

PLAN SYMBOLS

Table of plan symbols including Home Run, Conduit Concealed, Flexible Conduit, Exterior Luminaire, Junction Box, Transformer, and Motor symbols with their respective descriptions.

PLAN SYMBOLS (CONTINUED)

Continuation of plan symbols including Flow Switch, Level Element, Pressure Switch, Solenoid Valve, and various Transmitters.

SINGLE LINE DIAGRAM SYMBOLS

Table of single line diagram symbols including Combination Motor Starter, Voltmeter, Ammeter, Fuse, Capacitor, and various switches.

CONTROL DIAGRAM SYMBOLS

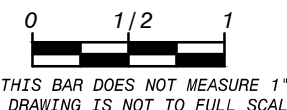
Table of control diagram symbols including Duplex Receptacle, Normally Open/Closed Contact, Limit Switch, Pressure Switch, and various relays.

ABBREVIATIONS

Table of abbreviations for electrical components such as Amperes, Air Cooled Condensing Unit, Air Handling Unit, and various control panels.

NOTES

- List of 17 notes providing instructions and specifications for the electrical contractor, including supply and installation requirements, material standards, and safety protocols.



Revision table with columns for Issue No., Date, and Description of revisions.

Logo for Black & Veatch, Building a world of difference, with contact information for the Orlando office.

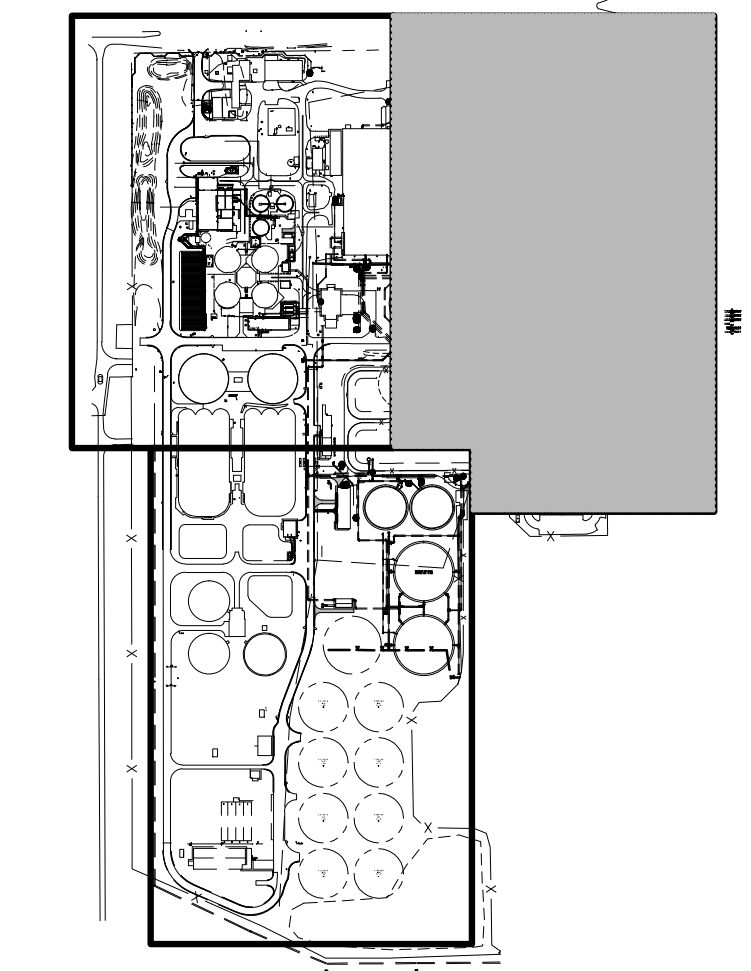
Project title: ORANGE COUNTY UTILITIES SOUTH WATER RECLAMATION FACILITY PHASE V IMPROVEMENTS. Includes the word 'ELECTRICAL' and 'NOTES, SYMBOLS AND ABBREVIATIONS'.

Project details including Design, Detail, Check, and Approval dates, Project No. 180761, and Sheet 220 OF 364.

Vertical text on the left margin: P:\Projects\Black & Veatch\Orange County\Water Phase V Improvements\1_Plan_V15_Revision\1_Plan_V15_Revision.dwg, 2/2/24, 10/13/2023 9:15:24 AM, dlm:dm



- NOTES:**
- SEE SINGLE LINE DIAGRAM FOR ADDITIONAL CONDUIT AND WIRE REQUIREMENTS. SEE SPECIFICATION SECTIONS 16110, 16120 & 16121 FOR ADDITIONAL REQUIREMENTS.
 - SEE DETAIL 'F' ON SHEET CD-3 FOR ROADWAY/LANDSCAPE RESTORATION DETAILS.
 - CONTRACTOR TO SUBMIT ALL CONDUIT DUCTBANK RUNS PRIOR TO INSTALLATION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



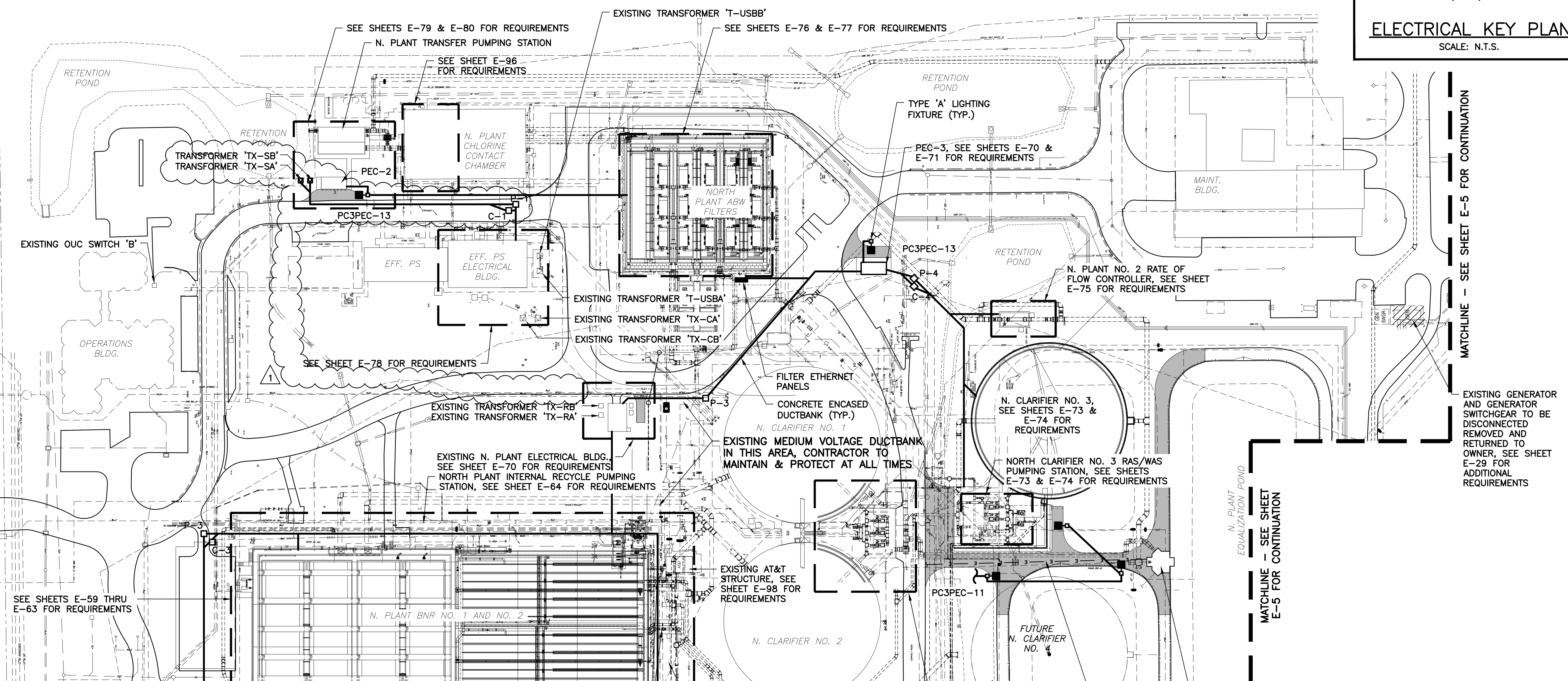
ELECTRICAL KEY PLAN
SCALE: N.T.S.

ADDENDUM NO. 2	DD	LMR	LMP
BID ISSUE	7/2015		
REVISIONS AND RECORD OF ISSUE			
CYBNET ID:	WF: 2252 E-03 P. SITE 1		
DATE:	7/2015		
PROJECT:	ORANGE COUNTY WATER RECLAMATION FACILITY PHASE V IMPROVEMENTS		
PHONE:	(407) 745-5604		
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C.O.A. NO.:	8079		
PLOTTED:			
USER:			
DWG. VER.:			

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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
PARTIAL SITE PLAN - 1

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES FLORIDA LICENSE NO.: 50780
PROJECT NO.:	180761
SHEET:	E-3
222 OF 364	

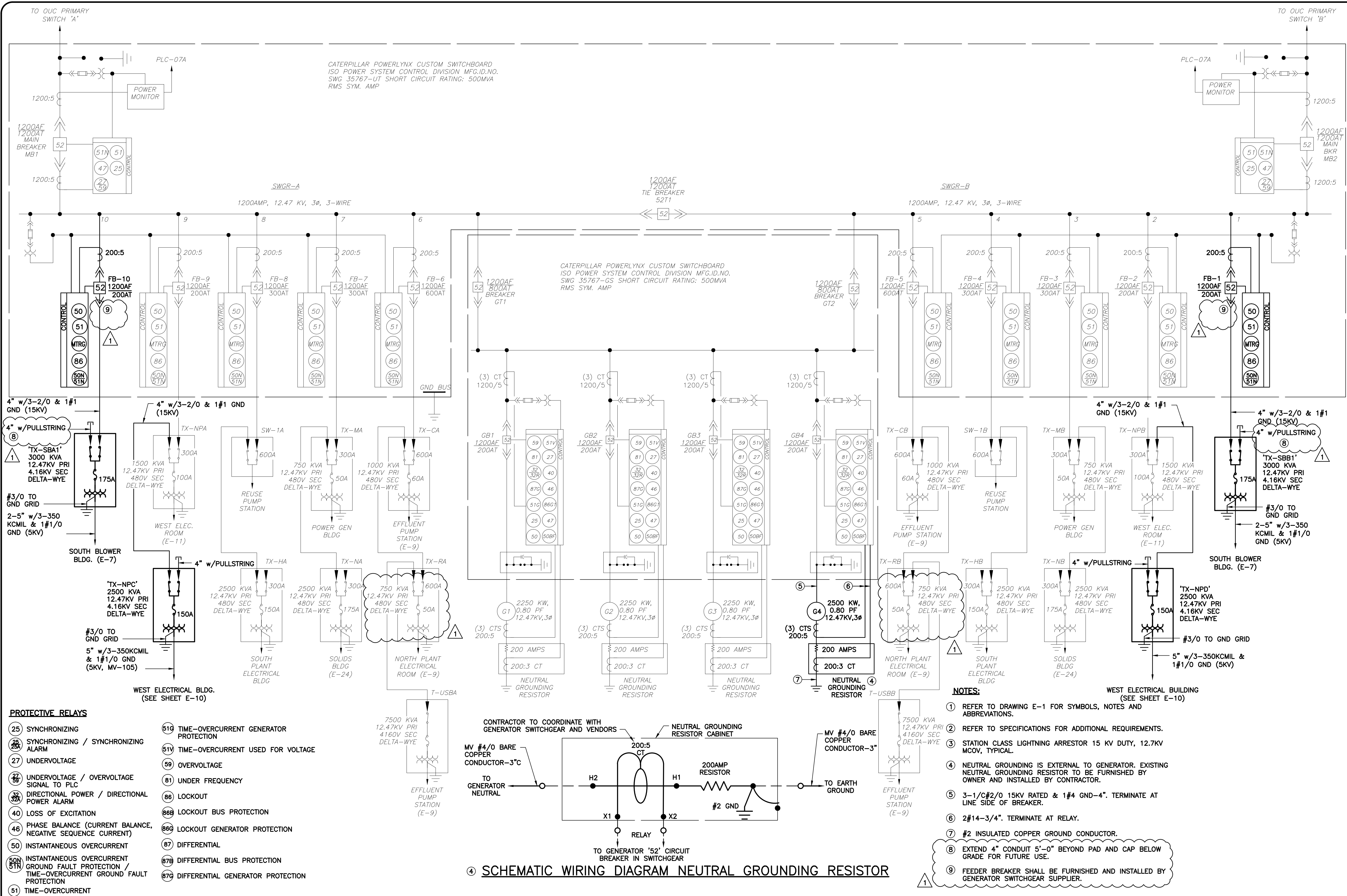


PARTIAL ELECTRICAL SITE PLAN-1
SCALE: 1"=60'-0"
60 30 0 60'

TWO (2) EXISTING MEDIUM VOLTAGE DUCTBANK IN THIS AREA, CONTRACTOR TO MAINTAIN & PROTECT AT ALL TIMES AS SHOWN ON SHEET D-8

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

FD180761
D180761
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13KV MAIN SWITCHGEAR SINGLE LINE DIAGRAM

ADDENDUM NO. 2	10/12/15	7/2015	REVISIONS AND RECORD OF ISSUE
BID ISSUE	DATE	DATE	NO. BY CK APP
1	DD	LMR	

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015

ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.: 50790

PROJECT NO.
180761

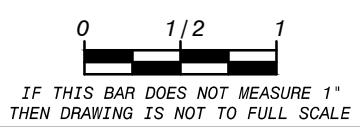
E-6
 SHEET
 225 OF 364

ED&A
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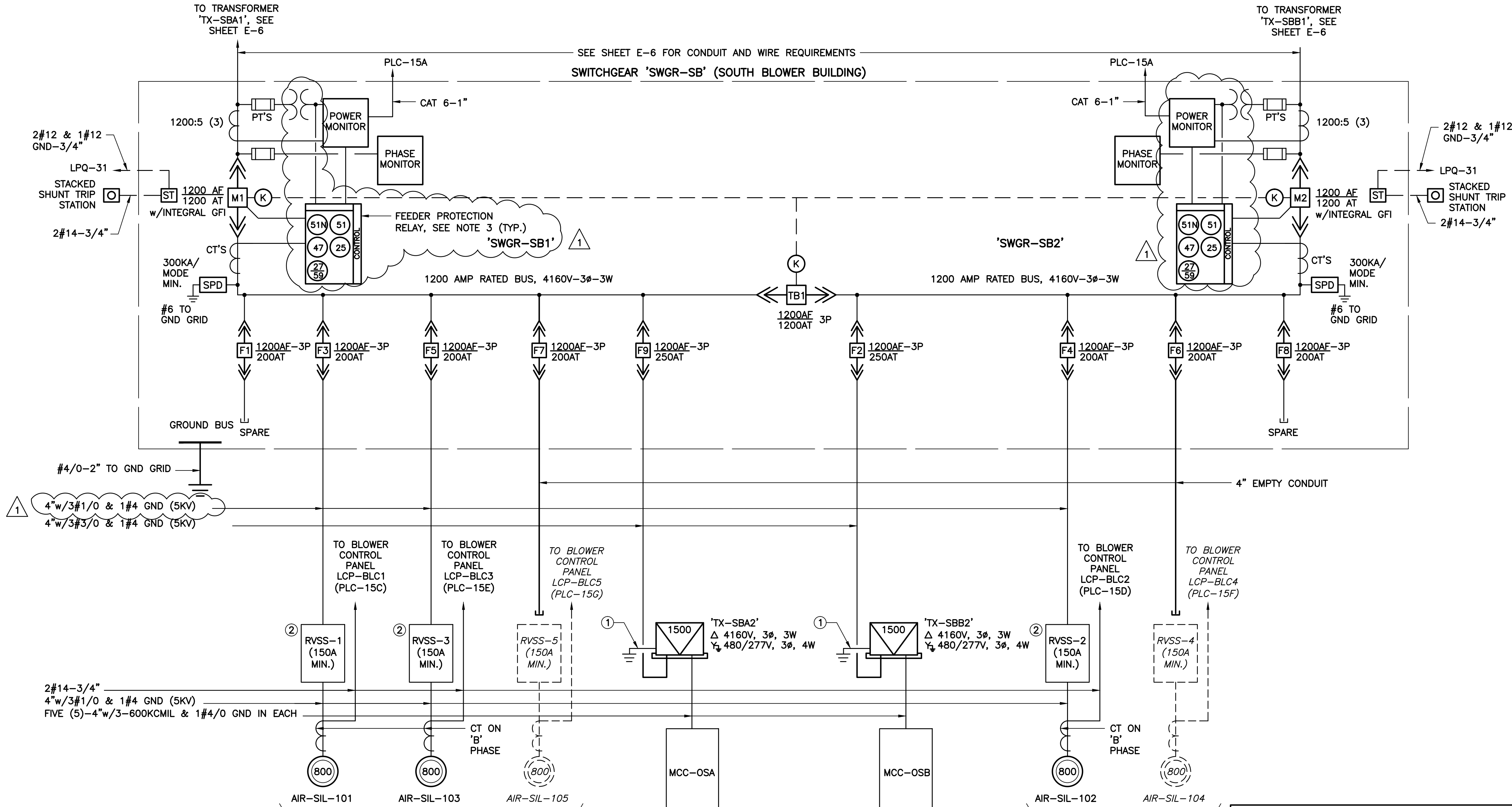
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ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS

ELECTRICAL
 13KV MAIN SWITCHGEAR
 SINGLE LINE DIAGRAM



FD180761
 D180761



- NOTES:**
- ① #3/0 BARE COPPER GROUND TO GROUND GRID.
 - ② SEE SHEETS E-40 AND I-18 FOR ADDITIONAL REQUIREMENTS.
 - ③ PROVIDE FEEDER PROTECTION RELAY WITH THE LISTED MINIMUM PROTECTIVE FUNCTIONS.

**5KV SWITCHGEAR 'SWGR-SB' SINGLE LINE DIAGRAM
(SOUTH BLOWER BUILDING)**

'SWGR-SB' LOAD TABULATION		
4160V-3φ-3W		
DESCRIPTION	LOAD	AMPACITY
BLOWERS	5 @ 800 HP	= 647.09 AMPS
'TX-SBA2'	-	= 138.79 AMPS
'TX-SBB2'	-	= 138.79 AMPS
CONNECTED LOAD		= 924.67 AMPS
DEMAND LOAD @ 60%		= 554.80 AMPS

ADDENDUM NO. 2	1	DD	LMR	LMR	APP
DATE	7/20/15	REVISIONS AND RECORD OF ISSUE			
CYCNET ID:	E				
PROJECT:	ORANGE COUNTY UTILITIES SOUTH BLOWER BUILDING 5KV SWGR-SB IMPROVEMENTS				
DRAWN BY:	LILLIAN M. REYES, P.E.				
CHECKED BY:	LILLIAN M. REYES, P.E.				
APPROVED BY:	LILLIAN M. REYES, P.E.				
DATE:	JANUARY 2015				
ENGINEER OF RECORD:	LILLIAN M. REYES				
FLORIDA LICENSE NO.:	50790				
PROJECT NO.:	180761				
SHEET:	E-7				
226 OF 364					

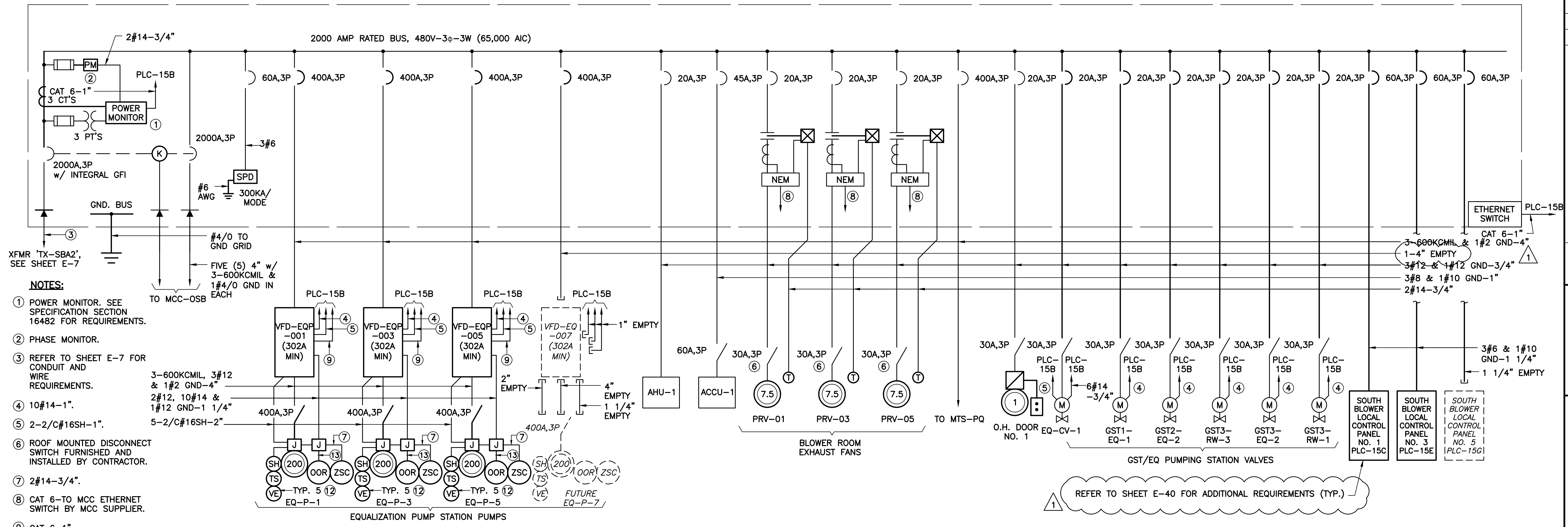
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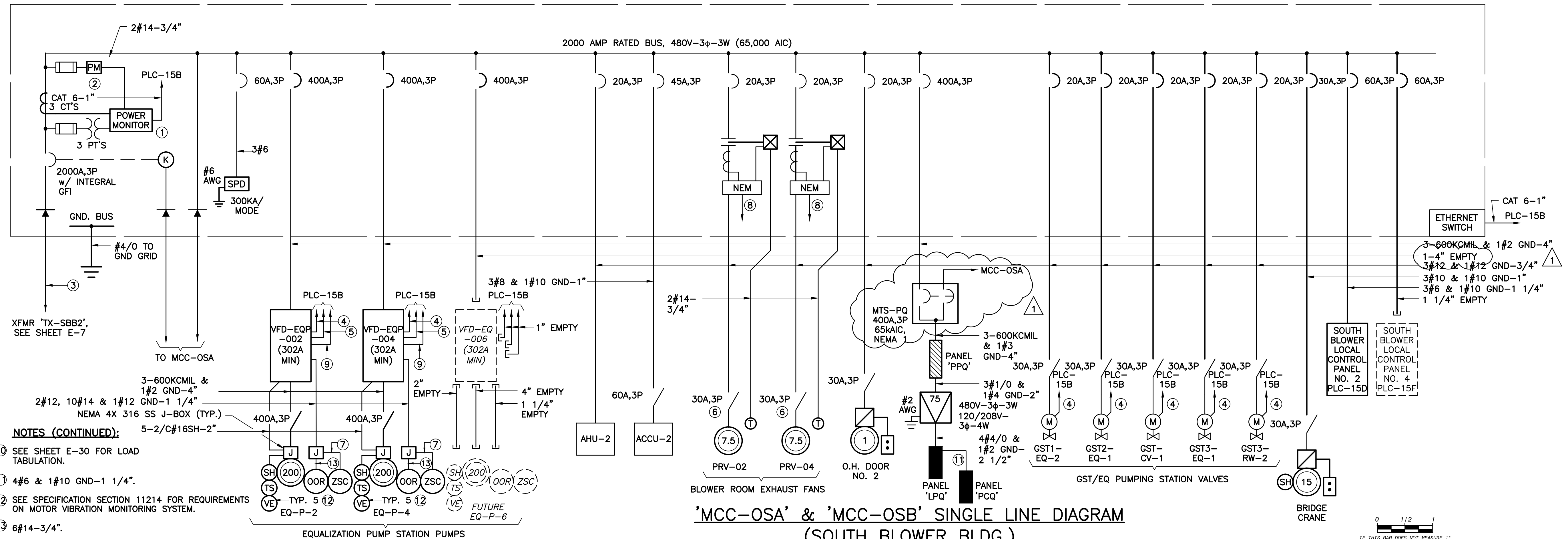
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ORANGE COUNTY UTILITIES
 SOUTH BLOWER BUILDING 5KV 'SWGR-SB'
 PHASE V IMPROVEMENTS
 SINGLE LINE DIAGRAM

'MCC-OSA'



'MCC-OSB'



'MCC-OSA' & 'MCC-OSB' SINGLE LINE DIAGRAM (SOUTH BLOWER BLDG.)

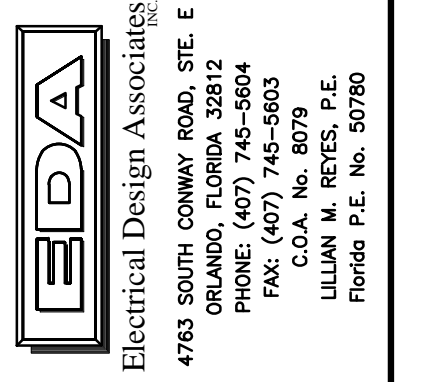
NO.	DATE	BY	CHK.	APP.
1	10/12/15	DD	LMR	LMR

ADDENDUM NO. 2
BID ISSUE
7/2015
REVISED AND RECORD OF ISSUE

OWNER: ORANGE COUNTY UTILITIES
PROJECT: SOUTH BLOWER BLDG. STA. E
ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604
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C.O.A. No. 8079
LILLIAN M. REYES, P.E.
FLORIDA P.E. No. 50780

DESIGNED: DD
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES
FLORIDA LICENSE NO.: 50780

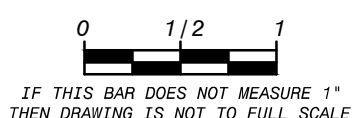
PROJECT NO. 180761
SHEET E-8
227 OF 364



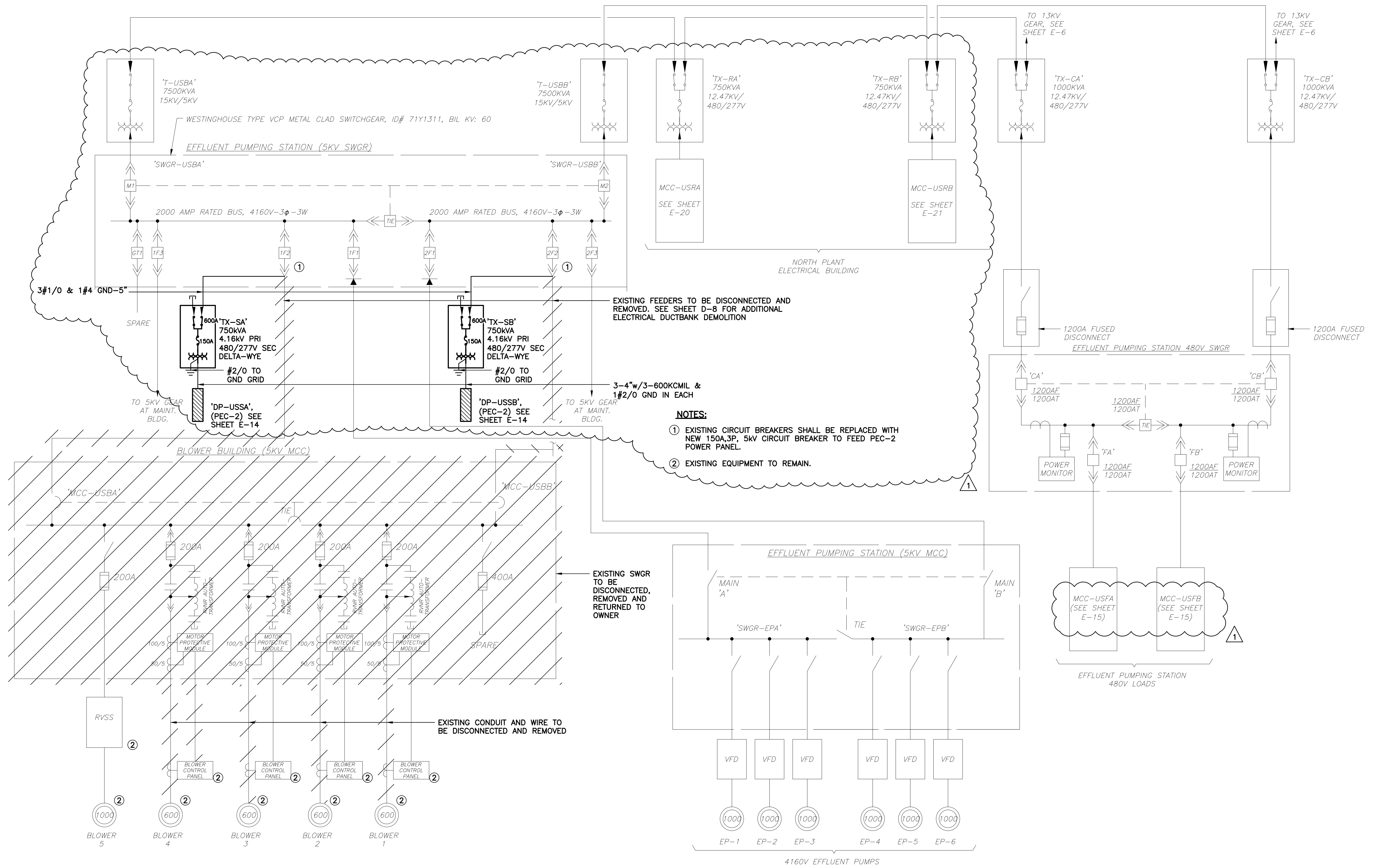
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
'MCC-OSA' & 'MCC-OSB'
SINGLE LINE DIAGRAMS

DESIGNED: DD
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES
FLORIDA LICENSE NO.: 50780
PROJECT NO. 180761
SHEET E-8
227 OF 364



FD180761
D180761
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- NOTES:**
- ① EXISTING CIRCUIT BREAKERS SHALL BE REPLACED WITH NEW 150A, 3P, 5KV CIRCUIT BREAKER TO FEED PEC-2 POWER PANEL.
 - ② EXISTING EQUIPMENT TO REMAIN.

EFFLUENT PUMPING STATION OVERALL SINGLE LINE DIAGRAMS

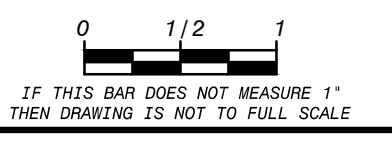
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PROJECT ID:	180761	NO.	BY	APP
PROJECT NAME:	EFFLUENT PUMPING STATION OVERALL SINGLE LINE DIAGRAMS			
PROJECT LOCATION:	SOUTH WATER RECLAMATION FACILITY			
PROJECT NUMBER:	180761			
PROJECT DATE:	JANUARY 2015			
PROJECT ENGINEER:	LILLIAN M. REYES			
PROJECT LICENSE NO.:	50790			
PROJECT NO.:	180761			
PROJECT SHEET:	E-9			
PROJECT OF:	228 OF 364			

EDDA
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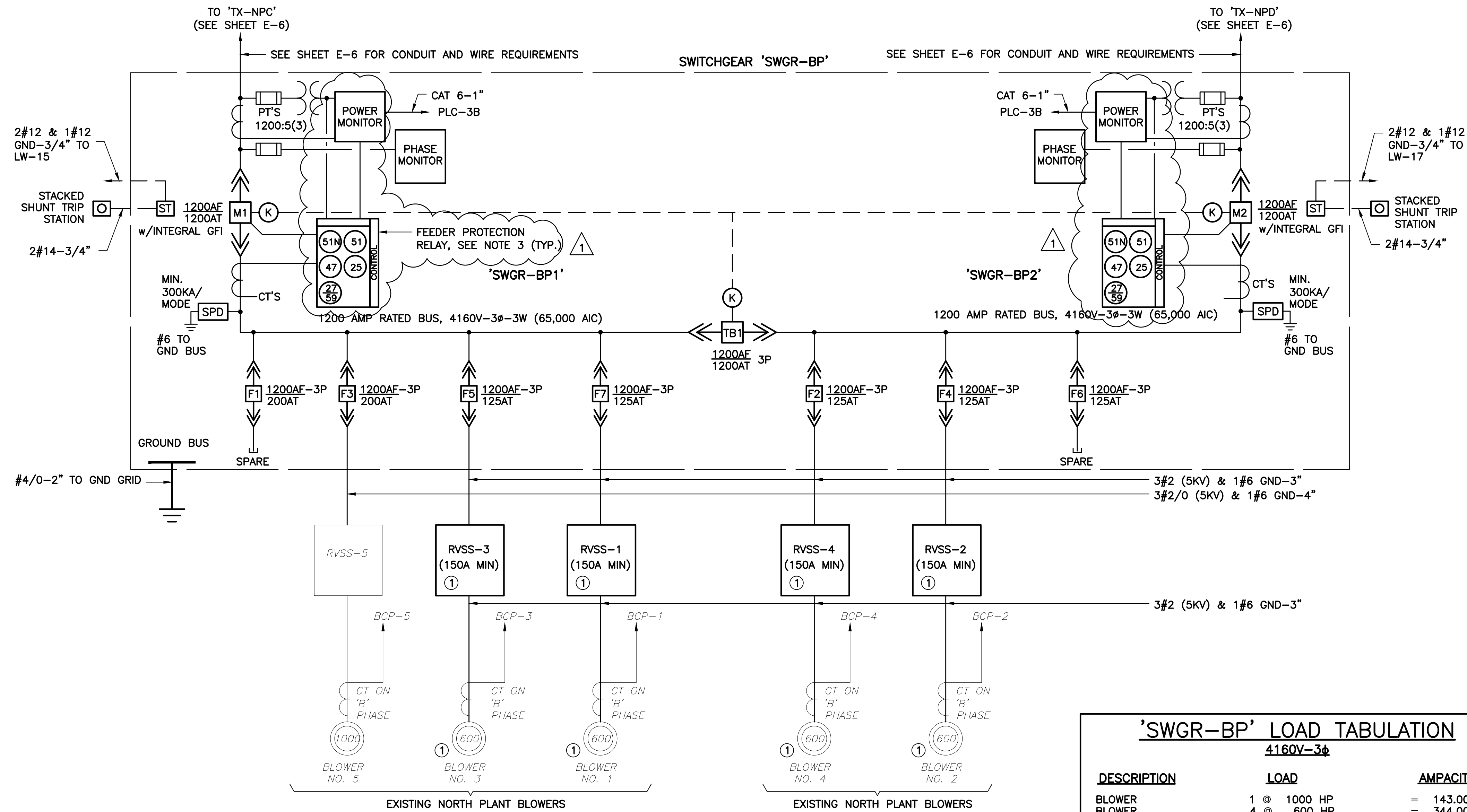
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ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 ELECTRICAL
 EFFLUENT PUMPING STATION OVERALL
 SINGLE LINE DIAGRAMS

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50790
 PROJECT NO.
 180761
 SHEET
 E-9
 228 OF 364



FD180761
 D180761



**5KV SWITCHGEAR 'SWGR-BP' SINGLE LINE DIAGRAM
(WEST ELECTRICAL BUILDING)**

NOTES:

- ① SEE SHEETS E-41 AND I-26 FOR ADDITIONAL REQUIREMENTS.
- ② PROVIDE FEEDER PROTECTION RELAY WITH THE LISTED MINIMUM PROTECTIVE FUNCTIONS.

'SWGR-BP' LOAD TABULATION
4160V-3Ø

DESCRIPTION	LOAD	AMPACITY
BLOWER	1 @ 1000 HP	= 143.00 AMPS
BLOWER	4 @ 600 HP	= 344.00 AMPS
CONNECTED LOAD		= 487.00 AMPS
① SERVICE ENTRANCE = 487.00 AMPS + (0.25)(143.00)		= 522.75 AMPS

NOTES:
① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

'SWGR-BP' DEMAND LOAD TABULATION
4160V-3Ø

DESCRIPTION	LOAD	AMPACITY
BLOWER	1 @ 1000 HP	= 143.00 AMPS
BLOWER	2 @ 600 HP	= 172.00 AMPS
CONNECTED LOAD		= 315.00 AMPS
① SERVICE ENTRANCE = 315.00 AMPS + (0.25)(143.00)		= 350.75 AMPS

NOTES:
① SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

ADDENDUM NO. 2	DD	LMR	LMR	APP	
BID ISSUE	7/2015	DATE	REVISIONS AND RECORD OF ISSUE		
CURRENT ID:	7/2015	DATE	NO.	BY	CHK
PROJECT NO.	180761	PROJECT NO.	180761		
SHEET NO.	E-10	SHEET	229	OF	364

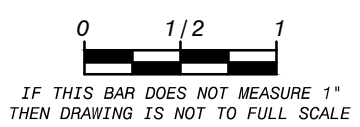
EDA
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Florida P.E. No. 50780

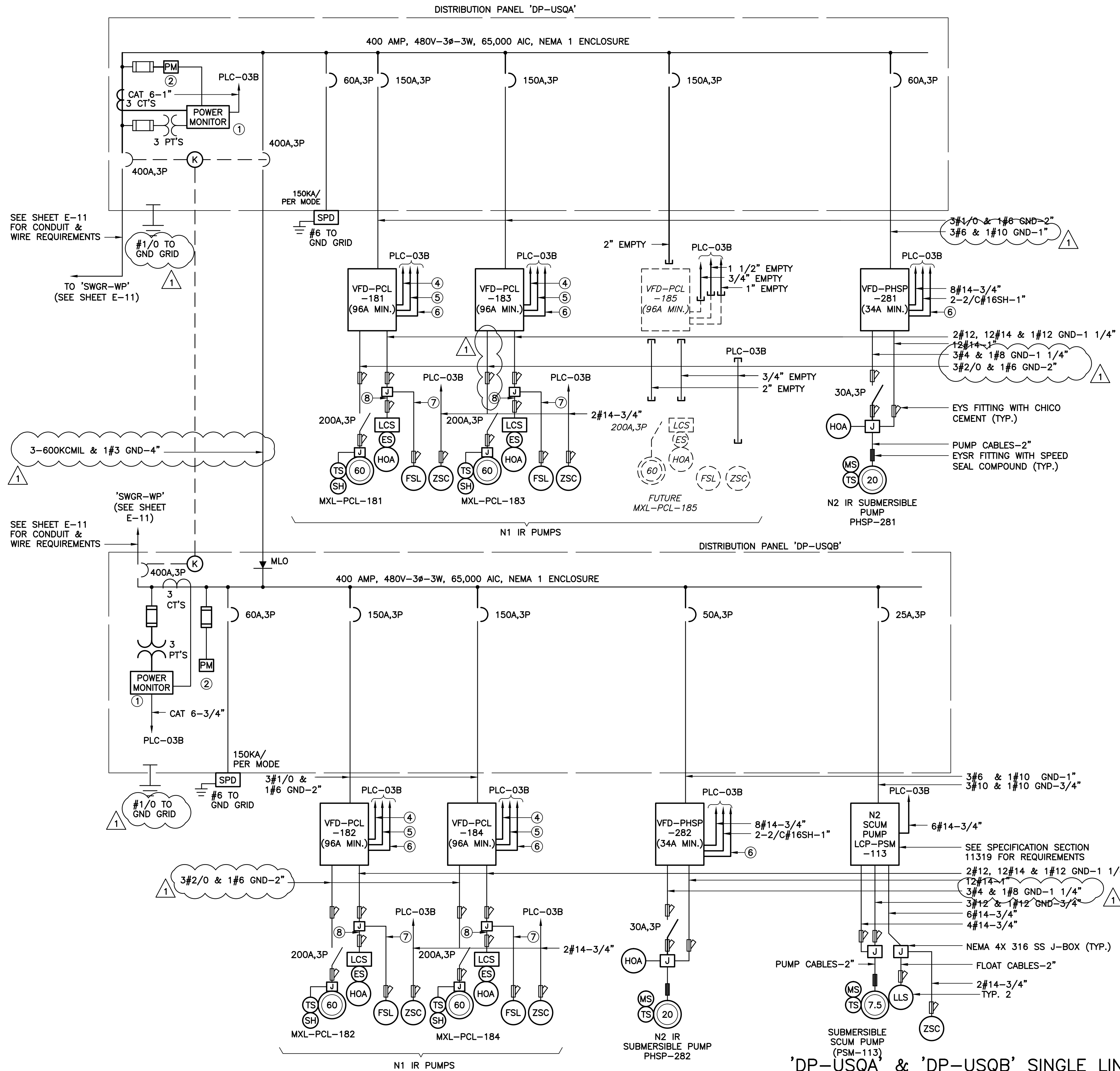
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
WEST ELECTRICAL BUILDING 5KV SWITCHGEAR
'SWGR-BP' SINGLE LINE DIAGRAM

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD:
LILLIAN M. REYES
FLORIDA LICENSE NO.:
50780





- NOTES:**
- POWER MONITOR, SEE SPECIFICATION SECTION 16482 FOR REQUIREMENTS.
 - PROVIDE 2#14-3/4" FROM PHASE MONITOR TO PHASE MONITOR CONTROLS IN PLC-03B.
 - PANELBOARD TO BE AN I-LINE HCM TYPE PANELBOARD, 400A, 3P LJ-FRAME MAIN BREAKER WITH TOTAL BREAKER MOUNTING SPACE TO BE NOT LESS THAN 72 INCHES, RATED AT 65,000 AIC. BRANCH BREAKERS RATED AT 65,000 AIC,
 - * 15A - 150A HJ FRAME
 - * 150A - 250A JJ FRAME
 - * 250A - 600A LJ FRAME
 - 16#14-1".
 - 3-2/C#16SH-1 1/2".
 - CAT 6-1".
 - 2#12, 2#14 & 1#12 GND-3/4".
 - 8#14-3/4".

'DP-USQA' LOAD TABULATION
480V-3φ

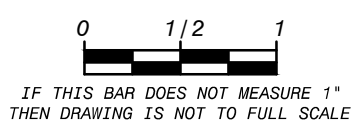
DESCRIPTION	LOAD	AMPACITY
① N1 IR PUMP	2 @ 60 HP	= 154.00 AMPS
① FUTURE N1 IR PUMP	1 @ 60 HP	= 77.00 AMPS
① N2 IR PUMP	1 @ 20 HP	= 27.00 AMPS
CONNECTED LOAD		= 258.00 AMPS
② SERVICE ENTRANCE = 258.00 AMPS + (0.25)(77.00)		= 277.25 AMPS

'DP-USQB' LOAD TABULATION
480V-3φ

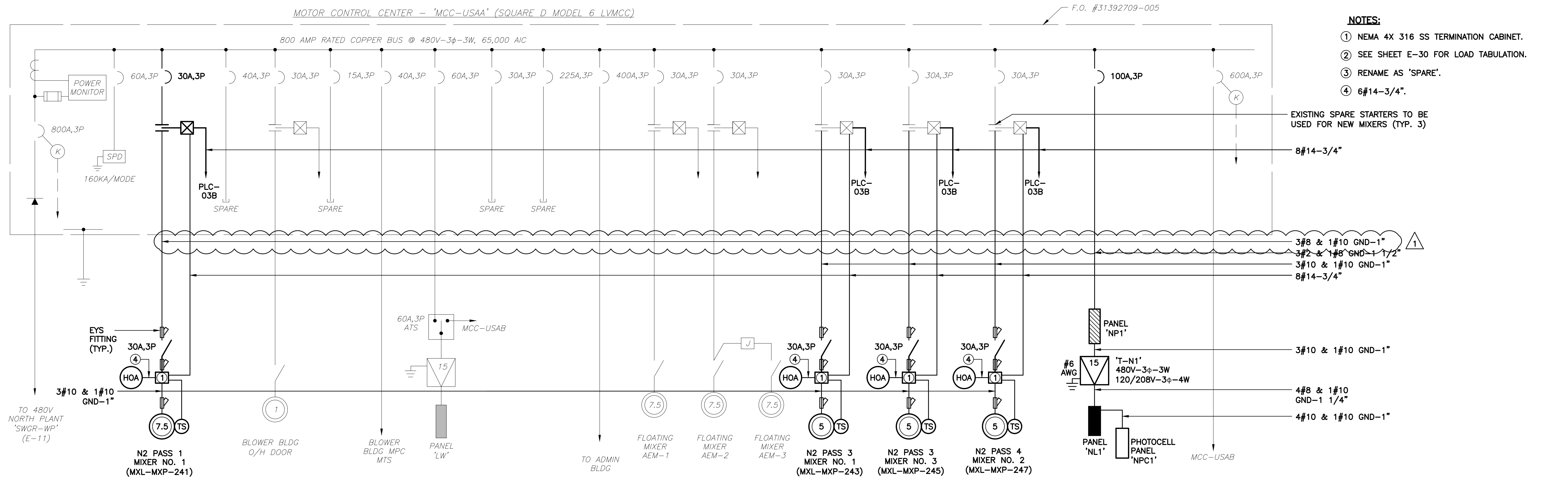
DESCRIPTION	LOAD	AMPACITY
① N1 IR PUMP	2 @ 60 HP	= 154.00 AMPS
① N2 IR PUMP	1 @ 20 HP	= 27.00 AMPS
① SCUM PUMP	1 @ 7.5 HP	= 11.00 AMPS
CONNECTED LOAD		= 192.00 AMPS
② SERVICE ENTRANCE = 192.00 AMPS + (0.25)(77.00)		= 211.25 AMPS

- NOTES:**
- AMPACITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
 - SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

'DP-USQA' & 'DP-USQB' SINGLE LINE DIAGRAMS
(NORTH PLANT IR PUMPS)
N.T.S.



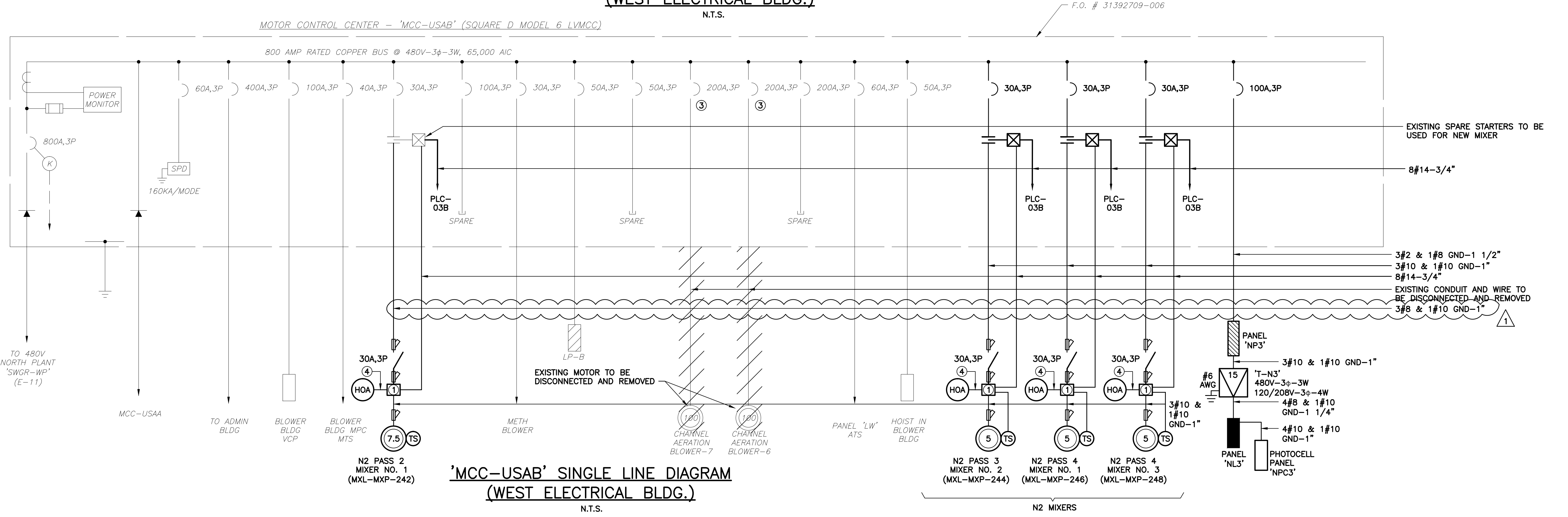
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10/12/15	7/2015		CYCNET ID:	WF: 231 E-12 SLD USA	SAVED:	PLOTTED:	USER:
Electrical Design Associates 4783 SOUTH CONWAY ROAD, STE. E ORLANDO, FLORIDA 32812 PHONE: (407) 745-5604 FAX: (407) 745-5603 C.O.A. No. 8079 LILLIAN M. REYES, P.E. Florida P.E. No. 50780							
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ORANGE COUNTY UTILITIES SOUTH WATER RECLAMATION FACILITY PHASE V IMPROVEMENTS ELECTRICAL 'DP-USQA' & 'DP-USQB' SINGLE LINE DIAGRAM							
DESIGNED: DD							
DETAILED: ARM							
CHECKED: LMR							
APPROVED: LMR							
DATE: JANUARY 2015							
ENGINEER OF RECORD: LILLIAN M. REYES FLORIDA LICENSE NO.: 50780							
PROJECT NO. 180761							
E-12 SHEET 231 OF 364							



- NOTES:**
- ① NEMA 4X 316 SS TERMINATION CABINET.
 - ② SEE SHEET E-30 FOR LOAD TABULATION.
 - ③ RENAME AS 'SPARE'.
 - ④ 6#14-3/4".

EXISTING SPARE STARTERS TO BE USED FOR NEW MIXERS (TYP. 3)

**'MCC-USAA' SINGLE LINE DIAGRAM
(WEST ELECTRICAL BLDG.)**
N.T.S.



EXISTING SPARE STARTERS TO BE USED FOR NEW MIXER

EXISTING CONDUIT AND WIRE TO BE DISCONNECTED AND REMOVED
3#8 & 1#10 GND-1"

**'MCC-USAB' SINGLE LINE DIAGRAM
(WEST ELECTRICAL BLDG.)**
N.T.S.

1	DD	LMR	
ADDENDUM NO. 2		BID ISSUE	
10/12/15	DATE	REVISIONS AND RECORD OF ISSUE	
7/20/15			
CYRNET ID:		XREF1:	
WF: 2312-E-13 SLD USA		XREF2:	
SAVED:		XREF3:	
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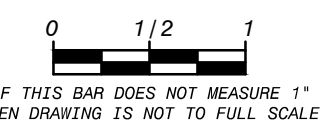
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Electrical Design Associates
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PHONE: (407) 745-5604
FAX: (407) 745-5603
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LILLIAN M. REYES, P.E.
FLORIDA P.E. No. 50780

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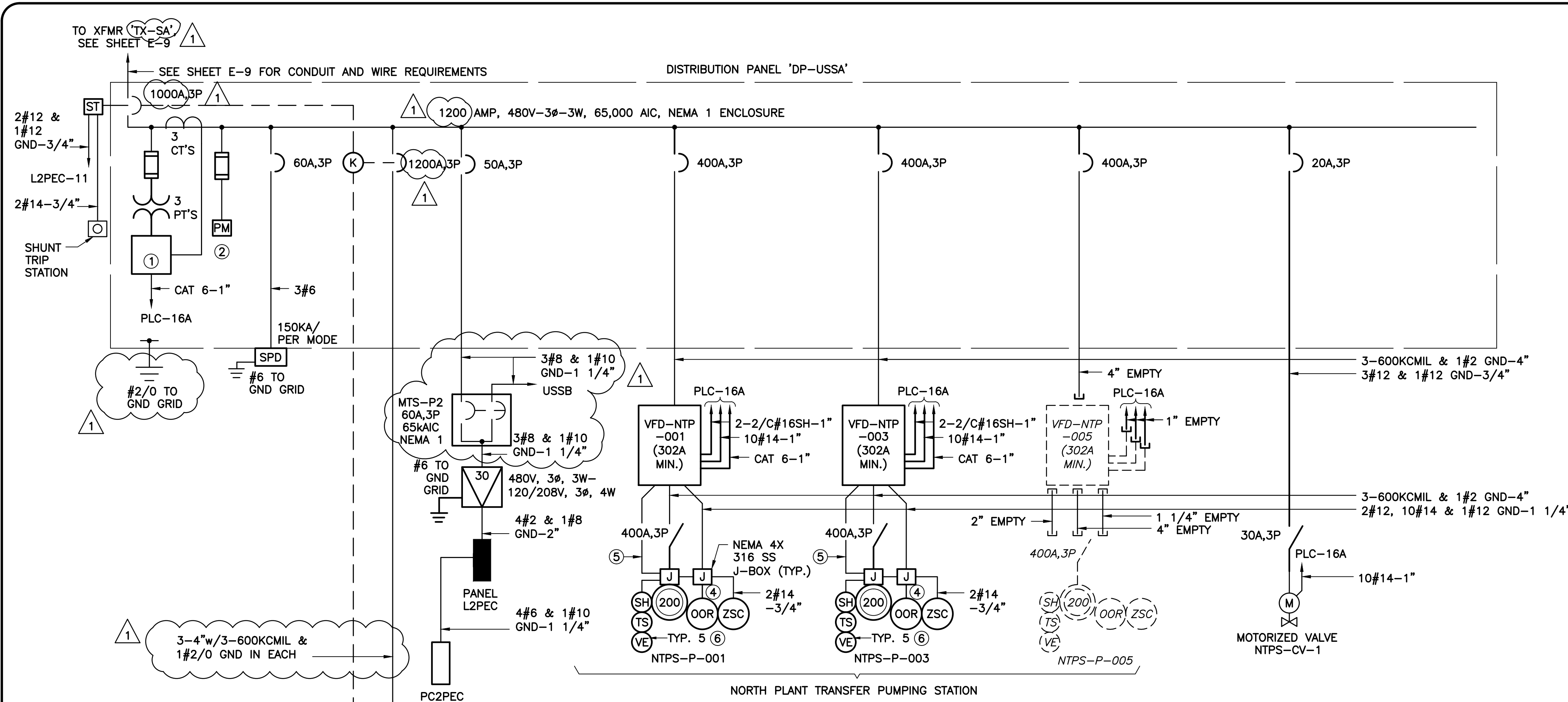
ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
'MCC-USAA' AND 'MCC-USAB'
SINGLE LINE DIAGRAM

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50780

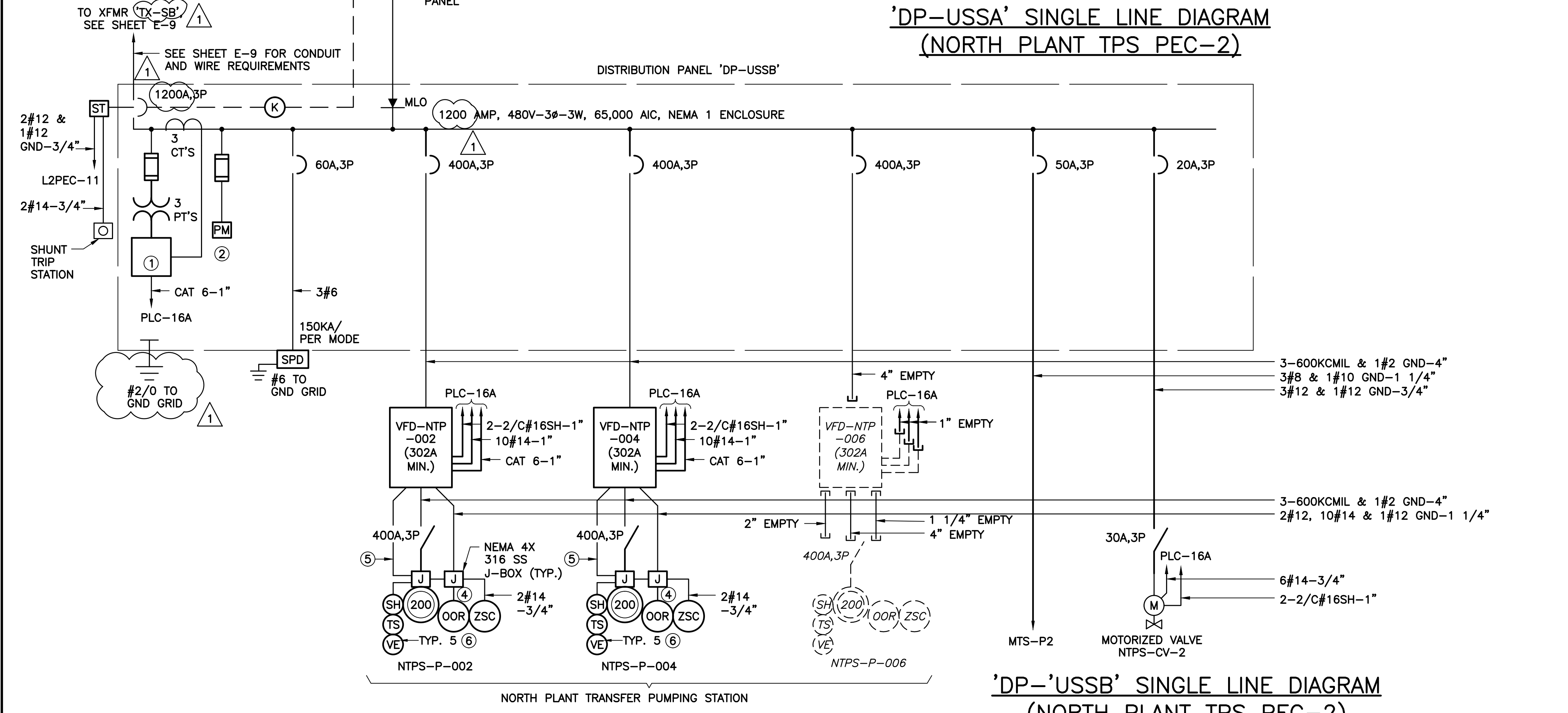
PROJECT NO.
180761
E-13
SHEET
232 OF 364



FD180761
D180761
Package Project/Black & Veatch/Orange County Water Reclamation Facility Phase V Improvements/1_Phas V13_SLD USA.dwg, 23/1/15, 10:13:01 5/2022 AM



**'DP-USSA' SINGLE LINE DIAGRAM
(NORTH PLANT TPS PEC-2)**



**'DP-USSB' SINGLE LINE DIAGRAM
(NORTH PLANT TPS PEC-2)**

'DP-USSA' LOAD TABULATION

480V-3φ

DESCRIPTION	LOAD	AMPCACITY
① TRANSFER PUMP	2 @ 200 HP	= 480.00 AMPS
① FUTURE TRANSFER PUMP	1 @ 200 HP	= 240.00 AMPS
① MOTORIZED VALVE	1 @ 1 HP	= 2.10 AMPS
PANEL L2PEC VIA XFMR	1 @ 30 KVA	= 36.08 AMPS
CONNECTED LOAD		= 758.18 AMPS
② SERVICE ENTRANCE = 758.18 AMPS + (0.25)(240.00)		= 818.18 AMPS

'DP-USSB' LOAD TABULATION

480V-3φ

DESCRIPTION	LOAD	AMPCACITY
① TRANSFER PUMP	2 @ 200 HP	= 480.00 AMPS
① FUTURE TRANSFER PUMP	1 @ 200 HP	= 240.00 AMPS
① MOTORIZED VALVE	1 @ 1 HP	= 2.10 AMPS
CONNECTED LOAD		= 722.10 AMPS
② SERVICE ENTRANCE = 722.10 AMPS + (0.25)(240.00)		= 782.10 AMPS

NOTES:

- AMPCITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
- SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

NOTES:

- POWER MONITOR. SEE SPECIFICATION SECTION 16482 FOR REQUIREMENTS.
- PROVIDE 2#14-3/4" FROM PHASE MONITOR TO PHASE MONITOR CONTROLS IN PLC-16A.
- PANELBOARD TO BE AN I-LINE HCM TYPE PANELBOARD, 1200A, 3P PJ-FRAME MAIN BREAKER WITH TOTAL BREAKER MOUNTING SPACE TO BE NOT LESS THAN 72 INCHES, RATED AT 65,000 AIC. BRANCH BREAKERS RATED AT 65,000 AIC,
 - * 15A - 150A HJ FRAME
 - * 150A - 250A JJ FRAME
 - * 250A - 600A LJ FRAME
- 6#14-3/4".
- 5-2/C#16SH-2".
- SEE SPECIFICATION SECTION 11214 FOR REQUIREMENTS ON MOTOR VIBRATION MONITORING SYSTEM.

ADDENDUM NO. 2	DD	LMR	APP
BID ISSUE	7/2015		
REVISIONS AND RECORD OF ISSUE			
NO.	BY	CHK.	APP.

DATE: 10/12/15

PROJECT NO.: 180761

SHEET: E-14

DATE: JANUARY 2015

ENGINEER OF RECORD: LILLIAN M. REYES

FLORIDA LICENSE NO.: 50790

ED&A

Electrical Design Associates, Inc.
4783 SOUTH CONWAY ROAD, STE. E
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**ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS**

ELECTRICAL
'DP-USSB' & 'DP-USSA'
SINGLE LINE DIAGRAMS

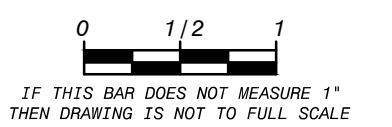
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CHECKED: LMR
APPROVED: LMR

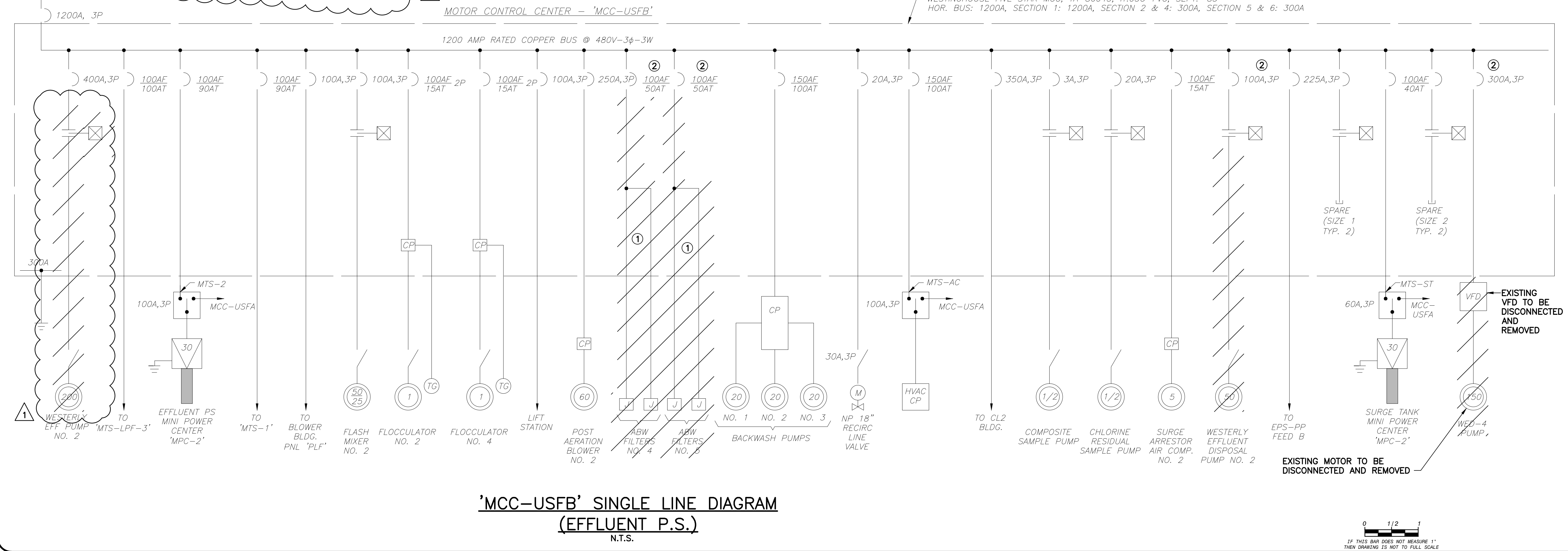
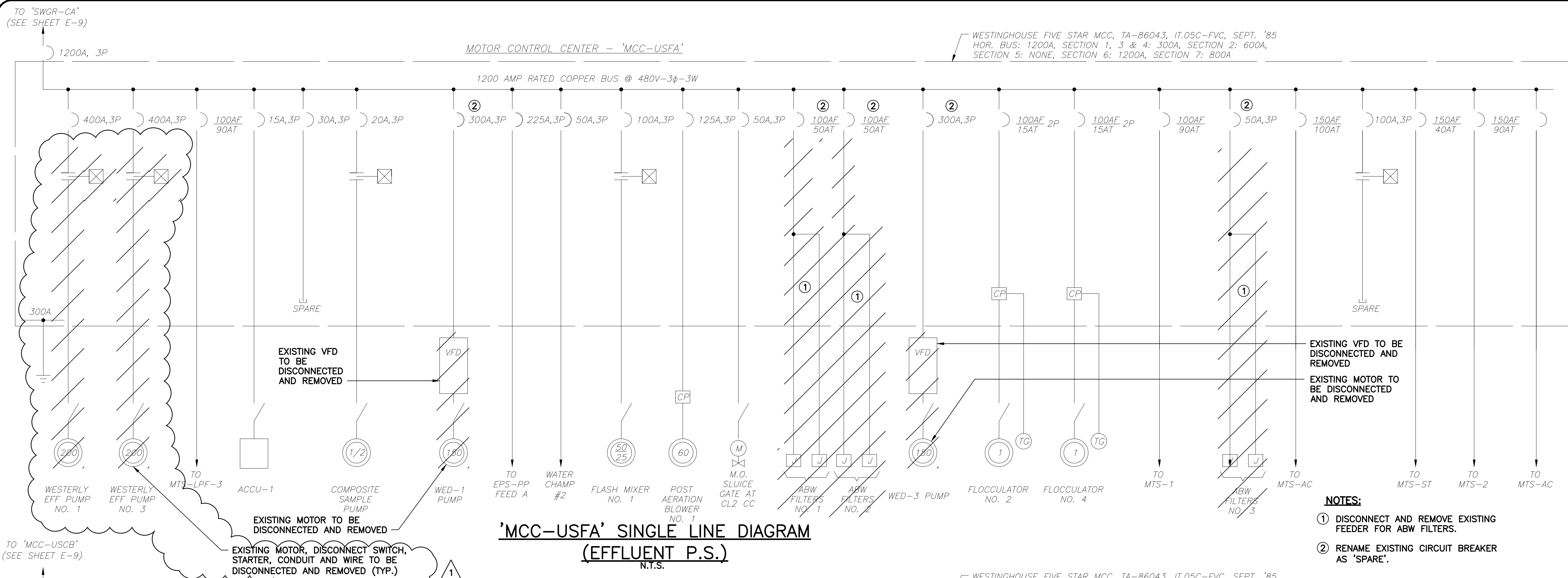
PROJECT NO. 180761

SHEET E-14

233 OF 364

FD180761
D180761
Package Project: Black & Veatch/Orange County Water Reclamation Facility Phase V Improvements/1_Phase V15_Address/180761_SLD/180761_SLD.dwg, 2/2/15, 10:01:33 AM





ADDENDUM NO. 2	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP
1	10/12/15	BID ISSUE	LMR	LMR	LMR

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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
'MCC-USFA' AND 'MCC-USFB'
SINGLE LINE DIAGRAM

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD:
LILLIAN M. REYES
FLORIDA LICENSE NO.:
50790

PROJECT NO.
180761

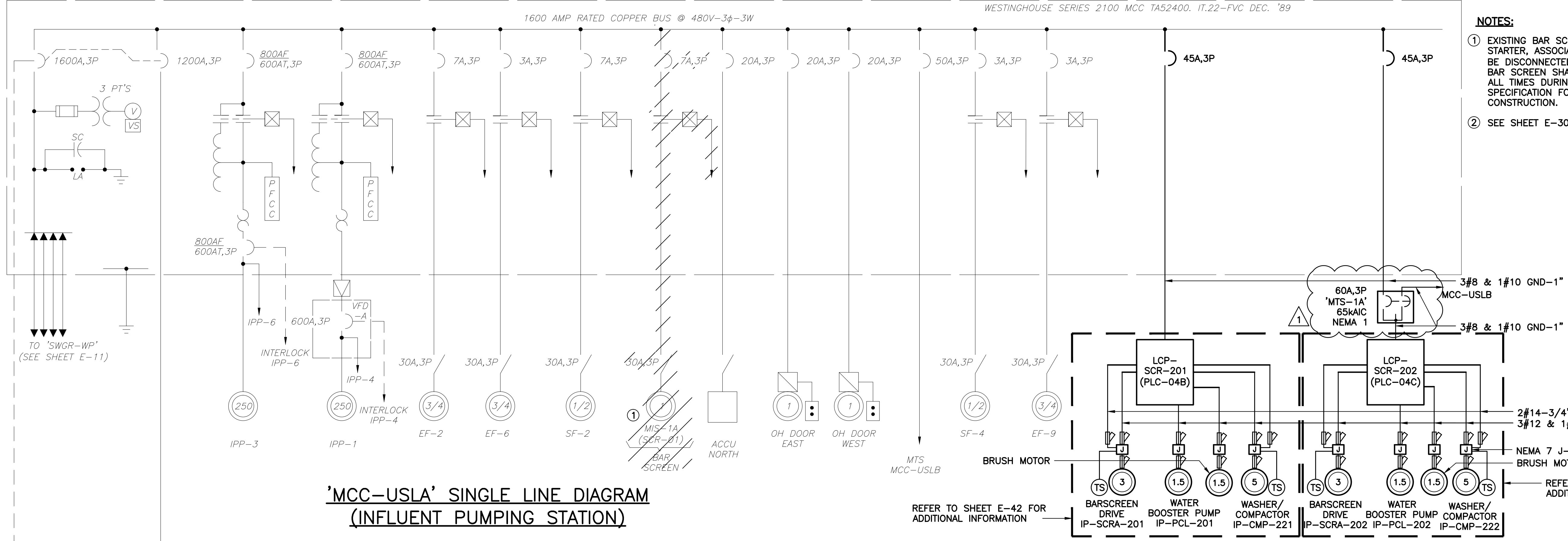
E-15
SHEET
234 OF 364

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

FD180761
D180761

MOTOR CONTROL CENTER - 'MCC-USLA'

WESTINGHOUSE SERIES 2100 MCC TA52400. IT.22-FVC DEC. '89

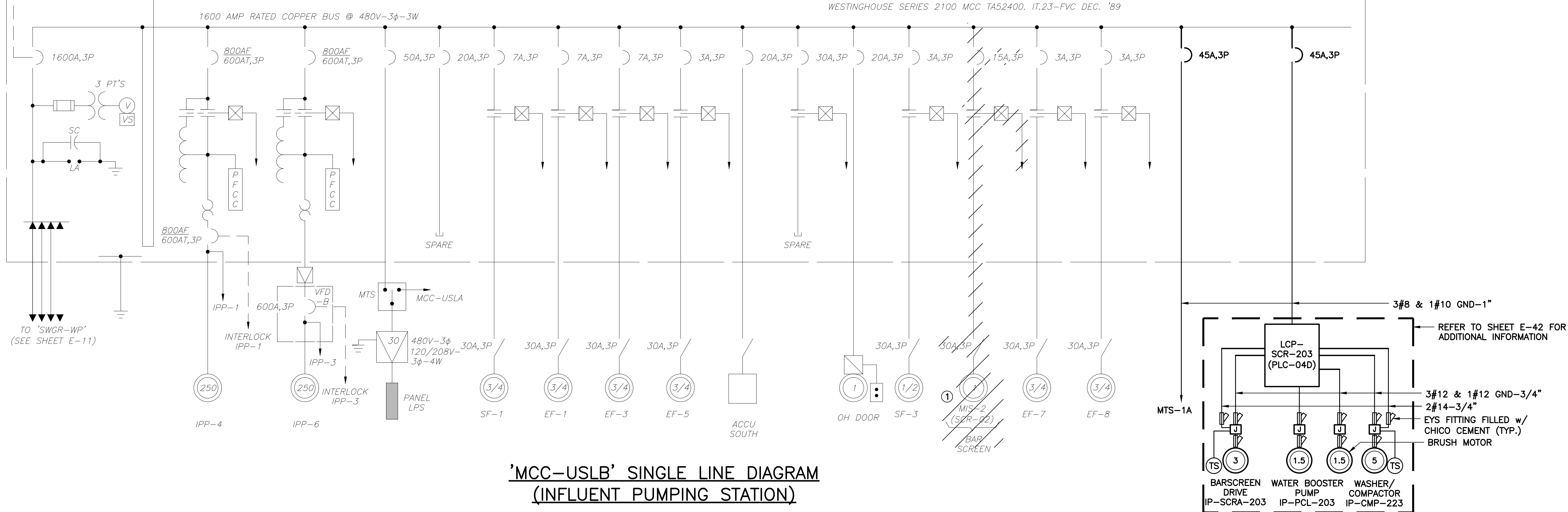


- NOTES:**
- EXISTING BAR SCREEN, DISCONNECT SWITCH, STARTER, ASSOCIATED CONDUIT AND WIRE TO BE DISCONNECTED AND REMOVED. TWO (2) BAR SCREEN SHALL REMAIN IN SERVICE AT ALL TIMES DURING CONSTRUCTION. SEE SPECIFICATION FOR SEQUENCE OF CONSTRUCTION.
 - SEE SHEET E-30 FOR LOAD TABULATION.

'MCC-USLA' SINGLE LINE DIAGRAM
(INFLUENT PUMPING STATION)

MOTOR CONTROL CENTER - 'MCC-USLB'

WESTINGHOUSE SERIES 2100 MCC TA52400. IT.23-FVC DEC. '89



'MCC-USLB' SINGLE LINE DIAGRAM
(INFLUENT PUMPING STATION)

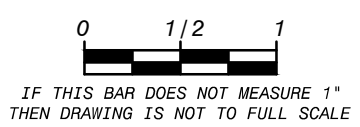
ADDENDUM NO. 2	1	DD	LMR	APP
BID ISSUE	7/2015			
REVISIONS AND RECORD OF ISSUE				
CYBNET ID:				
DATE:				
PROJECT:				
USER:				

EDDA
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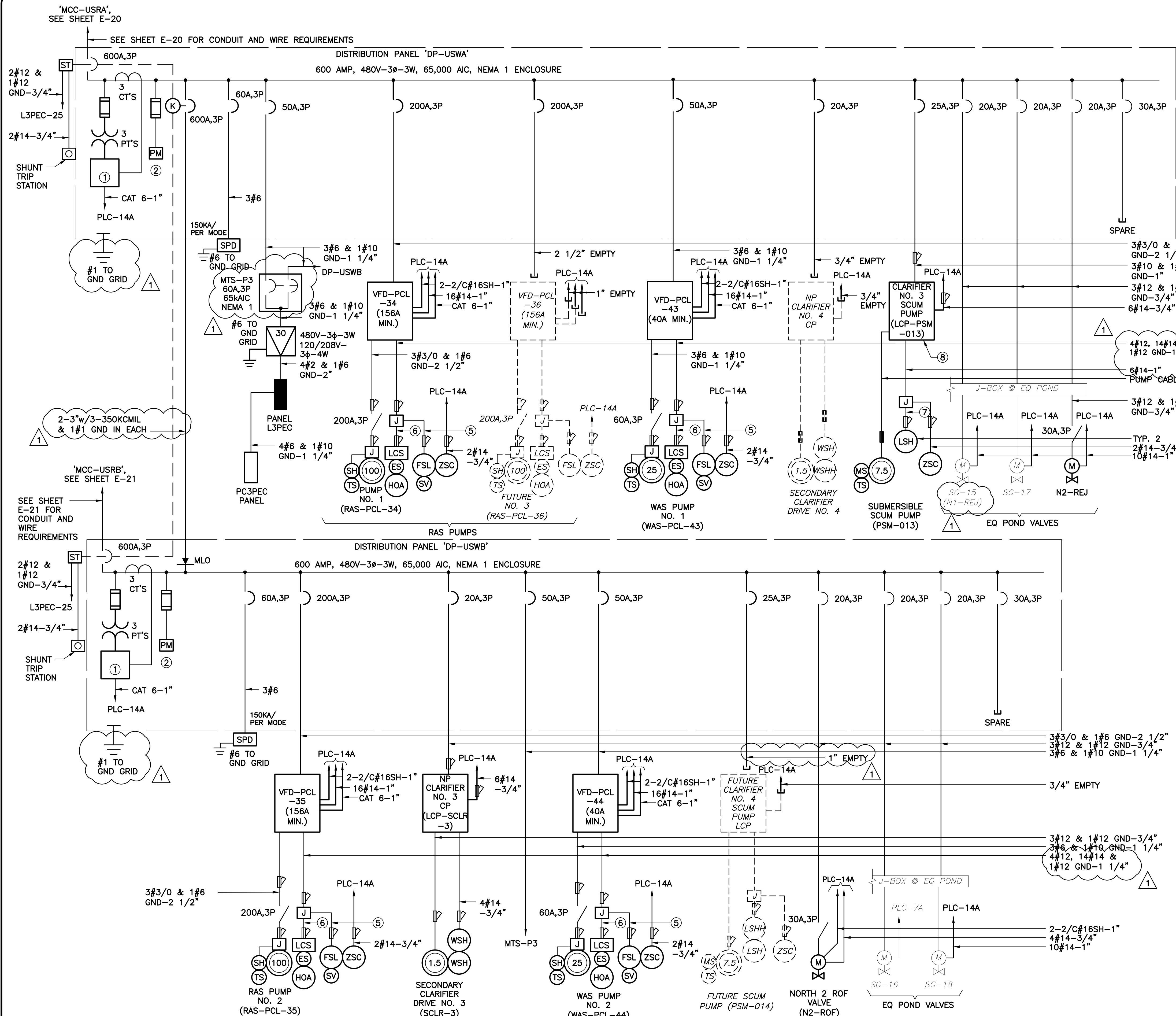
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
'MCC-USLA' AND 'MCC-USLB'
SINGLE LINE DIAGRAM

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES FLORIDA LICENSE NO.: 50780
PROJECT NO.	180761
SHEET	E-17
	236 OF 364



Package Project/Black & Veatch/Orange County/South Water Reclamation Facility/Phase V Improvements/1_Plane V15 - Addendum No. 2/08/15/2015 9:05:52 AM
 dlm:mtt



'DP-USWA' LOAD TABULATION

480V-3φ

DESCRIPTION	LOAD	AMPCACITY
① RAS PUMP	1 @ 100.0 HP	= 124.00 AMPS
① FUTURE RAS PUMP	1 @ 100.0 HP	= 124.00 AMPS
① WAS PUMP	1 @ 25.0 HP	= 34.00 AMPS
① SCUM PUMP	1 @ 7.5 HP	= 11.00 AMPS
PANEL L3PEC VIA XFMR	1 @ 30 KVA	= 36.08 AMPS
① EQ POND VALVE	3 @ 1.0 HP	= 6.30 AMPS
① FUTURE SEC. CLARIFIER	1 @ 2.0 HP	= 3.40 AMPS
CONNECTED LOAD		= 338.78 AMPS
③ SERVICE ENTRANCE = 338.78 AMPS + (0.25)(124.00)		= 369.78 AMPS

'DP-USWB' LOAD TABULATION

480V-3φ

DESCRIPTION	LOAD	AMPCACITY
① RAS PUMP	1 @ 100.0 HP	= 124.00 AMPS
① CLARIFIER DRIVE	1 @ 2.0 HP	= 3.40 AMPS
① WAS PUMP	1 @ 25.0 HP	= 34.00 AMPS
① FUTURE SCUM PUMP	1 @ 7.5 HP	= 11.00 AMPS
① VALVE	3 @ 1.0 HP	= 6.30 AMPS
CONNECTED LOAD		= 178.70 AMPS
③ SERVICE ENTRANCE = 178.70 AMPS + (0.25)(124.00)		= 209.70 AMPS

NOTES:

- AMPACITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
- SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

NOTES:

- POWER MONITOR, SEE SPECIFICATION SECTION 16482 FOR REQUIREMENTS.
- PROVIDE 2#14-3/4" FROM PHASE MONITOR TO PHASE MONITOR CONTROLS IN PLC-14A.
- PANELBOARD TO BE AN I-LINE HCM TYPE PANELBOARD, 600A, 3P LJ-FRAME MAIN BREAKER WITH TOTAL BREAKER MOUNTING SPACE TO BE NOT LESS THAN 72 INCHES, RATED AT 65,000 AIC. BRANCH BREAKERS RATED AT 65,000 AIC.
 - * 15A - 150A HJ FRAME
 - * 150A - 250A JJ FRAME
 - * 250A - 600A LJ FRAME
- SEE SPECIFICATION SECTION 11319 FOR REQUIREMENTS.
- 2#12, 4#14 & 1#12 GND-1".
- 8#14-3/4".
- FLOAT CABLES-2".
- SEE SPECIFICATION SECTION 11319 FOR REQUIREMENTS.

'DP-USWA' & DP-USWB' SINGLE LINE DIAGRAM (NORTH PLANT CLARIFIER NO. 3 RAS/WAS: PEC-3)

ADDENDUM NO. 2	10/12/15	DATE	7/20/15	REVISIONS AND RECORD OF ISSUE
BY	DD	BY	LMR	NO.
APP		APP		

PROJECT NO. 180761
E-22 SHEET 241 OF 364

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

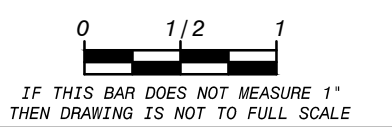
ELECTRICAL

'USWA' & 'USWB' SINGLE LINE DIAGRAMS

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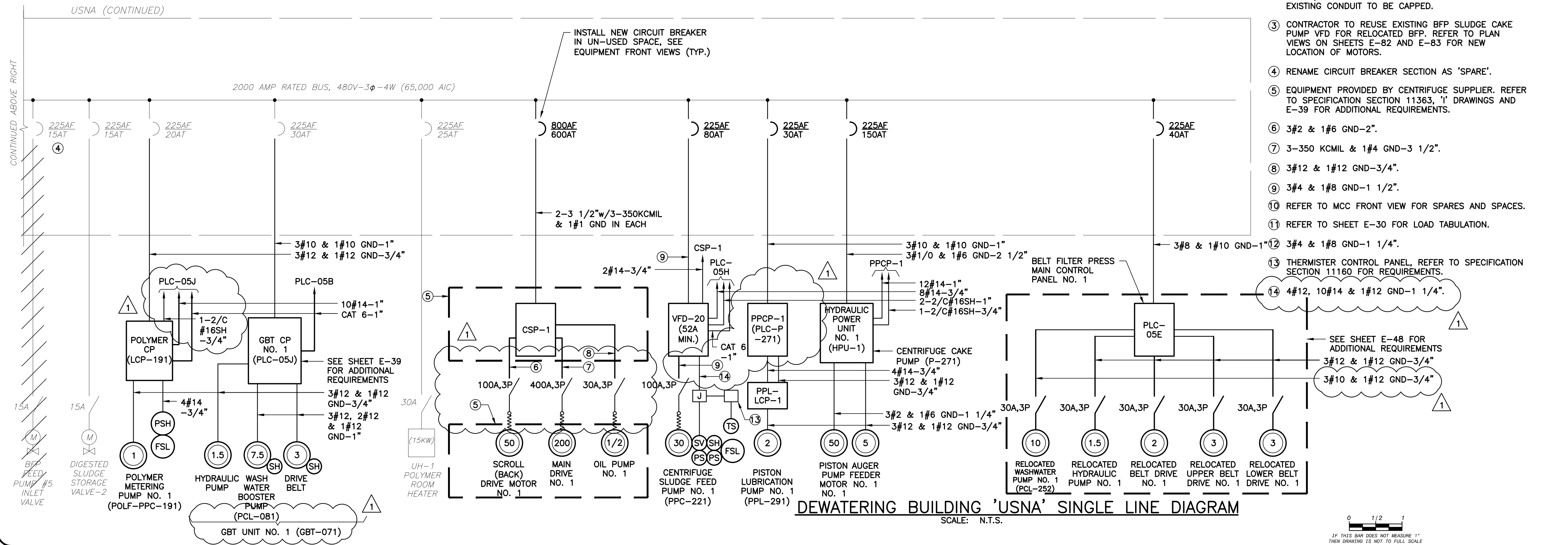
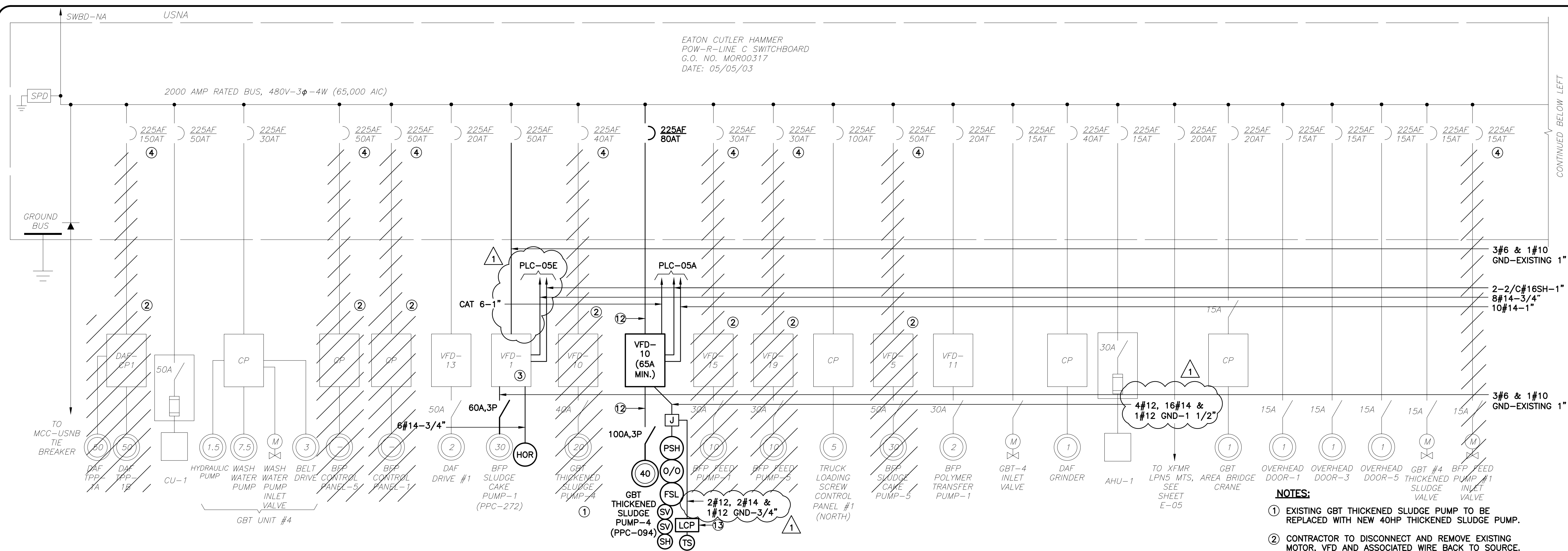
Black & Veatch Corporation
201 South Orange Avenue, Suite 500
Orlando, Florida 32801
Certificate No. 8132

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES
FLORIDA LICENSE NO.: 50780



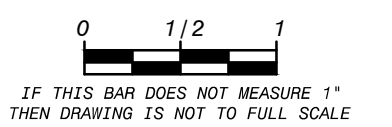
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 D:\180761

EATON CUTLER HAMMER
 POW-R-LINE C SWITCHBOARD
 G.O. NO. MOR00317
 DATE: 05/05/03



- NOTES:**
- EXISTING GBT THICKENED SLUDGE PUMP TO BE REPLACED WITH NEW 40HP THICKENED SLUDGE PUMP.
 - CONTRACTOR TO DISCONNECT AND REMOVE EXISTING MOTOR, VFD AND ASSOCIATED WIRE BACK TO SOURCE. EXISTING CONDUIT TO BE CAPPED.
 - CONTRACTOR TO REUSE EXISTING BFP SLUDGE CAKE PUMP VFD FOR RELOCATED BFP. REFER TO PLAN VIEWS ON SHEETS E-82 AND E-83 FOR NEW LOCATION OF MOTORS.
 - RENAME CIRCUIT BREAKER SECTION AS 'SPARE'.
 - EQUIPMENT PROVIDED BY CENTRIFUGE SUPPLIER. REFER TO SPECIFICATION SECTION 11363, 'I' DRAWINGS AND E-39 FOR ADDITIONAL REQUIREMENTS.
 - 3#2 & 1#6 GND-2".
 - 3-350 KCMIL & 1#4 GND-3 1/2".
 - 3#12 & 1#12 GND-3/4".
 - 3#4 & 1#8 GND-1 1/2".
 - REFER TO MCC FRONT VIEW FOR SPARES AND SPACES.
 - REFER TO SHEET E-30 FOR LOAD TABULATION.
 - 3#8 & 1#10 GND-1" 12 3#4 & 1#8 GND-1 1/4".
 - 3#12 & 1#12 GND-3/4"
 - 3#10 & 1#12 GND-3/4"
 - 4#12, 10#14 & 1#12 GND-1 1/4".
 - SEE SHEET E-48 FOR ADDITIONAL REQUIREMENTS

DEWATERING BUILDING 'USNA' SINGLE LINE DIAGRAM
 SCALE: N.T.S.



ADDENDUM NO. 2	DD	LMR	APP
BID ISSUE	1		
REVISIONS AND RECORD OF ISSUE			
DATE	NO.	BY	CHK.
10/12/15			
7/2015			
PROJECT ID:	ORANGE COUNTY UTILITIES SOUTH WATER RECLAMATION FACILITY PHASE V IMPROVEMENTS		
CLIENT ID:	ORANGE COUNTY UTILITIES SOUTH WATER RECLAMATION FACILITY PHASE V IMPROVEMENTS		
PROJECT NO.:	180761		
ISSUE NO.:	E-23		
DATE:	JANUARY 2015		
ENGINEER OF RECORD:	LILLIAN M. REYES		
FLORIDA LICENSE NO.:	50790		
PROJECT NO.:	180761		
SHEET:	E-23		
242 OF 364			

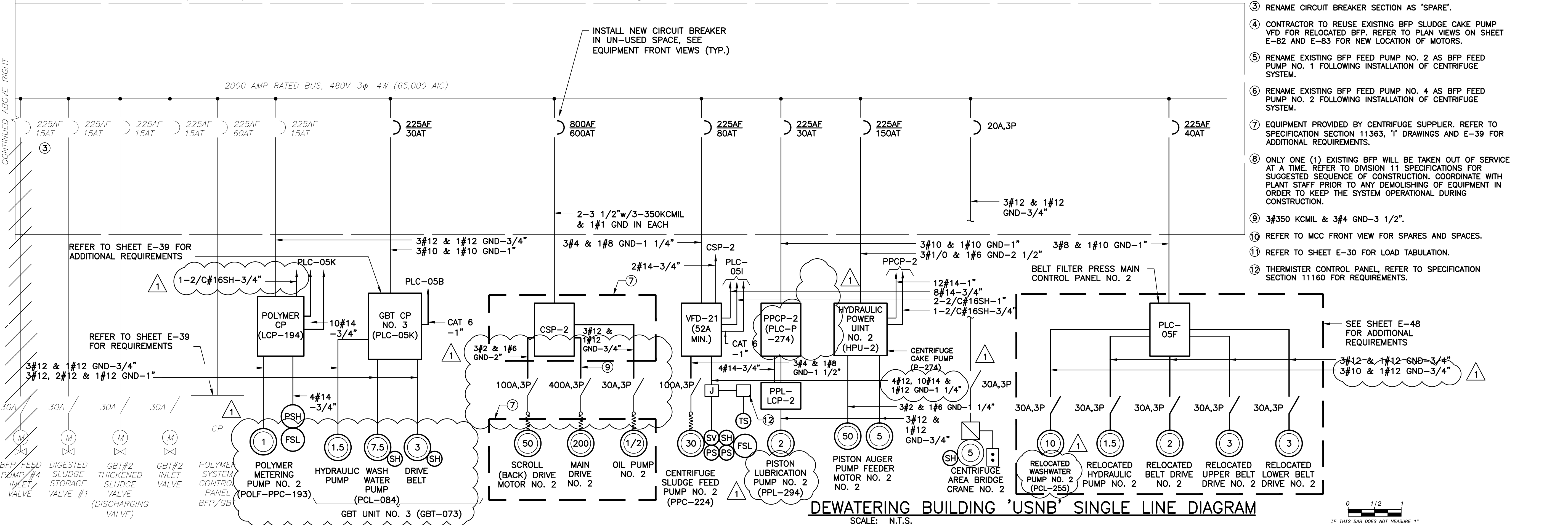
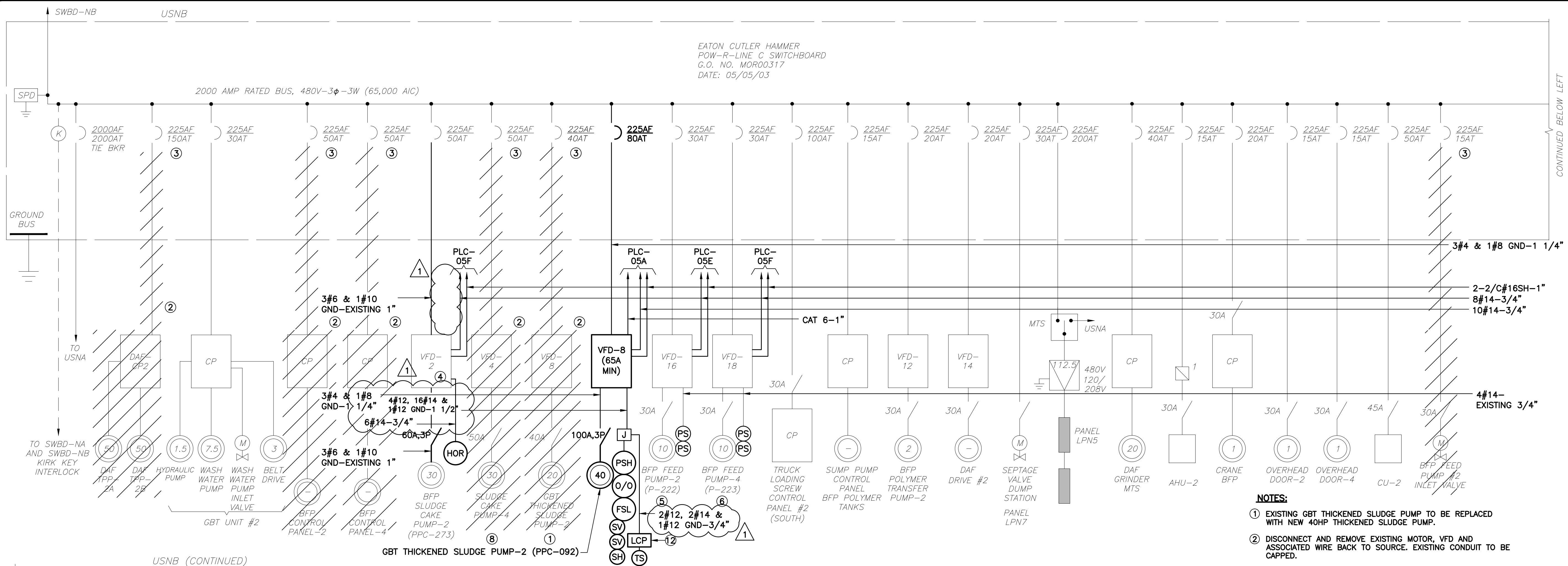
DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD: LILLIAN M. REYES
 FLORIDA LICENSE NO.: 50790
 PROJECT NO.: 180761
 SHEET: E-23
 242 OF 364

ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS

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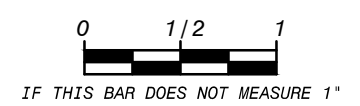
ELECTRICAL 'USNA'
 SINGLE LINE DIAGRAM

EATON CUTLER HAMMER
 POW-R-LINE C SWITCHBOARD
 G.O. NO. MOR00317
 DATE: 05/05/03



- NOTES:**
- ① EXISTING GBT THICKENED SLUDGE PUMP TO BE REPLACED WITH NEW 40HP THICKENED SLUDGE PUMP.
 - ② DISCONNECT AND REMOVE EXISTING MOTOR, VFD AND ASSOCIATED WIRE BACK TO SOURCE. EXISTING CONDUIT TO BE CAPPED.
 - ③ RENAME CIRCUIT BREAKER SECTION AS 'SPARE'.
 - ④ CONTRACTOR TO REUSE EXISTING BFP SLUDGE CAKE PUMP VFD FOR RELOCATED BFP. REFER TO PLAN VIEWS ON SHEET E-82 AND E-83 FOR NEW LOCATION OF MOTORS.
 - ⑤ RENAME EXISTING BFP FEED PUMP NO. 2 AS BFP FEED PUMP NO. 1 FOLLOWING INSTALLATION OF CENTRIFUGE SYSTEM.
 - ⑥ RENAME EXISTING BFP FEED PUMP NO. 4 AS BFP FEED PUMP NO. 2 FOLLOWING INSTALLATION OF CENTRIFUGE SYSTEM.
 - ⑦ EQUIPMENT PROVIDED BY CENTRIFUGE SUPPLIER. REFER TO SPECIFICATION SECTION 11363, 'I' DRAWINGS AND E-39 FOR ADDITIONAL REQUIREMENTS.
 - ⑧ ONLY ONE (1) EXISTING BFP WILL BE TAKEN OUT OF SERVICE AT A TIME. REFER TO DIVISION 11 SPECIFICATIONS FOR SUGGESTED SEQUENCE OF CONSTRUCTION. COORDINATE WITH PLANT STAFF PRIOR TO ANY DEMOLISHING OF EQUIPMENT IN ORDER TO KEEP THE SYSTEM OPERATIONAL DURING CONSTRUCTION.
 - ⑨ 3#350 KCMIL & 3#4 GND-3 1/2".
 - ⑩ REFER TO MCC FRONT VIEW FOR SPARES AND SPACES.
 - ⑪ REFER TO SHEET E-30 FOR LOAD TABULATION.
 - ⑫ THERMISTOR CONTROL PANEL. REFER TO SPECIFICATION SECTION 11160 FOR REQUIREMENTS.

DEWATERING BUILDING 'USNB' SINGLE LINE DIAGRAM
 SCALE: N.T.S.

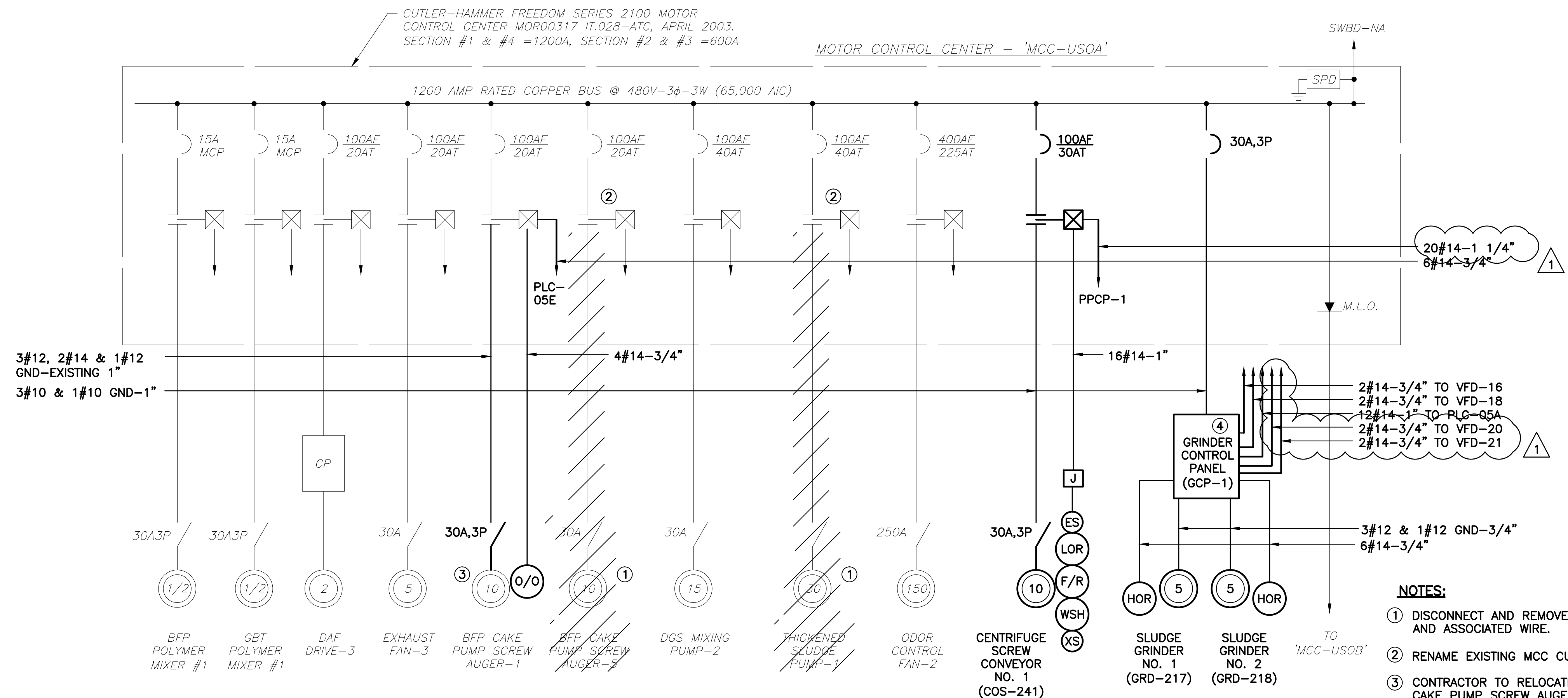


ADDENDUM NO. 2	1	DD	LMR	APP
BID ISSUE	7/2015			
REVISIONS AND RECORD OF ISSUE				
CURRENT ID:	10/12/15			
DATE:	7/2015			
PROJECT ID:	1011215			
PROJECT NAME:	ORANGE COUNTY UTILITIES SOUTH WATER RECLAMATION FACILITY PHASE V IMPROVEMENTS			
PROJECT ADDRESS:	4783 SOUTH CONWAY ROAD, STE. E ORLANDO, FLORIDA 32813			
PHONE:	(407) 745-5604			
FAX:	(407) 745-5603			
C.O.A. NO.:	8079			
DESIGNED BY:	LILLIAN M. REYES, P.E.			
CHECKED BY:				
APPROVED BY:				
DATE:	JANUARY 2015			
ENGINEER OF RECORD:	LILLIAN M. REYES			
FLORIDA LICENSE NO.:	50790			
PROJECT NO.:	180761			
SHEET:	E-24			
OF 364:	243			

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ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS

ELECTRICAL
 'USNB'
 SINGLE LINE DIAGRAM



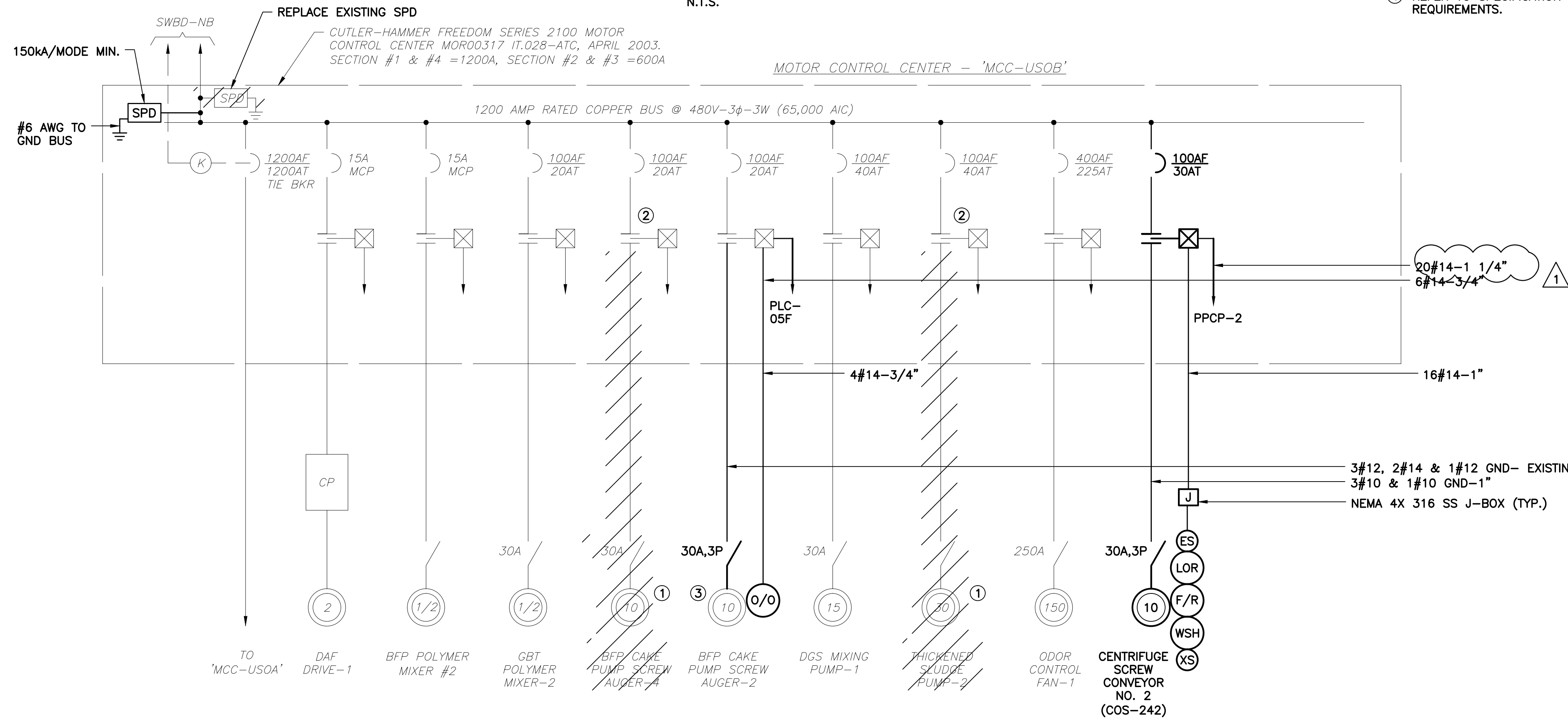
DEWATERING BUILDING 'MCC-USOA' SINGLE LINE DIAGRAM
N.T.S.

'MCC-USOA' LOAD TABULATION
480V-3φ-3W

DESCRIPTION	LOAD	AMPACITY
① BFP POLYMER MIXER	1 @ 0.5 HP	= 1.10 AMPS
① GBT POLYMER MIXER	1 @ 0.5 HP	= 1.10 AMPS
① EXHAUST FAN	1 @ 5.0 HP	= 7.60 AMPS
① DAF DRIVE-3	1 @ 2.0 HP	= 3.40 AMPS
① BFP CAKE SCREW AUGER	1 @ 10.0 HP	= 14.00 AMPS
① DGS MIX PUMP	1 @ 15.0 HP	= 21.00 AMPS
① ODOR CONTROL FAN	1 @ 150.0 HP	= 180.00 AMPS
① CENT. SCREW CONVY	1 @ 10.0 HP	= 14.00 AMPS
① SLUDGE GRINDER	2 @ 5.0 HP	= 15.20 AMPS
CONNECTED LOAD		= 257.40 AMPS
② SERVICE ENTRANCE = 257.40 AMPS + (0.25)(180.0)		= 302.40 AMPS

NOTES:

- ① AMPACITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.



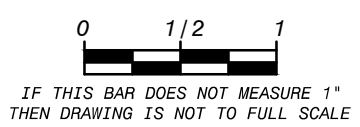
DEWATERING BUILDING 'MCC-USOB' SINGLE LINE DIAGRAM
N.T.S.

'MCC-USOB' LOAD TABULATION
480V-3φ-3W

DESCRIPTION	LOAD	AMPACITY
① BFP POLYMER MIXER	1 @ 0.5 HP	= 1.10 AMPS
① GBT POLYMER MIXER	1 @ 0.5 HP	= 1.10 AMPS
① DAF DRIVE-1	1 @ 2.0 HP	= 3.40 AMPS
① BFP CAKE SCREW AUGER	1 @ 10.0 HP	= 14.00 AMPS
① DGS MIX PUMP	1 @ 15.0 HP	= 21.00 AMPS
① ODOR CONTROL FAN	1 @ 150.0 HP	= 180.00 AMPS
① CENT. SCREW CONVY	1 @ 10.0 HP	= 14.00 AMPS
CONNECTED LOAD		= 234.60 AMPS
② SERVICE ENTRANCE = 234.60 AMPS + (0.25)(180.0)		= 279.60 AMPS

NOTES:

- ① AMPACITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
- ② SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.



ADDENDUM NO. 2	1	DD	LMR
BID ISSUE	7/2015		
REVISIONS AND RECORD OF ISSUE			
NO.	BY	CHK	APP
DATE			
ISSUED			
DATE			
DATE			
DATE			
DATE			

ED&A
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PHONE: (407) 745-5604
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
'MCC-USOA' & 'MCC-USOB'
SINGLE LINE DIAGRAM

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD:
LILLIAN M. REYES
FLORIDA LICENSE NO.:
50780
PROJECT NO.
180761
E-25
SHEET
244 OF 364

Package Project/Black & Veatch/Orange County/South Water Reclamation Facility/Phase V Improvements/1_Phase V/15_Electrical/180761-0000.dwg, 23 X 34, 10/13/2015 9:21:32 AM
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SWBD-NA (SEE SHEET E-13)

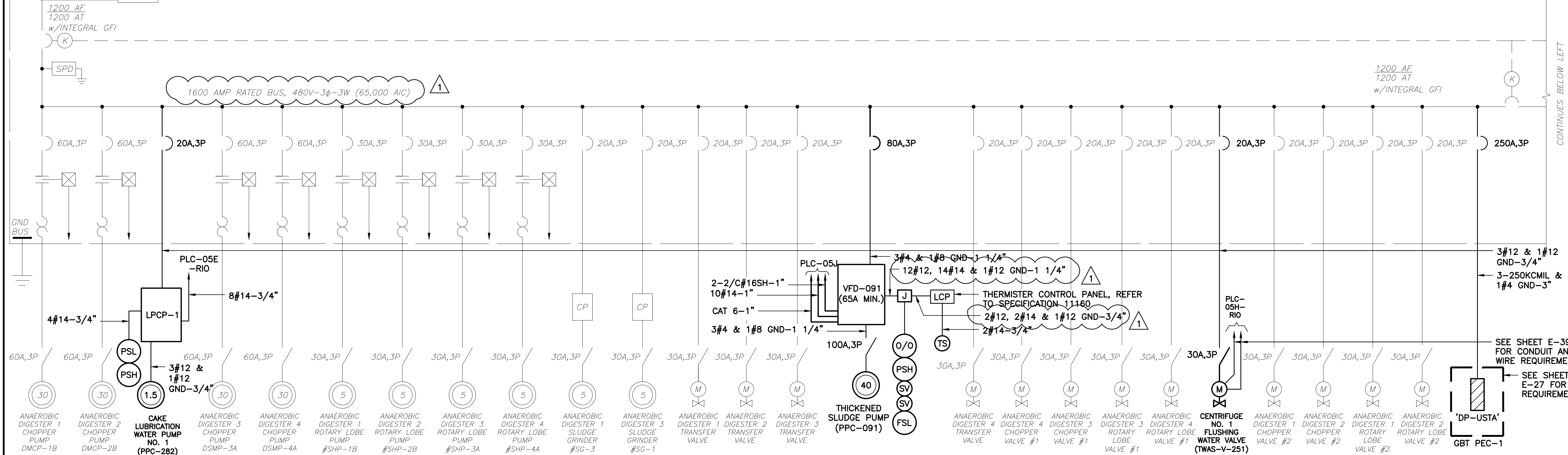
MCC-USPA

MCC-USPA SINGLE LINE DIAGRAM
DEWATERING BUILDING

EATON CUTLER-HAMMER FREEDOM SERIES
2100 MCC SOR61052 IT.002-ATC FEB. 05'

NOTES:

1 REFER TO SHEET E-30 FOR LOAD
TABULATION.



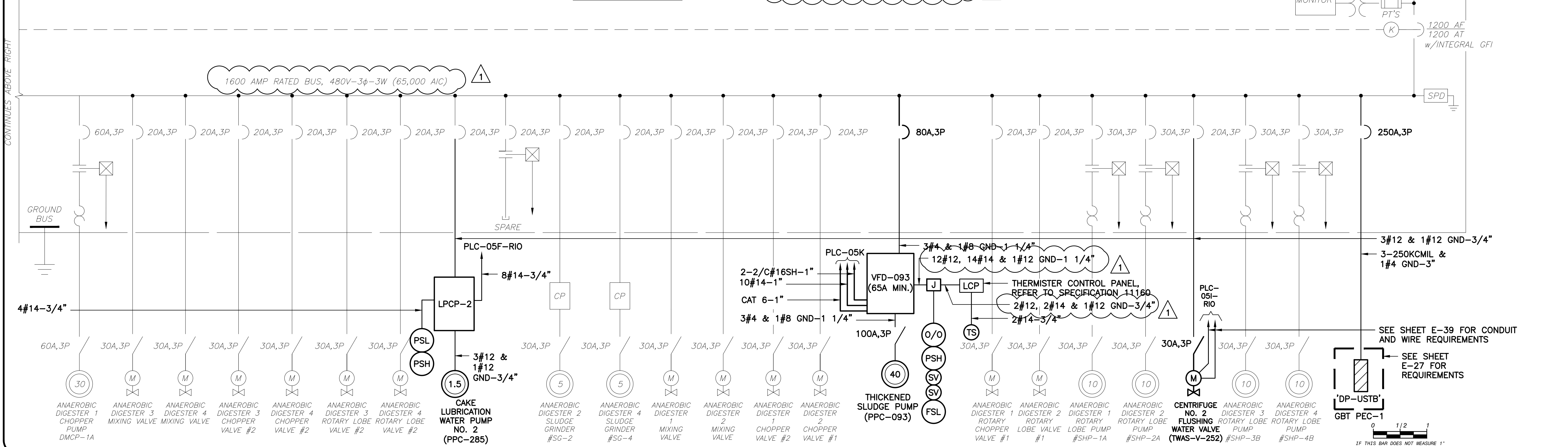
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SEE SHEET E-39 FOR CONDUIT AND WIRE REQUIREMENTS
SEE SHEET E-27 FOR REQUIREMENTS

MCC-USPB

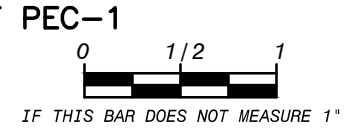
MCC-USPB SINGLE LINE DIAGRAM
DEWATERING BUILDING

EATON CUTLER-HAMMER FREEDOM SERIES
2100 MCC SOR61052 IT.002-ATC FEB. 05'



CONTINUES ABOVE RIGHT

SEE SHEET E-39 FOR CONDUIT AND WIRE REQUIREMENTS
SEE SHEET E-27 FOR REQUIREMENTS



ADDENDUM NO. 2	1	DD	LMR	LMP
BID ISSUE	7/2015			
REVISIONS AND RECORD OF ISSUE				
NO.	BY	CHK	APP	
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PROJECT ID:				
DATE:				
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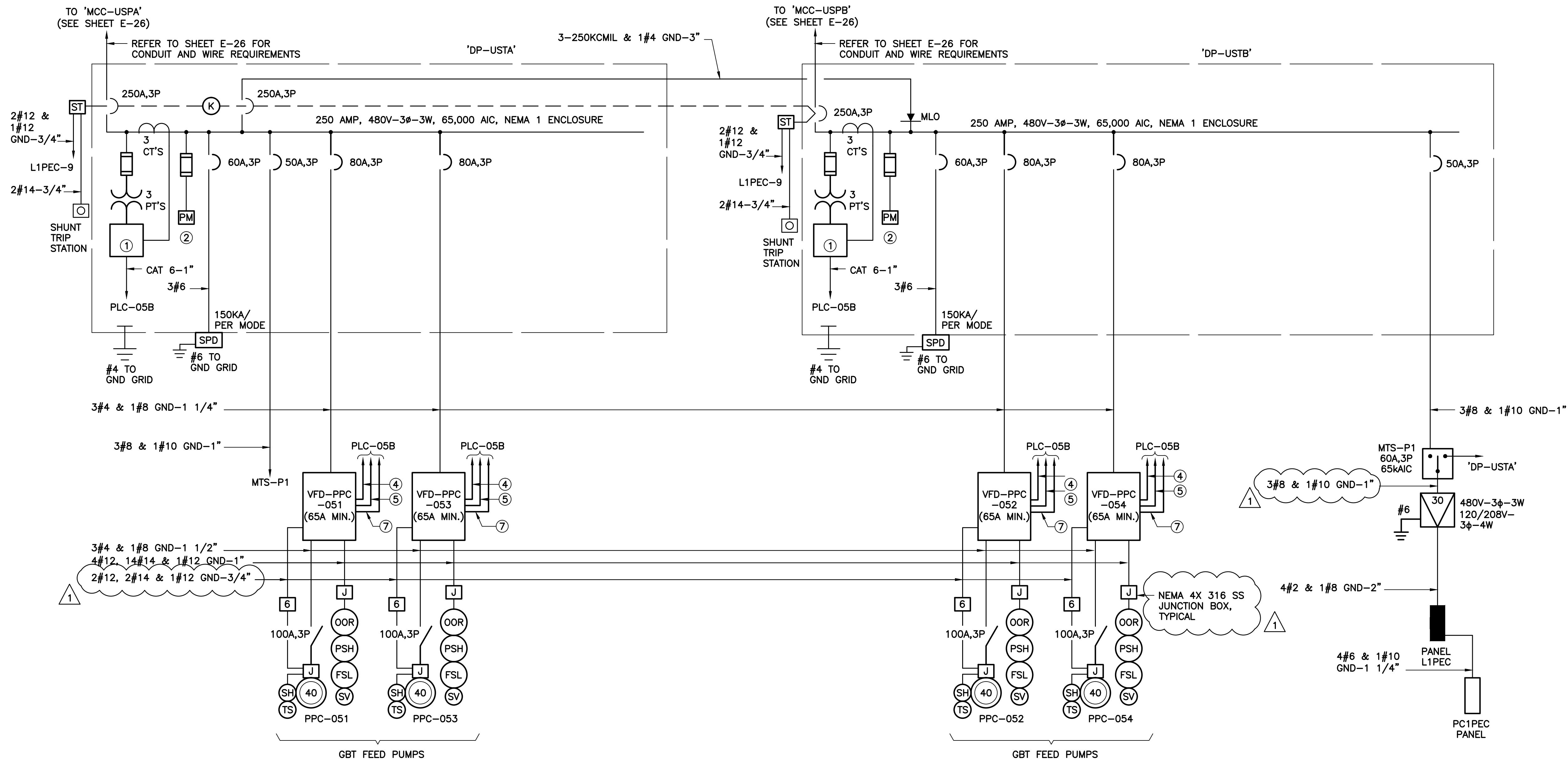
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Electrical Design Associates
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ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
'MCC-USPA' & 'MCC-USPB'
SINGLE LINE DIAGRAM

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES FLORIDA LICENSE NO.: 50780
PROJECT NO.:	180761
SHEET	E-26
245 OF 364	

FD180761
D180761



**'DP-USTA' & 'DP-USTB' SINGLE LINE DIAGRAMS
(GRAVITY BELT THICKENER PEC-1)**

'DP-USTA' LOAD TABULATION
480V-3φ

DESCRIPTION	LOAD	AMPACITY
① GBT FEED PUMP	2 @ 40 HP	= 104.00 AMPS
PANEL L1PEC VIA XFMR	1 @ 30 KVA	= 36.08 AMPS
CONNECTED LOAD		= 140.08 AMPS
② SERVICE ENTRANCE	= 140.08 AMPS + (0.25)(52.00)	= 153.08 AMPS

NOTES:

- AMPACITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
- SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

'DP-USTB' LOAD TABULATION
480V-3φ

DESCRIPTION	LOAD	AMPACITY
① GBT FEED PUMP	2 @ 40 HP	= 104.00 AMPS
CONNECTED LOAD		= 104.00 AMPS
② SERVICE ENTRANCE	= 104.00 AMPS + (0.25)(52.00)	= 117.00 AMPS

NOTES:

- AMPACITIES PER TABLE 430-250 OF THE NATIONAL ELECTRICAL CODE.
- SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.

- NOTES:**
- POWER MONITOR. SEE SPECIFICATION SECTION 16482 FOR REQUIREMENTS.
 - PROVIDE 2#14-3/4" FROM PHASE MONITOR TO PHASE MONITOR CONTROLS IN PLC-05B.
 - PANELBOARD TO BE AN I-LINE HCM TYPE PANELBOARD, 250A, 3P LJ-FRAME MAIN BREAKER WITH TOTAL BREAKER MOUNTING SPACE TO BE NOT LESS THAN 72 INCHES, RATED AT 65,000 AIC. BRANCH BREAKERS RATED AT 65,000 AIC,
 - * 15A - 150A HJ FRAME
 - * 150A - 250A JJ FRAME
 - * 250A - 600A LJ FRAME
 - 10#14-1".
 - 2-2/C#16SH-1".
 - THERMISTOR CONTROL RELAY ENCLOSURE. REFER TO SPECIFICATION SECTION 11160 FOR REQUIREMENTS.
 - CAT 6-1".

ADDENDUM NO. 2	DATE	DATE	DATE	DATE	DATE
1	7/2015	7/2015	7/2015	7/2015	7/2015
DD	LMR	LMR	LMR	LMR	LMR
BY	BY	BY	BY	BY	BY
NO.	NO.	NO.	NO.	NO.	NO.
REVISIONS AND RECORD OF ISSUE					
PROJECT NO. 180761 SHEET E-27 246 OF 364					

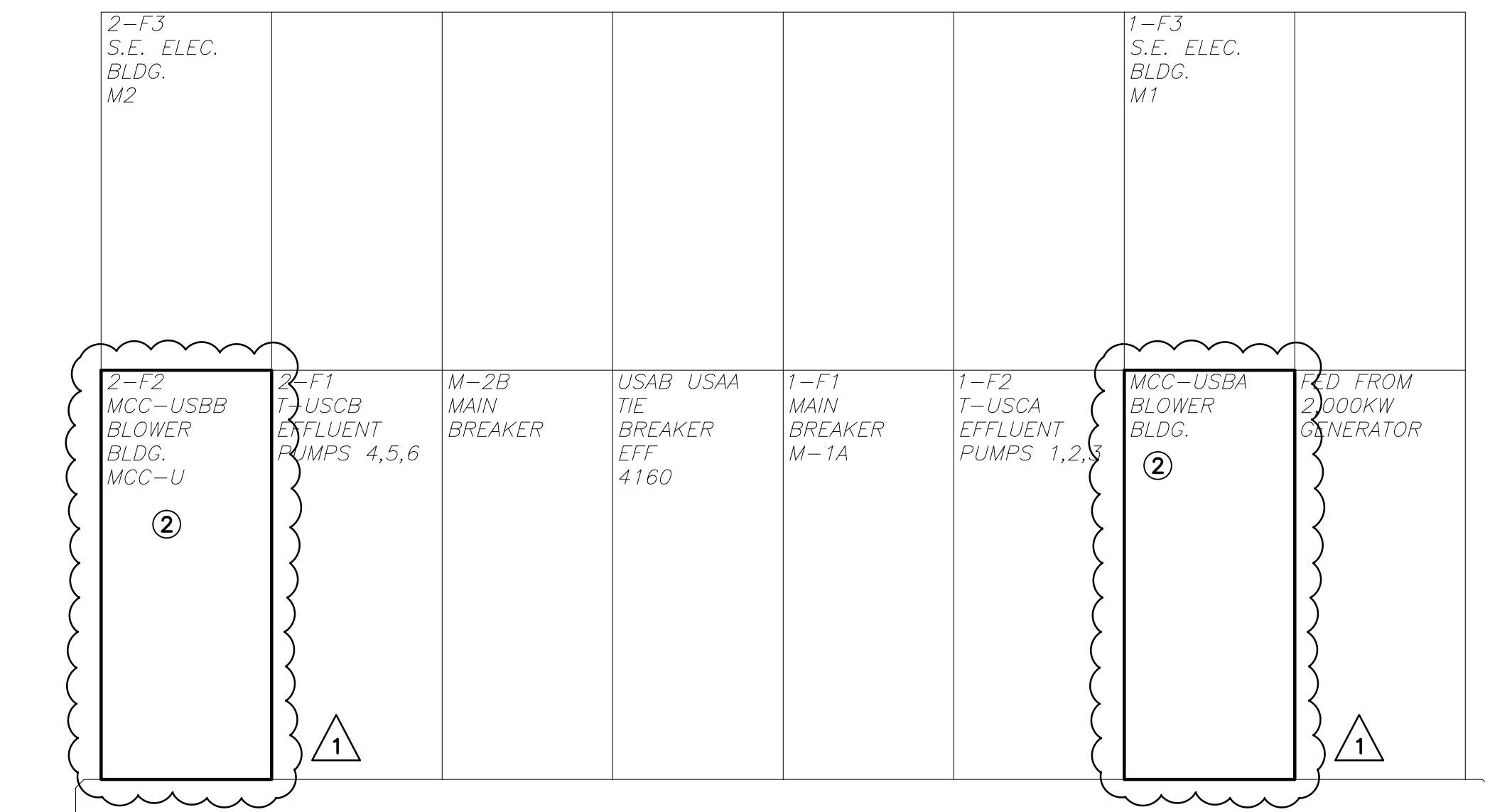
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
'MCC-USTA' & 'MCC-USTB'
SINGLE LINE DIAGRAMS

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50790

Project: Black & Veatch/Orange County Water Reclamation Facility Phase V Improvements, Phase V.15, Address: 201 South Orange Avenue, Suite 500, Orlando, FL 32801. Date: 7/20/2015 9:21:52 AM.

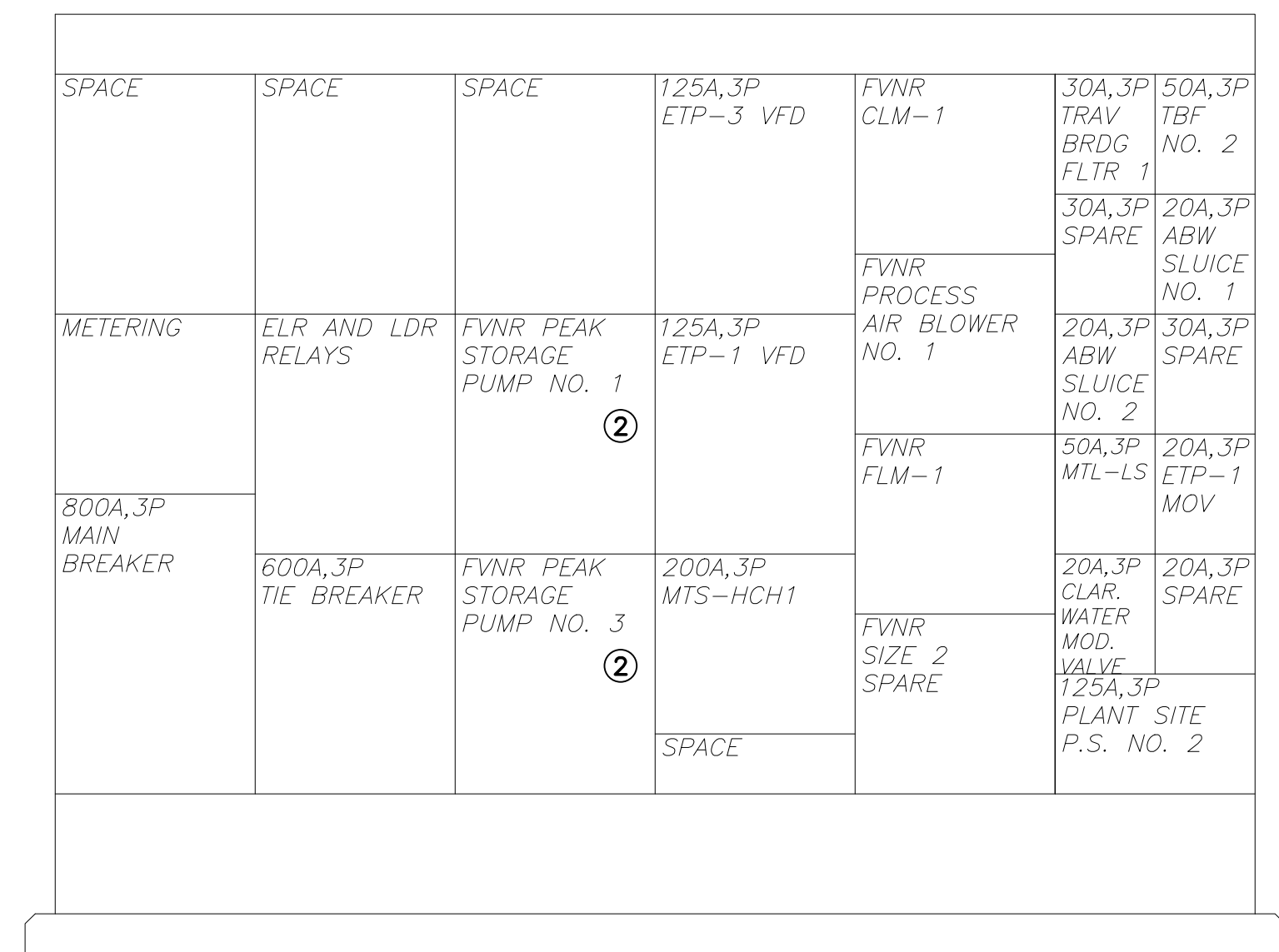


4160V SWBD

① (EFFLUENT BLDG. ELEC. ROOM 1ST FLOOR)

SCALE: N.T.S.

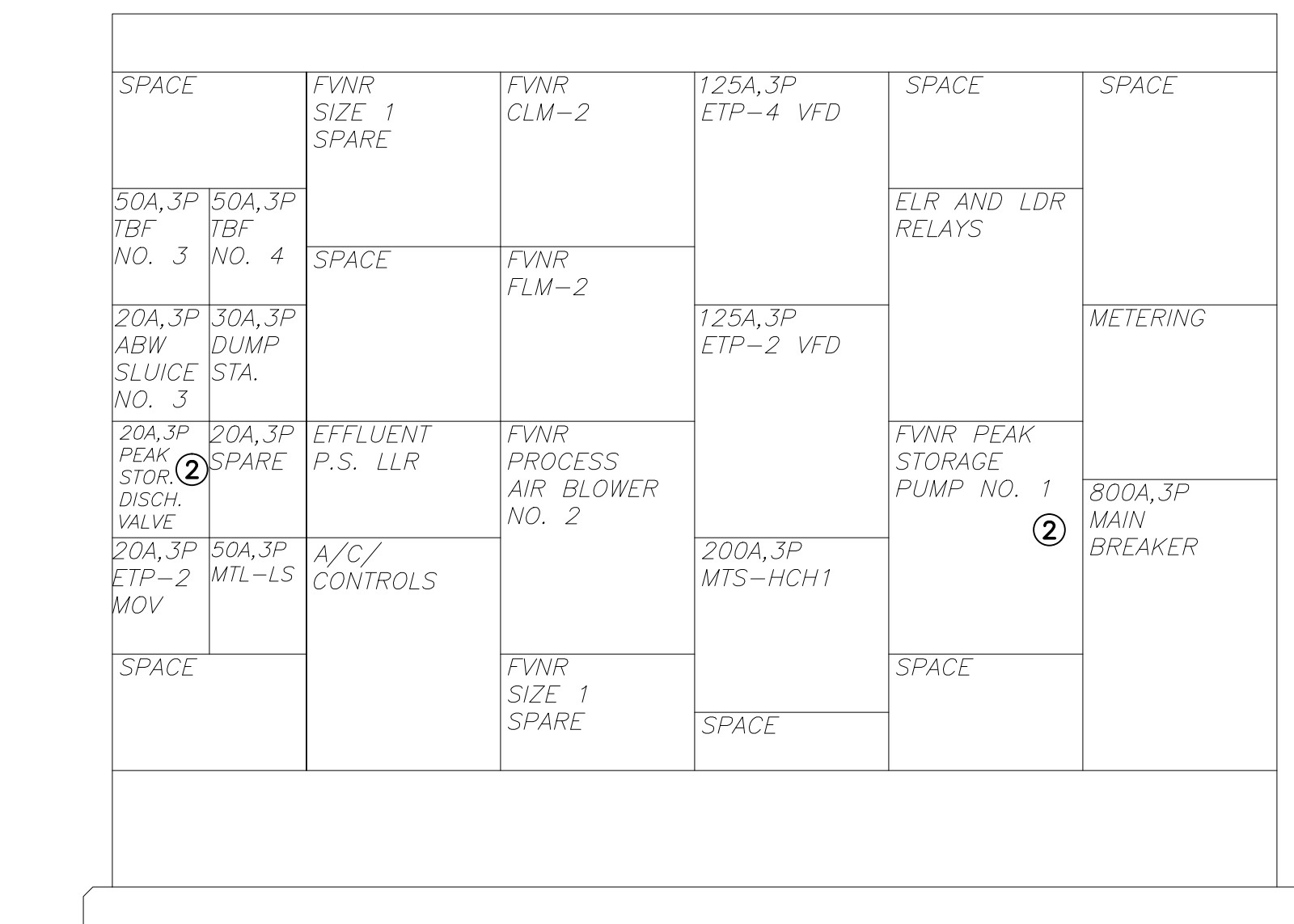
- NOTES:**
- ① MODIFY SWBD AS SHOWN ON SINGLE LINE DIAGRAM. PROVIDE UPDATED NAME PLATES.
 - ② EXISTING CIRCUIT BREAKERS SHALL BE REPLACED WITH NEW 150A,3P, 5KV CIRCUIT BREAKER TO FEED PEC-2 POWER PANEL. PROVIDE UPDATED NAME PLATES.



① MCC-USHA FRONT VIEW (SOUTHWEST ELECTRICAL BLDG.)

SCALE: 3/4"=1'-0"

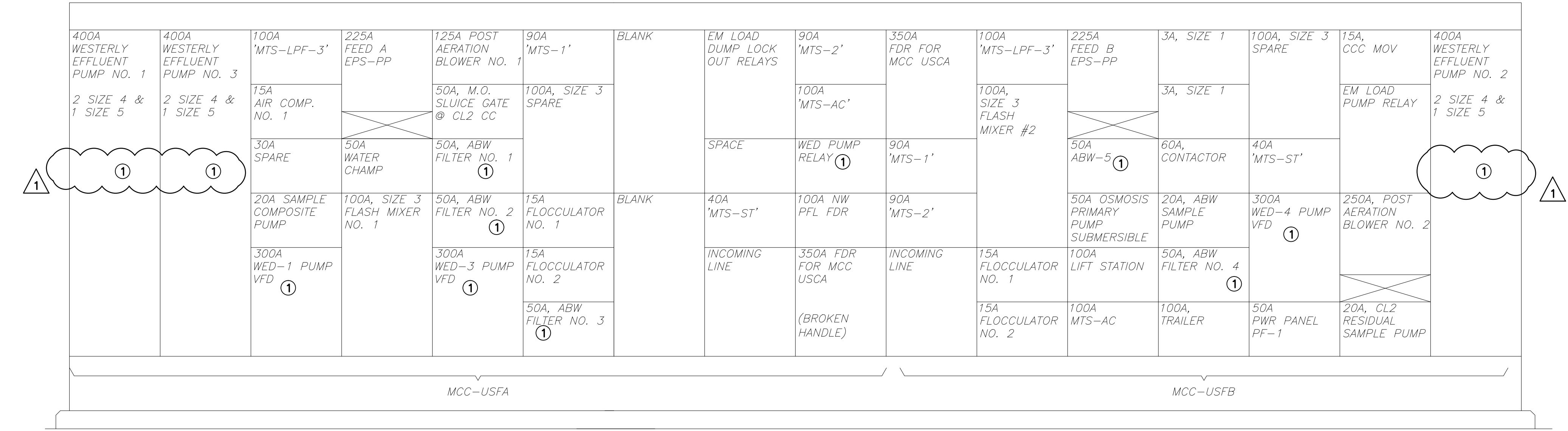
- NOTES:**
- ① MODIFY SWBD AS SHOWN ON SINGLE LINE DIAGRAM. PROVIDE UPDATED NAME PLATES.
 - ② EXISTING FEEDER BREAKER TO BE LOCKED IN THE OPEN POSITION AND RENAMED AS 'SPARE'.



① MCC-USHB FRONT VIEW (SOUTHWEST ELECTRICAL BLDG.)

SCALE: 3/4"=1'-0"

- NOTES:**
- ① MODIFY SWBD AS SHOWN ON SINGLE LINE DIAGRAM. PROVIDE UPDATED NAME PLATES.
 - ② EXISTING FEEDER BREAKER TO BE LOCKED IN THE OPEN POSITION AND RENAMED AS 'SPARE'.



MCC-USFA FRONT VIEW (EFFLUENT BLDG 1ST FLOOR ELECTRICAL ROOM)

SCALE: 3/4"=1'-0"

- NOTES:**
- ① MODIFY MCC AS SHOWN ON SINGLE LINE DIAGRAM. PROVIDE UPDATED NAME PLATES.

MCC-USFB FRONT VIEW (EFFLUENT BLDG 1ST FLOOR ELECTRICAL ROOM)

SCALE: 3/4"=1'-0"

- NOTES:**
- ① MODIFY MCC AS SHOWN ON SINGLE LINE DIAGRAM. PROVIDE UPDATED NAME PLATES.

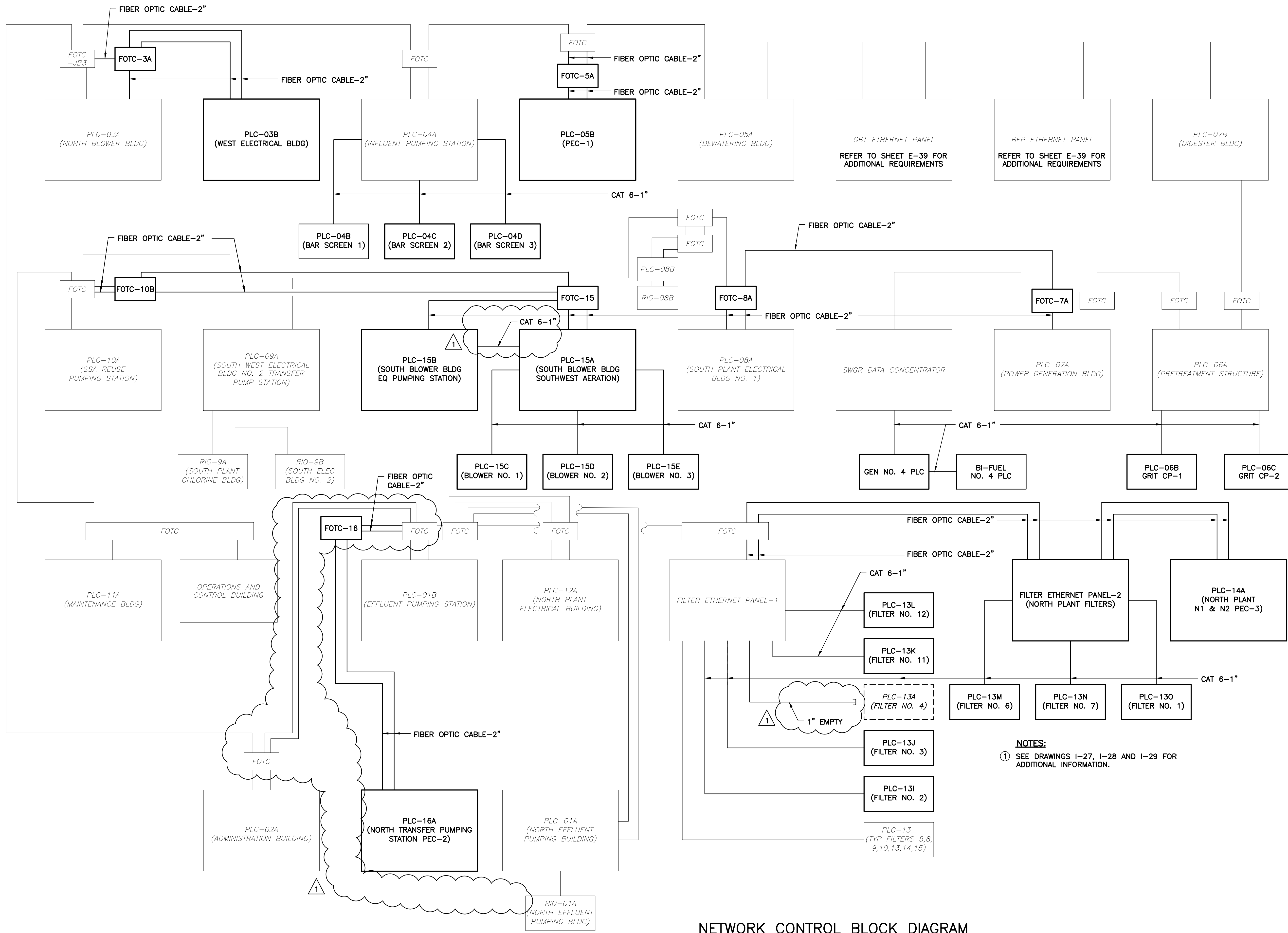
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7/2015	BID ISSUE	1	LMR
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WF: 2502-E-34-FV	XREF2:		
SAVED:	XREF3:		
PLOTTED:	XREF4:		
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C.O.A. No. 8079
LILLIAN M. REYES, P.E.
Florida P.E. No. 50790

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
EQUIPMENT FRONT VIEWS - 6

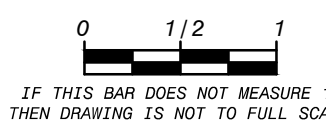
DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES FLORIDA LICENSE NO.: 50790
PROJECT NO. 180761
E-34 SHEET 253 OF 364

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE



NETWORK CONTROL BLOCK DIAGRAM

NOTES:
 ① SEE DRAWINGS I-27, I-28 AND I-29 FOR ADDITIONAL INFORMATION.



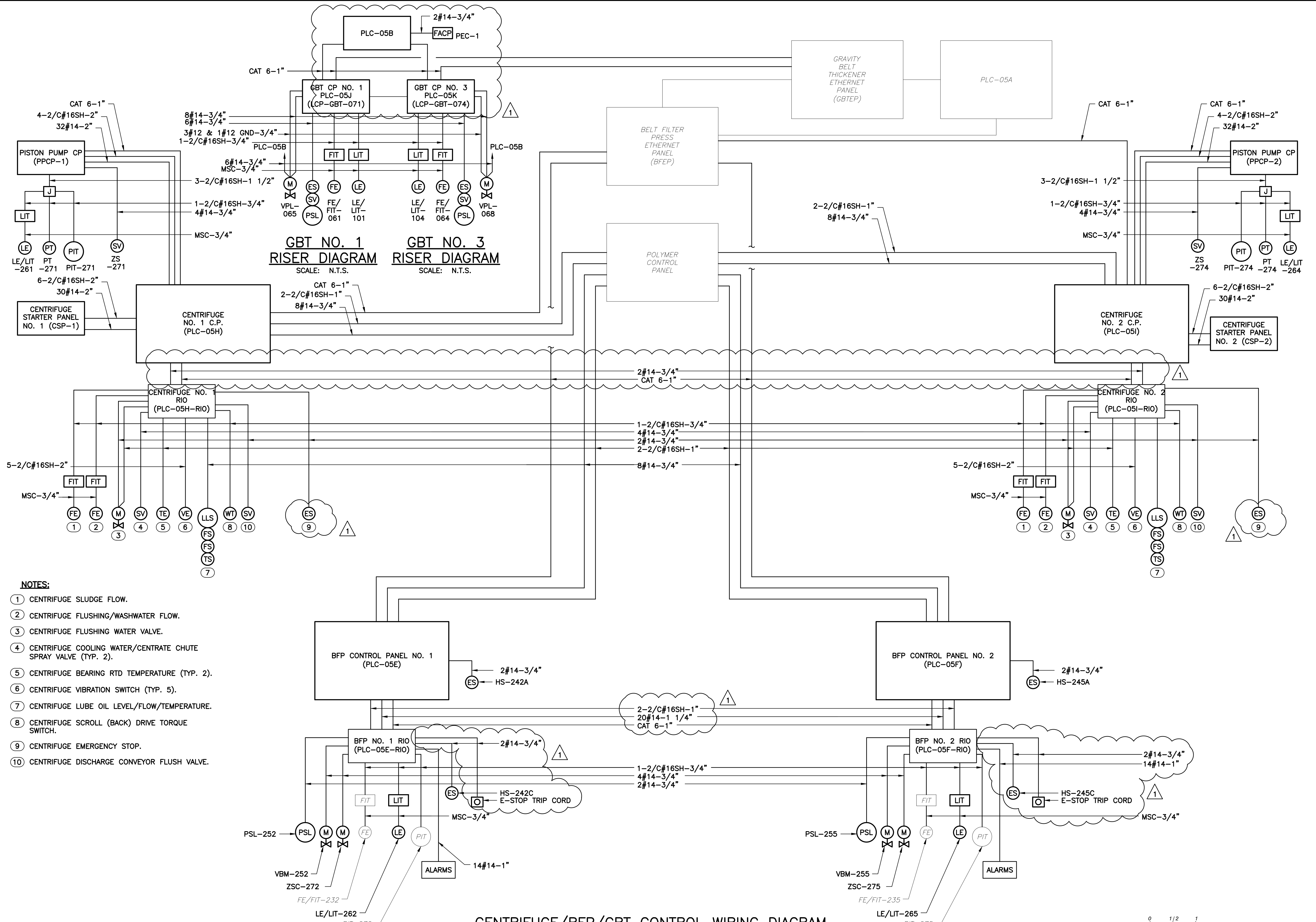
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BID ISSUE	7/2015		
REVISIONS AND RECORD OF ISSUE			
NO.	BY	CHK	APP
1			

ELECTRICAL
 NETWORK CONTROL BLOCK DIAGRAM
 ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 PROJECT NO. 180761
 SHEET E-38
 257 OF 364

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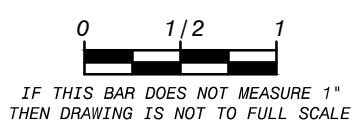
DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50780

Package Project/Black & Veatch/Orange County/SWRF Phase V Improvements/1_Phase V/15_Addendum No. 2/Design/27_E-38_NETWORK.dwg, 22 X 34, 10/13/2015 9:22:12 AM
 D:\180761



- NOTES:**
- ① CENTRIFUGE SLUDGE FLOW.
 - ② CENTRIFUGE FLUSHING/WASHWATER FLOW.
 - ③ CENTRIFUGE FLUSHING WATER VALVE.
 - ④ CENTRIFUGE COOLING WATER/CENTRATE CHUTE SPRAY VALVE (TYP. 2).
 - ⑤ CENTRIFUGE BEARING RTD TEMPERATURE (TYP. 2).
 - ⑥ CENTRIFUGE VIBRATION SWITCH (TYP. 5).
 - ⑦ CENTRIFUGE LUBE OIL LEVEL/FLOW/TEMPERATURE.
 - ⑧ CENTRIFUGE SCROLL (BACK) DRIVE TORQUE SWITCH.
 - ⑨ CENTRIFUGE EMERGENCY STOP.
 - ⑩ CENTRIFUGE DISCHARGE CONVEYOR FLUSH VALVE.

CENTRIFUGE/BFP/GBT CONTROL WIRING DIAGRAM
SCALE: N.T.S.

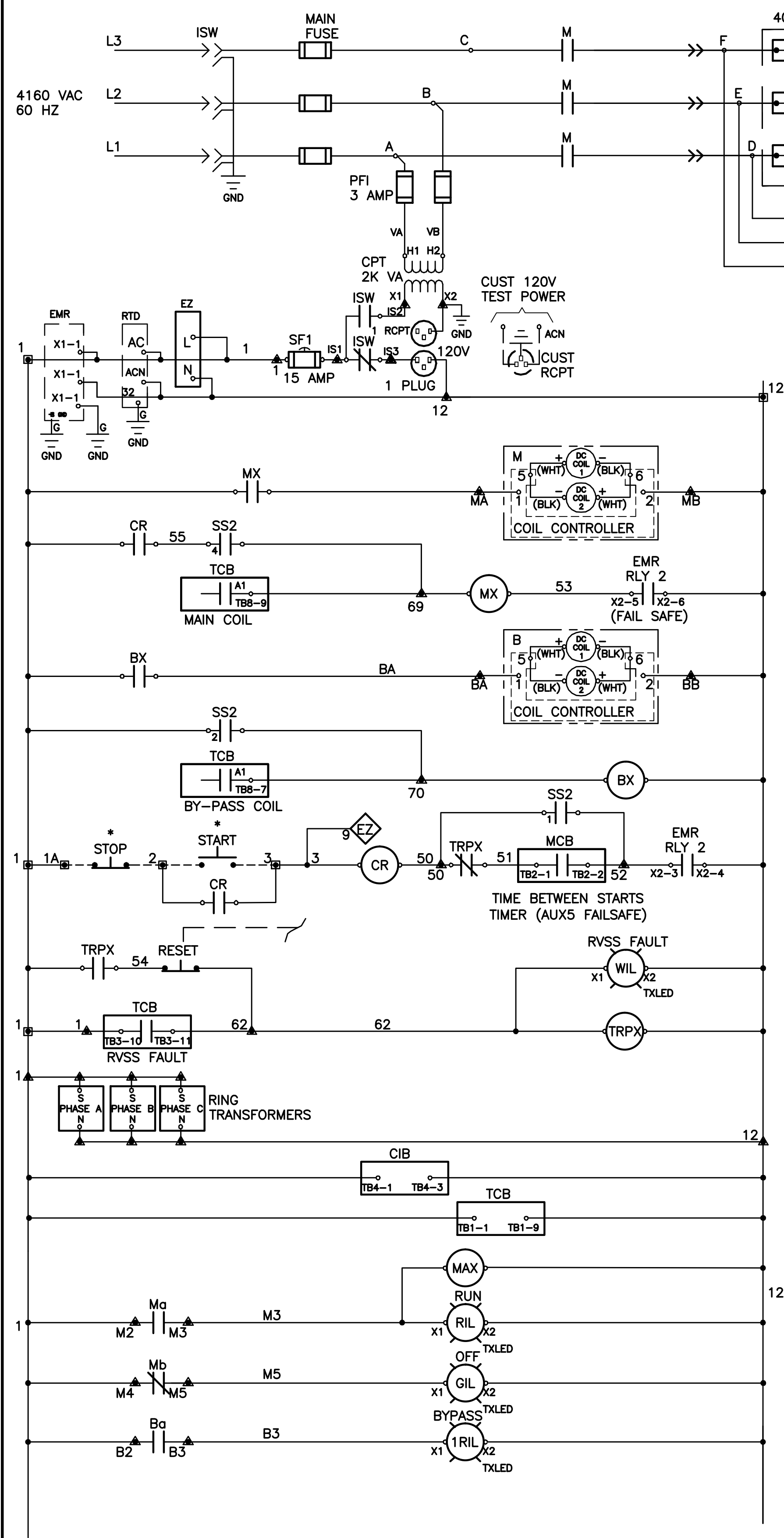


REV.	NO.	DATE	BY	CHK	APP	
1	1	10/12/15	DD	LMR		
ADDENDUM NO. 2						
BID ISSUE						
REVISED AND RECORD OF ISSUE						
DATE						
7/20/15						
DRAWN BY						
LILLIAN M. REYES						
CHECKED BY						
LILLIAN M. REYES						
APPROVED BY						
LILLIAN M. REYES						
PROJECT NO.						
180761						
SHEET						
258 OF 364						

Electrical Design Associates
4783 SOUTH CONWAY ROAD, STE. E
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PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
LILLIAN M. REYES, P.E.
Florida P.E. No. 50790

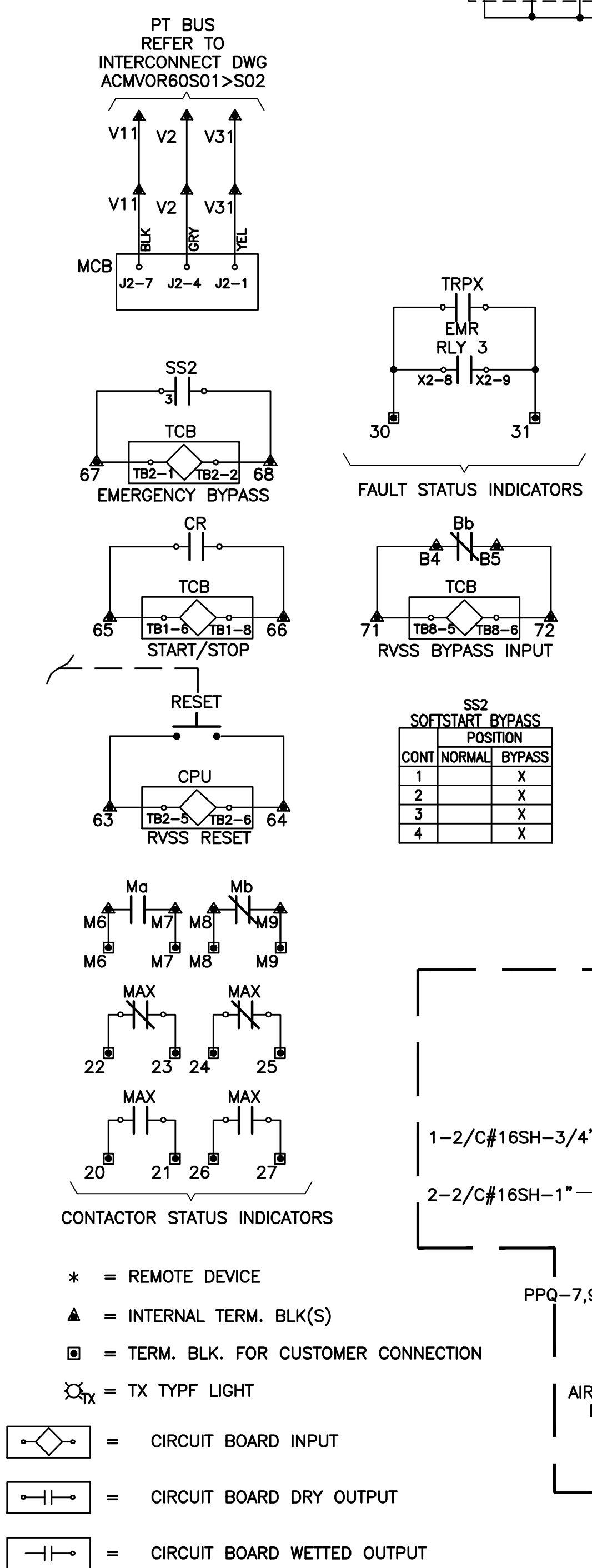
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PHASE V IMPROVEMENTS
ELECTRICAL
CENTRIFUGE CONTROL WIRING DIAGRAM



SOUTH BLOWER RVSS ELEMENTARY DIAGRAM

SCALE: N.T.S.



SOUTH BLOWER CONTROL WIRING SCHEMATIC

SCALE: N.T.S.

EMR3000 PROGRAMMING NOTES:

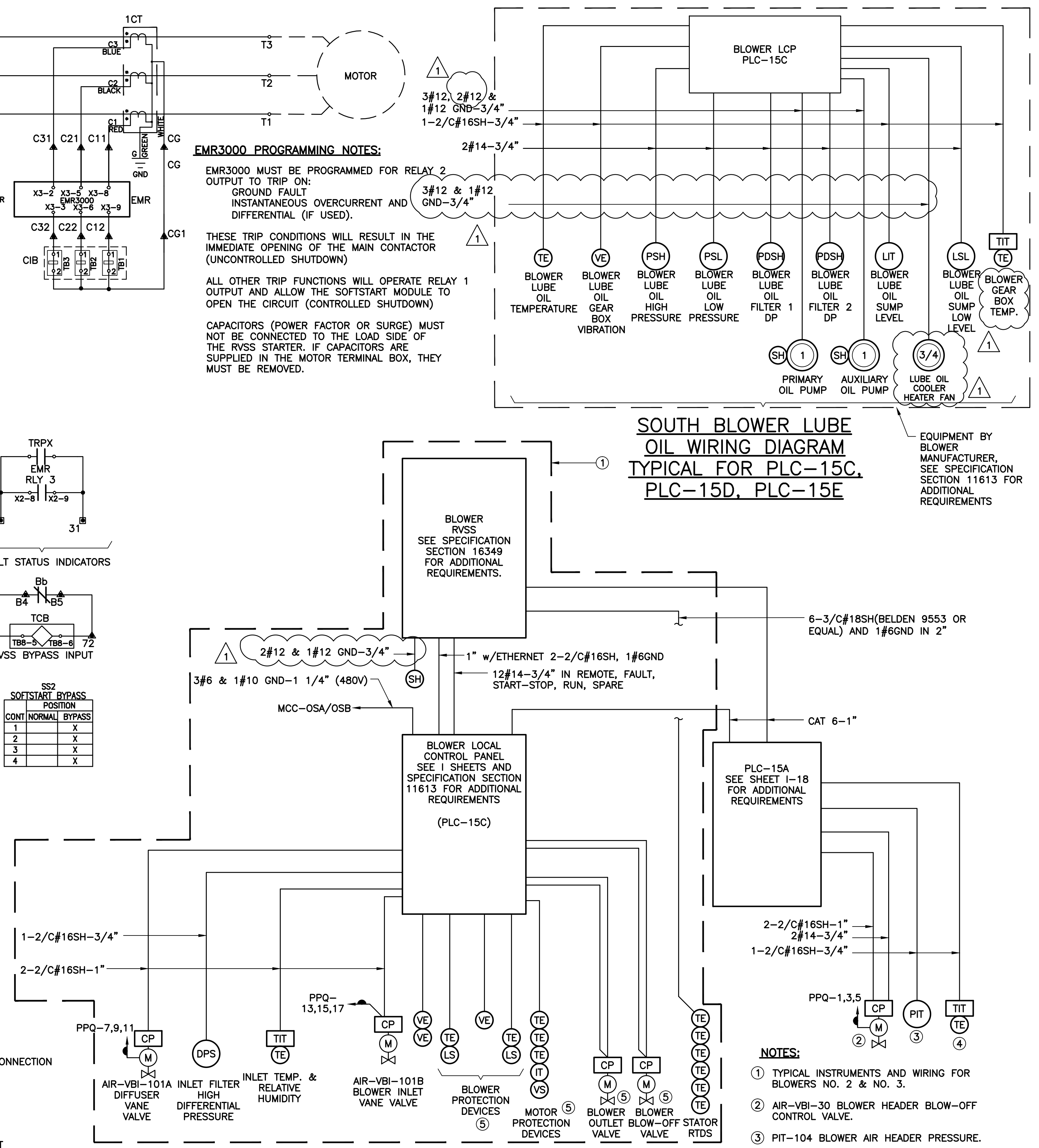
EMR3000 MUST BE PROGRAMMED FOR RELAY 2 OUTPUT TO TRIP ON:
GROUND FAULT
INSTANTANEOUS OVERCURRENT AND DIFFERENTIAL (IF USED).

THESE TRIP CONDITIONS WILL RESULT IN THE IMMEDIATE OPENING OF THE MAIN CONTACTOR (UNCONTROLLED SHUTDOWN)

ALL OTHER TRIP FUNCTIONS WILL OPERATE RELAY 1 OUTPUT AND ALLOW THE SOFTSTART MODULE TO OPEN THE CIRCUIT (CONTROLLED SHUTDOWN)

CAPACITORS (POWER FACTOR OR SURGE) MUST NOT BE CONNECTED TO THE LOAD SIDE OF THE RVSS STARTER. IF CAPACITORS ARE SUPPLIED IN THE MOTOR TERMINAL BOX, THEY MUST BE REMOVED.

SOUTH BLOWER LUBE OIL WIRING DIAGRAM TYPICAL FOR PLC-15C, PLC-15D, PLC-15E



EQUIPMENT BY BLOWER MANUFACTURER, SEE SPECIFICATION SECTION 11613 FOR ADDITIONAL REQUIREMENTS

NOTES:

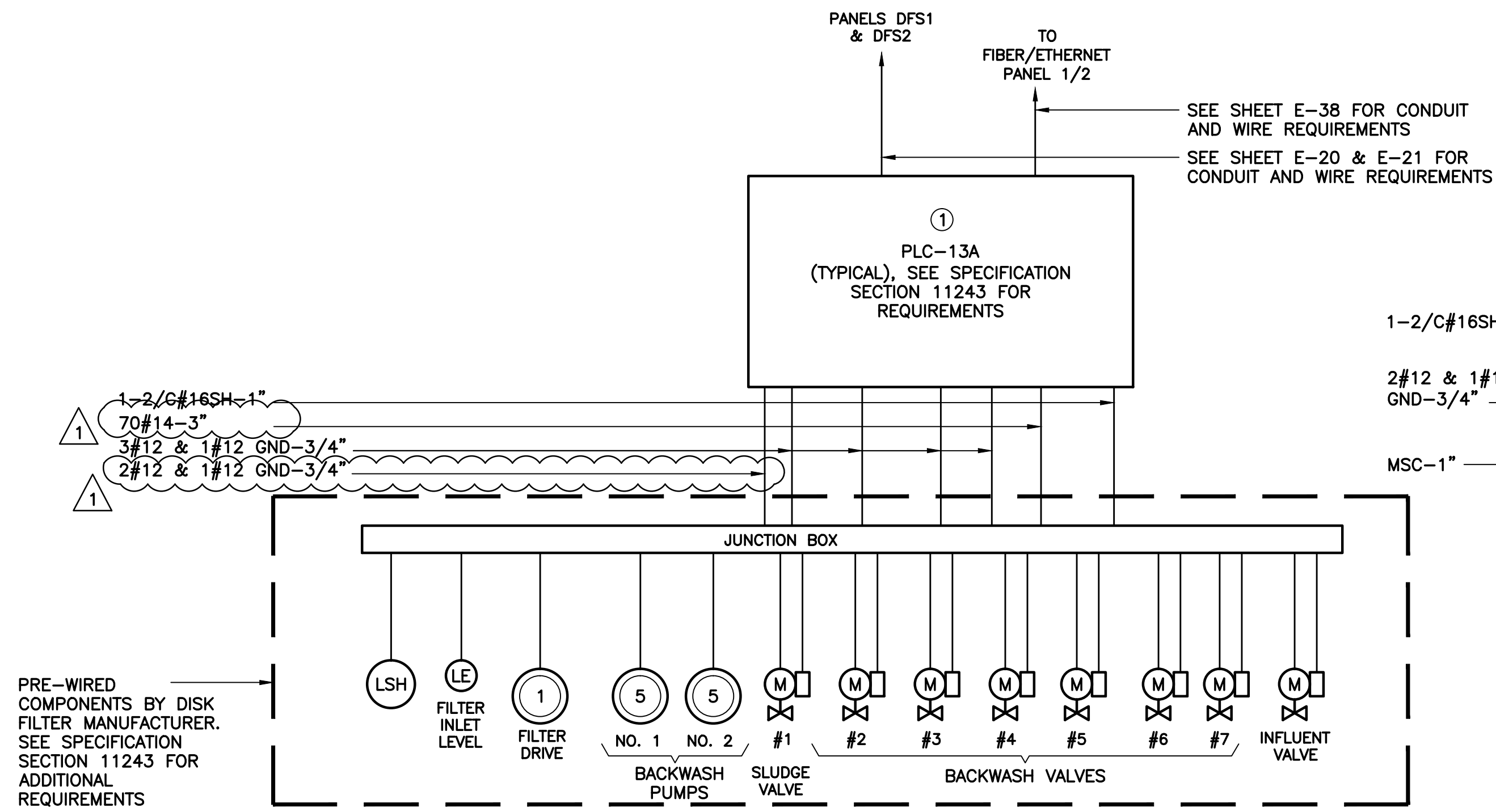
- 1 TYPICAL INSTRUMENTS AND WIRING FOR BLOWERS NO. 2 & NO. 3.
- 2 AIR-VBI-30 BLOWER HEADER BLOW-OFF CONTROL VALVE.
- 3 PIT-104 BLOWER AIR HEADER PRESSURE.
- 4 TE/TIT-104 BLOWER AIR HEADER TEMPERATURE.
- 5 PRE-WIRED COMPONENTS BY BLOWER MANUFACTURER. SEE SPECIFICATION SECTION 11613 FOR ADDITIONAL REQUIREMENTS.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

ADDENDUM NO. 2	DD	LMR	APP
BID ISSUE	1	DD	LMR
REVISIONS AND RECORD OF ISSUE	7/2015	DATE	
DATE	10/12/15	DATE	
DESIGNED: DD	DESIGNED: DD	DESIGNED: DD	DESIGNED: DD
CHECKED: LMR	CHECKED: LMR	CHECKED: LMR	CHECKED: LMR
APPROVED: LMR	APPROVED: LMR	APPROVED: LMR	APPROVED: LMR
DATE: JANUARY 2015	DATE: JANUARY 2015	DATE: JANUARY 2015	DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES	ENGINEER OF RECORD: LILLIAN M. REYES	ENGINEER OF RECORD: LILLIAN M. REYES	ENGINEER OF RECORD: LILLIAN M. REYES
FLORIDA LICENSE NO.: 50790	FLORIDA LICENSE NO.: 50790	FLORIDA LICENSE NO.: 50790	FLORIDA LICENSE NO.: 50790
PROJECT NO. 180761	PROJECT NO. 180761	PROJECT NO. 180761	PROJECT NO. 180761
E-40 SHEET	E-40 SHEET	E-40 SHEET	E-40 SHEET
259 OF 364	259 OF 364	259 OF 364	259 OF 364

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PHASE V IMPROVEMENTS
ELECTRICAL
ELEMENTARY DIAGRAMS - SHEET 1

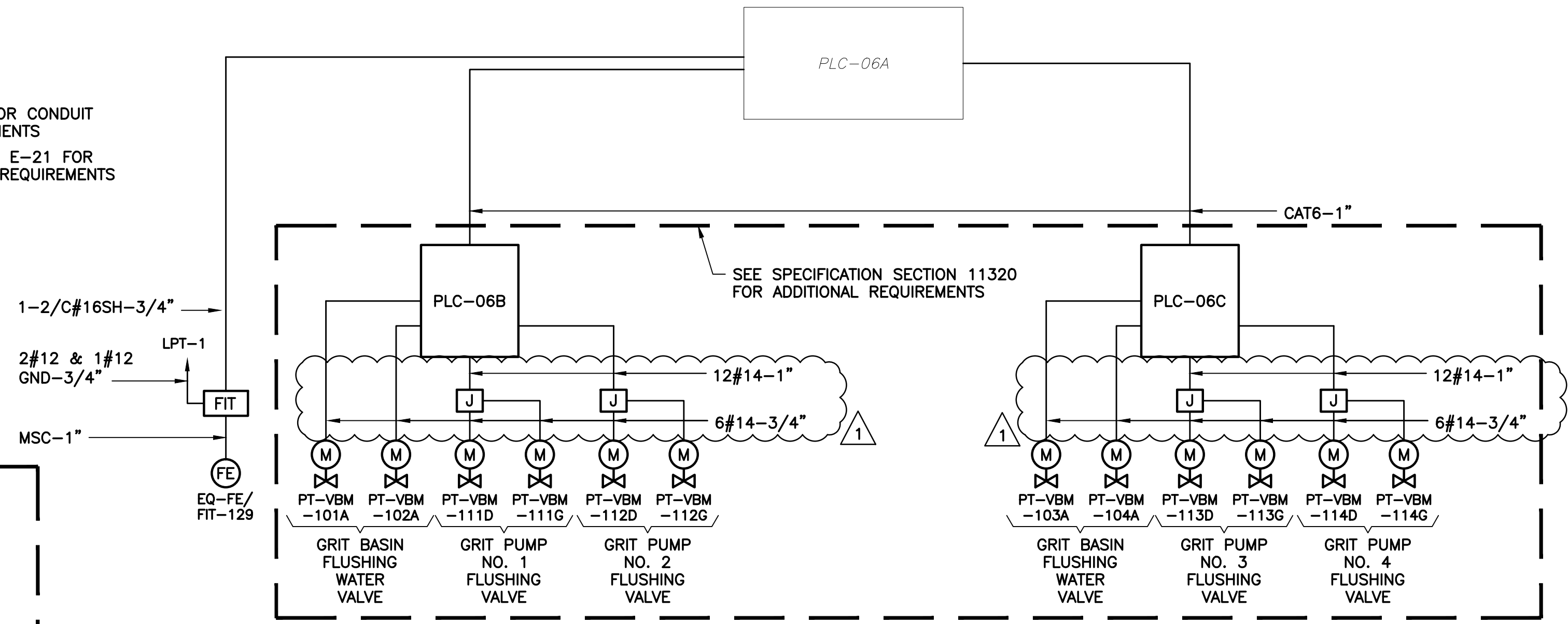


FLCP RISER DIAGRAM (TYP. 7)

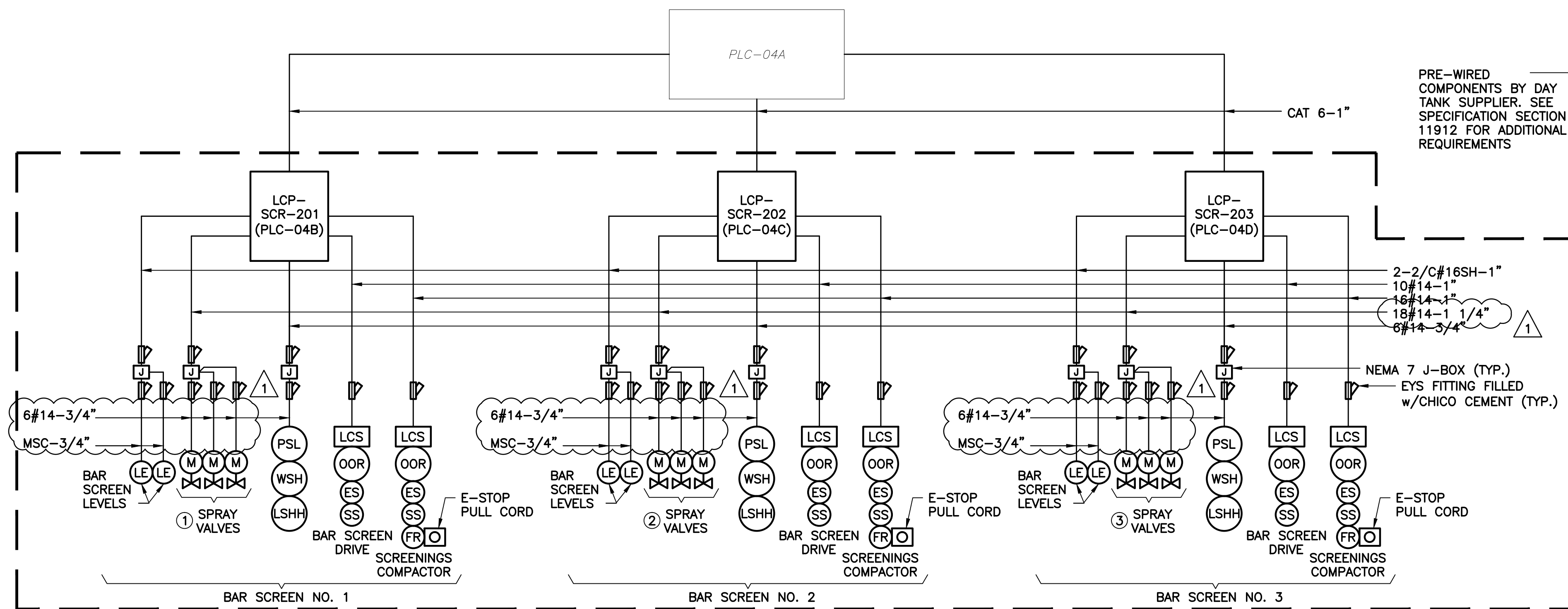
(FILTERS 1, 2, 3, 6, 7, 11 & 12)

NOTES:

- ① TYPICAL FOR PLC-13A, PLC-13I, PLC-13J, PLC-13K, PLC-13L, PLC-13M, PLC-13N AND PLC-13O.



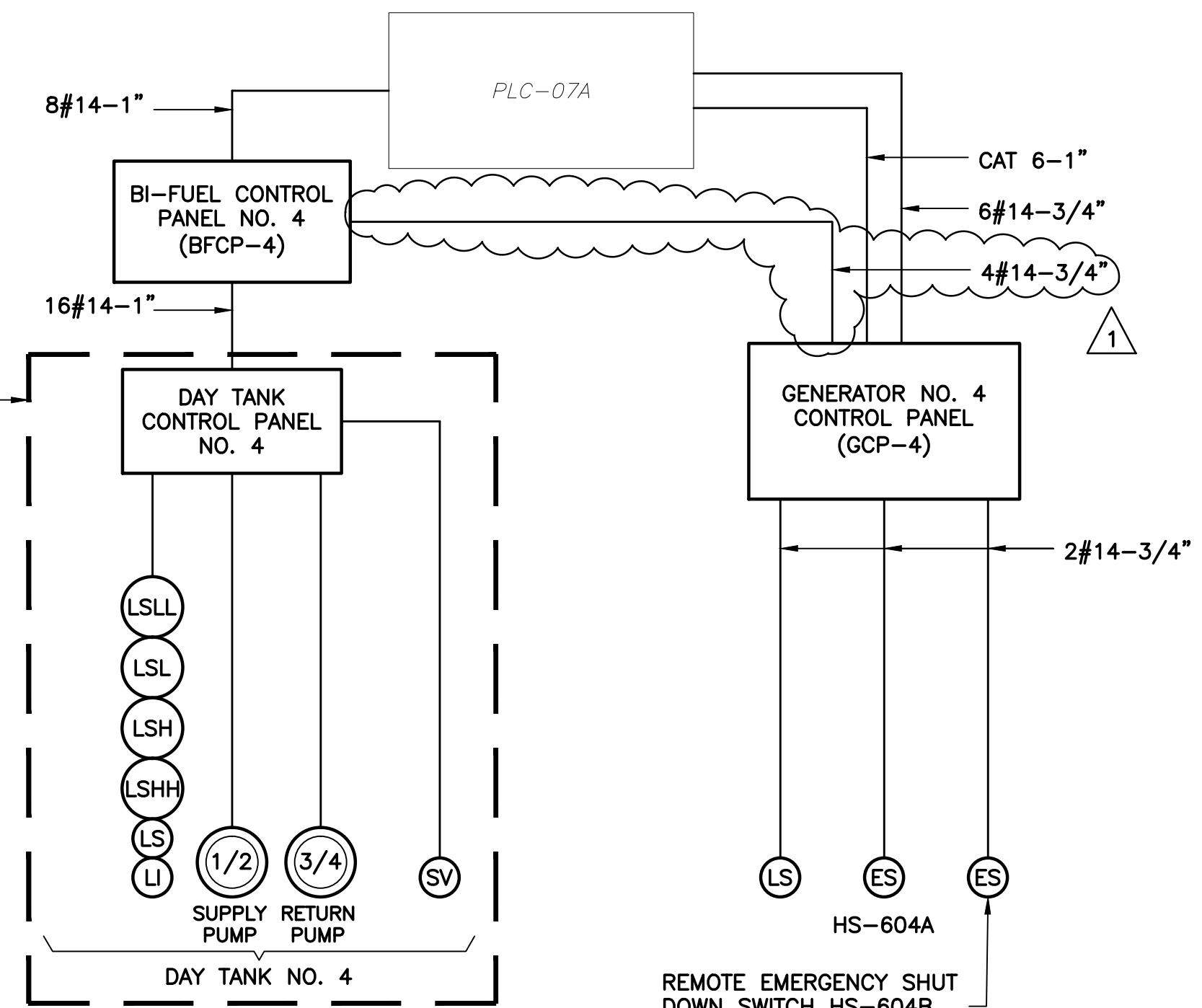
PRE-TREATMENT FACILITY GRIT EQUIPMENT LCP WIRING DIAGRAM



NOTES:

- ① VALVES: IP-VMB-201, IP-VMB-221A & IP-VMB-221B.
- ② VALVES: IP-VMB-202, IP-VMB-222A & IP-VMB-222B.
- ③ VALVES: IP-VMB-203, IP-VMB-223A & IP-VMB-223B.

INFLUENT PUMP STATION BAR SCREEN COMPACTOR LCP WIRING DIAGRAM



GENERATOR NO. 4 WIRING DIAGRAM

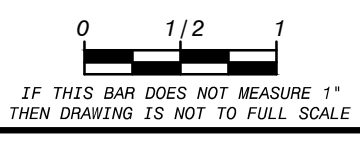
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PROJECT NO.:				
DATE:				
ISSUED:				
BY:				
CHECKED:				
APPROVED:				
DATE:				
ENGINEER OF RECORD:				
LILLIAN M. REYES				
FLORIDA LICENSE NO.:				
50790				
PROJECT NO.				
180761				
E-42				
SHEET				
261 OF 364				

ED/A
 Electrical Design Associates
 4783 SOUTH COUNTY ROAD, STE. E
 ORLANDO, FLORIDA 32812
 PHONE: (407) 745-5604
 FAX: (407) 745-5603
 C.O.A. No. 8079
 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50790

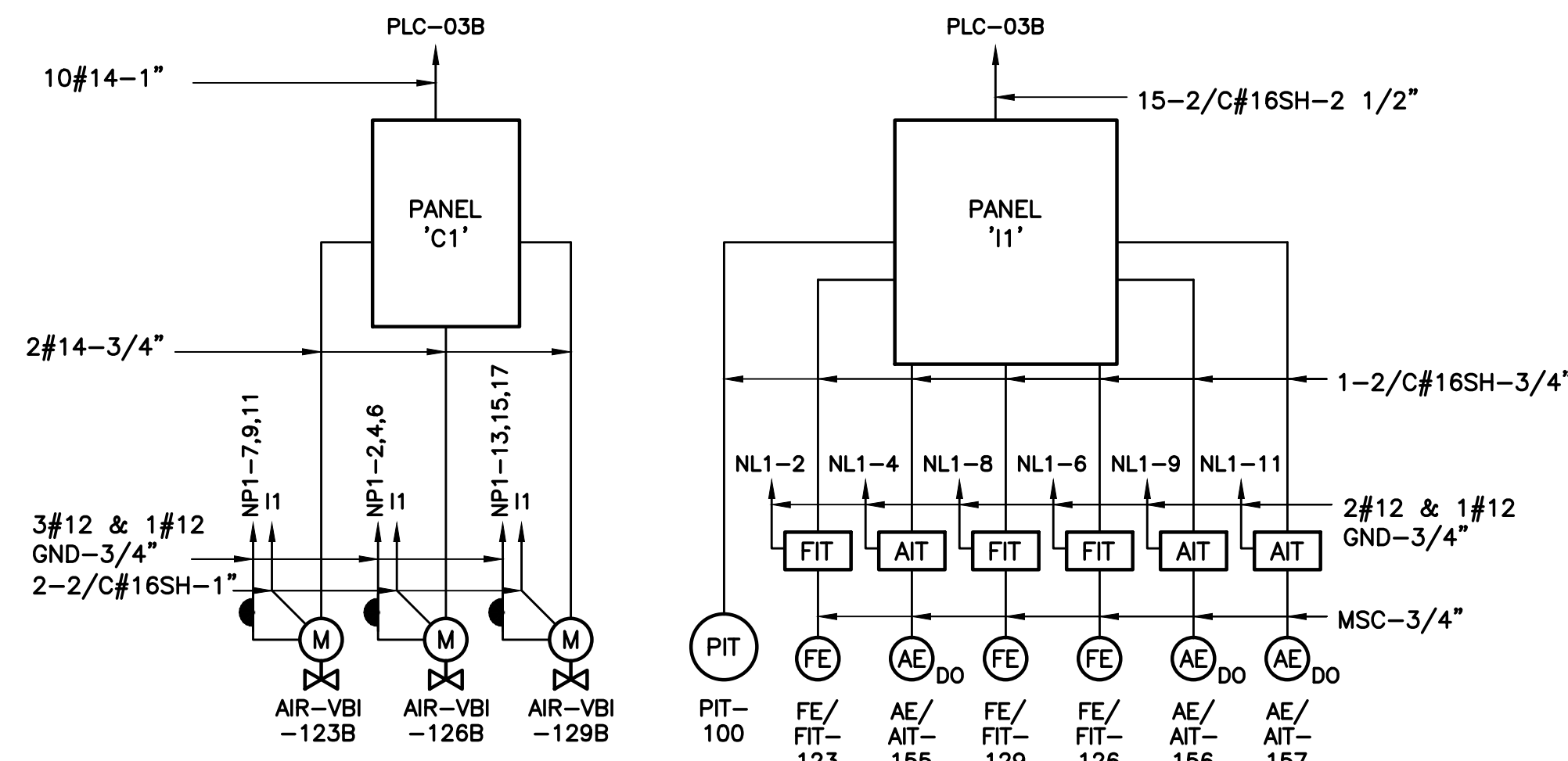
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 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 ELECTRICAL
 ELEMENTARY DIAGRAMS - SHEET 3

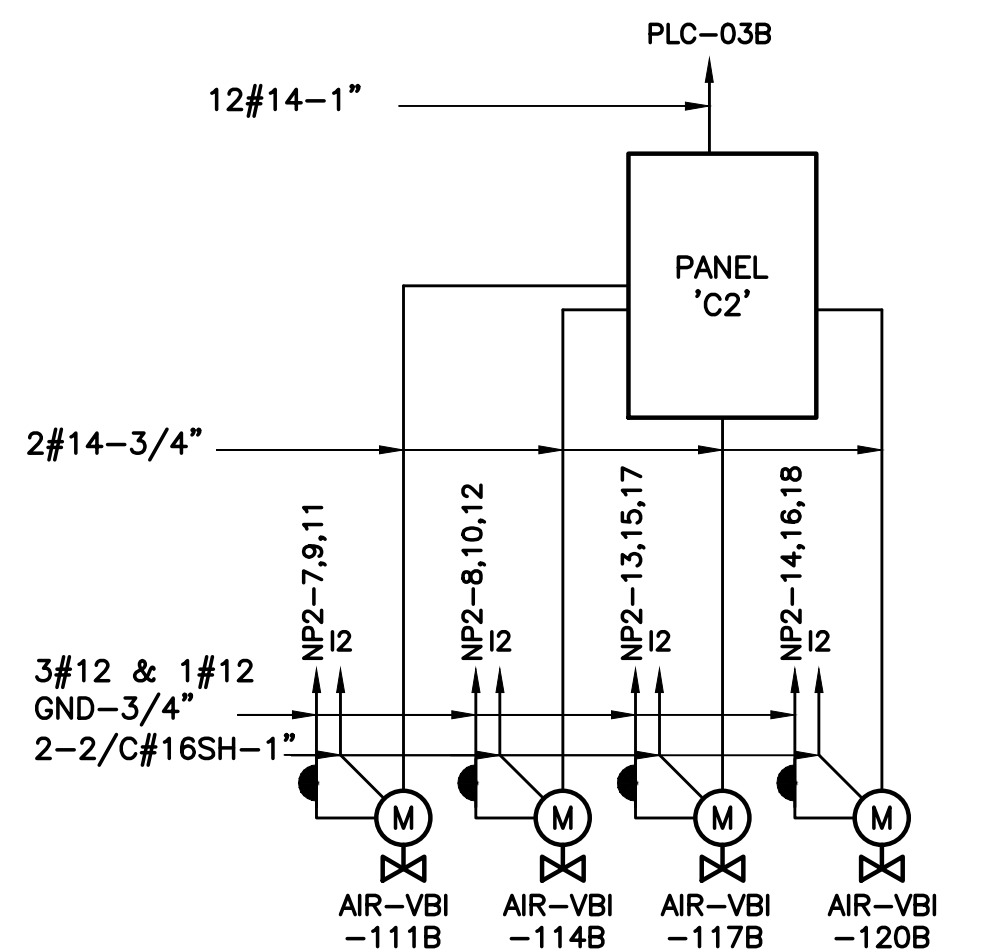
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DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50790
PROJECT NO.	180761
E-42	
SHEET	
261 OF 364	



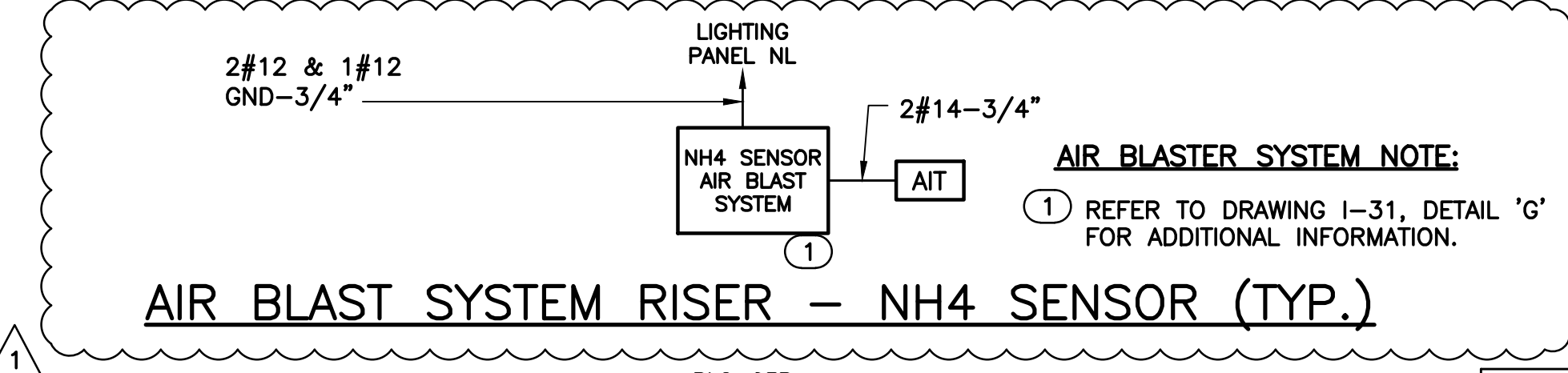
FD180761
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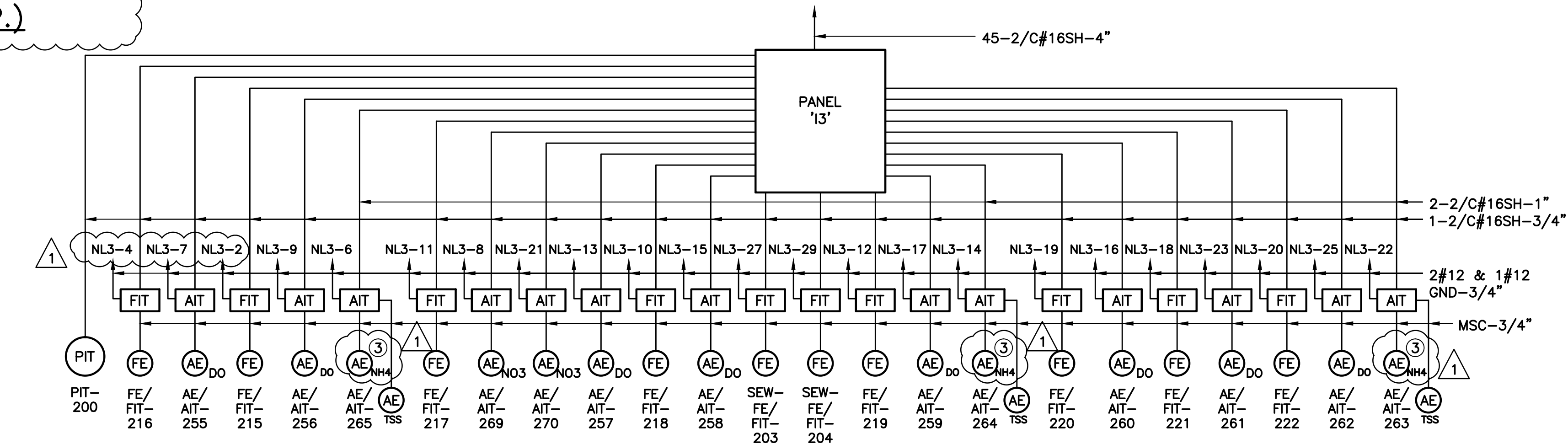
NORTH PLANT N1 PANEL 'C1' AND '11' RISER DIAGRAM



NORTH PLANT N1 PANEL 'C2' AND '12' RISER DIAGRAM

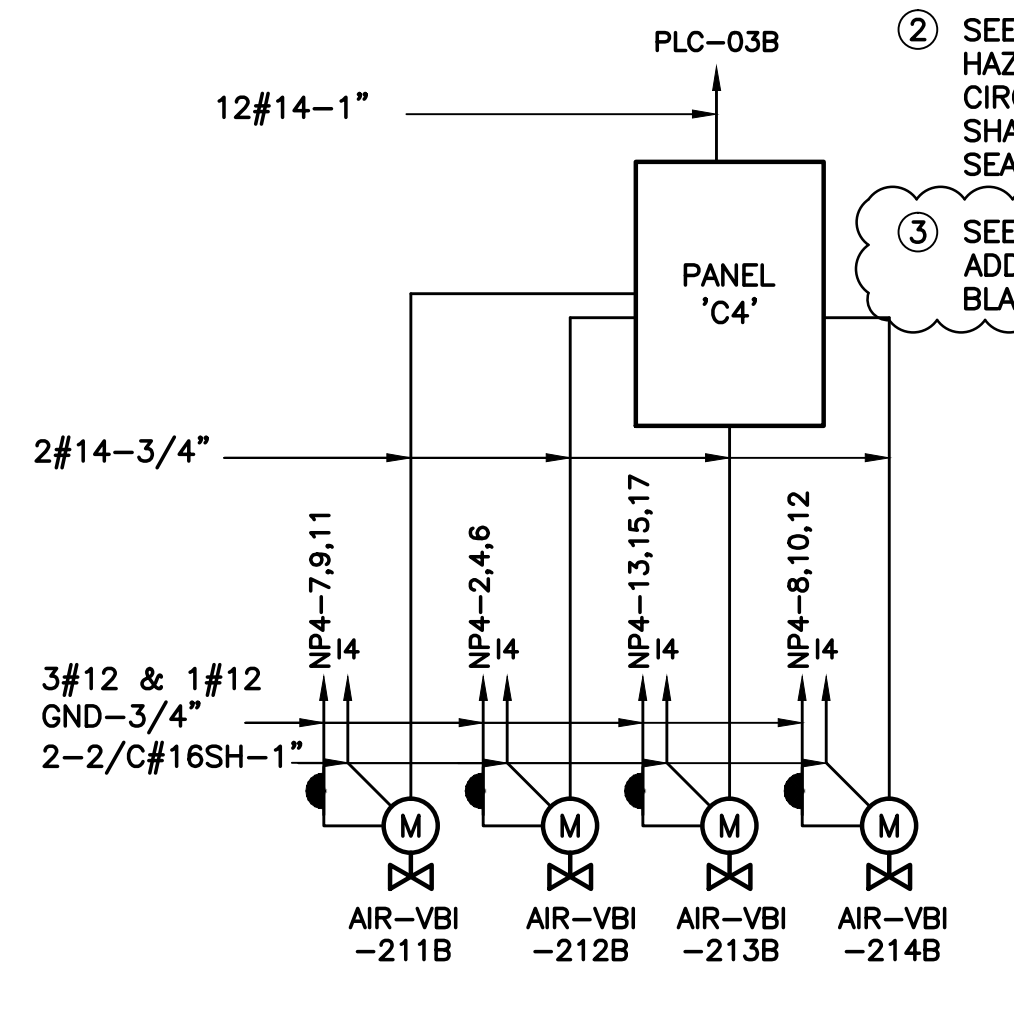


AIR BLASTER SYSTEM NOTE:
 ① REFER TO DRAWING I-31, DETAIL 'G' FOR ADDITIONAL INFORMATION.

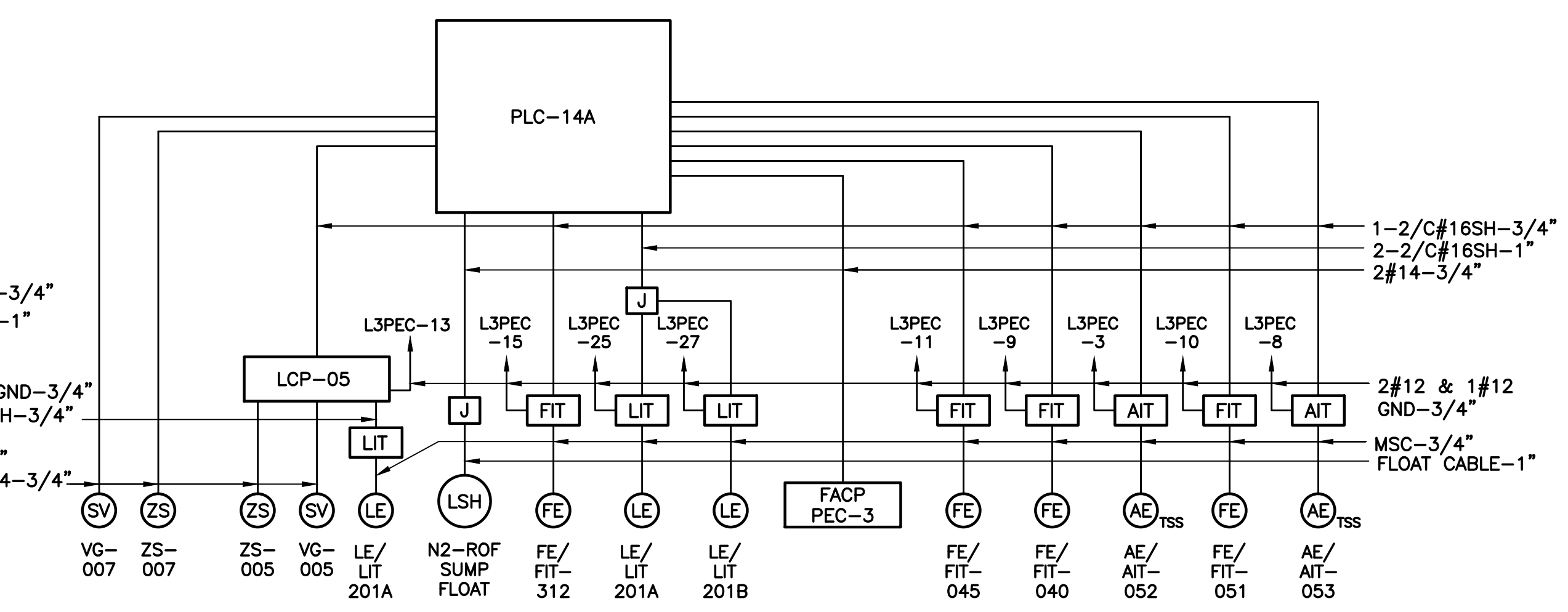


NORTH PLANT N2 PANEL 'C3' AND '13' RISER DIAGRAM

GENERAL NOTES:
 ① UNIT PROCESS IS AIR UNLESS OTHERWISE NOTED.
 ② SEE ELECTRICAL PLAN VIEWS FOR HAZARDOUS AREA CLASSIFICATION. ALL CIRCUITS IN THE CLASSIFIED AREAS SHALL BE PROTECTED WITH EYS SEAL-TYPE FITTINGS.
 ③ SEE DETAILS ON THIS SHEET FOR ADDITIONAL INFORMATION ON THE AIR BLAST SYSTEM.



NORTH PLANT N2 PANEL 'C4' AND '14' RISER DIAGRAM



NORTH CLARIFIER NO. 3/RAS/WAS/ AND N2 ROF PLC-14A WIRING DIAGRAM

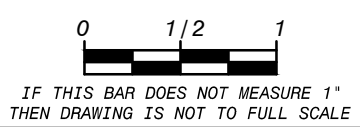
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BID ISSUE	7/2015		
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 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50790

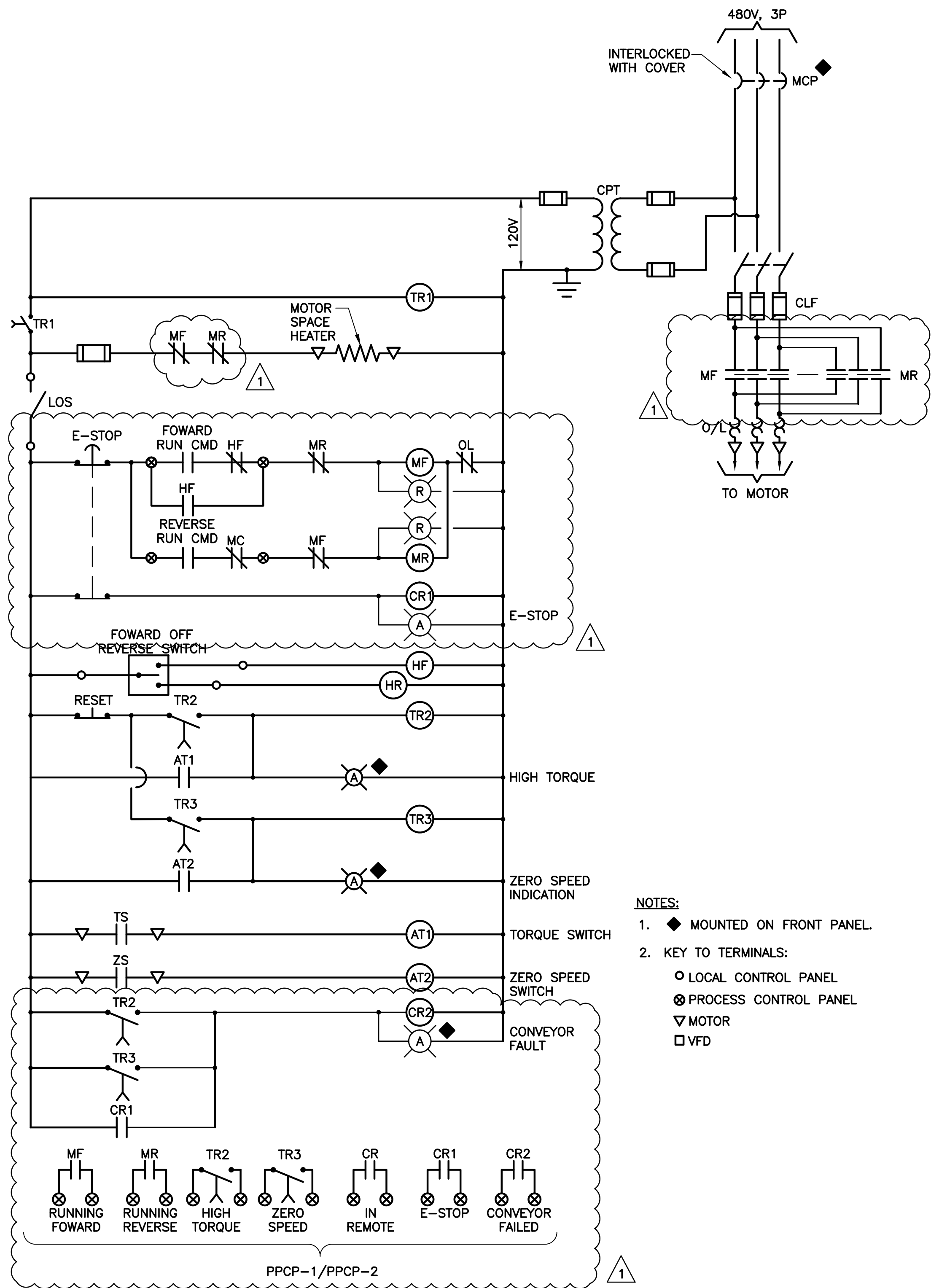
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 ELECTRICAL
 ELEMENTARY DIAGRAMS - SHEET 4

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES FLORIDA LICENSE NO.: 50790
PROJECT NO. 180761
E-43
SHEET 262 OF 364

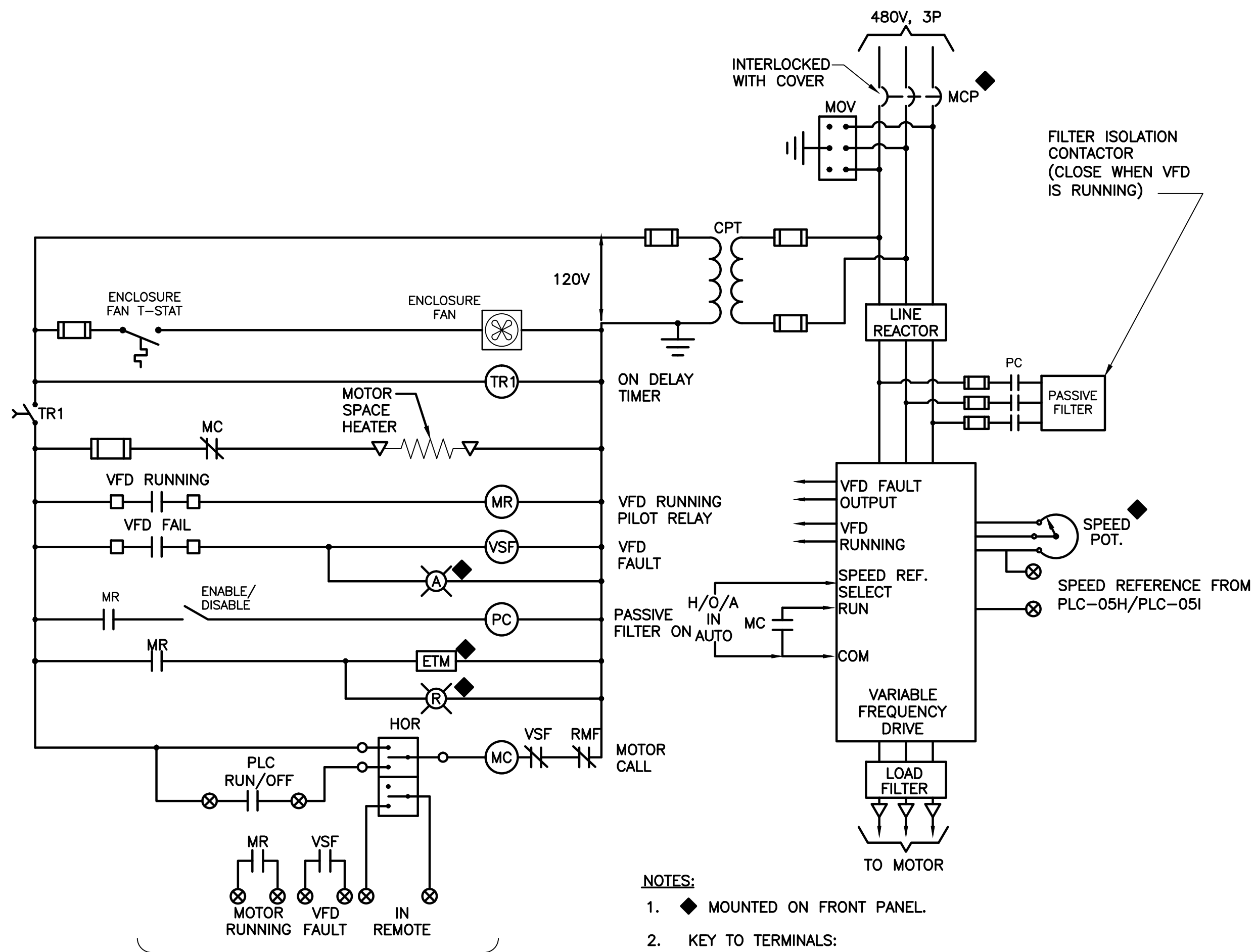


Package Project/Black & Veatch/Orange County/South Water Reclamation Facility/Phase V Improvements/1_Plan_V15_Address/No. 20180761_E-43_ELEM_4.dwg, 2/24/14, 10:31:02 AM, 9/25/25 AM, dlmatt



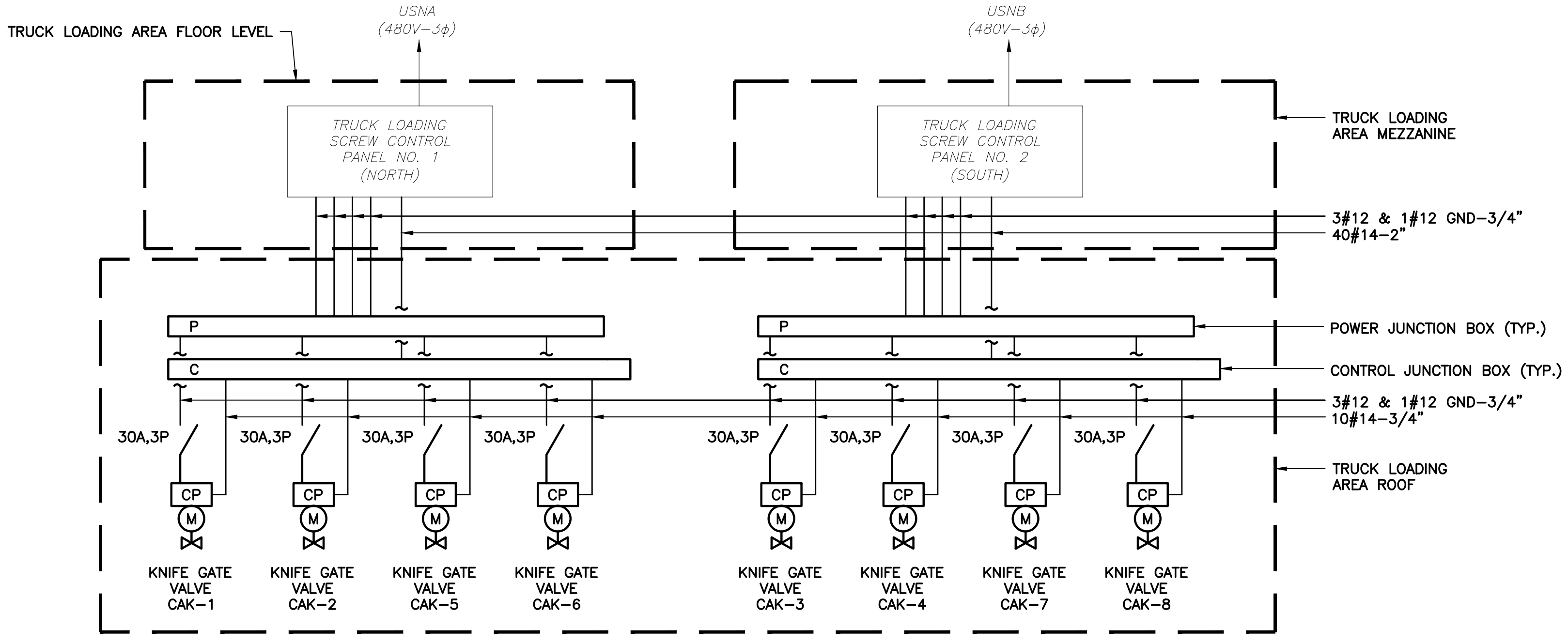
**CENTRIFUGE DISCHARGE CONVEYOR
FULL VOLTAGE CONTACTOR
ELEMENTARY DIAGRAM**
N.T.S.

- NOTES:**
1. MOUNTED ON FRONT PANEL.
 2. KEY TO TERMINALS:
 ○ LOCAL CONTROL PANEL
 ⊗ PROCESS CONTROL PANEL
 ▼ MOTOR
 □ VFD

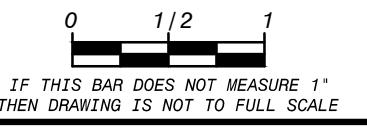


**CENTRIFUGE FEED PUMP VARIABLE
FREQUENCY DRIVE
ELEMENTARY DIAGRAM**
N.T.S.

- NOTES:**
1. MOUNTED ON FRONT PANEL.
 2. KEY TO TERMINALS:
 ○ LOCAL CONTROL PANEL
 ⊗ PROCESS CONTROL PANEL
 ▼ MOTOR
 □ VFD



CENTRIFUGE SOLIDS TRUCK LOADING SCREW CONTROL PANEL WIRING DIAGRAM
N.T.S.



NO.	BY	CHK.	APP.
1	DD	LMR	LMR

ADDENDUM NO. 2
 BID ISSUE
 REVISIONS AND RECORD OF ISSUE
 DATE: 7/20/15
 CYRNET ID: 4783 SOUTH COUNTY ROAD, STE. E
 ORLANDO, FLORIDA 32812
 PHONE: (407) 745-5604
 FAX: (407) 745-5603
 C.O.A. No. 8079
 LILLIAN M. REYES, P.E.
 FLORIDA P.E. No. 50790

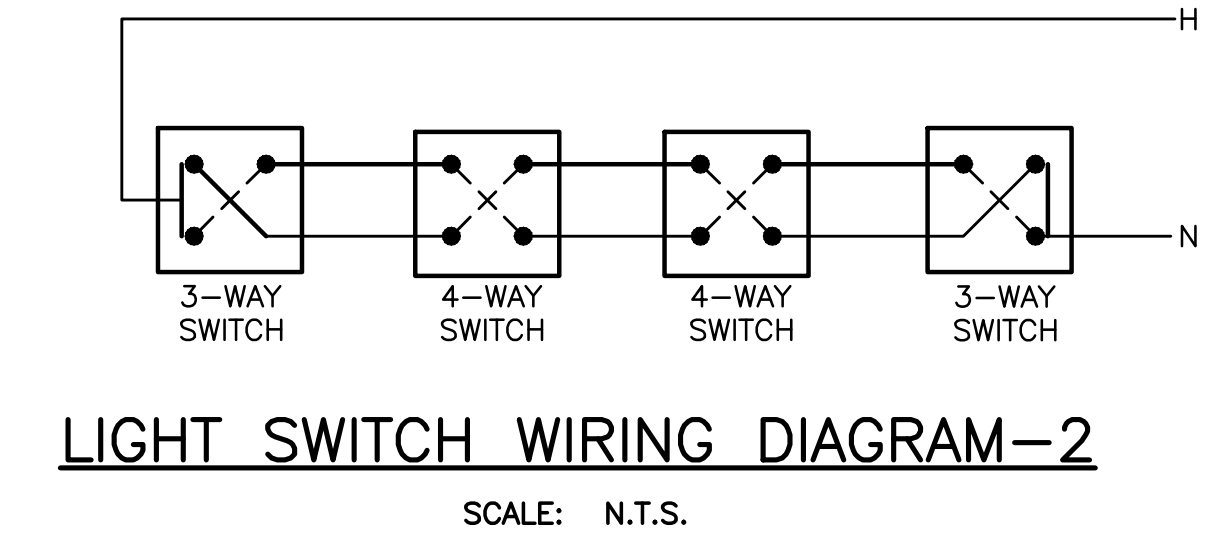
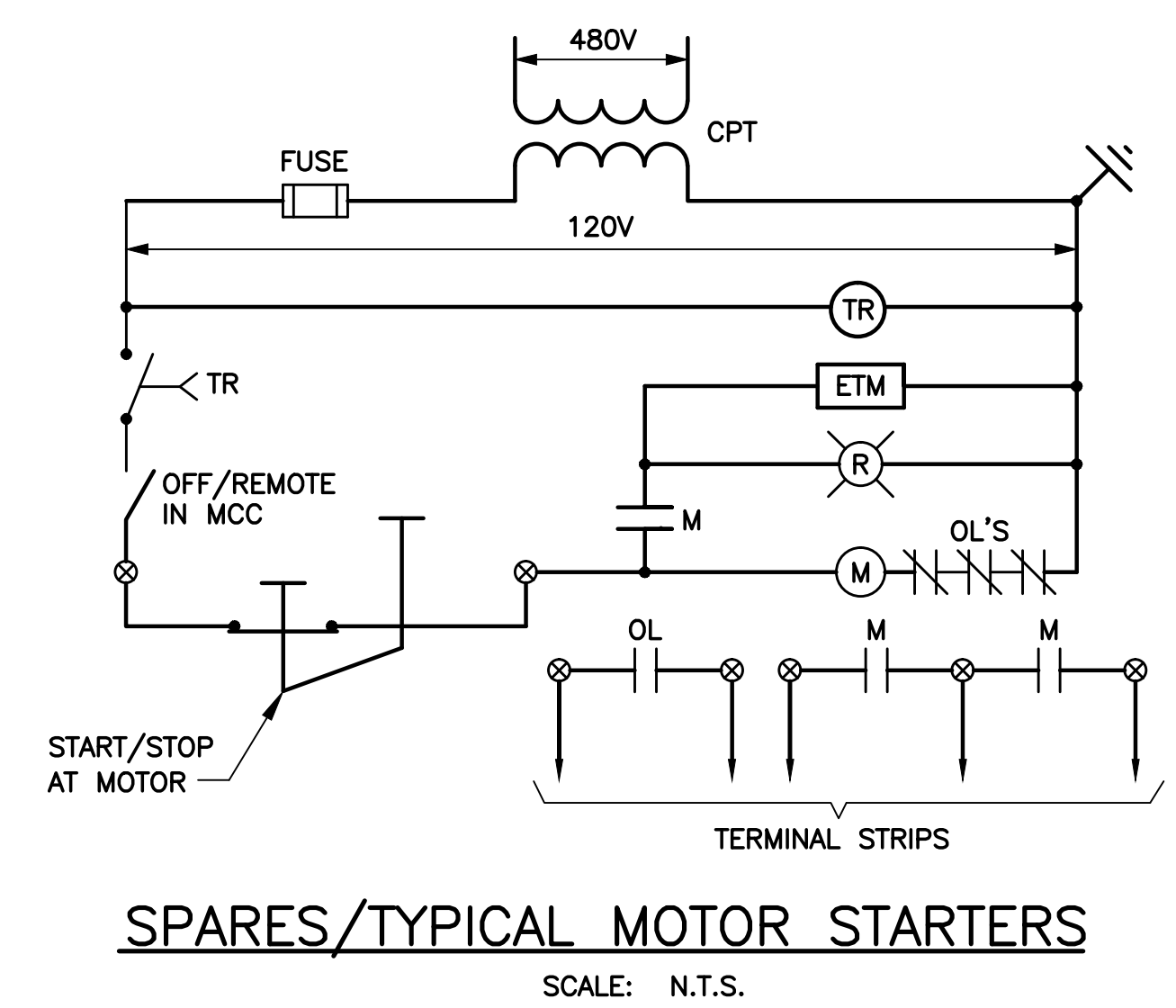
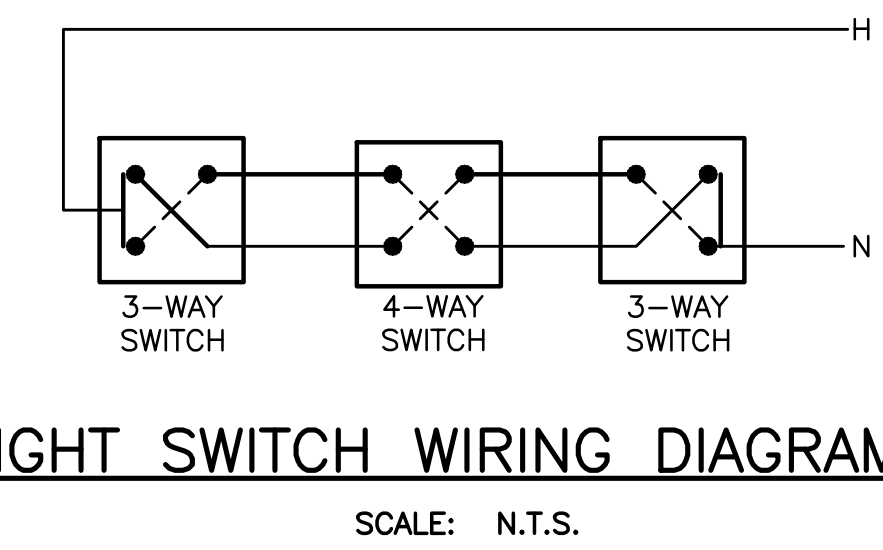
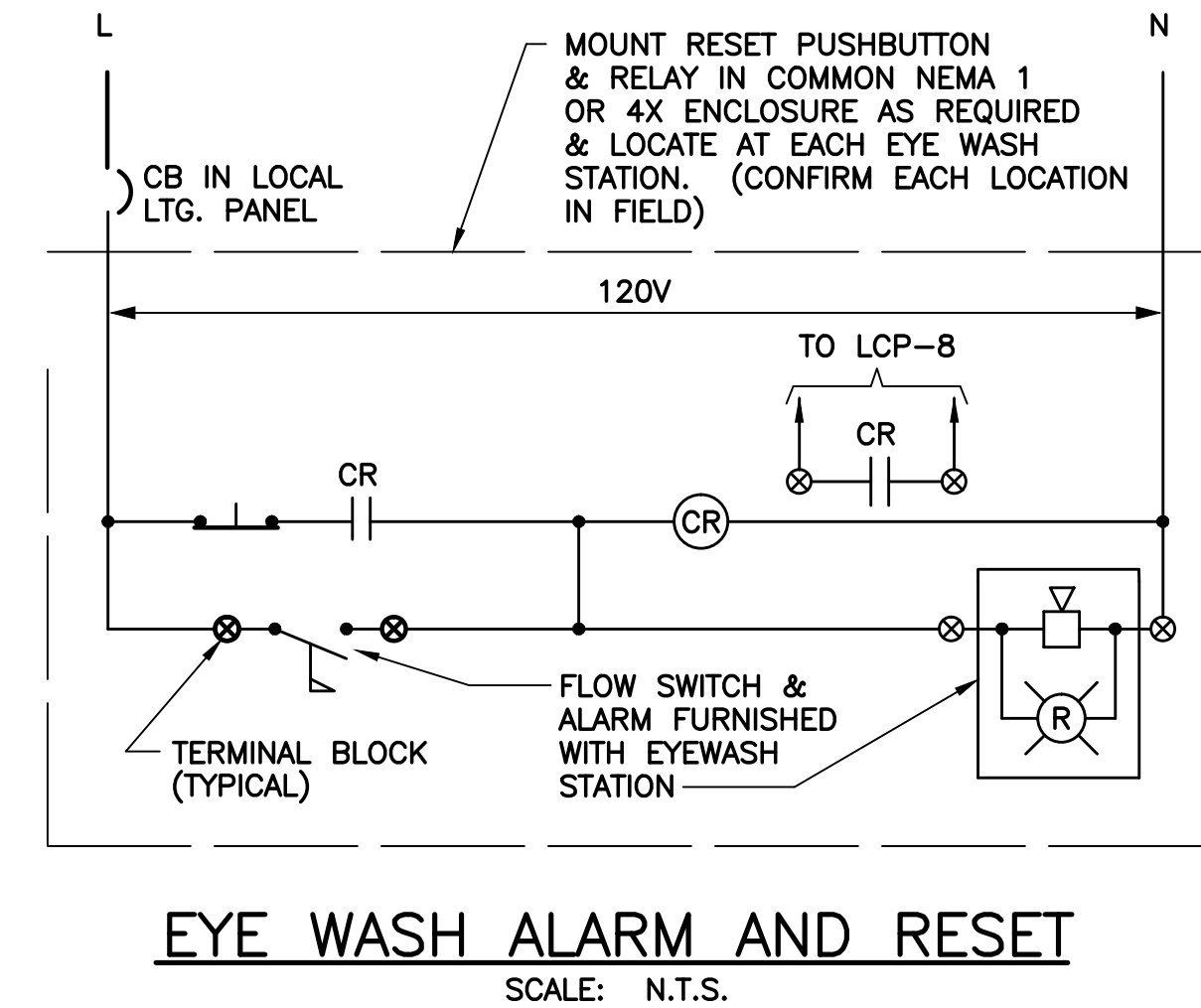
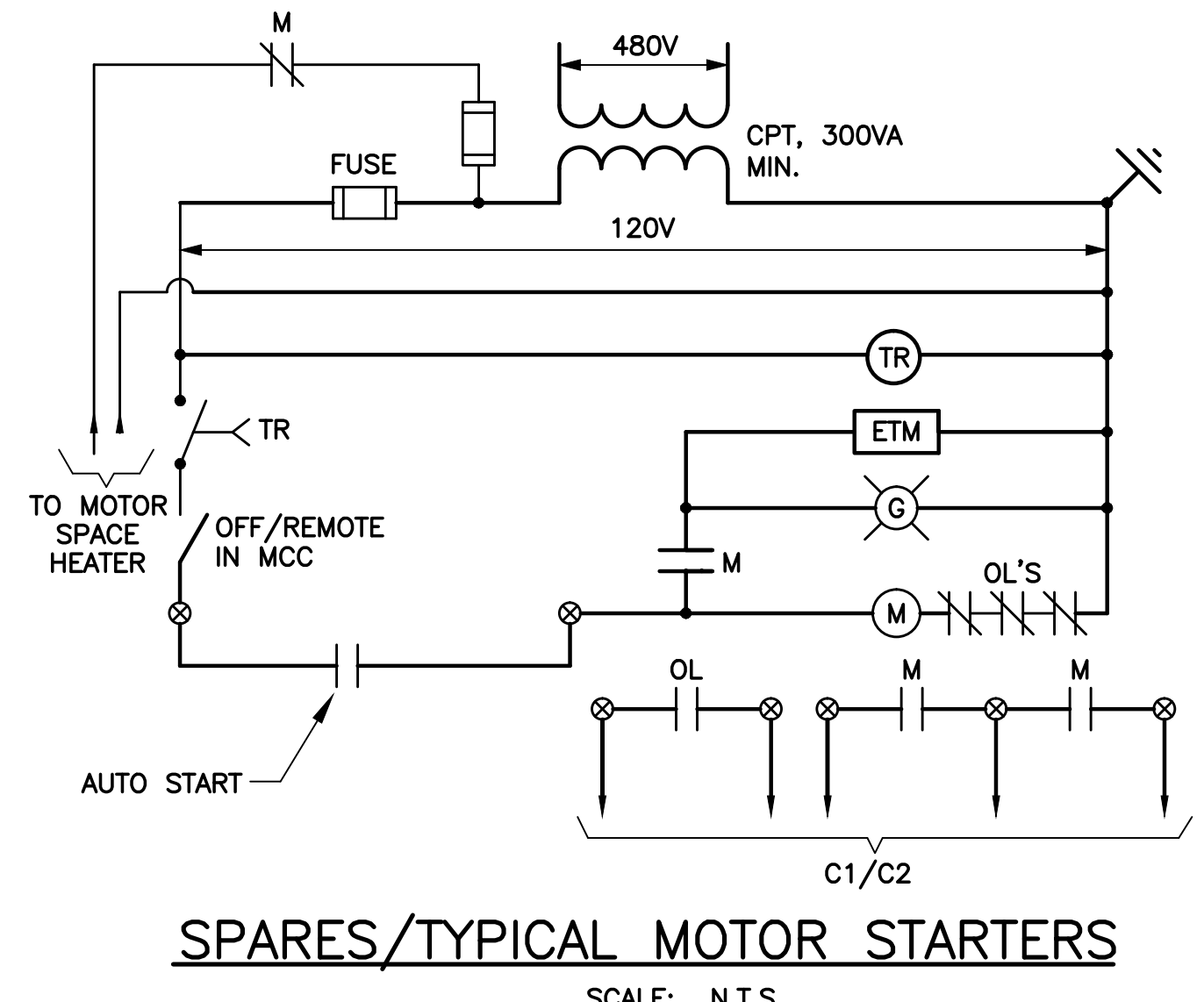
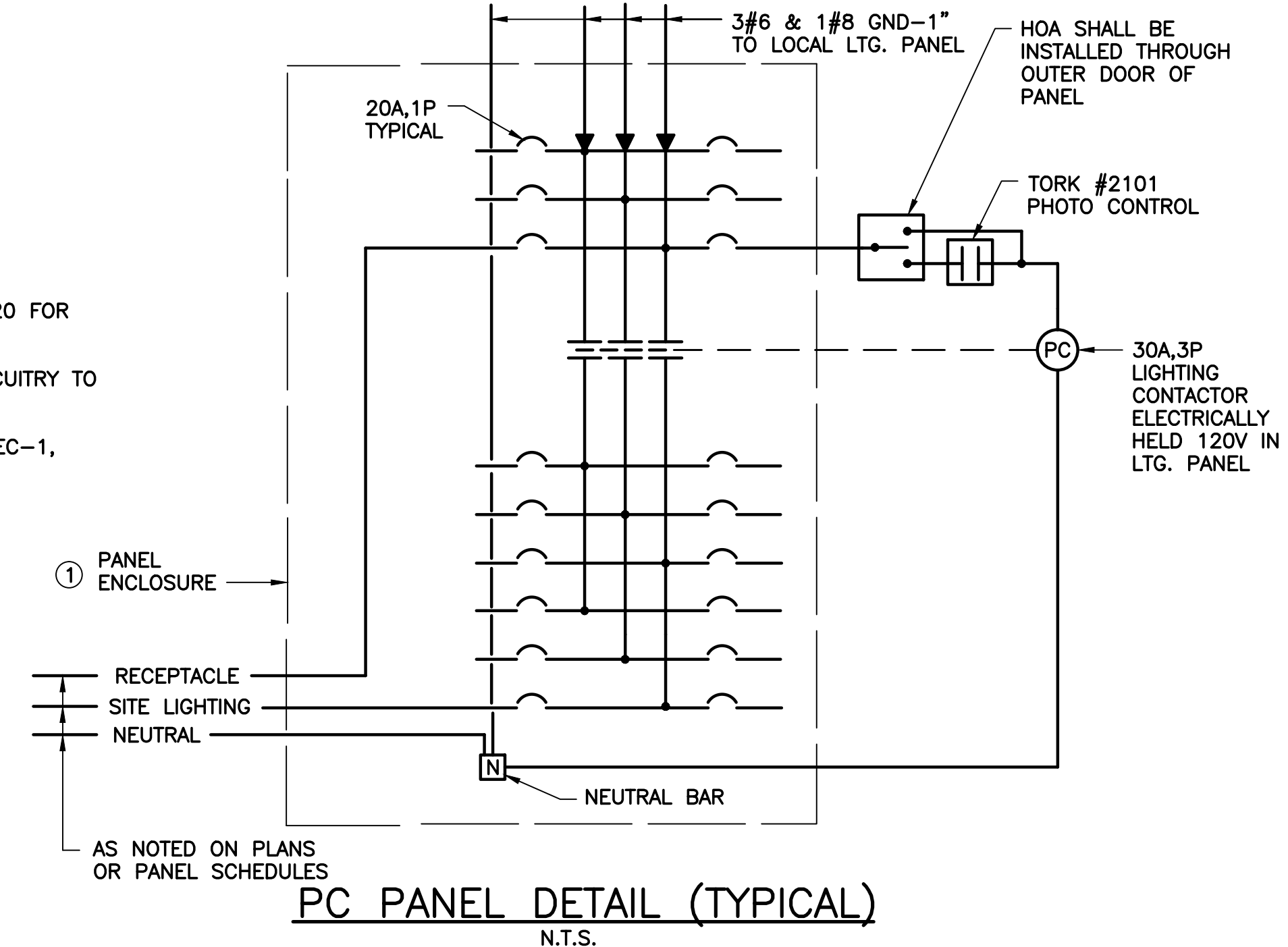
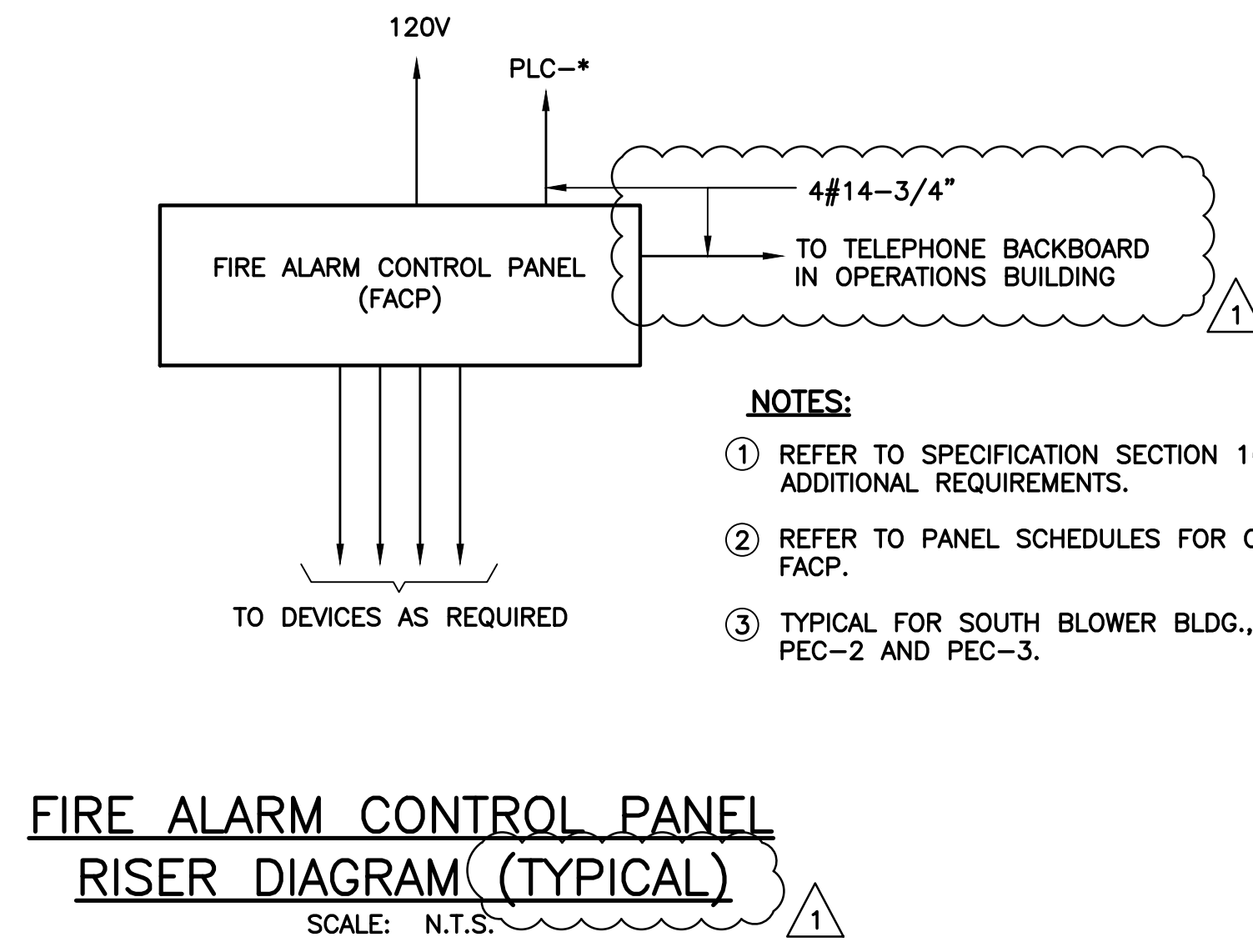
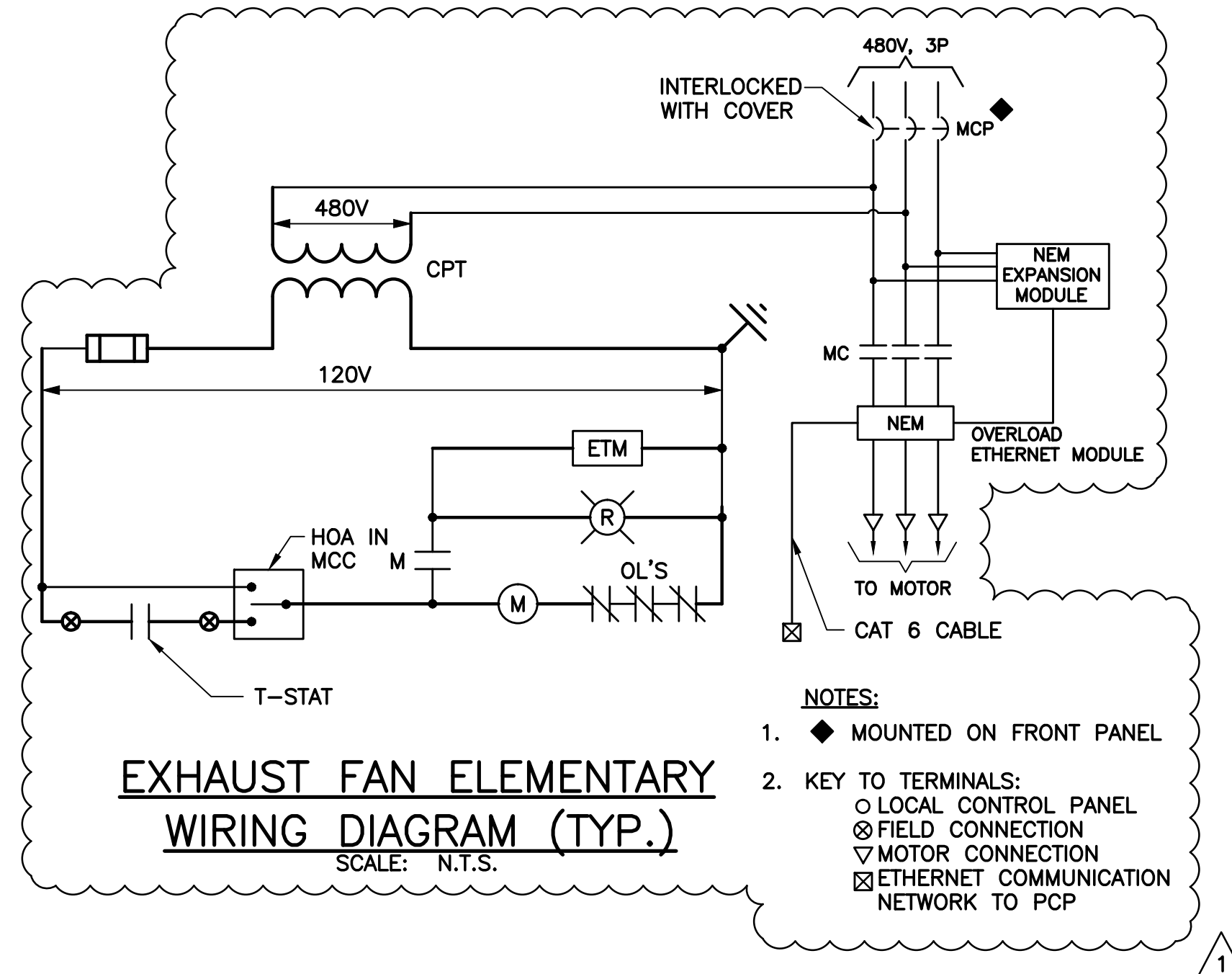
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ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 ELECTRICAL
 CENTRIFUGE ELEMENTARY DIAGRAMS

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50790

PROJECT NO.
180761
E-47
 SHEET
 266 OF 364

Package Project/Black & Veatch/Orange County/SWR Phase V Improvements/1_Phase V15_Addendum No. 2/Drawings/266.E-47/ELEM_8.dwg, 2/23/14, 10:13:02AM 9/23/15 AM
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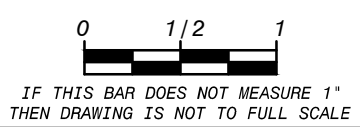


ADDENDUM NO. 2	DD	LMR	LMR
BID ISSUE	7/2015		
REVISIONS AND RECORD OF ISSUE			
NO.	BY	CHK	APP
1			
DATE	10/12/15		
SYMBOL ID:	4783 SOUTH CONWAY ROAD, STE. E		
ORLANDO, FLORIDA 32815			
PHONE: (407) 745-5604			
FAX: (407) 745-5603			
C.O.A. No. 8079			
LILLIAN M. REYES, P.E.			
FLORIDA P.E. No. 50790			
USER:			
DWG. VER:			

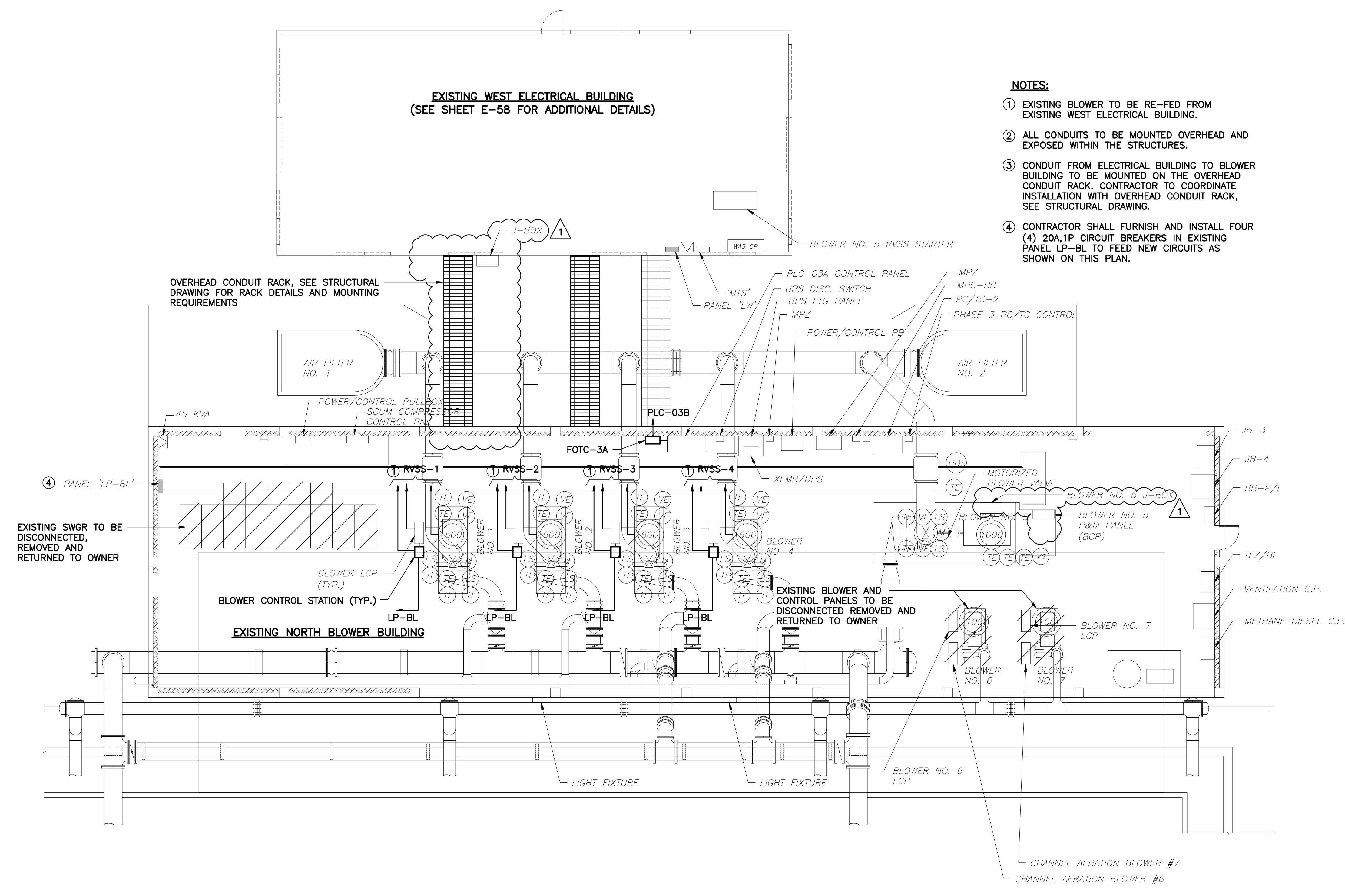
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Orlando, Florida 32801 Certificate No. 8132

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
ELEMENTARY DIAGRAMS

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50790
PROJECT NO.	180761
SHEET	E-49
268 OF 364	

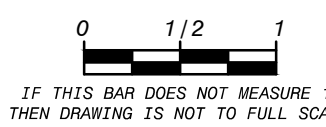
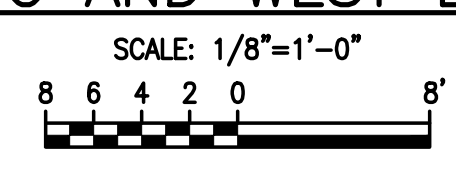


FD180761
D180761



- NOTES:**
- EXISTING BLOWER TO BE RE-FED FROM EXISTING WEST ELECTRICAL BUILDING.
 - ALL CONDUITS TO BE MOUNTED OVERHEAD AND EXPOSED WITHIN THE STRUCTURES.
 - CONDUIT FROM ELECTRICAL BUILDING TO BLOWER BUILDING TO BE MOUNTED ON THE OVERHEAD CONDUIT RACK. CONTRACTOR TO COORDINATE INSTALLATION WITH OVERHEAD CONDUIT RACK, SEE STRUCTURAL DRAWING.
 - CONTRACTOR SHALL FURNISH AND INSTALL FOUR (4) 20A,1P CIRCUIT BREAKERS IN EXISTING PANEL LP-BL TO FEED NEW CIRCUITS AS SHOWN ON THIS PLAN.

EXISTING NORTH BLOWER BUILDING AND WEST ELECTRICAL BUILDING POWER PLAN



ADDENDUM NO. 2	10/12/15	NO.	BY	CHK.	APP.
BID ISSUE	7/2015				
REVISIONS AND RECORD OF ISSUE					
CYBNET ID:	WF-2716-E-57				
PROJECT:	WF-2716-E-57 ELEC BLWR BLDG				
SAVED:	LILLIAN M. REYES, P.E.				
PLOTTED:					
USER:					

EDA
Electrical Design Associates
4783 SOUTH CONWAY ROAD, STE. E
ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
LILLIAN M. REYES, P.E.
Florida P.E. No. 50790

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Orlando, Florida 32801 Certificate No. 8132

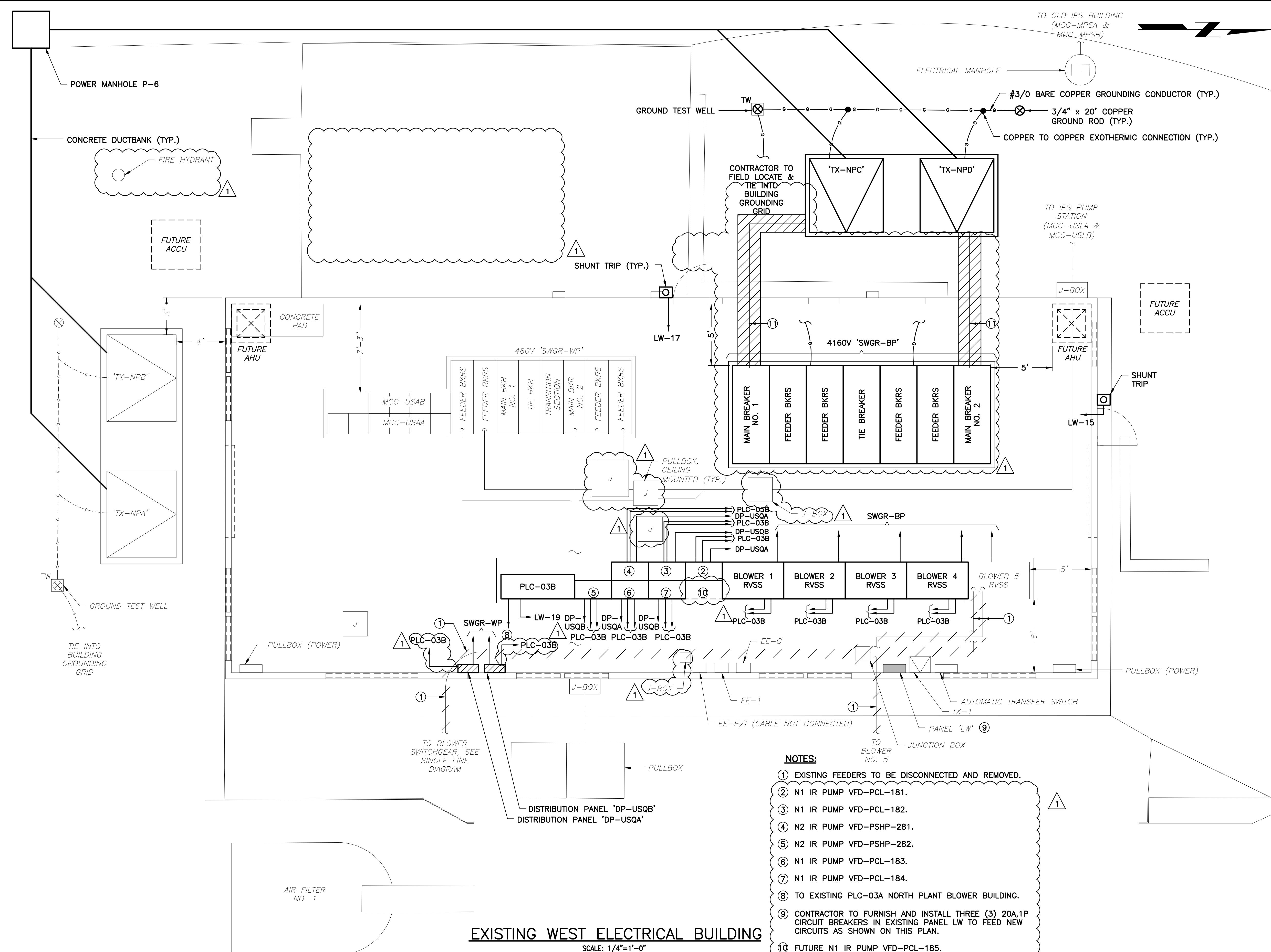
ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
EXISTING WEST ELECTRICAL BUILDING &
NORTH BLOWER BUILDING

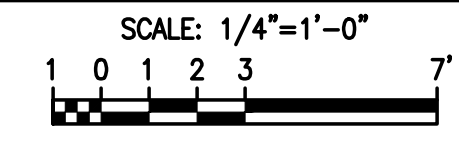
DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES FLORIDA LICENSE NO.: 50790
PROJECT NO.	180761
SHEET	E-57
276 OF 364	

P:\Active Projects\Black & Veatch\Orange County\SWRF Phase V\Improvements\1_Phase V\15_Addendum No. 2\Drawings\276 E-57 ELEC BWR BLDG.dwg, 22:24:34, 10/12/2015 9:23:20 AM
 dlm:tht

FD180761
 D180761



EXISTING WEST ELECTRICAL BUILDING



- NOTES:**
- ① EXISTING FEEDERS TO BE DISCONNECTED AND REMOVED.
 - ② N1 IR PUMP VFD-PCL-181.
 - ③ N1 IR PUMP VFD-PCL-182.
 - ④ N2 IR PUMP VFD-PSHP-281.
 - ⑤ N2 IR PUMP VFD-PSHP-282.
 - ⑥ N1 IR PUMP VFD-PCL-183.
 - ⑦ N1 IR PUMP VFD-PCL-184.
 - ⑧ TO EXISTING PLC-03A NORTH PLANT BLOWER BUILDING.
 - ⑨ CONTRACTOR TO FURNISH AND INSTALL THREE (3) 20A,1P CIRCUIT BREAKERS IN EXISTING PANEL LW TO FEED NEW CIRCUITS AS SHOWN ON THIS PLAN.
 - ⑩ FUTURE N1 IR PUMP VFD-PCL-185.
 - ⑪ SAWCUT AND INSTALL CONDUITS UNDERGROUND IN THE EXISTING SLAB AND BACKFILL. RESTORE EXISTING CONCRETE SURFACE IN KIND. SEE DETAIL 9 ON DRAWING E-107 FOR ADDITIONAL REQUIREMENTS.

DD	LMR	LMR	APP	NO.	BY	CHK	APP
1	1	1	1	1	1	1	1
ADDENDUM NO. 2							
BID ISSUE							
REVISIONS AND RECORD OF ISSUE							
10/12/15	DATE	CYNET, INC.					
7/20/15	DATE	ELECTRICAL DESIGN ASSOCIATES					
4783 SOUTH CONWAY ROAD, STE. E							
ORLANDO, FLORIDA 32812							
PHONE: (407) 745-5604							
FAX: (407) 745-5603							
C.O.A. No. 8079							
LILLIAN M. REYES, P.E.							
FLORIDA P.E. No. 50790							
DRAWING USER:							
DWS VER:							
XREF1:							
XREF2:							
XREF3:							
XREF4:							
XREF5:							
XREF6:							
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**ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS**

ELECTRICAL

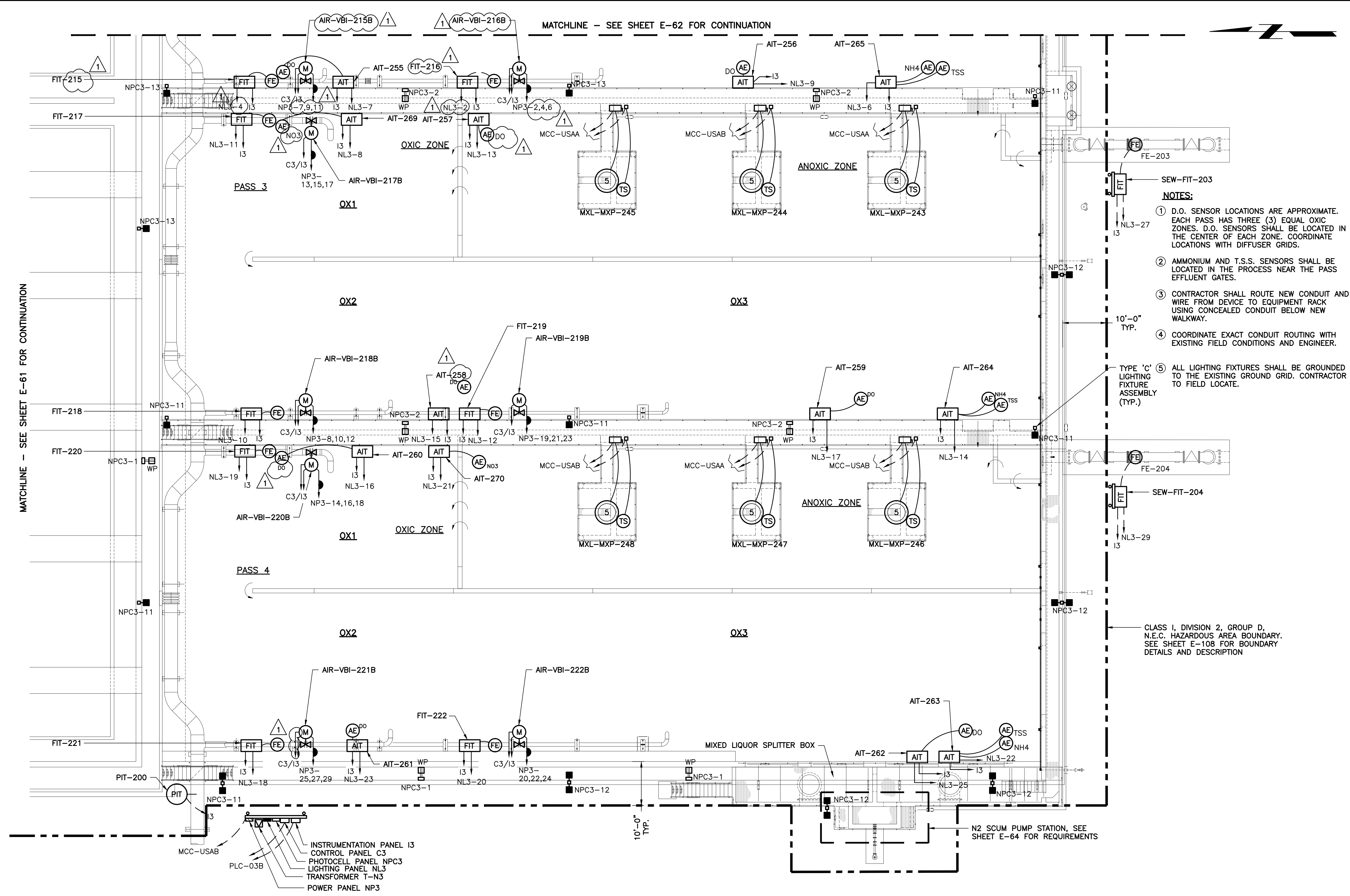
EXISTING WEST ELECTRICAL BUILDING

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50790

PROJECT NO.
180761

E-58
 SHEET
 277 OF 364

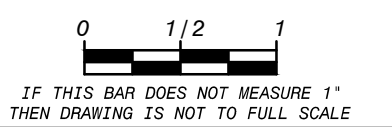
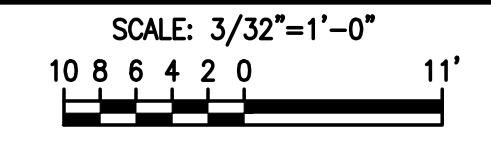
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- NOTES:**
- D.O. SENSOR LOCATIONS ARE APPROXIMATE. EACH PASS HAS THREE (3) EQUAL OXIC ZONES. D.O. SENSORS SHALL BE LOCATED IN THE CENTER OF EACH ZONE. COORDINATE LOCATIONS WITH DIFFUSER GRIDS.
 - AMMONIUM AND T.S.S. SENSORS SHALL BE LOCATED IN THE PROCESS NEAR THE PASS EFFLUENT GATES.
 - CONTRACTOR SHALL ROUTE NEW CONDUIT AND WIRE FROM DEVICE TO EQUIPMENT RACK USING CONCEALED CONDUIT BELOW NEW WALKWAY.
 - COORDINATE EXACT CONDUIT ROUTING WITH EXISTING FIELD CONDITIONS AND ENGINEER.
 - ALL LIGHTING FIXTURES SHALL BE GROUNDED TO THE EXISTING GROUND GRID. CONTRACTOR TO FIELD LOCATE.
- TYPE 'C' LIGHTING FIXTURE ASSEMBLY (TYP.)

CLASS 1, DIVISION 2, GROUP D, N.E.C. HAZARDOUS AREA BOUNDARY. SEE SHEET E-108 FOR BOUNDARY DETAILS AND DESCRIPTION

NORTH PLANT NO. 2 - BNR BASIN PARTIAL ELECTRICAL PLAN-2



ADDENDUM NO. 2	DD LMR LMR
BID ISSUE	1
REVISIONS AND RECORD OF ISSUE	NO. BY CK APP
DATE	DATE
7/2015	7/2015
PROJECT ID:	PROJECT ID:
4783 SOUTH CONWAY ROAD, STE. E	ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604	FAX: (407) 745-5603
SAVED:	C.O.A. No. 8079
PLOTTED:	LILLIAN M. REYES, P.E.
USER:	FLORIDA P.E. No. 50790

ED&A
Electrical Design Associates
4783 SOUTH CONWAY ROAD, STE. E
ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604
FAX: (407) 745-5603
LILLIAN M. REYES, P.E.
FLORIDA P.E. No. 50790

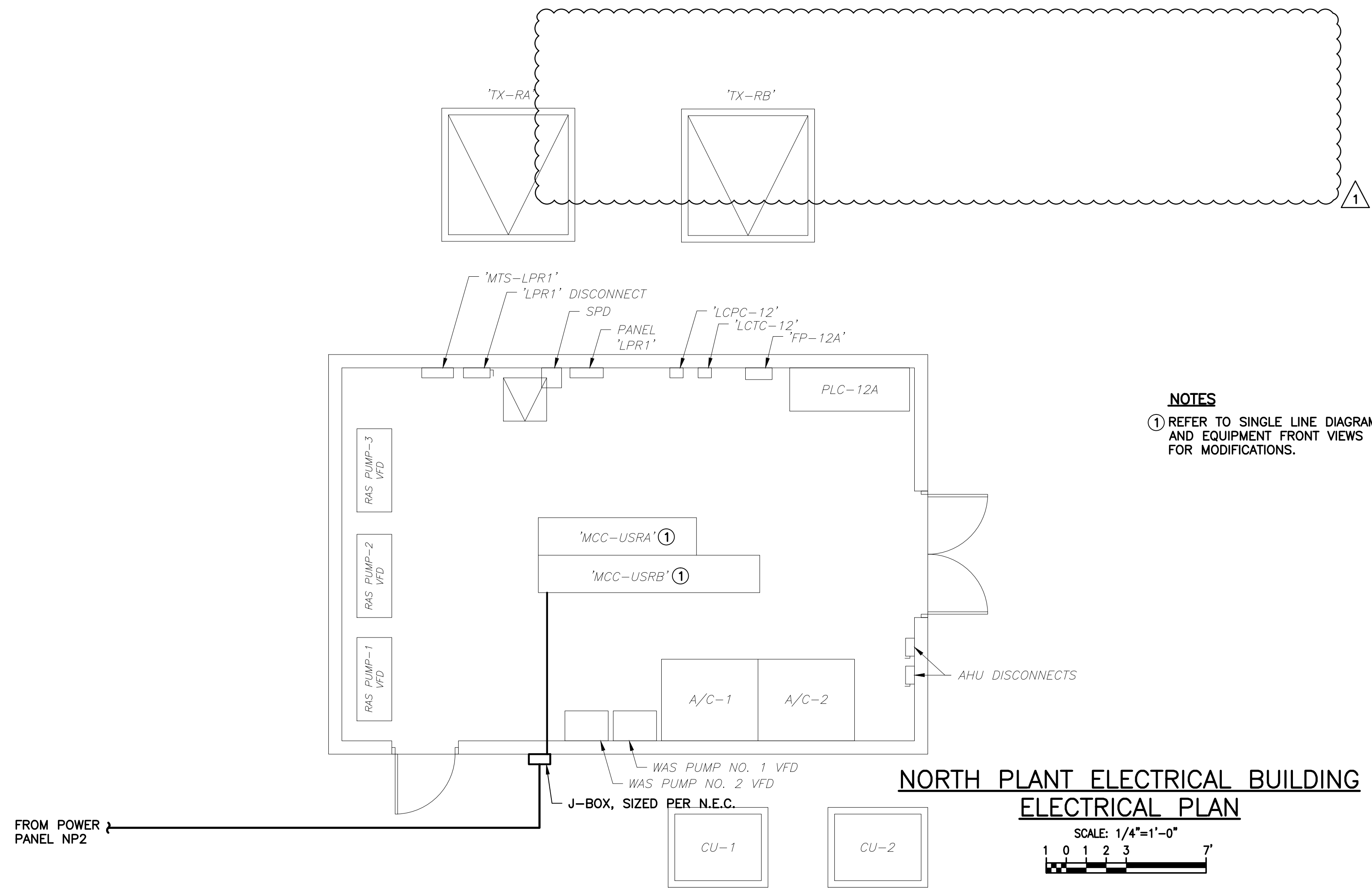
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Certificate No. 8132

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
NORTH PLANT NO. 2 - BNR BASIN
PARTIAL PLAN-2

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50790
 PROJECT NO.
 180761
 SHEET
 E-63
 282 OF 364

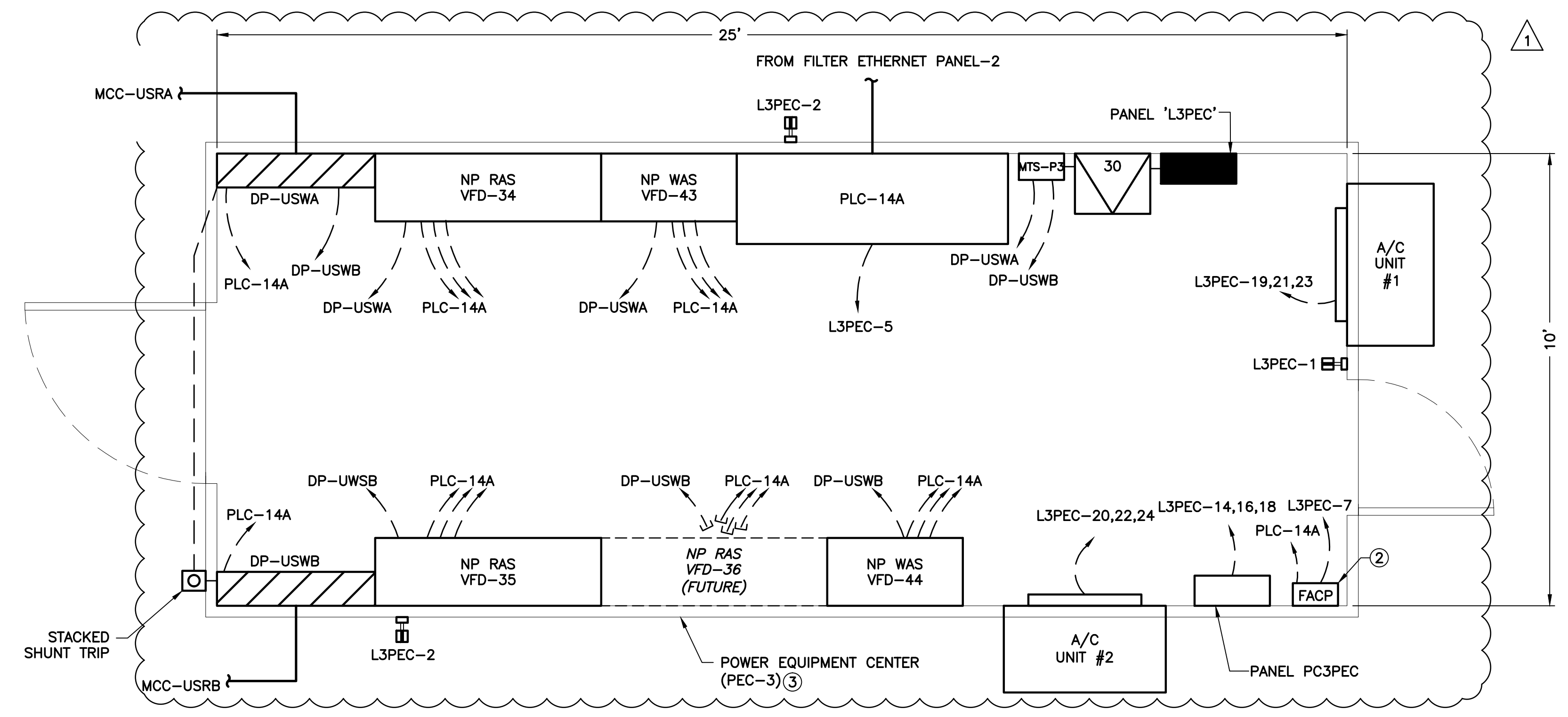
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NOTES
 ① REFER TO SINGLE LINE DIAGRAM AND EQUIPMENT FRONT VIEWS FOR MODIFICATIONS.

NORTH PLANT ELECTRICAL BUILDING ELECTRICAL PLAN

SCALE: 1/4"=1'-0"
 1 0 1 2 3 7'



NOTES:
 ① REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 ② REFER TO FIRE ALARM CONTROL PANEL RISER DIAGRAM ON SHEET E-49 FOR ADDITIONAL REQUIREMENTS.
 ③ REFER TO SPECIFICATION SECTION 13120 FOR ADDITIONAL REQUIREMENTS.

NORTH PLANT CLARIFIER NO. 3 RAS/WAS POWER EQUIPMENT CENTER-3 (PEC-3) POWER PLAN

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

0 1/2 1'
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

ADDENDUM NO. 2	1	DD	LMR	APP
BID ISSUE				
REVISIONS AND RECORD OF ISSUE				
CYBERNET ID:				
DATE	10/12/15			
DATE	7/20/15			
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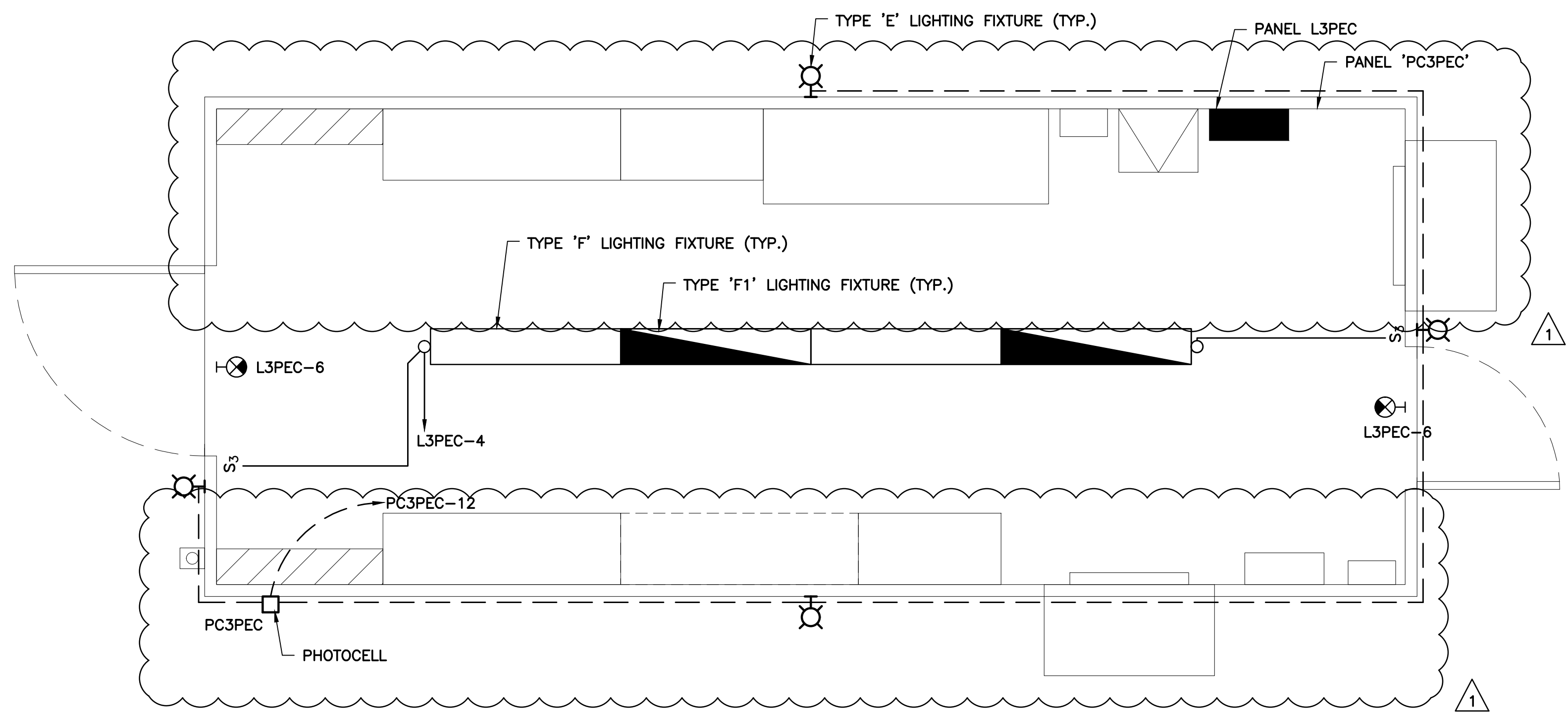
EDA
 Electrical Design Associates
 4783 SOUTH CONWAY ROAD, STE. E
 ORLANDO, FLORIDA 32812
 PHONE: (407) 745-5604
 FAX: (407) 745-5603
 C.O.A. No. 8079
 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50780

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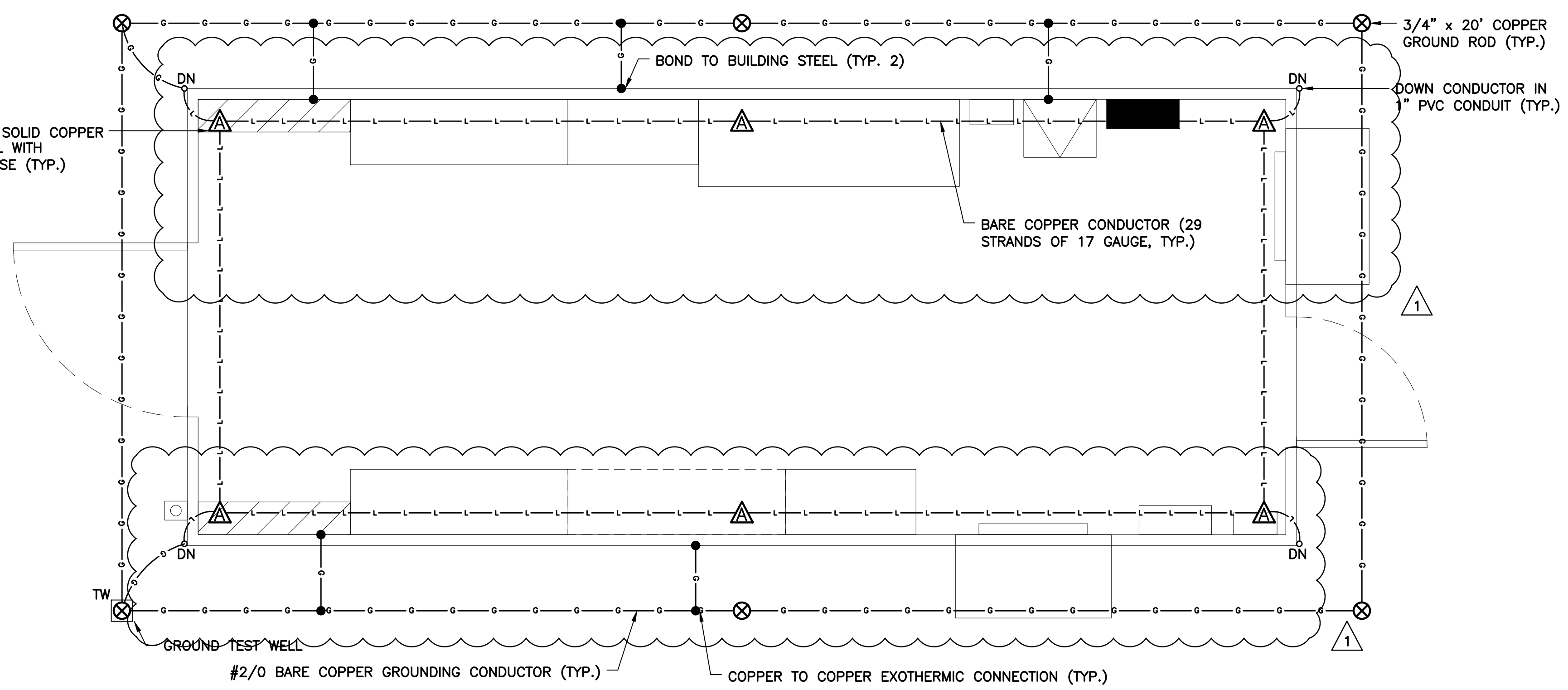
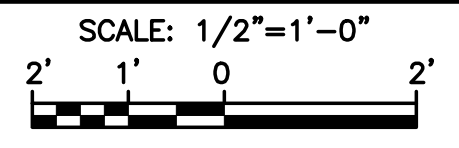
ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
 ELECTRICAL
 NORTH PLANT ELECTRICAL BUILDING &
 N. PLANT CLARIFIER NO. 3 RAS/WAS POWER EQUIPMENT CENTER-3
 (PEC-3)

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50780
 PROJECT NO.
 180761
E-70
 SHEET
 289 OF 364

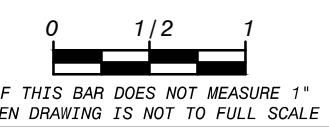
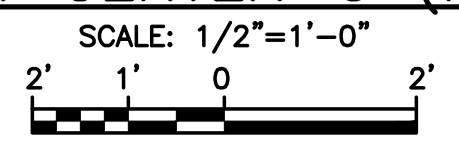
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NP CLARIFIER NO. 3 RAS/WAS POWER EQUIPMENT CENTER-3 (PEC-3) LIGHTING PLAN



NP CLARIFIER NO. 3 RAS/WAS POWER EQUIPMENT CENTER-3 (PEC-3) LIGHTNING PROTECTION/GROUNDING PLAN



ADDENDUM NO. 2	1	DD	LMR	APP
BID ISSUE				
REVISIONS AND RECORD OF ISSUE				
CYBNET ID:				
DATE:				
NO.:				
BY:				
APP:				

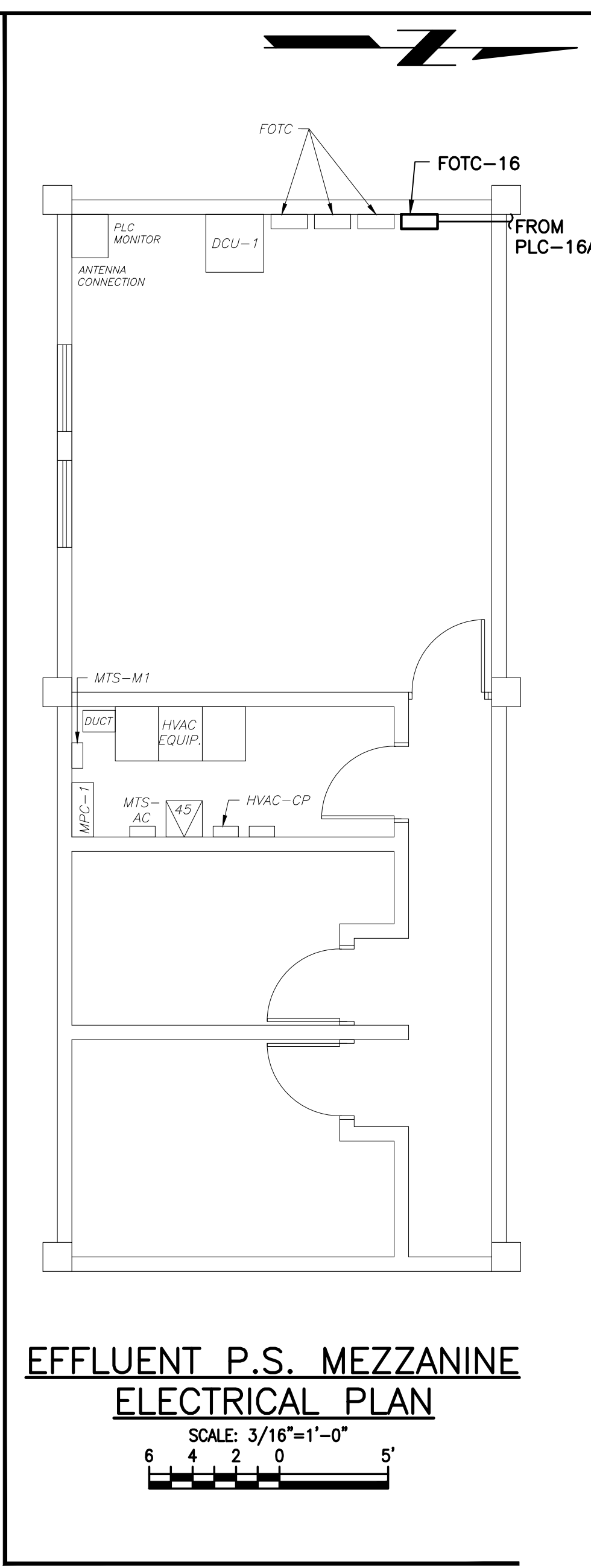
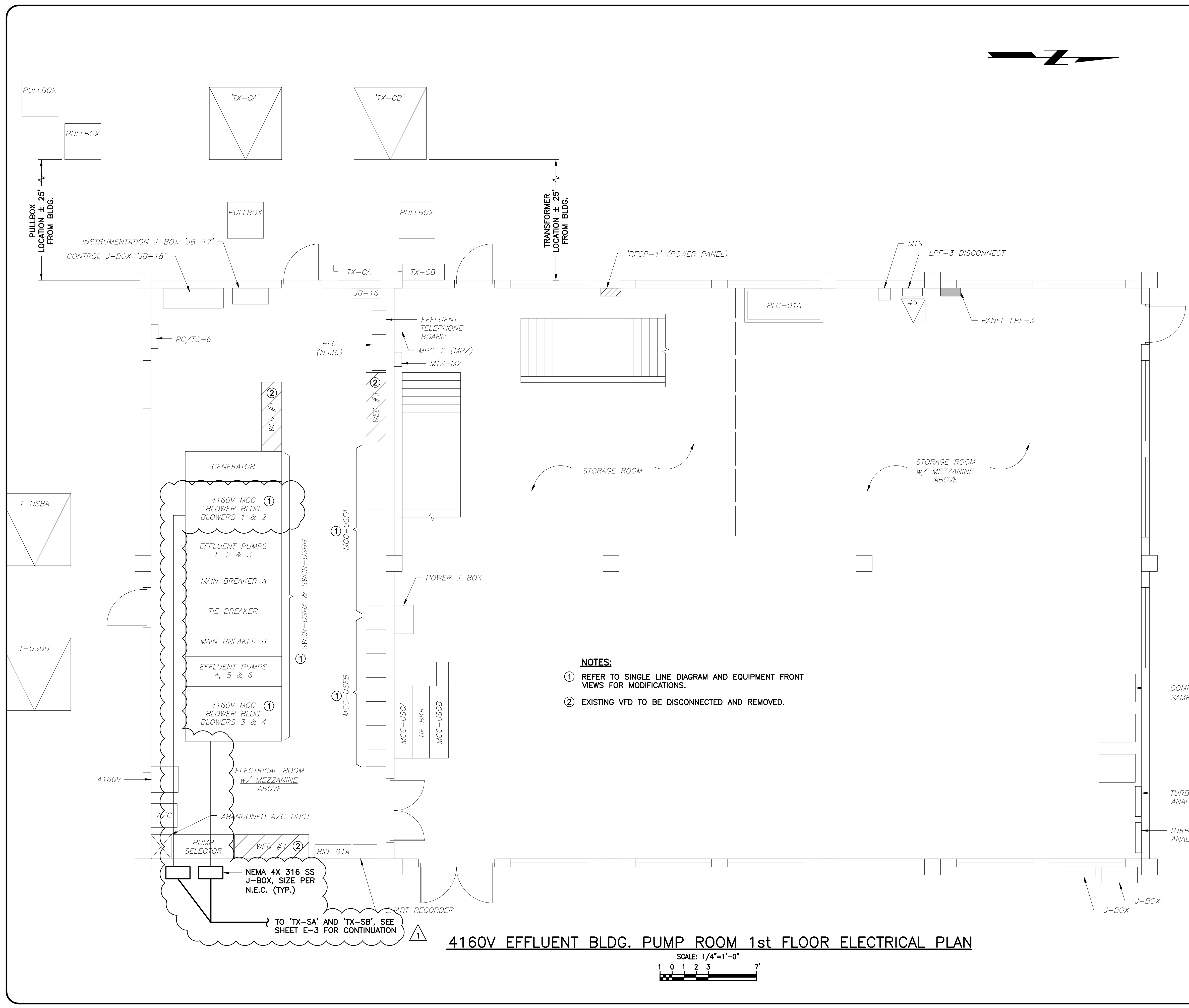
EDA
 Electrical Design Associates
 4783 SOUTH CONWAY ROAD, STE. E
 ORLANDO, FLORIDA 32812
 PHONE: (407) 745-5604
 FAX: (407) 745-5603
 C.O.A. No. 8079
 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50780

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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
 ELECTRICAL
 NP CLARIFIER NO. 3 RAS/WAS POWER EQUIPMENT CENTER-3 (PEC-3)
 LIGHTNING & LIGHTNING PROTECTION PLAN

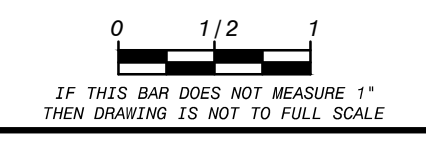
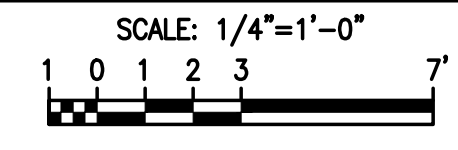
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CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50780
PROJECT NO.	180761
SHEET	E-71
OF 364	290

Package Project/Black & Veatch/Orange County/Water Reclamation Facility/Phase V Improvements/1_Plan V15_Addendum No. 2/Drawings/23 X 34/10/13/2015 2:40:00 AM
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- NOTES:**
- ① REFER TO SINGLE LINE DIAGRAM AND EQUIPMENT FRONT VIEWS FOR MODIFICATIONS.
 - ② EXISTING VFD TO BE DISCONNECTED AND REMOVED.

4160V EFFLUENT BLDG. PUMP ROOM 1st FLOOR ELECTRICAL PLAN

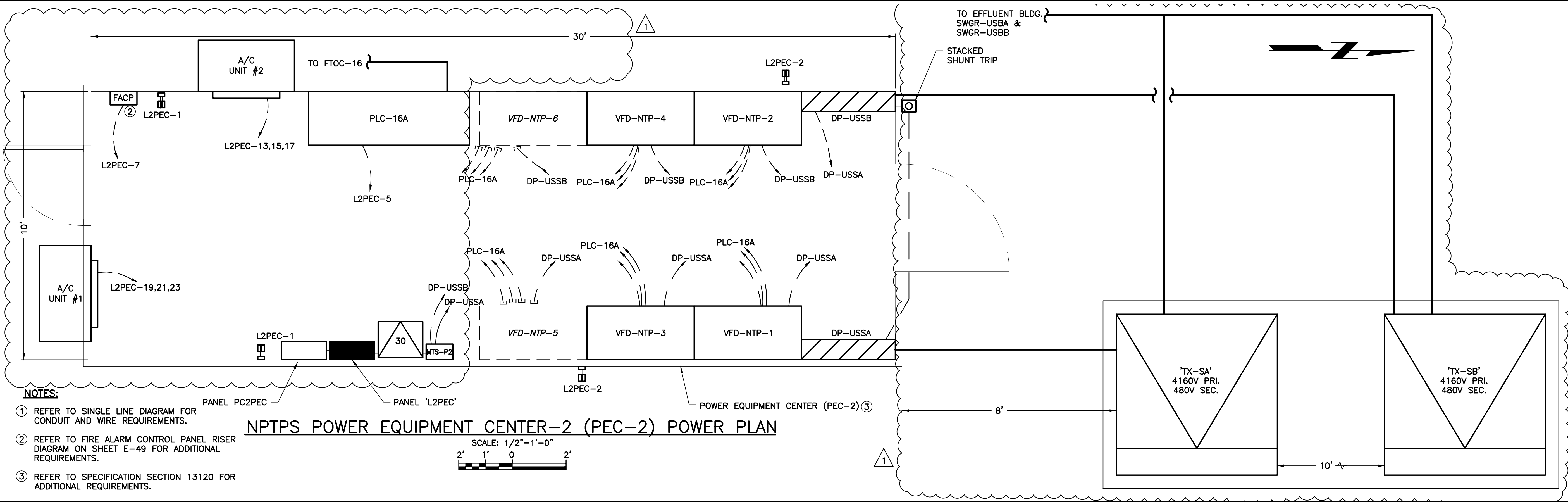


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BID ISSUE	7/2015	LMR	LMR
REVISIONS AND RECORD OF ISSUE			
CYRNET ID:			
NO.	BY	CHK	APP
1			
PROJECT NO. 180761 SHEET E-78 297 OF 364			

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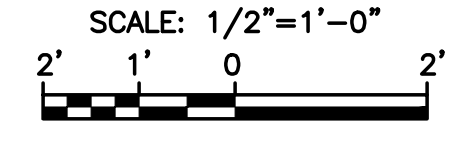
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DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES FLORIDA LICENSE NO.: 50780
PROJECT NO. 180761
SHEET E-78
297 OF 364

Package Project/Black & Veatch/Orange County/SWRF Phase V Improvements/1_Plan V15_Address/No. 20dwyg/297 E 78 EFF BLDG 1 11.dwg 2/4 31/01/2015 9:42:12 AM
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- NOTES:**
- ① REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - ② REFER TO FIRE ALARM CONTROL PANEL RISER DIAGRAM ON SHEET E-49 FOR ADDITIONAL REQUIREMENTS.
 - ③ REFER TO SPECIFICATION SECTION 13120 FOR ADDITIONAL REQUIREMENTS.

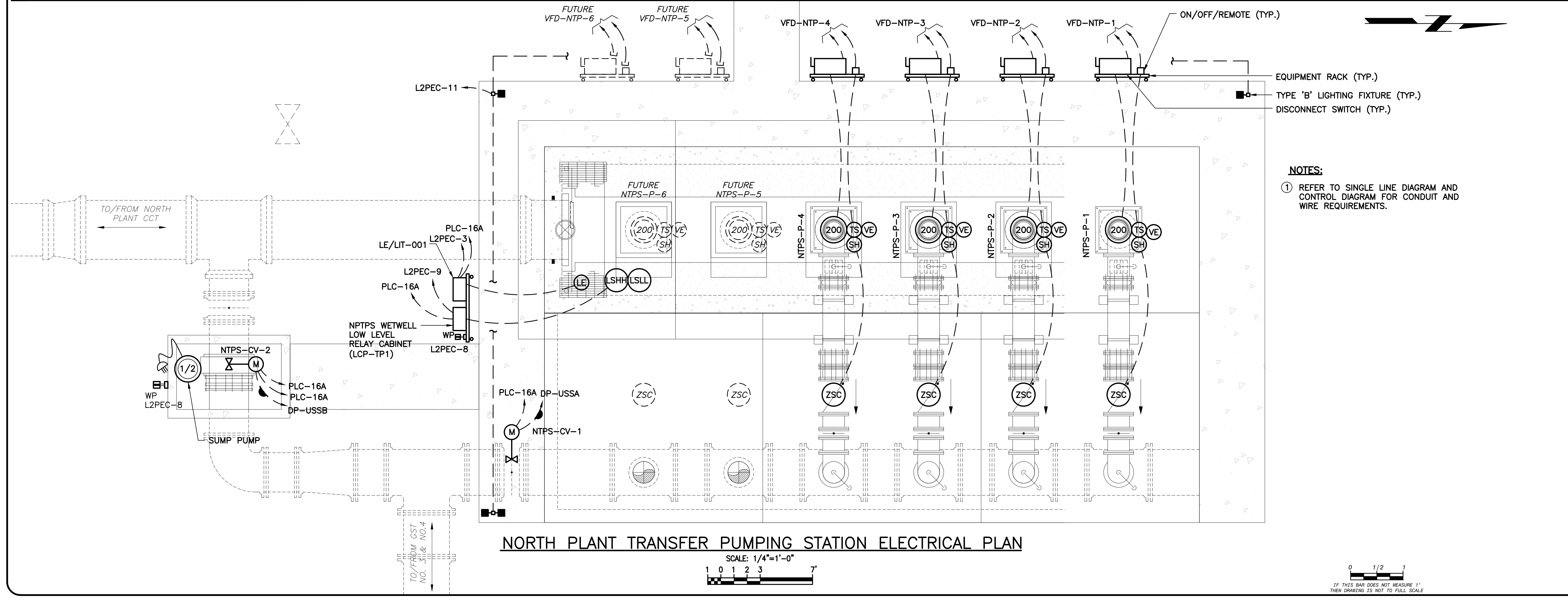
NTPS POWER EQUIPMENT CENTER-2 (PEC-2) POWER PLAN



ADDENDUM NO. 2	DD	LMR	APP
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REVISIONS AND RECORD OF ISSUE			
CYBERNET ID:	10/12/15		
DATE	7/2015		
PROJECT ID:	4783 SOUTH ORANGE ROAD, STE. E		
PROJECT NAME:	ORLANDO, FLORIDA 32817		
PHONE:	(407) 745-5604		
FAX:	(407) 745-5603		
C.O.A. No.:	8079		
PLOTTED:	LILLIAN M. REYES, P.E.		
USER:	FLORIDA P.E. NO. 50790		

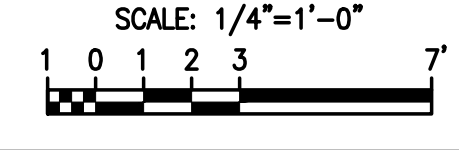
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Orlando, Florida 32801 Certificate No. 8132



- NOTES:**
- ① REFER TO SINGLE LINE DIAGRAM AND CONTROL DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.

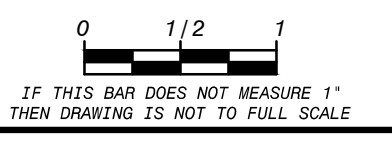
NORTH PLANT TRANSFER PUMPING STATION ELECTRICAL PLAN



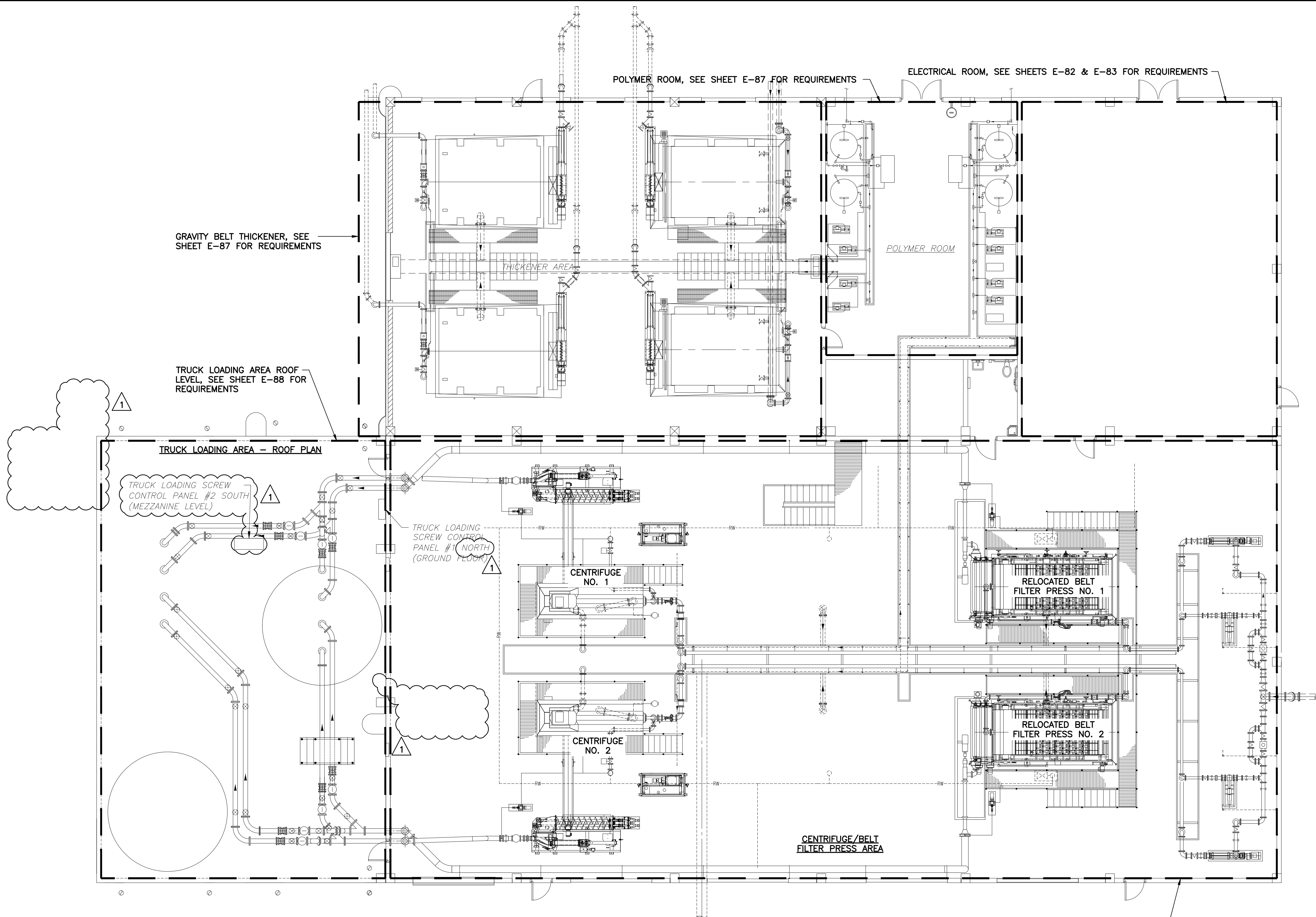
ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
NTPS POWER EQUIPMENT CENTER-2 (PEC-2)
POWER PLAN & NTPS PLAN

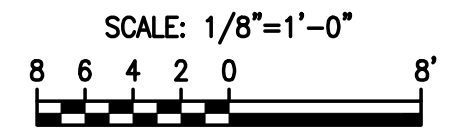
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DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50790
PROJECT NO.:	180761
SHEET	E-79
298 OF 364	



FD180761
D180761



DEWATERING BUILDING OVERALL ELECTRICAL PLAN



CENTRIFUGE/BELT FILTER PRESS AREA, SEE SHEETS E-84, E-85 & E-86 FOR REQUIREMENTS

GRAVITY BELT THICKENER, SEE SHEET E-87 FOR REQUIREMENTS

TRUCK LOADING AREA ROOF LEVEL, SEE SHEET E-88 FOR REQUIREMENTS

POLYMER ROOM, SEE SHEET E-87 FOR REQUIREMENTS

ELECTRICAL ROOM, SEE SHEETS E-82 & E-83 FOR REQUIREMENTS

TRUCK LOADING SCREW CONTROL PANEL #2 SOUTH (MEZZANINE LEVEL)

TRUCK LOADING SCREW CONTROL PANEL #1 NORTH (GROUND FLOOR)

CENTRIFUGE NO. 1

CENTRIFUGE NO. 2

RELOCATED BELT FILTER PRESS NO. 1

RELOCATED BELT FILTER PRESS NO. 2

CENTRIFUGE/BELT FILTER PRESS AREA

THICKENER AREA

POLYMER ROOM

FD180761
D180761

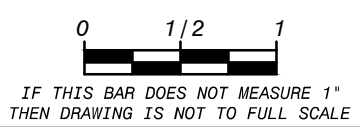
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	WF: 3002-E-81 SHB OVERALL PLAN		
	SAVED:		
	PLOTTED:		
	USER:		

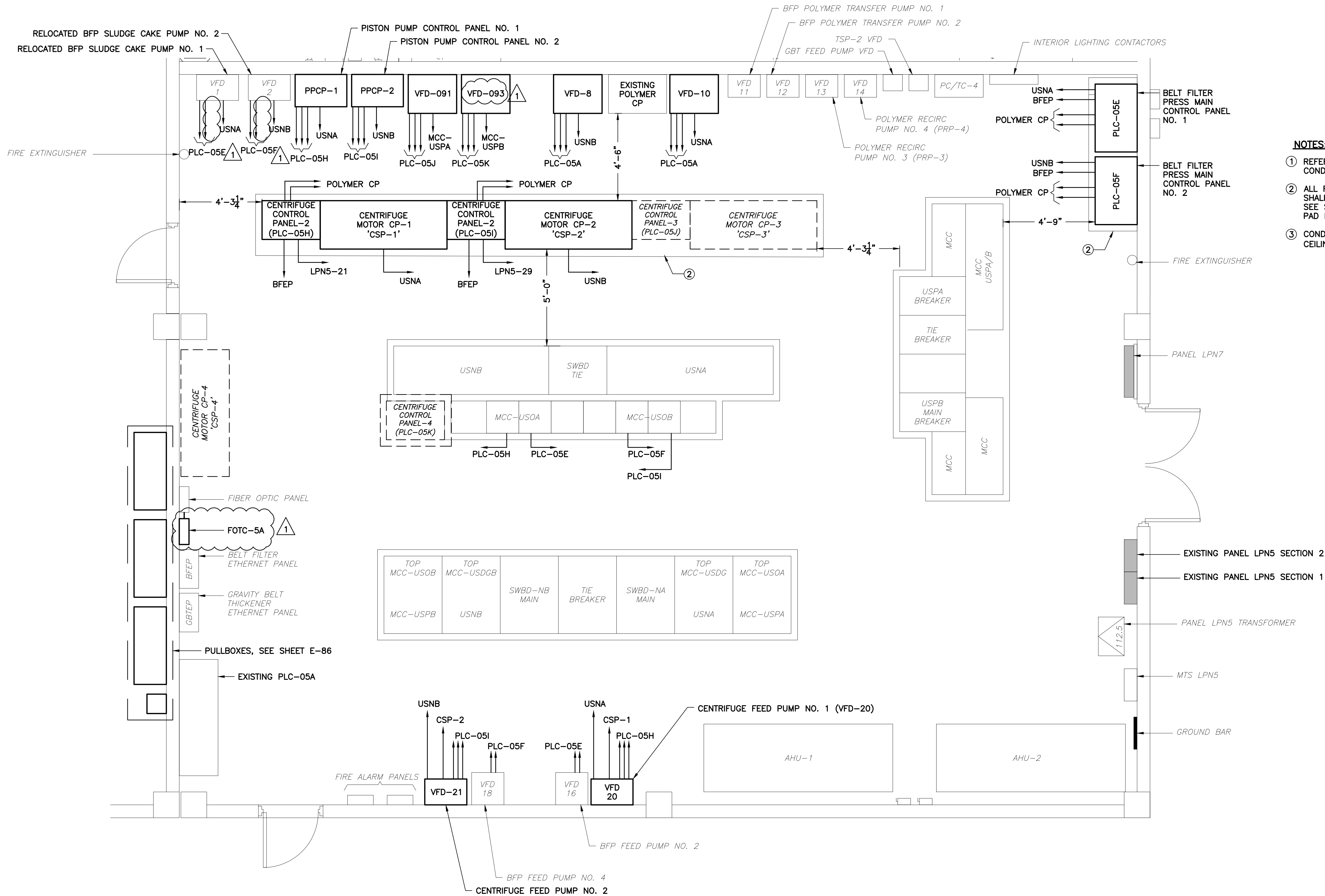
EDA
Electrical Design Associates
4783 SOUTH CONWAY ROAD, STE. E
ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604
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ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
DEWATERING BUILDING OVERALL ELECTRICAL PLAN

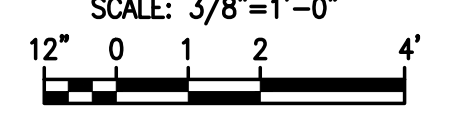
DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50790
PROJECT NO.	180761
E-81	
SHEET	
300 OF 364	





- NOTES:**
- REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE MOUNTED ON AN EQUIPMENT PAD. SEE STRUCTURAL SHEET SD-2 EQUIPMENT PAD DETAIL E.
 - CONDUITS TO BE SURFACE MOUNTED ABOVE CEILING GRID (TYP.).

DEWATERING BLDG. ELECTRICAL ROOM PROPOSED PLAN



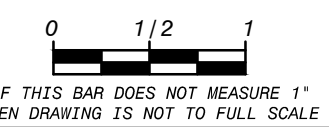
ADDENDUM NO. 2	DD	LMR	APP
BID ISSUE			
REVISIONS AND RECORD OF ISSUE			
NO.	BY	CHK	APP

Electrical Design Associates
 4783 SOUTH CONWAY ROAD, STE. E
 ORLANDO, FLORIDA 32812
 PHONE: (407) 745-5604
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 Florida P.E. No. 50780

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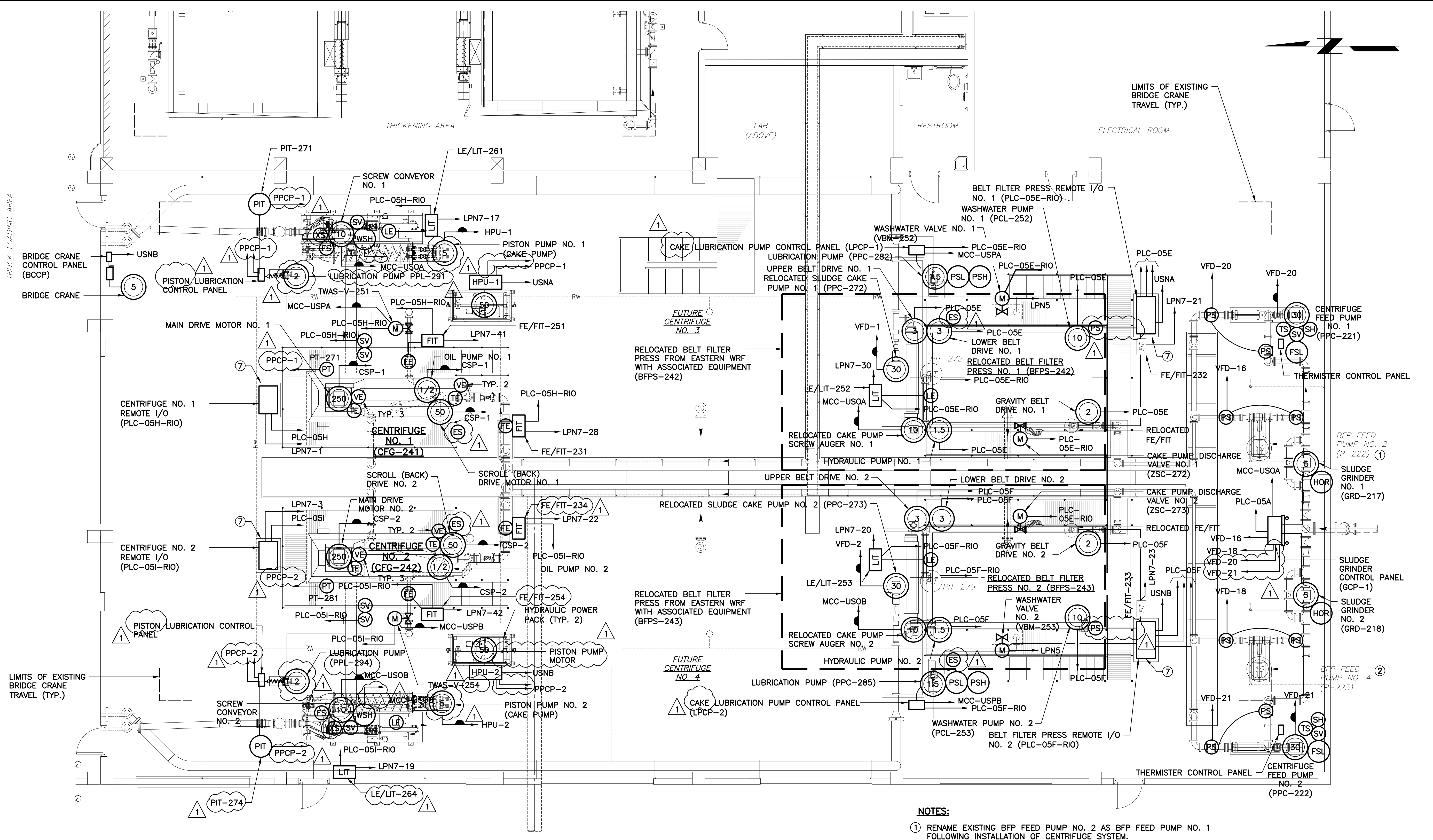
ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 ELECTRICAL DEWATERING BUILDING ELECTRICAL ROOM
 PROPOSED PLAN

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES FLORIDA LICENSE NO.: 50780
PROJECT NO. 180761
E-83 SHEET 302 OF 364

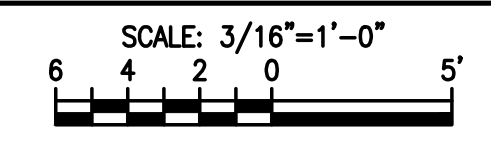


FD180761
 D180761

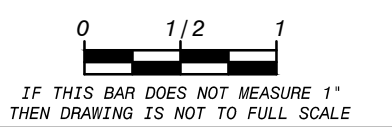
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DEWATERING BUILDING ELECTRICAL PLAN



- NOTES:**
- 1 RENAME EXISTING BFP FEED PUMP NO. 2 AS BFP FEED PUMP NO. 1 FOLLOWING INSTALLATION OF CENTRIFUGE SYSTEM.
 - 2 RENAME EXISTING BFP FEED PUMP NO. 4 AS BFP FEED PUMP NO. 2 FOLLOWING INSTALLATION OF CENTRIFUGE SYSTEM.
 - 3 REFER TO SINGLE LINE DIAGRAM AND CONTROL WIRING DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - 4 REFER TO SHEET E-86 FOR PROPOSED CONDUIT ROUTING PLAN.
 - 5 LIT AND FIT 120V CIRCUITS TO BE ROUTED IN EXISTING CONDUIT TO PANEL LPN7/LPN5. PROVIDE 2#12 & 1#12 GND IN EXISTING 3/4" CONDUITS. FIELD LOCATE EXISTING CONDUIT.
 - 6 NOT ALL DEVICES ARE SHOWN. REFER TO SHEETS E-39, I-22 & I-23 FOR ADDITIONAL INFORMATION.
 - 7 ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE MOUNTED ON AN EQUIPMENT PAD. SEE STRUCTURAL SHEET SD-2 EQUIPMENT PAD DETAIL E.



ADDENDUM NO. 2	1	DD	LMR	LMP
BID ISSUE	7/2015	DATE	REVISIONS AND RECORD OF ISSUE	NO.
DATE	7/2015	DATE	REVISIONS AND RECORD OF ISSUE	NO.
BY	CK	BY	CK	APP
PROJECT NO.	180761			
SHEET	E-85			
OF	304 OF 364			

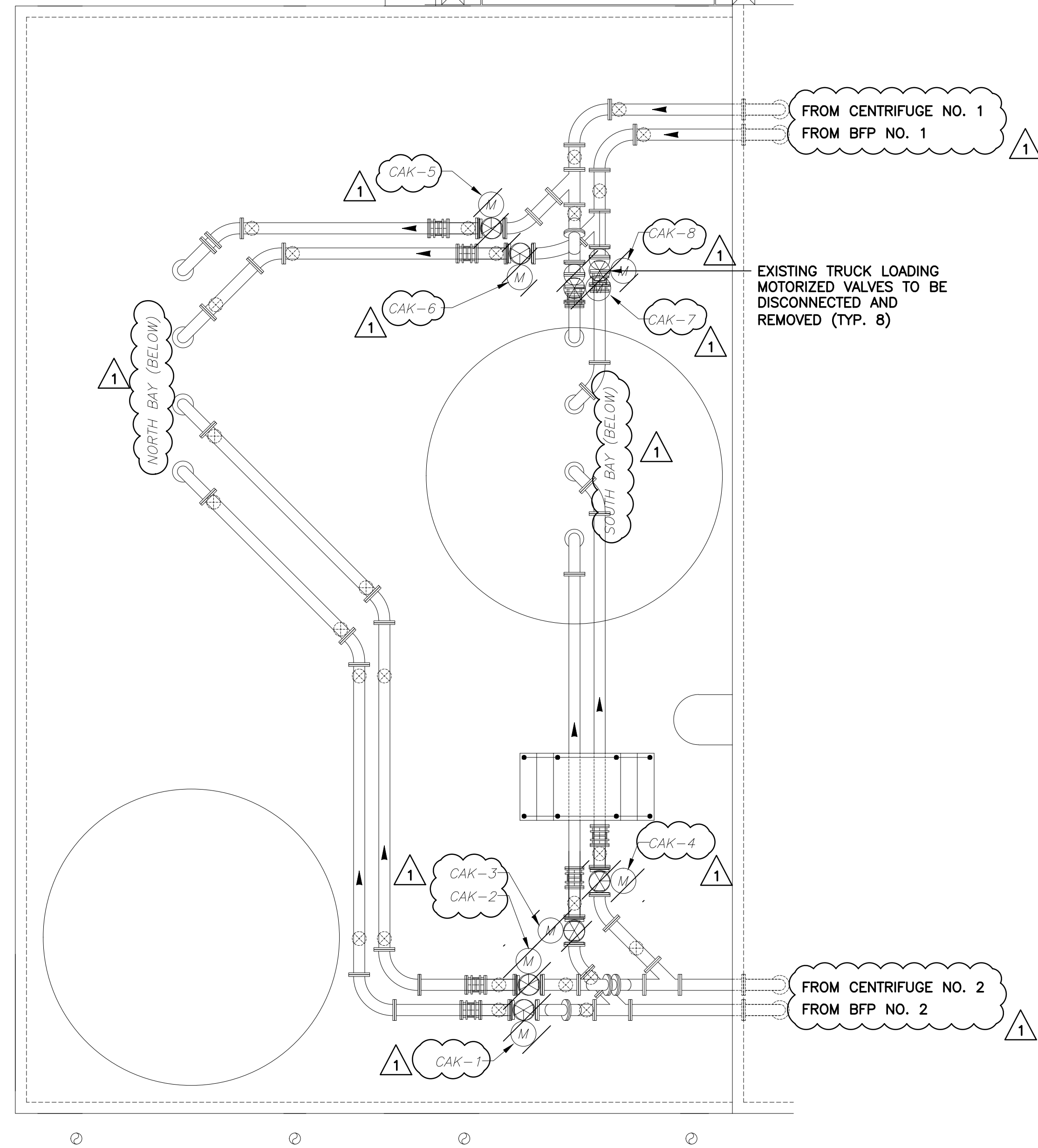
DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50790
PROJECT NO.	180761
SHEET	E-85
OF	304 OF 364

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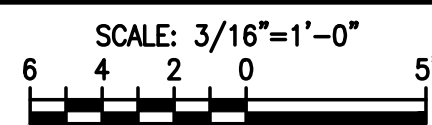
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Orlando, Florida 32801 Certificate No. 8132

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

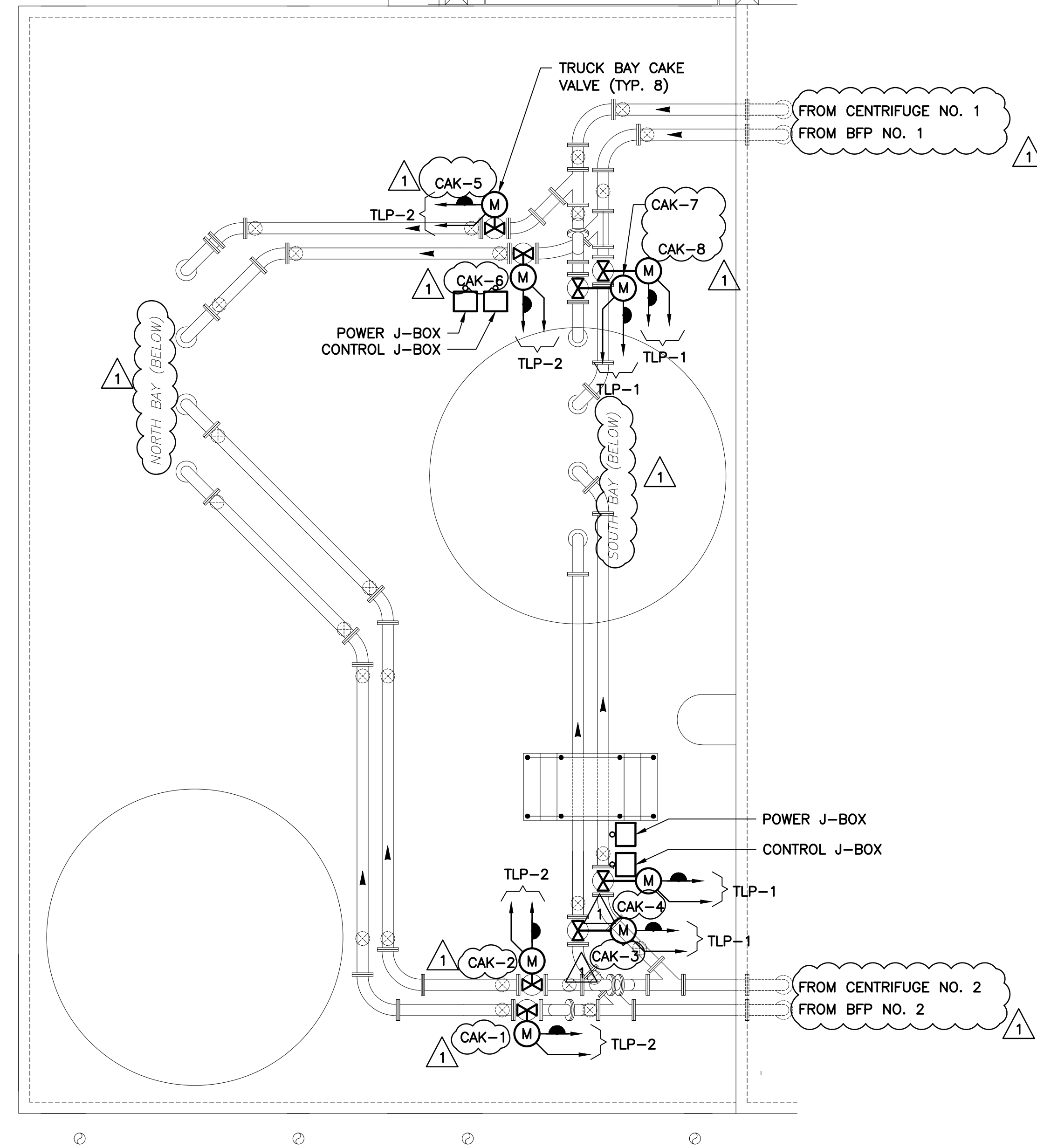
ELECTRICAL
DEWATERING BUILDING ELECTRICAL PLAN



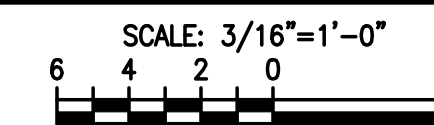
DEWATERING BUILDING ROOF ELECTRICAL DEMOLITION PLAN



- NOTES:**
- TRUCK LOADING SCREW CONTROL PANELS NO. 1 & NO. 2 ARE LOCATED IN THE TRUCK LOADING AREA BELOW.
 - REFER TO SHEET E-47 FOR CONDUIT AND WIRE REQUIREMENTS.
 - CONDUITS TO BE SURFACE MOUNTED AT ROOF LEVEL. RUN CONDUITS TO TRUCK LOADING PANELS IN TRUCK LOADING AREA VIA J-BOXES AND ROOF PENETRATIONS. ALL ROOF PENETRATIONS TO BE SEALED TO AS-IS CONDITION.



DEWATERING BUILDING ROOF ELECTRICAL PLAN



0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

ADDENDUM NO. 2	1	DD	LMR	APP
BID ISSUE	7/2015			
REVISED AND RECORD OF ISSUE				
CYRNEL ID:				
ORLANDO, FLORIDA 32812				
PHONE: (407) 745-5604				
FAX: (407) 745-5603				
C.O.A. No. 8079				
LILLIAN M. REYES, P.E.				
FLORIDA P.E. No. 50790				
USER:				

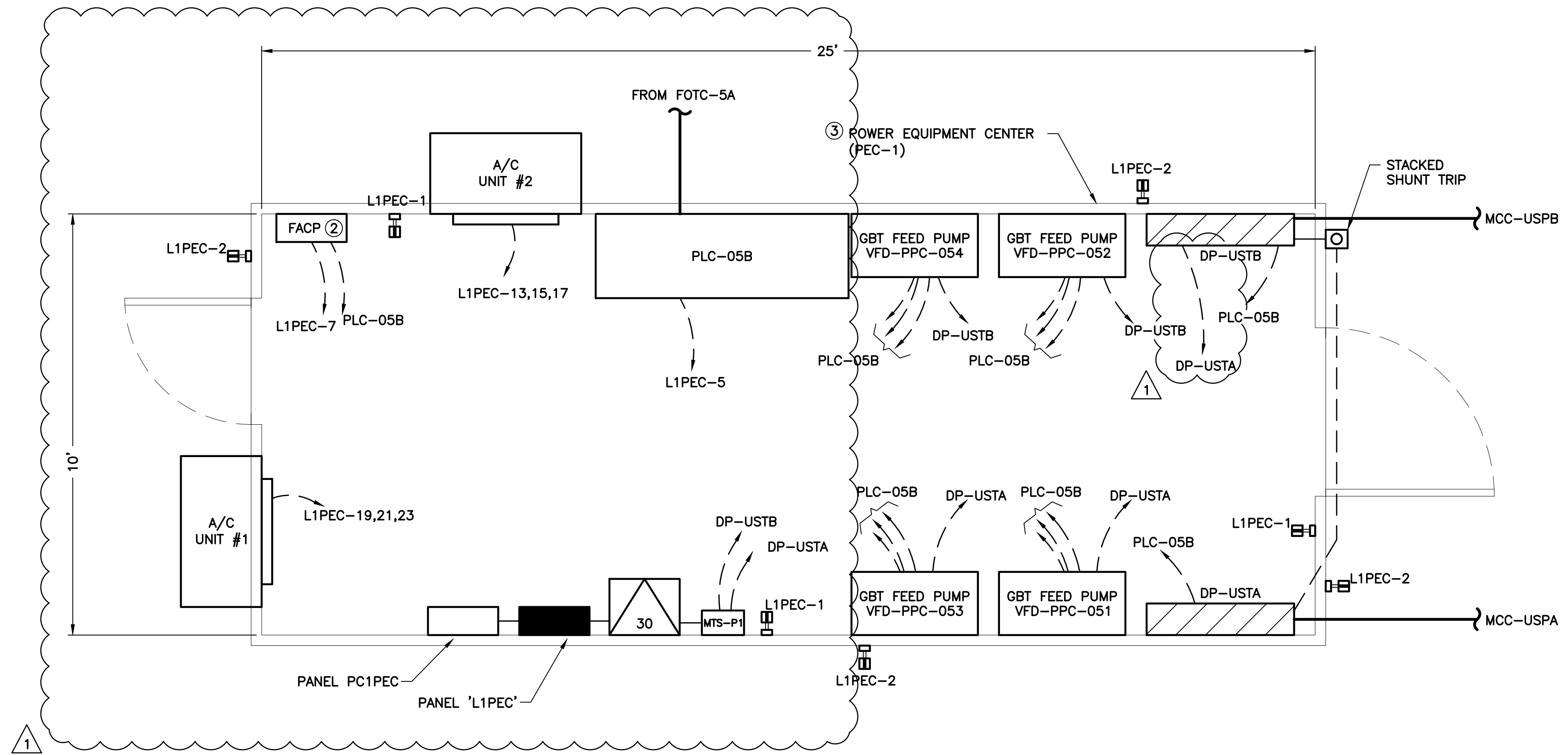
EDA
Electrical Design Associates
4783 SOUTH CONWAY ROAD, STE. E
ORLANDO, FLORIDA 32812
PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
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FLORIDA P.E. No. 50790

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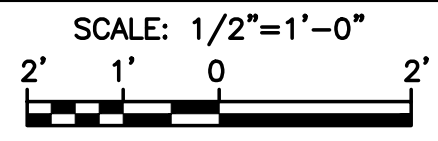
ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
DEWATERING BUILDING ROOF
ELECTRICAL PLAN

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES
FLORIDA LICENSE NO.:	50790
PROJECT NO.	180761
SHEET	E-88
307 OF 364	

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 dm:trh



GBT POWER EQUIPMENT CENTER-1 (PEC-1) POWER PLAN



- NOTES:**
- ① REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
 - ② REFER TO FIRE ALARM CONTROL PANEL RISER DIAGRAM ON SHEET E-49 FOR ADDITIONAL REQUIREMENTS.
 - ③ REFER TO SPECIFICATION SECTION 13120 FOR ADDITIONAL REQUIREMENTS.

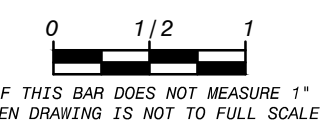


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BID ISSUE	7/2015	DATE	REVISIONS AND RECORD OF ISSUE	NO.
CYBERNET ID:	WFL-3002-E-89	DATE	NO.	BY
PROJECT ID:	WFL-3002-E-89	DATE	NO.	BY
PROJECT NAME:	GBT PEC-1 PHASE V IMPROVEMENTS	DATE	NO.	BY
PROJECT LOCATION:	201 South Orange Avenue, Suite 500	DATE	NO.	BY
PROJECT NUMBER:	180761	DATE	NO.	BY
PROJECT SHEET:	E-89	DATE	NO.	BY
PROJECT SHEET:	308 OF 364	DATE	NO.	BY
DESIGNED:	DD	DATE	NO.	BY
DETAILED:	ARM	DATE	NO.	BY
CHECKED:	LMR	DATE	NO.	BY
APPROVED:	LMR	DATE	NO.	BY
DATE:	JANUARY 2015	DATE	NO.	BY
ENGINEER OF RECORD:	LILLIAN M. REYES	DATE	NO.	BY
FLORIDA LICENSE NO.:	50780	DATE	NO.	BY
PROJECT NO.:	180761	DATE	NO.	BY
SHEET:	E-89	DATE	NO.	BY
308 OF 364		DATE	NO.	BY

EDA
Electrical Design Associates
7933 SOUTH CONWAY ROAD, STE. E
ORLANDO, FLORIDA 32817
PHONE: (407) 745-5604
FAX: (407) 745-5603
C.O.A. No. 8079
LILLIAN M. REYES, P.E.
Florida P.E. No. 50780

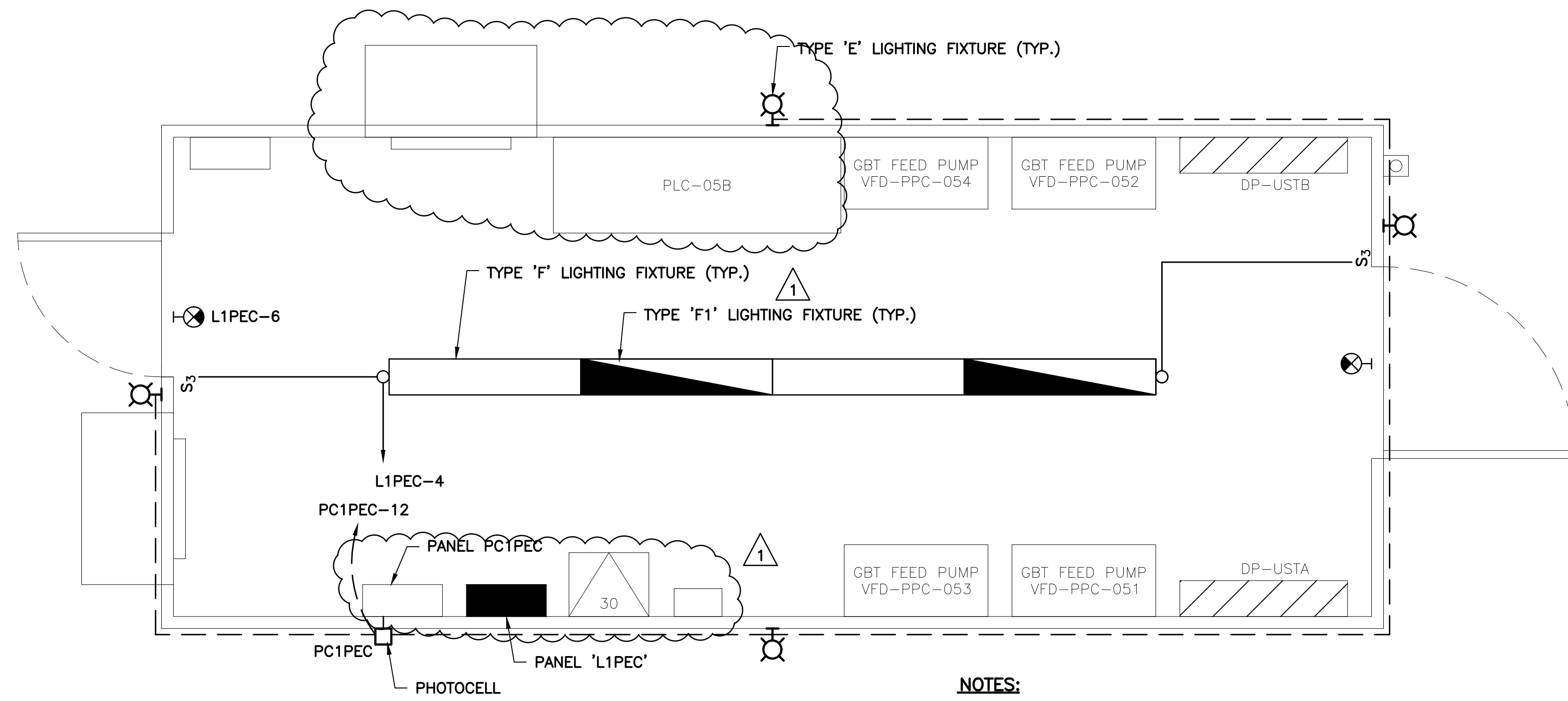
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SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS
ELECTRICAL
GBT POWER EQUIPMENT CENTER-1 (PEC-1)
POWER PLAN



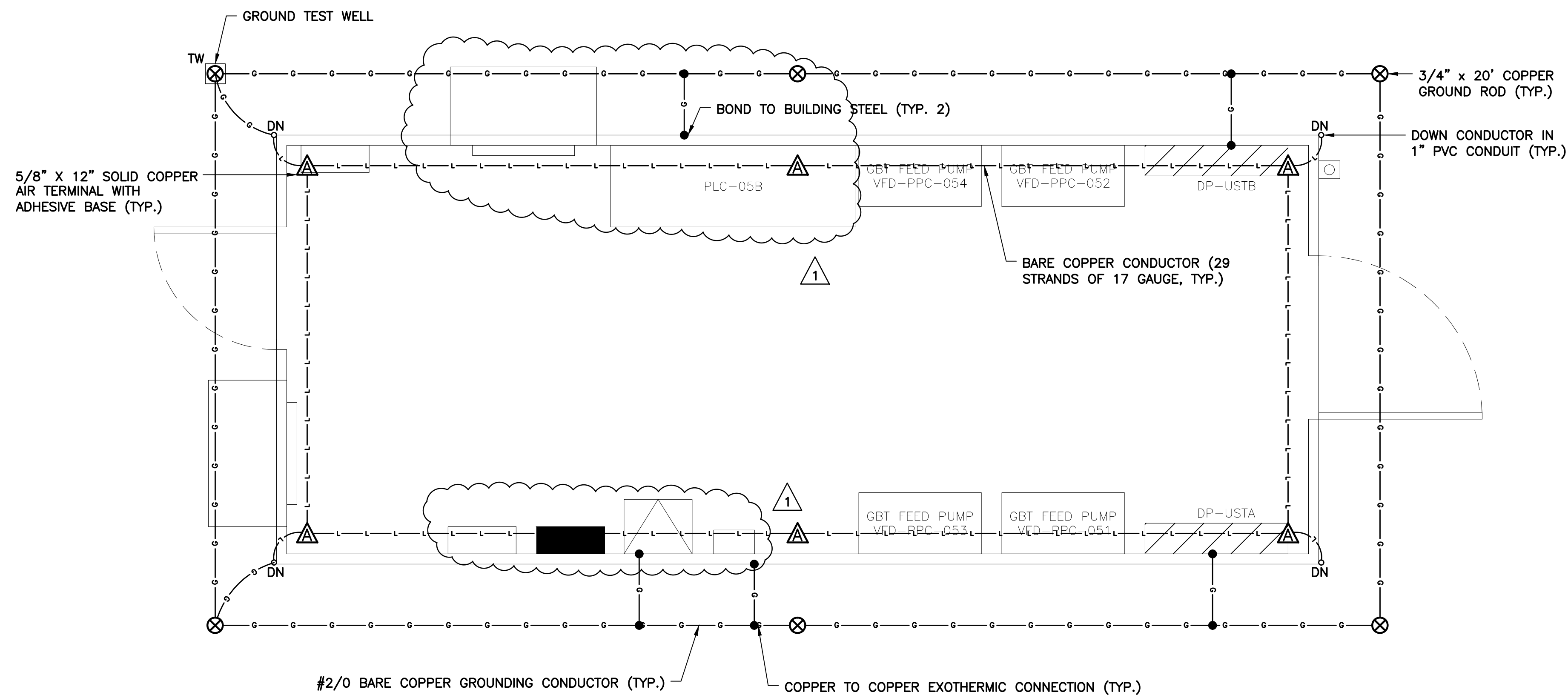
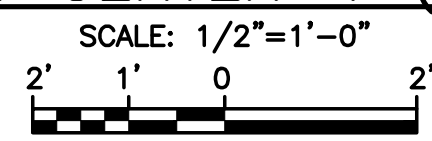
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 D180761

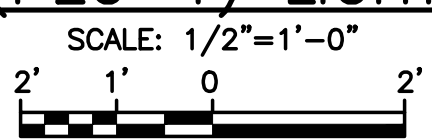


NOTES:
 ① EXIT LIGHTING FIXTURES SHALL BE WIRED TO THE LINE SIDE OF THE NEAREST SWITCH.

GBT POWER EQUIPMENT CENTER-1 (PEC-1) LIGHTING PLAN



GBT POWER EQUIPMENT CENTER-1 (PEC-1) LIGHTNING PROTECTION/GROUNDING PLAN



0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1"
 THEN DRAWING IS NOT TO FULL SCALE

ADDENDUM NO. 2	1	DD	LMR	LMR
BID ISSUE				
REVISIONS AND RECORD OF ISSUE				
CYBNET ID:				
DATE:				
NO.				
BY				
CHK				
APP				

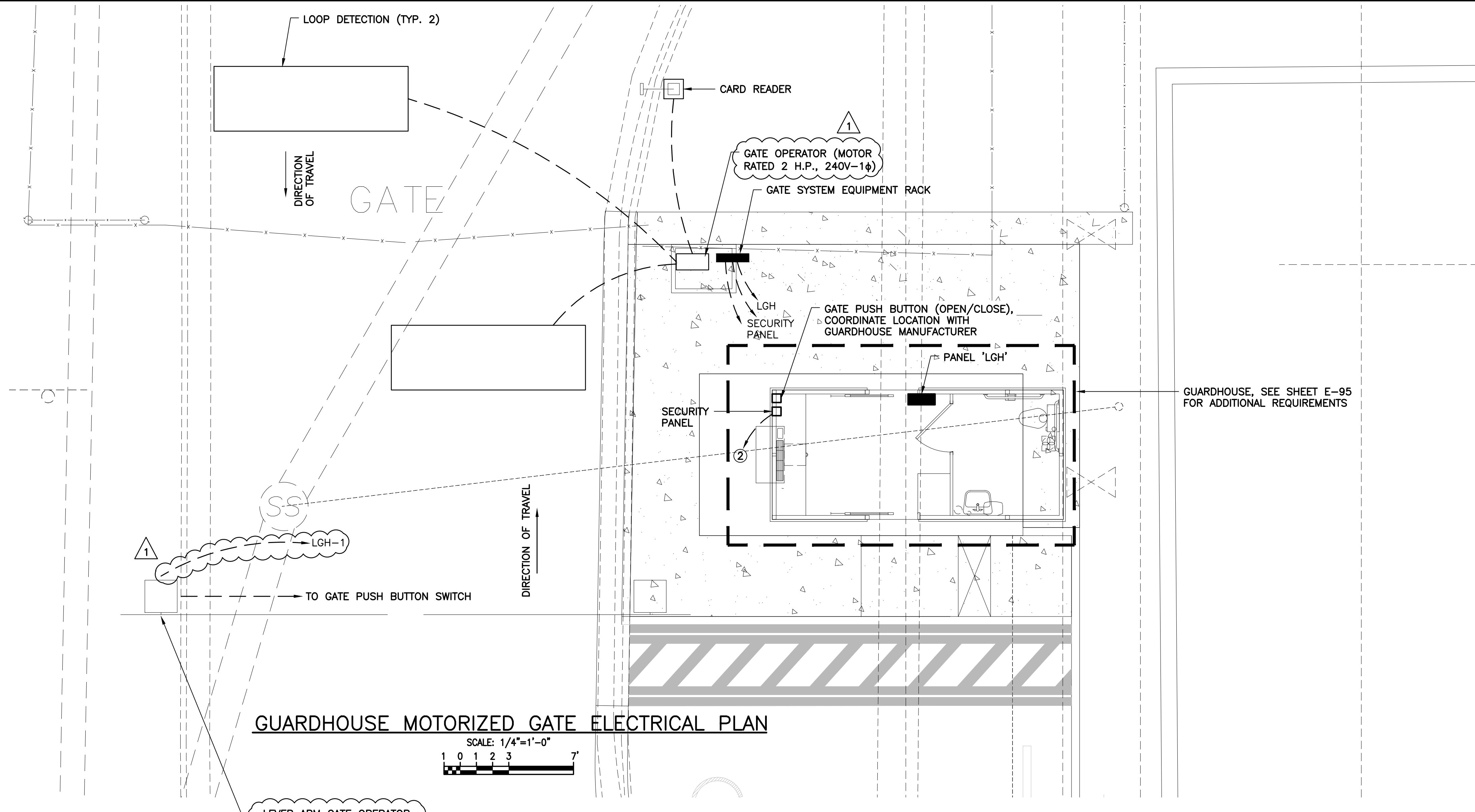
EDDA
 Electrical Design Associates
 4783 SOUTH CONWAY ROAD, STE. E
 ORLANDO, FLORIDA 32812
 PHONE: (407) 745-5604
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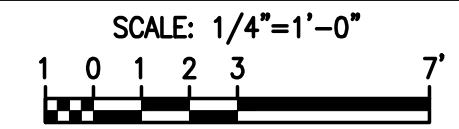
ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 ELECTRICAL
 GBT POWER EQUIPMENT CENTER-1 (PEC-1)
 LIGHTING & LIGHTNING PROTECTION PLAN

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50780
 PROJECT NO.
 180761
 E-90
 SHEET
 309 OF 364

Package Project/Black & Veatch/Orange County/SWR Phase V Improvements/1_Phase V15_Addendum No. 2/Design/309_E-90_GBT PEC-1_L1B.dwg, 22 X 34, 10/13/2015 9:25:38 AM
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GUARDHOUSE MOTORIZED GATE ELECTRICAL PLAN



- NOTES:**
- EXISTING GUARDHOUSE LIGHTING PANEL, MAIN FEEDER AND GUARDHOUSE/GATE SYSTEM ELECTRICAL EQUIPMENT TO BE DISCONNECTED AND REMOVED.
 - CONTRACTOR SHALL INSTALL 1-2" SPARE CONDUIT FROM SECURITY PANEL TO EXISTING PLC-05A IN THE DEWATERING BUILDING ELECTRICAL ROOM FOR FUTURE USE. SEE SHEET E-83 FOR LOCATION.
 - SEE SPECIFICATION SECTION 02451 FOR ADDITIONAL INFORMATION ON GATE EQUIPMENT.

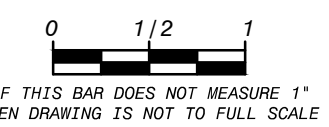
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BID ISSUE	7/2015			
REVISIONS AND RECORD OF ISSUE				
NO.	BY	CHK	APP	
CYBERNET ID:				XREF1:
WF: 3112 E-94 GUARD_GATE				XREF2:
SAVED:				XREF3:
PLOTTED:				XREF4:
USER:				DWG. VER:

EDA
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 4783 SOUTH CONWAY ROAD, STE. E
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ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS
 ELECTRICAL
 GUARDHOUSE MOTORIZED GATE
 ELECTRICAL PLAN

DESIGNED:	DD
DETAILED:	ARM
CHECKED:	LMR
APPROVED:	LMR
DATE:	JANUARY 2015
ENGINEER OF RECORD:	LILLIAN M. REYES FLORIDA LICENSE NO.: 50790
PROJECT NO.	180761
SHEET	E-94
	313 OF 364



PANEL: L1PEC													BUS: 225 AMP			VOLT: 120/208V, 3 ϕ , 4W			
LOCATION: PEC-1													MAINS: 100A, 3P			REMARKS: PROVIDE SPD			
MOUNTING: SURFACE													POLES: 24			A.I.C. SYMM: 10,000			
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			BUS A B C			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS		
						A	B	C	A	B	C								
20	1	12	12	3/4"	INTERIOR RECEPT	0.72			1	2	0.72			EXTERIOR RECEPT	12	12	3/4"	1	20
20	1	12	12	3/4"	EXT LTG		0.52		3	4		0.50		INTERIOR LIGHTING	12	12	3/4"	1	20
20	1	12	12	3/4"	PLC-05B			0.50	5	6		0.10		EXIT SIGN	12	12	3/4"	1	20
20	1	12	12	3/4"	FACP-1	0.30			7	8				SPACE				1	20
20	1	12	12	3/4"	SHUNT TRIP		0.10		9	10				SPACE					
40	3	8	12	1"	A/C UNIT #2		3.00		11	12				SPACE					
20	1					3.00			13	14	0.19			PC1PEC	10	10	1"	3	30
20	1						3.00		15	16	0.19								
20	1				SPARE				17	18	0.19								
40	3	8	12	1"	A/C UNIT #1	3.00			19	20	0.10			SPD	6	6		3	60
							3.00		21	22	0.10								
							3.00		23	24	0.10								
TOTAL (PHASE):						7.02	6.62	6.50			1.01	0.79	0.39	NOTES:					
TOTAL KVA:														1. PROVIDE SURGE PROTECTION DEVICE. REFER TO SPECIFICATION SECTION 16709.					
TOTAL AMPS:																			
TOTAL DEMAND AMPS:																			

PANEL: L2PEC													BUS: 225 AMP			VOLT: 120/208V, 3 ϕ , 4W			
LOCATION: PEC-2													MAINS: 100A, 3P			REMARKS: PROVIDE SPD			
MOUNTING: SURFACE													POLES: 24			A.I.C. SYMM: 10,000			
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			BUS A B C			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS		
						A	B	C	A	B	C								
20	1	12	12	3/4"	INTERIOR RECEPT	0.36			1	2	0.36			EXTERIOR RECEPT	12	12	3/4"	1	20
20	1	12	12	3/4"	LE/LIT-100		0.10		3	4		0.50		INTERIOR LIGHTING	12	12	3/4"	1	20
20	1	12	12	3/4"	PLC-16A			0.50	5	6		0.10		EXIT SIGN	12	12	3/4"	1	20
20	1	12	12	3/4"	FACP-2	0.30			7	8	0.18			NPTPS RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	LCP-TP1		0.20		9	10				SPACE					
20	1	12	12	3/4"	SHUNT TRIP		0.10		11	12				SPACE					
40	3	8	12	1"	A/C UNIT #2	3.00			13	14	0.70			PC2PEC	10	10	1"	3	30
							3.00		15	16	0.70								
								3.00	17	18	0.70								
40	3	8	12	1"	AC UNIT #1	3.00			19	20	0.10			SPD	6	6		3	60
							3.00		21	22	0.10								
								3.00	23	24	0.10								
TOTAL (PHASE):						6.66	6.30	6.60			1.34	1.30	0.90	NOTES:					
TOTAL KVA:														1. PROVIDE SURGE PROTECTION DEVICE. REFER TO SPECIFICATION SECTION 16709.					
TOTAL AMPS:																			
TOTAL DEMAND AMPS:																			

PANEL: L3PEC													BUS: 225 AMP			VOLT: 120/208V, 3 ϕ , 4W			
LOCATION: PEC-3													MAINS: 100A, 3P			REMARKS: PROVIDE SPD			
MOUNTING: SURFACE													POLES: 30			A.I.C. SYMM: 10,000			
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			BUS A B C			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS		
						A	B	C	A	B	C								
20	1	12	12	3/4"	INTERIOR RECEPT	0.36			1	2	0.36			EXTERIOR RECEPT	12	12	3/4"	1	20
20	1	12	12	3/4"	AE/AIT-052		0.10		3	4		0.50		INTERIOR LIGHTING	12	12	3/4"	1	20
20	1	12	12	3/4"	PLC-14A			0.50	5	6		0.10		EXIT SIGN	12	12	3/4"	1	20
20	1	12	12	3/4"	FACP-3	0.30			7	8	0.10			AE/AIT-053	12	12	3/4"	1	20
20	1	12	12	3/4"	FE/FIT-040		0.10		9	10		0.10		FE/FIT-051	12	12	3/4"	1	20
20	1	12	12	3/4"	FE/FIT-045			0.10	11	12		0.90		N. CLAR. NO. 3 RECEPT	12	12	3/4"	1	20
20	1	12	12	3/4"	LCP-05	0.20			13	14	0.62			PC3PEC	10	10	1"	3	30
20	1	12	12	3/4"	N2-FE/FIT-1		0.10		15	16		0.62							
20	1	12	12	3/4"	N2-ROF RECEPTACLE		0.72		17	18		0.62							
40	3	8	12	1"	A/C UNIT #1	3.00			19	20	3.00			A/C UNIT #2	8	12	1"	3	40
							3.00		21	22	3.00								
								3.00	23	24	3.00								
20	1	12	12	3/4"	SHUNT TRIP	0.10			25	26	0.10			SPD	6	6		3	60
20	1	12	12	3/4"	LE/LIT-201A		0.10		27	28		0.10							
20	1	12	12	3/4"	LE/LIT-201B			0.10	29	30		0.10							
20	1				SPARE				31	32				SPARE				1	20
20	1				SPARE				33	34				SPARE				1	20
20	1				SPARE				35	36				SPARE				1	20
20	1				SPARE				37	38				SPARE				1	20
20	1				SPARE				39	40				SPARE				1	20
20	1				SPARE				41	42				SPARE				1	20
TOTAL (PHASE):						3.96	3.40	4.42			4.18	4.32	4.72	NOTES:					
TOTAL KVA:														1. PROVIDE SURGE PROTECTION DEVICE. REFER TO SPECIFICATION SECTION 16709.					
TOTAL AMPS:																			
TOTAL DEMAND AMPS:																			

PANEL: PC1PEC													BUS: 60 AMP			VOLT: 120/208V, 3 ϕ , 4W			
LOCATION: PEC-1													MAINS: 30A, 3P			REMARKS: -			
MOUNTING: SURFACE													POLES: 18			A.I.C. SYMM: 10,000			
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			BUS A B C			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS		
						A	B	C	A	B	C								
20	1				SPARE				1	2				SPARE	12	12	3/4"	1	20
20	1				SPARE				3	4				SPARE	12	12	3/4"	1	20
20	3	12	12	3/4"	PC CONTACTOR				5	6				PC CONTACTOR	12	12	3/4"	3	20
								0.30	7	8									
									9	10									
									11	12									
20	1	10	10	1"	GBT LIGHTING			0.11	13	14		0.44		PEC-1 EXIT LIGHTING	12	12	3/4"	1	20
20	1				SPARE				15	16				SPARE				1	20
20	1				SPARE				17	18				SPARE				1	20
20	1				SPARE									SPARE				1	20
TOTAL (PHASE):								0.11					0.44	NOTES:					
TOTAL KVA:														-					
TOTAL AMPS:														1.53					
TOTAL DEMAND AMPS:														1.53					

PANEL: PC2PEC													BUS: 60 AMP			VOLT: 120/208V, 3 ϕ , 4W			
LOCATION: PEC-2													MAINS: 30A, 3P			REMARKS: -			
MOUNTING: SURFACE													POLES: 18			A.I.C. SYMM: 10,000			
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			BUS A B C			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS		
						A	B	C	A	B	C								
20	1				SPARE				1	2				SPARE	12	12	3/4"	1	20
20	1				SPARE				3	4				SPARE	12	12	3/4"	1	20
20	3	12	12	3/4"	PC CONTACTOR				5	6				PC CONTACTOR	12	12	3/4"	3	20
								0.30	7	8									
									9	10									
									11	12									
20	1	10	10	1"	N. PTPS LIGHTING			0.44	13	14		0.44		PEC-2 EXIT LIGHTING	12	12	3/4"	1	20
20	1	10	10	1"	PEC-2 SITE LTG			0.11	15	16		0.55		NORTH PLANT FILTER LTG	10	10	1"	1	20
20	1				SPARE				17	18		0.55		NORTH PLANT FILTER LTG	10	10	1"	1	20
20	1				SPARE									SPARE	10	10	1"	1	20
TOTAL (PHASE):						0.11		0.44				0.55	0.44	0.44	NOTES:				
TOTAL KVA:															2.09				
TOTAL AMPS:														5.80					
TOTAL DEMAND AMPS:														5.80					

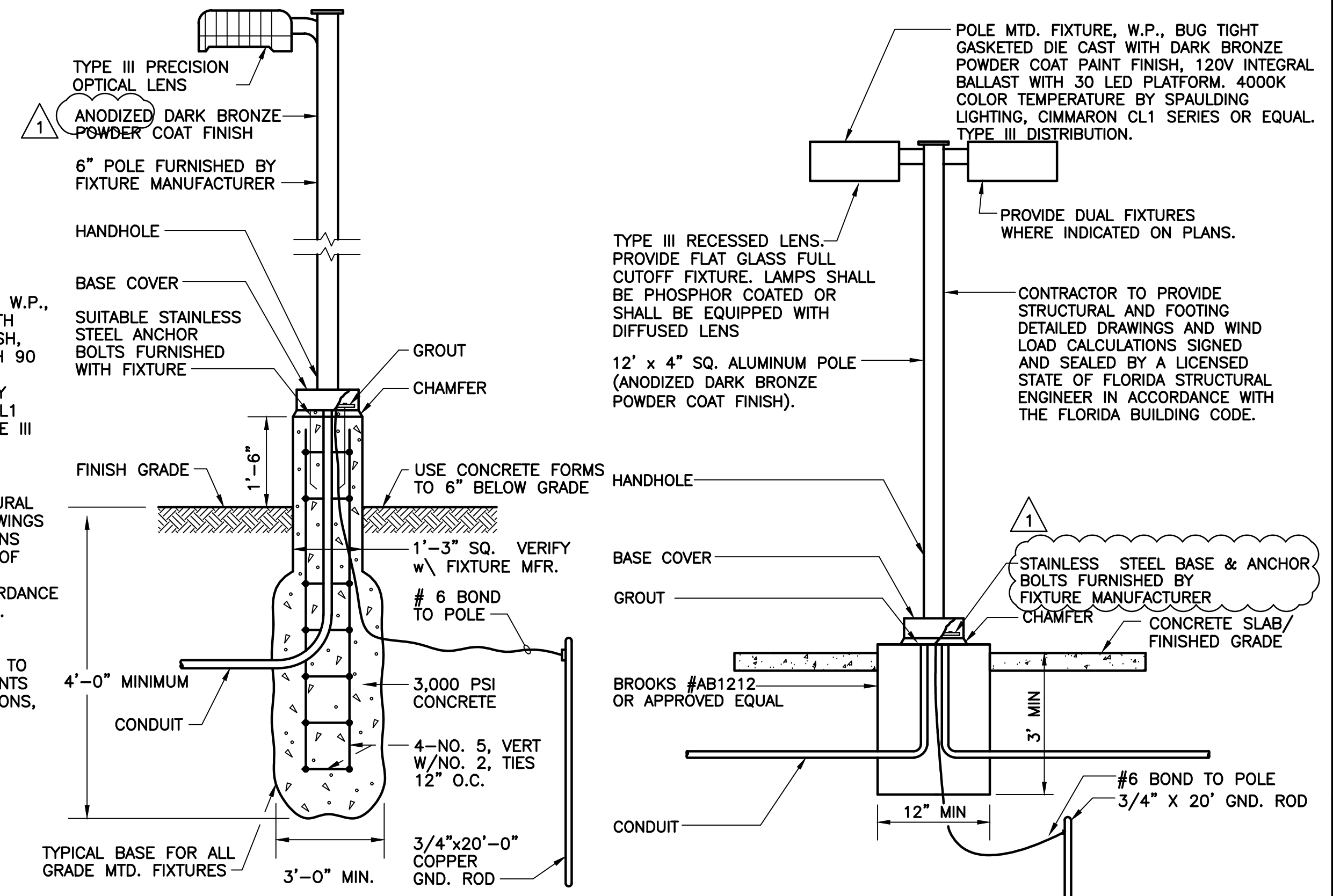
PANEL: PC3PEC													BUS: 60 AMP			VOLT: 120/208V, 3 ϕ , 4W			
LOCATION: PEC-3													MAINS: 30A, 3P			REMARKS: -			
MOUNTING: SURFACE													POLES: 18			A.I.C. SYMM: 10,000			
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			BUS A B C			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS		
						A	B	C	A	B	C								
20	1				SPARE				1	2				SPARE	12	12	3/4"	1	20
20	1				SPARE				3	4				SPARE	12	12	3/4"	1	20
20</																			

LIGHTING FIXTURE SCHEDULE

TYPE	WATT	DESCRIPTION	MANUFACTURER	SERIES TYPE
A-D		REFER TO LIGHTING FIXTURE DETAILS THIS SHEET.	AS NOTED	AS NOTED
E	44.5	FULL CUT-OFF WALLPACK. DECORATIVE, DIE-CAST ALUMINUM HOUSING AND DOOR. WHITE BRONZE POWDER PAINT FINISHES PROVIDING A LASTING APPEARANCE IN OUTDOOR ENVIRONMENTS. 18 HIGH POWER LEDS, 2038 LUMENS. 4000K/70 CRI. 120V, TYPE III DISTRIBUTION.	HUBBELL OR EQUAL	LAREDO SERIES LMC-18-LEDS
F1	100	4 FT. ONE-PIECE SEAM WRAP AROUND POLYCARBONATE LENS. SURFACE MOUNTED FIXTURE WITH 16 GAUGE COLD ROLLED STEEL. BASEPLATE WITH SIX-POINT MOUNTING. 4000K LED 50W WITH DIMMER CONSTANT CURRENT LED DRIVER. UL LISTED FOR DAMP AND WET LOCATIONS 120V WITH EMERGENCY BATTERY PACK WITH SINGLE FUSE AND HOLDER.	KENALL OR EQUAL	NOVA I N548 SERIES (7100) - LED
F	100	4 FT. ONE-PIECE SEAM WRAP AROUND POLYCARBONATE LENS. SURFACE MOUNTED FIXTURE WITH 16 GAUGE COLD ROLLED STEEL. BASEPLATE WITH SIX-POINT MOUNTING. 4000K LED 50W WITH DIMMER CONSTANT CURRENT LED DRIVER. UL LISTED FOR DAMP AND WET LOCATIONS 120V WITH SINGLE FUSE AND HOLDER.	KENALL OR EQUAL	NOVA I N548 SERIES (7100) - LED
G	175	LED SUSPENDED 12,000 LUMENS, HIGH BAY INDUSTRIAL TYPE, MEDIUM DISTRIBUTION, SEMI-DIFFUSE ACRYLIC 120V, 70CR1, 4000K CCT, TEXTURED DARK GRAY FINISH WITH ALUMINUM ACCENTS.	LITHONIA LIGHTING OR EQUAL	TE E17
G1	175	SAME AS TYPE 'G'. EXCEPT WITH EMERGENCY BATTERY PACK	LITHONIA LIGHTING OR EQUAL	TE E17
H1		2'x4' HIGH EFFICIENCY TROFFER-STATIC LED WITH EMERGENCY BATTERY PACK	HE WILLIAMS OR EQUAL	HET LED SERIES
H		2'x4' HIGH EFFICIENCY TROFFER-STATIC LED WITHOUT EMERGENCY BATTERY PACK	HE WILLIAMS OR EQUAL	HET LED SERIES
		4 RED HIGH OUTPUT LEDS, MAINTENANCE FREE NICKEL CADMIUM BATTERY, TEXTURED WHITE WITH BRUSHED ALUMINUM FACE, 6 INCH LETTERS, BREAK-OUT TYPE DIRECTIONAL ARROWS EXIT SIGNS.	DUAL-LITE	L SERIES
	4	NEMA 4X, SUITABLE FOR USE IN DAMP LOCATIONS, WATERTIGHT AND DUST-TIGHT SEAL, CORROSION RESISTANT POLYCARBONATE HOUSING AND COVER, RED HIGH OUTPUT LEDS, MAINTENANCE FREE NICKEL CADMIUM BATTERY, EXIT SIGNS.	PRESCOLITE	LN4XP SERIES

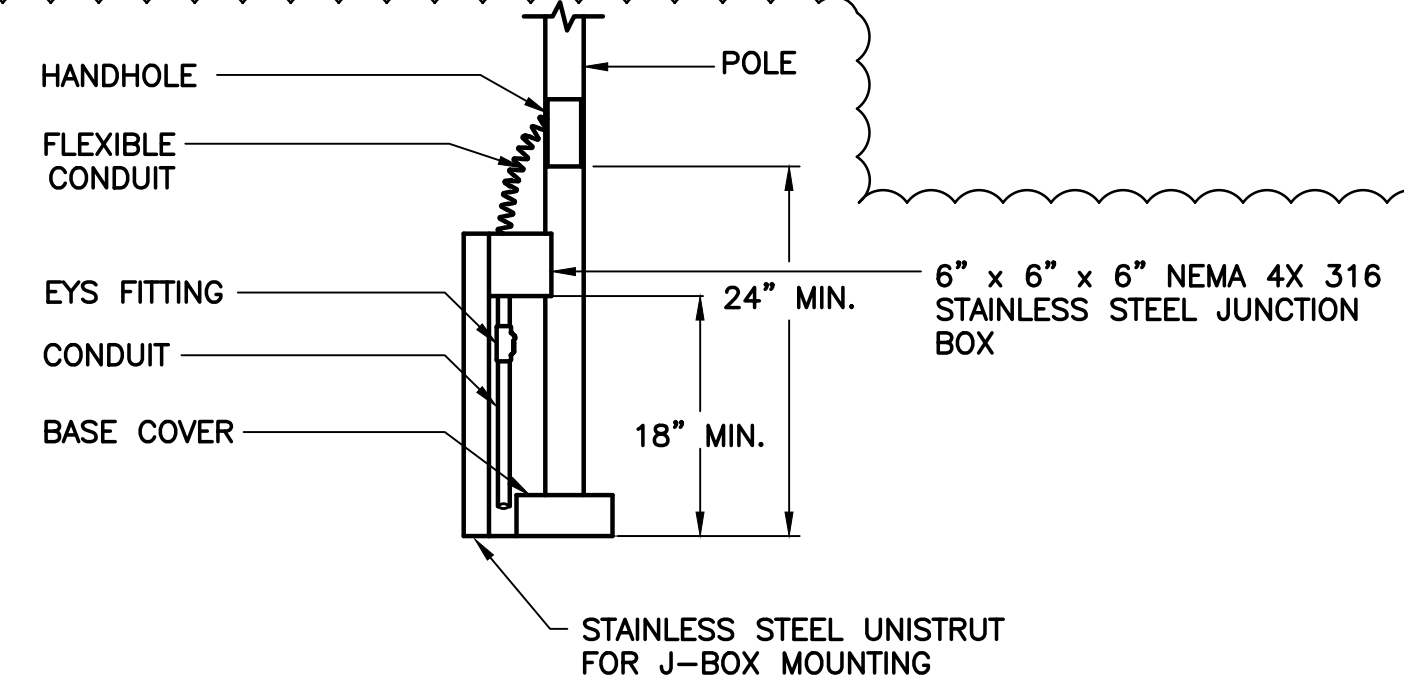
NOTES:

- POLE MTD. LED LIGHTING FIXTURE. W.P., BUGTIGHT, GASKETED DIE CAST WITH DARK BRONZE POWDER COAT FINISH, MULTI-TAP INTEGRAL BALLAST WITH 90 LED PLATFORM, 4000 K COLOR TEMPERATURE. MANUFACTURED BY SPAULDING LIGHTING, CIMMARON CL1 SERIES OR APPROVED EQUAL. TYPE III DISTRIBUTION.
- 25' SQUARE ALUMINUM POLE. CONTRACTOR TO PROVIDE STRUCTURAL POLE AND FOOTING DETAILED DRAWINGS INCLUDING WIND LOAD CALCULATIONS SIGNED AND SEALED BY A STATE OF FLORIDA STRUCTURAL ENGINEER. CALCULATIONS SHALL BE IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
- DETAIL IS NOT INTENDED AS AN INSTALLATION DETAIL, CONTRACTOR TO CONFIRM INSTALLATION REQUIREMENTS BASED ON STRUCTURAL CALCULATIONS, SEE NOTE ABOVE.



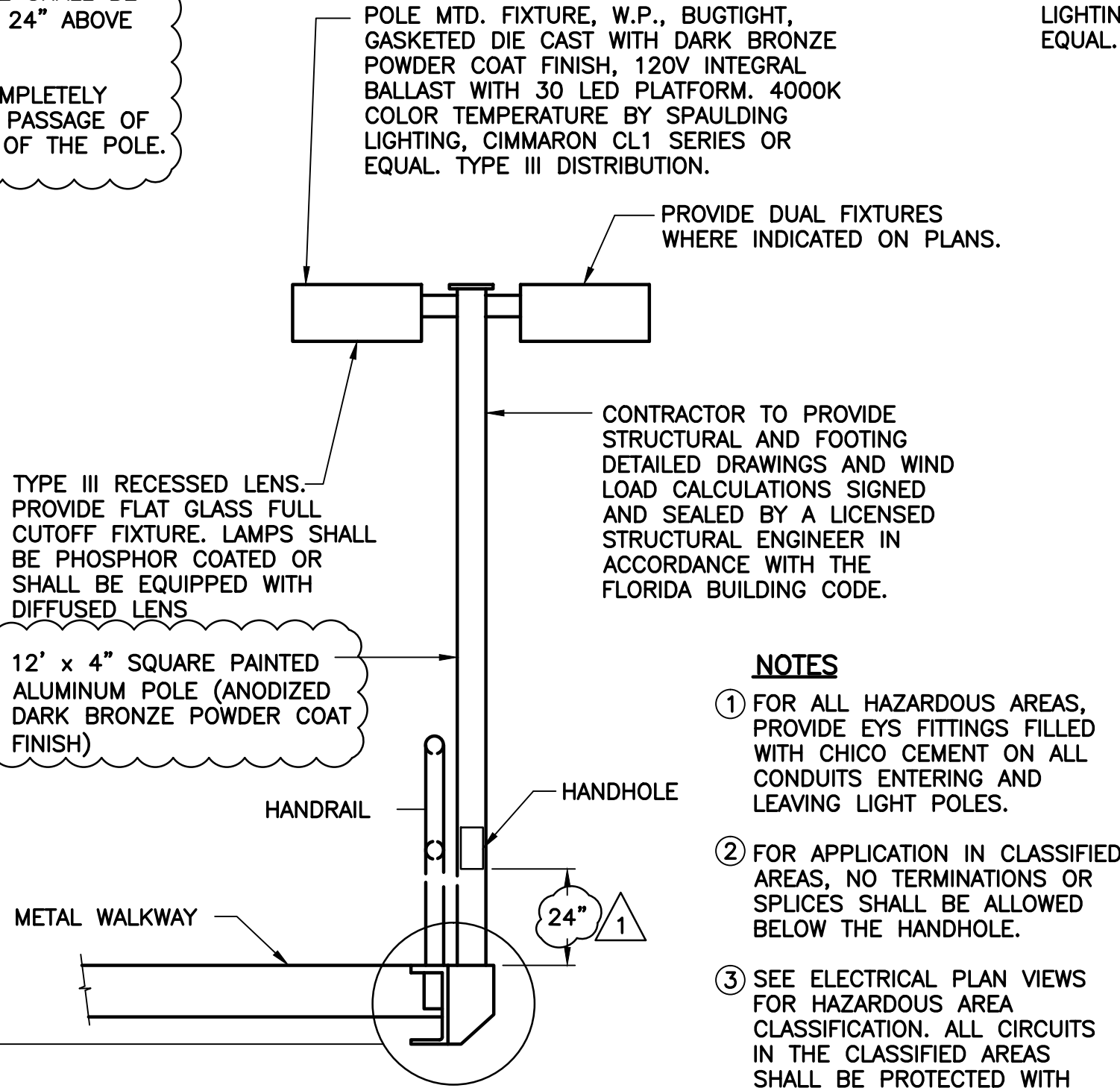
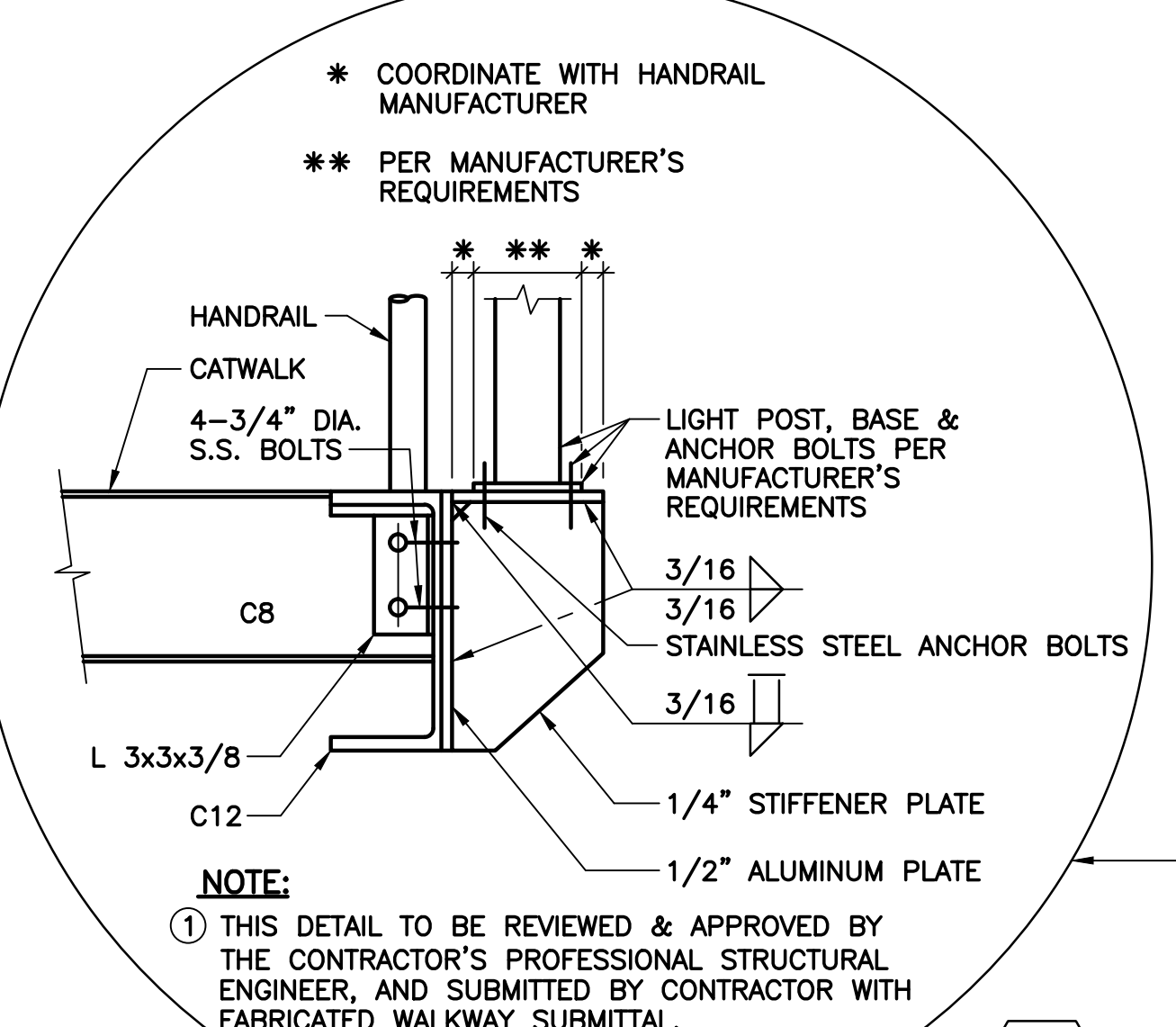
1 TYP TYPE 'A' POLE MOUNTED FIXTURE DETAIL
N.T.S.

2 TYP POLE MOUNTED TYPE 'B' FIXTURE DETAIL
N.T.S.



- NOTES:**
- CONTRACTOR SHALL COORDINATE HANDHOLE POSITION WITH THE POLE MANUFACTURER. HANDHOLE SHALL BE INSTALLED A MINIMUM OF 24" ABOVE THE BASE OF THE POLE.
 - POLE BASE SHALL BE COMPLETELY SEALED TO PREVENT THE PASSAGE OF GAS THROUGH THE BASE OF THE POLE.

5 TYP TYPICAL EYS INSTALLATION FOR LIGHTING FIXTURE POLES
N.T.S.



- NOTES:**
- FOR ALL HAZARDOUS AREAS, PROVIDE EYS FITTINGS FILLED WITH CHICO CEMENT ON ALL CONDUITS ENTERING AND LEAVING LIGHT POLES.
 - FOR APPLICATION IN CLASSIFIED AREAS, NO TERMINATIONS OR SPLICES SHALL BE ALLOWED BELOW THE HANDHOLE.
 - SEE ELECTRICAL PLAN VIEWS FOR HAZARDOUS AREA CLASSIFICATION. ALL CIRCUITS IN THE CLASSIFIED AREAS SHALL BE PROTECTED WITH EYS SEAL TYPE FITTINGS.

4 TYP ELEVATED WALKWAY POLE MOUNTED TYPE 'D' FIXTURE DETAIL
N.T.S.

3 TYP METAL WALKWAY POLE MTD. TYPE 'C' FIXTURE DETAIL
N.T.S.

ADDENDUM NO. 2	7/2015	DATE	REVISED AND RECORD OF ISSUE	NO. BY CHK. APP.

EDDA
 Electrical Design Associates
 4783 SOUTH CONWAY ROAD, STE. E
 ORLANDO, FLORIDA 32818
 PHONE: (407) 745-5604
 FAX: (407) 745-5603
 C.O.A. No. 8079
 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50780

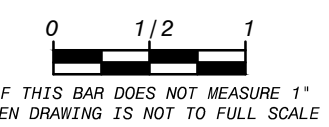
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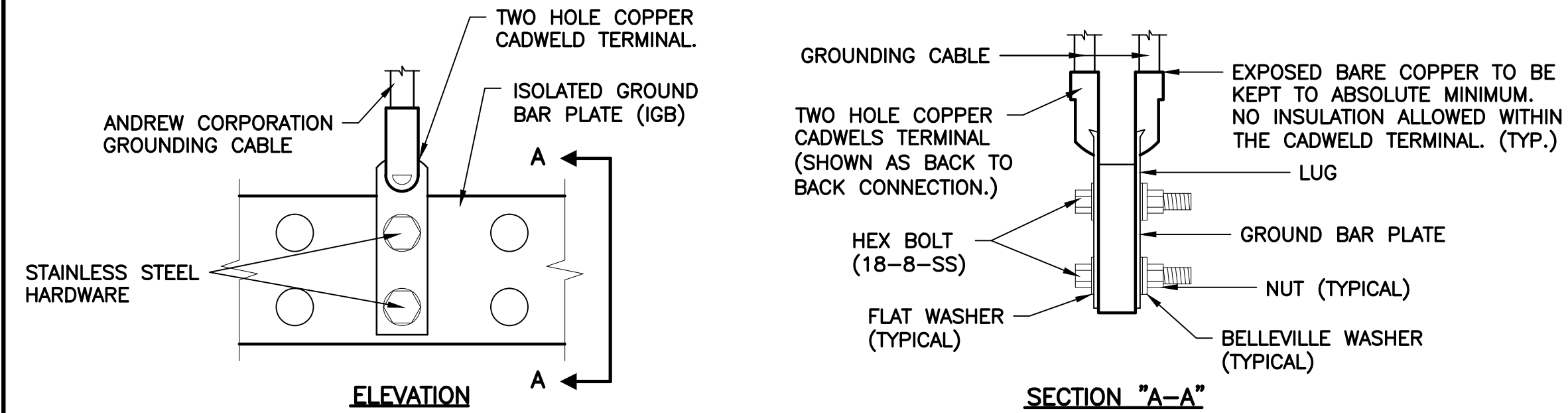
Black & Veatch Corporation
 201 South Orange Avenue, Suite 500
 Orlando, Florida 32801

ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS

ELECTRICAL
 LIGHTING
 DETAILS

DESIGNED: DD
DETAILED: ARM
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES FLORIDA LICENSE NO.: 50780
PROJECT NO. 180761
E-105 SHEET 324 OF 364



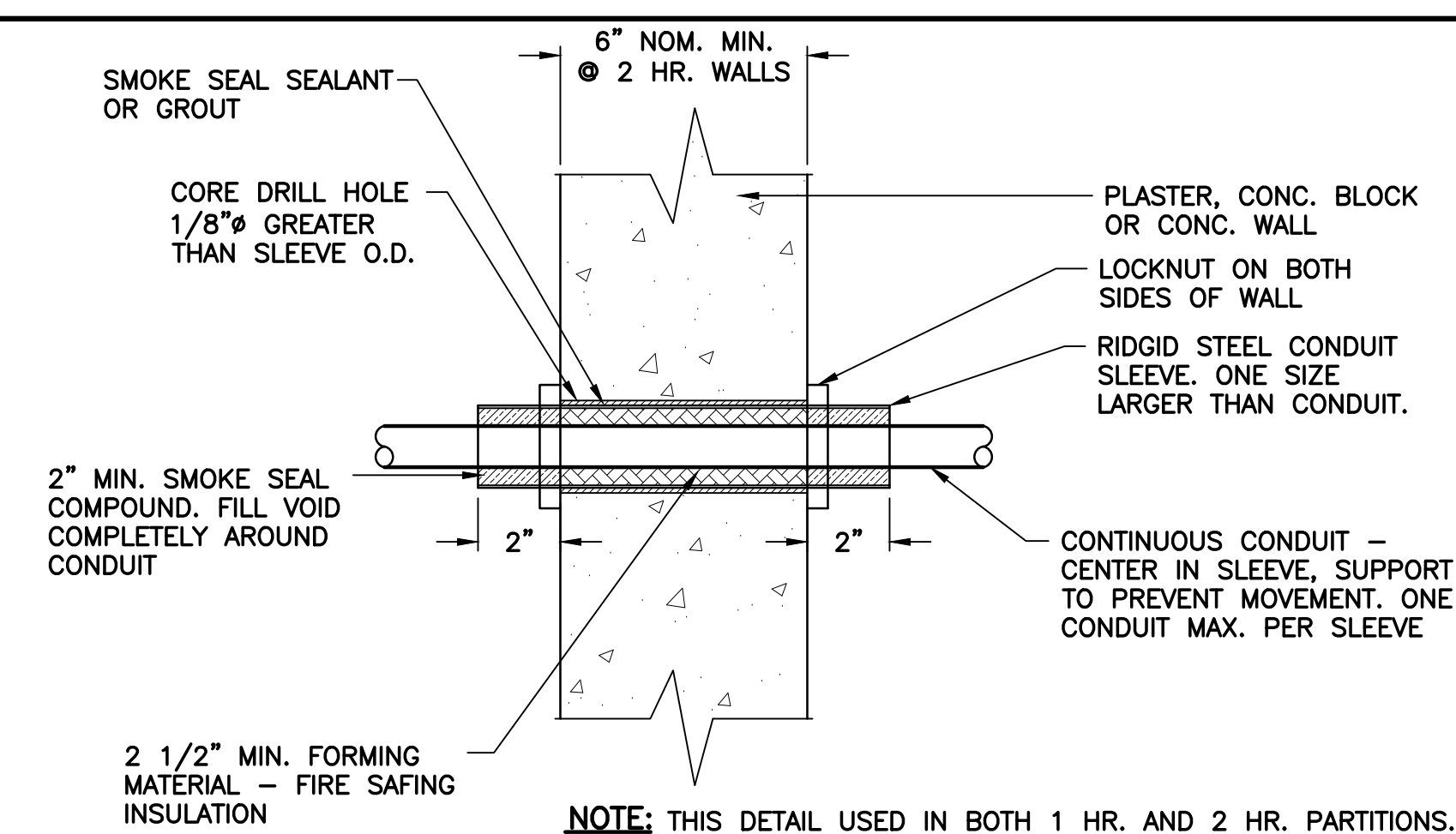


1
TYP.

TYPICAL GROUND BAR PLATE CONNECTIONS DETAIL

SCALE: N.T.S.

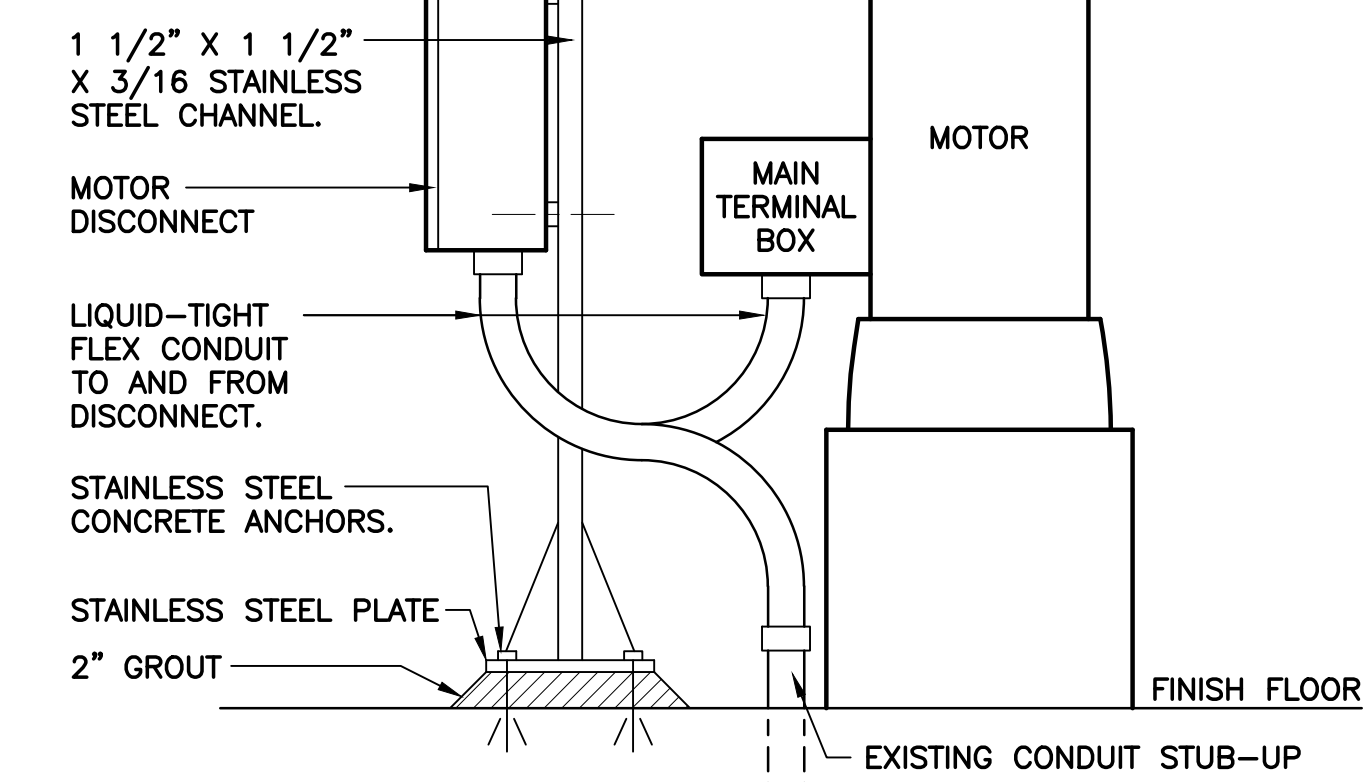
- NOTES:**
- DOUBLING UP OR 'STACKING' OF CONNECTIONS IS NOT PERMITTED. OXIDE - INHIBITING JOINT COMPOUND TO BE USED ON ALL CONNECTIONS. BACK TO BACK CONNECTIONS SHALL BE USED ONLY WHEN NUMBER OF CONNECTIONS TO FRONT OF BAR EXCEEDS NUMBER OF HOLES.
 - FOR LUG TO STEEL - INSERT DRAGON TOOTH (LOCK WASHER) BETWEEN LUG AND STEEL.



2
TYP.

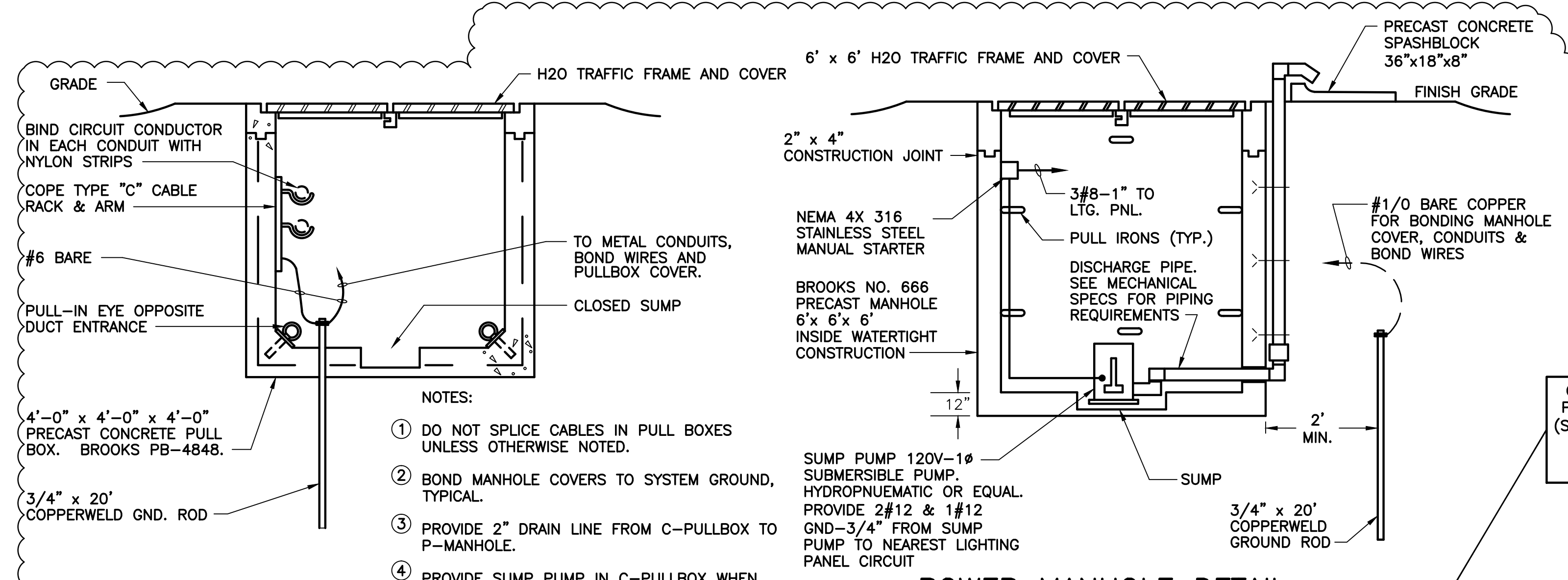
CONDUIT SLEEVE DETAIL AT WALL

SCALE: N.T.S.



6
TYP.

TYPICAL DISCONNECT FOR EXISTING MOTORS



POWER MANHOLE DETAIL

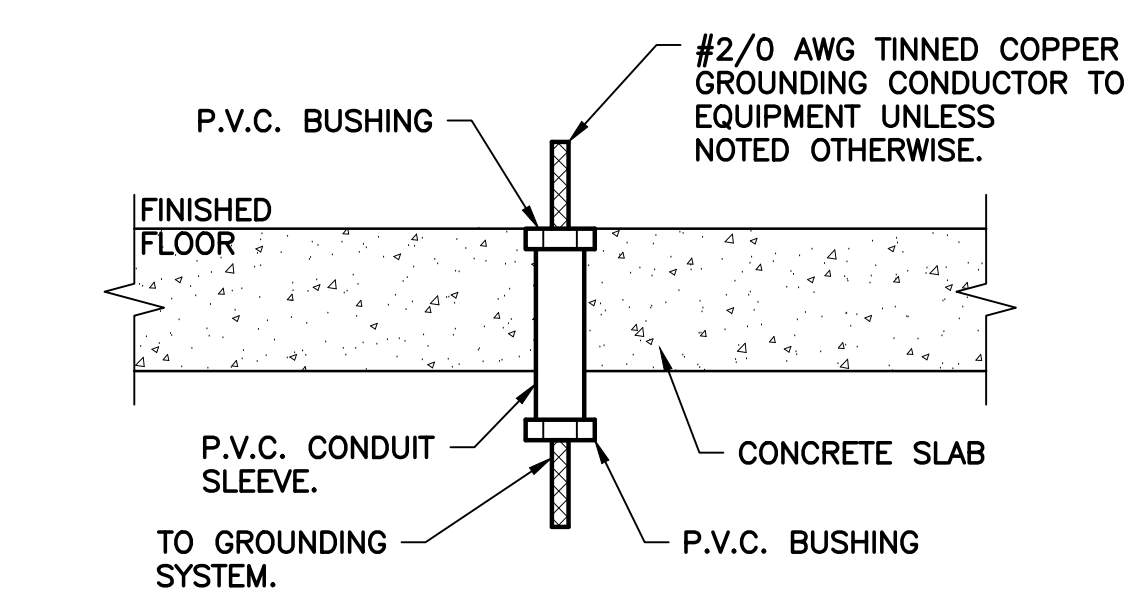
N.T.S.

- NOTES:**
- DO NOT SPLICE CABLES IN PULL BOXES UNLESS OTHERWISE NOTED.
 - BOND MANHOLE COVERS TO SYSTEM GROUND, TYPICAL.
 - PROVIDE 2" DRAIN LINE FROM C-PULLBOX TO P-MANHOLE.
 - PROVIDE SUMP PUMP IN C-PULLBOX WHEN NOT LOCATED ADJACENT TO A P-MANHOLE.

3
TYP.

CONTROL PULL BOX DETAIL

N.T.S.

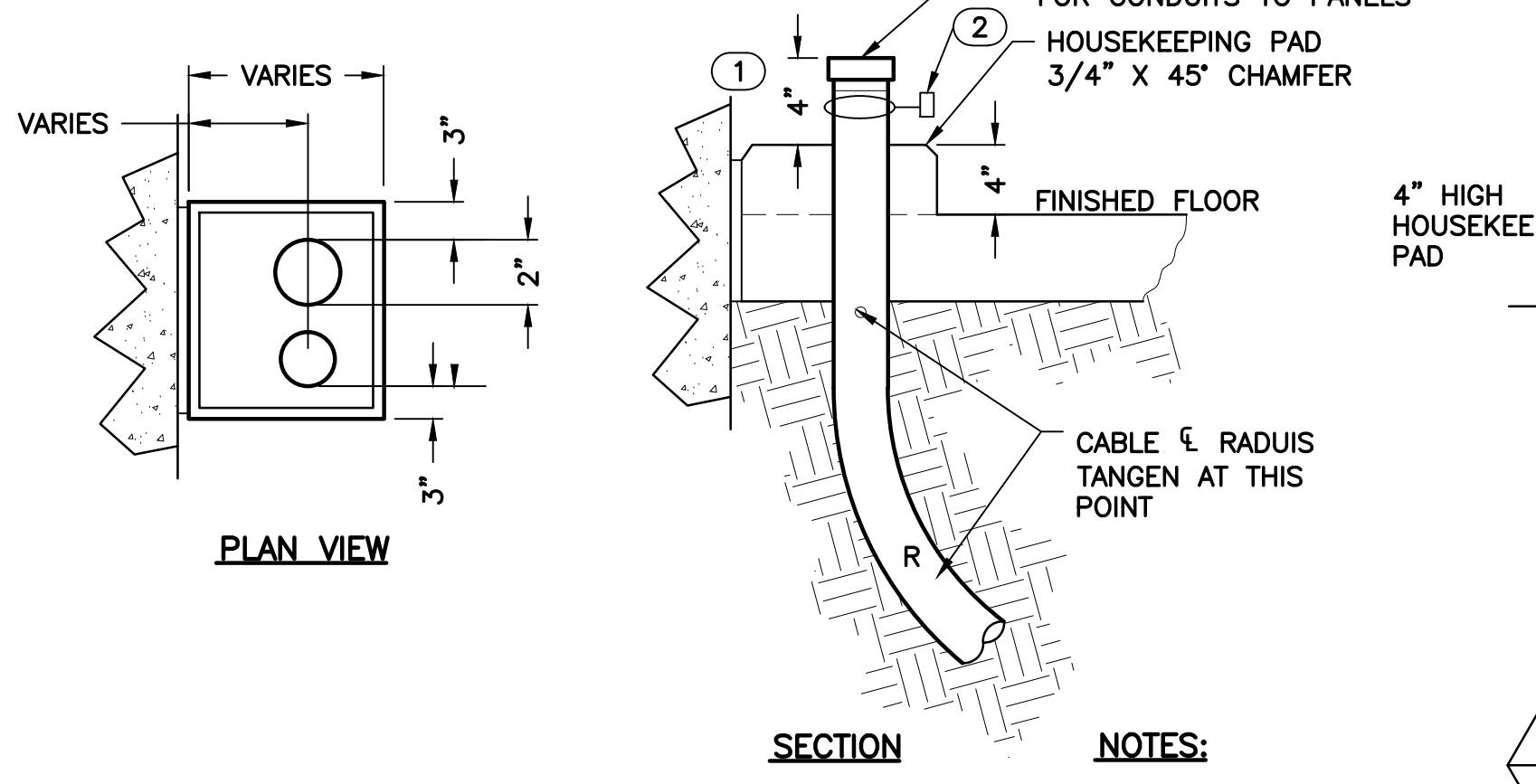


NOTE:
EXTEND PVC CONDUIT TO TOP OF BASE, OR PEDESTAL FOR BASE OR PEDESTAL MOUNTED EQUIPMENT. SUPPORT AT (2) PLACES (MINIMUM).

7
TYP.

GROUNDING CONDUIT SLEEVE DETAIL

SCALE: N.T.S.



8
TYP.

TYPICAL CONDUIT THRU SLAB

SCALE: N.T.S.

- NOTES:**
- 1" AT SWITCHGEAR.
 - PROVIDE 316 SS TAG WITH CONDUIT SIZE AND LOCATION OF OTHER END TIED TO CONDUIT WITH 316 SS WIRE.

9
TYP.

DETAIL OF CONDUIT TERMINATION STUB OUT

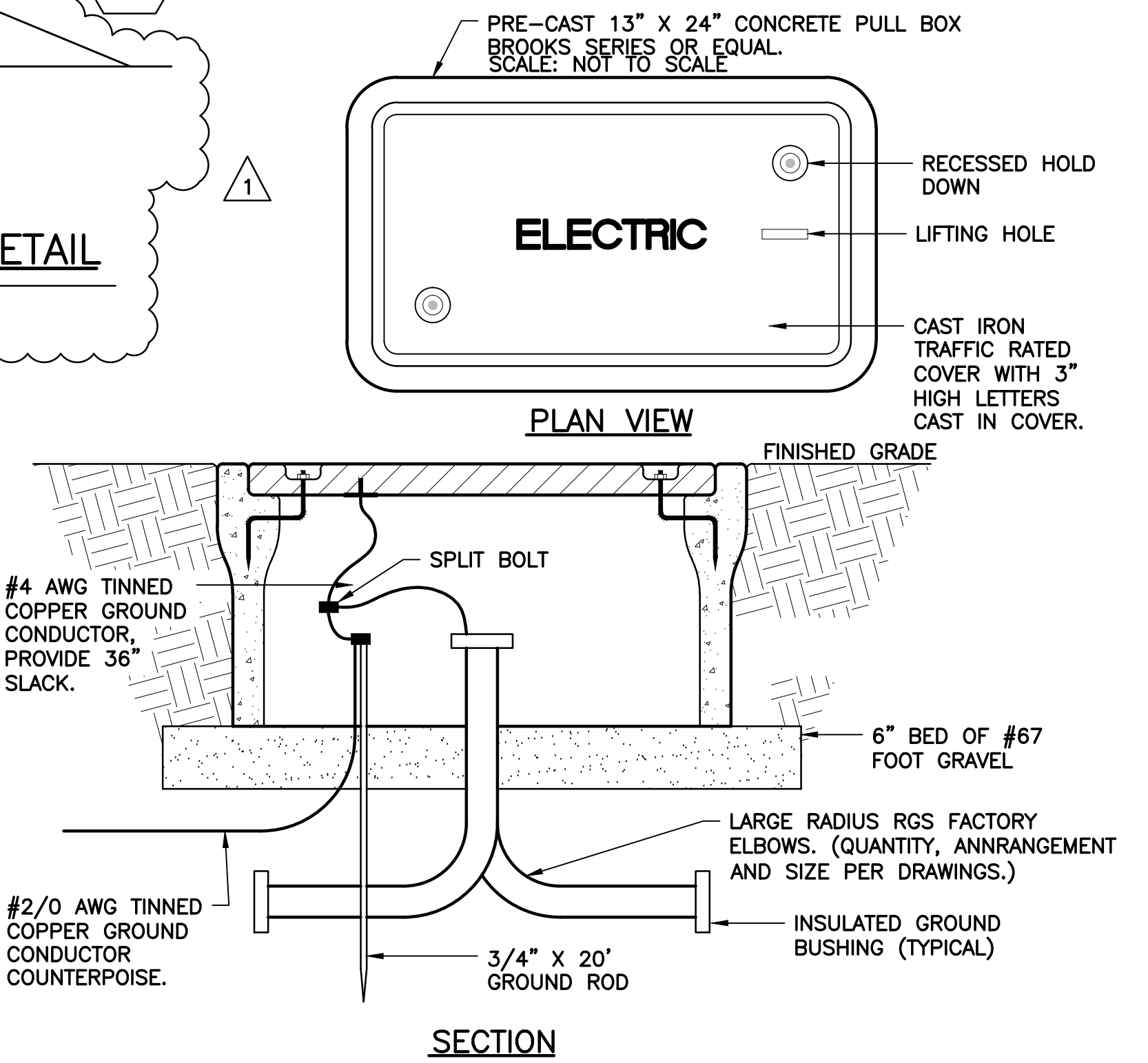
SCALE: N.T.S.



5
TYP.

PULLBOX & MANHOLE DETAIL

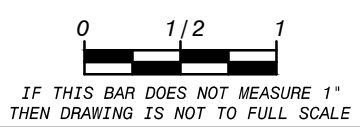
N.T.S.



10
TYP.

PRE-CAST JUNCTION BOX DETAIL

SCALE: N.T.S.



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

ADDENDUM NO. 2	DD	LMR	LMR	NO.	BY	CHK	APP
BID ISSUE	1						
REVISIONS AND RECORD OF ISSUE							
CYBNET ID:	10/12/15	DATE	7/2015				
PROJECT ID:	1011215						
WF: 325, E-106 DTLs-1							
SAVED:							
PLOTTED:							
USER:							
DWG. VER:							

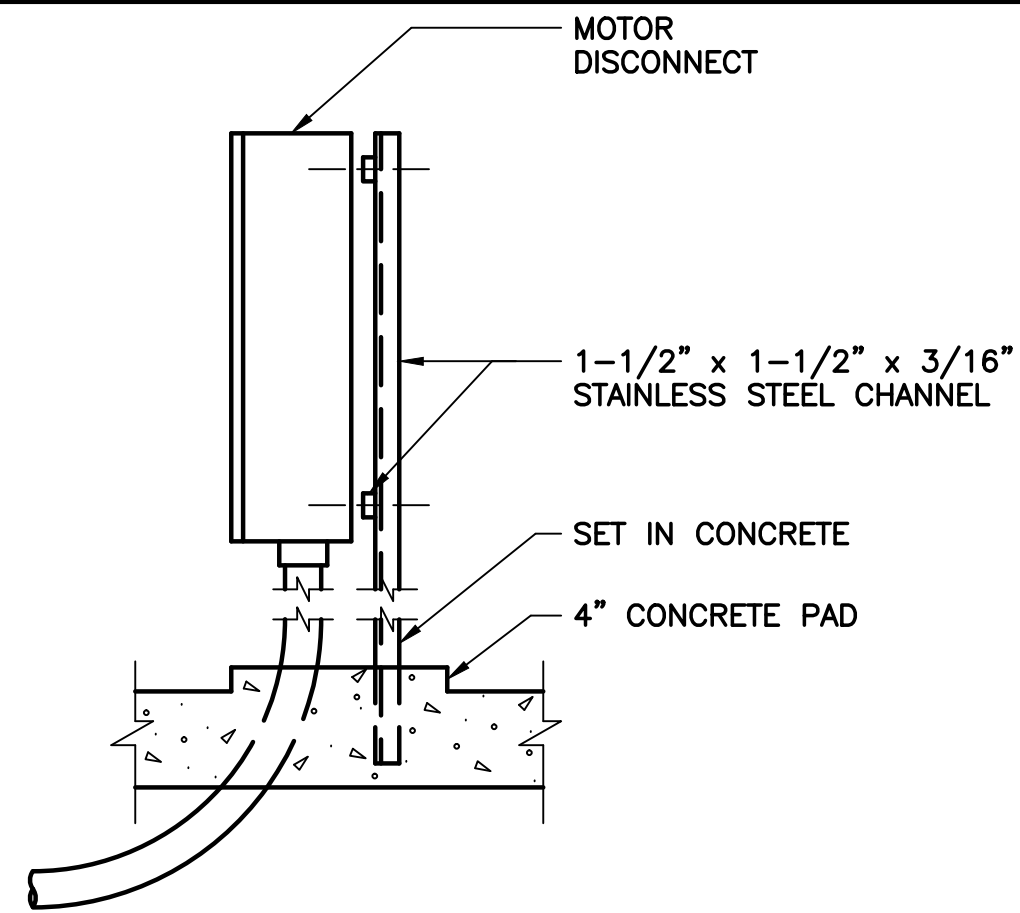
EDDA
Electrical Design Associates
4783 SOUTH CONWAY ROAD, STE. E
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PHONE: (407) 745-5604
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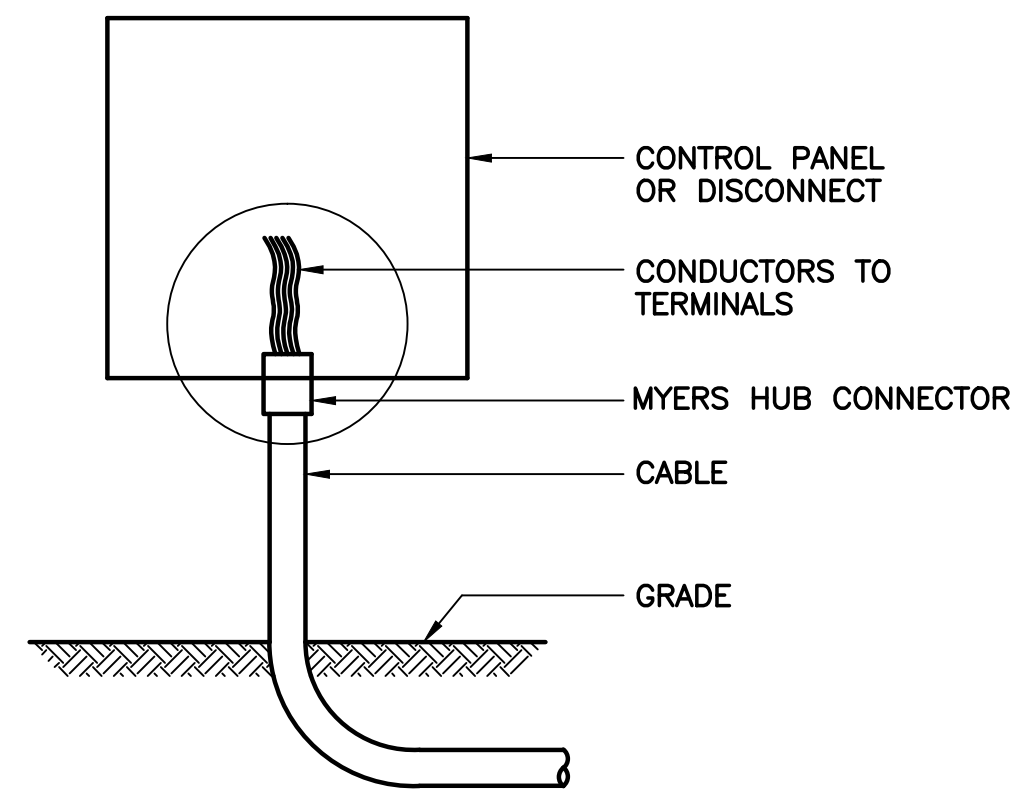
ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

ELECTRICAL
DETAILS - 1

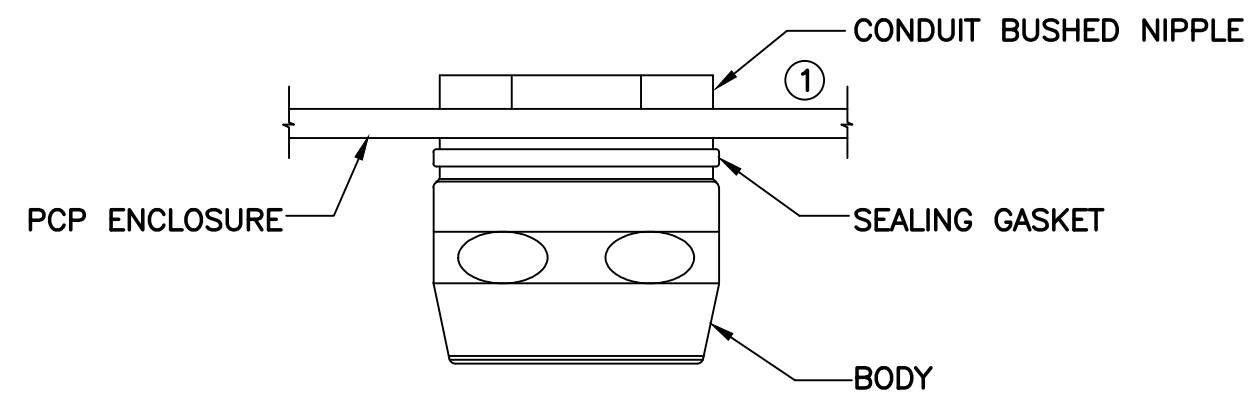
DESIGNED: DD
CHECKED: LMR
APPROVED: LMR
DATE: JANUARY 2015
ENGINEER OF RECORD: LILLIAN M. REYES
FLORIDA LICENSE NO.: 50790
PROJECT NO. 180761
E-106 SHEET
325 OF 364



1 TYP. TYP. N.T.S.

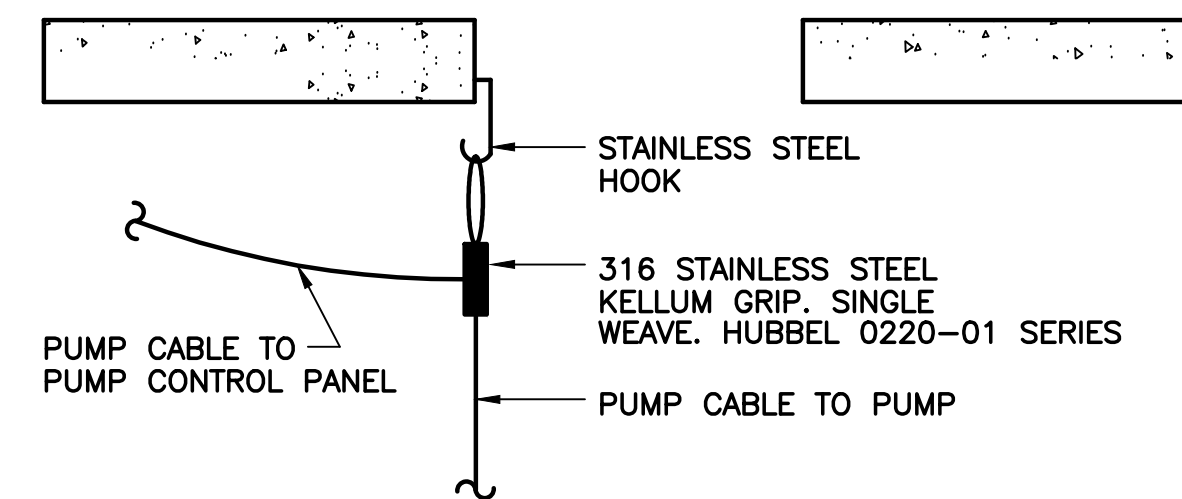


2 TYP. N.T.S.

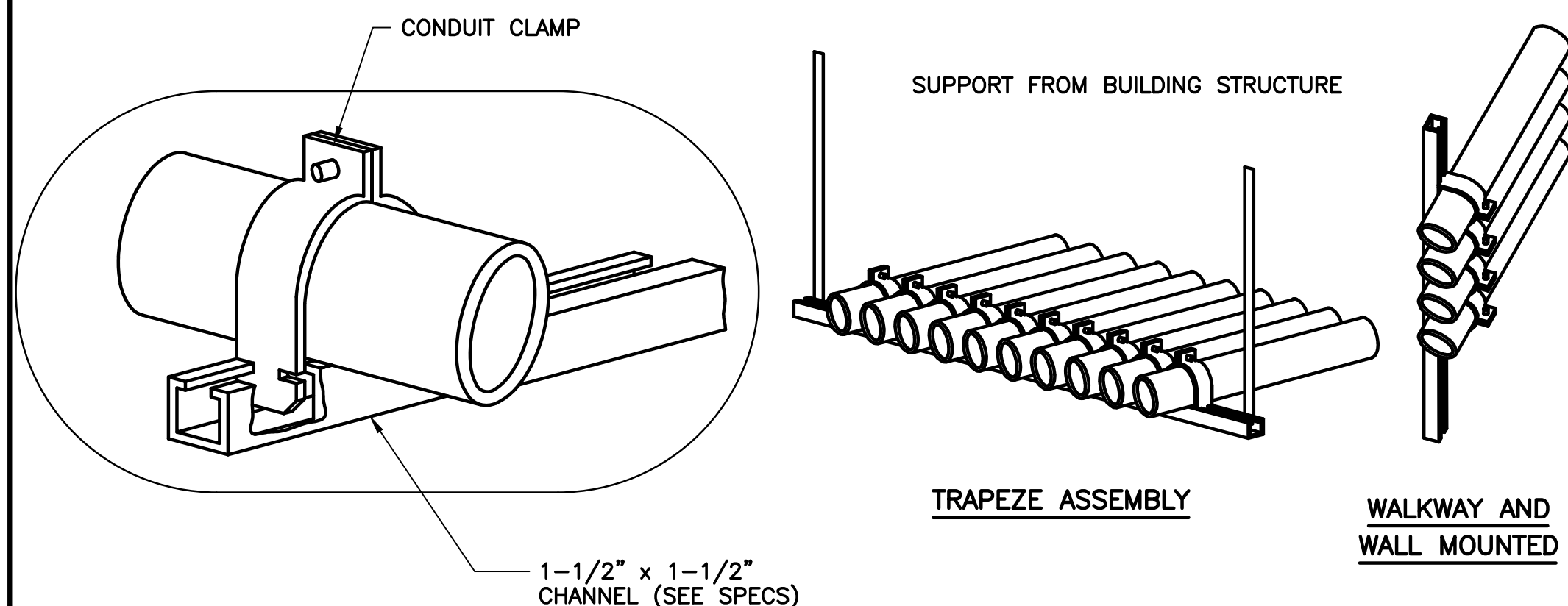


NOTES:
 ① BOND PCP ENCLOSURE AND METALLIC CONDUIT TO GROUND BUS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

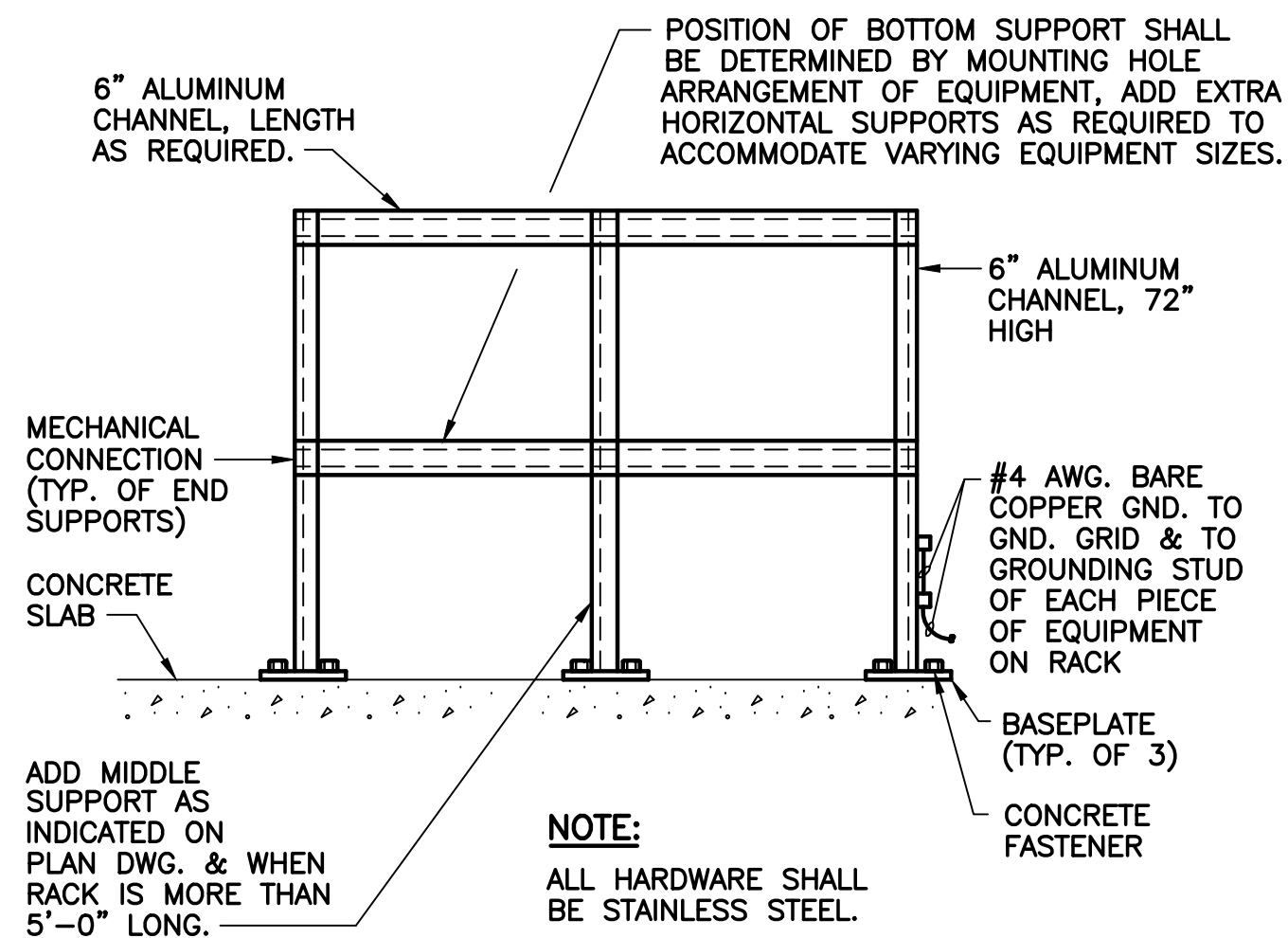
3 TYP. N.T.S.



4 TYP. N.T.S.

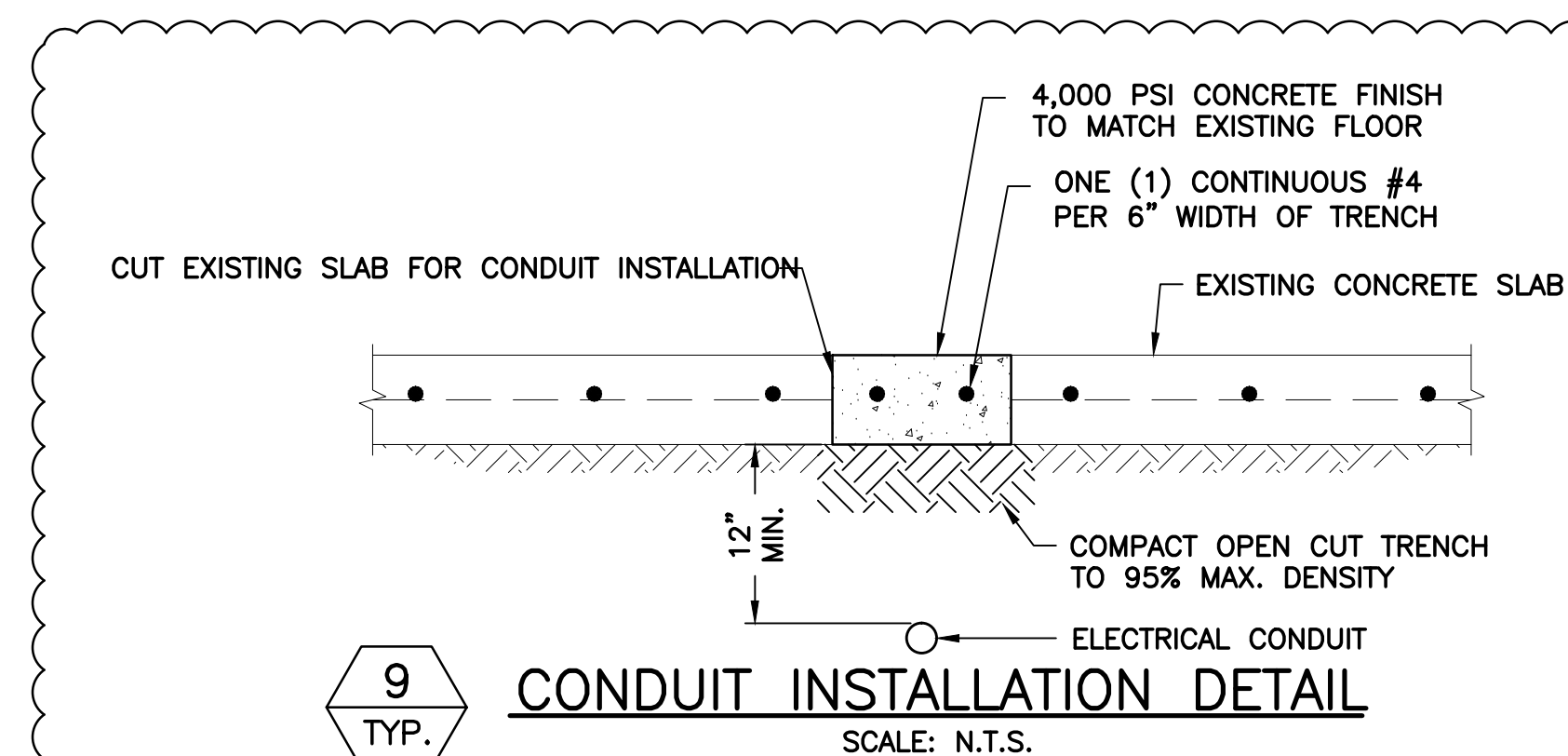


5 TYP. N.T.S.

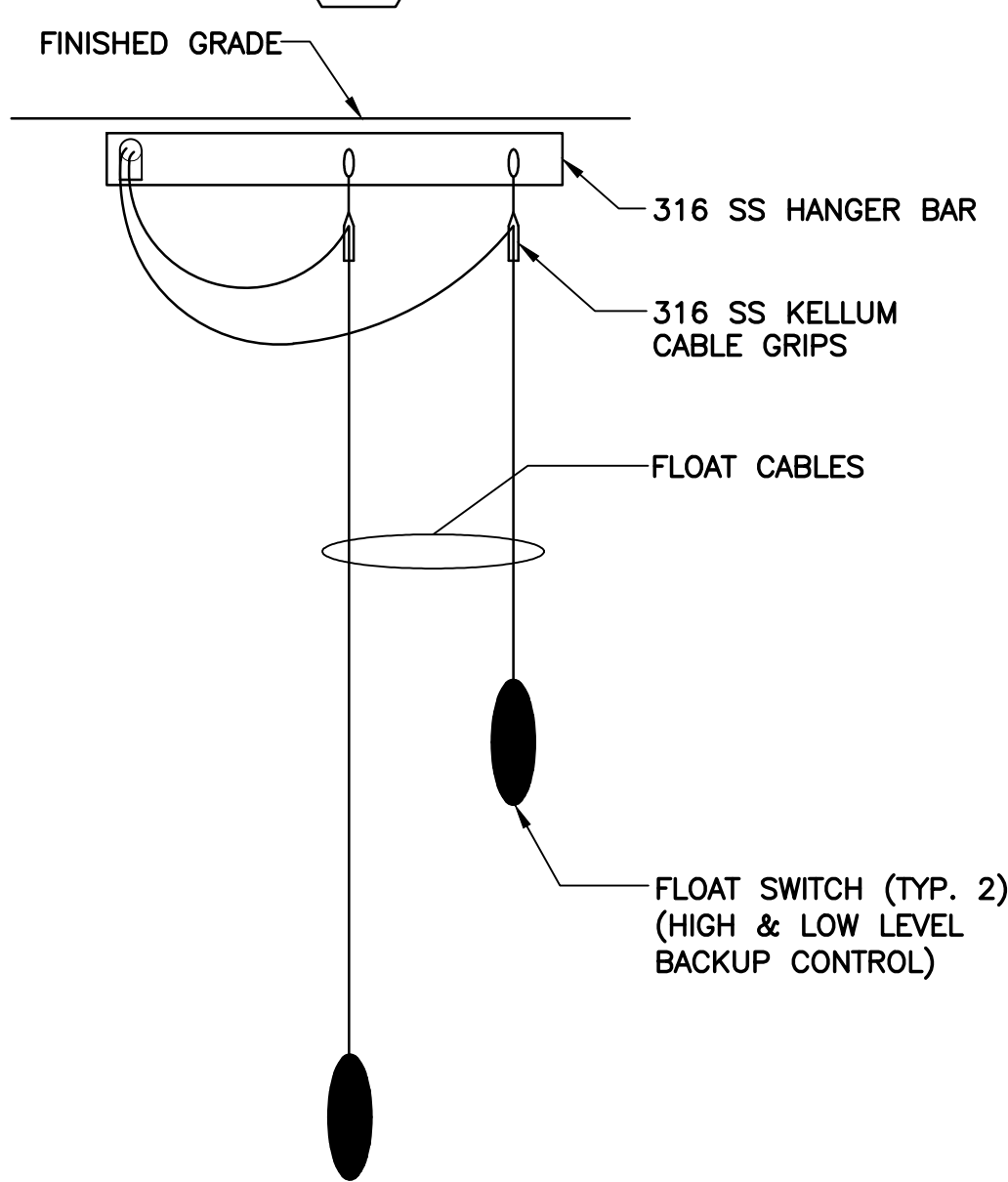


NOTE:
 ALL HARDWARE SHALL BE STAINLESS STEEL.

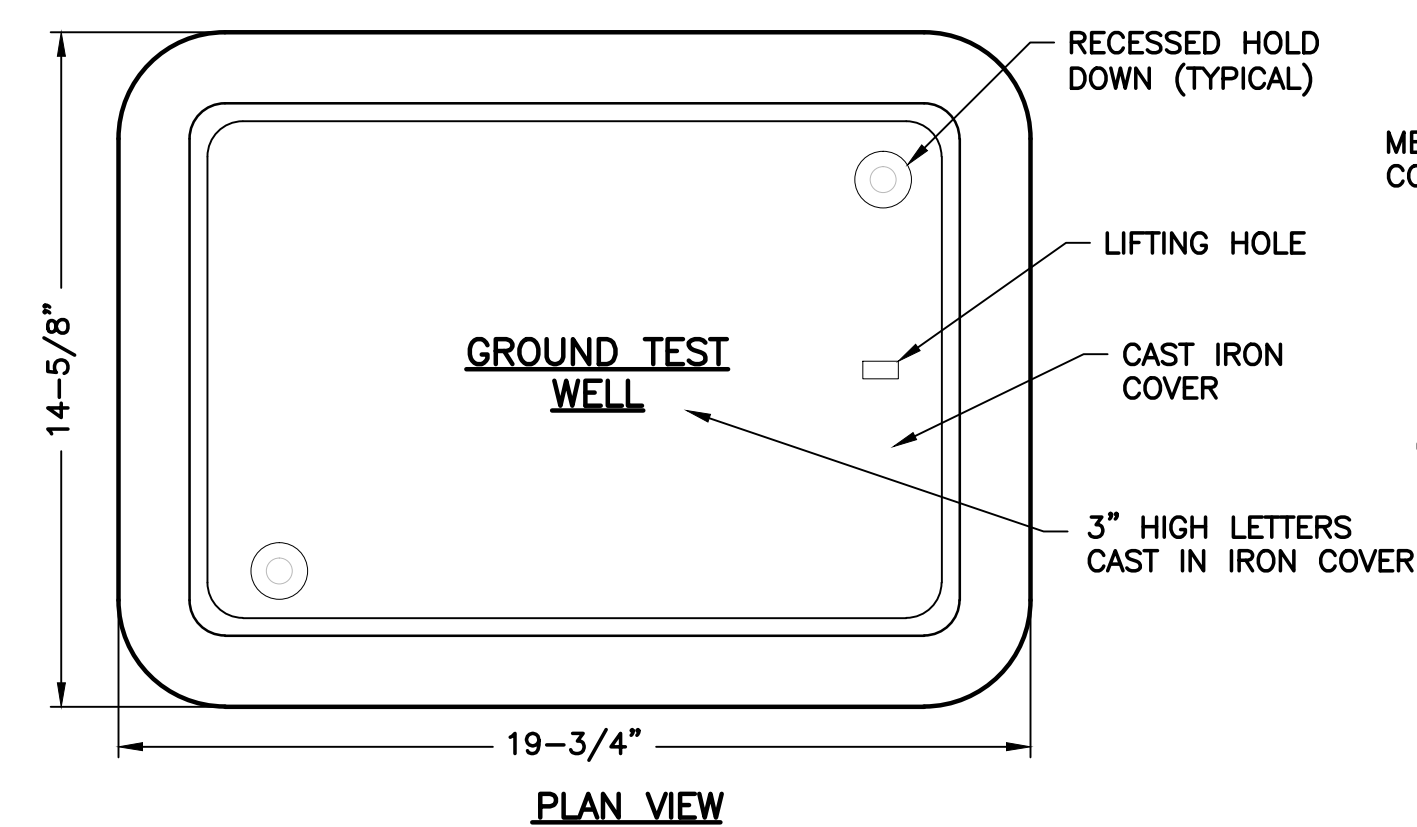
6 TYP. N.T.S.



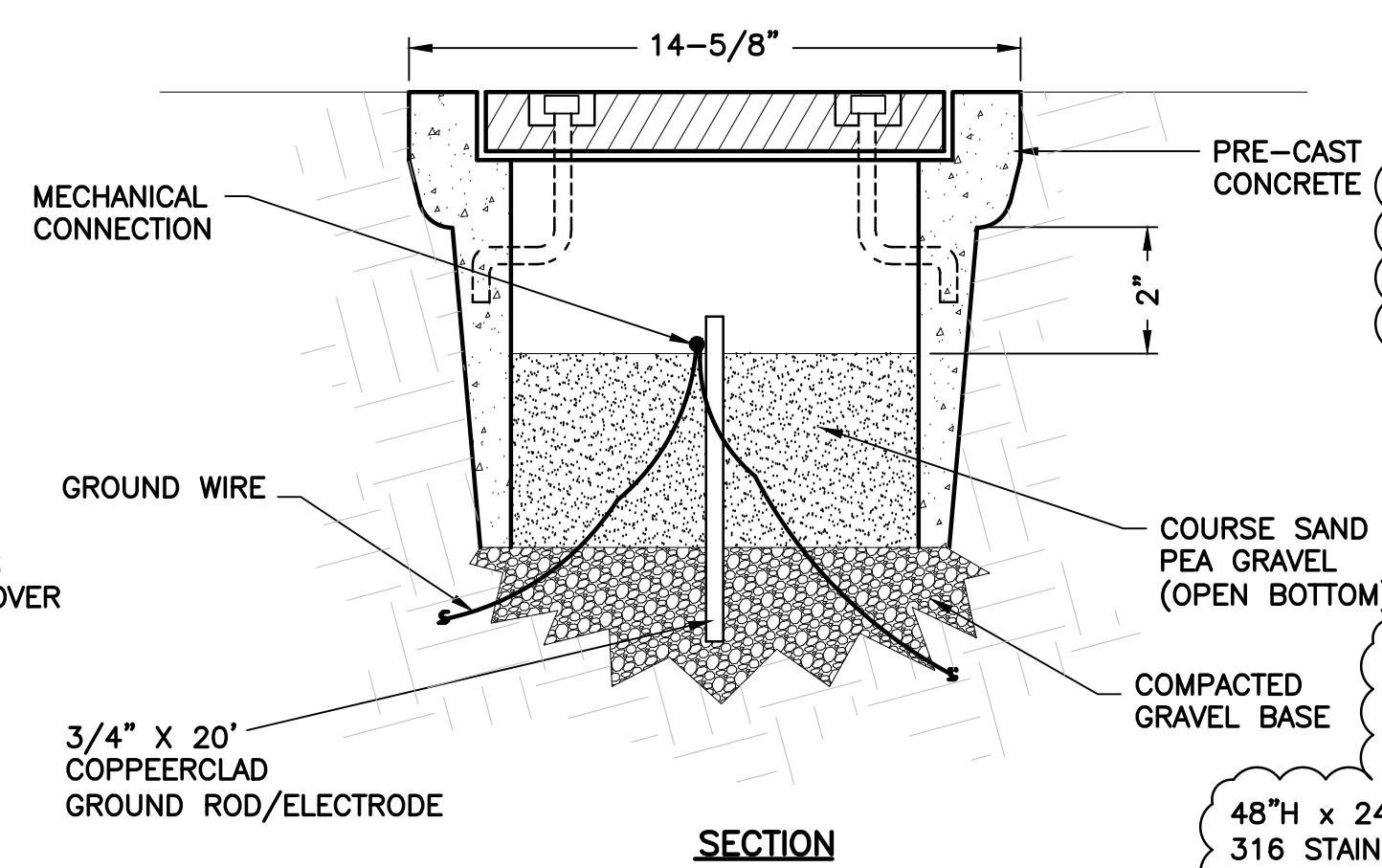
9 TYP. N.T.S.



7 TYP. N.T.S.

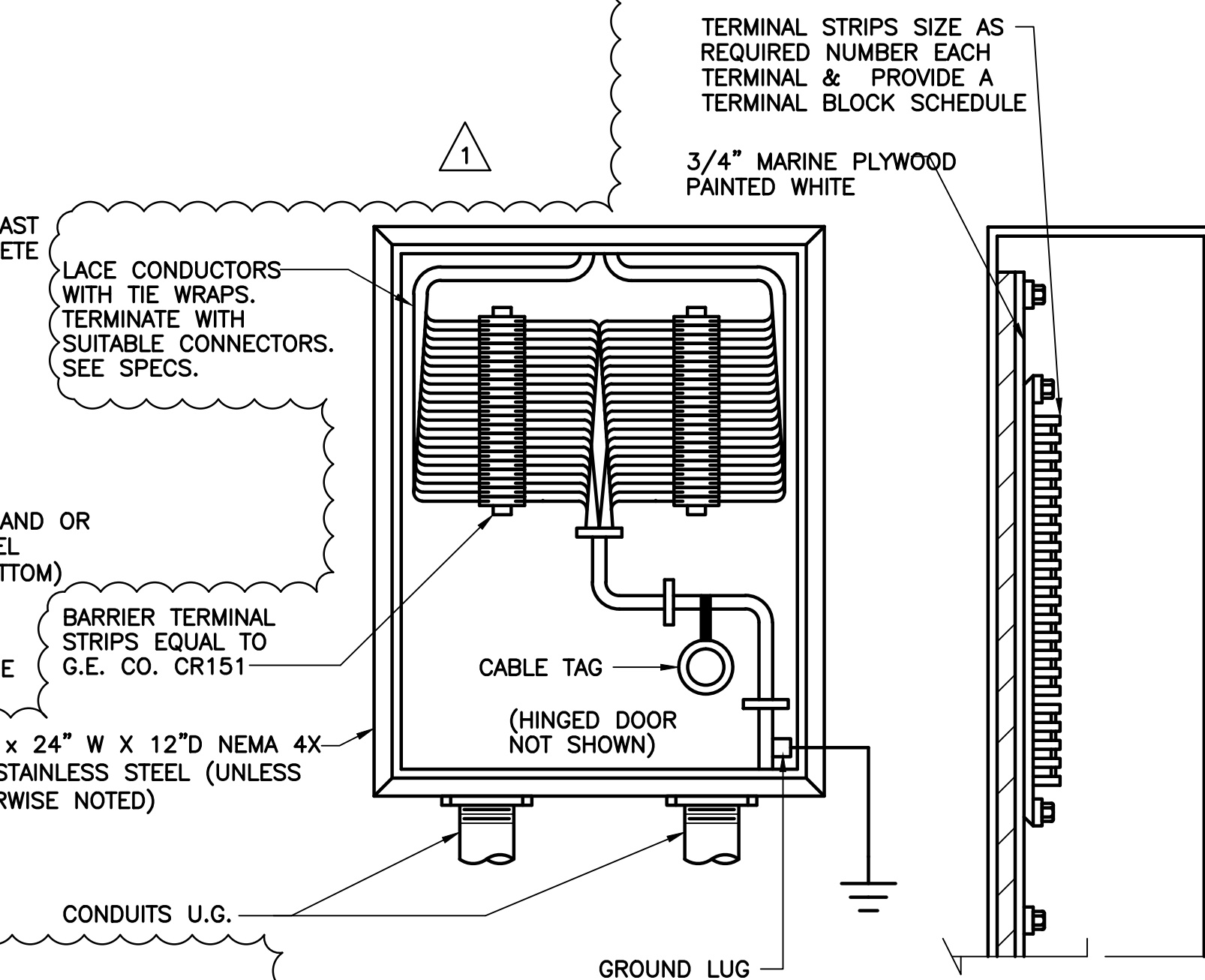


8 TYP. N.T.S.



GROUND TEST WELL

SCALE: 1/4"=1'-0"



10 TYP. N.T.S.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

ADDENDUM NO. 2	1	DD	LMR	APP
BID ISSUE	7/2015			
REVISIONS AND RECORD OF ISSUE				
NO.	BY	CHK	APP	
CYBERM. ID:	DATE			
7/2015				
REF1:				
REF2:				
REF3:				
REF4:				
REF5:				
USER:				

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 201 South Orange Avenue, Suite 500
 Orlando, Florida 32801 Certificate No. 8132

ORANGE COUNTY UTILITIES
 SOUTH WATER RECLAMATION FACILITY
 PHASE V IMPROVEMENTS

ELECTRICAL
 DETAILS - 2

DESIGNED: DD
 DETAILED: ARM
 CHECKED: LMR
 APPROVED: LMR
 DATE: JANUARY 2015
 ENGINEER OF RECORD:
 LILLIAN M. REYES
 FLORIDA LICENSE NO.:
 50790

PROJECT NO.
 180761
 E-107
 SHEET
 326 OF 364

Package Project: Black & Veatch/Orange County Water Reclamation Facility Phase V Improvements/1_Phase V/15_Address/No. 2/Design/3/36_E-107_DTL5_2.dwg, 22.4.14, 10:51:02/15:26:37 AM
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