

**ADDENDUM NO. 1**  
**5/28/2024**

**PROJECT: TOWN OF BUFFALO GAP  
EMERGENCY GENERATORS**

**BID DATE: JUNE 4, 2024**

The following changes and/or additions shall be made to the Plans, Specifications, and Contract Documents for the above referenced project. Bidder shall acknowledge receipt of this Addendum by signing below and returning this Addendum with the Bid.

**1) GENERAL**

- a. The bid schedule has been revised. Replace the version in the bid documents with the version attached to this addendum.
- b. The contact information for Mission Communications is below:  
Mike Handy, Bertrem Products; (432) 978-2420
- c. From the as-built information, the existing pumps at the Esta Neva Lift Station are Barnes Model 3XSHMP, 3 HP, 230V 1Ph with 3"x4" discharge elbows. Contractor shall verify existing equipment prior to ordering any material for this station.

**2) PLAN SHEETS**

- a. Sheets 5 and 6 (CR 692 Pump Station) have been modified and the revised sheets 5 and 6 shall replace the versions included in the original plan set.
- b. Sheets 20 and 21 (CR 692 Lift Station) have been modified and the revised sheets 20 and 21 shall replace the versions included in the original plan set.
- c. Sheets 22 and 23 (Esta Neva Lift Station – Primary Bid) are to be removed from the original plan set. The Esta Neva lift station shall be served from 3 phase power as shown in the revised sheets 23 and 24.
- d. Sheets 25 and 26 (Esta Neva Lift Station – Alternate Bid) have been modified and the revised versions shall replace the versions included in the original plan set. The Esta Neva lift station shall be served from 3 phase power as shown in the revised sheets 23 and 24.
- e. Sheets 27 and 28 (FM 89 Lift Station) have been modified and the revised sheets 25 and 26 shall replace the versions included in the original plan set.
- f. Sheets 29 and 30 (Indian Wells Lift Station) have been modified and the revised sheets 27 and 28 shall replace the versions included in the original plan set.

**3) SPECIFICATIONS**

- a. SECTION 23 32 13: For generator startup, the CONTRACTOR shall supply diesel in a quantity sufficient for the startup procedure as recommended by the manufacturer. After the startup procedure is completed and prior to acceptance by the OWNER, the CONTRACTOR shall provide a full tank of diesel for each generator. This shall be considered subsidiary to each generator site bid.
- b. SECTION 25 04 01: This section has been revised. Replace the version in the bid documents with the version attached to this addendum.
- c. SECTION 26 32 13 2.1: Taylor Power Systems is considered an acceptable generator manufacturer.

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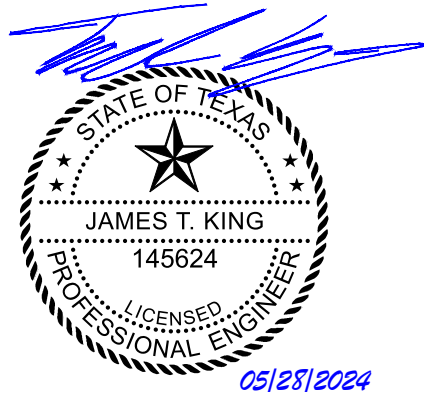
Bidder's Acknowledgment

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Date

Prepared by:

**JACOB | MARTIN**  
TBPE Firm No. 2448



**TOWN OF BUFFALO GAP  
EMERGENCY GENERATORS  
BASE BID SCHEDULE**

Show prices in numerals. Round off unit prices to two decimal places only.

These Bid Prices must include all labor, materials, equipment, insurance, overhead, superintendence, transportation, profits & incidentals to cover the finished Work called for in the Contract Documents.

**For all Labor, Materials, Equipment and Incidentals to Furnish and Install the Following:**

<b>Bid Item</b>	<b>Description</b>	<b>Est. Qty.</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Extended Amount</b>
1	Mobilization, Bonds, and Insurance	1	LS	\$	\$
2	CR692 Pump Station Generator Improvements	1	LS	\$	\$
3	Elm St. Pump Station Generator Improvements	1	LS	\$	\$
4	Hargesheimer Pump Station Generator Improvements	1	LS	\$	\$
5	CR150 Standpipe Generator Improvements	1	LS	\$	\$
6	Buffalo Gap Standpipe Generator Improvements	1	LS	\$	\$
7	CR692 Lift Station Generator Improvements	1	LS	\$	\$
8	Esta Neva Lift Station Generator Improvements	1	LS	\$	\$
9	Esta Neva Lift Station Improvements (Pumps, Electrical, Controls, Etc.)	1	LS	\$	\$
10	FM89 Lift Station Generator Improvements	1	LS	\$	\$
11	Indian Wells Lift Station Generator Improvements	1	LS	\$	\$
<b>TOTAL BASE BID (Items 1-11)</b>					<b>\$</b>

**TOWN OF BUFFALO GAP  
EMERGENCY GENERATORS  
ADDITIVE ALTERNATE BID SCHEDULE**

Show prices in numerals. Round off unit prices to two decimal places only.

These Bid Prices must include all labor, materials, equipment, insurance, overhead, superintendence, transportation, profits & incidentals to cover the finished Work called for in the Contract Documents.

**For all Labor, Materials, Equipment and Incidentals to Furnish and Install the Following:**

<b>Bid Item</b>	<b>Description</b>	<b>Est. Qty.</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Extended Amount</b>
A1	CR692 Pump Station SCADA Improvements	1	LS	\$	\$
A2	Elm St. Pump Station SCADA Improvements	1	LS	\$	\$
A3	Hargesheimer Pump Station SCADA Improvements	1	LS	\$	\$
A4	CR150 Standpipe SCADA Improvements	1	LS	\$	\$
A5	Buffalo Gap Standpipe SCADA Improvements	1	LS	\$	\$
A6	CR692 Lift Station SCADA Improvements	1	LS	\$	\$
A7	Esta Neva Lift Station SCADA Improvements	1	LS	\$	\$
A8	FM89 Lift Station SCADA Improvements	1	LS	\$	\$
A9	Indian Wells Lift Station SCADA Improvements	1	LS	\$	\$

**TOWN OF BUFFALO GAP  
EMERGENCY GENERATORS  
DEDUCTIBLE ALTERNATE BID SCHEDULE**

Show prices in numerals. Round off unit prices to two decimal places only.

These Bid Prices must include all labor, materials, equipment, insurance, overhead, superintendence, transportation, profits & incidentals to cover the finished Work called for in the Contract Documents.

**For all Labor, Materials, Equipment and Incidentals to Furnish and Install the Following:**

<b>Bid Item</b>	<b>Description</b>	<b>Est. Qty.</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Extended Amount</b>
D1	Esta Neva Lift Station Improvements (Pumps, Electrical, Controls, Etc.)	1	LS	\$	\$

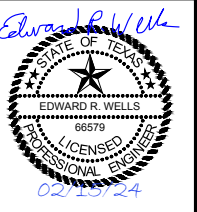
<b>PROPOSED NUMBER OF DAYS FOR COMPLETION (BASE BID + ALT. BIDS):</b>	
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NOTE:

1. The Town of Buffalo Gap reserves the right to award any combination of the base bid and alternate bid items.
2. The cost of Item D1 shall match Item 9 on the Base Bid.



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



ISSUED FOR CONSTRUCTION

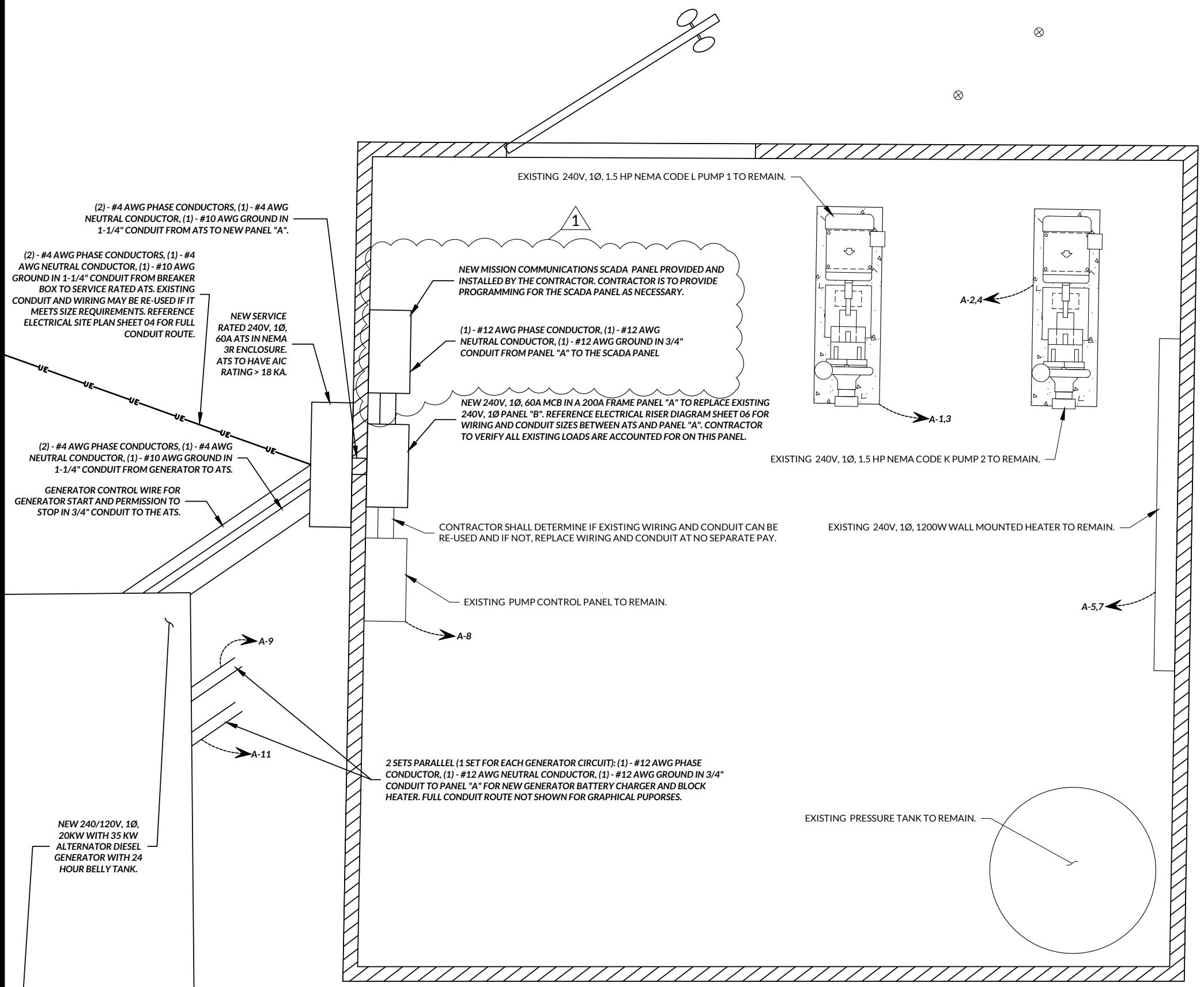


BUFFALO GAP, TEXAS  
EMERGENCY GENERATORS  
ELECTRICAL FLOORPLAN  
CR 692 PUMP STATION

NO.	REVISION	DATE
1	ADDENDUM #1	05/28/2024
PROJECT #	SCALE	
23404	3/4" = 1'-0"	
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.		

NOTES:

- EXISTING EQUIPMENT AND LIGHTS ARE FOR REFERENCE ONLY. FOR CLARITY, NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO UTILITIES OR STRUCTURES, WHETHER SHOWN ON THESE PLANS OR NOT.
- REFERENCE SHEET 06 FOR ELECTRICAL RISER DIAGRAM OF CR 629 PUMP STATION.
- CONTRACTOR TO MAINTAIN 3' WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.
- CONTRACTOR TO VERIFY THAT ALL EXISTING LOADS ARE ACCOUNTED FOR IN NEW PANEL "A" AND PROVIDE ALL CONDUIT AND WIRING TO RE-WIRE LOADS TO THIS PANEL.
- OUTLINE OF ATS OPERATIONS:
  - WHEN THE ATS DETECTS UNACCEPTABLE UTILITY POWER, THE ATS WILL SEND A START SIGNAL TO THE STANDBY GENERATOR
  - WHEN THE ATS DETECTS ACCEPTABLE GENERATOR POWER, THE ATS WILL SWITCH THE LOAD TO THE GENERATOR POWER.
  - THE ATS WILL STAY ON GENERATOR POWER IF THE UTILITY POWER IS UNACCEPTABLE.
  - IF THE UTILITY POWER IS ACCEPTABLE, THE ATS WILL SWITCH TO UTILITY POWER AND SEND A PERMISSION TO STOP SIGNAL TO THE GENERATOR.
- REFERENCE GENERATOR PAD DETAIL SHEET 29 AND SPECIFICATIONS FOR GENERATOR ANCHOR BOLT REQUIREMENTS.
- CR 692 PUMP STATION GENERATOR TO BE BID WITH THE NORMAL WEATHER PROTECTED ENCLOSURE.
- CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS (BLOCK HEATER, BATTERY CHARGER, ETC.) TO PANEL "A" AND ADJUST BREAKERS AND WIRING ACCORDINGLY.
- GENERATOR TO BE PROGRAMMED TO HAVE A WEEKLY 30 MINUTE TEST AT THE OWNER'S SELECTED DAY AND TIME.
- GENERATOR PAD LOCATION SHALL BE GRADED TO DRAIN AROUND AND AWAY FROM THE PAD WITHOUT PONDING.



City of Buffalo Gap CR 692 Pump Station  
New Panel "A" Schedule

Main Breaker Rating: 60 AMPS  
M.L.O. Bus Rating: 200 AMPS  
Sym. Inter. Cap.: > 18k AMPS

1 Phase 3 Wire  
120/240 VAC

Conductor Color Code

Line 1 ----- BLACK  
Line 2 ----- RED  
Neutral ----- WHITE or GRAY  
Ground ----- GREEN

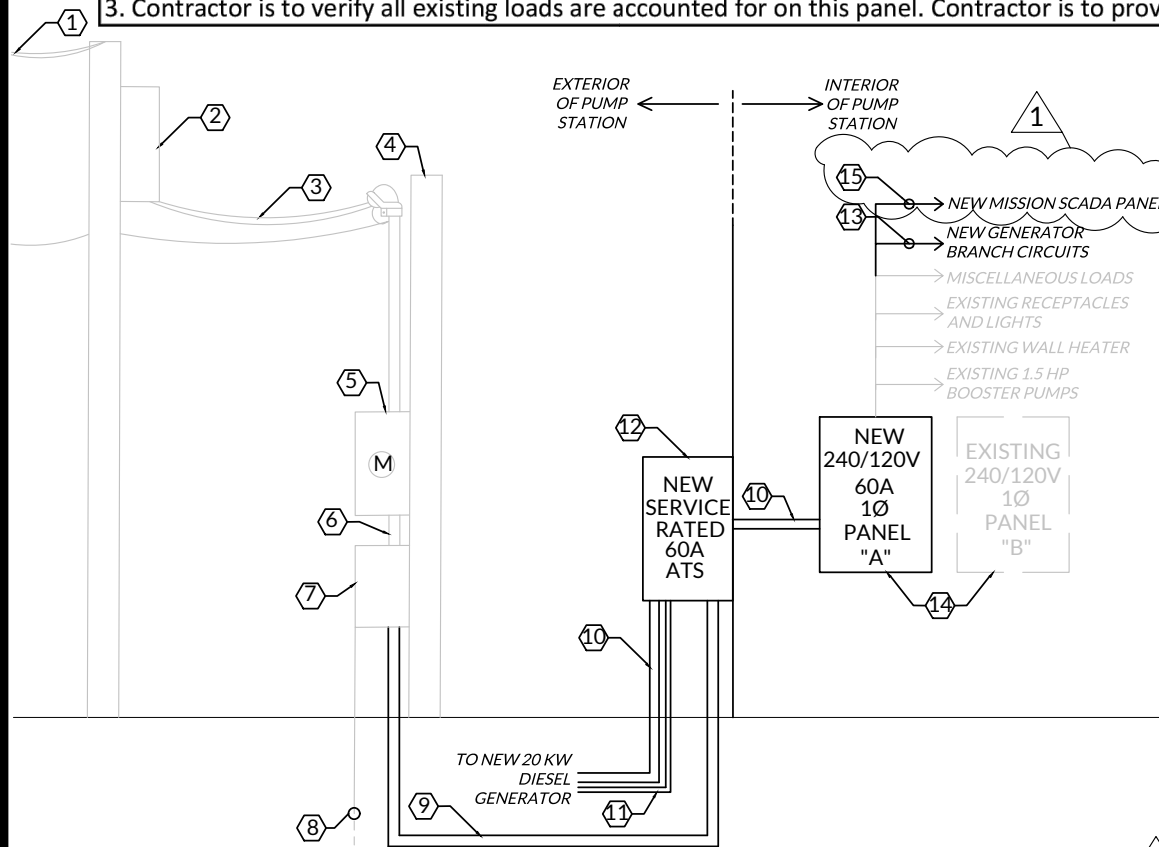
Phase 1 Load: 32  
Phase 2 Load: 32

Surface Mount.: X  
Flush Mount.: \_\_\_\_\_  
NEMA 1: \_\_\_\_\_  
NEMA 3R: X

POLE	SERVICE	W	LOAD		BREAKER POLES	POLE	1	2	POLE	SERVICE	W	LOAD		BREAKER POLES	POLE		
			LINE	1								2	LINE			1	2
1	Existing 1.5 HP Booster Pump 1	1440	6		20 / 2	1	X		2	Existing 1.5 HP Booster Pump 2	1440	6		20 / 2	2		
3	"		6			3		X	4	"		6			4		
5	Existing 1200W Wall Mounted Heater	1200	5		20 / 2	5	X		6	Existing Lights and Plug	600	5		20 / 1	6		
7	"		5			7		X	8	Existing Pump Control Panel	360	3		20 / 1	8		
9	New Generator Battery Charger (Note 1)	600	5		20 / 1	9	X		10	New Mission SCADA Panel	600	5		20 / 1	10		
11	New Generator Block Heater (Note 1)	1200		10	20 / 1	11		X	12	Heat Tape (Note 2)	180	2		20 / 1	12		
13						13	X		14	Heat Tape (Note 2)	180	2		20 / 1	14		
15						15		X	16						16		
17						17	X		18						18		

Notes:

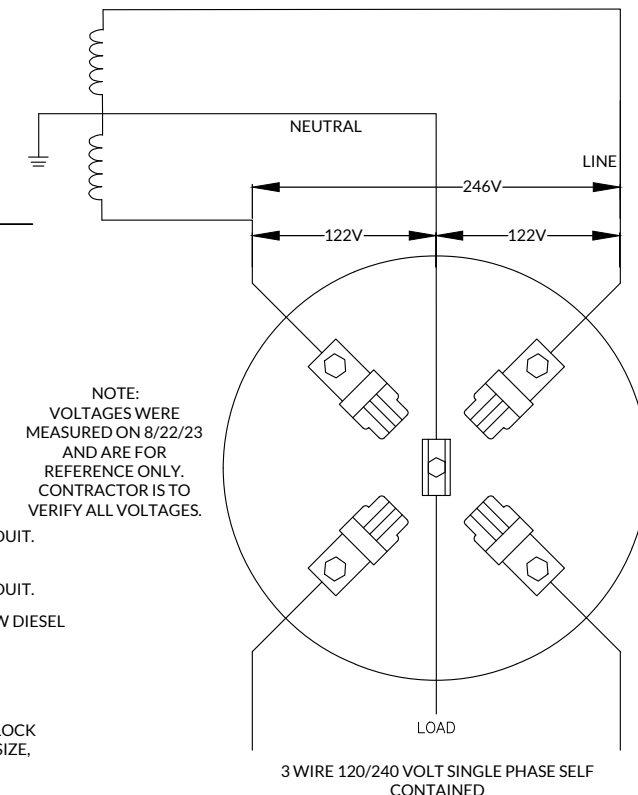
- Contractor is to verify generator branch circuits with generator manufacturer and adjust breaker size, wiring, and conduit as necessary per NEC code.
- Contractor is to provide and install breaker only for future heat tape. No wiring or conduit is required to be installed with this load.
- Contractor is to verify all existing loads are accounted for on this panel. Contractor is to provide and install all wiring, conduit, and breakers for all existing loads.



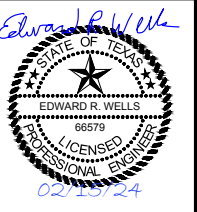
ELECTRICAL RISER DIAGRAM  
NTS

ELECTRICAL RISER DIAGRAM NOTES BY REFERENCE #

- EXISTING AEP 1Ø OVERHEAD ELECTRICAL PRIMARY TO REMAIN.
- EXISTING AEP PRIMARY INLINE POLE WITH (1) TRANSFORMER BANK FOR EXISTING 240/120V, 1Ø ELECTRICAL SERVICE TO REMAIN.
- EXISTING AEP OVERHEAD 240/120V, 1Ø ELECTRICAL SECONDARY TO REMAIN.
- EXISTING AEP SECONDARY DIP POLE TO REMAIN.
- EXISTING AEP POLE MOUNTED ELECTRICAL METER #132527734, MAST, AND WEATHERHEAD TO REMAIN.
- EXISTING CONDUIT AND WIRING TO REMAIN.
- EXISTING 240V, 1Ø, 60A BREAKER BOX TO REMAIN.
- EXISTING GROUND ROD TO REMAIN.
- (2) - #4 AWG PHASE CONDUCTORS, (1) - #4 AWG NEUTRAL CONDUCTOR, (1) - #10 AWG GROUND IN 1-1/4" CONDUIT. EXISTING CONDUIT AND WIRING MAY BE RE-USED IF IT MEETS SIZE REQUIREMENTS.
- (2) - #4 AWG PHASE CONDUCTORS, (1) - #4 AWG NEUTRAL CONDUCTOR, (1) - #10 AWG GROUND IN 1-1/4" CONDUIT.
- GENERATOR CONTROL WIRE FOR GENERATOR START AND PERMISSION TO STOP IN 3/4" CONDUIT TO THE NEW DIESEL GENERATOR.
- ATS TO HAVE AN AIC RATING > 18 KA.
- 2 SETS OF (1 SET FOR EACH GENERATOR BRANCH CIRCUIT): (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FOR GENERATOR BATTERY CHARGER AND BLOCK HEATER. CONTRACTOR TO VERIFY BREAKER SIZE WITH GENERATOR MANUFACTURER AND ADJUST BREAKER SIZE, WIRING, AND CONDUIT AS NEEDED PER NEC CODE. ALL EXISTING CIRCUITS IN THIS PANEL ARE TO REMAIN.
- EXISTING PANEL "B" TO BE DEMOLISHED AND REPLACED WITH NEW PANEL "A". CONTRACTOR TO VERIFY ALL EXISTING LOADS ARE ACCOUNTED FOR ON NEW PANEL "A" AND PROVIDE AND INSTALL BREAKERS, CONDUIT, AND WIRING FOR ALL EXISTING LOADS.
- (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT TO THE MISSION SCADA PANEL.



EXISTING AEP ELECTRICAL  
SERVICE DETAIL  
NTS



ISSUED FOR CONSTRUCTION



BUFFALO GAP, TEXAS  
EMERGENCY GENERATORS  
ELECTRICAL RISER DIAGRAM & SCHEDULES  
CR 692 PUMP STATION

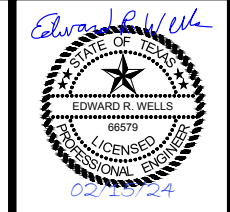
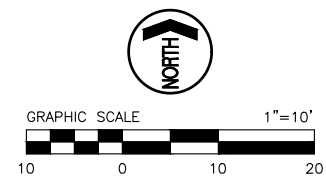
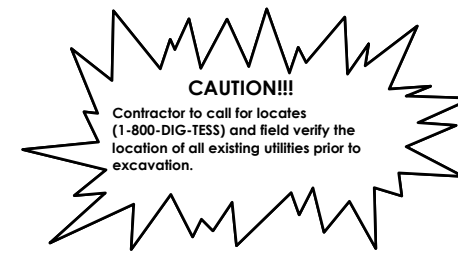
NO.	REVISION	DATE	SCALE	SHEET
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PROJECT #			23404	06
SCALE			NTS	06
CHECK SCALE AND ADJUST ACCORDINGLY.				

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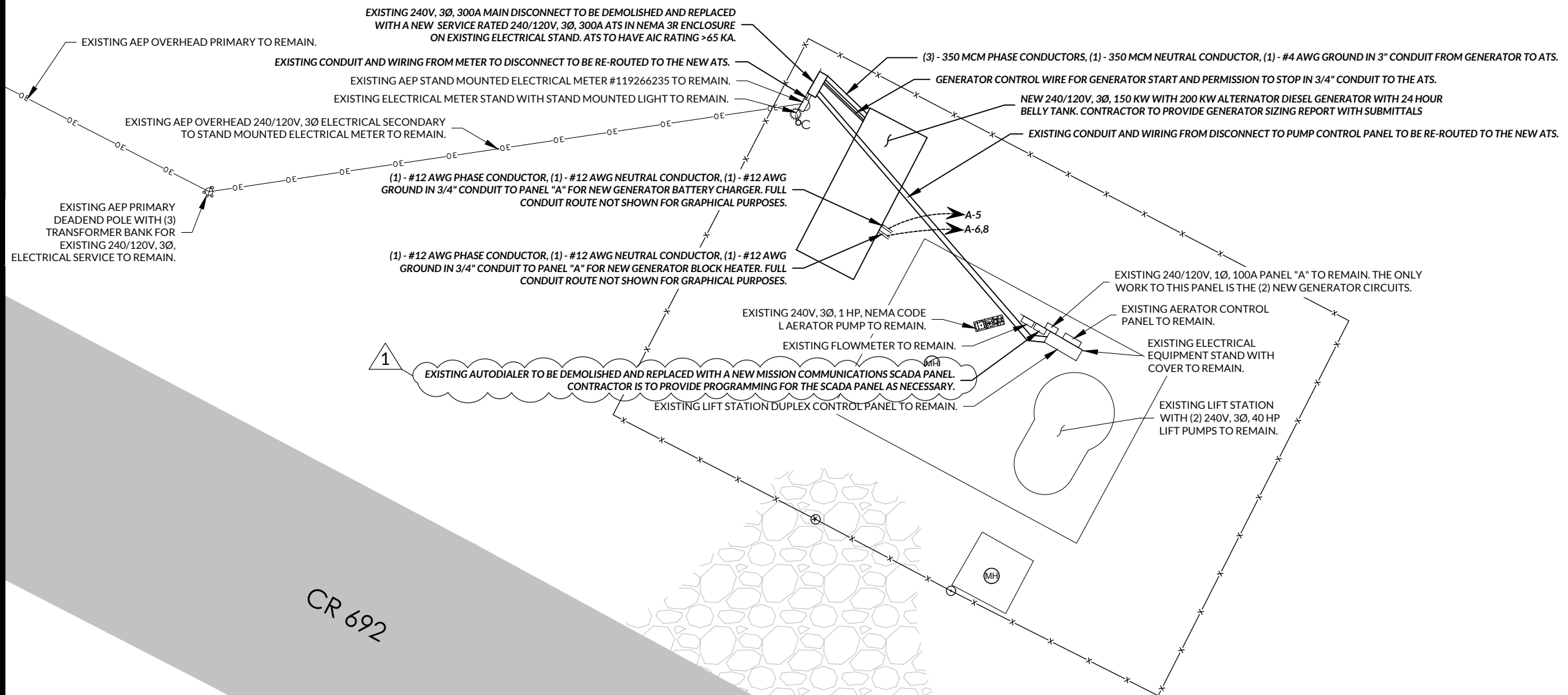
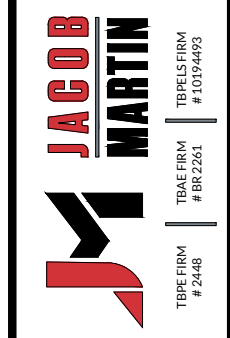
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 Plotted by: cole carpenter  
 Plot Date: 5/28/2024 10:42 AM

**NOTES:**

1. EXISTING EQUIPMENT AND LIGHTS ARE FOR REFERENCE ONLY. FOR CLARITY, NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO UTILITIES OR STRUCTURES, WHETHER SHOWN ON THESE PLANS OR NOT.
2. REFERENCE SHEET 21 FOR ELECTRICAL RISER DIAGRAM OF THE CR 692 LIFT STATION.
3. CONTRACTOR TO MAINTAIN 3' WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.
4. CIRCUIT TAGS ARE SHOWN FOR NEW CIRCUITS ONLY. REFERENCE PANEL SCHEDULES FOR ALL EXISTING CIRCUITS.
5. CONTRACTOR IS COORDINATE WITH AEP AND PAY ALL COSTS REQUIRED BY AEP FOR THE METER DISCONNECT/RECONNECTION.
6. OUTLINE OF ATS OPERATIONS:
  - WHEN THE ATS DETECTS UNACCEPTABLE UTILITY POWER, THE ATS WILL SEND A START SIGNAL TO THE STANDBY GENERATOR
  - WHEN THE ATS DETECTS ACCEPTABLE GENERATOR POWER, THE ATS WILL SWITCH THE LOAD TO THE GENERATOR POWER.
  - THE ATS WILL STAY ON GENERATOR POWER IF THE UTILITY POWER IS UNACCEPTABLE.
  - IF THE UTILITY POWER IS ACCEPTABLE, THE ATS WILL SWITCH TO UTILITY POWER AND SEND A PERMISSION TO STOP SIGNAL TO THE GENERATOR.
7. REFERENCE GENERATOR PAD DETAIL SHEET 29 AND SPECIFICATIONS FOR GENERATOR ANCHOR BOLT REQUIREMENTS.
8. CR 692 LIFT STATION GENERATOR TO BE BID WITH THE NORMAL WEATHER PROTECTED ENCLOSURE.
9. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS (BLOCK HEATER, BATTERY CHARGER, ETC.) TO PANEL "A" AND ADJUST BREAKERS AND WIRING ACCORDINGLY.
10. GENERATOR TO BE PROGRAMMED TO HAVE A WEEKLY 30 MINUTE TEST AT THE OWNER'S SELECTED DAY AND TIME.
11. GENERATOR PAD LOCATION SHALL BE GRADED TO DRAIN AROUND AND AWAY FROM THE PAD WITHOUT PONDING.



ISSUED FOR CONSTRUCTION

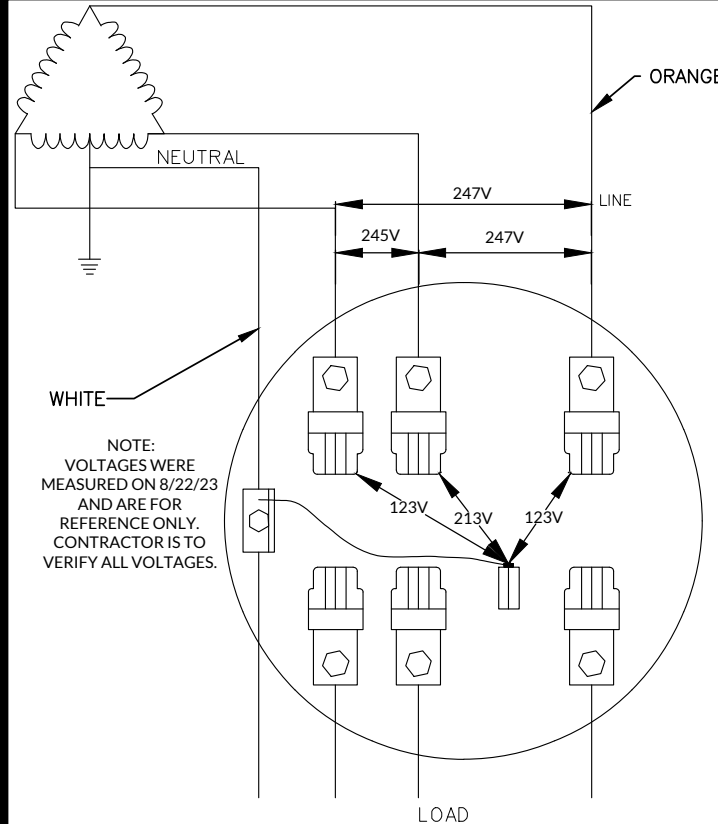


BUFFALO GAP, TEXAS  
**EMERGENCY GENERATORS**  
**ELECTRICAL SITE PLAN**  
**CR 692 LIFT STATION**

NO.	REVISION	DATE
1	ADDENDUM #1	05/28/2024
PROJECT #	SCALE	1" = 10'
23404		
BARS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.		
SEQ.	SHEET	
20	20	

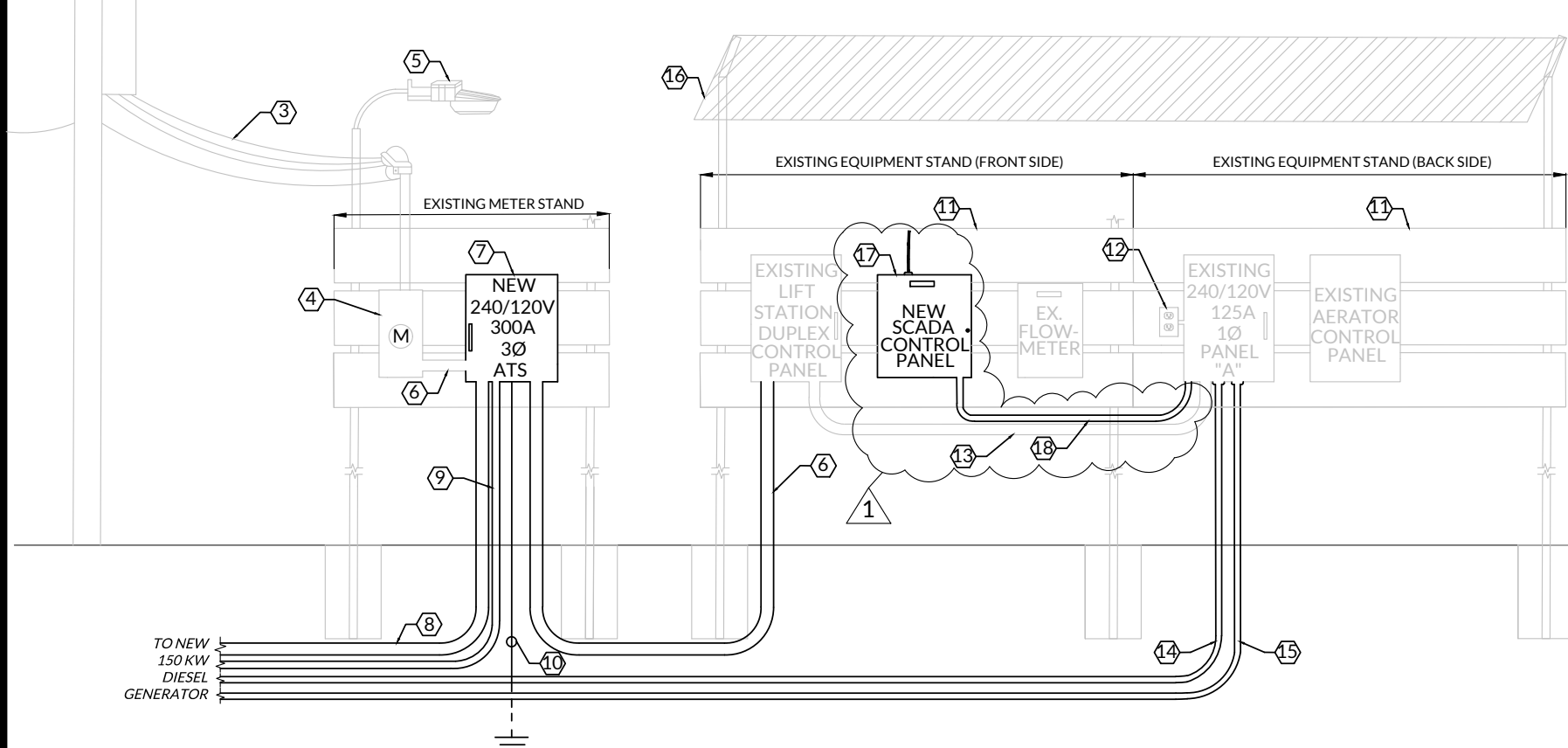
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ON A 4 WIRE DELTA CONNECTION, THE PHASE HAVING THE HIGHEST VOLTAGE TO GROUND (HIGH LEG OR WILD LEG) MUST BE CONNECTED TO THE RIGHT HAND TERMINALS OF THE METER SOCKET. IN OTHER LOCATIONS, SUCH AS SERVICE ENCLOSURES, DISCONNECTS, ETC. THE "HIGH LEG" IS CONNECTED TO THE CENTER TERMINAL

### EXISTING AEP ELECTRICAL SERVICE DETAIL NTS



### ELECTRICAL RISER DIAGRAM NTS

#### City of Buffalo Gap CR 629 Lift Station

#### Existing Panel "A" Schedule

Main Breaker Rating: 100 AMPS  
 M.L.O. Bus Rating: AMPS  
 Sym. Inter. Cap.: AMPS  
 Surface Mount.: X  
 Flush Mount.:  
 3 Phase 4 Wire 240/120 VAC  
 NEMA 1: X  
 NEMA 3R:

**Conductor Color Code**  
 Phase 1 ----- BLACK  
 Phase 2 ----- RED (High Leg)  
 Phase 3 ----- BLUE  
 Neutral ----- WHITE or GRAY  
 Ground ----- GREEN  
 Note: High-Leg Identification: Orange & Label  
 "Caution \_\_\_\_\_ Phase Has \_\_\_\_\_ Volt to Ground"

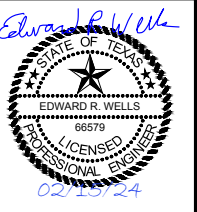
Phase	Load
Phase 1 Load:	18
Phase 2 Load:	5
Phase 3 Load:	15

POLE	SERVICE	W	LOAD PHASE			BREAKER POLES	POLE	1	2	3	POLE	SERVICE	W	LOAD PHASE			BREAKER POLES	POLE
			1	2	3									1	2	3		
1	Existing Stand Mounted Light	360	3			20 / 1	1	X			2	Existing Spare Breaker to be used for New SCADA Panel	600	5			20 / 1	2
3	Existing Breaker					20 / 1	3		X		4	Existing Flowmeter	600	5			20 / 1	4
5	New Generator Battery Charger (Note 2)	600		5		20 / 1	5			X	6	New Generator Block Heater (Note 2)	2500		10		20 / 2	6
7							7	X			8	"		10				8
9							9		X		10							10
11							11			X	12							12
13							13	X			14							14
15							15		X		16							16

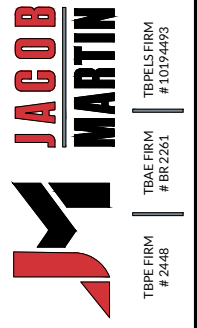
**Notes:**  
 1. Existing circuits are shown for reference only. Contractor is to verify all existing circuits. The only new work to be done to this panel is the (2) generator branch circuits.  
 2. Contractor to verify breaker size for generator branch circuits with generator manufacturer and adjust breaker size, conduit, and wiring as necessary per NEC code.

#### ELECTRICAL RISER DIAGRAM NOTES BY REFERENCE

- 1 EXISTING AEP 3Ø OVERHEAD ELECTRICAL PRIMARY TO REMAIN.
- 2 EXISTING AEP PRIMARY DEADEND POLE WITH (3) TRANSFORMER BANK FOR EXISTING 240/120V, 3Ø ELECTRICAL SERVICE TO REMAIN.
- 3 EXISTING AEP 3Ø OVERHEAD ELECTRICAL SECONDARY TO REMAIN.
- 4 EXISTING AEP STAND MOUNTED ELECTRICAL METER #119266235, MAST, WEATHERHEAD, AND WIRING TO REMAIN.
- 5 EXISTING STAND MOUNTED LIGHT AND ASSOCIATED CONDUIT AND WIRING TO REMAIN.
- 6 EXISTING WIRING AND CONDUIT TO BE RE-ROUTED TO NEW STAND MOUNTED ATS.
- 7 EXISTING 240V, 3Ø, 300A MAIN DISCONNECT TO BE DEMOLISHED AND REPLACED WITH A NEW SERVICE RATED 240/120V, 3Ø, 300A ATS IN NEMA 3R ENCLOSURE. ATS TO HAVE AIC RATING >65KA. BOND NEUTRAL TO GROUND IN THE ATS.
- 8 (3) - 350 MCM PHASE CONDUCTORS, (1) - 350 MCM NEUTRAL CONDUCTOR, (1) - #4 AWG GROUND IN 3" CONDUIT. REFERENCE ELECTRICAL SITE PLAN SHEET 20 FOR CONDUIT ROUTE.
- 9 GENERATOR CONTROL WIRE FOR GENERATOR START AND PERMISSION TO STOP IN 3/4" CONDUIT TO THE NEW DIESEL GENERATOR. REFERENCE ELECTRICAL SITE PLAN SHEET 20 FOR CONDUIT ROUTE.
- 10 (1) - #2 AWG GROUND IN 1/2" PVC CONDUIT. CADWELDED TO 5/8" x 10'-0" COPPER CLAD STEEL GROUND ROD.
- 11 EXISTING ELECTRICAL EQUIPMENT STAND TO REMAIN. REFERENCE ELECTRICAL SITE PLAN SHEET 20 FOR ACCURATE STAND LAYOUT.
- 12 EXISTING CONVENIENCE RECEPTACLE, LIGHT SWITCH, AND ASSOCIATED CONDUIT AND WIRING TO REMAIN.
- 13 EXISTING WIRING AND CONDUIT TO REMAIN.
- 14 (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FOR GENERATOR BATTERY CHARGER. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS WITH GENERATOR MANUFACTURER AND ADJUST BREAKERS, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.
- 15 (2) - #12 AWG PHASE CONDUCTORS, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FOR GENERATOR BATTERY CHARGER. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS WITH GENERATOR MANUFACTURER AND ADJUST BREAKERS, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.
- 16 EXISTING ELECTRICAL EQUIPMENT STAND COVER TO REMAIN.
- 17 EXISTING AUTODIALER TO BE REPLACED WITH A NEW MISSION COMMUNICATIONS SCADA PANEL. CONTRACTOR IS TO PROVIDE PROGRAMMING FOR THE SCADA PANEL AS NECESSARY.
- 18 (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FROM PANEL "A" TO THE NEW SCADA PANEL.



ISSUED FOR CONSTRUCTION



## BUFFALO GAP, TEXAS EMERGENCY GENERATORS ELECTRICAL RISER DIAGRAM & SCHEDULE CR 692 LIFT STATION

NO.	REVISION	DATE	SCALE	SHEET
1	ADDENDUM #1	05/28/2024	NTS	21
PROJECT #				23404
PROJECT # SCALE				NTS
BARS ONE INCH IN LENGTH ON ORIGINAL DRAWING.				21
CHECK SCALE AND ADJUST ACCORDINGLY.				29



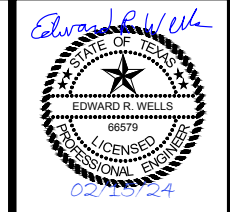
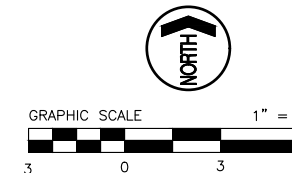
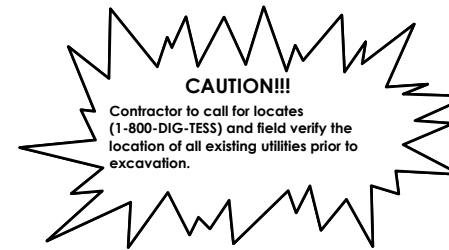
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Plot Date: 5/28/2024 10:43 AM

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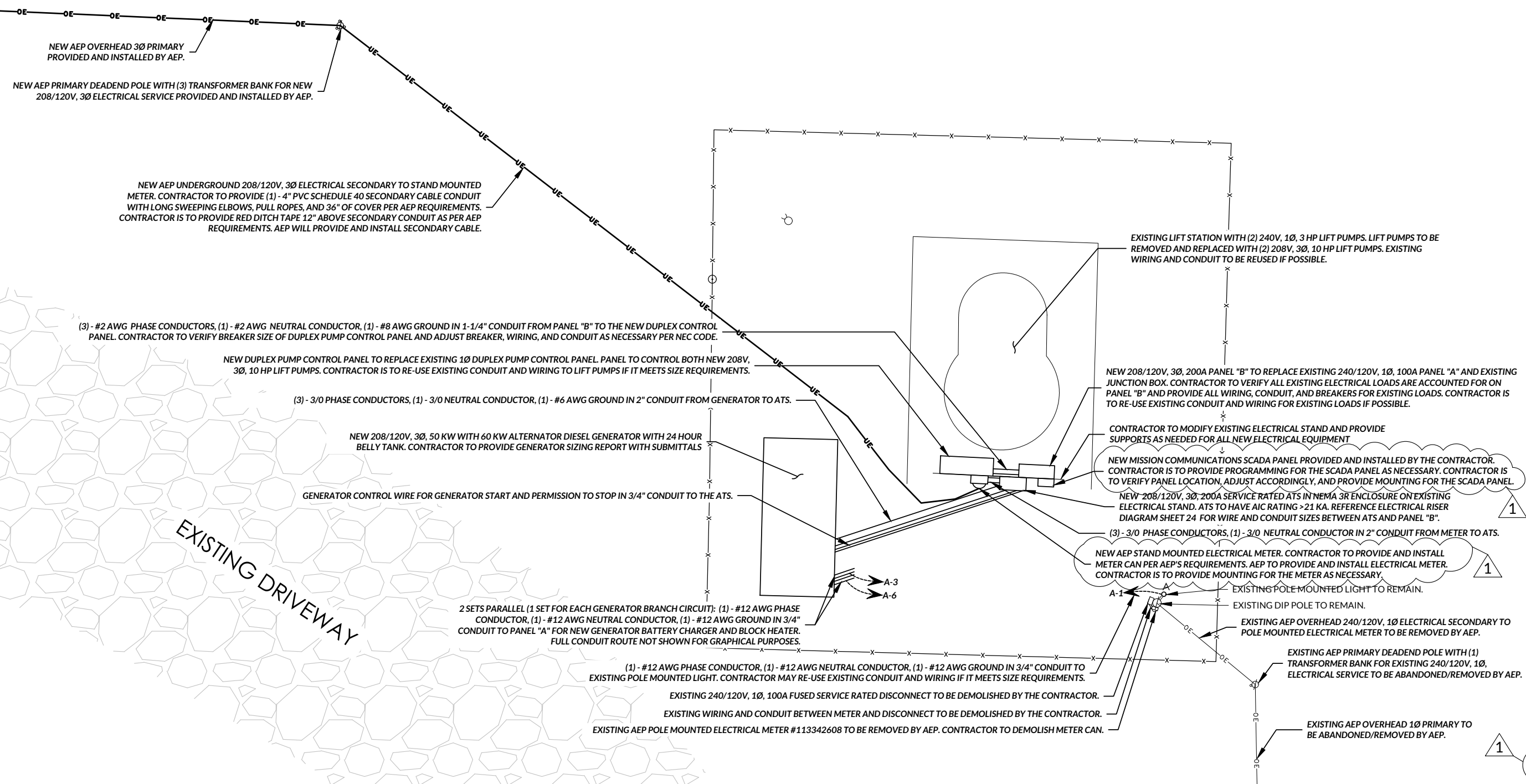
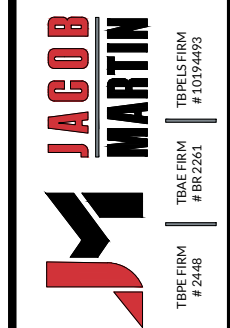
- EXISTING EQUIPMENT AND LIGHTS ARE FOR REFERENCE ONLY. FOR CLARITY, NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO UTILITIES OR STRUCTURES, WHETHER SHOWN ON THESE PLANS OR NOT.
- REFERENCE SHEET 24 FOR ELECTRICAL RISER DIAGRAM OF THE ESTA NEVA LIFT STATION
- CONTRACTOR TO MAINTAIN 3' WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.
- CONTRACTOR IS TO PROVIDE WIRING AND CONDUIT FOR ALL EXISTING AND NEW LOADS TO PANEL "B". CONTRACTOR MAY RE-USE EXISTING CONDUIT AND WIRING IF IT MEETS SIZE REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH AEP AND ANY ELECTRICAL COSTS BY THE UTILITY FOR THE NEW ELECTRICAL SERVICE.

6. OUTLINE OF ATS OPERATIONS:

- WHEN THE ATS DETECTS UNACCEPTABLE UTILITY POWER, THE ATS WILL SEND A START SIGNAL TO THE STANDBY GENERATOR
  - WHEN THE ATS DETECTS ACCEPTABLE GENERATOR POWER, THE ATS WILL SWITCH THE LOAD TO THE GENERATOR POWER.
  - THE ATS WILL STAY ON GENERATOR POWER IF THE UTILITY POWER IS UNACCEPTABLE.
  - IF THE UTILITY POWER IS ACCEPTABLE, THE ATS WILL SWITCH TO UTILITY POWER AND SEND A PERMISSION TO STOP SIGNAL TO THE GENERATOR.
- REFERENCE GENERATOR PAD DETAIL SHEET 29 AND SPECIFICATIONS FOR GENERATOR ANCHOR BOLT REQUIREMENTS.
  - ESTA NEVA LIFT STATION GENERATOR TO BE BID WITH THE NORMAL WEATHER PROTECTED ENCLOSURE.
  - CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS (BLOCK HEATER, BATTERY CHARGER, ETC.) TO PANEL "B" AND ADJUST BREAKERS AND WIRING ACCORDINGLY.
  - GENERATOR TO BE PROGRAMMED TO HAVE A WEEKLY 30 MINUTE TEST AT THE OWNER'S SELECTED DAY AND TIME.
  - GENERATOR PAD LOCATION SHALL BE GRADED TO DRAIN AROUND AND AWAY FROM THE PAD WITHOUT PONDING.



ISSUED FOR CONSTRUCTION



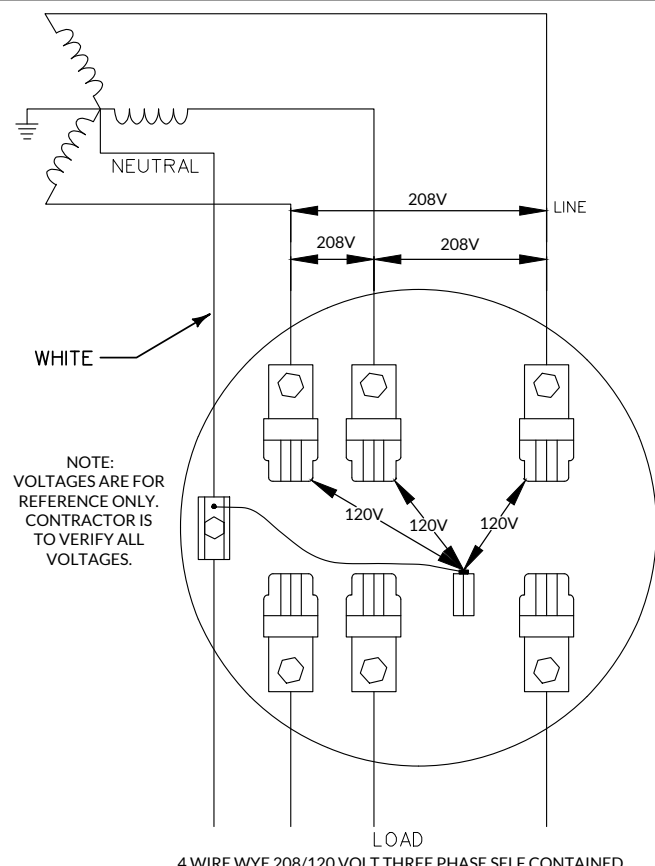
BUFFALO GAP, TEXAS  
EMERGENCY GENERATORS  
ELECTRICAL SITE PLAN  
ESTA NEVA LIFT STATION

NO.	REVISION	DATE
1	ADDENDUM #1	05/28/2024

PROJECT # 23404  
SHEET 23

SCALE 1" = 6'  
BARS ONE INCH IN LENGTH ON ORIGINAL DRAWING.  
CHECK SCALE AND ADJUST ACCORDINGLY.

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 Save Time: cccarpenter  
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**PROPOSED AEP ELECTRICAL SERVICE DETAIL**

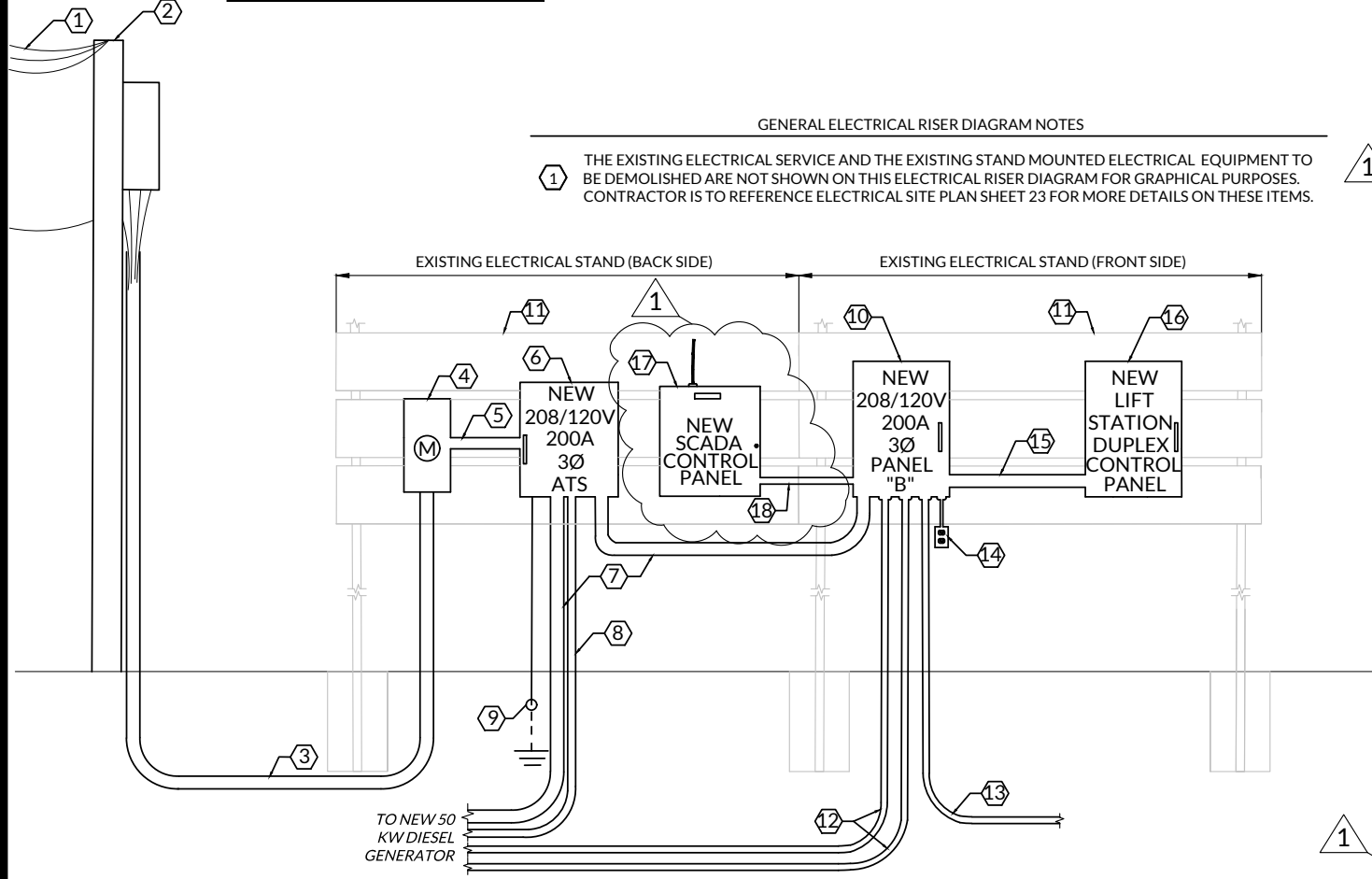
**City of Buffalo Gap Esta Neva Lift Station  
New Panel "B" Schedule**

<b>Main Breaker Rating:</b>	200 AMPS	<b>3 Phase 4 Wire</b>		<b>Conductor Color Code</b>		<b>Phase 1 Load:</b>	70
<b>M.L.O. Bus Rating:</b>	200 AMPS	<b>208/120 VAC</b>		Phase 1 -----	BLACK	<b>Phase 2 Load:</b>	76
<b>Sym. Inter. Cap.:</b>	> 21k AMPS			Phase 2 -----	RED	<b>Phase 3 Load:</b>	74
				Phase 3 -----	BLUE		
				Neutral -----	WHITE or GRAY		
				Ground -----	GREEN		
<b>Surface Mount.:</b>	X	<b>NEMA 1:</b>					
<b>Flush Mount.:</b>		<b>NEMA 3R:</b>	X				

POLE	SERVICE	W	LOAD PHASE			BREAKER POLES	POLE	1	2	3	POLE	SERVICE	W	LOAD PHASE			BREAKER POLES	POLE
			1	2	3									1	2	3		
1	New Lift station Duplex Control Panel (Note 4)	22310	62			90 / 3	1	X			2	Breaker for existing breaker in Panel "A"				20 / 1	2	
3	"		62				3		X		4	New convenience receptacle	180		2	20 / 1	4	
5	"			62			5			X	6	New Generator Block Heater (Note 1)	1200		10	20 / 1	6	
7	Breaker for Existing Light in Panel "A"	360	3			20 / 1	7	X			8	New SCADA Panel	600	5		20 / 1	8	
9	New Generator Battery Charger (Note 1)	1200	10			20 / 1	9			X	10	Future Heat Tape (Note 3)	180		2	20 / 1	10	
11							11			X	12	Future Heat Tape (Note 3)	180		2	20 / 1	12	
13							13	X			14						14	
15							15		X		16						16	
17							17			X	18						18	

**Notes:**

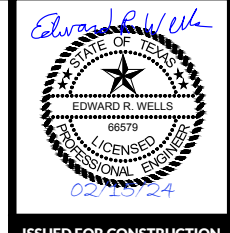
- Contractor to verify breaker size for generator branch circuits with generator manufacturer and adjust breaker size, conduit, and wiring as necessary per NEC code.
- Contractor is to verify all existing loads are accounted for in this panel and provide breakers, conduit, and wiring for all existing loads to be re-wired to this panel. Existing conduit and wiring may be reused for existing loads if it meets the size requirements.
- Contractor is to provide and install breaker only with this load. No wiring or conduit is to be installed with this load as part of this contract.
- Contractor is to verify breaker size with duplex pump panel manufacturer and adjust breaker, wiring, and conduit as necessary per NEC code.



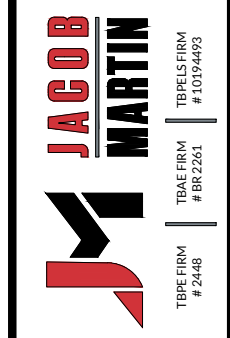
**ELECTRICAL RISER DIAGRAM**  
NTS

**ELECTRICAL RISER DIAGRAM NOTES BY REFERENCE #**

- NEW AEP 3Ø OVERHEAD ELECTRICAL PRIMARY PROVIDED AND INSTALLED BY AEP.
- NEW AEP PRIMARY DEADEND POLE WITH (3) TRANSFORMER BANK FOR NEW 208/120V, 3Ø ELECTRICAL SERVICE PROVIDED AND INSTALLED BY AEP.
- NEW AEP UNDERGROUND 208/120V, 3Ø ELECTRICAL SECONDARY. CONTRACTOR TO PROVIDE (1) - 4" PVC SCHEDULE 40 SECONDARY CABLE CONDUIT WITH LONG SWEEPING ELBOWS, PULL ROPES, AND 36" OF COVER PER AEP'S REQUIREMENTS. CONTRACTOR IS TO PROVIDE RED DITCH TAPE 12" ABOVE SECONDARY CABLE CONDUIT AS PER AEP'S REQUIREMENTS. AEP WILL PROVIDE AND INSTALL SECONDARY CABLE.
- NEW STAND MOUNTED ELECTRICAL METER. CONTRACTOR TO PROVIDE AND INSTALL METER CAN AS PER AEP'S REQUIREMENTS. AEP TO PROVIDE AND INSTALL ELECTRICAL METER. CONTRACTOR IS TO PROVIDE MOUNTING FOR THE METER AS NECESSARY.
- (3) - 3/0 PHASE CONDUCTORS, (1) - 3/0 NEUTRAL CONDUCTOR IN 2" CONDUIT.
- NEW 208/120V, 3Ø, 200A SERVICE RATED ATS IN NEMA 3R ENCLOSURE. ATS TO HAVE AIC RATING >21KA. BOND NEUTRAL TO GROUND IN THIS PANEL.
- (3) - 3/0 PHASE CONDUCTORS, (1) - 3/0 NEUTRAL CONDUCTOR, (1) - #6 AWG GROUND IN 2" CONDUIT.
- GENERATOR CONTROL WIRE FOR GENERATOR START AND PERMISSION TO STOP IN 3/4" CONDUIT TO THE NEW DIESEL GENERATOR. REFERENCE ELECTRICAL SITE PLAN SHEET 23 FOR CONDUIT ROUTE.
- (1) - #4 AWG GROUND IN 1/2" PVC CONDUIT. CADWELDED TO 5/8" X 10'-0" COPPER CLAD STEEL GROUND ROD.
- NEW 208/120V, 3Ø, 200A PANEL "B" TO REPLACE EXISTING 240/120V, 1Ø, 100A PANEL "A" AND EXISTING JUNCTION BOX. EXISTING PANEL AND JUNCTION BOX TO BE DEMOLISHED. CONTRACTOR TO VERIFY THAT ALL EXISTING LOADS ARE ACCOUNTED FOR ON PANEL "B" AND PROVIDE BREAKERS, CONDUIT, AND WIRING FOR ALL EXISTING LOADS TO BE WIRED TO PANEL "B". EXISTING CONDUIT AND WIRING TO EXISTING LOADS TO BE RE-USED IF POSSIBLE.
- CONTRACTOR IS TO MODIFY EXISTING ELECTRICAL STAND AS NEEDED AND PROVIDE SUPPORTS FOR NEW ELECTRICAL EQUIPMENT. CONTRACTOR IS TO VERIFY SPACE ON EXISTING ELECTRICAL STAND. PLANS AND RISER DIAGRAM ARE SHOWN FOR GENERAL EQUIPMENT LAYOUT AND ARE FOR REFERENCE ONLY.
- 2 SETS OF (1 SET FOR EACH GENERATOR BRANCH CIRCUIT): (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS WITH GENERATOR MANUFACTURER AND ADJUST BREAKERS, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.
- (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FOR EXISTING POLE MOUNTED LIGHT. CONTRACTOR MAY RE-USE EXISTING CONDUIT AND WIRING IF IT MEETS SIZE REQUIREMENTS.
- NEW CONVENIENCE RECEPTACLE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR TO PROVIDE AND INSTALL (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT TO THE RECEPTACLE.
- (3) - #2 AWG PHASE CONDUCTORS, (1) - #2 AWG NEUTRAL CONDUCTOR, (1) - #8 AWG GROUND IN 1-1/4" CONDUIT. CONTRACTOR TO VERIFY BREAKER SIZE WITH CONTROL PANEL MANUFACTURER AND ADJUST WIRING, CONDUIT, AND BREAKER AS NECESSARY PER NEC CODE.
- NEW LIFT STATION DUPLEX CONTROL PANEL TO CONTROL (2) - 208V, 3Ø, 10 HP LIFT PUMPS TO REPLACE EXISTING DUPLEX CONTROL PANEL. EXISTING CONDUIT AND WIRING FROM EXISTING CONTROL PANEL TO LIFT STATION PUMPS TO BE RE-USED FOR NEW CONTROL PANEL IF IT MEETS SIZE REQUIREMENTS.
- NEW MISSION COMMUNICATIONS SCADA PANEL PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS TO PROVIDE PROGRAMMING FOR THE SCADA PANEL AS NECESSARY. CONTRACTOR IS TO VERIFY PANEL LOCATION, ADJUST ACCORDINGLY, AND PROVIDE MOUNTING FOR THE SCADA PANEL.
- (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FROM PANEL "A" TO THE NEW SCADA PANEL.



ISSUED FOR CONSTRUCTION



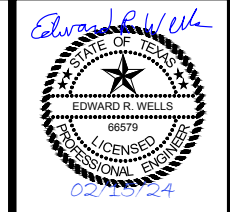
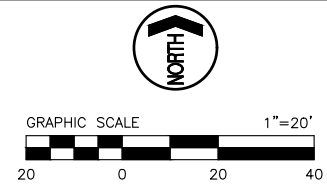
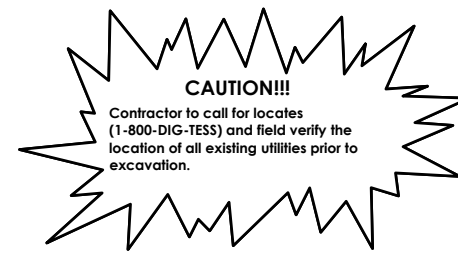
BUFFALO GAP, TEXAS  
 EMERGENCY GENERATORS  
 ELECTRICAL RISER DIAGRAM & SCHEDULE  
 ESTA NEVA LIFT STATION

DATE	05/28/2024
NO. REVISION	
ADDENDUM #1	
PROJECT #	23404
SCALE	NTS
SHEET	24

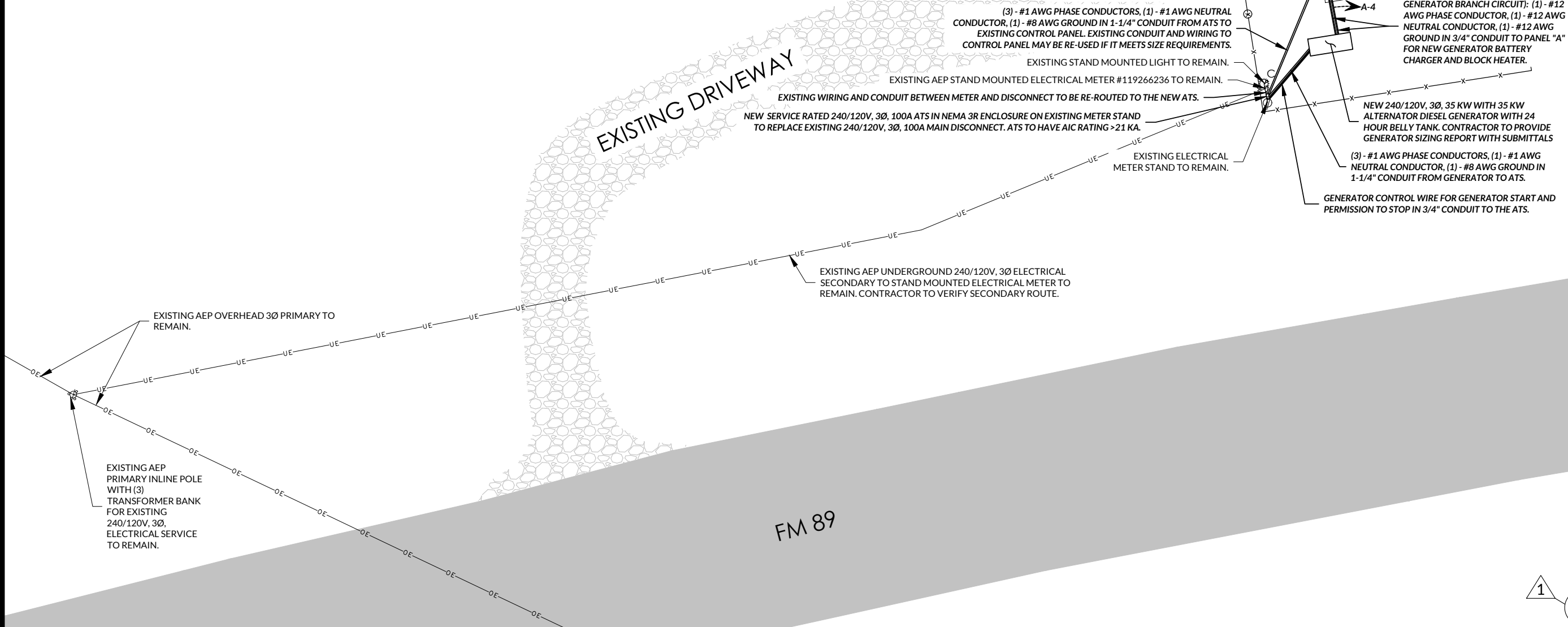
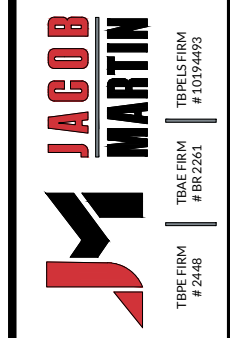
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**NOTES:**

1. EXISTING EQUIPMENT AND LIGHTS ARE FOR REFERENCE ONLY. FOR CLARITY, NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO UTILITIES OR STRUCTURES, WHETHER SHOWN ON THESE PLANS OR NOT.
2. REFERENCE SHEET 26 FOR ELECTRICAL RISER DIAGRAM OF THE FM 89 LIFT STATION.
3. CONTRACTOR TO MAINTAIN 3' WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.
4. CIRCUIT TAGS ARE SHOWN FOR NEW CIRCUITS ONLY. REFERENCE PANEL SCHEDULES FOR ALL EXISTING CIRCUITS.
5. OUTLINE OF ATS OPERATIONS:
  - WHEN THE ATS DETECTS UNACCEPTABLE UTILITY POWER, THE ATS WILL SEND A START SIGNAL TO THE STANDBY GENERATOR
  - WHEN THE ATS DETECTS ACCEPTABLE GENERATOR POWER, THE ATS WILL SWITCH THE LOAD TO THE GENERATOR POWER.
  - THE ATS WILL STAY ON GENERATOR POWER IF THE UTILITY POWER IS UNACCEPTABLE.
  - IF THE UTILITY POWER IS ACCEPTABLE, THE ATS WILL SWITCH TO UTILITY POWER AND SEND A PERMISSION TO STOP SIGNAL TO THE GENERATOR.
6. REFERENCE GENERATOR PAD DETAIL SHEET 29 AND SPECIFICATIONS FOR GENERATOR ANCHOR BOLT REQUIREMENTS.
7. FM 89 LIFT STATION GENERATOR TO BE BID WITH THE NORMAL WEATHER PROTECTED ENCLOSURE.
8. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS (BLOCK HEATER, BATTERY CHARGER, ETC.) TO PANEL "A" AND ADJUST BREAKERS AND WIRING ACCORDINGLY.
9. CONTRACTOR IS COORDINATE WITH AEP AND PAY ALL COSTS REQUIRED BY AEP FOR THE METER DISCONNECT/RECONNECTION.
10. GENERATOR TO BE PROGRAMMED TO HAVE A WEEKLY 30 MINUTE TEST AT THE OWNER'S SELECTED DAY AND TIME.
11. GENERATOR PAD LOCATION SHALL BE GRADED TO DRAIN AROUND AND AWAY FROM THE PAD WITHOUT PONDING.



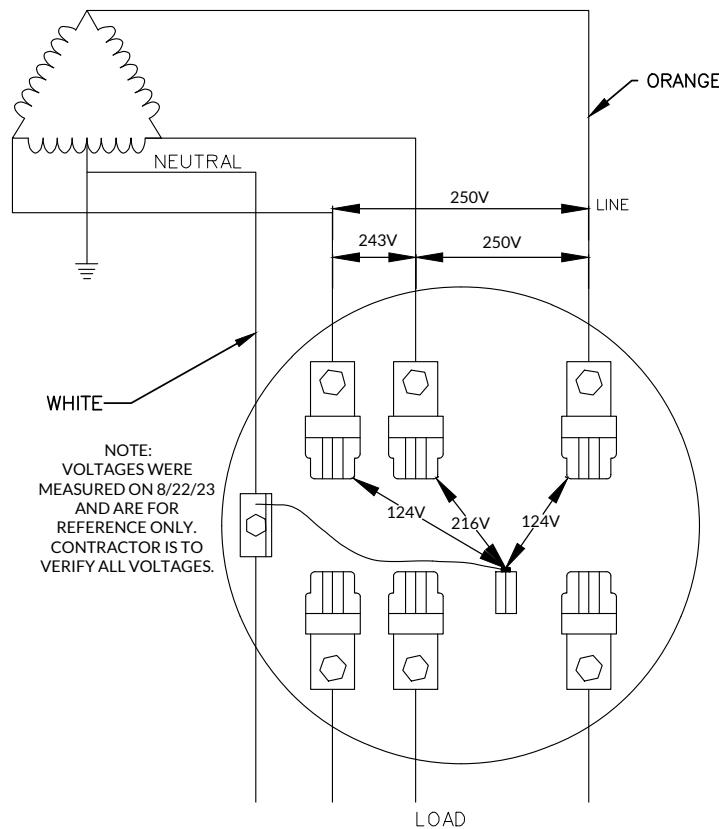
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BUFFALO GAP, TEXAS  
**EMERGENCY GENERATORS**  
**ELECTRICAL SITE PLAN**  
**FM 89 LIFT STATION**

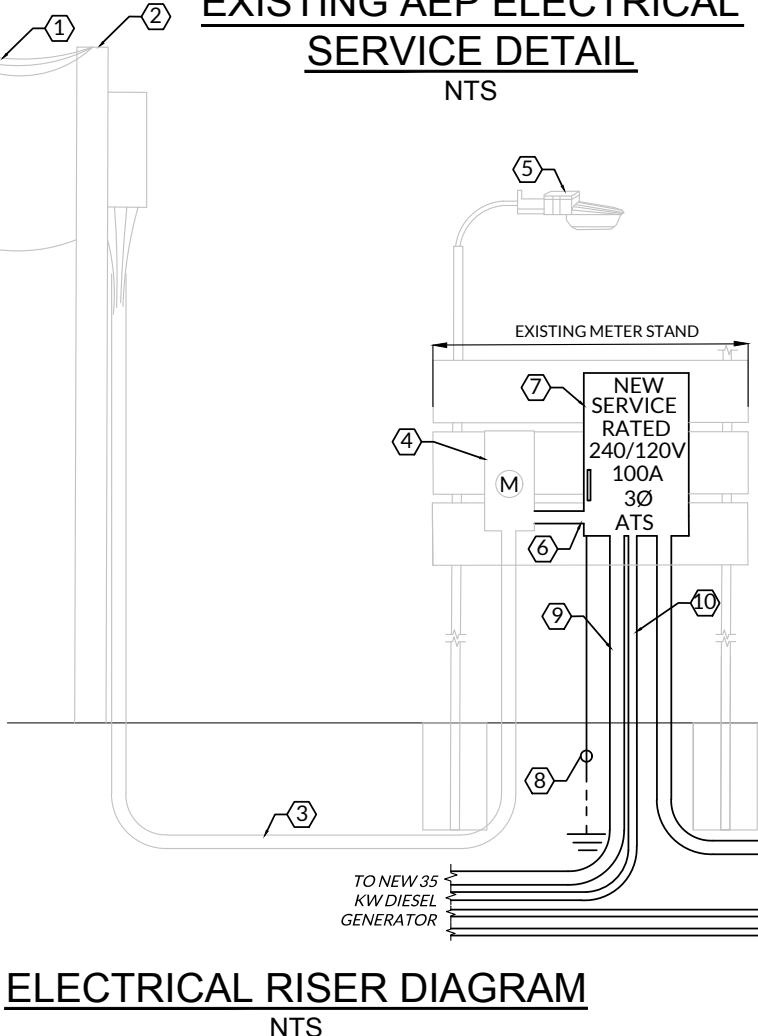
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 Plotted by: cole carpenter  
 Plot Date: 5/28/2024 10:43 AM



ON A 4 WIRE DELTA CONNECTION, THE PHASE HAVING THE HIGHEST VOLTAGE TO GROUND (HIGH LEG OR WILD LEG) MUST BE CONNECTED TO THE RIGHT HAND TERMINALS OF THE METER SOCKET. IN OTHER LOCATIONS, SUCH AS SERVICE ENCLOSURES, DISCONNECTS, ETC. THE "HIGH LEG" IS CONNECTED TO THE CENTER TERMINAL

### EXISTING AEP ELECTRICAL SERVICE DETAIL NTS



### ELECTRICAL RISER DIAGRAM NTS

City of Buffalo Gap FM 89 Lift Station																		
Existing Panel "A" Schedule																		
										Conductor Color Code		Load						
Main Breaker Rating:		100 AMPS		1 Phase 3 Wire		Line 1 -----		BLACK		Phase 1 Load:		8						
M.L.O. Bus Rating:		100 AMPS		120/240 VAC		Line 2 -----		RED		Phase 2 Load:		15						
Sym. Inter. Cap.:		AMPS				Neutral -----		WHITE or GRAY										
Surface Mount.:		X		NEMA 1:		Ground -----		GREEN										
Flush Mount.:				NEMA 3R:		X												
POLE	SERVICE	W	LOAD LINE		BREAKER POLES		POLE	1	2	POLE	SERVICE	W	LOAD LINE		BREAKER POLES		POLE	
			1	2									1	2				
1	Existing Light	360	3		20 / 1	1	X			2	Existing Breaker						20 / 1	2
3	New Generator Battery Charger (Note 1)	600		5	20 / 1	3		X		4	New Generator Block Heater (Note 1)	1200		10			20 / 1	4
5						5	X			6	New SCADA Panel	600		5			20 / 1	6
7						7		X		8								8
9						9	X			10								10
11						11			X	12								12

**Notes:**  
 1. Contractor is to verify generator branch circuits with generator manufacturer and adjust breaker size, wiring, and conduit as necessary per NEC code.  
 2. No work is to be done to existing circuits in this panel. The only work to this panel is the (2) new generator branch circuits.

- ELECTRICAL RISER DIAGRAM NOTES BY REFERENCE #
- 1 EXISTING AEP 3Ø OVERHEAD ELECTRICAL PRIMARY TO REMAIN.
  - 2 EXISTING AEP PRIMARY INLINE POLE WITH (3) TRANSFORMER BANK FOR EXISTING 240/120V, 3Ø ELECTRICAL SERVICE TO REMAIN.
  - 3 EXISTING AEP 240/120V, 3Ø UNDERGROUND ELECTRICAL SECONDARY TO REMAIN.
  - 4 EXISTING AEP POLE MOUNTED ELECTRICAL METER #119266236, MAST, WEATHERHEAD, AND WIRING TO REMAIN.
  - 5 EXISTING STAND MOUNTED LIGHT AND ASSOCIATED CONDUIT AND WIRING TO REMAIN.
  - 6 EXISTING WIRING AND CONDUIT TO BE RE-ROUTED TO THE NEW ATS.
  - 7 NEW SERVICE RATED 240/120V, 3Ø, 100A ATS IN NEMA 3R ENCLOSURE ON EXISTING METER STAND TO REPLACE EXISTING 240/120V, 3Ø, 100A MAIN DISCONNECT. ATS TO HAVE AIC RATING >21 KA. BOND NEUTRAL TO GROUND IN THIS PANEL.
  - 8 (1) - #8 AWG GROUND IN 1/2" PVC CONDUIT. CADWELDED TO 5/8" X 10'-0" COPPER CLAD STEEL GROUND ROD.
  - 9 (3) - #1 AWG PHASE CONDUCTORS, (1) - #1 AWG NEUTRAL CONDUCTOR, (1) - #8 AWG GROUND IN 1-1/4" CONDUIT TO NEW DIESEL GENERATOR. REFERENCE ELECTRICAL SITE PLAN SHEET 25 FOR CONDUIT ROUTE.
  - 10 GENERATOR CONTROL WIRE FOR GENERATOR START AND PERMISSION TO STOP IN 3/4" CONDUIT TO THE NEW DIESEL GENERATOR. REFERENCE ELECTRICAL SITE PLAN SHEET 25 FOR CONDUIT ROUTE.
  - 11 (3) - #1 AWG PHASE CONDUCTORS, (1) - #1 AWG NEUTRAL CONDUCTOR, (1) - #8 AWG GROUND IN 1-1/4" CONDUIT TO EXISTING CONTROL PANEL. EXISTING CONDUIT AND WIRING TO CONTROL PANEL MAY BE RE-USED IF IT MEETS SIZE REQUIREMENTS. REFERENCE ELECTRICAL SITE PLAN SHEET 25 FOR CONDUIT ROUTE.
  - 12 2 SETS OF (1 SET FOR EACH GENERATOR BRANCH CIRCUIT): (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS WITH GENERATOR MANUFACTURER AND ADJUST BREAKERS, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.
  - 13 EXISTING ELECTRICAL STAND TO REMAIN.
  - 14 EXISTING WIRING, CONDUIT, AND ALL EXISTING EQUIPMENT ON THE ELECTRICAL STAND IS TO REMAIN.
  - 15 NEW MISSION COMMUNICATIONS SCADA PANEL PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS TO PROVIDE PROGRAMMING FOR THE SCADA PANEL AS NECESSARY. CONTRACTOR IS TO VERIFY PANEL LOCATION, ADJUST ACCORDINGLY, AND PROVIDE MOUNTING FOR THE SCADA PANEL.
  - 16 (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FROM PANEL "A" TO THE NEW SCADA PANEL.

**JACOB MARTIN**  
 TBPE FIRM # 10194493  
 TBPE FIRM # BR-2261  
 TBPE FIRM # 2448

BUFFALO GAP, TEXAS

**EMERGENCY GENERATORS**

**ELECTRICAL RISER DIAGRAM & SCHEDULE**

**FM 89 LIFT STATION**

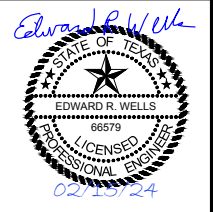
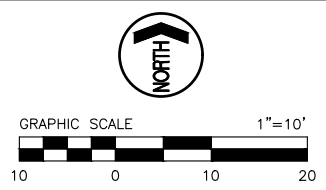
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26	ADDENDUM #1	05/28/2024		23404	26

BARS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

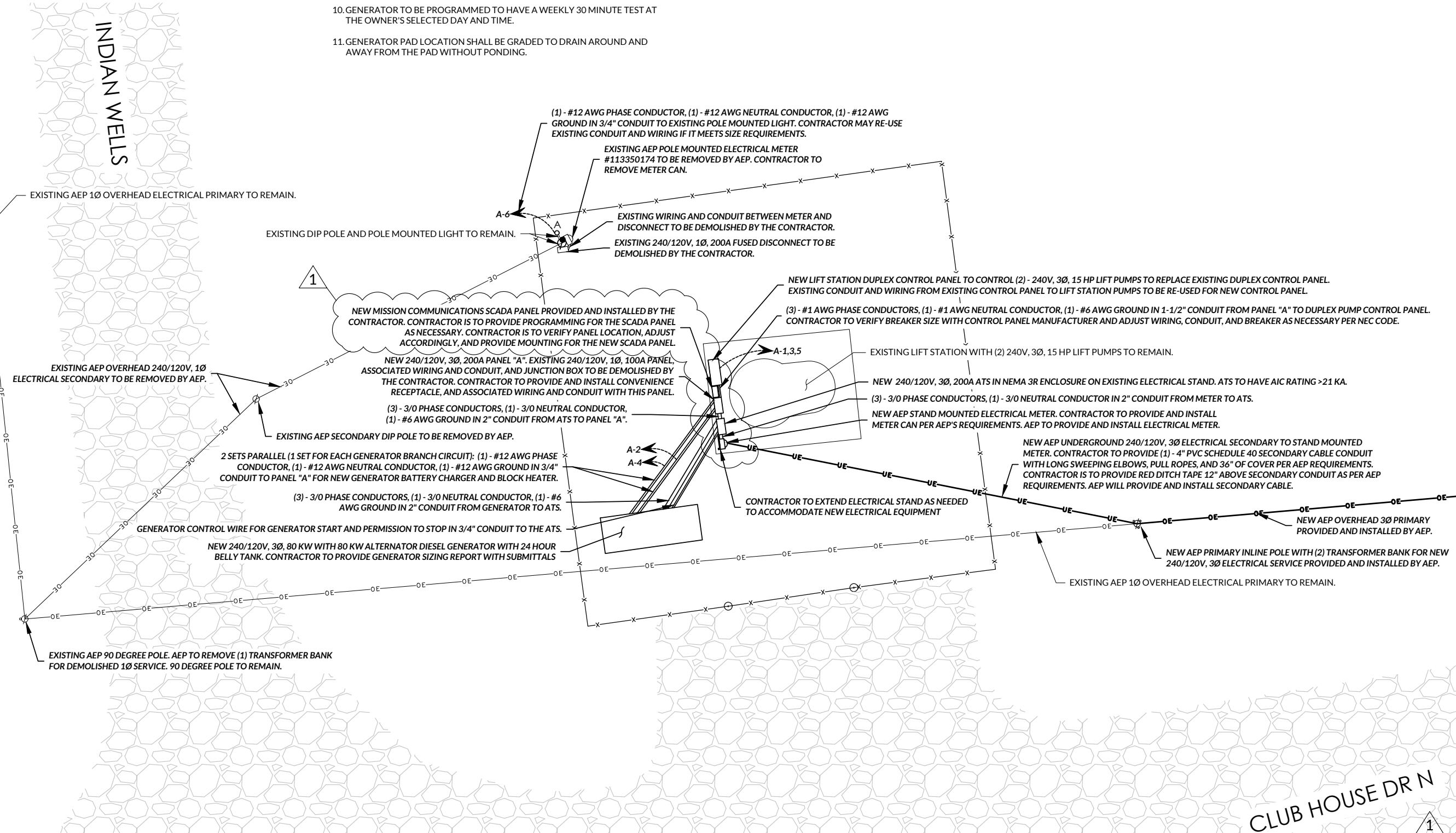
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 Plot Date: 5/28/2024 10:43 AM

**NOTES:**

- EXISTING EQUIPMENT AND LIGHTS ARE FOR REFERENCE ONLY. FOR CLARITY, NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO UTILITIES OR STRUCTURES, WHETHER SHOWN ON THESE PLANS OR NOT.
- REFERENCE SHEET 28 FOR ELECTRICAL RISER DIAGRAM OF THE INDIAN WELLS LIFT STATION.
- CONTRACTOR TO MAINTAIN 3' WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.
- CONTRACTOR IS TO PROVIDE WIRING AND CONDUIT FOR ALL EXISTING AND NEW LOADS TO PANEL "A". CONTRACTOR MAY RE-USE EXISTING CONDUIT AND WIRING IF IT MEETS SIZE REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH AEP AND ANY ELECTRICAL COSTS BY THE UTILITY FOR THE NEW ELECTRICAL SERVICE.
- OUTLINE OF ATS OPERATIONS:
  - WHEN THE ATS DETECTS UNACCEPTABLE UTILITY POWER, THE ATS WILL SEND A START SIGNAL TO THE STANDBY GENERATOR
  - WHEN THE ATS DETECTS ACCEPTABLE GENERATOR POWER, THE ATS WILL SWITCH THE LOAD TO THE GENERATOR POWER.
  - THE ATS WILL STAY ON GENERATOR POWER IF THE UTILITY POWER IS UNACCEPTABLE.
  - IF THE UTILITY POWER IS ACCEPTABLE, THE ATS WILL SWITCH TO UTILITY POWER AND SEND A PERMISSION TO STOP SIGNAL TO THE GENERATOR.
- REFERENCE GENERATOR PAD DETAIL SHEET 29 AND SPECIFICATIONS FOR GENERATOR ANCHOR BOLT REQUIREMENTS.
- INDIAN WELLS LIFT STATION GENERATOR TO BE BID WITH THE NORMAL WEATHER PROTECTED ENCLOSURE.
- CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS (BLOCK HEATER, BATTERY CHARGER, ETC.) TO PANEL "A" AND ADJUST BREAKERS AND WIRING ACCORDINGLY.
- GENERATOR TO BE PROGRAMMED TO HAVE A WEEKLY 30 MINUTE TEST AT THE OWNER'S SELECTED DAY AND TIME.
- GENERATOR PAD LOCATION SHALL BE GRADED TO DRAIN AROUND AND AWAY FROM THE PAD WITHOUT PONDING.



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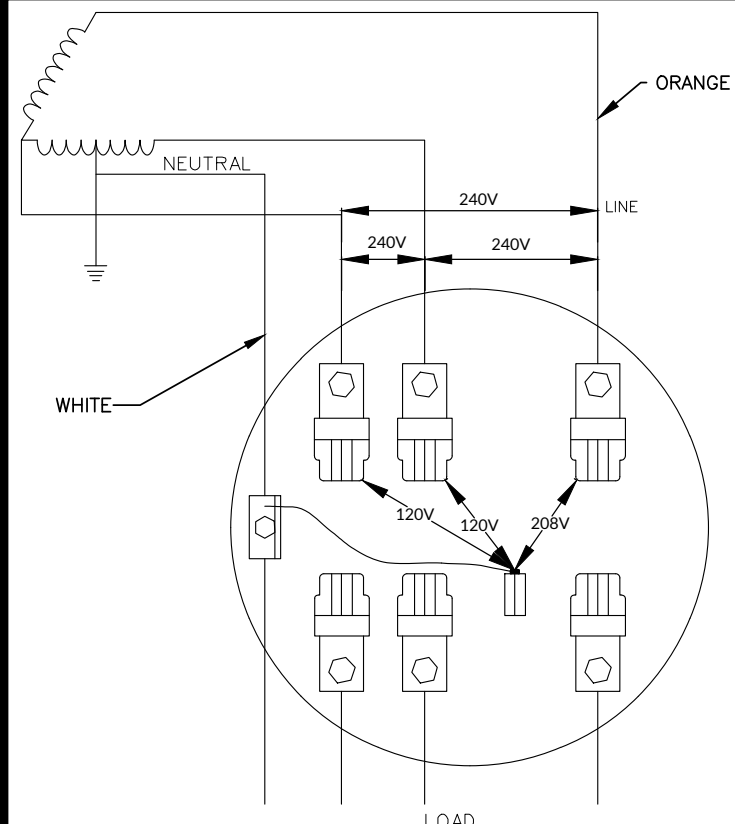
BUFFALO GAP, TEXAS  
 EMERGENCY GENERATORS  
 ELECTRICAL SITE PLAN  
 INDIAN WELLS LIFT STATION

NO.	REVISION	DATE
1	ADDENDUM #1	05/28/2024
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PROJECT # 23404  
 SCALE 1" = 10'  
 SHEET 27 OF 29  
 BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING.  
 CHECK SCALE AND ADJUST ACCORDINGLY.

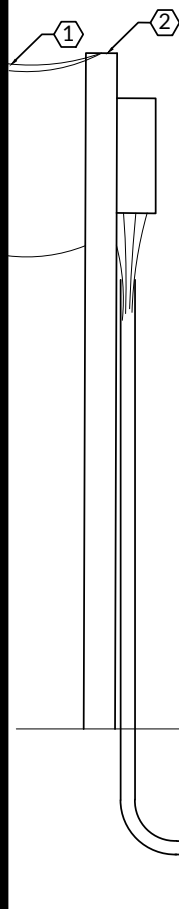
CLUB HOUSE DR N

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 x:\c:\buffalo\_gsp\23404 - usdo-rd generators - buffalo\_gsp\Drafting\Plans\Civil\Final\30 ELECTRICAL RISER DIAGRAM & SCHEDULE INDIAN WELLS LIFT STATION.dwg

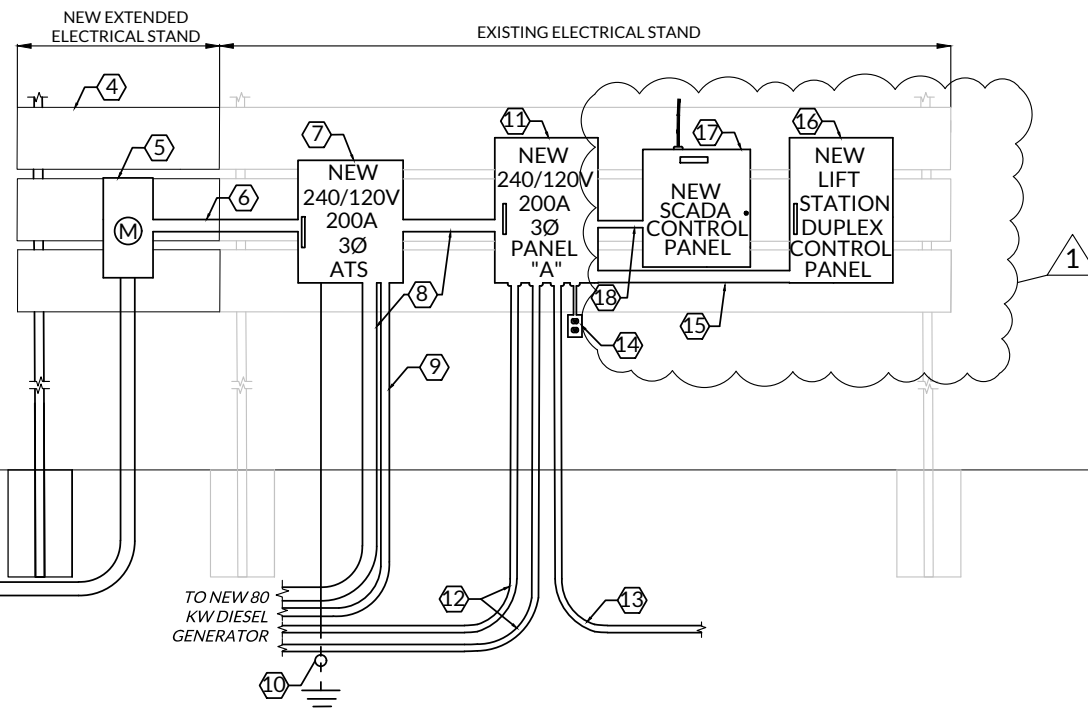


ON A 4 WIRE DELTA CONNECTION, THE PHASE HAVING THE HIGHEST VOLTAGE TO GROUND (HIGH LEG OR WILD LEG) MUST BE CONNECTED TO THE RIGHT HAND TERMINALS OF THE METER SOCKET. IN OTHER LOCATIONS, SUCH AS SERVICE ENCLOSURES, DISCONNECTS, ETC. THE "HIGH LEG" IS CONNECTED TO THE CENTER TERMINAL

### NEW AEP ELECTRICAL SERVICE DETAIL NTS



### ELECTRICAL RISER DIAGRAM NTS

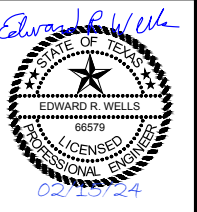


City of Buffalo Gap Indian Wells Lift Station														
New Panel "A" Schedule														
Main Breaker Rating: 200 AMPS										3 Phase 4 Wire 240/120 VAC				
M.L.O. Bus Rating: 200 AMPS										Conductor Color Code				
Sym. Inter. Cap.: > 21k AMPS										Phase 1 ----- BLACK				
Surface Mount.: X										Phase 2 ----- RED (High Leg)				
Flush Mount.: _____										Phase 3 ----- BLUE				
NEMA 1: _____										Neutral ----- WHITE or GRAY				
NEMA 3R: X										Ground ----- GREEN				
Note: High-Leg Identification: Orange & Label										Phase 1 Load: 99				
Note: Contractor to provide and install SPD (Surge Protection Device)										Phase 2 Load: 89				
										Phase 3 Load: 89				
POLE	SERVICE	W	LOAD	BREAKER	POLE	1	2	3	POLE	SERVICE	W	LOAD	BREAKER	POLE
			PHASE	POLES								PHASE	POLES	
			1	2	3							1	2	3
1	New Lift Station Duplex Control Panel (Note 2)	34877	84		125 / 3	1	X		2	New Generator Block Heater (Note 3)	1200	10		20 / 1
3	"		84			3		X	4	New Generator Battery Charger (Note 3)	600		5	20 / 1
5	"		84			5		X	6	Existing Pole Mounted Light (Note 4)	360		3	20 / 1
7	New SCADA Panel	600	5		20	7	X		8	Spare Breaker (Note 1)				20 / 1
9	"					9		X	10	Spare Breaker (Note 1)				20 / 1
11	"					11		X	12	New Convenience Receptacle	180		2	20 / 1
13	"					13	X		14					
15	"					15		X	16					
17	"					17		X	18					
19	"					19	X		20	SPD				
21	"					21		X	22	SPD				
23	"					23		X	24	SPD				

- Notes:**
- Contractor is to install the breaker only. No wiring or conduit is to be installed for this breaker.
  - Contractor is to verify breaker size duplex panel manufacturer and adjust breaker size, wiring, and conduit as necessary per NEC code.
  - Contractor is to verify generator branch circuits with generator manufacturer and adjust breaker size, wiring, and conduit as necessary per NEC code.
  - Contractor to provide breaker, wiring, and conduit to the existing pole mounted light. Contractor may re-use existing conduit and wiring if it meets size requirements.
  - Contractor is to verify all existing loads are accounted for on this panel and provide breakers, conduit, and wiring for all existing loads.

#### ELECTRICAL RISER DIAGRAM NOTES BY REFERENCE #

- NEW AEP 3Ø OVERHEAD ELECTRICAL PRIMARY PROVIDED AND INSTALLED BY AEP.
- NEW AEP PRIMARY INLINE POLE WITH (2) TRANSFORMER BANK FOR NEW 240/120V, 3Ø ELECTRICAL SERVICE PROVIDED AND INSTALLED BY AEP.
- NEW AEP UNDERGROUND 240/120V, 3Ø ELECTRICAL SECONDARY. CONTRACTOR TO PROVIDE (1) - 4" PVC SCHEDULE 40 SECONDARY CABLE CONDUIT WITH LONG SWEEPING ELBOWS, PULL ROPES, AND 36" OF COVER PER AEP'S REQUIREMENTS. CONTRACTOR IS TO PROVIDE RED DITCH TAPE 12" ABOVE SECONDARY CABLE CONDUIT AS PER AEP'S REQUIREMENTS. AEP WILL PROVIDE AND INSTALL SECONDARY CABLE.
- CONTRACTOR IS TO EXTEND ELECTRICAL STAND AS NEEDED FOR NEW ELECTRICAL EQUIPMENT. CONTRACTOR IS TO VERIFY SPACE ON EXISTING ELECTRICAL STAND. PLANS AND RISER DIAGRAM ARE SHOWN FOR GENERAL EQUIPMENT LAYOUT AND ARE FOR REFERENCE ONLY.
- NEW STAND MOUNTED ELECTRICAL METER. CONTRACTOR TO PROVIDE AND INSTALL METER CAN AS PER AEP'S REQUIREMENTS. AEP TO PROVIDE AND INSTALL ELECTRICAL METER.
- (3) - 3/0 PHASE CONDUCTORS, (1) - 3/0 NEUTRAL CONDUCTOR IN 2" CONDUIT.
- NEW 240/120V, 3Ø, 200A ATS IN NEMA 3R ENCLOSURE. ATS TO HAVE AIC RATING >21KA. BOND NEUTRAL TO GROUND IN THIS PANEL.
- (3) - 3/0 PHASE CONDUCTORS, (1) - 3/0 NEUTRAL CONDUCTOR, (1) - #6 AWG GROUND IN 2" CONDUIT.
- GENERATOR CONTROL WIRE FOR GENERATOR START AND PERMISSION TO STOP IN 3/4" CONDUIT TO THE NEW DIESEL GENERATOR. REFERENCE ELECTRICAL SITE PLAN SHEET 27 FOR CONDUIT ROUTE.
- (1) - #4 AWG GROUND IN 1/2" PVC CONDUIT. CADWELDED TO 5/8" X 10'-0" COPPER CLAD STEEL GROUND ROD.
- NEW PANEL "A" TO REPLACE EXISTING 240/120V, 1Ø, 100A PANEL. EXISTING PANEL, ASSOCIATED WIRING AND CONDUIT, AND JUNCTION BOX TO BE DEMOLISHED. CONTRACTOR TO VERIFY THAT ALL EXISTING LOADS ARE ACCOUNTED FOR ON PANEL "A" AND PROVIDE BREAKERS, CONDUIT, AND WIRING FOR ALL EXISTING LOADS TO BE WIRED TO PANEL "A".
- 2 SETS OF (1 SET FOR EACH GENERATOR BRANCH CIRCUIT): (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT. CONTRACTOR TO VERIFY GENERATOR BRANCH CIRCUITS WITH GENERATOR MANUFACTURER AND ADJUST BREAKERS, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.
- (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FOR EXISTING POLE MOUNTED LIGHT. CONTRACTOR MAY RE-USE EXISTING CONDUIT AND WIRING IF IT MEETS SIZE REQUIREMENTS.
- NEW CONVENIENCE RECEPTACLE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR TO PROVIDE AND INSTALL (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT TO THE RECEPTACLE.
- (3) - #1 AWG PHASE CONDUCTORS, (1) - #1 AWG NEUTRAL CONDUCTOR, (1) - #6 AWG GROUND IN 1-1/2" CONDUIT. CONTRACTOR TO VERIFY BREAKER SIZE WITH CONTROL PANEL MANUFACTURER AND ADJUST WIRING, CONDUIT, AND BREAKER AS NECESSARY PER NEC CODE.
- NEW LIFT STATION DUPLEX CONTROL PANEL TO CONTROL (2) - 240V, 3Ø, 15 HP LIFT PUMPS TO REPLACE EXISTING DUPLEX CONTROL PANEL. EXISTING CONDUIT AND WIRING FROM EXISTING CONTROL PANEL TO LIFT STATION PUMPS TO BE RE-USED FOR NEW CONTROL PANEL.
- NEW MISSION COMMUNICATIONS SCADA PANEL PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS TO PROVIDE PROGRAMMING FOR THE SCADA PANEL AS NECESSARY. CONTRACTOR IS TO VERIFY PANEL LOCATION, ADJUST ACCORDINGLY, AND PROVIDE MOUNTING FOR THE SCADA PANEL.
- (1) - #12 AWG PHASE CONDUCTOR, (1) - #12 AWG NEUTRAL CONDUCTOR, (1) - #12 AWG GROUND IN 3/4" CONDUIT FROM PANEL "A" TO THE NEW SCADA PANEL.



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## BUFFALO GAP, TEXAS EMERGENCY GENERATORS ELECTRICAL RISER DIAGRAM & SCHEDULE INDIAN WELLS LIFT STATION

DATE	05/28/2024
NO. REVISION	
ADDENDUM #1	
PROJECT #	23404
SCALE	NTS
SHEET	28

## **SECTION 25 04 01 - SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)**

### **PART 1 GENERAL**

#### **1.1 REFERENCE STANDARDS**

UL 508 - Industrial Control Equipment; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

#### **1.2 WORK INCLUDED**

Supervisory Control And Data Acquisition (SCADA) is a type of industrial control that is used in process applications. In a typical SCADA system, independent programmable logic controllers (PLCs) perform Input/Output (IO) control functions on field devices while being supervised by a Human Machine Interface (HMI) software package, typically running on a personal computer (PC). Process control technicians monitor PLC operations on the PC and send control commands to the PLCs as required. The HMI SCADA software may also trend and archive process data on the PC for later inspection.

The work to be performed under this Contract consists of the furnishing of all materials, tools, equipment, transportation, services, labor and superintendence necessary for the installation and completion of a SCADA system.

#### **1.3 QUALITY ASSURANCE**

All work shall be performed in a first class manner by mechanics skilled in their respective trades. The standards of work required throughout shall be such grade as will bring results of the first class only.

#### **1.4 PREQUALIFIED BIDDERS**

- A. Mission Communications; Norcross, GA; 1-877-993-1911  
(Mike Handy-Bertrem Products: 432-978-2420)

#### **1.5 SPARE PARTS**

- A. PLC: 2

### **PART 2 PRODUCTS**

#### **2.1 DETAILED MATERIALS DESCRIPTION**

##### **A. CELLULAR SCADA HARDWARE**

The CONTRACTOR shall provide the necessary hardware, software, communication equipment and appurtenances to meet the functionality requirements shown on the Plans and as specified. At a minimum the following hardware shall be provided:

1. PLC
2. RTU
3. Antenna
4. Surge Protection
5. 24V Power Supply
6. Uninterruptible Power Supply (UPS)
7. Nema 4 Enclosure

### **PART 3 SCADA SITES**

#### **3.1 SITE # 1**

CR692 Pump Station, Longitude -99.812007, Latitude 32.287184  
In-line booster station with two pumps and a bladder tank.

##### **A. FUNCTIONALITY**

1. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
2. Monitor, record and trend generator fuel level.

3. Monitor, record and trend generator run hours.
4. Monitor, record and trend generator alarms.
5. Pump Status will be displayed for 2 pumps
6. Pump "Run Hours" and "Maintenance Hours" will be recorded for all pumps
7. Site power and communications status will be monitored and displayed
8. "Hand/Off/On (HOA)" Pump controls for 2 pumps based on user-defined setpoints and system pressure.
9. "Hand/Off/On (HOA)" Control of Pressure Tank Air Compressor based on user-defined setpoints and air pressure.

**B. SITE MATERIALS SUMMARY**

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.
2. Pressure Transducer  
Quantity: 1  
Application: Pressure  
Range: 0-150 psi

**3.2 SITE # 2**

Elm Street Pump Station, Longitude -99.823869, Latitude 32.286343

**A. FUNCTIONALITY**

1. This is an existing SCADA site. All existing functionality shall remain in addition to the functionality listed below.
2. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
3. Monitor, record and trend generator fuel level.
4. Monitor, record and trend generator run hours.
5. Monitor, record and trend generator alarms.

**B. SITE MATERIALS SUMMARY**

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

**3.3 SITE # 3**

Hargesheimer Pump Station, Longitude -99.766118, Latitude 32.298751

**A. FUNCTIONALITY**

1. This is an existing SCADA site. All existing functionality shall remain in addition to the functionality listed below.
2. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
3. Monitor, record and trend generator fuel level.
4. Monitor, record and trend generator run hours.
5. Monitor, record and trend generator alarms.

**B. SITE MATERIALS SUMMARY**

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

**3.4 SITE # 4**

CR150 Standpipe, Longitude -99.805058, Latitude 32.255219

**A. FUNCTIONALITY**

1. This is an existing SCADA site. All existing functionality shall remain in addition to the functionality listed below.
2. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
3. Monitor, record and trend generator fuel level.
4. Monitor, record and trend generator run hours.
5. Monitor, record and trend generator alarms.

**B. SITE MATERIALS SUMMARY**



1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

### 3.5 SITE # 5

Buffalo Gap Standpipe, Longitude -99.840808, Latitude 32.287744

#### A. FUNCTIONALITY

1. This is an existing SCADA site. All existing functionality shall remain in addition to the functionality listed below.
2. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
3. Monitor, record and trend generator fuel level.
4. Monitor, record and trend generator run hours.
5. Monitor, record and trend generator alarms.

#### B. SITE MATERIALS SUMMARY

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

### 3.6 SITE # 6

CR692 Main Lift Station, Longitude -99.821934, Latitude 32.287210, Elev 1899  
Duplex lift station equipped with Barnes pumps operated off of floats.

#### A. FUNCTIONALITY

1. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
2. Monitor, record and trend generator fuel level.
3. Monitor, record and trend generator run hours.
4. Monitor, record and trend generator alarms.
5. Monitor and record flow
6. Pump Status will be displayed for 2 pumps
7. Pump "Run Hours" and "Maintenance Hours" will be recorded for all pumps
8. Site power and communications status will be monitored and displayed
9. Alarms
  - a. Wet well high level
  - b. Pump Fault
  - c. Power Fail

#### B. SITE MATERIALS SUMMARY

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

### 3.7 SITE # 7

Esta Neva Lift Station, Longitude -99.824096, Latitude 32.277177, Elev 1918  
Duplex lift station equipped with Barnes pumps operated off of floats.

#### A. FUNCTIONALITY

1. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
2. Monitor, record and trend generator fuel level.
3. Monitor, record and trend generator run hours.
4. Monitor, record and trend generator alarms.
5. Pump Status will be displayed for 2 pumps
6. Pump "Run Hours" and "Maintenance Hours" will be recorded for all pumps
7. Site power and communications status will be monitored and displayed
8. Alarms
  - a. Wet well high level
  - b. Pump Fault
  - c. Power Fail

#### B. SITE MATERIALS SUMMARY

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

### **3.8 SITE # 8**

FM89 Lift Station, Longitude -99.836404, Latitude 32.275339, Elev 1918

Duplex lift station equipped with Barnes pumps operated off of floats.

#### **A. FUNCTIONALITY**

1. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
2. Monitor, record and trend generator fuel level.
3. Monitor, record and trend generator run hours.
4. Monitor, record and trend generator alarms.
5. Pump Status will be displayed for 2 pumps
6. Pump "Run Hours" and "Maintenance Hours" will be recorded for all pumps
7. Site power and communications status will be monitored and displayed
8. Alarms
  - a. Wet well high level
  - b. Pump Fault
  - c. Power Fail

#### **B. SITE MATERIALS SUMMARY**

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

### **3.9 SITE # 9**

Indian Wells Lift Station, Longitude -99.827383, Latitude 32.302908, Elev 1894

Duplex lift station equipped with Barnes pumps operated off of floats.

#### **A. FUNCTIONALITY**

1. Monitor, record and trend generator power status. The SCADA system shall notify the operator via text when the site has switched from utility power to generator power.
2. Monitor, record and trend generator fuel level.
3. Monitor, record and trend generator run hours.
4. Monitor, record and trend generator alarms.
5. Pump Status will be displayed for 2 pumps
6. Pump "Run Hours" and "Maintenance Hours" will be recorded for all pumps
7. Site power and communications status will be monitored and displayed
8. Alarms
  - a. Wet well high level
  - b. Pump Fault
  - c. Power Fail

#### **B. SITE MATERIALS SUMMARY**

1. The CONTRACTOR shall determine all communication equipment necessary to complete the SCADA system to obtain the desired functionality.

### **3.10 REPORT SUMMARY**

#### **A. Daily Reports**

1. Existing Reports
2. Generator Power Report
3. Alarm Report

### **3.11 DATA TREND SUMMARY**

- A. Existing Trends
- B. Generator Power Status at all sites
- C. Generator Run Hours at all sites
- D. Generator Fuel Level at all sites

-- END OF SECTION --