

COACHELLA VALLEY WATER DISTRICT PURCHASE AGREEMENT

This Purchase Agreement (“Agreement”) is made and entered into this _____ day of _____, 2024 by and between Coachella Valley Water District, a public agency (“CVWD”) and **Northern Digital, Inc.** (“Seller”). CVWD and Seller may be collectively referred to as the “Parties” and individually as a “Party.”

RECITALS

A. CVWD is a public agency of the State of California and is in need of certain materials, equipment or personal property as more particularly described herein.

B. Seller is authorized to sell to CVWD the materials, equipment or personal property as more particularly described herein.

C. The Parties desire to enter this Agreement for the purpose of setting forth the terms and conditions upon which the equipment and personal property shall be sold to CVWD.

NOW, THEREFORE, the Parties hereto hereby agree as follows:

ARTICLE 1

Purchase and Sale of Goods

1.1 Goods. Seller agrees to sell to CVWD and CVWD agrees to purchase the materials and/or equipment per the specifications attached hereto and incorporated herein as Exhibit “A” (“Goods”). Unless specifically stated otherwise, the Goods shall be new and unused and of the current production year.

1.2 Delivery. Time is of the essence of this Agreement. Seller shall deliver the Goods at CVWD’s Palm Desert Warehouse located at 41-880 Beacon Hill, Palm Desert, CA 92211, at such time or times as set forth on the schedule attached hereto as Exhibit “A” and by this reference incorporated herein.

1.3 Acceptance. The Goods shall be received subject to CVWD’s inspection and right of rejection. The Goods shall not be considered accepted until inspection, testing and/or use of the Goods is found to be in accordance with CVWD specifications. Final inspection of the Goods shall be at the location specified herein, unless otherwise agreed in writing. If the Goods are found at any time to be defective in material or workmanship, or otherwise not in conformance with specifications, CVWD shall have the right, in addition to any other rights which it may have under warranties or otherwise, to reject such Goods in whole or in part. Rejected Goods shall be held at Seller’s risk for a reasonable time thereafter and shall be returned or disposed of at Seller’s expense. No rejected Goods shall be replaced by Seller without written instruction or authorization from CVWD.

1.4 Term. This Agreement shall expire upon CVWD’s acceptance of the Goods as set forth in Section 1.3.

1.5 Changes. CVWD shall have the right to make changes as to testing, destinations, specifications, designs, and delivery schedules. In the event of such a change, CVWD will issue a Change Order to Seller in the form set forth in Exhibit “D.” Seller shall immediately notify CVWD of any increases or decreases in cost or delivery time caused by such changes. No adjustment in prices,

schedule, or other terms shall be effective unless and until a Change Order to this Agreement is executed by the Parties.

1.6 Incorporation. The following documents are incorporated into and made part of this Agreement by this reference:

Instructions to Bidders
Request for Bids
Bid Forms
Purchase Agreement and all exhibits thereto
Change Orders, if any
Addenda, if any

These documents shall be referred to collectively as the "Contract Documents." The Contract Documents are intended to be complementary, and a requirement in one document is as effective as if it appeared in all of the Contract Documents. In the event of a conflict between any of the Contract Documents, the documents shall be given effect in the following order: Change Orders (most recent first), Addenda (most recent first), Purchase Agreement, Information for Bidders, Notice Inviting Bids, Bid Forms.

ARTICLE 2

Shipment and Delivery

2.1 All Goods shall be packed, marked and shipped in suitable containers and in accordance with all regulatory requirements, the requirements of the carrier. In addition to the foregoing, the Goods shall be packed in accordance with good commercial practice to insure against damage from weather and/or transportation. On the date of shipment, Seller shall mail to CVWD all shipping lists and the original of any bill of lading regarding the Goods placed in the possession of any consignee. Any Goods not shipped by Seller or received by CVWD in accordance with those terms may be rejected by CVWD without liability. CVWD assumes no obligation for Goods shipped in excess of the quantities specified in this Agreement. CVWD may, from time to time, change shipping schedules or direct that Seller temporarily suspend any shipments.

2.2 No charge shall be made for packing, crating, drayage or other similar costs.

2.3 All sales are F.O.B. to the location specified in Section 1.2 of this Agreement. Seller shall be fully responsible for the Goods and bear all risk of loss or damage until such Goods are delivered. Seller shall bear all risk of loss or damage to the Goods after written notice from CVWD of its rejection or the cancellation of the Agreement.

ARTICLE 3

Compensation

3.1 Purchase Price. CVWD shall compensate Seller for the purchase of the Goods pursuant to this Agreement in the sum of Three Hundred Twenty-five Thousand Seven Hundred Nine Dollars (**\$325,709**) as set forth on the schedule attached hereto as Exhibit "B" and by this reference incorporated herein ("Purchase Price").

3.2 Payment. The Purchase Price shall be paid by CVWD at such times set forth in Exhibit "B". CVWD may withhold payment or a portion thereof because of defective Goods not remedied or

unsatisfactory performance by the Seller. CVWD will release any withheld funds upon Seller satisfactorily remedying the issue that resulted in the withholding. CVWD will not pay late fees to the Seller on the compensation due Seller under the terms of this Agreement.

3.3 Federal, State and Local Taxes. All prices stated herein include, unless otherwise specified, all Federal, State or local taxes that may be levied or assessed as a result of this Agreement, or are otherwise applicable to this Agreement.

3.4 Renewal Option. Within one (1) year following delivery, if a price is mutually agreed upon CVWD may purchase additional Goods pursuant to this Agreement.

ARTICLE 4

Warranty

4.1 Warranty. In addition to all warranties which may be provided by law, Seller warrants that the Goods delivered hereunder shall, (a) be free from defect of material or workmanship and conform strictly to the specifications, drawings, or sample specified or furnished; (b) conform to drawings, plans, specifications, samples or other descriptions furnished, specified, accepted or approved by CVWD; and (c) be merchantable and fit for the purposes intended. The warranty shall be for a period of one (1) year, or such longer period as provided by a manufacturer's warranty or as agreed to by Seller and CVWD, from the date of final written acceptance of the Goods by CVWD. This warranty shall survive any inspection, delivery, acceptance, or payment by CVWD of the Goods. Seller, at its own expense, shall repair or replace, at the option of CVWD, any defective Goods within two (2) business days after receipt of notice from CVWD or within four (4) hours in case of emergency, as determined by CVWD. Seller also warrants that the Goods are free and clear of all liens and encumbrances whatsoever, that Seller is conveying good and marketable title to same, and that Seller owns or has a valid license for all of the proprietary technology and intellectual property incorporated within the Goods. Seller agrees to indemnify, defend and hold CVWD harmless against any and all third party claims resulting from the breach or inaccuracy of any of the foregoing warranties. |

ARTICLE 5

Accounting, Inspection and Audit

5.1 Records. Seller shall keep and shall preserve for four (4) years after acceptance of the Goods, accurate and detailed records of all ledgers, books of account, invoices, vouchers, cancelled checks, and other documents or records evidencing or relating to the scope of this Agreement and disbursements charged to CVWD under this Agreement (collectively, "Books and Records"). Any and all Books and Records must be maintained in accordance with generally accepted accounting principles and must be sufficiently complete and detailed so as to permit an accurate evaluation of the services provided by Seller under this Agreement. During such four (4) year period, Seller shall give CVWD and its agents, during normal business hours, access to such Books and Records. CVWD and its agents shall have the right to make copies of any of the said Books and Records.

5.2 Custody. Where CVWD has reason to believe that any of the Books and Records required to be maintained by this Article may be lost or discarded due to dissolution or termination of Seller's business, CVWD may, by written request, require that custody of such Books and Records be given to a person or entity mutually agreed upon and such Books and Records thereafter shall be maintained by such person or entity at Seller's expense. Access to the Books and Records shall be granted to CVWD and its Representatives.

ARTICLE 6

Termination

6.1 Termination. CVWD may terminate the Agreement, in whole or in part, with or without cause, upon ten (10) days written notice to Seller. Upon receipt of the termination notice, Seller shall promptly stop work unless the notice directs to the contrary. In the event CVWD renders such written notice to Seller, Seller shall be entitled to compensation for all services properly rendered prior to the effective date of the notice and all further services set forth in the notice. CVWD shall be entitled to reimbursement for any compensation paid in excess of services rendered and shall be entitled to withhold compensation for defective work or other damages caused by Seller. Seller acknowledges CVWD's right to terminate this Agreement as provided in this Article, and hereby waives any and all claims for damages that might arise from CVWD's termination of this Agreement. Seller shall deliver to CVWD and transfer title (if necessary) to all completed work, and work in progress including drafts, documents, plans, forms, maps, products, graphics, computer programs and reports. CVWD shall not be liable for any costs other than the charges or portions thereof which are specified herein. Seller shall not be entitled to payment for unperformed services, and shall not be entitled to damages or compensation for termination of work.

ARTICLE 7

California Labor Code Provisions

(If Applicable)

7.1 Prevailing Wage Rates. Seller is aware of the requirements of California Labor Code sections 1720 et seq. and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. If the services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is \$1,000 or more, Seller agrees to fully comply with such Prevailing Wage Laws, if applicable. Seller shall defend, indemnify and hold CVWD, its elected officials, officers, employees and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. It shall be mandatory upon the Seller and all subcontractors to comply with all California Labor Code provisions, which include but are not limited to prevailing wages, employment of apprentices, hours of labor and debarment of contractors and subcontractors.

7.2 Registration. If the services are being performed as part of an applicable "public works" or "maintenance" project, in addition to the foregoing, then pursuant to Labor Code sections 1725.5 and 1771.1, the Seller and all subconsultants must be registered with the Department of Industrial Relations ("DIR"). Seller shall maintain registration for the duration of the project and require the same of any subconsultants. This project may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Seller's sole responsibility to comply with all applicable registration and labor compliance requirements, including the submission of payroll records directly to the DIR.

7.3 Labor Certification. By its signature hereunder, Seller certifies that it is aware of the provisions of section 3700 of the California Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that Code, and agrees to comply with such provisions before commencing the performance of the Services.

ARTICLE 8

Project Management

8.1 Representative of Seller. Joseph Marcus ("Seller's Representative") is hereby designated as the principal and representative of Seller authorized to act on its behalf with respect to the work and services specified herein and to make all decisions in connection herewith. Seller shall not substitute Seller's Representative without first notifying CVWD in writing of Seller's intent. CVWD shall have the right to review the qualifications of said substitute. If CVWD determines said substitute Seller's Representative is unacceptable, Seller shall submit alternate candidates until CVWD determines that substitute Seller's Representative is acceptable.

8.2 Representative of CVWD. Dan Charlton is hereby designated as the representative of CVWD and except as otherwise provided herein authorized to act on its behalf with respect to the work and services specified herein and make all decisions in connection therewith.

ARTICLE 9

Title to Work Product

9.1 Title to Work Product. As applicable, CVWD shall at all times retain title to all technical information, trade secrets, samples, blueprints, patterns, drawings and specifications and other materials (collectively, "Work Product") furnished or paid for by CVWD and intended for use in connection with this Agreement. Seller shall use such Work Product only in connection with this Agreement, and shall not disclose such Work Product to any person, firm, or corporation other than CVWD's or Seller's employees, subcontractors, or government inspectors without the prior written consent of CVWD, which consent may be withheld in CVWD's sole and absolute discretion. Seller will take such steps as are necessary to perfect the ownership interest of CVWD in the Work Product. Upon CVWD's request or upon completion of this Agreement, Seller shall promptly return all Work Product to CVWD.

ARTICLE 10

Insurance

10.1 Insurance. Seller agrees to procure and maintain, at Seller's expense all insurance specified in Exhibit "C" attached hereto and by this reference incorporated herein. Seller shall require all subconsultants to carry the same policies and limits of insurance that the Seller is required to maintain pursuant to this Article, unless otherwise approved in writing by CVWD, and shall furnish separate certificates and endorsements for each subcontractor.

10.2 Failure to Procure and Maintain Insurance. If Seller fails or refuses to procure or to maintain the insurance as required by this Agreement or fails or refuses to furnish CVWD with required proof that the insurance has been procured and is in force and paid for, CVWD shall have the right, at CVWD's election and upon ten (10) days' notice to Seller, to terminate this Agreement or procure and maintain such insurance. The premiums paid by CVWD shall be treated as an amount due from Seller with interest at the rate of ten percent (10%), to be paid on the first (1st) day of the month following the date on which the premiums were paid. CVWD shall have the right to offset any amounts CVWD pays hereunder with amounts due Seller for services rendered pursuant to this Agreement. CVWD shall give prompt notice of the payment of such premiums, stating the amounts paid and the names of the insurer or insurers, and interest shall run from the date of the notice.

ARTICLE 11

Indemnification

11.1 Seller's Duty to Indemnify. To the fullest extent permitted by law, Seller shall indemnify, defend with legal counsel approved by CVWD, and hold harmless CVWD, its officers, officials, employees and volunteers from and against all liability, loss, damage, expense, cost (including, without limitation, reasonable legal counsel fees, expert fees and all other costs and fees of litigation) of every nature arising out of or related to the services rendered pursuant to this Agreement, except such loss or damage which is caused by the sole or active negligence or willful misconduct of CVWD. Should conflict of interest principles preclude a single attorney from representing both CVWD and Seller, or should CVWD otherwise find Seller's legal counsel unacceptable, then Seller shall reimburse CVWD its costs of defense, including without limitation reasonable attorneys' fees, expert fees and all other cost and fees of litigation. The Seller shall promptly pay any final judgment rendered against CVWD (and its officers, officials, employees and volunteers) except for claims determined by a trier of fact to have been the result of CVWD's sole or active negligence or willful misconduct. The foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the State of California and will survive termination of this Agreement.

ARTICLE 12

General Provisions

12.1 Notices. All notices permitted or required under this Contract shall be given at the following address, or at such other address as the parties may provide in writing for this purpose:

Coachella Valley Water District:

P.O. Box 1058
Coachella, CA 92236
Attn: J.M. Barrett, General Manager

Northern Digital, Inc.:

4701 Corporate Ct.
Bakersfield, CA 93311
Attn: Joseph Marcus

The parties may designate, in writing, other individuals to whom notice is to be given. Notices shall be deemed to be received upon personal delivery to the addresses above; if sent by overnight delivery, upon delivery as shown by delivery service records; if sent by facsimile, upon receipt as confirmed by the sending facsimile equipment; if by United States Postal Service, five days after deposit in the mail.

12.2 Notification. In the event of a problem or potential problem that could impact the quality or quantity of work, services or the level of performance under this Agreement, the Seller shall, within one (1) business day of actual knowledge of the problem or potential problem, notify CVWD in writing and by telephone.

12.3 Separate Contracts. Seller understands that this is not an exclusive Agreement and that CVWD shall have the right to negotiate with and enter into separate contracts with others providing the same or similar services as those provided by Seller as CVWD desires.

12.4 Compliance with Applicable Laws. Seller shall, in the performance of this Agreement, comply with all federal, state and local laws and regulations and orders issued under any applicable law.

12.5 Disputes. If any dispute should arise between the Parties concerning the performance of this Agreement, the payments to be made, or the manner of accomplishment of the work, Seller shall nevertheless proceed to perform the work as directed by CVWD pending settlement of the dispute.

12.6 Setoffs and Counterclaims. All claims for moneys due or to become due to Seller shall be subject to deduction by CVWD for any setoff or counterclaim arising out of this or any other of CVWD's agreements with Seller.

12.7 No Waiver. The fact that CVWD has made payment under this Agreement shall not be interpreted so as to imply CVWD has inspected, approved or accepted the work which has been performed by Seller. No delay or omission in the exercise of any right or remedy by the non-defaulting Party on any default shall impair such right or remedy or be construed as a waiver. A Party's consent to or approval of any act by the other Party requiring the Party's consent or approval shall not be deemed to waive or render unnecessary the other Party's consent to or approval of any subsequent act. Any waiver by either Party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of the Agreement.

12.8 Assignment and Subcontractors. Seller shall not assign or subcontract any portion of the work to be performed under this Agreement or any of the rights or obligations under this Agreement, without the prior written consent of CVWD, which consent may be withheld in CVWD's sole and absolute discretion. Any attempted assignment in violation of the provisions of this paragraph shall be void. Subject to the foregoing, this Agreement shall be binding upon the heirs, administrators, successors and assigns of CVWD and Seller.

12.9 Independent Contractor. Seller shall act as an independent contractor in the performance of this Agreement and in no respect shall Seller be considered an agent or employee of CVWD. No provisions of this Agreement shall be intended to create a partnership or joint venture between Seller and CVWD and neither Party shall have the power to bind or obligate the other Party, except as expressly set forth in this Agreement.

12.10 Non-Liability of CVWD Officials and Employees. No official or employee of CVWD shall be personally liable to the Seller in the event of any default or breach by CVWD or for any amount which may become due to the Seller or for any breach of the terms of this Agreement.

12.11 Conflict of Interest. The Seller warrants that it has not paid or given and will not pay or give any third party any money or other consideration for obtaining this Agreement.

12.12 Confidential Information. All information gained or Work Product produced by Seller in the performance of this Agreement will be considered confidential, unless such information is in the public domain. Seller shall not release or disclose any such information or Work Product to persons or entities other than CVWD without the prior written consent of the General Manager of CVWD, except as otherwise required by law. Seller shall promptly notify CVWD should Seller, or its Representatives be served summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, requests for admissions or other discovery request or court order from any third party regarding this Agreement and the services performed under this Agreement.

12.13 Amendment. This Agreement may not be amended except by a subsequent writing which is signed by the Parties.

12.14 Cooperation. Seller shall cooperate in the performance of work with CVWD and all other agents.

12.15 Incorporation of Recitals. The Recitals and section titles set forth herein are incorporated herein and are an operative part of this Agreement.

12.16 Governing Law, Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California. The Parties agree that any action or proceeding to enforce or relating to this Agreement shall be brought exclusively in the federal or state courts located in Riverside County, California, and the Parties hereto consent to the exercise of personal jurisdiction over them by any such courts for purposes of any such action or proceeding

12.17 Attorneys' Fees and Costs. If any action in law or equity, including an action for declaratory relief, is brought to enforce or interpret the provisions of this Agreement, each Party shall pay its own attorneys' fees.

12.18 Severability. If any provision of this Agreement is found by a court of competent jurisdiction to be void, invalid or unenforceable, then the Parties agree that such invalidity or unenforceability shall have no effect whatsoever on the balance of this Agreement.

12.19 Counterparts. This Agreement may be signed and delivered in any number of counterparts, each of which, when signed and delivered, shall be an original, but all of which shall together constitute one and the same Agreement.

12.20 Entire Agreement. This Agreement contains the entire agreement between the Parties with respect to the subject matter of this Agreement and any agreement or representation with respect to the same or the obligations of either Party with respect to the same which is not expressly provided in this Agreement or in a written document which is signed by the Party to be charged, shall be null and void.

12.21 Time is of the Essence. Time shall be of the essence as to all dates and times of performance contained in this Agreement. If deliveries are not made at the time agreed upon, CVWD reserves the right to cancel or to purchase elsewhere and hold Seller accountable therefor. Seller shall be liable to CVWD for any loss or damage caused by Seller's failure to make timely delivery and/or installation of the Goods, including, without limitation, consequential and incidental damages and costs of obtaining replacement Goods.

12.22 Authority to Execute. Each Party represents and warrants to the other Party that all necessary action has been taken by such Party to authorize the undersigned to execute this Agreement and to bind it to the performance of its obligations hereunder.

12.23 Binding on Successors. All representations, covenants and warranties set forth in this Agreement, by or on behalf of, or for the benefit of any or all of the Parties hereto, shall be binding upon and inure to the benefit of such Party, its successors and assigns.

12.24 Survival. All rights and obligations hereunder that by their nature are to continue after any expiration or termination of this Agreement, including, but not limited to, the indemnification obligations, shall survive any such expiration or termination.

12.25 Third Party Rights. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than CVWD and the Seller.

IN WITNESS WHEREOF, the Parties have hereunto set their hands on the first day date above written.

COACHELLA VALLEY WATER DISTRICT

NORTHERN DIGITAL, INC.

By: _____

By: _____

(Authorized Representative of
Vendor)

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Dated: _____

Dated: _____

PURCHASE AGREEMENT

EXHIBIT LIST

EXHIBIT "A" – GOODS SPECIFICATION & DELIVERY SCHEDULE

EXHIBIT "B" – COMPENSATION (BID SUBMITTAL)

EXHIBIT "C" – INSURANCE REQUIREMENTS

EXHIBIT "D" – CHANGE ORDER FORM

EXHIBIT "A"
TO
PURCHASE AGREEMENT

GOODS SPECIFICATION & DELIVERY SCHEDULE

DESCRIPTION

Panel Builder to produce UL listed PLC back panels for configurations listed in the following Attachments. Each panel shall be constructed with materials and populated with CVWD standard PLC automation equipment as specified herein.

SCOPE OF WORK

The work shall include the design, production, testing and delivery of complete and operational PLC panels in accordance with this Specification. Assemblies shall include all material and standard accessories as necessary for a complete and operable, new telemetry system. Work plan shall also include a witnessed factory testing plan which will provide final acceptance. Panel Builder shall submit formal submittals based on equipment and methods listed below.

- Submit Panel shop drawings
- Submit cut sheets for all equipment
- Submit Factory Acceptance test plan

All selected panels (Schedules C & H) shall be delivered on or before June 30, 2025.

[CONTINUED ON NEXT PAGE]

PART 1 -- GENERAL PROVISIONS

1.0 GENERAL

- A. It is the intent of this section of the Specification that the PANEL BUILDER furnishes all labor, supervision, tools, equipment, and materials necessary for erecting complete, ready for continuous use, tested and working electrical system substantially as indicated on the plans and hereinafter specified.
- B. This Specification is intended to provide a broad outline of the work and equipment required, but is not intended to include all the details of design and construction. It shall be the responsibility of respondent to gather necessary data in order to provide an accurate product.
- C. The examples provided are diagrammatic, approximately to scale. However, they should not be used for exact component placement within panels. The PANEL BUILDER shall verify all dimensions from the detailed drawings, approved shop drawings, and shall coordinate these dimensions with CVWD.
- D. Equipment provided by the PANEL BUILDER (even though the make and model are specified) may differ in detail, arrangement, connections or form from that shown. If the PANEL BUILDER uses equipment which differs from the equipment shown in major aspects and requires modifications to power, control or other electrical systems (including, but not limited to, size and quantity changes to wires, starters, circuit breakers, control devices, etc.), CVWD's acceptance of the equipment will be based upon the PANEL BUILDER providing the modification required, and they shall be of the same quality as shown and shall be provided at no additional cost to the CVWD.
- E. Discrepancies shown on different plans, between plans, or between plans and specifications shall be promptly brought to the attention of CVWD for a decision.
- F. All electrical equipment shall be capable of operating successfully at full-rated load, without failure, when the ambient temperature of the air is 60°C except where specified otherwise.
- G. PANEL BUILDER is required to utilize CVWD's cloud-based Project Management System, Aurigo Masterworks. PANEL BUILDER shall use Aurigo Masterworks to document and record all contract correspondence, including but not limited to, Submittals, Requests for Information, Change Order Requests, and Applications for Payment. PANEL BUILDER's use of Aurigo Masterworks is mandatory for the full duration of this Project.
 - 1. To access Aurigo Masterworks, PANEL BUILDER shall maintain, at its sole expense, the following:
 - a. A workstation supporting a web browser;
 - b. A broadband internet connection with sufficient bandwidth and quality to allow trouble-free browsing and data uploading and downloading; and
 - c. A workstation based, commercially available and proven anti-virus program.

1.1. SCOPE OF WORK

- A. General: The PANEL BUILDER shall provide all labor and materials to fabricate complete and operational PLC back panels and enclosures as specified herein. PLC programming, SCADA configuration and radio configuration shall be provided by CVWD.
- B. Factory Acceptance Testing (FAT):
 - 1. PANEL BUILDER shall perform pre-factory inspection to ensure all panels are ready for FAT. PANEL BUILDER shall coordinate with CVWD for FAT as defined in section 1.7 FACTORY WITNESS TESTING.
- C. Work Included: In general, the electrical work as referred to herein shall consist of, but not be limited to, the items listed as follows:
 - 1. Control Panels or Back Panels complete.
 - 2. Nameplates, wire labels
 - 3. Factory witnessing Testing.
 - 4. As-Built drawings and O&M manuals
- D. Work Not Included:
 - 1. All PLC and OIT programming.

1.2. CODES AND STANDARDS

- A. All the equipment and materials shall conform to the latest revision of the following standards:
 - 1. American National Standards Institute (ANSI)
 - 2. California Energy Commission (CEC), Title 24
 - 3. Institute of Electrical and Electronic Engineers (IEEE)
 - 4. National Electrical Manufacturers Association (NEMA)
 - 5. Underwriters' Laboratories (UL)
 - 6. Insulated Power Cable Engineers Association (IPCEA)
 - 7. American Society for Testing and Materials (ASTM)
 - 8. NFPA 70 – National Electrical Code (NEC)
 - 9. Occupational Safety and Health Regulations of Occupational Safety and Health Administration (OSHA)
 - 10. City and State Electrical Code. Applicable portion of local Building codes.
 - 11. Serving Utility Company (service, metering and interconnection requirements)
 - 12. South Coast Air Quality Management District (SCAQMD) or County of Imperial Air Quality District.

13. National Institute of Standards and Technology (NIST).

14. National Electric Testing Association (NETA).

15. Electric Utility Service Equipment Requirements Committee (EUSERC).

16. Instrument Society of America (ISA).

17. International Building Code (IBC).

- B. Underwriters' Laboratories Approval: All equipment furnished by the PANEL BUILDER shall be listed by and shall bear the label of Underwriters' Laboratories, Incorporated (UL) or Edison Testing Labs (ETL) or of an independent testing laboratory acceptable to the local code- enforcement agency having jurisdiction.
- C. Responsibility for complying with all applicable government regulations shall be borne by PANEL BUILDER.
- D. All electrical equipment and materials, design, construction, and installation thereof, shall comply with all applicable provisions of the Federal Occupational Safety and Health Act (OSHA), State Building Standards, and applicable local codes and regulations.
- E. Where the plans or this Specification call for equipment and workmanship to be of better quality of higher standard than required by the above codes, standards, rules, and regulation, then said plans and Specification shall prevail. Nothing on the plans or in this Specification shall be construed to permit work in violation of the above codes, standards, rules, and regulations. The PANEL BUILDER shall be held responsible for all work not accepted by CVWD.
- F. In case of conflict or disagreement between the building codes, state law, local ordinances, industry standards, utility company regulations, fire insurance carrier's requirements, drawings, specification, or within the contract document itself, the most stringent condition shall govern. The PANEL BUILDER shall promptly notify CVWD in writing of such differences.

1.3. COORDINATION OF WORK AND TRADES

- A. Electrical apparatus on all equipment shall be handled, set in place, connected, checked out, serviced, and placed in readiness for proper operation to the satisfaction of CVWD all within the scope of work intended under this section.

1.4. INSTRUMENTATION SUPPLIER QUALIFICATIONS

- A. The Panel Builder shall be a UL listed panel shop and metal fabrication facility possessing a current CSIA certification which meets all UL 508/508A requirements and shall demonstrate experience in purchasing, calibrating, fabricating, installing and testing the Instrumentation and Control (I&C) products listed in this Specification. The Instrumentation Supplier shall be a systems house regularly engaged in the business of panel fabrication (for at least 5 years as a UL listed shop), control component procurement, instrumentation installation and start-up in the process control industry.
- B. The panel shop's qualifications shall be submitted along with the PANEL BUILDER's quote.

1.5. EQUIPMENT, MATERIALS, AND WORKMANSHIP

- A. It is the intent of this Specification to secure highest quality in all equipment and materials, and to require first-class workmanship in order to facilitate trouble-free operation and minimum maintenance of the electrical system.
- B. All equipment and materials shall be new, listed by UL and bear the UL label, unless exception to this requirement is inherent to an individual item specified herein, or exception is otherwise granted by CVWD.
- C. Equipment and materials shall be the products of reputable, experienced manufacturers. Singular items in the project shall be the products of the same manufacturer. All equipment and materials shall be of industrial grade and standard of construction, shall be of sturdy design and manufacture, and shall be capable of long, reliable, trouble-free service.
- D. All work, connection, calibration, testing and adjustment shall be done by qualified and experienced personnel who are technically skilled in their trades. The resulting complete installation shall reflect professional quality work employing industrial standards and methods. Any and all defective material or inferior workmanship shall be corrected immediately to the satisfaction of CVWD no additional cost.

1.6. SUBMITTALS

- A. Within ten (10) Days after the Effective Date of the Purchase Agreement, PANEL BUILDER will prepare and deliver a Schedule of Submittals to CVWD's Representative that has been fully integrated with the CPM Progress Schedule and identifies each Submittal required herein as well as the date on which PANEL BUILDER will deliver each Submittal to CVWD's Representative. Furnish submittals in accordance with the conditions stated below. In the event that products are non-standard, they must be ordered promptly to meet construction schedule and no delay in shop drawing submittal will be tolerated. The PANEL BUILDER is responsible for any schedule delays resulting from the Submittal process.
- B. Transmittals will be sequentially numbered in three-digit format. Contractor to mark revised submittals with original number and sequential alphabetic suffix (for example, 001 and 001(a)).
- C. Each submittal will identify the Project, PANEL BUILDER, supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- D. By transmitting a submittal, PANEL BUILDER certifies it has reviewed and approved each submittal, verified products required, dimensions and that coordination of information is according to requirements of this Specification.
- E. Identify variations in Contract Documents and product or system limitations that may differ and/or be detrimental to successful performance of completed work.
- F. When Submittal is revised for resubmission, PANEL BUILDER shall promptly address comments and resubmit. PANEL BUILDER shall identify changes made since previous submission.
- G. Incomplete Submittals will not be reviewed by CVWD's Representative. Delays resulting from incomplete submittals are not the responsibility of CVWD's Representative.

- H. PANEL BUILDER shall not be entitled to any extension of time stated in Purchase Agreement as a result of the Submittal process.
- I. Submit to CVWD a complete list of all materials, equipment, apparatus, and fixtures; including manufacturers' cut sheets; clearly indicating which materials, the PANEL BUILDER proposes to use. The submitted list shall include sizes, names of manufacturers, catalog numbers, and other information required to identify each device/item.
- J. All Submittals shall be reviewed by CVWD for acceptance. CVWD shall respond with accept or resubmit bearing comments no later than 14 days of receipt of Submittal. PANEL BUILDER shall resubmit no later than 14 days. Work shall not commence until acceptance of Submittal.
- K. Shop Drawings
 - 1. PANEL BUILDER shall submit detailed dimensioned shop drawings of all designated equipment for each schedule to CVWD for approval prior to fabrication.
 - a. PLC Control Panel or Back Panel drawings submitted for review shall include front views and panel layout.
 - b. Submit Bill of Materials complete with each part including manufacture and model number.
 - c. Separate drawings shall be submitted for PLC control and wiring diagrams. Wiring diagrams shall be complete for all electrical equipment furnished except lighting.
 - 2. Catalog cuts, bulletins, brochures or the like shall be submitted for items of materials for which shop drawings are not designated to be submitted. This data shall be submitted together with a clear indication (arrows) of the specific item or items, or class of items proposed, in order to establish written record of the PANEL BUILDER's intent. A list of items indicating "as specified" or a manufacturer's name alone is not acceptable. Each sheet of descriptive literature submitted shall be marked by the PANEL BUILDER in black ink to identify the material or equipment as follows:
 - a. Equipment and materials descriptive literature and drawings shall show the Specification paragraph for which the equipment applies.
 - b. Sheets or drawings showing more than the particular item under consideration shall have crossed out all but the pertinent description of the item for which review is requested.
 - c. Equipment and materials descriptive literature not readily cross-referenced with the plans or Specification shall be identified by a suitable notation.
 - d. Schematic, wiring, and connection diagrams for all electrical equipment shall be submitted for review. A manufacturer's standard connection diagram or schematic showing more than one scheme of connection will NOT be accepted, unless it is clearly marked to show the intended connections.
 - 3. Shop drawings shall be submitted for the following items:
 - a. Control Panels complete, including PLC, and radio.

- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show CVWD's Representative the services, materials, and equipment PANEL BUILDER proposes to provide and to enable CVWD's Representative to review the information Representative for assessing conformance with information given and design concept expressed in this Specification.

L. Operation, Maintenance and Repair Manuals (O&M Manuals)

1. The manuals shall include all systems drawings, block diagrams, single line and control, schematics (hard copy and electronic format of CVWD's choosing in AutoCAD, latest version), shop drawings, manufacture cut sheets for supplied equipment, final electrical test results, and other pertinent data required to completely describe the operation and maintenance of the installed electrical system.
2. These manuals shall be submitted prior to final acceptance of the system and shall reflect all as-built conditions. The O&M Manuals shall be supplied electronically in Adobe Acrobat, along with one hard copy per panel in a "D" ring binder.
3. The electrical system information in the O&M Manuals shall contain:
 - a. System operating instructions written for the benefit of CVWD's operating personnel for normal operational condition and utilizing names of controls as they appear on nameplates.
 - b. Maintenance instructions.
 - c. Troubleshooting instructions.
 - d. Instructions for ordering replacement parts.
 - e. Part List:
 - i) List of fuses, lamps, seals, and other expendable equipment and devices.
 - ii) List of all vendors, addresses, and phone numbers.

1.7. FACTORY WITNESS TESTING

All equipment inspection and witnessed functional testing of the electrical equipment within the electrical panels shall be performed at the last point of origin (factory), for verification of compliance with this Specification. Up to Four-CVWD inspection personnel shall witness inspection and testing. A minimum of 14 days prior notification shall be given to CVWD for scheduling travel to the factory. Factory witness testing shall be within 500-mile radius of CVWD main office and be located within the United States. Any discrepancies discovered during the factory witness testing shall be remedied prior to shipment. Approval of equipment at the factory only allows the PANEL BUILDER to ship the equipment to CVWD and does not constitute final acceptance. All the owner's travel and per diem costs associated with all factory witness testing and retesting shall be borne by the PANEL BUILDER.

A. PRE-FACTORY TEST INSPECTION:

PANEL BUILDER shall conduct the following tests prior to arrival of CVWD to witness factory testing.

1. Alarm circuits rung out to determine their operability.
2. Electrical circuits checked for continuity and operability.
3. Any other test required to place the panel in an operating condition, including all tests that will be performed for the witnessed Factory Acceptance Test.
4. PANEL BUILDER programmer shall provide and install program in PLC to confirm communication, functional operation, verification of inputs, outputs, software data points, alarms, and controls, during Factory Test.

B. FACTORY ACCEPTANCE TEST:

1. Provide 14-day notice to CVWD of Factory Acceptance Test.
2. Provide testing schedule and anticipated duration of each day.
3. PANEL BUILDER shall provide test verification check list to document acceptance of each panel produced.
4. It shall be the responsibility of the PANEL BUILDER to furnish necessary testing devices and sufficient staff to perform the tests required by CVWD.
5. Provide a copy of approved submittals, shop drawings and test procedures for CVWD to review during the Factory Test.
6. Provide temporary hardware and equipment to facilitate testing.
7. Factory Acceptance Test shall verify proper operation of all equipment and instruments contained within PLC Panels.
8. Testing shall include verification of operation by going over each submitted panel schematic on a rung by rung basis.
9. Test shall include verification of all PLC inputs and outputs – from field terminal blocks to PLC CPU using manufacture programming software.
10. Test all fused terminal blocks for both 120 VAC field powered circuits and 24 VDC field powered circuits.
11. All equipment used in testing shall have a calibration certificate issued within one year of test date.

C. A virtual factory witness test can be conducted at CVWD's discretion.

1.8. PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. **STORAGE:** After completion of shop assembly, factory test, and approval, equipment, cabinets, panels, and consoles shall not be stored outdoors. Equipment shall be stored in dry permanent shelters, including in-line equipment, and shall be adequately protected against mechanical injury. If any apparatus has been damaged, such damage shall be repaired by the PANEL BUILDER. If any apparatus has been subject to possible injury by water, it shall be thoroughly

dried out and put through tests by PANEL BUILDER as directed by CVWD. If such tests reveal defects, the equipment shall be replaced.

- B. **PRODUCT SHIPPING:** After completion of shop assembly, factory test, and approval, equipment, cabinets, panels, and consoles shall be packed in protective crates and enclosed in heavy-duty polyethylene envelopes or secured sheeting to provide complete protection from exposure to weather, moisture, corrosive liquids and gases or any element, which could degrade the equipment. Dehumidifiers shall be placed inside the polyethylene coverings to maintain optimal conditions during transit. It is essential that all wire, radio and ethernet cable angles within the panels remain perpendicular to respective devices throughout shipping to preserve the integrity of the internal wiring. The equipment shall then be skid-mounted for final transport. Methods shall be provided for moving without removing protective covering. Boxed weight shall be shown on shipping tags together with instructions for unloading, transporting, storing, and handling at the sites.
- C. Equipment shall be delivered to:

Coachella Valley Water District
41-880 Beacon Hill
Palm Desert CA, 92211

1.9. QUALITY ASSURANCE

- A. The PANEL BUILDER shall provide equipment of the types and sizes specified which has been demonstrated to operate successfully. Provide equipment which is new and of recent proven design.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Except as may be specifically indicated otherwise, materials furnished under this section shall be new and in accordance with the standards as specified herein. Equipment used for the same purpose shall be of the same make.
- B. Work under this section shall conform to or exceed the applicable requirements of the National Electrical Code. Conflicts between the requirements of the Contract Documents and any codes or referenced standards or specifications shall be resolved by CVWD.
- C. **Standards:** Panel construction and interior wiring shall be done in accordance with the National Electrical Code, state and local codes, and applicable sections of NEMA, ANSI, and UL. All panels shall include listing sticker that states “Panel was built in a UL Listed Panel Shop”. All panels shall be built at PANEL BUILDER’s facility and include their sticker.
- D. Materials and equipment submitted for approval shall be the cataloged products of companies regularly engaged in the manufacture of such items, shall be the latest standard design that conforms to the specification requirements and shall essentially duplicate material and equipment that has been in satisfactory use for at least two years. Replacement parts shall be stocked locally within a radius of five hundred (500) miles from CVWD main office.

- E. Wherever on the plans or in this Specification, materials or equipment are identified by the names of one or more manufacturers, it is intended that only these manufacturers will be acceptable. Equal materials or equipment of other manufacturers may be submitted for consideration by CVWD no more than 10 days prior to bid.
- F. Physical Arrangement: Panel internal components shall resemble layout on Contract Drawings. Layouts provided are conceptual only and the PANEL BUILDER is responsible for actual layout, panel dimension, panel footprint and panel hardware.
- G. Electrical Requirements
 - 1. All terminal numbers and panel interior wires shall be machine labeled. Refer to Section 2 . 4 for terminal block label and wire label specification requirements.
 - 2. Number all electrically common wires the same, and number each electrically different wire uniquely.
 - 3. PLC Control Panels: Panels to have 120 VAC breakers to accommodate two circuits. One circuit shall be "Panel Power" and one dedicated for lights and receptacle.
 - a. Provide transient surge suppressors on incoming 120 VAC control circuit within all PLC Control Panels. Phoenix Contact 2856702 or approved equal.
 - b. Provide AC fail relay with status to PLC on line side of battery charger Phoenix Contact 2966197 or approved equal.
 - c. Provide a voltage transducer (24VDC to 4-20mA) to indicate battery voltage level to PLC, Phoenix Contact MACX MCR-VDC or approved equal.
 - d. PLC Control Panels shall provide 24 VDC electrical power to local instruments (pressure transmitters, level transducers).
 - e. Panels to include circuit breaker for main DC input.
 - f. Each DC powered device shall have DIN rail mounted circuit breakers, fed from parallel 24 VDC power distribution.
 - 4. Power, Control and Signal Wiring shall be:
 - a. Wire type and sizes: Conductor shall be flexible stranded copper machine tool wire, UL listed Type MTW, and shall be rated 600 volts.
 - b. 120 VAC power and control wiring shall be 12 AWG.
 - c. 24 VDC power shall be 14 AWG.
 - d. 24 VDC control wiring shall be 22 AWG (PLC module to terminal blocks).
 - e. Analog wiring shall be 22 AWG twisted shielded pairs.
 - f. Wire Insulation Colors - Refer to: PANEL WIRE & COLOR GUIDE

PANEL WIRE TERMINAL & COLOR GUIDE				
DESCRIPTION	WIRE	TERMINAL BLOCK	AWG	INSULATION CLASS
120 VAC (H)	L1 - BLACK	GRAY	PER UL	PER UL
	L2 - RED	GRAY	PER UL	600V
120 VAC (N)	N - WHITE	WHITE	PER UL	600V
GROUND	G - GREEN	GREEN/YELLOW	PER UL	600V
24 VDC (+)	PINK	GRAY	14	600V
24 VDC (-)	BLACK	GRAY	14	600V
SHIELDED PAIR	RED	RED	18	600V
	BLACK	GRAY	18	600V
AC CONTROL	RED (YELLOW FOR FOREIGN CIRCUITS)	GRAY	14	600V
DC CONTROL	BLUE	GRAY	14	600V
I/O				
DC DIGITAL INPUT STATUS	BLUE/WHITE	GRAY	18	600V
DC DIGITAL OUTPUT	BLUE	GRAY	18	600V
ANALOG INPUTS	(+) RED	BLACK	18	600V
	(-) BLACK	GRAY	18	600V
ANALOG OUTPUTS	(+) RED	BLACK	18	600V
	(-) BLACK	GRAY	18	600V
AC DIGITAL INPUT STATUS	RED	GRAY	18	600V
AC DIGITAL OUTPUT	RED (YELLOW FOR FOREIGN CIRCUITS)	GRAY	18	600V

H. PLC Control Panels shall be provided with a 1/4-inch by 1-inch by 6-inch minimum copper ground bus complete with screw type compression connectors.

I. Labor and workmanship: Panels shall be fabricated and wired by fully qualified workers who are properly trained, experienced, and supervised.

2.2 OPERATING CONDITIONS

A. The Process Control and Instrumentation Systems shall be designed and constructed for satisfactory and long, low maintenance service under the following conditions:

1. Operating temperature range: -20° through minimum 60° degrees Celsius.
2. Thermal shock: 1° C per minute, max
3. Relative humidity: 20 through 90 percent, non-condensing

2.3 NAMEPLATES

A. Each panel shall be engraved with its site name. Name plates shall be laminated white on black with characters through black lamination. Letters shall be a minimum 1/2 inch high, block type.

B. Names are listed in ATTACHMENT C.

2.4 WIRE MARKERS

A. Wire markers shall be provided to identify all conductors and cables at equipment terminals. Markers shall identify the source and destination. The wire markers shall be one uniform standardized marking system. Heat shrinking of the wire markers and clear tubing shall be in accordance with manufacturer's specifications.

1. Wire Markers

a. The marking system shall consist of heat shrinkable flame retarded identification sleeves that fit tightly over the wire to be insulated. Wire tags shall be made of a seamless cross-linked polyolefin with a 3 to 1 shrink ratio. Wire marker system shall be UL recognized to Standard 224, MIL-M-81531. Wire markers shall be smear resistant prior to shrinking and achieve mark permanent when shrunk, without the need for permatizing equipment. Markers shall be seamless. Markers shall be resistant to common industrial fluids including Freon TF, Isopropyl Alcohol and Ethylene Glycol. Markers shall have a temperature range of -30° Centigrade (°C) to 105°C and a dielectric strength of 500V/mil minute. Marks shall be legible after 20 eraser rubs and 30 solvent brush strokes. The markers shall be suitable for indoor or outdoor use. Heat shrinkable thermoplastic tags are not acceptable.

2. Clear Tubing

a. Due to higher ambient temperatures as witnessed in the desert, a translucent (clear) shrink tube must be placed over each wire marker (extending past both edges of adhesive wire marker) and heat shrunk. The clear tube shall be suitable for high temperature performance, abrasion resistance and cut-through resistance and resistant to chemicals and solvents. The clear tubing shall meet the high temperature performance that meets or exceeds military industrial standards: MIL-1-23053, Test C, with UL VW-1 ratings. Operating temperature range shall be -55°C to 175°C. Product shall be Kynar as manufactured by Raychem or approved equal.

3. Terminal Blocks

a. Terminal blocks shall be labeled with manufacture matching hard plastic markers. Label shall be thermally machine printed. Text color shall be black. Wire circuit label shall match terminal block marker.

b. Provide terminal blocks as needed per the amount required for all PLC module connections. The terminal blocks shall be din rail mounted, 600 VAC, 30 amp minimum, capable of accommodating multiple wire terminations of 2-#12 AWG minimum.

2.5 PLC CONTROL PANEL / ENCLOSURE

A. PLC Backpanel

1. PLC Back panels shall include din rail mounted equipment, terminal blocks, fused terminal blocks, grounding bars, circuit breakers, radio, receptacles, 24 VDC battery charger, relays, a din rail mounted plastic fuse holder drawer (Weidmuller #7914760001) or equal, and PLC hardware.

2. Control panels and/or backpanels shall be furnished completely pre-wired, with factory or shop mounted instruments and controls and factory tested prior to shipment. Factory test reports, and tag number descriptions shall be submitted for review prior to shipment.

3. Control Panel shall be UL-508A labeled and manufactured by a CSIA certified with current certification and UL Listed panel shop
4. Panels shall be constructed of 12 gauge steel or 8 gauge aluminum.
5. Panels shall be powder coated white finish.
6. Panels shall have 1/2" brake bent edges.

B. ENCLOSURES

1. Where noted in ATTACHMENT A: PANEL BUILDER shall include wall mounted enclosure.
2. Enclosure shall consist of single door with continuous hinge and stainless-steel hinge pin.
3. Door shall be secured by clamps on three sides and contain hasp and staple to accept pad lock.
4. Door shall contain foam-in-place gasket, document pocket and bonding provision.
5. Enclosure shall have collared stud for back panel mounting.
6. Enclosure shall be powder coated finish. Color shall be submitted to CVWD for approval.

C. Control Panel components shall be CVWD standard type. PANEL BUILDER shall be responsible to coordinate with CVWD.

D. PLC Control Panels shall be provided with a DIN rail mounted convenience 20-amp GFCI duplex, 120-volt receptacle.

E. The power distribution of the PLC back panel shall be as indicated on the Drawings or as approved by CVWD.

F. The PANEL BUILDER shall provide lighting arrestor by PolyPhaser IS-50NX-C2 or approved equal.

G. The PANEL BUILDER shall provide a Radio System based on:

1. GE Orbit (900MHz Unlicensed) MXNXU91NNNNNNS3FEDUNN
2. Coaxial cable Talley Part # CXTA24G TNC Male to Male N-Type. or approved equal. Cable length shall be determined by PANEL BUILDER
3. Ethernet cable shall be CAT6. Proper length shall be determined by Panel Builder.
4. Radio shall be protected by a 4-amp DC circuit breaker.

H. BATTERY CHARGER

1. Battery Charger shall be either DIN rail mounted or direct panel mounted. PANEL BUILDER shall determine configuration based on available panel space.
2. Battery charger shall be 120VAC input and 24VDC output minimum 10 amp.
3. Battery control module with Line / Load connections and alarm output may be used in conjunction with power supply.

4. Battery Charger shall be Phoenix Contact 2907161 or approved equal.

I. SOLAR CHARGE CONTROLER

1. Solar charge controller shall be either DIN rail mounted or direct panel mounted. Panel Builder shall determine configuration based on available panel space.
2. Charge controller shall be capable of 24 VDC and have minimum current rating of 20 amps
3. Charge controller shall possess optional Bluetooth connectivity for programmable options.
4. Manufacture shall be Victron Energy MPPT 100/20 or approved equal.

J. TERMINAL BLOCKS

1. Multi-Level terminal blocks may be used when limited space is available.
2. Terminal blocks shall be DIN rail mounted
3. Terminal blocks shall be feed through style and possess screw terminals.
4. Fused terminal blocks shall have LED blown fuse indicators
5. Terminal block shall be Phoenix Contact UT Series or approved equal.

K. Digital inputs shall be fused with an ampere limitation of 0.5 Amperes and the din rail mounted fuse holder shall have blown fuse indication. The fuse holder shall use glass type medium time delay 5mm by 20mm fuses. End brackets shall be used to keep the terminal blocks secured on the din rail.

L. Digital outputs shall be provided with 24VDC isolation relays. The isolation relays shall be Phoenix Contact part number 2967060 or approved equal. Each isolation relay contact shall be fused with an ampere limitation of 2 Amperes and the din rail mounted fuse holder shall have blown fuse indication. The fuse holder shall use glass type time delay 5mm by 20mm fuses. End brackets shall be used to keep the terminal blocks secured on the din rail.

M. Each analog input shall be with a 24VDC surge protection module. The surge protection module shall be Phoenix Contact part number 2906798 or approved equal. Each analog input shall be wired for both loop powered and non-loop powered configurations, each configuration shall have provisions to accept loop powered and non-loop powered devices. Each analog input shall be provided with a 100mA fuse wired between the 24VDC source and the field device, and a 63mA fuse between the surge protection device and the analog input module. The fuse holder shall be din rail mounted and use glass type time delay 5mm by 20mm fuses. End brackets shall be used to keep the terminal blocks secured on the din rail.

N. An insulated ferrule shall be used on all stranded flexible wire that is terminated in a PLC module and terminal block. All UL ferrules shall be installed utilizing a professional crimping tool as identified by the ferrule manufacturer. Ferrules size shall be determined by panel builder. All wiring shall have ample length to allow for optimal bend radius and perpendicular angle to termination point.

O. The PANEL BUILDER shall provide terminal blocks for each discrete and analog input and output on top and / or bottom edge for panel to interface with field wiring. Panel configurations shall determine location.

- P. The PANEL BUILDER shall provide wire duct to provide guided path for all conductors. Wire duct shall be gray in color with covers. Location to be determined based upon examples provided.
- Q. The PANEL BUILDER shall submit ethernet connection diagram. CAT 6 ethernet connections as follows:
 - 1. PLC CPU to Radio
 - 2. OIT to Radio (OIT provided by CVWD)

2.6 PLC HARDWARE

- A. PLC system shall be based on CVWD standards. There are five (5) PLC hardware configurations identified for this project, H1, H2, H3, H4 and H5. Provide all PLC hardware and/or modules for a complete system based on each sites configuration. (see ATTACHMENT C: PANEL AND HARDWARE CONFIGURATION MATRIX)
- B. PLC Processor (CPU): Please reference ATTACHMENT B for PLC CPU model required.
 - 1. Emerson EPXCPE-215 no equal.
 - 2. Emerson EPXCPE-240 no equal.
- C. PLC Input/Output (I/O) Modules: I/O Modules shall be Emerson part numbers: EP-3164 (AI), EP-125F (DI), EP-2614 or EP-2218(DO), no equal.
- D. The PLC shall be Emerson Automation PLC (formerly GE), no other allowed. Hardware and firmware version shall be latest release by manufacture at time of purchase. I/O module part numbers and quantity shall be based on panel configurations listed in ATTACHMENT C: PANEL AND HARDWARE CONFIGURATION MATRIX.

ATTACHMENTS

ATTACHMENT A: PLC PANEL CONFIGURATIONS

ATTACHMENT B: PLC HARDWARE CONFIGURATIONS

ATTACHMENT C: PANEL AND HARDWARE CONFIGURATION MATRIX

ATTACHMENT D: PLC PANEL LAYOUT EXAMPLE

ATTACHMENT E: PLC POWER DISTRIBUTION EXAMPLE

ATTACHMENT F: PLC POWER I/O WIRING EXAMPLE

ATTACHMENT G: PANEL BOLT HOLE SPACING EXHIBITS

**ATTACHMENT A:
PLC PANEL CONFIGURATIONS**

PANEL DIMENSIONS W" x H"	Qty.	PROVIDE ENCLOSURE	Qty.
C1 = 21" x 27"	17	N	0
C2 = 26" x 32"	7	N	0
C3 = 22" x 64"	9	N	0
C4 = 19" x 32"	8	N	0
C5 = 15" x 36"	2	N	0
C6 = 18.5" x 56"	2	N	0
C7 = 21" x 17"	1	N	0
C8* = 33" x 45"	11	Y	11

NOTES:

Brake bent edges on all back panels

C7 = Panel and hardware shall have horizontal orientation.

C8* = Furnish 36" x 48" wall mount enclosure with panel

**ATTACHMENT B:
PLC HARDWARE CONFIGURATIONS**

Configuration No.	Qty.	CPU	DO Module	Qty.	DI Module	Qty.	AI Module	Qty.	Solar Charge Controller
H1	17	EPXCPE240	EP 2218	1	EP-125F	1	EP-3164	1	N
H2	14	EPXCPE215	EP 2614	1	EP-125F	2	EP-3164	2	N
H3	13	EPXCPE240	EP 2218	1	EP-125F	4	EP-3164	3	N
H4	11	EPXCPE215	N/A	0	EP-125F	2	EP-3164	2	N
H5*	2	EPXCPE215	N/A	0	EP-125F	2	EP-3164	2	Y

NOTES:

Panel Builder shall submit power distribution diagrams for each hardware configuration.

H5* = Provide Solar charge controller in-lieu of 120VAC battery charger.

**ATTACHMENT C:
PANEL AND HARDWARE CONFIGURATION MATRIX**

SITE	PANEL CONFIGURATION	HARDWARE CONFIGURATION
B 04518	C1	H1
B 04628	C1	H1
B 05502	C1	H1
B 05519	C1	H1
B 05602	C1	H1
B 08121	C1	H1
R 5505	C1	H4
W3408	C1	H2
W4630	C1	H2
R 6501	C1	H4
R6503	C1	H4
Upper Quarry PRS	C1	H4
Brighton Garden PRS	C1	H4
R5648	C1	H4
Mission Hills PRS	C1	H4
Ironwood PRS	C1	H4
PRS Lower Quarry	C1	H4
B,R,W 04563	C2	H1
B 04601	C2	H1
B 05501	C2	H1
B 05610	C2	H1
B 05621	C2	H1
B/R 05644	C2	H1
R6615	C2	H5
B 05617	C3	H3
B 04568	C3	H3
B 06711	C3	H3
B 05636	C3	H3
B /R 06602	C3	H3
B 05505	C3	H3
B 05690	C3	H3
B 05692	C3	H3

B 05693	C3	H3
W5630	C4	H2
W3409	C4	H2
W5656	C4	H2
W6808	C4	H2
W4507	C4	H2
W4628	C4	H2
Mountain View Villas PRS	C4	H4
R6603	C4	H4
B 06620E	C5	H1
B 06620W	C5	H1
B/R 06723	C6	H1
W6805	C6	H2
R4603	C7	H5
W6701	C8	H2
B 05609	C8	H3
B 05642	C8	H3
B/R 05509	C8	H3
B/R 5503	C8	H3
B 05604	C8	H1
B 06601	C8	H1
W4564	C8	H2
W4629	C8	H2
W5624	C8	H2
W5631	C8	H2

NOTES:

B = BOOSTER SITE

R = RESERVOIR SITE

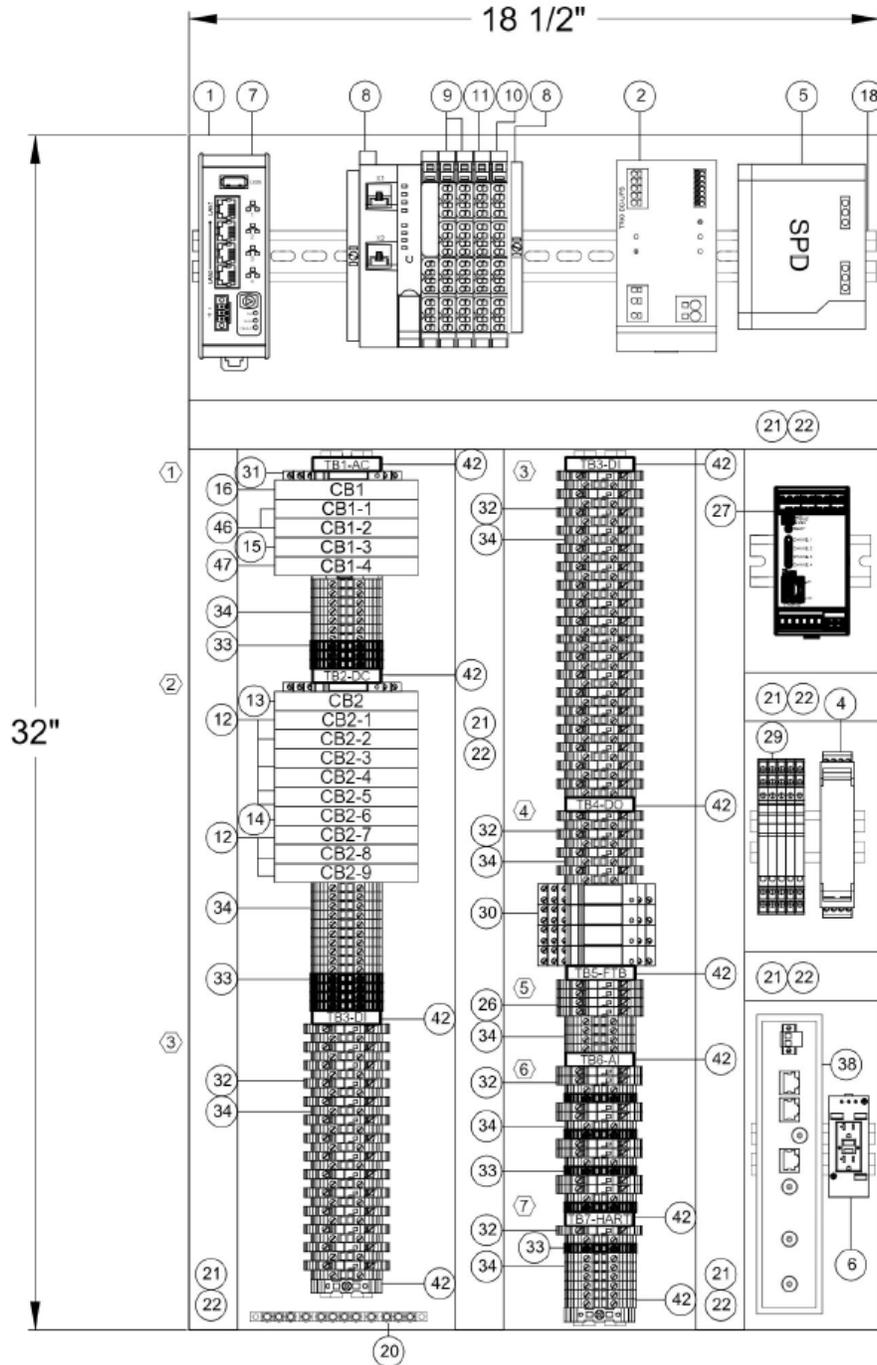
W = WELL SITE

PRS = PRESSURE REDUCING STATION

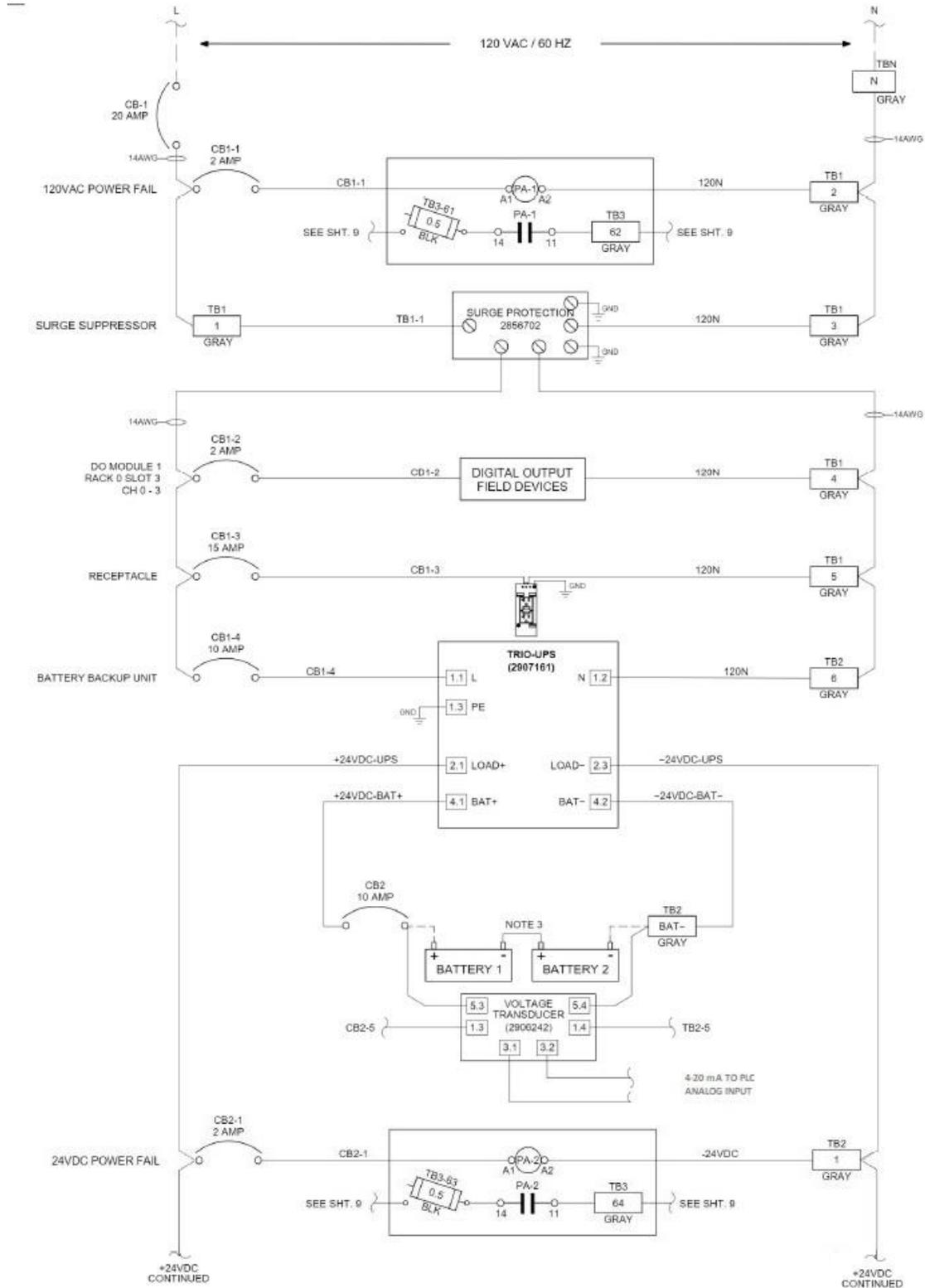
B / R = COLOCATED BOOSTER / RESERVOIR SITE

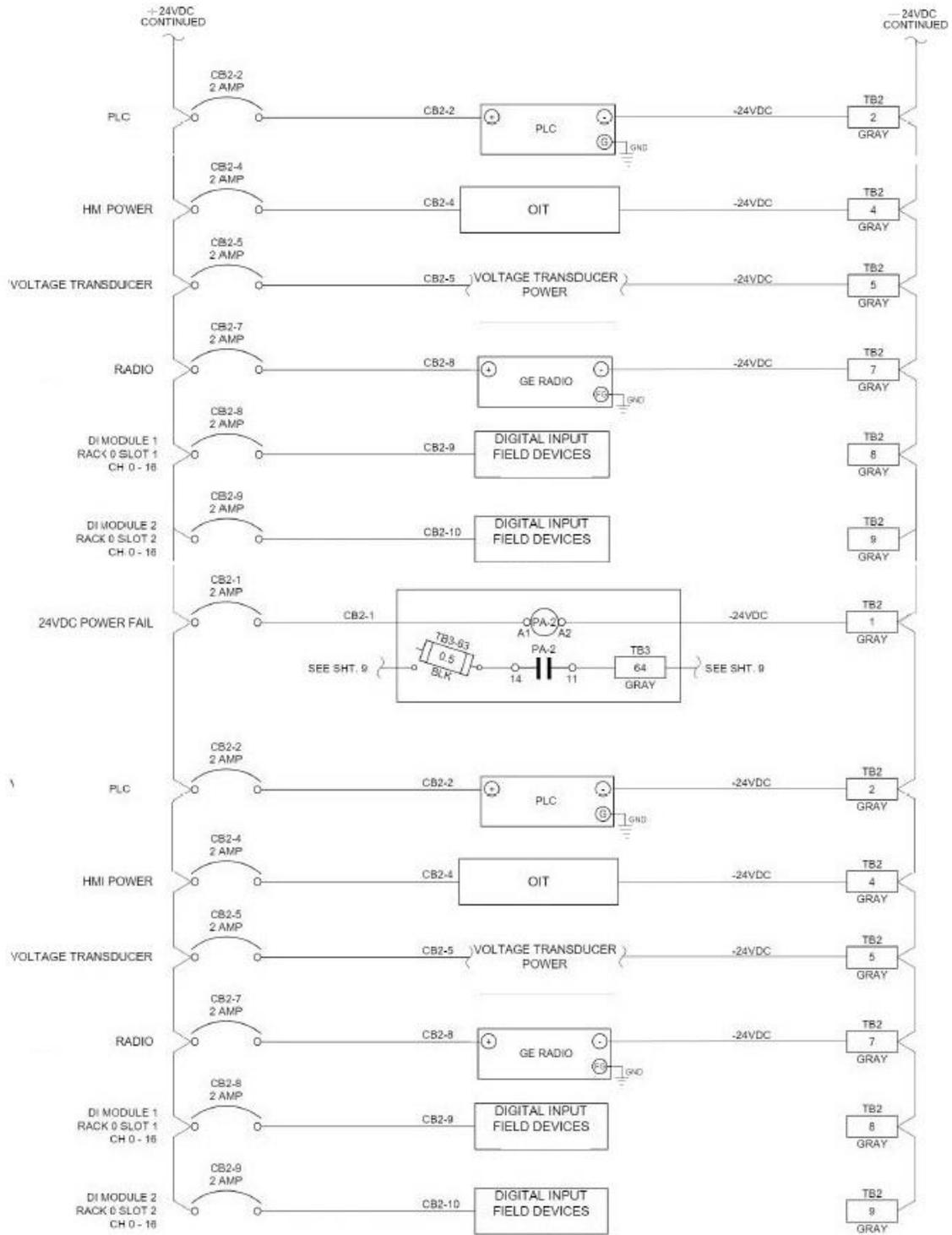
B / R / W = COLOCATED BOOSTER / RESERVOIR / WELL SITE

ATTACHMENT D: PLC PANEL LAYOUT EXAMPLE

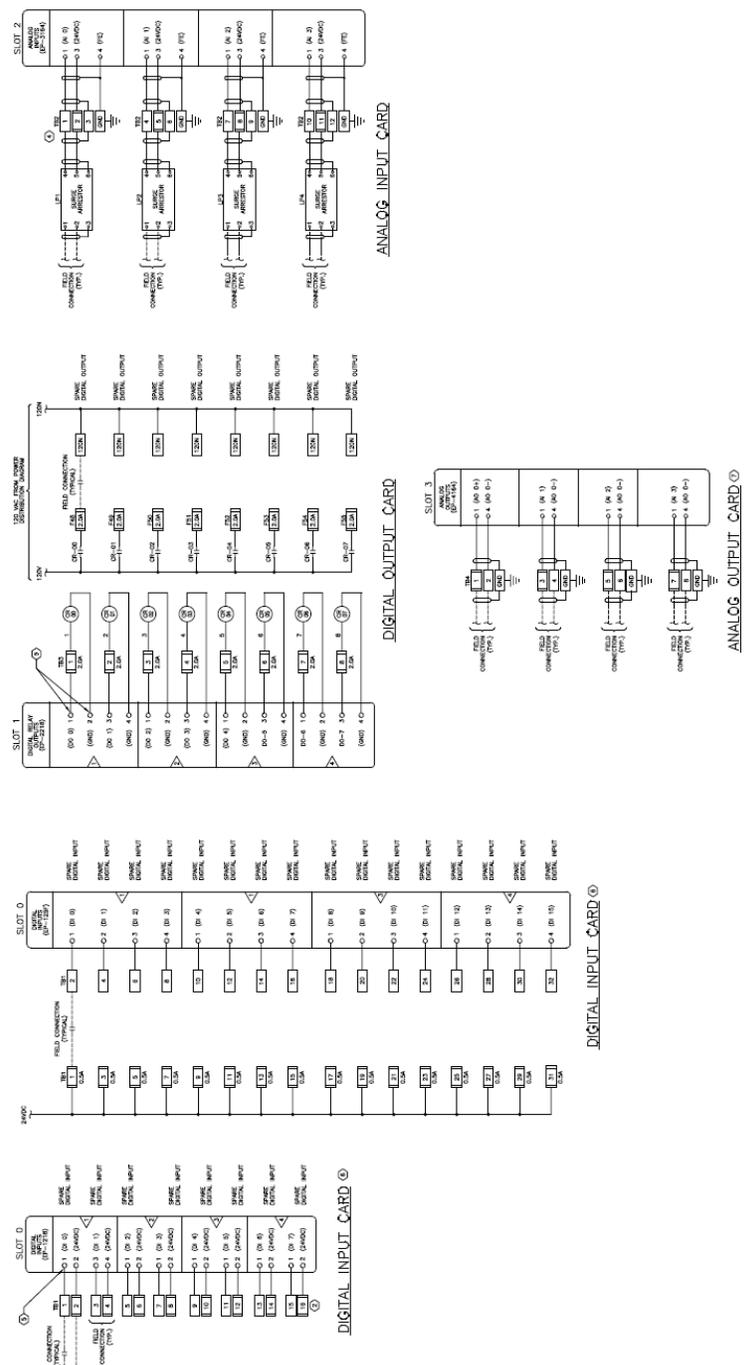


ATTACHMENT E: PLC POWER DISTRIBUTION EXAMPLE



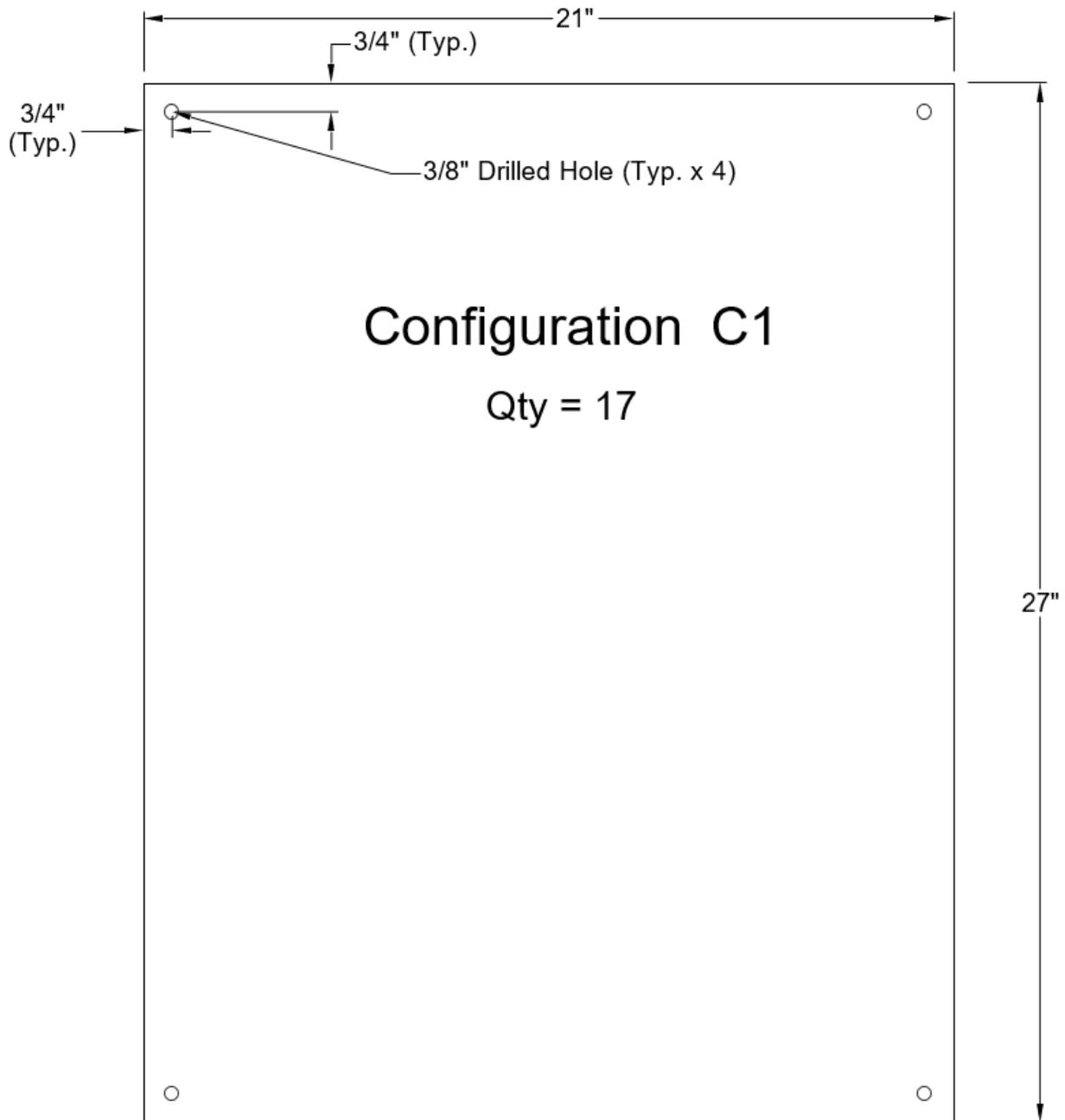


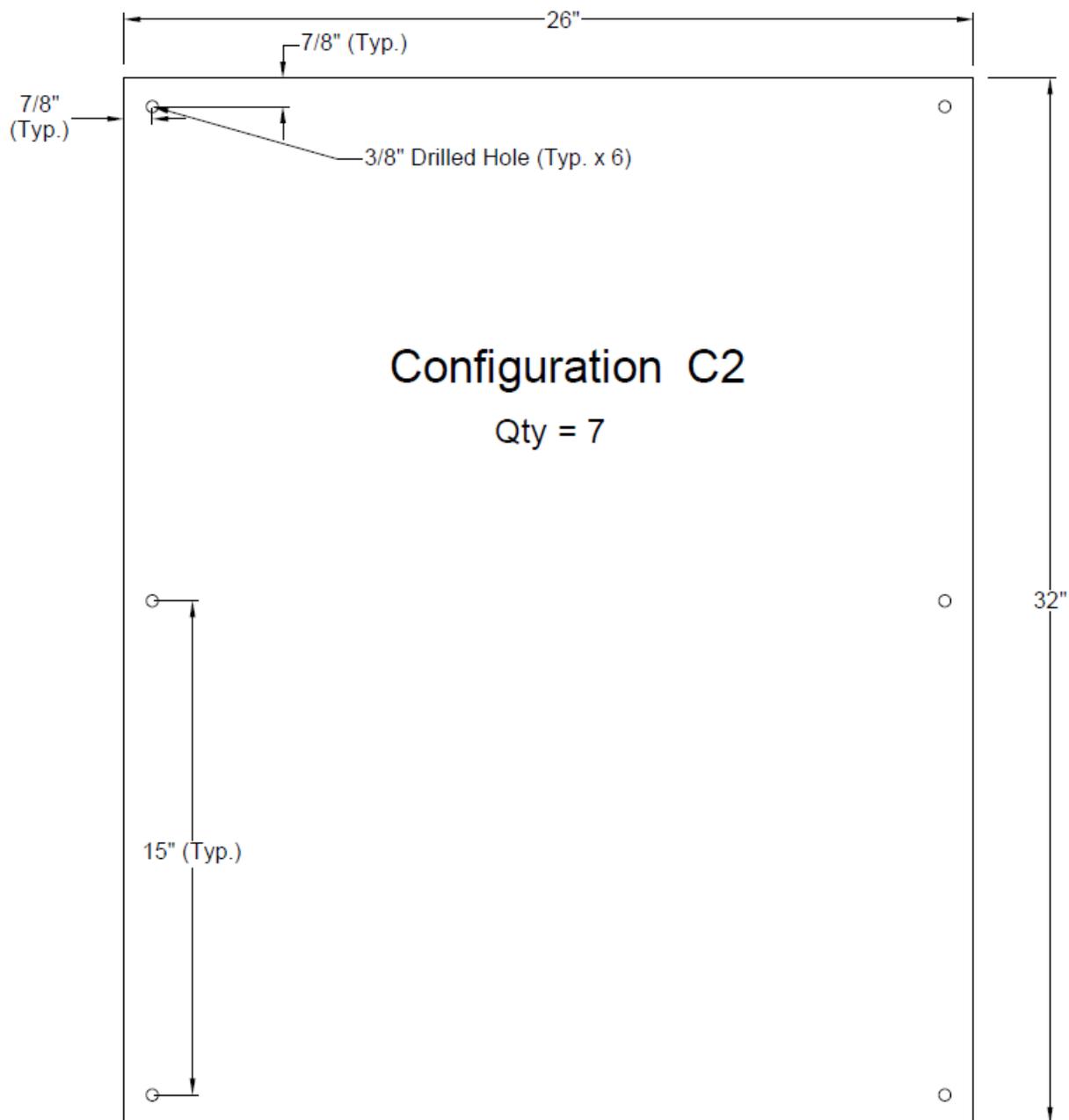
ATTACHMENT F: PLC POWER I/O WIRING EXAMPLE

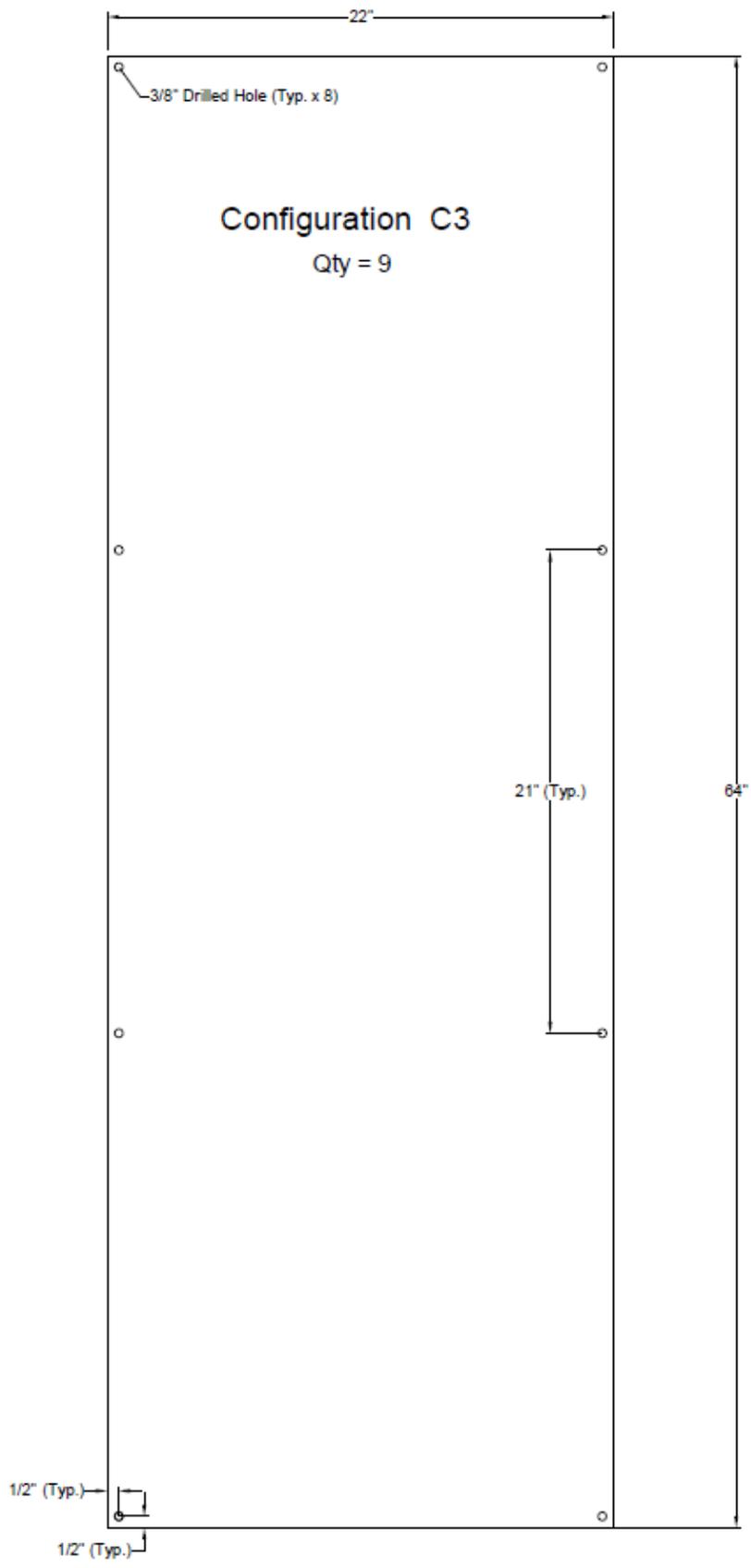


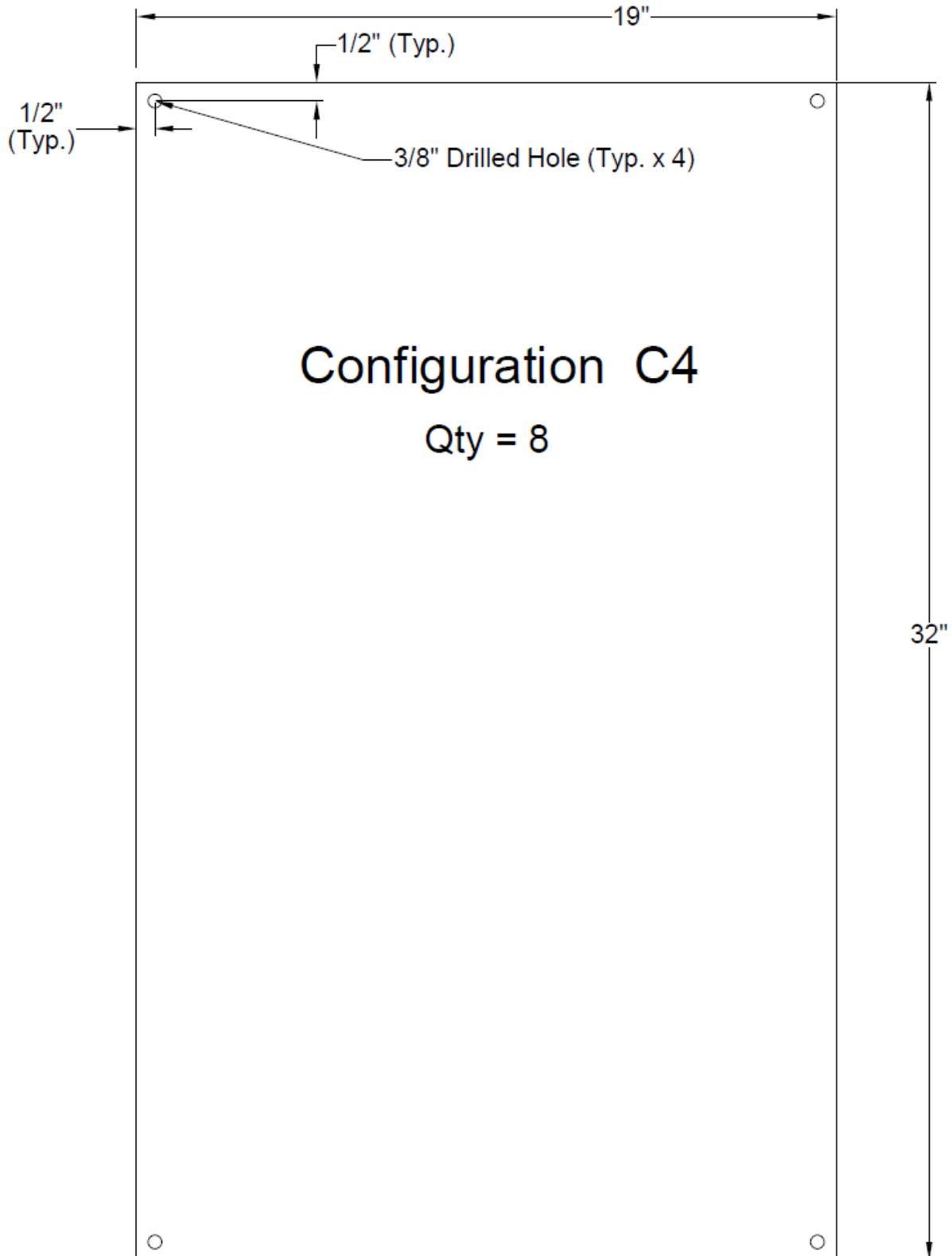
EXAMPLE PLC I/Q WIRING DIAGRAMS

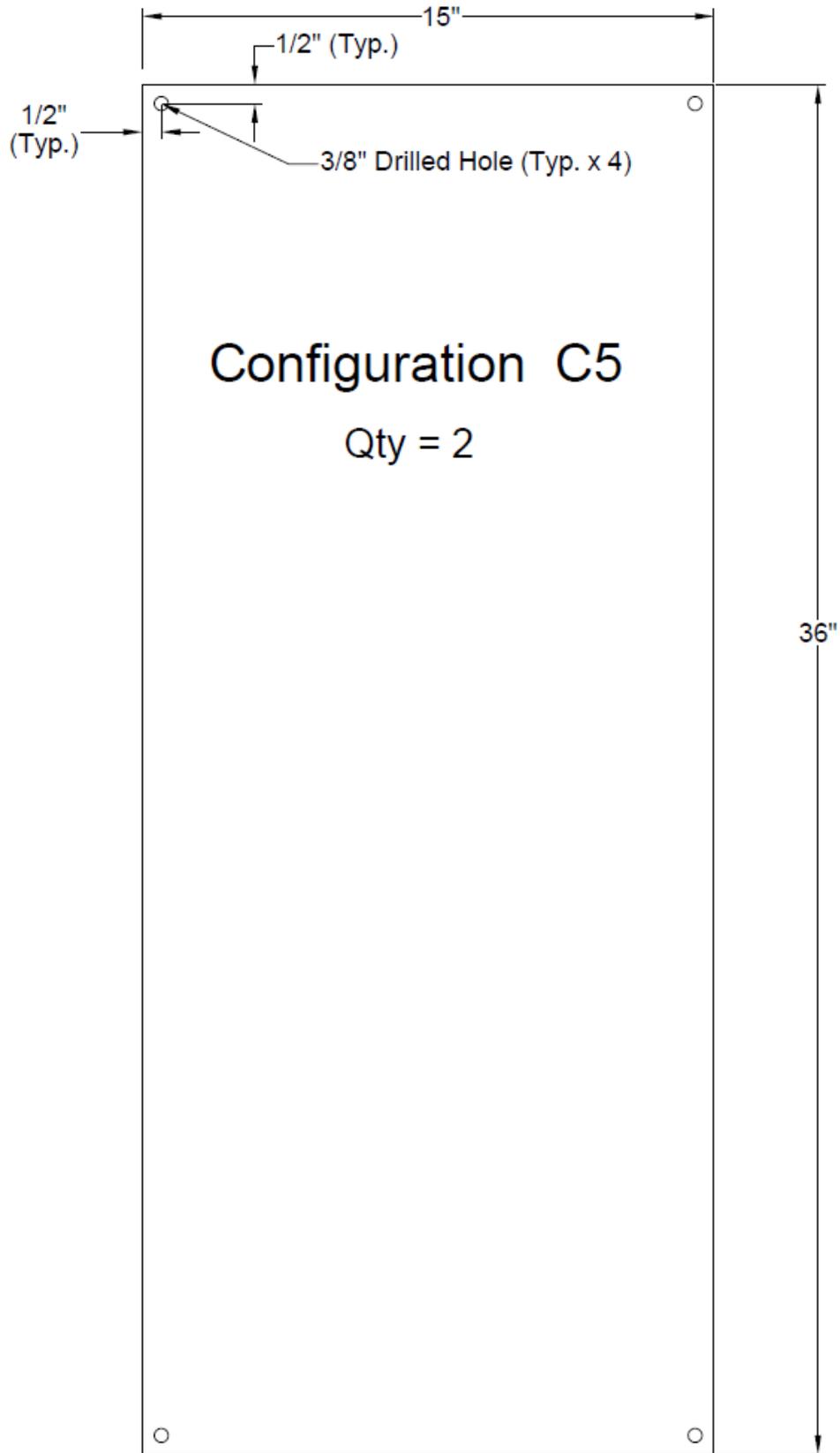
ATTACHMENT G:
PANEL BOLT HOLE SPACING EXHIBITS

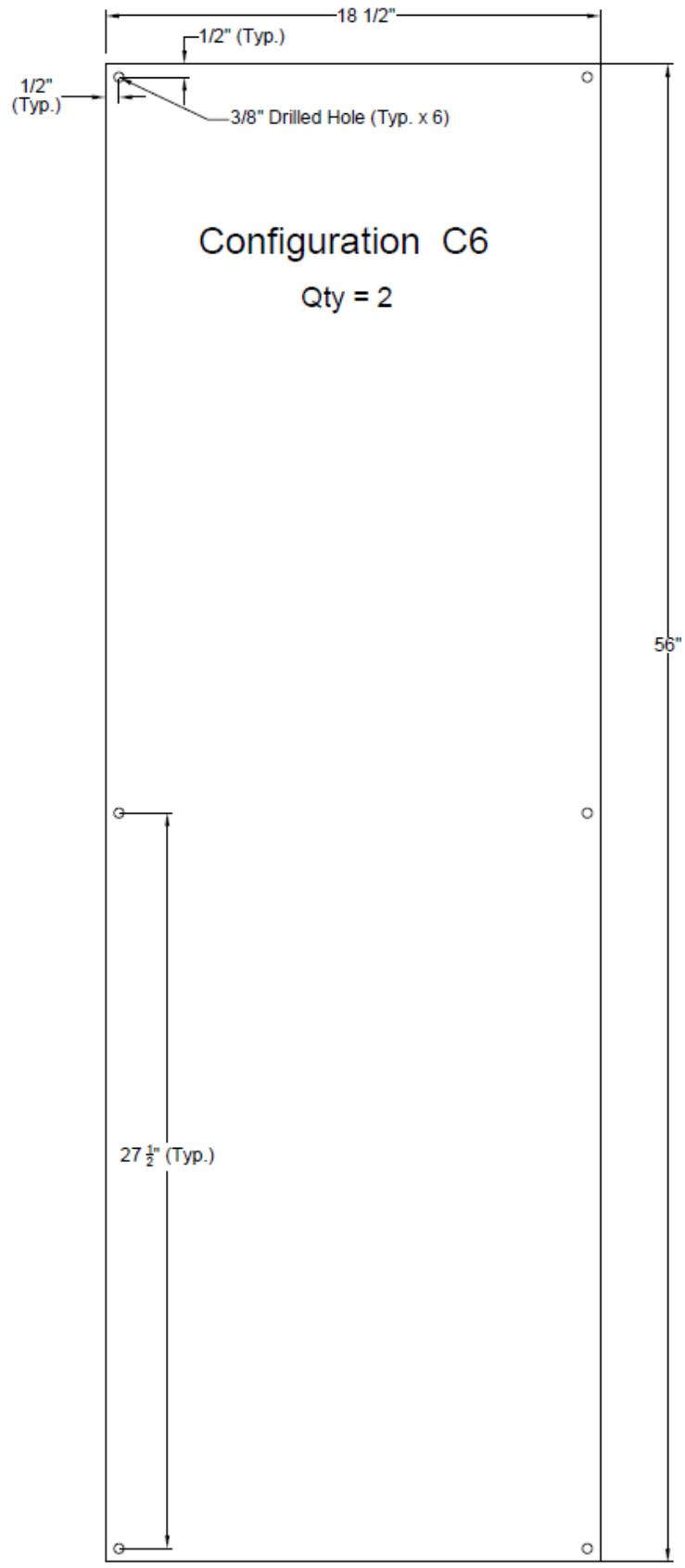












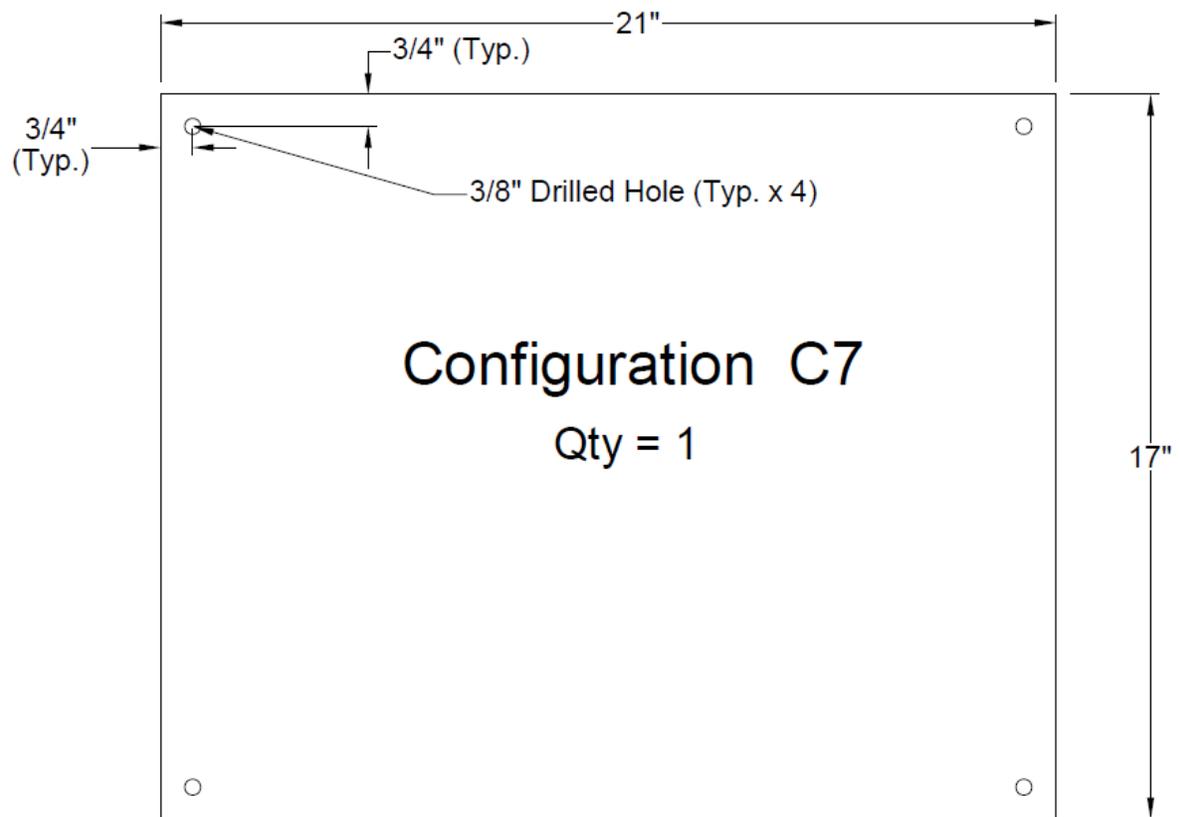


EXHIBIT "B"
TO
PURCHASE AGREEMENT
COMPENSATION (BID SUBMITTAL)

CVWD shall compensate Seller for the purchase of the Goods pursuant to this Agreement in the sum of **\$325,709**. Below is a breakdown of the cost per schedule, as selected for award by CVWD. Seller is authorized to provide only the goods and quantities specified below.

Schedule C - PLC materials, per specifications	Configuration C3: 22" x 64"	ea	9	\$15,792.62	\$142,133.58
Schedule C - PLC materials, per specifications	Sales Tax @ 7.75%	lot	1	\$11,015.35	\$11,015.35
Schedule C - PLC materials, per specifications	Freight/Delivery	lot	1	\$900.00	\$900.00
				Subtotal	\$154,048.93
Schedule H - PLC materials, per specifications	Configuration C8: 33" x 45"	ea	11	\$14,390.19	\$158,292.09
Schedule H - PLC materials, per specifications	Sales Tax @ 7.75%	lot	1	\$12,267.64	\$12,267.64
Schedule H - PLC materials, per specifications	Freight/Delivery	lot	1	\$1,100.00	\$1,100.00
				Subtotal	\$171,659.73

EXHIBIT "C"
TO
PURCHASE AGREEMENT
INSURANCE REQUIREMENTS

1. Time for Compliance. Contractor shall not commence Work under this Agreement until it has provided evidence satisfactory to CVWD that it has secured all insurance required under this Section. Contractor shall require and verify that all subcontractors maintain insurance meeting all of the requirements stated herein. Contractor shall not allow any subcontractor to commence work on any subcontract until each subcontractor has provided evidence to Contractor that all insurance required under this Section has been secured.

2. Minimum Insurance Requirements. Prior to the beginning, and throughout the duration of services to be performed, Contractor shall, at its expense, procure and maintain insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Contractor, its agents, representatives, employees or subcontractors. Contractor shall also require all of its subcontractors to procure and maintain the same insurance for the duration of the Agreement and shall verify subcontractors' compliance as specifically set forth in the Section entitled "Subcontractor Insurance Requirements" below. Contractor's and subcontractors' insurance shall meet at least the following minimum levels of coverage:
 - (A) **Commercial General Liability Insurance** which shall be written on an occurrence basis and be at least as broad as the latest version of ISO form CG 00 01 with limits of not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate for claims against bodily injury, personal and advertising injury, and property damage. Such policy shall include Broad Form Contractual Liability coverage.

 - (B) **Business Automobile Liability insurance** which shall be as broad as ISO form CA 00 01 covering bodily injury and property damage with a combined single limit of not less than \$1,000,000 per accident for all owned, non-owned, and hired automobiles used in connection with the services or operations to be performed under this Agreement.

 - (C) **Workers' Compensation Insurance** with statutory limits, and **Employer's Liability insurance** with limits of not less than \$1,000,000 per accident or disease. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of CVWD, its directors, officials, officers, employees, agents, and volunteers.

3. Provisions Applicable to All Insurance Requirements.
 - (a) **Additional Insured Coverage.** Except for the Workers' Compensation insurance policy, all liability policies shall be endorsed to include CVWD, its directors, officials, officers, employees, agents, and volunteers as additional insureds on all primary, umbrella or excess policies for ongoing and completed operations performed by, or on behalf of Contractor. Coverage for the additional insured under the Commercial General Liability policy shall be as broad as that

provided by ISO CG 20 10 (ongoing operations) and 20 37 (completed operations).

(b) **Acceptability of Insurers.** Unless otherwise reviewed and accepted by CVWD, all required insurance must be placed with insurers with a current A.M. Best rating of not less than A- VII and be admitted to do business in California, or approved by the Surplus Lines Association.

(c) **Verification of Coverage.** Contractor shall furnish CVWD with original certificates of insurance and endorsements effecting coverage required by this Agreement on forms satisfactory to CVWD. The certificates of insurance shall be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements must be received and approved by CVWD before work commences. CVWD reserves the right to require complete, certified copies of all required insurance policies, at any time. Acceptance of Contractor's Certificates of Insurance does not relieve Contractor of the insurance requirements, nor decrease the liability of Contractor under this Agreement. It is Contractor's responsibility to ensure its compliance with these insurance requirements. Any actual or alleged failure on the part of CVWD to obtain proof of insurance required under this Agreement shall not in any way be construed as a waiver of any right or remedy of CVWD, in this or any regard.

(d) **Primary and Noncontributory.** The insurance required to be maintained by Contractor shall primary and any insurance or self-insurance maintained by CVWD shall be excess only, and not be required to contribute with it.

(e) **Umbrella or Excess Insurance.** Any Umbrella or Excess insurance shall also apply on a primary and noncontributory basis for the benefit of CVWD, before CVWD's own primary insurance or self-insurance shall be called upon to protect it as a Named Insured.

(f) **Waiver of Subrogation.** Contractor shall obtain waiver of subrogation endorsements stating that Contractor and its insurers waive any and all rights of recovery against CVWD, its directors, officials, officers, employees, agents, and volunteers. Contractor shall pay all damages and costs arising out of Contractor's failure to provide a waiver of subrogation from its insurers.

(g) **Broader Coverage and Limits.** The insurance requirements under this Agreement shall be the greater of (1) the minimum coverage and limits specified in this Agreement, or (2) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the Named Insured. It is agreed that these insurance requirements shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums required herein. No representation is made that the minimum insurance requirements of this Agreement are sufficient to cover the obligations of Contractor hereunder.

(h) **Severability of Interest (Cross Liability).** A severability of interest provision must apply for the additional insureds, ensuring that Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the policies' limits.

(i) **Notices; Cancellation or Reduction of Coverage.** At least fifteen (15) days prior to the expiration of any such policy, evidence showing that such insurance coverage has been renewed or extended shall be filed with CVWD. If such coverage is cancelled or materially reduced, Contractor shall, within ten (10) days after receipt of written notice of such cancellation or reduction of coverage, file with CVWD evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies. In the event any policy of insurance required under this Contract does not comply with these specifications or is canceled and not replaced, CVWD has the right but not the duty to obtain the

insurance it deems necessary and any premium paid by CVWD will be promptly reimbursed by Contractor or CVWD may withhold amounts sufficient to pay premium from Contractor payments. In the alternative, CVWD may suspend or terminate this Agreement. No policy required to be maintained by Contractor shall be canceled and not replaced with equivalent coverage without thirty (30) days prior written notice to CVWD, unless cancellation is due to the non-payment of premium, in which case, ten (10) days prior written notice shall be provided.

(j) **Claims-Made Coverage**. For any coverage provided on a claims-made form (which type of form is only permitted at CVWD's sole discretion) the following shall apply:

- i. The retroactive date must be shown, and must be before the date of this Agreement and before the commencement of services or operations related to this Agreement;
- ii. Insurance must be maintained and Certificates of Insurance must be provided to CVWD for at least three (3) years after the expiration or earlier termination of this Agreement;
- iii. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the effective date of this Agreement or commencement of any services or operations related to this Agreement, Contractor must purchase an extended reporting period for a minimum of three (3) years after the expiration or earlier termination of this Agreement.

(k) **Deductibles, Self-Insurance, Self-Insured Retentions**. Any deductibles, self-insurance, or self-insured retentions (SIRs) applicable to the required insurance coverage shall be declared to, and accepted by, CVWD. At the option and request of CVWD, Contractor shall provide documentation of its financial ability to pay the deductible(s), self-insurance, or SIR.

4. **Subcontractor Insurance Requirements**. Contractor shall not allow any subcontractors to commence work on any subcontract relating to the work under the Agreement until Contractor has verified that all subcontractors have procured insurance meeting all requirements under this Agreement and provided evidence to Contractor of such insurance. If requested by Contractor, CVWD may approve different scopes or minimum limits of insurance for particular subcontractors. The Contractor and CVWD shall be named as additional insureds on all subcontractors' policies of liability insurance.

5. **Reservation of Rights**. CVWD reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

END OF INSURANCE REQUIREMENTS

EXHIBIT "D"
TO
PURCHASE AGREEMENT

CHANGE ORDER FORM

CHANGE ORDER

NO. _____

Specification No.	File No.	Date:
Project Name:		Project ID No.
To:	Issued by: Coachella Valley Water District Post Office Box 1058 Coachella, CA 92236	
Pursuant to the Changes and Extra Work provisions of this Contract, this Contract is modified as follows:		
Description of Changes:	<u>Increase</u>	Contract Price <u>(Decrease)</u>
Change in Contract Price due to this Change Order:	Total Increase	\$
	Total Decrease	\$()
Net Increase/(Decrease) in Contract Price		
Contractor's Proposal Attached:		
<input type="checkbox"/> Yes	Date:	
<input type="checkbox"/> No	Explain:	
Supplemental Scope of Work/ Plans and Specifications Attached:		
<input type="checkbox"/> Yes		
<input type="checkbox"/> No	Explain:	

