ANTIOCH
CALIFORNIA
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ADDENDUM NO. 1
TO THE
CONTRACT DOCUMENTS

FOR

HILLCREST AND DONLON
BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA
P.W. 477-BP2

ISSUED
September 18, 2020

This Addendum No. 1 must be signed by the bidder and attached to the CONTRACT PROPOSAL PACKAGE for consideration by the City. The City reserves the right to disregard any proposal which does not include this Addendum. The City may waive this requirement at its sole discretion.

SEE ATTACHED ADDENDUM ITEMS

Approved By: _____
Scott Buenting, P.E.

REGISTERED PROFESSIONAL ENGINEER
SCOTT BUENTING
No. 67422
Exp: 12/31/2020
CIVIL
STATE OF CALIFORNIA

BIDDER'S CERTIFICATION

I acknowledge receipt of this Addendum No. 1 and accept all conditions contained herein.

Bidder: _____ **By:** _____

ADDENDUM NO. 1

Hillcrest and Donlon Booster Pumping Station Improvements
P.W. 477-BP2

Issued September 18, 2020

1) The cost of the Contract Document and Plans is amended to $200.00.

2) Pre-bid site visits will be held on September 22, 2020 from 10:00-10:30 AM at Hillcrest Pump Station and 11:00-11:30 AM at Donlon Pump Station. Bidders may meet at the designated pump station and time to observe the site.

3) Section A-1, “Bid Opening and Award”, of the project Special Provisions is amended to state the following:

   “Sealed proposals will be received by the Office of the City Clerk, City Hall, located at 200 “H” Street, Antioch, CA, until 2:00 p.m., on September 29, 2020, publicly opened and read at the parking lot directly south of Antioch City Hall located at 200 “H” Street at 2:00 p.m., on September 29, 2020.”

4) Drawing C-01-502, delete Note 2 and replace it with the following:

   “HATCH SHALL BE BILCO TYPE JD-AL OR APPROVED EQUAL WITH ASSUMED DIMENSIONS OF 6 FEET WIDE AND 10 FEET LONG. CONTRACTOR SHALL PROVIDE A SUBMITTAL FOR THE PROPOSED HATCH IN ACCORDANCE WITH SPECIFICATION SECTION 01 13 00.”

5) Drawing D-02-101, delete Keynote 7 and replace it with the following:

   “REMOVE AND REPLACE EXISTING GENERATOR. REMOVE AND REPLACE EXISTING DAY TANK ADJACENT TO GENERATOR SKID. SEE DRAWINGS E-02-601, E-02-602 AND SPECIFICATION SECTION 26 32 13.14.”

6) Section 26 32 13.14 - paragraph 3.01-A, shall be amended to include item “3” as follows:

   “Contractor shall complete installation of GenSet within 60 days from delivery of product on-site.”

7) Section 01 14 00 – paragraph 1.02-B-1, shall be deleted and replaced with the following:

   “Milestone 1: Submit the initial submittal for the generators sets within 3 working days of NTP. If resubmittal is required, resubmit within 5 working days after receipt of review comments. Order generator sets within 3 working days of receiving an approved submittal. Submit a fully complete initial submittal for Split Case Centrifugal Pumps (Section 43 23 75) and electrical equipment (Division 26). The submittals shall include all required information including a copy of the original specification annotated with any proposed deviations, 28 days after Notice to Proceed. [Note that City will return reviewed submittal electronically within ten business days after its receipt.]”

8) Specification Section 40 61 13-paragraph 1.01-D, fifth and sixth sentences, shall be replaced with the following sentences:

"The System Integrator shall be responsible for the verification and testing of all field terminations, instrumentation and other applicable control components terminated to the PLC system located in the PLC/Telemetry Compartment in the new MCC. The System Integrator will assist the City of Antioch in the "End to End" verification of all field terminations, instrumentation and other applicable control components terminated to the SCADA/HMI system."

9) Specification Section 40 61 13- paragraph 1.01-E-3b shall be replaced with the following:

"All system integration shall be performed by the Systems Integrator including but not limited to all signal loops verification, testing and documentation."

10) Specification Section 40 61 13-paragrpah1.01-E-3 shall be amended with subsection "d" as follows:

"d. The City of Antioch shall be responsible for all Programming, HMI screen development and documentation."

11) Specification Section 40 61 13-paragraph 1.07 shall be amended with section D that states as follows:

"D. Systems Integrator qualifications:

1. The City and Engineer believe that the following Systems Integrators are capable of performing the work specified in Division 40, however, this statement shall not be construed as endorsement of a particular System Integrator.
   a. Tesco Controls, Inc., Sacramento, CA
   b. Telstar Instruments, Concord, CA
   c. Glenmount Global, Vacaville, CA.
   d. Primex, Vacaville, CA
2. Evidence of Experience—Company specializing in the products and work of this section and related sections:
   a. Minimum of 10 years of documented experience with the equipment specified as well as overall systems responsibility for systems of similar size and complexity.
   b. Experience in performing three similar successful projects (equipment type, software type, Systems Integrator responsibilities, complexity, and dollar value of work performed by Systems Integrator) in the last 5 years. At least one project currently in progress or completed within the last 2 years.
   c. End-user satisfaction of projects in the past 3 to 5 years based on end-user interviews by the Owner or Engineer. Submit project descriptions of projects completed within the past 5 years with contact names, addresses, and telephone numbers from the project Owner, General Contractor, and Principal Design Firm.
   d. Panel fabrication and staging facilities adequate to provide services for this project. Demonstrate by including the following:

1) Minimum 10,000 square feet of dedicated space for panel fabrication and testing.
2) Panel shop shall be UL 508 recognized to produce panels to UL 508 and UL 698 standards and labeling.

e. Financial resources available and projected for successful completion of this project. Submit financial data for Systems Integrator division when subsidiary to a parent corporation. Include 2 years of financial data:

1) Financial statement.
2) Balance sheet.
3) Dun & Bradstreet Report. "

12) Specification Section 40 61 96 shall be removed from the specifications.

13) Specification Section 40 63 43-paragraph 2.02-C shall be replaced with the following:

"C. City of Antioch is responsible for all programming in NEMA IA 2.3 and IEC 61131-3 compliant program editor. Program to be written using the same type of software as is specified below."

14) Specification Section 40 63 43-paragraph 2.02-F-5 (I/O module terminations) and paragraph 2.02-F-6 (I/O module interface modules) shall be removed.

15) Specification Section 40 63 43-paragraph 2.03-A shall be replaced with the following:

"A. The following software was provided by the City and used by others for this project."

16) Specification Section 40 63 43-paragraph 2.06-D shall be replaced with the following:

"D. PLC Program –

1. City of Antioch is responsible for the programmable controller program prepared using the software type specified in Part 2.

17) Specification Section 40 63 43-paragraph 3.02 shall be amended with part C. **(See Addendum APPENDIX)**

18) Specification Section 40 63 43-paragraph 3.03 Training shall be removed.

19) Specification Section 40 63 43-paragraph 3.04-B-2 shall be replaced with the following:

"2. The detailed assignment of I/O to specific points is provided for Hillcrest and Donlon as a reference. There shall be no deviation from these assignments, as any deviations will impact the programming which has been completed by the City of Antioch and necessitate revisions to it and/or the I/O assignments."

20) Specification Section 40 63 43-3.05- paragraph A, Hillcrest I/O, shall be replaced with the following attached below for convenience, and here-in in the Appendix:
    - Hillcrest IO - Discrete Inputs (DDI 1602)
    - Hillcrest IO - Discrete Outputs (DDO 1602)
    - Hillcrest IO - Analog Inputs (AMI 0810)
    - Hillcrest IO - Analog Outputs (AMO 0410)
    - Hillcrest BPS PLC IO Layout

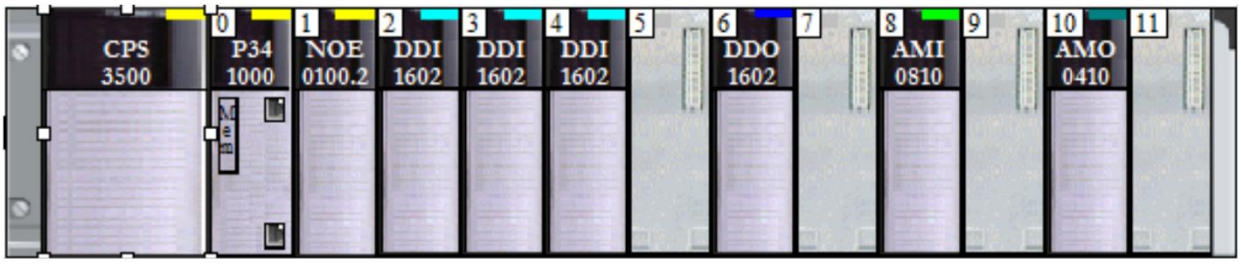
    (See Addendum APPENDIX)

PLC Point Name	PLC Slot	Point	PLC Address	Description
Booster_Pump_1_Starter_Auto	2	0	%I0.2.0	Booster Pump 1 HOA Switch in Auto
Booster_Pump_1_Running	2	1	%I0.2.1	Booster Pump 1 Running from Motor Starter Auxiliary Contacts
Booster_Pump_1_Motor_Malfunction	2	2	%I0.2.2	Booster Pump 1 Motor Malfunction Contacts
Booster_Pump_2_Starter_Auto	2	3	%I0.2.3	Booster Pump 2 HOA Switch in Auto
Booster_Pump_2_Running	2	4	%I0.2.4	Booster Pump 2 Running from Motor Starter Auxiliary Contacts
Booster_Pump_2_Motor_Malfunction	2	5	%I0.2.5	Booster Pump 2 Motor Malfunction Contacts
Discharge_Pressure_Low	2	6	%I0.2.6	Hillcrest Pump Station Discharge Pressure Low
	2	7	%I0.2.7	SPARE
	2	8	%I0.2.8	SPARE
	2	9	%I0.2.9	SPARE
	2	10	%I0.2.10	SPARE
	2	11	%I0.2.11	SPARE
MPP_FCV_02_Remote	2	12	%I0.2.12	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Remote Status
MPP_FCV_02_Open	2	13	%I0.2.13	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Open Status
MPP_FCV_02_Close	2	14	%I0.2.14	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Close Status
MPP_FCV_02_Failure	2	15	%I0.2.15	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Failure Status
Booster_Pump_3_Starter_Auto	3	0	%I0.3.0	Booster Pump 3 HOA Switch in Auto
Booster_Pump_3_Running	3	1	%I0.3.1	Booster Pump 3 Running from Motor Starter Auxiliary Contacts
Booster_Pump_3_Motor_Malfunction	3	2	%I0.3.2	Booster Pump 3 Motor Malfunction Contacts
Booster_Pump_4_Starter_Auto	3	3	%I0.3.3	Booster Pump 4 HOA Switch in Auto
Booster_Pump_4_Running	3	4	%I0.3.4	Booster Pump 4 Running from Motor Starter Auxiliary Contacts
Booster_Pump_4_Motor_Malfunction	3	5	%I0.3.5	Booster Pump 4 Motor Malfunction Contacts
Suction_Pressure_Low	3	6	%I0.3.6	Hillcrest Pump Station Suction Pressure Low
	3	7	%I0.3.7	SPARE
	3	8	%I0.3.8	SPARE
	3	9	%I0.3.9	SPARE
	3	10	%I0.3.10	SPARE
Hillcrest_Pump_Intrusion	3	11	%I0.3.11	Hillcrest Pump Station Intrusion
MPP_MV_04_Remote	3	12	%I0.3.12	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Remote Status
MPP_MV_04_Open	3	13	%I0.3.13	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Open Status
MPP_MV_04_Close	3	14	%I0.3.14	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Close Status
MPP_MV_04_Failure	3	15	%I0.3.15	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Open Status
Main_Breaker_Open	4	0	%I0.4.0	Hillcrest Pump Station Main Breaker Open
Transfer_Switch_Emergency	4	1	%I0.4.1	Hillcrest Pump Station Transfer Switch Emergency Position
	4	2	%I0.4.2	SPARE
Fuel_Oil_Storage_Tank_Leak	4	3	%I0.4.3	Hillcrest Pump Station Generator Fuel Oil Storage Tank Leak
Engine_Failure	4	4	%I0.4.4	Hillcrest Pump Station Generator Engine Failure
Cooling_Water_Low_Pressure	4	5	%I0.4.5	Hillcrest Pump Station Generator Cooling Water Low Pressure
Generator_Battery_Low_Voltage	4	6	%I0.4.6	Hillcrest Pump Station Generator Battery Low Voltage
Generator_Failure	4	7	%I0.4.7	Hillcrest Pump Station Generator Failure
Generator_Running	4	8	%I0.4.8	Hillcrest Pump Station Generator Running
	4	9	%I0.4.9	SPARE
	4	10	%I0.4.10	SPARE
	4	11	%I0.4.11	SPARE
	4	12	%I0.4.12	SPARE
	4	13	%I0.4.13	SPARE
	4	14	%I0.4.14	SPARE
	4	15	%I0.4.15	SPARE

PLC Point Name	PLC Slot	Point	PLC Address	Description
Hillcrest_Flow	8	0	%IW0.8.0	Hillcrest Pump Station Discharge Flow FIT Analog Input (0-10,000 Counts)
Hillcrest_Pressure	8	1	%IW0.8.1	Hillcrest Pump Station Discharge Pressure PIT Analog Input (0-10,000 Counts)
Hillcrest_Chlorine_Residual	8	2	%IW0.8.2	Hillcrest Pump Station Chlorine Residual Analyzer AIT Analog Input (0-10,000 Counts)
MPP_FCV_02_Position	8	3	%IW0.8.3	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Position (0-100%) Status (0-10,000 Counts)
CCWD_Combined_MPP_Flow_Input	8	4	%IW0.8.4	Contra Costa Water District Multipurpose Pipeline Flow FIT Analog Input (0-10,000 Counts)
	8	5	%IW0.8.5	SPARE
	8	6	%IW0.8.6	SPARE
	8	7	%IW0.8.7	SPARE

PLC Point Name	PLC Slot	Point	PLC Address	Description
MPP_FCV_02_Position_CMD	10	0	%QW0.10.0	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Position Command (0-10,000 = 0-100%)
	10	1	%QW0.10.1	SPARE
	10	1	%QW0.10.2	SPARE
	10	2	%QW0.10.3	SPARE

PLC Point Name	PLC Slot	Point	PLC Address	Description
Pump_1_Start	6	0	%Q0.6.0	Booster Pump 1 Start Output
Pump_2_Start	6	1	%Q0.6.1	Booster Pump 2 Start Output
Pump_3_Start	6	2	%Q0.6.2	Booster Pump 3 Start Output
Pump_4_Start	6	3	%Q0.6.3	Booster Pump 4 Start Output
MPP_MV_04_Open_Output	6	4	%Q0.6.4	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Open Output
	6	5	%Q0.6.5	SPARE
	6	6	%Q0.6.6	SPARE
	6	7	%Q0.6.7	SPARE
	6	8	%Q0.6.8	SPARE
	6	9	%Q0.6.9	SPARE
	6	10	%Q0.6.10	SPARE
	6	11	%Q0.6.11	SPARE
	6	12	%Q0.6.12	SPARE
	6	13	%Q0.6.13	SPARE
	6	14	%Q0.6.14	SPARE
	6	15	%Q0.6.15	SPARE

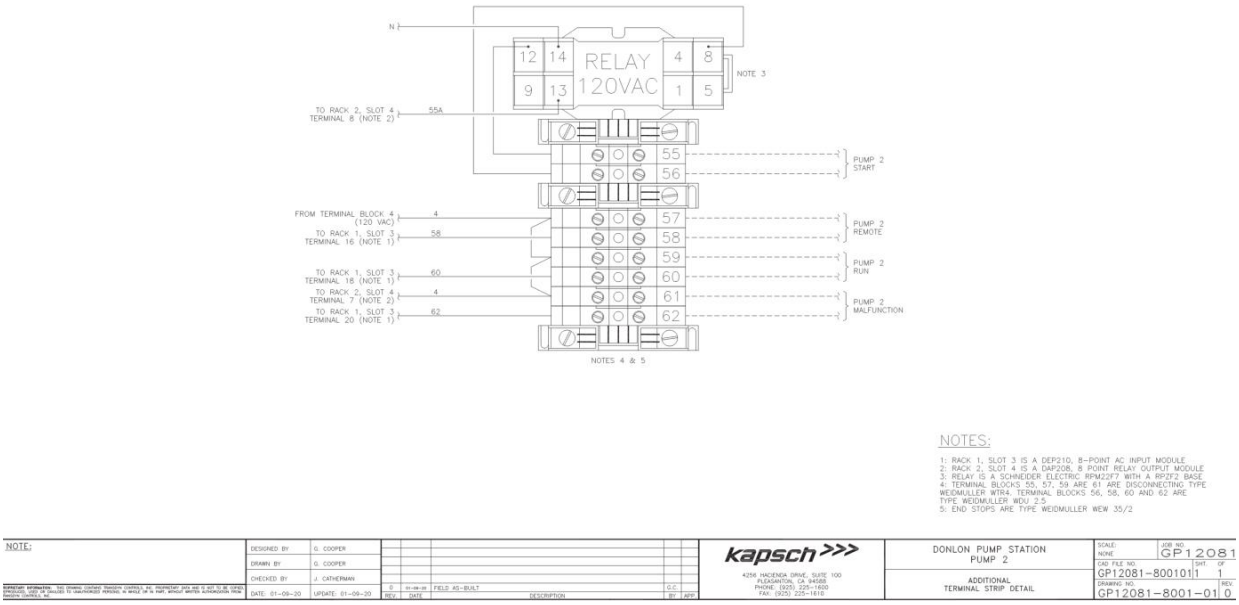


21) Specification Section 40 63 43-3.05-B Donlon I/O shall be replaced with the following:

"As previously stated, the I/O list is for reference only and represents the I/O existing at the Donlon Booster Pump Station. Contractor shall terminate field wiring as shown on Kapsch drawing no. GP12081-8001-01 attached below for convenience, and in the Appendix here-in:

- Donlon Existing IO
- Donlon Terminations Kapsch Drawing GP12081-8001-01"

(See Addendum APPENDIX)



22) Drawing E-01-102 shall be replaced with the following revised drawing:

E-01-102 REVISED **(See Addendum APPENDIX)**.

23) Drawing E-01-601 shall be replaced with the following revised drawing:

E-01-601 REVISED **(See Addendum APPENDIX)**.

24) Drawing E-01-602 shall be replaced with the following revised drawing:

E-01-602 REVISED **(See Addendum APPENDIX)**.

25) Drawing E-01-603 shall be replaced with the following revised drawing:

E-01-603 REVISED **(See Addendum APPENDIX)**.

26) Drawing N-01-601 shall be replaced with the following revised drawing:

N-01-601 REVISED **(See Addendum APPENDIX)**.

27) Drawing N-01-602 shall be replaced with the following revised drawing:

N-01-602 REVISED **(See Addendum APPENDIX)**.

28) Drawing N-02-601 shall be replaced with the following revised drawing:

N-02-601 REVISED **(See Addendum APPENDIX)**.

SELECTED RESPONSES TO REQUESTS FOR INFORMATION

a. Question: NA

   Answer: NA

APPENDIX

C. General Testing Requirements:

1. Materials, equipment, and construction included under this specification shall be inspected in accordance with other sections of this specification and this section. Testing shall be performed in accordance with Section 01 45 20, and this section. No required test shall be applied without prior notice to the Construction Manager, who has the right to witness any test. At least 14 days before the commencement of any testing activity, a detailed step-by-step test procedure, complete with report forms for the recording of test results, shall be provided. All equipment necessary to perform the specified tests shall be provided.
2. Documentation Records:
    a. The Contractor submits their Testing plan and procedures for approval.
    b. Develop a record-keeping system to document progress and completion for each task in each process area or system. Coordinate overall organization of areas and systems with overall testing required by Section 01 45 20, Equipment and System Performance and Operational Testing.
    c. Always keep documentation current and available for inspection on site in a location designated by the Construction Manager:
    d. List of names of Contractor's and System Integrator's personnel associated with final construction and testing, and normal and emergency contact telephone numbers
    e. Testing Status spreadsheet with breakdown for each process area and process system, with percentage complete on each testing sequence task.
    f. Testing status specific to pre-loop test and loop testing status spreadsheet to include the I/O list organized by area and system and loop number. Percent complete of the system will be based on percentage of I/O points tested.
3. Test Report Volumes:
    a. Develop and maintain testing documentation for the Booster Station systems in separate volumes. Always keep each volume current and available for inspection on site in a location designated by the Construction Manager. Include the following as a minimum:
        1) Three-ring binder with front cover and spine labeled: "Testing Documentation" including project labeling.
        2) Table of Contents with same labeling as the volume cover with tabs for each section:
        3) Section 1: I/O Interface
        4) Section 2: Instrument Index
        5) Section 3: Test Procedures and Forms
        6) Section 4: Certified Factory Calibration Reports
        7) Section 5: Test Report
4. Field Test Procedure Documentation:
    a. Organize and assemble test procedures for each analog and discrete loop in the process control system in separate volumes for each process area or test group. Organize by I/O point. Submit final test records in electronic form by scanning and converting the records and files to Adobe PDF format, to preserve actual signatures and signoffs.

b. Include a detailed, step-by-step description of the required test procedure, panel and terminal block numbers for points of measurement, input test values, expected resultant values, test equipment required, process setup requirements, and safety precautions.

c. Include test report forms for each loop, including forms for wiring, piping, and individual component tests, with the test procedure documentation. Record the actual test results on these forms and assemble them into final test reports.

5. Preprint and populate information in the test report forms to the extent possible prior to commencing testing.
6. Include on the test report forms:
   a. Project name.
   b. Booster Pump Station associated with the equipment under test.
   c. Instrument loop description.
   d. Instrument loop identification number.
   e. Instrument nameplate data.
   f. Instrument setup and configuration parameters.
   g. Time and date of test.
   h. Inspection checklist and results.
   i. Reference to applicable test procedure.
   j. Expected and actual test results for each test point in the loop including programmable controller data table or register values.
   k. Test equipment used.
   l. Space for remarks regarding test procedure or results, observations, etc.
   m. Name, date, and signature of testing personnel.
   n. Test witness's name and signature.
7. **Factory Acceptance Test (FAT):**
   a. **Un-Witnessed FAT:**
      1) **Upon completion of the fabrication of the new MCC and based on the approval of their Testing plan and procedures, the Contractor will perform Un-Witnessed Factory Testing of the PLC system. The Contractor verifies all signals to/from the PLC within the MCC and simulates to the Terminal Block any external/field signals. Once this is completed the Contractor will submit the results of their Testing and schedule the Witnessed Factory Testing of the PLC system.**
   b. **Witnessed FAT:**
      1) General:
         a) **Witnessed Factory Testing of the PLC system. The Contractor verifies all signals to/from the PLC within the MCC and simulates to the Terminal Block any external/field signals. The City of Antioch and/or it's Representative along with a Representative of Brown and Caldwell will Witness this Testing. Once this is completed, the Contractor will submit the results of this Testing and based on approval from The City of Antioch and/or Brown and Caldwell, will be allowed to ship the New MCC to the site.**
         b) Provide a FAT with the test and subsequent retests witnessed by the Construction Manager, Owner, and Engineer.

c) Load software and configuration for control system panels, controllers, network components, operator interfaces, servers, and the programming and graphic configuration application at the control system equipment supplier's factory prior to the FAT.

d) Inspect equipment, panel instruments, panels, or cabinets with factory testing performed.

e) Provide written notice to the Engineer and Construction Manager 30 working days before the commencement of the **Witnessed** FAT activity and include:

f) Schedule for the FAT.

g) Location of the FAT.

h) Testing equipment used.

i) Detailed test procedure with forms for the recording of test results.

j) Sign-off spaces for the individuals performing and witnessing the tests.

k) Network and interwire equipment and panels as applicable. Operate and check out equipment prior to the **Witnessed** FAT. Submit certification indicating that the panels are ready for the **Witnessed** FAT. Include the following:

l) Visual inspection of equipment, instruments, control panels, and SCADA graphic displays.

m) Validation of each input loop and output loop by simulated signals for analog inputs and by shorting discrete inputs.

2) Validation includes:

a) Monitoring state changes on operator interface screens based on the inputs state change.

b) Observation of online controller programming application software with the associated outputs state change.

c) Outputs triggered by operator interface software devices (pushbuttons, sliders, manually entered values, etc.)

d) Calibration and operation of instruments on or in the control panels.

e) Repair of loops that do not pass validation.

f) Retest of the **Witnessed** FAT at no additional cost.

8. Field Testing

a. Un-Witnessed Field Test

1) Once installation of the new MCC, the field wiring, terminations, instrumentation and all applicable field devices has been completed, the Un-Witnessed Field Testing (to the PLC) of this installation will be performed by the Contractor. Once this is completed the Contractor will submit the results of their Testing and schedule the Witnessed Field Testing.

2) The Un-Witnessed Field Test shall in general replicate the Un-Witnessed Factory, however it will be performed onsite. The written procedure for the Un-Witnessed Field Test shall be submitted for review. The procedure shall be similar to the Factory test, with the exception that it will be performed in the field with the field installed equipment for verification of the communication from each device to a laptop running the PLC software to simulate the SCADA system which is located at the Water Treatment Plant.

b. Witnessed Field Test

1) The City of Antioch and/or it's Representative along with a Representative of Brown and Caldwell will witness the Witnessed Field Testing. This testing will be an "End-to-End" test of the new MCC, the field wiring, terminations, instrumentation and all applicable field devices from the Field device to the Wonderware SCADA system located at the Water Treatment Plant. Thus, this will verify the Contractor's installation, the field equipment and the operation of the Ethernet/Radio communications.

2) The Witnessed Field Test shall in general replicate the Witnessed Factory Test, however it will be performed onsite. The written procedure for the Witnessed Field Test shall be submitted for review. The procedure shall be similar to the Factory test, with the exception that it will be performed in the field with the field installed equipment for verification of the communication from each device to the SCADA system which is located at the Water Treatment Plant.

PLC Point Name	PLC Slot	Point	PLC Address	Description
Booster_Pump_1_Starter_Auto	2	0	%I0.2.0	Booster Pump 1 HOA Switch in Auto
Booster_Pump_1_Running	2	1	%I0.2.1	Booster Pump 1 Running from Motor Starter Auxiliary Contacts
Booster_Pump_1_Motor_Malfunction	2	2	%I0.2.2	Booster Pump 1 Motor Malfunction Contacts
Booster_Pump_2_Starter_Auto	2	3	%I0.2.3	Booster Pump 2 HOA Switch in Auto
Booster_Pump_2_Running	2	4	%I0.2.4	Booster Pump 2 Running from Motor Starter Auxiliary Contacts
Booster_Pump_2_Motor_Malfunction	2	5	%I0.2.5	Booster Pump 2 Motor Malfunction Contacts
Discharge_Pressure_Low	2	6	%I0.2.6	Hillcrest Pump Station Discharge Pressure Low
	2	7	%I0.2.7	SPARE
	2	8	%I0.2.8	SPARE
	2	9	%I0.2.9	SPARE
	2	10	%I0.2.10	SPARE
	2	11	%I0.2.11	SPARE
MPP_FCV_02_Remote	2	12	%I0.2.12	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Remote Status
MPP_FCV_02_Open	2	13	%I0.2.13	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Open Status
MPP_FCV_02_Close	2	14	%I0.2.14	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Close Status
MPP_FCV_02_Failure	2	15	%I0.2.15	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Failure Status
Booster_Pump_3_Starter_Auto	3	0	%I0.3.0	Booster Pump 3 HOA Switch in Auto
Booster_Pump_3_Running	3	1	%I0.3.1	Booster Pump 3 Running from Motor Starter Auxiliary Contacts
Booster_Pump_3_Motor_Malfunction	3	2	%I0.3.2	Booster Pump 3 Motor Malfunction Contacts
Booster_Pump_4_Starter_Auto	3	3	%I0.3.3	Booster Pump 4 HOA Switch in Auto
Booster_Pump_4_Running	3	4	%I0.3.4	Booster Pump 4 Running from Motor Starter Auxiliary Contacts
Booster_Pump_4_Motor_Malfunction	3	5	%I0.3.5	Booster Pump 4 Motor Malfunction Contacts
Suction_Pressure_Low	3	6	%I0.3.6	Hillcrest Pump Station Suction Pressure Low
	3	7	%I0.3.7	SPARE
	3	8	%I0.3.8	SPARE
	3	9	%I0.3.9	SPARE
	3	10	%I0.3.10	SPARE
Hillcrest_Pump_Intrusion	3	11	%I0.3.11	Hillcrest Pump Station Intrusion
MPP_MV_04_Remote	3	12	%I0.3.12	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Remote Status
MPP_MV_04_Open	3	13	%I0.3.13	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Open Status
MPP_MV_04_Close	3	14	%I0.3.14	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Close Status
MPP_MV_04_Failure	3	15	%I0.3.15	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Open Status
Main_Breaker_Open	4	0	%I0.4.0	Hillcrest Pump Station Main Breaker Open
Transfer_Switch_Emergency	4	1	%I0.4.1	Hillcrest Pump Station Transfer Switch Emergency Position
	4	2	%I0.4.2	SPARE
Fuel_Oil_Storage_Tank_Leak	4	3	%I0.4.3	Hillcrest Pump Station Generator Fuel Oil Storage Tank Leak
Engine_Failure	4	4	%I0.4.4	Hillcrest Pump Station Generator Engine Failure
Cooling_Water_Low_Pressure	4	5	%I0.4.5	Hillcrest Pump Station Generator Cooling Water Low Pressure
Generator_Battery_Low_Voltage	4	6	%I0.4.6	Hillcrest Pump Station Generator Battery Low Voltage
Generator_Failure	4	7	%I0.4.7	Hillcrest Pump Station Generator Failure
Generator_Running	4	8	%I0.4.8	Hillcrest Pump Station Generator Running
	4	9	%I0.4.9	SPARE
	4	10	%I0.4.10	SPARE
	4	11	%I0.4.11	SPARE
	4	12	%I0.4.12	SPARE
	4	13	%I0.4.13	SPARE
	4	14	%I0.4.14	SPARE
	4	15	%I0.4.15	SPARE

HILLCREST IO - DISCRETE INPUTS (DDI 1602)

PLC Point Name	PLC Slot	Point	PLC Address	Description
Pump_1_Start	6	0	%Q0.6.0	Booster Pump 1 Start Output
Pump_2_Start	6	1	%Q0.6.1	Booster Pump 2 Start Output
Pump_3_Start	6	2	%Q0.6.2	Booster Pump 3 Start Output
Pump_4_Start	6	3	%Q0.6.3	Booster Pump 4 Start Output
MPP_MV_04_Open_Output	6	4	%Q0.6.4	Contra Costa Water District Multipurpose Pipeline Valve MV-04 Open Output
	6	5	%Q0.6.5	SPARE
	6	6	%Q0.6.6	SPARE
	6	7	%Q0.6.7	SPARE
	6	8	%Q0.6.8	SPARE
	6	9	%Q0.6.9	SPARE
	6	10	%Q0.6.10	SPARE
	6	11	%Q0.6.11	SPARE
	6	12	%Q0.6.12	SPARE
	6	13	%Q0.6.13	SPARE
	6	14	%Q0.6.14	SPARE
	6	15	%Q0.6.15	SPARE

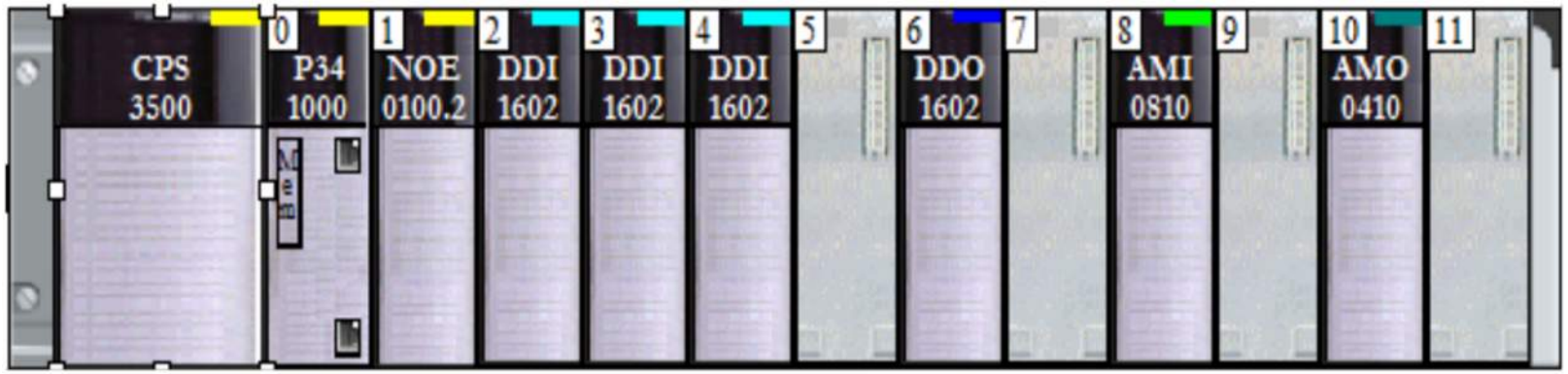
HILLCREST IO - DISCRETE OUTPUTS (DDO 1602)

PLC Point Name	PLC Slot	Point	PLC Address	Description
Hillcrest_Flow	8	0	%IW0.8.0	Hillcrest Pump Station Discharge Flow FIT Analog Input (0-10,000 Counts)
Hillcrest_Pressure	8	1	%IW0.8.1	Hillcrest Pump Station Discharge Pressure PIT Analog Input (0-10,000 Counts)
Hillcrest_Chlorine_Residual	8	2	%IW0.8.2	Hillcrest Pump Station Chlorine Residual Analyzer AIT Analog Input (0-10,000 Counts)
MPP_FCV_02_Position	8	3	%IW0.8.3	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Position (0-100%) Status (0-10,000 Counts)
CCWD_Combined_MPP_Flow_Input	8	4	%IW0.8.4	Contra Costa Water District Multipurpose Pipeline Flow FIT Analog Input (0-10,000 Counts)
	8	5	%IW0.8.5	SPARE
	8	6	%IW0.8.6	SPARE
	8	7	%IW0.8.7	SPARE

HILLCREST IO - ANALOG INPUTS (AMI 0810)

PLC Point Name	PLC Slot	Point	PLC Address	Description
MPP_FCV_02_Position_CMD	10	0	%QW0.10.0	Contra Costa Water District Multipurpose Pipeline Valve FCV-02 Position Command (0-10,000 = 0-100%)
	10	1	%QW0.10.1	SPARE
	10	1	%QW0.10.2	SPARE
	10	2	%QW0.10.3	SPARE

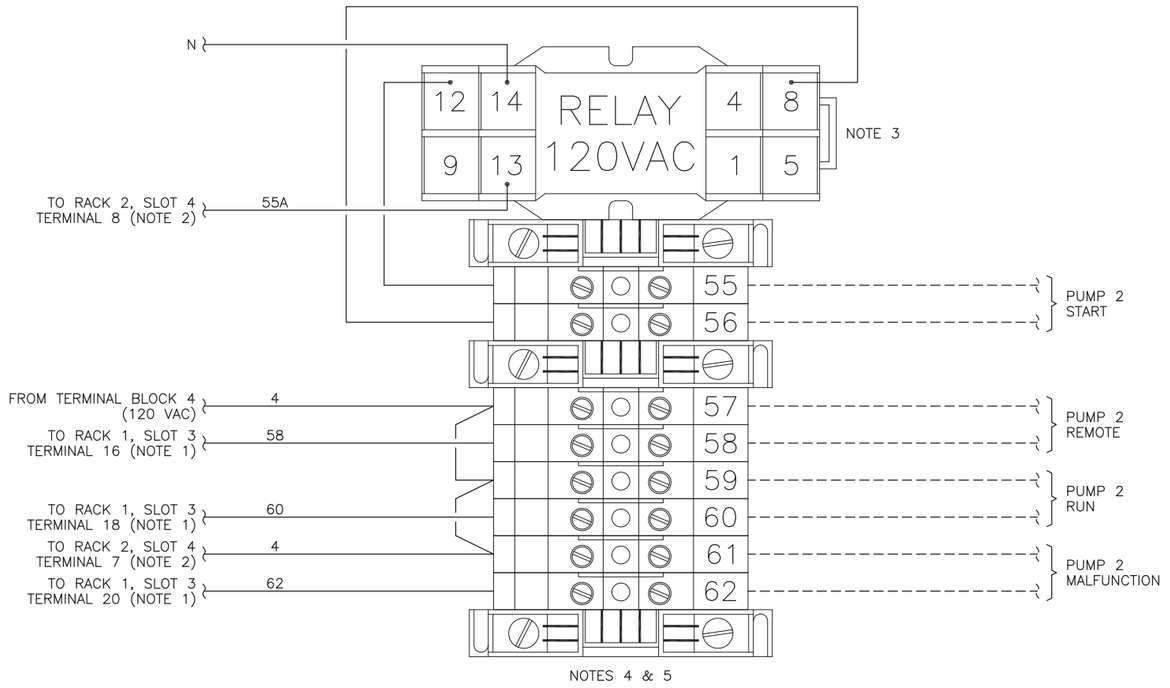
HILLCREST IO - ANALOG OUTPUTS (AMO 0410)



HILLCREST BPS PLC I/O LAYOUT

Name	Point Type	Address	Description
Pump_201_Start_Command	Discrete Output	1	Pump 201 Start Output Command
Valve_201_Open_Command	Discrete Output	2	Valve 201 Open Output Command
Pump_203_Start_Command	Discrete Output	3	Pump 203 Start Output Command
Valve_203_Open_Command	Discrete Output	4	Valve 203 Open Output Command
Pump_204_Start_Command	Discrete Output	9	Pump 204 Start Output Command
Valve_204_Open_Command	Discrete Output	10	Valve 204 Open Output Command
Pump_201_Run	Discrete Input	100001	Pump 201 Run Status
Pump_201_Overload	Discrete Input	100002	Pump 201 Overload
Valve_201_Open	Discrete Input	100003	Valve 201 Open Status
Pump_201_Remote	Discrete Input	100004	Pump 201 Remote Status
Pump_203_Run	Discrete Input	100005	Pump 203 Run Status
Pump_203_Overload	Discrete Input	100006	Pump 203 Overload
Valve_203_Open	Discrete Input	100007	Valve 203 Open Status
Pump_203_Remote	Discrete Input	100008	Pump 203 Remote Status
Pump_204_Run	Discrete Input	100009	Pump 204 Run Status
Pump_204_Overload	Discrete Input	100010	Pump 204 Overload
Valve_204_Open	Discrete Input	100011	Valve 204 Open Status
Pump_204_Remote	Discrete Input	100012	Pump 204 Remote Status
Generator_Running	Discrete Input	100017	Donlon Generator Running
Generator_Fail	Discrete Input	100018	Donlon Generator General Failure
Gen_Eng_Fail	Discrete Input	100019	Donlon Generator Engine Failure
Gen_Low_Oil	Discrete Input	100020	Donlon Generator Low Fuel Oil
Gen_Low_H2O	Discrete Input	100021	Donlon Generator Low H2O Pressure
Fuel_Tank_Leak	Discrete Input	100022	Generator Fuel Tank Leak
Gen_Batt_Low	Discrete Input	100023	Donlon Generator Battery Low
ATS_In_Emerg	Discrete Input	100024	Donlon ATS in Emergency Position
Main_CB_Open	Discrete Input	100025	Donlon Main Breaker Open
Donlon_Res_Int	Discrete Input	100027	Donlon Reservoir Intrusion
Donlon_Stat_Int	Discrete Input	100028	Donlon Pump Station Intrusion
FI_209_Discharge_Flow	Analog Input	300002	Donlon Discharge Flow to the Wonderware SCADA System
Donlon_Res_level	Analog Input	300004	Donlon Reservoir Level
Cambridge_Res_Lvl	Analog Input	300005	Cambridge Reservoir Level

DONLON EXISTING IO



DONLON TERMINATIONS KAPSCH DRAWING GP12081-8001-01

NOTES:

1: RACK 1, SLOT 3 IS A DEP210, 8–POINT AC INPUT MODULE
2: RACK 2, SLOT 4 IS A DAP208, 8 POINT RELAY OUTPUT MODULE
3: RELAY IS A SCHNEIDER ELECTRIC RPM22F7 WITH A RPZF2 BASE
4: TERMINAL BLOCKS 55, 57, 59 ARE 61 ARE DISCONNECTING TYPE WEIDMULLER WTR4. TERMINAL BLOCKS 56, 58, 60 AND 62 ARE TYPE WEIDMULLER WDU 2.5
5: END STOPS ARE TYPE WEIDMULLER WEW 35/2

NOTE:

DESIGNED BY	G. COOPER	
DRAWN BY	G. COOPER	
CHECKED BY	J. CATHERMAN	
DATE: 01–09–20	UPDATE: 01–09–20	

REV.	DATE	DESCRIPTION	BY	APP.
0	01–09–20	FIELD AS–BUILT	G.C.	

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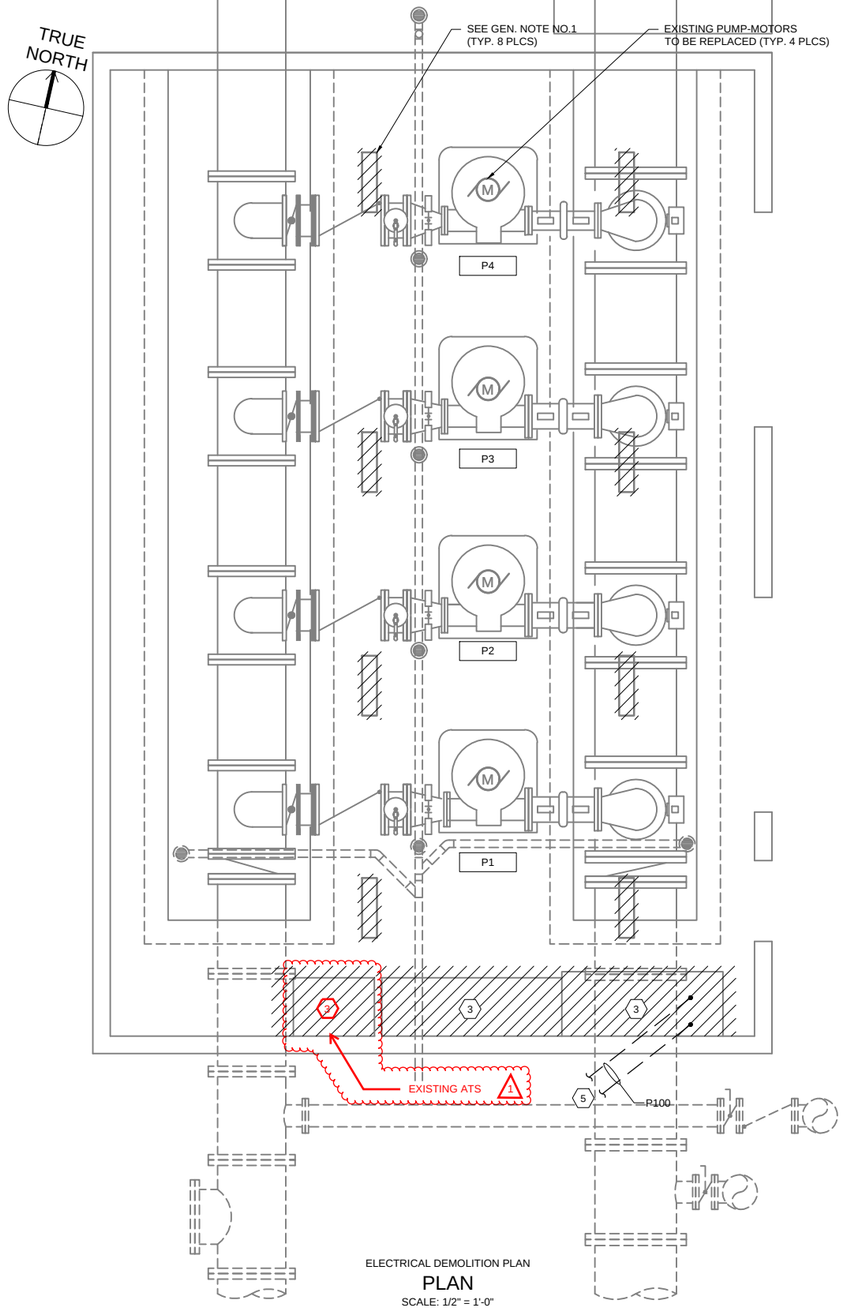
DONLON PUMP STATION
PUMP 2

ADDITIONAL
TERMINAL STRIP DETAIL

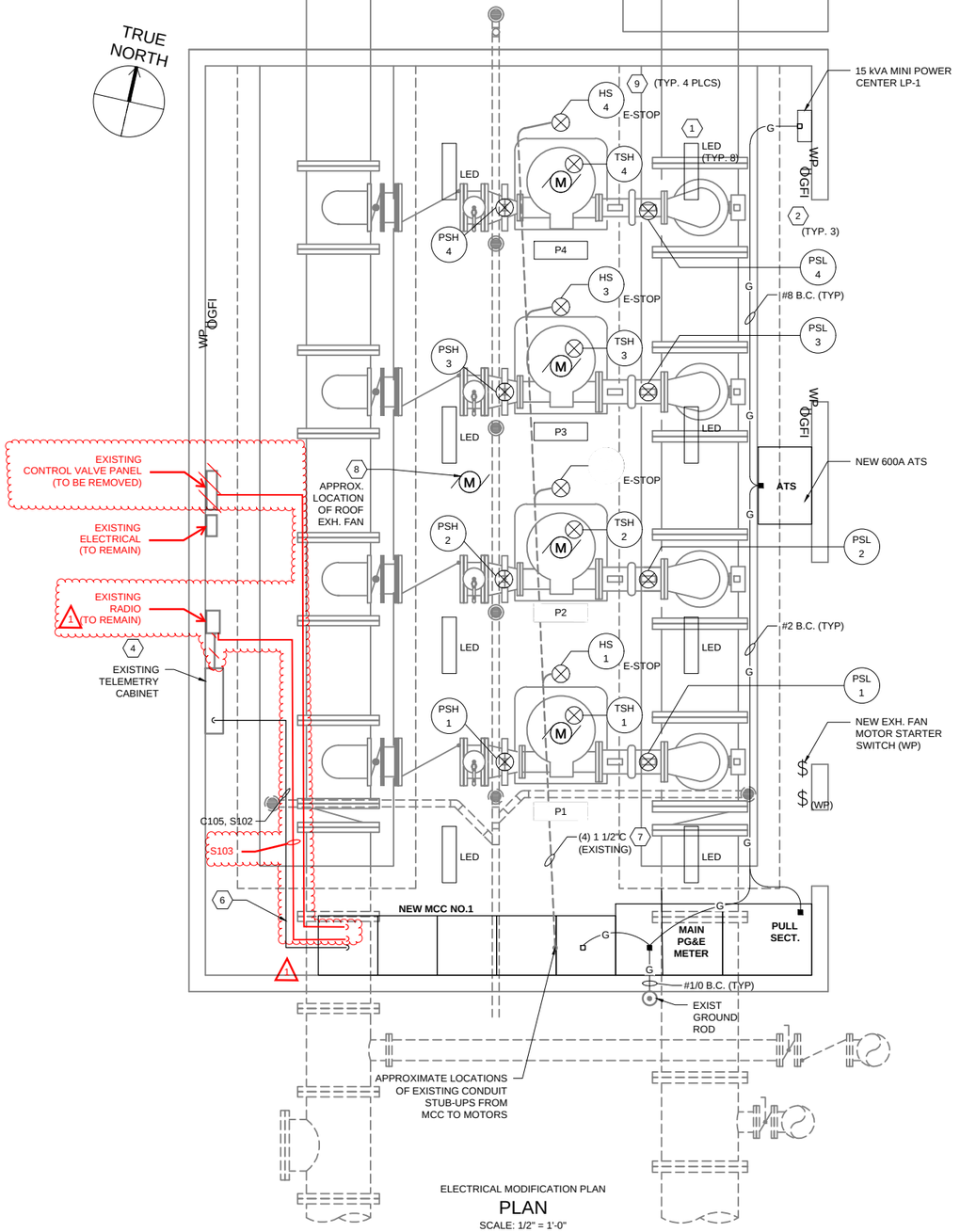
SCALE: NONE	JOB NO. GP12081
CAD FILE NO. GP12081–800101	SHT. 1 OF 1
DRAWING NO. GP12081–8001–01	REV. 0



ELECTRICAL DEMOLITION PLAN

PLAN

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



ELECTRICAL MODIFICATION PLAN

PLAN

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

GENERAL NOTES:

1. FOR NEW LIGHTING SYSTEM: EXISTING 4FT. FLUORESCENT LIGHTING FIXTURES TO BE DEMOLISHED, LIGHT SWITCHES AND WALL RECEPTACLES (WITH W.P. COVER) TO BE REPLACED WITH GFI RECEPTACLES AND NEW WIRING FOR NEW LED LIGHTING FIXTURES INSTALLED.
2. NEW SWBD/MCC CONCRETE HOUSEKEEPING PAD NOT SHOWN FOR CLARITY.
3. SEE ONE LINE DIAGRAM FOR ALL FEEDER SIZES. FOR NEW WIRING INSTALLATIONS. ROUTE CONDUIT EXPOSED OVERHEAD AS REQUIRED EXCEPT FOR MOTOR FEEDERS.
4. ALL MOTOR FRAMES, ATS, SWITCHBOARDS, MCC AND LP-1 SHALL BE BONDED TO EXISTING GROUND GRID WITH #2 B.C. CABLE (NOT SHOWN FOR CLARITY).
5. ALL EXPOSED INSTALLATIONS SHALL BE RIGID ALUMINUM CONDUITS. ALL HARDWARE AND SUPPORTS SHALL BE STAINLESS STEEL.

KEY NOTES:

1. NEW 4FT LED LIGHTING FIXTURES, ENCLOSED AND GASKETED WITH ACRYLIC LENS, 4100K, 120VAC, HOLOPHANE.
2. REPLACE EXISTING WALL RECEPTACLE WITH NEW W.P. COVER.
3. EXISTING SWITCHBOARD, MCC AND ATS TO BE DEMOLISHED AND/OR EQUIPMENT DISPOSED OFF SITE.
4. EXISTING TELEMETRY CABINET TO BE REUSED AS TERMINAL CABINET. SEE RISER DIAGRAM ON E-01-603 FOR EXISTING SIGNALS THAT WILL BE RETRANSMITTED TO NEW PLC.
5. PULL-OUT EXISTING SERVICE CABLES AND PULL-IN NEW CABLES AS INDICATED ON THE SINGLE LINE DIAGRAM. VERIFY EXACT ROUTING OF SERVICE CONDUITS.
6. PLC COMPARTMENT.
7. PULL-OUT EXISTING CABLES AND REUSE EXISTING CONDUITS TO PULL-IN NEW CABLES AS SHOWN IN THE ONE LINE DIAGRAM.
8. PROVIDE NEW FEEDER WIRING TO EXISTING EXHAUST FAN FROM PANEL LP-1 VIA STARTER SWITCH. USE: 2#12, #12G, 3/4"C.
9. SEE DETAIL E-4011/E-00-501.

ABBREVIATIONS:

ATS: AUTOMATIC TRANSFER SWITCH

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DESIGNED: R.ABORDO
DRAWN: F.PALERMO
CHECKED: ----
APPROVED: B.FAISST

EXTERNAL REFERENCE FILES
153637-Sheet BorderV18.dwg
153637-MF-M-00-FP-002V19.dwg
153637-MF-M-01-FP-001V18.dwg
Hillcrest_Electrical.dwg

REGISTERED PROFESSIONAL ENGINEER ROBERT J. CENEVARA No. E-11587 ELECTRICAL STATE OF CALIFORNIA

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	1	ADDENDUM NO. 1	RA	9/20	
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HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

ELECTRICAL

HILLCREST BPS
LIGHTING, POWER AND CONTROL PLAN

FILENAME: E-01-102.DWG
BC PROJECT NUMBER: 153637
7/10/2020
DRAWING NUMBER: E-01-102
SHEET NUMBER: 29 OF 42

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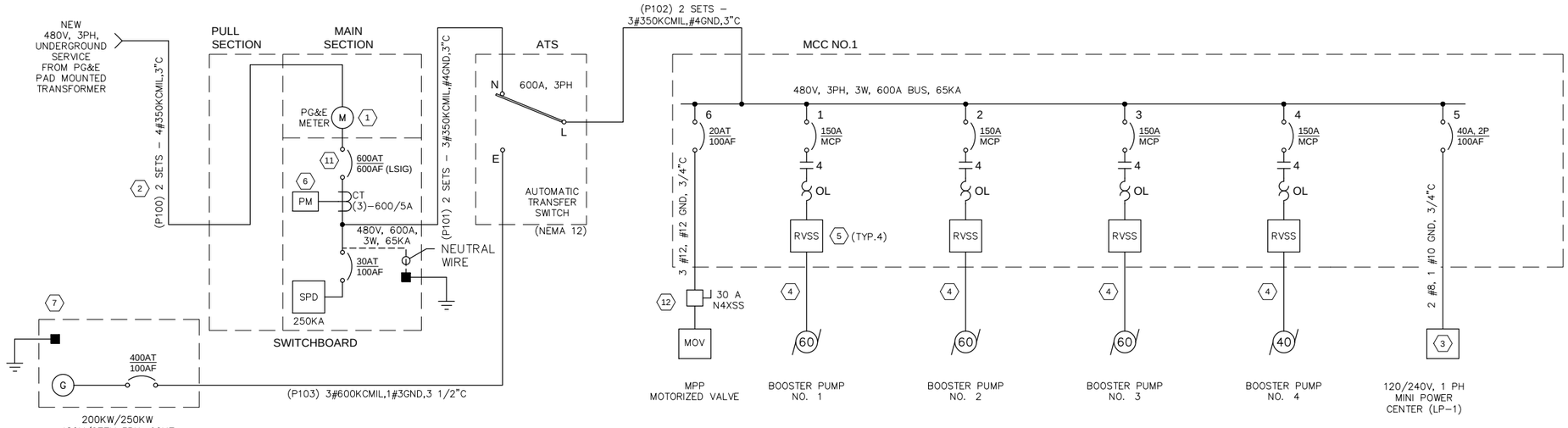
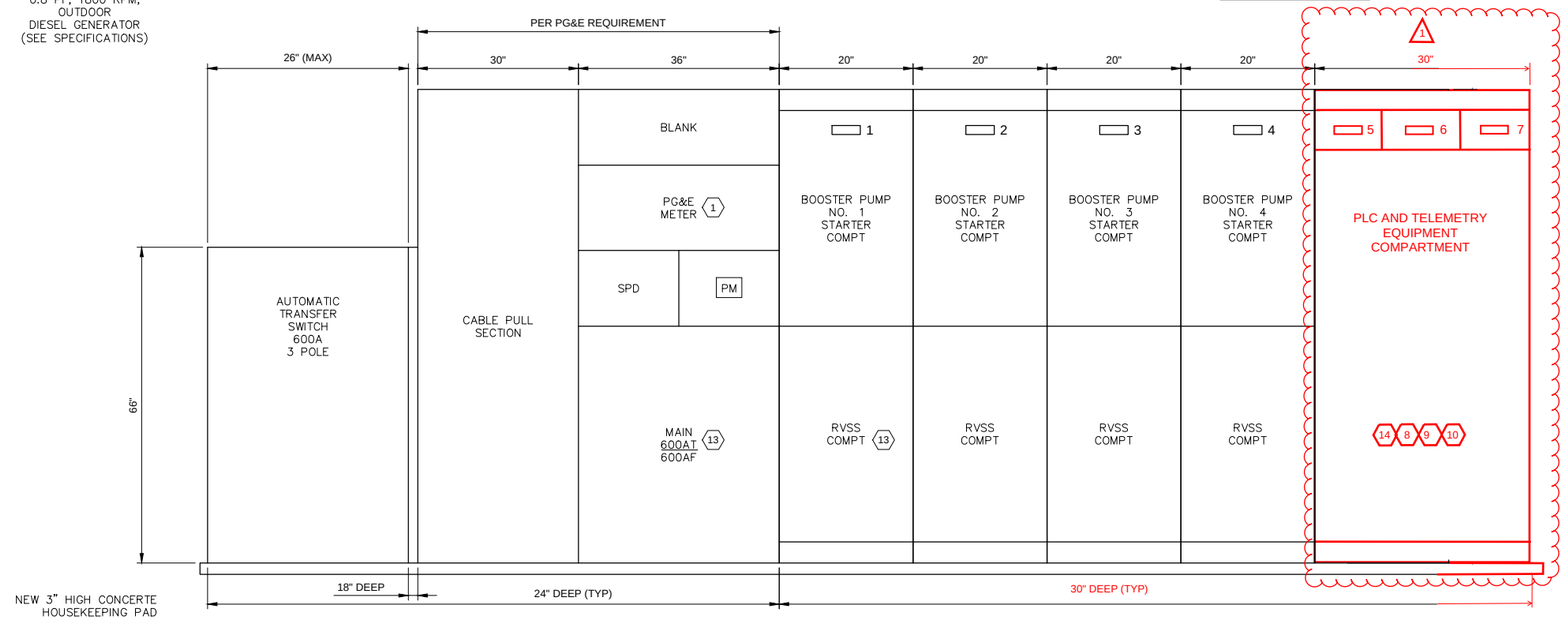


SINGLE LINE DIAGRAM



ATS AND SWITCHBOARD ELEVATIONS

MCC NO.1 ELEVATION

GENERAL NOTES:

1. ALL EXPOSED CONDUIT INSTALLATIONS SHALL BE RIGID ALUMINUM CONDUITS. ALL HARDWARE AND SUPPORTS SHALL BE STAINLESS STEEL.
2. BOND NEW SWITCHBOARD, ATS AND MCC WITH #1/0 B.C. TO EXISTING GROUND GRID.
3. GROUND GENERATOR AND ENCLOSURE TO GROUND GRID WITH # 1/0 B.C. CABLE.
4. REFER TO DWG C-01-101 FOR ELECTRICAL SITE PLAN.
5. MCC MANUFACTURER SALL PROVIDE THE SPACE AND A SHELF IN PLC/TELEMETRY COMPARTMENT FOR OWNER SUPPLIED ETHERNET SWTICH.
6. CONTROL SYSTEM INTEGRATOR SHALL INSTALL AND WIRE THE OWNER SUPPLIED ETHERNET SWITCH AND WIRE THE EXISTING MDS RADIO FOR A COMPLETE AND OPERABLE SYSTEM.

⚠1

KEY NOTES:

1. METERING COMPARTMENT IN THE SWITCHBOARD MAIN SECTION SHALL BE IN ACCORDANCE WITH PG&E REQUIREMENTS.
2. REUSE EXISTING SERVICE CONDUITS FROM PG&E PAD MOUNTED TRANSFORMER TO NEW SWITCHBOARD AND PULL-IN NEW CABLES AS INDICATED (SEE SITE PLAN DWG C-01-101).
3. MINI-POWER CENTER: 15KVA, 480-120/240V, 1 PH WITH 40A/120/480V PRIMARY CIRCUIT BREAKER AND 10-20A/IP 240V FEEDER BREAKERS AND 1-20A/2P FEEDER BREAKER PWR ENGINE COOLANT HEATER. COMPLETE UNIT IN NEMA 1 ENCLOSURE SQUARED, EATON OR EQUAL.
4. REUSE EXISTING 1 1/2" CONDUIT AND PULL-IN NEW 3#2, #6GND, 5#14 FOR CONTROL.
5. RVSS: REDUCED VOLTAGE SOLID STATE STARTER
6. PT'S NOT SHOWN FOR CLARITY. POWER MONITOR (PM) SHALL BE MICROPROCESSOR BASED SIMILAR TO MULTILIN PQM II, OR EQUAL.
7. GENERATOR SET IN SOUND ATTENUATED ALUMINUM NON-WALKIN ENCLOSURE (SEE SPECIFICATIONS).
8. PROVIDE THE PLC COMPARTMENT WITH SEPERATE TERMINAL STRIPS FOR DISCRETE AND ANALOG SIGNALS PER INSTRUMENTATION DRAWINGS AND RISER DIAGRAM.
9. SEE DIV. 40 SPECIFICATIONS FOR PLC REQUIREMENTS AND TELEMETRY INCLUDING 24VDC POWER SUPPLY, UPS AND MDS RADIO (EXISTING RADIO TO BE REUSED)
10. PROVIDE 24VDC INTERPOSING RELAY FOR ALL DISCRETE I/O'S TO AND FROM PLC.
11. PROVIDE AUXILIARY CONTACT ON MAIN BREAKER TO SEND STATUS TO PLC FOR TRIPPED OR OPEN CONDITIONS.
12. MOUNT DISCONNECT SWITCH PER DETAIL E4011.
13. TRANSITION SECTION WILL NOT BE ALLOWED BETWEEN TWO DIFFERENT DEPTHS OF SWITCHGEAR, INSTEAD, FACTORY SHALL CONNECT THESE 2 EQUIPMENT BY FACTORY INSTALLED CABLES INSIDE THE CABINET. NO EXCEPTIONS.
14. ADD PROVISION IN MCC CUBICLE FOR MOUNTING OF OWNER SUPPLIED ETHERNET SWITCH.

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HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

ELECTRICAL

HILLCREST BPS NEW SINGLE LINE DIAGRAM

FILENAME 153637-E-01-601.DWG
BC PROJECT NUMBER 153637
4/10/2020
DRAWING NUMBER E-01-601
SHEET NUMBER 30 OF 42

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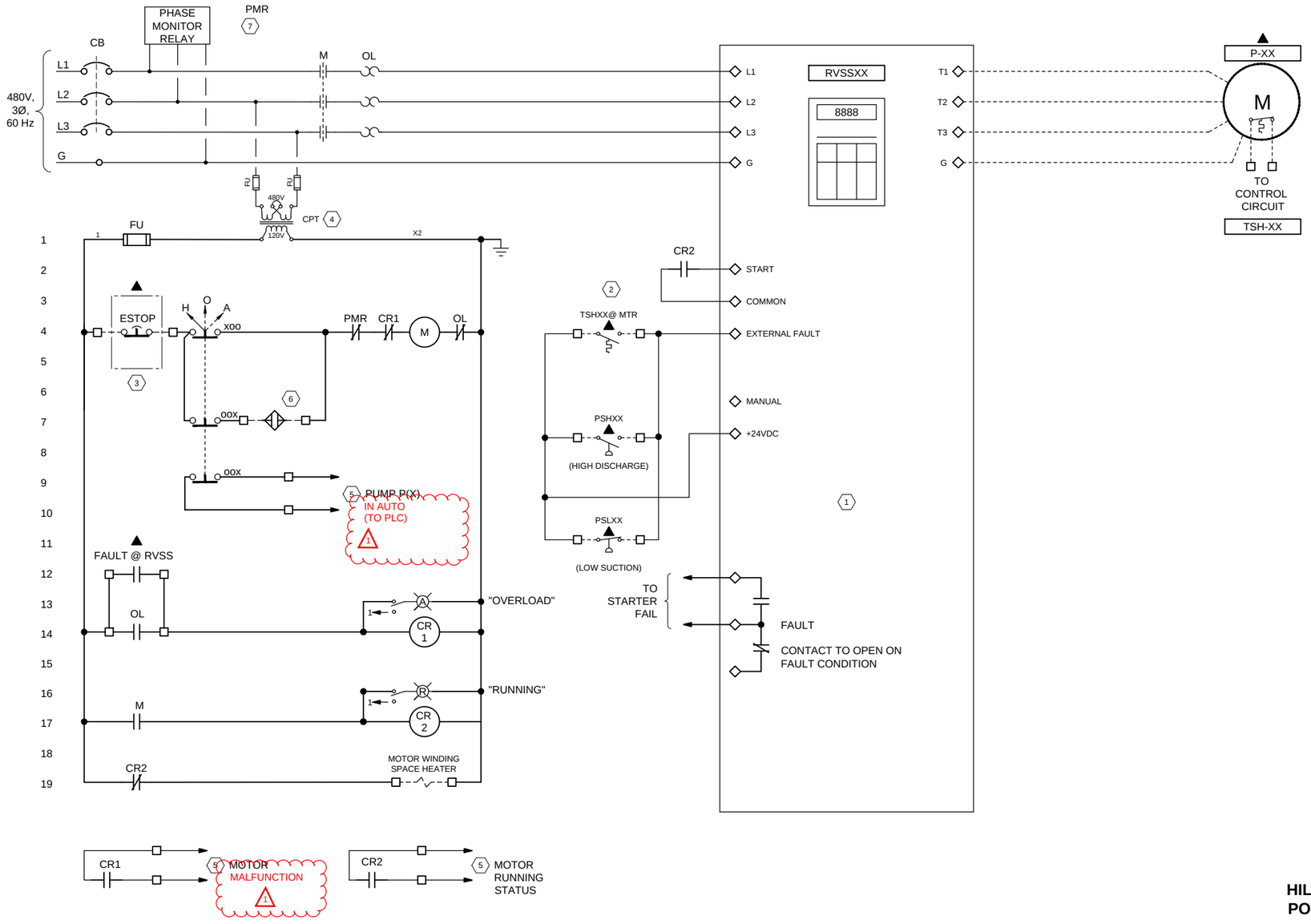
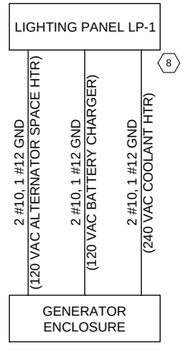


HILLCREST BOOSTER PUMPS CONTROL SCHEMATIC

EQUIP NO	DESCRIPTION
P1	BOOSTER PUMP 1
P2	BOOSTER PUMP 2
P3	BOOSTER PUMP 3
P4	BOOSTER PUMP 4



HILLCREST GENERATOR POWER RISER DIAGRAM

KEY NOTES:

1. RVSS MOUNTED IN MCC WITH ACROSS THE LINE STARTER.
2. WINDING THERMAL SWITCH.
3. E-STOP IN NEMA 4X SS BOX MOUNTED IN NEW ALUMINUM PEDESTAL PER DETAIL.
4. SIZE CPT TO INCLUDE MOTOR SPACE HEATER.
5. TO 24 VDC INTERPOSING RELAY IN PLC COMPARTMENT (IN MCC-1).
6. AUTO START/STOP CONTACT FROM PLC V/A 24 VDC INTERPOSING RELAY.
7. PHASE MONITOR RELAY (PMR) SHUTS DOWN PUMP CONTROL ON POWER SUPPLY PHASE REVERSAL OR UNBLANCED CONDITION.
8. ALL CABLES IN 1"C-PVC COATED GRS.

LEGEND

- ⬡ LOCATED IN PLC
- ▲ LOCATED IN FIELD
- ---- FIELD WIRING

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REGISTERED PROFESSIONAL ENGINEER ROBERT ECHEVARRIA ARMOND No. E-21587 ELECTRICAL STATE OF CALIFORNIA

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ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

ELECTRICAL

HILLCREST BPS CONTROL SCHEMATICS

FILENAME 153637-E-01-602.DWG
BC PROJECT NUMBER 153637
4/10/2020
DRAWING NUMBER E-01-602
SHEET NUMBER 31 OF 42

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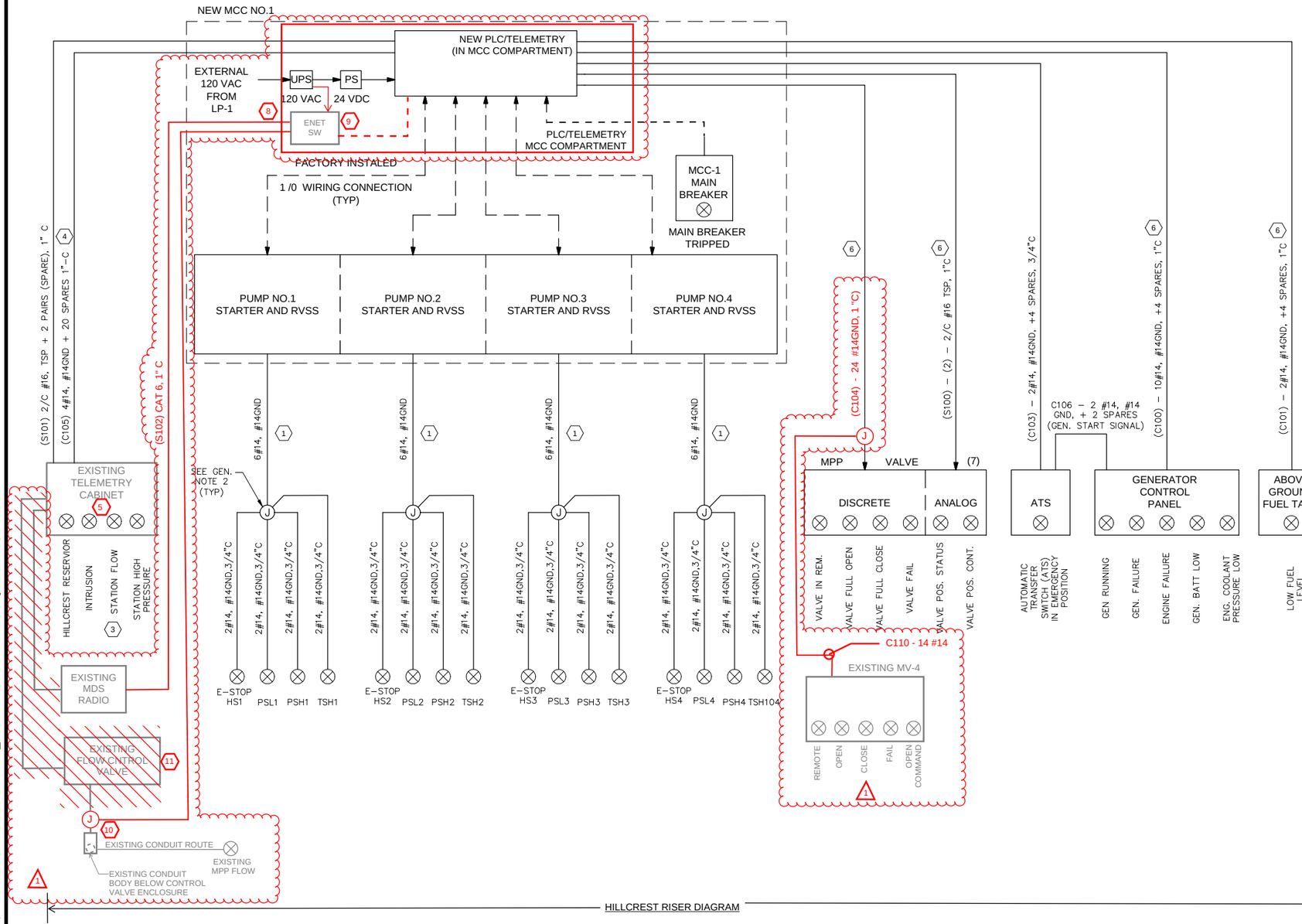

GENERAL NOTES:

1. TERMINATE ALL SIGNALS AS SHOWN TO RESPECTIVE TELEMETRY OR SCADA CABINET AND TEST FOR SIGNAL CONTINUITY.
2. NEMA 4X STAINLESS STEEL JUNCTION BOXES.

KEY NOTES:

1. PULL-OUT EXISTING CONTROL CABLES IN EXISTING FEEDER CONDUITS (1 1/2"C) AND PULL-IN NEW POWER AND CONTROL CABLES AS INDICATED.
2. REUSE EXISTING 1 1/4"C CONDUIT TO PULL-IN NEW CONTROL CABLES AS SHOWN.
3. EXISTING SIGNAL IN EXISTING TELEMETRY CABINET TO BE RELOCATED TO NEW PLC.
4. TERMINATE SPARES IN TERMINAL STRIPS.
5. REUSE EXISTING TELEMETRY CABINET. CONTRACTOR SHALL REMOVE EXISTING BACKPLANE, INCLUDING EXISTING PLC, AND RETURN TO OWNER. CONTRACTOR SHALL INSTALL NEW TERMINAL STRIPS, RE-TERMINATE ALL EXISTING CONTROL AND SIGNAL WIRING TO NEW TERMINAL STRIPS, AND INSTALL NEW WIRING BETWEEN EXISTING CABINET AND NEW MCC PLC COMPARTMENT.
6. UNDERGROUND CONDUIT (PVC-COATED GRS).
7. SEE DWG D-00-502 FOR VALVE LOCATION.
8. CONTROL SYSTEM INTEGRATOR SHALL INSTALL AN ETHERNET CABLE IN 1"C FROM EXISTING WALL MOUNTED GE MDS RADIO TO PLC COMPARTMENT IN MCC AS SHOWN.
9. CONTROL SYSTEM INTEGRATOR SHALL INSTALL AND WIRE OWNER SUPPLIED ETHERNET SWITCH IN PLC/TELEMETRY COMPARTMENT. A 120V UPS-BACKED OUTLET SHALL BE PROVIDED AND INSTALLED IN THE COMPARTENT TO POWER THE ETHERNET SWITCH. ETHERNET SWITCH SHALL BE INSTALLED ON INTEGRATOR SUPPLIED AND INSTALLED SHELF SUCH THAT INDICATOR LIGHTS ARE VISIBLE. SHELF SHALL PROVIDE A MINIMUM 8"X 8" AREA FOR THE SWITCH.
10. CONTRACTOR TO SALVAGE EXISTING CONDUIT ROUTE TO FLOW METER. INTERCEPT THE EXISTING CONDUIT, ROUTE NEW CONDUIT TO MCC COMPARTMENT FULLY WIRED FOR THE FLOW METER.
11. CONTRACTOR SHALL REMOVE THE EXISTING CONTROL VALVE PANEL.

LEGEND/SYMBOLS:

E-STOP	EMERGENCY STOP PUSH BUTTON SWITCH (RED MUSHROOM TYPE) MOUNTED IN PEDESTAL
PSH	HIGH DISCHARGE PRESSURE SWITCH
TSH	TEMPERATURE SWITCH HIGH (MOTOR WINDING)

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HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

ELECTRICAL

RISER DIAGRAM

FILENAME: 153637-E-01-603.DWG
BC PROJECT NUMBER: 153637
4/1/2020
DRAWING NUMBER: E-01-603
SHEET NUMBER: 33 OF 43

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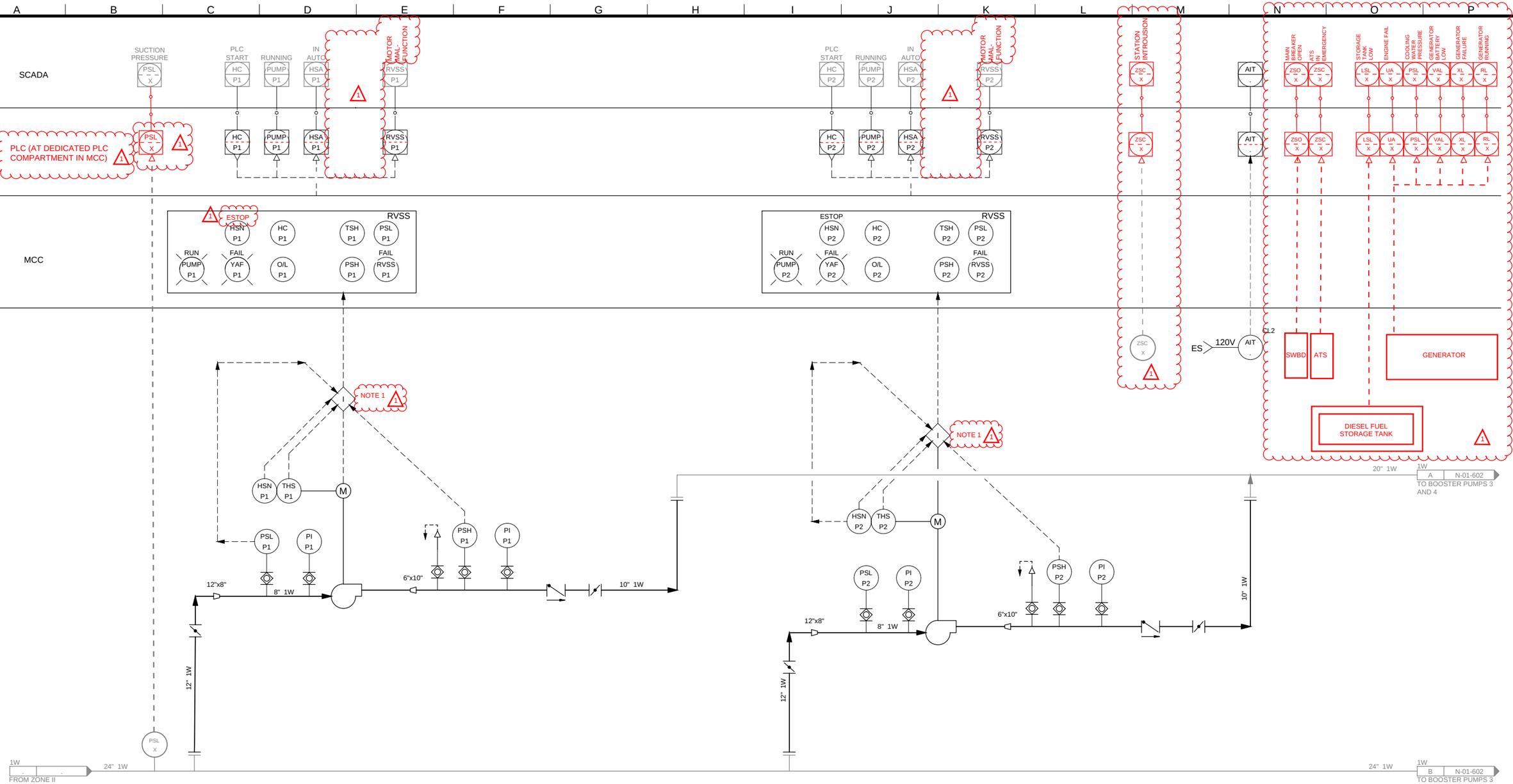

BOOSTER PUMP 1

P1

HP: 60
GPM: 1500

BOOSTER PUMP 2

P2

HP: 60
GPM: 1500

NOTES:

1. ELECTRICAL INTERLOCKS ARE IN THE MCC.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

USE OF DOCUMENTS

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SCALE: AS SHOWN
DESIGNED: R.PHILIPSON
DRAWN: F.BURKE
CHECKED: ----
APPROVED: B.FAISST

EXTERNAL REFERENCE FILES
153637-Sheet BorderV18.dwg

REGISTERED PROFESSIONAL ENGINEER REGINEL BETH PHILIPSON No. C87796 CIVIL STATE OF CALIFORNIA
04/10/2020

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	ADDENDUM NO. 1	RA	9/20	
	0	BID DOCUMENTS			

HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

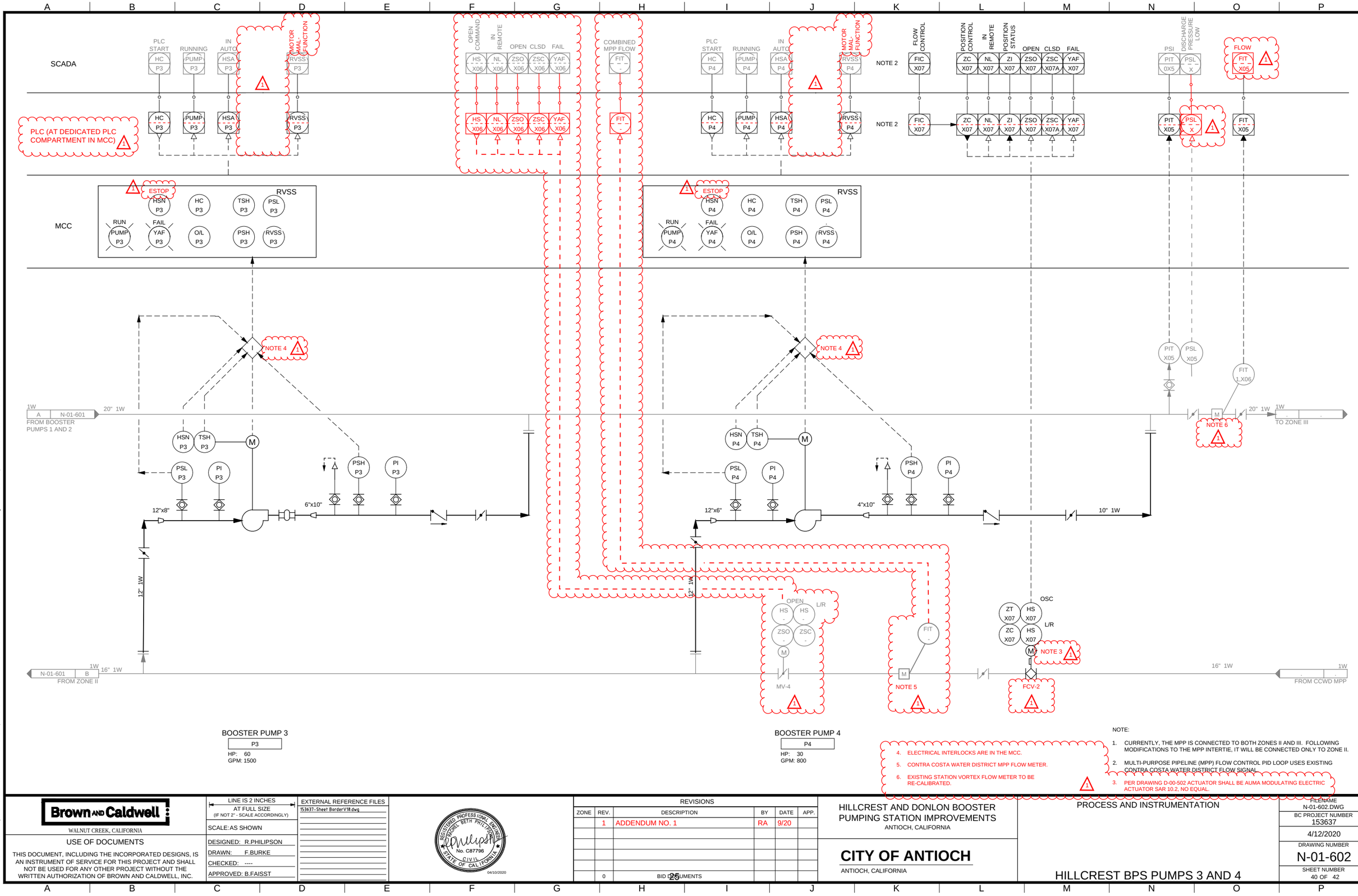
CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

PROCESS AND INSTRUMENTATION

HILLCREST BPS PUMPS 1 AND 2

FILENAME N-01-601.DWG
BC PROJECT NUMBER 153637
4/12/2020
DRAWING NUMBER N-01-601
SHEET NUMBER 39 OF 42

Path: \\BCWCKFP01\Projects\153000\153637 - Antioch BPS Improvements\00-BIM\03-AutoCAD\03-AutoCAD\03-PID\Antioch\PID.DWG Filename: N-01-601.dwg Plot Date: April 12, 2020 - 9:49 AM CADD User: Fred Burke



BOOSTER PUMP 3

P3

HP: 60
GPM: 1500

BOOSTER PUMP 4

P4

HP: 30
GPM: 800

4. ELECTRICAL INTERLOCKS ARE IN THE MCC.
5. CONTRA COSTA WATER DISTRICT MPP FLOW METER.
6. EXISTING STATION VORTEX FLOW METER TO BE RE-CALIBRATED.

NOTE:

1. CURRENTLY, THE MPP IS CONNECTED TO BOTH ZONES II AND III. FOLLOWING MODIFICATIONS TO THE MPP INTERTIE, IT WILL BE CONNECTED ONLY TO ZONE II.
2. MULTI-PURPOSE PIPELINE (MPP) FLOW CONTROL PID LOOP USES EXISTING CONTRA COSTA WATER DISTRICT FLOW SIGNAL.
3. PER DRAWING D-00-502 ACTUATOR SHALL BE AUMA MODULATING ELECTRIC ACTUATOR SAR 10.2, NO EQUAL.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

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SCALE: AS SHOWN
DESIGNED: R.PHILIPSON
DRAWN: F.BURKE
CHECKED: ----
APPROVED: B.FAISST

EXTERNAL REFERENCE FILES
153637-Sheet BorderV18.dwg

REGISTERED PROFESSIONAL ENGINEER BRADLEY BETH PHILLIPSON No. C87796 CIVIL STATE OF CALIFORNIA
04/10/2020

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	ADDENDUM NO. 1	RA	9/20	
	0	BID DOCUMENTS			

HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

PROCESS AND INSTRUMENTATION

HILLCREST BPS PUMPS 3 AND 4

FILENAME N-01-602.DWG
BC PROJECT NUMBER 153637
4/12/2020
DRAWING NUMBER N-01-602
SHEET NUMBER 40 OF 42

Path: \\BC\CKFP01\Projects\153000\153637 - Antioch BPS Improvements\00-BIM\03-AutoCAD\03-PID\Antioch\PID.DWG Filename: N-01-602.dwg Plot Date: April 12, 2020 - 9:50 AM CADD User: Fred Burke

SCADA

EXISTING PLC

EXISTING MCC

HC 201 | PUMP 201 | HSA 201 | YAF 201 | OVERLOAD

ESTOP: HSN 201 | HC 201 | PUMP 201 | HSA 201 | O/L 201

PLC START: HC 202 | RUNNING: PUMP 202 | IN AUTO: HSA 202 | FAIL: YAF 202

ESTOP: HSN 202 | HC 202 | HSA 202

RUN: PUMP 202 | FAIL: YAF 202 | O/L 202 | RVSS 202

RVSS: TSH 202 | PSH 202A | FAIL: RVSS 202 | PSL 202A

NOTE 2

1W FROM ZONE II

18" 1W

8"x6"

HSN 201 | M | PI 201 | ZSL 211B | ZSL 211A | S

8"x16"

16" 1W

HSN 202 | THS 202 | M

PSL 202 | PI 202

10"x6"

4"x8"

PSH 202 | PI 202

8"x10"

16" 1W

1W A TO BOOSTER PUMPS 3 AND 4

1W B TO BOOSTER PUMPS 3 AND 4

BOOSTER PUMP 1
P201

BOOSTER PUMP 2
P202
HP: 75
GPM: 1200

NOTE:
1. NO MODIFICATIONS REQUIRED TO PUMP P201.
2. ELECTRICAL INTERLOCKS ARE IN THE MCC.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

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EXTERNAL REFERENCE FILES
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04/10/2020

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	ADDENDUM NO. 1	RA	9/20	
	0	BID DOCUMENTS			

HILLCREST AND DONLON BOOSTER PUMPING STATION IMPROVEMENTS
ANTIOCH, CALIFORNIA

CITY OF ANTIOCH
ANTIOCH, CALIFORNIA

PROCESS AND INSTRUMENTATION

DONLON BPS PUMPS 1 AND 2

FILENAME N-02-601.DWG
BC PROJECT NUMBER 153637
4/12/2020
DRAWING NUMBER N-02-601
SHEET NUMBER 41 OF 42

Path: \\BCW-CFP01\Projects\153000\153637 - Antioch BPS Improvements\00-BIM\03-Autocad\CAD\03-PID\Antioch\PID DWG Filename: N-02-601.dwg Plot Date: April 12, 2020 - 9:51 AM CADD User: Fred Burke