INFORMATION MGT REPORT PJ-DB-XMT-L7 ALL DATES SPECIFIED IN DD-MON-RR FORMAT DRAWING MANIFEST PACKET NO: BM-00188 GEN SUBJ MATL: 196116 JEA-GEC FUEL OIL STORAGE TANKS DIST PURPOSE: BID PROCESS DATE: 07-AUG-17		B&V ENERGY DIVISION - JACKSONVILLE CONSULTING ENGINEERING SERVICES B&V PROJECT JAXPROJ CLIENT REF: B&V FILE NO: 196116.05	
ATTN:JAMILA AKRAYI NO ADDRESS STORED	0 0	1	
B&V DWG NO		B&V DRAWING TITLE	
196116-CAAA-E0001	01	FUEL OIL SUPPLY & STORAGE ELECTRICAL LEGEND AND GENERAL NOTES	
196116-CAAA-E0002	01 07-AUG-17	FUEL OIL SUPPLY & STORAGE ELECTRICAL DETAILS	
196116-CFOA-E3001		FUEL OIL TANKS ELECTRICAL SITE PLAN	
196116-CFOA-K2001	00 07-AUG-17	INSTRUMENT LOOP DIAGRAM FUEL OIL SYSTEM	
196116-CFOA-M6001		FUEL OIL SUPPLY & STORAGE PIPING PLAN	
196116-CFOA-M6002		FUEL OIL SUPPLY & STORAGE PIPING PLAN	
196116-CFOA-M6003	01 07-AUG-17	FUEL OIL SUPPLY & STORAGE PIPING SECTIONS AND DETAILS	
196116-CFPU-E1601		FIRE PUMP BUILDING PANELBOARD SCHEDULE	
196116-CFPU-E1602	00 07-AUG-17	FIRE PUMP BUILDING PANELBOARD SCHEDULE	
196116-CFPU-K2001	00 07-AUG-17	INSTRUMENT LOOP DIAGRAM PLANT FIRE PROTECTION SYSTEM	
196116-CUUU-G0000	01 07-AUG-17	FUEL OIL & DEMIN WATER SUPPLY AND STORA COVER SHEET	

BLACK & VEATCH

#### B&V ENERGY DIVISION - JACKSONVILLE CONSULTING ENGINEERING SERVICES B&V PROJECT JAXPROJ

ALL DATES SPECIFIED IN DD-MON-RR FORMAT

B&V DWG NO	REV/ REV DATE	B&V DRAWING TITLE
 196116-CWSH-E3010	01 07-AUG-17	DEMINERALIZED WATER TANK ELECTRICAL SITE PLAN
196116-CWSH-K2001	00 07-AUG-17	INSTRUMENT LOOP DIAGRAM DEMINERALIZED WATER TANK
196116-CWSH-M6010	01 07-AUG-17	DEMINERALIZED WATER SUPPLY & STORAGE PIPING PLAN
196116-CWSH-M6011	01 07-AUG-17	DEMINERALIZED WATER SUPPLY & STORAGE PIPING SECTIONS AND DETAILS

END OF LISTING

## 01100 - General Requirements and Scope of Work

#### 01100.1 Overall Project Description

Greenland Energy Center (GEC) is located in southeast Jacksonville at 6850 Energy Center Drive, Jacksonville, FL 32256 in Duval County. The power plant consists of two nominal 175 MW General Electric (GE) model PG7241 FA (DLN) combustion turbine generators (CTG), designated Units 1 and 2, installed in simple-cycle configuration and currently in Commercial Operation. The site was cleared and developed, including the storm water detention ponds, for ultimate site build out (including future Units 3, 4, 5, 6, and 7).

### 01100.2 Contractor's Scope of Work

The scope of work specified herein includes improvements to existing fuel oil and NOx injection water systems at JEA's Greenland Energy Center. All work to furnish and erect equipment specified herein shall be provided by the Contractor. The scope of work includes but is not limited to the following.

- Earthwork including clearing and grubbing of the limits of construction.
- Earthen berm spill containment structure, including:
  - Earthern Embankment (fill material available from onsite spoil pile)
  - 60 mil conductive HDPE liner system
  - Drain sumps
  - Drain lines to existing oil/water separator
  - Through berm pipe penetrations
- Tank foundations including
  - Radial grooves for visual leak detection
  - Embedded tank anchor bolts (if required)
  - Tank drain sumps
- Other concrete bases as shown on the Drawings
- Demolition of the existing 20,000 gallon Fuel Oil Storage Tank. The existing fuel in the tank will be removed by JEA. However, for bidding purposes, assume the tank and piping will contain less than 1000 gallons which will need to be removed by the Contractor. The Contractor shall demolish the external piping and provide blind flanges for all piping connections as indicated on the drawings. The foundation will remain in place. Existing instrumentation cables shall be reused and extended to new fuel oil storage tanks via contractor provided new termination boxes. Existing cables no longer being used or from demolished equipment such as the fuel oil surge tank control valve shall be made safe by determinating on both ends and marking as spare.
- Instrumentation, including:
  - Guided Wave radar fuel oil tank level transmitters,
  - Demineralized water tank static pressure level transmitter
     Fuel oil tanks mechanical local level indicators
- Lightning protection and tank grounding tied into the existing ground grid.
- Tank lighting
- Above grade/below grade piping and valves as to modify the existing fuel oil system including fill piping, return piping, suction piping, and fire water supply piping.
- Pipe supports including concrete sleepers
- Fire detection and suppression equipment including:
  - Control panel,
  - Tank heat detection equipment
  - Manually actuated low expansion foam fire suppression equipment including foam house, foam chamber assemblies, handline hose reel stations, piping, valves, and instrumentation
  - Fire safe, fusible link, automatic shut-off valve assemblies installed on all tank piping connections located beneath the tank overflow connection.

#### JEA GEC FUEL OIL/DEMINERALIZED WATER STORAGE TANK ADDITION 196116.70.0100

**Issued for Bid** 

General Drawings		
Drawing No.	Title	Revision
CUUU-G0000	Fuel Oil & Demineralized Water Supply And Storage – Cover Sheet	<del>0<u>1</u></del>
	Civil & Structural Drawings	
Drawing No.	Title	Revision
CSTF-S3000	Grading & Drainage Drawing – Key Plan Layout	0
CSTF-S3030	Fuel Oil Containment – Grading and Drainage Plan	0
CSTF-S3040	Fuel Oil Containment – Geomembrane Liner Plan	
CSTF-S3720	Fuel Oil Containment – Sections and Details	0
CUUU-S5500	Fuel Oil & Demineralized Water Storage Foundation	0
CFOA-S5501	Fuel Oil Storage Tank – Foundation Plan, Sections and Details	0
CFOA-S5502	Demineralized Water Storage Tank – Foundation Plan, Sections and Details	0
CFOA-S5503	Fuel Oil Containment Foundations – Piping Sleepers	0
CFOA-S5504	Fuel Oil Containment Foundations- Miscellaneous	0
CFOA-S6001	Fuel Oil Containment Steel– Miscellaneous	0

Mechanical Drawings		
Drawing No.	Title	Revision
CFPA-M2361	Piping & Instrument Diagram – Fuel Oil Fire Protection	0
CFOA-M2401	Piping & Instrument Diagram – Fuel Oil Supply And Storage	0
CWWC-M2643	Piping & Instrument Diagram – Fuel Oil Containment Area Drain	0
CWSH-M2668	Piping & Instrument Diagram – Demin Water NOx Injection Supply And Storage	0
CFOA-M6000	Fuel Oil & Demineralized Water Supply And Storage – Piping Key Plan, Tie Points And General Notes	0
CFOA-M6001	Fuel Oil Supply & Storage – Piping Plan	<del>0<u>1</u></del>
CFOA-M6002	Fuel Oil Supply and Storage – Piping Plan	<u>1</u> 0
CFOA-M6003	Fuel Oil Supply & Storage – Piping Sections And Details	<u>1</u> 0
CWSH-M6010	Demineralized Water Supply & Storage – Piping Plan	<u>1</u> 0
CWSH-M6011	Demineralized Water Supply & Storage – Piping Sections And Details	0

Controls & Electrical Drawings		
Drawing No.	Title	Revision
CAAA-E0001	Fuel Oil Supply & Storage – Electrical Legend And General Notes	<u>1</u> 0

July 26<sup>th</sup>, 2017

Controls & Electrical Drawings		
Drawing No.	Title	Revision
CAAA-E0002	Fuel Oil Supply & Storage – Electrical Details	<u>1</u> 0
CFOA-E3001	Fuel Oil Tanks – Electrical Site Plan	<u>1</u> 0
CWSH-E3010	Demineralized Water Tank – Electrical Site Plan	<u>1</u> 0
<u>CFPU-E1601</u>	Fire Pump Building – Panelboard Schedule	<u>0</u>
<u>CFPU-E1602</u>	Fire Pump Building – Panelboard Schedule	<u>0</u>
<u>CFOA-K2001</u>	Instrument Loop Diagram – Fuel Oil System	<u>0</u>
<u>CFPU-K2001</u>	Instrument Loop Diagram – Plant Fire Protection System	<u>0</u>
<u>CWSH-K2001</u>	Instrument Loop Diagram – Demineralized Water Tank	<u>0</u>

The following listed documents are included in Appendix C and are reference documents to the Contract.

Black & Veatch Drawings		
Drawing No.	Title	Revision
160167-CGAU-G1000	Plot Plan Drawing	6
160167-CSTF-S3000	Grading and Drainage – Key Plan	8
160167-CSTF-S3001	Grading and Drainage – Plan – Area 1	6
160167-CSTF-S3002	Grading and Drainage – Plan – Area 2	5
160167-CSTF-S3004	Grading and Drainage – Plan – Area 4	8
160167-CSTF-S3005	Grading and Drainage – Plan – Area 5	6
160167-CSTU-S3300	Underground Utilities – Key Plan	8
160167-CSTU-S3309	Underground Utilities – Plan - Area 9	6
160167-CSTU-S3311	Underground Utilities – Plan – Area 11	6
196116-DM-0001	Fuel Oil Supply & Storage – 500,000 Gallon Fuel Oil Tank	0
196116-DM-0002	Demineralized Water Supply & Storage – 800,000 Gallon Demin Water Storage Tank	0

Zachry Electrical Drawings		
Drawing No.	Title	Revision
D013784-100E00001	Area Classification Plan	0
D013784-684E00002	Grounding Plant Area Grounding View Plan	3
D013784-684E00003	Grounding Zone 1 Layout	1
D013784-684E00005	Grounding Zone 3 Layout	1
D013784-684E00009	Grounding Zone 7 Layout	1

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differential gauges, rotary type indicator full scale pointer travel shall be a minimum of 270 degrees. Indicator dial size shall be at least 4-1/2 inches. Accuracy of pressure indicators shall be  $\pm 0.5$  percent of full scale range. Accuracy of temperature indicators shall be  $\pm 0.1$  percent of full scale range.

Differential pressure indicator full scale pointer travel shall be at least 80 degrees. Indicator dial size shall be at least 4 inches. Accuracy shall be 2 to 4 percent of full scale range.

#### K100.2.1 Level Indicators

Tank level indicators shall be mechanical float and cable type, with cable tensioned automatically maintained by the local indicator. The cable and float shall enter the tank through the top and the local indicator shall be installed at a location providing convenient access to an operator standing at ground level.

K100.2.2 Not Used

K100.3 Not Used

K100.4 Not Used

K100.5 Not Used

#### K100.6 Level Transmitters

Level transmitters on the fuel oil storage tanks shall be guided wave radar and the transmitter on the demineralized water storage tank shall be static pressure type. Transmitters shall be as specified in the Instrument List and on the electrical drawings. Level transmitters shall be as specified in the Instrument List and on the electrical drawings.

#### Q003 Quality System Requirements

(Source: 21Jan10 - Revised by Project: 02Jun11)

This Supplemental Specification establishes the quality management system requirements for suppliers of equipment and commodities.

#### Q003.1 Quality System

It is the Contractor's responsibility to define and implement a detailed and documented quality management system which ensures that all equipment and commodities supplied are in conformance with required drawings and/or specifications. The Contractor shall meet all the guidelines (requirements) set forth in this document. The quality management system shall be capable of providing assurance that design, purchasing, materials, manufacturing, examination and testing of equipment, shipping, storage, and related services comply with the Contract requirements.

The Contractor's quality management system shall include, at a minimum, procedures and/or methods that ensure the following processes are controlled:

Design documents, drawings, specifications, procedures, inspection and test status and procurement documents are current, accurate, and controlled.

Materials, equipment, and services conform to the requirements of the Contract.

Receipt inspection, in-process inspection, examination, testing, checkouts, and final acceptance testing are conducted.

July 26<sup>th</sup>, 2017

### 17300 - Instrumentation

#### 17300.1 General

Instruments shall be furnished in accordance with the requirements of the applicable sub-section and as specified herein. All instruments and ancillary devices supplied under this specification shall meet the hazardous area classification identified on the attached datasheets.

Instrument List

Instrument ID	Instrument Name	Manufacturer
CFOA-LI001	Fuel Oil Storage Tank 1 Level Indicator	Varec
CFOA-LI002	Fuel Oil Storage Tank 2 Level Indicator	Varec
CFOA-LT001	Fuel Oil Storage Tank 1 Level Transmitter	Magnetrol
CFOA-LT002	Fuel Oil Storage Tnak-Tank 2 Level Transmitter	Magnetrol
CWSH-LT001	Demineralized Water Storage Tank 1 Level Transmitter	Rosemount

See drawing CFOA-E3001 and CWSH-E3010 for instrument model numbers.

#### 17300.2 Materials

Materials received at the site having damaged or defective surfaces or surface coatings shall be repaired at the manufacturer's expense.

### 17300.3 Coatings

All metallic surfaces subject to corrosion, excluding stainless steel, shall be furnished with the manufacturer's standard paint or plating applied in the shop. Ferrous surfaces that should not be painted and are subject to corrosion should be coated with a rust-preventive compound. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment. Exposed surfaces shall be finished smooth, thoroughly cleaned, and filled as necessary to provide a smooth, uniform base for painting. The surfaces shall be cleaned and prepared in the shop. The Owner will approve rust-preventive compounds.

#### 17300.4 Lubricants

An anti-seize compound or a spray lubricant shall be applied to all enclosure threads to prevent thread galling.

### 17300.5 Shipping and Storage Protection

Instruments that are flanged or are to be mounted between flanges shall be furnished with wooden flange face protectors. Instruments that have process, instrument air, or electrical connections shall be furnished with plugs or caps to protect instrument internals and threads. If more than one electrical connection is provided, a permanent electrical connection plug shall be furnished for each spare connection. Each instrument shipment weighing more than 200 pounds (91 kg) shall be packed in a weatherproof wooden crate for protection.

	GROUNDING & BONI	DING		
GROUNDING SYMBOLS ARE USED TO SHOW GROUNDING INVOLVED IN THE KEY ELEVATION. THE KEY ELEVATION INCLUDES, THE SPACE BETWEEN THE BOTTOM OF THE STRUCTURAL FLOOR OR THE SLAB BELOW AND THE BOTTOM OF THE STRUCTURAL FLOOR, SLAB OR ROOF ABOVE THE KEY ELEVATION. THE KEY ELEVATION ALSO INCLUDES THE EARTH BELOW THE BASEMENT, GROUND FLOOR SLAB OR FINISHED GRADE AS NEEDED. VERIFY MATERIALS, INSTALLATION AND WORKMANSHIP REQUIREMENTS WITH SPECIFICATIONS.				
	4/0 AWG BARE COPPER GROUND GRID CONDUCTOR		GROUND CONDUCTOR CONTINUING THROUGH KEY ELEVATION	
	2/0 AWG GROUND STINGER BARE COPPER GROUND TEST WELL	<u> </u>	BOLTED CONNECTION TO CABLE TRAY TO CABLE TRAY	
Ø	SOLID COPPER GROUND ROD		GROUND CONDUCTOR TURNING UP FROM KEY ELEVATION	
	EXOTHERMAL CONNECTION CABLE TO CABLE		GROUND CONDUCTOR TURNING DOWN FROM KEY ELEVATION	
	GROUND PLATE CAST INTO WALL OR FLOOR EXOTHERMAL CONNECTION TO	0	GROUND CONDUCTOR COILED FOR FUTURE CONNECTION	
$\Delta$	EQUIPMENT OR STEEL BOLTED CONNECTION TO EQUIPMENT OR STEEL	×	GROUND CONDUCTOR, STUB-UP ABOVE FINISH FLOOR OR	
R	EXOTHERMAL CONNECTION TO FOUNDATION REBAR		FINISH GRADE	
	LIGHTNING PROTECT	ION		

 MAIN LIGHTNING PROTECTION CONDUCTOR (SIZE AS INDICATED ON DWG)	©	STANDING SEAM AIR TERMINAL
 LIGHTNING PROTECTION DOWN CONDUCTOR	——————————————————————————————————————	ADHESIVE MOUNT AIR TERMINAL
(SIZE AS INDICATED ON DWG) SECONDARY LIGHTNING	(H)	HANDRAIL MOUNT AIR TERMINAL
 PROTECTION CONDUCTOR (SIZE AS INDICATED ON DWG)		THRU ROOF AIR TERMINAL
LIGHTNING CONDUCTOR TURNING DOWN FROM KEY ELEVATION	<u> </u>	OTHER (SPECIFY)
LIGHTNING CONDUCTOR TURNING UP FROM KEY ELEVATION	-	EQUIPMENT BOND

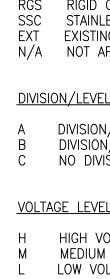
# LIGHTING AND COMMUNICATION

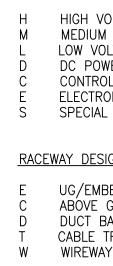
	TYPE "B3" LIGHT FIXTURE. SEE FIXTURE LIST FOR DETAILS. (TYP) "5" DENOTES PANEL CIRCUIT NUMBER STRAIGHT LINES EXTENDING TO SYMBOL DENOTE METAL CHANNEL SUPPORT
B3 DT	TYPE "B3" LIGHT FIXTURE. "DT" DENOTES DUST—IGNITION—PROOF CLASS II, GROUP F, DIV 1
B3 5 EP	TYPE "B3" LIGHT FIXTURE. "EP" DENOTES EXPLOSION—PROOF, CLASS I, GROUP B OR D, DIV 1
FL <sub>6</sub>	TYPE "FL" LIGHT FIXTURE. ARROW DENOTES GENERAL AIMING
(FV)- 6	TYPE "FV" LIGHT FIXTURE. STANCHION MOUNTED
(B)	TYPE "B" LIGHT FIXTURE. WALL MOUNTED LIGHTING FIXTURE
A 8	TYPE "A" LIGHT FIXTURE. LINES EXTENDING INTO SYMBOL DENOTE METAL CHANNEL SUPPORT
PC 1C	PHOTOELECTRIC CONTROLLER (PHOTOCELL) "1C" DENOTES LIGHT FIXTURES IN SAME AREA WITH SAME SUBSCRIPT ARE CONTROLLED
S <sub>EP</sub>	EXPLOSION-PROOF SWITCH SUITABLE CLASS I GROUP B OR D, DIVISION 1 ATMOSPHERES
S <sub>WP</sub>	WEATHERPROOF SWITCH
€10	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE, WEATHERPROOF
	GROUND FAULT INTERRUPTING RECEPTACLE
	CORROSION RESISTANT RECEPTACLE
$\bigoplus_{10}^{DT}$	DUST-IGNITION-PROOF RECEPTACLE SUITABLE FOR CLASS II, GROUP F, DIVISION 1 ATMOSPHERE
<b>(</b> ) W 10	WELDING RECEPTACLE
€ <sup>EP</sup> 10	EXPLOSION—PROOF RECEPTACLE SUITABLE FOR CLASS I, GROUP D, DIVISION 1 ATMOSPHERES
<b>4</b> <sub>10</sub>	DOUBLE DUPLEX RECEPTACLE



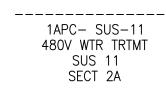
	_				

2	3	4 5	6
GROUNDING & BONDING		RACEWAY - COMPOSITE	
NG SYMBOLS ARE USED TO SHOW GROUNDING INVOLVED ( ELEVATION INCLUDES, THE SPACE BETWEEN THE BOTTO	M OF THE STRUCTURAL	LETTERS WITHIN PARENTHESIS () INDICATE COMPONENT FUNCTION CODE	ACCESSORY EQUIP AS ILLUSTRATED I
THE SLAB BELOW AND THE BOTTOM OF THE STRUCTURA HE KEY ELEVATION. THE KEY ELEVATION ALSO INCLUDES BASEMENT, GROUND FLOOR SLAB OR FINISHED GRADE	THE EARTH BELOW THE	* IDENTIFICATION NUMBER SHOWN ON PLANS CORRESPONDS TO PROJECT ACCESSORY EQUIPMENT OR MAJOR EQUIPMENT LIST	SHALL BE INSTALL
IATERIALS, INSTALLATION AND WORKMANSHIP REQUIREMENT	S WITH SPECIFICATIONS.	1CLA0392 — EXPOSED CONDUIT WITH	
4/0 AWG BARE COPPER GROUND GRID CONDUCTOR	GROUND CONDUCTOR CONTINUING THROUGH KEY ELEVATION	RACEWAY NUMBER INDICATED	<u>TYPE 1</u> – DESK
2/0 AWG GROUND STINGER	BOLTED CONNECTION	CONCEALED CONDUIT CONCEALED CONDUIT CAPPED	ADJACENT SYMB
BARE COPPER	TO CABLE TRAY TO CABLE TRAY	— UG· — UNDERGROUND CONCEALED	
SOLID COPPER GROUND ROD	GROUND CONDUCTOR TURNING UP FROM	CE · UNDERGROUND CONCRETE ENCASED CONDUIT	
EXOTHERMAL CONNECTION	KEY ELEVATION GROUND CONDUCTOR	CD· UNDERGROUND CABLE DUCT	►_1SGG-PS- 0008
CABLE TO CABLE	TURNING DOWN FROM KEY ELEVATION	CONDUIT CONTINUING THROUGH	
GROUND PLATE CAST INTO WALL OR FLOOR	GROUND CONDUCTOR COILED FOR FUTURE	CONDUIT TURNING DOWN FROM KEY ELEVATION	<u>TYPE 2</u> – DESI ADJACENT TO S`
EXOTHERMAL CONNECTION TO	CONNECTION	O CONDUIT TURNING UP FROM KEY ELEVATION	,∕−1SGG−SV-
BOLTED CONNECTION TO	GROUND CONDUCTOR, STUB-UP ABOVE FINISH FLOOR OR	CONDUIT CONTINUING THROUGH	
EXOTHERMAL	FINISH GRADE	W KEY ELEVATION	
CONNECTION TO FOUNDATION REBAR		SEE S3300 SERIES DWGS FOR ADDITIONAL INFORMATION	-1SGG-ZS- 0025
LIGHTNING PROTECTION		J * JUNCTION BOX (JBX)	
		P * PULLBOX (BX)	<u>TYPE 3</u> – DESI TAG NUMBERS A
MAIN LIGHTNING PROTECTION CONDUCTOR (SIZE AS INDICATED ON DWG)	STANDING SEAM AIR TERMINAL		
LIGHTNING PROTECTION	ADHESIVE MOUNT AIR TERMINAL	CAST CONDUIT FITTING	EXAMPLE EQUIP
<ul> <li>DOWN CONDUCTOR (SIZE AS INDICATED ON DWG)</li> </ul>	HANDRAIL MOUNT		
SECONDARY LIGHTNING PROTECTION CONDUCTOR	AIR TERMINAL	T DRY-TYPE TRANSFORMER (XF, LXF)	0 = COMMON SYSTEM CODE —
(SIZE AS INDICATED ON DWG)	THRU ROOF AIR TERMINAL	COMBINATION STARTER (MOS) STARTER OR CONTACTOR (MOS, CNT)	
DOWN FROM KEY ELEVATION	OTHER (SPECIFY)	ISOLATING SWITCH (DS, MDS)	
LIGHTNING CONDUCTOR TURNING	EQUIPMENT BOND	POWER PANEL (PPL) FREEZE PROTECTION PANEL (FPL)	<u>C</u> _APC_E1101_
LIGHTING AND COMMUNICA	ΓΙΟΝ	LIGHTING PANEL (LPL)	
		SOLENOID VALVE (SV) SOLENOID BLOCK VALVE (SBV)	
TYPE "B3" LIGHT FIXTURE. SEE FIXTURE LIST FOR DETAILS. (TYP)		MOTOR OPERATED VALVE OR DAMPER (M_V) OR (M_D)	
"5" DENOTES PANEL CIRCUIT NUMBER STRAIGHT LINES EXTENDING TO SYMBOL DENOTE METAL CHANNEL SUPPORT		CONTROL DRIVE OR DAMPER	
TYPE "B3" LIGHT FIXTURE.		CONTROL DRIVE OR DAMPER (CDR,CD) CONTROL AND REGULATING VALVE	
"DT" DENOTES DUST-IGNITION-PROOF CLASS II, GROUP F, DIV 1		CONTROL AND REGULATING VALVE * (A_V)	
YPE "B3" LIGHT FIXTURE. "EP" DENOTES EXPLOSION-PROOF,		O * TEMPERATURE ELEMENT (TE) TEMP SW, T-STAT (TS,THS)	$\begin{array}{c c} C & T & M & C & 000 \\ \hline \end{array}$
CLASS I, GROUP B OR D, DIV 1 TYPE "FL" LIGHT FIXTURE.		PRESSURE SWITCH (PS) DIFFERENTIAL PRESSURE SWITCH (PDS)	
ARROW DENOTES GENERAL AIMING		▲ LEVEL OR TILT SWITCH (LS)	
TYPE "FV" LIGHT FIXTURE. STANCHION MOUNTED		$\Delta_*$ Level or tilt element (LE) Limit or position switch or	
TYPE "B" LIGHT FIXTURE.		<pre> ELEMENT (ZS,ZE) PROXIMITY OR BELT MISALIGNMENT </pre>	
WALL MOUNTED LIGHTING FIXTURE		SWITCH (ZS) PROCESS CONTROLLER	
LINES EXTENDING INTO SYMBOL DENOTE METAL CHANNEL SUPPORT		(FC,LC,MC,PC,SC,TC,XC)	RACEWAY MATERIA
PHOTOELECTRIC CONTROLLER (PHOTOCELL) "1C" DENOTES LIGHT FIXTURES IN SAME		ELECTRONIC TRANSMITTER (CT,FT, LT,MT,PT,PDT,PHT,ST,TT,VT,XT,ZT)	CONDUIT AND DU EMT ELECTRIC/
AREA WITH SAME SUBSCRIPT ARE CONTROLLED		DETAIL NUMBER	FLX LIQUID-TI FRE FIBERGLAS
EXPLOSION-PROOF SWITCH SUITABLE		E#### DRAWING NUMBER WHERE DETAIL WILL BE FOUND	IMC INTERMEDI PCS PLASTIC
CLASS I GROUP B OR D, DIVISION 1 ATMOSPHERES		A SECTION IDENTIFICATION (ALPHA)	PVC POLYVINY RAL RIGID ALU RGS RIGID GAI
WEATHERPROOF SWITCH		E#### DRAWING NUMBER WHERE SECTION WILL BE FOUND	SSC STAINLESS EXT EXISTING
			N/A NOT APPI





----- FROM -----EQUIP/DESC/DEVICE/



"FROM" INDICATES THE EQUIPMENT OR DEVICE AT WHICH THE SUBJECT CIRCUIT ORIGINATES

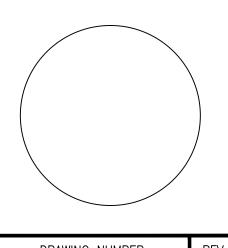
		1	07/AUG/2017	ADDENDUM 1	JKB	JB		PBK	EEB
		0	26/JUL/2017	ISSUED FOR BIDS	JKB	JB		PBK	EEB
		NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	СНК	PDE	APP

7 8	9 10 NOTES	
DEVICE & CONDUIT DESCRIPTION	1. ELECTRICAL DRAWINGS ARE GENERALLY DIAGRAMMATIC TO ILLUSTRATE GENERALIZED SCOPE AND	
QUIPMENT DEVICES GROUPED IN A SMALL AREA MAY BE SHOWN ON THE PLANS WITH SYMBOLS ED IN THE LEFT HAND COLUMN BELOW. CONDUIT AND ASSOCIATED WIRING INSTALLATION STALLED AS SHOWN IN THE RIGHT HAND COLUMN BELOW.	REQUIRES BOXES, STRAPS, SUPPORTS AND OTHER ESSENTIAL COMPONENTS THAT ARE NOT NEU AND REQUIRED.	
ф—1CLA0392 ф—1CLA0392	2. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT APPLICABLE CODES, STANDA	
S=0001 SIZE CONDUIT AS SHOWN IN RACEWAY LIST	3. BACKGROUND DRAWINGS MAY NOT REFLECT EXISTING FIELD CONDITIONS SUFFICIENTLY TO AVOIE CONFLICTS. CONTRACTOR SHALL FIELD VERIFY CONDITIONS FOR EACH SPACE, BEFORE PROCES	EDING WITH ANY WORK.
DESIGNATES ONE DEVICE, SHOWN BY ENTERING A SINGLE DEVICE TAG NUMBER YMBOL.	4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH OTHER DISCIPLINES, UTILITIES, E PROJECT RELATED CONFLICTS AND CLARIFICATIONS SHALL BE RESOLVED BY THE ENGINEER.	QUIPMENT PROVIDED BY OTHERS.
t—1CLA0392	5. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN AN ACCURATE UP-TO-DATE PLAN SET ON SITE "CONSTRUCTION RECORD" MARKUPS. THE ON-SITE PLAN SET WILL INCLUDE PLAN REVISION A	
SIZE CONDUIT AS SHOWN IN RACEWAY LIST	6. ELECTRICAL MATERIALS, DEVICES AND EQUIPMENT SHALL BE PURCHASED, FABRICATED AND/OR READINESS FOR PROPER OPERATION IN FULL CONFORMITY WITH THE INTENT OF THE DESIGN, S	
-PS-0003, ISGG-PS-0008 FIELD SIZE BRANCH	ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SIMILAR MATERIALS OR DEVICES SHALL BE FROM THE SAME MANUFACTURER.	
CONDUITS PER NEC SPECIFICATIONS		
O SYMBOL. 		\$
-SV-0021		}
1CLA0392 $-2$ S-0004 $-1$ $$ PULL BOX OR WIREWAY		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-ZS-0004, -ZS-0004, -ZS-0025 MAYBE USED IN LIEU OF CONDUIT FITTINGS FIELD SIZE BRANCH		
CONDUITS PER NEC SPECIFICATIONS		
DESIGNATES THREE DEVICES OF TWO DIFFERENT TYPES, SHOWN BY ENTERING DEVICE RS ADJACENT TO APPROPRIATE SYMBOLS.		
UIP/DEVICE TAG NUMBER DESCRIPTIONEXAMPLE CONDUIT NUMBER DESCRIPTION1 SGG-PS-1001C C L A 0392		
SEQUENCE NUMBER		
E COMPONENT FUNCTION CODE CODE COMPONENT FUNCTION CODE RACEWAY DESIGNATION		
UNIT NUMBER C = COMMON		
CIRCUIT NUMBER FORMAT		
101 001		
DRAWING REFERENCE		
E1000 SERIES – ONE-LINES K2000 SERIES – SCHEMATICS		
SYSTEM CODE		
$\frac{\text{UNIT NUMBER}}{1 = \text{UNIT 1}}$		
2 = UNIT 2 C = COMMON		
<u>ACEWAY LIST DESCRIPTION</u>		
SEQUENCE NUMBER		
DIVISION/LEVEL_CODE		
RACEWAY DESIGNATION		
$\frac{\text{UNIT NUMBER}}{1 = \text{UNIT 1}}$		
2 = UNIT 2 C = COMMON		
TERIAL CODES UNIQUE RACEWAY NUMBERS		
TRICAL METALLIC TUBING		
D-TIGHT FLEXIBLE METALLIC RGLASS REINFORCED EPOXY <u>FLDRTE 01</u> FIELD ROUTE		
TIC COATED STEEL		
) GALVANIZED STEEL <u>1 TRNCH 0</u> 1 CABLE TRENCH		
INGSEQUENCE_NUMBERCABLE_TRENCH_DESIGNATORUNIT_NUMBERUNIT_NUMBER		
<u>EL CODES</u> <u>1 EHH 0001</u> ELECTRICAL HANDHOLE		
DN/TRAY LEVEL A		
VOLTAGE POWER (15KV AND ABOVE)		
M VOLTAGE POWER (5KV AND 8KV) UNIT NUMBER		
ROL <u>1 VAULT 01</u> CABLE VAULT RONIC/NOISE SENSITIVESEQUENCE NUMBER ALCABLE VAULT DESIGNATOR		
SIGNATION CDB01A01 DUCT BANK MBEDDED CONDUITROW DESIGNATION		
E GRADE CONDUIT BANK TRAY COLUMN DESIGNATION SEQUENCE NUMBER DUCT BANK DESIGNATOR		
MAY UNIT NUMBER		
CIRCUIT LIST		
TO CABLE DATA ROUTING / EQUIP/DESC/DEVICE/ SIZE TYPE		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
WTR TRTMT MCC 111 TTTT 1BLC0004, 1CLC0006		
IE "TO" INDICATES THE TO		
E EQUIPMENT OR DEVICE CIRCUIT IS TO BE ROUTED. RACEWAY NUMBERS CT AT WHICH THE SUBJECT ARE IN THE ORDER OF ROUTING STARTING AT		
CIRCUIT TERMINATES THE "FROM" EQUIPMENT. ROUTING DOES NOT NECESSARILY SPECIFY THE DIRECTION TO BE USED FOR CABLE PULLING		
PRIMARY-SECONDARY_CABLE		
PRIMARY & SECONDARY CABLES WILL BE USED TO ALLOW FOR A SINGLE CIRCUIT TO CONSIST OF TWO DIFFERENT SIZES AND TYPES OF CABLE AS FOLLOWS:		
CABLE TYPE		
REFER TO E-CBLSPE (CABLE SPECIFICATION)       SIZE		
SIZE OF INDIVIDUAL CONDUCTORS. NUMBER INDICATED IS AWG, KCMIL OR sq MM		
<u>CONDUCTOR</u> INDICATES THE NUMBER OF CONDUCTORS IN AN OVERALL CABLE ASSEMBLY		
IN AN OVERALL CABLE ASSEMBLY		
INDICATES THE NUMBER OF OVERALL CABLE ASSEMBLIES TO BE INSTALLED		

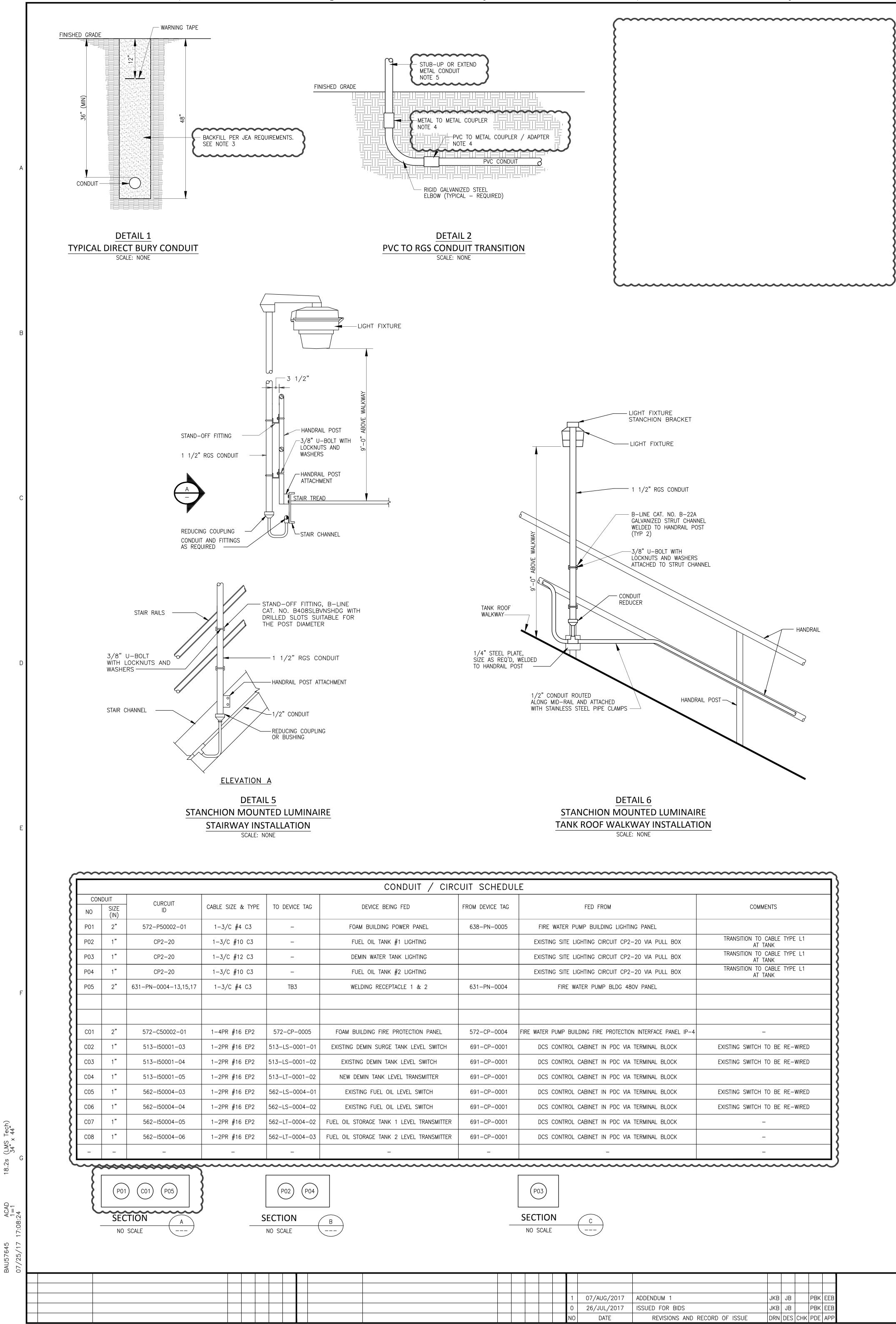


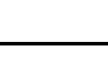
			LATEST CONTROLLED VERSION.
		12740 Gran Bay Parkway West Suite 2140 Jacksonville, Florida 32258	JEA
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	CHECKED:	DATE:	ELECTRICAL LEGEND AND GENERA

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Y CFNTFR	PF 1



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AGE	CODE:	REFERENCE DWG NUMBER:	
RAL NOTES	AREA:		



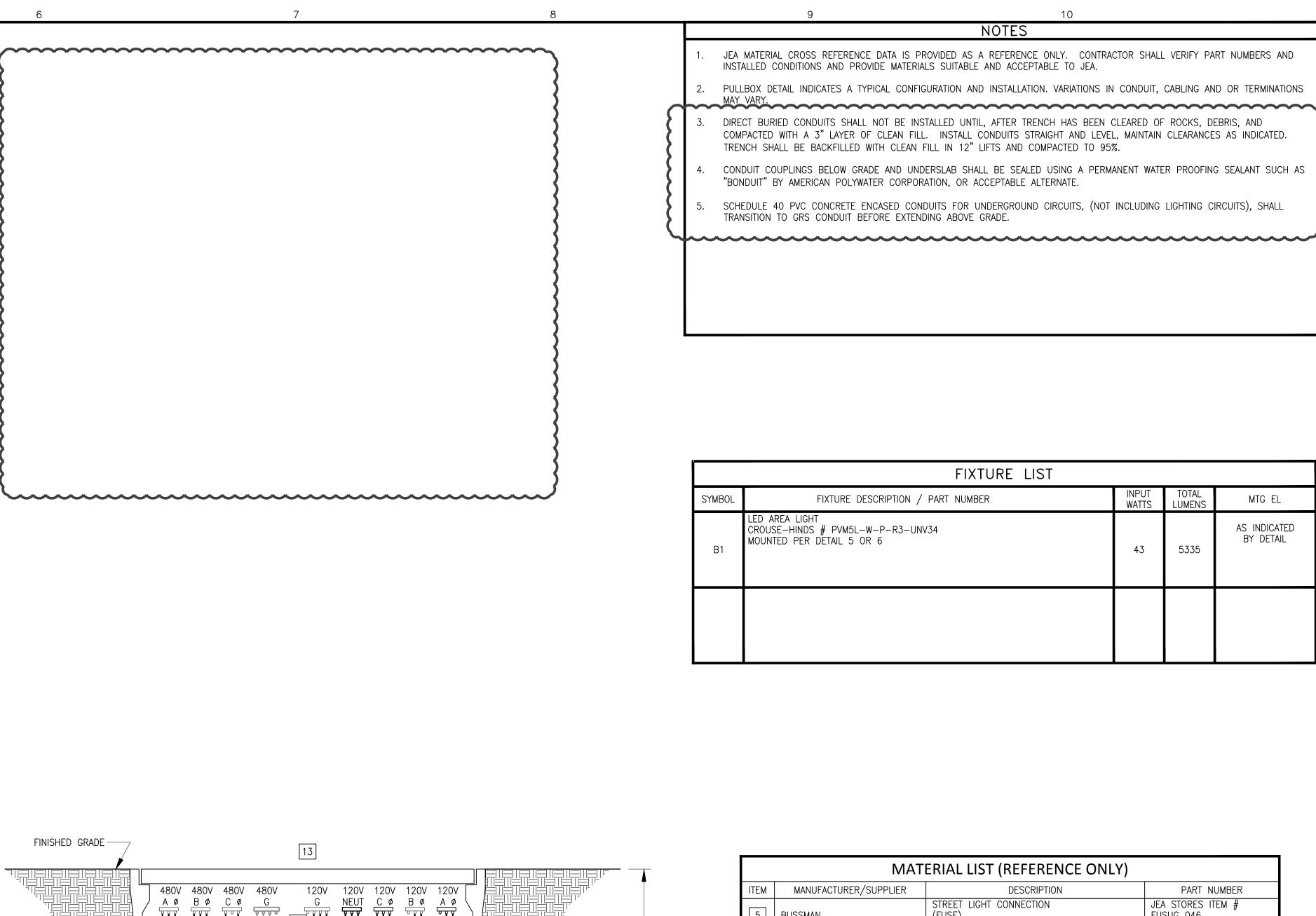


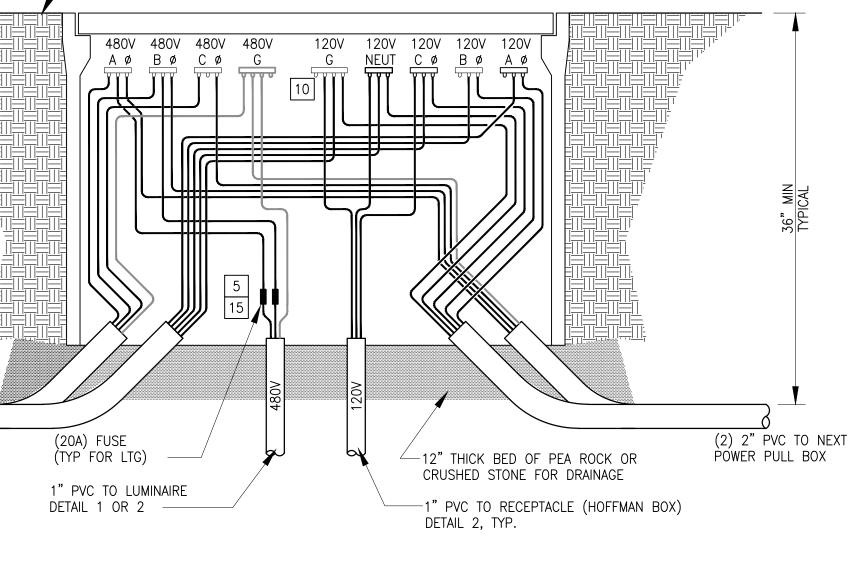


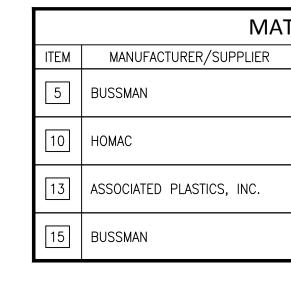
FINISHED GRADE -

IT SCHEDUL	E	
ROM DEVICE TAG	FED FROM	COMMENTS
638-PN-0005	FIRE WATER PUMP BUILDING LIGHTING PANEL	
	EXISTING SITE LIGHTING CIRCUIT CP2-20 VIA PULL BOX	TRANSITION TO CABLE TYPE L1 AT TANK
	EXISTING SITE LIGHTING CIRCUIT CP2-20 VIA PULL BOX	TRANSITION TO CABLE TYPE L1 AT TANK
	EXISTING SITE LIGHTING CIRCUIT CP2-20 VIA PULL BOX	TRANSITION TO CABLE TYPE L1 AT TANK
631-PN-0004	FIRE WATER PUMP BLDG 480V PANEL	
572-CP-0004	FIRE WATER PUMP BUILDING FIRE PROTECTION INTERFACE PANEL IP-4	_
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	EXISTING SWITCH TO BE RE-WIRED
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	EXISTING SWITCH TO BE RE-WIRED
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	EXISTING SWITCH TO BE RE-WIRED
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	EXISTING SWITCH TO BE RE-WIRED
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	_
691-CP-0001	DCS CONTROL CABINET IN PDC VIA TERMINAL BLOCK	_
_	-	_

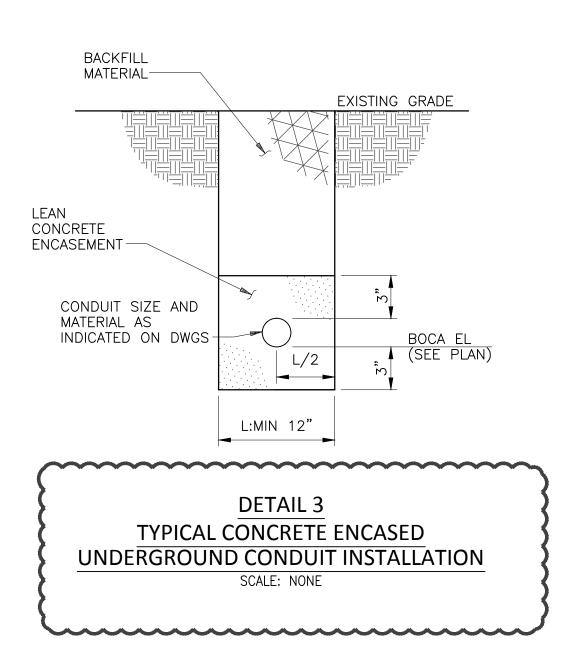
			1	07/AUG/2017	ADDENDUM 1	JKB	JB		PBK	EEB
			0	26/JUL/2017	ISSUED FOR BIDS	JKB	JB		PBK	EEB
			NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	СНК	PDE	APP











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LATEST CONTROLLED VERSION.

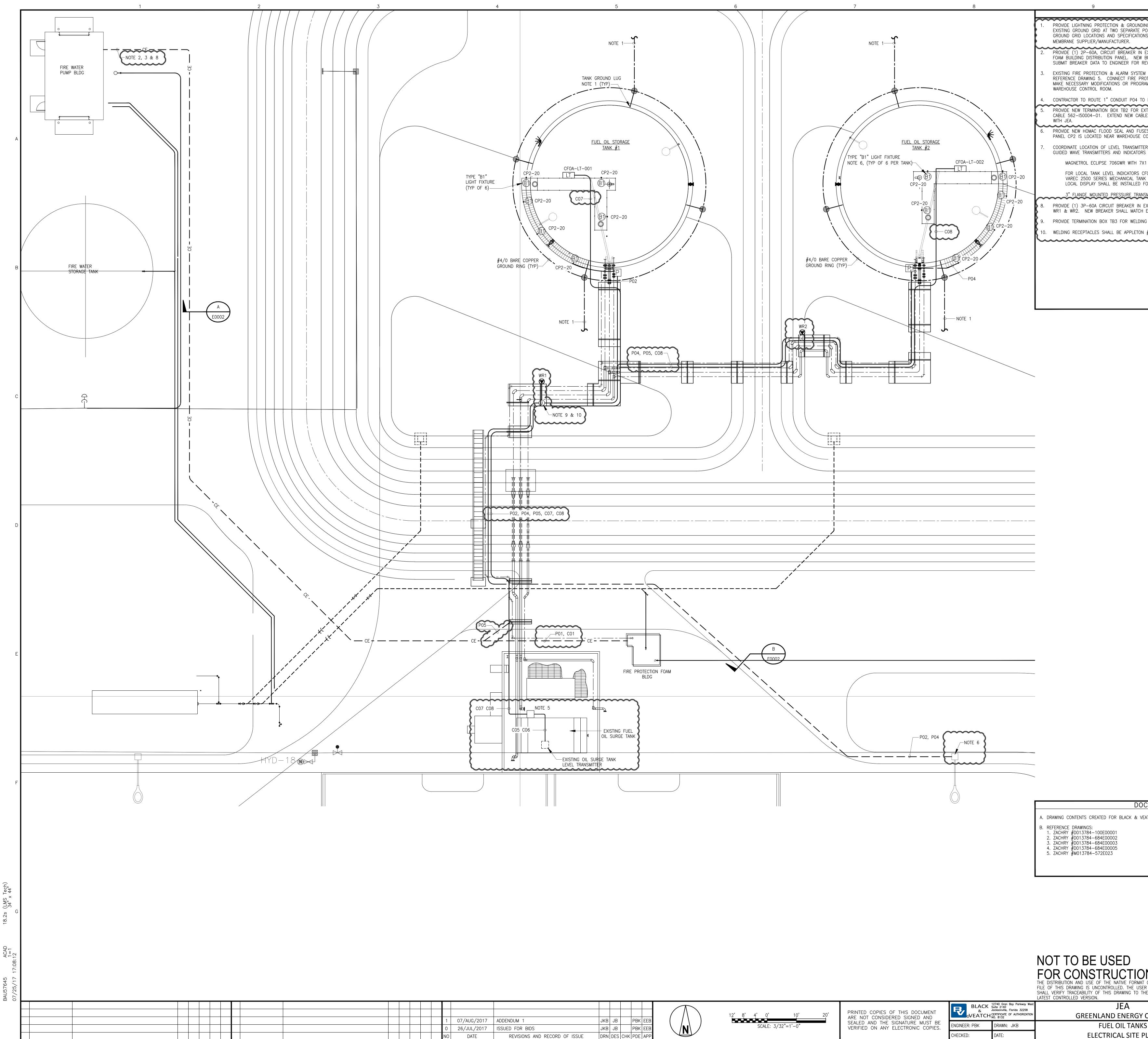
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SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.	ENGINEER: PBK	DRAWN: JKB	FUEL OIL SUPPLY & STO
	CHECKED:	DATE:	ELECTRICAL DETAI

NOTES
PROVIDED AS A REFERENCE ONLY. CONTRACTOR SHALL VERIFY PART NUMBERS AND RIALS SUITABLE AND ACCEPTABLE TO JEA.
FIGURATION AND INSTALLATION. VARIATIONS IN CONDUIT, CABLING AND OR TERMINATIONS
NSTALLED UNTIL, AFTER TRENCH HAS BEEN CLEARED OF ROCKS, DEBRIS, AND ILL. INSTALL CONDUITS STRAIGHT AND LEVEL, MAINTAIN CLEARANCES AS INDICATED. I FILL IN 12" LIFTS AND COMPACTED TO 95%.
NDERSLAB SHALL BE SEALED USING A PERMANENT WATER PROOFING SEALANT SUCH AS DRATION, OR ACCEPTABLE ALTERNATE.
ONDUITS FOR UNDERGROUND CIRCUITS, (NOT INCLUDING LIGHTING CIRCUITS), SHALL NDING ABOVE GRADE.

FIXTURE LIST			
/ PART NUMBER	INPUT WATTS	TOTAL LUMENS	MTG EL
INV34	43	5335	AS INDICATED BY DETAIL

T	ERIAL LIST (REFERENCE ONLY)	
	DESCRIPTION	PART NUMBER
	STREET LIGHT CONNECTION (FUSE) —	JEA STORES ITEM # FUSUG 046 -
	FLOOD SEAL MECHANICAL CONNECTOR	JEA STORES ITEM # SHC 4/0-3 - SHC 4/0-4 SIZE AS REQUIRED
	POWER PULL BOX – POLYMER WITH POLYMER CONCRETE LID & RING EMS LOCATOR IN LID	JEA STORES ITEM # BOXPS001 13"x24"x18" DEEP
	HEB SERIES 600V FUSE HOLDER	HEB-AW-RLC-A

N CAD IR HE			
CENTER	PROJECT NUMBER: 196116-C	DRAWING NUMBER:	rev 1
TORAGE	CODE:	REFERENCE DWG NUMBER:	
AILS	AREA:		

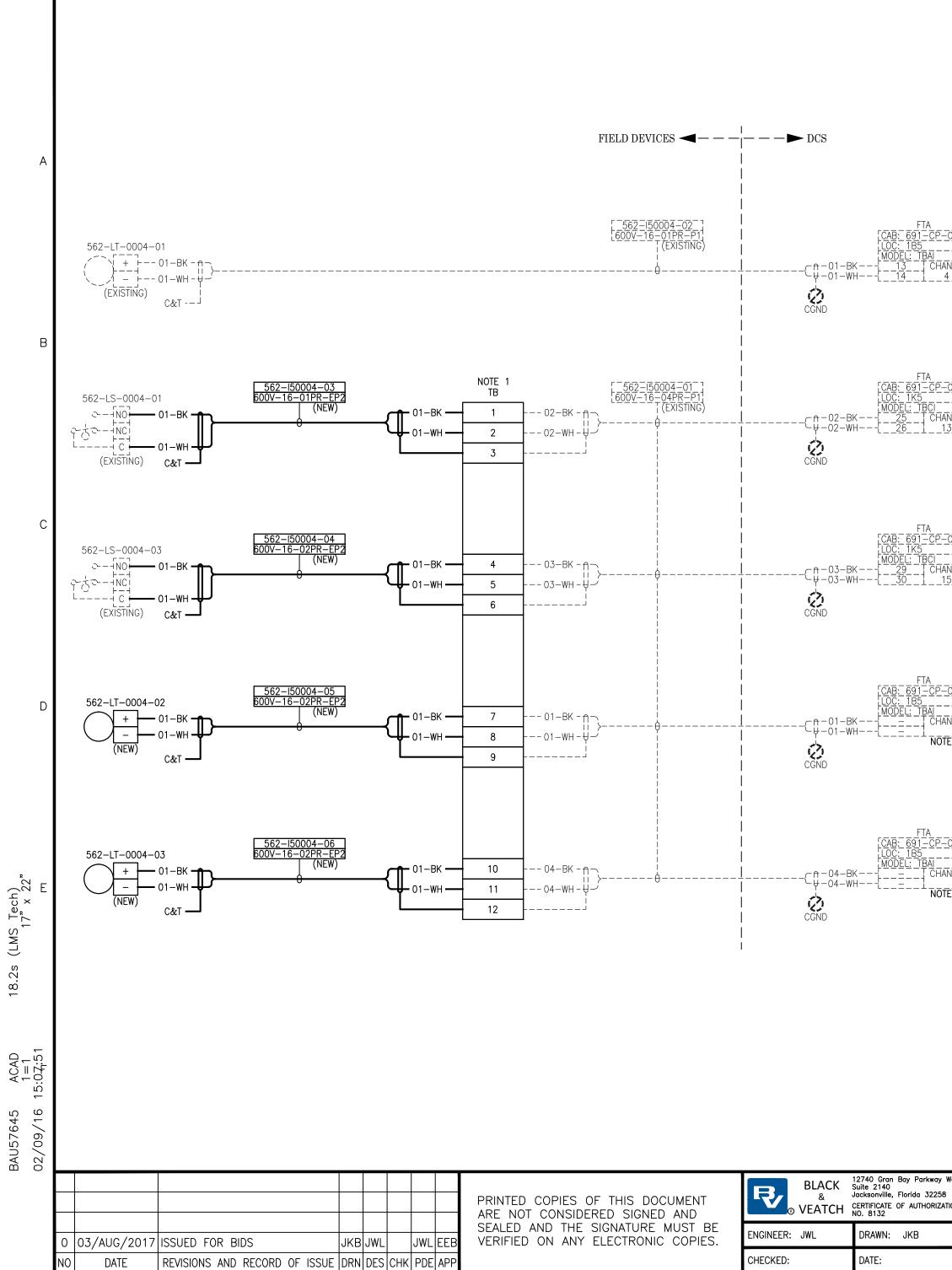


							BLACK	12740 Gran Bay Parkway West Suite 2140 Jacksonville, Florida 32258	JEA
					1 <u>2' 8' 4' 0' 10' 20</u> '	PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND		CERTIFICATE OF AUTHORIZATION NO. 8132	GREENLAND ENERGY C
	1	07/AUG/2017 ADDENDUM 1	JKB JB PE			SEALED AND THE SIGNATURE MUST BE			
	0	26/JUL/2017 ISSUED FOR BIDS	JKB JB PE		SCALE: 3/32"=1'-0"	VERIFIED ON ANY ELECTRONIC COPIES.	ENGINEER: PBK	DRAWN: JKB	FUEL OIL TANKS
	NO	DATE REVISIONS AND RECORD OF ISSUE	DRN DES CHK PD	APP			CHECKED:	DATE:	ELECTRICAL SITE PL

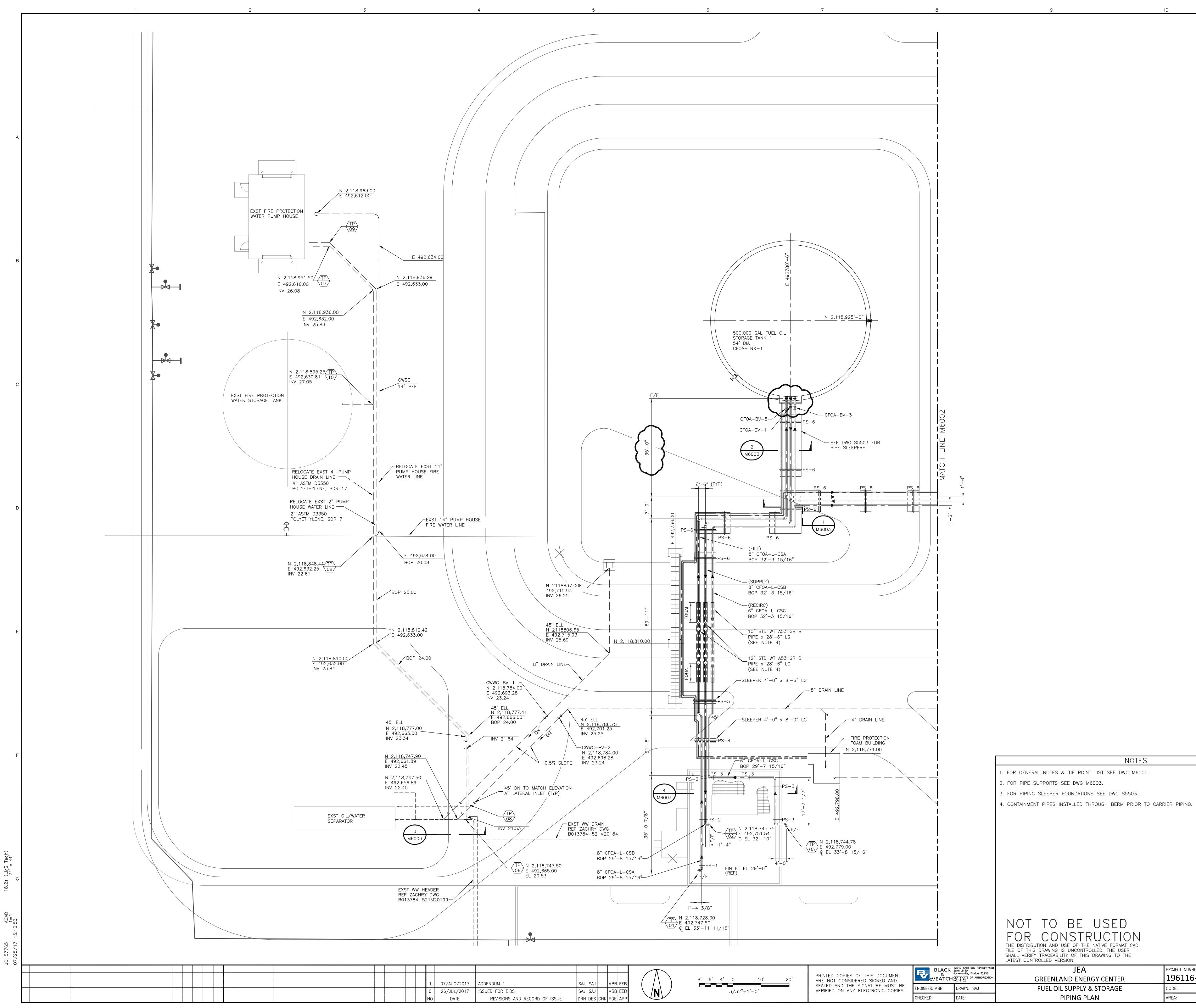
10
NOTES
DING OF NEW TANKS. TIE NEW LIGHTNING PROTECTION & GROUNDING SYSTEM INTO POINTS ON OPPOSITE SIDES OF TANK. SEE REFERENCE DRAWINGS FOR EXISTING DNS FOR GROUNDING REQUIREMENTS. COORDINATE MEMBRANE PENETRATIONS WITH
EXISTING PANEL 638-PN-0005. NEW BREAKER TO FEED FUEL OIL TANK BREAKER SHALL MATCH EXISTING PANEL 638-PN-0005 RATINGS. REVIEW.
EM INTERFACE PANEL IP-4 IS LOCATED IN THE FIRE WATER PUMP BUILDING. SEE ROTECTION FOAM BUILDING FIRE ALARM SIGNAL INTO EXISTING INTERFACE PANEL IP-4. RAMMING CHANGES TO INTERFACE PANEL IP-4, TO MAIN FIRE ALARM PANEL, LOCATED IN
O BOTH TRANSMITTER LOCATIONS.
EXTENSION OF SPARE PAIRS IN EXISTING OIL SURGE TANK LEVEL TRANSMITTER BLES FROM TB2 TO FUEL TANK LEVEL TRANSMITTERS. COORDINATE DCS TERMINATIONS
SES TO TIE TANK LIGHTING INTO EXISTING SITE LIGHTING CIRCUIT CP2-20. CONTROL ROOM, OUTSIDE CONSTRUCTION POWER PANELS.
TERS AND INDICATORS WITH TANK SUPPLIER'S DRAWINGS. CONTRACTOR SHALL PROVIDE RS AS LISTED BELOW:
X1 TYPE FLEXIBLE CABLE PROBE.
CFOA—LI—0001 AND CFOA—LT—0001: NK GAUGING SYSTEM. FOR READING AT GROUND LEVEL.
NSMITTER, 4–20mA WITH HART #305IL3AA0.
EXISTING PANEL 631–PN–0004. NEW BREAKER SHALL FEED WELDING RECEPTACLES
NG RECEPTACLES FOR CIRCUIT EXTENSION TO WR1 & WR2.
N # ADJA6034–150, 3 WIRE, 4 POLE OR JEA APPROVED ALTERNATE.

CUMENT	CONTROL	NOTES
ATCH PROJEC	T 196116	

DN T CAD ER THE			
	PROJECT NUMBER:		REV
' CENTER	190110-0	CFOA-E3001	T
<s< th=""><th>CODE:</th><th>REFERENCE DWG NUMBER:</th><th></th></s<>	CODE:	REFERENCE DWG NUMBER:	
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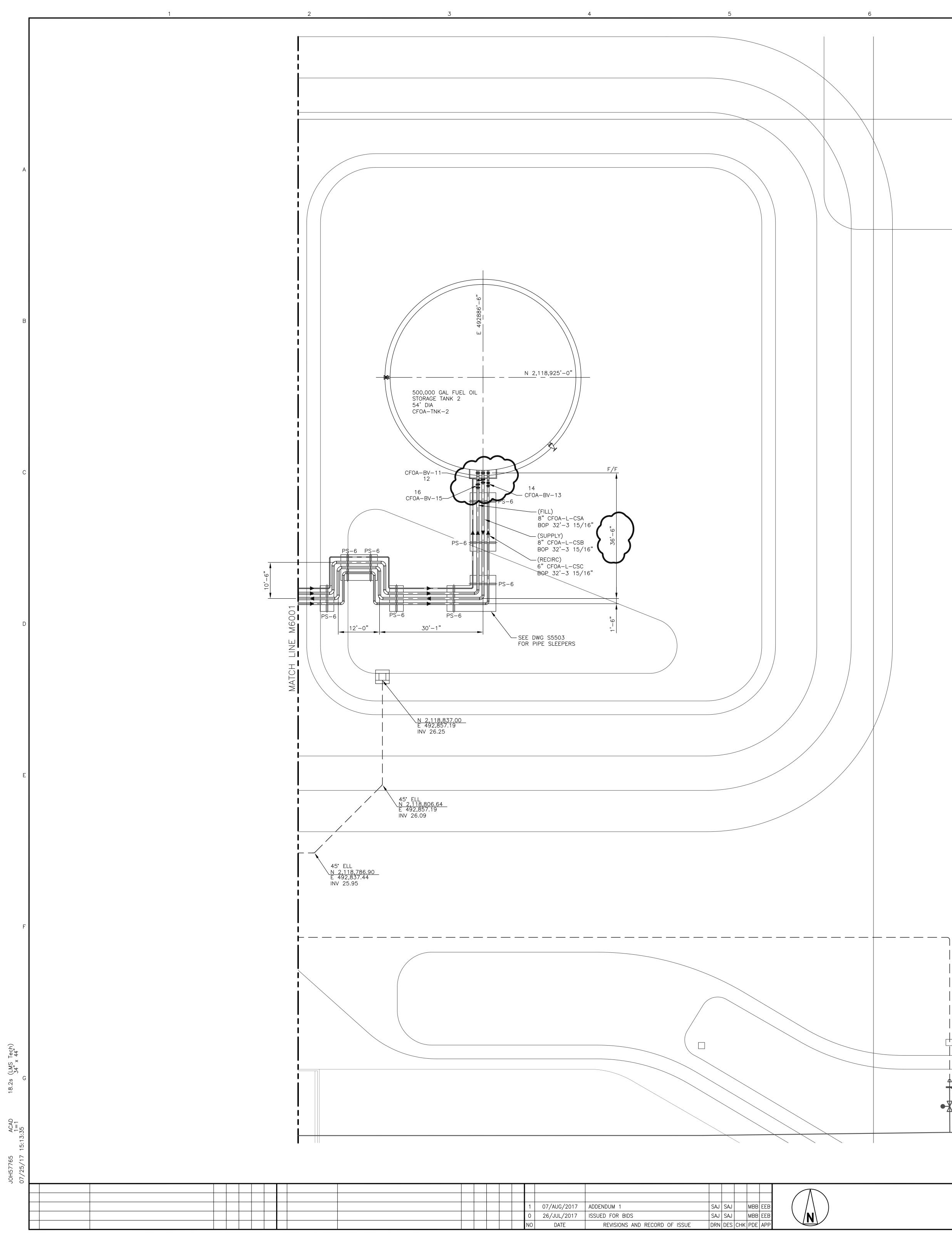


	5	6	7		8	
		FROM THE FLOOR O THE CONTAINMENT W TANK LEVEL SWITCHI IT MAY BE NECESSA WITH THE 4-PAIR C. LEVEL TRANSMITTER. INSTALL NEW CABLES EXISTING DEVICES. 2. DCS TERMINATION LC	F THE FUEL OIL SURGE TAI /ALL ELEVATION. PULL BAC ES AND ROUTE IT INTO THE RY TO ALSO PULL BACK TH ABLE. THESE CABLES GO RE-INSTALL AND TERMINA	NK CONTAINMENT. LO IK EXISTING CABLE 56 INEW JUNCTION BOX IE 2—PAIR AND 1—PAI TO THE SURGE TANK ITE THESE TO "AS—FO FIELD DEVICES AS SH BY JEA AT TIME OF C	OWN. UTILIZE EXISTING CONDUI	TOP OF IL SURGE DNDUIT GE TANK
-0001 	I/O MODULE TAG: A562/0004LT01 FUEL OIL SURGE TANK LEVEL ADDRESS: CP0001_1B5/4 MODEL: TBAI	ZACHRY DRAWING BO B. THE ORIGINAL DRAW	ND INFORMATION DISPLAYED 013784–562C50004, REVISI NG AND SUBSEQUENT REVIS C, ARE MAINTAINED IN THE I	ON 1. SIONS WITH APPROVAL		В
_0001 	I/O MODULE TAG: A562/0004LSH01 FUEL OIL SURGE TANK HIGH LEVEL ADDRESS: CP0001_1K5/13 MODEL: TBCI					
-0001 	I/O MODULE TAG: A562/0004LSHH03 FUEL OIL SURGE TANK HIGH HIGH LEVEL ADDRESS: CP0001_1K5/15 MODEL: TBCI					С
<u>-0001</u>  AN-#- TE-2	I/O MODULE TAG: A562/ FUEL OIL STORAGE TANK 1 LEVEL ADDRESS: CP0001 MODEL: TBAI					D
1  an TE2	I/O_MODULE TAG: A562/ FUEL OIL STORAGE TANK 2_LEVEL ADDRESS: CP0001 MODEL: TBAI					E
		FOR CO THE DISTRIBUTION AND FILE OF THIS DRAWING SHALL VERIFY TRACEAN LATEST CONTROLLED	<b>BE USED</b> <b>NSTRUC</b> USE OF THE NATIVE S IS UNCONTROLLED. T BILITY OF THIS DRAWING VERSION.	FORMAT CAD HE USER		F
West B ATION		JEA D ENERGY CEN	TFR	PROJECT NUMBER:	DRAWING NUMBER:	REV O
		NT LOOP DIAGF		CODE:	REFERENCE DWG NUMBER:	┕──┨
	FUEL	OIL SYSTEM		AREA:		



	ISED ICTION TIVE FORMAT CAD D. THE USER AWING TO THE							
CODE:     REFERENCE DWG NUMBER:		PROJECT NUMBER:	DRAWING NUMBER:	REV				
	CENTER	196116-0	16-CFOA-M6001					
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		AREA:						

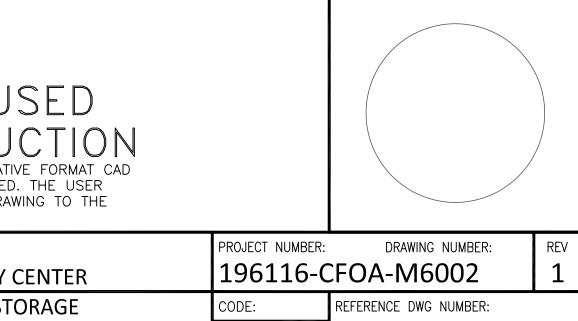
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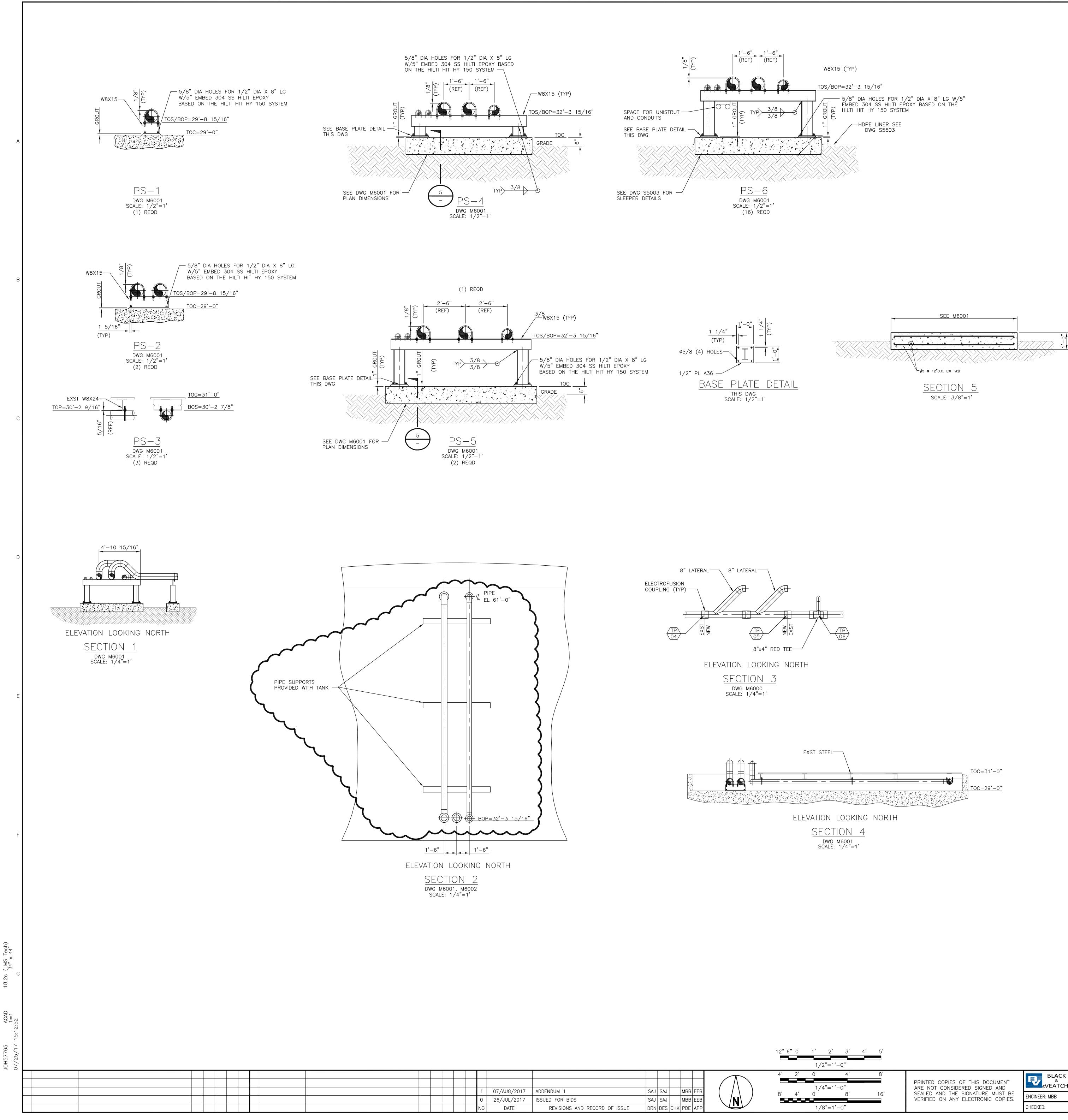
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			1	07/AUG/2017	ADDENDUM 1	SAJ	SAJ		MBB	EEB	$(   \rangle )$
			0	26/JUL/2017	ISSUED FOR BIDS	SAJ	SAJ		MBB	EEB	$\langle N \rangle$
			NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	СНК	PDE	APP	

				1. FOR GENERAL NOTES & TIE POINT LIST SEE DWG M6000.
				2. FOR PIPE SUPPORTS SEE DWG M6003.
				3. FOR PIPING SLEEPER FOUNDATIONS SEE DWG. S5503.
$\square$				
l				
	TP			
•	11/			
				NOT TO BE USED
				FOR CONSTRUCTION
				THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER
				SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.
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	VERIFIED ON ANY ELECTRONIC COPIES.	CHECKED:	DATE:	PIPING PLAN
		SHEOKED.	DATE.	

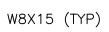




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	CODE:	REFERENCE DWG NUMBER:	
	AREA:		

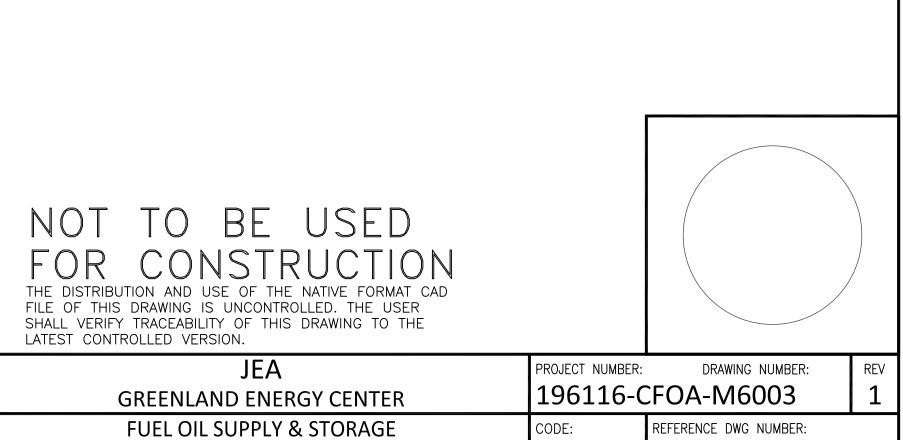


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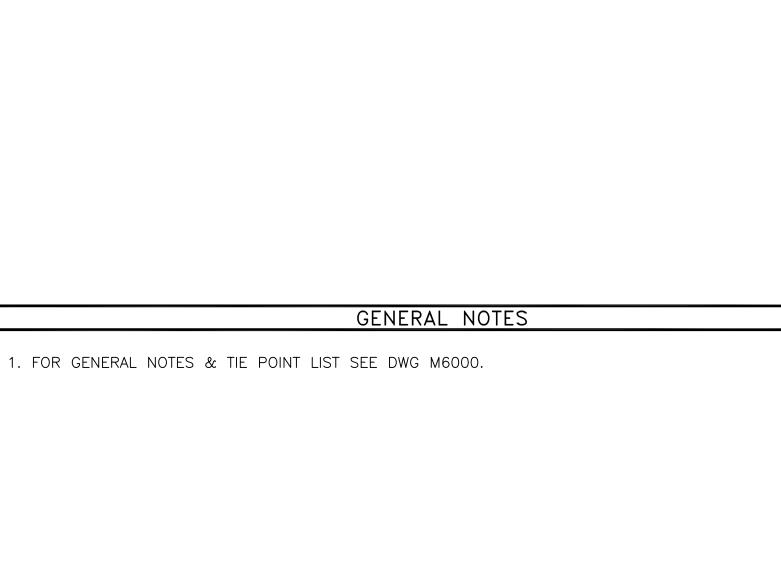
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BLACK & 12740 Gran Bay Parkway West Suite 2140 Jacksonville, Florida 32258 ©VEATCH CERTIFICATE OF AUTHORIZATION NO. 8132 DRAWN: SAJ DATE



AREA:

PIPING SECTIONS AND DETAILS



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А												
В		125A MAIN CIRCUIT BREAKER 120/208V, 3ø, 4W, 30P 10KA INTERRUPTING RATING (4) 4/0 + #2GND 2 1/2C					<u> </u>		PANELBC Ing pan			
		WIRE SIZE/CONDUIT	LOAD DESCRIPTION	CONNE A-PH	CTED LC B-PH		BKR. AMPS	CIR. NO.	125A			CIR. NO.
		1#12,1#12 NEUT., 1#12 GND, 3/4" C	LIGHTS	7	$\searrow$	$\searrow$	20	1		,		2
		1#12,1#12 NEUT., 1#12 GND, 3/4" C	EXTERIOR LIGHTS	$\searrow$	10.7	$\mathbf{\mathbf{X}}$	20	3				4
		1#12,1#12 NEUT., 1#12 GND, 3/4" C	EMERGENCY LIGHTS & EXIT	$\square$		0.2	20	5				6
	*	1#12,1#12 NEUT., 1#12 GND, 3/4" C	572-CP-0016 - ELEC. CONTROLLER	1		$\searrow$	20	7				8
С			SPARE	$\searrow$	0.0	$\searrow$	20	9				10
		1#12,1#12 NEUT., 1#12 GND, 3/4" C	572-FN-0001	$\searrow$		4.4	20	11				12
		1#12,1#12 NEUT., 1#12 GND, 3/4" C	572-FN-0002	4.4		$\geq$	20	13		•		14
	*	1#12,1#12 NEUT., 1#12 GND, 3/4" C	572-CP-0015 - HEATER		4		20	15				16
	*	1#12,1#12 NEUT., 1#12 GND, 3/4" C	572-CP-0015 - DIESEL CONTRL			1	20	17	-			18
			SPACE	0.0				19	-			20
			SPACE	$\mid$	0.0	$\geq$		21				22

D

\* CIRCUIT WIRING TO FIRE PUMP CONTROLLERS & WATER JACKET HEATERS BY OTHERS

SPACE

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SPACE

ODD POLE AMP TOTALS

BLACK & 12740 Gran Bay Parkway Wes Suite 2140 Jacksonville, Florida 32258 BLACK Jacksonville, Florida 32200 & VEATCH CERTIFICATE OF AUTHORIZATION NO. 8132 PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE ENGINEER: PBK DRAWN: JKB VERIFIED ON ANY ELECTRONIC COPIES. 0 03/AUG/2017 ISSUED FOR BIDS JKB JB PBK EEB DATE: CHECKED: REVISIONS AND RECORD OF ISSUE DRN DES CHK PDE APP DATE

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NOTES:

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PROVIDE (1) 2P–60A, CIRCUIT BREAKER IN EXISTING PANEL 638–PN–0005. NEW BREAKER TO FEED FUEL OIL TANK FOAM BUILDING DISTRIBUTION PANEL. NEW BREAKER SHALL MATCH EXISTING PANEL 1. 638-PN-0005 RATINGS. SUBMIT BREAKER DATA TO ENGINEER FOR REVIEW.

#### PROJECT 196116 DOCUMANT CONTROL NOTES:

- EXISTING BACKGROUND INFORMATION DISPLAYED ON THIS DRAWING ORIGINATED FROM A ZACHRY DRAWING D013784-572E60001, REVISION 1.
- THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS WITH APPROVAL NAMES, INITIALS P.E. SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF JEA. Β.
- C. ATTACHED REFERENCE FILE: NONE

					SUPPLIED FROM: 638-XF-0005 Total line AMPS: Aø : 23.1 Bø : 24.4. Cø : 24.6	
5		CTED LC B-PH		LOAD DESCRIPTION	WIRE SIZE/CONDUIT	
	6	$\ge$	$\searrow$	NORTH SIDE RECEPTACLES	1#12,1#12 NEUT., 1#12 GND, 3/4" C	
	$\times$	6	$\boxtimes$	SOUTH SIDE RECEPTACLES	1#12,1#12 NEUT., 1#12 GND, 3/4" C	
	$\times$	$\ge$	6	OUTSIDE RECEPTACLES	1#12,1#12 NEUT., 1#12 GND, 3/4" C	
	1	$\ge$	$\searrow$	572-CP-0017- JOCKEY CNTL / HEATER	1#12,1#12 NEUT., 1#12 GND, 3/4" C	*
	$\ge$	0.0	$\ge$	SPARE	1#12,1#12 NEUT., 1#12 GND, 3/4" C	
	$\ge$	$\geq$	13	FIRE PUMP JACKET WATER HEATER	1#12,1#12 NEUT., 1#12 GND, 3/4" C	*
	3.7	$\geq$	$\geq$	FUEL STOR TANKS FOAM FIRE HOUSE POWER PANEL	2 #4, #4 NEUTM #6 GND, 2" C	} ≻CIRCUIT: C50002-02
	$\ge$	3.7	$\geq$			NOTE 1
	$\ge$	$\geq$	0.0	SPACE		
	0.0	$\geq$		SPACE		
	$\ge$	0.0	$\geq$	SPACE		
	$\ge$	$\geq$	0.0	SPACE		
	0.0	$\geq$	$\geq$	SPACE		
	$\ge$	0.0	$\geq$	SPACE		
	$\ge$	$\geq$	0.0	SPACE		
$\langle$	10.7	9.7	19.0	EVEN POLE AMP TOTALS		

NOT TO BE USED FOR CONSTRUCTION THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION. JEA PROJECT NUMBER: DRAWING NUMBER: REV 196116-CFPU-E1601 0 **GREENLAND ENERGY CENTER** FIRE PUMP BUILDING REFERENCE DWG NUMBER: CODE:

AREA:

PANELBOARD SCHEDULE

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В

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	225A MAIN CIRCUIT BREAKER 480V, 3ø, 3W, 30P 50KA INTERRUPTING RATING (4) 4/0 + #2GND 2 1/2C	EXISTING PANEL $6.31 - PN - 0.004$	Ø : 59.6 Ø : 59.6 Ø : 59.6
	LOAD DESCRIPTION	CONNECTED LOAD       BKR.       CIR.       CIR.       CIR.       CIR.       BKR.       CIR.       CONNECTED LOAD         A-PH       B-PH       C-PH       AMPS       NO.       225A       C       C       NO.       AMPS       A-PH       B-PH       C-PH       LOAD       LOAD       DESCRIPTION	
	572-UH-0001	5.8     20     1       5.8     20     3       5.8     20     3       5.8     20     5       5.8     20     5       5.8     20     5       6     20	
	SPARE	0.0     20     7       0.0     20     7       0.0     20     9       0.0     20     9       0.0     20     10       50     36       638-XF-0005	
631-PN-0004-13,15,17 {	WELDING OUTLET WR1 & WR2	12.0       60       13         12.0       60       15         12.0       60       15         12.0       60       17         12.0       60       17         12.0       60       17         12.0       60       17         13       18       20       0.0	
	SPACE	0.0 19 20 0.0 SPACE	
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02/09/16 15:							FOR CONSTRUCT THE DISTRIBUTION AND USE OF THE NATIVE F FILE OF THIS DRAWING IS UNCONTROLLED. TH SHALL VERIFY TRACEABILITY OF THIS DRAWING LATEST CONTROLLED VERSION.	FORMAT CAD IE USER		
					BLACK	12740 Gran Bay Parkway West Suite 2140 Jacksonville, Florida 32258	JEA	PROJECT NUMBER:	DRAWING NUMBER:	REV
				PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND		CERTIFICATE OF AUTHORIZATION NO. 8132	GREENLAND ENERGY CENTER	196116-CFF	PU-E1602	0
ŀ	0 03/AUG/2017	ISSUED FOR BIDS JKB JB	PBK EEB	SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.	ENGINEER: PBK	DRAWN: JKB	FIRE PUMP BUILDING	CODE:	REFERENCE DWG NUMBER:	
		REVISIONS AND RECORD OF ISSUE DRN DES			CHECKED:	DATE:	PANELBOARD SCHEDULE	AREA:		

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NOTES: 1. PROVIDE (1) 3P-60A, CIRCUIT BREAKER IN EXISTING PANEL 631-PN-0004. NEW BREAKER TO FEED FUEL OIL TANK WELDING OUTLETS. NEW BREAKER SHALL MATCH EXISTING PANEL 631-PN-00045 RATINGS. SUBMIT BREAKER DATA TO ENGINEER FOR REVIEW.

## PROJECT 196116 DOCUMANT CONTROL NOTES:

- A. EXISTING BACKGROUND INFORMATION DISPLAYED ON THIS DRAWING ORIGINATED FROM ZACHRY DRAWING D013784-572E60001, REVISION 1.
- B. THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS WITH APPROVAL NAMES, INITIALS P.E. SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF JEA.
- C. ATTACHED REFERENCE FILE: NONE

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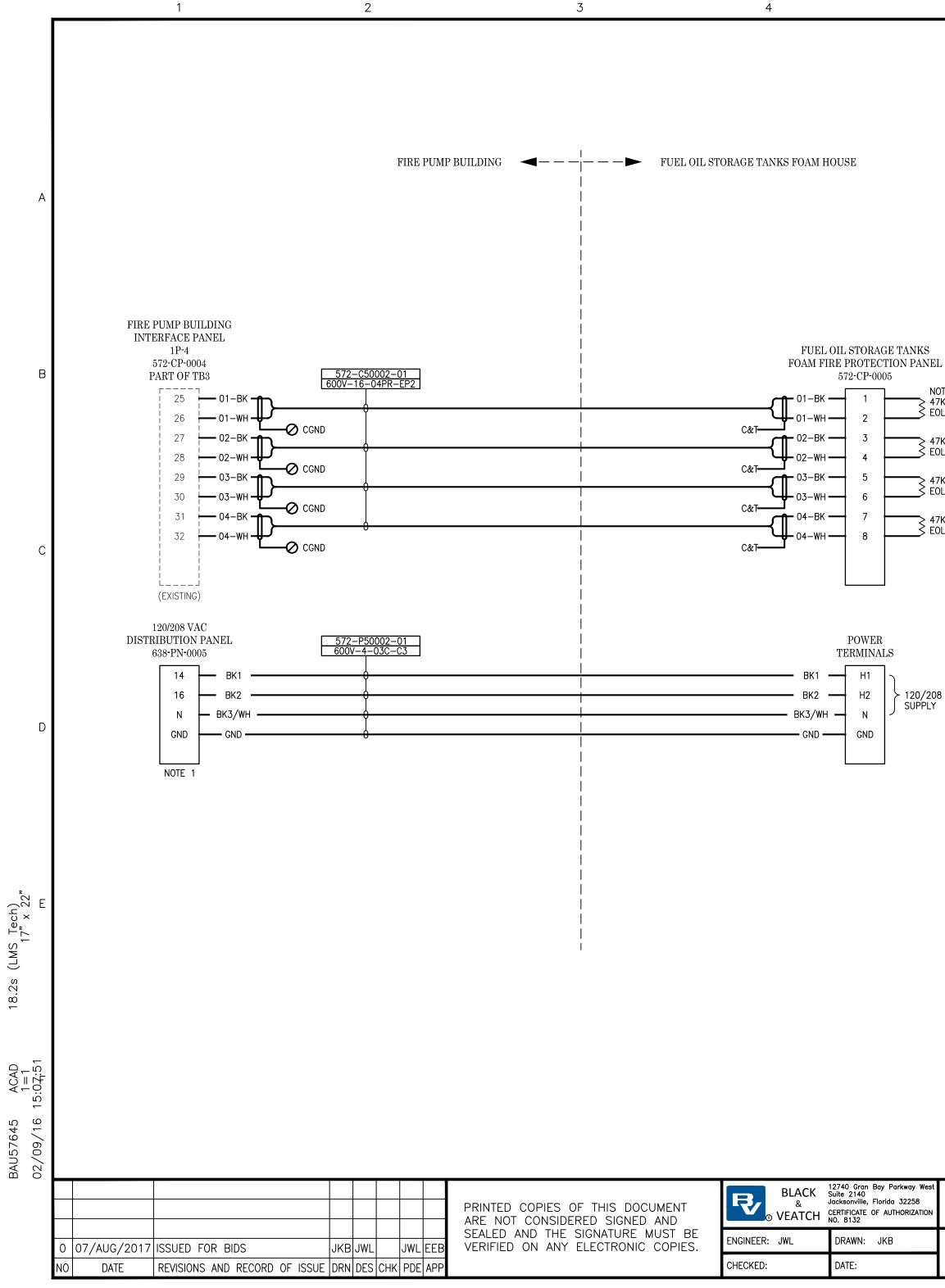
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- NOTES: 1. CONTRACTOR SHALL INSTALL 60A-2 POLE BREAKER IN POSITION 14-16.
- 2. REMOVE 47 OHM END-OF-LINE (EOL) RESISTORS FROM 572-CP-0004 TB3 TERMINALS 25-32 AND INSTALL ON FOAM FIRE PROTECTION PANEL AS SHOWN.

C & T = CUT OFF SHIELD DRAIN WIRE AND INSULATE WITH TAPE.

NOTE 2 (TYP) 47K FLOW TO TANKS FOAM SYSTEM

EOL FLOW TO FOAM HOSE

\$47K EOL FIRE DETECTED

SEOL FOAM FIRE PANEL TROUBLE

≻ 120/208 VAC

	NOT TO BE USED FOR CONSTRUCT THE DISTRIBUTION AND USE OF THE NATIVE F FILE OF THIS DRAWING IS UNCONTROLLED. TH SHALL VERIFY TRACEABILITY OF THIS DRAWING LATEST CONTROLLED VERSION.	FORMAT CAD		
y West 58	JEA	PROJECT NUMBER:	DRAWING NUMBER:	REV
ZATION	GREENLAND ENERGY CENTER	196116-CF	PU-K2001	0
	INSTRUMENT LOOP DIAGRAM	CODE:	REFERENCE DWG NUMBER:	
	PLANT FIRE PROTECTION SYSTEM	AREA:		

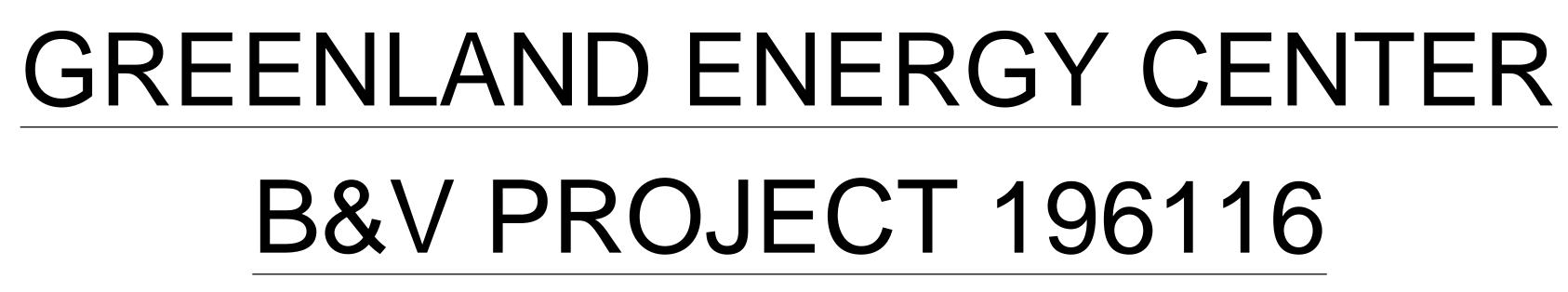
## **GENERAL DRAWINGS**

196116-CUUU-G0000 - FUEL OIL & DEMINERALIZED WATER SUPPLY & STORAGE - COVER SHEET

## **CIVIL DRAWINGS**

196116-CSTF-S3000 - GRADING & DRAINAG 196116-CSTF-S3030 - FUEL OIL CONTAINME 196116-CSTF-S3040 - FUEL OIL CONTAINME 196116-CSTF-S3720 - FUEL OIL CONTAINME 196116-CUUU-S5500 - FUEL OIL & DEMINER 196116-CFOA-S5501 - FUEL OIL STORAGE 196116-CWSH-S5502 - DEMINERALIZED WAT 196116-CFOA-S5503 - FUEL OIL CONTAINME 196116-CFOA-S5504 - FUEL OIL CONTAINME 196116-CFOA-S6001 - FUEL OIL CONTAINME

				1 07/AUG/2017	ADDENDUM 1	JKB SAJ	MBB EEB
				0 26/JUL/2017	ISSUED FOR BIDS	SAJ SAJ	MBB EEB
				NO DATE	REVISIONS AND RECORD OF ISSUE	DRN DES	CHK PDE APP



# FUEL OIL & DEMINERALIZED WATER SUPPLY AND STORAGE

# PROJECT DRAWING LIST

	ME
GE DRAWING-KEY PLAN LAYOUT	196
ENT-GRADING AND DRAINAGE PLAN	196
ENT-GEOMEMBRANE LINER PLAN	196
ENT -SECTIONS AND DETAILS	196
RALIZED WATER STORAGE FOUNDATION	196
TANK-FOUNDATION PLAN, SECTIONS AND DETAILS	196
TER STORAGE TANK-FOUNDATION PLAN, SECTIONS AND DETAILS	196
ENT FOUNDATIONS-PIPING SLEEPERS	196
ENT FOUNDATIONS-MISCELLANEOUS	196
ENT STEEL-MISCELLANEOUS	196

ELECTRICAL DRAWINGS 196116-CAAA-E0001 - FUEL OIL SUPPLY & STORAGE - ELECTRICAL LEGEND AND GENERAL NOTES 196116-CAAA-E0002 - FUEL OIL SUPPLY & STORAGE - ELECTRICAL DETAILS 196116-CFOA-E3001 - FUEL OIL TANKS - ELECTRICAL SITE PLAN 196116-CFOA-E3010 - DEMINERALIZED WATER TANK - ELECTRICAL SITE PLAN ~~~~~~~ 196116-CFPU-E1601 - FIRE PUMP BUILDING - PANELBOARD SCHEDULE 196116-CFPU-E1602 - FIRE PUMP BUILDING - PANELBOARD SCHEDULE CONTROL DRAWINGS 196116-CFOA-K2001 - INSTRUMENT LOOP DIAGRAM - FUEL OIL SYSTEM 196116-CFPU-K2001 - INSTRUMENT LOOP DIAGRAM - PLANT FIRE PROTECTION SYSTEM 196116-CWSH-K2001 - INSTRUMENT LOOP DIAGRAM - DEMINERALIZED WATER TANK



# ECHANICAL DRAWINGS

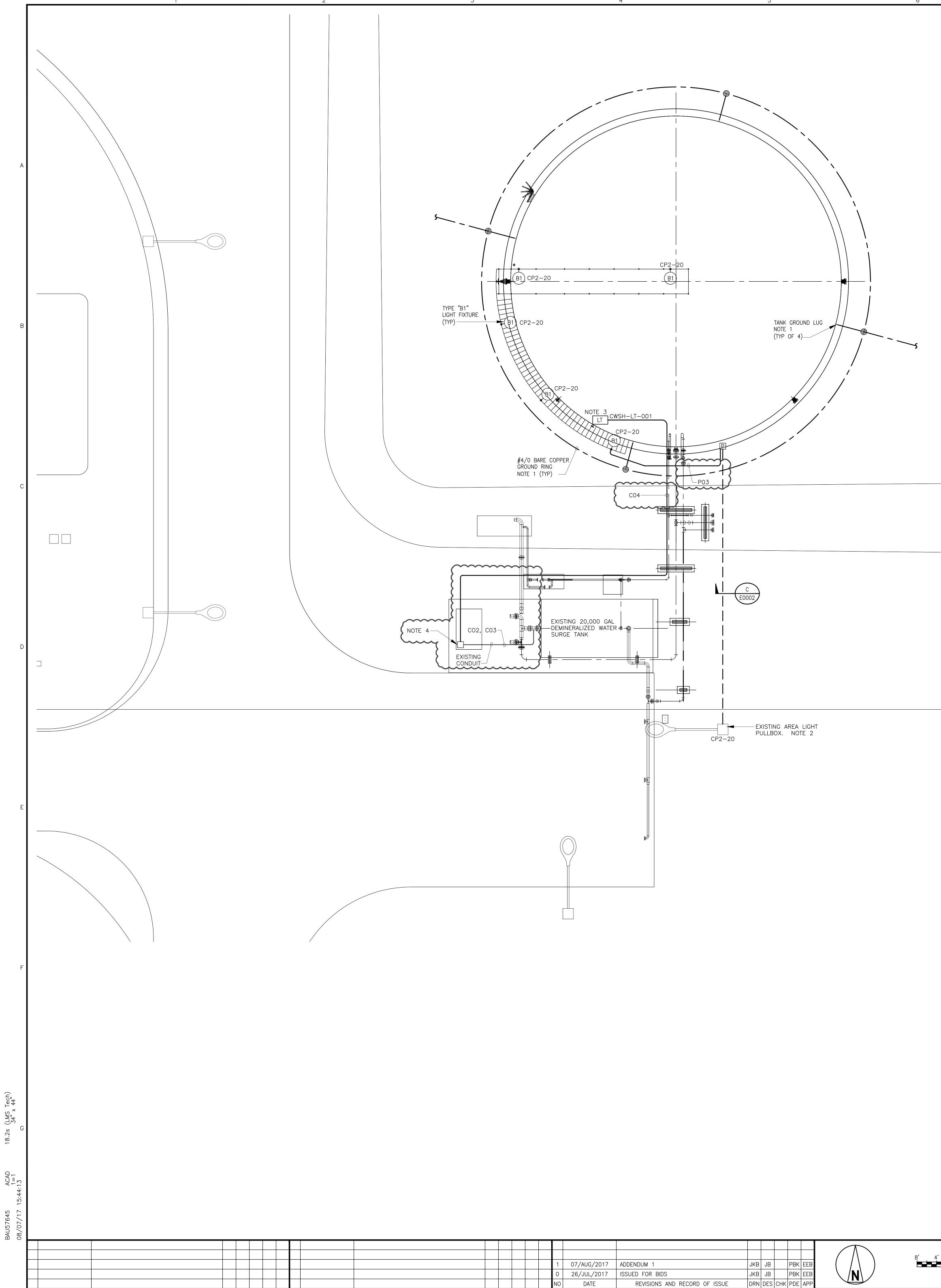
6116-CFPA-M2361 - PIPING & INSTRUMENT DIAGRAM-FUEL OIL FIRE PROTECTION 6116-CFOA-M2401 - PIPING & INSTRUMENT DIAGRAM-FUEL OIL SUPPLY AND STORAGE 96116-CWWC-M2643 - PIPING & INSTRUMENT DIAGRAM-FUEL OIL CONTAINMENT AREA DRAIN 6116-CWSH-M2668 - PIPING & INSTRUMENT DIAGRAM-DEMIN WATER NOx INJECT SUPPLY AND STORAG 6116-CFOA-M6000 - FUEL OIL & DEMERALIZED WATER STORAGE -PIPING KEY PLAN, TIE POINTS AND GE 6116-CFOA-M6001 - FUEL OIL SUPPLY & STORAGE-PIPING PLAN 6116-CFOA-M6002 - FUEL OIL SUPPLY & STORAGE-PIPING PLAN 6116-CFOA-M6003 - FUEL OIL SUPPLY & STORAGE-PIPING SECTIONS AND DETAILS 6116-CWSH-M6010 - DEMINERALIZED WATER SUPPLY & STORAGE-PIPING PLAN 6116-CWSH-M6011 - DEMINERALIZED WATER SUPPLY & STORAGE-PIPING SECTIONS AND DETAILS



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SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.	ENGINEER: MBB	DRAWN: SAJ	FUEL OIL & DEMIN WATER SUPPLY AND STORAGE		
	CHECKED:	DATE:	COVER SHEET		

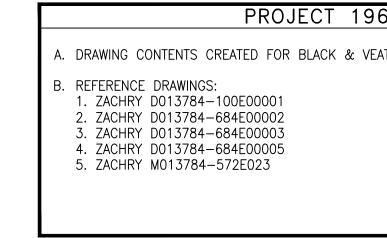
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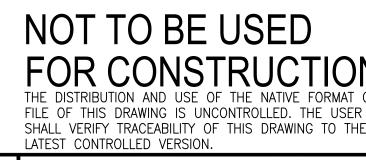
DN AT OF NCONTROLLED ONLY.			
CENTER	PROJECT NUMBER: 196116-0	DRAWING NUMBER:	rev 1
PLY AND STORAGE	CODE:	REFERENCE DWG NUMBER:	



											8' 4' 0 8' 16'
			1	07/AUG/2017	ADDENDUM 1	JKB	JB		PBK	EEB	
			0	26/JUL/2017	ISSUED FOR BIDS	JKB	JB		PBK	EEB	SCALE: 1/8"=1'-0"
			NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	СНК	PDE	APP	

7	8		9
		1.	PROVIDE LIGHTNING PROTECTION & GROUNDING OF EXISTING GROUND GRID AT TWO SEPARATE POINTS GROUND GRID LOCATIONS AND SPECIFICATIONS FO
		2.	PROVIDE NEW HOMAC FLOOD SEAL AND FUSES TO PANEL CP2 IS LOCATED NEAR WAREHOUSE CONTR LIGHTING SHALL BE RATED 10 AMPS.
		3.	COORDINATE EXACT LOCATION OF LEVEL TRANSMIT THE DEMIN WATER TANK LEVEL TRANSMITTER CWS TRANSMITTER 4–20mA WITH HART #3051L3AA0.
		4.	PROVIDE TERMINATION BLOCK TB1 INSIDE EXISTING #513-IE0001-01. (FROM 691-CP-0001 1K5-1 COORDINATE DCS TERMINATION POINTS WITH JEA.





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ENGINEER: PBK	DRAWN: JKB				
CHECKED:	DATE:				

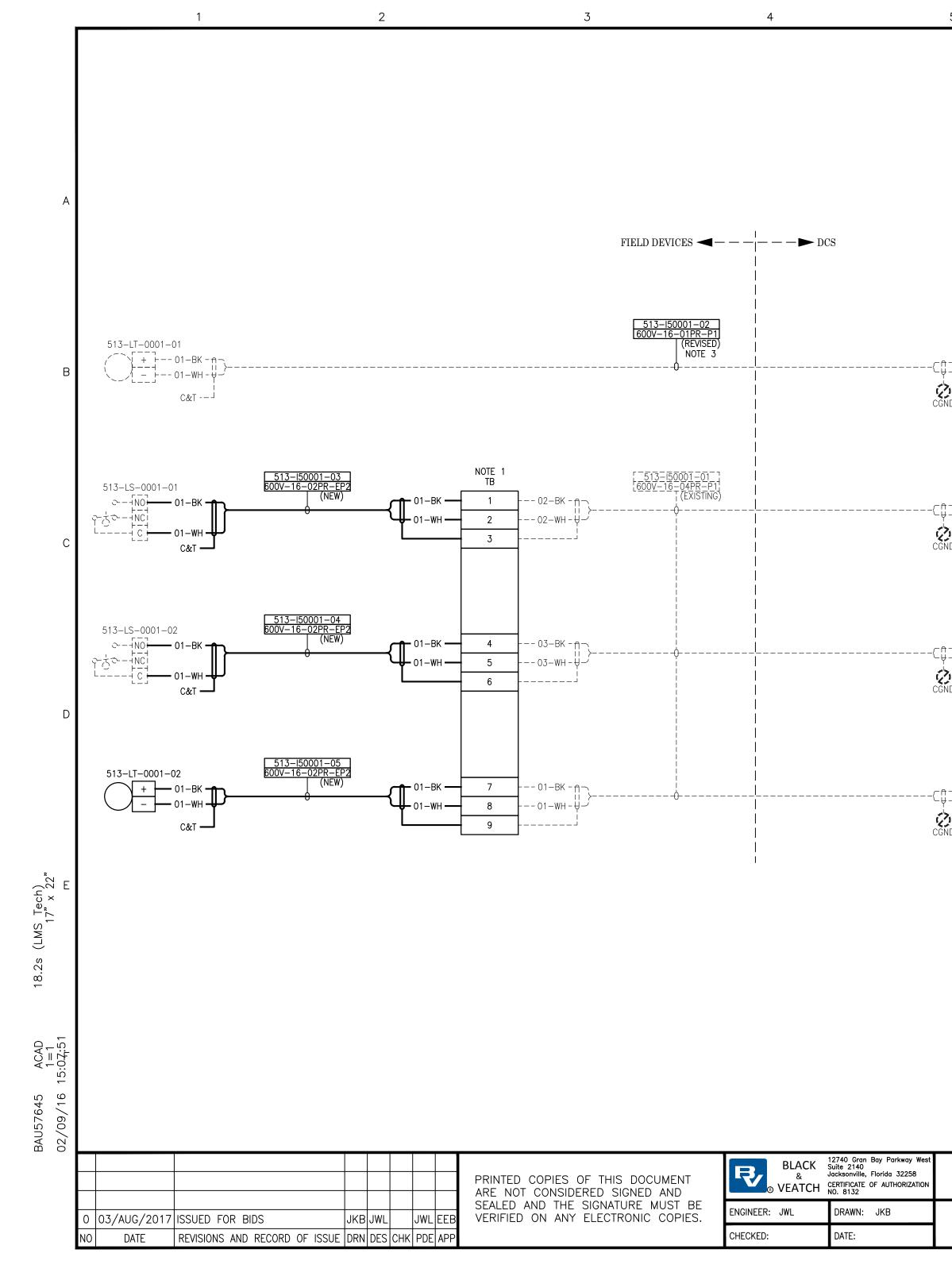
JEA
GREENLAND ENERGY CENT
DEMINERALIZED WATER TAN
ELECTRICAL SITE PLAN

NOTES
NG OF NEW TANK. TIE NEW LIGHTNING PROTECTION & GROUNDING SYSTEM INTO POINTS ON OPPOSITE SIDES OF TANK. SEE REFERENCE DRAWINGS FOR EXISTING NS FOR GROUNDING AND LIGHTNING PROTECTION REQUIREMENTS.
ES TO TIE TANK LIGHTING INTO EXISTING SITE LIGHTING CIRCUIT CP2-20. CONTROL ROOM, OUTSIDE CONSTRUCTION POWER PANELS. FUSES FOR TANK
NSMITTERS IN FIELD AND WITH APPROVED DEMIN TANK SUPPLIER'S DRAWINGS. CWSH–LT–001 SHALL BE A ROSEMOUNT 3" FLANGE MOUNTED PRESSURE AO.
KISTING PULL BOX FOR EXTENSION OF EXISTING SPARE 4–20 mA PAIR IN CABLE K5–19, 20) TO FEED NEW TANK LEVEL TRANSMITTER. JEA.

						_
PR	DJECT	196116	DOCUMENT	CONTROL	NOTES	
EATED F	OR BLACK	& VEATCH PRO	DJECT 196116.			

DN T CAD			
ER THE			
′ CENTER	PROJECT NUMBER: 196116-C	DRAWING NUMBER:	rev 1
ER TANK	CODE:	REFERENCE DWG NUMBER:	

AREA:



INSTRUMENT LOOP DIAGRAM

DEMINERALIZED WATER TANK

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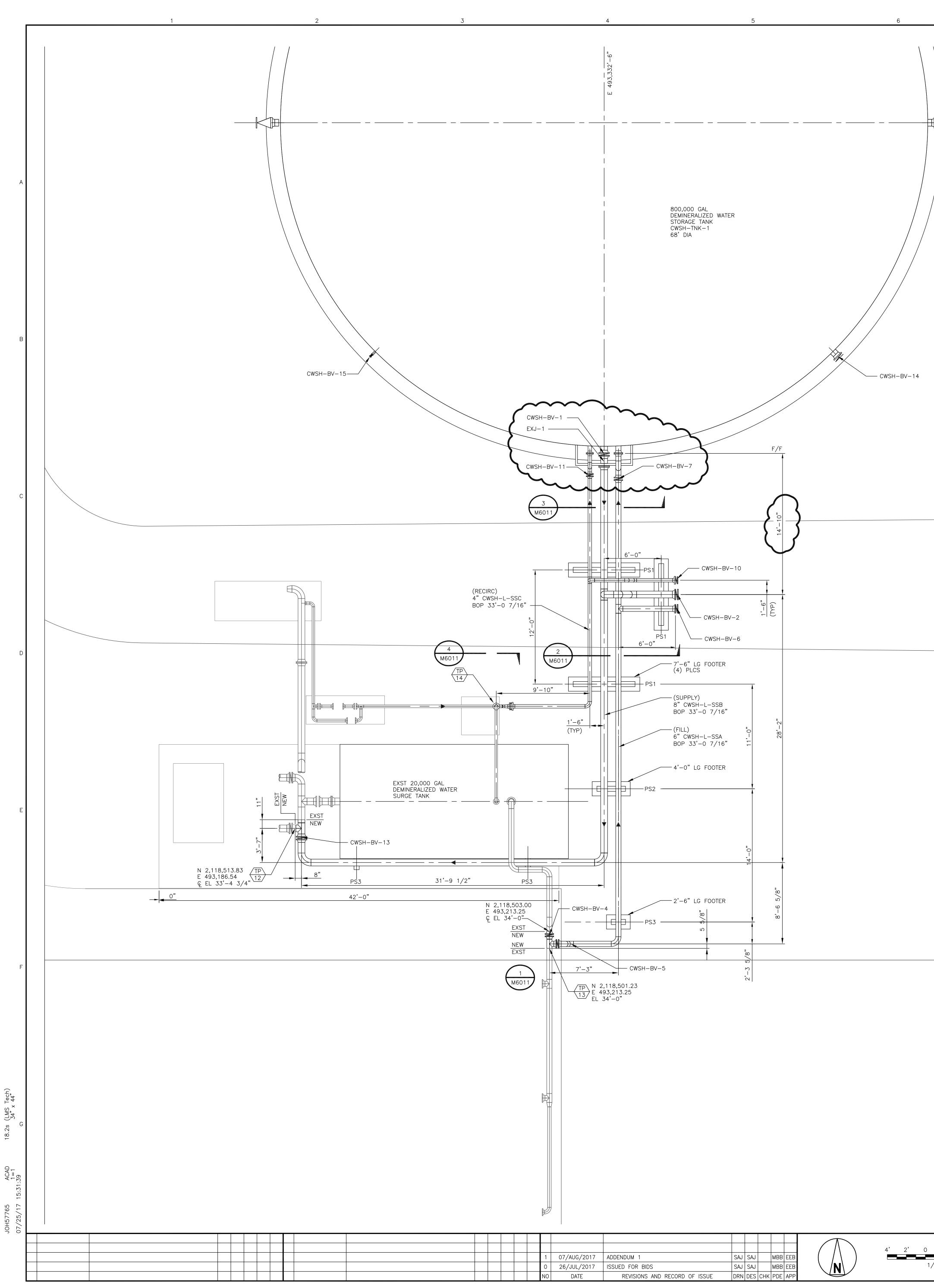
F

5		6	/		8	
		PULL BACK EXISTING CA	BLE 513—I50001—01 F HREE NEW CABLES FRO	ROM TANK LEVEL S	AT DEMIN WATER SUPPLY PUMPS SI SWITCHES INTO PULLBOX AND TERMI EVICES USING EXISTING CONDUIT FO	INATE
		<ol> <li>DCS TERMINATION LOCATI</li> <li>CORRECTED TAG ID FOR</li> </ol>	IONS TO BE ASSIGNED	BY JEA AT TIME O	F CONSTRUCTION.	
		C & T = CUT OFF SHIE		SULATE WITH TAPE		
		A. EXISTING BACKGROUND II ZACHRY DRAWING B0137	NFORMATION DISPLAYED		GORIGINATED FROM	
		B. THE ORIGINAL DRAWING A SEAL, IF APPLICABLE, AR	RE MAINTAINED IN THE I		VAL NAMES, INITIALS P.E.	
		C. ATTACHED REFERENCE FI	LE: NONE			
а—01—ВК—- 7—01—WН—- ND	FTA [CAB: 691-CP-0001] LOC: 185 MODEL: TBAI 	I/O MODULE TAG: A513/0001LT01 DEMIN WATER SURGE TANK LEVEL ADDRESS: CP0001_1B5/5 MODEL: TBAI				
т−02-ВК †−02-WН У ND	FTA [CAB: 691-CP-0001] LOC: 1K5 MODEL: TBCI - 19 CHAN # - 20 1 10	I/O MODULE TAG: A513/0001LS01 DEMIN WATER SURGE TANK LEVEL LOW ADDRESS: CP0001_1K5/10 MODEL: TBCI				
n – 03–BK – - - 03–WH – - - ND	FTA [CAB: 691-CP-0001] LOC: 1K5 MODEL: TBCI 21 CHAN # 22 1 11	I/O MODULE TAG: A513/0001LS02 DEMIN WATER SURGE TANK LEVEL HIGH ADDRESS: CP0001_1K5/11 MODEL: TBAI				
а−01-ВК 7-01-WH У ND	FTA [CAB: 691-CP-0001] LOC: 185 MODEL: TBAI MODEL: TBAI 	I/O MODULE TAG: A513/0001LT02 DEMIN WATER STORAGE TANK LEVEL ADDRESS: CP0001 MODEL: TBAI				
		NOT TO B FOR CON THE DISTRIBUTION AND US FILE OF THIS DRAWING IS SHALL VERIFY TRACEABILIT LATEST CONTROLLED VERS	STRUC SE OF THE NATIVE UNCONTROLLED. T Y OF THIS DRAWING	FORMAT CAD HE USER		
	GRFFNIAN	JEA ID ENERGY CENTE	R	PROJECT NUMBER	CWSH-K2001	REV 0
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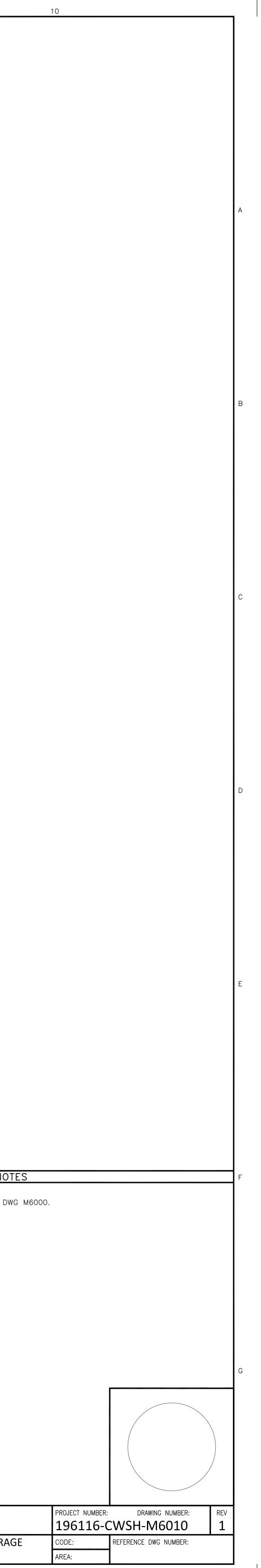
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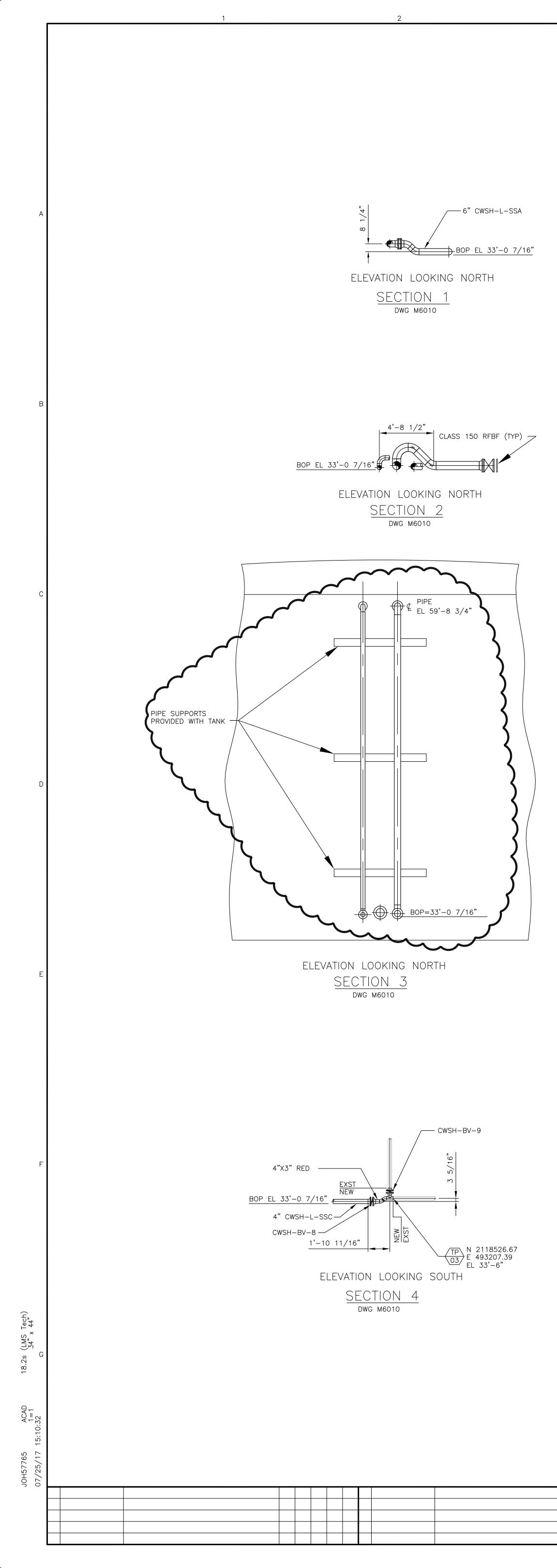
AREA:

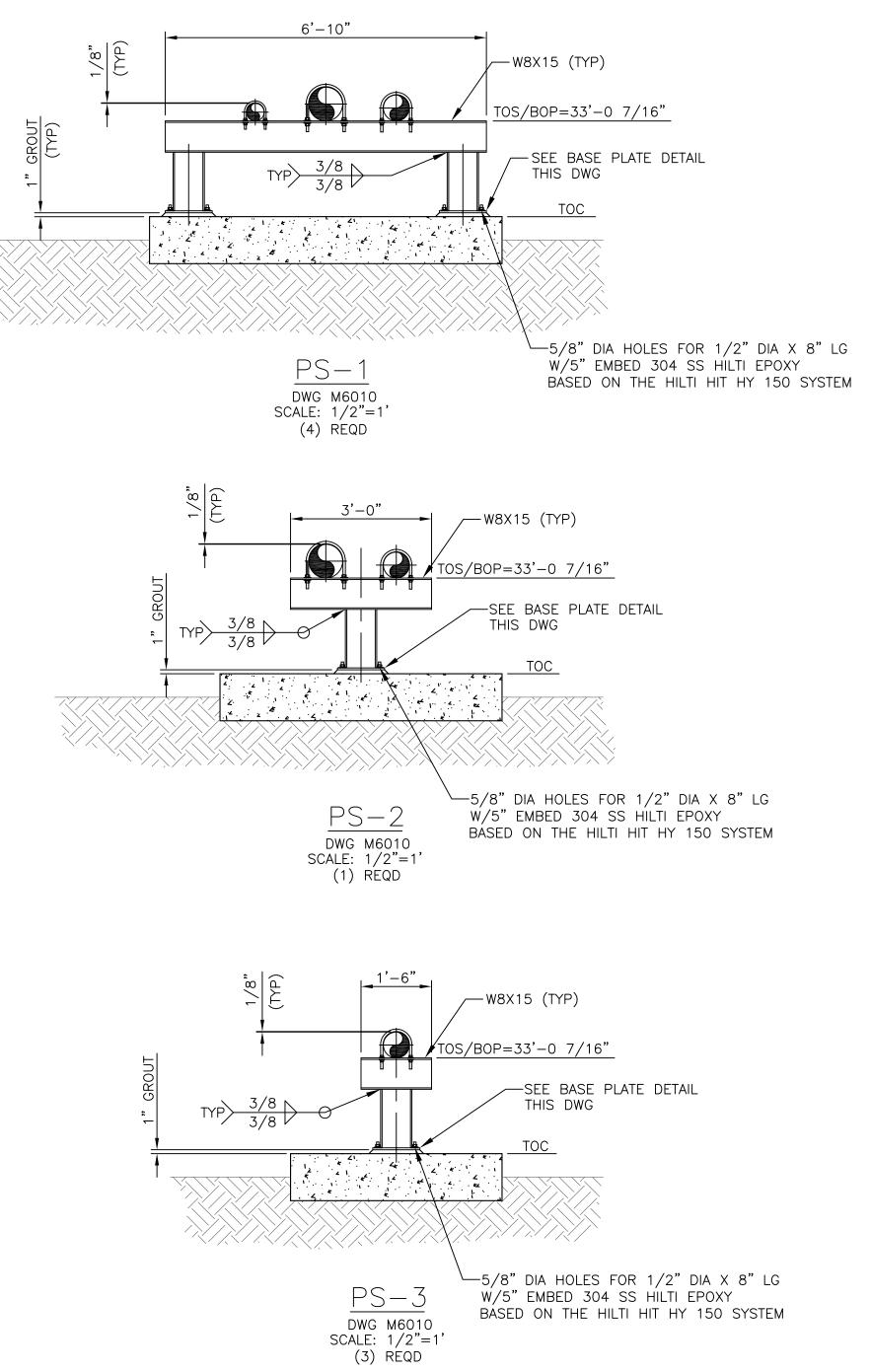
REFERENCE DWG NUMBER:



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CWSH-BV-13 N 2,118,663'-0"				
	N 2 11	9 500		
	N 2,11	_,		1. FOR GENERAL NOTES & TIE POINT LIST SEE DV
4' 8'	PRINTED COPIES OF THIS DOCUMENT	BLACK & 12740 Gro Suite 2140 Jacksonville VEATCH CERTIFICAT WEATCH CERTIFICAT	in Bay Parkway West ) e, Florida 32258 E OF AUTHORIZATION	NOT TO BE USED FOR CONSTRUCTION THE DISTRIBUTION AND USE OF THE NATIVE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY. JEA GREENLAND ENERGY CENTER
1/4"=1'-0"	ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST B VERIFIED ON ANY ELECTRONIC COPIES		N: SAJ	DEMINERALIZED WATER SUPPLY & STORA PIPING PLAN







												12"6"0
			1	07/AUG/2017	ADDENDUM 1	SAJ	SAJ		MBB	EEB		4' 2'
			0	26/JUL/2017	ISSUED FOR BIDS	SAJ	SAJ		MBB	EEB	$\mathbb{N}$	
			NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	СНК	PDE	APP		

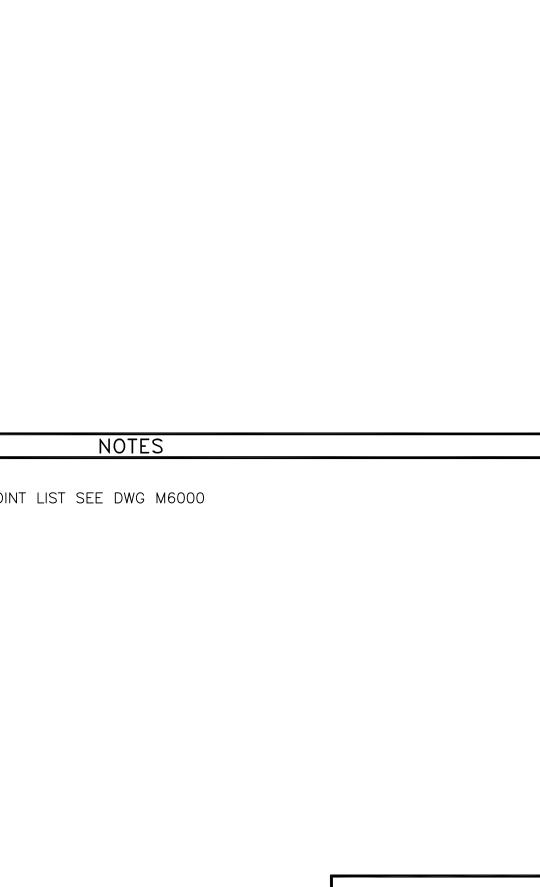
1 1/4" (TYP) ø5/8 (4) HOLES-1/2" PL A36 — BASE PLATE DETAIL This dwg scale: 1/2"=1'

1. FOR GENERAL NOTES & TIE POINT LIST SEE DWG M6000 NOT TO BE USED FOR CONSTRUCTION THE DISTRIBUTION AND THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

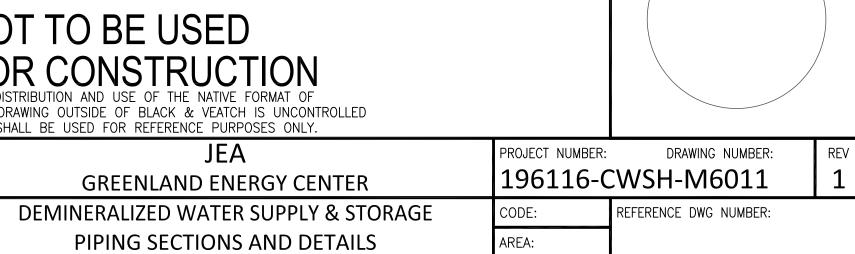
JEA

1'	2'	3'	4'	5'	
1/3 0	2"=1'-	-0" 4'		8'	
1/-	4"=1'-	-0"			

& <u>,</u>	12740 Gran Bay Parkway West Suite 2140 Jacksonville, Florida 32258 CERTIFICATE OF AUTHORIZATION NO. 8132
ENGINEER: MBB	DRAWN: SAJ
CHECKED:	DATE:



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