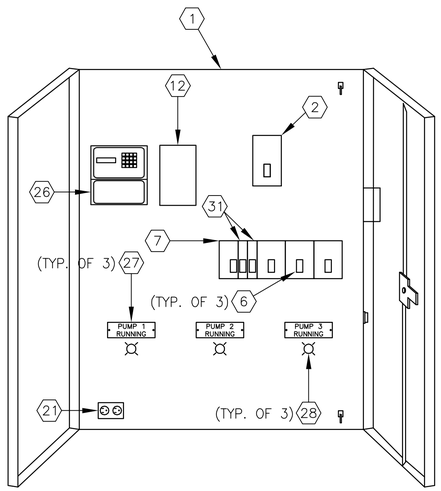
E–7



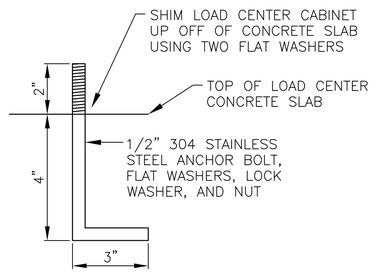
1 DETAIL
E-4 PUMP CONTROL PANEL CABINET
SCALE: NTS



2 DETAIL
E-4 PUMP CONTROL CABINET SIDE VIEW & CONCRETE SLAB
SCALE: NTS



3 DETAIL
E-4 PUMP CONTROL CABINET DEADFRONT DOOR LAYOUT
SCALE: NTS



4 DETAIL
E-4 PUMP CONTROL CABINET ANCHOR BOLT
SCALE: NTS

GENERAL NOTES:

1. LOAD CENTER SHALL BE FACTORY ASSEMBLED AND TESTED PRIOR TO SHIPMENT TO THE PROJECT SITE FOR INSTALLATION. ALL COMPONENT DEVICES AND MATERIALS USED IN THE MANUFACTURE OF THE LOAD CENTER SHALL BE UL LISTED AND LABELED. THE FULLY ASSEMBLED LOAD CENTER SHALL BE CERTIFIED BY UL OR ETL AND SHALL BEAR A PERMANENT LABEL INDICATING SAME.
2. REFER TO MANATEE COUNTY PUBLIC WORKS DEPARTMENT STANDARD DETAIL US-21 "SEWAGE PUMP STATION CONTROL PANEL (460V)" FOR SPECIFIC PANEL COMPONENTS. ALL COMPONENTS SHALL MEET OR EXCEED THE REQUIREMENTS INDICATED IN THE DRAWINGS AND SPECIFICATIONS FOR IMPROVEMENTS AT MASTER LIFT STATION 41-A
3. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS NOT SHOWN ON THIS SHEET.
4. PVC UNDERGROUND CONDUITS SHALL TRANSITION TO AL CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE AL. PROVIDE AL TO PVC FITTING FOR TRANSITION BETWEEN AL & PVC CONDUIT. PROVIDE BITUMASTIC COATING ON AL CONDUIT WHEN IN CONTACT WITH EARTH OR CONCRETE.

REFERENCE NOTES:

(1) PROVIDE NEMA 4X ENCLOSURE WITH BACK PANEL, GASKETED OVERLAPPING DOUBLE CONTINUOUS HINGED DOORS, 3-POINT T-HANDLE LATCHING MECHANISM WITH PLASTIC OR RUBBER ROLLER GUIDES, 12" FLOOR STANDS WELDED TO ENCLOSURE AND PAD LOCK HASP. ENCLOSURE AND BACK PANEL SHALL BE FABRICATED FROM MINIMUM 12 GAUGE 316 STAINLESS STEEL STOCK, AND ALL HARDWARE SHALL BE STAINLESS STEEL. DIMENSIONS SHALL BE AS REQUIRED TO ACCOMMODATE THE COMPONENT DEVICES AND MATERIALS SPECIFIED TO BE INSTALLED INSIDE THE ENCLOSURE, BUT IN NO CASE SHALL THE ENCLOSURE HAVE DIMENSIONS LESS THAN 48"W. X 60"H. X 12"D.

(2) PROVIDE 225A, 600V, 3P, 25KAIC SERVICE ENTRANCE RATED THERMAL-MAGNETIC CIRCUIT BREAKER.

(3) PROVIDE 600V. 3-POLE POWER DISTRIBUTION BLOCK WITH LUG RANGES OF (2) #4-500 KCMIL PER POLE (MAIN) & (8) #14-2/0 PER POLE (BRANCH).

(4) PROVIDE THREE(3) SETS OF 3#4 AWG PH. CONDUCTORS

(5) PROVIDE 2#12 AWG PH. CONDUCTORS.

(6) PROVIDE 100A, 600V, 3P, 25KAIC RATED THERMAL-MAGNETIC CIRCUIT BREAKER.

(7) CONTROL CIRCUIT BREAKER (CLB) PROVIDE 20A, 600V, 2P, 18KAIC RATED THERMAL-MAGNETIC CIRCUIT BREAKER.

(8) PROVIDE OPEN TYPE, 3PH./3P, NEMA SIZE 3, HEAVY DUTY MOTOR STARTERS WITH SOLID STATE OVERLOAD AND MANUAL RESET.

(9) PROVIDE CONDUIT SEALING FITTING.

(10) REPLACE EXISTING PUMP CABLES WITH PUMP MANUFACTURER SUPPLIED CABLE #4 AWG SOEEN BETWEEN MOTOR STARTERS AND EXISTING SUBMERSIBLE PUMPS, ROUTE CABLE THROUGH 2" SCHEDULE 80 PVC CONDUIT BETWEEN PUMP CONTROL CABINET AND WET WELL.

(11) PROVIDE SOLID NEUTRAL ASSEMBLY RATED FOR 225A/480V WITH MAIN LUG RATED TO TERMINATE COPPER CONDUCTORS SIZED #4 AWG - 300 KCMIL; PROVIDE MINIMUM OF 12 BRANCH TERMINALS RATED TO TERMINATE COPPER CONDUCTORS SIZED #12 AWG - 4 AWG.

(12) PROVIDE PUMP CONTROLLER. BASIS OF DESIGN IS DATA FLOW SYSTEMS' TCU001.

(13) PROVIDE 3,000 VA INDUSTRIAL CONTROL TRANSFORMER.

(14) PROVIDE 30A/1P CIRCUIT BREAKER.

(15) PROVIDE 120 VAC SURGE SUPPRESSOR.

(16) PROVIDE 10A/IP CIRCUIT BREAKER.

(17) PROVIDE #8 AWG BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN PVC CONDUIT BETWEEN GROUND BAR AND GROUNDING ELECTRODE.

(18) PROVIDE ¾IN. DIA. BY 10'-0" LONG COPPER-CLAD STEEL GROUND ROD.

(19) PROVIDE 12IN. BY 2IN. BY 3/8IN. SOLID COPPER GROUND BAR.

(20) PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN CONTROL PANEL AND JUNCTION BOX JB1 LOCATED IN WET WELL FOR FLOAT SWITCH WIRING. PROVIDE 12 #12 AWG THHN-2/THWN-2 CONDUCTORS IN CONDUIT. REFER TO GENERAL NOTE 4.

(21) PROVIDE 120V, 20A NEMA 5-20R, WEATHERPROOF GFCI CONVENIENCE RECEPTACLE.

(22) PROVIDE 12VDC BACKUP BATTERY.

(23) PROVIDE CLEAN FREE DRAINING SAND, LESS THAN 5% PASSING NO. 200 SIEVE FOR BASE (4").

(24) CONCRETE SHALL HAVE MINIMUM STRENGTH AT 28 DAYS OF 3,000PSI. THE OUTSIDE EDGES OF THE SLAB SHALL BE CAST AGAINST FORMWORK.

(25) WELDED WIRE FABRIC SHALL MEET THE REQUIREMENTS OF ASTM A185.

(26) PROVIDE DIGITAL FLOW METER. BASIS OF DESIGN IS EASTECH BADGER FLOW TECHNOLOGY GROUP'S VANTAGE 4400 SERIES METER.

(27) CUSTOM ENGRAVED LAMICOID PLATE WITH MIN. 1/2IN. HIGH BLACK LETTERS AND WHITE FIELD, PERMANENTLY AFFIXED TO ENCLOSURE COVER USING SELF-TAPPING STAINLESS STEEL SCREWS. PLATE SHALL READ "PUMP # RUNNING" WITH THE UNIT NUMBER SUBSTITUTED FOR THE "#".

(28) RED PILOT LIGHT CONTROLLED BY MOTOR CONTROLLER'S AUXILIARY CONTACTS.

(29) PROVIDE #8 AWG INSULATED GROUND CONDUCTOR BETWEEN CONTROL TRANSFORMER AND GROUND BUS.

(30) 600V, 30A, (12) TERMINAL, TERMINAL STRIP WITH DIVIDERS SPACED A MINIMUN OF 0.56" CENTER TO CENTER. PROVIDE (1) TERMINAL STRIP FOR 24V TERMINATIONS (TB-1) AND (1) TERMINAL STRIP FOR 120V TERMINATIONS (TB-2).

(31) PROVIDE (1) 20A/1P CIRCUIT BREAKER FOR GFCI AND (1) 20A/1P CIRCUIT BREAKER FOR SITE LIGHTING.

(32) FREE SPACE FOR FUTURE SEAL FAILURE MODULE.

(33) 12 VDC POWER SUPPLY FOR I/O DEVICE AS INDICATED IN NOTE 34.

(34) DIN RAIL MOUNTED I/O DEVICE. BASIS OF DESIGN IS OPEN CONTROL SOLUTIONS RIO032.

(35) 24 VDC POWER SUPPLY FOR PRESSURE TRANSMITTER.

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007388
PM: C. OSMANSKI
ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: September 12, 2008

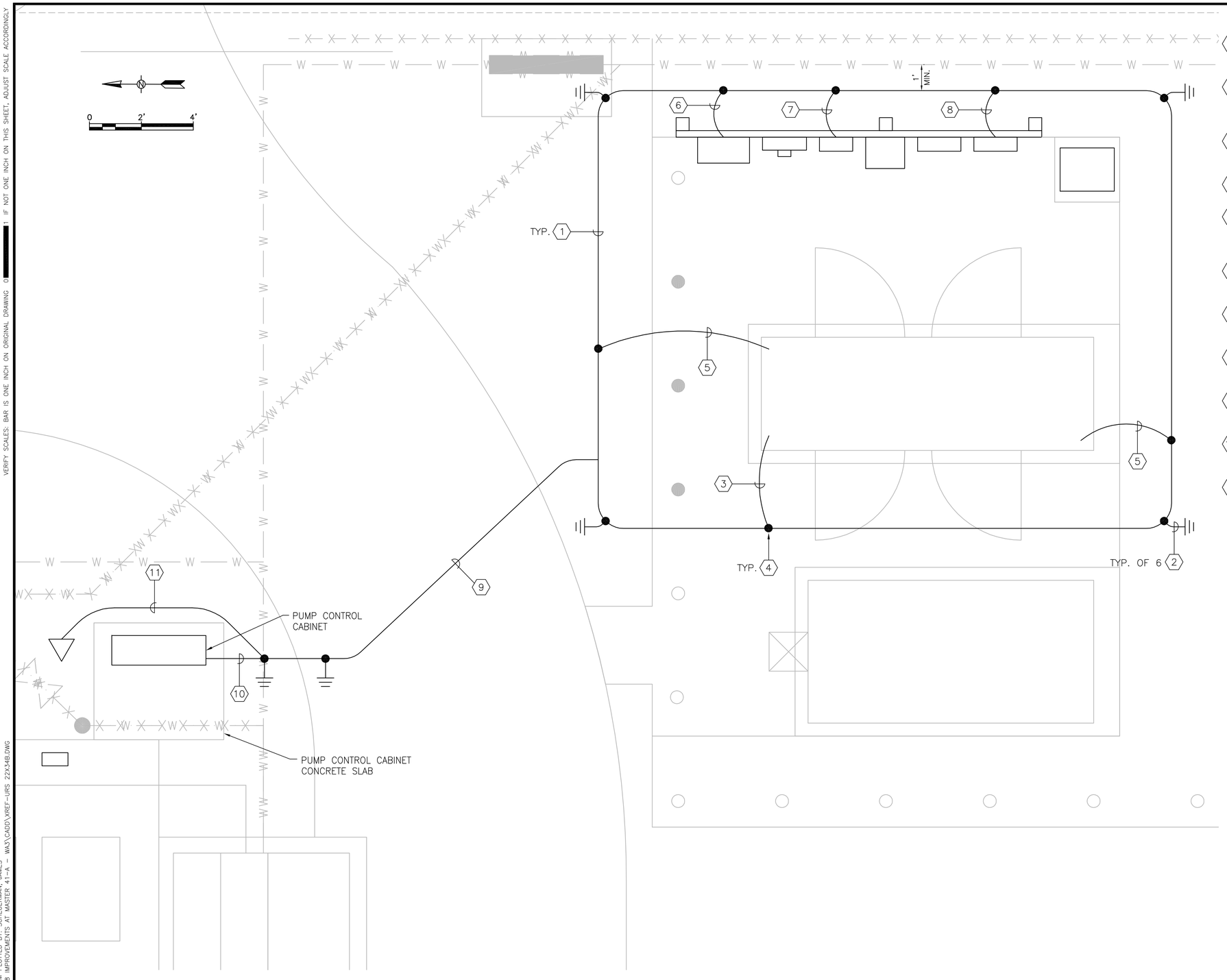
IMPROVEMENTS AT
MASTER LIFT STATION 41-A
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

PUMP CONTROL CABINET

GLENN H. DAVIS
FLORIDA P.E. NO. 66443

PROJECT STATUS
BID SET
OCTOBER 2008

E-5



REFERENCE NOTES:

1. PROVIDE #2/0 AWG BARE STRANDED TINNED COPPER COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR DIRECT BURIED A MINIMUM OF 30 IN. BELOW FINISHED GRADE.
2. PROVIDE 3/4" DIA. BY 10 FT LONG COPPER CLAD STEEL GROUND ROD. INSTALL GROUND ROD SO THAT TOP IS A MINIMUM OF 30IN. BELOW FINISHED GRADE. BOND GROUND ROD TO GROUNDING ELECTRODE CONDUCTOR VIA THE EXOTHERMIC WELDING PROCESS.
3. PROVIDE #2 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN 1" PVC CONDUIT BETWEEN "GCB" AND GROUNDING ELECTRODE CONDUCTOR. BOND GROUNDING CONDUCTOR TO "GCB" GROUND BUS.
4. EXOTHERMICALLY WELD GROUNDING CONDUCTOR TO COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR.
5. PROVIDE #2 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN 1" PVC CONDUIT BETWEEN GENERATOR SKID AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR. EXOTHERMICALLY WELD GROUNDING CONDUCTOR TO GENERATOR SKID.
6. PROVIDE #4 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN 1" PVC CONDUIT BETWEEN TANK GAUGING SYSTEM CONTROLLER AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR.
7. PROVIDE #2 AWG BARE STRANDED TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" PVC CONDUIT BETWEEN 'MCB' AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR.
8. PROVIDE #2 AWG BARE STRANDED TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" PVC CONDUIT BETWEEN PANEL 'PPG' AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR.
9. PROVIDE #2 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN 1" CONCRETE ENCASED PVC CONDUIT BETWEEN PUMP CONTROL CABINET GROUNDING ELECTRODES AND COUNTERPOISE GROUNDING ELECTRODE CONDUCTOR.
10. PROVIDE #2 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN 1" PVC CONDUIT BETWEEN PUMP CONTROL CABINET GROUND BAR AND GROUNDING ELECTRODE.
11. PROVIDE #4 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR IN 1" PVC CONDUIT BETWEEN TELEMETRY ANTENNA TOWER AND GROUNDING ELECTRODE.

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: September 30, 2008

IMPROVEMENTS AT
MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

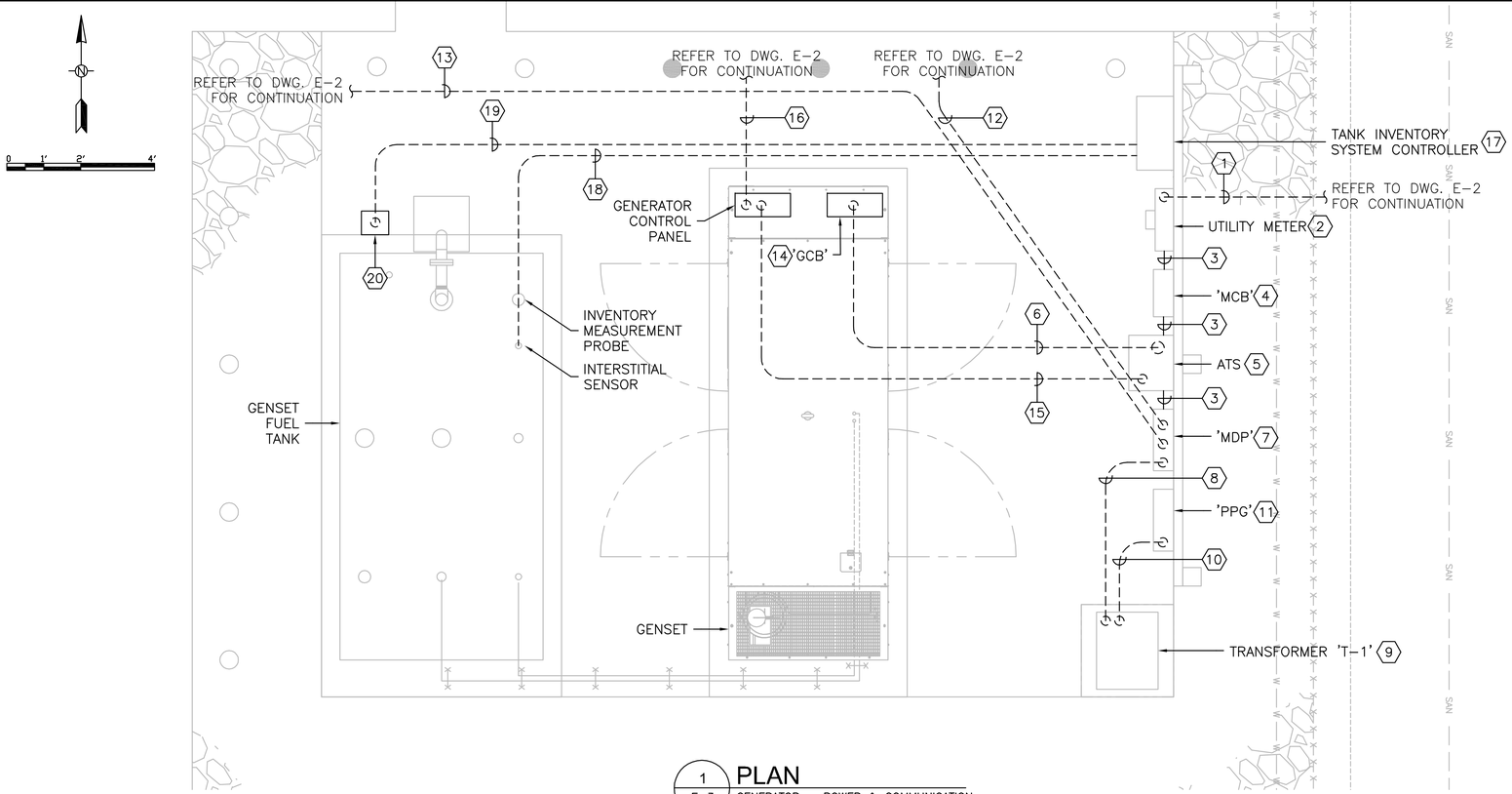
ELECTRICAL GROUNDING PLAN

GLENN H. DAVIS
FLORIDA P.E. NO. 66443

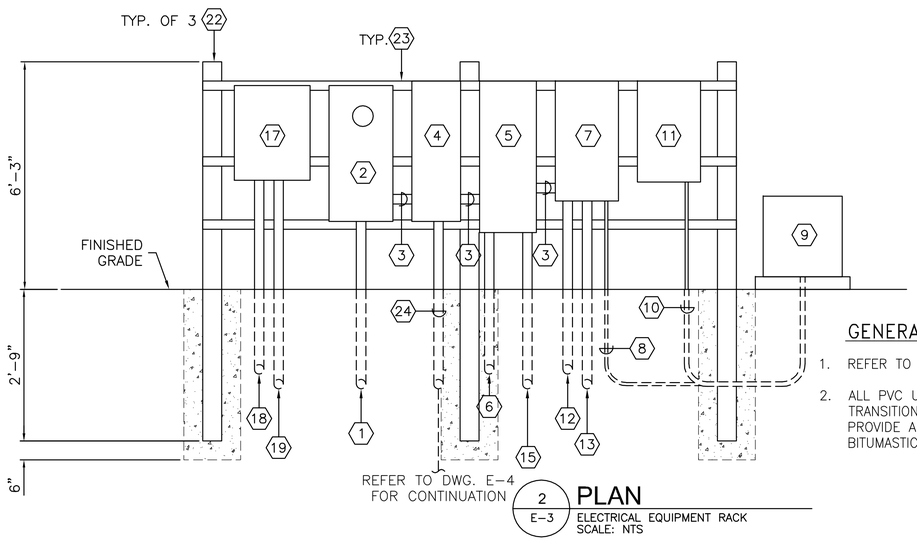
PROJECT STATUS
BID SET
OCTOBER 2008

E-4

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007388 IMPROVEMENTS AT MASTER 41-A - WA3\CADD\XREF-URS 22X34B.DWG



1 / E-3 **PLAN**
GENERATOR – POWER & COMMUNICATION
SCALE: 1/2"=1'-0"



REFER TO DWG. E-4 FOR CONTINUATION

2 / E-3 **PLAN**
ELECTRICAL EQUIPMENT RACK
SCALE: NTS

GENERAL NOTES:

1. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
2. ALL PVC UNDERGROUND CONDUITS SHALL TRANSITION TO AL CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE AL. PROVIDE AL TO PVC FITTING FOR TRANSITION BETWEEN AL & PVC CONDUIT. PROVIDE BITUMASTIC COATING ON AL CONDUIT WHEN IN CONTACT WITH EARTH OR CONCRETE.

REFERENCE NOTES:

1. PROVIDE ONE 3IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN HANDHOLE AT BASE OF UTILITY POLE AND UTILITY METER SOCKET ENCLOSURE.
2. PROVIDE A 320A METER SOCKET MEETING ALL FPL STANDARDS AND PRACTICES. CENTER OF METER SHALL BE INSTALLED BETWEEN 5FT. AND 6FT. ABOVE FINISHED GRADE.
3. PROVIDE ONE 3IN. RGS CONDUIT NIPPLE BETWEEN ENCLOSURES.
4. PROVIDE SERVICE ENTRANCE RATED 'MCB' IN NEMA TYPE 4X 316 SS ENCLOSURE WITH THERMOPLASTIC VENTILATOR PROPERLY INSTALLED TO PROVIDE RAINPROOF VENTILATION. PROVIDE PERMANENT PLAQUE MOUNTED TO 'MCB' WITH CONTRASTING COLORS & MINIMUM OF 2IN. HIGH LETTERING THAT STATES "SERVICE 1 OF 2: SERVICE NO. 2 'GCB' FROM STANDBY GENERATOR LOCATED IN GENERATOR ENCLOSURE."
5. PROVIDE 260A, 480Y/277V, FOUR (4) POLE ATS IN A NEMA TYPE 4X 304 SS ENCLOSURE WITH THERMOPLASTIC VENTILATOR PROPERLY INSTALLED TO PROVIDE RAINPROOF VENTILATION.
6. PROVIDE ONE 3 IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN 'GCB' AND ATS.
7. PROVIDE 400A, 480Y/277V PANELBOARD WITH A 250A MCB & A MINIMUM OF 30 CIRCUITS IN A NEMA TYPE 4X 316 SS ENCLOSURE. PROVIDE THEROPLASTIC VENTILATOR PROPERLY INSTALLED TO PROVIDE RAINPROOF VENTILATION.
8. PROVIDE ONE 1IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN PANEL 'MDP' AND TRANSFORMER 'T-1'.
9. PROVIDE 30kVA STEP-DOWN TRANSFORMER IN A NEMA TYPE 3R 316 SS ENCLOSURE MOUNTED ON A 4IN. HOUSEKEEPING PAD.
10. PROVIDE ONE 1½ IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TRANSFORMER 'T-1' AND PANEL 'PPG'. TRANSITION TO RGS CONDUIT BELOW GRADE FOR VERTICAL INSTALLATION.
11. PROVIDE 100A, 208Y/120V PANELBOARD WITH AN 80A MCB & A MINIMUM OF 30A CIRCUITS IN A NEMA TYPE 4X 316 SS ENCLOSURE WITH THEROPLASTIC VENTILATOR PROPERLY INSTALLED TO PROVIDE RAINPROOF VENTILATION.
12. PROVIDE ONE 3IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UG BETWEEN PANEL 'MDP' AND PUMP CONTROL CABINET.
13. PROVIDE ONE 1IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UG BETWEEN PANEL 'MDP' AND EXISTING ODOR CONTROL SYSTEM CONTROLLER.
14. PROVIDE SERVICE ENTRANCE RATED THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKER 'GCB' IN NEMA TYPE 3R ENCLOSURE. PROVIDE PERMANENT PLAQUE MOUNTED TO 'GCB' WITH CONTRASTING COLORS AND MINIMUM OF 2IN. HIGH LETTERING THAT STATES "SERVICE 2 OF 2: SERVICE NO. 1 'MCB' FROM UTILITY TRANSFORMER LOCATED ON ELECTRICAL RACK."
15. PROVIDE ONE 2IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN ATS AND GENERATOR CONTROL PANEL FOR CONTROL WIRING.
16. PROVIDE ONE 2IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UG BETWEEN PUMP CONTROL CABINET AND GENERATOR CONTROL PANEL FOR CONTROL WIRING.
17. PROVIDE TANK INVENTORY SYSTEM CONTROLLER MOUNTED IN A NEMA 4X 316 SS ENCLOSURE WITH MINIMUM DIMENSIONS OF 30"H X 24"W X 12"D. ENCLOSURE TO INCLUDE SS HINGED DOORS WITH CLEAR POLYCARBONATE WINDOW MOUNTED FLUSH WITH DOOR SURFACE. PROVIDE THERMOSTATICALLY CONTROLLED FAN-DRIVEN HEATER UNIT MOUNTED INSIDE ENCLOSURE. PROVIDE METALLIC BARRIER INSIDE ENCLOSURE TO MAINTAIN NEC SEPARATION REQUIREMENTS BETWEEN INTRINSICALLY SAFE CIRCUITS AND ALL OTHER WIRING. BASIS OF DESIGN: VEEDER-ROOT TLS-300C (CONTROLLER), HOFFMAN C-SD302412WSS (ENCLOSURE), HOFFMAN D-AH2001A (ELECTRIC HEATER).
18. PROVIDE TWO (2) 1IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TANK INVENTORY SYSTEM CONTROLLER AND INVENTORY MEASUREMENT PROBE AND INTERSTITIAL SENSOR FOR CONTROL WIRING.
19. PROVIDE ONE 1IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN TANK INVENTORY SYSTEM CONTROLLER AND FUEL TANK OVERFILL ALARM.
20. PROVIDE FUEL TANK OVERFILL ALARM AND ACKNOWLEDGEMENT SWITCH MOUNTED ON A 6IN. SQ. BY 8FT. LONG PRE-STRESSED CONCRETE POST. BASIS OF DESIGN: VEEDER-ROOT FORM NO. 790091-001 (OVERFILL ALARM), 790095-001 (SWITCH).
21. #8 BARE COPPER GROUNDING ELECTRODE CONDUCTOR.
22. PROVIDE A MINIMUM OF (3) 3"x9' SS SCHEDULE 40 PIPE SUPPORT POST WITH SS END CAPS, PLACE CONCRETE 6" AROUND AND UNDER EACH SUPPORT POST. CONCRETE SHALL HAVE MINIMUM STRENGTH AT 28 DAYS OF 3,000PSI. THE OUTSIDE EDGES OF THE SLAB SHALL BE CAST AGAINST FORMWORK.
23. 1- ⅝"x12' GA. SS CHANNEL WITH END CAPS (QUANTITY AS REQUIRED). PROVIDE SS MOUNTING HARDWARE AS REQUIRED.
24. #4⁄0 BARE COPPER GROUNDING ELECTRODE CONDUCTOR. PROVIDE ¾" SCHEDULE 80 PVC CONDUIT ABOVE GRADE.

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

PLOTTED September 30, 2008 12:50 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007388 IMPROVEMENTS AT MASTER 41-A - WAS\CADD\E-3 ELECTRICAL GENERATOR PLAN.DWG

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007388
PM: C. OSMANSKI
ENG: G. DAVIS
DRW: J. SCHEUERMAN
FILE SAVE DATE: September 28, 2008

MANATEE COUNTY FLORIDA

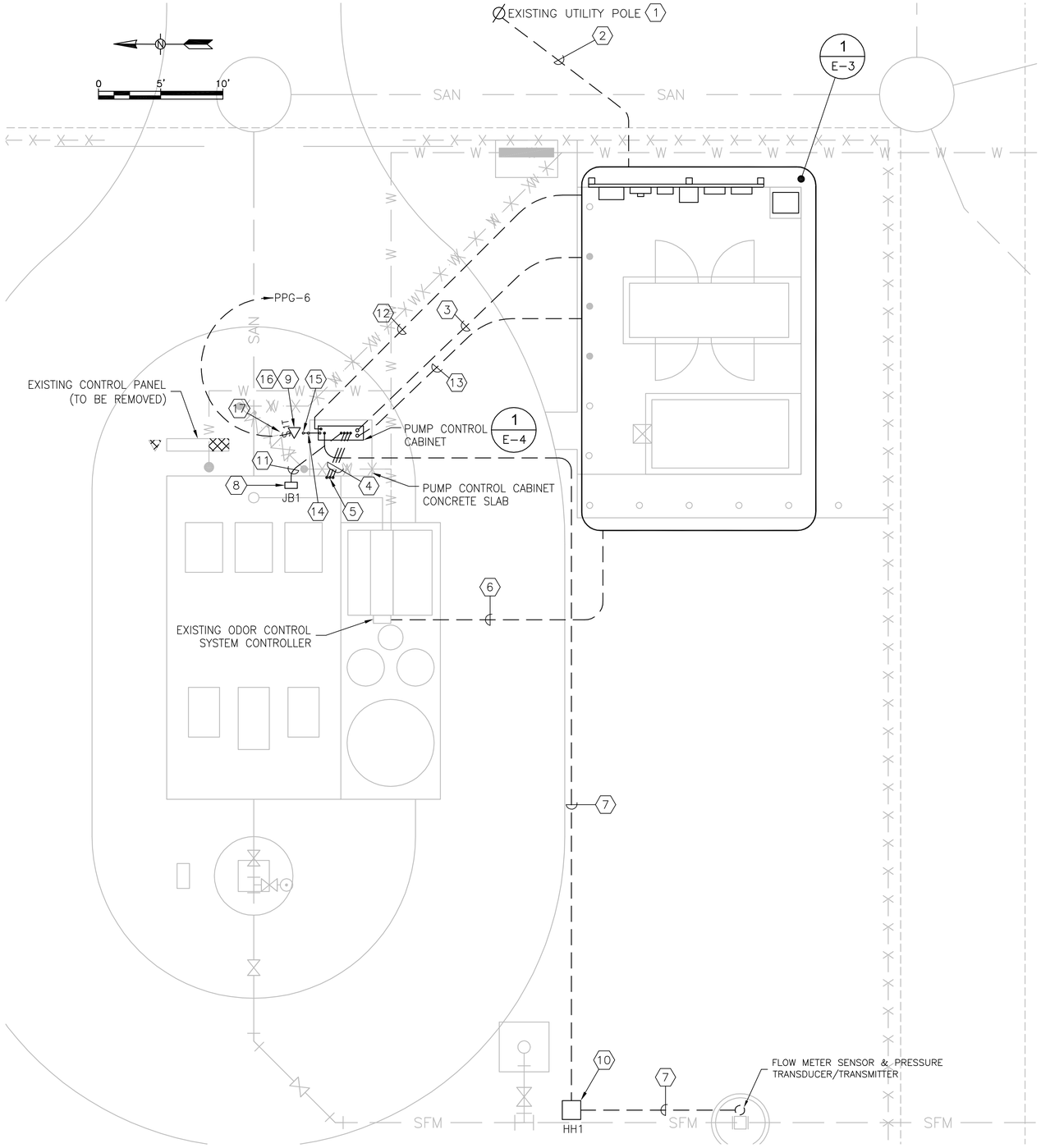
IMPROVEMENTS AT
MASTER LIFT STATION 41-A
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL GENERATOR PLAN

GLENN H. DAVIS
FLORIDA P.E. NO. 66443

PROJECT STATUS
BID SET
OCTOBER 2008

E-3



GENERAL NOTES:

1. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.
2. ALL PVC UNDERGROUND CONDUITS SHALL TRANSITION TO AL CONDUIT PRIOR TO CONDUIT TRANSITION FROM HORIZONTAL TO VERTICAL. ALL EXTERIOR VERTICAL CONDUITS ARE AL. PROVIDE AL TO PVC FITTING FOR TRANSITION BETWEEN AL & PVC CONDUIT. PROVIDE BITUMASTIC COATING ON AL CONDUIT WHEN IN CONTACT WITH EARTH OR CONCRETE.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH FPL TO DE-ENERGIZE SERVICE, DISCONNECT EXISTING CONDUCTORS AND TERMINATE SECONDARY CONDUCTORS TO TRANSFORMER. FPL CONTACT FOR THIS SITE IS KELLI GROSS (941)723-4440.

REFERENCE NOTES:

1. EXISTING UTILITY POLE WITH 3-50KVA POLE-MOUNT TRANSFORMERS.
2. PROVIDE ONE (1) 3 IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN HANDHOLE AT BASE OF UTILITY POLE AND UTILITY METER SOCKET ENCLOSURE. TRANSITION TO RGS CONDUIT BELOW GRADE FOR VERTICAL INSTALLATION.
3. PROVIDE ONE (1) 3 IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UG BETWEEN "MDP" IN PUMP CONTROL CABINET.
4. PROVIDE THREE (3) 2 IN. SCHEDULE 80 PVC CONDUIT UG BETWEEN PUMP CONTROL CABINET & WET WELL.
5. PROVIDE CABLE HANGER FOR PUMP CABLES. PROVIDE KELLEMS STAINLESS STEEL RELIEF DROP GRIP FOR PUMP AND FLOAT CABLES OR APPROVED EQUAL.
6. PROVIDE ONE (1) 1 IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UG BETWEEN "MDP" IN GENERATOR ENCLOSURE AND EXISTING MAIN CIRCUIT BREAKER IN ODOR CONTROL CONTROL PANEL.
7. PROVIDE ONE 1 IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UG BETWEEN PUMP CONTROL CABINET AND JUNCTION BOX IN DOGHOUSE MANHOLE FOR FLOW METER AND PRESSURE TRANSDUCER/TRANSMITTER CONTROL WIRING.
8. PROVIDE 12IN. SQ. BY 6IN. NEMA TYPE 4X 316L SS HINGED JUNCTION BOX JB1 FOR SPLICING EXISTING FLOAT SWITCH CABLES. SPLICE THE SIX (6) FLOAT SWITCH CABLES USING WET LISTED CONNECTORS. PROVIDE CABLE FITTING W/ SS WIRE MESH GRIP FOR EACH FLOAT SWITCH CABLE ENTERING THE WETWELL. COOPER CGB-SG SERIES (CABLE FITTING), DRY CONN DBSR YELLOW (WATERPROOF CONNECTOR) OR EQUAL.
9. PROVIDE NEW TELEMETRY ANTENNA TOWER AND CONCRETE BASE. ENTIRE STRUCTURE INCLUDING THE FLOODLIGHT, ANTENNA AND APPURTANCENCES SHALL BE RATED FOR A BASIC WIND SPEED OF 130 MPH.
10. HAND HOLE HH1 12"X12"X12" (WXLXD). POLYMER CRONCRETE, ANSI TIER 15, UL LISTED, HAND HOLE WITH BOLT-DOWN COVER AND OPEN BOTTOM. COVER TO BE LIFT-OUT, LOCKING TYPE WITH (2) HEX HEAD BOLTS. COVER TO INDICATE "ELECTRIC". PROVIDE GRAVEL IN BOTTOM OF HANDHOLE FOR DRAINAGE IN ACCORDANCE WITH MANUFACTURE'S INSTRUCTION. STUB-UP CONDUIT A MINIMUM OF 4" ABOVE GRAVEL. QUAZITE PC 1212BA12 (BOX), PC 1212C400 (COVER) OR EQUAL.
11. PROVIDE (1) 2" SCHEDULE 80 PVC CONDUIT UG BETWEEN PUMP CONTROL PANEL & JUNCTION BOX JBI. REFER TO GENERAL NOTE 2.
12. #8 BARE COPPER GROUNDING ELECTRODE CONDUCTOR.
13. PROVIDE ONE (1) 2 IN. SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT UNDERGROUND BETWEEN PUMP CONTROL CABINET & GENERATOR CONTROL PANEL FOR CONTROL WIRING.
14. PROVIDE (1) 1 IN. SCHEDULE 80 PVC CONDUIT UNDERGROUND BETWEEN PUMP CONTROL CABINET AND TELEMETRY ANTENNA TOWER FOR ANTENNA CABLE. STUB-UP CONDUIT ADJACENT TO TELEMETRY ANTENNA TOWER.
15. PROVIDE (1) ¾" SCHEDULE 80 PVC CONDUIT UNDERGROUND BETWEEN PUMP CONTROL CABINET AND TELEMETRY ANTENNA FOR LIGHT FIXTURE INDICATED IN NOTE 16.
16. PROVIDE 300 WATT, HALOGEN LIGHT FIXTURE MOUNTED TO TELEMETRY ANTENNA. MOUNT LIGHT FIXTURE ON ¾" RGS WITH 90 DEGREE KORNS CLAMPS. LIGHT FIXTURE SHALL BE REGENT MODEL EQ300M1.
17. PROVIDE WEATHERPROOF 2 HOUR TIMER SWITCH FOR SITE LIGHTING FIXTURE.

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION
			REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: September 12, 2008

IMPROVEMENTS AT
MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL SITE PLAN

GLENN H. DAVIS
FLORIDA P.E. NO. 66443

PROJECT STATUS
BID SET
OCTOBER 2008

E-2

ABBREVIATIONS:

A	AMPS, AMPERE
AC	ALTERNATING CURRENT
AF	AMP FRAME, AMP FUSE
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ALT.	ALTERNATE
AM	AMMETER
AMPS	AMPERES
APPROX.	APPROXIMATE
ASPH.	ASPHALT
AST	ABOVEGROUND STORAGE TANK
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX.	AUXILIARY
AUTO.	AUTOMATIC
AVG.	AVERAGE
AWG	AMERICAN WIRE GAUGE
&	AND
@	AT
BATT.	BATTERY
BC	BARE COPPER, BOLT CIRCLE
BET.	BETWEEN
BIS	BITS PER SECOND
BIL	BASIC IMPULSE LEVEL
BLDG	BUILDING
BKR	BREAKER
BNC	BAYONET-NIELL-CONCELMAN
BOT.	BOTTOM
C	CONDUIT, CONDUCTOR
CAB.	CABINET
CAT.	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER, CATCH BASIN
CEM.	CEMENT
CF	CUBIC FOOT
CIP	CAST-IN-PLACE
CKT	CIRCUIT
CLR	CLEAR
CL	CLASS, CENTERLINE, CURRENT LIMITING
CLG	CEILING
COL.	COLUMN
CMH	COMMUNICATIONS MANHOLE
COMM.	COMMUNICATION(S)
CONC.	CONCRETE
COND.	CONDUIT
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUED
CONTR	CONTRACTOR
COORD.	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRS	PVC COATED RIGID STEEL CONDUIT
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CTR	CENTER
CTRL	CONTROL
CU	COPPER
DB	DIRECT BURIED
dB	DECIBELS
DC	DIRECT CURRENT
DED.	DEDICATED
DEG.	DEGREES
DET.	DETAIL
DIA.	DIAMETER
DIV.	DIVISION
DIFF.	DIFFERENTIAL
DIM.	DIMENSIONS
DWG.	DRAWING
EA.	EACH
ELEC.	ELECTRIC, ELECTRICAL
EL.	ELEVATION
EMBT	EMBEDMENT
EMT	ELECTRICAL METALLIC TUBING
ENCL.	ENCLOSURE, ENCLOSED
ENGR	ENGINEER
EPO	EMERGENCY POWER OFF
EPR	ETHYLENE PROPYLENE RUBBER
EQ.	EQUAL
EQUIP.	EQUIPMENT
EQUIV.	EQUIVALENT
EXIST.	EXISTING
EXP.	EXPOSED

ABBREVIATIONS:

EXT.	EXTERIOR
F	FUSE
FA	FIRE ALARM
FAA	FUTURE FORCED AIR
FACP	FIRE ALARM CONTROL PANEL
FACS	FIRE ALARM CONTROL SYSTEM
FC	FOOT-CANDLE
FND	FOUNDATION
FDR	FEEDER
FHP	FRACTIONAL HORSEPOWER
FIN.	FINISHED
FIN. FL.	FINISHED FLOOR
FIXT.	FIXTURE
FLEX.	FLEXIBLE
FLR	FLOOR
FLUOR.	FLUORESCENT
FO	FIBER OPTIC
FT	FOOT, FEET
FTG	FOOTING
FU	FUSE
FUT.	FUTURE
FV	FULL VOLTAGE
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GA	GAUGE
GALV.	GALVANIZED
GEN.	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
H	HEIGHT
HD	HEAVY DUTY
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HORIZ.	HORIZONTAL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HZ	HERTZ
I.D.	INSIDE DIMENSION
IE	INVERT ELEVATION
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IN.	INCH(ES)
INCL.	INCLUDING
INST.	INSTANTANEOUS
INSTR.	INSTRUMENT, INSTRUMENTATION
IMH	INSTRUMENTATION MANHOLE
INV.	INVERT
J, JB	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
K	KIRK KEY INTERLOCK
KA	KILO AMPERES
KAIC	KILO AMPS INTERRUPTING CAPACITY
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATTS
KWH	KILOWATT HOURS
KWHD	KILOWATT HOURS DEMAND
L	LENGTH
LB	POUND
LBS	POUNDS
LC	LOAD CENTER
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN.	LINEAR
LOC	LOCATIONS
LPS	LIGHTNING PROTECTION SYSTEM
LS	LIMIT SWITCH
LT	LIGHT
LTG	LIGHTING
LTS	LIGHTS
LV	LOW VOLTAGE
LVMH	LOW VOLTAGE MANHOLE
L-G	LINE-TO-GROUND
L-L	LINE-TO-LINE

ABBREVIATIONS:

M	MOTOR
MAX.	MAXIMUM
MCM	ONE THOUSAND CIRCULAR MILS
MCOV	MAXIMUM CIRCUIT OPERATING VOLTAGE
MECH.	MECHANICAL
MEMB.	MEMBRANE
MFR	MANUFACTURER
MH	MANHOLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MOV	METAL OXIDE VARISTOR
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTR	MOTOR
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT AMPERES
N	NEUTRAL
NC	NORMALLY CLOSED
NE	NORTH EAST
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NEUT.	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NPT	NOMINAL PIPE THREAD
NTS	NOT TO SCALE
O.C.	ON CENTER(S)
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
OL	OVERLOADS
OPP.	OPPOSITE
OPER.	OPERATOR
OWS	OIL WATER SEPARATOR
P	POLE
PB	PULL BOX, PUSH BUTTON
PE	PHOTOELECTRIC DEVICE
PF	POWER FACTOR
PH OR ø	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLCS	PLACES
PM	POWER METER
PMH	PRIMARY MANHOLE
PNL	PANEL
PNLBD	PANEL BOARD
PR	PAIR
PRI.	PRIMARY
PROJ.	PROJECT
PS	PRESSURE SENSOR, POWER SUPPLY
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER, PRESSURE TRANSMITTER
PVC	POLYVINYL CHLORIDE
PWR	POWER
%	PERCENT
QTY	QUANTITY
RECP.	RECEPTACLE
REF.	REFERENCE
REINF.	REINFORCEMENT
REQD	REQUIRED
REV.	REVISION, REVISED
RF	RATING FACTOR
RGS	RIGID GALVANIZED STEEL
RMS	ROOT-MEAN-SQUARE
RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
RVNR	REDUCED VOLTAGE NON-REVERSING
R/W	RIGHT-OF-WAY
SA	SURGE ARRESTER
SCH.	SCHEDULE
SEC.	SECONDARY, SECOND(S)
SECT.	SECTION
SF	SQUARE FOOT, SQUARE FEET
SHLD	SHIELDED
SHT	SHEET
SI	SQUARE INCH, SQUARE INCHES
SIM.	SIMILAR
SMH	SECONDARY MANHOLE
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE DOUBLE THROW
SPEC	SPECIFICATION(S)
SQ.	SQUARE SS STAINLESS STEEL
ST.	STREET

ABBREVIATIONS:

STA.	STATION
STD	STANDARD
STL	STEEL
STR	STRANDED
SW.	SWITCH
SWBD	SWITCHBOARD
SYM.	SYMMETRICAL
SYNC.	SYNCHRONOUS
SY	SQUARE YARD, SQUARE YARDS
SYS.	SYSTEM
TB	TERMINAL BLOCK
TBD	TO BE DETERMINED
TD	TIME DELAY
TELE.	TELEPHONE
TEMP.	TEMPORARY, TEMPERATURE
TERM.	TERMINAL
THHN	HEAT RESISTANT THERMOPLASTIC INSULATION
THK	THICK
THWN	HEAT AND MOISTURE RESISTANT THERMOPLASTIC INSULATION
THRU	THROUGH
T.O.S.	TOP OF STEEL, TOP OF SLAB
TYP.	TYPICAL
TSP	TWISTED SHIELDED PAIR
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
UVIR	ULTRAVIOLET INFRARED
V	VOLTS, VOLTAGE
VAR	VOLT AMPERES REACTIVE
VERT.	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT METER
VOL.	VOLUME
VT	VOLTAGE TRANSFORMER
W	WATT, WIDE, WIDTH, WIRE
WF	WASTE FUEL
WH	WATT-HOUR
WM	WATT-HOUR METER
W/O	WITHOUT
WP	WEATHERPROOF
WT	WEIGHT
WWF	WELDED WIRE FABRIC
W/	WITH
X	REACTANCE
XFMR	TRANSFORMER
XHHW	HEAT AND MOISTURE RESISTANT CROSS LINKED SYNTHETIC POLYMER
XP	EXPLOSION PROOF
Z	IMPEDANCE

GENERAL NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR PROJECT LOCATION, TANK LOCATIONS AND LOCATIONS OF STRUCTURES ON SITE PLAN.

LEGEND:

- (#) — REFERENCE NOTE TAG
- (#) — DEMOLITION NOTE TAG
- (#) — FEEDER NOTE TAG
- DRIVEN GROUNDING ROD ELECTRODE
- CONNECTION POINT
- CONDUIT.
- CONDUIT UNDERGROUND.
- A — 2 X 32W FLUORESCENT LAMP PENDANT MOUNTED LIGHT FIXTURE, REFER TO LIGHTING FIXTURE SCHEDULES ON E-6 AND E-11.
- B — HPS WALL MOUNT LIGHT FIXTURE, REFER TO LIGHTING FIXTURE SCHEDULES ON E-6 AND E-11.
- $#T — LIGHT SWITCH, "#" INDICATES NUMBER OF WAYS FOR SWITCH, "T" INDICATES SWITCH INCLUDES TIME DELAYED AUTOMATIC SHUTOFF.
- GFCI — DUPLEX RECEPTACLE, NEMA 5-20R, INDUSTRIAL SPECIFICATION GRADE. "GFCI" INDICATES THAT RECEPTACLE INCLUDES GROUND FAULT CIRCUIT INTERRUPTER.
- CIRCUITING SYMBOLOGY FEEDER. REFER TO SINGLE-LINE DIAGRAM FOR CONDUIT AND WIRE SPECIFICATION.
- HOMERUNS TO PANEL. PANEL & CIRCUIT DESIGNATIONS AS INDICATED. NO TICK MARKS INDICATE THREE (3) CONDUCTORS, TICK MARKS INDICATE NUMBER OF CONDUCTORS IF THERE IS MORE THAN THREE (3) CONDUCTORS; (1) INDICATES PHASE CONDUCTOR, (|) INDICATES NEUTRAL CONDUCTOR, (⏚) INDICATES GROUND CONDUCTOR
- JB — JUNCTION BOX

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: G. DAVIS
DRW: G. DAVIS
FILE SAVE DATE: September 12, 2008

MANATEE COUNTY FLORIDA

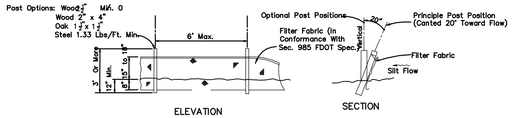
IMPROVEMENTS AT
MASTER LIFT STATION 41-A
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL ABBREVIATIONS, SYMBOLS, LEGEND AND NOTES

GLENN H. DAVIS
FLORIDA P.E. NO. 66443

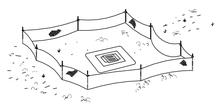
PROJECT STATUS
BID SET
OCTOBER 2008

E-1



Note: Silt Fence to be paid for under the contract unit price for Staked Silt Fence (LF).

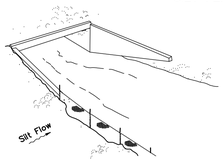
TYPE ~~~ SILT FENCE



Type ~~~ Silt Fence Protection Around Ditch Bottom Inlets.

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations and turbidity barriers used at permanent bodies of water.

SILT FENCE APPLICATIONS



Type ~~~ Silt Fence

Note: Spacing for Type ~~~ Fence to be in accordance with Chart ~, Sheet 1 of 3 and ditch installations at drainage structures Sheet 2 of 3.

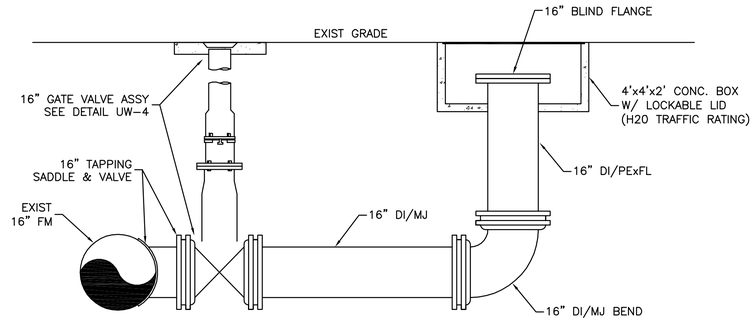
Type ~~~ Silt Fence

FDOT INDEX 102

BALED HAY OR STRAW BARRIERS & SILT FENCES

1 / – DETAIL

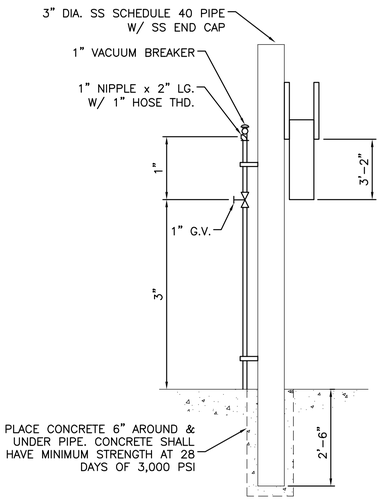
SCALE: NTS

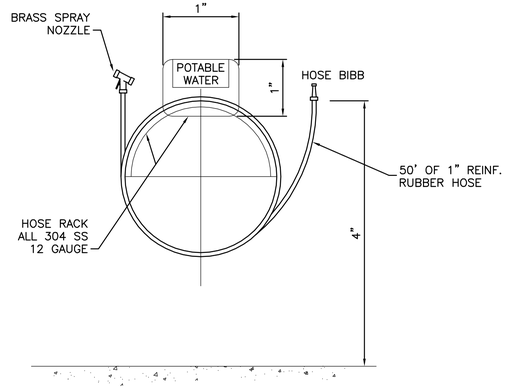


BYPASS CONNECTION ASSEMBLY

2 / C-1 DETAIL

SCALE: NTS

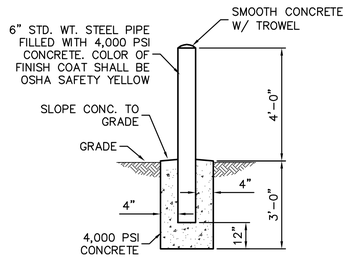




HOSE BIBB & RACK

8 / C-1 DETAIL

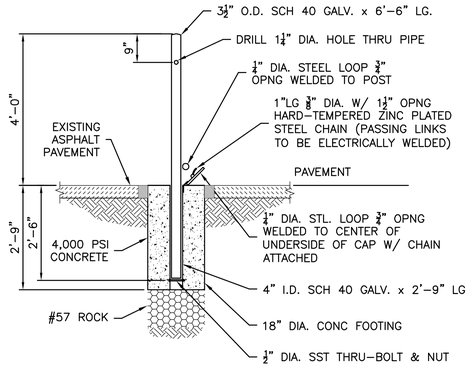
SCALE: NTS



BOLLARD

3 / C-1 DETAIL

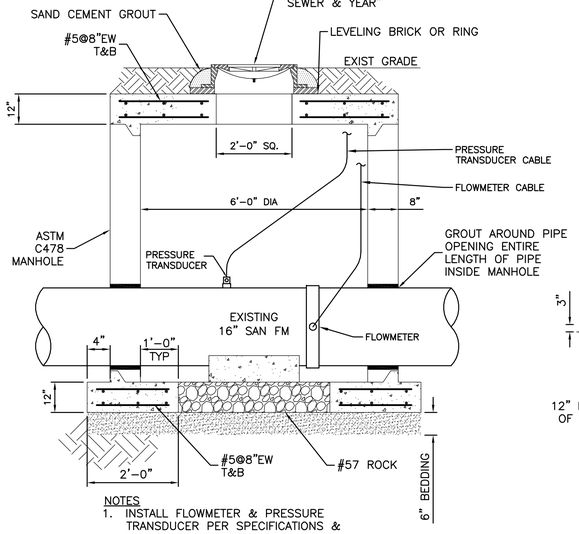
SCALE: NTS



REMOVABLE BOLLARD

4 / C-1 DETAIL

SCALE: NTS



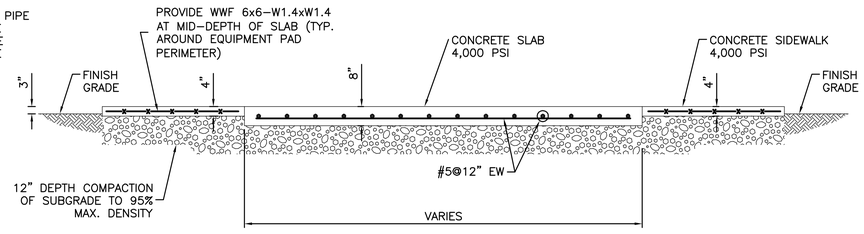
NOTES

1. INSTALL FLOWMETER & PRESSURE TRANSDUCER PER SPECIFICATIONS & MANUFACTURER'S INSTRUCTIONS.

DOGHOUSE MANHOLE

5 / C-1 DETAIL

SCALE: NTS

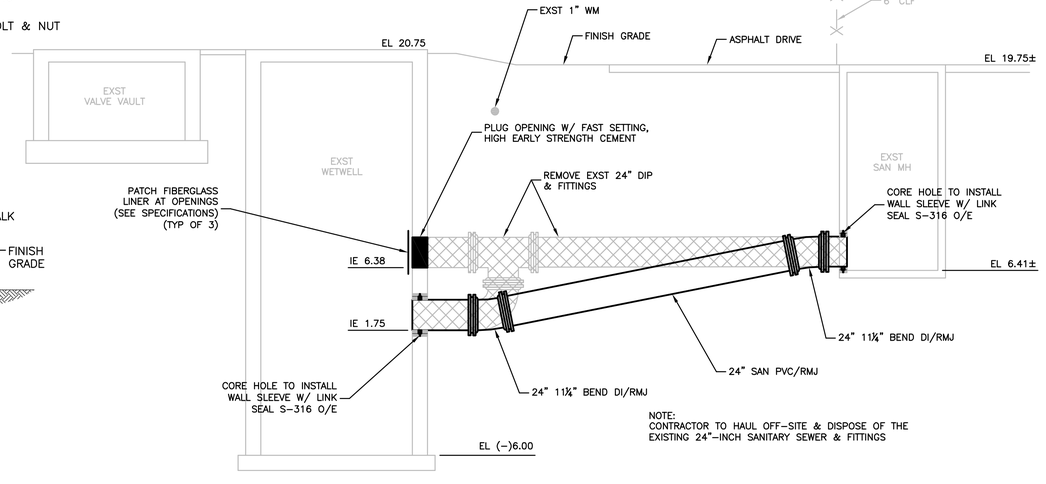


NOTE:
BASED ON THE WEIGHT OF THE EQUIPMENT (WET) & PAD, THE REQUIRED SOIL BEARING CAPACITY IS 169 PSF. SANDY SOIL HAS ADEQUATE BEARING CAPACITY.

EQUIPMENT PAD & SIDEWALK

6 / C-1 DETAIL

SCALE: 3/8"=1'-0"



24" SANITARY SEWER INSTALLATION

7 / C-1 DETAIL

SCALE: 1"=5'-0"

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE: September 30, 2008

IMPROVEMENTS AT MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
BID SET
OCTOBER 2008

C-3

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

THRUST BLOCK DIMENSIONS B ft. x d inches

PIPE SIZE (IN.)	90° BEND B	90° BEND d	45° BEND B	45° BEND d	22.5° BEND B	22.5° BEND d	11.25° BEND B	11.25° BEND d	DEAD END & TEE B	DEAD END & TEE d	45° WYE B	45° WYE d
4	1.5	3 1/2	1.1	3 1/2	0.8	3 1/2	0.6	3 1/2	1.3	3 1/2	1.1	3 1/2
6	2.2	5 1/4	1.6	3 3/4	1.2	3 1/2	0.8	3 1/2	1.9	4 1/2	1.6	3 3/4
8	2.9	7	2.1	5	1.5	3 1/2	1.1	3 1/2	2.4	5 3/4	2.0	4 3/4
10	3.5	8 1/2	2.6	6 1/4	1.9	4 1/2	1.3	3 1/2	3.0	7 1/4	2.5	6
12	4.2	10	3.1	7 1/2	2.2	5 1/4	1.6	3 3/4	3.5	8 1/2	3.0	7 1/4
14	4.9	11 3/4	3.6	8 3/4	2.6	6 1/4	1.8	4 1/4	4.1	9 3/4	3.4	8 1/4
16	5.5	13 1/4	4.1	9 3/4	2.9	7	2.1	5	4.7	11 1/4	3.9	9 1/4
18	6.2	15	4.6	11	3.3	8	2.3	5 1/2	5.2	12 1/2	4.4	10 1/2
20	6.9	16 1/2	5.0	12	3.6	8 3/4	2.6	6 1/4	5.8	14	4.9	11 3/4
24	8.2	19 3/4	6.0	14 1/2	4.3	10 1/4	3.1	7 1/2	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

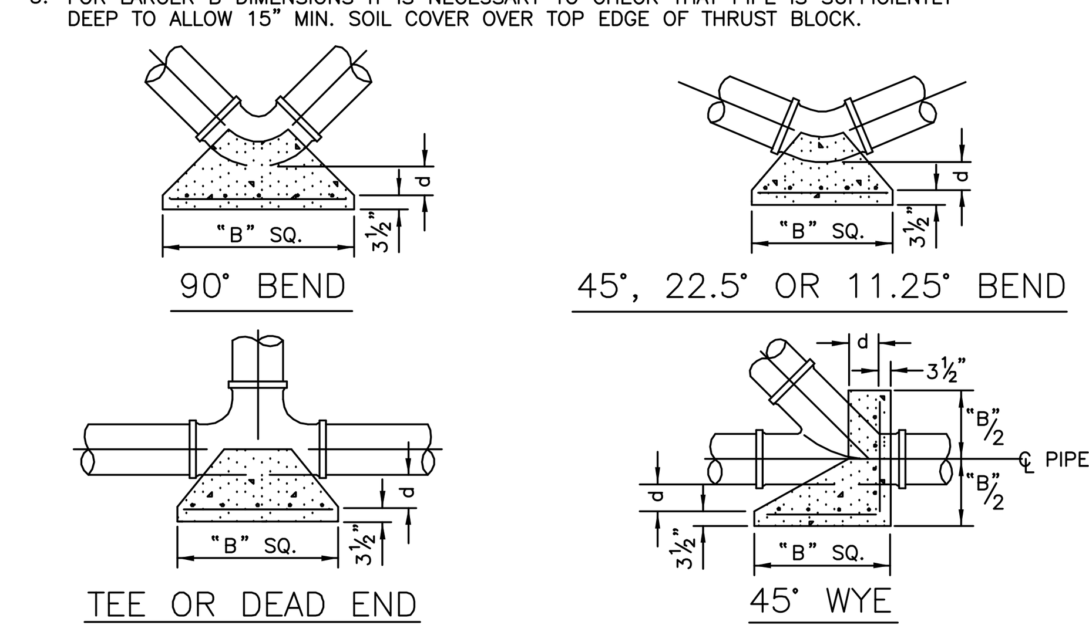
REINFORCEMENT MAT SCHEDULE

"B" SQ. — d — ℄ MAT — 3 1/2"

FOR DIM. "B" BETWEEN 5.75' & 11.5' USE #4 @ 8" EACH WAY
FOR DIM. "B" LESS THAN 5.75' USE #3 @ 8" EACH WAY

NOTES:

1. ALL THRUST BLOCKS SHALL BE CAST IN PLACE.
2. THIS TABLE IS BASED ON WATER PRESSURE=180 PSI WITH AN ALLOWABLE SOIL BEARING PRESSURE=2000 PSF, CONCRETE STRENGTH f'c=3000 PSI, REINFORCEMENT fy=60.0 KSI THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
3. 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.



MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	2/05

APRIL 25, 2006
DATE OF APPROVAL

CONCRETE THRUST BLOCKS

UG-7

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

MAIN PIPE SIZE	HORIZ. BENDS 90°	HORIZ. BENDS 45°	HORIZ. BENDS 22.5°	TEES (SIZE / LENGTH)					REDUCERS (SIZE / LENGTH)			PLUGS
24	90	38	18	X24 / 169	X20 / 132	X16 / 90	X12 / 38	X10 / 6	X20 / 64	X16 / 117	X12 / 158	214
20	78	32	16	X20 / 141	X16 / 101	X12 / 53	X10 / 24	X8 / 1	X16 / 65	X12 / 115	X10 / 149	184
16	66	27	13	X16 / 111	X12 / 67	X10 / 41	X8 / 12		X12 / 64	X10 / 107	X8 / 111	151
12	52	22	10	X12 / 80	X10 / 56	X8 / 31	X6 / 1		X10 / 58	X8 / 62	X6 / 86	118
10	44	18	9	X10 / 63	X8 / 40	X6 / 7			X8 / 33	X6 / 61	X4 / 81	100
8	37	15	7	X8 / 49	X6 / 18	X4 / 1			X6 / 35	X4 / 60		83
6	29	12	6	X6 / 29	X4 / 1				X4 / 33			63
4	21	8	4	X4 / 12								45

NOTES:

1.) RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
2.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
3.) ALL VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
4.) PIPE SIZES ARE GIVEN IN INCHES.
5.) RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
6.) LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
7.) 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.

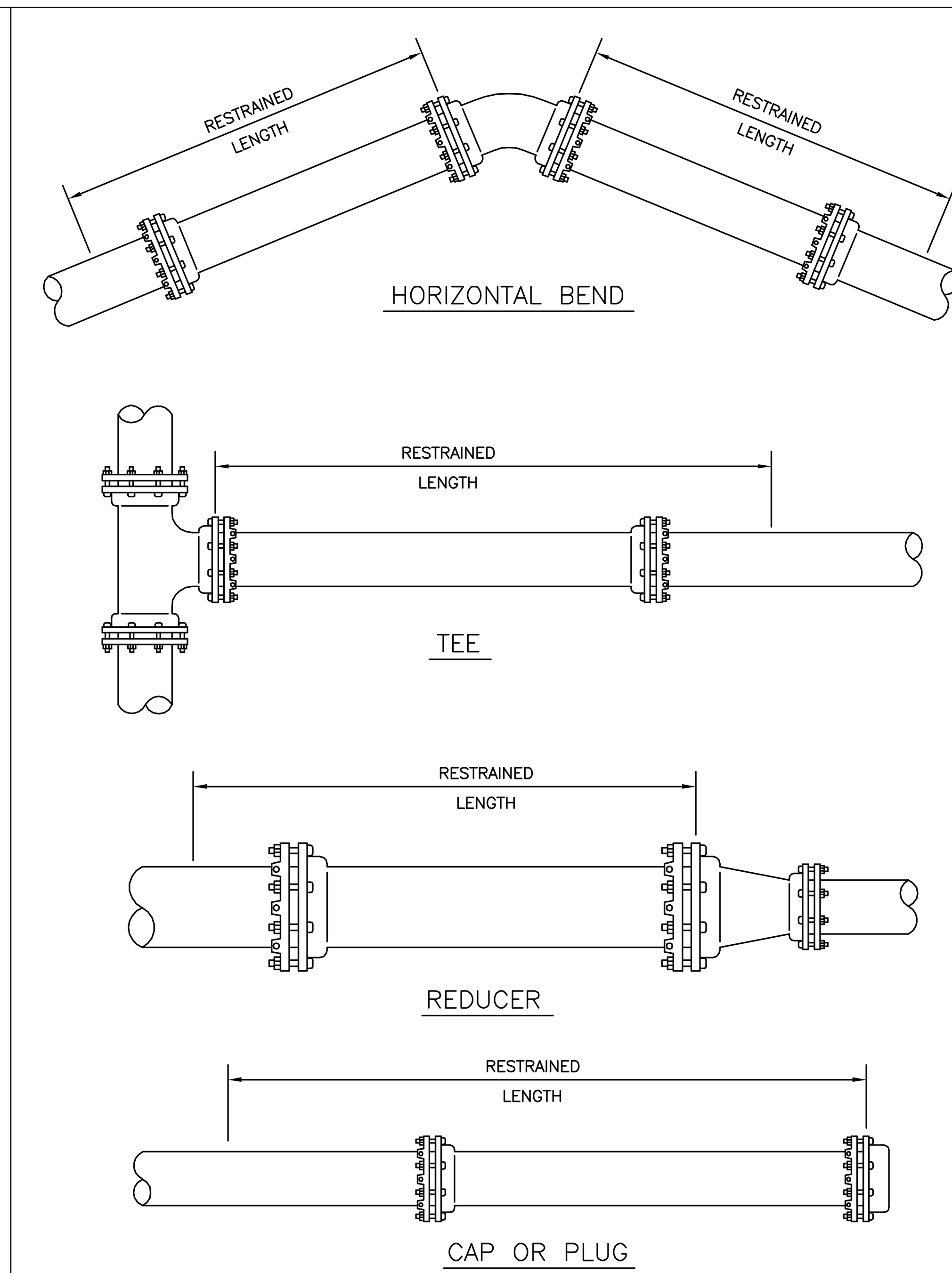
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	2/05

APRIL 25, 2006
DATE OF APPROVAL

RESTRAINED LENGTHS FOR PVC PIPE

UG-8



MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	8/05

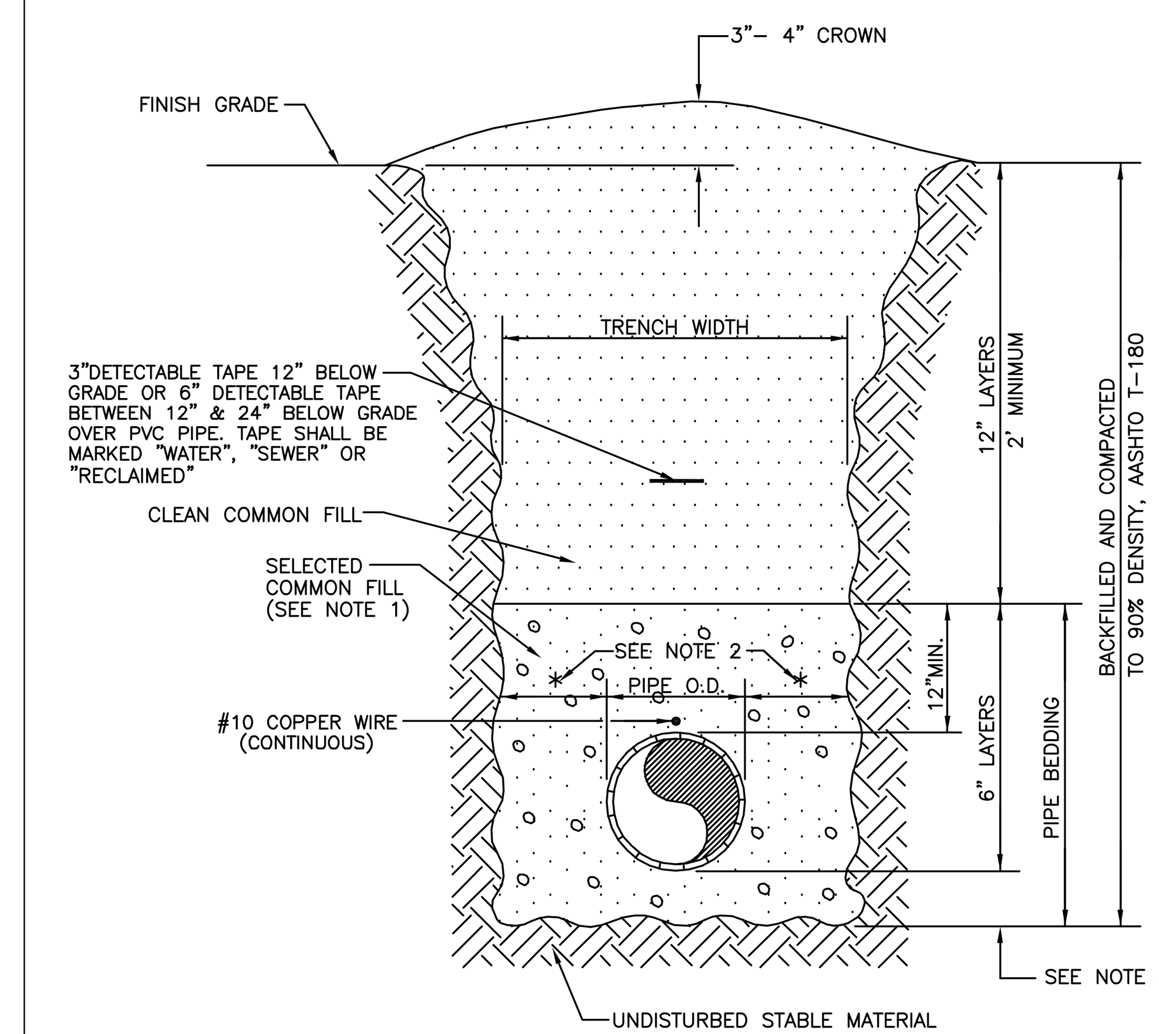
APRIL 25, 2006
DATE OF APPROVAL

RESTRAINED LENGTHS FOR PIPE

UG-10

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 DIAMETER 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.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.



MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	2/05

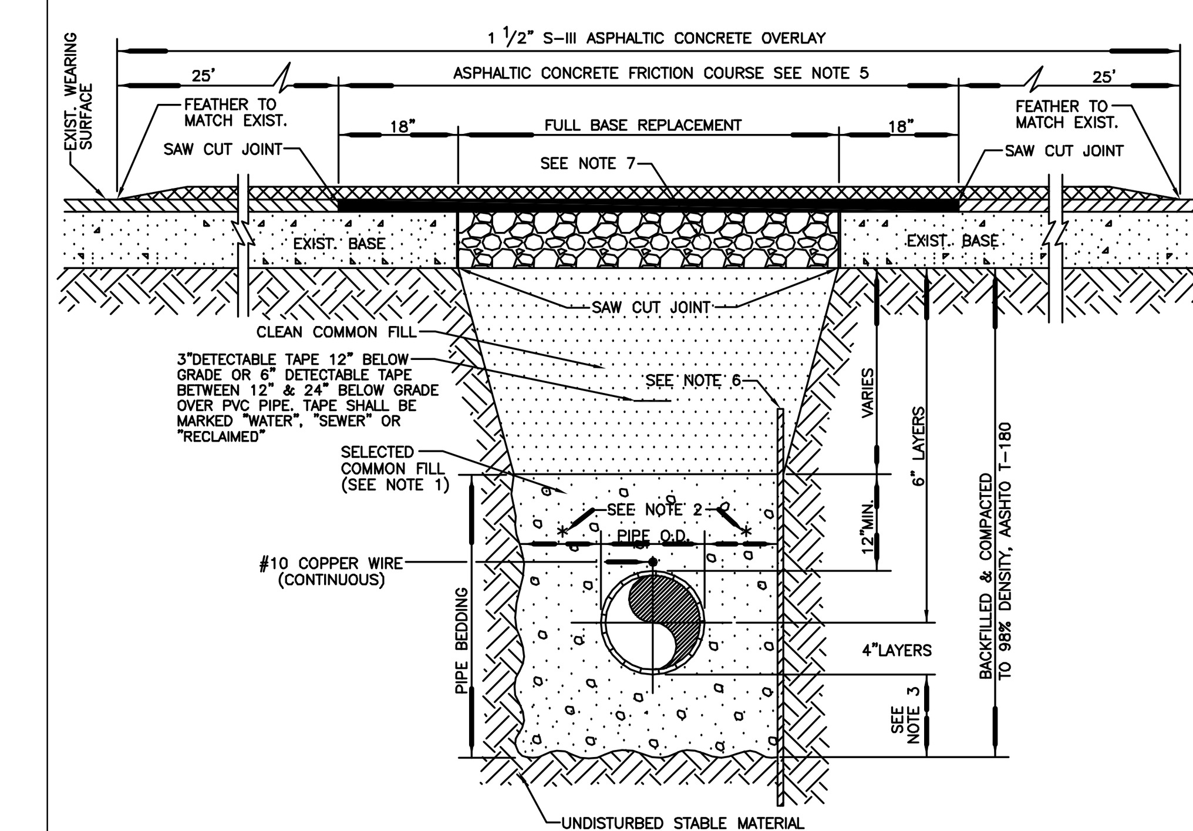
APRIL 25, 2006
DATE OF APPROVAL

TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING

UG-11

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.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
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, ABC-3 OR APPROVED EQUAL.
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.) NOTES 5.) THRU 9.) ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY TRANSPORTATION DEPARTMENT STANDARDS FOR ADDITIONAL REQUIREMENTS.



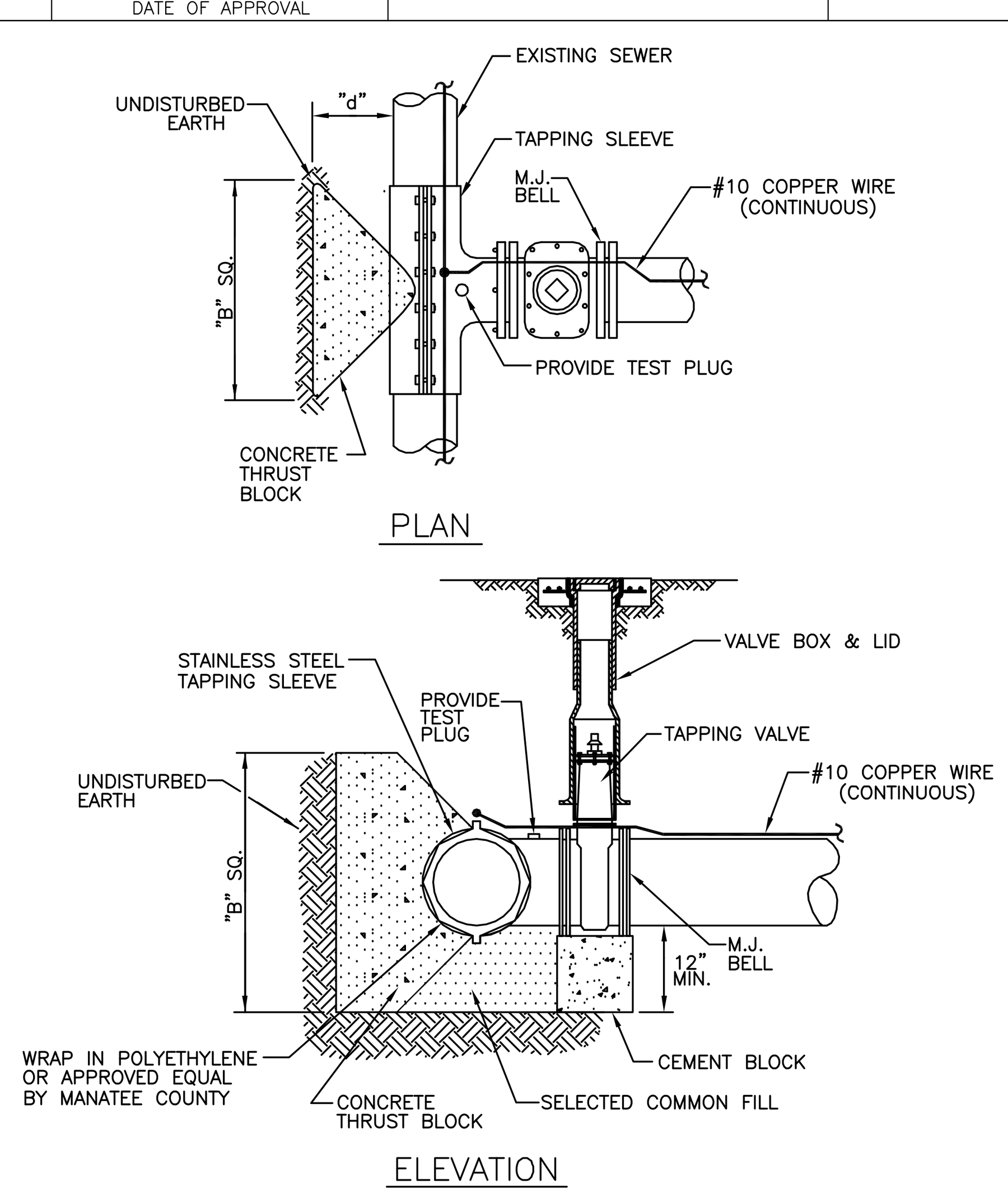
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	2/05

APRIL 25, 2006
DATE OF APPROVAL

TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING

UG-12



NOTES:

1. NO CUTS SHALL BE MADE BEFORE:
   (A) A 60 MINUTE TEST OF 180 PSI FOR WATER OR 150 PSI FOR SEWER IS MADE.
   (B) ALL FITTINGS TO BE WRAPPED WITH 20 MIL VISQUEEN AT THRUST BLOCK.
   (C) ALL TAPS ON CONCRETE WATER MAINS AND LARGER THAN 12" ARE TO BE MADE BY A MANATEE COUNTY APPROVED TAPPING COMPANY. ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR.
2. ALL TAPS MUST BE OF A SMALLER SIZE THAN THE MAIN BEING TAPPED & PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS LARGER) FROM A JOINT OR FITTING.
3. CONTRACTOR TO SUPPLY A DRY HOLE FOR TAPPING CREW TO WORK IN AND A BACK-HOE TO LOWER TAPPING MACHINE INTO THE HOLE.
4. SEE CONCRETE THRUST BLOCK DETAIL FOR DIMENSIONS "B" & "d".

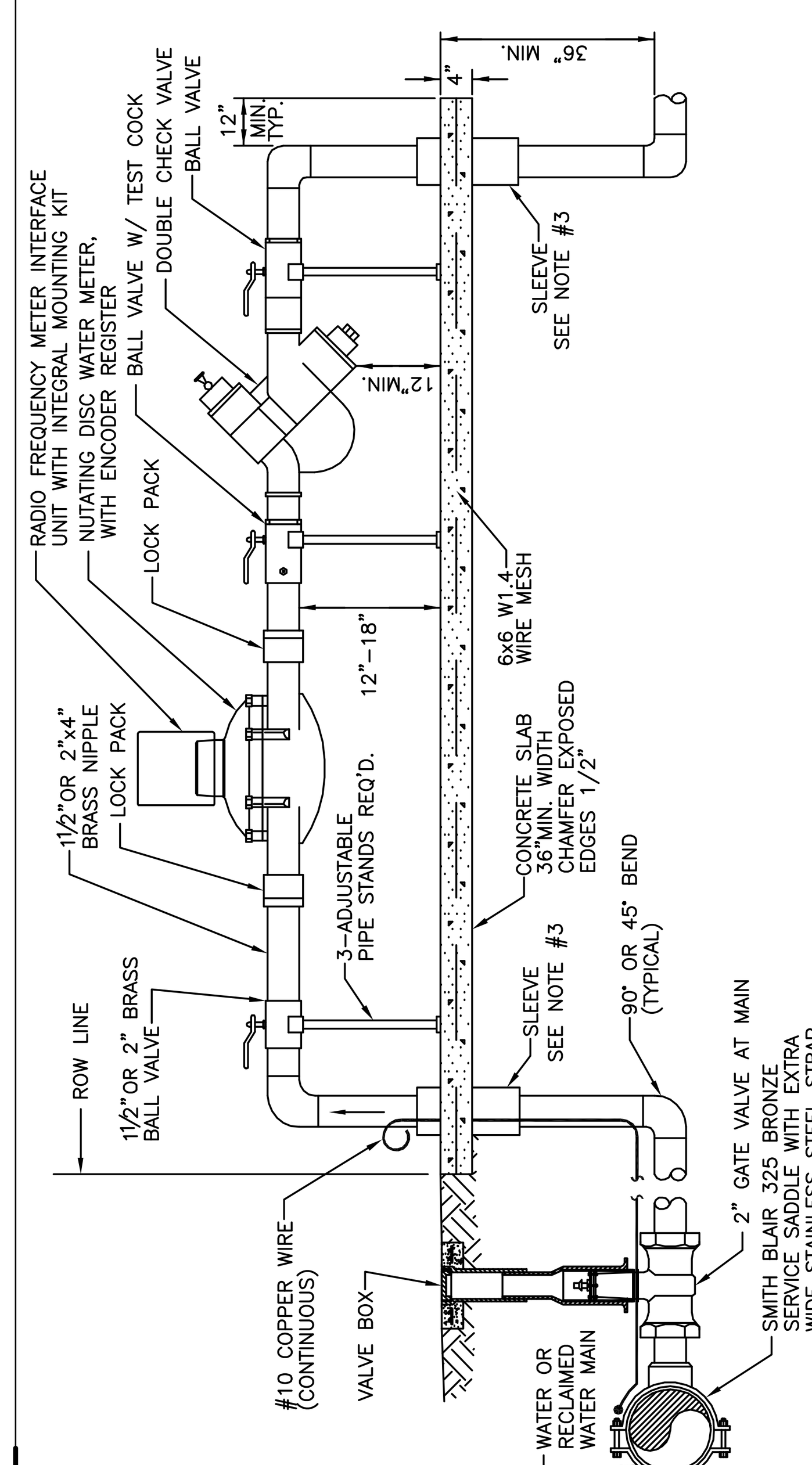
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	8/05

APRIL 25, 2006
DATE OF APPROVAL

TAPPING SLEEVE AND VALVE

UW-4



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 36" BELOW GRADE.
3. PIPES PASSING THROUGH OR ENCASED IN CONCRETE MUST BE PROPERLY PROTECTED AND SLEEVED.
4. THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND THE MANATEE COUNTY BACKFLOW PREVENTION ORDINANCE (LATEST EDITION).
5. METER, LOCK PACKS AND BRASS NIPPLES WILL BE PROVIDED BY M.C.F.M.D. INSERT NIPPLES INTO LOCK PACKS HALF WAY.
6. DO NOT PAINT METER OR LOCK PACKS.
7. FOR USE WHERE BACKFLOW PREVENTER IS REQUIRED WITH METER.
8. 4' MINIMUM CLEARANCE FROM LANDSCAPING PLANTS TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
9. BACKFLOW PREVENTER IS ONLY REQUIRED ON RECLAIMED WATER LINE WHEN IRRIGATION SYSTEM INCLUDES CHEMICAL OR FERTILIZER INJECTION METHODS.
10. ALL BOLTING SHALL BE 316 STAINLESS STEEL.

MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/KE	3/05

APRIL 25, 2006
DATE OF APPROVAL

1 1/2" & 2" METER AND BACKFLOW PREVENTER

UW-13

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER
12007388
PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE:
September 12, 2008

MANATEE COUNTY FLORIDA

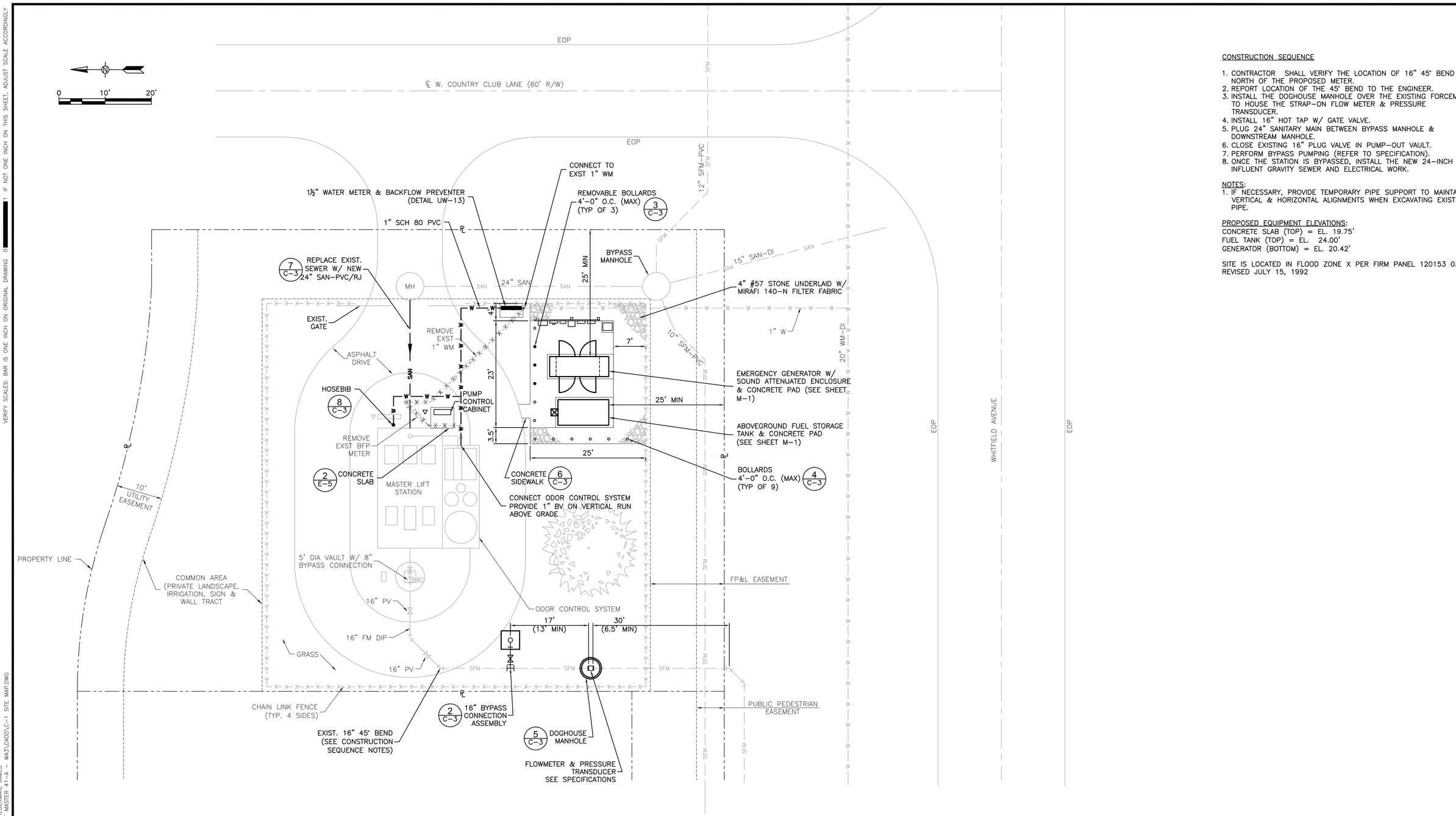
IMPROVEMENTS AT MASTER LIFT STATION 41-A
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
BID SET
OCTOBER 2008

C-2



CONSTRUCTION SEQUENCE

1. CONTRACTOR SHALL VERIFY THE LOCATION OF 16" 45° BEND NORTH OF THE PROPOSED METER.
2. REPORT LOCATION OF THE 45° BEND TO THE ENGINEER.
3. INSTALL THE DOGHOUSE MANHOLE OVER THE EXISTING FORCEMAIN TO HOUSE THE STRAP-ON FLOW METER & PRESSURE TRANSDUCER.
4. INSTALL 16" HOT TAP W/ GATE VALVE.
5. PLUG 24" SANITARY MAIN BETWEEN BYPASS MANHOLE & DOWNSTREAM MANHOLE.
6. CLOSE EXISTING 16" PLUG VALVE IN PUMP-OUT VAULT.
7. PERFORM BYPASS PUMPING (REFER TO SPECIFICATION).
8. ONCE THE STATION IS BYPASSED, INSTALL THE NEW 24-INCH INFLUENT GRAVITY SEWER AND ELECTRICAL WORK.

NOTES:
1. IF NECESSARY, PROVIDE TEMPORARY PIPE SUPPORT TO MAINTAIN VERTICAL & HORIZONTAL ALIGNMENTS WHEN EXCAVATING EXISTING PIPE.

PROPOSED EQUIPMENT ELEVATIONS:
CONCRETE SLAB (TOP) = EL. 19.75'
FUEL TANK (TOP) = EL. 24.00'
GENERATOR (BOTTOM) = EL. 20.42'

SITE IS LOCATED IN FLOOD ZONE X PER FIRM PANEL 120153 0365C, REVISED JULY 15, 1992

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007388 IMPROVEMENTS AT MASTER 41-A - WA3\CADD\C-1 SITE MAP.DWG

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE: September 30, 2008

MANATEE COUNTY FLORIDA

IMPROVEMENTS AT MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SITE MAP

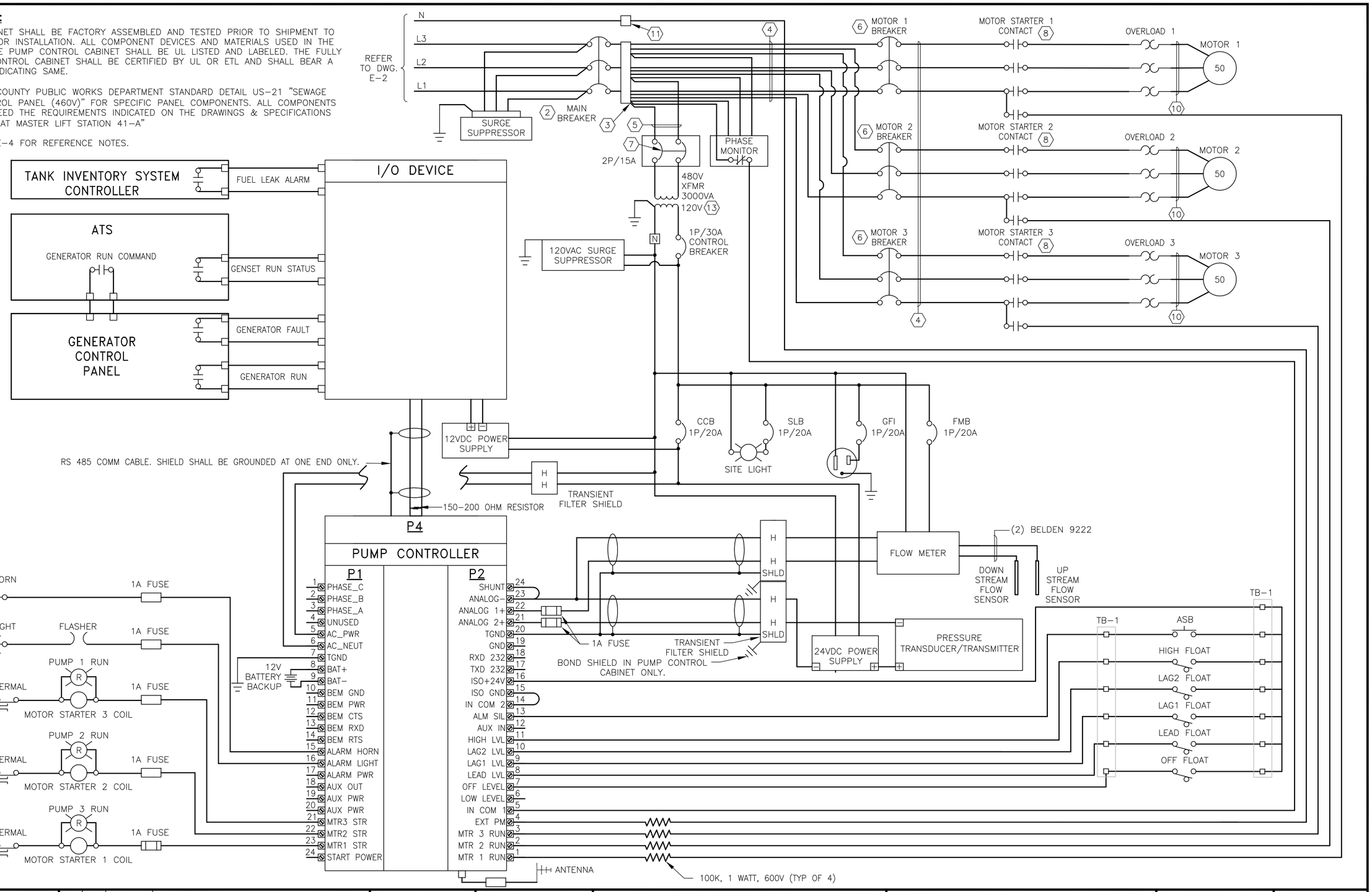
CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
BID SET
OCTOBER 2008

C-1

GENERAL NOTES:

1. PUMP CONTROL CABINET SHALL BE FACTORY ASSEMBLED AND TESTED PRIOR TO SHIPMENT TO THE PROJECT SITE FOR INSTALLATION. ALL COMPONENT DEVICES AND MATERIALS USED IN THE MANUFACTURE OF THE PUMP CONTROL CABINET SHALL BE UL LISTED AND LABELED. THE FULLY ASSEMBLED PUMP CONTROL CABINET SHALL BE CERTIFIED BY UL OR ETL AND SHALL BEAR A PERMANENT LABEL INDICATING SAME.
2. REFER TO MANATEE COUNTY PUBLIC WORKS DEPARTMENT STANDARD DETAIL US-21 "SEWAGE PUMP STATION CONTROL PANEL (460V)" FOR SPECIFIC PANEL COMPONENTS. ALL COMPONENTS SHALL MEET OR EXCEED THE REQUIREMENTS INDICATED ON THE DRAWINGS & SPECIFICATIONS FOR "IMPROVEMENTS AT MASTER LIFT STATION 41-A"
3. REFER TO DRAWING E-4 FOR REFERENCE NOTES.



URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG:
DRW:
FILE SAVE DATE: September 12, 2008

IMPROVEMENTS AT MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

WIRING DIAGRAM

GLENN H. DAVIS
FLORIDA P.E. NO. 66443

PROJECT STATUS
BID SET
OCTOBER 2008

E-6

VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

INDEX TO SHEETS	
SHEET NUMBER	SHEET TITLE
GENERAL	
G-1	COVER SHEET
G-2	INDEX TO SHEETS, GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
CIVIL	
C-1	SITE MAP
C-2	CIVIL DETAILS
C-3	CIVIL DETAILS
MECHANICAL	
M-1	GENERATOR SYSTEM
ELECTRICAL	
E-1	ELECTRICAL ABBREVIATIONS, SYMBOLS, LEGEND AND NOTES
E-2	ELECTRICAL SITE PLAN
E-3	ELECTRICAL GENERATOR PLAN
E-4	ELECTRICAL GROUNDING PLAN
E-5	PUMP CONTROL CABINET
E-6	WIRING DIAGRAM
E-7	SINGLE LINE DIAGRAM AND ELECTRICAL SCHEDULES

GENERAL NOTES

1. LOCATION, ELEVATION, AND DIMENSIONS OF THE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT TIME OF THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING THIS WORK PRIOR TO CONSTRUCTION.

2. CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS AND SUBMIT ONLY EQUIPMENT THAT MEETS THE SPECIFICATIONS AND FITS IN THE SPACE AVAILABLE.

3. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN AREAS OF BURIED UTILITIES AND SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE UTILITY COMPANIES PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. CALL SUNSHINE ONE CALL CENTER OF FLORIDA AT 1-800-432-4770 TO ARRANGE FIELD LOCATIONS. THE CONTRACTOR SHALL REPAIR ALL DAMAGES RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.

4. CONTRACTOR SHALL INVESTIGATE ALL AREAS OF THE WORK AND PREPARE AND PLAN FOR UNFORESEEN CONDITIONS LIKE EMERGENCY PUMPING, NEIGHBORHOOD NOTICES, BYPASS PUMPING AND CLOSURE NOTICES.

5. MAINTENANCE OF TRAFFIC, IF NECESSARY, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE PREPARED PER FDOT STANDARDS. MOT PREPARER SHALL HOLD THE NEW WORK ZONE TRAFFIC CONTROL ADVANCED LEVEL TRAINING CERTIFICATION. A COPY OF THE CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER ALONG WITH THE MOT. ALL WORK ZONES SHALL BE SET UP AND MAINTAINED BY SOMEONE WHO HAS WORK ZONE TRAFFIC CONTROL INTERMEDIATE LEVEL TRAINING. ACCESS TO EXISTING RESIDENCES AND BUSINESSES MUST BE MAINTAINED AT ALL TIMES.

6. OVERALL CLEAN UP SHALL BE ACCOMPLISHED BY THE CONTRACTOR IN ACCORDANCE WITH COUNTY STANDARDS OR AS DIRECTED BY THE ENGINEER. ANY AND ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE BID PRICE.

7. THE CONTRACTOR SHALL ENDEAVOR TO PROTECT PRIVATE PROPERTY. ANY DAMAGE CAUSED BY THE CONTRACTOR IN THE PERFORMANCE OF HIS WORK SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. PAYMENT SHALL NOT BE MADE FOR THIS WORK.

8. ANY DAMAGE TO STATE, COUNTY, OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE COUNTY PROJECT ENGINEER. PAYMENT SHALL NOT BE MADE FOR THIS WORK.

9. ANY U.S.C. AND G.S. MONUMENT WITHIN LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHALL NOTIFY. GEODETIC INFORMATION CENTER
ATTN.: MARK MAINTENANCE CENTER
ATTN.: N/CG-162
6001 EXECUTIVE BLVD. ROCKVILLE,
MARYLAND 20852
PH (301)443-8319

10. THE CONTRACTOR(S) PERFORMING TRENCH EXCAVATION ON THIS CONTRACT, SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S (OSHA) TRENCH EXCAVATION SAFETY STANDARDS, 29 C.F.R., S.1926.650, SUBPART P, INCLUDING ALL SUBSEQUENT REVISIONS OR UPDATES TO THE STANDARDS AS ADOPTED BY THE DEPARTMENT OF LABOR AND EMPLOYMENT SECURITY (DLES).

11. UNLESS OTHERWISE SPECIFIED IN THE PLANS, ALL DISTURBED AREAS SHALL BE SODDED.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCESS MATERIAL AND THE PROPER DISPOSAL OF THE SAME.

13. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILT FENCE) TO PREVENT SILTATION OF ADJACENT PROPERTY STREETS, STORM SEWERS, AND WATERWAYS. IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES, EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR VEHICULAR TRAFFIC, THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES.

14. THE CONTRACTOR SHALL PROVIDE ROUTINE MAINTENANCE OF PERMANENT AND TEMPORARY EROSION CONTROL FEATURES UNTIL THE PROJECT IS COMPLETE AND ALL BARED SOILS ARE STABILIZED.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EXISTING DRAINAGE SYSTEM WITHIN THE LIMITS OF THE PROJECT AREA, FOR THE DURATION OF THE PROJECT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE WORK INVOLVED.

16. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FACILITIES, ABOVE OR BELOW GROUND THAT MAY OCCUR AS A RESULT OF THIS WORK PERFORMED IN THIS CONTRACT.

17. THE CONTRACTOR IS TO "PROTECT IN PLACE" THE FACILITIES THAT ARE NOT TO BE RELOCATED AND/OR REMOVED, BUT ARE TO REMAIN IN PLACE.

18. THE CONTRACTOR IS TO ADJUST OR RELOCATE ALL THE FACILITIES THAT FALL IN CONFLICT IN ACCORDANCE WITH COUNTY STANDARDS.

19. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITIES STANDARDS.

20. THE CONTRACTOR SHALL PROVIDE DETAILED RECORD DRAWINGS, ANY & ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S BID. REDLINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION & WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS.

21. BENCHMARK DATA - CHISELED SQUARE ON BACK OF CURB WEST OF CATCH BASIN AT LOT 7, ELEVATION 17.66 FT. (7 LOTS WEST OF PUMP STATION PROPERTY) PER MANATEE COUNTY PLAT BOOK 33 PAGE 100 (DATUM NOT IDENTIFIED BY THIS PLAT).

REFERENCE:

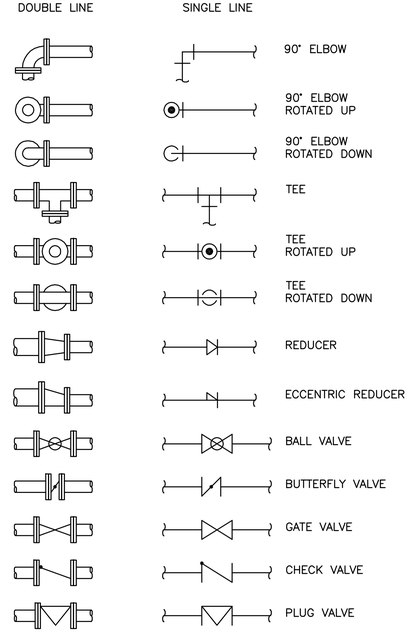
THE FOLLOWING RECORD DRAWINGS WERE USED IN CONJUNCTION WITH SITE VISITS TO PREPARE THE BASE SHEETS FOR THIS PROJECT. TO OBTAIN A COPY OF THE RECORD DRAWINGS, CONTACT OLGA ROSIER, MANATEE COUNTY UTILITIES, AT (914) 792-8811

1. SOUTHEAST SUBREGIONAL WASTEWATER TREATMENT FACILITIES - PROJECT NO. 6049-28C BY CDM, OCTOBER 12, 1988. MANATEE COUNTY UTILITIES DESIGNATION, "SOUTHEAST SUBREGIONAL PUMP STATIONS AND FORCEMAIN, PHASE 1 SEGMENT C - PART 1 (1292)".

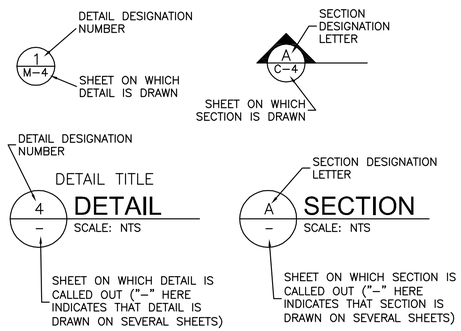
ABBREVIATIONS:

#	NUMBER
A/C	AIR CONDITIONER
AC	ASBESTOS CEMENT PIPE
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADPT	ADAPTER
ALUM	ALUMINUM
APPROX	APPROXIMATE (LY)
ARV	AIR RELEASE VALVE
ASPH	ASPHALT
AUTO	AUTOMATIC
AUX	AUXILIARY
AVG	AVERAGE
BM	BENCHMARK
BV	BALL VALVE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BOT	BOTTOM
CATV	CABLE TV
CHKD	CHECKED
CL	CENTERLINE
CL2	CHLORINE
CI	CAST IRON
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNITS
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
CPLG	COUPLING
CTR	CENTER (ED)
CV	CHECK VALVE
D	DRAIN
DEMO	DEMOLITION
DEPT	DEPARTMENT
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
EA	EACH
ECC	ECCENTRIC
EFF	EFFLUENT
EL	ELEVATION
EOP	EDGE OF PAVEMENT
EQ	EQUAL (LY)
EQIV	EQUIVALENT
EQUIP	EQUIPMENT
ESMT	EASEMENT
ETC	ETCETERA
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
FH	FIRE HYDRANT
FIG	FIGURE
FIN	FINISH (ED)
FLG	FLANGE
FLR	FLOOR
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PIPE
FT	FOOT OR FEET
GAL	GALLON
GALV	GALVANIZED
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HORZ	HORIZONTAL
HT	HEIGHT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
LF	LINER FEET
LT	LEFT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFD	MANUFACTURED
MFG	MANUFACTURING
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
O/E	OR EQUAL
PE	PLAIN END
PL	PROPERTY LINE
PP	POWER POLE
PROP	PROPOSED
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PW	POTABLE WATER
R/W	RIGHT-OF-WAY
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCW	RECLAIMED WATER
RED	REDUCER
RMJ	RESTRAIN MECHANICAL JOINT
RR	RAILROAD
RT	RIGHT
RW	RAW WATER
SAN	SANITARY
SCH	SCHEDULE
SFM	SANITARY FORCE MAIN
SHC	SODIUM HYPOCHLORITE
SHT	SHEET
SQR	SQUARE
SS	SANITARY SEWER
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
SW	SOLVENT WELD
SWLK	SIDEWALK
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TEL	TELEPHONE
THD	THREADED
THK	THICK (NESS)
TYP	TYPICAL
UD	UNDERDRAIN
VERT	VERTICAL
W	WATER
W/	WITH
WM	WATERMAIN OR WATER METER
WT	WEIGHT
WV	WATER VALVE
WWM	WOVEN WIRE MESH
XFMR	TRANSFORMER

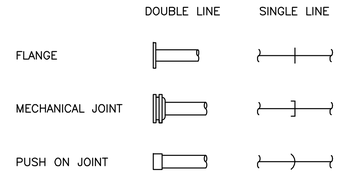
PIPE AND FITTING SYMBOLS



DETAIL & SECTION DESIGNATION



FITTING TYPE SYMBOLS



PLOTTED: September 30, 2008 12:48 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007388 IMPROVEMENTS AT MASTER 41-A - WA3\CADD\G-2 INDEX TO SHEETS GENERAL NOTES SYMBOLS AND ABBREVIATIONS.DWG

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER
12007388

PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE:
September 30, 2008

MANATEE COUNTY FLORIDA

IMPROVEMENTS AT
MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

INDEX TO SHEETS, GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

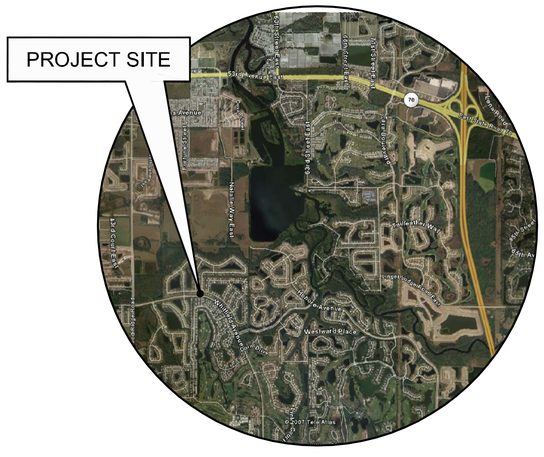
PROJECT STATUS
BID SET
OCTOBER 2008

G-2

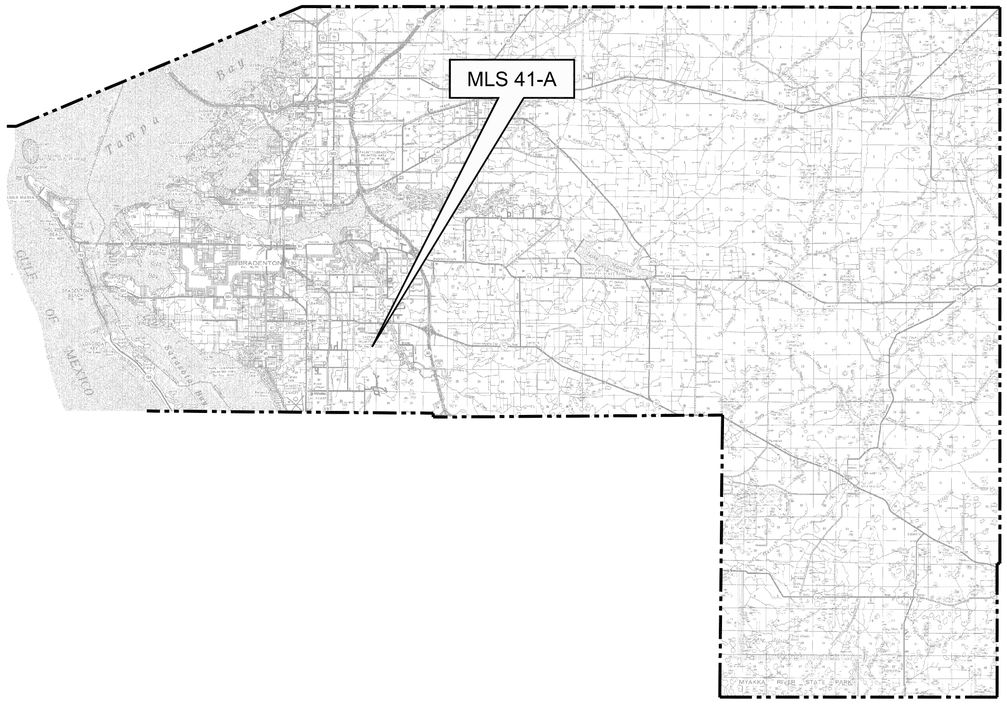
MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT MASTER LIFT STATION 41-A
PROJECT NO. 6066480

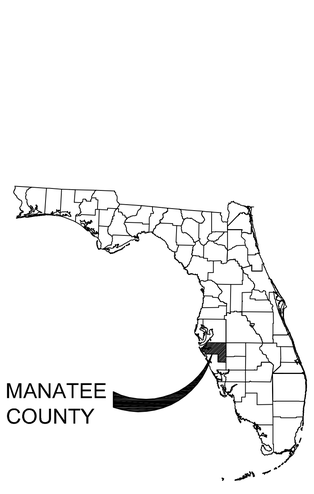
BID SET

OCTOBER 2008



PROJECT MAP
5398 CREEKSIDE TRAIL
BRADENTON, FL 34243





URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE: September 30, 2008

IMPROVEMENTS AT
MASTER LIFT STATION 41-A

FOR

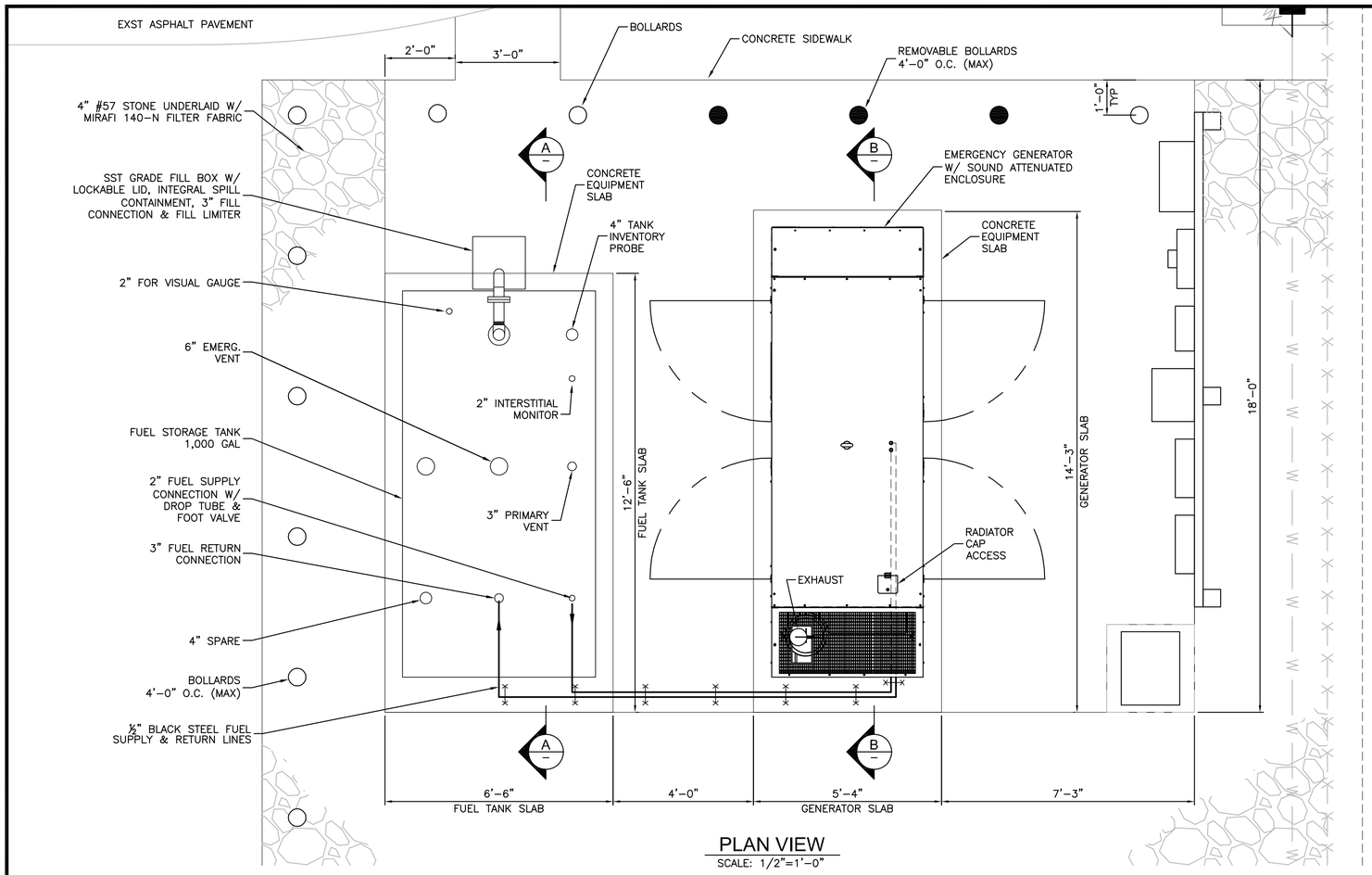
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

COVER SHEET

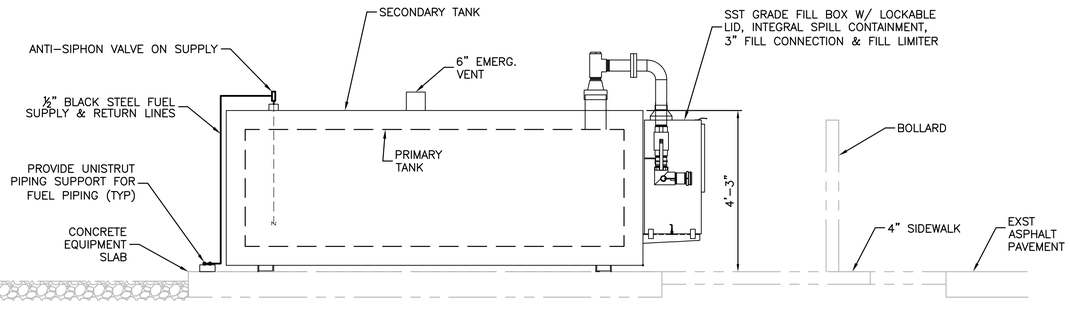
CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
BID SET
OCTOBER 2008

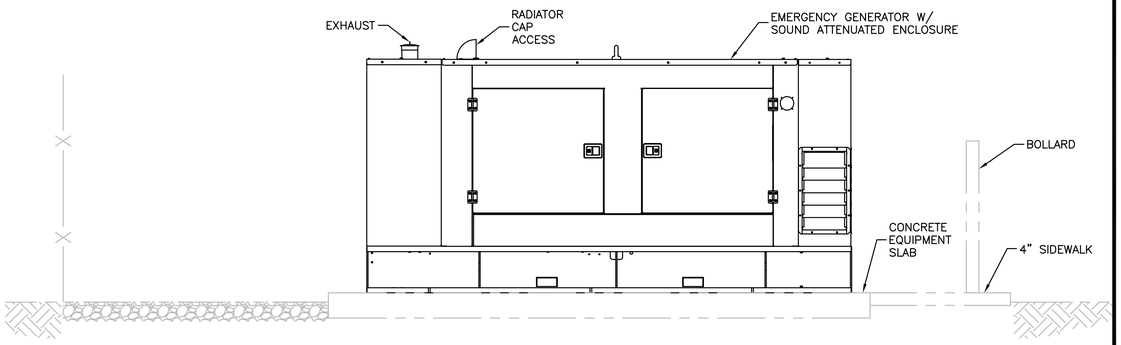
G-1



PLAN VIEW
SCALE: 1/2"=1'-0"



A SECTION
SCALE: 1/2"=1'-0"



B SECTION
SCALE: 1/2"=1'-0"

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES & APPLICABLE REVISIONS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. CODES INCLUDE, BUT ARE NOT LIMITED TO, THE FLORIDA BUILDING CODES, FBC MECHANICAL CODE, FBC PLUMBING CODE, NEC, AND NFPA 30.
2. ADEQUATELY SUPPORT ALL PIPING & EQUIPMENT USING HANGER RODS, UNISTRUT OR OTHER PREMANUFACTURED SUPPORT SYSTEM DESIGNED SPECIFICALLY FOR SUPPORTING MECHANICAL SYSTEMS.
3. REFER TO SPECIFICATIONS FOR THE INSTALLATION OF EQUIPMENT, DEVICES & PIPING.
4. PRIOR TO FABRICATION & CONSTRUCTION OF FUEL PIPING & FUEL SYSTEM CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY ENGINEER. CONTRACTOR SHALL NOT COMMENCE WORK WITHOUT APPROVED SHOP DRAWINGS ON CONSTRUCTION SITE. CONTRACTOR SHALL COORDINATE FUEL PIPING, TANKS & SYSTEMS WITH CIVIL, ELECTRICAL & STRUCTURAL DISCIPLINES. FUEL SYSTEMS & AST TANK SHALL MEET THE STATE OF FLORIDA ADMINISTRATIVE CODE CHAPTER 62-762.

BASIS OF DESIGN IS CATERPILLAR D150-8
IF CONTRACTOR ELECTS TO SUPPLY DIFFERENT EQUIPMENT, HE IS RESPONSIBLE FOR ANY DESIGN MODIFICATIONS.

NOTES

1. GENSET: CATERPILLAR
   a) MODEL: D150-8
   b) WEIGHT: 3,102 LBS. (DRY)
   c) DIMENSIONS: 112"L X 38"W X 61"H
   d) PROVIDE VIBRATION ISOLATORS IN QUANTITY REQUIRED FOR ACTUAL SIZE WEIGHT OF GENSET BEING PROVIDED
2. ENCLOSURE: CATERPILLAR
   a) WEIGHT: 5,617 LBS.
   b) DIMENSIONS: 12'-10"L x 4'-4"W x 6'-8"H
   c) SOUND ATTENUATION LEVEL: 72 DBA AT 23 METERS
   d) ENCLOSURE SHALL BE DESIGNED & BUILT FOR 130 MPH WINDLOAD
3. SUB-BASE FUEL TANK: PHOENIX PRODUCTS
   a) MODEL: EV-01000
   b) CAPACITY: 1,000 GALLONS
   c) WEIGHT EMPTY: 10,602 LBS
   d) WEIGHT WET: 18,125 LBS
   e) TANK DIMENSIONS: 11'-0"L x 5'-6"W x 4'-3"H
   f) ATTACH TANK TO CONCRETE PAD WITH REDHEADS "TRUBOLTS" WEDGE ANCHORS, MIN. ⅝" DIA. SST EMBEDDED MIN. OF 2¾" IN 4,000 PSI CONCRETE (10 REQUIRED).
   g) ALL FITTINGS TO BE STAINLESS STEEL THREADED PIPE (UNLESS OTHERWISE NOTED).
   h) TANKS SHALL BE SECONDARY CONTAINED & PROTECTED, UL2085 LISTED AND LABELED TANK.
4. BASED ON THE WEIGHT OF THE EQUIPMENT (WET) & PAD, THE REQUIRED SOIL BEARING CAPACITY IS 169 PSF. SANDY SOIL HAS ADEQUATE BEARING CAPACITY.

URS
7650 West Courtney Campbell Causeway
Suite 700
Tampa, Florida 33607
Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

NO.	BY	DATE	DESCRIPTION

REVISIONS

URS JOB NUMBER 12007388

PM: C. OSMANSKI
ENG: R. AVALOS
DRW: J. SCHEUERMAN
FILE SAVE DATE: September 12, 2008

IMPROVEMENTS AT
MASTER LIFT STATION 41-A

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

GENERATOR SYSTEM

CRAIG P. OSMANSKI
FLORIDA P.E. NO. 48961

PROJECT STATUS
BID SET
OCTOBER 2008

M-1