



## ADDENDUM NO. 2

This Addendum No.2 consists of 35 pages. The following revisions shall be made to the CONTRACT DOCUMENTS. The Bidder shall acknowledge receipt of this Addendum No. 2 as required by ARTICLE 13.07 of EJCDC C-200, Suggested Instructions to Bidders for Construction Contracts and Article 3.01. A of EJCDC C-410, Bid Form for Construction Contracts.



### QUESTIONS:

1. **Question:** Cable Schedule sheets E-2.6 & E-2.7 are missing conduits shown in the Conduit Block Diagram sheets E-5.0 thru E-5.11.

**Response:** See DRAWINGS: Item 4 below.

2. **Question:** Sheet E-3.6, keynotes 5 and 6, are for SPS-LIT-343 and SPS-LIT-344. These two instruments are not shown in the P&ID or the Conduit Block Diagram. Are these instruments to be included in this project? If yes, please revised the P&ID, Conduit Block Diagram and Conduit schedule to show the instruments.

**Response:** See DRAWINGS: Item 7 below. SPS-LIT-343 and SPS-LIT-344 show up on P&ID I-2.5A and are labeled SPS-LIT-341 and SPS-LIT-342.

3. **Question:** Sheet E-3.6 and I-2.5A show instruments SPS-LIT-341 and SPS-LIT-342. Sheet E-5.4 conduit block diagram doesn't show LIT-341 and 342. Please provide the conduit number to connect the MCP-341 and MCP-342 to the LIT-341 and LIT-342.

**Response:** See DRAWINGS: Item 9 below. Conduits A341 and A342 added.

4. **Question:** Sheet I-2.5A shows instruments PSH-341 and PSH-342. Sheet E-3.6 and Sheet E-5.4 conduit block diagrams do not show the Instruments. Please provide the conduit number to connect the MCP-341 and MCP-342 to the PSH-341 and PSH-342.

**Response:** See DRAWINGS: Item 9 below. Conduits C341 and C342 added.

5. **Question:** Sheet E-3.3 shows a welding outlet with the note ELE-LP-006 Ckt#14. Sheet E2.3 panel schedule ELE-LP-006 shows circuit #14 to be for the AC Unit #2. What size breaker is required for the welding outlet, and what size conduit and wire are required?

**Response:** Welding outlet is powered from ELE-MCC-005. E-2.0 & E-2.1 revised.

6. **Question:** As far as the duct banks are concerned Sheet E-6.1 has Typical # 11 and # 12. The only sheets that have that detail attached to are E3.1 and E3.2 (TYP 11). Could you please clarify on each electrical sheet as to which detail is to be used and where?

**Response:** Detail 11 on sheet E-6.1 is used under drivable areas and for main duct banks runs. Detail 12 on sheet E-6.1 is to be used for underground conduits to devices and equipment.

7. **Question:** As far as the exposed conduit are concerned Sheet E-6.1 has Typical # 9 and # 10. Could you please mark each electrical sheet to identify where and what type of conduit is to be installed in that area?

**Response:** Refer to Specification 16111, 2.1, A.

8. **Question:** Sheet E6.1 detail # 10. When we will be required to install PVC coated GRC will we also be required to install PVC Coated seal tight connectors? According to that detail they just want regular steel seal tight connectors?

**Response:** Yes.

9. **Question:** What type of conduit is to be installed inside the new operation and maintenance building? EMT or GRC?

**Response:** GRC as per Specification 16111.

10. **Question:** Grounding-Is there an existing perimeter ground grid that we have to attach/extend? If so, are there details for grounding Line posts, corner posts etc.?

**Response:** No existing Ground Grid exists. Provide new Ground Grid System electrically bonded to the new Service Ground point.

11. **Question:** Dwg E-3.15-Note 1 indicates all enclosures to be NEMA 4X 316. The panel schedules and transformer enclosures are NEMA-3R. Which applies?

**Response:** Lighting Panel and Dry Type Transformers shall be NEMA 3R. Any local control panels, including ELE-PLC-010 installed outside shall be NEMA 4X SS.

12. **Question:** What are the sizes of the dry type xfrms? Only two are sized.

**Response:** Dry Type Transformers "HW-XFMR-108", "OM-XFMR-023" & "EPS-XFMR-708", shall be 15KVA, 480-120/208VAC, NEMA 3R.

13. **Question:** Can the underground power and communications conduits be installed in a common trench?

**Response:** Yes, with separation and Detectable Warning Tape installed as per details 11 & 12.

14. **Question:** Where is the concrete encasement required for underground conduits?

**Response:** Detail 11 on sheet E-6.1 is used under drivable areas and for main duct banks runs. Detail 12 on sheet E-6.1 is to be used for underground conduits to devices and equipment.

15. **Question:** Sheet E3.3 Keynotes 23 and 28 show the blower discharge temperature switch "TSH". Div.17 doesn't address the temperature switch. Please provide the specification for the discharge temperature switch.

**Response:** The Sludge Blowers are a Packaged System as per Specification 11371. Temperature Switches are part of that package.

16. **Question:** Sheet E 3.7 keynote 46 shows the WAS-AIT-335 WAS TSS Meter. This instrument is not shown on Dwg. I-2.7. Please revise the P&ID to show this instrument. Also please provide the specifications for the TSS Meter.

**Response:** WAS-AIT-335 added to I-2.7. WAS-AIT-335 power source added to lighting panel RAS-LP-309, Circuit #18. TSS meter shall be Model 72P as manufactured by Royce Technologies per Sheet P 8-1.

17. **Question:** Is there an instrument list and an instrument data sheet available for this project?

**Response:** No Instrument List provided on this project. ISA Data Sheets are required to be filled out by the Contractor and included in the instrument submittals as per Specification 17000, 1.5, B, 2.

18. **Question:** Sheets E-3.9 and I-2.9 show LCP-610 and LIT-610. The LCP and LIT are not shown in the conduit block diagram. Please provide the conduit number with the conduit size and wires required for the connection between ELE-PLC-010 to SHT-LCP-610 to LIT-610.

**Response:** See drawing E-5.1, Conduit Block Diagram Control General & Sludge/Blower for LCP-610 and LIT-610.

19. **Question:** Please provide the schematic diagram for the following panels: MCP-341, MCP-342, LCP-610, LCP-510, LCP-520, LCP-722 and MCP-132

**Response:** MCP-341, MCP-342 are for the Scum Pump Station no schematics provided. LCP-610 is the Sludge Holding Tank Level Control Panel, See specification 17125 Radar Transmitter for LCP requirements. LCP-510, LCP-520 are Chemical Tank Level Control Panel, See specification 17125 Radar Transmitter for LCP requirements. MCP-132 is the Automatic Sampler, purchased package, no schematic required.

20. **Question:** Sheet E-3.10 and I -2.10, keynotes 2 and 7, show the dry run sensor "YS". Division 17 Instrumentation does not specify the sensor. Please provide the specification for the dry run sensors SF-YS-621 and SF-YS-622.

**Response:** Specification 17211 – PRESENCE/ABSENCE DETECTORS (DRY RUN SENSORS) has been added.

21. **Question:** Sheet E-3.15, key note 19 and Sheet I -2.18, show the EPS-AIT-717. The conduit block diagram doesn't show AIT-717. Please provide the conduit number with the conduit size and wires required for this instrument.

**Response:** See **DRAWINGS:** Items 12 and 13 below. Sheet E-3.15, Item 19 and Sheet I-2.18 revised to read "EPS-AIT-704 to match CBD and Panel Schedule.

22. **Question:** Confirm that it is acceptable to display VFD speed and motor time meters on the Disk Filter Operator Interface instead of separate physical units.

**Response:** Yes, acceptable.

23. **Question:** For disk filters, confirm that is acceptable to supply an Ethernet/Fiber switch such as Phoenix Contact FL switch SFN 6TX/2FX 2891024. This unit is equipped with 6 RJ-45 10/100 Mbps ports and 2 SC fiber ports.

**Response:** Refer to specification 16912.

24. **Question:** For disk filters, confirm that Kooltronics Air Conditioner 3000 BTU NEMA 4X would be acceptable unit for use on the Disk Filter Control Panel.

**Response:** Refer to specification 16161 and 16162.

25. **Question:** For disk filters, confirm that Square D 8356 NEMA motor starter is an acceptable equal.

**Response:** Square D NEMA Motor Starters are equal, providing they meet the Specification requirements and will be reviewed in the Shop Drawing Submittal.

26. **Question:** For disk filters, confirm that Square Altivar 312 VFD is an acceptable equal.

**Response:** Square D Altivar 312 VFDs are equal, providing they meet the Specification requirements and will be reviewed in the Shop Drawing Submittal.

27. **Question:** For disk filters, confirm if a UPS is required for the Disk Filter Control Panel.

**Response:** UPS is required for the PLC.

28. **Question:** For disk filters, confirm that Square D 30mm SK9001 is an acceptable equal.

**Response:** Square D NEMA selector switches and pushbuttons are equal, providing they meet the Specification requirements and will be reviewed in the Shop Drawing Submittal.

29. **Question:** For disk filters, confirm if the Disk Filter System is responsible for supplying a licensed copy of the OIT or PLC programming software or if this is the responsibility of others.

**Response:** Vendors shall provide a copy of the latest version of PLC and OIT programming software as per Specifications.

30. **Question:** Sheet E2.7, cable run T001, this is not shown on the Site plans. Where is the connection point for the Telephone service? Need distance.

**Response:** Contractor to coordinate with the local Telephone Company for service point location and requirements as per Specification 16000, 3.2, Y.

31. **Question:** Sheet E3.2 Primary Electrical connection point is not shown. Need to know distance from utility transformer to the primary connection point.

**Response:** Contractor to coordinate with the Sulfur Springs Electric Cooperative for service point location and requirements as per Specification 16000, 3.2, X.

32. **Question:** Sheet E3.2. Note 2 indicates that the utility transformer location is not SET as the Utility company needs to do so. For the purpose of this bid should we enter in like 100' or 50'?

**Response:** Contractor to coordinate with the Sulfur Springs Electric Cooperative for service point location and requirements as per Specification 16000, 3.2, X.

33. **Question:** Sheets E5.1, E5.2 E5.3... show an Nxxx series conduit, but these conduits are not shown on the conduit schedule except for N008. Can we get a clarification as what these conduits are? Size, type, conductors etc?

**Response:** See Addendum #1.

34. **Question:** Sheet E5.7 show a circuit for roadway lights, however, we cannot find any roadway lighting on the site plan. Is this for future or are there roadway lights we need to have covered?

**Response:** Roadway lights are not part of the current design. E-5.7 revised. E-2.3, Lighting Panel ELE-LP-006, Circuit # 5, marked as Spare and Load removed.

35. **Question:** In drawings P 1-1 and S 1-1 the electrical concrete pads are different, in drawing P1-1 the smaller concrete pads are split and in S 1-1 the concrete pads are shown as one concrete pad. Please provide detail for thickness and advise which drawing to use for the dimensions?

**Response:** Use S 1-1 for concrete pad. For thickness and reinforcing, use detail 7 on Sheet S-6.

36. **Question:** In drawings P 6-1 and S 6-1 two of the outer concrete pads do not match with each other, please advice which dimensions to use for these concrete pads?

**Response:** Use the dimensions shown on Sheet P 6-1.

37. **Question:** Please provide detail for the ramp in drawing S 8-1.

**Response:** Use detail 7, Sheet S-6 for 12" thickness, sloping the top as needed.

38. **Question:** Drawings P 9-1 and S 9-1 the grating/sump location is changed in the two drawing, please advice.

**Response:** The grating/sump location shall be as shown on Sheet P 9-1. Contractor to issue an RFI and a sketch reflecting this change will be issued prior to construction.

39. **Question:** Please provide details regarding the SES, Generator and HVAC concrete pads in drawing P 12-1, there is a reference for S 12-1 but no information in found in S 12-1?

**Response:** For SES, use detail 7 Sheet S-6. For HVAC, use detail 7 Sheet S-6 and for Generator, use detail 8, Sheet S-6.

40. **Question:** Please provide a detail/cross section of how deep the trench drains are in S 13-1?

**Response:** Refer to drawing P -601, Waste & Vent Isometric and "Miscellaneous Plumbing Fixture Schedule" for TD1, TD2, and TD3.

41. **Question:** On Sheet No. P 12-1, is there a detail for the thermometer and temperature transmitter assembly, the pressure gauge assembly, the small diameter isolation ball valve and the pressure relief valve?

**Response:** Thermometer and temperature transmitter assembly, pressure gauge assembly, and pressure relief valve shall be per Specification Section 11371 2.3.

42. **Question:** On 11295-24, are the Blower Pressure Relief Valves 8" diameter?

**Response:** No, pressure relief valves shall be 1-inch.

43. **Question:** Sheet P 2-2 – Is there a detail of the 12" MLSS exiting the Oxidation Ditches?

**Response:** 12" MLSS shall exit the structure from the bottom at an invert elevation of 4150.50. Provide concrete encasement per detail 802 and Detail 1, S-8.

44. **Question:** In drawing P2-1 Note No.16 calls out for a 1'x3' removable FRP grating, however, the plan view shows two gratings that are 2'x3' and being a 3'x7'. Which grating size do we use for the smaller removable gratings?

**Response:** There are four 2' x 3' FRP gratings and two 1' x 3' removable FRP gratings. Refer to S 2-1 for clarity.

45. **Question:** S3-1 upper plan detail 8/S-9 shows a stairs to wall connection, however, P3-1 shows a platform. Are we to provide a platform for the stairs or connect the stairs to the concrete wall?

**Response:** The upper landing platform is required as part of the stairs. Connection of platform to concrete is similar to as shown on Detail 8 Sheet S-9.

46. **Question:** Do you have an approximate volume of material that will need to be removed from the existing influent pump station? Can this material be disposed of on site?

**Response:** No. Demolition items for influent lift station are shown on Sheet D 1-1. Items indicated as being "remove" shall be removed from the site per General Note 3, Sheet D 1-1.

47. **Question:** The specifications for the overhead doors with corrosion resistant coatings and waterproof motors appear to be conservative for this application. Is this, in fact, what you are looking for?

**Response:** Yes, the overhead doors shall be per the specifications.

48. **Question:** The specification Section 02100 Paragraph 3.2.C requires that we stockpile topsoil on site. Where should this material be stockpiled? If there is additional excess material, can it be stockpiled at the same location?

**Response:** The location can be coordinated with the OWNER and ENGINEER. Yes, additional excess material can be stockpiled provided the OWNER has no objections.

49. **Question:** Sheet C-6, Note 46 indicates a potential change based upon the results of a percolation test after excavation of the basin. Will a change order be provided if more or fewer systems are required than are shown on the drawings?

**Response:** The bid should be based on 3 drywells as shown on the drawings. If more or less systems are required based on percolation test, then a change order will be provided.

50. **Question:** For the air piping penetrating the blower building, do you have a detail for that penetration as it is a metal building?

**Response:** Detail for penetration to be coordinated with metal building manufacturer.

51. **Question:** Specification Section 01451 appears to conflict with the Special Inspection requirements on Sheet-1 of the plans, specifically as it relates to Concrete and Structural Steel. Which requirement governs?

**Response:** Section 01451 and Special Inspections are two different requirements for the project. Section 01451 deals with taking samples and sending them to laboratory for quality assurance. Special Inspections is the inspection of all structural work for conformance with the contract documents by the Owner or the Registered Design Professional acting as the owner's representative/agent.

52. **Question:** Specification Section 01500 indicates the Contractor is to connect to existing utilities for water. Where are we able to make these connections?

**Response:** Per Specification Section 01500 1.4.C, the connection to existing utilities for water shall be designated by OWNER. But, for potable water connection to the treatment plant, refer to Sheet P-3, Keyed Noted No. 1.

53. **Question:** For the leakage testing water the Contractor is to use water from the nearest hydrant. Please identify this location

**Response:** The location of hydrant shall be coordinated with the OWNER.

54. **Question:** Are shade structures required for the electrical panels at the Influent Pump Station and the RAS/WAS Pump Station?



**Response:** Yes. Provide Equipment Shade Structure as shown on E-6.3, Detail 25 for the influent pump station and RAS/WAS pump station electrical equipment.

55. **Question:** Our interpretation of the subgrade below the tanks is that we are required to overexcavate and replace 3' of the subgrade with engineered fill. In addition, we will use the geopier ground improvement, and finally, placement of CLSM under the clarifiers and sludge holding tank. Is this your intent?

**Response:** Provide ground improvement using Rammed Aggregate Piers (RAP) in accordance with the geotechnical report and specification 02452 – Rammed Aggregate Pier Foundation System to provide an allowable bearing capacity of 3,000 psf.

56. **Question:** Will you please provide the forms for items H, I, & J in the Bid Form?

**Response:** Bid forms for items H, I, and J are attached in this addendum.

57. **Question:** Is plant effluent available for construction water purposes?

**Response:** No

58. **Question:** What is the rating for the access hatches? In the specification section they are to be rated as called out per drawing; however, the drawings do not specify whether they are pedestrian or traffic.

**Response:** All access hatches are to be pedestrian traffic rated for a load of 300 lbs per square foot.

59. **Question:** Ref. Drawing D-2 – Key Notes 8, 9, and 15 refer to abandoning the existing effluent wet well, the wet well pump station, and three associated sewer lines after completion of start-up. Are these structures and sewer lines currently in service? I do not see on the Plan the source of any liquid entering the structures. Are these facilities available for use in facilitating a temporary by-pass? Are there usable pumps in the pump station that can be used to facilitate a by-pass?

**Response:** Yes, the structures and sewer lines are currently in service. It is an existing treatment plant. The maintenance of plant operation during construction shall follow specification 01012.

60. **Question:** Drawing D-1, General note 6, states that structures and pipelines larger than 2" in diameter shall be solidly filled with grout. Could you please provide the as-builts or dimensions for the following structures:

- a. Existing Effluent Wet Well

- b. Existing Effluent Pump Station
- c. Existing Septage Receiving Station
- d. Vaults located on the west side of pond that are to be abandoned.

**Response:** Existing as-built drawings (1988 and 2000) will be uploaded to the City's website.

61. **Question:** Is it acceptable to use plant effluent to perform the start-up testing?

**Response:** No. Contractor shall provide water per Specification Section 01650 3.7.D.

62. **Question:** Page 02315-6, Paragraph 2.1.A.1 defines the materials acceptable as fill and backfill being either import or site soils; however, the requirements are considerably different for the 2 materials. Was this the intent? The requirements for using import will drive the cost of the project up substantially.

**Response:** It is our understanding that most of the existing soil is not suitable for fill and backfill material. However, if on-site soils are to be used, the material shall be tested by the laboratory to meet the imported material requirements per Specification Section 02315 2.1.A.1. If on-site soil material is un-suitable, engineered backfill or approved imported soils shall be used.

63. **Question:** Specification Section 03300 – 2.2.B.1 does not allow lignins in the admixture. Can it be allowed?

**Response:** No. Admixtures shall not contain lignin per Section 03300 -2.2 B.1.

64. **Question:** Specification Section 03300 -2.2.C. indicates that the pozzolan shall not exceed 20 % by weight. This is a problem because almost all of the time tested mixes that most ready mix companies have a lot of data on are the DOT mixes and they allow 25 % flyash (pozzolan).

**Response:** 25 % pozzolan is acceptable.

65. **Question:** Specification Section 03300 – 3.4.H.2 requires to cool ingredients before mixing to maintain concrete temperature at time of placement below 80 F when the temperature is rising. Can the temperature be increased to 90 F?

**Response:** Yes, the concrete temperature can be at 90 ° F.

66. **Question:** The dewatering area concrete elevation is 4165.00 shown on Sheet C-9, also for the same dewatering area detail the elevation is shown at 4161.50 on Sheet S 11-3. Can you please specify which is the appropriate elevation?

**Response:** Use the elevations shown on Sheet C-9 and Sheets P 11-2, P 11-3 in lieu of elevations shown on S 11-3.

67. **Question:** We anticipate encountering groundwater at the lowest levels of our excavation. We would like to be able to pump the groundwater from the dewatering operation into the operating process basin (Lagoon 2). Is it acceptable to pump this water into the basin?

**Response:** No. Disposal of groundwater shall follow the requirements of Specification Section 02315, 3.5.C.

**APPROVAL OF "OR EQUAL":**

1. Goulds-Water Technology (A xylem Brand) is approved as "or equal" for 11310 – VERTICAL TURBINE PUMPS. Refer to **SPECIFICATIONS** below for update.
2. ABS Pumps. Inc/Sulzer Pumps is approved as "or equal" for 11311 –SUBMERSIBLE PUMPS. Refer to **SPECIFICATIONS** below for update.
3. Grundfos Pumps Corporation is approved as "or equal" for 11311 –SUBMERSIBLE PUMPS. Refer to **SPECIFICATIONS** below for update
4. VOGELSANG is approved as "or equal" for 11320 – Rotary Lobe Pumps. Refer to **SPECIFICATIONS** below for update.
5. Envirodyne Systems Inc. is approved as "or equal" for 11330 –SECONDARY CLARIFIER MECHANISM. Refer to **SPECIFICATIONS** below for update.
6. SSI Aeration is approved as "or equal" for 11376 –COARSE BUBBLE AERATION SYSTEMS. Refer to **SPECIFICATIONS** below for update.

**DRAWINGS:**

1. E-2.0 – SINGLE LINE DIAGRAM 1 OF 2 ELE-MCC-005
  - a. **REPLACE** Drawing E-2.0 with Revised Drawing E-2.0.
  - b. On Drawing E-2.0, Blower Building Welding outlet added to the Load Summary.
2. E-2.1 – SINGLE LINE DIAGRAM 2 OF 2 ELE-MCC-005
  - a. **REPLACE** Drawing E-2.1 with Revised Drawing E-2.1.
  - b. On Drawing E-2.0, Blower Building Welding outlet added to ELE-MCC-005.
3. E-2.3 – 120/208V PANEL SCHEDULES SHEET 1 OF 2
  - a. **REPLACE** Drawing E-2.3 with Revised Drawing E-2.3.
  - b. On Drawing E-2.3, Panel RAS-LP-309, Circuit 16, **ADD** "WAS-AIT-335", "0.9Amps" load.

**4. E-2.6 – CABLE AND CONDUIT SCHEDULE - POWER**

a. **REPLACE** Drawing E-2.6 with Revised Drawing E-2.6.

- i. **REVISED** Conduit "LP006-24" to read "LP006-28".
- ii. **ADDED** Conduit "LP006-27".
- iii. **REVISED** Conduit "LP006-25" to read "LP006-23".
- iv. **REVISED** Conduit "LP006-25A" to read "LP006-23A".
- v. **ADDED** Conduit "LP006-32".
- vi. **REVISED** Conduit "LP006-11" to read "LP006-17".
- vii. **ADDED** Conduit "LP006-12".
- viii. **ADDED** Conduit "U001".
- ix. **ADDED** Conduit "DP707-25".
- x. **REVISED** Conduit "LP021-15" to read "LP021-35".
- xi. **ADDED** Conduit "LP021-30".
- xii. **REVISED** Conduit "LP021-03".
- xiii. **ADDED** Conduit "LP021-03A".
- xiv. **REVISED** Conduit "LP021-07".
- xv. **ADDED** Conduit "LP021-07A".
- xvi. **ADDED** Conduit "CEC1".
- xvii. **REVISED** Conduit "LP021-08".
- xviii. **ADDED** Conduit "LP021-08A".
- xix. **REVISED** Conduit "LP021-02".
- xx. **ADDED** Conduit "LP021-02A".
- xxi. **REVISED** Conduit "LP021-05".
- xxii. **ADDED** Conduit "LP021-05A".
- xxiii. **ADDED** Conduit "CFUR1".
- xxiv. **REVISED** Conduit "LP021-01".
- xxv. **ADDED** Conduit "LP021-01A".
- xxvi. **REVISED** Conduit "LP021-26".
- xxvii. **ADDED** Conduit "LP021-26A".
- xxviii. **ADDED** Conduit "P500".

**5. E-2.7 – CABLE AND CONDUIT SCHEDULE - CONTROL**

a. **REPLACE** Drawing E-2.7 with Revised Drawing E-2.7.

- i. **ADDED** Conduit "N010".
- ii. Conduit "R010" is found on the Cable and Conduit Schedule, sheet E-2.7.
- iii. **ADDED** Conduit "N100".
- iv. **ADDED** Conduit "N300".
- v. **ADDED** Conduit "N639".
- vi. **ADDED** Conduit "N700".
- vii. **ADDED** Conduit "N404".

- viii. **ADDED** Conduit "N200".
- ix. **ADDED** Conduit "N605".
- x. **ADDED** Conduit "N020".
- xi. **ADDED** Conduit "A107".
- xii. **ADDED** Conduit "C209".
- xiii. **ADDED** Conduit "A209".
- xiv. **ADDED** Conduit "A341".
- xv. **ADDED** Conduit "C341".
- xvi. **ADDED** Conduit "A342".
- xvii. **ADDED** Conduit "C342".

**6. E-3.3 – ELECTRICAL PLAN – BLOWER/ELECTRICAL BUILDING**

- a. **REPLACE** Drawing E-3.3 with Revised Drawing E-3.3.
- b. **REVISED** "Welding Outlet, ELE-LP-006, CKT#14" to read "Welding Outlet, ELE-MCC-005".

**7. E-3.6 – ELECTRICAL PLAN – SECONDARY CLARIFIERS**

- a. **REPLACE** Drawing E-3.6 with Revised Drawing E-3.6.
- b. Keyed Notes, #5, **REVISED** "SPS-LIT-343" to read "SPS-LIT-341".
- c. Keyed Notes, #6, **REVISED** "SPS-LIT-344" to read "SPS-LIT-342".

**8. E-5.1 – CONDUIT BLOCK DIAGRAM – CONTROL GENERAL & SLUDGE/BLOWER**

- a. **REPLACE** Drawing E-5.1 with Revised Drawing E-5.1.
- b. **ADDED** Conduit "P500" between ELE-MCC-005 and the Welding Receptacle.

**9. E-5.4 – CONDUIT BLOCK DIAGRAM – SECONDARY CLARIFIERS & SCUM/DRAIN PUMP STATION**

- a. **REPLACE** Drawing E-5.4 with Revised Drawing E-5.4.
- b. **ADDED** Conduit "A341" between SPS-LIT-341 and SPS-MCP-341.
- c. **ADDED** Conduit "A342" between SPS-LIT-342 and SPS-MCP-342.
- d. **ADDED** Conduit "C341" between SPS-PSH-341 and SPS-MCP-341.
- e. **ADDED** Conduit "C342" between SPS-PSH-342 and SPS-MCP-342.

**10. E-5.6 – CONDUIT BLOCK DIAGRAM – SLUDGE HOLDING AREA**

- a. **REPLACE** Drawing E-5.6 with Revised Drawing E-5.6.
- b. **REVISED** Conduit "LP006-24" to read "LP006-28".
- c. **ADDED** the continuation of Conduits "LP006-01", "LP006-02" & "LP006-03" from sheet E-5.0.

11. I-2.7 – P&ID – RAS/WAS PUMP STATION 2 OF 2

- a. **REPLACE** Drawing I-2.7 with Revised Drawing I-2.7.
- b. **ADDED** TSS Analyzer “WAS-AIT-335”.

12. E-3.15 – ELECTRICAL PLAN – EFFLUENT & NON-POTABLE WATER PUMP STATION

- a. **REPLACE** Drawing E-3.15 with Revised Drawing E-3.15.
- b. **REVISED** “Item 19” to read “EPS-AIT-704”.

13. I-2.18 – P&ID – NON-POTABLE WATER PUMP STATION & HYDRO TANK

- c. **REPLACE** Drawing I-2.18 with Revised Drawing I-2.18.
- d. **REVISED** “EPS-AIT-717” to read “EPS-AIT-704”.

**SPECIFICATIONS:**

1. Specification 03300 – CAST-IN-PLACE CONCRETE

- a. Page 03300 -5, Section 2.2.C.2, **DELETE** 20 % and **REPLACE** with 25 %.
- b. Page 03300-12, Section 3.4.H.2 **DELETE** below 80 F and **REPLACE** with at 90 F.

2. Specification 11295 – HYDRAULIC VALVES

- a. Page 11295 -24, Valve Schedule: For BLW-PRR-688 and BLW-PRR-689, **DELETE** 8 inches and **REPLACE** with 1 -inch

3. Specification 11310 – VERTICAL TURBINE PUMPS

- a. Page 11310 -6, Section 2.1.B.4, **DELETE** “Or approved equal” and **REPLACE** with “4. Goulds 5. Or approved equal”.

4. Specification 11311 – SUBMERSIBLE PUMPS

- a. Page 11311 -4, Section 2.1.A.4, **DELETE** “Or approved equal” and **REPLACE** with “4. ABS Pumps Inc./Sulzer Pumps 5. Grundfos Pumps Corporation 6. Or approved equal”.
- b. Page 11311 -5, Section 2.1.B.4, **DELETE** “Or approved equal” and **REPLACE** with “4. Grundfos Pumps Corporation 5. Or approved equal”.
- c. Page 11311 -5, Section 2.1.C, **DELETE** “RAS/WAS PUMP STATION 208 gpm WAS Pump” and **REPLACE** with “Clarifier Drain Pump Station 110 gpm Drain Pump”.
- d. Page 11311 -5, Section 2.1.C.4, **DELETE** “Or approved equal” and **REPLACE** with “4. ABS Pumps Inc./Sulzer Pumps 5. Grundfos Pumps Corporation 6. Or approved equal”.

- e. Page 11311 -5, Section 2.1.D.4, **DELETE** "Or approved equal" and **REPLACE** with "4. ABS Pumps Inc./Sulzer Pumps 5. Grundfos Pumps Corporation 6. Or approved equal".
  - f. Page 11311 -5, Section 2.1.E.4, **DELETE** "Or approved equal" and **REPLACE** with "4. ABS Pumps Inc./Sulzer Pumps 5. Grundfos Pumps Corporation 6. Or approved equal".
  - g. Page 11311 -5, Section 2.1.F.4, **DELETE** "Or approved equal" and **REPLACE** with "4. ABS Pumps Inc./Sulzer Pumps 5. Grundfos Pumps Corporation 6. Or approved equal".
5. Specification 11320 – ROTARY LOBE PUMPS
- a. Page 11320 -4, Section 2.1.A.4, **DELETE** "Or Engineer pre-approved equal" and **REPLACE** with "5. VOGELSANG 6. Or approved equal".
6. Specification 11335 – SECONDARY CLARIFIER MECHANISM
- a. Page 11335 -7, Section 2.1.A.4, **DELETE** "Or approved equal" and **REPLACE** with "4. Envirodyne Systems Inc. 5. Or approved equal".
7. Specification 11376 – COARSE BUBBLE AERATION SYSTEMS
- a. Page 11376 -3, Section 2.1.C, **DELETE** "Or approved equal" and **REPLACE** with "C. SSI Aeration. D. Or approved equal".
8. Specification 17211 – PRESENCE/ABSENCE DETECTORS (DRY RUN SENSOR)
- a. **ADD** new Specification 17211 – PRESENCE/ABSENCE DETECTORS (DRY RUN SENSOR).

**END OF ADDENDUM NO. 2**

## COMPLIANCE STATEMENT

This statement relates to a proposed contract with \_\_\_\_\_

\_\_\_\_\_  
(Name of borrower or grantee)

who expects to finance the contract with assistance from either the Rural Housing Service (RHS), Rural Business-Cooperative Service (RBS), or the Rural Utilities Service (RUS) or their successor agencies, United States Department of Agriculture (whether by a loan, grant, loan insurance, guarantee, or other form of financial assistance). I am the undersigned bidder or prospective contractor, I represent that:

1. ☐ I have, ☐ have not, participated in a previous contract or subcontract subject to Executive 11246 (regarding equal employment opportunity) or a preceding similar Executive Order.
2. If I have participated in such a contract or subcontract, ☐ I have, ☐ have not, filed all compliance reports that have been required to file in connection with the contract or subcontract.

If the proposed contract is for \$50,000 or more and I have 50 or more employees, I also represent that:

3. ☐ I have, ☐ have not previously had contracts subject to the written affirmative action programs requirements of the Secretary of Labor.
4. If I have participated in such a contract or subcontract, ☐ I have, ☐ have not developed and placed on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor.

I understand that if I have failed to file any compliance reports that have been required of me, I am not eligible and will not be eligible to have my bid considered or to enter into the proposed contract unless and until I make an arrangement regarding such reports that is satisfactory to either the RHS, RBS or RUS, or to the office where the reports are required to be filed.

I also certify that I do not maintain or provide for my employees any segregated facilities at any of my establishments, and that I do not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I certify further that I will not maintain or provide for my employees any segregated facilities at any of my establishments, and that I will not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I agree that a breach of this certification is a violation of the Equal Opportunity clause in my contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and wash rooms, restaurants and other eating areas time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. I further agree that (except where I have obtained identical certifications for proposed subcontractors for specific time periods) I will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that I will retain such certifications in my files; and that I will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods): (See Reverse).

---

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays the valid OMB control number. The valid OMB control number for this information collection is 0575-0018. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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**NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR  
CERTIFICATIONS OF NON-SEGREGATED FACILITIES**

A certification of Nonsegregated Facilities, as required by the May 9, 1967, order (32F.R. 7439, may 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding \$ 10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date \_\_\_\_\_

\_\_\_\_\_  
*(Signature of Bidder or Prospective Contractor)*

\_\_\_\_\_  
*Address (including Zip Code)*

**U.S. DEPARTMENT OF AGRICULTURE**

---

**Certification Regarding Debarment, Suspension, Ineligibility  
and Voluntary Exclusion - Lower Tier Covered Transactions**

---

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989, *Federal Register* (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency with which this transaction originated.

**(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)**

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

---

Organization Name

PR/Award Number or Project Name

---

Name and Title of Authorized Representative

---

Signature

Date (mm/dd/yyyy)

### **INSTRUCTIONS FOR CERTIFICATION**

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on the reverse side in accordance with these instructions.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participating in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or Federal loan, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant or loan.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or loan, the undersigned shall complete and submit Standard Form - LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including contracts, subcontracts, and subgrants under grants and loans) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

---

(name)

---

(date)

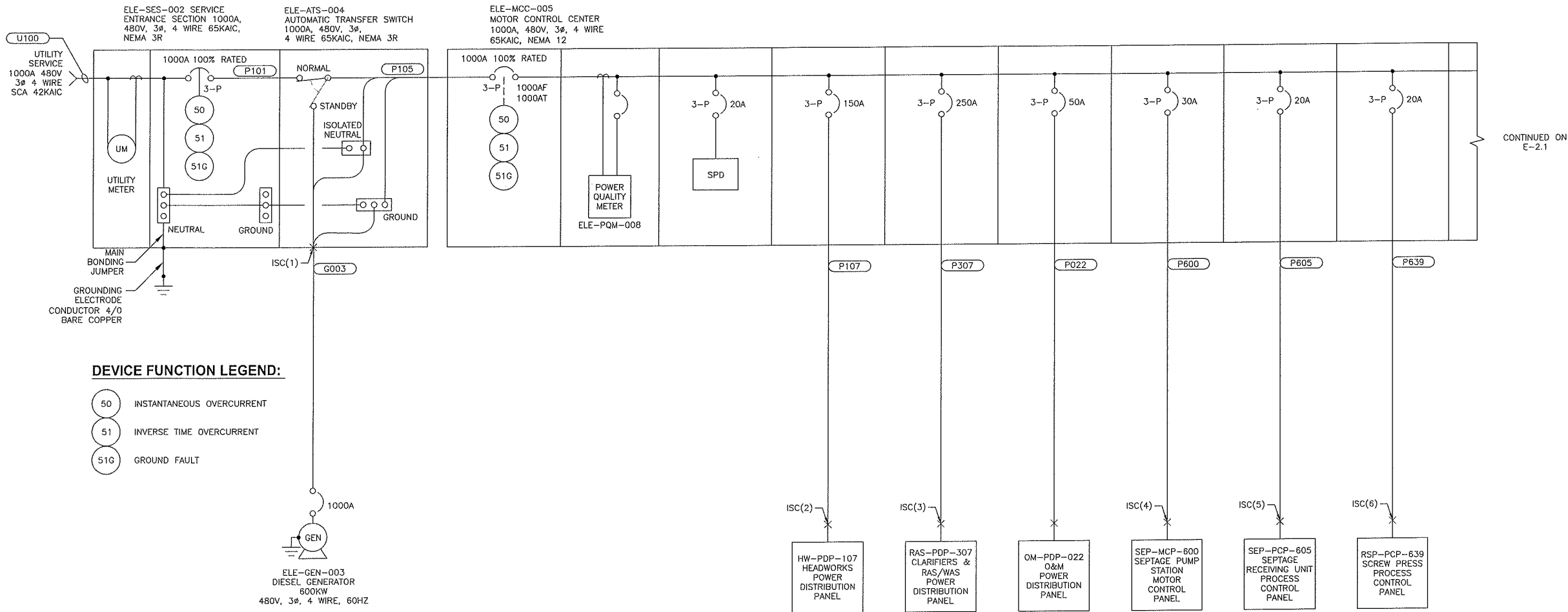
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(title)

oOo

XREFS: TB-11004; SEAL-MAC; SEAL-REP

G:\PROJECT\11004\CADD\DESIGN\ELECTRICAL\11-004 E-2.0.DWG, 10/18/2016 10:45:54 AM, sostuertzel, 1:2.16



DEVICE FUNCTION LEGEND:

- 50 INSTANTANEOUS OVERCURRENT
- 51 INVERSE TIME OVERCURRENT
- 51G GROUND FAULT

SINGLE LINE DIAGRAM

CIRCUIT DESCRIPTION	KVA	HP	FLA
MOTOR LOADS			
HW-PDP-107	43.2	0.0	52.0
RAS-PDP-307	58.2	0.0	67.6
EPS-PDP-707	138.5	0.0	166.6
SEP-PCP-605	0.0	6.0	
SEP-LCP-600		0.0	20.0
RSP-PCP-639		0.0	15.0
SF-LCP-621		5.0	7.6
SF-LCP-622 (Standby)			0.0
SHT Blower #1		40.0	52.0
SHT Blower #2 (Standby)			0.0
OM-PDP-022	49.9		60.0
OX-PCP-200			200.0
BLWR Bldg. WELDING RECEPT			60.0
NON-MOTOR LOADS			
ELE-XFMR-007	45.0		54.1
SUBTOTAL			760.9
+ 25% OF LARGEST MOTOR			13.0
TOTAL AMPS @ 480V/3PHASE			773.9
SERVICE SIZE (AMPS)			1000.0

LOAD SUMMARY

ELE-MCC-010

NOTES:

- ALL SHORT CIRCUIT INTERRUPTING AND PROTECTION DEVICES SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO OR GREATER THAN AVAILABLE SHORT CIRCUIT CURRENT ON THE BUS.
- CIRCUIT PROTECTION SHALL BE SIZED ACCORDING TO THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL COORDINATE WITH UTILITY FOR CONDUIT, TRENCHING AND BACKFILL.
- GROUNDING ELECTRODE TO BE 3/4"-10' COPPER CLAD GROUND ROD PER SPECIFICATION 16060, EFFECTIVELY GROUND BACK TO THE GROUNDING ELECTRODE SYSTEM.
- SEE SHEET 2.6 FOR CABLE AND CONDUIT SCHEDULE.
- SEE SHEET 5.0 FOR CONDUIT BLOCK DIAGRAM.
- SEE SHEET 3.3 FOR EQUIPMENT LOCATIONS.

CITY OF WILLCOX  
WASTEWATER TREATMENT PLANT  
SINGLE LINE DIAGRAM 1 OF 2  
ELE-MCC-005

WILSON PROJECT NO. 11004

Design: ED Drawn: ED Checked: ED

Date: 06/20/16 Wilson Project No.: 11004

Revision: 1 Date: 10/16 Description: ADDENDUM #2

By: MAC

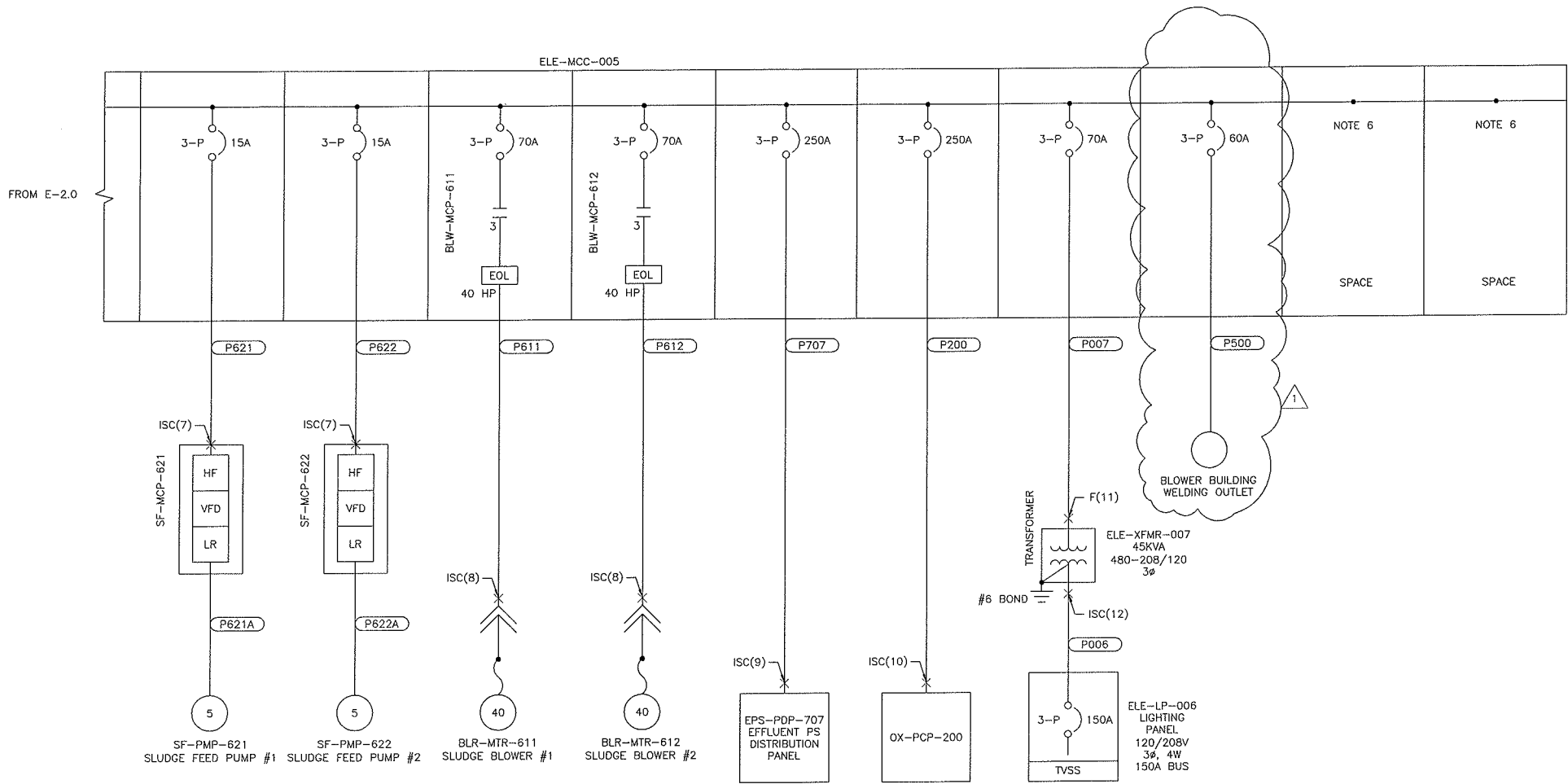
VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



Sheet No. E-2.0

**WILSON**  
**ENGINEERS**  
9633 South 48th Street, Suite 290  
Phoenix, Arizona 85044-5658  
Phone: (480) 893-8860  
Improving Arizona's Infrastructure Since 1942

XREFS: TB-11004; SEAL-MAC, SEAL-NEP



SINGLE LINE DIAGRAM

<b>GENERATOR</b> $F = \frac{1.732}{4} \times \frac{90}{13893} \times \frac{42,990}{480} = 0.1223$ $M = \frac{1}{1 + 0.1223} = 0.891$ $MC = 800 \times 10 = 8000$ $ISC(1) = 42,000 \times 0.891 + 8,000.0 = 45,422$	
<b>HW-PDP-107</b> $F = \frac{1.732}{1} \times \frac{550}{11423} \times \frac{42,990}{480} = 7.2969$ $M = \frac{1}{1 + 7.2969} = 0.1205$ $MC = 125 \times 4 = 500$ $ISC(2) = 42,000 \times 0.1205 + 500.0 = 5,561$	
<b>RA5-PDP-307</b> $F = \frac{1.732}{1} \times \frac{150}{22738} \times \frac{42,990}{480} = 0.3998$ $M = \frac{1}{1 + 0.3998} = 0.5001$ $MC = 200 \times 4 = 800$ $ISC(3) = 42,000 \times 0.5001 + 800.0 = 21,804$	
<b>SEP-MCP-600</b> $F = \frac{1.732}{1} \times \frac{300}{981} \times \frac{42,990}{480} = 48.3456$ $M = \frac{1}{1 + 48.3456} = 0.0211$ $MC = 20 \times 4 = 80$ $ISC(4) = 42,000 \times 0.0211 + 80.0 = 966$	
<b>SEP-PCP-605</b> $F = \frac{1.732}{1} \times \frac{50}{981} \times \frac{42,990}{480} = 7.7243$ $M = \frac{1}{1 + 7.7243} = 0.1146$ $MC = 0 \times 4 = 0$ $ISC(5) = 42,000 \times 0.1146 + 0.0 = 4,813$	
<b>RSP-PCP-639</b> $F = \frac{1.732}{1} \times \frac{100}{981} \times \frac{42,990}{480} = 15.4485$ $M = \frac{1}{1 + 15.4485} = 0.0608$ $MC = 15 \times 4 = 60$ $ISC(6) = 42,000 \times 0.0608 + 60.0 = 2,614$	
<b>SF-VFD-621 (622)</b> $F = \frac{1.732}{1} \times \frac{100}{981} \times \frac{42,990}{480} = 15.4485$ $M = \frac{1}{1 + 15.4485} = 0.0608$ $MC = 7.8 \times 4 = 30.4$ $ISC(7) = 42,000 \times 0.0608 + 30.4 = 2,584$	<b>OX-PCP-200</b> $F = \frac{1.732}{1} \times \frac{50}{22738} \times \frac{38,000}{480} = 0.2857$ $M = \frac{1}{1 + 0.2857} = 0.7778$ $MC = 240 \times 4 = 960$ $ISC(10) = 38,000 \times 0.7778 + 960.0 = 28,961$
<b>BLR-MTR-611 (612)</b> $F = \frac{1.732}{1} \times \frac{50}{3825} \times \frac{42,990}{480} = 1.931$ $M = \frac{1}{1 + 1.931} = 0.3355$ $MC = 52 \times 4 = 208$ $ISC(8) = 42,000 \times 0.3355 + 208.0 = 14,289$	<b>ELE-XFMR-007 PRIMARY</b> $F = \frac{42,000}{100,000} \times \frac{480}{45} = 6.72$ $M = \frac{1}{1 + 6.72} = 0.12953$ $F(11) = \frac{480}{208} \times 0.129534 \times 42,000 = 12,555$
<b>EPS-PDP-707</b> $F = \frac{1.732}{1} \times \frac{150}{22738} \times \frac{42,990}{480} = 0.9999$ $M = \frac{1}{1 + 0.9999} = 0.5001$ $MC = 184 \times 4 = 736$ $ISC(9) = 42,000 \times 0.5001 + 736.0 = 21,740$	<b>ELE-XFMR-007 SECONDARY</b> $I_{sec} = \frac{45.00}{208} \times \frac{1000}{1.73} = 125 \text{ Amps}$ $Z_m = \frac{100}{1.500} = 67$ $ISC(12) = 125 \times 67 = 8,337$

SHORT CIRCUIT CALCULATIONS

NOTES:

- ALL SHORT CIRCUIT INTERRUPTING AND PROTECTION DEVICES SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO OR GREATER THAN AVAILABLE SHORT CIRCUIT CURRENT ON THE BUS.
- CIRCUIT PROTECTION SHALL BE SIZED ACCORDING TO THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET E-2.6 FOR CONDUIT AND CABLE SCHEDULE.
- SEE SHEET E-5.0 FOR CONDUIT BLOCK DIAGRAM.
- SEE SHEET E-3.3 FOR EQUIPMENT LOCATIONS.
- PROVIDE FULLY EQUIPPED SPACE.

9633 South 48th Street, Suite 290  
Phoenix, Arizona 85044-5658  
Phone: (480) 893-8860  
Improving Arizona's  
Infrastructure Since 1942

WILSON

ENGINEERS

CITY OF WILLCOX  
WASTEWATER TREATMENT PLANT  
SINGLE LINE DIAGRAM 2 OF 2  
ELE-MCC-005

WILSON PROJECT NO. 11004

Design: ED  
Date: 06/2016  
Revision: 1/10/16

Drawn: ED  
Wilson Project No.: 11004  
Description: ADDENDUM #2

By: MAC

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

Michael A. Churchill

Professional Engineer

Arizona U.S.

Expires 6/30/2019

Sheet No. E-2.1

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HEADWORKS LIGHTING DISTRIBUTION PANEL: <u>HW-LP-109</u> MANUFACTURER:											
VOLTAGE, PHASE & WIRE:		<u>208Y/120</u>		<u>VAC 3 Ø, 4W</u>		LOCATION:		<u>HEADWORKS</u>			
BUS SIZE:		<u>100</u>		AMPS		ENCLOSURE:		<u>NEMA - 3R</u>			
MAIN SIZE:		<u>60</u>		AMPS		MOUNTING:		<u>WALL</u>			
MAIN TYPE:		<u>YES</u>		<u>CIRCUIT BEAKER</u>		BUS BRACING:		<u>22 KAIC</u>			
MAIN TYPE:		<u>YES</u>		<u>BOLT-ON</u>		FED FROM:		<u>HW-XFMR-108</u>			
CKT NO.	LOAD DESCRIPTION	CKT. BKR.	AMPS			AMPS			CKT. BKR.	LOAD DESCRIPTION	CKT NO.
		AMP	A	B	C	A	B	C			
1	HW-AIT-119	20/1	0.9			5.0			20/1	HW-RIO-100	2
3	IPS-FIT-114	20/1		0.9			0.9		20/1	IPS-LIT-115	4
5	BUILDING LIGHTS (HEADWORKS)	20/1			4.2			2.0	20/1	ELECTRICAL CANOPY LIGHTS	6
7	COMPOSITE AUTOMATIC SAMPLER	20/1	4.2			3.0			20/1	HW RECEPTACLES	8
9	SPARE	20/1	-	-	-	6.8					10
11	SPARE	20/1	-	-	-		6.8		20/3	HW-EF-1	12
13	SPACE	-	-	-	-	6.8					14
15	SPACE	-	-	-	-		-		20/1	SPARE	16
17	SPACE	-	-	-	-		-		20/1	SPARE	18
19	SPACE	-	-	-	-		-		-	SPACE	20
21	SPACE	-	-	-	-		-		-	SPACE	22
23	SPACE	-	-	-	-		-		-	SPACE	24
NOTES:											
			KVA A PHASE =		3.0		AMPS A PHASE =		24.9		REV. 0
			KVA B PHASE =		1.3		AMPS B PHASE =		10.8		BY:
			KVA C PHASE =		2.0		AMPS C PHASE =		16.3		NOV. 3, 2004
			TOTAL KVA =		6.2		(Load totals are calculated as continuous duty at 125% )				

PANEL SCHEDULE

HW-LP-109

RAS/WAS LIGHTING DISTRIBUTION PANEL:				RAS-LP-309		MANUFACTURER:					
VOLTAGE, PHASE & WIRE:		208Y/120 VAC 3 Ø, 4W		LOCATION:		RAS/WAS PUMP STATION					
BUS SIZE:		100 AMPS		ENCLOSURE:		NEMA - 3R					
MAIN SIZE:		60 AMPS		MOUNTING:		WALL					
MAIN TYPE:		YES CIRCUIT BEAKER		BUS BRACING:		22 KAIC					
MAIN TYPE:		YES BOLT-ON		FED FROM:		SC-XFMR-308					
CKT NO.	LOAD DESCRIPTION	CKT. BKR.	AMPS			AMPS			CKT. BKR.	LOAD DESCRIPTION	CKT NO.
		AMP	A	B	C	A	B	C	AMP		
1	OX DITCH LIGHTING	20/1	7.5			0.9			20/1	SC-FIT-303	2
3	OX DITCH RECEPTACLES	20/1		6.0			4.2		20/1	SEC. CLARIFIER LIGHTING	4
5	SC-FIT-304	20/1			0.9			3.0	20/1	SEC CLARIFIER RECEPTACLES	6
7	RAS/WAS PS LIGHTING	20/1	7.5			2.0			20/1	RAS/WAS ELECTRICAL CANOPY LIGHTS	8
9	RAS-RIO-300	20/1		5.0			3.0		20/1	RAS/WAS ELECTRICAL CANOPY RECEPT.	10
11	RAS-LCP-310	20/1			2.0		0.9		20/1	RAS-FIT-315	12
13	WAS-FIT-325	20/1	0.9			6.0			20/1	SQUM PUMP STATION LIGHTING & RECEPT.	14
15				8.0			0.9		20/1	WAS-AIT-335	16
17	OX-PCP-200 A/C	20/3			8.0				20/1	SPARE	18
19			8.0			-			20/1	SPARE	20
21	SPACE			-			-		-	SPACE	22
23	SPACE			-			-		-	SPACE	24
NOTES:											
			KVA A PHASE =		4.9		AMPS A PHASE =		41.0		REV. 0
			KVA B PHASE =		4.1		AMPS B PHASE =		33.9		BY:
			KVA C PHASE =		2.2		AMPS C PHASE =		18.5		NOV. 3, 2004
			TOTAL KVA =		11.2		(Load totals are calculated as continuous duty at 125% )				

PANEL SCHEDULE

RAS-LP-309

BLOWER BLDG. LIGHTING DISTRIBUTION PANEL <u>ELE-LP-006</u> MANUFACTURER:											
VOLTAGE, PHASE & WIRE:		<u>208Y/120</u>		<u>VAC 3 Ø, 4W</u>		LOCATION:		<u>ELECTRICAL ROOM</u>			
BUS SIZE:		<u>150</u>		AMPS		ENCLOSURE:		<u>NEMA - 12</u>			
MAIN SIZE:		<u>150</u>		AMPS		MOUNTING:		<u>WALL</u>			
MAIN TYPE:		<u>YES</u>		<u>CIRCUIT BEAKER</u>		BUS BRACING:		<u>22 KAIC</u>			
MAIN TYPE:		<u>YES</u>		<u>BOLT-ON</u>		FED FROM:		<u>ELE-XFMR-007</u>			
CKT NO.	LOAD DESCRIPTION	CKT. BKR.	AMPS			AMPS			CKT. BKR.	LOAD DESCRIPTION	CKT NO.
		AMP	A	B	C	A	B	C	AMP		
1	SLUDGE HANDLING AREA LIGHTS	20/1	4.2			5.0			20/1	SLUDGE HANDLING AREA RECEPTACLES	2
3	SLUDGE FEED PS LIGHTING	20/1		4.2			5.8		20/1	SEPTAGE RECEIVING AREA LIGHTING	4
5	SPARE	20/1			0.0			0.8	20/1	SHT-LCP-610	6
7	ELECTRICAL ROOM LIGHTS	20/1	4.2			5.0			20/1	ELECTRICAL ROOM RECEPTACLES	8
9	BLOWER ROOM LIGHTS	20/1		4.2			5.0		20/1	BLOWER ROOM RECEPTACLES	10
11	BLOWER BUILDING EXT. LIGHTS	20/1			4.2			5.0	20/1	ELE-PLC-010	12
13	AIR CONDITIONER #1	20/2	1.0			1.0			20/2	AIR CONDITIONER #2	14
15				1.0			1.0				16
17	BLOWER BUILDING EXT LIGHTS	20/1			1.0			1.0	20/2	AIR CONDITIONER #3	18
19			17.5				1.0				20
21	CONDENSING UNIT #1 (CU-2)	30/2		17.5			-		20/1	SPARE	22
23					27.0		-		20/1	SPARE	24
25	CONDENSING UNIT #2 (CU-3)	40/2	27.0				-		20/1	SPARE	26
27				24.0			9.8		20/1	RSP-SYS-632 POLYMER SYSTEM	28
29	GENERATOR WATER HEATER	30/2			24.0		-		-	SPACE	30
31	SPACE	-	-	-	-	6.0			20/1	GENERATOR BATTERY CHARGER	32
33	SPACE	-	-	-	-		-		-	SPACE	34
35	SPACE	-	-	-	-		-		-	SPACE	36
37	SPACE	-	-	-	-		-		-	SPACE	38
39	SPACE	-	-	-	-		-		-	SPACE	40
41	SPACE	-	-	-	-		-		-	SPACE	42
NOTES:											
			KVA A PHASE =		10.8		AMPS A PHASE =		89.9		REV. 0
			KVA B PHASE =		10.9		AMPS B PHASE =		90.6		BY:
			KVA C PHASE =		9.5		AMPS C PHASE =		78.8		NOV. 3, 2004
			TOTAL KVA =		31.1		(Load totals are calculated as continuous duty at 125% )				

PANEL SCHEDULE

ELE-LP-006

O&M Building LIGHTING DISTRIBUTION PANEL: OM-LP-021										MANUFACTURER:	
VOLTAGE, PHASE & WIRE:		208Y/120		VAC 3 Ø, 4W		LOCATION:		O&M Building			
BUS SIZE:		150		AMPS		ENCLOSURE:		NEMA - 12			
MAIN SIZE:		125		AMPS		MOUNTING:		WALL			
MAIN TYPE:		YES		CIRCUIT BEAKER		BUS BRACING:		22 KAIC			
MAIN TYPE:		YES		BOLT-ON		FED FROM:		OM-XFMR-023			
CKT NO.	LOAD DESCRIPTION	CKT. BKR.	AMPS			AMPS			CKT. BKR.	LOAD DESCRIPTION	CKT NO.
		AMP	A	B	C	A	B	C	AMP		
1	EXHAUST FAN (EF-1)	20/1	3.4			18.7			20/2	CONDENSING UNIT #1 (CU-1)	2
3	UNIT HEATER #1 (UH-1)	20/1		1.9			18.7		20/1	SPARE	4
5	FURNACE (FUR-1)	20/1			6.1		-		20/1	UNIT HEATER #2 (UH-2)	6
7	EVAPORATOR COOLER (EC-1)	20/2	15.2			1.9			20/1	UNIT HEATER #3 (UH-3)	8
9				15.2			1.9		20/1	UNIT HEATER #4 (UH-4)	10
11	FACP	20/1			3.0			1.9	20/1	OFFICE RECEPTACLES	12
13	OFFICE LIGHTING ROOMS 102 & 103	20/1	3.4			6.0			20/1	SPARE	14
15	SPARE	20/1		-			-		20/1	VEHICLE BAY LIGHTING	16
17	VEHICLE BAY RECEPTACLES	20/1			5.0			12.5	20/1	EXT LIGHTING	18
19	HVAC EQUIPMENT RECEPTACLES	20/1	3.0			1.0			20/1	RECEPTALCE ROOM 104 & 105	20
21	OFFICE LIGHTING ROOMS 104 & 105	20/1		3.2			3.0		20/1	KITCHEN RECEPTACLES	22
23	OFFICE LIGHTING ROOMS 106 & 108	20/1			4.8			5.0	20/1	UNIT HEATER #5 (UH-5)	24
25	OFFICE LIGHTING ROOMS 101 & 107	20/1	1.5			15.0			20/2	EXT LIGHTING	26
27	RECEPTACLE ELECTRICAL ROOM	20/1		3.0			15.0		20/1	SPARE	28
29	RECEPTACLE ROOM 101 & 107	20/1			4.5			12.5	20/1	SPACE	30
31	SPARE	20/1	-	-	-	-	-	-	20/1	SPACE	32
33	SPACE	-	-	-	-	-	-	-	-	SPACE	34
35	EXTERIOR BUILDING LIGHTING	20/1		-	4.2		-	-	-	SPACE	36
37	SPACE	-	-	-	-	-	-	-	-	SPACE	38
39	SPACE	-	-	-	-	-	-	-	-	SPACE	40
41	SPACE	-	-	-	-	-	-	-	-	SPACE	42
NOTES:											
			KVA A PHASE =		10.4		AMPS A PHASE =		86.4		REV. 0
			KVA B PHASE =		9.3		AMPS B PHASE =		77.4		BY:
			KVA C PHASE =		8.9		AMPS C PHASE =		74.4		NOV. 3, 2004
			TOTAL KVA =		28.6		(Load totals are calculated as continuous duty at 125% )				

PANEL SCHEDULE

OM-LP-021  
O&M BUILDING

XREFS: TB-11004; SEAL-MAC; SEAL-AEP

CABLE & CONDUIT SCHEDULE						
CONDUIT	SIZE	SETS	CONDUCTORS	FROM	TO	DWG
U001	4 - 4"	4	4 - 400 KCMIL & 4/0 GND	UTILITY XFMR	ELE-SES-002	E-5.0
G003	4 - 4"	4	4 - 400 KCMIL & 4/0 GND	ATS-004	GEN-003	E-5.0
DP022-01	1.5"	1	3 - #6 & #10 GND	OM-PDP-022	OM-XFMR-023	E-5.0, E-5.11
DP022-02	1"	1	3 - #6 & #10 GND	OM-PDP-022	WELDING OUTLET	E-5.0, E-5.11
DP107-01	1"	1	3 - #10 & #10 GND	HW-PDP-107	HW-LCP-104	E-5.2
DP107-02	1"	1	3 - #6 & #10 GND	HW-PDP-107	IPS-MCP-112	E-5.2
DP107-07	1"	1	3 - #6 & #10 GND	HW-PDP-107	IPS-MCP-112	E-5.2
DP107-08	1"	1	3 - #6 & #10 GND	HW-PDP-107	IPS-MCP-113	E-5.2
DP107-14	1"	1	3 - #10 & #10 GND	HW-PDP-107	HW-XFMR-108	E-5.2
DP307-02	1"	1	3 - #12 & #12 GND	RAS-PDP-307	SPS-MCP-341	E-5.4
DP307-07	1"	1	3 - #10 & #12 GND	RAS-PDP-307	RAS-MCP-311	E-5.4, E-5.5
DP307-08	1"	1	3 - #10 & #12 GND	RAS-PDP-307	RAS-MCP-312	E-5.4, E-5.5
DP307-13	1"	1	3 - #10 & #12 GND	RAS-PDP-307	RAS-MCP-313	E-5.4, E-5.5
DP307-14	1"	1	3 - #10 & #12 GND	RAS-PDP-307	WAS-MCP-321	E-5.4, E-5.5
DP307-19	1"	1	3 - #10 & #12 GND	RAS-PDP-307	WAS-MCP-322	E-5.4
DP307-20	1"	1	3 - #10 & #12 GND	RAS-PDP-307	SC-MCP-301	E-5.4
DP307-25	1"	1	3 - #10 & #12 GND	RAS-PDP-307	SC-MCP-302	E-5.4
DP307-26	1"	1	3 - #12 & #12 GND	RAS-PDP-307	SPS-MCP-333	E-5.4
DP307-31	1"	1	3 - #10 & #10 GND	RAS-PDP-307	RAS-XFMR-308	E-5.4
DP307-32	1"	1	3 - #12 & #12 GND	RAS-PDP-307	SPS-MCP-342	E-5.4
DP707-01	1"	1	3 - #10 & #10 GND	EPS-PDP-707	DF-PCP-401	E-5.8, E-5.9
DP707-02	1"	1	3 - #6 & #10 GND	EPS-PDP-707	EPS-MCP-701	E-5.9
DP707-07	1"	1	3 - #6 & #10 GND	EPS-PDP-707	EPS-MCP-702	E-5.9
DP707-08	1"	1	3 - #6 & #10 GND	EPS-PDP-707	EPS-MCP-703	E-5.9
DP707-13	1"	1	3 - #12 & #12 GND	EPS-PDP-707	NPW-CMP-722	E-5.10
DP707-14	1"	1	3 - #6 & #10 GND	EPS-PDP-707	NPW-MCP-711	E-5.10
DP707-19	1"	1	3 - #6 & #10 GND	EPS-PDP-707	NPW-MCP-712	E-5.10
DP707-20	1"	1	3 - #10 & #12 GND	EPS-PDP-707	EPS-XFMR-708	E-5.9
DP707-25	1"	1	SPARE	EPS-PDP-707	PMH-4	E-5.8
LP006-01	1"	1	2 - #12 & #10 GND	ELE-LP-006	SLDG AREALGTS	E-5.0, E-5.6
LP006-02	1"	1	2 - #12 & #12 GND	ELE-LP-006	SLDG AREALGTS	E-5.0, E-5.6
LP006-03	1"	1	2 - #12 & #12 GND	ELE-LP-006	SLDG FEED LGTS	E-5.0, E-5.6
LP006-04	1"	1	2 - #12 & #12 GND	ELE-LP-006	SEPTAGE LGTS	E-5.0, E-5.7
LP006-05	1"	1	2 - #12 & #12 GND	ELE-LP-006	ROADWAY LGTS	E-5.0, E-5.7
LP006-06	1"	1	2 - #12 & #12 GND	ELE-LP-006	SHT-LCP-610	E-5.0
LP006-07	1"	1	2 - #12 & #12 GND	ELE-LP-006	ELECT RM LGTS	E-5.0
LP006-08	1"	1	2 - #12 & #12 GND	ELE-LP-006	ELECT RM LGTS	E-5.0
LP006-09	1"	1	2 - #12 & #12 GND	ELE-LP-006	BLWR RM LGTS	E-5.0
LP006-10	1"	1	2 - #12 & #12 GND	ELE-LP-006	BLWR RM LGTS	E-5.0
LP006-12	1"	1	2 - #12 & #12 GND	ELE-LP-006	ELE-PLC-010	E-5.0
LP006-17	1"	1	2 - #12 & #12 GND	ELE-LP-006	BLWR BDLG LGTS	E-5.0
LP006-13	1"	1	2 - #12 & #12 GND	ELE-LP-006	DSC-AC-1	E-5.0
LP006-13A	1"	1	2 - #12 & #12 GND	DSC-AC-1	AC-1	E-5.0
LP006-14	1"	1	2 - #12 & #12 GND	ELE-LP-006	DSC-AC-2	E-5.0
LP006-14A	1"	1	2 - #12 & #12 GND	DSC-AC-2	AC-2	E-5.0
LP006-18	1"	1	2 - #12 & #12 GND	ELE-LP-006	DSC-AC-3	E-5.0
LP006-18A	1"	1	2 - #12 & #12 GND	DSC-AC-3	AC-3	E-5.0
LP006-19	1"	1	2 - #12 & #10 GND	ELE-LP-006	DSC-CU-2	E-5.0
LP006-19A	1"	1	2 - #12 & #10 GND	DSC-CU-2	CU-2	E-5.0
LP006-28	1"	1	2 - #12 & #12 GND	ELE-LP-006	BSP-SYS-692	E-5.0, E-5.8
LP006-23	1"	1	3 - #12 & #10 GND	ELE-LP-006	DSC-CU-3	E-5.0
LP006-23A	1"	1	2 - #12 & #10 GND	DSC-CU-3	CU-3	E-5.0
LP006-27	1"	1	3 - #10 & #10 GND	ELE-LP-006	GENERATOR H2O HEATER	E-5.0
LP006-32	1"	1	2 - #12 & #12 GND	ELE-LP-006	GENERATOR BATT CHARGER	E-5.0
LP006-34	1.5"	1	3 - #3 & #8 GND	ELE-LP-006	WELDING OUTLET	E-5.0
LP021-01	1"	1	2 - #12 & #12 GND	OM-LP-021	OM-EF-1 SWITCH	E-5.11
LP021-01A	1"	1	2 - #12 & #12 GND	OM-EF-1 SWITCH	OM-EF-1	E-5.11
LP021-02	1"	1	3 - #12 & #10 GND	OM-LP-021	OM-CU-1 SWITCH	E-5.11
LP021-02A	1"	1	3 - #12 & #10 GND	OM-CU-1 SWITCH	OM-CU-1	E-5.11
LP021-03	1"	1	2 - #12 & #12 GND	OM-LP-021	OM-UH-1 SWITCH	E-5.11
LP021-03A	1"	1	2 - #12 & #12 GND	OM-UH-1 SW.	OM-UH-1	E-5.11
LP021-05	1"	1	2 - #12 & #12 GND	OM-LP-021	OM-FUR-1 DSC SWITCH	E-5.11
LP021-05A	1"	1	2 - #12 & #12 GND	OM-FUR-1 DSC SW	OM-FUR-1	E-5.11
CFUR1	1"	1	T-STAT WRE	OM-FUR-1 T STAT	OM-FUR-1	E-5.11
LP021-07	1"	1	3 - #12 & #10 GND	OM-LP-021	OM-EC-1 DSC SW.	E-5.11
LP021-07A	1"	1	3 - #12 & #10 GND	OM-EC-1 DSC SW.	OM-EC-1	E-5.11
CEC1	1"	1	T-STAT WRE	EC-1 TSTAT	OM-EC-1	E-5.11
LP021-08	1"	1	2 - #12 & #12 GND	OM-LP-021	OM-UH-2 SWITCH	E-5.11
LP021-08A	1"	1	2 - #12 & #12 GND	OM-UH-2 SW.	OM-UH-2	E-5.11
LP021-10	1"	1	2 - #12 & #12 GND	OM-LP-021	OM-UH-3	E-5.11
LP021-12	1"	1	2 - #12 & #12 GND	OM-LP-021	OM-UH-4	E-5.11
LP021-13	1"	1	2 - #12 & #12 GND	OM-LP-021	ROOMS 102 & 103 LGTS	E-5.11
LP021-14	1"	1	2 - #12 & #12 GND	OM-LP-021	OFFICE RECEPTS	E-5.11

CABLE & CONDUIT SCHEDULE						
CONDUIT	SIZE	SETS	CONDUCTORS	FROM	TO	DWG
LP021-35	1"	1	2 - #12 & #12 GND	OM-LP-021	EXTERIOR LGTS	E-5.11
LP021-16	1"	1	2 - #12 & #12 GND	OM-LP-021	VEHICLE BAY LGTS.	E-5.11
LP021-17	1"	1	2 - #12 & #12 GND	OM-LP-021	VEHICLE BAY RECEPTS	E-5.11
LP021-18	1"	1	2 - #12 & #12 GND	OM-LP-021	VEHICLE BAY LGTS.	E-5.11
LP021-19	1"	1	2 - #12 & #12 GND	OM-LP-021	HVAC RECEPTS	E-5.11
LP021-20	1"	1	2 - #12 & #12 GND	OM-LP-021	EXIT LGTS.	E-5.11
LP021-21	1"	1	2 - #12 & #12 GND	OM-LP-021	ROOMS 104 & 105 LGTS	E-5.11
LP021-22	1"	1	2 - #12 & #12 GND	OM-LP-021	RECEPTS, RMS 104 & 105	E-5.11
LP021-23	1"	1	2 - #12 & #12 GND	OM-LP-021	ROOMS 106 & 108 LGTS	E-5.11
LP021-24	1"	1	2 - #12 & #12 GND	OM-LP-021	KITCHEN RECEPTS	E-5.11
LP021-25	1"	1	2 - #12 & #12 GND	OM-LP-021	ROOMS 101 & 107 LGTS	E-5.11
LP021-26	1"	1	3 - #12 & #12 GND	OM-LP-021	OM-UH-4 SWITCH	E-5.11
LP021-26A	1"	1	3 - #12 & #12 GND	OM-UH-4 SWITCH	OM-UH-4	E-5.11
LP021-27	1"	1	2 - #12 & #12 GND	OM-LP-021	RECEPT ELECT. RM	E-5.11
LP021-29	1"	1	2 - #12 & #12 GND	OM-LP-021	RECEPTS, RMS 101 & 107	E-5.11
LP021-30	1"	1	2 - #12 & #12 GND	OM-LP-021	EXIT LGTS.	E-5.11
LP109-01	1"	1	2 - #12 & #12 GND	HW-LP-109	HW-AIT-119	E-5.2
LP109-02	1"	1	2 - #12 & #12 GND	HW-LP-109	HW-RIO-400	E-5.2
LP109-03	1"	1	2 - #12 & #12 GND	HW-LP-109	IPS-FIT-114	E-5.2
LP109-04	1"	1	2 - #12 & #12 GND	HW-LP-109	IPS-LCP-115	E-5.2
LP109-05	1"	1	2 - #12 & #12 GND	HW-LP-109	HW BUILDING LGTS	E-5.2
LP109-06	1"	1	2 - #12 & #12 GND	HW-LP-109	CANOPY LGTS	E-5.2
LP109-07	1"	1	2 - #12 & #12 GND	HW-LP-109	HW-SMPL-132	E-5.2
LP109-08	1"	1	2 - #12 & #10 GND	HW-LP-109	HW RECEPTS	E-5.2
LP109-10	1"	1	2 - #12 & #10 GND	HW-LP-109	HW-FAN-EF1	E-5.2
LP309-01	1"	1	2 - #12 & #12 GND	RAS-LP-309	OX DITCH #1 LGTS	E-5.3, E-5.4
LP309-02	1"	1	2 - #12 & #12 GND	RAS-LP-309	SC-FIT-303	E-5.4
LP309-03	1"	1	2 - #12 & #12 GND	RAS-LP-309	OX DITCH #2 RECEPTS	E-5.3, E-5.4
LP309-04	1"	1	2 - #12 & #12 GND	RAS-LP-309	CLARIFIER LGTS	E-5.4
LP309-05	1"	1	2 - #12 & #12 GND	RAS-LP-309	SC-FIT-304	E-5.4
LP309-06	1"	1	2 - #12 & #12 GND	RAS-LP-309	CLARIFIER RECP	E-5.4
LP309-07	1"	1	2 - #12 & #12 GND	RAS-LP-309	RAS/WAS PS LGTS	E-5.4
LP309-08	1"	1	2 - #12 & #12 GND	RAS-LP-309	RAS/WAS CAN. LGTS	E-5.4
LP309-09	1"	1	2 - #12 & #12 GND	RAS-LP-309	RAS-RIO-300	E-5.4
LP309-10	1"	1	2 - #12 & #12 GND	RAS-LP-309	RAS/WAS PS RECP	E-5.4
LP309-11	1"	1	2 - #12 & #12 GND	RAS-LP-309	RAS-LCP-310	E-5.4, E-5.5
LP309-12	1"	1	2 - #12 & #12 GND	RAS-LP-309	RAS-FIT-315	E-5.4, E-5.5
LP309-13	1"	1	2 - #12 & #12 GND	RAS-LP-309	WAS-FIT-325	E-5.4, E-5.5
LP309-15	1"	1	3 - #12 & #12 GND	RAS-LP-309	OX-AC-200	E-5.4, E-5.5
LP309-16	1"	1	22 - #12 & #12 GND	RAS-LP-309	OX-AC-200	E-5.4, E-5.5
LP709-01	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS-RIO-700	E-5.9
LP709-02	1"	1	1 - #12 & #12 GND	EPS-LP-709	NPW-LCP-710	E-5.9
LP709-03	1"	1	2 - #12 & #12 GND	EPS-LP-709	NPW-LCP-723	E-5.9
LP709-04	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS-LCP-706	E-5.9
LP709-05	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS-FIT-705	E-5.9
LP709-06	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS RECEPTS	E-5.9
LP709-07	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS LGTS	E-5.9
LP709-08	1"	1	2 - #12 & #12 GND	EPS-LP-709	CANOPY LGTS	E-5.9
LP709-09	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS LIGHTS	E-5.9
LP709-10	1"	1	2 - #12 & #12 GND	EPS-LP-709	NPW-FIT-724	E-5.9
LP709-11	1"	1	2 - #12 & #12 GND	EPS-LP-709	DISK FILTER LGTS	E-5.8, E-5.9
LP709-12	1"	1	2 - #12 & #12 GND	EPS-LP-709	HYDROTANK LGT	E-5.9
LP709-13	1"	1	2 - #12 & #12 GND	EPS-LP-709	DISK FILTER RECEPTS	E-5.8
LP709-14	1"	1	2 - #12 & #12 GND	EPS-LP-709	DEC-LCP-510	E-5.8
LP709-15	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-LCP-511	E-5.8
LP709-16	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-LCP-520	E-5.8
LP709-17	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-LCP-521	E-5.8
LP709-18	1"	1	2 - #12 & #12 GND	EPS-LP-709	DEC-PMP-512	E-5.8
LP709-19	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-PMP-523	E-5.8
LP709-20	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-PMP-522	E-5.8
LP709-21	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-PMP-524	E-5.8
LP709-22	1"	1	2 - #12 & #12 GND	EPS-LP-709	DIS-PMP-525	E-5.8
LP709-23	1"	1	2 - #12 & #12 GND	EPS-LP-709	AUTO SAMPLER	E-5.9
LP709-24	1"	1	2 - #12 & #12 GND	EPS-LP-709	EPS-SMP-718	E-5.9
LP709-25	1"	1	2 - #12 & #12 GND	EPS-LP-709	CHEM FEED LGT	E-5.9
LP709-27	1"	1	2 - #12 & #12 GND	EPS-LP-709	CHEM FEED RECEPTS	E-5.9
P005	4 - 4"	4	4 - 400 KCMIL & 4/0 GND	ATS-004	ELE-MCC-005	E-2.0
P006	2"	1	4 - 2/0 & #6 GND	ELE-XFMR-007	ELE-LP-006	E-5.0
P007	1.5"	1	4 - #4 & #8 GND	ELE-MCC-005	ELE-XFMR-007	E-5.0
P021	2"	1	4 - 2/0 & #6 GND	OM-XFMR-023	OM-LP-021	E-2.0
P022	2"	1	4 - 1/0 & #4 GND	ELE-MCC-005	OM-PDP-022	E-2.0
P101	1"	1	3 - #10 & #10 GND	HW-LCP-104	HW-MTR-101	E-5.2
P102	1"	1	3 - #10 & #10 GND	HW-LCP-104	HW-MTR-102	E-5.2



XREFS: TB-11004, SEAL-MAC, SEAL-AEP

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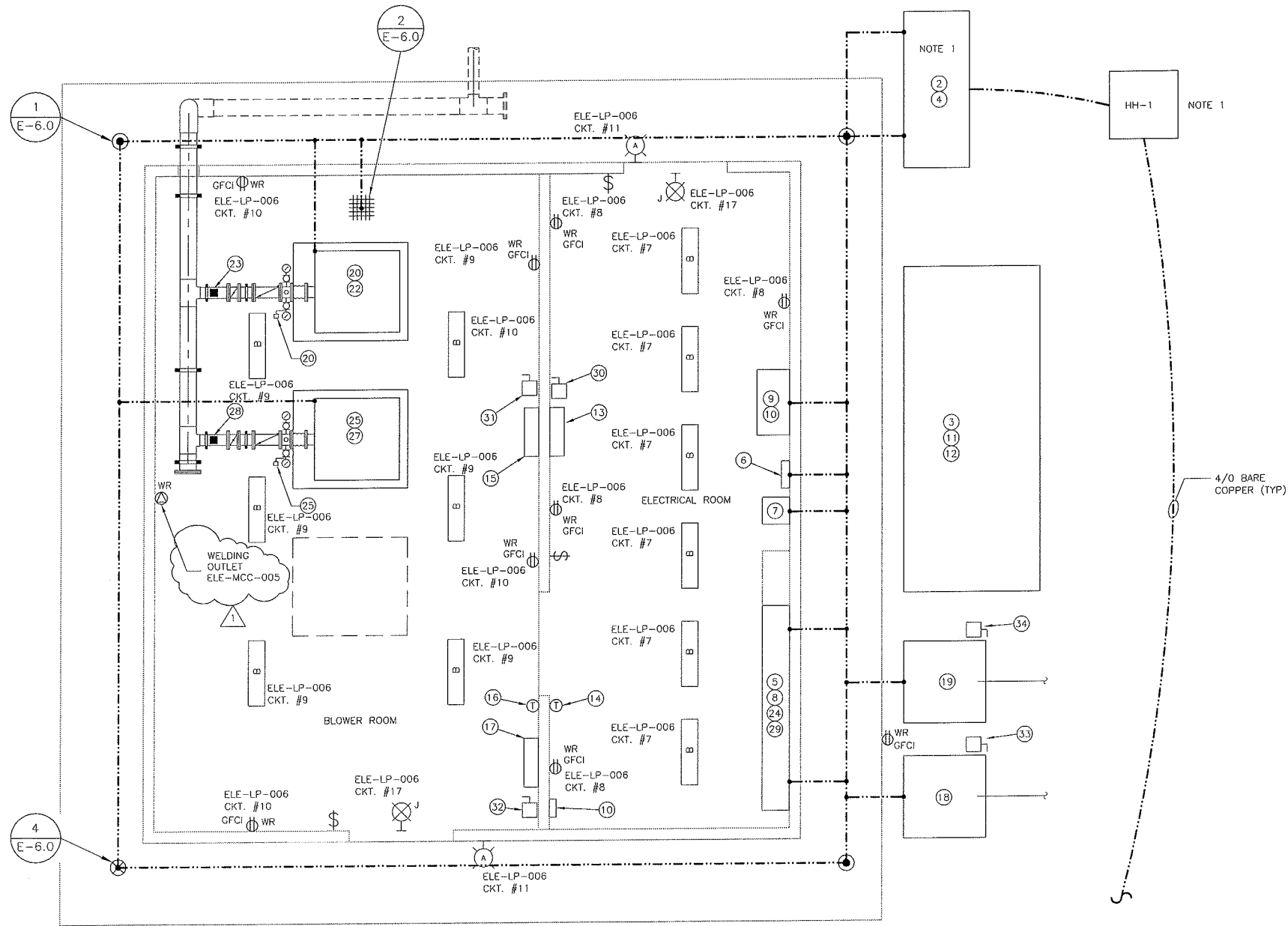
CABLE & CONDUIT SCHEDULE						
CONDUIT	SIZE	SETS	CONDUCTORS	FROM	TO	DWG
R010	0		FUTURE	ELE-PLC-005	RADIO ANTENNA	E-5.1
A104	1" C	1	1 - #16 TS CABLE & #14 GND	HW-MCP-104	HW-RIO-100	E-5.2
A106	1" C	1	1 - #16 TS CABLE & #14 GND	HW-MCP-104	HW-LIT-106	E-5.2
A107	1" C	1	1 - #16 TS CABLE & #14 GND	HW-MCP-104	HW-LIT-107	E-5.2
A114	1" C	1	1 - #16 TS CABLE & #14 GND	HW-RIO-100	IPS-FIT-114	E-5.2
A114A	1" C	1	1 - MFG CABLE & #14 GND	HW-FIT-114	IPS-FE-114	E-5.2
A114B	1" C	1	1 - MFG CABLE & #14 GND	HW-FIT-114	HW-SMPL-132	E-5.2
A118	1" C	1	1 - #16 TS CABLE & #14 GND	HW-RIO-100	IPS-LCP-115	E-5.2
A115A	1" C	1	1 - #16 TS CABLE & #14 GND	IPS-LCP-115	IPS-LIT-115	E-5.2
A119	1" C	1	1 - #16 TS CABLE & #14 GND	HW-RIO-100	HW-AIT-119	E-5.2
A119A	1" C	1	1 - MFG CABLE & #14 GND	HW-AIT-119	HW-AE-119	E-5.2
A205	1" C	1	1 - #16 TS CABLE & #14 GND	OX-PCP-200	OX-AIT-205	E-5.3
A206	1" C	1	1 - #16 TS CABLE & #14 GND	OX-PCP-200	OX-AIT-206	E-5.3
A207	1" C	1	1 - #16 TS CABLE & #14 GND	OX-PCP-200	OX-AIT-207	E-5.3
A208	1" C	1	1 - #16 TS CABLE & #14 GND	OX-PCP-200	OX-AIT-208	E-5.3
A209	1" C	1	1 - #16 TS CABLE & #14 GND	OX-PCP-200	OX-AIT-209	E-5.3
A303	1" C	1	1 - #16 TS CABLE & #14 GND	RAS-RIO-300	SC-FIT-303	E-5.4
A303A	1" C	1	1 - MFG CABLE & #14 GND	SC-FIT-303	SC-FE-303	E-5.4
A304	1" C	1	1 - #16 TS CABLE & #14 GND	RAS-RIO-300	SC-FIT-304	E-5.4
A304A	1" C	1	1 - MFG CABLE & #14 GND	SC-FIT-304	SC-FE-304	E-5.4
A310	1" C	1	1 - #16 TS CABLE & #14 GND	RAS-RIO-300	RAS-LCP-310	E-5.4, E-5.5
A310A	1" C	1	1 - #16 TS CABLE & #14 GND	RAS-LCP-310	RAS-LIT-310	E-5.5
A311	1" C	1	2 - #16 TS CABLE & #14 GND	RAS-RIO-300	RAS-VFD-311	E-5.4, E-5.5
A312	1" C	1	2 - #16 TS CABLE & #14 GND	RAS-RIO-300	RAS-VFD-312	E-5.4, E-5.5
A313	1" C	1	2 - #16 TS CABLE & #14 GND	RAS-RIO-300	RAS-VFD-313	E-5.4, E-5.5
A315	1" C	1	2 - #16 TS CABLE & #14 GND	RAS-RIO-300	RAS-FIT-315	E-5.4, E-5.5
A315A	1" C	1	1 - MFG CABLE & #14 GND	RAS-FIT-315	RAS-FE-315	E-5.5
A325	1" C	1	1 - #16 TS CABLE & #14 GND	RAS-RIO-300	WAS-FIT-325	E-5.4, E-5.5
A325A	1" C	1	1 - MFG CABLE & #14 GND	WAS-FIT-325	WAS-FE-325	E-5.5
A330	1" C	1	1 - #16 TS CABLE & #14 GND	SPS-MCP-333	SPS-LIT-330	E-5.6
A333	1" C	1	1 - #16 TS CABLE & #14 GND	RAS-RIO-300	SPS-MCP-333	E-5.4
A341	1" C	1	1 - #16 TS CABLE & #14 GND	SPS-MCP-341	SPS-LIT-341	E-5.4
A342	1" C	1	1 - #16 TS CABLE & #14 GND	SPS-MCP-342	SPS-LIT-342	E-5.4
A400	1" C	1	1 - #16 TS CABLE & #14 GND	DF-PCP-401	DF-LIT-400	E-5.6
A510	1" C	1	1 - #16 TS CABLE & #14 GND	DEG-LCP-510	EPS-RIO-700	E-5.8, E-5.9
A510A	1" C	1	1 - #16 TS CABLE & #14 GND	DEC-LCP-510	DEC-LIT-510	E-5.8
A511	1" C	1	1 - #16 TS CABLE & #14 GND	DEC-PMP-511	EPS-RIO-700	E-5.8, E-5.9
A512	1" C	1	1 - #16 TS CABLE & #14 GND	DEC-PMP-512	EPS-RIO-700	E-5.8, E-5.9
A520	1" C	1	1 - #16 TS CABLE & #14 GND	DIS-LCP-520	EPS-RIO-700	E-5.8, E-5.9
A520A	1" C	1	1 - #16 TS CABLE & #14 GND	DIS-LCP-520	DIS-LIT-520	E-5.8
A521	1" C	1	1 - #16 TS CABLE & #14 GND	DIS-PMP-521	EPS-RIO-700	E-5.8, E-5.9
A522	1" C	1	1 - #16 TS CABLE & #14 GND	DIS-PMP-522	EPS-RIO-700	E-5.8, E-5.9
A523	1" C	1	1 - #16 TS CABLE & #14 GND	DIS-PMP-523	EPS-RIO-700	E-5.8, E-5.9
A524	1" C	1	1 - #16 TS CABLE & #14 GND	DIS-PMP-523	EPS-RIO-700	E-5.8, E-5.9
A600	1" C	1	1 - #16 TS CABLE & #14 GND	ELE-PLC-010	SEP-LCP-600	E-5.0, E-5.7
A603	1" C	1	1 - #16 TS CABLE & #14 GND	SEP-MCP-600	SEP-LIT-603	E-5.7
A605	1" C	1	1 - #16 TS CABLE & #14 GND	SEP-PCP-605	SEP-LCP-605	E-5.7
A605A	1" C	1	1 - #16 TS CABLE & #14 GND	SEP-LCP-605	SEP-FIT-605	E-5.7
A605B	1" C	1	1 - #16 TS CABLE & #14 GND	SEP-PCP-605	SEP-LIT-605	E-5.7
A610A	1" C	1	2 - #16 TS CABLE & #14 GND	SHT-LCP-610	SHT-LIT-610	E-5.0
A621	1" C	1	2 - #16 TS CABLE & #14 GND	RSP-PCP-639	SF-VFD-621	E-5.6
A622	1" C	1	2 - #16 TS CABLE & #14 GND	RSP-PCP-639	SF-VFD-622	E-5.6
A632	1" C	1	2 - #16 TS CABLE & #14 GND	RSP-PCP-639	RSP-SYS-632	E-5.6
A641	1" C	1	1 - #16 TS CABLE & #14 GND	RSP-PCP-639	RSP-FIT-641	E-5.6
A704	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	EPS-AIT-704	E-5.9
A705	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	EPS-FIT-705	E-5.9
A705A	1" C	1	1 - MFG CABLE & #14 GND	EPS-FIT-705	EPS-FE-705	E-5.9
A706	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	EPS-LCP-706	E-5.9
A706A	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-LCP-706	EPS-LIT-706	E-5.9
A710	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	NPW-LCP-710	E-5.9, E-5.10
A710A	1" C	1	2 - #16 TS CABLE & #14 GND	NPW-LCP-710	NPW-LIT-710	E-5.10
A715	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	EPS-PIT-715	E-5.9
A719	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	EPS-SMP-719	E-5.9
A720	1" C	1	1 - #16 TS CABLE & #14 GND	NPW-LCP-723	NPW-PIT-720	E-5.10
A721	1" C	1	1 - #16 TS CABLE & #14 GND	NPW-LCP-723	NPW-DPIT-721	E-5.10
A723	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	NPW-LCP-723	E-5.9
A724	1" C	1	2 - #16 TS CABLE & #14 GND	EPS-RIO-700	NPW-FIT-724	E-5.9
A724A	1" C	1	1 - MFG CABLE & #14 GND	NPW-FIT-724	NPW-FE-724	E-5.9
A725	1" C	1	1 - #16 TS CABLE & #14 GND	EPS-RIO-700	NPW-PIT-725	E-5.9

CABLE & CONDUIT SCHEDULE						
CONDUIT	SIZE	SETS	CONDUCTORS	FROM	TO	DWG
C103	1" C	1	2 - #14 & #14 GND	HW-MCP-104	HW-SLV-103	E-5.2
C105	1" C	1	6 - #14 & #14 GND	HW-MCP-104	HW-LCP-105	E-5.2
C111	1" C	1	2 - #14 & #14 GND	IPS-MCP-111	IPS-LCP-115	E-5.2
C111A	1" C	1	4 - #14 & #14 GND	IPS-MCP-111	IPS-JB-111	E-5.2
C111B	1" C	1	2 - #14 & #14 GND	IPS-JB-111	IPS-PSH-111	E-5.2
C112	1" C	1	2 - #14 & #14 GND	IPS-MCP-112	IPS-LCP-115	E-5.2
C112A	1" C	1	4 - #14 & #14 GND	IPS-MCP-112	IPS-JB-112	E-5.2
C112B	1" C	1	2 - #14 & #14 GND	IPS-JB-112	IPS-PSH-112	E-5.2
C113	1" C	1	2 - #14 & #14 GND	IPS-MCP-113	IPS-LCP-115	E-5.2
C113A	1" C	1	4 - #14 & #14 GND	IPS-MCP-113	IPS-JB-113	E-5.2
C113B	1" C	1	2 - #14 & #14 GND	IPS-JB-113	IPS-PSH-113	E-5.2
C115	1" C	1	2 - #14 & #14 GND	IPS-LCP-115	IPS-LIT-115	E-5.2
C116	1" C	1	2 - #14 & #14 GND	IPS-LCP-115	IPS-LSHH-116	E-5.2
C117	1" C	1	2 - #14 & #14 GND	IPS-LCP-115	IPS-LSLL-117	E-5.2
C201	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-TSH-201	E-5.3
C202	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-TSH-202	E-5.3
C203	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-JB-203	E-5.3
C204	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-JB-204	E-5.3
C205	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-AIT-205	E-5.3
C206	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-AIT-206	E-5.3
C207	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-AIT-207	E-5.3
C208	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-AIT-208	E-5.3
C209	1" C	1	2 - #14 & #14 GND	OX-PCP-200	OX-AIT-209	E-5.3
C301	1" C	1	4 - #14 & #14 GND	SC-MCP-301	SC-ASH-301	E-5.4
C302	1" C	1	4 - #14 & #14 GND	SC-MCP-302	SC-OSH-302	E-5.4
C310	1" C	1	2 - #14 & #14 GND	RAS-LCP-310	RAS-LIT-310	E-5.5
C311	1" C	1	6 - #14 & #14 GND	RAS-LCP-310	RAS-MCP-311, 312, 313	E-5.5
C311A	1" C	1	4 - #14 & #14 GND	RAS-MCP-311	RAS-JB-311	E-5.5
C311B	1" C	1	2 - #14 & #14 GND	RAS-JB-311	RAS-PSH-311	E-5.5
C312A	1" C	1	4 - #14 & #14 GND	RAS-MCP-312	RAS-JB-312	E-5.5
C312B	1" C	1	2 - #14 & #14 GND	RAS-JB-312	RAS-PSH-312	E-5.5
C313A	1" C	1	4 - #14 & #14 GND	RAS-MCP-313	RAS-JB-313	E-5.5
C313B	1" C	1	2 - #14 & #14 GND	RAS-JB-313	RAS-PSH-313	E-5.5
C317	1" C	1	2 - #14 & #14 GND	RAS-LCP-310	RAS-LSLL-317	E-5.5
C321	1" C	1	8 - #14 & #14 GND	RAS-LCP-310	WAS-MCP-321, 332	E-5.5
C321A	1" C	1	4 - #14 & #14 GND	WAS-MCP-321	WAS-JB-321	E-5.5
C321B	1" C	1	2 - #14 & #14 GND	WAS-JB-321	WAS-PSH-321	E-5.5
C322A	1" C	1	4 - #14 & #14 GND	WAS-MCP-322	WAS-JB-322	E-5.5
C322B	1" C	1	2 - #14 & #14 GND	WAS-JB-322	WAS-PSH-322	E-5.5
C330	1" C	1	2 - #14 & #14 GND	SPS-MCP-333	SPS-LIT-330	E-5.4
C331	1" C	1	2 - #14 & #14 GND	SPS-MCP-333	SPS-PSH-331	E-5.4
C332	1" C	1	2 - #14 & #14 GND	SPS-MCP-333	SPS-PSH-332	E-5.4
C337	1" C	1	2 - #14 & #14 GND	SPS-MCP-333	SPS-LSLL-337	E-5.4
C341	1" C	1	2 - #14 & #14 GND	SPS-MCP-341	SPS-PSH-341	E-5.4
C342	1" C	1	2 - #14 & #14 GND	SPS-MCP-342	SPS-PSH-341	E-5.4
C405	1" C	1	2 - #12 & #14 GND	DF-PCP-401	DF-VLV-405	E-5.8
C406	1" C	1	2 - #12 & #14 GND	DF-PCP-401	DF-VLV-406	E-5.8
C407	1" C	1	2 - #12 & #14 GND	DF-PCP-401	DF-VLV-407	E-5.8
C601	1" C	1	2 - #14 & #14 GND	SEP-MCP-600	SEP-PSH-601	E-5.7
C602	1" C	1	2 - #14 & #14 GND	SEP-MCP-600	SEP-PSH-602	E-5.7
C603	1" C	1	2 - #14 & #14 GND	SEP-MCP-600	SEP-LIT-603	E-5.7
C605	1" C	1	4 - #14 & #14 GND	SEP-LCP-605	SEP-SLV-605	E-5.7
C607	1" C	1	2 - #14 & #14 GND	SEP-MCP-600	SEP-LSLL-607	E-5.7
C610	1" C	1	2 - #14 & #14 GND	SHT-LCP-610	SHT-LIT-610	E-5.1, E-5.5
C611	1" C	1	2 - #14 & #14 GND	BLW-MCP-611	BLW-PSL-611	E-5.1
C611A	1" C	1	6 - #14 & #14 GND	BLW-MCP-611	SHT-LCP-610	E-5.1
C612	1" C	1	2 - #14 & #14 GND	BLW-MCP-612	BLW-PSL-612	E-5.1
C612A	1" C	1	6 - #14 & #14 GND	BLW-MCP-612	SHT-LCP-610	E-5.1
C621	1" C	1	6 - #14 & #14 GND	SF-MCP-621	SF-PSH, YS, TSH-621	E-5.6
C621A	1" C	1	20 - #14 & #14 GND	SF-MCP-621	RSP-PCP-639	E-5.6
C621B	1" C	1	2 - #12 & #12 GND	SF-MCP-621	SF-SLV-621	E-5.6
C621C	1" C	1	2 - #14 & #14 GND	SF-MCP-621	SF-PSL-621	E-5.6
C622	1" C	1	6 - #14 & #14 GND	SF-MCP-622	SF-PSH, YS, TSH-622	E-5.6
C622A	1" C	1	20 - #14 & #14 GND	SF-MCP-622	RSP-PCP-639	E-5.6
C622B	1" C	1	2 - #12 & #12 GND	SF-MCP-622	SF-SLV-622	E-5.6
C622C	1" C	1	2 - #14 & #14 GND	SF-MCP-622	SF-PSL-622	E-5.6
C623	1" C	1	2 - #14 & #14 GND	RSP-PCP-639	RSP-VLV-623	E-5.6
C632	1" C	1	6 - #14 & #14 GND	RSP-PCP-639	RSP-SYS-632	E-5.6
C640	1" C	1	2 - #12 & #12 GND	RSP-PCP-639	RSP-SLV-640	E-5.6
C642	1" C	1	2 - #14 & #14 GND	RSP-PCP-639	RSP-HMS-642	E-5.6
C701	1" C	1	2 - #14 & #14 GND	EPS-LCP-706	EPS-MCP-701	E-5.9
C701A	1" C	1	4 - #14 & #14 GND	EPS-MCP-701	EPS-JB-701	E-5.9
C701B	1" C	1	2 - #14 & #14 GND	EPS-JB-701	EPS-PSH-701	E-5.9
C702	1" C	1	2 - #14 & #14 GND	EPS-LCP-706	EPS-MCP-702	E-5.9
C702A	1" C	1	4 - #14 & #14 GND	EPS-MCP-702	EPS-JB-702	E-5.9
C702B	1" C	1	2 - #14 & #14 GND	EPS-JB-702	EPS-PSH-702	E-5.9

CABLE & CONDUIT SCHEDULE						
CONDUIT	SIZE	SETS	CONDUCTORS	FROM	TO	DWG
C703	1" C	1	4 - #14 & #14 GND	EPS-LCP-706	EPS-MCP-703	E-5.9
C703A	1" C	1	4 - #14 & #14 GND	EPS-MCP-703	EPS-JB-703	E-5.9
C703B	1" C	1	2 - #14 & #14 GND	EPS-JB-703	EPS-PSH-703	E-5.9
C708	1" C	1	2 - #14 & #14 GND	EPS-LCP-706	EPS-LIT-706	E-5.9
C710	1" C	1	2 - #14 & #14 GND	NPWL-LCP-710	NPWL-LIT-710	E-5.10
C711A	1" C	1	8 - #14 & #14 GND	NPWL-LCP-723	NPW-MCP-711	E-5.10
C711B	1" C	1	4 - #14 & #14 GND	NPW-MCP-711	NPW-PSH-TSH-711	E-5.10
C711C	1" C	1	2 - #14 & #14 GND	NPW-MCP-711	NPWL-LCP-710	E-5.10
C712A	1" C	1	2 - #14 & #14 GND	NPWL-LCP-723	NPW-MCP-712	E-5.10
C712B	1" C	1	4 - #14 & #14 GND	NPW-MCP-712	NPW-PSH-TSH-712	E-5.10
C712C	1" C	1	2 - #14 & #14 GND	NPW-MCP-712	NPWL-LCP-710	E-5.10
C713	1" C	1	2 - #14 & #14 GND	EPS-LCP-706	EPS-LSLL-713	E-5.10
C714	1" C	1	2 - #14 & #14 GND	EPS-LCP-706	EPS-LSHH-714	E-5.10
C723B	1" C	1	8 - #14 & #14 GND	NPW-LCP-723	NPW-CMP-722	E-5.10
C725	1" C	1	2 - #14 & #14 GND	NPWL-LCP-710	NPWL-LSLL-725	E-5.10
C726	1" C	1	2 - #12 & #12 GND	NPWL-LCP-723	NPW-SLV-726	E-5.10
D003	1" C	1	12 - #14 & #14 GND	ELE-GEN-003	ELE-PLC-010	E-5.1
D004	1" C	1	4 - #14 & #14 GND	ELE-ATS-004	ELE-PLC-010	E-5.1
D104	1" C	1	12 - #14 & #14 GND	HW-MCP-104	HW-RI0-100	E-5.2
D111	1" C	1	16 - #14 & #14 GND	HW-RI0-100	IPS-MCP-111	E-5.2
D112	1" C	1	16 - #14 & #14 GND	HW-RI0-100	IPS-MCP-112	E-5.2
D113	1" C	1	16 - #14 & #14 GND	HW-RI0-100	IPS-MCP-113	E-5.2
D114	1" C	1	2 - #14 & #14 GND	HW-RI0-100	IPS-FIT-114	E-5.2
D115	1" C	1	8 - #14 & #14 GND	HW-RI0-100	IPS-LCP-115	E-5.2
D119	1" C	1	2 - #14 & #14 GND	HW-RI0-100	HW-AIT-119	E-5.2
D301	1" C	1	12 - #14 & #14 GND	RAS-RI0-300	SC-MCP-301	E-5.4
D302	1" C	1	12 - #14 & #14 GND	RAS-RI0-300	SC-MCP-302	E-5.4
D303	1" C	1	2 - #14 & #14 GND	RAS-RI0-300	SC-FIT-303	E-5.4
D304	1" C	1	2 - #14 & #14 GND	RAS-RI0-300	SC-FIT-304	E-5.4
D310	1" C	1	6 - #14 & #14 GND	RAS-RI0-300	RAS-LCP-310	E-5.4, E-5.5
D311	1" C	1	20 - #14 & #14 GND	RAS-RI0-300	RAS-MCP-311	E-5.4, E-5.5
D312	1" C	1	20 - #14 & #14 GND	RAS-RI0-300	RAS-MCP-312	E-5.4, E-5.5
D313	1" C	1	20 - #14 & #14 GND	RAS-RI0-300	RAS-MCP-313	E-5.4, E-5.5
D315	1" C	1	2 - #14 & #14 GND	RAS-RI0-300	RAS-FIT-315	E-5.4, E-5.5
D321	1" C	1	20 - #14 & #14 GND	RAS-RI0-300	WAS-MCP-321	E-5.4, E-5.5
D322	1" C	1	20 - #14 & #14 GND	RAS-RI0-300	WAS-MCP-322	E-5.4, E-5.5
D325	1" C	1	2 - #14 & #14 GND	RAS-RI0-300	WAS-FIT-325	E-5.4, E-5.5
D333	1.5" C	1	32 - #14 & #14 GND	RAS-RI0-300	SPS-MCP-333	E-5.4
D510	1" C	1	4 - #14 & #14 GND	DEC-LIT-510	EPS-RI0-700	E-5.8, E-5.9
D511	1" C	1	8 - #14 & #14 GND	DEC-PMP-511	EPS-RI0-700	E-5.8, E-5.9
D512	1" C	1	8 - #14 & #14 GND	DEC-PMP-512	EPS-RI0-700	E-5.8, E-5.9
D513	1" C	1	2 - #14 & #14 GND	DEC-LSH-513	EPS-RI0-700	E-5.8, E-5.9
D520	1" C	1	4 - #14 & #14 GND	DIS-LCP-520	EPS-RI0-700	E-5.8, E-5.9
D521	1" C	2	4 - #14 & #14 GND	DIS-PMP-521	EPS-RI0-700	E-5.8, E-5.9
D522	1" C	1	4 - #14 & #14 GND	DIS-PMP-522	EPS-RI0-700	E-5.8, E-5.9
D523	1" C	1	4 - #14 & #14 GND	DIS-PMP-523	EPS-RI0-700	E-5.8, E-5.9
D524	1" C	1	4 - #14 & #14 GND	DIS-PMP-524	EPS-RI0-700	E-5.8, E-5.9
D600	1" C	1	16 - #14 & #14 GND	ELE-PLC-010	SEP-MCP-600	E-5.1, E-5.7
D605	1" C	1	4 - #14 & #14 GND	SEP-PCP-605	SEP-LCP-605	E-5.7
D610	1" C	1	6 - #14 & #14 GND	ELE-PLC-010	SHT-LCP-610	E-5.1
D611	1" C	1	16 - #14 & #14 GND	ELE-PLC-010	BLW-MCP-611	E-5.1
D612	1" C	1	16 - #14 & #14 GND	ELE-PLC-010	BLW-MCP-612	E-5.1
D621	1" C	1	14 - #14 & #14 GND	ELE-PLC-010	SF-MCP-621	E-5.1, E-5.6
D622	1" C	1	14 - #14 & #14 GND	ELE-PLC-010	SF-MCP-622	E-5.1, E-5.6
D701	1" C	1	12 - #14 & #14 GND	EPS-RI0-700	EPS-MCP-701	E-5.9
D702	1" C	1	12 - #14 & #14 GND	EPS-RI0-700	EPS-MCP-702	E-5.9
D703	1" C	1	12 - #14 & #14 GND	EPS-RI0-700	EPS-MCP-703	E-5.9
D705	1" C	1	2 - #14 & #14 GND	EPS-RI0-700	EPS-FIT-705	E-5.9
D706	1" C	1	8 - #14 & #14 GND	EPS-RI0-700	EPS-LCP-706	E-5.9
D710	1" C	1	2 - #14 & #14 GND	EPS-RI0-700	NPWL-LCP-710	E-5.10
D711	1" C	1	14 - #14 & #14 GND	EPS-RI0-700	NPW-MCP-711	E-5.10
D712	1" C	1	14 - #14 & #14 GND	EPS-RI0-700	NPW-MCP-712	E-5.10
D722	1" C	1	8 - #14 & #14 GND	EPS-RI0-700	NPW-CMP-722	E-5.10
D723	1" C	1	4 - #14 & #14 GND	EPS-RI0-700	NPWL-LCP-723	E-5.10
D724	1" C	1	2 - #14 & #14 GND	EPS-RI0-700	NPW-FIT-724	E-5.10
N010	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	HMI	E-5.1, E-5.2
N020	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	O&M BUILDING	E-5.1
N100	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	HW-RI0-100	E-5.1, E-5.2
N200	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	OX-PCP-200	E-5.1, E-5.3
N300	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	RAS-RI0-300	E-5.1, E-5.4
N401	2" C	1	F. O. CABLE & #14 GND	DF-PCP-404	ELE-PLC-010	E-5.1, E-5.8
N605	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	SEP-PCP-605	E-5.1, E-5.7
N639	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	RPS-PCP-639	E-5.1, E-5.6
N700	1" C	1	F. O. CABLE & #14 GND	ELE-PLC-010	EPS-RI0-700	E-5.1, E-5.9

XREFS: 110040020; TB-11004; SEAL-MAC; SEAL-AEP

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ELECTRICAL PLAN - BLOWER BUILDING

NOTES:

1. COORDINATE WITH UTILITY FOR CONDUIT AND HANDHOLE REQUIREMENTS.
2. SEE SHEETS E-2.6 AND E-2.7 FOR CABLE AND CONDUIT SCHEDULES.
3. SEE SHEETS E-5.0 FOR CONDUIT BLOCK DIAGRAMS.
4. MOUNT RECEPTACLES 18" AFF IN RECESSED IN WALLS.
5. SEE SHEET E-3.0 FOR SITE LOCATION.
6. SEE SHEET E-2.4 FOR LIGHTING FIXTURE SCHEDULE.

KEYED NOTES

- 1 NOT USED.
- 2 ELE-SES-002 SERVICE ENTRANCE SECTION
- 3 ELE-GEN-003 GENERATOR
- 4 ELE-ATS-004 AUTOMATIC TRANSFER SWITCH
- 5 ELE-MCC-005 MOTOR CONTROL CENTER
- 6 ELE-LP-006 120/208 VAC LIGHTING PANEL
- 7 ELE-XFMR-007 480/208-120 VAC 45KVA TRANSFORMER
- 8 ELE-PQM-008 POWER QUALITY METER
- 9 ELE-PLC-010 PLANT PLC ENCLOSURE
- 10 ELE-OIT-011 PLANT NB1
- 11 ELE-LSL-003 GENERATOR FUEL TANK LOW LEVEL SWITCH
- 12 ELE-YS-003 GENERATOR FUEL TANK LEAK SWITCH
- 13 AC-1 ELECTRICAL ROOM AIR CONDITIONER #1
- 14 TSTAT-1 AIR CONDITIONER #1 THERMOSTAT
- 15 AC-2 BLOWER ROOM AIR CONDITIONER
- 16 TSTAT-2 AIR CONDITIONER #2 THERMOSTAT
- 17 AC-3 BLOWER ROOM AIR CONDITIONER
- 18 CU-2 CONDENSING UNIT #2
- 19 CU-3 CONDENSING UNIT #3
- 20 BLW-MTR-611 BLOWER #1
- 21 BLW-PSL-611 BLOWER #1 AIR PRESSURE LOW SWITCH
- 22 BLW-TSH-611 BLOWER #1 HIGH MOTOR TEMPERATURE
- 23 BLW-TSH-611A BLOWER #1 DISCHARGE TEMPERATURE SWITCH
- 24 BLW-MCP-611 BLOWER #1 MOTOR CONTROL PANEL
- 25 BLW-MTR-612 BLOWER #2
- 26 BLW-PSL-612 BLOWER #2 AIR PRESSURE LOW SWITCH
- 27 BLW-TSH-612 BLOWER #2 HIGH MOTOR TEMPERATURE
- 28 BLW-TSH-612A BLOWER #2 DISCHARGE TEMPERATURE SWITCH
- 29 BLW-MCP-612 BLOWER #2 MOTOR CONTROL PANEL
- 30 DSC-AC-1 DISCONNECT SWITCH
- 31 DSC-AC-2 DISCONNECT SWITCH
- 32 DSC-AC-3 DISCONNECT SWITCH
- 33 DSC-CU-2 DISCONNECT SWITCH
- 34 DSC-CU-3 DISCONNECT SWITCH

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CITY OF WILCOX  
WASTEWATER TREATMENT PLANT  
ELECTRICAL PLAN - BLOWER/ELECTRICAL BUILDING  
WILSON PROJECT NO. 11004

Design:	ED	Drawn:	ED	Checked:	ED
Date:	06/20/16	Wilson Project No.:	11004	Description	
Revision	1	Date	10/16	ADDENDUM #2	
		By	MAC		

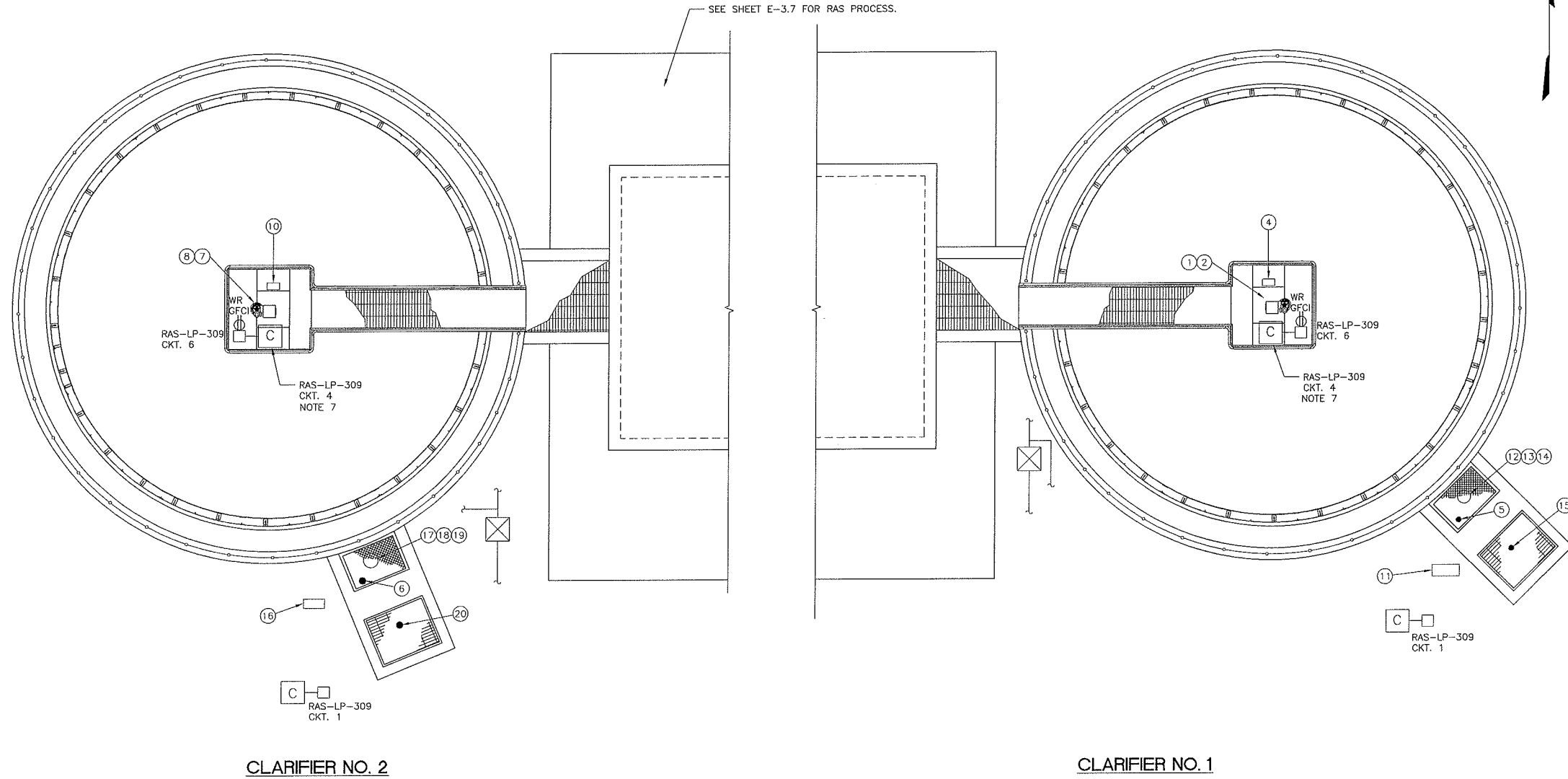
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Sheet No. E-3.3

XREFS: 11004D004; TB-11004; SEAL-MAC; 11004D004A; SEAL-MCP

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0 1' 4' 8'  
SCALE: 3/16" = 1'-0"

#### KEYED NOTES

- SC-MTR-301 SECONDARY CLARIFIER #1 DRIVE MOTOR
- SC-OSH-301 SECONDARY CLARIFIER #1 TORQUE SWITCH
- NOT USED
- SC-MCP-301 SECONDARY CLARIFIER #1 MOTOR CONTROL PANEL
- SPS-LIT-341 SCUM PUMP #1 LEVEL TRANSMITTER
- SPS-LIT-342 SCUM PUMP #2 LEVEL TRANSMITTER
- SC-MTR-302 SECONDARY CLARIFIER #2 DRIVE MOTOR
- SC-OSH-302 SECONDARY CLARIFIER #2 TORQUE SWITCH
- NOT USED
- SC-MCP-302 SECONDARY CLARIFIER #2 MOTOR CONTROL PANEL
- SPS-MCP-341 SCUM PUMP #1 MCP
- SPS-MCP-341 SCUM PUMP #1 SCUM PUMP
- SPS-TE-341 SCUM PUMP #1 TEMPERATURE ELEMENT
- SPS-YE-341 SCUM PUMP #1 LEAK ELEMENT
- SPS-LIT-341 SCUM PUMP #1 LEVEL TRANSMITTER
- SPS-MCP-342 SCUM PUMP #2 MOTOR CONTROL PANEL
- SPS-PMP-342 SCUM PUMP #2
- SPS-TE-342 SCUM PUMP #2 TEMPERATURE ELEMENT
- SPS-YE-342 SCUM PUMP #2 LEAK ELEMENT
- SPS-LIT-342 SCUM PUMP #2 LEVEL TRANSMITTER

#### NOTES:

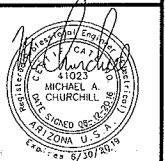
- SEE SHEET E-3.7 FOR RAS-PDP-307 LOCATION.
- SEE SHEET E-2.6 AND E-2.7 FOR CABLE AND CONDUIT SCHEDULES.
- SEE SHEET 5.4 FOR CONDUIT BLOCK DIAGRAM.
- SEE SHEET E-2.4 FOR LIGHTING FIXTURE SCHEDULE.
- SEE SHEET E-2.3 FOR RAS-LP-309 LIGHTING PANEL SCHEDULE.
- LIGHTING PANEL RAS-LP-309 IS LOCATED AT RAS/WAS PUMP STATION ELECTRICAL CANOPY. SEE SHEET E-3.7 FOR RAS-LP-309 PANEL LOCATION.
- FIXTURE TO BE 8'-0" HEIGHT.

CITY OF WILLCOX  
WASTEWATER TREATMENT PLANT  
ELECTRICAL PLAN - SECONDARY CLARIFIERS

WILSON PROJECT NO. 11004

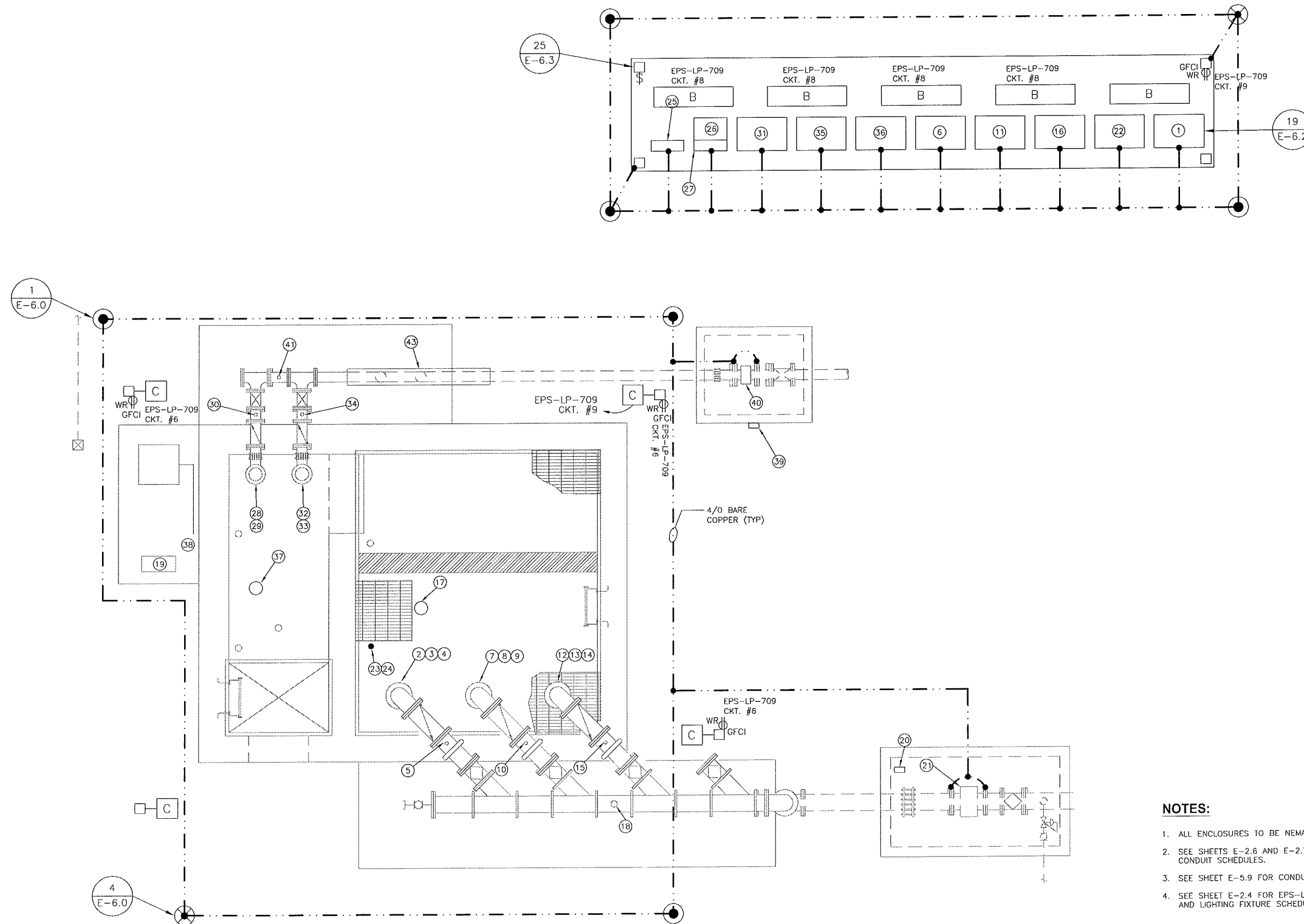
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Date:	06/2016	Wilson	Project No.:	11004	
Revision			Description		By
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Sheet No. E-3.6

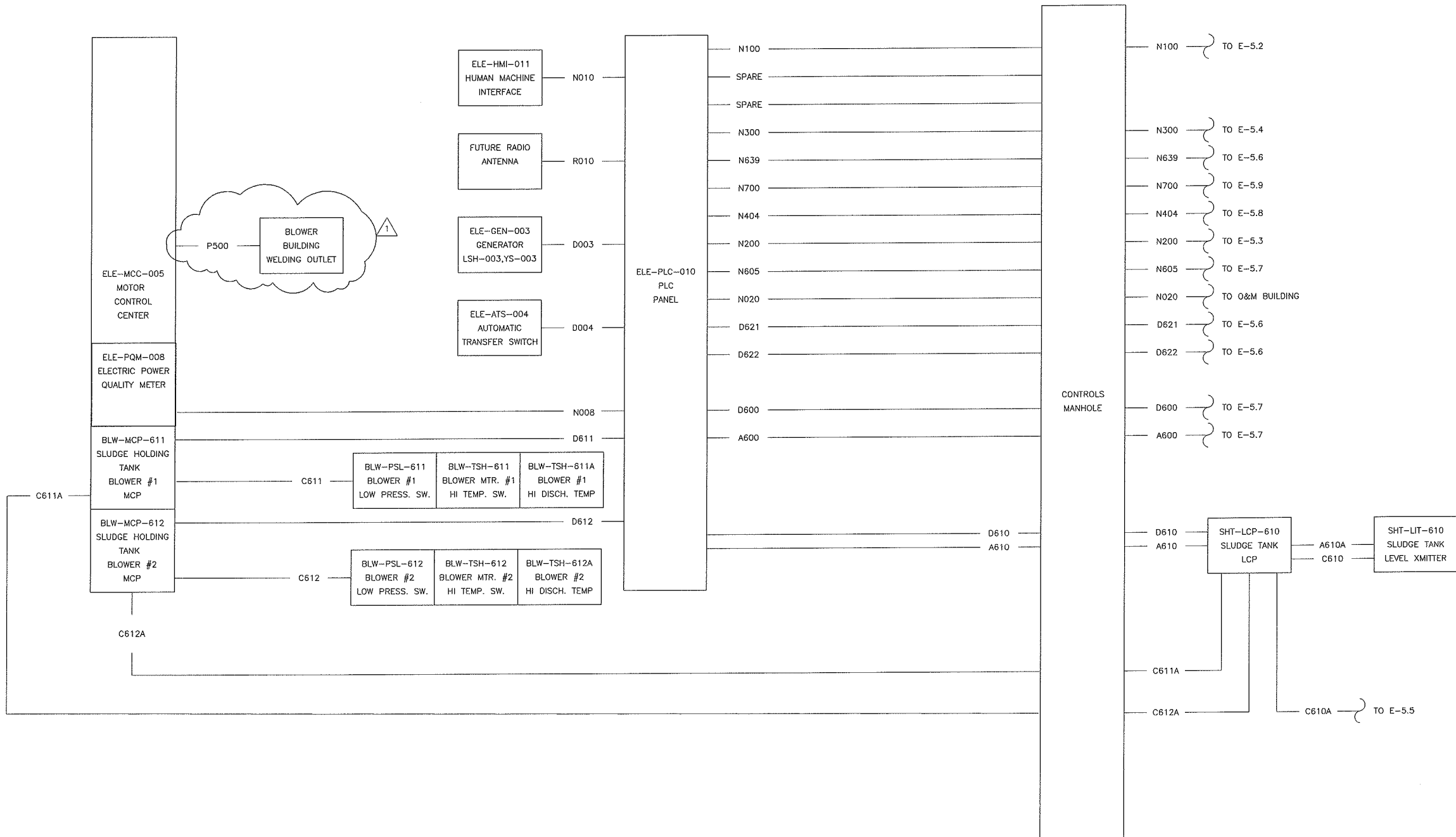
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**NOTES:**

SCALE:  $\frac{1}{4}" = 1'-0"$

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NOTES:

1. SEE SHEET E-2.7 FOR CABLE & CONDUIT INFORMATION.

CONDUIT / JBOX LEGEND:

P - POWER  
LP - LIGHTING POWER  
G - GENERATOR POWER  
U - UTILITY POWER  
A - ANALOG PLC SIGNAL  
D - DIGITAL PLC SIGNAL  
N - NETWORK & COMMUNICATIONS  
C - CONTROLS  
F - FIRE  
S - SECURITY & CCTV  
T - TELEPHONE  
R - RADIO  
IJB - INSTRUMENT JUNCTION BOX  
PJB - POWER JUNCTION BOX  
CJB - CONTROLS JUNCTION BOX

CITY OF WILLCOX  
WASTEWATER TREATMENT PLANT  
CONDUIT BLOCK DIAGRAM  
CONTROL GENERAL & SLUDGE/BLOWER  
WILSON PROJECT NO. 11004

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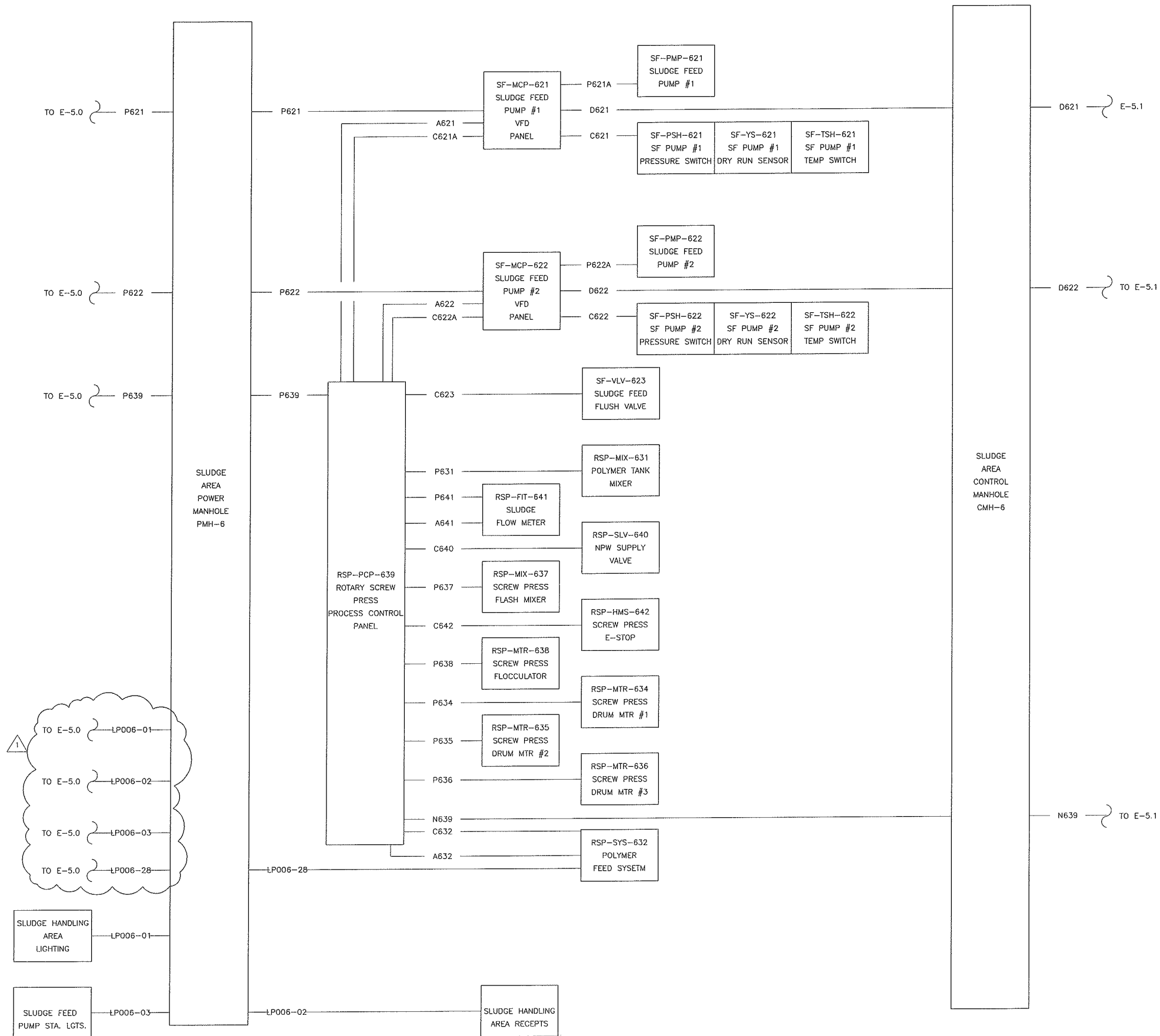


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NOTES:

1. REFERENCE SHEETS E-2.6 & E-2.7 FOR CONDUIT & CABLE INFORMATION.

CONDUIT / JBOX LEGEND:

- DP - DISTRIBUTION PANEL  
P - POWER  
LP - LIGHTING POWER  
G - GENERATOR POWER  
U - UTILITY POWER  
A - ANALOG PLC SIGNAL  
D - DIGITAL PLC SIGNAL  
N - NETWORK & COMMUNICATIONS  
C - CONTROLS  
F - FIRE  
S - SECURITY & CCTV  
T - TELEPHONE  
R - RADIO  
IJB - INSTRUMENT JUNCTION BOX  
PJB - POWER JUNCTION BOX  
CJB - CONTROLS JUNCTION BOX

CITY OF WILLCOX  
WASTEWATER TREATMENT PLANT  
CONDUIT BLOCK DIAGRAM  
SLUDGE HANDLING AREA  
WILSON PROJECT NO. 11004

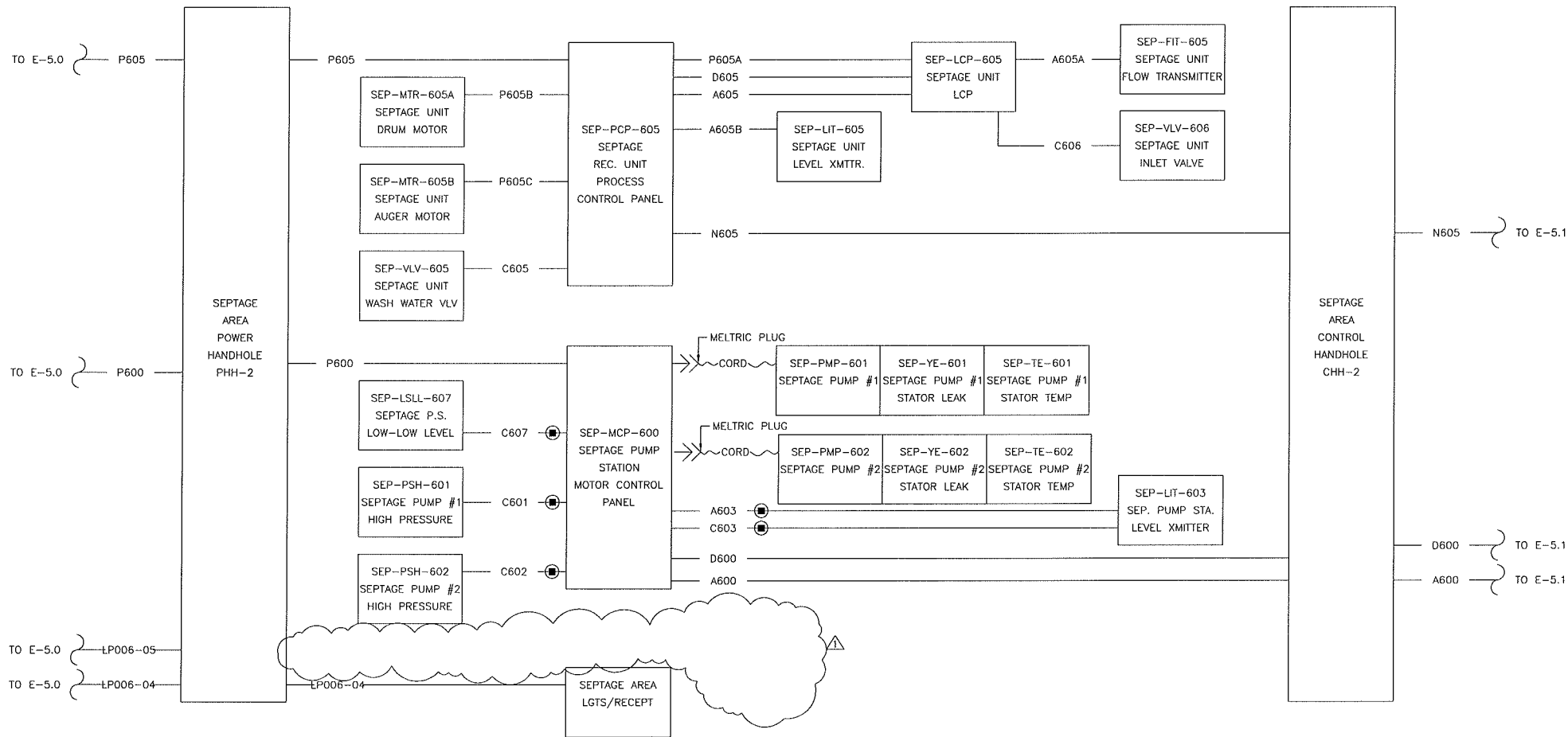
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Revision	Date	Description	By	MAC
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NOTES:

1. REFERENCE SHEETS E-2.6 & E-2.7 FOR CONDUIT & CABLE INFORMATION.

CONDUIT / JBOX LEGEND:

- DP - DISTRIBUTION PANEL  
P - POWER  
LP - LIGHTING POWER  
G - GENERATOR POWER  
U - UTILITY POWER  
A - ANALOG PLC SIGNAL  
D - DIGITAL PLC SIGNAL  
N - NETWORK & COMMUNICATIONS  
C - CONTROLS  
F - FIRE  
S - SECURITY & CCTV  
T - TELEPHONE  
R - RADIO  
IJB - INSTRUMENT JUNCTION BOX  
PJB - POWER JUNCTION BOX  
CJB - CONTROLS JUNCTION BOX

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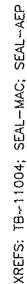
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WASTEWATER TREATMENT PLANT  
CONDUIT BLOCK DIAGRAM  
SEPTAGE RECEIVING AREA  
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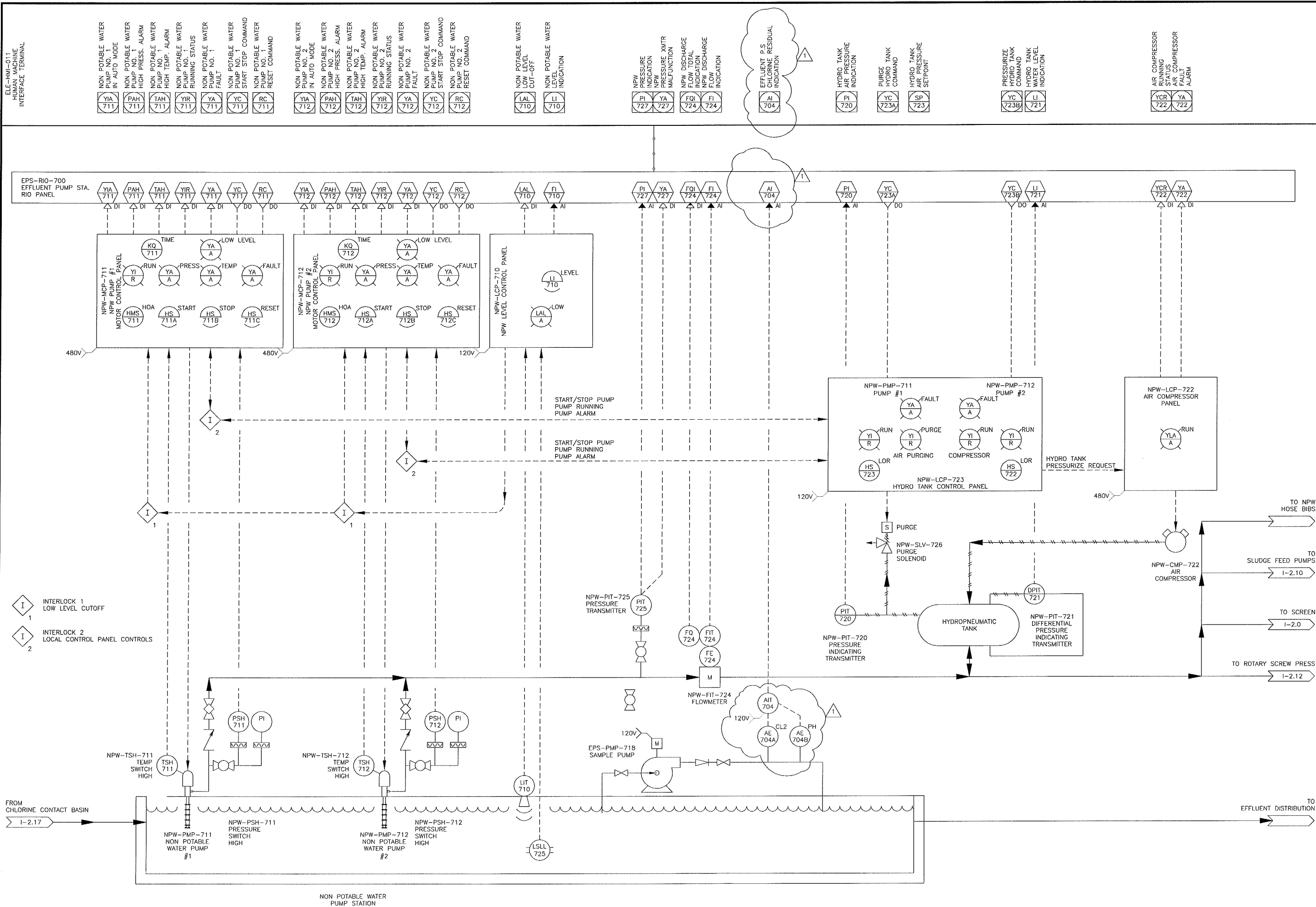


Sheet No. E-5.7





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CITY OF WILLCOX  
WASTEWATER TREATMENT PLANT  
P&ID - NON POTABLE WATER PUMP STATION  
& HYDRO TANK

WILSON PROJECT NO. 11004

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Sheet No. I-2.18

## SECTION 17211

### PRESENCE / ABSENCE DETECTORS (DRY RUN SENSORS)

#### PART 1 - GENERAL

##### 1.1 SCOPE

- A. This Section covers Liquid absence/presence sensing system utilizing capacitive measuring techniques to energize and de-energize control relays when medium is absent or present within the process piping.
- B. Related Work specified elsewhere includes, but is not limited to Section 16000, General Electrical Requirements. Also refer to requirements of General Conditions for testing, adjusting, and balancing of systems.

##### 1.2 QUALITY ASSURANCE

- A. Equipment to be furnished under this Section shall be the product of firms regularly engaged in the design and manufacture of this type of equipment. Manufacturer shall assume responsibility for, and guarantee performance of equipment furnished. However, this shall not be construed as relieving the CONTRACTOR from responsibility for the proper installation and functioning of the equipment.

##### 1.3 SUBMITTALS

- A. Submit product information cut sheets containing manufacturer's specifications, operations and maintenance data, instrument enclosure type, installation location, and process pressure range to be supplied. Indicate product part number in full.
- B. Provide Submittals in accordance with Section 16000, General Electrical Requirements, and elsewhere in the Contract Documents.

#### PART 2 - PRODUCTS

##### 2.1 PRESENCE / ABSENCE DETECTORS (DRY RUN SENSOR)

- A. Construction Features:
  - 1. Sensor:
    - a. Type: Partial ring wetted Teflon/Type 316 stainless steel surface.
    - b. Sensitivity: Sense process liquid with capacitances as low as 0.15 pF and conductivities as high as 100,000 micromhos/cm.

- c. Temperature Range: -30 to 150° F.
  - 2. Connection:
    - a. Type and Material: Flanged ASTM carbon steel.
  - 3. Electronic Control Unit:
    - a. Type: Solid state housing that can be mounted remote from sensor unit.
    - b. Relay Contacts: SPDT Form C, rated @ 10A, 115 VAC, resistive load.
    - c. Enclosure: NEMA 4X.
    - d. Power Supply: 24 VDC.
    - e. Adjustable time delay to prevent erroneous shutdowns due to temporary voids in process.
    - f. Separate red and green status lights indicate presence/absence of fluid.
    - g. Override pushbutton that ignores absence detection for preset time delay during system startup.
- B. Product and Manufacturer: Provide one of the following:
- 1. Princo Instruments:
    - a. Sensor: Model L642 Series.
    - b. Electronic Control Unit: L3515 Series. (24 VDC Power).
    - c. Or approved alternate.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Equipment and materials specified in this section shall be installed, connected, and tested in accordance with the manufacturer's specifications, and as indicated on the Drawings.

### 3.2 ACCEPTANCE

- A. Prior to Final Acceptance, the CONTRACTOR shall certify the equipment and installation included under this Section to be free of defects, and suitable for trouble-free operation.

END OF SECTION