



**RANCH TOWN NO. 2 PUMP STATION IMPROVEMENTS PROJECT**  
**Solicitation No. CO-00599-LE**  
**Job No. 20-6005**

**ADDENDUM NO. 3**  
**October 21, 2022**

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provided in the submitted bid proposal.

<b>RESPONSES TO QUESTIONS</b>
-------------------------------

1. Question: Sheet E503 Detail 1 calls for width of the ductbank concrete to be minimum of 18-1/4" Deep and 2'-10" Wide. This would result in considerably large concrete envelop around the conduits particularly in duct banks that have 2x2 and 1 x 3 conduit orientations. Please confirm if the typical requirements are intended for all duct banks.

*Response: Duct bank detail is typical representation of a 6-conduit duct bank. Refer to "Changes to the Plans", Item 1c.*

2. Question: Sheet E503 Detail 13, calls for Discharge Valve Control Panel rack calls for 316SS C3x6 columns with 1/2" Thick 316SS Base plate. This is not a typical SAWS rack details. We will provide this if it is absolutely required, however, it would make it very costly as compared to typical SAWS detail for control panel racks installations. Please confirm.

*Response: No change will be implemented to the rack detail at this time. Provide per the Contract Documents.*

3. Question: Submittal Document 007d - Schedule of Manufacturers and Suppliers for Major Equipment Section referring to 262726 Wiring Devices, these are typically common materials from the manufactures listed and will be as specified, we request that sections be removed from the submittal requirements. As devices may be furnished from different manufacturers for specific applications.

*Response: The Schedule of Manufacturers and Suppliers for Major Equipment is revised through this addendum to remove Section 26 27 26 Wiring Devices. Please refer to "Changes to Specifications", Item 1.*

4. Question: I am inquiring to see if SAWS or Engineer would allow approved alternates for the vertical turbine pumps?

*Response: No additional manufacturers will be named during bidding. Products submitted by the awarded Contractor for the project may be considered and must meet or exceed the requirements within the specifications.*

5. Question: In specification section 43 24 13.13 2.2.A.1, the Min Efficiency at Design Point for P-101 & P-102 is listed as 75% with an asterisk for the vendor to confirm minimum efficiency at design point. Will that note allow the vendor to provide lower than 75% efficiency if that is what can be guaranteed?

*Response: No, the minimum pump efficiency is 75%. Products submitted by the Contractor must comply with the specifications.*

6. Question: Sheet N102 show Hydropneumatic Tank instruments to be routed to the Surge Control System control panel, but conduit schedule show Circuit C-108 routed to SCADA Panel. Please advise.

*Response: Conduit should be routed to the Surge Control System control panel. Refer to "Changes to the Plans", Item 1b and 1e.*

7. Question: Detail 1 on sheet N503 calls for 316SS Backplate for the GST instrument rack backplate, SAWS standards for rack back plate is Aluminum Plate. Please confirm the use of Aluminum back plate is acceptable.

*Response: The backplate may be aluminum so long as the dissimilar metals are insulated properly. Refer to "Changes to the Plans", Item 1f.*

8. Question: Type SA fixture located adjacent to Generator seems to indicate dual fixtures unlike the rest of sight lights. Please verify that is the intention for the design.

*Response: Correct, Sheet E102 shows two fixtures in the referenced location. Provide two (2) SA type fixtures mounted at 180 degrees as shown.*

9. Question: Conduit/Circuit C-117 shows to be routed from LWCO Relay Panel to LSL-500 Ground Storage Tank Low Level switches to be mounted on Existing Water Storage tank. And currently routed to GST LIT-500, AIT-300 Rack in ductbank section. Please provide the routing from the Instrument Rack to the top of the GST. Currently there are no conduit routing available to the tank roof and it seems the only available routing to the roof will be via access ladder on the south side of the GST. It would seem routing this circuit to hand hole located on SW side of the GST with a short ductbank to the GST access ladder would be much more efficient. Please clarify routing intended.

*Response: Please refer to keynote 18 of the revised Sheet E102 - Electrical Site Plan, attached to this addendum. Refer to "Changes to the Plans", Item 1a.*

10. Question: Sheet E503 duct bank sections 4 and 8 should show the security camera power circuits noted on keynote #14 on Sheet E102. Especially in ductbank section 8 as it is being routed to different location in the electrical room. Please review and advise.

*Response: Please refer to keynote 14 of the revised Electrical Site Plan attached to this addendum. Refer to "Changes to the Plans", Item 1a.*

11. Question: Conduit C-109 is missing from ductbank section 2 & 3 on Sheet E503. Please review and revise.

*Response: Please refer to revised Sheet E503 - Electrical Details Sheet, details 2 and 3, attached to this addendum. Refer to "Changes to the Plans", Item 1c.*

12. Question: Sheet E502 Detail 3 shows the need for Ground Enhancement Material (GEM) for the ground grid for the cable and not the ground plate. Please clarify if the GEM material is for the ground grid ring or the ground plates.

*Response: The GEM material is required for the ground ring conductor as shown on the drawings. The GEM material is not required for the ground plate as shown on the drawings.*

13. Question: Neither the specifications nor the details show the GEM envelop required for the project please clarify the coverage for the ground plate and/or the ground grid.

*Response: The GEM envelope required for the ground grid conductor and ground plate is shown on Sheet E502 detail 3. As shown on Sheet E502 detail 3, provide 18 inches of GEM backfill over the ground ring conductor. Provide 4-inch trench as shown on sheet E502 detail 3. The GEM material is not required for the ground plate as shown on the drawings.*

14. Question: Sheet E502 Detail 4 show the use of the Grounding Pad in slab; however, the plans do not show grounding pads utilized. The equipment detail shows equipment ground to connected directly to the base plate of the motors. Please clarify.

*Response: Provide grounding electrode conductor (ground wire), as shown in detail 5 sheet E502, from each motor base plate and connect to ground ring or to grounding pad in slab (detail 4, sheet E502).*

15. Question: Plan drawings does not show the grounding for the Emergency Generator as specified in Specification Section 26 05 26 3.5 C.5 a. Please provide grounding plans & details.

*Response: Please refer to revised Sheet E601 - One-Line Diagram, attached to this addendum. Refer to "Changes to the Plans", Item 1d.*

16. Question: Sheet E102 Keynote 9 shows the requirements for the ground rod and bonding every 500' along the perimeter of the proposed fence, however it does not address Specification Section 26 05 26 3.5 C.8 b requiring protection at Crossing of Overhead Electrical Power Lines. Please clarify if this required.

*Response: Please refer to Keynote 9 of the revised Sheet E102 - Electrical Site Plan, attached to this addendum. Refer to "Changes to the Plans", Item 1a.*

17. Question: Spec Section 43 21 00 2.3.E lists acceptable mechanical seals. Could Flowserve PSS IV (split) or ISC2 (cartridge) be considered equivalent and acceptable?

*Response: The General Contractor will be required to bid the project per the manufacturers listed in the Specifications. SAWS may evaluate all proposed materials and products not currently found in the project Specifications after the contract has been awarded.*

18. Question: Spec Section 43 24 13.13 1.7.E.1 Calls for vibration to be taken at the top of the motor. Can this section be revised to state vibration must conform to the limits set by Hydraulic Institute standards only.

*Response: Yes, vibration test must conform to the limits set by Hydraulic Institute Standards. Refer to "Changes to the Specifications", Item 3a.*

19. Question: Regarding the installation of the GST LSL-500 on the roof as shown on sheet N503 detail #2. I do not see any procedure/requirement for cutting into the roof of the GST and coating & paint touchup requirements.

*Response: According to as-built information there is an existing B/W level probe system installed at the top of the tank near the ladder. Contractor to replace B/W level probe system and obtain level switch signals from new instrument. Refer to "Changes to the Plans", Item 1f.*

20. Question: Electrical sub is requesting information on the routing of the conduit for the level probe conduit & wire as they don't see anywhere other than the access ladder on the south side of the GST to mount conduit along the side to the roof.

*Response: Refer to response for Question No. 9.*

21. Question: The tank has a couple of existing taps to be reutilized, will the tank be drained so the new pipe and valves can be tied in? Or will the pipe just be tied onto existing hose bibs?

*Response: It is not anticipated that the tank will need to be drained as the existing hose bibs with valves on the tank should be utilized. For the new chlorine analyzer, utilize existing tank sample tap near the ladder to tie-in a valved sample line to the analyzer panel. Sample line to be electrical heat traced, insulated, with protective metal cladding cover. Refer to "Changes to the Plans", Item 1f.*

22. Question: Who owns the gate at the driveway on Apacheria?

*Response: The owner of the gate is unknown; however, it is suspected to be owned by the Texas Parks and Wildlife Department. Apacheria is public ROW and therefore access is permitted. Contractor must provide their own temporary lock to be used for access at the gate throughout the project and coordinate with SAWS inspector for the placement of the lock. Refer to "Changes to the Specifications", Item 2.*

### CHANGES TO THE SPECIFICATIONS

1. Remove the Schedule of Manufacturers and Suppliers for Major Equipment in its entirety and replace with the attached updated Schedule of Manufacturers and Suppliers for Major Equipment, footnoted as Addendum No. 3. Bidders shall use this revised version to submit to SAWS if they are the apparent low bidder.
2. Remove Section 01 14 13 Access to Site in its entirety and replace with the attached updated Section 01 14 13 Access to Site, footnoted as Addendum No. 3.
3. Section 43 24 13.13 VERTICALLY SUSPENDED SINGLE-CASING DISCHARGE-THROUGH-COLUMN DIFFUSER CENTRIFUGAL PUMPS
  - a. Page 43 24 13.13 – 4: Remove this page 4 in its entirety and replace with the attached page 4, footnoted as Addendum No. 3.

### CHANGES TO THE PLANS

1. Remove the following Sheets in their entirety and replace with the attached Sheets:
  - a. Sheet E102 – Electrical Site Plan.
  - b. Sheet E104 – Electrical Power Plan
  - c. Sheet E503 – Electrical Details (Sheet 3 of 3)
  - d. Sheet E601 – One-Line Diagram
  - e. Sheet E604 – Electrical Conduit Schedule
  - f. Sheet N503 – Instrumentation and Controls Installation Details III.

### CLARIFICATIONS

1. Revised for CPS Energy Meter Department review and approval.
2. Clarified routing of level probe conduit on tank.
3. Modified surge control system panel location in electrical power plan and conduit schedule.
4. Clarified electrical ductbank dimensions.
5. Clarified grounding plate at generator.
6. Clarified backplate material and LSL-500 installation.

### END OF ADDENDUM 3

This Addendum, including these five (5) pages, is eighteen (18) pages with attachments in its entirety.

Attachments: Updated Specifications (7 pages total)  
Updated Drawings (6 sheets total)



10/21/2022

Lockwood, Andrews & Newnam, Inc.  
Texas Registered Engineering Firm  
F-2614

**SCHEDULE OF MANUFACTURERS AND SUPPLIERS FOR MAJOR EQUIPMENT**

The Contract Documents are based upon the equipment or products available for the manufacturers/suppliers denoted as “1”, “2”, “3”, etc., below. Respondent must indicate in the Proposal which manufacturer/supplier the Proposal was based upon and which Proposal is intended for use for each item of equipment listed below by circling one of the listed suppliers/manufacturers. If the Respondent circles more than one listed supplier, the Respondent must use the first supplier circled (unless an alternate is approved). If the Respondent does not circle one of the listed suppliers/manufacturers for an item of equipment, the Respondent must use the first listed supplier/manufacturer for that item.

<b>Specification Number</b>	<b>Equipment</b>	<b>Manufacturer or Supplier</b>
133400	Fabricated Pre-Engineered Precast Concrete Structure	<ol style="list-style-type: none"> <li>1. LoneStar Prestress</li> <li>2. Coreslab Structures</li> <li>3. Capital Precast</li> <li>4. Austin Prestress</li> <li>5. Or approved equal.</li> </ol>
262213	Low Voltage Distribution Transformers	<ol style="list-style-type: none"> <li>1. ABB (General Electric Company); Industrial Connections &amp; Solutions, LLC.</li> <li>2. Acme Electric; Hubbell.</li> <li>3. Eaton Electrical Inc.; Cutler-Hammer Business Unit.</li> <li>4. Siemens Energy &amp; Automation, Inc.</li> <li>5. Square D; a brand of Schneider Electric</li> </ol>
262416	Panelboards	<ol style="list-style-type: none"> <li>1. ABB (General Electric Company); Industrial Connections &amp; Solutions, LLC.</li> <li>2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.</li> <li>3. Siemens Energy &amp; Automation, Inc.</li> <li>4. Square D; a brand of Schneider Electric</li> </ol>

Specification Number	Equipment	Manufacturer or Supplier
262419	Motor Control Centers	<ol style="list-style-type: none"> <li>1. ABB (General Electric Company); Industrial Connections &amp; Solutions, LLC.</li> <li>2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.</li> <li>3. Siemens Energy &amp; Automation, Inc.</li> <li>4. Square D; a brand of Schneider Electric</li> </ol>
262816	Enclosed Switches and Circuit Breakers	<ol style="list-style-type: none"> <li>1. ABB (General Electric Company); Industrial Connections &amp; Solutions, LLC.</li> <li>2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.</li> <li>3. Siemens Energy &amp; Automation, Inc.</li> <li>4. Square D; a brand of Schneider Electric</li> </ol>
262901	Large Electric Motors	<ol style="list-style-type: none"> <li>1. General Electric.</li> <li>2. Reliance.</li> <li>3. Siemens.</li> <li>4. TECO – Westinghouse</li> <li>5. U.S. Motors</li> </ol>
263213.13 263600	Diesel Engine Driven Generator Sets Transfer Switches	<ol style="list-style-type: none"> <li>1. Caterpillar, Inc.; Electric Power Division.</li> <li>2. Cummins Power Generation.</li> <li>3. Generac Power Systems, Inc.</li> <li>4. Kohler Power Systems.</li> <li>5. MTU America Inc.</li> </ol>

Specification Number	Equipment	Manufacturer or Supplier
264113	Lightning Protection for Structures	<ol style="list-style-type: none"> <li>1. ERICO; brand of nVent Electrical plc.</li> <li>2. National Lightning Protection.</li> <li>3. Preferred Lightning Protection.</li> <li>4. Robbins Lightning, Inc.</li> <li>5. Thompson Lightning Protection, Inc.</li> <li>6. VFC Lightning Protection</li> </ol>
271523	Fiber Optic Equipment	<ol style="list-style-type: none"> <li>1. AFL.</li> <li>2. Corning.</li> <li>3. Or approved equal.</li> </ol>
280005	Security Cameras	<ol style="list-style-type: none"> <li>1. Axis.</li> <li>2. No others approved.</li> </ol>
331624	Steel Hydropneumatic Tank	<p>Pre-Qualified Subcontractors: The system is based on a Pulsco system, but all of the following hydropneumatic system manufacturers/Packagers are prequalified to bid on the supply of the hydropneumatic system:</p> <ol style="list-style-type: none"> <li>1. Pulsco, Inc.</li> <li>2. Hydro-Air Systems, Inc.</li> <li>3. Blacoh Surge Control</li> </ol>
406300	PLC Hardware and Software	<ol style="list-style-type: none"> <li>1. Rockwell.</li> <li>2. No others approved.</li> </ol>



Specification Number	Equipment	Manufacturer or Supplier
406600	Ethernet Switches	<ol style="list-style-type: none"> <li>1. Cisco.</li> <li>2. No others approved.</li> </ol>
406700	Control Panels	<ol style="list-style-type: none"> <li>1. Saginaw.</li> <li>2. Hoffman.</li> <li>3. Rittal.</li> <li>4. Emerson.</li> <li>5. Wiegmann.</li> <li>6. Or approved equal.</li> </ol>
407000	Flowmeters	<ol style="list-style-type: none"> <li>1. Endress+Hauser</li> <li>2. No others approved.</li> </ol>
432413.13	Pumps	<ol style="list-style-type: none"> <li>1. Peerless</li> <li>2. Floway (Trillium)</li> <li>3. Fairbanks Nijhuis by Pentair</li> <li>4. Flowserve, Inc.</li> <li>5. ITT Gould VIT</li> <li>6. SIMFLO</li> </ol>

**END OF SECTION**

## SECTION 01 14 13

### ACCESS TO SITE

---

#### PART 1 - GENERAL

##### 1.1 HIGHWAY LIMITATIONS

- A. The Contractor shall make their own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the sites of the work. It shall be the Contractor's responsibility to construct and maintain any haul roads required for its construction operations. The Contractor shall make access to all work areas within one 30-foot wide corridor to each site.

##### 1.2 TEMPORARY CROSSINGS

- A. Temporary Bridges: Wherever necessary, to maintain vehicular crossings, the Contractor shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the Contractor shall secure the written consent of the responsible individuals or authorities to omit such temporary bridges or steel plates, which written consent shall be delivered to the Engineer prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the Contractor shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.
- B. Street Use: Nothing herein shall be construed to entitle the Contractor to the exclusive use of any public street, alleyway, or parking area during the performance of the work hereunder, and it shall conduct its operations to not interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. No street shall be closed to the public without first obtaining permission of the Owner and proper governmental authority. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the Owner or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- C. Traffic Control: For the protection of traffic in public or private streets and ways, the Contractor shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1).
1. The Contractor shall take all necessary precautions for the protection of the work and the safety of the public. Barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The Contractor shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. Signs, signals, and barricades shall conform to the requirements of the OSHA Safety and Health Standards for Construction.
  2. The Contractor shall submit traffic control plan to the Owner for approval a minimum of 2 weeks prior to construction. The Owner shall be allowed access to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes required by the Owner shall supersede these plans and be done solely at the Contractor's expense.
  3. The Contractor shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.
- D. Entrance Gate: Contractor shall provide temporary locks to be used for the duration of the project at the entrance gate to the pump station site and entrance gate on Apacheria at no additional cost to SAWS. Contractor to coordinate with SAWS inspector for the placement of the lock(s). Contractor to ensure the gate(s) are locked and secure upon completion of daily activities.

##### 1.3 CONTRACTOR'S WORK AND STORAGE AREA

- A. The Owner will designate and arrange for the Contractor's use, a portion of the property for its exclusive use

during the term of the Contract as a storage and shop area for its construction operations on the work. At the completion of the work, the Contractor shall return this area to its original condition, including grading and landscaping.

- B. The Contractor shall make its own arrangements for any necessary off- site storage or shop areas necessary for the proper execution of the work.
- C. Lands to be furnished by the Owner for construction operation and other purposes are indicated. Should the Contractor find it necessary to use any additional land for other purposes during the construction of the work, it shall arrange for the use of such lands at its own expense. The limits of each work site shall be fenced and gated to prevent livestock intrusion and will be restored to original grade.
- D. The Contractor shall designate and use an area for hazardous materials used in constructing the work if necessary.
  - 1. For the purpose of this paragraph, any hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent
  - 2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
  - 3. The Contractor shall develop and submit to the Engineer a plan for storing and disposing of the materials above.
  - 4. The Contractor shall obtain and submit to the Engineer a single EPA number for wastes generated at the site.
  - 5. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.

#### **1.4 PARKING**

- A. The Contractor shall:
  - 1. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The Contractor shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

#### **1.5 SPECIAL EQUIPMENT**

- A. The Contractor may be required to provide or utilize special equipment and heavy trucks for delivery and installation of equipment and materials (i.e. prefabricated building, diesel generator, hydropneumatic tank, pumps, MCC, etc.)

### **PART 2 – PRODUCTS**

Not Used

### **PART 3 – EXECUTION**

Not Used

**END OF SECTION**

## 1.6 TOOLS AND SPARE PARTS

- A. One (1) set of all special tools required for normal operation and maintenance shall be provided. All such tools shall be furnished in a suitable steel tool chest complete with lock and duplicate keys.
- B. Spare Parts:
  - 1. Provide two (2) spare shaft couplings.
  - 2. One (1) year supply of each type of lubricant required.
  - 3. Spare parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long term storage.

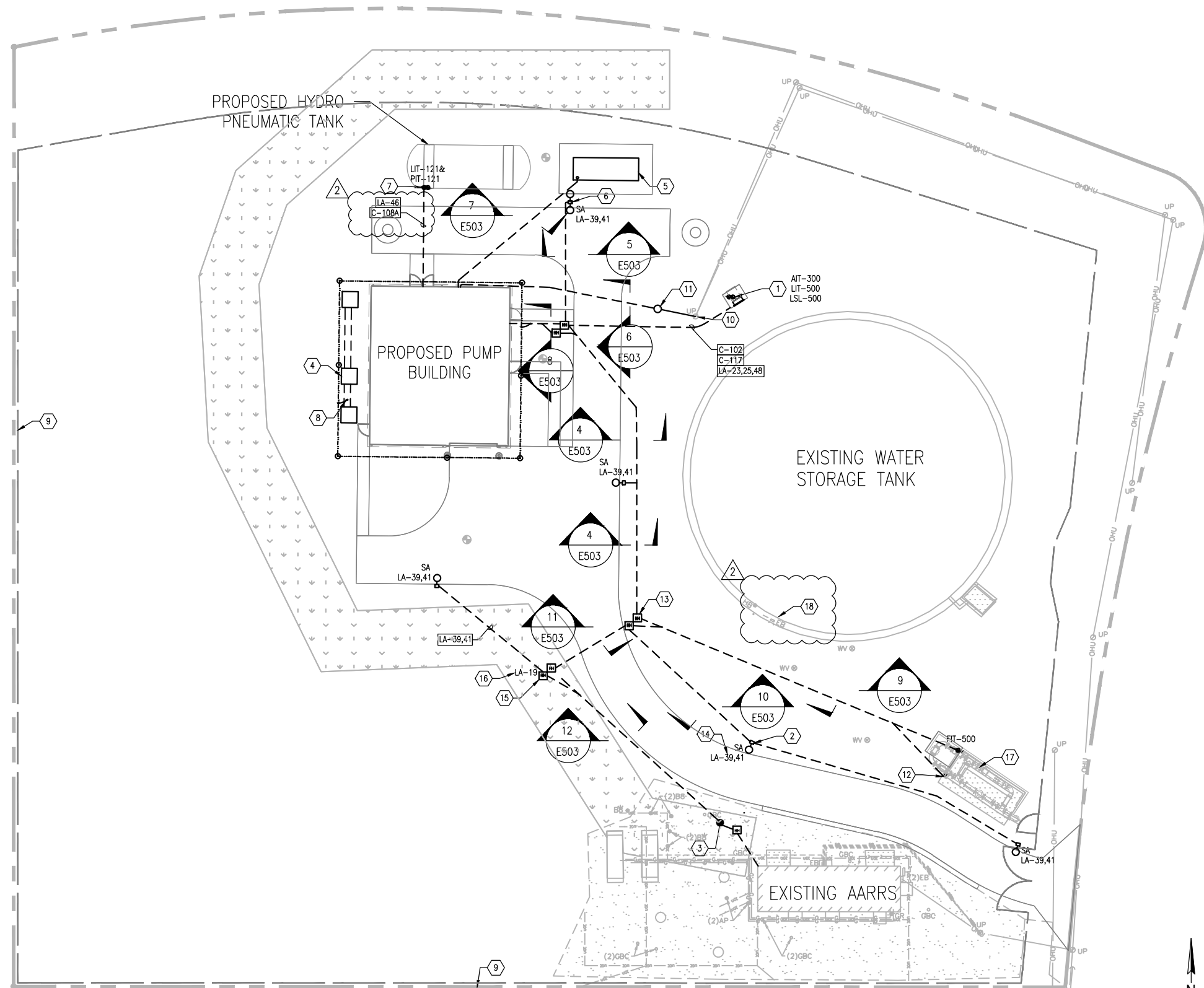
## 1.7 QUALITY ASSURANCE

- A. Qualifications
  - 1. To assure unity of responsibility, the motors shall be furnished and coordinated by the pump manufacturer. The Contractor shall assume full responsibility for the satisfactory installation and operation of the entire pumping system including pumps, and motors.
  - 2. The pumps covered by these Specifications are intended to be standard pumping equipment of proven ability as manufactured by a reputable manufacturer having a minimum 10-year experience in the production of such pumps. The pumps furnished shall be designed, constructed and installed in accordance with the best practice and methods, and shall operate satisfactorily when installed. Pumps shall be manufactured in accordance with the Hydraulic Institute Standards. All equipment furnished under this Specification shall be new and unused and shall be the standard product of manufacturers having a successful record of manufacturing and servicing the equipment and systems specified herein a minimum of ten (10) years.
- B. Certifications
  - 1. Certification from manufacturer that materials in contact with potable water comply with the Safe Drinking Water Act.
  - 2. Welders: ASME BPVC Section IX.
- C. Testing Standards:
  - 1. ANSI/AWWA E101.
  - 2. Hydraulic Institute Standard: ANSI/HI 14.6 Grade 1B
- D. Efficiency:
  - 1. If the efficiency, as determined by the shop test is below the specified minimum efficiency the Owner may reject the unit.
- E. Balance:
  - 1. All rotating parts shall be accurately machined and shall be in as nearly perfect rotational balance as practicable. Excessive vibration shall be sufficient cause for rejection of the equipment. Vibration testing and measurements shall comply with ANSI/H Institute Standard (ANSI/HI 9.6.4).

## 1.8 WARRANTY

- A. Furnish a manufacturer's warranty for a period of two-year from the date of substantial completion.

FILE: 60\_ELECTRICAL SITE PLANS.dwg PLOTTED: 10/19/2022 2:48 PM BY: GARCIA, GASPAR



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



GENERAL NOTES:

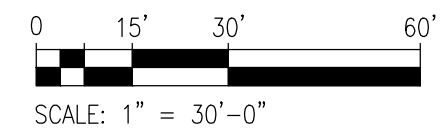
- REFER DRAWING E001 FOR SYMBOLS AND ABBREVIATIONS.
- REFERENCE CIVIL DRAWINGS. NOT ALL EXISTING BELOW GRADE UTILITIES ARE SHOWN. COORDINATE BELOW GRADE ELECTRICAL DUCTBANKS, HANDHOLES, RACEWAYS, AND GROUNDING SYSTEMS WITH ALL EXISTING AND PROPOSED UNDERGROUND UTILITIES, SITE GRADING, AND SURFACE FEATURES.
- ENSURE EXISTING ELECTRICAL BUILDING ELECTRIC SERVICE AND PANELBOARD REMAIN OPERATIONAL DURING CONSTRUCTION OF NEW PUMP STATION BUILDING. NO DEMOLITION SHALL OCCUR UNTIL NEW PUMP STATION IS SUBSTANTIALLY COMPLETE.
- REFER DRAWING E605 FOR LIGHT FIXTURE AND PANEL "LA" SCHEDULE. REFER TO DRAWING E604 FOR CONDUIT SCHEDULE.

KEYED NOTES: (X)

- TANK INSTRUMENTATION. COORDINATE WITH INSTRUMENTATION DRAWINGS. PROVIDE POWER CONDUCTORS AND INSTRUMENTATION CABLES FROM FIT-500, LIT-500, LSL-500 TO PUMP BUILDING SCADA PANEL. PROVIDE NEMA 3R JUNCTION BOX FOR INSTRUMENTATION HEAT TRACE. COORDINATE LOCATION OF JUNCTION BOX WITH SYSTEM INTEGRATOR.
- PROVIDE NEW LIGHT, POLE AND POLE FOUNDATION. COORDINATE WITH SECURITY DRAWINGS THE QUANTITY OF EXISTING AND PROPOSED CAMERAS MOUNTED ON POLE.
- FIELD VERIFY AND UTILIZE WHERE POSSIBLE EXISTING BELOW GRADE COMMUNICATION CONDUITS FROM AARRS BUILDING. EXTEND FIBER OPTIC CABLE IN PROPOSED DUCTBANK TO PUMP BUILDING SECURITY NETWORK AND SCADA PANELS. COORDINATE FIBER OPTIC WORK AND FIBER SPLICE PANEL WITH INSTRUMENTATION AND SECURITY DRAWINGS. REFER TO ELECTRICAL PUMP STATION POWER PLAN DRAWING E104 FOR PLAN WEST DUCTBANK.
- PROPOSED GENERATOR.
- COORDINATE WITH SECURITY DRAWINGS. SSTV CAMERAS FURNISHED BY SYSTEMS INTEGRATOR CONTRACTOR AND INSTALLED ON PROPOSED LIGHT POLE. PROVIDE AND EXTEND IN PROPOSED DUCTBANK CABLES FROM CAMERAS TO PUMP BUILDING ELECTRICAL ROOM SECURITY PANEL.
- HP TANK LEVEL TRANSMITTER, PRESSURE TRANSMITTER, AND HEAT TRACE. COORDINATE WITH INSTRUMENTATION DRAWINGS AND TANK VENDOR FOR LOCATION. COORDINATE POWER REQUIREMENTS WITH VENDOR PROVIDED HEAT TRACE SYSTEM.
- BOND DUCTBANK GROUNDING COUNTERPOISE TO GROUND RINGS.
- PROVIDE GROUND ROD AND BOND EVERY 500FT ALONG PERIMETER OF PROPOSED FENCE. WHERE EXISTING OVERHEAD ELECTRICAL SERVICE CROSSES FENCE ENSURE GROUNDING OF FENCE DOES NOT ENCR OACH WITHIN 150FT ON EACH SIDE OF CROSSING. REFER TO CIVIL DRAWINGS FOR PROPOSED FENCING.
- EXISTING OVERHEAD ELECTRIC SERVICE TRANSFORMERS. SECONDARY SERVICE CONDUCTORS EXTENDED BY UTILITY TO PROPOSED SECONDARY METER POLE.
- PROPOSED SECONDARY METER POLE AND UTILITY METER EQUIPMENT RACK. INSTALL METER, METER CT ENCLOSURE, AND SERVICE DISCONNECTS ON EQUIPMENT RACK. CONSTRUCT RACK WITH A MINIMUM OF 2-3 INCH RIGID CONDUIT SUPPORTS. PROVIDE ADDITIONAL 3 INCH CONDUIT SUPPORTS IF RACK SPANS MORE THAN 6'-6". BURY CONDUIT RACK SUPPORTS A MINIMUM OF 18 INCHES BELOW FINISHED GRADE AND PROVIDE 8 INCH CONCRETE FOOTING WITH A 2 INCH CROWN ABOVE GRADE. PROVIDE 1-1/2" METAL FRAME CHANNEL FOR SERVICE EQUIPMENT MOUNTING. MOUNT SERVICE EQUIPMENT AT A MINIMUM OF 48 INCHES TO 72 INCHES. MAXIMUM AFG. PROVIDE 24"x24" GROUND PLATE BURIED 18 INCHES BELOW GRADE, AND PROVIDE #1/0 GROUNDING ELECTRODE AND BOND TO SERVICE EQUIPMENT RACK. EXTEND AND MOUNT SERVICE RACEWAYS FROM EQUIPMENT RACK UP POLE AND PROVIDE SERVICE WEATHER HEAD. COORDINATE POLE AND CONDUIT SPECIFICATIONS, INSTALLATION OF OVERHEAD SERVICE, AND METER PER UTILITY STANDARDS. ABOVE GRADE CONDUIT,

- WEATHER HEAD, HUB, AND METER DISCONNECTS PROVIDED BY CONTRACTOR. METER SOCKET FURNISHED BY UTILITY INSTALLED BY CONTRACTOR. COORDINATE METER/CT ENCLOSURE WITH UTILITY. CT ENCLOSURE INSTALLED BY CONTRACTOR. PROVIDE 24 INCHES OF CONDUCTOR SLACK EXTENDING OUT OF WEATHER HEAD FOR SERVICE CONNECTION.
- FIELD VERIFY EXISTING LOCATION OF PULLBOX AND SOLENOID ALTITUDE CONTROL VALVE. VERIFY EXISTING CONTROL AND POWER REQUIREMENTS. PROVIDE POWER AND CONTROL CABLING AS REQUIRED FROM PROPOSED PUMP BUILDING ELECTRICAL ROOM. SIZE POWER CONDUCTORS IN ACCORDANCE WITH THE NEC AND ENSURE A MAXIMUM VOLTAGE DROP OF 3%. UTILIZE SPARE CONDUIT(S) IN DUCTBANK FOR ROUTING OF CONDUCTORS.
- PROVIDE POWER AND COMMUNICATION HANDHOLES TO SEPARATE POWER AND COMMUNICATION CIRCUITS, TYPICAL.
- FOR CAMERA POWER PROVIDE 2#12, #12 GND. AND ROUTE IN SAME CONDUIT AS CIRCUIT LA-39,41. ONCE CIRCUITS ENTER ELECTRICAL ROOM PROVIDE A JUNCTION BOX AND PROVIDE A 3/4" CONDUIT FROM JUNCTION BOX TO PANEL LA AND TO SECURITY NETWORK PANEL UPS.
- REFER TO DRAWING N100 FOR FIBER OPTIC WORK AND SPLICE PANEL MOUNTED WITHIN COMMUNICATION HANDHOLE.
- PROVIDE RADIO REPEATER CIRCUIT AS INDICATED.
- ALL EXPOSED PIPING INCLUDING THE EXISTING EXISTING ALTITUDE VALVE ASSEMBLY AND PROPOSED FLOW METER PIPING SHALL HAVE HEAT TRACING AND INSULATION.
- FIELD VERIFY THE ROUTING OF THE EXISTING LEVEL PROBE CONDUIT AT TOP OF TANK. UTILIZE EXISTING ABOVE GRADE CONDUIT ON TANK FOR NEW LEVEL PROBE (LSL-500). INTERCEPT CONDUIT ABOVE GRADE AT BOTTOM OF TANK. PROVIDE A NEMA 4X JUNCTION BOX AT BOTTOM OF TANK AND PROVIDE A 1" BELOW GRADE CONDUIT TO THE CL ANALYZER / LEVEL TRANSMITTER RACKSTAND. FROM THE RACKSTAND ROUTE LSL-500 LEVEL CONDUCTORS BACK TO THE LWCO PANEL VIA CONDUIT C-117. PROVIDE A 3/4" CONDUIT FROM THE LWCO PANEL TO THE SCADA PANEL FOR TANK LEVEL LSL-500 AND PUMP LOW SUCTION ALARMS/POINTS.

W APACHE BLUFF  
(VARIABLE WIDTH R.O.W.)



**LAN Lockwood, Andrews & Newnam, Inc.**  
A LEAD & DAILY COMPANY  
TBPE REGISTRATION NO: F-2614

2	ADDENDUM 3	GDG	GDG	10/19/22
1	ADD2-CPSENERGY CMNTS	GDG	GDG	9/30/22
NO.	REVISION	DRAWN	APPROVED	DATE

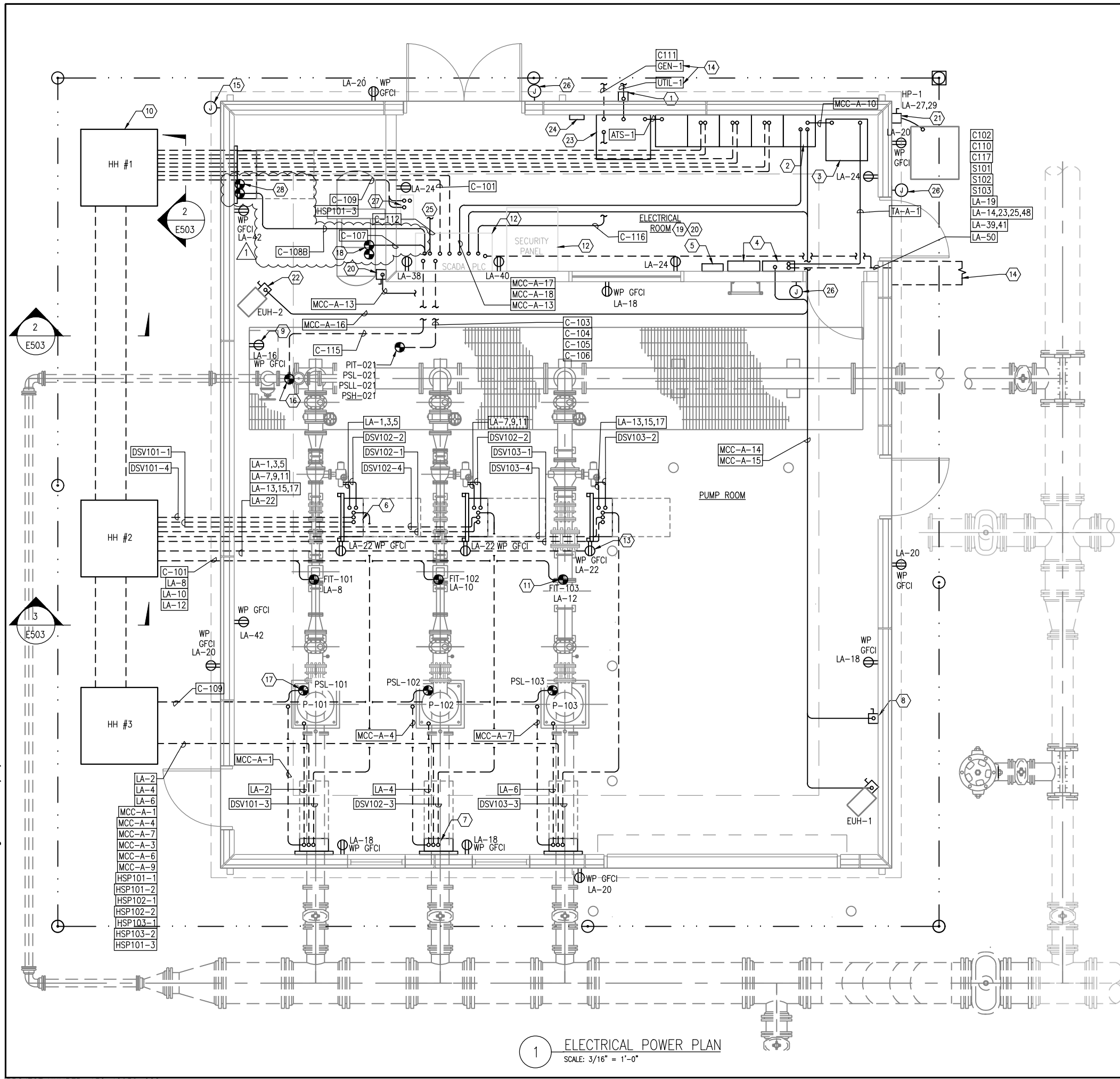
REVISIONS

RANCH TOWN NO. 2 PUMP STATION IMPROVEMENTS  
ELECTRICAL SITE PLAN

DEVELOPER: \_\_\_\_\_  
CONT. BUDGET PROJ.  
SUBMITTED \_\_\_\_\_  
APPROVED \_\_\_\_\_

MAP NO. VALUE	SHEET
SECT. NO. VALUE	E102
DR. GDG	CK. DRH
JOB NO. 20-6005	65 OF 94

FILE:61-62\_ELECTRICAL POWER & LIGHTING PLANS.dwg PLOTTED: 10/19/2022 2:48 PM BY: GARCIA, GASPAR



1 ELECTRICAL POWER PLAN  
SCALE: 3/16" = 1'-0"

GENERAL NOTES:

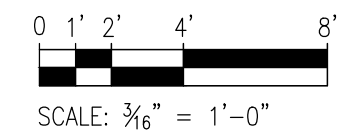
- REFER DRAWING E001 FOR SYMBOLS AND ABBREVIATIONS.
- COORDINATE WALL AND ROOF CONDUIT PENETRATIONS WITH ARCHITECT AND PRECAST BUILDING MANUFACTURER.
- PROVIDE LIGHTNING PROTECTION SYSTEM FOR BUILDING IN ACCORDANCE WITH SPECIFICATION 264113.
- REFER DRAWING E605 FOR LIGHT FIXTURE AND PANEL "LA" SCHEDULE. REFER TO DRAWING E604 FOR CONDUIT SCHEDULE.
- REFER TO N SERIES DRAWINGS FOR INSTRUMENTATION DEVICES AND X SERIES DRAWINGS FOR SECURITY EQUIPMENT.

KEYED NOTES: (X)

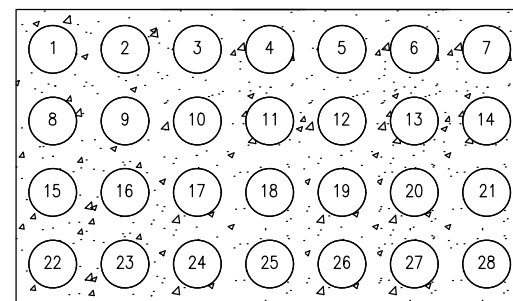
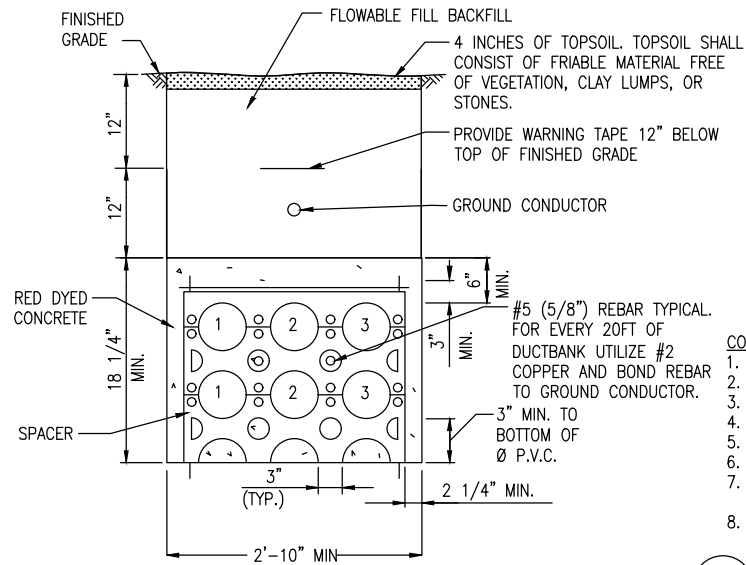
- ENCLOSED SERVICE RATED 600A CIRCUIT BREAKER. REFER TO ELECTRICAL SITE PLAN DRAWING E102 FOR CONTINUATION OF UTILITY AND GENERATOR FEEDERS.
- MCC-A.
- TRANSFORMER TA.
- 2 SECTION PANELBOARD LA.
- EXTERIOR LIGHTING CONTROL PANEL.
- HSP (DSV) DISCHARGE VALVE CONTROL PANEL MOUNTED ON METAL FRAME SS STAND. TYPICAL OF 3. REFER TO DRAWING E603.
- HSP CONTROL PANEL MOUNTED ON WALL. PROVIDE WITH PUMP EMERGENCY STOP RED MUSHROOM PUSHBUTTON, AND PUMP START/STOP SELECTOR SWITCH. TYPICAL OF 3. REFER TO DRAWING E602.
- PROVIDE OVERHEAD CRANE 30A/3P/480V NON-FUSED DISCONNECT SWITCH. COORDINATE LOCATION AND SIZE WITH MANUFACTURER.
- SUMP PUMP LOCATED IN PIPE GALLEY. MOUNT RECEPTACLE 4FT MINIMUM ABOVE PIPE GALLEY FINISHED FLOOR.
- PROVIDE AND SIZE HAND HOLE IN ACCORDANCE WITH NEC. PROVIDE 2" CONCRETE APRON AROUND HAND HOLE. TYPICAL OF 3.
- PUMP FLOW METER. COORDINATE WITH INSTRUMENTATION DRAWINGS. TYPICAL OF 3.
- SPACE ALLOCATED FOR SCADA PLC AND SECURITY PANELS. REFER TO SECURITY DRAWINGS AND COORDINATE LOCATION OF PANELS. COORDINATE LOCATION AND VERIFY POWER REQUIREMENTS OF DUPLEX RECEPTACLES SERVING PANELS.
- PROVIDE WP GFCI DUPLEX RECEPTACLE MOUNTED ADJACENT TO HSP (MOV) DISCHARGE VALVE CONTROL PANEL. TYPICAL OF 3.
- BELOW GRADE CONDUIT DUCTBANK. REFER TO SITE PLAN DRAWING E102 FOR CONTINUATION.
- REFER TO SECURITY DRAWINGS. PROVIDE WALL PENETRATION AND JUNCTION BOX FOR SSTV CAMERA. PROVIDE CAT6 CABLING IN CONDUIT BACK TO SECURITY PANEL.
- BYPASS SURGE VALVE.
- PUMP LWCO PRESSURE SWITCH. COORDINATE WITH INSTRUMENTATION DRAWINGS. TYPICAL OF 3.
- AIR COMPRESSOR ALARMS AND RUN STATUS. (CPR-ALM, CPR-RUN) COORDINATE WITH COMPRESSOR VENDOR SUPPLIER FOR LOCATION.
- PROVIDE 30A/2P/240V NON-FUSED DISCONNECT FOR AHU LOCATED ABOVE ELECTRICAL ROOM. REFER TO MECHANICAL PUMP STATION DRAWING M101 FOR AHU LOCATION. TYPICAL OF 2 THIS SHEET. PROVIDE 3/4" CONDUIT WITH A MINIMUM OF (4)#14AWG UNSHIELDED CONDUCTORS FROM AHU TO RESPECTIVE OUTDOOR HP UNIT. TYPICAL OF 2 THIS SHEET.
- PROVIDE AIR COMPRESSOR 30A/3P/480V NON-FUSED DISCONNECT SWITCH. COORDINATE LOCATION AND SIZE WITH MANUFACTURER.
- PROVIDE 30A/2P/240V NON-FUSED DISCONNECT FOR HEAT PUMP.
- PROVIDE 30A/3P/480V NON-FUSED DISCONNECT FOR UNIT HEATER. TYPICAL OF 2 THIS SHEET.
- ATS.
- GENERATOR ANNUNCIATOR PANEL.
- PROVIDE CONDUIT TO CELLULAR ANTENNA. ANTENNA MOUNTED ON NORTH EXTERIOR OF BUILDING. COORDINATE LOCATION WITH SYSTEMS INTEGRATOR CONTRACTOR.
- REFER TO SECURITY DRAWINGS AND COORDINATE LOCATION OF CARD READERS AND READER SUB-CONTROLLERS. PROVIDE WALL PENETRATION AND JUNCTION BOX FOR DOOR CARD ACCESS READER. PROVIDE RS-485 CABLING IN CONDUIT FROM CARD READER TO SUB-CONTROLLER. PROVIDE CAT6 CABLING IN CONDUIT FROM SUB-CONTROLLER TO ELECTRICAL ROOM SECURITY PANEL.
- LWCO RELAY PANEL. REFER TO PANEL LA SCHEDULE FOR CIRCUITING. PANEL PROVIDED BY SYSTEMS INTEGRATOR CONTRACTOR. REFER TO INSTRUMENTATION DRAWINGS.
- SURGE CONTROL SYSTEM PANEL.



<b>Lockwood, Andrews &amp; Newnam, Inc.</b> A LEAD A DAILY COMPANY TBE REGISTRATION NO. F-2614				
1	ADDENDUM 3	GDG	GDG	10/19/22
NO.	REVISION	DRAWN	APPROVED	DATE
REVISIONS				
RANCH TOWN NO. 2 PUMP STATION IMPROVEMENTS ELECTRICAL POWER PLAN				
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP NO. VALUE	SHEET			
SECT. NO. VALUE	E104			
DR. GDG	CK. DRH	JOB NO. 20-6005		67 OF 94

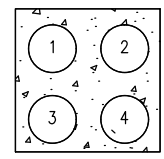


FILE: ELECTRICAL DETAILS.dwg PLOTTED: 10/19/2022 2:49 PM BY: GARCIA, GASPAR



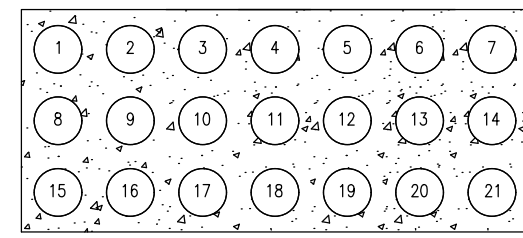
- CONDUITS BY NUMBER:
- 1. MCC-A-1
  - 2. MCC-A-3
  - 3. MCC-A-4
  - 4. MCC-A-6
  - 5. MCC-A-7
  - 6. MCC-A-9
  - 7. DSV101-1; DSV102-1; DSV103-1
  - 8. DSV101-4, DSV102-4, DSV103-4
  - 9. LA-2
  - 10. LA-4
  - 11. LA-6
  - 12. LA-1,3,5
  - 13. LA-7,9,11
  - 14. LA-13,15,17
  - 15. LA-8,10,12
  - 16. LA-22
  - 17. HSP101-1
  - 18. HSP101-2
  - 19. HSP102-1
  - 20. HSP102-2
  - 21. HSP103-1
  - 22. HSP103-2
  - 23. HSP101-3
  - 24. C-101
  - 25. C-109
  - 26. SPARE-2"
  - 27. SPARE-2"
  - 28. SPARE-1"

2 ELECTRICAL DUCTBANK-28 SECTION  
SCALE: NTS



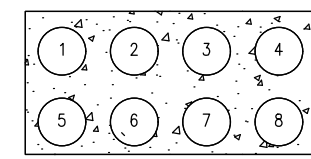
- CONDUITS BY NUMBER:
- 1. UTIL-1
  - 2. UTIL-1
  - 3. SPARE-2"
  - 4. SPARE-2"

6 ELECTRICAL DUCTBANK-4 SECTION  
SCALE: NTS



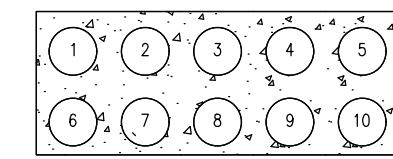
- CONDUITS BY NUMBER:
- 1. MCC-A-1
  - 2. MCC-A-3
  - 3. MCC-A-4
  - 4. MCC-A-6
  - 5. MCC-A-7
  - 6. MCC-A-9
  - 7. LA-2
  - 8. LA-4
  - 9. LA-6
  - 14. HSP101-1
  - 15. HSP101-2
  - 16. HSP102-1
  - 17. HSP102-2
  - 18. HSP103-1
  - 19. HSP103-2
  - 20. HSP101-3
  - 21. C-109

3 ELECTRICAL DUCTBANK-21 SECTION  
SCALE: NTS



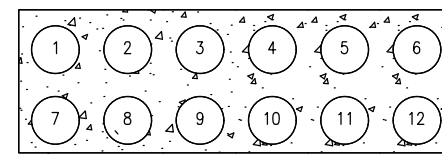
- CONDUITS BY NUMBER:
- 1. GEN-1
  - 2. GEN-1
  - 3. LA-43,45,47
  - 4. LA-44
  - 5. C-111
  - 6. C-113
  - 7. C-114
  - 8. SPARE-1"

7 ELECTRICAL DUCTBANK-8 SECTION  
SCALE: NTS



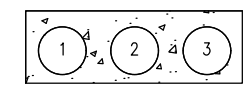
- CONDUITS BY NUMBER:
- 1. C-110
  - 2. LA-14
  - 3. LA-39,41
  - 4. S-102
  - 5. S-103
  - 6. EXISTING CONTROL VALVE NEAR ENTRY GATE
  - 7. LA-19
  - 8. LA-50
  - 9. SPARE-3"
  - 10. SPARE-2"

4 ELECTRICAL DUCTBANK-10 SECTION  
SCALE: NTS



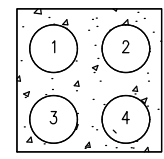
- CONDUITS BY NUMBER:
- 1. LA-14, 23, 25, 48
  - 2. LA-39, 41
  - 3. C-102
  - 4. C-110
  - 5. S-101
  - 6. S-102
  - 7. S-103
  - 8. EXISTING CONTROL VALVE NEAR ENTRY GATE, LA-50

8 ELECTRICAL DUCTBANK-12 SECTION  
SCALE: NTS



- CONDUITS BY NUMBER:
- 1. S-101
  - 2. LA-39,41
  - 3. SPARE-1"

5 ELECTRICAL DUCTBANK-3 SECTION  
SCALE: NTS

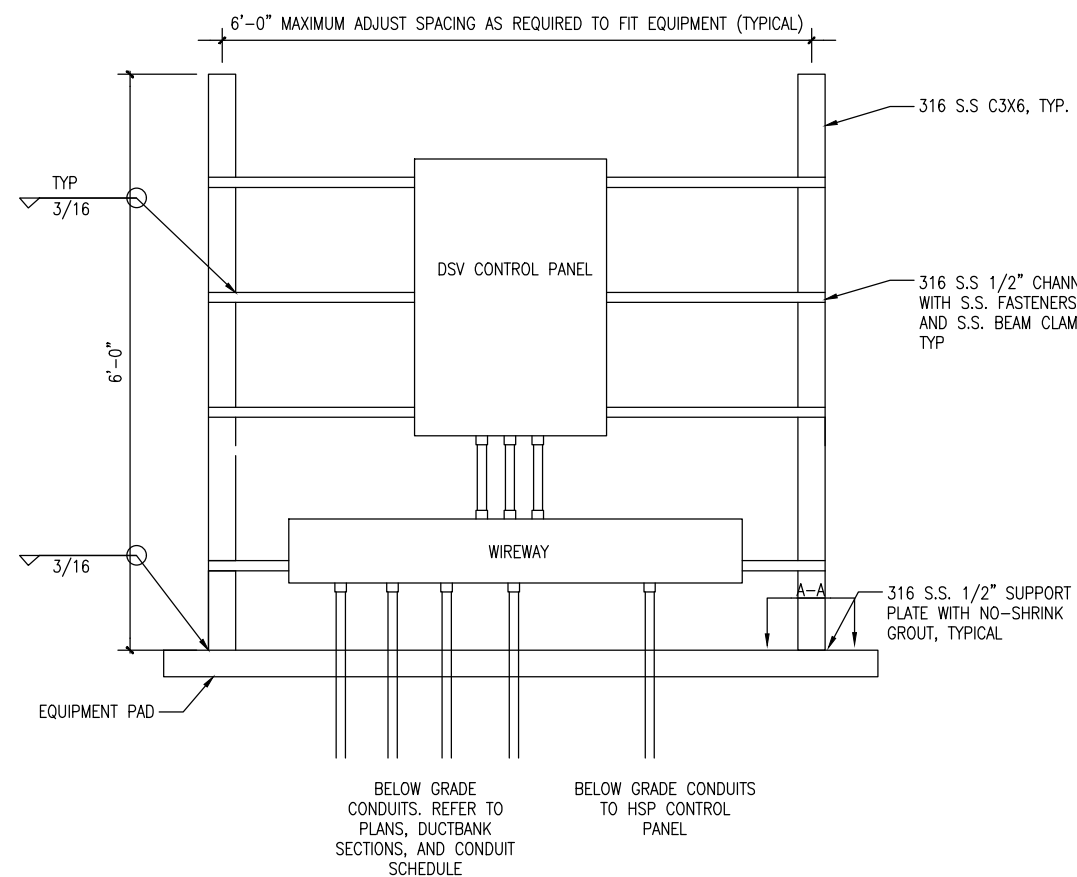


- CONDUITS BY NUMBER:
- 1. LA-14
  - 2. C-110
  - 3. EXISTING CONTROL VALVE NEAR ENTRY GATE, LA-50
  - 4. SPARE-2"
  - 9. LA-19
  - 10. C-117
  - 11. SPARE-2"
  - 12. SPARE-3"

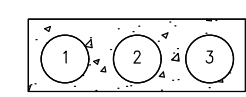
9 ELECTRICAL DUCTBANK-4 SECTION  
SCALE: NTS

- NOTES:
- DUCTBANK DETAIL IS TYPICAL REPRESENTATION OF A 6-CONDUIT DUCT BANK. ENVELOPE DIMENSIONS 18-1/4" X 2-10" ARE APPLICABLE ONLY TO THE CONDUIT CONFIGURATION AS SHOWN. ALL DUCT BANKS SHALL MAINTAIN A MINIMUM 3" SEPARATION BETWEEN CONDUITS AND A 2-1/4" ENVELOPE ON EACH SIDE OF DUCTBANK. TOP OF DUCT BANK A MINIMUM OF 6" OF CONCRETE TO FIRST ROW OF CONDUITS.
  - CONDUIT TO BE RIGID NON-METALLIC TYPE FOR CONCRETE ENCASMENT, SIZE AND NUMBER AS INDICATED ON DRAWINGS, SECTION DETAILS, AND CONDUIT SCHEDULE.
  - CONCRETE ENCASMENT: ALL CONCRETE TO HAVE COMPRESSIVE STRENGTH OF 2500 P.S.I. AT 28 DAYS. NO AGGREGATE LARGER THAN 3/4".
  - INSTALL SPACERS EVERY 5 FEET. ALL SPACERS TO PROVIDE 3" VERTICAL AND HORIZONTAL SEPARATION BETWEEN CONDUITS.
  - SUBGRADE SHALL BE COMPACTED TO 90% DENSITY AND WITH +3% TO -3% OF OPTIMUM MOISTURE STANDARD ASTM D698. COMPACT BACKFILL IN 6 INCH LIFTS.

1 ELECTRICAL DUCTBANK TYPICAL DETAIL  
SCALE: NTS

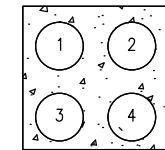


13 DISCHARGE VALVE CONTROL PANEL RACK  
SCALE: NTS, TYPICAL FOR DSV-101/102/103



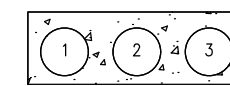
- CONDUITS BY NUMBER:
- 1. LA-39,41
  - 2. S-103
  - 3. SPARE-2"

10 ELECTRICAL DUCTBANK-3 SECTION  
SCALE: NTS



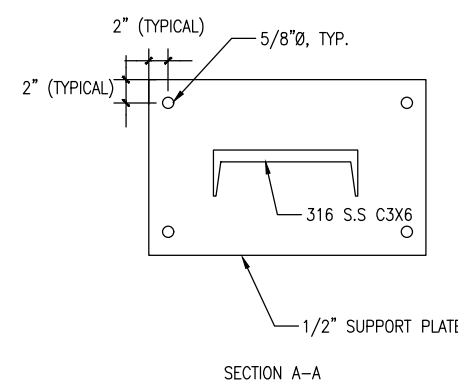
- CONDUITS BY NUMBER:
- 1. LA-39,41
  - 2. LA-19
  - 3. S-102
  - 4. SPARE-3"

11 ELECTRICAL DUCTBANK-4 SECTION  
SCALE: NTS

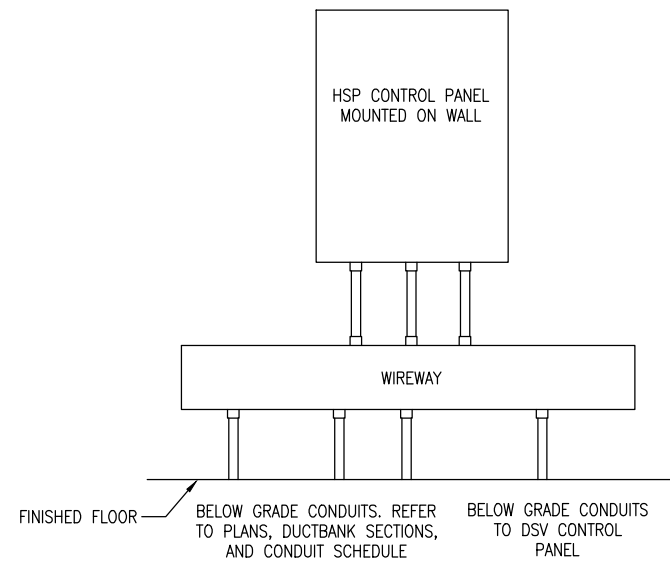


- CONDUITS BY NUMBER:
- 1. S-102.5
  - 2. SPARE-3"
  - 2. SPARE-3"

12 ELECTRICAL DUCTBANK-3 SECTION  
SCALE: NTS



SECTION A-A



14 HSP CONTROL PANEL RACK  
SCALE: NTS, TYPICAL FOR HSP-101/102/103



LOCKWOOD, ANDREWS & NEWMAN, INC. A LEAD A DALY COMPANY TBPE REGISTRATION NO: F-2614			
NO.	REVISION	DATE	DATE
1	ADDENDUM 3	10/19/22	
REVISIONS RANCH TOWN NO. 2 PUMP STATION IMPROVEMENTS ELECTRICAL DETAILS (SHEET 3 OF 3)			
DEVELOPER: _____ CONT. BUDGET PROJ.			
SUBMITTED _____ APPROVED _____			
MAP NO.	VALUE	SHEET	
SECT. NO.	VALUE	E503	
DR. GDG	CK. DRH	JOB NO. 20-6005 72 OF 94	

ELECTRICAL LOAD ANALYSIS FOR PUMP STATION					
	MOTOR HP	LOAD FLA	CONNECTED KVA	DF	DEMAND KVA
TRANSFORMER TA	-	30.0	25	1.0	25
PANEL "LA"	-	-	-	-	-
PUMP 101	15	21.0	17	1.0	17
PUMP 102	15	21.0	17	1.0	17
PUMP 103	50	65.0	54	1.0	54
EXHAUST VENTILATION	3	9	7	1.0	7
UNIT HEATERS	-	12	10	1.0	10
AIR COMPRESSOR	10	14	12	1.0	12
CRANE	10	14	12	1.0	12
SUB-TOTAL		186.0	155		155
25% LARGEST MOTOR (50 HP)					14
TOTAL KVA:					168
TOTAL KW:					135
DEMAND LOAD IN AMPS @480V, 3PH					202

ELECTRICAL ULTIMATE LOAD ANALYSIS FOR PUMP STATION					
	MOTOR HP	LOAD FLA	CONNECTED KVA	DF	DEMAND KVA
TRANSFORMER TA	-	30.0	25	1.0	25
PANEL "LA"	-	-	-	-	-
PUMP 101	50	65.0	54	1.0	54
PUMP 102	50	65.0	54	1.0	54
PUMP 103	50	65.0	54	1.0	54
EXHAUST VENTILATION	3	9	7	1.0	7
UNIT HEATERS	-	12	10	1.0	10
AIR COMPRESSOR	10	14	12	1.0	12
CRANE	10	14	12	1.0	12
SUB-TOTAL		271.0	225		225
25% LARGEST MOTOR (50 HP)					14
TOTAL KVA:					239
TOTAL KW:					191
DEMAND LOAD IN AMPS @480V, 3PH					287

- GENERAL NOTES:
- REFER TO DRAWING E001 FOR SYMBOLS AND ABBREVIATIONS.
  - REFER TO DRAWING E201 FOR EQUIPMENT ELEVATIONS.
  - REFER DRAWING E605 FOR LIGHT FIXTURE AND PANEL "LA" SCHEDULES. REFER TO DRAWING E604 FOR CONDUIT SCHEDULE.
  - REFER TO DRAWING E102 FOR UTILITY EQUIPMENT RACK AND CUSTOMER METER POLE LOCATIONS.

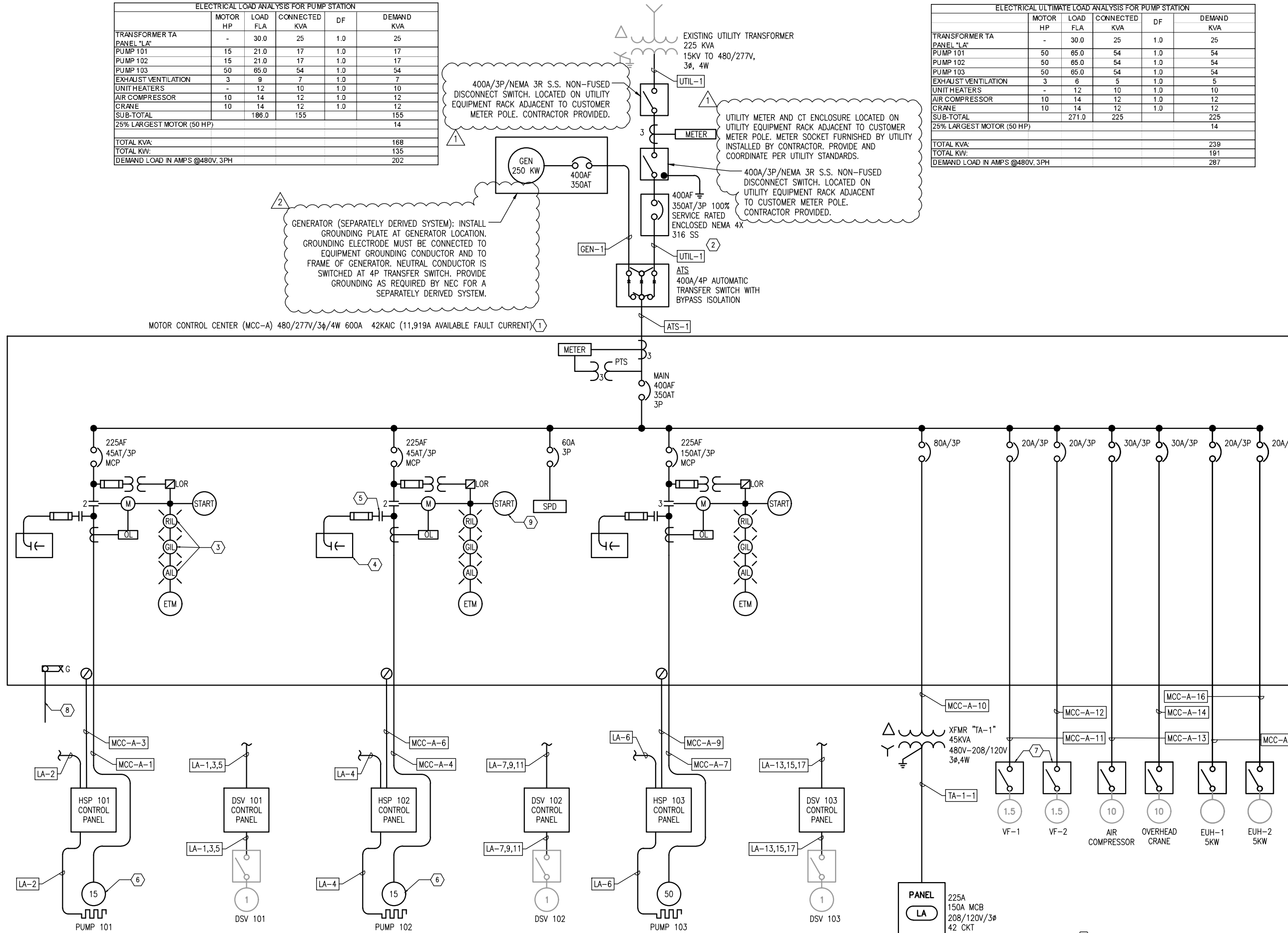
- KEYED NOTES:
- CALCULATED AVAILABLE FAULT.
  - FEEDER AND BRANCH CIRCUIT CONDUIT TAGS, TYPICAL.
  - REFER TO DRAWING E602 HSP CONTROL SCHEMATIC FOR QUANTITY AND LABELING OF INDICATING LIGHTS. TYPICAL FOR EACH STARTER CUBICLE.
  - PROVIDE 12.5KVAR POWER FACTOR CORRECTION CAPACITOR TO IMPROVE POWER FACTOR TO 95%. COORDINATE AND CONFIRM CAPACITOR SIZE AS RECOMMENDED BY MOTOR MANUFACTURER. ENSURE CAPACITOR IS OPERATIONAL "ON" AFTER MOTOR IS UP TO SYNCHRONOUS SPEED (100%). ENSURE CAPACITOR IS NOT OPERATIONAL "OFF" WHEN MOTOR IS NOT RUNNING. TYPICAL OF 3.
  - PROVIDE CAPACITOR CONTACTOR, CAPACITOR OVERCURRENT PROTECTION, CONDUCTORS, AND DISCONNECTING MEANS AS PER NEC ARTICLE 460.8. TYPICAL OF 3.
  - MOTOR OVERCURRENT PROTECTION FRAME, MOTOR FEEDER CONDUIT, AND FVNR STARTER SIZED AT 50HP FOR FUTURE ULTIMATE PUMP STATION CAPACITY. ENSURE OVERCURRENT PROTECTION AND MOTOR OVERLOADS ARE ADJUSTED TO PROTECT 15HP MOTOR. ENSURE CIRCUIT BREAKER PLUG AND OVERLOADS ARE CAPABLE OF BEING ADJUSTED/UPSIZED FOR FUTURE 50HP.
  - REFER TO PUMP STATION FLOOR PLAN DRAWING E105 FOR LOCATION OF EXHAUST FAN ABOVE ELECTRICAL ROOM. COORDINATE LOCATION OF FAN STARTER WITH MECHANICAL CONTRACTOR.
  - #4/0 BARE COPPER GROUND WIRE (TYP) BOND TO GROUND RING.
  - PROVIDE MANUAL START/STOP SWITCH AT MCC AND HSP CONTROL PANEL. EITHER SWITCH CAN MANUALLY START/STOP PUMP WHEN LOR SWITCH IS IN LOCAL TYPICAL OF 3.

GENERATOR (SEPARATELY DERIVED SYSTEM): INSTALL GROUNDING PLATE AT GENERATOR LOCATION. GROUNDING ELECTRODE MUST BE CONNECTED TO EQUIPMENT GROUNDING CONDUCTOR AND TO FRAME OF GENERATOR. NEUTRAL CONDUCTOR IS SWITCHED AT 4P TRANSFER SWITCH. PROVIDE GROUNDING AS REQUIRED BY NEC FOR A SEPARATELY DERIVED SYSTEM.

400A/3P/NEMA 3R S.S. NON-FUSED DISCONNECT SWITCH. LOCATED ON UTILITY EQUIPMENT RACK ADJACENT TO CUSTOMER METER POLE. CONTRACTOR PROVIDED.

UTILITY METER AND CT ENCLOSURE LOCATED ON UTILITY EQUIPMENT RACK ADJACENT TO CUSTOMER METER POLE. METER SOCKET FURNISHED BY UTILITY INSTALLED BY CONTRACTOR. PROVIDE AND COORDINATE PER UTILITY STANDARDS.

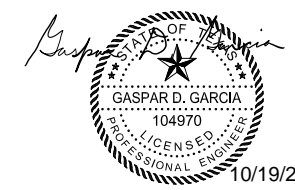
400A/3P/NEMA 3R S.S. NON-FUSED DISCONNECT SWITCH. LOCATED ON UTILITY EQUIPMENT RACK ADJACENT TO CUSTOMER METER POLE. CONTRACTOR PROVIDED.



MOTOR CONTROL CENTER (MCC-A) 480/277V/3φ/4W 600A 42KAIC (11,919A AVAILABLE FAULT CURRENT)

PANEL 225A 150A MCB 208/120V/3φ 42 CKT (2,919A AVAILABLE FAULT CURRENT)

1 ELECTRICAL ONE-LINE DIAGRAM SCALE: NTS



10/19/2022

**LAN Lockwood, Andrews & Newnam, Inc.**  
A LEAD & BOLD COMPANY  
TBPB REGISTRATION NO: F-2614

2	ADDENDUM 3	GDG	GDG	10/19/22
1	ADD2-CPSENERGY CMNTS	GDG	GDG	9/30/22
NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

RANCH TOWN NO. 2 PUMP STATION IMPROVEMENTS ONE-LINE DIAGRAM

DEVELOPER: \_\_\_\_\_  
CONT. BUDGET PROJ.  
SUBMITTED \_\_\_\_\_  
APPROVED \_\_\_\_\_

MAP NO. VALUE \_\_\_\_\_ SHEET E601  
SECT. NO. VALUE \_\_\_\_\_  
DR. GDG CK. DRH JOB NO. 20-6005 73 OF 94

FILE: 63 ELECTRICAL ONE-LINE DIAGRAM.dwg PLOTTED: 10/19/2022 2:49 PM BY: GARCIA, GASPAR



FILE: ELECTRICAL SCHEDULES.dwg PLOTTED: 10/19/2022 2:49 PM BY: GARCIA, GASPAR

CONDUIT SCHEDULE						
CONDUIT TAG	CONDUIT QTY	CONDUIT SIZE	FROM	TO	CONDUCTOR	NOTES
UTIL-1	2	3 IN.	CPS	ATS	2 SETS-4-250KCML,#1 GND	
GEN-1	2	3 IN.	GENERATOR	ATS	2 SETS-4-250KCML,#1 GND	
ATS-1	2	3 IN.	ATS	MCC-A	2 SETS-4-250KCML,#1 GND	
MCC-A-1	1	1-1/2 IN.	MCC-A	PUMP 101	3-#10,#10 GND	
MCC-A-3	1	2 IN.	MCC-A	HSP 101 CONTROL PANEL	8-#14	PUMP EMG STOP PUSHBUTTON AT HSP, PUMP SPACE HEATER INTERLOCK WITH CR RELAY AT MCC
MCC-A-4	1	1-1/2 IN.	MCC-A	PUMP 102	3-#10,#10 GND	
MCC-A-6	1	2 IN.	MCC-A	HSP 102 CONTROL PANEL	8-#14	PUMP EMG STOP PUSHBUTTON AT HSP, PUMP SPACE HEATER INTERLOCK WITH CR RELAY AT MCC
MCC-A-7	1	1-1/2 IN.	MCC-A	PUMP 103	3-#4,#6 GND	
MCC-A-9	1	2 IN.	MCC-A	HSP 103 CONTROL PANEL	8-#14	PUMP EMG STOP PUSHBUTTON AT HSP, PUMP SPACE HEATER INTERLOCK WITH CR RELAY AT MCC
MCC-A-10	1	1 IN.	MCC-A	XFMR TA-1	3-#4,#8 GND	
TA-1-1	1	2 IN.	XFMR TA-1	PANEL LA	4-#10,#6 GND	
MCC-A-11	1	3/4 IN.	MCC-A	VF-1	3-#12,#12 GND	
MCC-A-12	1	3/4 IN.	MCC-A	VF-2	3-#12,#12 GND	
MCC-A-13	1	3/4 IN.	MCC-A	AIR COMPRESSOR	3-#8,#10 GND	
MCC-A-14	1	3/4 IN.	MCC-A	OVERHEAD CRANE	3-#10,#10 GND	PROVIDE 6FT PIGTAIL OF CONDUCTORS
MCC-A-15	1	3/4 IN.	MCC-A	EUH-1	3-#12,#12 GND	
MCC-A-16	1	3/4 IN.	MCC-A	EUH-2	3-#12,#12 GND	
MCC-A-17	1	1-1/2 IN.	MCC-A	SCADA PANEL	1-8PR#16 TP, (2) CAT 6	PUMP 101 START/STOP STATUS (LOCAL/SCADA/LWCO), PUMP RUNNING, CAT 6 CABLE FROM MULTILIN 869 RELAY, CAT 6 FROM PGM POWER METER
MCC-A-18	1	1 IN.	MCC-A	SCADA PANEL	1-8PR#16 TP, CAT 6	PUMP 102 START/STOP SWITCH STATUS (LOCAL/SCADA/LWCO), PUMP RUNNING, CAT 6 CABLE FROM MULTILIN 869 RELAY
MCC-A-19	1	1 IN.	MCC-A	SCADA PANEL	1-8PR#16 TP, CAT 6	PUMP 103 START/STOP STATUS (LOCAL/SCADA/LWCO), PUMP RUNNING, CAT 6 CABLE FROM MULTILIN 869 RELAY
DSV101-1	1	2 IN.	MCC-A	DSV 101 CONTROL PANEL	60-#14	1" CONDUIT FROM HI#2 TO DSV CONTROL PANEL. SHARED 2" CONDUIT (DSV-101-1: LS-1/6/9/13; DSV-102-1: LS-1/6/9/13; DSV-103-1: LS-1/6/9/13 AND 12 SPARES ROLL UP SPARE CONDUCTORS AND SECURE IN MCC)
DSV101-2	1	2 IN.	DSV 101 CONTROL PANEL	DSV 101	28-#14	DSV-101 ALL LS
DSV101-3	1 + 1 SPARE	1 IN.	DSV 101 CONTROL PANEL	HSP 101 CONTROL PANEL	4-#14	HSP 101 CONTROL PANEL MANUAL START SWITCH INTERLOCK
DSV101-4	1	2 IN.	DSV 101 CONTROL PANEL	SCADA PANEL	3-8PR#16 TP	1" CONDUIT FROM HI#2 TO DSV CONTROL PANEL. SHARED 2" CONDUIT (DSV-101 HOA STATUS, VALVE OPEN/ VALVE CLOSED, LWCO (PSL-101); DSV-102 HOA STATUS, VALVE OPEN/ VALVE CLOSED, LWCO (PSL-102); DSV-103 HOA STATUS, VALVE OPEN/ VALVE CLOSED, LWCO (PSL-103))
DSV102-1	1	1 IN.	MCC-A	DSV 102 CONTROL PANEL	20-#14	1" CONDUIT FROM HI#2 TO DSV CONTROL PANEL. ROUTE CONDUCTORS VIA SHARED 2" DSV101-1 CONDUIT IN DUCTBANK
DSV102-2	1	2 IN.	DSV 102 CONTROL PANEL	DSV 102	28-#14	DSV-102 ALL LS
DSV102-3	1 + 1 SPARE	1 IN.	DSV 102 CONTROL PANEL	HSP 102 CONTROL PANEL	4-#14	HSP 102 CONTROL PANEL MANUAL START SWITCH INTERLOCK
DSV102-4	1	1 IN.	DSV 102 CONTROL PANEL	SCADA PANEL	1-8PR#16 TP	1" CONDUIT FROM HI#2 TO DSV CONTROL PANEL. ROUTE CABLE VIA SHARED 2" DSV101-4 CONDUIT IN DUCTBANK
DSV103-1	1	1 IN.	MCC-A	DSV 103 CONTROL PANEL	20-#14	1" CONDUIT FROM HI#2 TO DSV CONTROL PANEL. ROUTE CONDUCTORS VIA SHARED 2" DSV101-1 CONDUIT IN DUCTBANK
DSV103-2	1	2 IN.	DSV 103 CONTROL PANEL	DSV 103	28-#14	DSV-103 ALL LS
DSV103-3	1 + 1 SPARE	1 IN.	DSV 103 CONTROL PANEL	HSP 103 CONTROL PANEL	4-#14	HSP 103 CONTROL PANEL MANUAL START SWITCH INTERLOCK
DSV103-4	1	1 IN.	DSV 103 CONTROL PANEL	SCADA PANEL	1-8PR#16 TP	1" CONDUIT FROM HI#2 TO DSV CONTROL PANEL. ROUTE CABLE VIA SHARED 2" DSV101-4 CONDUIT IN DUCTBANK
HSP101-1	1	1 IN.	HSP 101 CONTROL PANEL	MCC-A	8-#14	HSP 101 EMG STOP, HSP 101 MANUAL START/STOP SWITCH
HSP101-2	1	1 IN.	HSP 101 CONTROL PANEL	SCADA PANEL	1-4PR#16 TP	HSP 101 EMG STOP STATUS, HSP 101 START/RUNNING STATUS
HSP101-3	1	1 IN.	HSP 101 CONTROL PANEL	LWCO RELAY PANEL	6-#12	LWCO (PSL OR LSL). ALL HSP LWCO NORMALLY CLOSED CONTACTS CIRCUITS IN SHARED CONDUIT
HSP102-1	1	1 IN.	HSP 102 CONTROL PANEL	MCC-A	8-#14	HSP 102 EMG STOP, HSP 102 MANUAL START/STOP SWITCH
HSP102-2	1	1 IN.	HSP 102 CONTROL PANEL	SCADA PANEL	1-4PR#16 TP	HSP 102 EMG STOP STATUS, HSP 102 START/RUNNING STATUS
HSP102-3	1	3/4 IN.	HSP 102 CONTROL PANEL	LWCO RELAY PANEL	2-#12	LWCO (PSL OR LSL). ROUTE CONDUCTORS VIA SHARED HSP101-3 CONDUIT IN DUCTBANK

CONDUIT SCHEDULE						
CONDUIT TAG	CONDUIT QTY	CONDUIT SIZE	FROM	TO	CONDUCTOR	NOTES
HSP103-1	1	1 IN.	HSP 103 CONTROL PANEL	MCC-A	8-#14	HSP 103 EMG STOP, HSP 103 MANUAL START/STOP SWITCH
HSP103-2	1	1 IN.	HSP 103 CONTROL PANEL	SCADA PANEL	1-4PR#16 TP	HSP 103 EMG STOP SWITCH STATUS, HSP 103 START/RUNNING STATUS
HSP103-3	1	3/4 IN.	HSP 103 CONTROL PANEL	LWCO RELAY PANEL	2-#12	LWCO (PSL OR LSL). ROUTE CONDUCTORS VIA SHARED HSP101-3 CONDUIT IN DUCTBANK
C-101	1	1 IN.	SCADA PANEL	FIT 101/102/103	(3) CAT 6	ROUTE FROM SCADA PANEL TO RESPECTIVE PUMP FIT. CAT 6 CABLES ROUTED IN SHARED 1" CONDUIT.
C-102	1	1-1/2 IN.	SCADA PANEL	LIT 500, AIT-300	1-8PR#16 TSP, CAT6, 1-4PR#16 TSP	FLOW METER DATA CABLING, GROUND STORAGE TANK LEVEL TRANSMITTER 4-20mA, CHLORINE 4-20mA
C-103	1	1 IN.	SCADA PANEL	PSH-021	1-2PR#16 TP	DISCHARGE HEADER PS HIGH. COORDINATE FINAL LOCATION WITH INSTRUMENTATION DRAWINGS. IF DEVICES (PSH-021, FIT-021-PSL-021-PSLL-021) ARE CLOSE PROXIMITY TO EACH OTHER, INSTRUMENTATION CONDUCTORS CAN SHARE COMMON CONDUIT.
C-104	1	1 IN.	SCADA PANEL	FIT-021	1-2PR#16 TSP	DISCHARGE HEADER FIT 4-20mA. COORDINATE FINAL LOCATION WITH INSTRUMENTATION DRAWINGS.
C-105	1	1 IN.	SCADA PANEL	PSL-021	1-2PR#16 TP	DISCHARGE HEADER PS LOW. COORDINATE FINAL LOCATION WITH INSTRUMENTATION DRAWINGS.
C-106	1	1 IN.	SCADA PANEL	PSLL-021	1-2PR#16 TP	DISCHARGE HEADER PS LOW/LOW. COORDINATE FINAL LOCATION WITH INSTRUMENTATION DRAWINGS.
C-107	1	3/4 IN.	SCADA PANEL	CPR-ALM, CPR-RUN	1-4PR#16 TP	AIR COMPRESSOR COMMON ALARM, RUN STATUS
C-108A	1	1 IN.	SURGE CONTROL PANEL	LIT-121, FIT-121	1-4PR#16 TSP	LEVEL AND PRESSURE TANK LEVEL 4-20mA
C-108B	1	1 IN.	SCADA PANEL	SURGE CONTROL PANEL	1-2PR#16 TSP, 1-2PR#16 TP	LEVEL 4-20mA, COMMON ALARM
C-109	1	1 IN.	LWCO (PSL-101, PSL-102, PSL-103)	LWCO RELAY PANEL	6-#14	TYPICAL FOR PSL101/PSL102/PSL103
C-110	1	1 IN.	SCADA PANEL	FIT-500	(1) CAT 6	
C-111	1	1 IN.	GENERATOR	ANNUNCIATOR PANEL	2-8PR#16 TP	
C-112	1	1 IN.	SCADA PANEL	CELLUR ANTENNA	(2) COAX CABLES	
C-113	1	1 IN.	GENERATOR	ATS	8-#14	
C-114	1	1 IN.	GENERATOR	SCADA PANEL	2-8PR#16 TP	
C-115	1	3/4 IN.	LS-1,2	SCADA PANEL	1-4PR#16 TP	BYPASS / SURGE VALVE OPEN/CLOSE LIMIT SWITCHES
C-116	1	3/4 IN.	ATS	SCADA PANEL	1-4PR#16 TP	ATS SWITCH POSITION AND BYPASS STATUS
C-117	1	3/4 IN.	LSL-500	LWCO RELAY PANEL	1-2PR#16 TP	GROUND STORAGE LOW LEVEL
S-101	1	1 IN.	SECURITY NETWORK PANEL	SECURITY CAMERAS	(2) CAT 6	CAMERAS MOUNTED ON LIGHT POLE
S-102	1	3 IN.	SECURITY NETWORK PANEL & SCADA PANEL	COMMUNICATIONS HANDHOLE	(2) FIBER CABLES	REFER TO SPEC 271523 FOR REQUIREMENTS, (1) CABLES TO SCADA, (1) CABLE TO SECURITY. PROVIDED CABLES SPLICED WITHIN HANDHOLE.
S-102.5	1	3 IN.	COMMUNICATIONS HANDHOLE	EXISTING AARS BUILDING NETWORK PANEL	(1) FIBER CABLE	REFER TO SPEC 271523 FOR REQUIREMENTS
S-103	1	1 IN.	SECURITY NETWORK PANEL	SECURITY CAMERAS	(1) FIBER CABLE	REFER TO SPEC 271523 FOR REQUIREMENTS, CAMERAS MOUNTED ON LIGHT POLE
S-104	1	1 IN.	SECURITY NETWORK PANEL	SECURITY CAMERAS	(1) CAT 6	CAMERA MOUNTED ON EXTERIOR OF PUMP BUILDING



**Lockwood, Andrews & Newnam, Inc.**  
A LEAD & BAILY COMPANY  
TBE REGISTRATION NO: F-2614

NO.	ADDENDUM 3	GDG	GDG	10/19/22
	REVISION	DRAWN	APPROVED	DATE

REVISIONS

RANCH TOWN NO. 2 PUMP STATION IMPROVEMENTS  
ELECTRICAL CONDUIT SCHEDULE

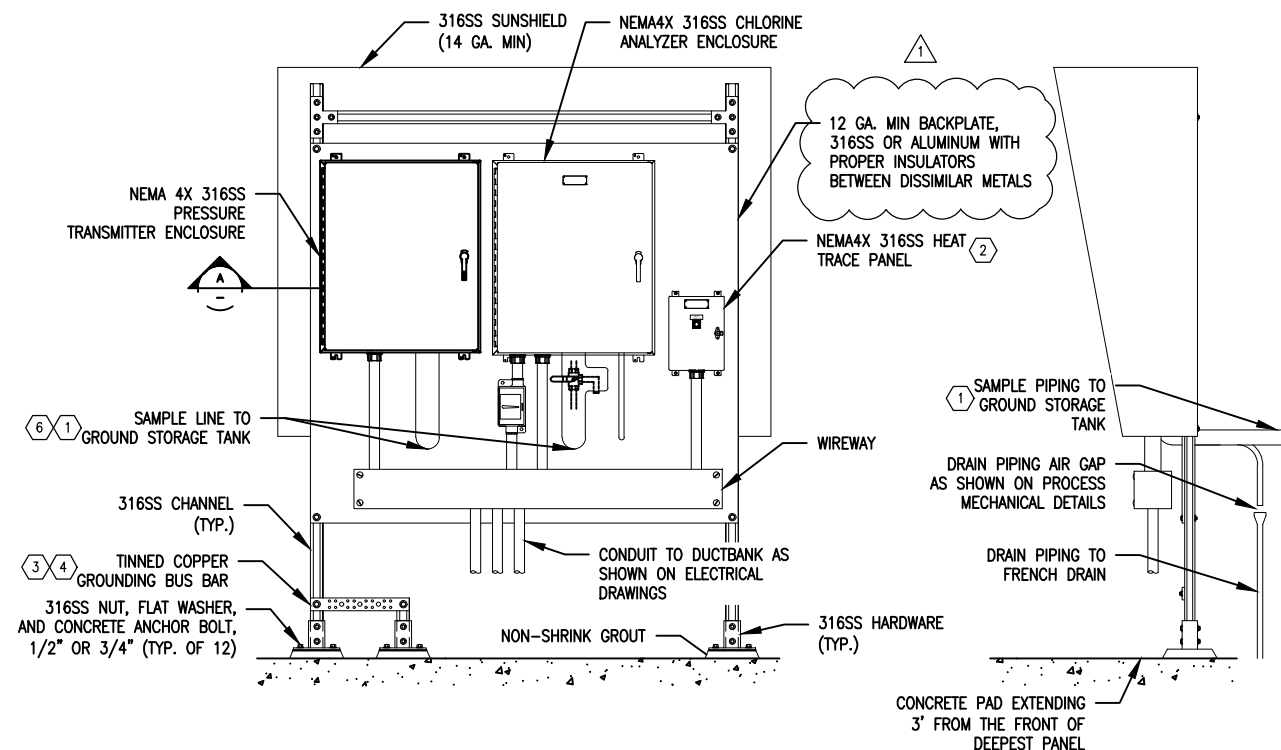
DEVELOPER: \_\_\_\_\_  
CONT. \_\_\_\_\_ BUDGET PROJ. \_\_\_\_\_

SUBMITTED \_\_\_\_\_  
APPROVED \_\_\_\_\_

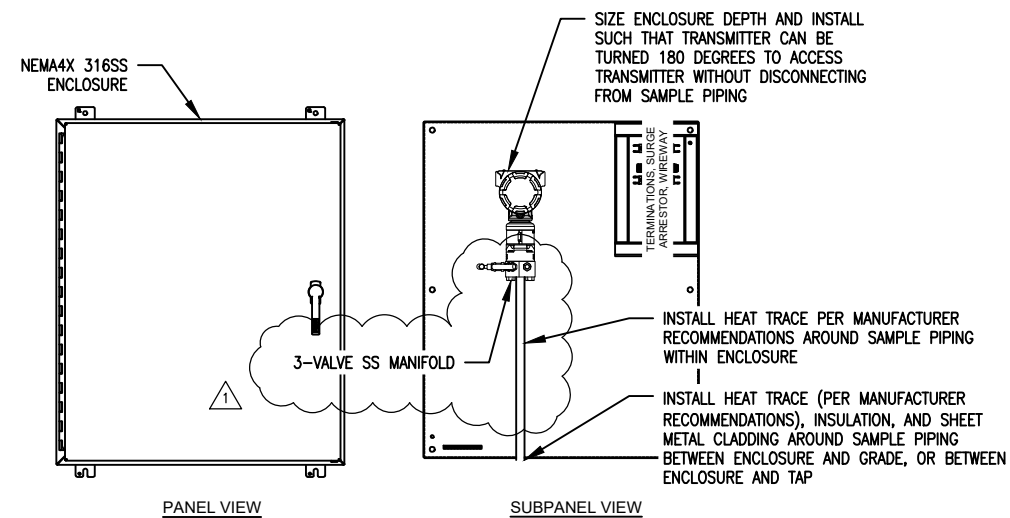
MAP NO. VALUE \_\_\_\_\_ SHEET E604  
SECT. NO. VALUE \_\_\_\_\_  
DR. GDG CK. DRH JOB NO. 20-6005 76 OF 94

KEYED NOTES: (X)

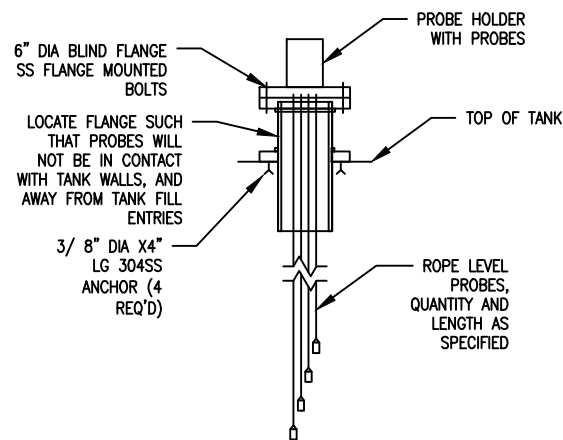
1. INSTALL SAMPLE LINES WITH HEAT TRACE AND INSULATION AS DESCRIBED IN SPECIFICATION SECTION 40 31 13 AND SHOWN ON MECHANICAL DETAILS.
2. INSTALL A HEAT TRACE PANEL WITH INTERFACE INDICATION FOR "HEAT TRACE ON".
3. CONNECT TO RACKSTAND BUS BAR WITH 4/0 TINNED COPPER GROUNDING CONDUCTOR AND DOUBLE COMPRESSION LUG CONNECTION. EXOTHERMICALLY WELD TO UNDERGROUND GROUNDING SYSTEM. SEE ELECTRICAL DRAWINGS FOR FURTHER GROUNDING SYSTEM DETAILS.
4. CONNECT EQUIPMENT GROUNDING CONDUCTORS TO GROUND BUS BAR USING COMPRESSION LUG FITTINGS.
5. REPLACE PROBE SYSTEM AND OBTAIN LEVEL SWITCH SIGNALS FROM NEW INSTRUMENT.
6. UTILIZE EXISTING TANK SAMPLE TAP NEAR THE LADDER TO TIE-IN A VALVED SAMPLE LINE TO THE ANALYZER PANEL.



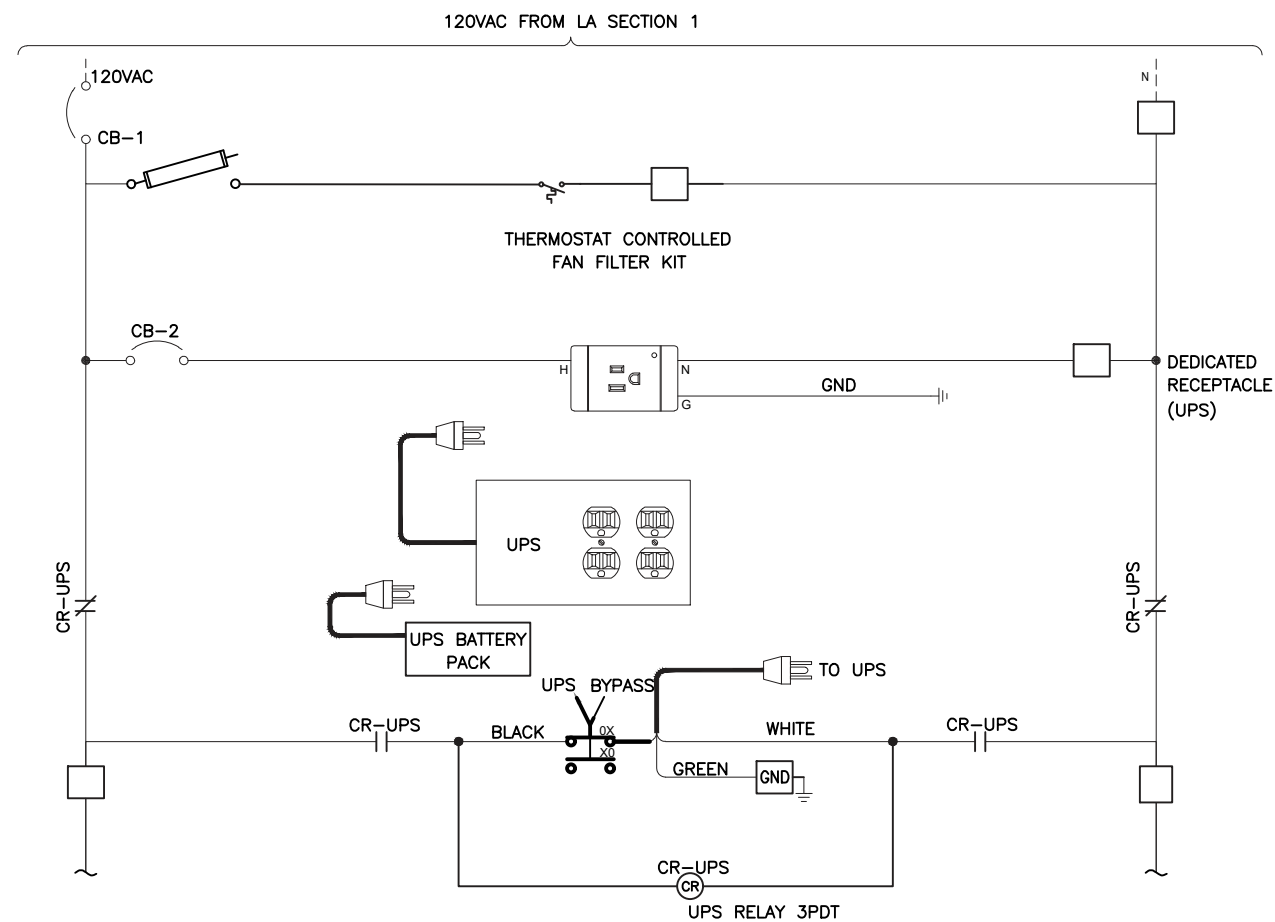
1 CHLORINE ANALYZER AND LEVEL TRANSMITTER RACKSTAND  
SCALE: NTS



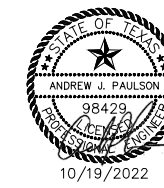
A TANK DIFFERENTIAL PRESSURE TRANSMITTER ENCLOSURE  
SCALE: NTS



2 ELECTRODE PROBE MOUNTING AND INSTALLATION  
SCALE: NTS



3 UPS POWER WIRING DIAGRAM  
SCALE: NTS



10/19/2022

Signature Automation  
14677 Midway Road, Suite 212, Addison, TX  
TBPE Firm Registration No. F-14711  
Phone 469-619-1241  
Fax 469-619-1242

LAN Lockwood, Andrews & Newnam, Inc.  
A LEAD A DALY COMPANY  
TBPE REGISTRATION NO: F-2614

NO.	REVISION	SBY	A/P	DATE
1	ADDENDUM 3			10/22

REVISIONS  
RANCH TOWN NO. 2  
PUMP STATION IMPROVEMENTS  
INSTRUMENTATION AND  
CONTROLS INSTALLATION DETAILS  
III

DEVELOPER:  
CONT. BUDGET PROJ.

SUBMITTED  
APPROVED

MAP NO. SHEET  
SECT. NO. N503  
DR. MAT CK. THB JOB NO. 20-6005 91 OF 94