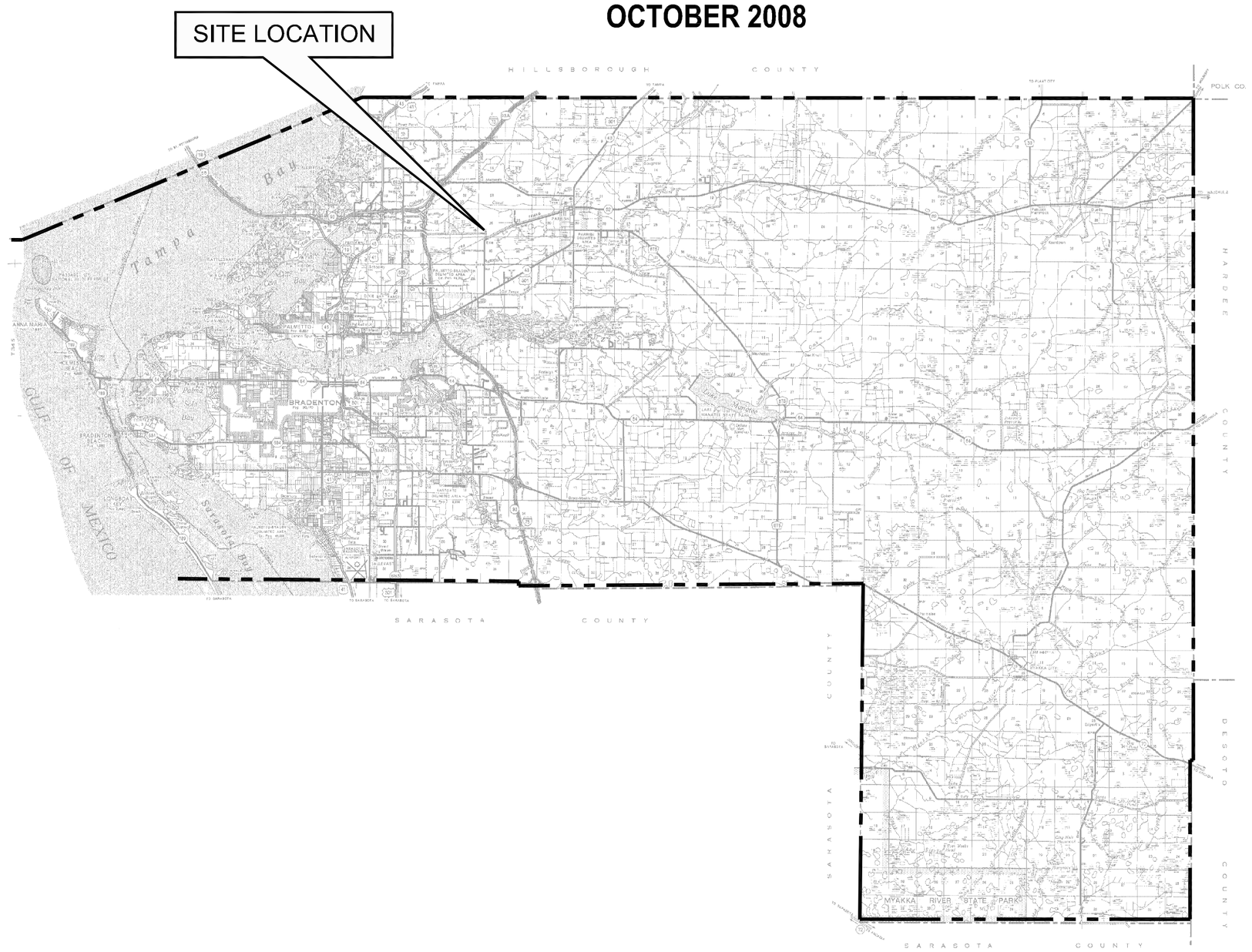
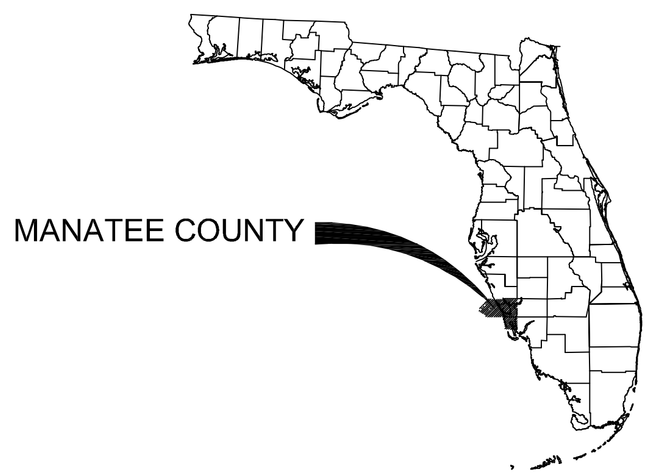
VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

BID SET

MANATEE COUNTY, FLORIDA
NORTH WATER RECLAMATION FACILITY
INFLUENT STRUCTURE
PROJECT NO. 6011281

OCTOBER 2008





PROJECT MAP
N.T.S.

BID SET, MANATEE COUNTY, FLORIDA NORTH WATER RECLAMATION FACILITY INFLUENT STRUCTURE, PROJECT NO. 6011281, OCTOBER 2008

PLOTTED June 15, 2006 3:51 PM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\G-1 COVER SHEET.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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

COVER SHEET

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

G-1

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

GENERAL NOTES

1. ELEVATIONS SHOWN ON THE PLANS REFERENCE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (N.G.V.D. – 1929).

2. 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.

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 IN PUBLIC RIGHT–OF–WAYS. 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. THE CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO PLANT PERSONNEL PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES ON COUNTY / PLANT PROPERTY.

4. THE CONTRACTOR SHALL VERIFY THE LOCATION, ELEVATION, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK AND SHALL COMPLY WITH ALL STATE, COUNTY, AND LOCAL ORDINANCES AND OBTAIN ANY NECESSARY WORK PERMITS THAT MAY BE REQUIRED PRIOR TO CONSTRUCTION.

5. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS, THE CONTRACTOR SHALL PROVIDE SUITABLE BORROW MATERIAL, APPROVED BY THE ENGINEER, AND INSTALL SAID MATERIAL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

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 LUMP SUM PRICE BID FOR MOBILIZATION.

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, EXISTING SOD, DISTURBED BY CONSTRUCTION, SHALL BE REPLACED IN KIND (OR BETTER, AS APPROVED BY THE COUNTY'S PROJECT MANAGER.)

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 SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY STREETS, STORM SEWERS AND DRAINAGE DITCHES, 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. THE MAINTENANCE OF EROSION CONTROL DEVICES AND THEIR COMPLETE REMOVAL ARE TO BE INCLUDED IN THE LUMP SUM BID PRICE.

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. A VERTICAL CLEARANCE OF 18 INCHES SHALL BE MAINTAINED BETWEEN SANITARY SEWERS AND WATER MAINS. IF CLEARANCE CANNOT BE ACHIEVED BY ADJUSTING THE WATER MAIN, THE WATER MAIN SHALL BE ENCASED IN CONCRETE FOR A REQUIRED 10 FEET ON EACH SIDE OF THE CONFLICT POINT. SUFFICIENT LENGTHS DI PIPE MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE LEAK FREE AND MECHANICALLY RESTRAINED. ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE STAGGERED AS FAR APART AS POSSIBLE WITH NOT LESS THAN 10 FEET BETWEEN ANY TWO JOINTS. SPECIAL STRUCTURAL SUPPORTS FOR THE MAINS MAY BE REQUIRED. ALTERNATIVELY, THE SANITARY SEWERS, STORM SEWERS, FORCE MAINS AND RECLAIMED WATER MAINS AT THE CROSSING CAN BE PLACED IN SLEEVES OR ENCASED IN CONCRETE TO OBTAIN THE EQUIVALENT OF THE 10 FEET SEPARATION BETWEEN JOINTS.

20. A LATERAL SEPARATION OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER.

21. ALL PROPOSED MAINS SHALL HAVE A MINIMUM OF 36 INCHES OF COVER UNLESS OTHERWISE SHOWN.

22. ALL COMPONENTS OF THE NEW YARD PRESSURE PIPING SYSTEM SHALL BE PRESSURE TESTED PER THE SPECIFICATIONS PRIOR TO ACCEPTANCE BY THE ENGINEER. CONTRACTOR TO NOTIFY OWNER'S ENGINEER AT (813) 286–1711 48 HOURS IN ADVANCE OF PERFORMING TESTS.

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

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

25. THE CONTRACTOR SHALL PROVIDE DETAILED RECORD DRAWINGS, ANY AND ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MOBILIZATION. RED–LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APP SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS.

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

27. SEE SPECIFICATION FOR SEQUENCE OF CONSTRUCTION

28. ALL PLANT PROCESS YARD PIPING SHALL BE RESTRAINED JOINT. SEE SPECIFICATIONS.

29. ONLY PLANT PERSONNEL SHALL OPERATE EXISTING VALVES, SLIDE GATES, ETC.

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. WASTEWATER FACILITIES IMPROVEMENTS. NORTH SUB–REGIONAL WASTEWATER TREATMENT FACILITY DATED 12/19/1989, ENGINEER–CDM.
2. NORTH WATER RECLAMATION FACILITY, HEADWORKS PIPING IMPROVEMENTS DATED 10/2005, ENGINEER–MCKIM & CREED.

Sheet Number	Sheet Title
G–1	COVER SHEET
G–2	GENERAL NOTES AND INDEX OF SHEETS
G–3	SYMBOLS AND ABBREVATIONS
C–1	OVERALL SITE PLAN. HORIZONTAL CONTROL AND BORING LOCATIONS
C–2	PAVING GRADING AND DRAINAGE
C–3	YARD PIPING PLAN
C–4	DETAIL YARD PIPING PLAN
C–5	CIVIL DETAILS
C–6	CIVIL DETAILS
C–7	CIVIL DETAILS
C–8	CIVIL DETAILS
C–9	SOIL BORING LOGS
S–1	STRUCTURAL NOTES AND DETAILS
S–2	HEADWORKS STRUCTURAL PLAN AT GRADE AND FOUNDATION LEVEL
S–3	HEADWORKS STRUCTURAL BEAM LAYOUT
S–4	HEADWORKS STRUCTURAL ELEVATED SLAB PLAN
S–5	HEADWORKS STRUCTURAL PLAN AT TOP
S–6	HEADWORK STRUCTURAL SECTION
S–7	HEADWORKS STRUCTURAL SECTIONS
S–8	HEADWORKS STRUCTURAL SECTIONS
S–9	HEADWORKS STRUCTURAL SECTIONS
S–10	STRUCTURAL DETAILS
S–11	STRUCTURAL DETAILS
S–12	STRUCTURAL DETAILS
S–13	STRUCTURAL DETAILS
S–14	STAIRTOWER PLAN
S–15	STAIR DETAILS
S–16	GRIT TANK DETAILS
S–17	GRIT TANK DETAILS
M–1	HEADWORKS MECHANICAL PLAN AT GRADE
M–2	HEADWORKS MECHANICAL PLAN AT TOP
M–3	HEADWORKS MECHANICAL SECTION
M–4	HEADWORKS MECHANICAL SECTIONS
M–5	HEADWORKS MECHANICAL SECTIONS
M–6	HEADWORKS MECHANICAL SECTIONS
M–7	MECHANICAL SECTION AND DETAILS
M–8	MECHANICAL DETAILS
M–9	MECHANICAL DETAILS
M–10	DRAIN PUMP STATION
M–11	ODOR CONTROL COLLECTION PIPING
E–1	ELECTRICAL ABBREVIATIONS AND LEGEND
E–2	SITE ELECTRICAL WORK
E–3	HEADWORKS LOWER LEVEL POWER AND CONTROLS PLANS
E–4	HEADWORKS UPPER LEVEL POWER AND CONTROLS PLAN
E–5	HEADWORKS LIGHTING PLANS
E–6	HEADWORKS GROUNDING AND LPS PLANS
E–7	SINGLE LINE POWER DIAGRAM
E–8	PANEL SCHEDULES
E–9	CONDUIT SCHEDULE
E–10	LIGHTING FIXTURE SCHEUDLE
E–11	MISCELLANEOUS ELECTRICAL DETAILS AND DIAGRAMS
E–12	MISCELLANOUS ELECTRICAL DETAILS AND DIAGRAMS
E–13	GROUNDING AND LPS DETAILS
E–14	SCADA NOTES AND I–O SCHEDULE
E–15	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–16	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–17	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–18	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–19	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–20	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–21	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
E–22	EXISTING HEADWORKS SCADA PANEL AS–BUILTS
L–1	LANDSCAPE PLAN
L–2	LANDSCAPE DETAILS
IR–1	IRRIGATION PLAN
IR–2	IRRIGATION DETAILS
IR–3	IRRIGATION DETAILS

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

GENERAL NOTES AND
INDEX OF SHEETS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

G–2

PLOTTED October 9, 2008 8:52 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\G–2 GENERAL NOTES AND INDEX OF SHEETS.DWG

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

PIPE AND FITTING SYMBOLS

DOUBLE LINE / SINGLE LINE

- 90° ELBOW
- 90° ELBOW ROTATED UP
- 90° ELBOW ROTATED DOWN
- TEE
- TEE ROTATED UP
- TEE ROTATED DOWN
- REDUCER
- ECCENTRIC REDUCER
- BALL VALVE
- BUTTERFLY VALVE
- GATE VALVE
- CHECK VALVE
- PLUG VALVE
- HOSE BIBB & VALVE
- FLANGED JOINT
- MECHANICAL JOINT
- TO BE REMOVED
- GROUND WATER FLOW

FITTING TYPE SYMBOLS

	DOUBLE LINE	SINGLE LINE
FLANGE		
MECHANICAL JOINT		
PUSH ON JOINT		

LEGEND OF SYMBOLS

TYPICAL EXISTING SYMBOLS / TYPICAL PROPOSED SYMBOLS

- BP = BACKFLOW PREVENTER
- = BOLLARD or POST
- CA = BOX, CABLE TELEVISION
- EB = BOX, ELECTRIC UTILITY
- = BOX, ELECTRIC UTILITY (TRANSFORMER)
- TB = BOX, TELEPHONE
- = DECORATIVE LIGHT POLE
- = FIRE HYDRANT
- = FLAGPOLE
- = FLARED END SECTION
- = GRATE INLET
- = GROUND LIGHT
- = GUY ANCHOR
- = LIGHT POLE, CONCRETE
- = LIGHT POLE, METAL
- = LIGHT POLE, WOOD
- MB = MAILBOX
- E = MANHOLE, ELECTRIC
- G = MANHOLE, GREASE TRAP
- S = MANHOLE, SANITARY SEWER
- D = MANHOLE, STORM SEWER
- T = MANHOLE, TELEPHONE
- EM = METER, ELECTRIC
- GM = METER, GAS
- RM = METER, RECLAIMED WATER
- WM = METER, WATER
- = MITERED END SECTION
- MW = MONITORING WELL
- = PEDESTRIAN CROSSING SIGNAL
- = SANITARY CLEANOUT
- = SCHEDULE B-2 ITEM
- = SOIL BORING
- TR = TELEPHONE RISER
- = TRAFFIC SIGN
- TSB = TRAFFIC SIGNAL BOX
- TSP = TRAFFIC SIGNAL POLE

- CWS = UG CABLE TELEVISION WARNING SIGN
- EWS = UG ELECTRIC WARNING SIGN
- OWS = UG FIBER OPTIC WARNING SIGN
- FWS = UG FORCEMAIN WARNING SIGN
- GWS = UG GAS WARNING SIGN
- RWS = UG RECLAIMED WATER WARNING SIGN
- SWS = UG SANITARY SEWER WARNING SIGN
- TWS = UG TELEPHONE WARNING SIGN
- WWS = UG WATER WARNING SIGN
- = UTILITY POLE, CONCRETE
- = UTILITY POLE, METAL
- = UTILITY POLE, WOOD
- GV = VALVE, GAS
- RV = VALVE, RECLAIMED WATER
- SV = VALVE, SANITARY
- WV = VALVE, WATER
- W = WELL

- = CONCRETE
- = ASPHALT
- = CONCRETE PAVERS
- = BRICK

- + 25.25 = POINT OF ELEVATION
- 25.2' = DIMENSION FROM BUILDING TO BOUNDARY / RIGHT-OF-WAY LINE

STORM CURB INLETS

- = CHAIN LINK FENCE
- = CHANNEL OUTLINE
- = CONTOUR
- OHC = OVERHEAD UTILITY
- TOS = TOE OF SLOPE
- TOB = TOP OF BANK
- = WOOD FENCE

- UGC = UG CABLE
- UGE = UG ELECTRIC
- UGFO = UG FIBER OPTIC
- GAS = UG GAS
- IRG = UG IRRIGATION
- RCW = UG RECLAIME WATER
- SFM = UG SANITARY FORCEMAIN
- SAN = UG SANITARY SEWER
- STRM = UG STORM SEWER
- UGT = UG TELEPHONE
- WM = UG WATER MAIN

- = SILT FENCE
- = RIGHT-OF-WAY LINE
- = EASEMENT BOUNDARY
- = SECTION LINE

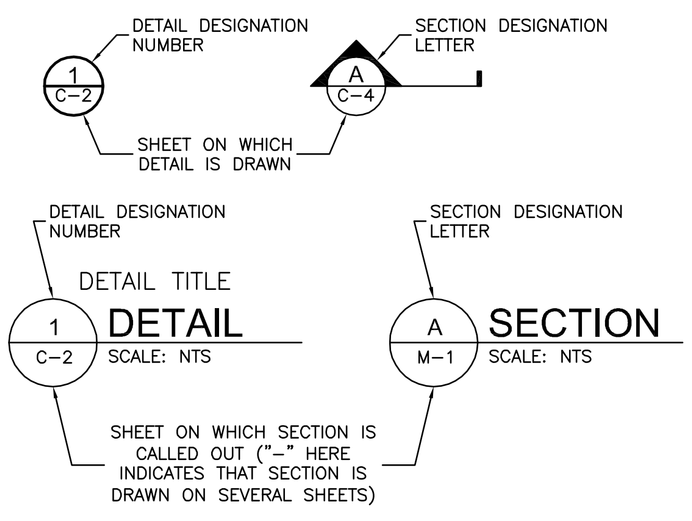
TREE LEGEND

- = BAY TREE
- = BOTTLE BRUSH TREE
- = CAMPHOR TREE
- = CEDAR
- = CHINABERRY TREE
- = CITRUS TREE
- = CYPRESS TREE
- = ELM TREE
- = EUCALYPTUS TREE
- = MAGNOLIA TREE
- = MAPLE TREE
- = MULBERRY TREE
- = OAK TREE
- = OTHER SPECIES
- = PALM TREE
- = PECAN TREE
- = PERSIMMON TREE
- = PINE TREE
- = SYCAMORE TREE
- = WAX MYRTLE TREE
- = WILLOW TREE

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
BWF	BARBED WIRE FENCE
CATV	CABLE TV
CHKD	CHECKED
℄	CENTERLINE
CLF	CHAINLINK FENCE
CLG	CHLORINE GAS
CI	CAST IRON
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNITS
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
COR	CORNER
CPLG	COUPLING
CTR	CENTER (ED)
CV	CHECK VALVE
D	DRAIN
DEMO	DEMOLITION
DEPT	DEPARTMENT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DR	DIMENSION RATIO
E	EAST
EA	EACH
ECC	ECCENTRIC
EFF	EFFLUENT
EL	ELEVATION
EOP	EDGE OF PAVEMENT
EQ	EQUAL (LY)
EQUIP	EQUIPMENT
ESMT	EASEMENT
ETC	ETCETERA
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION
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
GS	GALVANIZED STEEL (PIPE)
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HORZ	HORIZONTAL
HT	HEIGHT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
LF	LINER FEET
LR	LONG RADIUS
LT	LEFT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFD	MANUFACTURED
MFG	MANUFACTURING
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
N	NORTH
NE	NORTHEAST
NW	NORTHWEST
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
O/E	OR EQUAL
OVFL	OVERFLOW
OVRT	OVERFLOW RETURN
PE	PLAIN END OR POLYETHYLENE
℗	PROPERTY LINE
PP	POWER POLE
PROP	PROPOSED
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
R/W	RIGHT-OF-WAY
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCW	RECLAIMED WATER
RED	REDUCER
RMJ	RESTRAIN MECHANICAL JOINT
RML	RETURN MIXED LIQUOR
RR	RAILROAD
RT	RIGHT
RW	REUSE WATER
S	SOUTH
SAN	SANITARY
SCH	SCHEDULE
SE	SOUTHEAST
SFM	SANITARY FORCE MAIN
SHC	SODIUM HYPOCHLORITE
SHT	SHEET
SMH	SANITARY MANHOLE
SQ	SQUARE
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
SW	SOLVENT WELD OR SOUTHWEST
SWLK	SIDEWALK
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TEL	TELEPHONE
THD	THREADED
THK	THICK (NESS)
TYP	TYPICAL
UD	UNDERDRAIN
UG	UNDERGROUND
VERT	VERTICAL
W	WELD OR WELDED OR WEST
W/	WITH
WM	WATERMAIN OR WATER METER
WV	WATER VALVE
WW	WASTEWATER
WWF	WOVEN WIRE FABRIC
WWM	WOVEN WIRE MESH
XFMR	TRANSFORMER

DETAIL & SECTION DESIGNATION



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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 6, 2008

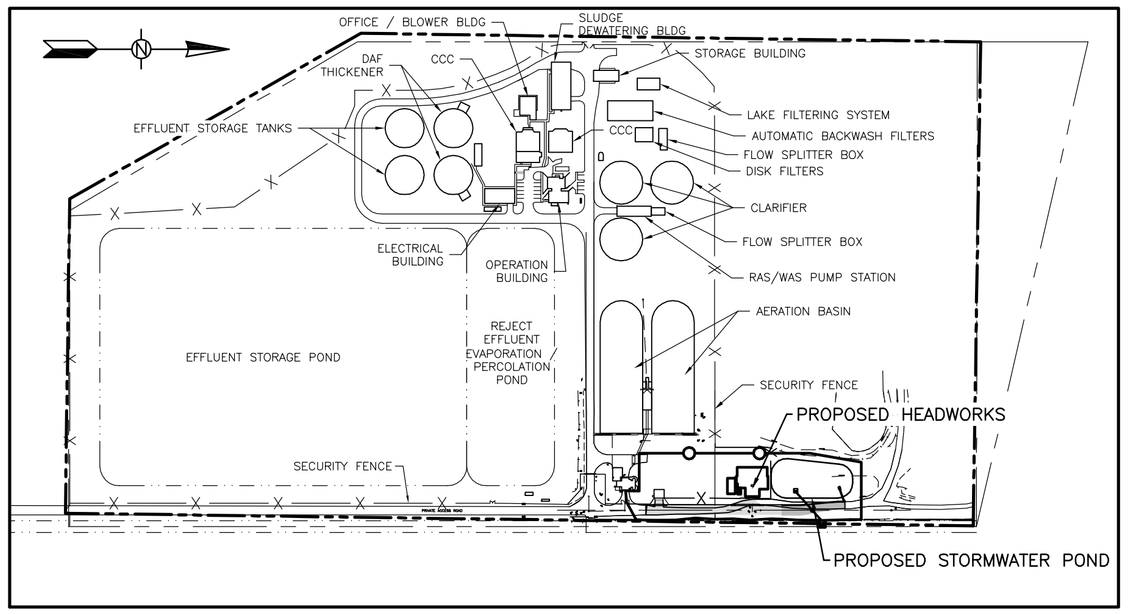
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SYMBOLS AND ABBREVATIONS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

G-3



NWRF SITE PLAN

SCALE: NTS

SITE NOTES

1. CONTRACTOR TO VERIFY THE LOCATION OF THE CONNECTION POINT FOR THE INFLUENT PIPING. THE CENTER LINE OF THAT PIPE WILL BE THE CENTER LINE OF THE PROPOSED HEADWORKS.
2. CONTRACTOR TO ADJUST ALL EXISTING VALVE MANHOLES AND LIDS WITHIN THE PROPOSED ROAD TO MATCH FINISHED GRADES.

SETBACKS FROM PROPERTY LINE

NORTH: 558'
EAST: 67.6'
SOUTH: 1685'
WEST: 1085'

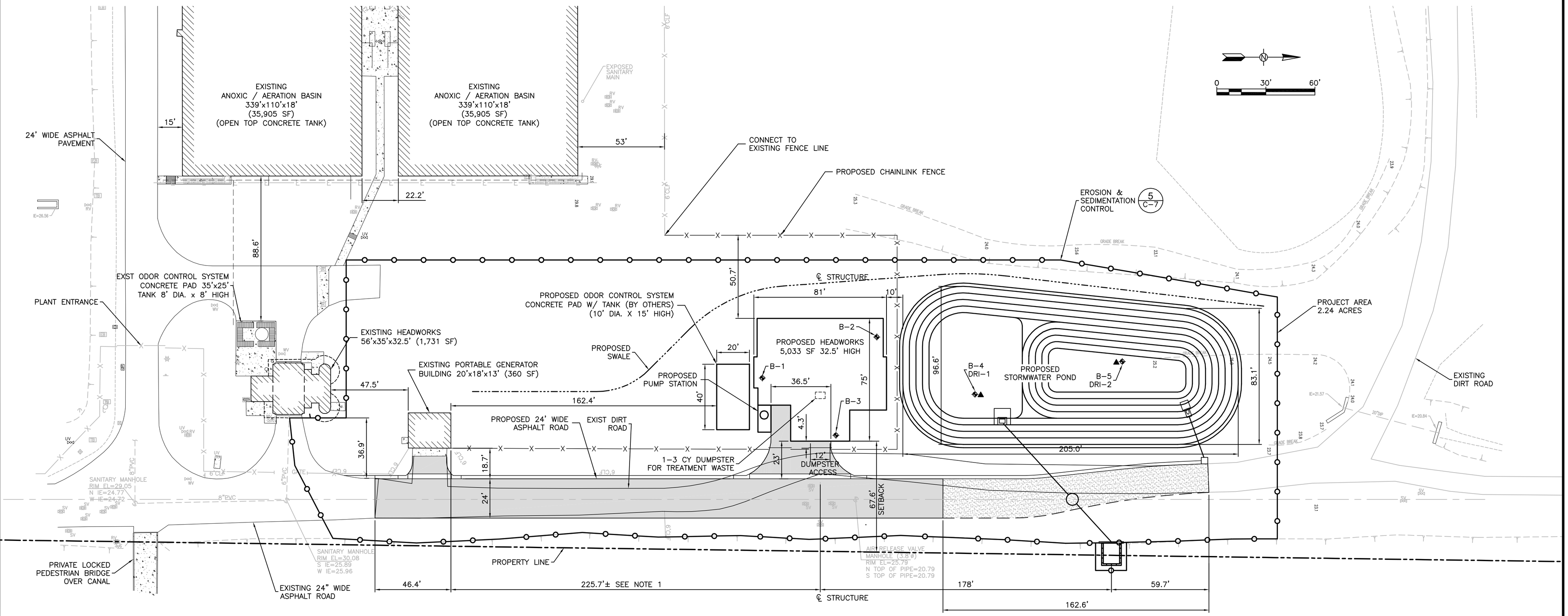
BORING NOTES

1. LOCATIONS BASED ON THE NORTHWEST CORNER OF THE EXISTING FENCE.
2. PLAN VIEW IS PRELIMINARY FOR SHOWING BORING LOCATION ONLY AND MAY NOT BE INDICATIVE OF FINAL PLAN.
3. SEE SHEET C-9 FOR BORING LOGS, NOTES AND LEGEND.

◆ APPROXIMATE BORING LOCATION

▲ APPROXIMATE LOCATION OF DOUBLE RING INFILTRATION TEST (DRI)

BORING DESIGNATION	DEPTH (FT) BORING TYPE	DISTANCE X (FT)	DISTANCE Y (FT)
B-1	40' (S.P.T)	60	60
B-2	40' (S.P.T)	130	85
B-3	25' (S.P.T)	105	25
B-4	10' AUGER	190	50
B-5	10' AUGER	280	70
DRI-1	1.5-2.0	190	50
DRI-2	1.5-2.0	280	70



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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 9, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

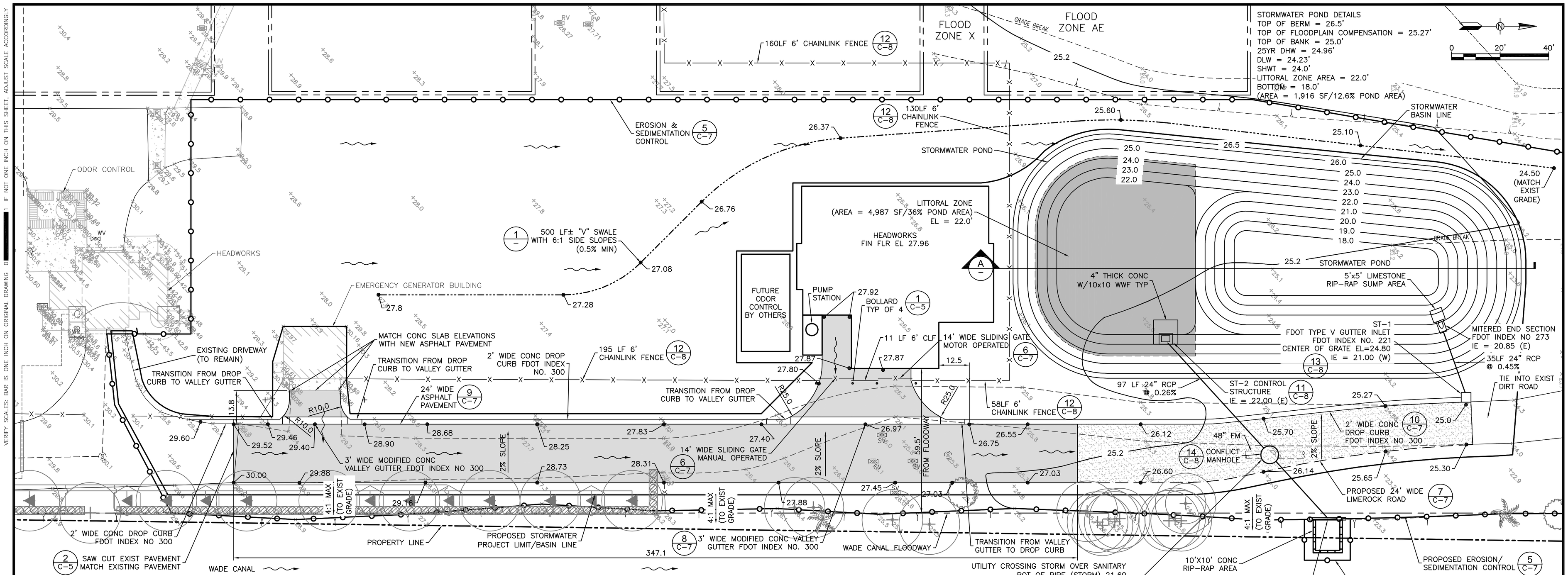
OVERALL SITE PLAN, HORIZONTAL CONTROL AND BORING LOCATIONS

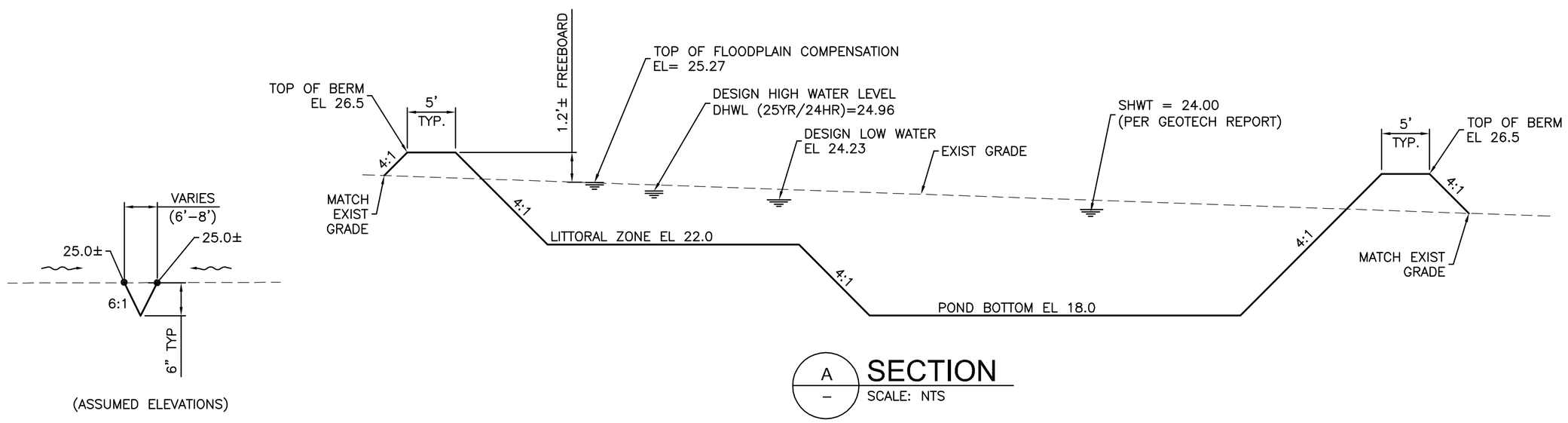
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

C-1

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





A / – SECTION
SCALE: NTS

1 / – TYPICAL "V" SWALE
SCALE: NTS

LEGEND:
- NEW ASPHALT PAVEMENT
- NEW LIMEROCK ROAD

NOTES:
1. ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH CURRENT FDOT AND MCUTD STANDARDS.
2. PROJECT LIES WITHIN FLOOD ZONES X AND AE, WITH BOUNDARY AT ELEVATION 25.2', AND 59.5' FROM THE REGULATORY FLOODWAY OF WADE CANAL PER FIRM PANEL 120153 0205C, REVISED 7/15/92.
3. THERE IS A POSSIBILITY A CONFLICT EXIST BETWEEN THE STORM DRAIN & EXISTING 48" FM. CONTRACTOR SHALL BID A CONFLICT MANHOLE PER DETAIL 14, SHEET 8.

FLOODPLAIN COMPENSATION TABLE	
FILL/IMPACT FROM ROAD	2,033.50 CF
FILL/IMPACT FROM POND BERM	2,096.00 CF
TOTAL FILL/IMPACT	4,128.50 CF
TOTAL COMPENSATION PROVIDED IN POND	4,129.50 CF
NET FILL/IMPACT	0 CF

PLOTTED October 10, 2008 11:13 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CAUD\CONSTRUCTION DRAWINGS\C-2 PAVING GRADING AND DRAINAGE.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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 10, 2008

MANATEE COUNTY FLORIDA

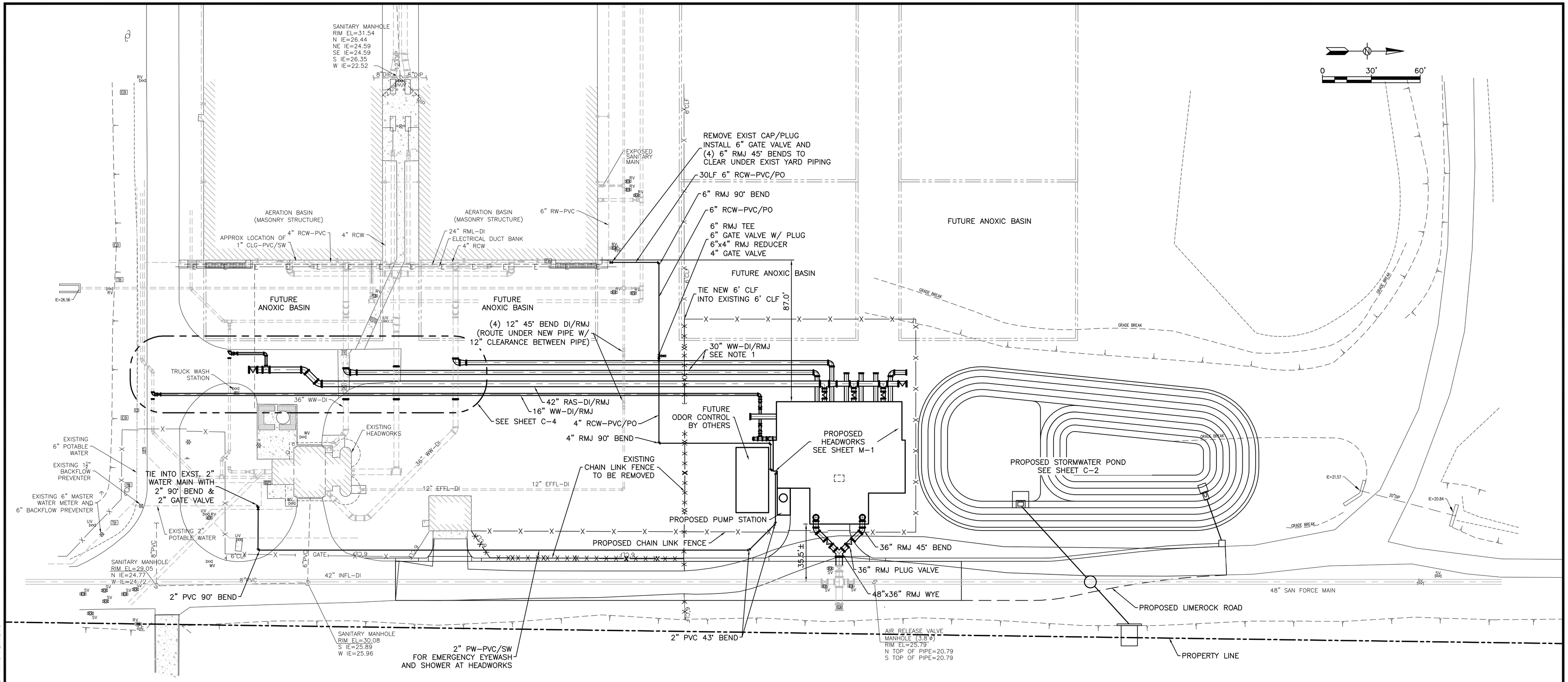
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

PAVING, GRADING AND DRAINAGE

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

C-2



NOTES:
1. CONTRACTOR SHALL VERIFY ELEVATIONS OF THE EXISTING YARD PIPING PRIOR TO INSTALLATION OF NEW YARD PIPING.

2. DEFLECT JOINTS OF NEW 30" WW LINES ON NORTH SOUTH RUNS TO MATCH ℄ ELEVATIONS OF EXISTING 30" WW LINES AT THE TIE-IN POINT. NEW 30" WW LINES SHALL CROSS OVER EXISTING 36" WW RCCP INFLUENT PIPE.

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 9, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

YARD PIPING PLAN

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

C-3

NOTES:
1. FOR TIE-INS INTO EXISTING YARD PIPING, SEE WORK SEQUENCE SPECIFICATION.
2. CONTRACTOR SHALL VERIFY ELEVATIONS OR THE EXISTING YARD PIPING PRIOR TO INSTALLATION OF NEW YARD PIPING.
3. DEFLECT JOINTS OF NEW 30" WW LINES ON NORTH SOUTH RUNS TO MATCH ℄ ELEVATIONS OF EXISTING 30" WW LINES AT THE TIE-IN POINT. NEW 30" WW LINES SHALL CROSS OVER EXISTING 36" WW RCCP INFLUENT PIPE.

AERATION BASIN (MASONRY STRUCTURE)
APPROX LOCATION OF 1" CLG-PVC/SW
4" RCW-PVC
24" RML-DI BELOW DUCT BANK
ELECTRICAL DUCT BANK
4" RCW
GRATE
ALUM STAIR
36" WW-RCCP
20" RCW
12" EFFL-PVC
2" CL2-PVC
FUTURE ANOXIC BASIN
16" RAS-DI
68.9
36" WW-DI ℄ EL 28.0
42" WW-PCCP
UV
RV
TB
AERATION BASIN (MASONRY STRUCTURE)
24" RML-DI
ELECTRICAL DUCT BANK
4" RCW
36" WW-RCCP
12" EFFL-DI
20" RCW
62.9
36" WW-DI ℄ EL 28.0
FUTURE ANOXIC BASIN
0 10' 20'
16" RMJ 90° BEND
TIE INTO EXISTING 16" RAS (CUT IN NO. 2) WITH 16" RMJ 90° BEND AND 16" PLUG VALVE
PLUG EXIST 16" RAS LINE
42" PLUG
42" RMJ 45° BEND
10.0
CUT-IN NO. 4 NEW 36" 90° BEND
36"x30" PExRMJ REDUCER
30" WW-DI/RMJ
CUT-IN NO. 1 NEW 36" 90° BEND
36"x30" PExRMJ REDUCER
30" WW-DI/RMJ
TIE INTO EXISTING 16" SFM WITH 16" RMJ 90° BEND (CUT IN NO. 3)
TRUCK WASH STATION
16" RAS-DI
21.1
42"x16" RMJ TEE
42" PLUG VALVE
4.6
13.2
42" RMJ 45° BEND
REMOVE 25 LF OF 36" PCCP
6.0
7.0
6.5
42" RAS-DI/RMJ
16" PV-DI/RMJ
WV
6.2
12.7
REMOVE 25 LF OF EXISTING 36" WW LINE
CAMERA MOUNTED ON POLE
PLUG EXIST 16" LINE
16" RAS TO BE ABANDONED
16" SFM TO BE ABANDON
PERMANENTLY BULKHEAD EXIST 36" WW LINE
PERMANENTLY BULKHEAD EXIST 36" WW LINE
PERMANENTLY BULKHEAD EXIST 36" WW LINE
30.0
97.2
8' DIA FERROUS SULFATE TANK
36" WW-DI
ABANDONED 36" WW-PCCP ℄ EL 24.33
6' CLF
LP
SPEAKER AND KEYPAD
HEADWORKS FF=30.52
FF=31.15
FF=31.09
BD
36" WW-DI
12" EFFL-DI
CUT IN NEW 2" 90° BEND AND 2" GATE VAVLE
2" PW-PVC/SW
GENERATOR BUILDING
FOR CONTINUATION SEE SHEET C-3

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

PLOTTED October 10, 2008 7:52 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\C-3 YARD PIPING 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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 9, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

DETAIL YARD PIPING PLAN

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

C-4

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

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

MAIN PIPE SIZE	HORIZ. BENDS 90°	45°	22.5°	TEES SIZE	LENGTH					REDUCERS SIZE	LENGTH			PLUGS
24	90	38	18	X24	X20 177	X20	X16 139	X12 94	X10 40	X20	X16 64	X12 117	X12 158	214
20	78	32	15	X20	X16 148	X16	X12 105	X12 56	X10 25	X8 6	X16	X12 65	X10 115	184
16	66	27	13	X16	X12 116	X12	X10 70	X10 42	X8 12		X12	X10 64	X8 90	151
12	51	22	10	X12	X10 83	X10	X8 59	X8 32	X6 0		X10	X8 34	X6 62	118
10	44	18	9	X10	X8 66	X8	X6 41	X6 8			X8	X6 33	X4 61	100
8	37	15	7	X8	X6 50	X6	X4 21	X4 0			X6	X4 35	X4 59	83
6	29	12	5	X6	X4 30	X4 0					X4			63
4	21	8	4	X4	14									45

NOTES:

1.) RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.

2.) RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.

3.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.

4.) ALL VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.

5.) PIPE SIZES ARE GIVEN IN INCHES.

6.) PIPE LENGTHS ARE GIVEN IN FEET.

7.) LENGTHS SHOWN ARE FOR A TEST PRESURE OF 180 PSI.

8.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		NOVEMBER 1, 1999 DATE OF APPROVAL	RESTRAINED LENGTHS FOR PVC PIPE

UW-14A

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

MAIN PIPE SIZE	HORIZ. BENDS 90°	45°	22.5°	TEES SIZE	LENGTH					REDUCERS SIZE	LENGTH			PLUGS
36	116	48	23	X36	X30 282	X24	X20 175	X16 130	X12 77	X30	X24 96	X20 173	X16 216	317
30	102	42	20	X30	X24 241	X20	X16 144	X12 95	X10 35	X24	X20 96	X16 150	X12 194	275
24	87	36	17	X24	X20 197	X16	X12 112	X10 58	X8 25	0	X20 69	X16 125	X12 170	230
20	75	31	15	X20	X16 165	X12	X10 122	X8 72	X6 41	6	X16	X12 69	X10 145	197
16	63	26	13	X16	X12 132	X10	X8 85	X6 57	X4 25	0	X12	X10 69	X8 97	163
12	50	21	10	X12	X10 97	X8	X6 71	X4 43	7		X10	X8 37	X6 68	128
10	43	18	9	X10	X8 78	X6	52	19			X8	X6 37	X4 67	109
8	36	15	7	X8	X6 60	X4	29	0			X6	X4 38	65	90
6	28	12	6	X6	X4 40	5					X4	36		70
4	20	8	4	X4	19									49

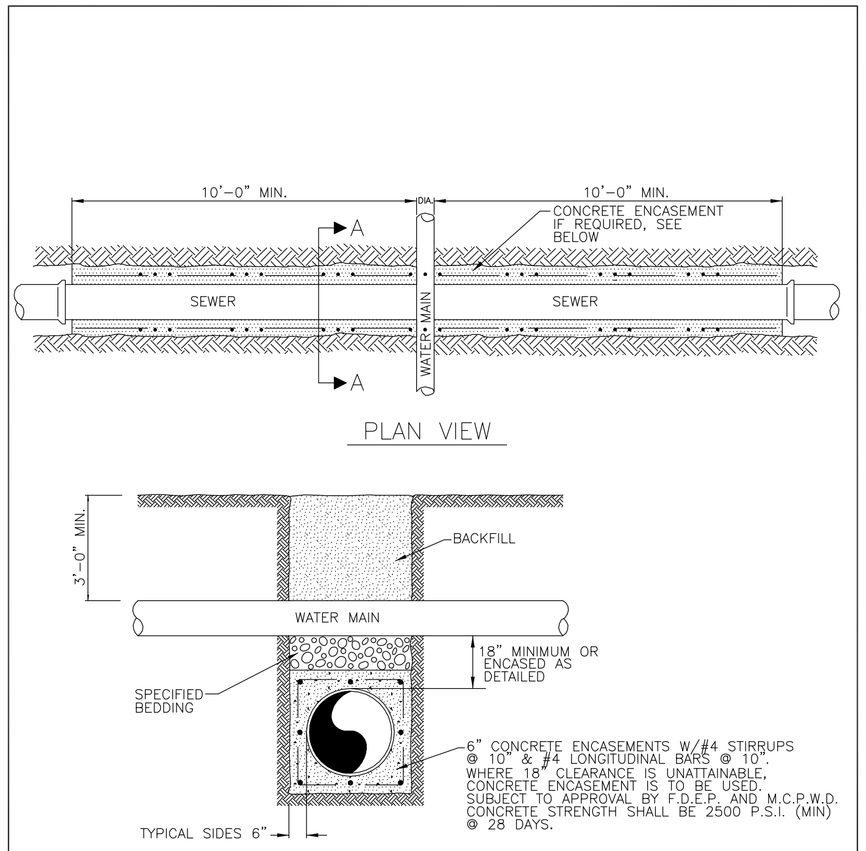
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS 90°	45°	22.5°	TEES SIZE	LENGTH					REDUCERS SIZE	LENGTH			PLUGS
36	100	42	20	X36	X30 98	X24	X20 162	X16 123	X12 91	X30	X24 67	X20 121	X16 151	222
30	88	37	18	X30	X24 169	X20	X16 131	X12 101	X10 67	X24	X20 67	X16 105	X12 136	192
24	75	31	15	X24	X20 138	X16	X12 110	X10 78	X8 40	X20	X16 48	X12 88	X10 119	161
20	65	27	13	X20	X16 115	X12	X10 86	X8 50	X6 29	4	X16	X12 48	X10 86	138
16	54	22	11	X16	X12 92	X10	X8 59	X6 40	X4 18	0	X12	X10 49	X8 68	114
12	43	18	8	X12	X10 68	X8	X6 50	X4 30	5		X10	X8 26	X6 47	89
10	37	15	7	X10	X8 55	X6	36	X4 13			X8	X6 26	X4 47	76
8	30	13	6	X8	X6 42	X4	20	0			X6	X4 26	45	63
6	24	10	5	X6	X4 28	4					X4	25		49
4	17	7	3	X4	14									34

NOTE:
SEE DETAIL UW-14A FOR NOTES 1 THRU 8

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		NOVEMBER 1, 1999 DATE OF APPROVAL	RESTRAINED LENGTHS FOR DIP

UW-14B



MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		MARCH 18, 1997 DATE OF APPROVAL	TYPICAL WATER/ SEWER CROSSING

UW-8

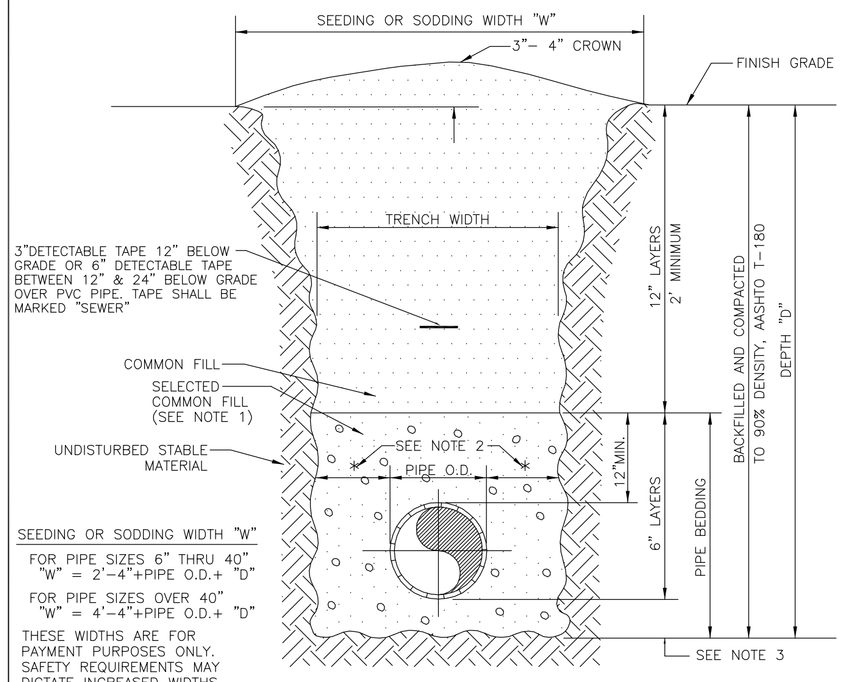
NOTES:

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.

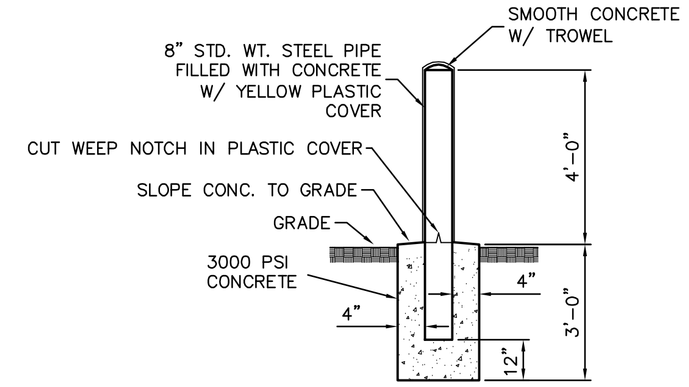
3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX FOR PIPE 42" DIAMETER AND LARGER.

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



MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
RTH	11/99	MARCH 18, 1997 DATE OF APPROVAL	TRENCH DETAIL UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING

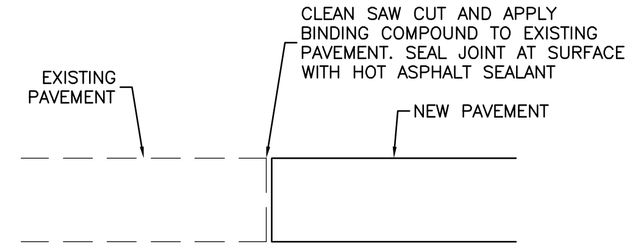
US-11



BOLLARD DETAIL

1 / C-2 DETAIL

SCALE: NTS



ASPHALT CONNECTION

2 / C-2 DETAIL

SCALE: NTS

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.) WEARING SURFACE TO BE SAME TYPE & THICKNESS (1½" MIN.) AS EXISTING PAVEMENT.

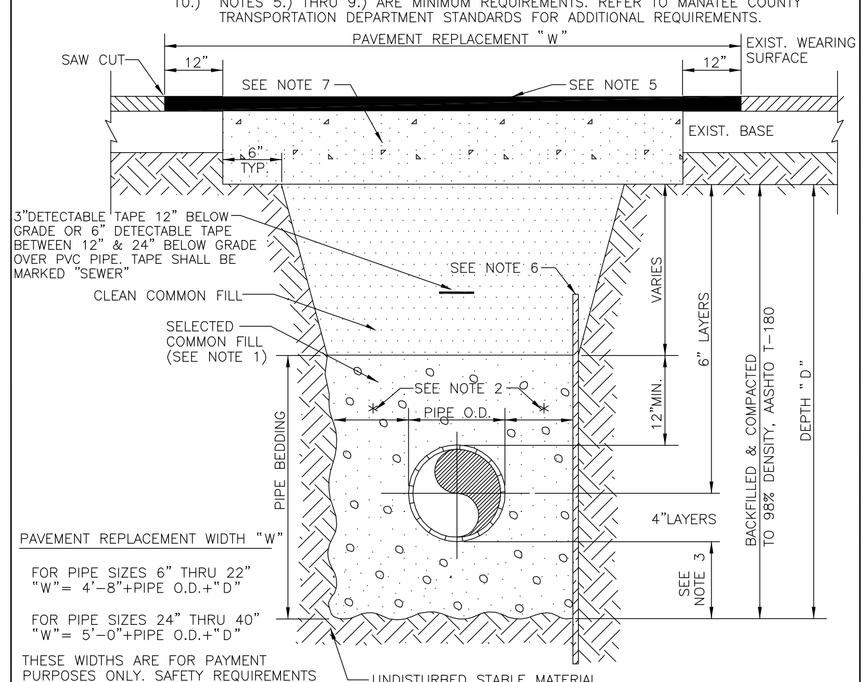
6.) SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.

7.) BASE SHALL BE 6" MINIMUM THICKNESS SAND ASPHALT, 10" MIN. THICKNESS CRUSHED CONCRETE, 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.

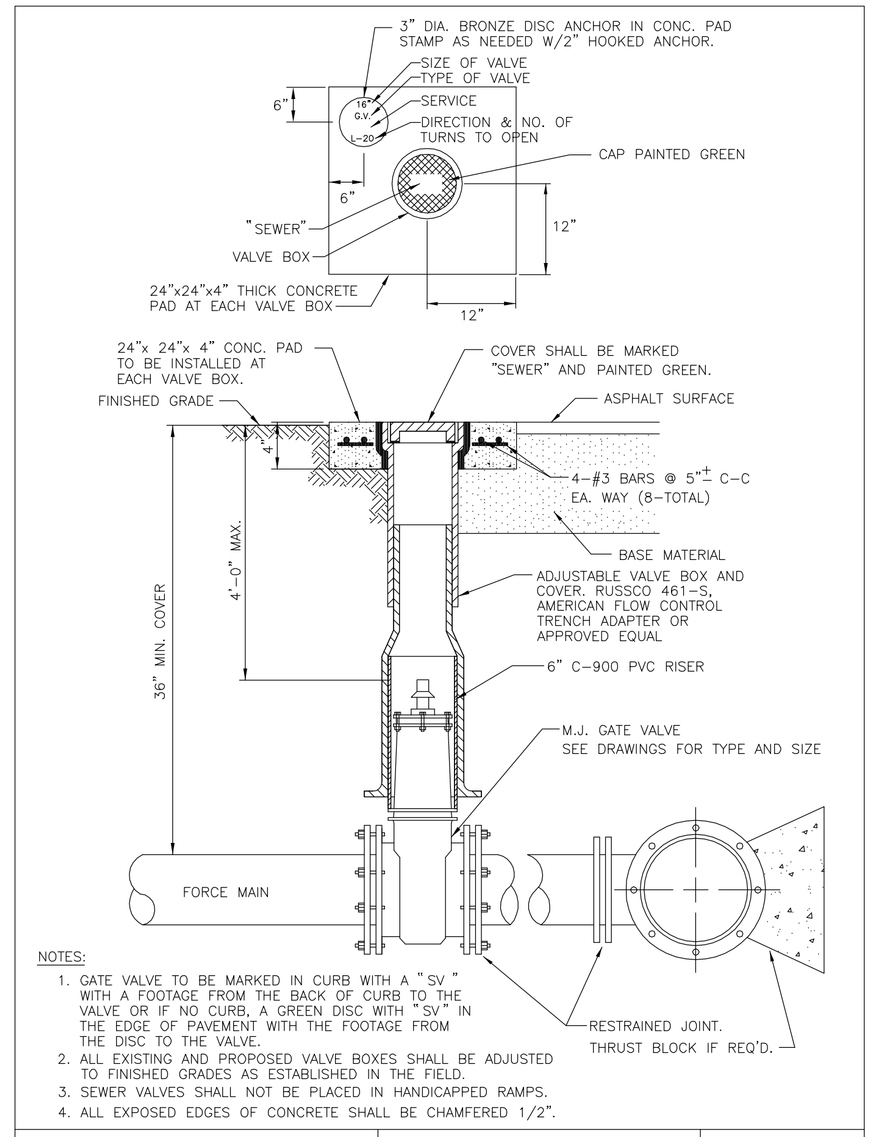
9.) TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIME. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.

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		
RTH	11/99	MARCH 18, 1997 DATE OF APPROVAL	TRENCH DETAIL ASPH. PAVEMENT SURFACE TYPE A-1 PIPE BEDDING

US-12



NOTES:

1. GATE VALVE TO BE MARKED IN CURB WITH A "SV" WITH A FOOTAGE FROM THE BACK OF CURB TO THE VALVE OR IF NO CURB, A GREEN DISC WITH "SV" IN THE EDGE OF PAVEMENT WITH THE FOOTAGE 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. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
RTH	11/99	MARCH 18, 1997 DATE OF APPROVAL	GATE VALVE, BOX, COVER AND TAG

US-16

PLOTTED October 9, 2008 8:54 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\C-5 CIVIL DETAILS.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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

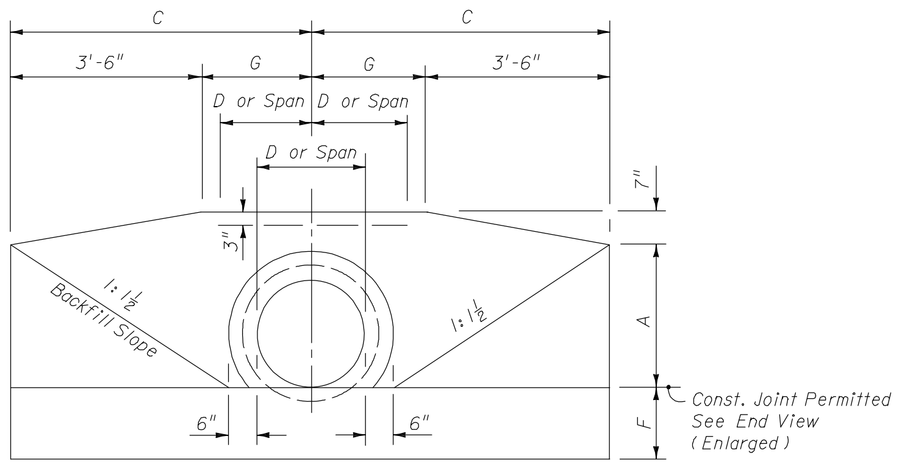
INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

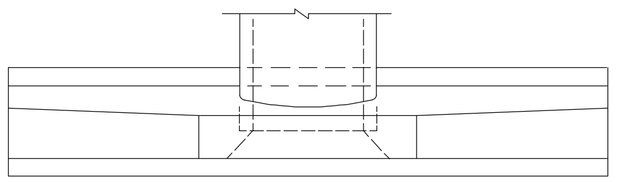
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

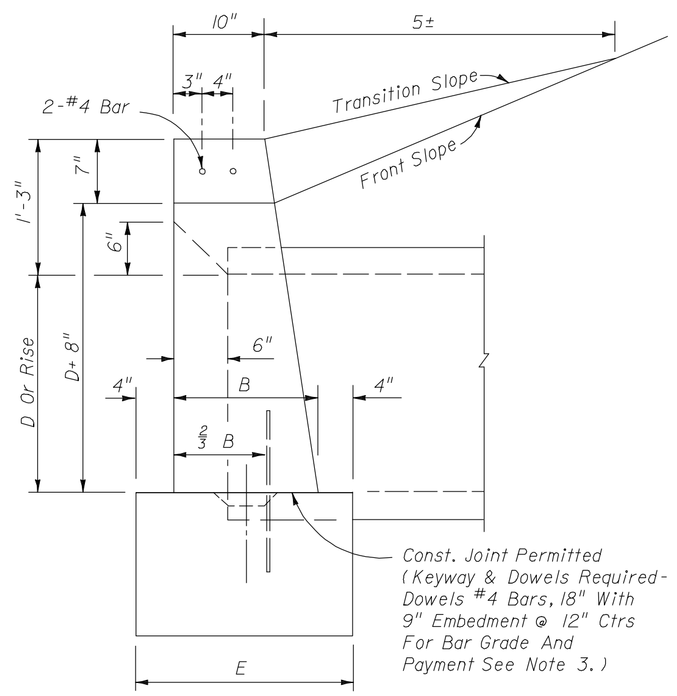
C-5



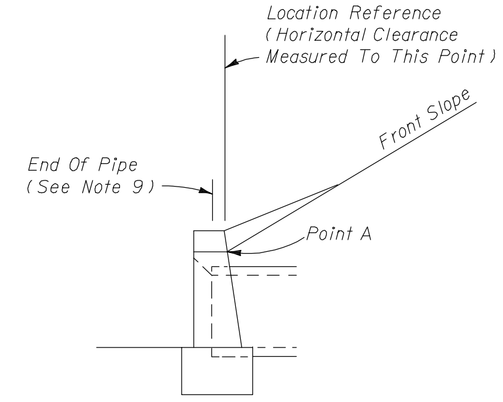
FRONT VIEW



TOP VIEW



END VIEW (ENLARGED)



END VIEW

1. Position is set by the intersection of the front slope and Point A where this intersection falls outside the clear zone.
2. Where the front slope and Point A intersects inside the clear zone, the endwall is positioned so the location reference point is at the clear zone limit. The front slope is transitioned to the endwall as shown in Index No. 280.

STANDARD LOCATION CONTROL

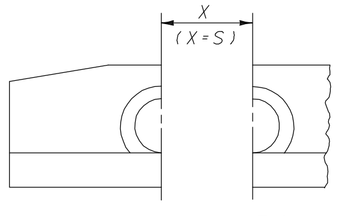
GENERAL NOTES

1. Endwall dimensions, locations and positions are for round and elliptical concrete pipe and for round and pipe-arch corrugated metal pipe. Round concrete pipe shown.
2. Front slope and ditch transitions shall be in accordance with Index No. 280.
3. Endwalls may be cast in place or precast concrete. Reinforcing steel shall be Grades 40 or 60. Additional reinforcement necessary for handling precast units shall be determined by the Contractor or the supplier. Cost of reinforcement shall be included in the contract unit price for concrete, (endwalls).
4. All exposed corners and edges of concrete are to be chamfered ¾".
5. Concrete meeting the requirements of ASTM C478 (4000 psi) may be used in lieu of Class I concrete in precast items manufactured in plants which are under the Standard Operating Procedures for the inspection of precast drainage products.
6. On outfall ditches with side slopes flatter than 1:1½ provide 20' transitions from the endwall to the flatter side slopes, right of way permitting.
7. For sodding around endwalls see Index No. 281.
8. Payment for concrete quantities for endwalls skewed to the pipe shall be made on the following basis:

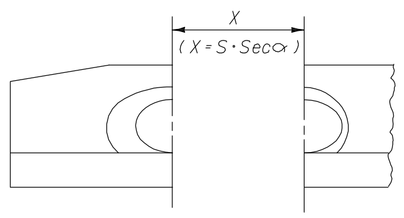
Endwall Skew To Pipe	Use Tabulated Value
0° to 5°	0°
6° to 15°	15°
16° to 30°	30°
31° or over	45°

9. Pipe length plan quantities shall be based on the pipe end locations shown in the standard location control end view, or lengths based on special endwall locations called for in the plans.
10. Payment for pipe in pipe culverts shall be based on plan quantities, adjusted for endwall locations subsequently established by the Engineer.
11. Endwalls to be paid for under the contract unit price for Class I Concrete (Endwalls), CY.

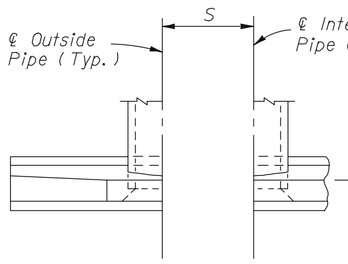
ENDWALL DIMENSIONS (EXCLUSIVE OF MULTIPLE PIPE SPACING)



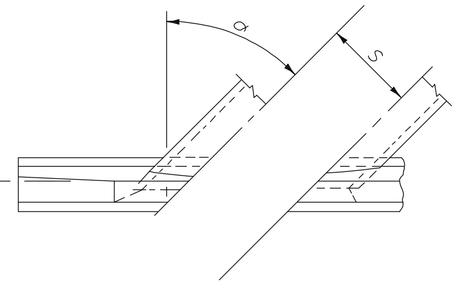
FRONT VIEW



FRONT VIEW



TOP VIEW



TOP VIEW

NORMAL PIPE

LEGEND

α Pipe Skew
S Center To Center Pipe Spacing
X Centerline To Centerline Dimension At Face Of Headwall

SKEWED PIPE

ENDWALL POSITIONS FOR SINGLE AND MULTIPLE PIPE AND SPACING FOR MULTIPLE PIPE

DATA AND ESTIMATED QUANTITIES FOR ONE ENDWALL

CONCRETE HEADWALL (FDOT INDEX 250)

3 / C-2 DETAIL
SCALE: NTS

Note: Use the guidelines of General Note No. 8 for selecting tabular quantities.

ROUND CONCRETE AND CORRUGATED METAL PIPE

D	Opening Area (SF)				Dimensions											Class I Concrete (CY)																				D
	Number Of Pipes											X				Number And Type Of Pipe And Skew Angle Of Pipe																				
																Single		Double						Triple						Quadruple						
																Concrete	Metal	Concrete				Metal				Concrete				Metal				Concrete				Metal				
	1	2	3	4	A	B	C	E	F	G	S	0°	15°	30°	45°	0°	0°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	
24"	3.14	6.28	9.42	12.56	2'-8"	1'-4"	5'-6"	2'-0"	1'-4"	2'-0"	3'-5"	3'-5"	3'-6"	3'-11"	4'-10"	2.24	2.29	2.82	2.84	2.91	3.06	2.91	2.93	3.01	3.17	3.39	3.43	3.57	3.87	3.52	3.56	3.71	4.03	3.97	4.03	4.24	4.69	4.14	4.20	4.43	4.91	24"

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 6, 2008

MANATEE COUNTY FLORIDA

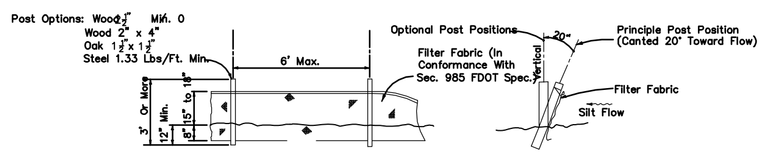
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

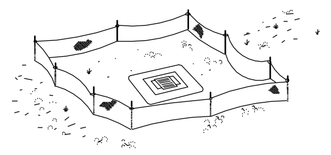
PROJECT STATUS
BID SET
OCTOBER 2008

C-6



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

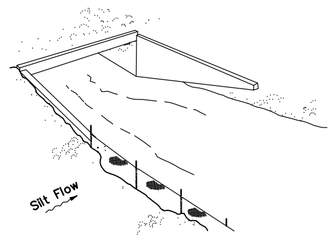
TYPE ~~~ SILT FENCE



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.

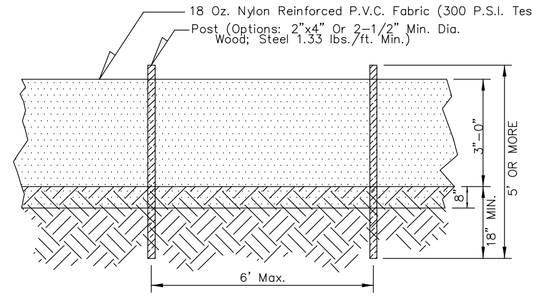
SILT FENCE APPLICATIONS



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



Note: Refer to Latest Edition of F.D.O.T. "Roadway and Traffic Design Standards" Index No. 102 for Additional Details and Specifications.

NOTES:

1. CONTRACTOR SHALL INSTALL EROSION CONTROL DEVICES PRIOR TO ANY OTHER CONSTRUCTION ACTIVITIES. THE DEVICE SHALL BE INSTALLED IN THE LOCATIONS ON THE DRAWINGS AND ANYWHERE ELSE THERE IS A POTENTIAL FOR EROSION AS SEDIMENT TO EXIT THE WORK AREA.
2. CONTRACTOR SHALL INSPECT INSTALLED EROSION CONTROL DEVICE WEEKLY DURING CONSTRUCTION AND AFTER HEAVY RAINS FOR DAMAGE. MAINTENANCE SHALL INCLUDE CLEANING BUILT-UP SEDIMENT BEHIND THE BARRIERS AND/OR REPLACING DAMAGED SECTIONS.
3. THE EROSION CONTROL DEVICE SHALL BE MAINTENANCED BY THE CONTRACTOR UNTIL A PERMANENT STAND OF GRASS (OR OTHER PERMANENT STABILIZATION) IS ESTABLISHED.
4. IN NO CASE SHOULD HAY BALES BE USED AS EROSION CONTROL.

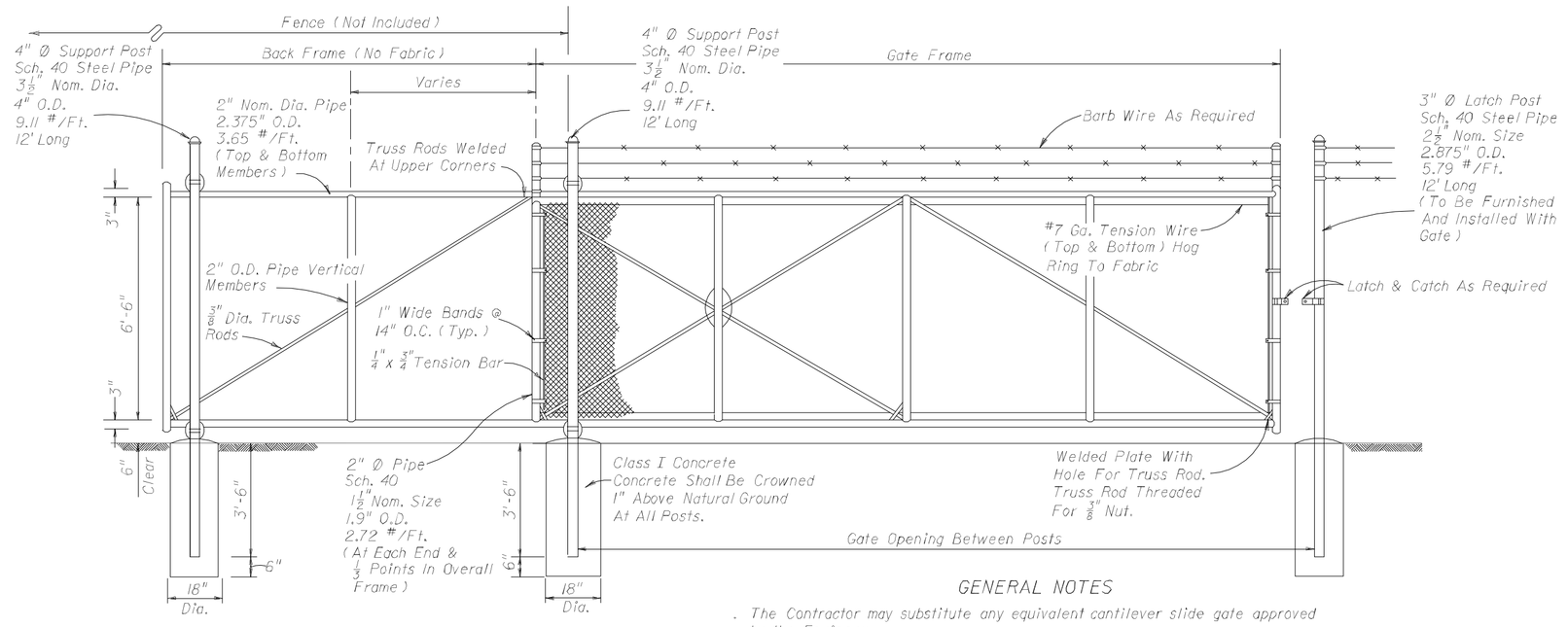
FDOT INDEX 102

BALED HAY OR STRAW BARRIERS & SILT FENCES

4 / C-2 DETAIL SCALE: NTS

EROSION/SEDIMENTATION CONTROL DEVICE

5 / C-1&C-2 DETAIL SCALE: NTS

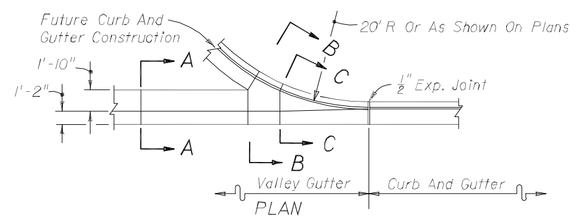


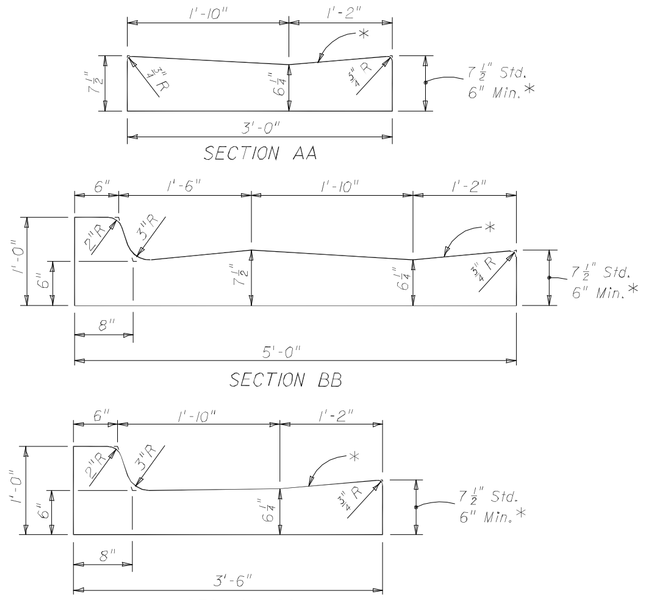
GENERAL NOTES

. The Contractor may substitute any equivalent cantilever slide gate approved by the Engineer.
Extruded, rolled or formed components that provide equal strength and stability may be used in lieu of the pipe components shown; and, internal rollers may be used in lieu of the external roller units shown.
. Gate components shall meet or exceed the protective coatings specified.
Steel gate frame shall be fabricated prior to galvanizing, except that truss rods may be fabricated following frame galvanizing provided surfaces damaged during welding are galvanized in accordance with Section 24 of AASHTO M36; or, fabricated from pipe components with protective coating meeting the requirements of Index No. 452 that are tolerant of welding (low burn back), and a protective coating applied to the weld and damaged pipe surfaces that is equivalent to the protective coating of the fabricated pipe stock.
. All fabric shall be knuckled top and bottom selvages.
. Cost of all gate components shall be included in the contract unit price for Sliding Fence Gate (Cantilever), EA.

CHAIN LINK COUNTERLEAVER SLIDE GATE

6 / C-2 DETAIL SCALE: NTS





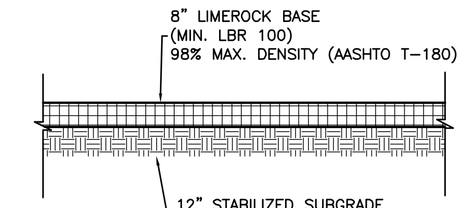
VALLEY GUTTER

* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.

☑ ROTATE ENTIRE SECTION SO THAT GUTTER CROSS SLOPE MATCHES SLOPE OF ADJACENT CIRCULATING ROADWAY PAVEMENT.

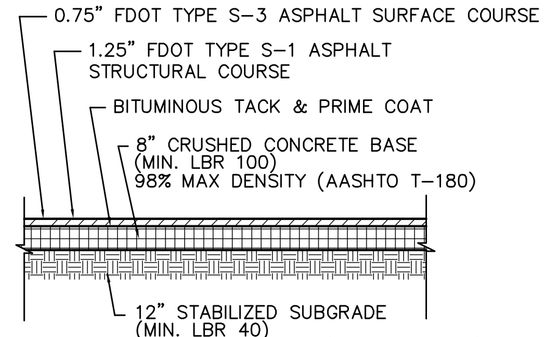
VALLEY GUTTER DETAIL (FDOT INDEX 300)

8 / C-2 DETAIL SCALE: NTS



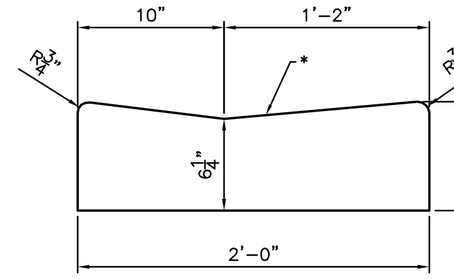
LIMEROCK ROAD

7 / C-2 DETAIL SCALE: NTS



ASPHALT PAVEMENT

9 / C-2 DETAIL SCALE: NTS



* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOW ON PLANS

NOTES:

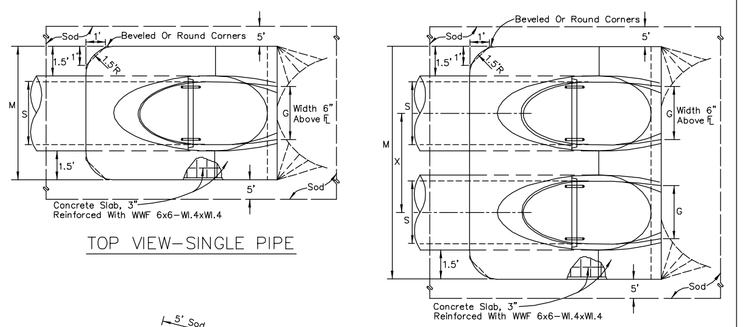
1. FOR CURB, GUTTER AND CURB & GUTTER PROVIDE ⅛" -¼" CONTRACTION JOINTS AT 10' CNTERS (MAX). CONSTRUCTION JOINTS ADJACENT TO CONCRETE PAVEMENT ON TANGENTS AND FLAT CURVES ARE TO MATCH THE PAVEMENT JOINTS, WITH INTERMEDIATE JOINTS NOT T OEXCEED 10' CENTERS. CURB, GUTTER AND CURB AND GUTTER EXPANSIONS JOINTS SHALL BE LOCATED IN ACCORDANCE WITH SECTION 520 OF THE STANDARD SPECIFICATIONS.
2. END OF CURBS TYPE B AND D SHALL TRANSITION FROM FULL TO ZERO HEIGHTS IN 3'.

DROP CURB (FDOT INDEX NO 300)

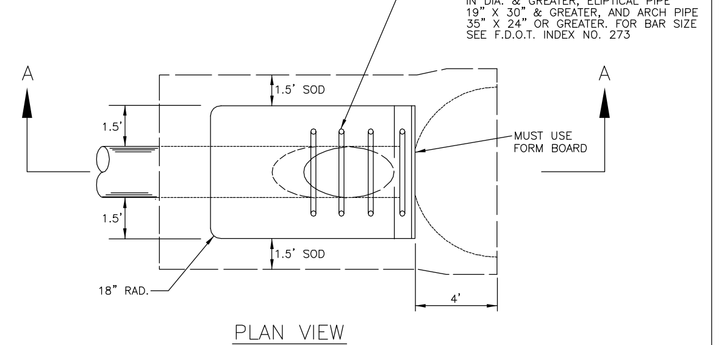
10 / C-2 DETAIL SCALE: NTS

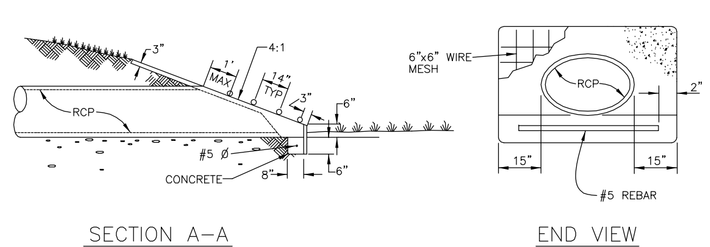
ELIPTICAL PIPE

	DIMENSIONS & QUANTITIES												
	Rise R	Span S	X	A	B	C	E	F	G	M Single Pipe	M Double Pipe	M Triple Pipe	M Quad. Pipe
2:1 Slope	12"	18"	2'-10"	1.97"	1.62"	3.59"	1.56"	4"	1.50"	4.92'	7.75'	10.58'	13.42'
	14"	23"	3'-4"	2.01"	1.99"	4.00"	1.89"	5"	1.90"	5.38'	8.71'	12.04'	15.38'
	19"	30"	4'-0"	2.11"	2.92"	5.03"	2.73"	6"	2.37"	6.04'	10.04'	14.04'	18.04'
	24"	38"	5'-0"	2.20"	3.85"	6.05"	3.56"	7"	2.85"	6.79'	11.79'	16.79'	21.79'
	29"	45"	5'-11"	2.54"	4.79"	7.13"	4.39"	8"	3.19"	7.50'	13.42'	19.33'	25.25'
	34"	53"	7'-0"	2.43"	5.72"	8.15"	5.23"	9"	3.57"	8.25'	15.25'	22.25'	29.25'
	38"	60"	7'-10"	2.52"	6.46"	8.98"	5.89"	9"	3.95"	8.92'	16.75'	24.58'	32.42'
	43"	68"	8'-11"	2.62"	7.39"	10.01"	6.73"	10"	4.28"	9.67'	18.58'	27.50'	36.42'
	48"	76"	9'-11"	2.71"	8.33"	11.04"	7.56"	11"	4.59"	10.42'	20.33'	30.25'	40.17'
	53"	83"	10'-8"	2.80"	9.26"	12.06"	8.39"	12"	4.77"	11.08'	21.75'	32.42'	43.08'
	58"	91"	11'-8"	2.90"	10.19"	13.09"	9.23"	13"	5.01"	11.83'	23.50'	35.17'	46.83'
4:1 Slope	12"	18"	2'-10"	2.36"	3.06"	5.42"	3.03"	5"	1.50"	4.92'	7.75'	10.58'	13.42'
	14"	23"	3'-4"	2.44"	3.75"	6.18"	3.70"	6"	1.90"	5.38'	8.71'	12.04'	15.38'
	19"	30"	4'-0"	2.62"	5.47"	8.09"	5.36"	8"	2.37"	6.04'	10.04'	14.04'	18.04'
	24"	38"	5'-0"	2.79"	7.18"	9.97"	7.03"	10"	2.85"	6.79'	11.79'	16.79'	21.79'
	29"	45"	5'-11"	3.05"	8.90"	11.80"	8.70"	12"	3.19"	7.50'	13.42'	19.33'	25.25'
	34"	53"	7'-0"	3.22"	10.62"	13.84"	10.36"	13"	3.57"	8.25'	15.25'	22.25'	29.25'
	38"	60"	7'-10"	3.39"	11.99"	15.38"	11.70"	15"	3.95"	8.92'	16.75'	24.58'	32.42'
	43"	68"	8'-11"	3.56"	13.71"	17.27"	13.36"	17"	4.28"	9.67'	18.58'	27.50'	36.42'
	48"	76"	9'-11"	3.73"	15.43"	19.16"	15.03"	19"	4.59"	10.42'	20.33'	30.25'	40.17'
	53"	83"	10'-8"	3.91"	17.15"	21.06"	16.70"	20"	4.77"	11.08'	21.75'	32.42'	43.08'
	58"	91"	11'-8"	4.08"	18.87"	22.95"	18.36"	22"	5.01"	11.83'	23.50'	35.17'	46.83'



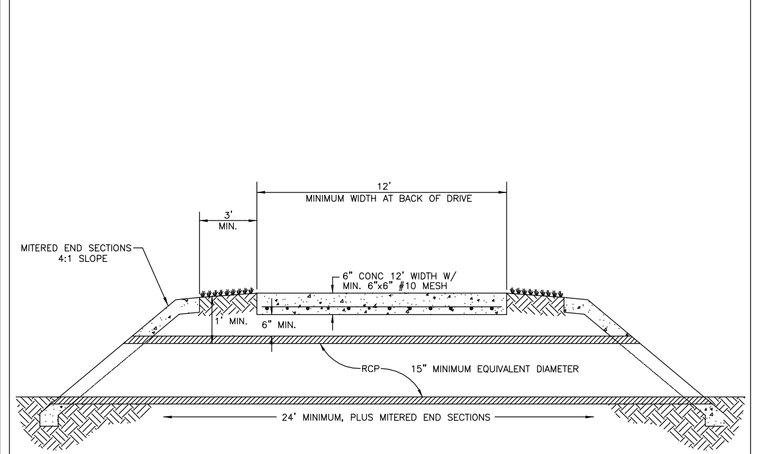
MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	MITERED END SECTION FOR ELIPTICAL, SINGLE, AND MULTIPLE PIPES	102.1





SOD TO BE PLACED 1.5 FT AROUND THE PERIMETER OF THE WALL, SOD TO BE BAHIA; ST. AUGUSTINE SOD WHERE THERE IS TIDAL, HEAVY CONCENTRATION OF SALT, OR SURROUNDING PROPERTY IS ST. AUGUSTINE.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	DRIVEWAY AND ROAD PIPE MITERED END SECTION	103.0



TYPICAL DRIVEWAY

VARIABLES: C.M.P. WILL NOT BE ALLOWED WITHIN THE RIGHT-OF-WAY, R.C.P. WILL REQUIRE A MINIMUM 6" OF COVER BENEATH BOTTOM OF DRIVEWAY, FOR A TOTAL OF 1' OF COVER. HDPE PIPE IS ACCEPTABLE IN LIEU OF RCP.

NOTE: 1) GRADES AND LOCATIONS MUST BE REVIEWED AND APPROVED BY THE DRIVEWAY INSPECTOR FOR ALL PIPE INSTALLATIONS

2) ACTUAL REQUIRED PIPE DIAMETER WILL BE BASED ON THE FLOW RATE REQUIRED TO PASS THROUGH PIPE SO AS NOT TO IMPOUND WATER UPSTREAM.

3) PIPE SIZE TO BE DETERMINED AND APPROVED BY MANATEE COUNTY.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	TYPICAL DRIVEWAY PIPE CROSS SECTION	102.0

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 5, 2008

MANATEE COUNTY FLORIDA

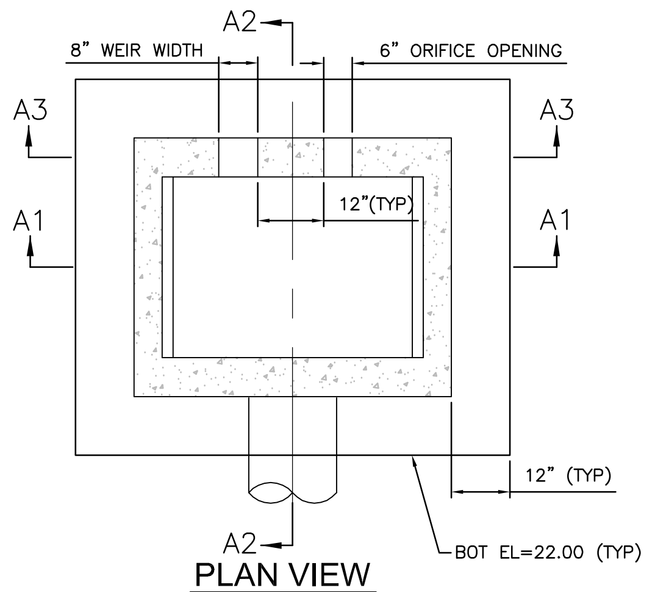
INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CIVIL DETAILS

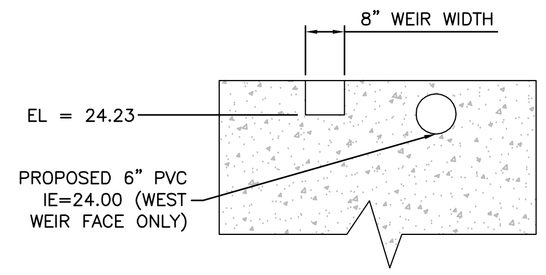
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

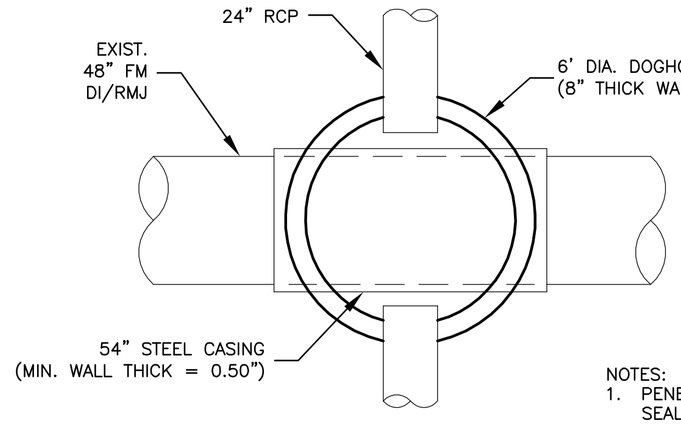
C-7



PLAN VIEW
SCALE: NTS

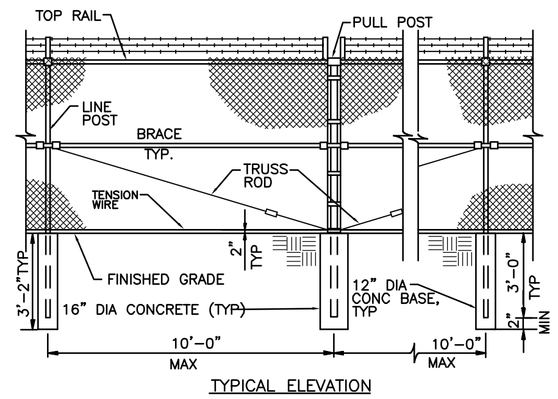


WEIR FACE DETAIL (SECTION A3-A3)
SCALE: NTS

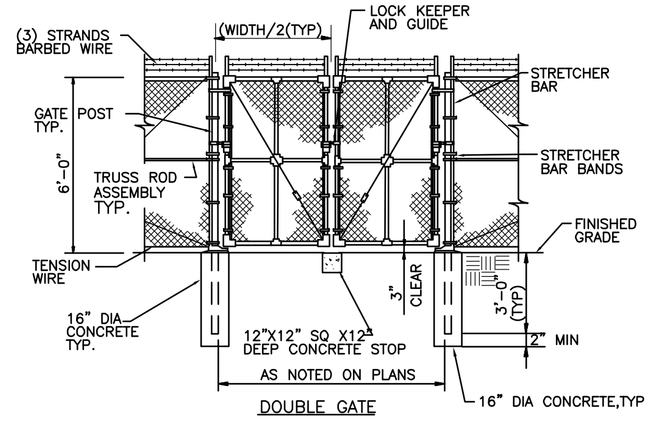


PLAN

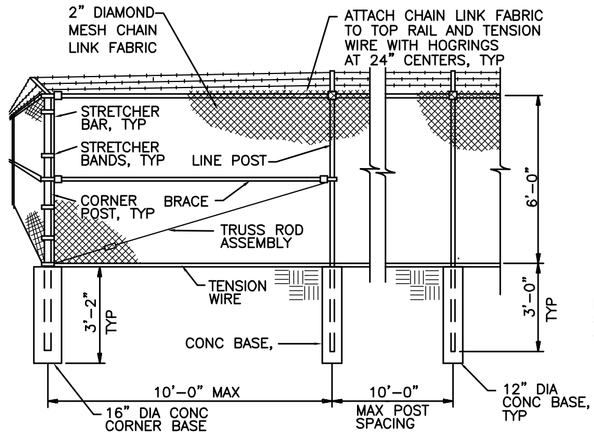
NOTES:
1. PENETRATIONS SHALL BE SEALED TO PREVENT LEAKAGE.



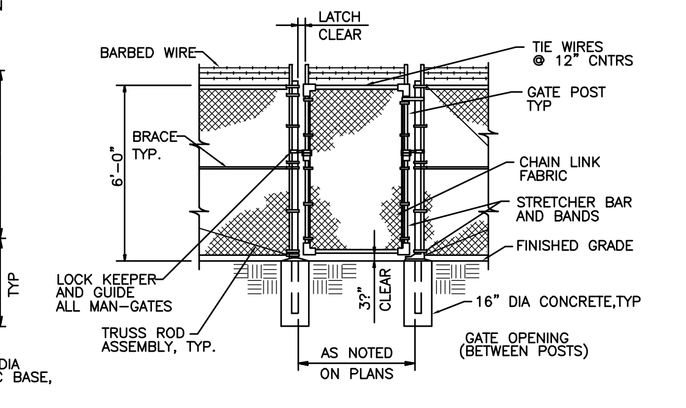
TYPICAL ELEVATION



DOUBLE GATE



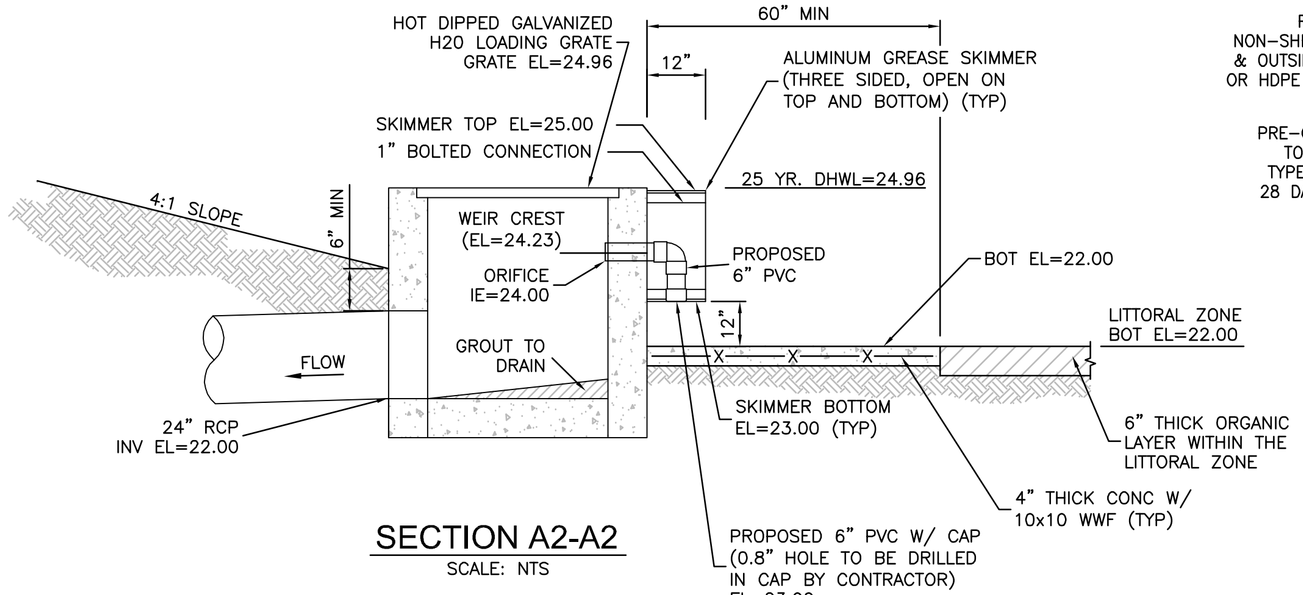
TYPICAL ELEVATION



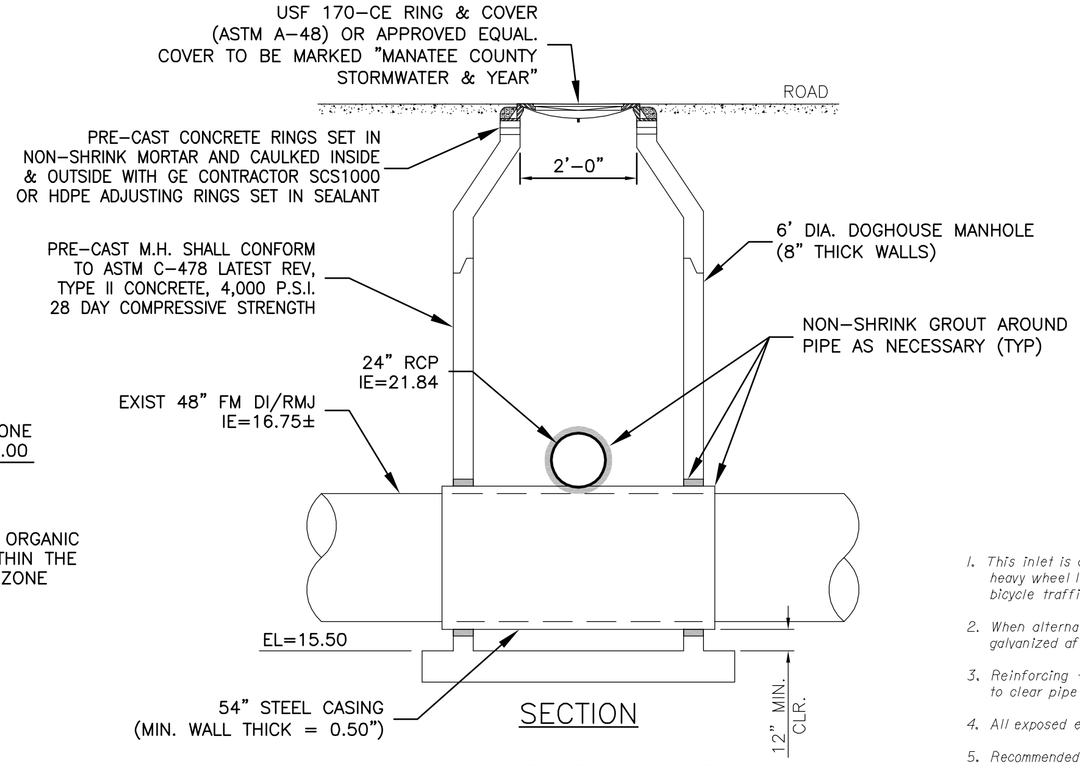
SINGLE GATE

CHAIN LINK FENCE DETAIL (12 / C-2)
SCALE: NTS

FENCE NOTES:
1. BRACE AND TRUSS ROD REQUIRED AT GATES AND SIDES OF ALL CORNER POSTS.
2. FENCING MATERIALS AND INSTALLATION TO BE IN ACCORDANCE WITH "FENCING" SPECIFICATION.



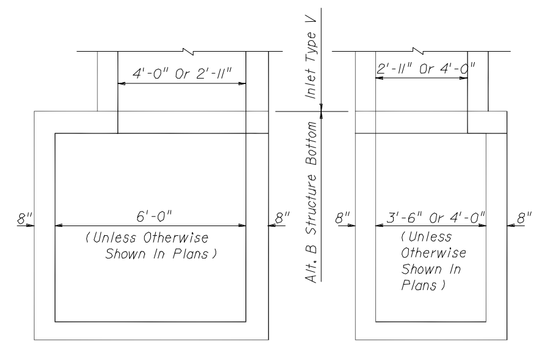
SECTION A2-A2
SCALE: NTS



SECTION
CONFLICT MANHOLE DETAIL (14 / C-2)
SCALE: NTS

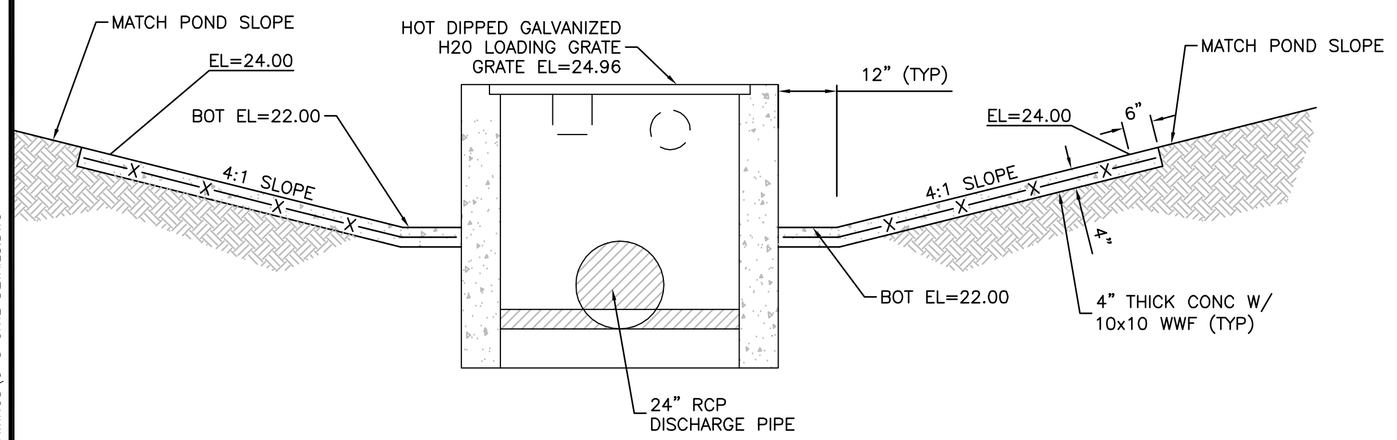
GENERAL NOTES

1. This inlet is designed for village swales, ditches, or other areas subject to heavy wheel loads, minimum debris and subject to pedestrian and/or bicycle traffic.
2. When alternate "G" grate is specified in plans, the grate is to be hot dipped galvanized after fabrication.
3. Reinforcing - #4 bars at 12" ctrs. both ways. Cut or bend bars out of way of pipe to clear pipe 1½".
4. All exposed edges and corners shall be tooled to ¼" radius.
5. Recommended maximum pipe sizes shown are for concrete pipe.
6. For supplementary details see Index No. 201.



NOTE: Alt. B Structure Bottom Only. See Index No. 200 for structure bottom details and hole reinforcement. (For Pipes 30" Dia. And Larger)

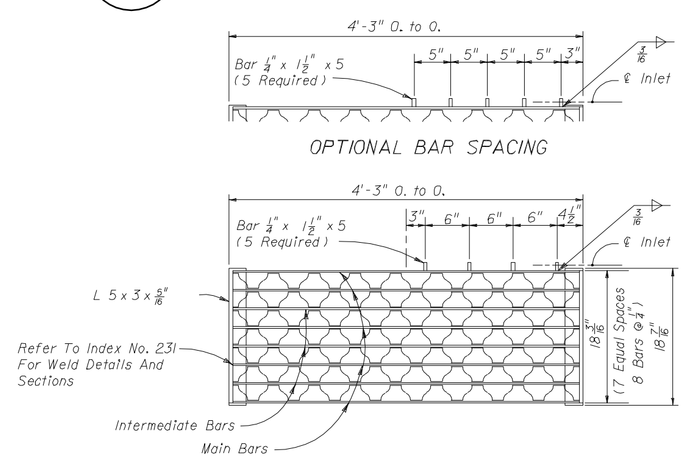
INLET WITH STRUCTURE BOTTOM

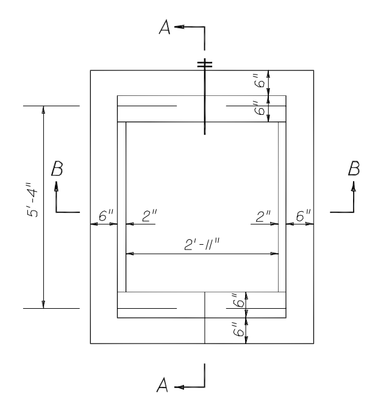


SECTION A1-A1
SCALE: NTS

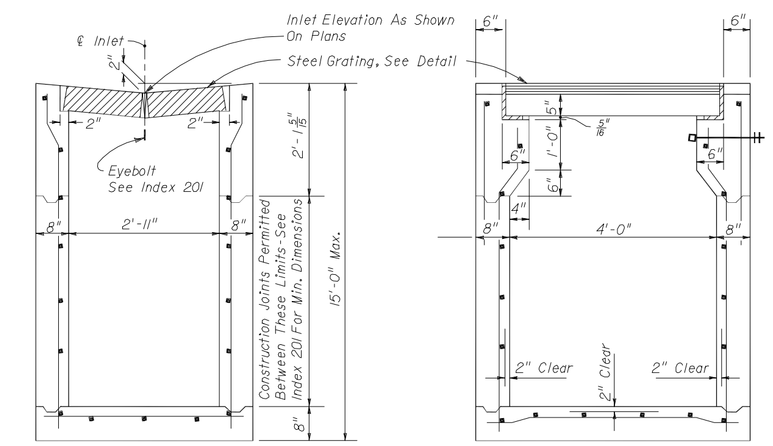
NOTE: SEE "STORMWATER POND, ON SHEET C-2 FOR FURTHER DETAILS.

MODIFIED TYPE 'D' CONTROL STRUCTURE (ST-2) DETAIL (11 / C-2)
SCALE: NTS





PLAN



SECTION BB

Recomended Maximum Pipe Size:
2'-11" Wall - 24" Size
4'-0" Wall - 36" Size

SECTION AA

FDOT GUTTER INLET TYPE V (INDEX NO. 221) DETAIL (13 / C-2)
SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 10, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

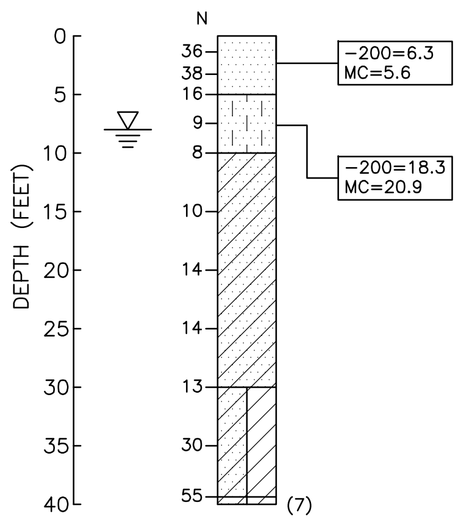
CIVIL DETAILS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

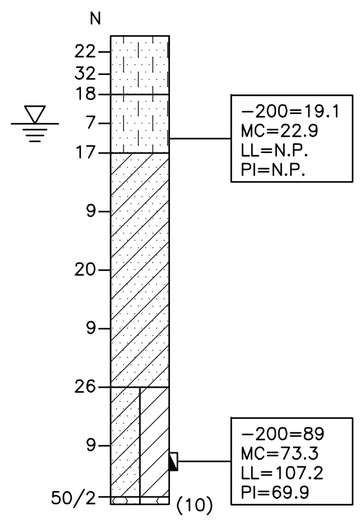
PROJECT STATUS
BID SET
OCTOBER 2008

C-8

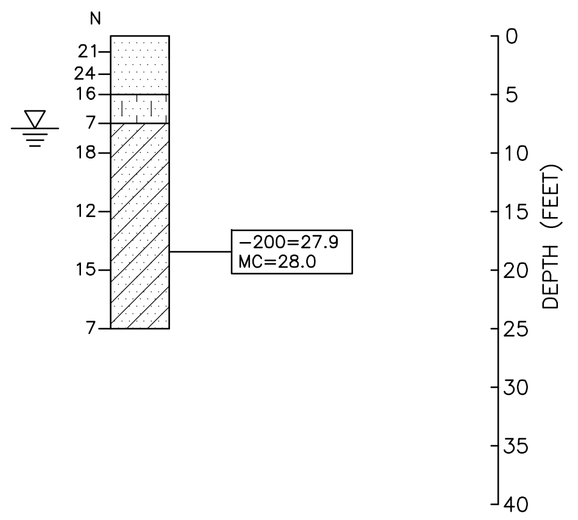
BORING B-1
GSE APPROX. 25.0
GROUNDWATER DEPTH = 8.0'
DATE: 10/17/07



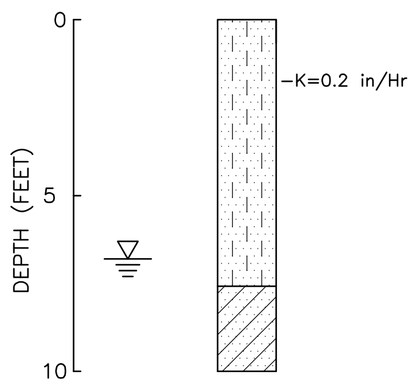
BORING B-2
GSE APPROX. 25.0
GROUNDWATER DEPTH = 7.5'
DATE 10/17/07



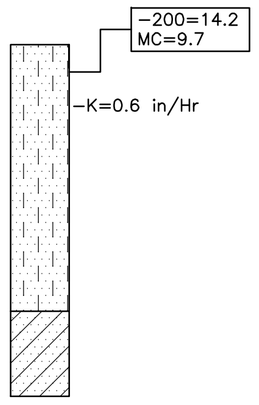
BORING B-3
GSE APPROX. 25.0
GROUNDWATER DEPTH = 7.9'
DATE 10/17/07



BORING B-4
GSE APPROX. 25.0
GROUNDWATER DEPTH = 6.8'
DATE: 10/17/07



BORING B-5
GSE APPROX. 25.0
GROUNDWATER DEPTH = 6.6'
DATE 10/17/07



SOIL LEGEND:

1) SAND (SP)
2) SAND W/SOME SILT (SP, SP-SM)
4) SAND W/SOME CLAY (SP-SC)
5) CLAYEY SAND (SC)
7) CLAYEY SAND (SC) AND HIGHLY PLASTIC CLAY (CH)
10) LIMESTONE (LS)

LEGEND:

-200	%PASSING #200 SIEVE
MC	MOISTURE CONTENT (%)
ORG	ORGANIC CONTENT (%)
LL	LIQUID LIMIT
N.P.	NON-PLASTIC
PI	PLASTICITY INDEX
GSE	GROUND SURFACE ELEVATION
▽	GROUNDWATER LEVEL AT TIME OF DRILLING
N	STANDARD PENETRATION RESISTANCE IN BLOWS/12 IN
WOH	WEIGHT OF HAMMER
WOR	WEIGHT OF ROD
(SP)	UNIFIED SOIL CLASSIFICATION
k	PERMEABILTY VALUE FROM DOUBLE RING INFILTRATION TEST
	UNDISTURBED SAMPLE (SHELBY TUBE)

SOIL DESIGN PARAMETERS

BORING NUMBER	DEPTH (FEET)	SPT 'N' RANGE	APPROX. SOIL UNIT WEIGHT (pcf)		ANGLE OF INTERNAL FRICTION	UNDRAINED SHEAR STRENGTH (psf)
			MOIST	SUBMERGED		
B-1	0-5	16-38	115	52.6	34	0
	5-10	8-9	110	47.6	30	0
	10-35	10-30	115	52.6	32	0
	35-40	30-55	125	62.6	0	4,000
B-2	0-5	18-32	115	52.6	34	0
	5-7.5	7	110	47.6	30	0
	7.5-15	9-17	110	47.6	30	0
	15-40	9-26	110	47.6	30	0
	40-40.2	50/2	125	62.6	0	4,000
B-3	0-5	16-24	115	52.6	34	0
	5-7.5	7	110	47.6	30	0
	7.5-20	12-18	115	52.6	32	0
	20-25	7	110	47.6	30	0

ENGINEERING CLASSIFICATION

GRANULAR MATERIALS

RELATIVE DENSITY	SPT (BLOWS/FOOT)
VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM OR COMPACT	11 TO 30
DENSE	31 TO 50
VERY DENSE	OVER 50

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FOOT)
VERY SOFT	0 TO 2
SOFT	2 TO 4
FIRM	4 TO 8
STIFF	8 TO 15
VERY STIFF	15 TO 30
HARD	OVER 30

NOTES
1. BORINGS ARE NOT TO SCALE HORIZONTALLY.
2. SOIL BORINGS REFERENCED FROM EXISTING FEATURES ON SITE. SEE SHEET C-1 FOR APPROXIMATE LOCATIONS.
3. HAMMER TYPE: MANUAL
4. DRILL RIG TYPE: CME-75

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 12007031
PM: D. WILCOX
ENG: K. GIANG
DRW: D. ELLIS
FILE SAVE DATE: May 19, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SOIL BORING LOGS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

C-9

A. BUILDING CODES:

1. FLORIDA BUILDING CODE, 2004 EDITION (2005 AND 2006 REVISIONS).
2. ACI 318-02 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
3. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, NINTH EDITION (ASD).
4. AWS STRUCTURAL WELDING CODE (CURRENT EDITION).
5. ACI 350-06 CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES AND COMMENTARY.

B. DESIGN CRITERIA:

1. LIVE LOADS:

   STAIRS 100 PSF CONCRETE DECK 50 PSF ELEVATED TRENCH/PIT COVERS 50 PSF.
2. WIND LOADS AS PER ASCE 7-02 FOR A BASIC WIND SPEED OF 130 MPH;
   WIND IMPORTANCE FACTOR: 1.15
   BUILDING CATEGORY: III
   OTHER STRUCTURE
   EXPOSURE "C"
3. ALLOWABLE SOIL PRESSURE - 2500 PSF

C. CONSTRUCTION MATERIALS:

1. CAST-IN-PLACE CONCRETE COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS.
2. ANCHOR BOLTS STAINLESS STEEL TYPE 316
3. REINFORCING STEEL - ASTM A 615, GRADE 60 UNCOATED.
4. NON SHRINK, NON METALIC GROUT:
   EUCO-NS BY EUCLID CHEMICAL COMPANY OR APPROVED EQUAL.
5. WELDED STEEL WIRE FABRIC - ASTM A 185.
6. WELDING ELECTRODES - AWS STANDARDS (ALUMINUM, STAINLESS STEEL).
7. STAINLESS STEEL - ANCHOR BOLTS, EXPANSION ANCHORS, THREADED RODS, NUTS AND WASHERS. PROVIDE TYPE 316
8. NEOPRENE PADS - 200 PSI (MINIMUM) ALLOWABLE COMPRESSIVE STRESS.

B. FOUNDATIONS:

1. ALL EARTHWORK AND COMPACTION FOR STRUCTURES SHALL BE AS NOTED IN THE SPECIFICATIONS.

E. EXCAVATIONS:

1. THE SIDES OF EXCAVATIONS, SHALL BE CUT TO STABLE SLOPES OR SHALL BE SHEETED, SHORED, OR BRACED BY CONTRACTOR AS REQUIRED FOR STABILITY.

F. GENERAL NOTES:

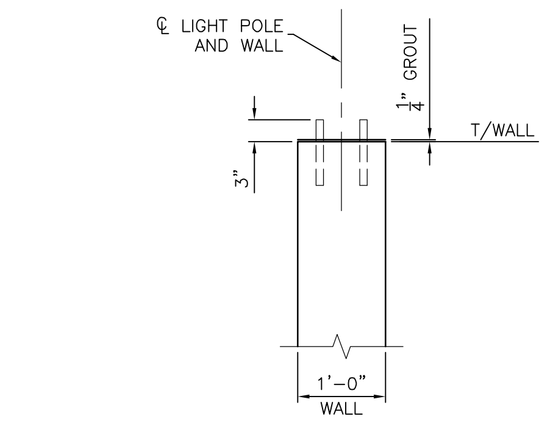
1. APPLY FINISH TO ALL CONCRETE AS NOTED IN THE SPECIFICATIONS.
2. ALL REINFORCEMENT TO BE DETAILED AND FABRICATED IN ACCORDANCE WITH ACI 315-94. ALL CONSTRUCTION JOINTS, WITH REINFORCING PASSING THROUGH THE JOINT, SHALL BE ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY ¼", UNLESS NOTED OTHERWISE.
3. PROVIDE THE FOLLOWING MINIMUN CONCRETE COVER, UNLESS NOTED OTHERWISE ON THE PLANS:
   FOOTINGS - - - - 3"
   SLABS ON GRADE - CENTERED
   ELEVATED SLABS 3"
   WALLS (EXPOSED TO UNTREATED WATER) 3"
   BEAM STIRRUPS 2½".
4. CHAMFER ALL EXPOSED CONCRETE EDGES ¾"x¾" EXCEPT AS NOTED OTHEWISE.
5. CONTRACTOR SHALL VERIFY AND CORRELATE ALL DIMENSIONS BEFORE PROCEEDING WITH FABRICATION AND CONSTRUCTION.

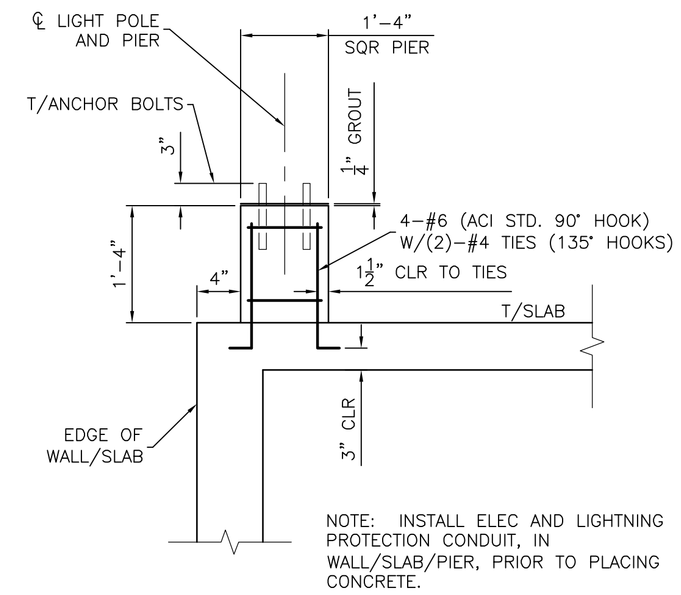
G. COORDINATION:

1. THE CONTRACTOR SHALL COORDINATE ALL PIPE AND CONDUIT PENETRATIONS THROUGH CONCRETE WITH THE CIVIL, MECHANICAL, AND ELECTRICAL SHOP DRAWINGS PRIOR TO PLACING CONCRETE.
2. THE STRUCTURAL SHEETS SHALL BE COORDINATED WITH THE CIVIL,ARCHITECTURAL, MECHANICAL AND ELECTRICAL SHEETS TO PROPERLY LOCATE DRAINS, SLOPES, PIPE SLEEVES, ANCHOR BOLTS, BLOCK-OUTS, ETC. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. THE STRUCTURAL SHEETS SHALL BE COORDINATED WITH THE PROJECT SPECIFICATIONS.

H. SUBMITTALS:

1. ALL SHOP DRAWINGS MUST BE REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL.
2. THE GENERAL CONTRACTOR SHALL SUBMIT FOR ENGINEER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS:
   REINFORCING STEEL
   CONCRETE MIX DESIGNS
   ALUMINUM STAIRTOWERS
   ALUMINUM GRATING
   ALUMINUM HANDRAILS
   ALUMINUM PLATES
   ALUMINUM STAIRS
   STAINLESS STEEL BEAMS / COVER PLATE AND ANGLES
   GROUT MIX DESIGNS (4000 PSI) FOR AUGERED CAST-IN-PLACE PILES
3. MANUFACTURER'S LITERATURE: SUBMIT TWO COPIES OF MANUFACTURER'S LITERATURE FOR ALL MATERIALS AND PRODUCTS USED IN CONSTRUCTION ON THE PROJECT.





NOTE: INSTALL ELEC AND LIGHTNING PROTECTION CONDUIT, IN WALL/SLAB/PIER, PRIOR TO PLACING CONCRETE.

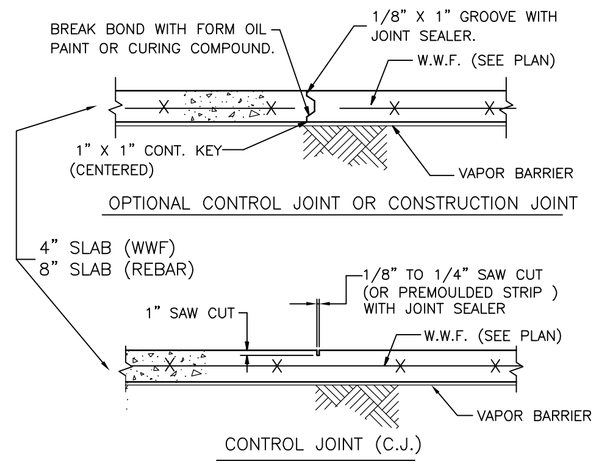
LIGHT POLE SUPPORTS
SCALE: NTS

ALL AREAS THAT CONVEY/CONTAIN THE WASTEWATER SHALL HAVE A STAINLESS STEEL PLATE COVER PLATE, AT THEIR TOP, TO ALLOW PERSONNEL ACCESS AND TO LIMIT ODOR.

IN ORDER TO CHECK FOR LEAKS BEFORE HEADWORKS IS OPERATIONAL, FILL ALL CHANNELS WITH ONE-FOOT OF WATER FOR 2 DAYS. FILL TANKS WITH 3-FEET OF WATER FOR 2 DAYS.

BUILD CONCRETE GRIT TANK INDEPENDENT OF ALL ADJACENT BEAM / SLAB / WALL CONSTRUCTION, UNLESS NOTED. WATERSTOPS, NOT REBAR, WILL SPAN ALL OF THE ADJACENT SLAB / WALL JOINTS, UNLESS NOTED.

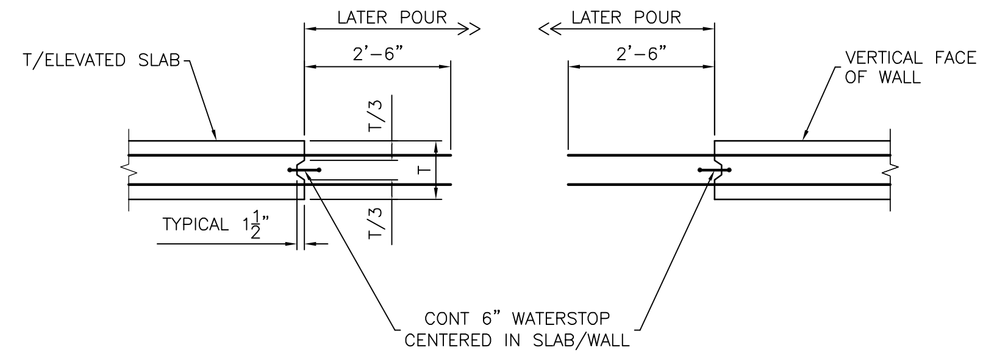
CONTRACTOR SHALL EXPECT TO PERFORM DEWATERING. MAINTAIN GROUND-WATER LEVEL AT EL. 19.00 DURING CONSTRUCTION. MAINTAIN AT EL. 16.00 WHILE INSTALLING UNDERGROUND PIPING AT EAST AND WEST ENDS OF THE HEADWORKS.



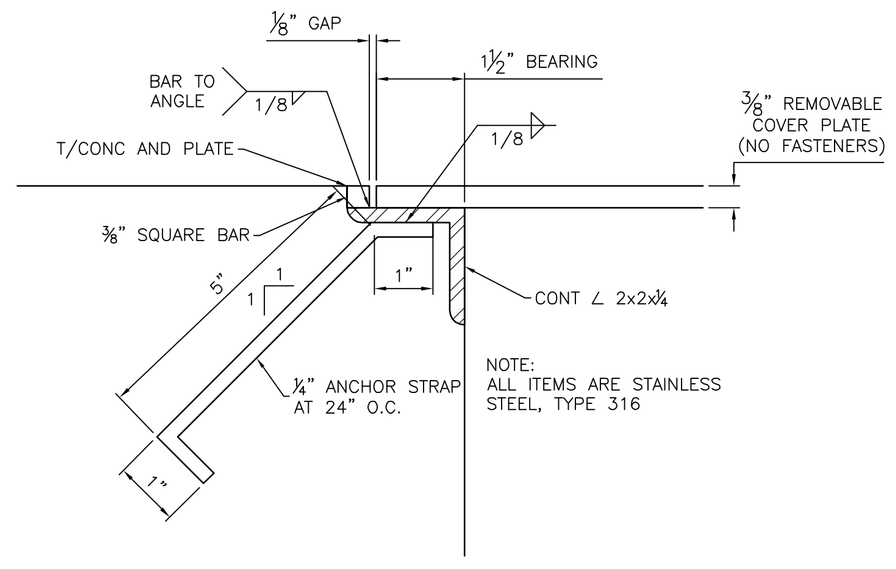
SAW CONTROL JOINT NOTES:
MAKE SAW CUT AS SOON AS SLAB IS ABLE TO SUPPORT WEIGHT OF WORKERS AND SAWING EQUIPMENT WITHOUT DAMAGE TO FINISH SURFACE OF SLAB. BEGIN SAW CUTTING OF SLAB WITHIN 8 HOURS OF SLAB BEING FINISHED.

CLEAN JOINT PRIOR TO FILLING, WITH JOINT SEALER

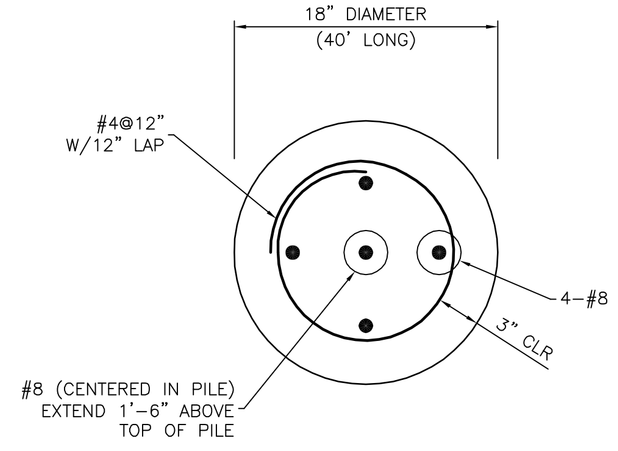
TYPICAL SLAB JOINTS
SCALE: NTS



TYPICAL CONSTRUCTION JOINTS
SCALE: NTS



TYPICAL COVER PLATE BEARING DETAIL
SCALE: NTS



35 TON ALLOWABLE AXIAL LOAD

NOTE: SEE CONSTRUCTION/INSTALLATION/MONITORING RECOMMENDATIONS CONTAINED IN "GEOTECHNICAL REPORT FOR INFLUENT STRUCTURE-NORTH REGIONAL WWTP-MANATEE COUNTY" BY URS (MARCH 2008).

TYPICAL AUGERED CAST-IN-PLACE PILE DETAIL
SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 29, 2008

MANATEE COUNTY FLORIDA

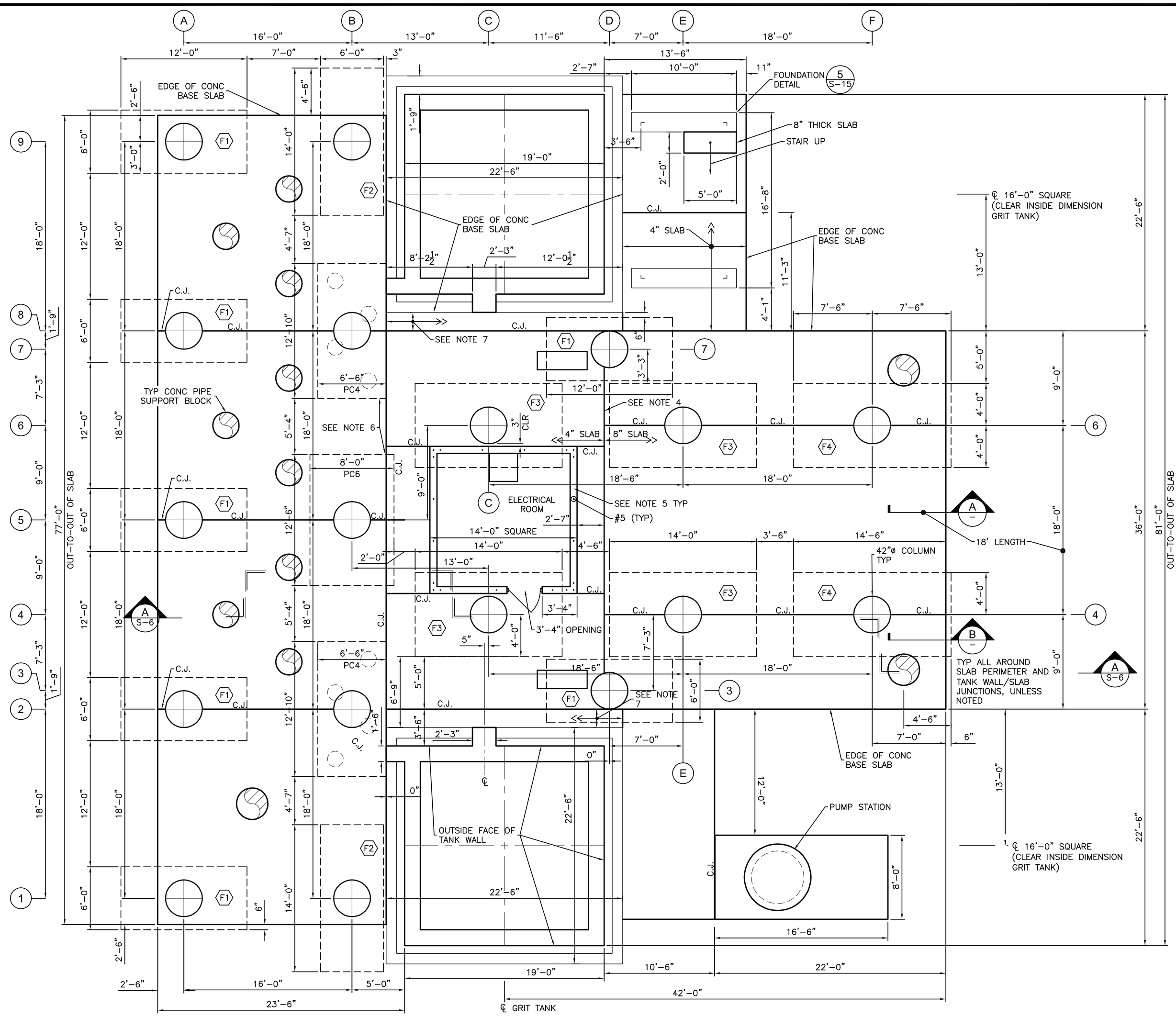
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

STRUCTURAL NOTES AND DETAILS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

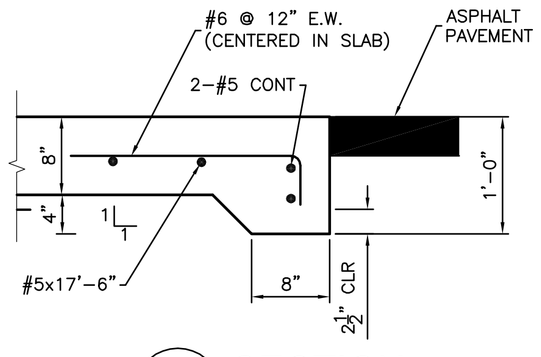
S-1



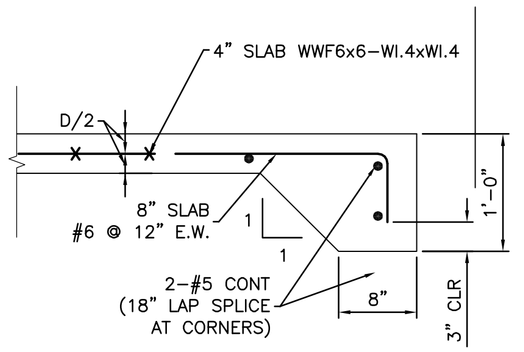
PLAN VIEW AT GRADE AND FOUNDATION LEVEL T/SLAB-ON-GRADE EL 27.96

SCALE: 3/16"=1'-0"

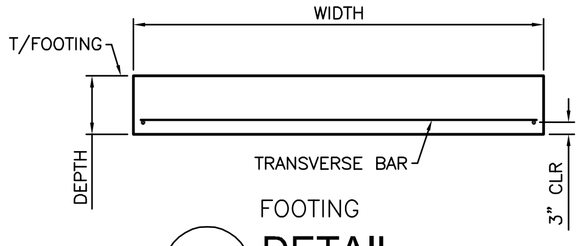
NOTES:
1. PROVIDE ½" PREMOULDED JOINT FILLER WITH SEALANT AROUND ALL COLUMN, TANK WALL, AND VERTICAL PIPE FACES IN CONTACT WITH SLAB–ON–GRADE.
2. CENTER COLUMNS ON ALL FOOTINGS. SEE DETAIL "3"/S–10 FOR ADDITIONAL INFORMATION.
3. INSTALL ALL CONCRETE PIPE SUPPORT BLOCKS AND PORTION OF VERTICAL PIPE BEFORE INSTALLING FOUNDATIONS.
4. PROVIDE ½" PREMOULDED JOINT FILLER WITH SEALANT ALONG THIS 4"/8" SLAB JUNCTION.
5. SEE "TYPICAL WALL SECTION FOR ELECTRICAL ROOM" ON S–12 FOR INFORMATION. PROVIDE CONCRETE FILLED CELLS (FULL HEIGHT OF 8" CMU) ON BOTH SIDES OF 3'–4" OPENING. PROVIDE 8"x8"(NOM)x4'–8" PRECAST CONCRETE LINTEL ABOVE 3'–4"x7'–4" OPENING.
6. SEE DETAIL 4 FOR PIPE CAPS ON SHEET S–10.
7. PROVIDE 1'–9" LONG CONSTRUCTION JOINT AT 3'–9" ON CENTER IN THIS AREA



A – SECTION
SCALE: NTS



B – SECTION
SCALE: NTS



FOOTING
1 – DETAIL
SCALE: NTS

FOOTING SCHEDULE							
MARK ⟨Fx⟩	SIZE			REINFORCING		TOP OF FOOTING ELEVATION	QUANTITY REQUIRED
	LENGTH	WIDTH	DEPTH	(LONGIT)–BOT	(TRANSV)		
⟨F1⟩	12'–0"	6'–0"	2'–3"	#8@10"	#8@10"	26.00	7
⟨F2⟩	14'–0"	6'–0"	2'–3"	#8@10"	#8@10"	26.00	2
⟨F3⟩	14'–0"	8'–0"	2'–3"	#8@10"	#8@10"	26.00	4
⟨F4⟩	15'–0"	8'–0"	2'–3"	#9@10"	#9@10"	22.50	2

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: October 9, 2008

MANATEE COUNTY FLORIDA

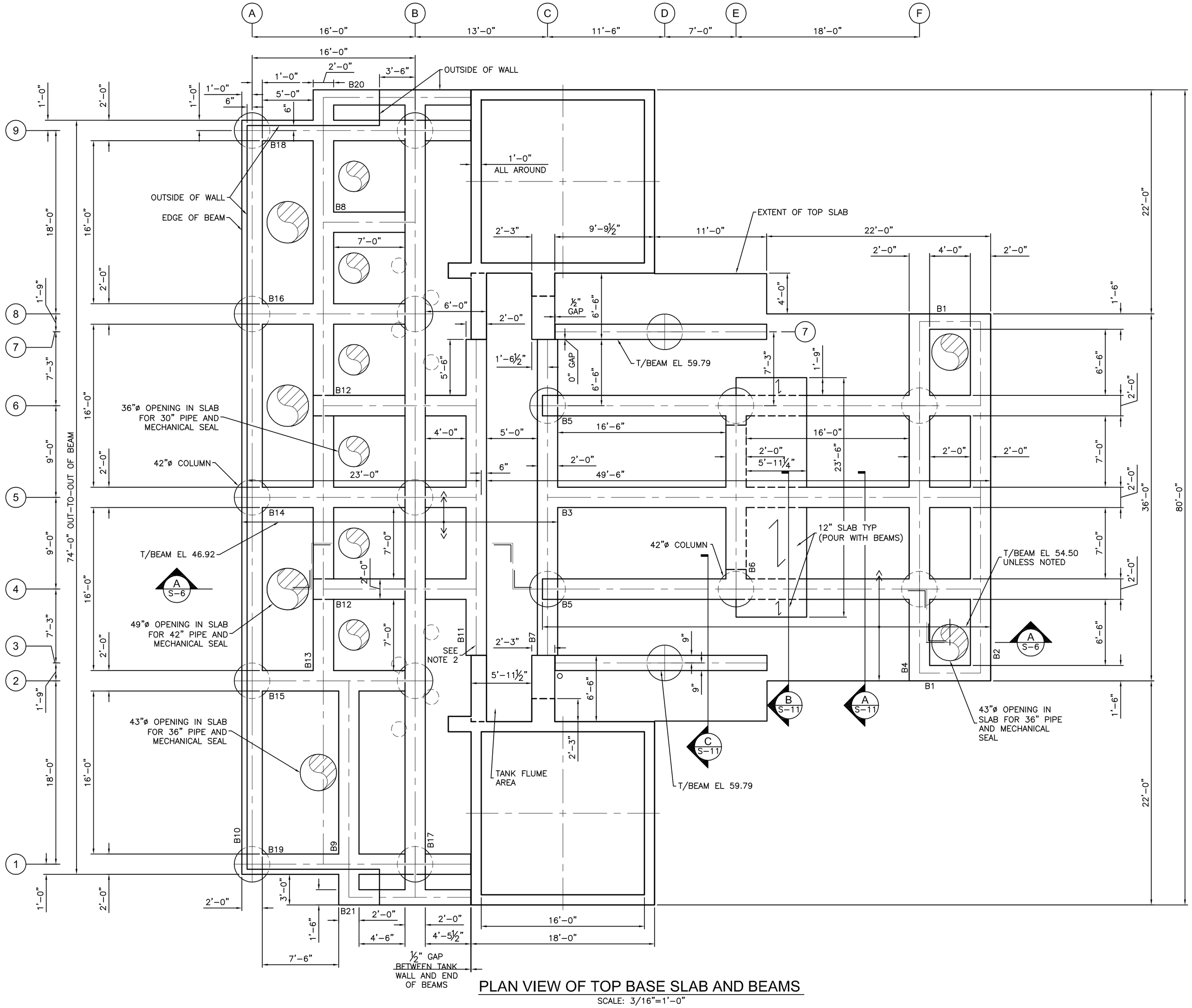
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS STRUCTURAL PLAN AT GRADE AND FOUNDATION LEVEL

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S–2



PLAN VIEW OF TOP BASE SLAB AND BEAMS

SCALE: 3/16"=1'-0"

NOTES:
1. ALL BEAM AND COLUMN CENTERLINES ARE THE SAME.
2. URS DETAILS HAVE ASSUMED THAT TANK WALLS / COLUMNS / UPPER FLUME AREA ARE IN-PLACE PRIOR TO ANY ADJACENT BEAM OR SLAB CONSTRUCTION UNLESS NOTED. THE FLUME HAS BEEN OMITTED FOR CLARITY. NOTE THERE IS NO GAP BETWEEN THE END OF THE FLUME AND BEAMS B7 AND B11.
3. DO NOT POUR SLABS SHOWN ON DRAWING S-4 UNTIL THEIR SUPPORTING BEAMS ARE AT THEIR 100% COMPRESSIVE STRENGTH.

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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: October 9, 2008

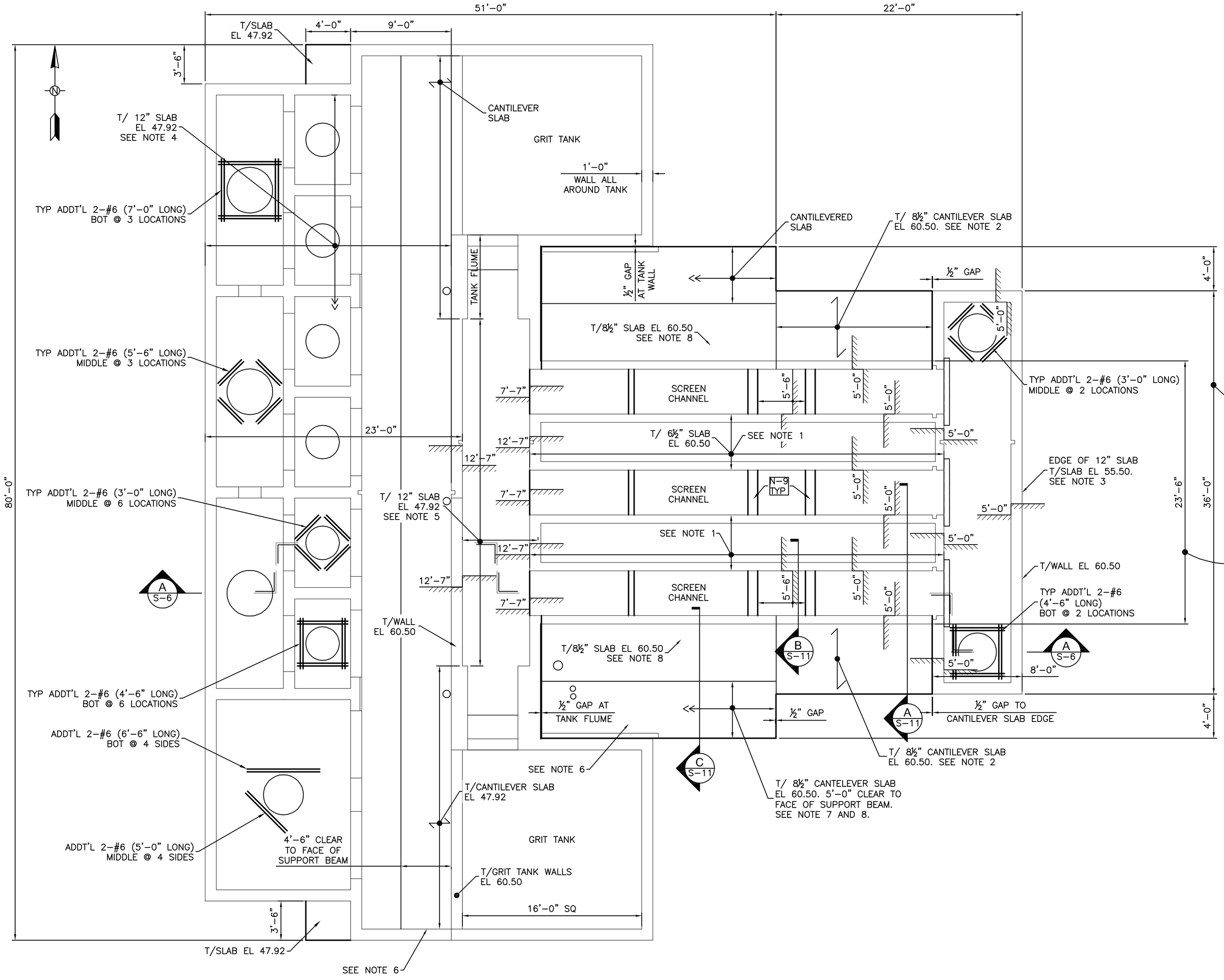
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS STRUCTURAL
BEAM LAYOUT

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S-3

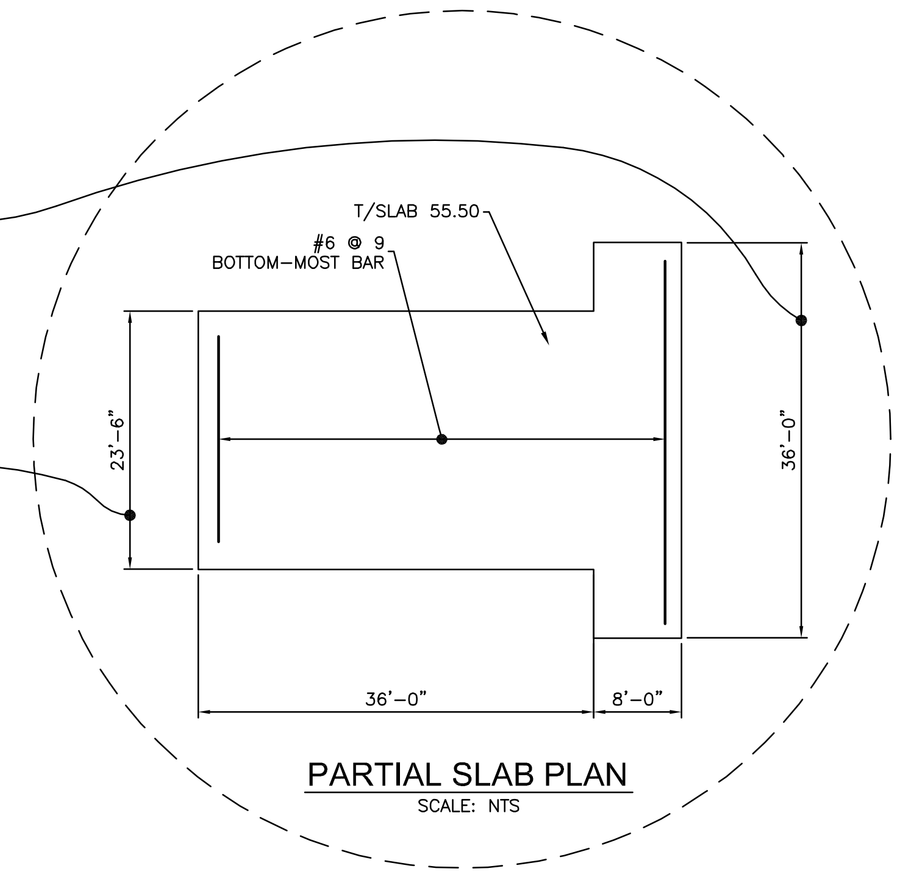


PLAN VIEW AT ELEVATED SLAB

SCALE: 3/16"=1'-0"

NOTES:

1. INTERIOR AREA IS EMPTY. SOME FORMWORK MAY NEED TO BE ABANDONED IN PLACE. POUR SLAB IN 5'-0" x 9'-3" PORTIONS.
2. POUR SLAB IN 14'-0" LONG PORTIONS. PROVIDE ADEQUATE SHORING/BRACING FOR CANTILEVER SLAB AND SUPPORTING SCREENING CHANNEL WALLS, DURING CANTILEVER SLAB POUR. THE CHANNEL WALLS ARE TO BE AT 100% COMPRESSIVE STRENGTH BEFORE ANY CANTILEVER SLAB POUR.
3. POUR SLAB IN 22'-0" x 23'-6" MAXIMUM PORTIONS.
4. POUR SLAB IN 20'0" x 23'-0" MAXIMUM PORTIONS.
5. POUR SLAB IN THREE EQUAL PORTIONS.
6. URS DETAILS HAVE ASSUMED THAT TANK WALLS / COLUMN / UPPER FLUME AREA ARE IN-PLACE PRIOR TO ANY ADJACENT BEAM OR SLAB CONSTRUCTION UNLESS NOTED.
7. PROVIDE ADEQUATE BRACING / SHORING FOR CANTILEVER SLAB AND SUPPORTING SCREENING CHANNEL WALL / BEAM DURING SLAB POUR. ENSURE WALL / BEAM ARE AT 100% COMPRESSIVE STRENGTH BEFORE SLAB POUR.
8. PROVIDE REBAR AND CLEAR COVER AS PER 8½" CANTILEVER SLAB IN SECTION A ON SHEET S-11.
9. TOP OF SLAB SLOPES DOWN 6".



PARTIAL SLAB PLAN

SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: August 1, 2008

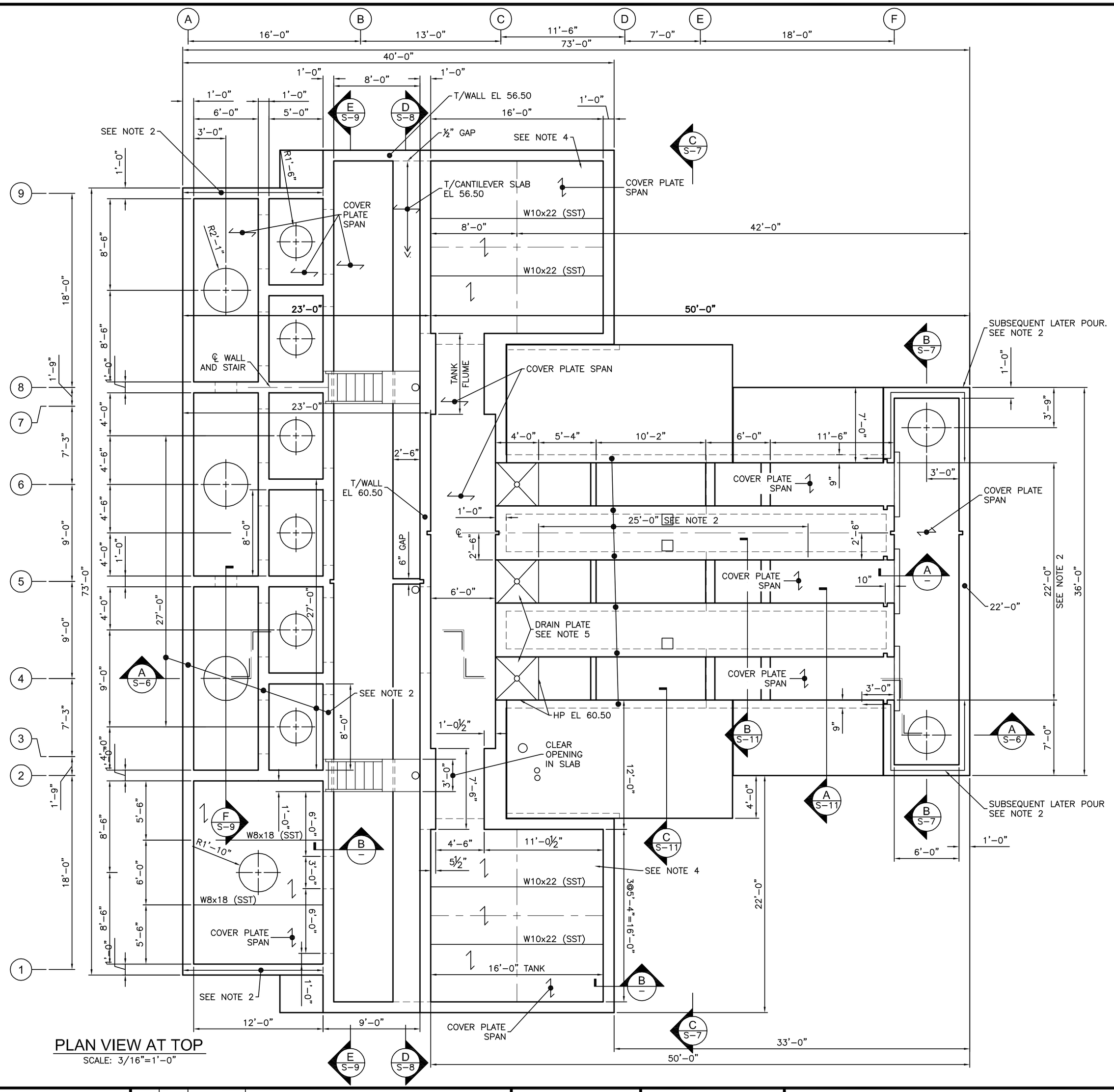
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS STRUCTURAL
ELEVATED SLAB PLAN

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

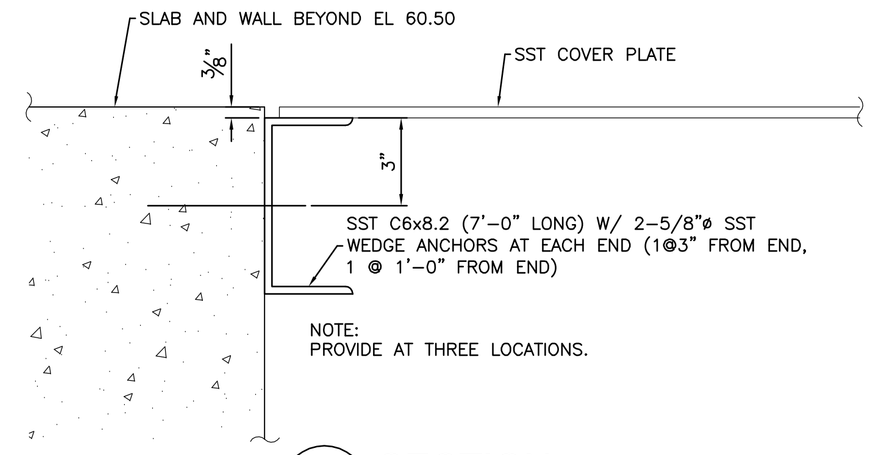
PROJECT STATUS
BID SET
OCTOBER 2008

S-4

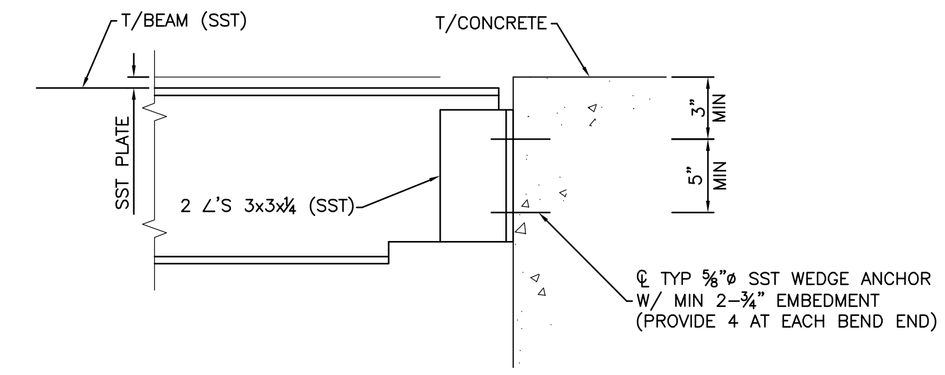


PLAN VIEW AT TOP
SCALE: 3/16"=1'-0"

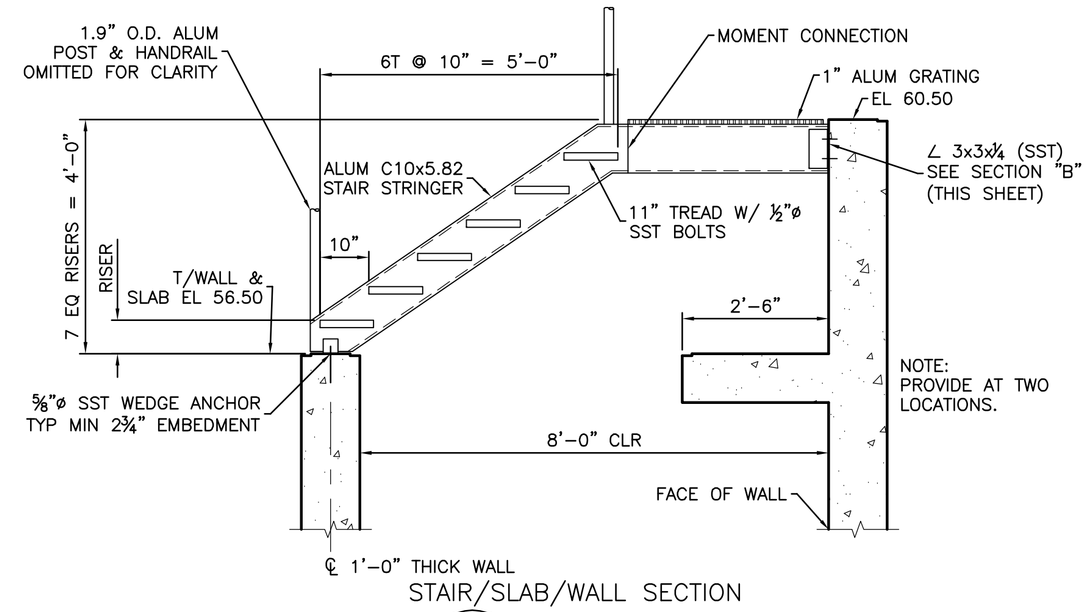
NOTES:
1. URS DETAILS HAVE ASSUMED THAT TANK WALLS / COLUMNS / UPPER FLUME AREA ARE IN-PLACE PRIOR TO ANY ADJACENT BEAM OR SLAB CONSTRUCTION, UNLESS NOTED.
2. URS SUGGESTS THESE 12 STRAIGHT WALL LENGTHS BE INSTALLED FIRST. TO MINIMIZE CRACKING, LIMIT SUBSEQUENT ADJACENT POURS TO A MAXIMUM OF 27' TOTAL LENGTH.
3. DO NOT POUR WALLS UNTIL THEIR SUPPORTING SLABS ARE AT THEIR 100% COMPRESSIVE STRENGTH.
4. DO NOT USE TOP OF TANK / TANK FLUME COVER PLATES AS EQUIPMENT LAYDOWN AREAS.
5. AT EDGES, SLAB DEPTH IS 7-1/2" (SLOPE TOP OF SLAB 1" TO DRAIN). KEEP BOTTOM OF SLAB HORIZONTAL. PROVIDE #5@11" EACH WAY, CENTERED IN SLAB.



A – SECTION
SCALE: NTS



B – SECTION
SCALE: NTS



STAIR/SLAB/WALL SECTION
1 – DETAIL
SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: August 1, 2008

MANATEE COUNTY FLORIDA

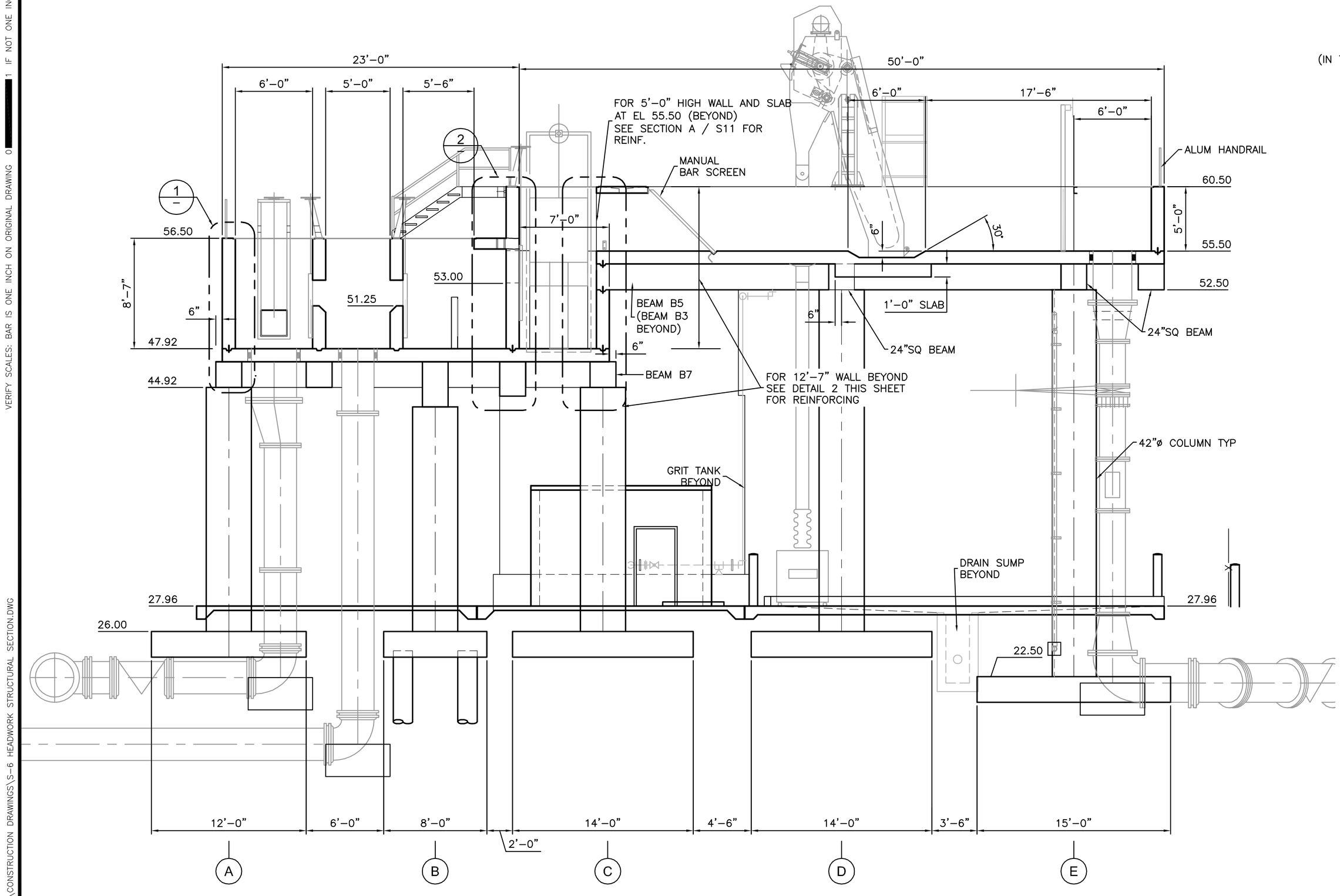
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS STRUCTURAL PLAN AT TOP

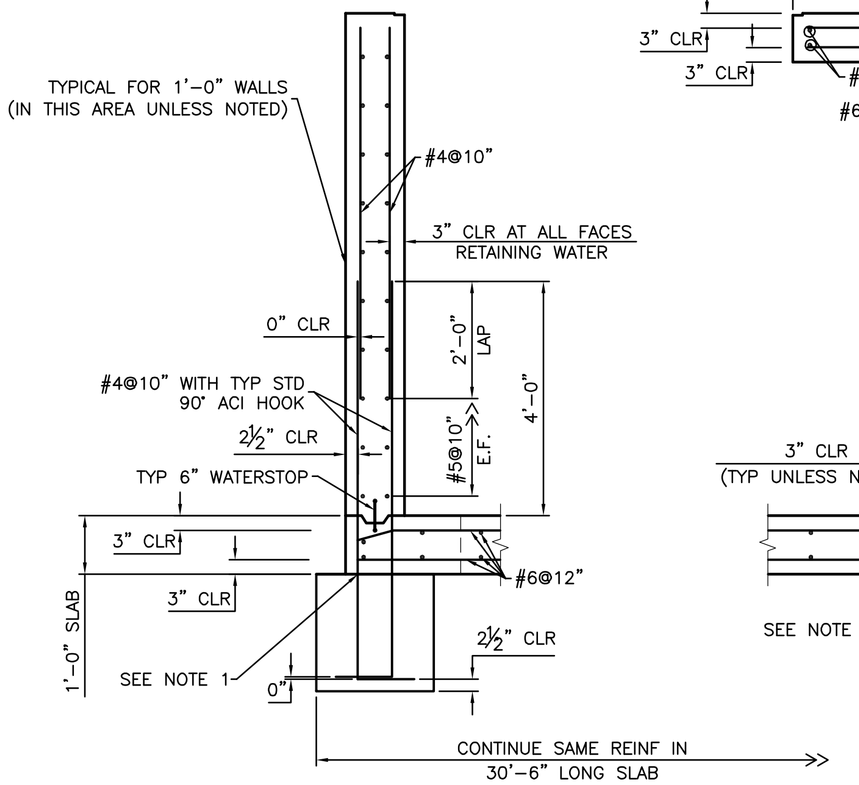
WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

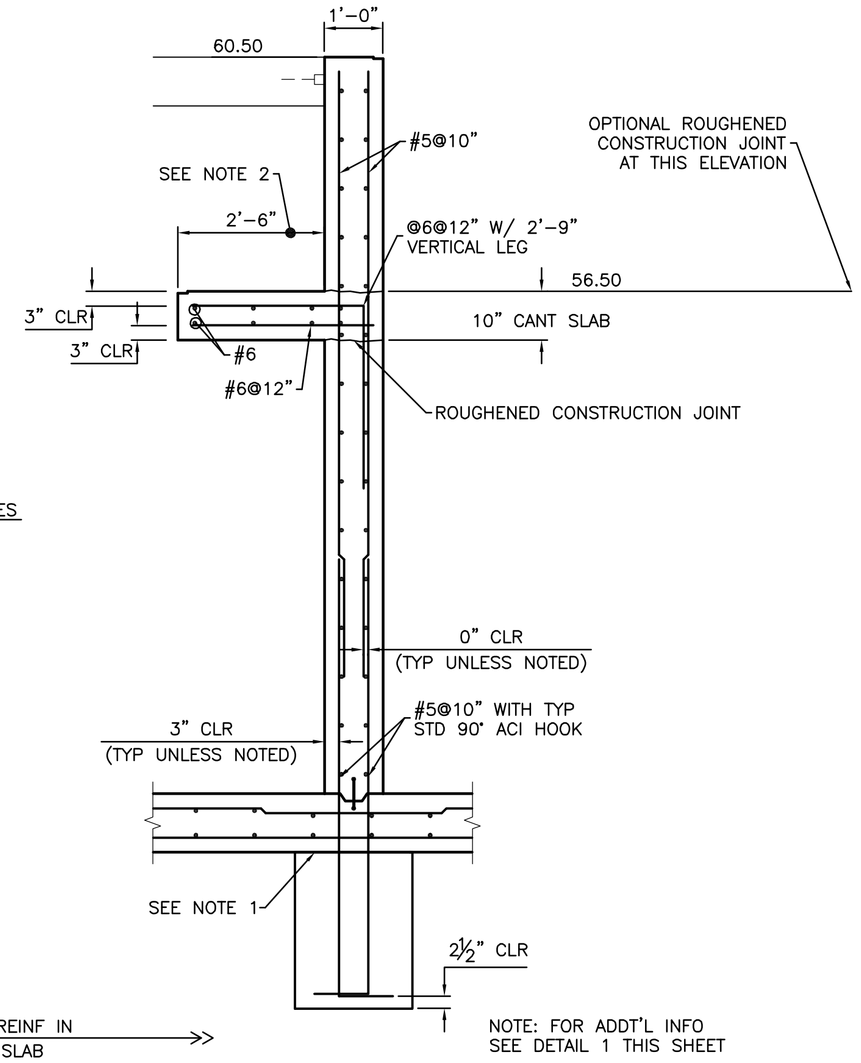
S-5



A SECTION
SCALE: 3/16"=1'-0"



1 DETAIL
SCALE: NTS



2 DETAIL
SCALE: NTS

NOTE:
1. ROUGHEN CONSTRUCTION JOINT SURFACE TO A MINIMUM ¼" AMPLITUDE AFTER CONCRETE IS SET. PROVIDE ADDITIONAL #4@10" STIRRUPS WITH 2'-3" VERTICAL LEGS AS SHOWN IN SECTION A ON SHEET 11.

2. LIMIT POUR TO A MAXIMUM LENGTH OF 10'.

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: August 1, 2008

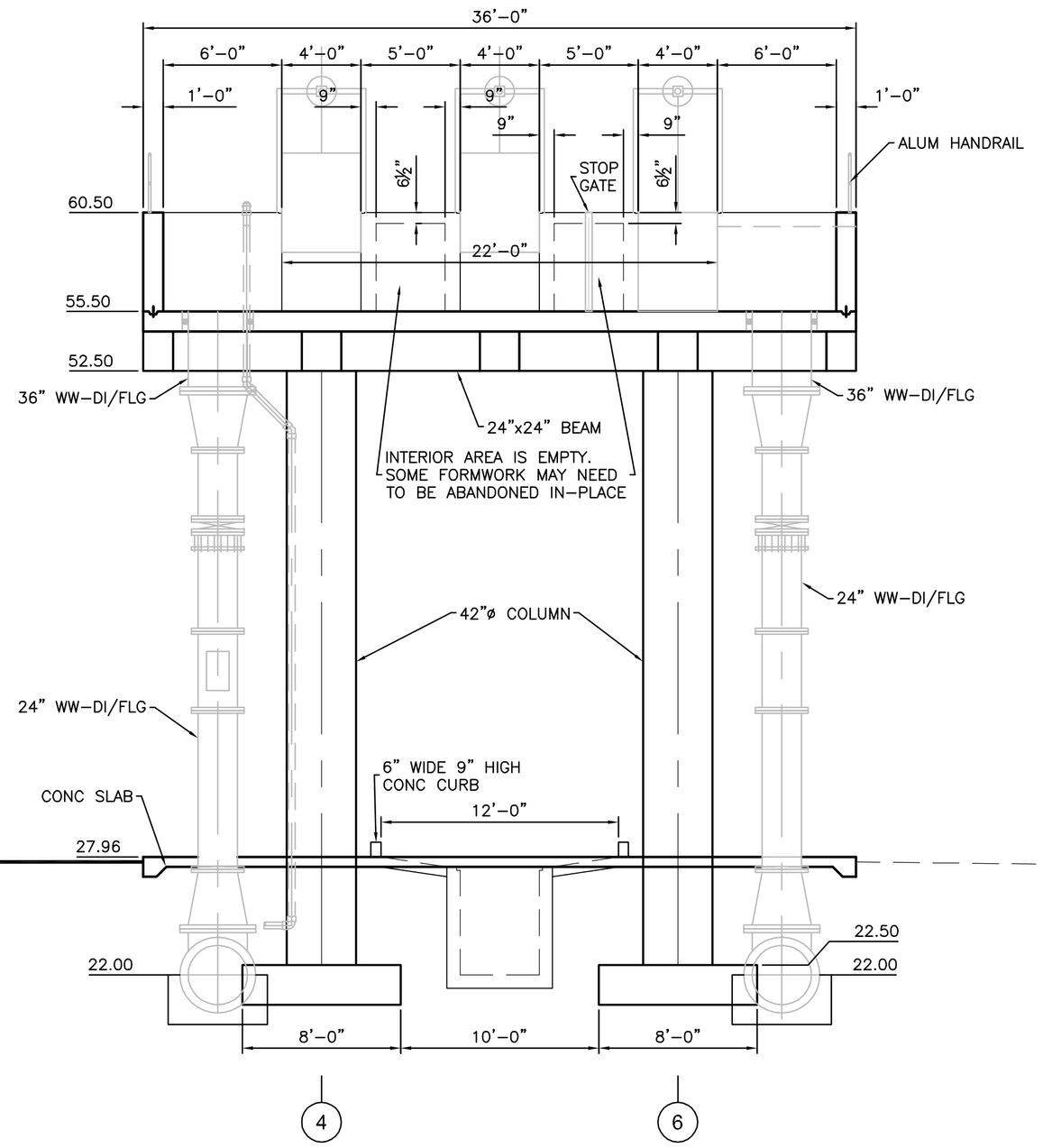
INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORK STRUCTURAL SECTION

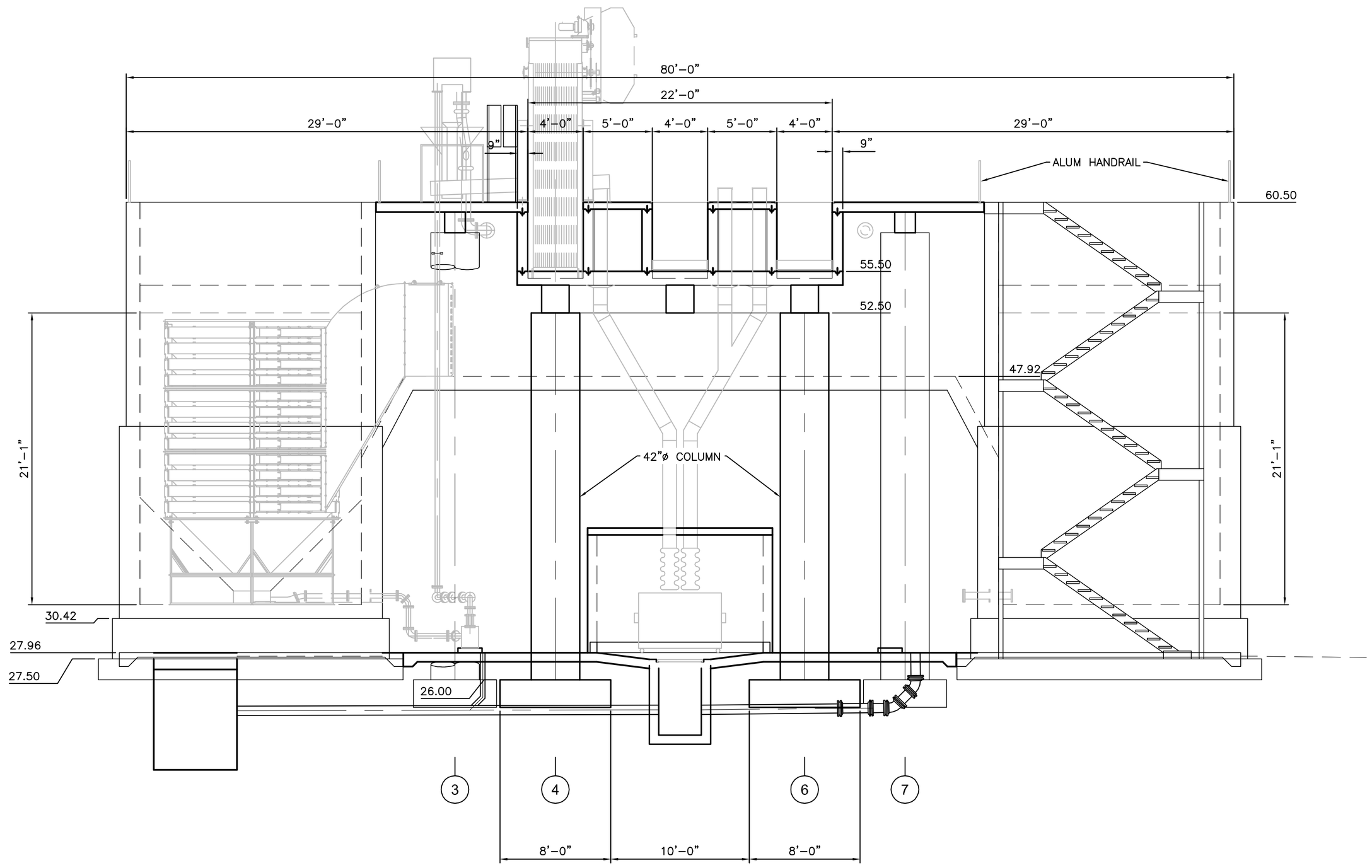
WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S-6



B S-5 SECTION
SCALE: 3/16"=1'-0"



C S-5 SECTION
SCALE: 3/16"=1'-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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 11, 2008

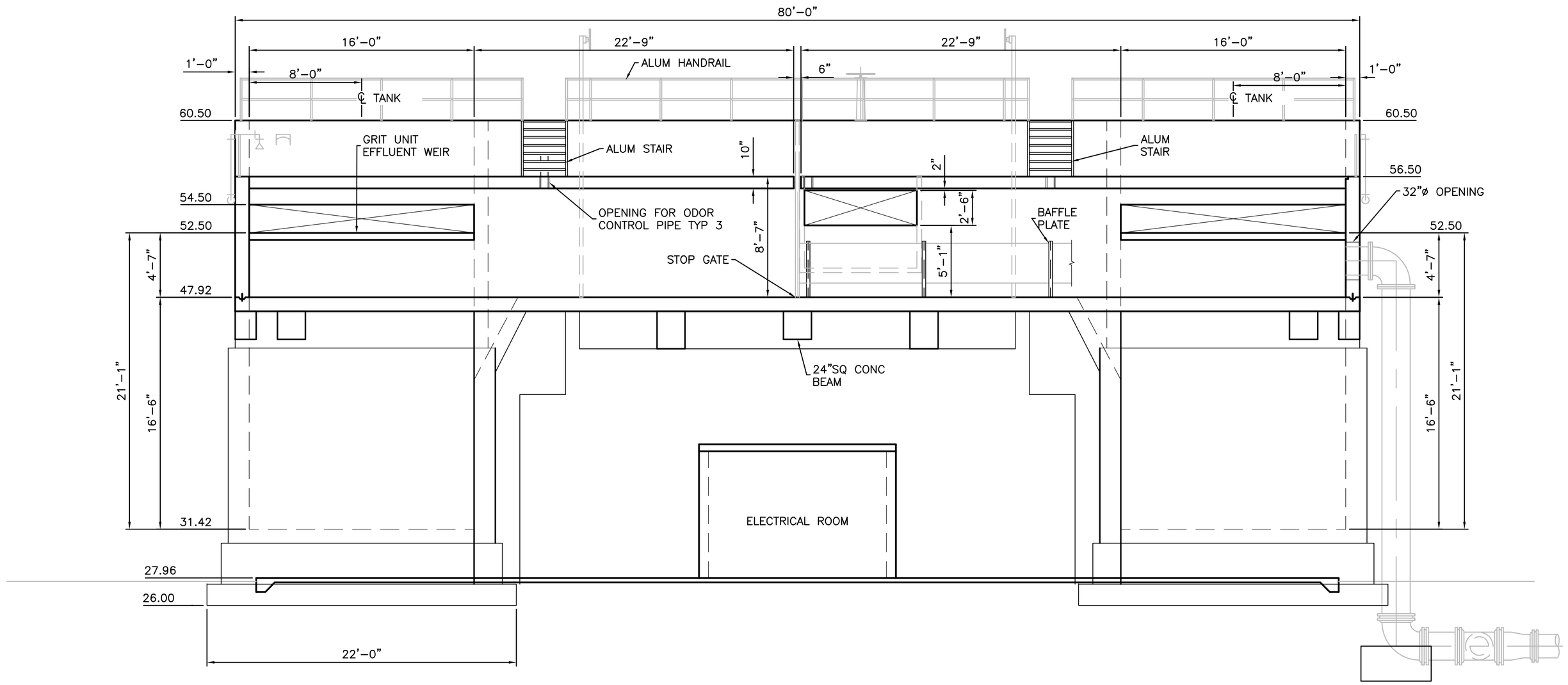
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS STRUCTURAL SECTIONS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S-7



D / S-5 SECTION
SCALE: 3/16"=1'-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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 8, 2008

MANATEE COUNTY FLORIDA

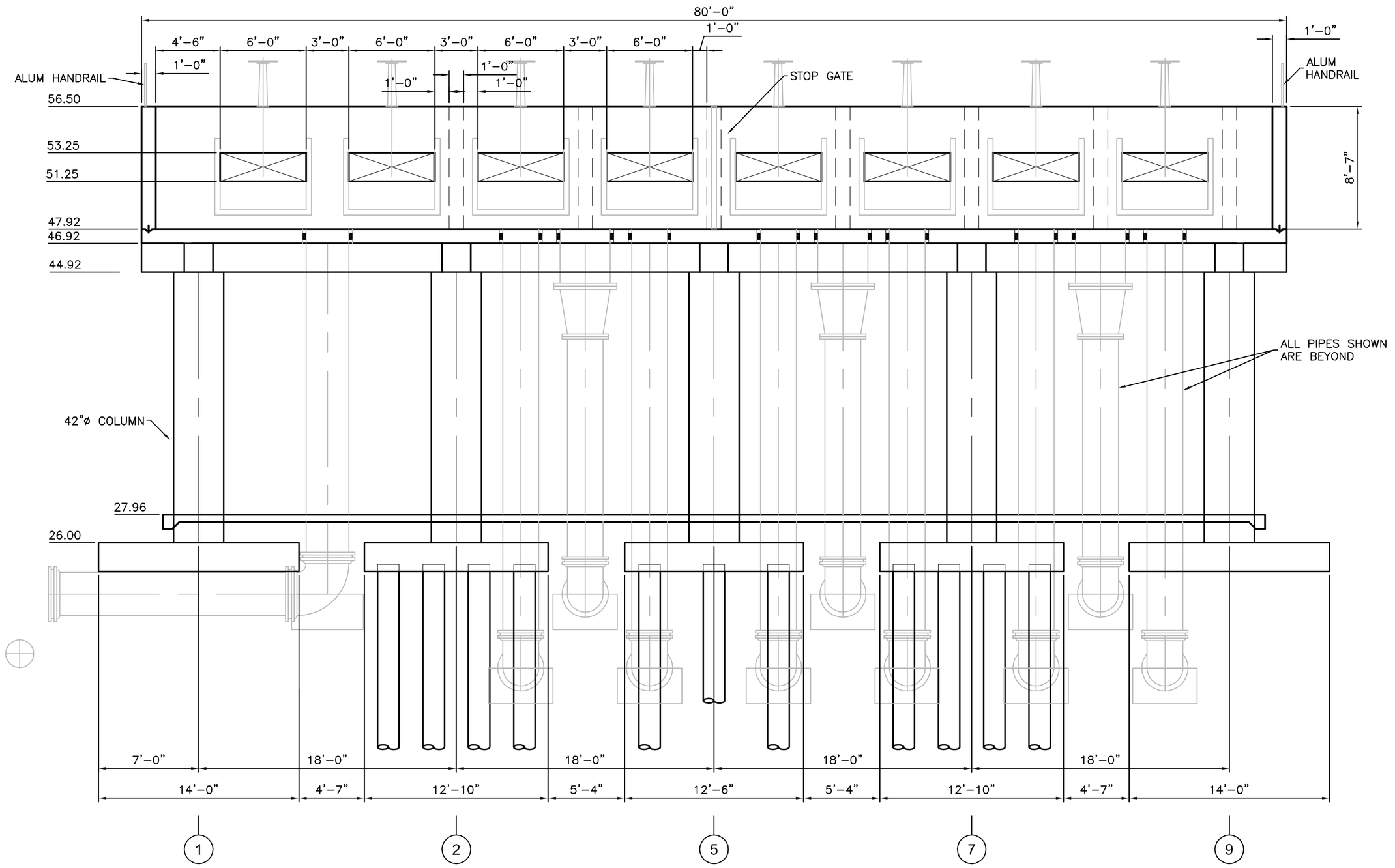
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS STRUCTURAL SECTIONS

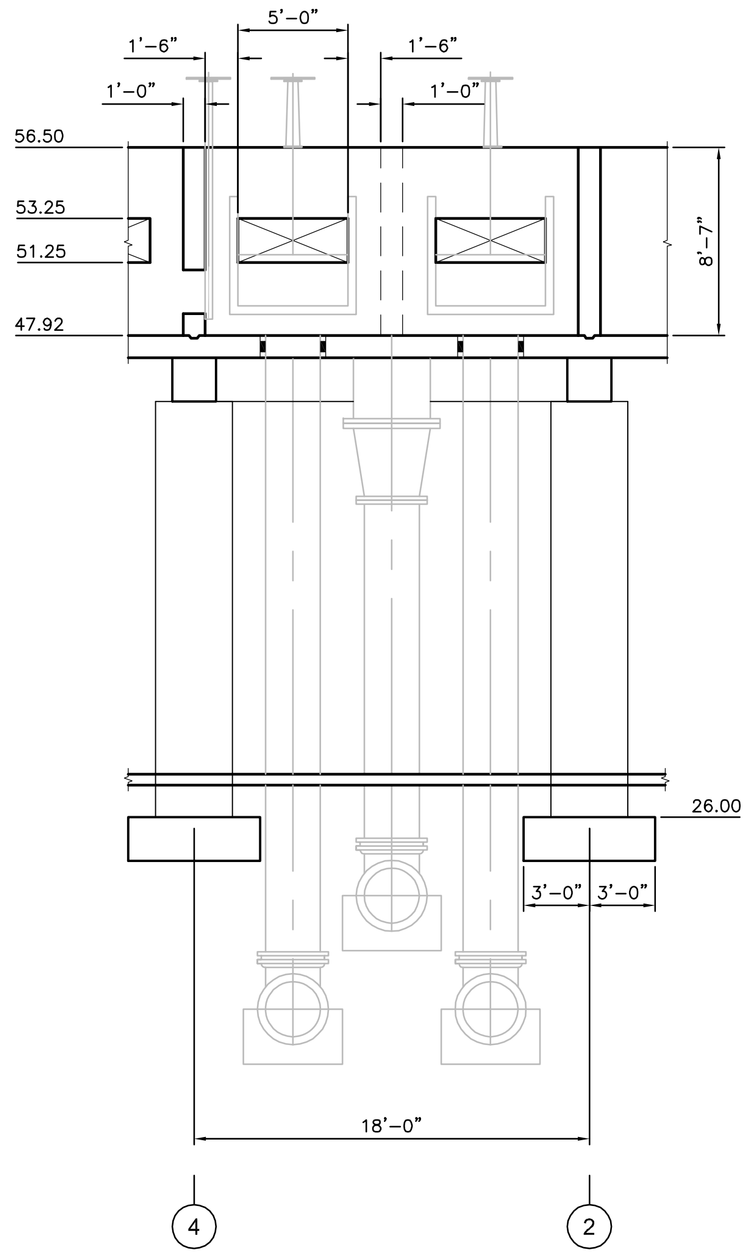
WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S-8



E S-5 SECTION
SCALE: 3/16"=1'-0"



F S-5 SECTION
SCALE: 3/16"=1'-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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 8, 2008

MANATEE COUNTY FLORIDA

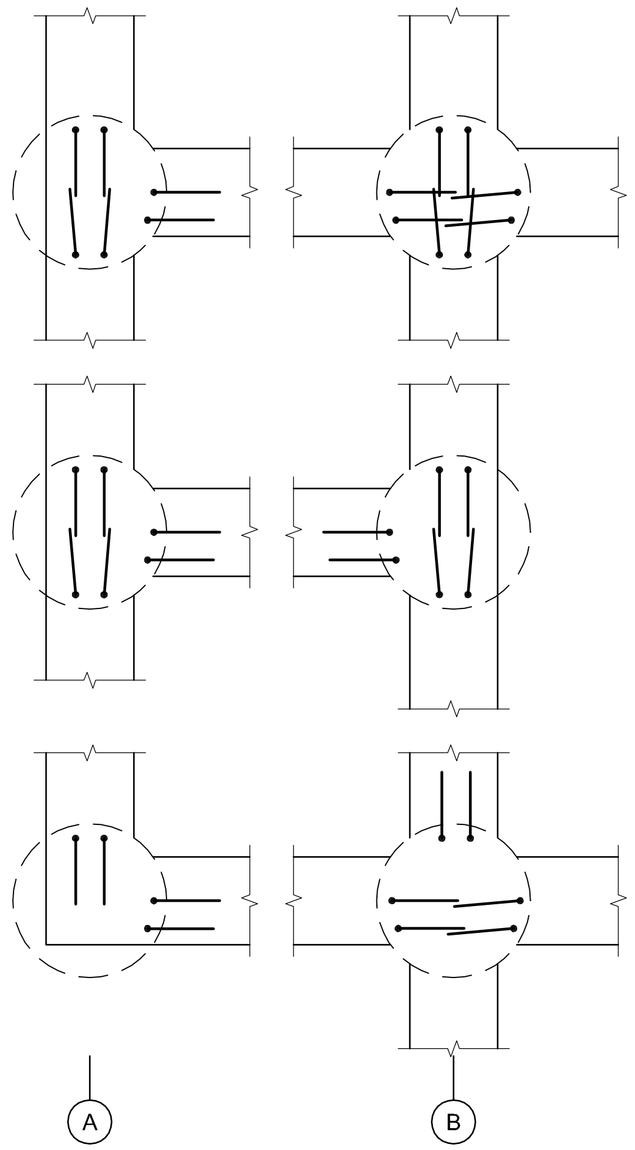
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

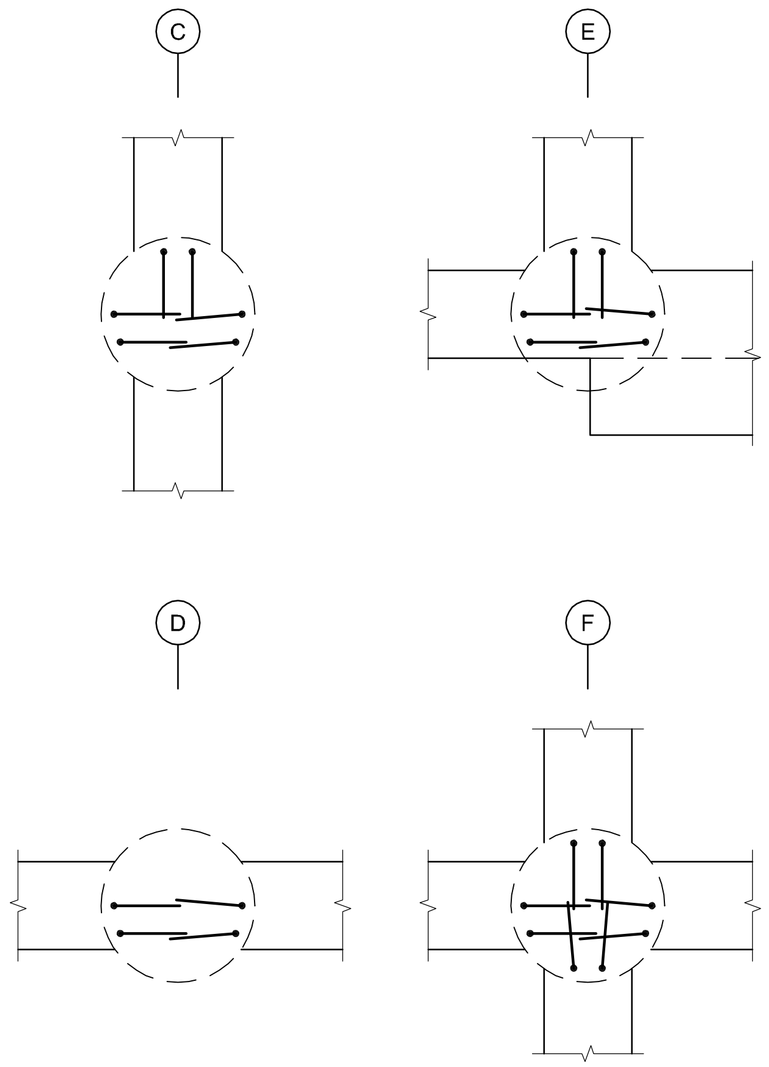
HEADWORKS STRUCTURAL SECTIONS

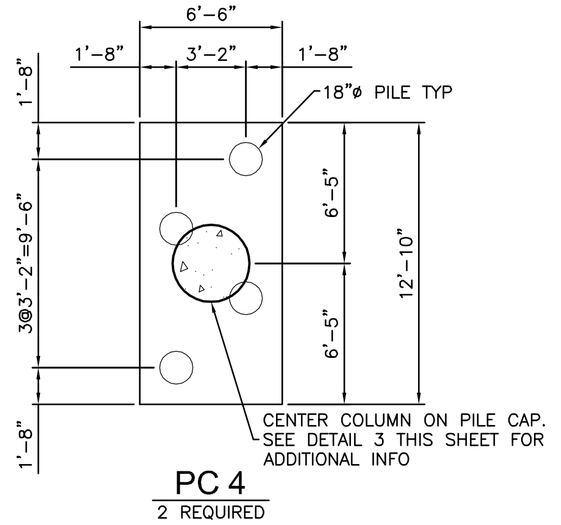
WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

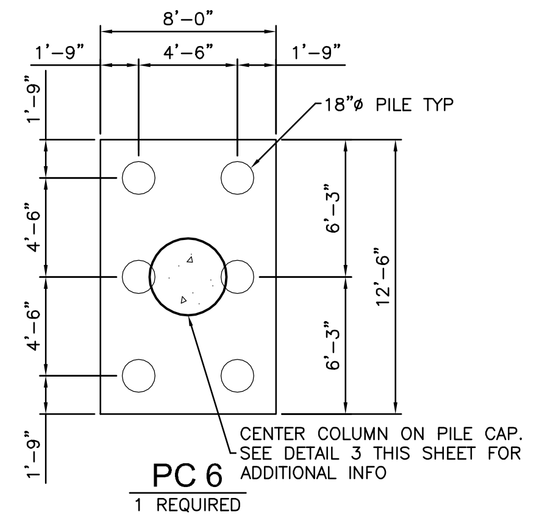
S-9



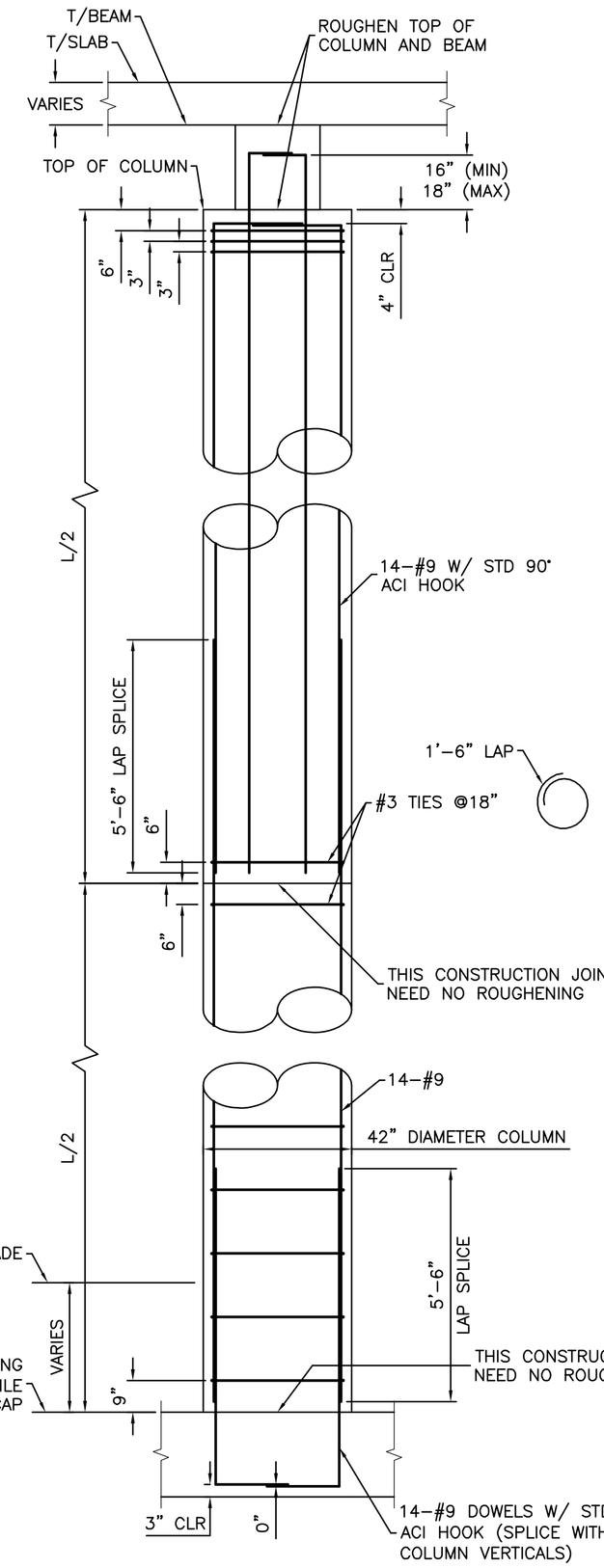




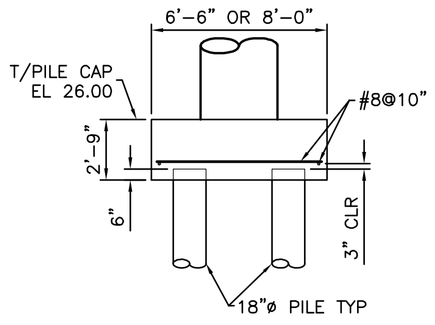
PC 4
2 REQUIRED



PC 6
1 REQUIRED



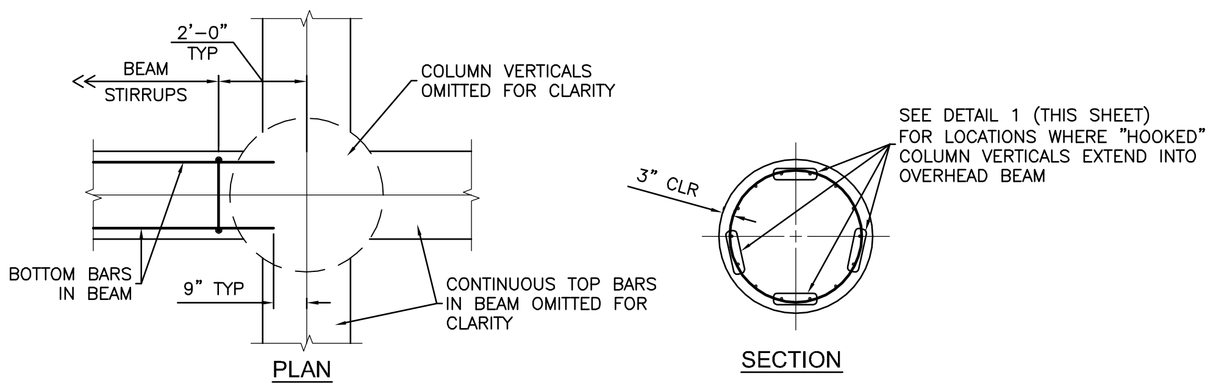
COLUMN
3
DETAIL
SCALE: NTS



TYPICAL SECTION

PILE CAP
4
DETAIL
SCALE: NTS

TOP OF COLUMN
1
DETAIL
SCALE: NTS



2
DETAIL
SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 1, 2008

MANATEE COUNTY FLORIDA

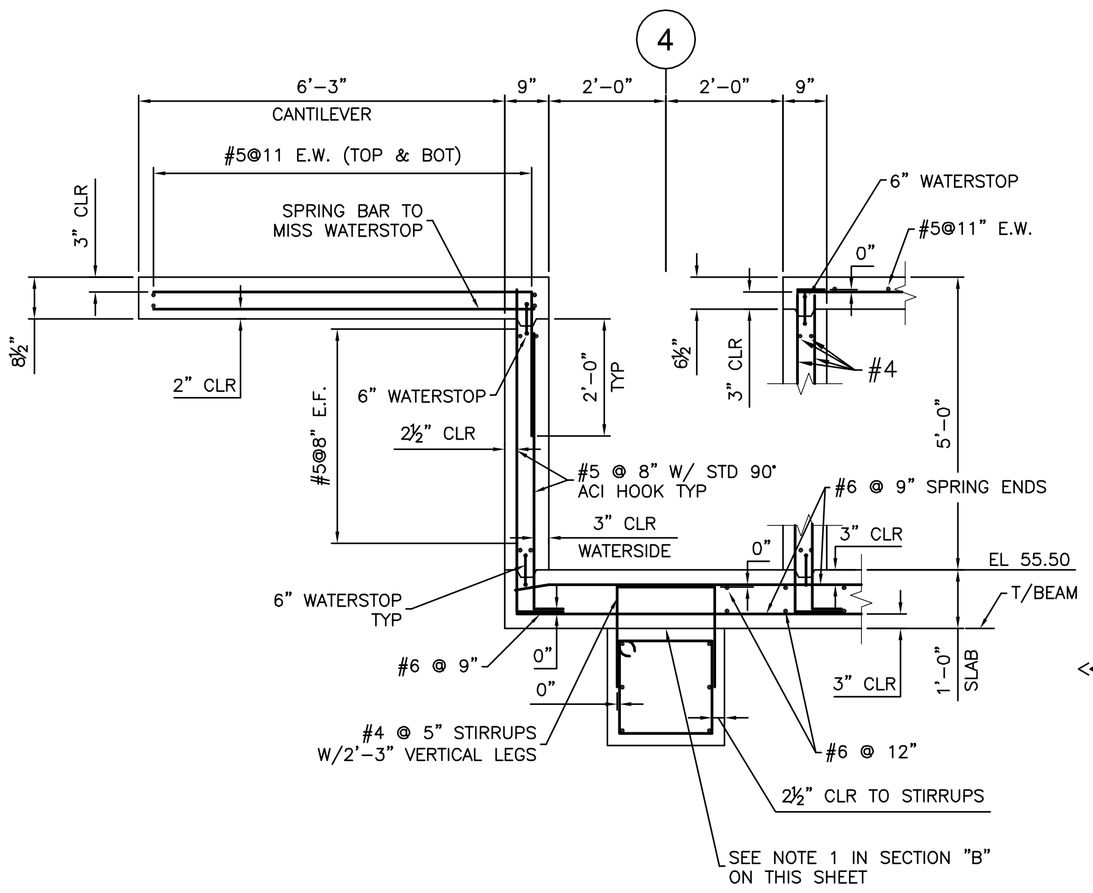
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

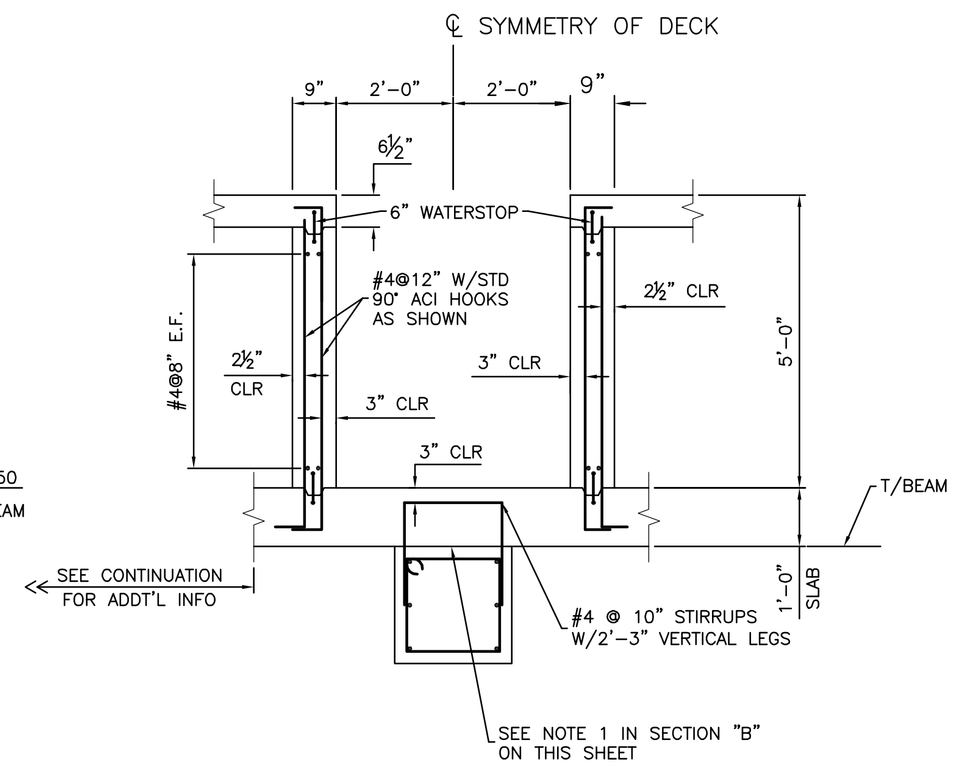
STRUCTURAL DETAILS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

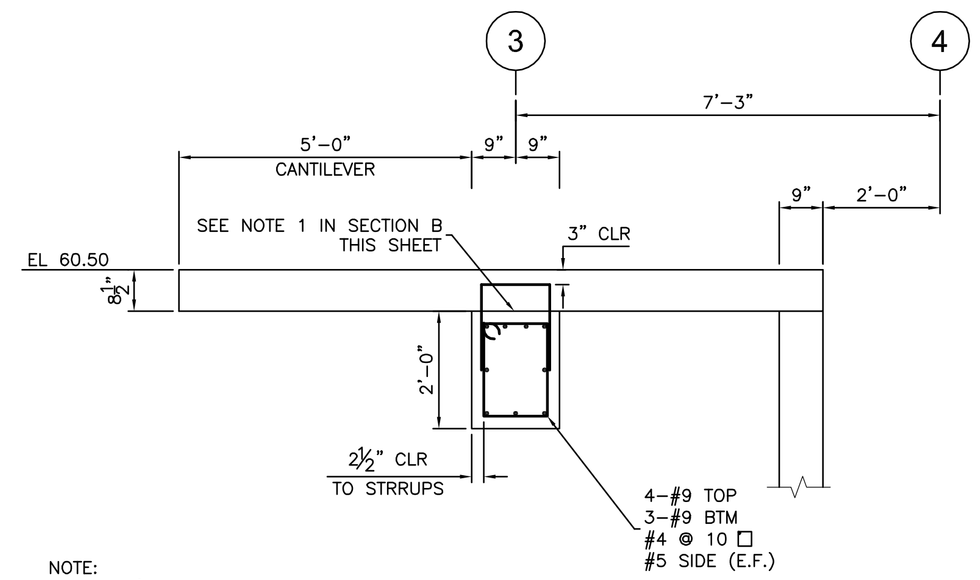
PROJECT STATUS
BID SET
OCTOBER 2008

S–10



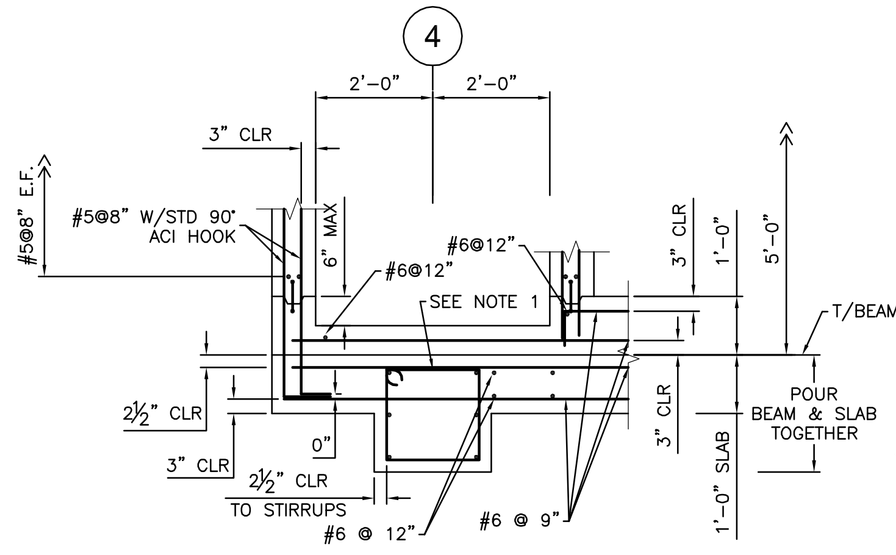


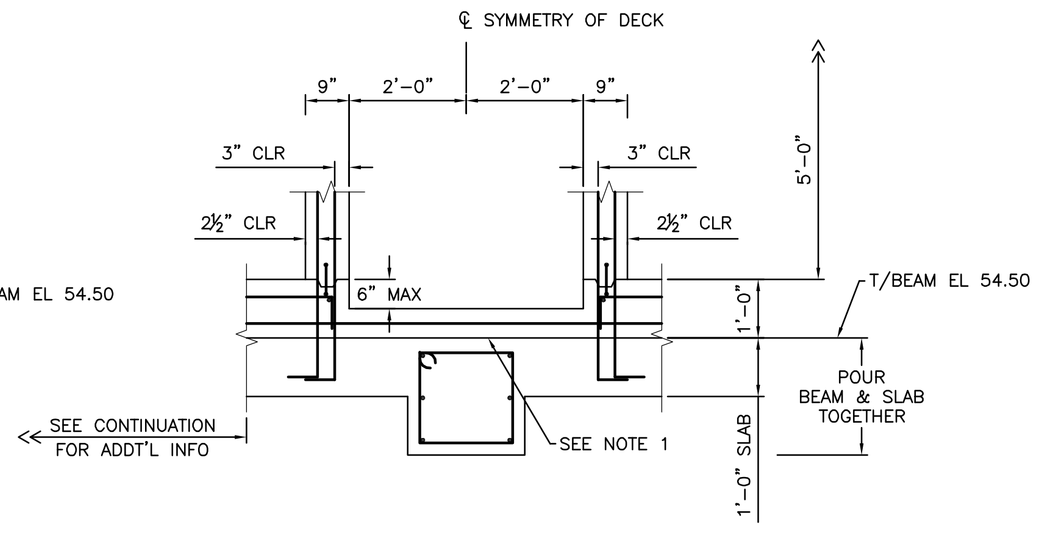
A S–11 SECTION
SCALE: NTS



NOTE:
FOR ADDT'L INFORMATION, SEE SECTION A THIS SHEET.

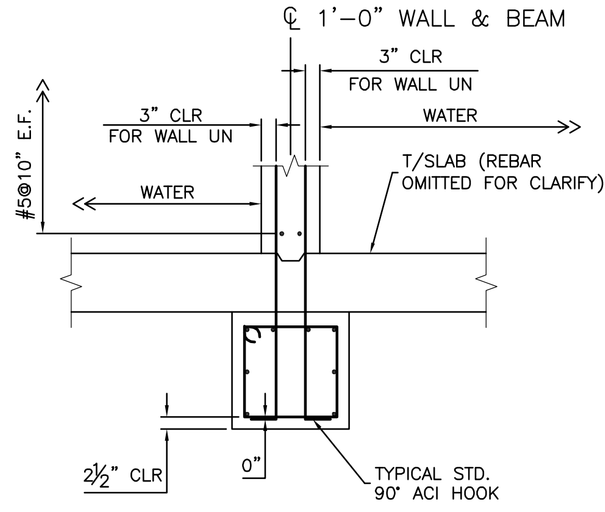
C S–11 SECTION
SCALE: NTS





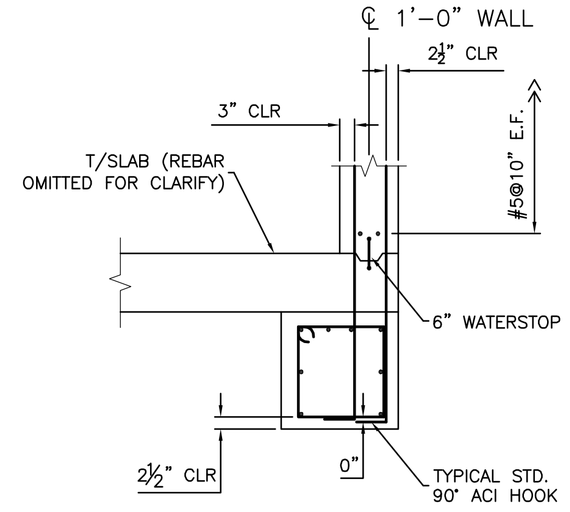
NOTE:
1. ROUGHEN CONSTRUCTION JOINT SURFACE TO A MINIMUM ¼" AMPLITUDE AFTER CONCRETE IS SET. APPLY EPOXY BOND AGENT AT JOINT, PER MANUFACTURER'S DIRECTIONS, PRIOR TO TOPPING SLAB POUR.

B S–11 SECTION
SCALE: NTS



TYPICAL WALL/BEAM

D – SECTION
SCALE: NTS



TYPICAL WALL/BEAM

E – SECTION
SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 1, 2008

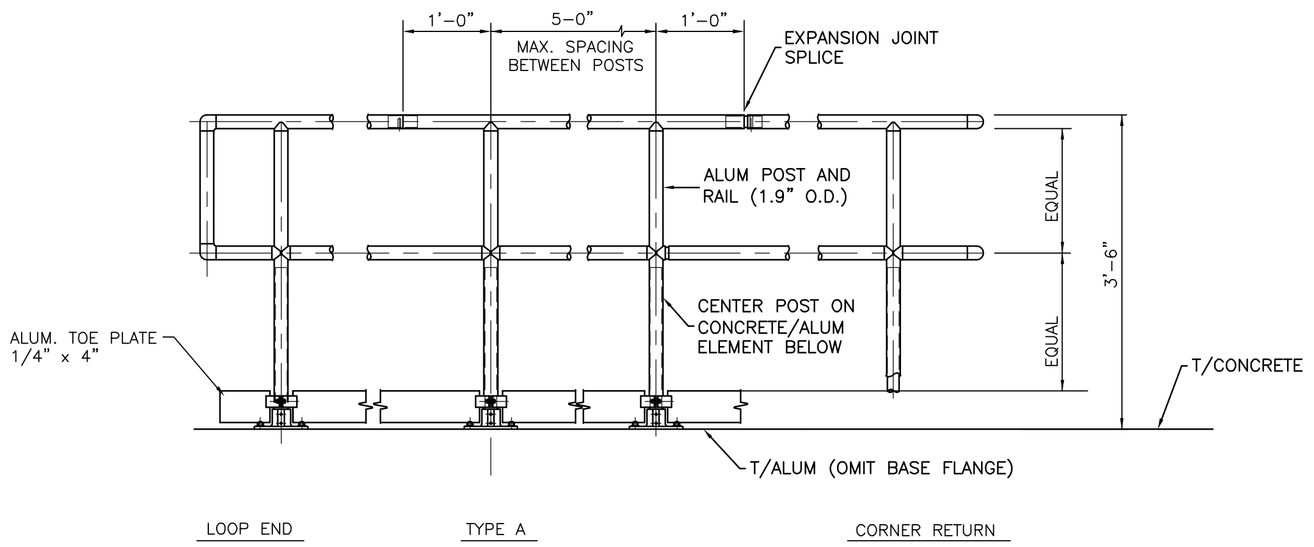
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

STRUCTURAL DETAILS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

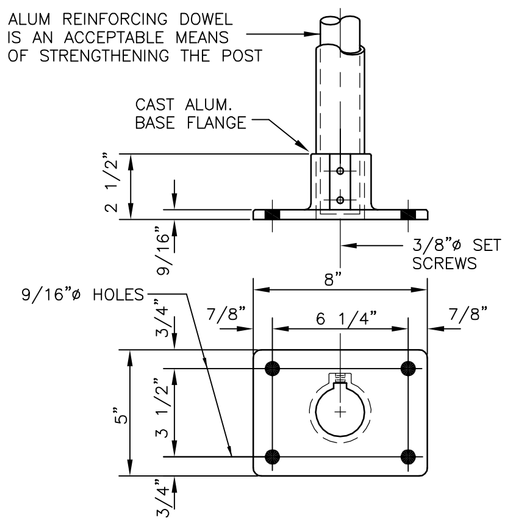
PROJECT STATUS
BID SET
OCTOBER 2008

S–11



TYPICAL HANDRAIL

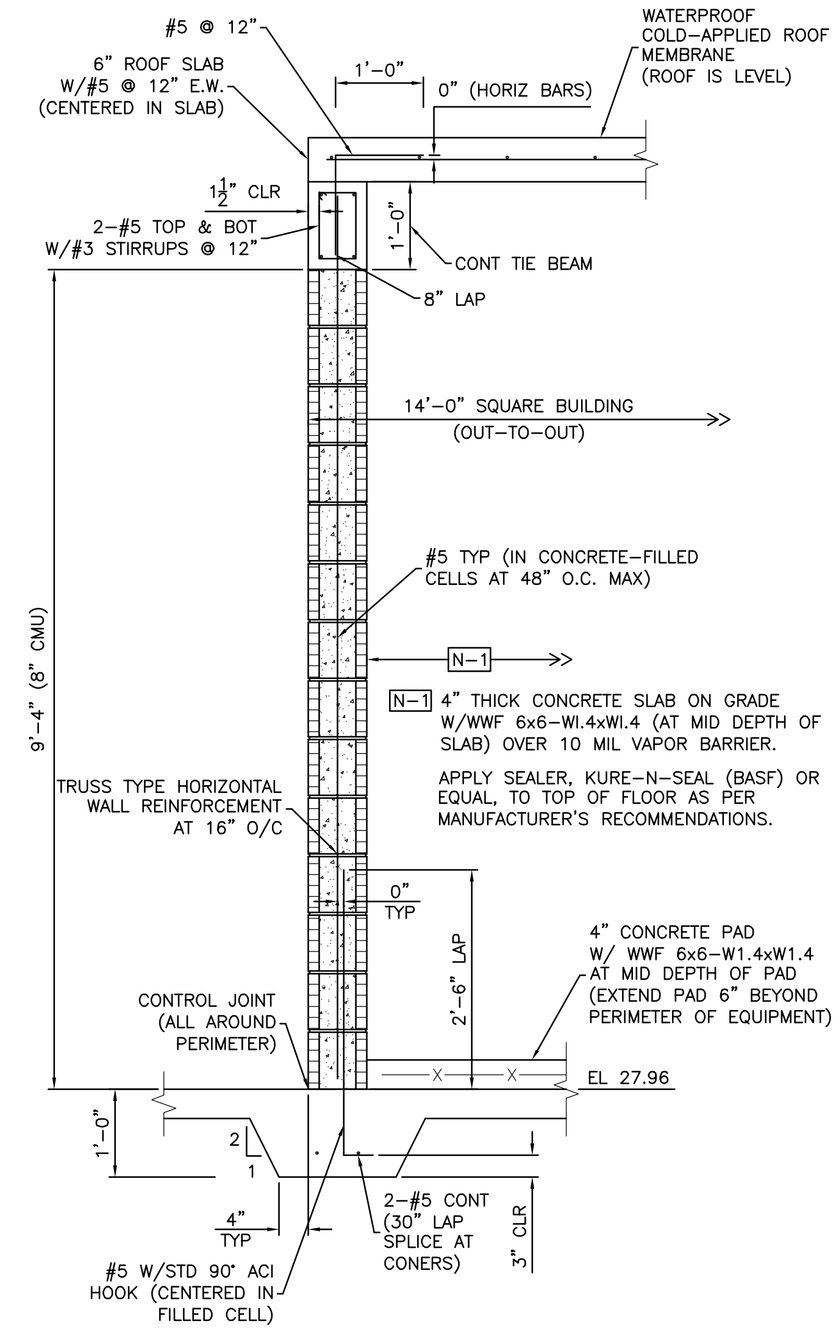
NOTE:
SEE SPECIFICATION SECTION 05500, FOR ADDITIONAL SPECIFICATIONS.



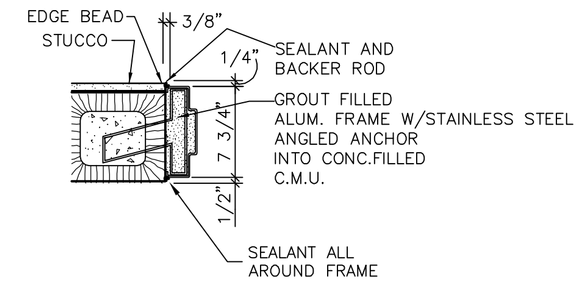
4-HOLE

LOCATE SET SCREWS IN BASE FLANGE AT 90° FROM CENTERLINE OF H.R. RUN AND ON SIDE AWAY FROM WALKING SURFACE.

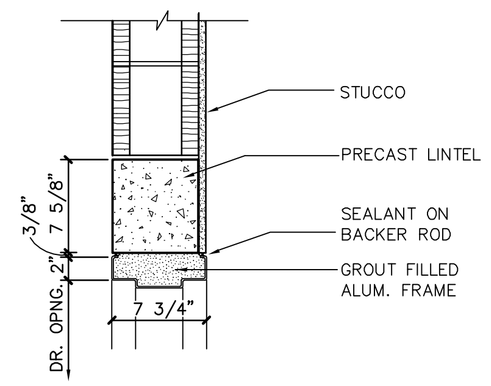
HANDRAIL
1 – DETAIL
SCALE: NTS



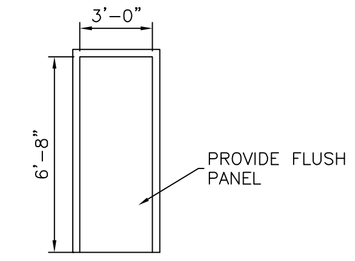
TYPICAL WALL SECTION OF ELECTRICAL ROOM
SCALE: NTS



EXT. MAS. JAMB DETAIL



EXT. MAS. HEAD DETAIL



FRAME ELEVATION

NOTE: ALL EXTERIOR DOOR INSTALLATIONS SHALL BE DESIGNED TO WITHSTAND 130 MPH WIND LOADS PER MANATEE COUNTY CODES.

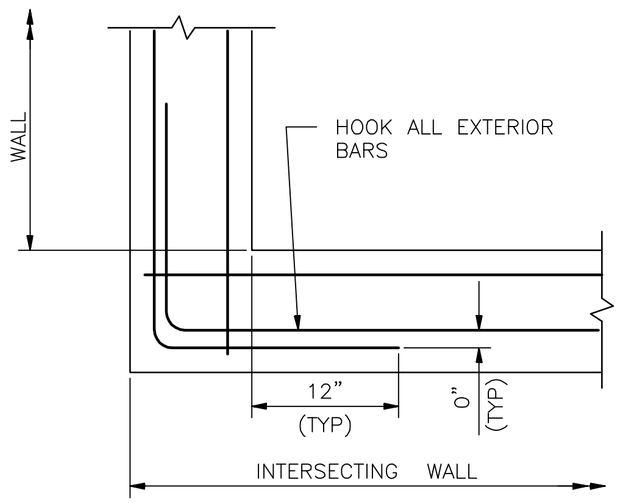
NOTES:

DOOR, FRAME AND HARDWARE NOTES:

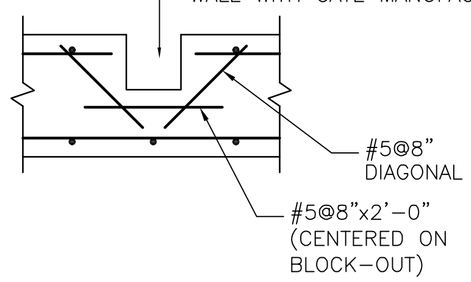
1. ALUMINUM DOOR:
   A. ALUMINUM DOOR SHALL BE NOMINAL 1-3/4" THICK FLUSH DESIGN WITH ONE PIECE .090" SMOOTH ALUMINUM FACE SHEET ON A RIGID ALUMINUM SUB-FRAME WITH INTEGRAL EDGE CAPS. THE SUB-FRAME SHALL BE CONNECTED BY A 3/8" CADMIUM PLATED STEEL TIE ROD TOP AND BOTTOM.
   B. ALL VOIDS BETWEEN SUB-FRAMES SHALL BE FILLED WITH A LAMINATED URETHANE FOAM BOARD THAT IS FIRE RETARDANT AND HAS AN R-VALUE OF 9.
   C. FINISH SHALL BE 204-R1 CLEAR (NATURAL) ANODIZE, DESIGNATION AA-M10-C22-A31, ARCHITECTURAL CLASS II.
   D. BASIS OF DESIGN: SERIES 295I MANUFACTURED BY ALUTECH CORPORATION, OR APPROVED EQUAL.
2. ALUMINUM FRAME:
   A. ALUMINUM FRAME SHALL BE FABRICATED WITH INTEGRAL STOP WITH MILL JOINTS IN FRAME MEMBERS MITERED TO A HAIRLINE FIT AND CONTINUOUSLY WELDED. MINIMUM WALL THICKNESS SHALL BE 0.125 INCHES.
   B. MITERED CORNERS SHALL BE REINFORCED WITH CHANNEL-SHAPED REINFORCEMENTS. PROVIDE INTEGRAL WEATHERSTRIPPING.
   E. USE STAINLESS STEEL ANCHORS TO SECURE FRAMES TO ADJACENT CONSTRUCTION AND GROUT SOLID.
   F. FINISH SHALL BE 204-R1 CLEAR (NATURAL) ANODIZE, DESIGNATION AA-M10-C22-A31, ARCHITECTURAL CLASS II.
   G. BASIS OF DESIGN: SERIES FR575 MANUFACTURED BY ALUTECH CORPORATION, OR APPROVED EQUAL.
3. DOOR HARDWARE:
   A. PROVIDE THE FOLLOWING HARDWARE SET. MANUFACTURERS LISTED ARE "BASIS OF DESIGN":

      SINGLE DOOR - AL X AL - SIZE AND SWING AS INDICATED

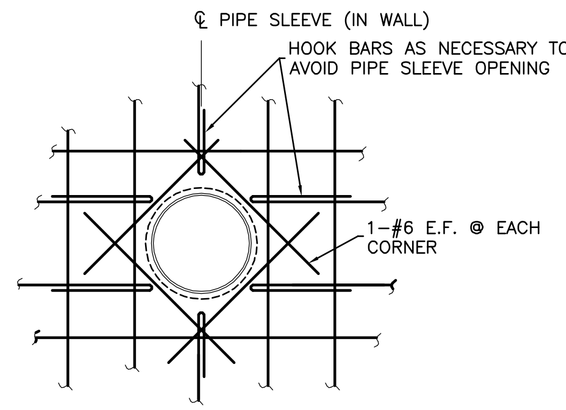
      HINGES: 1-1/2 PR HAGER BB1168 - 4-1/2 X 4-1/2 NRP - US32D
      LOCKSET: 1 SCHLAGE D80PD RHO LEVER - US32D
      THRESHOLD: 1 PEMKO 27748A AL



2 – DETAIL
SCALE: NTS



REINF. @ BLOCK OUT
3 – DETAIL
SCALE: NTS



PIPE SLEEVE
4 – DETAIL
SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 29, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

STRUCTURAL DETAILS

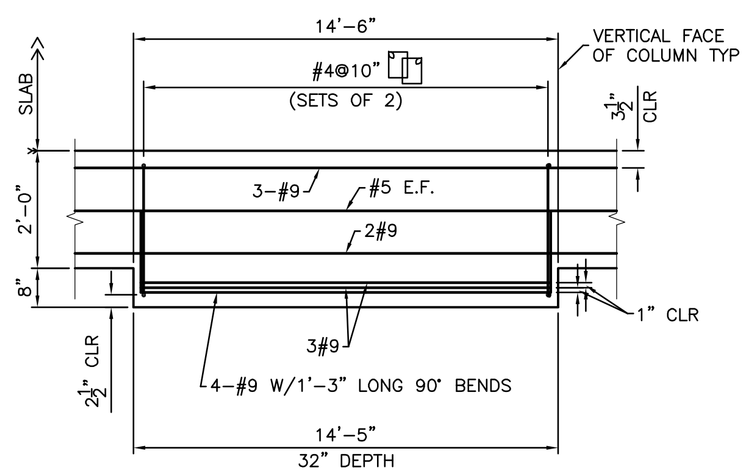
WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

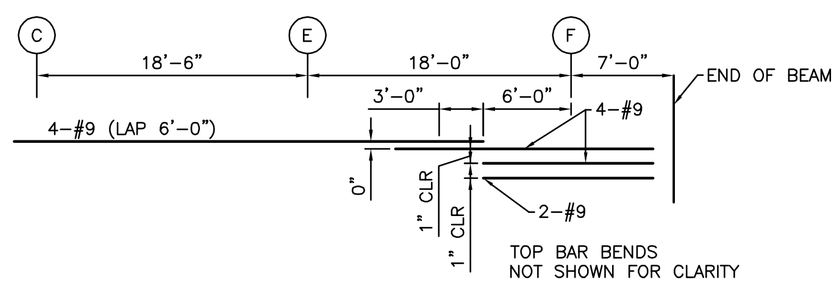
S-12

BEAM SCHEDULE

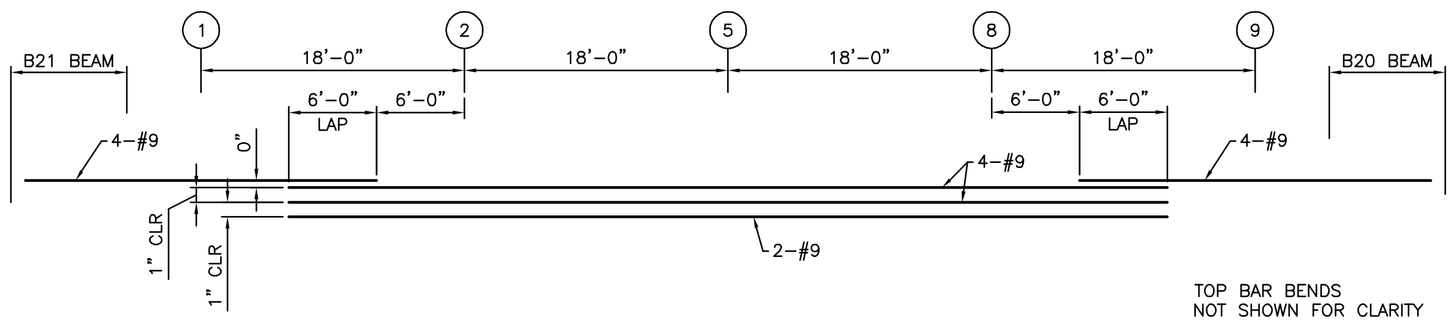
BEAM MARK	SIZE	REINFORCEMENT						REMARKS	
	WIDTH x DEPTH	TOP		BOTTOM	SIDE	STIRRUPS 135° HOOKS	TOP COVER		
		LEFT	RIGHT						
B1	18"x24"	3–#7	3–#7	3–#7	1–#5 E.F.	#4 @ 10"	2 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B2	24"x24"	4–#9	4–#9	3–#9	1–#5 E.F.	#4 @ 10"	3 1/2"	TOP BARS LAP 6'–0" AT MIDSPAN	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B3	24"x24"	5–#9	3–#9	4–#9 CONT ON CANT	1–#5 E.F.	#4 @ 10"	2 1/2"	TOP BARS LAP 6'–0" AT MIDSPAN OF 18' SPAN; SPRING BOTTOM "CANTILEVER" BARS UP	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B4	24"x24"	4–#9	4–#9	3–#9	1–#5 E.F.	#4 @ 10"	3 1/2"	TOP BARS LAP 6'–0" AT MIDSPAN	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B5	24"x24"	4–#9	10–#9	4–#9 CONT ON CANT	1–#5 E.F.	#4 @5"	2 1/2"	SEE TOP BAR LAYOUT ON THIS SHEET. SPRING BOTTOM "CANTILEVER" BARS UP	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B6	24"x24"/32"				1–#5 E.F.		3 1/2"	SEE REBAR LAYOUT ON THIS SHEET	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B7	24"x24"	3–#9	3–#9	4–#9 CONT ON CANT	1–#5 E.F.	#4@10"	2 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B8	24"x24"	3–#7	3–#7	3–#7	1–#5 E.F.	#4@10"	3 1/2"		–
B9	24"x24"	3–#9	3–#9	3–#9	1–#5 E.F.	#4@10"	2 1/2"		–
B10	24"x24"	3–#9	3–#9	3–#9	1–#5 E.F.	#4@10"	2 1/2"	TOP BARS LAP 6'–0" AT MIDSPAN BETWEEN COLUMN LINES 5 AND 8	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B11	24"x32"	4–#9	4–#9	3–#9 CONT ON CANT	2–#5 E.F.	#4@10"	2 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B12	24"x32"	4–#9 CONT	4–#9 CONT 4–#9x13'–0" 2–#9x13'–0"	3–#9 CONT ON CANT	2–#5 E.F.	#5@5"	3 1/2"	INSTALL 10–#9 SIMILAR TO BEAM B5	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B13	24"x24"	4–#9	4–#9	4–#9 CONT ON CANT	1–#5 E.F.	#4@10"	2 1/2"	TOP BARS LAP 6'–0" AT MIDSPAN BETWEEN COLUMN LINES 2 AND 5	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B14	24"x24"	4–#9 CONT	4–#9 CONT 2–#9x15'–0"	4–#9 CONT ON CANT	1–#5 E.F.	@4@5"	3 1/2"	INSTALL 6–#9 SIMILAR TO BEAM B5	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B15	24"x24"	3–#9	3–#9	5–#9 (2 LAYERS)	1–#5 E.F.	#4@10"	3 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B16	24"x24"	3–#9	3–#9	10–#9 (3 LAYERS)	1–#5 E.F.	#4@10"	3 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B17	24"x42"			8–#9 (2 LAYERS) CONT ON CANT	2–#5 E.F.	#4@5"	2 1/2"	SEE TOP REBAR LAYOUT ON THIS SHEET	PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B18	24"x24"	3–#9	3–#9	6–#9 (2 LAYERS) CONT ON CANT	1–#5 E.F.	#4@10"	3 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B19	24"x24"	3–#9	3–#9	4–#9 CONT ON CANT	1–#5 E.F.	#4@10"	3 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B20	18"x24"	3–#7	3–#7	3–#7 CONT ON CANT	1–#5 E.F.	#4@10"	3 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS
B21	18"x24"	3–#7	3–#7	3–#7 CONT ON CANT	1–#5 E.F.	#4@10"	3 1/2"		PROVIDE 90° BEND AT ENDS OF ALL TOP BARS



BEAM B-6
SCALE: NTS



BEAM B-5 (TOP BARS)
SCALE: NTS



BEAM B-17 (TOP BARS)
SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: March 21, 2008

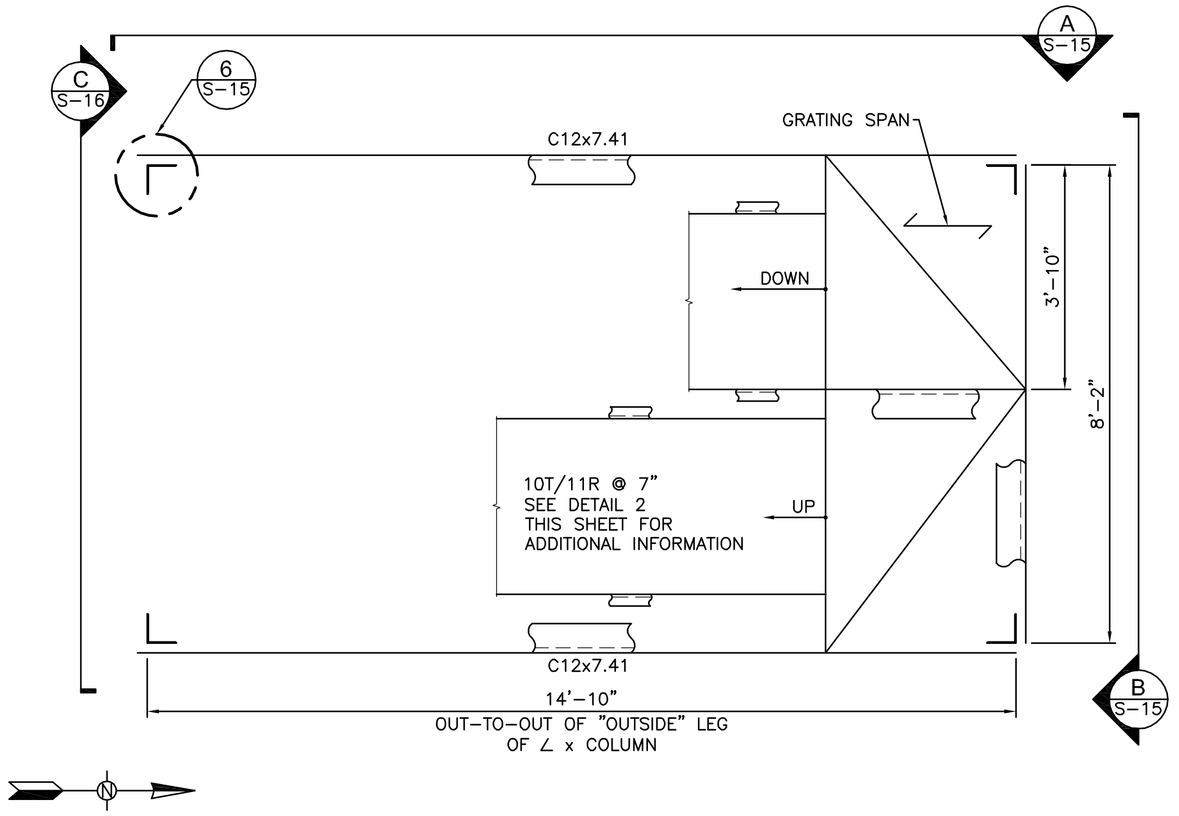
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

STRUCTURAL DETAILS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

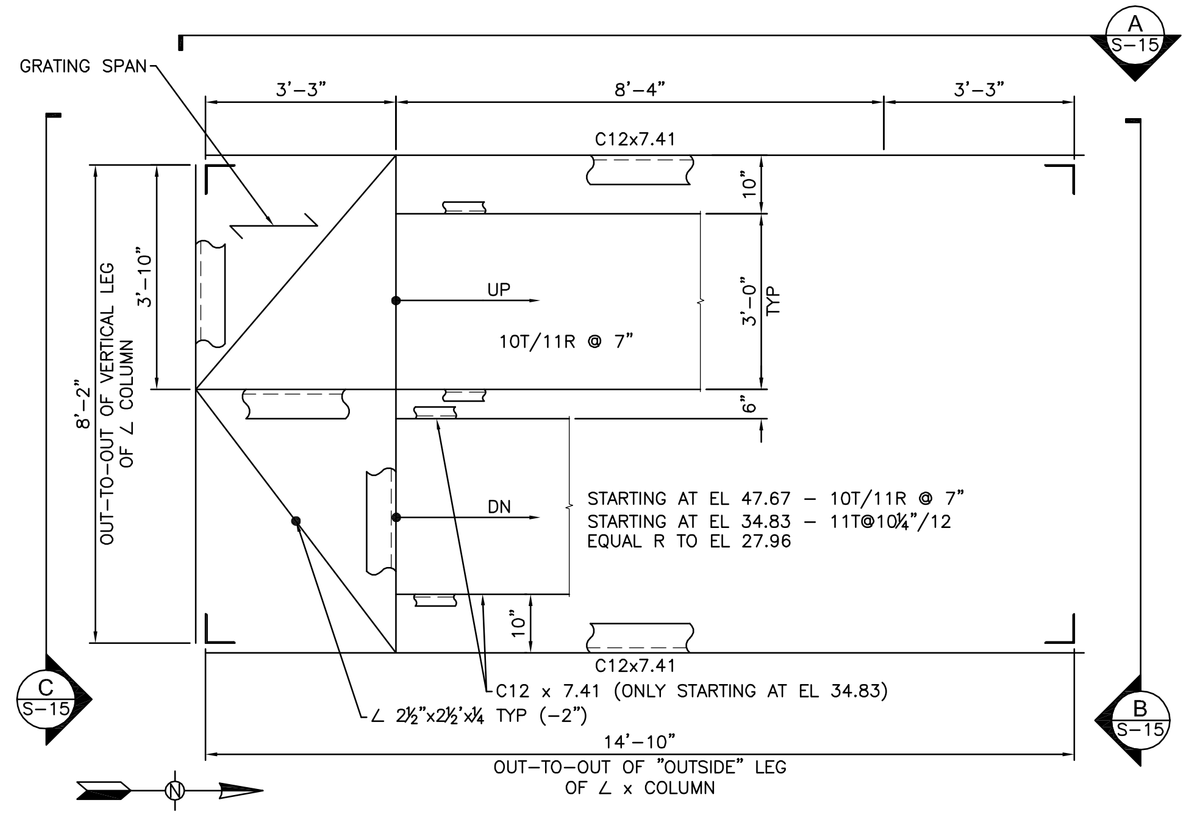
S–13



T/GRATING EL 41.25
T/GRATING EL 54.08

ALUMINUM FRAMING PLAN

1 / – DETAIL
SCALE: NTS

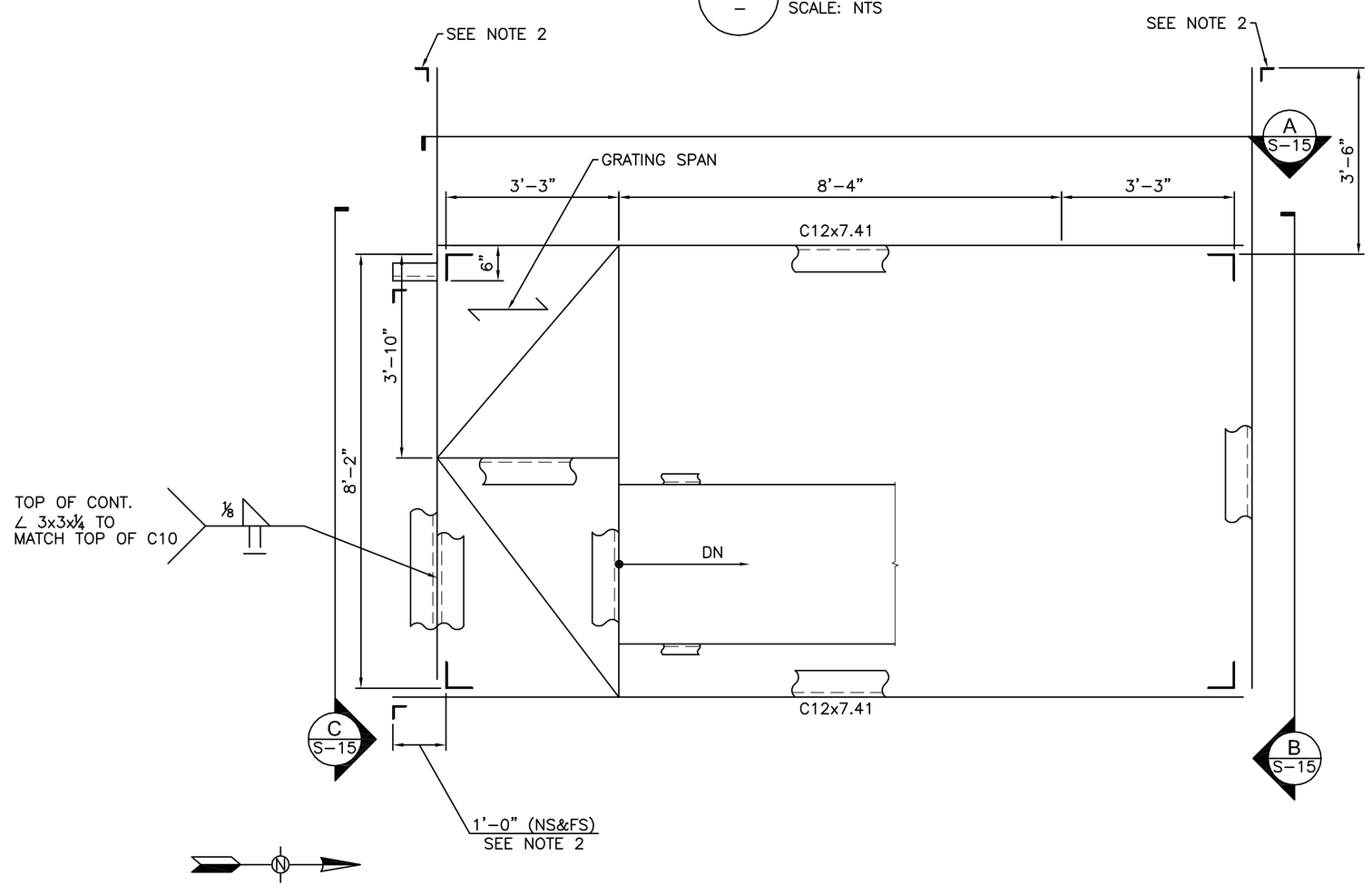


T/GRATING EL 34.83
T/GRATING EL 47.67

ALUMINUM FRAMING PLAN

2 / – DETAIL
SCALE: NTS

NOTES:
1. HANDRAIL AND KICK PLATE ARE REQUIRED AROUND ALL PLATFORM AND LANDING EDGES. HANDRAIL IS REQUIRED ON ALL STAIRS. THE HANDRAIL AND KICK PLATE HAVE NOT BEEN SHOWN FOR CLARITY. SEE DETAIL 1/S–12 FOR INFORMATION.
2. PROVIDE VERTICAL ∠ 3x3x¼x0'–7". PROVIDE ⅛" FILLET WELD (ALL AROUND) FOR ∠ 3x3 TO C10/C12 CONNECTION. PROVIDE (2) ⅝" ø SST EXP ANCHORS AT 3" OC (2¾" MIN EMBEDMENTS) FOR ∠ 3x3 CONNECTION TO VERTICAL FACE OF CONCRETE.



T/GRATING EL 60.50

ALUMINUM FRAMING PLAN

3 / – DETAIL
SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 11, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY

FOR

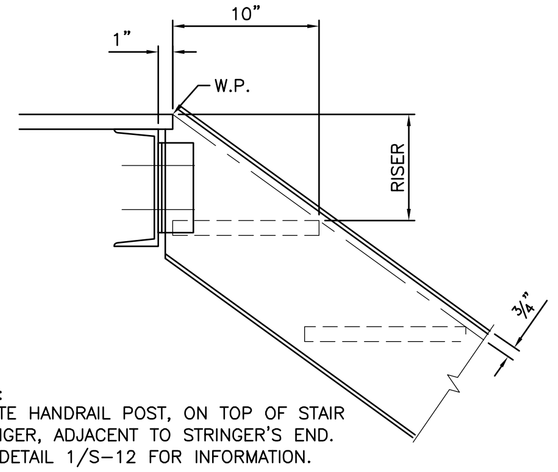
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

STAIRTOWER PLAN

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

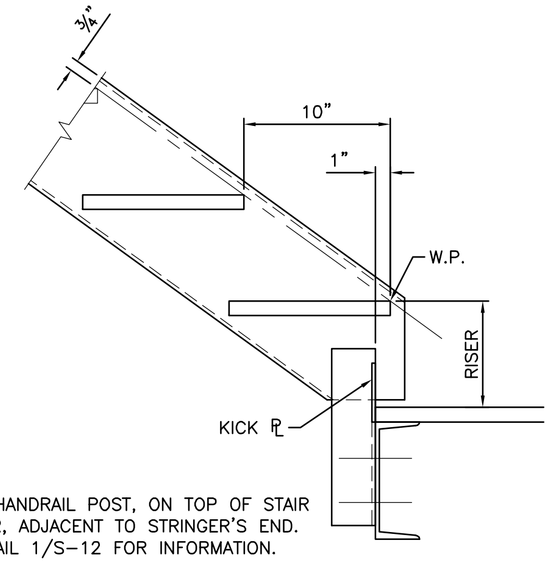
S–14



NOTE:
LOCATE HANDRAIL POST, ON TOP OF STAIR STRINGER, ADJACENT TO STRINGER'S END. SEE DETAIL 1/S-12 FOR INFORMATION.

ASCENDING TO LANDING

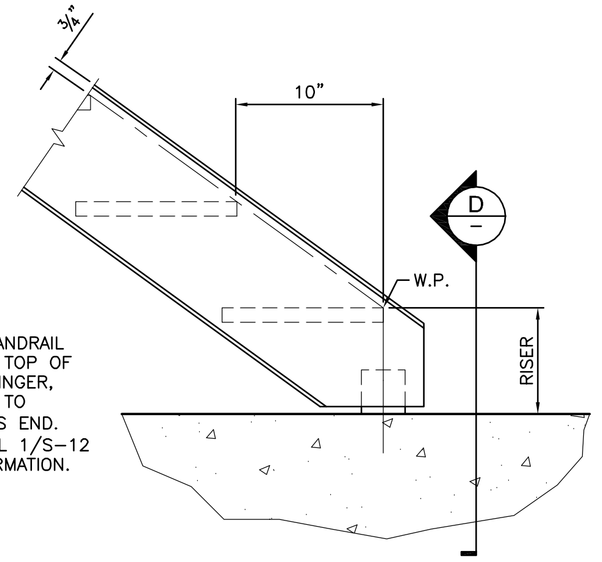
1 / – DETAIL
SCALE: NTS



NOTE:
LOCATE HANDRAIL POST, ON TOP OF STAIR STRINGER, ADJACENT TO STRINGER'S END. SEE DETAIL 1/S-12 FOR INFORMATION.

DESCENDING TO LANDING

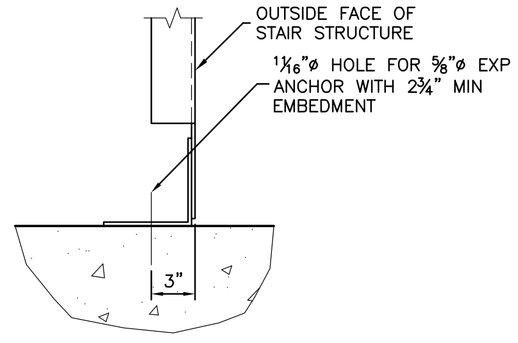
2 / – DETAIL
SCALE: NTS



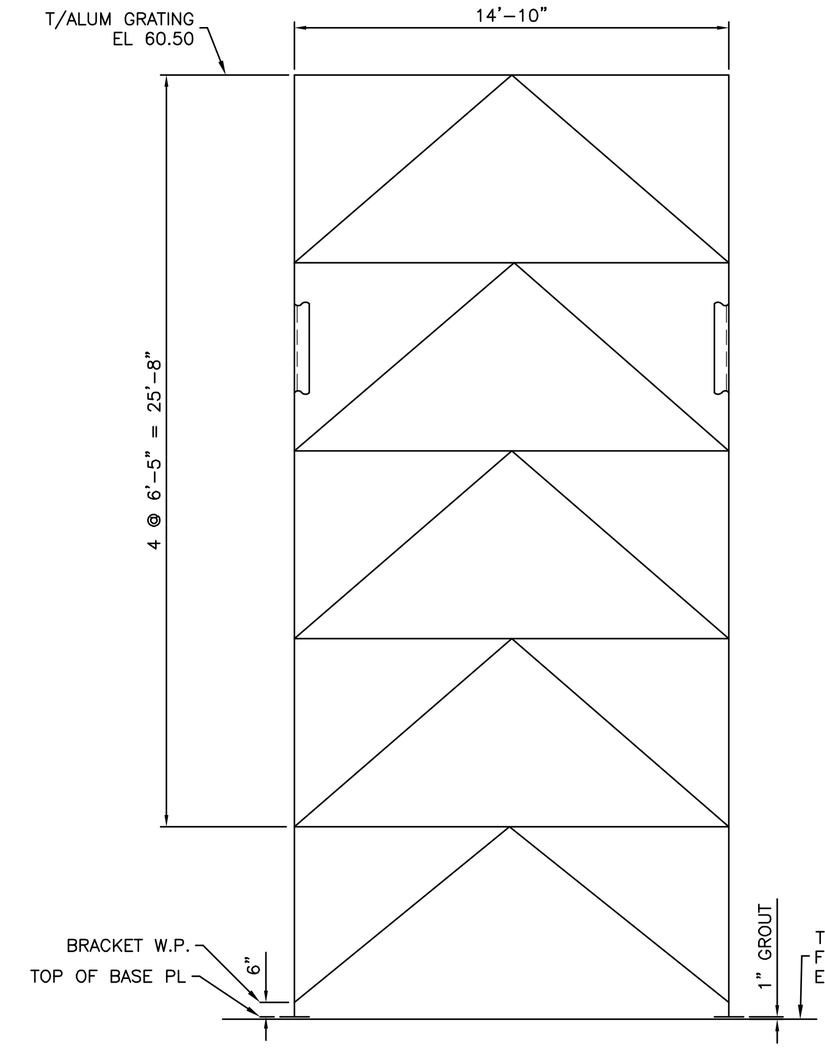
NOTE:
LOCATE HANDRAIL POST, ON TOP OF STAIR STRINGER, ADJACENT TO STRINGER'S END. SEE DETAIL 1/S-12 FOR INFORMATION.

STAIR DETAILS AT FOOT OF STAIRS

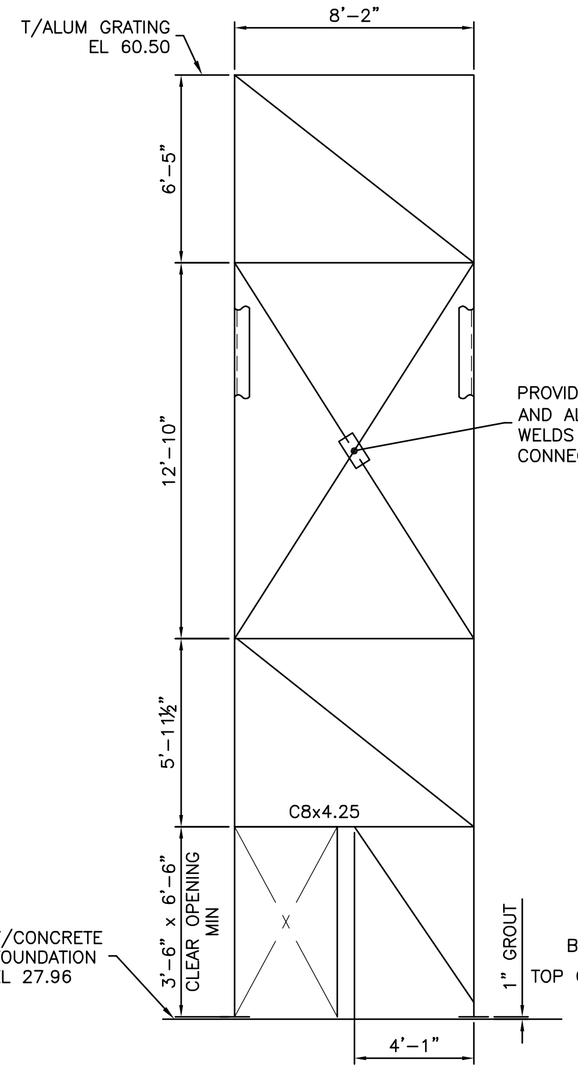
3 / – DETAIL
SCALE: NTS



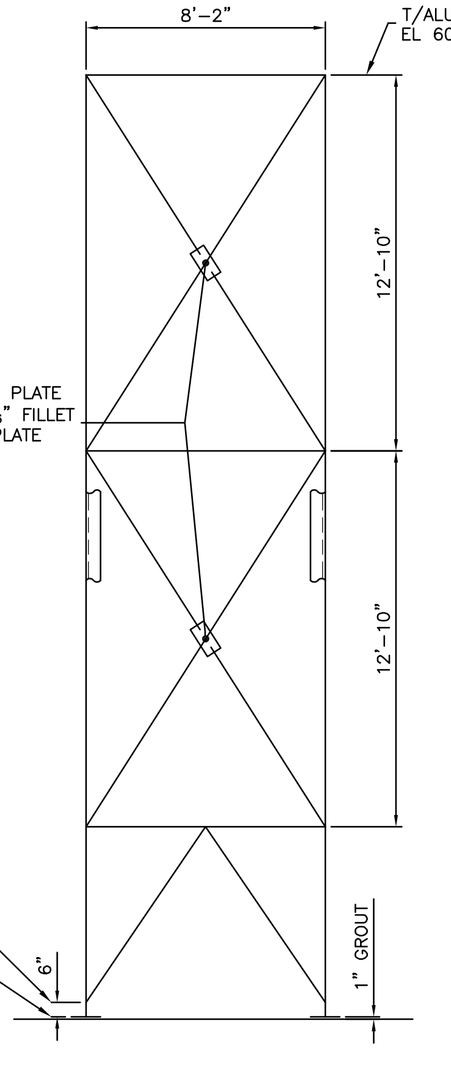
D / – SECTION
SCALE: NTS



A / S-15 SECTION
SCALE: NTS



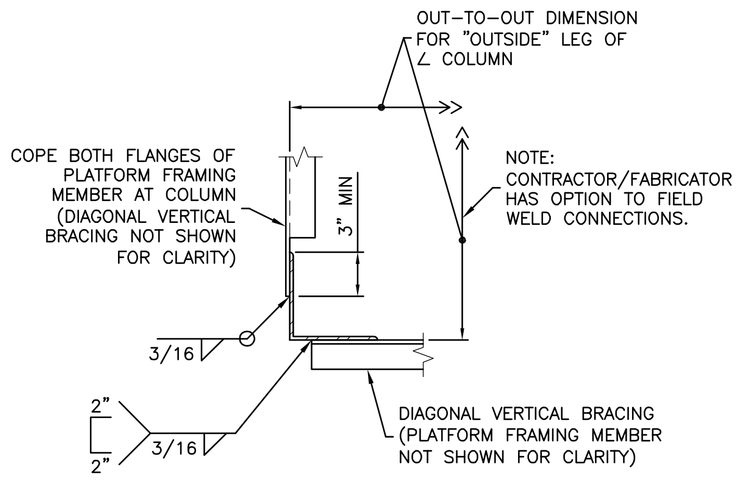
B / S-15 SECTION
SCALE: NTS



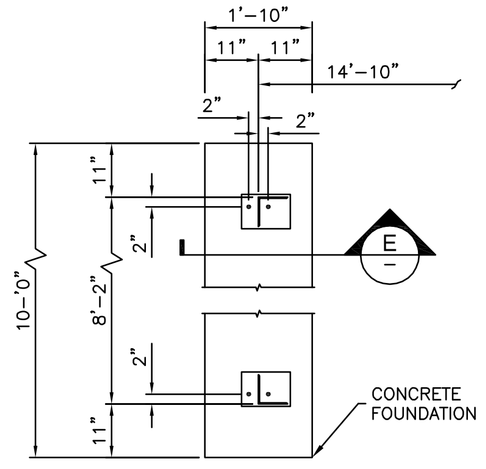
C / S-15 SECTION
SCALE: NTS

STAIRTOWER NOTES:

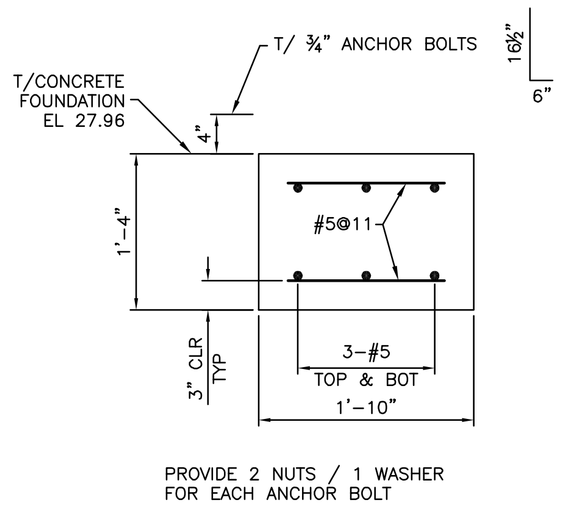
1. ALL COLUMNS SHALL BE ∠ 6X6X7/16.
2. ALL STAIR STRINGERS ARE C10X5.28, UNLESS NOTED.
3. STAIR TREADS: ALUMINUM BEARING BAR WITH CORRUGATED ANGLE NOSING. BEARING BARS 1½" X 3/16" (MIN.); ALUM ALLOY 6063
4. ALL PLATFORM FRAMING IS C10X5.28, UNLESS NOTED.
5. ALL DIAGONAL VERTICAL BRACING IS ∠ 3X3X3/8.
6. PROVIDE ALUMINUM GRATING: 1" ALUM; 1"X3/16" BEARING BARS AT 1 3/16" O.C WITH CROSS BARS AT 4" O.C. ; ALUM ALLOY 6063. BAND ALL OPENINGS IN GRATING.
7. BOLTS, NUTS AND WASHERS ¾"ø STAINLESS STEEL TYPE 316
8. GASKETS: NEOPRENE. USE BETWEEN ALL STEEL / ALUM CONTACT SURFACES.
9. PLATES, STAIR TREADS SUPPORT ANGLES: ALUM ALLOY 6061-T6.



4 / – DETAIL
SCALE: NTS

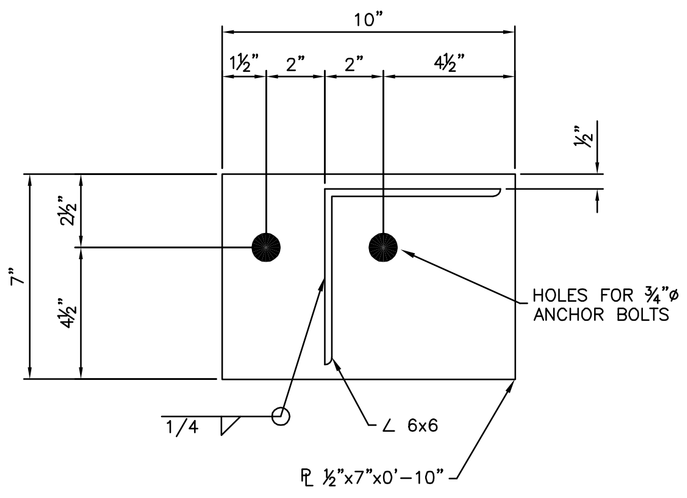


5 / – DETAIL
SCALE: NTS



PROVIDE 2 NUTS / 1 WASHER FOR EACH ANCHOR BOLT

E / – SECTION
SCALE: NTS



COLUMN BASE PLATE

6 / S-15 DETAIL
SCALE: NTS

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
12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS

FILE SAVE DATE:
April 11, 2008

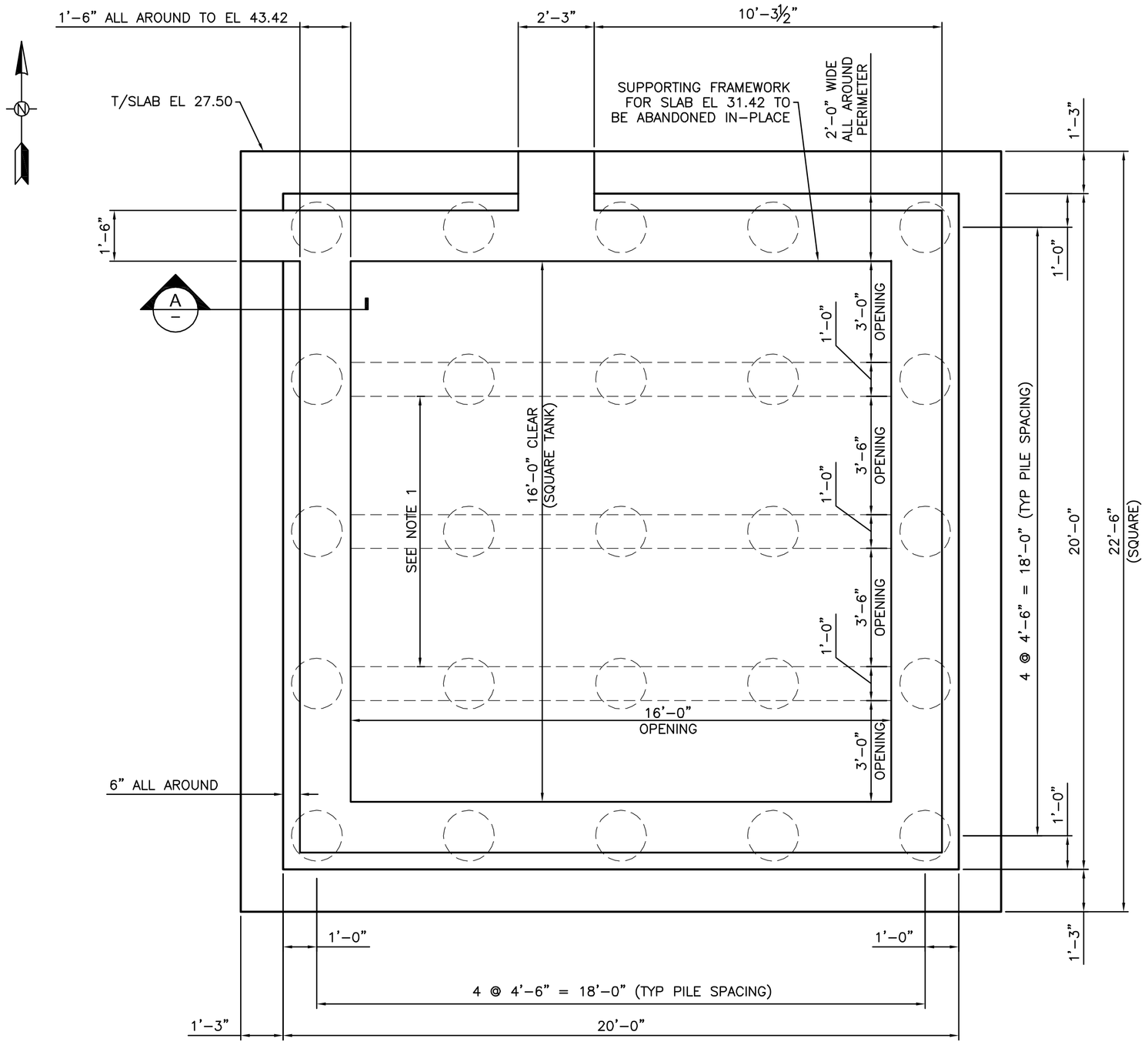
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

STAIR DETAILS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

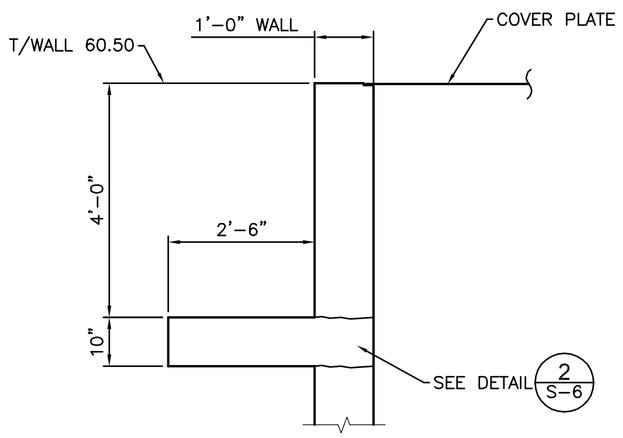
S-15

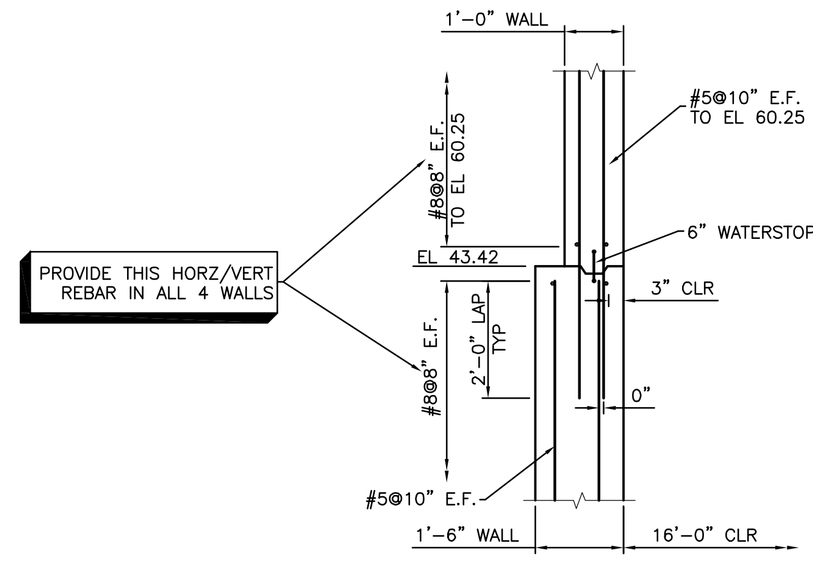


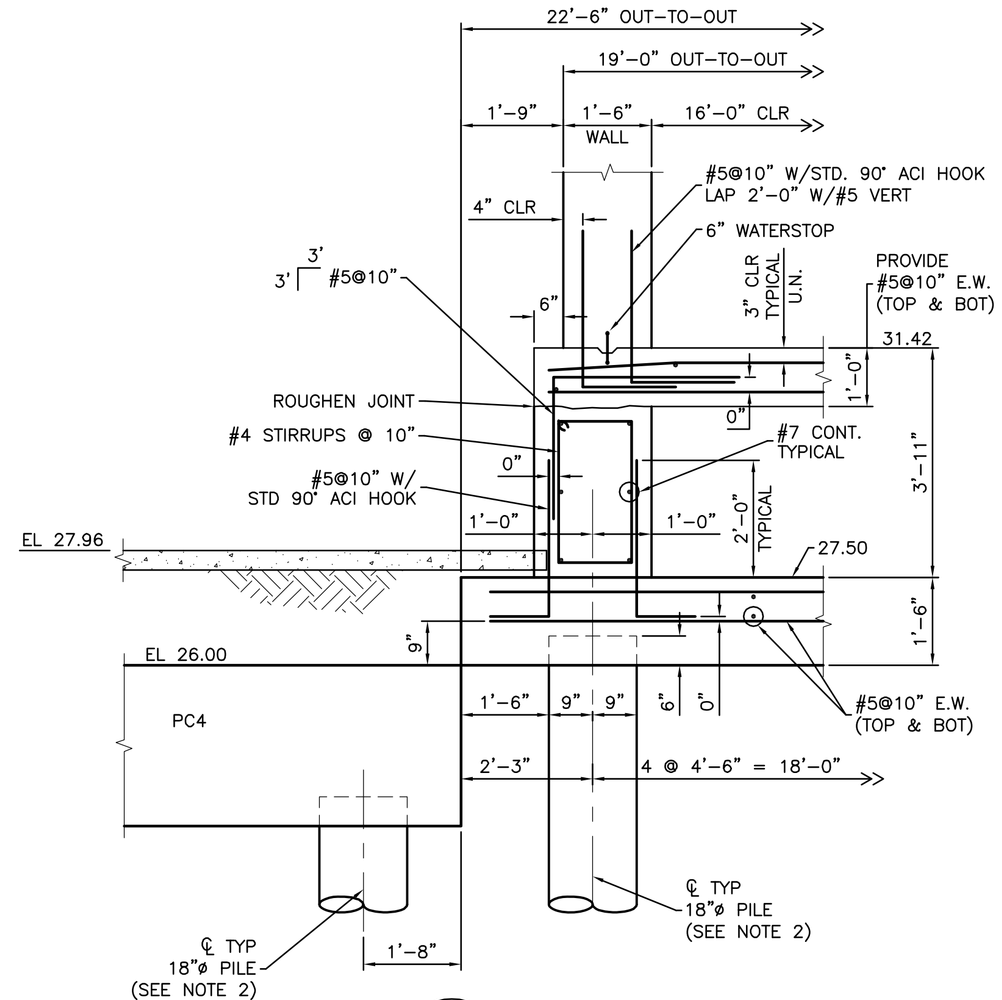
NOTE: SOUTH TANK SHOWN ABOVE. NORTH TANK IS OPPOSITE HAND.

PLAN VIEW - FOUNDATION LEVEL
SCALE: 3/8"=1'–0"

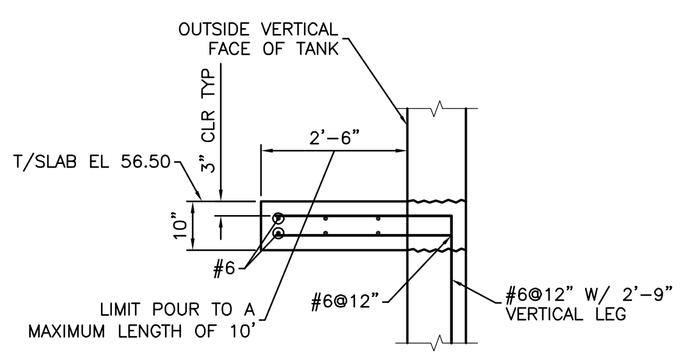
NOTES:
1. PROVIDE CONT. HORIZONTAL 2–#7 BARS (TOP, BOT, MID) WITH #4 STIRRUPS @10" O.C. IN THIS 12" WIDE x 35" DEEP CONCRETE BEAM.
2. VERTICAL BAR EXTENSION, AT CENTER OF PILE, OMITTED FOR CLARITY.



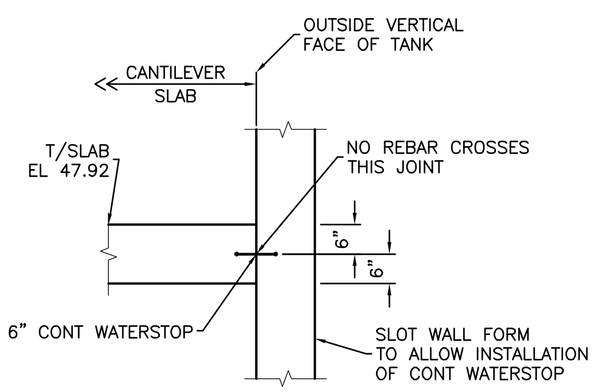




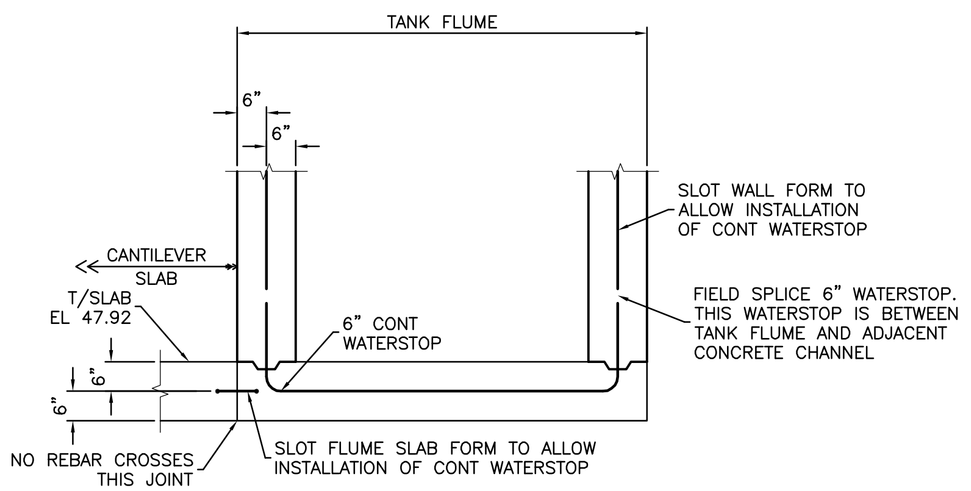
SECTION
A – SCALE: NTS



TANK/SLAB SECTION (LOOKING NORTH)
SCALE: NTS



TANK/SLAB SECTION (LOOKING NORTH)
SCALE: NTS



END VIEW OF TANK FLUME (LOOKING NORTH)
SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 11, 2008

MANATEE COUNTY FLORIDA

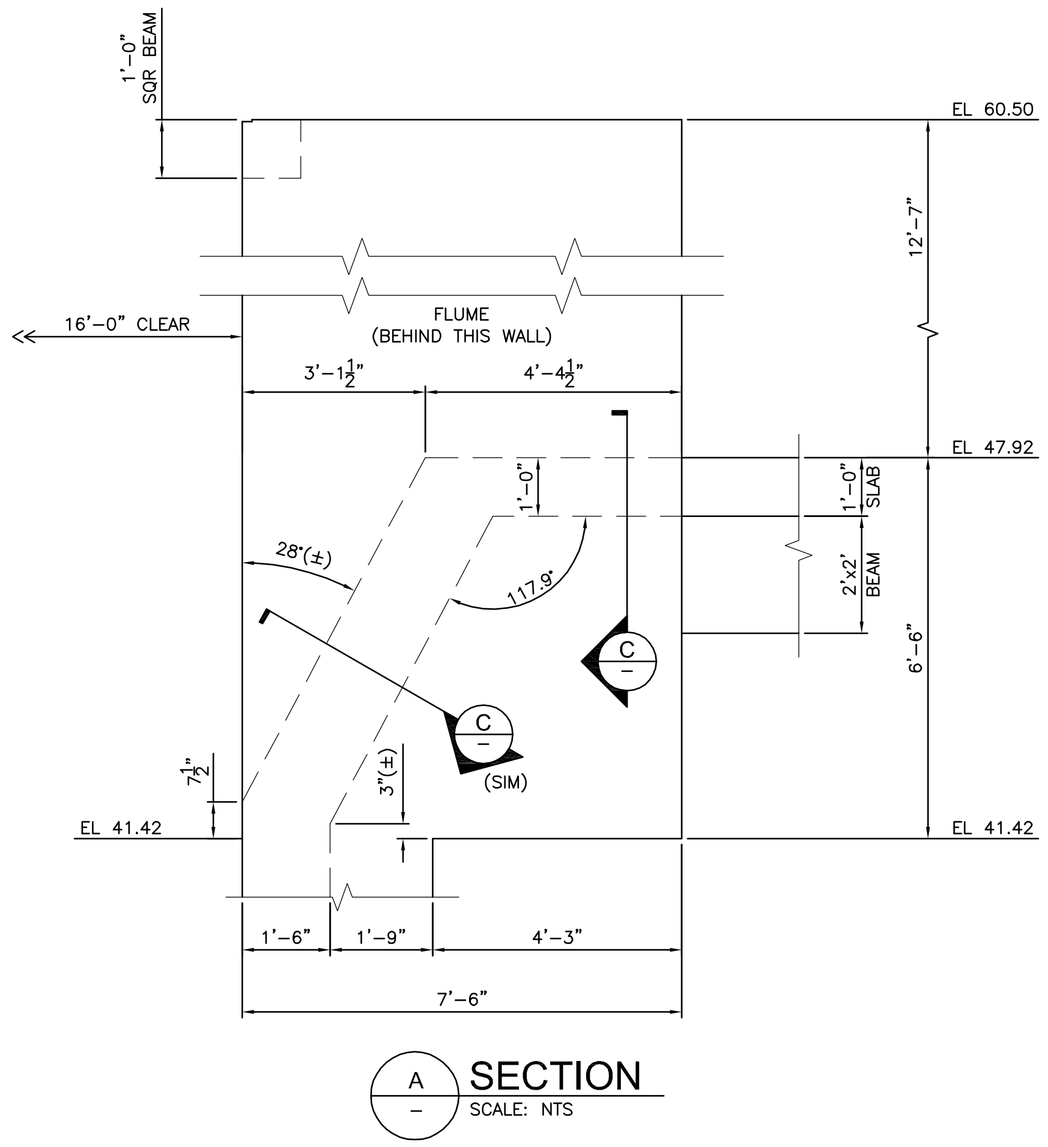
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

GRIT TANK DETAILS

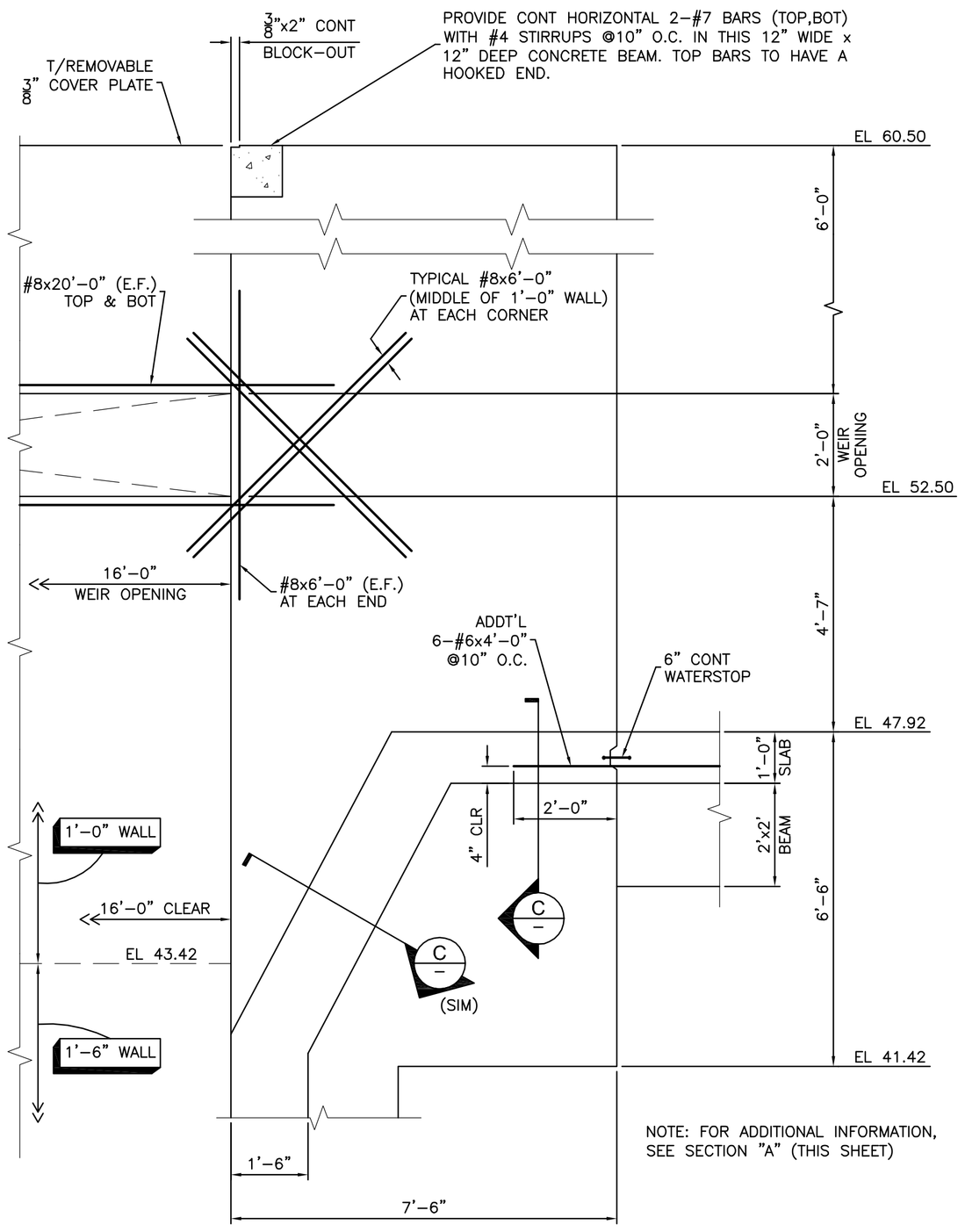
WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S–16

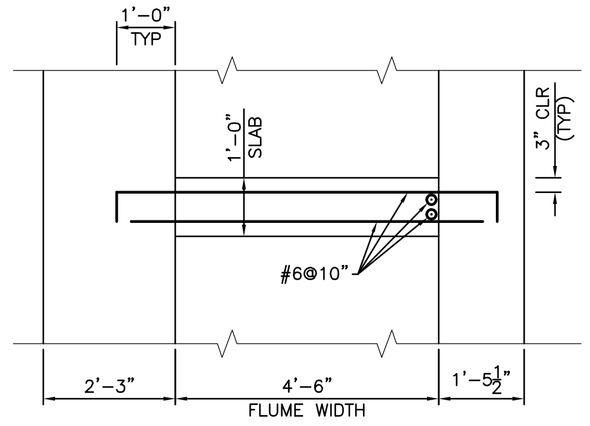


A SECTION
SCALE: NTS

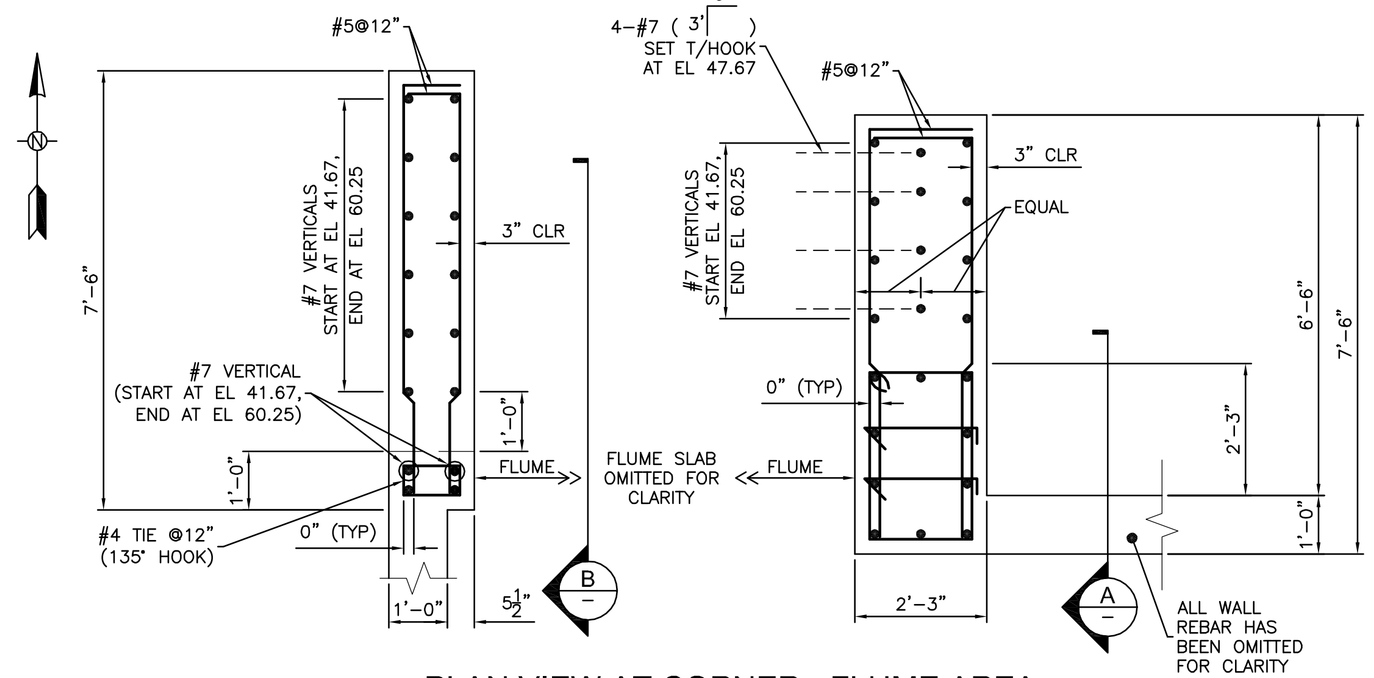


NOTE: FOR ADDITIONAL INFORMATION, SEE SECTION "A" (THIS SHEET)

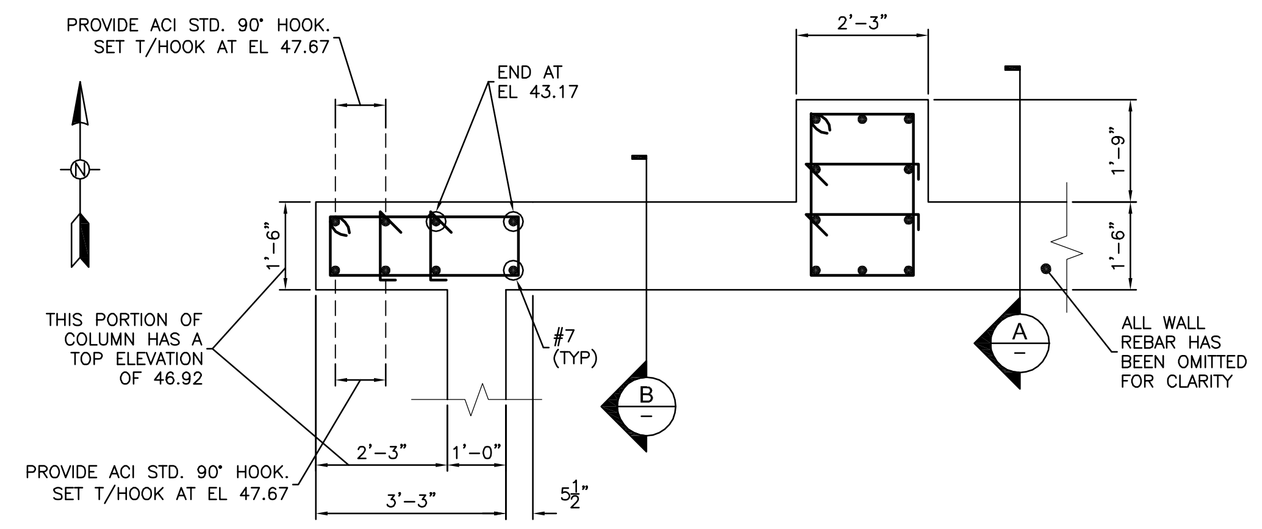
B SECTION
SCALE: NTS



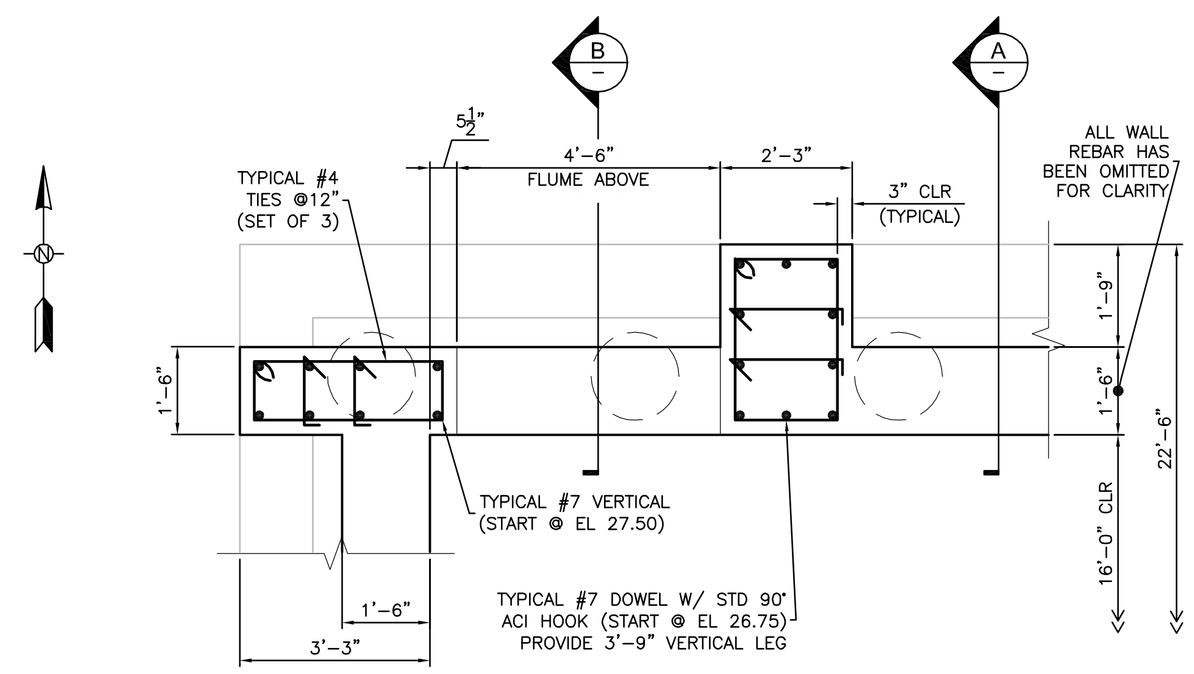
C SECTION
SCALE: NTS



PLAN VIEW AT CORNER - FLUME AREA
SCALE: NTS



PLAN VIEW AT CORNER - JUST BELOW BOTTOM OF FLUME
SCALE: NTS



PLAN VIEW AT CORNER - FOUNDATION LEVEL
SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: W. HAUSHEER
DRW: D. ELLIS
FILE SAVE DATE: April 1, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

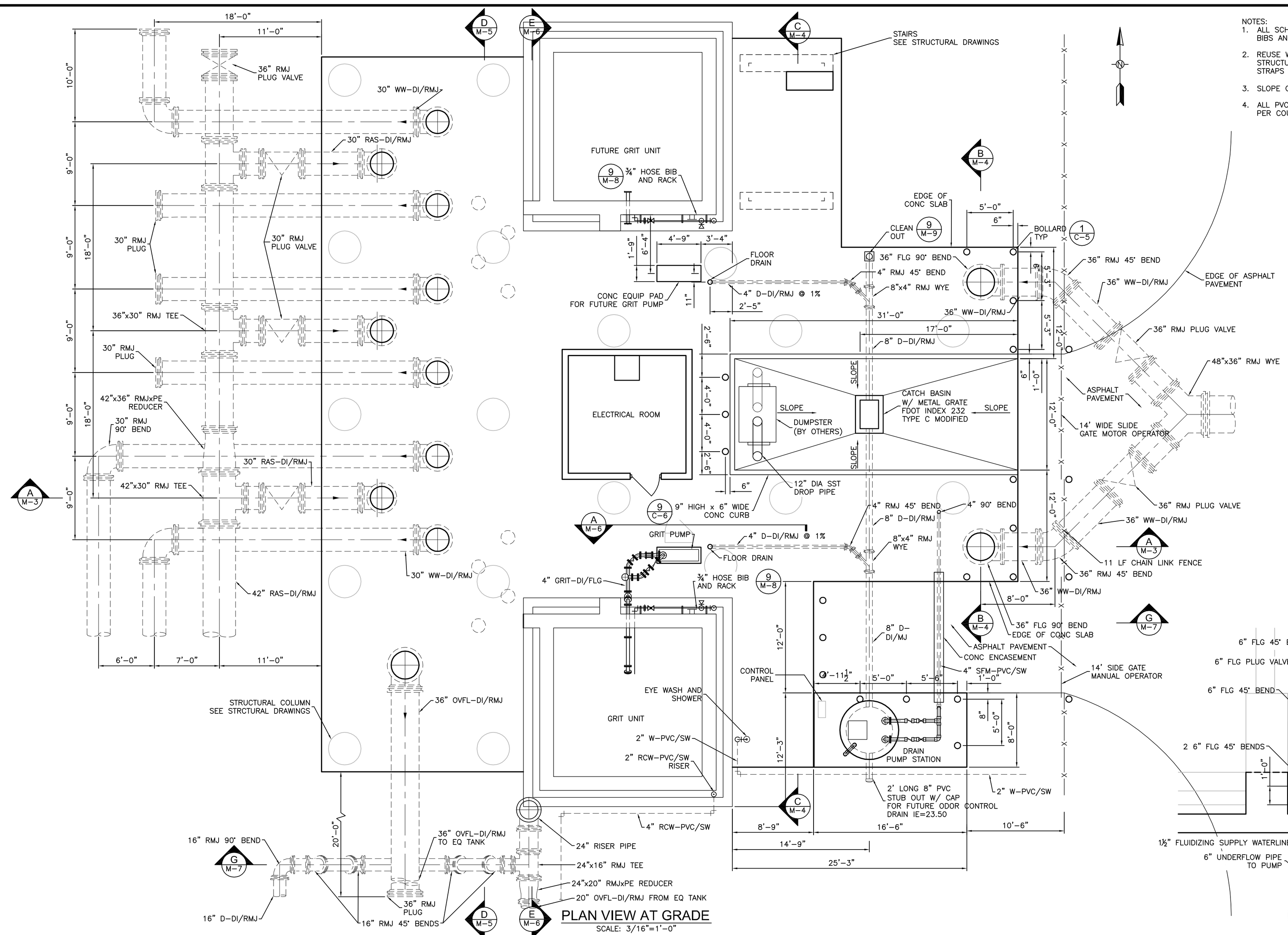
GRIT TANK DETAILS

WILLIAM N. HAUSHEER
FLORIDA P.E. NO. 31715

PROJECT STATUS
BID SET
OCTOBER 2008

S-17

NOTES:
1. ALL SCHEDULE 80 PVC REUSE WATER PIPING AND VALVES TO HOSE BIBS AND THE SLURRYCUP GRIT UNITS SHALL BE SOLVENT WELD.
2. REUSE WATER PIPING SHALL BE HUNG FROM THE HEADWORKS STRUCTURE USING 316 SST UNISTRUT. PROVIDE 2 ADDITIONAL 316 SST STRAPS ON HANDRAIL TO HOSE BIB. SEE DETAIL 9 ON SHEET M-8.
3. SLOPE CONCRETE ⅛" PER FOOT TO FLOOR DRAINS.
4. ALL PVC RECLAIMED WATER PIPING SHALL BE PAINTED REUSE PURPLE PER COUNTY STANDARDS.



PLAN VIEW AT GRADE
SCALE: 3/16"=1'-0"

GRIT PUMP PIPING
1 – DETAIL
SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

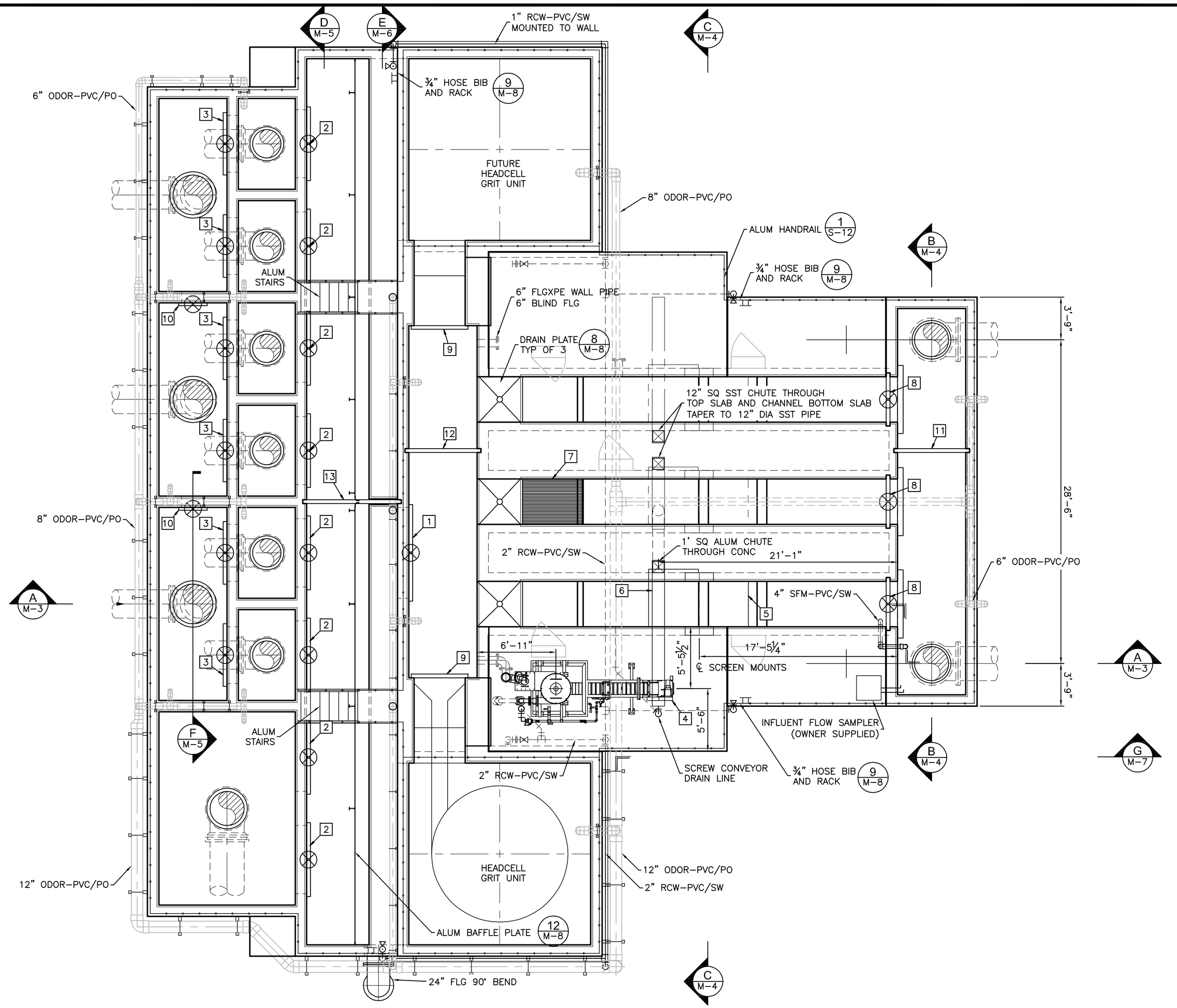
INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS MECHANICAL PLAN AT GRADE

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-1



NOTES:
1. FOR ODOR CONTROL AIR PIPING SEE SHEET M–11

EQUIPMENT LIST
1. 8' WIDE x 2'–0" HIGH FACE MOUNTED WEIR GATE .
2. 6' WIDE x 2' HIGH WEIR GATE FACE MOUNTED WITH OFFSET FLOOR STAND AND HANDWHEEL OPERATOR.
3. 5' WIDE x 2' HIGH WEIR GATE FACE MOUNTED WITH OFFSET FLOOR STAND AND HANDWHEEL OPERATOR.
4. 32"ø SLURRYCUP "EUTEK SYSTEMS" O/E.
5. AUTOMATIC SCREEN "PARKSON CORPORATION".
6. SCREW CONVEYOR "SHAFTLESS TYPE".
7. MANUAL BAR SCREEN (SEE DETAIL SHEET M–?).
8. 4' WIDE x 5' HIGH SLIDE GATE WITH HANDWHEEL OPERATOR.
9. 4'–6" WIDE x 5' HIGH SLIDE GATE FACE MOUNTED WITH HANDWHEEL OPERATOR.
10. 2' WIDE x 2' HIGH SLIDE GATE WITH HANDWHEEL OPERATOR.
11. 5' WIDE x 5' HIGH STOP GATE.
12. 6' WIDE x 11.5' HIGH STOP GATE.
13. 8' WIDE x 7' HIGH STOP GATE

PLAN VIEW AT TOP OF STRUCTURE
SCALE: 3/16"=1'–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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS MECHANICAL
PLAN AT TOP

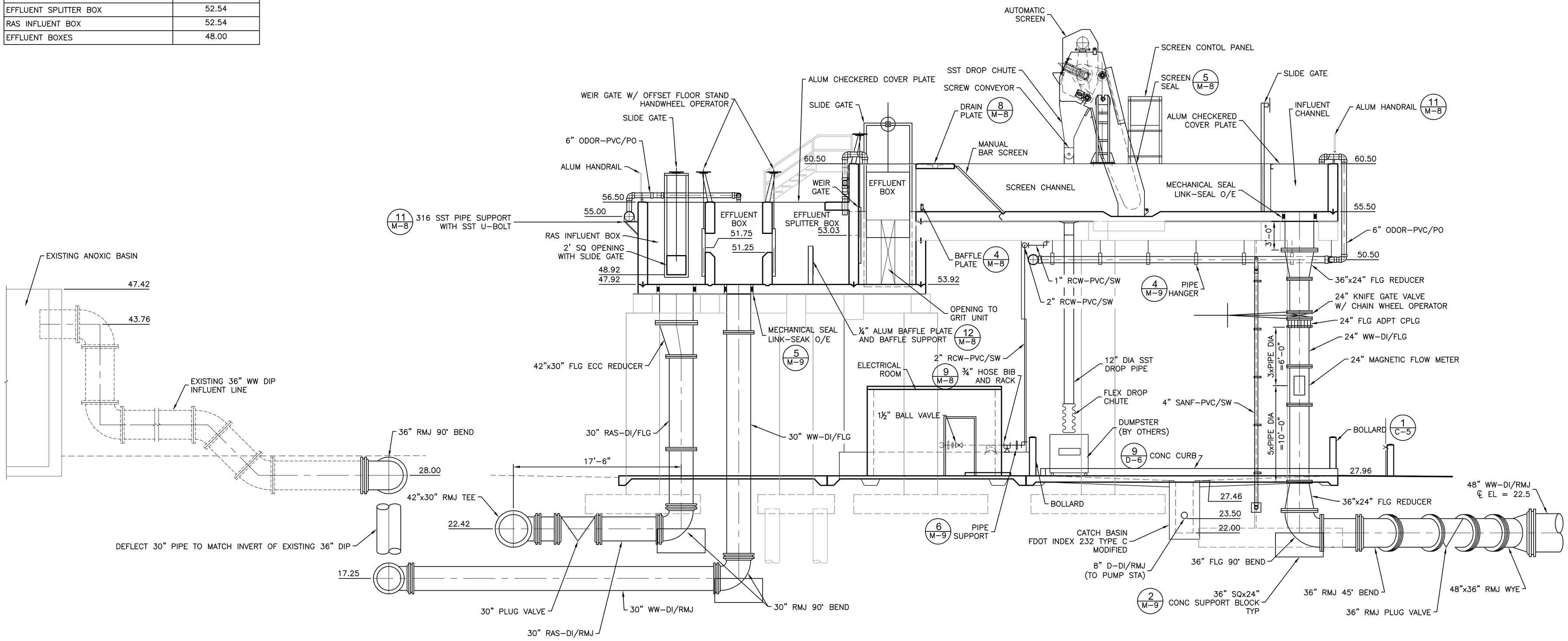
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M–2

WATER LEVEL ELEVATIONS TABLE	
LOCATION	ELEVATION (PHF)
INFLUENT CHANNEL	59.60
SCREEN CHANNEL	59.51
SCREEN CHANNEL (AFTER SCREEN	58.07
INFLUENT CHANNEL AT GRIT UNIT	53.29
EFFLUENT SPLITTER BOX	52.54
RAS INFLUENT BOX	52.54
EFFLUENT BOXES	48.00

NOTES:
1. FOR ODOR CONTROL AIR PIPING SEE SHEET M-11.
2. CONTRACTOR SHALL VERIFY ELEVATIONS OR THE EXISTING YARD PIPING PRIOR TO INSTALLATION OF NEW YARD PIPING.
3. DEFLECT JOINTS OF NEW 30" WW LINES ON NORTH SOUTH RUNS TO MATCH ℄ ELEVATIONS OF EXISTING 30" WW LINES AT THE TIE-IN POINT. NEW 30" WW LINES SHALL CROSS OVER EXISTING 36" WW RCCP INFLUENT PIPE.



A M-1 SECTION
SCALE: 3/16"=1'-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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 10, 2008

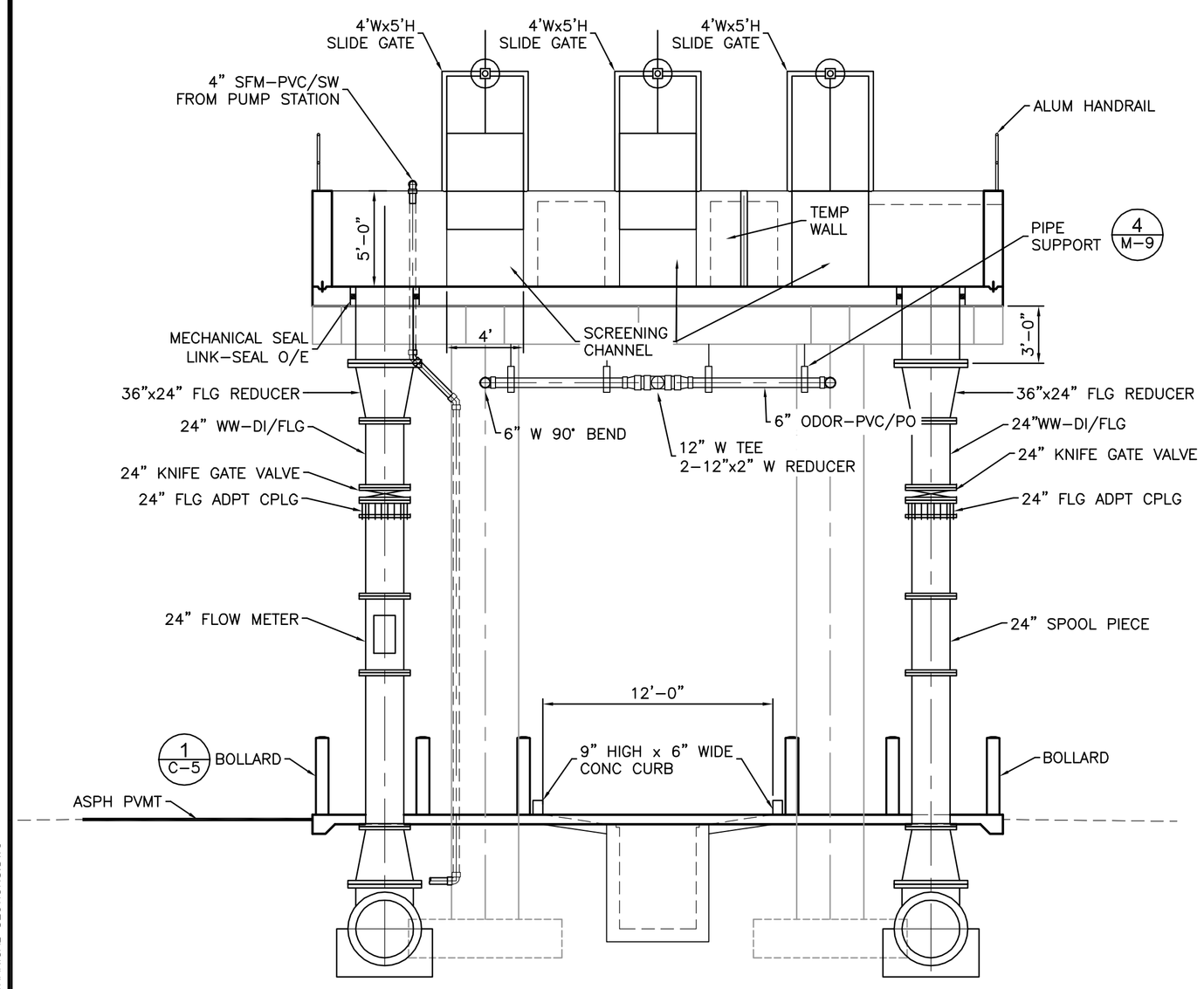
INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS MECHANICAL SECTION

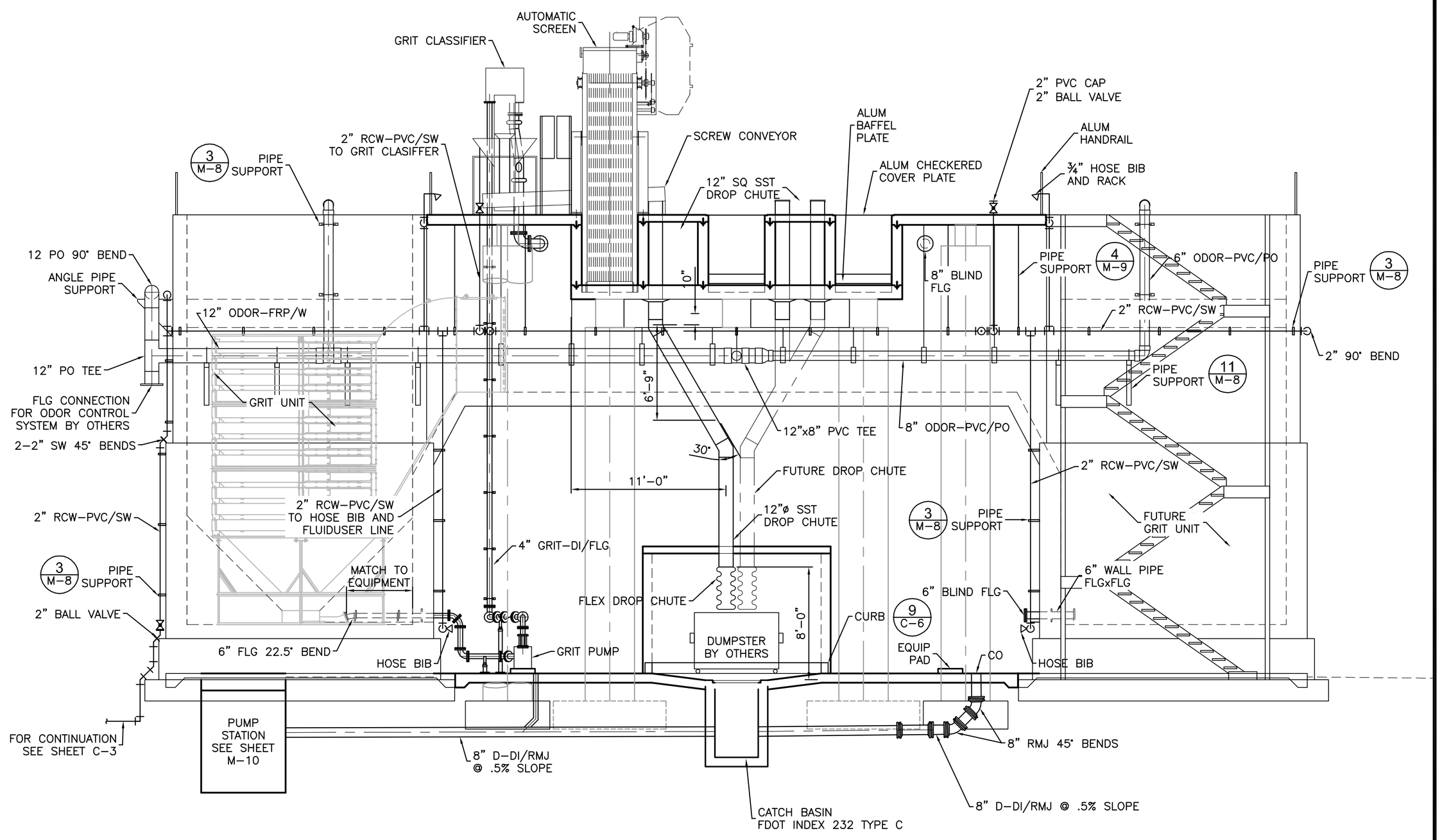
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-3



B M-1 SECTION
SCALE: 3/16"=1'-0"



C M-1 SECTION
SCALE: 3/16"=1'-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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 22, 2008

MANATEE COUNTY FLORIDA

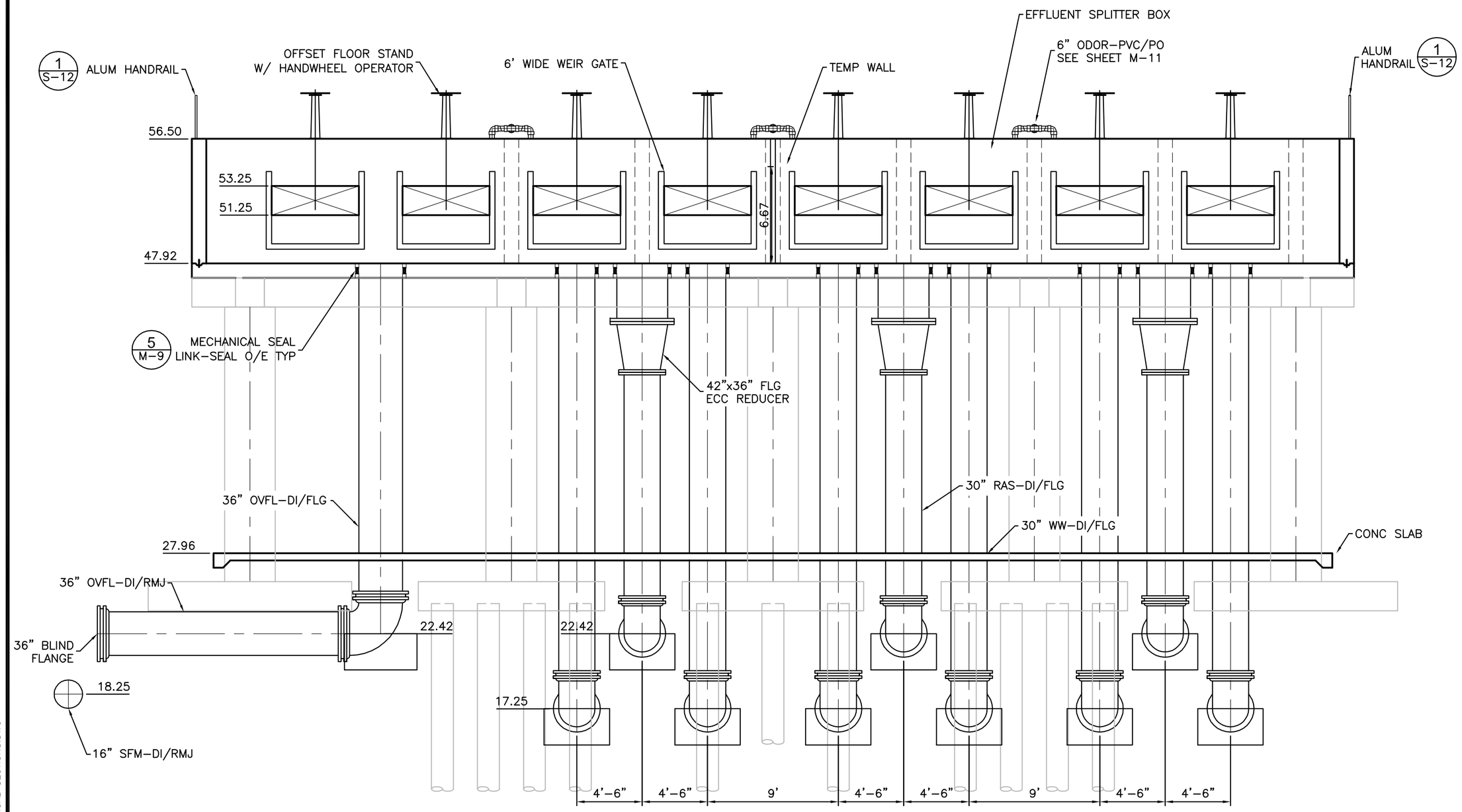
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS
MECHANICAL SECTIONS

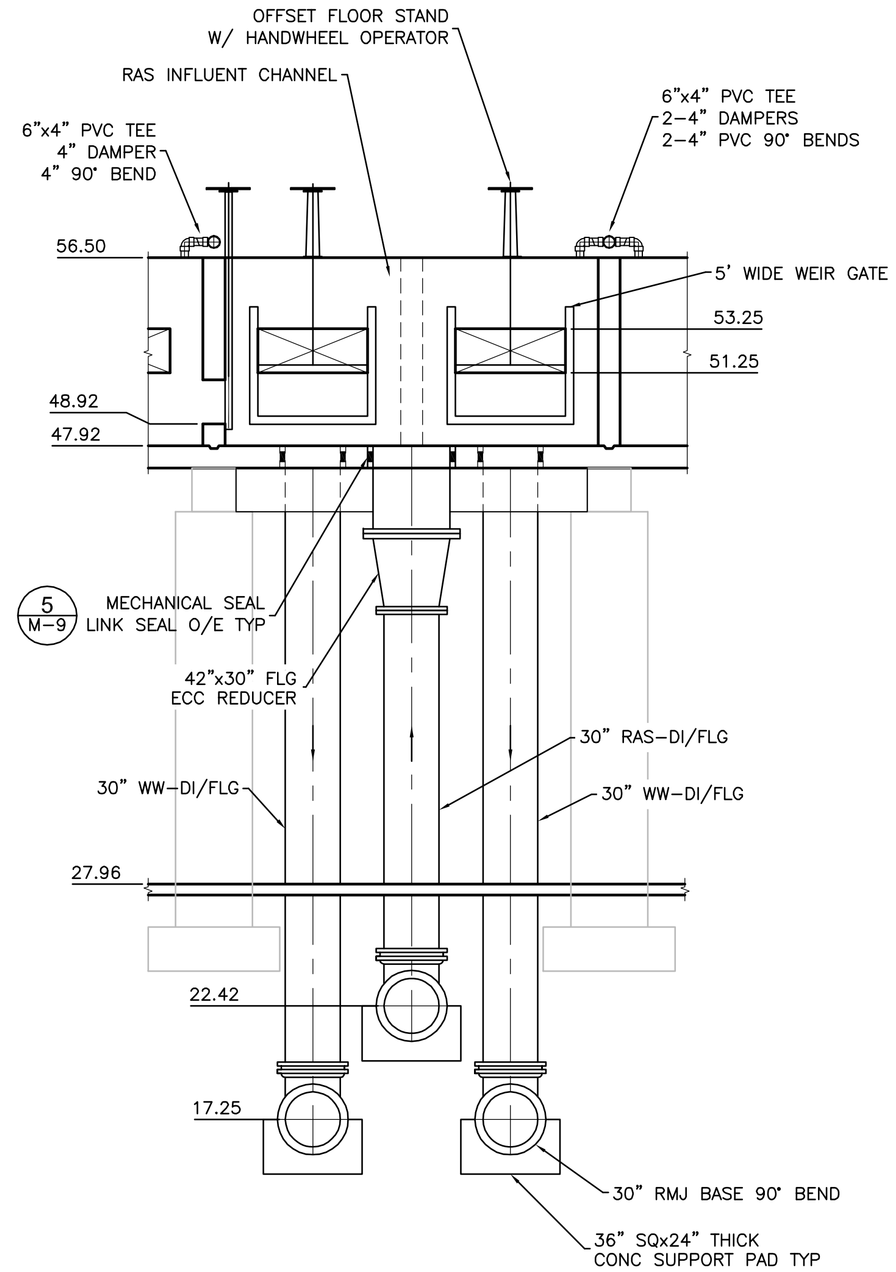
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-4



D SECTION
SCALE: 3/16"=1'-0"



F SECTION
SCALE: 3/16"=1'-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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 7, 2008

MANATEE COUNTY FLORIDA

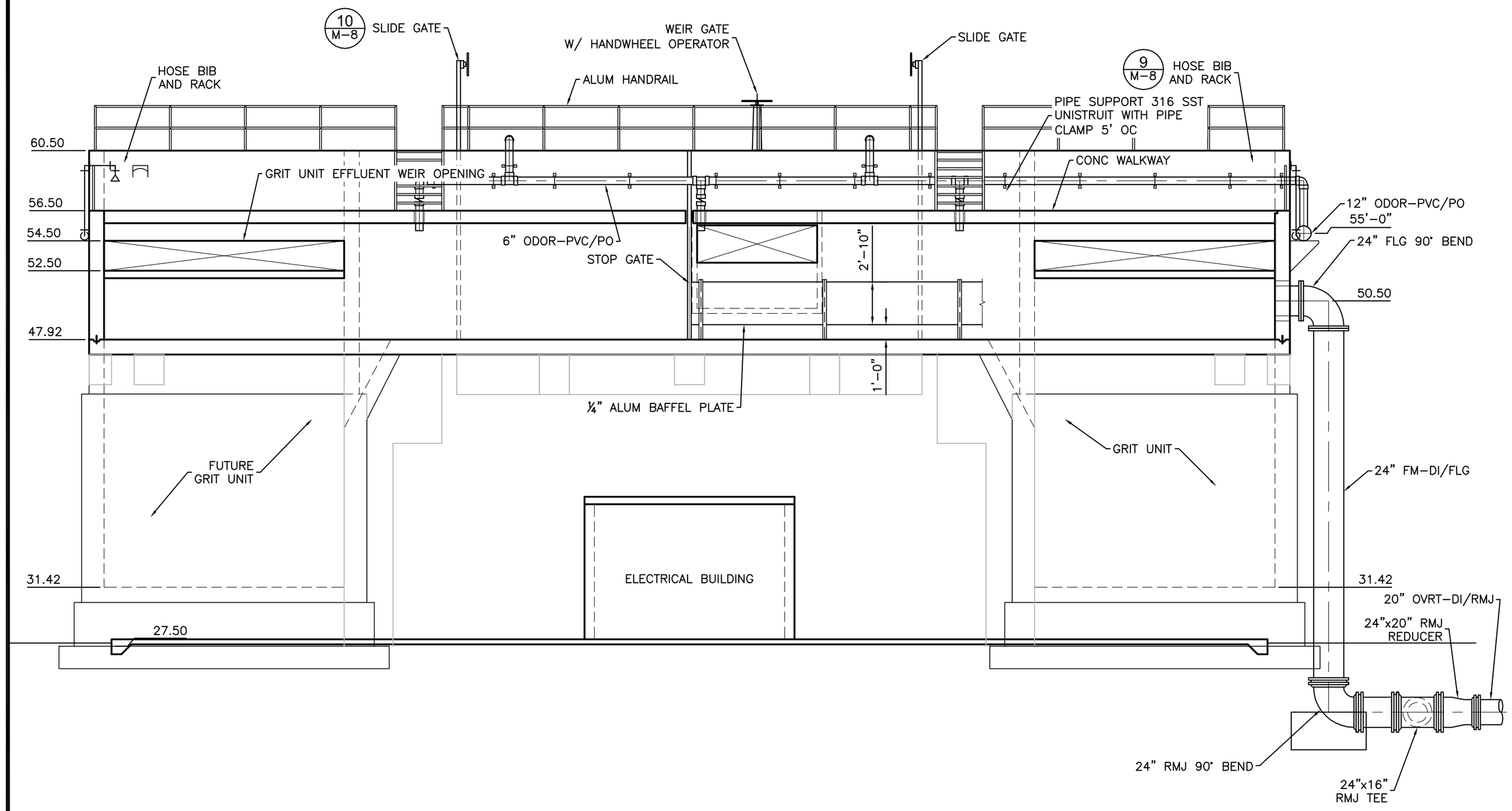
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS MECHANICAL SECTIONS

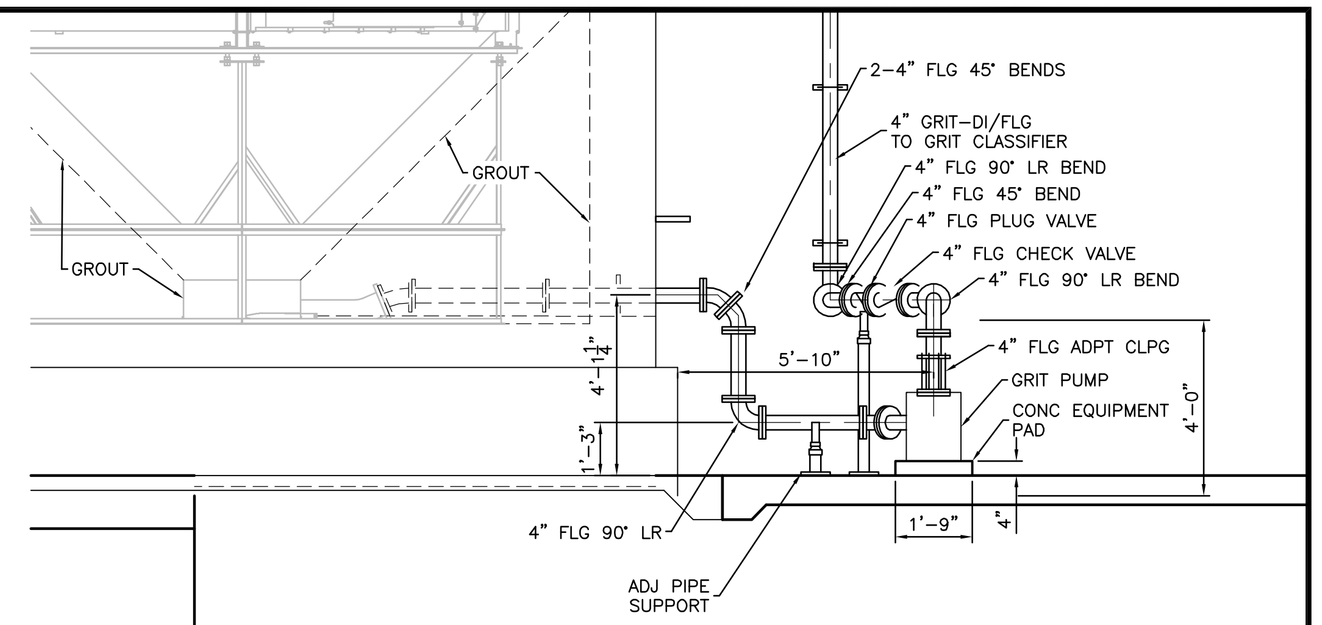
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-5

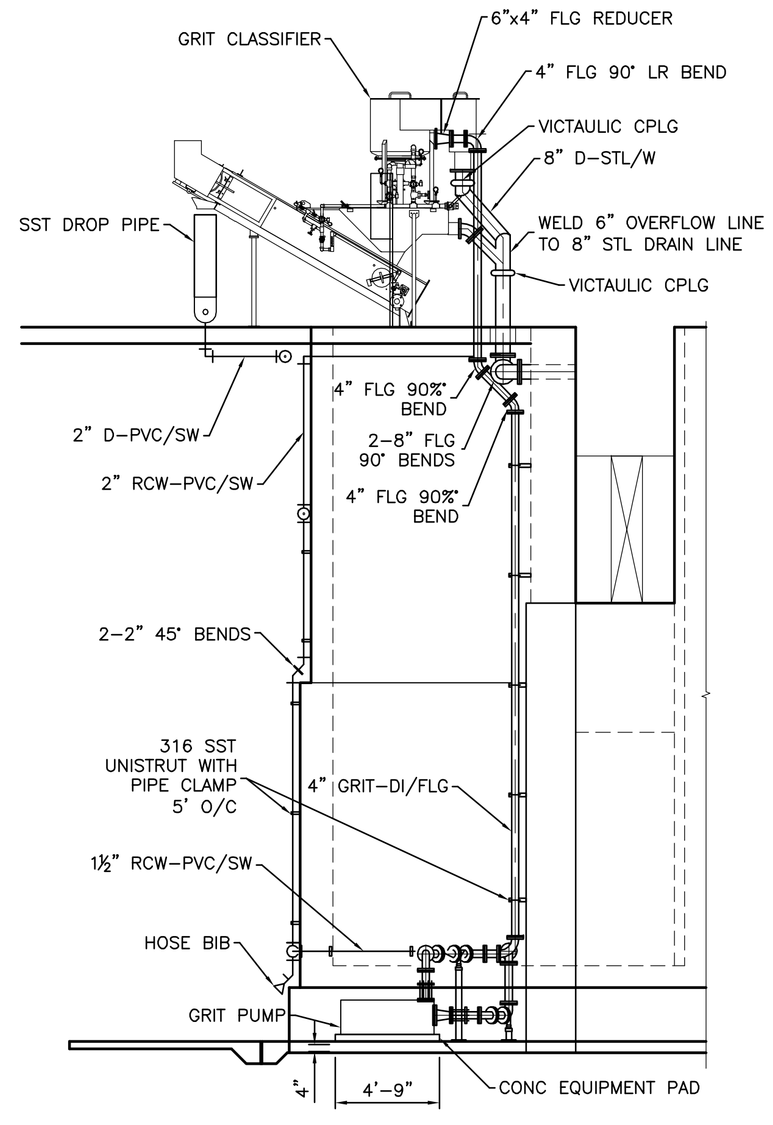


E M-2 SECTION
SCALE: 3/16"=1'-0"



GRIT PUMP SECTION & DISCHARGE PIPING

2 – DETAIL
SCALE: NTS



A M-1 SECTION
SCALE: 3/16"=1'-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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

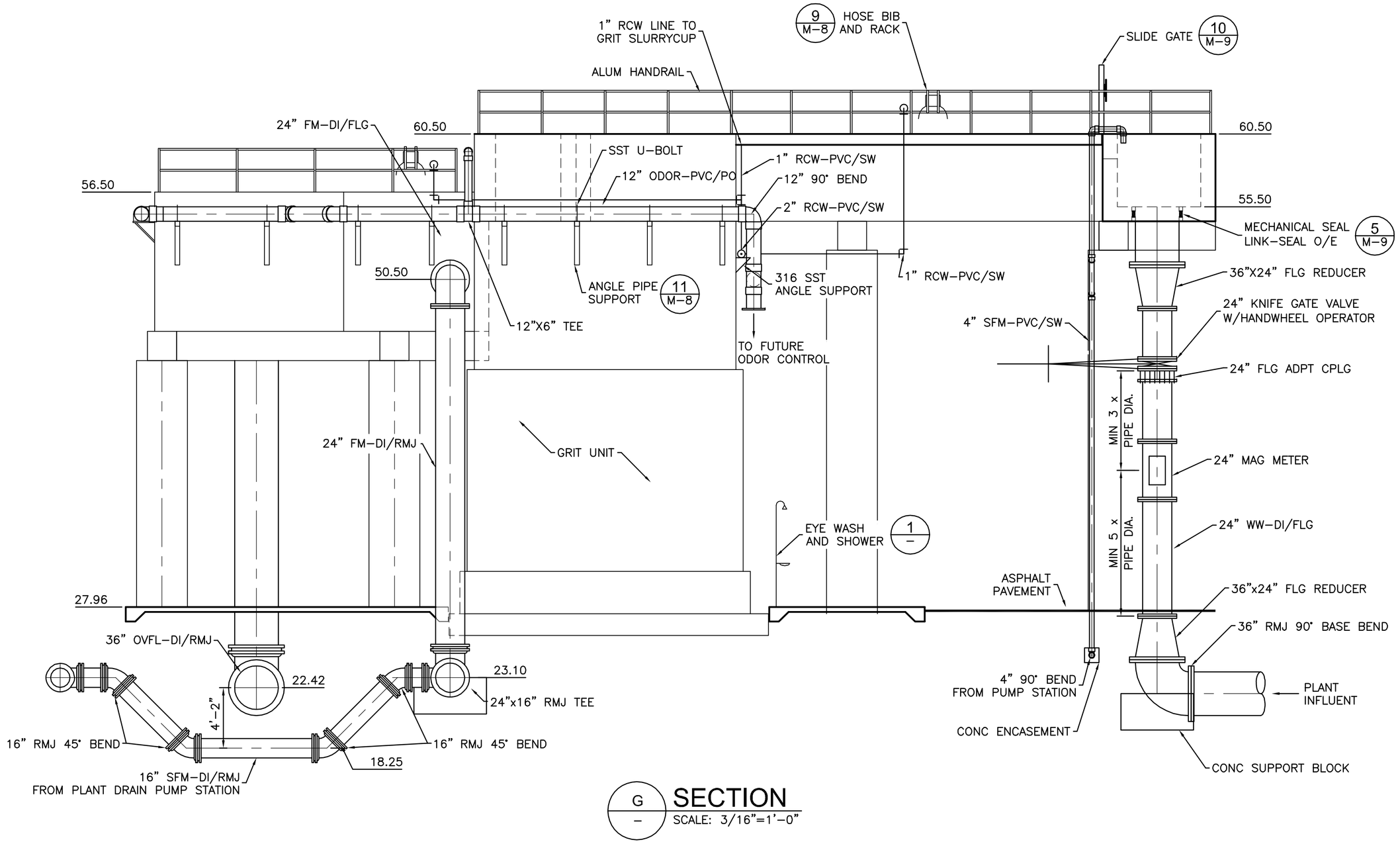
HEADWORKS MECHANICAL SECTIONS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-6

PLOTTED October 9, 2008 8:15 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\M-6 HEADWORKS MECHANICAL SECTIONS.DWG



G — SECTION
SCALE: 3/16"=1'-0"

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

PLOTTED October 9, 2008 8:16 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\M-7 MECHANICAL SECTION AND DETAILS.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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

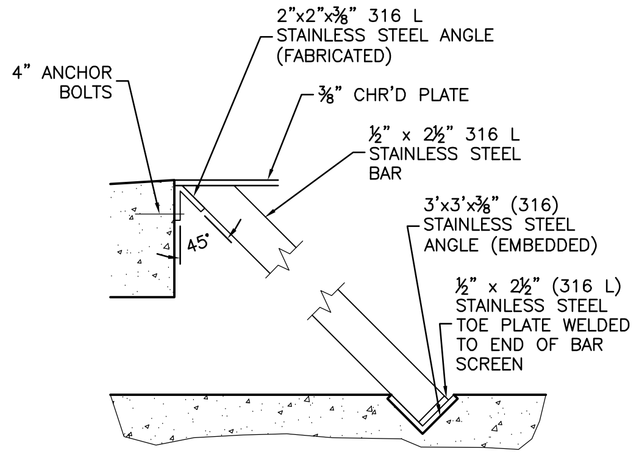
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

MECHANICAL SECTION AND DETAILS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

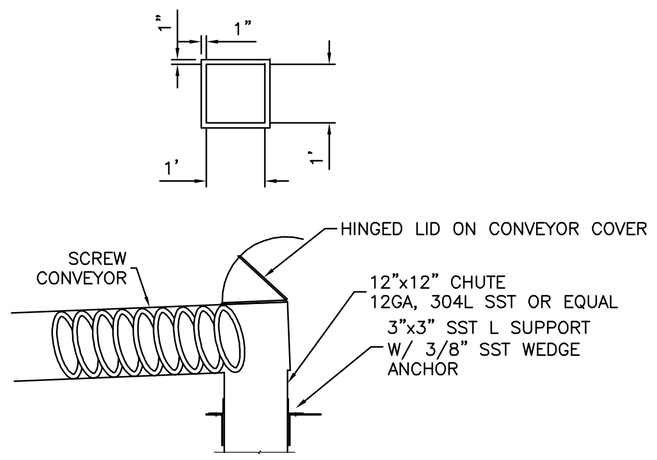
M-7



MANUAL SCREEN

1 – DETAIL

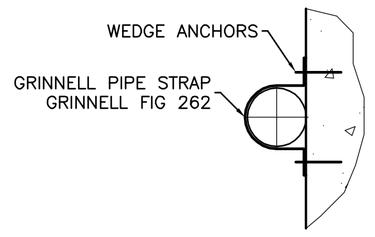
SCALE: NTS



TRASH CHUTE

2 – DETAIL

SCALE: NTS

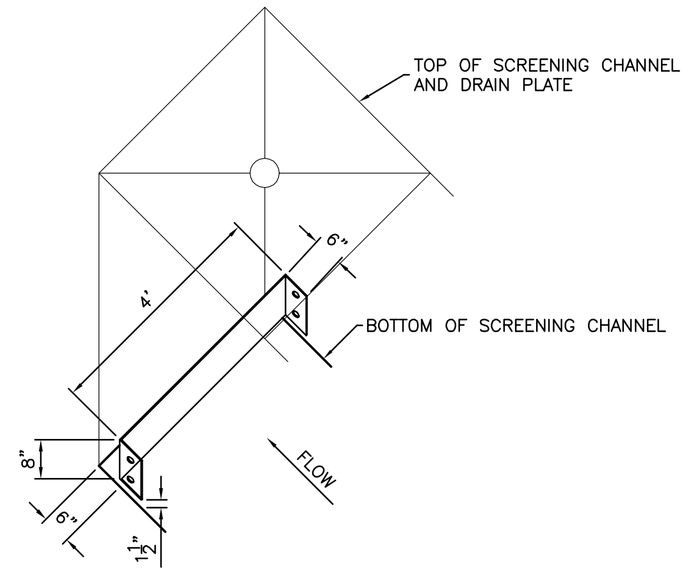


NOTE:
ALL PIPE HANGER HARDWARE IS TO BE 316 SST.

PIPE SUPPORT

3 – DETAIL

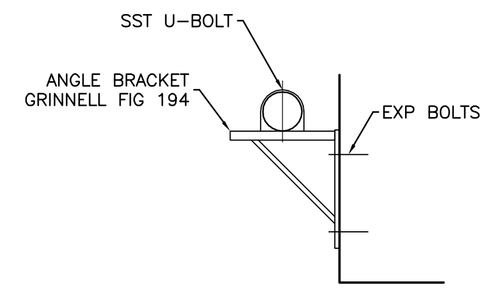
SCALE: NTS



SCREENING CHANNEL BAFFLE PLATE

4 – DETAIL

SCALE: NTS

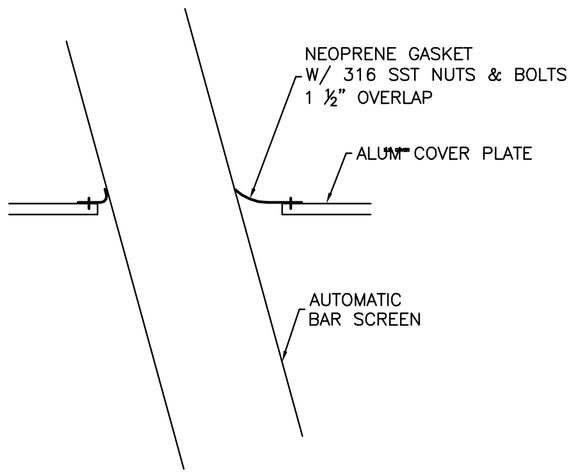


NOTE:
ALL PIPE HANGER HARDWARE IS TO BE 316 SST.

ANGLE PIPE SUPPORT

11 – DETAIL

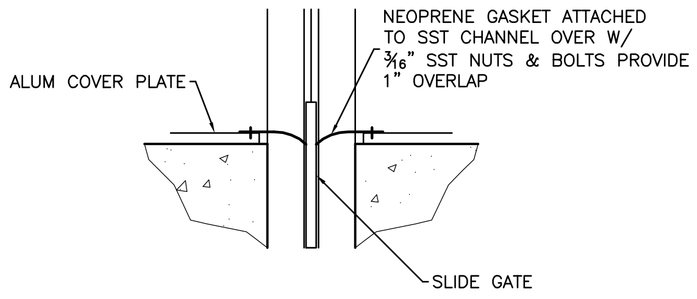
SCALE: NTS



SCREEN SEAL

5 – DETAIL

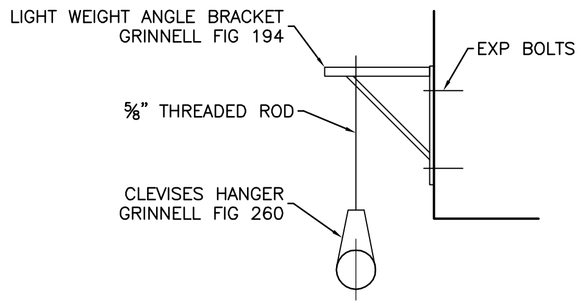
SCALE: NTS



GATE SEAL

6 – DETAIL

SCALE: NTS

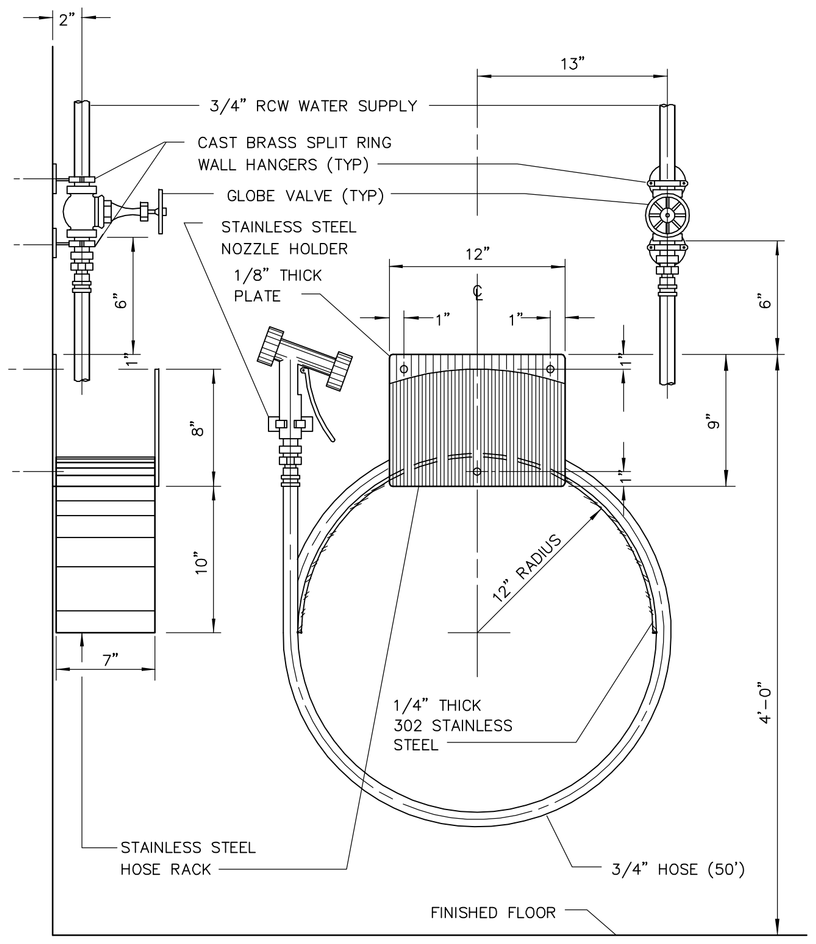


NOTE:
ALL PIPE HANGER HARDWARE IS TO BE 316 SST.

HANGING PIPE SUPPORT

7 – DETAIL

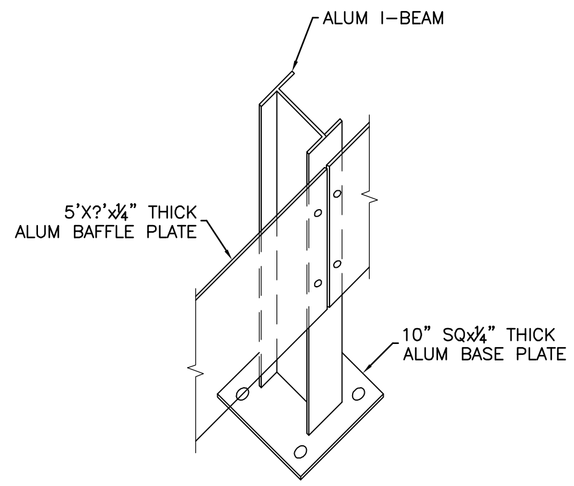
SCALE: NTS



HOSE BIB AND RACK

9 – DETAIL

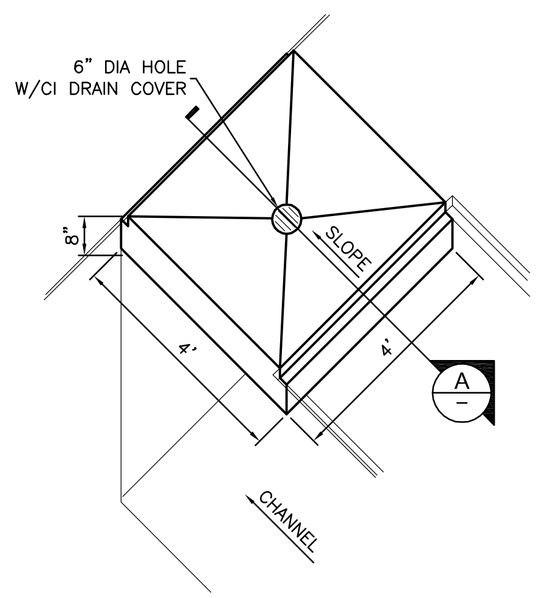
SCALE: NTS



BAFFLE PLATE & SUPPORT

12 – DETAIL

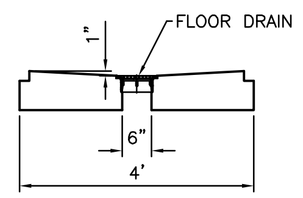
SCALE: NTS



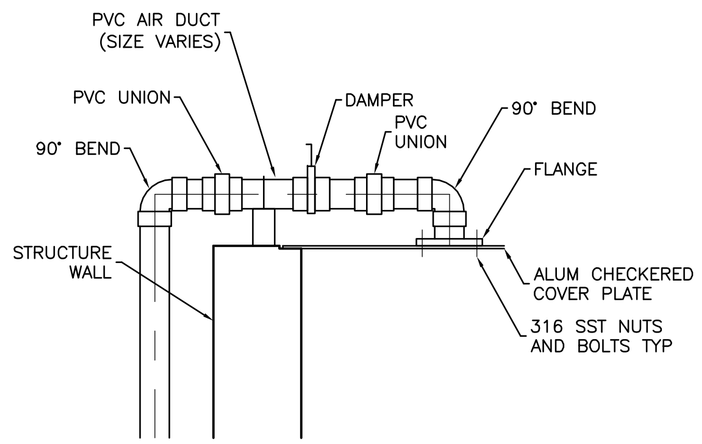
DRAIN PLATE

8 – DETAIL

SCALE: NTS



SECTION A



AIR DUCT CONNECTION

10 – DETAIL

SCALE: NTS

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

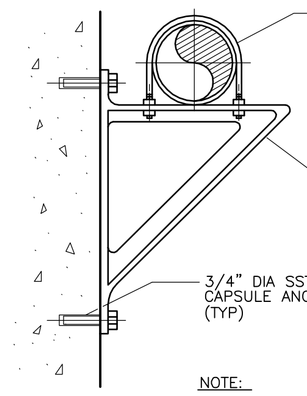
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

MECHANICAL DETAILS

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

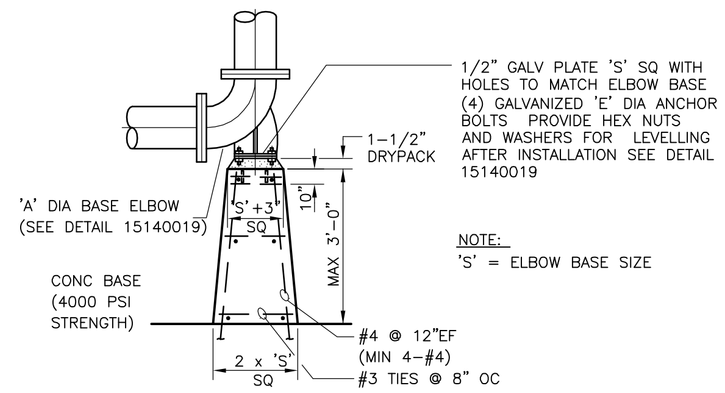
PROJECT STATUS
BID SET
OCTOBER 2008

M–8



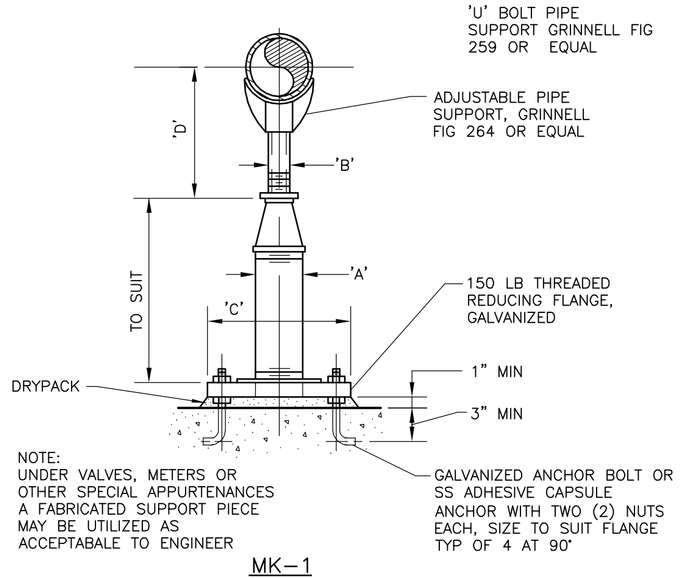
NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION WHERE SUBMERGED OR LOCATED OVER WATER, STEEL SHIELDS, BRACKETS, 'U' BOLTS, AND BOLTS ARE TO BE SS TYPE 316

PIPE BRACKET
1 DETAIL
– SCALE: NTS



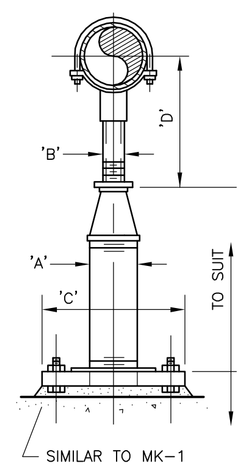
NOTE:
'S' = ELBOW BASE SIZE

PIPE ELBOW SUPPORT
2 DETAIL
– SCALE: NTS



NOTE:
UNDER VALVES, METERS OR OTHER SPECIAL APPURTENANCES A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABALE TO ENGINEER

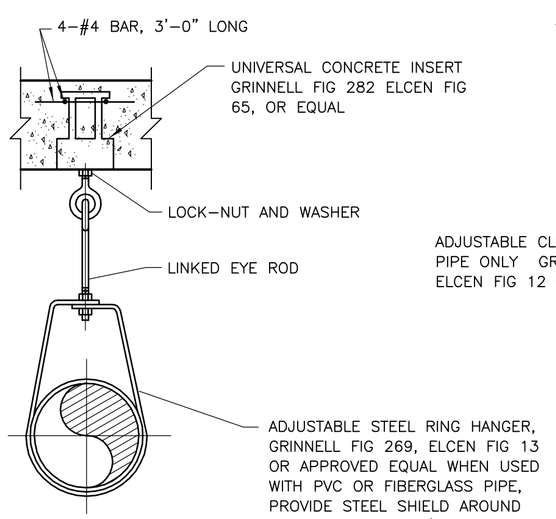
MK-1



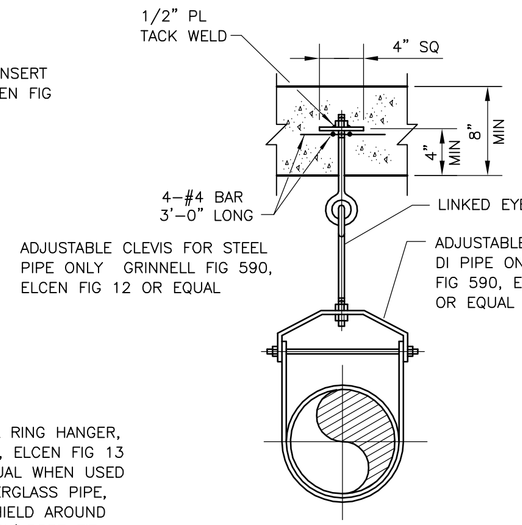
MK-2

ADJUSTABLE PIPE SUPPORT
3 DETAIL
– SCALE: NTS

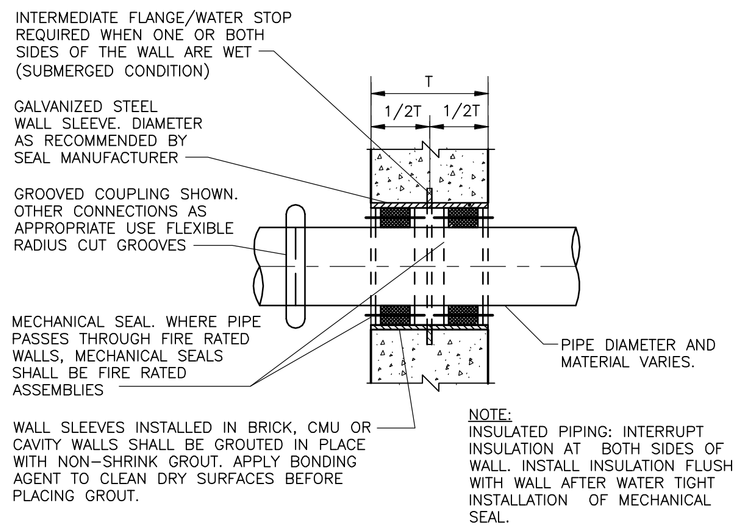
ADJUSTABLE PIPE SUPPORT APPROX DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN	D MAX
2 1/2	2 1/2	1 1/2	9	8	13
3	2 1/2	1 1/2	9	8 1/4	13 1/4
3 1/2	3 1/2	1 1/2	9	8 1/2	12
4	3	2 1/2	9	9 1/4	14
6	3	2 1/2	9	10 1/4	15 1/4
8	3	2 1/2	9	11 3/4	16 1/2
10	3	2 1/2	9	13 1/2	18 1/4
12	3	2 1/2	9	15	19 3/4
14	4	3	11	16 1/4	20 3/4
16	4	3	11	17 3/4	22 1/4
18	6	3 1/2	13 1/2	19 1/2	24
20	6	3 1/2	13 1/2	21	25 1/2
24	6	4	13 1/2	23 3/4	28 1/4
30	6	4	13 1/2	27	31 1/2
32	6	4	13 1/2	28 1/4	32 3/4
36	6	4	13 1/2	30 1/4	34 3/4



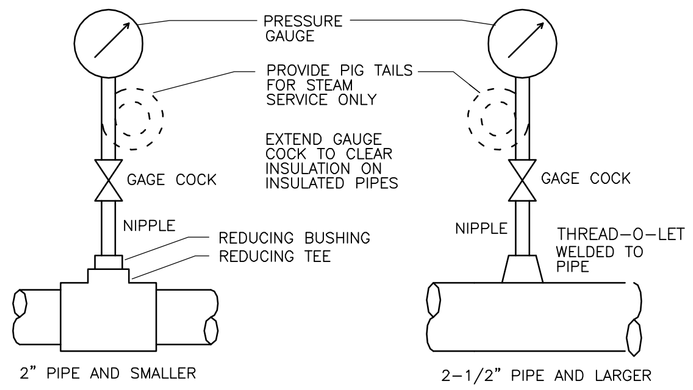
TYPE 'A'
FOR HANGER RODS
3/4" DIA AND SMALLER



TYPE 'B'
FOR HANGER RODS 7/8" DIA
AND LARGER, AND MIN 8" THICK CONCRETE

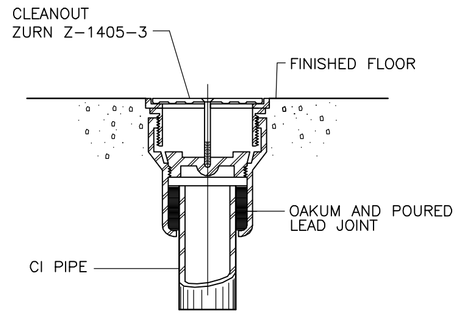


NOTE:
INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.



2" PIPE AND SMALLER

2-1/2" PIPE AND LARGER

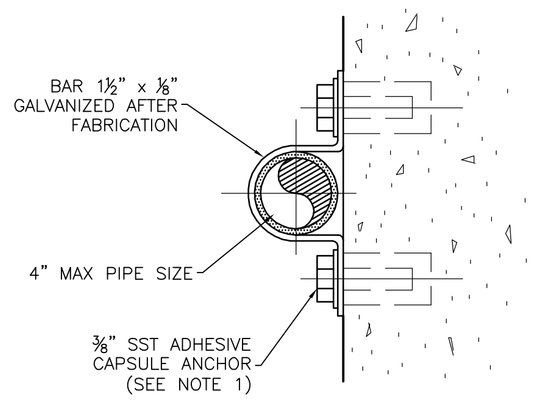


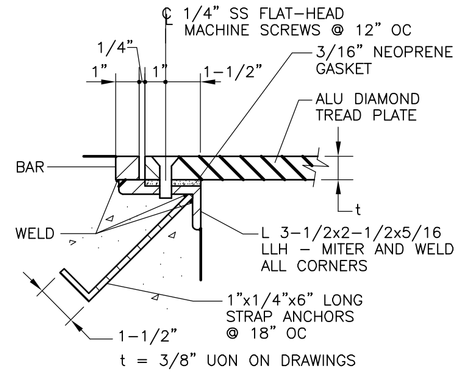
PIPE HANGER RODS & SUPPORT SPACING					
PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX SUPPORT SPACING (FEET) STL PIPE	MAX SUPPORT SPACING (FEET) CI/DI PIPE	WEIGHT LIMIT (LBS) TYPE 'A'	WEIGHT LIMIT (LBS) TYPE 'B'
1 & SMALLER	3/8	5	MIN 1 HANGER PER PIPE LENGTH AND FITT MAX SPACING 5 FEET- LOCATE HANGER CLOSE TO EACH CONNECTION	610	----
1½" TO 2	3/8	5		610	----
2½" TO 3½"	1/2	10		1130	----
4 TO 5	5/8	10		1430	----
6	3/4	10		1430	3800
8,10,12	7/8	10		----	3800
14,16	1	10		----	3800

NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION

PIPE HANGER
4 DETAIL
– SCALE: NTS

WALL SLEEVE WITH MECHANICAL SEAL FOR CONCRETE, BRICK CMU OR CAVITY WALLS
5 DETAIL
– SCALE: NTS





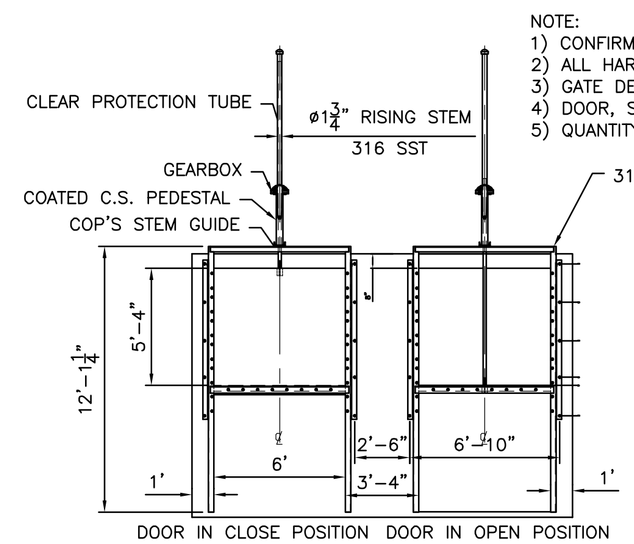
NOTES:

1. PIPE CLAMP, WASHER AND SHIELD SHALL BE TYPE 316 STAINLESS STEEL
2. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC

PIPE CLAMPS FOR INDIVIDUAL PIPES
6 DETAIL
– SCALE: NTS

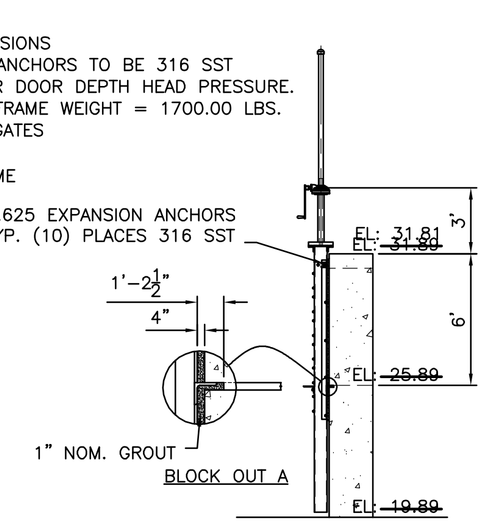
GUAGE CONNECTION
7 DETAIL
– SCALE: NTS

NOTE:
1) CONFIRM ALL DIMENSIONS
2) ALL HARDWARE, & ANCHORS TO BE 316 SST
3) GATE DESIGNED FOR DOOR DEPTH HEAD PRESSURE.
4) DOOR, STEM, AND FRAME WEIGHT = 1700.00 LBS.
5) QUANTITY OF TWO GATES



WATERTIGHT COVER PLATE
8 DETAIL
– SCALE: NTS

FLUSH FLOOR CLEANOUT
9 DETAIL
– SCALE: NTS



SLIDE GATE
10 DETAIL
– SCALE: NTS

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 7, 2008

MANATEE COUNTY FLORIDA

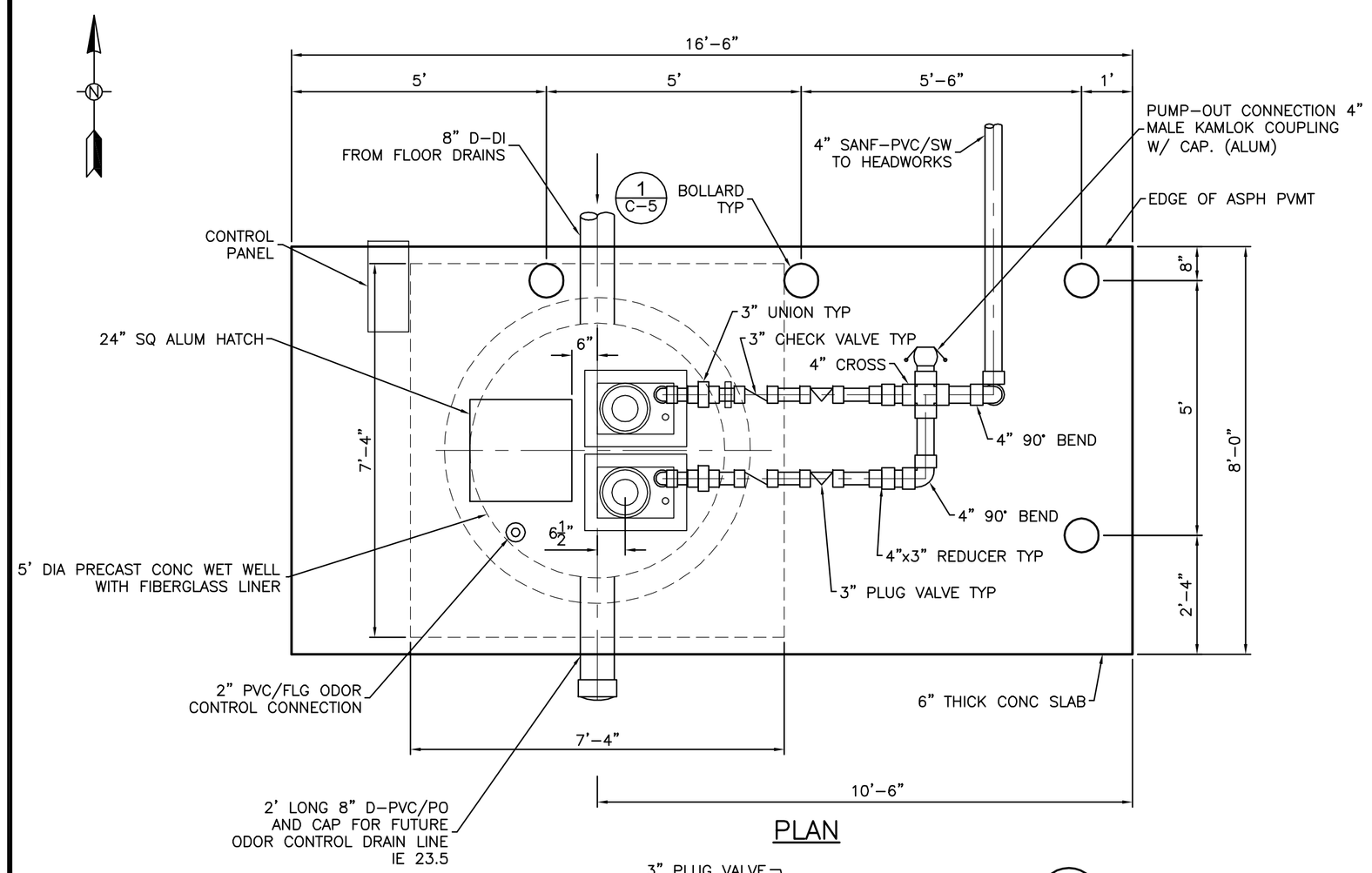
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

MECHANICAL DETAILS

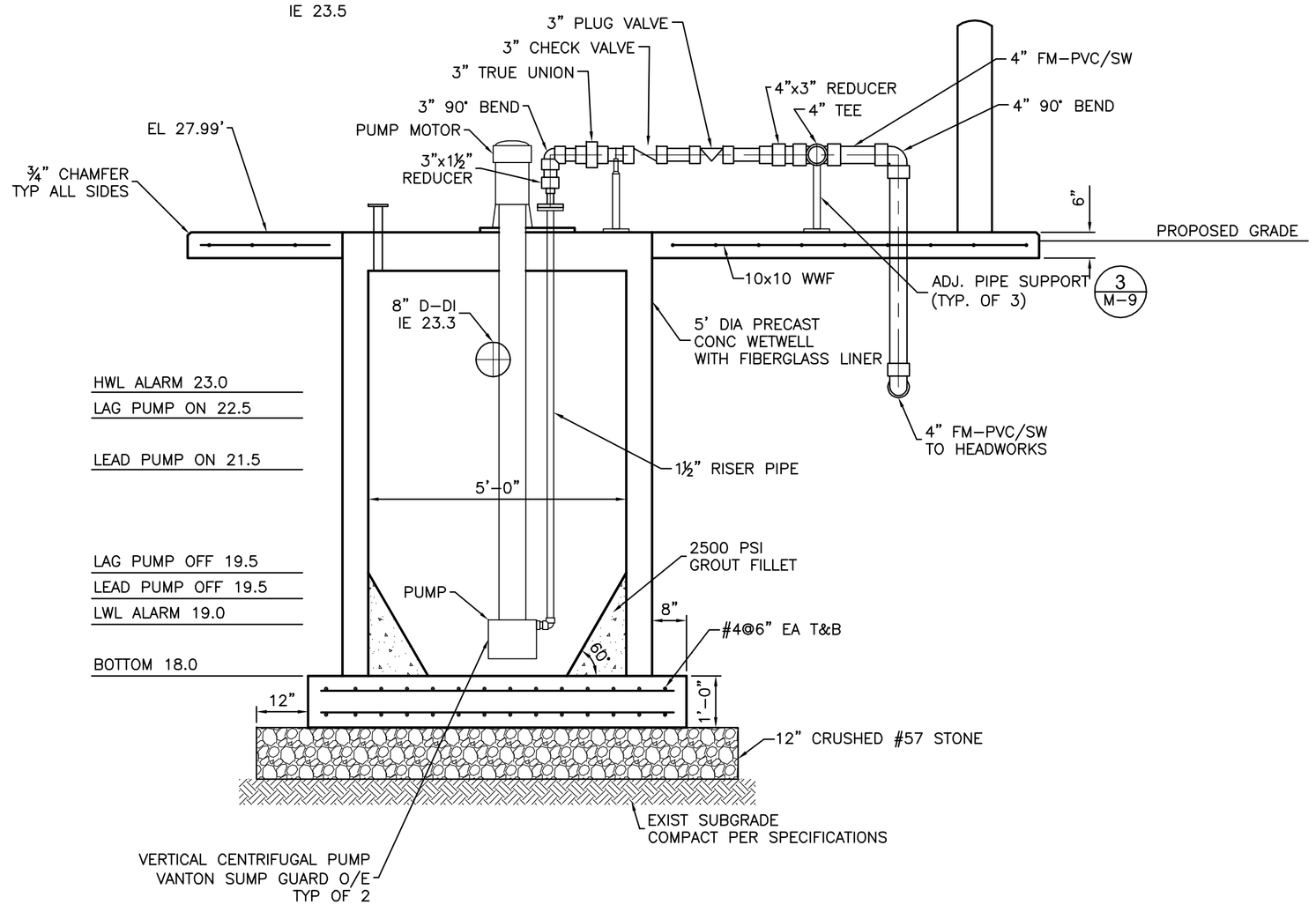
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-9



PLAN



SECTION

PROPOSED DRAIN PUMP STATION

NOTES:
1. PUMP FLOAT CABLES SHALL BE TIED TO 316 SST HOOK RACK AT TOP OF WET WELL WALL. INSTALL PVC CONDUIT THROUGH WET WELL WALL TO FLOAT PANEL
2. ALL SCH 80 PVC FITTINGS SHALL BE SOLVENT WELD. 4" PVC VALVES 4 INCH SHALL BE FLANGED WITH 316 SST NUTS AND BOLTS.

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

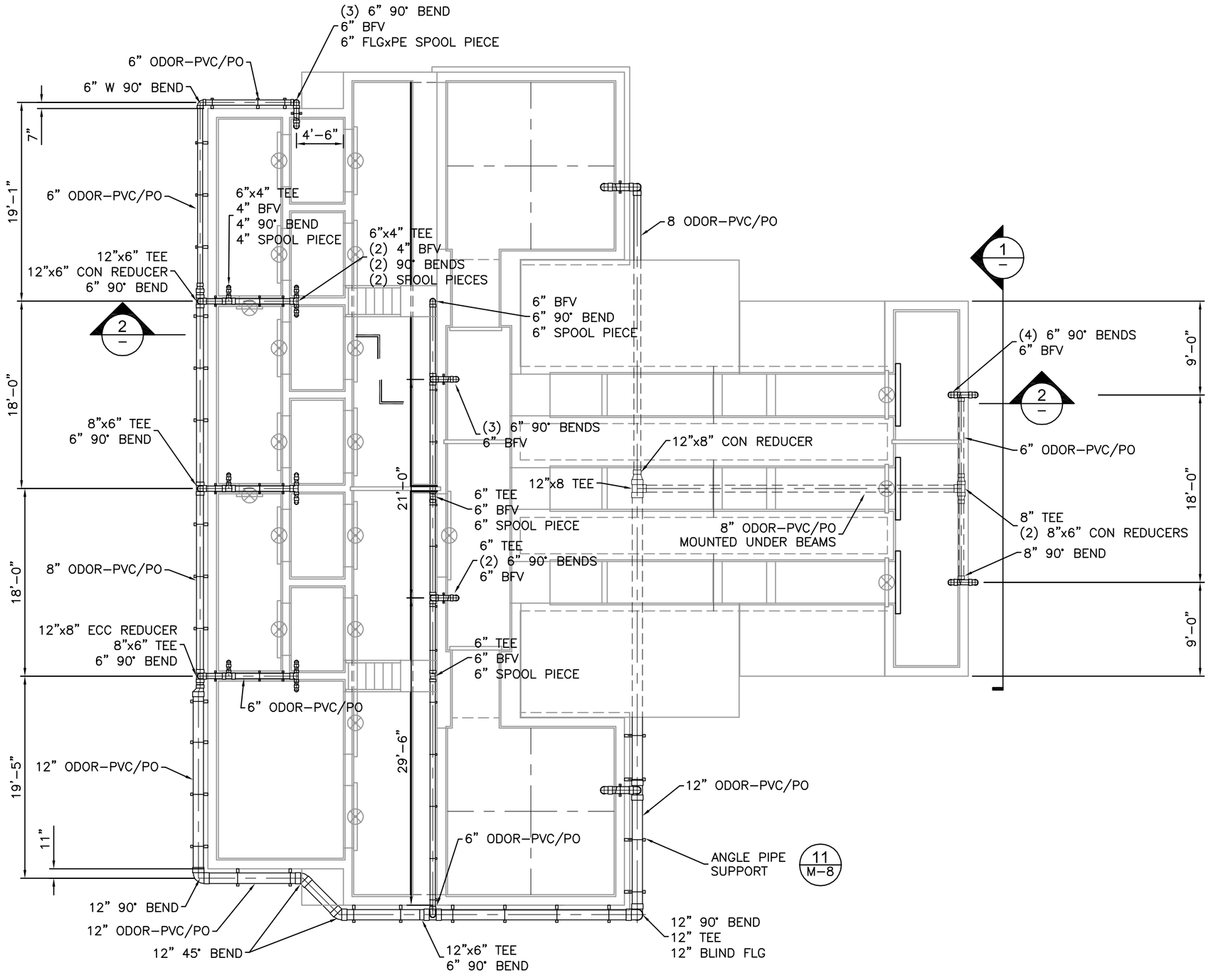
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

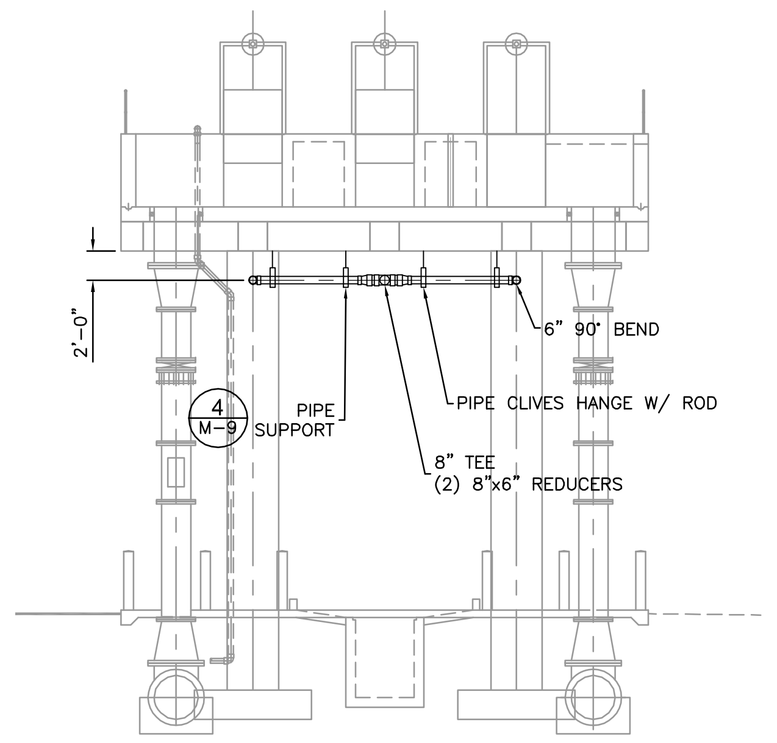
DRAIN PUMP STATION

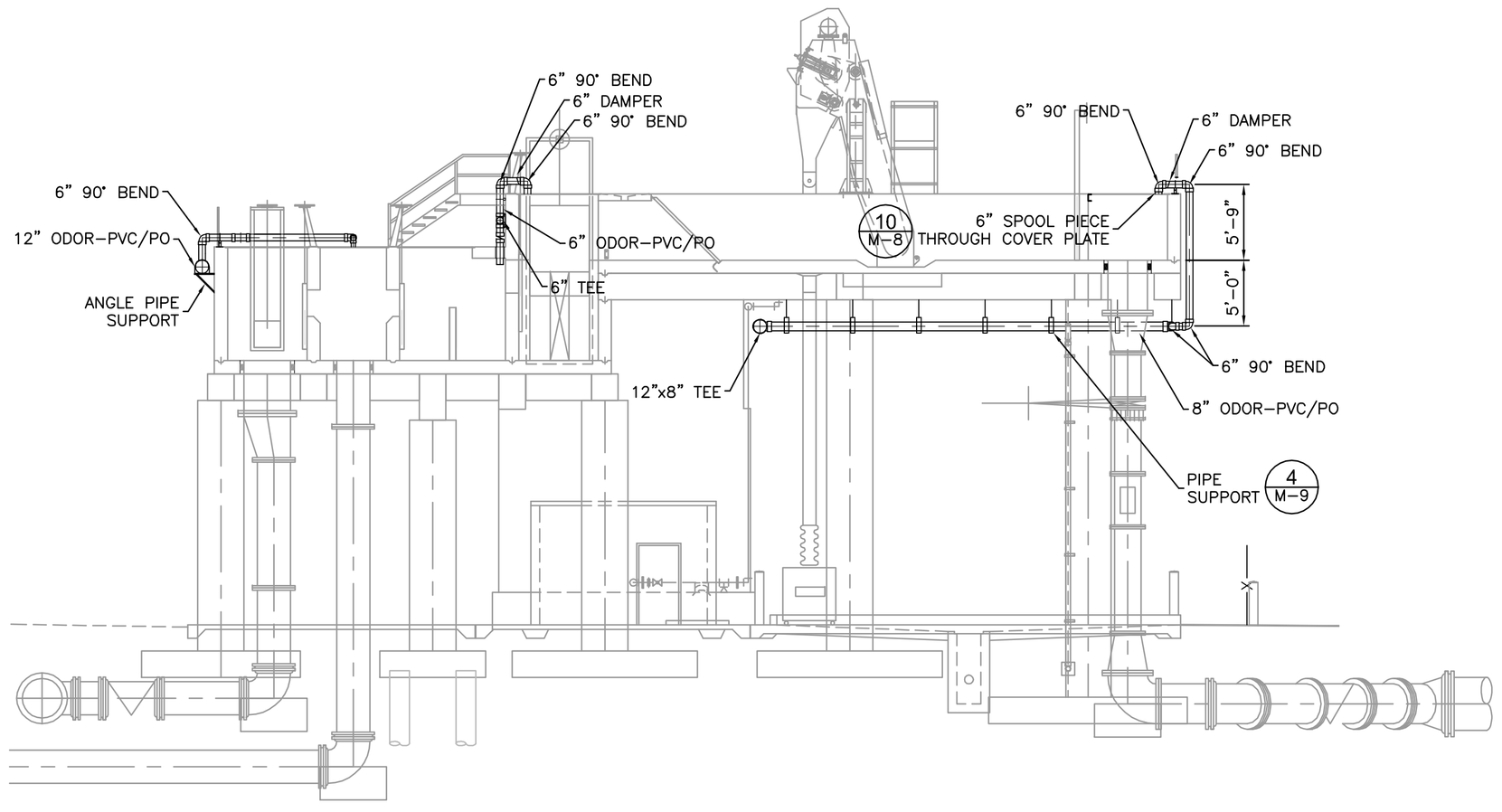
DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-10







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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ODOR CONTROL COLLECTION PIPING

DAVID A. WILCOX, P.E.
FLORIDA P.E. NO. 34942

PROJECT STATUS
BID SET
OCTOBER 2008

M-11

ABBREVIATIONS:

A	AMPS, AMPERE
AC	ALTERNATING CURRENT
AF	AMP FRAME, AMP FUSE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
AL	ALUMINUM
ALT.	ALTERNATE
AM	AMMETER
AMPS	AMPERES
AO	ANALOG OUTPUT
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	CELSIUS, CONDUCTOR
C.	CONDUIT
CAB.	CABINET
CAT.	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER, CATCH BASIN
CCTV	CLOSED CIRCUIT TELEVISION
CEM.	CEMENT
CF	CUBIC FOOT
CIP	CAST-IN-PLACE
CKT	CIRCUIT
CLR	CLEAR
CL	CLASS, CENTERLINE, CURRENT LIMITING
CLG	CEILING
COL.	COLUMN
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
DI	DISCRETE INPUT
DIA.	DIAMETER
DIV.	DIVISION
DIM.	DIMENSIONS
DO	DISCRETE OUTPUT
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
EXT.	EXTERIOR

ABBREVIATIONS:

F	FUSE
FA	FIRE ALARM
FAA	FUTURE FORCED AIR
FACP	FIRE ALARM CONTROL PANEL
FACS	FIRE ALARM CONTROL SYSTEM
FBC	FLORIDA BUILDING CODE
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
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
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
ID.	IDENTIFICATION
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
INV.	INVERT
I/O	INPUT/OUTPUT
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.	LOCATION(S)
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	METAL HALIDE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MOV	METAL OXIDE VARISTOR
MPH	MILES PER HOUR
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTR	MOTOR
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT AMPERES
N	NEUTRAL
N.C.	NORMALLY CLOSED
NE	NORTH EAST
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NEUT.	NEUTRAL
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NOS.	NUMBERS
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
PNL	PANEL
PNLBD	PANELBOARD
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
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SPEC	SPECIFICATION(S)
SQ.	SQUARE
SS	STAINLESS STEEL
ST.	STREET
SW.	SWITCH

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
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP.	TYPICAL
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE 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
W.	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

LEGEND:

- CONDUIT(S), AS INDICATED.
- EXPOSED CONDUIT(S), AS INDICATED.
- UNDERGROUND DUCT BANK, AS INDICATED.
- (#) REFERENCE NOTE REFERENCE TAG.
- (-) CONDUIT SCHEDULE REFERENCE TAG.
- (J) EQUIPMENT AS INDICATED.
- (E) LIGHTING CONTACTOR PANEL.
- EXPOSED JUNCTION BOX.
- LCP EXPOSED CONDUIT TERMINATION, AND ASSOCIATED CABLE/WIRING CONNECTION, TO EXPOSED DEVICE AS INDICATED.
- $_{WP} 20A, 120-277V AC, SINGLE POLE, SNAP TYPE INDUSTRIAL GRADE TOGGLE SWITCH WITH WEATHERPROOF PVC FS BOX AND MATING RED HANDLE TOGGLE SWITCH GASKETED COVER.
- $_{3WP} 20A, 120-277V AC, 3-WAY, SNAP TYPE INDUSTRIAL GRADE TOGGLE SWITCH WITH WEATHERPROOF PVC FS BOX AND MATING RED HANDLE TOGGLE SWITCH GASKETED COVER.

LEGEND CONT. . .

- WP GFCI — 20A, 120V AC, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTER TYPE INDUSTRIAL GRADE DUPLEX RECEPTACLE WITH WEATHERPROOF PVC FS BOX AND MATING PVC WET LOCATION (WHEN IN USE) GASKETED COVER.
- X-# — CIRCUIT HOMERUN TO PANEL "X" FEEDER/BRANCH CIRCUIT "#", 1-#12 PH., 1-#12 NEUT., AND 1-#12 GND IN 3/4" C., UON.
- EXPOSED CONDUIT WITH BRANCH CIRCUIT WIRING. THE SHORT SLASH MARKS INDICATE TWO PHASE WIRES, THE LONG SLASH MARKS INDICATE TWO NEUTRAL WIRES, AND THE SINGLE DOT INDICATES A SINGLE GROUND WIRE.
- (P) PHOTOCELL.
- A — TYPE A LIGHTING FIXTURE.
- BE B — TYPES B AND BE LIGHTING FIXTURES.
- EM — TYPE EM EMERGENCY LIGHTING UNIT.
- P# P# — TYPE P# LIGHTING FIXTURE.
- G — GROUNDING CONDUCTOR AS INDICATED.
- GROUND ROD OR GROUND CONNECTION AS INDICATED.
- BOND POINT.
- LP — LPS MAIN OR SECONDARY CONDUCTOR AS INDICATED.
- DC — LPS DOWN CONDUCTOR AS INDICATED.
- X — TYPE "X" AIR TERMINAL.
- #A 3P — SWITCH. "#A" INDICATES AMPERE RATING. "#P" INDICATES NUMBER OF POLES.
- #A OR FU — FUSE. "#A" INDICATES AMPERE RATING. "FU" INDICATES AMPERE RATING SPECIFIED BY EQUIPMENT MANUFACTURER.
- #A OR MCP 3P — CIRCUIT BREAKER. "#A" INDICATES THERMAL-MAGNETIC AMPERE RATING. "MCP" INDICATES CIRCUIT BREAKER IS INSTANTANEOUS TRIP ONLY TYPE. "#P" INDICATES NUMBER OF POLES.
- COMBINATION STARTER UNIT.
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSOR.
- TRANSFORMER.
- (#) — MOTORIZED EQUIPMENT. "#" INDICATES MOTOR HORSEPOWER RATING.
- M (C) — MAGNETIC MOTOR STARTER UNIT.
- (C#) — LIGHTING CONTACTOR C#.
- X (R) — RELAY. "X" IS USED FOR RELAY IDENTIFICATION.
- X OR M — NORMALLY OPEN CONTACT. "X" IS USED FOR RELAY IDENTIFICATION. "M" INDICATES THE CONTACT IS A MAGNETIC MOTOR STARTER AUXILIARY CONTACT.
- ID OR M — NORMALLY CLOSED CONTACT. "X" IS USED FOR RELAY IDENTIFICATION. "M" INDICATES THE CONTACT IS A MAGNETIC MOTOR STARTER AUXILIARY CONTACT.
- (R) (G) — 120V AC LED TYPE PILOT LIGHT. "R" = RED "G" = GREEN.
- TC — MOTOR WINDINGS THERMAL CUTOUT.
- TB — TERMINAL BLOCK.

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

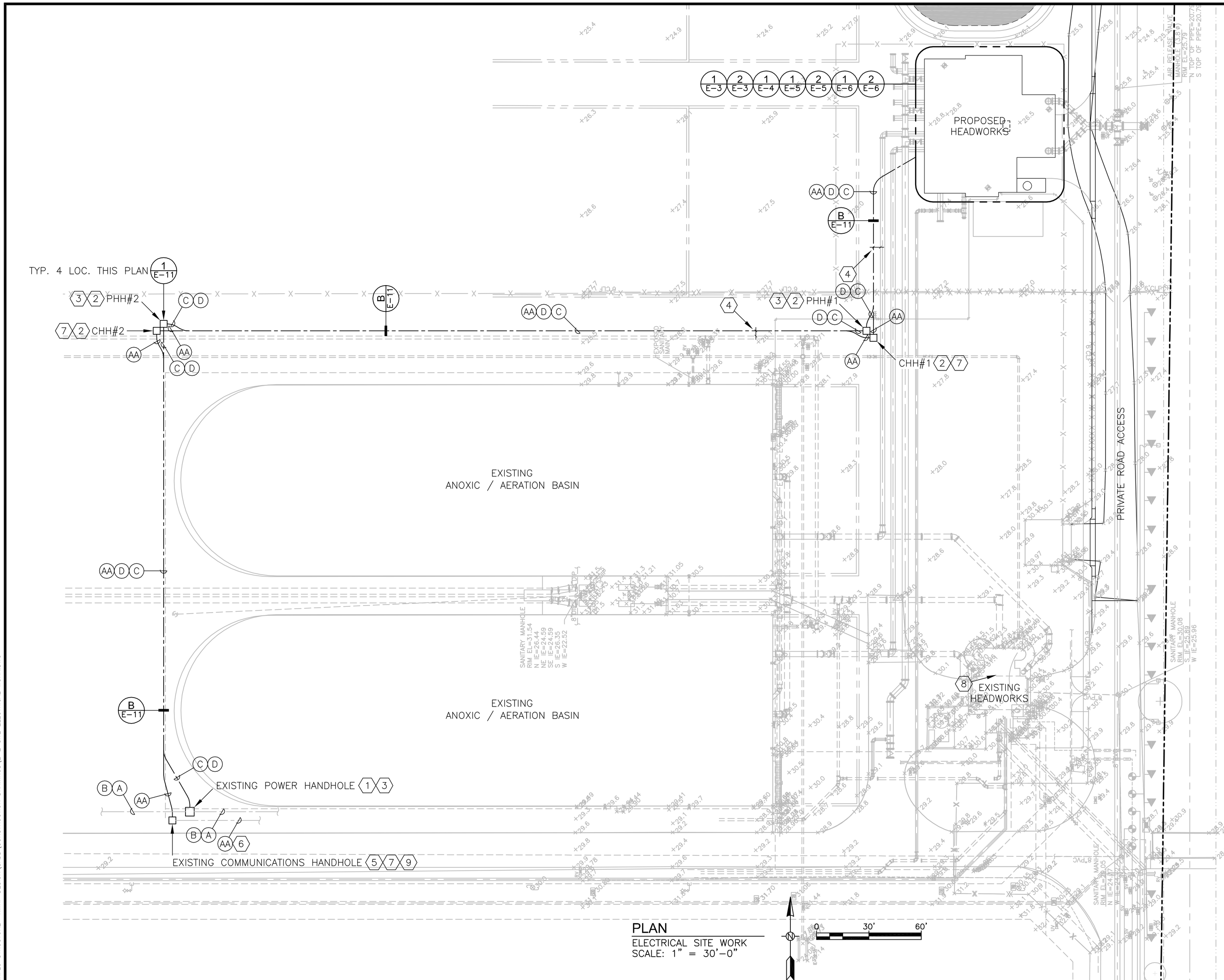
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

ELECTRICAL ABBREVIATIONS AND LEGEND

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-1



PLAN
ELECTRICAL SITE WORK
SCALE: 1" = 30'-0"

GENERAL NOTES:

1. REFER TO SHEET E-9 FOR CONDUIT SCHEDULE.
2. PROVIDE TOPOGRAPHICAL SURVEY AND SUBSURFACE UTILITY LOCATION INVESTIGATION EVERYWHERE EARTH EXCAVATION IS REQUIRED TO COMPLETE THE WORK OF THIS PROJECT.

REFERENCE NOTES:

1. CORE DRILL WALL OF EXISTING POWER HANDHOLE, AND GROUT INTO PLACE SCH. 80 PVC END BELLS FOR TERMINATION OF CONDUITS TO EXISTING HANDHOLE. DE-WATER AND CLEAN HANDHOLE OF DIRT AND DEBRIS. PROVIDE FOR DE-WATERING OF HANDHOLE AS REQUIRED TO COMPLETE THE WORK OF THIS PROJECT. SPLICE NEW HEADWORKS FEEDER CONDUCTORS TOGETHER WITH THE EXISTING HEADWORKS FEEDER CONDUCTORS INSIDE EXISTING HANDHOLE WITH MADE 3-WAY JUNCTIONS CONSTRUCTED USING 3-WAY IRREVERSIBLE COMPRESSION JUNCTIONS, MASTIC ELECTRICAL TAPE, AND VINYL ELECTRICAL TAPE.
2. PROVIDE 3'-6" SQ. BY 3'-3" DEEP (I.D.) PRECAST CONCRETE HANDHOLE, H-20 TRAFFIC RATED WITH H-20 TRAFFIC RATED COVER, RACKING, AND GROUNDING, UTILITY OLDCASTLE PRECAST INC./VAULT 444-LA SERIES WITH 332P SERIES COVER. COVER SHALL HAVE 2'-9 1/2" SQ. CLEAR OPENING, SHALL BE CONSTRUCTED OF STEEL DIAMOND PLATE WITH STEEL FRAME AND HARDWARE, ALL GALVANIZED AFTER FABRICATION, SHALL BE H-20 TRAFFIC LOAD RATED IN OFF-STREET LOCATIONS NOT SUBJECT TO HIGH DENSITY TRAFFIC, SHALL BE HINGED (180° OPENING) WITH SPRING ASSIST OPENING MECHANISM, AND SHALL BE EQUIPPED WITH PENTAHEAD BOLT SECURED LOCKING LATCH, AND RECESSED LIFT HANDLE, AND SHALL BE EQUIPPED WITH 3" HIGH BLOCK LETTER LEGEND, "ELECTRIC" FOR POWER HANDHOLE AND "COMMUNICATIONS" FOR COMMUNICATIONS HANDHOLE. REFER TO DRAWING E-11 FOR TYPICAL HANDHOLE DETAIL AND ADDITIONAL REQUIREMENTS.
3. PROVIDE ONE COMPLETE MAINTENANCE LOOP IN NEW FEEDER WIRES, NEATLY TRAINED, BUNDLED, RACKED, AND SECURED AROUND PERIMETER OF HANDHOLE,
4. ROUTE DUCT BANK PARALLEL, AND AS CLOSE AS POSSIBLE, TO THE UNDERGROUND PIPE IN THIS AREA, BUT NO CLOSER THAN 24" FROM SIDE OF DUCT BANK TO SIDE OF PIPE.
5. CORE DRILL WALL OF EXISTING COMMUNICATIONS HANDHOLE, AND GROUT INTO PLACE SCH. 80 PVC END BELLS FOR TERMINATION OF CONDUITS TO EXISTING HANDHOLE. DE-WATER AND CLEAN HANDHOLE OF DIRT AND DEBRIS. PROVIDE FOR DE-WATERING OF HANDHOLE AS REQUIRED TO COMPLETE THE WORK OF THIS PROJECT.
6. FIELD VERIFY EXISTING SPARE/EMPTY 2" CONDUIT BETWEEN EXISTING COMMUNICATIONS HANDHOLE AND EXISTING HEADWORKS. CONDUIT STUBS UP DIRECTLY BELOW THE EXISTING HEADWORKS RECENTLY INSTALLED SCADA PANEL INSIDE THE EXISTING HEADWORKS ELECTRICAL ROOM. USE THIS EXISTING CONDUIT TO INSTALL NEW OPTICAL FIBER CABLE BETWEEN EXISTING COMMUNICATIONS HANDHOLE AND EXISTING HEADWORKS SCADA PANEL. TERMINATE THIS EXISTING CONDUIT INTO THE BOTTOM OF THE EXISTING HEADWORKS SCADA PANEL. PREPARE THIS CONDUIT TO RECEIVE NEW OPTICAL FIBER CABLE. CLEAN THIS CONDUIT BY PULLING A MANDREL THROUGH IT IN EACH DIRECTION, AND THEREAFTER PULLING A STIFF BRISTLE BRUSH WITH SWAB THROUGH IT, UNTIL IT IS CLEAR OF EARTH, SAND, AND GRAVEL.
7. PROVIDE ONE COMPLETE MAINTENANCE LOOP IN NEW OPTICAL FIBER CABLE, NEATLY TRAINED, BUNDLED, RACKED, AND SECURED AROUND PERIMETER OF HANDHOLE.
8. COMPLETE THE FOLLOWING WORK INSIDE THE EXISTING HEADWORKS SCADA PANEL:

   REMOVE EXISTING FIBER STRANDS NOS. 11 AND 12 FROM THE BULKHEAD CONNECTORS INSIDE THE FO PATCH PANEL.

   ROUTE NEW 12-STRAND OPTICAL FIBER CABLE UP INTO THE FO PATCH PANEL. TERMINATE STRAND NOS. 1 AND 2 AND CONNECT THEM TO THE BULKHEAD CONNECTORS IN POSITION NOS. 11 AND 12 IN THE FO PATCH PANEL.

   PROVIDE NEW OPTICAL FIBER PATCH CABLE, ST-TO-DUPLEX SC, BETWEEN FO PATCH PANEL POSITION NOS. 11 AND 12, AND DUPLEX SC CONNECTORS ON ETHERNET SWITCH.
9. WHEN THE EXISTING HEADWORKS IS TO BE DEMOLISHED (BY OTHERS UNDER A SEPARATE CONTRACT), THE OPTICAL FIBER CABLE SERVING THE EXISTING HEADWORKS MAY BE CUT INSIDE THIS HANDHOLE, AND SPLICED TOGETHER WITH THE OPTICAL FIBER CABLE SERVING THE NEW HEADWORKS.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

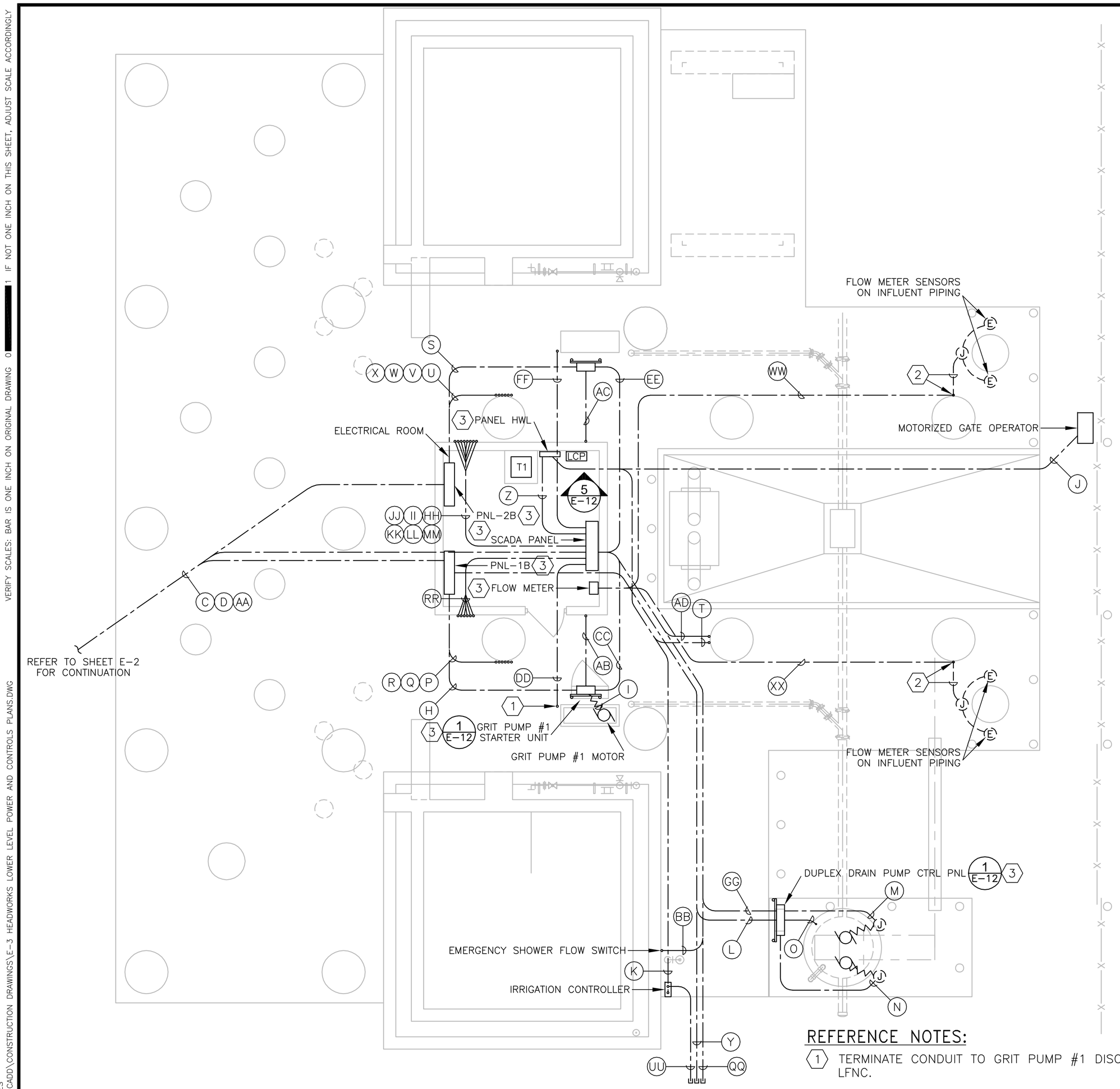
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

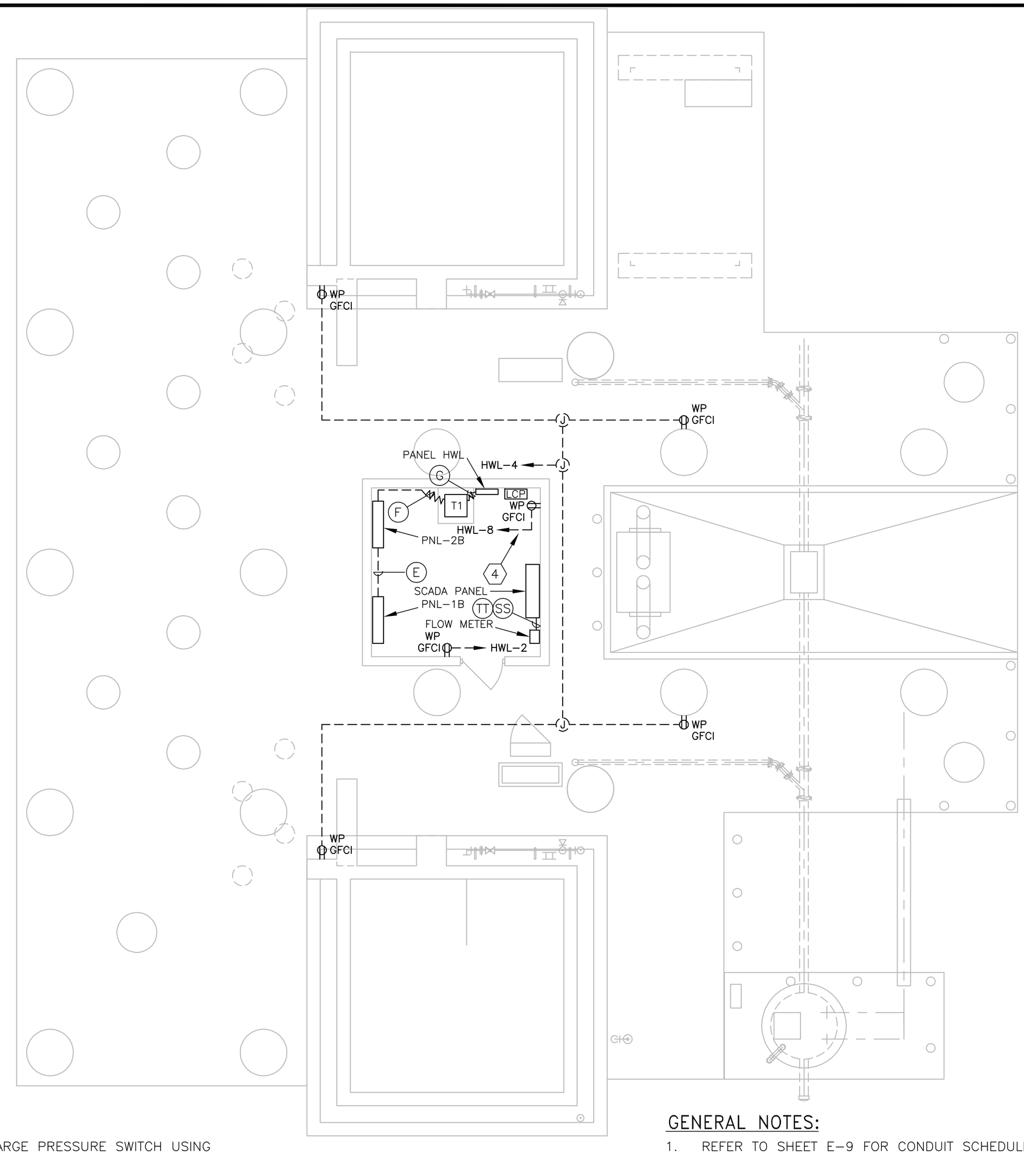
SITE ELECTRICAL WORK

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-2





REFERENCE NOTES:

1. TERMINATE CONDUIT TO GRIT PUMP #1 DISCHARGE PRESSURE SWITCH USING LFNC.
2. EXTEND CONDUIT STUB UP IN KIND WITH EXPOSED CONDUIT OVERHEAD TO FLOW METER SENSORS. TERMINATE CONDUIT TO FLOW METER SENSORS USING LFNC.
3. SEAL ENDS OF EACH CONDUIT TERMINATED IN BOTTOM OF CABINET/ ENCLOSURE WITH DUCT SEAL COMPOUND AFTER ALL CABLES/WIRES ARE INSTALLED, CHECKED OUT, TESTED, AND PLACED INTO SERVICE.
4. MOUNT WP GFCI RECEPTACLE WITH BOTTOM AT 72" AFF FOR FUTURE CCTV CAMERA PLUG-IN TRANSFORMER.

GENERAL NOTES:

1. REFER TO SHEET E-9 FOR CONDUIT SCHEDULE.

1 / E-3 PLAN
HEADWORKS LOWER LEVEL POWER AND CONTROLS CONDUIT LAYOUT
SCALE: 3/16" = 1'-0"

0 5.33' 10.67'

2 / E-3 PLAN
HEADWORKS LOWER LEVEL POWER CONDUIT AND RECEPTACLES LAYOUT
SCALE: 3/16" = 1'-0"

0 5.33' 10.67'

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 29, 2008

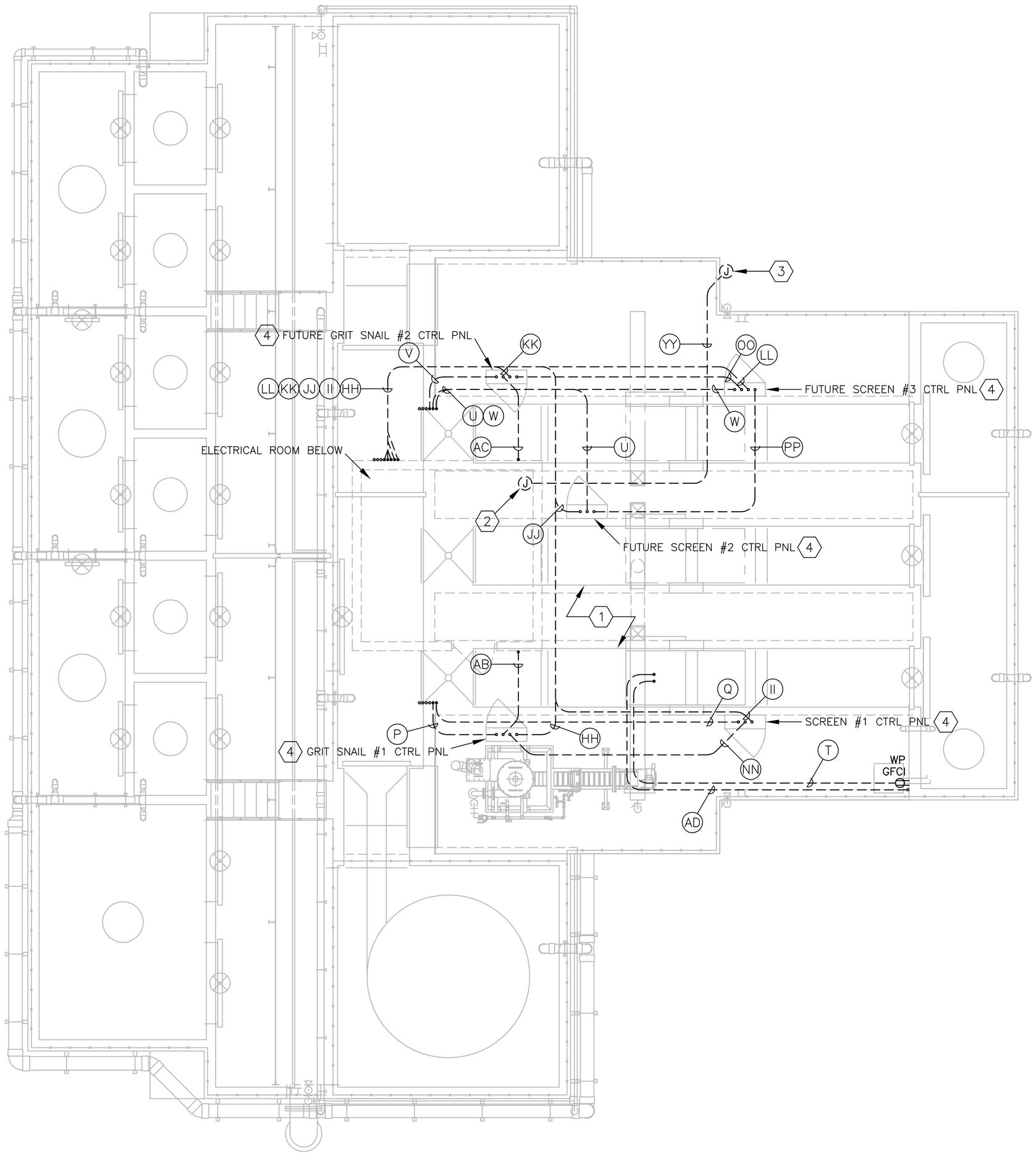
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS LOWER LEVEL POWER AND CONTROLS PLANS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-3



1 / E-4 PLAN
HEADWORKS UPPER LEVEL POWER AND CONTROLS CONDUIT LAYOUT
SCALE: 3/16" = 1'-0"

N

0 5.33' 10.67'

GENERAL NOTES:

1. REFER TO SHEET E-9 FOR CONDUIT SCHEDULE.

REFERENCE NOTES:

1. ALL CONDUITS SHOWN ON THIS PLAN ARE TO BE ROUTED EXPOSED ALONG THE UNDERSIDE OF THE UPPER LEVEL DECK SLAB.
2. MOUNT JUNCTION BOX ADJACENT TO DUPLEX RECEPTACLE DESIGNATED FOR FUTURE CCTV CAMERA INSIDE ELECTRICAL ROOM, WITH BOTTOM AT 72" AFF. REFER TO SHEET E-3 FOR DUPLEX RECEPTACLE LOCATION.
3. EXTEND CONDUIT UP TO LIGHT POLE ABOVE. REFER TO DRAWING E-5 FOR CONTINUATION. PROVIDE WEATHERPROOF JUNCTION BOX RIGIDLY MOUNTED TO LIGHT POLE WITH BOTTOM AT 60" AFF, AND TERMINATE CONDUIT INTO BOTTOM OF JUNCTION BOX.
4. PROVIDE ALL POWER AND CONTROL CONDUIT AND CABLES/WIRING BETWEEN EQUIPMENT CONTROL PANEL AND EQUIPMENT AS PER THE APPROVED MANUFACTURER'S SHOP DRAWINGS. WITH RESPECT TO ALL ITEMS SHIPPED LOOSE WITH EQUIPMENT, PROVIDE FOR THE INSTALLATION OF THESE ITEMS IN ACCORDANCE WITH THE APPROVED MANUFACTURER'S SHOP DRAWINGS.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 29, 2008

MANATEE COUNTY FLORIDA

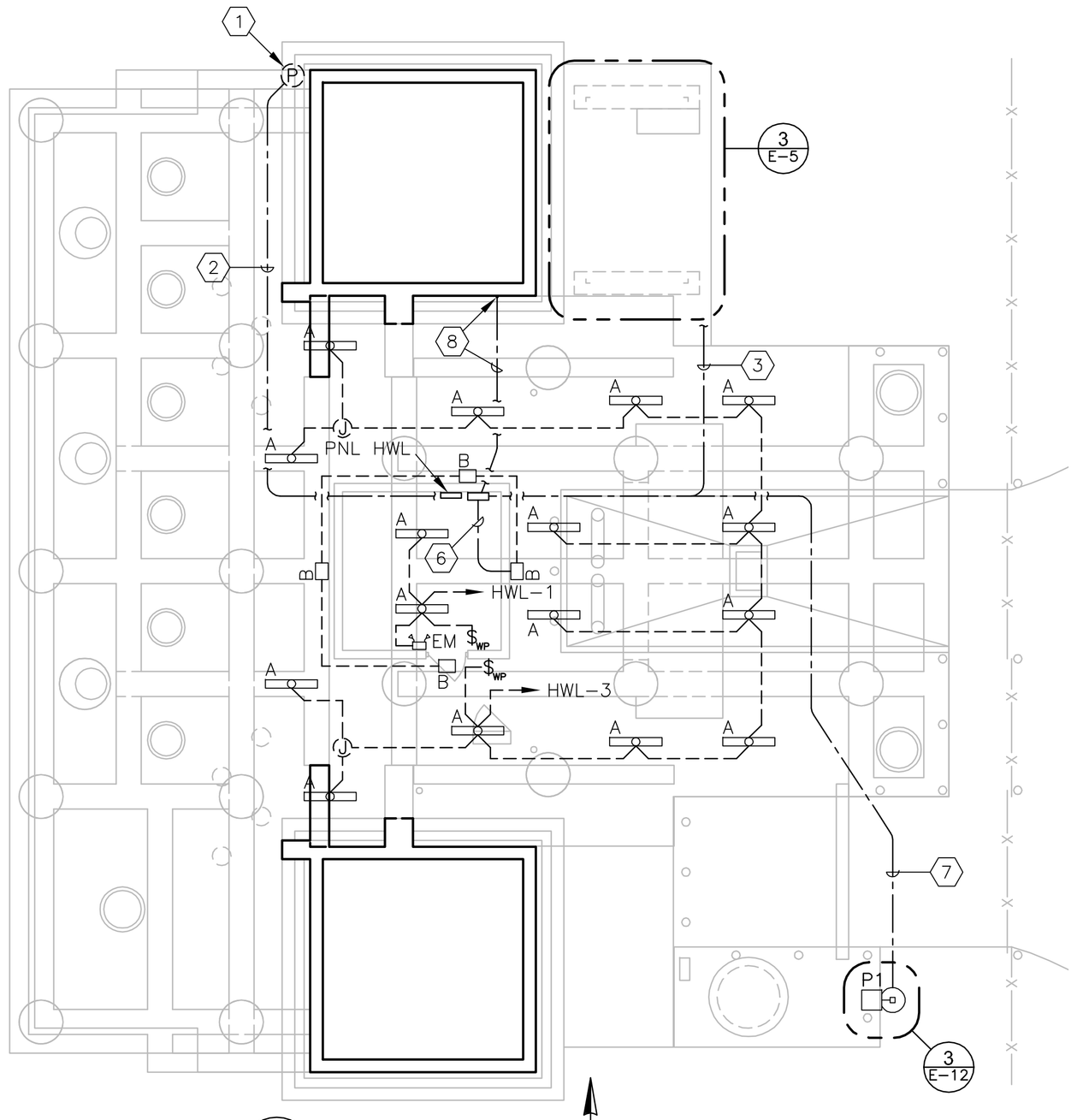
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS UPPER LEVEL POWER AND CONTROLS PLAN

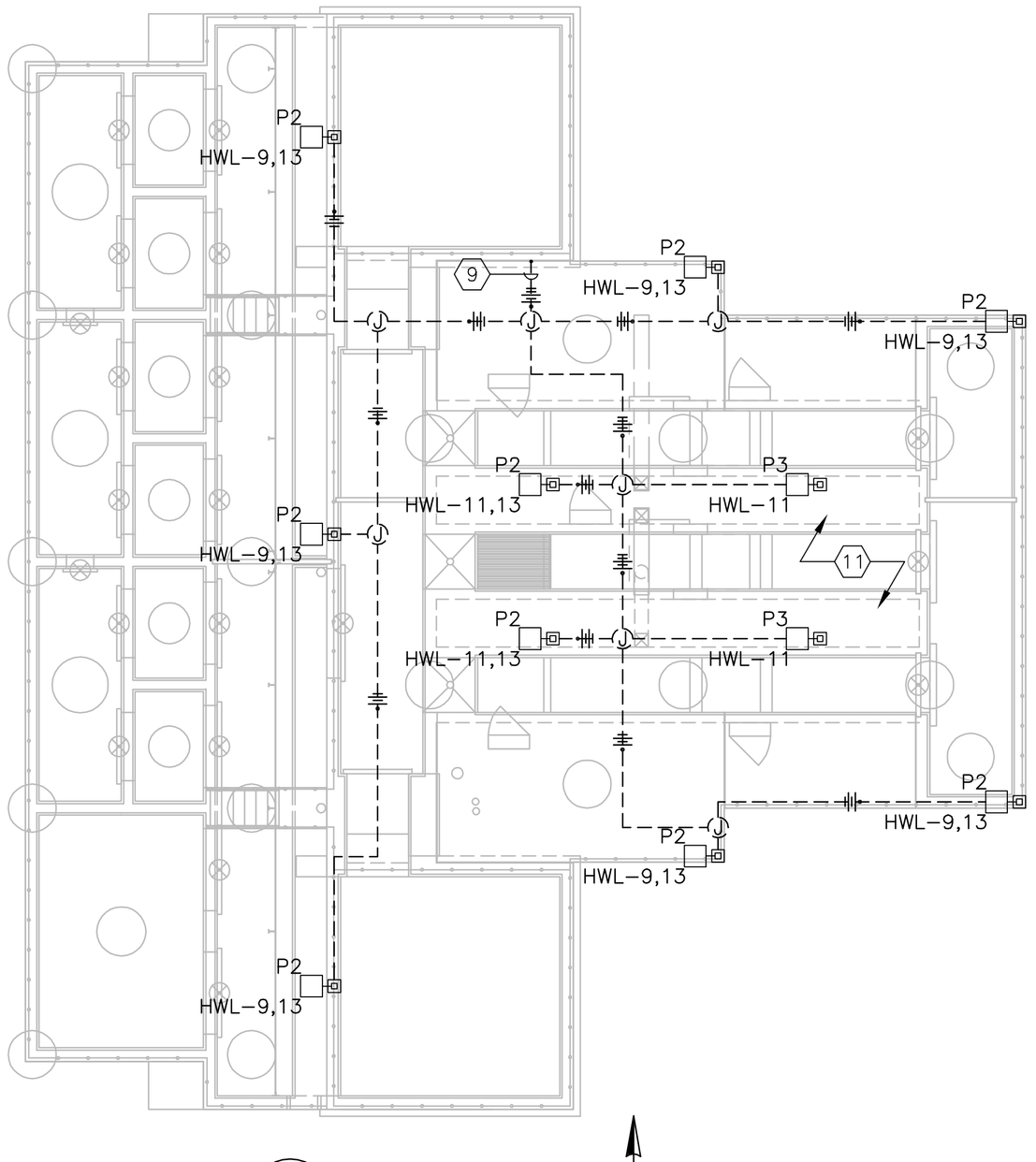
GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

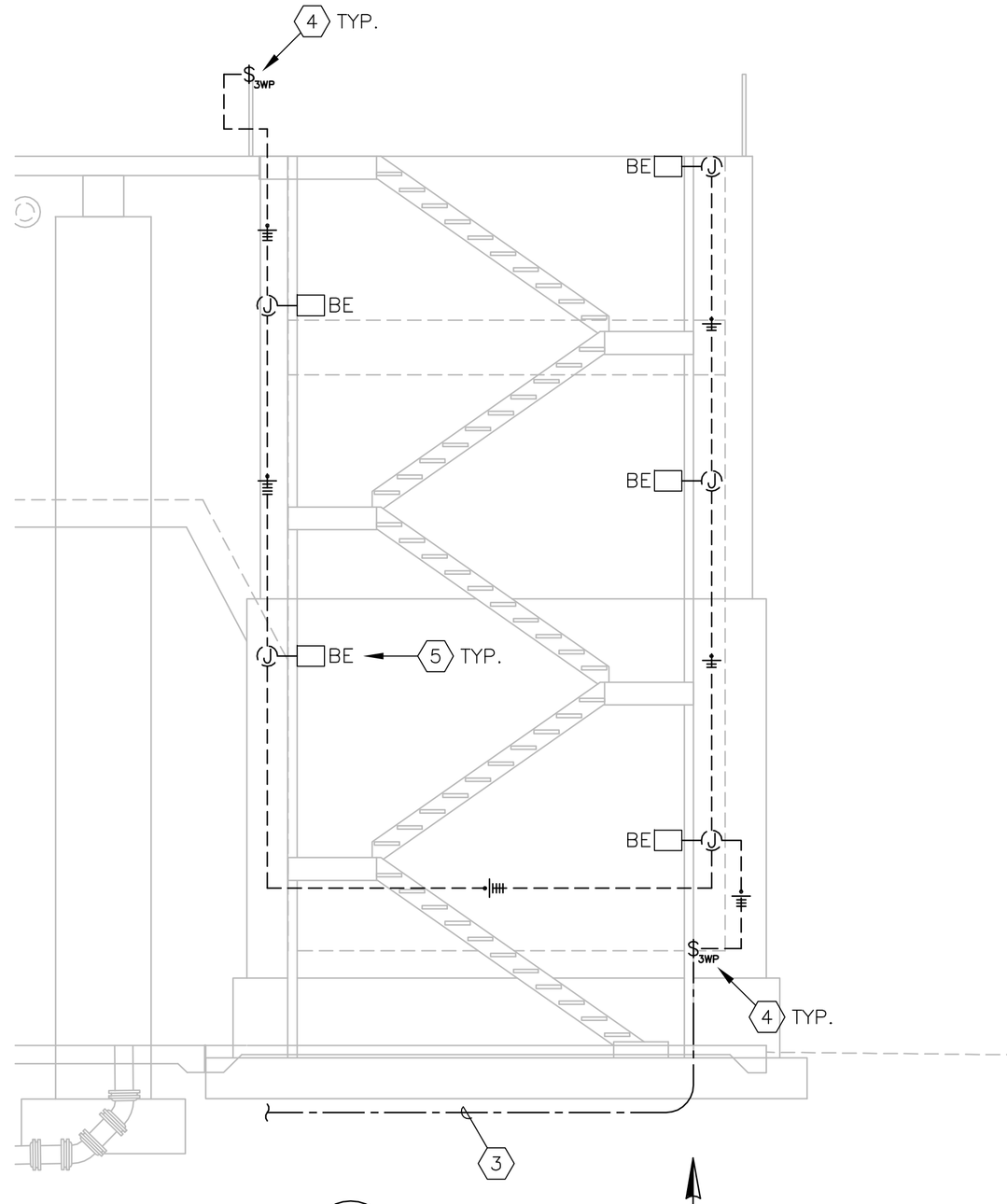
E-4



1 PLAN E-2
LOWER LEVEL LIGHTING
SCALE: 1/8" = 1'-0"



2 PLAN E-2
UPPER LEVEL LIGHTING
SCALE: 1/8" = 1'-0"



3 ELEVATION E-5
STAIR LIGHTING
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO SHEET E-10 FOR LIGHTING FIXTURE SCHEDULE.

REFERENCE NOTES:

1. PROVIDE 2000W, 120V AC, 60 HZ, SPST PHOTOCELL, TORK 2100 SERIES OR APPROVED EQUAL. MOUNT PHOTOCELL WITH TOP 10'-0" ABOVE TOP OF SLAB, AIM TOWARD THE NORTH, AND ADJUST THE SENSOR SLIDE SHIELD FOR OPTIMAL PERFORMANCE AS DIRECTED BY THE ENGINEER OR COUNTY.
2. PROVIDE 3/4" C. DIRECT BURIED UNDERGROUND BETWEEN BOTTOM OF LIGHTING CONTACTOR PANEL AND PHOTOCELL. PROVIDE 1-#12 PH., 1-#12 SW., 1-#12 NEUT., AND 1-#12 GND IN CONDUIT.
3. PROVIDE 3/4" C. DIRECT BURIED UNDERGROUND BETWEEN BOTTOM OF LIGHTING CONTACTOR PANEL AND LIGHT SWITCH AT BOTTOM OF STAIRS FOR STAIR LIGHTING. PROVIDE 1-#10 PH., 1-#10 SW., 1-#10 NEUT., AND 1-#10 GND (CIRCUIT NO. HWL-5 VIA LIGHTING CONTACTOR) IN CONDUIT. USE UNSWITCHED PHASE CONDUCTOR TO FEED BATTERY BACKED EMERGENCY BALLAST.
4. RIGIDLY MOUNT LIGHT SWITCH TO STRUCTURE WITH BOTTOM AT 42" ABOVE FINISHED SLAB/FLOOR.
5. RIGIDLY MOUNT TYPE BE LIGHTING FIXTURE TO STRUCTURE WITH BOTTOM AT 7'-0" ABOVE STAIR LANDING.
6. PROVIDE 3/4" C. DIRECT BURIED UNDERGROUND BETWEEN BOTTOM OF LIGHTING CONTACTOR PANEL AND TYPE B LIGHTING FIXTURE. PROVIDE 1-#12 PH., 1-#12 NEUT., AND 1-#12 GND (CIRCUIT NO. HWL-7 VIA LIGHTING CONTACTOR) IN CONDUIT.

REFERENCE NOTES CONT. . .

7. PROVIDE 3/4" C. DIRECT BURIED UNDERGROUND BETWEEN BOTTOM OF LIGHTING CONTACTOR PANEL AND TYPE P1 LIGHTING FIXTURE. PROVIDE 1-#12 PH., 1-#12 NEUT., AND 1-#12 GND (CIRCUIT NO. HWL-7 VIA LIGHTING CONTACTOR) IN CONDUIT.
8. PROVIDE 1" C. DIRECT BURIED UNDERGROUND BETWEEN BOTTOM OF LIGHTING CONTACTOR PANEL AND STUB UP ADJACENT TO HEADCELL STRUCTURE WALL FOR UPPER LEVEL LIGHTING. REFER TO REFERENCE NOTE 9 BELOW FOR EXPOSED CONDUIT CONTINUATION UP WALL, AND FOR CONDUIT CONTENTS.
9. PROVIDE 1" C. EXPOSED ALONG THE UNDERSIDE OF THE UPPER LEVEL DECK FOR UPPER LEVEL LIGHTING. PROVIDE 3-#10 PH., 2-#10 NEUT., AND 1-#10 GND (CIRCUIT NOS. HWL-9,11 FOR LIGHTING VIA LIGHTING CONTACTOR AND CIRCUIT NO. 13 UNSWITCHED FOR RECEPTACLES) IN CONDUIT.
10. REFER TO STRUCTURAL PLANS FOR CAST-IN-PLACE 1" C. STUBBED THROUGH UPPER LEVEL DECK INTO BOTTOM OF LIGHT POLE.
11. ALL CONDUITS SHOWN ON THIS PLAN ARE TO BE ROUTED EXPOSED ALONG THE UNDERSIDE OF THE UPPER LEVEL DECK SLAB.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS LIGHTING PLANS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-5

GENERAL NOTES:

1. REFER TO SHEET E-1 FOR LEGEND.
2. DO NOT INSTALL COPPER LPS MATERIALS IN CONTACT WITH ALUMINUM MATERIALS.
3. MAKE ALL BOND CONNECTIONS BETWEEN LPS MAIN CONDUCTORS, LPS SECONDARY CONDUCTORS, AND COUNTERPOISE GROUND RING CONDUCTORS VIA THE EXOTHERMIC WELDING PROCESS.

REFERENCE NOTES:

(1) PROVIDE 2/0 BARE STRANDED COPPER COUNTERPOISE GROUND RING DIRECTED BURIED A MINIMUM OF 30" BELOW GRADE, 36" TO THE OUTSIDE OF THE HEADWORKS UPPER LEVEL PERIMETER OVERHANG.

(2) PROVIDE 3/4" DIA. BY 20'-0" LONG COPPER-CLAD STEEL GROUND ROD. DRIVE GROUND ROD UNTIL ITS TOP IS 12" BELOW FINAL GRADE.

(3) PROVIDE 36" LONG BY 4" HIGH BY 1/4" THICK SOLID COPPER ELECTRICAL ROOM GROUND BUS. RIGIDLY MOUNT GROUND BUS TO ELECTRICAL ROOM WALL WITH BOTTOM AT 18" AFF.

(4) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT DIRECT BURIED UNDERGROUND STUBBED FROM BELOW ELECTRICAL ROOM GROUND BUS, 24" TO THE OUTSIDE OF THE HEADWORKS UPPER LEVEL PERIMETER OVERHANG. PROVIDE 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR IN CONDUIT BETWEEN ELECTRICAL ROOM GROUND BUS AND COUNTERPOISE GROUND RING. AFTER GROUNDING CONDUCTOR IS INSTALLED, SEAL END OF CONDUIT INSIDE ELECTRICAL ROOM WITH DUCT SEAL COMPOUND.

(5) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT EXPOSED BETWEEN PANEL PNL-1B AND ELECTRICAL ROOM GROUND BUS. PROVIDE 2/0 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR IN CONDUIT BETWEEN PANEL PNL-1B GROUND BUS AND ELECTRICAL ROOM GROUND BUS.

(6) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT EXPOSED BETWEEN PANEL PNL-2B AND ELECTRICAL ROOM GROUND BUS. PROVIDE 2/0 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR IN CONDUIT BETWEEN PANEL PNL-2B GROUND BUS AND ELECTRICAL ROOM GROUND BUS.

(7) PROVIDE 3/4" SCH. 80 PVC CONDUIT EXPOSED BETWEEN ELECTRICAL ROOM GROUND BUS AND TRANSFORMER T1. PROVIDE #8 THHN/THWN-2 STRANDED COPPER CONDUCTOR MAIN BONDING JUMPER IN CONDUIT BETWEEN ELECTRICAL ROOM GROUND BUS AND TRANSFORMER T1.

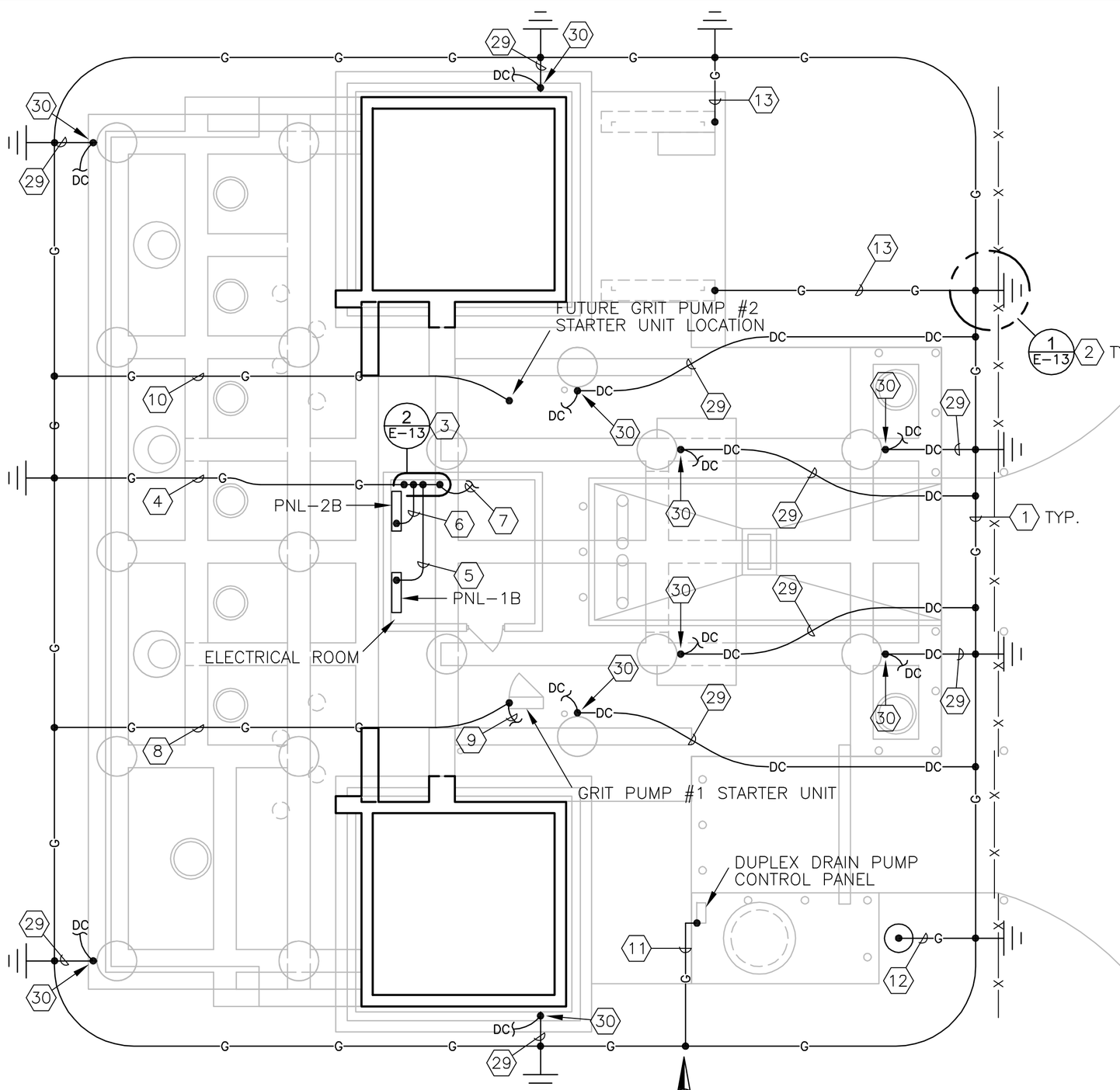
(8) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT DIRECT BURIED UNDERGROUND STUBBED FROM ADJACENT TO GRIT PUMP #1 STARTER UNIT EQUIPMENT RACK, 24" TO THE OUTSIDE OF THE HEADWORKS UPPER LEVEL PERIMETER OVERHANG. PROVIDE 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR IN CONDUIT BETWEEN GRIT PUMP #1 STARTER UNIT EQUIPMENT RACK AND COUNTERPOISE GROUND RING. AFTER GROUNDING CONDUCTOR IS INSTALLED, SEAL END OF CONDUIT STUBBED UP AT GRIT PUMP #1 STARTER UNIT EQUIPMENT RACK WITH DUCT SEAL COMPOUND.

(9) EXTEND 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR TO GRIT PUMP SKID. BOND GROUNDING CONDUCTOR TO GRIT PUMP SKID USING A SINGLE HOLE COMPRESSION LUG SIZED FOR THE GRIT PUMP SKID ANCHOR BOLT. LAND SINGLE HOLE COMPRESSION LUG UNDERNEATH NEAREST ANCHOR BOLT NUT.

(10) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT DIRECT BURIED UNDERGROUND STUBBED FROM ADJACENT TO FUTURE GRIT PUMP #2 STARTER UNIT EQUIPMENT RACK LOCATION, 24" TO THE OUTSIDE OF THE HEADWORKS UPPER LEVEL PERIMETER OVERHANG. PROVIDE 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR IN CONDUIT BETWEEN FUTURE GRIT PUMP #2 STARTER UNIT EQUIPMENT RACK LOCATION AND COUNTERPOISE GROUND RING. LEAVE 6'-0" SLACK GROUNDING CONDUCTOR NEATLY BUNDLED AND SECURED AT FUTURE GRIT PUMP #2 STARTER UNIT EQUIPMENT RACK LOCATION FOR FUTURE CONNECTION TO EQUIPMENT RACK. AFTER GROUNDING CONDUCTOR IS INSTALLED, SEAL END OF CONDUIT STUBBED UP AT FUTURE GRIT PUMP #2 STARTER UNIT EQUIPMENT RACK LOCATION WITH DUCT SEAL COMPOUND.

(11) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT DIRECT BURIED UNDERGROUND STUBBED FROM ADJACENT TO DUPLEX DRAIN PUMP CONTROL PANEL EQUIPMENT RACK, 24" TO THE OUTSIDE OF THE HEADWORKS PERIMETER. PROVIDE 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR IN CONDUIT BETWEEN DUPLEX DRAIN PUMP CONTROL PANEL EQUIPMENT RACK AND COUNTERPOISE GROUND RING.

(12) PROVIDE 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR DIRECT BURIED BETWEEN TYPE P1 LIGHT POLE AND COUNTERPOISE GROUND RING.



1 E-6 PLAN
GROUNDING
SCALE: 1/8" = 1'-0"

REFERENCE NOTES CONT. . .

(13) PROVIDE 2/0 BARE STRANDED COPPER GROUNDING CONDUCTOR DIRECT BURIED BETWEEN STEEL STAIR STRUCTURE AND COUNTERPOISE GROUND RING.

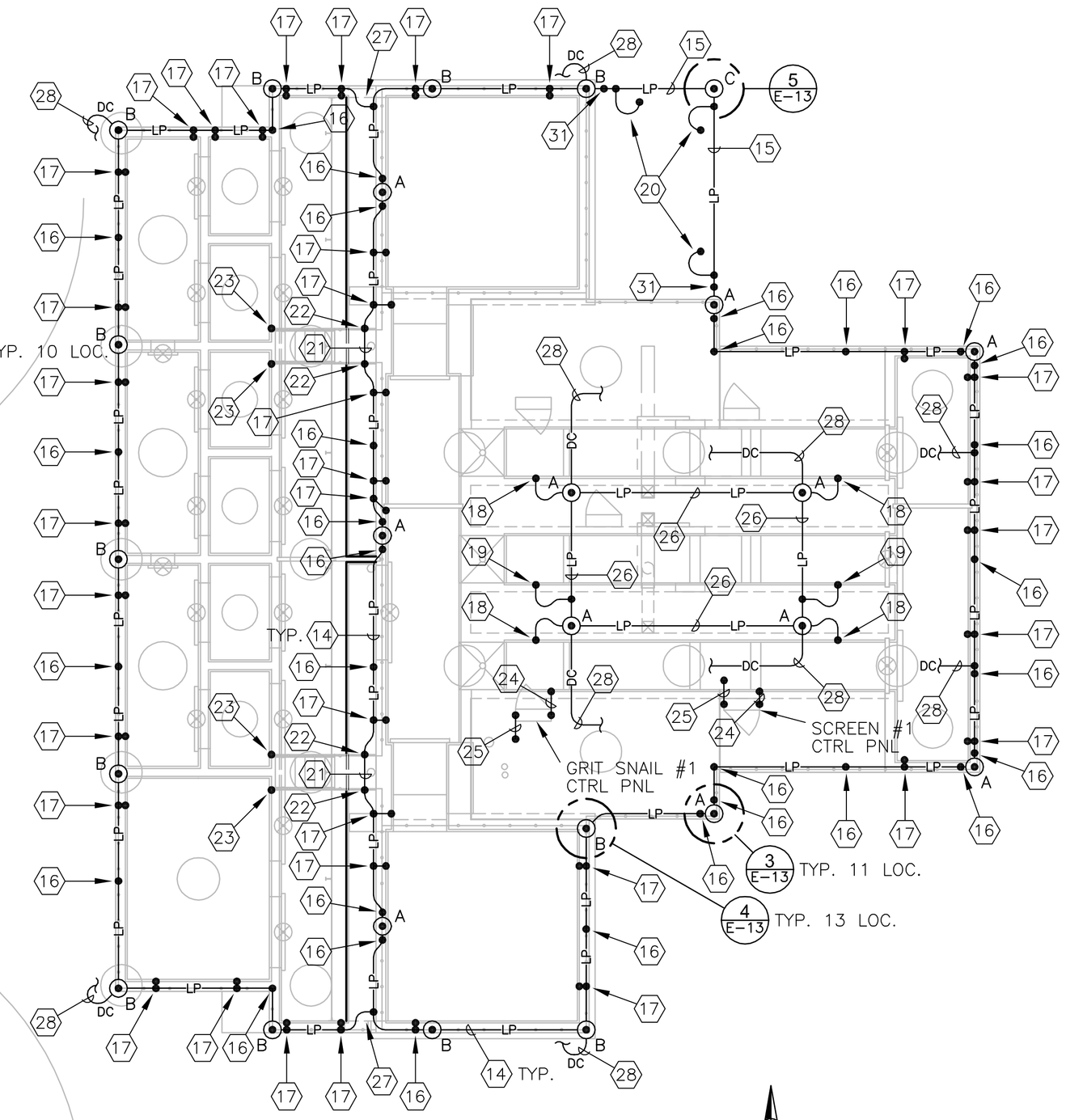
(14) PROVIDE ALUMINUM LPS MAIN CONDUCTOR. SUPPORT CONDUCTOR ROUTED ALONG HORIZONTAL SURFACES USING ADHESIVE CABLE FASTENERS SPACED 3'-0" O.C. MAX., AND ALONG VERTICAL SURFACES USING VERTICAL CABLE SUPPORTS SPACED 3'-0" O.C. MAX.

(15) PROVIDE COPPER LPS MAIN CONDUCTOR. SUPPORT CONDUCTOR ROUTED ALONG HORIZONTAL SURFACES USING ADHESIVE CABLE FASTENERS SPACED 3'-0" O.C. MAX., AND ALONG VERTICAL SURFACES USING VERTICAL CABLE SUPPORTS SPACED 3'-0" O.C. MAX.

(16) BOND LPS MAIN CONDUCTOR TO ALUMINUM HANDRAIL USING A PIPE BONDING CLAMP.

(17) BOND LPS MAIN CONDUCTOR TO CAST-IN-PLACE STAINLESS STEEL ANGLE USING ALUMINUM LPS SECONDARY CONDUCTOR. MAKE BOND CONNECTION TO STAINLESS STEEL ANGLE VIA THE EXOTHERMIC WELDING PROCESS.

(18) BOND LPS MAIN CONDUCTOR TO ALUMINUM EQUIPMENT STRUCTURE USING ALUMINUM LPS SECONDARY CONDUCTOR AND SECONDARY CONDUCTOR BONDING LUG.



2 E-6 PLAN
LPS
SCALE: 1/8" = 1'-0"

REFERENCE NOTES CONT. . .

(19) BOND LPS MAIN CONDUCTOR TO ALUMINUM EQUIPMENT STRUCTURE USING ALUMINUM LPS SECONDARY CONDUCTOR AND SECONDARY CONDUCTOR BONDING LUG. PROVIDE 1 1/2" SCH. 80 PVC SLEEVE THROUGH HEADWORKS UPPER LEVEL DECK SLAB FOR ROUTING LPS MAIN CONDUCTOR DOWN TO UNDERSIDE OF HEADWORKS UPPER LEVEL DECK SLAB.

(20) BOND LPS MAIN CONDUCTOR TO STEEL STAIR STRUCTURE USING COPPER LPS MAIN CONDUCTOR AND MAIN CONDUCTOR BONDING LUG.

(21) ROUTE LPS MAIN CONDUCTOR UNDER STAIRS, HORIZONTALLY ALONG THE VERTICAL WALL SURFACE.

(22) BOND LPS MAIN CONDUCTOR TO ALUMINUM STAIR STRUCTURE USING ALUMINUM LPS MAIN CONDUCTOR AND MAIN CONDUCTOR BONDING LUG.

(23) BOND ALUMINUM STAIR STRUCTURE TO CAST-IN-PLACE STAINLESS STEEL ANGLE USING ALUMINUM LPS SECONDARY CONDUCTOR. MAKE BOND CONNECTION TO STAINLESS STEEL ANGLE VIA THE EXOTHERMIC WELDING PROCESS.

(24) BOND CONTROL PANEL ALUMINUM EQUIPMENT RACK TO CAST-IN-PLACE STAINLESS STEEL ANGLE USING ALUMINUM LPS SECONDARY CONDUCTOR. MAKE BOND CONNECTIONS VIA THE EXOTHERMIC WELDING PROCESS..

REFERENCE NOTES CONT. . .

(25) BOND CONTROL PANEL ALUMINUM EQUIPMENT RACK TO ALUMINUM EQUIPMENT STRUCTURE USING ALUMINUM LPS SECONDARY CONDUCTOR AND SECONDARY CONDUCTOR BONDING LUGS.

(26) LPS ALUMINUM MAIN CONDUCTOR ROUTED ALONG THE UNDERSIDE OF THE HEADWORKS UPPER LEVEL DECK SLAB.

(27) VERTICAL TRANSITION OF 48" REQUIRED AT THIS LOCATION.

(28) PROVIDE ALUMINUM LPS DOWN CONDUCTOR DOWN TO BIMETAL CABLE SPLICER CENTERED AT 48" ABOVE FINAL GRADE. SUPPORT CONDUCTOR ROUTED ALONG VERTICAL SURFACES USING VERTICAL CABLE SUPPORT.

(29) PROVIDE 1 1/2" SCH. 80 PVC CONDUIT DIRECT BURIED UNDERGROUND STUBBED 24" TO THE OUTSIDE OF THE HEADWORKS UPPER LEVEL PERIMETER OVERHANG. STUB CONDUIT UP 36" ABOVE FINAL GRADE BELOW BIMETAL CABLE SPLICER. PROVIDE COPPER LPS DOWN CONDUCTOR IN CONDUIT TO COUNTERPOISE GROUND RING.

(30) PROVIDE BIMETAL CABLE SPLICER TO TRANSITION, ALUMINUM LPS DOWN CONDUCTOR TO COPPER LPS DOWN CONDUCTOR, CENTERED AT 48" ABOVE FINAL GRADE.

(31) PROVIDE BIMETAL CABLE SPLICER TO TRANSITION, ALUMINUM LPS MAIN CONDUCTOR TO COPPER LPS MAIN CONDUCTOR.

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

PLOTTED October 9, 2008 8:22 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\E-6 HEADWORKS GROUNDING AND LPS PLANS.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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

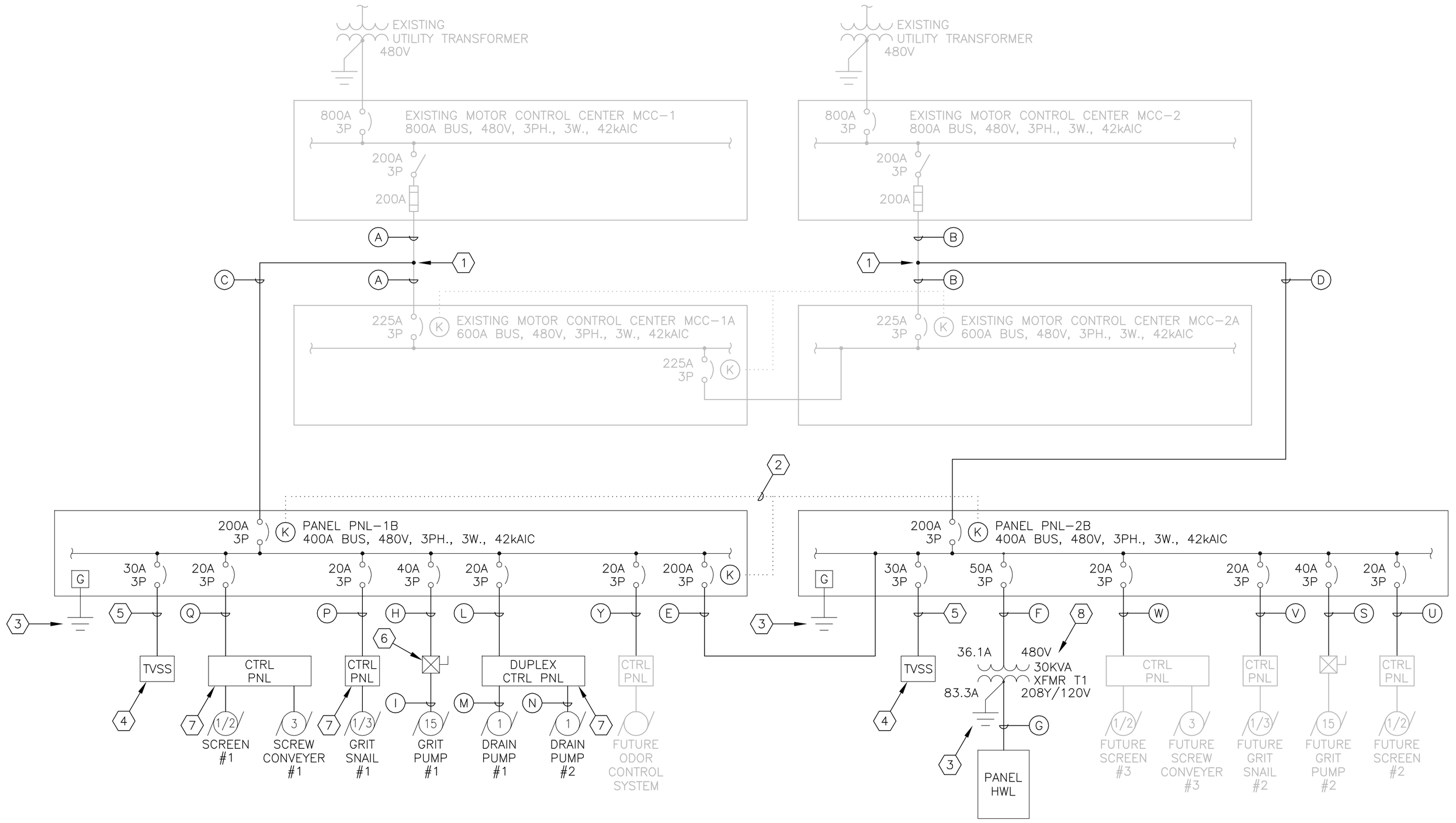
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

HEADWORKS GROUNDING AND LPS PLANS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-6



GENERAL NOTES:

1. "LIGHT" LINES INDICATE EXISTING OR FUTURE EQUIPMENT AS INDICATED. "BOLD" LINES INDICATE NEW WORK.

2. REFER TO SHEET E-9 FOR CONDUIT SCHEDULE.

REFERENCE NOTES:

(1) SPLICE NEW FEEDER TO EXISTING FEEDER INSIDE EXISTING POWER HANDHOLE. REFER TO SHEET E-2 FOR EXISTING POWER HANDHOLE LOCATION.

(2) PROVIDE KIRK KEY INTERLOCK SYSTEM CONSISTING OF THREE (3) KEY OPERATED MECHANISMS, ALL KEYED ALIKE, AND TWO (2) KEYS. SYSTEM SHALL BE CONFIGURED TO ENSURE THAT ONLY TWO OF THE THREE CIRCUIT BREAKERS MAY BE CLOSED AT ANY GIVEN POINT IN TIME.

(3) REFER TO SHEET E-6 FOR SPECIFICATION OF CONNECTION TO ELECTRICAL ROOM GROUND BUS.

(4) PROVIDE TVSS UNIT. REFER TO SPECIFICATIONS FOR REQUIREMENTS.

(5) PROVIDE 1" SCH. 80 PVC CONDUIT NIPPLE WITH 3-#8 PH. AND 1-#8 GND WIRES TWISTED TOGETHER IN ACCORDANCE WITH THE TVSS MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. ROUTE WIRES FOLLOWING THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. WHERE BENDS ARE REQUIRED, MAKE BENDS FOLLOWING THE LARGEST RADIUS POSSIBLE, SPACE PERMITTING. DO NOT KINK CONDUCTORS. NO CONDUCTOR SHALL BE LONGER THAN 60" IN LENGTH BETWEEN ITS TERMINATION INSIDE THE PANELBOARD AND ITS TERMINATION INSIDE THE TVSS UNIT.

(6) PROVIDE FVNR COMBINATION STARTER UNIT. COMBINATION STARTER UNIT SHALL HAVE MAGNETIC ONLY MOTOR CIRCUIT PROTECTOR TYPE CIRCUIT BREAKER, NEMA SIZE 2 MAGNETIC MOTOR STARTER WITH 120V AC COIL, TRIP CLASS 20 SOLID STATE OVERLOAD RELAY, PHASE FAILURE RELAY, 500VA 480V-120V CONTROL POWER TRANSFORMER, 2-POSITION "ON-OFF" SELECTOR SWITCH, GREEN "POWER ON" 120V AC LED PILOT LIGHT, RED "MOTOR RUNNING" 120V AC LED PILOT LIGHT, PILOT RELAYS, FIELD WIRING TERMINAL BLOCKS, AUXILIARY CONTACTS AS REQUIRED TO IMPLEMENT SPECIFIED CONTROL SCHEME, AND NEMA TYPE 4X WATERTIGHT, DUSTTIGHT, AND CORROSION RESISTANT POLYESTER ENCLOSURE. PHASE FAILURE RELAY SHALL BE PANEL MOUNT TYPE WITH THE FOLLOWING PROTECTION MODES: (1) PHASE LOSS, (2) PHASE REVERSAL, (3) PHASE VOLTAGE UNBALANCE OF 10% OR GREATER, AND (4) UNDERVOLTAGE, ADJUSTABLE FROM 75% TO 100% OF NOMINAL. PILOT RELAYS SHALL BE PLUG-IN TYPE INDUSTRIAL CONTROL RELAY WITH 20A, 120V AC RATED DPDT CONTACTS, 120V AC COIL, AND MATING MODULAR SOCKET.

(7) EQUIPMENT CONTROL PANELS AND ANCILIARY DEVICES SHIPPED LOOSE WITH EQUIPMENT. PROVIDE FOR THE INSTALLATION OF EQUIPMENT CONTROL PANELS AND ANCILIARY DEVICES, INCLUDING ALL CONDUIT AND CABLES/WIRING, IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.

(8) TRANSFORMER T1 SHALL BE 115°C RISE DRY TYPE WITH EPOXY-RESIN ENCAPSULATED CORE AND COIL ASSEMBLY AND NEMA 3R 316 STAINLESS STEEL ENCLOSURE.

SERVICE LOAD SUMMARY	
EXISTING SERVICE CAPACITY (KVA)	665 KVA
EXISTING SERVICE CAPACITY (AMPERES @ 480V)	800 AMPERES
EXISTING DEMAND MCC-1 OR MCC-2 (KVA)	442.3 KVA
LOAD INSTALLED BY PROJECT (KVA)	68.5 KVA
PROJECTED DEMAND AFTER PROJECT (KVA)	510.8 KVA
PROJECTED DEMAND AFTER PROJECT (AMPERES @ 480V)	614.7 AMPERES
SPARE CAPACITY IN EXISTING SERVICE AFTER PROJECT (KVA)	154.2 KVA
SPARE CAPACITY AFTER PROJECT (AMPERES @ 480V)	185.6 AMPERES

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SINGLE LINE DIAGRAM

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-7

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

PANEL NAME: PNL–1B | VOLTAGE: 480V | PHASE: 3 | WIRE: 3 | BUS RATING: 400A | MAIN BKR RATING: 200A | LOCATION: ELECTRICAL ROOM | MOUNTING: SURFACE | FED FROM: 200A/3P FUSE IN MCC–1

CKT NO.	CIRCUIT DESCRIPTION	LOAD (kVA)	BKR AMPS	PH	BKR AMPS	LOAD (kVA)	CIRCUIT DESCRIPTION	CKT NO.
1	GRIT PUMP #1	17.5	40	– A –	40	–	SPARE	2
3	GRIT SNALE #1	0.9	20	– B –	20	4.9	SCREEN #1	4
5	DRAIN PUMPS #1 AND #2	3.5	20	– C –	20	4.0	FUTURE ODOR CONTROL	6
7	SPARE	–	20	– A –	30	–	SPARE	8
9	SPACE	–	–	– B –	–	–	SPACE	10
11	SPACE	–	–	– C –	–	–	SPACE	12
13	TVSS	–	30	– A –	–	–	SPACE	14
15	–	–	–	– B –	200	42.1	TIE BREAKER	16
				– C –				

	A	B	C	TOTAL
CONNECTED LOAD (PER PHASE kVA):	22.8	22.8	22.8	68.5*
CONNECTED LOAD (PER PHASE AMPS):	82.3	82.3	82.3	

ACCESSORIES:
NEMA 4X 304 STAINLESS STEEL ENCLOSURE
KIRK KEY INTERLOCK SYSTEM

* INCLUDES 37.7KVA FROM PANEL PNL–2B WITH TIE BREAKER CLOSED AND THE LOAD FED FROM PANEL PNL–2B

PANEL NAME:PNL–2B | VOLTAGE: 480V | PHASE: 3 | WIRE: 3 | BUS RATING: 400A | MAIN BKR RATING: 200A | LOCATION: ELECTRICAL ROOM | MOUNTING: SURFACE | FED FROM: 200A/3P FUSE IN MCC–2

CKT NO.	CIRCUIT DESCRIPTION	LOAD (kVA)	BKR AMPS	PH	BKR AMPS	LOAD (kVA)	CIRCUIT DESCRIPTION	CKT NO.
1	GRIT PUMP #2	17.5	40	– A –	50	10.4	PANEL HWL VIA TRANSFORMER T1	2
3	GRIT SNAIL #2	0.9	20	– B –	20	4.0	FUTURE SCREEN #2	4
5	FUTURE SCREEN #3	4.9	20	– C –	20	–	SPARE	6
7	SPACE	–	–	– A –	–	–	SPACE	8
9	SPACE	–	–	– B –	–	–	SPACE	10
11	SPACE	–	–	– C –	–	–	SPACE	12
13	SPACE	–	–	– A –	–	–	SPACE	14
15	TVSS	–	30	– B –	–	–	SPACE	16
				– C –				

	A	B	C	TOTAL
CONNECTED LOAD (PER PHASE kVA):	22.8	22.8	22.8	68.5*
CONNECTED LOAD (PER PHASE AMPS):	82.3	82.3	82.3	

ACCESSORIES:
SUB–FEED LUGS FOR TERMINATING TIE CONDUCTORS
NEMA 4X 304 STAINLESS STEEL ENCLOSURE
KIRK KEY INTERLOCK SYSTEM

* INCLUDES 30.8KVA FROM PANEL PNL–1B WITH TIE BREAKER CLOSED AND THE LOAD FED FROM PANEL PNL–1B

PANEL NAME: HWL | VOLTAGE: 208Y/120V | PHASE: 3 | WIRE: 4 | BUS RATING: 100A | MAIN BKR RATING: 100A | LOCATION: ELECTRICAL ROOM | MOUNTING: SURFACE | FED FROM: PANEL PNL–2B VIA TRANSFORMER T1

CKT NO.	CIRCUIT DESCRIPTION	LOAD (kVA)	BKR AMPS	PH	BKR AMPS	LOAD (kVA)	CIRCUIT DESCRIPTION	CKT NO.
1	LTG – ELECTRICAL ROOM	0.4	20	– A –	20	0.2	REC. – ELECTRICAL ROOM, CONVENIENCE	2
3	LTG – LOWER LEVEL	1.2	20	– B –	20	0.7	REC. – LOWER LEVEL, CONVENIENCE	4
5	LTG – STAIR TOWER VIA LTG CONT. C1	0.4	20	– C –	20	1.5	SCADA PANEL	6
7	LTG – LOWER LEVEL SECURITY VIA LTG CONT. C1	0.4	20	– A –	20	0.2	REC. – FUTURE CCTV CAMERA	8
9	LTG – UPPER LEVEL VIA LTG CONT. C2	1.6	20	– B –	20	0.2	REC. – INFLUENT FLOW SAMPLER	10
11	LTG – UPPER LEVEL VIA LTG CONT. C2	0.9	20	– C –	20	–	SPARE	12
13	REC. – UPPER LEVEL LIGHT POLE MOUNTED	1.6	20	– A –	20	–	SPARE	14
15	LIGHTING CONTACTOR PANEL CONTROL	0.1	20	– B –	20	–	SPARE	16
17	MOTORIZED GATE OPERATOR	1.2	20	– C –	20	–	SPARE	18
19	IRRIGATION CONTROLLER	1.0	15	– A –	20	–	SPARE	20
21	SPARE	–	20	– B –	20	–	SPARE	22
23	SPARE	–	20	– C –	20	–	SPARE	24
25	SPACE	–	–	– A –	–	–	SPACE	26
27	SPACE	–	–	– B –	–	–	SPACE	28
29	SPACE	–	–	– C –	–	–	SPACE	30
31	SPACE	–	–	– A –	–	–	SPACE	32
33	SPACE	–	–	– B –	–	–	SPACE	34
35	SPACE	–	–	– C –	–	–	SPACE	36
37	SPACE	–	–	– A –	–	–	SPACE	38
39	SPACE	–	–	– B –	–	–	SPACE	40
41	SPACE	–	–	– C –	–	–	SPACE	42

	A	B	C	TOTAL
CONNECTED LOAD (PER PHASE kVA):	3.8	3.8	4.0	11.6
CONNECTED LOAD (PER PHASE AMPS):	31.7	31.7	33.3	

ACCESSORIES:
NEMA 4X 304 STAINLESS STEEL ENCLOSURE

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 29, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

PANEL SCHEDULES

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E–8

PLOTTED October 9, 2008 8:22 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\E–8 PANEL SCHEDULES.DWG

CONDUIT SCHEDULE

ID NO.	QTY–SIZE	CONTENTS	CONDUIT/CABLE/WIRE ORIGIN	CONDUIT/CABLE/WIRE DESTINATION	NOTES
A	1–3"	3–#4/0 PH. AND 1–#2 GND	MCC–1	MOTOR CONTROL CENTER MCC–1A	1
B	1–3"	3–#4/0 PH. AND 1–#2 GND	MCC–2	MOTOR CONTROL CENTER MCC–2A	1
C	1–3" 1–3"	3–#4/0 PH. AND 1–#2 GND PULL STRING FOR FUTURE USE BY COUNTY	EXISTING POWER HANDHOLE	PANEL PNL–1B	2
D	1–3" 1–3"	3–#4/0 PH. AND 1–#2 GND SPARE WITH PULL STRING FOR USE BY COUNTY	EXISTING POWER HANDHOLE	PANEL PNL–2B	2
E	1–2 1/2"	3–#4/0 PH. 1–#2 GND	PANEL PNL–1B	PANEL PNL–2B	
F	1–3/4"	3–#8 PH. AND 1–#10 GND	PANEL PNL–2B	TRANSFORMER T1	
G	1–1 1/2"	3–#2 PH., 1–#2 NEUT., AND 1–#8 GND	TRANSFORMER T1	PANEL HWL	
H	1–3/4"	3–#8 PH. AND 1–#10 GND	PANEL PNL–1B	GRIT PUMP #1 STARTER UNIT	
I	1–3/4"	3–#8 PH., 2–#14 MTR HTR PWR, 2–#14 THERMAL CUTOUT, AND 1–#10 GND	GRIT PUMP #1 STARTER UNIT	GRIT PUMP #1 MOTOR	
J	1–3/4"	1–#12 PH., 1–#12 NEUT., AND 1–#12 GND	PANEL HWL	MOTORIZED GATE OPERATOR	
K	1–3/4"	1–#12 PH., 1–#12 NEUT., AND 1–#12 GND	PANEL HWL	IRRIGATION CONTROLLER	
L	1–3/4"	3–#12 PH. AND 1–#12 GND	PANEL PNL–1B	DUPLEX DRAIN PUMP CONTROL PANEL	
M	1–3/4"	3–#14 PH. AND 1–#14 GND	DUPLEX DRAIN PUMP CONTROL PANEL	DRAIN PUMP #1	
N	1–3/4"	3–#14 PH. AND 1–#14 GND	DUPLEX DRAIN PUMP CONTROL PANEL	DRAIN PUMP #2	
O	1–1"	10–#14 CTRL (INTRINSICALLY SAFE)	DUPLEX DRAIN PUMP CONTROL PANEL	JUNCTION BOX IN WET WELL	3
P	1–3/4"	3–#12 PH. AND 1–#12 GND	PANEL PNL–1B	GRIT SNAIL #1 CONTROL PANEL	
Q	1–3/4"	3–#12 PH. AND 1–#12 GND	PANEL PNL–1B	SCREEN #1 CONTROL PANEL	4
R	4–3/4"	SPARE WITH PULL STRINGS FOR FUTURE USE BY COUNTY	PANEL PNL–1B	–	5
S	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	PANEL PNL–2B	FUTURE GRIT PUMP #2 STARTER UNIT	
T	1–3/4"	1–#12 PH., 1–#12 NEUT., AND 1–#12 GND	PANEL HWL	INFLUENT FLOW SAMPLER	13
U	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	PANEL PNL–2B	FUTURE SCREEN #2 CONTROL PANEL	
V	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	PANEL PNL–2B	FUTURE GRIT SNAIL #2 CONTROL PANEL	
W	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	PANEL PNL–2B	FUTURE SCREEN #3 CONTROL PANEL	
X	3–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	PANEL PNL–2B	–	5
Y	1–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	PANEL PNL–1B	FUTURE ODOR CONTROL SYSTEM	6
Z	1–3/4"	1–#12 PH., 1–#12 NEUT., AND 1–#12 GND	PANEL HWL	SCADA PANEL	
AA	1–3" 1–3"	12–STRAND OPTICAL FIBER CABLE SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	EXISTING HEADWORKS SCADA PANEL	NEW HEADWORKS SCADA PANEL	7
BB	1–3/4"	2–#14 CTRL AND 1–#14 GND	SCADA PANEL	EYEWASH STATION FLOW SWITCH	8
CC	1–3/4"	2–#14 CTRL AND 1–#14 GND	SCADA PANEL	GRIT PUMP #1 STARTER UNIT	8
DD	1–3/4"	2–#14 CTRL AND 1–#14 GND	SCADA PANEL	GRIT PUMP #1 DISCHARGE PRESSURE SWITCH	8
EE	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	FUTURE GRIT PUMP #2 STARTER UNIT	8
FF	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	FUTURE GRIT PUMP #2 DISCHARGE PRESSURE SWITCH	8
GG	1–3/4"	6–#14 CTRL AND 1–#14 GND	SCADA PANEL	DUPLEX DRAIN PUMP CONTROL PANEL	8
HH	1–1"	12–#14 CTRL, 2–#14 SPARE, AND 1–#14 GND	SCADA PANEL	GRIT SNAIL #1 CONTROL PANEL	8
II	1–1 1/4"	18–#14 CTRL, 2–#14 SPARE, AND 1–#14 GND	SCADA PANEL	SCREEN #1 CONTROL PANEL	8
JJ	1–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	SCREEN #2 CONTROL PANEL	8
KK	1–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	GRIT SNAIL #2 CONTROL PANEL	8
LL	1–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	SCREEN #3 CONTROL PANEL	8
MM	3–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	–	9
NN	1–3/4"	INTERLOCK WIRING AS PER APPROVED MANUFACTURER'S SHOP DRAWINGS AND 1–#14 GND	GRIT SNAIL #1 CONTROL PANEL	SCREEN #1 CONTROL PANEL	
OO	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	GRIT SNAIL #2 CONTROL PANEL	SCREEN #3 CONTROL PANEL	10
PP	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCREEN #2 CONTROL PANEL	SCREEN #3 CONTROL PANEL	10
QQ	1–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	FUTURE ODOR CONTROL SYSTEM	6
RR	6–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	SCADA PANEL	–	11
SS	1–1/2"	1–#14 PH., 1–#14 NEUT., AND 1–#14 GND	SCADA PANEL	FLOW METER	
TT	1–1/2"	1–ANALOG I/O CABLE FOR 4–20 mA ANALOG FLOW RATE INPUT PER SCADA INTEGRATOR RECOMMENDATIONS	SCADA PANEL	FLOW METER	14
UU	1–3/4"	WIRES AS SPECIFIED BY IRRIGATION CONTROLLER INSTALLER	IRRIGATION CONTROLLER	IRRIGATION SYSTEM FIELD DEVICES	6
VV	–	–	–	–	–
WW	1–1"	2–FLOW METER SENSOR ANALOG I/O CABLES PER APPROVED FLOW METER MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS	FLOW METER	FLOW METER SENSORS	
XX	1–1"	2–FLOW METER SENSOR ANALOG I/O CABLES PER APPROVED FLOW METER MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS	FLOW METER	FLOW METER SENSORS	
YY	1–1"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	EAST WALL OF ELECTRICAL ROOM	LIGHT POLE ALONG THE NORTH SIDE OF THE HEADWORKS UPPER LEVEL	12
AB	1–3/4"	2–#14 INTERLOCK AND 1–#14 GND	GRIT PUMP #1 STARTER UNIT	GRIT SNAIL #1 CONTROL PANEL	
AC	1–3/4"	SPARE WITH PULL STRING FOR FUTURE USE BY COUNTY	FUTURE GRIT PUMP #2 STARTER UNIT	FUTURE GRIT SNAIL #2 CONTROL PANEL	
AD	1–3/4"	1–ANALOG I/O CABLE FOR 4–20 mA ANALOG FLOW RATE INPUT PER SCADA INTEGRATOR RECOMMENDATIONS	SCADA PANEL	INFLUENT FLOW SAMPLER	14

CONDUIT SCHEDULE NOTES:

1. EXISTING TO REMAIN.
2. ROUTE VIA NEW POWER HANDHOLES PHH#1 AND PHH#2.
3. CONDUIT IS FOR INTRINSICALLY SAFE FLOAT CONTROL CIRCUITS. CONDUIT SHALL BE RGS WITH CLASS I, DIVISION 1, GROUP CD HAZARDOUS LOCATION CLASSIFIED SEALING FITTING AT 18" AFF BELOW DUPLEX DRAIN PUMP CONTROL PANEL. TERMINATE CONDUIT INTO BOTTOM OF DUPLEX DRAIN PUMP CONTROL PANEL IN AREA DESIGNATED FOR INTRINSICALLY SAFE CIRCUITS.
4. SCREEN #1 CONTROL PANEL INCLUDES SCREW CONVEYER #1 STARTER UNIT AND ASSOCIATED CONTROLS.
5. STUB CONDUIT UP 18" ABOVE SLAB AND CAP.
6. STUB CONDUIT OUT 5'–0" BEYOND PERIMETER OF PROPOSED HEADWORKS AND CAP.
7. ROUTE VIA NEW COMMUNICATIONS HANDHOLES CHH#1 AND CHH#2, EXISTING COMMUNICATIONS HANDHOLE, AND EXISTING 2" SPARE CONDUIT.
8. REFER TO SHEET E–14 FOR I/O SCHEDULE.
9. CONDUIT FOR FUTURE DISCRETE I/O. STUB CONDUIT UP 18" ABOVE SLAB AND CAP.
10. CONDUIT FOR FUTURE INTERLOCK WIRING.
11. CONDUIT FOR FUTURE ANALOG I/O. STUB CONDUIT UP 18" ABOVE SLAB AND CAP.A
12. CONDUIT FOR FUTURE CCTV CAMERA.
13. PROVIDE WP GFCI DUPLEX RECEPTACLE FOR CORD–AND–PLUG CONNECTED INFLUENT FLOW SAMPLER.
14. SERIES THE FLOW METER 4–20mA OUTPUT THROUGH THE INFLUENT FLOW SAMPLER AND SCADA PANEL 4–20mA INPUTS. MAKE THIS SERIES CONNECTION INSIDE THE SCADA PANEL.

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 29, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

CONDUIT SCHEDULE

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E–9

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

LIGHTING FIXTURE SCHEDULE

TYPE	VOLTAGE	LAMP TYPE/QTY	DESCRIPTION	MANUFACTURER / PRODUCT SERIES OR APPROVED EQUAL
A	120V AC	F48T8 HO / 2 4100°K	INDUSTRIAL VAPORTIGHT LUMINAIRE UL LISTED AS SUITABLE FOR USE IN WET (CEILING AND WALL), OUTDOOR, HAZARDOUS (UL844 – CL. I, DIV. 2, GROUPS ABCD), HOSEDOWN, CORROSIVE, HIGH AMBIENT (UP TO 40°C) LOCATIONS, WITH GRAY FIBERGLASS REINFORCED POLYESTER HOUSING LISTED AS AN ELECTRICAL ENCLOSURE FOR THRU–BRANCH WIRING, CREPE STYLE 25% DR ACRYLIC DIFFUSER, NEC–COMPLIANT BALLAST DISCONNECT, ELECTRONIC INSTANT START BALLAST SUITABLE FOR –20°F STARTING, DIE–CAST ALUMINUM CONDUIT HUBS, AND 304 STAINLESS STEEL TOP BRACKET FOR SURFACE MOUNTING.	COLUMBIA LIGHTING / FNPH4–244–E120–2H–BD–PTBS3 SERIES
B	120V AC	PLT42W / 2 4100°K	DIE–CAST ALUMINUM UL 1598 (OR CSA CERTIFIED TO UL 1598) WET LOCATION LISTED FULL CUTOFF FLAT GLASS PERIMETER LUMINAIRE WITH HIGH FREQUENCY ELECTRONIC BALLAST SUITABLE FOR 0°F STARTING AND GRAY POWDER COAT FINISH. MOUNT LUMINAIRE AT 7'–0" ABOVE STAIR LANDING.	HUBBELL LIGHTING / LMC 84F 8 3 LP SERIES
BE	120V AC	PLT42W / 2 4100°K	DIE–CAST ALUMINUM UL 1598 (OR CSA CERTIFIED TO UL 1598) WET LOCATION LISTED FULL CUTOFF FLAT GLASS PERIMETER LUMINAIRE WITH HIGH FREQUENCY ELECTRONIC BALLAST SUITABLE FOR 0°F STARTING, BATTERY BACKED EMERGENCY BALLAST TO POWER ONE LAMP TO 1250 LUMENS. AND GRAY POWDER COAT FINISH. MOUNT LUMINAIRE AT 7'–0" ABOVE STAIR LANDING.	HUBBELL LIGHTING / LMC 84F 8 3 LP BBU–120 SERIES
EM	120V AC	8W PAR36 / 2	BATTERY BACKED WET AND HAZARDOUS (UL844 – CL. I, DIV. 2 GROUPS BCD) LOCATION LISTED INDUSTRIAL UL924 EMERGENCY LIGHTING UNIT WITH TWIN NON–METALLIC POLYMERIC LAMP HEADS, MAINTENANCE–FREE BATTERY, SOLID–STATE, TEMPERATURE COMPENSATED BATTERY CHARGING CIRCUIT, SOLID–STATE TRANSFER CIRCUIT, BATTERY CAPACITY TO SUPPLY 36W AT 6V DC FOR 120 MINUTES, SEALED TEST SWITCH AND LED "AC ON" INDICATOR, AND NON–METALLIC POLYMERIC ENCLOSURE WITH CORROSION–RESISTANT STAINLESS STEEL EXTERIOR HARDWARE.	DUALLITE / C1D2–6V36 SERIES
P1	120V AC	250W MH / 1	CONCRETE BASE MOUNTED POLE MOUNTED LUMINAIRE WALKWAY TYPE FIXTURE – 12'–6" TALL SQUARE STRAIGHT ALUMINUM SHAFT POLE WITH POLE TOP TENON AND NATURAL ALUMINUM ANNODIZED FINISH, ANCHOR BOLTS AND HARDWARE SHALL BE STAINLESS STEEL. HARDWARE SHALL INCLUDE LEVELING NUTS, SECURING NUTS, WASHERS AND LOCK WASHERS. ANCHOR BOLT COVER SHALL BE SECURED TO THE POLE BASE USING TAMPERPROOF SCREWS THAT MUST BE DRILLED OUT IN ORDER TO BE REMOVED. ANCHOR BOLT COVER SHALL NOT BE INSTALLED UNTIL POLE IS SET AND PLUMBED, AND HARDWARE IS PROPERLY TORQUED. "SHOE BOX" STYLE LUMINAIRE WITH MITRED AND FORMED EXTRUDED ALUMINUM HOUSING AND DOOR, STAINLESS STEEL TOOL–LESS ENTRY, IMPACT RESISTANT FULL CUTOFF FLAT GLASS LENS, TYPE III IES DISTRIBUTION, HOUSE SIDE SHIELD, PROVISIONS FOR POLE TOP TENON MOUNTING, QUICK DISCONNECT REMOVEABLE BALLAST TRAY WITH MODULAR PLUGS, FUSING AND NATURAL ALUMINUM ANNODIZED FINISH. DESIGN SHALL BE SUITABLE FOR A BASIC WIND SPEED OF 130 MPH (3 SEC. GUST) IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.	STERNER LIGHTING SYSTEMS INC. / LUMINAIRE: EXEC/SQ19/250MH/3S/120/10/HS/VF/AAL/AAL SERIES POLE: AS REQUIRED TO COMPLY WITH SPECIFIED DESIGN WIND SPEED, WITH FINISH MATCHING THAT OF THE LUMINAIRE
P2	120V AC	250W MH / 1	STRUCTURE MOUNTED POLE MOUNTED LUMINAIRE WALKWAY TYPE FIXTURE – 12'–6" TALL SQUARE STRAIGHT ALUMINUM SHAFT POLE WITH POLE TOP TENON AND NATURAL ALUMINUM ANNODIZED FINISH, ANCHOR BOLTS AND HARDWARE SHALL BE STAINLESS STEEL. HARDWARE SHALL INCLUDE LEVELING NUTS, SECURING NUTS, WASHERS AND LOCK WASHERS. ANCHOR BOLT COVER SHALL BE SECURED TO THE POLE BASE USING TAMPERPROOF SCREWS THAT MUST BE DRILLED OUT IN ORDER TO BE REMOVED. ANCHOR BOLT COVER SHALL NOT BE INSTALLED UNTIL POLE IS SET AND PLUMBED, AND HARDWARE IS PROPERLY TORQUED. POLE SHAFT SHALL BE EQUIPPED WITH BASE MOUNTED 20A, 120V, NEMA 5–20R, SPECIFICATION GRADE GROUND FAULT CIRCUIT INTERRUPTER TYPE DUPLEX RECEPTACLE WITH SPRING–HINGED AND GASKETED CAST ALUMINUM OR ALUMINUM ALLOY WEATHERPROOF COVER PLATE. RECEPTACLE WILL BE LOCATED WITH CENTER AT 30" UP FROM THE BASE OF THE POLE. "SHOE BOX" STYLE LUMINAIRE WITH DIE FORMED ALUMINUM HOUSING AND DOOR, STAINLESS STEEL TOOL–LESS ENTRY, IMPACT RESISTANT FULL CUTOFF FLAT GLASS LENS, TYPE III IES DISTRIBUTION, HOUSE SIDE SHIELD, PROVISIONS FOR POLE TOP TENON MOUNTING, QUICK DISCONNECT REMOVEABLE BALLAST TRAY WITH MODULAR PLUGS, FUSING AND NATURAL ALUMINUM ANNODIZED FINISH. DESIGN SHALL BE SUITABLE FOR A BASIC WIND SPEED OF 130 MPH (3 SEC. GUST) IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.	STERNER LIGHTING SYSTEMS INC. / LUMINAIRE: EXEC/SQ19/250MH/3S/120/10/HS/VF/AAL/AAL SERIES POLE: AS REQUIRED TO COMPLY WITH SPECIFIED DESIGN WIND SPEED, WITH FINISH MATCHING THAT OF THE LUMINAIRE
P3	120V AC	250W MH / 1	STRUCTURE MOUNTED POLE MOUNTED LUMINAIRE WALKWAY TYPE FIXTURE – 12'–6" TALL SQUARE STRAIGHT ALUMINUM SHAFT POLE WITH POLE TOP TENON AND NATURAL ALUMINUM ANNODIZED FINISH, ANCHOR BOLTS AND HARDWARE SHALL BE STAINLESS STEEL. HARDWARE SHALL INCLUDE LEVELING NUTS, SECURING NUTS, WASHERS AND LOCK WASHERS. ANCHOR BOLT COVER SHALL BE SECURED TO THE POLE BASE USING TAMPERPROOF SCREWS THAT MUST BE DRILLED OUT IN ORDER TO BE REMOVED. ANCHOR BOLT COVER SHALL NOT BE INSTALLED UNTIL POLE IS SET AND PLUMBED, AND HARDWARE IS PROPERLY TORQUED. "SHOE BOX" STYLE LUMINAIRE WITH DIE FORMED ALUMINUM HOUSING AND DOOR, STAINLESS STEEL TOOL–LESS ENTRY, IMPACT RESISTANT FULL CUTOFF FLAT GLASS LENS, TYPE III IES DISTRIBUTION, HOUSE SIDE SHIELD, PROVISIONS FOR POLE TOP TENON MOUNTING, QUICK DISCONNECT REMOVEABLE BALLAST TRAY WITH MODULAR PLUGS, FUSING AND NATURAL ALUMINUM ANNODIZED FINISH. DESIGN SHALL BE SUITABLE FOR A BASIC WIND SPEED OF 130 MPH (3 SEC. GUST) IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.	STERNER LIGHTING SYSTEMS INC. / LUMINAIRE: EXEC/SQ19/250MH/3S/120/10/HS/VF/AAL/AAL SERIES POLE: AS REQUIRED TO COMPLY WITH SPECIFIED DESIGN WIND SPEED, WITH FINISH MATCHING THAT OF THE LUMINAIRE

PLOTTED October 9, 2008 8:22 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\2007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\E-10 LIGHTING FIXTURE SCHEDULE.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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

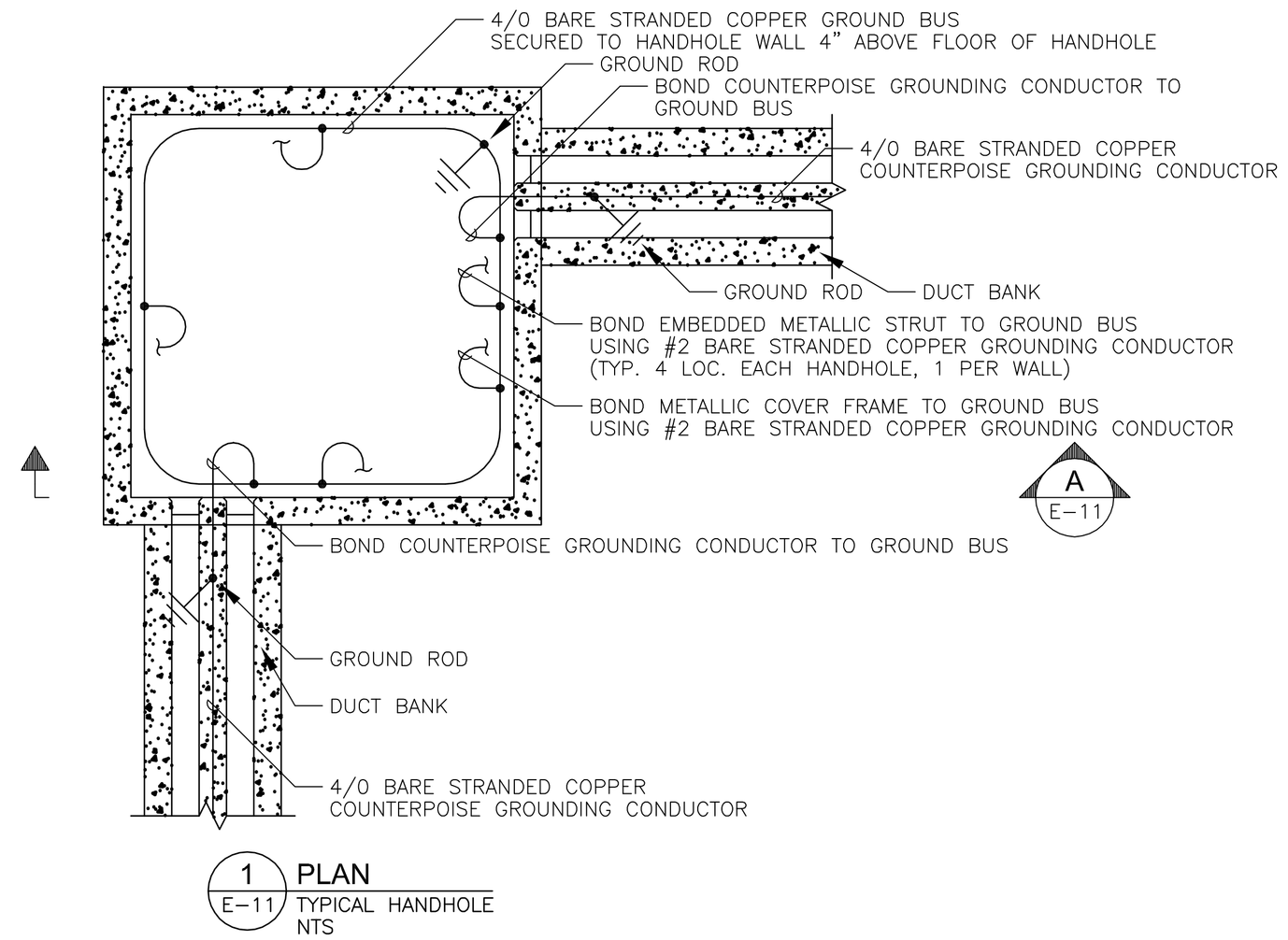
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

LIGHTING FIXTURE SCHEDULE

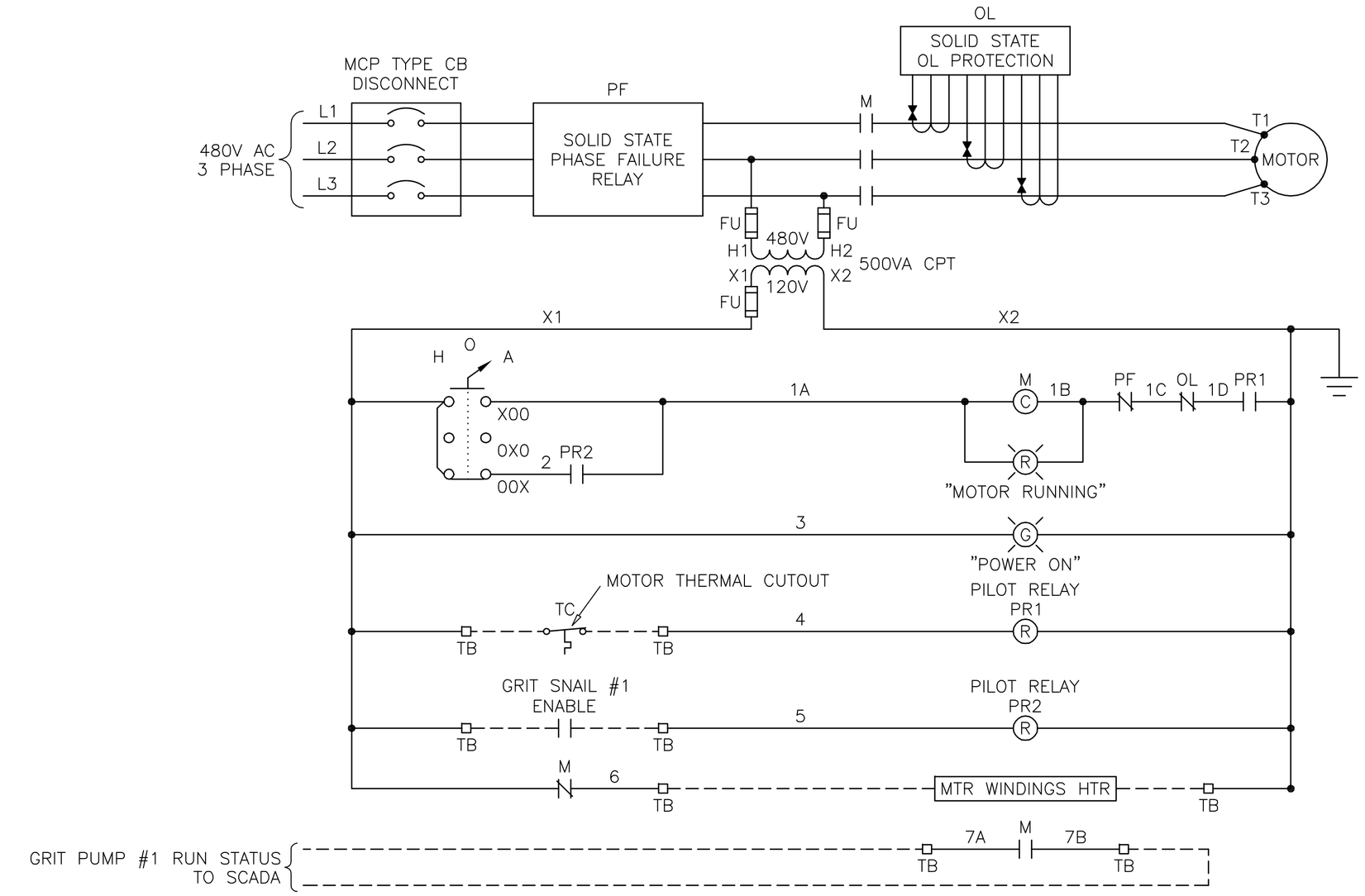
GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

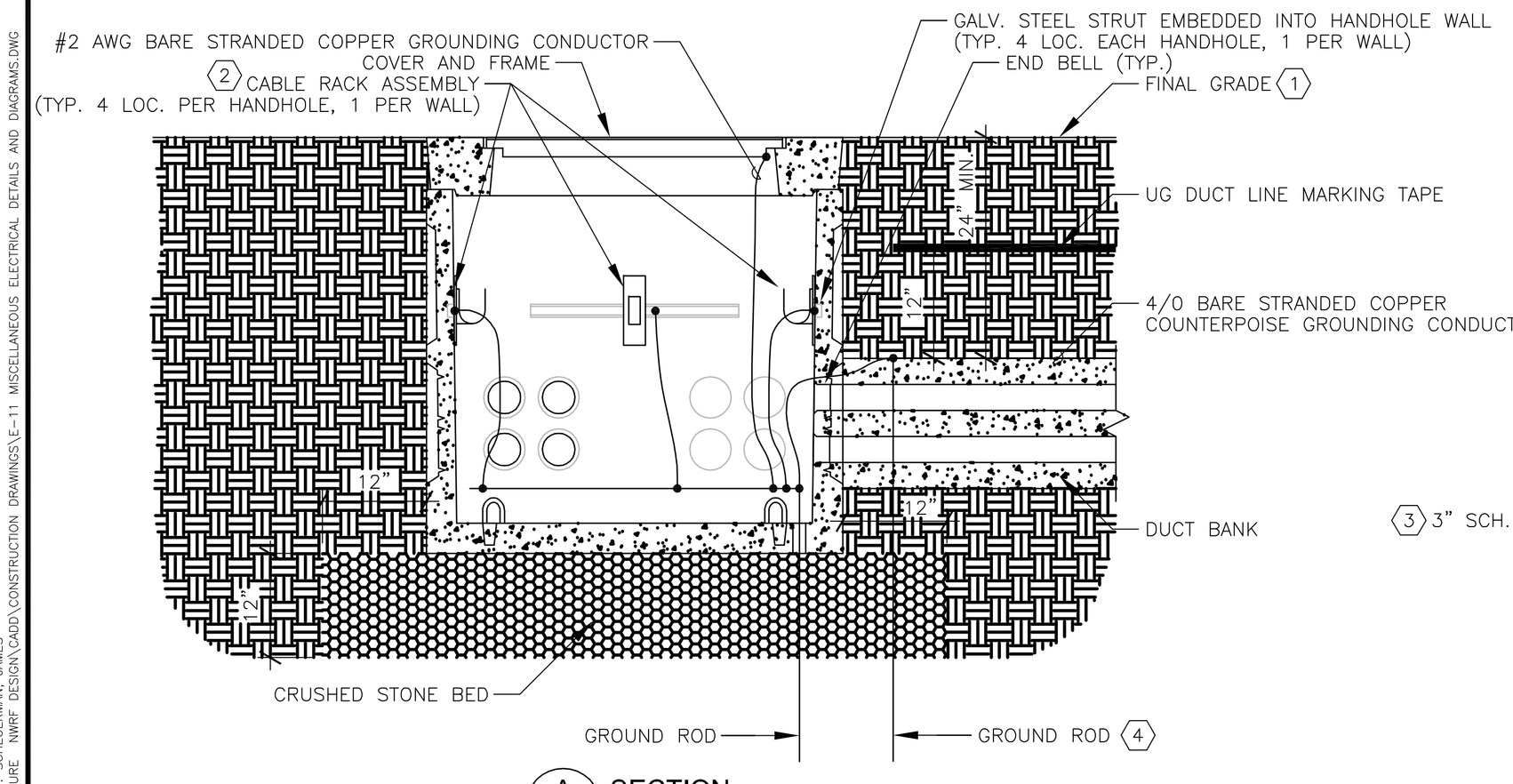
E–10



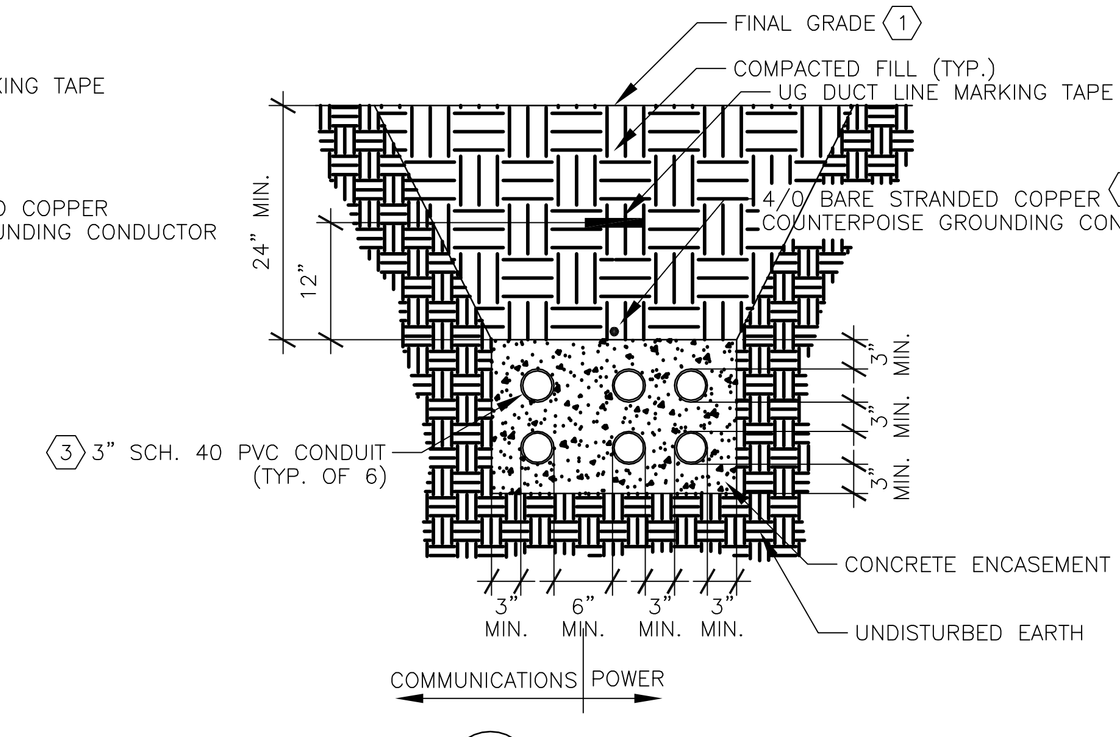
1 E-11 PLAN
TYPICAL HANDHOLE
NTS



2 E-11 DIAGRAM
GRIT PUMP #1 SCHEMATIC WIRING
NTS



A E-11 SECTION
TYPICAL HANDHOLE
NTS



B E-11 SECTION
TYPICAL DUCT BANK
NTS

REFERENCE NOTES:

1. "FINAL GRADE" SHALL BE UNDERSTOOD TO REFER TO THE "FINAL EARTHEN GRADE," "BOTTOM OF BASE," OR "BOTTOM OF STABLIZED SUB-BASE," WHICHEVER THE FINAL CONDITION IS SPECIFIED TO BE. RESTORE SURFACES DISTURBED BY CONSTRUCTION ACTIVITIES TO ORIGINAL CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GOVERNING SURFACE RESTORATION.
2. EACH CABLE RACK ASSEMBLY SHALL CONSIST OF A NON-METALLIC VERTICAL SUPPORT RAIL AND A NON-METALLIC CABLE SADDLE, UNDERGROUND DEVICES INC. CAT. NOS. CR8-B AND 3HDS OR APPROVED EQUAL. SECURE THE CABLE RACK ASSEMBLY TO THE HANDHOLE WALL THROUGH THE TOP MOUNTING HOLE USING ONE CIP 1/2-13 THREADED HEX HEAD BOLT WITH 316 SS 0.5625" I.D. BY 1.25" O.D. BY 0.078" THK FLAT WASHER, UNDERGROUND DEVICES INC. CAT. NOS. FNMA-16, FHC316-16-088, AND FFW316-13-28 OR APPROVED EQUAL. SECURE THE CABLE RACK ASSEMBLY TO THE STRUT EMBEDDED INTO THE SIDE WALL OF THE HANDHOLE THROUGH THE BOTTOM MOUNTING HOLE USING 1/2" 316 STAINLESS STEEL HARDWARE COMPATIBLE WITH THE STRUT, AND SUITED TO THE TASK.
3. PROVIDE PLASTIC SPACERS FOR DUCT BANK CONSTRUCTION. LOCATE DUCT SPACERS ON MAXIMUM 48" CENTERS FOR THE ENTIRE LENGTH OF THE DUCT BANK.
4. PROVIDE GROUND RODS ON MAXIMUM 100'-0" CENTERS FO RTHE ENTIRE LENGTH OF THE DUCT BANK, AND WITHIN 10'-0" OF EACH DUCT BANK TERMINATION TO A HANDHOLE. BOND COUNTERPOISE GROUNDING CONDUCTOR TO GROUND RODS VIA THE EXOTHERMIC WELDING PROCESS. AT EACH DUCT BANK TERMINATION TO A HANDHOLE, STUB THE COUNTERPOISE GROUNDING CONDUCTOR INTO THE HANDHOLE AND BOND IT TO THE GROUND ROD INSIDE THE HANDHOLE.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

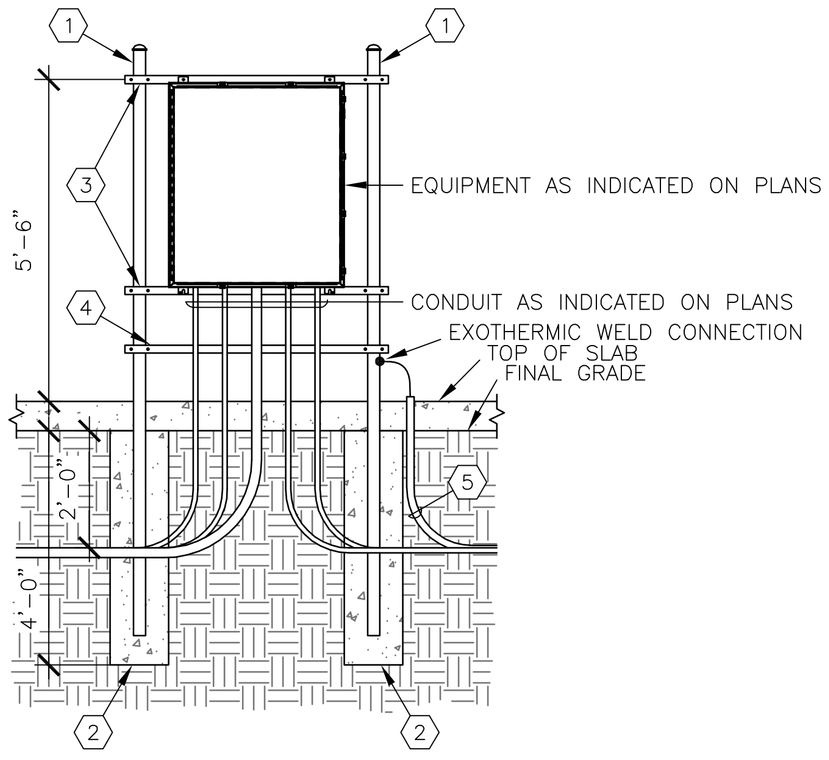
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

MISCELLANEOUS ELECTRICAL DETAILS AND DIAGRAMS

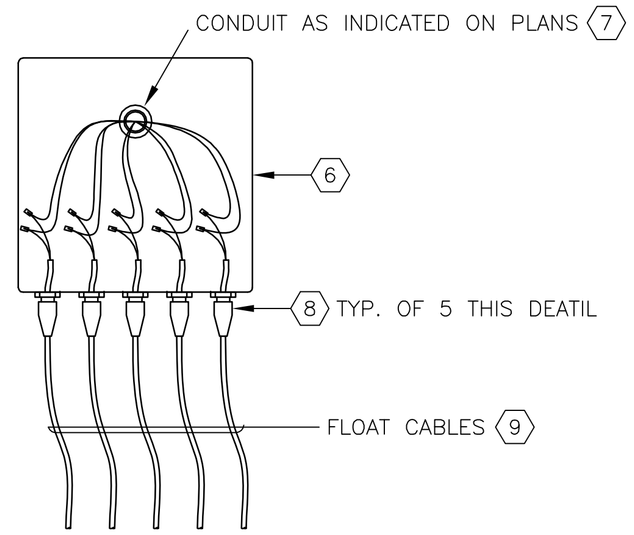
GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

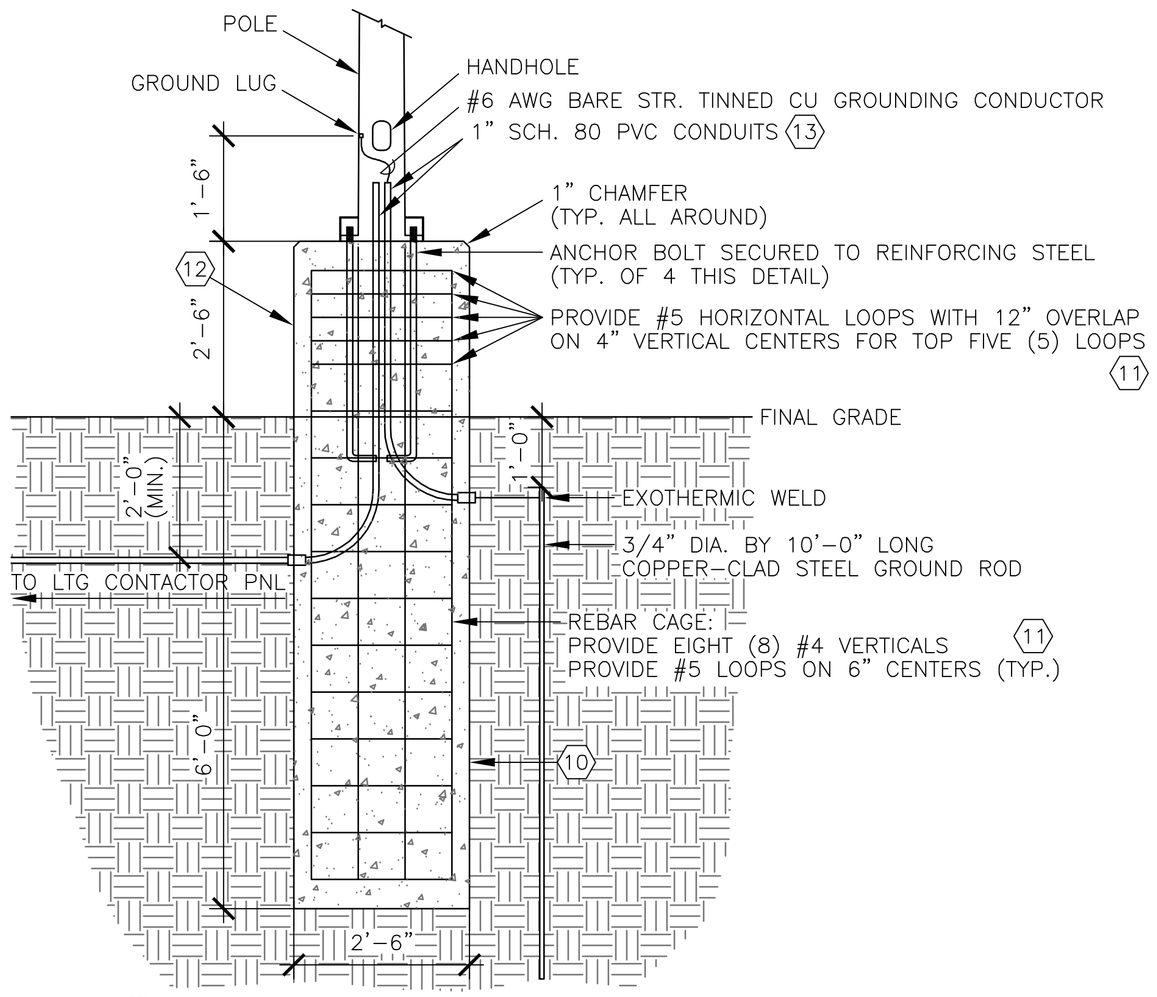
E-11



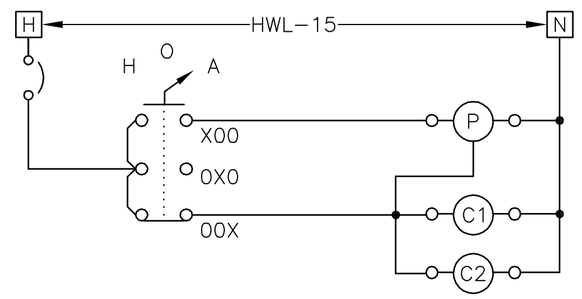
1 ELEVATION
E-12 TYPICAL GRADE MOUNT EQUIPMENT RACK
NTS

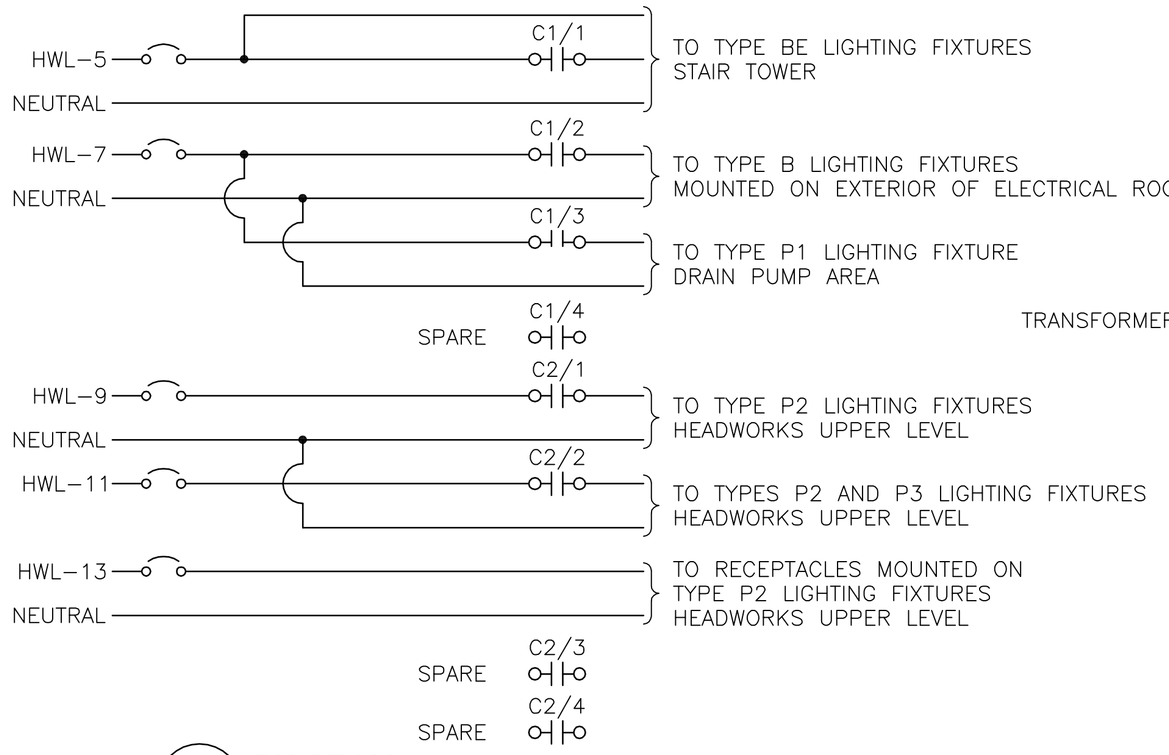


2 DETAIL
E-12 WELL WELL JUNCTION BOX
NTS

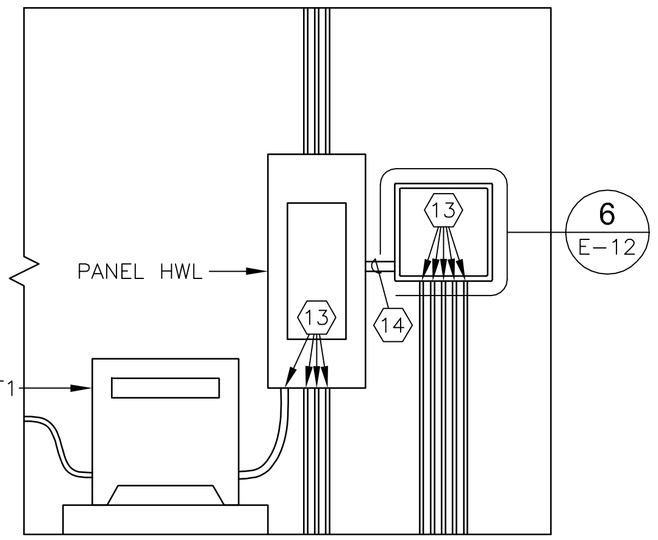


3 SECTION
E-12 LIGHT POLE CONCRETE BASE
TYPICAL FOR TYPE P1 LIGHTING FIXTURES
NTS

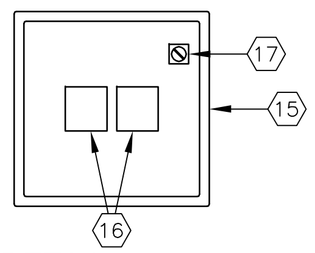




4 DIAGRAM
E-12 LIGHTING CONTACTOR PANEL SCHEMATIC WIRING
NTS



5 ELEVATION
E-12 LIGHTING CONTACTOR PANEL
NTS



6 DETAIL
E-12 LIGHTING CONTACTOR PANEL
NTS

REFERENCE NOTES:

1. PROVIDE 2 1/2" DIA. BY 10'-0" LONG ASTM A/S A312, A778 SCH. 40 304 STAINLESS STEEL TUBE POST WITH 304 STAINLESS STEEL BUTTWELD CAP ON TOP.
2. PROVIDE 12" DIA. SONOTUBE FORMED CONCRETE BASE. MAINTAIN A MINIMUM CONCRETE COVER OVER POST OF 4". CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 psi IN 28 DAYS AS DETERMINED BY TEST CYLINDERS MADE IN ACCORDANCE WITH ASTM C 31 AND TESTED IN ACCORDANCE WITH ASTM C 39. CONCRETE SHALL CONTAIN NOT LESS THAN 470 LBS OF CEMENT PER CUBIC YARD. CONCRETE SHALL CONTAIN 5 PERCENT OF ENTRAINED AIR, PLUS OR MINUS 1 PERCENT, AS DETERMINED BY ASTM C 231 AND SHALL HAVE A SLUMP OF NOT MORE THAN 4" AS DETERMINED BY ASTM C 143.

REFERENCE NOTES CONT. . .

3. PROVIDE 1 5/8" SQ. BY LENGTH AS REQUIRED, 304 STAINLESS STEEL STRUT SPACED AS REQUIRED FOR MOUNTING OF EQUIPMENT. SECURE STRUT TO POST USING STAINLESS STEEL 3/8" U-BOLT, NUTS, WASHERS, AND LOCK WASHERS.
4. PROVIDE 1 5/8" SQ. BY LENGTH AS REQUIRED, 304 STAINLESS STEEL STRUT LOCATED AS REQUIRED FOR SUPPORTING CONDUIT. PROVIDE COMPLETE WITH 304 STAINLESS STEEL CONDUIT STRAPS; QUANTITY AND SIZES AS REQUIRED. SECURE STRUT TO POST USING STAINLESS STEEL 3/8" U-BOLT, NUTS, WASHERS, AND LOCK WASHERS.
5. PROVIDE GROUNDING CONDUCTOR ROUTED VIA SCH. 80 PVC CONDUIT. REFER TO SHEET E-6 FOR SPECIFICATION.
6. PROVIDE 10" SQ. BY 6" DEEP NEMA 4X POLYESTER HINGED COVER JUNCTION BOX WITH QUICK RELEASE LATCHES AND STAINLESS STEEL HARDWARE, HOFFMAN ENCLOSURES INC. A10106PHC SERIES OR APPROVED EQUAL. RIGIDLY MOUNT JUNCTION BOX TO WET WELL WALL USING 316 STAINLESS STEEL HARDWARE IN ACCORDANCE WITH THE WET WELL MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.
7. TERMINATE CONDUIT INTO REAR OF JUNCTION BOX. SEAL END OF CONDUIT WITH DUCT SEAL COMPOUND AFTER ALL WIRES ARE INSTALLED, CHECKED OUT, TESTED, AND PLACED INTO SERVICE.
8. PROVIDE NON-METALLIC CORROSION-RESISTANT CABLE STRAIN RELIEF CONNECTOR SIZED FOR THE EXACT FLOAT CABLE FURNISHED, CROUSE-HINDS NCGB SERIES OR APPROVED EQUAL.
9. ADJUST LENGTH OF EACH FLOAT CABLE LENGTH FOR OPTIMAL FLOAT OPERATION AT INDICATED ACTUATION LEVEL. REFER TO WET WELL DETAIL ON SHEET M-10 FOR FLOAT ACTUATION LEVELS SPECIFICATION. SECURE FLOAT CABLES TO WET WELL WALL SO AS TO PREVENT FLOAT CABLES FROM BECOMING ENTANGLED. REFER TO WET WELL MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS FOR METHOD OF ATTACHMENT.
10. PROVIDE 2'-6" DIA. SONOTUBE FORMED CONCRETE LIGHT POLE BASE. MAINTAIN A MINIMUM CONCRETE COVER OVER REINFORCING STEEL OF 3". CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 psi IN 28 DAYS AS DETERMINED BY TEST CYLINDERS MADE IN ACCORDANCE WITH ASTM C 31 AND TESTED IN ACCORDANCE WITH ASTM C 39. CONCRETE SHALL CONTAIN NOT LESS THAN 470 LBS OF CEMENT PER CUBIC YARD. CONCRETE SHALL CONTAIN 5 PERCENT OF ENTRAINED AIR, PLUS OR MINUS 1 PERCENT, AS DETERMINED BY ASTM C 231 AND SHALL HAVE A SLUMP OF NOT MORE THAN 4" AS DETERMINED BY ASTM C 143.
11. REINFORCING STEEL SHALL BE DEFORMED BARS OF NEW BILLET STEEL MEETING THE REQUIREMENTS OF ASTM A 615, GRADE 60, UNCOATED.
12. HAND RUB EXPOSED BASE TO A SAND FINISH.
13. SEAL END OF CONDUIT WITH DUCT SEAL COMPOUND AFTER ALL WIRES ARE INSTALLED, CHECKED OUT, TESTED, AND PLACED INTO SERVICE.
14. PROVIDE 2" SCH. 80 PVC CONDUIT NIPPLE WITH 7-#10, 4-#12, AND 1-#10 GND [PANEL HWL CKT NOS. 5, 7, 9, 11, 13, AND 15].
15. PROVIDE 20" H. BY 20" W. BY 8" D. NEMA 4X 316 STAINLESS STEEL, CONTINUOUS HINGE, SINGLE DOOR ENCLOSURE WITH BACKPANEL, PAD LOCK HANDLE, AND DATA POCKET, HOFFMAN CATALOG NO. CSD20208SS6, CP2020, C-WHPTO, AND A-DP1, OR APPROVED EQUAL. PROVIDE LEGEND PLATE ON FRONT DOOR OF ENCLOSURE. LEGEND PLATE SHALL BE ENGRAVED LAMACOID PLATE WITH MINIMUM 1/4" HIGH WHITE LETTERS ON A RED FIELD. LEGEND PLATE SHALL BE PERMANENTLY AFFIXED TO THE ENCLOSURE DOOR USING SELF-TAPPING STAINLESS STEEL SCREWS. LEGEND PLATE SHALL READ AS FOLLOWS: (1ST LINE) "LIGHTING CONTACTOR PANEL", (2ND LINE) "CAUTION - THIS PANEL CONTAINS", (3RD LINE) "MULTIPLE CIRCUITS FED VIA", (4TH LINE) "MULTIPLE INDEPENDENT CIRCUIT BREAKERS", AND (5TH LINE) "IN PANEL HWL".
16. PROVIDE TWO 4P, 30A, 480V RATED, N.O. CONTACTS, ELECTRICALLY HELD LIGHTING CONTACTOR WITH 120V AC COIL, SQUARE D CLASS 8903 TYPE SMO3V02 OR APPROVED EQUAL.
17. PROVIDE 3-POSITION HAND-OFF-AUTO SELECTOR SWITCH WITH BACKPANEL MOUNTING BRACKET AND LEGEND PLATE. LEGEND PLATE SHALL BE ENGRAVED LAMACOID PLATE WITH MINIMUM 1/8" HIGH BLACK LETTERS ON A WHITE FIELD, SHALL IDENTIFY THE "HAND,", "OFF," AND "AUTO" SWITCH POSITIONS, AND SHALL BE PERMANENTLY AFFIXED TO THE SELECTOR SWITCH. SELECTOR SWITCH SHALL BE INDUSTRIAL GRADE, 30.5 MM, NEMA TYPE 4/13, HEAVY DUTY, CORROSION RESISTANT, WATERTIGHT AND OIL TIGHT, WITH 20A, 120V AC 60 HZ RATED CONTACTS. TYPE AND NUMBER OF CONTACTS SHALL BE AS REQUIRED.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

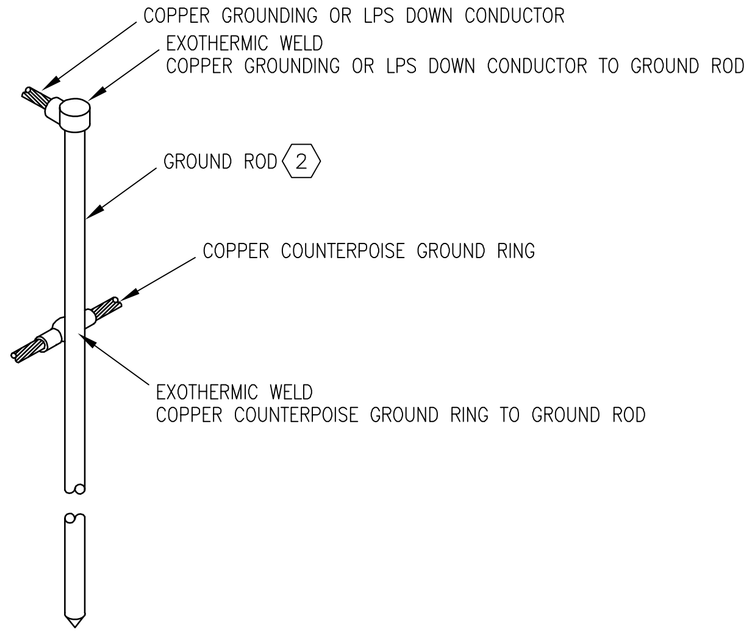
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

MISCELLANEOUS ELECTRICAL DETAILS AND DIAGRAMS

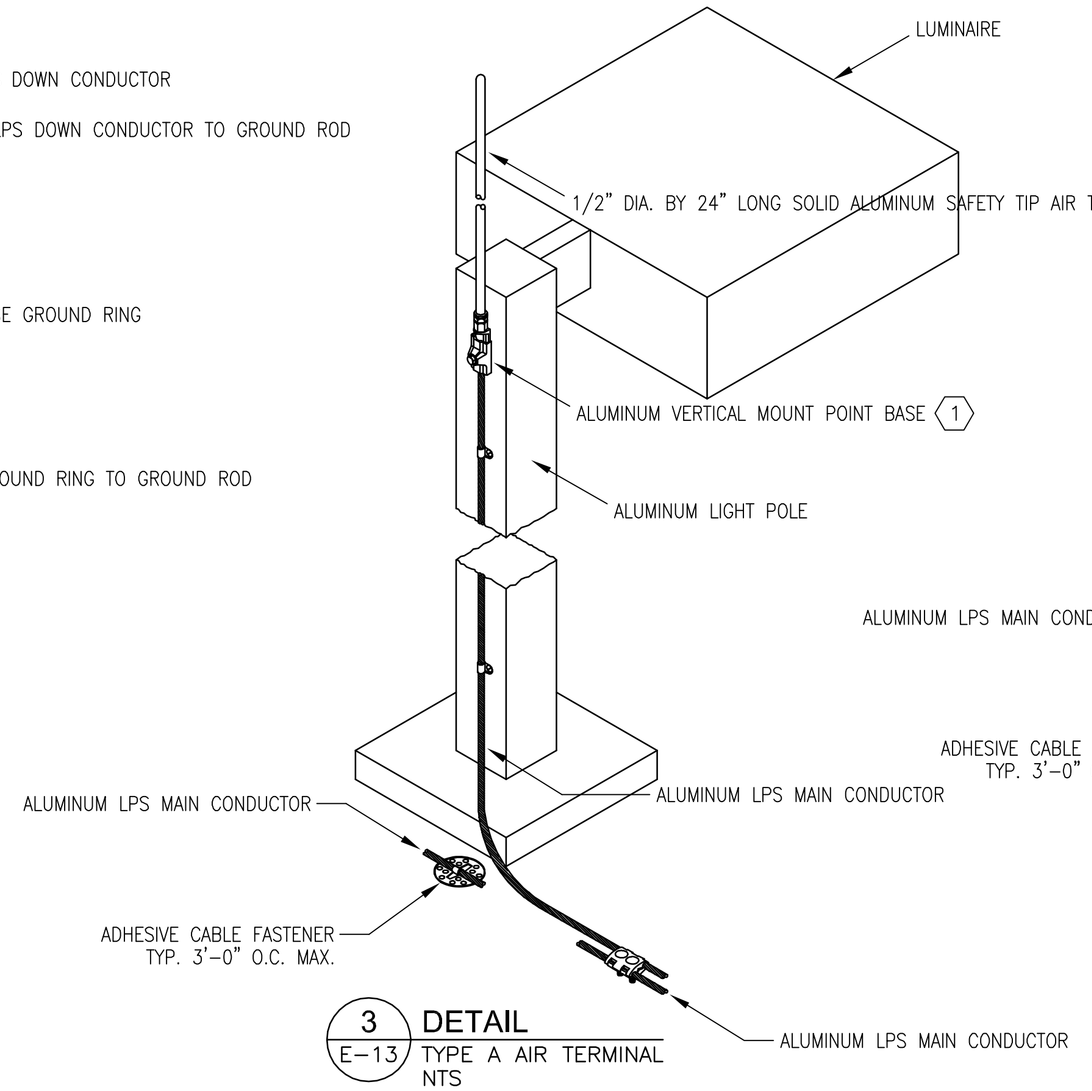
GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

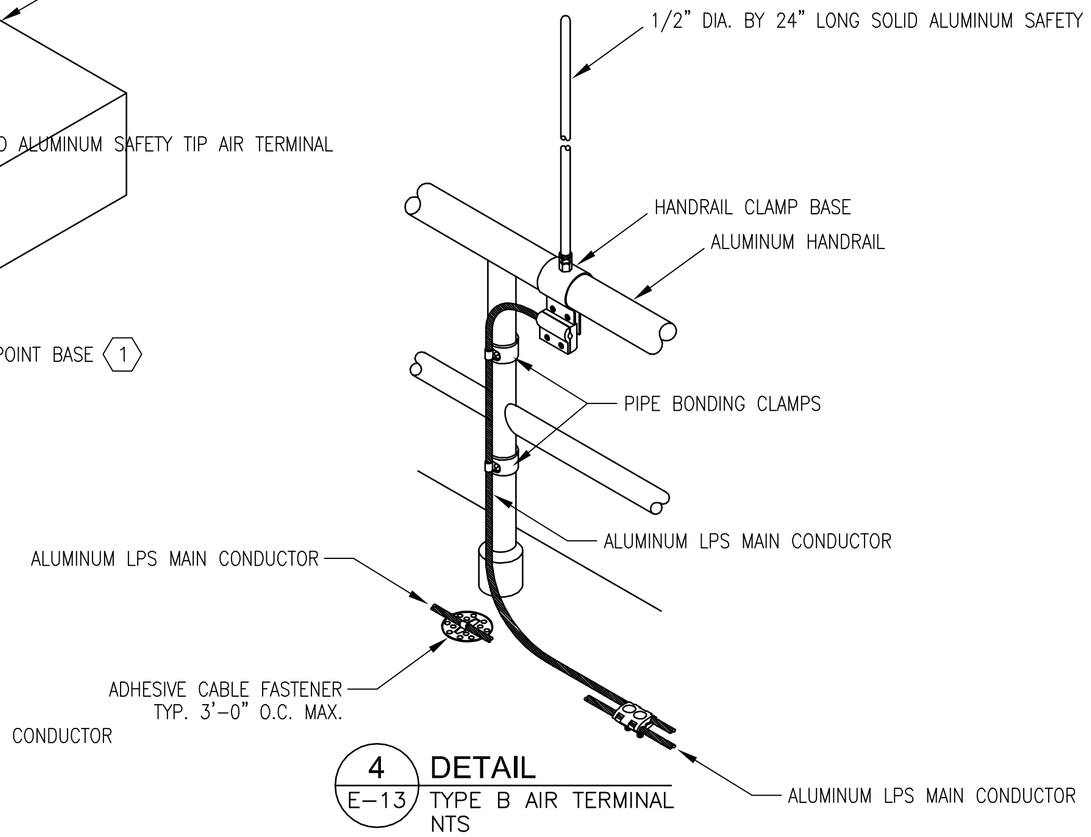
E-12



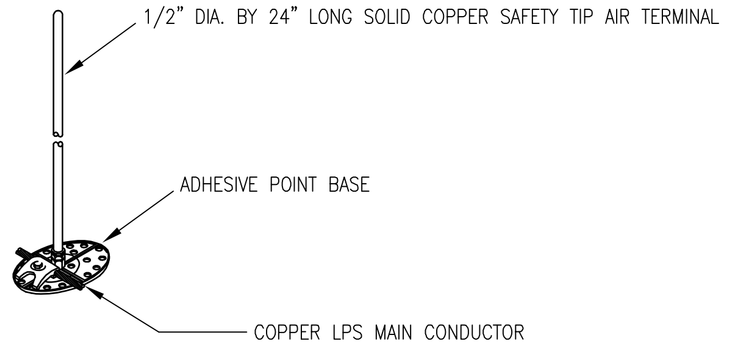
1 / E-13 DETAIL
GROUND ROD
NTS



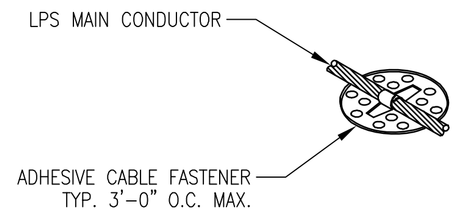
3 / E-13 DETAIL
TYPE A AIR TERMINAL
NTS



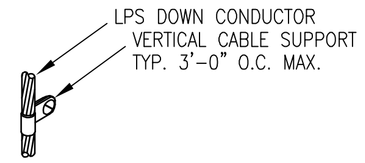
4 / E-13 DETAIL
TYPE B AIR TERMINAL
NTS



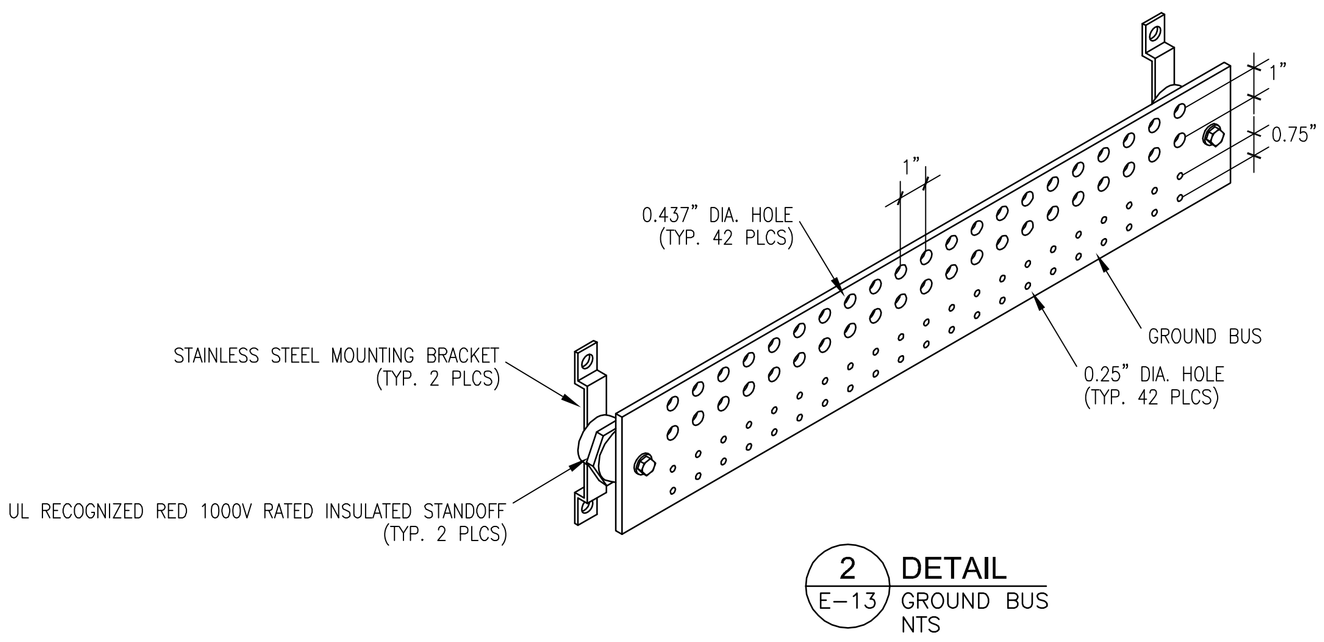
5 / E-13 DETAIL
TYPE C AIR TERMINAL
NTS



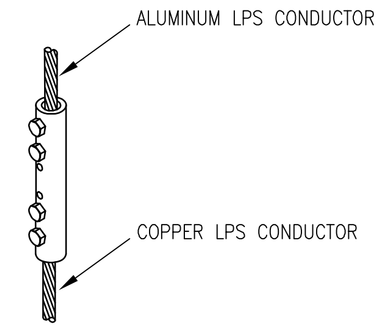
6 / E-13 DETAIL
TYPICAL ADHESIVE CABLE FASTENER
NTS



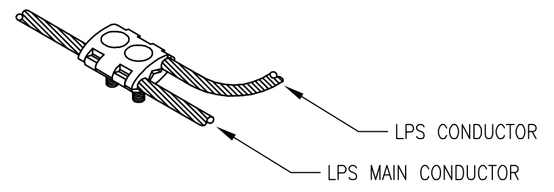
7 / E-13 DETAIL
TYPICAL SINGLE HOLE LOOP
VERTICAL CABLE FASTENER
NTS



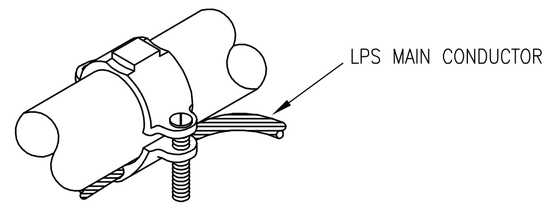
2 / E-13 DETAIL
GROUND BUS
NTS



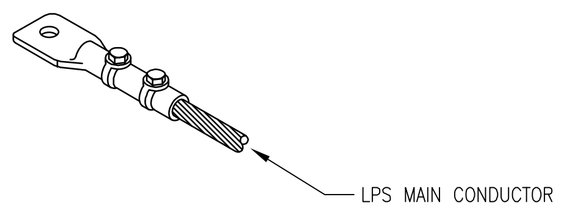
8 / E-13 DETAIL
TYPICAL BIMETAL CABLE SPLICER
NTS



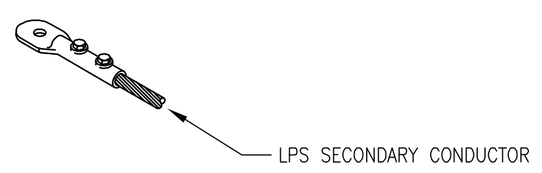
9 / E-13 DETAIL
TYPICAL PARALLEL CABLE SPLICE
NTS



10 / E-13 DETAIL
TYPICAL PIPE BONDING CLAMP
NTS



11 / E-13 DETAIL
TYPICAL LPS
MAIN CONDUCTOR BONDING LUG
NTS



12 / E-13 DETAIL
TYPICAL LPS
SECONDARY CONDUCTOR BONDING LUG
NTS

REFERENCE NOTES:

1. RIGIDLY MOUNT VERTICAL MOUNT POINT BASE TO LIGHT POLE VIA THROUGH BOLTING USING STAINLESS STEEL HARDWARE (i.e. BOLTS, NUTS, WASHERS, AND LOCK WASHERS). MOUNT VERTICAL MOUNT POINT BASE TO LIGHT POLE SUCH THAT A MINIMUM OF 18" OF THE AIR TERMINAL EXTENDS UP ABOVE THE TOP OF THE LIGHT POLE CAP.
2. DRIVE GROUND ROD UNTIL ITS TOP IS 12" BELOW FINAL GRADE.

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

GROUNDING AND LPS DETAILS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-13

I/O SCHEDULE

NO.	I/O POINT DESCRIPTION	ASSOCIATED DEVICE DESCRIPTION	TYPE	VOLTAGE	NOTES
1	SCREEN #1 RUN STATUS	SCREEN #1 CONTROL PANEL RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
2	SCREEN #1 INFLUENT CHANNEL HIGH LEVEL ALARM	SCREEN #1 CONTROL PANEL INFLUENT CHANNEL HIGH LEVEL ALARM N.C. DRY CONTACTS	DI	24V DC	1
3	SCREEN #1 MOTOR OVERLOAD ALARM	SCREEN #1 CONTROL PANEL MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
4	SCREEN #1 LOSS OF MOTION ALARM	SCREEN #1 CONTROL PANEL LOSS OF MOTION ALARM N.C. DRY CONTACTS	DI	24V DC	1
5	SCREEN #1 CLEAN CYCLE RUN STATUS	SCREEN #1 CONTROL PANEL CLEAN CYCLE RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
6	SCREEN #1 CLEAN CYCLE MOTOR OVERLOAD ALARM	SCREEN #1 CONTROL PANEL CLEAN CYCLE MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
7	SCREEN #1 SCREW CONVEYER MOTOR RUN STATUS	SCREEN #1 CONTROL PANEL SCREW CONVEYER MOTOR RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
8	SCREEN #1 SCREW CONVEYER MOTOR OVERLOAD ALARM	SCREEN #1 CONTROL PANEL SCREW CONVEYER MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
9	SCREEN #1 SCREW CONVEYER LOSS OF MOTION ALARM	SCREEN #1 CONTROL PANEL SCREW CONVEYER LOSS OF MOTION ALARM N.C. DRY CONTACTS	DI	24V DC	1
10	FUT. SCREEN #2 RUN STATUS	FUT. SCREEN #2 CONTROL PANEL RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
11	FUT. SCREEN #2 INFLUENT CHANNEL HIGH LEVEL ALARM	FUT. SCREEN #2 CONTROL PANEL INFLUENT CHANNEL HIGH LEVEL ALARM N.C. DRY CONTACTS	DI	24V DC	1
12	FUT. SCREEN #2 MOTOR OVERLOAD ALARM	FUT. SCREEN #2 CONTROL PANEL MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
13	FUT. SCREEN #2 LOSS OF MOTION ALARM	FUT. SCREEN #2 CONTROL PANEL LOSS OF MOTION ALARM N.C. DRY CONTACTS	DI	24V DC	1
14	FUT. SCREEN #2 CLEAN CYCLE RUN STATUS	FUT. SCREEN #2 CONTROL PANEL CLEAN CYCLE RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
15	FUT. SCREEN #2 CLEAN CYCLE MOTOR OVERLOAD ALARM	FUT. SCREEN #2 CONTROL PANEL CLEAN CYCLE MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
16	FUT. SCREEN #2 SCREW CONVEYER MOTOR RUN STATUS	FUT. SCREEN #2 CONTROL PANEL SCREW CONVEYER MOTOR RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
17	FUT. SCREEN #2 SCREW CONVEYER MOTOR OVERLOAD ALARM	FUT. SCREEN #2 CONTROL PANEL SCREW CONVEYER MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
18	FUT. SCREEN #2 SCREW CONVEYER LOSS OF MOTION ALARM	FUT. SCREEN #2 CONTROL PANEL SCREW CONVEYER LOSS OF MOTION ALARM N.C. DRY CONTACTS	DI	24V DC	1
19	FUT. SCREEN #3 RUN STATUS	FUT. SCREEN #3 CONTROL PANEL RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
20	FUT. SCREEN #3 INFLUENT CHANNEL HIGH LEVEL ALARM	FUT. SCREEN #3 CONTROL PANEL INFLUENT CHANNEL HIGH LEVEL ALARM N.C. DRY CONTACTS	DI	24V DC	1
21	FUT. SCREEN #3 MOTOR OVERLOAD ALARM	FUT. SCREEN #3 CONTROL PANEL MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
22	FUT. SCREEN #3 LOSS OF MOTION ALARM	FUT. SCREEN #3 CONTROL PANEL LOSS OF MOTION ALARM N.C. DRY CONTACTS	DI	24V DC	1
23	FUT. SCREEN #3 CLEAN CYCLE RUN STATUS	FUT. SCREEN #3 CONTROL PANEL CLEAN CYCLE RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
24	FUT. SCREEN #3 CLEAN CYCLE MOTOR OVERLOAD ALARM	FUT. SCREEN #3 CONTROL PANEL CLEAN CYCLE MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
25	FUT. SCREEN #3 SCREW CONVEYER MOTOR RUN STATUS	FUT. SCREEN #3 CONTROL PANEL SCREW CONVEYER MOTOR RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
26	FUT. SCREEN #3 SCREW CONVEYER MOTOR OVERLOAD ALARM	FUT. SCREEN #3 CONTROL PANEL SCREW CONVEYER MOTOR OVERLOAD ALARM N.C. DRY CONTACTS	DI	24V DC	1
27	FUT. SCREEN #3 SCREW CONVEYER LOSS OF MOTION ALARM	FUT. SCREEN #3 CONTROL PANEL SCREW CONVEYER LOSS OF MOTION ALARM N.C. DRY CONTACTS	DI	24V DC	1
28	GRIT SNAIL #1 RUN STATUS	GRIT SNAIL #1 CONTROL PANEL RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
29	GRIT SNAIL #1 HOA IN AUTO STATUS	GRIT SNAIL #1 CONTROL PANEL HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
30	GRIT SNAIL #1 SLURRYCUP SUPPLY HOA IN AUTO STATUS	GRIT SNAIL #1 CONTROL PANEL SLURRYCUP SUPPY HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
31	GRIT SNAIL #1 BACKWASH HOA IN AUTO STATUS	GRIT SNAIL #1 CONTROL PANEL BACKWASH HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
32	GRIT SNAIL #1 BLOWDOWN HOA IN AUTO STATUS	GRIT SNAIL #1 CONTROL PANEL BLOWDOWN HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
33	GRIT SNAIL #1 SUMMARY ALARM	GRIT SNAIL #1 CONTROL PANEL SUMMARY ALARM N.C. DRY CONTACTS	DI	24V DC	1
34	GRIT PUMP #1 RUN STATUS	GRIT PUMP #1 STARTER UNIT N.O. DRY CONTACTS	DI	24V DC	1
35	GRIT PUMP #1 HIGH DISCHARGE PRESSURE ALARM	GRIT PUMP #1 DISCHARGE PRESSURE SWITCH N.C. DRY CONTACTS	DI	24V DC	1
36	FUT. GRIT SNAIL #2 RUN STATUS	FUT. GRIT SNAIL #2 CONTROL PANEL RUN STATUS N.O. DRY CONTACTS	DI	24V DC	1
37	FUT. GRIT SNAIL #2 HOA IN AUTO STATUS	FUT. GRIT SNAIL #2 CONTROL PANEL HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
38	FUT. GRIT SNAIL #2 SLURRYCUP SUPPLY HOA IN AUTO STATUS	FUT. GRIT SNAIL #2 CONTROL PANEL SLURRYCUP SUPPY HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1

I/O SCHEDULE

NO.	I/O POINT DESCRIPTION	ASSOCIATED DEVICE DESCRIPTION	TYPE	VOLTAGE	NOTES
39	FUT. GRIT SNAIL #2 BACKWASH HOA IN AUTO STATUS	FUT. GRIT SNAIL #2 CONTROL PANEL BACKWASH HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
40	FUT. GRIT SNAIL #2 BLOWDOWN HOA IN AUTO STATUS	FUT. GRIT SNAIL #2 CONTROL PANEL BLOWDOWN HOA SWITCH IN AUTO N.C. DRY CONTACTS	DI	24V DC	1
41	FUT. GRIT SNAIL #2 SUMMARY ALARM	FUT. GRIT SNAIL #2 CONTROL PANEL SUMMARY ALARM N.C. DRY CONTACTS	DI	24V DC	1
42	FUT. GRIT PUMP #2 RUN STATUS	FUT. GRIT PUMP #2 STARTER UNIT N.O. DRY CONTACTS	DI	24V DC	1
43	FUT. GRIT PUMP #2 HIGH DISCHARGE PRESSURE ALARM	FUT. GRIT PUMP #2 DISCHARGE PRESSURE SWITCH N.C. DRY CONTACTS	DI	24V DC	1
44	WET WELL HIGH LEVEL ALARM	DUPLEX DRAIN PUMP CONTROL PANEL N.C. DRY CONTACTS	DI	24V DC	1
45	WET WELL LOW LEVEL ALARM	DUPLEX DRAIN PUMP CONTROL PANEL N.C. DRY CONTACTS	DI	24V DC	1
46	DRAIN PUMPS COMMON ALARM	DUPLEX DRAIN PUMP CONTROL PANEL N.C. DRY CONTACTS	DI	24V DC	1
47	EMERGENCY SHOWER ALARM	EMERGENCY SHOWER FLOW SWITCH N.C. DRY CONTACTS	DI	24V DC	1
48	UTILITY POWER FAIL ALARM	SCADA PANEL UTILITY POWER FAIL RELAY N.C. DRY CONTACTS	DI	24V DC	1
49	INFLUENT FLOW RATE (GPH)	FLOW METER 4–20mA TOTALIZED OUTPUT	AI	24V DC	2, 3

I/O SCHEDULE NOTES:

1. SENSE VOLTAGE SUPPLIED BY SCADA PANEL 24V DC POWER SUPPLY.
2. PROVIDE POWER TO FLOW METER FROM UPS BACKED SEPARATE DEDICATED 120V AC FUSED CIRCUIT INSIDE SCADA PANEL.
3. SERIES THE FLOW METER 4–20mA OUTPUT THROUGH THE INFLUENT FLOW SAMPLER AND SCADA PANEL 4–20mA INPUTS. MAKE THIS SERIES CONNECTION INSIDE THE SCADA PANEL.

SCADA NOTES:

THE NEW HEADWORKS TO BE CONSTRUCTED BY THIS PROJECT IS ULTIMATELY INTENDED TO REPLACE THE EXISTING HEADWORKS; HOWEVER, FOR AN UNDETERMINED PERIOD OF TIME, THE NEW HEADWORKS AND THE EXISTING HEADWORKS MUST OPERATE CONCURRENTLY.

THE EXISTING NORTH WATER RECLAMATION FACILITY RECENTLY RECEIVED A NEW FACILITY–WIDE SCADA SYSTEM UPGRADE. AS PART OF THIS NEW FACILITY–WIDE SCADA SYSTEM UPGRADE, A NEW SCADA PANEL WAS INSTALLED IN THE EXISTING HEADWORKS. SEE SHEETS E–15 THROUGH –22 FOR EXISTING HEADWORKS SCADA PANEL AS–BUILTS.

PROVIDE A NEW SCADA PANEL FOR THE NEW HEADWORKS THAT IS VIRTUALLY IDENTICAL TO THE EXISTING HEADWORKS SCADA PANEL, AS CONVEYED BY THE AS–BUILTS ON SHEETS E–15 THROUGH –22, WITH THE FOLLOWING MODIFICATIONS:

1. THE I/O POINTS FROM THE I/O SCHEDULE ON THIS SHEET SHALL BE USED IN LIEU OF THE I/O POINTS INDICATED ON THE AS–BUILTS. PROVIDE ALL ADDITIONAL MATERIALS REQUIRED TO ACCOMMODATE THE INDICATED I/O POINTS INCLUDING, BUT NOT NECESSARILY LIMITED TO DISCRETE INPUT MODULES, POWER SUPPLIES, FUSE BLOCKS, TVSS BLOCKS, TERMINAL BLOCKS, AND WIRING.
2. THE QUANTITY OF SPARE DI POINTS SHALL BE FOURTEEN (14). SPARE DI POINTS SHALL INCLUDE DISCRETE INPUT MODULES, POWER SUPPLIES, FUSE BLOCKS, TVSS BLOCKS, AND TERMINAL BLOCKS, WIRED IN–PLACE AND READY TO BE ACTIVATED.
3. THE QUANTITY OF SPARE DO POINTS AND ASSOCIATED CONTROL RELAYS SHALL BE AS SHOWN ON THE AS–BUILTS. SPARE DO POINTS SHALL INCLUDE DISCRETE OUTPUT MODULES, POWER SUPPLIES, AND FUSE BLOCKS, WIRED IN–PLACE AND READY TO BE ACTIVATED.
4. THE QUANTITY OF SPARE AI POINTS SHALL BE AS SHOWN ON THE AS–BUILTS. SPARE AI POINTS SHALL INCLUDE ANALOG INPUT MODULES, POWER SUPPLIES, FUSE BLOCKS, TVSS BLOCKS, AND TERMINAL BLOCKS, WIRED IN–PLACE AND READY TO BE ACTIVATED.
5. THE QUANTITY OF SPARE AO POINTS SHALL BE AS SHOWN ON THE AS–BUILTS. SPARE AO POINTS SHALL INCLUDE ANALOG OUTPUT MODULES, POWER SUPPLIES, FUSE BLOCKS, TVSS BLOCKS, AND TERMINAL BLOCKS, WIRED IN–PLACE AND READY TO BE ACTIVATED.
6. FUSE BLOCKS, TERMINAL BLOCKS, AND WIRING TO SUPPLY 120V AC POWER TO FLOW METER.

REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL SCADA REQUIREMENTS.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 29, 2008

MANATEE COUNTY FLORIDA

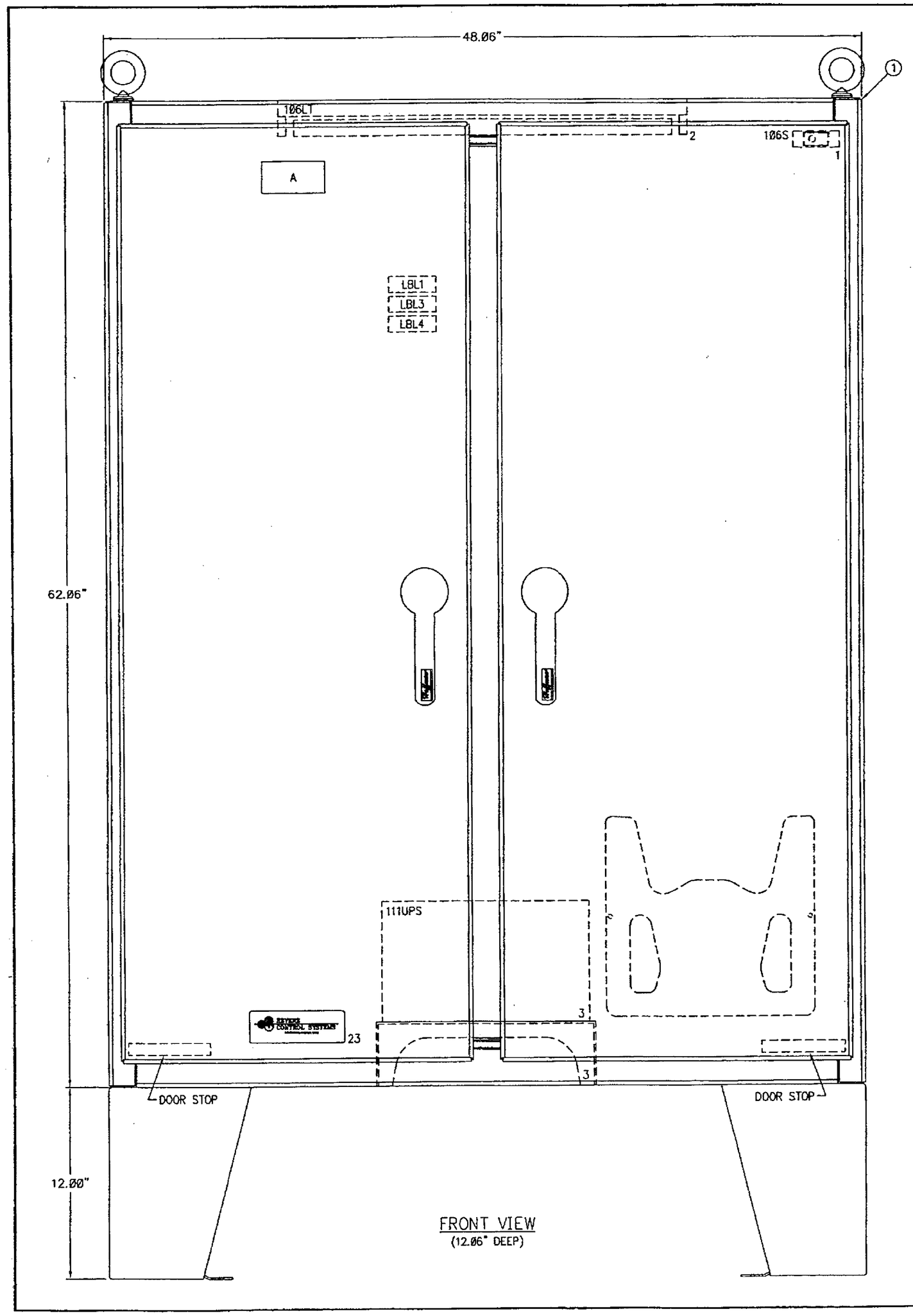
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SCADA NOTES AND I/O SCHEDULE

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E–14



FRONT VIEW
(12.06" DEEP)

ENGRAVING SCHEDULE

ID NO.	QTY.	TYPE	SIZE	PLATE COLOR	LETTER COLOR	FIRST LINE \ SECOND LINE, ETC.
A	1	NP	2" X 4"	BLACK	WHITE	SP-1 \ NWRF PLC \ HEADWORKS

ATTACH NAMEPLATE WITH STAINLESS STEEL SCREWS.
DEVICE LABELS ARE TO BE ENGRAVED AND ATTACHED WITH STAINLESS STEEL SCREWS.

ACTB
H
N1
GND
N2
N2
N
N
N

DCTB
BF1151
BF1151
BF1153
BF1153
BF1153
BF1153
BF1153
BF1541

DITB
117SUP
119SUP
201SUP
BF1173
203SUP
BF1173
205SUP
BF1173
207SUP
BF1173
209SUP
BF1182
211SUP
BF1182
213SUP
BF1182
215SUP
BF1182
231SUP
BF1192
233SUP
BF1192
235SUP
BF1192
237SUP
BF1192
239SUP
BF1202
241SUP
BF1202
243SUP
BF1202
245SUP
BF1202

DOTB
302CR
303CR
304CR
305CR
306CR
307CR
308CR
309CR
310CR
311CR
312CR
313CR
314CR
315CR
316CR
317CR

ANALOG TB
402FU
BF4031
SH
405FU
BF4061
SH
407FU
BF4081
SH
410FU
BF4111
SH
412FU
BF4131
SH
415FU
BF4161
SH
417FU
BF4181
SH
420FU
BF4211
SH
501FU
BF5022
SH
504FU
BF5052
SH
507FU
BF5082
SH
510FU
BF5112
SH

TERMINAL BLOCK LAYOUT

LABEL SCHEDULE

LBL1 RCS INFORMATION LABEL:
SERIAL NO. G1037BF CUSTOMER ID: 60420
LINE VOLTAGE 120VAC, 1 PHASE, WIRE, 60Hz.
CONTROL VOLTAGE 120VAC LARGEST MOTOR HP N/A TOTAL FLA N/A
RCS CONTACT C. HARRIS
REF. DWG. NO. G1037BF TYPE 4X ENCLOSURE
SHORT CIRCUIT CURRENT RATING 2k RMS SYMMETRICAL AMPERES

LBL2 USE COPPER CONDUCTORS ONLY.
RECOMMENDED TORQUE: 5.31 - 7.08 IN. LBS.

LBL3 TO MAINTAIN ENCLOSURE RATING, USE HUBS OR FITTINGS WITH THE SAME ENVIRONMENTAL RATING AS THE ENCLOSURE.
O-Z/GEDNEY CHM SERIES HUBS
APPLETON HUB SERIES HUBS
CROUSE HINDS ST SERIES HUBS

LBL4 UL508A LABEL

LBL5 UPS ONLY

LBL6 PANEL 1 — TELECOM ROOM IN CONTROL BUILDING
PANEL 2 — FUTURE

LBL7 10 AMPS

FUSES

114FU, 161FU	AGC-3/4	3/4A	125V
115FU	AGC-5	5A	125V
117FU2, 118FU, 119FU, 120FU	AGC-1/4	1/4A	125V
153FU	AGC-1/2	1/2A	125V
154FU, 164FU	AGC-1	1A	125V
117FU1, 132FU	AGC-10	10A	125V
402FU, 405FU, 407FU, 410FU, 412FU, 415FU, 417FU, 420FU, 501FU, 504FU, 507FU, 510FU	AGC-1/8	1/8A	125V

NOTE: FUSE LABELS TO BE LOCATED NEAR EACH RESPECTIVE FUSEHOLDER.

POWER SUPPLY CALCULATION FOR SP-1			
DESCRIPTION	PART #	mA	QTY
DI PLC CARD	1746-IB16	170	2
DO PLC CARD	1746-OB16	340	1
AI PLC CARD	1746-NI8	200	1
AO PLC CARD	1746-NO4I	100	1
ENET-F/O CONV.	27 08 16 4	100	
ETHER SWITCH	28 32 93 3	240	1
		TOTAL mA	1220

NOTE:
PANEL SHALL BEAR UL508A LABEL FOR ENCLOSED INDUSTRIAL CONTROL PANELS.

NO.	DATE	DESCRIPTION	BY
		REVISION	

REVERE CONTROL SYSTEMS
(205) 824-0084 BIRMINGHAM, ALABAMA 35216

SUBJECT:
MANATEE WASTEWATER TREATMENT PLANT SCADA SYSTEM
NORTH WRF SP-1 HEADWORKS
FRONT PANEL LAYOUT, TB LAYOUT & LABEL SCHEDULE

CUSTOMER:
MANATEE COUNTY, FLORIDA

DRAWN BY: CWH — DATE: 06-25-07
CHECKED: CHI — SCALE: 1/4" = 1"
JOB NO. 60420 — DWG. NO. G1037BF 1/8

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 8, 2008

MANATEE COUNTY FLORIDA

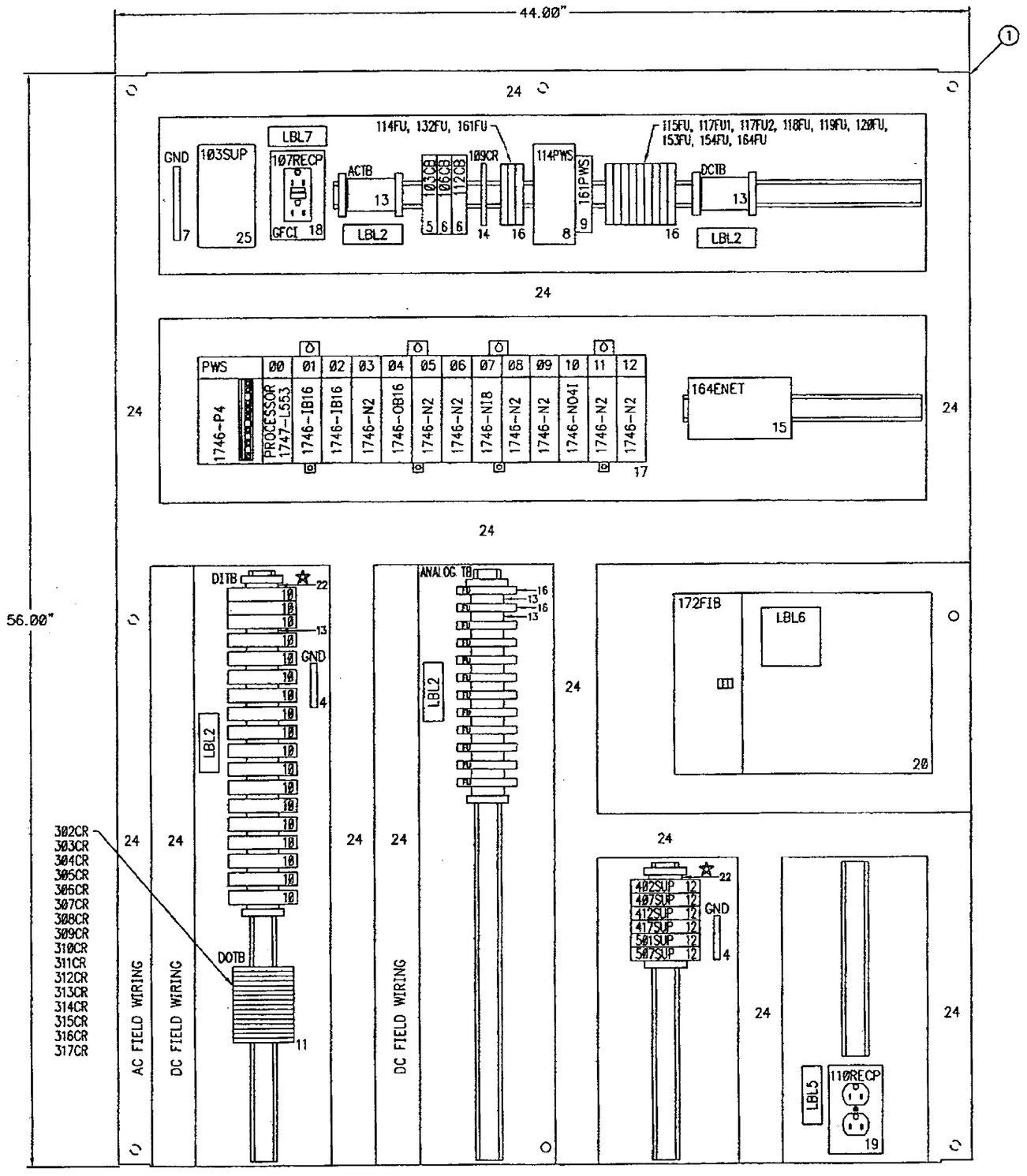
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-15



SUBPANEL LAYOUT

BILL OF MATERIAL

ITEM	QTY.	MANUFACTURER AND CATALOG NUMBER		DESCRIPTION
1	1	HOFFMAN	CUSTOM (A62H4812SS6LP3PT)	ENCLOSURE, NEMA 4X, STAINLESS STEEL, 62.06"H X 48.06"W X 12.06"D, POWDER COATED WHITE
	1	HOFFMAN	A6BP48	SUBPANEL, 56"H X 44"W
	1	HOFFMAN	ALFSWD	DOOR ACTIVATED SWITCH
	2	HOFFMAN	ADSTOPK	ADJ. DOOR STOP
	2	HOFFMAN	AHCI10E	CORROSION INHIBITOR, 1 YEAR LIFE, COVERS 10 CUBIC FEET
2	1	LITHONIA	S120120ES	FLUORESCENT LIGHT, 24" SINGLE STRIP
	1	SYLVANIA	F20T12C/W	FLUORESCENT BULB, 24"
▲ 3	1	POWERWARE	103Ø05146554-5591	UPS, 120VAC, 750VA, MODEL 5115, 7.6"H X 5.9"W X 13.2"D, (TD #91874A)
	1	CABLES TO GO	09482	15' PIGTAIL, (TD #68502A)
	1	REVERE	F-G1Ø37Ø1	RAISED SUPPORT
4	2	SQUARE D	PK5GTA	GROUND BAR
5	1	SQUARE D	QOU-115	CIRCUIT BREAKER, 15 AMP
6	2	SQUARE D	QOU-110	CIRCUIT BREAKER, 10 AMP
7	1	SQUARE D	PK9GTA	GROUND BAR
8	1	PHOENIX CONTACT	29 38 58 1	POWER SUPPLY, 120 VAC INPUT, 24 VDC OUTPUT, 5 AMP, QUINT-PS-100-240AC/24DC/5
9	1	PHOENIX CONTACT	29 38 84 0	POWER SUPPLY, SLIM DESIGN, 120 VAC INPUT, 24 VDC OUTPUT, 1 AMP, MINI-PS-100-240AC/24VDC/1
10	1Ø	PHOENIX CONTACT	28 56 08 7	DI TVSS, PT 2x1-24DC-ST
	18	PHOENIX CONTACT	28 56 13 9	BASE ELEMENT, PT 2x1-BE
11	16	PHOENIX CONTACT	29 66 17 1	DO RELAY, PLC-RSC-24DC/21
12	6	PHOENIX CONTACT	28 38 22 8	AI/AO TVSS, PT 2x2-24DC-ST
	6	PHOENIX CONTACT	28 39 20 8	BASE ELEMENT, PT 2x2-BE
13	6Ø	PHOENIX CONTACT	3Ø Ø4 36 2	TERMINAL BLOCK, UK5N, 600 VAC, 30 AMP, #24-#10 AWG
14	1	PHOENIX CONTACT	29 66 19 7	DO RELAY WITH BASE, 120VAC COIL, 1 PDT CONTACT, PLC-RSC-120UC/21
15	1	PHOENIX CONTACT	28 32 93 3	ETHERNET SWITCH, FL SWITCH SF 6TX/2FX
16	24	PHOENIX CONTACT	3Ø Ø4 17 1	FUSE BLOCK, UK6,3-HESI, 1/4" X 1-1/4"
	4	BUSSMANN	AGC-3/4	FUSE, 3/4 AMP, FAST ACTING (2 SPARE)
	4	BUSSMANN	AGC-1	FUSE, 1 AMP, FAST ACTING (2 SPARE)
	2	BUSSMANN	AGC-5	FUSE, 5 AMP, FAST ACTING (1 SPARE)
	6	BUSSMANN	AGC-1/4	FUSE, 1/4 AMP, FAST ACTING (2 SPARE)
	3	BUSSMANN	AGC-10	FUSE, 10 AMP, FAST ACTING (1 SPARE)
	2	BUSSMANN	AGC-1/2	FUSE, 1/2 AMP, FAST ACTING (1 SPARE)
	16	BUSSMANN	AGC-1/8	FUSE, 1/8 AMP, FAST ACTING (4 SPARE)
17	1	ALLEN-BRADLEY	1746-A13	I/O RACK, 13 SLOT
	1	ALLEN-BRADLEY	1746-P4	PLC POWER SUPPLY
	1	ALLEN-BRADLEY	1747-L553	SLC 5/05 CONTROLLER
	7	ALLEN-BRADLEY	1746-N2	SLC SLOT FILLER
	1	ALLEN-BRADLEY	1747-M13	MEMORY MODULE
	2	ALLEN-BRADLEY	1746-IB16	DISCRETE INPUT MODULE, 16 POINT
	1	ALLEN-BRADLEY	1746-OB16	DISCRETE OUTPUT MODULE, 16 POINT
	1	ALLEN-BRADLEY	1746-NI8	ANALOG INPUT MODULE, 8 CH.
	1	ALLEN-BRADLEY	1746-NO4I	ANALOG OUTPUT MODULE, 4 CH.
18	1	LEVITON	8599	RECEPTACLE, DUPLEX GFCI
	1	RED DOT	D1H31LM	RECEPTACLE BOX, SINGLE GANG
	1	HUBBELL	S-26	RECEPTACLE COVER
19	1	HUBBELL	CR15	RECEPTACLE, 15 AMP
	1	RED DOT	D1H31LM	RECEPTACLE BOX, SINGLE GANG
	1	HUBBELL	S-8	RECEPTACLE COVER
20	1	CORNING CABLE SYSTEMS	WCH-02P	F/O PATCH PANEL (ANIXTER #180452)
	1	CORNING CABLE SYSTEMS	CCH-CP12-25T	12 PORT PANEL, ST MM LOADED (ANIXTER #207403)
21	1	CORNING CABLE SYSTEMS	505702K5141006F	FIBER PATCH CABLE, 6 FT, ST TO DUPLEX SC CERAMIC, 62.5/125
22	2	PHOENIX CONTACT	27 98 78 9	TERMINAL BLOCK, PROVIDES CONNECTION FOR COMMON DIN RAIL REFERENCE
23	1	REVERE	CUSTOM	NAMEPLATE, "REVERE CONTROL SYSTEMS"
24	A/R	PANDUIT	TYPE F	WIRE DUCT, RIGID GRAY VINYL
25	1	EDCO	HSP121BT-1RU	SURGE SUPPRESSOR, EPOXY ENCAPSULATED, BARRIER TERMINAL STRIPS, 120 VAC, 15 AMP

▲ DENOTES ITEM SHIPPED LOOSE

NOTE:
PANEL SHALL BEAR UL508A LABEL FOR ENCLOSED INDUSTRIAL CONTROL PANELS.

☆ TERMINATE TO GROUND

NO.	DATE	DESCRIPTION	BY
		REVISION	

REVERE CONTROL SYSTEMS
(205) 824-0004 BIRMINGHAM, ALABAMA 35216

SUBJECT:
MANATEE WASTEWATER TREATMENT PLANT SCADA SYSTEM
NORTH WRF SP-1 HEADWORKS
SUBPANEL LAYOUT & BILL OF MATERIAL

CUSTOMER:
MANATEE COUNTY, FLORIDA

DRAWN BY: CMH	DATE: 06-25-07
CHECKED: CH1	SCALE: 1/4" = 1"
JOB NO. 60420	DWG. NO. G1037BF 2/8

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
12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE:
October 8, 2008

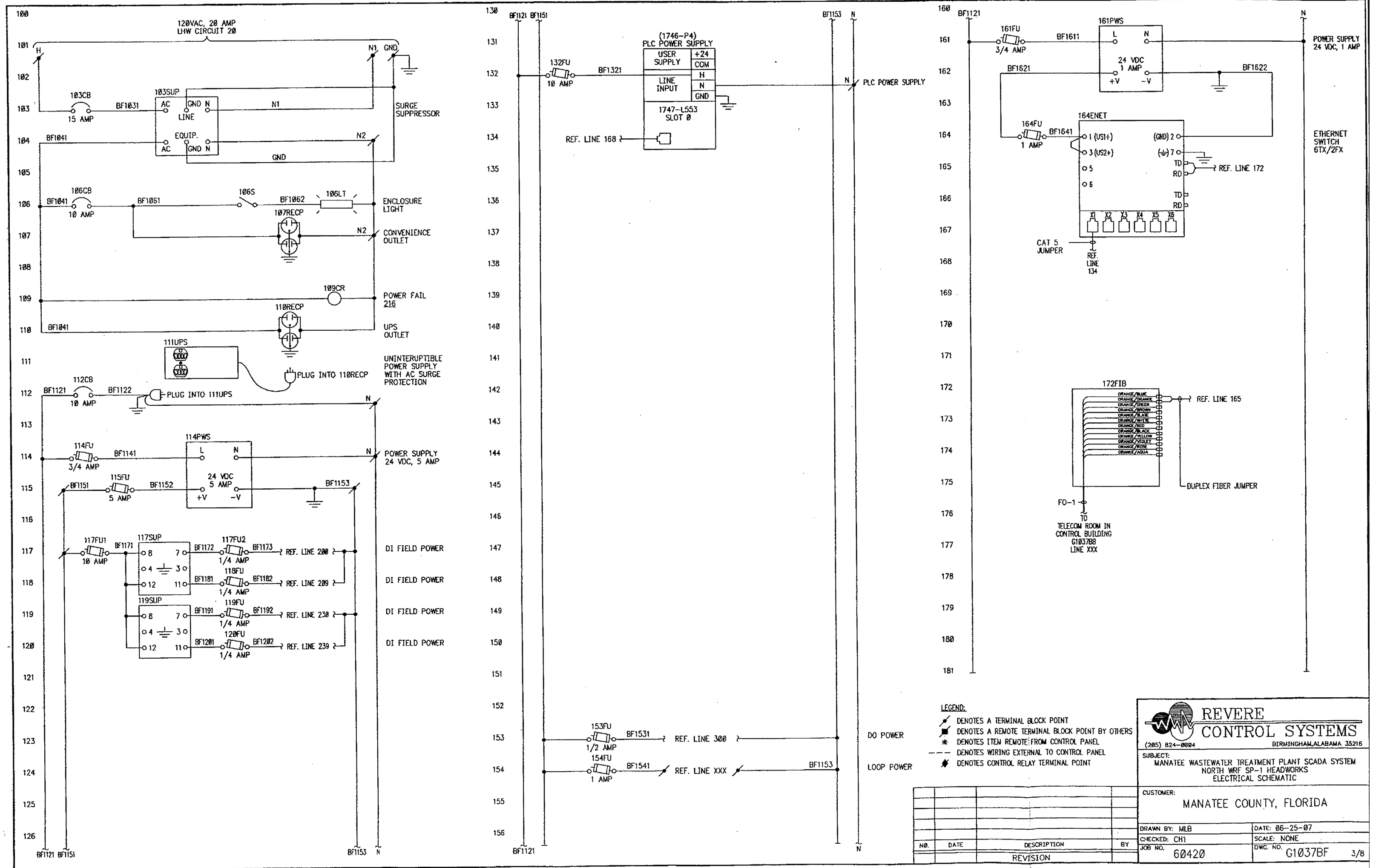
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-16



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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: September 29, 2008

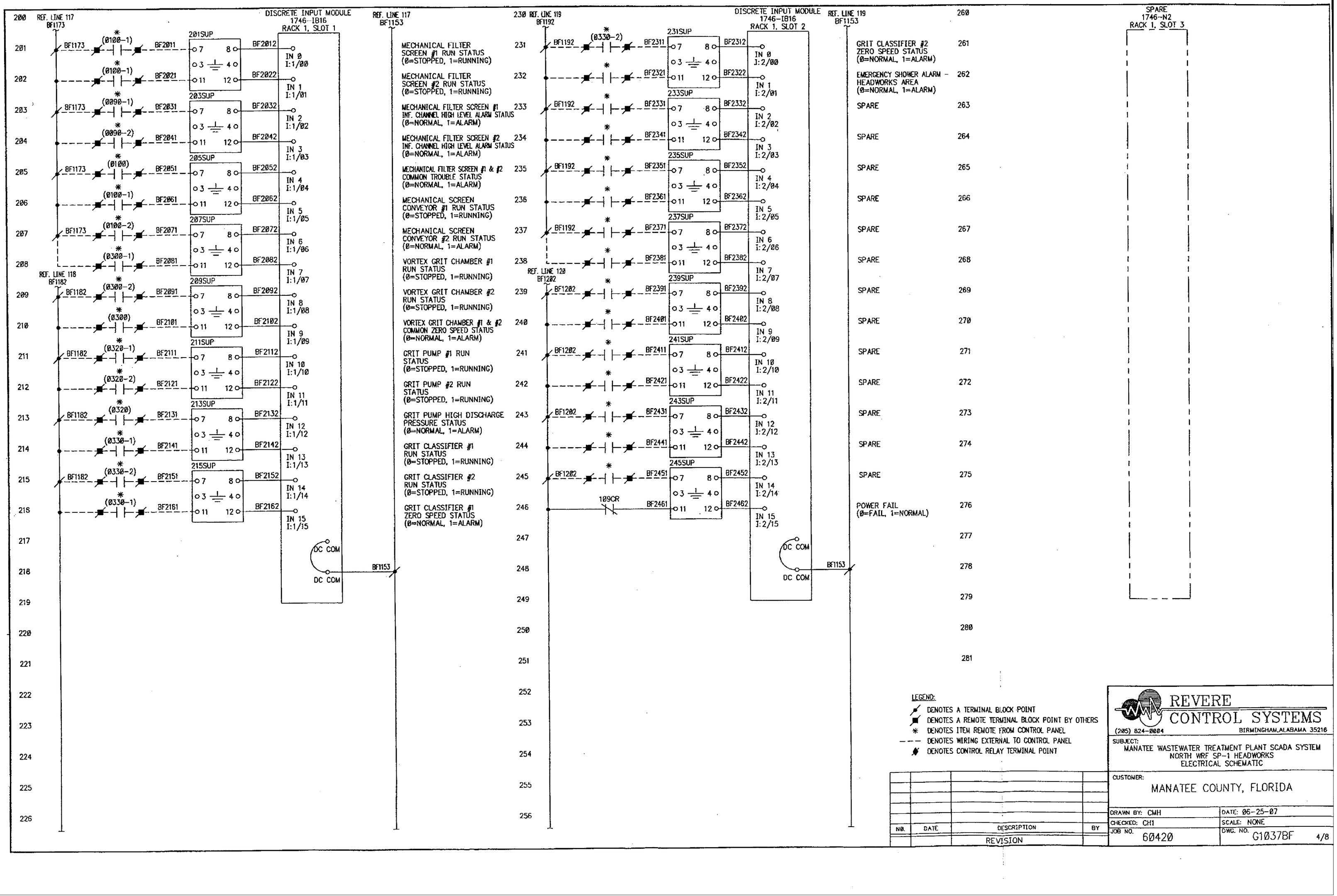
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING HEADWORKDS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-17



REVERE CONTROL SYSTEMS
(205) 824-0004 BIRMINGHAM, ALABAMA 35216

SUBJECT:
MANATEE WASTEWATER TREATMENT PLANT SCADA SYSTEM
NORTH WRF SP-1 HEADWORKS
ELECTRICAL SCHEMATIC

CUSTOMER:
MANATEE COUNTY, FLORIDA

NO.	DATE	DESCRIPTION	BY
		REVISION	

DRAWN BY: CWH | DATE: 06-25-07
CHECKED: CH1 | SCALE: NONE
JOB NO. 60420 | DWG. NO. G1037BF 4/8

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
12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE:
September 29, 2008

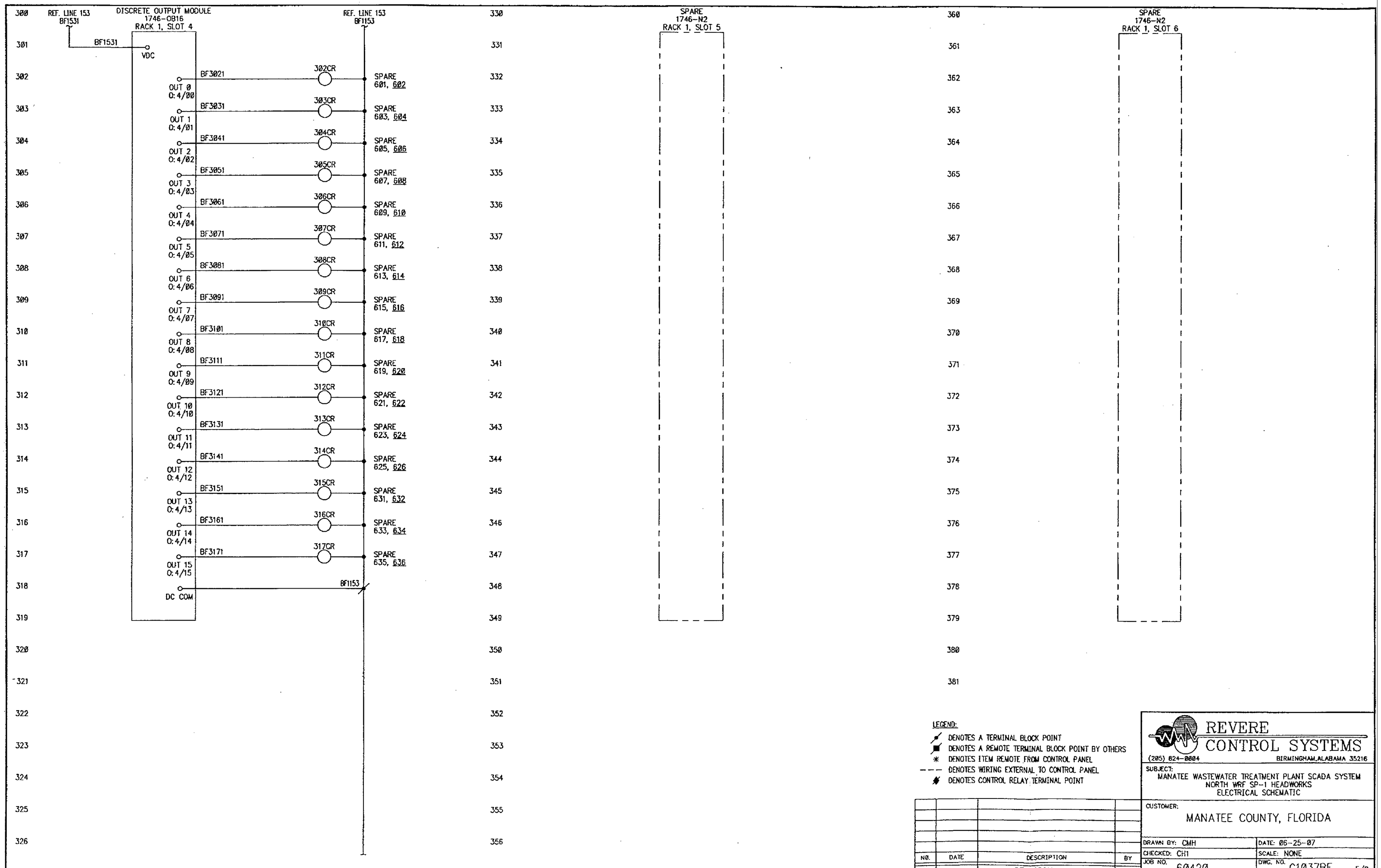
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-18



LEGEND:
- DENOTES A TERMINAL BLOCK POINT
- DENOTES A REMOTE TERMINAL BLOCK POINT BY OTHERS
- DENOTES ITEM REMOTE FROM CONTROL PANEL
- DENOTES WIRING EXTERNAL TO CONTROL PANEL
- DENOTES CONTROL RELAY TERMINAL POINT

NO.	DATE	DESCRIPTION	BY
		REVISION	

REVERE CONTROL SYSTEMS
(205) 824-0004 BIRMINGHAM, ALABAMA 35216

SUBJECT:
MANATEE WASTEWATER TREATMENT PLANT SCADA SYSTEM
NORTH WRF SP-1 HEADWORKS
ELECTRICAL SCHEMATIC

CUSTOMER:
MANATEE COUNTY, FLORIDA

DRAWN BY: CMH	DATE: 06-25-07
CHECKED: CH1	SCALE: NONE
JOB NO. 60420	DWG. NO. G1037BF 5/8

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
12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE:
September 29, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

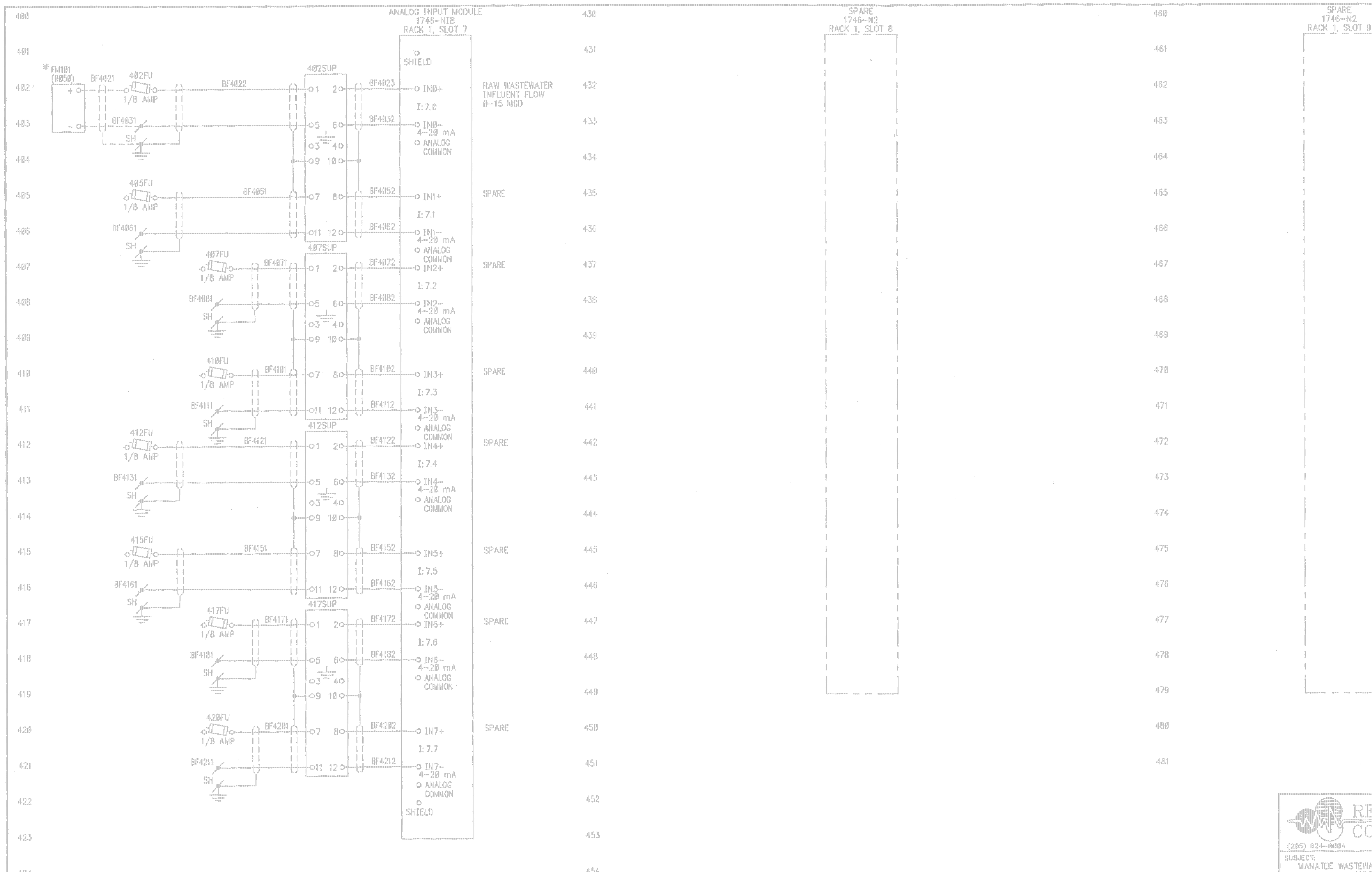
EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-19

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



LEGEND:
- DENOTES A TERMINAL BLOCK POINT
- DENOTES A REMOTE TERMINAL BLOCK POINT BY OTHERS
- * DENOTES ITEM REMOTE FROM CONTROL PANEL
- --- DENOTES WIRING EXTERNAL TO CONTROL PANEL
- DENOTES CONTROL RELAY TERMINAL POINT

NO.	DATE	DESCRIPTION	BY
		REVISION	

REVERE CONTROL SYSTEM
(205) 824-0004 BIRMINGHAM, ALABAMA
SUBJECT: MANATEE WASTEWATER TREATMENT PLANT SCADA SYS NORTH WRF SP-1 HEADWORKS ELECTRICAL SCHEMATIC
CUSTOMER: MANATEE COUNTY, FLORIDA
DRAWN BY: CMH DATE: 06-25-07
CHECKED: CH1 SCALE: NONE
JOB NO. 60420 DWG. NO. G1037BF

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
12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE:
September 29, 2008

MANATEE COUNTY FLORIDA

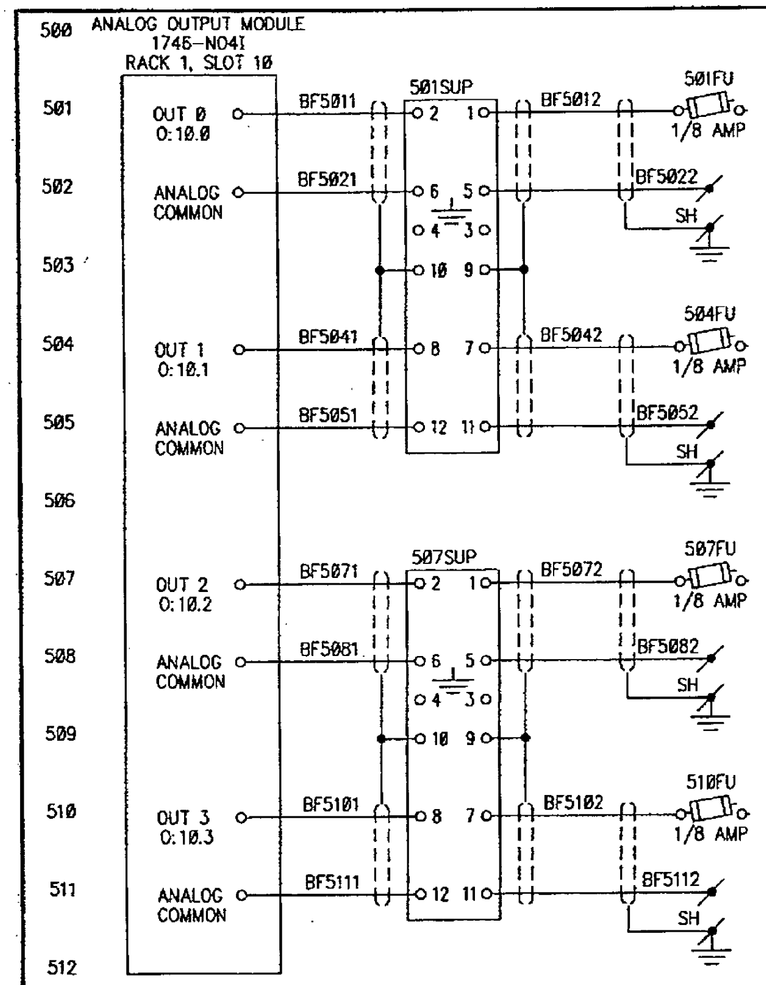
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-20

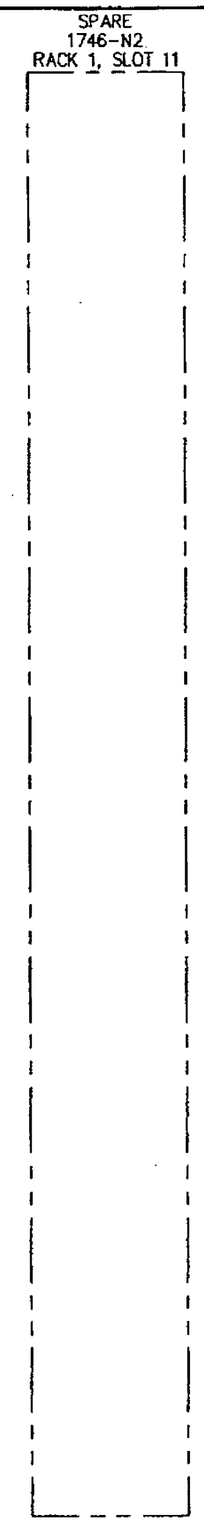


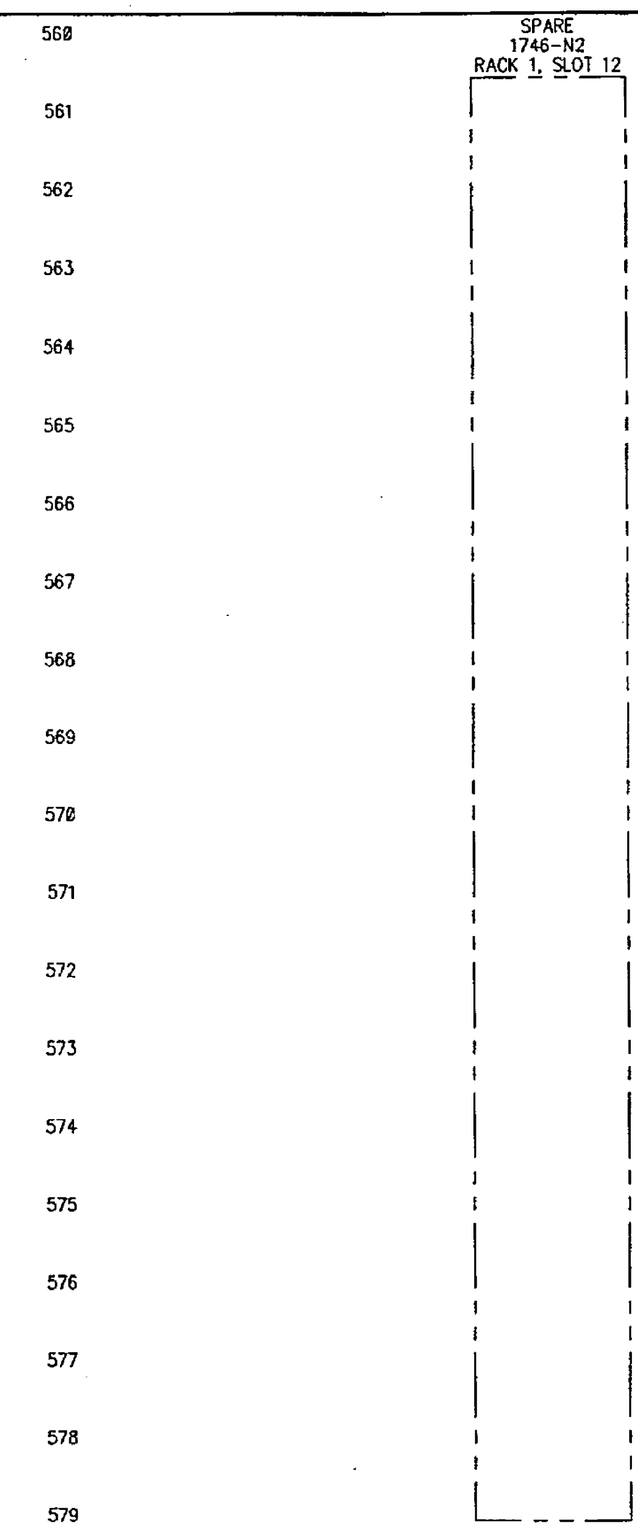
SPARE

SPARE

SPARE

SPARE





LEGEND:
- DENOTES A TERMINAL BLOCK POINT
- DENOTES A REMOTE TERMINAL BLOCK POINT BY OTHERS
- DENOTES ITEM REMOTE FROM CONTROL PANEL
- DENOTES WIRING EXTERNAL TO CONTROL PANEL
- DENOTES CONTROL RELAY TERMINAL POINT

NO.	DATE	DESCRIPTION	BY
		REVISION	

REVERE CONTROL SYSTEMS
(205) 824-0004 BIRMINGHAM, ALABAMA 35216

SUBJECT:
MANATEE WASTEWATER TREATMENT PLANT SCADA SYSTEM
NORTH WRF SP-1 HEADWORKS
ELECTRICAL SCHEMATIC

CUSTOMER:
MANATEE COUNTY, FLORIDA

DRAWN BY: CMH	DATE: 06-25-07
CHECKED: CH1	SCALE: NONE
JOB NO. 60420	DWG. NO. G1037BF 7/8

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
12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE:
September 29, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-21

600		630	660
601	BF6011 — 302CR — BF6012	631	661
602	302CR — BF6021 (SPARE)	632	662
603	BF6031 — 303CR — BF6032	633	663
604	303CR — BF6041 (SPARE)	634	664
605	BF6051 — 304CR — BF6052	635	665
606	304CR — BF6061 (SPARE)	636	666
607	BF6071 — 305CR — BF6072	637	667
608	305CR — BF6081 (SPARE)	638	668
609	BF6091 — 306CR — BF6092	639	669
610	306CR — BF6101 (SPARE)	640	670
611	BF6111 — 307CR — BF6112	641	671
612	307CR — BF6121 (SPARE)	642	672
613	BF6131 — 308CR — BF6132	643	673
614	308CR — BF6141 (SPARE)	644	674
615	BF6151 — 309CR — BF6152	645	675
616	309CR — BF6161 (SPARE)	646	676
617	BF6171 — 310CR — BF6172	647	677
618	310CR — BF6181 (SPARE)	648	678
619	BF6191 — 311CR — BF6192	649	679
620	311CR — BF6201 (SPARE)	650	680
621	BF6211 — 312CR — BF6212	651	
622	312CR — BF6221 (SPARE)	652	
623	BF6231 — 313CR — BF6232	653	
624	313CR — BF6241 (SPARE)	654	
625	BF6251 — 314CR — BF6252	655	
626	314CR — BF6261 (SPARE)	656	

BF6311 — 315CR — BF6312			
315CR — BF6321 (SPARE)			
BF6331 — 316CR — BF6332			
316CR — BF6341 (SPARE)			
BF6351 — 317CR — BF6352			
317CR — BF6361 (SPARE)			

NOTE:
CONTACT RATING 6A @ 250V AC/DC

LEGEND:
- DENOTES A TERMINAL BLOCK POINT
- DENOTES A REMOTE TERMINAL BLOCK POINT BY OTHERS
- DENOTES ITEM REMOTE FROM CONTROL PANEL
- DENOTES WIRING EXTERNAL TO CONTROL PANEL
- DENOTES CONTROL RELAY TERMINAL POINT

NO.	DATE	DESCRIPTION	BY
		REVISION	

REVERE CONTROL SYSTEMS
(205) 824-0004 BIRMINGHAM, ALABAMA 35216

SUBJECT:
MANATEE WASTEWATER TREATMENT PLANT SCADA SYSTEM
NORTH WRF SP-1 HEADWORKS
ELECTRICAL SCHEMATIC

CUSTOMER:
MANATEE COUNTY, FLORIDA

DRAWN BY: CMH	DATE: 06-25-07
CHECKED: CH1	SCALE: NONE
JOB NO. 60420	DWG. NO. G1037BF 8/8

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
12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE:
September 29, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

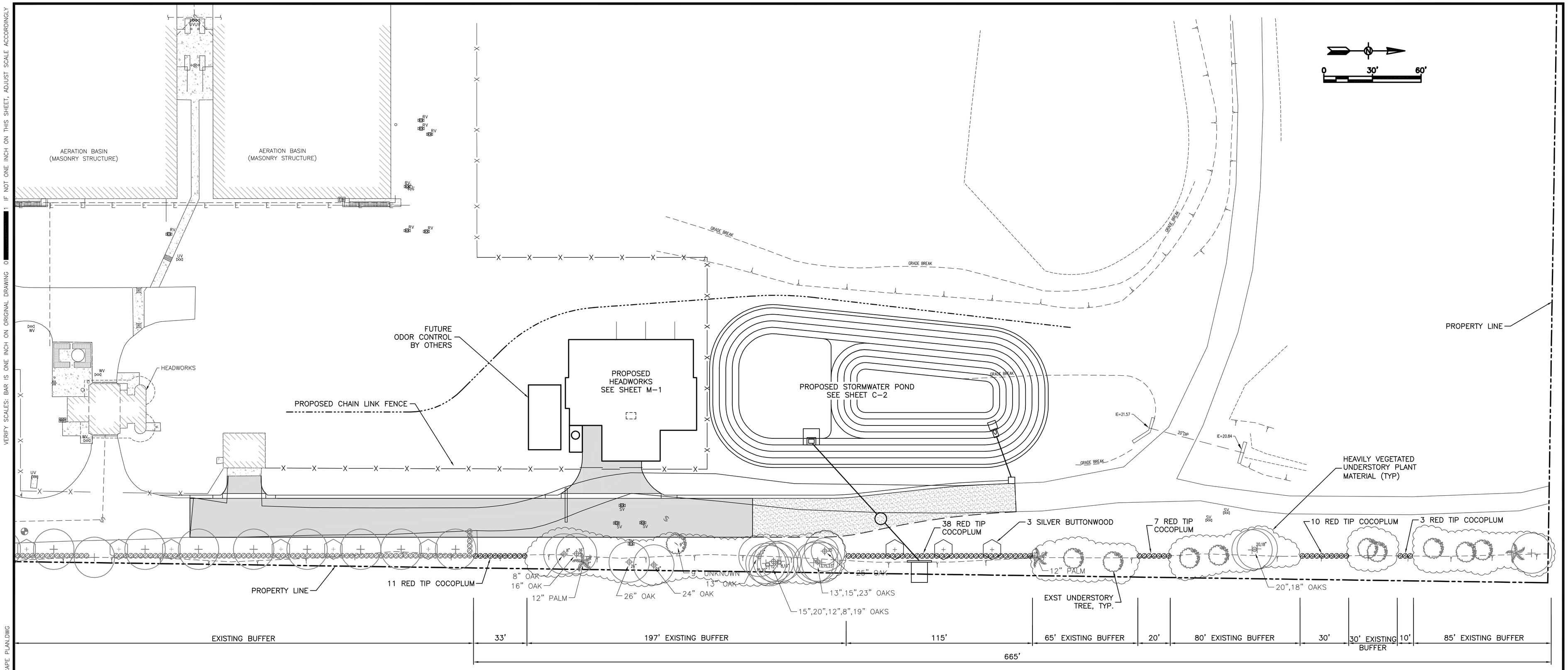
EXISTING HEADWORKS
SCADA PANEL AS-BUILTS

GARRET S. KERLY, P.E.
FLORIDA P.E. NO. 54952

PROJECT STATUS
BID SET
OCTOBER 2008

E-22

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



LEGEND

- PROPOSED SILVER BUTTONWOOD
- PROPOSED RED TIP COCOPLUM
- EXISTING LIVE OAK
- EXISTING SILVER BUTTONWOOD
- EXISTING RED TIP COCOPLUM
- EXISTING PALM TREE
- EXISTING UNDERSTORY TREE

PLANT LIST

QTY.	COMMON NAME	BOTANICAL NAME	MINIMUM SPECIFICATIONS
	TREES		
3	SILVER BUTTONWOOD	*Conocarpus erectus 'Sericeus'*	15 GAL., 6' HT. x 2.5' SPR., 1-1/2" CAL., MULTI TRUNK, 3-5 STEMS., FL. #1, AS SHOWN
	SHRUBS		
69	RED TIP COCOPLUM	*Chrysobalanus icaco 'Red Tip'*	5 GAL., 36" HT. x 18" SPR., 36" O.C., FL. #1

NOTES

1. THEIR ARE NO EXISTING TREES IN THE PROJECT AREA TO BE CLEARED, ONLY EXISTING LAWN / GRASS.
2. ALL TREE AND SHRUBS IN THE EXISTING BUFFER SHALL BE PROTECTED DURING CONSTRUCTION.

LANDSCAPE TABULATIONS

TOTAL BUFFER LENGTH - 665 LF
EXISTING BUFFER LENGTH - 457 LF
BUFFER REQUIRED - 208 LF
BUFFER CANOPY TREES REQUIRED - 13 = 665 LF X 2 TREES / 100 LF
BUFFER CANOPY TREES PROVIDED - 16 (ALL EXISTING OAKS)
BUFFER UNDERSTORY TREES REQUIRED - 13 = 665 LF X 2 TREES / 100 LF
BUFFER UNDERSTORY TREES PROVIDED - 13 = 3 PROPOSED + 10 EXISTING
BUFFER 5 GAL. SHRUBS REQUIRED - 69 = 208 LF X 33 SHRUBS / 100 LF
BUFFER - 5 GAL. SHRUBS PROVIDED - 69

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: October 10, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

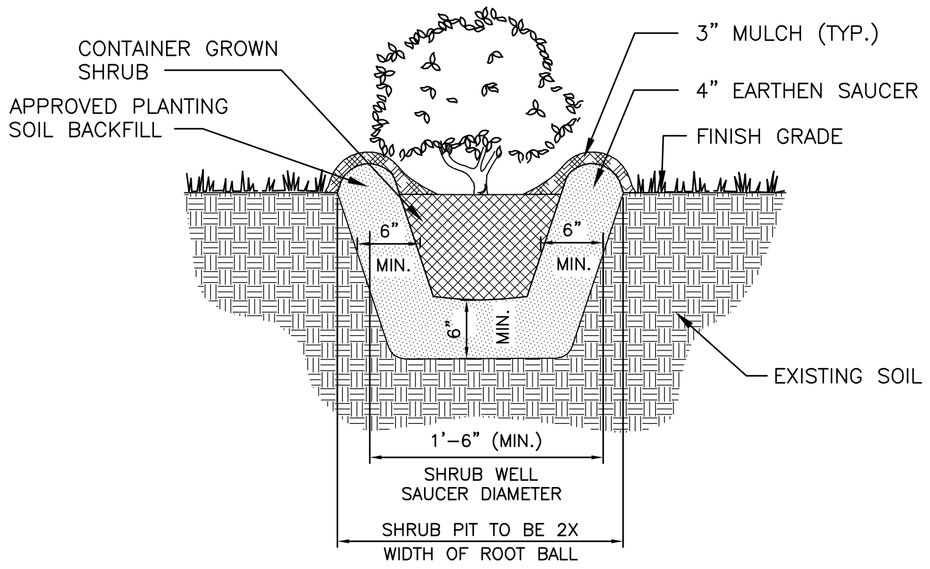
LANDSCAPE PLAN

PAUL D KURTZ, RLA.
FLORIDA RLA NO. 0001716

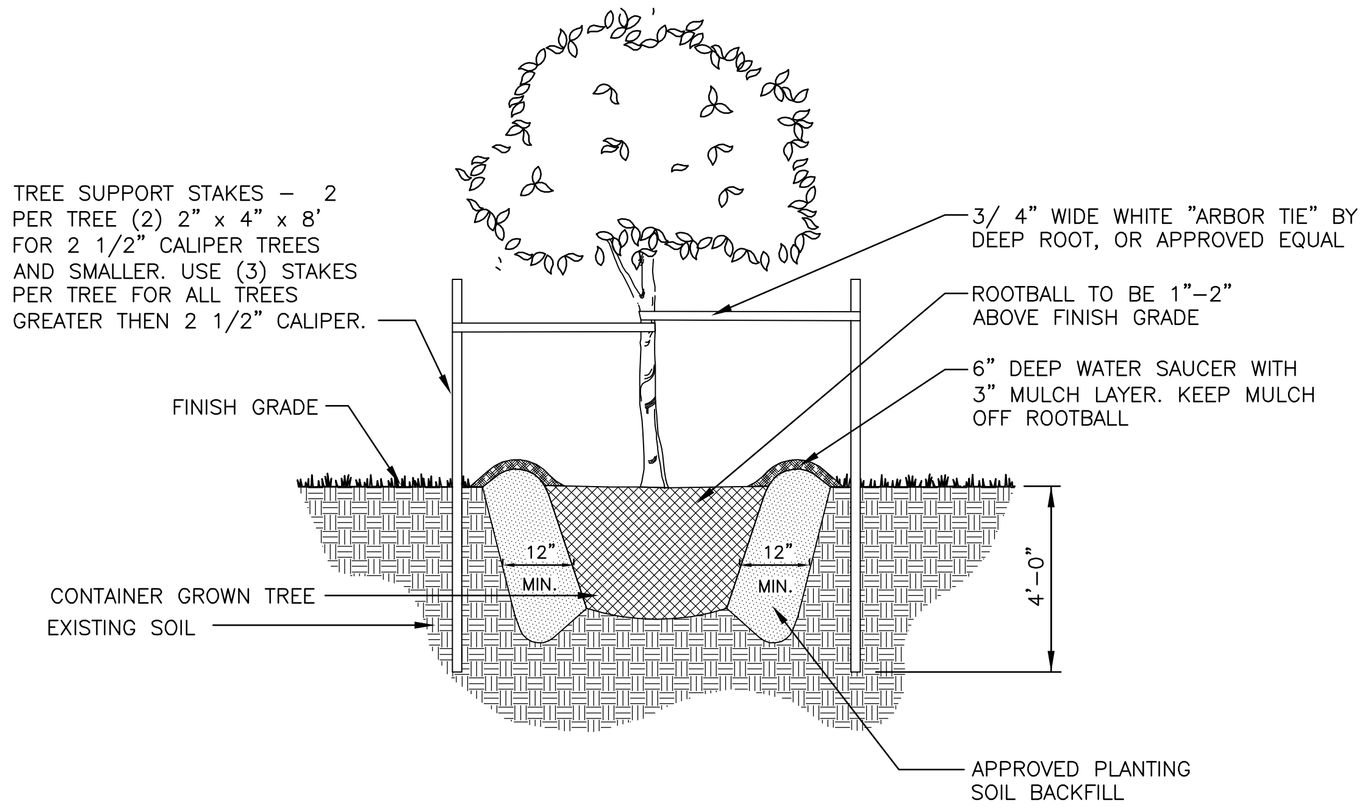
PROJECT STATUS
BID SET
OCTOBER 2008

L-1

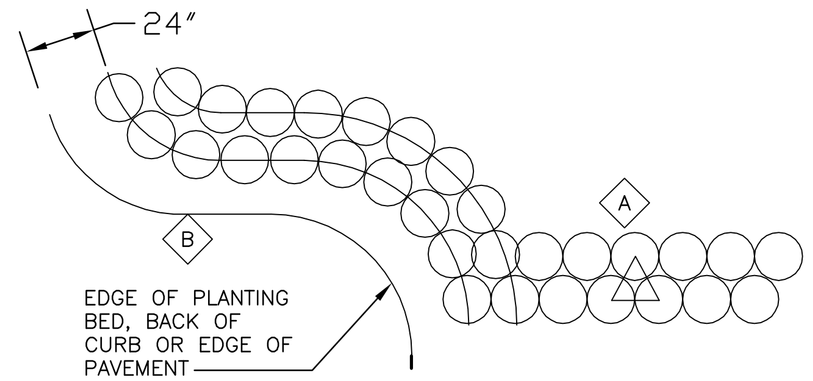
PLOTTED October 10, 2008 7:52 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\L-1 LANDSCAPE PLAN.DWG



1 SHRUB PLANTING DETAIL
NTS



2 TREE PLANTING DETAIL
NTS



A SHRUBS & GROUNDCOVERS ADJACENT TO STRAIGHT EDGES SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO THE STRAIGHT EDGE.

B SHRUBS & GROUNDCOVERS ADJACENT TO CURVED EDGES SHALL BE PLANTED IN ROWS PARALLEL TO THE CURVED EDGE.

3 SHRUB LAYOUT DETAIL
NTS

LANDSCAPE NOTES

1. THE WORK CONSISTS OF THE COMPLETE PLANT MATERIAL INSTALLATION AS SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED. THIS WORK SHALL INCLUDE BUT IS NOT LIMITED TO THE SUPPLYING OF ALL PLANT MATERIAL SPECIFIED, THE FURNISHING OF LABOR, EQUIPMENT, AND MATERIALS CALLED FOR, AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE LANDSCAPE INSTALLATION AS SHOWN ON THESE PLANS. FURTHER, THE WORK SHALL INCLUDE THE MAINTENANCE OF ALL PLANTS AND PLANTING AREAS UNTIL ACCEPTANCE BY THE OWNER AND THE FULFILLING OF GUARANTEE PROVISIONS SPECIFIED HEREIN.

2. THE CONTRACTOR SHALL BE FULLY ACQUAINTED WITH THE RELATED PAVING, SITE GRADING, WATER SUPPLY, ELECTRICAL SUPPLY, AND OTHER UTILITIES TO PREVENT ANY MISUNDERSTANDING AND TO FACILITATE A TROUBLE FREE INSTALLATION. CALL THE SUNSHINE STATE ONE CALL 1–800–432–4770 PRIOR TO ANY CONSTRUCTION FOR UTILITY COORDINATION. IN ADDITION, NOTIFY THE OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF CONSTRUCTION TO IDENTIFY UTILITY LINE LOCATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGES TO EXISTING FACILITIES THAT MAY RESULT FROM WORK PERFORMED BY THE CONTRACTOR. THE WORK PERFORMED UNDER THIS CONTRACT WILL INTERFACE WITH OTHER WORK BEING PERFORMED BY OTHER CONTRACTORS. IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE AND SCHEDULE ACTIVITIES WITH OTHER CONTRACTORS AND THEIR SUBCONTRACTORS.

4. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE, PRIOR TO INSTALLATION OF SUCH MATERIALS. SUBMIT SUBSTITUTION REQUESTS IN WRITING FOR APPROVAL BY OWNER'S REPRESENTATIVE.

5. IN THE EVENT DISCREPANCIES ARE NOTED BETWEEN THE PLANT LIST AND THE ACTUAL NUMBER OF PLANTS SHOWN ON THE PLANS, THE PLANS SHALL CONTROL.

6. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF 48 HOURS PRIOR TO THE DELIVERY OF ANY PLANT MATERIAL. THE PLANT MATERIAL SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE PRIOR TO THE UNLOADING OF ANY PLANTS.

7. PLANT MATERIALS WILL BE INSPECTED AT THE JOB SITE BY THE OWNER'S REPRESENTATIVE. WHEN INSPECTION WORK DOES NOT COMPLY WITH PROJECT REQUIREMENTS, CONTRACTOR SHALL REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL WORK IS REINSPECTED AND FOUND TO BE ACCEPTABLE. REMOVE REJECTED PLANTS AND MATERIALS FROM THE SITE WITHIN 48 HOURS AND REPLACE WITH ACCEPTABLE MATERIALS.

8. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO DIRECT THE REMOVAL AND REPLACEMENT OF ANY ITEMS WHICH DO NOT REPRESENT SUCH AN INSTALLATION.

9. ALL PLANT MATERIALS SHALL BE GRADE FLORIDA NO. 1 OR BETTER AS OUTLINED UNDER GRADES AND STANDARDS FOR NURSERY PLANTS, LATEST EDITION, FLORIDA DIVISION OF PLANT INDUSTRY, FLORIDA DEPT. OF AGRICULTURE, AND SHALL CONFORM TO ANSI STANDARDS FOR NURSERY STOCK (ANSI Z60.1–1990).

10. ALL PLANTING BEDS SHALL BE MULCHED WITH A THREE (3") INCH LAYER OF FLORIMULCH, IN ACCORDANCE WITH THE PLANTING DETAILS.

11. APPLY "CHIPCO RONSTAR G" PRE–EMERGENT WITH A PROPERLY CALIBRATED GRANULAR APPLICATOR AFTER INITIAL PLANTINGS HAVE BEEN COMPLETED. APPLY AT A RATE OF 4 LBS PER 1000 SQ. FT. OF PLANTED AREA SPECIFIED. DO NOT APPLY PRE–EMERGENT CHEMICAL DIRECTLY ON PLANT MATERIAL.

12. PLANTING SOIL FOR TREE AND SHRUB MATERIALS SHALL CONSIST OF TWO (2) PARTS TOPSOIL, ONE (1) PART CLEAN SAND AND ONE (1) PART COMMERCIAL COMPOST (CONSOLIDATED RESOURCE RECOVERY SCREENED YARD MULCH FINES OR EQUAL). PLANTING SOIL MIXTURE SAMPLES MUST BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. NO PLANTING SHALL OCCUR UNTIL PLANTING SOIL IS APPROVED.

13. ALL TREES SHRUBS, AND GROUNDCOVER MATERIALS SHALL BE WATERED BY THE CONTRACTOR FROM PLANTING TIME TO 90 DAYS PAST FINAL ACCEPTANCE AS NECESSARY.

14. ALL SOD (GRASS) DAMAGED BY THE CONTRACTOR THAT HAS BEEN DESIGNATED TO REMAIN SHALL BE REPLACED WITH LIKE TYPE BY CONTRACTOR AT THE CONTRACTOR'S EXPENSE. SOD SHALL BE WATERED BY THE CONTRACTOR FROM PLANTING TIME TO 120 DAYS PAST FINAL ACCEPTANCE AS NECESSARY.

15. SOD TYPE SHALL BE ARGENTINE BAHIA AND SHALL BE WELL MATTED WITH ROOTS. THE SOD SHALL BE TAKEN UP IN RECTANGLES PREFERABLY 12" X 24" AND SHALL BE LIVE, FRESH AND UNINJURED AT THE TIME OF PLANTING. SOD SHALL BE REASONABLY FREE OF WEEDS AND OTHER GRASS AND SHALL HAVE A SOIL MAT OF SUFFICIENT THICKNESS ADHERING FIRMLY TO THE ROOTS TO WITHSTAND ALL NECESSARY HANDLING. THE SOD SHALL BE SHADED AND KEPT MOIST UNTIL IT IS PLANTED. DUMPING FROM VEHICLES WILL NOT BE PERMITTED. DAMAGED SOD WILL BE REJECTED. REPLANTING SHALL BE DONE WITHIN 48 HOURS AFTER TIME OF HARVESTING OR SOD SHALL BE KEPT DAMP UNTIL PLANTED.

16. SODDING SCHEDULE:
A. SOFT SPOTS AND INEQUITIES IN GRADE SHALL BE CORRECTED BEFORE BEGINNING SOD WORK.
B. GROUND SHALL BE SUFFICIENTLY MOIST PRIOR TO LAYING OF SOD. CONTRACTOR SHALL WATER AS NEEDED PRIOR TO LAYING SOD.
C. LAY SOD WITHOUT VOIDS, TAMP OR ROLL. SOD SHALL BE THOROUGHLY WATERED. THE SURFACE SHALL BE TRUE TO FINISHED GRADE LINES; EVEN AND FIRM AT ALL POINTS.
D. PLACE SOD WITH STAGGERED JOINTS CLOSELY BUTTED, TAMPED OR ROLLED TO AN EVEN SURFACE TO THE REQUIRED FINISHED GRADE. AVOID CONTINUOUS SEAM ALONG LINES OF WATER FLOW IN SWALES. PLACE SOD IN ROWS AT RIGHT ANGLES TO SLOPE.
E. FERTILIZE.

17. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY CONFLICT OR DISCREPANCY IN PLANS PRIOR TO PERFORMING ANY WORK IN THE AFFECTED AREA.

18. CONTRACTOR SHALL CLEAN UP AND REMOVE ALL SURPLUS AND DISCARDED MATERIALS AND RUBBISH FROM HIS CONSTRUCTION. ON A DAILY BASIS.

19. ALL GROWN PLANT MATERIAL SHALL BE GUARANTEED FOR ONE (1) YEAR AND ALL SOD SHALL BE GUARANTEED FOR 90 DAYS AFTER FINAL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.

20. FINAL INSPECTION WILL NOT TAKE PLACE UNTIL ALL MATERIALS ARE PLANTED/INSTALLED CORRECTLY. CONTRACTOR SHALL REQUEST A FINAL INSPECTION BY OWNER'S REPRESENTATIVE IN WRITING.

21. CONTRACTOR WILL BE NOTIFIED BY LETTER OF FINAL ACCEPTANCE WITHIN TEN DAYS AFTER FINAL INSPECTION OR TEN DAYS AFTER REINSPECTION.

22. UPON NOTICE OF FINAL ACCEPTANCE, THE OWNER WILL ASSUME MAINTENANCE AND THE CONTRACTOR'S WARRANTY PERIOD BEGINS.

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

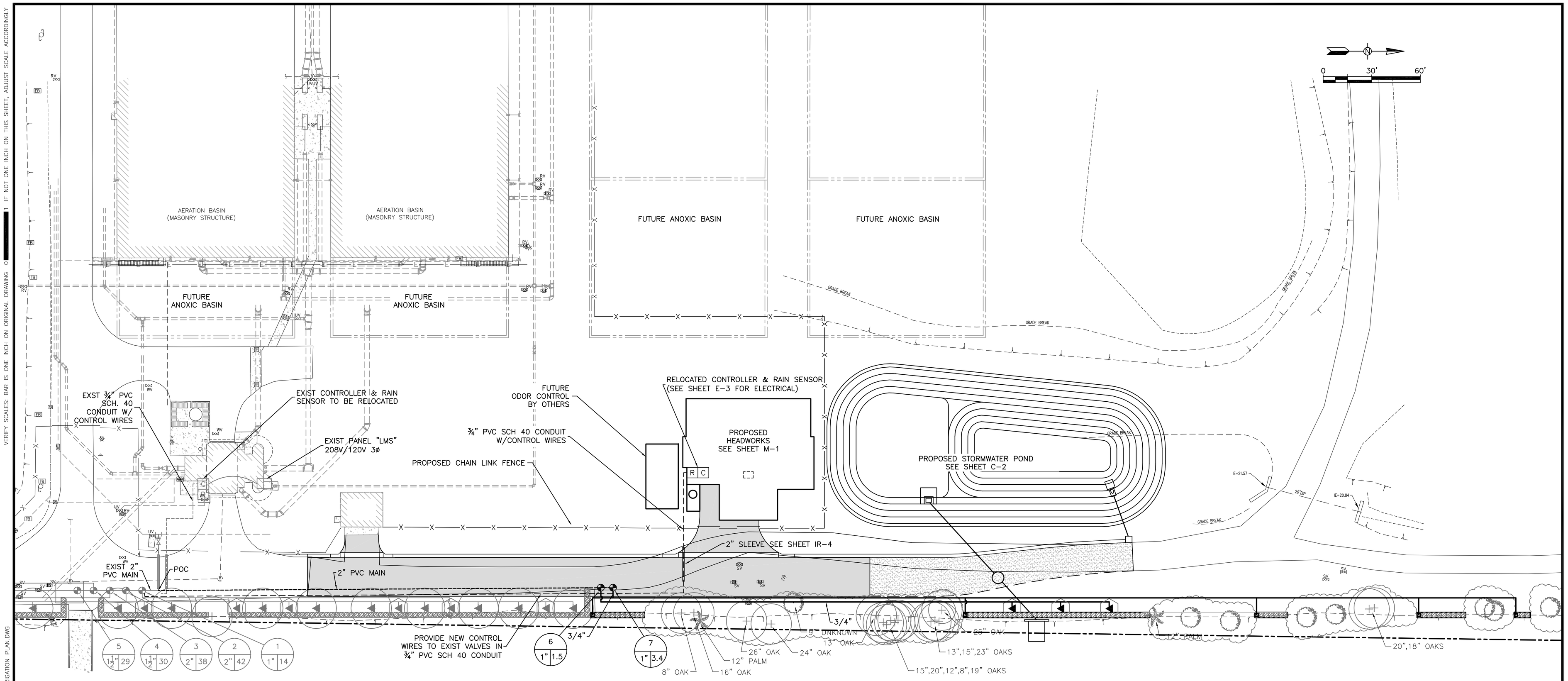
LANDSCAPE DETAILS

PAUL D KURTZ, RLA.
FLORIDA RLA NO. 0001716

PROJECT STATUS
BID SET
OCTOBER 2008

L–2

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



LEGEND

- PVC SCH 80 SLEEVE, (SEE PLAN FOR SIZES)
- PVC SCH 40 MAIN, (SEE PLAN FOR SIZES)
- PVC CLASS 200 LATERAL, (SEE PLAN FOR SIZES)
- NETAFIM TLDL-9-12-XXX DRIPLINE (12" EMITTER SPACING, 18" ROW SPACING)

- BRASS GATE VALVE IN CONCRETE VALVE BOX WITH CAST IRON COVER. (LINE SIZE)
- RAIN BIRD QUICK COUPLER IN CONCRETE VALVE BOX WITH CAST IRON COVER
- PVC LATERAL LINE CONNECTION TO PVC HEADER MANIFOLD

- P.O.C. POINT OF CONNECTION TO 2" RECLAIMED WATERLINE. CUT IN 2"x2" TEE W/ CORP STOP.
- C RAIN BIRD ESP-LX PLUS SERIES (RELOCATE TO SOUTH EXTERIOR WALL OF GRIT UNIT OF PROPOSED HEADWORKS)
- R HUNTER MINI-CLIK RAIN SENSOR (MOUNTED ON TOP OF PROPOSED HEADWORKS)
- RAIN BIRD 1400 SERIES BUBBLER – 1402 (0.5 GPM) (TWO BUBBLERS PER SYMBOL LOCATION AS SHOWN ON PLAN)
- RAIN BIRD PESB-PRS-D SERIES REMOTE CONTROL VALVE WITH PRESSURE REGULATING MODULE IN CONCRETE VALVE BOX WITH CAST IRON COVER

ZONE NUMBER / VALVE SIZE / GALLONS PER MINUTE

LFDL = LINEAR FEET OF DRIPLINE

VALVE TABLE

ZONE #	VALVE SIZE	GPM	TYPE
6	1"	1.5	BUBBLER
7	1"	3.4	DRIP

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 4, 2008

MANATEE COUNTY FLORIDA

INFLUENT STRUCTURE AT THE NORTH WATER RECLAMATION FACILITY

FOR

MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

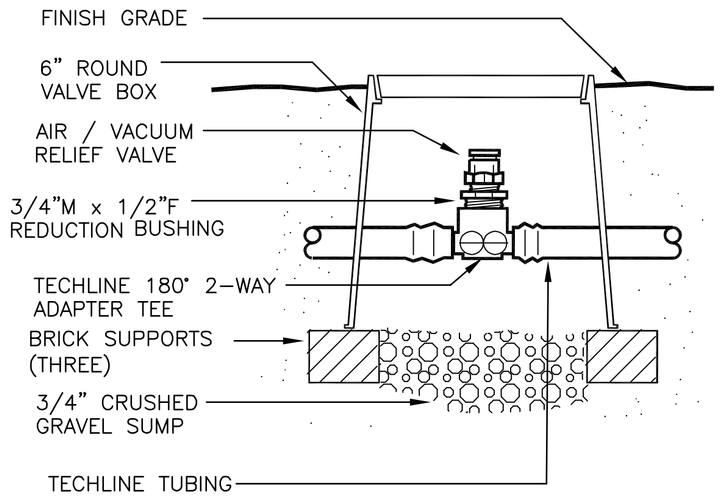
IRRIGATION PLAN

PAUL D KURTZ, RLA.
FLORIDA RLA NO. 0001716

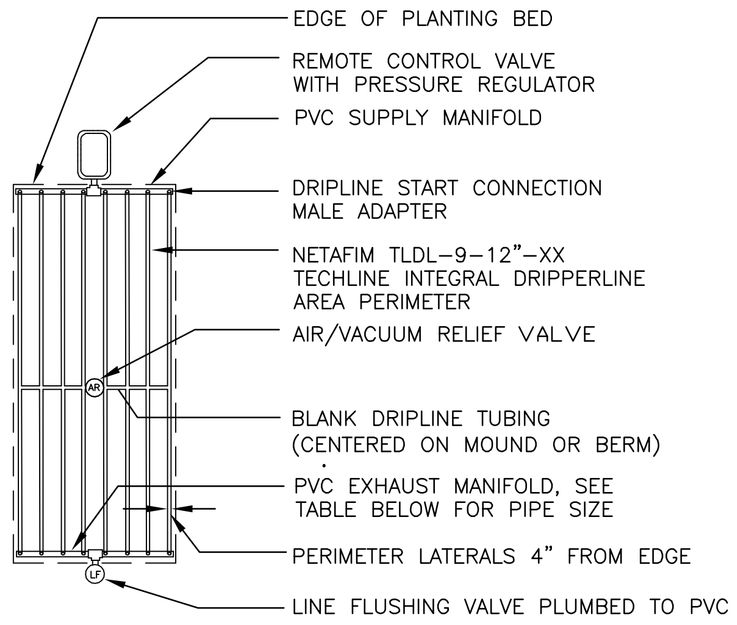
PROJECT STATUS
BID SET
OCTOBER 2008

IR-1

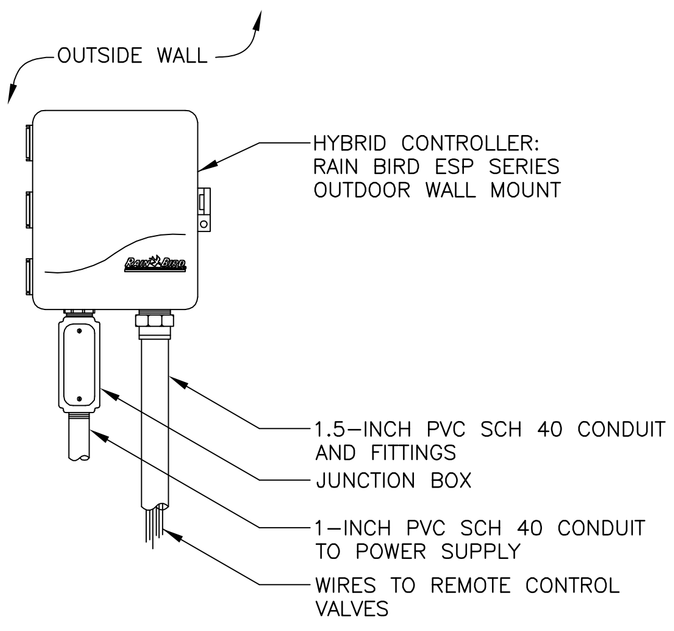
PLOTTED October 10, 2008 7:52 AM PLOTTED BY: SCHEUERMAN, JAMES
X:\MANATEE PROJECTS\12007031 INFLU STRUCTURE NWRF DESIGN\CADD\CONSTRUCTION DRAWINGS\IR-1 IRRIGATION PLAN.DWG



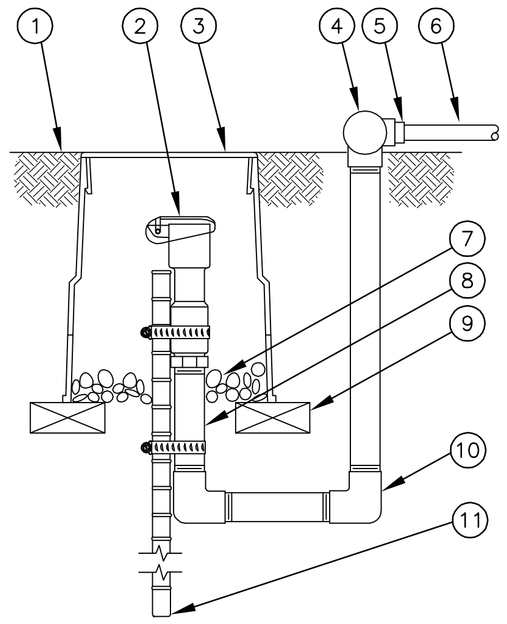
1 NETAFIM AR VACUUM
NOT TO SCALE



4 END FEED LAYOUT
NOT TO SCALE



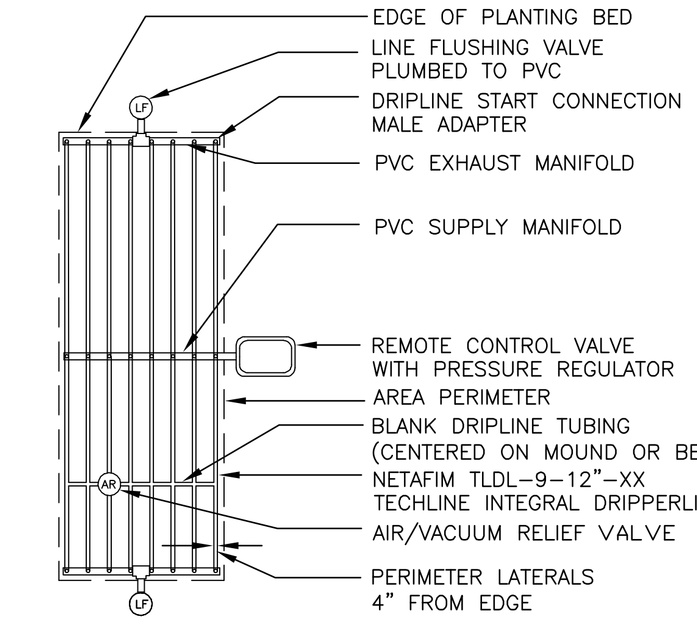
7 HYBRID CONTROLLER
NOT TO SCALE



1. FINISH GRADE/TOP OF MULCH
2. QUICK-COUPLING VALVE: RAIN BIRD MODEL 33DNP
3. RECTANGULAR VALVE BOX WITH PURPLE COVER: 6-INCH SIZE
4. PVC SCH 40 SOC X SOC X 3/4-INCH FIPT ON PVC DISTRIBUTION MANIFOLD
5. 1/2-INCH COMP X 3/4-INCH MPT ADAPTER
6. NETAFIM TECHLINE INTEGRAL DRIPPERLINE
7. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
8. PVC SCH 80 NIPPLE (1 OF 3, LENGTH AS REQUIRED)
9. BRICK (1 OF 2)
10. PVC SCH 40 ELL (1 OF 2)
11. #4 REBAR STAKE WITH STAINLESS STEEL GEAR CLAMPS OR APPROVED EQUAL SUPPORT SYSTEM (30-INCH MIN. LENGTH)

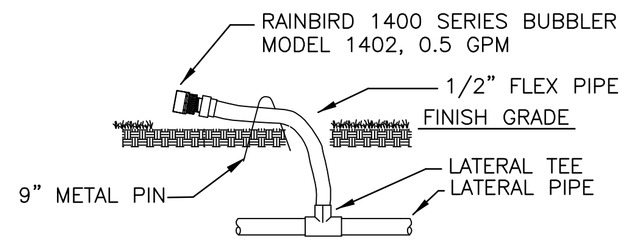
NOTE:
1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.
2. IF POLYETHYLENE IS USED FOR DISTRIBUTION MANIFOLD, SUBSTITUTE 3/4 – INCH FIPT INSERT TEE FOR SCH 40 TEE.

2 LANDSCAPE DRIPLINE FLUSH POINT
NOT TO SCALE



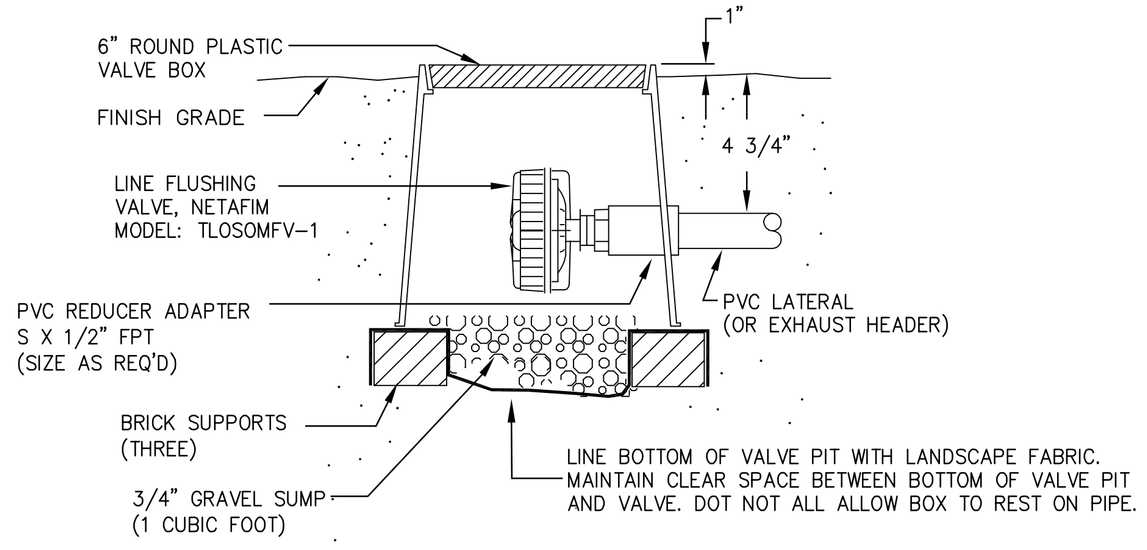
5 CENTER FEED LAYOUT
NOT TO SCALE

NOTE: INSTALL TWO BUBBLERS PER TREE ON TOP OF ROOTBALL. BUBBLERS TO BE LOCATED 180° APART, EQUALLY SPACED.

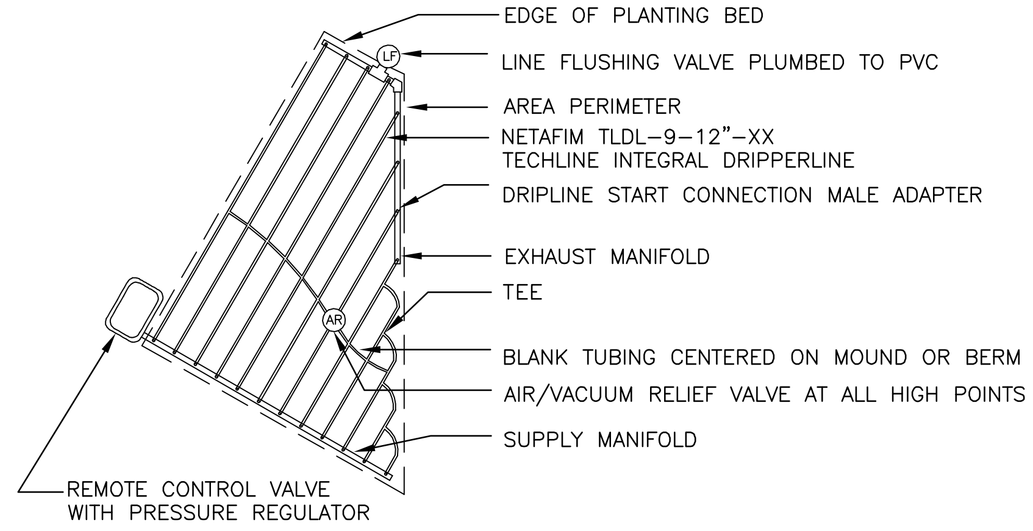


8 RAIN BIRD 1400 SERIES BUBBLER
NOT TO SCALE

NOTE: MAXIMUM VALVE FLOW RATE, 15 GPM. USE MULTIPLE FLUSH VALVES AS ZONE FLOW RATE REQUIRES. REFER TO PLANS FOR TOTAL ZONE FLOW RATES.

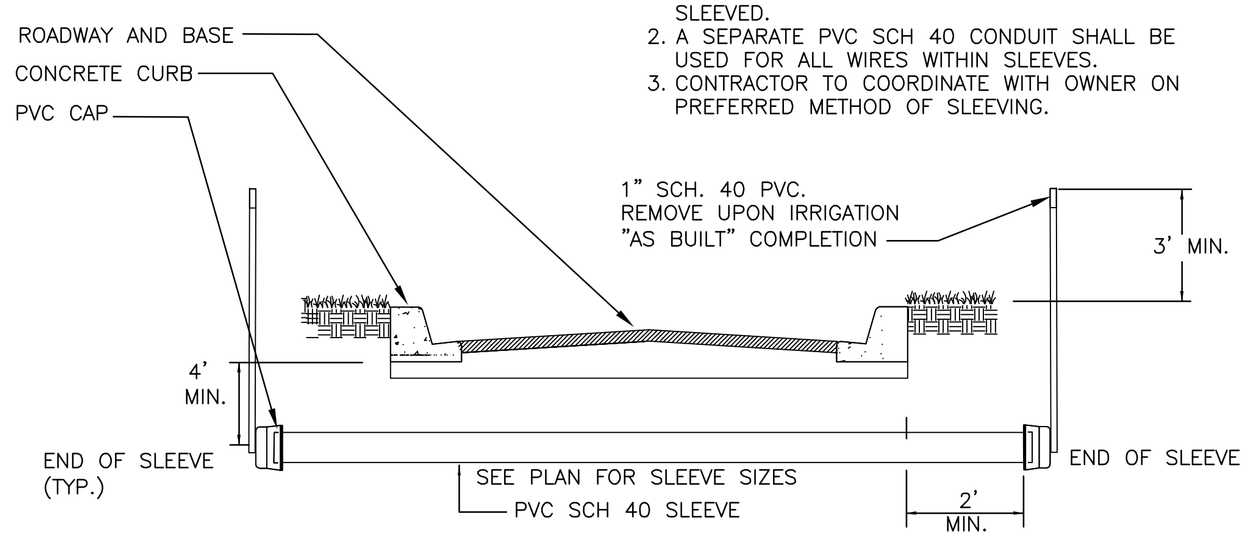


3 LINE FLUSHING VALVE
NOT TO SCALE



6 IRREGULAR AREAS: TRIANGULAR
NOT TO SCALE

NOTES:
1. SLEEVES SHALL BE A MINIMUM OF TWO TIMES LARGER THAN THE SIZE OF THE PIPE BEING SLEEVED.
2. A SEPARATE PVC SCH 40 CONDUIT SHALL BE USED FOR ALL WIRES WITHIN SLEEVES.
3. CONTRACTOR TO COORDINATE WITH OWNER ON PREFERRED METHOD OF SLEEVING.



9 SLEEVE DETAIL
NOT TO SCALE

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 12007031

PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 1, 2008

MANATEE COUNTY FLORIDA

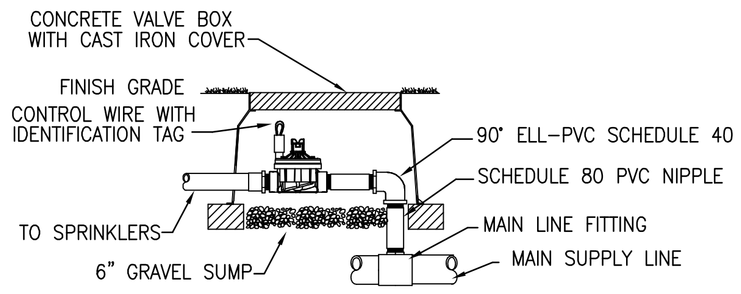
INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

IRRIGATION DETAILS

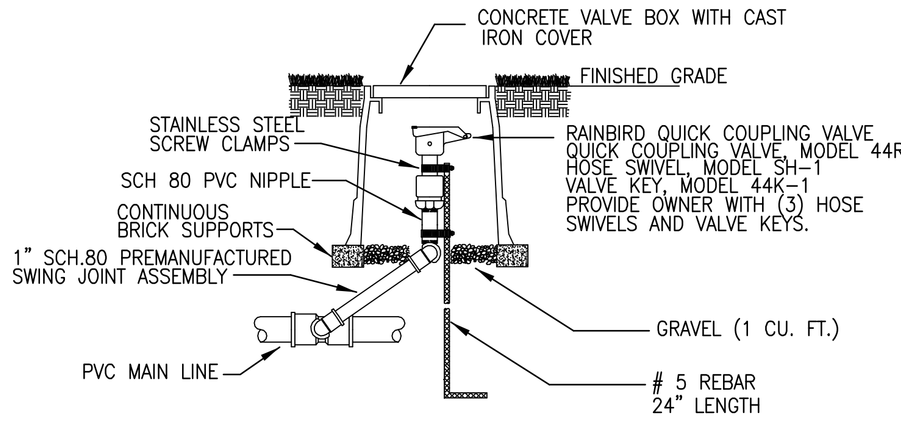
PAUL D KURTZ, RLA.
FLORIDA RLA NO. 0001716

PROJECT STATUS
BID SET
OCTOBER 2008

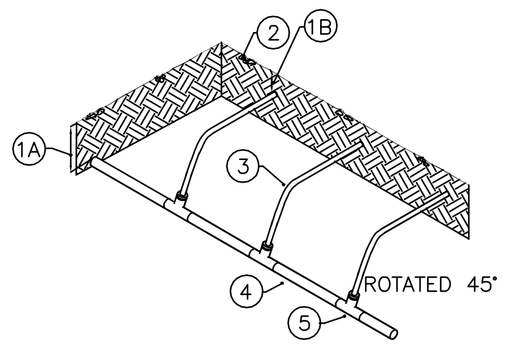
IR-2



10 RAIN BIRD 100-PRS-D SERIES CONTROL VALVE
NOT TO SCALE



11 RAIN BIRD QUICK COUPLING VALVE
NOT TO SCALE



1A 12"
1B 2"
2 FINISHED GRADE
3 NETAFIM TECHLINE (TYP.)
4 PVC SUPPLY/EXHAUST MANIFOLD
5 PVC TEE TO TECHLINE COMPRESSION ADAPTERS

12 SUPPLY / EXHAUST MANIFOLD
NOT TO SCALE

IRRIGATION NOTES

1) IRRIGATION SYSTEM IS 100% AUTOMATIC AND INCLUDES A RAIN SENSOR WITH A SHUT-OFF DEVICE.

2) THE IRRIGATION WATER SOURCE IS RECLAIMED WATER PRODUCED AT THE PLANT.

3) VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF IRRIGATION SYSTEM. MAINLINE SHALL NOT BE LOCATED WITHOUT PRIOR APPROVAL OF THE PROJECT MANAGER AND THE LANDSCAPE ARCHITECT. ALL UTILITIES AND STRUCTURES MAY NOT BE SHOWN ON THESE PLANS-CONTRACTOR SHALL VERIFY.

4) ALL PRESSURE MAINLINES UNDER ASPHALT PAVEMENT SHALL BE WITHIN SLEEVES AS NOTED. WHERE ELECTRIC VALVE CONTROL LINES PASS THROUGH A SLEEVE WITH OTHER MAIN OR LATERAL LINES THEY SHALL BE CONTAINED WITHIN A SEPARATE, SMALLER CONDUIT.

5) MAINLINE AND VALVES ARE SHOWN IN SCHEMATIC FORM. LOCATE AS NOTED ON PLANS.

6) LOCATE ALL VALVES A MINIMUM OF 24" FROM BACK OF CURB OR EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.

7) CONTRACTOR SHALL PROVIDE AN AS-BUILT DRAWING TO THE OWNER'S REPRESENTATIVE PRIOR TO FINAL ACCEPTANCE. AS-BUILT IS INCLUDED IN PRICE BID FOR IRRIGATION. ALL SLEEVES UTILIZED BY THE IRRIGATION CONTRACTOR, WHETHER INSTALLED BY HIM OR NOT, SHALL BE LOCATED ON THE "AS-BUILT" DRAWINGS. THE DEPTH BELOW FINISH GRADE, TO THE NEAREST FOOT OF EACH END OF EACH SLEEVE SHALL BE NOTED AT EACH SLEEVE LOCATION ON THE "AS-BUILT" DRAWINGS.

8) ALL UNSIZED PIPE SHALL BE 3/4" UNLESS OTHERWISE NOTED.

9) ALL CONTROL VALVES AND QUICK COUPLER VALVES SHALL BE INSTALLED IN CONCRETE VALVE BOXES WITH CAST IRON COVER.

10) IRRIGATION CONTRACTOR SHALL SECURE ANY AND ALL NECESSARY PERMITS FOR THE WORK PRIOR TO COMMENCEMENT OF HIS OPERATIONS ON-SITE. COPIES OF THE PERMITS SHALL BE SENT TO MANATEE COUNTY AND THE GENERAL CONTRACTOR.

11) VERIFY LOCATION OF CONTROLLER AND MAINLINE POINT OF CONNECTION AT PROJECT SITE WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

12) ELECTRIC SERVICE TO THE CONTROLLER SHALL BE PROVIDED BY THE IRRIGATION CONTRACTOR. ELECTRICAL INSTALLATION SHALL PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR.

13) ALL 24 VAC WIRING SHALL BE OF DIRECT BURIAL COPPER WIRE AS FOLLOWS: CONTROL WIRES - 14 GAUGE RED COLOR COMMON WIRES - 12 GAUGE WHITE COLOR SPARE WIRES - 14 GAUGE BLACK COLOR

14) INSTALLATION OF WORK SHALL BE COORDINATED WITH OTHER CONTRACTORS IN SUCH A MANNER AS TO ALLOW FOR A SPEEDY AND ORDERLY COMPLETION OF ALL WORK ON THE SITE.

15) RESTORE ALL DISTURBED AREAS. SEED AREAS WITH ARGENTINA BAHIA GRASS THAT ARE LESS THAN 12" WIDE AT THE RATE OF 10 LBS. PER 1000 SQUARE FEET. SOD AREAS 12" OR WIDER WITH ARGENTINA BAHIA GRASS SOD. PROVIDE A SMOOTH TRANSITION BETWEEN THE REPAIRED DISTURBED AREAS AND THE UNDISTURBED AREAS.

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 12007031
PM: D. WILCOX
ENG: C. OSMANSKI
DRW: D. ELLIS
FILE SAVE DATE: August 5, 2008

INFLUENT STRUCTURE
AT THE
NORTH WATER RECLAMATION FACILITY
FOR
MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

IRRIGATION DETAILS

PAUL D KURTZ, RLA.
FLORIDA RLA NO. 0001716

PROJECT STATUS
BID SET
OCTOBER 2008

IR-3